

Audi

Workshop Manual

Audi A2 2001 ➤

Radio, telephone and navigation system

Edition 11.2003

List of Workshop Manual Repair Groups

Repair Group

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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91 – Radio, telephone, navigation

1 Radio systems

1.1 General information and description

1.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

*On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ [page 83](#).*

On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.

To be able to deal with problems, it is essential to be familiar with functioning and operation of the radio system ⇒ Operating instructions .

For service installation, servicing work or fault-finding, refer to
⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

For detailed fitting instructions, refer to ⇒ General body repairs, interior; Rep. Gr. 70 .

Always use radio sets and fitting components from the Audi range so as to ensure trouble-free installation and optimum reception.

All radio systems feature anti-theft encoding.

For aerial wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Replacement of aerial wires .

For CAN bus wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Wiring harness and connector repairs .

1.1.2 Notes on radio service installation

The connectors on the factory-fitted wiring harness for radio installation are designed for genuine Audi radios. For private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Adapter cables are required for connection of radios with different types of connector.

When connecting vehicle speed signal wire (GALA function), take particular care to avoid short circuits as otherwise malfunctions could occur (e.g. engine management system).

The use of radios supplied by other manufacturers may affect the aerial amplifier. Genuine Audi radios have a "remotely powered aerial", i.e. aerial amplifier is supplied with power via neutral conductor of high-frequency cable. Use is therefore to be made of remote power supply adapter from the Audi range.

1.1.3 Notes on CD service installation

Vehicles with pre-fitted components for CD installation are provided with a CD changer wiring harness. Connecting cable can only be used with genuine Audi CD changers.

1.1.4 Description of aerial system with diversity function

“symphony” and (as of MY 02) “concert” radios feature an aerial system with diversity function. This is designed to enhance and optimise reception quality.

In addition to the rear window aerial with amplifier, use is made of extra aerials with amplifier in the rear window.

The individual aerials with amplifier are connected via the aerial selection control unit -J515- (diversity box).

The signal received by the radio via the aerial wire (HF) is checked and the result output again by way of an additional aerial connection (IF).

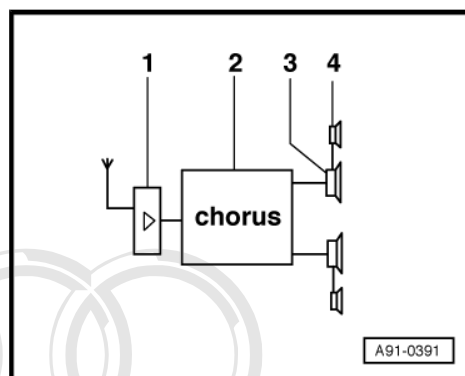
Information on the test result is then passed to the aerial selection control unit -J515-. If the aerial signal is too weak, the control unit switches to a different aerial (diversity function).

There are no visible or audible signs of this switching process.

1.2 Block diagram of radio systems

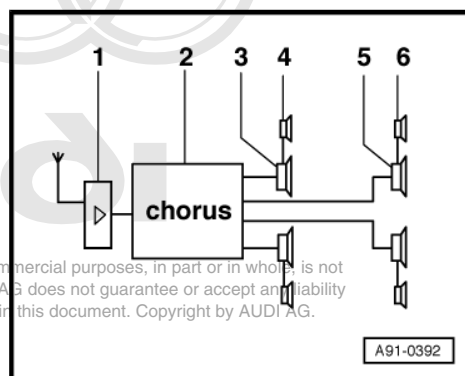
1.2.1 “chorus” radio system (4 loudspeakers)

- 1 - Rear window aerial with aerial amplifier
- 2 - “chorus” radio
- 3 - Bass loudspeaker in bottom of front door trim
- 4 - Treble/mid-range loudspeaker in top of front door trim



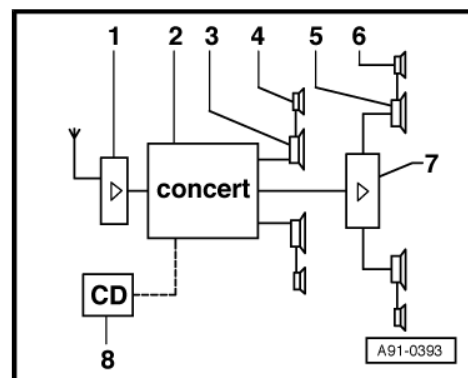
1.2.2 “chorus” radio system (8 loudspeakers)

- 1 - Rear window aerial with aerial amplifier
- 2 - “chorus” radio
- 3 - Bass loudspeaker in bottom of front door trim
- 4 - Treble/mid-range loudspeaker in top of front door trim
- 5 - Bass loudspeaker in bottom of rear door trim
- 6 - Treble/mid-range loudspeaker in top of rear door trim



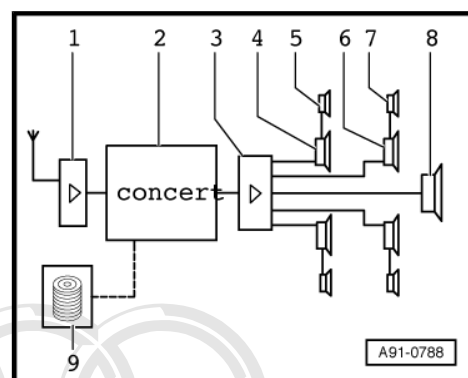
1.2.3 “concert” radio system

- 1 - Rear window aerial with aerial amplifier
- 2 - “concert” radio
- 3 - Bass loudspeaker in bottom of front door trim
- 4 - Treble/mid-range loudspeaker in top of front door trim
- 5 - Bass loudspeaker in bottom of rear door trim
- 6 - Treble/mid-range loudspeaker in top of rear door trim
- 7 - Amplifier beneath front passenger's footwell (intermediate panel)
- 8 - CD changer (optional) at rear right of luggage compartment



1.2.4 “concert” radio system with BOSE sound system

- 1 - Rear window aerial with aerial amplifier
- 2 - “concert” radio
- 3 - BOSE amplifier beneath front passenger's footwell (intermediate panel)
- 4 - Bass loudspeaker in bottom of front door trim
- 5 - Treble/mid-range loudspeaker in top of front door trim
- 6 - Bass loudspeaker in bottom of rear door trim
- 7 - Treble/mid-range loudspeaker in top of rear door trim
- 8 - Bass loudspeaker on left of luggage compartment (intermediate panel)
- 9 - CD changer (optional) at rear right of luggage compartment



1.2.5 “symphony” and (as of MY 02) “concert” radio system

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1 - Rear window aerials
2 - Aerial amplifier (FM1)

- ☐ At top left behind tailgate trim

3 - Aerial amplifier (FM2)

- ☐ At bottom left behind tailgate trim

4 - Aerial amplifier (AM/FM4)

- ☐ At top right behind tailgate trim

5 - Aerial amplifier (FM3)

- ☐ At bottom right behind tailgate trim

6 - Aerial selection control unit

- ☐ At front right of luggage compartment (intermediate panel)

7 - Treble/mid-range loudspeaker

- ☐ In top of front door trim

8 - Bass loudspeaker

- ☐ In bottom of front door trim

9 - Treble/mid-range loudspeaker

- ☐ In top of rear door trim

10 - Bass loudspeaker

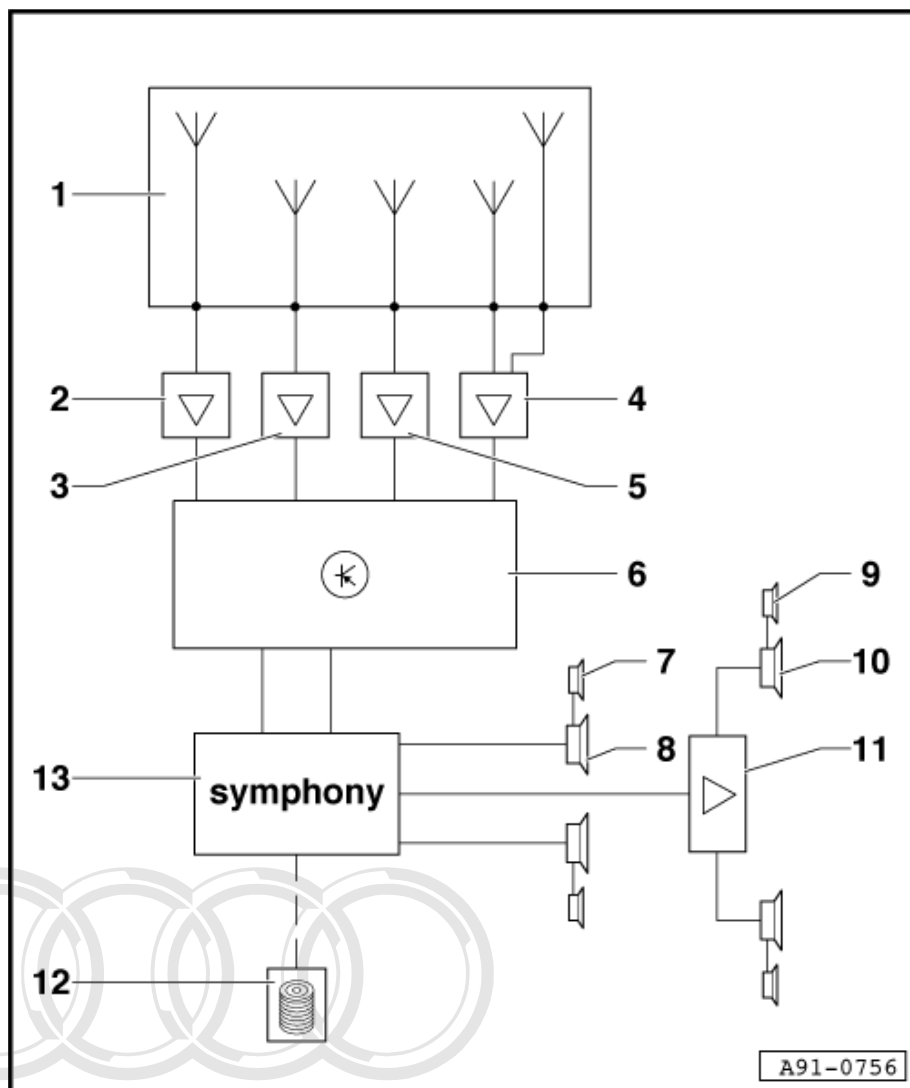
- ☐ In bottom of rear door trim

11 - Amplifier

- ☐ Beneath front passenger's footwell (intermediate panel)

12 - CD changer

- ☐ At rear right of luggage compartment

13 - Radio


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1.2.6 “symphony” and (as of MY 02) “concert” radio system with BOSE sound system

1 - Rear window aerials

2 - Aerial amplifier (FM1)

- ☐ At top left behind tailgate trim

3 - Aerial amplifier (FM2)

- ☐ At bottom left behind tailgate trim

4 - Aerial amplifier (AM/FM4)

- ☐ At top right behind tailgate trim

5 - Aerial amplifier (FM3)

- ☐ At bottom right behind tailgate trim

6 - Aerial selection control unit

- ☐ At front right of luggage compartment (intermediate panel)

7 - Treble/mid-range loudspeaker

- ☐ In top of front door trim

8 - Bass loudspeaker

- ☐ In bottom of front door trim

9 - Treble/mid-range loudspeaker

- ☐ In top of rear door trim

10 - Bass loudspeaker

- ☐ In bottom of rear door trim

11 - BOSE amplifier

- ☐ Beneath front passenger's footwell (intermediate panel)

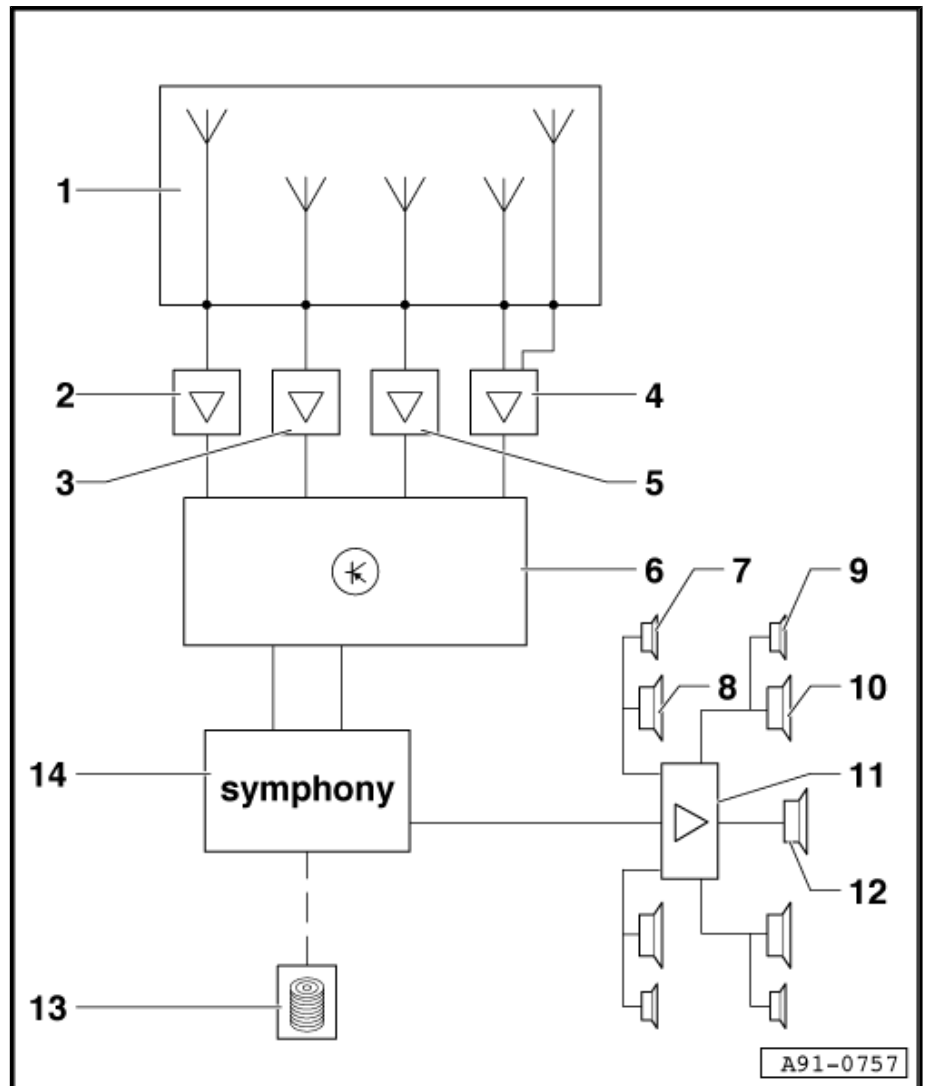
12 - Bass loudspeaker

- ☐ At rear left of luggage compartment (intermediate panel)

13 - CD changer

- ☐ At rear right of luggage compartment

14 - Radio



1.2.7 Pre-fitted components for radio installation

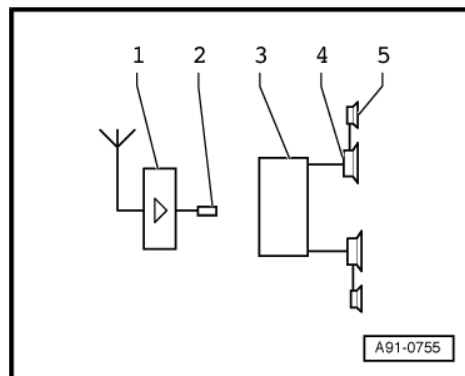
- 1 - Rear window aerial with aerial amplifier
- 2 - Aerial cable
- 3 - Connector II (8-pin) and connector III (8-pin)
- 4 - Bass loudspeaker in bottom of front door trim
- 5 - Treble/mid-range loudspeaker in top of front door trim

Contact assignment of multi-pin connectors



Note!

Contacts not listed are not used.

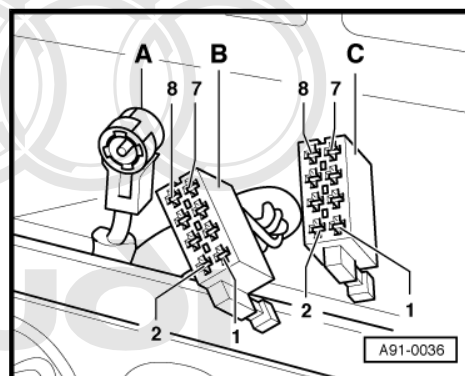


Brown 8-pin connector II (-C-)

- 3 - Front right loudspeaker (+)
- 4 - Front right loudspeaker (-)
- 5 - Front left loudspeaker (+)
- 6 - Front left loudspeaker (-)

Black 8-pin connector III (-B-)

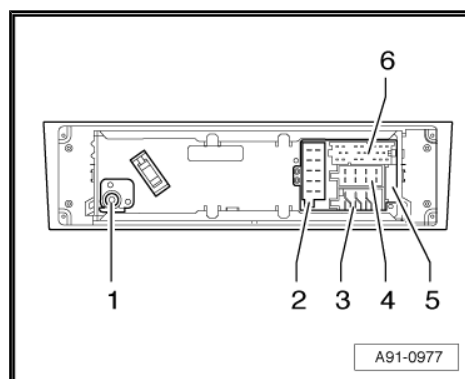
- 2 - Telephone muting
- 4 - Terminal 86s (up to MY 01)
- 6 - Terminal 58s
- 7 - Terminal 30
- 8 - Terminal 31



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1.3 Connectors at "chorus" radio

- 1 - Aerial connection
- 2 - Red 10-pin connector IV
- 3 - Black 8-pin connector III
- 4 - Brown 8-pin connector II
- 5 - Unit fuse
- 6 - 20-pin connector I



1.3.1 Contact assignment of multi-pin connectors

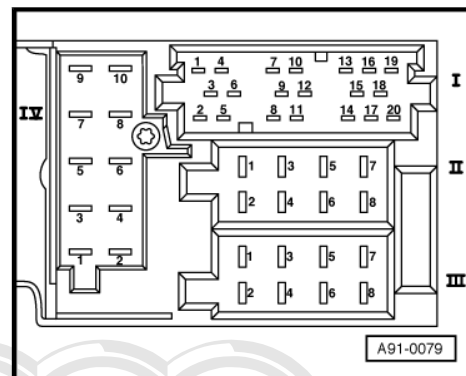


Note!

Contacts not listed are not used.

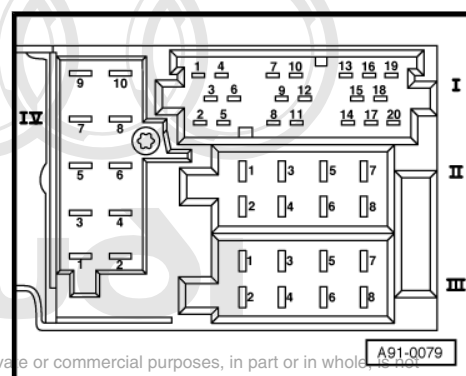
20-pin connector I

- 7 - CAN bus High (infotainment)
- 8 - Clock signal (up to MY 01)
- 9 - Data signal (up to MY 01)
- 10 - Enable signal (up to MY 01)
- 12 - CAN bus Low (infotainment)



Brown 8-pin connector II

- 1 - Rear right loudspeaker (+)
- 2 - Rear right loudspeaker (-)
- 3 - Front right loudspeaker (+)
- 4 - Front right loudspeaker (-)
- 5 - Front left loudspeaker (+)
- 6 - Front left loudspeaker (-)
- 7 - Rear left loudspeaker (+)
- 8 - Rear left loudspeaker (-)



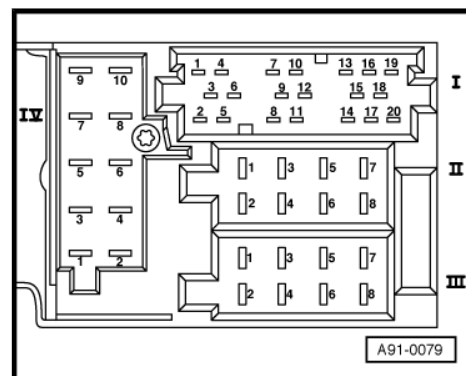
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Black 8-pin connector III

- 1 - GALA (vehicle speed signal) (up to MY 01)
- 2 - Telephone muting (up to MY 01)
- Anti-theft alarm earth (as of MY 02)
- 3 - K-diagnosis
- 4 - Terminal 86s (up to MY 01)
- 6 - Terminal 58s (up to MY 01)
- 7 - Terminal 30
- 8 - Terminal 31

Red 10-pin connector IV

- 1 - AF mute (from telephone)
- 2 - Terminal 15 (navigation system only) (up to MY 01)
- 3 - Telephone (AF +) (not with navigation system)
- 4 - Telephone (AF -) (not with navigation system)
- 5 - Navigation (AF+) (navigation system only)
- 6 - Navigation (AF-) (navigation system only)
- 7 - Navigation (control wire) (navigation system only)
- 9 - Terminal 58d (up to MY 01)



1.4 Connectors at "concert" radio

1 - Red 10-pin connector IV

2 - 20-pin connector I, comprising

- ☐ Yellow 6-pin connector
- ☐ Green 6-pin connector
- ☐ Blue 8-pin connector

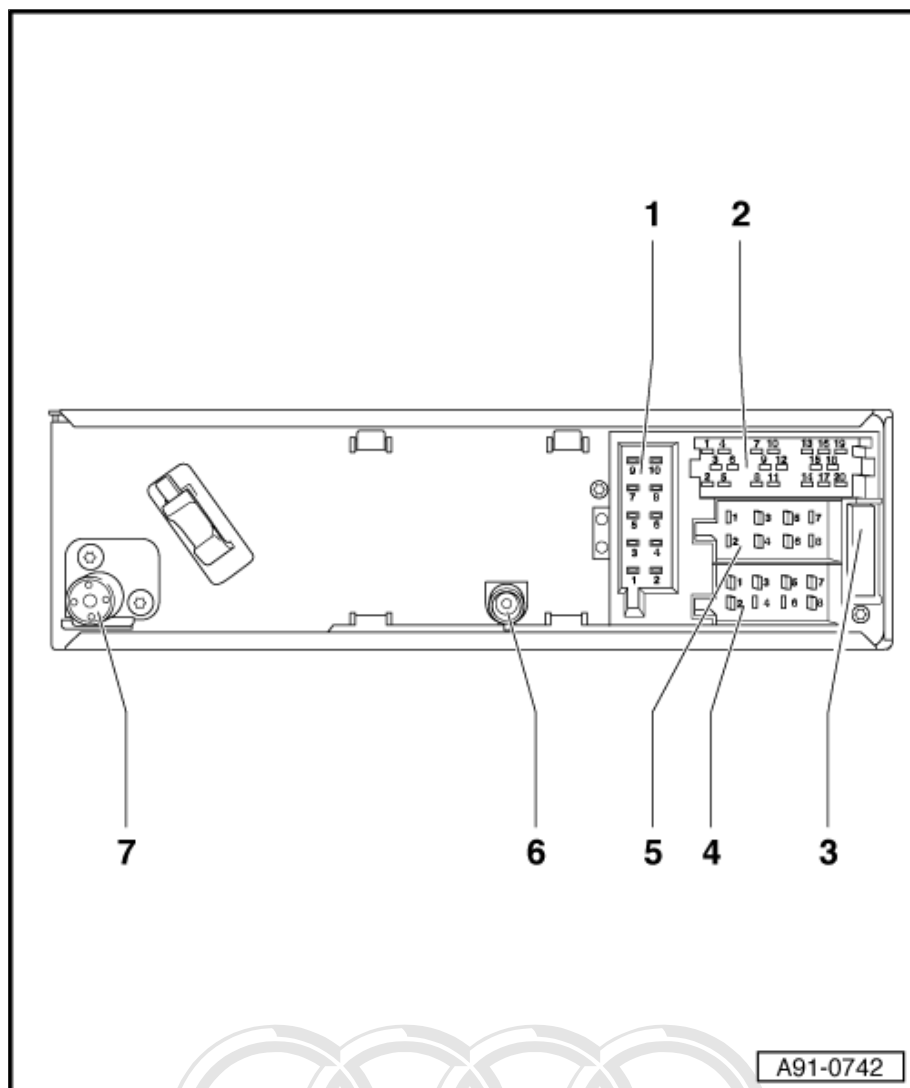
3 - Unit fuse

4 - Black 8-pin connector III

5 - Brown 8-pin connector II

6 - Aerial connection (IF) to aerial selection control unit - J515- (as of MY 02)

7 - Aerial connection (HF) from aerial selection control unit - J515- (up to MY 01 directly from aerial amplifier)



1.4.1 Contact assignment of multi-pin connectors



Note!

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20-pin connector I

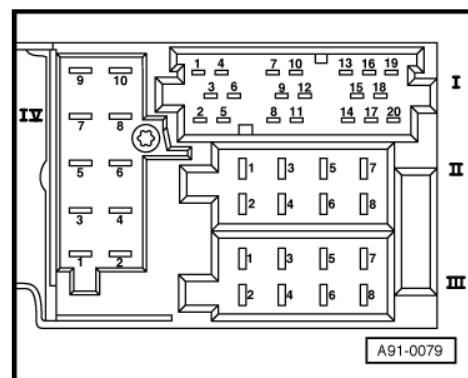
- 1 - Rear left signal
- 2 - Rear right signal
- 3 - Signal earth
- 4 - Front left signal
- 5 - Front right signal
- 6 - Switched positive (amplifier/BOSE amplifier)
- 7 - CAN bus High (infotainment)
- 8 - Clock signal (up to MY 01)
- 9 - Data signal (up to MY 01)
- 10 - Enable signal (up to MY 01)
- Earth (CD changer) (as of MY 02)
- 11 - Remote control/steering wheel (up to MY 01)
- 12 - CAN bus Low (infotainment)
- 13 - CD bus data in (CD changer)
- 14 - CD bus data out (CD changer)
- 15 - CD clock (CD changer)
- 16 - Permanent positive (CD changer)
- 17 - Switched positive (CD changer)
- 18 - CD-AF earth (CD changer earth)
- 19 - Left signal (CD changer)
- 20 - Right signal (CD changer)

Brown 8-pin connector II

- 3 - Front right loudspeaker (+) (not with BOSE)
- 4 - Front right loudspeaker (-) (not with BOSE)
- 5 - Front left loudspeaker (+) (not with BOSE)
- 6 - Front left loudspeaker (-) (not with BOSE)

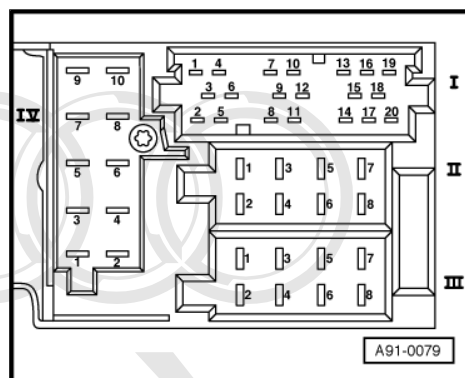
Black 8-pin connector III

- 1 - GALA (vehicle speed signal) (up to MY 01)
- BOSE code (as of MY 02)
- 2 - Telephone muting (up to MY 01)
- Anti-theft alarm earth (as of MY 02)
- 3 - K-diagnosis
- 4 - Terminal 86s (up to MY 01)
- 6 - Terminal 58s (up to MY 01)
- 7 - Terminal 30
- 8 - Terminal 31



Red 10-pin connector IV

- 1 - AF mute (from telephone)
- 2 - Terminal 15 (navigation system only) (up to MY 01)
- 3 - Telephone (AF +) (not with navigation system)
- 4 - Telephone (AF -) (not with navigation system)
- 5 - Navigation (AF+) (navigation system only)
- 6 - Navigation (AF-) (navigation system only)
- 7 - Navigation (control wire) (navigation system only)
- 9 - Terminal 58d (up to MY 01)
- 10 - Earth (CD changer) (up to MY 01)



1.5 Connectors at “symphony” radio

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1 - Aerial connection (HF) from aerial selection control unit - J515-

2 - Aerial connection (IF) to aerial selection control unit - J515-

3 - Radio connector block

4 - 20-pin connector I, comprising

- Yellow 6-pin connector
- Green 6-pin connector
- Blue 8-pin connector

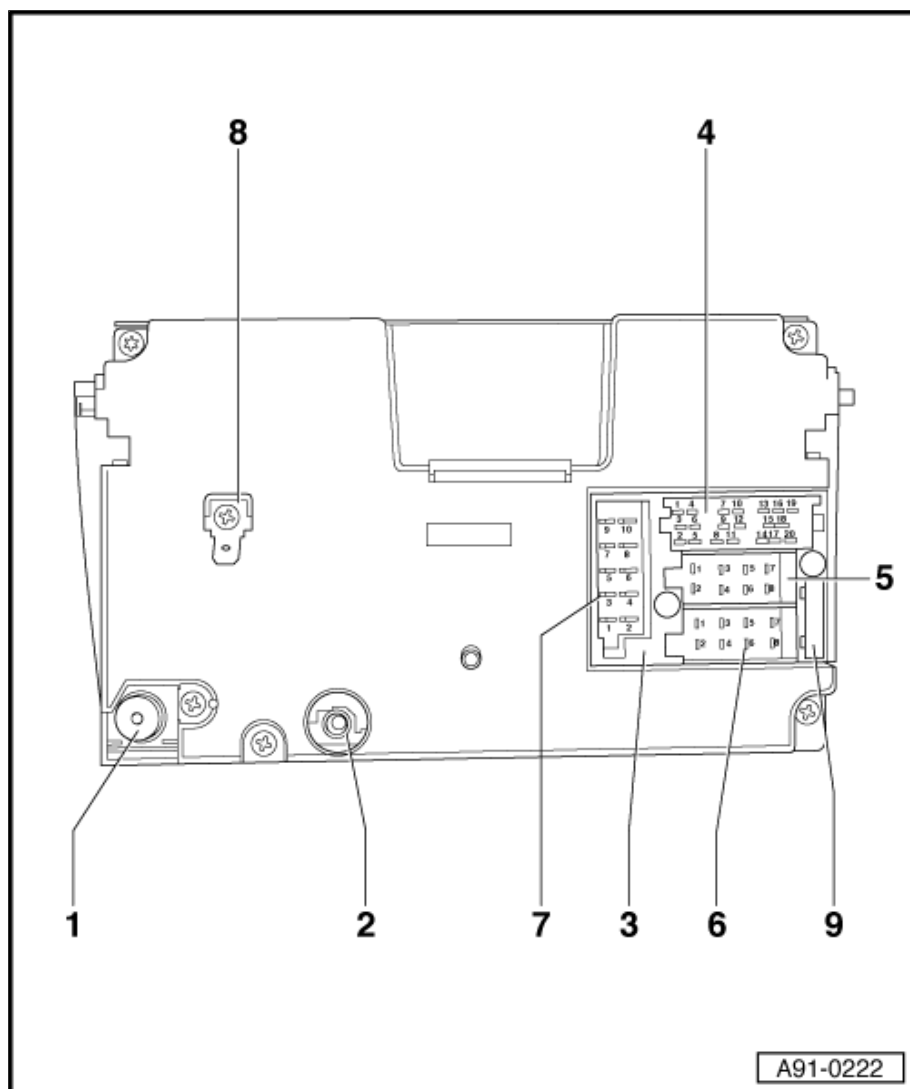
5 - Brown 8-pin connector II

6 - Black 8-pin connector III

7 - Red 10-pin connector IV

8 - Anti-theft alarm earth (up to MY 01)

9 - Unit fuse



1.5.1 Contact assignment of multi-pin connectors

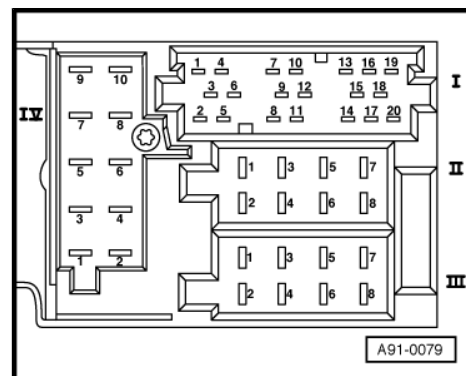


Note!

