

Workshop Manual

Audi Q3 2012 ➤

Audi Q3 China 2013 ➤

Communication

Edition 12.2016



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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

91 - Radio, telephone, navigation



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

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00 – Technical data

1 Safety precautions

(ARL005023; Edition 12.2016)

⇒ [“1.1 Safety precautions when working on vehicles with start/stop system”, page 1](#)

⇒ [“1.2 Safety precautions when using testers and measuring instruments during a road test”, page 1](#)

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1.1 Safety precautions when working on vehicles with start/stop system

Note the following when working on vehicles with start/stop system:



WARNING

Risk of injury due to automatic engine start.

- ◆ *On vehicles with activated start/stop system (this is indicated by a message in the dash panel insert), the engine can start automatically if necessary.*
- ◆ *Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

1.2 Safety precautions when using testers and measuring instruments during a road test

Please note the following points if testers and measuring instruments have to be used while test driving the vehicle:



WARNING

Risk of accident due to driver distraction and if test equipment is not secured safely.

Risk of injury if front passenger's airbag is triggered in an accident.

- *Operating test equipment when driving causes a distraction.*
- *High risk of injury if test equipment is not secured safely.*
- ◆ *Always secure test equipment to rear seat with a strap; it must be operated from there by a second person.*

91 – Radio, telephone, navigation

1 Infotainment system

⇒ [“1.1 Layout - infotainment system”, page 2](#)

⇒ [“1.2 Overview of fitting locations - infotainment system”, page 4](#)

⇒ [“1.3 Removing and installing infotainment system display”, page 6](#)

⇒ [“1.4 Removing and installing control unit 1 for information electronics J794”, page 10](#)

⇒ [“1.5 Pin assignment”, page 12](#)

1.1 Layout - infotainment system

MMI navigation system plus, 7T6

- ◆ Control unit 1 for information electronics - J794- with integrated DVD player/SD memory card readers/navigation system in dash panel
- ◆ Internal hard drive (HDD) to store navigation data and MP3 files
- ◆ Integrated operating unit
- ◆ Display unit for front information display and operating unit control unit - J685- in dash panel (centre)
- ◆ Connection for external audio sources - R199- (AUX IN socket) in centre console storage compartment, UF2
- ◆ Radio - R- in luggage compartment (rear left), 8YQ
- ◆ Sound systems: standard/BOSE, 9VD/9VK

Optional equipment

- ◆ CD changer - R41- in rear left of luggage compartment, 7A2
- ◆ Digital sound package control unit - J525- (BOSE sound system) in luggage compartment (right-side) beneath luggage compartment floor covering
- ◆ Mobile phone pre-installation, 9ZF
- ◆ Bluetooth hands-free system, 9ZX
- ◆ Multi-function steering wheel
- ◆ Connection for external audio sources - R199- (AMI) in glove box, UF7
- ◆ AMI online (WiFi), UE2

The exchange of data in the MMI systems takes place via the MOST bus.

The connection to other systems in the vehicle takes place via the CAN bus (infotainment) and the data bus diagnostic interface - J533- .

Fault finding is performed using ⇒ Vehicle diagnostic tester.

For more information, refer to ⇒ Self-study programme No. 286 ; "New data bus systems - LIN, MOST, Bluetooth" .

Notes on MOST bus

In addition to the CAN bus, the fibre optic data bus "MOST bus" is used.

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A "fibre optic cable" is used as the connecting cable. The fibre optic cables are fitted in corrugated tubes for protection.

Renew the complete fibre optic cable whenever possible.

It is important to ensure that the end faces of the connectors do not become dirty.

If connectors are unplugged: fit a protective cap for cable connector - VAS 6223/9- .

When installing the fibre optic cables, be sure to observe the minimum bending radius of 25 mm. Do not crush or kink the fibre optic cable.

Repairing fibre optic cables ➔ Electrical system; General information; Rep. gr. 97 ; Fibre optic cables .

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1 - Roof aerial - R216-

2 - Telephone bracket - R126- in centre console storage compartment

3 - Control unit 1 for information electronics - J794- in dash panel

4 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

5 - MOST bus

6 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

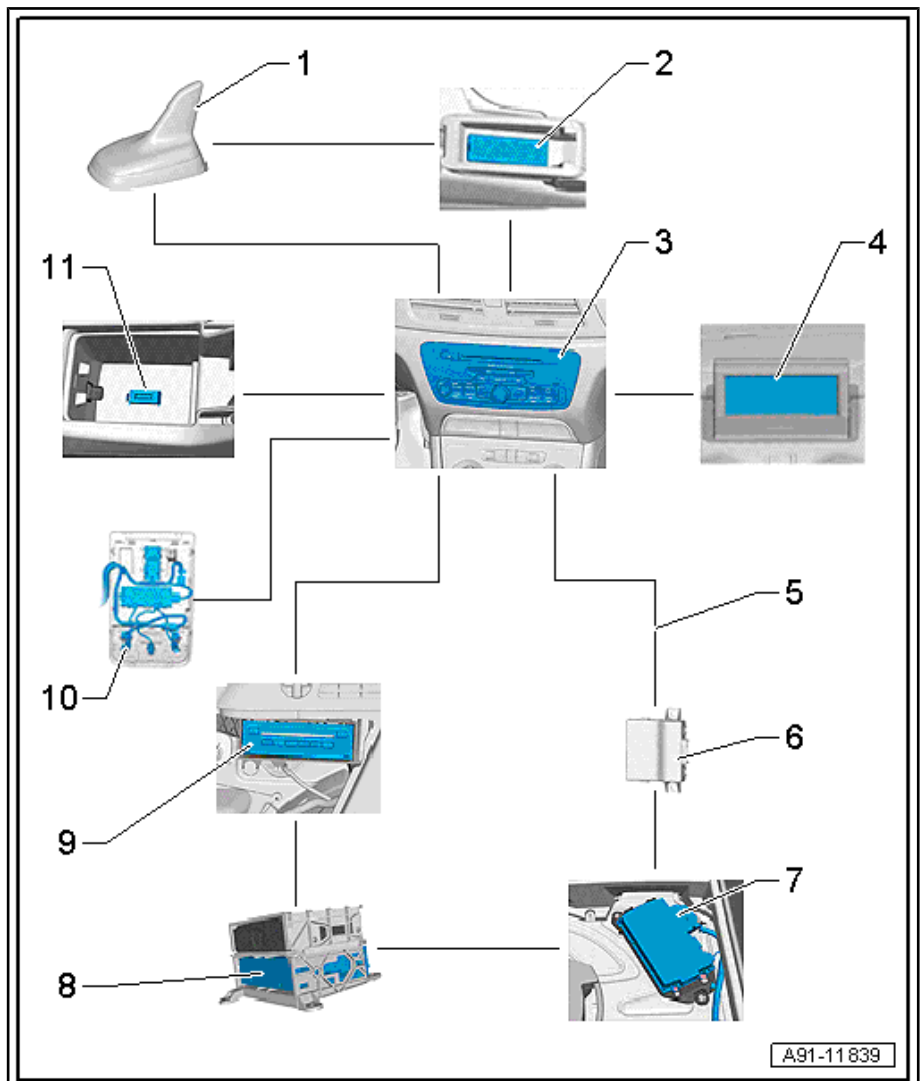
7 - Digital sound package control unit - J525- (BOSE sound system) in luggage compartment (right-side) beneath luggage compartment floor covering

8 - Radio - R- behind luggage compartment trim (left-side)

9 - CD changer - R41- behind luggage compartment trim (left-side)

10 - Microphone unit in front roof module - R164- (telephone microphone - R38-) in front interior light - W1-

11 - Connection for external audio sources - R199- (AMI) in centre console storage compartment



1.2 Overview of fitting locations - infotainment system

⇒ ["1.2.1 Overview of fitting locations - infotainment system", page 4](#)

⇒ ["1.2.2 Overview of fitting locations - infotainment system, NAR vehicles", page 5](#)

1.2.1 Overview of fitting locations - infotainment system

1 - Radio release tool - T10057-

2 - Control unit 1 for information electronics - J794-

- ❑ Pin assignment ⇒ [page 12](#)
- ❑ Removing and installing ⇒ [page 10](#)

3 - Nut

- ❑ 3x
- ❑ 3 Nm

4 - Bracket

5 - Bracket

6 - Radio - R-

- ❑ Pin assignment ⇒ [page 58](#)
- ❑ Removing and installing ⇒ [page 52](#)

7 - Display carrier

- ❑ Removing and installing ⇒ [page 6](#)

8 - Bolt

- ❑ 3 Nm

9 - Bolt

- ❑ 4x
- ❑ 2 Nm

10 - Display carrier

- ❑ Removing and installing ⇒ [page 6](#)

11 - Front trim panel

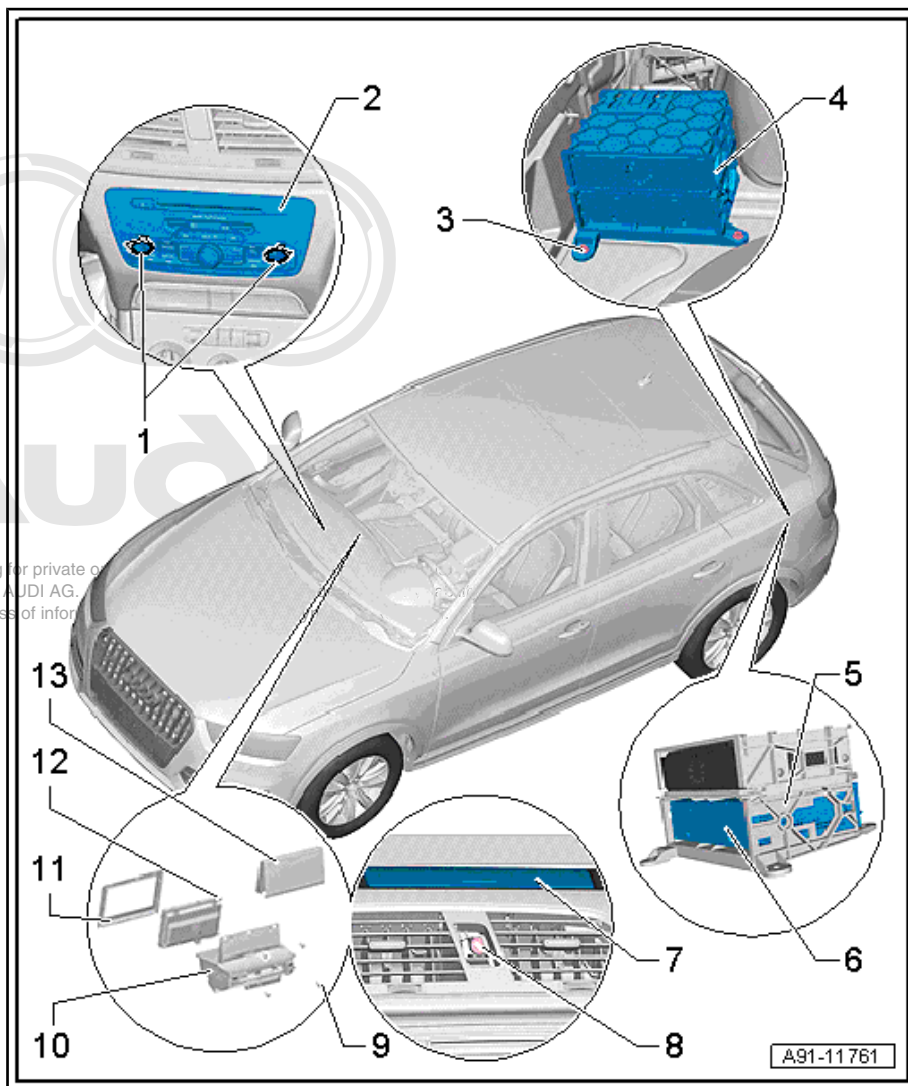
- ❑ Clipped to display unit for front information display and operating unit control unit - J685-
- ❑ Removing and installing ⇒ [page 6](#)

12 - Display unit for front information display and operating unit control unit - J685-

- ❑ Pin assignment ⇒ [page 14](#)
- ❑ Removing and installing ⇒ [page 6](#)

13 - Rear trim panel

- ❑ Clipped to display carrier
- ❑ Removing and installing ⇒ [page 6](#)



1.2.2 Overview of fitting locations - infotainment system, NAR vehicles

1 - Radio release tool - T10057-

2 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment
⇒ [page 12](#)
- ☐ Removing and installing
⇒ [page 10](#)

3 - Bracket

4 - Nut

- ☐ 3x
- ☐ 3 Nm

5 - Bracket

6 - Radio - R-

- ☐ Pin assignment
⇒ [page 58](#)
- ☐ Removing and installing
⇒ [page 52](#)

7 - Display carrier

- ☐ Removing and installing
⇒ [page 8](#)

8 - Bolt

- ☐ 3 Nm

9 - Rear trim panel

- ☐ Clipped to display carrier
- ☐ Removing and installing
⇒ [page 8](#)

10 - Bolt

- ☐ 4x
- ☐ 2 Nm

11 - Display carrier

- ☐ Removing and installing ⇒ [page 8](#)

12 - Display unit for front information display and operating unit control unit - J685-

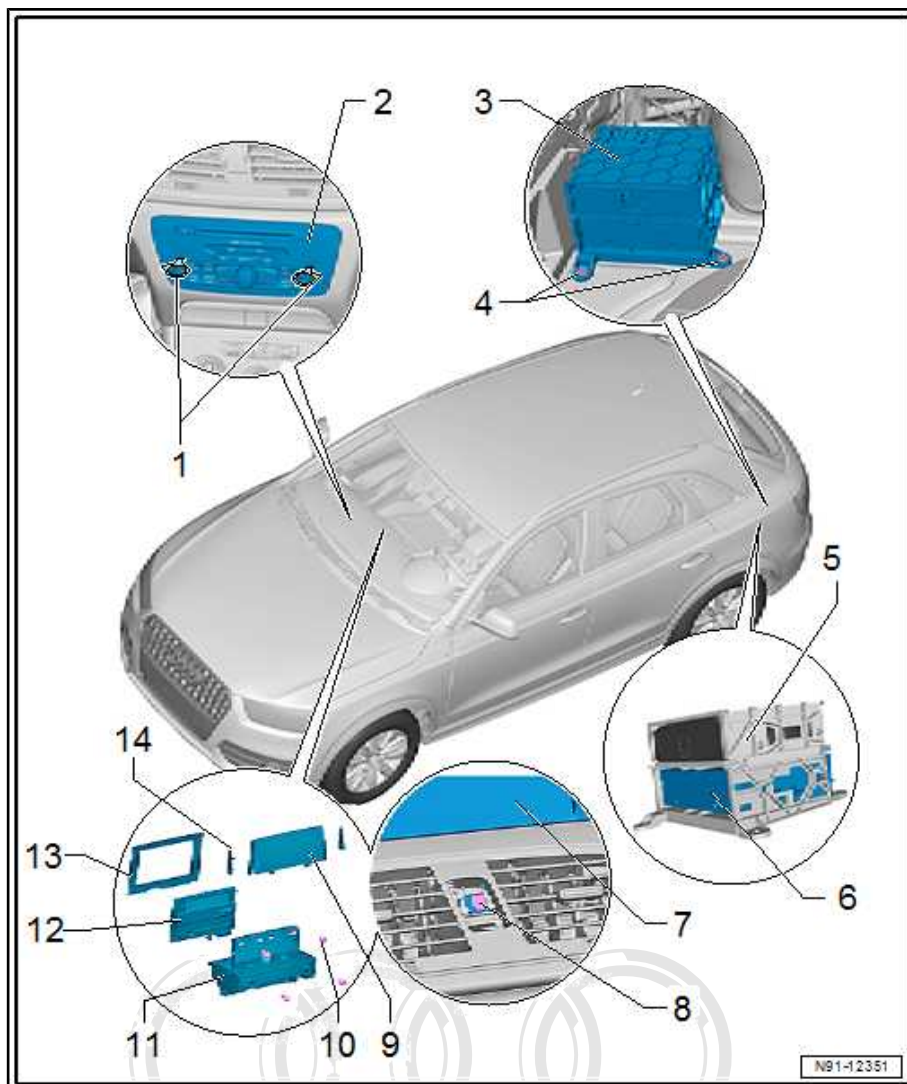
- ☐ Pin assignment ⇒ [page 14](#)
- ☐ Removing and installing ⇒ [page 8](#)

13 - Front trim panel

- ☐ Clipped to display unit for front information display and operating unit control unit - J685-
- ☐ Removing and installing ⇒ [page 8](#)

14 - Side trim

- ☐ On both sides
- ☐ Clipped to rear trim panel
- ☐ Removing and installing ⇒ [page 8](#)



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1.3 Removing and installing infotainment system display

⇒ ["1.3.1 Removing and installing infotainment system display", page 6](#)

⇒ ["1.3.2 Removing and installing infotainment system display - NAR vehicles", page 8](#)

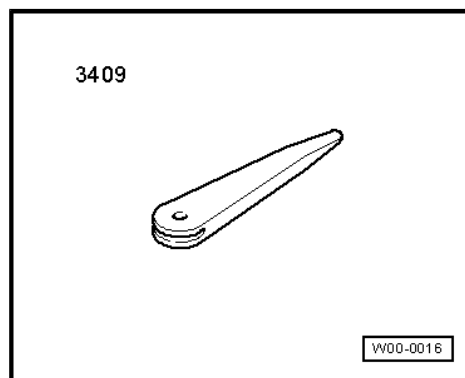
1.3.1 Removing and installing infotainment system display

Display unit for front information display and operating unit control unit - J685- (display) is located in dash panel (centre).

The display and the display carrier are combined in a single unit and can only be removed together. After removing the unit, proceed by removing the display from the display carrier.

Special tools and workshop equipment required

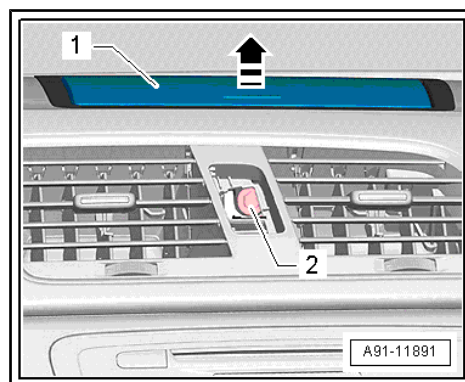
- ◆ Removal wedge - VAS 3409-



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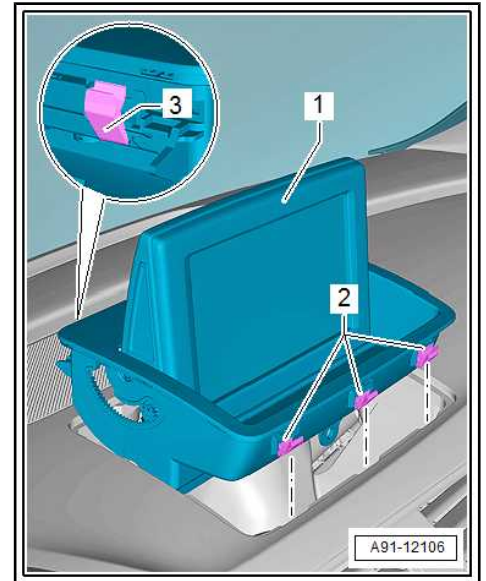
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove dash panel vents (centre) (do not unplug connectors)
⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents .
- Remove bolt (centre) -2- behind dash panel vents.



Display carrier -1- has spring catches on front -3- and rear -2-.

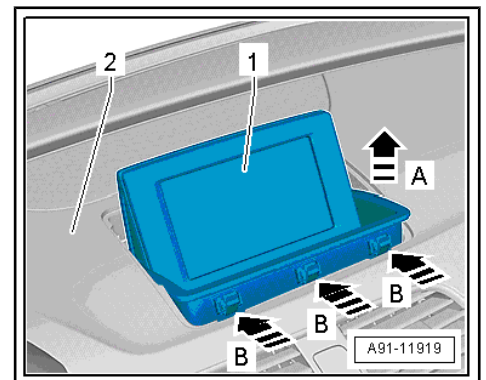
The display with the display carrier -1- must first be lifted slightly at the rear so that the spring catches -2- can be released.



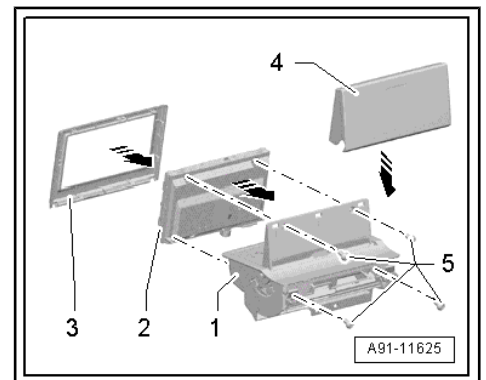
- Pry display carrier -1- slightly out of dash panel -2- in direction of -arrow A- using removal wedge - VAS 3409- .
- Using a small screwdriver, compress spring catches in direction of -arrow B- and pry display carrier -1- out of dash panel -2- by pulling towards rear of vehicle.
- Release and unplug connectors at display.
- Unclip wiring harness for display from display carrier.

The display can only be removed when it is open.

- Open display.



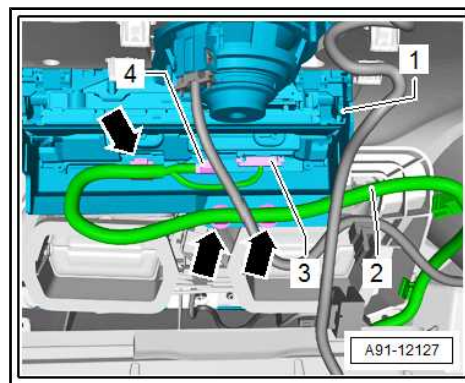
- Unclip rear trim panel -4- from display and lift off.
- Remove bolts -5- and take display -2- out of display carrier -1-.
- Unclip front trim panel -3- from display -2-.



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Installing

- Installation is carried out in reverse sequence; note the following:
- Pay particular attention that the wires for the display are routed correctly. Note attachment points for wiring harness for display -arrows- on display carrier.
- ◆ 1 - Display with kinematic display carrier
- ◆ 2 - Wiring harness for display
- ◆ 3 - Display connector, 8-pin
- ◆ 4 - Display connector, 4-pin



Tightening torques

- ◆ ⇒ ["1.2.1 Overview of fitting locations - infotainment system", page 4](#)

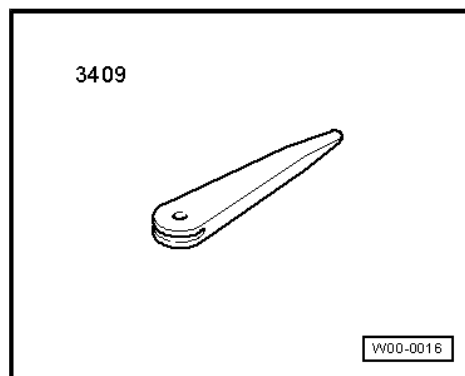
1.3.2 Removing and installing infotainment system display - NAR vehicles

Display unit for front information display and operating unit control unit - J685- (display) is located in dash panel (centre).

The display and the display carrier are combined in a single unit and can only be removed together. After removing the unit, proceed by removing the display from the display carrier.

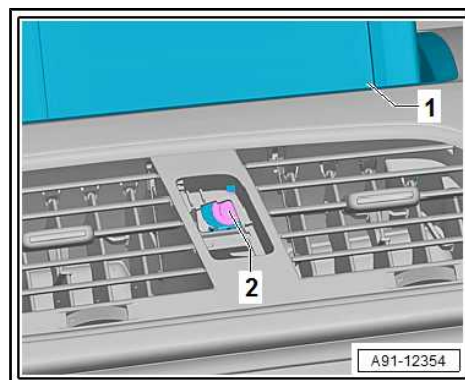
Special tools and workshop equipment required

- ◆ Removal wedge - VAS 3409-



Removing

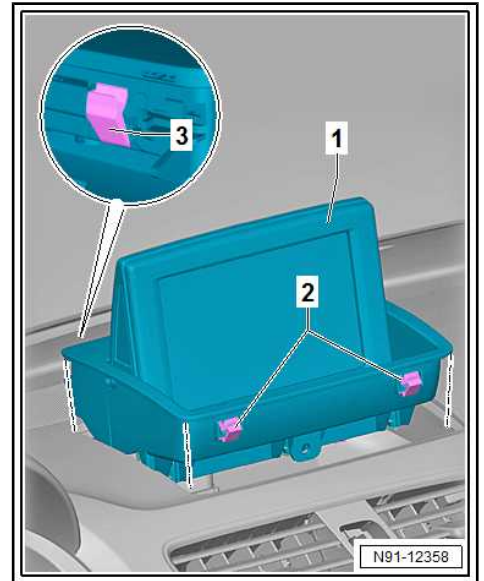
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove dash panel vents (centre) (do not unplug connectors)
⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents .
- Remove bolt (centre) -2- for display carrier -1- behind dash panel vents.



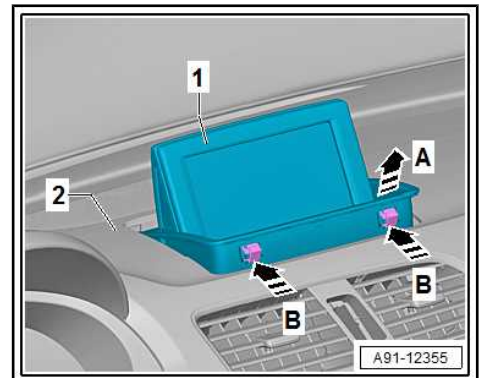
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Display carrier -1- has spring catches on front -3- and rear -2-.

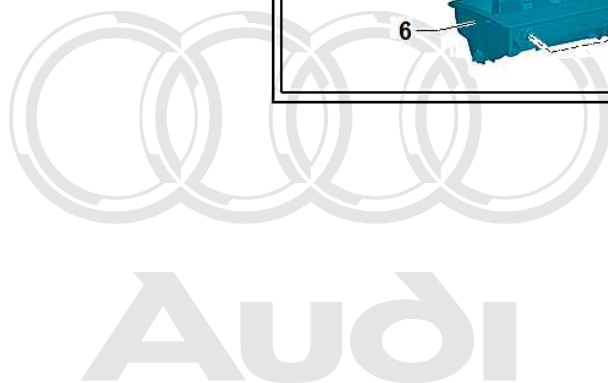
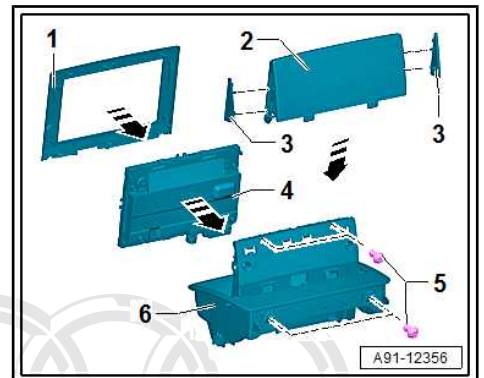
The display with the display carrier -1- must first be lifted slightly at the rear so that the spring catches -2- can be released.



- Pry display carrier -1- slightly out of dash panel -2- in direction of -arrow A- using removal wedge - VAS 3409- .
- Using a small screwdriver, compress spring catches in direction of -arrow B- and pry display carrier -1- out of dash panel -2- by pulling towards rear of vehicle.
- Release and unplug connectors at display.
- Unclip wiring harness for display from display carrier -1- and remove display carrier.



- Unclip rear trim panel -2- from display and lift it off.
- Remove bolts -5- and take display -4- out of display carrier -6-.
- Unclip front trim panel -1- from display -4-.
- If necessary, unclip side trims -3- (left and right) from rear trim panel -2-.



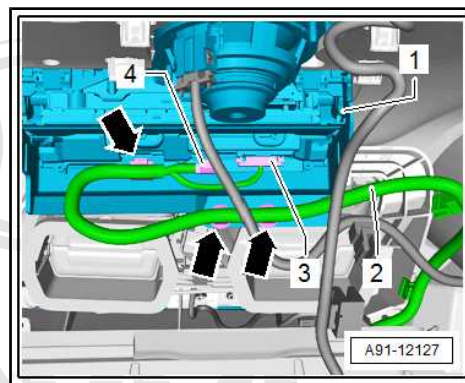
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Installing

- Installation is carried out in reverse sequence; note the following:
- Pay particular attention that the wires for the display are routed correctly.

- 1 - Display with display carrier
- 2 - Wiring harness for display
- 3 - Display connector, 8-pin
- 4 - Display connector, 4-pin

Pfeile - Attachment points for wiring harness for display on display carrier



Tightening torques

- ♦ ➔ [“1.2.2 Overview of fitting locations - infotainment system, NAR vehicles”, page 5](#)

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1.4 Removing and installing control unit 1 for information electronics - J794-

The control unit 1 for information electronics - J794- is located in the dash panel.

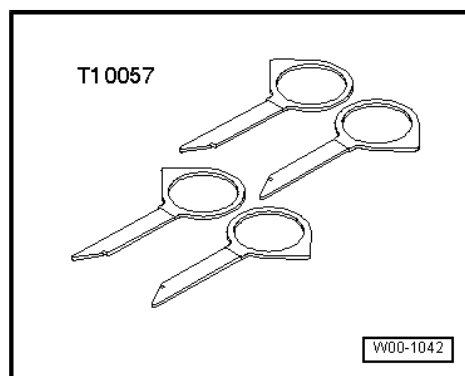


Note

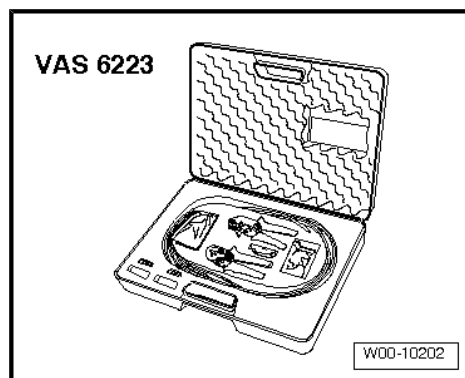
If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ➔ Vehicle diagnostic tester.

Special tools and workshop equipment required

- ♦ Radio release tool - T10057-

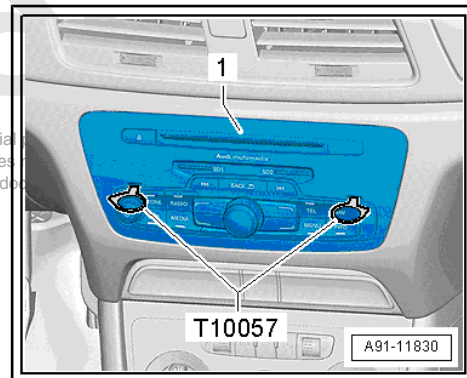


- ♦ Protective cap for cable connector - VAS 6223/9-



Removing

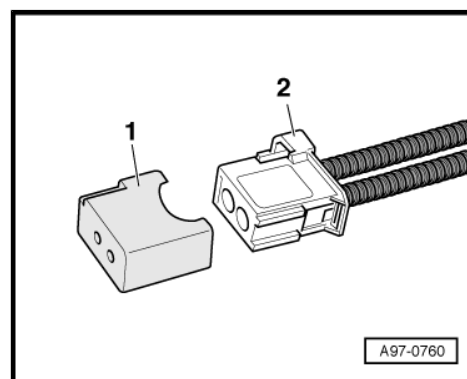
- Switch off ignition and all electrical equipment, and remove ignition key.
- Eject any CD that is still in control unit 1 for information electronics - J794- .
- Insert two radio release tools - T10057- into slots in control unit 1 for information electronics - J794- -1- until they engage. Pointed ends of grips must face outwards.
- Pull control unit 1 for information electronics - J794- -1- out of dash panel; to do so, take hold of grips on radio release tools - T10057- .
- Release and unplug connectors at control unit 1 for information electronics - J794- .



- Fit protective cap for cable connector - VAS 6223/9- -1- onto MOST bus connector -2-.
- Press release tabs on control unit 1 for information electronics - J794- and remove radio release tools - T10057- .

Installing

- Installation is carried out in reverse sequence; note the following:
- Plug all connectors in.
- Slide control unit 1 for information electronics - J794- into dash panel until it engages.



1.5 Pin assignment

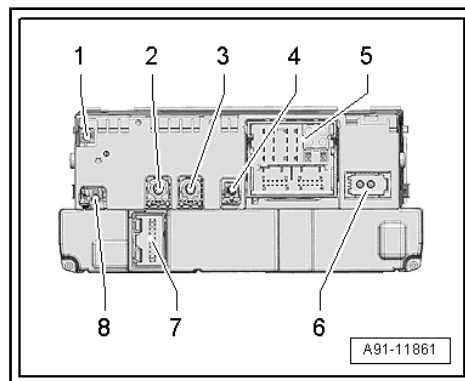
⇒ "1.5.1 Pin assignment for MMI navigation system plus",
page 12

⇒ "1.5.2 Pin assignment for display J685", page 14

1.5.1 Pin assignment for MMI navigation system plus

Control unit 1 for information electronics - J794-

- 1 - GSM connection from roof aerial - R216-
- 2 - 4-pin connector - T4u- to connection for external audio sources - R199- / internet access control unit - J666-
- 3 - 4-pin connector - T4al- to display unit for front information display and operating unit control unit - J685-
- 4 - Not used
- 5 - Connection block with four multi-pin connectors
- 6 - MOST bus
- 7 - 20-pin connector - T20k- to control unit 1 for information electronics - J794-
- 8 - GPS connection from roof aerial - R216-



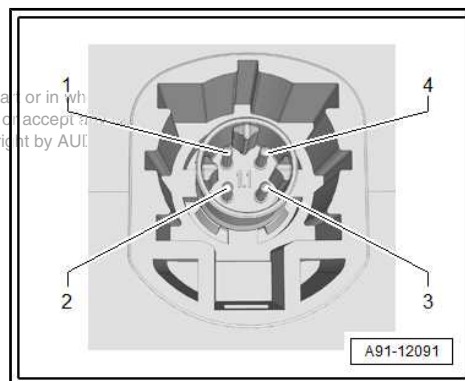
Note

Contacts which are not listed are not used.

2 - 4-pin connector - T4u-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666-

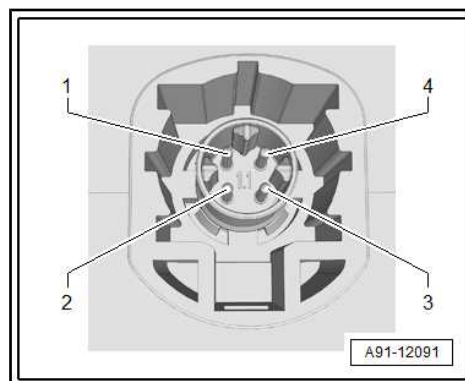
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



3 - 4-pin connector - T4al-

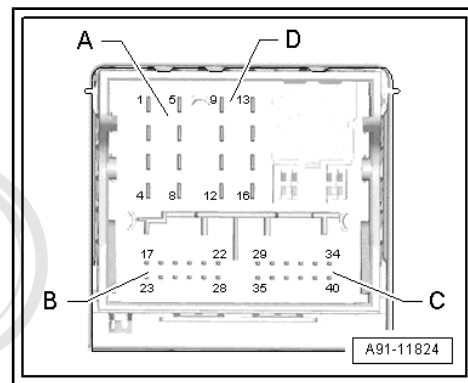
All pins are connected to the display unit for front information display and operating unit control unit - J685- .

- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth
- 5 - Connection block with four multi-pin connectors



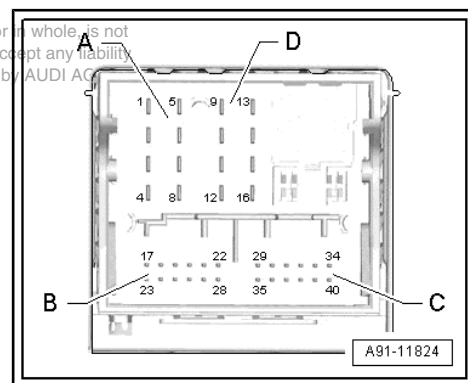
A - 8-pin connector - T8ah-

- 1 - NF mute (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-
- 2 - Voltage supply to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 3 - Wake-up to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 4 - Not used
- 5 - Switch-on signal to aerial amplifier for mobile telephone - R86-
- 6 - Res MU to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 7 - Open circuit diagnostic lead



B - 12-pin connector - T12x-

- 21 - FBAS wire (-) from reversing camera system control unit - J772-
- 24 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 25 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 27 - FBAS wire (+) from reversing camera system control unit - J772-



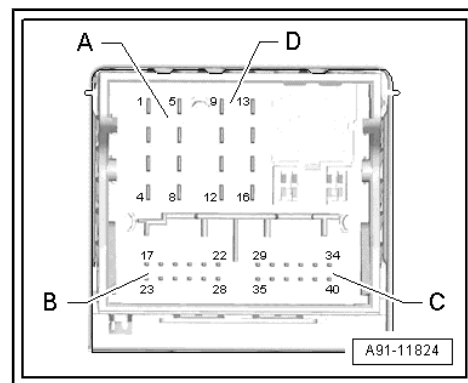
C - 12-pin connector - T12k-

All pins are connected to the connection for external audio sources - R199- .

- 29 - NF in, earth (low frequency)
- 30 - NF in, right-side (low frequency)
- 31 - USB (+5 V), not with internet access control unit - J666- , UE2
- 32 - USB, earth
- 33 - iPod, ACC power
- 34 - Detect, not with internet access control unit - J666- , UE2
- 35 - NF in, left-side (low frequency)
- 36 - NF in, screen earth (low frequency)
- 37 - FBAS wire (+)
- 38 - FBAS wire (-)
- 39 - iPod data
- 40 - iPod data

The following pins are also connected to the internet access control unit - J666- , UE2.

- 31 - USB, +5 V
- 32 - USB, earth
- 34 - Detect



D - 8-pin connector - T8ao-

10 - Data from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

11 - Data to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

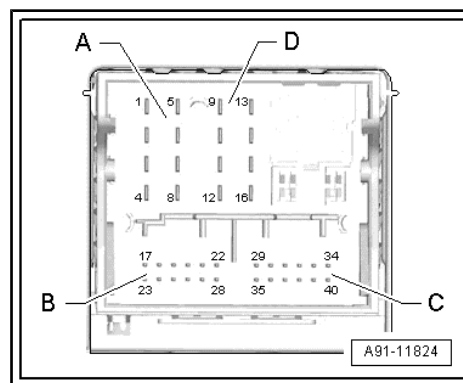
12 - Terminal 31

13 - DIAG signal from telephone bracket - R126-

14 - Res BT from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

15 - Terminal 30

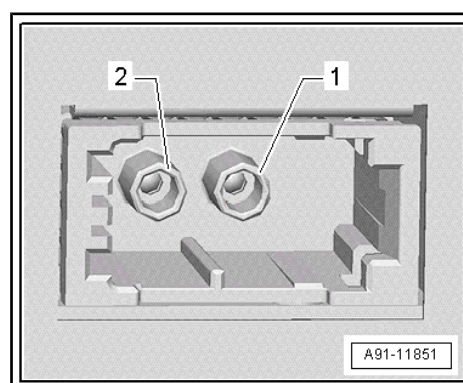
16 - Earth to control unit 1 for information electronics - J794- , 20-pin connector - T20k-



6 - MOST bus

1 - Output

2 - Input



7 - 20-pin connector - T20k-

6 - Wake-up to control unit 1 for information electronics - J794-

7 - Voltage supply from control unit 1 for information electronics - J794-

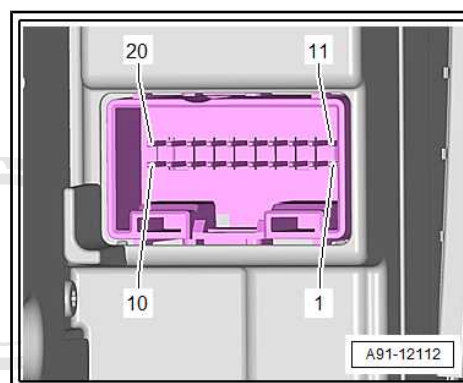
8 - Earth from control unit 1 for information electronics - J794-

13 - Res MU from control unit 1 for information electronics - J794-

14 - Res MU to control unit 1 for information electronics - J794-

15 - Data from control unit 1 for information electronics - J794-

16 - Data to control unit 1 for information electronics - J794-



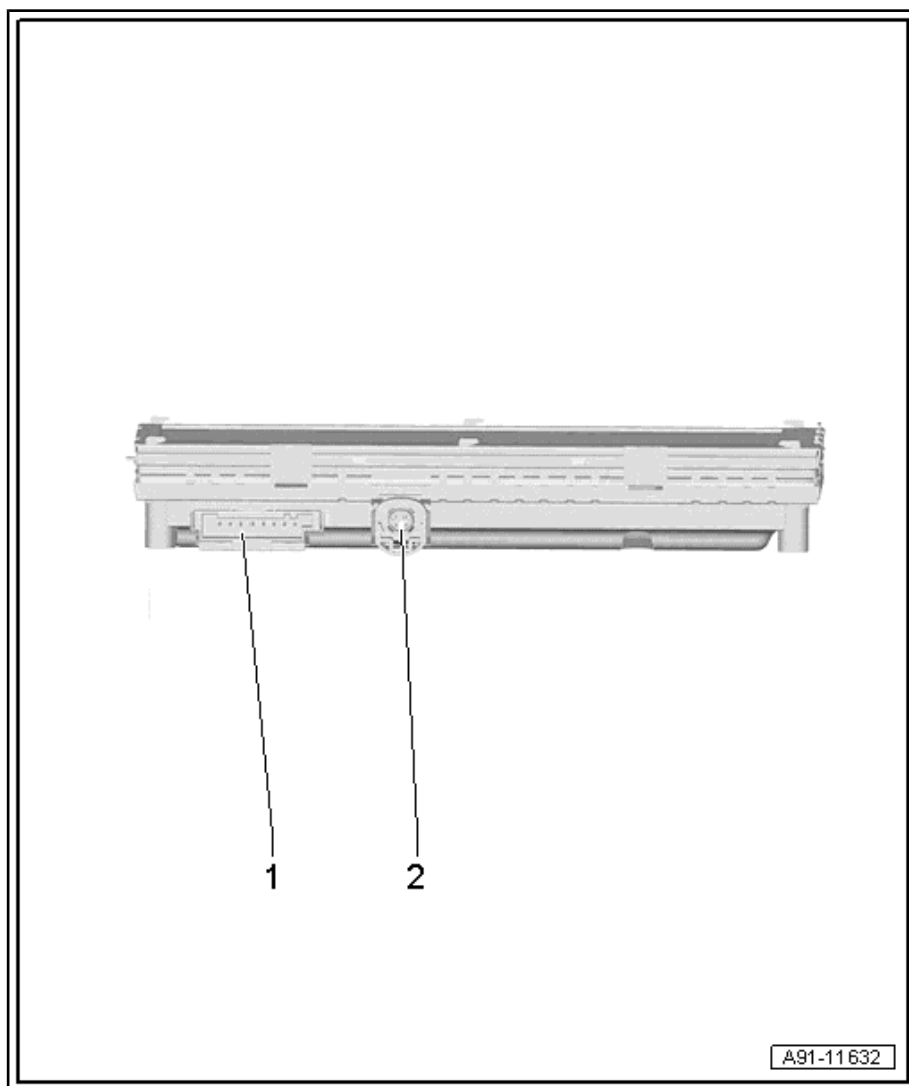
1.5.2 Pin assignment for display -J685-

Display unit for front information display and operating unit control unit - J685-

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1 - 8-pin connector - T8ai-

2 - 4-pin connector - T4ao- to
radio - R- / control unit 1 for in-
formation electronics - J794-



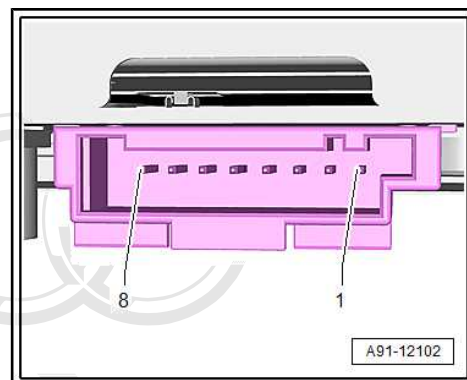
Note

Contacts which are not listed are not used.

1 - 8-pin connector - T8ai-

4 - Terminal 30

5 - Terminal 31

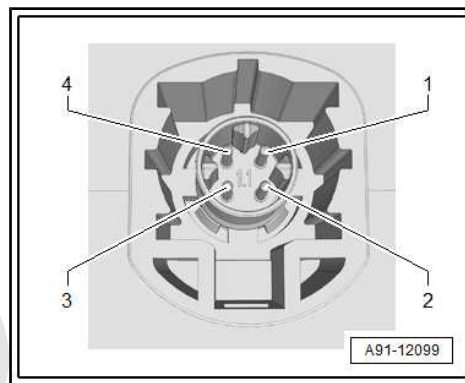


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2 - 4-pin connector - T4ao-

All pins are connected to the radio - R- / control unit 1 for information electronics - J794- .

