ACCESSORIES & EQUIPMENT

Communication, Cabriolet

91 RADIO, TELEPHONE, NAVIGATION, TRIP COMPUTER

RADIO SYSTEM

General notes

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch the ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting vehicle battery, re-code and check operation of anti-theft radio. Also check operation of clock and power windows according to Repair Information and/or Owner's Manual.**

NOTE:

- **Further measures after re-connecting power supply:**

Refer to

- **24 MULTIPORT FUEL INJECTION (MFI)** for 1.8 LITER 4-CYL. 5V TURBO FUEL INJECTION & IGNITION, ENGINE CODE(S): AMB
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 2.0 LITER 4-CYL. 4V TURBO FUEL INJECTION IGNITION, ENGINE CODE(S): BPG, BWT
- **24 MULTIPORT FUEL INJECTION (MFI)** for 3.0 LITER 6-CYL. 5V FUEL INJECTION & IGNITION, ENGINE CODE(S): AVK, BGN
- **24 - FUEL INJECTION SYSTEM** for 3.2 V6 4V FUEL INJECTION IGNITION, ENGINE CODE(S): BKH
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 4V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BNS
- **24 MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 5V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BHF

- Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD player/changer functions.
- For additional information

Refer to Operating instructions

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- When retrofitting, repairing or troubleshooting:

Refer to Electrical Wiring Diagrams, Troubleshooting & Component Locations, Cabriolet

Refer to Radio installation instructions

- For detailed instructions (e.g. removing and installing trim panels):

Refer to **70 - INTERIOR TRIM**

- Wherever possible, only genuine Audi parts should be used. Only then can trouble-free installation and optimal reception be guaranteed.
- All Audi radio systems are encoded for the instrument cluster in the convenience coding. It is not necessary to enter the code when disconnecting and reconnecting the power supply, removing and installing the same radio or removing and installing the same instrument cluster.
- If the "Transport" message appears on display after switching on the radio, transport mode must be deactivated.

Do this using vehicle diagnostic, testing and information system VAS 5051.

Notes for retrofitting radio:

- The connectors on the factory installed radio wiring harness are designed for genuine Audi radios.
- Radios with different types of connectors must be installed using adapter wires.
- When other radio units are installed it can have an effect on the antenna amplifier, since the original Audi radio units have a remotely driven antenna (the voltage supply of the antenna amplifier is driven via a center wire of the high frequency cable). Use a remotely driven adaptor. Refer to parts catalog (vendor: Votex).

Note for retrofitting CD:

For CD preparation, the wiring harness for the CD changer is already installed in vehicle. The connecting wire can only be used with genuine Audi CD changers.

"Concert II" and "Symphony II" radio systems, component overview

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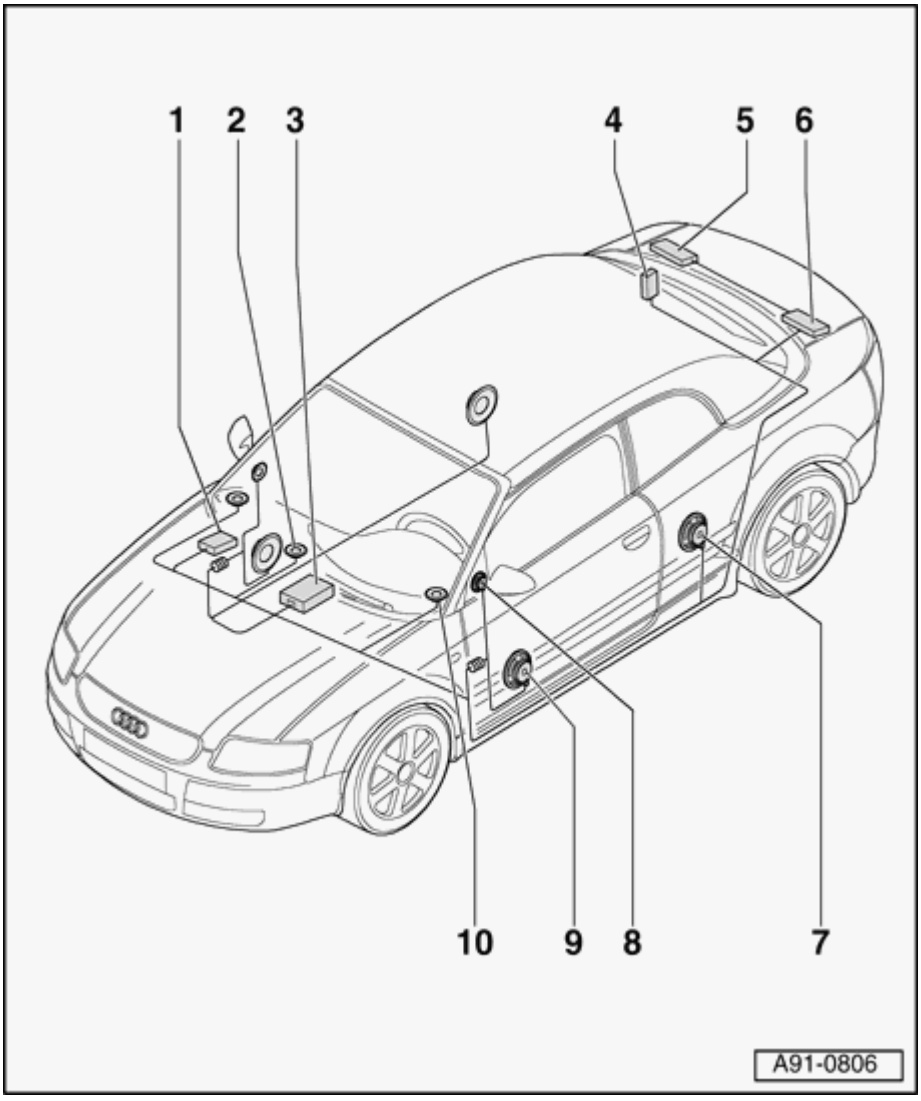

Fig. 1: "Concert II" And "Symphony II" Radio Systems, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer Unit -R41-

- Optional
- In glove compartment
- Removing and installing. Refer to **CD changer, removing and installing**
- Check wire connection. Refer to **Check wire connection between radio and CD changer**

2 - Center Mid/High Range Loudspeaker -R158-

- In instrument panel
- Removing and installing. Refer to **Center treble speaker, removing and installing**

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3 - Radio -R-

- In center console
- Radio "Concert II" removing and installing. Refer to **"Concert ll" radio, removing and installing**
- Radio "Symphony II" removing and installing. Refer to **"Symphony ll" radio, removing and installing**

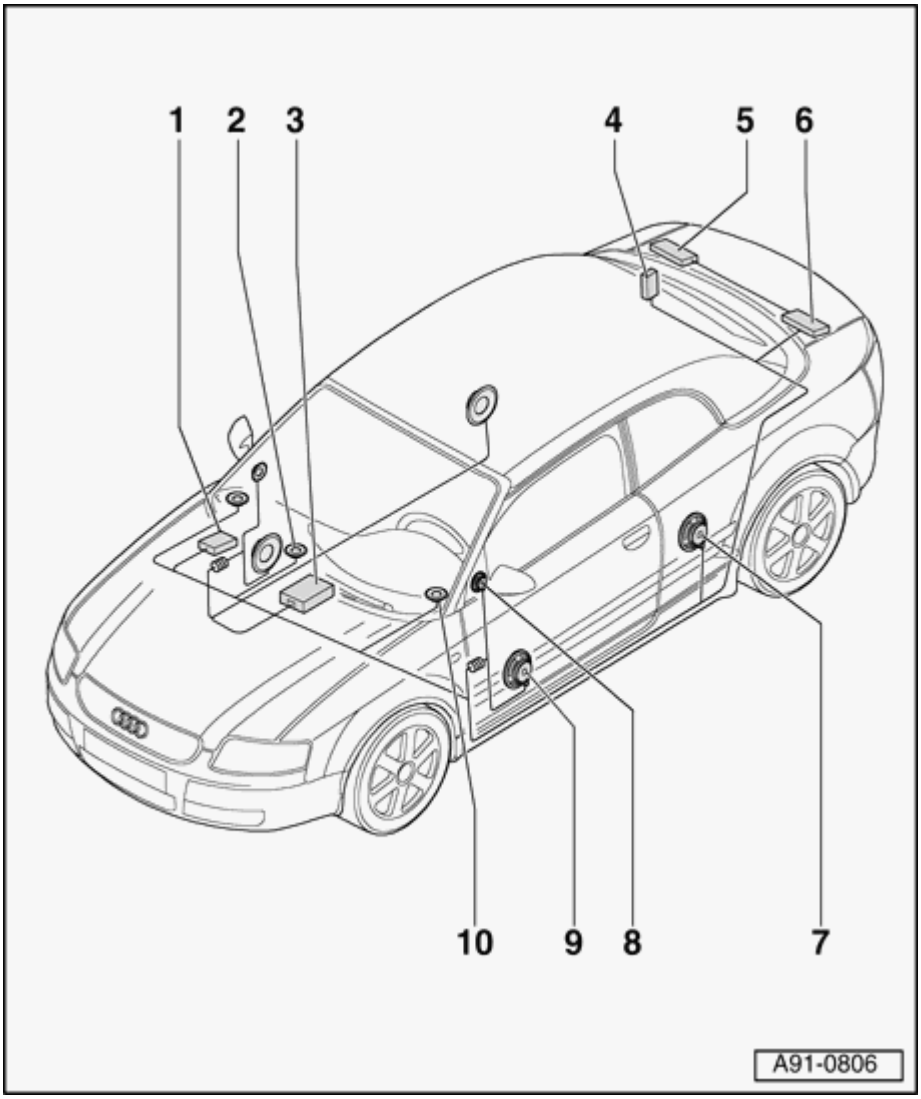

Fig. 2: "Concert II" And "Symphony II" Radio Systems, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Amplifier -R12- for the rear speaker or BOSE amplifier (only with "BOSE sound system")

- In rear right of luggage compartment behind side trim
- Removing and installing. Refer to **Amplifier for the rear speakers or BOSE amplifier, removing and installing**

5 - Right Antenna Module -R109-

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- Behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

