Workshop Manual
Golf 2004 ➢
Golf Plus 2005 ➢
Communication

Edition 05.2008

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Repair Group

91 - Communication

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

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Contents

91 – Communication

1 Communication systems

The communication systems in the Golf and the Golf Plus primarily include the radio unit or the radio navigation system, the telephone system, the aerial system, the loudspeaker system, the multimedia system RSE, the CD changer, the “iPOD player” holder, the USB connection for MP3 player and the sound system amplifier.

Some equipment is optional so not all systems are installed in every vehicle.

Note

- *When faced with complaints, it is absolutely necessary to understand the functions and how to operate the communication systems.*
- *Additional information ⇒ Operating instructions*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

1.1 Fault finding

Most of the communication systems are equipped with self-diagnosis.

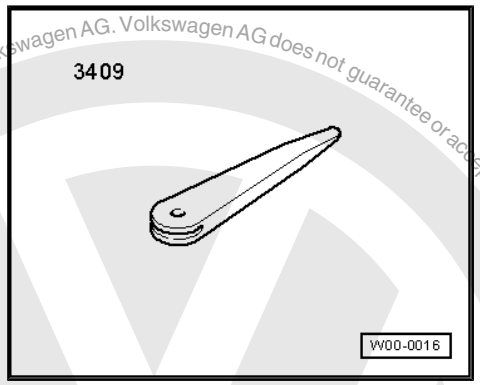
For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode.

2 Radio units and radio navigation systems in general

2.1 Removing and installing radio units and radio navigation systems, Golf saloon

2.1.1 Required special tools, testers, measuring instruments and auxiliary items

- Removal wedge -3409-



2.1.2 Removing

Note

- *Read respective chapter for unit when removing and installing.*
- *Radio system "RCD 300"* *⇒ page 9*
- *Radio system "RCD 310"* *⇒ page 15*
- *Radio system "RCD 500"* *⇒ page 24*
- *Radio system "RCD 510"* *⇒ page 32*
- *Radio system "Premium Sound System"* *⇒ page 44*
- *Radio navigation system "RNS 300"* *⇒ page 50*
- *Radio navigation system "RNS MFD 2 and DVD"* *⇒ page 56*
- *Radio navigation system "RNS MFD 2 and DVD", for models for USA and Canada* *⇒ page 65*
- *Radio navigation system "RNS 510"* *⇒ page 74*

Note

Before beginning dismantling work, perform the following steps:

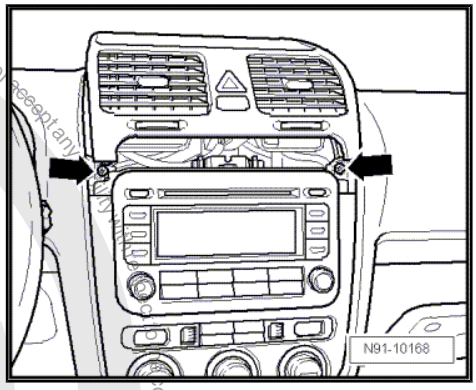
– Remove any CDs which may be in unit ⇒ Operating Manual .

– Switch off ignition and all electrical consumers and remove ignition key.

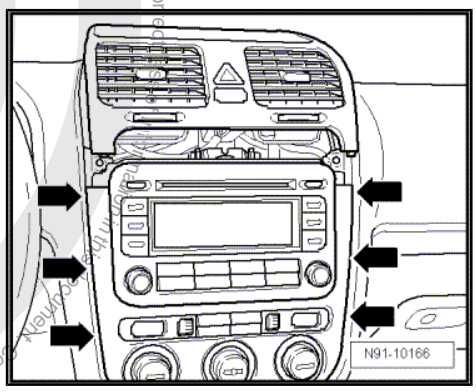
Carry out procedure as follows:

– Remove the upper cover with air vents from centre of dash panel, until the screws underneath for the radio trim plate are accessible, ⇒ General body repairs; Rep. Gr. 68 ; Shelves, covers and trim plates .

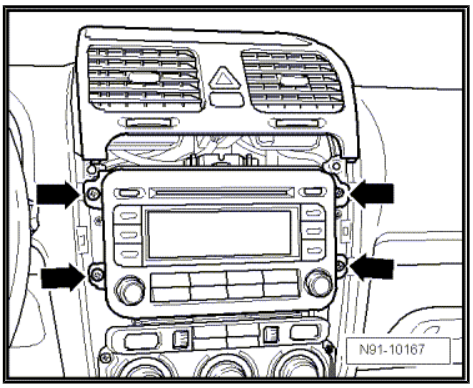
– Remove bolts -arrows-.



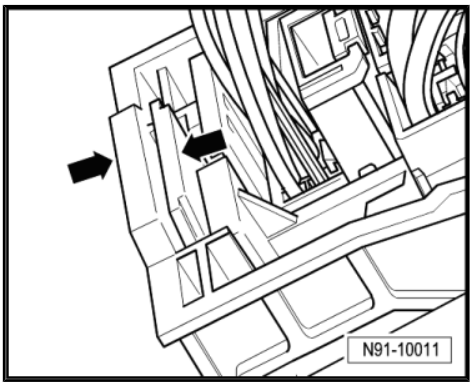
– Using removal wedge -3409- , carefully lever out centre console cover in area of -arrows- and remove trim plate.



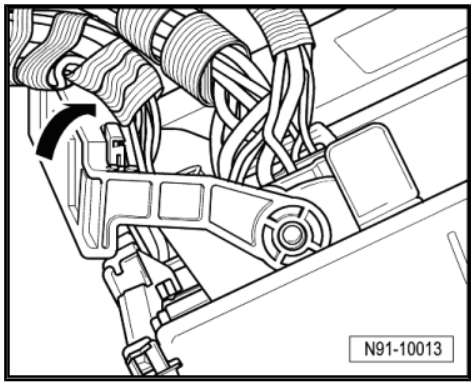
– Remove bolts -arrows- in radio unit.
– Pull radio unit out of slot far enough to be able to reach connector on back of radio unit.



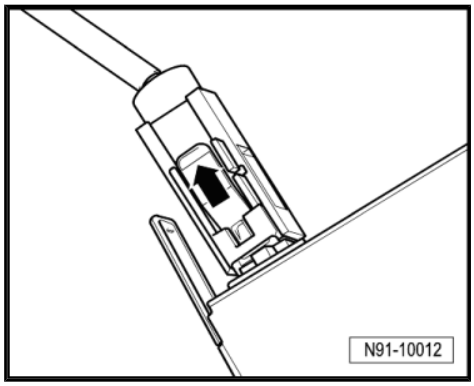
– Press together connector locking mechanism in direction of -arrows-.



– Then swing locking bar up in direction of -arrow- and disconnect connector.



– Release connectors -arrows- from aerial connections and disconnect them.



2.1.3 Installing

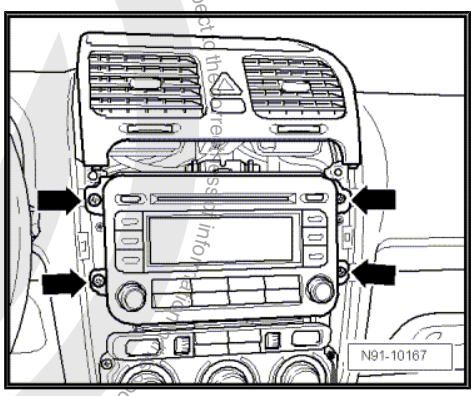
– Push connectors onto radio unit and lock.
– Push radio unit straight into dash panel.

Note

Never press against display or operating buttons when fitting radio unit, for this may damage radio unit.

– Secure radio unit with the 4 bolts -arrows-.
– Install centre console cover again.
– Check coding of radio unit and recode radio unit if necessary.

Coding of radio unit ⇒ Adapting radio components ⇒ page 7



2.2 Removing and installing radio units and radio navigation systems, Golf Plus

2.2.1 Removing

Note

- *Read respective chapter for unit when removing and installing.*
- *Radio system "RCD 300" ⇒ page 9*
- *Radio system "RCD 310" ⇒ page 15*
- *Radio system "RCD 500" ⇒ page 24*
- *Radio system "RCD 510" ⇒ page 32*
- *Radio navigation system "RNS 300" ⇒ page 50*
- *Radio navigation system "RNS MFD 2 and DVD" ⇒ page 56*
- *Radio navigation system "RNS 510" ⇒ page 74*

Before beginning dismantling work, perform the following steps:

– Remove any CDs which may be in unit ⇒ Operating Manual.

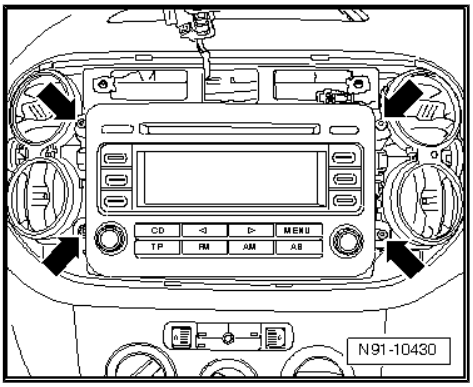
– Switch off ignition and all electrical consumers and remove ignition key.

Carry out procedure as follows:

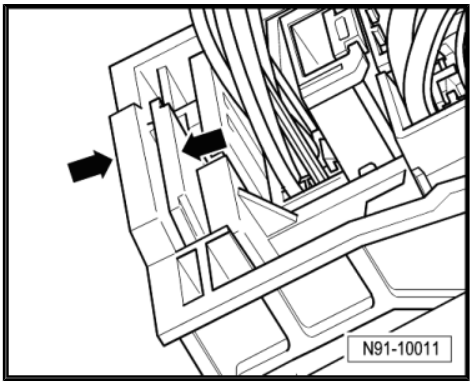
– Remove trim from centre of dash panel ⇒ General body repairs, interior; Rep. Gr. 68 ; Compartments, covers and trim; Trim; Removing and installing trim in centre of dash panel.

– Remove bolts -arrows- in radio unit.

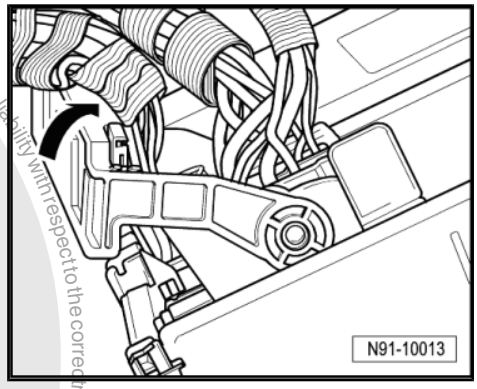
– Pull radio unit out of slot far enough to be able to reach connector on back of radio unit.



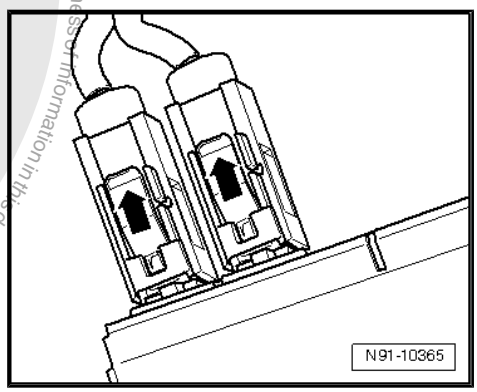
– Press together connector locking mechanism in direction of -arrows-.



– Then swing locking bar up in direction of -arrow- and disconnect connector.



– Release connectors -arrows- from aerial connections and disconnect them.



2.2.2 Installing

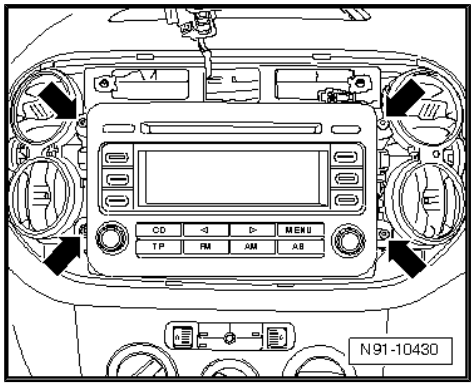
– Push connectors onto radio unit and lock.
– Push radio unit straight into dash panel.

Note

Never press against display or operating buttons when fitting radio unit, for this may damage radio unit.

– Secure radio unit with the 4 bolts -arrows-.
– Install trim for centre of dash panel again.
– If necessary, deactivate anti-theft coding ⇒ page 13 .
– Check coding of radio unit and recode radio unit if necessary.

Coding of radio unit ⇒ Adapting radio components ⇒ page 7



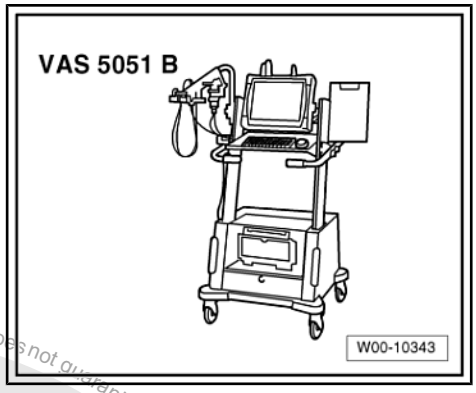
2.3 Fault finding

The radio system is equipped with self-diagnosis.

For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode.

2.4 Adapting radio components

2.4.1 Required special tools, workshop equipment, testers, measuring instruments and auxiliary items



- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-

Adapting radio components:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-.

or

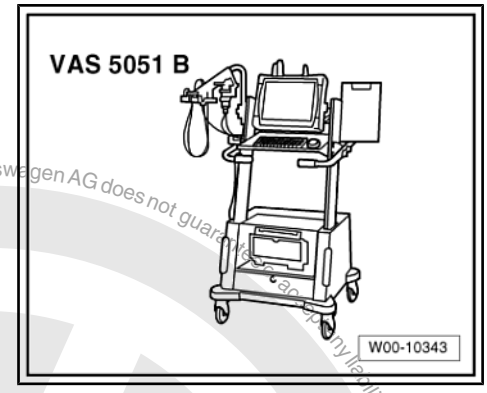
Select “Guided fault finding” in the vehicle diagnostic, testing and information system -VAS 5051- or the vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” button.
– Select “Function/component selection”.
– Select “Body”.
– Select “Electrical system”.
– Select “01 - On Board Diagnostic (OBD) capable systems”.
– Select “Radio system”.
– Select “Radio functions”.

2.5 Adapting navigation system components

2.5.1 Required special tools, workshop equipment, testers, measuring instruments and auxiliary items



- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-

Adapting navigation system components:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

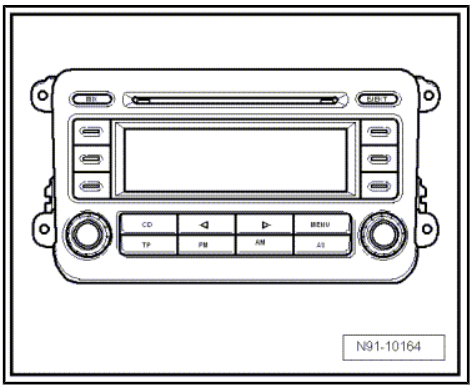
or

Select “Guided fault finding” in the vehicle diagnostic, testing and information system -VAS 5051- or the vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” button.
– Select “Function/component selection”.
– Select “Body”.
– Select “Electrical system”.
– Select “01 - On Board Diagnostic (OBD) capable systems”.
– Select “Radio navigation system”.
– Select “Functions”.
– Select “Code navigation system”.

3 Radio system “RCD 300”



Radio RCD 300

Note

- *The part number for the radio unit can be found on a sticker on the radio unit housing.*
- *If the radio unit is renewed, it is very important that the anti-theft coding is activated ⇒ Operating Manual . The new code number should be given to the customer.*
- *If the anti-theft code is not known it can be requested via the established systems. The identification number of the radio is required for the request. It is located on a sticker on the side of the radio unit. The identification number is also stamped into the material on the side of the radio unit.*

Note

- *When faced with complaints, it is absolutely necessary to understand the functions and the operation of the radio unit.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is equipped with a fixed code, Deactivating anti-theft coding ⇒ page 13 .*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

3.1 General description

The radio “RCD 300” consists of the radio unit and the loudspeakers in the doors.

The radio unit employs an output stage with 2 x 20 watt output; 4 x 20 watt output is also available as an option.

The loudspeakers are designed as a 3-way system in the front and as a 2-way system in the rear. Depending on which optional extras the customer selected, loudspeaker systems are installed in the front only (2 x 20 watt output) or front and back (4 x 20 watt output).

On the radio version with 2 x 20 watt output, installed in the front doors are also:

- A bass loudspeaker, a mid-range loudspeaker and a treble loudspeaker on each side.

On the radio version with 4 x 20 watt output, on a 4-door model in the rear doors and on a 2-door model in the rear side panel trim are also:

- A bass loudspeaker and a treble loudspeaker on each side.

To extend the functionality, there is a connection for a CD changer, and if a telephone is used, there a telephone mute switch and an input for the telephone LF signal.

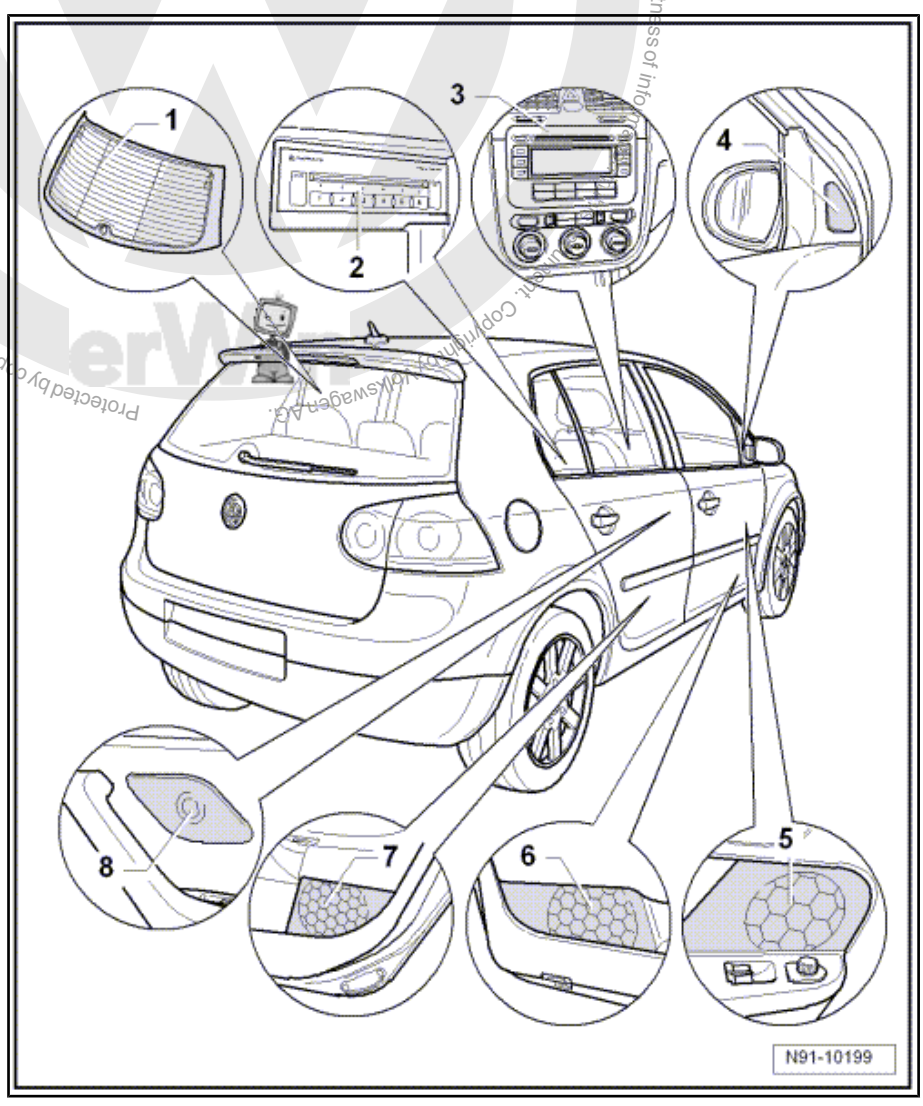
The CD drive integrated in the radio unit can play CDs in both "CD-R" as well as "CD-RW" formats.

Note

- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*

The aerial is a window aerial and is located in the rear window.
The aerial system operates using a "diversity function".

3.2 Overview of radio system "RCD 300"



1 - Aerial for radio reception

- ❑ Installed in rear window
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed below hinged centre armrest
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

3 - Radio -R-

- ❑ Removing and installing, Golf ⇒ page 2

4 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

3.3 Overview of radio system “RCD 300”, Golf Plus

1 - Aerial for radio reception

- ❑ Installed in rear window
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed below hinged centre armrest
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

3 - Radio -R-

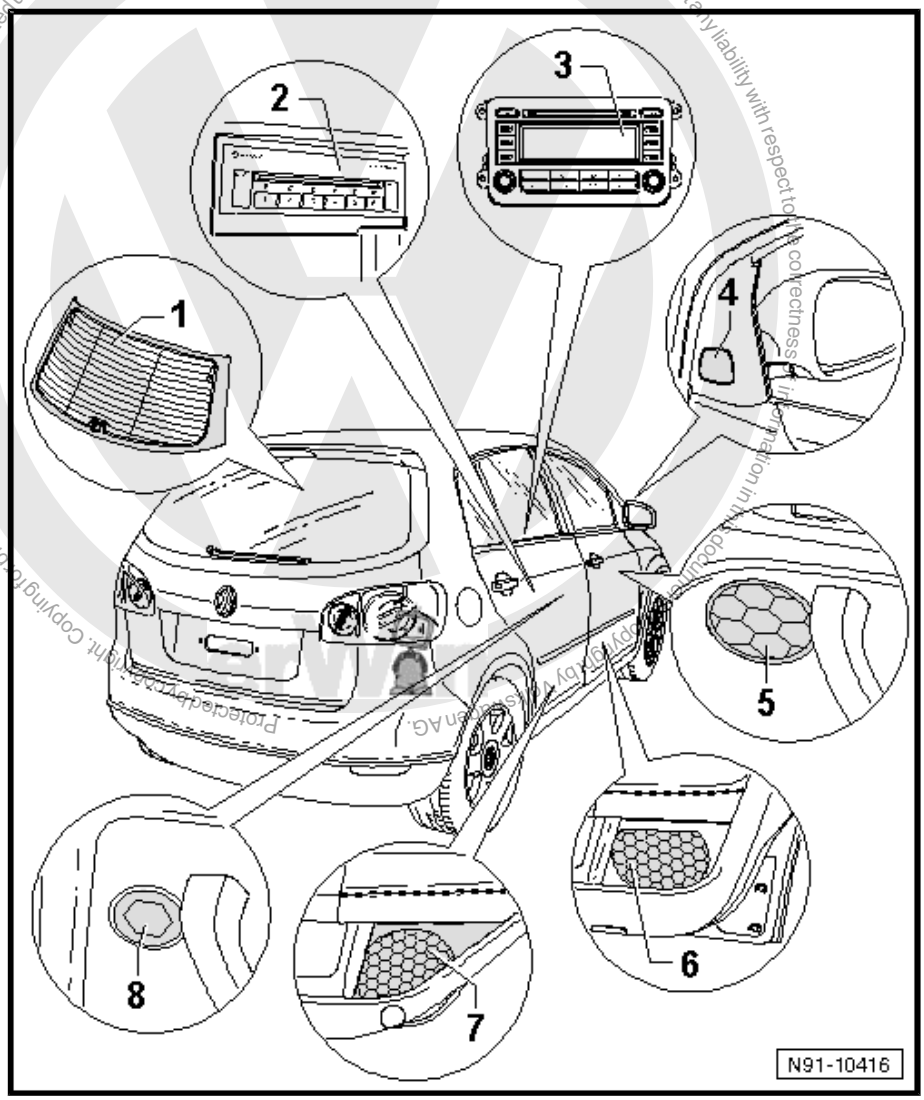
- ❑ Removing and installing, Golf Plus ⇒ page 5
- ❑ Overview of connectors ⇒ page 12

4 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .



6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

3.4 Overview of connectors on radio unit “RCD 300”

1 - Multi-pin connector 1, 8-pin, loudspeaker outputs

- ❑ Pin assignment ⇒ page 12

2 - Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch

- ❑ Pin assignment ⇒ page 13

3 - Multi-pin connector 3, 12-pin, telephone signal input

- ❑ Pin assignment ⇒ page 13

4 - Multi-pin connector 4, 12-pin, CD changer control and CD audio input signals

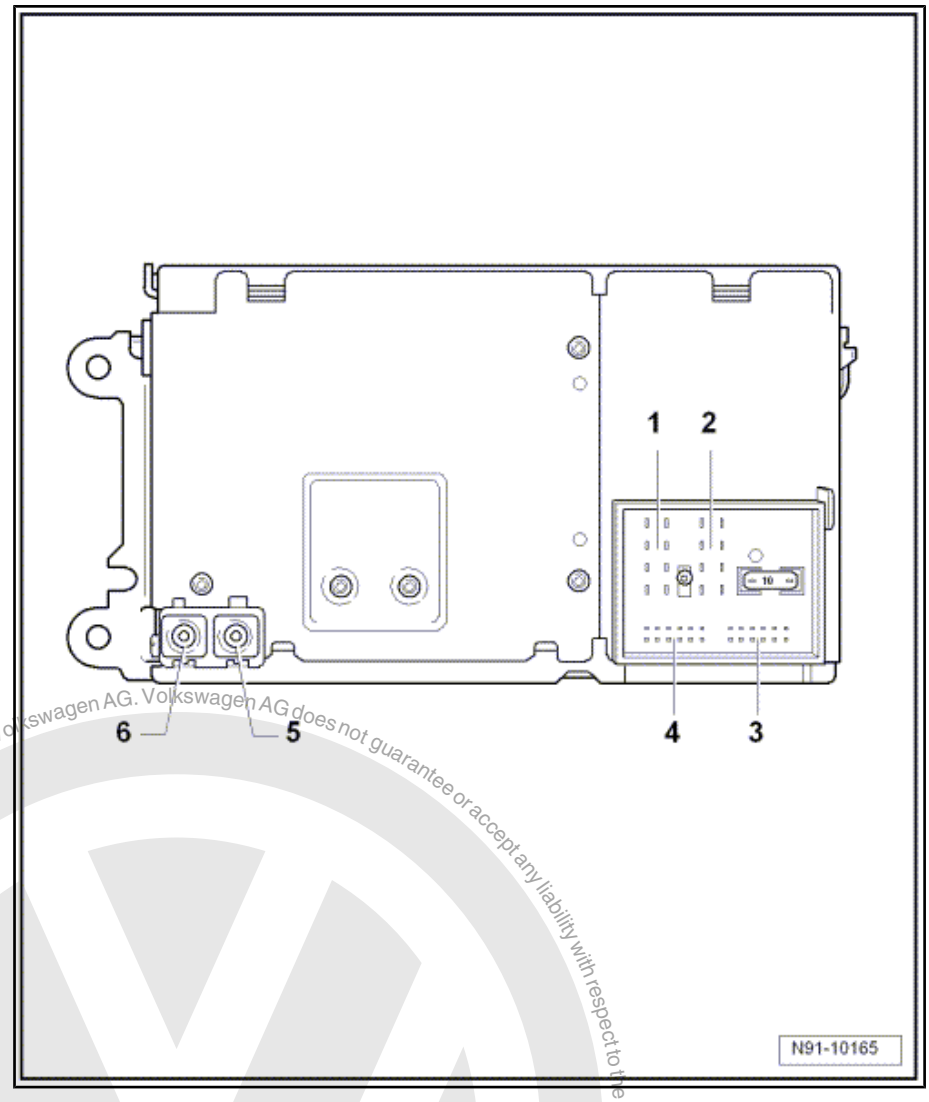
- ❑ Pin assignment ⇒ page 13

5 - Connector 5, aerial connection

- ❑ Connector colour beige
- ❑ Connection for aerial cable to aerial in rear window

6 - Connector 6, aerial connection

- ❑ Connector colour transparent
- ❑ Connection for aerial cable to aerial in rear window



3.4.1 Multi-pin connector 1, 8-pin, loudspeaker outputs

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

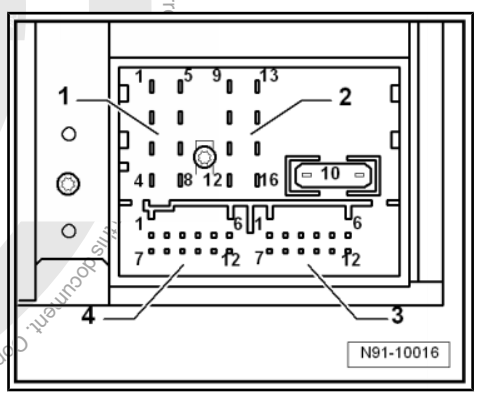
4 - Rear left loudspeaker, positive

5 - Rear right loudspeaker, negative

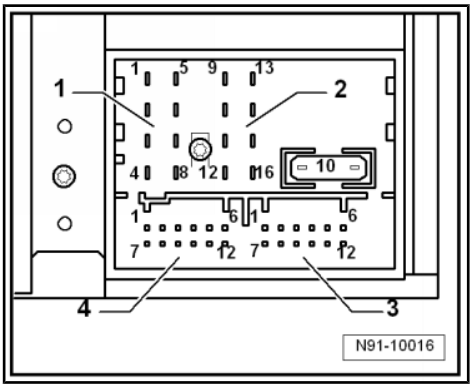
6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative



3.4.2 Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch



9 - CAN high

10 - CAN low

11 - Telephone mute switch

12 - Negative connection, terminal 31

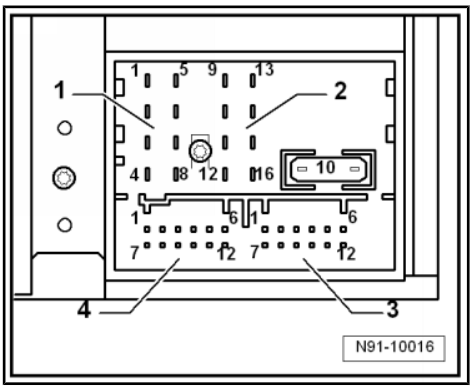
13 - Not assigned

14 - Not assigned

15 - Positive connection, terminal 30

16 - Anti-theft coding control signal, SAFE

3.4.3 Multi-pin connector 3, 12-pin, telephone signal input



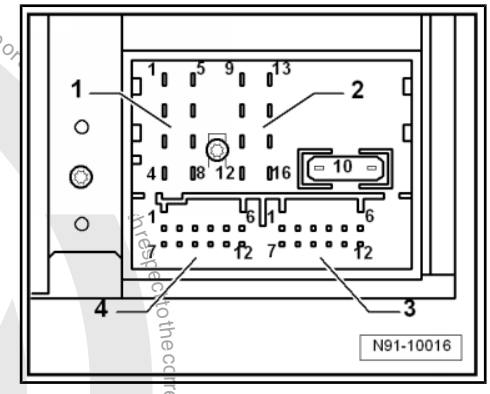
1–5 - Not assigned

6 - Telephone LF signal input, negative

7–11 - Not assigned

12 - Telephone LF signal input, positive

3.4.4 Multi-pin connector 4, 12-pin, CD changer control and CD audio input signals



1 - Right headphone output signal, positive

2 - CD changer, left and right channels, negative

3 - Headphone output signal, audio earth

4 - CD changer, voltage supply, positive

5 - Left headphone output signal, positive

6 - CD changer, bus DATA OUT

7 - Not assigned

8 - CD changer, left channel, positive

9 - CD changer, right channel, positive

10 - CD changer, control signal

11 - CD changer, bus DATA IN

12 - CD changer, bus CLOCK

3.5 Anti-theft coding

The radio unit is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio voltage supply, the radio operation is restored when reconnecting the voltage supply without entering the code number. The prerequisites are that initial activation of

the anti-theft coding has been performed and the radio is located in the same vehicle.

3.5.1 Deactivating anti-theft coding

A blocked radio unit can only be returned to normal operation by entering the correct code number for the anti-theft coding.

Note

- *The code number for the anti-theft coding is stuck to the radio card, together with the unit number ⇒ Operating Manual .*
- *The radio card should not be kept in the vehicle for security reasons. If necessary, ask the customer for the code number.*
- *If a radio unit is renewed, the code number of the replacement radio must be used.*
- *The customer must be informed that the code number has changed.*

– Obtain the unit's code number.

– Switch the radio unit on.

The unit automatically displays “SAFE” and then “1000”. There is no need to operate any buttons.

Next to the four multifunction buttons, the position of the code number to be set is shown via “_X _” in the display.

– Using the four multifunction buttons which are shown, enter the code number stuck onto the radio card in the correct sequence. Press the relevant button as many times as necessary until the correct number is shown in the centre of the display.

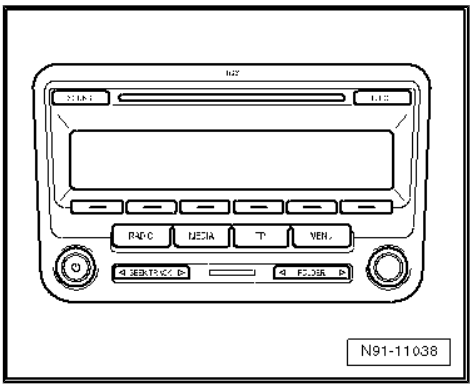
– Then press the multifunction button next to the word “ENTER”. The radio unit is then ready to operate again and switches to its last operating state.

Note

If an incorrect code number has been entered on deactivating the electronic lock, “SAFE” first flashes in the display, followed by “1000” again. The entire process can now be repeated again. The number of attempts is shown in the display. If an incorrect code number is entered again, the unit is blocked for approx. one hour, i.e. it cannot be operated. This lock is indicated by the fact that “SAFE” is permanently shown in the display. After one hour – the ignition and the unit must remain switched on – the attempt display is extinguished and the electronic lock can be deactivated as described above. The “two attempts, blocked for one hour” cycle still applies.

4 Radio system RCD 310

View of radio “RCD 310”



Note

- *When faced with complaints, it is absolutely necessary to understand the functions and the operation of the radio unit.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is a fixed code ⇒ page 21 .*
- *For maintenance work or fault finding ⇒ Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- , Guided fault finding ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

4.1 General notes

The radio unit RCD 310 has, among other things, following main equipment features:

- 4 x 20 watt output loudspeaker channels
- Monochrome display
- Controls for external 6-disc CD changer
- Telephone controls (hands-free system)
- Connection for external sound amplifier
- DAB operation possible

The radio “RCD 310” consists of the radio unit and the front and rear loudspeakers.

The CD drive integrated in the radio unit can play the following CD formats:

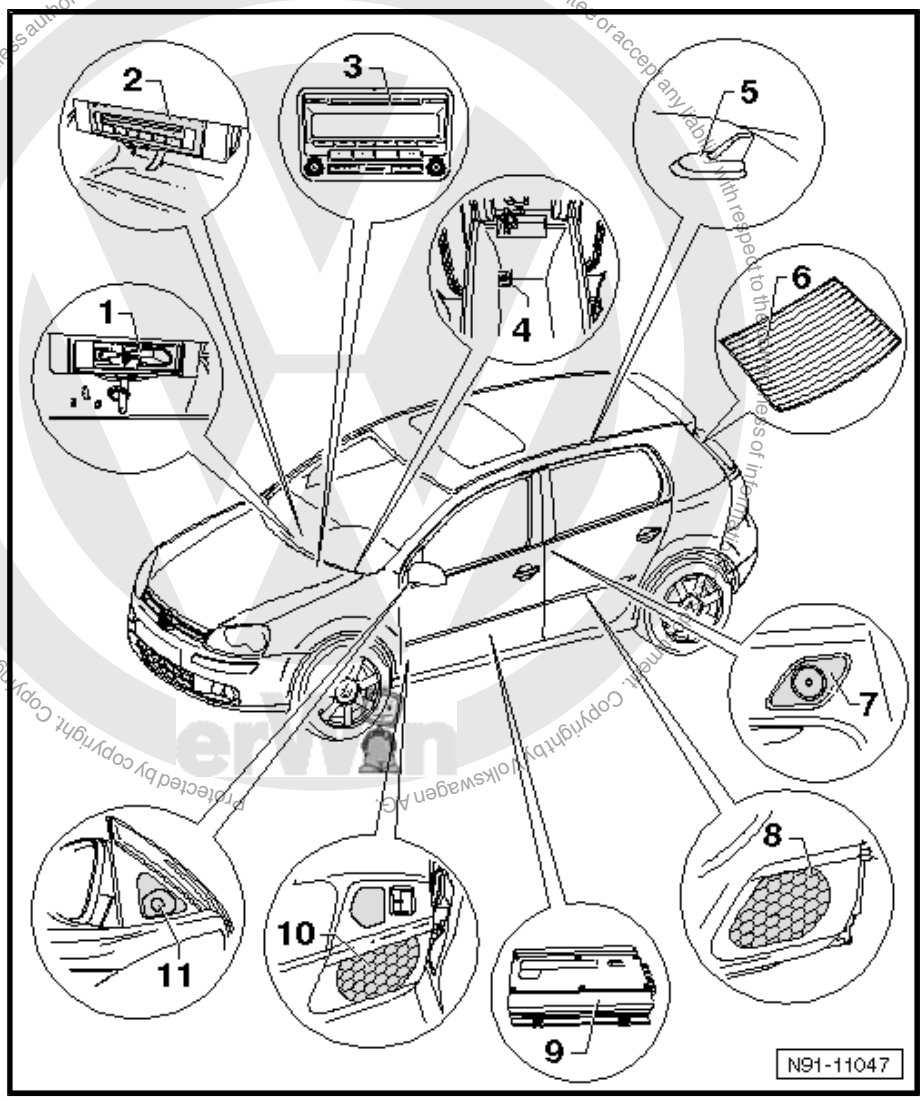
- CD-R
- CD-RW
- mp3
- wma

Note

Mixed-mode CDs (CDs having both computer data and music) cannot be played.

The aerial system version has a “diversity function” integrated in the radio unit.

4.2 Overview of radio system “RCD 310”, Golf saloon



1 - Multimedia system control unit -J650-

- ❑ Installed in centre console
- ❑ For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”. Both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed in centre console
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”. Both systems are not available together since there is only one fitting location for both systems.

3 - Radio -R- (RCD 310)

- ❑ Removing and installing ⇒ page 2
- ❑ Overview of connectors ⇒ page 19
- ❑ Anti-theft coding ⇒ page 21

4 - Connection for external audio sources -R199-

- ❑ Fitted in storage compartment beneath centre armrest
- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems.

6 - Window aerials

- ❑ Installed in rear window, for radio reception with diversity aerial
- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- Installed under left front seat
- For more information, see the chapter on amplifier for sound system ⇒ page 109

10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- Installed in door trim panel in both front doors
- Mid-range loudspeakers are only installed in conjunction with the sound system.
- Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- Installed in mirror triangular trim plate in both front doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

4.3 Overview of radio system “RCD 310”, Golf Plus

1 - Multimedia system control unit -J650-

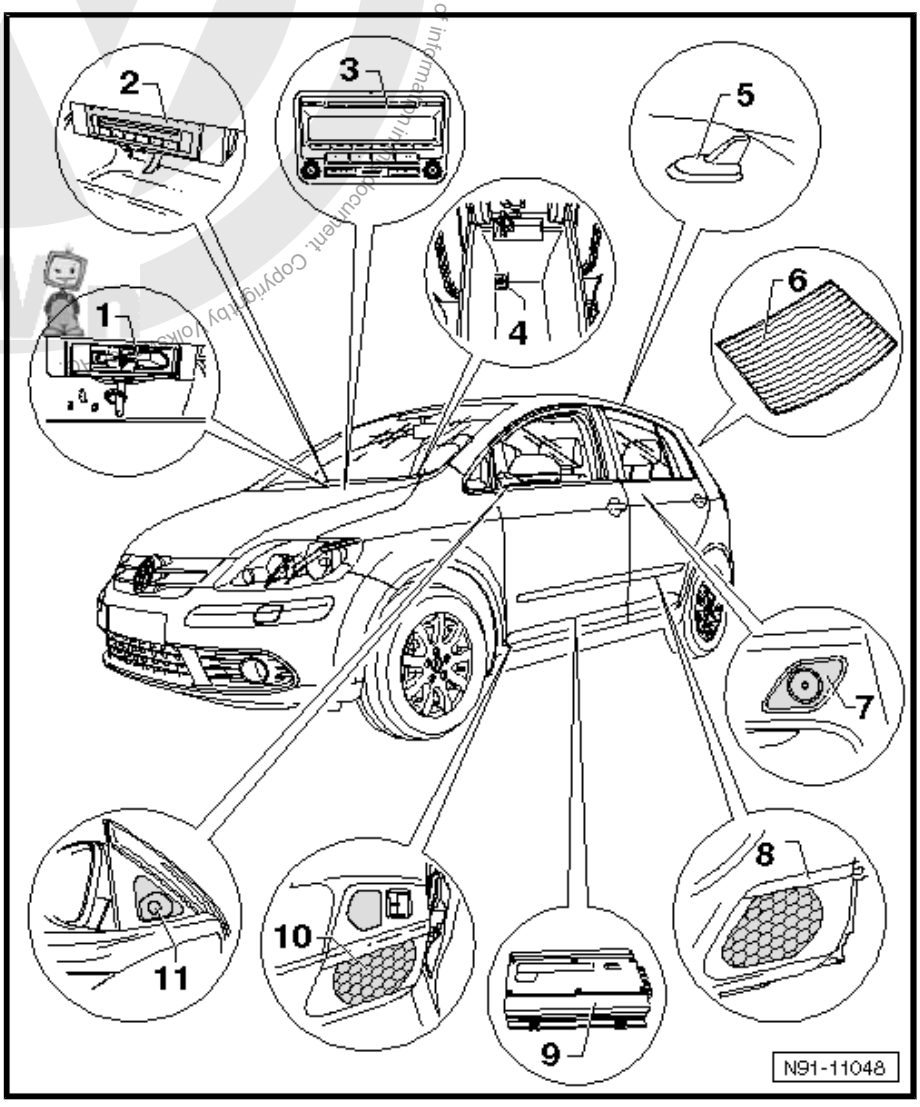
- Installed in centre console
- For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- Optional installation of “CD changer” or “multimedia control unit”. Both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- 6-disc CD changer
- Installed in centre console
- For further information, refer to chapter CD changer ⇒ page 113 .
- Optional installation of “CD changer” or “multimedia control unit”. Both systems are not available together since there is only one fitting location for both systems.

3 - Radio -R- (RCD 310)

- Removing and installing ⇒ page 5
- Overview of connectors ⇒ page 19
- Anti-theft coding ⇒ page 21



4 - Connection for external audio sources -R199-

- Fitted in storage compartment beneath centre armrest

- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems.

6 - Window aerials

- ❑ Installed in rear window, for radio reception with diversity aerial
- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- ❑ Installed under left front seat
- ❑ For more information, see the chapter on amplifier for sound system ⇒ page 109

10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ Mid-range loudspeakers are only installed in conjunction with the sound system.
- ❑ Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- ❑ Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

4.4 Overview of connectors on radio “RCD 310”

1 - Aerial connection

- ❑ DAB aerial input connection, optional

or

- ❑ SDARS aerial input connection for vehicles for USA and Canada

2 - Multi-pin connector 1, 8-pin, loudspeaker outputs

- ❑ Pin assignment ⇒ page 19

3 - Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch

- ❑ Pin assignment ⇒ page 20

4 - Multi-pin connector 3, 12-pin, AUX audio output, telephone signal input

- ❑ Pin assignment ⇒ page 20

5 - Multi-pin connector 4, 12-pin, AUX audio input, CD changer control and CD audio input signals

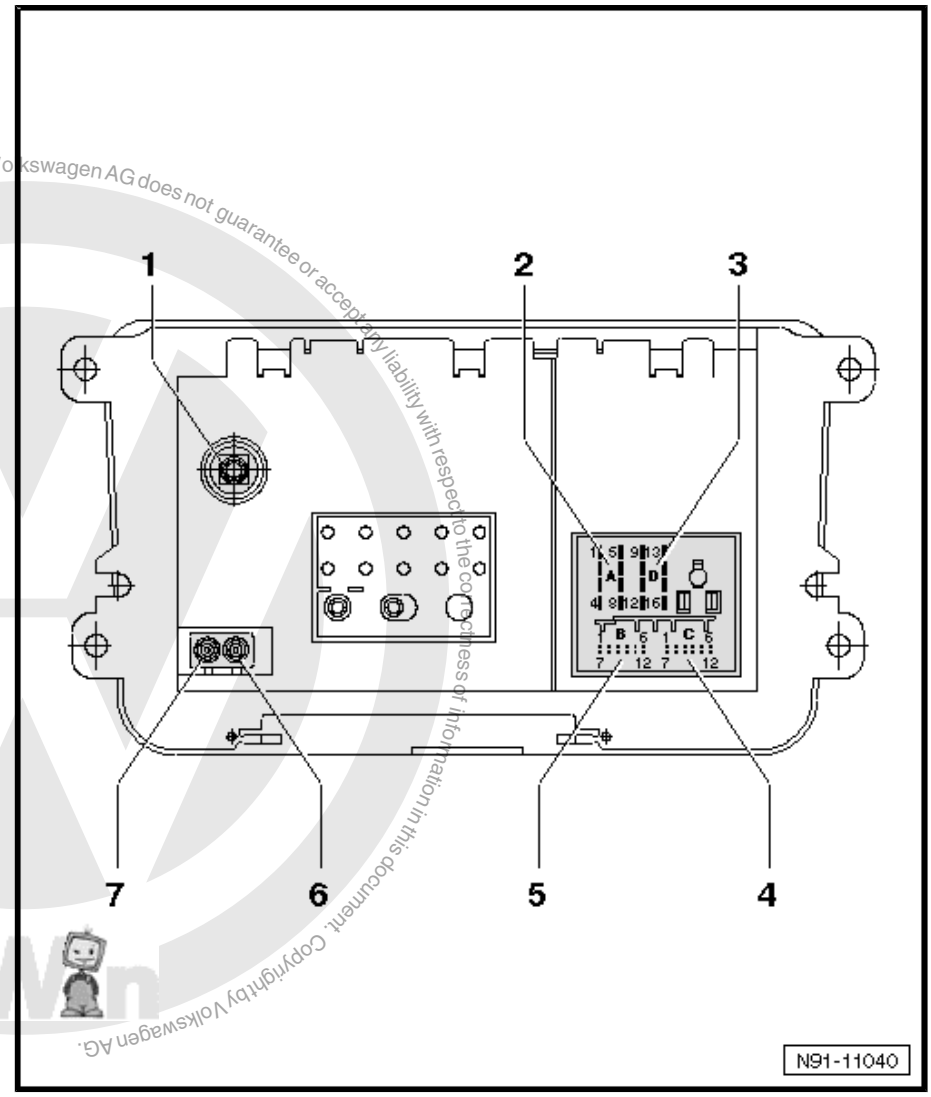
- ❑ Pin assignment ⇒ page 21

6 - Aerial connection

- ❑ AM/FM aerial input connection

7 - Aerial connection

- ❑ AM/FM aerial input connection



4.4.1 Multi-pin connector 1, 8-pin, loudspeaker outputs

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

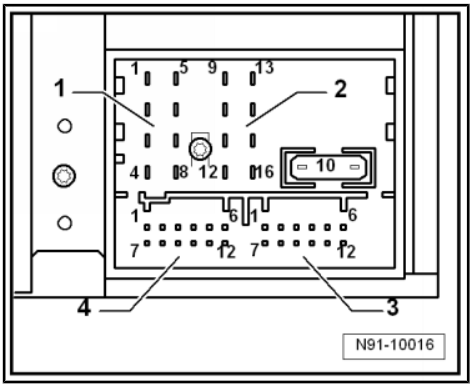
4 - Rear left loudspeaker, positive

5 - Rear right loudspeaker, negative

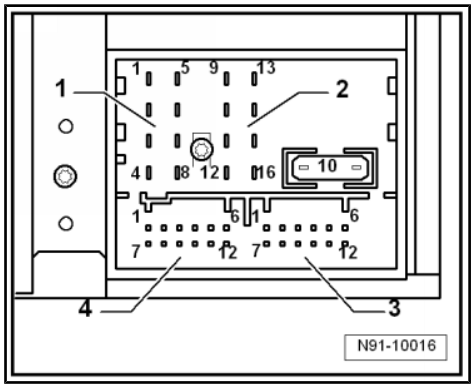
6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative



4.4.2 Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch



9 - CAN high

10 - CAN low

11 - Voltage supply display, switched on, positive

12 - Negative connection, terminal 31

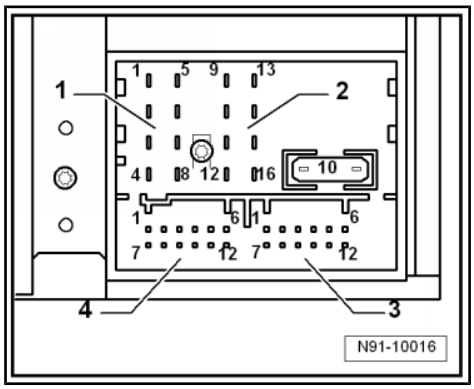
13 - CAN bus display, negative

14 - CAN bus display, positive

15 - Positive connection, terminal 30

16 - Anti-theft coding control signal, SAFE

4.4.3 Multi-pin connector 3, 12-pin, AUX audio output, telephone signal input



1 - Microphone input, negative

2 - AUX output, audio, positive, right

3 - AUX output, audio, negative

4 - Microphone output, negative

5 - Telephone LF signal input, left, negative

6 - Telephone LF signal input, right, negative

7 - Microphone input, positive

8 - AUX output, audio, positive, left

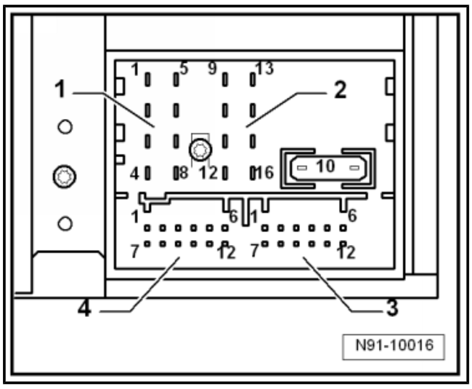
9 - Microphone output, positive

10 - Telephone mute

11 - Telephone LF signal input, left, positive

12 - Telephone LF signal input, right, positive

4.4.4 Multi-pin connector 4, 12-pin, AUX audio input, CD changer control and CD audio input signals



1 - AUX audio input, positive, left

2 - AUX audio input, negative

3 - CD changer audio, negative

4 - CD changer, voltage supply, positive

5 - Not assigned

6 - CD changer, bus DATA OUT

7 - AUX audio input, positive, right

8 - CD changer, left channel audio, positive

9 - CD changer, right channel audio, positive

10 - CD changer, control signal

11 - CD changer, bus DATA IN

12 - CD changer, bus CLOCK

4.5 Anti-theft coding

The radio unit is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

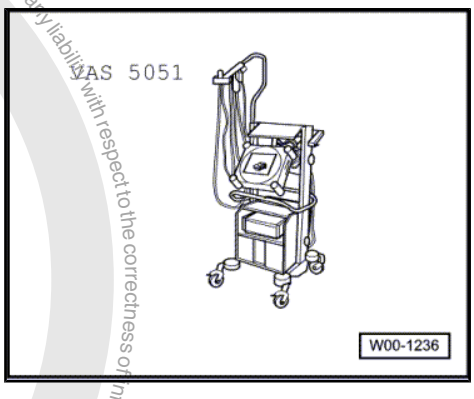
After disconnecting the radio voltage supply, radio operation is restored when reconnecting the voltage supply without entering the code number. The prerequisites are that the initial activation of the anti-theft coding has been performed and the radio is reconnected in the same vehicle.

The anti-theft code is determined using vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- . The previously related radio card and the sticker on the radio unit have been discontinued.

Note

To determine the anti-theft code, vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- must be connected “online” (network connection), and the user must possess valid rights for the programme for requesting radio codes.

4.5.1 Deactivating anti-theft code of anti-theft coding



Required special tools, workshop equipment, testers, measuring instruments and auxiliary items

- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-

Determining anti-theft code of anti-theft coding via VAS tester:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

or

Select “Guided fault finding” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” key.

– Select “Function/Component selection”.

– Select “Body”.

– Select “Electrical system”.

– Select “01 - On Board Diagnostic (OBD)”.

– Select “Radio navigation system”.

– Select “Functions”.

– Select and start “Radio code request”.

Your system rights are then determined. The operating data, the chassis number and the unit number of the radio or radio navigation system are then read out automatically.

Note

When installing radio units or radio navigation systems which are new or have not yet been adapted to the vehicle, it may occur that the tester is unable to read out the unit number of the radio unit or the radio navigation system. In this case, please enter the unit number manually. It can be read off from the sticker affixed to the unit and is additionally stamped into the side of the unit.

The radio code which has been determined is then shown on the tester's display.

The anti-theft code must now be entered manually into the radio unit.

Deactivating anti-theft coding:

– Switch on radio unit.

The word “SAFE” appears for approx. 10 seconds on the display and then number sequence “1000”.

– Enter a code number by pressing the corresponding function buttons until the right number sequence appears.

After entering the four-digit code number, “OK” appears on the display.

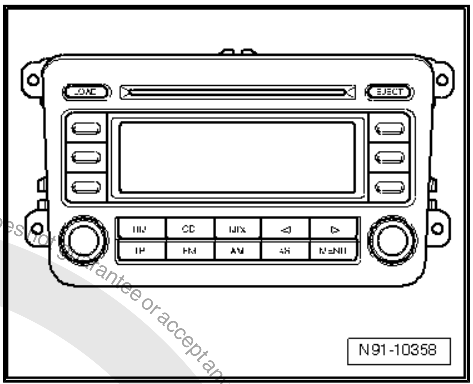
– When you have entered the right code number, confirm it with the “OK” function button on the display.

