



Workshop Manual e-up! 2014 > up! 2012 >

Communication

Edition 12.2017



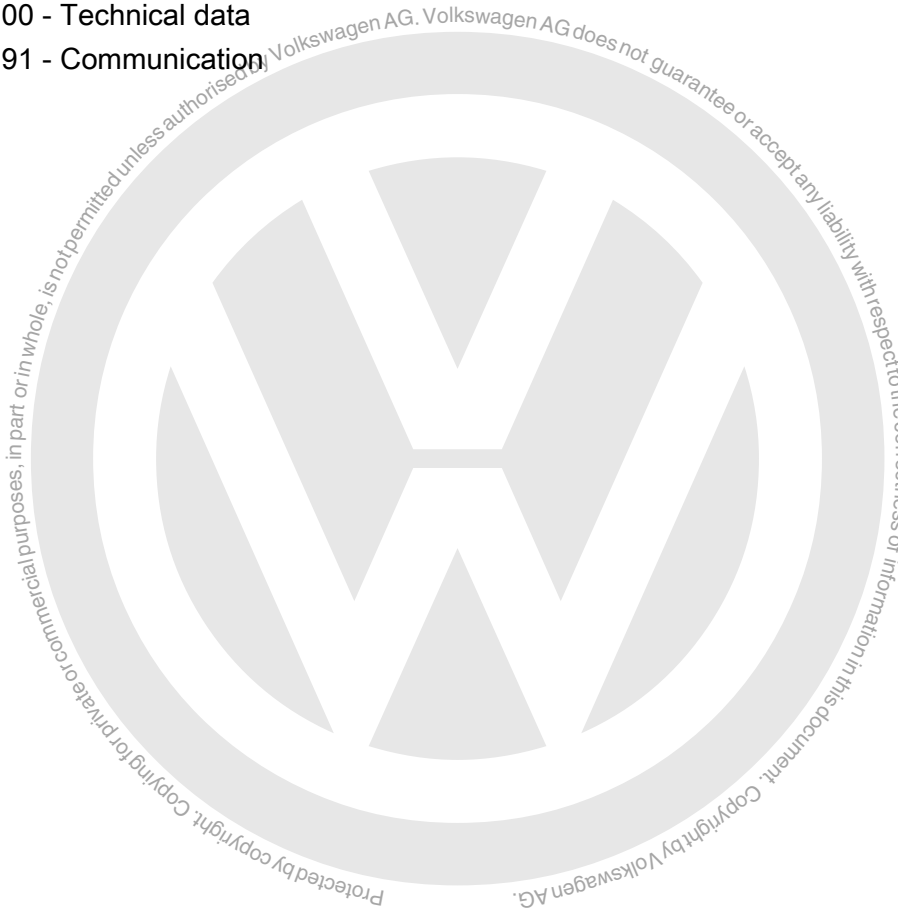


List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

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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00 – Technical data

1 Notes on operating mobile telephones and two-way radios

(VRL011191; Edition 12.2017)

⇒ [“1.1 General information”, page 1](#)

⇒ [“1.2 Notes on performing repair work”, page 2](#)

⇒ [“1.3 Overview of battery, transmitter and receiver unit, fuse and wiring harness”, page 3](#)

⇒ [“1.4 Transmitting power and aerial fitting locations”, page 5](#)

1.1 General information

⇒ [“1.1.1 Mobile telephones or portable two-way radios may not be used in the vehicle without a separate external aerial”, page 1](#)

⇒ [“1.1.2 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:”, page 1](#)

1.1.1 Mobile telephones or portable two-way radios may not be used in the vehicle without a separate external aerial

- ◆ Remote controls (e.g. for garage door opener) and cordless units (e.g. keyboard or PC mouse) may only be used in the vehicle if the transmitted output is max. 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 “CE identification” (applies to 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.

1.1.2 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 (see unit manufacturer's specifications) must not exceed the relevant maximum values.
- No deviation from aerial locations listed in the table is permitted.

Transmitting power and aerial fitting locations table
⇒ [page 5](#).

1.2 Notes on performing repair work

⇒ ["1.2.1 Transmitting power and possible fitting locations", page 2](#)

⇒ ["1.2.2 Voltage supply", page 2](#)

⇒ ["1.2.3 Aerial and aerial wiring", page 3](#)

⇒ ["1.2.4 Further additional installations", page 3](#)

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 trims ⇒ workshop manuals 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.

1.2.1 Transmitting power and possible fitting locations

Volkswagen permits the installation and operation of radio transmitter units if the transmitted power at the point of 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.

1.2.2 Voltage supply

If a transceiver is retrofitted in the vehicle, the battery is used to connect the positive and negative wires.

In addition, the wiring harness must be manufactured:

- ◆ Positive voltage supply via a red wire with 2.5 mm² cross section.
- ◆ Negative voltage supply via a brown wire with 2.5 mm² 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 mm² cross section must be routed from the transceiver 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.*

1.2.3 Aerial and aerial wiring

A shielded wire must be used between the transceiver and the aerial. The shield must contact both the unit and the aerial.

At the same time, ensure a good and continuous earth connection between the aerial base point cable and 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.

1.2.4 Further additional installations

The installation of additional electronic devices such as 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.

1.3 Overview of battery, transmitter and 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 and receiver aerial

- Fitting locations ⇒ Table on page ⇒ [page 5](#)

5 - Shielded aerial cable

- Cable with coaxial connector

6 - Telephone or 2-way radio transceiver

7 - Wiring harness

- Positive voltage supply via a red wire with 2.5 mm² cross section.
- Negative voltage supply via a brown wire with 2.5 mm² cross section.
- If necessary, black wire with 1.5 mm² cross section to terminal 15a.

8 - Fuse holder

- Install in immediate vicinity of battery

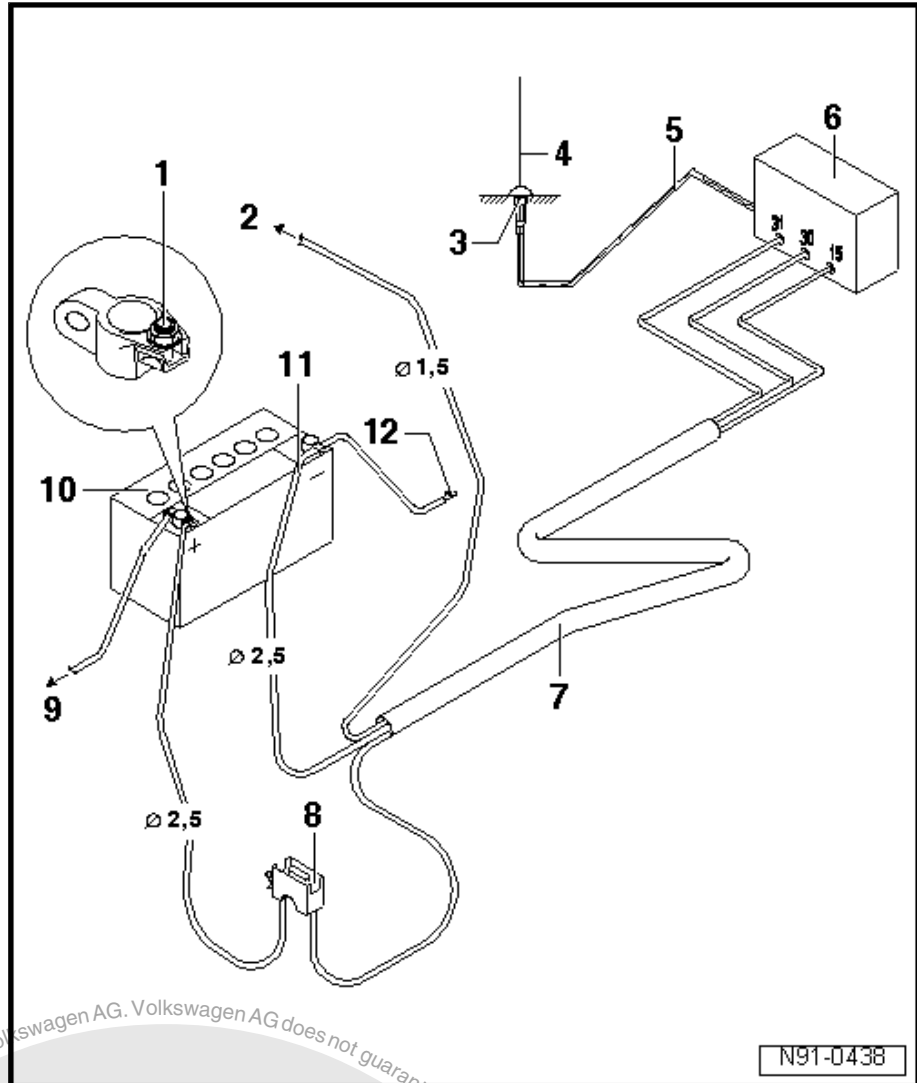
9 - To starter

10 - Battery

- Fitting location in engine compartment

11 - Negative wire

12 - Body earth





1.4 Transmitting power and aerial fitting locations

⇒ "1.4.1 Up", page 5

1.4.1 Up



Note

Installation of aerials on bumpers is now prohibited by law. This improves pedestrian protection during accidents.