6 - Left Antenna Module -R108-

- Behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

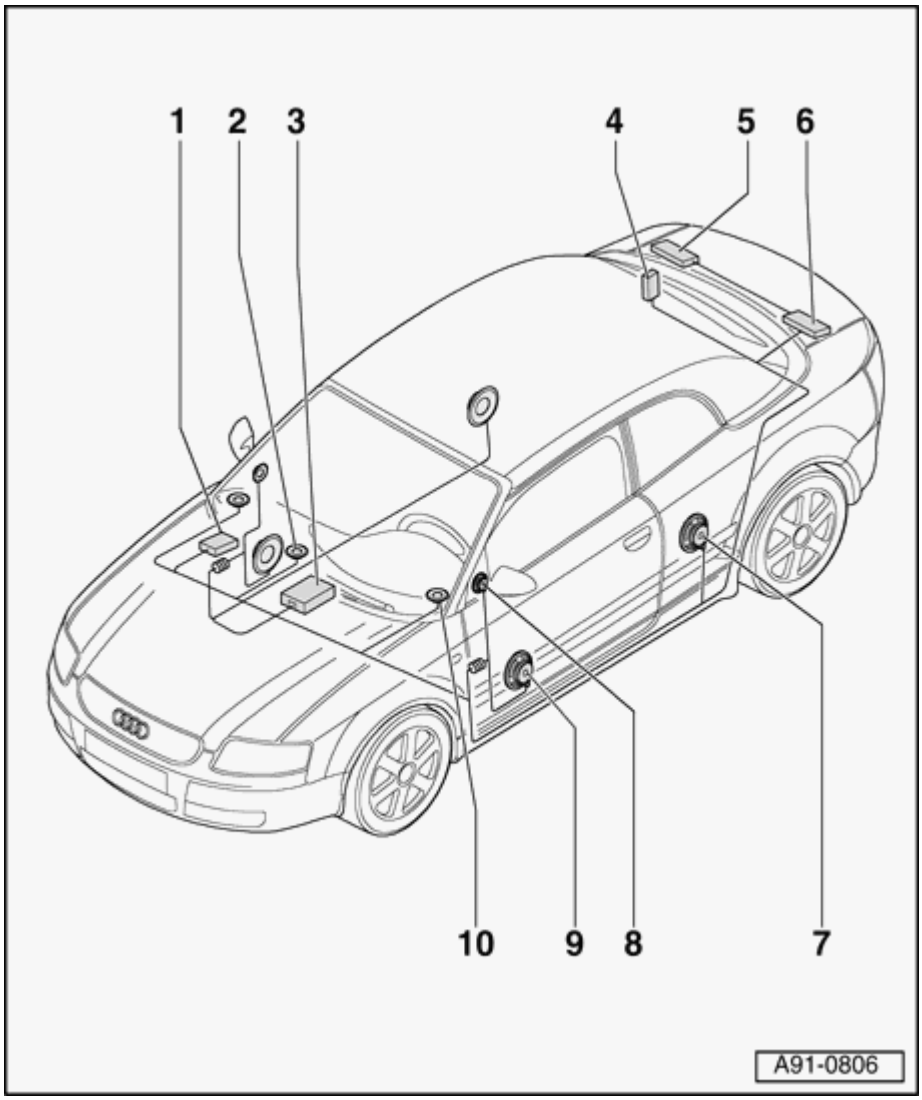

Fig. 3: "Concert II" And "Symphony II" Radio Systems, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

7 - Left Rear Speaker -R4-, Right Rear Speaker -R5-

- In rear side trim (bottom)
- Speaker (active): Mid-range/bass with treble bridge

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- BOSE-speakers: Mid-range/bass
- Removing and installing. Refer to **Removing**

8 - Treble speaker, left front -R20-, Treble speaker, right front -R22-

- In front door (top)
- Removing and installing. Refer to **Front treble speaker, removing and installing**

9 - Bass speaker, left front -R21-, Bass speaker, right front -R23-

- In front door trim (bottom)
- Removing and installing. Refer to **Speakers in front doors, removing and installing**

10 - Left Front DSP Midrange Speaker -R103-, Right Front DSP Midrange Speaker -R104-

- In instrument panel
- Removing and installing. Refer to **Speaker in instrument panel, removing and installing**

Radio systems with Satellite Digital Audio Radio Service (SDARS), general overview

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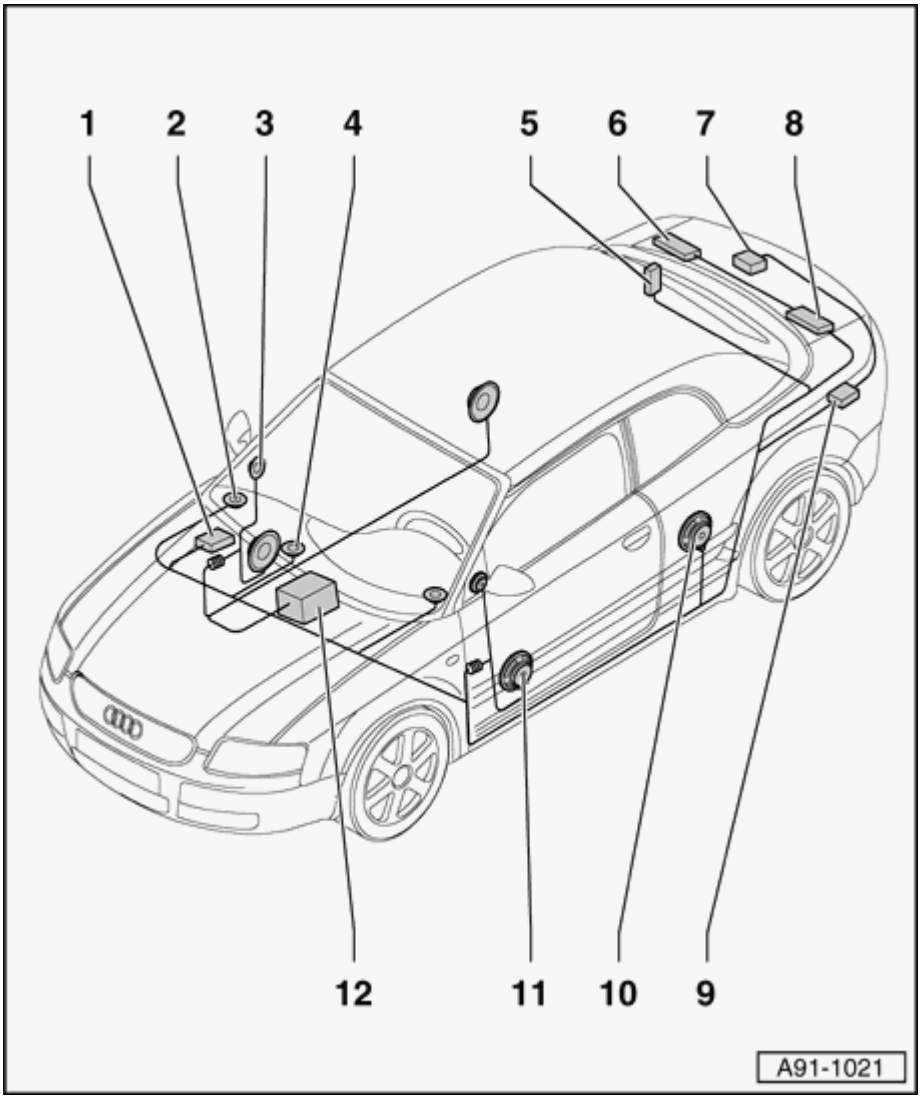

Fig. 4: Radio Systems With Satellite Digital Audio Radio Service (SDARS), General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer Unit -R41-

- optional
- in glove compartment
- Removing and installing. Refer to **CD changer, removing and installing**
- Check wire connection. Refer to **Check wire connection between radio and CD changer**

2 - Left Front DSP Midrange Speaker -R103-, Right Front DSP Midrange Speaker -R104-

- in instrument panel
- Removing and installing. Refer to **Speaker in instrument panel, removing and installing**

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3 - Treble speaker, left front -R20-, Treble speaker, right front -R22-

- in front door (top)
- Removing and installing. Refer to **Front treble speaker, removing and installing**

4 - Center Mid/High Range Loudspeaker -R158-

- in instrument panel
- Removing and installing. Refer to **Center treble speaker, removing and installing**

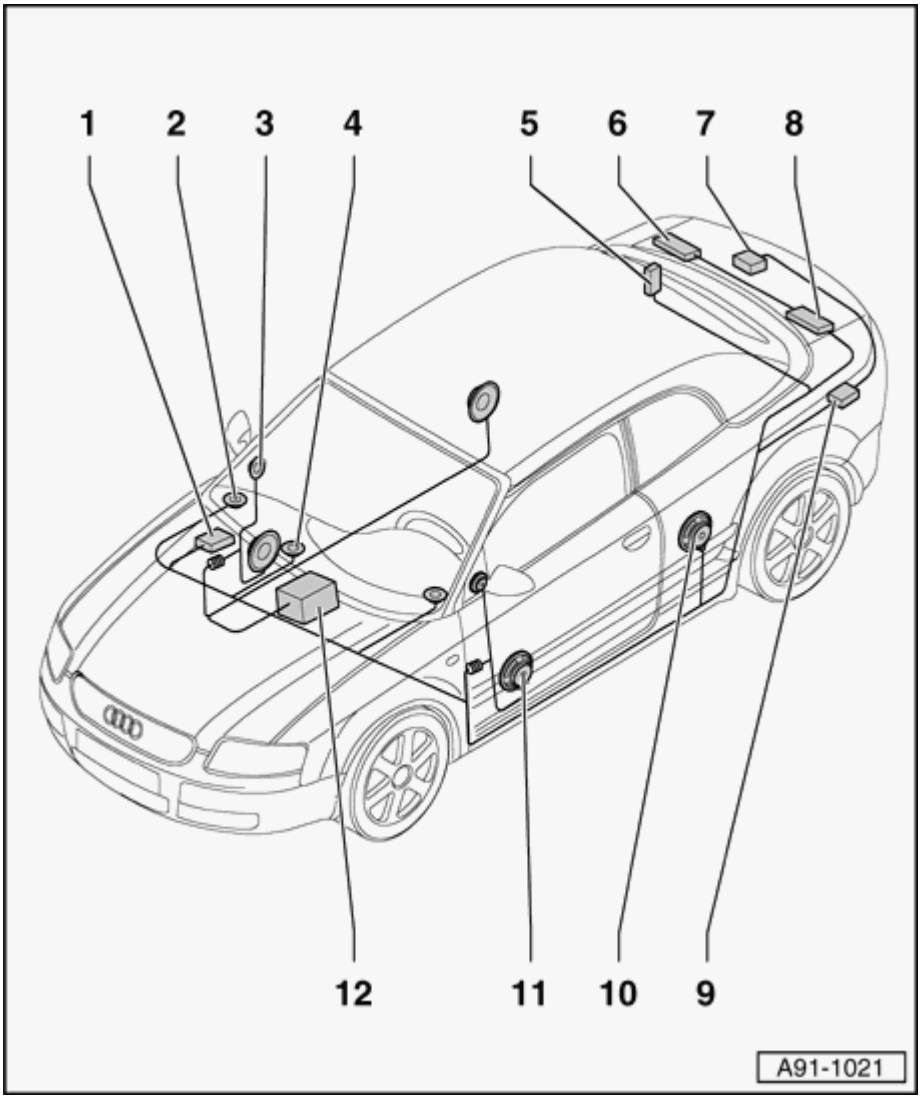

Fig. 5: Radio Systems With Satellite Digital Audio Radio Service (SDARS), General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Amplifier for the rear speaker or Amplifier -R12- BOSE (only for "BOSE sound system")

- in luggage compartment at rear, right side, behind side trim

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- Removing and installing. Refer to **Amplifier for the rear speakers or BOSE amplifier, removing and installing**