The unit will be released and is ready for use.

Note

If the incorrect anti-theft code is entered, it can be immediately corrected with a further attempt. If the incorrect anti-theft code is entered twice, the radio unit is locked for one hour. Leave ignition and radio unit switched on. The process of deactivating the anti-theft coding can then be repeated after one hour. Remember: you always have two attempts at entering the code, then the radio unit is blocked for one hour.

5 Radio system “RCD 500”



Radio “RCD 500”

Note

- *When faced with complaints, it is absolutely necessary to understand the functions and the operation of the radio unit.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is equipped with a fixed code, deactivating anti-theft coding* *⇒ page 30* *.*
- *For maintenance work or fault finding ⇒ Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- , Guided fault finding ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

5.1 General description

Note

- *The part number for the radio unit can be found on a sticker on the radio unit housing.*
- *If the radio unit is renewed, it is very important that the anti-theft coding is activated ⇒ Operating Manual . The new code number should be given to the customer.*
- *If the anti-theft code is not known it can be requested via the established systems. The identification number of the radio is required for the request. It is located on a sticker on the side of the radio unit. The identification number is also stamped into the material on the side of the radio unit.*
- *The CD changer in the “RCD 500” has a transport protection device that must be deactivated when installing a new unit. Also, the transport protection device must be activated in a unit that has been removed and is to be transported. The “RCD 500” must still be connected to the electrical power supply to do this. Activating and deactivating transport protection device of CD changer in “RCD 500”* *⇒ page 28* *.*

The radio “RCD 500” consists of the radio unit, the 6-CD changer integrated in the radio unit and the loudspeakers in the doors.

The radio unit is fitted with an output stage with 4 x 20 watt output power. The loudspeakers are designed as a 3-way system in the front and as a 2-way system in the rear.

The radio “RCD 500” is available in a version where the four internal outputs feed the loudspeakers directly or another version with an additional external amplifier. Then the loudspeakers are connected directly to the sound system amplifier and the loudspeaker outputs of the radio unit are used as amplifier input signals.

The following loudspeakers are installed with the radio system “RCD 500”:

- A bass, a mid-range and a treble loudspeaker in each front door
- A bass and a treble loudspeaker in each rear door of the 4-door model
- A bass and a treble loudspeaker in the side panel trim on each side of the 2-door model

To extend the functions, there are connection options for an additional amplifier, a telephone mute switch and a signal input for the telephone LF signal.

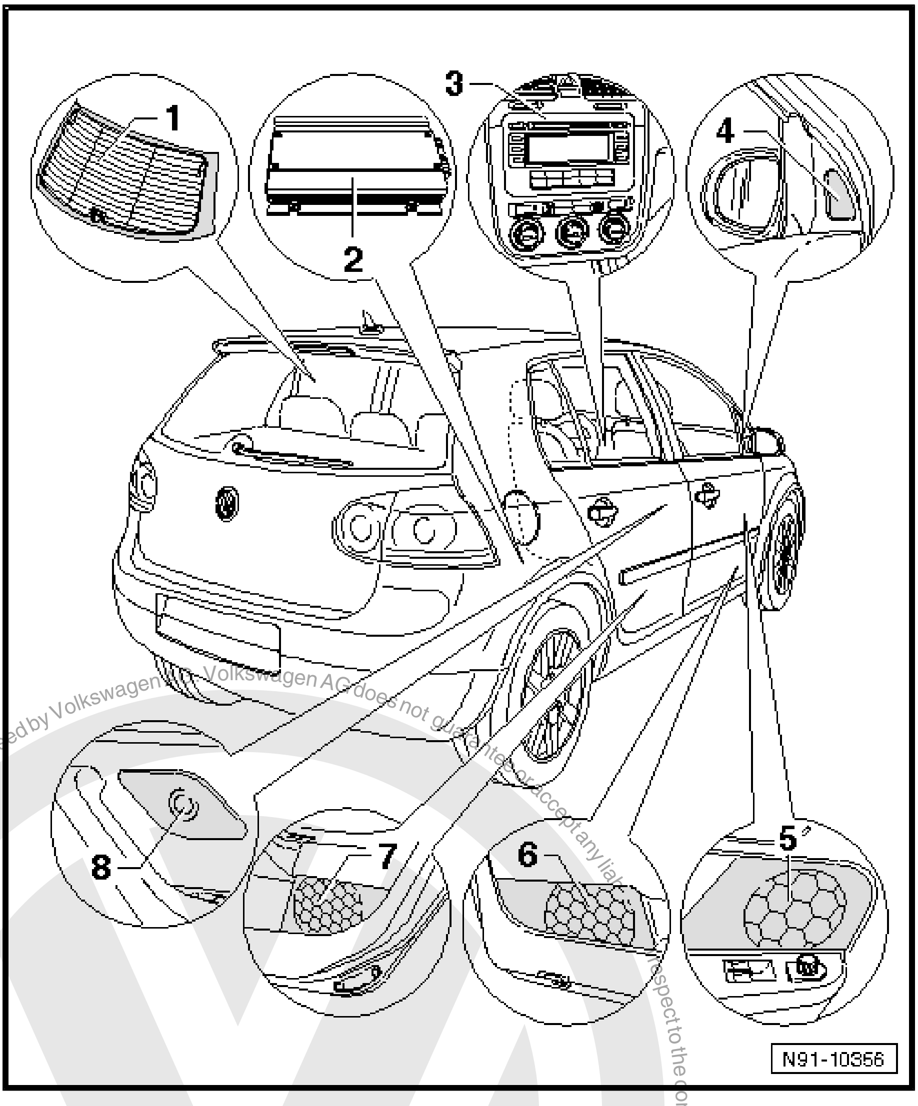
The 6-CD changer integrated in the radio unit can play not only normal CDs but also CDs in “CD-R” and “CD-RW” formats.

Note

- *In vehicles 09.05 ▸, “RCD 500” is optionally available in a version in which CDs containing “MP3” format music files can also be played in addition to normal audio CDs. For further details, refer to ⇒ RCD 500 operating instructions .*
- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*
- *The CD changer in the “RCD 500” has a transport protection device that must be deactivated when installing a new unit. Also, the transport protection device must be activated in a unit that has been removed and is to be transported. The “RCD 500” must still be connected to the electrical power supply to do this.*

The aerial is a window aerial and is located in the rear window. The aerial system operates using a “diversity function”.

5.2 Overview of radio system “RCD 500”



1 - Aerial for radio reception
- ❑ Installed in rear window
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - Sound system amplifier -J525-
- ❑ Optional extra
- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

3 - Radio -R-
- ❑ RCD 500 with integrated 6-CD changer
- ❑ Overview of connectors ⇒ page 29
- ❑ Activating and deactivating transport protection device of CD changer ⇒ page 28
- ❑ Removing and installing, Golf ⇒ page 2

4 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-
- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

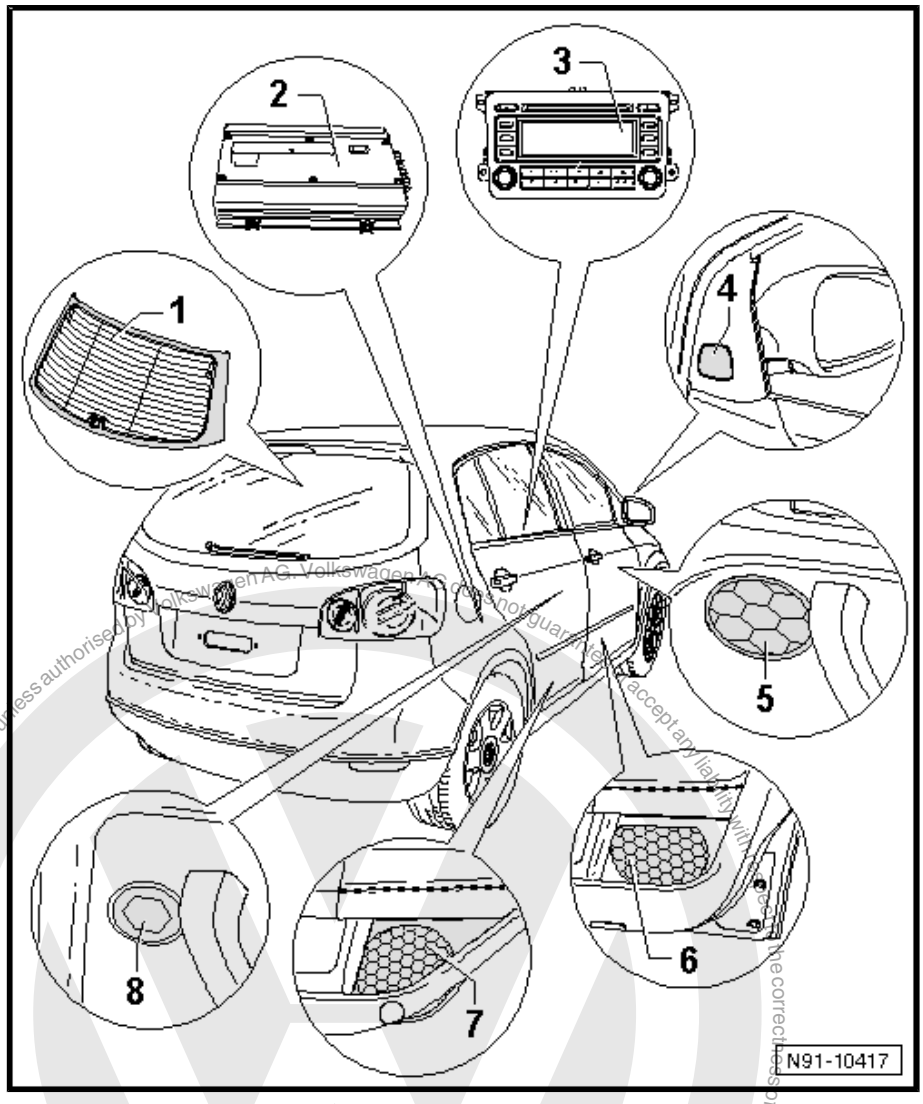
5 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-
- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-
- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-
- ❑ Installed in door trim panel in both rear doors of 4-door model
- ❑ Installed in side trim panel on both sides of 2-door model
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-
- ❑ Installed in door trim panel in both rear doors of 4-door model
- ❑ Installed in side trim panel on both sides of 2-door model
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5.3 Overview of radio system “RCD 500”, Golf Plus



1 - Aerial for radio reception

- Installed in rear window
- For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - Sound system amplifier -J525-

- Optional extra
- Installed under left front seat
- For further information, refer to chapter Sound system amplifier ⇒ page 109 .

3 - Radio -R-

- RCD 500 with integrated 6-CD changer
- Overview of connectors ⇒ page 29
- Activating and deactivating transport protection device of CD changer ⇒ page 28
- Removing and installing, Golf Plus ⇒ page 5

4 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- Installed in mirror triangular trim plate in both front doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- Installed in door trim panel in both front doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- Installed in door trim panel in both front doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- Installed in door trim panel in both rear doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- Installed in door trim panel in both rear doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

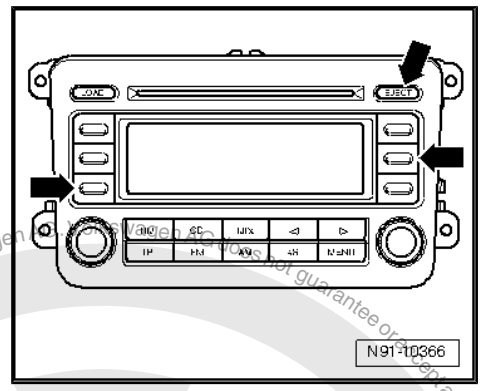
5.4 Activating transport protection device of CD changer in “RCD 500”

The transport protection device must be activated before transporting an “RCD 500” unit, and the device in a new unit must be deactivated when installing it. This is performed electronically using the keypad of the unit. When the transport protection device has been activated, the player of the CD changer is brought to a “transport position”.

Activating transport protection device:

Unit status: “ON” or “OFF”, cable connections must be connected to “RCD 500”.

– Press and hold keys identified with -arrows- simultaneously for at least 5 seconds.



The radio unit display shows “TRANSPRT” when the player of the CD changer has moved into transport position.

Deactivating transport protection device:

– Connect and install “RCD 500” radio unit.

– Press CANCEL key to deactivate transport protection device.

5.5 Overview of connectors on radio unit “RCD 500”

1 - Multi-pin connector 1, 8-pin, loudspeaker outputs

- ❑ Pin assignment ⇒ page 29

2 - Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch

- ❑ Pin assignment ⇒ page 30

3 - Multi-pin connector 3, 12-pin, telephone signal input

- ❑ Pin assignment ⇒ page 30

4 - Multi-pin connector 4, 12-pin, CD changer control and CD audio input signals

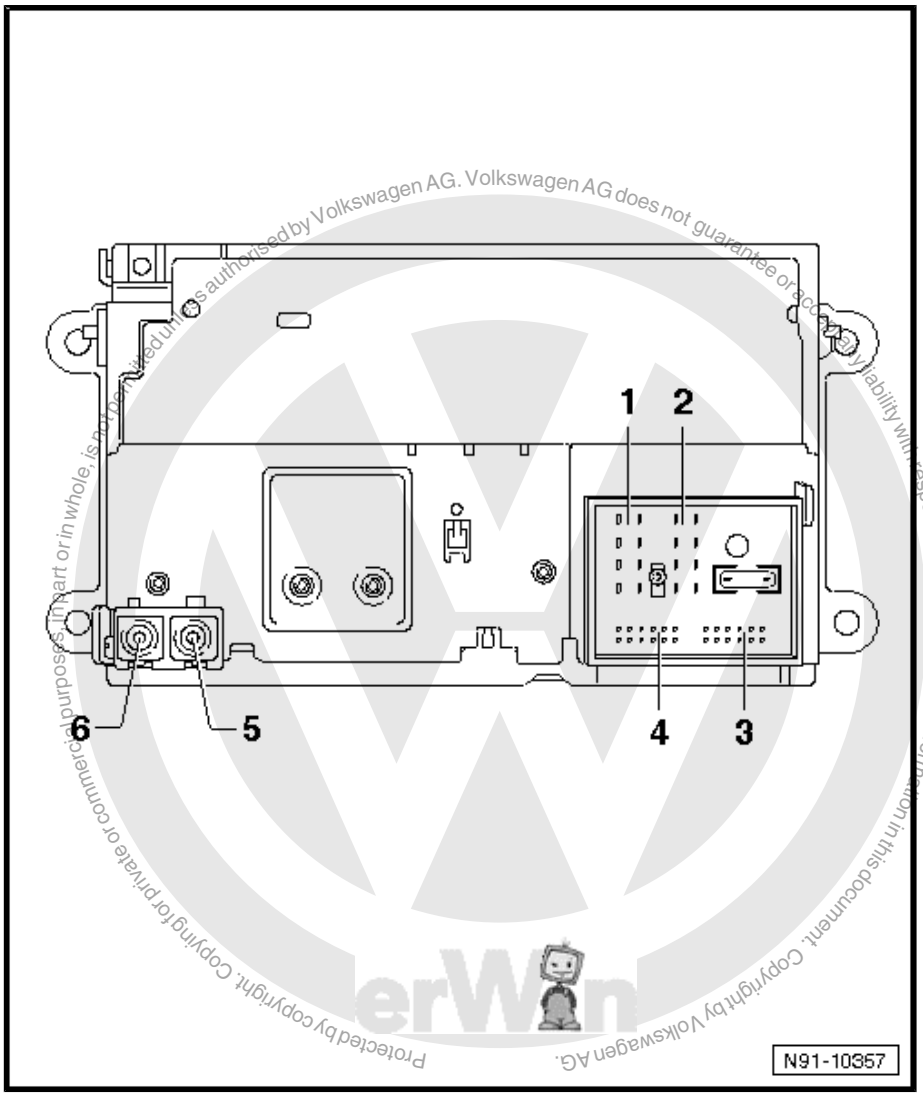
- ❑ Pin assignment ⇒ page 30

5 - Connector 5, aerial connection

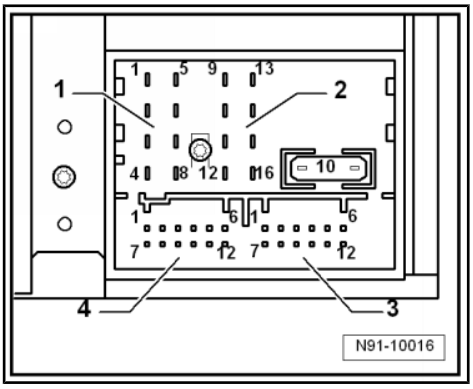
- ❑ Connector colour beige
- ❑ Connection for aerial cable to aerial in rear window

6 - Connector 6, aerial connection

- ❑ Connector colour transparent
- ❑ Connection for aerial cable to aerial in rear window



5.5.1 Multi-pin connector 1, 8-pin, loudspeaker outputs



1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

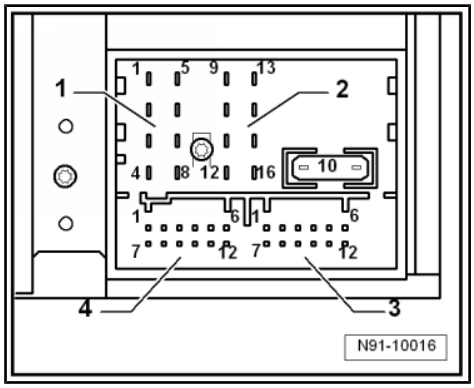
5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

5.5.2 Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch



9 - CAN high

10 - CAN low

11 - Telephone mute switch

12 - Negative connection, terminal 31

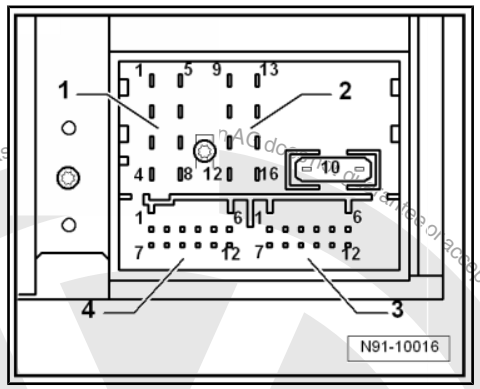
13 - Not assigned

14 - Not assigned

15 - Positive connection, terminal 30

16 - Anti-theft coding control signal, SAFE

5.5.3 Multi-pin connector 3, 12-pin, telephone signal input



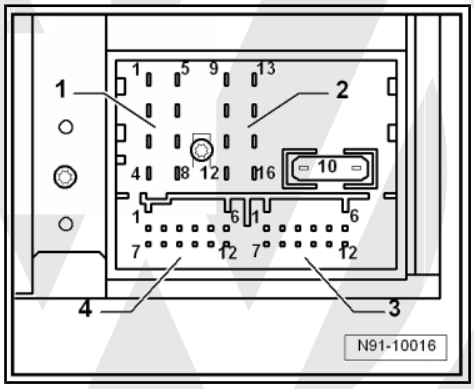
1–5 - Not assigned

6 - Telephone LF signal input, negative

7–11 - Not assigned

12 - Telephone LF signal input, positive

5.5.4 Multi-pin connector 4, 12-pin, CD changer control and CD audio input signals



1 - Right headphone output signal, positive

2 - CD changer, left and right channels, negative

3 - Headphone output signal, audio earth

4 - CD changer, voltage supply, positive

5 - Left headphone output signal, positive

6 - CD changer, bus DATA OUT

7 - Not assigned

8 - CD changer, left channel, positive

9 - CD changer, right channel, positive

10 - CD changer, control signal

11 - CD changer, bus DATA IN

12 - CD changer, bus CLOCK

5.6 Anti-theft coding

The radio unit is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio voltage supply, the radio operation is restored when reconnecting the voltage supply without entering the code number. The prerequisites are that initial activation of

the anti-theft coding has been performed and the radio is located in the same vehicle.

5.6.1 Deactivating anti-theft coding

A blocked radio unit can only be returned to normal operation by entering the correct code number for the anti-theft coding.

Note

- *The code number for the anti-theft coding is stuck to the radio card, together with the unit number ⇒ Operating Manual .*
- *The radio card should not be kept in the vehicle for security reasons. If necessary, ask the customer for the code number.*
- *If a radio unit is renewed, the code number of the replacement radio must be used.*
- *The customer must be informed that the code number has changed.*

– Obtain the unit's code number.

– Switch the radio unit on.

The unit automatically displays “SAFE” and then “1000”. There is no need to operate any buttons.

Next to the four multifunction buttons, the position of the code number to be set is shown via “_X _” in the display.

– Using the four multifunction buttons which are shown, enter the code number stuck onto the radio card in the correct sequence. Press the relevant button as many times as necessary until the correct number is shown in the centre of the display.

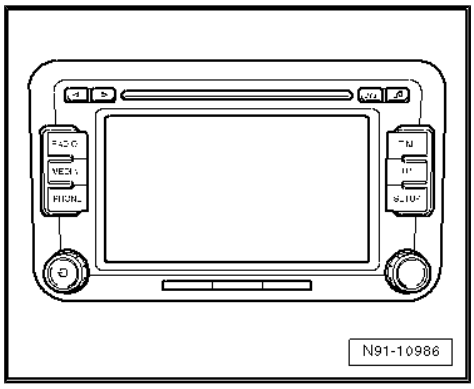
– Then press the multifunction button next to the word “ENTER”. The radio unit is then ready to operate again and switches to its last operating state.

Note

If an incorrect code number has been entered on deactivating the electronic lock, “SAFE” first flashes in the display, followed by “1000” again. The entire process can now be repeated again. The number of attempts is shown in the display. If an incorrect code number is entered again, the unit is blocked for approx. one hour, i.e. it cannot be operated. This lock is indicated by the fact that “SAFE” is permanently shown in the display. After one hour – the ignition and the unit must remain switched on – the attempt display is extinguished and the electronic lock can be deactivated as described above. The “two attempts, blocked for one hour” cycle still applies.

6 Radio system RCD 510

View of radio “RCD 510”



Note

- *When faced with complaints, it is absolutely necessary to understand the functions and the operation of the radio unit.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is a fixed code ⇒ page 40 .*
- *For maintenance work or fault finding ⇒ Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- , Guided fault finding ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *The CD changer in the “RCD 510” has a transport protection device that must be deactivated when installing a new unit. Also, the transport protection device must be activated in a unit that has been removed and is to be transported. The “RCD 510” must still be connected to the electrical power supply to do this. Activating and deactivating transport protection device of CD changer in “RCD 510” ⇒ page 36*

6.1 General notes

The radio unit RCD 510 has, among other things, following main equipment features:

- 6-inch multicolour touch screen
- 4 x 20 watt output loudspeaker channels
- Integrated 6-disc CD changer
- SD card slot for audio content playback
- Controls for external 6-disc CD changer
- Telephone controls (hands-free system)
- Connection for external sound amplifier
- Optional iPod connection (USB)

The radio “RCD 510” consists of the radio unit and the front and rear loudspeakers.

The CD drive integrated in the radio unit can play the following CD formats:

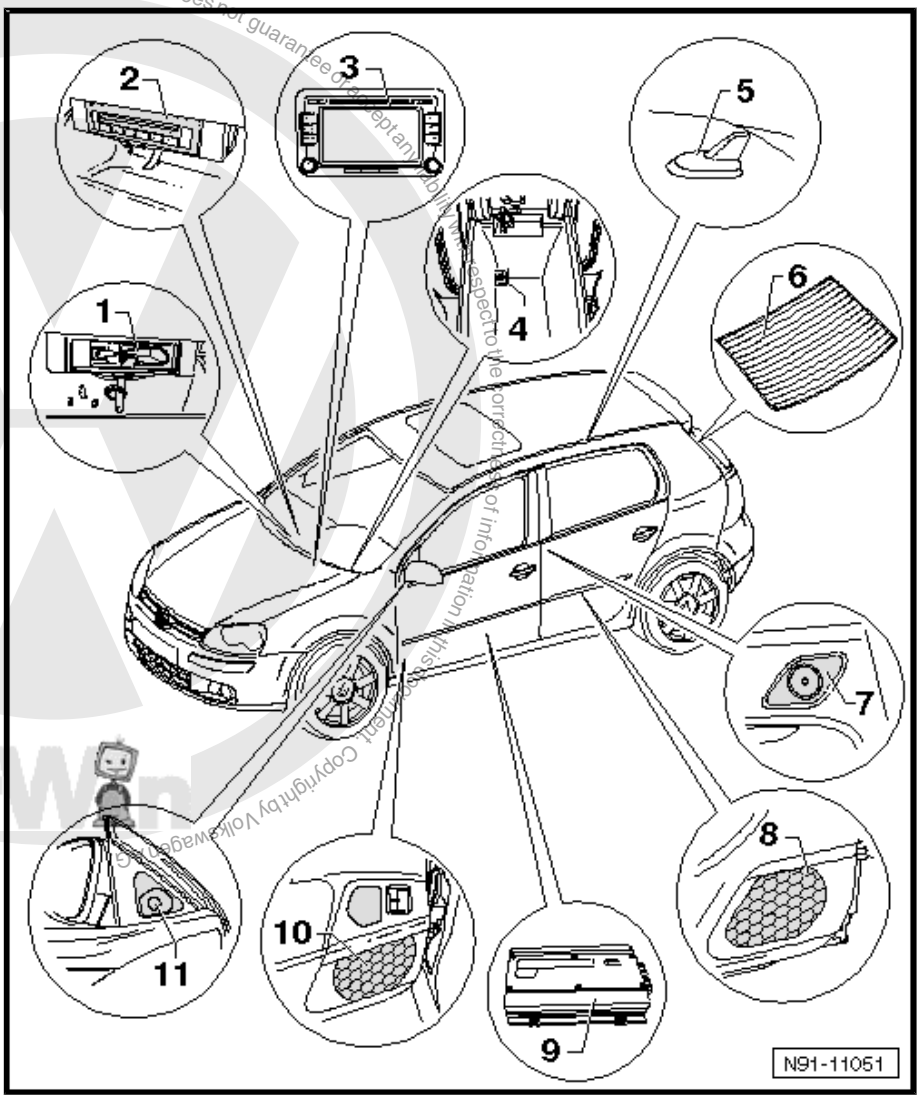
- CD-R
- CD-RW
- mp3
- wma

Note

Mixed-mode CDs (CDs having both computer data and music) cannot be played.

The aerial system version has a “diversity function” integrated in the radio unit.

6.2 Overview of radio system “RCD 510”, Golf saloon



1 - Multimedia system control unit -J650-

- Installed in centre console
- For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- 6-disc CD changer
- Installed in centre console
- For further information, refer to chapter CD changer ⇒ page 113 .
- Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

3 - Radio -R- (RCD 510)

- Removing and installing ⇒ page 2
- Overview of connectors ⇒ page 37
- Activating/deactivating transport lock for CD changer in “RCD 510” ⇒ page 36
- Anti-theft coding ⇒ page 40

4 - Connection for external audio sources -R199-

- Fitted in storage compartment beneath centre armrest
- For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- Installed on rear of roof
- For further information, refer to chapter Aerial systems ⇒ page 160 .

6 - Window aerials

- Installed in rear window, for radio reception with diversity aerial

- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- ❑ Installed under left front seat
- ❑ For more information, see the chapter on amplifier for sound system ⇒ page 109

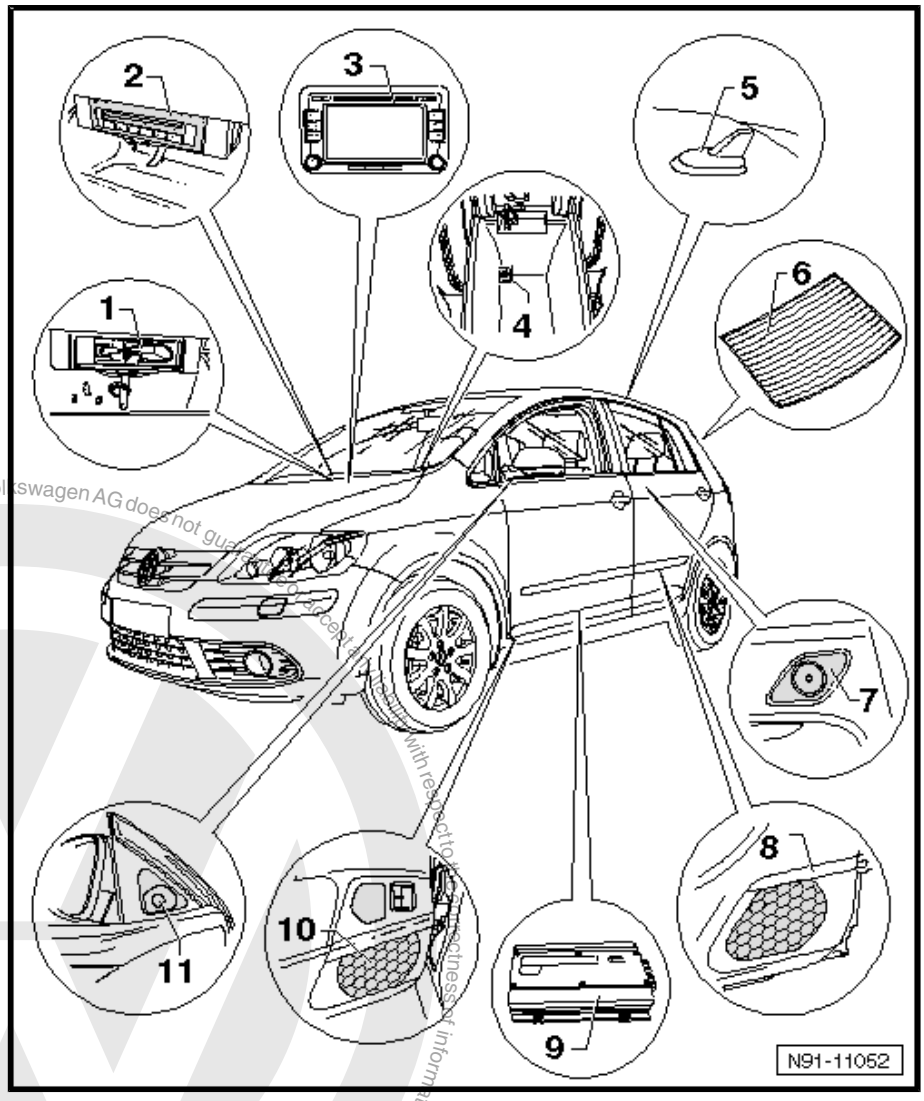
10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ Mid-range loudspeakers are only installed in conjunction with the sound system.
- ❑ Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- ❑ Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6.3 Overview of radio system “RCD 510”, Golf Plus



1 - Multimedia system control unit -J650-

- ❑ Installed in centre console
- ❑ For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed in centre console
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

3 - Radio -R- (RCD 510)

- ❑ Removing and installing ⇒ page 5
- ❑ Overview of connectors ⇒ page 37
- ❑ Activating/deactivating transport lock for CD changer in “RCD 510” ⇒ page 36
- ❑ Anti-theft coding ⇒ page 40

4 - Connection for external audio sources -R199-

- ❑ Fitted in storage compartment beneath centre armrest
- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

6 - Window aerials

- ❑ Installed in rear window, for radio reception with diversity aerial
- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors

- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- ❑ Installed under left front seat
- ❑ For more information, see the chapter on amplifier for sound system ⇒ page 109

10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ Mid-range loudspeakers are only installed in conjunction with the sound system.
- ❑ Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- ❑ Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6.4 Activating/deactivating transport lock for CD changer in “RCD 510”

The transport protection device must be activated before transporting an “RCD 510” unit, and the device in a new unit must be deactivated when installing it. This is performed electronically using the keypad of the unit. When the transport protection device has been activated, the player of the CD changer is brought to a “transport position”.

Activating transport protection device:

Unit status: “ON”, cable connections must be connected to the “RCD 510”.

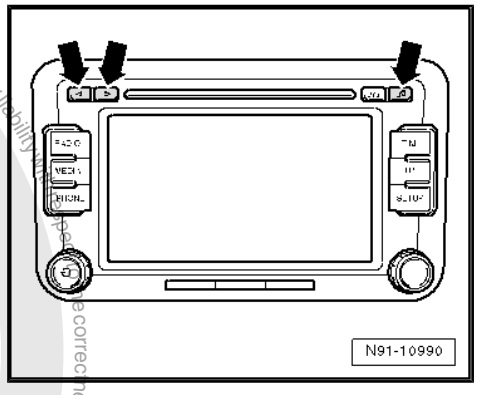
– Press and hold keys identified with -arrows- simultaneously for at least 5 seconds.

The following appears on the radio display: “CDC transport protection activated”.

Transport protection is now activated.

Deactivating transport protection device:

Unit status: “ON”, cable connections must be connected to the “RCD 510”.



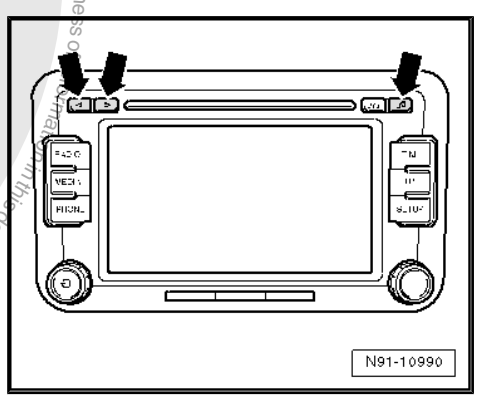
– Press and hold keys identified with -arrows- simultaneously for at least 5 seconds.

The following appears on the radio display: CDC transport protection activated.

A button with the word “Deactivate” is located under it.

– Press “Deactivate” button.

Transport protection is now deactivated.



6.5 Overview of connectors on radio “RCD 510”

1 - Aerial connection

- ❑ DAB aerial input connection, optional

or

- ❑ SDARS aerial input connection for vehicles for USA and Canada

2 - Multi-pin connector A, 8-pin, loudspeaker outputs

- ❑ Pin assignment ⇒ page 19

3 - Multi-pin connector D, 8-pin, voltage supply, CAN bus, telephone mute switch

- ❑ Pin assignment ⇒ page 20

4 - Multi-pin connector C, 12-pin, AUX audio output, telephone signal input

- ❑ Pin assignment ⇒ page 20

5 - Multi-pin connector B, 12-pin, AUX audio input, CD changer control and CD audio input signals

- ❑ Pin assignment ⇒ page 21

6 - Multi-pin connector 5, audio and video, 26-pin

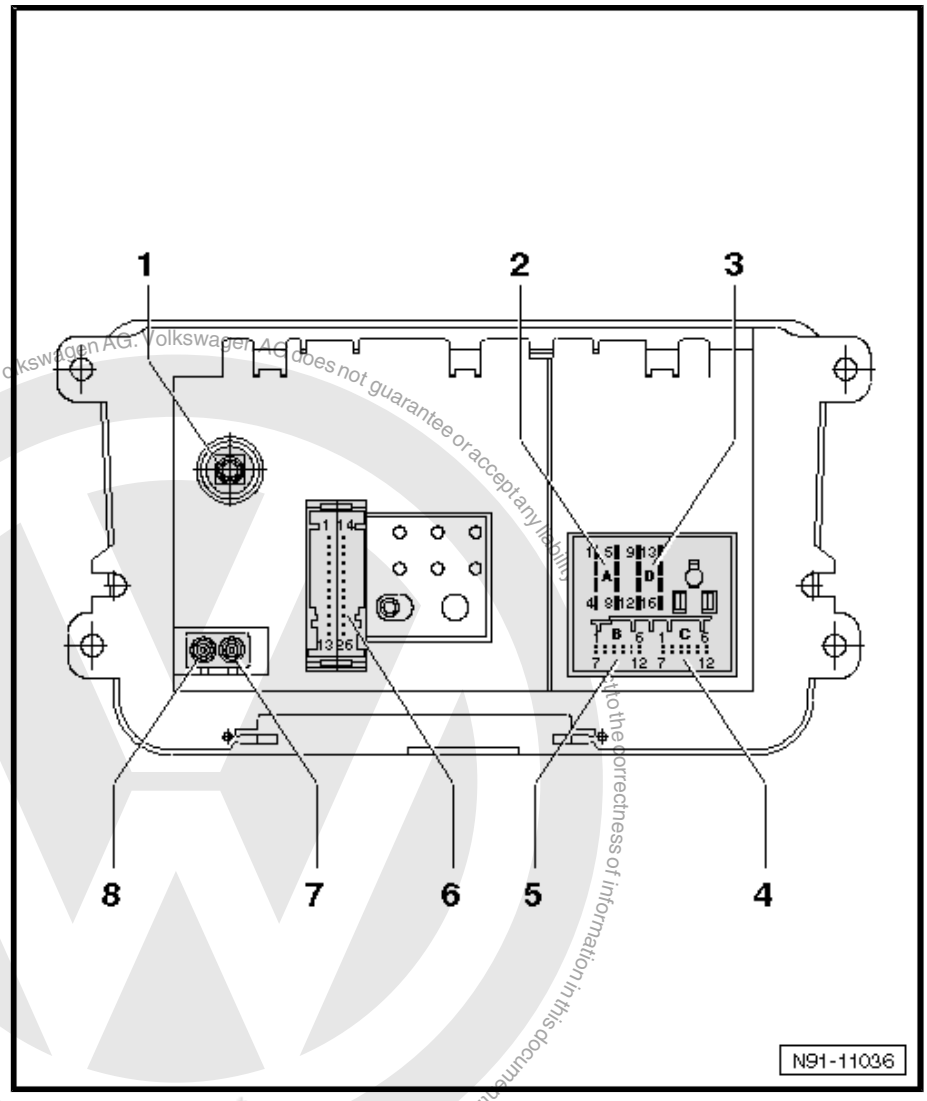
- ❑ Pin assignment ⇒ page 40

7 - Aerial connection

- ❑ AM/FM aerial input connection

8 - Aerial connection

- ❑ FM 2 aerial input connection



6.5.1 Multi-pin connector 1, 8-pin, loudspeaker outputs

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

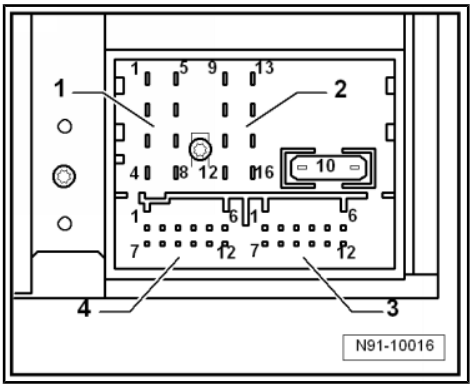
4 - Rear left loudspeaker, positive

5 - Rear right loudspeaker, negative

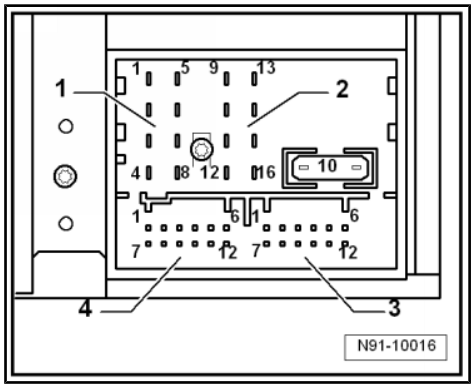
6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative



6.5.2 Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch



9 - CAN high

10 - CAN low

11 - Voltage supply display, switched on, positive

12 - Negative connection, terminal 31

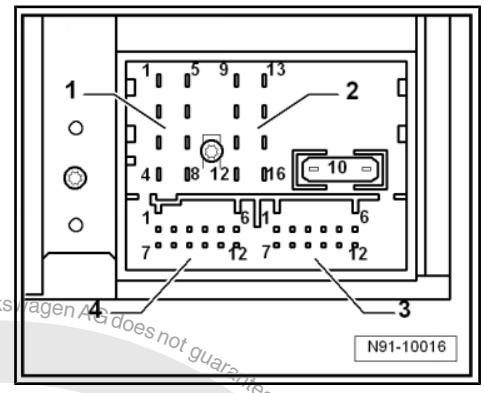
13 - CAN bus display, negative

14 - CAN bus display, positive

15 - Positive connection, terminal 30

16 - Anti-theft coding control signal, SAFE

6.5.3 Multi-pin connector 3, 12-pin, AUX audio output, telephone signal input



1 - Microphone input, negative

2 - AUX output, audio, positive, right

3 - AUX output, audio, negative

4 - Microphone output, negative

5 - Telephone LF signal input, left, negative

6 - Telephone LF signal input, right, negative

7 - Microphone input, positive

8 - AUX output, audio, positive, left

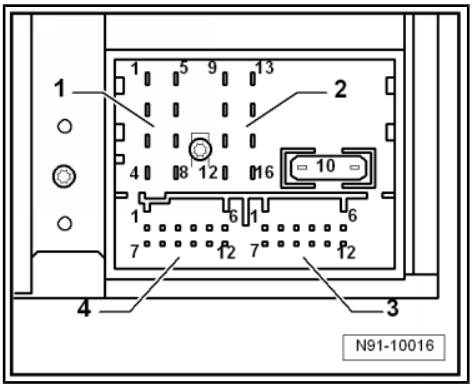
9 - Microphone output, positive

10 - Telephone mute

11 - Telephone LF signal input, left, positive

12 - Telephone LF signal input, right, positive

6.5.4 Multi-pin connector 4, 12-pin, AUX audio input, CD changer control and CD audio input signals



1 - AUX audio input, positive, left

2 - AUX audio input, negative

3 - CD changer audio, negative

4 - CD changer, voltage supply, positive

5 - Not assigned

6 - CD changer, bus DATA OUT

7 - AUX audio input, positive, right

8 - CD changer, left channel audio, positive

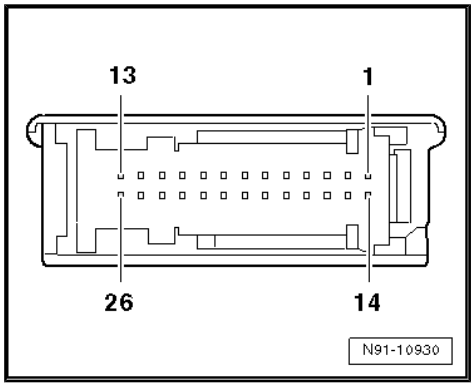
9 - CD changer, right channel audio, positive

10 - CD changer, control signal

11 - CD changer, bus DATA IN

12 - CD changer, bus CLOCK

6.5.5 Multi-pin connector 5, audio and video, 26-pin



1 - Reserved for Debug RX protocol

2 - Reserved for Debug TX protocol

3 - Not assigned

4 - Not assigned

5 - Video signal output LF, right

6 - Video signal output, screening earth

7 - Video signal output, vertical and horizontal synchronisation

8 - Video signal output, green

9 - Not assigned

10 - Video signal input LF, right

11 - Video signal input, screening earth

12 - Video signal input, vertical and horizontal synchronisation

13 - Video signal input, green

14 - Not assigned

15 - Not assigned

16 - Not assigned

17 - Video signal output LF, negative

18 - Video signal output LF, left

19 - Video signal output, RGBS, negative

20 - Video signal output, blue

21 - Video signal output, red

22 - Video signal input, LF, negative

23 - Video signal input LF, left

24 - Video signal input, RGBS, negative

25 - Video signal input, blue

26 - Video signal input, red

6.6 Anti-theft coding

The radio unit is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio voltage supply, the radio operation is restored when reconnecting the voltage supply without entering the code number. The prerequisites are that the initial activation of the anti-theft coding has been performed and the radio is re-connected in the same vehicle.

The anti-theft code is determined using vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- . The previously related radio card and the sticker on the radio unit have been discontinued.

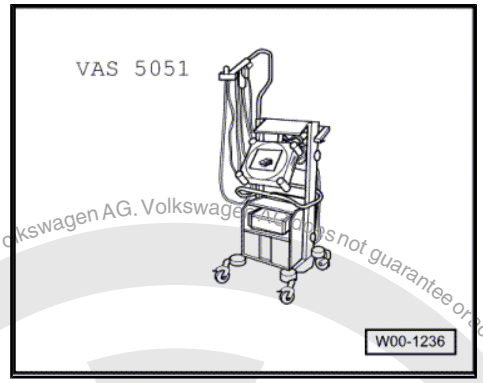
Note

To determine the anti-theft code, vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- must be connected “online” (network connection), and the user must possess valid rights for the programme for requesting radio codes.

6.6.1 Deactivating anti-theft code of anti-theft coding

Required special tools, workshop equipment, testers, measuring instruments and auxiliary items

- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-



Determining anti-theft code of anti-theft coding via VAS tester:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

or

Select “Guided fault finding” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” key.
– Select “Function/Component selection”.
– Select “Body”.
– Select “Electrical system”.
– Select “01 - On Board Diagnostic (OBD)”.
– Select “Radio or radio navigation system”.
– Select “Functions”.
– Select and start “Radio code request”.

Your system rights are then determined. The operating data, the chassis number and the unit number of the radio or radio navigation system are then read out automatically.

Note

When installing radio units or radio navigation systems which are new or have not yet been adapted to the vehicle, it may occur that the tester is unable to read out the unit number of the radio unit or the radio navigation system. In this case, please enter the unit number manually. It can be read off from the sticker affixed to the unit and is additionally stamped into the side of the unit.

The radio code which has been determined is then shown on the tester's display.

The anti-theft code must now be entered manually into the radio or radio navigation system.

Deactivating anti-theft coding:

– Switch the radio unit on.

An entry mask with a 10-key numeric keypad, a correction button and an entry button is displayed.

– Using the keypad, enter the right radio code in the entry mask.
– Confirm the entry by pressing the entry button.

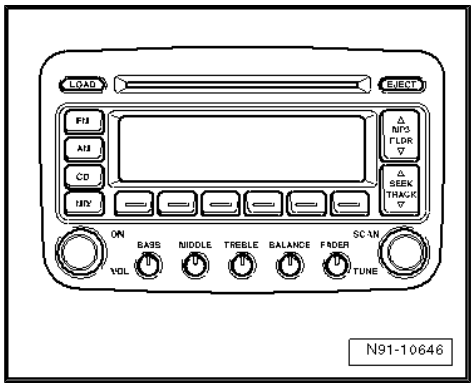
The unit will be released and is ready for use.

Wrong entered values can be deleted by pressing the correction button.

Note

If an incorrect code number has been entered on deactivating the electronic lock, "SAFE" first flashes in the display, followed by "1000" again. The entire process can now be repeated again. The number of attempts is shown in the display. If an incorrect code number is entered again, the unit is blocked for approx. one hour, i.e. it cannot be operated. This lock is indicated by the fact that "SAFE" is permanently shown in the display. After one hour – the ignition and the unit must remain switched on – the attempt display is extinguished and the electronic lock can be deactivated as described above. The "two attempts, blocked for one hour" cycle still applies.

7 Radio system “Premium Sound System”, for vehicles for USA and Canada



Radio Premium Sound System

Note

- *The part number for the radio unit can be found on a sticker on the radio unit housing.*
- *If the radio unit is replaced, it is very important that the anti-theft coding is activated ⇒ page 48 . The new code number should be given to the customer.*

Note

- *When faced with complaints, it is absolutely necessary to understand the functions and the operation of the radio unit.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is equipped with a fixed code, Deactivating anti-theft coding ⇒ page 48 .*
- *For maintenance work or fault finding ⇒ Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- , Guided fault finding ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

7.1 General description

The radio “Premium Sound System” consists of the radio unit, the 6-CD changer integrated in the radio unit and the loudspeakers in the doors. Another version of the radio “Premium Sound System” is available with an integrated single CD player.

A sound system is available as an option.

The following loudspeakers are installed in the “Premium Sound System” radio system:

- A bass and a mid-range loudspeaker in each of the front doors
- A treble speaker in the mirror triangular cover of each front door
- A bass and a treble loudspeaker in each of the rear side panel trims

Connection possibilities for an additional sound system amplifier, a satellite radio signal input, a telephone mute switch and a signal input for the low frequency telephone signal are available to extend the functions.

The CD player/changer integrated in the radio can play not only normal audio CDs but also CDs in “MP3”, “CD-R” and “CD-RW” formats.

Note

Mixed-mode CDs (CDs having both computer data and music) cannot be played.

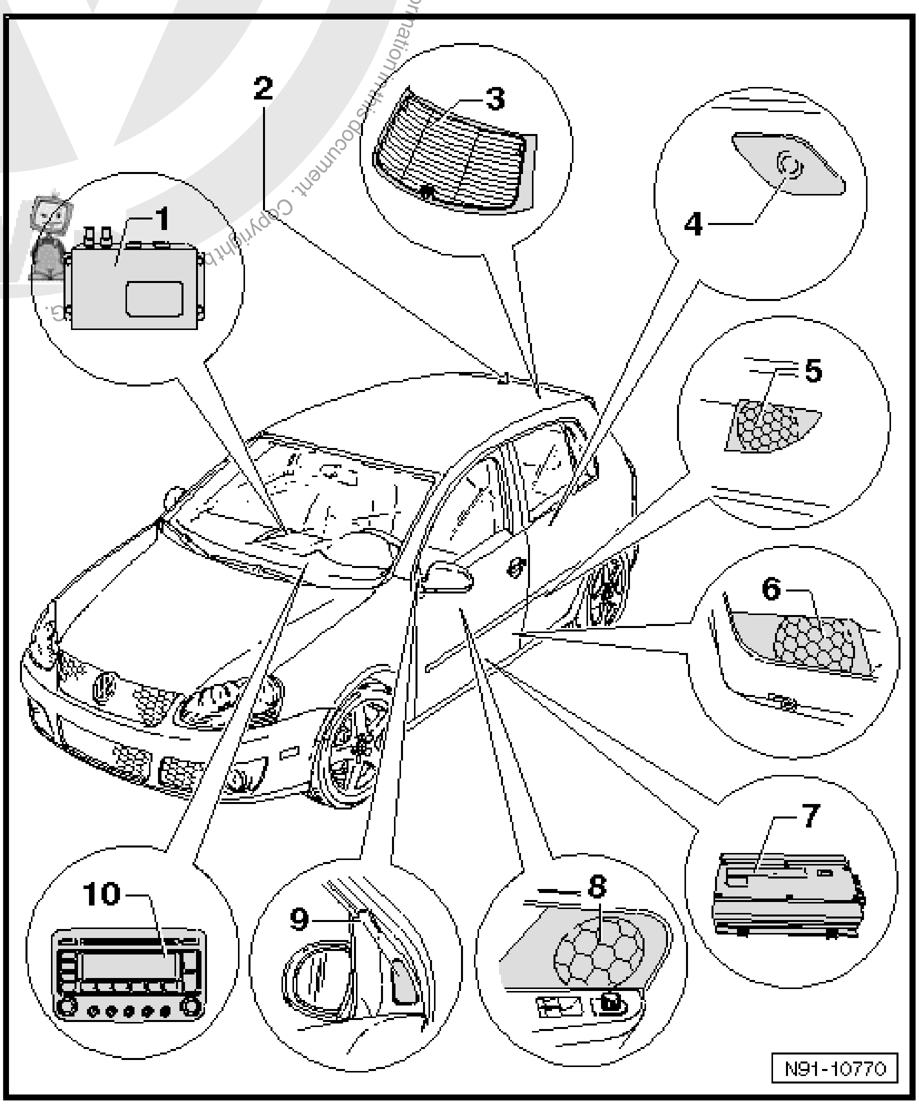
In conjunction with a satellite tuner, the radio reception is only via the window aerial.

With no satellite tuner, the radio reception is via the window aerial and the roof aerial.

In both cases the aerial system is equipped with the diversity function, this is selected in the radio unit.

The aerial for satellite radio reception is designed as a roof aerial and is located on the rear of the roof.

7.2 Overview of radio system “Premium Sound System”



1 - Satellite digital radio tuner -R190-

- ❑ Optional extra
- ❑ Installed under right front seat
- ❑ For further information, refer to chapter Satellite digital radio tuner ⇒ page 115 .