Designation	Pmax (watts)	Prescribed aerial fitting locations
Short wave < 54 MHz	100 (Peak) ¹⁾	All locations on 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 Centre of roof Rear 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/ TETRAPOD	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*



2 Suppression measures

⇒ **“2.1 Implementation of suppression measures”, page 6**

2.1 Implementation of suppression measures

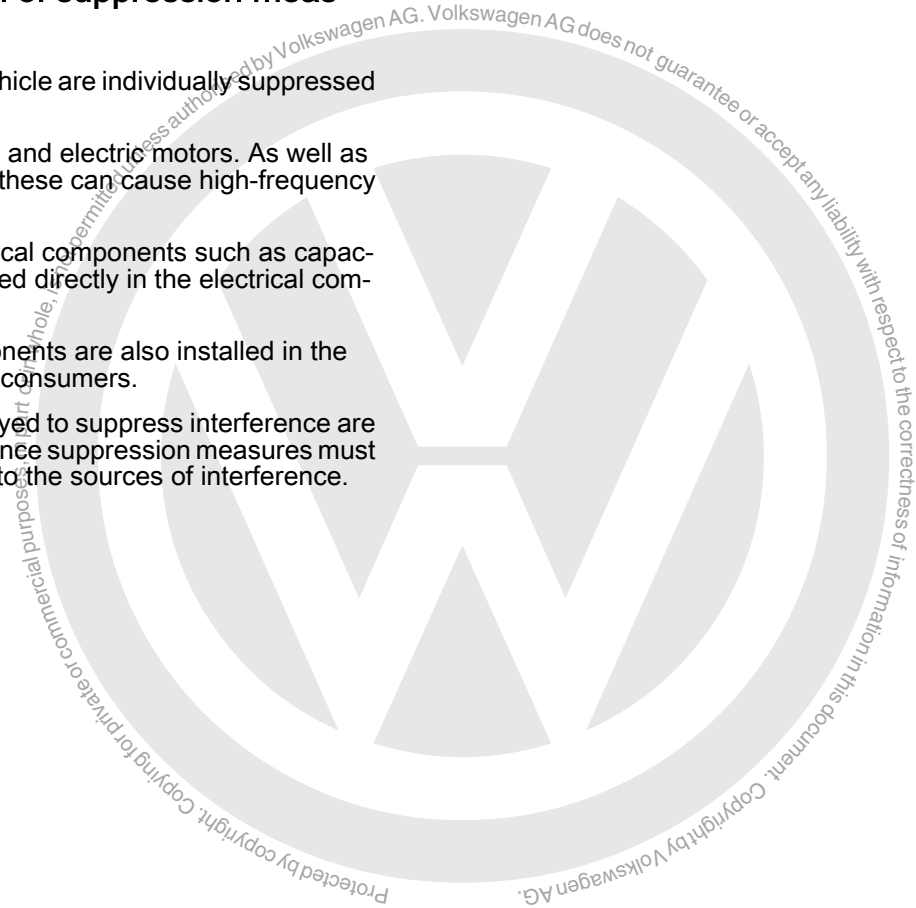
All electrical consumers in the vehicle are individually suppressed at factory.

This includes sensors, actuators and electric motors. As well as the controller in the control unit, these can cause high-frequency interference.

To suppress interference, electrical components such as capacitors, coils and diodes are installed directly in the electrical components.

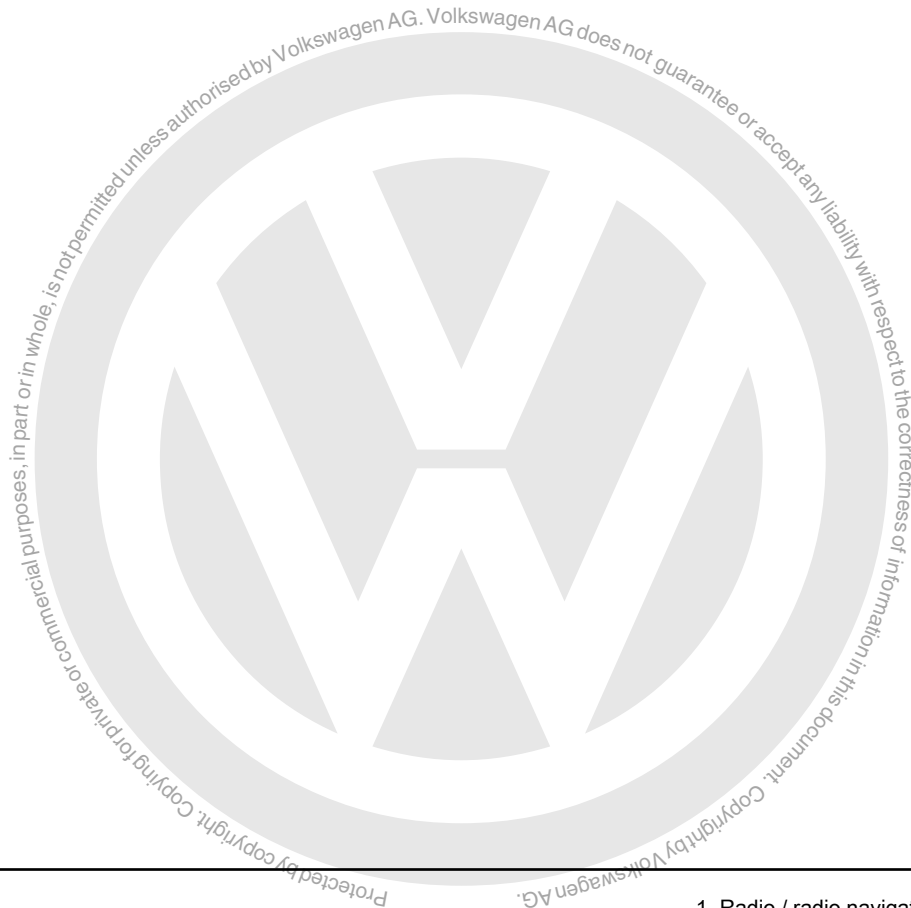
Interference-suppressing components are also installed in the connector housings of electrical consumers.

The earth cables formerly employed to suppress interference are no longer used because interference suppression measures must be applied as close as possible to the sources of interference.





91 – Communication





1 Radio / radio navigation systems

⇒ [“1.1 Components of radio / radio navigation systems”, page 8](#)

⇒ [“1.2 Overview of fitting locations - radio/radio navigation systems”, page 13](#)

⇒ [“1.3 Removing and installing radio and radio/navigation systems”, page 14](#)

⇒ [“1.4 Pin assignments”, page 17](#)

1.1 Components of radio / radio navigation systems

⇒ [“1.1.1 Radio system RCD 215”, page 8](#)

⇒ [“1.1.2 Portable navigation and infotainment system J982”, page 11](#)

1.1.1 Radio system “RCD 215”

View of radio “RCD 215”

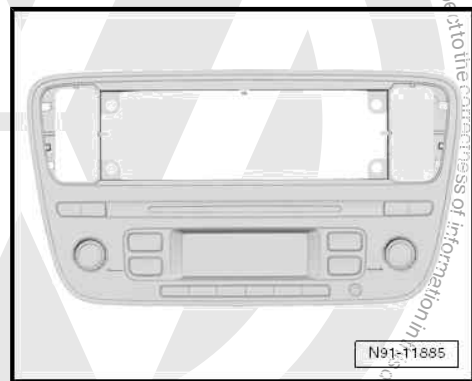
The “RCD 215” radio system consists of the radio and the loudspeakers. For further information, refer to the chapter entitled Sound system ⇒ [page 20](#)

- ◆ Features of the “RCD 215” radio ⇒ [page 8](#)
- ◆ Anti-theft coding ⇒ [page 9](#).



Note

- ◆ *When faced with complaints, it is absolutely necessary to understand the function and the operation of the radio.*
- ◆ *Additional information ⇒ Operating manual*
- ◆ *The anti-theft coding uses a fixed code ⇒ [page 9](#).*
- ◆ *In the event of repair work or for fault finding, use the vehicle diagnostic tester in “Guided fault finding” or “Guided functions” mode.*
- ◆ *⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics etc.) according to the workshop manual and/or operating manual.*



Features of the “RCD 215”

Radio “RCD 215” has following features:

- ◆ Display: monochrome
- ◆ FM simple tuner
- ◆ CD drive
- ◆ Universal preparation for mobile telephone (UTP) - Low (mono input)
- ◆ Mp3 with ID3 tag
- ◆ FM/AM European radio
- ◆ 2 or 4 x 20 watt output power
- ◆ AUX-IN connection



- ◆ External CD changer connection without mp3
- ◆ Support for multifunction steering wheel
- ◆ Speed-dependent volume control (GALA)
- ◆ Self-diagnosis, including loudspeaker diagnosis
- ◆ CAN, TP 2.0
- ◆ Convenience coding

The CD drive integrated into the radio can play the following CD formats:

- ◆ CD-R
- ◆ CD-RW
- ◆ Mp3



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 designed as a roof aerial and has no “diversity function”.