6 - Right Antenna Module -R109-

- behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

7 - Satellite Tuner Antenna -R172-

- behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

8 - Left Antenna Module -R108-

- behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

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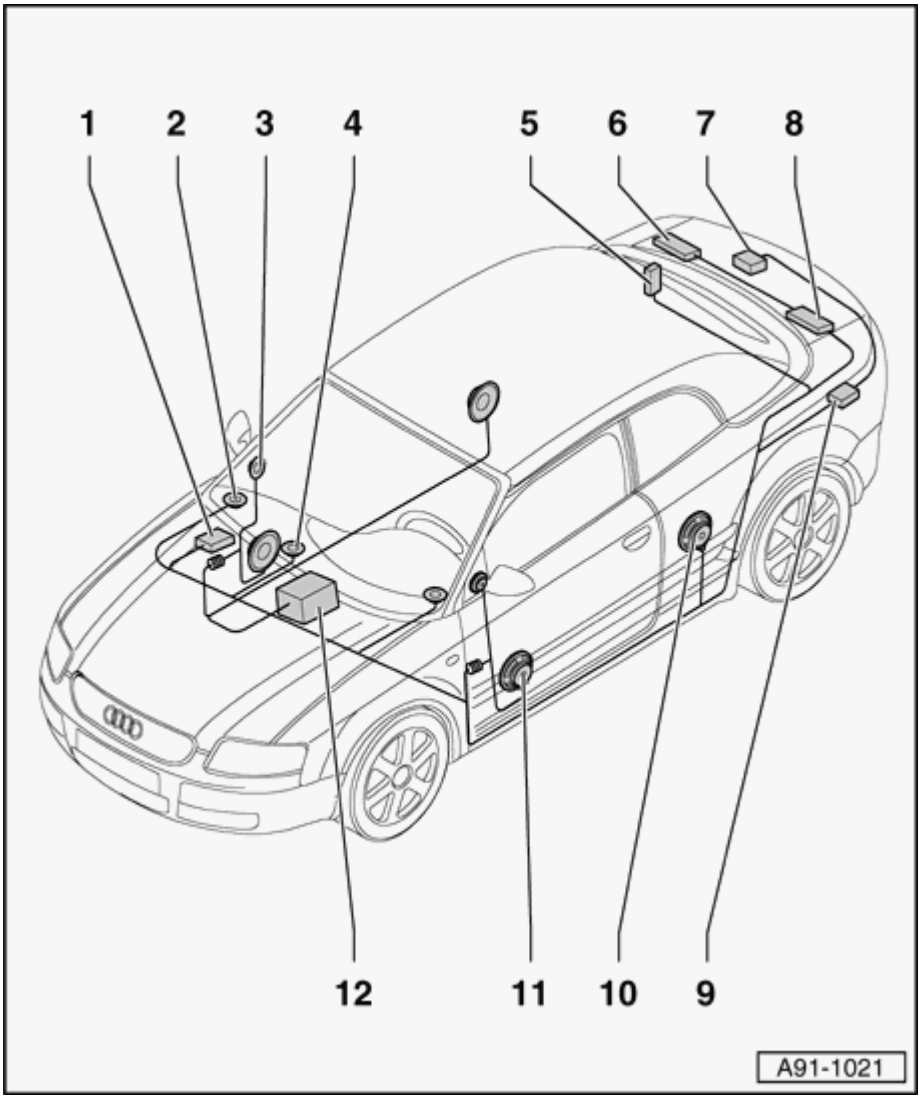

Fig. 6: Radio Systems With Satellite Digital Audio Radio Service (SDARS), General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

9 - Satellite Radio -R146-

- in luggage compartment at rear, left side, behind side trim
- Removing and installing. Refer to **Satellite radio, removing and installing**

10 - Left Rear Speaker -R4-, Right Rear Speaker -R5-

- in rear side trim (bottom)
- Removing and installing. Refer to **Removing**

11 - Bass speaker, left front -R21-, Bass speaker, right front -R23-

- in front door trim (bottom)

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- Removing and installing. Refer to **Speakers in front doors, removing and installing**

12 - Radio -R-

- in center console
- Radio "concert II" removing and installing. Refer to **"Concert ll" radio, removing and installing**
- Radio "symphony II" removing and installing. Refer to **"Symphony ll" radio, removing and installing**

Radio system, layout

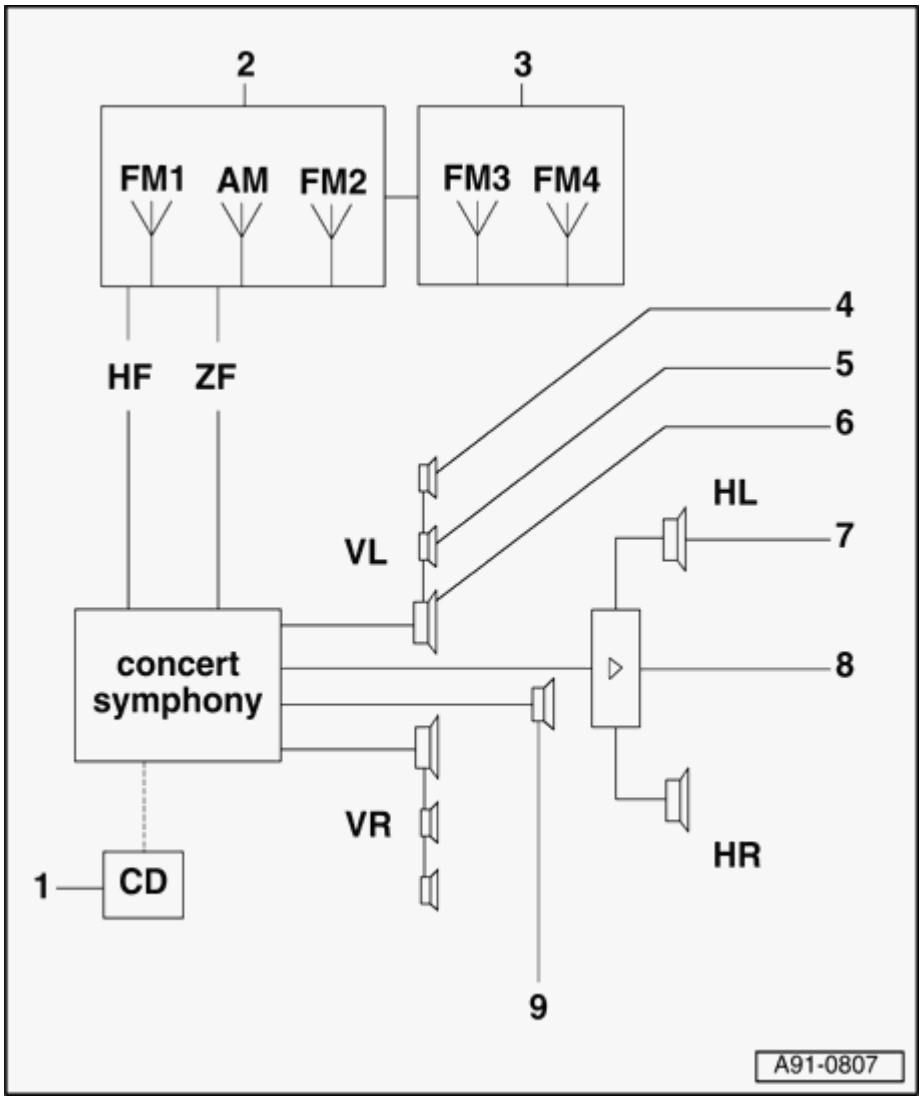

Fig. 7: Radio System, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio system "Concert II" and "Symphony ll"

1 - CD Changer Unit

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- Optional
- In glove compartment

2 - Left antenna module

- Behind the rear lid trim

3 - Right antenna module

- Behind the rear lid trim

4 - Front treble speaker

- In front door (top)

5 - Mid-range speaker, front

- In instrument panel

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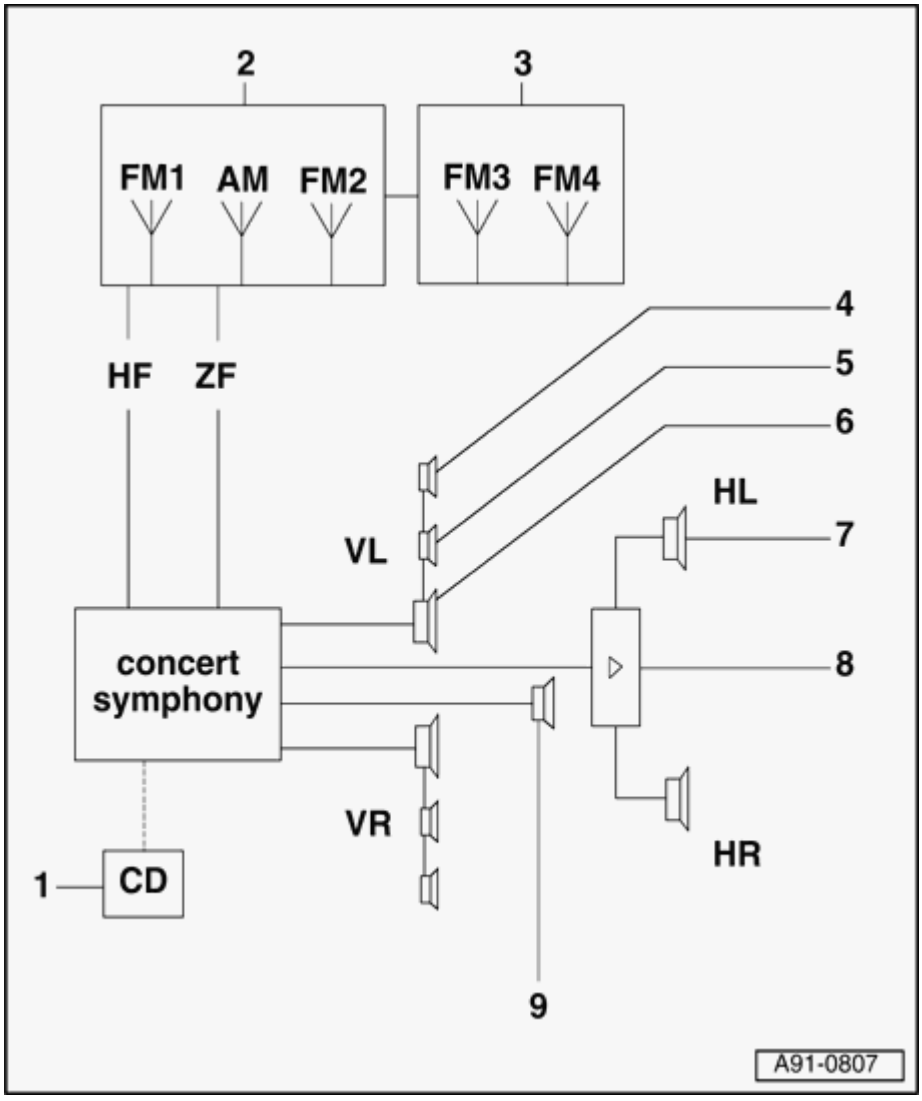

Fig. 8: Radio System, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Bass speaker, front

- In front door trim (bottom)

7 - Rear speaker

- In rear side trim (bottom)
- Speaker (active): Mid-range/bass with treble bridge
- BOSE-speakers: Mid-range/bass

8 - Amplifier for the rear speakers

- In luggage compartment right rear behind side trim

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9 - Center mid-range loudspeaker

- In instrument panel

Multi-pin harness connectors I, II, III, and IV on back of radio

NOTE: Terminals which are not listed are vacant/unassigned.