2 - Satellite tuner aerial -R172-

- ❑ Optional extra
- ❑ Installed on rear of roof
- ❑ Optional for navigation and telephone
- ❑ For vehicles with no satellite tuner the telephone, navigation system, auxiliary heater -R66- aerial is used.
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

3 - Window aerials

- ❑ Installed in rear window for radio reception
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

4 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in rear left and right side panel trims
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in left and right side panel trims
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Amplifier -R12-

- ❑ Optional extra
- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

8 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

10 - Radio -R-

- ❑ Here “Premium Sound System”
- ❑ Removing and installing ⇒ page 2

7.3 Overview of connectors on radio unit “Premium Sound System”

1 - Multi-pin connector 1, 8-pin, loudspeaker outputs

- ❑ Pin assignment ⇒ page 47

2 - Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch

- ❑ Pin assignment ⇒ page 47

3 - Multi-pin connector 3, 12-pin, telephone signal input

- ❑ Pin assignment ⇒ page 47

4 - Multi-pin connector 4, 12-pin, satellite digital radio tuner

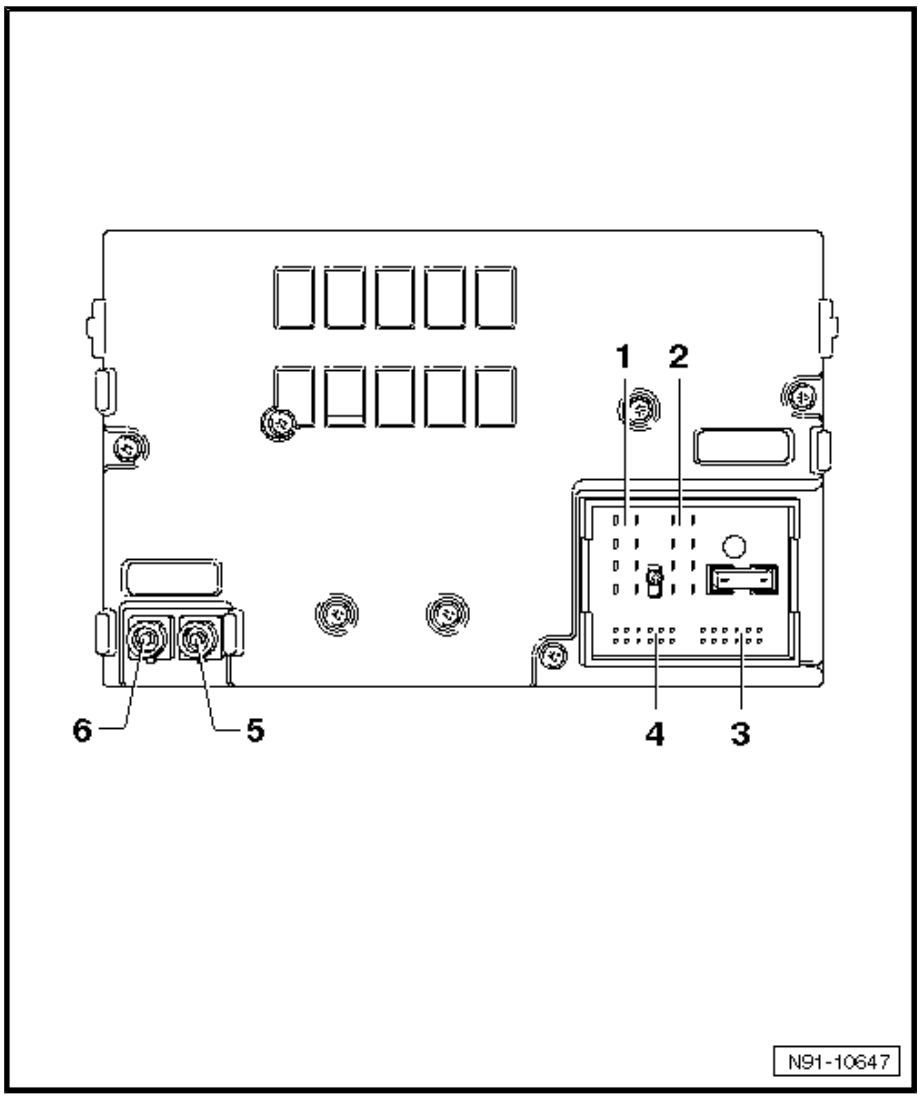
- ❑ Pin assignment ⇒ page 48

5 - Connector 5, aerial connection for terrestrial radio reception

- ❑ Connector colour beige
- ❑ Pin assignment ⇒ page 48

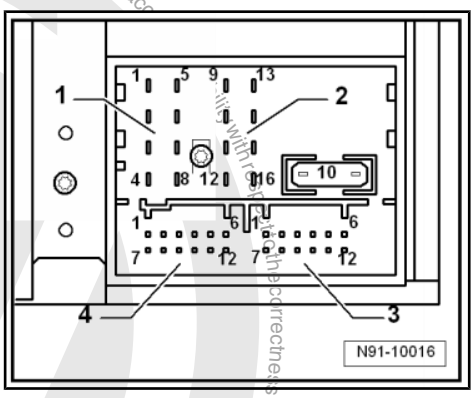
6 - Connector 6, aerial connection for terrestrial radio reception

- ❑ Connector colour transparent
- ❑ Pin assignment



⇒ page 48

7.3.1 Multi-pin connector 1, 8-pin, loudspeaker outputs



Note

In conjunction with a sound system amplifier, radio audio signals are used as input signals for the sound system amplifier.

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

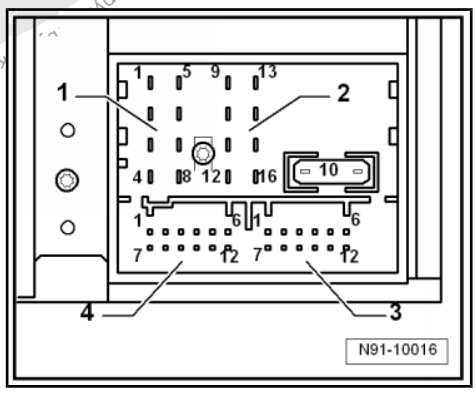
5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

7.3.2 Multi-pin connector 2, 8-pin, voltage supply, CAN bus, telephone mute switch



9 - CAN bus, positive

10 - CAN bus, negative

11 - Telephone mute switch

12 - Negative connection, terminal 31

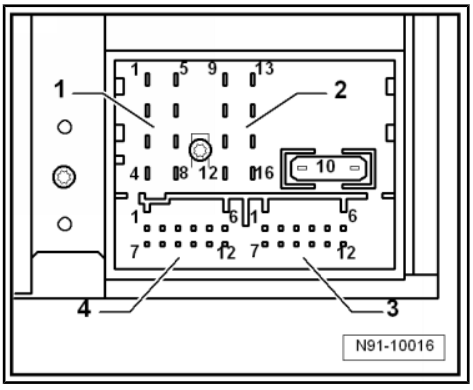
13 - Radio ON, control cable positive

14 - Alarm contact

15 - Positive connection, terminal 30

16 - Anti-theft coding control signal, SAFE

7.3.3 Multi-pin connector 3, 12-pin, telephone signal input



Note

This connector is only used when the respective telephone system is installed.

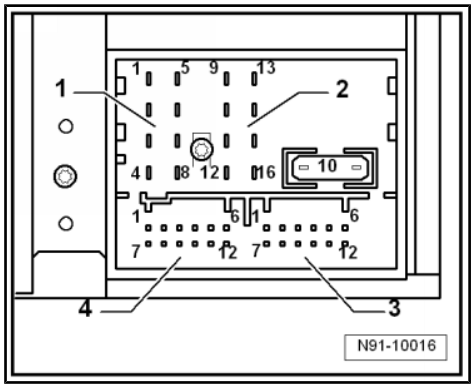
1–5 - Not assigned

6 - Telephone LF signal input, negative

7–11 - Not assigned

12 - Telephone LF signal input, positive

7.3.4 Multi-pin connector 4, 12-pin, satellite digital radio tuner



This connector is only used when the respective satellite digital radio tuner is installed.

1 - Satellite digital radio tuner, left audio signal input

2 - Not assigned

3 - Satellite digital radio tuner, negative audio signal input

4 - Not assigned

5 - Satellite digital radio tuner, permanent positive input

6 - Not assigned

7 - Satellite digital radio tuner, right audio signal input

8 - Not assigned

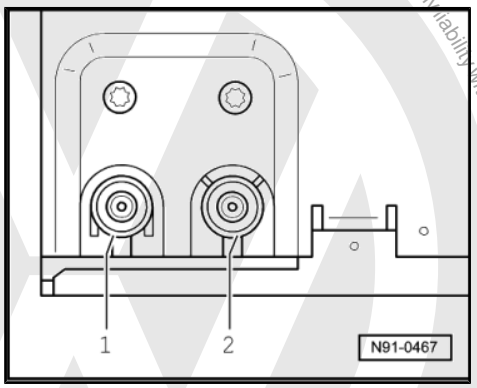
9 - Not assigned

10 - Not assigned

11 - Not assigned

12 - Not assigned

7.3.5 Connectors 5 and 6, aerial connections



Note

The radio unit is fitted with an aerial diversity system for terrestrial radio reception. Both aerial connections are signal inputs. The radio unit analyses continuously which of the two window aerials has the better reception signal. The aerial with the better reception signal is then selected. The customer will not be able to perceive this procedure audibly.

1 - Transparent connection for terrestrial radio reception aerial input signal.

2 - Beige connection for terrestrial radio reception aerial input signal.

7.4 Anti-theft coding

The radio unit “Premium Sound System” is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio voltage supply, radio operation is restored when reconnecting the voltage supply without entering the code number. The prerequisites are that the initial activation of the anti-theft coding has been performed and the radio is reconnected in the same vehicle.

7.4.1 Deactivating anti-theft coding

A blocked radio unit can only be returned to normal operation by entering the correct code number for the anti-theft coding.

Note

- *The code number for the anti-theft coding is stuck to the radio card, together with the unit number ⇒ Operating Manual .*
- *The radio card should not be kept in the vehicle for security reasons. If necessary, ask the customer for the code number.*
- *If a radio unit is renewed, the code number of the replacement radio must be used.*
- *The customer must be informed that the code number has changed.*

– Obtain the unit's code number.

– Switch the radio unit on.

The unit automatically displays “SAFE” and then “1000”. There is no need to operate any buttons.

– Use station buttons 1 to 4 to enter the code number stuck onto the radio card. Use the first key to enter the first code number, the second key to enter the second code number and so on.

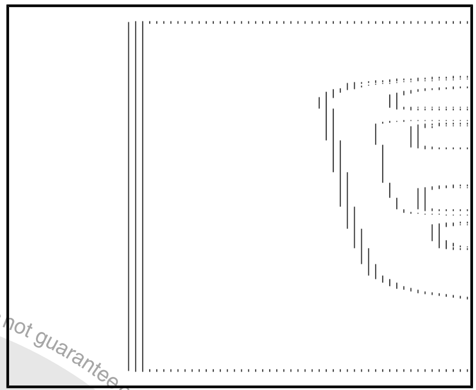
– Then press the Stations button, which is located below “OK” in display (normally this is the last station button), until the anti-theft coding is activated. This is indicated by a brief signal sound.

If the code number has been entered correctly into the radio unit the radio frequency will appear in the display.

Note

If the incorrect anti-theft code is entered, it can be immediately corrected with a further attempt. If the incorrect anti-theft code is entered twice, the radio unit is locked for one hour. Leave ignition and radio unit switched on. The process of deactivating the anti-theft coding can then be repeated after one hour. Remember: you always have two attempts at entering the code, then the radio unit is blocked for one hour.

8 Radio navigation system “RNS 300”



Radio navigation system RNS 300

Note

- *The part number for the radio navigation system is printed on a sticker on the radio navigation system housing!*
- *If the radio navigation system is renewed, it is very important that the anti-theft coding is activated ⇒ Operating Manual . The new code number should be given to the customer.*
- *If the anti-theft code is not known it can be requested via the established systems. You need the identification number of the radio navigation system in order to make the request. It is located on a sticker on the side of the radio unit. In addition, the identification number is also stamped into the material of the side wall of the radio navigation system.*
- *If a radio navigation unit from one vehicle is fitted into another vehicle, it is essential that the part number of the replacement unit is the same as that of the unit previously installed. Otherwise faults will occur with the navigation because the turn angle sensor setting in the radio navigation system will not be compatible with the vehicle.*

Note

- *When faced with complaints, it is absolutely necessary to know the functions and the operation of the radio navigation system.*
- *Additional information ⇒ Operating instructions ⇒ Self-study programme No. 199 ; Radio navigation system .*
- *The anti-theft coding is equipped with a fixed code ⇒ Operating Manual .*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *For perfect operation of the navigation system, the turn angle sensor in the unit has to be adjusted according to the installation position of the unit in the vehicle. Therefore, always note the part number when exchanging equipment. Incorrect installation could lead to a malfunction in the navigation system.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *The use of magnetic-base aerials may lead to permanent magnetisation of the vehicle roof, resulting in a malfunction in the compass module. If confronted with complaints about inaccurate or incorrect directional indication of the compass module, ask the customer if a magnetic-base aerial has been used before carrying out any repair work.*

8.1 General description

The “RNS 300” combines the functions of a navigation system with those of a high-quality RDS car radio.

The following systems are installed in the double DIN housing for radio navigation system:

- An RDS radio receiver
- A 5.8" monochrome display
- A navigation system with GPS satellite receiver and
- A CD drive for the audio and navigation system

The radio navigation system “RNS 300” is equipped with 4 loudspeaker outputs.

The CD drive can read a CD ROM for navigation or a music CD. Whilst a music CD is playing, only restricted operation of the navigation system is possible.

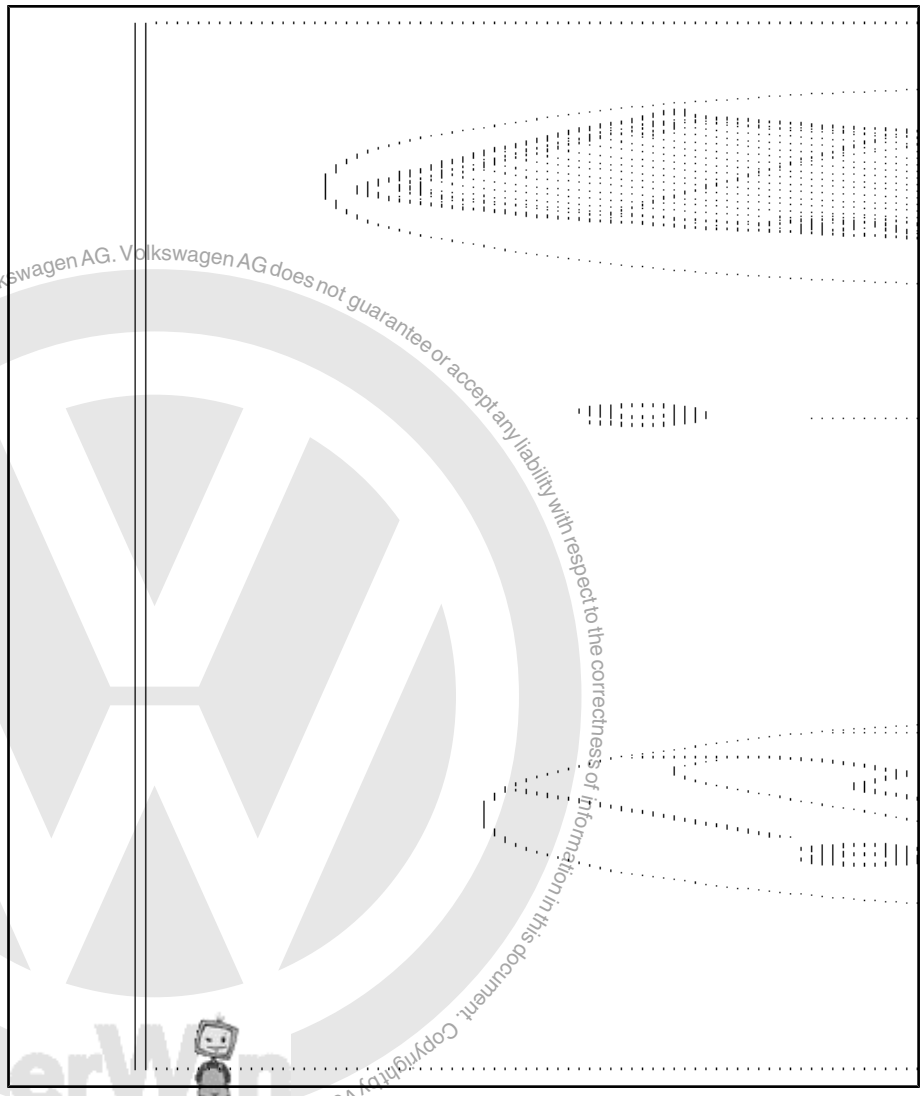
Note

- *CDs with “MP3” format music files can also be played in addition to normal audio CDs. For further details, refer to ⇒ RNS 300 Operating Manual .*
- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*

To extend the functions, a CD changer and a telephone system may also be connected.

A window aerial is fitted for the radio and a roof aerial for the navigation system. There is no antenna diversity function.

8.2 Overview of radio navigation system “RNS 300” with monochrome display



1 - Aerial -R11-

- ❑ Installed in rear window
- ❑ For radio reception
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed below hinged centre armrest
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

3 - Control unit with display unit for radio and navigation -J503-

- ❑ Designation RNS 300
- ❑ Removing and installing, Golf ⇒ page 2
- ❑ Removing and installing, Golf Plus ⇒ page 5
- ❑ Overview of connectors ⇒ page 53

4 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

5 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trim panel in both rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Navigation system aerial (GPS) -R50-

- ❑ Installed on rear of roof
- ❑ For navigation system
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

8.3 Overview of connectors on radio navigation system “RNS 300”

1 - Multi-pin connector 1, 8-pin

- ❑ Pin assignment ⇒ page 54

2 - Multi-pin connector 2, 8-pin

- ❑ Pin assignment ⇒ page 54

3 - Multi-pin connector 3, 12-pin

- ❑ Pin assignment ⇒ page 54

4 - Multi-pin connector 4, 12-pin

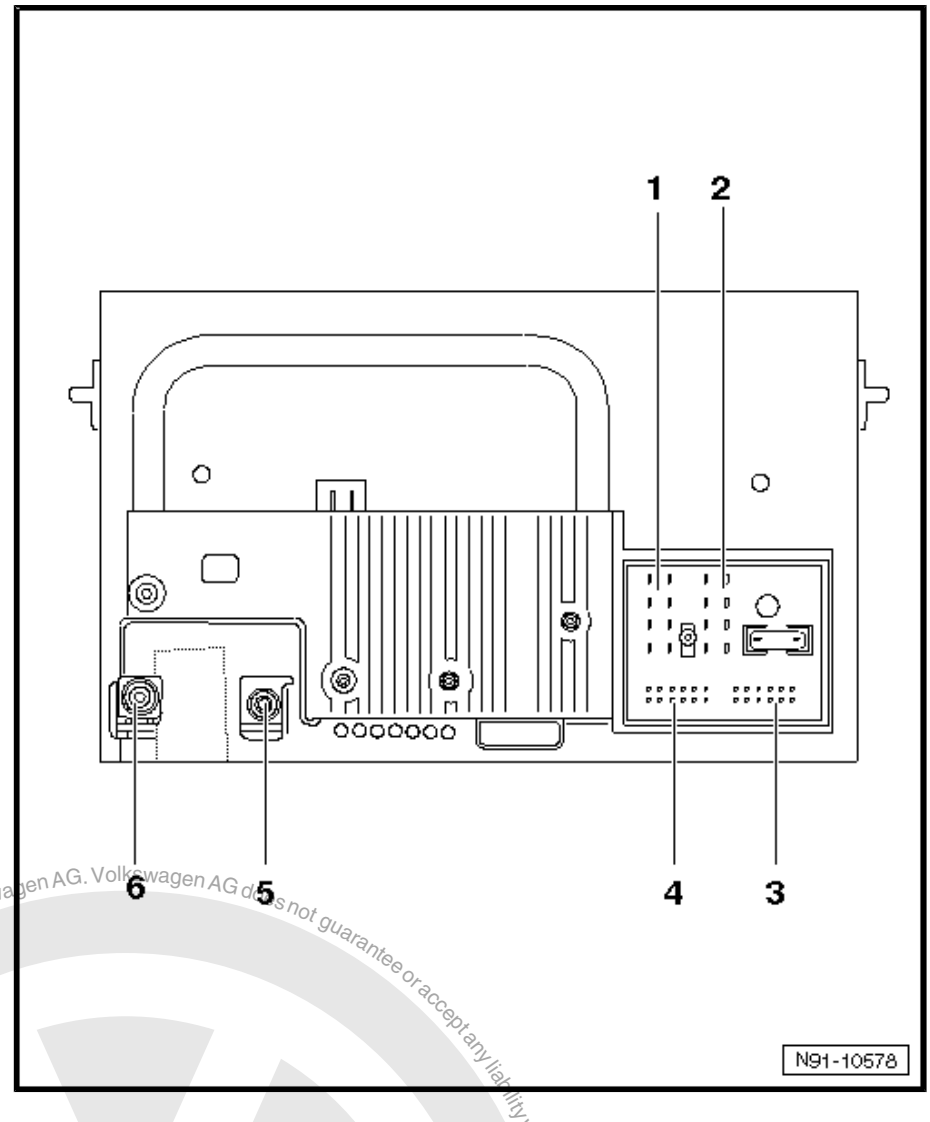
- ❑ Pin assignment ⇒ page 55

5 - Connector 5

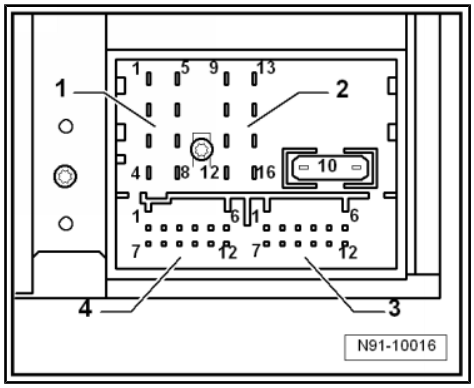
- ❑ Aerial connection for navigation system
- ❑ Pin assignment ⇒ page 55

6 - Connector 6

- ❑ Aerial connection for radio reception
- ❑ Pin assignment ⇒ page 55



8.3.1 Multi-pin connector 1, 8-pin, for loudspeaker outputs



Note

If the radio navigation system in the vehicle is also equipped with an amplifier, these loudspeaker outputs are used as input signals for the amplifier.

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

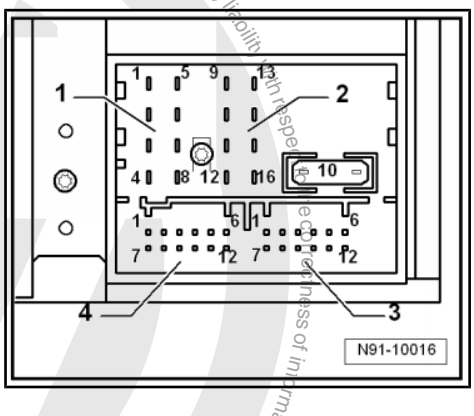
5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

8.3.2 Multi-pin connector 2, 8-pin, for voltage supply wires and CAN bus



9 - CAN bus, high

10 - CAN bus, low

11 - Radio mute (when telephone is in use)

12 - Voltage supply, negative, terminal 31

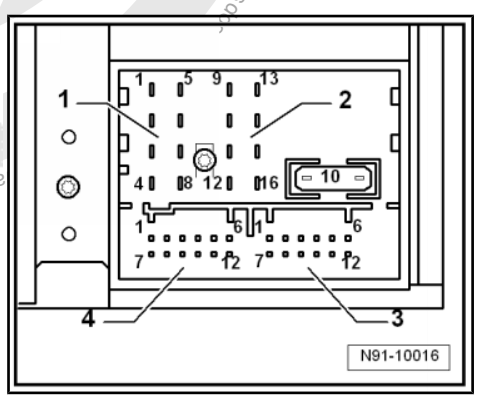
13 - Connection for ignition-key-controlled switching on and off (S contact)

14 - Alarm system contact (optional)

15 - Voltage supply, positive, terminal 30

16 - Anti-theft coding control signal, SAFE

8.3.3 Multi-pin connector 3, 12-pin, for telephone signals



1 - Not assigned

2 - Not assigned

3 - Not assigned

4 - Not assigned

5 - Not assigned

6 - Telephone audio input signal, TEL, negative

7 - Not assigned

8 - Not assigned

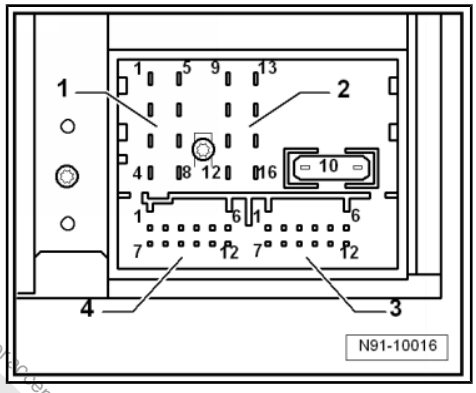
9 - Not assigned

10 - Not assigned

11 - Not assigned

12 - Telephone audio input signal, TEL, positive

8.3.4 Multi-pin connector 4, 12-pin, for CD changer control and CD audio input signals



1 - Not assigned

2 - CD changer, left and right channels, earth

3 - Not assigned

4 - CD changer, voltage supply, positive, terminal 30

5 - Not assigned

6 - CD changer, DATA OUT (data exchange for CD changer control from radio navigation system to CD changer)

7 - Not assigned

8 - CD changer, left channel, CD/L

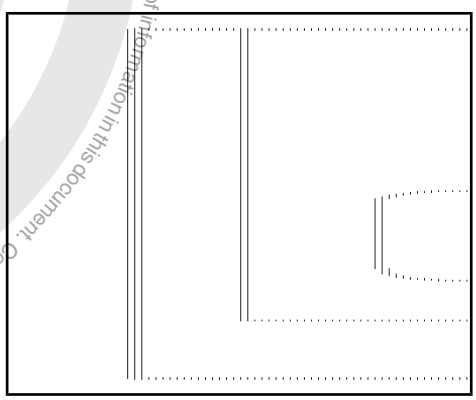
9 - CD changer, right channel, CD/R

10 - CD changer, control signal

11 - CD changer, DATA IN (data exchange for CD changer control from CD changer to radio navigation system)

12 - CD changer, CLOCK (internal check protocol for data flow monitoring)

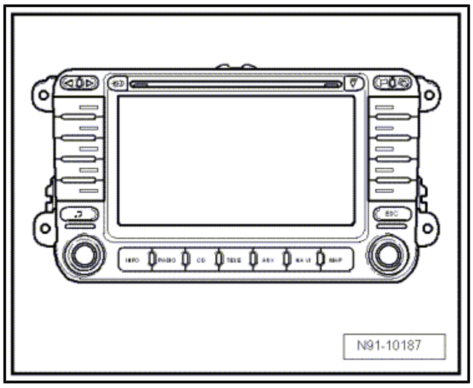
8.3.5 Connectors 5 and 6, aerial connections



1 - Transparent connection for radio aerial input signal from rear window aerial

2 - Blue connection for navigation system aerial input signal from roof aerial

9 Radio navigation systems “RNS MFD 2” and “RNS MFD 2 DVD”



Radio and navigation system 2 with multifunction display (MFD)

Note

- *The part number for the radio navigation system is printed on a sticker on the radio navigation system housing!*
- *If the radio navigation system is renewed, it is very important that the anti-theft coding is activated ⇒ Operating Manual . The new code number should be given to the customer.*
- *If the anti-theft code is not known it can be requested via the established systems. You need the identification number of the radio navigation system in order to make the request. It is located on a sticker on the side of the radio unit. In addition, the identification number is also stamped into the material of the side wall of the radio navigation system.*
- *If a radio navigation unit from one vehicle is fitted into another vehicle, it is essential that the part number of the replacement unit is the same as that of the unit previously installed. Otherwise faults will occur with the navigation because the turn angle sensor setting in the radio navigation system will not be compatible with the vehicle.*

Note

- *When faced with complaints, it is absolutely necessary to know the functions and the operation of the radio navigation system.*
- *Additional information ⇒ Operating instructions ⇒ Self-study programme No. 199 ; Radio navigation system .*
- *The anti-theft coding is equipped with a fixed code, Deactivating anti-theft coding ⇒ page 64 .*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *For perfect operation of the navigation system, the turn angle sensor in the unit has to be adjusted according to the installation position of the unit in the vehicle. Therefore, always note the part number when exchanging equipment. Incorrect installation could lead to a malfunction in the navigation system.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *The use of magnetic-base aerials may lead to permanent magnetisation of the vehicle roof, resulting in a malfunction in the compass module. If confronted with complaints about inaccurate or incorrect directional indication of the compass module, ask the customer if a magnetic-base aerial has been used before carrying out any repair work.*

9.1 General description

The RNS2 is available in a version with a CD drive and in a version with a DVD drive for navigation.

The “RNS2 with MFD DVD” is identified by the following text on the bottom row of buttons:

- “MUTE” is marked on the middle button.
- “DEST” is marked on the third button from the right.

The “radio and navigation system 2” with MFD combines the functions of a navigation system with those of a high-quality RDS car radio.

The following systems are installed in the double DIN housing for radio navigation system:

- An RDS radio receiver
- A 6.5 inch liquid crystal colour display
- A navigation system with GPS satellite receiver
- A CD player for the audio and navigation system or a DVD player for navigation and
- A TMC tuner (traffic information control unit)

The “radio navigation system 2” with MFD (multifunction display) comes in two versions, one in which four internal outputs feed the loudspeakers directly or another version with an additional sound system amplifier. In this case, the loudspeakers are connected directly to the sound system amplifier and the loudspeaker outputs of the radio navigation system are used for amplifier input signals.

The CD drive can read a CD ROM for navigation or a music CD. Whilst a music CD is playing, only restricted operation of the navigation system is possible.

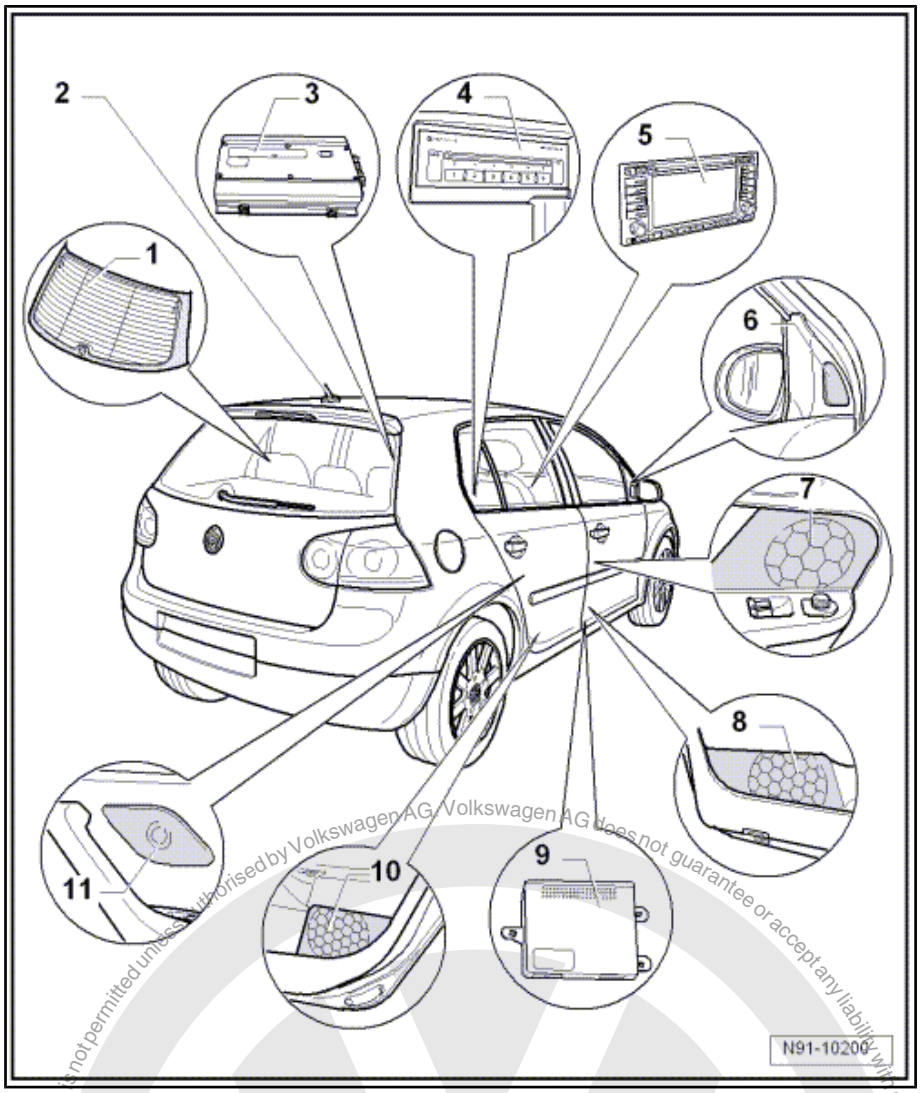
Note

- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*
- *RNS 2 units with a DVD drive: As of construction month 11.05 ‣ audio CDs can be played, units ‣ 10.05 cannot.*

To extend the functions, there are connections for a CD changer, a TV tuner, a telephone system and an amplifier.

An aerial system with “diversity function” is used in conjunction with an aerial selection control unit

9.2 Overview of “radio navigation system 2” with multifunction display (MFD)



1 - Aerial for radio reception

- ❑ Installed in rear window
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - Aerial for telephone/navigation (GPS) -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

3 - Sound system amplifier -J525-

- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

4 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed below hinged centre armrest
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

5 - Control unit with display for radio and navigation -J503- (RNS 2 with MFD)

- ❑ Removing and installing, Golf ⇒ page 2
- ❑ Overview of connectors ⇒ page 60

6 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - TV tuner -R78-

- ❑ Installed under front passenger seat

10 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

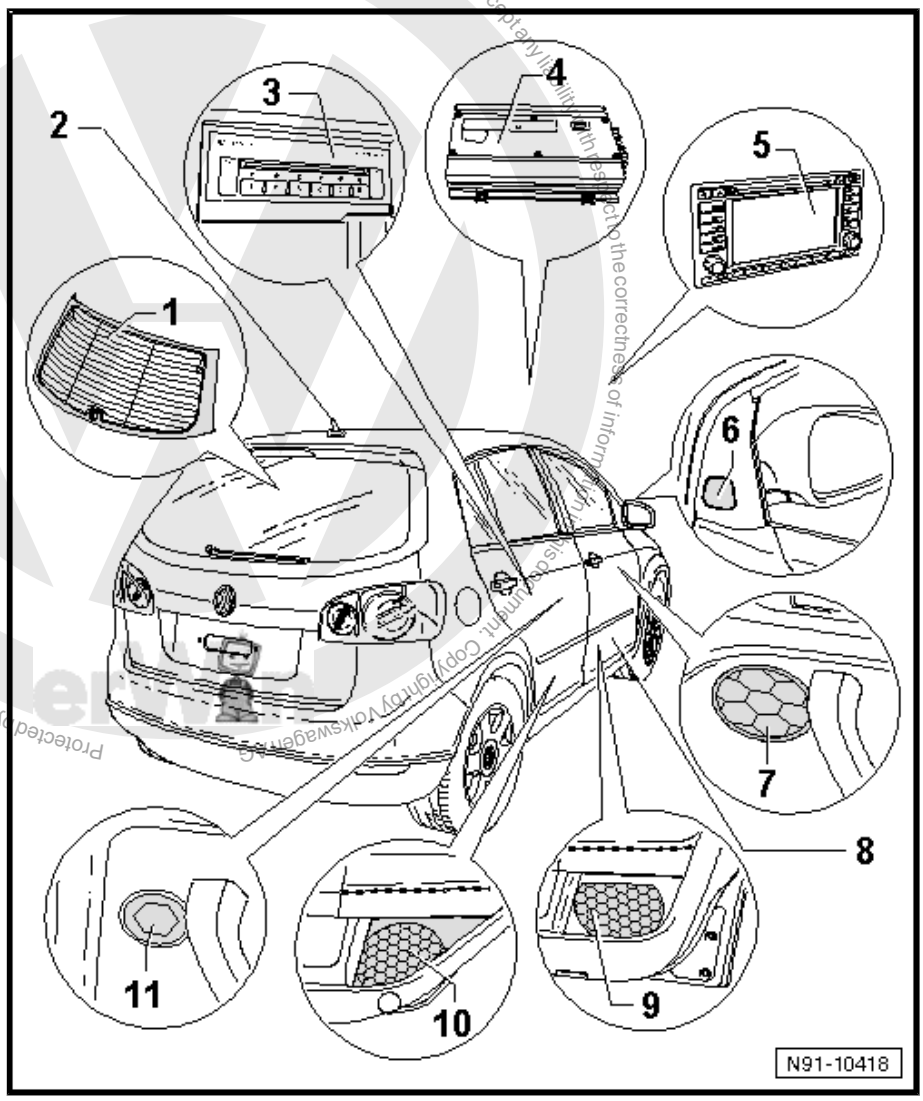
- ❑ Installed in door trim panel in both rear doors of 4-door model
- ❑ Installed in side trim panel on both sides of 2-door model
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trim panel in both rear doors of 4-door model

- ❑ Installed in side trim panel on both sides of 2-door model
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9.3 Overview of “radio and navigation system 2” with multifunction display (MFD), Golf Plus



1 - Aerial for radio reception

- ❑ Installed in rear window
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

2 - Aerial for telephone/navigation (GPS) -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

3 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed below hinged centre armrest
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

4 - Sound system amplifier -J525-

- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

5 - Control unit with display for radio and navigation -J503- (RNS 2 with MFD)

- ❑ Removing and installing, Golf Plus ⇒ page 5
- ❑ Overview of connectors ⇒ page 60

6 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Aerial selection control unit -J515-

- ❑ Installed under right front seat
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

9 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

10 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9.4 Overview of connectors on “radio and navigation system 2” with multifunction display (MFD)

1 - Multi-pin connector 1, 18-pin

- ❑ Pin assignment ⇒ page 61

2 - Connector 2

- ❑ Connection for navigation system aerial
- ❑ Pin assignment ⇒ page 61

3 - Multi-pin connector 3, 8-pin

- ❑ Pin assignment ⇒ page 62

4 - Multi-pin connector 4, 8-pin

- ❑ Pin assignment ⇒ page 62

5 - Multi-pin connector 5, 12-pin

- ❑ Pin assignment ⇒ page 63

6 - Multi-pin connector 6, 12-pin

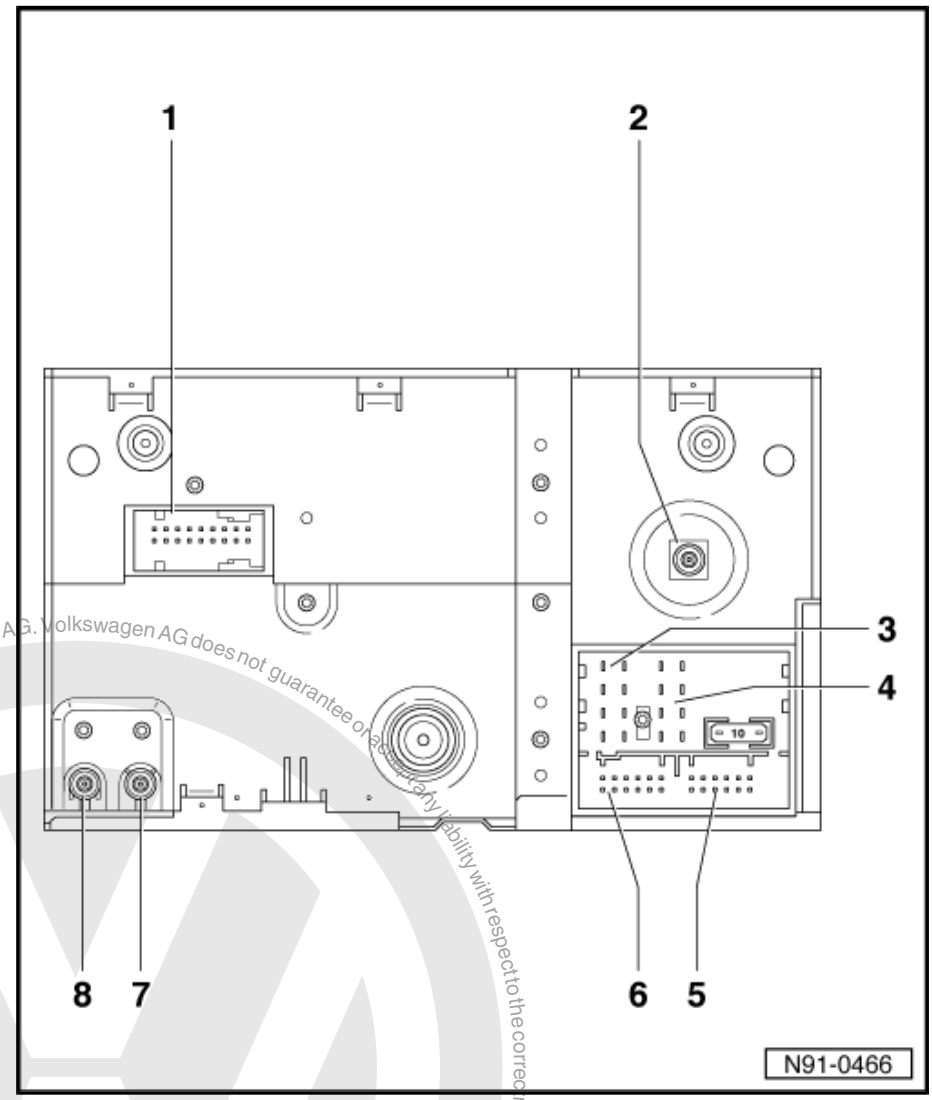
- ❑ Pin assignment ⇒ page 63

7 - Connector 7

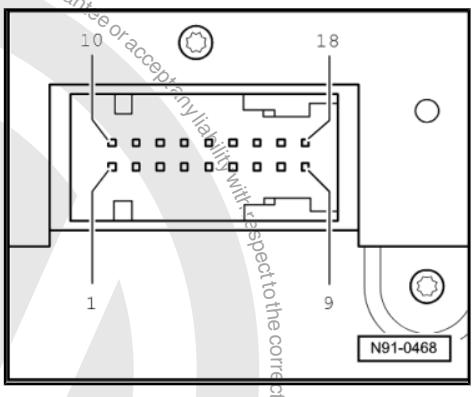
- ❑ Aerial connection
- ❑ Pin assignment ⇒ page 63

8 - Connector 8

- ❑ Aerial connection
- ❑ Pin assignment ⇒ page 63

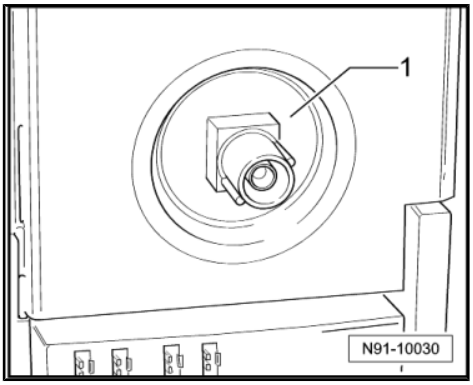


9.4.1 Multi-pin connector 1, 18-pin, for video and low frequency input



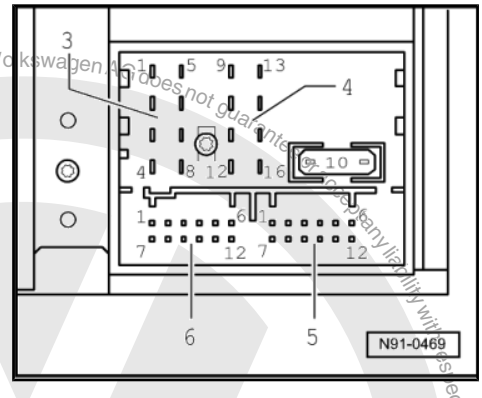
1 - Not assigned
2 - Audio signal, earth
3 - Audio signal, earth
4 - Screening, earth
5 - Video signal, earth
6 - Video switch signal
7 - Video signal, earth
8 - Video signal, earth
9 - Video signal, earth
10 - Not assigned
11 - Audio signal, left
12 - Audio signal, right
13 - Screening, earth
14 - Synchronisation of vertical and horizontal picture signals
15 - 50 Hertz/60 Hertz
16 - Blue picture signal input
17 - Green picture signal input
18 - Red picture signal input

9.4.2 Connector 2



1 - Blue connection for “navigation” aerial input signal from roof aerial

9.4.3 Multi-pin connector 3, 8-pin, for loudspeaker outputs



Note

If the radio navigation system in the vehicle is also equipped with an amplifier, these loudspeaker outputs are used as input signals for the amplifier.

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

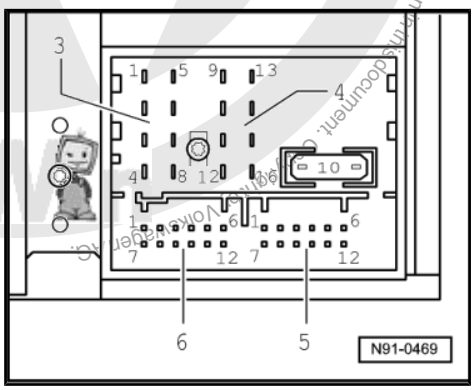
5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

9.4.4 Multi-pin connector 4, 8-pin, for voltage supply wires and CAN bus



9 - CAN bus, high

10 - CAN bus, low

11 - Radio mute (when telephone is in use)

12 - Voltage supply, negative, terminal 31

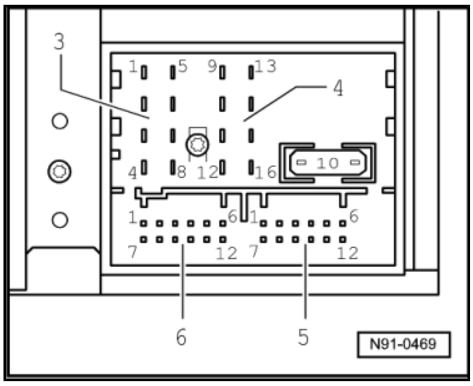
13 - Connection for ignition-key-controlled switching on and off (S contact)

14 - Alarm system contact (optional)

15 - Voltage supply, positive, terminal 30

16 - Anti-theft coding control signal, SAFE

9.4.5 Multi-pin connector 5, 12-pin, for telephone signals and pre-amplifier output signals



1 - External audio input, left

2 - External audio input, earth

3 - Line out, left

4 - Not assigned

5 - Driving instructions, low frequency, positive

6 - Telephone audio input signal, TEL, negative

7 - External audio input, right

8 - Line out, earth

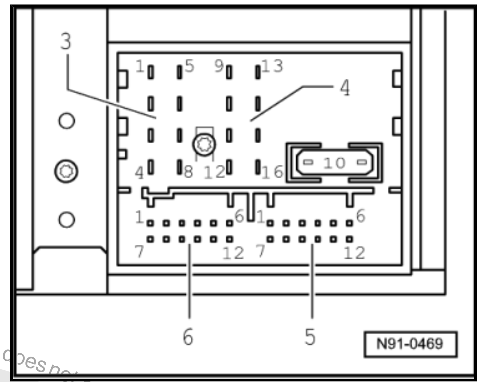
9 - Line out, right

10 - Not assigned

11 - Driving instructions, low frequency, negative

12 - Telephone audio input signal, TEL, positive

9.4.6 Multi-pin connector 6, 12-pin, for CD changer control and CD audio input signals



1 - Headphone audio signal output, right, positive

2 - CD changer, left and right channels, earth

3 - Headphone audio signal output, negative

4 - CD changer, voltage supply, positive, terminal 30

5 - Headphone audio signal output, left, positive

6 - CD changer, DATA OUT (data exchange for CD changer control from radio navigation system to CD changer)

7 - Not assigned

8 - CD changer, left channel, CD/L

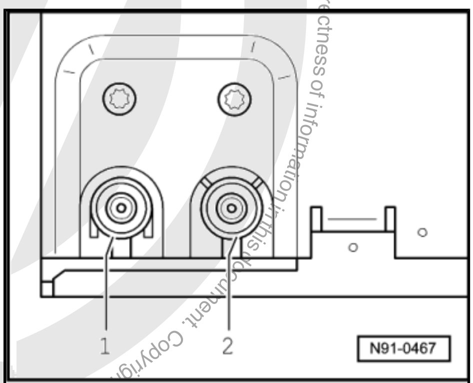
9 - CD changer, right channel, CD/R

10 - CD changer, control signal

11 - CD changer, DATA IN (data exchange for CD changer control from CD changer to radio navigation system)

12 - CD changer, CLOCK (internal check protocol for data flow monitoring)

9.4.7 Connectors 7 and 8, aerial connections



1 - Transparent connection for FM aerial input signal from aerial selection control unit

2 - Beige connection for FM aerial output signal to aerial selection control unit (diversity)

The aerial input signal from connection 1 is checked in the radio navigation system and the result is sent via connection 2 to the aerial selection control unit. If the aerial signal being received is too weak, this then switches to a different aerial (diversity). The customer will not be able to perceive this procedure audibly.

9.5 Anti-theft coding

Radio navigation systems “RNS MFD 2” and “RNS MFD 2 DVD” are equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio navigation system's voltage supply, system operation is restored when reconnecting the voltage supply without entering the code number. The prerequisite is that initial activation of the anti-theft coding has been performed and the radio navigation system is reconnected in the same vehicle.

9.5.1 Deactivating anti-theft coding

A locked radio navigation system can only be returned to normal operation by entering the correct code number for the anti-theft coding.

Note

- *The code number for the anti-theft coding is stuck to the radio card, together with the unit number ⇒ Operating Manual .*
- *The radio card should not be kept in the vehicle for security reasons. If necessary, ask the customer for the code number.*
- *If a radio navigation system is renewed, the code number of the renewal unit also must be used.*
- *The customer must be informed that the code number has changed.*

– Obtain the unit's code number.

– Switch radio navigation system on.

The word “SAFE” and the number sequence “0000” appear in the display.

– Enter the code number that has been adhered to the radio card by marking the numbers from the letters and numbers selection box one after another and confirming using the right rotary push button.

Note

Entering the 1st number overwrites the row of figures “0000”.

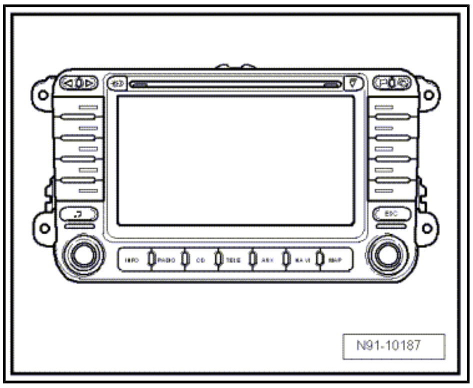
– Once you have entered the anti-theft code, press the button located next to the word “OK” in the display.

The unit will be released and is ready for use.

Note

If you have entered the wrong anti-theft code, it can be immediately corrected in two further attempts. If the wrong anti-theft code is entered three times, the radio navigation system is locked for one hour. Leave ignition and radio navigation unit switched on. The process of deactivating the anti-theft coding can then be repeated after one hour. Remember: you always have three attempts at entering the code, then the radio navigation system is blocked for one hour.

10 Radio navigation system “RNS MFD 2 DVD”, for models for USA and Canada



Radio navigation system with multifunction display 2 with DVD drive

Note

- *The part number for the radio navigation system is printed on a sticker on the radio navigation system housing!*
- *If the radio navigation system is replaced, it is very important that the anti-theft coding is activated* *⇒ page 72* *. The new code number should be given to the customer.*
- *If the anti-theft code is not known it can be requested via the established systems. You need the identification number of the radio navigation system in order to make the request. It is located on a sticker on the side of the radio unit. In addition, the identification number is also stamped into the material of the side wall of the radio navigation system.*
- *If a radio navigation unit from one vehicle is fitted into another vehicle, it is essential that the part number of the replacement unit is the same as that of the unit previously installed. Otherwise faults will occur with the navigation because the turn angle sensor setting in the radio navigation system will not be compatible with the vehicle.*

Note

- *When faced with complaints, it is absolutely necessary to know the functions and the operation of the radio navigation system.*
- *Additional information ⇒ Operating instructions ⇒ Self-study programme No. 199 ; Radio navigation system .*
- *The anti-theft coding is equipped with a fixed code, Deactivating anti-theft coding* *⇒ page 72* *.*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *For perfect operation of the navigation system, the turn angle sensor in the unit has to be adjusted according to the installation position of the unit in the vehicle! Therefore, always note the part number when exchanging equipment. Incorrect installation could lead to a malfunction in the navigation system.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *The use of magnetic-base aerials may lead to permanent magnetisation of the vehicle roof, resulting in a malfunction in the compass module. If confronted with complaints about inaccurate or incorrect directional indication of the compass module, ask the customer if a magnetic-base aerial has been used before carrying out any repair work.*

10.1 General description

The radio navigation system “RNS MFD 2 DVD” combines the functions of a navigation system with those of a high-quality RDS car radio.

The following systems are installed in the double DIN housing for radio navigation system:

- An RDS radio receiver
- A 6.5 inch liquid crystal colour display in 16:9 format
- A navigation system with GPS satellite receiver and
- A DVD drive for the navigation system

The “RNS MFD 2 DVD” is available in a version where the four internal outputs feed the loudspeakers directly or another version with an additional external sound system amplifier. In this case, the loudspeakers are connected directly to the sound system amplifier and the loudspeaker outputs of the radio navigation system are used for amplifier input signals.

Note

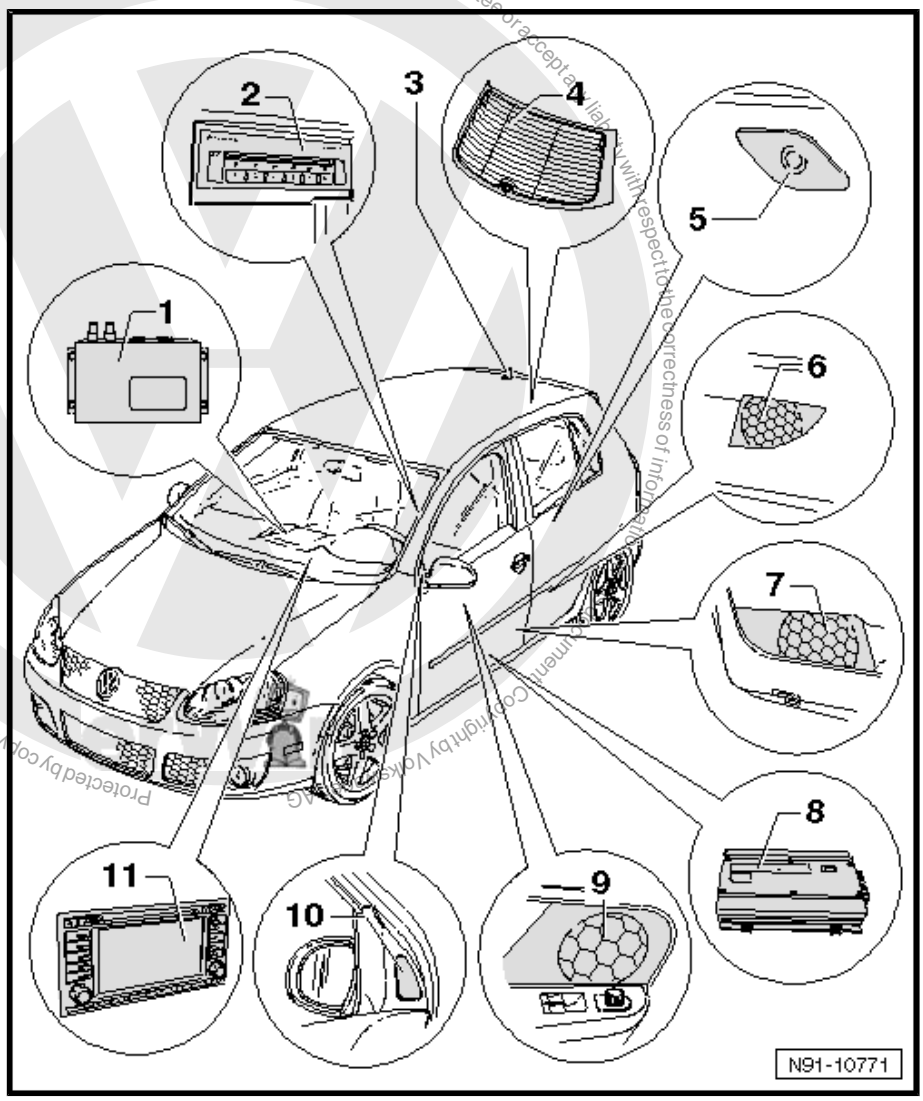
The playing of audio CDs is not possible.