Anti-theft coding

The radio is equipped with electronic comfort anti-theft protection, 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 re-connected in the same vehicle.

The anti-theft code can be determined by means of the vehicle diagnostic tester. The radio card used in the past and the sticker on the radio have been discontinued.

- ◆ Determining the code of the anti-theft coding system
⇒ [page 9](#)
- ◆ Deactivating electronic anti-theft coding system ⇒ [page 10](#)

Determining the code of the anti-theft coding system



Note

To determine the anti-theft code, the vehicle diagnostic tester must have an “online” connection (network connection) and the user must be authorised to interrogate the radio code.



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

- ◆ Vehicle diagnostic tester

Using vehicle tester to determine anti-theft code of electronic anti-theft system:

Select "Guided functions" or "Guided fault finding" in the vehicle diagnostic tester.



Note

When installing radios 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 or the radio navigation system. In this case, please enter the unit number manually. It can be found on the sticker affixed to the unit and is also stamped onto 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 on radio.

The unit automatically displays "SAFE" for about 10 seconds and then "1000" permanently. There is no need to press any buttons.

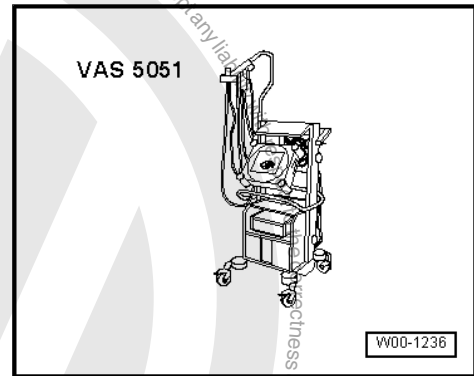
The position of the code number to be set is shown via an "_X_" on the display, above the multifunction buttons.

- Using the multifunction buttons displayed, enter the previously determined code number 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 beneath the word "OK". The unit is then ready to operate again and switches to its last operating state.



Note

If an incorrect anti-theft code has been entered on deactivating the electronic lock, "SAFE" flashes on 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 device is blocked for approx. one hour. This means that it cannot be operated. This lock is indicated by the fact that "SAFE" is permanently displayed. The display of the number of attempts is cleared after one hour, during which the unit and the ignition must be switched on. The electronic lock can be deactivated again as described above. The »two attempts, blocked for one hour« cycle still applies.





1.1.2 Portable navigation and infotainment system - J982-

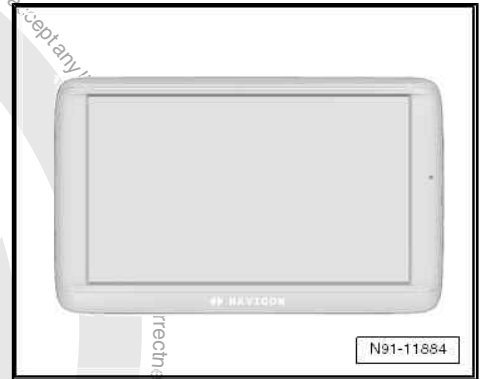
View of portable navigation and infotainment system - J982-

Features of portable navigation and infotainment system - J982-
⇒ [page 11](#)



Note

- ◆ *In case of complaints, it is absolutely necessary to understand how the portable navigation and infotainment system - J982- functions and how it is operated by the user.*
- ◆ *Additional information ⇒ Operating manual*
- ◆ *⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics etc.) according to the workshop manual and/or operating manual.*



Features of portable navigation and infotainment system - J982-

The portable navigation and infotainment system - J982- has many diverse functions and multimedia features.

The main features of the portable navigation and infotainment system - J982- are:

- ◆ General ⇒ [page 11](#)
- ◆ Navigation ⇒ [page 11](#)
- ◆ Hands-free telephone system ⇒ [page 12](#)
- ◆ Radio functions ⇒ [page 12](#)
- ◆ Media functions ⇒ [page 12](#)
- ◆ Eco functions ⇒ [page 12](#)
- ◆ Onboard computer ⇒ [page 12](#)
- ◆ Additional information displayed ⇒ [page 12](#)

General features:

- ◆ 5" TFT colour display
- ◆ Resistive Touch technology
- ◆ SD card/mp3
- ◆ Bluetooth
- ◆ Integrated microphone
- ◆ Integrated TMC tuner

Navigation functions:

- ◆ Multi Route Guidance
- ◆ Entry of destination on map
- ◆ TMC-based continuous updating
- ◆ 2.5D - Birdview
- ◆ 2D detailed map
- ◆ 2D Extended Lane Guidance
- ◆ Parking space finder



- ◆ Petrol station finder when fuel tank is empty
- ◆ Pedestrian mode

Hands-free telephone functions:

- ◆ SDS/TTS
- ◆ SMS
- ◆ Bluetooth (HFP, A2DP, AVCRP, PBAP)
- ◆ Telephone mute

Radio functions

- ◆ CD player control
- ◆ Radio control
- ◆ Volume adjustment
- ◆ Adjustment of sound quality

Media functions:

- ◆ Picture Viewer
- ◆ Micro SD card
- ◆ Stereo audio (A2DP) transmission of audio signals from a paired telephone/mp3 player via Bluetooth
- ◆ Media player control (AVRCP) transmission of video signals from a paired telephone/mp3 player via Bluetooth
- ◆ SMS access (MAP) for displaying SMSs and reading them out aloud Replies are not possible

Eco functions:

- ◆ ECO Monitor. Provides graphic feedback of ECO driving characteristics
- ◆ ECO Shift. Evaluation of gear-shifting behaviour.
- ◆ ECO Swim. Evaluation of anticipatory driving.
- ◆ ECO Challenge/consumption. Evaluation of consumption on the basis of a predefined ECO consumption rate. GPS-based routing with consumption versus time

Onboard computer:

- ◆ Consumption
- ◆ Range
- ◆ Kilometres driven
- ◆ Average speed

Additional information displayed

- ◆ Rev. counter
- ◆ Ambient temperature
- ◆ Coolant temperature
- ◆ Recommendation to shift up a gear
- ◆ Time
- ◆ PDC display



1.2 Overview of fitting locations - radio/radio navigation systems

⇒ **"1.2.1 Fitting locations overview - RCD 215 and portable navigation and infotainment system J982", page 13**

1.2.1 Fitting locations overview - "RCD 215" and portable navigation and infotainment system - J982-

1 - Portable navigation and infotainment system - J982-

- Portable navigation and infotainment system - J982- ⇒ [page 11](#)

2 - Radio - R-

- RCD 215
- Removing and installing ⇒ [page 14](#)
- Overview of connectors
- Anti-theft coding

3 - Aerial - R11-

- Installed as a simple short-rod aerial on the roof at the rear
- For further information, refer to chapter Aerial systems ⇒ [page 25](#).

