

## Audi A4 1995 ➤

### Radio, Telephone and Navigation System - Self-diagnosis

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

**Audi A4 1995 ➤**

**Radio, Telephone and Navigation System - Self-  
diagnosis**

**Repair Group**

**01 - Self-diagnosis**



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

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# 01 - Self-diagnosis

## 1 - Self-diagnosis of radio systems (vehicles from 1998)

### 1.1 - Self-diagnosis of radio systems (vehicles from 1998)

#### 1.2 - General

##### Technical features of radio systems

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

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

### 1.3 - Starting self-diagnosis of radio systems

##### Additional information material required

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

### 1.4 - Safety precautions

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

##### Attention:

- ◆ Proceed as follows during measurement and test drives so as to avoid the risk of accident:
- ◆ Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.
- ◆ Deactivate front passenger's airbag by way of key switch in glove box or using self-diagnosis => Body Self-diagnosis; Repair Group 01; Adaption: Activating and deactivating front passenger's airbag unit.
- ◆ Re-activate 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:

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

##### Test requirements:

- ◆ Use current flow diagram to check that fuse is OK.
- ◆ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.



- ♦ Switch on ignition.

**Notes:**

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

-> Indicated on display:

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

**Address word for radio: 56**

- Press keys 5 and 6.

-> Indicated on display:

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

- Confirm entry with Q key.

**Note:**

*During self-diagnosis, "DIAG" appears on radio display and also on secondary display in instrument cluster in the case of "Highline" dash panel insert.*

|            |           |     |
|------------|-----------|-----|
| 8D0035195  | Radio     | D01 |
| Code 00207 | WSC 06812 |     |

- > Adjacent display appears after approx. 5 s:
- 8D0035195: Part number of radio
  - Radio: Component designation
  - D01: Software version installed in radio
  - Code 00207: Code for radio
  - WSC 06812: Workshop code

**Note:**

Check code against encoding table =>Page **10**.

- Press ➡ key.

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

|                          |      |
|--------------------------|------|
| Rapid data transfer      | HELP |
| No control unit response |      |

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

|                             |      |
|-----------------------------|------|
| Rapid data transfer         | HELP |
| Fault in communication link |      |

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

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

-> Indicated on display:

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

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

### Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 3

02 - Interrogate fault memory => Page 4

03 - Final control diagnosis => Page 7

05 - Erase fault memory => Page 8

06 - End output => Page 9

07 - Encode control unit=> Page 9

08 - Read measured value block => Page 11

### 1.5 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|            |           |     |
|------------|-----------|-----|
| 4B0035192E | Radio     | D01 |
| Code 00117 | WSC 06812 |     |

- > Adjacent display appears after approx. 5 s:
- 4B0035192E: Part number of radio
- Radio: Component designation
- D01: Software version installed in radio
- Code 00117: Code for radio
- WSC 06812: Workshop code
- Press => key.

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## 1.6 - Interrogating fault memory

### **Note:**

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

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

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

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

|                   |
|-------------------|
| X faults detected |
|-------------------|

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 4 .

-> In the case of "No faults detected", program returns to start after pressing => key.

|                    |
|--------------------|
| No faults detected |
|--------------------|

-> Indicated on display:

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

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 9 .
- Switch off ignition and unplug diagnostic connector.



## 1.7 - Fault table for radio systems

### **Notes:**

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

- ◆ Sporadic faults are erased if they do not re-occur in the course of 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h).
- ◆ The three-digit fault type code next to the fault code is a data code which can be ignored.

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

| Output on printer of<br>V.A.G 1551                                    | Possible cause of trouble                                                    | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00850<br>Active amplifier control output on radio<br>- Short to earth | - Wiring damage<br>- Open circuit in wiring<br>- Active amplifier defective  | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace active amplifier<br>=> Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing BOSE power amplifier<br>Radio systems; Removing and installing BOSE power amplifier |
| 00852<br>Loudspeaker f<br>- Short circuit<br>- Open circuit           | - Wiring damage<br>- Front loudspeaker defective<br>- Open circuit in wiring | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace defective loudspeaker<br>=> Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing loudspeakers<br>Radio systems; Removing and installing loudspeakers            |

| Output on printer of<br>V.A.G 1551 | Possible cause of trouble | Fault remedy |
|------------------------------------|---------------------------|--------------|
| 00853                              |                           |              |



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

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

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

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

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

| Output on printer of V.A.G 1551                               | Possible cause of trouble                                                                                     | Fault remedy                                                                                                                                                                                                    |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00856<br>Aerial on radio<br>- Short circuit<br>- Open circuit | - Wiring damage<br>- Open circuit in wiring<br>- Short circuit in aerial wire<br>- Aerial wire not plugged in | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Check aerial wire<br>Check aerial |
| 01044<br>Control unit<br>- Incorrectly encoded                | - Radio not encoded to match configuration in vehicle                                                         | - Encode radio accordingly=>Seite 9                                                                                                                                                                             |

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

## 1.8 - Final control diagnosis

### Notes:

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

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

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer    Q  
03 -Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Loudspeakers

All speakers are briefly energised (cannot be heard).

### Note:

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

- Press =>key.

-> Indicated on display:

Final control diagnosis  
Output radio display dash panel insert

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"DISPLAY"

"TEST"

will appear on the secondary display on the dash panel insert.

### Note:

*Display appears even if a different type of dash panel insert is fitted.*

- Press =>key.

-> Indicated on display:

Final control diagnosis  
End

- Press =>key.
- Tester returns to basic function.

-> Indicated on display:



Rapid data transfer      HELP  
Select function XX

## 1.9 - Erasing fault memory

### **Note:**

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

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### **Requirements:**

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

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press => key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

### **Notes:**

♦ Attention:  
Fault memory not interrogated

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

♦ Rapid data transfer  
Fault memory not interrogated

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

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

## 1.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 1.11 - Encoding control unit

This function is used to encode the radio as follows:

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

### Notes:

- ◆ The encoding procedure is used to set the various radio configuration options.
- ◆ The encoding table only lists the possible combinations applying to the Audi A4.
- ◆ The term "remotely powered aerial" relates to active aerials (e.g. rear window aerial) which are supplied with power via the HF cable.
- ◆ The code must always correspond to the equipment fitted in the vehicle.

### Encoding procedure

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
07 - Encode control unit

- Confirm entry with Q key.

-> Indicated on display:

Encode control unit      Q  
Enter code number      XXXXX

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- Enter code number as per encoding table => Page 10

Code: e.g. 00207

- ◆ Country identification: 0 = Standard
- ◆ Sound balancing: 0 = Standard
- ◆ Number of passive loudspeakers: 2 = 2 passive loudspeakers (front) and 2 active loudspeakers (rear)
- ◆ Sound system: 0 = Standard



- ♦ Radio configuration: 7 = Radio with CD changer and secondary display
- Confirm entry with Q key.

|            |       |       |
|------------|-------|-------|
| 8D0035195  | Radio | D01   |
| Code 00207 | WSC   | 06812 |

- > The display will show the control unit identification and the code that was entered (00207).
- Press ➡ key to terminate encoding procedure.

Indicated on display:

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

- Press keys 0 and 6.

Indicated on display:

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

- Confirm entry with Q key.

**Encoding table:**

| 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display |
|---|---|---|---|---|-----------------------------------------------------|
|   |   |   |   | 1 | <b>Radio configuration</b>                          |
|   |   |   |   |   | Aerial with remote power supply                     |
|   |   |   |   | 1 | X                                                   |
|   |   |   |   | 3 | X                                                   |
|   |   |   |   | 5 | X                                                   |
|   |   |   |   | 7 | X                                                   |
|   |   |   |   |   | X = component fitted                                |
|   |   |   |   |   | - = not fitted                                      |

| 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display              |
|---|---|---|---|---|------------------------------------------------------------------|
|   |   |   | 0 |   | <b>Sound system adjustment</b>                                   |
|   |   |   |   |   | Type of adjustment                                               |
|   |   |   | 0 |   | Standard (no Bose sound system)                                  |
|   |   |   | 1 |   | Bose sound system                                                |
|   |   | 2 |   |   | <b>Number of passive loudspeakers</b>                            |
|   |   |   |   |   | Number and locations                                             |
|   |   |   | 0 |   | No passive speakers (Bose sound system)                          |
|   |   |   | 1 |   | 1 passive loudspeaker, front left (Bose with telephone)          |
|   |   |   | 2 |   | 2 passive loudspeakers (front) and 2 active loudspeakers (rear)  |
|   |   |   | 5 |   | 2 passive loudspeakers (front) and no active loudspeakers (rear) |

| 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display |
|---|---|---|---|---|-----------------------------------------------------|
|   |   |   |   |   | <b>Sound balancing</b>                              |
|   |   | 0 |   |   |                                                     |

|   |   |   |   |   |                                                     |          |
|---|---|---|---|---|-----------------------------------------------------|----------|
| 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display |          |
|   |   |   |   |   | 0                                                   | Standard |
|   |   |   |   |   |                                                     |          |
| 0 |   |   |   |   | Country identification                              |          |
|   |   |   |   |   |                                                     | Country  |
|   |   |   |   |   | 0                                                   | Standard |

## 1.12 - Reading measured value block

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### Performing "Read measured value block" function

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

-> Indicated on display:

|                                |
|--------------------------------|
| Read measured value block      |
| Enter display group number XXX |

- Enter display group number (from table => Page 11 ) and confirm with Q key.

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

### List of display groups:

| Display group number | Indicated on display                                                                                                                   |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 001                  | 1 = Vehicle-speed signal from speedometer<br>2 = Voltage term. 30<br>3 = Radio illumination dimming in %<br>4 = Condition of S-contact |
| 002                  | 1 = Front loudspeakers<br>2 = Condition of front loudspeakers<br>3 = Rear loudspeakers<br>4 = Condition of rear loudspeakers           |
| 003                  | 1 = Type of aerial<br>2 = Aerial<br>3 = Condition of aerial                                                                            |
| 004                  | 1 = Control output for active amplifier<br>3 = Telephone<br>4 = Condition of input/telephone mute                                      |
| 005                  | 1 = CD connection<br>2 = Condition of CD connection                                                                                    |



| Display group number | Indicated on display                                                      |
|----------------------|---------------------------------------------------------------------------|
| 006                  | 1 = External display (dash panel insert)<br>2 = Condition of ext. display |

## Measured value block 001

| Read measured value block 1 |        |      |  | ⇒  | Indicated on display                                                                                                                                                                                                     |
|-----------------------------|--------|------|--|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                           | 12.3 V | 60 % |  | On |                                                                                                                                                                                                                          |
|                             |        |      |  |    | Condition of S-contact <ul style="list-style-type: none"><li>▪ Can be checked during output of measured values</li><li>▪ Remove ignition key =display "off"</li><li>▪ Switch on S-contact again = display "on"</li></ul> |
|                             |        |      |  |    | Dimming level of radio illumination in percent (only when lights are on) <ul style="list-style-type: none"><li>▪ 0 ... 99%</li></ul>                                                                                     |
|                             |        |      |  |    | Voltage term. 30 <ul style="list-style-type: none"><li>▪ Measured downstream of filter</li></ul>                                                                                                                         |
|                             |        |      |  |    | Vehicle-speed signal from speedometer <ul style="list-style-type: none"><li>▪ 0 or 1 (8 pulses per tyre revolution)</li></ul>                                                                                            |

## Measured value block 002

| Read measured value block 2 |    |           |  | ⇒  | Indicated on display                                                                                                                  |
|-----------------------------|----|-----------|--|----|---------------------------------------------------------------------------------------------------------------------------------------|
| Lsp. front                  | OK | Lsp. rear |  | OK |                                                                                                                                       |
|                             |    |           |  |    | Condition of rear loudspeakers 1) <ul style="list-style-type: none"><li>▪ OK</li><li>▪ Short circuit</li><li>▪ Open circuit</li></ul> |
|                             |    |           |  |    | Rear loudspeakers 1)                                                                                                                  |
|                             |    |           |  |    | Condition of front loudspeakers <ul style="list-style-type: none"><li>▪ OK</li><li>▪ Short circuit</li><li>▪ Open circuit</li></ul>   |
|                             |    |           |  |    | Front loudspeakers                                                                                                                    |

1) Display with passive rear speakers only

## Measured value block 003

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| Read measured value block 3 |        |  |    | ⇒ | Indicated on display                                                                                                    |
|-----------------------------|--------|--|----|---|-------------------------------------------------------------------------------------------------------------------------|
| Active                      | Aerial |  | OK |   |                                                                                                                         |
|                             |        |  |    |   | Condition of aerial <ul style="list-style-type: none"><li>▪ OK</li><li>▪ Short circuit</li><li>▪ Open circuit</li></ul> |
|                             |        |  |    |   | Aerial                                                                                                                  |

|                                                                   |  |
|-------------------------------------------------------------------|--|
| Type of aerial<br>▪ Passive<br>▪ Active (e.g. rear window aerial) |  |
|-------------------------------------------------------------------|--|

#### Measured value block 004

|                                                                                                |           |           |                                                                                                    |
|------------------------------------------------------------------------------------------------|-----------|-----------|----------------------------------------------------------------------------------------------------|
| Read measured value block 4                                                                    |           | ⇒         | ◀ Indicated on display                                                                             |
| 0                                                                                              | Telephone | Off       |                                                                                                    |
|                                                                                                |           |           | Condition of input/telephone mute<br>▪ Telephone in use = "ON"<br>▪ Telephone switched off = "OFF" |
|                                                                                                |           | Telephone |                                                                                                    |
| Condition of control output for active amplifier<br>▪ 0 = Condition OK<br>▪ 1 = Short to earth |           |           |                                                                                                    |

#### Measured value block 005

|                             |    |               |                                                   |
|-----------------------------|----|---------------|---------------------------------------------------|
| Read measured value block 5 |    | ⇒             | ◀ Indicated on display                            |
| CD connect.                 | OK |               |                                                   |
|                             |    |               | Condition of CD connection<br>▪ OK<br>▪ Not OK 1) |
|                             |    | CD connection |                                                   |

1) Displayed even if there is no CD changer fitted

#### Measured value block 006

|                             |    |                                      |                                                      |
|-----------------------------|----|--------------------------------------|------------------------------------------------------|
| Read measured value block 6 |    | ⇒                                    | ◀ Indicated on display                               |
| Ext. displ.                 | OK |                                      |                                                      |
|                             |    |                                      | Condition of external display<br>▪ OK<br>▪ Not OK 1) |
|                             |    | External display (dash panel insert) |                                                      |

1) Displayed even if dash panel insert without display is fitted



## Measured value block 007

|                                                        |  |   |                        |
|--------------------------------------------------------|--|---|------------------------|
| Read measured value block 7                            |  | ⇒ | ◀ Indicated on display |
| 01                                                     |  |   |                        |
|                                                        |  |   |                        |
| Reception status of remote control from steering wheel |  |   |                        |
| ▪ The number of the button pressed is displayed        |  |   |                        |

## 2 - Self-diagnosis of navigation system II (Navigation System Plus)

### 2.1 - Self-diagnosis of navigation system II (Navigation System Plus)

#### 2.2 - General

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

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

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.

#### 2.3 - Starting self-diagnosis of radio/navigation system

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

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

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

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

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Performing self-diagnosis of radio systems

=> Self-diagnosis of radio systems  
(address word 56) from Page **1**

Performing self-diagnosis of TV/navigation unit

=> Self-diagnosis of navigation system  
(address word 37) from Page **15**

## 2.4 - Self-diagnosis of navigation system II

### Additional information material required

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

## 2.5 - Safety precautions

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

### Attention:

- ◆ Proceed as follows during measurement and test drives so as to avoid the risk of accident:
- ◆ Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.
- ◆ Deactivate front passenger's airbag by way of key switch in glove box or using self-diagnosis => Body Self-diagnosis; Repair Group 01; Adaption: Activating and deactivating front passenger's airbag unit.
- ◆ Re-activate 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:

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

### Test requirements:

- ◆ Use current flow diagram to check that fuse is OK.
- ◆ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ◆ Switch on ignition.

### Notes:

- ◆ If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- ◆ Additional operating instructions can be called up by pressing the fault reader HELP key.
- ◆ Next step in program sequence can be selected by pressing => key.
- ◆ Incorrect entries can be terminated by pressing C key.
- ◆ Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.
- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:



Rapid data transfer      Q  
37 - Navigation

- Confirm entry with Q key.

8D0035192      Navigation  
Code 00000      WSC 06812

- > Adjacent display appears after approx. 5 s:
  - 8D0035192: Part number of radio/navigation system (refer also to Parts List)
  - Navigation: Component designation
  - Code 00000: Code not used
  - WSC 06812: Workshop code
- Press => key.

-> Indicated on display of radio/navigation system

DIAG .

Dash panel insert display:

DIAG.

- Press => key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 68

02 - Interrogate fault memory => Page 17

03 - Final control diagnosis=> Page 20

05 - Erase fault memory => Page 21

06 - End output => Page 21

08 - Read measured value block => Page 22

10 - Adaption=> Page 24

## 2.6 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|            |            |
|------------|------------|
| 8D0035192  | Navigation |
| Code 00000 | WSC 06812  |

- > Adjacent display appears after approx. 5 s:
- 8D0035192: Part number of radio/navigation system (refer also to Parts List)
- Navigation: Component designation
- Code 00000: Code not used
- WSC 06812: Workshop code
- Press => key.

## 2.7 - Interrogating fault memory

**Note:**

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

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

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

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

|                   |
|-------------------|
| X faults detected |
|-------------------|

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 18.

-> In the case of "No faults detected", program returns to start after pressing =>key.



No faults detected

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page **21** .
- Switch off ignition and unplug diagnostic connector.