To extend the functions, there are connections for a CD changer, a TV tuner, a satellite digital radio tuner, a telephone system and an amplifier.

The radio navigation system aerials for “terrestrial” radio reception is a window aerial and is located in the rear window. The aerial system operates using a “diversity function”.

A roof aerial is installed for navigation, telephone and satellite radio tuner.

10.2 Overview of radio navigation system “RNS MFD 2 DVD”



1 - Satellite digital radio tuner -R190-

- ❑ Optional extra
- ❑ Installed under right front seat
- ❑ For further information, refer to chapter Satellite digital radio tuner ⇒ page 115 .

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed in centre console
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .

3 - Satellite tuner aerial -R172-

- ❑ Optional extra
- ❑ Installed on rear of roof
- ❑ Optional for navigation and telephone
- ❑ For vehicles with no satellite tuner the telephone, navigation system, auxiliary heater -R66- aerial is used.
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

4 - Window aerials

- ❑ Installed in rear window for radio reception
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

5 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in rear left and right side panel trims
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

6 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in left and right side panel trims
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

7 - Front right bass loudspeaker -R23- and front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

8 - Amplifier -R12-

- ❑ Optional extra
- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

9 - Front right mid-range loudspeaker -R104- and front left mid-range loudspeaker -R103-

- ❑ Installed in door trim panel in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

10 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Control unit with display unit for radio and navigation -J503-

- ❑ Here “RNS MFD 2 DVD”
- ❑ Removing and installing, Golf ⇒ page 2 Removing and installing, Golf Plus ⇒ page 5
- ❑ Overview of connectors ⇒ page 68

10.3 Overview of connectors on radio navigation system “RNS MFD 2 DVD”

1 - Multi-pin connector 1, 18-pin

- ❑ Pin assignment ⇒ page 69

2 - Connector 2

- ❑ Connection for navigation system aerial
- ❑ Pin assignment ⇒ page 69

3 - Multi-pin connector 3, 8-pin

- ❑ Pin assignment ⇒ page 70

4 - Multi-pin connector 4, 8-pin

- ❑ Pin assignment ⇒ page 70

5 - Multi-pin connector 5, 12-pin

- ❑ Pin assignment ⇒ page 71

6 - Multi-pin connector 6, 12-pin

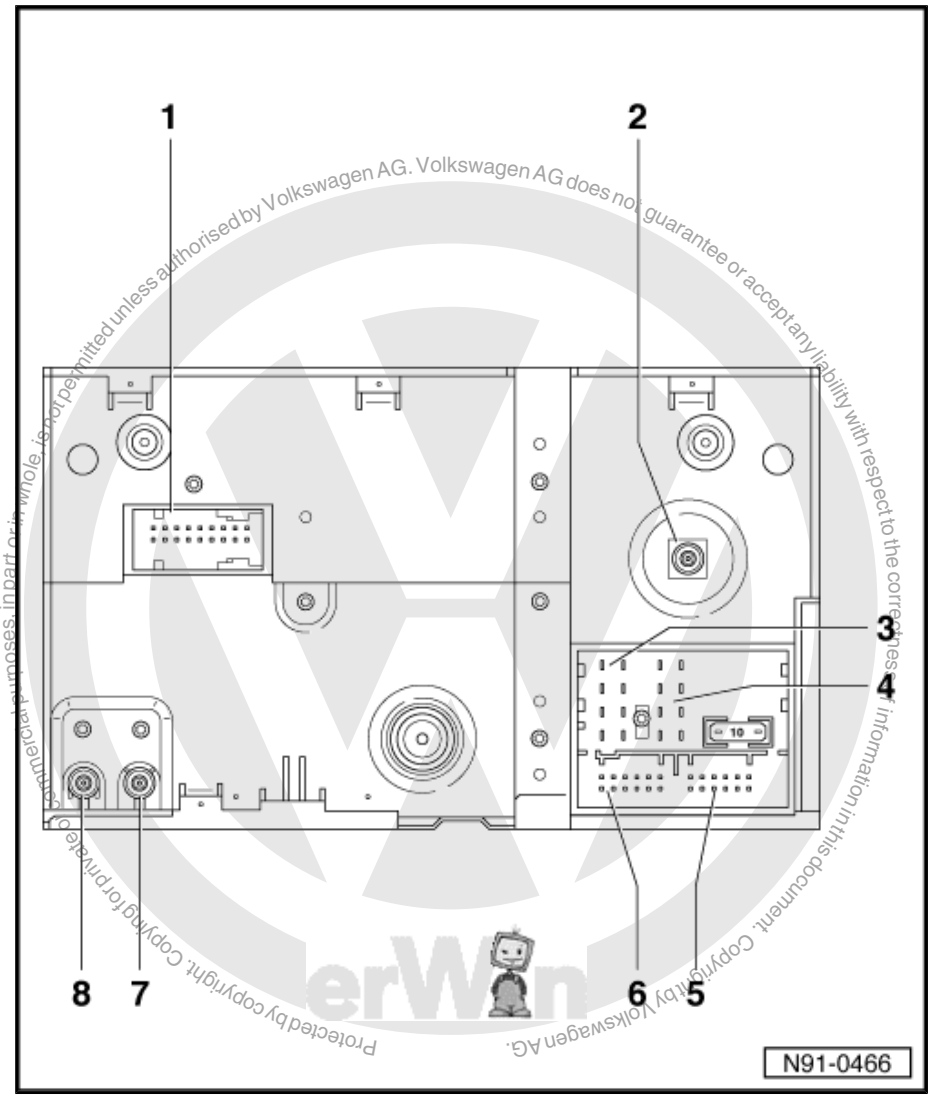
- ❑ Pin assignment ⇒ page 71

7 - Connector 7

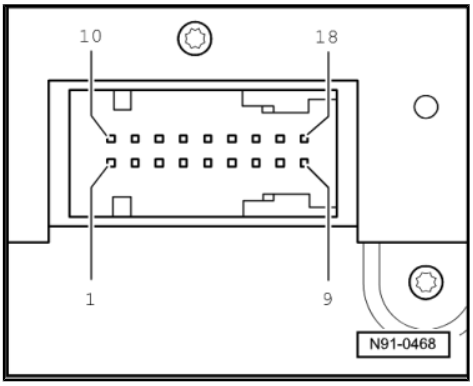
- ❑ Aerial connection
- ❑ Connection for aerial cable to aerial in rear window
- ❑ Pin assignment ⇒ page 72

8 - Connector 8

- ❑ Aerial connection
- ❑ Connection for aerial cable to aerial in rear window
- ❑ Pin assignment ⇒ page 72



10.3.1 Multi-pin connector 1, 18-pin, for video and low frequency input



Note

This connector is only used when the respective “TV tuner” is installed.

1 - Not assigned

2 - Audio signal, negative

3 - Audio signal, negative

4 - Audio screening, negative

5 - Video signal, negative

6 - Video switch signal

7 - Video signal, negative

8 - Video signal, negative

9 - Video signal, negative

10 - Not assigned

11 - Left audio signal, input, positive

12 - Right audio signal, input, positive

13 - Audio screening, negative

14 - Synchronisation of vertical and horizontal picture signals

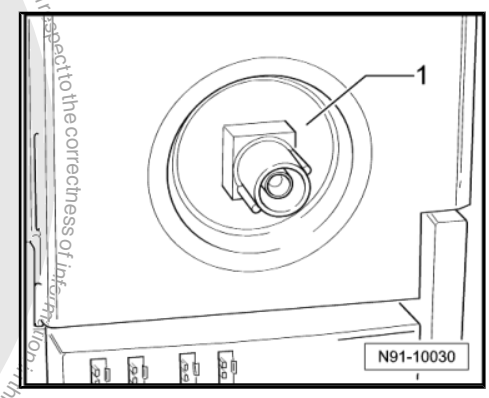
15 - 50 Hertz/60 Hertz

16 - Blue picture signal input

17 - Green picture signal input

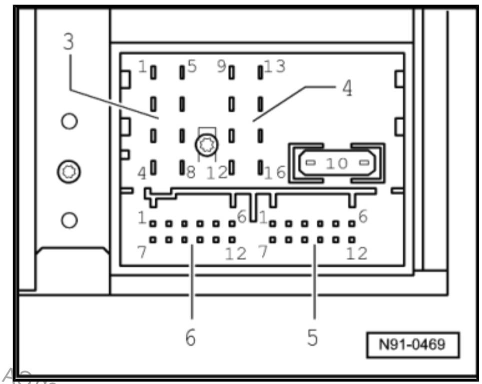
18 - Red picture signal input

10.3.2 Connector 2



1 - Blue connection for aerial input signal “Navigation”

10.3.3 Multi-pin connector 3, 8-pin, for loud-speaker outputs



Note

If the radio navigation system in the vehicle is also equipped with an amplifier, these loudspeaker outputs are used as input signals for the amplifier.

1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

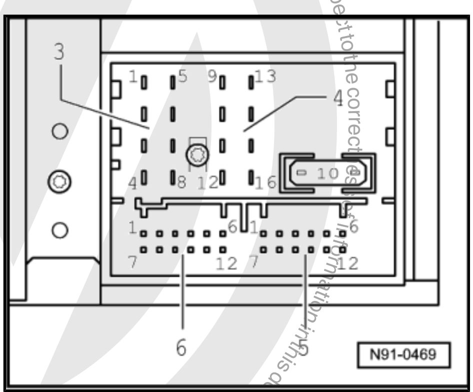
5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

10.3.4 Multi-pin connector 4, 8-pin, for voltage supply wires and CAN bus



9 - CAN bus, high

10 - CAN bus, low

11 - Radio mute (when telephone is in use)

12 - Voltage supply, negative, terminal 31

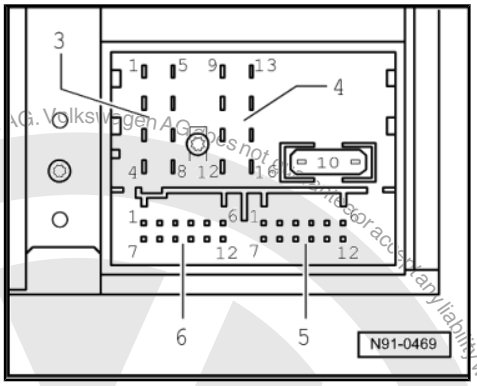
13 - Connection for ignition-key-controlled switching on and off (S contact)

14 - Alarm system contact (optional)

15 - Voltage supply, positive, terminal 30

16 - Anti-theft coding control signal, SAFE

10.3.5 Multi-pin connector 5, 12-pin, for telephone signals and pre-amplifier output signals



Note

This connector is only used when the respective "telephone system" is installed.

1 - Not assigned

2 - Not assigned

3 - Line out, left

4 - Not assigned

5 - Navigation speech driving instructions, positive

6 - Telephone audio input signal, TEL negative

7 - Not assigned

8 - Line out, negative

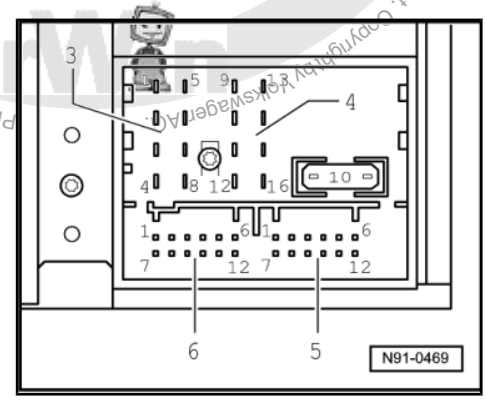
9 - Line out, right

10 - Not assigned

11 - Navigation speech driving instructions, negative

12 - Telephone audio input signal, TEL positive

10.3.6 Multi-pin connector 6, 12-pin, for CD changer control, CD audio input signals and satellite digital radio tuner



This connector is only used when the respective "satellite digital radio tuner" is installed. A CD changer is installed as standard.

1 - Satellite digital radio tuner, audio input, left

2 - CD changer, left and right channels, audio earth

3 - Satellite digital radio tuner, input, audio earth

4 - CD changer, voltage supply, positive, terminal 30

5 - Satellite digital radio tuner, input, permanent positive, terminal 30

6 - CD changer, DATA OUT (data exchange for CD changer control from radio navigation system to CD changer)

7 - Satellite digital radio tuner, input, audio right

8 - CD changer, left channel, audio, CD/L

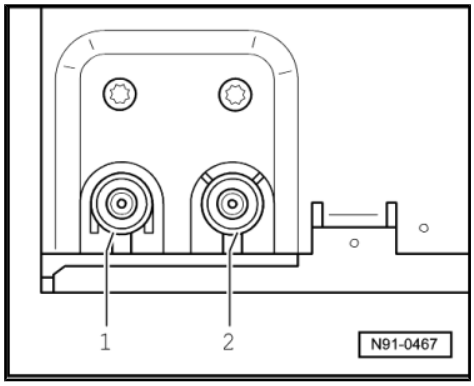
9 - CD changer, right channel, audio, CD/R

10 - CD changer, control signal

11 - CD changer, DATA IN (data exchange for CD changer control from CD changer to radio navigation system)

12 - CD changer, CLOCK (internal check protocol for data flow monitoring)

10.3.7 Connectors 7 and 8, aerial connections



Note

The radio navigation system is fitted with an aerial diversity system for terrestrial radio reception. Both aerial connections are signal inputs. The radio navigation system analyses continuously which of the two window aerials has the better reception signal. The aerial with the better reception signal is then selected. The customer will not be able to perceive this procedure audibly.

1 - Transparent connection for terrestrial radio reception aerial input signal.

2 - Beige connection for terrestrial radio reception aerial input signal.

10.4 Anti-theft coding

The radio navigation system “RNS MFD 2 DVD” is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio navigation system's voltage supply, system operation is restored when reconnecting the voltage supply without entering the code number. The prerequisite is that initial activation of the anti-theft coding has been performed and the radio navigation system is reconnected in the same vehicle.

10.4.1 Deactivating anti-theft coding

A locked radio navigation system can only be returned to normal operation by entering the correct code number for the anti-theft coding.

Note

- *The code number for the anti-theft coding is stuck to the radio card, together with the unit number ⇒ Operating Manual .*
- *The radio card should not be kept in the vehicle for security reasons. If necessary, ask the customer for the code number.*
- *If a radio navigation system is renewed, the code number of the renewal unit also must be used.*
- *The customer must be informed that the code number has changed.*

– Obtain the unit's code number.

– Switch radio navigation system on.

The word “SAFE” and the number sequence “0000” appear in the display.

– Enter the code number that has been adhered to the radio card by marking the numbers from the letters and numbers selection box one after another and confirming using the right rotary push button.

Note

Entering the 1st number overwrites the row of figures “0000”.

– Once you have entered the anti-theft code, press the button located next to the word “OK” in the display.

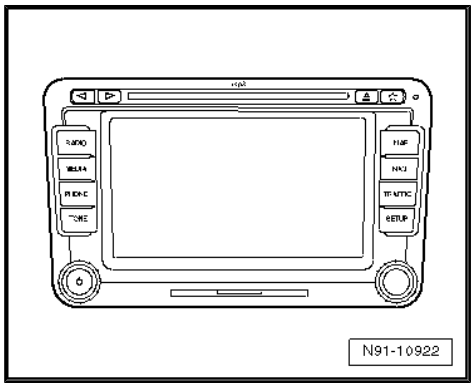
The unit will be released and is ready for use.

Note

If the incorrect anti-theft code is entered, it can be immediately corrected in two further attempts. If the wrong anti-theft code is entered three times, the radio navigation system is locked for one hour. Leave ignition and radio navigation unit switched on. The process of deactivating the anti-theft coding can then be repeated after one hour. Remember: you always have three attempts at entering the code, then the radio navigation system is blocked for one hour.

11 Radio navigation system “RNS 510”

Radio navigation system “RNS 510”



11.1 General notes

The radio navigation system “RNS 510” combines the functions of a navigation system with those of a high-quality RDS car radio.

The main functions are described in the following:

- An RDS radio receiver
- A 6.5 inch liquid crystal colour display
- A navigation system with GPS satellite receiver
- Integrated aerial diversity
- Integrated DAB tuner for digital radio reception
- A DVD player for navigation, video and audio
- An SD memory card slot
- Travel Information Memory (TIM)
- Corridor function
- MP3 and WMA playback formats

The radio navigation system “RNS 510” is equipped with 4 loudspeaker outputs.

The “RNS 510” can be extended with the following components:

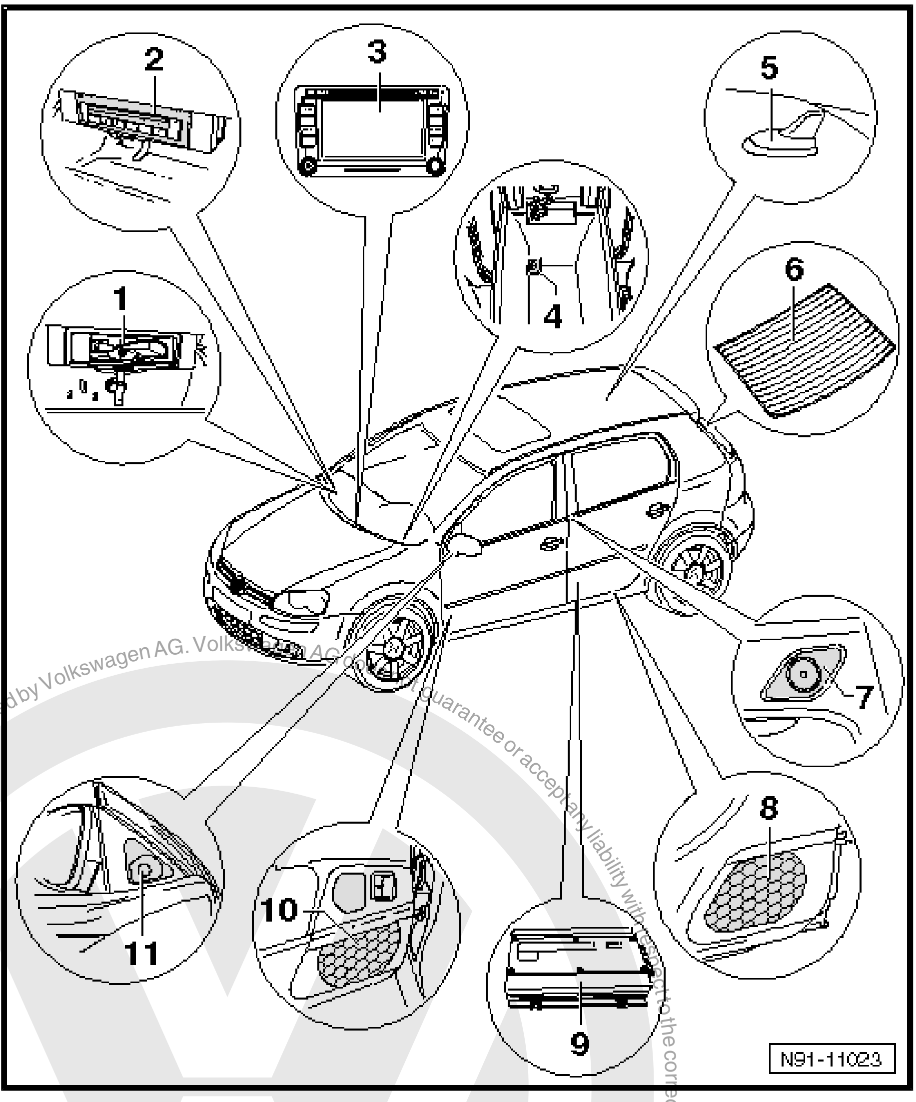
- CD changer
- Multifunction steering wheel
- TV tuner
- Sound amplifier
- Universal preparation for mobile telephone (UHV Premium Light)
- Rear seat entertainment system

A roof aerial is used for the navigation system.

Additional information ⇒ Operating Manual ⇒ Self-study programme No. 397 ; Radio navigation systems 2007 .

In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

11.2 Overview of radio navigation system “RNS 510”, Golf saloon



1 - Multimedia system control unit -J650-

- ❑ Installed in centre console
- ❑ For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- ❑ 6-disc CD changer
- ❑ Installed in centre console
- ❑ For further information, refer to chapter CD changer ⇒ page 113 .
- ❑ Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

3 - Control unit with display for radio and navigation -J503- (RNS MFD 510)

- ❑ Removing and installing ⇒ page 2
- ❑ Overview of connectors ⇒ page 78
- ❑ Anti-theft coding ⇒ page 82

4 - “AUX-IN” socket

- ❑ Fitted in storage compartment beneath centre armrest
- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

6 - Window aerials

- ❑ Installed in rear window, for radio reception with diversity aerial
- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information refer, to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- Installed under left front seat
- For further information, refer to chapter Sound system amplifier ⇒ page 109 .

10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- Installed in door trim panel in both front doors
- Mid-range loudspeakers are only installed in conjunction with the sound system.
- Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- Installed in mirror triangular trim plate in both front doors
- For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11.3 Overview of radio navigation system “RNS 510”, Golf Plus

1 - Multimedia system control unit -J650-

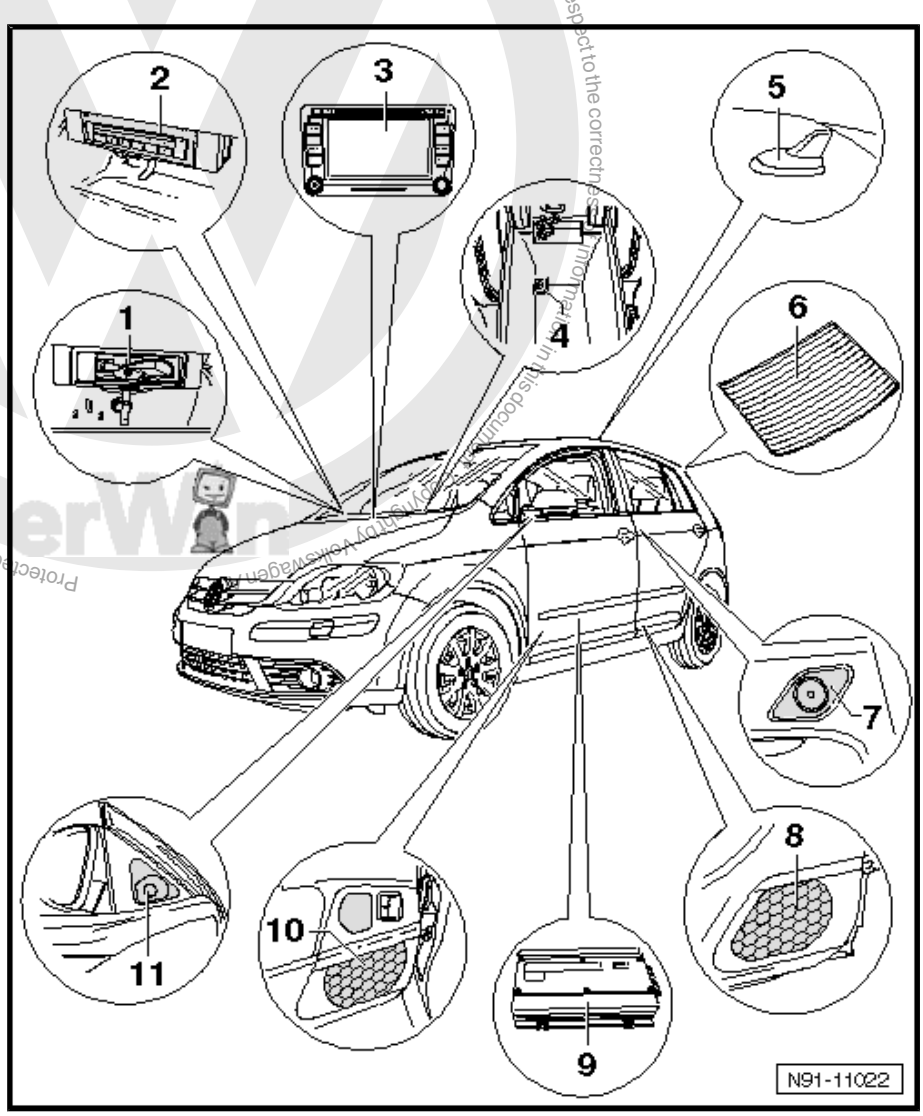
- Installed in centre console
- For further information, refer to chapter Multimedia control unit ⇒ page 129 .
- Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

2 - CD changer -R41-

- 6-disc CD changer
- Installed in centre console
- For further information, refer to chapter CD changer ⇒ page 113 .
- Optional installation of “CD changer” or “multimedia control unit”, both systems are not available together since there is only one fitting location for both systems.

3 - Control unit with display for radio and navigation -J503- (RNS MFD 510)

- Removing and installing ⇒ page 5
- Overview of connectors ⇒ page 78
- Anti-theft coding ⇒ page 82



4 - "AUX-IN" socket

- ❑ Fitted in storage compartment beneath centre armrest
- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

5 - Aerial for telephone, navigation and auxiliary heating remote control -R66-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

6 - Window aerials

- ❑ Installed in rear window, for radio reception with diversity aerial
- ❑ Optionally also aerial for digital radio reception DAB
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

7 - Rear right treble loudspeaker -R16- and rear left treble loudspeaker -R14-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information refer, to chapter Loudspeaker systems ⇒ page 135 .

8 - Rear right bass loudspeaker -R17- and rear left bass loudspeaker -R15-

- ❑ Installed in door trims of left and right rear doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

9 - Amplifier -R12-

- ❑ Installed under left front seat
- ❑ For further information, refer to chapter Sound system amplifier ⇒ page 109 .

10 - Front right mid-range loudspeaker -R104- and Front left mid-range loudspeaker -R103- as well as Front right bass loudspeaker -R23- and Front left bass loudspeaker -R21-

- ❑ Installed in door trim panel in both front doors
- ❑ Mid-range loudspeakers are only installed in conjunction with the sound system.
- ❑ Mid-range loudspeakers and bass loudspeakers are installed as a unit.
- ❑ Without sound system only the bass loudspeaker is installed here. Mid-range sounds are handled by the bass and treble loudspeakers.
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11 - Front right treble loudspeaker -R22- and front left treble loudspeaker -R20-

- ❑ Installed in mirror triangular trim plate in both front doors
- ❑ For further information, refer to chapter Loudspeaker systems ⇒ page 135 .

11.4 Overview of connectors on radio navigation system “RNS 510”

1 - Multi-pin connector 1, 8-pin

- ❑ Pin assignment
  ⇒ page 79

2 - Multi-pin connector 2, 8-pin

- ❑ Pin assignment
  ⇒ page 79

3 - Multi-pin connector 3, 12-pin

- ❑ Pin assignment
  ⇒ page 80

4 - Multi-pin connector 4, 12-pin

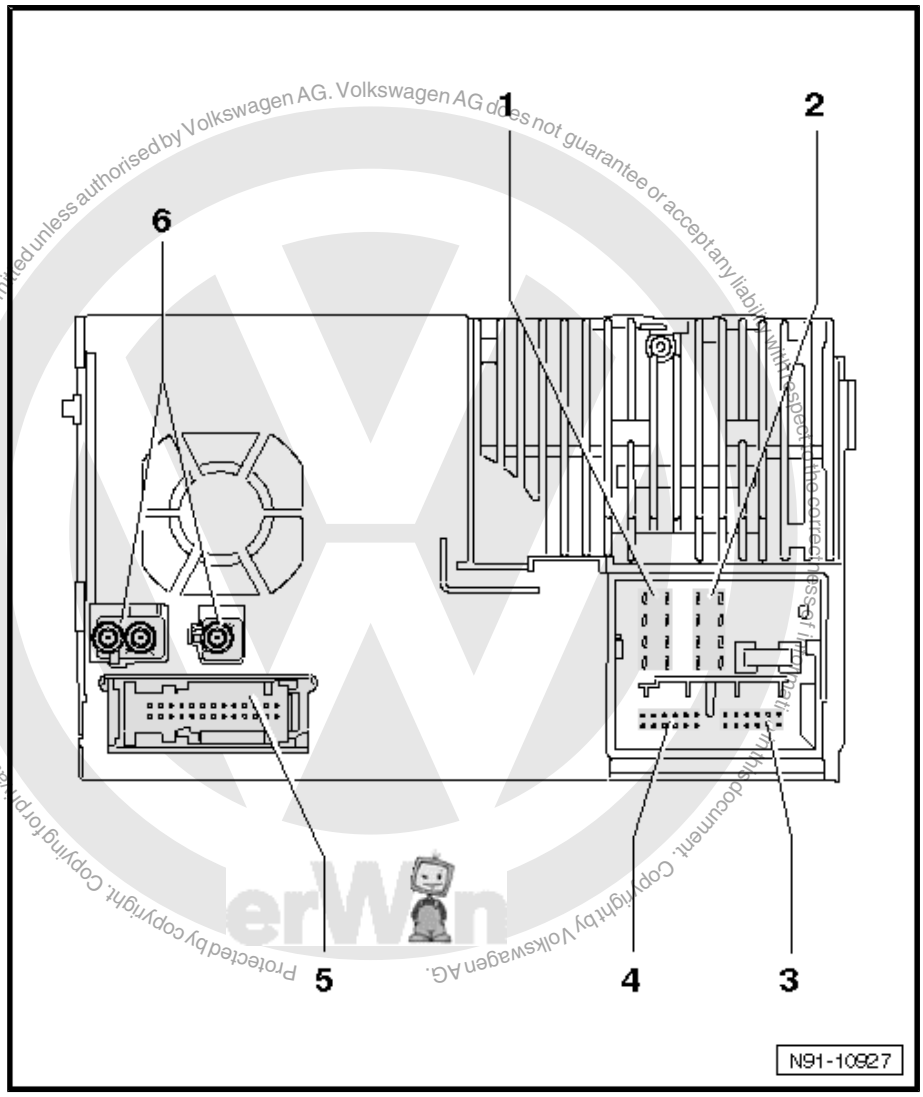
- ❑ Pin assignment
  ⇒ page 80

5 - Multi-pin connector 5, 26-pin

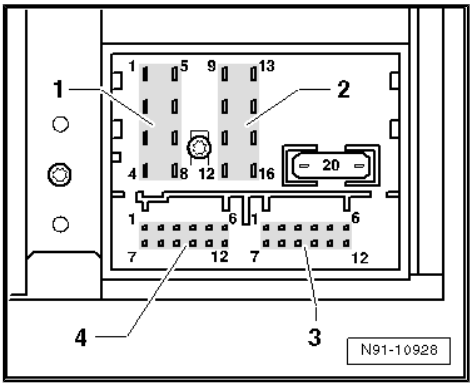
- ❑ Pin assignment
  ⇒ page 81

6 - Connectors 6, aerial connectors

- ❑ Pin assignment
  ⇒ page 81



11.4.1 Multi-pin connector 1, 8-pin, for loudspeaker outputs



1 - Rear right loudspeaker, positive

2 - Front right loudspeaker, positive

3 - Front left loudspeaker, positive

4 - Rear left loudspeaker, positive

5 - Rear right loudspeaker, negative

6 - Front right loudspeaker, negative

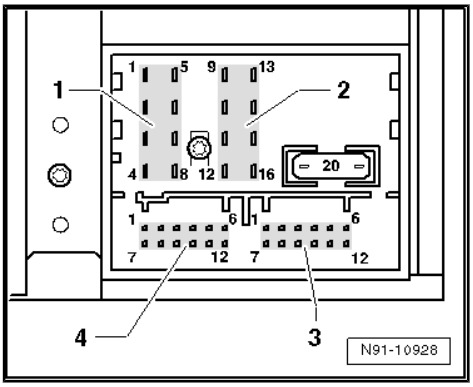
7 - Front left loudspeaker, negative

8 - Rear left loudspeaker, negative

Note

On use of a sound amplifier, the same pin assignments are used as line-in for the sound amplifier. To achieve this, the radio unit is programmed from "output stage power 26 dB" to "output stage line-out 12 dB" in the factory.

11.4.2 Multi-pin connector 2, 8-pin, for voltage supply lines and CAN bus



9 - CAN bus, high

10 - CAN bus, low

11 - Display voltage supply, positive, optional for radio module low version only

12 - Voltage supply, negative, terminal 31

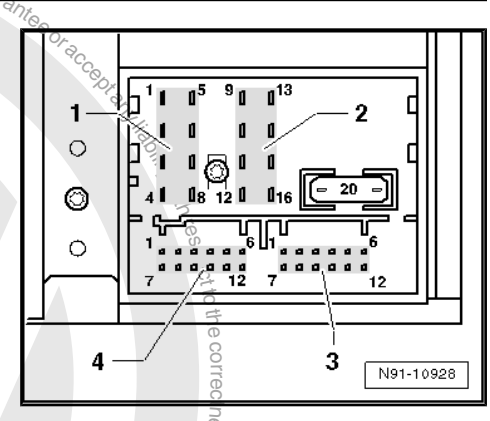
13 - Display HV CAN bus low, optional for radio module low version only, not for midline

14 - Display HV CAN bus high, optional for radio module low version only, not for midline

15 - Voltage supply, positive, terminal 30

16 - Anti-theft coding control signal, SAFE, positive

11.4.3 Multi-pin connector 3, 12-pin, for telephone and microphone signals



1 - Microphone input, negative

2 - AUX output, audio, right

3 - AUX output, common signal earth

4 - Microphone output, negative

5 - Telephone audio input signal left, negative

6 - Telephone audio input signal right, negative

7 - Microphone input, positive

8 - AUX output, audio, left

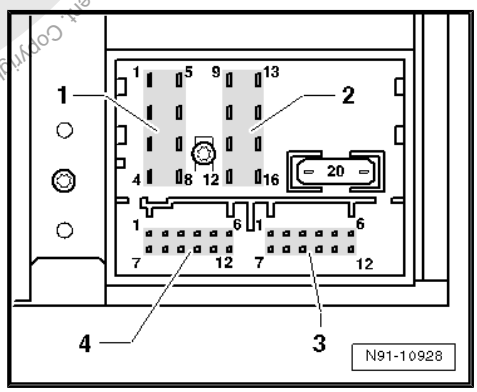
9 - Microphone output, positive

10 - Telephone mute (mute switch for radio)

11 - Telephone audio input signal left, positive

12 - Telephone audio input signal right, positive

11.4.4 Multi-pin connector 4, 12-pin, for CD changer control and CD audio input signals



1 - AUX signal input, left

2 - AUX signal earth

3 - CD changer, audio signal earth

4 - CD changer, voltage supply, positive, terminal 30, contact continuous load greater than 1 A, temporary peak load 5 A

5 - Not assigned

6 - CD changer, DATA OUT (data exchange for CD changer control from radio navigation system to CD changer)

7 - AUX signal input, right

8 - CD changer, left audio channel, CD/L

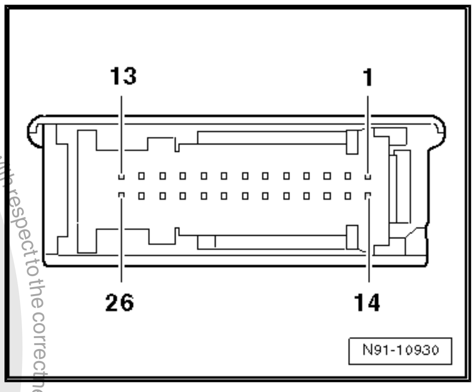
9 - CD changer, right audio channel, CD/R

10 - CD changer, control line, switched positive

11 - CD changer, DATA IN (data exchange for CD changer control from CD changer to radio navigation system)

12 - CD changer, CLOCK (internal check protocol for data flow monitoring)

11.4.5 Multi-pin connector 5, audio and video, 26-pin



1 - Reserved for Debug RX protocol

2 - Reserved for Debug TX protocol

3 - Not assigned

4 - Video signal input, RGBS, negative

5 - Not assigned

6 - Internal universal preparation for mobile telephone, mobile telephone detection

7 - Internal universal preparation for mobile telephone, cradle and button evaluation

8 - Internal universal preparation for mobile telephone, cradle, aerial diagnosis

9 - Video signal input, RGBS, negative

10 - Video signal input LF, right

11 - Video signal input, screening earth

12 - Video signal input, vertical and horizontal synchronisation

13 - Video signal input, green

14 - Not assigned

15 - Not assigned

16 - Not assigned

17 - Not assigned

18 - Not assigned

19 - Internal universal preparation for mobile telephone, cradle, negative

20 - Internal universal preparation for mobile telephone, switched terminal 30

21 - Not assigned

22 - Video signal input, LF, negative

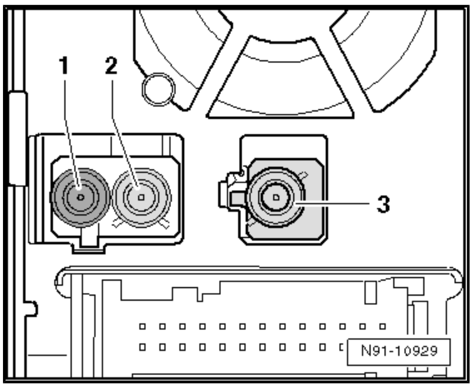
23 - Video signal input LF, left

24 - Video signal input, RGBS, negative

25 - Video signal input, blue

26 - Video signal input, red

11.4.6 Connectors 6, aerial connectors



1 - AM and FM2 radio reception aerial connector, double Fakra, no coding, impedance 50 ohms, colour cream-white

2 - FM1 radio reception aerial connector, double Fakra, coding B, impedance 50 ohms, colour cream-white

3 - Navigation aerial connector, double Fakra, coding C, impedance 50 ohms, colour signal blue

11.5 Anti-theft coding

The radio navigation system “RNS 510” is equipped with a convenience anti-theft coding, which is effective in combination with the dash panel insert.

After disconnecting the radio navigation system's voltage supply, system operation is restored when reconnecting the voltage supply without entering the code number. The prerequisite is that initial activation of the anti-theft coding has been performed and the radio navigation system is reconnected in the same vehicle.

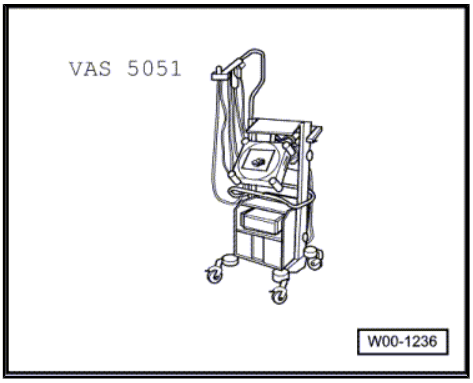
A locked radio navigation system can only be returned to normal operation by entering the correct code number for the anti-theft coding.

The anti-theft code is determined using vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- . The previously related radio card and the sticker on the radio unit have been discontinued.

Note

To determine the anti-theft code, vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- must be connected “online” (network connection), and the user must possess valid rights for the programme for requesting radio codes.

11.5.1 Deactivating anti-theft coding



Required special tools, workshop equipment, testers, measuring instruments and auxiliary items

- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-

Determining anti-theft code of anti-theft coding via VAS tester:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

or

Select “Guided fault finding” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” key.
– Select “Function/Component selection”.
– Select “Body”.
– Select “Electrical system”.
– Select “01 - On Board Diagnostic (OBD)”.
– Select “Radio navigation system”.
– Select “Functions”.
– Select and start “Radio code request”.

Your system rights are then determined. The operating data, the chassis number and the unit number of the radio or radio navigation system are then read out automatically.

Note

When installing radio units or radio navigation systems which are new or have not yet been adapted to the vehicle, it may occur that the tester is unable to read out the unit number of the radio unit or the radio navigation system. In this case, please enter the unit number manually. It can be read off from the sticker affixed to the unit and is additionally stamped into the side of the unit.

The radio code which has been determined is then shown on the tester's display.

The anti-theft code must now be entered manually into the radio navigation system.

Deactivating anti-theft coding:

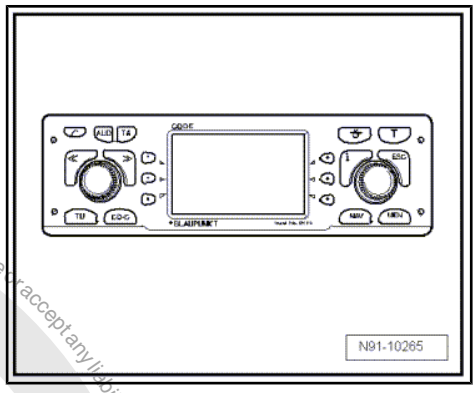
– Now enter the previously determined radio code into the “RNS 510” number block shown on the display and confirm it.

The unit will be released and is ready for use.

Note

If the incorrect anti-theft code is entered, it can be immediately corrected with a further attempt. If the incorrect anti-theft code is entered twice, the radio navigation system is blocked for one hour. Leave ignition and radio navigation unit switched on. The remaining time is shown on the radio navigation system display. The process of deactivating the anti-theft coding can then be repeated after one hour. Remember that you always have two attempts at entering the code. The radio navigation system is then blocked for one hour.

12 Radio navigation system “DX-R4” (Blaupunkt)



Radio navigation system “DX-R4” (Blaupunkt)

Note

- *When faced with complaints, it is absolutely necessary to know the functions and the operation of the radio navigation system.*
- *Additional information ⇒ Operating Manual*
- *The anti-theft coding is equipped with a fixed code ⇒ Operating Manual .*
- *For perfect operation of the navigation system, the turn angle sensor in the unit has to be adjusted according to the installation position of the unit in the vehicle. Therefore, always note the part number when exchanging unit. Incorrect installation could lead to a malfunction in the navigation system.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *The use of magnetic-base aerials may lead to permanent magnetisation of the vehicle roof, resulting in a malfunction in the compass module. If confronted with complaints about inaccurate or incorrect directional indication of the compass module, ask the customer if a magnetic-base aerial has been used before carrying out any repair work.*
- *If tyres are changed the radio navigation system must be adapted again. Adapting radio navigation system after changing tyres* ⇒ page 91

12.1 General notes

The radio navigation system “DX-R4” combines the functions of a navigation system with those of a high-quality RDS car radio.

The following is installed in the single DIN housing for radio navigation system:

- An RDS radio receiver
- An LCD display
- A navigation system with GPS satellite receiver and
- A CD drive for the audio and navigation system

The radio navigation system “DX-R4” comes in two versions, one in which 4 internal outputs feed the 4 loudspeakers or the version in which 2 loudspeakers are fed via the internal outputs.

The CD drive can read a CD ROM for navigation or a music CD. Whilst a music CD is playing, only restricted operation of the navigation system is possible.

Note

- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*

The window aerial is used for radio reception, and the roof aerial for the navigation function.

To expand the functions a connection to operate a telephone is provided.

It is not possible to operate a CD changer, sound amplifier and multifunction steering wheel in combination with the radio navigation system “DX-R4”.

12.1.1 Fault finding

The radio navigation system is equipped with an internal diagnostic function, fault finding on radio navigation system, ⇒ page 92 .

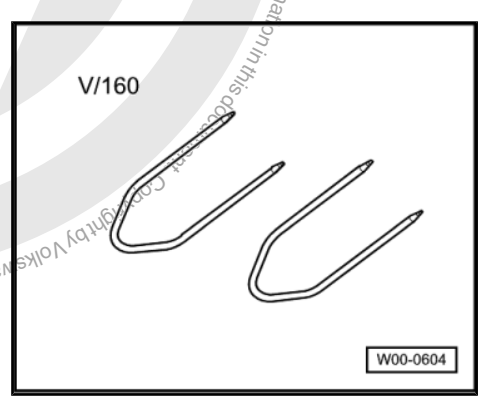
12.2 Removing and installing radio navigation system

Note

- *The part number for the radio navigation system is printed on a sticker on the radio navigation system housing!*
- *If the radio navigation system is renewed, it is very important that the anti-theft coding is activated ⇒ Operating Manual . The new code number should be given to the customer.*
- *If a radio navigation unit from one vehicle is fitted into another vehicle, it is essential that the part number of the replacement unit is the same as that of the unit previously installed. Otherwise faults will occur with the navigation because the turn angle sensor setting in the radio navigation system will not be compatible with the vehicle.*

12.2.1 Required special tools, testers, measuring instruments and auxiliary items

- Release tool -V/160-



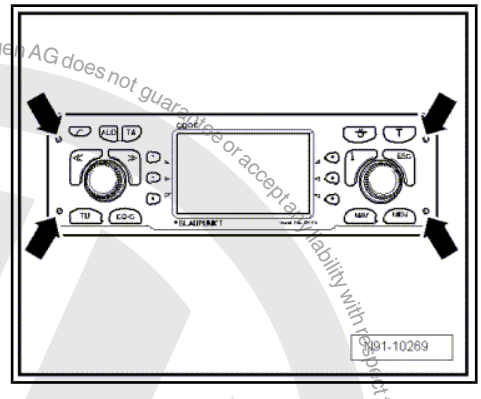
12.2.2 Removing

Before beginning dismantling work, perform the following steps:

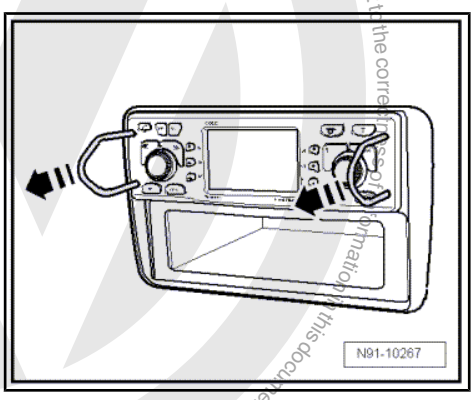
– Switch off ignition and all electrical consumers and remove ignition key.

– Remove any CDs which may be in unit ⇒ Operating Manual .

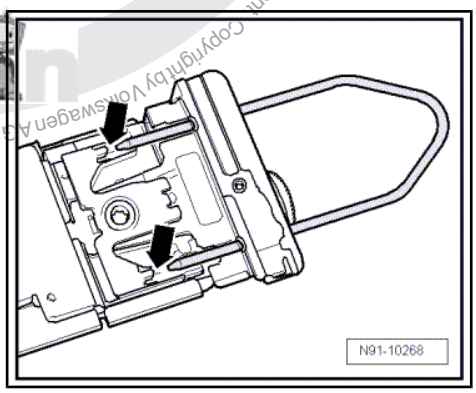
– Insert release tool -V/160- into radio navigation system on left and right -arrows- until they engage.



– Pull radio navigation system out of installation box -arrows-.
– Release connectors on back of unit and pull them off.



– Press locking mechanism on both sides of radio navigation system -arrow- and pull out release tool.



12.2.3 Installing

– Fit connectors on radio navigation system.
– Insert radio navigation system in dash panel without canting.

Note

- *When inserting radio navigation system, never press against the display or operating buttons, otherwise the radio navigation system could be damaged.*
- *Always use the adapter cable provided for connecting the navigation aerial cable, otherwise a correct connection of the aerial cable cannot be guaranteed.*

– If a new unit has been installed, activate the anti-theft coding function ⇒ page 90 .
– Deactivate unit lock via the anti-theft coding ⇒ page 90
– After installing a new unit, perform an adaptation for the radio navigation system ⇒ page 91 .

12.3 Overview of connectors on radio navigation system

1 - Aerial connection for radio reception

2 - Aerial connection for navigation

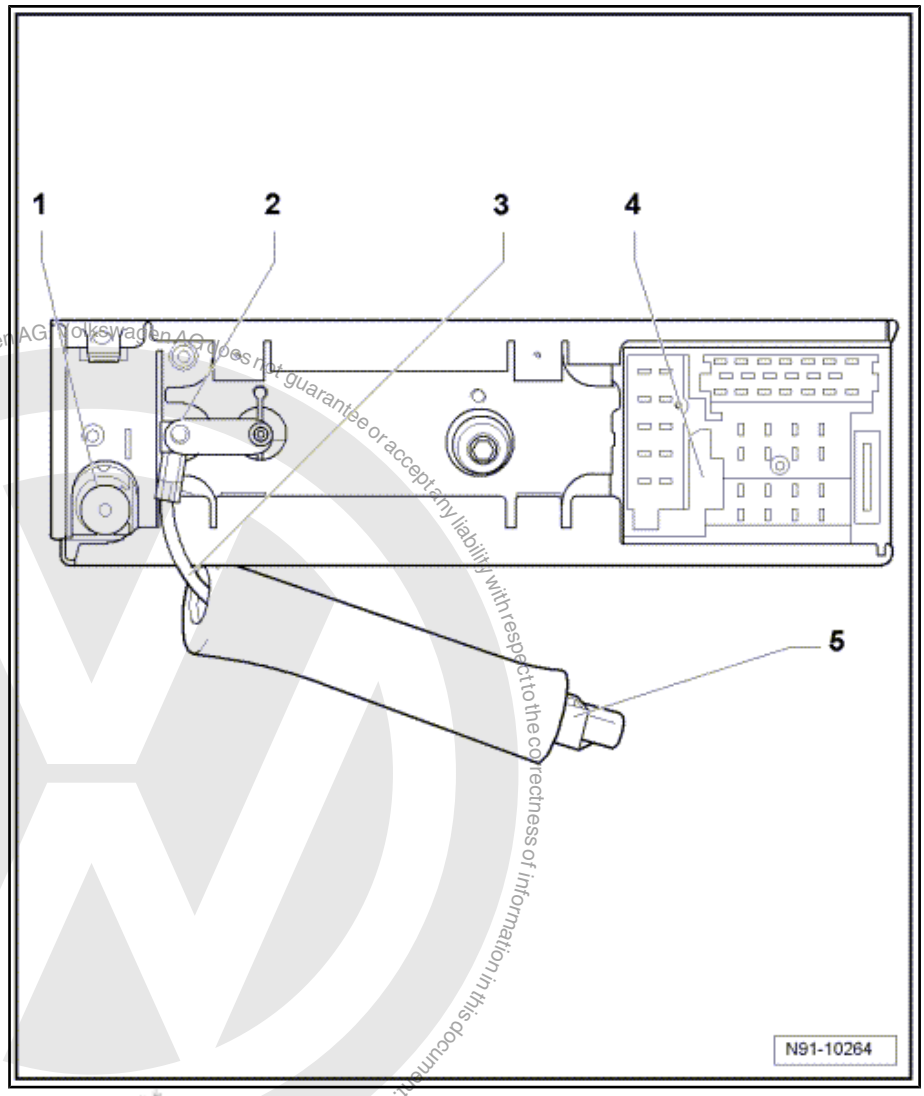
3 - Aerial adapter cable for navigation

- ❑ This adapter cable must always be installed, otherwise a correct connection of the navigation aerial cable cannot be guaranteed.

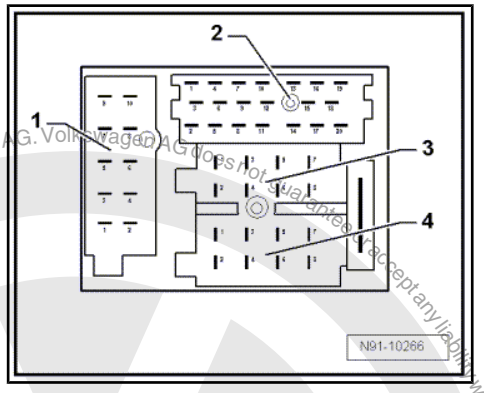
4 - Multi-pin connectors “1-4”

- ❑ Multi-pin connector “1” is not assigned.
- ❑ Multi-pin connector “2” for line out, telephone, CD changer, pin assignment ⇒ page 89
- ❑ Multi-pin connector “3” for loudspeaker outputs, pin assignment ⇒ page 89
- ❑ Multi-pin connector “4” for Gala, telephone, voltage supply, pin assignment ⇒ page 90

5 - Navigation aerial connection



12.3.1 Pin assignment multi-pin connector “2”



1 - Pre-amplifier output, audio signal, rear left

2 - Pre-amplifier output, audio signal, rear right

3 - Pre-amplifier output, audio signal, negative

4 - Pre-amplifier output, audio signal, front left

5 - Pre-amplifier output, audio signal, front right

6 - Switched positive, output (up to max. 300 mA)

7 - Audio signal telephone, positive input

8 - Audio signal telephone, negative input

9 - Radio mute for telephone

10 - Switched positive, output (up to max. 300 mA)

11 - Remote control input signal, positive

12 - Remote control input signal, negative

13 - CD changer DATA IN, CD changer control

14 - CD changer DATA OUT, CD changer control

15 - Permanent voltage supply, positive

16 - Switched positive, output (up to max. 300 mA)

17 - CD changer DATA, negative, CD changer control

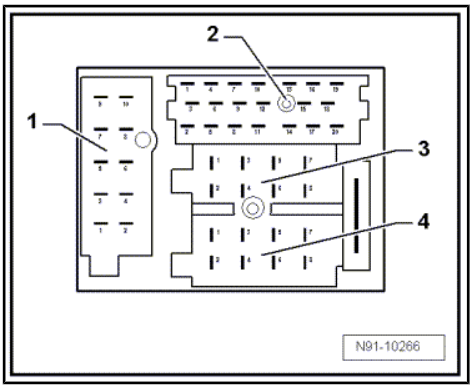
18 - CD changer audio input signal, negative

19 - CD changer left audio input signal, positive

20 - CD changer right audio input signal, positive

It is not possible to operate a CD changer and sound amplifier with the radio navigation system “DX-R4”.