Contacts not listed are not used.

20-pin connector I

- 1 - Rear left signal
- 2 - Rear right signal
- 3 - Signal earth
- 4 - Front left signal
- 5 - Front right signal
- 6 - Switched positive (amplifier/BOSE amplifier)
- 7 - CAN bus High (infotainment) (as of MY 02)
- 8 - Clock signal (up to MY 01)
- 9 - Data signal (up to MY 01)
- 10 - Enable signal (up to MY 01)
- Earth (CD changer) (as of MY 02)
- 11 - Remote control/steering wheel (up to MY 01)
- 12 - CAN bus Low (infotainment) (as of MY 02)
- 13 - CD bus data in (CD changer)
- 14 - CD bus data out (CD changer)
- 15 - CD clock (CD changer)
- 16 - Permanent positive (CD changer)
- 17 - Switched positive (CD changer)
- 18 - AF earth (CD changer)
- 19 - Left signal (CD changer)
- 20 - Right signal (CD changer)



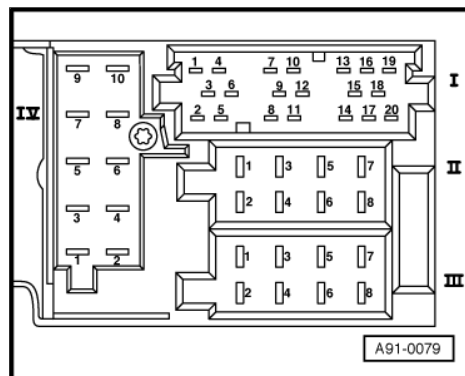
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Brown 8-pin connector II

- 3 - Front right loudspeaker (+) (not with BOSE)
- 4 - Front right loudspeaker (-) (not with BOSE)
- 5 - Front left loudspeaker (+) (not with BOSE)
- 6 - Front left loudspeaker (-) (not with BOSE)

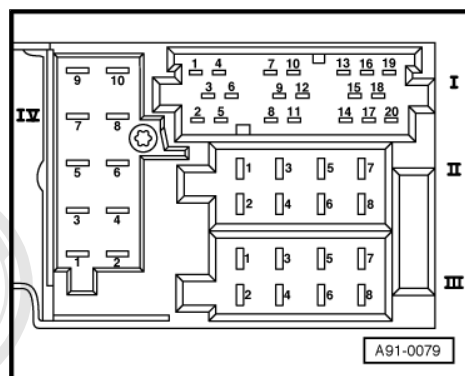
Black 8-pin connector III

- 1 - GALA (vehicle speed signal) (up to MY 01)
- BOSE code (as of MY 02)
- 2 - AF mute (telephone system) (up to MY 01)
- Anti-theft alarm earth (as of MY 02)
- 3 - K-diagnosis
- 4 - Terminal 86s (up to MY 01)
- 6 - Terminal 58s (up to MY 01)
- 7 - Terminal 30
- 8 - Terminal 31



Red 10-pin connector IV

- 1 - AF mute (from telephone)
- 2 - Terminal 15 (navigation system only) (up to MY 01)
- 3 - Telephone (AF +) (not with navigation system)
- 4 - Telephone (AF -) (not with navigation system)
- 5 - Navigation (AF+) (navigation system only)
- 6 - Navigation (AF-) (navigation system only)
- 7 - Navigation (control wire) (navigation system only)
- 9 - Terminal 58d (up to MY 01)
- 10 - Earth (CD changer) (up to MY 01)



1.6 Connector at BOSE amplifier



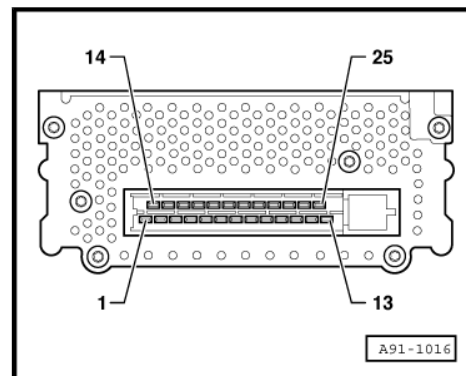
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Contacts not listed are not used.

25-pin connector

- 1 - AF + (from telephone/navigation system)
- 2 - AF - (from telephone/navigation system)
- 6 - Signal earth (from radio)
- 7 - Rear right signal (from radio)
- 8 - Rear left signal (from radio)
- 9 - Front right signal (from radio)
- 10 - Front left signal (from radio)
- 11 - Terminal 31
- 12 - AF mute (from telephone)
- 13 - Terminal 30
- 14 - Bass loudspeaker (+)
- 15 - Bass loudspeaker (-)
- 16 - Front left loudspeaker (-)
- 17 - Front left loudspeaker (+)
- 18 - Front right loudspeaker (+)
- 19 - Front right loudspeaker (-)
- 20 - Rear left loudspeaker (+)
- 21 - Rear right loudspeaker (-)
- 22 - Front centre loudspeaker (+)
- 23 - Front centre loudspeaker (-)
- 24 - Terminal 15
- 25 - Switched positive (from radio)



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1.7 Connector at amplifier

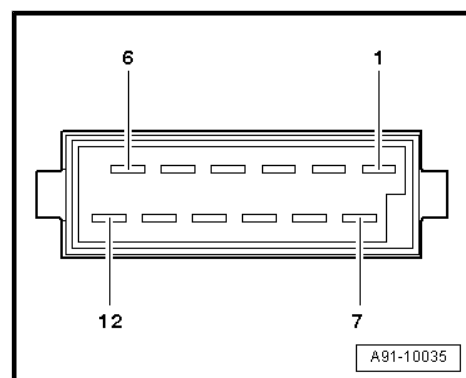


Note!

Contacts not listed are not used.

12-pin connector

- 1 - Rear left loudspeaker (-)
- 2 - Terminal 30
- 3 - Terminal 31
- 4 - Signal earth (from radio)
- 5 - Switched positive (from radio)
- 6 - Rear right loudspeaker (+)
- 7 - Rear left loudspeaker (+)
- 9 - Rear left signal (from radio)
- 10 - Rear right signal (from radio)
- 12 - Rear right loudspeaker (-)



1.8 Connector at CD changer

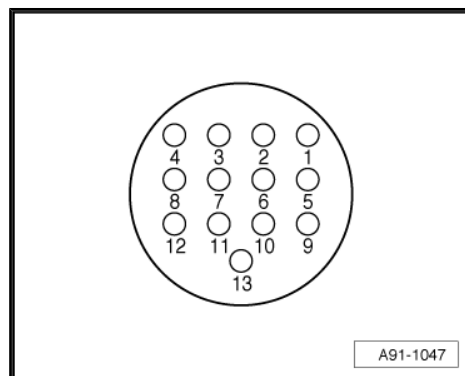


Note!

Contacts not listed are not used.

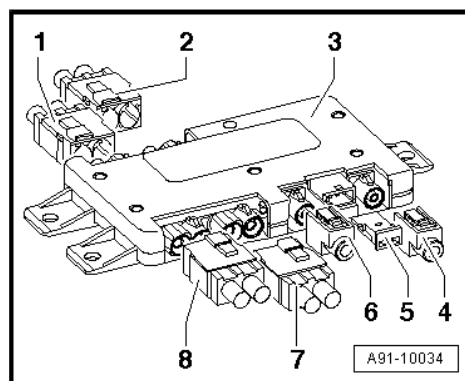
13-pin connector (coupling DIN 45326)

- 1 - Right signal
- 2 - Signal earth
- 3 - Left signal
- 4 - Signal earth
- 5 - Terminal 31
- 7 - Switched positive
- 9 - CD clock
- 10 - Terminal 30
- 11 - CD data out
- 13 - CD data in



1.9 Connectors at aerial selection control unit -J515-

- 3 - Aerial selection control unit -J515-
- 4 - Connection (IF) from radio -R-
- 5 - Power supply connector: Pin 1 = Terminal 30, Pin 2 = Terminal 31
- 6 - Connection (HF) to radio -R-
- 7 - Aerial connection FM3/FM4-AM from window aerial amplifier
- 8 - Aerial connection FM1/FM2 from window aerial amplifier



1.10 Aerial connection points on tailgate window



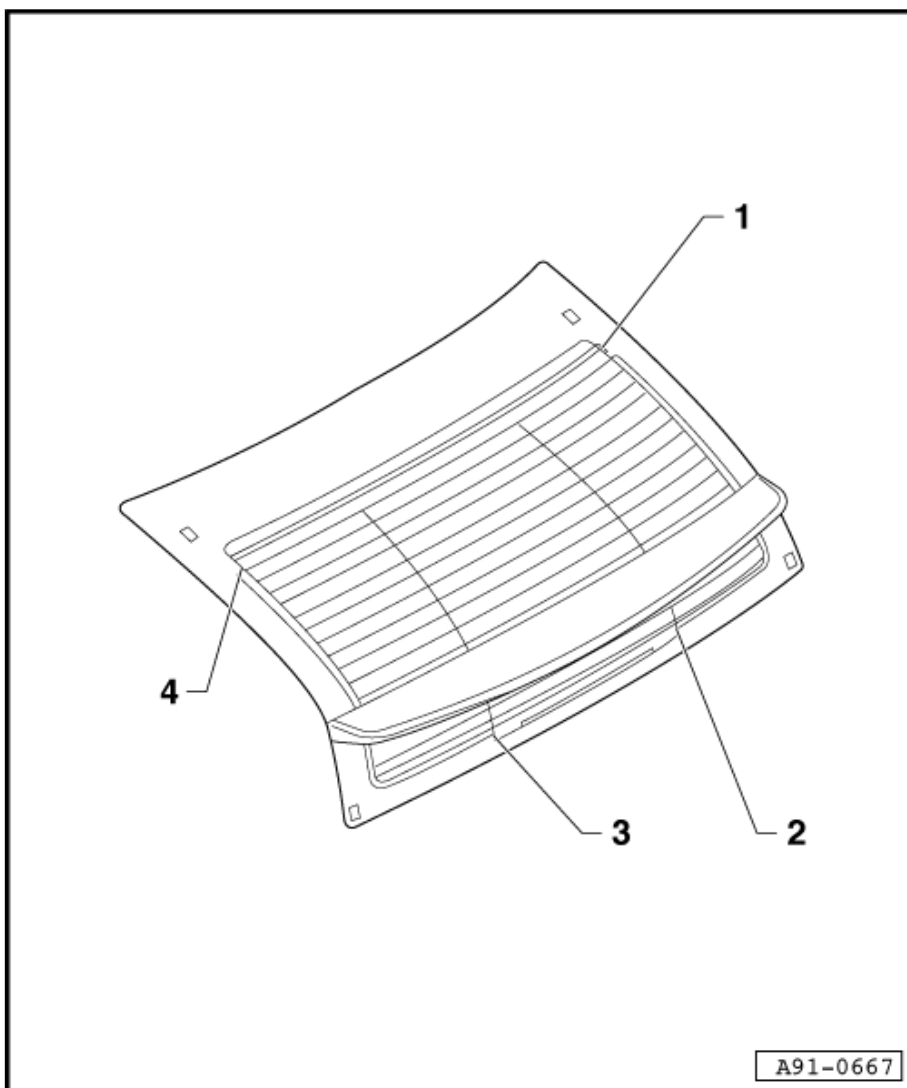
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1 - FM aerial 4 and AM aerial

2 - FM aerial 3

3 - FM aerial 2

4 - FM aerial 1



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1.11 Overall layout of radio systems

1.11.1 “chorus” radio

1 - Radio -R-

- ☐ In top of centre console
- ☐ Removing and installing
⇒ [page 21](#)

2 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing
⇒ [page 22](#)

3 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing
⇒ [page 23](#)

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

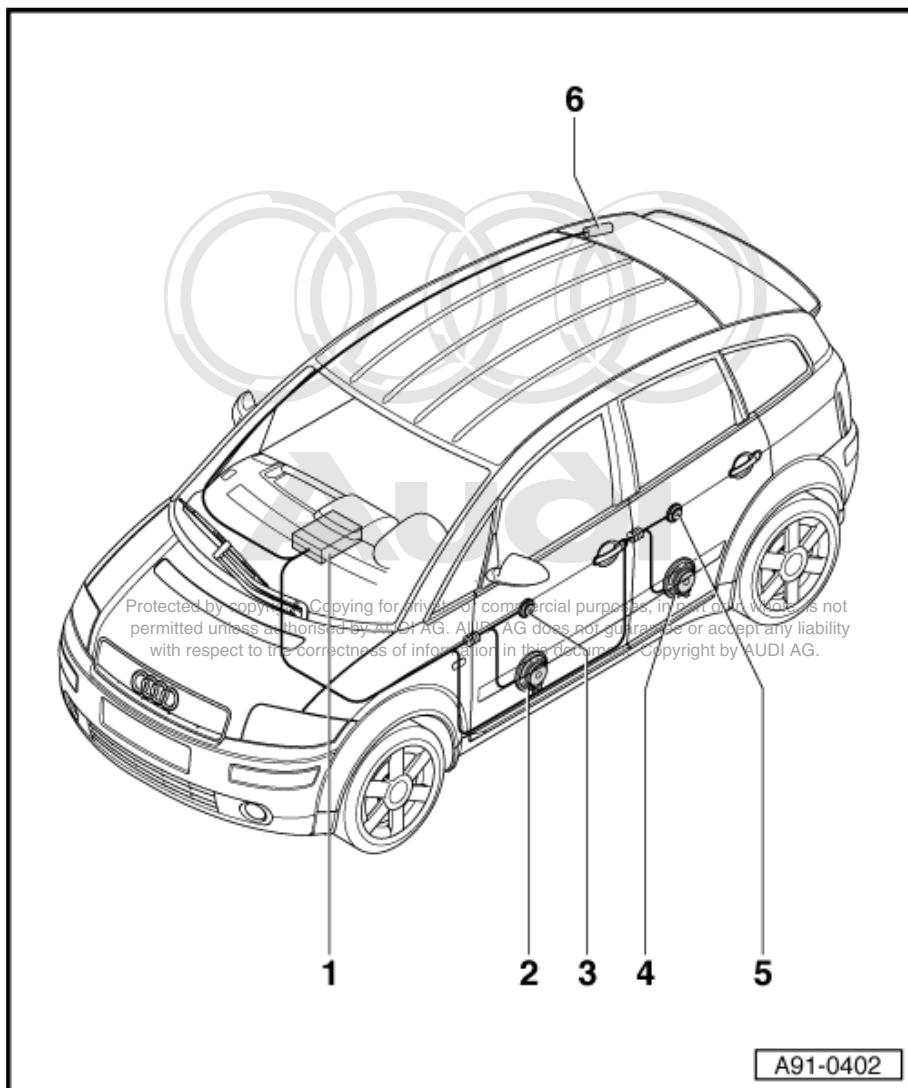
- ☐ In bottom of rear door trim
- ☐ Removing and installing
⇒ [page 23](#)

5 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing
⇒ [page 24](#)

6 - Aerial amplifier -R24-

- ☐ On right behind tailgate trim
- ☐ Removing and installing
⇒ [page 27](#)



1.11.2 "concert" radio

1 - Radio -R-

- ☐ In top of centre console
- ☐ Removing and installing
⇒ [page 21](#)

2 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing
⇒ [page 22](#)

3 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing
⇒ [page 23](#)

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

- ☐ In bottom of rear door trim
- ☐ Removing and installing
⇒ [page 23](#)

5 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing
⇒ [page 24](#)

6 - CD changer -R41-

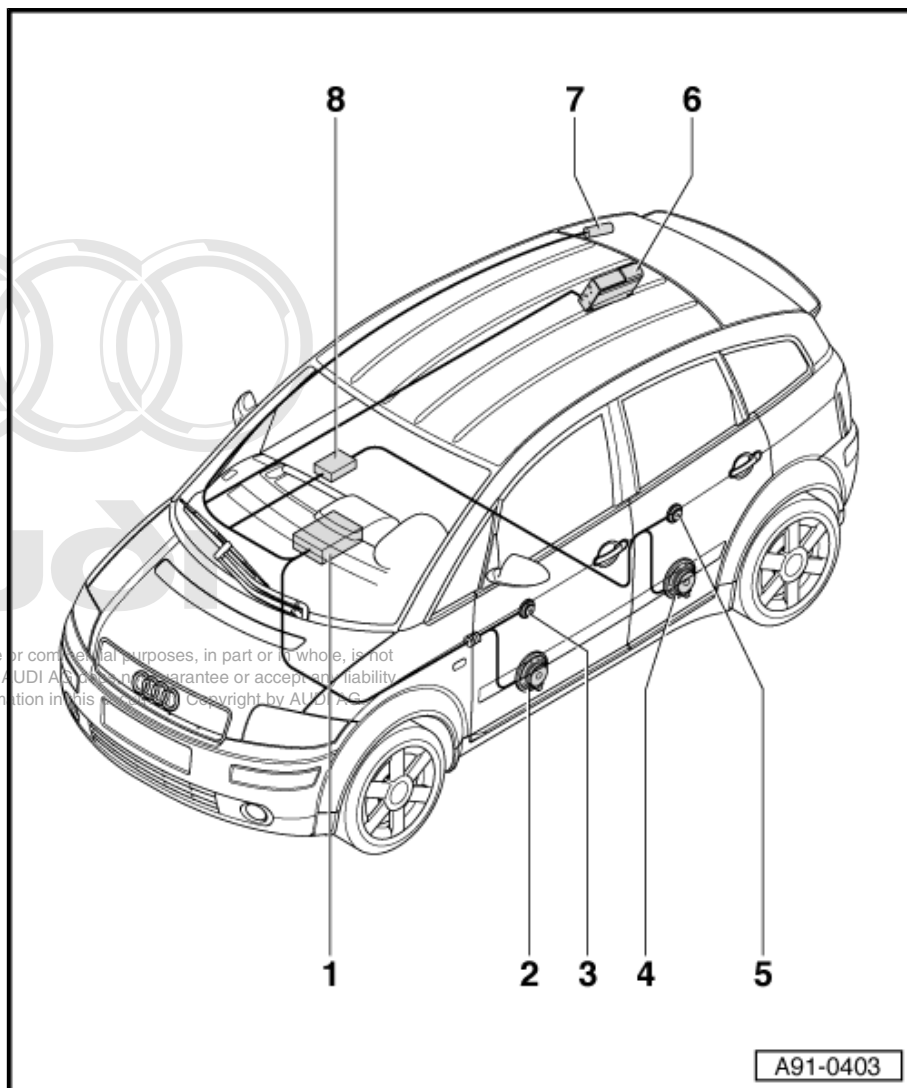
- ☐ At rear right of luggage compartment
- ☐ Removing and installing
⇒ [page 25](#)
- ☐ Checking wiring ⇒ [page 25](#)

7 - Aerial amplifier -R24-

- ☐ On right behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

8 - Amplifier -R12-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing ⇒ [page 26](#)



1.11.3 “concert” radio with BOSE sound system

1 - Radio -R-

- ☐ In top of centre console
- ☐ Removing and installing
⇒ [page 21](#)

2 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing
⇒ [page 22](#)

3 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing
⇒ [page 23](#)

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

- ☐ In bottom of rear door trim
- ☐ Removing and installing
⇒ [page 23](#)

5 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing
⇒ [page 24](#)

6 - Bass loudspeaker -R100-

- ☐ On left of luggage compartment (intermediate panel)
- ☐ Removing and installing
⇒ [page 24](#)

7 - CD changer -R41-

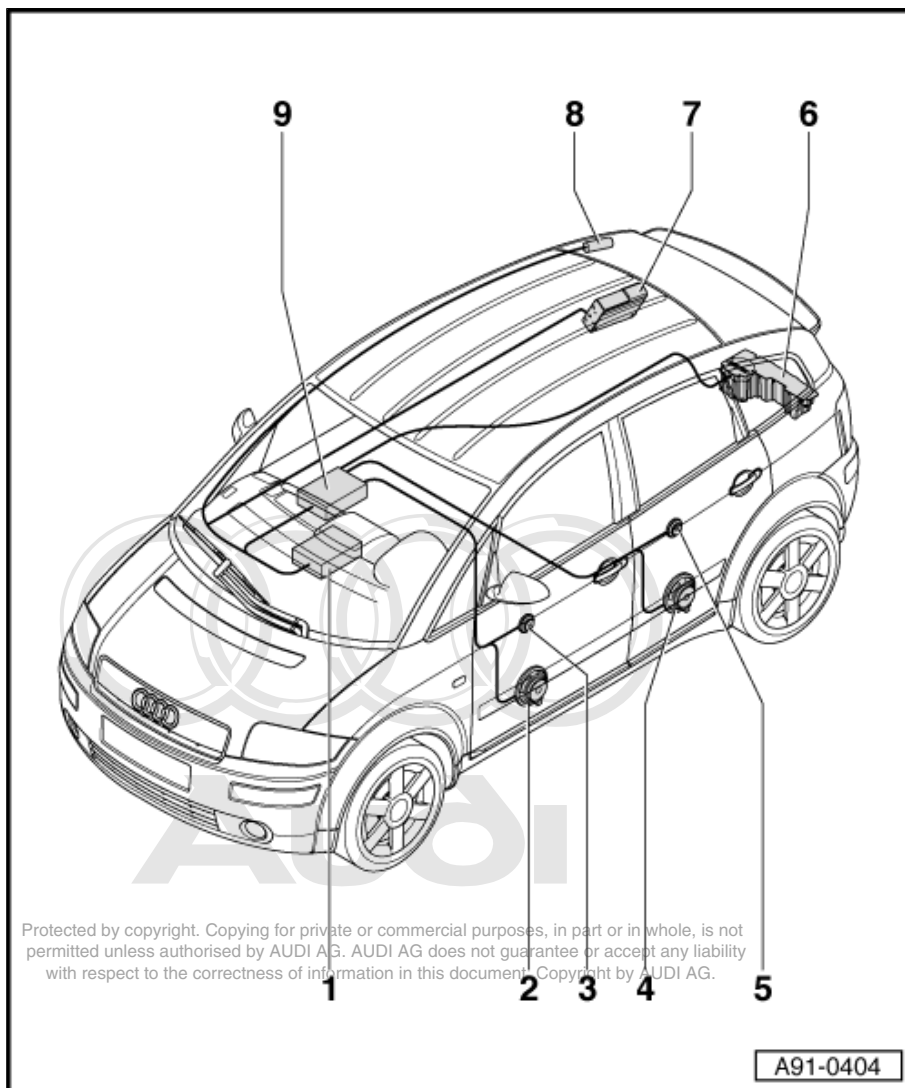
- ☐ At rear right of luggage compartment
- ☐ Removing and installing ⇒ [page 25](#)
- ☐ Checking wiring ⇒ [page 25](#)

8 - Aerial amplifier -R24-

- ☐ On right behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

9 - Amplifier -R12- (BOSE amplifier)

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing ⇒ [page 26](#)



1.11.4 “symphony” and (as of MY 02) “concert” radio

1 - Radio -R-

- ☐ In top of centre console
- ☐ Removing and installing
⇒ [page 21](#)

2 - Amplifier -R12-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing
⇒ [page 26](#)

3 - Aerial selection control unit -J515-

- ☐ At front right of luggage compartment (intermediate panel)
- ☐ Removing and installing
⇒ [page 27](#)

4 - CD changer -R41-

- ☐ At rear right of luggage compartment
- ☐ Removing and installing
⇒ [page 25](#)
- ☐ Checking wiring
⇒ [page 25](#)

5 - Aerial amplifier -R24-

- ☐ At top right behind tailgate trim
- ☐ Removing and installing
⇒ [page 27](#)

6 - Aerial amplifier -2- -R111-

- ☐ At bottom right behind tailgate trim
- ☐ Removing and installing
⇒ [page 27](#)

7 - Aerial amplifier -3- -R112-

- ☐ At top left behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

8 - Aerial amplifier -4- -R113-

- ☐ At bottom left behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

9 - Rear left -R15- / rear right -R17- bass loudspeaker

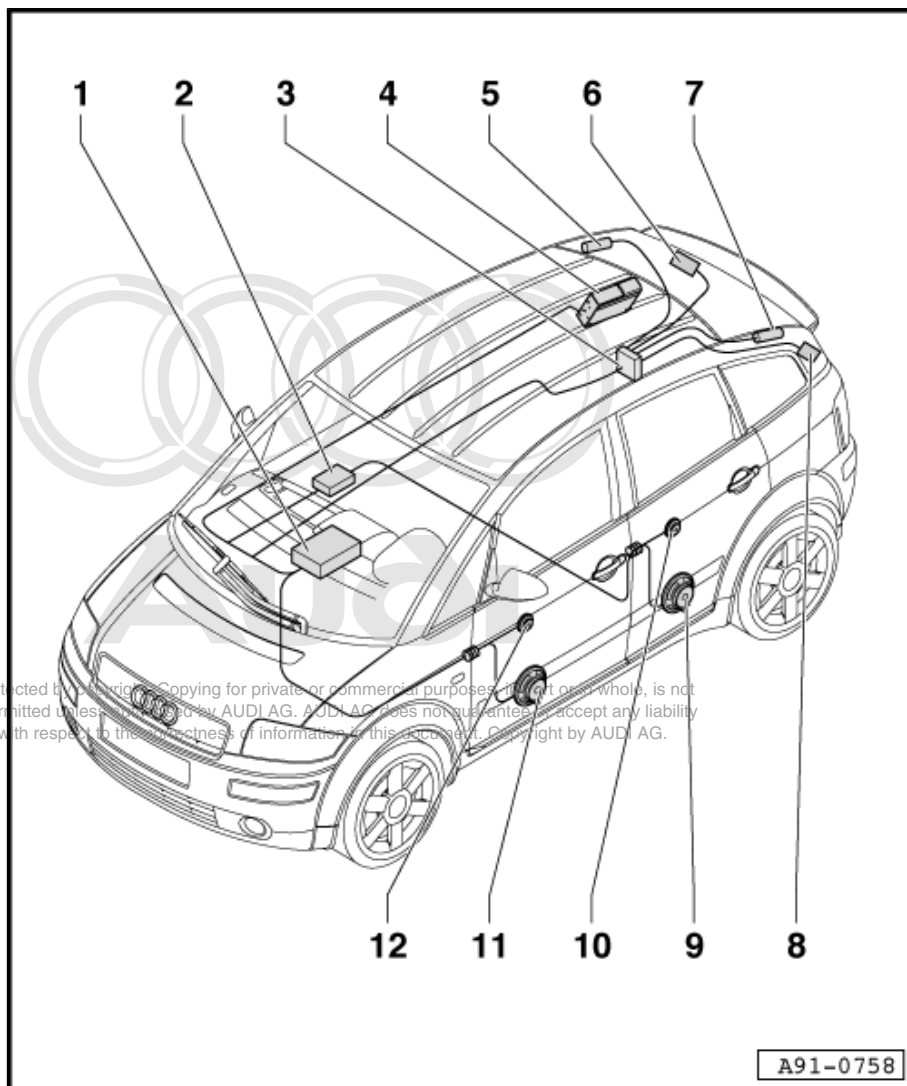
- ☐ In bottom of rear door trim
- ☐ Removing and installing ⇒ [page 23](#)