- 1 - Earth
- 2 - LVDS (+)
- 3 - LIN
- 4 - LVDS (-)



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2 Sound system

⇒ [“2.1 Layout - sound system”, page 17](#)

⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)

⇒ [“2.3 Removing and installing digital sound package control unit/ amplifier”, page 23](#)

⇒ [“2.4 Removing and installing rear treble loudspeakers R14 / R16”, page 25](#)

⇒ [“2.5 Removing and installing front treble loudspeakers R20 / R22”, page 25](#)

⇒ [“2.6 Removing and installing front mid-range loudspeakers”, page 26](#)

⇒ [“2.7 Removing and installing rear mid-range and bass loudspeakers”, page 27](#)

⇒ [“2.8 Removing and installing subwoofer R211”, page 27](#)

⇒ [“2.9 Removing and installing effect loudspeakers”, page 28](#)

⇒ [“2.10 Removing and installing centre loudspeaker”, page 28](#)

⇒ [“2.11 Pin assignment”, page 29](#)

2.1 Layout - sound system

The following systems are available:

- ◆ 8RE - Sound system basic, radio CAN ⇒ [page 17](#)
- ◆ 8RX - Sound system basic plus, radio CAN ⇒ [page 18](#) / MMI ⇒ [page 18](#)
- ◆ 9VD - Audi sound system ⇒ [page 19](#)
- ◆ 9VK - Sound system premium, BOSE surround sound ⇒ [page 20](#)

8RE - Sound system basic, radio CAN

- ◆ Two loudspeakers in each front door (left and right)

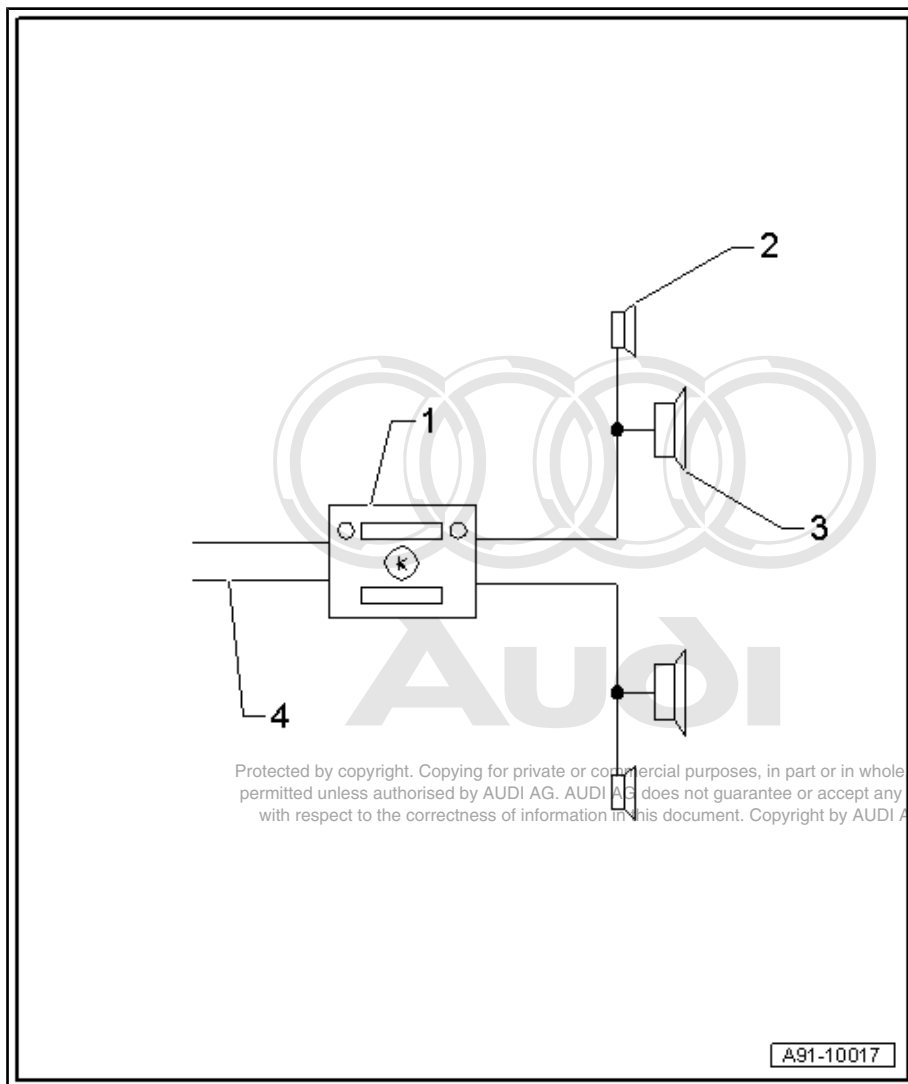
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1 - Radio - R- in dash panel

2 - Front left treble loudspeaker - R20- and front right treble loudspeaker - R22- in front doors (top)

3 - Front left mid-range and bass loudspeaker - R101- / front right mid-range and bass loudspeaker - R102- in front doors (bottom)

4 - Infotainment CAN bus



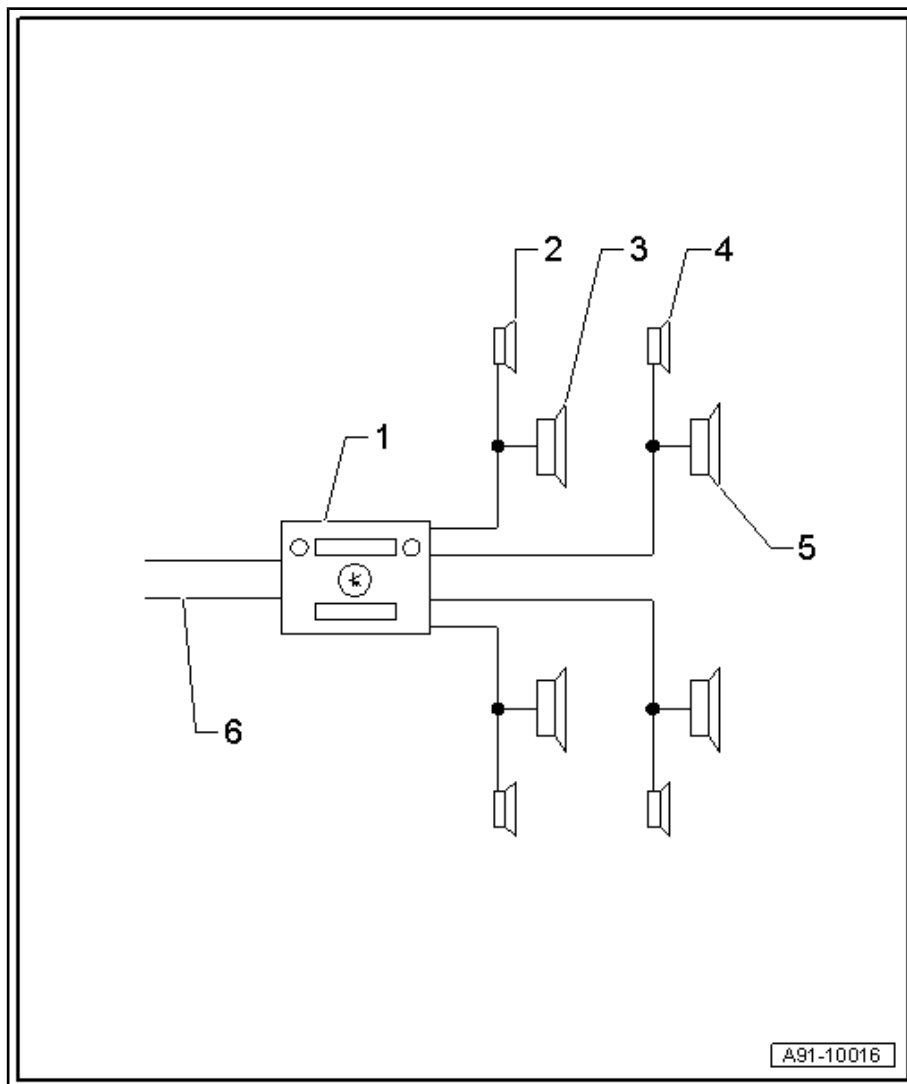
8RX - Sound system basic plus, radio CAN

- ◆ Two loudspeakers in each front door (left and right)
- ◆ Two loudspeakers in each rear door (left and right)

8RX - Sound system basic, MMI

- ◆ Two loudspeakers in each front door (left and right)
- ◆ Two loudspeakers in each rear door (left and right)

- 1 - Radio - R- in dash panel/
behind flap in luggage compartment (left-side)
- 2 - Front left treble loudspeaker - R20- and front right treble loudspeaker - R22- in front doors (top)
- 3 - Front left mid-range and bass loudspeaker - R101- / front right mid-range and bass loudspeaker - R102- in front doors (bottom)
- 4 - Rear left treble loudspeaker - R14- / rear right treble loudspeaker - R16- in rear doors (top)
- 5 - Rear left mid-range and bass loudspeaker - R159- / rear right mid-range and bass loudspeaker - R160- in rear doors (bottom)
- 6 - CAN bus, infotainment / MOST bus



9VD - Audi sound system

- ◆ Two loudspeakers in each front door (left and right)
- ◆ One loudspeaker in centre of dash panel
- ◆ Two loudspeakers in each rear door (left and right)
- ◆ Subwoofer - R211- in spare wheel well


Audi

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1 - Radio - R- with MMI navigation system plus

- Control unit 1 for information electronics - J794- with radio concert (MOST)

2 - Front left treble loudspeaker - R20- and front right treble loudspeaker - R22- in front doors (top)

3 - Front left mid-range and bass loudspeaker - R101- / front right mid-range and bass loudspeaker - R102- in front doors (bottom)

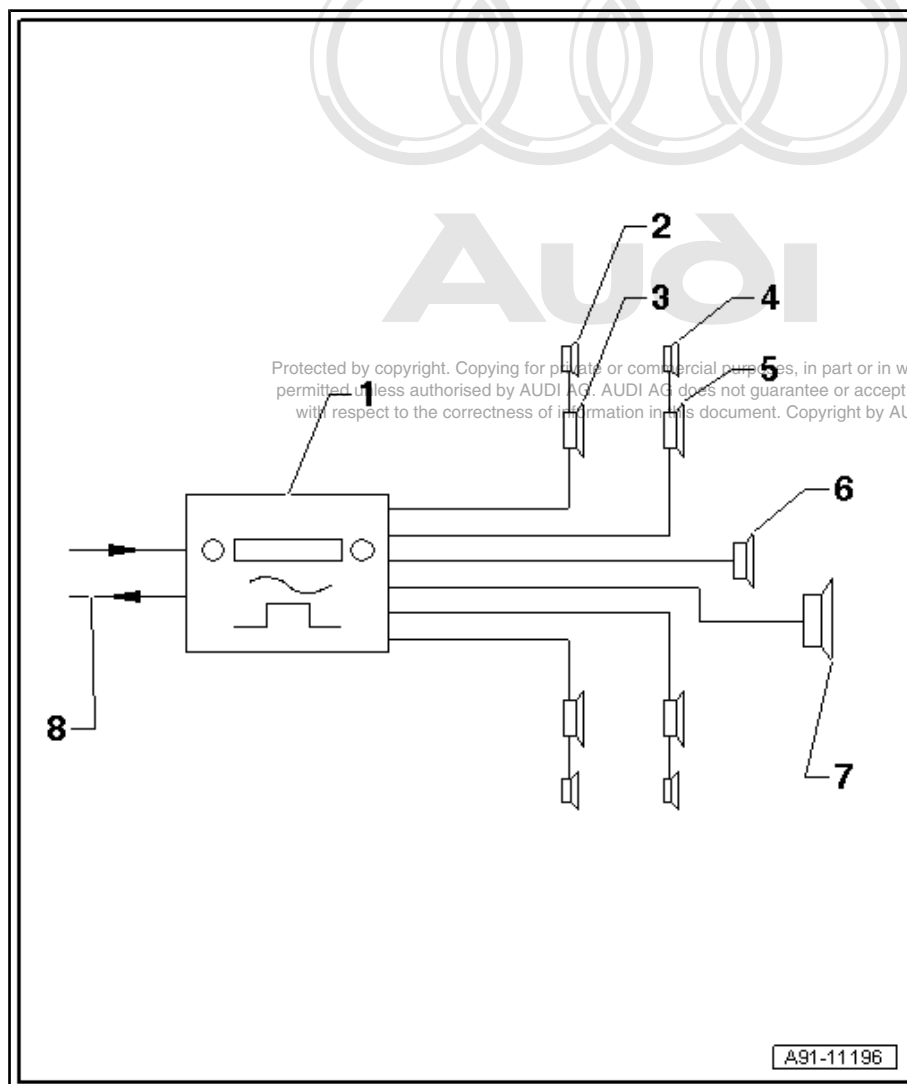
4 - Rear left treble loudspeaker - R14- / rear right treble loudspeaker - R16- in rear doors (top)

5 - Rear left mid-range and bass loudspeaker - R159- / rear right mid-range and bass loudspeaker - R160- in rear doors (bottom)

6 - Centre loudspeaker - R208- in dash panel (centre)

7 - Subwoofer - R211- in spare wheel well

8 - MOST bus



9VK - Sound system premium, BOSE surround sound

- ◆ Three loudspeakers in each front door (left and right)
- ◆ One loudspeaker in centre of dash panel
- ◆ Two loudspeakers in each rear door (left and right)
- ◆ One loudspeaker in each D-pillar (left and right)
- ◆ Subwoofer - R211- in spare wheel well
- ◆ Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

1 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

2 - Front left treble loudspeaker - R20- and front right treble loudspeaker - R22- in front doors (top)

3 - Front left mid-range loudspeaker - R103- / front right mid-range loudspeaker - R104- in front doors (centre)

4 - Front left bass loudspeaker - R21- / front right bass loudspeaker - R23- in front doors (bottom)

5 - Rear left treble loudspeaker - R14- / rear right treble loudspeaker - R16- in rear doors (top)

6 - Rear left mid-range and bass loudspeaker - R159- / rear right mid-range and bass loudspeaker - R160- in rear doors (bottom)

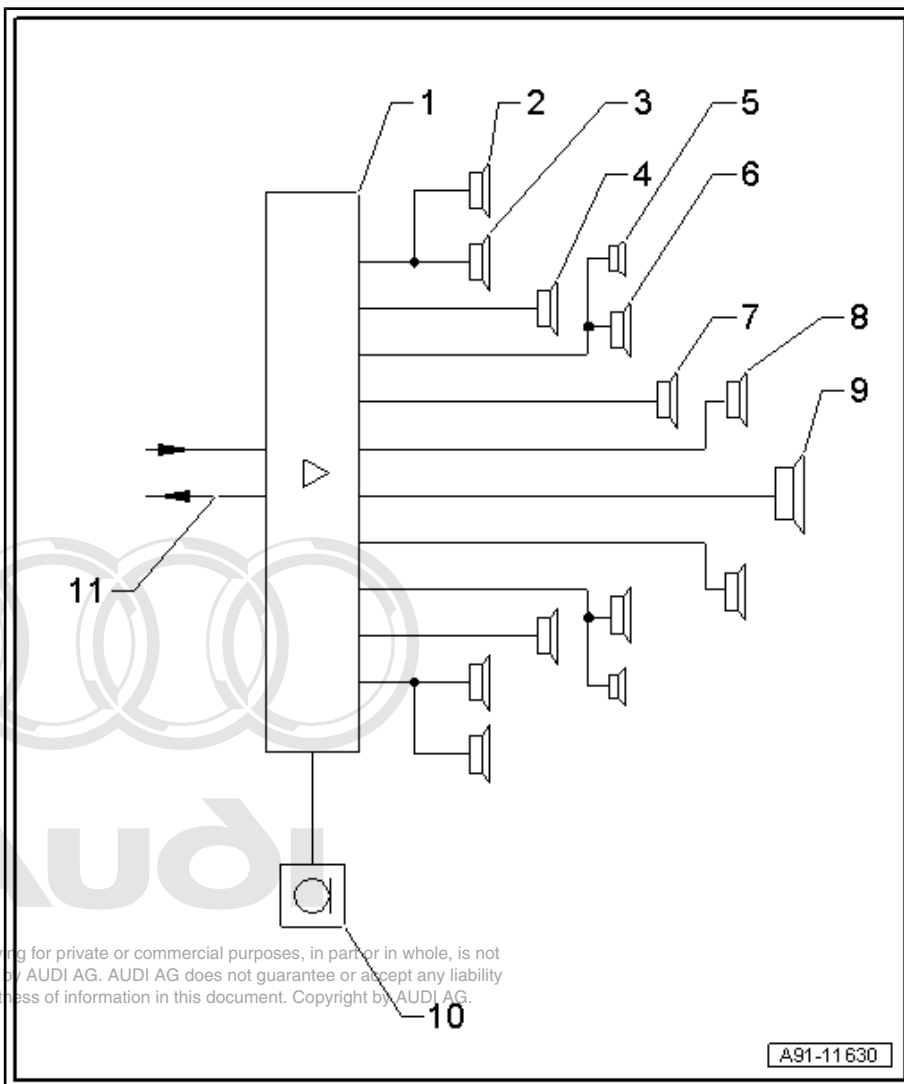
7 - Centre loudspeaker - R208- in dash panel (centre)

8 - Rear left loudspeaker - R4- and rear right loudspeaker - R5- in D-pillar trim panels

9 - Subwoofer - R211- in spare wheel well

10 - Microphone unit in front roof module - R164- (internal microphone - R74-) in front interior light - W1-

11 - MOST bus



Notes on MOST bus

In addition to the CAN bus, the fibre optic data bus "MOST bus" is used.

A "fibre optic cable" is used as the connecting cable. The fibre optic cables are fitted in corrugated tubes for protection.

Renew the complete fibre optic cable whenever possible.

It is important to ensure that the end faces of the connectors do not become dirty.

If connectors are unplugged: fit a protective cap for cable connector - VAS 6223/9- .

When installing the fibre optic cables, be sure to observe the minimum bending radius of 25 mm. Do not crush or kink the fibre optic cable.

Repairing fibre optic cables ➔ Electrical system; General information; Rep. gr. 97 ; Fibre optic cables .



2.2 Overview of fitting locations - sound system

1 - Front left treble loudspeaker - R20- / front right treble loudspeaker - R22-

- ❑ Removing and installing ➔ [page 25](#)

2 - Front left mid-range and bass loudspeaker - R101- / front left bass loudspeaker - R21- / front right mid-range and bass loudspeaker - R102- / front right bass loudspeaker - R23-

- ❑ Removing and installing ➔ [page 26](#)

3 - Bolt

- ❑ 3x
- ❑ 3 Nm

4 - Telephone microphone - R38-

- ❑ Overview ➔ [page 67](#)
- ❑ Removing and installing ➔ [page 68](#)

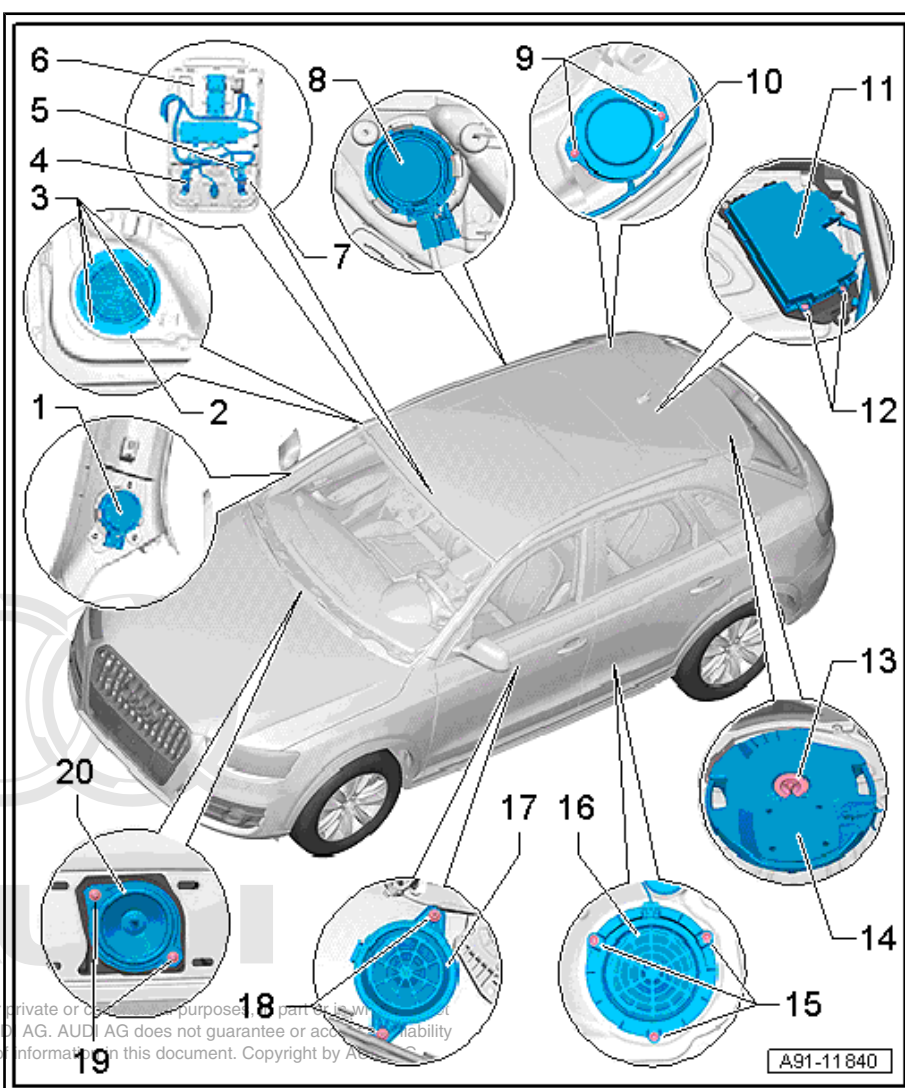
5 - 4-pin connector - T4bg-

6 - Front interior light - W1-

- ❑ See ➔ Electrical system; Rep. gr. 96 ; Lights; Overview of fitting locations - lights in roof trim

7 - Internal microphone - R74-

- ❑ Overview ➔ [page 67](#)
- ❑ Removing and installing ➔ [page 68](#)



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

- ❑ Removing and installing ➔ [page 25](#)

9 - Bolt

- ❑ 3 Nm

10 - Rear left loudspeaker - R4- / rear right loudspeaker - R5-

- ❑ Removing and installing ➔ [page 28](#)

11 - Digital sound package control unit - J525-

- ☐ Pin assignment ⇒ [page 29](#)
- ☐ Removing and installing ⇒ [page 23](#)

12 - Bolt

- ☐ 2x
- ☐ 3 Nm

13 - Bolt

- ☐ 3 Nm

14 - Subwoofer - R211-

- ☐ Removing and installing ⇒ [page 27](#)

15 - Bolt

- ☐ 3x
- ☐ 3 Nm

16 - Rear left mid-range and bass loudspeaker - R159- / rear right mid-range and bass loudspeaker - R160-

- ☐ Removing and installing ⇒ [page 27](#)

17 - Front left mid-range loudspeaker - R103- / front right mid-range loudspeaker - R104-

- ☐ Removing and installing ⇒ [page 26](#)

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18 - Bolt

- ☐ 2x
- ☐ 4 Nm

19 - Bolt

- ☐ 2x
- ☐ 2 Nm

20 - Centre loudspeaker - R208-

- ☐ Removing and installing ⇒ [page 28](#)

2.3 Removing and installing digital sound package control unit/amplifier

The digital sound package control unit - J525- is located in the luggage compartment (right-side) beneath the luggage compartment floor covering.

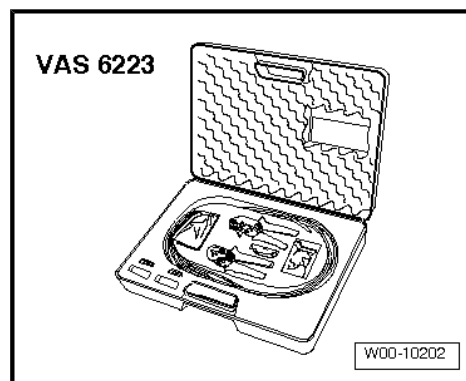


Note

If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.

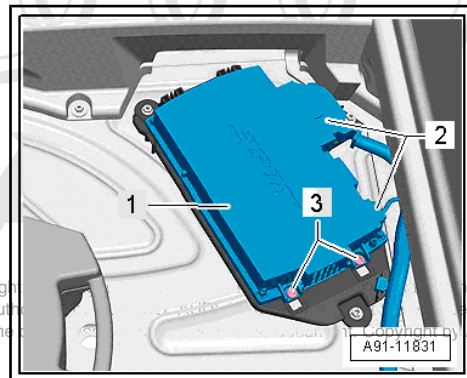
Special tools and workshop equipment required

◆ Protective cap for cable connector - VAS 6223/9-

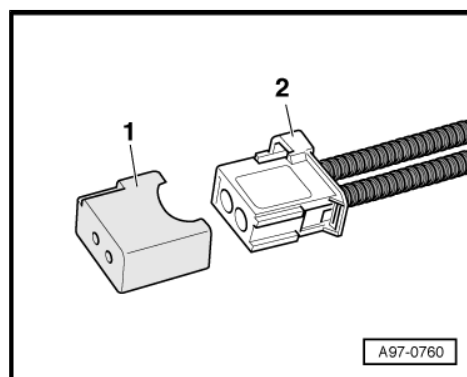


Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove luggage compartment floor covering.
- Release and unplug connectors -2- on digital sound package control unit - J525- -1-.



- Fit protective cap for cable connector - VAS 6223/9- -1- onto MOST bus connector -2-.



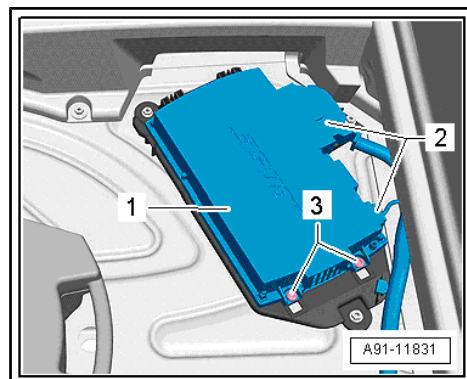
- Unscrew bolts -3- and swivel digital sound package control unit - J525- -1- out of bracket.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)



2.4 Removing and installing rear treble loudspeakers -R14- / -R16-

The rear left treble loudspeaker - R14- and the rear right treble loudspeaker - R16- -1- are located in the rear doors (top).

The removal and installation procedure is similar for all components.

Removing

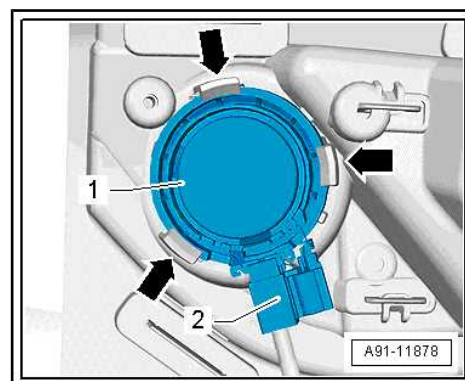
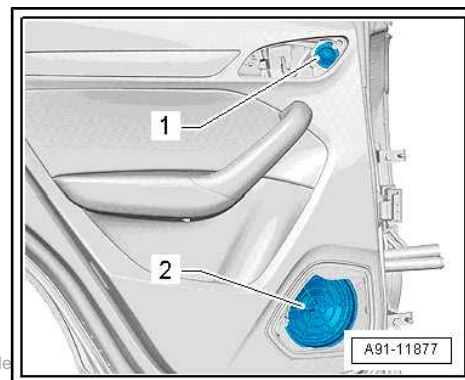
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear door trim ⇒ General body repairs, interior; Rep. gr. 70 ; Rear door trim; Removing and installing door trim (rear) .

Rear left treble loudspeaker - R14- is clipped into door trim.

- Release and unplug electrical connector -2- at rear left treble loudspeaker - R14- -1-.
- Press lugs in direction of -arrows- until rear left treble loudspeaker - R14- -1- can be detached from door trim.

Installing

- Install in reverse sequence of removal.



2.5 Removing and installing front treble loudspeakers -R20- / -R22-

The front left treble loudspeaker - R20- and the front right treble loudspeaker - R22- -1- are located in the front doors (top).

The removal and installation procedure is similar for all components.

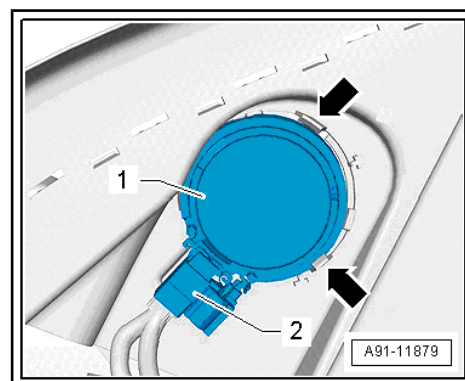
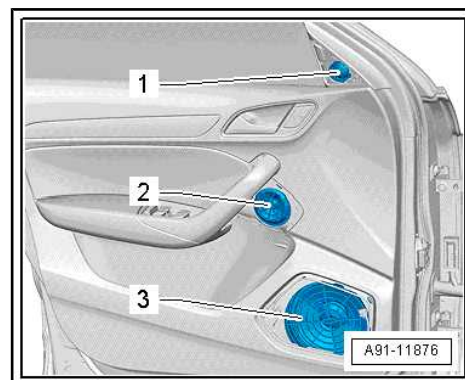
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove door trim (front) ⇒ General body repairs, interior; Rep. gr. 70 ; Door trim (front); Removing and installing door trim (front) .

- Release and unplug electrical connector -2- at front left treble loudspeaker - R20- -1-.
- Press lugs in direction of -arrows- until front left treble loudspeaker - R20- -1- can be detached from door trim.

Installing

- Install in reverse sequence of removal.



2.6 Removing and installing front mid-range loudspeakers

⇒ [“2.6.1 Removing and installing front mid-range and bass loudspeakers / bass loudspeakers”, page 26](#)

⇒ [“2.6.2 Removing and installing front mid-range loudspeakers”, page 26](#)

2.6.1 Removing and installing front mid-range and bass loudspeakers / bass loudspeakers

The front left mid-range and bass loudspeaker - R101- , front right mid-range and bass loudspeaker - R102- , front left bass loudspeaker - R21- and front right bass loudspeaker - R23- -3- are located in the front doors (bottom).

The removal and installation procedure is similar for all components.

Removing

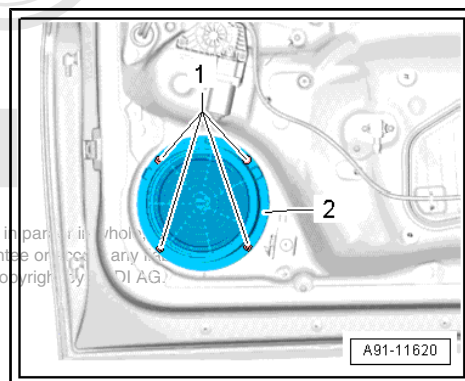
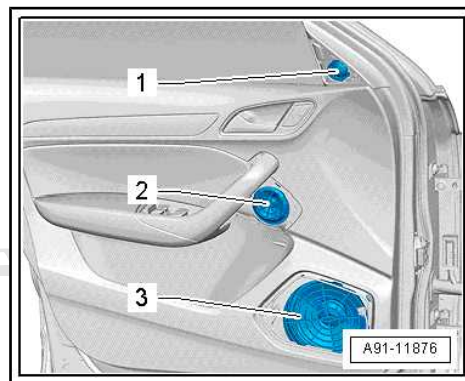
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove door trim (front) ⇒ General body repairs, interior; Rep. gr. 70 ; Door trim (front); Removing and installing door trim (front) .
- Release and unplug connector at front left bass loudspeaker - R21- -2-.
- Remove bolts -1- at front left bass loudspeaker - R21- -2-.
- Detach front left bass loudspeaker - R21- -2-.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)



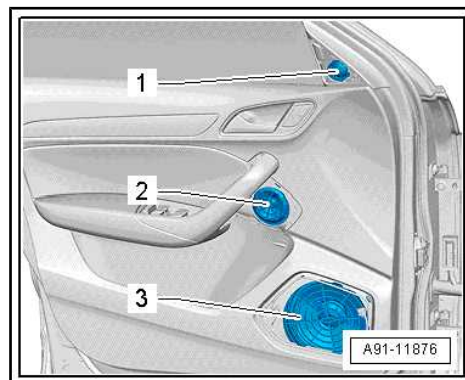
2.6.2 Removing and installing front mid-range loudspeakers

The front left mid-range loudspeaker - R103- and the front right mid-range loudspeaker - R104- -2- are located in the front doors (centre).

The removal and installation procedure is similar for all components.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove door trim (front) ⇒ General body repairs, interior; Rep. gr. 70 ; Door trim (front); Removing and installing door trim (front) .



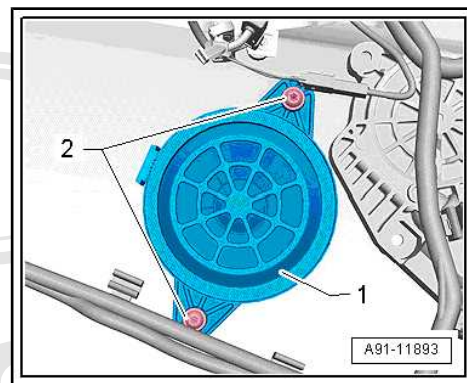
- Release and unplug connector at front left mid-range loudspeaker - R103- -1-.
- Remove bolts -2- at front left mid-range loudspeaker - R103- -1-.
- Detach front left mid-range loudspeaker - R103- -1-.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ ["2.2 Overview of fitting locations - sound system", page 22](#)



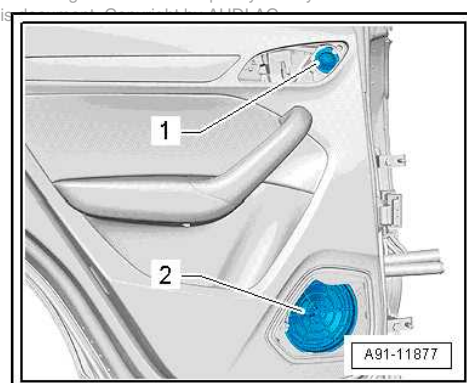
2.7 Removing and installing rear mid-range and bass loudspeakers

The rear left mid-range and bass loudspeaker - R159- and the rear right mid-range and bass loudspeaker - R160- -2- are located in the rear doors (bottom).

The removal and installation procedure is similar for all components.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear door trim ⇒ General body repairs, interior; Rep. gr. 70 ; Rear door trim; Removing and installing door trim (rear) .
- Release and unplug electrical connector -2- at rear left mid-range and bass loudspeaker - R159- -1-.
- Unscrew bolts -3- and remove rear left mid-range and bass loudspeaker - R159- -1-.

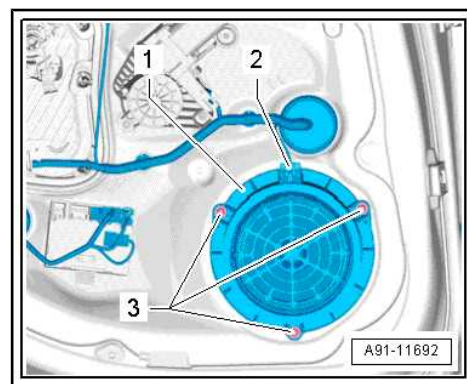


Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ ["2.2 Overview of fitting locations - sound system", page 22](#)



2.8 Removing and installing subwoofer - R211-

The subwoofer - R211- is located in the spare wheel well.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove luggage compartment floor covering.

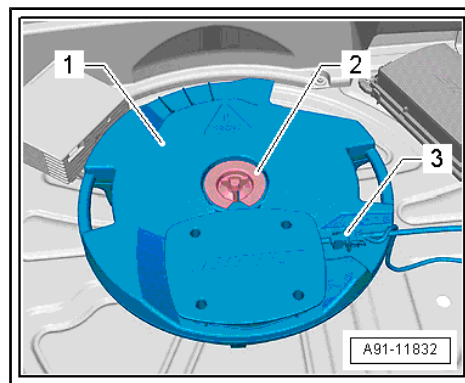
- Release and unplug connector -3- at subwoofer - R211- -1-.
- Remove bolt -2- on subwoofer - R211- -1-.
- Lift subwoofer - R211- -1- upwards out of spare wheel well.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ♦ ⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)



2.9 Removing and installing effect loudspeakers

Rear left loudspeaker - R4- and rear right loudspeaker - R5- are located behind D-pillar trim panels.

The removal and installation procedure is similar for all components.

Removing

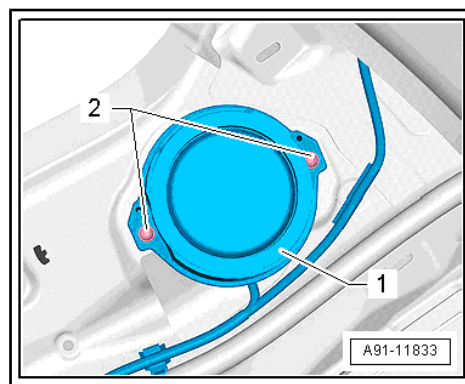
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove D-pillar trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing D-pillar trim .
- Release and unplug connector at rear left loudspeaker - R4- .
- Unscrew bolts -2- at rear left loudspeaker - R4- -1-.
- Detach rear left loudspeaker - R4- -1- from D-pillar.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ♦ ⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)



2.10 Removing and installing centre loudspeaker

The centre loudspeaker - R208- is located in the dash panel (front centre).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove centre loudspeaker trim ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing loudspeaker trim .

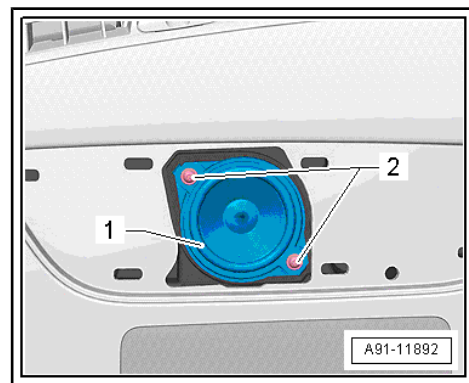
- Remove bolts -2- on centre loudspeaker - R208- -1-.
- Release and unplug connector at centre loudspeaker - R208- -1-.
- Remove centre loudspeaker - R208- -1- from dash panel.

Installing

- Install in reverse sequence of removal.

Tightening torques

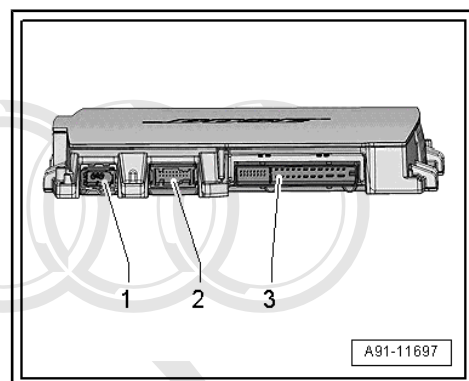
- ◆ ⇒ [“2.2 Overview of fitting locations - sound system”, page 22](#)



2.11 Pin assignment

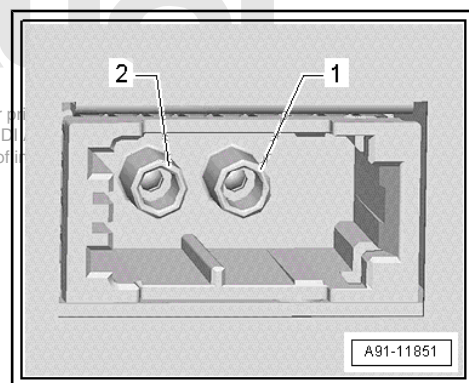
Digital sound package control unit - J525-

- 1 - MOST bus
- 2 - Not fitted
- 3 - 38-pin connector - T38-



1 - MOST bus

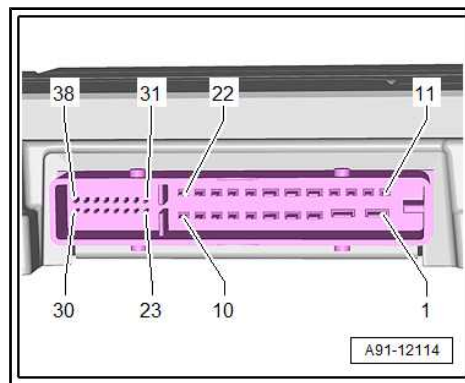
- 1 - Output
- 2 - Input



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3 - 38-pin connector - T38-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Front right bass loudspeaker - R23- (+)
- 4 - Front left bass loudspeaker - R21- (+)
- 5 - Subwoofer - R211- (-)
- 6 - Not used
- 7 - Rear left loudspeaker (-)
- 8 - Rear right loudspeaker (+)
- 9 - Not used
- 10 - Centre loudspeaker - R208- (+)
- 11 - Not used
- 12 - Not used
- 13 - Not used
- 14 - Not used
- 15 - Front right bass loudspeaker - R23- (-)
- 16 - Front left bass loudspeaker - R21- (+)
- 17 - Subwoofer - R211- (+)
- 18 - Not used
- 19 - Rear left loudspeaker (+)
- 20 - Rear right loudspeaker (-)
- 21 - Not used
- 22 - Centre loudspeaker - R208- (-)
- 23 - Not used
- 24 - Not used
- 25 - Open circuit diagnostic lead
- 26 - Not used
- 27 - Not used
- 28 - Screen earth from microphone unit in front roof module - R164- , internal microphone - R74-
- 29 - Microphone unit in front roof module - R164- , internal microphone - R74- (-)
- 30 - Microphone unit in front roof module - R164- , internal microphone - R74- (+)
- 31 - Front left loudspeaker (+)
- 32 - Front left loudspeaker (-)
- 33 - Front right loudspeaker (-)
- 34 - Front right loudspeaker (+)
- 35 - Rear right loudspeaker - R5- (+)
- 36 - Rear right loudspeaker - R5- (-)
- 37 - Rear left loudspeaker - R4- (+)
- 38 - Rear left loudspeaker - R4- (-)



3 Aerial systems

⇒ [“3.1 Layout - aerial systems”, page 31](#)

⇒ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)

⇒ [“3.3 Removing and installing aerial amplifiers”, page 35](#)

⇒ [“3.4 Removing and installing roof aerial”, page 37](#)

⇒ [“3.5 Removing and installing window aerial suppression filter C18”, page 37](#)

⇒ [“3.6 Removing and installing traffic data aerial”, page 38](#)

⇒ [“3.7 Removing and installing internet access aerial R266”, page 39](#)

⇒ [“3.8 Removing and installing emergency call module aerial R263”, page 39](#)

⇒ [“3.9 Removing and installing GPS aerial 2 R268”, page 40](#)

⇒ [“3.10 Pin assignment”, page 41](#)

3.1 Layout - aerial systems

⇒ [“3.1.1 Layout - aerial systems, Europe and rest-of-world vehicles”, page 31](#)

⇒ [“3.1.2 Layout - aerial systems, Russia”, page 32](#)

3.1.1 Layout - aerial systems, Europe and rest-of-world vehicles

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The aerial system consists of the roof aerial - R216- and the window aerals.

Roof aerial - R216-

- ◆ GPS aerial - R50- , 7T2, 7T6 and 7Q4 only
- ◆ Telephone aerial - R65- , 9ZF and 9ZW only
- ◆ Satellite aerial - R170- , NAR and QV8 only
- ◆ Auxiliary heater aerial - R182- , 9M9 and Europe only

Rear window aerals

- ◆ Digital radio aerial - R183- (DAB) to aerial amplifier 4 - R113- on rear lid (top right) - vehicles with radio (MOST)
- ◆ Aerial - R11- (FM2) to aerial amplifier 3 - R112- on rear lid (bottom left)
- ◆ Radio aerial 2 - R93- (AM/FM1)/ TV aerial 1 - R55- (TV1) to aerial amplifier - R24- on rear lid (top left)
- ◆ TV aerial 2 - R56- (TV2)/ TV aerial 3 - R57- (TV3) to aerial amplifier 2 - R111- on rear lid (bottom right)

Aerial amplifier 4 - R113- with DAB connection applies for European versions and QV3 only.

Windscreen aerals

- ◆ Traffic data aerial - R173- , ETC/VICS, Japan and 7T6 only

In dash panel

- ◆ Internet access aerial - R266- , WiFi, UE2

Repairing aerial wires ⇒ Electrical system; General information;
Rep. gr. 97 ; Repairing aerial wires .

3.1.2 Layout - aerial systems, Russia

The aerial system consists of the roof aerial - R216- and the window aerials.

Roof aerial - R216-

- ◆ GPS aerial - R50- , 7T2, 7T6 and 7Q4 only
- ◆ Telephone aerial - R65- , 9ZF and 9ZW only
- ◆ Auxiliary heater aerial - R182- , 9M9 only

Rear window aerials

- ◆ Digital radio aerial - R183- (DAB) to aerial amplifier 4 - R113- on rear lid (top right) - vehicles with radio (MOST)
- ◆ Aerial - R11- (FM2) to aerial amplifier 3 - R112- on rear lid (bottom left)
- ◆ Radio aerial 2 - R93- (AM/FM1)/ TV aerial 1 - R55- (TV1) to aerial amplifier - R24- on rear lid (top left)
- ◆ TV aerial 2 - R56- (TV2)/ TV aerial 3 - R57- (TV3) to aerial amplifier 2 - R111- on rear lid (bottom right)

Aerial amplifier 4 - R113- with DAB connection applies for European versions and QV3 only.

In dash panel

- ◆ Emergency call module aerial - R263- in dash panel (right-side), NZ3 only
- ◆ Internet access aerial - R266- , WiFi, UE2
- ◆ GPS aerial 2 - R268- in dash panel (front centre), NZ3 only

Repairing aerial wires ⇒ Electrical system; General information; Rep. gr. 97 ; Repairing aerial wires .

3.2 Overview of fitting locations - aerial systems

⇒ [“3.2.1 Overview of fitting locations - aerial systems, Europe and rest-of-world vehicles”, page 32](#)

⇒ [“3.2.2 Overview of fitting locations - aerial systems, Russia”, page 34](#)

3.2.1 Overview of fitting locations - aerial systems, Europe and rest-of-world vehicles

1 - Aerial amplifier 4 - R113-

- ☐ Pin assignment
⇒ [page 41](#)
- ☐ Removing and installing
⇒ [page 36](#)

2 - Bolt

- ☐ 2 Nm

3 - Aerial amplifier 2 - R111-

- ☐ Pin assignment
⇒ [page 43](#)
- ☐ Removing and installing
⇒ [page 35](#)

4 - Bolt

- ☐ 2 Nm

5 - Nut

- ☐ 9 Nm

6 - Window aerial suppression filter - C18-

- ☐ Removing and installing
⇒ [page 37](#)

7 - Nut

- ☐ 9 Nm

8 - Nut

- ☐ 9 Nm

9 - Bolt

- ☐ 2 Nm

10 - Aerial amplifier 3 - R112-

- ☐ Pin assignment
⇒ [page 42](#)
- ☐ Removing and installing
⇒ [page 36](#)

11 - Bolt

- ☐ 2 Nm

12 - Aerial amplifier - R24-

- ☐ Pin assignment ⇒ [page 42](#)
- ☐ Removing and installing ⇒ [page 35](#)

13 - Roof aerial - R216-

- ☐ Removing and installing ⇒ [page 37](#)

14 - Nut

- ☐ 6 Nm

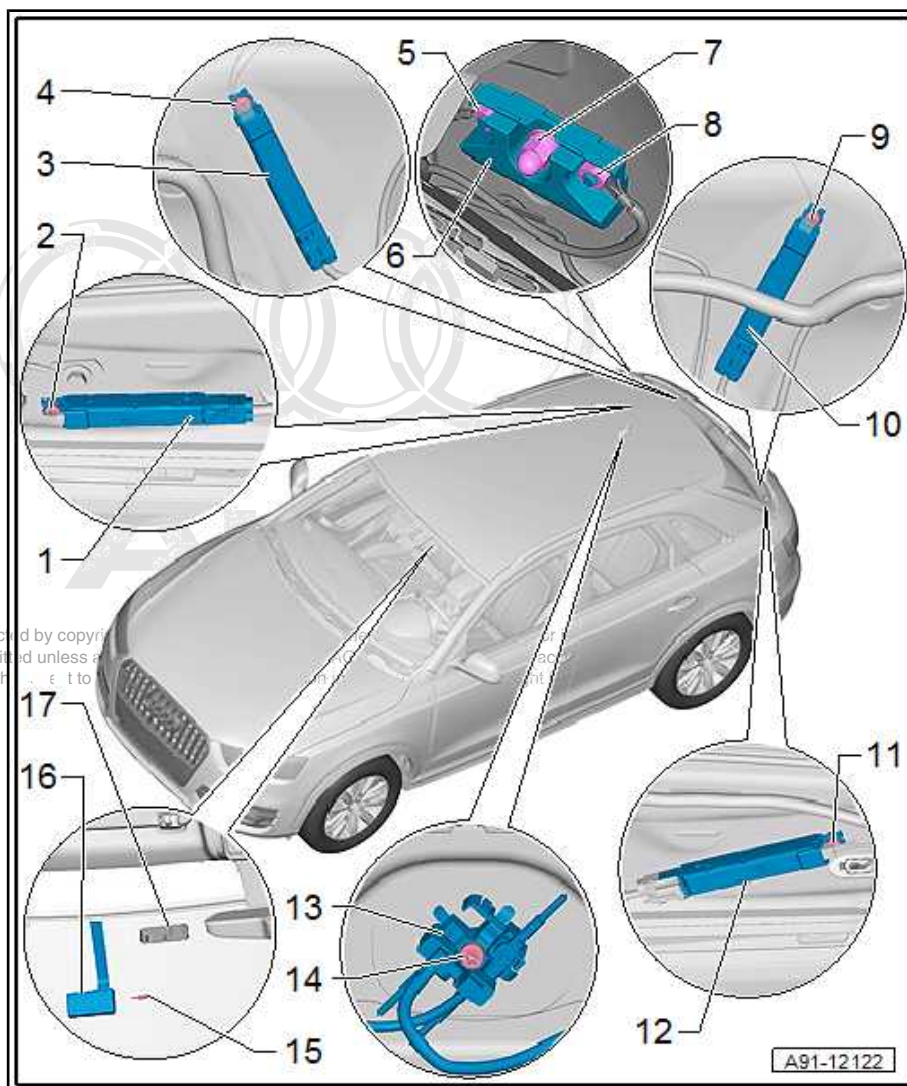
15 - Locking element

16 - Traffic data aerial - R173-

- ☐ Removing and installing ⇒ [page 37](#)

17 - Bracket

- ☐ Bonded to windscreen



3.2.2 Overview of fitting locations - aerial systems, Russia

1 - Window aerial suppression filter - C18-

- ☐ Removing and installing
⇒ [page 37](#)

2 - Nut

- ☐ 9 Nm

3 - Nut

- ☐ 9 Nm

4 - Nut

- ☐ 9 Nm

5 - Bolt

- ☐ 2 Nm

6 - Aerial amplifier 4 - R113-

- ☐ Pin assignment
⇒ [page 41](#)
- ☐ Removing and installing
⇒ [page 36](#)

7 - Bolt

- ☐ 2 Nm

8 - Aerial amplifier 2 - R111-

- ☐ Pin assignment
⇒ [page 43](#)
- ☐ Removing and installing
⇒ [page 35](#)

9 - Bolt

- ☐ 2 Nm

10 - Aerial amplifier 3 - R112-

- ☐ Pin assignment
⇒ [page 42](#)
- ☐ Removing and installing
⇒ [page 36](#)

11 - Bolt

- ☐ 2 Nm

12 - Aerial amplifier - R24-

- ☐ Pin assignment ⇒ [page 42](#)
- ☐ Removing and installing ⇒ [page 35](#)

13 - Roof aerial - R216-

- ☐ Removing and installing ⇒ [page 37](#)

14 - RC connection from auxiliary heater aerial - R182-

15 - GSM connection from telephone aerial - R65-

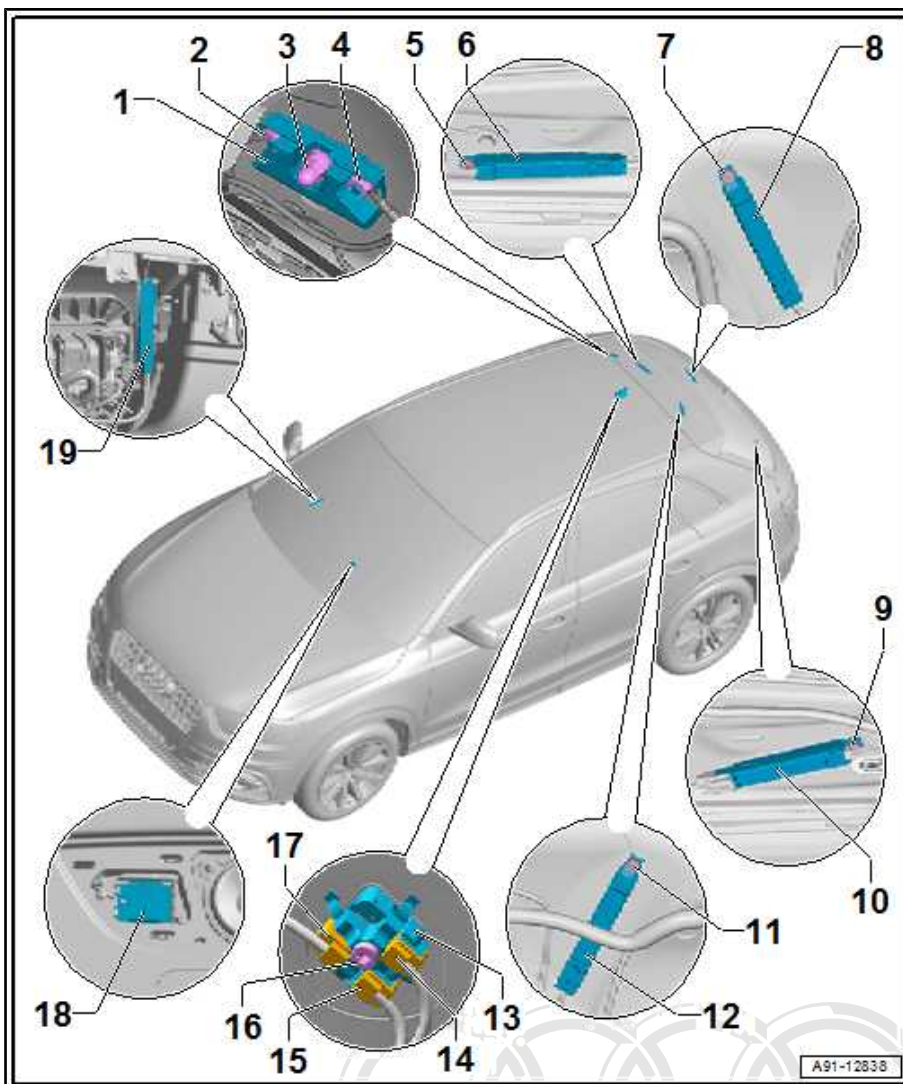
16 - Nut

- ☐ 6 Nm

17 - GPS connection from GPS aerial - R50-

18 - GPS aerial 2 - R268-

- ☐ In dash panel (front centre)
- ☐ Removing and installing ⇒ [page 40](#)



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19 - Emergency call module aerial - R263-

- ☐ Underneath dash panel (right-side)
- ☐ Removing and installing ⇒ [page 39](#)

3.3 Removing and installing aerial amplifiers

⇒ ["3.3.1 Removing and installing aerial amplifier R24 "](#),
[page 35](#)

⇒ ["3.3.2 Removing and installing aerial amplifier 2 R111 "](#),
[page 35](#)

⇒ ["3.3.3 Removing and installing aerial amplifier 3 R112 "](#),
[page 36](#)

⇒ ["3.3.4 Removing and installing aerial amplifier 4 R113 "](#),
[page 36](#)

3.3.1 Removing and installing aerial amplifier - R24-

Aerial amplifier - R24- is located on rear lid (top left).