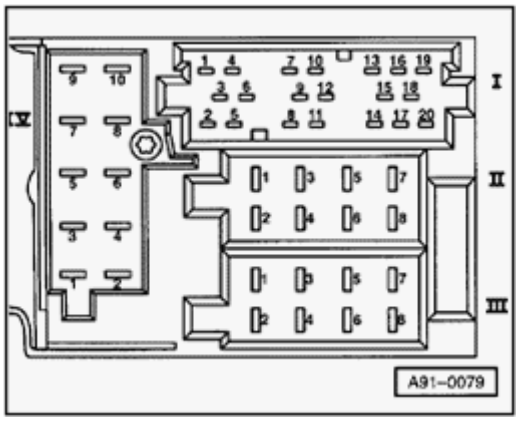

Fig. 9: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black, 20-pin multi-pin harness connector I

1 - Signal output, rear left

2 - Signal output, rear right

3 - Signal Ground (GND)

4 - Signal output, front left

5 - Signal output, front right

6 - Control plus for end amplifier

7 - CAN-Bus High (display)

10 - Ground (GND) (CD changer)

12 - CAN-Bus Low (display)

13 - CD Bus data in (CD changer)

14 - CD Bus Data out (CD changer)

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15 - CD clock (CD changer)

16 - Continuous B+ (CD changer)

17 - Control plus for CD changer

18 - CD Ground (GND) (CD changer)

19 - Signal left channel (CD changer)

20 - Signal right channel (CD changer)

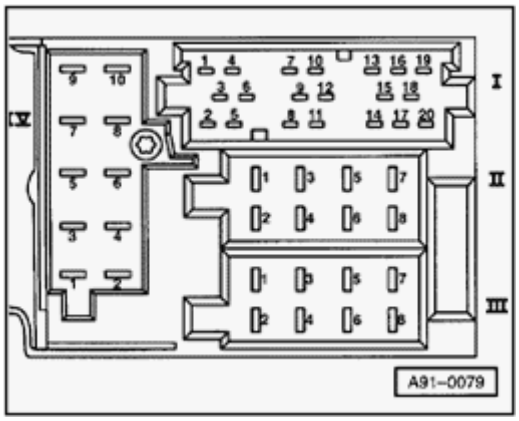

Fig. 10: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector II, 8-pin, brown

3 - Loudspeaker + front right

4 - Loudspeaker - front right

5 - Loudspeaker + front left

6 - Loudspeaker - front left

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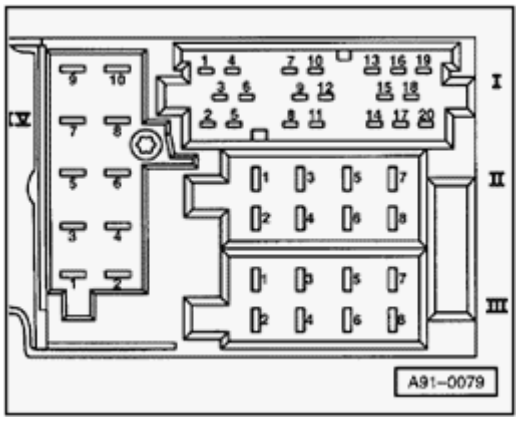

Fig. 11: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector III, 8-pin, black

1 - BOSE coding (free)

2 - Anti-theft warning system

3 - K diagnostic

7 - Terminal 30

8 - Terminal 31

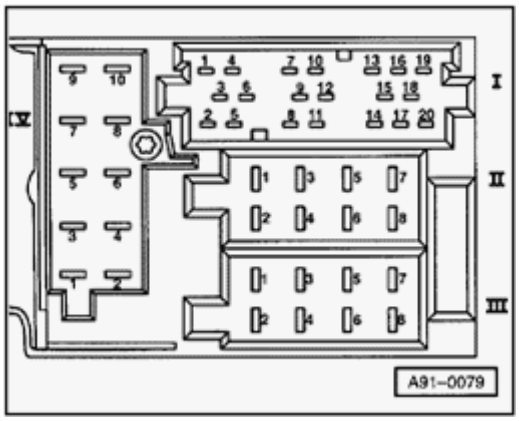

Fig. 12: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector IV, 10-pin, red

1 - Telephone mute (low frequency-mute)

3 - Telephone (low frequency +) (not for navigation equipment)

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4 - Telephone (low frequency -) (not for navigation equipment)

5 - Navigation (low frequency +)

6 - Navigation (low frequency -)

7 - Navigation control wire

Multi-pin harness connectors at amplifier for rear loudspeakers

NOTE: Terminals which are not listed are vacant/unassigned.

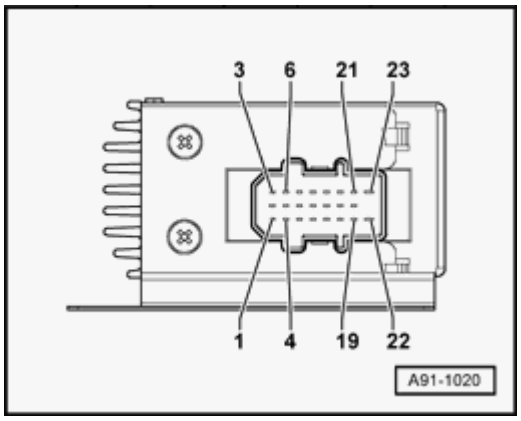

Fig. 13: Identifying 23-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

23-pin multi-pin harness connector

2 - Speaker (+) front left

3 - Speaker (-) front left

6 - Speaker (+) front right

9 - Speaker (-) front right

13 - Switched positive (from Radio)

14 - Signal, rear left (from Radio)

15 - Loudspeaker (-) rear left

16 - Signal, front left (from Radio)

17 - Signal, rear right (from Radio)

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18 - Loudspeaker (-) rear right

19 - Signal - Ground -GND- (from Radio)

20 - Signal, front right (from Radio)

21 - Loudspeaker (-) rear right

22 - Terminal 31

23 - Terminal 30

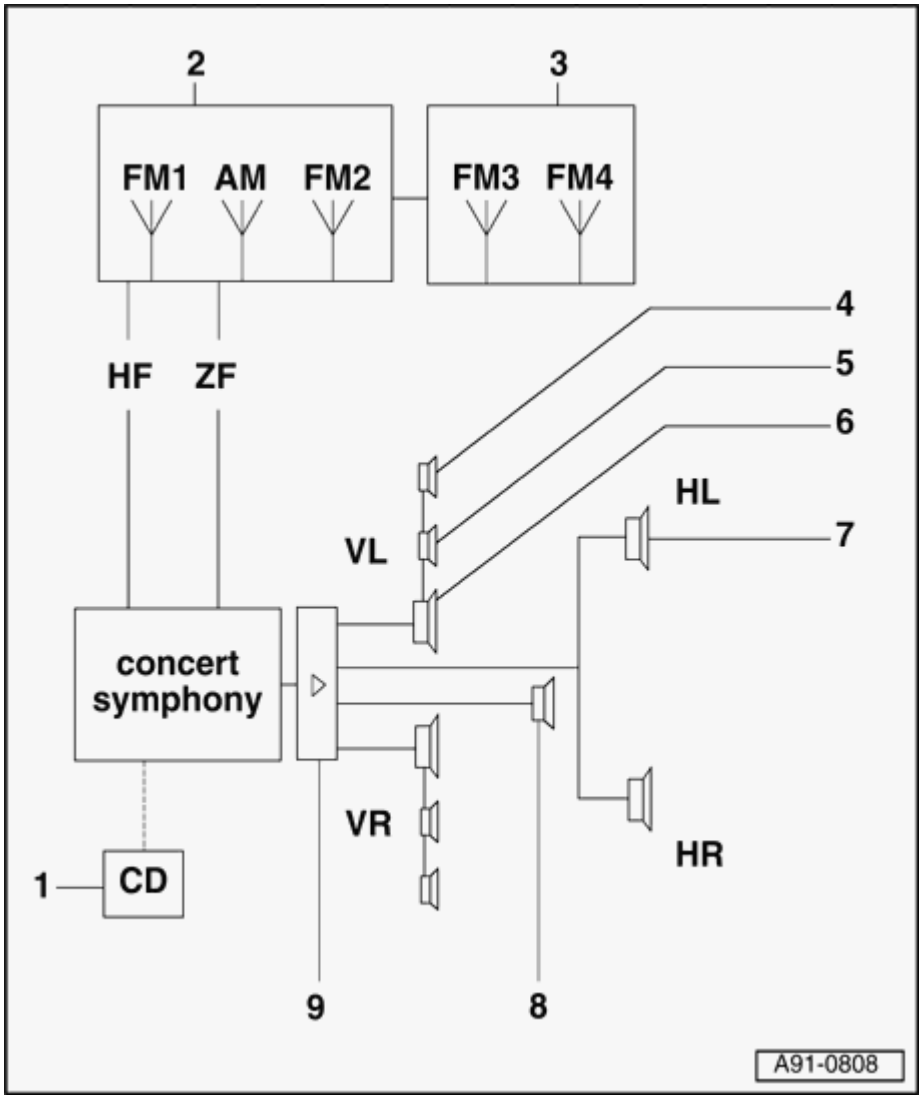

Fig. 14: "Concert II" And "Symphony II" Radio System With "Bose Sound System", Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

"Concert II" and "Symphony II" radio system with "BOSE sound system", layout

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1 - CD Changer Unit

- Optional
- In glove compartment

2 - Left antenna module

- Behind the rear lid trim

3 - Right antenna module

- Behind the rear lid trim

4 - Front treble speaker

- In front door (top)