## 2.8 - Fault table for navigation system II

### Notes:

- ♦ The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- ♦ The fault code only appears on the printout.
- ♦ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ♦ On completion of repair work and system functional test, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- ♦ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- ♦ After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- ♦ Sporadic faults are erased if they do not re-occur in the course of 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

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

| Output on printer of<br>V.A.G 1551 | Possible cause of trouble | Fault remedy |
|------------------------------------|---------------------------|--------------|
| 00854                              |                           |              |



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|                                                                 |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output radio display dash panel insert<br>- No communication 1) | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Dash panel insert defective</li> <li>- Navigation control unit defective</li> </ul> | <ul style="list-style-type: none"> <li>- Eliminate open circuit in wiring</li> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Replace dash panel insert</li> <li>=&gt; Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert</li> <li>- Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402</li> </ul> |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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1) *Whether or not any faults are still present following fault elimination is not detected during self-diagnosis. Therefore, whenever a fault has been eliminated and the fault memory erased, it is essential to check the function of the secondary display and then interrogate the fault memory again.*

| Output on printer of V.A.G 1551                                                                                    | Possible cause of trouble                                                                                                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00862<br>Navigation aerial (GPS) - R50/R52<br>- Open circuit/short circuit<br>- to positive<br>- Short to positive | <ul style="list-style-type: none"> <li>- Navigation aerial</li> <li>- (GPS) defective</li> <li>- Open circuit in wiring</li> </ul>                                               | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> <li>- Replace navigation aerial</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing navigation aerial (-R50) Navigation system II (Navigation System Plus); Removing and installing navigation aerial (-R50)</li> </ul> |
| 00867<br>Connection to ABS control unit<br>- No signal                                                             | <ul style="list-style-type: none"> <li>- Wiring damage</li> <li>- Open circuit in wiring</li> <li>- ABS wheel sensors defective</li> <li>- ABS control unit defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> <li>- Perform ABS self-diagnosis</li> <li>=&gt; Running gear self-diagnosis for ABS, ESP; Repair Group 01;</li> </ul>                                                                                                                                                                                              |

| Output on printer of V.A.G 1551                     | Possible cause of trouble                                                                                                                                                                                                                                                                      | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01311<br>Data bus information<br>- No communication | <ul style="list-style-type: none"> <li>- Data transfer between navigation control unit and radio control unit takes place via data bus</li> <li>- The radio/navigation system is not connected</li> <li>- Open circuit in bus wire between control units in radio/navigation system</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> <li>- Replace radio/navigation system</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402</li> <li>- Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402</li> </ul> |



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

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## 2.9 - Final control diagnosis

### Notes:

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

"Final control diagnosis" function checks secondary display in dash panel insert.

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer Q  
03 - Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Output radio display dash panel insert

Dash panel insert displays the following test pattern:

DISPLAY  
TEST

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press => key.

-> Indicated on display:

Final control diagnosis  
End

- Press =>key.
- Tester returns to basic function.

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

## 2.10 - Erasing fault memory

### Note:

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

### Requirements:

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

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press => key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

### Notes:

Attention:  
Fault memory not interrogated

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

◆ Rapid data transfer  
Fault memory not interrogated

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

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

## 2.11 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output



- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 2.12 - Reading measured value block

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### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number xxx

- Enter display group number (from table => Page **11** ) and confirm with Q key.

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

### List of display groups:

| Display group number | Indicated on display                                                                                                                         |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 001                  | 1 = Vehicle-speed signal from speedometer<br>2 = Voltage term. 30<br>3 = Radio illumination dimming in %<br>4 = Condition of input/S-contact |
| 002                  | 1 = Condition of input/reversing light switch<br>2 = Condition of input/term. 15                                                             |
| 003                  | 1 = GPS aerial<br>2 = Condition of GPS aerial remote power supply                                                                            |
| 004                  | 1 = External display<br>2 = Function/communication with external display                                                                     |
| 005                  | 1 = Data bus<br>2 = Function/communication with information data bus                                                                         |

| Display group number | Indicated on display                                                                                                                       |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 006                  | 1 = Pulse generator (ABS), left<br>2 = Vehicle speed, left in km/h<br>3 = Pulse generator (ABS), right<br>4 = Vehicle speed, right in km/h |

#### Measured value block 001

|                                                                                  |        |      |                                                                                                                                                                              |                        |
|----------------------------------------------------------------------------------|--------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Read measured value block 1                                                      |        |      | ⇒                                                                                                                                                                            | ◀ Indicated on display |
| 0                                                                                | 14.1 V | 99 % | On                                                                                                                                                                           |                        |
|                                                                                  |        |      | Condition of input/S-contact<br>▪ Can be checked during output of measured values<br>▪ Input/S-contact active = display "on"<br>▪ Input/S-contact not active = display "off" |                        |
|                                                                                  |        |      | Dimming level of radio illumination (only when lights are on)<br>▪ 0 ... 99%                                                                                                 |                        |
| Voltage term. 30                                                                 |        |      |                                                                                                                                                                              |                        |
| Vehicle-speed signal from speedometer<br>▪ 0 or 1 (8 pulses per tyre revolution) |        |      |                                                                                                                                                                              |                        |

#### Measured value block 002

|                                                          |            |  |                                                                                                                    |                        |
|----------------------------------------------------------|------------|--|--------------------------------------------------------------------------------------------------------------------|------------------------|
| Read measured value block 2                              |            |  | ⇒                                                                                                                  | ◀ Indicated on display |
| Reverse off                                              | Term.15 ON |  |                                                                                                                    |                        |
|                                                          |            |  | Condition of input/term. 15<br>▪ Input/term. 15 active =Display "ON"<br>▪ Input/term. 15 not active =Display "OFF" |                        |
| Condition of input/reversing light switch                |            |  |                                                                                                                    |                        |
| ▪ Input/reversing light switch active =Display "ON"      |            |  |                                                                                                                    |                        |
| ▪ Input/reversing light switch not active =Display "OFF" |            |  |                                                                                                                    |                        |

#### Measured value block 003

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|                             |    |  |                                                                                          |                        |
|-----------------------------|----|--|------------------------------------------------------------------------------------------|------------------------|
| Read measured value block 3 |    |  | ⇒                                                                                        | ◀ Indicated on display |
| GPS aer.                    | OK |  |                                                                                          |                        |
|                             |    |  | Condition of GPS aerial remote power supply<br>▪ OK<br>▪ Short circuit<br>▪ Open circuit |                        |
| GPS aerial                  |    |  |                                                                                          |                        |



## Measured value block 004

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

## Measured value block 005

|                             |    |                                                |                        |
|-----------------------------|----|------------------------------------------------|------------------------|
| Read measured value block 5 |    | ⇒                                              | ◀ Indicated on display |
| Data bus                    | OK |                                                |                        |
|                             |    |                                                |                        |
|                             |    | Function/communication of data bus information |                        |
|                             |    | ▪ OK                                           |                        |
|                             |    | ▪ Not OK                                       |                        |
| Data bus                    |    |                                                |                        |

## Measured value block 006

|                             |         |                              |                        |
|-----------------------------|---------|------------------------------|------------------------|
| Read measured value block 6 |         | ⇒                            | ◀ Indicated on display |
| Left                        | 86 km/h | Right                        | 86 km/h                |
|                             |         | Vehicle speed, right         |                        |
|                             |         | Pulse generator (ABS), right |                        |
|                             |         | Vehicle speed, left          |                        |
|                             |         | Pulse generator (ABS), left  |                        |

## 2.13 - Adaption

The navigation system uses the pulses from the ABS sensors to calculate distance.

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

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

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 25 ).

#### Adaption table:

| Adaption channel | Adaption function                            |
|------------------|----------------------------------------------|
| 01               | Tyre circumference in mm => Page 25          |
| 02               | Number of pulses from ABS sensors => Page 26 |

#### Performing function "10 - Adaption"

-> Indicated on display:

Rapid data transfer      HELP  
 Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
 10 - Adaption

- Confirm entry with Q key.

-> Indicated on display:

Adaption  
 Enter channel number XX

- Enter desired adaption channel (adaption table => Page 25 ).
- Confirm entry with Q key.

#### Note:

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

#### Adapting tyre circumference

-> Indicated on display:

Adaption  
 Enter channel number XX

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

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- ◆ Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1935

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

- Press => key.

-> Indicated on display:

Channel 1      Adaption      1935      Q  
 Enter adaption value XXXXX



- Enter new tyre circumference with a 0 before the 4-digit number (e.g. 01910).  
Tyre table => Page 27 .
- Confirm entry with Q key.

-> Indicated on display:

|           |          |      |   |
|-----------|----------|------|---|
| Channel 1 | Adaption | 1910 | Q |
|-----------|----------|------|---|

- Confirm entry with Q key.

-> Indicated on display:

|               |          |      |   |
|---------------|----------|------|---|
| Channel 1     | Adaption | 1910 | Q |
| Store altered | value?   |      |   |

- Confirm entry with Q 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 0 and 6 to select "End output" function.
- Press => key.

### Adapting ABS wheel sensors

-> Indicated on display:

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

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

#### **Note:**

- ♦ Wrong entries can be corrected by pressing C key.
- Confirm entry with Q key.

-> Indicated on display:

|           |          |    |
|-----------|----------|----|
| Channel 2 | Adaption | 42 |
|-----------|----------|----|

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

- Press => key.

-> Indicated on display:

|                      |          |    |   |
|----------------------|----------|----|---|
| Channel 2            | Adaption | 42 | Q |
| Enter adaption value | XXXXX    |    |   |

- Enter new number of pulses with three zeroes before the 2-digit number (e.g. 00045).  
Tyre table => Page 27 .
- Confirm entry with Q key.

-> Indicated on display:



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Channel 2      Adaption      45      Q

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

#### Tyre table for Audi A4:

|              | Tyre size  | Circumference (mm) | ABS pulses/rev. |
|--------------|------------|--------------------|-----------------|
| Summer tyres | 195/65 R15 | 1935               | 45              |
| Summer tyres | 205/60 R15 | 1910               | 45              |
| Summer tyres | 205/55 R16 | 1930               | 45              |
| Summer tyres | 225/45 R17 | 1930               | 45              |
| Summer tyres | 255/35 R18 | 1937               | 45              |
| Winter tyres | 185/65 R15 | 1895               | 45              |
| Winter tyres | 195/65 R15 | 1935               | 45              |
| Winter tyres | 205/55 R16 | 1930               | 45              |
| Winter tyres | 225/45 R17 | 1930               | 45              |
| Winter tyres | 225/40 R18 | 1940               | 45              |

### 3 - Self-diagnosis of navigation system II-D (Navigation System Plus) (from week 48/99)

#### 3.1 - Self-diagnosis of navigation system II-D (Navigation System Plus) (from week 48/99)

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



## 3.2 - General

### Features:

- ♦ The features of the existing navigation system II (Navigation System Plus) have been retained
- ♦ Dynamic navigation
- ♦ Provision for interface to telematics
- ♦ Aerial diversity for radio and TV reception

## 3.3 - Starting self-diagnosis of navigation system II-D

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

### Additional information material required

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

## 3.4 - Safety precautions

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

### Attention:

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

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

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

### Test requirements:

- ♦ Use current flow diagram to check that fuse is OK.
- ♦ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ♦ Switch on ignition.

### Notes:

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

- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

**Address word for navigation system: 37**

- Press keys 3 and 7.

-> Indicated on display:

Rapid data transfer      Q  
37 - Navigation

- Confirm entry with Q key.

4B0035192F      Navigation      BNO      0004  
□  
Code 00000      WSC 06812

-> Adjacent display appears after approx. 5 s:

- 4B0035192F: Part number of operating electronics control unit for navigation system (refer also to Parts List)
- Navigation: Component designation
- BNO: Manufacturer
- 0004: Software version of operating electronics control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC 06812: Workshop code

-> Indicated on display of navigation system II-D

DIAG .

Dash panel insert display:

DIAG.

- Press ⇒ key.

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

Rapid data transfer      HELP  
No control unit response

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

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Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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



## Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 30

02 - Interrogate fault memory => Page 30

03 - Final control diagnosis => Page 33

05 - Erase fault memory => Page 34

06 - End output => Page 35

08 - Read measured value block => Page 35

10 - Adaption=> Page 39

## 3.5 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|              |            |     |      |
|--------------|------------|-----|------|
| 4B0035192F   | Navigation | BNO | 0004 |
| □ Code 00000 | WSC 06812  |     |      |

-> Adjacent display appears after approx. 5 s:

- 4B0035192F: Part number of operating electronics control unit for navigation system (refer also to Parts List)
- Navigation: Component designation
- BNO: Manufacturer
- 0004: Software version of operating electronics control unit for navigation system with CD drive
- Code 00000: Code not used
- WSC 06812: Workshop code

## 3.6 - Interrogating fault memory

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### Note:

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

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

-> Indicated on display:

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

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

-> Indicated on display:

Rapid data transfer Q  
02 - Interrogate fault memory

- Confirm entry with Q key.

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

x faults detected

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 31.

-> In the case of "No faults detected", program returns to start after pressing =>key.

No faults detected

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 35.
- Switch off ignition and unplug diagnostic connector.

### 3.7 - Fault table for navigation system II-D

#### Notes:

- ◆ The following table lists all the faults which can be recognised by the navigation system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- ◆ The fault code only appears on the printout.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and system functional test, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- ◆ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- ◆ After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- ◆ Sporadic faults are erased if they do not re-occur in the course of 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

| Output on printer of<br>V.A.G 1551 | Possible cause of trouble | Fault remedy |
|------------------------------------|---------------------------|--------------|
| 00625                              |                           |              |



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

| Output on printer of<br>V.A.G 1551                                       | Possible cause of trouble                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00854<br>Output radio display dash panel insert<br>- No communication 1) | - Open circuit in wiring<br>- Dash panel insert defective<br>- Navigation control unit defective | - Eliminate open circuit in wiring<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace dash panel insert<br>=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402<br>Replace interface for navigation system -R94 |

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

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

| Output on printer of<br>V.A.G 1551                                                 | Possible cause of trouble                                                                                   | Fault remedy                                                                                                                                                                                         |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00862<br>Navigation aerial<br>(GPS) - R50/R52<br>- Open circuit<br>- Short circuit | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Navigation aerial<br>- (GPS) defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace GPS aerial wire<br>Replace navigation aerial (GPS) |
| 00867                                                                              |                                                                                                             |                                                                                                                                                                                                      |

|                                               |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection to ABS control unit<br>- No signal | <ul style="list-style-type: none"> <li>- Wiring damage</li> <li>- Open circuit in wiring</li> <li>- ABS wheel sensors defective</li> <li>- ABS control unit defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Perform ABS self-diagnosis</li> <li>=&gt; Running gear self-diagnosis for ABS, ESP; Repair Group 01;</li> </ul> |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Output on printer of V.A.G 1551                     | Possible cause of trouble                                                                                                                                                                                                                      | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01311<br>Data bus information<br>- No communication | The navigation control unit houses the central unit and the navigation unit, which are interlinked via a data bus.<br>- Internal short circuit/ short to earth in bus wire between central unit and navigation unit in navigation control unit | <ul style="list-style-type: none"> <li>- The navigation control unit does not need to be replaced if the system remains operative (the control unit then switches to single-wire mode)</li> <li>The control unit must be replaced if the system is no longer operative</li> </ul>                                                                                                                                 |
| 65535<br>Control unit<br>- Defective                | - Navigation control unit defective                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>- Replace navigation control unit</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402 Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402</li> </ul> |

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### 3.8 - Final control diagnosis

#### Notes:

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

#### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer Q  
03 -Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Telephone/navigation systems loudspeaker  
-R39

A high-pitch signal is emitted for about three seconds from the loudspeaker (hands-free loudspeaker or loudspeaker at front left).

- Press =>key.

-> Indicated on display:



Final control diagnosis  
Output radio display dash panel insert

Dash panel insert displays the following test pattern:

DISPLAY  
TEST

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

Final control diagnosis  
End

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

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

### 3.9 - Erasing fault memory

#### *Notes:*

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

#### **Requirements:**

- ♦ Fault memory interrogated =>Page 30
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press ⇒ key.

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-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

#### Notes:

Attention:  
Fault memory not interrogated

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

Rapid data transfer  
Fault memory not interrogated

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

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

### 3.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

### 3.11 - Reading measured value block

#### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 36 ) and confirm with Q key.



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

List of display groups:

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

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#### Measured value block 001

| Read measured value block 1 |        |      | ⇒  | ◀ Indicated on display                                                                                                                                                                       |
|-----------------------------|--------|------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                           | 14.1 V | 99 % | On |                                                                                                                                                                                              |
|                             |        |      |    | Condition of input/S-contact<br>▪ Can be checked during output of measured values<br>▪ Remove ignition key =display "off"<br>▪ Ignition key re-inserted in ignition lock<br>▪ = display "on" |
|                             |        |      |    | Dimming level of radio illumination (only when lights are on)<br>▪ 0 ... 99%                                                                                                                 |
|                             |        |      |    | Voltage term. 30                                                                                                                                                                             |
|                             |        |      |    | Vehicle-speed signal from speedometer<br>▪ 0 or 1 (8 pulses per tyre revolution)                                                                                                             |

#### Measured value block 002

| Read measured value block 2 |            | ⇒ | ◀ Indicated on display                                                                                             |
|-----------------------------|------------|---|--------------------------------------------------------------------------------------------------------------------|
| Reverse off                 | Term.15 ON |   |                                                                                                                    |
|                             |            |   | Condition of input/term. 15<br>▪ Input/term. 15 active =Display "ON"<br>▪ Input/term. 15 not active =Display "OFF" |

|                                                                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Condition of input/reversing light switch<br>▪ Input/reversing light switch active =Display "ON"<br>▪ Input/reversing light switch not active =Display "OFF" |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

**Measured value block 003**

|                             |    |                                                                                          |                        |
|-----------------------------|----|------------------------------------------------------------------------------------------|------------------------|
| Read measured value block 3 |    | ⇒                                                                                        | ◀ Indicated on display |
| GPS aer.                    | OK |                                                                                          |                        |
|                             |    | Condition of GPS aerial remote power supply<br>▪ OK<br>▪ Short circuit<br>▪ Open circuit |                        |
| GPS aerial                  |    |                                                                                          |                        |

**Measured value block 004**

|                                      |    |                                                                  |                        |
|--------------------------------------|----|------------------------------------------------------------------|------------------------|
| Read measured value block 4          |    | ⇒                                                                | ◀ Indicated on display |
| Ext. displ.                          | OK |                                                                  |                        |
|                                      |    | Function/communication with external display<br>▪ OK<br>▪ Not OK |                        |
| External display (dash panel insert) |    |                                                                  |                        |

**Measured value block 005**

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|                             |    |                                                                             |                        |
|-----------------------------|----|-----------------------------------------------------------------------------|------------------------|
| Read measured value block 5 |    | ⇒                                                                           | ◀ Indicated on display |
| Data bus                    | OK |                                                                             |                        |
|                             |    | Communication, information data bus (internal data bus)<br>▪ OK<br>▪ Not OK |                        |
| Data bus                    |    |                                                                             |                        |

**Measured value block 006**

|                             |         |   |                        |
|-----------------------------|---------|---|------------------------|
| Read measured value block 6 |         | ⇒ | ◀ Indicated on display |
| Left                        | 86 km/h |   |                        |
|                             |         |   |                        |



|  |  |                                                                                                                                                 |
|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  |                                                                                                                                                 |
|  |  | Vehicle speed calculated as a function of ABS signal with allowance for programmed tyre circumference and number of pulses per wheel revolution |
|  |  | Pulse generator (ABS), left                                                                                                                     |

**Measured value block 007**

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |   |                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---|------------------------|
| Read measured value block 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | ⇒ | ◀ Indicated on display |
| 255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |  |   |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |   |                        |
| <p>The content of the function status register =&gt;Page 38 is composed of:1)</p> <ul style="list-style-type: none"><li>▪ Wheel circumference adapted = 128</li><li>▪ Number of pulses for ABS sensors adapted = 64</li><li>▪ ABS pulses detected at least once = 32</li><li>▪ CAN communication with dash panel insert OK = 16</li><li>▪ Signal from reversing light switch detected = 8</li><li>▪ Terminal 15 (ignition ON) detected = 4</li><li>▪ Current consumption of GPS aerial OK (10 to 30 mA) = 2</li><li>▪ CAN communication with navigation unit (internal) OK = 1</li></ul> |  |  |  |   |                        |

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

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

**3.12 - Function status register****Functional description**

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

Production diagnosis can be disabled/enabled by way of the "Adaption" function (channel number 03)  
=>Page 42.