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

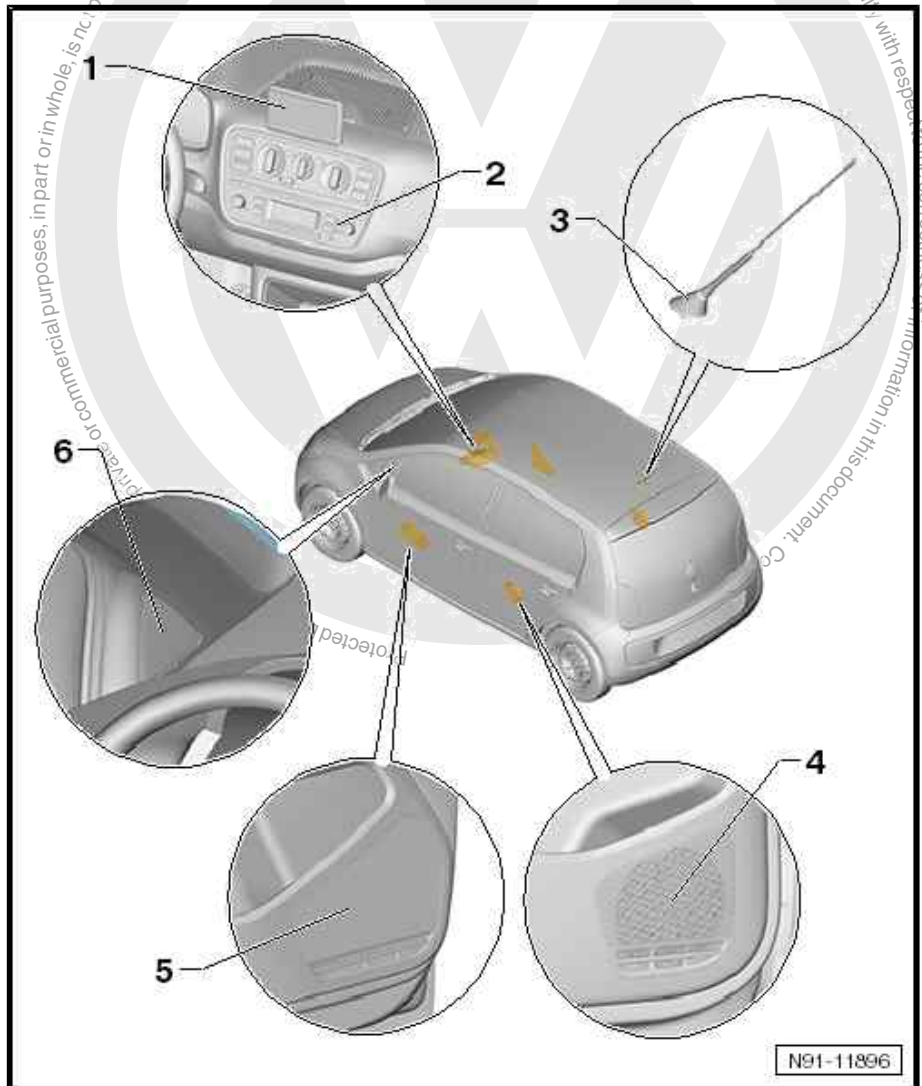
- Installed in left and right side panel trims in passenger compartment.
- For further information, refer to chapter entitled Sound system ⇒ [page 20](#)

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

- Installed in left and right doors
- Mid-range sounds are handled by the bass and treble loudspeakers.
- For further information, refer to chapter entitled Sound system ⇒ [page 20](#)

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

- Installed in A-pillar trims on left and right
- For further information, refer to chapter entitled Sound system ⇒ [page 20](#)





1.3 Removing and installing radio and radio/ navigation systems

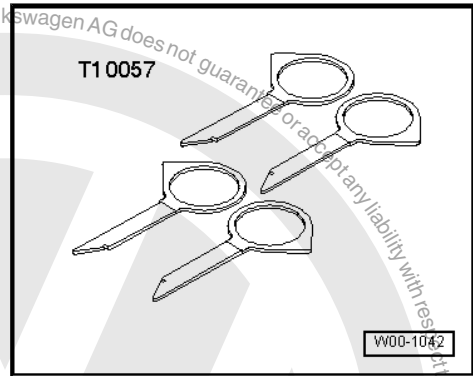
⇒ ["1.3.1 Removing and installing RCD 215"](#), page 14

⇒ ["1.3.2 Removing and installing interface for portable navigation
and infotainment system J983"](#), page 16

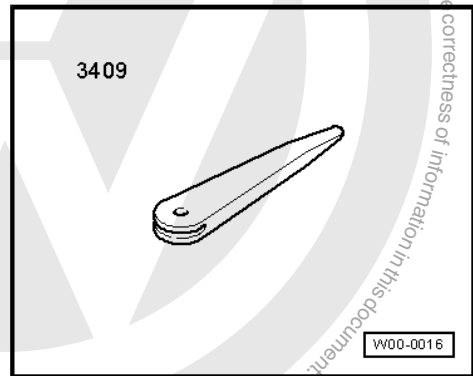
1.3.1 Removing and installing "RCD 215"

Special tools and workshop equipment required

◆ Radio release tool - T10057-

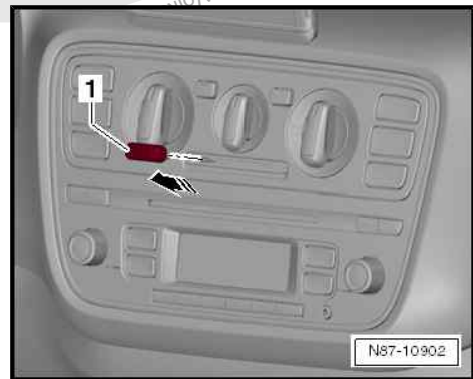


◆ Removal wedge - 3409-



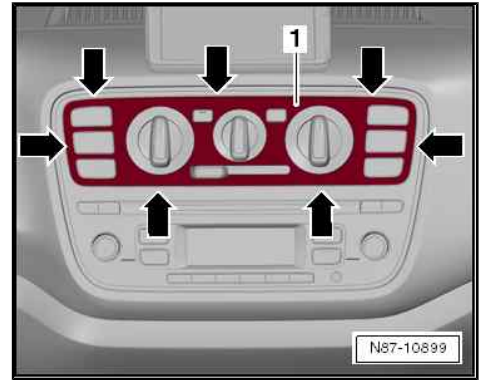
Removing:

- Remove air recirculation switch -1- in direction of arrow

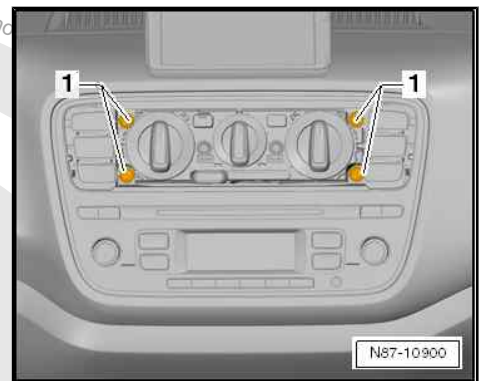




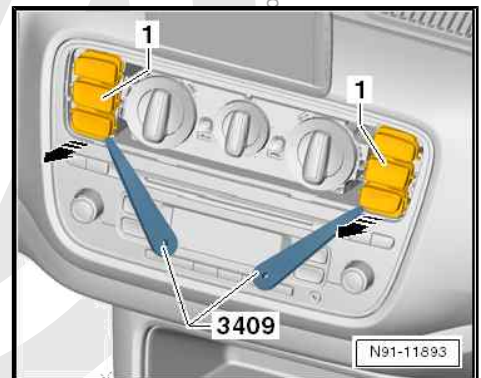
- Unclip trim -1- applying removal wedge - 3409- at -arrows- and remove trim -1-.



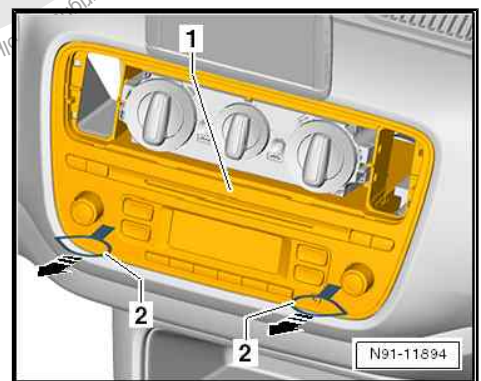
- Remove bolts (1.5 Nm).



- Remove switch units -arrows- with help of removal wedge - 3409- and detach connectors.



- Insert radio release tools - T10057- into openings provided -arrows- until they engage.
- Pull radio out together with trim and detach aerial connector.

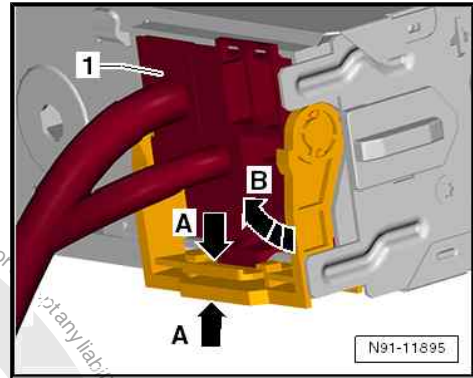




- Squeeze connector locking mechanism -A- and swivel locking latch in direction -B-.

Installing:

Installation is carried out in the reverse sequence of removal.



1.3.2 Removing and installing interface for portable navigation and infotainment system - J983-

i Note

The interface for portable navigation and infotainment system - J983- is only to be removed together with the wiring harness.