10 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing ⇒ [page 24](#)

11 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing ⇒ [page 22](#)



12 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing ⇒ [page 23](#)

1.11.5 “symphony” and (as of MY 02) “concert” radio with BOSE sound system

1 - Radio -R-

- ☐ In top of centre console
- ☐ Removing and installing ⇒ [page 21](#)

2 - Amplifier -R12- (BOSE amplifier)

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing ⇒ [page 26](#)

3 - Aerial selection control unit -J515-

- ☐ At front right of luggage compartment (intermediate panel)
- ☐ Removing and installing ⇒ [page 27](#)

4 - CD changer -R41-

- ☐ At rear right of luggage compartment
- ☐ Removing and installing ⇒ [page 25](#)
- ☐ Checking wiring ⇒ [page 25](#)

5 - Aerial amplifier -R24-

- ☐ At top right behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

6 - Aerial amplifier -2- -R111-

- ☐ At bottom right behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

7 - Aerial amplifier -3- -R112-

- ☐ At top left behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

8 - Aerial amplifier -4- -R113-

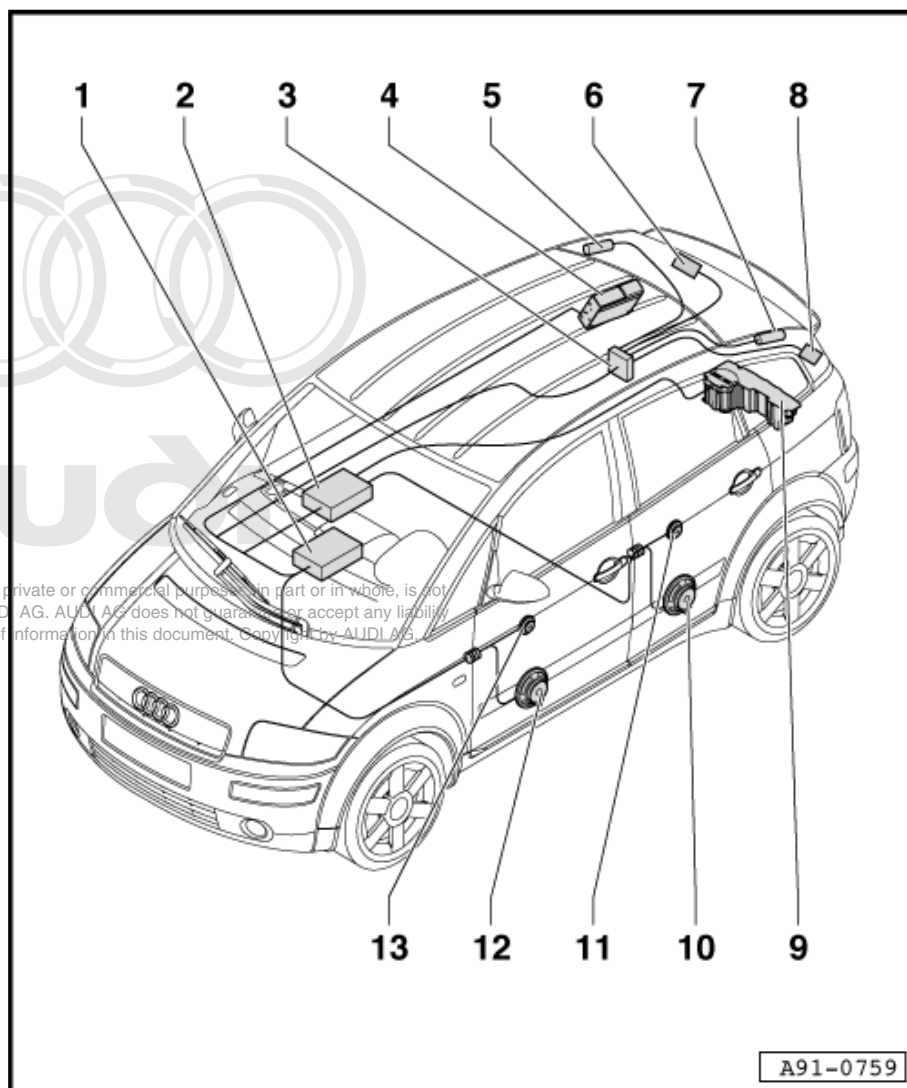
- ☐ At bottom left behind tailgate trim
- ☐ Removing and installing ⇒ [page 27](#)

9 - Bass loudspeaker -R100-

- ☐ On left of luggage compartment (intermediate panel)
- ☐ Removing and installing ⇒ [page 24](#)

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

- ☐ In bottom of rear door trim



- ❑ Removing and installing ⇒ [page 23](#)

11 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ❑ In top of rear door trim
- ❑ Removing and installing ⇒ [page 24](#)

12 - Front left -R21- / front right -R23- bass loudspeaker

- ❑ In bottom of front door trim
- ❑ Removing and installing ⇒ [page 22](#)

13 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

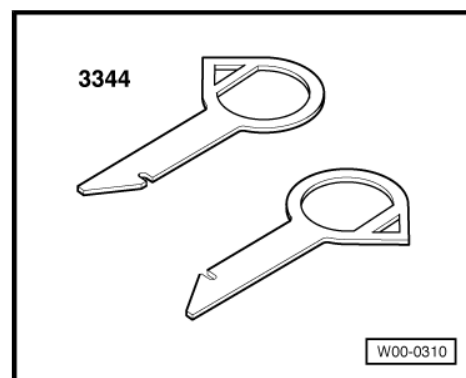
- ❑ In top of front door trim
- ❑ Removing and installing ⇒ [page 23](#)

1.12 Removing and installing radio

1.12.1 Removing and installing “chorus” and “concert” radios

Special tools and workshop equipment required

- ◆ Radio release keys -3344-



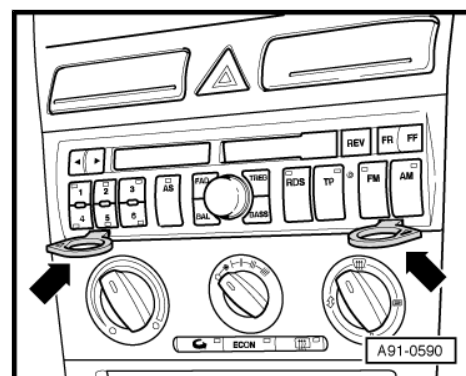
- Switch off all electrical equipment.
- Remove ignition key.
- Request anti-theft encoding from customer.

Removing:

- Insert radio release keys -3344- in release slots as shown -arrows- until they engage. Pointed ends of grips must face outwards.
- Grasp hold of grips on radio release keys -3344- and pull radio out of dash panel.
- Release and unplug connectors at radio.
- Press tabs on radio and pull out release keys.

Installing:

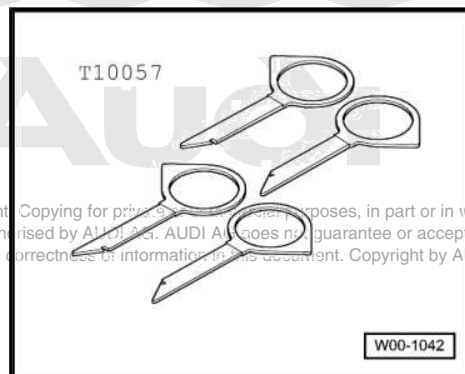
- Plug in all connectors.
- Carefully slide radio into dash panel and engage it in mounting frame.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .
- Activate anti-theft encoding.



1.12.2 Removing and installing “symphony” radio

Special tools and workshop equipment required

- ◆ Radio release keys -T10057-

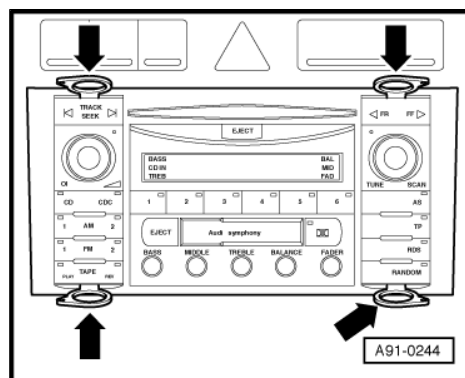


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- Switch off all electrical equipment.
- Remove ignition key.
- Request anti-theft encoding from customer.

Removing:

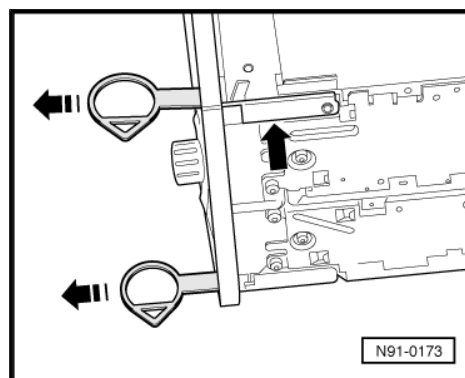
- Insert radio release keys -T10057- in release slots as shown -arrows- until they engage. Pointed ends of grips must face outwards.
- Grasp hold of grips on radio release keys -T10057- and pull radio out of dash panel.
- Release and unplug connectors at radio.



- Press tab -arrow- and pull out release keys in direction of arrow.

Installing:

- Plug in all connectors.
- Carefully slide radio into dash panel and engage it in mounting frame.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .
- Activate anti-theft encoding.



1.13 Removing and installing loudspeakers

1.13.1 Removing and installing front bass loudspeaker

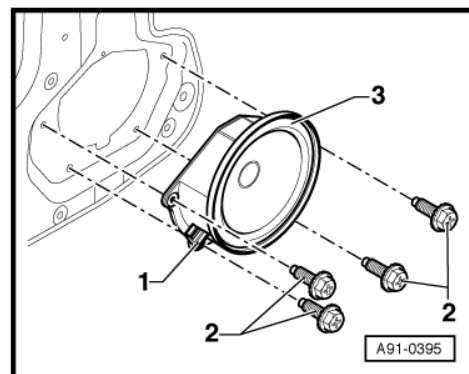
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove front door trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Unplug connector -1- at loudspeaker.
- Screw out bolts -2- (2 Nm) at loudspeaker -3- and detach loudspeaker.

Installing:

- Install accordingly in reverse order of removal.



1.13.2 Removing and installing front treble/ mid-range loudspeaker

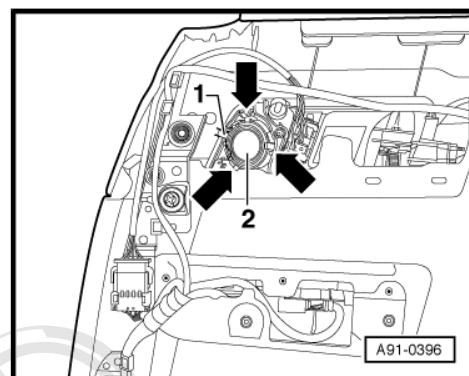
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove front door trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Carefully unfasten foam insulating mat from trim on back.
- Unplug connector -1-.
- Release catches -arrows- to permit removal of loudspeaker -2- from door trim.

Installing:

- Install accordingly in reverse order of removal.



1.13.3 Removing and installing rear bass loudspeaker

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

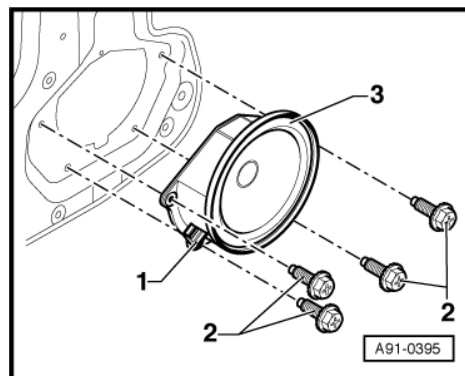
- Remove rear door trim ⇒ General body repairs, interior; Rep. Gr. 70 .

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- Unplug connector -1-.
- Screw out bolts -2- (2 Nm) at loudspeaker -3- and detach loudspeaker -3-.

Installing:

- Install accordingly in reverse order of removal.



1.13.4 Removing and installing rear treble/mid-range loudspeaker

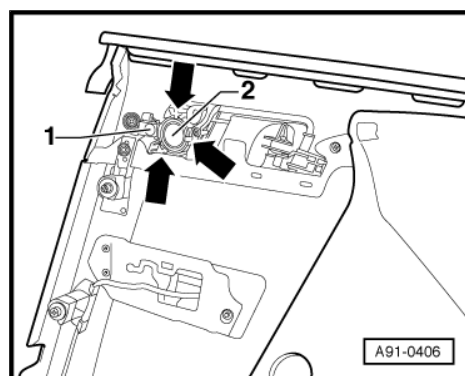
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove door trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Carefully unfasten foam insulating mat from trim on back.
- Unplug connector -1-.
- Release catches -arrows- to permit removal of loudspeaker -2- from door trim.

Installing:

- Install accordingly in reverse order of removal.



1.13.5 Removing and installing bass loudspeaker

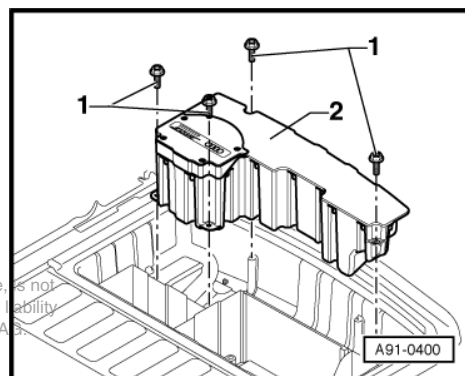
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove load compartment floor in luggage compartment ⇒ General body repairs, interior; Rep. Gr. 70 .
- Screw out the four bolts -1- (6 Nm).
- Take out bass loudspeaker -2-.
- Unplug connector.

Installing:

- Install accordingly in reverse order of removal.



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1.14 Removing and installing CD changer - R41-

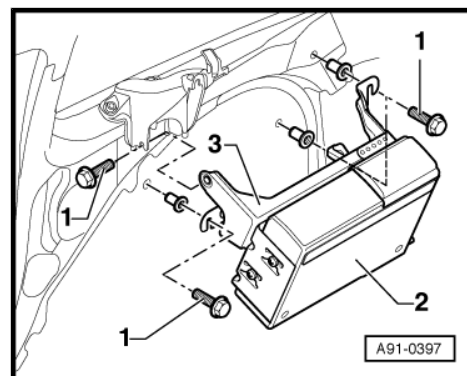
1.14.1 Removing and installing

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove rear right luggage compartment side trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Screw out the four bolts -1- (8 Nm).
- Unplug connector and take CD changer -2- out of luggage compartment together with mounting frame -3-.

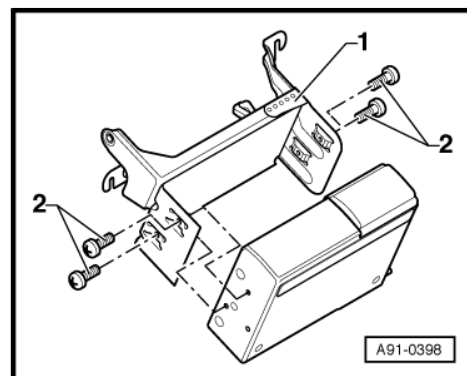
Removal from mounting frame:



- Screw out bolts -2- (3 Nm).

Installing:

- Install accordingly in reverse order of removal.
- Following installation, always check wiring ⇒ [page 25](#) .



1.14.2 Checking radio/CD changer wiring

- Switch off radio.

“chorus” radio:

- Press **[CC/CD]** button on radio and simultaneously switch on radio.

“concert” radio:

- Press **[CC]** button on radio and simultaneously switch on radio.

“symphony” radio:

- Press station button **[4]** on radio, simultaneously switch on radio and keep "on" button pressed.

All models:



Note!

Signal wire between radio and CD changer is not checked.

Wiring OK

Indicated on display:

“CDC CONNECTED”

Wiring not OK

Indicated on display:

“NO CDC”

- Check connector at CD changer.
- Repeat wiring check and if result is not OK, use current flow diagram to check wiring ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

1.15 Removing and installing amplifier

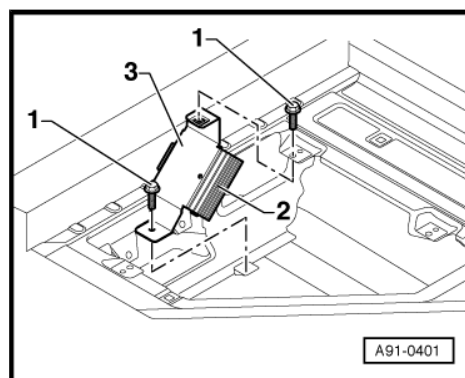
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.
- Screw out bolts -1- (8 Nm).
- Take amplifier -2- together with mounting frame -3- out of recess.
- Unplug connector.

Installing:

- Install accordingly in reverse order of removal.



1.16 Removing and installing BOSE amplifier

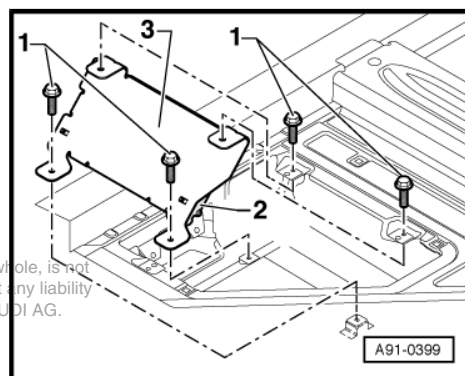
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.
- Screw out the four bolts -1- (8 Nm).
- Take amplifier -2- together with mounting frame -3- out of recess.
- Unplug connector.

Installing:

- Install accordingly in reverse order of removal.



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1.17 Removing and installing aerial amplifier

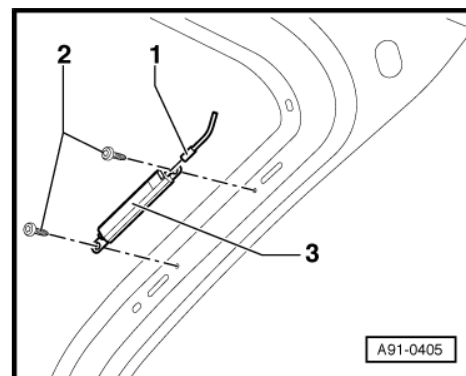
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove tailgate trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Unplug window connection -1-.
- Screw out bolts -2- (2 Nm) and detach aerial amplifier -3-.

Installing:

- Install accordingly in reverse order of removal.

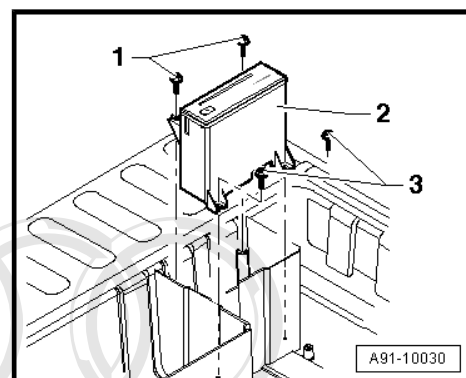


1.18 Removing and installing aerial selection control unit -J515-

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

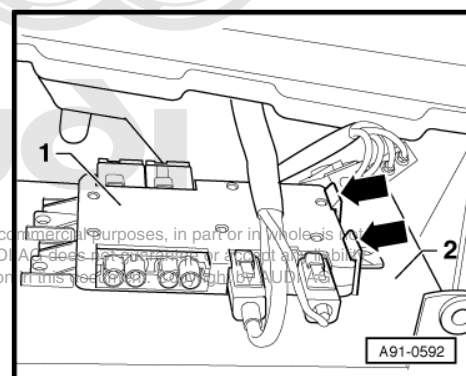
- Remove load compartment floor in luggage compartment ⇒ General body repairs, interior; Rep. Gr. 70 .
- Remove mounting frame.
- Screw out bolts -1- (5 Nm) and take out mounting frame -2- with control units.



- Unplug connectors at control unit -1-.
- Unclip control unit -1- at both tabs -arrows- and detach it from mounting frame -2-.

Installing:

- Install accordingly in reverse order of removal.



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2 Telephone systems

2.1 General information and description

General



Caution

Disconnect battery earth strap before working on electrical system.

*On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ **page 83**.*



Note!

- ◆ *Establish radio anti-theft code before disconnecting battery.*
- ◆ *On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.*

General description

The telephone systems in the A2 comprise:

- ◆ Pre-fitted components for telephone installation with telephone aerial, fitted wiring harness, hands-free unit
- ◆ Permanently installed telephone with telephone aerial, transmitter/receiver, handset, hands-free unit
- ◆ Pre-fitted components for mobile phone installation with telephone aerial, fitted wiring harness with control unit, hands-free unit
- ◆ Fitted mobile phone with telephone aerial, interface, cradle, amplifier, hands-free unit
- ◆ As of Model Year 04, universal pre-fitted components for mobile phone installation with Bluetooth aerial are to be introduced

Refer to fitting instructions no. 23 for service installation version.

For aerial wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Replacement of aerial wires .

For CAN bus wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Wiring harness and connector repairs

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2.2 Block diagram of telephone systems

2.2.1 Permanently installed telephone

1 - Telephone handset -R37-

- ☐ On right of centre console

2 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

- ☐ For vehicles with no radio system only
- ☐ In driver's B-pillar

3 - Radio -R-

- ☐ In top of centre console

4 - Radio loudspeakers

- ☐ In doors

5 - Telephone/telematics control unit -J526-

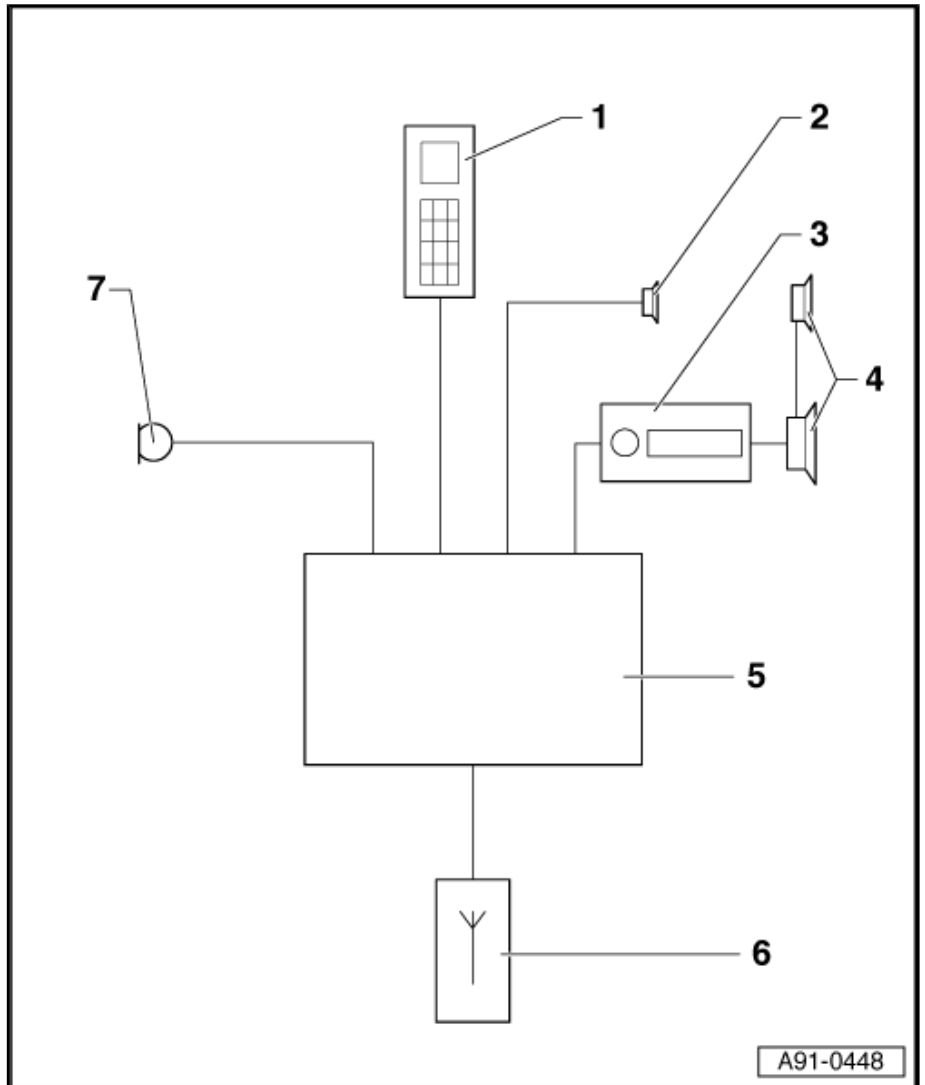
- ☐ Beneath front passenger's footwell (intermediate panel)

6 - Telephone aerial -R65-

- ☐ Roof aerial

7 - Telephone microphone -R38- (hands-free microphone)

- ☐ In front interior light



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2.2.2 Pre-fitted components for mobile phone installation (up to MY 03)

1 - Special safety cradle for mobile phone

- ☐ Service installation component

2 - System cable

- ☐ Service installation component

3 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

- ☐ For vehicles with no radio system only
- ☐ In driver's B-pillar

4 - Radio -R-

- ☐ In top of centre console

5 - Radio loudspeakers

- ☐ In doors

6 - Telephone aerial -R65-

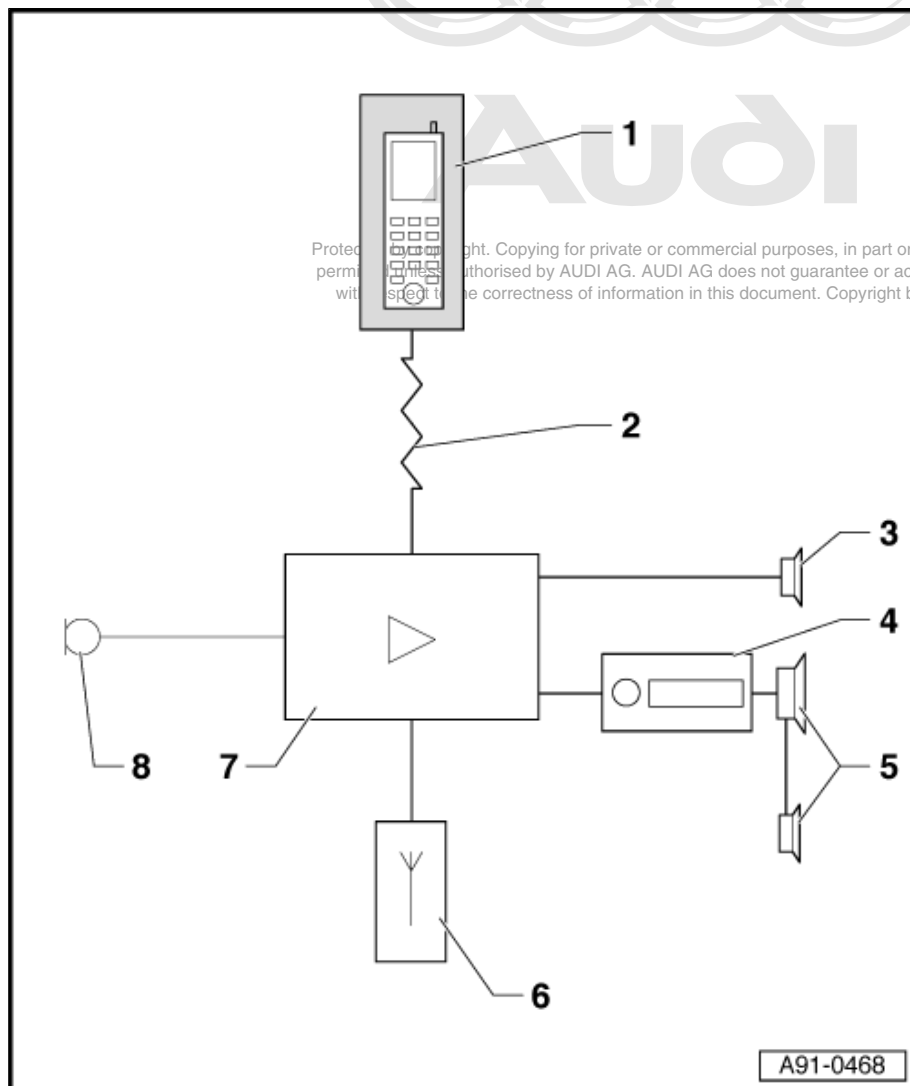
- ☐ Roof aerial

7 - Mobile telephone operating electronics control unit -J412-

- ☐ Beneath front passenger's footwell (intermediate panel)

8 - Telephone microphone - R38- (hands-free microphone)

- ☐ In front interior light



2.2.3 Mobile phone (up to MY 03)

1 - Mobile phone in cradle

- ☐ On right of centre console

2 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

- ☐ For vehicles with no radio system only
- ☐ In driver's B-pillar

3 - Radio -R-

- ☐ In top of centre console

4 - Radio loudspeakers

- ☐ In doors

5 - Mobile telephone operating electronics control unit -J412-

- ☐ Beneath front passenger's footwell (intermediate panel)

6 - Telephone microphone - R38- (hands-free microphone)