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

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

**Test requirements:**

- ♦ No navigation CD inserted
- ♦ Navigation switched on
- ♦ Tyre circumference adaption performed => Page 40
- ♦ Number of pulses from ABS wheel sensors adapted => Page 26
- ♦ Erase fault memory => Page 34
- ♦ Move vehicle at min. 10 km/h

- ◆ When vehicle stops engage reverse gear for min. 2 seconds

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

### 3.13 - Adaption

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

- ◆ Changes to tyre size
- ◆ Changes of number of pulses from ABS wheel sensors
- ◆ Disabling/enabling of production diagnosis
- ◆ Coloured or monochrome dash panel display
- ◆ Changes to country identification
- ◆ Without telematics/with telematics
- ◆ Without electronic logbook/with electronic logbook

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

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 39).

**Adaption table:**

| Adaption channel | Adaption function                                                                |
|------------------|----------------------------------------------------------------------------------|
| 01               | Tyre circumference in mm => Page 40                                              |
| 02               | Number of pulses from ABS sensors => Page 26                                     |
| 03               | Disabling/enabling of production diagnosis (function status register) => Page 42 |
| 04               | Dash panel display code => Page 43                                               |
| 05               | Country identification => Page 44                                                |
| 06               | Telematics adaption => Page 44                                                   |
| 07               | Adaption of electronic logbook => Page 45                                        |

#### Performing function "10 - Adaption"

-> Indicated on display:

Rapid data transfer      HELP  
 Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
 10 - Adaption

- Confirm entry with Q key.

-> Indicated on display:

Adaption  
 Enter channel number XX

- Enter desired adaption channel (adaption table => Page 39).
- Confirm entry with Q key.



**Note:**

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

**Adapting tyre circumference**

-> Indicated on display:

|                                     |
|-------------------------------------|
| Adaption<br>Enter channel number XX |
|-------------------------------------|

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

**Note:**

Wrong entries can be corrected by pressing C key.

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- Confirm entry with Q key.

-> Indicated on display:

|           |          |      |
|-----------|----------|------|
| Channel 1 | Adaption | 1935 |
|-----------|----------|------|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |      |
|----------------------------|----------|------|
| Channel 1                  | Adaption | 1935 |
| Enter adaption value XXXXX |          |      |

- Enter new tyre circumference with a 0 before the 4-digit number (e.g. 01910).  
Tyre table => Page 41.
- Confirm entry with Q key.

-> Indicated on display:

|           |          |      |   |
|-----------|----------|------|---|
| Channel 1 | Adaption | 1910 | Q |
|-----------|----------|------|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |      |   |
|----------------------|----------|------|---|
| Channel 1            | Adaption | 1910 | Q |
| Store altered value? |          |      |   |

- Confirm entry with Q 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 0 and 6 to select "End output" function.
- Press ⇒ key.

## Adapting number of pulses from ABS wheel sensors

-> Indicated on display:

Adaption  
Enter channel number XX

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

### Note:

- ♦ Wrong entries can be corrected by pressing C key.
- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      42

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

- Press ⇒ key.

-> Indicated on display:

Channel 2      Adaption      42      Q  
Enter adaption value XXXXX

- Enter new number of pulses with three zeroes before the 2-digit number (e.g. 00045).
- Tyre table => Page 41.
- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45      Q

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

## Tyre table for Audi A4:

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|              | Tyre size  | Circumference (mm) | ABS pulses/rev. |
|--------------|------------|--------------------|-----------------|
| Summer tyres | 195/65 R15 | 1935               | 45              |



|              | Tyre size  | Circumference (mm) | ABS pulses/rev. |
|--------------|------------|--------------------|-----------------|
| Summer tyres | 205/60 R15 | 1910               | 45              |
| Summer tyres | 205/55 R16 | 1930               | 45              |
| Summer tyres | 225/45 R17 | 1930               | 45              |
| Summer tyres | 255/35 R18 | 1937               | 45              |
| Winter tyres | 185/65 R15 | 1895               | 45              |
| Winter tyres | 195/65 R15 | 1935               | 45              |
| Winter tyres | 205/55 R16 | 1930               | 45              |
| Winter tyres | 225/45 R17 | 1930               | 45              |
| Winter tyres | 225/40 R18 | 1940               | 45              |

**Adapting production diagnosis (function status register)**

-&gt; Indicated on display:

Adaption  
Enter channel number XX

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

**Note:***Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-&gt; Indicated on display:

Channel 3      Adaption      0

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

- Press ⇒ key.

-&gt; Indicated on display:

Channel 3      Adaption      0  
Enter adaption value XXXXX

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

-&gt; Indicated on display:

Channel 3      Adaption      1      0

- Confirm entry with Q key.

-&gt; Indicated on display:

Channel 3      Adaption      1      Q  
Store altered value?

- Confirm entry with Q key.

-&gt; Indicated on display:

Channel 3      Adaption      1  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Adapting dash panel insert display

-> Indicated on display:

Adaption  
Enter channel number XX

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

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#### Note:

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 4      Adaption      0

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

- Press ⇒ key.

-> Indicated on display:

Channel 4      Adaption      0  
Enter adaption value XXXXX

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

-> Indicated on display:

Channel 4      Adaption      1      Q

- Confirm entry with Q key.

-> Indicated on display:

Channel 4      Adaption      1      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 4      Adaption      1  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX



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

### Adapting country identification

-> Indicated on display:

|                                     |
|-------------------------------------|
| Adaption<br>Enter channel number XX |
|-------------------------------------|

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

#### **Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 5 | Adaption | 0 |
|-----------|----------|---|

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

- Press ➔ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 5                  | Adaption | 0 |
| Enter adaption value XXXXX |          |   |

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

-> Indicated on display:

|           |          |   |   |
|-----------|----------|---|---|
| Channel 5 | Adaption | 1 | Q |
|-----------|----------|---|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 5            | Adaption | 1 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |
|----------------------|----------|---|
| Channel 5            | Adaption | 1 |
| Altered value stored |          |   |

- Press ➔ key.

-> Indicated on display:

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

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

### Adapting telematics

-> Indicated on display:



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Adaption  
Enter channel number XX

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

**Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      1

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

- Press ⇒ key.

-> Indicated on display:

Channel 6      Adaption      1  
Enter adaption value XXXXX

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

-> Indicated on display:

Channel 6      Adaption      3      Q

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      3      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      3  
Altered value stored

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- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Adapting electronic logbook

-> Indicated on display:

Adaption  
Enter channel number XX

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



**Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 7 | Adaption | 0 |
|-----------|----------|---|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 7                  | Adaption | 0 |
| Enter adaption value XXXXX |          |   |

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

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 7 | Adaption | 1 |
|-----------|----------|---|

- Confirm entry with Q key.

-> Indicated on display:

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

- Confirm entry with Q key.

-> Indicated on display:

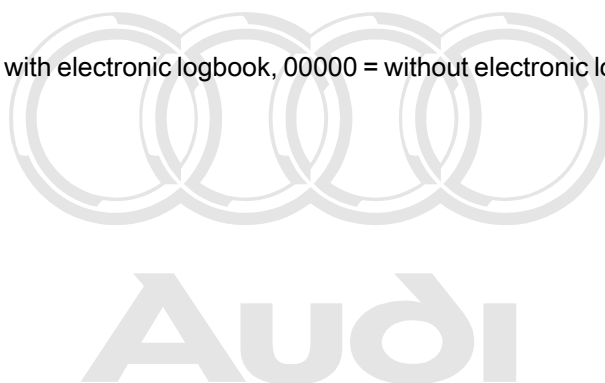
|                      |          |   |
|----------------------|----------|---|
| Channel 7            | Adaption | 1 |
| Altered value stored |          |   |

- Press ⇒ key.

-> Indicated on display:

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

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



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## 4 - Self-diagnosis of navigation system III (Route Navigation) (from Wk 29/99)

### 4.1 - Self-diagnosis of navigation system III (Route Navigation) (from Wk 29/99)

#### 4.2 - General

The Audi navigation system III is the successor to the previous navigation system I. Navigation system III now offers self-diagnosis capability, whereas navigation system I merely provided a service software program. The Navigation System Plus (navigation system II) with TV reception is still included in the range.

##### Features:

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

##### Functional description

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

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

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

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

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

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### 4.3 - Starting self-diagnosis of navigation system III

##### Additional information material required

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



## 4.4 - Safety precautions

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

Attention:

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

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

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

Test requirements:

- ◆ Use current flow diagram to check that fuse is OK.
- ◆ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ◆ Switch on ignition.

Notes:

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

-> Indicated on display:

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

Address word for navigation system: 37

- Press keys 3 and 7.

-> Indicated on display:

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

- Confirm entry with Q key.

|            |            |      |
|------------|------------|------|
| 4B0919887A | Navigation | 0001 |
| Code 00000 | WSC 06812  |      |

-> Adjacent display appears after approx. 5 s:

- 4B0919887A: Part number of navigation control unit (refer also to Parts List)
- Navigation: Component designation
- 0001: Software version of navigation control unit with CD drive
- Code 00000: Code not used

- WSC 06812: Workshop code

Dash panel insert display:

DIAG.

- Press ➔ key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Self-diagnosis functions

Possible functions:

- 01 - Interrogate control unit version => Page 49
- 02 - Interrogate fault memory => Page 50
- 03 - Final control diagnosis => Page 53
- 05 - Erase fault memory => Page 54
- 06 - End output => Page 55
- 08 - Read measured value block => Page 56
- 10 - Adaption=> Page 60

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## 4.5 - Interrogating control unit version

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:



Rapid data transfer Q  
01 - Interrogate control unit version

- Confirm entry with Q key.

4B0919887A Navigation 0001  
Code 00000 WSC 06812

- > Adjacent display appears after approx. 5 s:
- 4B0919887A: Part number of navigation control unit (refer also to Parts List)
- Navigation: Component designation
- 0001: Software version of navigation control unit with CD drive
- Code 00000: Code not used
- WSC 06812: Workshop code

## 4.6 - Interrogating fault memory

### **Note:**

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

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

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer Q  
02 - Interrogate fault memory

- Confirm entry with Q key.

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

X faults detected

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The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 51 .

-> In the case of "No faults detected", program returns to start after pressing => key.

No faults detected

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 55 .
- Switch off ignition and unplug diagnostic connector.

## 4.7 - Fault table for navigation system III

### Notes:

- ♦ The following table lists all the faults which can be recognised by the navigation system III and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- ♦ The fault code only appears on the printout.
- ♦ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ♦ On completion of repair work and system functional test, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- ♦ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- ♦ After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- ♦ Sporadic faults are erased if they do not re-occur in the course of 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h).

| Output on printer of<br>V.A.G 1551                                                                                                                                                                                            | Possible cause of trouble                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00576<br>Terminal 15<br>- Open circuit                                                                                                                                                                                        | - Open circuit in wiring                                                                         | - Eliminate open circuit in wiring<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder                                                                                                                                                                                                                                                                   |
| 00625<br>Speed signal<br>- No signal*<br>*The GALA speed and GPS speed are continuously cross-checked in the navigation unit. This fault is stored if the GPS signal is > 40 km/h for 100 sec. but no GALA signal is present. | - Open circuit in wiring<br>- Dash panel insert defective<br>- Navigation control unit defective | - Eliminate open circuit in wiring<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace dash panel insert<br>=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Navigation system III (Route Navigation) (from Wk 29/99); Removing and installing navigation control unit with CD drive -J401 |

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



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

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

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| Output on printer of V.A.G 1551                                          | Possible cause of trouble                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00854<br>Output radio display dash panel insert<br>- No communication 1) | - Open circuit in wiring<br>- Dash panel insert defective<br>- Navigation control unit defective | - Eliminate open circuit in wiring<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace dash panel insert<br>=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert<br>Navigation system III (Route Navigation) (from Wk 29/99); Removing and installing navigation control unit with CD drive -J401 |

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

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

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

|                                                                        |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Navigation aerial (GPS) - R50/R52<br>- Open circuit<br>- Short circuit | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Navigation aerial<br>- (GPS) defective                                                                                                                                    | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace GPS aerial wire<br>Replace navigation aerial (GPS)<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system I (Route Navigation) (up to Wk 28/99); Removing and installing navigation aerial (GPS) -R50 Navigation system I (Route Navigation) (up to Wk 28/99); Removing and installing navigation aerial (GPS) -R50 |
| 01311<br>Data bus information<br>- No communication                    | The navigation control unit houses the central unit and the navigation unit, which are interlinked via a data bus.<br>- Internal short circuit/ short to earth in bus wire between central unit and navigation unit in navigation control unit | - The navigation control unit does not need to be replaced if the system remains operative (the control unit then switches to single-wire mode)<br>The control unit must be replaced if the system is no longer operative                                                                                                                                                                                                                                                                       |

| Output on printer of V.A.G 1551      | Possible cause of trouble           | Fault remedy                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 65535<br>Control unit<br>- Defective | - Navigation control unit defective | - Replace navigation control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system III (Route Navigation) (from Wk 29/99); Removing and installing navigation control unit with CD drive -J401 Navigation system III (Route Navigation) (from Wk 29/99); Removing and installing navigation control unit with CD drive -J401 |

## 4.8 - Final control diagnosis

### Notes:

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

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer      Q  
03 -Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Loudspeakers

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The hands-free loudspeaker receives a brief electrical pulse (inaudible). The hands-free loudspeaker is only connected directly to the navigation control unit if no radio system is fitted. This final control element test is only of practical use under those circumstances.

If a radio system (without BOSE) is fitted, the front left loudspeaker is used for voice output. On vehicles with BOSE sound system voice output is via the radio to the hands-free loudspeaker.

**Note:**

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

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Telephone/navigation systems loudspeaker  
-R39

A noise is emitted for about three seconds from the loudspeaker output (hands-free loudspeaker or loudspeaker at front left). The noise will be spoken phrases (if speech is loaded into the navigation system) or otherwise a crackling noise.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Output radio display dash panel insert

Dash panel insert displays the following test pattern:

DISPLAY  
TEST

The test pattern covers the entire display.

The display changes between normal and inverse every 4 seconds.

- Press ⇒ key.

-> Indicated on display:

Final control diagnosis  
End

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

-> Indicated on display:

Rapid data transfer                      HELP  
Select function XX

## 4.9 - Erasing fault memory

**Notes:**

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

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## Requirements:

- ♦ Fault memory interrogated =>Page 50
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press => key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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## Notes:

⚠ Attention:  
Fault memory not interrogated

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

⚠ Rapid data transfer  
Fault memory not interrogated

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

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

## 4.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX



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

## 4.11 - Reading measured value block

### Performing "Read measured value block" function

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

-> Indicated on display:

|                                |
|--------------------------------|
| Read measured value block      |
| Enter display group number XXX |

- Enter display group number (from table => Page 56 ) and confirm with Q key.

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

### List of display groups:

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| Display group number | Indicated on display                                                             |
|----------------------|----------------------------------------------------------------------------------|
| 001                  | 1 = Vehicle-speed signal from speedometer<br>2 = Voltage term. 30                |
| 002                  | 1 = Condition of input/reversing light switch<br>2 = Condition of input/term. 15 |
| 003                  | 1 = GPS aerial<br>2 = Condition of GPS aerial remote power supply                |
| 004                  | 1 = External display<br>2 = Function/communication with external display         |
| 005                  | 1 = Data bus<br>2 = Function/communication with information data bus             |
| 006                  | 1 = Left<br>2 = Speed (GALA) in km/h                                             |
| 007                  | 1 = Content of function status register                                          |
| 008                  | 1 = Front loudspeakers<br>2 = Condition of front loudspeakers                    |

**Measured value block 001**

Measured value block 002

**Measured value block 003**

4.11 - Reading measured value block 57



## Measured value block 004

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

## Measured value block 005

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

## Measured value block 006

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

## Measured value block 007

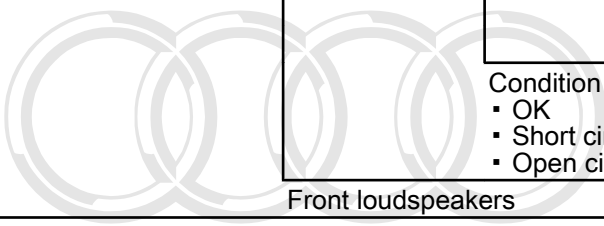
|                             |  |   |                        |
|-----------------------------|--|---|------------------------|
| Read measured value block 7 |  | ⇒ | ◀ Indicated on display |
| 255                         |  |   |                        |
|                             |  |   |                        |
|                             |  |   |                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| The content of the function status register =>Page 60 is composed of:1) <ul style="list-style-type: none"> <li>▪ Wheel circumference adapted = 128</li> <li>▪ Number of pulses per wheel revolution adapted = 64</li> <li>▪ GALA pulses detected at least once = 32</li> <li>▪ CAN communication with dash panel insert OK = 16</li> <li>▪ Signal from reversing light switch detected = 8</li> <li>▪ Terminal 15 (ignition ON) detected = 4</li> <li>▪ Current consumption of GPS aerial OK (10 to 30 mA) = 2</li> <li>▪ CAN communication with navigation control unit OK = 1</li> </ul> |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

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

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

Measured value block 008

|                                                                                    |    |   |                                                                                                         |
|------------------------------------------------------------------------------------|----|---|---------------------------------------------------------------------------------------------------------|
| Read measured value block 8                                                        |    | ⇒ | Indicated on display                                                                                    |
| Lsp. front                                                                         | OK |   |                                                                                                         |
|  |    |   | Condition of front loudspeakers                                                                         |
|                                                                                    |    |   | <ul style="list-style-type: none"> <li>▪ OK</li> <li>▪ Short circuit</li> <li>▪ Open circuit</li> </ul> |
|                                                                                    |    |   | Front loudspeakers                                                                                      |

Measured value block 010

|                                                                                     |     |           |                                                                                                                       |
|-------------------------------------------------------------------------------------|-----|-----------|-----------------------------------------------------------------------------------------------------------------------|
| Read measured value block 10                                                        |     | ⇒         | Indicated on display                                                                                                  |
| Telephone                                                                           | Off | Telephone | Off                                                                                                                   |
|  |     |           | Condition of telephone mute output (to radio)                                                                         |
|                                                                                     |     |           | <ul style="list-style-type: none"> <li>▪ Telephone in use = "on"</li> <li>▪ Telephone switched off = "off"</li> </ul> |
|                                                                                     |     |           | Telephone                                                                                                             |
|                                                                                     |     |           | Condition of input/telephone mute (from telephone)                                                                    |
|                                                                                     |     |           | <ul style="list-style-type: none"> <li>▪ Telephone in use = "on"</li> <li>▪ Telephone switched off = "off"</li> </ul> |
|                                                                                     |     |           | Telephone                                                                                                             |



## 4.12 - Function status register

### Functional description

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

Production diagnosis can be disabled/enabled by way of the "Adaption" function (channel number 03)  
=>Page 63 .