12.3.2 Pin assignment multi-pin connector “3”



1 - Loudspeaker output signal, rear right, positive

2 - Loudspeaker output signal, rear right, negative

3 - Loudspeaker output signal, front right, positive

4 - Loudspeaker output signal, front right, negative

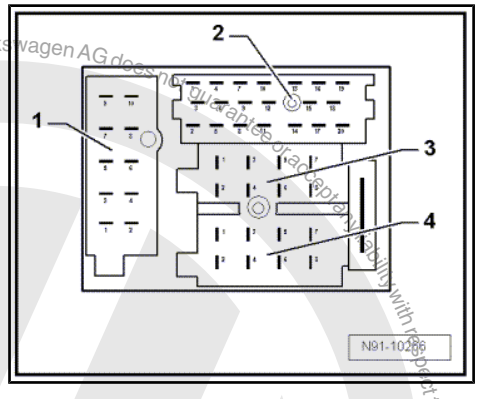
5 - Loudspeaker output signal, front left, positive

6 - Loudspeaker output signal, front left, negative

7 - Loudspeaker output signal, rear left, positive

8 - Loudspeaker output signal, rear left, negative

12.3.3 Pin assignment multi-pin connector “4”



1 - Speed dependent volume control signal (GALA)

2 - Radio mute for telephone operation (is active with negative)

3 - Anti-theft coding voltage supply

4 - Voltage supply, terminal 30, positive

5 - Switched output for automatic aerial

6 - Unit lighting, terminal 58d

7 - Voltage supply, terminal 15, positive

8 - Voltage supply, terminal 31, negative

12.4 Anti-theft coding

The radio navigation system is equipped with an anti-theft coding.

The anti-theft coding is activated and blocks the radio unit as soon as:

- The voltage supply (terminal 30) drops below a predetermined voltage.
- The radio part fuse is blown.
- The radio unit is disconnected from the voltage supply (terminal 30) (e.g. when removing radio unit).
- When performing work on vehicle and vehicle battery (terminal 30) has been disconnected.

After installing a new radio navigation system the anti-theft coding function must be activated ⇒ page 90 .

If a radio navigation system has been blocked by the anti-theft coding, “CODE” will appear in the display when switching the unit on.

To lift the unit lock, deactivate the unit lock via the anti-theft coding ⇒ page 90 .

12.4.1 Activating anti-theft coding

After installing a new radio navigation system the anti-theft coding function for the radio navigation system must be activated.

– During normal operation of radio navigation system press button MEN twice, the unit then switches to the setup menu.

– Select “SECURITY” in the startup menu then menu item “CODE” and press the right rotary/push knob.

The anti-theft coding will be activated or deactivated. The actual state will be displayed behind “CODE”. The anti-theft code must be entered as a security measure. Basic setting is “OFF”, this means the anti-theft coding has not been activated.

12.4.2 Deactivating unit lock via anti-theft coding

– Select the first number of the code number with right rotary/push knob.

– Press the right rotary/push knob.

The code input cursor jumps one place to right.

– Now select the second number of the code number and confirm with right rotary/push knob.

– Enter the rest of the numbers of the code number likewise.

– If you inadvertently enter an incorrect number, press ESC button.

When the number has been entered completely:

– Select “Enter” symbol and confirm with right rotary/push knob.

The unit will be switched on.

Note

The radio navigation system will be locked for one hour after the third incorrect code has be entered. To enable a further coding attempt the radio navigation system and the ignition must remain switched on for one hour.

12.4.3 Adapting the navigation system after installing a new unit

When a new radio navigation system has been installed the system must be calibrated and matched to the vehicle.

– During normal operation of radio navigation system press button MEN twice, the unit then switches to the setup menu.

– Select “INSTALLATION” in setup menu.

– Select menu item “Calibration”.

– Select menu item “NEWUNIT”.

– Press the right rotary/push knob.

You will be guided through the installation on the display.

Follow the instructions from the unit. The unit will first carry out a system test.

– Perform the operating steps requested by the system and then press the right rotary/push knob.

After the system test the system automatically performs the actual calibration. To do this a distance of 8-15 km (5-10 miles) must be driven with good GPS reception.

Before commencing the drive the system will request conformation that any existing old calibration values have been erased.

Note

- *After selecting “NEWUNIT” no objective guide is possible during the first 25 % of the calibration procedure.*
- *The distance to be driven is dependent on various factors, like the quality of the GPS reception and the route. The distance given is simply a mean value. It can be distinctly less or if conditions are poor distinctly longer.*

12.4.4 Adapting the navigation system after changing tyres

– During normal operation of radio navigation system press button MEN twice, the unit then switches to the setup menu.

– Select “CALIBRATION” from the setup menu “INSTALLATION”.

– Select and confirm menu item “TYRECHANGE”.

– Perform the operating steps requested by the system.

12.5 Fault finding on radio navigation system

The radio navigation system “DX-R4” (Blaupunkt) is equipped with a unit internal diagnosis.

– To activate the unit internal diagnosis press ESC button and station button S4 simultaneously with unit switched off, hold both buttons depressed and switch unit on.

The diagnostic display appears. Menu items are selected with the right rotary/push knob and confirmed by pressing the rotary/push knob. The contents are listed below:

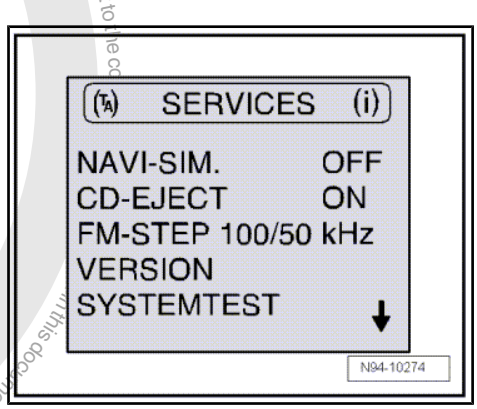
Note

Diagnostic display texts for radio navigation system appear only in English!

12.5.1 SERVICES

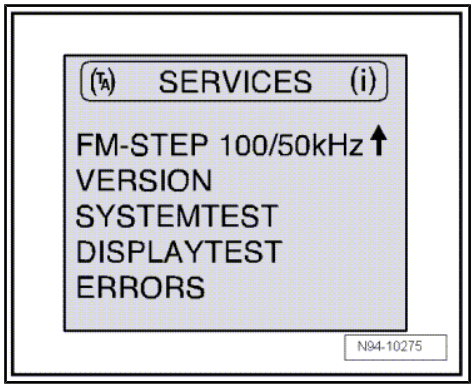
SERVICES main menu page 1

- NAVI-SIM = activating demo mode (ON/OFF)
- CD-EJECT = locking CD-eject (ON/OFF)
- FM-STEP = setting tuning raster (100/50 kHz)
- VERSION = displaying individual software version ⇒ page 93
- SYSTEMTEST = testing sensors and internal tests ⇒ page 93



SERVICES main menu page 1

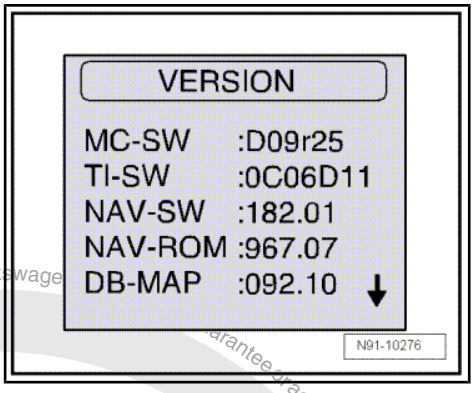
- DISPLAYTEST = testing unit LCD display (selecting this menu item and by repeatedly pressing the right rotary/push knob various displays are shown “optically emphasised” and can be checked for faults and completeness)
- ERRORS = reading and clearing fault memory ⇒ page 95



12.5.2 VERSION

VERSION

- MCM-SW = version of unit software
- TI-SW = version of radio software
- The other values display various software levels of the inserted navigation CD

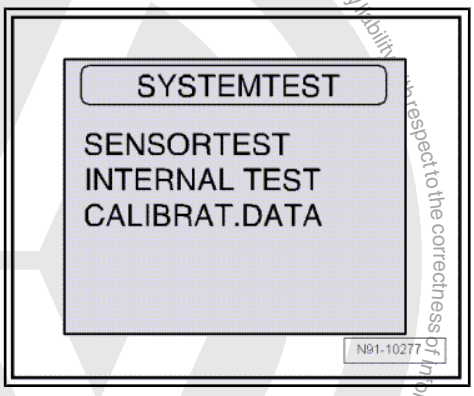


12.5.3 SYSTEM TEST

SYSTEM TEST

- SENSORTEST = testing sensors ⇒ page 93
- INTERNAL TEST= internal testing of gyro-compass and GPS receiver ⇒ page 94
- CALIBRAT. DATA = calibration values ⇒ page 94

After selecting this menu item it can take up to 10 seconds before the test results are displayed.

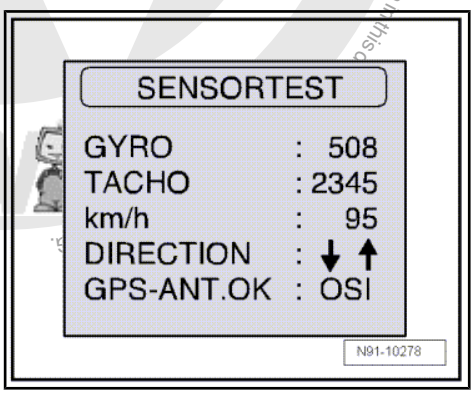


12.5.4 SENSOR TEST

SENSOR TEST

- GYRO = the average with a stationary vehicle (engine not running) should be between 512-514
- TACHO = displaying the number of speedometer impulses counted
- km/h = displaying the speed driven after calibration
- DIRECTION = reversing light signal activated “↓” or not activated “↑”
- GPS-ANT. OK = testing the GPS aerial (if “0” highlighted = no signal, if “I” highlighted = signal exists)

After selecting this menu item it can take up to 10 seconds before the test results are displayed.

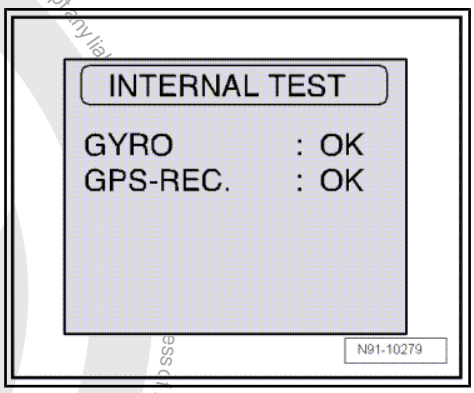


12.5.5 INTERNAL TEST

INTERNAL TEST

- GYRO = test successful = “OK”, test negative = “- -”. The corresponding component is defective or wiring open circuit.
- GPS REC. = test successful = “OK”, test negative = “- -”. The corresponding component is defective or wiring open circuit.

After selecting this menu item it can take up to 10 seconds before the test results are displayed.

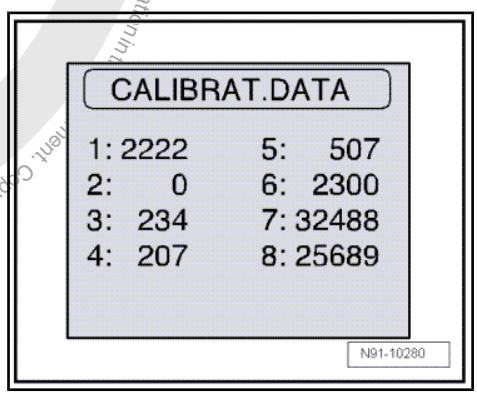


12.5.6 CALIBRAT. DATA TEST

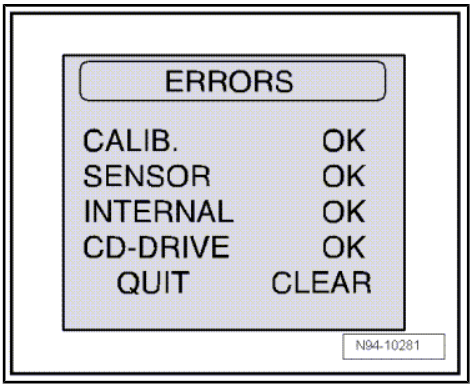
CALIBRAT. DATA

- 1 = this value shows the calculated calibration value. If this value is “0”, the unit has not been calibrated.
- 2 = this value is dynamic and does not give information on the state of the unit.
- 3 = this value is dynamic and does not give information on the state of the unit.
- 4 = this value is dynamic and does not give information on the state of the unit.
- 5 = this value shows the position of the gyro compass. In the rest position the value should be “512 +/- 2”.
- 6 = this value is dynamic and does not give information on the state of the unit.
- 7 = this value is dynamic and does not give information on the state of the unit.
- 8 = this value is dynamic and does not give information on the state of the unit.

After selecting this menu item it can take up to 10 seconds before the test results are displayed.



12.5.7 ERRORS



ERRORS

- CALIB. = shows the number of faults occurred
- SENSOR = shows the number of faults occurred
- INTERNAL = shows the number of faults occurred
- CD DRIVE = shows the number of faults occurred
- QUIT = by confirming the menu item with “CLEAR” the fault memory will be cleared.

After selecting this menu item it can take up to 10 seconds before the test results are displayed.

Explanation of possible faults:

- CALIB. = “ERROR” means that a fault has occurred during calibration.
- SENSOR = “GPS” means that there is a reception problem or no communication with the GPS module. “GAL” means that there is a fault in the speed dependent volume control (GALA). “R” means that the reversing light signal was not recognised.
- INTERNAL = “ERROR” means that a fault has occurred in the gyro compass or in the GPS receiver.
- CD DRIVE = “CD” means that a fault has occurred when reading the CD. “TEMP” means that the temperature in the CD drive is too high.

Note

A fault will only be displayed when the fault state is active at the time of interrogating and a given number for the frequency of this fault has been exceeded in the internal fault counter.

13 Multimedia system RSE (Rear Seat Entertainment), “Golf Plus”

Note

- *Please be sure to observe the notification requirement prior to carrying out any repair work on the multimedia system ⇒ Service technical manual .*
- *When handling complaints, it is essential to understand the function and operation of the multimedia system.*
- *Additional information ⇒ Operating Manual*
- *The multimedia system only works when the radio or radio navigation system is running.*
- *The remote control device must be aimed at the monitor or the DVD player, as this is where the receivers are installed.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*
- *Unround CDs (so-called shape CDs) must not be inserted, as they can destroy the drive.*

Playable media:

- Audio CD: CD, CD-R, CD-RW and CDs with MP3 files
- Video CD: VCD and SVCD in MPEG 1 format
- DVD video in MPEG 2 format

Note

- *No other formats are supported.*
- *All self-burned media can lead to restrictions in reproduction quality and operating comfort.*

13.1 General description

The multimedia system offers a wide variety of entertainment possibilities for rear seat passengers.

The system is equipped with a DVD player.

DVD films and video CDs in various formats can be played using the DVD player. In addition, it is also possible to play audio CDs recorded in “WAV” or “MP3” format.

For further information ⇒ Operating Manual

The sound is output via headphones, although the sound can also be output via the radio in the “CD changer” function through all loudspeakers in the vehicle. Moreover, further equipment to play back from other picture and sound sources can be connected. This can include video or audio devices, or games consoles. The multimedia system consists of the following components:

- A 7-inch LCD monitor (TFT/LCD unit) in the roof console
- A DVD player in the centre console
- An operating unit in the rear centre console

- A control unit for the multimedia system under the right front seat
- A remote control for the multimedia system
- Two headphones for the multimedia system

The control unit for the multimedia system is connected to the monitor, DVD player, the radio unit and the operating unit via two connections.

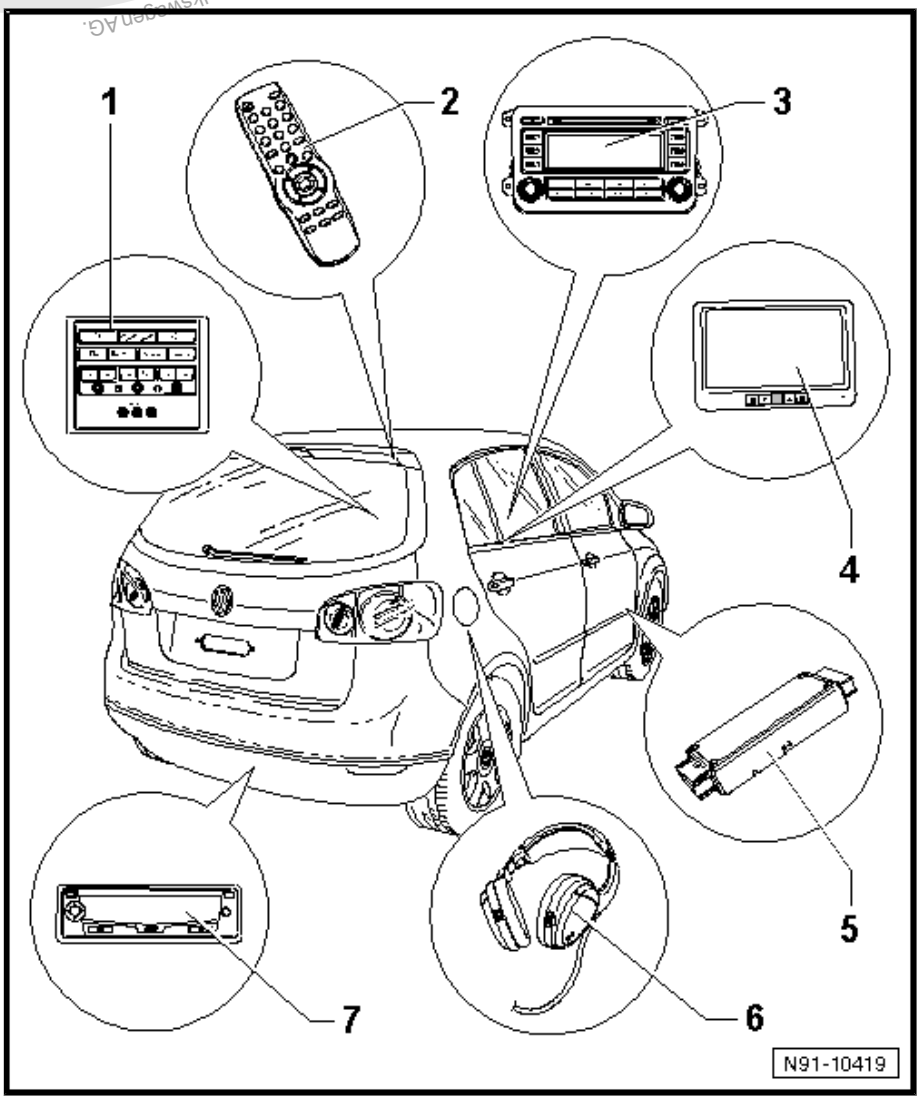
13.1.1 Fault finding

The multimedia system currently does not have integrated diagnostic capability.

Note

Please be sure to observe the information and notification requirement prior to carrying out any repair work on the multimedia system ⇒ Service technical manual .

13.2 Overview of multimedia system with DVD player



1 - Operating unit for multimedia -E380-

- ❑ Installed in rear of centre console
- ❑ With built-in additional jacks for AUX input and headphone connections
- ❑ Removing and installing ⇒ page 106

2 - Remote control for multimedia

- ❑ Battery-operated with two 1.5 volt type “AA” batteries
- ❑ Changing the batteries ⇒ page 108

3 - Control unit with display for radio navigation system -J503- or radio -R-

4 - Display unit for multimedia -Y22-

- ❑ Installed in the roof console
- ❑ Removing and installing ⇒ page 103

5 - Multimedia control unit -J650-

- ❑ Installed under right front seat
- ❑ Removing and installing ⇒ page 100

6 - Right headphones -R124- and left headphones -R123-

7 - DVD player -R129-

- ❑ Installed in storage compartment in centre console

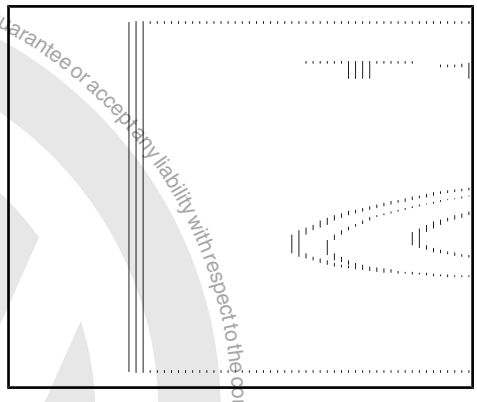
❑ Removing and installing ⇒ page 98

13.3 Removing and installing DVD player

The DVD player is installed in the centre console under the hinged armrest.

13.3.1 Required special tools, testers, measuring instruments and auxiliary items

♦ Release tool -T10315-

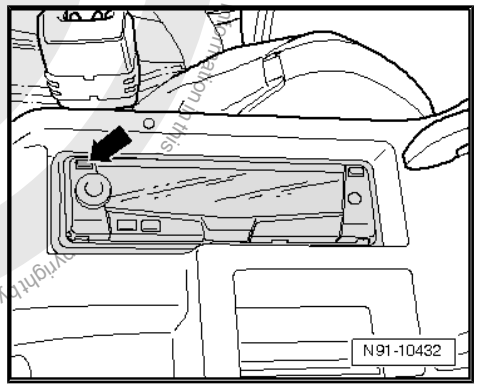


13.3.2 Removing

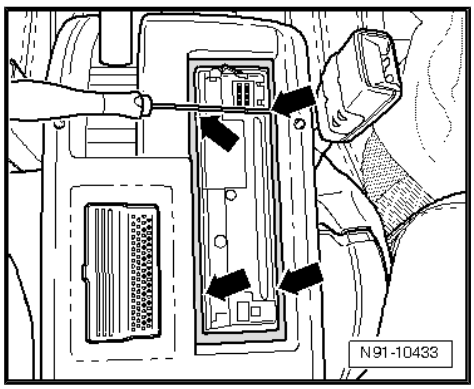
– Open hinged centre armrest.

– Actuate button -arrow- and unfold control panel on DVD player.

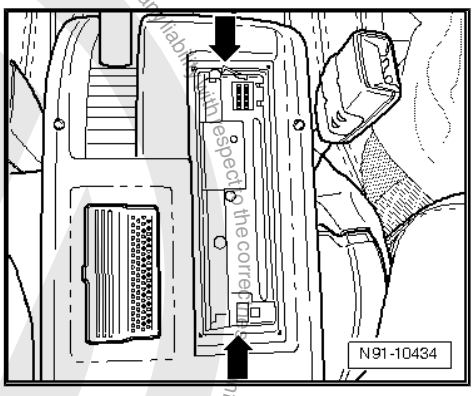
– Remove operating unit from DYD player.



– Unclip frame at points indicated by -arrows- using a suitable screwdriver and remove it.

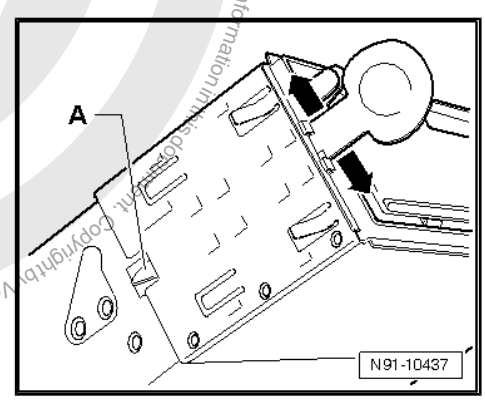


– Insert release tools -T10315- into DVD player -arrows-.

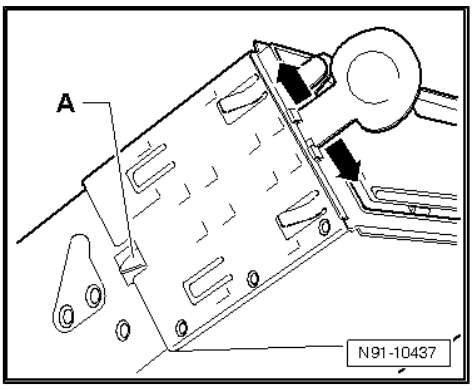


Note

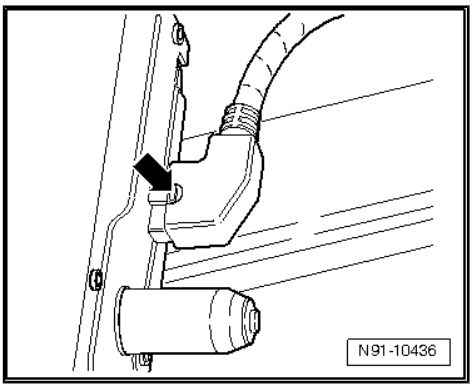
The release tool must be inserted so that the thickened section on the lower end of the release tool -A- faces towards the housing of the DVD player. Otherwise the locking springs on the DVD player will not be operated correctly by the release tool.



– Move the release tool sideways -arrows- so that the groove of the release tool engages behind the tab on the DVD player.
– Now pull DVD player out of installation frame using both release tools.

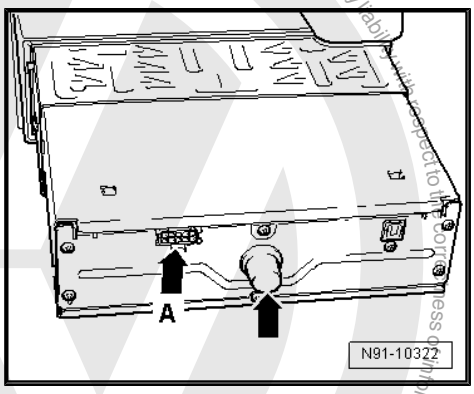


– Release connectors -arrows- on back of DVD player and disconnect them.



13.3.3 Installing

- Push the rubber stop buffer onto the DVD player -arrow-. Connect the cable connection for the DVD player onto connection -A-.
- Carefully push DVD player into installation frame in centre console until it is audibly engages.
- Further installation is carried out in the reverse order of removal.
- Then check the multimedia system functions correctly.

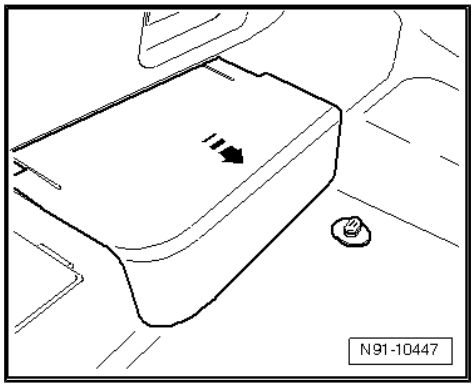


13.4 Removing and installing multimedia control unit

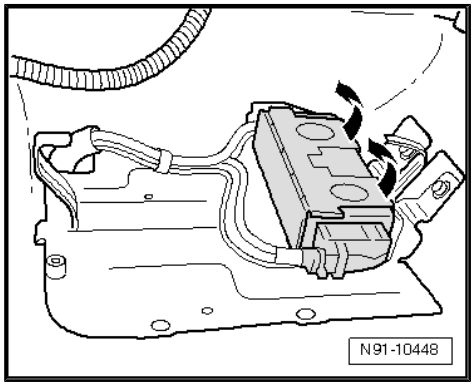
13.4.1 Removing

Before beginning dismantling work, perform the following steps:

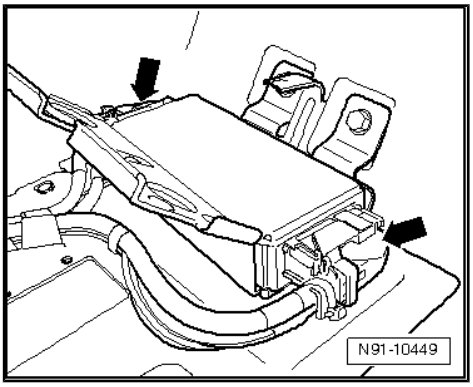
- Switch off ignition and all electrical consumers and remove ignition key.
- Remove draw or both drawers, if two are fitted, from under front right seat ⇒ General body repairs, interior; Rep. Gr. 72 ; Seat frames; Front seats; Removing and installing front seat mounting, drawer
- Pull off cover under seat in direction of -arrow-.



- Fold up bar of mounting -arrows- and remove control unit.



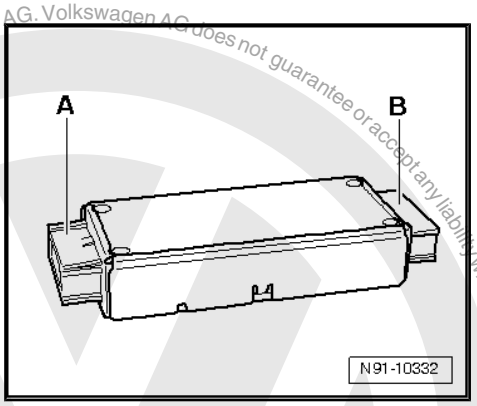
– Release connectors -arrows- on control unit and disconnect them.
– Remove control unit.



13.4.2 Installing

– Install in reverse order of removal.
– Reinstall drawers, if necessary ⇒ General body repairs, interior; Rep. Gr. 72 ; Seat frame; Front seats; Removing and installing front seat mounting, drawer.
– Then check the multimedia system functions correctly.

13.4.3 Assignment of multi-pin connectors on multimedia control unit



Multi-pin connector -A-, green

1 - DVD player, power supply, terminal 30
2 - Switch-on voltage for DVD player from radio
3 - Control interface for infrared signal DVD player
4 - DVD player, picture signal, negative
5 - DVD player, picture signal, positive
6 - Display for multimedia, infrared signal
7 - Display for multimedia, picture signal, negative
8 - Display for multimedia, picture signal, positive
9 - Display for multimedia, negative
10 - Not assigned
11 - Not assigned
12 - Not assigned
13 - Not assigned
14 - DVD player, negative
15 - Multimedia control unit, temperature-dependent resistor input signal from DVD player
16 - DVD player, audio signal, negative
17 - DVD player, audio signal, positive, right
18 - DVD player, audio signal, positive, left
19 - Display for multimedia, switch-on voltage
20 - Display for multimedia, RXD protocol
21 - Display for multimedia, TXD protocol
22 - Display for multimedia, voltage supply, terminal 30
23 - Not assigned
24 - Not assigned
25 - Not assigned
26 - Not assigned

Multi-pin connector -B-, black

1 - Supply voltage, terminal 30
2 - Switching voltage, positive
3 - Radio data input
4 - Audio signal output, right, positive
5 - Audio signal output, left, positive
6 - Audio signal output, negative
7 - Audio signal input, negative
8 - Picture signal input, positive
9 - Picture signal input, negative
10 - Switch on operating unit, input

11 - Operating unit control “UP”, input

12 - Operating unit control “Down”, input

13 - Operating unit, negative

14 - Negative, terminal 31

15 - Radio unit, CLK Out (data protocol)

16 - Radio unit, data output

17 - Radio unit, audio signal earth

18 - Operating unit, audio signal output, right

19 - Operating unit, audio signal output, left

20 - Operating unit, audio signal input, right

21 - Operating unit, audio signal input, left

22 - Operating unit, control output for ON/OFF and source selection

23 - Operating unit, control output for ON/OFF and source selection

24 - Operating unit, control output for ON/OFF and source selection

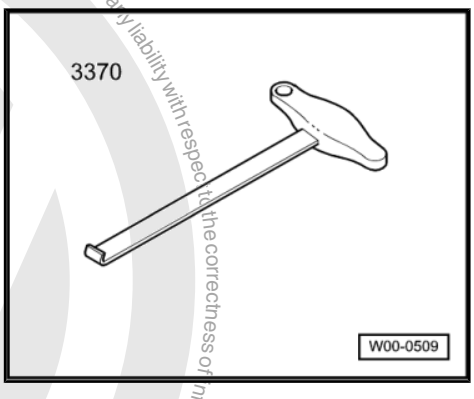
25 - Not assigned

26 - Operating unit, voltage supply, positive

13.5 Removing and installing multimedia display unit (monitor)

13.5.1 Required special tools, testers, measuring instruments and auxiliary items

♦ Front-end hook -VAS 3370-

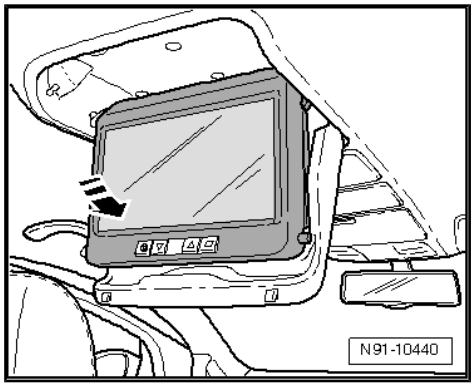


13.5.2 Removing

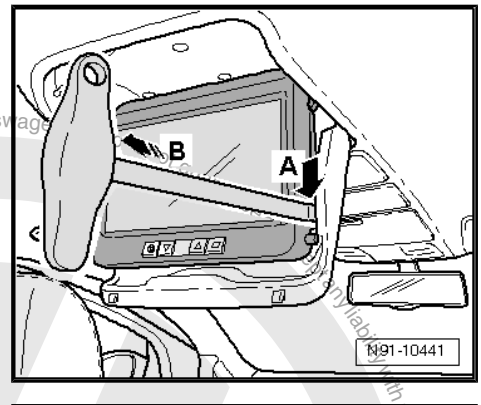
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

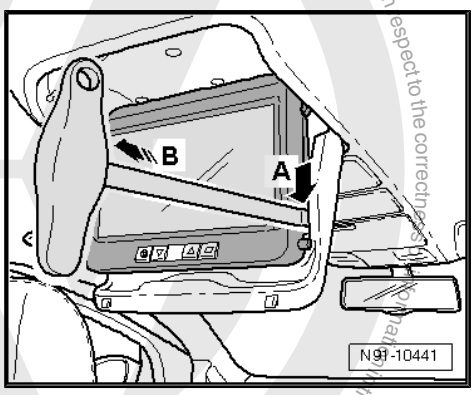
– Fold monitor down out of roof console.



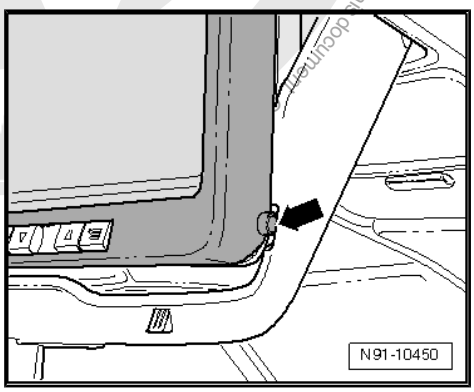
– Guide front-end hook -VAS 3370- between monitor and the flap in roof console and move it in direction of -arrow- downwards until it contacts the plastic pin of the monitor.



– Carefully pull monitor using front-end hook -VAS 3370- in direction of -arrow A- until the plastic pin disengages.

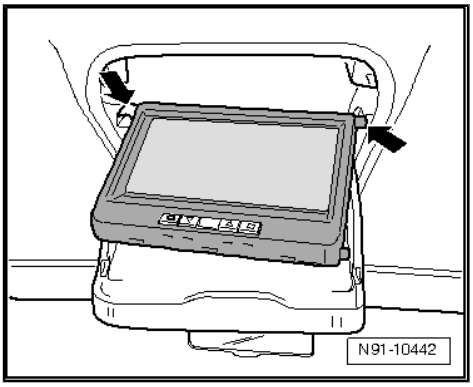


This is a view of the monitor with the plastic pin -arrow- disengaged.

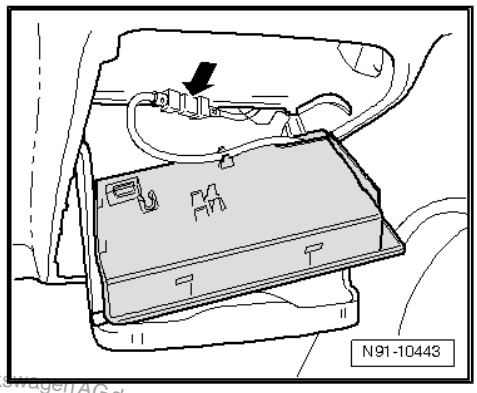


– Repeat the sequence for the plastic pin on the other side of the monitor.

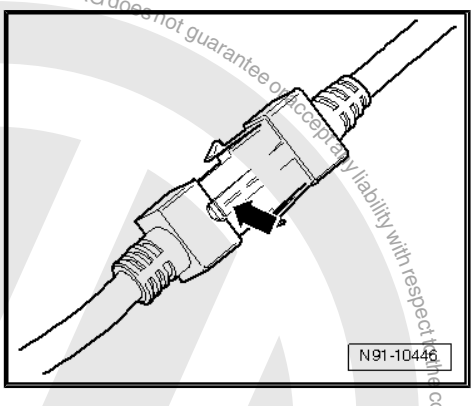
– Tilt monitor so that the guide pins -arrows- can be guided out of the guide rails.



– Remove monitor as far as wiring will allow. Now the connector -arrow- on the back of the monitor is visible.

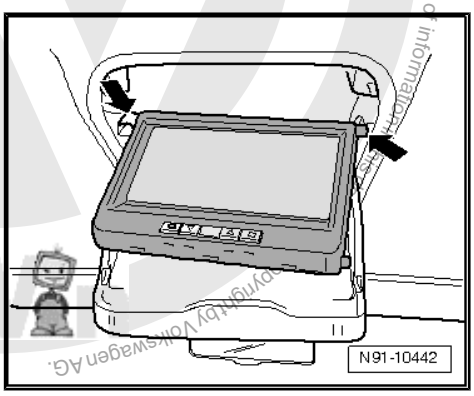


– Press locking mechanism on connector -arrow- and disconnect connector.

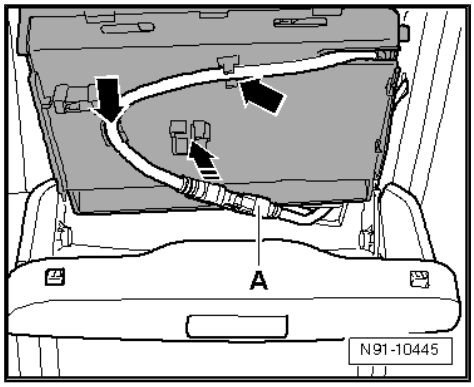


13.5.3 Installing

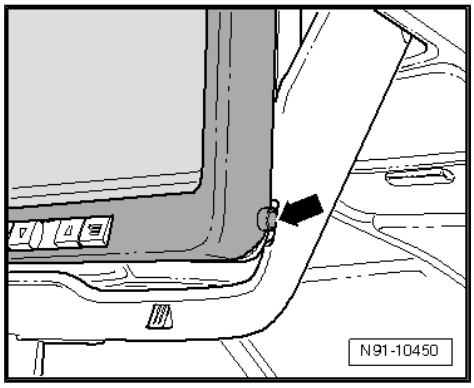
– Guide monitor into mounting in roof console.
– Tilt monitor so that the guide pins -arrows- can be guided into the guide rails of the monitor support.
– Slide monitor in guide rails until it contacts upper stop.
– Reconnect connector.



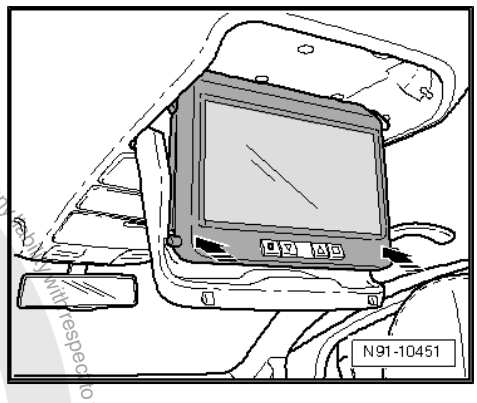
– Securing wiring harness to monitor, as shown in illustration -arrows- and clip connector -A- into mounting on monitor -arrow-.



– Now position monitor so that the lower plastic pins -arrow- on the left and right sides of the monitor are positioned over their locking points.



– Now press evenly on both sides of the monitor -arrows- until the plastic pins audibly engage in their locking points.



Note

Never press on the display as this can damage the display.

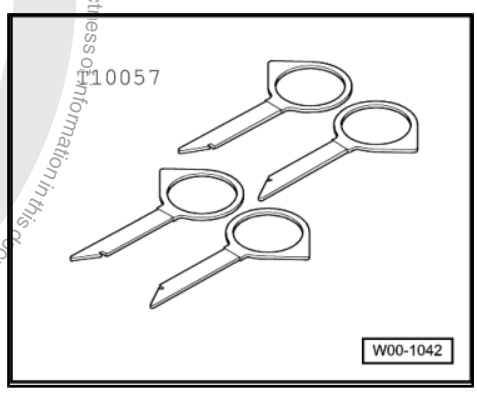
– Ensure that the monitor folds up and down easily.
– Then check the multimedia system functions correctly.

13.6 Removing and installing multimedia operating unit

13.6.1 Required special tools, testers, measuring instruments and auxiliary items

◆ Radio release tool -T10057-

The release tool -VAS - is comprised of four identical, individual components. However, only 2 of the 4 release tools are required to remove the operating unit.

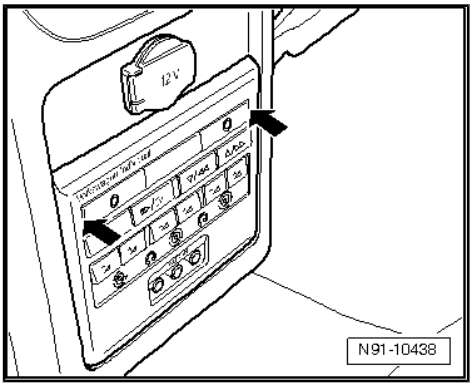


13.6.2 Removing

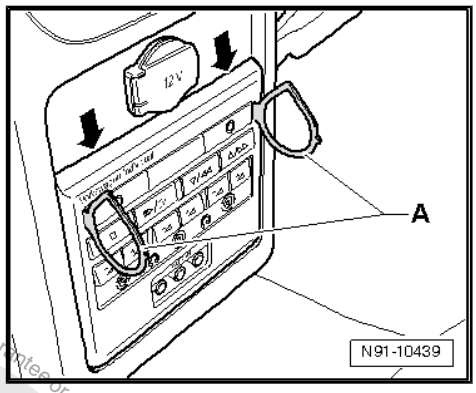
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

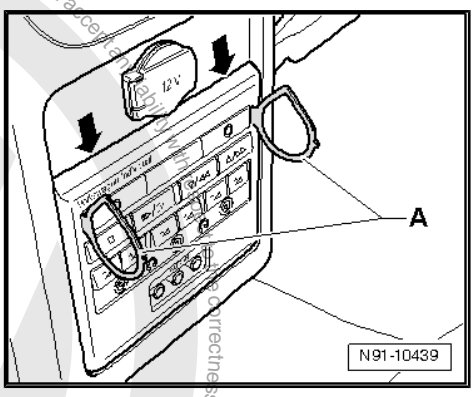
Slots for release tools -arrows- in operating unit.



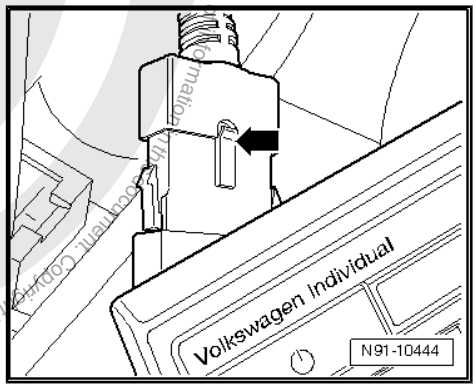
– Slide release tools into operating unit -A- until they engage.



– Pull out operating unit by grasping the upper edge of the frame -arrows- and fold out the operating unit.



– Press locking mechanism on connector -arrow- and disconnect connector.
– Pull out release tools.



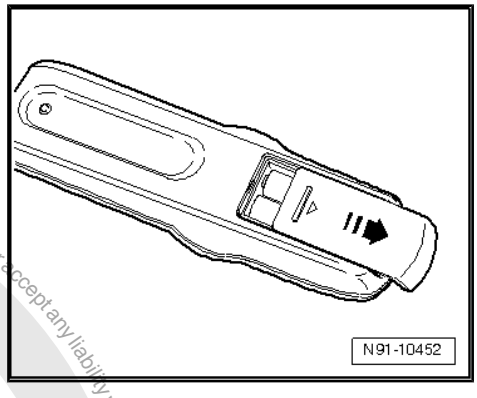
13.6.3 Installing

– Reconnect connector.
– Insert operating unit in bottom of frame.
– Push operating unit into centre console until it engages.
– Then check the multimedia system functions correctly.

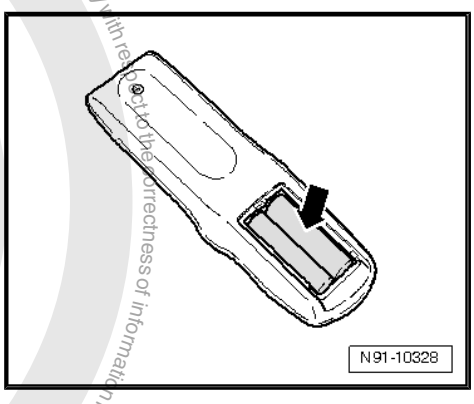
13.7 Changing remote control batteries

The remote control operates using infrared technology. If you experience difficulty in making the remote control work, this is probably caused by discharged batteries. To change the batteries, proceed as follows:

– Open cover on remote control in direction of -arrow-.



– Remove the batteries -arrow- and renew them with two new batteries of type “AA”.



Note

Observe the applicable local regulations governing the disposal of used batteries.

Ensure that you properly insert the new battery (polarity). The polarity is indicated in the battery compartment.

– Close the cover on the remote control.

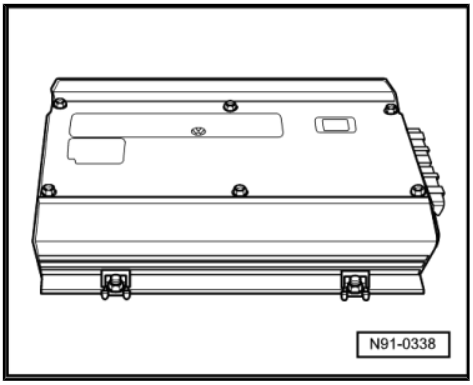
– Now check the remote control for proper functioning.

14 Sound system amplifier

Note

- *When dealing with complaints, it is absolutely necessary to understand the functions and the operation of the radio or the radio navigation system.*
- *Additional information ⇒ Operating instructions*
- *In the event of repair work or fault finding, use ⇒ vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in "Guided fault finding" mode ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

14.1 General description



The sound system amplifier extends the sound range of the radio unit or radio navigation system.

It is available as optional equipment for appropriate radio units and radio navigation systems.

The amplifier is an 8-channel system.

The signal inputs on the amplifier are activated by the loudspeaker outputs of the radio unit or radio navigation system.

The amplifier is installed under the left front seat.

Removing and installing amplifier ⇒ page 109

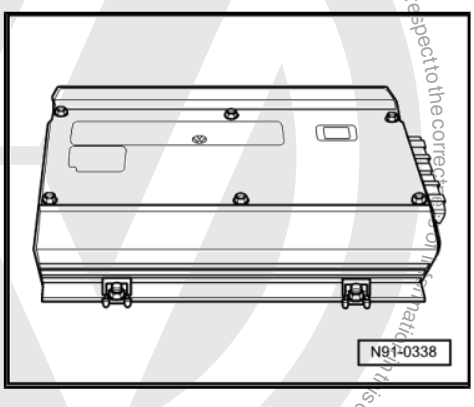
14.1.1 Fault finding

The amplifier is equipped with self-diagnosis.

For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in "Guided fault finding" mode.

14.2 Removing and installing amplifier

View of removed amplifier:



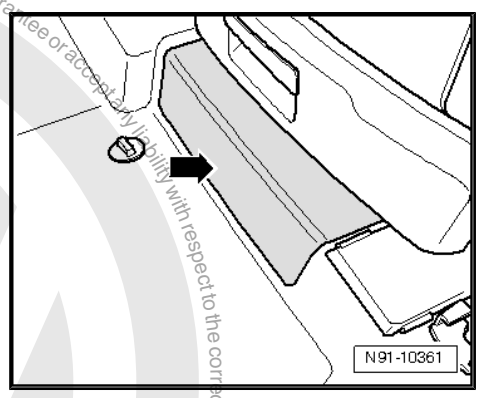
14.2.1 Removing

Before beginning dismantling work, perform the following steps:

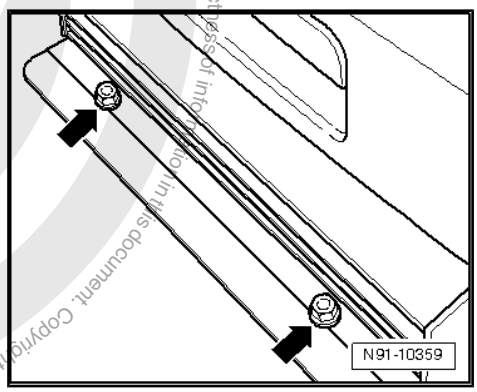
– Switch off ignition and all electrical consumers and remove ignition key.

The amplifier is installed under the left front seat.

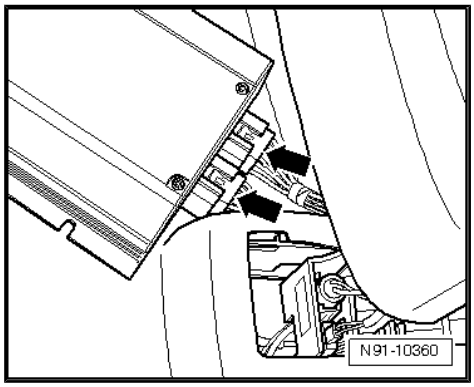
– Move the seat as far back and as far up as possible.
– Unclip cover -arrow- under seat.



– Remove bolts -arrows- in amplifier.
– Remove amplifier until you can access connectors of amplifier.



– Release connections -arrows- on amplifier and pull them off.
– Remove amplifier.



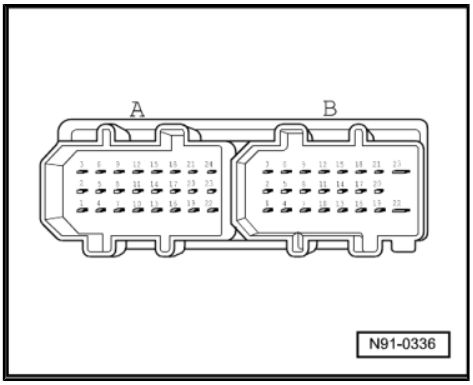
14.2.2 Installing

– Make sure that amplifier is correctly pushed into fold on mounting when installing it.

Further installation is carried out in reverse order!

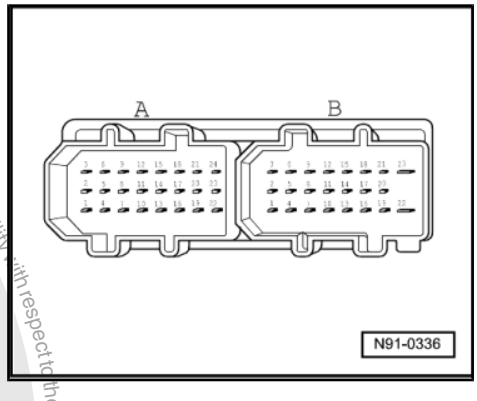
14.3 Pin assignments on connectors of amplifier

14.3.1 Multi-pin connector A, 24-pin



1 - Rear left treble loudspeaker, positive
2 - Rear right bass loudspeaker, negative
3 - Rear right bass loudspeaker, positive
4 - Rear left bass loudspeaker, positive
5 - Rear right treble loudspeaker, negative
6 - Rear right treble loudspeaker, positive
7 - Rear left treble loudspeaker, negative
8 - Front left bass loudspeaker, negative
9 - Front left bass loudspeaker, positive
10 - Rear left bass loudspeaker, negative
11 - Front right mid-range loudspeaker, negative
12 - Front right mid-range loudspeaker, positive
13 - Not assigned
14 - Audio signal input, rear left, negative
15 - Audio signal input, rear left, positive
16 - Not assigned
17 - Audio signal input, rear right, negative
18 - Audio signal input, rear right, positive
19 - Control in (optional)
20 - Audio signal input, front left, negative
21 - Audio signal input, front left, positive
22 - Not assigned
23 - Audio signal input, front right, negative
24 - Audio signal input, front right, positive

14.3.2 Multi-pin connector B, 23-pin



1 - CAN low
2 - Front left mid-range loudspeaker, negative
3 - Front left mid-range loudspeaker, positive
4 - CAN high
5 - Not assigned
6 - Front left treble loudspeaker, negative
7 - Not assigned
8 - Not assigned
9 - Front left treble loudspeaker, positive
10 - Not assigned
11 - Front right bass loudspeaker, positive
12 - Front right bass loudspeaker, negative
13 - Not assigned
14 - Not assigned
15 - Front right treble loudspeaker, positive
16 - Voltage supply, negative
17 - Not assigned
18 - Front right treble loudspeaker, negative
19 - Voltage supply, negative
20 - Voltage supply, positive
21 - Voltage supply, positive
22 - Voltage supply, negative
23 - Voltage supply, positive

15 CD changer

15.1 Removing and installing CD changer

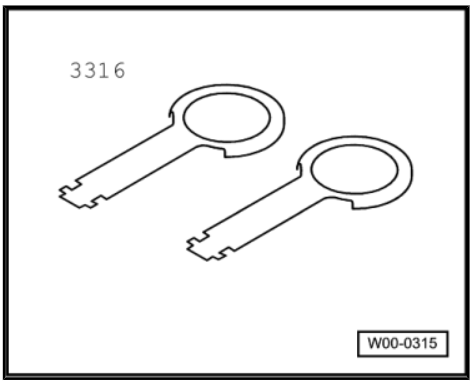
Note

- *If the CD changer plays commercial CDs but not self-burned CDs, the CD changer is not defective. The CD changer may not be exchanged for this reason.*
- *Mixed-mode CDs (CDs having both computer data and music) cannot be played.*
- *Music CDs with 8 cm diameter (mini discs) cannot be played.*
- *The radio functions must be correctly coded if a CD changer is retrofitted.*

15.1.1 Required special tools, testers, measuring instruments and auxiliary items

- Radio release tool -3316-

The radio release tool -3316- is comprised of two identical parts.