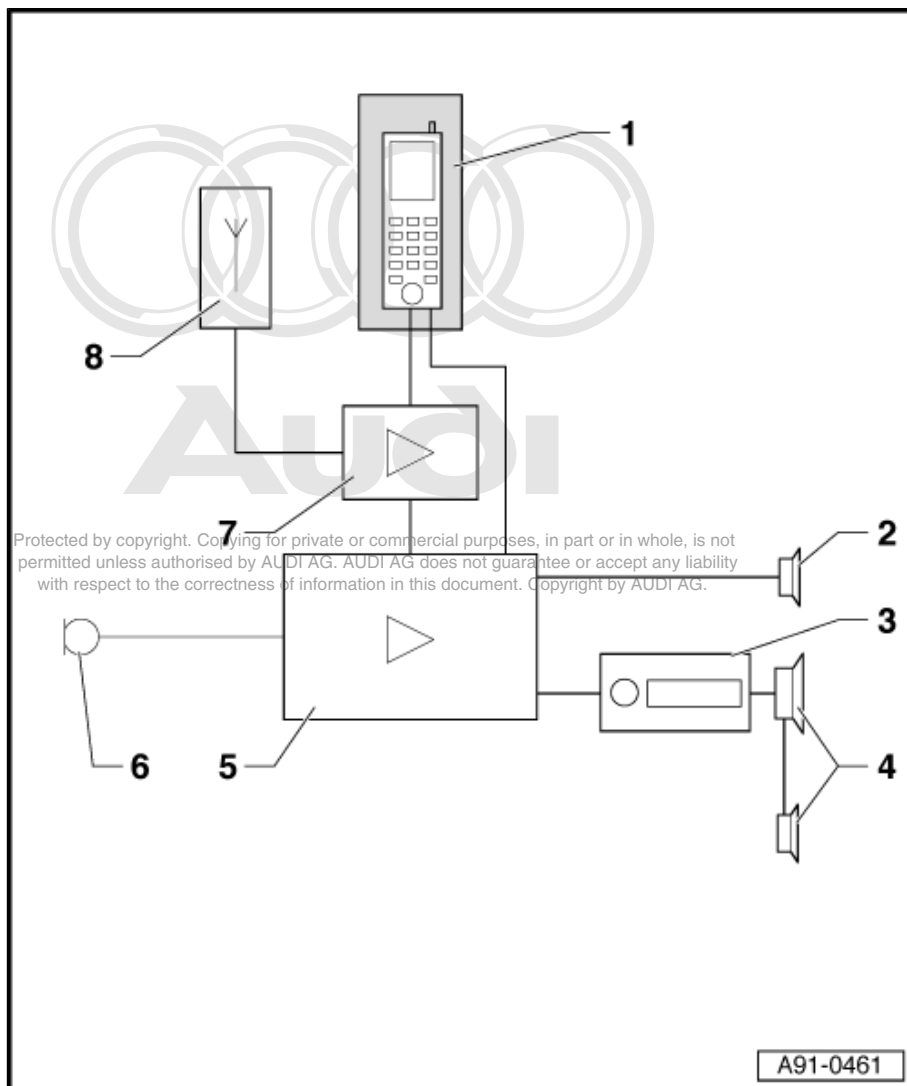
- ☐ In front interior light

7 - Aerial amplifier, mobile telephone -R86-

- ☐ At bottom behind right luggage compartment side trim

8 - Telephone aerial -R65-

- ☐ Roof aerial



2.2.4 Pre-fitted components for mobile phone installation (as of MY 04)

1 - Mobile phone bracket - R126-

- ☐ On right of centre console

2 - Radio -R-

- ☐ In top of centre console

3 - Radio loudspeakers

- ☐ In doors

4 - Aerial for Bluetooth -R152-

- ☐ At mobile telephone operating electronics control unit

5 - Mobile telephone operating electronics control unit -J412-

- ☐ Beneath front passenger's footwell (intermediate panel)

6 - Telephone microphone - R38- (hands-free microphone)

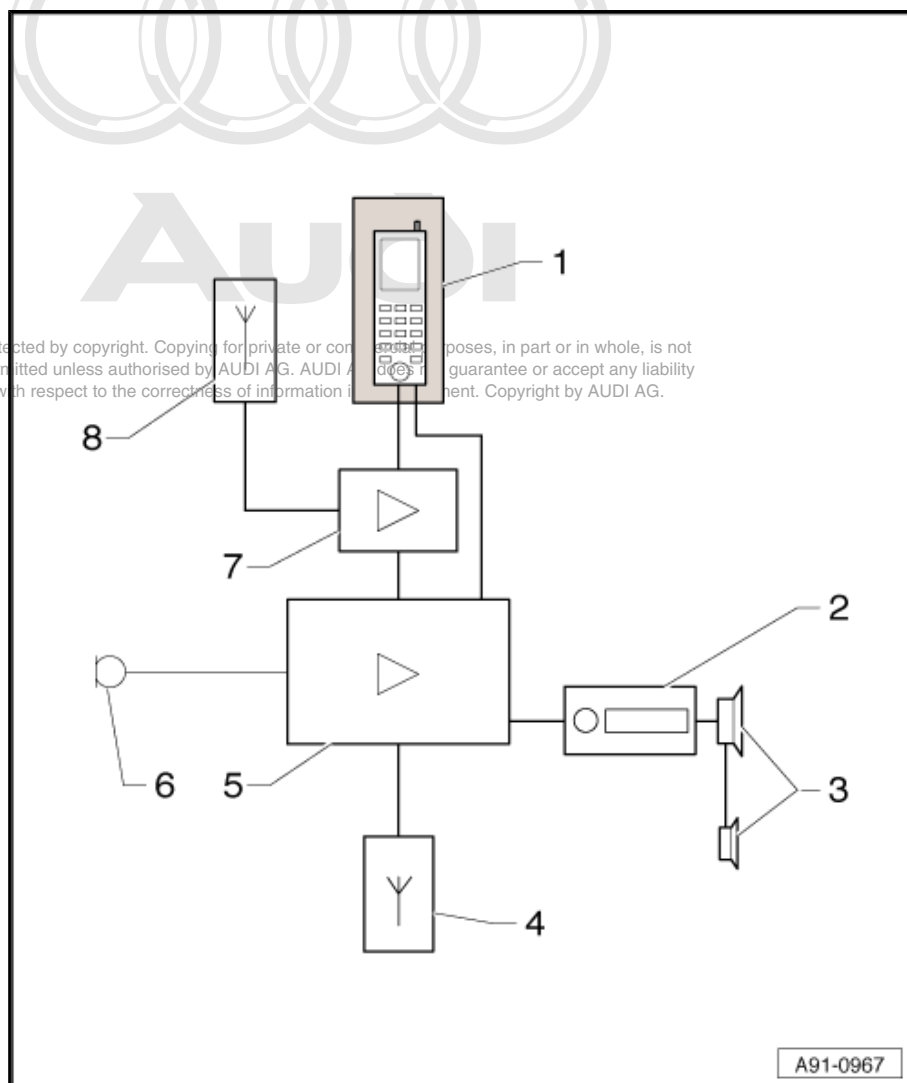
- ☐ In front interior light

7 - Aerial amplifier, mobile telephone -R86-

- ☐ At bottom behind right luggage compartment side trim

8 - Telephone aerial -R65-

- ☐ Roof aerial



2.3 Connectors at control units

2.3.1 Mobile telephone operating electronics control unit -J412- up to MY 03

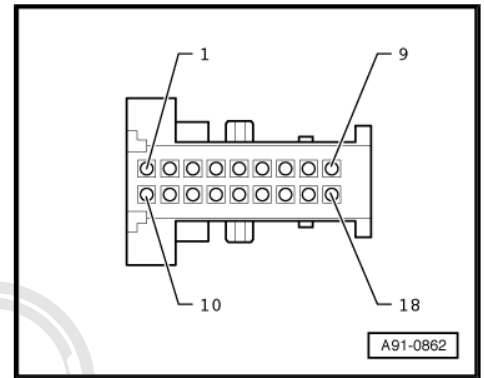


Note!

Contacts not listed are not used.

18-pin connector

- 1 - Terminal 31
- 3 - GALA (vehicle speed signal)
- 4 - AF mute (to radio -R-)
- 7 - Hands-free loudspeaker (-) (up to MY 01)
- 9 - Hands-free microphone (-)
- 10 - Terminal 15
- 11 - Terminal 30
- 12 - Terminal 58s
- 13 - "Mobile phone ON" signal (to aerial amplifier, mobile telephone -R86-)
- 16 - Hands-free loudspeaker (+) (up to MY 01)
- 18 - Hands-free microphone (+)



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2.3.2 Mobile telephone operating electronics control unit -J412- as of MY 04

A - Aerial for Bluetooth -R152-

B - 54-pin connector



Note!

Contacts not listed are not used.

54-pin connector

1 - Terminal 30

2 - Terminal 31

3 - "Mobile phone ON" signal (to aerial amplifier, mobile telephone -R86-)

8 - AF output (+) (to radio -R-)

9 - AF output (-) (to radio -R-)

11 - Microphone (+)

12 - Microphone (-)

16 - Mute (to navigation system)

17 - CAN bus High (infotainment)

18 - CAN bus Low (infotainment)

37 - Terminal 30 (to mobile phone bracket)

39 - Terminal 31 (to mobile phone bracket)

41 - Terminal 30 (to mobile phone bracket)

42 - Microphone output (+) (to mobile phone bracket)

43 - Microphone output (-) (to mobile phone bracket)

44 - Terminal 31 (screen earth)

45 - AF input (+) (from mobile phone bracket)

46 - AF input (-) (from mobile phone bracket)

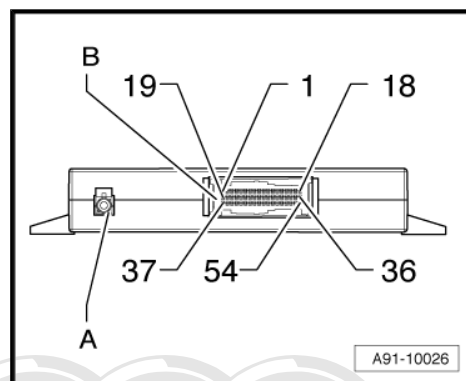
47 - SNDREQ signal (from mobile phone bracket)

49 - Ser Tx (+) (to mobile phone bracket)

50 - Ser Tx (-) (to mobile phone bracket)

51 - Ser Rx (+) (from mobile phone bracket)

52 - Ser Rx (-) (from mobile phone bracket)



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2.3.3 Connectors at aerial amplifier, mobile telephone -R86-

A - Connection for telephone aerial -R65-

B - 3-pin connector

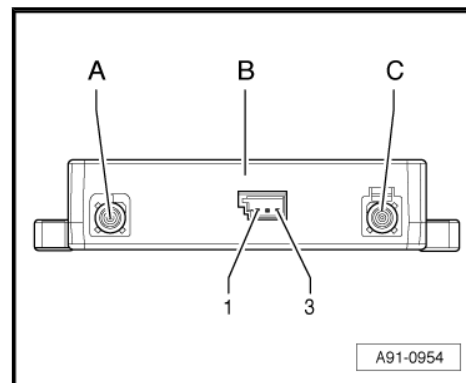
C - Mobile phone aerial connection

3-pin connector

1 - Terminal 30

2 - Terminal 31

3 - "Mobile phone ON" signal (from mobile telephone operating electronics control unit -J412-)



2.4 Overall layout of telephone systems

2.4.1 Permanently installed telephone layout

1 - Telephone/telematics control unit -J526-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing
⇒ [page 39](#)

2 - Telephone microphone - R38- (hands-free microphone)

- ☐ In front interior light
- ☐ Removing and installing
⇒ [page 40](#)

3 - Aerial amplifier -R24- (radio)

- ☐ On right behind tailgate trim

4 - Telephone aerial -R65-

- ☐ Roof aerial
- ☐ Removing and installing
⇒ [page 41](#)

5 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

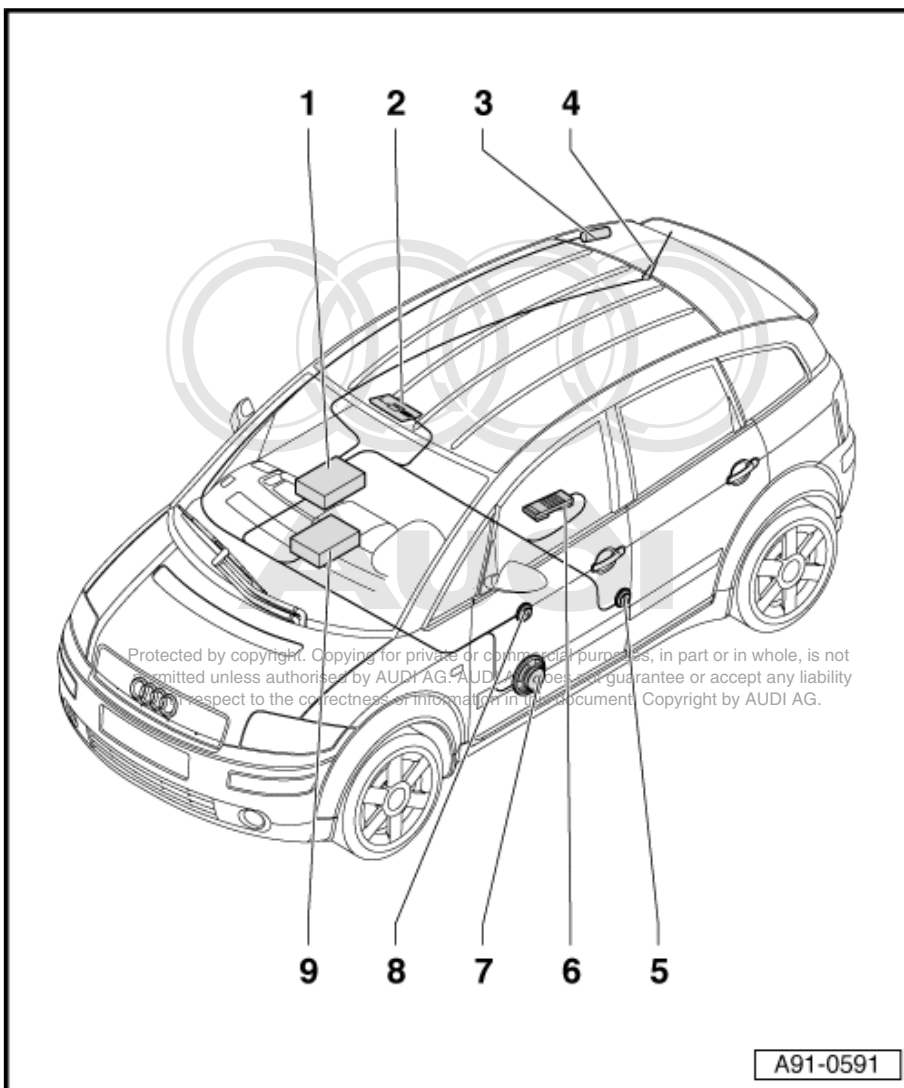
- ☐ For vehicles with no radio system only
- ☐ In driver's B-pillar
- ☐ Removing and installing
⇒ [page 41](#)

6 - Telephone handset -R37-

- ☐ On right of centre console

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

- ☐ In bottom of front door trim



8 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim

9 - Radio -R-

- ☐ In top of centre console

2.4.2 Layout of pre-fitted components for mobile phone installation

1 - Mobile telephone operating electronics control unit -J412-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing up to MY 03
⇒ [page 39](#)
- ☐ Removing and installing as of MY 04
⇒ [page 38](#)

2 - Telephone microphone -R38- (hands-free microphone)

- ☐ In front interior light
- ☐ Removing and installing
⇒ [page 40](#)

3 - Aerial amplifier -R24- (radio)

4 - Telephone aerial -R65-

- ☐ Roof aerial
- ☐ Removing and installing
⇒ [page 41](#)

5 - Aerial amplifier, mobile telephone -R86-

- ☐ At bottom behind right luggage compartment side trim
- ☐ Removing and installing
⇒ [page 39](#)

6 - Mobile phone bracket -R126-

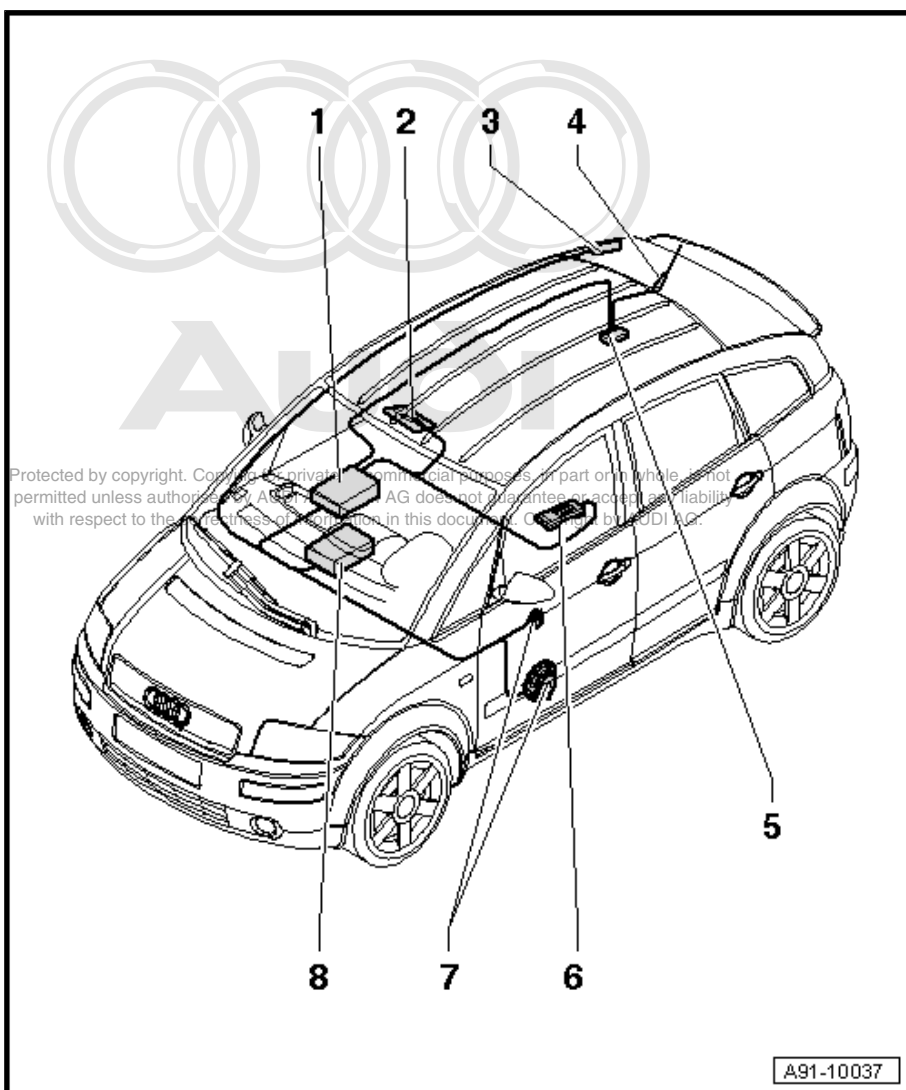
- ☐ On right of centre console
- ☐ Removing and installing ⇒ [page 39](#)

7 - Radio loudspeakers

- ☐ In doors

8 - Radio -R-

- ☐ In top of centre console

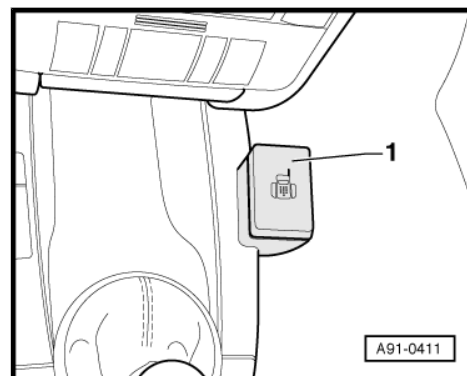


2.5 Removing and installing cradle holder

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

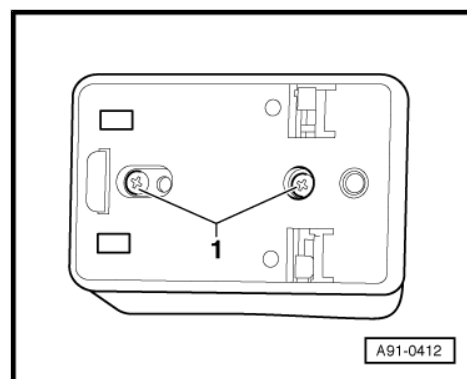
- Remove cover over holder -1-.



- Screw out both cradle bolts -1- to permit removal of holder bolts.

Installing:

- Install accordingly in reverse order of removal.



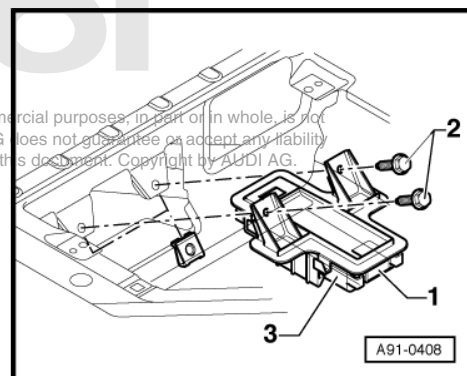
2.6 Removing and installing mobile telephone operating electronics control unit -J412- (up to MY 03)

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.
- Unplug connector -1-.
- Screw out both bolts -2- (2 Nm) and take out holder together with control unit -3-.

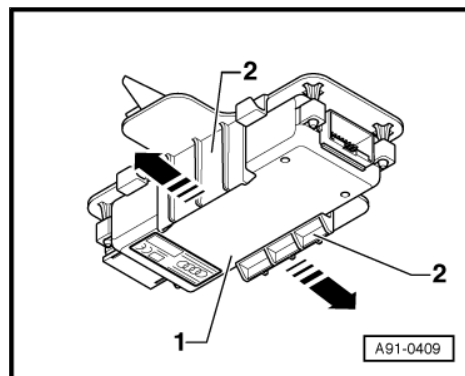
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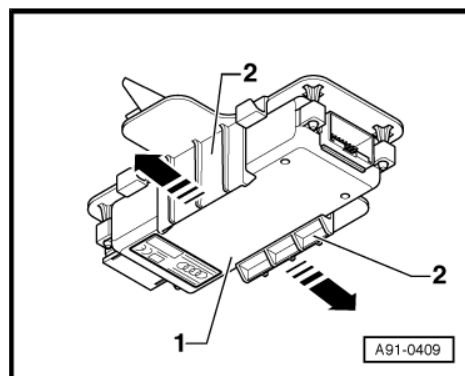
- Press both retainer tabs -2- aside in direction of arrow and detach control unit -1- from holder.

Installing:

- Install accordingly in reverse order of removal.



On installation, make sure control unit is fitted as shown.

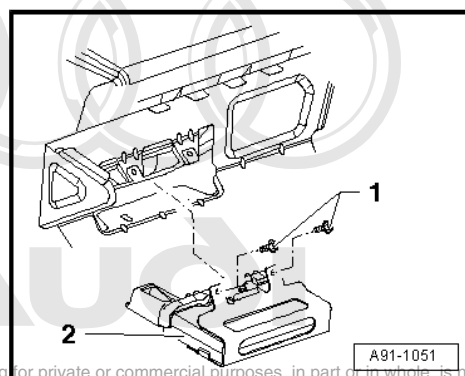


2.7 Removing and installing mobile telephone operating electronics control unit -J412- (as of MY 04)

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.
- Unplug connector at control unit.
- Screw out both bolts -1- (7 Nm) and take out holder together with control unit -2-.



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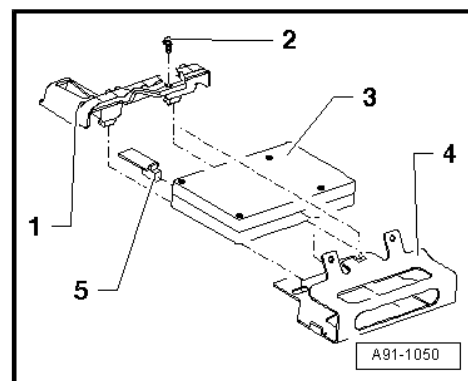
- Detach Bluetooth aerial -5-.
- Screw out bolt -2- (7 Nm) and detach plastic clip -1- from holder -4-.
- Pull control unit -3- out of holder -4-.

Installing:

- Install accordingly in reverse order of removal.

Following control unit replacement:

- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .



2.8 Removing and installing aerial amplifier, mobile telephone -R86-

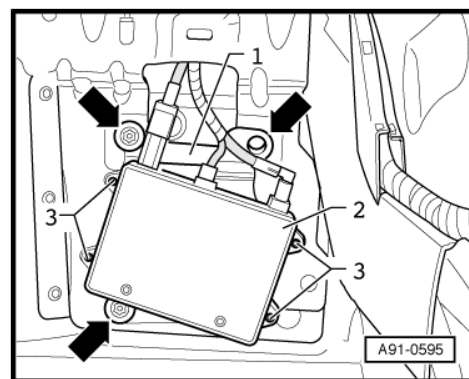
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove right luggage compartment side trim ⇒ General body repairs, interior; Rep. Gr. 70 .
- Unplug connector.
- Screw out the three bolts -arrows- of the holder mount -1-.
- Turn rear side to front and screw out bolts -3- of amplifier -2- (2 Nm).

Installing:

- Install accordingly in reverse order of removal.



2.9 Removing and installing telephone/telematics control unit -J526- (telephone operation only)

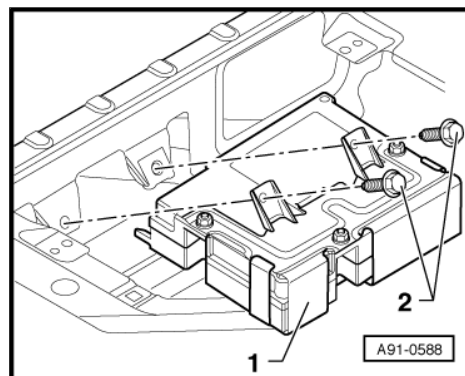
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Activate control unit service mode ⇒ [page 83](#) .
- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.

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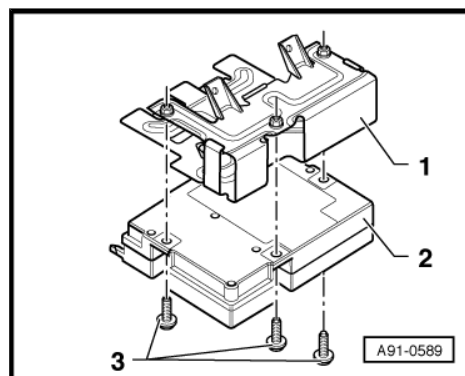
- Screw out both bolts -2- (7 Nm).
- Unplug connectors and take out control unit with holder.



- Screw out both bolts -3- (8 Nm) and detach control unit -2- from holder -1-.

Installing:

- Install accordingly in reverse order of removal.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .



2.10 Removing and installing telephone microphone -R38-

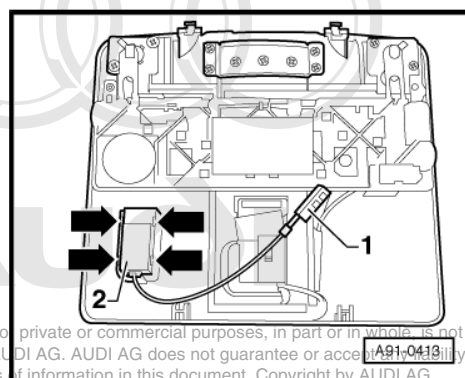
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove front interior light ⇒ Electrical system; Rep. Gr. 96 .
- Unplug microphone connector -1-.
- Unclip microphone -2- at retainer tabs -arrows-.

Installing:

- Install accordingly in reverse order of removal.



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2.11 Removing and installing telephone/navigation systems loudspeaker -R39-

- Switch off all electrical equipment.
- Remove ignition key.

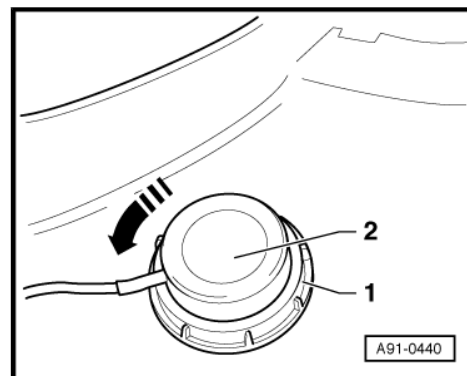
Removing:

- Remove lower B-pillar trim on driver's side ⇒ General body repairs, interior; Rep. Gr. 70 .

- Unplug connector at loudspeaker -2-.
- Twist off securing ring -1- in -direction of arrow- and take loudspeaker out of trim.

Installing:

- Install accordingly in reverse order of removal.



2.12 Removing and installing telephone aerial -R65-

Telephone aerial -R65- consists of:

- 1 - Sheath
- 2 - Aerial
- 3 - Earth plate
- 4 - Locking ring
- 5 - Aerial wire

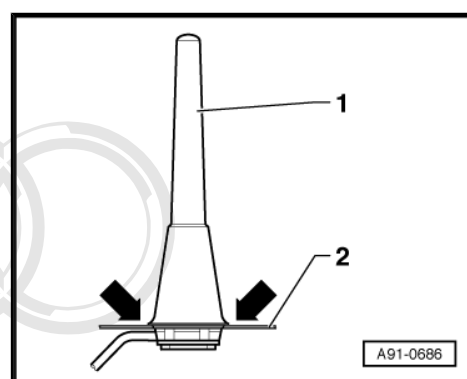
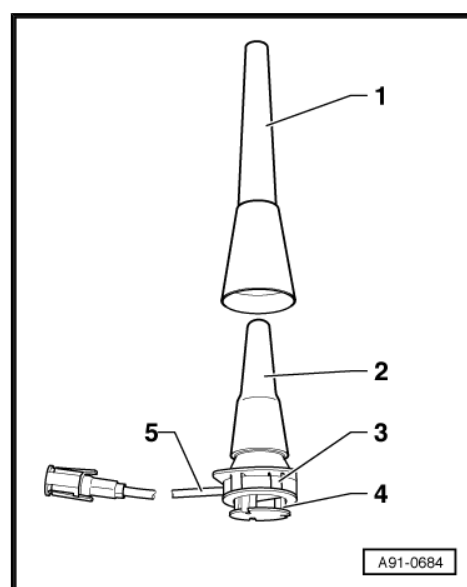
Aerial, earth plate and aerial wire are permanently connected.