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

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

### Test requirements:

- ♦ No navigation CD inserted
- ♦ Navigation switched on
- ♦ Tyre circumference adaption performed => Page 61
- ♦ Adaption of number of pulses per wheel revolution (GALA) performed => Page 62
- ♦ Erase fault memory => Page 54
- ♦ Move vehicle at min. 10 km/h
- ♦ When vehicle stops engage reverse gear for min. 2 seconds

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

## 4.13 - Adaption

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

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

The individual functions are called up by way of the appropriate adaption channel number (refer to adaption table => Page 60 ).

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

### Adaption table:

| Adaption channel | Adaption function                                                                |
|------------------|----------------------------------------------------------------------------------|
| 01               | Tyre circumference in mm => Page 61                                              |
| 02               | Number of pulses per wheel revolution (GALA) => Page 62                          |
| 03               | Disabling/enabling of production diagnosis (function status register) => Page 63 |
| 04               | Connection of separate/external speakers => Page 64                              |
| 05               | Country identification => Page 65                                                |

### Performing function "10 - Adaption"

-> Indicated on display:

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Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
10 - Adaption

- Confirm entry with Q key.

-> Indicated on display:

Adaption  
Enter channel number XX

- Enter desired adaption channel (adaption table => Page 60).
- Confirm entry with Q key.

#### Note:

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

#### Adapting tyre circumference

-> Indicated on display:

Adaption  
Enter channel number XX

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

#### Note:

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1935

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

- Press => key.

-> Indicated on display:

Channel 1      Adaption      1935  
Enter adaption value XXXXX

- Enter new tyre circumference with a 0 before the 4-digit number (e.g. 01910).  
Tyre table => Page 63
- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1910      Q

- Confirm entry with Q key.

-> Indicated on display:



|                      |          |      |   |
|----------------------|----------|------|---|
| Channel 1            | Adaption | 1910 | Q |
| Store altered value? |          |      |   |

- Confirm entry with Q 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 0 and 6 to select "End output" function.
- Press ⇒ key.

### Adapting number of pulses per wheel revolution (GALA)

-> Indicated on display:

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

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

#### **Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 2 | Adaption | 4 |
|-----------|----------|---|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 2                  | Adaption | 4 |
| Enter adaption value XXXXX |          |   |

- Enter new number of pulses, placing three 0s in front of the 2-digit number (e.g. 00008)  
Tyre table => Page 63.
- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |   |
|-----------|----------|---|---|
| Channel 2 | Adaption | 8 | Q |
|-----------|----------|---|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 2            | Adaption | 8 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

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Channel 2      Adaption      8  
Altered value stored

- Press ⇒ key.

→ Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

#### Tyre table for Audi A4:

|              | Tyre size  | Circumference (mm) | ABS pulses/rev. |
|--------------|------------|--------------------|-----------------|
| Summer tyres | 195/65 R15 | 1935               | 45              |
| Summer tyres | 205/60 R15 | 1910               | 45              |
| Summer tyres | 205/55 R16 | 1930               | 45              |
| Summer tyres | 225/45 R17 | 1930               | 45              |
| Summer tyres | 255/35 R18 | 1937               | 45              |
| Winter tyres | 185/65 R15 | 1895               | 45              |
| Winter tyres | 195/65 R15 | 1935               | 45              |
| Winter tyres | 205/55 R16 | 1930               | 45              |
| Winter tyres | 225/45 R17 | 1930               | 45              |
| Winter tyres | 225/40 R18 | 1940               | 45              |

#### Adapting production diagnosis (function status register)

→ Indicated on display:

Adaption  
Enter channel number XX

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

#### Note:

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

→ Indicated on display:

Channel 3      Adaption      0

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

- Press ⇒ key.

→ Indicated on display:

Channel 3      Adaption      0  
Enter adaption value XXXXX

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



- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |   |
|-----------|----------|---|---|
| Channel 3 | Adaption | 1 | Q |
|-----------|----------|---|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 3            | Adaption | 1 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |  |
|----------------------|----------|---|--|
| Channel 3            | Adaption | 1 |  |
| Altered value stored |          |   |  |

- Press ⇒ key.

-> Indicated on display:

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

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

### Adapting loudspeaker connection

-> Indicated on display:

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

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

#### **Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 4 | Adaption | 0 |
|-----------|----------|---|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 4                  | Adaption | 0 |
| Enter adaption value XXXXX |          |   |

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

-> Indicated on display:

|           |          |   |   |
|-----------|----------|---|---|
| Channel 4 | Adaption | 1 | Q |
|-----------|----------|---|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 4            | Adaption | 1 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |
|----------------------|----------|---|
| Channel 4            | Adaption | 1 |
| Altered value stored |          |   |

- Press ⇒ key.

-> Indicated on display:

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

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

### Adapting country identification

-> Indicated on display:

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

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

#### **Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|           |          |   |
|-----------|----------|---|
| Channel 5 | Adaption | 0 |
|-----------|----------|---|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 5                  | Adaption | 0 |
| Enter adaption value XXXXX |          |   |

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

-> Indicated on display:

|           |          |   |   |
|-----------|----------|---|---|
| Channel 5 | Adaption | 1 | Q |
|-----------|----------|---|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 5            | Adaption | 1 | Q |
| Store altered value? |          |   |   |



- Confirm entry with Q key.

-> Indicated on display:

|               |          |   |
|---------------|----------|---|
| Channel 5     | Adaption | 1 |
| Altered value | stored   |   |

- Press ⇒ key.

-> Indicated on display:

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

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

- Press ⇒ key.

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## 5 - Self-diagnosis of multi-function steering wheel

### 5.1 - Self-diagnosis of multi-function steering wheel

#### 5.2 - General

##### Technical features of multi-function steering wheel

The multi-function steering wheel permits the key functions of the radio system or radio/telephone unit to be operated from the steering wheel, and has extensive self-diagnosis capability.

In addition, the Tiptronic functions of the automatic gearbox can also be operated from the steering wheel.

The control unit of the multi-function steering wheel has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

### 5.3 - Starting self-diagnosis of multi-function steering wheel

#### Additional information material required

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

### 5.4 - Safety precautions

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

Attention:

- ♦ Proceed as follows during measurement and test drives so as to avoid the risk of accident:
- ♦ Exclusive use is to be made of VAS 5051 or V.A.G 1551 for reading the measured value blocks. The devices must be attached to the rear seat and operated from there by a second person.
- ♦ Deactivate front passenger's airbag by way of key switch in glove box or using self-diagnosis => Body Self-diagnosis; Repair Group 01; Adaption: Activating and deactivating front passenger's airbag unit.
- ♦ Re-activate 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:

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

#### Test requirements:

- ◆ Use current flow diagram to check that fuse is OK.
- ◆ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ◆ Switch on ignition.

#### Notes:

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

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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**Address word for steering wheel electronics: 16**

- Press keys 1 and 6.

-> Indicated on display:

Rapid data transfer      Q  
16 - Steering wheel electronics

- Confirm entry with Q key.

4B0907487E Steering wheel electronics  
D04      □

- > Adjacent display appears after approx. 5 s:
- 4B0907487 E: Part number of control unit for steering wheel electronics (refer also to Parts List)
  - Steering wheel electronics: Component designation
  - D04: Software version of control unit
- Press ➔ key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth



Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page **68**

02 - Interrogate fault memory => Page **69**

03 - Final control diagnosis => Page **71**

05 - Erase fault memory => Page **72**

06 - End output => Page **73**

07 - Encode control unit=> Page **73**

08 - Read measured value block => Page **75**

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## 5.5 - Interrogating control unit version

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
01 - Interrogate control unit version

- Confirm entry with Q key.

4B0907487E Steering wheel electronics D04

□

- > Adjacent display appears after approx. 5 s:
  - 4B0907487 E: MSW control unit with radio operation only (see also Parts List)
  - 4B0907487 G: MSW control unit with radio operation and Tiptronic
  - Steering wheel electronics: Component designation
  - D04: Software version of control unit
- Press => key.

## 5.6 - Interrogating fault memory

### **Note:**

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

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

-> Indicated on display:

|                                                     |
|-----------------------------------------------------|
| Rapid data transfer      HELP<br>Select function XX |
|-----------------------------------------------------|

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

-> Indicated on display:

|                                                             |
|-------------------------------------------------------------|
| Rapid data transfer      Q<br>02 - Interrogate fault memory |
|-------------------------------------------------------------|

- Confirm entry with Q key.

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

|                   |
|-------------------|
| X faults detected |
|-------------------|

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page **69**.

-> In the case of "No faults detected", program returns to start after pressing => key.

|                    |
|--------------------|
| No faults detected |
|--------------------|

-> Indicated on display:

|                                                     |
|-----------------------------------------------------|
| Rapid data transfer      HELP<br>Select function XX |
|-----------------------------------------------------|

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page **73**.
- Switch off ignition and unplug diagnostic connector.

## 5.7 - Fault table for multi-function steering wheel

### **Notes:**

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



- ♦ Sporadic faults are erased if they do not re-occur in the course of 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h).
- ♦ The three-digit fault type code next to the fault code is a data code which can be ignored.

| Output on printer of<br>V.A.G 1551                                                                             | Possible cause of trouble                                                                                                                                                          | Fault remedy                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01426<br>Operating unit in steering wheel -E221<br>- No communication<br>- Implausible signal                  | - Open circuit - connection broken between interface and steering wheel<br>- Incomprehensible messages on CAN bus (interface and buttons on steering wheel are linked via CAN bus) | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Check wiring between interface and steering wheel |
| 01748<br>Switch for Tiptronic on steering wheel, upshift 1)<br>- Open circuit/short to positive<br>- Defective | - Open circuit in wiring<br>- Sticking switch<br>- Switch defective                                                                                                                | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace switch                                    |

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

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

| Output on printer of<br>V.A.G 1551                                                                               | Possible cause of trouble                                           | Fault remedy                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01749<br>Switch for Tiptronic on steering wheel, downshift 1)<br>- Open circuit/short to positive<br>- Defective | - Open circuit in wiring<br>- Sticking switch<br>- Switch defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace switch                                                                                                          |
| 65535<br>Control unit<br>- Defective                                                                             | - Control unit defective                                            | - Replace control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 |

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

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

## 5.8 - Final control diagnosis

### Notes:

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

"Final control diagnosis" function checks all system functions.

### Performing final control diagnosis:

- Switch on ignition
- Switch off radio, switch off navigation; telephone not used
- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

Rapid data transfer Q  
03 -Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Segment test

The text "AAAABBBBCCCCDDDD" is shown on the central display in the dash panel insert.

- Switch on radio.
- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Radio louder

The radio volume is increased.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Radio quieter

The radio volume is reduced.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Radio station search up

The next station is located and displayed on the central display in the dash panel insert.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Radio station search down

The previous station is reset and displayed on the central display in the dash panel insert.

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



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- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Telephone memory

The first name stored in the telephone memory is displayed on the central display in the dash panel insert.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
End

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

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

## 5.9 - Erasing fault memory

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

### Requirements:

- ♦ Fault memory interrogated =>Page 69
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

**Notes:**

▲  
Attention:  
Fault memory not interrogated

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

▲  
Rapid data transfer  
Fault memory not interrogated

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

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

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## 5.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 5.11 - Encoding control unit

This function can be used to encode the multi-function steering wheel control unit with index "G" as follows:

- ◆ Steering wheel variant
- ◆ With/without Tiptronic
- ◆ Language variant

**Notes:**

- ◆ The encoding procedure is used to set the various configuration options for the multi-function steering wheel.
- ◆ The encoding table only lists the possible combinations applying to the Audi A4.
- ◆ The code must always correspond to the equipment fitted in the vehicle.

### Encoding procedure

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
07 - Encode control unit



- Confirm entry with Q key.

-> Indicated on display:

|                     |       |       |
|---------------------|-------|-------|
| Encode control unit | Q     |       |
| Enter code number   | XXXXX | 06812 |

- Enter code number as per encoding table => Page 74

**Code: e.g. 00011**

- ◆ First digit: 0 = Standard
- ◆ Second digit: 0 = Standard
- ◆ Third digit; language variant: 0 = German
- ◆ Fourth digit; Tiptronic: 1 = With Tiptronic
- ◆ Fifth digit; steering wheel variant: 1 = Steering wheel for radio-/telephone operation

- Confirm entry with Q key.

|                                           |
|-------------------------------------------|
| 4B0907487G Steering wheel electronics D04 |
| Code 00011                                |

-> The display will show the control unit identification and the code that was entered (00011).

- Press => key to terminate encoding procedure.

Indicated on display:

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

- Press keys 0 and 6.

Indicated on display:

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

- Confirm entry with Q key.

**Encoding table:**

| X | X | X | X | X | Code                             |
|---|---|---|---|---|----------------------------------|
| X |   |   |   |   | Standard                         |
| 0 |   |   |   |   | Always zero                      |
| X |   |   |   |   | Standard                         |
| 0 |   |   |   |   | Always zero                      |
| X |   |   |   |   | Language variant                 |
| 0 |   |   |   |   | German                           |
| 1 |   |   |   |   | English                          |
| 2 |   |   |   |   | French                           |
| 3 |   |   |   |   | Italian                          |
| 4 |   |   |   |   | Dutch                            |
| 5 |   |   |   |   | Spanish                          |
| 6 |   |   |   |   | Portuguese                       |
| X |   |   |   |   | Tiptronic                        |
| 0 |   |   |   |   | Without Tiptronic                |
| 1 |   |   |   |   | With Tiptronic                   |
| X |   |   |   |   | Steering wheel variant           |
| 1 |   |   |   |   | Radio and telephone operation    |
| 2 |   |   |   |   | Radio operation (6-button radio) |

5.12 - Reading measured value block

Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
08 - Read measured value block

- Confirm entry with Q key.

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-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 75 ) and confirm with Q key.

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

List of display groups:

| Display group number | Indicated on display                                                                                                  |
|----------------------|-----------------------------------------------------------------------------------------------------------------------|
| 001                  | 1 = Volume Lower button<br>2 = Volume Higher button<br>3 = Station Memory Down button<br>4 = Station Memory Up button |
| 002                  | 1 = Radio/telephone switchover<br>2 = Telephone Send<br>3 = Not used<br>4 = Not used                                  |
| 003                  | Tiptronic upshift button, left/right<br>Tiptronic downshift button, left/right<br>Not used<br>Not used                |

Measured value block 001

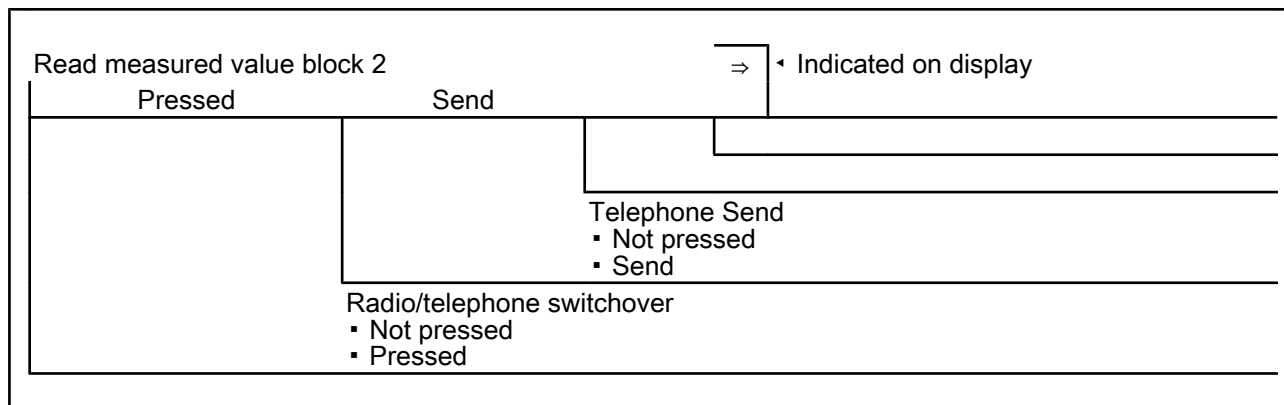
| Read measured value block 1 |          |             |  | ⇒         | Indicated on display                                           |
|-----------------------------|----------|-------------|--|-----------|----------------------------------------------------------------|
| Quieter >                   | Louder > | Mem. Down > |  | Mem. Up > |                                                                |
|                             |          |             |  |           | Station Memory Up button<br>▪ Not pressed<br>▪ Mem. Up >       |
|                             |          |             |  |           | Station Memory Down button<br>▪ Not pressed<br>▪ Mem. Down >   |
|                             |          |             |  |           | Louder button (increase volume)<br>▪ Not pressed<br>▪ Louder > |



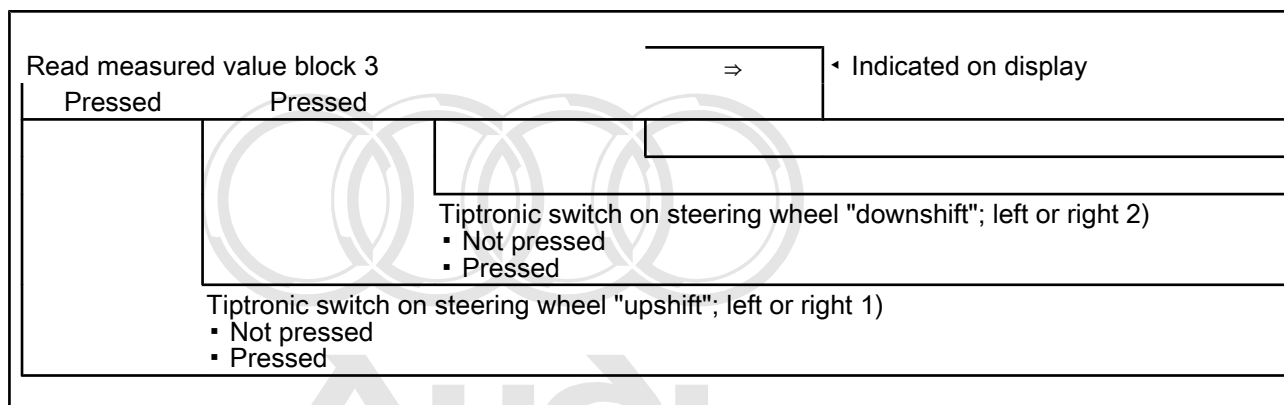
Quieter button (reduce volume)

- Not pressed
- Quieter >

### Measured value block 002



### Measured value block 003

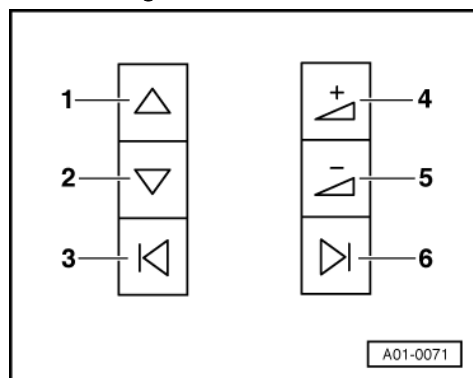


1) There is a button (rocker switch) on the left and right-hand side of the steering wheel for shifting up and down. "Pressed" appears at the first position in measured value block 003 if one of the two buttons is pressed up (upshift).