1 - Interface for portable navigation and infotainment system - J983-

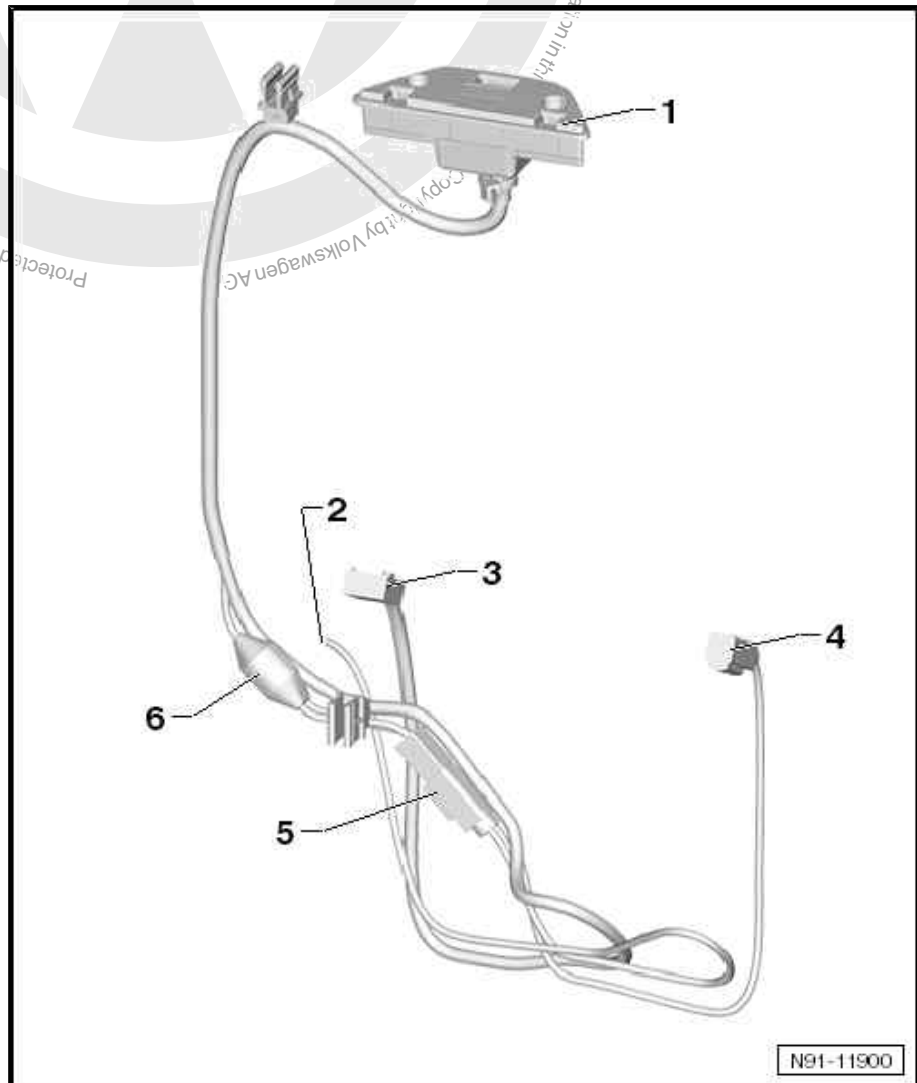
2 - Junction for KSK roof aerial

3 - 12-pin connector integrated in four-block connector connected to radio

4 - Aerial terminal on radio

5 - Aerial connector

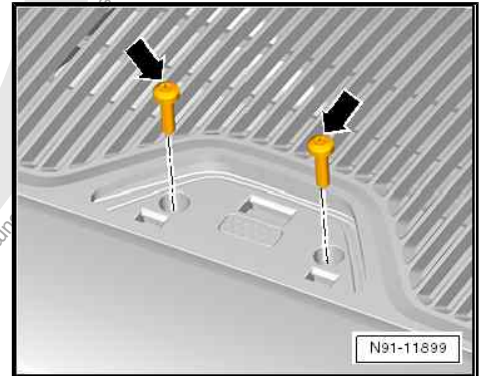
6 - Splitter for aerial



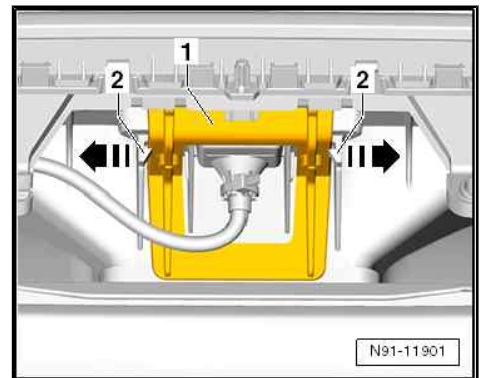


Removing:

- => ["1.3: Removing and installing radio and radio/navigation systems", page 14](#)
 - Remove air-conditioning control and display unit => Air-conditioning system; Rep. gr. 87 ; Control and display unit
- or
- Remove heater control and display unit => Heater; Rep. gr. 80 ; Control and display unit
 - Remove bracket and, if necessary, portable navigation and infotainment system - J982- .
 - Unscrew bolts -arrows-.
 - Remove 12-pin connector from four-block connector.
 - Detach aerial wire from radio.



- Unclip and remove retaining bracket -1- from the holder -2-.
- Pull off retaining clips for wiring harness.
- Remove interface for portable navigation and infotainment system - J983- upwards together with wiring harness.



Installing:

Installation is carried out in the reverse sequence of removal.



Note

When installing, ensure that wires are fitted in place correctly in order to avoid damage.

1.4 Pin assignments

=> ["1.4.1 Connector pin assignment for the RCD 215", page 17](#)

1.4.1 Connector pin assignment for the "RCD 215"



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

- ❑ Pin assignment
⇒ [page 18](#)

2 - Multi-pin connector 2, 8-pin, voltage supply, CAN bus

- ❑ Pin assignment
⇒ [page 19](#)

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

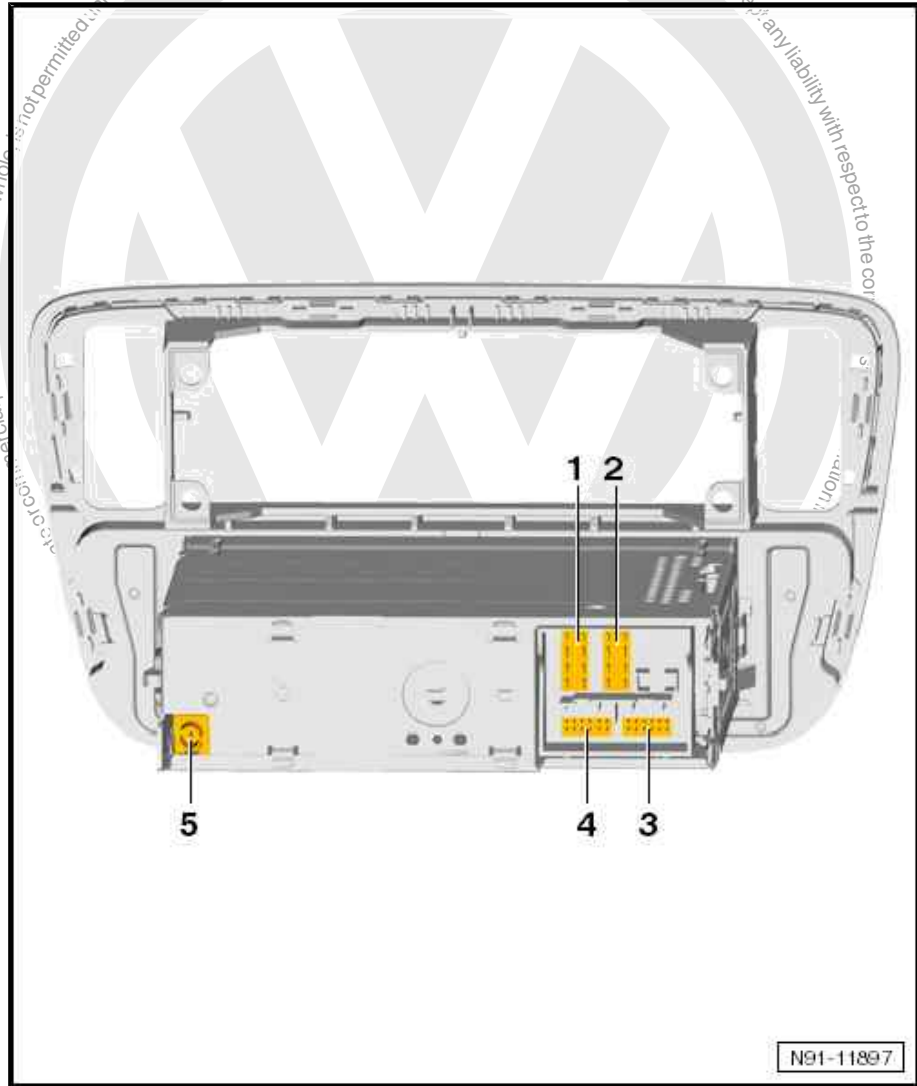
- ❑ Pin assignment
⇒ [page 19](#)

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

- ❑ Pin assignment
⇒ [page 19](#)