Prior to removal and installation, locking ring -4- must be pulled out of (removed from) aerial base.

- Pull out locking ring.
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

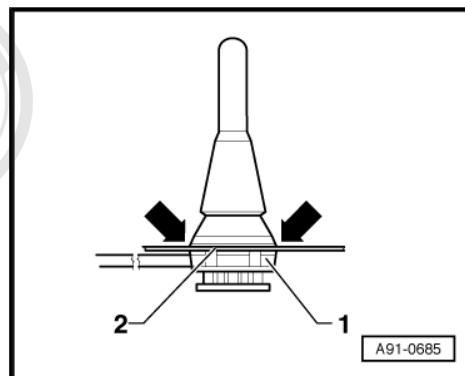
- Remove rear interior light ⇒ General body repairs, interior; Rep. Gr. 69 .
- Apply suitable plastic wedge between sealing lip -arrows- and roof -2- and carefully prise off sheath -1-.



- Use plastic wedge to press sealing lip of aerial -arrows- from above inwards through hole -2-.
- Unplug connector.

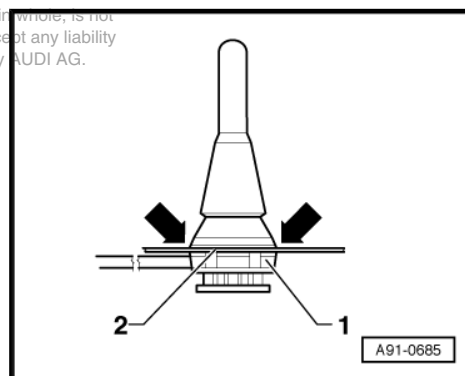
Installing:

- Whilst twisting gently, press aerial from underneath into hole until it engages.
- Turn aerial until aerial wire is facing in installation direction.
- Check that sealing lip -arrows- has been released from hole and - if sealing lip is correctly positioned - firmly press home locking ring -1-.



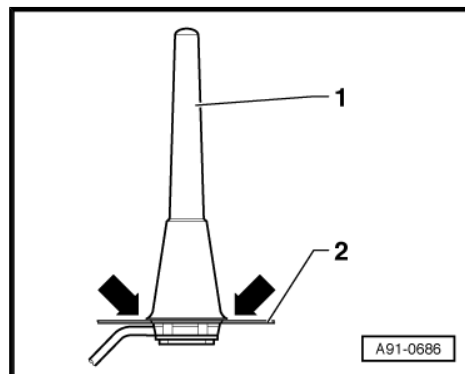
Earth plates -2- must be in firm contact with roof

- Whilst twisting gently, carefully press sheath -1- onto aerial until it engages.



Sealing lip -arrows- must "mushroom" outwards and make even contact with roof -2-.

- Connect aerial wire of telephone to wiring of aerial.



2.13 Removing and installing telephone aerial -R65- (glass roof panel)

Use is made on vehicles with glass sunroof of a "glass bonding aerial".

Telephone aerial -R65- consists of:

- 1 - Cap
- 2 - Top part of aerial with self-adhesive foil
- 3 - Bottom part of aerial (interface box) with self-adhesive foil and connection for aerial wire

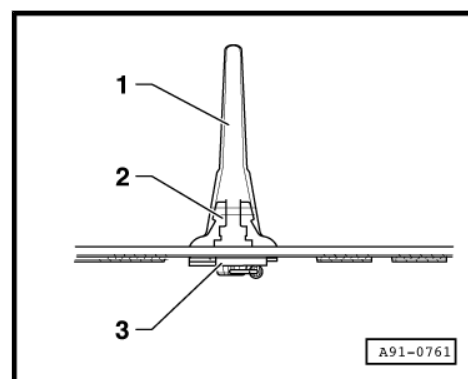
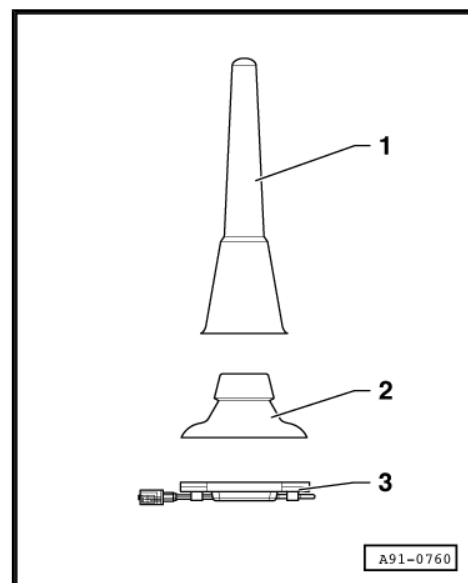
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove rear interior light ⇒ General body repairs, interior; Rep. Gr. 69 .
- Unplug connector at bottom part of aerial.
- Use suitable tool to prise off bottom and top part of aerial.
- Mark position of top and bottom part.
- Clean bonding surfaces with adhesive remover D 002 000 10 or cleaning agent D 009 004 04 .

Installing:

- Remove backing from bonding surfaces of top and bottom part.
- Press top part -2- and bottom part -3- onto marked position on glass panel. Apply pressure for approx. 5 seconds.
- Whilst twisting gently, push cap -1- onto top part of aerial -2- until it is firmly attached.
- Plug in connector.



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3 Navigation system II-D (navigation system Plus) RNS 4.1

3.1 General information and description

3.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

*On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ **page 83**.*



Note!

- ◆ *Establish radio anti-theft code before disconnecting battery.*
- ◆ *On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.*

3.1.2 General description

Navigation system II-D (RNS 4.1) is an enhanced version of navigation system II (navigation system Plus). Key innovations include aerial selection control unit, extended self-diagnosis, interface to data bus display and dynamic navigation.



Note!

- ◆ *For dealing with complaints, it is absolutely essential to be familiar with the functions and controls of the radio/navigation system.*
- ◆ *Additional information ⇒ Owner's manual*
- ◆ *For service installation, servicing work or fault-finding, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *For detailed fitting instructions, refer to ⇒ General body repairs, interior; Rep. Gr. 70.*
- ◆ *For aerial wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97; Replacement of aerial wires.*
- ◆ *For CAN bus wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97; Wiring harness and connector repairs.*

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3.1.3 Notes on CD service installation

Vehicles with pre-fitted components for CD installation are provided with a CD changer wiring harness. Connecting cable can only be used with genuine Audi CD changers.

3.2 Fault message display

In the event of a system fault, fault is stored in fault memory and/or fault message is output on display of operating electronics control unit, navigation -J402-.

At present the following fault messages can be displayed:

Indicated on display of navigation system II-D:

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

This fault message occurs in the following situations:

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

If this fault occurs, RDS TMC traffic information cannot be received and traffic jam function setting menu cannot be called up.

Indicated on display of navigation system II-D:

Dynamic navigation:
No telephone response
Dynamic function only with
ignition switched on

This fault message occurs in the following situations:

- ◆ No CAN bus communication or communication problems between operating electronics control unit, navigation -J402- and telephone/telematics control unit -J526- (open circuit in wiring or wire not connected)
- ◆ Telephone/telematics control unit -J526- defective
- ◆ Terminal 15 OFF (ignition switched off)

If this fault occurs, TMC traffic information cannot be received via telephone. Dynamic navigation is not possible and traffic jam function cannot be called up.

Indicated on display of navigation system II-D:

Unsuitable CD
Insert CD-ROM
for TravelPilot DX

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This message occurs in the following situations:

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

Inform customer accordingly.

Fault messages are displayed until fault has been rectified or confirmation provided by pressing **RETURN** key.

3.3 Block diagram of navigation system II-D

3.3.1 Standard

1 - TV tuner -J415-

- ☐ At front right of luggage compartment (intermediate panel)

2 - CD changer -R41-

- ☐ At rear right of luggage compartment

3 - Operating electronics control unit, navigation -J402-

- ☐ In top of centre console

4 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim

5 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim

6 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim

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

- ☐ In bottom of rear door trim

8 - Amplifier -R12-

- ☐ Beneath front passenger's footwell (intermediate panel)

9 - Navigation aerial (GPS) -R50-

- ☐ Behind dash panel on right

10 - Navigation interface -R94-

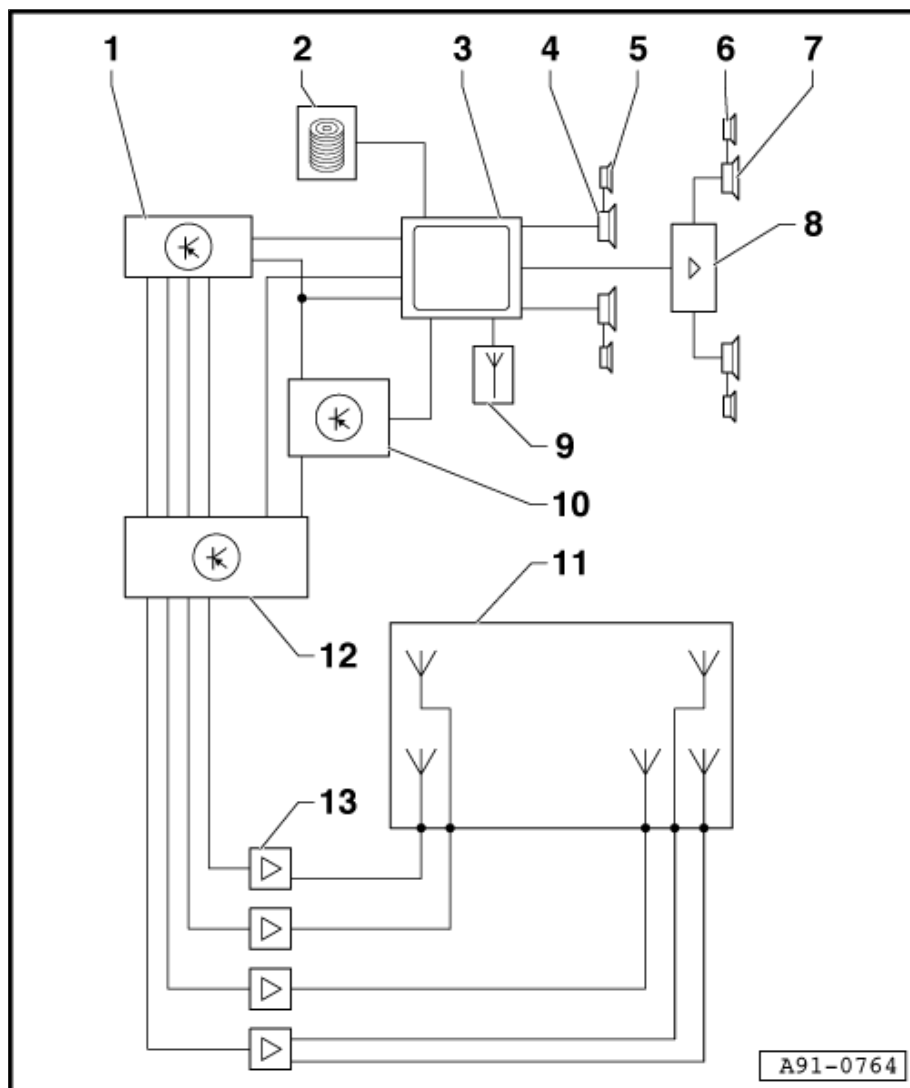
- ☐ At bottom of right A-pillar

11 - Rear window with integrated AM/FM/TV aerials
12 - Aerial selection control unit -J515-

- ☐ At front right of luggage compartment (intermediate panel)

13 - Four aerial amplifiers

- ☐ Behind tailgate trim



3.3.2 BOSE sound system

1 - TV tuner -J415-

- At front right of luggage compartment (intermediate panel)

2 - CD changer -R41-

- At rear right of luggage compartment

3 - Operating electronics control unit, navigation -J402-

- In top of centre console

4 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- In top of front door trim

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

- In bottom of front door trim

6 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- In top of rear door trim

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

- In bottom of rear door trim

8 - Amplifier -R12- (BOSE sound)

- Beneath front passenger's footwell (intermediate panel)

9 - Bass loudspeaker -R100-

- On left of luggage compartment (intermediate panel)

10 - Navigation aerial (GPS) -R50-

- Behind dash panel on right

11 - Navigation interface -R94-

- At bottom of right A-pillar

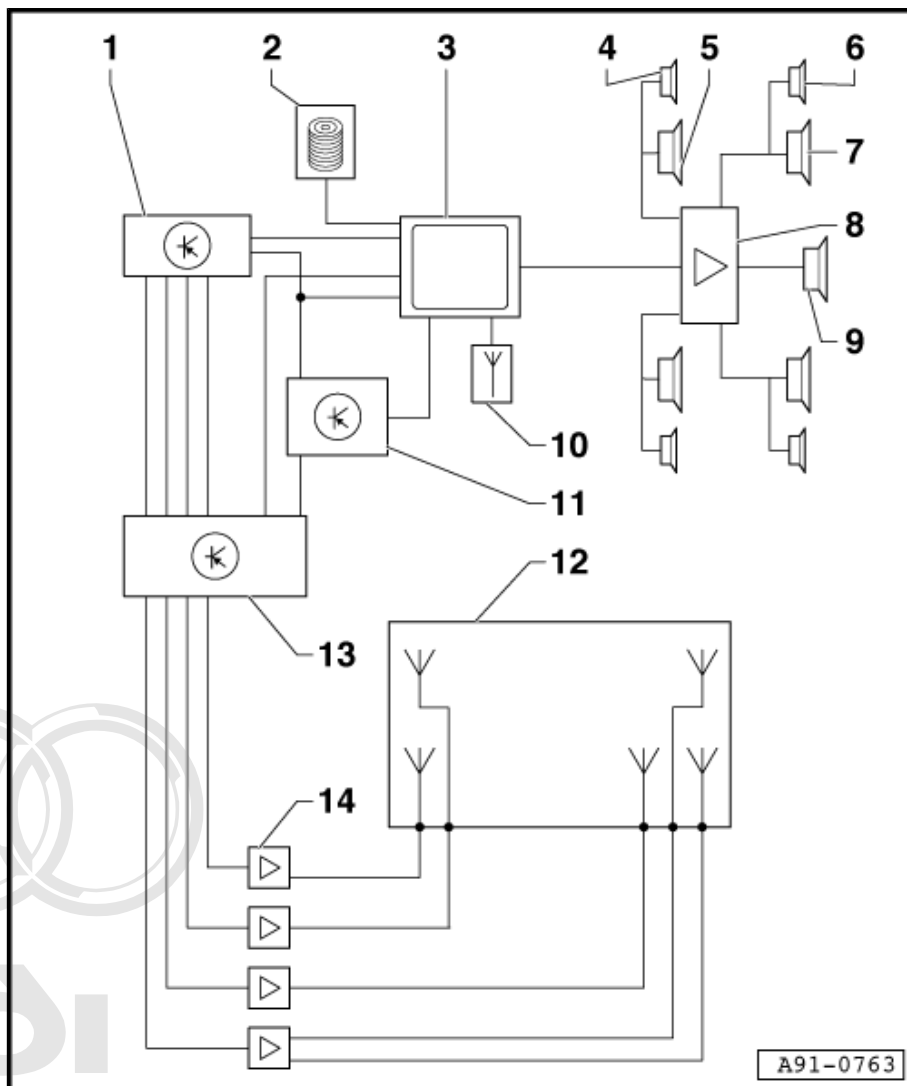
12 - Rear window with integrated AM/FM/TV aerals

13 - Aerial selection control unit -J515-

- At front right of luggage compartment (intermediate panel)

14 - Four aerial amplifiers

- Behind tailgate trim



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3.4 Connectors at operating electronics control unit, navigation -J402-

1 - Aerial connection (HF) from navigation interface -R94-

2 - Fan

3 - Aerial connection (IF) to aerial selection control unit -J515-

4 - 11-pin connector from TV tuner -J415-

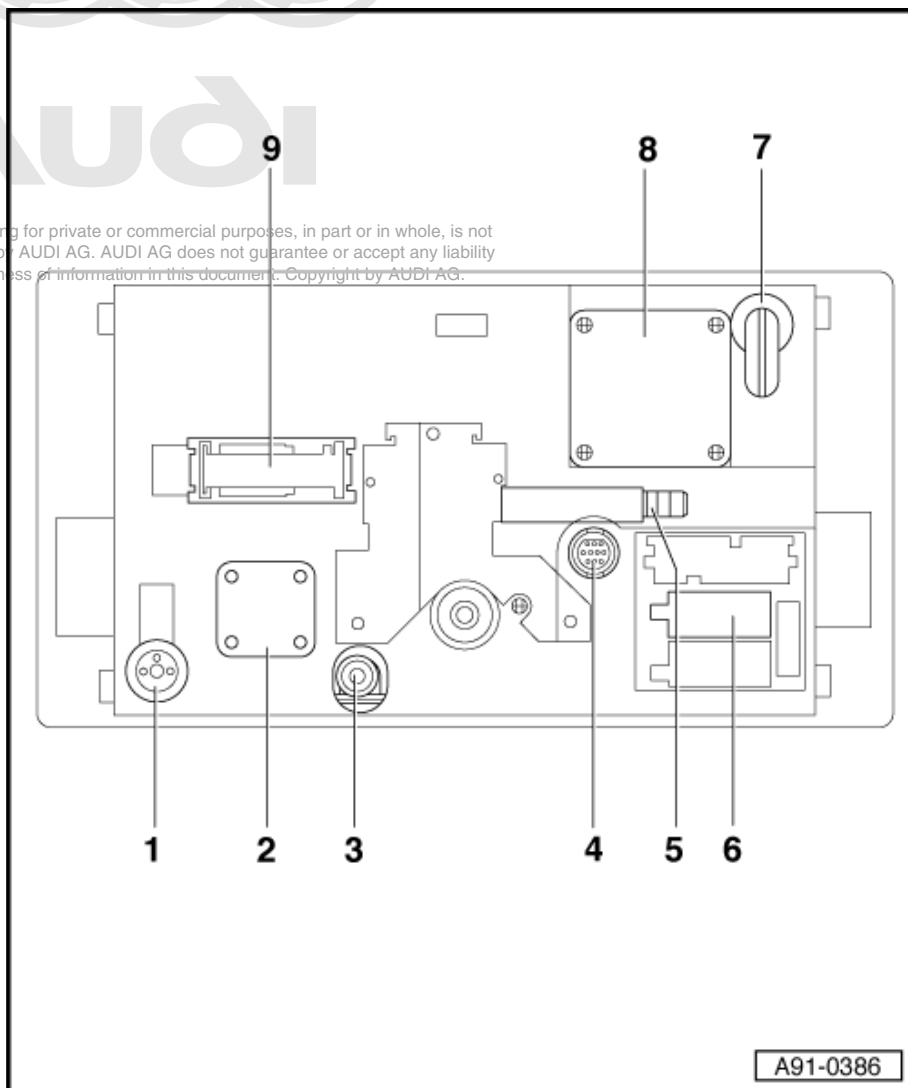
5 - Earth connection

6 - Connection block with three multi-pin connectors and one fuse

7 - Connection for navigation aerial (GPS) -R50-

8 - Fan

9 - 26-pin connector



3.4.1 Contact assignment of multi-pin connectors

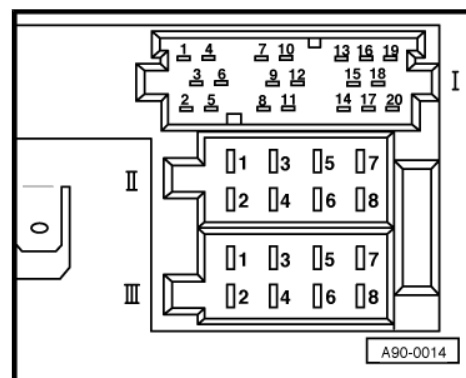


Note!

Contacts not listed are not used.

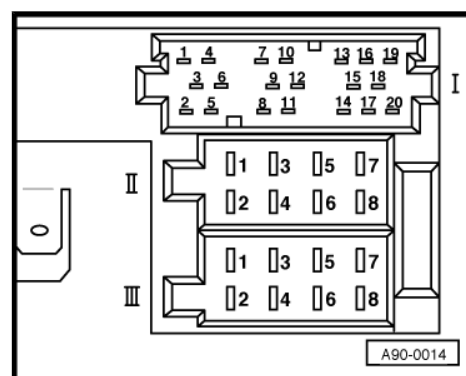
20-pin connector I

- 1 - Rear left signal
- 2 - Rear right signal
- 3 - Signal earth
- 4 - Front left signal
- 5 - Front right signal
- 6 - Switched positive (amplifier/BOSE amplifier)
- 7 - Telephone (AF +)
- 11 - Remote control/steering wheel (up to MY 01)
- 12 - Telephone (AF -)
- 13 - CD bus data in (CD changer)
- 14 - CD bus data out (CD changer)
- 15 - CD bus clock (CD changer)
- 16 - Permanent positive (CD changer)
- 17 - Switched positive (CD changer)
- 18 - Earth (CD changer)
- 19 - Left signal (CD changer)
- 20 - Right signal (CD changer)



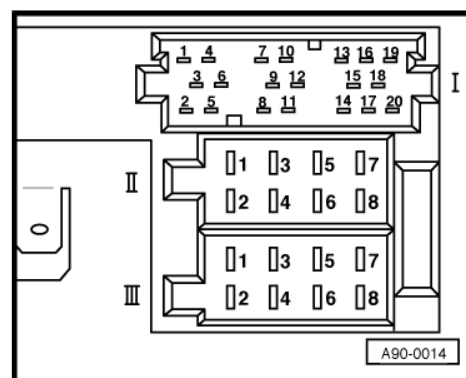
Brown 8-pin connector II

- 3 - Front right loudspeaker (+)
- 4 - Front right loudspeaker (-)
- 5 - Front left loudspeaker (+)
- 6 - Front left loudspeaker (-)



Black 8-pin connector III

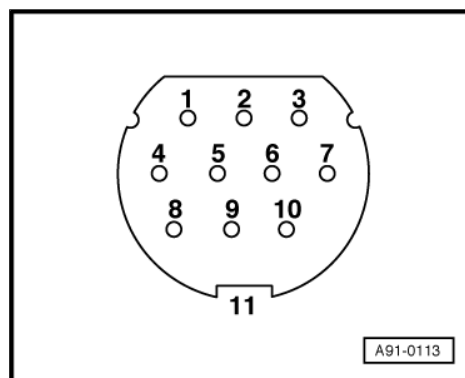
- 1 - GALA (vehicle speed signal)
- 2 - Telephone muting
- 3 - K-diagnosis
- 4 - Terminal 86s
- 5 - Permanent positive (anti-theft alarm) (up to MY 01)
- 6 - Terminal 58s
- 7 - Terminal 30
- 8 - Terminal 31



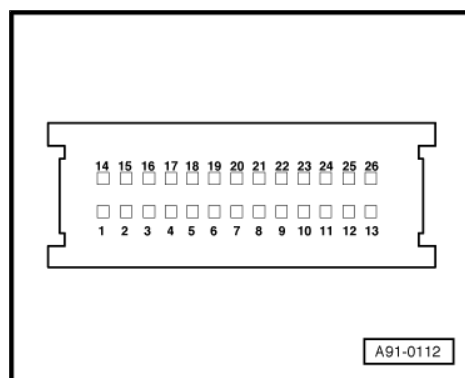
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11-pin connector (TV tuner)

- 1 - AF earth
- 2 - AF left
- 3 - AF right
- 4 - Video signal
- 5 - Video earth
- 6 - PAL /NTSC
- 7 - Monitor
- 8 - B in
- 9 - G in
- 10 - R in
- 11 - Screen earth

**26-pin connector**

- 1 - Anti-theft alarm earth
- 4 - Terminal 15
- 5 - Left speed sensor input (ABS)
- 13 - CAN bus High (BOSCH)
- 17 - Reversing light switch
- 26 - CAN bus Low (BOSCH)

**3.5 Connectors at TV tuner -J415-**

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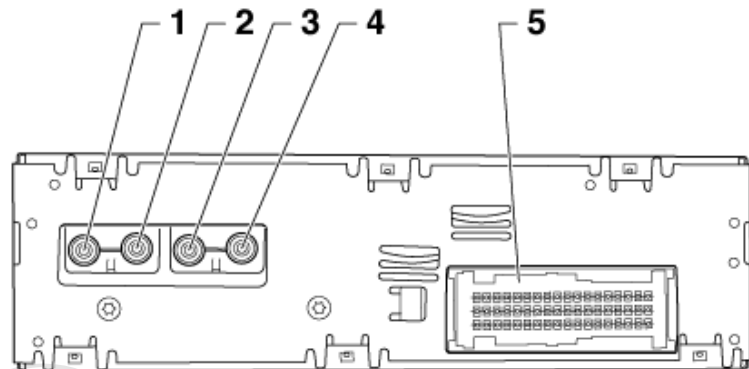
1 - TV aerial connection from
aerial selection control unit -
J515-

2 - TV aerial connection from
aerial selection control unit -
J515-

3 - TV aerial connection from
aerial selection control unit -
J515-

4 - TV aerial connection from
aerial selection control unit -
J515-

5 - 54-pin connector to operat-
ing electronics control unit,
navigation -J402- / navigation
interface -R94-



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3.5.1 Contact assignment of multi-pin connector

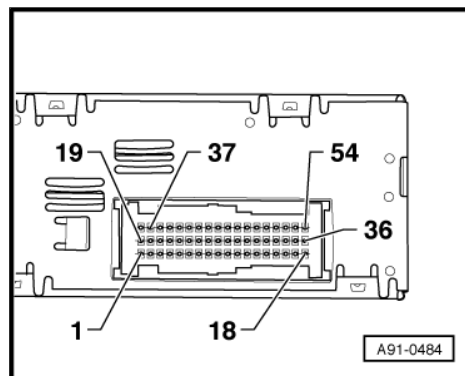


Note!

Contacts not listed are not used at present.

54-pin connector

- 2 - CAN bus Low (BOSCH)
- 3 - CAN bus High (BOSCH)
- 5 - AF right, front
- 7 - AF left, front
- 8 - AF earth
- 9 - Common screen earth, front
- 10 - Video screen, front
- 11 - Video signal, front
- 12 - Video earth
- 13 - Video B, front
- 14 - Video earth
- 15 - Video G, front
- 16 - Video earth
- 17 - Video R, front
- 19 - Terminal 31
- 20 - Terminal 30
- 21 - K-diagnosis



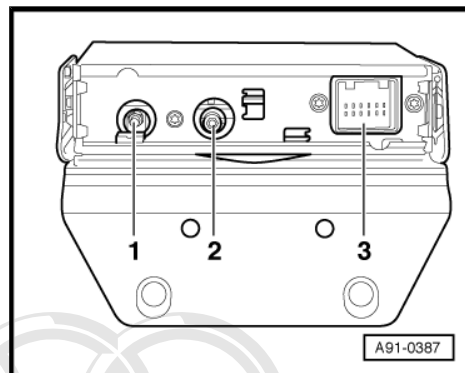
3.6 Connectors at navigation interface - R94-

- 1 - Connection (HF) to operating electronics control unit, navigation -J402-
- 2 - Connection (HF) from aerial selection control unit -J515-
- 3 - 12-pin connector for power supply/CAN bus



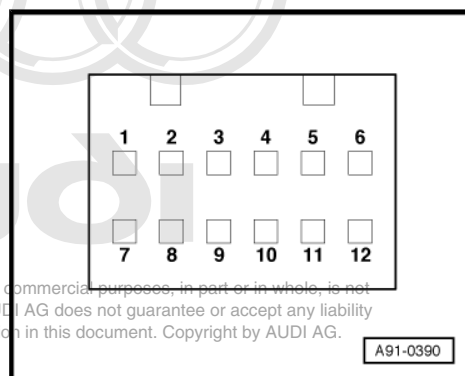
Note!

Contacts not listed are not used.