2) There is a button (rocker switch) on the left and right-hand side of the steering wheel for shifting up and down. "Pressed" appears at the second position in measured value block 003 if one of the two buttons is pressed down (downshift).

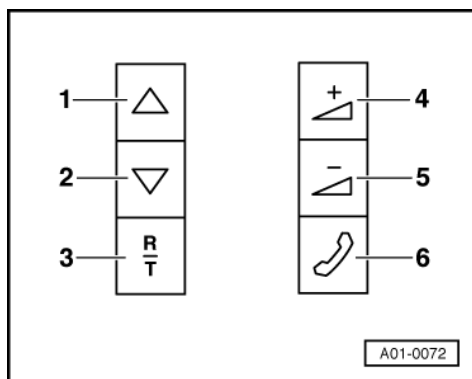
## 5.13 - Button assignment on multi-function steering wheels

### Button assignment for radio



- 1 - Radio: Search forwards; CC: Fast forward; CD: Advance one track
- 2 - Radio: Search backwards; CC: Rewind; CD: Back one track
- 3 - Station buttons (pre-set) backwards
- 4 - Increase volume
- 5 - Reduce volume
- 6 - Station buttons (pre-set) forwards

#### Button assignment for radio/telephone



- 1 - Radio: Search forwards; CC: Fast forward; CD: Advance one track; Telephone: Memory up
- 2 - Radio: Search backwards; CC: Rewind; CD: Back one track; Telephone: Memory down
- 3 - Radio/telephone switch
- 4 - Increase volume/hands-free volume
- 5 - Reduce volume/hands-free volume
- 6 - Send/receive

## 6 - Self-diagnosis of telematics system

### 6.1 - Self-diagnosis of telematics system

### 6.2 - General

The telematics system provides a connection between the navigation system and the mobile telephone.

By pressing an emergency call button, and/or when the airbag is ignited, the telematics system transmits an emergency call which is forwarded by the network provider to the emergency services. The navigation system identifies the precise location of the vehicle.

Pressing a breakdown help button in the event of a breakdown enables assistance to be called quickly without the driver having to take any other action. A range of other services, such as up-to-the-minute traffic reports, can also be accessed.

The new telematics system has extensive self-diagnosis capability.

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



## 6.3 - Notes on enabling system

If the telematics system SIM card is defective, a new one must be requested by fax.

=> Radio, Telephone and Navigation System; Repair Group 91; Telematics Telematics

Hotline number: 0800/2 83 47 27

Fax number: 0800/3 29 38 37

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## 6.4 - Starting self-diagnosis of telematics system

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

### Additional information material required

- ♦ Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- ♦ Technical Service Handbook
- ♦ Parts List
- ♦ SSP 236 Audi telematics +

## 6.5 - Safety precautions

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

Attention:

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

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

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

### Test requirements:

- ♦ Use current flow diagram to check that fuse is OK.
- ♦ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ♦ Switch on ignition.

### Notes:

- ♦ If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- ♦ Additional operating instructions can be called up by pressing the fault reader HELP key.
- ♦ Next step in program sequence can be selected by pressing → key.
- ♦ Incorrect entries can be terminated by pressing C key.

- ◆ Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.
- Switch on ignition.
- Switch on printer by pressing PRINT key (lamp in key lights).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

**Address word for telematics: 75**

- Press keys 7 and 5

-> Indicated on display:

Rapid data transfer      Q  
75 - Telematics

- Confirm entry with Q key.

**Notes:**

- ◆ During self-diagnosis the emergency call function is deactivated.
- ◆ During self-diagnosis the central display on the dash panel indicates "Diagnosis Activated".

4B0035617      Telematics Nokia 1      0001  
□ Code 0001324      WSC 06812

- > Adjacent display appears after approx. 5 s:
- 4B0035617: Part number of telematics system
  - Telematics Nokia 1: Component designation
  - 0001: Software version of telematics system
  - Code 0001324: Code for telematics system
  - WSC 06812: Workshop code

**Note:**

Check code against encoding table => Page **90**.

- Press => key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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



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

### Self-diagnosis functions

Possible functions:

- 01 - Interrogate control unit version => Page 80
- 02 - Interrogate fault memory => Page 80
- 03 - Final control diagnosis=> Page 86
- 05 - Erase fault memory => Page 87
- 06 - End output => Page 88
- 07 - Encode control unit=> Page 89
- 08 - Read measured value block => Page 90 .
- 10 - Adaption=> Page 94

## 6.6 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|              |                    |      |
|--------------|--------------------|------|
| 4B0035617    | Telematics Nokia 1 | 0001 |
| □            |                    |      |
| Code 0001324 | WSC 06812          |      |

- > Adjacent display appears after approx. 5 s:
  - 4B0035617: Part number of telematics system
  - Telematics Nokia 1: Component designation
  - 0001: Software version of telematics system
  - Code 0001324: Code for telematics system
  - WSC 06812: Workshop code
- Press ⇒ key.

## 6.7 - Interrogating fault memory

### Note:

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

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

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
02 - Interrogate fault memory

- Confirm entry with Q key.

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

X faults detected

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 81 .

-> In the case of "No faults detected", program returns to start after pressing =>key.

No faults detected

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 88 .
- Switch off ignition and unplug diagnostic connector.

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## 6.8 - Fault table for telematics system

### Notes:

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

| Output on printer of<br>V.A.G 1551 | Possible cause of trouble | Fault remedy |
|------------------------------------|---------------------------|--------------|
| 00003                              |                           |              |



|                                                                                                            |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control unit<br>- Defective                                                                                | - Telematics control unit defective                          | - Replace telematics control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing telephone/telematics control unit -J526 Telematics; Removing and installing telephone/telematics control unit -J526                                                                                                                                                             |
| 00469<br>Data bus display in single-wire mode<br>- Electrical fault in current circuit                     | - Open circuit in wiring<br>- Wiring damage                  | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder                                                                                                                                                                                                                                                                               |
| 00851<br>Loudspeaker*<br>*This fault is stored if a fault occurs in final control diagnosis (loudspeaker). | - Mutual shorting of + and - wires to hands-free loudspeaker | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br><b>Eliminate open circuit in wiring</b><br>Replace hands-free loudspeaker<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free loudspeaker Telephone system; Removing and installing hands-free loudspeaker |

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| Output on printer of<br>V.A.G 1551                                                 | Possible cause of trouble                                                                              | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00862<br>Navigation aerial<br>(GPS) - R50/R52<br>- Open circuit<br>- Short circuit | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Navigation aerial (GPS) defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace GPS aerial wire<br>Replace navigation aerial (GPS)<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing navigation aerial (-R50)<br>Navigation system II (Navigation System Plus); Removing and installing navigation aerial (-R50) |
| 01300                                                                              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                   |                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Navigation control unit with CD drive -J401<br>- No communication | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Wiring damage</li> <li>- Navigation control unit with CD drive -J401 defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Replace navigation control unit<br/>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing navigation control unit with CD drive -J401</li> <li>Navigation system III; Removing and installing navigation control unit with CD drive -J401</li> </ul> |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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| Output on printer of V.A.G 1551                                | Possible cause of trouble                                                                                                                                                                    | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01301<br>Speech input control unit -J507<br>- No communication | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Voltage supply to speech input control unit interrupted</li> <li>- Speech input control unit defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to speech input control unit according to current flow diagram</li> <li>Replace speech input control unit<br/>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing speech input control unit -J507</li> <li>Telematics; Removing and installing speech input control unit -J507</li> </ul> |

| Output on printer of V.A.G 1551          | Possible cause of trouble                                                                                                                            | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01304<br>Radio<br>- No communication     | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Voltage supply to radio interrupted</li> <li>- Radio defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> <li>Check voltage supply to radio using current flow diagram</li> <li>Replace radio<br/>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio</li> <li>Radio systems; Removing and installing radio</li> </ul> |
| 01305<br>Data bus display<br>- Defective | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> </ul>                                                                           | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Eliminate open circuit in wiring</li> </ul>                                                                                                                                                                                                                                                                |

| Output on printer of V.A.G 1551 | Possible cause of trouble | Fault remedy |
|---------------------------------|---------------------------|--------------|
| 01317                           |                           |              |



|                                                                                 |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control unit with display in dash panel insert -J285<br>- No communication      | - Open circuit in wiring<br>- Dash panel insert defective                          | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace dash panel insert<br>=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert                                                                                                                                      |
| 01326<br>Multi-function steering wheel control unit -J453<br>- No communication | - Open circuit in wiring<br>- Multi-function steering wheel control unit defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace multi-function steering wheel control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit - J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 |

| Output on printer of V.A.G 1551                                                            | Possible cause of trouble                                                         | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01522<br>Telephone handset -R37<br>- No communication                                      | - Open circuit in wiring<br>- Telephone handset defective                         | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace telephone handset<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system                                                                                                                                                        |
| 01523<br>Telephone microphone -R38<br>- Open circuit/short to positive<br>- Short to earth | - Open circuit in wiring<br>- Short in wiring<br>- Telephone microphone defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace telephone microphone<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free microphone from model year 00 onwards Telephone system; Removing and installing hands-free microphone from model year 00 onwards |

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

|                                                                                              |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01524<br>Telephone aerial<br>- No signal                                                     | <ul style="list-style-type: none"> <li>- Open circuit in aerial wire</li> <li>- Short circuit in aerial wire</li> <li>- Telephone aerial defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace telephone aerial wire</li> <li>Replace telephone aerial</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial</li> </ul>                                                                                                          |
| 01526<br>Emergency call button -E276<br>- Open circuit/short to positive<br>- Short to earth | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Short in wiring</li> <li>- Emergency call button defective</li> </ul>              | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace emergency call button</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275</li> <li>Telematics; Removing and installing emergency call button -E276 and breakdown help button -E275</li> </ul> |

| Output on printer of<br>V.A.G 1551                                                           | Possible cause of trouble                                                                                                                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01527<br>Breakdown help button -E275<br>- Open circuit/short to positive<br>- Short to earth | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Short in wiring</li> <li>- Emergency call button defective</li> </ul>                                                 | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Rectify open circuit/short</li> <li>Replace breakdown help button</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Removing and installing breakdown help button</li> <li>Removing and installing breakdown help button</li> </ul>                                                        |
| 01528<br>Additional aerial for telematics -R90<br>- No signal                                | <ul style="list-style-type: none"> <li>- Open circuit in aerial wire</li> <li>- Short circuit in aerial wire</li> <li>- Additional aerial for telematics (emergency aerial) defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding</li> <li>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>Replace wire of additional aerial for telematics</li> <li>Replace additional aerial for telematics</li> <li>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Removing and installing additional aerial for telematics</li> <li>Removing and installing additional aerial for telematics</li> </ul> |

| Output on printer of<br>V.A.G 1551 | Possible cause of trouble | Fault remedy |
|------------------------------------|---------------------------|--------------|
| 01529                              |                           |              |



|                                                                                                    |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional loudspeaker for telematics -R91<br>- Open circuit/short to positive<br>- Short to earth | - Open circuit in wiring<br>- Short in wiring<br>- Additional loudspeaker for telematics defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Rectify open circuit/short<br>Replace additional loudspeaker<br>=> Radio, Telephone and Navigation System; Repair Group 91; Removing and installing additional loudspeaker<br>Removing and installing additional loudspeaker |
| 01531<br>Emergency battery<br>- No signal                                                          | - Open circuit in wiring<br>- Short in wiring<br>- Emergency battery defective/discharged          | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Rectify open circuit/short<br>Replace emergency battery<br>=> Radio, Telephone and Navigation System; Repair Group 91; Removing and installing emergency battery<br>Removing and installing emergency battery                |

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

## 6.9 - Final control diagnosis

### Notes:

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

The "Final control diagnosis" function tests the loudspeaker wiring and buttons -E275 and-E276.

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer Q  
03 - Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Loudspeakers

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

**Note:**

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

- Press =>key.

-> Indicated on display:

Final control diagnosis  
Additional loudspeaker for telematics  
R91

A test tone is audible through the additional loudspeaker (emergency loudspeaker).

- Press =>key.

-> Indicated on display:

Final control diagnosis  
Emergency call button E276

The emergency call button begins to flash.

- Press =>key.

-> Indicated on display:

Final control diagnosis  
Breakdown help button E275

The breakdown help button begins to flash.

- Press =>key.

-> Indicated on display:

Final control diagnosis  
End

- Press =>key.
- Tester returns to basic function.

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

## 6.10 - Erasing fault memory

**Note:**

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



### Requirements:

- ♦ Fault memory interrogated =>Page 80
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press => key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

### Notes:

♦ Attention:  
Fault memory not interrogated

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

♦ Rapid data transfer  
Fault memory not interrogated

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

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

## 6.11 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 6.12 - Encoding control unit

This function is used to encode the telematics system as follows:

- ◆ Vehicle model
- ◆ Voice recognition/multi-function steering wheel
- ◆ Navigation system
- ◆ Radio configuration

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### Notes:

- ◆ The encoding procedure is used to set the various configuration options.
- ◆ The encoding table only lists the possible combinations applying to the Audi A4.
- ◆ In contrast to the codes of other control units, the code of the telematics control unit has 7 digits.

### Encoding procedure

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
07 - Encode control unit

- Confirm entry with Q key.

-> Indicated on display:

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

- Enter code number as per encoding table => Page 90 .

### Code: 01324

- ◆ 0 = not used, always 0
- ◆ Vehicle model: 1 = A4
- ◆ Voice control/multi-function steering wheel: 3 = with voice control and multi-function steering wheel
- ◆ Navigation system: 2 = Navigation system II-D
- ◆ Radio system: 4 = Radio system without CAN bus or navigation system II-D

4B0035617      Telematics Nokia 1      0001  
□ Code 0001324      WSC 06812

- > The display will show the control unit identification and the code that was entered (0001324).
- Press ⇒ key to terminate encoding procedure.

Indicated on display:

Rapid data transfer      HELP  
Select function XX

- Press keys 0 and 6.

Indicated on display:



Rapid data transfer Q  
06 - End output

- Confirm entry with Q key.

#### Encoding table:

| 5 - 7                                                                                                                                                                                                                                                                 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG is not liable for any damage or liability with respect to the correctness of information. Details: www.audi.de</p> |   |   |   |   | <p>Radio:</p> <p>1: Without radio</p> <p>2: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II)</p> <p>3: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II) with Bose</p> <p>4: With radio (without CAN) (Chorus I, Concert I, Symphony I) or RNS-D</p> <p>5: With radio (without CAN) (Chorus I, Concert I, Symphony I) or RNS-D with Bose</p> |
|                                                                                                                                                                                                                                                                       |   |   |   |   | <p>Navigation:</p> <p>0: Without navigation</p> <p>1: With navigation system III (NSLow)</p> <p>2: With navigation system II-D (RNS-D)</p> <p>3: With navigation system IV (Nav4)</p>                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                       |   |   |   |   | <p>Voice control/multi-function steering wheel (VCS/MSW):</p> <p>0: Without VCS, without MSW</p> <p>1: Without voice control, with multi-function steering wheel</p> <p>2: Not used</p> <p>3: With VCS, with MSW</p>                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                       |   |   |   |   | <p>Vehicle model:</p> <p>0: A3</p> <p>1: A4 (B5)</p> <p>2: A6</p> <p>3: A8</p> <p>4: A2</p> <p>5: A4 (B6)</p>                                                                                                                                                                                                                                                                                   |
| 000: Columns reserved for subsequent encoding = 0                                                                                                                                                                                                                     |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                 |

## 6.13 - Reading measured value block

### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 91 ) and confirm with Q key.