Removing

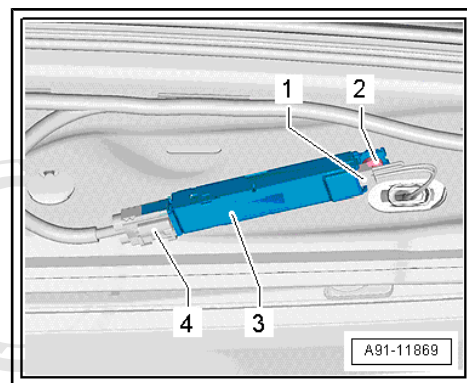
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear lid trim (top) ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing rear lid trim (top) .
- Release and unplug connectors -1- and -4- at aerial amplifier - R24- -3-.
- Unscrew bolt -2- and remove aerial amplifier - R24- -3- from rear lid.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ ["3.2 Overview of fitting locations - aerial systems"](#),
[page 32](#)



3.3.2 Removing and installing aerial amplifier 2 - R111-

The aerial amplifier 2 - R111- is located on the rear lid (bottom right).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear lid trim (bottom) ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing rear lid trim (bottom) .

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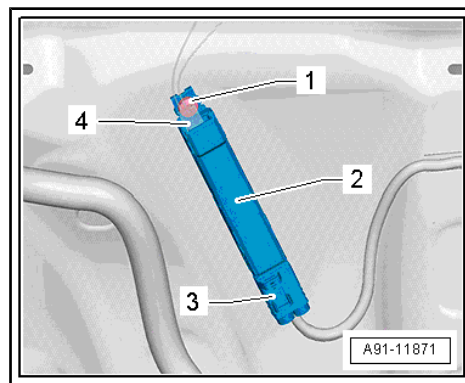
- Release and unplug connectors -3- and -4- at aerial amplifier 2 - R111- -2-.
- Unscrew bolt -1- and remove aerial amplifier 2 - R111- -2- from rear lid.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)



3.3.3 Removing and installing aerial amplifier 3 - R112-

The aerial amplifier 3 - R112- is located on the rear lid (bottom left).

Removing

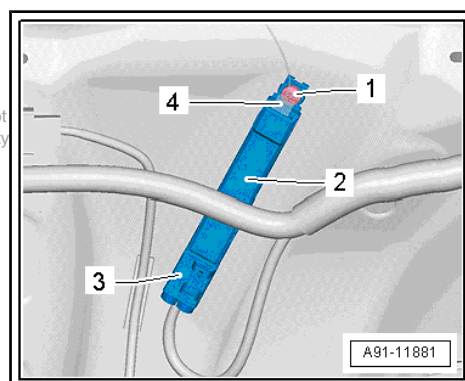
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear lid trim (bottom) ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing rear lid trim (bottom) .
- Release and unplug connectors -3- and -4- at aerial amplifier 3 - R112- -2-.
- Unscrew bolt -1- and remove aerial amplifier 3 - R112- -2- from rear lid.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)



3.3.4 Removing and installing aerial amplifier 4 - R113-

The aerial amplifier 4 - R113- is located on the rear lid (top right).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove rear lid trim (top) ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing rear lid trim (top) .

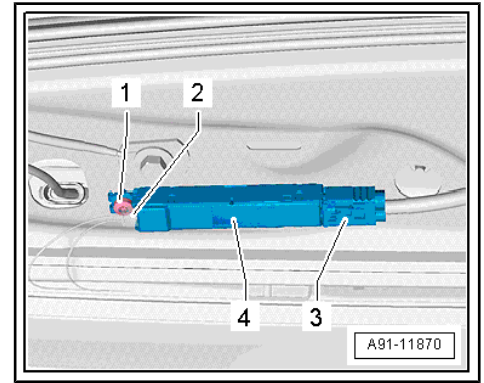
- Release and unplug connectors -2- and -3- at aerial amplifier 4 - R113- -4-.
- Unscrew bolt -1- and remove aerial amplifier 4 - R113- -4- from rear lid.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ➔ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)



3.4 Removing and installing roof aerial

The roof aerial - R216- has up to three connections.

Aerial wires are plugged in directly at base of roof aerial - R216- .

To remove roof aerial - R216- , lower moulded headliner at rear.

Removing

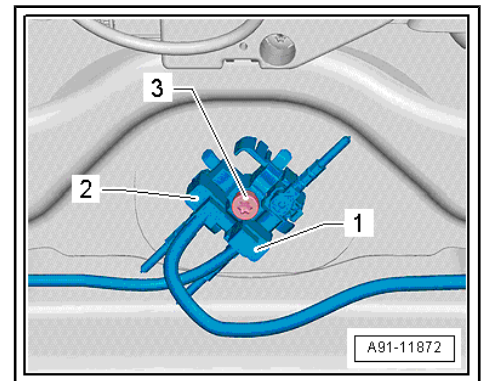
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove moulded headliner ➔ General body repairs, interior; Rep. gr. 70 ; Roof trim panels; Removing and installing moulded headliner .
- Release and unplug connectors -1- and -2- to aerial wires.
- Unscrew bolt -3- and detach retaining spring.
- Lift roof aerial - R216- off roof.

Installing

- Fit roof aerial - R216- onto roof and press on until it engages.
- Tighten pre-assembled bolt to specified torque.
- Continue installation in reverse sequence.

Tightening torques

- ◆ ➔ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)



3.5 Removing and installing window aerial suppression filter - C18-

Window aerial suppression filter - C18- is located behind D-pillar trim (right-side).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove D-pillar trim ➔ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing D-pillar trim .

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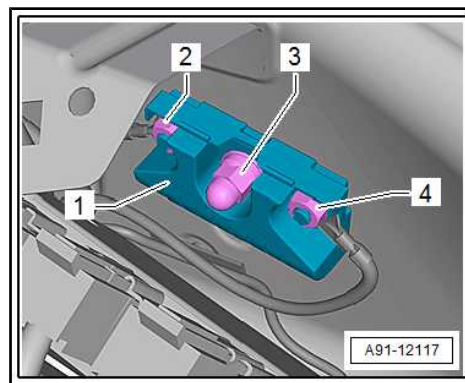
- Unscrew nuts -2- and -4- on window aerial suppression filter - C18- -1-.
- Disconnect wires on window aerial suppression filter - C18- -1- from mounting studs.
- Unscrew nut -3- and remove window aerial suppression filter - C18- -1- from D-pillar.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ♦ ⇒ [“3.2 Overview of fitting locations - aerial systems”, page 32](#)



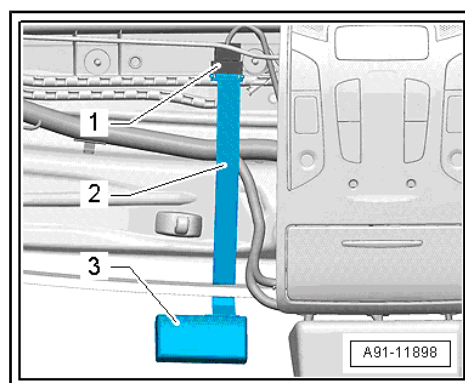
3.6 Removing and installing traffic data aerial

Traffic data aerial - R173- is located on windscreen (top left).

Removing

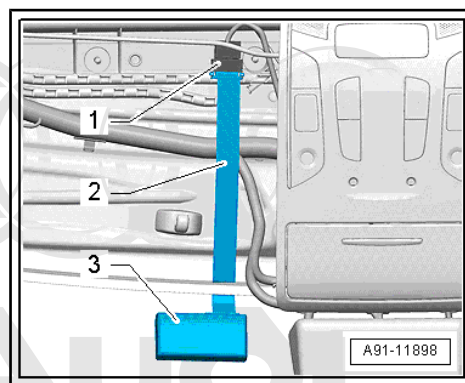
- Switch off ignition and all electrical equipment, and remove ignition key.

Electrical connectors -1- for traffic data aerial - R173- -3- are located behind the sun visor (left-side) on roof cross member. Ribbon cable -2- is routed at roof cross member; before disconnecting, moulded headliner must be removed.



- Remove moulded headliner ⇒ General body repairs, interior; Rep. gr. 70 ; Roof trim panels; Removing and installing moulded headliner .
- Release and unplug connector -1-.

Removing traffic data aerial - R173- :



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Traffic data aerial - R173- -1- is secured in bracket -3- by a locking element -2-. Bracket -3- is bonded to windscreen.

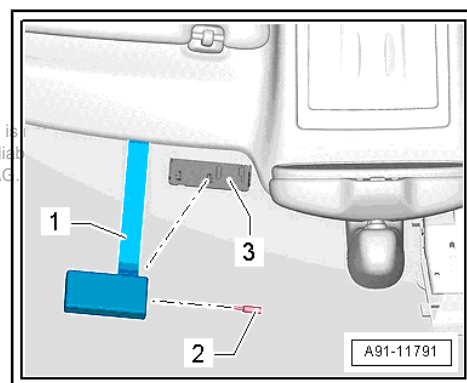
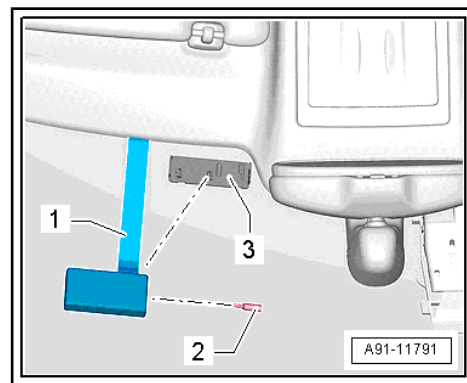


- Use small screwdriver to pull out locking element -2-.
- Pull traffic data aerial - R173- -1- out of bracket -3-.

Installing

- Install in reverse sequence of removal.

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3.7 Removing and installing internet access aerial - R266-

The internet access aerial - R266- (WLAN aerial) is located behind the glove box on the air duct.

Removing

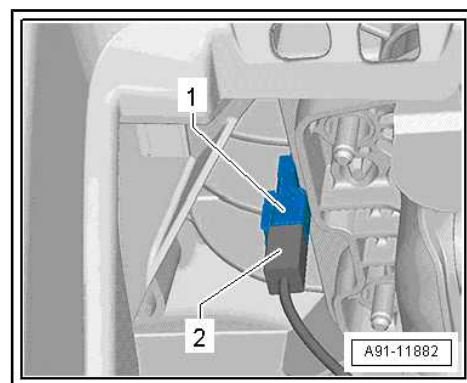
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove glove box ➔ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing glove box .

Internet access aerial - R266- is bonded to air duct.

- Unplug connector -2- at internet access aerial - R266- -1-.
- Use a small screwdriver to remove internet access aerial - R266- -1- from bonding area.

Installing

- Clean bonding area on air duct thoroughly with isopropanol.
- Remove protective foil on bonding surface of internet access aerial - R266- .
- Press and hold internet access aerial - R266- -1- against bonding area on air duct for about 10 seconds.
- Continue installation in reverse sequence.



3.8 Removing and installing emergency call module aerial - R263-

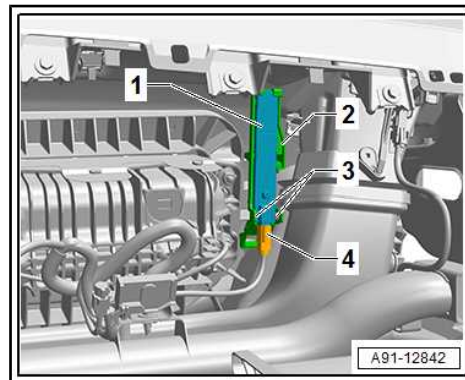
Emergency call module aerial - R263- is located behind glove box on right side of dash panel, NZ3 only.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove glove box ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing glove box .
- Release and unplug electrical connector -4-.
- Release retainers -3- on bracket -2-.
- Pull emergency call module aerial - R263- -1- out of bracket -2-.

Installing

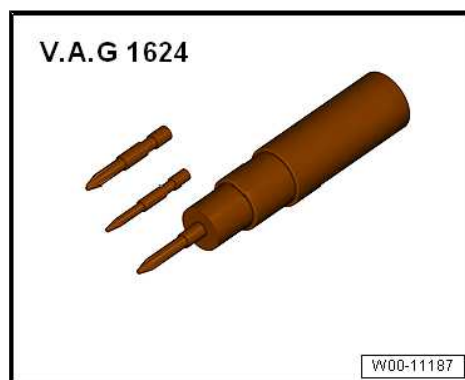
- Install in reverse sequence of removal.



3.9 Removing and installing GPS aerial 2 - R268-

Special tools and workshop equipment required

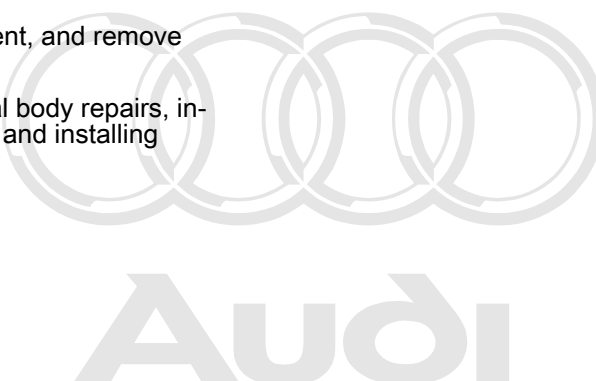
- ♦ Torque screwdriver - V.A.G 1624-



GPS aerial 2 - R268- is located in front centre of dash panel, NZ3 only.

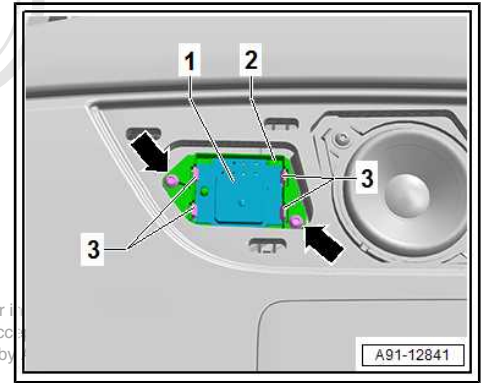
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove centre loudspeaker trim ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing loudspeaker trim .



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- Release retainers -3- on bracket -2-.
- Pull GPS aerial 2 - R268- -1- out of bracket -2- so that electrical connector is accessible.
- Release and unplug electrical connector at GPS aerial 2 - R268- -1-.
- Remove bolts -arrows-.
- Detach bracket -2- from dash panel.



Installing

- Install in reverse sequence of removal.

Tightening torques

Component	Tightening torque
Bracket to dash panel	1.5 Nm

3.10 Pin assignment

⇒ [“3.10.1 Pin assignment for aerial amplifier”, page 41](#)

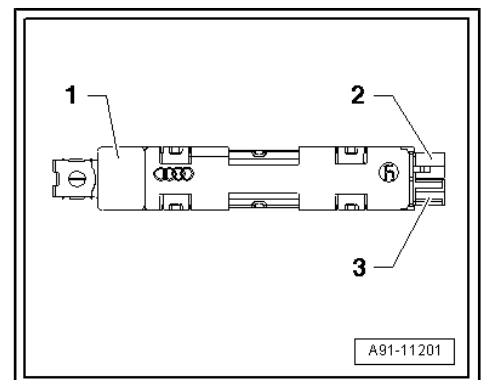
⇒ [“3.10.2 Pin assignment for roof aerial R216”, page 43](#)

⇒ [“3.10.3 Coupling point for aerial wires”, page 43](#)

3.10.1 Pin assignment for aerial amplifier

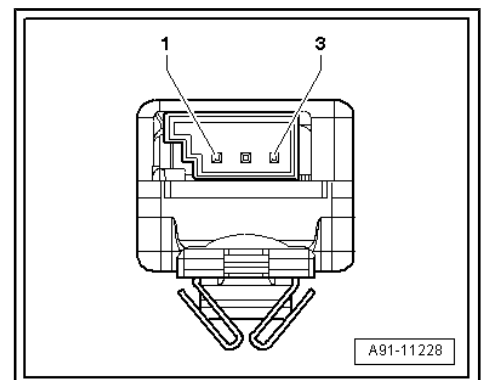
Aerial amplifier 4 - R113-

- 1 - Connection for window aerals, digital radio aerial - R183-
- 2 - DAB connection to radio - R-
- 3 - Not used



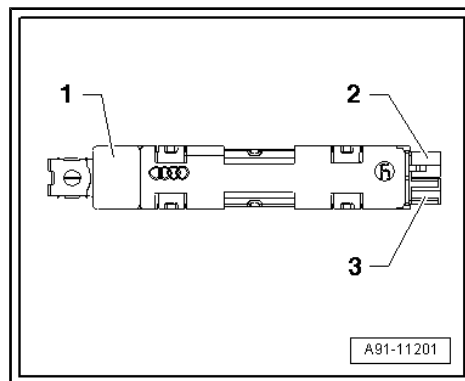
Window aerial connectors

- 1 - L band
- 2 - Band III
- 3 - Diag.



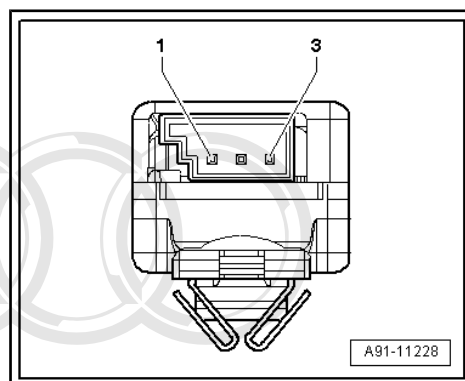
Aerial amplifier - R24-

- 1 - Connection for window aerals, radio aerial 2 - R93- / TV aerial 1 - R55-
- 2 - Connection AM/FM1 to radio - R-
- 3 - Connection TV1 to TV tuner - R78-



Window aerial connectors

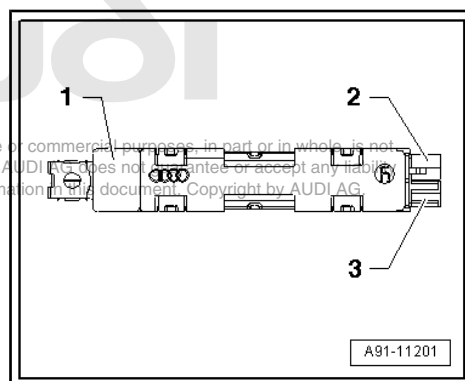
- 1 - Radio aerial 2 - R93- , AM
- 2 - Radio aerial 2 - R93- / TV aerial 1 - R55- , FM1/TV1/Diag.
- 3 - Diag.



Aerial amplifier 3 - R112-

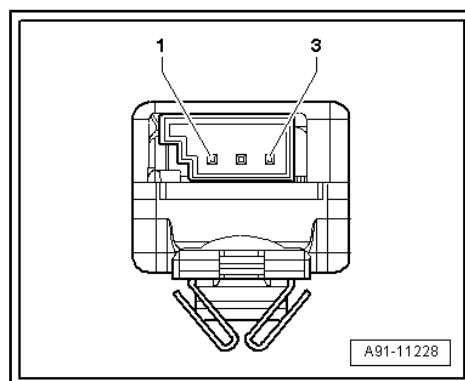
- 1 - Connection for window aerals, aerial - R11-
- 2 - Connection FM2 to radio - R-
- 3 - Not used

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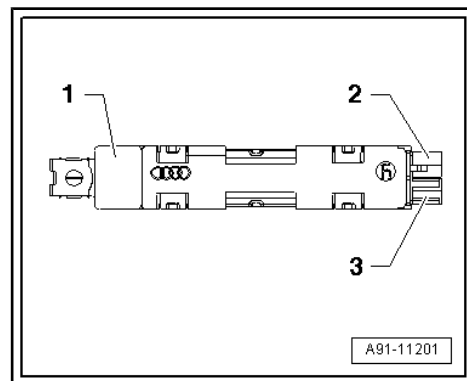
Window aerial connectors

- 1 - Not used
- 2 - Aerial - R11- , FM2/Diag.
- 3 - Not used



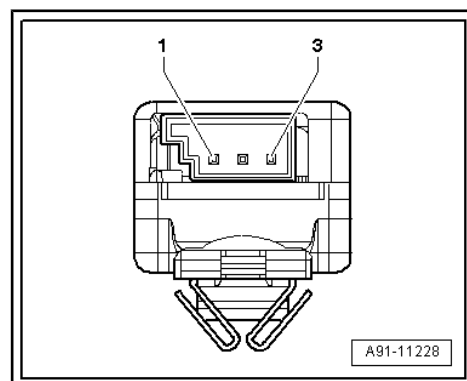
Aerial amplifier 2 - R111-

- 1 - Connection for window aerials, TV aerial 2 - R56- / TV aerial 3 - R57-
- 2 - Connection TV3 to TV tuner - R78-
- 3 - Connection TV2 to TV tuner - R78-



Window aerial connectors

- 1 - TV aerial 3 - R57- , TV3
- 2 - TV aerial 2 - R56- , TV2/Diag.
- 3 - Not used



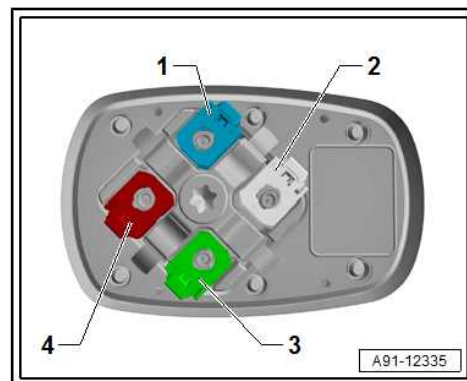
3.10.2 Pin assignment for roof aerial - R216-

Roof aerial - R216-

- 1 - GPS aerial - R50- , blue
- 2 - Not used, white
- 3 - Auxiliary heater aerial - R182- , green
- 4 - Telephone aerial - R65- , burgundy

NAR and QV8 only

- 1 - GPS aerial - R50- , blue
- 2 - Not used, white
- 3 - Satellite aerial - R170- , green
- 4 - Telephone aerial - R65- , burgundy

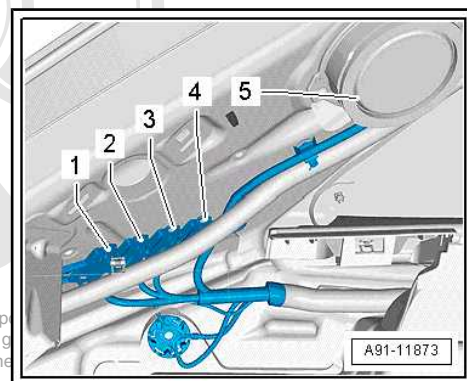


3.10.3 Coupling point for aerial wires

A coupling point is installed on the left D-pillar underneath the rear left loudspeaker - R24- for the aerial wires from the aerial amplifier - R112- , aerial amplifier 3 - R113- and aerial amplifier 4 - R4- .

Coupling point

- 1 - Not used
- 2 - Aerial amplifier - R24-
- 3 - Aerial amplifier 3 - R112-
- 4 - Aerial amplifier 4 - R113-
- 5 - Rear left loudspeaker - R24-



4 Radio

⇒ ["4.1 Layout - radio", page 44](#)

⇒ ["4.2 Overview - radio", page 47](#)

⇒ ["4.3 Removing and installing radio", page 51](#)

⇒ ["4.4 Pin assignment", page 53](#)

4.1 Layout - radio

⇒ ["4.1.1 Layout - radio chorus, CAN, 8UA", page 44](#)

⇒ ["4.1.2 Layout - radio concert RMC, CAN, 8AL, 8DS", page 44](#)

⇒ ["4.1.3 Layout - radio concert RMC, MOST, 8AJ", page 45](#)

4.1.1 Layout - radio chorus, CAN, 8UA

◆ Radio with integrated CD player

◆ Sound systems: basic, 8RE

Optional equipment

◆ Sound system: basic plus, 8RX

◆ Pre-fitted components for mobile phone installation

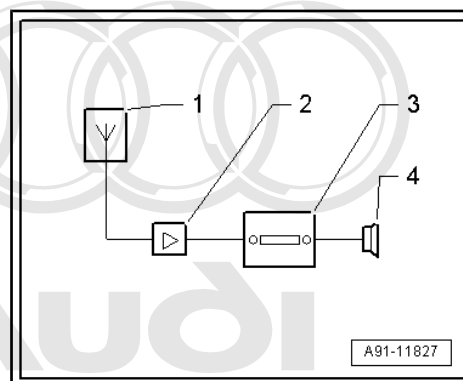
The connection to other systems in the vehicle takes place via the CAN bus (infotainment) and the data bus diagnostic interface - J533- .

1 - Radio aerial 2 - R93- in rear window

2 - Aerial amplifier - R24- behind rear lid trim (top left)

3 - Radio - R- in dash panel

4 - Sound systems



4.1.2 Layout - radio concert RMC, CAN, 8AL, 8DS

◆ Radio with integrated CD player

◆ Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

◆ Sound systems: basic/basic plus/Standard, 8RE/8RX/9VD

◆ SD memory card reader

Optional equipment

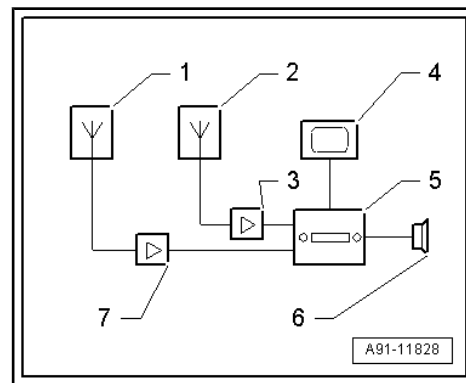
◆ Connection for external audio sources - R199- (AUX IN socket) in centre console storage compartment, UF2

◆ Pre-fitted components for mobile phone installation

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The connection to other systems in the vehicle takes place via the CAN bus (infotainment) and the data bus diagnostic interface - J533- .

- 1 - Radio aerial 2 - R93- in rear window
- 2 - Aerial - R11- in rear window
- 3 - Aerial amplifier 3 - R112- behind rear lid trim (bottom left)
- 4 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)
- 5 - Radio - R- in dash panel
- 6 - Sound systems
- 7 - Aerial amplifier - R24- behind rear lid trim (top left)



4.1.3 Layout - radio concert RMC, MOST, 8AJ

- ◆ Control unit 1 for information electronics - J794- with integrated CD player/SD memory card readers in dash panel
- ◆ Integrated operating unit
- ◆ Integrated radio - R-
- ◆ Display unit for front information display and operating unit control unit - J685- in dash panel (centre)
- ◆ Connection for external audio sources - R199- (AUX IN socket) in centre console storage compartment, UF2
- ◆ Sound systems: basic plus/Standard/BOSE, 8RX/9VD/9VK

Optional equipment

- ◆ CD changer - R41- in rear left of luggage compartment, 7A2
- ◆ Connection for external audio sources - R199- (AMI) in glove box, UF7
- ◆ Digital sound package control unit - J525- (BOSE sound system) in luggage compartment (right-side) beneath luggage compartment floor covering
- ◆ Mobile phone pre-installation, 9ZF
- ◆ Bluetooth hands-free system, 9ZX
- ◆ Multi-function steering wheel
- ◆ AMI online (WiFi), UE2



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1 - Roof aerial - R216-

2 - Telephone bracket - R126-
in centre console storage compartment

3 - Control unit 1 for information electronics - J794- in dash panel

4 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

5 - Sound systems

6 - MOST bus

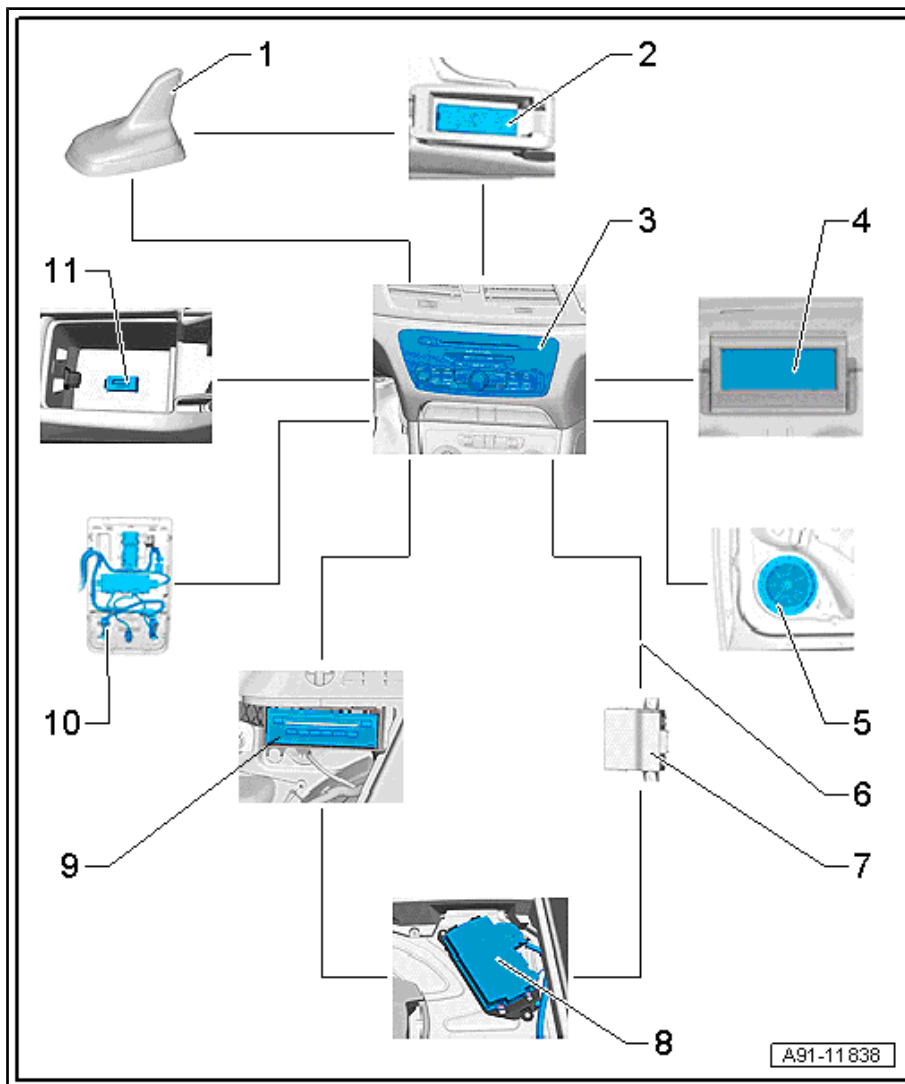
7 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

8 - Digital sound package control unit - J525- (BOSE sound system) in luggage compartment (right-side) beneath luggage compartment floor

9 - CD changer - R41- in luggage compartment (left-side) behind flap

10 - Microphone unit in front roof module - R164- (telephone microphone - R38-) in front interior light - W1-

11 - Connection for external audio sources - R199- (AMI) in centre console storage compartment



Fault finding is performed using ⇒ Vehicle diagnostic tester.



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4.2 Overview - radio

⇒ [“4.2.1 Overview - radio chorus, CAN, 8UA”, page 47](#)

⇒ [“4.2.2 Overview - radio concert RMC, CAN, 8AL”, page 48](#)

⇒ [“4.2.3 Overview - radio concert RMC, MOST, 8AJ”, page 49](#)

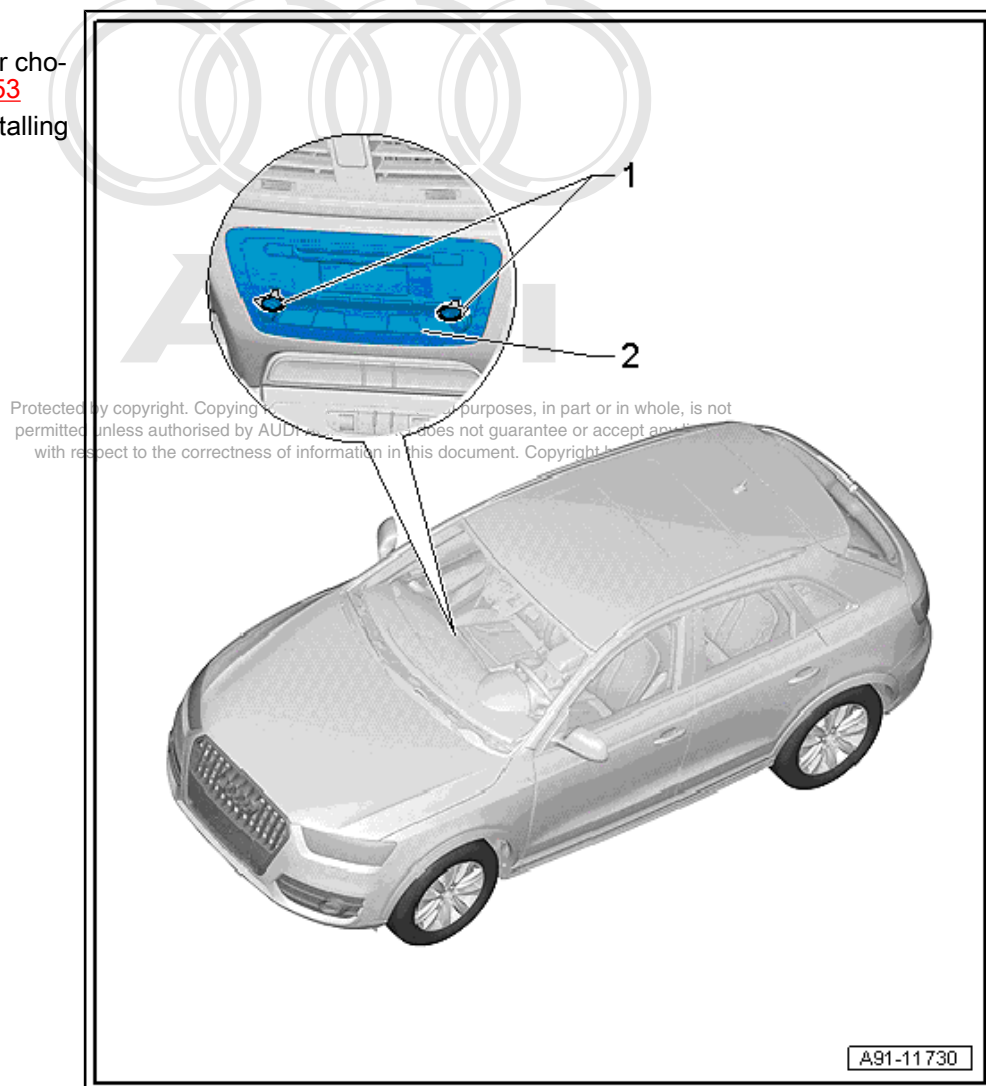
⇒ [“4.2.4 Overview - radio concert RMC, MOST, NAR, 8DY”, page 50](#)

4.2.1 Overview - radio chorus, CAN, 8UA

1 - Radio - R-

- ☐ Pin assignment for chorus radio ⇒ [page 53](#)
- ☐ Removing and installing ⇒ [page 51](#)

2 - Radio release tool - T10057-



4.2.2 Overview - radio concert RMC, CAN, 8AL

1 - Radio - R-

- ☐ Pin assignment for concert radio
- ☐ Removing and installing
⇒ [page 51](#)

2 - Radio release tool - T10057-

3 - Bolt

- ☐ 3 Nm

4 - Display carrier

- ☐ Removing and installing
⇒ [page 6](#)

5 - Bolt

- ☐ 4x
- ☐ 2 Nm

6 - Display carrier

- ☐ Removing and installing
⇒ [page 6](#)

7 - Display unit for front information display and operating unit control unit - J685-

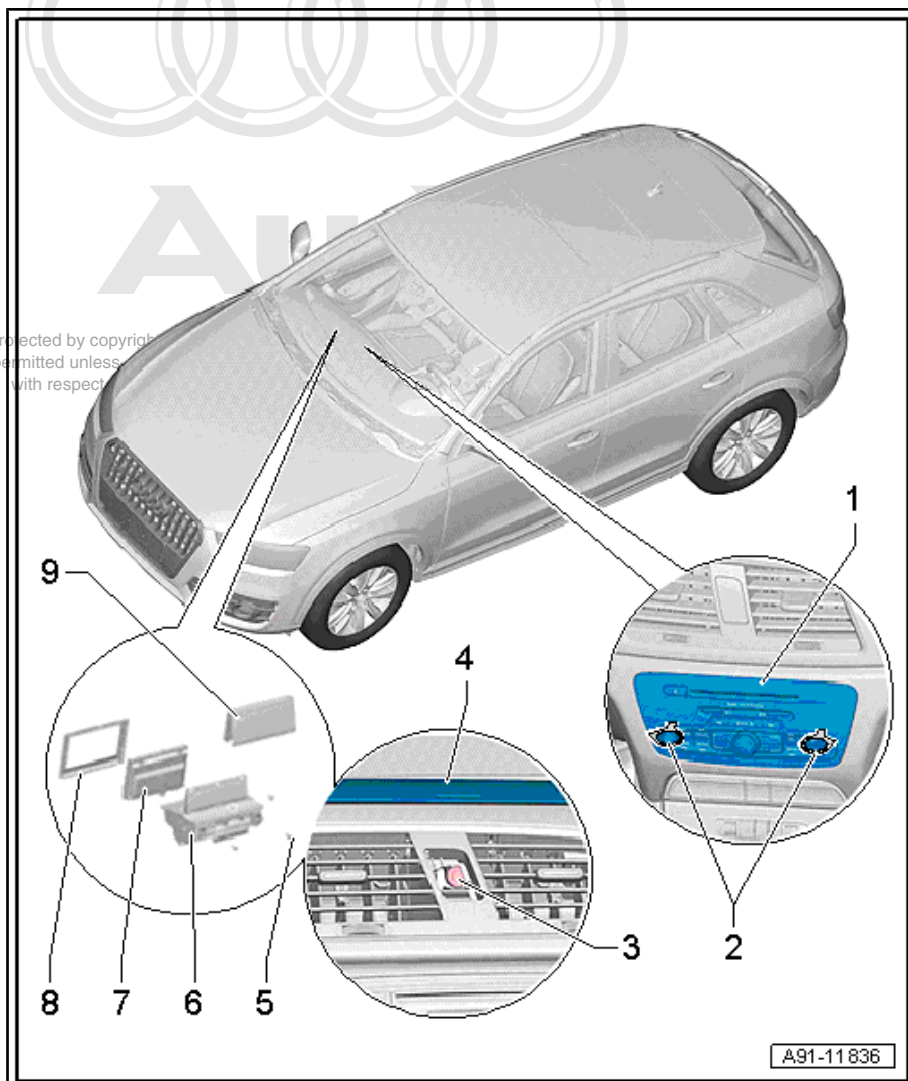
- ☐ Pin assignment
⇒ [page 14](#)
- ☐ Removing and installing
⇒ [page 6](#)

8 - Front trim panel

- ☐ Clipped to display
- ☐ Removing and installing
⇒ [page 6](#)

9 - Rear trim panel

- ☐ Clipped to display carrier
- ☐ Removing and installing ⇒ [page 6](#)



4.2.3 Overview - radio concert RMC, MOST, 8AJ

1 - Connection for external audio sources - R199-

- ☐ Pin assignment
⇒ [page 131](#)
- ☐ Removing and installing
⇒ [page 129](#)

2 - CD changer - R41-

- ☐ Pin assignment
⇒ [page 61](#)
- ☐ Removing and installing
⇒ [page 60](#)

3 - Radio release tool - T10057-

4 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment for radio concert ⇒ [page 55](#)
- ☐ Removing and installing
⇒ [page 51](#)

5 - Radio release tool - T10057-

6 - Bolt

- ☐ 3 Nm

7 - Display carrier

- ☐ Removing and installing
⇒ [page 6](#)

8 - Bolt

- ☐ 4x
- ☐ 2 Nm

9 - Display carrier

- ☐ Removing and installing
⇒ [page 6](#)

10 - Display unit for front information display and operating unit control unit - J685-

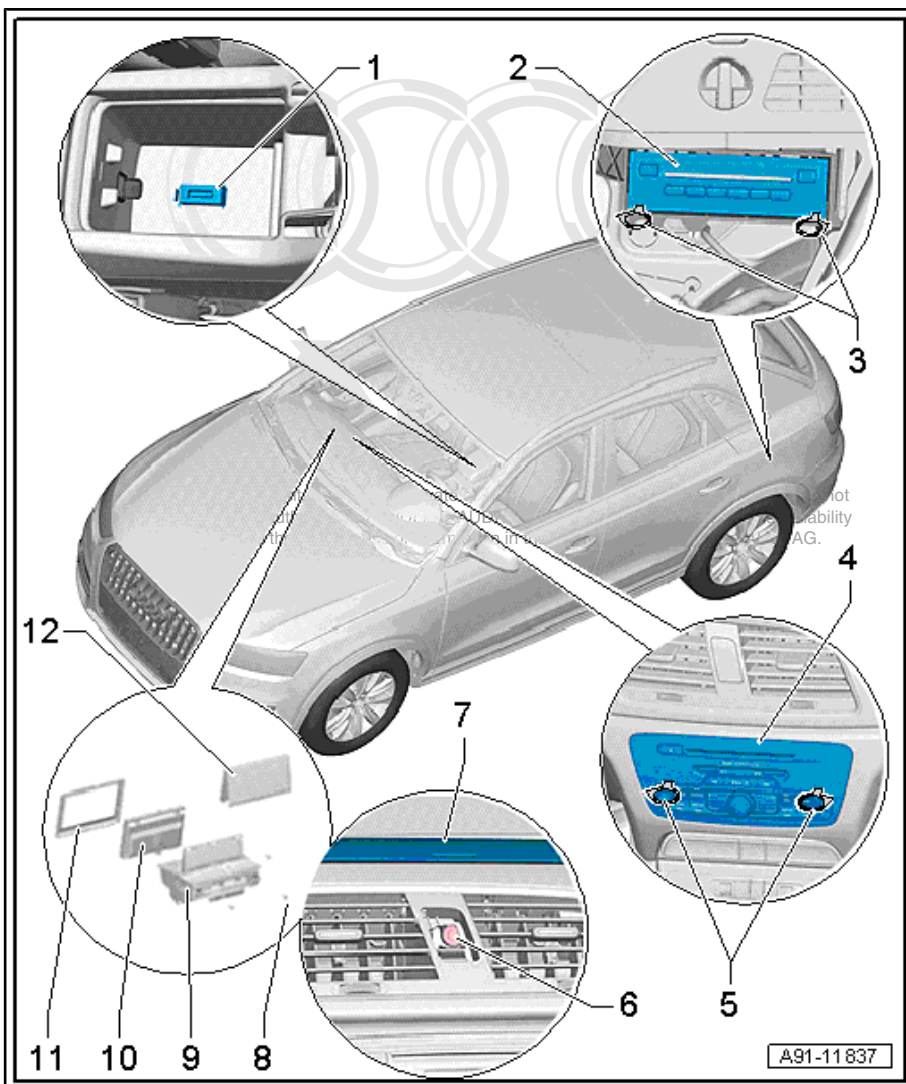
- ☐ Pin assignment ⇒ [page 14](#)
- ☐ Removing and installing ⇒ [page 6](#)

11 - Front trim panel

- ☐ Clipped to display
- ☐ Removing and installing ⇒ [page 6](#)

12 - Rear trim panel

- ☐ Clipped to display carrier
- ☐ Removing and installing ⇒ [page 6](#)



4.2.4 Overview - radio concert RMC, MOST, NAR, 8DY

1 - Connection for external audio sources - R199-

- ☐ Pin assignment
⇒ [page 131](#)
- ☐ Removing and installing
⇒ [page 129](#)

2 - CD changer - R41-

- ☐ Pin assignment
⇒ [page 61](#)
- ☐ Removing and installing
⇒ [page 60](#)

3 - Radio release tool - T10057-

4 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment for radio concert ⇒ [page 55](#)
- ☐ Removing and installing
⇒ [page 51](#)

5 - Radio release tool - T10057-

6 - Bolt

- ☐ 3 Nm

7 - Display carrier

- ☐ Removing and installing
⇒ [page 8](#)

8 - Bolt

- ☐ 4x
- ☐ 2 Nm

9 - Display carrier

- ☐ Removing and installing
⇒ [page 8](#)

10 - Display unit for front information display and operating unit control unit - J685-

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- ☐ Pin assignment ⇒ [page 14](#)
- ☐ Removing and installing ⇒ [page 8](#)

11 - Front trim panel

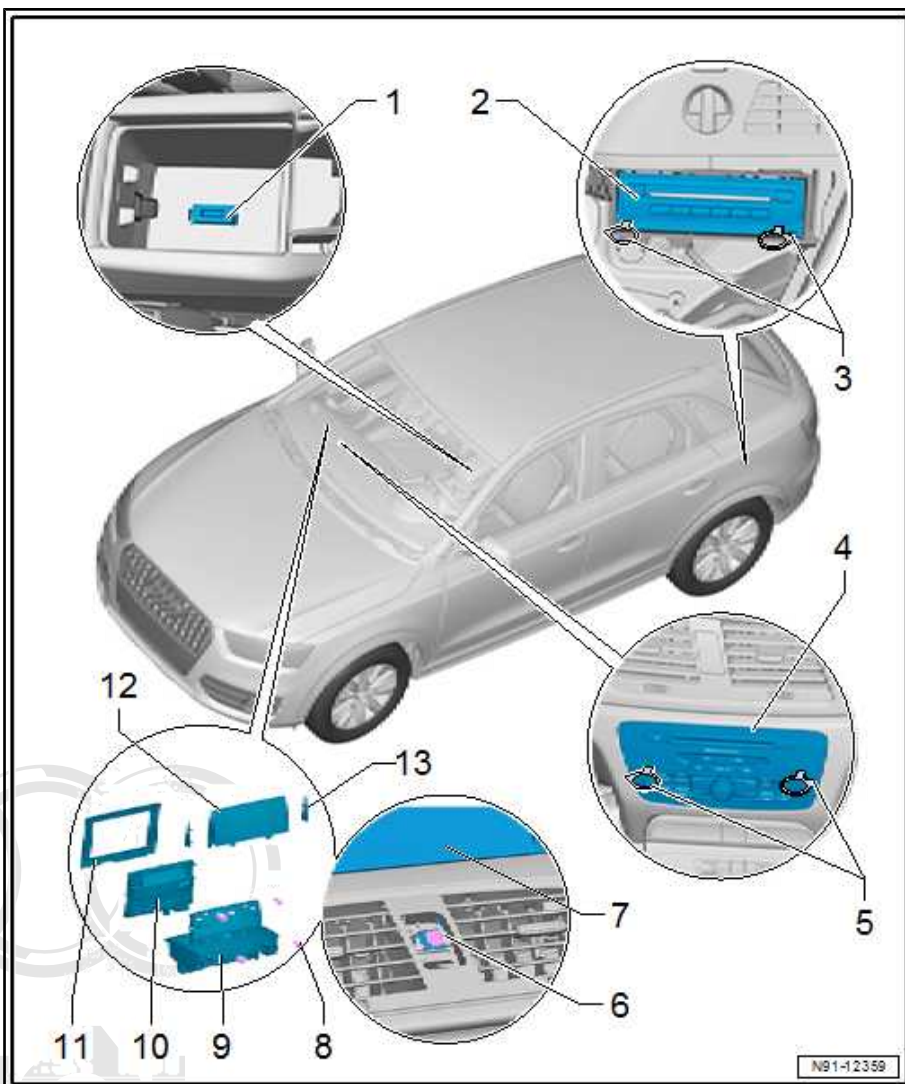
- ☐ Clipped to display
- ☐ Removing and installing ⇒ [page 8](#)

12 - Rear trim panel

- ☐ Clipped to display carrier
- ☐ Removing and installing ⇒ [page 8](#)

13 - Side trim

- ☐ On both sides
- ☐ Clipped to rear trim panel
- ☐ Removing and installing ⇒ [page 8](#)



4.3 Removing and installing radio

⇒ [“4.3.1 Removing and installing radio chorus, 8UA”, page 51](#)

⇒ [“4.3.2 Removing and installing radio concert, 8AJ, 8DY”, page 51](#)

⇒ [“4.3.3 Removing and installing MMI radio, 8YQ”, page 52](#)

4.3.1 Removing and installing radio chorus, 8UA

Radio - R- is located in dash panel.

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Note

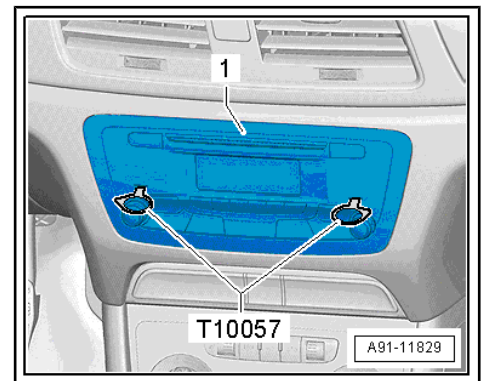
If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Removing

- Shift selector lever to “S” position (automatic gearbox) or move gear lever all the way to the rear (manual gearbox).
- Switch off ignition and all electrical equipment, and remove ignition key.
- Insert two radio release tools - T10057- into slots on radio - R- -1- until they engage. Pointed ends of grips must face outwards.
- Grasp hold of grips on radio release tools - T10057- and pull radio - R- -1- out of dash panel.
- Release and unplug connectors on radio - R- .
- Press release tabs on radio - R- and remove radio release tools - T10057- .

Installing

- Installation is carried out in reverse sequence; note the following:
- Plug all connectors in.
- Slide radio - R- into dash panel until it engages.



4.3.2 Removing and installing radio concert, 8AJ, 8DY

Radio - R- is located in dash panel.



Note

If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.

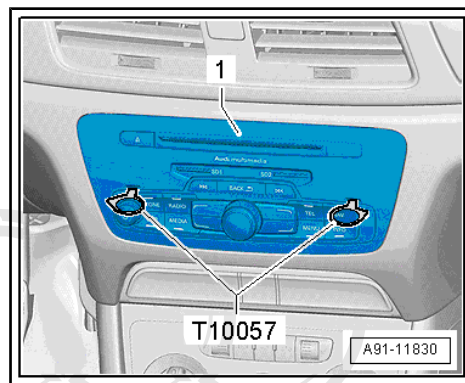
Removing

- Shift selector lever to “S” position (automatic gearbox) or move gear lever all the way to the rear (manual gearbox).
- Switch off ignition and all electrical equipment, and remove ignition key.