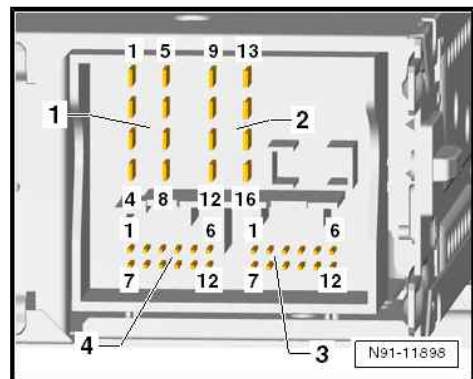
5 - Connector 5, aerial connection

- ❑ Connector colour beige
- ❑ Connection for aerial cable to aerial



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





Multi-pin connector 2, 8-pin, voltage supply, CAN bus

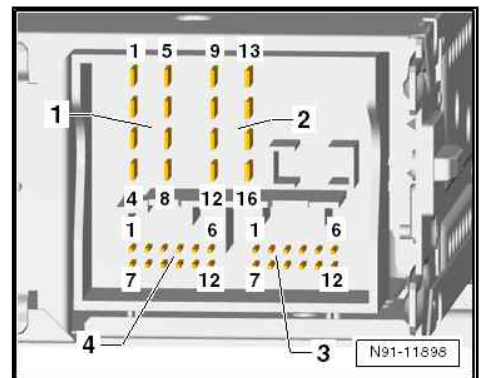
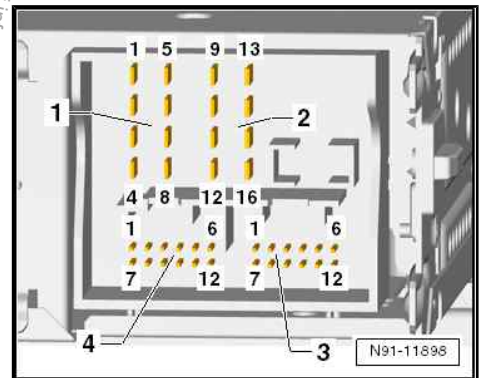
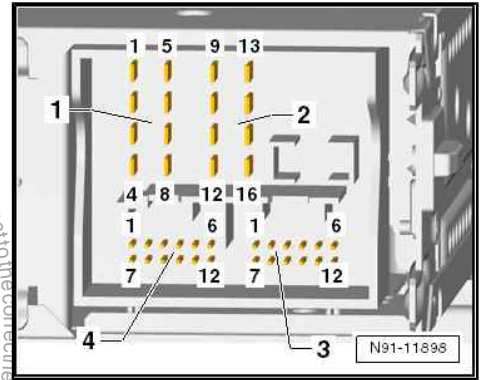
- 9 - CAN bus, High
- 10 - CAN bus, Low
- 11 - Not assigned
- 12 - Negative connection, terminal 31
- 13 - Not assigned
- 14 - Not assigned
- 15 - Positive connection, terminal 30
- 16 - Control signal for anti-theft coding, SAFE

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

- 1-5 - Not assigned
- 6 - Telephone LF signal input, negative
- 7-9 - Not assigned
- 10 - Telephone mute
- 11 - Not assigned
- 12 - Telephone LF signal input, positive

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

- 1 - Not assigned
- 2 - Not assigned
- 3 - PID audio, negative
- 4 - PID voltage supply, positive
- 5 - Not assigned
- 6 - PID, DATA OUT bus
- 7 - PID, negative
- 8 - PID audio left
- 9 - PID audio right
- 10 - PID control signal
- 11 - PID, DATA IN bus
- 12 - Not assigned





2 Sound system

⇒ [“2.1 Overview of fitting locations - sound system”, page 20](#)

⇒ [“2.2 Removing and installing front bass loudspeakers”, page 21](#)

⇒ [“2.3 Removing and installing rear bass loudspeakers”, page 22](#)

⇒ [“2.4 Removing and installing front treble loudspeakers”, page 23](#)

2.1 Overview of fitting locations - sound system



Note

- ◆ *In conjunction with the radio, the front loudspeaker system consists of a 2-way system with one bass loudspeaker and one treble loudspeaker in the left and right front doors and one treble loudspeaker in the left and right front A-pillar trims. One bass loudspeaker is installed on each side at the rear. The mid-range sounds are output by the treble and bass loudspeakers.*
- ◆ *All loudspeakers are passive loudspeakers.*



1 - Front right treble loudspeaker - R22-

- Installed in A-pillar trim on right
- ⇒ ["2.4 Removing and installing front treble loudspeakers", page 23](#)

2 - Bass loudspeaker, front right - R23-

- Installed in right door
- ⇒ ["2.2 Removing and installing front bass loudspeakers", page 21](#)

3 - Bass loudspeaker, rear right - R17-

- Installed in right side panel trim in passenger compartment.
- ⇒ ["2.3 Removing and installing rear bass loudspeakers", page 22](#)

4 - Bass loudspeaker, rear left - R15-

- Installed in left side panel trim in passenger compartment.
- ⇒ ["2.3 Removing and installing rear bass loudspeakers", page 22](#)

5 - Bass loudspeaker, front left - R21-

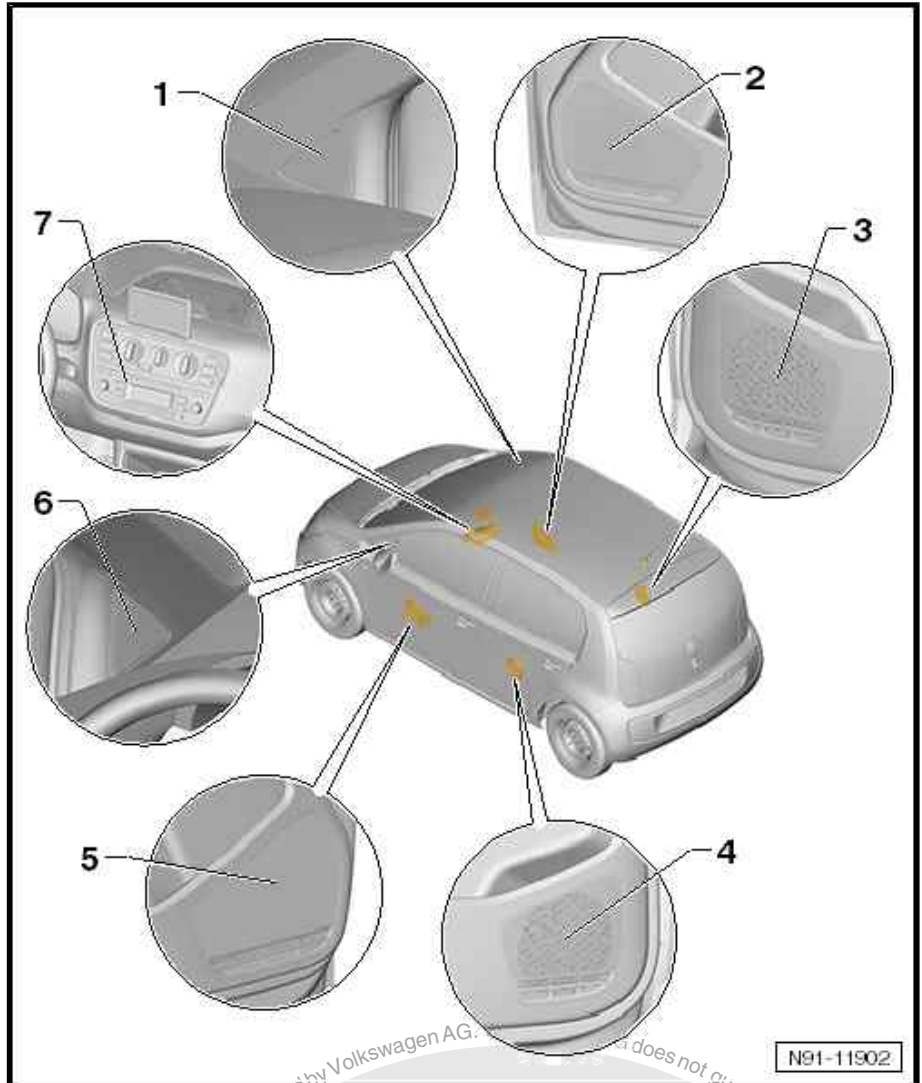
- Installed in left door
- ⇒ ["2.2 Removing and installing front bass loudspeakers", page 21](#)

6 - Front left treble loudspeaker - R20-

- Installed in A-pillar trim on left
- ⇒ ["2.4 Removing and installing front treble loudspeakers", page 23](#)

7 - Radio - R-

- Optional portable navigation and infotainment system - J982-
- ⇒ ["1.1.2 Portable navigation and infotainment system J982", page 11](#)



2.2 Removing and installing front bass loudspeakers



Note

Removal and installation is performed in the same manner on the left and right sides.