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

**List of display groups:**

| Display group number | Indicated on display                                                                                          |
|----------------------|---------------------------------------------------------------------------------------------------------------|
| 001                  | 1 = Telephone<br>2 = Subscribed/not subscribed<br>3 = Field strength<br>4 = 0...010                           |
| 002                  | 1 = Emergency battery<br>2 = Fully charged/low/discharged<br>3 = Dimming<br>4 = 0...100%                      |
| 003                  | 1 = Speed signal<br>2 = xxx km/h<br>3 = Forward/reverse                                                       |
| 004                  | 1 = Emergency call button<br>2 = Pressed/not pressed<br>3 = Breakdown help button-<br>4 = Pressed/not pressed |
| 005                  | 1 = Device number                                                                                             |
| 006                  | 1 = SIM card number                                                                                           |
| 080                  | 1 = Key ID                                                                                                    |
| 081                  | 1 = Chassis number                                                                                            |

| Display group number | Indicated on display                                                                                    |
|----------------------|---------------------------------------------------------------------------------------------------------|
| 125                  | 1 = Dash panel data bus<br>2 = Steering wheel data bus<br>3 = Radio data bus<br>4 = Navigation data bus |
| 126                  | 1 = Voice recognition data bus                                                                          |

**Measured value block 001**

|                             |            |                |   |                                                         |
|-----------------------------|------------|----------------|---|---------------------------------------------------------|
| Read measured value block 1 |            |                | ⇒ | Indicated on display                                    |
| Telephone                   | Subscribed | Field strength | 5 |                                                         |
|                             |            |                |   | Field strength<br>▪ 0...10                              |
|                             |            |                |   | Field strength of telephone network                     |
|                             |            |                |   | Telephone subscription<br>▪ Subscribed<br>▪ Not subscr. |
|                             |            |                |   | Permanently fitted telephone                            |

**Measured value block 002**

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|                             |      |         |    |                                       |
|-----------------------------|------|---------|----|---------------------------------------|
| Read measured value block 2 |      |         | ⇒  | Indicated on display                  |
| Emergency battery           | Full | Dimming | 0% |                                       |
|                             |      |         |    | Dimming factor<br>▪ 0...100%          |
|                             |      |         |    | Dimming level (only with lights "ON") |



|                              |                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|                              | Emergency battery condition <ul style="list-style-type: none"><li>▪ Full</li><li>▪ Low</li><li>▪ Discharged</li></ul> |
| Telematics emergency battery |                                                                                                                       |

**Measured value block 003**

|                             |        |                                                                                       |                        |
|-----------------------------|--------|---------------------------------------------------------------------------------------|------------------------|
| Read measured value block 3 |        | ⇒                                                                                     | ▪ Indicated on display |
| SpeedSig                    | 0 km/h | Forward                                                                               |                        |
|                             |        | Direction <ul style="list-style-type: none"><li>▪ Forward</li><li>▪ Reverse</li></ul> |                        |
|                             |        | Vehicle speed <ul style="list-style-type: none"><li>▪ 0...XXX km/h</li></ul>          |                        |
| Speed signal                |        |                                                                                       |                        |

**Measured value block 004**

|                             |             |                                                                                                       |                                                                                                       |
|-----------------------------|-------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Read measured value block 4 |             | ⇒                                                                                                     | ▪ Indicated on display                                                                                |
| Emergency call button       | Not pressed | Breakdown help button                                                                                 | Not pressed                                                                                           |
|                             |             |                                                                                                       | Breakdown help button <ul style="list-style-type: none"><li>▪ Pressed</li><li>▪ Not pressed</li></ul> |
|                             |             | Emergency call button <ul style="list-style-type: none"><li>▪ Pressed</li><li>▪ Not pressed</li></ul> |                                                                                                       |
| Emergency call button       |             |                                                                                                       |                                                                                                       |

**Measured value block 005**

|                             |  |   |                        |
|-----------------------------|--|---|------------------------|
| Read measured value block 5 |  | ⇒ | ▪ Indicated on display |
| IMEI: 493005100454423       |  |   |                        |
|                             |  |   |                        |
| Device number               |  |   |                        |

**Measured value block 006**

|                             |   |                        |
|-----------------------------|---|------------------------|
| Read measured value block 6 | ⇒ | ▪ Indicated on display |
|-----------------------------|---|------------------------|

ICC ID: 89492084298279009023

## SIM card number

- Display of number with telematics SIM card inserted
- "n.fitted" = Telematics SIM card not inserted
- "n.active" = There is another SIM card in the telephone handset

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**Measured value block 080**

Read measured value block 80

KEY ID: 0000000000 CP3.07 12/99



◀ Indicated on display

Display of key ID

**Measured value block 081**

Read measured value block 81

4BYN009461 6.510 26-05-00 AC84



◀ Indicated on display

Display of chassis number

**Measured value block 125**

Read measured value block 125



◀ Indicated on display

Dash panel 1

Steering wheel 1

Radio 1

Navigat 1

## Navigation unit

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

## Radio

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

## Multi-function steering wheel control unit

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

## Dash panel insert

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

Read measured value block 126

Voice rec 1

⇒ ◀ Indicated on display

Voice recognition system

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

| Adaption channel | Adaption function           |
|------------------|-----------------------------|
| 06               | Aerial selection => Page 99 |

### Performing function "10 - Adaption"

-> Indicated on display:

Rapid data transfer      HELP  
 Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
 10 - Adaption

- Confirm entry with Q key.

-> Indicated on display:

Adaption  
 Enter channel number XX

- Enter desired adaption channel (adaption table => Page 94 ).
- Confirm entry with Q key.

#### **Note:**

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

### Adapting tyre circumference

-> Indicated on display:

Adaption  
 Enter channel number XX

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

#### **Note:**

- ♦ Wrong entries can be corrected by pressing C key.

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1935

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

- Press => key.

-> Indicated on display:

Channel 1      Adaption      1935  
 Enter adaption value XXXXX

- Enter new tyre circumference with a 0 before the 4-digit number (e.g. 01910).  
Tyre table => Page 97 .
- Confirm entry with Q key.

-> Indicated on display:



|           |          |      |   |
|-----------|----------|------|---|
| Channel 1 | Adaption | 1910 | Q |
|-----------|----------|------|---|

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |      |   |
|----------------------|----------|------|---|
| Channel 1            | Adaption | 1910 | Q |
| Store altered value? |          |      |   |

- Confirm entry with Q 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 0 and 6 to select "End output" function.
- Press ⇒ key.

### Adapting ABS wheel sensors

-> Indicated on display:

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

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

#### **Note:**

- ♦ Wrong entries can be corrected by pressing C key.
- Confirm entry with Q key.

-> Indicated on display:

|           |          |    |  |
|-----------|----------|----|--|
| Channel 2 | Adaption | 42 |  |
|-----------|----------|----|--|

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

- Press ⇒ key.

-> Indicated on display:

|                            |          |    |   |
|----------------------------|----------|----|---|
| Channel 2                  | Adaption | 42 | Q |
| Enter adaption value XXXXX |          |    |   |

- Enter new number of pulses with three zeroes before the 2-digit number (e.g. 00045).  
Tyre table => Page 97
- Confirm entry with Q key.

-> Indicated on display:

|           |          |    |   |
|-----------|----------|----|---|
| Channel 2 | Adaption | 45 | Q |
|-----------|----------|----|---|

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 2      Adaption      45  
Altered value stored

- Press => key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

#### Tyre table for Audi A4:

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|              | Tyre size  | Circumference (mm) | ABS pulses/rev. |
|--------------|------------|--------------------|-----------------|
| Summer tyres | 195/65 R15 | 1935               | 45              |
| Summer tyres | 205/60 R15 | 1910               | 45              |
| Summer tyres | 205/55 R16 | 1930               | 45              |
| Summer tyres | 225/45 R17 | 1930               | 45              |
| Summer tyres | 255/35 R18 | 1937               | 45              |
| Winter tyres | 185/65 R15 | 1895               | 45              |
| Winter tyres | 195/65 R15 | 1935               | 45              |
| Winter tyres | 205/55 R16 | 1930               | 45              |
| Winter tyres | 225/45 R17 | 1930               | 45              |
| Winter tyres | 225/40 R18 | 1940               | 45              |

#### Activating/deactivating Service mode

The control unit switches over to emergency battery operation immediately when the vehicle battery is disconnected. If emergency battery operation remains active over a long period, the emergency battery will discharge and must then be replaced (fault code: 01531).

If the Service mode is active, the control unit does not switch over to emergency battery operation. The Service mode must be deactivated when service work has been completed.

Service mode can also be activated and deactivated by entering \*#4610# on the handset.

-> Indicated on display:

Adaption  
Enter channel number XX

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

#### **Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:



|                  |          |   |
|------------------|----------|---|
| Channel 3        | Adaption | 0 |
| Service mode off |          |   |

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

0 = Service mode deactivated

1 = Service mode activated

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 3                  | Adaption | 0 |
| Enter adaption value XXXXX |          |   |

- Enter 1 to activate Service mode.
- Confirm entry with Q key.

-> Indicated on display:

|                 |          |   |
|-----------------|----------|---|
| Channel 3       | Adaption | 1 |
| Service mode on |          |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 3            | Adaption | 1 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |
|----------------------|----------|---|
| Channel 3            | Adaption | 1 |
| Altered value stored |          |   |

- Press ⇒ key.

-> Indicated on display:

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

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

### Aerial test selection

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It is possible to determine which GSM aerial is to be monitored by the control unit. A fault is entered if this function is not possible.

At present only the emergency aerial can be tested. "2 = GSM emergency aerial is tested" must therefore be set.

-> Indicated on display:

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

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

### Note:

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

|                          |          |   |
|--------------------------|----------|---|
| Channel 5                | Adaption | 2 |
| Emergency aerial test ON |          |   |

Top line shows selected channel and currently stored aerial test.

0 = no test

1 = GSM main aerial is tested

2 = GSM emergency aerial is tested

3 = Both GSM aerials are tested

- Press ⇒ key.

-> Indicated on display:

|                            |          |   |
|----------------------------|----------|---|
| Channel 5                  | Adaption | 2 |
| Enter adaption value XXXXX |          |   |

- Enter 1 to test the GSM main aerial.
- Confirm entry with Q key.

-> Indicated on display:

|                     |          |   |
|---------------------|----------|---|
| Channel 5           | Adaption | 1 |
| Main aerial test ON |          |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |   |
|----------------------|----------|---|---|
| Channel 5            | Adaption | 1 | Q |
| Store altered value? |          |   |   |

- Confirm entry with Q key.

-> Indicated on display:

|                      |          |   |
|----------------------|----------|---|
| Channel 5            | Adaption | 1 |
| Altered value stored |          |   |

- Press ⇒ key.

-> Indicated on display:

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

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

## Aerial selection

It is possible to determine which GSM aerial is to be used to establish the telephone connection.

Under normal operating conditions: "0 = automatic selection"

For test purposes, it is possible to switch over to the emergency aerial or main aerial and to use a telephone connection to check that the aerials are functioning correctly.

-> Indicated on display:



Adaption  
Enter channel number XX

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

**Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      0  
autom.

Top line shows selected channel and currently stored aerial selection.

0 = Automatic selection

1 = GSM main aerial selected

2 = GSM emergency aerial selected

- Press ⇒ key.

-> Indicated on display:

Channel 6      Adaption      0  
Enter adaption value XXXXX

- Enter 1 to select the GSM main aerial.
- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      1  
Main aerial

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      1      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 6      Adaption      1  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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



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## 7 - Self-diagnosis of voice control system

### 7.1 - Self-diagnosis of voice control system

#### 7.2 - General

Telephone and telematics functions can be operated in a user-friendly way by means of spoken commands.

The new voice control system has extensive self-diagnosis capability.

The speech input control unit -J507 has a fault memory. Faults occurring in monitored components/wiring are stored in the fault memory together with an indication of the type of fault.

#### 7.3 - Starting self-diagnosis of voice control system

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

##### Additional information material required

- ◆ Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- ◆ Technical Service Handbook
- ◆ Parts List
- ◆ SSP 236 Audi telematics +

#### 7.4 - Safety precautions

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

##### Attention:

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

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

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

##### Test requirements:

- ◆ Use current flow diagram to check that fuse is OK.
- ◆ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ◆ Switch on ignition.

##### Notes:

- ◆ If no display appears, use current flow diagram to check power supply for V.A.G 1551.



- ◆ Additional operating instructions can be called up by pressing the fault reader HELP key.
  - ◆ Next step in program sequence can be selected by pressing ➤ key.
  - ◆ Incorrect entries can be terminated by pressing C key.
  - ◆ Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.
- Switch on ignition.
  - Switch on printer by pressing PRINT key (lamp in key lights).
  - Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

### Address word for voice control system: 67

- Press keys 6 and 7.
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-> Indicated on display:

Rapid data transfer      Q  
67 - Voice control

- Confirm entry with Q key.

4B0035753 Voice control system      0001  
Code 0000001      WSC 06812

- > Adjacent display appears after approx. 5 s:
- 4B0035753: Part number of voice control system
  - Voice control system: Component designation
  - 0001: Software version of voice control system
  - Code 0000001: Code for voice control system
  - WSC 06812: Workshop code
- Press ➤ key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 103

- 02 - Interrogate fault memory => Page 103
- 03 - Final control diagnosis=> Page 106
- 05 - Erase fault memory => Page 107
- 06 - End output => Page 108
- 07 - Encode control unit=> Page 108
- 08 - Read measured value block => Page 109 .

## 7.5 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|                                |           |
|--------------------------------|-----------|
| 4B0035753 Voice control system | 0001      |
| Code 0000001                   | WSC 06812 |

- > Adjacent display appears after approx. 5 s:
- 4B0035753: Part number of voice control system
- Voice control system: Component designation
- 0001: Software version of voice control system
- Code 0000001: Code for voice control system
- WSC 06812: Workshop code
- Press => key.

## 7.6 - Interrogating fault memory

### Note:

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

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

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

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



X faults detected

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 104 .

-> In the case of "No faults detected", program returns to start after pressing =>key.

No faults detected

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 108 .
- Switch off ignition and unplug diagnostic connector.

## 7.7 - Fault table for voice control system

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### Notes:

- ♦ The following table lists all the faults which can be recognised by the voice control system and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- ♦ The fault code only appears on the printout.
- ♦ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ♦ On completion of repair work and system functional test, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- ♦ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- ♦ After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- ♦ Sporadic faults which do not re-occur in the course of 40 switching on and off cycles of voice control system are erased.

| Output on printer of V.A.G 1551      | Possible cause of trouble             | Fault remedy                                                                                                                                                                                                                          |
|--------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00003<br>Control unit<br>- Defective | - Speech input control unit defective | - Replace control unit<br>=> Radio, Telephone and Navigation System;<br>Repair Group 91; Telematics; Removing and installing speech input control unit -J507 Tele-<br>matics; Removing and installing speech input control unit -J507 |
| 00532                                |                                       |                                                                                                                                                                                                                                       |

|                                    |                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage<br>- Signal too low | <ul style="list-style-type: none"> <li>- Battery flat/defective</li> <li>- Short circuit in vehicle electrical system</li> <li>- Battery voltage lower than 9 V</li> <li>- Alternator defective</li> </ul> | <ul style="list-style-type: none"> <li>- Charge/replace battery<br/>=&gt; Electrical System; Repair Group 27; Battery; Charging battery Battery; Charging battery</li> <li>- Check alternator<br/>=&gt; Electrical System; Repair Group 27; Removing and installing alternator</li> <li>- Removing and installing alternator</li> <li>- Repair short circuit in vehicle electrical system</li> </ul> |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Output on printer of<br>V.A.G 1551                                 | Possible cause of trouble                                                                                                                                                                                        | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01303<br>Telephone transmitter/receiver unit<br>- No communication | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Voltage supply to telephone transmitter/receiver unit interrupted</li> <li>- Telephone transmitter/receiver unit defective</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> <li>- Replace telephone transmitter/receiver unit<br/>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Telephone; Removing and installing telephone transmitter/receiver unit from model year 99 onwards</li> <li>- Telephone; Removing and installing telephone transmitter/receiver unit from model year 99 onwards</li> </ul> |
| 01304<br>Radio<br>- No communication                               | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> <li>- Voltage supply to radio interrupted</li> <li>- Radio defective</li> </ul>                                                             | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> <li>- Check voltage supply to radio using current flow diagram</li> <li>- Replace radio<br/>=&gt; Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio</li> <li>- Radio systems; Removing and installing radio</li> </ul>                                                                     |

| Output on printer of<br>V.A.G 1551       | Possible cause of trouble                                                  | Fault remedy                                                                                                                                                                                                                             |
|------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01305<br>Data bus display<br>- Defective | <ul style="list-style-type: none"> <li>- Open circuit in wiring</li> </ul> | <ul style="list-style-type: none"> <li>- Use current flow diagram to perform fault-finding<br/>=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder</li> <li>- Eliminate open circuit in wiring</li> </ul> |
| 01317                                    |                                                                            |                                                                                                                                                                                                                                          |

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

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

## 7.8 - Final control diagnosis

### Notes:

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

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer Q  
03 - Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Radio muting

No sound is heard through the radio loudspeaker.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Loudspeakers

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

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Telephone microphone R38

The radio loudspeakers are muted.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
End

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

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

## 7.9 - Erasing fault memory

### *Note:*

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

### Requirements:

- ♦ Fault memory interrogated =>Page 103
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

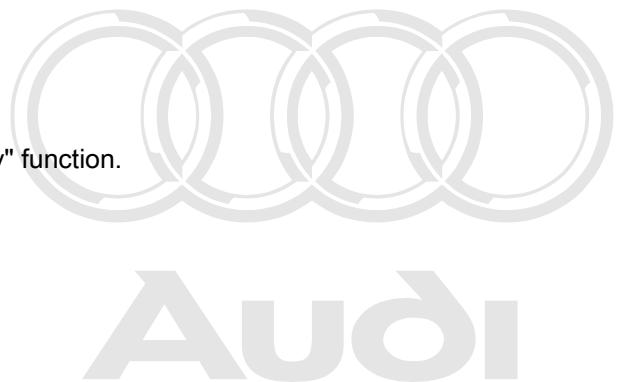
-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased



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Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

**Notes:**

Attention:  
Fault memory not interrogated

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

Rapid data transfer  
Fault memory not interrogated

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

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

## 7.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

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## 7.11 - Encoding control unit

There is currently only one way of encoding the speech input system.

- ♦ Vehicles without radio commands

**Notes:**

- ♦ The speech input control unit must be encoded in this way!
- ♦ In contrast to the codes of other control units, the code of the speech input system has 7 digits.

### Encoding procedure

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer Q  
07 - Encode control unit

- Confirm entry with Q key.

-> Indicated on display:

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

- Enter code number.

**Code: 00001**

4B0035753 Voice control system 0001  
Code 0000001 WSC 06812

- > The display will show the control unit identification and the code that was entered (0000001).
- Press ⇒ key to terminate encoding procedure.

Indicated on display:

Rapid data transfer HELP  
Select function XX

- Press keys 0 and 6.