12-pin connector

- 2 - CAN bus Low (infotainment)
- 3 - CAN bus High (infotainment)
- 6 - Terminal 30
- 8 - CAN bus Low (Bosch)
- 9 - CAN bus High (Bosch)
- 12 - Terminal 31



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3.7 Connectors at aerial selection control unit -J515-

1 - Aerial connection FM1 from window aerial amplifier

2 - Aerial connection FM2 from window aerial amplifier

3 - Aerial connection FM3 from window aerial amplifier

4 - Aerial connection FM4/AM from window aerial amplifier

5 - Connection (HF) to navigation interface -R94-

6 - Power supply connector

□ Pin 1 = Terminal 30

□ Pin 2 = Terminal 31

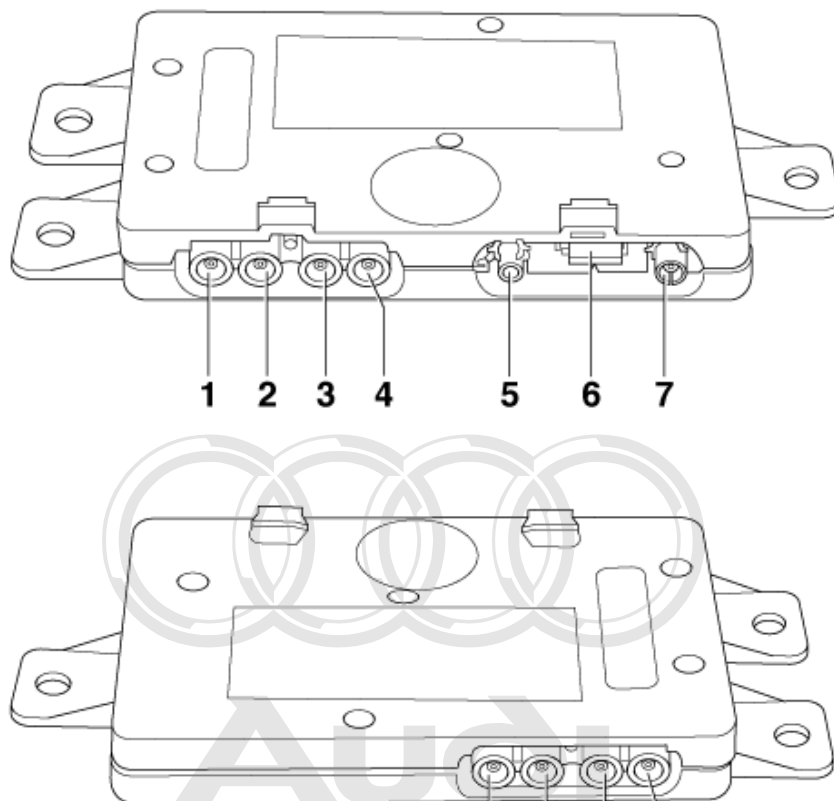
7 - Connection (IF) from operating electronics control unit, navigation -J402-

8 - Aerial connection FM4 to TV tuner -J415-

9 - Aerial connection FM3 to TV tuner -J415-

10 - Aerial connection FM2 to TV tuner -J415-

11 - Aerial connection FM1 to TV tuner -J415-



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3.8 Overall layout of navigation system II-D

1 - Navigation interface -R94-

- ☐ At bottom of right A-pillar
- ☐ Removing and installing ⇒ [page 57](#)

2 - Amplifier -R12-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing ⇒ [page 26](#)

3 - Aerial selection control unit -J515-

- ☐ At front right of luggage compartment (intermediate panel)
- ☐ Removing and installing ⇒ [page 27](#)

4 - CD changer -R41-

- ☐ At rear right of luggage compartment
- ☐ Removing and installing ⇒ [page 25](#)

5 - Aerial amplifier -4- -R113-

- ☐ At top right behind tailgate trim
- ☐ Removing and installing ⇒ [page 57](#)

6 - Aerial amplifier -3- -R112-

- ☐ At bottom right behind tailgate trim
- ☐ Removing and installing ⇒ [page 57](#)

7 - Aerial amplifier -R24-

- ☐ At top left behind tailgate trim
- ☐ Removing and installing ⇒ [page 57](#)

8 - Aerial amplifier -2- -R111-

- ☐ At bottom left behind tailgate trim
- ☐ Removing and installing ⇒ [page 57](#)

9 - Bass loudspeaker -R100-

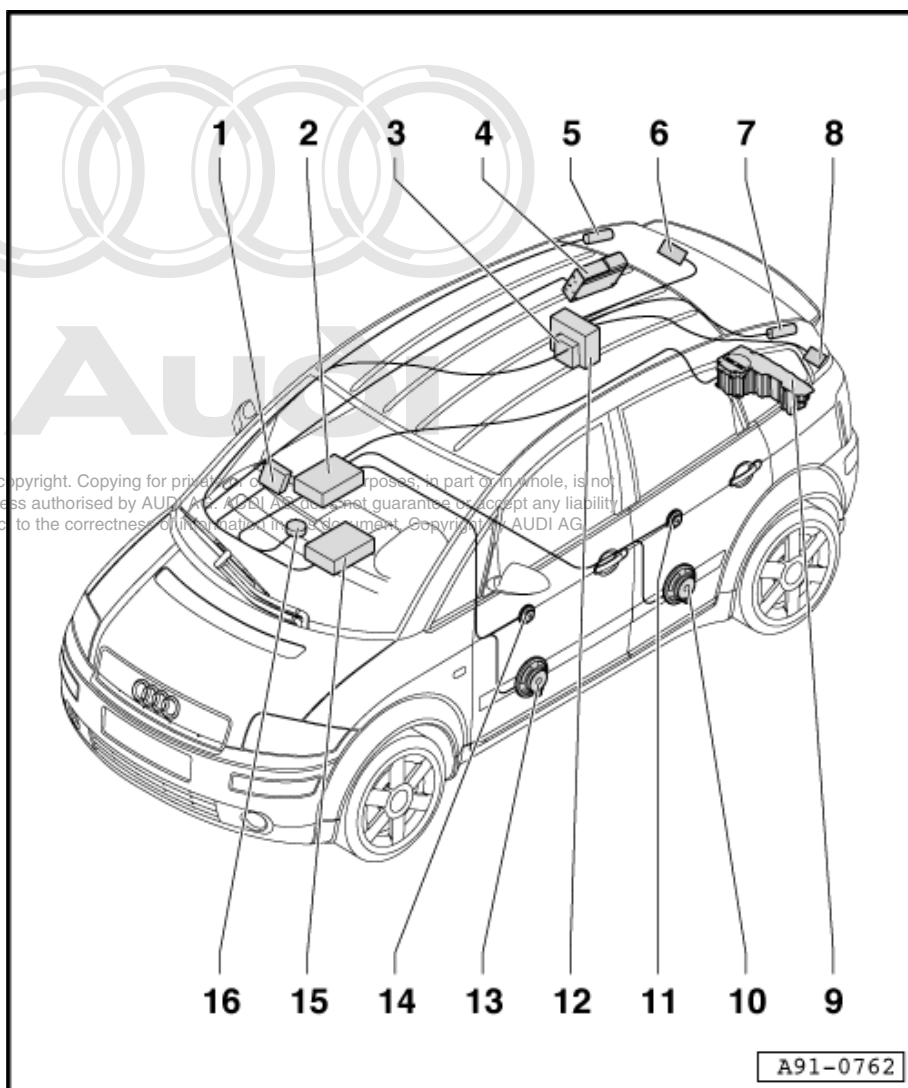
- ☐ On left of luggage compartment (intermediate panel)
- ☐ Removing and installing ⇒ [page 24](#)

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

- ☐ In bottom of rear door trim
- ☐ Removing and installing ⇒ [page 23](#)

11 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing ⇒ [page 24](#)



12 - TV tuner -J415-

- ☐ At front right of luggage compartment (intermediate panel)
- ☐ Removing and installing ⇒ [page 56](#)

13 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing ⇒ [page 22](#)

14 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing ⇒ [page 23](#)

15 - Operating electronics control unit, navigation -J402-

- ☐ In top of centre console
- ☐ Removing and installing ⇒ [page 55](#)

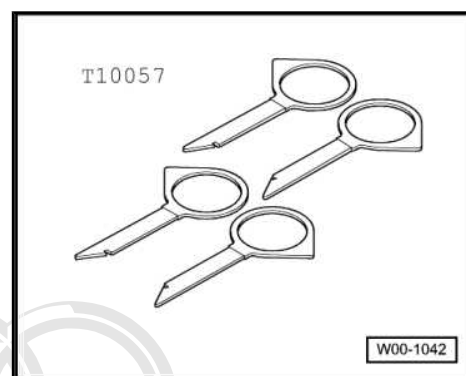
16 - Navigation aerial (GPS) -R50-

- ☐ Behind dash panel on right
- ☐ Removing and installing ⇒ [page 57](#)

3.9 Removing and installing operating electronics control unit, navigation -J402-

Special tools and workshop equipment required

- ◆ Radio release keys -T10057-

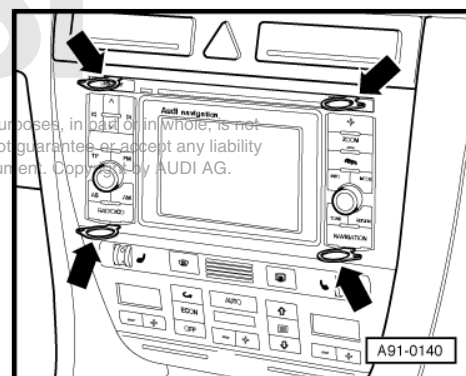


- Switch off all electrical equipment.
- Remove ignition key.

Removing:

Request anti-theft encoding from customer.

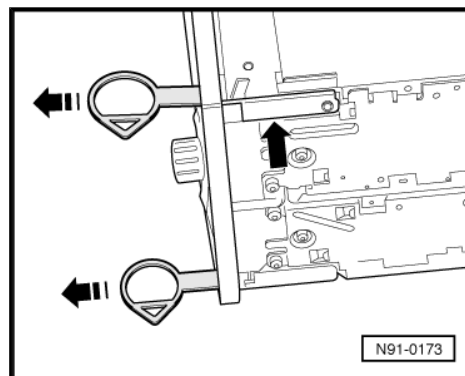
- Insert radio release keys -T10057- in release slots as shown -arrows- until they engage. Pointed ends of grips must face outwards.
- Grasp hold of grips on radio release keys -T10057- and pull operating electronics control unit, navigation out of dash panel.
- Release and unplug connectors.



- Press tab -arrow- and pull out release keys to front.

Installing:

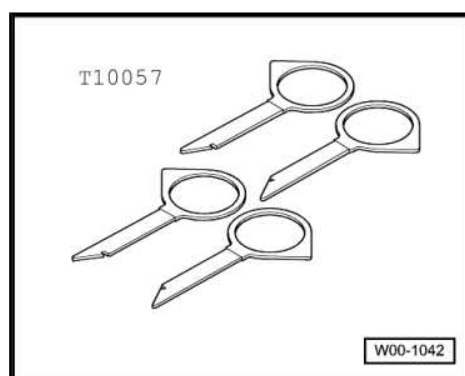
- Plug in all connectors.
- Hold control unit straight and slide it into dash panel until it engages in mounting frame.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .
- Activate anti-theft encoding.
- Check operation.



3.10 Removing and installing TV tuner -J415-

Special tools and workshop equipment required

- ◆ Radio release keys -T10057-



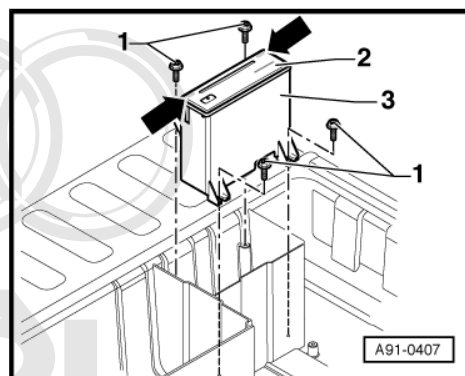
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove load compartment floor in luggage compartment ⇒ General body repairs, interior; Rep. Gr. 70 .
- Insert radio release keys -T10057- in slots -arrows- such that pointed ends of grips face outwards and release keys engage.
- Grasp hold of grips on release keys and pull control unit out of holder.
- Unplug connectors.

Detaching release keys:

- Press tab and pull out release keys to front.

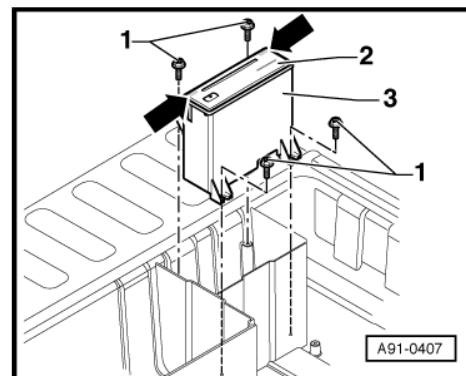


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Holder -3- for navigation control unit -2- is screwed on in intermediate panel by means of the four bolts -1- (6 Nm).

Installing:

- Plug in connector.
- Slide control unit into mounting frame until it engages.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01.
- Check operation.



3.11 Removing and installing TV aerial amplifiers

Removal and installation operations for TV aerial amplifiers correspond to those for radio aerial amplifier ⇒ [page 27](#).

3.12 Removing and installing navigation interface -R94-

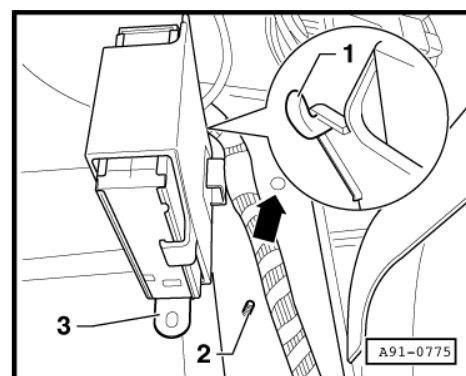
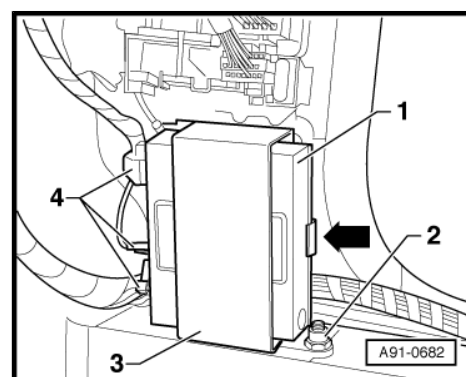
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove lower right A-pillar trim ⇒ General body repairs, interior; Rep. Gr. 70.
- Unplug connectors -4- at interface -1-.
- Unscrew nut -2- (5 Nm) and swivel interface -1- to left together with holder -3-.
- Pull interface -1- in direction of connector -4- out of holder -3-.

Installing:

- On installation, make sure lug -1- is properly engaged in hole -arrow-.
- Then position retainer -3- on stud -2-.
- Install accordingly in reverse order of removal.



3.13 Removing and installing navigation aerial (GPS) -R50-

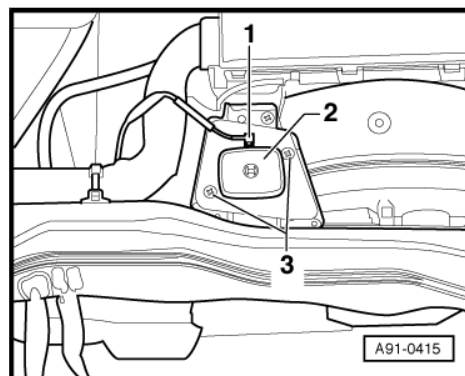
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove dash panel ⇒ General body repairs, interior; Rep. Gr. 70 .
- Unplug connector -1- at aerial -2-.
- Slacken off bolts -3- (7 Nm) and detach navigation aerial -2- together with retaining plate.
- Unfasten screw connection (3.5 Nm) at aerial -2- and detach aerial from retaining plate.

Installing:

- Install accordingly in reverse order of removal.



3.14 Checking operation of individual aerial amplifiers

Navigation system II-D provides a special interface for visual checking of aerial capacity. Starting up this interface also provides a check of general television system operation.

Test interface is released as follows:

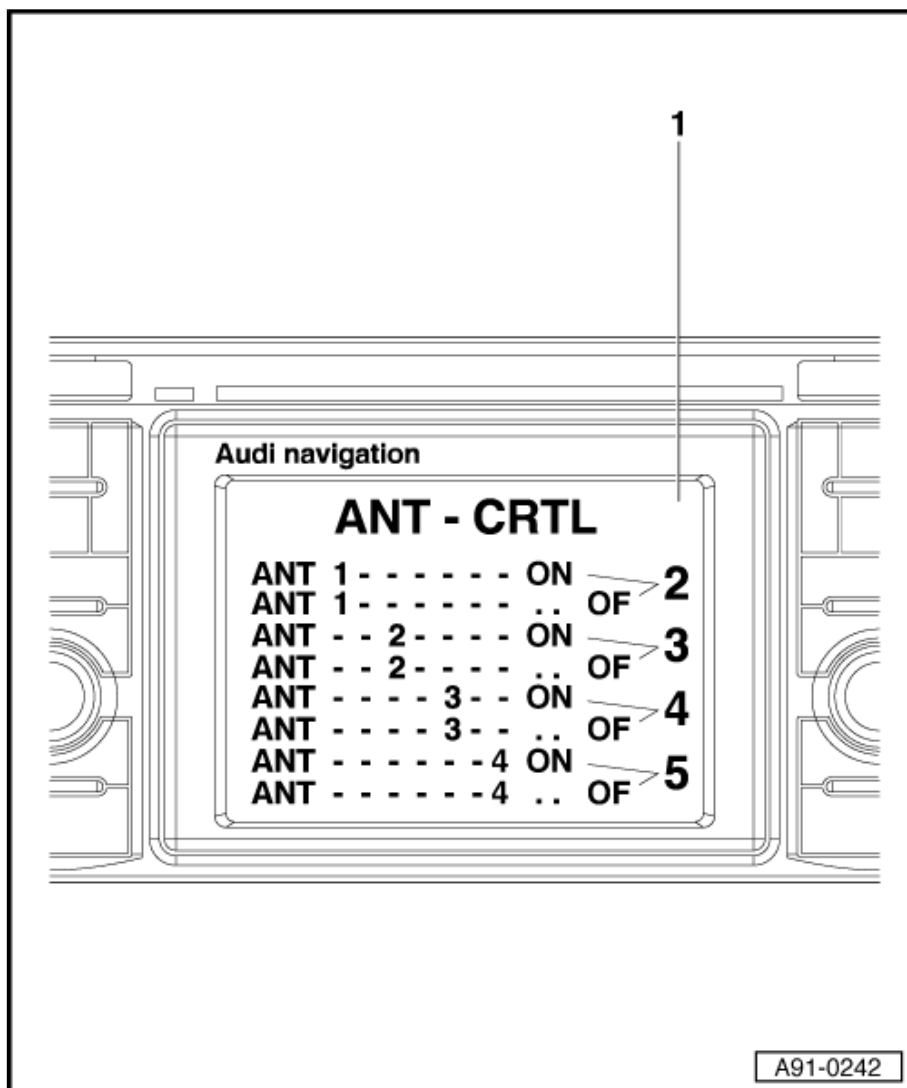
- Activate television operation and then set a television station with strong reception ⇒ Navigation system Plus operating instructions .
- Simultaneously press **AM** and **TONE** buttons.

Indicated on screen:



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- 1 - Aerial check interface
- 2 - Aerial TV/FM1 with ON and OFF function
- 3 - Aerial TV/FM2 with ON and OFF function
- 4 - Aerial TV/FM3 with ON and OFF function
- 5 - Aerial TV/FM4 and AM with ON and OFF function



Note!

Image received by currently selected aerial then appears on screen.

- Right rotary control can be used to activate or deactivate remote power supply for corresponding aerial amplifier. Image quality must deteriorate considerably with remote power supply deactivated.
- Press **RETURN** to exit from interface.

3.14.1 Test functions

- ◆ Activating/deactivating remote power supply for corresponding aerial amplifier (ON or OFF position) provides information on operation of each aerial amplifier.
- ◆ Whether a fault (no change in image) is due to an open circuit in the aerial cable or a defective aerial amplifier can only be determined by way of voltage measurement (10V) at coaxial cable (inner conductor) on amplifier end.

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- ◆ By starting up TV system, choosing a station and selecting videotext, the principal TV receiver functions are activated and the audio/video link established.



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4 Navigation system III

4.1 General information and description

4.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

**On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ page 83 .**

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Note!

- ◆ Establish radio anti-theft code before disconnecting battery.
- ◆ On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.

4.1.2 General description

All displays are provided by way of the dash panel insert connected to the CAN bus.

All inputs are made by way of the buttons on the function selection switch.

The system comprises:

- ◆ Function selection switch (operating unit)
- ◆ Dash panel insert (display unit)
- ◆ Navigation system with CD drive control unit (central unit and navigation unit)
- ◆ Navigation aerial (GPS)

For aerial wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Replacement of aerial wires .

For CAN bus wire repairs, refer to ⇒ Electrical system; Rep. Gr. 97 ; Wiring harness and connector repairs .

4.2 Block diagram of navigation system III

1 - Dash panel insert (display unit)

2 - Function selection switch - E272- (operating unit)

3 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

□ For vehicles with no radio system only

4 - Radio loudspeakers

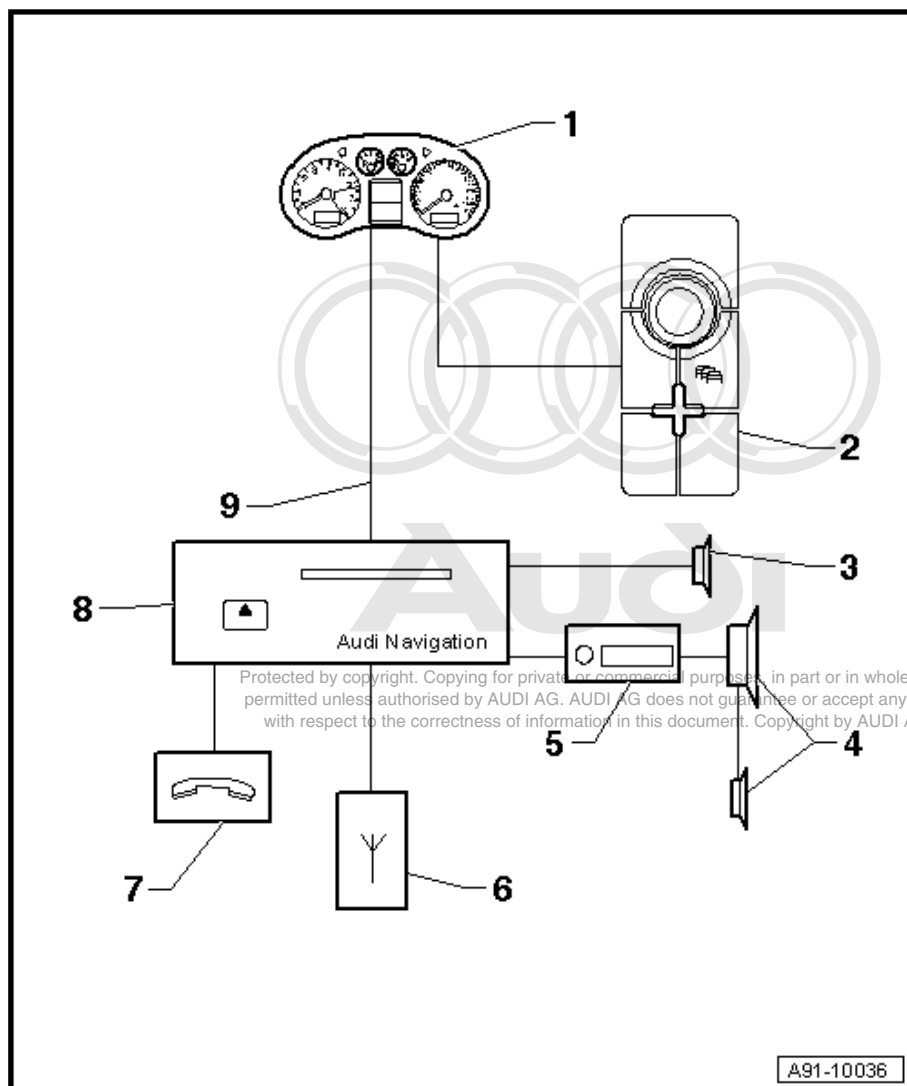
5 - Radio -R-

6 - Navigation aerial (GPS) - R50-

7 - Mobile telephone operating electronics control unit -J412-

8 - Navigation system with CD drive control unit -J401- (central unit and navigation unit)

9 - CAN bus (infotainment)



4.3 Connectors at navigation system with CD drive control unit -J401-

1 - Connection block with four multi-pin connectors and one fuse

2 - 20-pin connector I

- Yellow 6-pin connector

- Green 6-pin connector

- Blue 8-pin connector

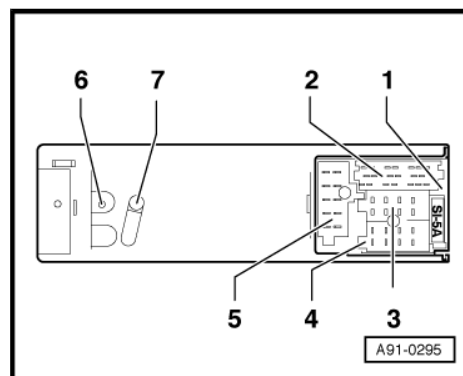
3 - Brown 8-pin connector II

4 - Black 8-pin connector III

5 - Red 10-pin connector IV

6 - Connection for navigation aerial (GPS) -R50-

7 - Securing clip for aerial connection



4.3.1 Contact assignment of multi-pin connectors



Note!

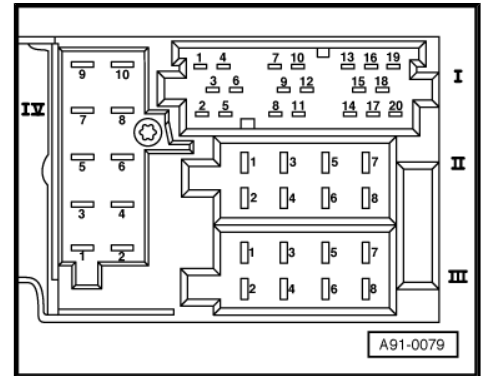
Contacts not listed are not used.

20-pin connector I

- 2 - CAN bus High (infotainment)
- 5 - CAN bus Low (infotainment)
- 13 - AF (+) (to radio)
- 14 - AF (-) mute (to radio)
- 15 - AF (-) (to radio)
- 16 - Telephone (AF +) (from telephone)
- 17 - AF (-) mute (telephone)
- 18 - Tel-AF screen
- 19 - Telephone (AF -) (from telephone)

Black 8-pin connector III

- 1 - GALA (vehicle speed signal)
- 2 - Reversing light switch
- 3 - K-diagnosis
- 4 - Terminal 15
- 7 - Terminal 30
- 8 - Terminal 31



4.4 Overall layout of navigation system III



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1 - Navigation aerial (GPS) - R50-

- ☐ Behind dash panel on right
- ☐ Removing and installing
⇒ [page 65](#)

2 - Display in dash panel insert

- ☐ In dash panel
- ☐ Removing and installing
⇒ Electrical system;
Rep. Gr. 90

3 - Function selection switch - E272-

- ☐ In bottom of centre console
- ☐ Removing and installing
⇒ [page 64](#)

4 - Navigation system with CD drive control unit -J401-

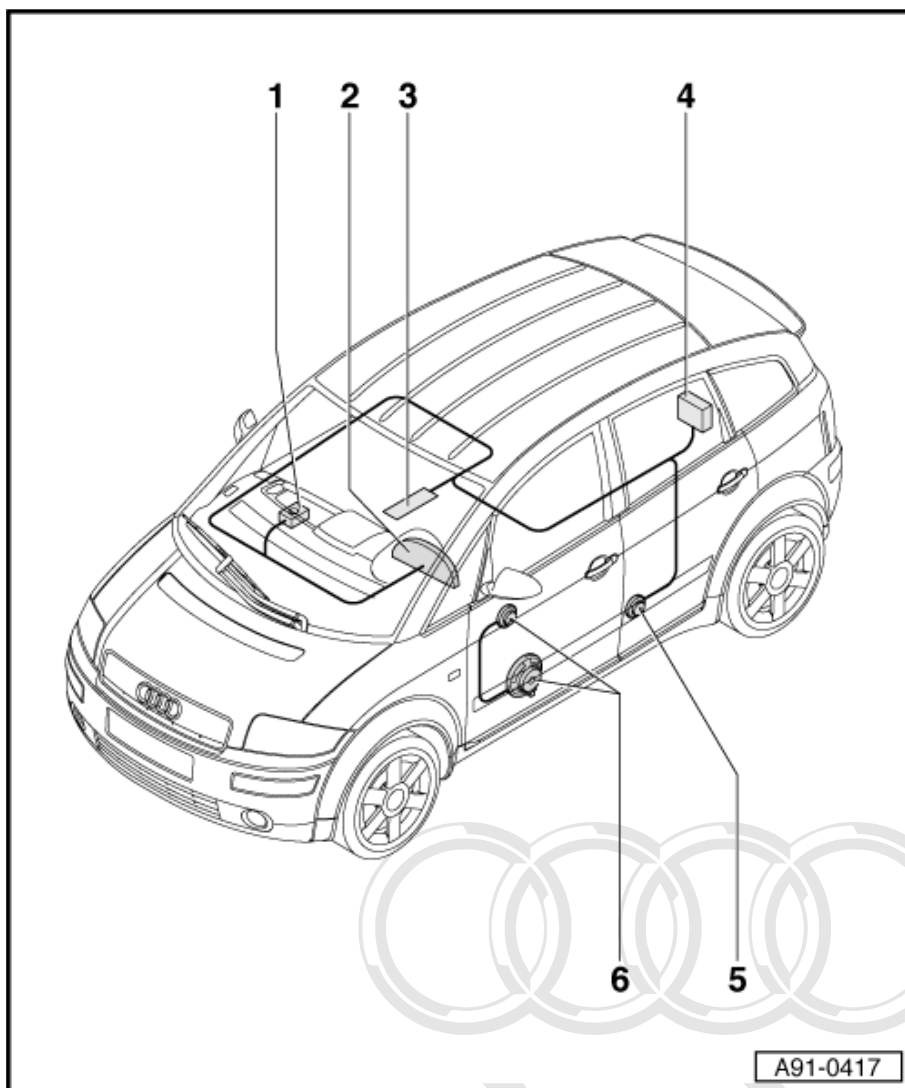
- ☐ At front right of luggage compartment (intermediate panel)
- ☐ Removing and installing
⇒ [page 65](#)

5 - Telephone/navigation systems loudspeaker -R39- (hands-free loudspeaker)

- ☐ For vehicles with no radio system only
- ☐ In driver's B-pillar
- ☐ Removing and installing
⇒ [page 40](#)

6 - Front left -R26- / front right -R27- treble/mid-range loudspeaker, front left -R21- / front right -R23- bass loudspeaker

- ☐ In front door trim
- ☐ Removing and installing ⇒ [page 22](#)



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4.5 Removing and installing function selection switch -E272-

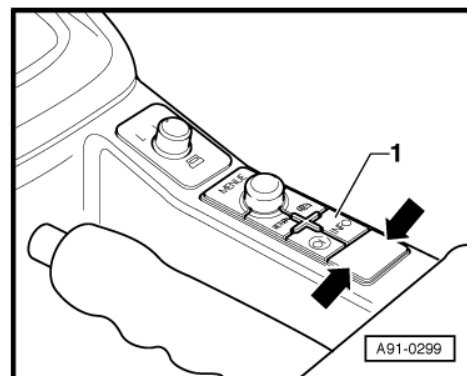
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Apply two screwdrivers to cover -arrows-, raise function selection switch -1- carefully and lift it out of compartment.
- Unplug connector.