5 - Mid-range speaker, front

- In instrument panel

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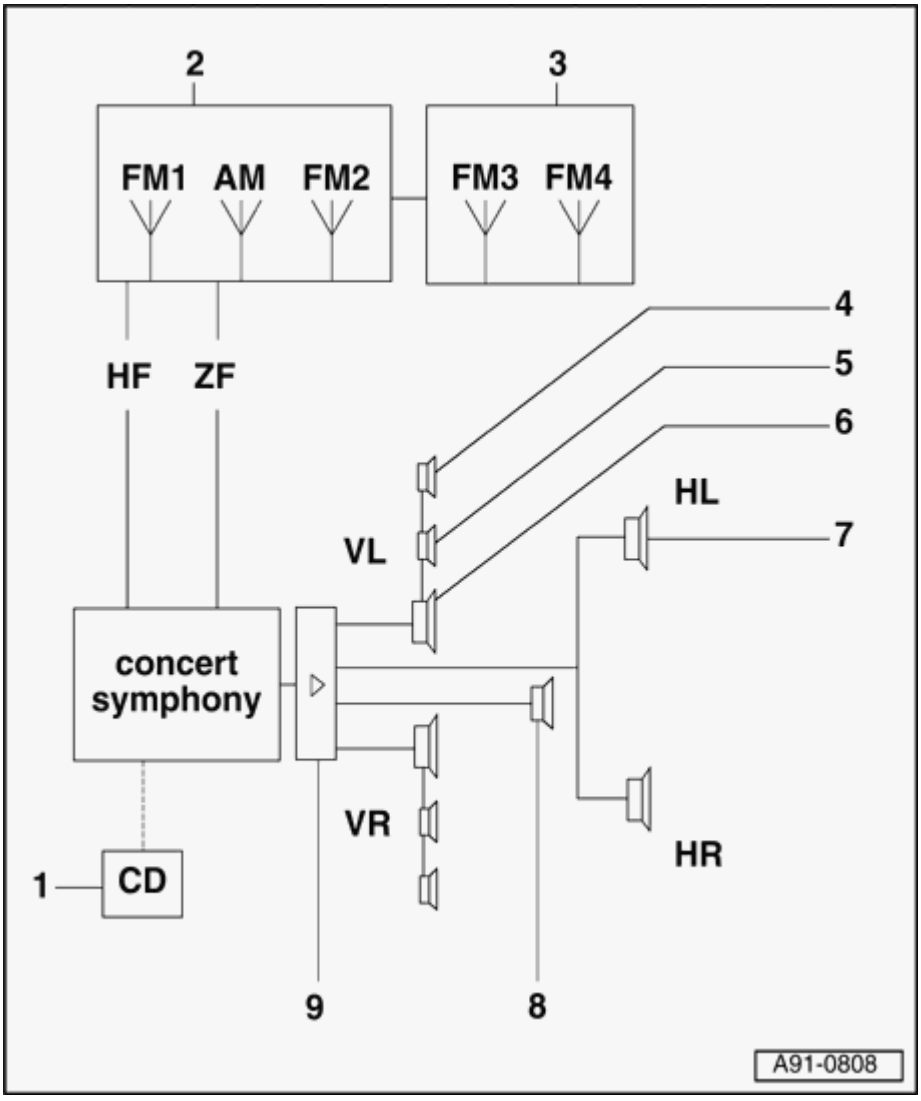

Fig. 15: "Concert II" And "Symphony II" Radio System With "Bose Sound System", Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Bass speaker, front

- In front door trim (bottom)

7 - Rear speaker

- In rear side trim (bottom)
- Speaker (active): Mid-range/bass with treble bridge
- BOSE-speakers: Mid-range/bass

8 - Center mid-range loudspeaker

- In instrument panel

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9 - BOSE amplifier

- In luggage compartment right rear behind side trim

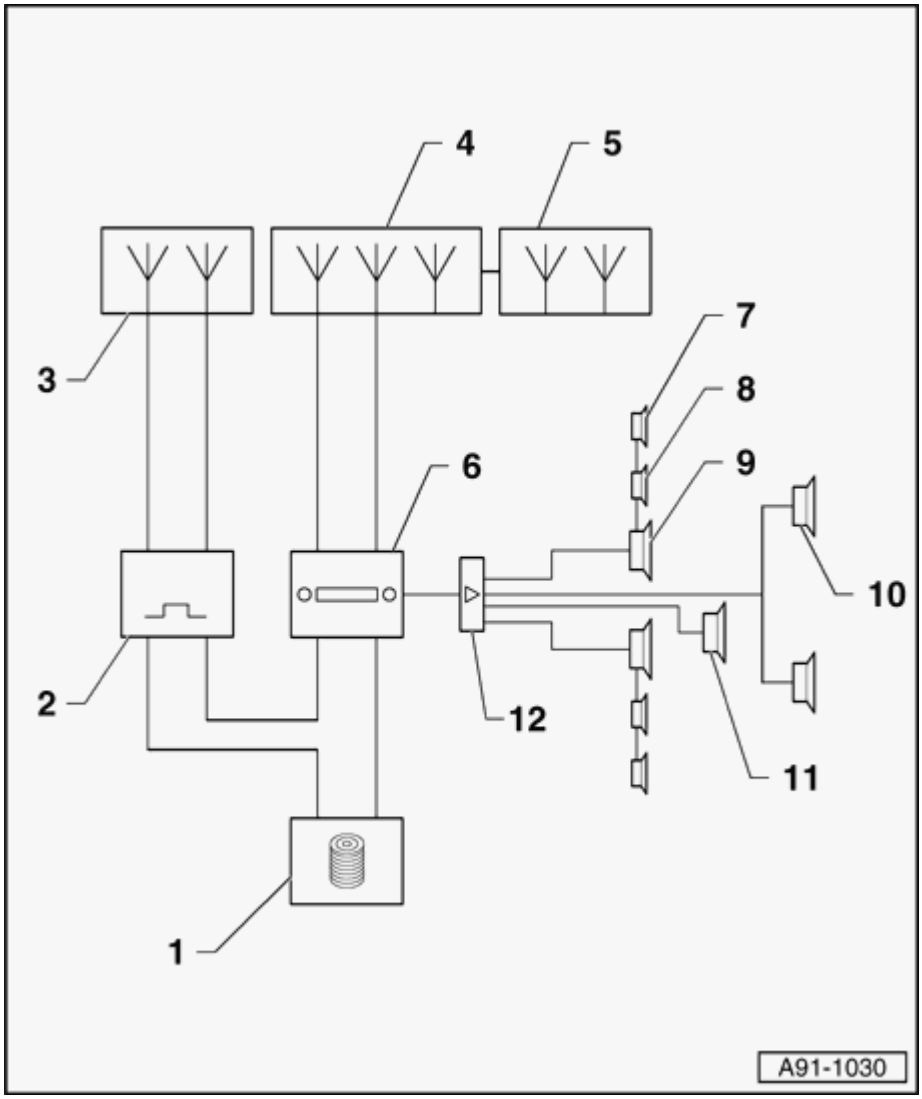

Fig. 16: Radio System "Bose Sound System" With SDARS
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio system "BOSE sound system" with SDARS

1 - CD Changer Unit

- optional
- in glove compartment

2 - Satellite radio

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- in luggage compartment at rear, left side, behind side trim

3 - Satellite tuner antenna

- behind the rear lid trim

4 - Left antenna module (FM1/FM2/AM)

- behind the rear lid trim

5 - Right antenna module (FM3/FM4)

- behind the rear lid trim

6 - Radio

- in center console, at top

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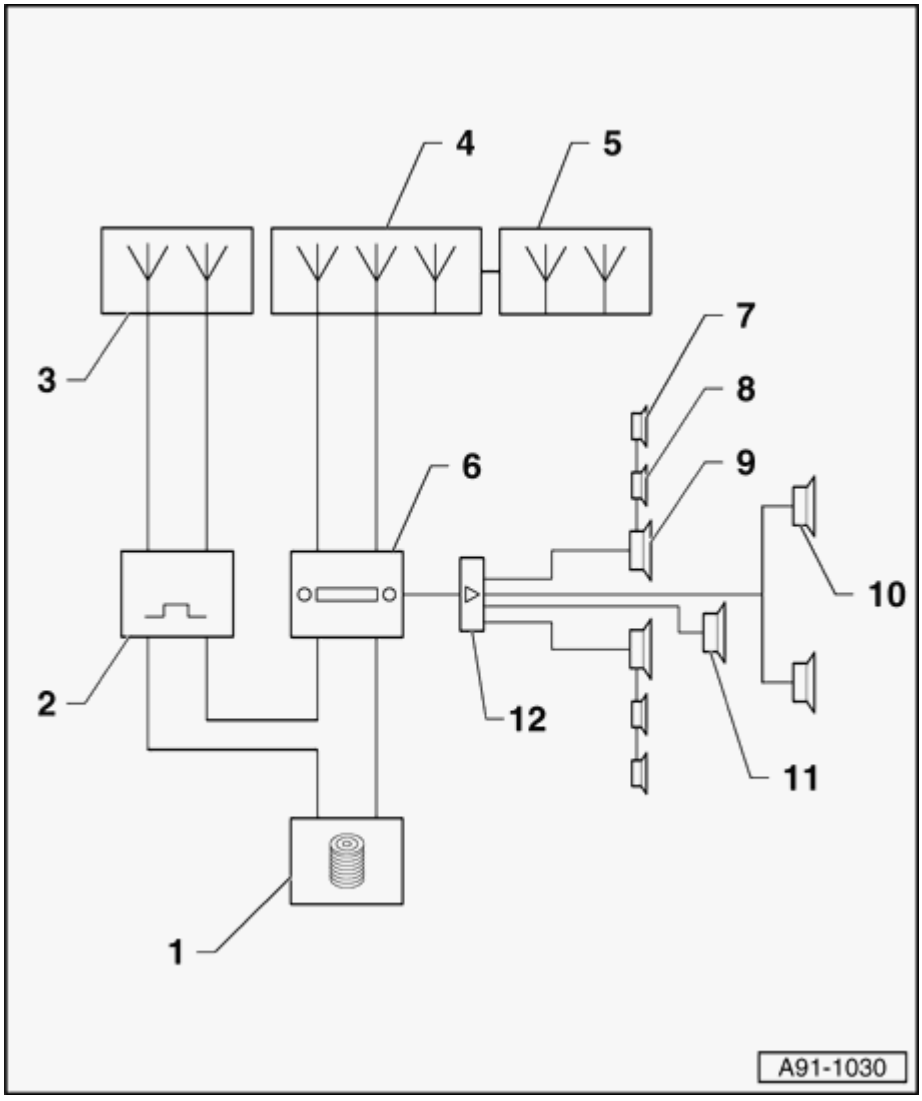

Fig. 17: Radio System "Bose Sound System" With SDARS
Courtesy of VOLKSWAGEN UNITED STATES, INC.

7 - Front treble speaker

- in front door (top)

8 - Front midrange speaker

- in instrument panel

9 - Bass speaker, front

- in front door trim (bottom)

10 - Rear speaker

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- in rear side trim (bottom)

11 - Center Mid/High Range Loudspeaker -R158-

- in instrument panel

12 - BOSE-amplifier

- in luggage compartment at rear, right side, behind side trim

Multi-pin harness connectors I, II, III, and IV on back of radio

NOTE: Terminals which are not listed are vacant/unassigned.