Removing

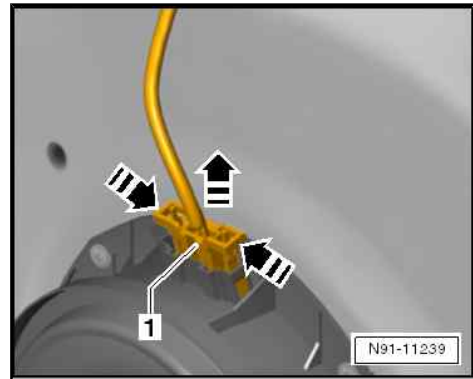
Before beginning dismantling work, perform the following steps:

- Switch off ignition and all electrical consumers, and withdraw ignition key.



In order to replace a loudspeaker, the door trim must first be removed ⇒ Trims/insulation; Rep. gr. 70 ; Door trims

- Squeeze connector lock at loudspeaker in -direction of arrows- and pull out connector -1-.

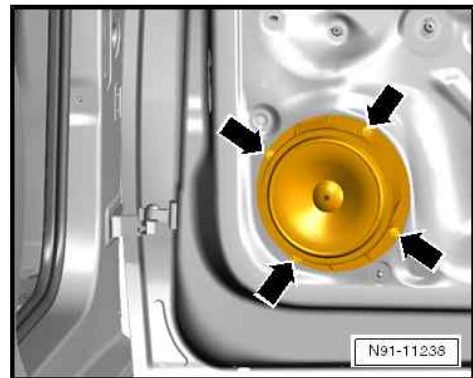


- Drill out rivets -arrows- using a suitable drill bit (< 4.5 mm). Remove loudspeaker.



Note

- ◆ *It is essential that all swarf be removed from the door because otherwise corrosion damage will occur.*
- ◆ *Immediately rectify any damage to paintwork caused when drilling out rivets.*



Installing

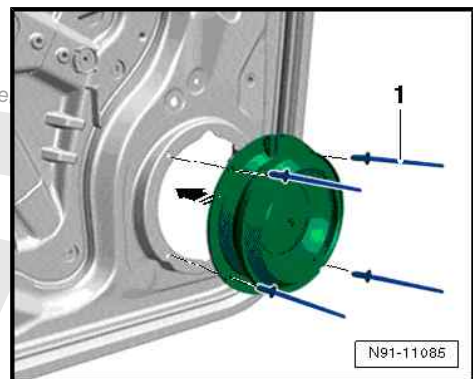
- Insert loudspeaker in -direction of arrow- and secure with 4 rivets -1-.



Note

When installing new loudspeaker, secure with special pop rivets (note part number!)

- Push connector back onto loudspeaker.
- Further installation is carried out in reverse order.



2.3 Removing and installing rear bass loudspeakers



Note

Removal and installation is performed in the same manner on the left and right sides.

Removing

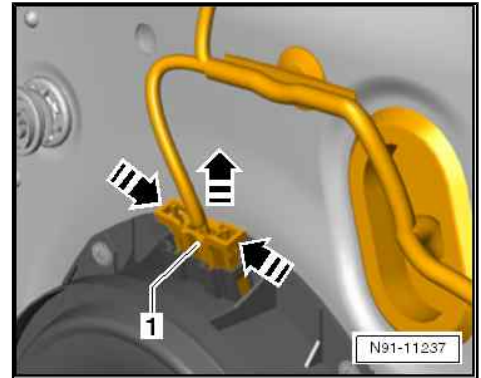
Before beginning dismantling work, perform the following steps:

- Switch off ignition and all electrical consumers, and withdraw ignition key.

To renew a loudspeaker, the side wall trim must first be removed ⇒ Trims/insulation; Rep. gr. 70 ; Interior trims



- Squeeze connector lock at loudspeaker in -direction of arrows- and pull out connector -1-.



- Drill out rivets -arrows- using a suitable drill bit (< 4.5 mm). Remove loudspeaker.



Note

- ◆ It is essential that all swarf be removed from the door because otherwise corrosion damage will occur.
- ◆ Immediately rectify any damage to paintwork caused when drilling out rivets.

Installing

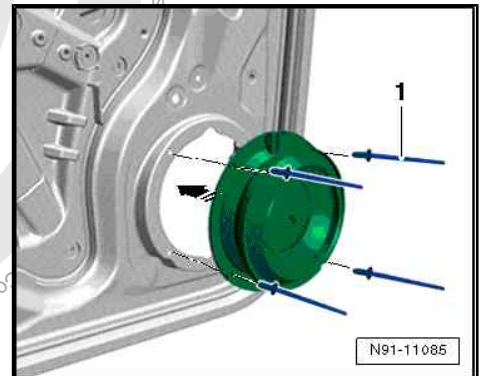
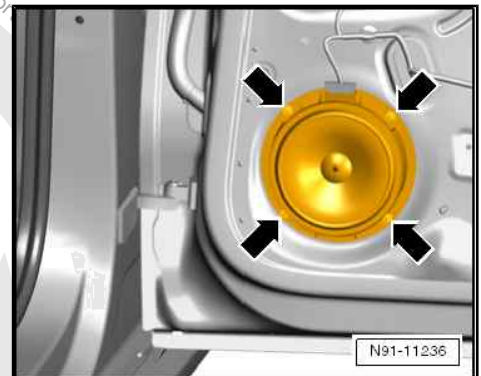
- Insert loudspeaker into trim and secure with 4 rivets.



Note

When installing the new loudspeaker, secure it with special blind rivets (note part number).

Further installation is carried out in reverse order.



2.4 Removing and installing front treble loudspeakers



Note

Removal and installation is performed in the same manner on the left and right sides.

Removing

Before beginning dismantling work, perform the following steps:

- Switch off ignition and all electrical consumers, and withdraw ignition key.

To renew a loudspeaker, the A-pillar trim must first be removed
 ⇒ Trims/insulation; Rep. gr. 70 ; Interior trims



- Detach connector -1- from treble loudspeaker -2-.

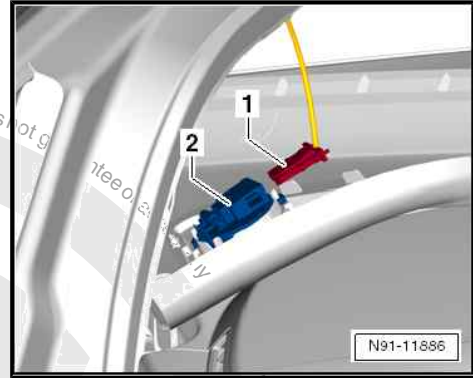
Installing



Note

The treble loudspeaker and the A-pillar trim are installed as a unit and therefore can only be renewed together. Note trim colour number when ordering spare part.

Installation is carried out in the reverse sequence of removal.





3 Aerial systems

⇒ [“3.1 General information”, page 25](#)

⇒ [“3.2 Overview of fitting locations - aerial systems”, page 25](#)

⇒ [“3.3 Removing and installing roof aerial”, page 26](#)

⇒ [“3.4 Repairing aerial cables”, page 27](#)

3.1 General information

For radios without diversity function, the aerial system consists of a roof aerial.



Note

- ◆ *When faced with complaints, it is absolutely necessary to understand the functions and operation of the radio 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.*

For repair work or fault finding, use the vehicle diagnostic tester in “Guided fault finding” or “Guided functions” mode.

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

3.2 Overview of fitting locations - aerial systems

⇒ [“3.2.1 Aerial system of RCD 215 and portable navigation and infotainment system J982”, page 25](#)

3.2.1 Aerial system of “RCD 215” and portable navigation and infotainment system - J982-



1 - Radio - R-

- ⇒ ["1.1 Components of radio / radio navigation systems", page 8](#)