Installing:

- Install accordingly in reverse order of removal.



4.6 Removing and installing navigation aerial (GPS) -R50-

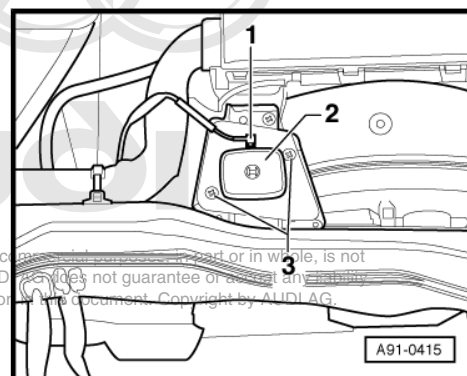
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove dash panel ⇒ General body repairs, interior; Rep. Gr. 70 .
- Unplug connector -1- at navigation aerial -2-.
- Slacken off bolts -3- (7 Nm) and detach navigation aerial -2- together with retaining plate.
- Unfasten screw connection (3.5 Nm) at navigation aerial -2- and detach aerial from retaining plate.

Installing:

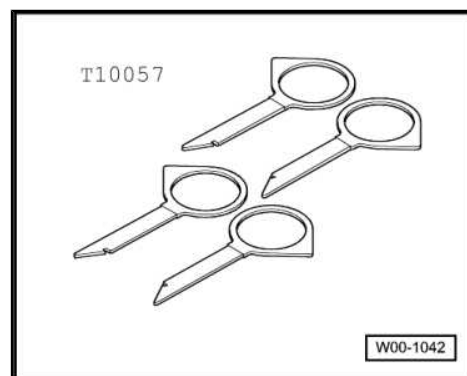
- Install accordingly in reverse order of removal.



4.7 Removing and installing navigation system with CD drive control unit -J401-

Special tools and workshop equipment required

- ◆ Radio release keys -T10057-



- Switch off all electrical equipment.
- Remove ignition key.

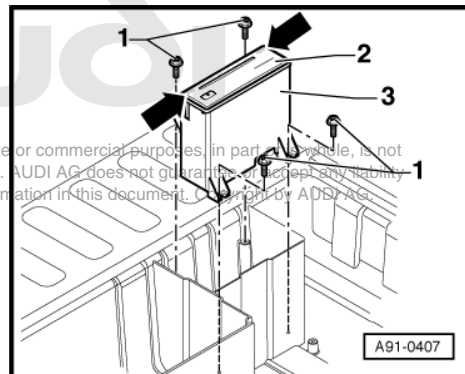
Removing:

- Remove load compartment floor in luggage compartment ⇒ General body repairs, interior; Rep. Gr. 70 .
- Take out navigation CD.
- Insert radio release keys -T10057- in slots -arrows- such that pointed ends of grips face outwards and release keys engage.
- Grasp hold of grips on release keys and pull control unit out of holder.
- Unplug connectors.

Detaching release keys:

- Press tab and pull out release keys to front.

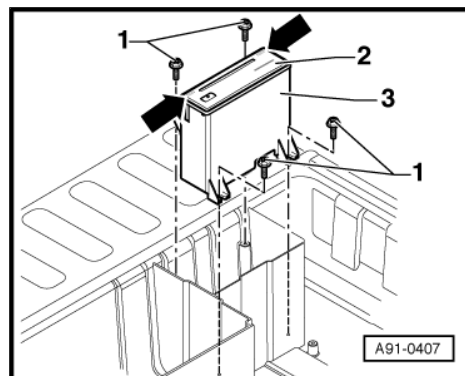
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Holder -3- for navigation control unit -2- is screwed on in intermediate panel by means of the four bolts -1- (6 Nm).

Installing:

- Plug in connector.
- Slide control unit into mounting frame until it engages.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .
- Insert navigation CD.
- Check operation.



5 Navigation system Nav IV (BNS 4.0)

5.1 General information and description

5.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

*On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ [page 83](#) .*



Note!

- ◆ *Establish radio anti-theft code before disconnecting battery.*
- ◆ *On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.*

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5.1.2 General description

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

Key innovations include link with CAN bus (infotainment) and dynamic navigation.

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

The design corresponds to that of navigation system III.

5.2 Design of navigation system BNS 4.0

The design corresponds to that of navigation system III
⇒ [page 61](#) .

5.3 Connectors and contact assignments

Correspond to navigation system III ⇒ [page 62](#) .

5.4 Overall layout of BNS 4.0

Overall layout corresponds to that of navigation system III
⇒ [page 63](#) .

6 Multi-function steering wheel

6.1 General information and description

6.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

*On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ [page 83](#).*



Note!

- ◆ *Establish radio anti-theft code before disconnecting battery.*
- ◆ *On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.*

6.1.2 General description

System features:

- ◆ Illuminated function buttons in steering wheel
- ◆ Steering wheel wiring
- ◆ Steering wheel electronics
- ◆ Vehicle control unit
- ◆ Vehicle wiring

Description of operation:

Buttons are integrated into the steering wheel to facilitate control of radio system, telephone and CD changer.

The electronics integrated into the steering wheel process the button signals and transmit the signals by way of a one-wire bus (LIN) to the multi-function steering wheel control unit -J453-.

The multi-function steering wheel control unit -J453- transfers these signals to the CAN bus (infotainment). The individual control units (radio, telephone, etc.) evaluate these signals and respond accordingly.

Centre display in dash panel insert indicates the station selected when radio is in use and the name and telephone number of the caller from the telephone memory when using telephone. If a cassette is inserted in radio mode, "TAPE <>" is displayed and, when using CD changer, the CD number "CD 02" and the current track "TR 09" appear on the centre display.

6.2 Overall layout of multi-function steering wheel

1 - CAN bus (infotainment)

2 - Mobile telephone operating electronics control unit -J412-

- ☐ Beneath front passenger's footwell (intermediate panel)

3 - Multi-function steering wheel control unit -J453-

- ☐ Behind dash panel insert at cross member
- ☐ Removing and installing
⇒ [page 75](#)

4 - Multi-function steering wheel

- ☐ Button assignment
⇒ [page 70](#)
- ☐ Removing and installing multi-function buttons
⇒ [page 74](#)
- ☐ Removing and installing Tiptronic buttons
⇒ [page 75](#)

5 - Telephone/telematics control unit -J526-

- ☐ Beneath front passenger's footwell (intermediate panel)

6 - Operating electronics control unit, navigation -J402-

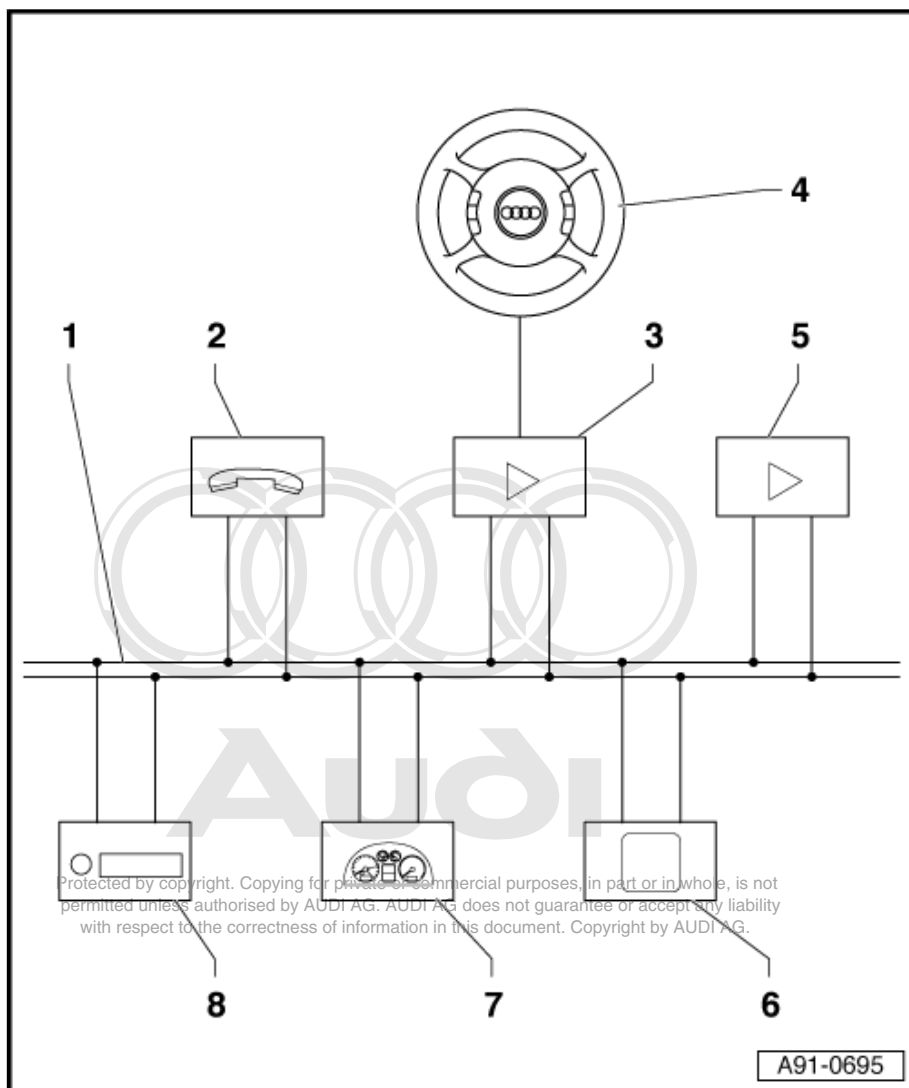
- ☐ In top of centre console

7 - Dash panel insert

- ☐ In dash panel

8 - Radio -R-

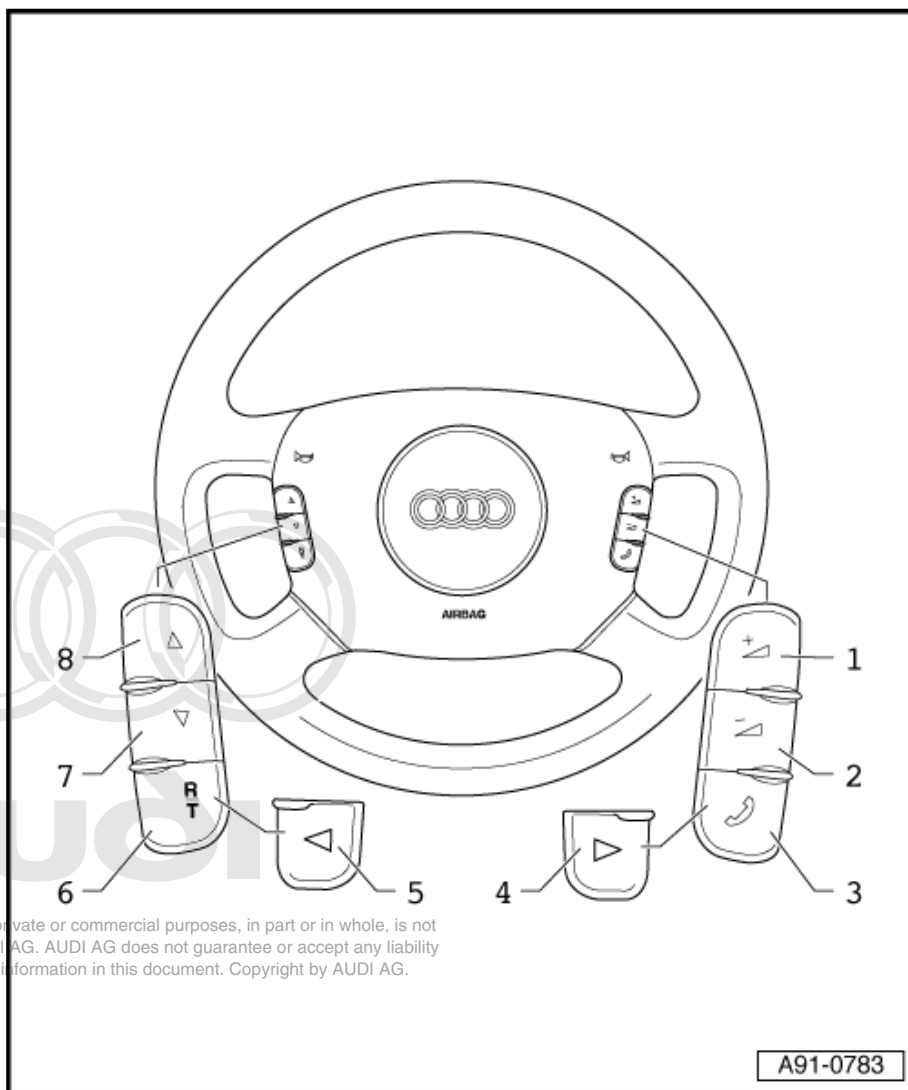
- ☐ In top of centre console



6.3 Assignment of buttons on multi-function steering wheels

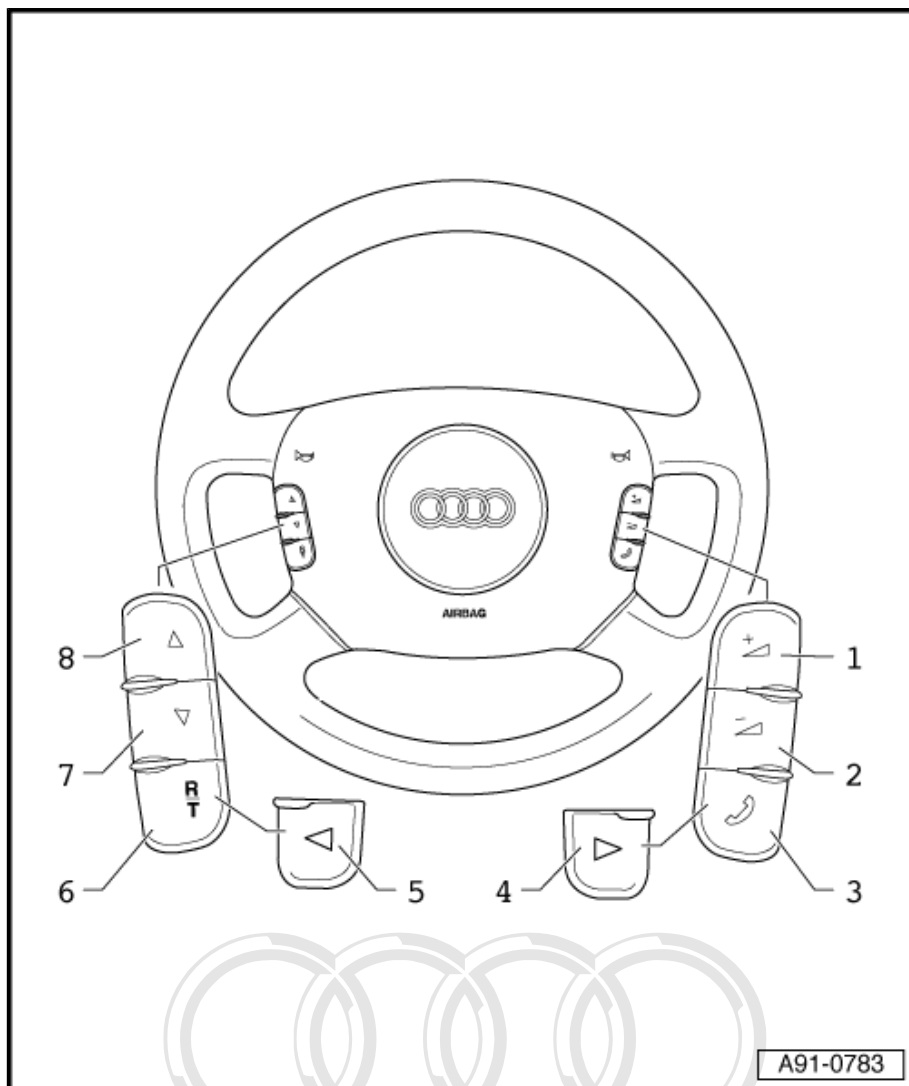
6.3.1 Radio button assignment

- 1 - Increase volume
- 2 - Reduce volume
- 3 - Telephone call
 - ☐ Make call
 - ☐ Answer call
 - ☐ End call
- 4 - Station button, up
- 5 - Station button, down
- 6 - Telephone/radio selection
- 7 - Search, down
- 8 - Search, up



6.3.2 Cassette button assignment

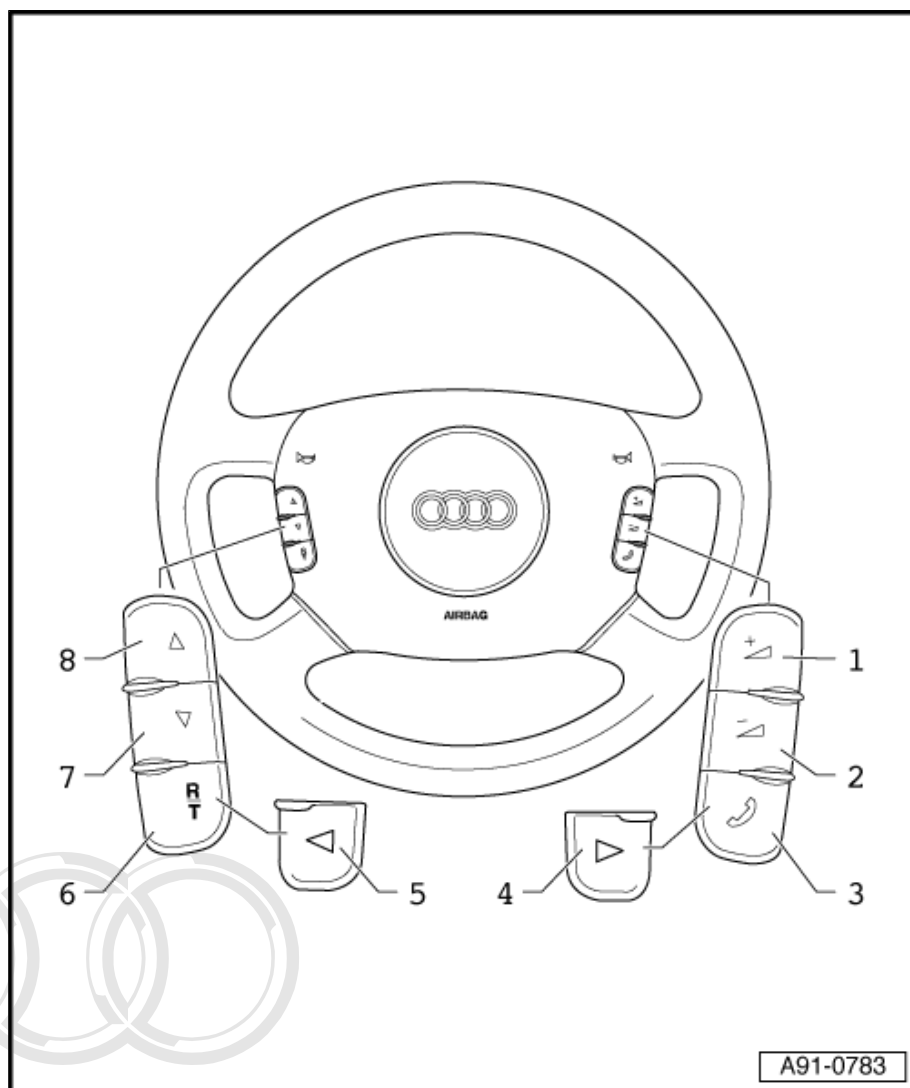
- 1 - Increase volume
- 2 - Reduce volume
- 3 - Telephone call
 - ☐ Make call
 - ☐ Answer call
 - ☐ End call
- 4 - Music search, forwards
- 5 - Music search, back
- 6 - Telephone/radio selection
- 7 - Fast rewind
- 8 - Fast forward



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6.3.3 CD button assignment

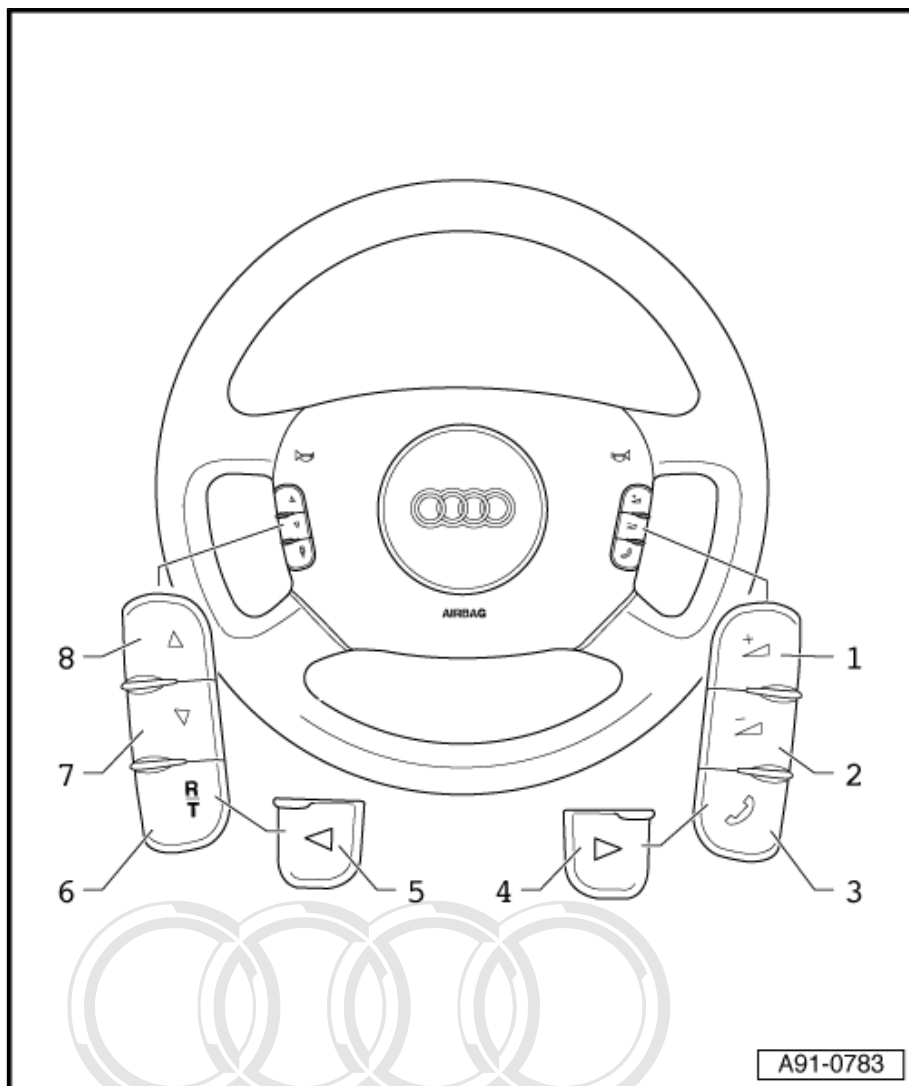
- 1 - Increase volume
- 2 - Reduce volume
- 3 - Telephone call
 - ☐ Make call
 - ☐ Answer call
 - ☐ End call
- 4 - Load next CD
- 5 - Load previous CD
- 6 - Telephone/radio selection
- 7 - Previous track
- 8 - Next track



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6.3.4 TV button assignment

- 1 - Increase volume
- 2 - Reduce volume
- 3 - Telephone call
 - ☐ Make call
 - ☐ Answer call
 - ☐ End call
- 4 - Station button, up
- 5 - Station button, down
- 6 - Telephone/radio selection
- 7 - Search, down
- 8 - Search, up

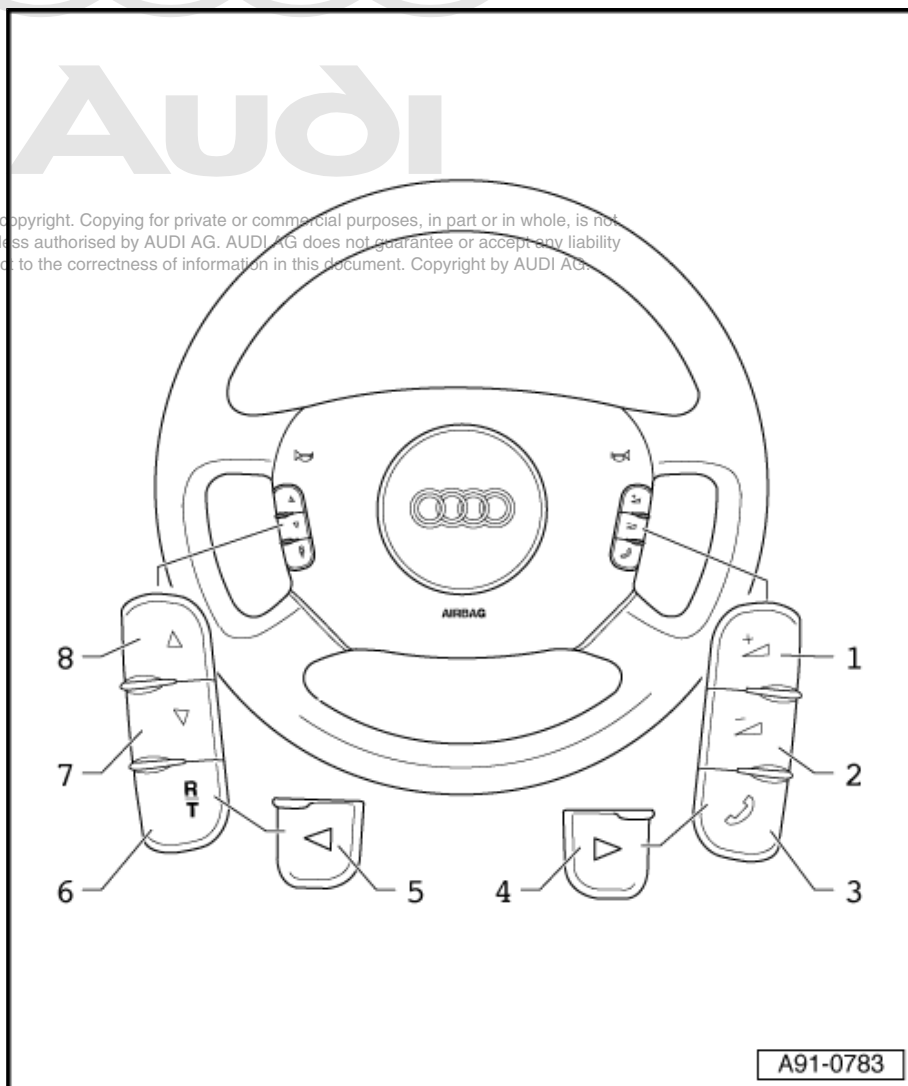


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6.3.5 Telephone button assignment

- 1 - Increase hands-free volume
- 2 - Reduce hands-free volume
- 3 - Make call, answer call, end call
- 4 - Not used
- 5 - Not used
- 6 - Telephone/radio selection
- 7 - Scroll back in card memory (alphabetical)
- 8 - Scroll forwards in card memory (alphabetical)

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A91-0783

6.4 Removing and installing multi-function buttons

- Switch off all electrical equipment.
- Remove ignition key.

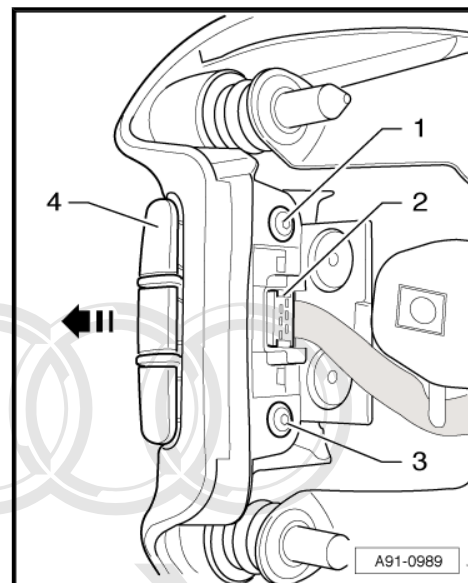
Removing:

- On vehicles fitted with telematics system, activate telematics control unit service mode ⇒ [page 83](#).
- Disconnect battery earth cable.
- Heed safety regulations for airbag systems ⇒ General body repairs, interior; Rep. Gr. 68.
- Remove driver's airbag ⇒ General body repairs, interior; Rep. Gr. 68.