- Insert two radio release tools - T10057- into slots on radio - R- -1- until they engage. Pointed ends of grips must face outwards.
- Grasp hold of grips on radio release tools - T10057- and pull radio - R- -1- out of dash panel.
- Release and unplug connectors on radio - R- .
- Press release tabs on radio - R- and remove radio release tools - T10057- .

Installing

- Installation is carried out in reverse sequence; note the following:
- Plug all connectors in.
- Slide radio - R- into dash panel until it engages.



4.3.3 Removing and installing MMI radio, 8YQ

Radio - R- is located in luggage compartment (left-side) behind flap.

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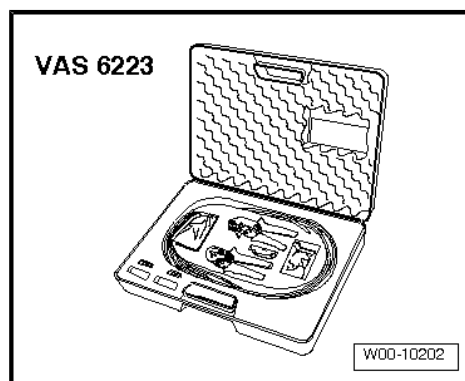


Note

If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Special tools and workshop equipment required

- ♦ Protective cap for cable connector - VAS 6223/9-

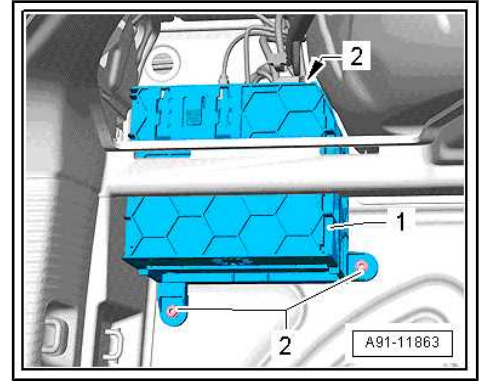


Removing

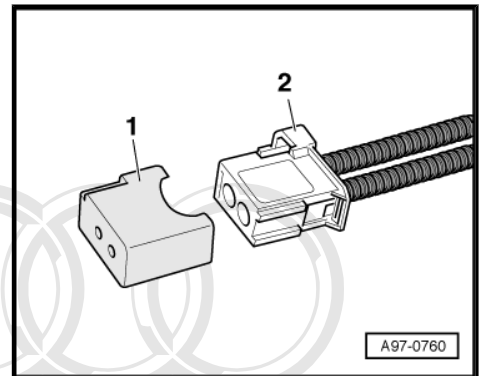
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove cover on left in luggage compartment and remove luggage compartment floor covering.

The control unit bracket must be removed prior to removing the radio - R- .

- Remove nuts -2- on bracket -1-.
- Swivel bracket -1- into luggage compartment until front sides of radio - R- and TV tuner - R78- are accessible.
- Release and unplug all connectors on radio - R- and TV tuner - R78- .



- Fit protective cap for cable connector - VAS 6223/9- -1- onto MOST bus connector -2-.



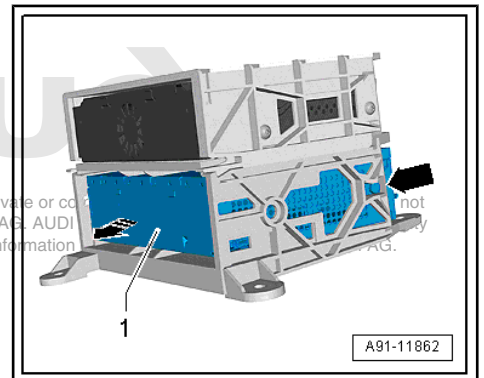
- Press spring catches -arrow- on radio - R- -1- on both sides.
- Pull radio - R- -1- out of bracket towards rear -arrow-.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“1.2 Overview of fitting locations - infotainment system”, page 4](#)



4.4 Pin assignment

⇒ [“4.4.1 Pin assignment for radio chorus, 8UA”, page 53](#)

⇒ [“4.4.2 Pin assignment for radio concert, RMC, 8AL, 8AJ, 8DY”, page 55](#)

⇒ [“4.4.3 Pin assignment for MMI radio, 8YQ”, page 58](#)

4.4.1 Pin assignment for radio chorus, 8UA

Radio - R-

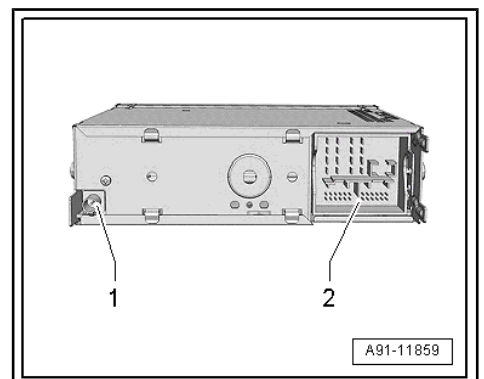
- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - Connection block with four multi-pin connectors



Note

Contacts which are not listed are not used.

- 2 - Connection block with four multi-pin connectors



A - 8-pin connector - T8b-

- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left

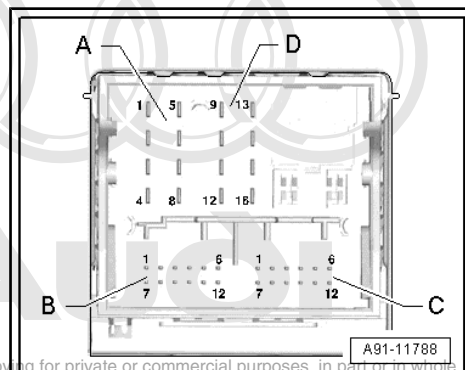
B - Not used

C - 12-pin connector - T12i-

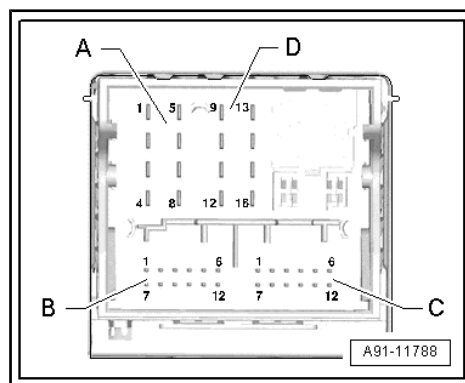
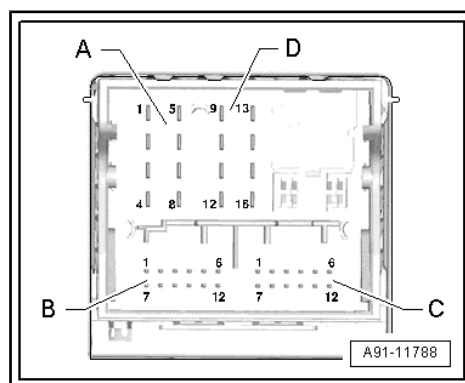
- 1 - NF in, left-side (low frequency) from connection for external audio sources - R199-
- 2 - NF in, right-side (low frequency) from connection for external audio sources - R199-
- 6 - NF (-) (low frequency) from pre-fitted components for mobile phone installation
- 7 - NF in, earth (low frequency) from connection for external audio sources - R199-
- 10 - NF mute (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-
- 12 - NF (+) (low frequency) from pre-fitted components for mobile phone installation

D - 8-pin connector - T8k-

- 9 - CAN bus High, infotainment
- 10 - CAN bus Low, infotainment
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Permanent live connected to PIN 15, anti-theft alarm



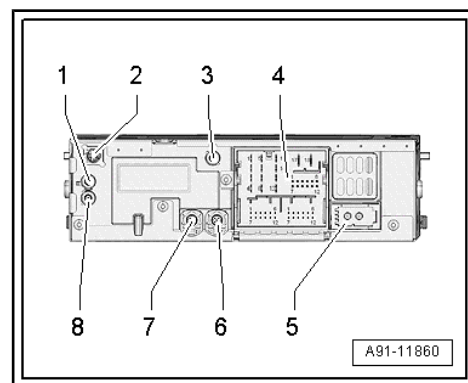
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4.4.2 Pin assignment for radio concert, RMC, 8AL, 8AJ, 8DY

Radio - R-

- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - DAB connection from aerial amplifier 4 - R113- , digital radio aerial - R183- , versions with MOST only
- 3 - Not fitted
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- from connection for external audio sources - R199- / internet access control unit - J666- , versions with MOST only
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11- NAR, 8DY and QV8 only



- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - SAT connection from roof aerial - R216- , satellite aerial - R170- , versions with MOST only
- 3 - Not fitted
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- from connection for external audio sources - R199- / internet access control unit - J666- , versions with MOST only
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11-



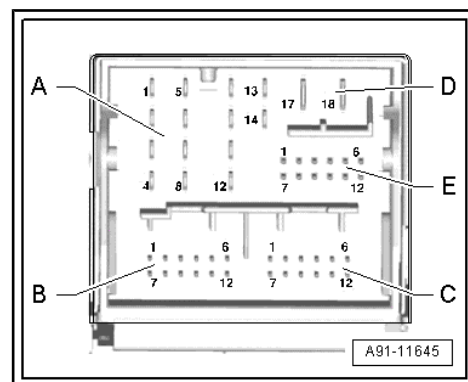
Note

Contacts which are not listed are not used.

4 - Connection block with four multi-pin connectors

A - 8-pin connector - T8ag-

- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left



B - 12-pin connector - T12x-

3 - NF mute (low frequency) from emergency call module control unit and communication unit - J949-

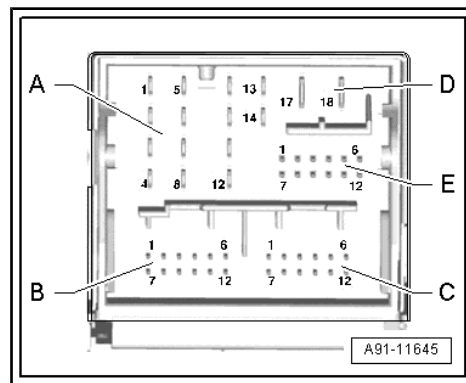
4 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

5 - FBAS wire (-) from reversing camera system control unit - J772-

6 - DIAG signal from telephone bracket - R126-

11 - FBAS wire (+) from reversing camera system control unit - J772-

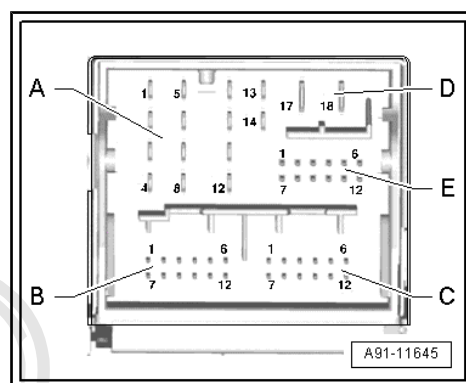
12 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-



C - 12-pin connector - T12y- , versions with MOST only

All pins are connected to the connection for external audio sources - R199- .

- 1 - NF in, earth (low frequency)
- 2 - NF in, right-side (low frequency)
- 3 - USB (+5 V), not with internet access control unit - J666- , UE2
- 4 - USB, earth
- 5 - iPod, ACC power
- 6 - Detect, not with internet access control unit - J666- , UE2
- 7 - NF in, left-side (low frequency)
- 8 - NF in, screen earth (low frequency)
- 9 - FBAS wire (+)
- 10 - FBAS wire (-)
- 11 - iPod data
- 12 - iPod data

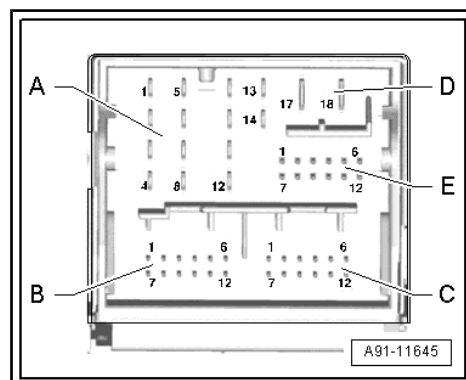


The following pins are also connected to the internet access control unit - J666- , UE2.

- 3 - USB, +5 V
- 4 - USB, earth
- 6 - Detect

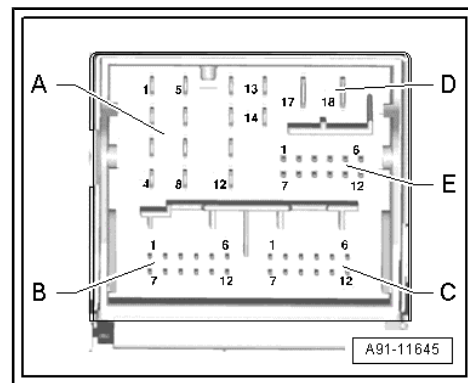
D - 8-pin connector - T8j-

- 9 - Subwoofer - R211-
- 10 - Centre loudspeaker - R208-
- 13 - Subwoofer - R211-
- 14 - Centre loudspeaker - R208-
- 17 - Terminal 31
- 18 - Terminal 30



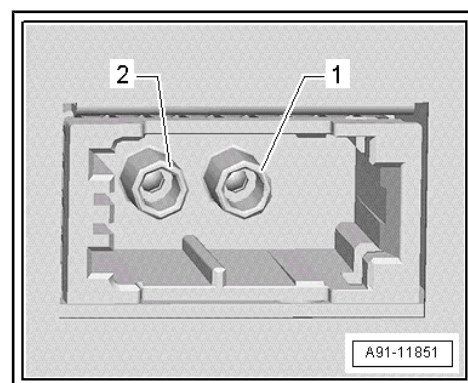
E - 12-pin connector - T12w-

- 1 - CAN bus Low, infotainment
- 2 - NF input (-) (low frequency) from emergency call module control unit and communication unit - J949-
- 7 - CAN bus High, infotainment
- 7 - Open circuit diagnostic lead, versions with MOST only
- 8 - NF input (+) (low frequency) from emergency call module control unit and communication unit - J949-
- 12 - Switch-on signal to telephone bracket - R126- / aerial amplifier for mobile telephone - R86- , versions with MOST only



5 - MOST bus, versions without CAN

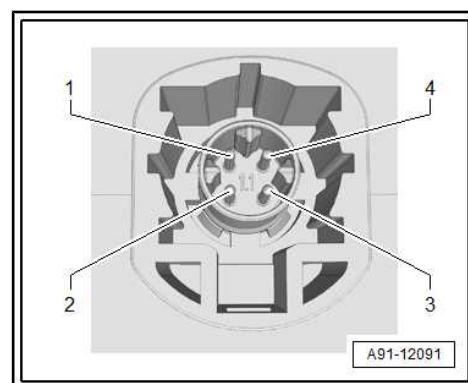
- 1 - Output
- 2 - Input



6 - 4-pin connector - T4ap- , versions with MOST only

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666- .

- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth

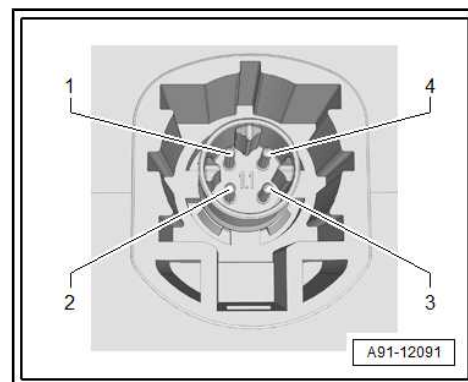


7 - 4-pin connector - T4d-

All pins are connected to the display unit for front information display and operating unit control unit - J685- .

- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth

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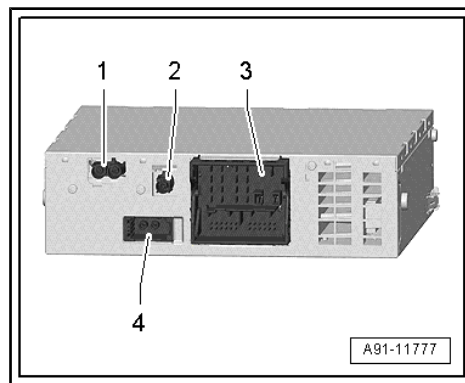
4.4.3 Pin assignment for MMI radio, 8YQ

Radio - R-

- 1 - Connection, AM/FM1/FM2
- 2 - DAB connection from aerial amplifier 4 - R113- , digital radio aerial - R183-
- 3 - Connection block with four multi-pin connectors
- 4 - MOST bus

NAR and QV8 only

- 1 - Connection, AM/FM1/FM2
- 2 - SAT connection from roof aerial - R216- , satellite aerial - R170-
- 3 - Connection block with four multi-pin connectors
- 4 - MOST bus

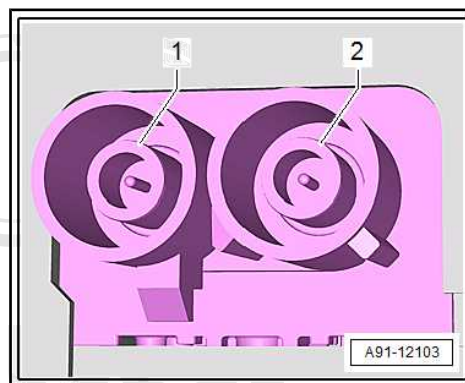


Note

Contacts which are not listed are not used.

1 - Aerial connection, AM/FM1/FM2

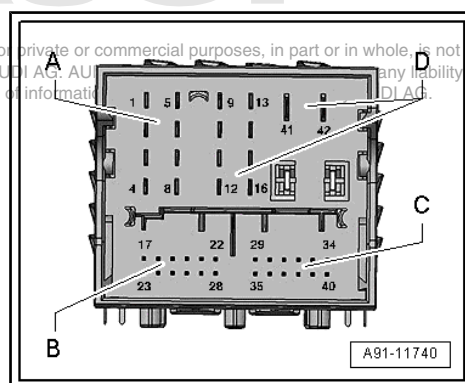
- 1 - Contact 2, AM/FM1 from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - Contact 1, FM2 from aerial amplifier 3 - R112- , aerial - R11-
- 3 - Connection block with four multi-pin connectors



A - 8-pin connector - T8af-

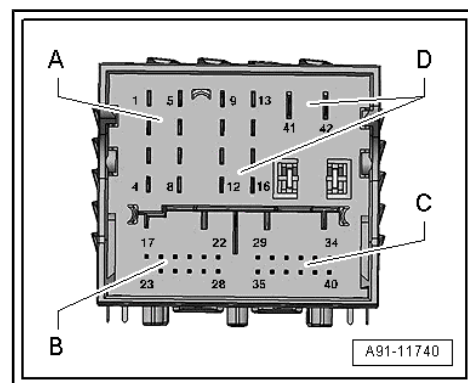
- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left

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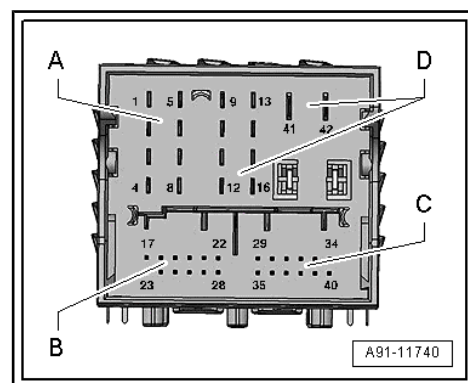
B - 12-pin connector - T12-

- 17 - NF in, left-side (low frequency)
- 18 - NF in, earth (low frequency)
- 19 - NF in, diag (low frequency)
- 21 - NF diag (low frequency)
- 22 - NF (-) (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-
- 23 - NF in, right-side (low frequency)
- 24 - NF in, screen earth (low frequency)
- 27 - NF screen earth (low frequency)
- 28 - NF (+) (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-



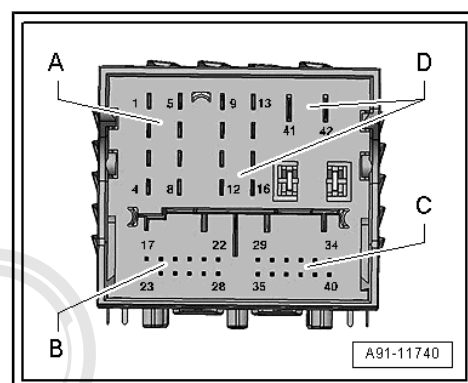
C - 12-pin connector - T12-

- 29 - Headphones output 1 (diag)
- 31 - Headphones output 1/2 (diag)
- 34 - Headphones output 2 (diag)
- 35 - Headphones output 1 (left)
- 36 - Headphones output 1 (earth)
- 37 - Headphones output 1 (right)
- 38 - Headphones output 2 (left)
- 39 - Headphones output 2 (earth)
- 40 - Headphones output 2 (right)



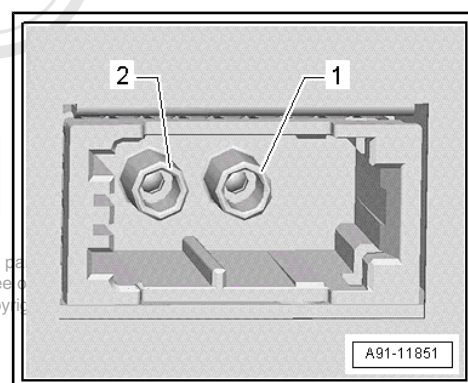
D - 10-pin connector - T10ag-

- 9 - Subwoofer - R211-
- 10 - Centre loudspeaker - R208-
- 11 - Open circuit diagnostic lead
- 13 - Subwoofer - R211-
- 14 - Centre loudspeaker - R208-
- 41 - Terminal 31
- 42 - Terminal 30



4 - MOST bus

- 1 - Output
- 2 - Input



5 DVD/CD changer

⇒ ["5.1 Removing and installing CD changer", page 60](#)

⇒ ["5.2 Pin assignment", page 61](#)

5.1 Removing and installing CD changer

The CD changer - R41- is located behind the luggage compartment trim (left-side).

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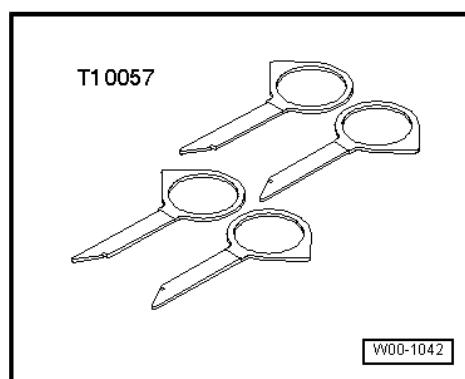


Note

If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Special tools and workshop equipment required

- ◆ Radio release tool - T10057-



- ◆ Fibre-optic conductor repair set - VAS 6223-

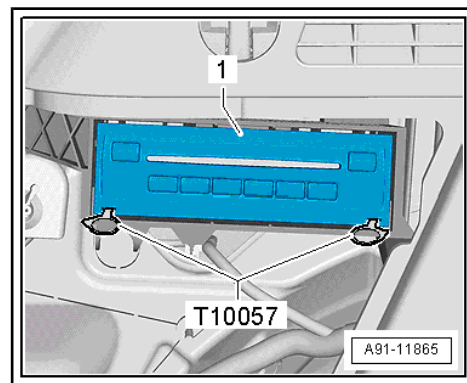


- ◆ Protective cap for cable connector - VAS 6223/9-

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove cover on left in luggage compartment.

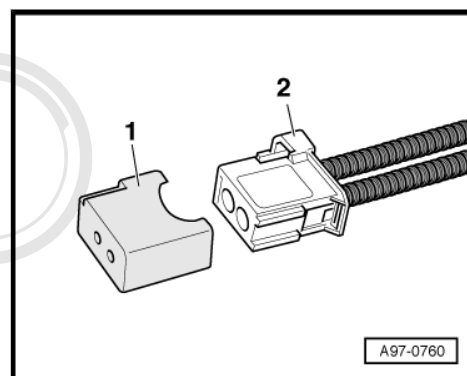
- Insert two radio release tools - T10057- into slots on CD changer - R41- -1- until they engage. Pointed ends of grips must face outwards.
- Pull CD changer - R41- -1- out of mounting frame.
- Release and unplug all connectors on CD changer - R41- .



- Fit protective cap for cable connector - VAS 6223/9- -1- onto MOST bus connector -2-.
- Press release tabs on CD changer - R41- and remove radio release tools - T10057- .

Installing

- Installation is carried out in reverse sequence; note the following:
- Plug all connectors in.
- Slide CD changer - R41- into mounting frame until it engages.



5.2 Pin assignment

CD changer - R41-

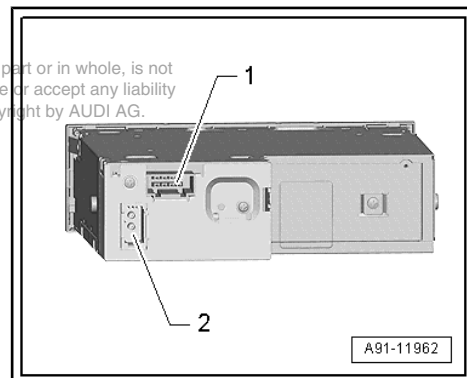
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- 1 - 8-pin connector - T8aa-
- 2 - MOST bus



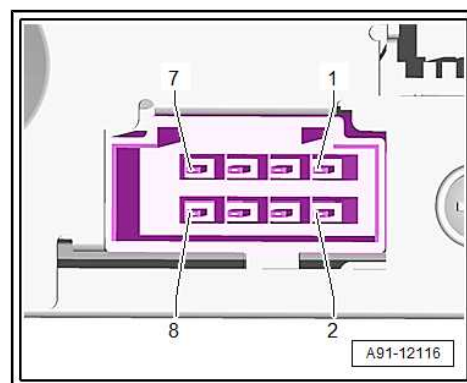
Note

Contacts which are not listed are not used.



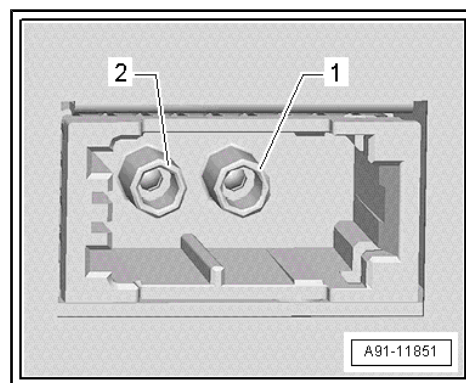
1 - 8-pin connector - T8aa-

- 1 - Terminal 31
- 2 - Terminal 30
- 5 - Open circuit diagnostic lead



2 - MOST bus

- 1 - Output
- 2 - Input



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6 Telephone system

⇒ [“6.1 Layout - telephone”, page 63](#)

⇒ [“6.2 Overview of fitting locations - telephone system”, page 67](#)

⇒ [“6.3 Exploded view - microphone unit”, page 67](#)

⇒ [“6.4 Removing and installing microphone unit in front roof module R164 ”, page 68](#)

⇒ [“6.5 Removing and installing aerial amplifier for mobile telephone R86 ”, page 69](#)

⇒ [“6.6 Removing and installing telephone bracket R126 ”, page 69](#)

⇒ [“6.7 Pin assignment”, page 71](#)

6.1 Layout - telephone

⇒ [“6.1.1 Layout - telephone, mobile phone pre-installation, 9ZF”, page 63](#)

⇒ [“6.1.2 Layout - telephone, pre-fitted components for mobile phone installation”, page 64](#)

⇒ [“6.1.3 Layout - telephone, Bluetooth hands-free system, 9ZX”, page 65](#)

6.1.1 Layout - telephone, mobile phone pre-installation, 9ZF

Mobile phone pre-installation in control unit 1 for information electronics - J794- , concert MOST, 9ZF

The telephone bracket - R126- is fitted in the centre console. The system is operated using the concert MOST system or the mobile telephone - R54- .

Microphones for the microphone unit in front roof module - W1- are integrated in the front interior light - R164- . One of these microphones (telephone microphone - R38-) is connected directly to the control unit 1 for information electronics - J794- .

The aerial connection is located at the telephone bracket - R126- .

Mobile phone pre-installation in control unit 1 for information electronics - J794- , MMI MOST, 9ZF

The telephone bracket - R126- is fitted in the centre console. The system is operated using the MMI infotainment system or the mobile telephone - R54- .

Microphones for the microphone unit in front roof module - W1- are integrated in the front interior light - R164- . One of these microphones (telephone microphone - R38-) is connected directly to the control unit 1 for information electronics - J794- .

The aerial connection is located at the telephone bracket - R126- .

Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information; Rep. gr. 97 ; Repairing aerial wires .

1 - Roof aerial - R216-

2 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

3 - Control unit 1 for information electronics - J794- in dash panel

4 - Microphone unit in front roof module - R164- (telephone microphone - R38-) in front interior light - W1-

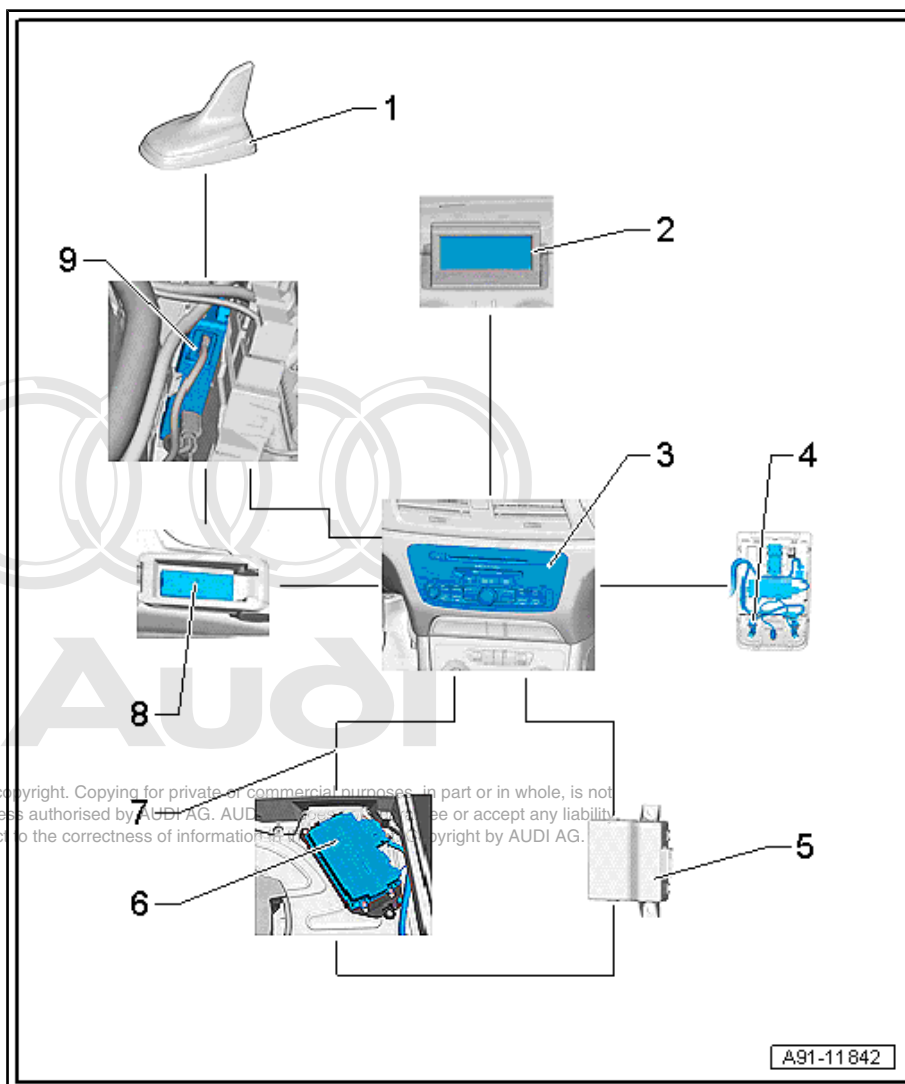
5 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

6 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor

7 - MOST bus

8 - Telephone bracket - R126- with mobile telephone - R54-

9 - Aerial amplifier for mobile telephone - R86- behind luggage compartment trim (right-side)

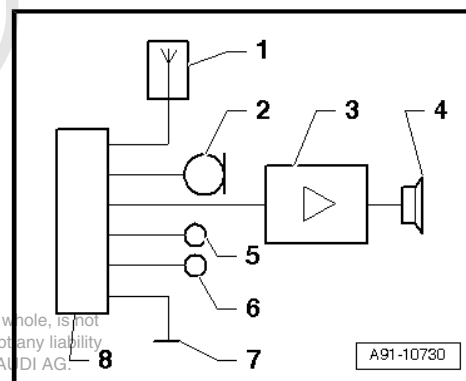


6.1.2 Layout - telephone, pre-fitted components for mobile phone installation

- ◆ The connector for pre-fitted components is located beneath the storage compartment in the centre console.
- ◆ Microphones for the microphone unit in front roof module - W1- are integrated in the front interior light - R164- . One of the microphones (telephone microphone - R38-) is connected to the connector.
- ◆ The aerial connection for the telephone aerial - R65- is located at the connector.

Pre-fitted components for mobile phone installation

- 1 - Roof aerial - R216-
- 2 - Microphone unit in front roof module - R164- (telephone microphone - R38-) in front interior light - W1-
- 3 - Radio - R-
- 4 - Sound systems
- 5 - Terminal 15
- 6 - Terminal 30
- 7 - Terminal 31
- 8 - Multi-pin connector, 18-pin, in centre console (rear)



6.1.3 Layout - telephone, Bluetooth hands-free system, 9ZX

Bluetooth hands-free system in control unit 1 for information electronics - J794- , concert MOST, 9ZX

- ◆ The control unit 1 for information electronics - J794- with microphone unit in front roof module - R164- is fitted and serves as a hands-free system. The mobile telephone - R54- is connected via Bluetooth.
- ◆ The aerial for Bluetooth - R152- is fitted in the control unit 1 for information electronics - J794- .

Bluetooth hands-free system in control unit 1 for information electronics - J794- , MMI MOST, 9ZX

- ◆ The control unit 1 for information electronics - J794- with microphone unit in front roof module - R164- is fitted and serves as a hands-free system. The mobile telephone - R54- is connected via Bluetooth.
- ◆ The aerial for Bluetooth - R152- is fitted in the control unit 1 for information electronics - J794- .

Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information; Rep. gr. 97 ; Repairing aerial wires .

Notes on Bluetooth technology

- ◆ A standardised radio connection system (Bluetooth technology) is used to transmit data between the control unit 1 for information electronics - J794- and the mobile telephone - R54- .
- ◆ An additional transmitter and receiver unit is fitted in the control unit 1 for information electronics - J794- . An aerial for Bluetooth - R152- links the control unit 1 for information electronics - J794- and the mobile telephone - R54- , allowing cordless operation of the mobile telephone - R54- .
- ◆ The range of the radio wave connection is approx. 10 m.

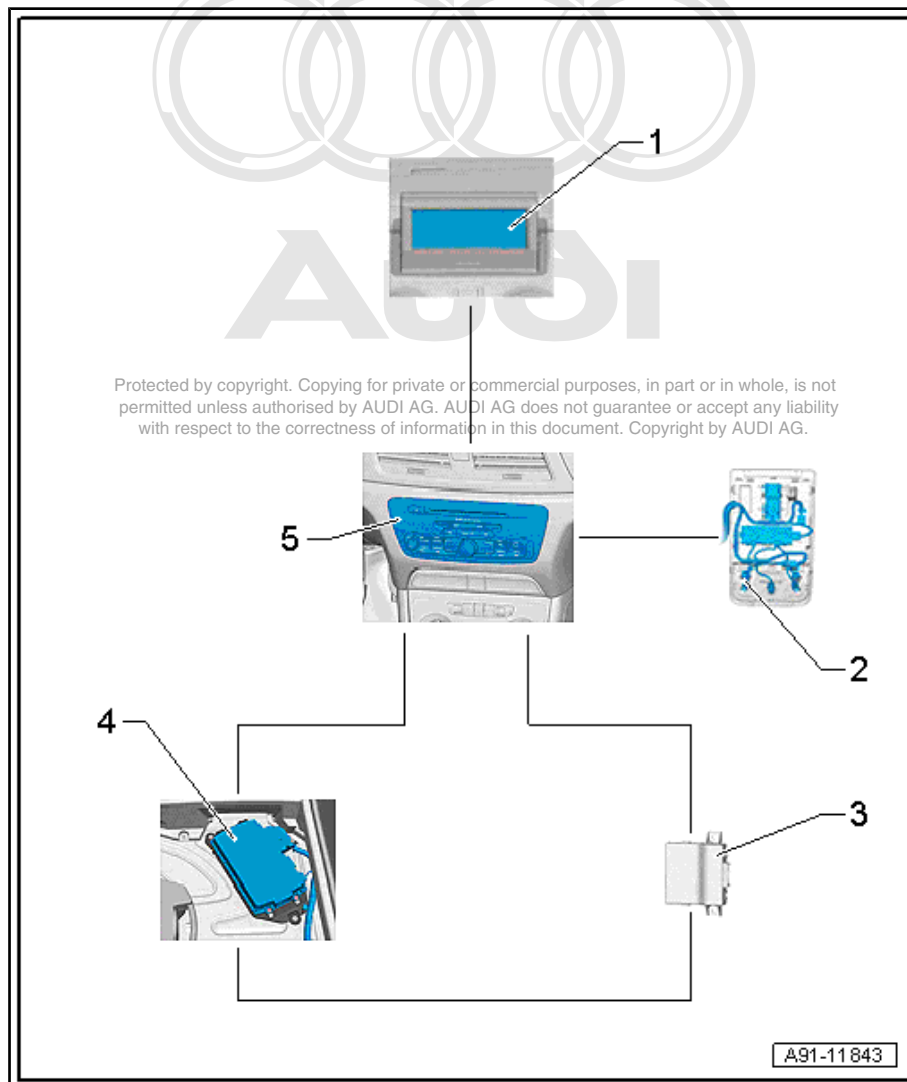
1 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

2 - Microphone unit in front roof module - R164- (telephone microphone - R38-) in front interior light - W1-

3 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

4 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor

5 - Control unit 1 for information electronics - J794- with aerial for Bluetooth - R152- in dash panel



6.2 Overview of fitting locations - telephone system

1 - Retaining tab on bracket

2 - Aerial amplifier for mobile telephone - R86-

- ☐ Pin assignment
⇒ [page 84](#)
- ☐ Removing and installing
⇒ [page 69](#)

3 - Front interior light - W1-

- ☐ Overview ⇒ [page 67](#)

4 - 4-pin connector - T4bg

5 - Telephone microphone - R38-

- ☐ Overview of fitting locations ⇒ [page 67](#)
- ☐ Pin assignment
⇒ [page 85](#)
- ☐ Removing and installing
⇒ [page 68](#)

6 - Internal microphone - R74-

- ☐ Overview of fitting locations ⇒ [page 67](#)
- ☐ Pin assignment
⇒ [page 85](#)
- ☐ Removing and installing
⇒ [page 68](#)

7 - Telephone bracket - R126-

- ☐ Bolts for printed circuit:
1 Nm
- ☐ Removing and installing
⇒ [page 69](#)

8 - Bolt

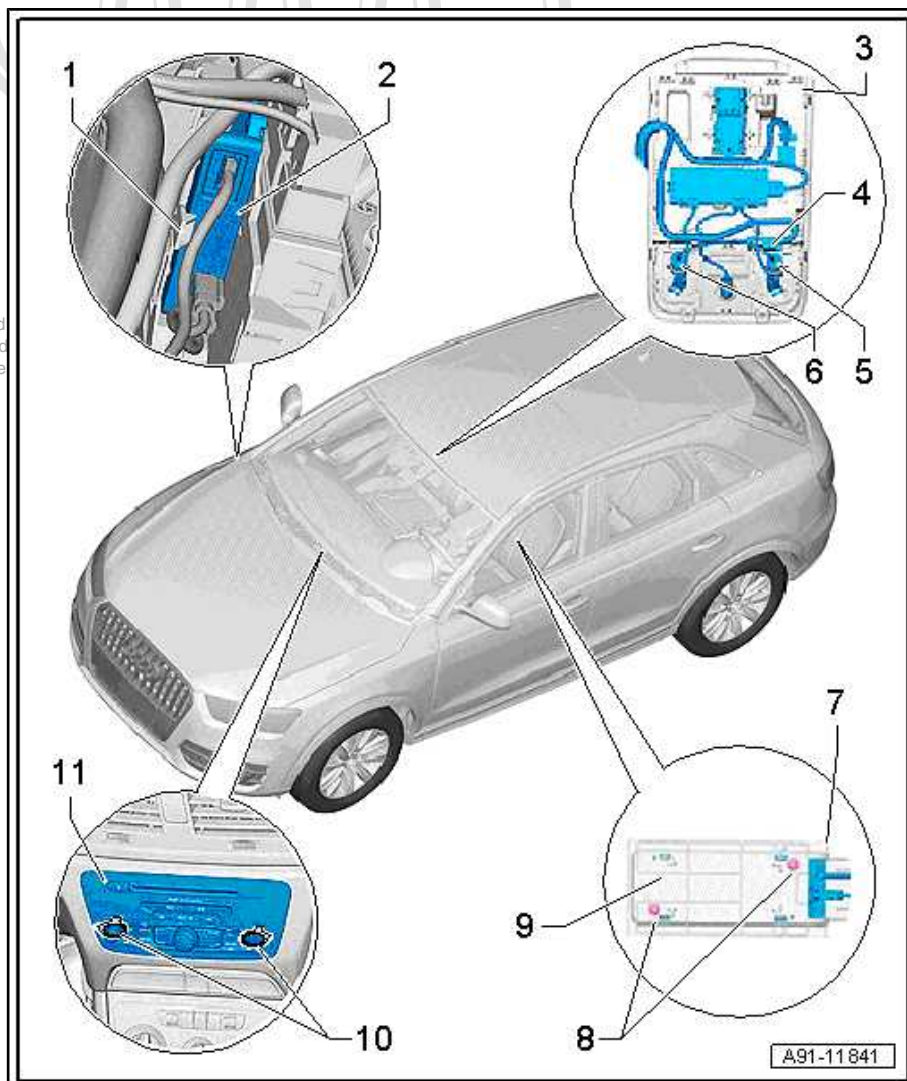
- ☐ For base plate
- ☐ 2x
- ☐ 1 Nm

9 - Base plate

10 - Radio release tool - T10057-

11 - Control unit 1 for information electronics - J794- , concert/MMI MOST

- ☐ Pin assignment for mobile phone pre-installation (concert MOST) ⇒ [page 71](#)
- ☐ Pin assignment for mobile phone pre-installation, MMI ⇒ [page 75](#)
- ☐ Pin assignment for Bluetooth hands-free system (concert MOST) ⇒ [page 79](#)
- ☐ Pin assignment for Bluetooth hands-free system (MMI) ⇒ [page 82](#)
- ☐ Removing and installing ⇒ [page 10](#)



6.3 Exploded view - microphone unit

The microphone unit in front roof module - R164- is fitted in the front interior light - W1- . There are up to two microphones installed (depending on equipment version).

One of the microphones (internal microphone - R74-) is connected directly to the digital sound package control unit - J525- .

The other microphone (telephone microphone - R38-) is connected to the radio - R- / control unit 1 for information electronics - J794- .

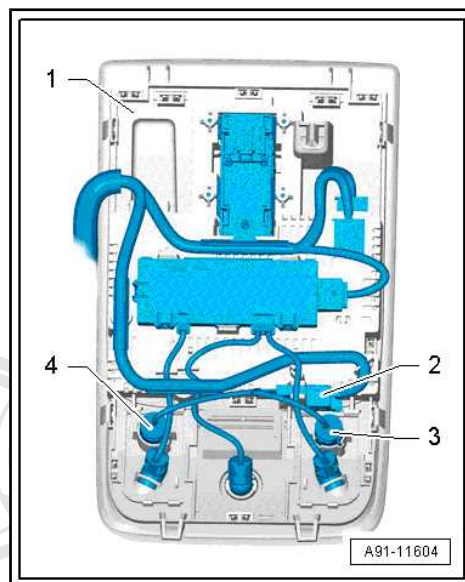
On NZ3, the telephone microphone - R38- is connected to the emergency call module control unit and communication unit - J949- and is looped through the radio - R- / control unit 1 for information electronics - J794- .

The microphone unit in front roof module - R164- in the front interior light - W1- can only be renewed as a complete unit. It is not possible to renew individual microphones (internal microphone - R74- or telephone microphone - R38-).

Microphone unit in front roof module - R164-

- 1 - Front interior light - W1-
- 2 - 4-pin connector - T4bg-
- 3 - Internal microphone - R74- , black, to digital sound package control unit - J525-
- 4 - Telephone microphone - R38- , grey, on NZ0 to radio - R- / control unit 1 for information electronics - J794- , on NZ3 to emergency call module control unit and communication unit - J949-

Removing and installing microphone unit in front roof module - R164- ➔ [page 68](#)



6.4 Removing and installing microphone unit in front roof module - R164-

The microphone unit in front roof module - R164- in the front interior light - W1- can only be renewed as a complete unit. It is not possible to renew individual microphones (internal microphone - R74- or telephone microphone - R38-).

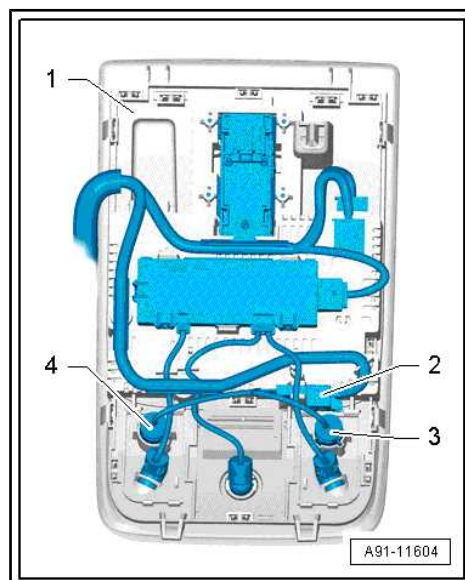
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Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove front interior light - W1- ➔ Electrical system; Rep. gr. 96 ; Lights; Overview of fitting locations - lights in roof trim .
- Unclip connector -2- from bracket in front interior light - W1- -1- and disconnect.
- Pry individual microphones -3- and -4- out of housing for front interior light - W1- -1-.

Installing

- Install in reverse sequence of removal.



6.5 Removing and installing aerial amplifier for mobile telephone - R86-

The aerial amplifier for mobile telephone - R86- -2- is located behind the luggage compartment trim (right-side).

Aerial amplifier for mobile telephone - R86- -2- is engaged in bracket -1-.

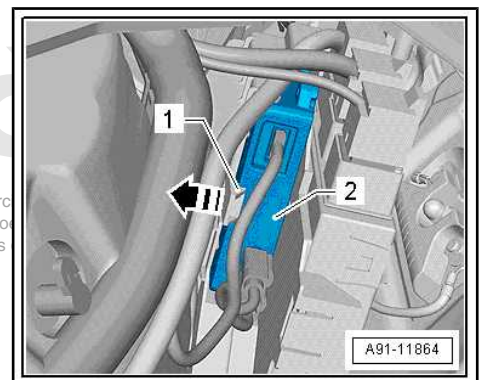
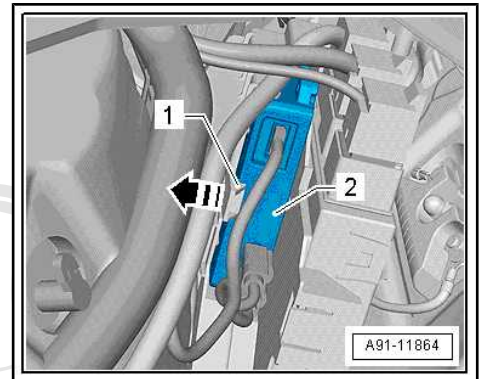
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove cover on right in luggage compartment.

- Press lug on bracket -1- in direction of -arrow- and pull aerial amplifier for mobile telephone - R86- -2- out of bracket.
- Release and unplug all connectors at aerial amplifier for mobile telephone - R86- .

Installing

- Install in reverse sequence of removal.

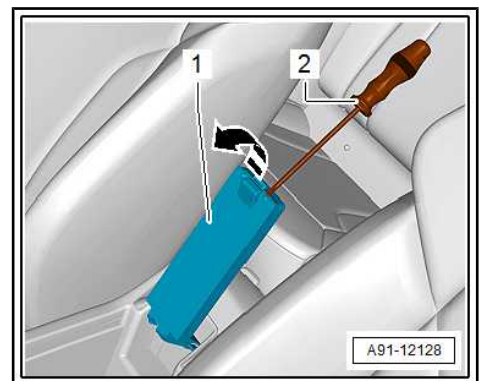


6.6 Removing and installing telephone bracket - R126-

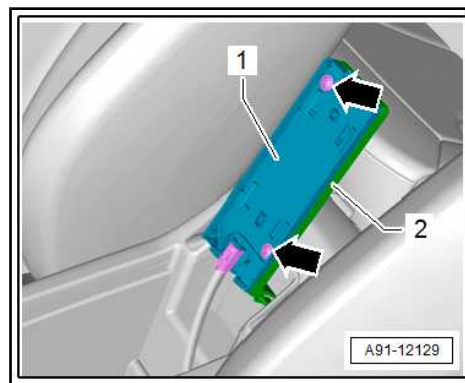
The telephone bracket - R126- consists of several parts (cover, base plate, printed circuit with connections) which need to be removed.

Removing

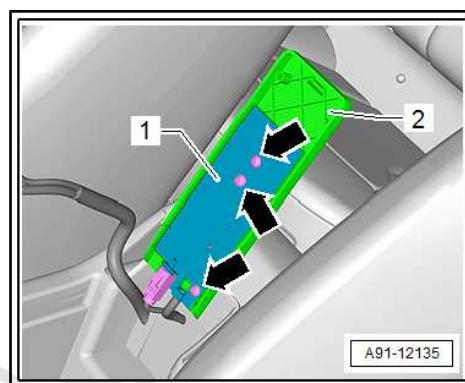
- Switch off ignition and all electrical equipment, and remove ignition key.
- Fold telephone bracket - R126- upwards in centre console storage compartment.
- Unclip cover -1- -arrow- on underside using a small screwdriver -2-.