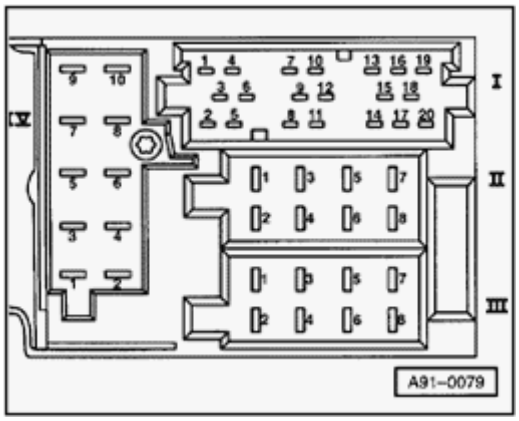

Fig. 18: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black, 20-pin multi-pin harness connector I

1 - Signal output, rear left

2 - Signal output, rear right

3 - Signal Ground (GND)

4 - Signal output, front left

5 - Signal output, front right

6 - Control plus for BOSE amplifier

7 - CAN-Bus High (display)

10 - Ground (GND) (CD changer)

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12 - CAN-Bus Low (display)

13 - CD Bus data in (CD changer)

14 - CD Bus Data out (CD changer)

15 - CD clock (CD changer)

16 - Continuous B+ (CD changer)

17 - Control plus for CD changer

18 - CD Ground (GND) (CD changer)

19 - Signal left channel (CD changer)

20 - Signal right channel (CD changer)

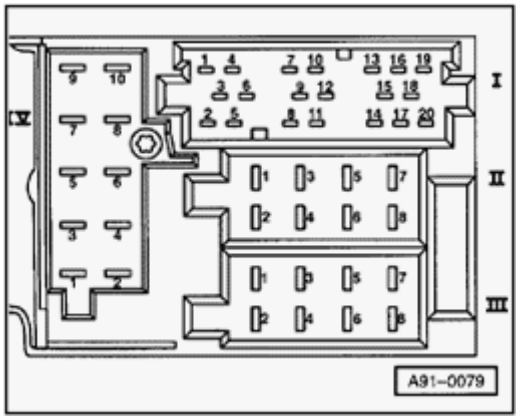

Fig. 19: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector II, 8-pin, brown

3 - Loudspeaker + front right

4 - Loudspeaker - front right

5 - Loudspeaker + front left

6 - Loudspeaker - front left

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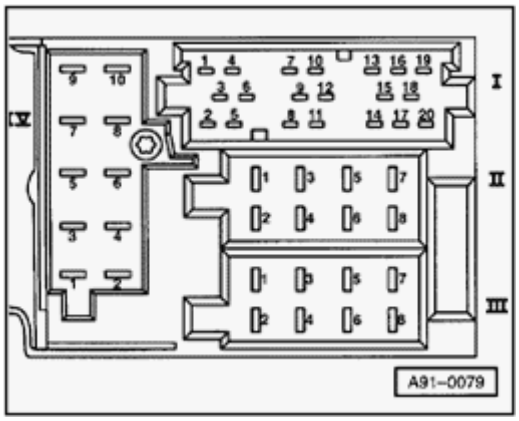

Fig. 20: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector III, 8-pin, black

1 - BOSE coding (Ground GND)

2 - Anti-theft warning system

3 - K diagnostic

7 - Terminal 30

8 - Terminal 31

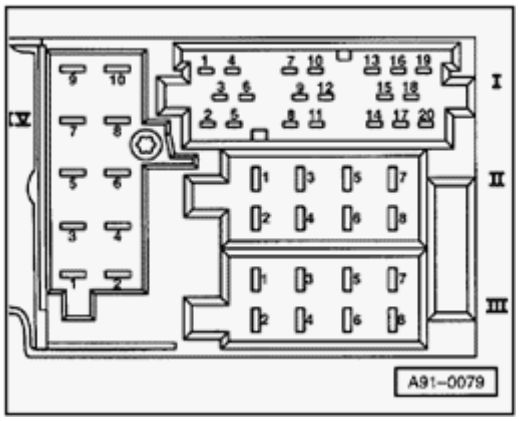

Fig. 21: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector IV, 10-pin, red

1 - Telephone-muting (low frequency-mute)

3 - Telephone (low frequency +) (not for navigation equipment)

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4 - Telephone (low frequency -) (not for navigation equipment)

5 - Navigation (low frequency +)

6 - Navigation (low frequency -)

7 - Navigation control wire

Multi-pin harness connectors on BOSE-amplifier

NOTE: Terminals which are not listed are vacant/unassigned.

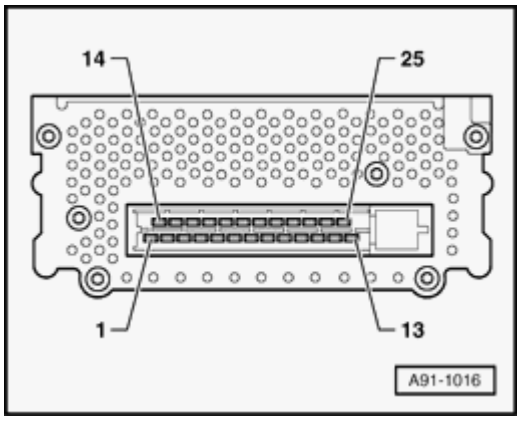

Fig. 22: Identifying 25-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

25-pin multi-pin harness connector

1 - Center speaker (-)

2 - Center speaker (+)

6 - Signal Ground -GND- (from Radio)

7 - Signal, rear right (from Radio)

8 - Signal, rear left (from Radio)

9 - Signal, front right (from Radio)

10 - Signal, front left (from Radio)

11 - Terminal 31

13 - Terminal 30

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14 - Bass speaker (+), front

15 - Bass speaker (-), front

16 - Speaker (-) front left

17 - Speaker (+) front left

18 - Speaker (+) front right

19 - Speaker (-) front right

20 - Loudspeaker (+) rear left

21 - Loudspeaker (-) rear left

22 - Loudspeaker (+) rear right

23 - Loudspeaker (-) rear right

25 - Switched positive (from Radio)

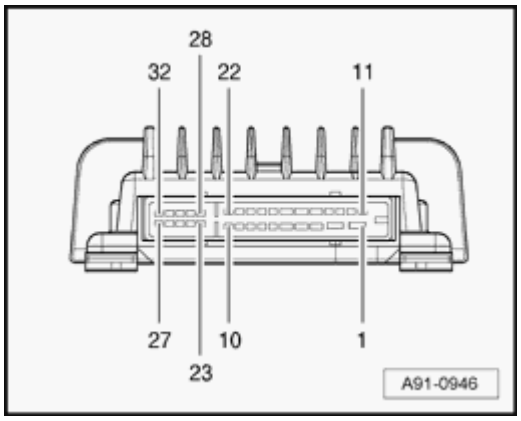

Fig. 23: Identifying 32-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

32-pin multi-pin harness connector

1 - Terminal 30

2 - Terminal 31

3 - Front loudspeaker (+)

4 - Loudspeaker (-) rear left

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5 - Loudspeaker (+) rear right

6 - Switched positive (from Radio)

7 - Signal Ground -GND- (from Radio)

13 - Center speaker (+)

14 - Center speaker (-)

15 - Front loudspeaker (-)

16 - Loudspeaker (+) rear left

17 - Loudspeaker (-) rear right

19 - Signal, front left (from Radio)

20 - Signal, front right (from Radio)

21 - Signal, rear left (from Radio)

22 - Signal, rear right (from Radio)

26 - Speaker (-) front right

27 - Speaker (+) front right

31 - Speaker (+) front left

32 - Speaker (-) front left

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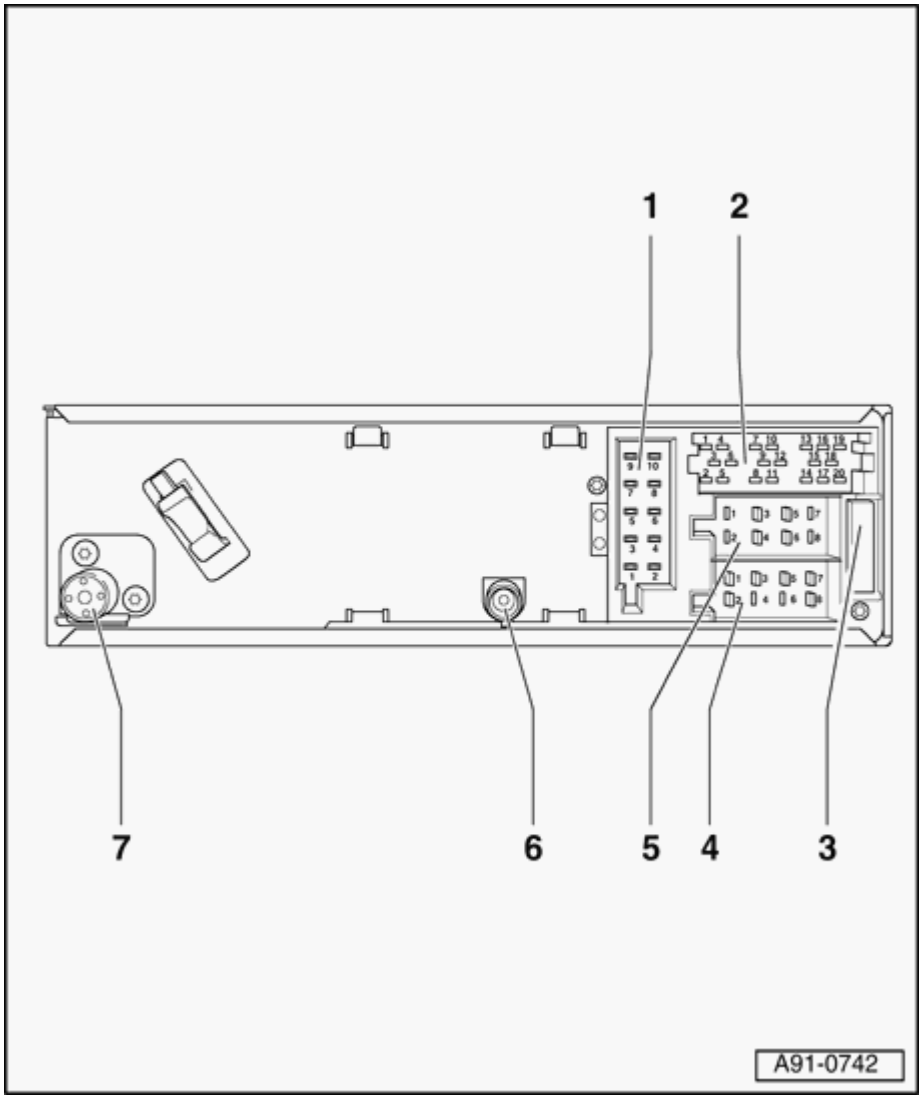

Fig. 24: Identifying Multi-Pin Connectors On Rear Of "Concert II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connectors on rear of "Concert II" radio

1 - Multi-pin connector IV, 10-pin, red

2 - Multi-pin connector I, 20-pin, black

3 - Radio fuse

4 - Multi-pin connector III, 8-pin, black

5 - Multi-pin connector II, 8-pin, brown

6 - IF-wire

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- Only for "Concert II" radio

7 - Antenna connection (high frequency wire)