Indicated on display:

Rapid data transfer Q  
06 - End output

- Confirm entry with Q key.

## 7.12 - Reading measured value block

### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 110 ) and confirm with Q key.

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

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## List of display groups:

| Display group number | Indicated on display                                                                                   |
|----------------------|--------------------------------------------------------------------------------------------------------|
| 001                  | 1 = PTT key<br>2 = Volume<br>3 = 0...6<br>4 = Not used                                                 |
| 125                  | 1 = Dash panel data bus<br>2 = Steering wheel data bus<br>3 = Telephone data bus<br>4 = Radio data bus |
| 126                  | 1 = Monitoring data bus                                                                                |

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## Measured value block 001

|                             |        |   |   |                                                                                             |
|-----------------------------|--------|---|---|---------------------------------------------------------------------------------------------|
| Read measured value block 1 |        |   | ⇒ | ◀ Indicated on display                                                                      |
| Not pressed                 | Volume | 0 |   |                                                                                             |
|                             |        |   |   | Output volume<br>▪ 0...6                                                                    |
|                             |        |   |   | Volume                                                                                      |
|                             |        |   |   | PTT key (voice input switch on multi-function steering wheel)<br>▪ Not pressed<br>▪ Pressed |

## Measured value block 125

|                               |                  |             |   |                                                                                                                                                        |
|-------------------------------|------------------|-------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Read measured value block 125 |                  |             | ⇒ | ◀ Indicated on display                                                                                                                                 |
| Dash panel 1                  | Steering wheel 1 | Telephone 1 |   |                                                                                                                                                        |
|                               |                  |             |   | Telephone<br>▪ "1" = on data bus<br>▪ "0" = not on data bus (transmission fault)<br>▪ " " = not connected to data bus                                  |
|                               |                  |             |   | Multi-function steering wheel control unit<br>▪ "1" = on data bus<br>▪ "0" = not on data bus (transmission fault)<br>▪ " " = not connected to data bus |
|                               |                  |             |   | Dash panel insert<br>▪ "1" = on data bus<br>▪ "0" = not on data bus (transmission fault)<br>▪ " " = not connected to data bus                          |

## Measured value block 126

|                               |  |  |   |                        |
|-------------------------------|--|--|---|------------------------|
| Read measured value block 126 |  |  | ⇒ | ◀ Indicated on display |
| Two-wire                      |  |  |   |                        |
|                               |  |  |   |                        |

Monitoring data bus

- "Single-wire" = data bus only in single-wire mode (faulty)
- "Two-wire" = data bus OK

## 8 - Self-diagnosis of telephone

### 8.1 - Self-diagnosis of telephone

### 8.2 - General

#### Technical features of permanently fitted telephone

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The new permanently fitted telephone has extensive self-diagnosis capability.

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

### 8.3 - Starting self-diagnosis of telephone

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

#### Additional information material required

- ◆ Binder: "Current Flow Diagrams, Electrical Fault-finding and Fitting Locations"
- ◆ Technical Service Handbook
- ◆ Parts List
- ◆ SSP 236 Audi telematics +

### 8.4 - Safety precautions

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

Attention:

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

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

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

**Test requirements:**

- ♦ Use current flow diagram to check that fuse is OK.
- ♦ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ♦ Switch on ignition.

**Notes:**

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

-&gt; Indicated on display:

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

**Address word for telephone: 77**

- Press keys 7 and 7.

-&gt; Indicated on display:

|                     |   |
|---------------------|---|
| Rapid data transfer | Q |
| 77 - Telephone      |   |

- Confirm entry with Q key.

|              |                   |      |
|--------------|-------------------|------|
| 4D0035192E   | Telephone Nokia 3 | 0001 |
| □            |                   |      |
| Code 0011324 | WSC 06812         |      |

- > Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of telephone
- Telephone Nokia 3: Component designation
- 0001: Software version of telephone
- Code 0011324: Code for telephone
- WSC 06812: Workshop code

**Note:**

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Check code against encoding table =&gt; Page 121.

- Press ➡ key.

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

|                          |      |
|--------------------------|------|
| Rapid data transfer      | HELP |
| No control unit response |      |

=&gt; Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

|                             |      |
|-----------------------------|------|
| Rapid data transfer         | HELP |
| Fault in communication link |      |

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

Rapid data transfer      HELP  
K-wire not switched to positive

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

### Self-diagnosis functions

Possible functions:

01 - Interrogate control unit version => Page 113

02 - Interrogate fault memory => Page 114

03 - Final control diagnosis=> Page 118

05 - Erase fault memory => Page 118

06 - End output => Page 119

07 - Encode control unit=> Page 119

08 - Read measured value block => Page 121 .

10 - Adaption=> Page 124

## 8.5 - Interrogating control unit version

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
01 - Interrogate control unit version

- Confirm entry with Q key.

4D0035192E      Telephone Nokia 3      0001  
□ Code 0011324      WSC 06812

- > Adjacent display appears after approx. 5 s:
- 4D0035192E: Part number of telephone
- Telephone Nokia 3: Component designation
- 0001: Software version of telephone
- Code 0011324: Code for telephone
- WSC 06812: Workshop code
- Press => key.



## 8.6 - Interrogating fault memory

### **Note:**

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

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

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

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

|                   |
|-------------------|
| X faults detected |
|-------------------|

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page **114**.

-> In the case of "No faults detected", program returns to start after pressing =>key.

|                    |
|--------------------|
| No faults detected |
|--------------------|

-> Indicated on display:

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

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page **119**.
- Switch off ignition and unplug diagnostic connector.

## 8.7 - Fault table for telephone

### **Notes:**

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

- ◆ Sporadic faults which do not re-occur in the course of 40 switching on and off cycles of telephone are erased.

| Output on printer of<br>V.A.G 1551                                                                         | Possible cause of trouble                                    | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00003<br>Control unit<br>- Defective                                                                       | - Transmitter/receiver unit defective                        | - Replace transmitter/receiver unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system Telephone system                                                                                                                                                                                                                                                                                                                        |
| 00469<br>Data bus display in single-wire mode<br>- Electrical fault in current circuit                     | - Open circuit in wiring<br>- Wiring damage                  | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder                                                                                                                                                                                                                                                                                                                      |
| 00851<br>Loudspeaker*<br>*This fault is stored if a fault occurs in final control diagnosis (loudspeaker). | - Mutual shorting of + and - wires to hands-free loudspeaker | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace hands-free loudspeaker<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing telephone/navigation systems loudspeaker -R39 Telephone system; Removing and installing telephone/navigation systems loudspeaker -R39 |

| Output on printer of<br>V.A.G 1551                                         | Possible cause of trouble                                                                | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01300<br>Navigation control unit with CD drive -J401<br>- No communication | - Open circuit in wiring<br>- Wiring damage<br>- Navigation control unit -J401 defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace navigation control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system III; Removing and installing navigation control unit with CD drive -J401 Navigation system III; Removing and installing navigation control unit with CD drive -J401 |
| 01301                                                                      |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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|                                                       |                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speech input control unit -J507<br>- No communication | - Open circuit in wiring<br>- Voltage supply to speech input control unit interrupted<br>- Speech input control unit defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Check voltage supply to speech input control unit according to current flow diagram<br>Replace speech input control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telematics; Removing and installing speech input control unit -J507 Telematics; Removing and installing speech input control unit -J507 |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Output on printer of V.A.G 1551          | Possible cause of trouble                                                              | Fault remedy                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01304<br>Radio<br>- No communication     | - Open circuit in wiring<br>- Voltage supply to radio interrupted<br>- Radio defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Check voltage supply to radio using current flow diagram<br>Replace radio<br>=> Radio, Telephone and Navigation System; Repair Group 91; Radio systems; Removing and installing radio |
| 01305<br>Data bus display<br>- Defective | - Open circuit in wiring                                                               | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring                                                                                                                                                                                          |

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| Output on printer of V.A.G 1551                                                     | Possible cause of trouble                                 | Fault remedy                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01317<br>Control unit with display in dash panel insert -J285<br>- No communication | - Open circuit in wiring<br>- Dash panel insert defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace dash panel insert<br>=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert; Removing and installing dash panel insert |
| 01326                                                                               |                                                           |                                                                                                                                                                                                                                                                                                                                                                             |

|                                                                        |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-function steering wheel control unit -J453<br>- No communication | - Open circuit in wiring<br>- Multi-function steering wheel control unit defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace multi-function steering wheel control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Multi-function steering wheel; Removing and installing multi-function steering wheel control unit - J453 Multi-function steering wheel; Removing and installing multi-function steering wheel control unit -J453 |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Output on printer of V.A.G 1551                                                            | Possible cause of trouble                                                         | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01522<br>Telephone handset -R37<br>- No communication                                      | - Open circuit in wiring<br>- Telephone handset defective                         | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace telephone handset<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system<br>Telephone system                                                                                                                                                     |
| 01523<br>Telephone microphone -R38<br>- Open circuit/short to positive<br>- Short to earth | - Open circuit in wiring<br>- Short in wiring<br>- Telephone microphone defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace telephone microphone<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing hands-free microphone from model year 00 onwards Telephone system; Removing and installing hands-free microphone from model year 00 onwards |

| Output on printer of V.A.G 1551          | Possible cause of trouble                                                                       | Fault remedy                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01524<br>Telephone aerial<br>- No signal | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Telephone aerial defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace telephone aerial wire<br>Replace telephone aerial<br>=> Radio, Telephone and Navigation System; Repair Group 91; Telephone system; Removing and installing aerial Telephone system; Removing and installing aerial |



## 8.8 - Final control diagnosis

### Notes:

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

The "Final control diagnosis" function tests the loudspeaker wiring.

### Performing final control diagnosis:

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

-> Indicated on display:

Rapid data transfer      Q  
03 - Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Loudspeakers

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

### Note:

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

- Press =>key.

-> Indicated on display:

Final control diagnosis  
End

- Press =>key.
- Tester returns to basic function.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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## 8.9 - Erasing fault memory

### Note:

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

### Requirements:

- ♦ Fault memory interrogated =>Page 114
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

#### Notes:

▲ Attention:  
Fault memory not interrogated

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

▲ Rapid data transfer  
Fault memory not interrogated

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

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

## 8.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 8.11 - Encoding control unit

This function is used to encode the telephone as follows.

- ◆ Data bus
- ◆ Vehicle model
- ◆ Voice recognition/multi-function steering wheel



- ♦ Navigation system
- ♦ Radio configuration

**Notes:**

- ♦ The encoding procedure is used to set the various configuration options.
- ♦ The encoding table only lists the possible combinations applying to the Audi A4.
- ♦ In contrast to the codes of other control units, the code of the telematics control unit has 7 digits.

**Encoding procedure**

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
07 - Encode control unit

- Confirm entry with Q key.

-> Indicated on display:

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

- Enter code number as per encoding table => Page 121 .

**Code: 11324**

- ♦ Data bus 1 = without CAN
- ♦ Vehicle model: 1 = A4
- ♦ Voice control/multi-function steering wheel: 3 = with voice control and multi-function steering wheel
- ♦ Navigation system: 2 = Navigation system II-D
- ♦ Radio system: 4 = Radio system without CAN bus or navigation system II-D-

4D0035192E      Telephone Nokia 3      0001  
□ Code 0011324      WSC 06812

- > The display will show the control unit identification and the code that was entered (0011324).
- Press => key to terminate encoding procedure.

Indicated on display:

Rapid data transfer      HELP  
Select function XX

- Press keys 0 and 6.

Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

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## Encoding table:

| 6 - 7 | 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display                                                                                                                                                                                                                                                                                                                     |
|-------|---|---|---|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |   |   |   |   |   | Radio 1):<br>1: Without radio<br>2: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II)<br>3: With radio (with CAN) (Symphony I CAN, Symphony II, Chorus II, Concert II) with Bose<br>4: with radio (without CAN) (Chorus I, Concert I, Symphony I) or RNS-D<br>5: with radio (without CAN) (Chorus I, Concert I, Symphony I) or RNS-D with Bose |
|       |   |   |   |   |   | Navigation:<br>0: without navigation<br>1: with navigation system III (NSLow)<br>2: with navigation system II-D (RNS-D)<br>3: with navigation system IV (Nav4)                                                                                                                                                                                                          |
|       |   |   |   |   |   | Voice control/multi-function steering wheel (VCS/MSW):<br>0: Without VCS, without MSW<br>1: Without voice control, with multi-function steering wheel<br>2: Not used<br>3: With VCS, with MSW                                                                                                                                                                           |
|       |   |   |   |   |   | Vehicle model:<br>0: A3<br>1: A4 (B5)<br>2: A6<br>3: A8<br>4: A2<br>5: A4 (B6)                                                                                                                                                                                                                                                                                          |
|       |   |   |   |   |   | 0: With data bus<br>1: Without data bus                                                                                                                                                                                                                                                                                                                                 |
|       |   |   |   |   |   | 00: Columns reserved for later encoding                                                                                                                                                                                                                                                                                                                                 |

- 1) The differentiation of radio models is carried out, as a radio without CAN function can be fitted.

## 8.12 - Reading measured value block

### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 122 ) and confirm with Q key.

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



## List of display groups:

| Display group number | Indicated on display                                                                                    |
|----------------------|---------------------------------------------------------------------------------------------------------|
| 001                  | 1 = Telephone<br>2 = Subscribed/not subscribed<br>3 = Field strength<br>4 = 0...010                     |
| 002                  | 3 = Dimming<br>4 = 0...100%                                                                             |
| 005                  | 1 = Device number                                                                                       |
| 080                  | 1 = Hardware version, prod. date                                                                        |
| 081                  | 1 = Software version                                                                                    |
| 125                  | 1 = Dash panel data bus<br>2 = Steering wheel data bus<br>3 = Radio data bus<br>4 = Navigation data bus |
| 126                  | 1 = Voice recognition data bus                                                                          |

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## Measured value block 001

|                             |            |                |   |                                                         |
|-----------------------------|------------|----------------|---|---------------------------------------------------------|
| Read measured value block 1 |            |                | ⇒ | Indicated on display                                    |
| Telephone                   | Subscribed | Field strength | 5 |                                                         |
|                             |            |                |   | Field strength<br>▪ 0...10                              |
|                             |            |                |   | Field strength of telephone network                     |
|                             |            |                |   | Telephone subscription<br>▪ Subscribed<br>▪ Not subscr. |
|                             |            |                |   | Permanently fitted telephone                            |

## Measured value block 002

|                             |  |         |    |                                       |
|-----------------------------|--|---------|----|---------------------------------------|
| Read measured value block 2 |  |         | ⇒  | Indicated on display                  |
|                             |  | Dimming | 0% |                                       |
|                             |  |         |    | Dimming factor<br>▪ 0...100%          |
|                             |  |         |    | Dimming level (only with lights "ON") |

## Measured value block 005

|                             |  |  |   |                      |
|-----------------------------|--|--|---|----------------------|
| Read measured value block 5 |  |  | ⇒ | Indicated on display |
| IMEI: 493005100454423       |  |  |   |                      |
|                             |  |  |   |                      |

|               |  |
|---------------|--|
|               |  |
| Device number |  |

### Measured value block 080

|                                 |  |   |                      |
|---------------------------------|--|---|----------------------|
| Read measured value block 80    |  | ⇒ | Indicated on display |
| KEY ID: 0000000000 CP3.07 12/99 |  |   |                      |
| Display of key ID               |  |   |                      |

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### Measured value block 081

|                                |  |   |                      |
|--------------------------------|--|---|----------------------|
| Read measured value block 81   |  | ⇒ | Indicated on display |
| 4BYN009461 6.510 26-05-00 AC84 |  |   |                      |
| Display of chassis number      |  |   |                      |

### Measured value block 125

|                                                                                                                                                                  |                  |                                                                                                                                                                                                                    |                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Read measured value block 125                                                                                                                                    |                  | ⇒                                                                                                                                                                                                                  | Indicated on display |
| Dash panel 1                                                                                                                                                     | Steering wheel 1 |                                                                                                                                                                                                                    |                      |
|                                                                                                                                                                  |                  | <p>Navigation unit</p> <ul style="list-style-type: none"> <li>"1" = on data bus</li> <li>"0" = not on data bus (transmission fault)</li> <li>" " = not connected to data bus</li> </ul>                            |                      |
|                                                                                                                                                                  |                  | <p>Radio</p> <ul style="list-style-type: none"> <li>"1" = on data bus</li> <li>"0" = not on data bus (transmission fault)</li> <li>" " = not connected to data bus</li> </ul>                                      |                      |
|                                                                                                                                                                  |                  | <p>Multi-function steering wheel control unit</p> <ul style="list-style-type: none"> <li>"1" = on data bus</li> <li>"0" = not on data bus (transmission fault)</li> <li>" " = not connected to data bus</li> </ul> |                      |
| Dash panel insert                                                                                                                                                |                  |                                                                                                                                                                                                                    |                      |
| <ul style="list-style-type: none"> <li>"1" = on data bus</li> <li>"0" = not on data bus (transmission fault)</li> <li>" " = not connected to data bus</li> </ul> |                  |                                                                                                                                                                                                                    |                      |

### Measured value block 126

|  |
|--|
|  |
|--|

Voice recognition system

- "1" = on data bus
- "0" = not on data bus (transmission fault)
- " " = not connected to data bus

## 124 01 - Self-diagnosis

At present only the emergency aerial can be tested. "2 = GSM emergency aerial is tested" must therefore be set.

-> Indicated on display:

Adaption  
Enter channel number XX

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

**Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 5 Adaption 0  
Test OFF

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Top line shows selected channel and currently stored aerial test.

0 = no test

1 = GSM aerial is tested

- Press => key.

-> Indicated on display:

Channel 5 Adaption 0  
Enter adaption value XXXXX

- Enter 1 to have the GSM aerial tested.
- Confirm entry with Q key.

-> Indicated on display:

Channel 5 Adaption 1 Q  
Test ON

- Confirm entry with Q key.

-> Indicated on display:

Channel 5 Adaption 1 Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 5 Adaption 1  
Altered value stored

- Press => key.

-> Indicated on display:

Rapid data transfer HELP  
Select function XX

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



## 9 - Self-diagnosis of TV tuner

### 9.1 - Self-diagnosis of TV tuner

### 9.2 - General

#### Technical features of TV tuner

The new TV tuner has extensive self-diagnosis capability.