- Remove bolts -arrows- on telephone bracket - R126- -2- and detach base plate -1-.



- Remove bolts -arrows- on telephone bracket - R126- -2- and detach printed circuit -1-.



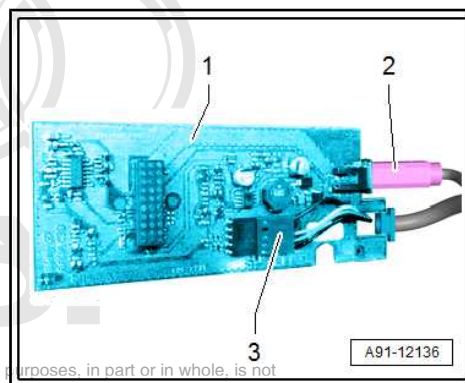
- Release and unplug connectors -2- and -3- on printed circuit -1-.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ♦ ⇒ [“6.2 Overview of fitting locations - telephone system”, page 67](#)



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6.7 Pin assignment

⇒ [“6.7.1 Pin assignment for mobile phone pre-installation, concert MOST, 9ZF”, page 71](#)

⇒ [“6.7.2 Pin assignment for mobile phone pre-installation, MMI, 9ZF”, page 75](#)

⇒ [“6.7.3 Pin assignment for pre-fitted components for mobile phone installation”, page 78](#)

⇒ [“6.7.4 Pin assignment for Bluetooth hands-free system, concert MOST, 9ZX”, page 79](#)

⇒ [“6.7.5 Pin assignment for Bluetooth hands-free system, MMI, 9ZX”, page 82](#)

⇒ [“6.7.6 Pin assignment for aerial amplifier for mobile telephone R86”, page 84](#)

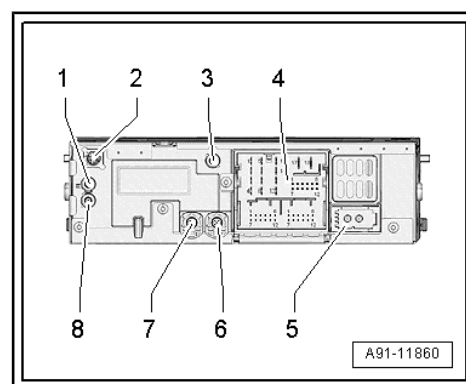
⇒ [“6.7.7 Pin assignment for microphone unit”, page 85](#)

6.7.1 Pin assignment for mobile phone pre-installation, concert MOST, 9ZF

Control unit 1 for information electronics - J794-

- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - DAB connection from aerial amplifier 4 - R113- , digital radio aerial - R183-
- 3 - Not fitted
- 4 - Connection block, black, with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- to connection for external audio sources - R199- / internet access control unit - J666-
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11- NAR and QV8 only

- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - SAT connection from roof aerial - R216- , satellite aerial - R170-
- 3 - Not fitted
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- from connection for external audio sources - R199- / internet access control unit - J666-
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11-



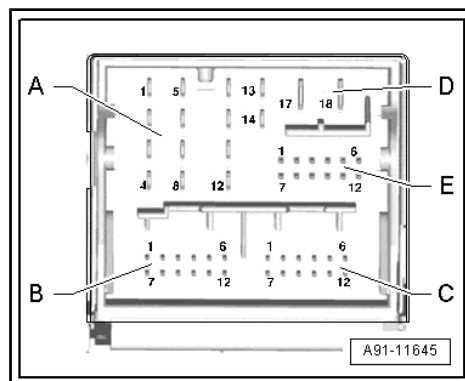
Note

Contacts which are not listed are not used.

4 - Connection block with four multi-pin connectors

A - 8-pin connector - T8ag-

- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left



B - 12-pin connector - T12x-

3 - NF mute (low frequency) from emergency call module control unit and communication unit - J949-

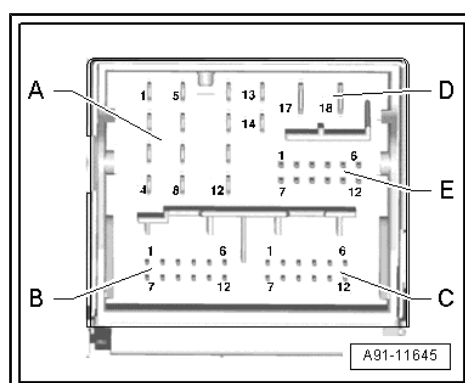
4 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

5 - FBAS wire (-) from reversing camera system control unit - J772-

6 - DIAG signal from telephone bracket - R126-

11 - FBAS wire (+) from reversing camera system control unit - J772-

12 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-



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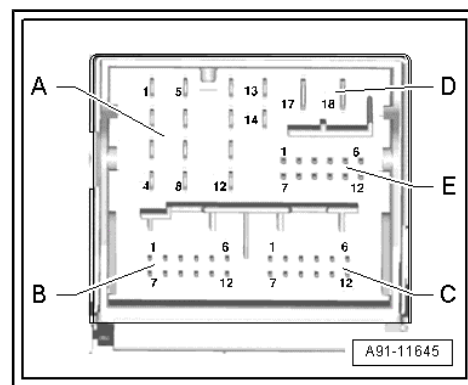
C - 12-pin connector - T12y-

All pins are connected to the connection for external audio sources - R199- .

- 1 - NF in, earth (low frequency)
- 2 - NF in, right-side (low frequency)
- 3 - USB (+5 V), not with internet access control unit - J666- , UE2
- 4 - USB, earth
- 5 - iPod, ACC power
- 6 - Detect, not with internet access control unit - J666- , UE2
- 7 - NF in, left-side (low frequency)
- 8 - NF in, screen earth (low frequency)
- 9 - FBAS wire (+)
- 10 - FBAS wire (-)
- 11 - iPod data
- 12 - iPod data

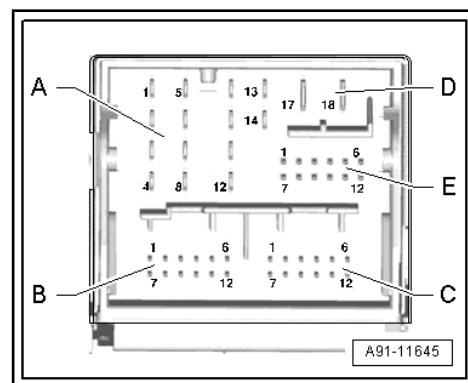
The following pins are also connected to the internet access control unit - J666- UE2.

- 3 - USB, +5 V
- 4 - USB, earth
- 6 - Detect



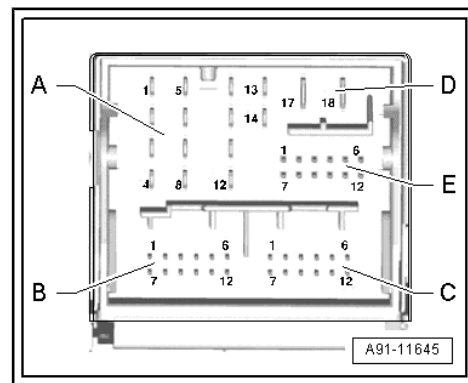
D - 8-pin connector - T8j-

- 9 - Subwoofer - R211-
- 10 - Centre loudspeaker - R208-
- 13 - Subwoofer - R211-
- 14 - Centre loudspeaker - R208-
- 17 - Terminal 31
- 18 - Terminal 30



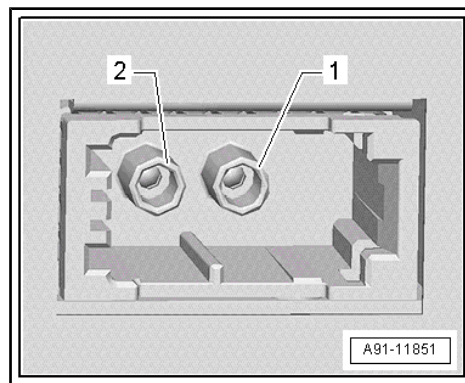
E - 12-pin connector - T12w-

- 2 - NF input (-) (low frequency) from emergency call module control unit and communication unit - J949-
- 7 - Open circuit diagnostic lead
- 8 - NF input (+) (low frequency) from emergency call module control unit and communication unit - J949-
- 12 - Switch-on signal to telephone bracket - R126- / aerial amplifier for mobile telephone - R86-



5 - MOST bus

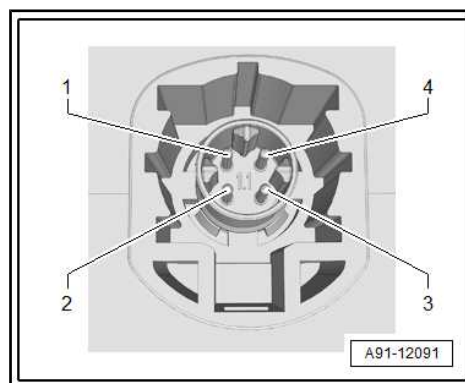
- 1 - Input
- 2 - Output



6 - 4-pin connector - T4ap-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666- .

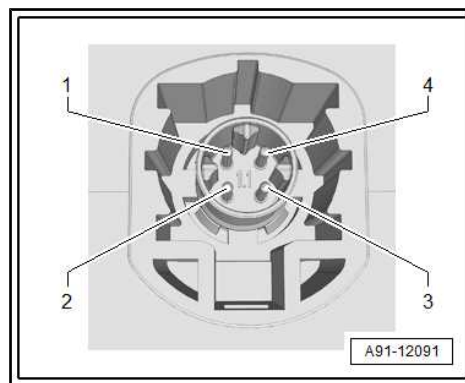
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



7 - 4-pin connector - T4d-

All pins are connected to the display unit for front information display and operating unit control unit - J685- .

- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth

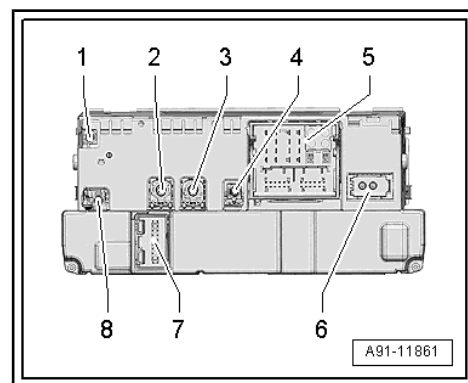


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6.7.2 Pin assignment for mobile phone pre-installation, MMI, 9ZF

Control unit 1 for information electronics - J794-

- 1 - Not used
- 2 - 4-pin connector - T4u- to connection for external audio sources - R199- / internet access control unit - J666-
- 3 - 4-pin connector - T4al- to display unit for front information display and operating unit control unit - J685-
- 4 - Not used
- 5 - Connection block with four multi-pin connectors
- 6 - MOST bus
- 7 - 20-pin connector - T20k- to control unit 1 for information electronics - J794-
- 8 - Not used



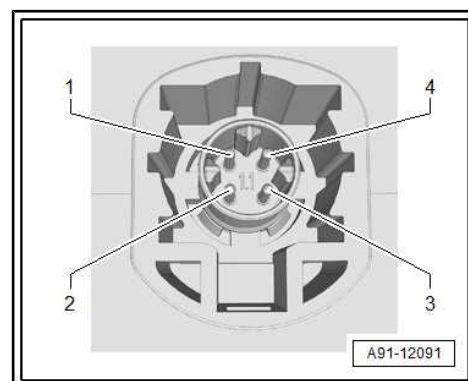
Note

Contacts which are not listed are not used.

2 - 4-pin connector - T4u-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666- .

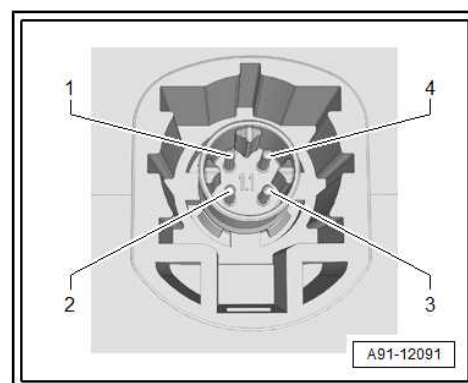
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



3 - 4-pin connector - T4al-

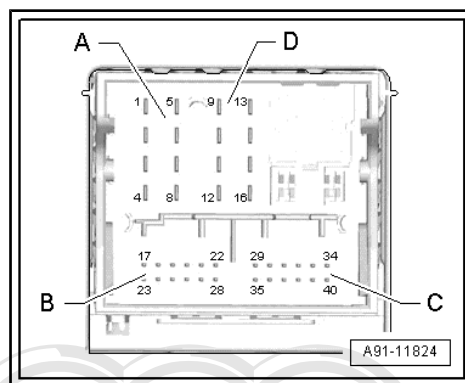
All pins are connected to the display unit for front information display and operating unit control unit - J685- .

- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth
- 5 - Connection block with four multi-pin connectors



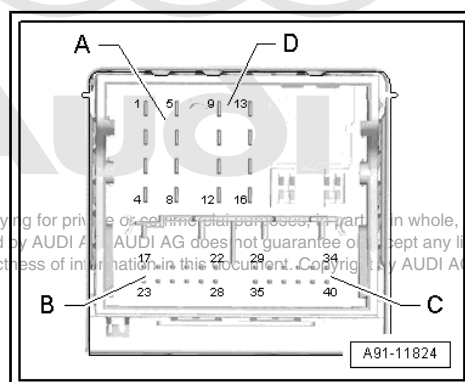
A - 8-pin connector - T8ah-

- 1 - NF mute (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-
- 2 - Voltage supply to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 3 - Wake-up to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 4 - Not used
- 5 - Switch-on signal to telephone bracket - R126- / aerial amplifier for mobile telephone - R86-
- 6 - Res MU to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 7 - Open circuit diagnostic lead



B - 12-pin connector - T12x-

- 21 - FBAS wire (-) from reversing camera system control unit - J772-
- 24 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 25 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 27 - FBAS wire (+) from reversing camera system control unit - J772-



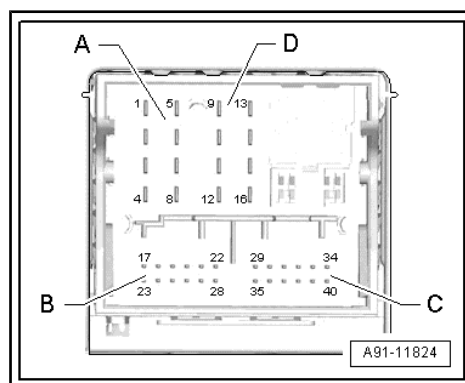
C - 12-pin connector - T12k-

All pins are connected to the connection for external audio sources - R199- .

- 29 - NF in, earth (low frequency)
- 30 - NF in, right-side (low frequency)
- 31 - USB (+5 V), not with internet access control unit - J666- , UE2
- 32 - USB, earth
- 33 - iPod, ACC power
- 34 - Detect, not with internet access control unit - J666- , UE2
- 35 - NF in, left-side (low frequency)
- 36 - NF in, screen earth (low frequency)
- 37 - FBAS wire (+)
- 38 - FBAS wire (-)
- 39 - iPod data
- 40 - iPod data

The following pins are also connected to the internet access control unit - J666- , UE2.

- 31 - USB, +5 V
- 32 - USB, earth
- 34 - Detect



D - 8-pin connector - T8ao-

10 - Data from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

11 - Data to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

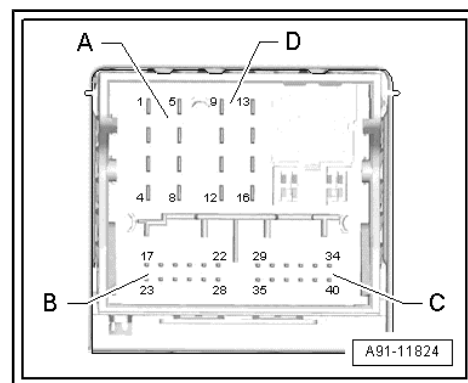
12 - Terminal 31

13 - DIAG signal from telephone bracket - R126-

14 - Res BT from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

15 - Terminal 30

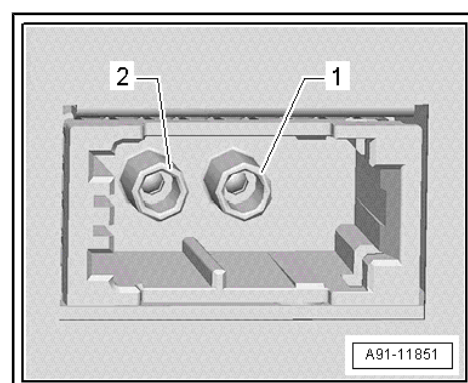
16 - Earth to control unit 1 for information electronics - J794- , 20-pin connector - T20k-



6 - MOST bus

1 - Input

2 - Output



7 - 20-pin connector - T20k-

6 - Wake-up to control unit 1 for information electronics - J794-

7 - Voltage supply from control unit 1 for information electronics - J794-

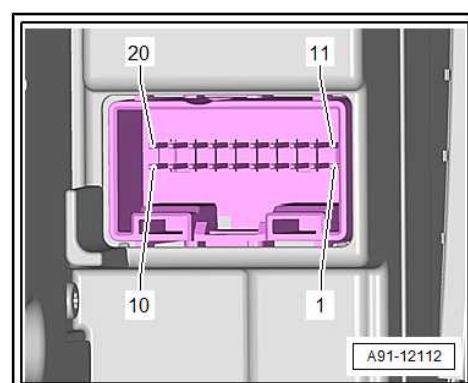
8 - Earth from control unit 1 for information electronics - J794-

13 - Res MU from control unit 1 for information electronics - J794-

14 - Res MU to control unit 1 for information electronics - J794-

15 - Data from control unit 1 for information electronics - J794-

16 - Data to control unit 1 for information electronics - J794-





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6.7.3 Pin assignment for pre-fitted components for mobile phone installation



Note

Contacts which are not listed are not used.

Multi-pin connector, 18-pin

1 - Terminal 31

4 - NF mute (low frequency) to control unit 1 for information electronics - J794-

7 - NF (-) (low frequency) to radio - R-

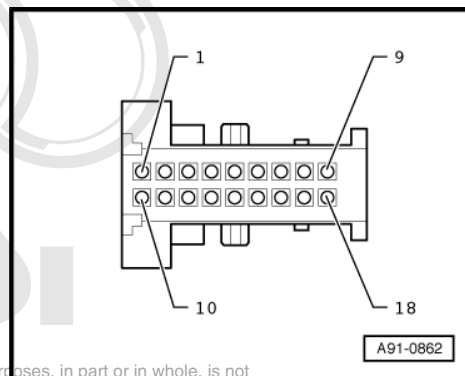
9 - Microphone input (-) from microphone unit in front roof module - R164- , telephone microphone - R38-

10 - Terminal 15

11 - Terminal 30

16 - NF (+) (low frequency) to radio - R-

18 - Microphone input (+) from microphone unit in front roof module - R164- , telephone microphone - R38-

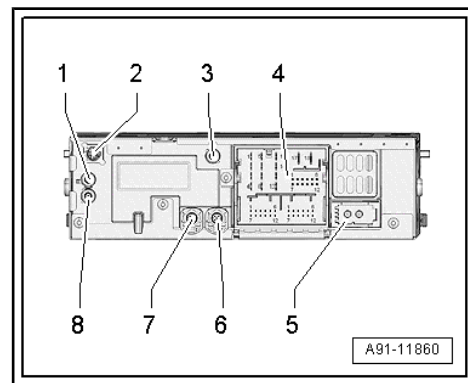


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6.7.4 Pin assignment for Bluetooth hands-free system, concert MOST, 9ZX

Control unit 1 for information electronics - J794-

- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - DAB connection from aerial amplifier 4 - R113- , digital radio aerial - R183-
- 3 - Not fitted
- 4 - Connection block, black, with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- to connection for external audio sources - R199- / internet access control unit - J666-
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11- NAR and QV8 only



- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - SAT connection from roof aerial - R216- , satellite aerial - R170-
- 3 - Not fitted
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- from connection for external audio sources - R199- / internet access control unit - J666-
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11-



Note

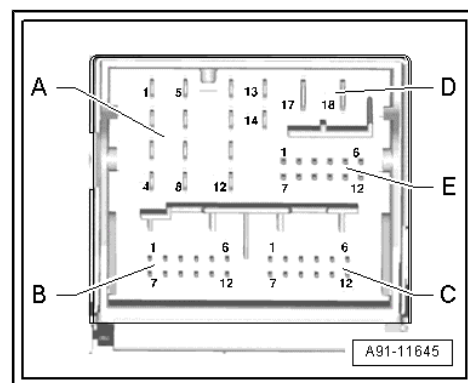
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Contacts which are not listed are not used.

4 - Connection block with four multi-pin connectors

A - 8-pin connector - T8ag-

- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left



B - 12-pin connector - T12x-

3 - NF mute (low frequency) from emergency call module control unit and communication unit - J949-

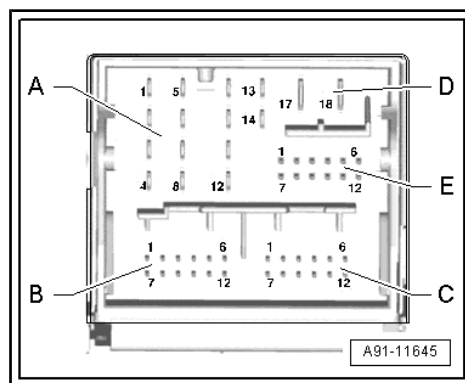
4 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

5 - FBAS wire (-) from reversing camera system control unit - J772-

6 - DIAG signal from telephone bracket - R126-

11 - FBAS wire (+) from reversing camera system control unit - J772-

12 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-



C - 12-pin connector - T12y-

All pins are connected to the connection for external audio sources - R199- .

1 - NF in, earth (low frequency)

2 - NF in, right-side (low frequency)

3 - USB (+5 V), not with internet access control unit - J666- , UE2

4 - USB, earth

5 - iPod, ACC power

6 - Detect, not with internet access control unit - J666- , UE2

7 - NF in, left-side (low frequency)

8 - NF in, screen earth (low frequency)

9 - FBAS wire (+)

10 - FBAS wire (-)

11 - iPod data

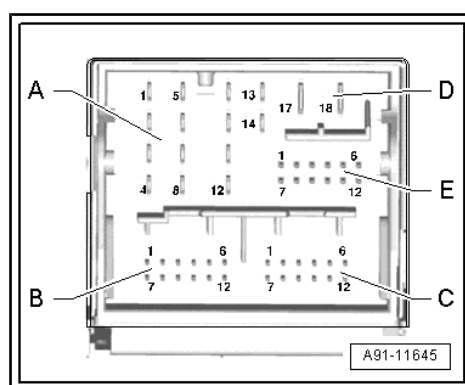
12 - iPod data

The following pins are also connected to the internet access control unit - J666- , UE2.

3 - USB, +5 V

4 - USB, earth

6 - Detect



D - 8-pin connector - T8j-

9 - Subwoofer - R211-

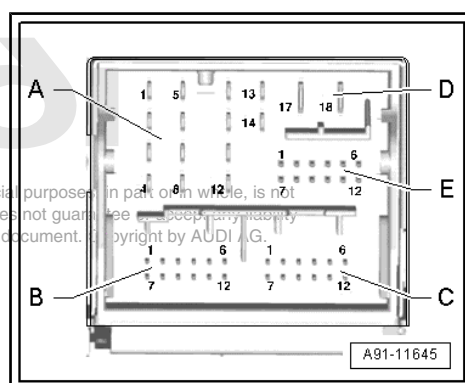
10 - Centre loudspeaker - R208-

13 - Subwoofer - R211-

14 - Centre loudspeaker - R208-

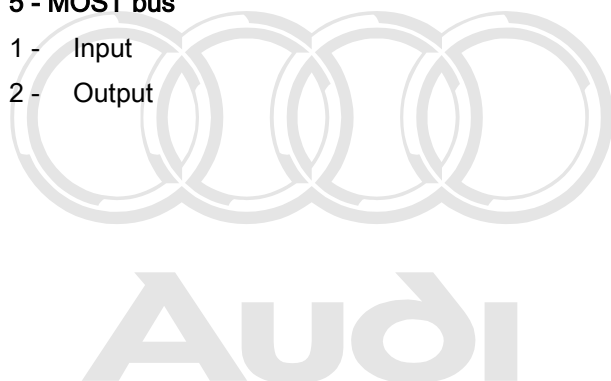
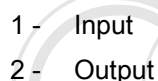
17 - Terminal 31

18 - Terminal 30



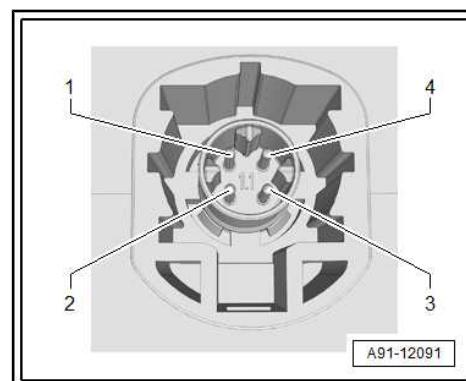
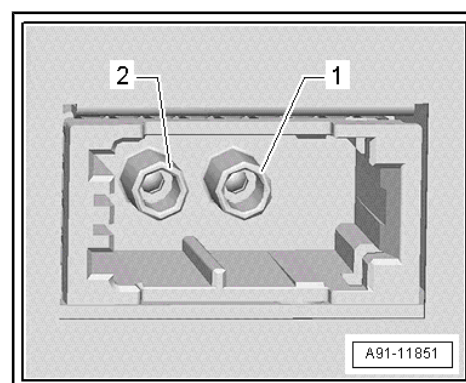
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8 - NF input (+) (low frequency) from emergency call module control unit and communication unit - J949-

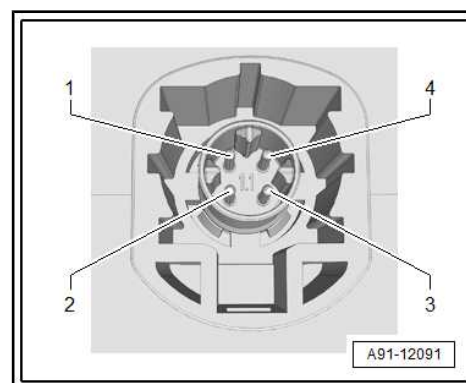


All pins are connected to the connection for external audio sources – R 199 - / internet access control unit - J666 - .

- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



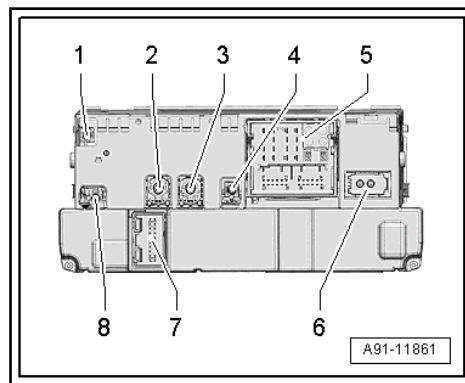
- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth



6.7.5 Pin assignment for Bluetooth hands-free system, MMI, 9ZX

Control unit 1 for information electronics - J794-

- 1 - Not used
- 2 - 4-pin connector - T4u- to connection for external audio sources - R199- / internet access control unit - J666-
- 3 - 4-pin connector - T4al- to display unit for front information display and operating unit control unit - J685-
- 4 - Not used
- 5 - Connection block with four multi-pin connectors
- 6 - MOST bus
- 7 - 20-pin connector - T20k- to control unit 1 for information electronics - J794-
- 8 - Not used



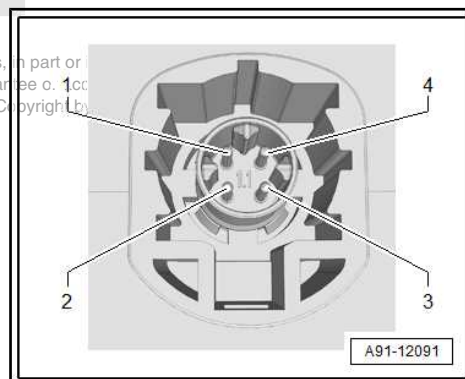
Note

Contacts which are not listed are not used.

2 - 4-pin connector - T4u-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666-.

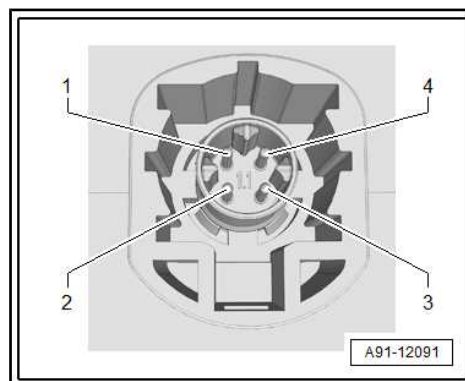
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



3 - 4-pin connector - T4al-

All pins are connected to the display unit for front information display and operating unit control unit - J685-.

- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth
- 5 - Connection block with four multi-pin connectors



A - 8-pin connector - T8ah-

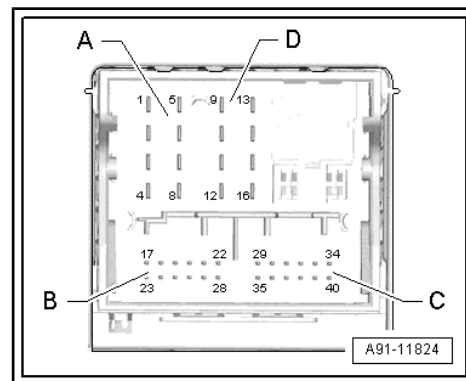
1 - Emergency call module control unit and communication unit - J949-

2 - Voltage supply to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

3 - Wake-up to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

6 - Res MU to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

7 - Open circuit diagnostic lead



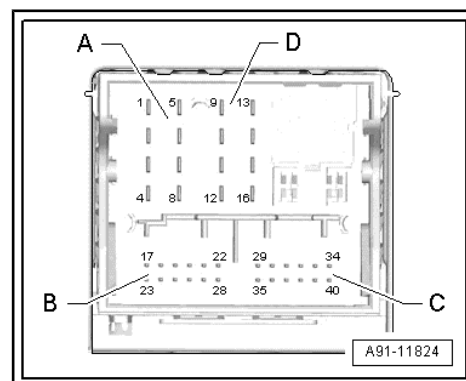
B - 12-pin connector - T12x-

21 - FBAS wire (-) from reversing camera system control unit - J772-

24 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

25 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

27 - FBAS wire (+) from reversing camera system control unit - J772-



C - 12-pin connector - T12k-

All pins are connected to the connection for external audio sources - R199- .

29 - NF in, earth (low frequency)

30 - NF in, right-side (low frequency)

31 - USB (+5 V), not with internet access control unit - J666- , UE2

32 - USB, earth

33 - iPod, ACC power

34 - Detect, not with internet access control unit - J666- , UE2

35 - NF in, left-side (low frequency)

36 - NF in, screen earth (low frequency)

37 - FBAS wire (+)

38 - FBAS wire (-)

39 - iPod data

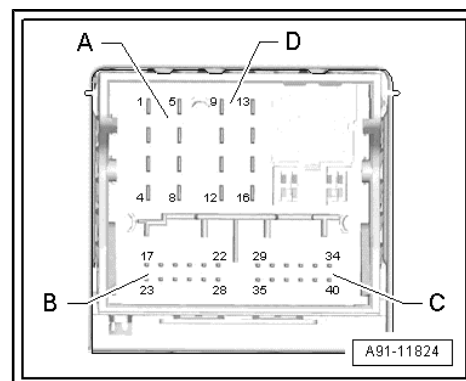
40 - iPod data

The following pins are also connected to the internet access control unit - J666- , UE2.

31 - USB, +5 V

32 - USB, earth

34 - Detect



D - 8-pin connector - T8ao-

10 - Data from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

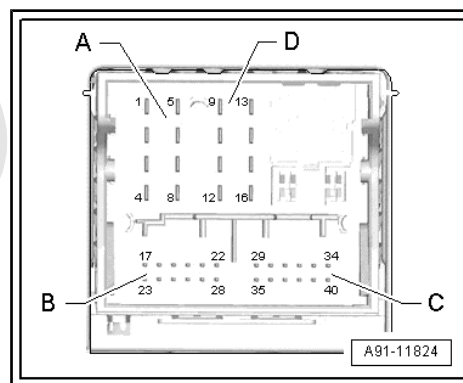
11 - Data to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

12 - Terminal 31

14 - Res BT from control unit 1 for information electronics - J794- , 20-pin connector - T20k-

15 - Terminal 30

16 - Earth to control unit 1 for information electronics - J794- , 20-pin connector - T20k-

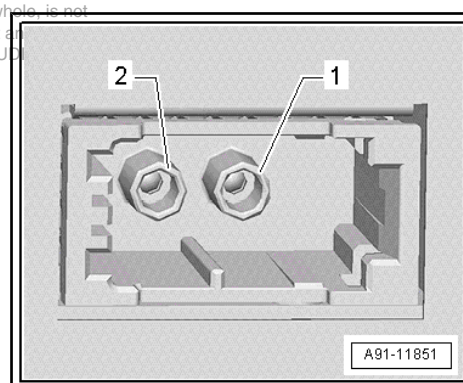


6 - MOST bus

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1 - Input

2 - Output



7 - 20-pin connector - T20k-

6 - Wake-up to control unit 1 for information electronics - J794-

7 - Voltage supply from control unit 1 for information electronics - J794-

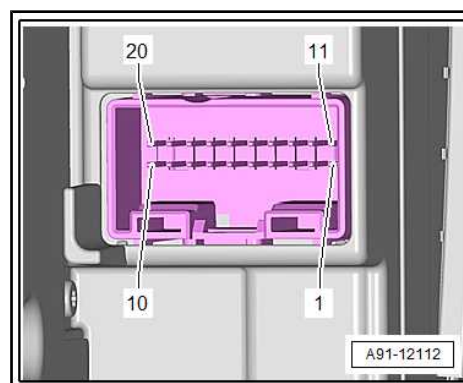
8 - Earth from control unit 1 for information electronics - J794-

13 - Res MU from control unit 1 for information electronics - J794-

14 - Res MU to control unit 1 for information electronics - J794-

15 - Data from control unit 1 for information electronics - J794-

16 - Data to control unit 1 for information electronics - J794-



6.7.6 Pin assignment for aerial amplifier for mobile telephone - R86-

Aerial amplifier for mobile telephone - R86-

1 - GSM connection from roof aerial - R216-

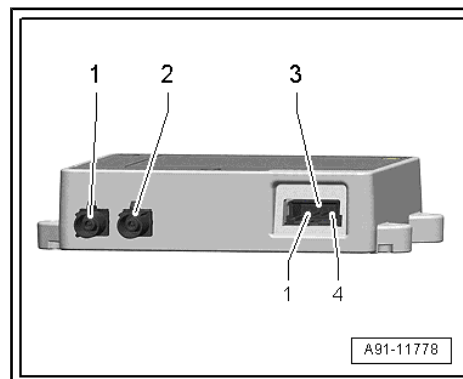
2 - Aerial connection to telephone bracket - R126-

3 - 4-pin connector - T4ak-



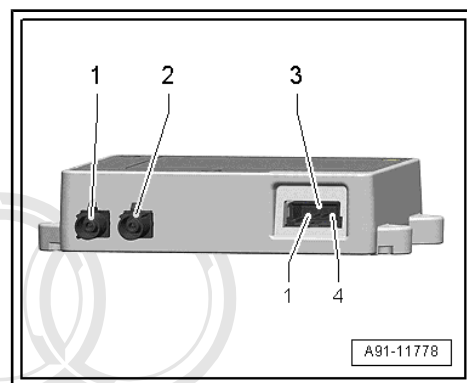
Note

Contacts which are not listed are not used.



3 - 4-pin connector - T4ak-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Switch-on signal from control unit 1 for information electronics - J794-
- 4 - Safety PIN (not used)



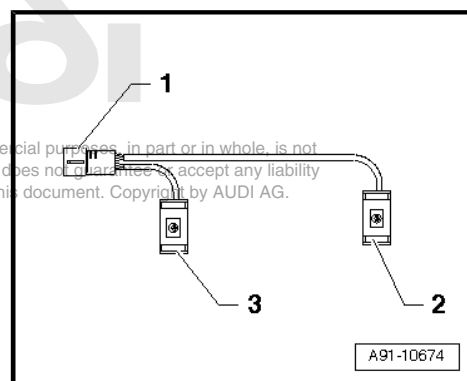
6.7.7 Pin assignment for microphone unit

1 - 4-pin connector - T4bg-

- 1 - Microphone 1, telephone microphone - R38- to radio - R- / control unit 1 for information electronics - J794- / emergency call module control unit and communication unit - J949-
- 2 - Microphone 1, telephone microphone - R38- to radio - R- / control unit 1 for information electronics - J794- / emergency call module control unit and communication unit - J949-
- 3 - Microphone 2, internal microphone - R74- , to digital sound package control unit - J525-
- 4 - Microphone 2, internal microphone - R74- , to digital sound package control unit - J525-

2 - Microphone 1, telephone microphone - R38-

3 - Microphone 2, internal microphone - R74-



7 Navigation system

⇒ [“7.1 Layout - navigation system”, page 86](#)

⇒ [“7.2 Overview of fitting locations - navigation system”, page 90](#)

⇒ [“7.3 Removing and installing chip card reader control unit”, page 91](#)

⇒ [“7.4 Pin assignment”, page 93](#)

7.1 Layout - navigation system

⇒ [“7.1.1 Layout - navigation system, general notes”, page 86](#)

⇒ [“7.1.2 Layout - navigation system, Ready4Nav 7Q4, navigation package 7T2”, page 86](#)

⇒ [“7.1.3 Layout - navigation system, MMI navigation system plus, 7T6”, page 88](#)

⇒ [“7.1.4 Layout - navigation system, MMI navigation system plus, 7T6, Japan”, page 89](#)

7.1.1 Layout - navigation system, general notes

- ◆ The following navigation system versions are available: Ready4Nav 7Q4, navigation package 7T2 and MMI navigation system plus 7T6.
- ◆ The navigation system is part of the control unit 1 for information electronics - J794- in the dash panel.
- ◆ The system is operated directly via the unit.
- ◆ On vehicles with Ready4Nav (7Q4), all components for the navigation system are fitted (radio concert MOST with GPS aerial - R50-). Navigation data on SD card are not provided.
- ◆ On versions with the navigation package 7T2, the navigation data are stored on an SD card.
- ◆ On versions with MMI navigation system plus (7T6), navigation data are stored on an internal hard disk (HDD).
- ◆ MMI navigation system plus (Japan): Chip card reader control unit - J676- is located in glove box and traffic data aerial - R173- is located on windscreen.

Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information;
Rep. gr. 97 ; Repairing aerial wires .

7.1.2 Layout - navigation system, Ready4Nav 7Q4, navigation package 7T2



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1 - Roof aerial - R216-

2 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

3 - Control unit 1 for information electronics - J794- in dash panel

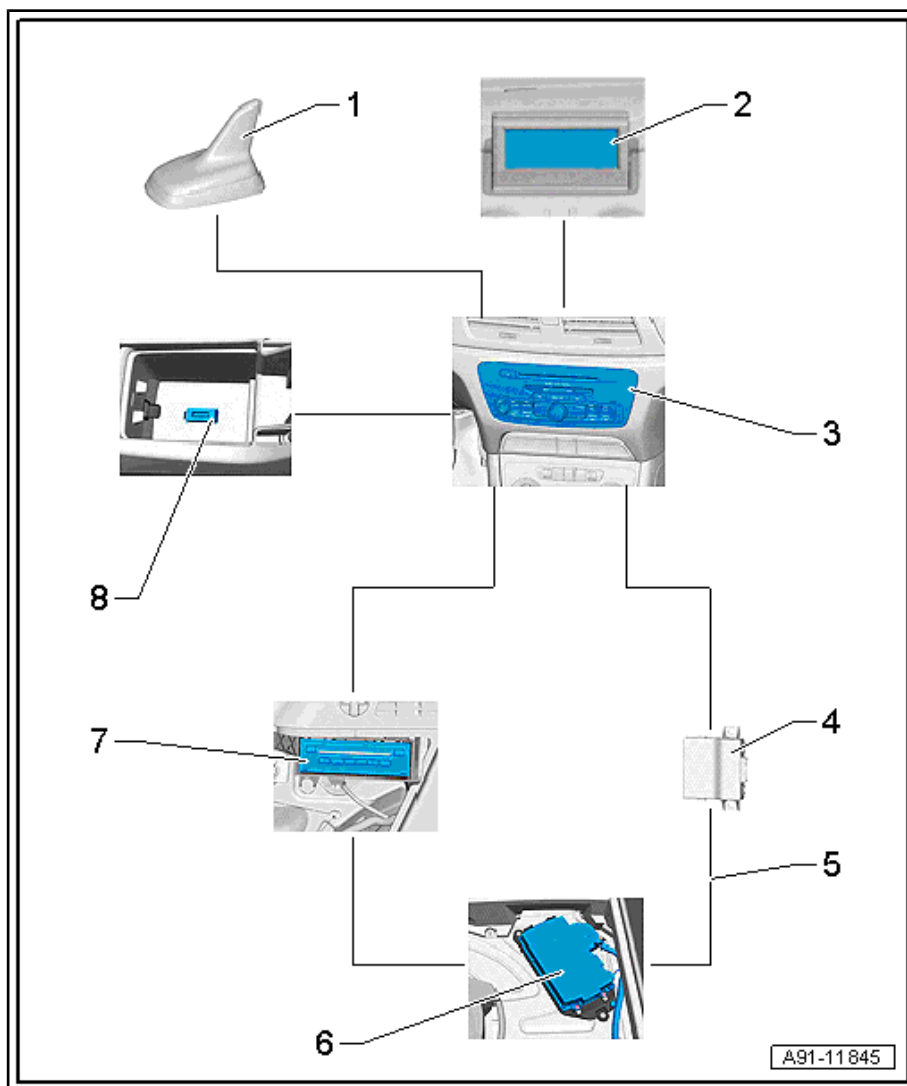
4 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

5 - MOST bus

6 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor

7 - CD changer - R41- in luggage compartment (left-side) behind flap

8 - Connection for external audio sources - R199- in centre console storage compartment



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7.1.3 Layout - navigation system, MMI navigation system plus, 7T6

1 - Roof aerial - R216-

2 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

3 - Control unit 1 for information electronics - J794- in dash panel

4 - MOST bus

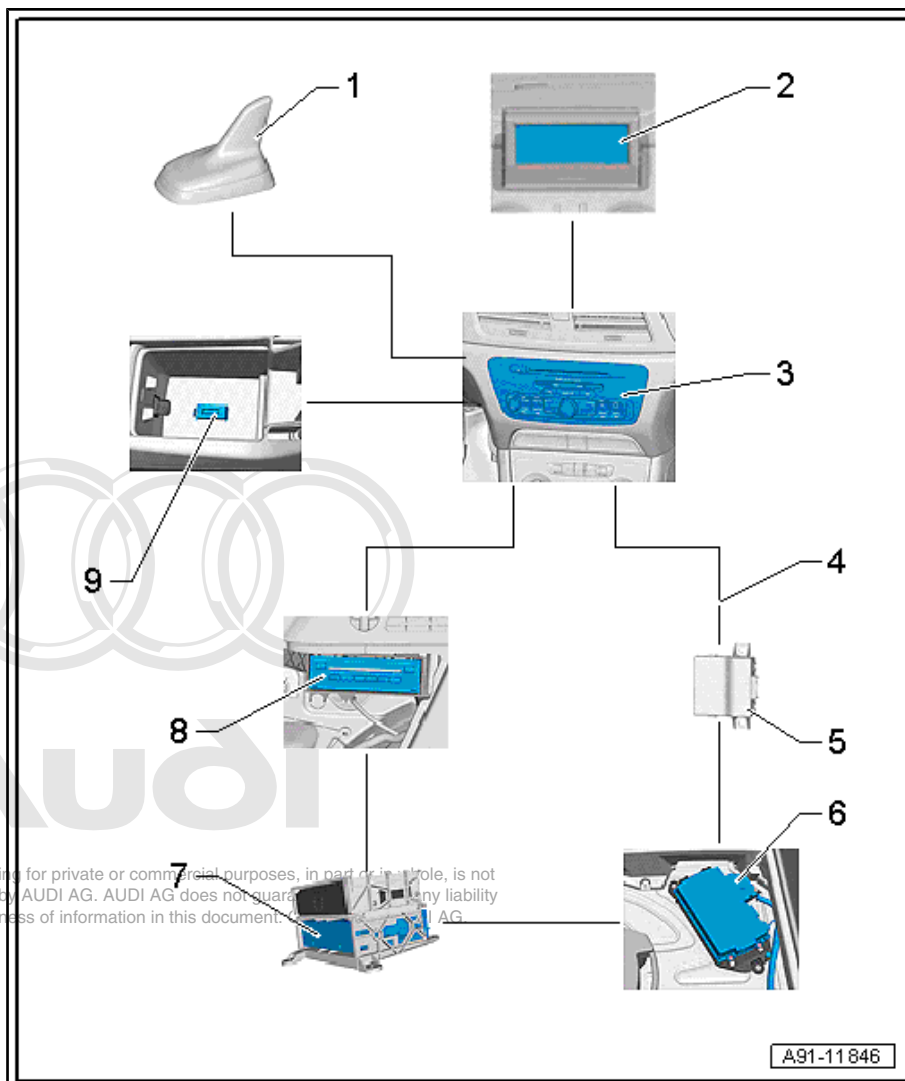
5 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

6 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor

7 - Radio - R- in luggage compartment (left-side) behind flap

8 - CD changer - R41- in luggage compartment (left-side) behind flap

9 - Connection for external audio sources - R199- in centre console storage compartment



7.1.4 Layout - navigation system, MMI navigation system plus, 7T6, Japan

1 - Roof aerial - R216-

2 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

3 - Control unit 1 for information electronics - J794- in dash panel

4 - Chip card reader control unit - J676- in glove box

5 - MOST bus

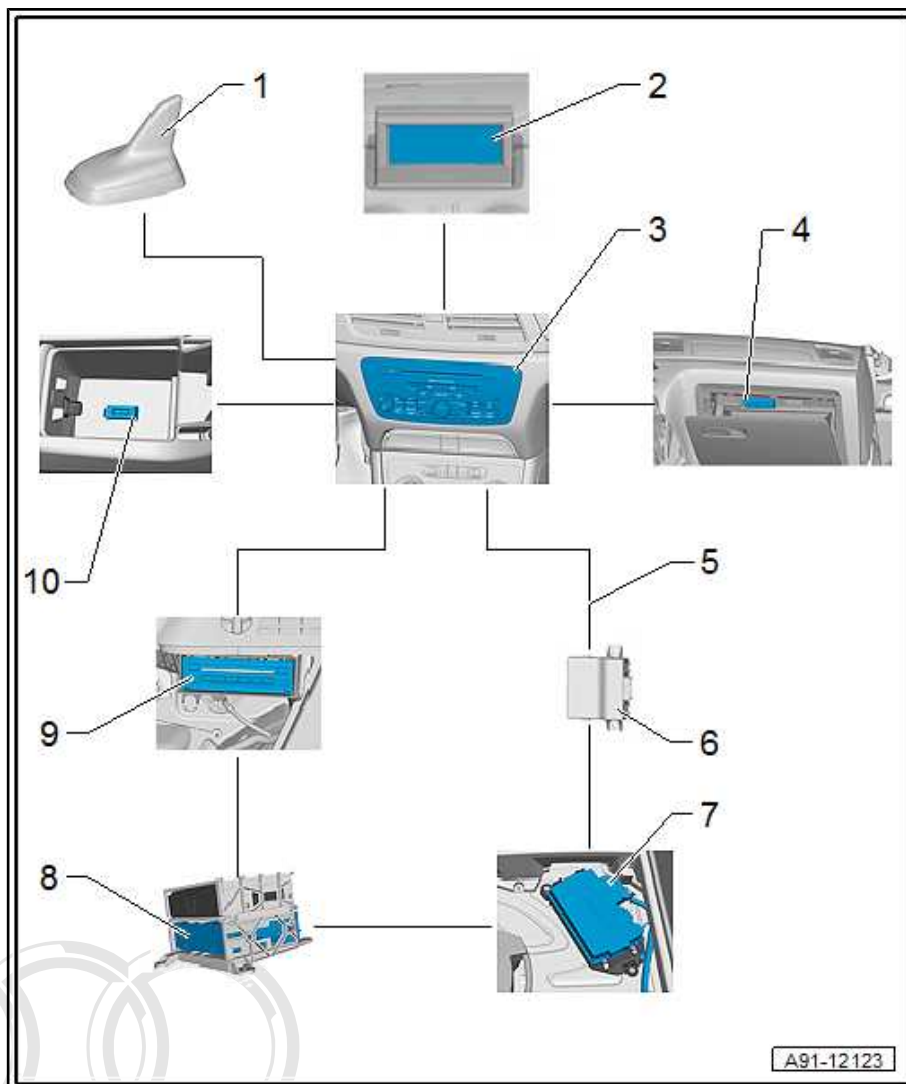
6 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

7 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

8 - Radio - R- behind luggage compartment trim (left-side)

9 - CD changer - R41- behind luggage compartment trim (left-side)

10 - Connection for external audio sources - R199- in centre console storage compartment



7.2 Overview of fitting locations - navigation system

⇒ [“7.2.1 Overview of fitting locations - navigation system, MMI navigation system plus, 7T6”, page 90](#)

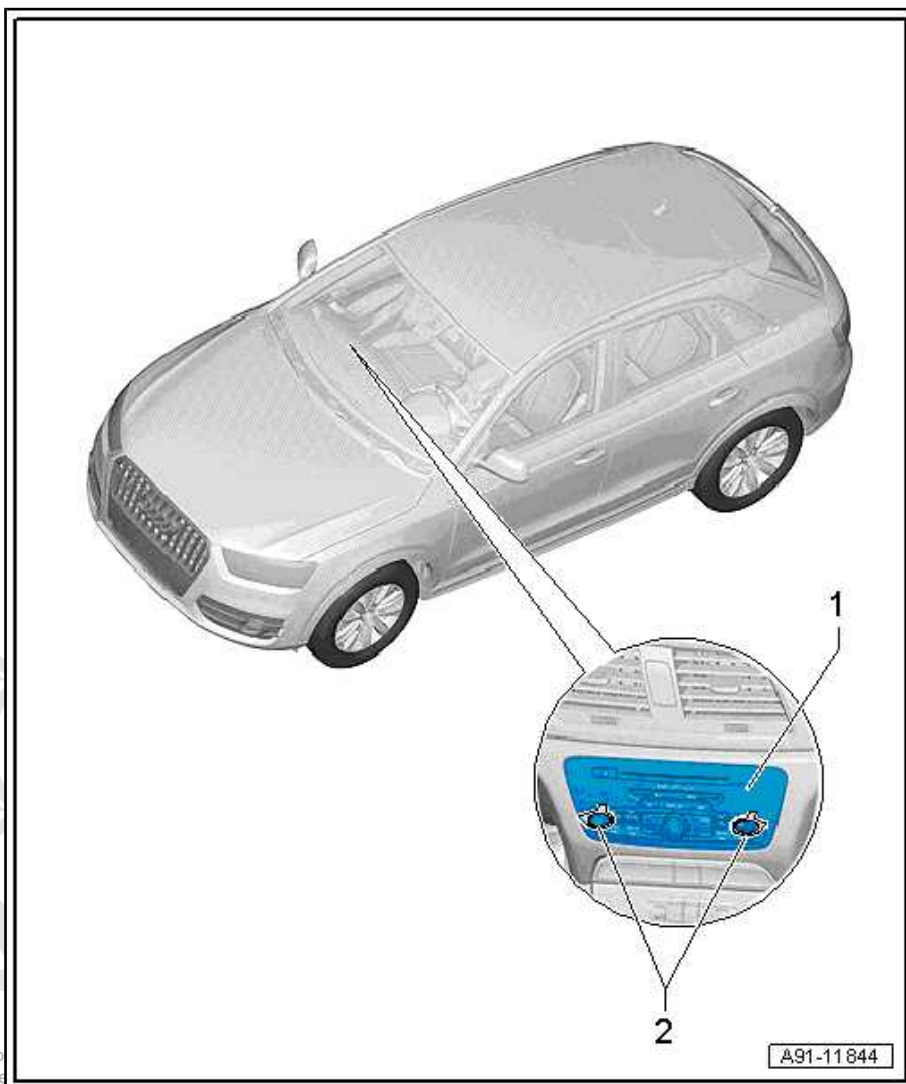
⇒ [“7.2.2 Overview of fitting locations - navigation system, MMI navigation system plus, 7T6, Japan”, page 91](#)

7.2.1 Overview of fitting locations - navigation system, MMI navigation system plus, 7T6

1 - Control unit 1 for information electronics - J794-

- ❑ Pin assignment of Ready4Nav
⇒ [page 93](#)
- ❑ Pin assignment for MMI navigation system plus
⇒ [page 96](#)
- ❑ Removing and installing
⇒ [page 10](#)

2 - Radio release tool - T10057-



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7.2.2 Overview of fitting locations - navigation system, MMI navigation system plus, 7T6, Japan

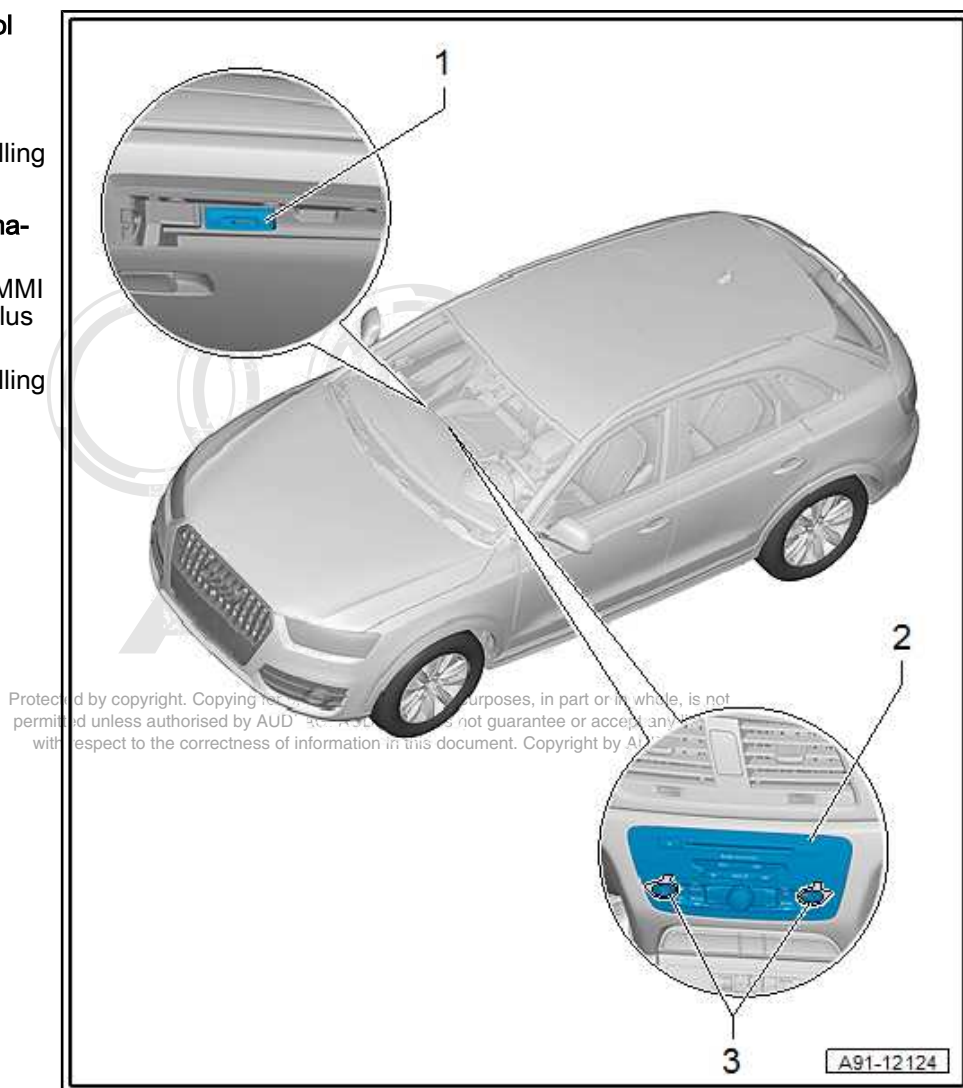
1 - Chip card reader control unit - J676-

- ❑ Pin assignment
⇒ [page 99](#)
- ❑ Removing and installing
⇒ [page 91](#)

2 - Control unit 1 for information electronics - J794-

- ❑ Pin assignment for MMI navigation system plus
⇒ [page 96](#)
- ❑ Removing and installing
⇒ [page 10](#)

3 - Radio release tool - T10057-

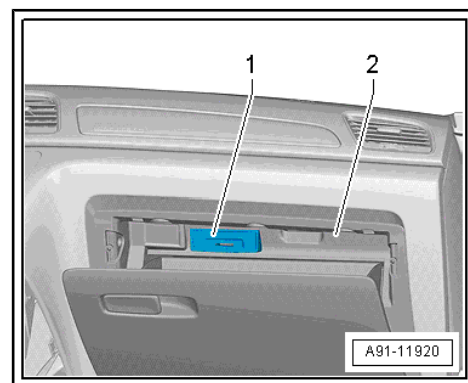


7.3 Removing and installing chip card reader control unit

The chip card reader control unit - J676- -1- is located in the glove box -2-.