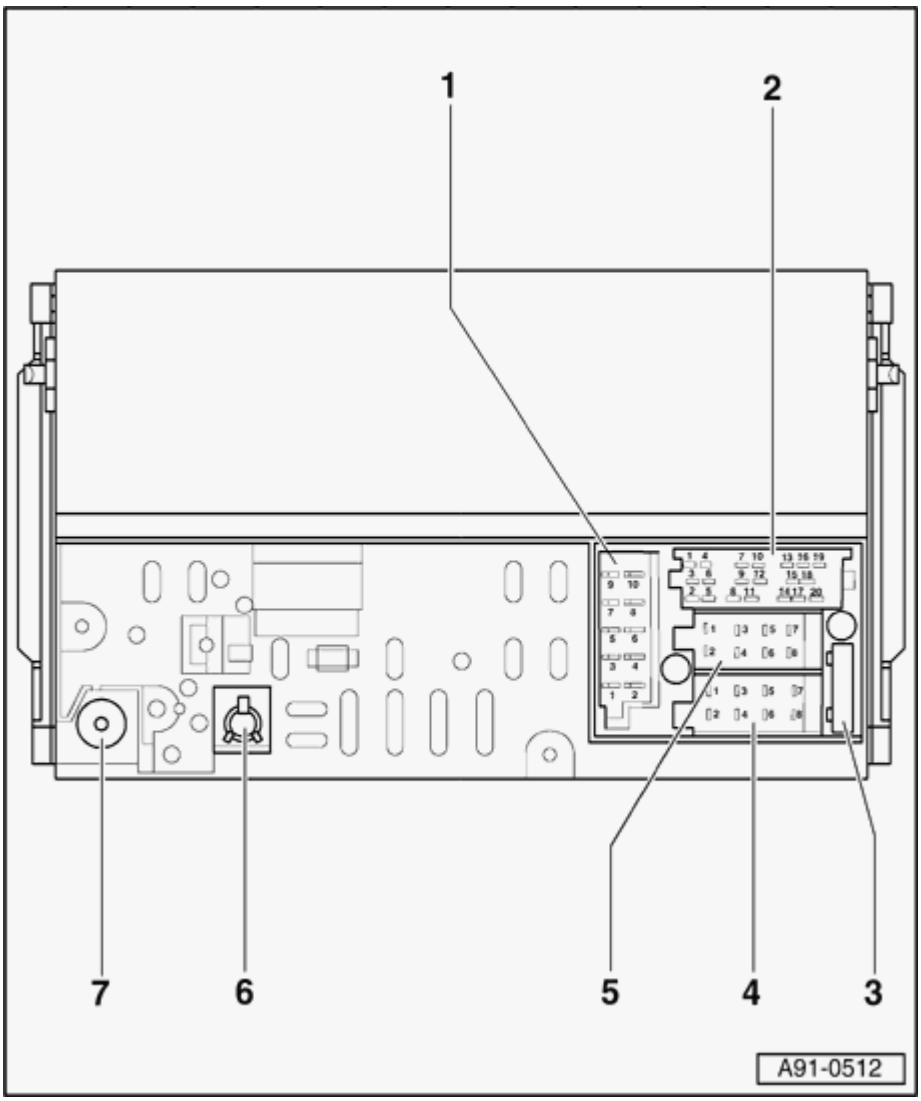

Fig. 25: Identifying Multi-Pin Connectors On Rear Of "Symphony II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connectors on rear of "Symphony II" radio

1 - Multi-pin connector IV, 10-pin, red

2 - Multi-pin connector I, 20-pin, black

3 - Radio security device

4 - Multi-pin connector III, 8-pin, black

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5 - Multi-pin connector II, 8-pin, brown

6 - IF wiring

7 - Antenna connection sockets for radio (high frequency wire)

Harness connector at Satellite Radio -R146-

NOTE: Terminals which are not listed are vacant/unassigned.

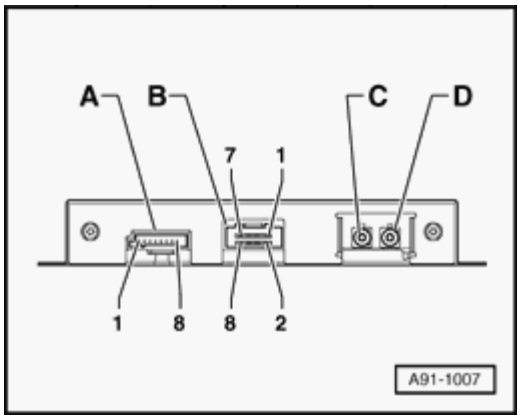

Fig. 26: Identifying 8-Pin Harness Connector And Antenna Connection For Satellite Tuner
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - 8-pin harness connector

1 - CAN-Bus High (display)

2 - CAN-Bus Low (display)

3 - CD-IN L (CD changer)

4 - CD-IN R (CD changer)

5 - LF - Ground -GND- (Radio)

6 - LF - left (Radio)

7 - LF - right (Radio)

8 - CD-Ground -GND- (CD changer)

B - 8-pin harness connector

1 - Terminal 30

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2 - Terminal 31

C - Antenna connection for satellite tuner (Terr. brown)

D - Antenna connection for satellite tuner (Sat. green)

"Concert ll" radio, removing and installing

Special Tools and Equipment

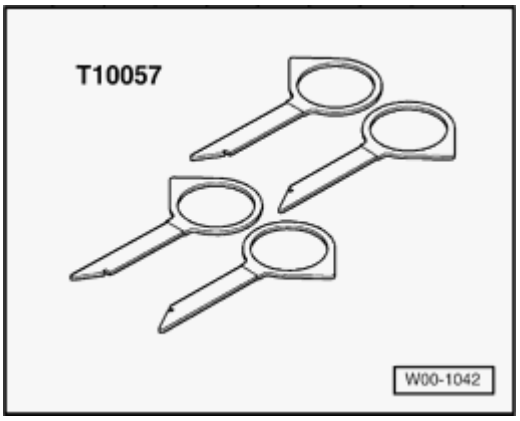

Fig. 27: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- T10057 radio removal tool

Removing

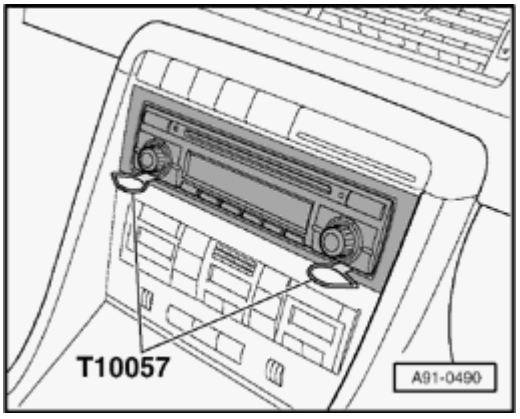

Fig. 28: Pushing Two Clips Of Radio Removal Tool T10057 Into Front Of Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push the two clips of radio removal tool T10057 into the front of the radio.
- Pull the radio out of the instrument panel.
- Unplug the connectors and the antenna wire.

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- Pull out the release tool from the radio - to do this, press in the locking tabs on the radio.

Installing

- Plug in the connectors and the antenna wire.
- Carefully insert the radio into the instrument panel and let it engage in the installation slot.
- Perform coding if the radio was replaced.

Do this using vehicle diagnostic, testing and information system VAS 5051.

"Symphony ll" radio, removing and installing

Special Tools and Equipment

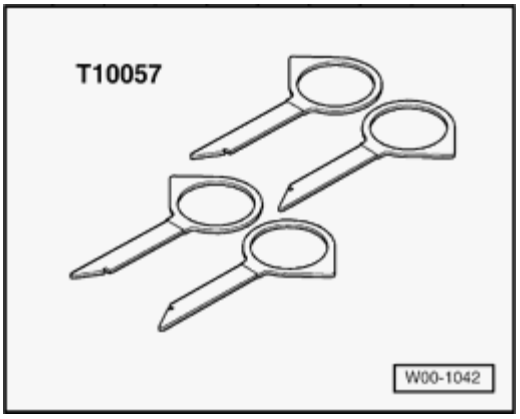

Fig. 29: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- T10057 radio removal tool

Removing

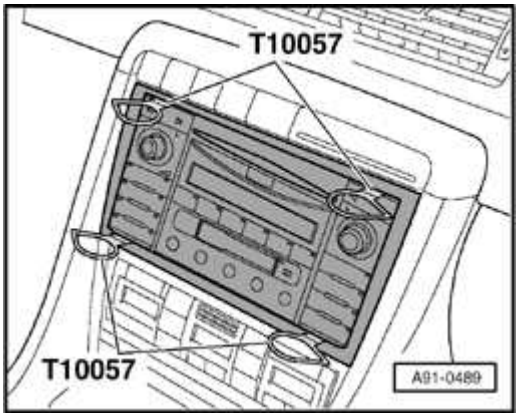

Fig. 30: Pushing Four Clips Of Radio Removal Tool T10057 Into Front
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Push the four clips of radio removal tool T10057 into the front.
- Pull the radio out of the instrument panel.
- Unplug the connectors and the antenna wire.
- Pull out the release tool from the radio - to do this, press in the locking tabs at the top and bottom on the radio.

Installing

- Plug in the connectors and the antenna wire.
- Carefully insert the radio into the instrument panel and let it engage in the installation slot.
- Perform coding if the radio was replaced.

Do this using vehicle diagnostic, testing and information system VAS 5051.

CD changer, removing and installing

Special Tools and Equipment

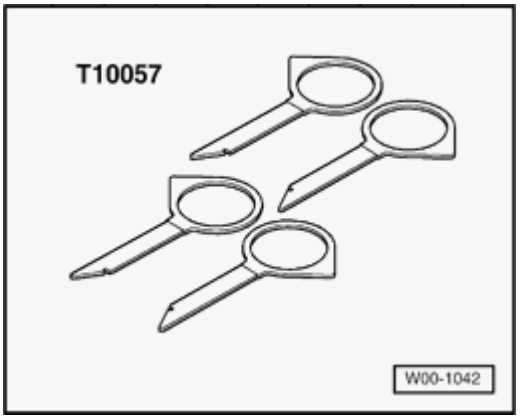

Fig. 31: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- T10057 radio removal tool

Removing

- Open glove compartment.

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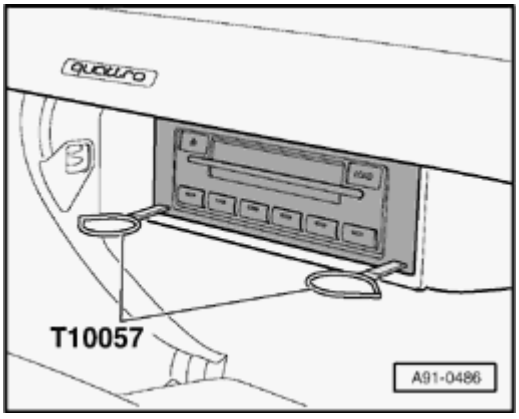

Fig. 32: Inserting Two Hooks Of T10057 Radio Removal Tool Into Front Of CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two hooks of T10057 radio removal tool into the front of the CD changer.
- Pull the CD changer out of its installation slot.
- Detach connector.
- Pull out the release tool from the CD changer - to do this, press in the locking tabs on the CD changer.

Installing

- Plug in the connector.
- Slide the CD changer into the installation slot until it engages.
- After installation, it is essential that the wiring is checked. Refer to **Check wire connection between radio and CD changer**.

Check wire connection between radio and CD changer

- Switch off radio.

"Concert II" radio:

- Press the CD button on the radio and switch on the radio at the same time.

"Symphony II" radio:

- Press the "4" button on the radio and switch on the radio at the same time, keeping the ON button pressed in.

All models:

1. Wire connection OK

Indication on radio display:

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"CONNECT"

2. Wire connection not OK

Indication on radio display:

"NO CDC"

- Check electrical harness connector at CD changer.
- Repeat wiring check and if not OK, check wiring connector according to wiring diagram.