- Unplug connector -2-.
- Screw out bolts -1- and -3- (1 Nm).
- Pull switch unit -4- out of airbag unit in direction of arrow.

Installing:

- Install accordingly in reverse order of removal.
- Make sure that all connectors are engaged and that wires are positioned in guides provided.



6.5 Removing and installing Tiptronic buttons

- Switch off all electrical equipment.
- Remove ignition key.

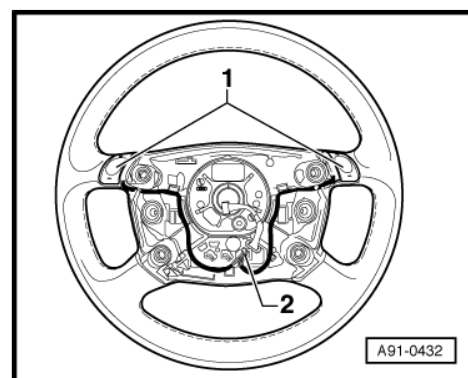
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Removing:

- On vehicles fitted with telematics system, activate telematics control unit service mode ⇒ [page 83](#).
- Disconnect battery earth cable.
- Heed safety regulations for airbag systems ⇒ General body repairs, interior; Rep. Gr. 68.
- Remove driver's airbag ⇒ General body repairs, interior; Rep. Gr. 68.
- Unplug connector -2-.
- Twist out buttons -1- inwards (towards centre of steering wheel).

Installing:

- Install accordingly in reverse order of removal.
- Make sure that all connectors are engaged and that wires are positioned in guides provided.



6.6 Removing and installing multi-function steering wheel control unit -J453-

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

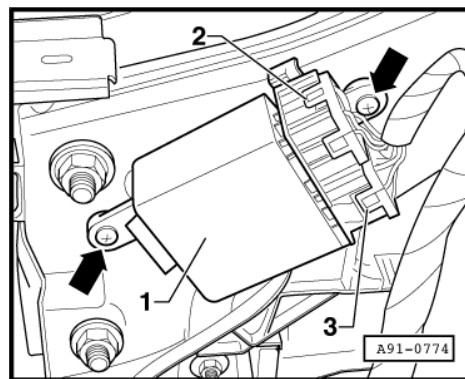
- Remove driver's storage compartment ⇒ General body repairs, interior; Rep. Gr. 70.

Unplug both connectors -2- and -3- from control unit -1-.

- Screw out the two bolts -arrows- (3 Nm) and detach control unit -1-.

Installing:

- Install accordingly in reverse order of removal.
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .



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7 Telematics system

7.1 General information and description

7.1.1 General



Caution

Disconnect battery earth strap before working on electrical system.

***On vehicles fitted with telematics system, activate telematics control unit service mode before disconnecting battery
⇒ page 83.***



Note!

- ◆ ***Establish radio anti-theft code before disconnecting battery.***
- ◆ ***On reconnecting battery, remember to activate vehicle equipment (radio, clock, electric window lifters, etc.) in accordance with Owner's Manual and to deactivate service mode of telematics control unit.***
- ◆ ***If SIM card is defective, request a new one by fax:***
- ◆ ***Hotline no.: 0800/2 83 47 27***
- ◆ ***Fax no.: 0800/9 63 96 39***

7.1.2 General description

The telematics system combines traffic information, service call and emergency call.

The telematics control unit also always includes a mobile phone.

If necessary, an emergency call or breakdown call can be made via a telematics service centre. With Telematics II, it is also possible to call up current traffic information.

The telematics control unit determines the exact position of the vehicle using GPS data and this is also transmitted to the telematics service centre.

An emergency call is made automatically if the airbag control unit triggers a crash signal.

7.2 Block diagram of telematics system

1 - Telephone handset -R37-

- ☐ At bottom right of centre console

2 - Telephone microphone - R38- (hands-free microphone)

- ☐ In front interior light

3 - Radio -R-

- ☐ In top of centre console

4 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim

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

- ☐ In bottom of front door trim

6 - Additional loudspeaker for telematics -R91- (emergency loudspeaker)

- ☐ In driver's storage compartment

7 - Dash panel insert

- ☐ In dash panel

8 - Function selection switch - E272-

- ☐ In bottom of centre console

9 - Telephone/telematics control unit -J526-

- ☐ Beneath front passenger's footwell (intermediate panel)

10 - Operating electronics control unit, navigation -J402-

- ☐ In top of centre console

11 - Aerial filter -R87- (GPS aerial)

- ☐ Beneath front passenger's footwell (intermediate panel)

12 - Navigation aerial (GPS) -R50-

- ☐ Behind dash panel on right

13 - Telephone aerial -R65-

- ☐ On roof

14 - Additional aerial for telematics -R90- (emergency aerial)

- ☐ In rear bumper

15 - Connector for fax/laptop

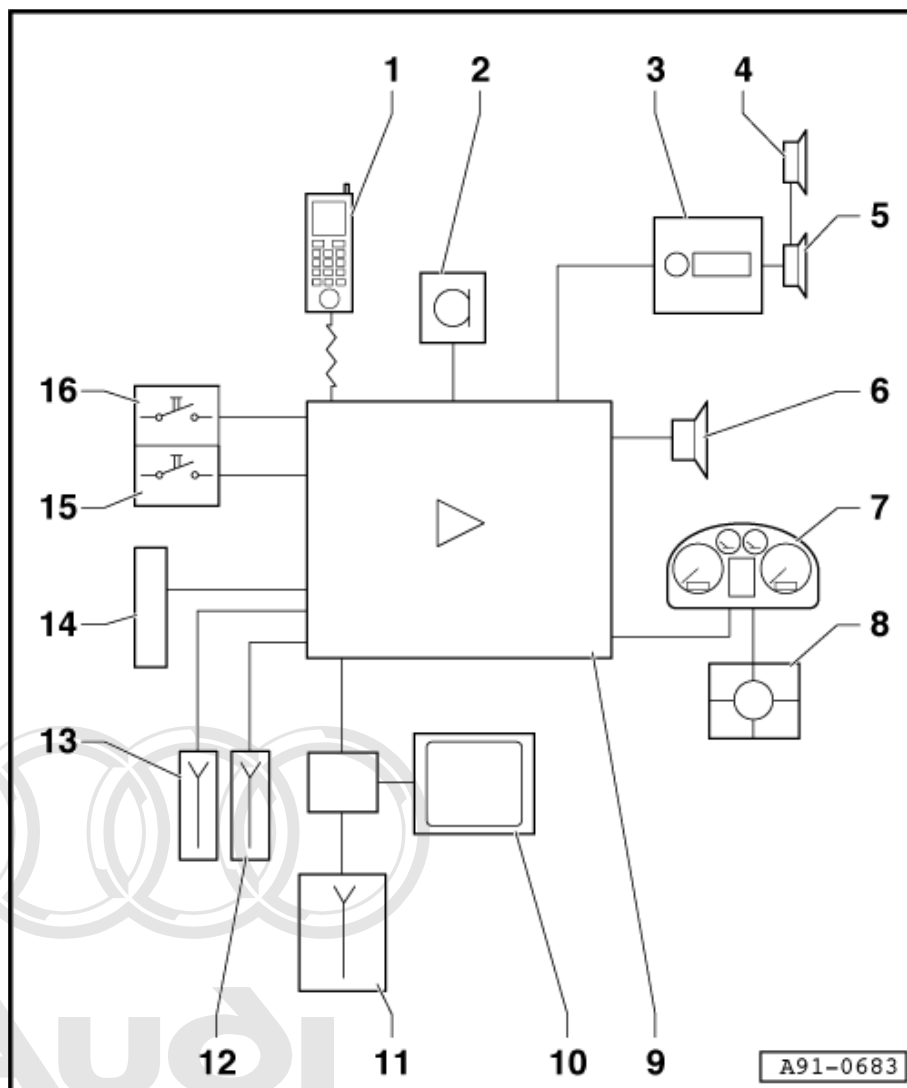
- ☐ In bottom of centre console

16 - Emergency call button -E276-

- ☐ In front interior light

17 - Breakdown help button -E275-

- ☐ In front interior light



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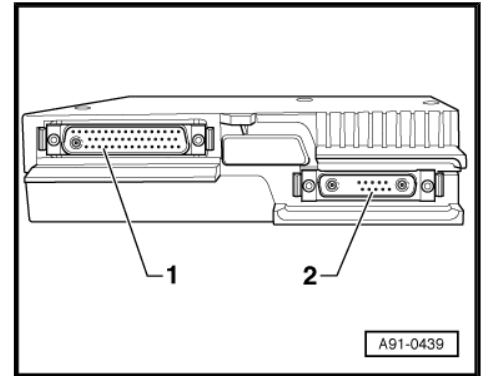
7.3 Connectors at telephone/telematics control unit -J526-

1 - 46-pin connector for:

- GPS aerial
- Handset
- Breakdown help and emergency call buttons
- Emergency loudspeaker

2 - 10-pin connector for:

- Power supply
- Telephone and emergency aerals



7.3.1 Contact assignments of multi-pin connectors



Note!

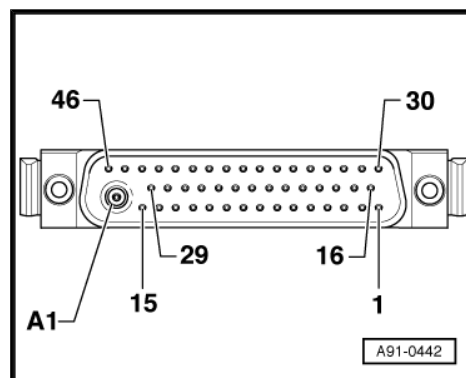
Contacts not listed are not used.



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46-pin connector

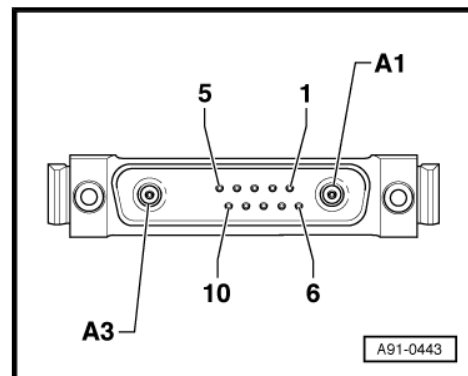
- 3 - Handset (-)
- 4 - Handset (+)
- 5 - Handset FCH (+)
- 6 - Handset FCH (-)
- 10 - Breakdown help button -E275-
- 11 - Emergency call button -E276-
- 12 - Screen earth
- 13 - Fax socket (CTS)
- 14 - Fax socket (TXD)
- 16 - Emergency loudspeaker (-)
- 17 - Emergency loudspeaker (+)
- 18 - Handset microphone (+)
- 19 - Handset earth
- 20 - Handset FHC (-)
- 21 - Breakdown help button -E275-
- 22 - Vehicle speed signal
- 23 - Reverse gear signal
- 27 - Fax socket (RTS)
- 28 - Fax socket (RXD)
- 29 - Fax socket (earth)
- 30 - Hands-free microphone
- 31 - Hands-free microphone
- 32 - Handset microphone (-)
- 33 - Handset power supply (12 V)
- 34 - Handset FHC (+)
- 35 - Handset screen
- 36 - Crash signal
- 37 - Emergency call button -E276-
- 38 - CAN bus High (infotainment)
- 39 - CAN bus Low (infotainment)
- 41 - K-diagnosis
- 42 - Fax socket (DTR)
- 43 - Fax socket (DCD)
- A1 - Aerial filter (GPS aerial)



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10-pin connector

- 1 - Terminal 30
- 2 - Telephone/telematics muting
- 3 - Terminal 15
- 8 - Terminal 31
- 5 - Terminal 31
- 6 - Terminal 30
- 7 - Terminal 30
- 6 - Terminal 58s (up to MY 01)
- 10 - Terminal 31
- A1 - Telephone aerial
- A3 - Emergency aerial



7.4 Overall layout of telematics system

1 - Aerial filter -R87- (GPS aerial)

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing
⇒ [page 88](#)

2 - Telephone/telematics control unit -J526-

- ☐ Beneath front passenger's footwell (intermediate panel)
- ☐ Removing and installing
⇒ [page 82](#)

3 - Front interior light with emergency call button -E276-, breakdown help button -E275-, telephone microphone -R38-

- ☐ In front of roof
- ☐ Removing and installing
⇒ [page 85](#)

4 - Function selection switch -E272-

- ☐ In bottom of centre console
- ☐ Removing and installing
⇒ [page 64](#)

5 - Telephone handset -R37-

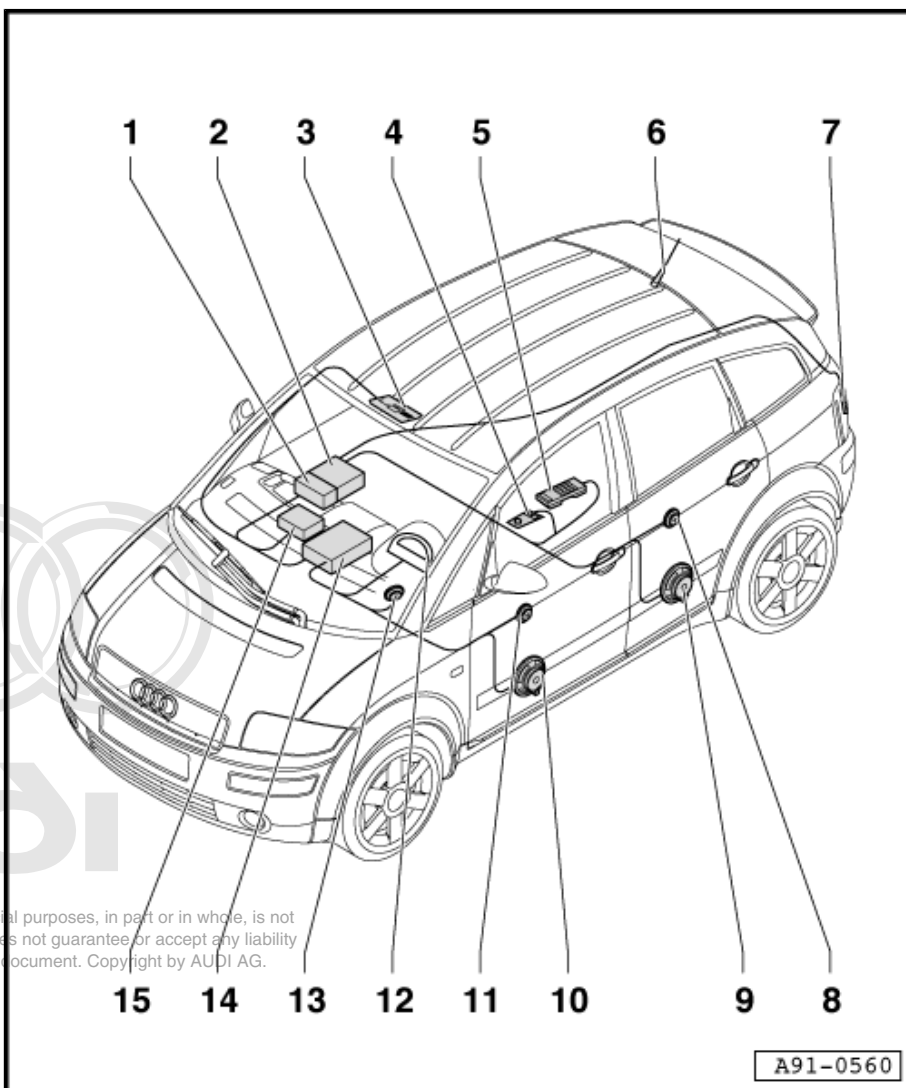
- ☐ At bottom right of centre console

6 - Telephone aerial -R65-

- ☐ Roof aerial
- ☐ Removing and installing ⇒ [page 41](#)

7 - Additional aerial for telematics -R90- (emergency aerial)

- ☐ In rear bumper



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- ☐ Removing and installing ⇒ [page 87](#)

8 - Rear left -R34- / rear right -R35- mid-range/treble loudspeaker

- ☐ In top of rear door trim
- ☐ Removing and installing ⇒ [page 24](#)

9 - Rear left -R15- / rear right -R17- bass loudspeaker

- ☐ In bottom of rear door trim
- ☐ Removing and installing ⇒ [page 23](#)

10 - Front left -R21- / front right -R23- bass loudspeaker

- ☐ In bottom of front door trim
- ☐ Removing and installing ⇒ [page 22](#)

11 - Front left -R26- / front right -R27- mid-range/treble loudspeaker

- ☐ In top of front door trim
- ☐ Removing and installing ⇒ [page 23](#)

12 - Display in dash panel insert

- ☐ In dash panel
- ☐ Removing and installing ⇒ Electrical system; Rep. Gr. 90

13 - Additional loudspeaker for telematics -R91- (emergency loudspeaker)

- ☐ In driver's storage compartment
- ☐ Removing and installing ⇒ [page 87](#)

14 - Operating electronics control unit, navigation -J402-

- ☐ In top of centre console
- ☐ Removing and installing ⇒ [page 55](#)

15 - Navigation aerial (GPS) -R50-

- ☐ Behind dash panel on right
- ☐ Removing and installing ⇒ [page 57](#)

7.5 Removing and installing telephone/telematics control unit -J526- (telematics system operation)

If control unit is defective (unit replacement), a new emergency battery must be installed together with new unit.

This is not necessary if only the SIM card is replaced.

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

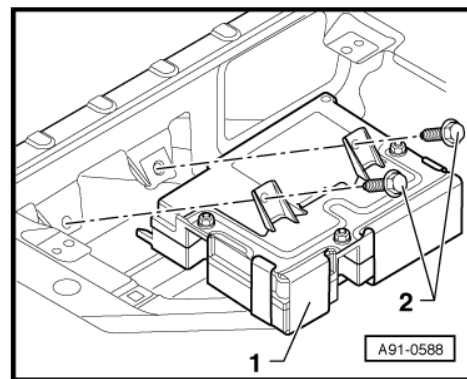
- Activate control unit service mode ⇒ [page 83](#) .
- Remove floor covering on front passenger's side ⇒ General body repairs, interior; Rep. Gr. 70 .
- Detach cover over intermediate panel.

- Screw out both bolts -2- (7 Nm).
- Unplug connectors and take out control unit with holder -1-.
- Take out telematics SIM card ⇒ [page 84](#) .

Leave telematics SIM card in control unit in vehicle.

Installing:

- Install accordingly in reverse order of removal.
- Fit new emergency battery (unit replacement only).
- Deactivate control unit service mode ⇒ [page 83](#) .



7.5.1 Notes on control unit replacement

- Take out telematics SIM card ⇒ [page 84](#) .
- Complete and submit fax form “Release of Audi telematics (Fax 1.1)” (enter new unit data and mark unit replacement).

Leave telematics SIM card in control unit in vehicle.

Emergency battery must be ordered separately.

- Insert telematics SIM card.
- Install control unit ⇒ [page 82](#) .
- Control unit encoding and adaption ⇒ Radio, telephone and navigation system, self-diagnosis; Rep. Gr. 01 .
- Deactivate control unit service mode ⇒ [page 83](#) .
- Perform initialisation ⇒ [page 84](#) .

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7.6 Activating/deactivating service mode



Caution

Telephone/telematics control unit must be set to service mode before disconnecting battery.

Otherwise, emergency battery in telephone/telematics control unit will be drained.

Requirement:

- Telematics system activated

7.6.1 Activating service mode

- Press following sequence of buttons on handset “#4616#”.
- Confirm entry on handset by pressing **Nav.i** key.

Indicated on display:

Service mode
exit

Service mode is active, battery can be disconnected

7.6.2 Deactivating service mode

Requirement:

- Battery connected
- Telematics system activated

Indicated on display:

Service mode
exit

- Press **[Navi]** key on handset.

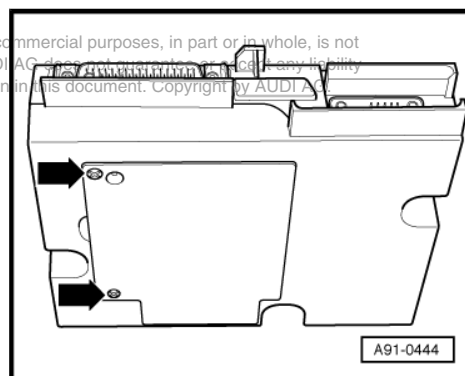
Service mode is no longer active

7.7 Telematics SIM card replacement

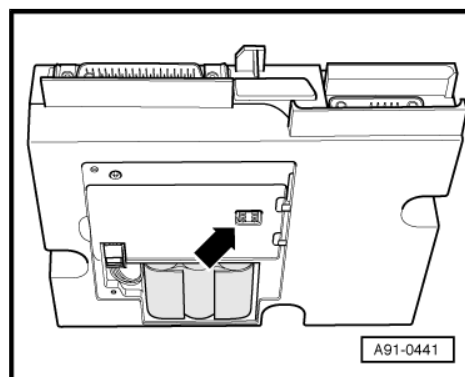
Proceed as follows if telematics SIM cards are defective:

- Remove telephone/telematics control unit -J256- with holder
⇒ [page 82](#) .
- Slacken off both bolts -arrows- on underside of telematics control unit and detach cover.

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- Take SIM card -arrow- out of telematics control unit.
- Complete and submit fax form “Release of Audi telematics (Fax)” 1.1.
- Insert new, released SIM card received in telematics control unit.
- Destroy old SIM card.
- Initialise telephone/telematics control unit -J526-
⇒ [page 84](#) .



7.8 Initialising telephone/telematics control unit -J526-

Initialisation must be performed:

- ◆ On initial commissioning before delivery to customer
- ◆ Following change of vehicle owner
- ◆ After SIM card replacement
- ◆ Following control unit replacement

During initialisation, data is exchanged between the telematics control unit and the service centre.

Initialisation can only be performed following receipt of the reply to the release fax and release of the SIM card.

Requirements

- Adequate reception of D2 mobile radio telephone network
- Reception of at least 4 GPS satellites
- Second mobile radio telephone card not fitted in handset

Initialisation procedure

- Switch on telephone.

“Service mode” appears in display.

- Keep pressing **[Navi]** key until “Security code” appears in display.
- Enter security code (always “12345”) via keypad and confirm entry by pressing **[Navi]** key.

Security code should be stored.

- Then enter number of telematics centre: “49 172 227 022 0” and confirm entry with **[Navi]** key.
- Enter number of telematics provider: “2002” and confirm entry with **[Navi]** key.

Unit initialisation now commences (approx. 3 to 6 minutes).

“New vehicle data received” then appears in display.

- Confirm display by pressing **[Navi]** key.

“Telematics data received” appears in display.

- Confirm display by pressing **[Navi]** key.

The vehicle data transmitted can then be compared with the entries on the release fax.

- Press arrow keys to scroll through this menu. Press **[C]** key to return to first menu level.

This completes initialisation procedure.

Dynamic navigation must be activated in the case of vehicles with navigation systems RNS 4.1 and BNS 4.0:

- Press traffic jam key.
- Under menu item “Alternative route always automatic”

“ON” option

must be pressed.

- Under menu item “Traffic info source”

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“Telephone” option

must be pressed.

- Under menu item “Traffic info enquiry rate”

“Always cyclical” option

must be pressed.

The units are now ready for operation.

7.9 Removing and installing emergency call button -E276- and breakdown help button -E275-

- Switch off all electrical equipment.
- Remove ignition key.

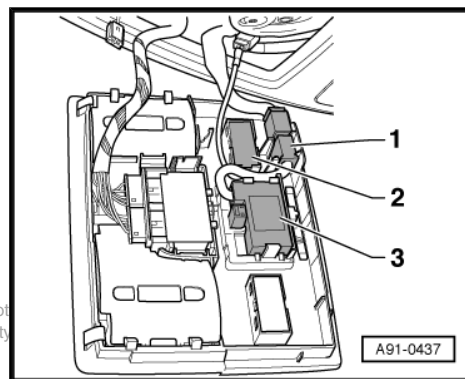
Removing:

- Remove front interior light ⇒ Electrical system; Rep. Gr. 96 .

- Use flat screwdriver to carefully unclip buttons -3- and unplug connector -1-.

Installing:

- Install accordingly in reverse order of removal.



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7.10 Removing and installing hands-free microphone

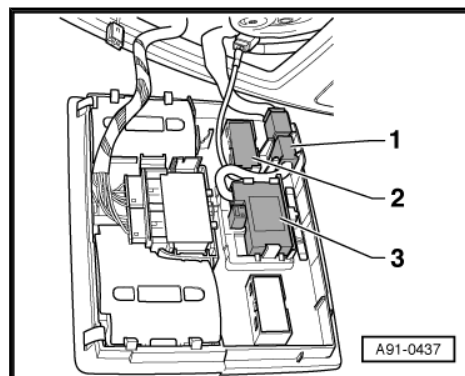
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove front interior light ⇒ Electrical system; Rep. Gr. 96 .
- Use flat screwdriver to carefully unclip hands-free microphone -2- and unplug connector.

Installing:

- Install accordingly in reverse order of removal.

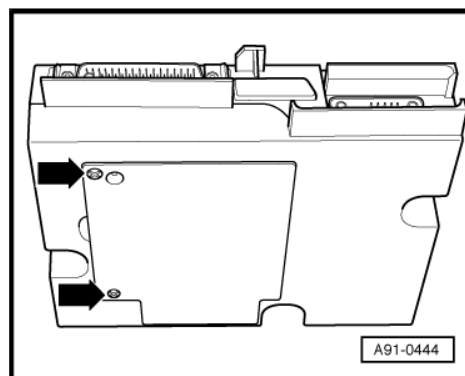


7.11 Removing and installing emergency battery for telematics

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

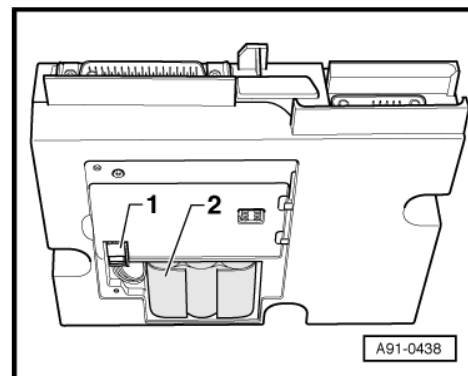
- Remove telephone/telematics control unit -J256- with holder ⇒ [page 82](#) .
- Slacken off both bolts -arrows- on underside of telematics control unit and detach cover.



- Pull connector -1- apart and pull out emergency battery -2-.

Installing:

- Install accordingly in reverse order of removal.



7.12 Removing and installing additional aerial for telematics -R90- (emergency aerial)

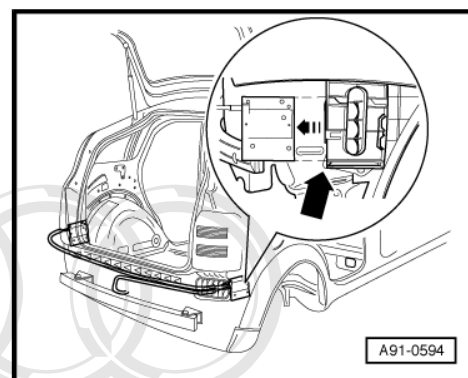
- Switch off all electrical equipment.
- Remove ignition key.

Removing:

- Remove rear bumper cover ⇒ General body repairs, exterior; Rep. Gr. 63 .
- Slide emergency aerial -arrow- out of holder in direction of arrow and take out emergency aerial.

Installing:

- Install accordingly in reverse order of removal.



7.13 Removing and installing additional loudspeaker for telematics -R91- (emergency loudspeaker)

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

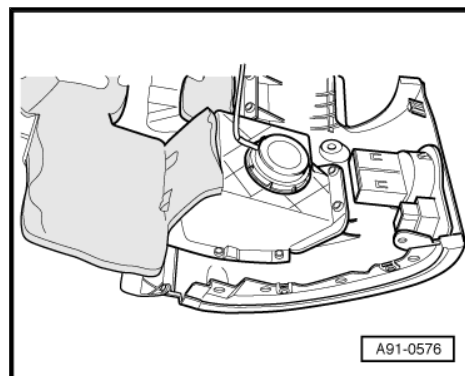
- Remove driver's storage compartment ⇒ General body repairs, interior; Rep. Gr. 68 .
- Unplug connectors.

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- Unscrew securing ring at loudspeaker and take loudspeaker downwards out of storage compartment.

Installing:

- Install accordingly in reverse order of removal.



7.14 Removing and installing aerial filter - R87- (GPS aerial)

- Switch off all electrical equipment.
- Remove ignition key.

Removing:

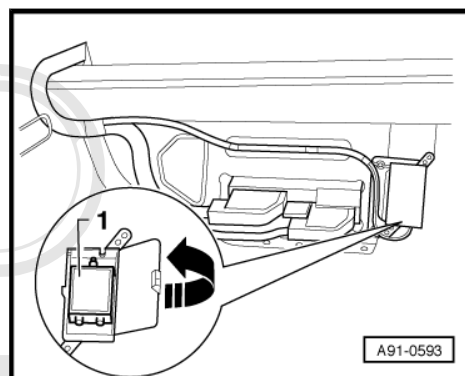
- Remove telephone/telematics control unit -J256- with holder
⇒ [page 82](#).

Aerial filter is fitted at connector end.

- Open housing for aerial filter -arrow-.
- Take out aerial filter -1- and unplug connectors.

Installing:

- Install accordingly in reverse order of removal.



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