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

### 9.3 - Starting self-diagnosis of TV tuner

Measures for eliminating current, model-specific faults

=> Technical Service Handbook

#### Additional information material required

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

### 9.4 - Safety precautions

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

#### Attention:

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

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

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

#### Test requirements:

- ♦ Use current flow diagram to check that fuse is OK.
- ♦ Connect up vehicle diagnostic, testing and information system VAS 5051/fault reader V.A.G 1551 => Page 139.
- ♦ Switch on ignition.

#### Notes:

- ♦ If no display appears, use current flow diagram to check power supply for V.A.G 1551.
- ♦ Additional operating instructions can be called up by pressing the fault reader HELP key.

- ◆ Next step in program sequence can be selected by pressing ⇒ key.
- ◆ Incorrect entries can be terminated by pressing C key.
- ◆ Function 00 "Automatic test sequence" can be implemented in mode 1 "Rapid data transfer". This involves automatic interrogation of all vehicle control units.

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

→ Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

#### Address word for TV tuner: 57

- Press keys 5 and 7.

→ Indicated on display:

Rapid data transfer      Q  
75 - TV tuner

- Confirm entry with Q key.

3B0919142      TV Tuner 17001      0001  
Code 00010      WSC 06812

→ Adjacent display appears after approx. 5 s:

- 3B0919142: Part number of TV tuner
- TV Tuner 17001: Component designation
- 0001: Software version of TV tuner
- Code 00010: Code for TV tuner
- WSC 06812: Workshop code

#### Note:

Check code against encoding table => Page 134 .

- Press ⇒ key.

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

Rapid data transfer      HELP  
No control unit response

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

Rapid data transfer      HELP  
Fault in communication link

Rapid data transfer      HELP  
K-wire not switched to earth

Rapid data transfer      HELP  
K-wire not switched to positive

→ Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

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## Self-diagnosis functions

Possible functions:

- 01 - Interrogate control unit version => Page 128
- 02 - Interrogate fault memory => Page 128
- 03 - Final control diagnosis=> Page 131
- 05 - Erase fault memory => Page 132
- 06 - End output => Page 133
- 07 - Encode control unit=> Page 133
- 08 - Read measured value block => Page 135 .
- 10 - Adaption=> Page 137

## 9.5 - Interrogating control unit version

-> Indicated on display:

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

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

-> Indicated on display:

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

- Confirm entry with Q key.

|            |                |      |
|------------|----------------|------|
| 3B0919142  | TV Tuner 17001 | 0001 |
| Code 00010 | WSC 06812      |      |

- > Adjacent display appears after approx. 5 s:
  - 3B0919142: Part number of TV tuner
  - TV Tuner 17001: Component designation
  - 0001: Software version of TV tuner
  - Code 00010: Code for TV tuner
  - WSC 06812: Workshop code
- Press => key.

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## 9.6 - Interrogating fault memory

### **Note:**

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

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

-> Indicated on display:

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

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

-> Indicated on display:

Rapid data transfer      Q  
 02 - Interrogate fault memory

- Confirm entry with Q key.

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

X faults detected

The stored faults are consecutively displayed and printed out.

- Consult fault table with fault printed out and eliminate fault  
=> Page 129.

-> In the case of "No faults detected", program returns to start after pressing => key.

No faults detected

-> Indicated on display:

Rapid data transfer      HELP  
 Select function XX

If any other display appears:

=> Fault reader operating instructions

- End output (function 06) => Page 133.
- Switch off ignition and unplug diagnostic connector.

## 9.7 - Fault table for TV tuner

### Notes:

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- ◆ The following table lists all the faults which can be recognised by the TV tuner and printed out by the V.A.G 1551. The faults are listed in order according to their 5-figure code numbers.
- ◆ The fault code only appears on the printout.
- ◆ Before replacing components found to be defective, use current flow diagram to check wiring and connectors to these components as well as earth connections.
- ◆ On completion of repair work and system functional test, always interrogate fault memory again with fault reader V.A.G 1551 and erase it.
- ◆ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as being static if it is present for at least 2 seconds. If a fault is then no longer present, it is stored as being sporadic and "/SP" appears on the right of the display.
- ◆ After switching on ignition, all faults present are set to sporadic and only stored as being static if they are still present after checking.
- ◆ Sporadic faults which do not re-occur in the course of 40 switching on and off cycles of TV tuner are erased.

| Output on printer of<br>V.A.G 1551                                                 | Possible cause of trouble | Fault remedy              |
|------------------------------------------------------------------------------------|---------------------------|---------------------------|
| 00482<br>Rear display unit<br>- Open circuit/short to positive<br>- Short to earth | - Rear monitor defective  | - Replace rear monitor 1) |
| 00861                                                                              |                           |                           |



|                                                                                                                 |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection to navigation computer<br>- No communication<br>- Open circuit/short to positive<br>- Short to earth | - Wiring damage<br>- Open circuit in wiring<br>- Navigation control unit -J402 defective | - Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Eliminate open circuit in wiring<br>Replace navigation control unit<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit - J402 Navigation system II (Navigation System Plus); Removing and installing navigation operating electronics control unit -J402 |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

1) No rear compartment monitor is currently fitted.

| Output on printer of V.A.G 1551                                                      | Possible cause of trouble                                                                                | Fault remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00863<br>TV aerial 1<br>- Open circuit/short to positive<br>- Short to earth         | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Amplifier for TV aerial 1 defective | - Replace aerial wire<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace TV aerial amplifier<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window |
| 00864<br>TV aerial 2<br>- Open circuit/short circuit to positive<br>- Short to earth | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Amplifier for TV aerial 2 defective | - Replace aerial wire<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace TV aerial amplifier<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window |

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| Output on printer of V.A.G 1551 | Possible cause of trouble | Fault remedy |
|---------------------------------|---------------------------|--------------|
| 00865                           |                           |              |

|                                                                                      |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TV aerial 3<br>- Open circuit/short circuit to positive<br>- Short to earth          | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Amplifier for TV aerial 3 defective | - Replace aerial wire<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace TV aerial amplifier<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window<br>Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window |
| 00866<br>TV aerial 4<br>- Open circuit/short circuit to positive<br>- Short to earth | - Open circuit in aerial wire<br>- Short circuit in aerial wire<br>- Amplifier for TV aerial 4 defective | - Replace aerial wire<br>Use current flow diagram to perform fault-finding<br>=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder<br>Replace TV aerial amplifier<br>=> Radio, Telephone and Navigation System; Repair Group 91; Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window<br>Navigation system II-D (Navigation System Plus) (from week 48/99); Removing and installing aerial amplifier in rear window |

## 9.8 - Final control diagnosis

### Notes:

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

The "Final control diagnosis" function tests TV aerials -R55, -R56, -R57 and -R58.

### Performing final control diagnosis:

- Switch the radio/navigation unit to TV reception.
- Press keys 0 and 3 to select "Final control diagnosis" function.

-> Indicated on display:

Rapid data transfer Q  
03 - Final control diagnosis

- Confirm entry with Q key.

-> Indicated on display:

Final control diagnosis  
Aerial 1

Check reception via aerial 1.

### Note:

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

- Press =>key.

-> Indicated on display:



Final control diagnosis  
Aerial 2

Check reception via aerial 2.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Aerial 3

Check reception via aerial 3.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
Aerial 4

Check reception via aerial 4.

- Press ⇒key.

-> Indicated on display:

Final control diagnosis  
End

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

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

## 9.9 - Erasing fault memory

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

### **Requirements:**

- ♦ Fault memory interrogated =>Page 128
- ♦ All faults eliminated

After fault memory interrogation:

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
05 - Erase fault memory

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer  
Fault memory erased

Fault memory has now been erased.

- Press → key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

#### Notes:

Attention:  
Fault memory not interrogated

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

Rapid data transfer  
Fault memory not interrogated

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

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

## 9.10 - Ending output

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

-> Indicated on display:

Rapid data transfer      Q  
06 - End output

- Confirm entry with Q key.

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word XX

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

## 9.11 - Encoding control unit

This function is used to encode the TV tuner as follows:

- ◆ Diagnosis start-up
- ◆ Country code
- ◆ Tuner configuration

#### Notes:

- ◆ The encoding procedure is used to set the various configuration options.
- ◆ The encoding table only lists the possible combinations applying to the Audi A4.

#### Encoding procedure

-> Indicated on display:





|                                           |      |
|-------------------------------------------|------|
| Rapid data transfer<br>Select function XX | HELP |
|-------------------------------------------|------|

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

-> Indicated on display:

|                                                 |   |
|-------------------------------------------------|---|
| Rapid data transfer<br>07 - Encode control unit | Q |
|-------------------------------------------------|---|

- Confirm entry with Q key.

-> Indicated on display:

|                                                |           |
|------------------------------------------------|-----------|
| Encode control unit<br>Enter code number XXXXX | (0-32000) |
|------------------------------------------------|-----------|

- Enter code number as per encoding table => Page **134** .

**Code: 00010**

- ♦ 0 = Not used
- ♦ 0 = Not used
- ♦ Country code: 01 = PAL B/G Central Europe
- ♦ Tuner configuration: 0 = without secondary display

Code 00010 is standard for Germany.

|                         |                             |      |
|-------------------------|-----------------------------|------|
| 3B0919142<br>Code 00010 | TV Tuner 17001<br>WSC 06812 | 0001 |
|-------------------------|-----------------------------|------|

- > The display will show the control unit identification and the code that was entered (00010).
- Press => key to terminate encoding procedure.

Indicated on display:

|                                           |      |
|-------------------------------------------|------|
| Rapid data transfer<br>Select function XX | HELP |
|-------------------------------------------|------|

- Press keys 0 and 6.

Indicated on display:

|                                        |   |
|----------------------------------------|---|
| Rapid data transfer<br>06 - End output | Q |
|----------------------------------------|---|

- Confirm entry with Q key.

**Encoding table:**

|   |   |   |   |   |                                                     |                         |
|---|---|---|---|---|-----------------------------------------------------|-------------------------|
| 5 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display |                         |
|   |   |   |   |   | Tuner configuration, secondary display:             | 4 - 7: Component fitted |
|   |   |   |   |   | 0 - 3: Component not fitted                         |                         |

| 5                                 | 4 | 3 | 2 | 1 | ← Decimal places of byte encoding on tester display |
|-----------------------------------|---|---|---|---|-----------------------------------------------------|
| 0                                 | 0 |   |   |   | COUNTRY CODE/VIDEO STANDARD                         |
| 0                                 | 1 |   |   |   | Not used                                            |
| 0                                 | 2 |   |   |   | PAL B/G                                             |
| 0                                 | 3 |   |   |   | PAL B/G                                             |
| 0                                 | 4 |   |   |   | PAL I                                               |
| 0                                 | 5 |   |   |   | SECAM D/K                                           |
| 0                                 | 6 |   |   |   | SECAM L                                             |
| 0                                 | 7 |   |   |   | NTSC M                                              |
| 1                                 | 0 |   |   |   | PAL B/H                                             |
| 1                                 | 1 |   |   |   | PAL M                                               |
| 1                                 | 2 |   |   |   | PAL N                                               |
| 1                                 | 3 |   |   |   | PAL B                                               |
| 1                                 | 4 |   |   |   | PAL D/K                                             |
| 1                                 | 5 |   |   |   | PAL I                                               |
| 1                                 | 6 |   |   |   | SECAM D/K                                           |
| 1                                 | 7 |   |   |   | SECAM K1                                            |
|                                   |   |   |   |   | NTSC M                                              |
| Diagnosis start-up                |   |   |   |   | 2: Wake-up only possible over K wire                |
| 0: Not used                       |   |   |   |   | 3: Wake-up possible over CAN and K wire             |
| 1: Wake-up only possible over CAN |   |   |   |   |                                                     |
| Not used = 0                      |   |   |   |   |                                                     |

## 9.12 - Reading measured value block

### Performing "Read measured value block" function

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

-> Indicated on display:

Rapid data transfer      Q  
08 - Read measured value block

- Confirm entry with Q key.

-> Indicated on display:

Read measured value block  
Enter display group number XXX

- Enter display group number (from table => Page 135 ) and confirm with Q key.

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

### List of display groups:

| Display group number | Indicated on display                                                                         |
|----------------------|----------------------------------------------------------------------------------------------|
| 001                  | 1 = Rear monitor connection<br>2 = On/off                                                    |
| 002                  | 1 = TV aerial 1<br>2 = OK/short/open circuit<br>3 = TV aerial 2<br>4 = OK/short/open circuit |

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### Measured value block 001

### Measured value block 002

**Measured value block 003**

136 01 - Self-diagnosis

|                                                                                                 |  |
|-------------------------------------------------------------------------------------------------|--|
| Condition of TV aerial 3                                                                        |  |
| <ul style="list-style-type: none"> <li>▪ OK</li> <li>▪ Short</li> <li>▪ Open circuit</li> </ul> |  |
| TV aerial 3                                                                                     |  |

#### Measured value block 004

|                               |          |    |                                                                                                 |                        |
|-------------------------------|----------|----|-------------------------------------------------------------------------------------------------|------------------------|
| Read measured value block 4   |          |    | ⇒                                                                                               | ◀ Indicated on display |
| Navigat.                      | Connect. | OK |                                                                                                 |                        |
|                               |          |    | Condition of connection                                                                         |                        |
|                               |          |    | <ul style="list-style-type: none"> <li>▪ OK</li> <li>▪ Short</li> <li>▪ Open circuit</li> </ul> |                        |
| Connection to navigation unit |          |    |                                                                                                 |                        |

#### Measured value block 005

|                                                                              |          |  |                                                                              |                        |
|------------------------------------------------------------------------------|----------|--|------------------------------------------------------------------------------|------------------------|
| Read measured value block 5                                                  |          |  | ⇒                                                                            | ◀ Indicated on display |
| AV1 open                                                                     | AV2 open |  |                                                                              |                        |
|                                                                              |          |  | External input AV2                                                           |                        |
|                                                                              |          |  | <ul style="list-style-type: none"> <li>▪ open</li> <li>▪ occupied</li> </ul> |                        |
| External input AV1                                                           |          |  |                                                                              |                        |
| <ul style="list-style-type: none"> <li>▪ open</li> <li>▪ occupied</li> </ul> |          |  |                                                                              |                        |

### 9.13 - Adaption

The "Adaption" function can be used to adapt the TV tuner to the local station setup.

Adaption table:

| Adaption channel | Adaption function         |
|------------------|---------------------------|
| 01               | Station setup => Page 138 |

#### Performing function "10 - Adaption"

-> Indicated on display:

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



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

-> Indicated on display:

Rapid data transfer      Q  
10 - Adaption

- Confirm entry with Q key.

-> Indicated on display:

Adaption  
Enter channel number XX

- Enter desired adaption channel (adaption table => Page 137 ).
- Confirm entry with Q key.

**Note:**

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

**Station setup**

-> Indicated on display:

Adaption  
Enter channel number XX

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

**Note:**

*Wrong entries can be corrected by pressing C key.*

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      0

Top line shows selected channel and currently stored station setup.

- Press => key.

-> Indicated on display:

Channel 1      Adaption      0  
Enter adaption value XXXXX

- Enter new station setup, placing a 0 in front of the 4-digit number (e.g. 0001).
- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1      Q

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1      Q  
Store altered value?

- Confirm entry with Q key.

-> Indicated on display:

Channel 1      Adaption      1  
Altered value stored

- Press ⇒ key.

-> Indicated on display:

Rapid data transfer      HELP  
Select function XX

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

#### Local station setup

| Fitting plant | Adaption value |
|---------------|----------------|
| Ingolstadt    | 0              |
| Neckarsulm    | 1              |
| Wolfsburg     | 2              |
| Emden         | 3              |

## 10 - Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551, and selecting functions

### 10.1 - Connecting vehicle diagnostic, testing and information system VAS 5051 or fault reader V.A.G 1551, and selecting functions

#### Test requirements

- Battery voltage at least 11 V
- Earth connections on engine and gearbox OK
- Fuse OK

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

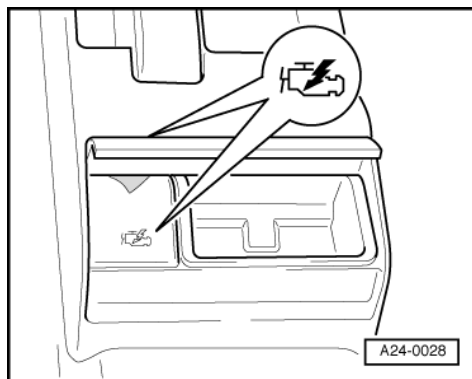
- Earth connections and earth point for gearbox OK

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

- Check battery earth strap and earth strap between battery and gearbox.
- Switch off ignition.

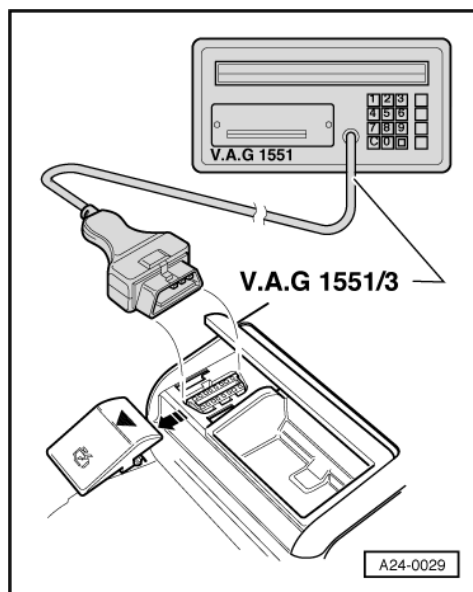
#### Note:

*Diagnostic connection is located in front left knee restraint.*





- -> Open rear ashtray and remove diagnostic connector cover.



- -> Connect vehicle diagnostic, testing and information system VAS 5051 with diagnostic lead VAS5051/1. Alternatively, connect fault reader V.A.G 1551 with diagnostic lead VAG 1551/3.

**Attention:**

- ♦ On test drives the vehicle diagnostic, testing and information system VAS 5051 or the fault reader V.A.G 1551 must only be secured on the rear seat and operated from there.
- ♦ Observe the safety precautions => Page 1

-> Indicated on display:

V.A.G SELF-DIAGNOSIS      HELP  
1 - Rapid data transfer\*  
2 - Flash code output\*

\* Displayed alternately

**Note:**

If display remains blank:

=> Fault reader operating instructions

- Switch on ignition
- Press Print key to switch on printer (lamp in key lights).
- Press key 1 for "Rapid data transfer".

-> Indicated on display:

Rapid data transfer      HELP  
Enter address word xx

**Note:**

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