Removing

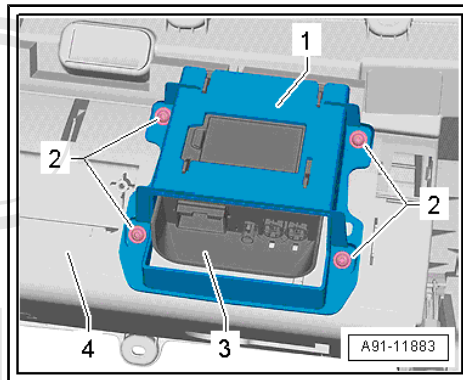
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove glove box ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing glove box .
- Release and unplug connectors at chip card reader control unit - J676- .



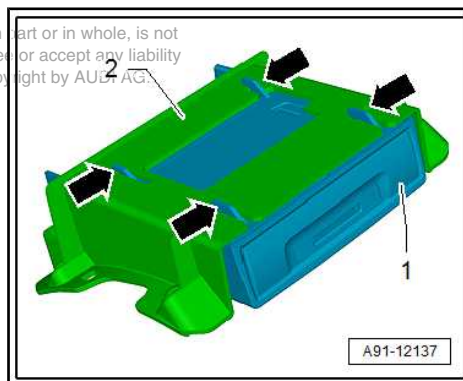
- Remove bolts -2- at bracket -1-.
- Detach bracket -1- from glove box -4- together with chip card reader control unit - J676- -3-.
- Pull chip card reader control unit - J676- off bracket.

Installing

- Installation is carried out in reverse sequence; note the following:



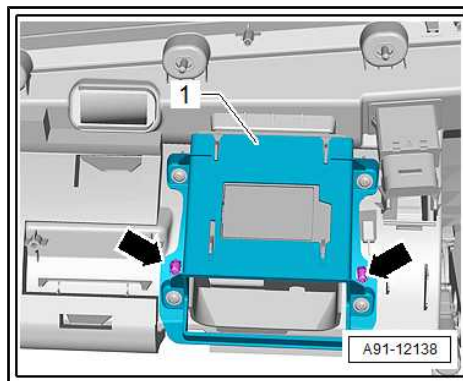
- Slide chip card reader control unit - J676- -1- into bracket -2- until it engages audibly -arrows-.



- When fitting bracket -1-, make sure that domes -arrows- are located correctly in bracket -1-.

Tightening torques

Component	Tightening torque
Bolts, bracket	4 Nm



7.4 Pin assignment

⇒ ["7.4.1 Pin assignment for Ready4Nav 7Q4, navigation package 7T2", page 93](#)

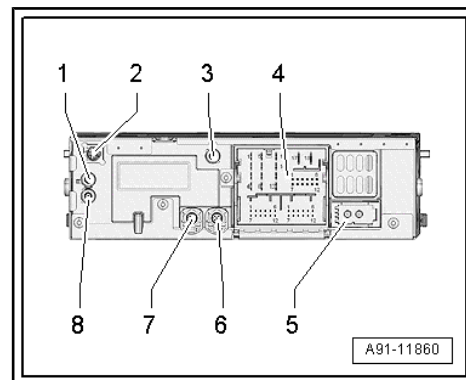
⇒ ["7.4.2 Pin assignment for MMI navigation system plus, 7T6", page 96](#)

⇒ ["7.4.3 Pin assignment for chip card reader control unit J676 ", page 99](#)

7.4.1 Pin assignment for Ready4Nav 7Q4, navigation package 7T2

Control unit 1 for information electronics - J794-

- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - DAB connection from aerial amplifier 4 - R113- , digital radio aerial - R183-
- 3 - GPS connection from roof aerial - R216-
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- to connection for external audio sources - R199- / internet access control unit - J666- , versions with MOST only
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11-NAR and QV8 only



- 1 - AM/FM1 connection from aerial amplifier - R24- , radio aerial 2 - R93-
- 2 - SAT connection from roof aerial - R216- , satellite aerial - R170-
- 3 - GPS connection from roof aerial - R216-
- 4 - Connection block with four multi-pin connectors
- 5 - MOST bus
- 6 - 4-pin connector - T4ap- to connection for external audio sources - R199- / internet access control unit - J666- , versions with MOST only
- 7 - 4-pin connector - T4d- to display unit for front information display and operating unit control unit - J685-
- 8 - FM2 connection from aerial amplifier 3 - R112- , aerial - R11-



Note

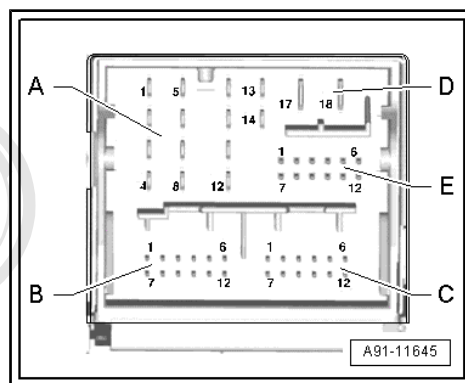
Contacts which are not listed are not used.

4 - Connection block with four multi-pin connectors

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A - 8-pin connector - T8ag-

- 1 - Loudspeaker (+), rear right
- 2 - Loudspeaker (+), front right
- 3 - Loudspeaker (+), front left
- 4 - Loudspeaker (+), rear left
- 5 - Loudspeaker (-), rear right
- 6 - Loudspeaker (-), front right
- 7 - Loudspeaker (-), front left
- 8 - Loudspeaker (-), rear left



B - 12-pin connector - T12x-

3 - NF mute (low frequency) from emergency call module control unit and communication unit - J949-

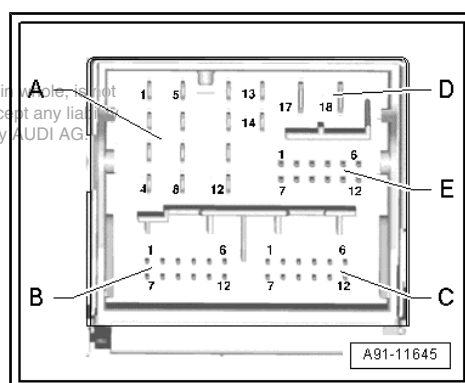
4 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-

5 - FBAS wire (-) from reversing camera system control unit - J772-

6 - DIAG signal from telephone bracket - R126-

11 - FBAS wire (+) from reversing camera system control unit - J772-

12 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-



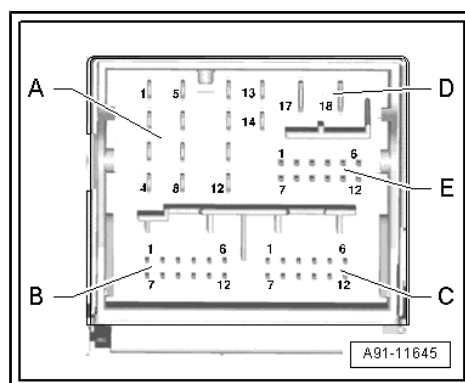
C - 12-pin connector - T12y-

All pins are connected to the connection for external audio sources - R199- .

- 1 - NF in, earth (low frequency)
- 2 - NF in, right-side (low frequency)
- 3 - USB (+5 V), not with internet access control unit - J666- , UE2
- 4 - USB, earth
- 5 - iPod, ACC power
- 6 - Detect, not with internet access control unit - J666- , UE2
- 7 - NF in, left-side (low frequency)
- 8 - NF in, screen earth (low frequency)
- 9 - FBAS wire (+)
- 10 - FBAS wire (-)
- 11 - iPod data
- 12 - iPod data

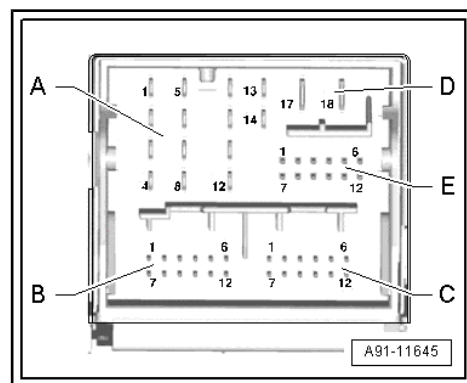
The following pins are also connected to the internet access control unit - J666- , UE2.

- 3 - USB, +5 V
- 4 - USB, earth
- 6 - Detect



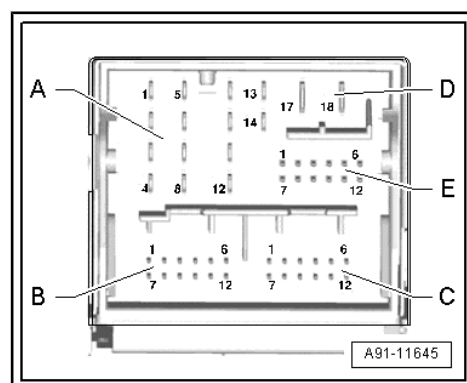
D - 8-pin connector - T8j-

- 9 - Subwoofer - R211-
- 10 - Centre loudspeaker - R208-
- 13 - Subwoofer - R211-
- 14 - Centre loudspeaker - R208-
- 17 - Terminal 31
- 18 - Terminal 30



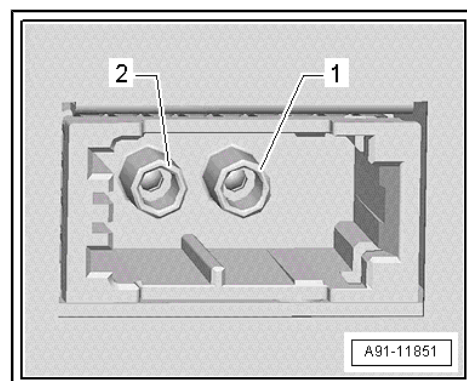
E - 12-pin connector - T12w-

- 2 - NF input (-) (low frequency) from emergency call module control unit and communication unit - J949-
- 7 - Open circuit diagnostic lead
- 8 - NF input (+) (low frequency) from emergency call module control unit and communication unit - J949-
- 12 - Switch-on signal to telephone bracket - R126- / aerial amplifier for mobile telephone - R86-



5 - MOST bus

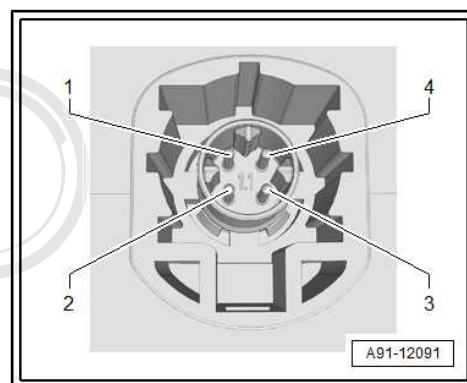
- 1 - Input
- 2 - Output



6 - 4-pin connector - T4ap-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666- .

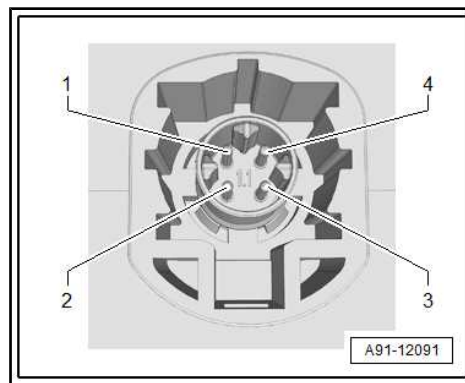
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



7 - 4-pin connector - T4d-

All pins are connected to the display unit for front information display and operating unit control unit - J685- .

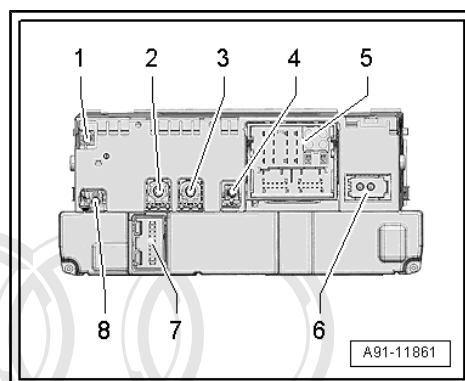
- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth



7.4.2 Pin assignment for MMI navigation system plus, 7T6

Control unit 1 for information electronics - J794-

- 1 - GSM connection from roof aerial - R216-
- 2 - 4-pin connector - T4u- to connection for external audio sources - R199- / internet access control unit - J666-
- 3 - 4-pin connector - T4al- to display unit for front information display and operating unit control unit - J685-
- 4 - Not used
- 5 - Connection block with four multi-pin connectors
- 6 - MOST bus
- 7 - 20-pin connector - T20k- to control unit 1 for information electronics - J794-
- 8 - GPS connection from roof aerial - R216-



Note

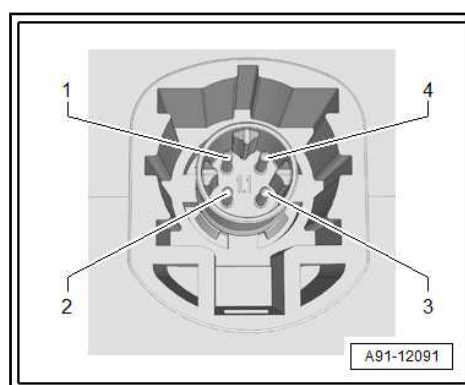
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Contacts which are not listed are not used.

2 - 4-pin connector - T4u-

All pins are connected to the connection for external audio sources - R199- / internet access control unit - J666- .

- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth

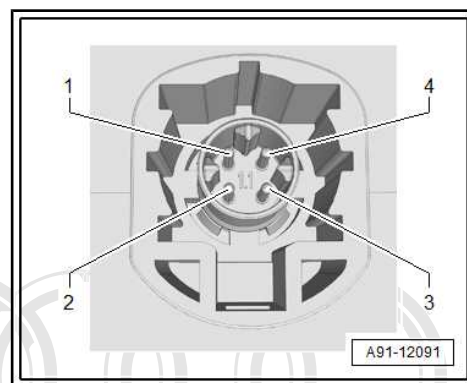


3 - 4-pin connector - T4a1-

All pins are connected to the display unit for front information display and operating unit control unit - J685- .

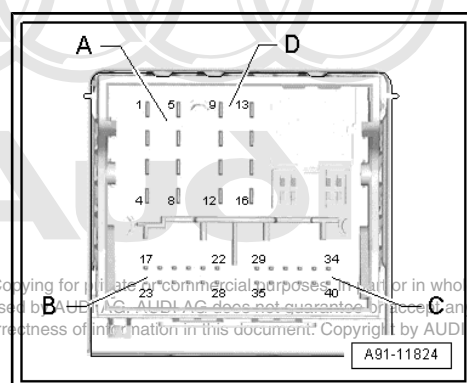
- 1 - LVDS (-)
- 2 - LIN
- 3 - LVDS (+)
- 4 - Earth

5 - Connection block with four multi-pin connectors



A - 8-pin connector - T8ah-

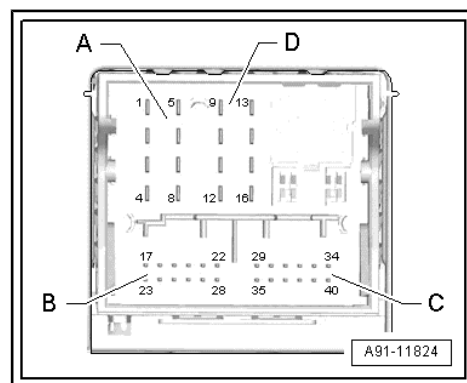
- 1 - NF mute (low frequency) from pre-fitted components for mobile phone installation/ emergency call module control unit and communication unit - J949-
- 2 - Voltage supply to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 3 - Wake-up to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 4 - Not used
- 5 - Switch-on signal to aerial amplifier for mobile telephone - R86-
- 6 - Res MU to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 7 - Open circuit diagnostic lead



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B - 12-pin connector - T12x-

- 20 - Data VICS to chip card reader control unit - J676- , Japan only
- 21 - FBAS wire (-) from reversing camera system control unit - J772-
- 22 - Data ETC to chip card reader control unit - J676- , Japan only
- 24 - Microphone input (+) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 25 - Microphone input (-) from telephone microphone - R38- / emergency call module control unit and communication unit - J949-
- 26 - Data VICS from chip card reader control unit - J676- , Japan only
- 27 - FBAS wire (+) from reversing camera system control unit - J772-
- 28 - Data ETC from chip card reader control unit - J676- , Japan only



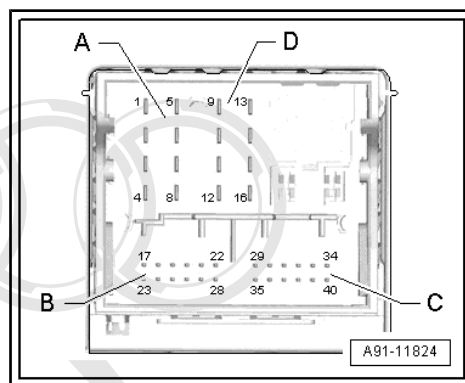
C - 12-pin connector - T12k-

All pins are connected to the connection for external audio sources - R199- .

- 29 - NF in, earth (low frequency)
- 30 - NF in, right-side (low frequency)
- 31 - USB (+5 V), not with internet access control unit - J666- , UE2
- 32 - USB, earth
- 33 - iPod, ACC power
- 34 - Detect, not with internet access control unit - J666- , UE2
- 35 - NF in, left-side (low frequency)
- 36 - NF in, screen earth (low frequency)
- 37 - FBAS wire (+)
- 38 - FBAS wire (-)
- 39 - iPod data
- 40 - iPod data

The following pins are also connected to the internet access control unit - J666- , UE2.

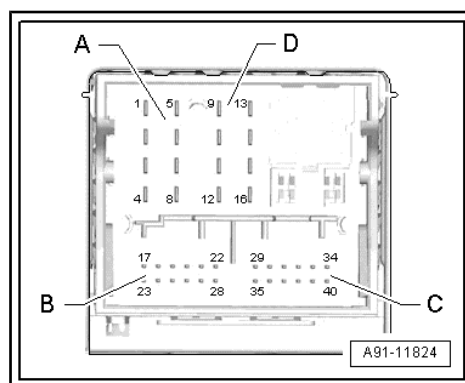
- 31 - USB, +5 V
- 32 - USB, earth
- 34 - Detect



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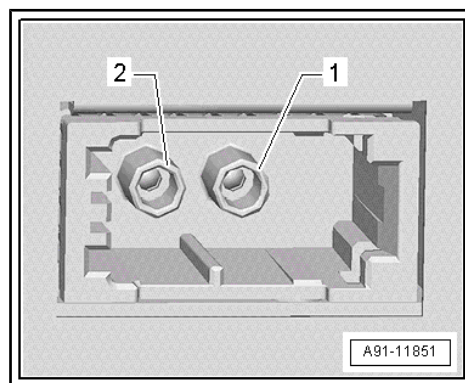
D - 8-pin connector - T8ao-

- 10 - Data from control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 11 - Data to control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 12 - Terminal 31
- 13 - DIAG signal from telephone bracket - R126-
- 14 - Res BT from control unit 1 for information electronics - J794- , 20-pin connector - T20k-
- 15 - Terminal 30
- 16 - Earth to control unit 1 for information electronics - J794- , 20-pin connector - T20k-



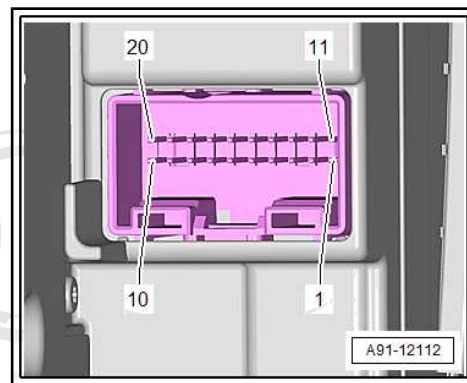
6 - MOST bus

- 1 - Output
- 2 - Input



7 - 20-pin connector - T20k-

- 6 - Wake-up to control unit 1 for information electronics - J794-
- 7 - Voltage supply from control unit 1 for information electronics - J794-
- 8 - Earth from control unit 1 for information electronics - J794-
- 13 - Res MU from control unit 1 for information electronics - J794-
- 14 - Res MU to control unit 1 for information electronics - J794-
- 15 - Data from control unit 1 for information electronics - J794-
- 16 - Data to control unit 1 for information electronics - J794-



7.4.3 Pin assignment for chip card reader control unit - J676-

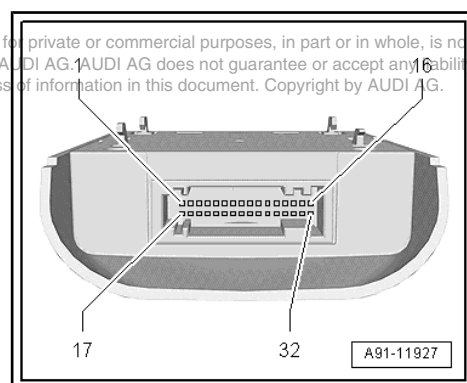


Note

Contacts which are not listed are not used.

32-pin connector - T32ja-

- 1-16 - To traffic data aerial - R173-
- 17 - Data VICS to control unit 1 for information electronics - J794-
- 19 - Data VICS from control unit 1 for information electronics - J794-
- 21 - Switch-on signal to control unit 1 for information electronics - J794-
- 22 - Terminal 30
- 23 - Data ETC to control unit 1 for information electronics - J794-
- 25 - Data ETC from control unit 1 for information electronics - J794-
- 28 - Terminal 31



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8 TV system

⇒ ["8.1 Layout - TV system", page 100](#)

⇒ ["8.2 Overview of fitting locations - TV system", page 104](#)

⇒ ["8.3 Removing and installing TV tuner", page 106](#)

⇒ ["8.4 Removing and installing TV card reader", page 108](#)

⇒ ["8.5 Pin assignment", page 108](#)

8.1 Layout - TV system

⇒ ["8.1.1 Layout - TV system, QU7", page 100](#)

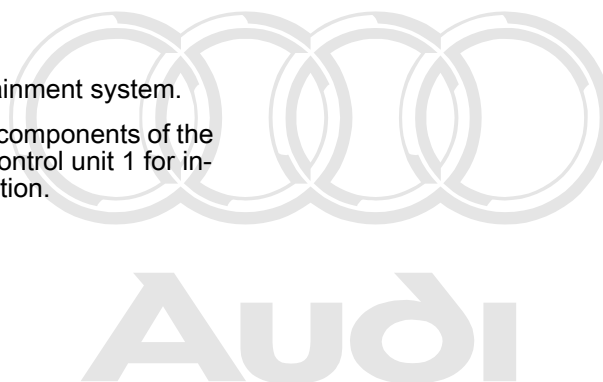
⇒ ["8.1.2 Layout - TV system, Japan, internal TV card reader, QU7", page 101](#)

⇒ ["8.1.3 Layout - TV system, Japan, external TV card reader, QU7", page 102](#)

8.1.1 Layout - TV system, QU7

The TV system (QU7) is part of the MMI infotainment system.

The TV tuner - R78- is connected to the other components of the infotainment system via the MOST bus. The control unit 1 for information electronics - J794- is used for operation.



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1 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

2 - Control unit 1 for information electronics - J794- in dash panel

3 - MOST bus

4 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

5 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

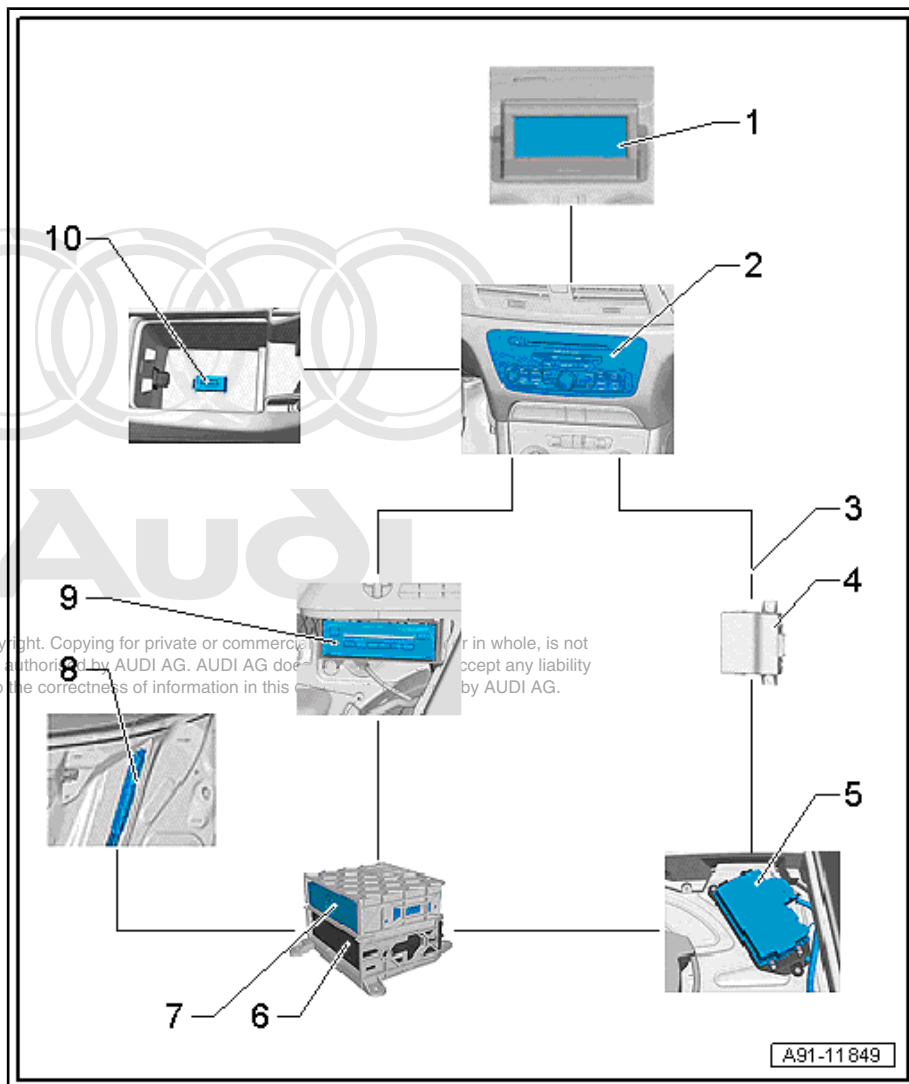
6 - Radio - R- behind luggage compartment trim (left-side)

7 - TV tuner - R78- behind luggage compartment trim (left-side)

8 - Aerial amplifier

9 - CD changer - R41- behind luggage compartment trim (left-side)

10 - Connection for external audio sources - R199- in centre console storage compartment



Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information;
Rep. gr. 97 ; Repairing aerial wires .

8.1.2 Layout - TV system, Japan, internal TV card reader, QU7

The TV system (QU7) is part of the MMI infotainment system.

The TV tuner - R78- is connected to the other components of the infotainment system via the MOST bus. The control unit 1 for information electronics - J794- is used for operation.

1 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

2 - Control unit 1 for information electronics - J794- in dash panel

3 - MOST bus

4 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

5 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

6 - Radio - R- behind luggage compartment trim (left-side)

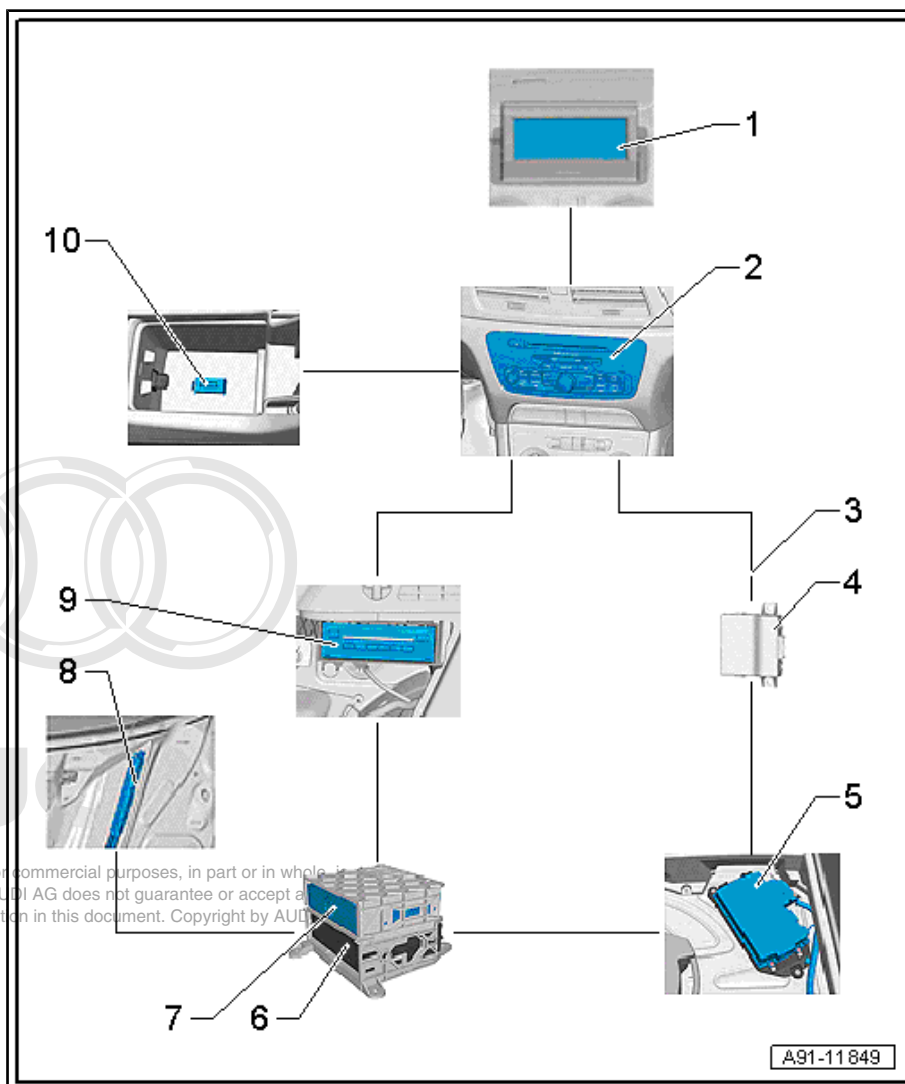
7 - TV tuner - R78- behind luggage compartment trim (left-side)

☐ DTV with SIM card slot

8 - Aerial amplifier

9 - CD changer - R41- behind luggage compartment trim (left-side)

10 - Connection for external audio sources - R199- in centre console storage compartment



Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information;
Rep. gr. 97 ; Repairing aerial wires .

8.1.3 Layout - TV system, Japan, external TV card reader, QU7

The TV system (QU7) is part of the MMI infotainment system.

The TV tuner - R78- is connected to the other components of the infotainment system via the MOST bus. The control unit 1 for information electronics - J794- is used for operation.

1 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

2 - Control unit 1 for information electronics - J794- in dash panel

3 - MOST bus

4 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

5 - Digital sound package control unit - J525- in luggage compartment (right-side) beneath luggage compartment floor covering

6 - TV card reader - R204- behind luggage compartment trim (left-side)

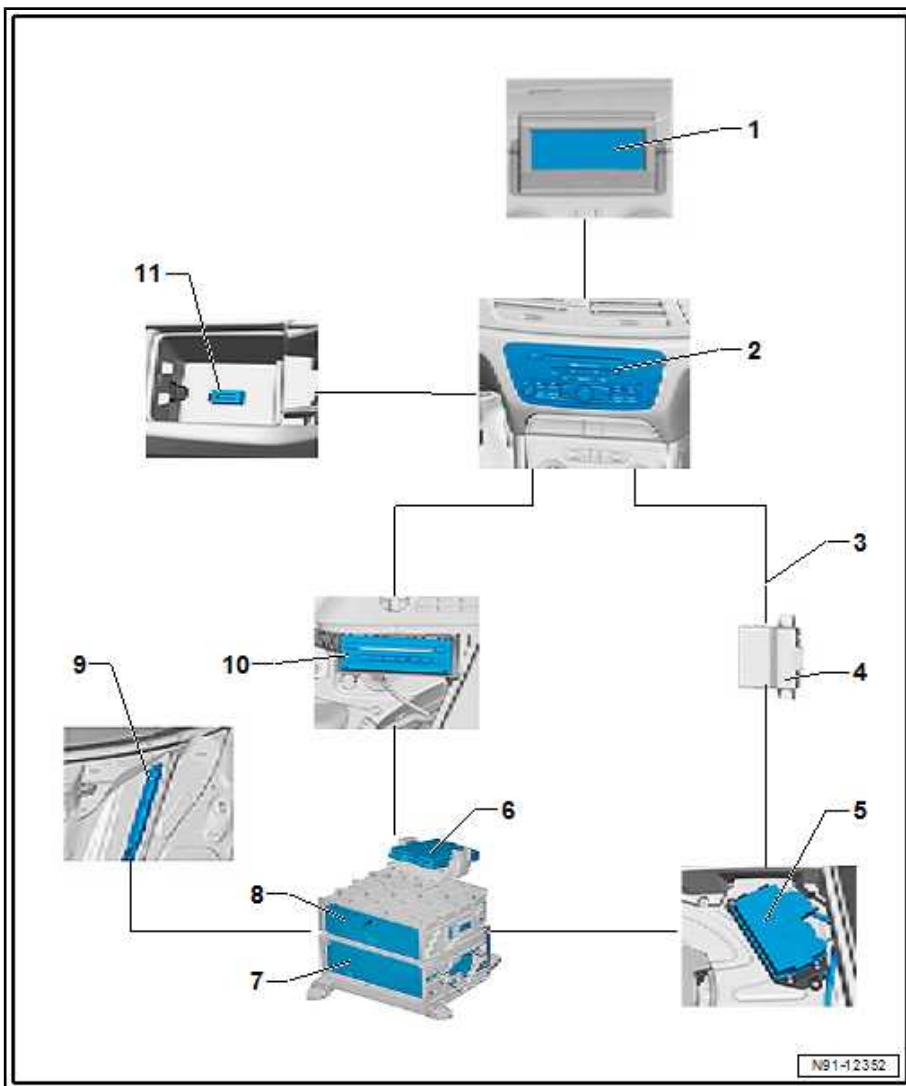
7 - Radio - R- behind luggage compartment trim (left-side)

8 - TV tuner - R78- behind luggage compartment trim (left-side)

9 - Aerial amplifier

10 - CD changer - R41- behind luggage compartment trim (left-side)

11 - Connection for external audio sources - R199- in centre console storage compartment



Fault finding is performed using ⇒ Vehicle diagnostic tester.

Repairing aerial wires ⇒ Electrical system; General information;
Rep. gr. 97 ; Repairing aerial wires .



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8.2 Overview of fitting locations - TV system

⇒ "8.2.1 Overview of fitting locations - TV system", page 104

⇒ "8.2.2 Overview of fitting locations - TV system, Japan, internal TV card reader", page 105

⇒ "8.2.3 Overview of fitting locations - TV system, Japan, external TV card reader", page 106

8.2.1 Overview of fitting locations - TV system

1 - Radio release tool - T10057-

2 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment
⇒ [page 12](#)
- ☐ Removing and installing
⇒ [page 10](#)

3 - Nut

- ☐ 3x
- ☐ 3 Nm

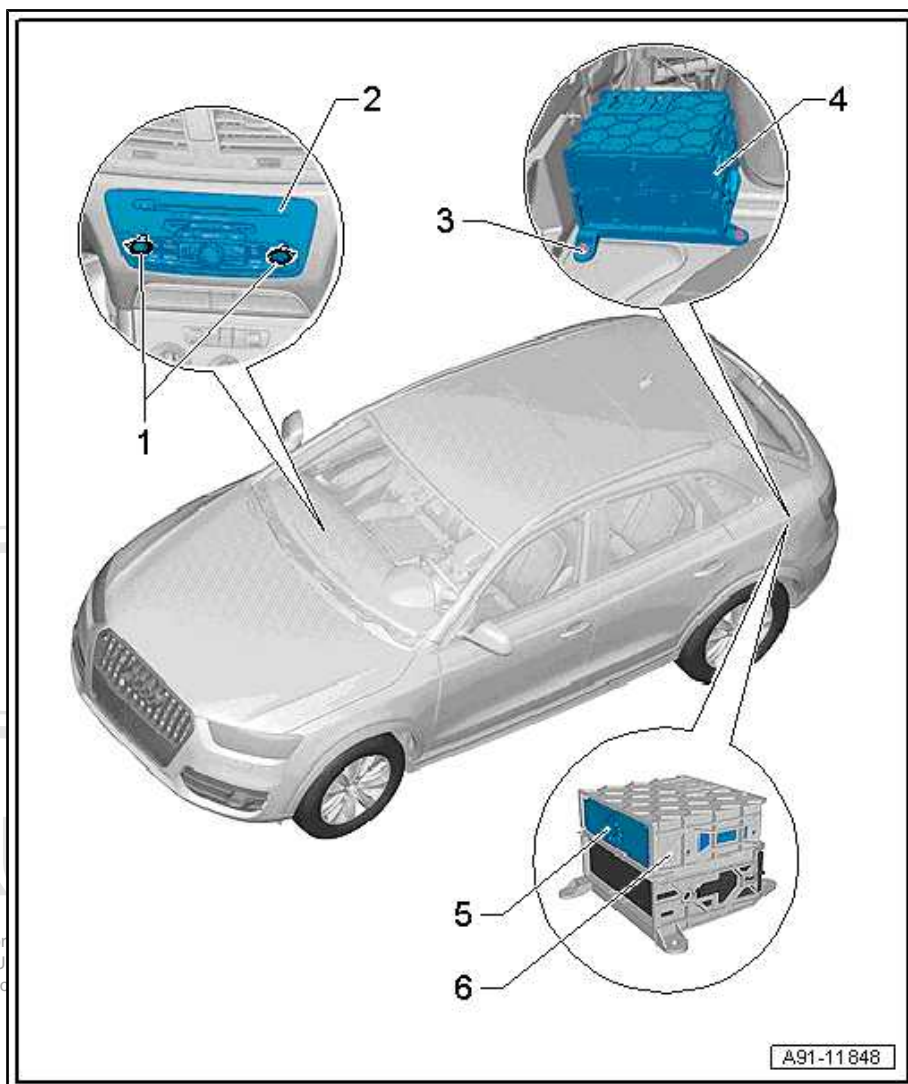
4 - Bracket

5 - TV tuner - R78-

- ☐ Pin assignment for hybrid ⇒ [page 108](#)
- ☐ Pin assignment for DTV ⇒ [page 110](#)
- ☐ Removing and installing ⇒ [page 106](#)

6 - Bracket

- ☐ Bolt, 4x
- ☐ 2 Nm



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8.2.2 Overview of fitting locations - TV system, Japan, internal TV card reader

1 - Radio release tool - T10057-

2 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment
⇒ [page 12](#)
- ☐ Removing and installing
⇒ [page 10](#)

3 - Nut

- ☐ 3x
- ☐ 3 Nm

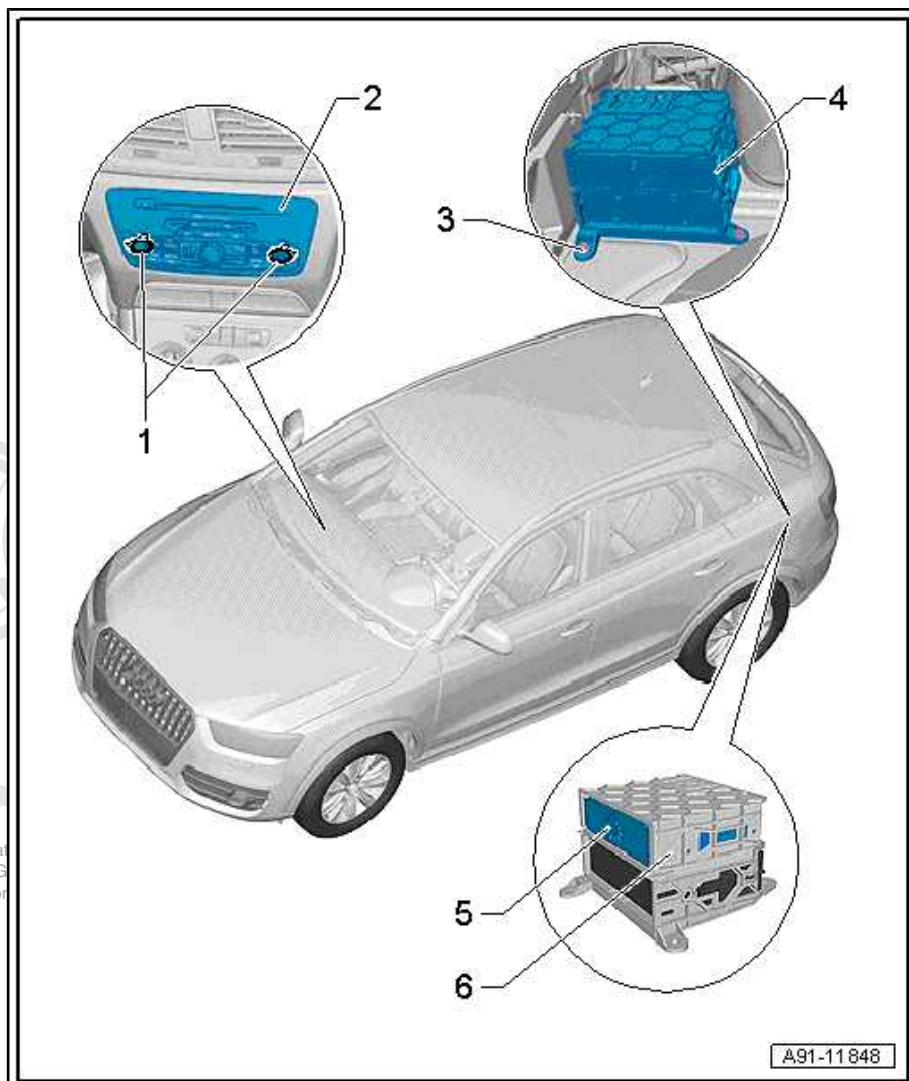
4 - Bracket

5 - TV tuner - R78-

- ☐ Pin assignment
⇒ [page 111](#)
- ☐ Removing and installing
⇒ [page 106](#)

6 - Bracket

- ☐ Bolt, 4x
- ☐ 2 Nm



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8.2.3 Overview of fitting locations - TV system, Japan, external TV card reader

1 - Radio release tool - T10057-

2 - Control unit 1 for information electronics - J794-

- ☐ Pin assignment
⇒ [page 12](#)
- ☐ Removing and installing
⇒ [page 10](#)

3 - Nut

- ☐ 3x
- ☐ 3 Nm

4 - Bracket

5 - TV card reader - R204-

- ☐ Removing and installing
⇒ [page 108](#)

6 - Bracket

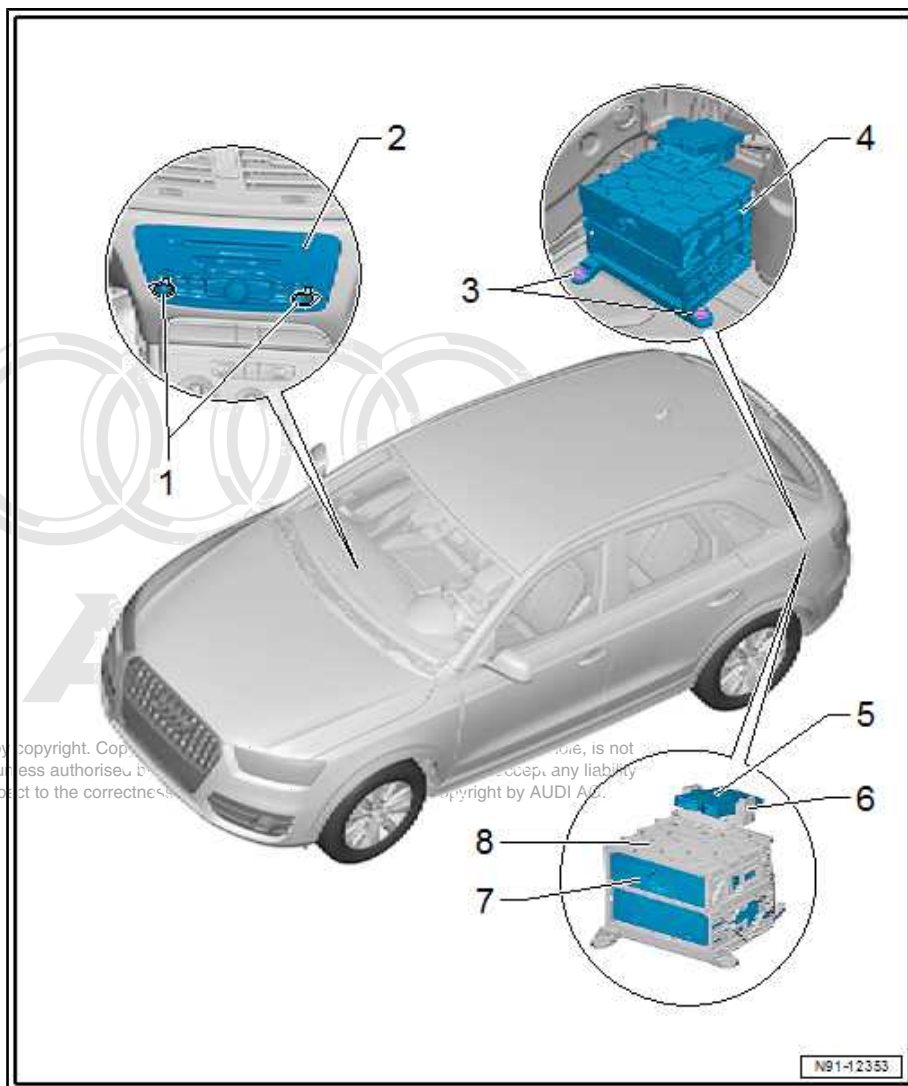
- ☐ For TV card reader - R204-
- ☐ Clipped to bracket -8-

7 - TV tuner - R78-

- ☐ Pin assignment
⇒ [page 112](#)
- ☐ Removing and installing
⇒ [page 106](#)

8 - Bracket

- ☐ Bolt, 4x
- ☐ 2 Nm



8.3 Removing and installing TV tuner

TV tuner - R78- is located behind luggage compartment trim (left-side).