2 - Aerial wire

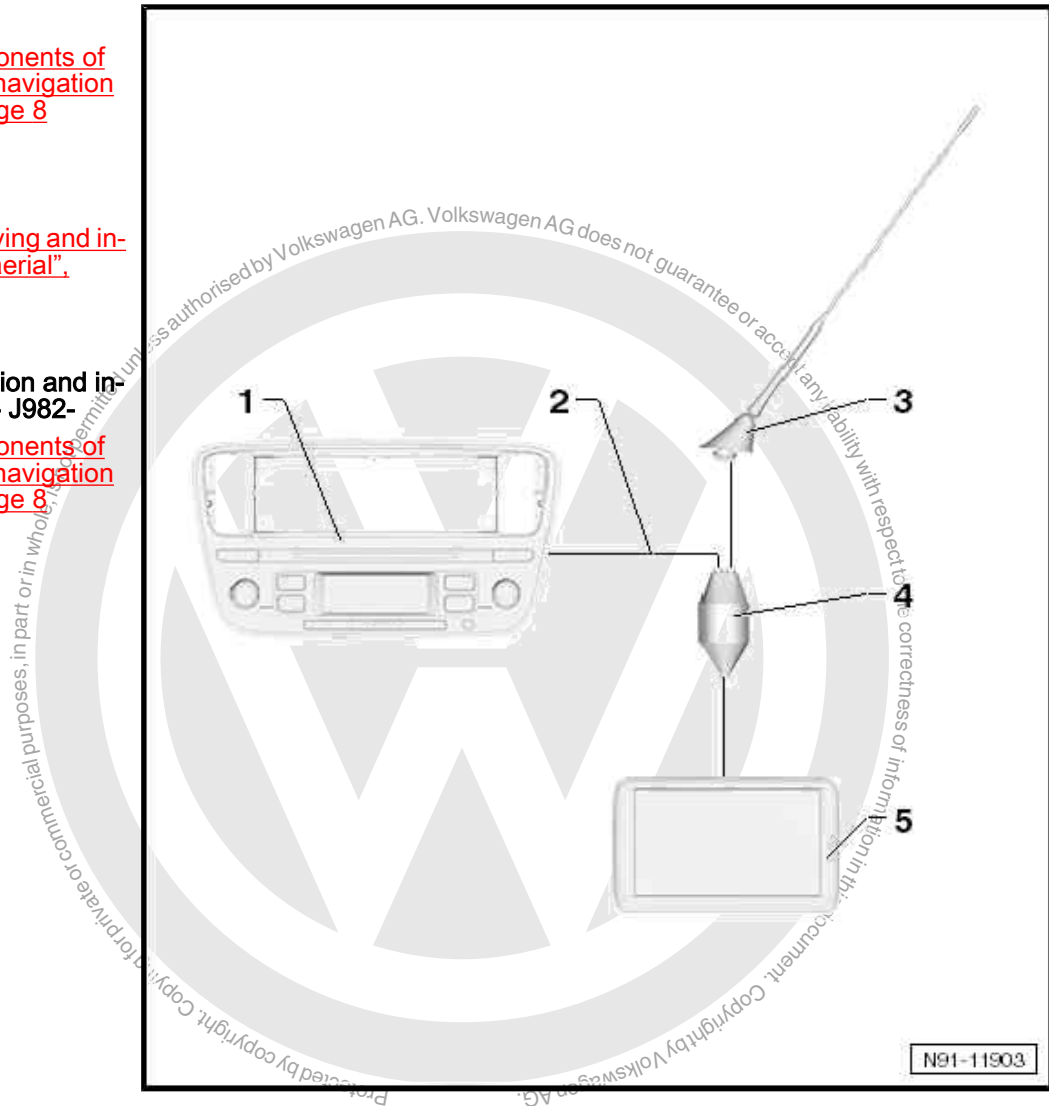
3 - Aerial - R11-

- ⇒ ["3.3 Removing and installing roof aerial", page 26](#)

4 - Splitter

5 - Portable navigation and infotainment system - J982-

- ⇒ ["1.1 Components of radio / radio navigation systems", page 8](#)



3.3 Removing and installing roof aerial

Removing:

- Lower moulded headlining ⇒ Trim/insulation; Rep. gr. 70 ; Trim, insulation; Roof trim; Removing and installing moulded headlining .
- Remove C-pillar trim ⇒ Trim/insulation; Rep. gr. 70 ; Trims, interior; Assembly overview – C-pillar trim .
- Remove left and right B-pillar trim ⇒ Trim/insulation; Rep. gr. 70 ; Trims, interior; Assembly overview – B-pillar trim .
- Lower moulded headliner carefully.
- Unplug aerial cable connector.



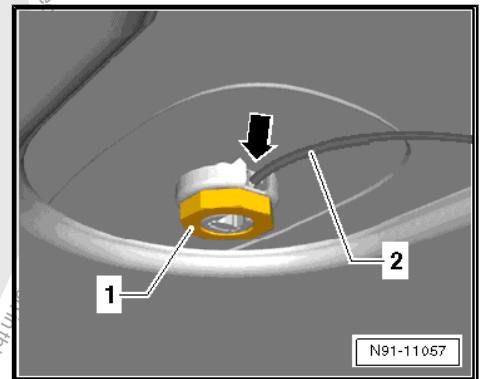
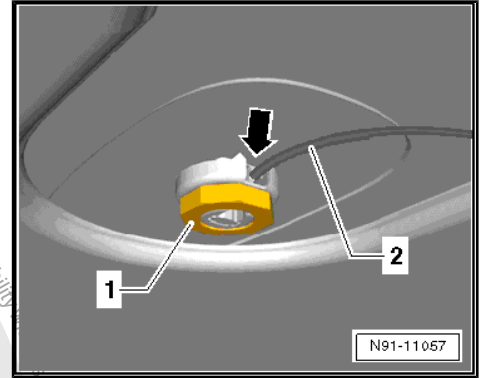
- Unscrew nut -1- securing roof aerial.
- Take roof aerial out upwards.

Installing:

Installation is carried out in the reverse sequence of removal.

Note

- ◆ When positioning the aerial for installation, ensure that the seal is seated correctly. The two guide lugs of the seal must be located in the relevant holes -arrows- of the aerial base.
- ◆ After installing the aerial, ensure that the aerial wiring -2- is routed correctly through the hole -arrow- in the securing nut -1-.



3.4 Repairing aerial cables

⇒ Electrical System, General Information; Rep. gr. 97 : Wiring;
Renewal of aerial wiring .



4 Car-Net

4.1 General information

Mobile online services are available only in conjunction with a radio/RNS - RX1- .

Fault finding

The mobile online services system is capable of self-diagnosis.

For fault finding ⇒ Vehicle diagnostic tester use “Guided Fault Finding” mode.

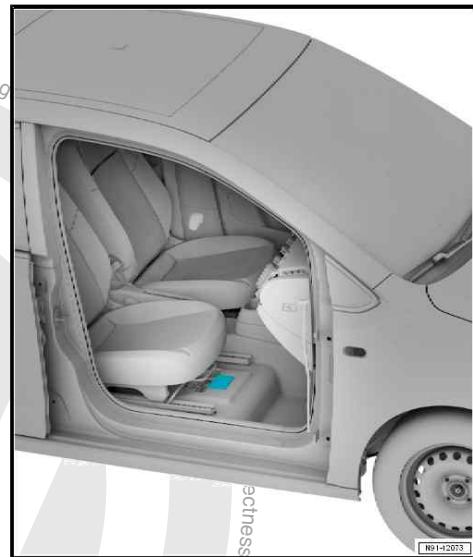


Note

- ◆ *In order to deal with complaints, it is absolutely necessary to understand the functions of the mobile online services system.*
- ◆ *Additional information can be found in the ⇒ Operating manual and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *When the battery is connected, check operation of electrical equipment (clock, convenience electronics and so on) according to the workshop manual ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery and/or to the ⇒ Operating manual .*

4.2 Overview of fitting locations - Car-Net services

4.2.1 Overview of fitting locations - Car-Net services



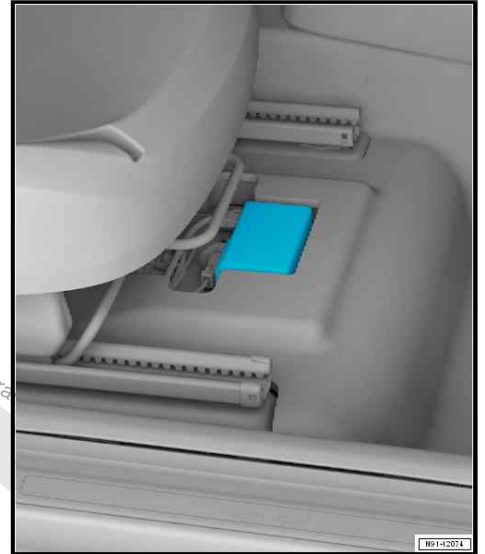
4.3 Removing and installing emergency call module control unit and communication unit - J949-

Removing:

- Remove seat ⇒ Trim/insulation; Rep. gr. 70 ; Front seat; Removing and installing front seat



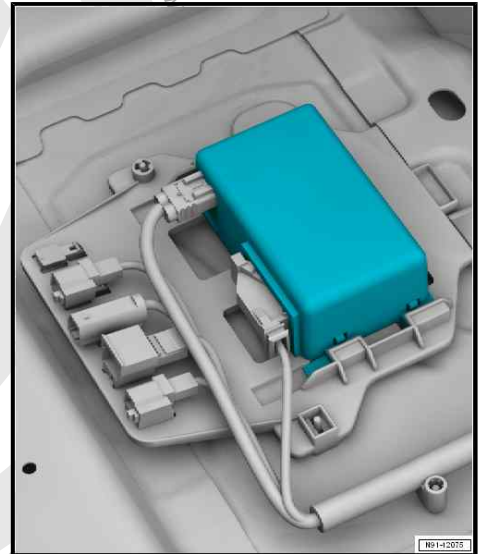
- Remove plastic screw and fold carpet.



- Pull emergency call module control unit and communication unit - J949 - out of bracket and separate connectors.

Installing:

- Installation is carried out in the reverse sequence of removal.



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