15.1.2 Removing

Note

The CD changer is installed under the hinged centre armrest.

Before beginning dismantling work, perform the following steps:

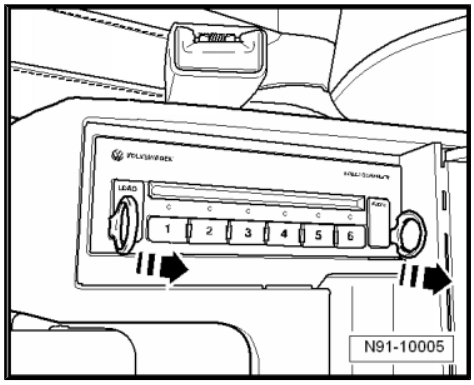
– Switch off ignition and all electrical consumers and remove ignition key.

– Open hinged centre armrest completely.

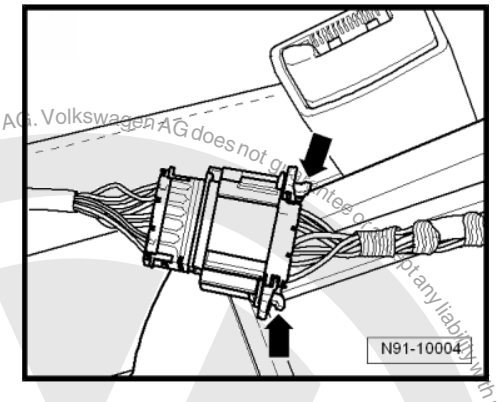
– Remove any CDs which may be in CD changer ⇒ Operating Manual .

– Push radio release tools -3316- in slots provided for this purpose on the left and right of the CD changer until they can be heard to engage.

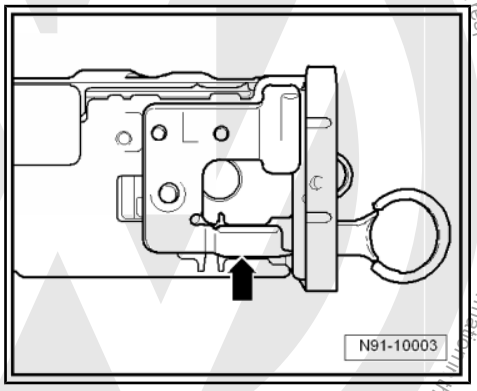
– Using radio release tools, pull out CD changer -arrows-.



– Release connector at points indicated by -arrows- and pull it off.



– Press locking clip -arrow- while pulling radio release tools out of removed unit.



15.1.3 Installing

Installation is carried out in the reverse sequence of removal.

16 Satellite digital radio tuner for vehicles for USA and Canada

16.1 General notes

The radio or radio navigation system installed in the vehicle may, depending on the units installed, have the capability to receive satellite digital radio if an optional satellite digital radio receiver is installed.

Note

- *When dealing with complaints, it is absolutely necessary to know the functions and operation of the radio or radio navigation system and satellite digital radio tuner.*
- *Additional information ⇒ Operating instructions*

For maintenance work or fault finding ⇒ Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- , Guided fault finding ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.

A satellite digital radio tuner aerial is installed on the rear section of the roof to receive satellite digital radio.

On the Golf the digital satellite tuner is installed under the right front seat.

16.2 Fault finding

The satellite digital radio tuner is equipped with self-diagnosis.

For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode.

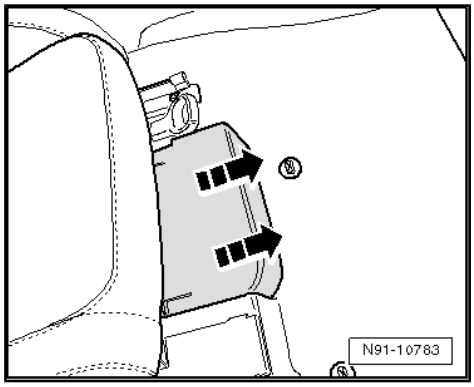
16.3 Removing and installing satellite digital radio tuner

16.3.1 Removing

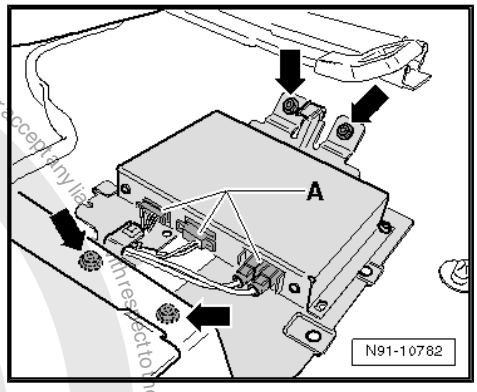
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

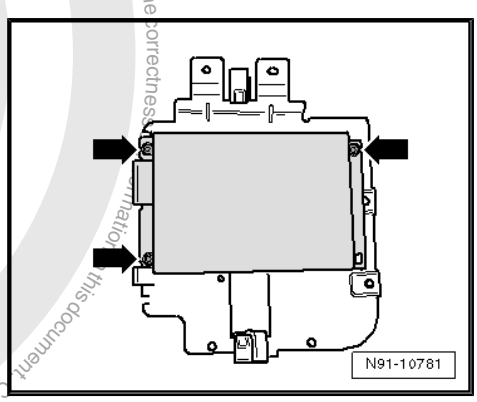
– Slide seat cover out in direction of -arrow-.



– Disconnect connectors -A- and remove the four screws -arrows-.
– Remove satellite digital radio receiver together with retainer.



– Remove bolts -arrows-, counterhold nuts under retainer, otherwise these will also turn.



16.3.2 Installing

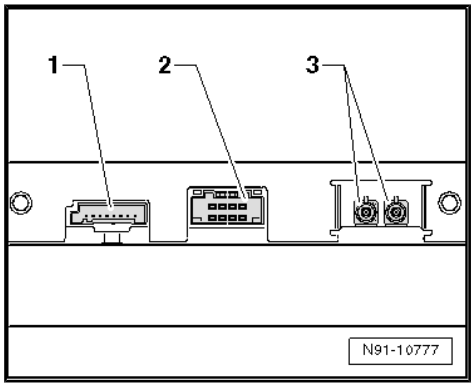
Install in reverse order of removal.

16.4 Overview of multi-pin connectors on satellite digital radio receiver

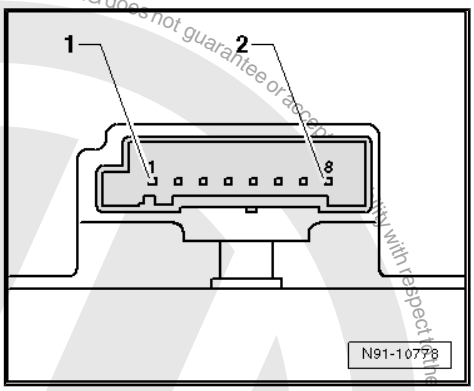
1 - Connection for data input and output information

2 - Connection for voltage supply

3 - Connection for aerial wires

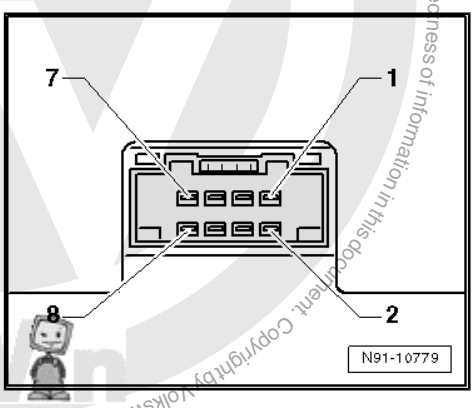


16.4.1 Multi-pin connector 1 pin assignment



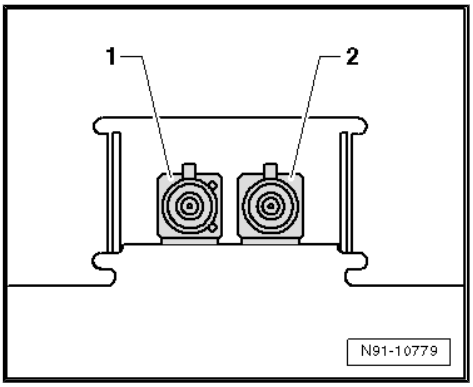
1 - CAN bus, Low
2 - CAN bus, High
3 - Left CDX input
4 - Right CDX input
5 - Audio, negative
6 - Left audio output, positive
7 - Right audio output, positive
8 - CDX negative

16.4.2 Multi-pin connector 2 pin assignment



1 - Voltage supply, negative
2 - Voltage supply, positive
3 - Not assigned
4 - Not assigned
5 - Not assigned
6 - Not assigned
7 - Not assigned
8 - Not assigned

16.4.3 Aerial connector pin assignment



1 - Terrestrial aerial, input, brown
2 - Satellite aerial, input, green

Vehicles as of 11.06 ‣ only one connection is installed here.

17 “Apple” “iPod player” holder

Note

- *When dealing with complaints, it is absolutely necessary to know the functions and operation of the “iPod player” and the radio or radio navigation systems.*
- *Additional information ⇒ Operating instructions*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

17.1 General notes

An “Apple” “iPOD player” holder for the Golf can be ordered from VW Individual as optional equipment.

The “Apple” “iPod player” is available in different versions. The holder in the vehicle is intended for the following players:

- The 3rd and 4th generation “iPod players” classic
- The “iPod player” mini
- The “iPod player” photo

The iPod player is inserted into the holder; the contents of the “iPod player” can now be displayed and selected on the radio or radio navigation system display. The “iPod player” is supplied with voltage via the holder.

All of the “iPod player's” audio data can be played via the radio system; however, photos cannot be shown on the radio navigation system display, and no background information is shown for the files (ID3 tags). Only the sequential number of the files (track xx) is shown in the radio unit or radio navigation system display.

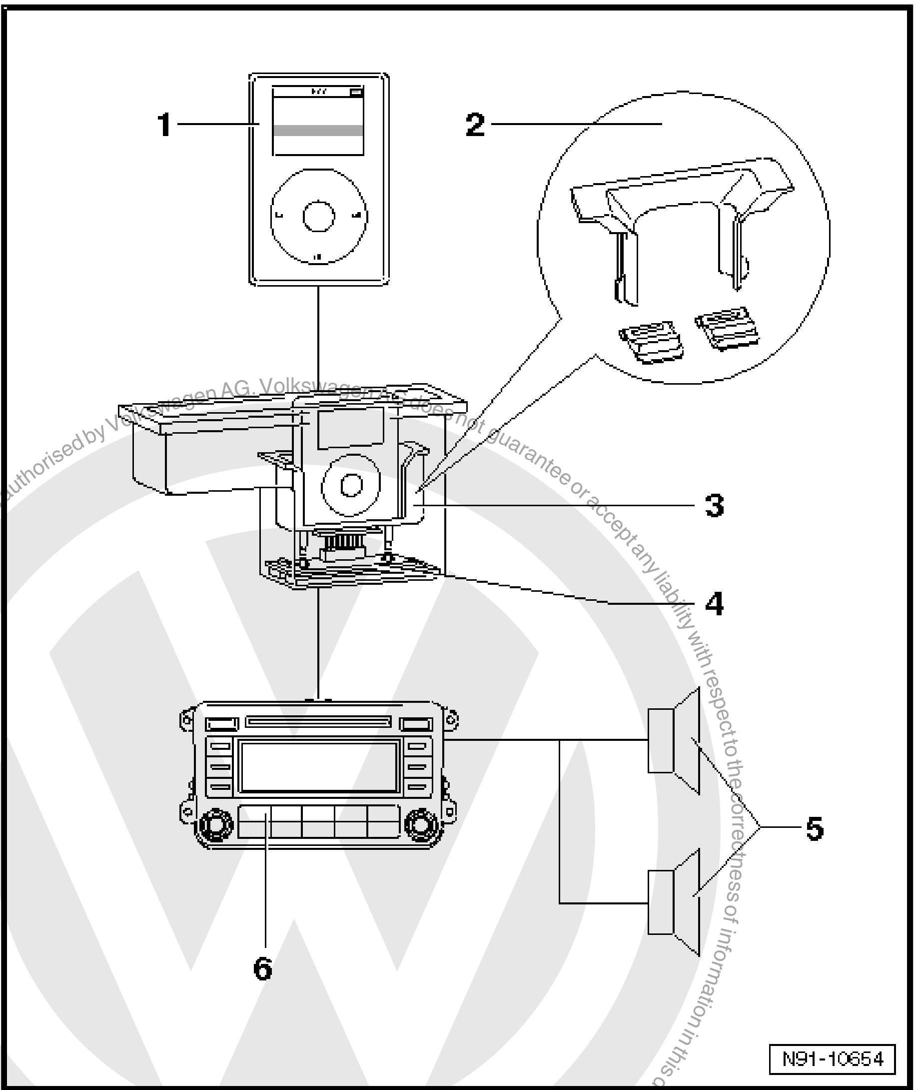
The files are processed by the “iPod player” and transmitted in analogue form to the radio unit or radio navigation system.

17.2 Fault finding

The “iPod player” holder is not capable of self-diagnosis.

Fault finding procedure ⇒ page 122

17.3 Overview of the “iPod player” holder



1 - “iPod player”

- ❑ 3rd and 4th generation “iPod players” “classic”
- ❑ “iPod player” “mini” or
- ❑ “iPod player” “photo”

2 - Adapter

- ❑ For adapting holder to different “iPod player” unit sizes.
- ❑ Removing and installing adapter for holder ⇒ page 119

3 - “iPod player” holder

- ❑ Holder is integrated into storage compartment beneath centre armrest.
- ❑ Removing and installing “iPod player” holder ⇒ page 120

4 - Electronics for “iPod player” holder system

- ❑ Electronics are not accessible, and can only be renewed completely together with holder.
- ❑ Overview of connectors ⇒ page 121

5 - Loudspeakers on left and right of vehicle

- ❑ Depending on radio equipment

6 - Radio -R- or control unit with display for radio and navigation system -J503-

17.4 Removing and installing holder adapter

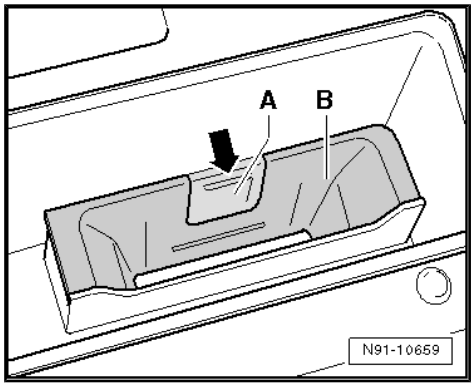
To adapt the “iPod player” holder to the different unit sizes, certain adapters which can be individually inserted into the holder are available.

17.4.1 Installing

To operate the “iPod player” classic and the “iPod player” photo, proceed as follows:

The small adapters are required to compensate the different thicknesses of the “iPod player” classic and the “iPod player” photo.

– Insert adapter -A- in direction of -arrow- to stop into adapter -B-.

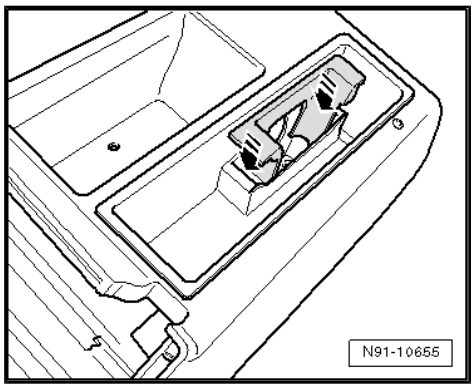


Note

The adapter -A- is available in various thicknesses. Refer to the ⇒ operating instructions to find out exactly which is to be used for which unit.

To operate the classic “iPod player” mini, proceed as follows:

– Insert adapter in direction of -arrow- to stop into holder receptacle.



17.4.2 Removing

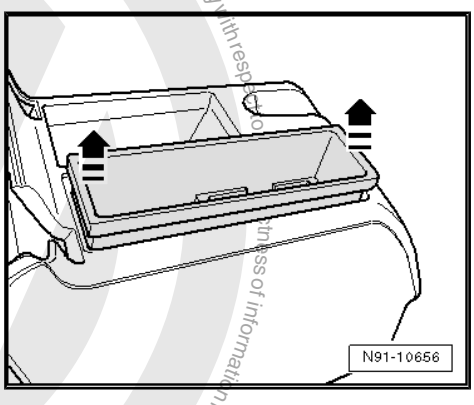
Remove in reverse order of installation.

17.5 Removing and installing “iPod player” holder

17.5.1 Removing

– Grip storage compartment and pull it out in direction of -arrow-.

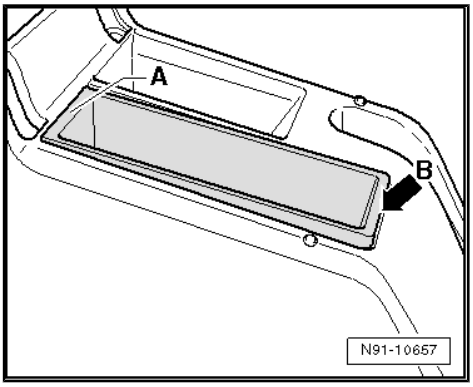
– Disconnect holder connector beneath storage compartment.



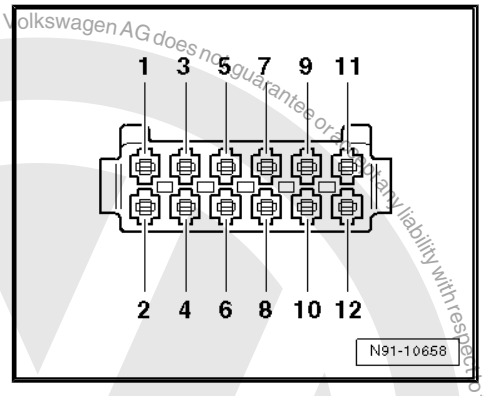
17.5.2 Installing

– Reconnect connector.

– First insert storage compartment into centre console at -A- and then press in direction of -B- until storage compartment engages in centre console.



17.6 Overview of connectors on “iPod player” holder



1 - DATA (data exchange between “iPod player” and radio unit)

2 - DATA-CLOCK (internal check protocol for data flow monitoring)

3 - Voltage supply, terminal 31, negative

4 - Radio control data (like CD changer)

5 - Not assigned

6 - Voltage supply, positive

7 - Audio signal output, right, positive

8 - Control cable from radio, positive (like CD changer)

9 - Audio signal output, negative

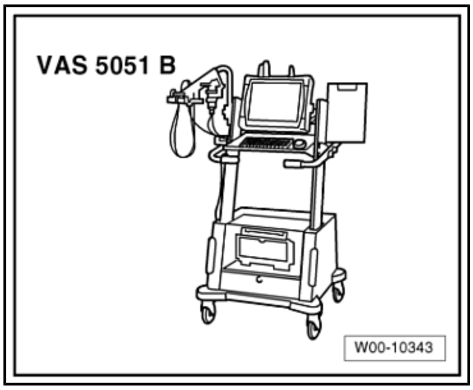
10 - Audio signal output, left, positive

11 - Not assigned

12 - Not assigned

17.7 Fault finding procedure

17.7.1 Required special tools, workshop equipment, testers, measuring instruments and auxiliary items



- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-
- Select the “Test equipment” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

Fault finding procedure:

The “iPod player” holder is not capable of self-diagnosis.

If signal transmission to the radio or radio navigation system does not function, voltage supply at connector can be checked.

Test prerequisites:

- First make sure that the “iPod player” itself is not the source of the fault ⇒ Owner's Manual .
- First “RESET” the “iPod player” ⇒ Owner's Manual .
- Check that the fuse is OK.
- Check radio or radio navigation system for faults via self-diagnosis.

Proceed as follows:

– Remove the “iPod player” holder ⇒ page 120 .

– Disconnect holder connector beneath storage compartment.

– Use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- to check the following voltages at the wiring harness-side connector.

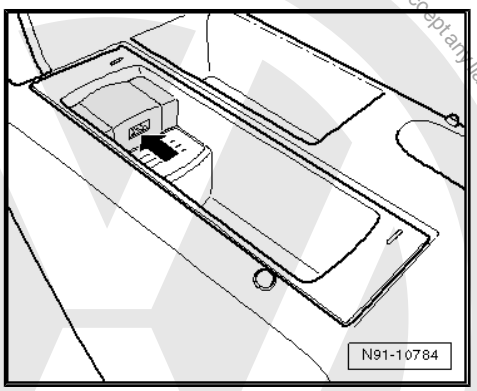
- At connector T12, 12-pin, at terminal 6 voltage supply, positive, with radio unit switched on
- At connector T12, 12-pin, at terminal 8 voltage supply, positive, control cable, with radio unit switched on
- At connector T12, 12-pin, at terminal 3 voltage supply, terminal 31, negative

If the specified voltage values cannot be measured, repair the cable connections referring to current flow diagram.

If no fault can be found, renew “iPod player” holder.

18 USB connection for USB sticks and MP3 player

Fitting location of USB connection -arrow- in hinged centre armrest



Note

- *When dealing with complaints, it is absolutely necessary to know the function and operation of the "USB connection"and the radio or radio navigation systems.*
- *Additional information ⇒ operating instructions for radio or radio navigation unit and USB connection.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

18.1 General notes

A "USB connection" to connect USB memory media (USB stick or MP3 player) is available as an option from VW Individual for the Golf.

The USB memory medium is connected to the USB connection; the contents of the USB memory medium can now be displayed and selected on the radio or radio navigation system display. The voltage supply for the USB memory medium is via the USB connection in vehicle.

18.1.1 Fault finding

The USB connection has no self-diagnostic capability.

Fault finding procedure ⇒ page 128

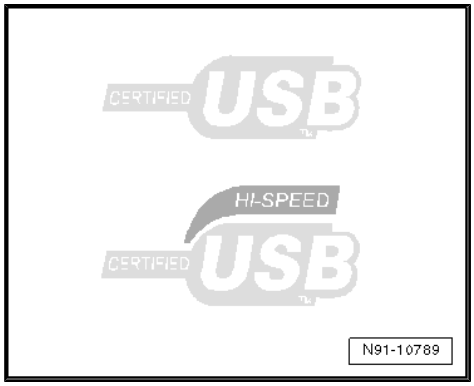
18.1.2 Supported music file formats

Only music files in the following formats can be played:

- "mp3" (MPEG1 Layer 3 of 32 to 320 kbps)
- "wma" (from 8 to 192 kbps)
- "wav" (16 kHz sampling frequency with 16 bit encoding, stereo)
- "ogg vorbis" (from q10, 48 kHz, stereo)

DMR music formats are not supported!

18.1.3 Supported memory media



Flawless function can only be guaranteed when the memory sticks, MP3 players and radio units approved by Volkswagen are used. The function cannot be guaranteed if other memory sticks or MP3 players of other manufactures are used. The memory medium must have one of the two USB certificates as a minimum requirement, see illustration.

The following memory media are supported:

Approved MP3 players

- Manufacturer “Cebop”, model “Run XL”, memory size 1024 MB, connected via USB-A
- Manufacturer “Maxfield”, model “MayRobot”, memory size 512 MB, connected via USB-A
- Manufacturer “Philips”, model “SA 177”, memory size 512 MB, connected via USB-A
- Manufacturer “Grundig”, model “MP 500”, memory size 256 MB, connected via USB-A
- Manufacturer “Mambox”, model “Color”, memory size 256 MB, connected via USB-A
- Manufacturer “Trekstor”, model “Musik Stick 100”, memory size 256 MB, connected via USB-A
- Manufacturer “Trekstor”, model “21617, i-Beat”, memory size 512 MB, connected via mini USB
- Manufacturer “Time”, model “DPA-20 FL+”, memory size 128 MB, connected via USB
- Manufacturer “Time”, model “DPA-20 FL+”, memory size 128 MB, connected via mini USB
- Manufacturer “Apple”, model “iPod Shuffle Gen. 1”, memory size 1 GB, connected via USB-A
- Manufacturer “Creative”, model “Movo V”, memory size 512 MB, connected via USB-A
- Manufacturer “Optix”, model “Tiamat”, memory size 2 GB, connected via mini USB
- Manufacturer “Teac”, model “MP 111”, memory size 512 MB, connected via USB-A
- Manufacturer “Thomson”, model “Lyra PDP 2356K”, memory size 256 MB, connected via USB-A
- Manufacturer “Trekstor”, model “21617, i-Beat”, memory size 512 MB, connected via special manufacturer solution

Approved memory sticks

Manufacturer “Blue Pearl”, model “Cn Memory”, memory size 64 MB, connected via USB-A

Manufacturer “Buffalo”, model “Firestix”, memory size 2 GB, connected via USB-A

Manufacturer “Lexar Media”, model “Jump Drive”, memory size 128 MB, connected via USB-A

Manufacturer “LG”, model “Mirror USB Drive”, memory size 128 MB, connected via USB-A

Manufacturer “Silver Pearl”, model “Micro X”, memory size 1024 MB, connected via USB-A

Manufacturer “Pretec”, model “I-Disk Tiny 2.0”, memory size 128 MB, connected via USB-A

Manufacturer “Buffalo”, model “RUF-2-R2G-S Firestix”, memory size 2 GB, connected via USB-A

Manufacturer “CnMemory”, model “Blue Pearl”, memory size 64 MB, connected via USB-A

Manufacturer “Intenso”, model “USB-Drive”, memory size 2 GB, connected via USB-A

Manufacturer “Media Markt”, model “Vario Colour”, memory size 2 GB, connected via USB-A

Manufacturer “Trekstor”, model “USB-Stick LE”, memory size 256 MB, connected via USB-A

Approved radio units:

Flawless function can only be guaranteed when a factory fitted Volkswagen radio of the RCD range or a Volkswagen radio navigation system of the RNS range is installed. A flawless function cannot be guaranteed if a radio of another manufacture is used.

18.1.4 General notes

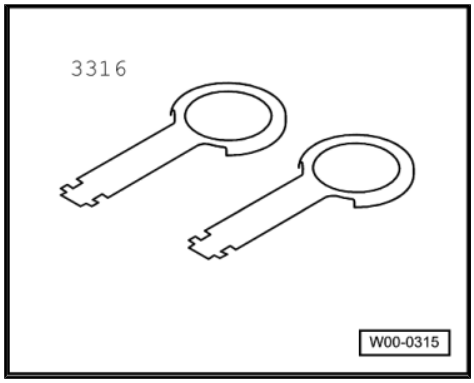
Note

- *Never remove the memory medium as long as the USB connection is selected as source (CD). This may destroy the memory medium.*
- *Never connect a MP3 player directly into the USB connection, this may damage the connection. Always use a USB extension cable.*
- *Never connect anything other than a USB stick or MP3 player to this interface. The use of hard disks, USB hubs is not possible via this interface.*
- *The maximum input of the USB memory medium must not exceed 2.5 watts (500 mA/5 V).*
- *Never insert metal objects into the USB connection. This can cause short circuits and damage the unit.*
- *If the memory medium is not detected by the interface within 15 seconds, remove the memory medium and reinsert it into the USB connection.*
- *Some MP3 players must be activated by a button before inserting into a USB connection. Refer to operating instructions of MP3 player.*
- *The permitted temperature range of USB sticks and MP3 players is limited and often lies between 0° and 40° degrees Celsius. Inform the customer that for this reason the memory medium may not remain in the vehicle over a longer period.*

18.2 Removing and installing storage compartment with USB connection

The storage compartment with USB connection is installed in the hinged centre armrest.

18.2.1 Required special tools, testers, measuring instruments and auxiliary items



- Radio release tool -3316-

The radio release tool -3316- is comprised of two identical parts.

18.2.2 Removing

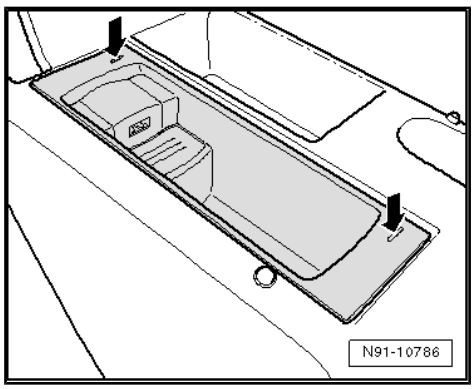
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

– Open hinged centre armrest completely.

– Remove memory medium or cable from USB connection if one is fitted.

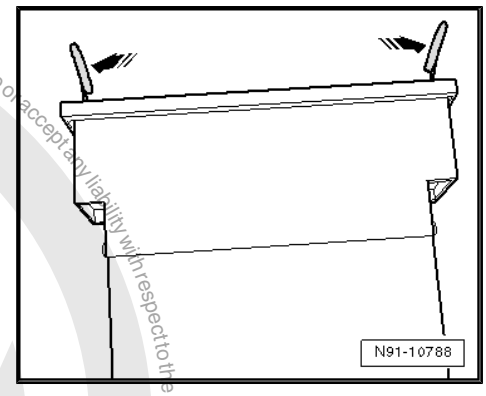
– Insert release tools into slots -arrows-.



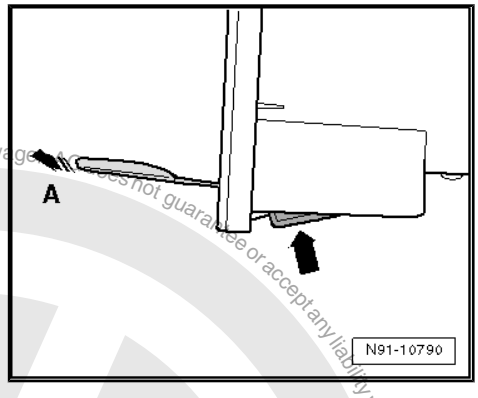
For greater clarity during the following procedures the system is shown removed.

– Push the release tools apart in direction of -arrow- to flawlessly release the locking mechanism. With the release tools still pressed, pull the complete insert out of the centre armrest.

– Disconnect connector.



– With insert removed, press spring in direction of -arrow- and simultaneously pull the release tool out in direction of -arrow A-.

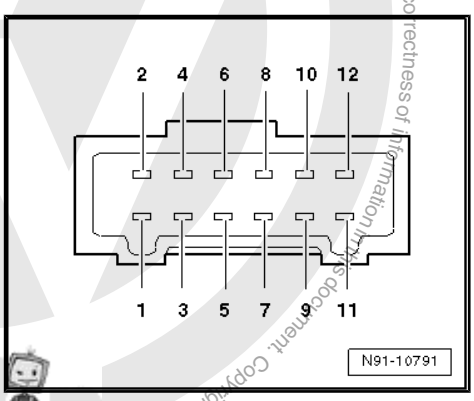


18.2.3 Installing

Install in reverse order of removal.

– Insert the insert into the centre armrest so that the USB connection is towards the rear.

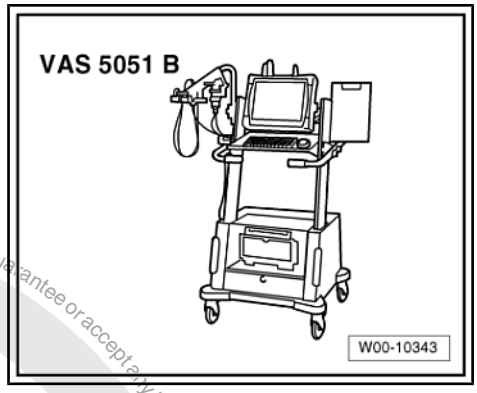
18.3 Overview of connectors on USB connection



1 - Data in, (here output)
2 - Data clock
3 - Voltage supply, terminal 31
4 - Data out (here input)
5 - Not assigned
6 - Voltage supply, terminal 30
7 - LF audio signal, right, positive
8 - Control line, positive, switched from radio
9 - LF audio signal, negative
10 - LF audio signal, left, positive
11 - Not assigned
12 - Not assigned

18.4 Fault finding procedure

18.4.1 Required special tools, workshop equipment, testers, measuring instruments and auxiliary items



- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-
- Select the “Test equipment” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

Fault finding procedure:

The USB connection has no self-diagnostic capability.

If signal transmission to the radio or radio navigation system does not function, voltage supply at connector can be checked.

Test prerequisites:

- First make sure that the USB stick or MP3 player itself is not the source of the fault ⇒ Owner's Manual .
- Check that the fuse is OK.
- Check radio or radio navigation system for faults via self-diagnosis.

Proceed as follows:

– Remove storage compartment with installed USB connection ⇒ page 123 .

– Disconnect connector under storage compartment.

– Use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- to check the following voltages at the wiring harness-side connector.

- At connector T12, 12-pin, at terminal 6 voltage supply, positive, with radio unit switched on
- At connector T12, 12-pin, at terminal 8 voltage supply, positive, control cable, with radio unit switched on
- At connector T12, 12-pin, at terminal 3 voltage supply, terminal 31, negative

If the specified voltage values cannot be measured, repair the cable connections referring to current flow diagram.

If no fault can be found, renew storage compartment with USB connection.

19 Multimedia system control unit

19.1 General notes

Thanks to the Multimedia control unit -J650- analogue (via AUX-IN entry) as well as digital (via USB or iPod entry) audio contents can be played via the radio unit or the radio navigation system. Units connected via USB or iPod connections can also be operated via the radio unit or the radio navigation system. ID3-TAG and titles also appear on the radio unit or radio navigation system displays.

Note

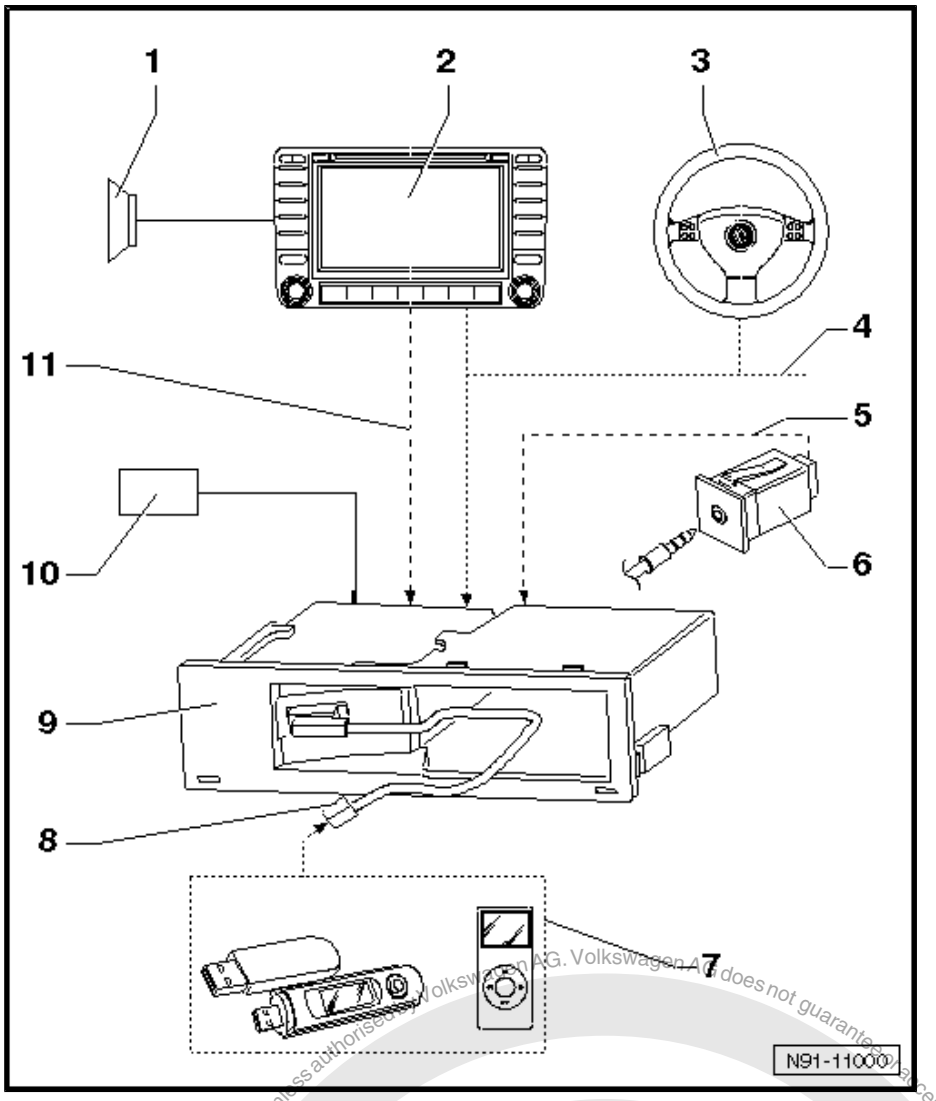
Since the display ability of ID3 tags and titles on the radio unit or radio navigation system displays depend on the type of audio files used, refer to the ⇒ Owner's Manual of the radio unit or radio navigation system and to the ⇒ Owner's Manual of your MP3 player or iPod.

The multimedia system control unit -J650- provides an audio input (AUX-IN), an USB input, and an iPod connection (power supply, signal and AUDIO-IN) as an interface. To connect the mobile unit to the USB or iPod interface of the multimedia system control unit -J650- , a relevant specific adapter cable is used. A storage compartment for mobile unit is integrated in the multimedia system control unit -J650- . Charging is possible via USB or iPod connection.

Note

If no 1DIN slot is available in the vehicle, the “multimedia system control unit” can also be installed separately. The user can although have access to the universal interface (Mitsumi socket) via a Mitsumi-Mitsumi extension. For this purpose, the Mitsumi socket must be integrated in the inside of the vehicle. Wire length of Mitsumi-Mitsumi extension must not exceed 1500 mm.

19.2 Overview of “multimedia system control unit” installation



1 - Loudspeaker system of radio or radio navigation system

2 - Radio or radio navigation system

3 - Multifunction steering wheel

4 - CAN bus

5 - LF wire

- ❑ Via this wiring connection, the audio signal of the unit connected to the AUX-IN socket goes to the multimedia control unit.

6 - “AUX-IN” socket

- ❑ For further information, refer to chapter Connection for external audio sources -R199- ⇒ page 132 .

7 - Input unit for connection to multimedia system control unit

- ❑ MP3 player
- ❑ Data sticks
- ❑ iPod player
- ❑ Connection to multimedia control unit via USB port

8 - Wiring connection to multimedia system control unit

- ❑ In the form of specific adapter cable depending on connected unit

9 - Multimedia system control unit -J650-

- ❑ Removing and installing ⇒ page 130

10 - Voltage supply connection, positive and negative, for multimedia system control unit

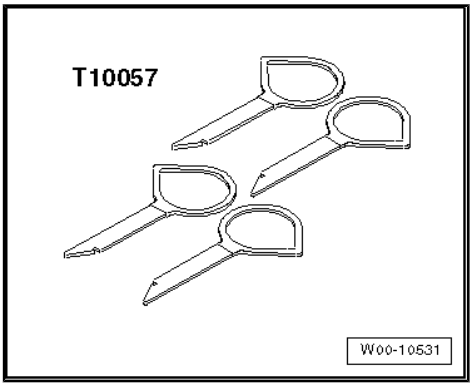
11 - LF wire

- ❑ Via this wiring connection, the audio signal of the unit connected to the “AUX-IN” socket goes from the multimedia system control unit to the AUX-input of the radio unit or radio navigation unit.

19.3 Removing and installing multimedia control unit

Special tools and workshop equipment required

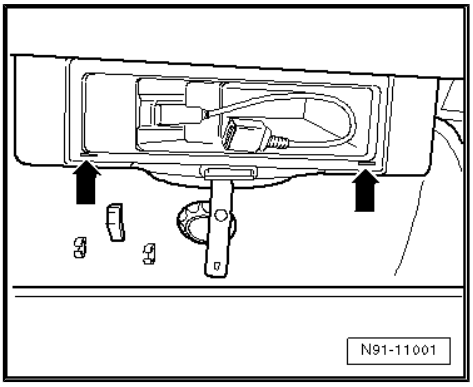
- Radio release tool -T10057-



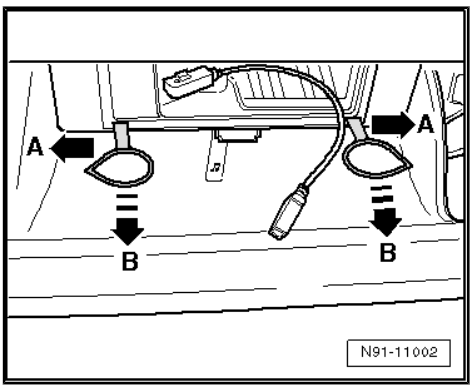
19.3.1 Removing

Multimedia control unit is installed in centre console.

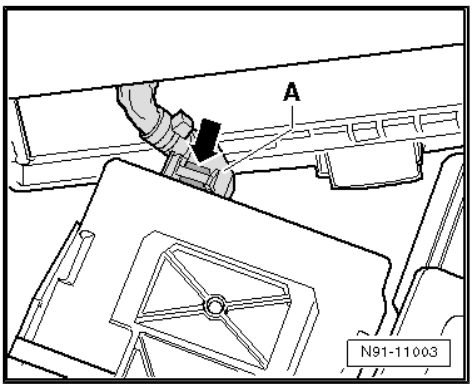
– Insert radio removal tool -T10057- into provided openings -arrows- until it engages.



– Press tools in direction -A- and then pull out control unit in direction -B-.



– Release connector -arrow- and disconnect connector -A- on control unit.



19.3.2 Installing

Installation is carried out in reverse order of removal.

20 Connection for external audio sources

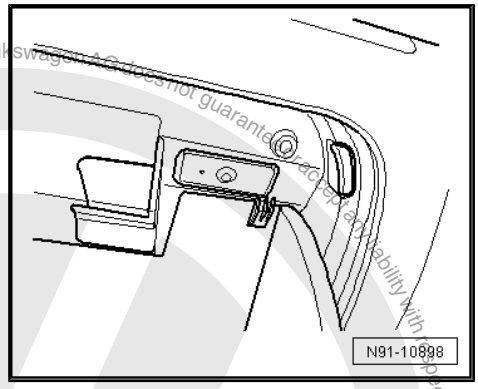
20.1 Connection for external audio sources - R199- from 06/2006

Note

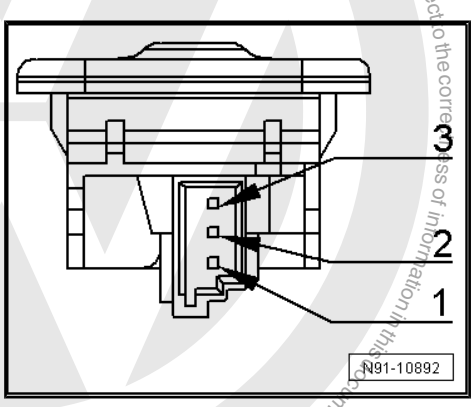
- *Additional information ⇒ Operating instructions*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

The AUX-IN socket is installed in the glove box instead of the glove box lamp.

Fitting location of AUX-IN socket



20.1.1 Pin assignment of Connection for external audio sources -R199-



1 - Audio signal, left

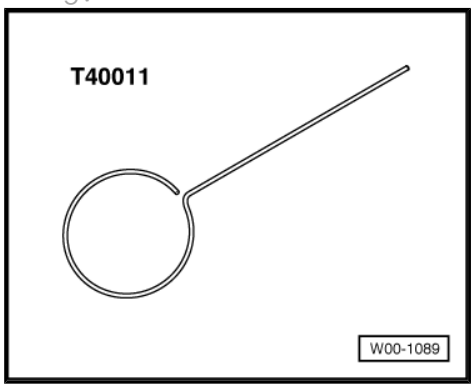
2 - Voltage supply, terminal 31, negative

3 - Audio signal, right

20.1.2 Removing and installing connection for external audio sources -R199-

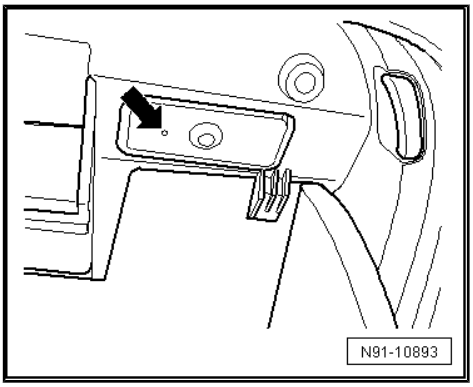
Special tools and workshop equipment required

- T40011 assembly tool



– Open glove compartment cover.
– Insert release tool into intended opening -arrow-.
– Unclip AUX-IN socket from holder.
– Disconnect connector.

Install in reverse order of removal.



20.2 Connection for external audio sources - R199- from 06/2007

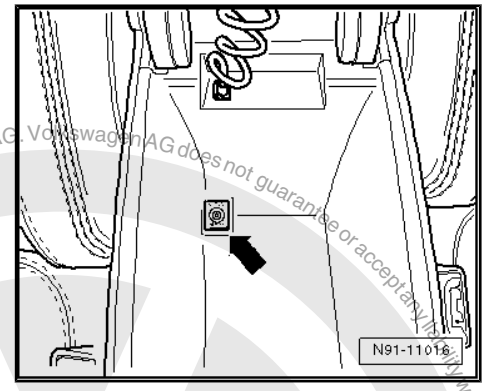
20.2.1 General notes

In the Golf/Golf Plus, the connection for external radio sources is made via a 3.5 mm stereo jack socket which is installed in the centre armrest storage compartment -arrow-.

It functions with Volkswagen radio or radio navigation systems in which “AUX” source selection is possible on the radio unit.

On the connection for external audio sources, audio signals (generally headphones output signals) from MP3 players, portable CD and cassette players can be fed into the radio or radio navigation system with a relevant wiring connection. These can then be played via the vehicle loudspeakers.

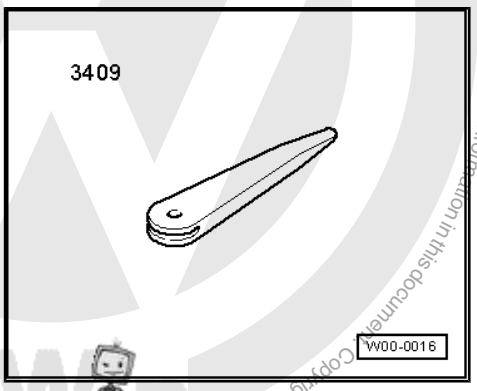
For more detailed information, refer to the ⇒ Owner's Manual of the corresponding radio unit or radio navigation system.



20.2.2 Removing and installing connection for external audio sources -R199-

Special tools and workshop equipment required

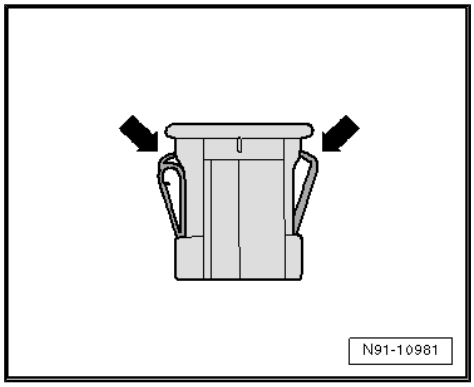
♦ Removal wedge -3409-



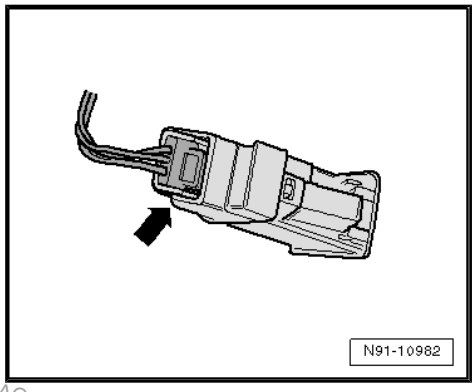
Removing

– Remove centre console extension ⇒ General body repairs, interior; Rep. Gr. 68 ; Compartments, covers and trims; Removing and installing centre console extension (base version).

– Press clips -arrows- of connection for external audio source - R199- socket together using removal wedge -3409- and push socket out.



– Disconnect connector -arrow-.



Installing

Installation is carried out in reverse order of removal.

21 Loudspeaker systems

Note

- *The sound system used in front with radio unit "RCD 300" consists of a 3-way system having a bass loudspeaker, a mid-range and a treble speaker in each front door. In the rear an optional 2-way system can be additionally installed with a bass loudspeaker and a treble loudspeaker in each door.*
- *The sound system used in front with radio unit "DX-R4" (Blaupunkt) consists of a 3-way system having a bass loudspeaker, a mid-range and a treble speaker in each front door. In the rear an optional 2-way system can be additionally installed with a bass loudspeaker and a treble loudspeaker in each door.*
- *Loudspeakers are always installed in front and rear when "radio and navigation system 2" with MFD is fitted.*
- *Loudspeakers are always installed in front and rear when radio system "RCD 500" is fitted.*
- *All loudspeakers are passive loudspeakers.*

21.1 Removing and installing front bass loudspeakers

Note

Removal and installation is performed in the same manner on the left and right sides.

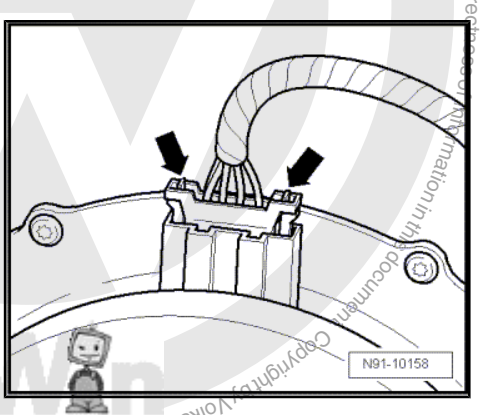
21.1.1 Removing

Before beginning dismantling work, perform the following steps:

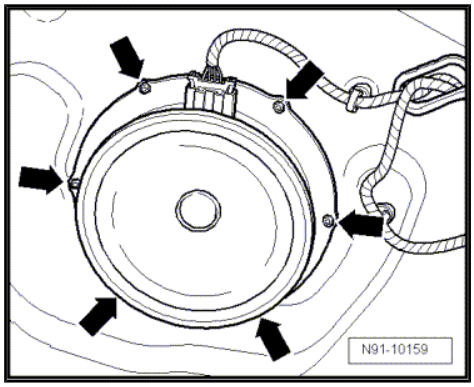
– Switch off ignition and all electrical consumers and remove ignition key.

Before a loudspeaker can be renewed, the door trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on driver door or ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on front passenger door.

– Release locking mechanism on connector -arrows- and disconnect connector.



– Drill out rivets -arrows- using suitable drill bit and remove loudspeaker.



Note

- *It is essential that all swarf be removed from the door because otherwise corrosion damage will occur.*
- *If, when drilling out rivets, damage to the paintwork is caused, rectify the damage immediately.*

21.1.2 Installing

– When installing new loudspeaker, secure with special pop rivets (note part number!)

Remainder of installation is carried out in reverse order of removal.

21.2 Removing and installing rear bass loudspeakers (4-door)

Note

Removal and installation is performed in the same manner on the left and right sides.

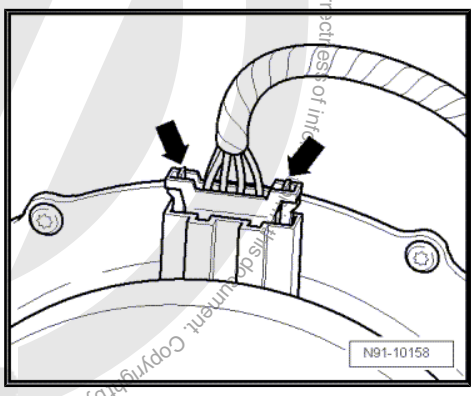
21.2.1 Removing

Before beginning dismantling work, perform the following steps:

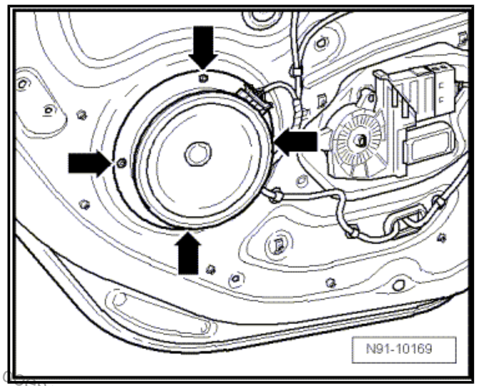
– Switch off ignition and all electrical consumers and remove ignition key.

The door trim must be removed before a loudspeaker can be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim and insulation; Door trim; Removing and installing rear door trim .

– Release locking mechanism on connector -arrows- and disconnect connector.