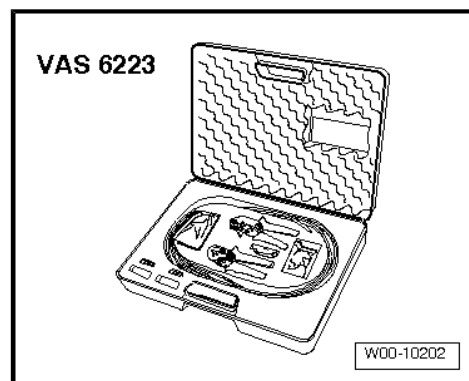


Note

If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Special tools and workshop equipment required

◆ Protective cap for cable connector - VAS 6223/9-



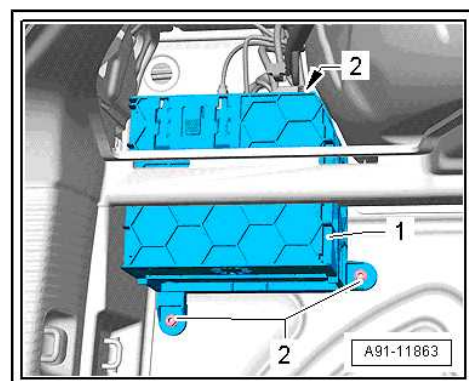
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.

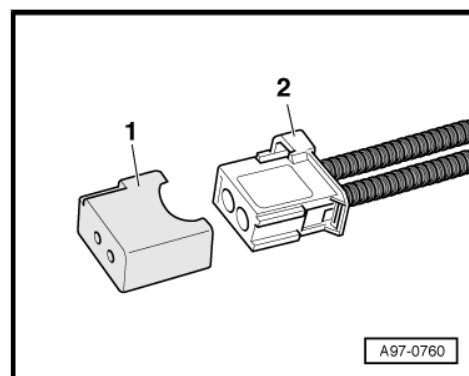
- Remove cover on left in luggage compartment and remove luggage compartment floor covering.

The control unit bracket must be removed prior to removing the TV tuner - R78- .

- Remove nuts -2- on bracket -1-.
- Swivel bracket -1- into luggage compartment until front sides of radio - R- and TV tuner - R78- are accessible.
- Release and unplug all connectors on radio - R- and TV tuner - R78- .



- Fit protective cap for cable connector - VAS 6223/9- -1- onto MOST bus connector -2-.
- Bring bracket -1- into luggage compartment.



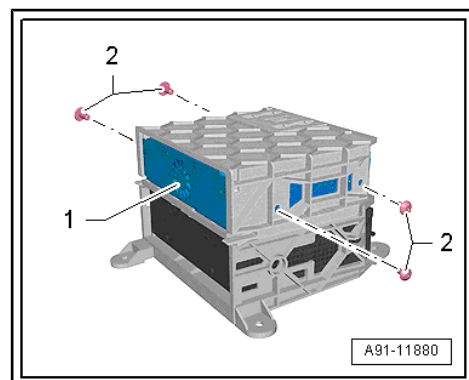
- Remove bolts -2- on bracket -1-.
- Remove TV tuner - R78- -1- from bracket.

Installing

- Install in reverse sequence of removal.

Tightening torques

- ◆ ⇒ ["8.2 Overview of fitting locations - TV system", page 104](#)



8.4 Removing and installing TV card reader

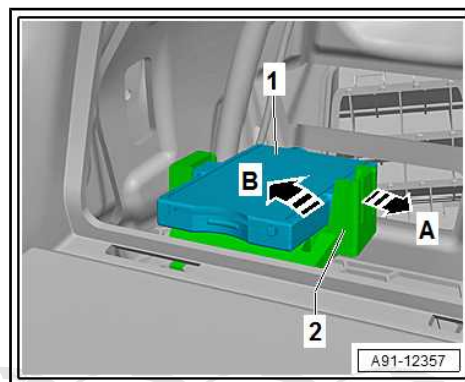
The TV card reader - R204- is located behind the luggage compartment side trim (left-side).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove cover from luggage compartment side trim (left-side).
- Remove TV card from TV card reader - R204- -1-.
- Press lug on bracket -2- in direction of -arrow A-.
- At the same time, swivel TV card reader - R204- -1- out of bracket -2- in direction of -arrow B-.
- Release and unplug connector at TV card reader - R204- -1-.
- Take out TV card reader - R204- -1-.

Installing

- Install in reverse sequence of removal.



8.5 Pin assignment

⇒ [“8.5.1 Pin assignment for TV tuner R78 , hybrid”, page 108](#)

⇒ [“8.5.2 Pin assignment for TV tuner R78 , DTV”, page 110](#)

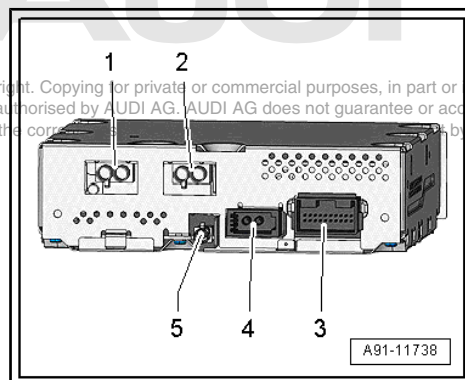
⇒ [“8.5.3 Pin assignment for TV tuner R78 , DTV Japan, internal TV card reader”, page 111](#)

⇒ [“8.5.4 Pin assignment for TV tuner R78 , DTV Japan, external TV card reader”, page 112](#)

8.5.1 Pin assignment for TV tuner - R78- , hybrid

TV tuner - R78-

- 1 - Connection TV1/TV2 from aerial amplifier - R24- / aerial amplifier 2 - R111-
- 2 - Connection TV3 from aerial amplifier 2 - R111-
- 3 - 20-pin connector - T20I-
- 4 - MOST bus
- 5 - FBAS output to control unit 1 for information electronics - J794-



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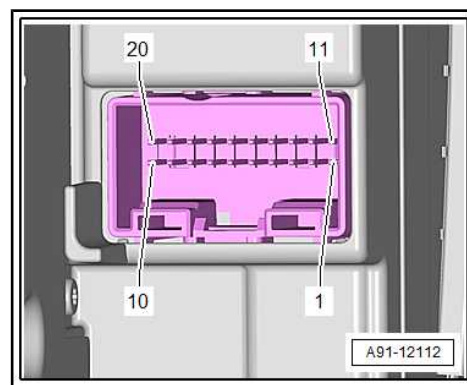


Note

Contacts which are not listed are not used.

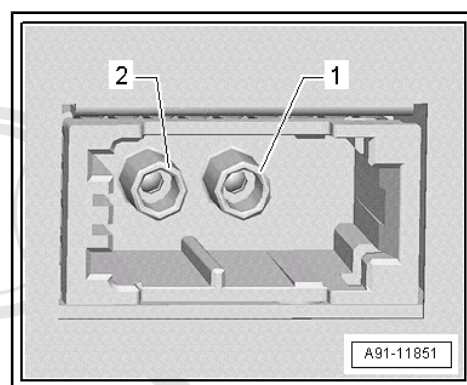
3 - 20-pin connector - T20I-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Open circuit diagnostic lead
- 4 - Screen earth
- 5 - Video out, Rear Seat Entertainment system
- 6 - Screen earth
- 7 - Audio out L, Rear Seat Entertainment system
- 8 - Audio out R, Rear Seat Entertainment system
- 9 - Screen earth
- 10 - Audio in L
- 11 - Audio in R
- 12 - Video in
- 13 - Screen earth
- 14 - Screen earth
- 15 - Screen earth
- 16 - Audio in L
- 17 - Audio in R
- 18 - Video in
- 19 - Screen earth
- 20 - I/D PIN



4 - MOST bus

- 1 - Output
- 2 - Input

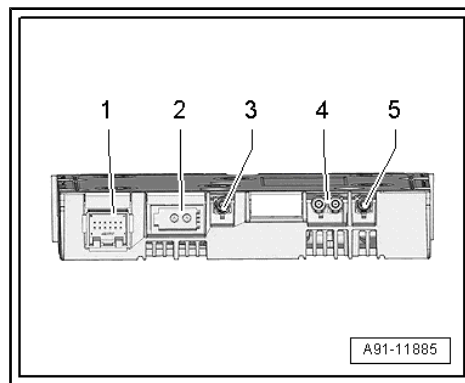


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8.5.2 Pin assignment for TV tuner - R78- , DTV

TV tuner - R78-

- 1 - 12-pin connector - T12aa-
- 2 - MOST bus
- 3 - FBAS output to control unit 1 for information electronics - J794-
- 4 - Connection TV2/TV3 from aerial amplifier 2 - R111-
- 5 - Connection TV1 from aerial amplifier - R24-

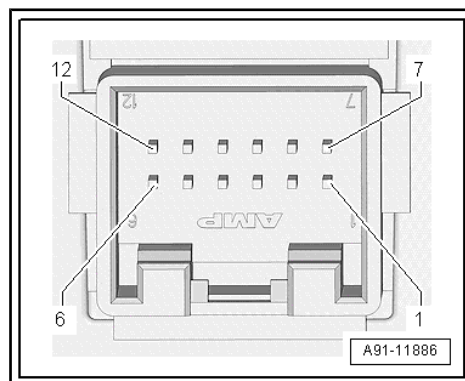


Note

Contacts which are not listed are not used.

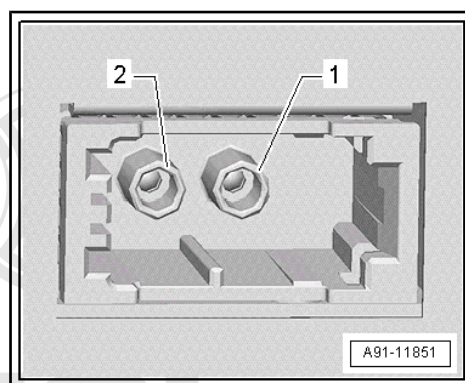
1 - 12-pin connector - T12aa-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Open circuit diagnostic lead
- 4 - Screen earth
- 5 - Video out, Rear Seat Entertainment system
- 6 - Screen earth
- 7 - Audio out L, Rear Seat Entertainment system
- 8 - Audio out R, Rear Seat Entertainment system
- 9 - Screen earth
- 10 - Audio in L
- 11 - Audio in R
- 12 - Video in



2 - MOST bus

- 1 - Output
- 2 - Input

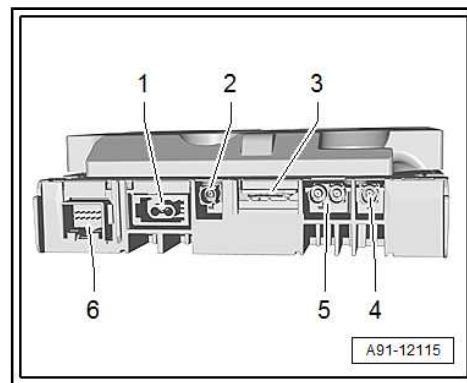


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8.5.3 Pin assignment for TV tuner - R78- , DTV Japan, internal TV card reader

TV tuner - R78-

- 1 - MOST bus
- 2 - FBAS output to control unit 1 for information electronics - J794-
- 3 - SIM card reader
- 4 - Connection TV1 from aerial amplifier - R24-
- 5 - Connection TV2/TV3 from aerial amplifier 2 - R111-
- 6 - 12-pin connector - T12aa-

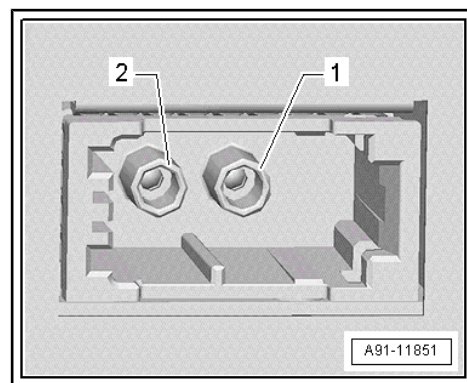


Note

Contacts which are not listed are not used.

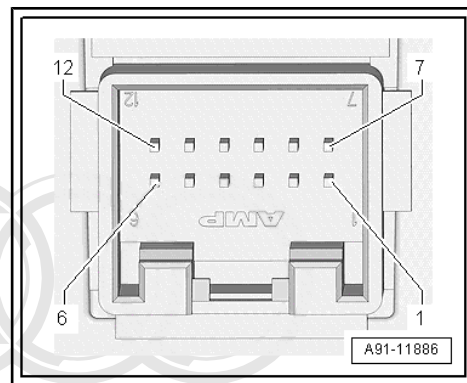
1 - MOST bus

- 1 - Output
- 2 - Input



6 - 12-pin connector - T12aa-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Open circuit diagnostic lead
- 4 - Screen earth
- 5 - Video out, Rear Seat Entertainment system
- 6 - Screen earth
- 7 - Audio out L, Rear Seat Entertainment system
- 8 - Audio out R, Rear Seat Entertainment system
- 9 - Screen earth
- 10 - Audio in L
- 11 - Audio in R
- 12 - Video in

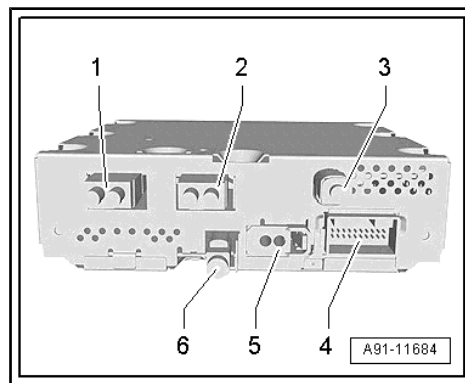


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8.5.4 Pin assignment for TV tuner - R78- , DTV Japan, external TV card reader

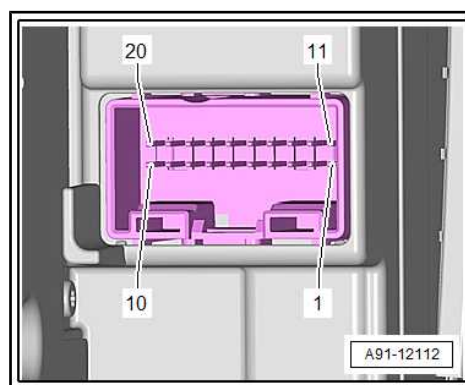
TV tuner - R78-

- 1 - Connection TV1 from aerial amplifier - R24-
- 2 - Connection TV2/TV3 from aerial amplifier 2 - R111-
- 3 - Connection TV card reader - R204-
- 4 - 20-pin connector - T20I-
- 5 - MOST bus
- 6 - FBAS output to control unit 1 for information electronics - J794-



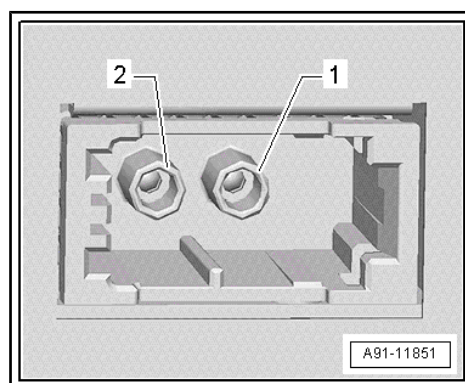
4 - 20-pin connector - T20I-

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Open circuit diagnostic lead
- 4 - Screen earth
- 5 - Video out, Rear Seat Entertainment system
- 6 - Screen earth
- 7 - Audio out L, Rear Seat Entertainment system
- 8 - Audio out R, Rear Seat Entertainment system
- 9 - Screen earth
- 10 - Audio in L
- 11 - Audio in R
- 12 - Video in
- 13 - Screen earth
- 14 - Screen earth
- 15 - Screen earth
- 16 - Audio in L
- 17 - Audio in R
- 18 - Video in
- 19 - Screen earth
- 20 - I/D PIN



5 - MOST bus

- 1 - Output
- 2 - Input



9 Reversing camera system

⇒ [“9.1 Layout - reversing camera system”, page 113](#)

⇒ [“9.2 Overview - reversing camera system”, page 115](#)

⇒ [“9.3 Removing and installing reversing camera R189 ”, page 115](#)

⇒ [“9.4 Removing and installing reversing camera system control unit J772 ”, page 116](#)

⇒ [“9.5 Calibrating reversing camera system”, page 116](#)

⇒ [“9.6 Pin assignment”, page 121](#)

9.1 Layout - reversing camera system

The reversing camera system provides assistance to the driver when driving the vehicle backwards; the information about the prevailing traffic conditions behind the vehicle is supplied to the driver via the display unit for front information display and operating unit control unit - J685- .

The system will be switched on as soon as reverse gear is engaged. The system can be activated manually by operating the parking aid button - E266- in the centre console (optional).

The reversing camera system consists of the following components:

- ◆ Reversing camera - R189-
- ◆ Reversing camera system control unit - J772-
- ◆ Control unit 1 for information electronics - J794-
- ◆ Steering wheel with steering angle sender - G85-

As an option, other control units may also be installed.

Do not fit an additional number plate on vehicles equipped with reversing camera system as this will impair the function of the reversing camera system.

Fault finding is performed using ⇒ Vehicle diagnostic tester.



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1 - Display unit for front information display and operating unit control unit - J685- in dash panel (centre)

2 - Control unit 1 for information electronics - J794- in dash panel

3 - MOST bus

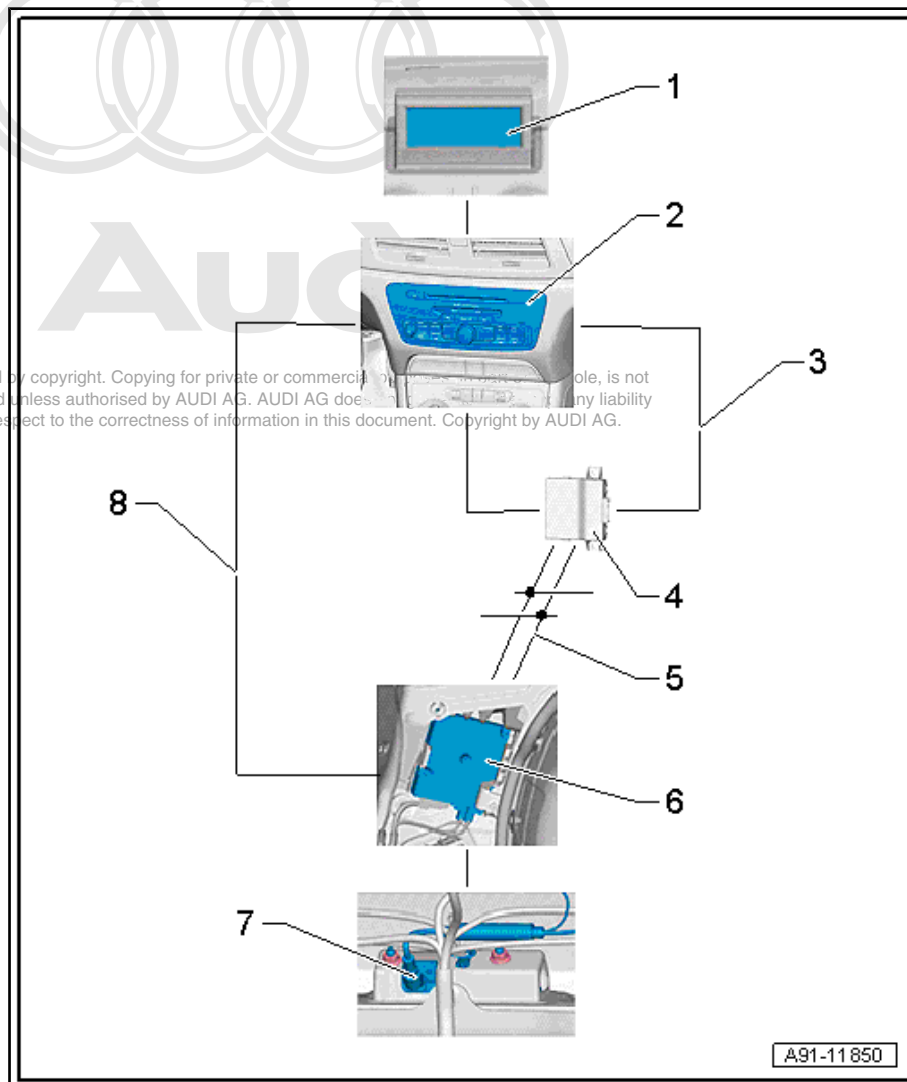
4 - Data bus diagnostic interface - J533- behind driver's storage compartment (left-side)

5 - Convenience CAN bus

6 - Reversing camera system control unit - J772- behind luggage compartment trim (left-side)

7 - Reversing camera - R189- in rear lid

8 - FBAS wire to control unit 1 for information electronics - J794-



9.2 Overview - reversing camera system

1 - Reversing camera - R189- in handle

- ☐ Removing and installing ⇒ [page 115](#)
- ☐ Calibration ⇒ [page 116](#)

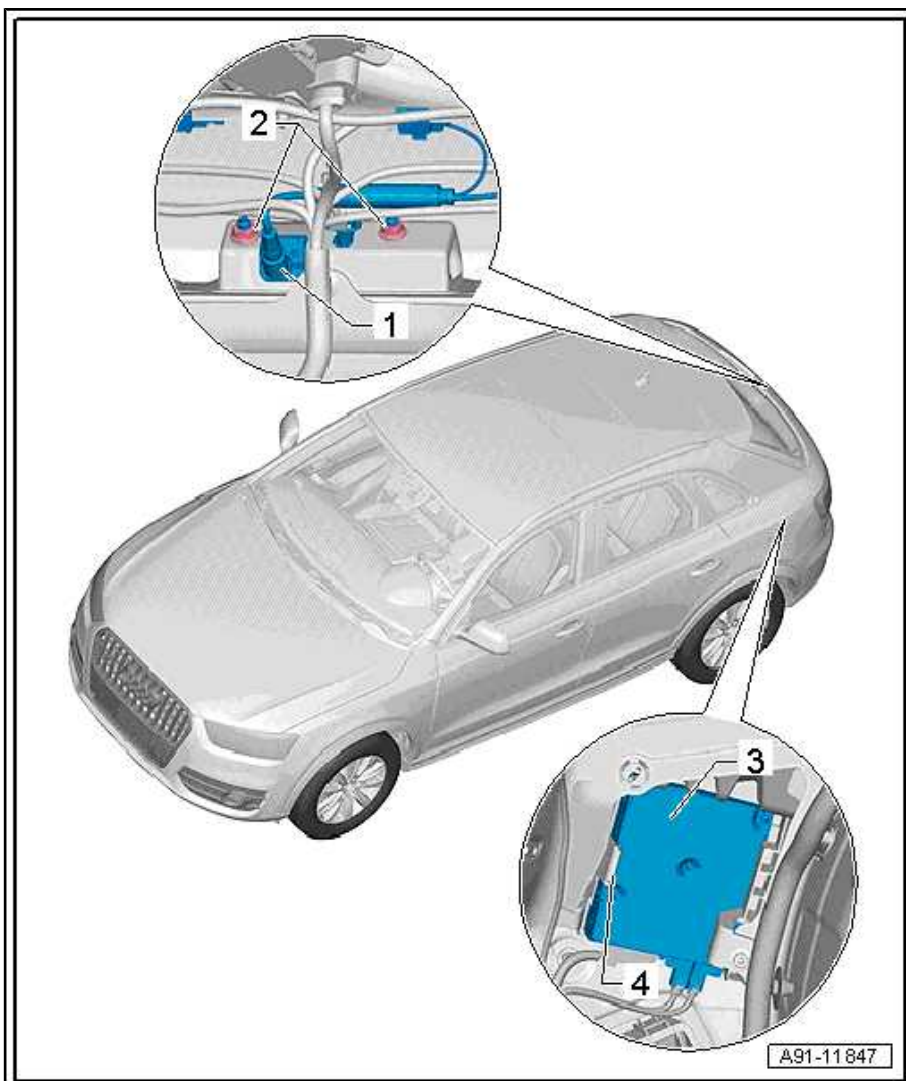
2 - Nut

- ☐ 2x
- ☐ 6 Nm

3 - Reversing camera system control unit - J772-

- ☐ Pin assignment ⇒ [page 121](#)
- ☐ Removing and installing ⇒ [page 116](#)
- ☐ Calibration ⇒ [page 116](#)

4 - Retainer



9.3 Removing and installing reversing camera - R189-

Reversing camera - R189- is installed in rear lid in handle and is permanently fitted in handle.

When renewing the reversing camera - R189- the handle must also be renewed.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.

The reversing camera - R189- is equipped with a trailing cable. The connectors to the vehicle wiring harness are located in the rear lid.

- Remove rear lid trim (bottom) ⇒ [General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing rear lid trim \(bottom\)](#) .

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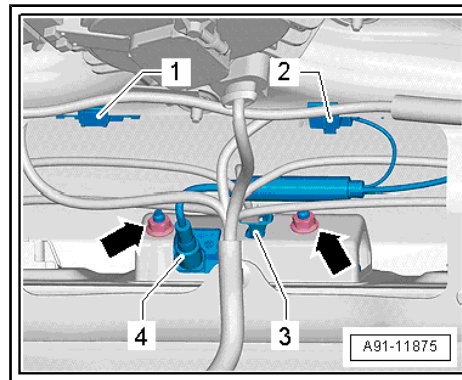
- Release and unplug connectors -1-, -2- and -3- in rear lid.

Reversing camera - R189- -4- is permanently fitted in handle.

- Remove nuts -arrows-.
- Pull handle -3- together with reversing camera - R189- out of mounting in rear lid.

Installing

- Install in reverse sequence of removal.
- Close rear lid.
- Perform calibration ⇒ [page 116](#) .



Tightening torques

- ♦ ⇒ [“9.2 Overview - reversing camera system”, page 115](#)

9.4 Removing and installing reversing camera system control unit - J772-

The reversing camera system control unit - J772- -1- is located behind the luggage compartment trim (left-side).

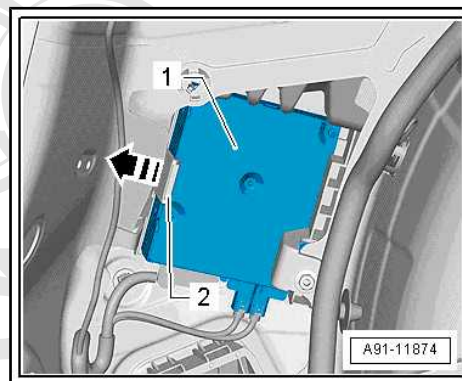


Note

If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Detach cover on left in luggage compartment and fold insulation to side.



The reversing camera system control unit - J772- -1- is only wedged in the bracket.

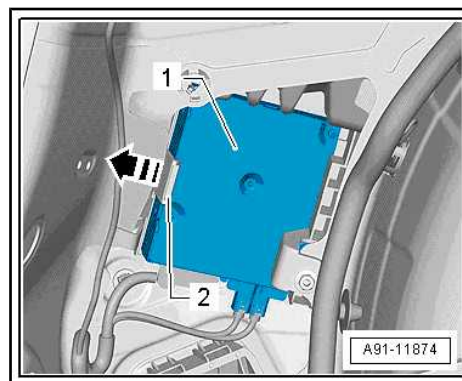
- Push tab -2- in direction of -arrow- and remove reversing camera system control unit - J772- -1- from bracket.
- Release and unplug connectors at reversing camera system control unit - J772- -1-.

Installing

- Install in reverse sequence of removal.
- Perform calibration ⇒ [page 116](#) .

Tightening torques

- ♦ ⇒ [“9.2 Overview - reversing camera system”, page 115](#)



9.5 Calibrating reversing camera system

⇒ [“9.5.1 Setting up and aligning calibration unit VAS 6350”, page 116](#)

⇒ [“9.5.2 Calibrating reversing camera R189”, page 119](#)

9.5.1 Setting up and aligning calibration unit - VAS 6350-

After performing service work on the vehicle it may be necessary to re-calibrate the reversing camera system. This is required after:

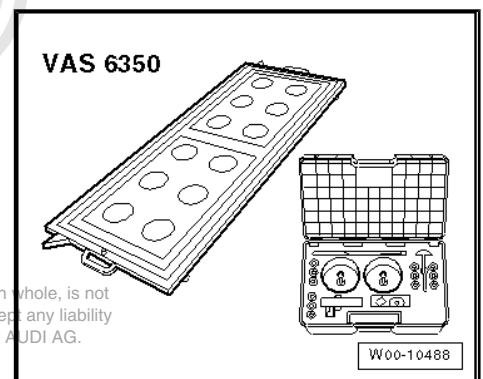
- ◆ Removing and installing reversing camera - R189-
- ◆ Renewing reversing camera system control unit - J772-
- ◆ Performing accident repair work on rear lid
- ◆ Changes to wheel alignment on rear axle

Requirements for calibration

- ◆ Camera lens must be clean.
- ◆ Vehicle must be positioned on a firm and even surface.
- ◆ There must be sufficient space around the vehicle (at least 2 m).
- ◆ Parking brake must be activated.
- ◆ Steering wheel must be in centre position, wheels must be straight.
- ◆ All doors and the rear lid must be closed.
- ◆ There must not be anyone inside the vehicle.
- ◆ Vehicle must not be loaded (unladen weight).
- ◆ The battery charger must be connected.
- ◆ The ignition must be switched on.

Special tools and workshop equipment required

- ◆ Calibration unit - VAS 6350-



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- ◆ ⇒ Vehicle diagnostic tester

The calibration unit - VAS 6350- consists of the following items:

- ◆ Wheel centre mounting - VAS 6350/1-
- ◆ Spacing laser - VAS 6350/2-
- ◆ Linear laser - VAS 6350/3-

Overview of calibration equipment - VAS 6350- when set up

1 - Wheel centre mounting - VAS 6350/1-

2 - Wheel centre mounting - VAS 6350/1-

3 - Locating bracket (right-side)

- ☐ Mounting for spacing laser - VAS 6350/2-

4 - Plastic foot

- ☐ Three on underside of calibration platform
- ☐ Adjustable, for aligning horizontal position of calibration platform

5 - Linear laser - VAS 6350/3-

- ☐ On calibration platform
- ☐ Switching on and off ⇒ Owner's Manual

6 - Spacing laser - VAS 6350/2-

- ☐ On calibration platform
- ☐ Operating instructions ⇒ Owner's Manual

7 - Spirit level

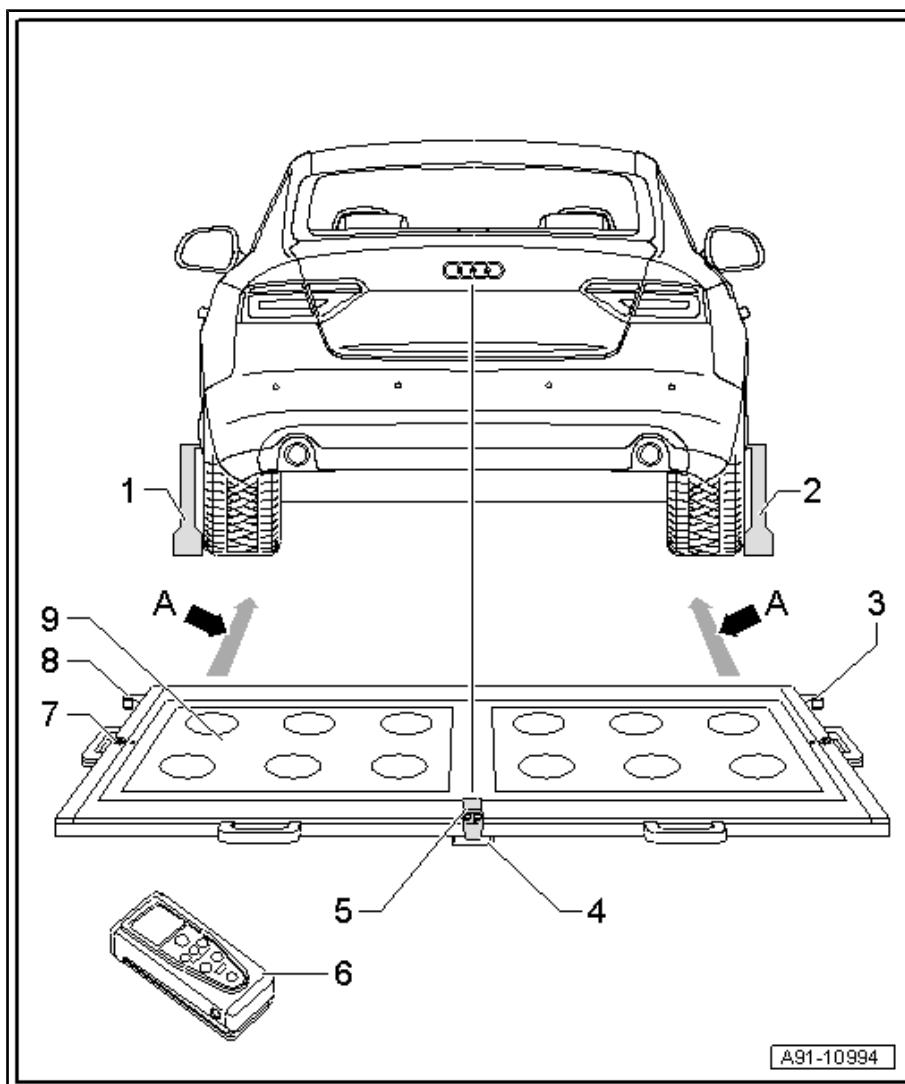
- ☐ On calibration platform
- ☐ For checking horizontal position

8 - Locating bracket (left-side)

- ☐ Mounting for spacing laser - VAS 6350/2-

9 - Calibration platform

- ☐ -Dimension A- = 1.47 m - 1.90 m between locating brackets of calibration platform and wheel centre mountings - VAS 6350/1-



Aligning calibration platform

- Position calibration platform behind vehicle at a distance of 1.47 m - 1.90 m from rear wheels; refer to -dimension A- in overview ⇒ [page 117](#).
- Move calibration unit - VAS 6350- to a horizontal position.
- To do so, turn plastic feet beneath calibration platform to make air bubble in spirit level move exactly to centre of display -arrow-.

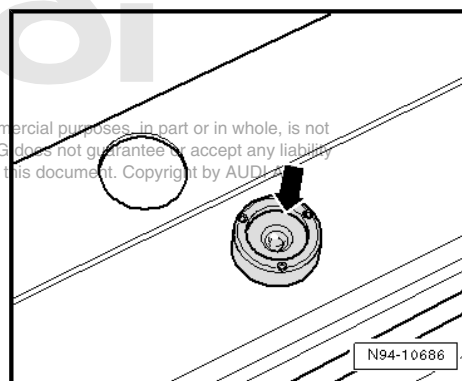


WARNING

Make sure no light is reflected on calibration platform.

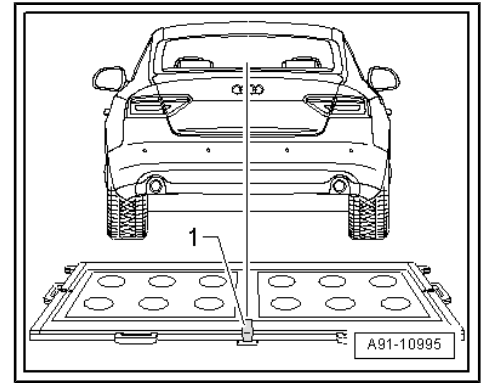
Reflected light impairs the view of the reversing camera - R189- and therefore it may be impossible to perform calibration.

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- Switch on linear laser - VAS 6350/3- -1- on calibration platform and align entire calibration unit - VAS 6350- so that laser beam shines onto centre of Audi rings on rear of vehicle.
- Check whether Audi rings are in centre on rear of vehicle and adjust laser beam accordingly.

Continue by calibrating reversing camera - R189- ➔ [page 119](#) .



9.5.2 Calibrating reversing camera - R189-

- Ensure requirements are met ➔ [page 117](#) .
- Connect ➔ Vehicle diagnostic tester.

Fit wheel centre mounting - VAS 6350/1- :

- Check bolt circle of wheels.
- Prepare wheel centre mountings - VAS 6350/1- as required. Use spacers.
- To do so, secure three wheel bolt adapters to each wheel centre mounting - VAS 6350/1- to match the hole circle.
- Position paddles on both wheel centre mountings - VAS 6350/1- and secure each paddle with clamping bolt.
- Fit wheel centre mountings - VAS 6350/1- onto wheel bolts on rear wheels.

The wheel centre mountings - VAS 6350/1- are kept in position by the O-rings in the adapters.



Note

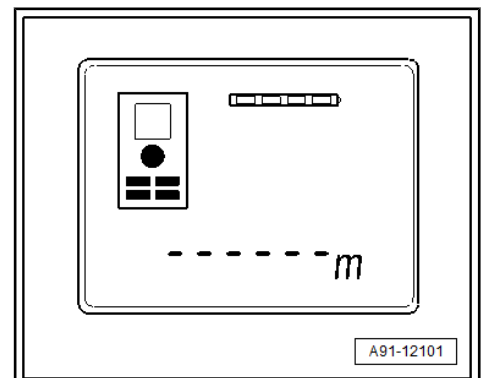
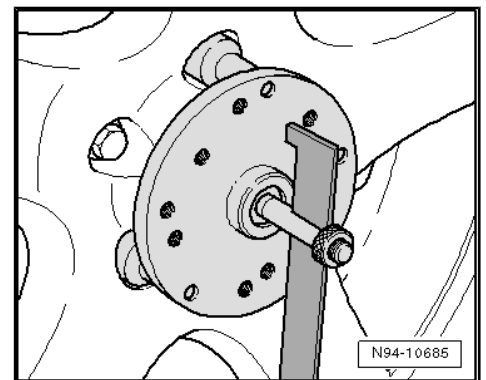
When fitting the wheel centre mountings - VAS 6350/1- onto the wheels, make sure that they are not mounted on any "anti-theft" wheel bolts that might be installed.

- Use clamping bolts to adjust paddles so that they are free to move just slightly above the ground. Make sure the paddles can move freely.
- Set up and align calibration unit - VAS 6350- ➔ [page 116](#) .

Measuring gap:

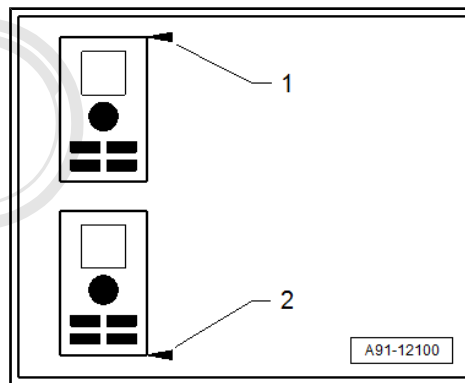
- Switch on spacing laser - VAS 6350/2- .

The following display will appear:



The display will show how the spacing laser - VAS 6350/2- should be positioned. Press the appropriate key.

- 1 - Position at front edge
- 2 - Position at rear edge



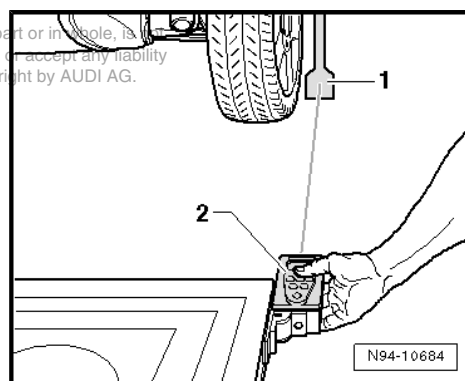
- Hold spacing laser - VAS 6350/2- -2- on one side of calibration platform so that it is flush at bracket (position rear edge against bracket). Spacing laser - VAS 6350/2- -2- must make firm contact with bracket.

- Briefly press the measurement button.

The laser will switch on.

- Make sure that laser beam from spacing laser - VAS 6350/2- -2- hits lower, larger part of paddle -1-.

If this is not the case, position of paddles must be corrected accordingly using clamping bolts on wheel centre mounting - VAS 6350/1- .



- Hold spacing laser - VAS 6350/2- in locating bracket on calibration unit - VAS 6350- with one hand while laser beam is visible on paddle.
- Now press measurement button briefly to measure distance.
- Note down the measured value.
- Perform same measuring procedure for rear wheel on other side of calibration unit - VAS 6350- .

Measured distance value must be identical on both sides.

If values are not identical:

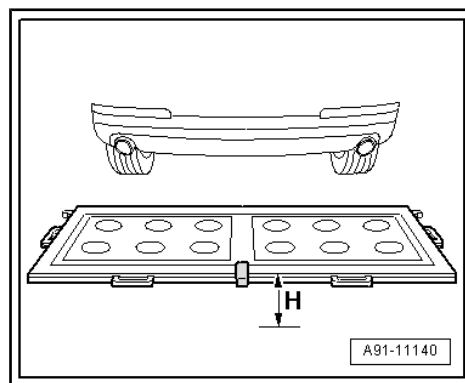
- Adjust calibration unit - VAS 6350- until values on both sides are identical.

When adjusting calibration unit - VAS 6350- , make sure that linear laser - VAS 6350/3- on calibration unit - VAS 6350- still hits centre of Audi rings and spirit level display also remains in the centre. Correct if necessary.

Measuring -dimension H-:

- Measure height of calibration unit - VAS 6350- : -dimension H- (top edge of platform - floor).

Ensure that spacing laser - VAS 6350/2- is correctly adjusted (position at front edge).



The display will show how the spacing laser - VAS 6350/2- should be positioned. Press the appropriate key.

- 1 - Position at front edge
- 2 - Position at rear edge

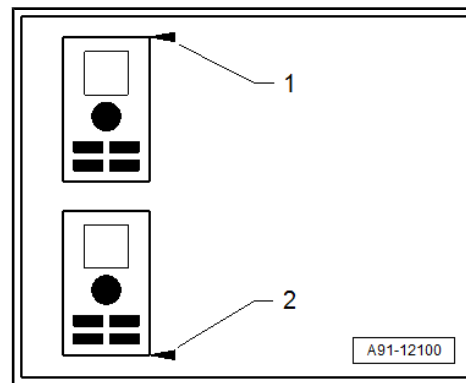
Now enter measured distance value and height in millimetres in
⇒ Vehicle diagnostic tester.

Performing calibration

⇒ Vehicle diagnostic tester must be connected.

- Select **Diagnosis** mode and begin diagnosis.
- Select **Test plan** tab.
- Choose **Select own test** and select following options one after the other:
 - ◆ Body
 - ◆ Electrical system
 - ◆ 01 - Self-diagnosis compatible systems
 - ◆ 6C - Reversing camera system/J772
 - ◆ 6C - Reversing camera system control unit, functions
 - ◆ 6C - Calibration (Rep. gr. 91)

Further instructions are given by ⇒ Vehicle diagnostic tester during calibration procedure.



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Make sure no light is reflected on calibration platform.

Reflected light impairs the view of the reversing camera - R189- and therefore it may be impossible to perform calibration.

9.6 Pin assignment

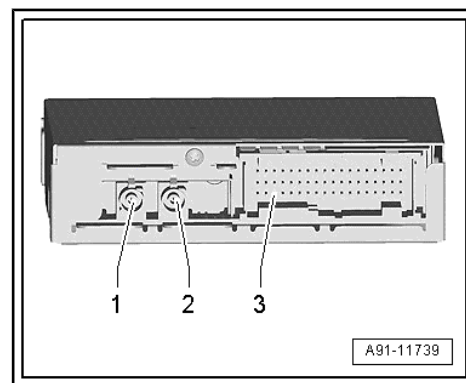
Reversing camera system control unit - J772-

- 1 - FBAS input from reversing camera - R189-
- 2 - FBAS output to control unit 1 for information electronics - J794-
- 3 - 54-pin connector - T54a-



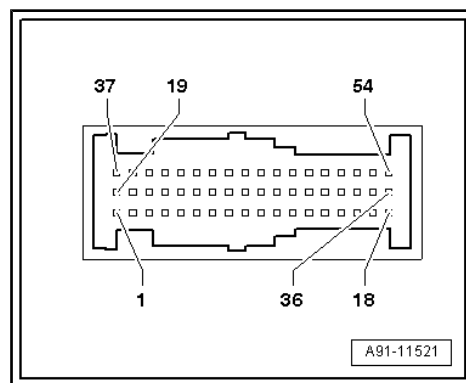
Note

Contacts which are not listed are not used.



3 - 54-pin connector - T54a-

- 39 - CAN bus Low, convenience
- 40 - CAN bus High, convenience
- 43 - Terminal 30
- 44 - Terminal 31
- 47 - Terminal 31 to reversing camera - R189-
- 48 - Voltage supply for reversing camera - R189-



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10 Multi-function steering wheel

⇒ [“10.1 Layout - multi-function steering wheel”, page 123](#)

⇒ [“10.2 Exploded view - multi-function steering wheel”, page 123](#)

⇒ [“10.3 Removing and installing multifunction buttons in steering wheel E441 / E440 ”, page 124](#)

⇒ [“10.4 Removing and installing tiptronic switches in steering wheel E439 / E438 ”, page 127](#)

10.1 Layout - multi-function steering wheel

- ◆ Buttons are integrated in the steering wheel in order to make the infotainment, telephone and navigation systems easier to use. On vehicles with tiptronic, rocker switches are also fitted on the right and left side of the steering wheel.
- ◆ The multi-function steering wheel control unit - J453- (in the right-side button) reads out the button information and transfers it to the steering column electronics control unit - J527- via the LIN data bus. From the steering column electronics control unit - J527- the information is transferred to the individual components via the CAN bus (convenience) and the data bus diagnostic interface - J533- .