– Drill out rivets -arrows- using suitable drill bit and remove loudspeaker.



Note

♦ *It is essential that all swarf be removed from the door because otherwise corrosion damage will occur.*

♦ *If, when drilling out rivets, damage to the paintwork is caused, rectify the damage immediately.*

21.2.2 Installing

– When installing new loudspeaker, secure with special pop rivets. (Observe part number!)

Remainder of installation is carried out in reverse order of removal.

21.3 Removing and installing rear bass loudspeakers (2-door)

Note

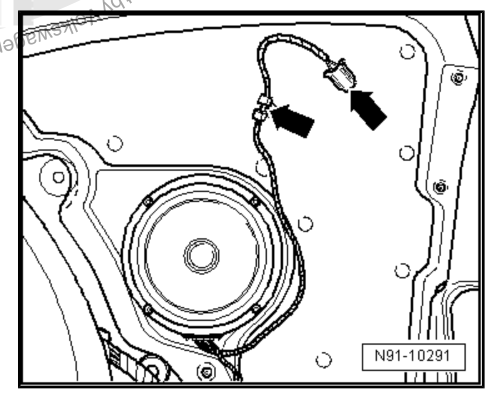
Removal and installation is performed in the same manner on the left and right sides.

21.3.1 Removing

Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

Side panel trim must be removed before a loudspeaker can be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trims and insulation; Pillar and side trims; Removing and installing side panel trim 2-door .

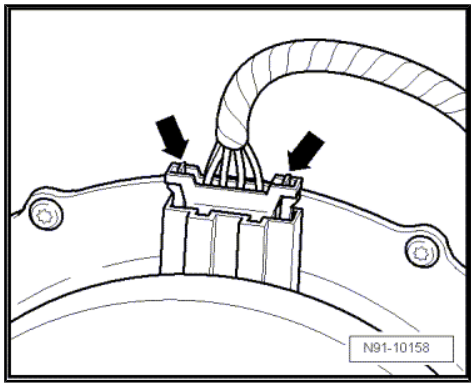


Note

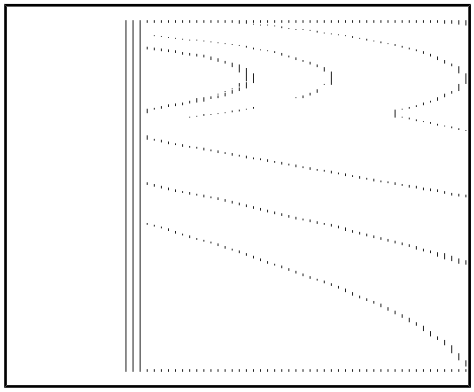
Due to short wiring between securing point and treble loudspeaker connector -arrows- when removing side panel trim, it can cause treble loudspeaker to break away from side panel trim. Therefore, take utmost care when removing side panel trim.

– Disconnect treble loudspeaker connector and then remove side panel trim completely.

– Release locking mechanism on connector -arrows- and disconnect connector.



– Drill out rivets -arrows- using suitable drill bit and remove loudspeaker.



Note

- *It is essential that all swarf be removed from the side panel otherwise corrosion damage will occur.*
- *If, when drilling out rivets, damage to the paintwork is caused, rectify the damage immediately.*

21.3.2 Installing

– When installing new loudspeaker, secure with special pop rivets. (Observe part number!)

Remainder of installation is carried out in reverse order of removal.

21.4 Removing and installing front mid-range loudspeakers

Note

- *The mid-range loudspeakers are secured to door panel trim from the rear.*
- *Removal and installation is performed in the same manner on the left and right sides.*

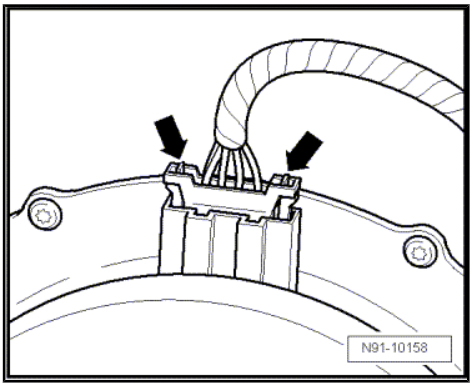
21.4.1 Removing

Before beginning dismantling work, perform the following steps:

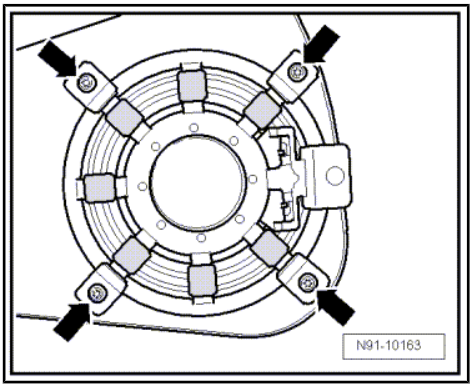
– Switch off ignition and all electrical consumers and remove ignition key.

Before a loudspeaker can be renewed, the door trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on driver door or ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on front passenger door.

– Release locking mechanism on connector -arrows- and disconnect connector.



– Remove bolts from loudspeaker and take it off.



21.4.2 Installing

Installation is carried out in reverse order of removal.

21.5 Removing and installing front treble loudspeakers

Note

- *The treble loudspeaker in installed in mirror triangular trim plate in both front doors.*
- *Removal and installation is performed in the same manner on the left and right sides.*

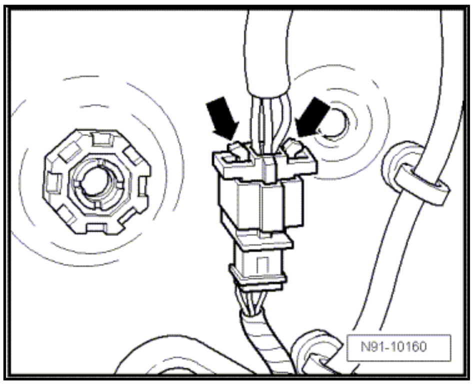
21.5.1 Removing

Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

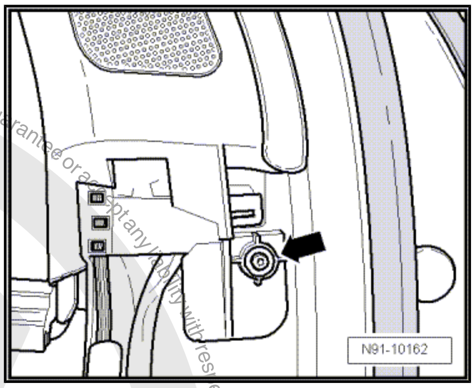
Before a loudspeaker can be renewed, the door trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on driver door or ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing trim on front passenger door.

– Disconnect connector in wiring to loudspeaker -arrows-.



– Unscrew bolt -arrow-.

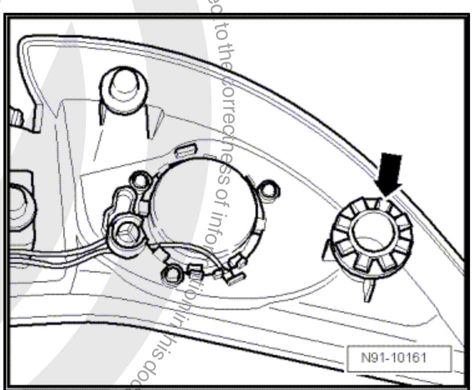
– Unclip trim together with loudspeaker.



– If the plastic clip -arrow- is still on trim panel after removing, take it off and fit it in the appropriate position in the door.

Otherwise the mirror triangular plate trim cannot be refitted correctly.

The loudspeaker can only be fitted in conjunction with mirror triangular plate trim.



21.5.2 Installing

Installation is carried out in the reverse sequence of removal.

21.6 Removing and installing rear treble loudspeakers (4-door)

Note

- *The treble loudspeakers are secured to door panel trim from the rear.*
- *Treble loudspeaker trim must always be renewed if treble loudspeaker is removed.*
- *Removal and installation is performed in the same manner on the left and right sides.*

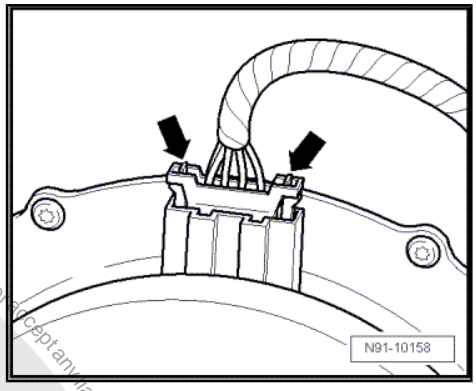
21.6.1 Removing

Before beginning dismantling work, perform the following steps:

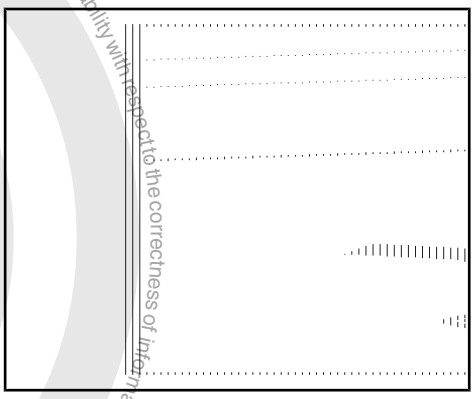
– Switch off ignition and all electrical consumers and remove ignition key.

To renew a loudspeaker, the door trim must first be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing rear door trim .

– Release locking mechanism on connector -arrows- and disconnect connector.



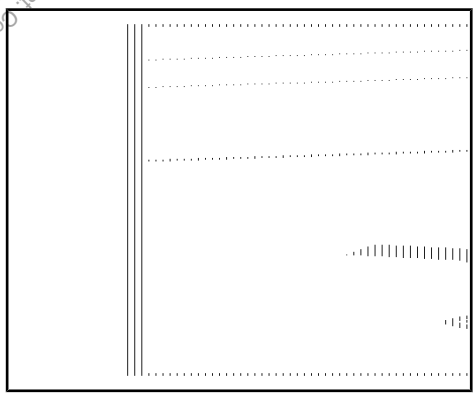
– Cut off welded plastic clips from loudspeaker trim plate -arrows-.
– Remove trim and loudspeaker from door trim panel.



21.6.2 Installing

– Insert loudspeaker trim into door trim panel.
– Position loudspeaker over plastic clips of loudspeaker trim.
– Weld plastic clips with a soldering iron -arrows-.

Remainder of installation is carried out in reverse order of removal.



21.7 Removing and installing rear treble loudspeakers (2-door)

Note

- *Removal and installation is performed in the same manner on the left and right sides.*
- *Treble loudspeaker trim must always be renewed if treble loudspeaker is removed.*
- *The treble loudspeakers are secured to the side panel trim from the rear.*

21.7.1 Removing

Before beginning dismantling work, perform the following steps:

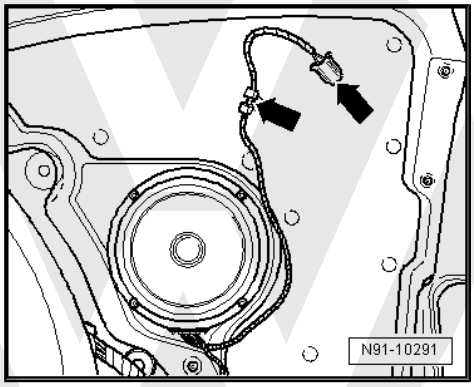
– Switch off ignition and all electrical consumers and remove ignition key.

Side panel trim must be removed before a loudspeaker can be removed ⇒ General body repairs, interior; Rep. Gr. 70; Trims and insulation; Pillar and side trims; Removing and installing side panel trim 2-door .

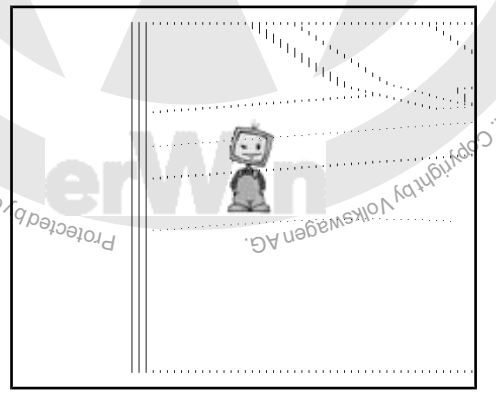
Note

Due to short wiring between securing point and treble loudspeaker connector -arrows- when removing side panel trim, it can cause treble loudspeaker to break away from side panel trim. Therefore, take utmost care when removing side panel trim.

– Disconnect treble loudspeaker connector and then remove side panel trim completely.



– Cut off welded plastic clips from loudspeaker trim plate -arrows-.
– Remove trim and loudspeaker from door trim panel.

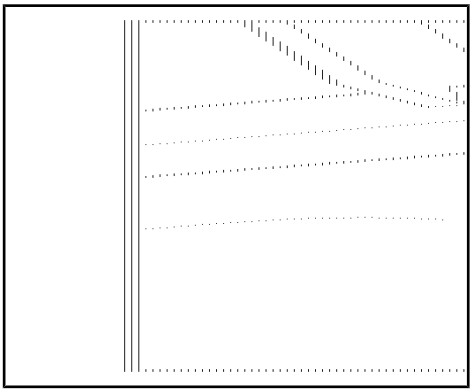


21.7.2 Installing

– Insert loudspeaker trim into door trim panel.
– Position loudspeaker over plastic clips of loudspeaker trim.

– Weld plastic clips with a soldering iron -arrows-.

Remainder of installation is carried out in reverse order of removal.



21.8 Removing and installing rear treble loudspeakers, Golf Plus

Note

- *The treble loudspeakers are secured to door panel trim from the rear.*
- *Treble loudspeaker trim must always be renewed if treble loudspeaker is removed.*
- *Removal and installation is performed in the same manner on the left and right sides.*

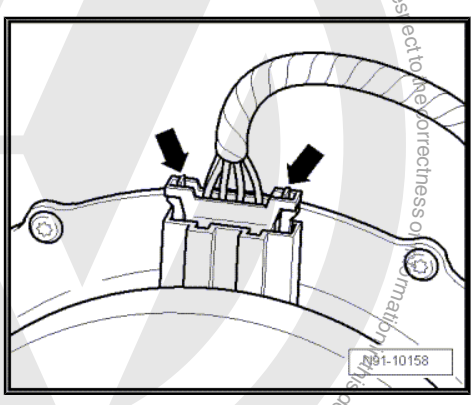
21.8.1 Removing

Before beginning dismantling work, perform the following steps:

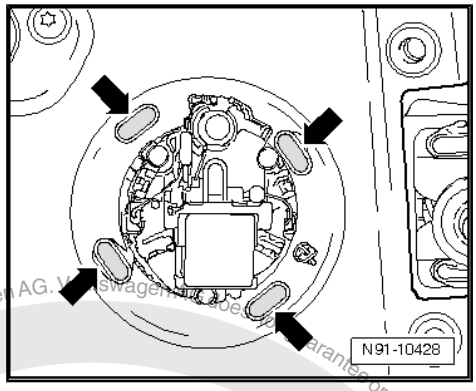
– Switch off ignition and all electrical consumers and remove ignition key.

To renew a loudspeaker, the door trim must first be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Door trim; Removing and installing rear door trim .

– Release locking mechanism on connector -arrows- and disconnect connector.



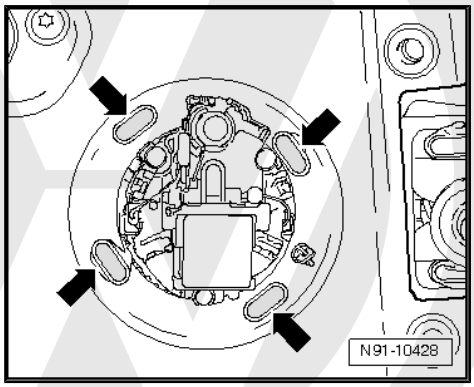
– Cut off welded plastic clips from loudspeaker trim plate -arrows-.
– Remove trim and loudspeaker from door trim panel.



21.8.2 Installing

– Insert loudspeaker trim into door trim panel.
– Position loudspeaker over plastic clips of loudspeaker trim.
– Weld plastic clips with a soldering iron -arrows-.

Remainder of installation is carried out in reverse order of removal.



22 Telephone systems

22.1 General notes

Two versions of the telephone system are possible in the Golf. Either as a complete telephone system or a preparation for mobile telephone.

The telephone system or the preparation for mobile telephone is available only in conjunction with a radio unit or a radio navigation system.

It is possible to retrofit a mobile telephone if the vehicle is prepared for installation of a telephone.

The mobile telephone operating electronics control unit (interface box) is factory-fitted in vehicles with preparation for mobile telephone.

Only a corresponding adapter for the telephone bracket is now required, but this is dependent on the mobile telephone used (accessory).

22.2 Fault finding

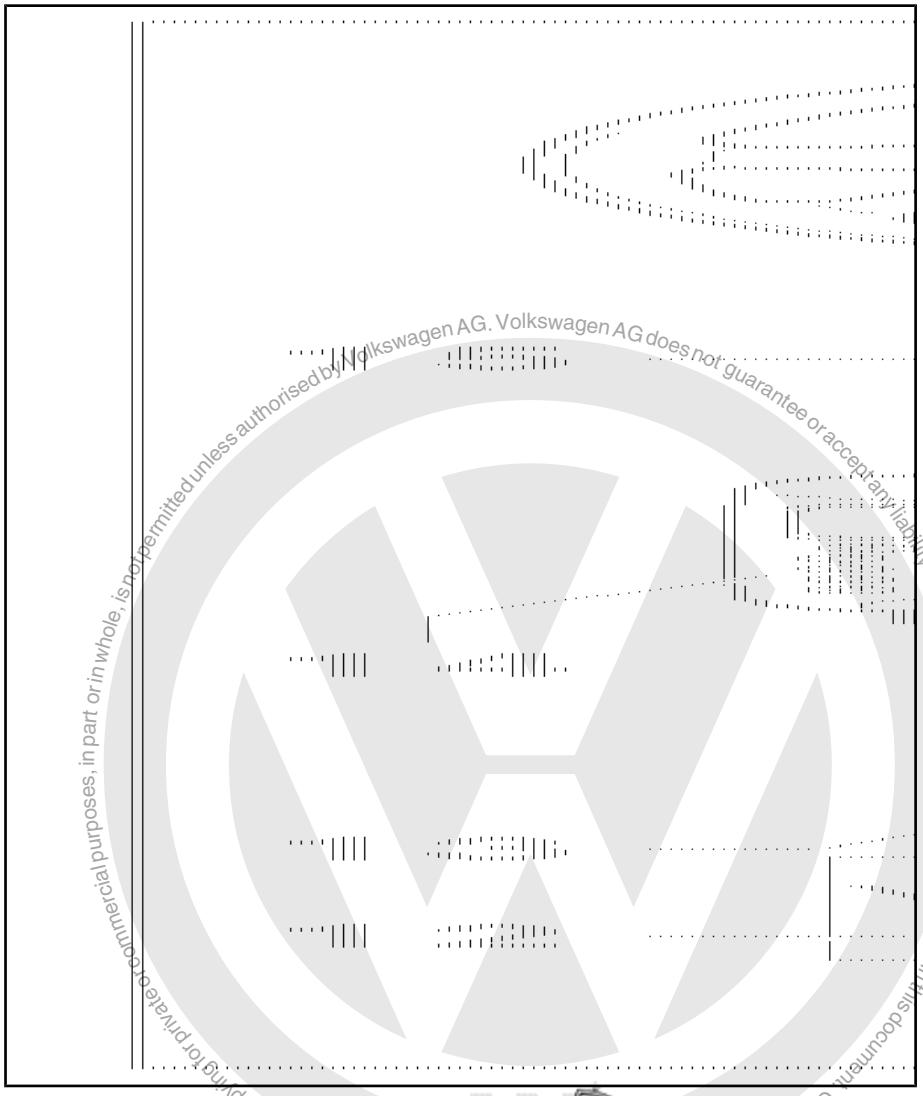
The telephone systems are equipped with self-diagnosis.

For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode.

22.3 Overview of telephone system

Note

The only significant difference between a vehicle fitted with complete telephone system and one with preparation for mobile telephone is the factory-fitted mobile telephone. Therefore, only the complete telephone system is shown in the following overview.



1 - Multifunction steering wheel

- ❑ Optional
- ❑ For further information, refer to chapter Multi-function steering wheel ⇒ page 174 .

2 - Dash panel insert

3 - Microphone -R38-

- ❑ For hands-free operation of telephone
- ❑ Installed in front interior light
- ❑ Removing and installing ⇒ page 158

4 - Connector for microphone

- ❑ Installed in mounting frame of front interior light

5 - Radio -R-

Control unit with display for radio navigation -J503- (radio navigation system).

6 - Loudspeaker group, right

7 - Loudspeaker group, left

8 - Voltage supply for mobile telephone operating electronics control unit (interface box)

9 - Mobile telephone operating electronics control unit -J412- (interface box)

- ❑ Installed under right front seat
- ❑ Removing and installing, Golf saloon ⇒ page 154
- ❑ Removing and installing, Golf Plus ⇒ page 156

10 - Connector on telephone bracket

- ❑ Installed in telephone bracket wiring harness behind dash panel

11 - Connector to mobile telephone operating electronics control unit

12 - Telephone aerial -R51-

- ❑ Installed on rear of roof
- ❑ For further information, refer to chapter Aerial systems ⇒ page 160 .

13 - Aerial cable connector

- ❑ Telephone aerial connector
- ❑ Installed beneath rear of headliner

14 - Mobile telephone -R54-

- ❑ Removing and installing telephone bracket, Golf saloon ⇒ page 147 .
- ❑ Removing and installing telephone bracket, Golf Plus ⇒ page 150 .

15 - Steering column electronics control unit -J527-

22.4 Removing and installing telephone bracket, Golf saloon ▸ 06/2006

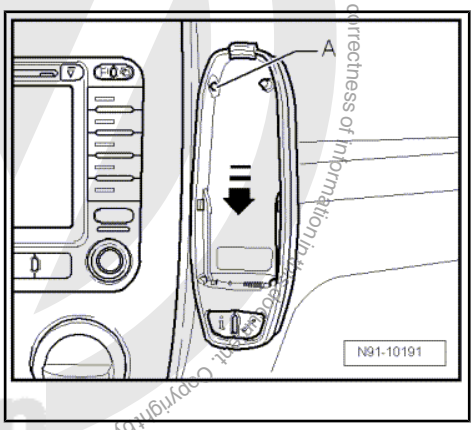
22.4.1 Removing

Before beginning dismantling work, perform the following steps:

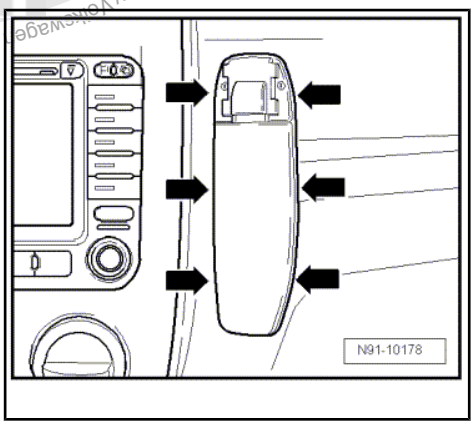
– Switch off ignition and all electrical consumers and remove ignition key.

– Remove mobile telephone from bracket.

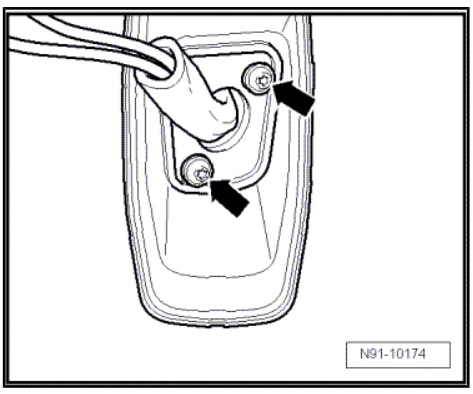
– Press and hold button -A- and push out mobile phone bracket downwards -arrow-.



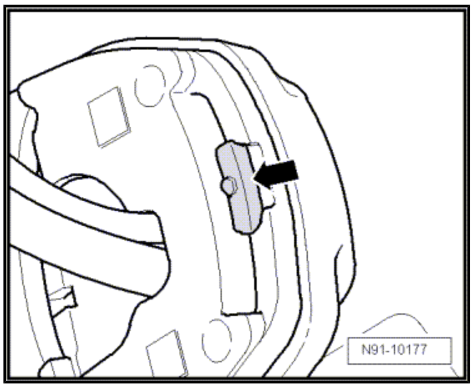
– Unclip cover -arrows- from mounting.



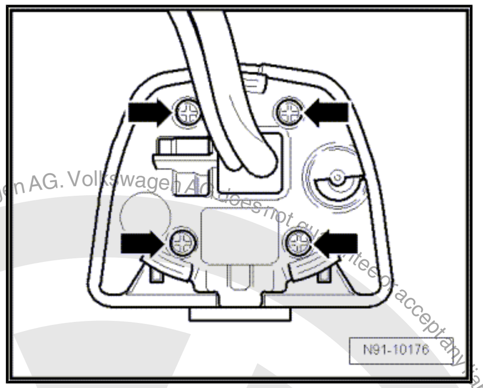
– Remove both bolts -arrows-.



– Carefully lever contact plate out -arrow- of basic mounting using a suitable screwdriver.

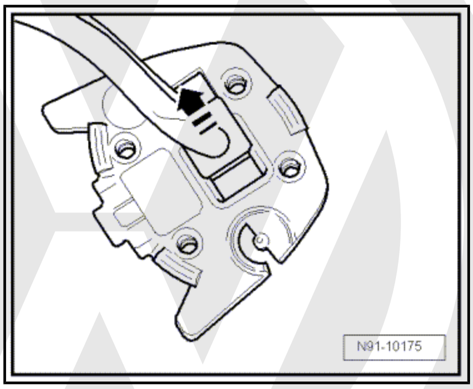


– Remove the four bolts -arrows- from contact plate.



– Push wiring in contact plate in direction of -arrow- and remove it.

– Remove bracket.



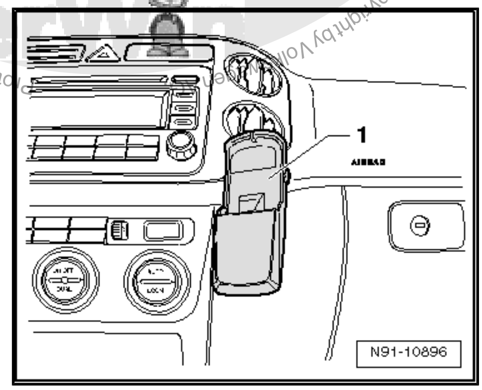
22.4.2 Installing

Installation is carried out in the reverse sequence of removal.

When screwing bracket in place on dash panel, ensure that backing plate in dash panel does not slip down.

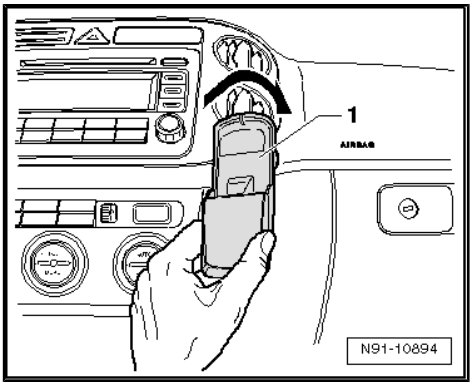
22.5 Removing and installing telephone bracket, Golf saloon 06/2006 ▸

Telephone bracket fitting location on dash panel

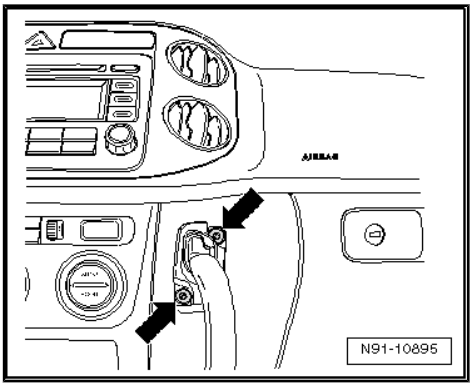


22.5.1 Removing

– Turn bracket clockwise -arrow- and release retainer.



– Unscrew both Torx screws -arrows-
– Pull out wiring harness.
– Disconnect connector.

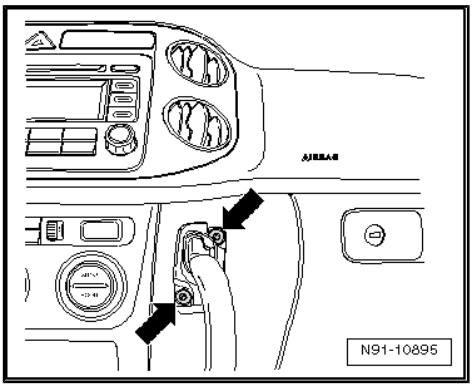


22.5.2 Installing

Install in reverse order of removal.

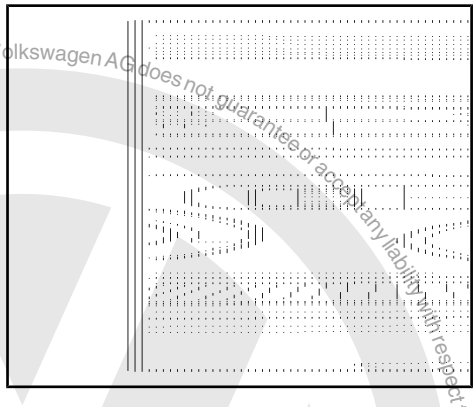
Ensure that wire harness is connected properly.

– Push connector together and guide wiring harness into dash panel again.
– Screw on holder for mobile telephone retainer -arrows- again.
– Clip telephone bracket onto holder.



22.6 Removing and installing telephone bracket, Golf Plus ▸ 06/2006

Telephone bracket fitting location on dash panel



22.6.1 Removing

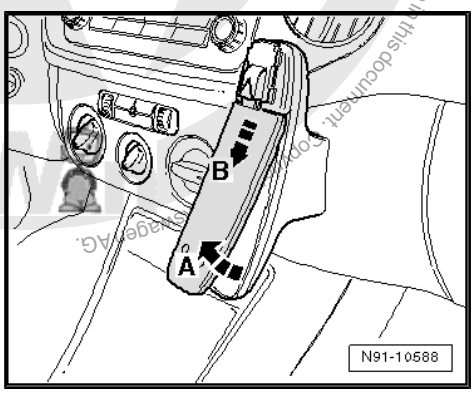
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

– Remove mobile telephone from bracket.

– Actuate button on mobile telephone bracket and push mobile telephone bracket out downwards.

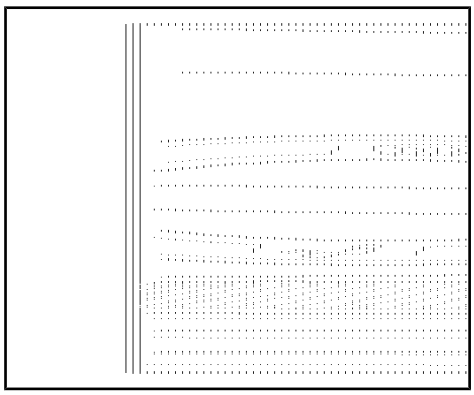
– Unclip cover in direction -A- and pull off from telephone bracket in direction -B-.



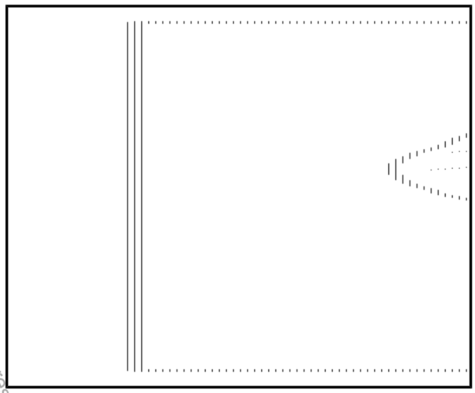
– Pull wiring harness out slightly from bracket in direction of arrow -A- and unscrew both bolts -arrows-.

– Remove telephone bracket from dash panel.

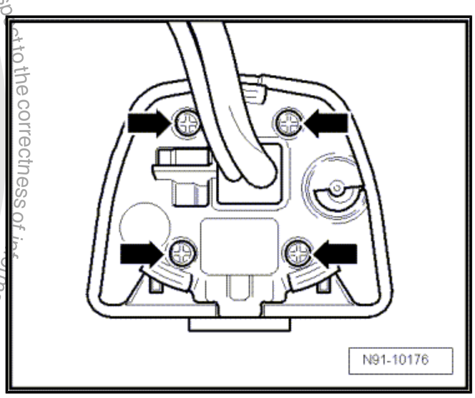
Ensure that bracket in dash panel does not fall inside dash panel.



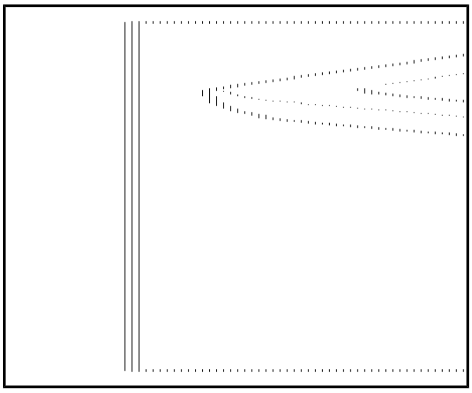
– Turn telephone bracket around and remove both bolts -arrows-.



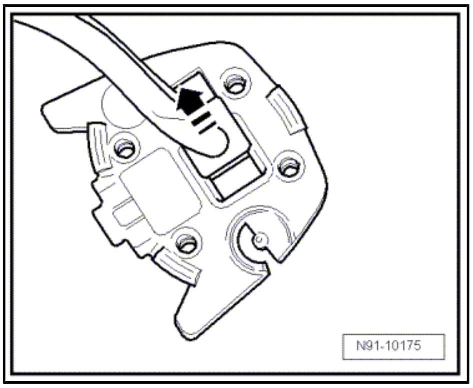
– Remove the four bolts -arrows- from contact plate.



– Remove spring and underlying spring plate from contact plate -arrow-.



– Move wiring harness in contact plate in direction of -arrow- and then push contact plate up slightly on wiring harness.

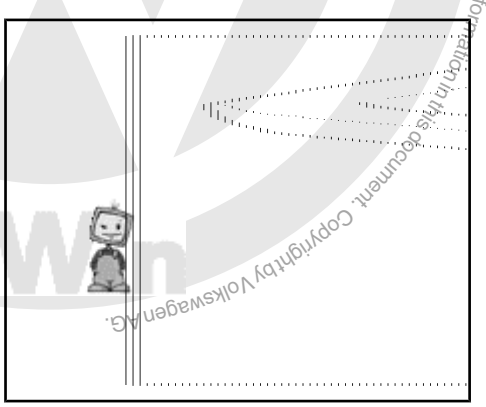


– Guide wiring harness out of groove -arrow-.
– Remove telephone bracket.

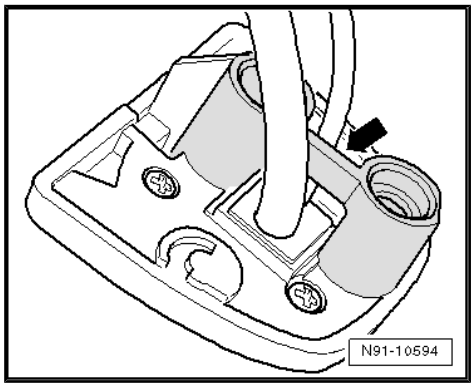
22.6.2 Installing

Install in reverse order of removal.

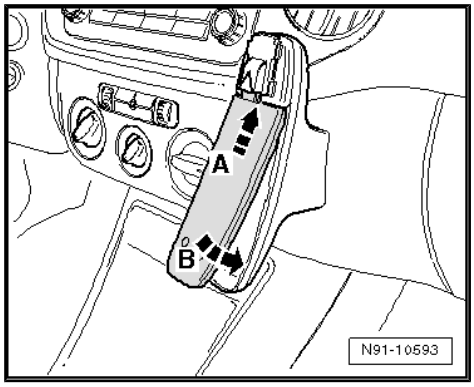
Ensure that spring and spring plate are installed correctly -arrow-.



– Insert spacer as shown in diagram -arrow- before securing contact plate in telephone bracket again.

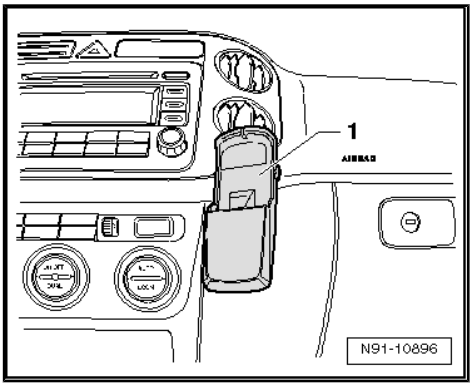


– Insert cover into telephone bracket in direction of arrow -A- and then allow to engage in telephone bracket housing in direction -B-.



22.7 Removing and installing telephone bracket, Golf Plus 06/2006 ▸

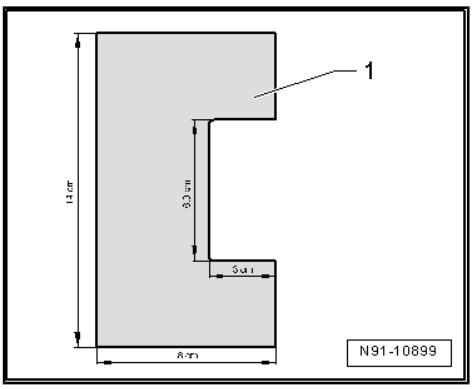
Telephone bracket fitting location on dash panel



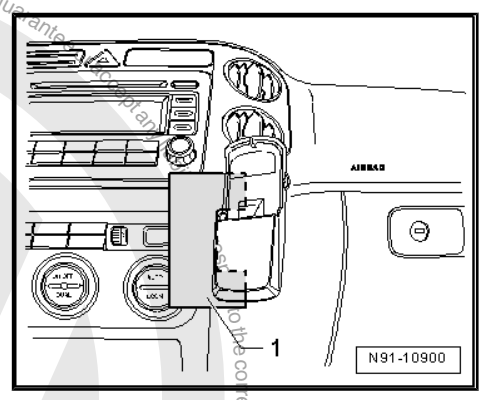
22.7.1 Removing

Note

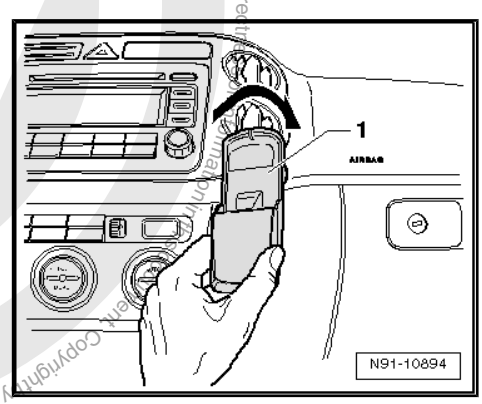
- *To avoid damage to dash panel while removing, make a template as shown in illustration.*
- *Use an overhead film or a similar material.*



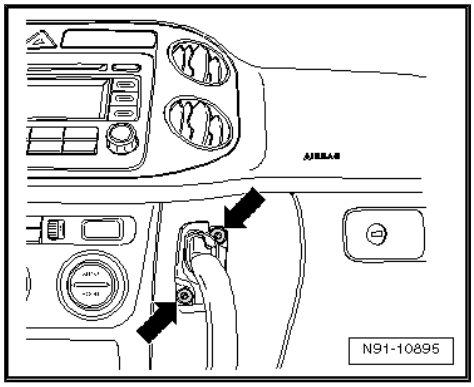
– Fit overhead film as shown in illustration.



– Turn bracket clockwise -arrow- and release retainer.



– Unscrew both Torx screws -arrows-
– Pull out wiring harness.
– Disconnect connector.

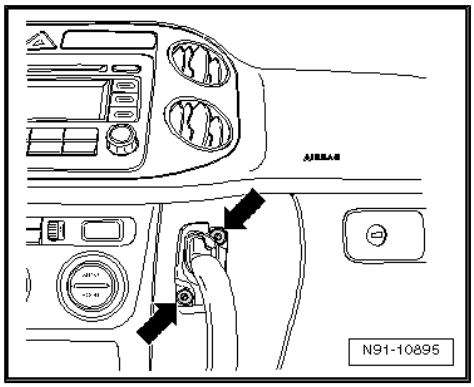


22.7.2 Installing

Install in reverse order of removal.

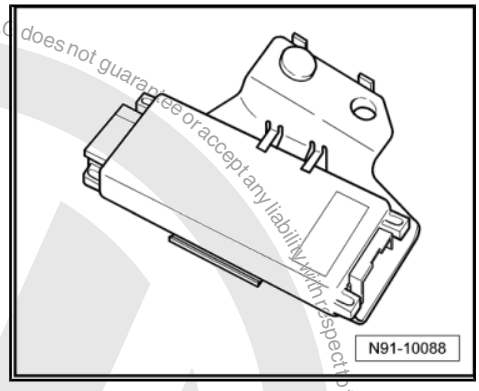
Ensure that wire harness is connected properly.

– Push connector together and guide wiring harness into dash panel again.
– Screw on holder for mobile telephone retainer -arrows- again.
– Clip telephone bracket onto holder.



22.8 Removing and installing telephone operating electronics control unit (interface box), Golf saloon ▸ 06/2006

The mobile telephone operating electronics control unit is installed under front right seat.

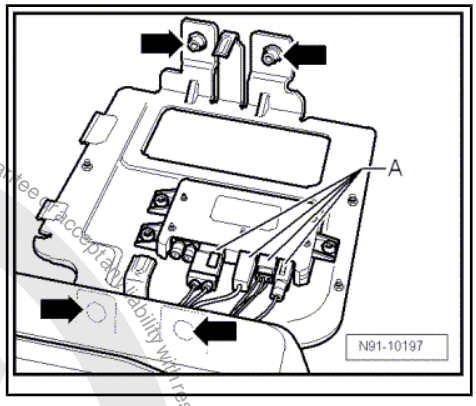


22.8.1 Removing

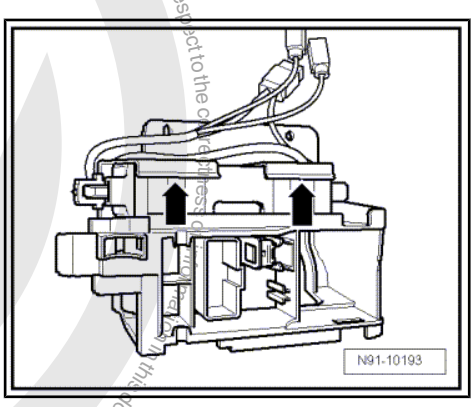
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.
– Remove front right seat ⇒ General body repairs, interior; Rep. Gr. 72 ; Seat frames; Front seat; Removing and installing front seat .

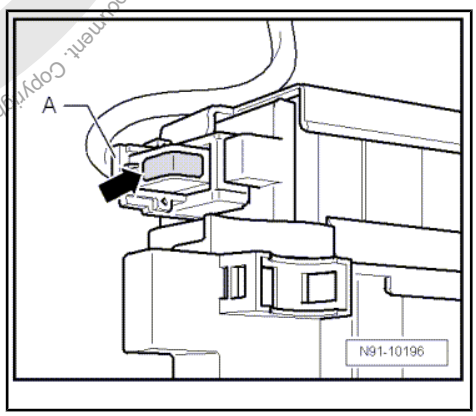
– Remove bolts -arrows-, detach connectors -A- and remove mounting with aerial selection control unit.
– Unclip the sill panel trim and fold carpet to rear.



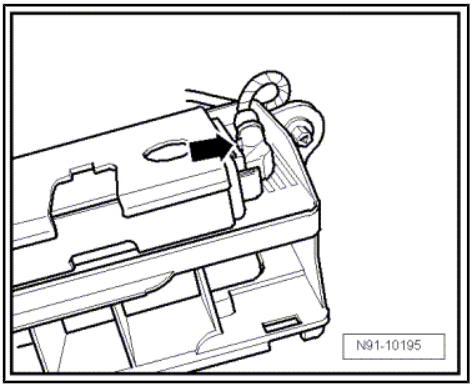
– Lift up both tabs from plastic retainer in direction of -arrow- and remove telephone operating electronics control unit .



– Release connector by pressing detent spring -A- and swinging bar in direction of -arrow-.



– Release connector by pushing against spring -arrow- and then disconnect connector.



22.8.2 Installing

Installation is carried out in the reverse sequence of removal.

22.9 Removing and installing telephone operating electronics control unit (interface box), Golf Plus ‣ 06/2006

22.9.1 Removing

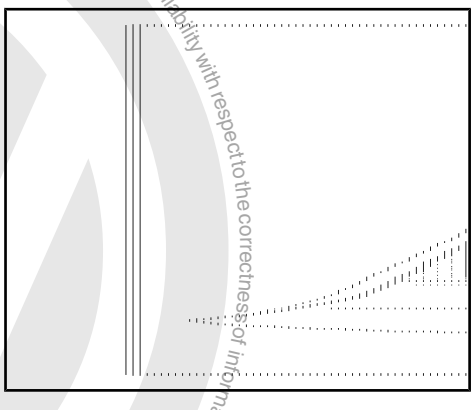
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

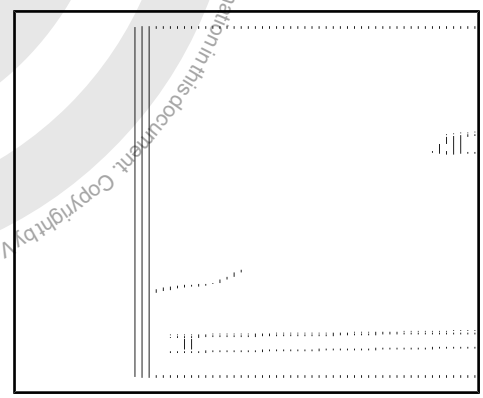
– Remove front right seat ⇒ General body repairs, interior; Rep. Gr. 72 ; Seat frames; Front seat; Removing and installing front seat .

– Slightly lift carpet in area of connector station; the control unit can be seen below this.

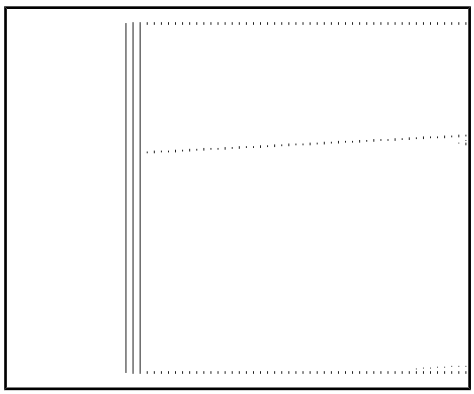
– Unclip both plastic tabs -arrows-.



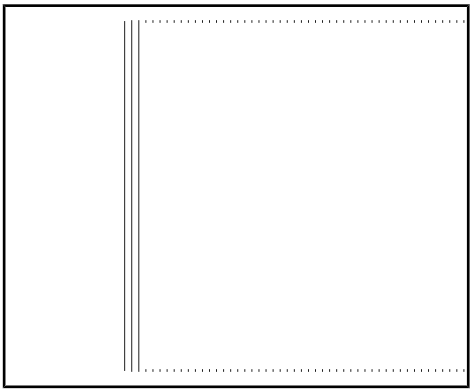
– Remove control unit -arrow- with cables connected.



– Actuate locking mechanism -arrow- on red connector and disconnect connector.



– Actuate locking mechanism -A- on black connector and fold bow in direction of arrow -B-.
– Disconnect connector.

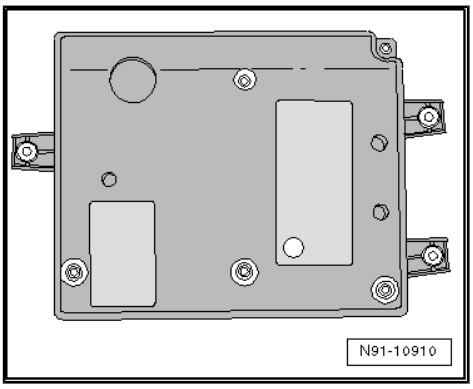


22.9.2 Installing

Installation is carried out in the reverse sequence of removal.

22.10 Removing and installing telephone operating electronics control unit (interface box), Golf saloon, Golf Plus 06/2006 ▸

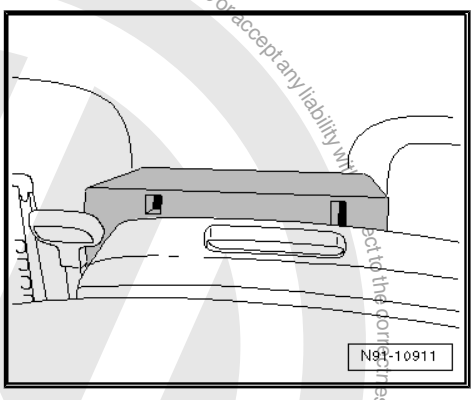
The mobile telephone operating electronics control unit is installed under front right seat.



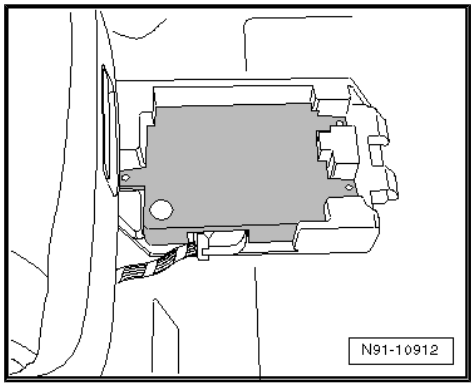
22.10.1 Removing

Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.
– Slide front passenger seat into rear final position.
– Unclip cover.



– Disconnect connector and remove control unit from bracket.

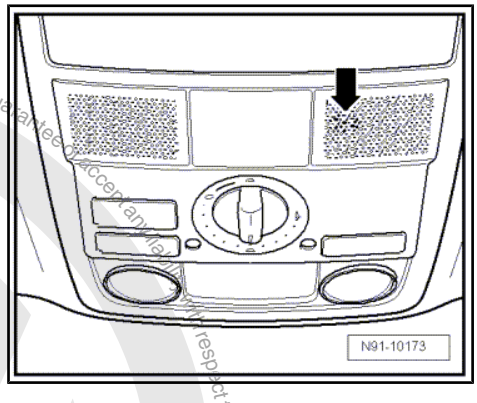


22.10.2 Installing

Installation is carried out in the reverse sequence of removal.

22.11 Removing and installing telephone system microphone

The microphone for hands-free operation of telephone is installed in the front interior light -arrow-.



22.11.1 Removing

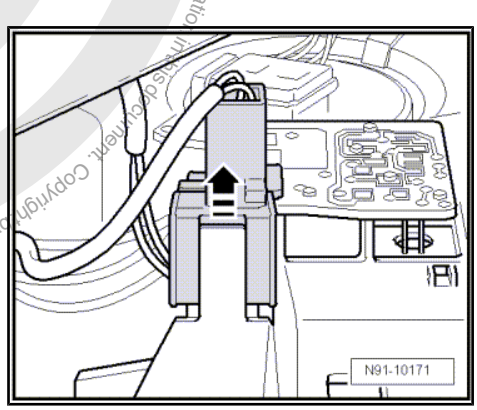
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

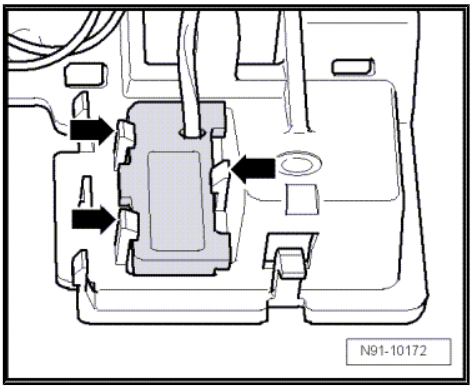
– Remove console in moulded headliner ⇒ Electrical system; Rep. Gr. 96 ; Lights, bulbs, switches - interior; Interior lights and switches; Removing and installing front interior light .

– Push connector off bracket in interior light in direction of -arrow-.

– Release and disconnect microphone connector.



– Actuate the three locking lugs -arrows- and remove microphone.



22.11.2 Installing

Installation is carried out in the reverse sequence of removal.

23 Aerial systems

23.1 General notes

Aerial system for vehicles for USA and Canada ⇒ page 166

Aerial systems ‣ 05.05

- Vehicles without radio are not equipped with aerials.
- Vehicles with radio “R100” only have a rear window aerial.
- Vehicles with radio “RCD 300” or “RCD 500” have a rear window aerial with two blocking circuits. The diversity function is carried out directly in the radio unit.
- If the vehicle is equipped with a radio unit and telephone equipment or auxiliary heater remote control have also been ordered, the rear window aerial with 2 blocking circuits and diversity plus a roof aerial are fitted.
- Vehicles with radio navigation system “RNS 300” are fitted with the rear window aerial without diversity and with a roof aerial.
- Regardless of their other equipment, vehicles with radio navigation system “RNS 2” are always fitted with the rear window aerial with 2 blocking circuits and diversity and with a roof aerial.

The aerial system with diversity function optimises and improves reception in the vehicle.

The radio unit checks the aerial input signals and puts out the result via an additional aerial connection. The information from the test result then reaches the aerial selection control unit. If the aerial signal being received is too weak, this then switches to a different aerial (diversity). The customer will not be able to perceive this procedure audibly.