Fault finding is performed using → Vehicle diagnostic tester.
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10.2 Exploded view - multi-function steering wheel

1 - Tiptronic switch in steering wheel to shift down - E439-

- ❑ Removing and installing
⇒ [page 127](#)

2 - 3-spoke steering wheel

3 - Tiptronic switch in steering wheel to shift up - E438-

- ❑ Removing and installing
⇒ [page 127](#)

4 - Bolt

- ❑ 2x
- ❑ 1 Nm

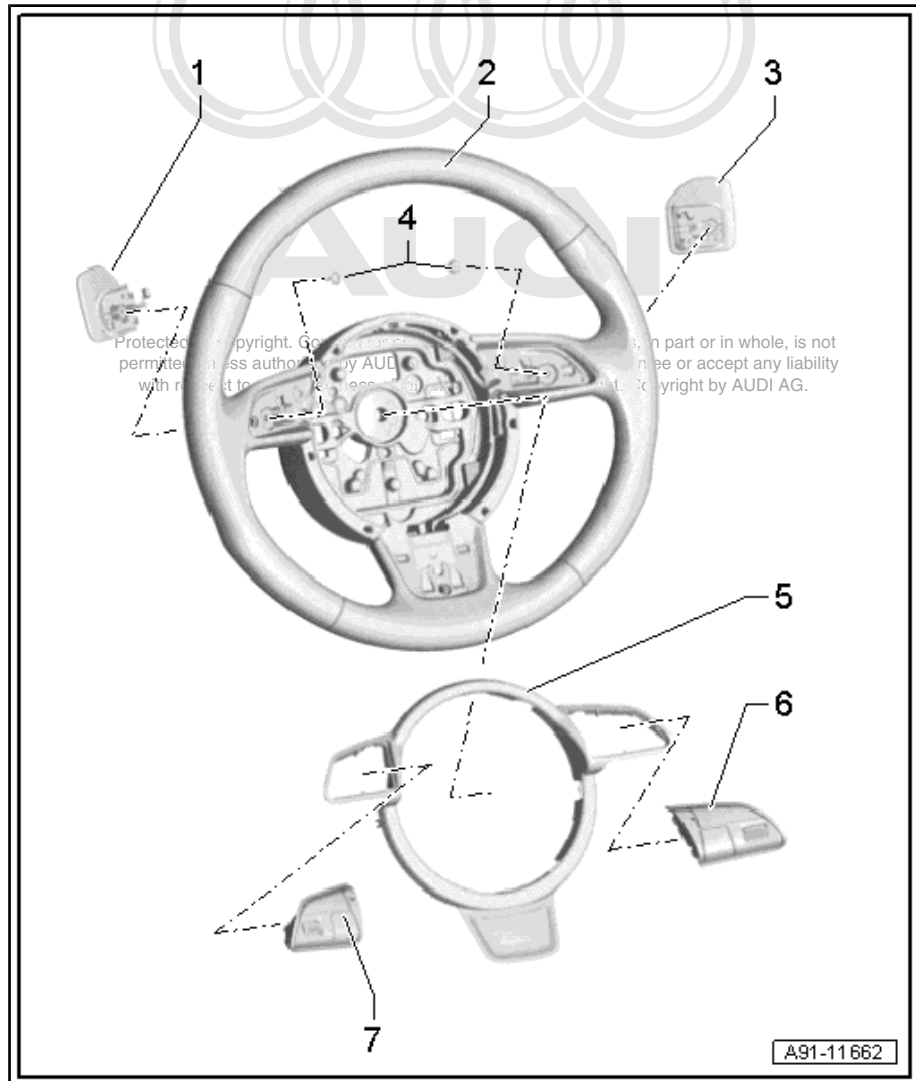
5 - Trim panel

6 - Multifunction buttons on right in steering wheel - E441-

- ❑ Removing and installing
⇒ [page 124](#)

7 - Multifunction buttons on left in steering wheel - E440-

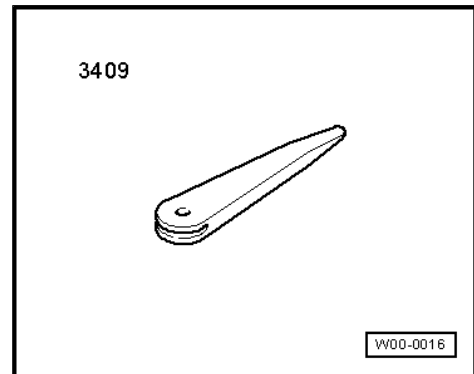
- ❑ Removing and installing
⇒ [page 124](#)



10.3 Removing and installing multifunction buttons in steering wheel -E441- / -E440-

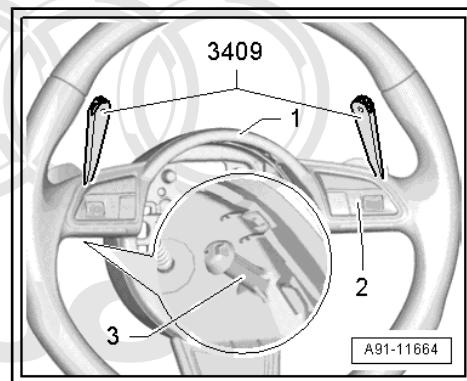
Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



The multifunction buttons -2- are clipped into the trim panel -1-. The trim panel -1- is secured on the steering wheel together with the multifunction buttons -2-. Each multifunction button -2- has an extra retainer -3-.

When removing, ensure that you loosen trim panel -1- by hand first (approx. 5 mm). Then disengage retainers -3- for multifunction buttons -2- using removal wedge - 3409- and, finally, pull off trim panel -1- together with multifunction buttons -2-.

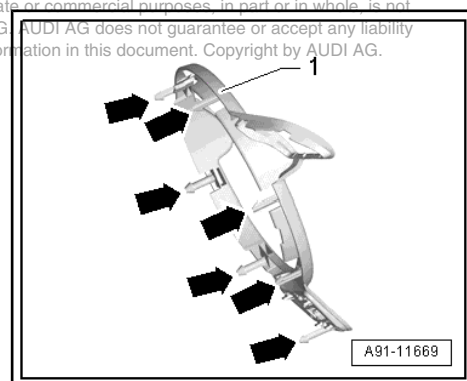


Retainers for trim panel

1 - Trim panel

Arrows - retainers

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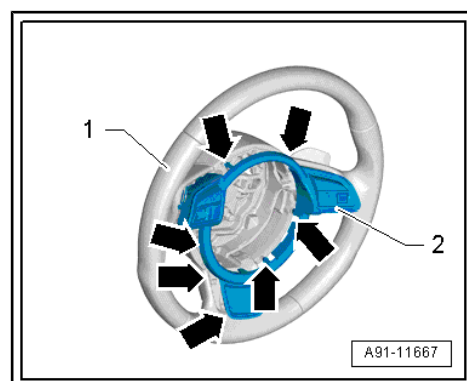
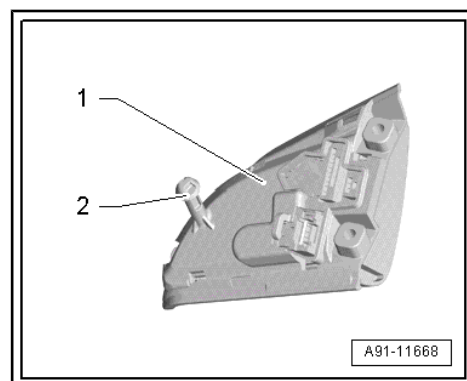
Retainer for multifunction buttons

1 - Multifunction button

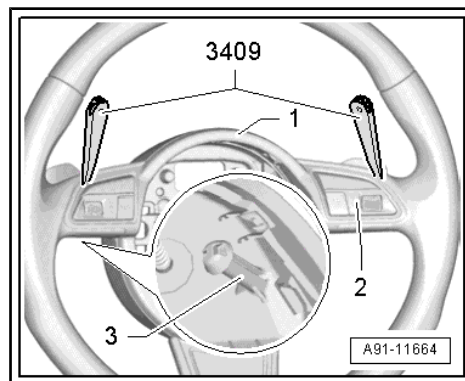
2 - Retainer

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove driver airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Removing and installing airbag (driver side); Exploded view - airbag (driver side) .
- Take connecting wires out of their guides in steering wheel.
- Slightly loosen trim panel -2- together with multifunction buttons -arrows- by hand and pull it out of steering wheel -1- (by approx. 5 mm).

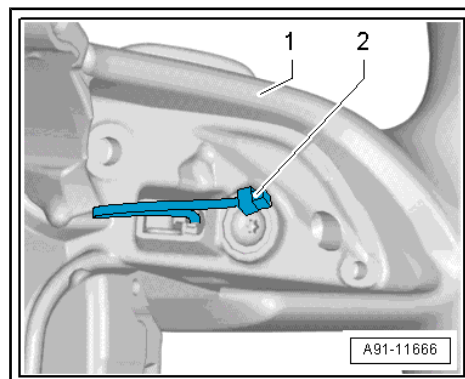


- Disengage multifunction buttons -2- in area of retainers -3- using removal wedge - 3409- . Apply removal wedge - 3409- as shown in illustration.



- At the same time, pay attention to connectors leading to tiptronic switches -2-.
- Release and unplug connector -2- at multifunction buttons.
- Detach trim panel together with multifunction buttons from steering wheel.

The multifunction buttons are clipped into the trim panel.

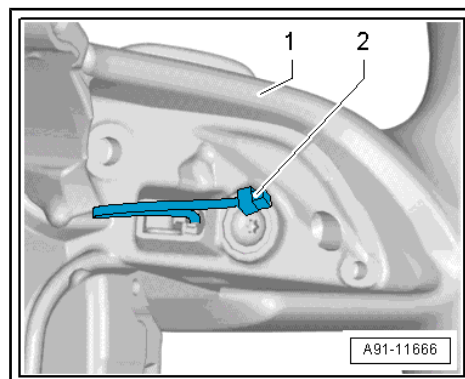
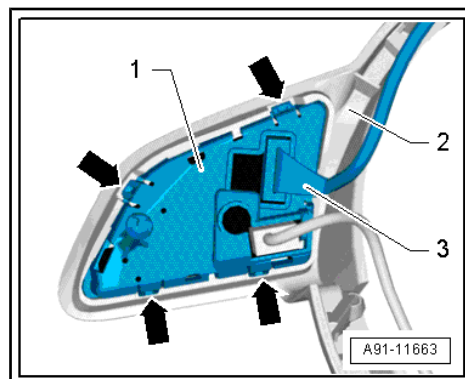


- Release and unplug connector -3- at multifunction button -1-.
- Release clips -arrows- and press multifunction button -1- out of trim panel -2-.

The additional wiring on the multifunction button (right-side) remains attached to the multifunction button.

Installing

- Installation is carried out in reverse sequence; note the following:
- Position trim panel on steering wheel with multifunction buttons fitted.
- Ensure connecting wiring -2- for tiptronic switches is routed as shown in illustration.
- Route remaining connecting wiring, including connectors, through guides in steering wheel.

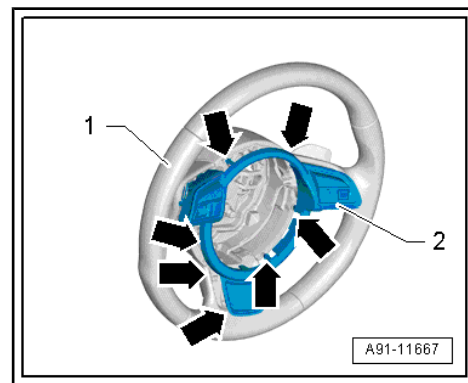


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- Push trim panel -2- together with multifunction buttons onto steering wheel -1- until they engage properly.
- Finally, check again that wiring in steering wheel is correctly routed.

Tightening torques

- ◆ ⇒ [“10.2 Exploded view - multi-function steering wheel”, page 123](#)



10.4 Removing and installing tiptronic switches in steering wheel -E439- / -E438-

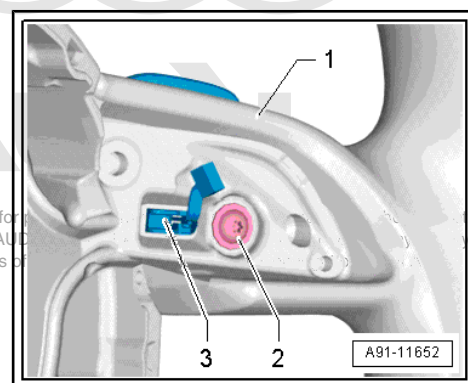
Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove trim panel with multifunction buttons ⇒ [page 124](#).
- Remove bolt -2- on steering wheel -1- and detach tiptronic switch -3- with connecting wire towards rear.

Installing

- Install in reverse sequence of removal.

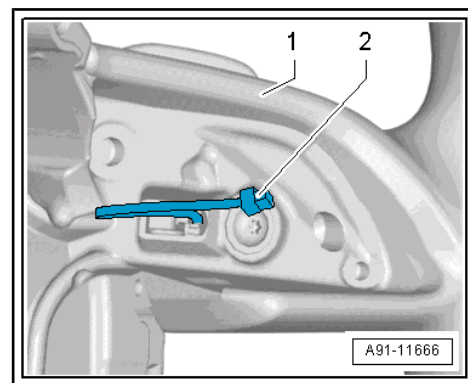
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- Note position of connecting wire -2- to multifunction button.

Tightening torques

- ◆ ⇒ [“10.2 Exploded view - multi-function steering wheel”, page 123](#)



11 Connection for external multimedia devices

⇒ "11.1 Layout - connection for external audio sources", page 128

⇒ "11.2 Removing and installing connection for external audio sources R199", page 129

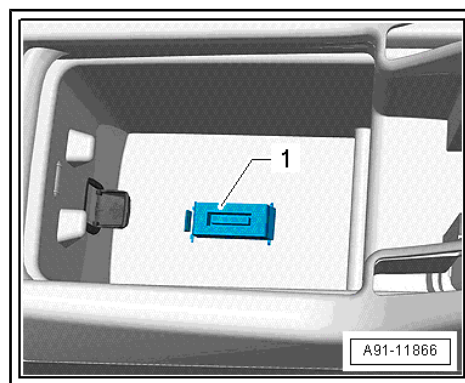
⇒ "11.3 Connectors on connection for external multimedia devices", page 131

11.1 Layout - connection for external audio sources

The connection for external audio sources - R199- is available in several versions:

AMI (Audi music interface), MOST, UF7

Interface -1- is located in centre console storage compartment.



AUX IN socket, MOST, UF2

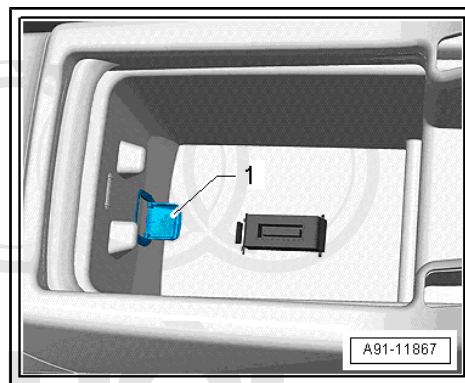
Fitted in centre console storage compartment -1-

These connections for external audio sources - R199- are connected directly to the control unit 1 for information electronics - J794- .

Either AMI or AUX IN socket is fitted.

The following external audio sources can be connected to connection for external audio sources - R199- :

- ◆ iPod
- ◆ MP3 player
- ◆ USB stick



Appropriate adapter cables are required ⇒ Owner's Manual.

Fault finding is performed using ⇒ Vehicle diagnostic tester.

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11.2 Removing and installing connection for external audio sources - R199-

⇒ ["11.2.1 Removing and installing connection for external audio sources R199 - AUX IN", page 129](#)

⇒ ["11.2.2 Removing and installing connection for external audio sources R199 , AMI", page 129](#)

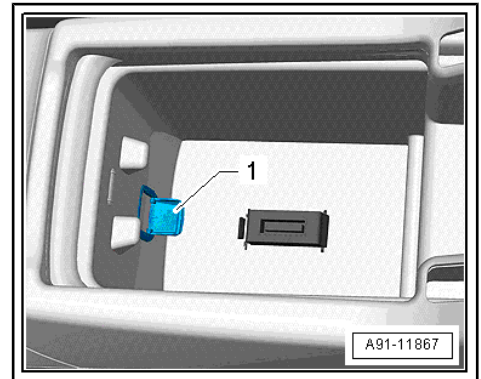
11.2.1 Removing and installing connection for external audio sources - R199- - AUX IN

Connection for external audio sources - R199- -1- is located in centre console storage compartment.

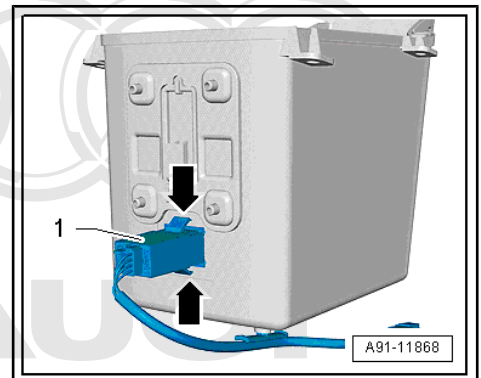
- Switch off ignition and all electrical equipment, and remove ignition key.

Removing

- Remove centre console storage box ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console storage box (front) .



- Release and unplug connector at connection for external audio sources - R199- -1-.
- Press retaining tabs -arrows- together on connection for external audio sources - R199- -1- and slide out connection for external audio sources - R199- -1-.



Installing

- Install in reverse sequence of removal.

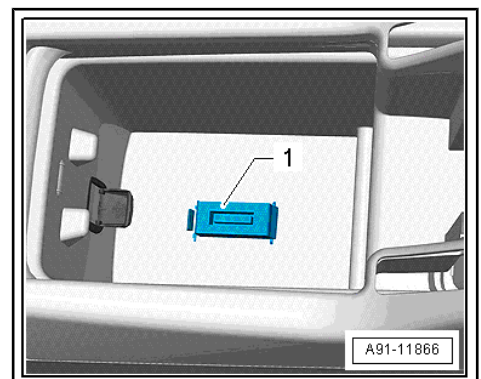
11.2.2 Removing and installing connection for external audio sources - R199- , AMI

Connection for external audio sources - R199- -1- is located in centre console storage compartment.

Removing

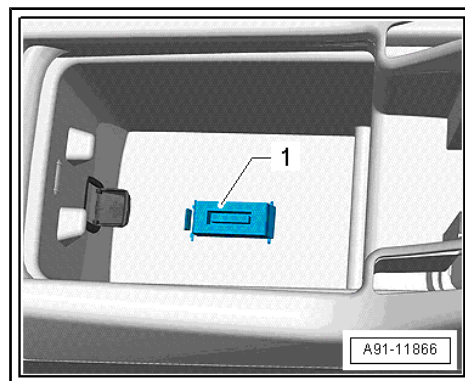
- Switch off ignition and all electrical equipment, and remove ignition key.

The wires for the AMI are part of the wiring harness and cannot be renewed separately. If defective, an adapter wiring harness must be installed ⇒ Electronic parts catalogue .

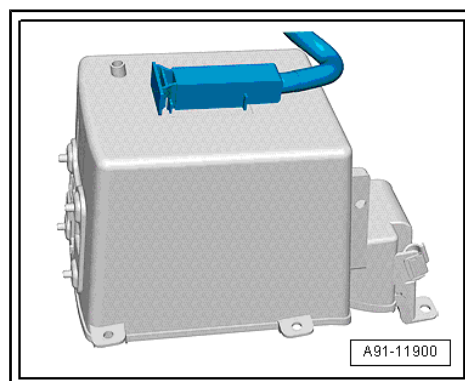


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- Use removal wedge to unclip AMI trim panel -1-.
- Remove centre console storage box ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console storage box (front) .



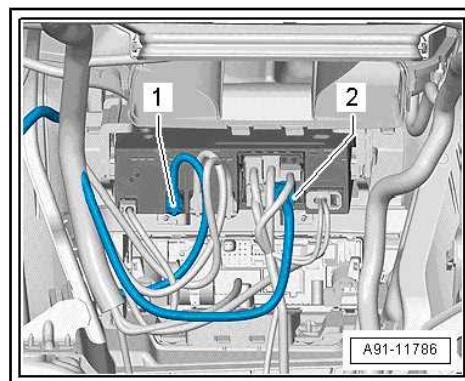
30-pin connector - T30a- is clipped into storage compartment from bottom.



The connectors to the interface (4-pin connector - J794- -1- and 12-pin connector - T4u- / 12-pin connector - T12k- -2-) are located at control unit 1 for information electronics - T12y.

Installing

- Install in reverse sequence of removal.



11.3 Connectors on connection for external multimedia devices

⇒ [“11.3.1 Pin assignment for AMI, MOST”, page 131](#)

⇒ [“11.3.2 Pin assignment for AUX IN, MOST”, page 131](#)

11.3.1 Pin assignment for AMI, MOST



Note

Contacts which are not listed are not used.

30-pin connector - T30a-

All pins are connected to the control unit 1 for information electronics - J794- .

1 - NF in, left-side (low frequency)

2 - NF in, right-side (low frequency)

3 - Low frequency earth

4 - NF in, screen earth (low frequency)

13 - iPod data

14 - iPod data

16 - iPod detected

17 - D (+)

18 - D (-)

21 - Detect

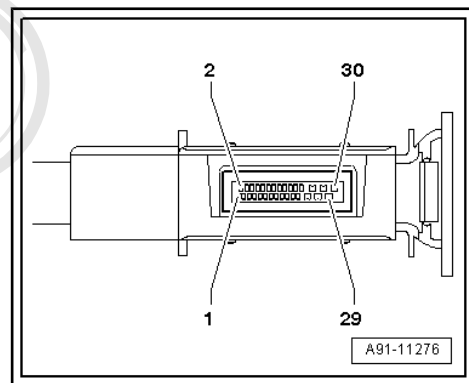
22 - Earth

24 - FBAS wire (-)

25 - USB, earth

27 - FBAS wire (+)

28 - USB, +5 V



11.3.2 Pin assignment for AUX IN, MOST



Note

Contacts which are not listed are not used.

5-pin connector - T5b-

All pins are connected to the control unit 1 for information electronics - J794- .

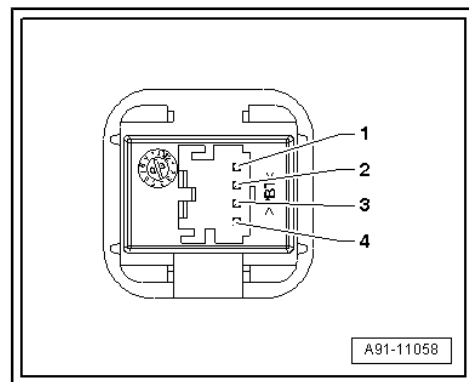
1 - Low frequency earth

2 - Low frequency, right-side

3 - Low frequency, left-side

4 - Screen earth

5 - Not used



12 Mobile online services

⇒ ["12.1 Layout - mobile online services", page 132](#)

⇒ ["12.2 Overview of fitting locations - mobile online services", page 134](#)

⇒ ["12.3 Removing and installing internet access control unit J666", page 136](#)

⇒ ["12.4 Removing and installing emergency call module control unit and communication unit J949", page 137](#)

⇒ ["12.5 Emergency assistance call button E276", page 138](#)

⇒ ["12.6 Loudspeaker for emergency call module R335", page 139](#)

⇒ ["12.7 Pin assignment", page 140](#)

12.1 Layout - mobile online services

⇒ ["12.1.1 Layout - mobile online services, internet access control unit J666, UE2", page 132](#)

⇒ ["12.1.2 Layout - mobile online services, Russia \(ERA-GLO-NASS\), NZ3", page 132](#)

12.1.1 Layout - mobile online services, internet access control unit - J666- , UE2

Internet access control unit - J666- (Audi music interface online, UE2) extends connection for external audio sources - R199- (AMI) to include the following additional functions:

- ◆ Recording internet radio stations and podcasts using a home WLAN (WiFi) network and playing them in the vehicle
- ◆ Listening to internet radio stations live while travelling using a USB broadband modem (UMTS stick)
- ◆ Creating a wireless LAN (WiFi) hotspot with USB broadband modem

An SD card reader is integrated into internet access control unit - J666- . The SD card is used to configure AMI online at www.audi.com ⇒ Owner's Manual .

The internet access control unit - J666- is installed together with the connection for external audio sources - R199- (AMI).

The USB broadband modem (UMTS stick) is connected to the connection for external audio sources - R199- (AMI) via an adapter wire.

Additional information ⇒ Owner's Manual .

Control unit 1 for information electronics - J794- is used for fault finding (event memory).

12.1.2 Layout - mobile online services, Russia (ERA-GLONASS), NZ3

The mobile online services (NZ3) are based on the emergency call module control unit and communication unit - J949- (OCU, online connectivity unit).

The emergency call module control unit and communication unit - J949- is installed behind the dash panel cover (driver side) on the bracket for control units such that is protected in the event of a crash. The emergency call module control unit and communication unit - J949- contains an emergency call module and a compass module. A separate SIM card is fitted for the emergency call function.

1 - Radio - R- / control unit 1 for information electronics - J794- in dash panel

2 - Emergency assistance call button - E276- in front interior light - W1-

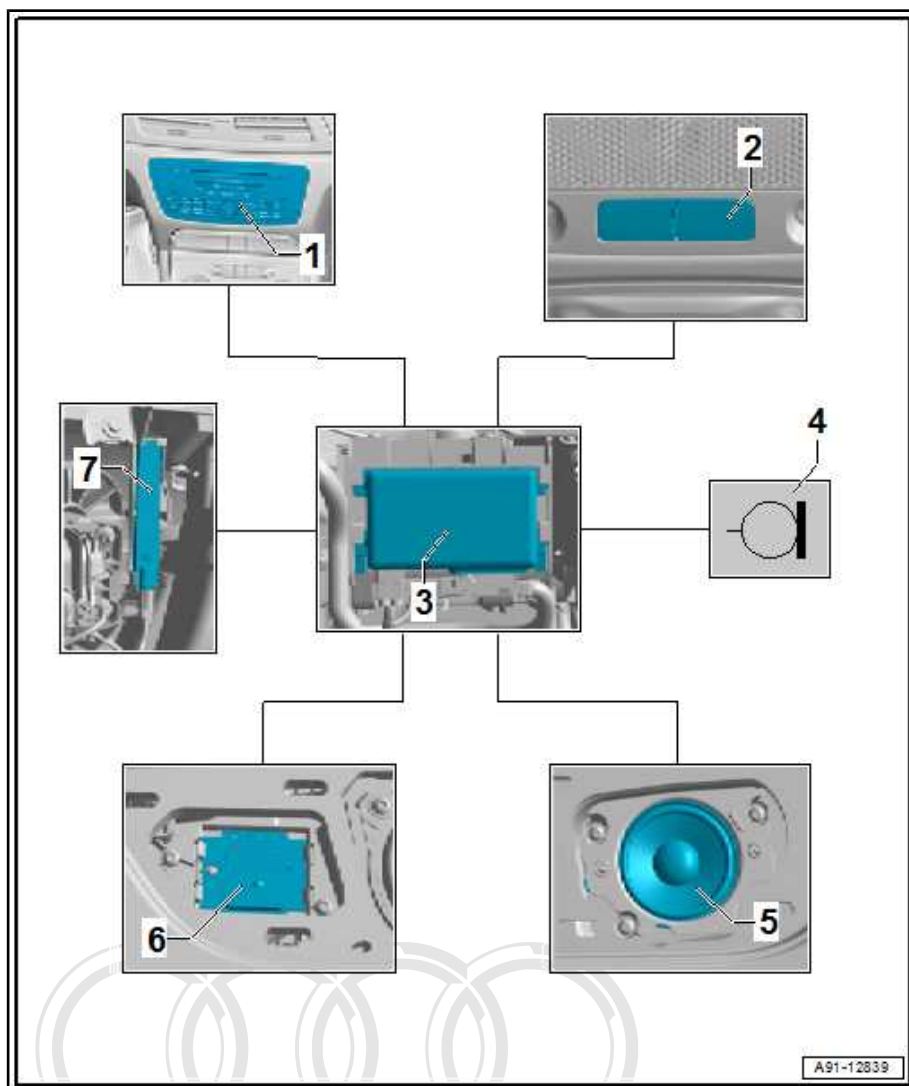
3 - Emergency call module control unit and communication unit - J949- on bracket for control units behind dash panel cover (driver side)

4 - Telephone microphone - R38- in front interior light - W1-

5 - Loudspeaker for emergency call module - R335- in dash panel (front centre)

6 - GPS aerial 2 - R268- in dash panel (front centre)

7 - Emergency call module aerial - R263- under dash panel (front right)



Fault finding

The mobile online services system also has self-diagnosis capability.

Fault finding is performed via the "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

To be able to diagnose and deal with problems, it is essential to be familiar with the functions of the mobile online services.

For additional information, refer to the ⇒ Owner's Manual and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Russia (ERA-GLONASS) only: initial start-up ⇒ Maintenance ; Booklet 820 ; Starting up .

12.2 Overview of fitting locations - mobile on-line services

⇒ ["12.2.1 Overview of fitting locations - mobile online services, internet access control unit J666 \(UE2\)", page 134](#)

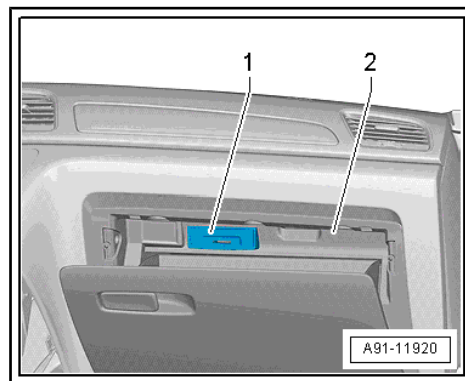
⇒ ["12.2.2 Overview of fitting locations - mobile online services, Russia \(ERA-GLONASS\), NZ3", page 134](#)

12.2.1 Overview of fitting locations - mobile on-line services, internet access control unit - J666- (UE2)

The internet access control unit - J666- -1- is located in the glove box -2-.

The internet access aerial - R266- (WLAN aerial) is located behind the glove box on the air duct.

- ◆ Removing and installing internet access control unit - J666-
⇒ [page 136](#)
- ◆ Removing and installing internet access aerial - R266-



12.2.2 Overview of fitting locations - mobile online services, Russia (ERA-GLO-NASS), NZ3



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1 - Emergency call module aerial - R263-

- ☐ Behind glove box underneath dash panel (front right)
- ☐ Removing and installing ➔ [page 39](#)

2 - Radio - R- / control unit 1 for information electronics - J794-

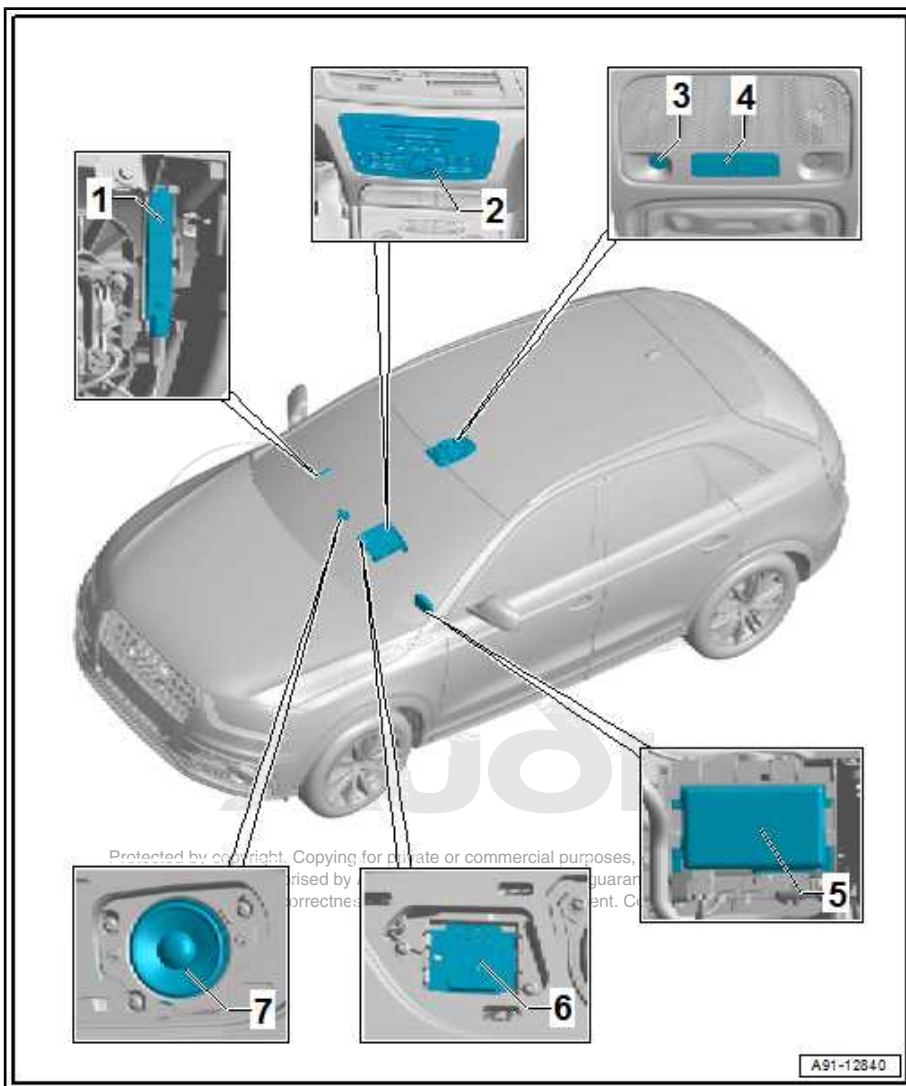
- ☐ In dash panel (centre)
- ☐ Pin assignment for radio - R- ➔ [page 53](#)
- ☐ Removing and installing radio - R- ➔ [page 51](#)
- ☐ Pin assignment for control unit 1 for information electronics - J794- ➔ [page 12](#)
- ☐ Removing and installing control unit 1 for information electronics - J794- ➔ [page 10](#)

3 - Telephone microphone - R38-

- ☐ In front interior light - W1-
- ☐ Removing and installing ➔ [page 68](#)

4 - Emergency assistance call button - E276-

- ☐ In front interior light - W1-
- ☐ Removing and installing ➔ [page 138](#)



5 - Emergency call module control unit and communication unit - J949-

- ☐ At bracket for control units behind dash panel cover (driver side)
- ☐ Removing and installing ➔ [page 137](#)
- ☐ Pin assignment ➔ [page 141](#)

6 - GPS aerial 2 - R268-

- ☐ In dash panel (front centre)
- ☐ Removing and installing ➔ [page 40](#)

7 - Loudspeaker for emergency call module - R335-

- ☐ In dash panel (front centre)
- ☐ Removing and installing ➔ [page 139](#)

12.3 Removing and installing internet access control unit - J666-

⇒ "12.3.1 Removing and installing internet access control unit J666", page 136

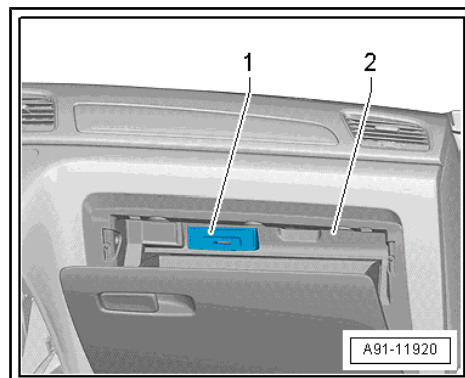
⇒ "12.3.2 Removing and installing internal battery", page 137

12.3.1 Removing and installing internet access control unit - J666-

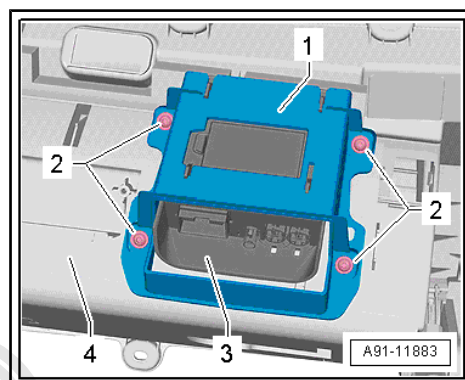
The internet access control unit - J666- -1- is located in the glove box -2-.

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove glove box ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing glove box .
- Release and unplug connector at internet access control unit - J666- .

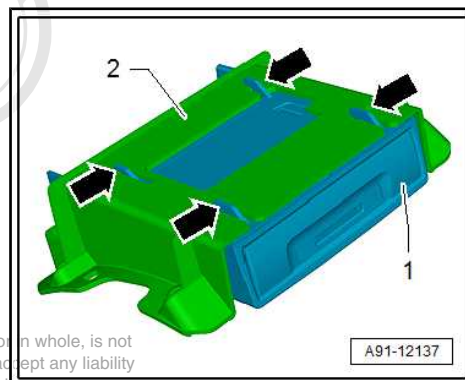


- Remove bolts -2- at bracket -1-.
- Detach bracket -1- from glove box -4- together with internet access control unit - J666- -3-.
- Pull internet access control unit - J666- off bracket.



Installing

- Installation is carried out in reverse sequence; note the following:
- Slide internet access control unit - J666- -1- into bracket -2- until it engages audibly -arrows-.



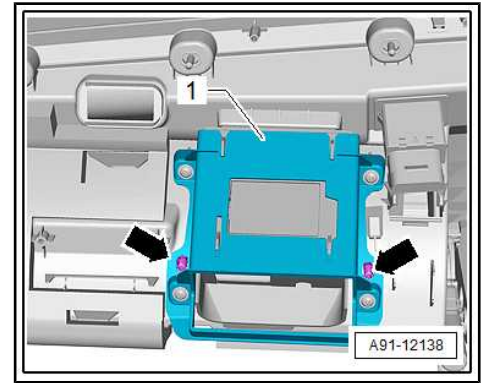
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- When fitting bracket -1-, make sure that domes -arrows- are located correctly in bracket -1-.
- Remove protective foil from internal battery.

If internet access control unit - J666- is renewed, the customer will need to re-configure it.

Tightening torques

Component	Tightening torque
Bolts, bracket	4 Nm

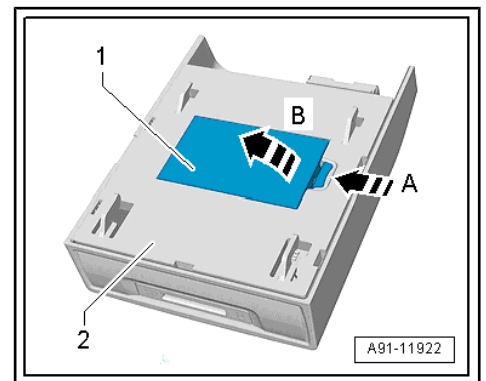


12.3.2 Removing and installing internal battery

A battery is integrated into internet access control unit - J666- . If a battery-related entry is saved into the event memory of the control unit 1 for information electronics - J794- , the battery must be renewed.

Removing

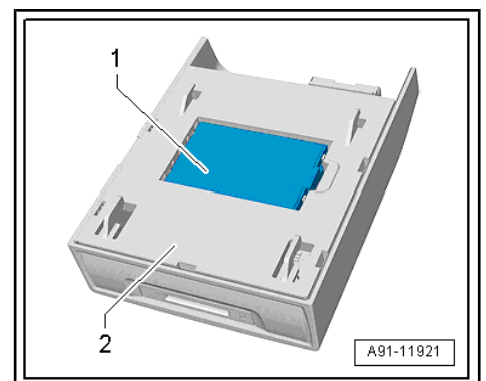
- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove internet access control unit - J666- ➔ [page 136](#) .
- Press lug -arrow A- on cover -1-, then fold cover -1- upwards in direction of -arrow B- and remove from internet access control unit - J666- -2-.



- Remove battery -1- from internet access control unit - J666- -2-.

Installing

- Install in reverse sequence of removal.

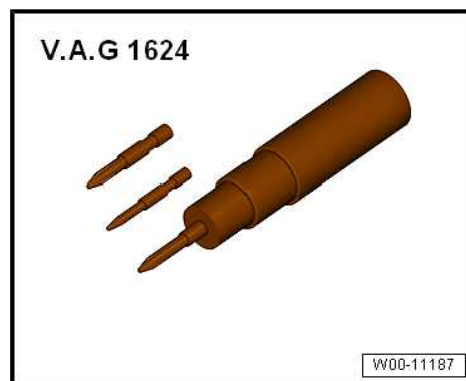


12.4 Removing and installing emergency call module control unit and communication unit - J949-

Special tools and workshop equipment required

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◆ Torque screwdriver - V.A.G 1624-



Emergency call module control unit and communication unit - J949- is located on bracket for control units behind dash panel cover (driver side).



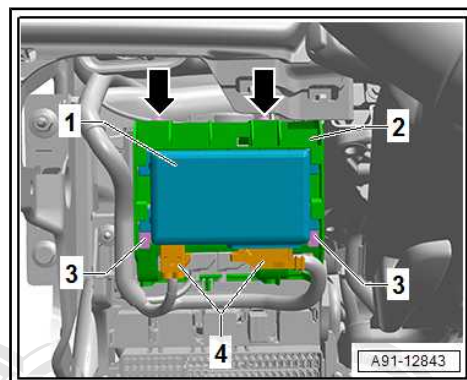
Note

If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.

Perform initial start-up ⇒ Maintenance ; Booklet 820 ; Starting up .

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .
- Release and unplug electrical connectors -4-.
- To release catches -3- at emergency call module control unit and communication unit - J949- -1-, pull them slightly towards rear.
- At the same time, pull emergency call module control unit and communication unit - J949- downwards out of bracket -2- and remove it.
- Remove bolts -arrows- at top of bracket -2-.
- Detach bracket -2- towards rear from bracket for control units.



Installing

- Install in reverse sequence of removal.

Tightening torques

Component	Tightening torque
Bracket for emergency call module control unit and communication unit - J949- to bracket for control units	3 Nm

12.5 Emergency assistance call button - E276-

Emergency assistance call button - E276- is fitted in interior light (front) - W1- .

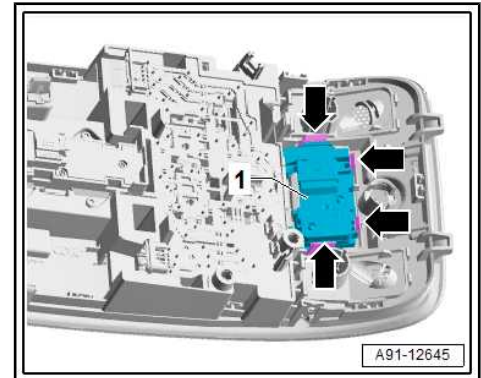
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Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove front interior light - W1- ➔ Electrical system; Rep. gr. 96 ; Controls; Overview of fitting locations - controls in roof trim .
- Release retaining tabs -arrows- at front interior light - W1- .
- At the same time, pivot emergency assistance call button - E276- -1- out of front interior light - W1- .

Installing

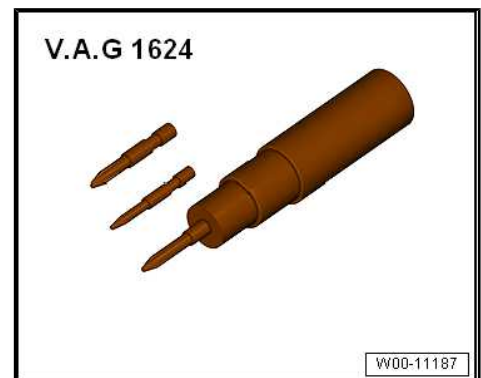
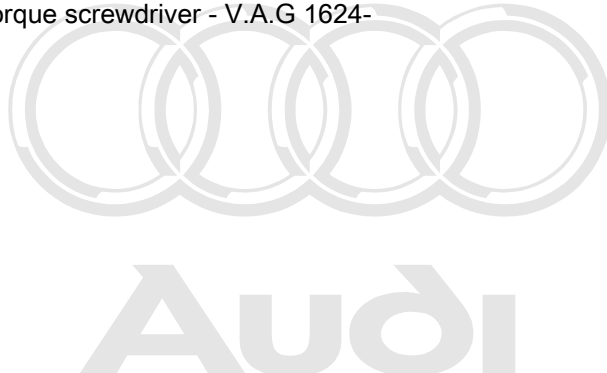
- Install in reverse sequence of removal.



12.6 Loudspeaker for emergency call module - R335-

Special tools and workshop equipment required

- ◆ Torque screwdriver - V.A.G 1624-



Loudspeaker for emergency call module - R335- is located in dash panel (front centre).

Removing

- Switch off ignition and all electrical equipment, and remove ignition key.
- Remove centre loudspeaker trim ➔ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing loudspeaker trim .

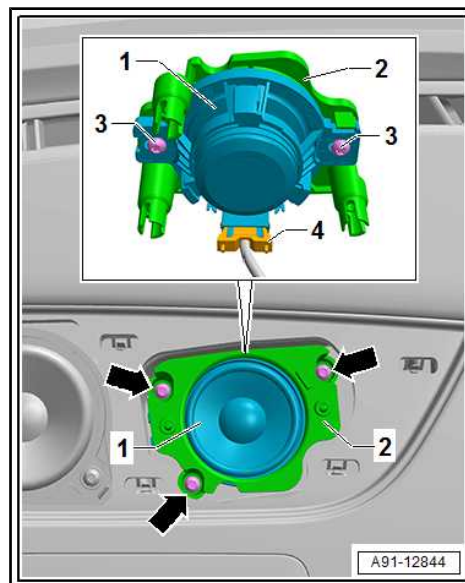
- Remove bolts -arrows-.
- Pull bracket -2- with loudspeaker for emergency call module - R335- -1- out of dash panel so that electrical connector -4- is accessible.
- Release and unplug electrical connector -4-.
- Remove bolts -3-.
- Detach loudspeaker for emergency call module - R335- -1- from bracket -2-.

Installing

- Install in reverse sequence of removal.

Tightening torques

Component	Tightening torque
Loudspeaker for emergency call module - R335- to bracket	3 Nm
Bracket to dash panel	1.5 Nm



12.7 Pin assignment

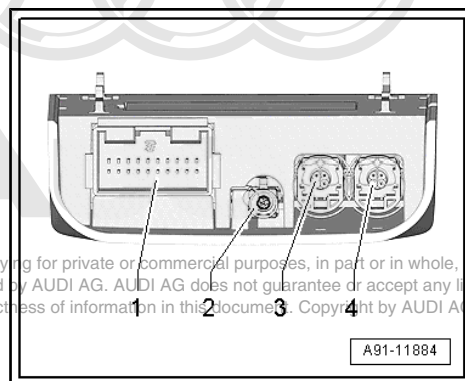
⇒ "12.7.1 Pin assignment, internet access control unit J666 , UE2", page 140

⇒ "12.7.2 Pin assignment, Russia (ERA-GLONASS), NZ3", page 141

12.7.1 Pin assignment, internet access control unit - J666- , UE2

Internet access control unit - J666-

- 1 - 20-pin connector - T20g-
- 2 - Connection for internet access aerial - R266-
- 3 - 4-pin connector - T4o- to control unit 1 for information electronics - J794-
- 4 - 4-pin connector - T4n- to connection for external audio sources - R199- , AMI



Note

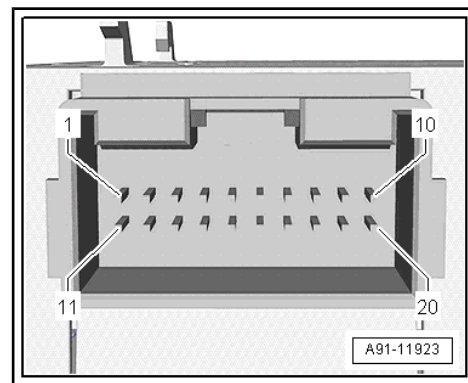
Contacts which are not listed are not used.

1 - 20-pin connector - T20g-

- 1 - USB (+5 V) from control unit 1 for information electronics - J794-
- 2 - USB, earth, from control unit 1 for information electronics - J794-
- 3 - USB, +5 V, to connection for external audio sources - R199-, AMI
- 6 - Terminal 30
- 7 - Terminal 31

16 - Detect to connection for external audio sources - R199-, AMI
18 - Detect from control unit 1 for information electronics - J794-

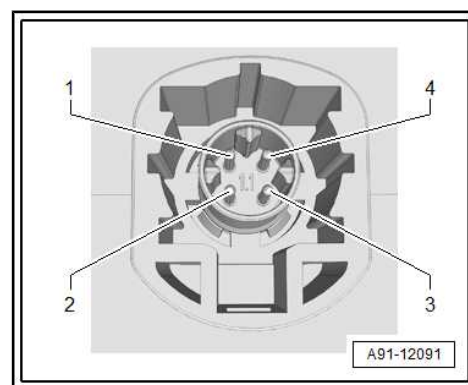
- 19 - CAN bus High, dash panel insert
- 20 - CAN bus Low, dash panel insert



3 - 4-pin connector - T4o-

All pins are connected to the control unit 1 for information electronics - J794- .

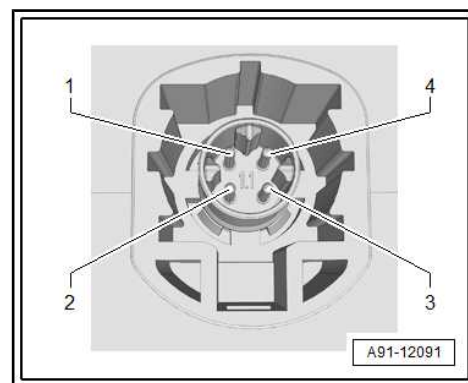
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



4 - 4-pin connector - T4n-

All pins are connected to the connection for external audio sources - R199-, AMI.

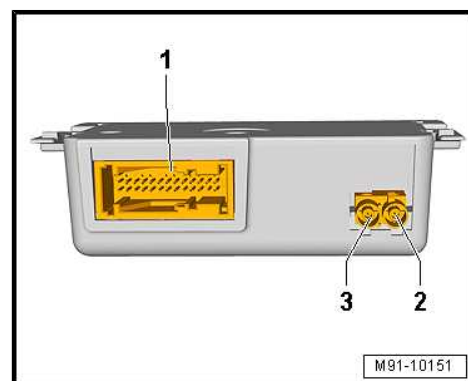
- 1 - D (+)
- 2 - iPod detected
- 3 - D (-)
- 4 - Earth



12.7.2 Pin assignment, Russia (ERA-GLO-NASS), NZ3

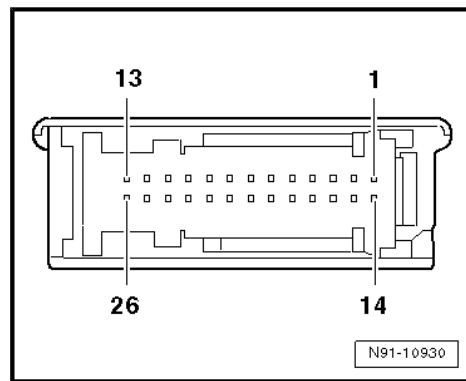
Emergency call module control unit and communication unit - J949-

- 1 - 26-pin connector - T26-
- 2 - GPS connection, GPS aerial 2 - R268-
- 3 - GSM connection, emergency call module aerial - R263-



1 - 26-pin connector - T26-

- 1 - Terminal 30
- 2 - CAN bus Low, convenience
- 3 - Crash signal from airbag control unit - J234-
- 4 - Microphone input (+) from telephone microphone - R38-
- 5 - Microphone output (+) to radio - R- / control unit 1 for information electronics - J794-
- 6 - Output to emergency assistance call button - E276-
- 7 - Green indicator lamp for emergency assistance call button - E276-
- 8 - Mute signal to radio - R- / control unit 1 for information electronics - J794-
- 9 - Loudspeaker for emergency call module - R335- (+)
- 10 - NF output (+) (low frequency) to radio - R-
- 11 - NF output (-) (low frequency) to radio - R-
- 12 - Not used
- 13 - Illumination of emergency assistance call button - E276-
- 14 - CAN bus High, convenience
- 15 - Not used
- 16 - Not used
- 17 - Microphone input (-) from telephone microphone - R38-
- 18 - Microphone output (-) to radio - R- / control unit 1 for information electronics - J794-
- 19 - Neutral supply to emergency assistance call button - E276-
- 20 - Red indicator lamp for emergency assistance call button - E276-
- 21 - Loudspeaker for emergency call module - R335- (-)
- 22 - Not used
- 23 - Not used
- 24 - Not used
- 25 - Not used
- 26 - Terminal 31



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