Aerial systems 06.05 ‣

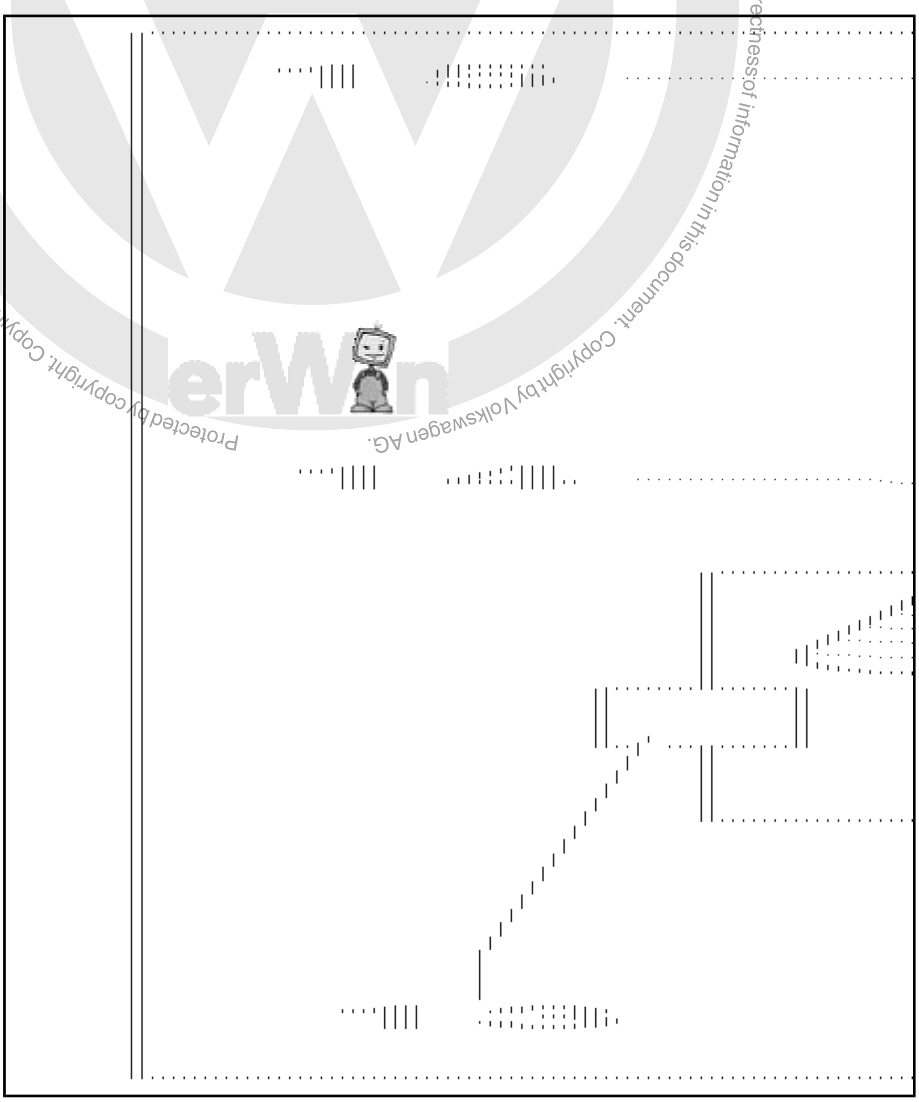
Various aerial systems are available in vehicles 06.05 ‣. The version depends on the vehicle's equipment. Possible variants are as follows:

- Vehicles without radio have no rear window aerial, and a “dummy” aerial without any connections is mounted on the roof.
- Vehicles with radio “R100” only have a roof aerial with aerial rod.
- Vehicles with radio “RCD 300” or “RCD 500” have a rear window aerial with an aerial amplifier on the right and a roof aerial with aerial rod. One diversity function circuit runs via the rear window aerial, the second via the roof aerial.
- If the vehicle is equipped with a radio unit and telephone equipment or auxiliary heater remote control have also been ordered, the rear window aerial with 2 blocking circuits and diversity plus a roof aerial are fitted.
- Vehicles with radio navigation system “RNS 300” are fitted with a rear window aerial with an aerial amplifier on the right and with a roof aerial.
- Regardless of their other equipment, vehicles with radio navigation system “RNS 2” are always fitted with the rear window aerial with 2 blocking circuits and diversity and with a roof aerial.

Note

- *When faced with complaints, it is absolutely necessary to understand the functions and operation of the radio system.*
- *Additional information ⇒ Operating instructions*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual or the Operating Manual.*

23.2 Overview - aerial system ‣ 05.05



1 - Aerial -R11-

- ❑ For navigation, telephone and auxiliary heater telestart
- ❑ Installed on rear of roof
- ❑ Removing and installing ⇒ page 171

2 - Navigation aerial cable

3 - Control unit with display unit for radio and navigation -J503-

- ❑ Radio navigation system designation “RNS 2 MFD” with CD drive or “RNS MFD 2 DVD” with DVD drive.
- ❑ With two aerial cables for radio reception, with diversity function
- ❑ With one aerial cable to the roof aerial for the navigation system

4 - Aerial selection control unit -J515-

- ❑ Only installed in conjunction with control unit with display for radio and navigation -J503- “RNS MFD 2” with CD player.
- ❑ Removing and installing ⇒ page 170

5 - Aerial amplifier -R24-

- ❑ For FM reception
- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

6 - Radio -R-

- ❑ Designation RCD 300
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

7 - Radio -R-

- ❑ Designation RCD 500
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

8 - Radio -R-

- ❑ Designation of radio R100 with simple equipment.
- ❑ With only one aerial cable for FM/AM radio reception, without diversity function

9 - Control unit with display unit for radio and navigation -J503-

- ❑ Designation of radio navigation system RNS 300
- ❑ With only one aerial cable for FM/AM radio reception, without diversity function
- ❑ With one aerial cable to the roof aerial for the navigation system

10 - Aerial amplifier 2 -R111-

- ❑ For FM and AM reception
- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

11 - Frequency modulation (FM) frequency filter in positive wire -R179-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

12 - Amplitude modulation (AM) frequency filter -R177-

- ❑ Installed in centre section of rear lid
- ❑ Has the task of preventing the aerial signals being shorted to earth
- ❑ Removing and installing ⇒ page 169

13 - Frequency modulation (FM) frequency filter in negative wire -R178-

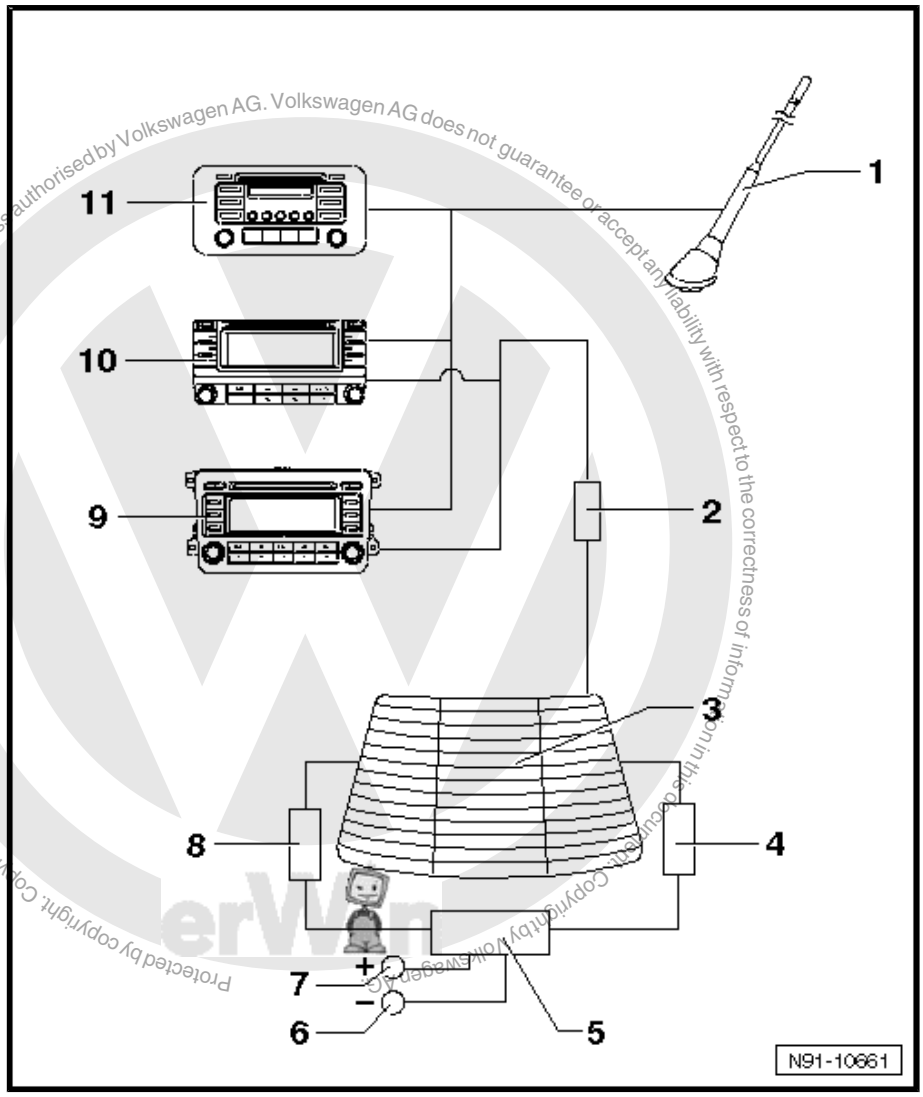
- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

14 - Rear window with two aerial connections

- ❑ For FM and AM radio reception

15 - Telephone system aerial cable

23.3 Overview - aerial system 06.05 ▸ for radio units without telephone/auxiliary heater telestart equipment



1 - Aerial -R11-

- ❑ Roof aerial with aerial rod for FM/AM radio reception
- ❑ Installed on rear of roof

2 - Aerial amplifier 2 -R111-

- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

3 - Rear window with one aerial connection

- ❑ For FM radio reception only

4 - Frequency modulation (FM) frequency filter in positive wire -R179-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

5 - Connection point as frequency filter substitute

- ❑ As AM radio is not received via the rear window aerial, no amplitude modulation (AM) frequency filter is required; therefore, only a connection point for heated rear window voltage distribution is located here.

6 - Heated rear window voltage supply, negative

7 - Heated rear window voltage supply, positive

8 - Frequency modulation (FM) frequency filter in negative wire -R178-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

9 - Radio -R-

- ❑ Radio “RCD 500”
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

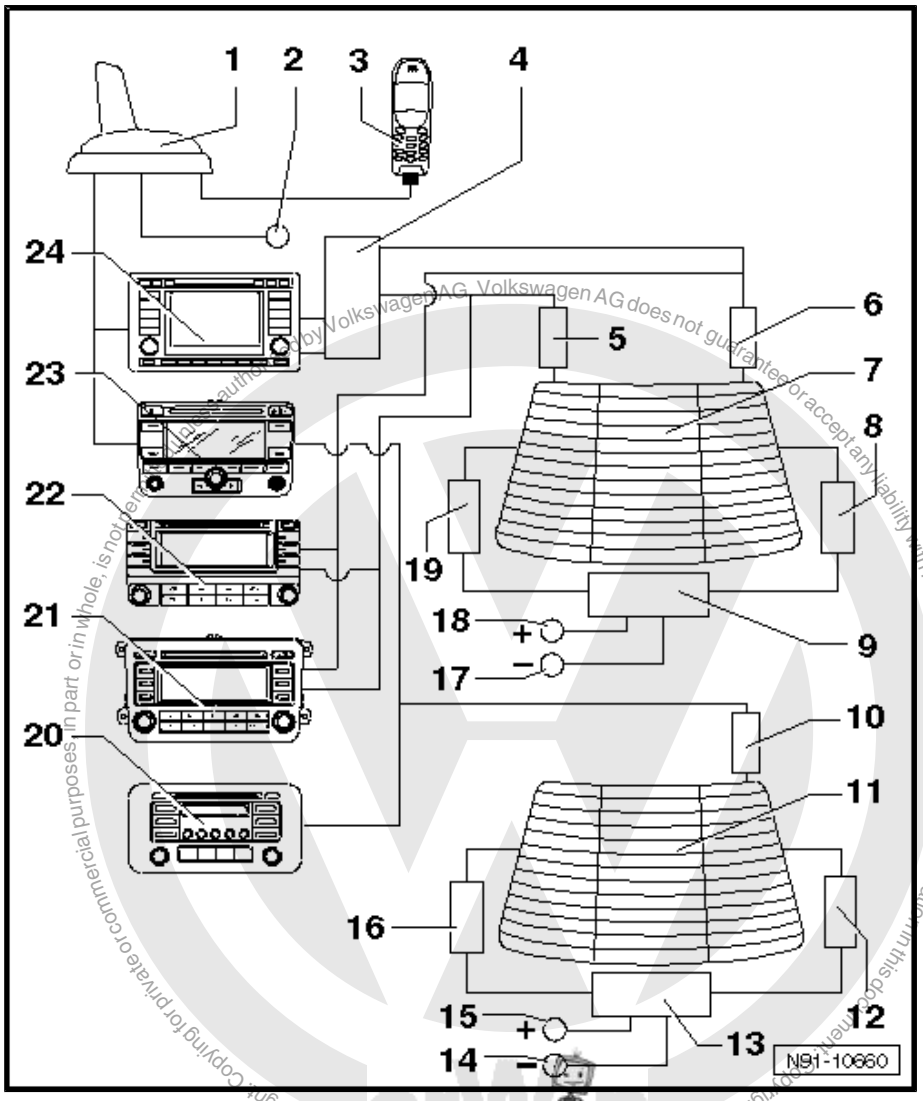
10 - Radio -R-

- ❑ Radio “RCD 300”
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

11 - Radio -R-

- ❑ Radio “R 100”
- ❑ With only one aerial cable for FM/AM radio reception, without diversity function

23.4 Overview - aerial system 06.05 ▸ for radio units or radio/navigation systems (with telephone/auxiliary heater telestart equipment)



1 - Aerial -R11-

- ❑ Roof aerial for navigation, telephone and auxiliary heater telestart
- ❑ Installed on rear of roof
- ❑ Removing and installing ⇒ page 171

2 - Aerial connection for auxiliary heater telestart

3 - Connection for mobile telephone -R54-

4 - Aerial selection control unit -J515-

- ❑ Only installed in conjunction with control unit with display for radio and navigation -J503- “RNS MFD 2” with CD player.

5 - Aerial amplifier -R24-

- ❑ For FM reception
- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

6 - Aerial amplifier 2 -R111-

- ❑ For FM and AM reception
- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

7 - Rear window with two aerial connections

- ❑ For FM and AM radio reception

8 - Frequency modulation (FM) frequency filter in positive wire -R179-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

9 - Amplitude modulation (AM) frequency filter -R177-

- ❑ Installed in rear lid
- ❑ Has the task of preventing the aerial signals being shorted to earth
- ❑ Removing and installing ⇒ page 169

10 - Aerial amplifier 2 -R111-

- ❑ For FM and AM reception
- ❑ Removing and installing ⇒ page 167
- ❑ Removing and installing, Golf Plus ⇒ page 168

11 - Rear window with one aerial connection

- ❑ For FM and AM radio reception

12 - Frequency modulation (FM) frequency filter in positive wire -R179-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

13 - Amplitude modulation (AM) frequency filter -R177-

- ❑ Installed in rear lid
- ❑ Has the task of preventing the aerial signals being shorted to earth

14 - Heated rear window voltage supply, negative

15 - Heated rear window voltage supply, positive

16 - Frequency modulation (FM) frequency filter in negative wire -R178-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

17 - Heated rear window voltage supply, negative

18 - Heated rear window voltage supply, positive

19 - Frequency modulation (FM) frequency filter in negative wire -R178-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

20 - Radio -R-

- ❑ Radio “R 100”
- ❑ With only one aerial cable for FM/AM radio reception, without diversity function

21 - Radio -R-

- ❑ Radio “RCD 500”
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

22 - Radio -R-

- ❑ Radio “RCD 300”
- ❑ Two aerial cables for FM/AM. Aerial selection (diversity) in radio unit

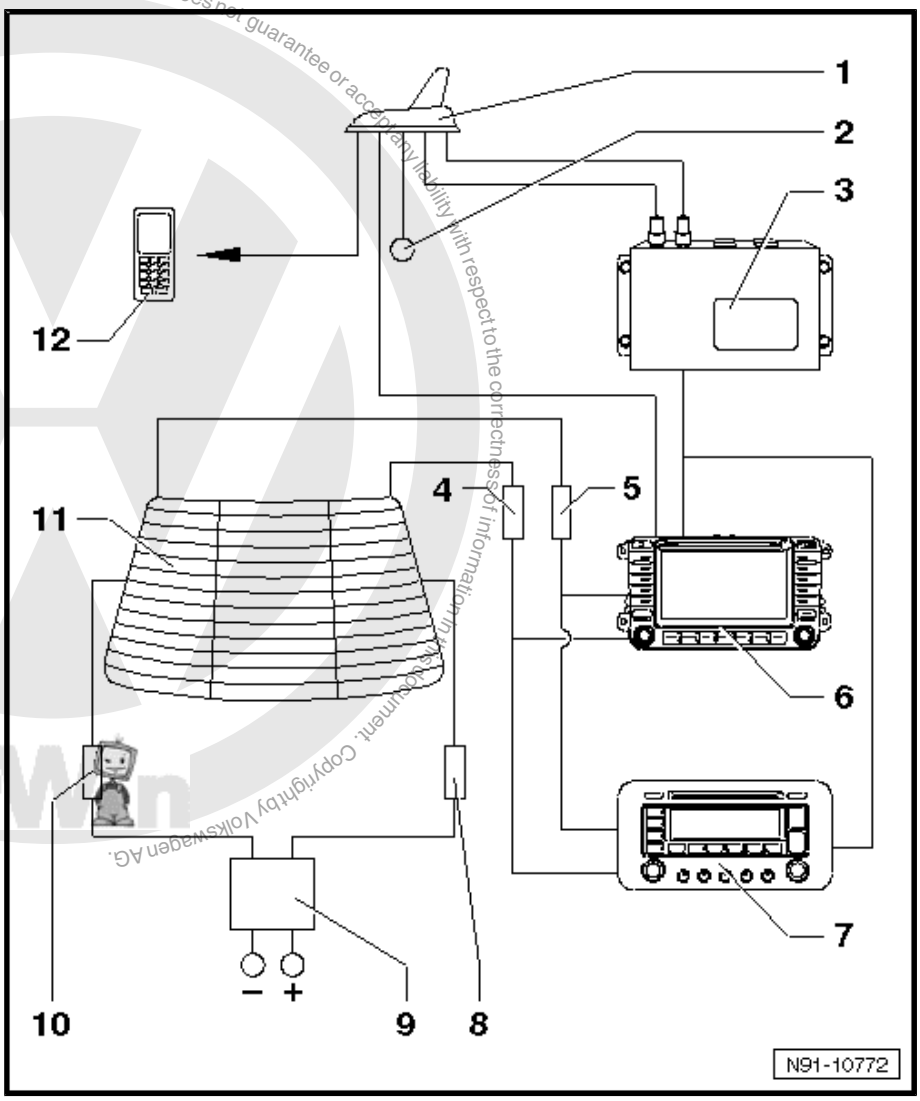
23 - Control unit with display unit for radio and navigation -J503-

- ❑ Radio navigation system “RNS 300”
- ❑ With only one aerial cable for FM/AM radio reception, without diversity function
- ❑ With one aerial cable to the roof aerial for the navigation system

24 - Control unit with display unit for radio and navigation -J503-

- ❑ Radio navigation system “RNS MFD 2” with CD player
- ❑ Radio navigation system “RNS MFD 2 DVD” with DVD player
- ❑ Radio navigation system “RNS 510”

23.5 Overview of aerial system with digital satellite tuner for vehicles for USA and Canada



1 - Satellite tuner aerial -R172-

- ❑ Installed on rear of roof
- ❑ Depending on equipment, for navigation, telephone, satellite reception and Telestart of auxiliary heater
- ❑ As of 11.06 ▸, only one aerial cable between satellite tuner and satellite tuner aerial
- ❑ Removing and installing ⇒ page 171

2 - Aerial cable for remote control of auxiliary heater (Telestart)

3 - Satellite digital radio receiver -R190-

- ❑ Installed under right front seat
- ❑ As of 11.06 ▸, only one aerial cable between satellite tuner and satellite tuner aerial
- ❑ Removing and installing ⇒ page 115

4 - Aerial amplifier -R24-

- ❑ For FM reception
- ❑ Removing and installing ⇒ page 167

5 - Aerial amplifier 2 -R111-

- ❑ For FM/AM reception
- ❑ Removing and installing ⇒ page 167

6 - Control unit with display for radio and navigation -J503-

- ❑ Here “RNS MFD 2 DVD”
- ❑ Here “RNS 510”

7 - Radio -R-

- ❑ Here “Premium Sound System”

8 - Frequency modulation (FM) frequency filter in positive wire -R179-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

9 - Amplitude modulation (AM) frequency filter -R177-

- ❑ Installed in centre section of rear lid
- ❑ Has the task of preventing the aerial signals being shorted to earth
- ❑ Removing and installing ⇒ page 169

10 - Frequency modulation (FM) frequency filter in negative wire -R178-

- ❑ Installed in wiring harness
- ❑ Has the task of preventing the aerial signals being shorted to earth

11 - Rear window aerial -R130-

12 - Telephone system

23.6 Removing and installing aerial amplifier in rear lid, Golf saloon

There are two aerial amplifiers. They are installed on left and right in rear lid directly next to rear window.

Removal and installation of left or right is identical.

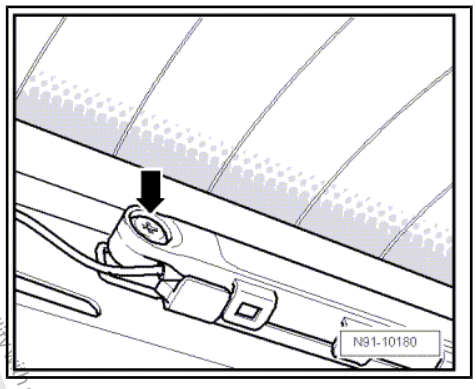
23.6.1 Removing

Before beginning dismantling work, perform the following steps:

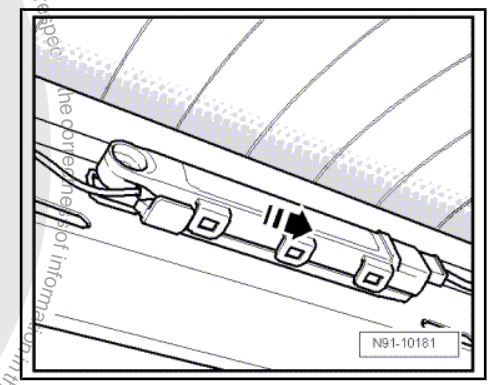
– Switch off ignition and all electrical consumers and remove ignition key.

– To remove aerial amplifier, the complete rear lid trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Removing and installing rear lid trim .

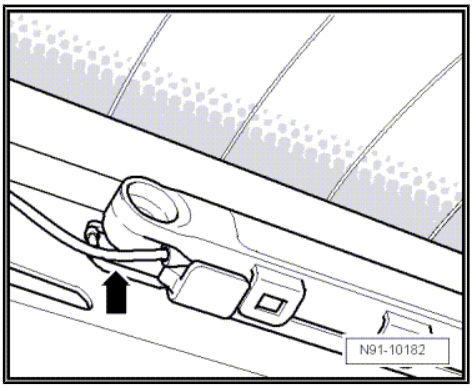
– Remove securing bolt -arrow-.



– Move aerial amplifier in direction of -arrow-.

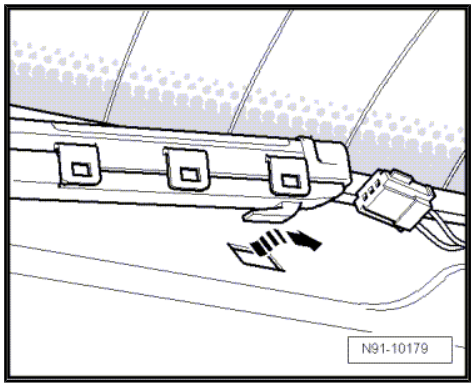


– If this is not as easy as it sounds, open the speed nut slightly -arrow-.



– Remove aerial amplifier in direction of -arrow-.

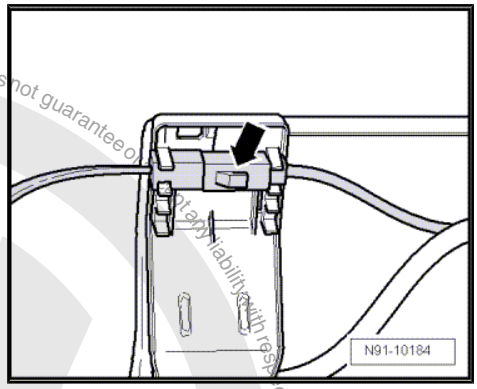
– When removing aerial amplifier, disconnect connector to side window.



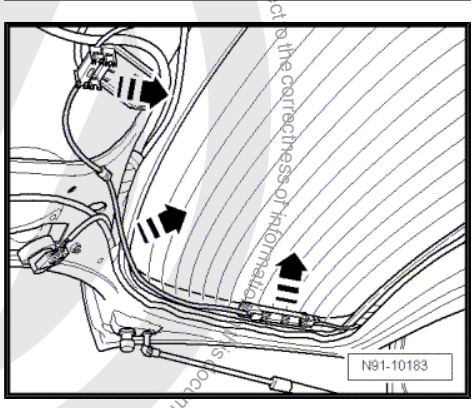
Note

- *When separating wire connection from aerial amplifier to rear window, exercise appropriate care. The wire connection is mechanical and very sensitive. An aerial wire which has been pulled off the rear window cannot be repaired. The entire rear window must be renewed.*
- *If both aerial amplifiers are removed, mark the individual amplifiers with their respective installation locations.*

– Separate connector in tailgate -arrow-.



– Remove the aerial amplifier complete with wiring -arrows-.



23.6.2 Installing

Installation is carried out in the reverse sequence of removal.

During installation, ensure that the amplifiers are fitted in the same locations from which they were removed.

23.7 Removing and installing aerial amplifier in rear lid, Golf Plus

There are two aerial amplifiers. They are installed on left and right in rear lid directly next to rear window.

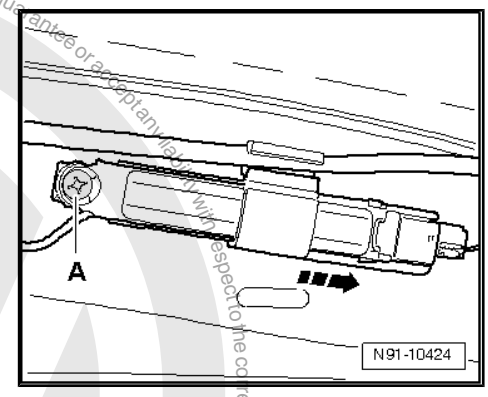
Removal and installation of left or right is identical.

23.7.1 Removing

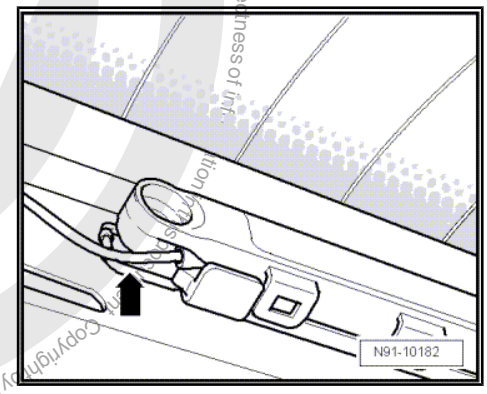
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.

– To remove aerial amplifier, the complete rear lid trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Removing and installing rear lid trim .
– Remove securing bolt -A- and slide aerial amplifier in direction of -arrow-.



– If this is not as easy as it sounds, open the speed nut slightly -arrow-.
– Remove aerial amplifier.
– When removing aerial amplifier, disconnect connector to side window.



Note

- *When separating wire connection from aerial amplifier to rear window, exercise appropriate care. The wire connection is mechanical and very sensitive. An aerial wire which has been pulled off the rear window cannot be repaired. The entire rear window must be renewed.*
- *If both aerial amplifiers are removed, mark the individual amplifiers with their respective installation locations.*

23.7.2 Installing

Installation is carried out in the reverse sequence of removal.

During installation, ensure that the amplifiers are fitted in the same locations from which they were removed.

23.8 Removing and installing amplitude modulation (AM) frequency filter

The frequency filter for amplitude modulation (AM) is installed centrally in the rear lid in the Golf saloon.

The frequency filter for amplitude modulation (AM) is installed on the left in the rear lid in the Golf Plus.

Has the task of preventing the aerial signals being shorted to earth

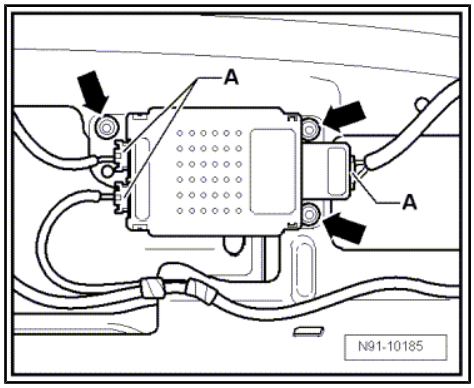
The removal and installation is described for the Golf, but the procedure remains similar for the Golf Plus.

23.8.1 Removing

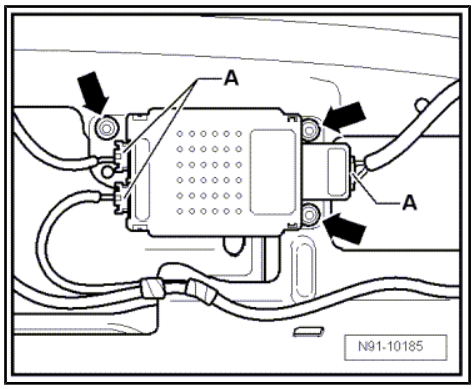
Before beginning dismantling work, perform the following steps:

– Switch off ignition and all electrical consumers and remove ignition key.
– To remove frequency filter, the rear lid trim must be removed ⇒ General body repairs, interior; Rep. Gr. 70 ; Trim, insulation; Removing and installing rear lid trim .

– Remove securing bolts -arrows-.



– Release and disconnect the three connectors. To do this, pull off slightly red clip -A- from each connector and release catch located behind.
– Remove frequency filter.



23.8.2 Installing

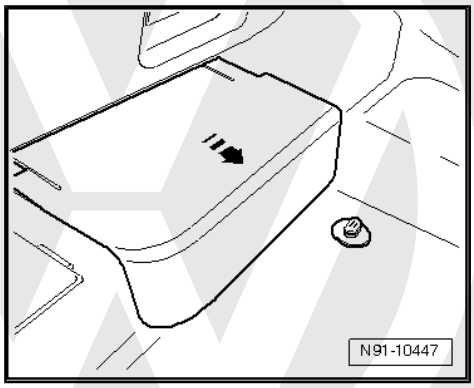
Installation is carried out in the reverse sequence of removal.

23.9 Removing and installing aerial selection control unit

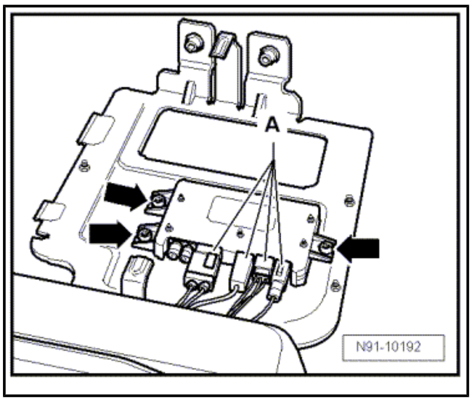
23.9.1 Removing

Before beginning dismantling work, perform the following steps:

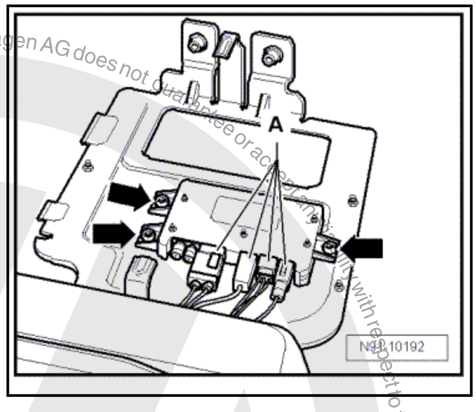
– Switch off ignition and all electrical consumers and remove ignition key.
– Slide front right seat to rearmost position.
– Remove cover under seat in direction of -arrow-.



– Release and disconnect connectors -A-.



– Remove clips -arrows- and control unit.



23.9.2 Installing

Installation is carried out in the reverse sequence of removal.

23.10 Roof aerial

Note

- *The roof aerials for vehicles for USA and Canada are available in the following versions: “navigation only”, “telephone only”, “satellite radio only” or “navigation, telephone and satellite radio”.*
- *There are roof aerials in the following versions: “navigation only”, “telephone only”, “navigation and telephone” or “navigation, telephone and auxiliary heating remote control”.*
- *The roof aerial is available in “dummy”, “shark's fin” or “16 V aerial” versions.*
- *The procedure for working on the “shark's fin” aerial is described in the following. The procedures for the “dummy” and “16 V aerial” versions are similar.*

23.10.1 Removing

– Remove C-pillar trim, ⇒ General body repairs, interior; Rep. Gr. Rep.-Gr. 70 ; Trim, insulation; Pillar trim; Removing and installing C-pillar trim

– Remove both rear grab handles beneath roof.

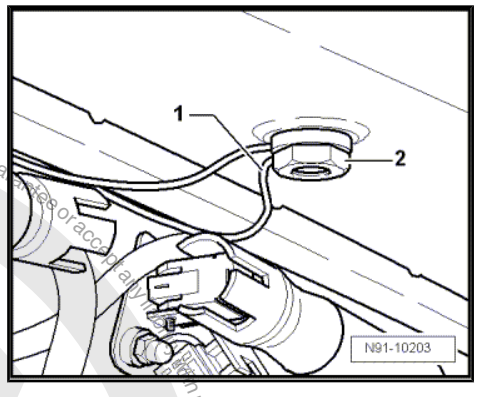
Note

- *In vehicles with curtain airbags, the moulded headliner has to be removed. ⇒ Body; Rep. Gr. 70 ; General body repairs, interior .*
-

– Carefully lower moulded headliner slightly at rear.

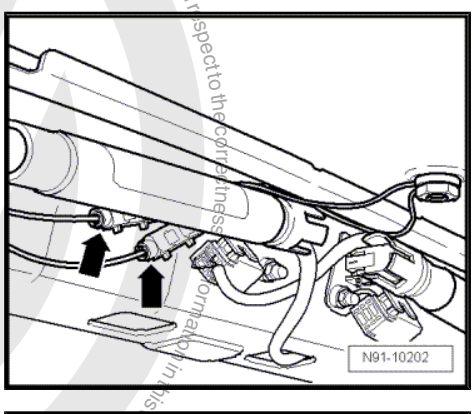
– Remove nut -2-.

For Golf saloon:

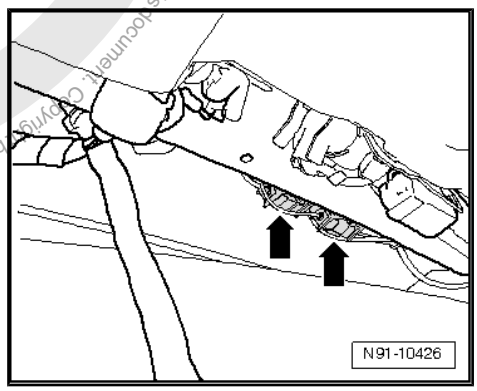


– Release connectors -arrows-, disconnect them and remove roof aerial.

For Golf Plus:



– Release connectors -arrows-, disconnect them and remove roof aerial.



Note

Up to three connectors can be installed here depending on the aerial version.

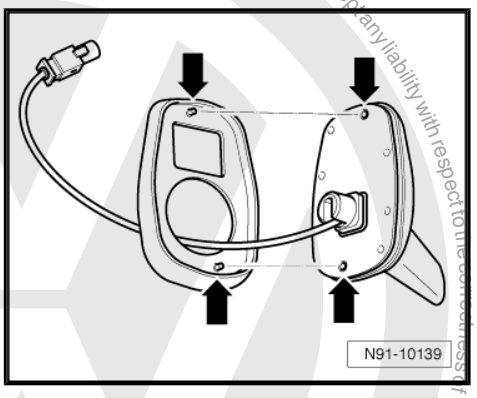
The connector with the violet housing is the wiring connection for the telephone.

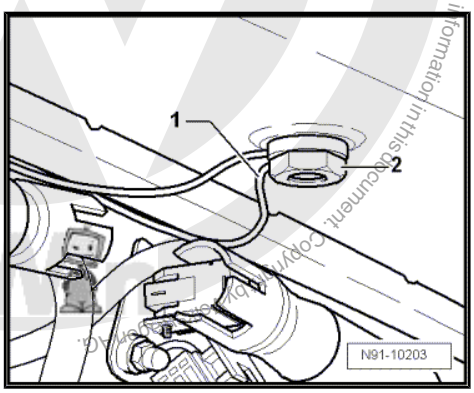
The connector with the blue housing is the wiring connection for the navigation system.

The third possibility would be a connector for auxiliary heating remote control.

23.10.2 Installing

Installation is carried out in the reverse sequence of removal.





Note

- *When positioning the roof aerial for installation, ensure that the seal is seated correctly. The two guide lugs of the seal should be located in the appropriate holes -arrows- in the aerial base.*
- *After installing the roof aerial, ensure that the aerial cables are routed correctly -1- through the hole in the securing nut -2-.*

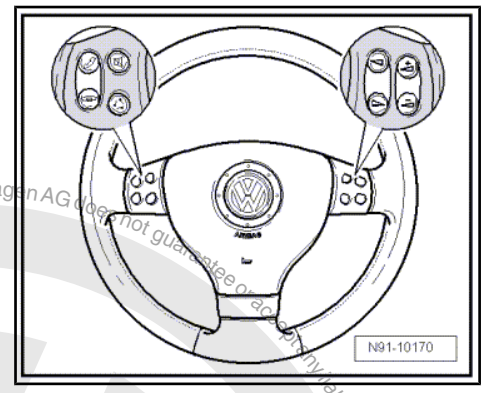
23.11 Renewal of aerial wiring

⇒ Electrical system; Rep. Gr. 97 ; Wiring; Renewal of aerial wiring .

24 Multifunction steering wheel

24.1 General notes

The multifunction steering wheel allows some functions of the communication system and the cruise control system to be selected from the steering wheel.



24.1.1 Fault finding

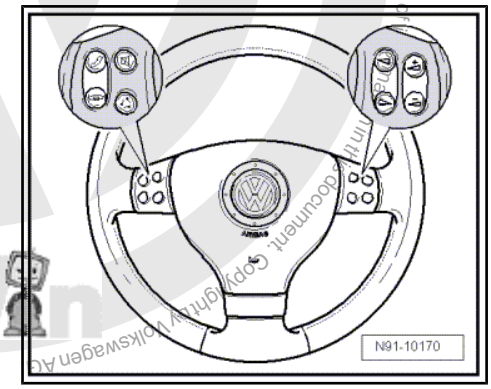
The multifunction steering wheel control unit only communicates with the steering column electronics control unit. There the digital commands are prepared for further communication.

The multifunction steering wheel is equipped with self-diagnosis.

For fault finding, use vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- in “Guided fault finding” mode.

The multifunction steering wheel comprises the following components:

- The operating unit in steering wheel with two sets of buttons on left and right with integrated electronics
- The control unit for the multifunction steering wheel



Note

- *When faced with complaints, it is absolutely necessary to know the functions and operation of the multifunction steering wheel.*
- *Additional information ⇒ Operating Manual*

24.2 Removing and installing steering wheel operating unit

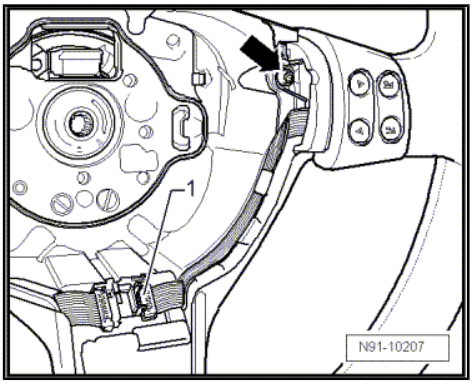
Removal and installation is identical for left and right sets of buttons.

24.2.1 Removing

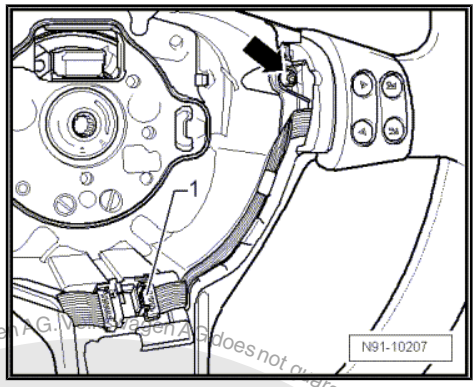
– Remove steering wheel airbag.

– Remove driver airbag ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing driver airbag .

– Pull off connector -1-.



– Unscrew bolt -arrow-.
– Remove button set.



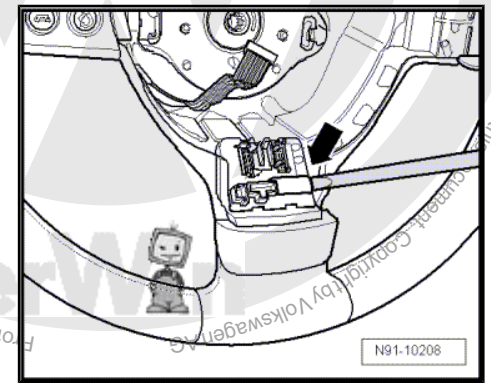
24.2.2 Installing

Installation is carried out in reverse order of removal.

24.3 Removing and installing multifunction steering wheel control unit

24.3.1 Removing

– Remove steering wheel airbag.
– Remove driver airbag ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing driver airbag .
– Disconnect both connectors from control unit.
– Carefully lever out control unit using a suitable screwdriver -arrow-.



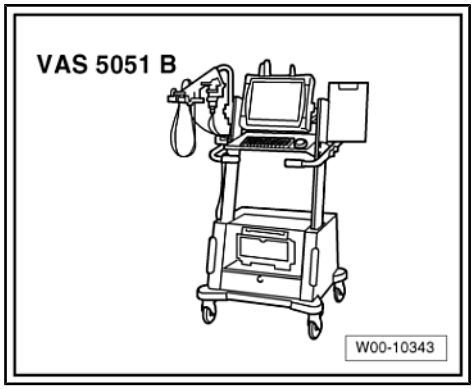
24.3.2 Installing

Installation is carried out in reverse order of removal.

– Code steering column electronics control unit ⇒ Adapting multifunction steering wheel components, ⇒ page 176 .

24.4 Adapting multifunction steering wheel components

24.4.1 Required special tools, workshop equipment, testers, measuring instruments and auxiliary items



- Vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052-
- Diagnostic cable -VAS 5051/5a- or -VAS 5051/6a- or -VAS 5052/3-

Adapting multifunction steering wheel components:

Select “Guided functions” in vehicle diagnostic, testing and information system -VAS 5051- or vehicle diagnostic and service information system -VAS 5052- .

or

Select “Guided fault finding” in the vehicle diagnostic, testing and information system -VAS 5051- or the vehicle diagnostic and service information system -VAS 5052- .

After all control units have been read:

– Press “GoTo” button.
– Select “Function/component selection”.
– Select “Body”.
– Select “Electrical system”.
– Select “01 - On Board Diagnostic (OBD) capable systems”.
– Select “Steering column electronics”.
– Select “Code control unit”.

25 Notes on operating mobile telephones and two-way radios

25.1 General notes

25.1.1 Mobile telephones or portable two-way radios may not be used in the vehicle without a separate external aerial.

- Radio remote controls (e.g. for garage door opener) and portable terminal units (e.g. keyboard or PC mouse) may be used in the vehicle only if the maximum transmitting power does not exceed 100 mW.
- An “e identification” is required for mobile two-way radios (applies for Europe only).
- Mobile telephones or other transmitting equipment (business equipment) which are not original vehicle equipment parts must have a “CE identification” (applies for Europe only).
- It is absolutely necessary to observe the manufacturer's operating and installation instructions for mobile telephones, two-way radios and aerials.
- The optimum unit range can be attained only by using an external aerial.
- When telephone and two-way radio systems are properly installed, there is no danger to safety systems like, for example, ABS or airbags. However, it is a prerequisite that there has been no modification of their installation. Routing wiring parallel to such systems must be avoided.
- When mobile telephones or two-way radios are used, excessive electromagnetic fields may occur in the vehicle interior whether or not the external aerial has been properly installed.

In this case, detrimental effects to health as well as malfunctions of vehicle electronics cannot be ruled out.

25.1.2 The installation and operation of two-way radios with a transmitting power above 10 watts for the radio communication services listed in the table are permitted only under the following conditions:

- The transmitting power at the point of the aerial base must not exceed the respective maximum values (see manufacturer's specifications).
- No deviation from aerial locations listed in the table is permitted.

Transmitting power and aerial fitting locations table ⇒ page 180

25.2 Notes on performing repair work

Batteries must be disconnected before repair work is begun! ⇒ Electrical system; Repair Group 27; Starter, current supply; Battery; Disconnecting and reconnecting batteries

Use valid current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

For removing and installing trim ⇒ General body repairs, interior or ⇒ General body repairs, exterior.

Observe manufacturer's operating and installation instructions for mobile telephones, two-way radios and aerials.

Secure wiring harnesses with cable ties. Wrap connectors with foam tubes to avoid rattling noises.

25.2.1 Transmitting power and possible fitting locations

Volkswagen permits the installation and operation of radio units if the transmitted power at the aerial base listed in the table is not exceeded. Prescribed aerial fitting locations can also be found in the table.

The limits according to VDE 0848 part 2 (maximum permitted radiation strength for human safety) must be adhered to, if necessary, by reducing the transmitting power.

25.2.2 Voltage supply

When a transmitter/receiver unit is retrofitted in the vehicle, the battery is used for connecting the positive and negative wires.

In addition, the wiring harness must be manufactured:

- Positive voltage supply via a red wire with 2.5 mm^2 cross section.
- Negative voltage supply via a brown wire with 2.5 mm^2 cross section.

The positive wire must have a fuse located in the immediate vicinity of the battery. For this purpose, a fuse holder must be secured next to the battery. Both wires must be enclosed in an insulating tube.

Appropriate connections must be attached to wires on the battery side.

Proceed according to unit's operating instructions on side of unit.

The additional wiring must be routed separately from vehicle wiring, and a distance of at least 10 cm must be maintained.

Note

- *Some telephone systems and two-way radios require an additional terminal 15 (ignition). In this case, a black wire with 1.5 mm^2 cross section must be laid from the transmitter/receiver unit to terminal 15a. ⇒ Current flow diagrams, Electrical fault finding and Fitting locations*
- *When laying the wiring, ensure that wiring is not routed parallel to factory wiring.*

25.2.3 Aerial and aerial wiring

A shielded wire must be used between the transmitter/receiver unit and the aerial. The shield must contact both the unit and the aerial.

At the same time, ensure a good and continuous earth connection of the aerial base wire to the vehicle body.

The transmitter must be used only when all components are properly matched with each other to prevent interference in the aerial wiring. To be sure, perform an output test to check and to match the system.

25.2.4 Further additional installations

The installation of further electronic equipment like business equipment (e.g. TV, fax) or household equipment (e.g. electric cooler box) is permitted only if these appliances are marked with a CE or "e" sign (applies only in Europe).

Voltage supply is likewise to be provided via a separate wiring harness and equipped with a fuse.

25.3 Overview of battery, transmitter/receiver unit, fuse and wiring harness

1 - Positive connection

- ❑ Red wire with appropriate connection

2 - To terminal 15a

- ❑ Connection to terminal 15a: ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ❑ Ensure that this wire is protected by a fuse.
- ❑ Fuse maximum 15 A

3 - Aerial earth

- ❑ Ensure good earth connection to body.
- ❑ Treat fitting location of aerial with appropriate corrosion protection.

4 - Transmitter/receiver aerial

- ❑ Fitting locations ⇒ Table ⇒ page 180

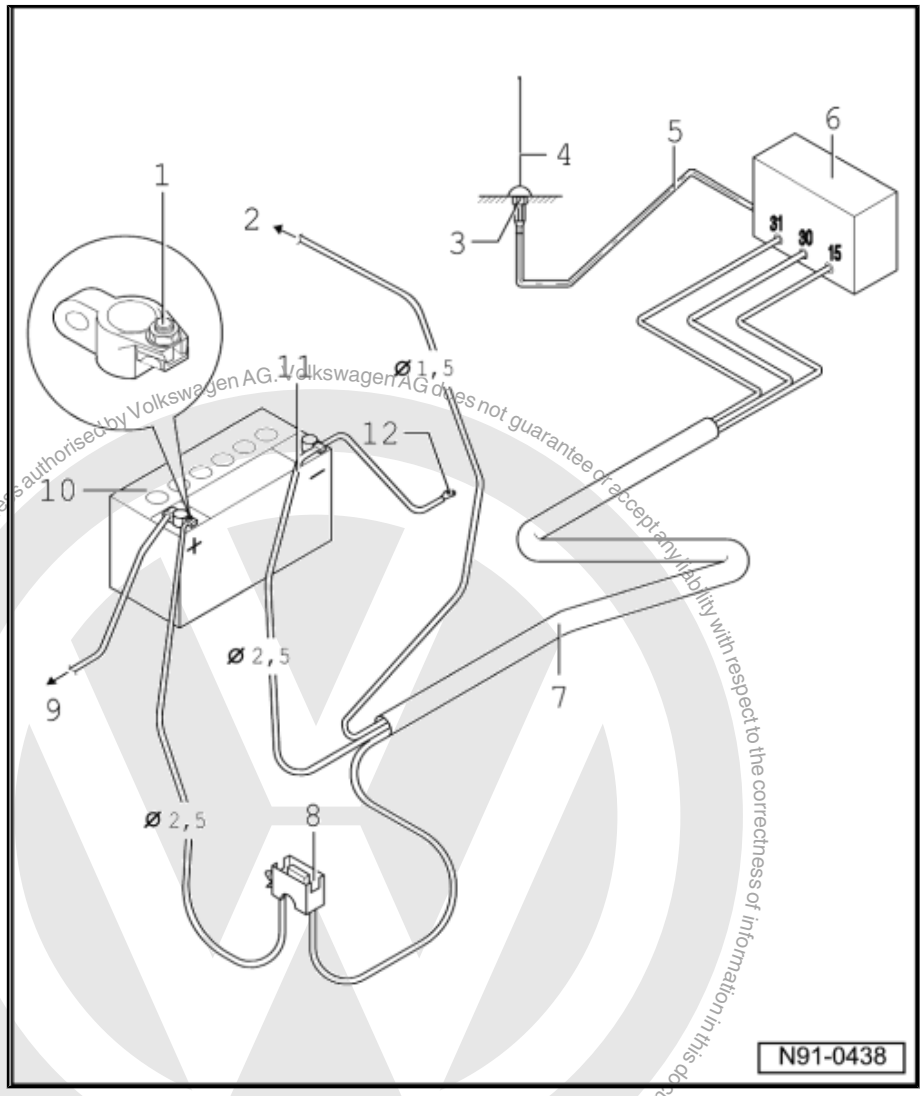
5 - Screened aerial wire

- ❑ Cable with coaxial connector

6 - Transmitter/receiver unit, telephone or two-way radio unit

7 - Wiring harness

- ❑ Positive voltage supply via a red wire with 2.5 mm^2 cross section.
- ❑ Negative voltage supply via a brown wire with 2.5 mm^2 cross section.



- ❑ If necessary, black wire with 1.5 mm^2 cross section to terminal 15a.

8 - Fuse holder

- ❑ Install in immediate vicinity of battery.

9 - To starter

10 - Battery

- ❑ Fitting location in engine compartment

11 - Negative wire

12 - Body earth

25.4 Transmitting power and aerial fitting locations

25.4.1 Golf 2004 ▸

Note

The legislation concerning improved pedestrian protection prohibits an installation on bumpers.

Designation	Pmax (watts)	Prescribed aerial fitting locations
Short wave < 54 MHZ	100 (PEAK)[1)]	Front centre of roof Centre of roof Rear centre of roof
4 m frequency band	20 (effective)[2)]	All locations (on vehicle exterior)
2 m frequency band	20 (effective)	Front wing Front centre of roof
2 m frequency band	50 (effective)	Centre of roof Rear centre of roof
70 cm	50 (effective)	Front centre of roof Centre of roof Rear centre of roof
23 cm	20 (effective)	All locations (on vehicle exterior)
TETRA/ TETRAPOL	25 (effective)	All locations (on vehicle exterior)
D network GSM 900	20 (PEAK)	All locations (on vehicle exterior)
E network GSM 1800 GSM 1900 UMTS	10 (PEAK)	All locations (on vehicle exterior)

1) PEAK = peak envelope power (max. carrier power)

2) effective = effective transmitting power

Note

- *Deviations from these specifications (aerial fitting location, frequency, power) are permitted only in specially justified exceptions following a single-case test performed by the EMC Centre of the VW AG in Wolfsburg*
- *EMC = electromagnetic compatibility*

26 Suppression measures

26.1 Implementation of suppression measures

All electrical consumers in the vehicle are individually suppressed at factory.

This includes all sensors, actuators and all electrical motors in the vehicles as well as the controllers in the control units which might create high-frequency interference.

To suppress interference, electrical components such as capacitors, coils and diodes are directly installed in the electrical components.

Interference-suppressing components are also installed in the connector housings of electrical consumers.

The earth cable formerly employed for suppression is no longer used because suppression measures need to be applied as close as possible to the sources of interference.