Refer to Electrical Wiring Diagrams, Troubleshooting & Component Locations, Cabriolet

Satellite radio, removing and installing

Removing

- Remove left side luggage compartment trim.

Refer to **70 - INTERIOR TRIM**

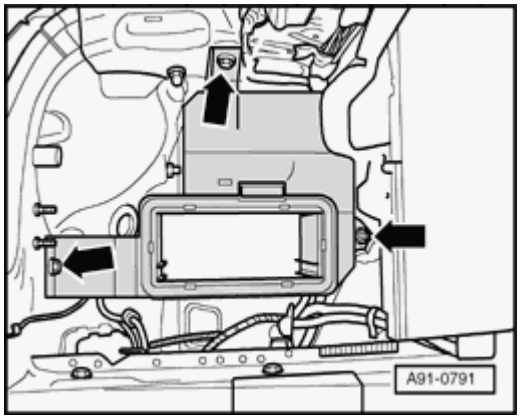

Fig. 33: Identifying Bolts Of Base Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts -arrows- (14 Nm) and remove base plate.

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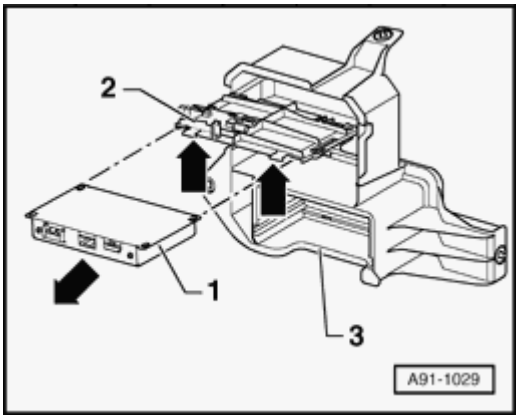

Fig. 34: Identifying Satellite Radio, Adapter, And Base Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connectors from satellite radio -1-.

Adapter -2- remains in base plate -3-.

- Press both catches -arrows- on adapter -2- upward and pull out satellite radio -1- in direction of arrow.

Installing

Installation is performed in reverse order of removal.

Speakers in front doors, removing and installing

Front bass speakers, removing and installing

Removing

- Remove front door trim.

Refer to **70 - INTERIOR TRIM**

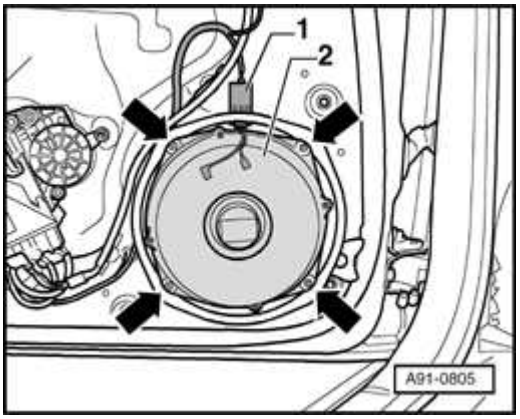

Fig. 35: Identifying Connector, Bolts, And Speaker

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unplug the connector -1-.
- Remove bolts -arrows- at speaker -2- and remove speaker.

Installing

Installation is the reverse of removal, paying attention to the following:

- Hook retaining clip of speaker into installation opening.
- Tighten speaker bolts to 2 Nm.

Front treble speaker, removing and installing

Removing

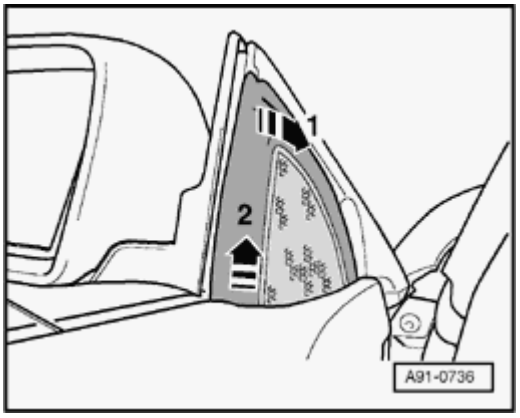

Fig. 36: Identifying Mirror Base And Door Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove speaker cover at top of door from mirror base -arrow 1-.
- Next, remove speaker cover upward from door trim -arrow 2-.

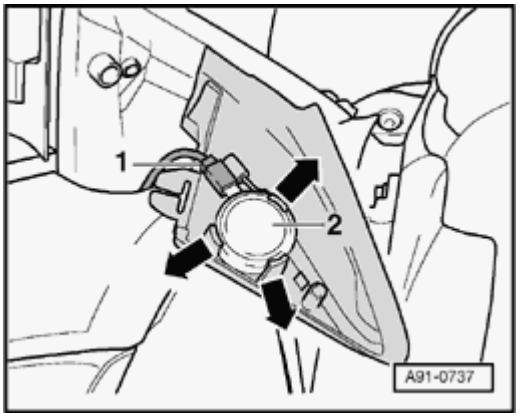

Fig. 37: Identifying Connector, Clips, And Treble Speaker

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unplug the connector -1-.
- Disengage clips -arrows- and remove treble speaker -2-.

Installing

Installation is the reverse of removal.

Speaker in side trim, rear, removing and installing

Special Tools and Equipment

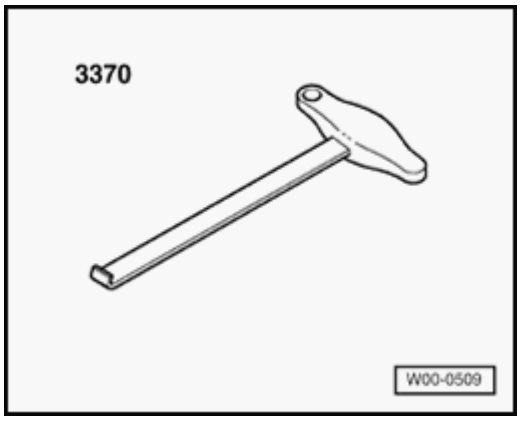

Fig. 38: Identifying Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Special hook for front end 3370

Removing

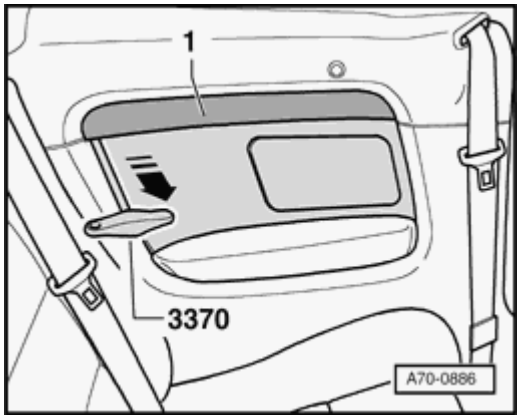

Fig. 39: Removing Cover From Retaining Clips At Rear Side Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using 3370 special hook, carefully remove cover -1- from retaining clips at rear side trim.

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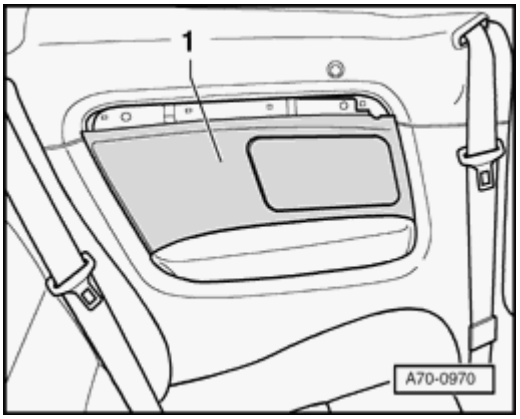

Fig. 40: Prying Out Center Piece Of Side Trim At Upper Edge From Rear Side Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry out center piece -1- of side trim at upper edge from rear side trim and remove.

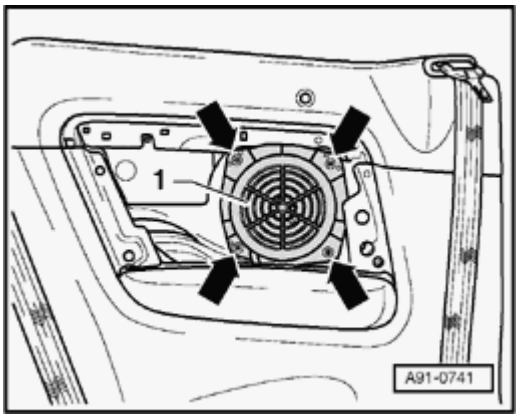

Fig. 41: Identifying Bolts For Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts -arrows-.
- Unplug the connector.
- Remove speaker.

Installing

Installation is the reverse of removal, paying attention to the following:

- Tighten speaker bolts to 2 Nm.

Speaker in instrument panel, removing and installing

Special Tools and Equipment

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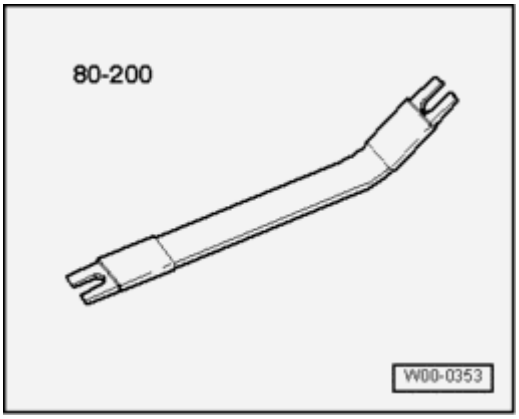

Fig. 42: Identifying Pry Lever 80-200
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 80-200 pry lever

Treble speaker, front, removing and installing

Removing

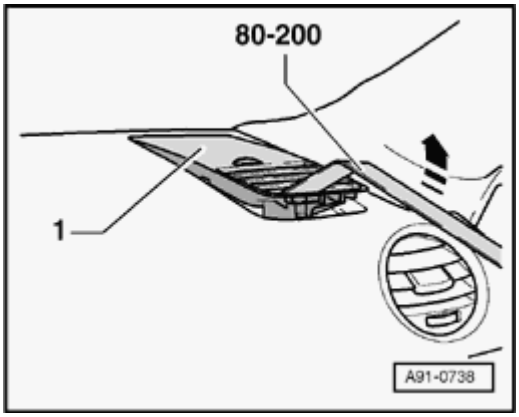

Fig. 43: Prying Off Speaker Cover From Instrument Panel
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using 80-200 pry lever, carefully pry off speaker cover -1- from instrument panel.

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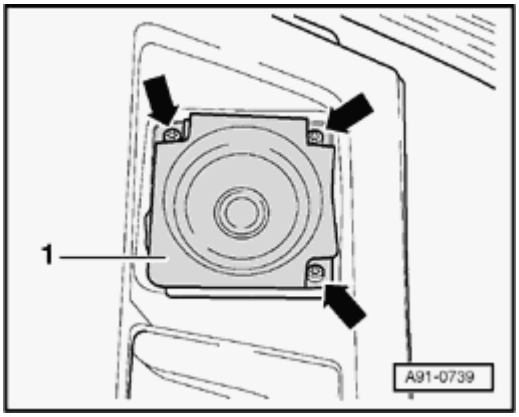

Fig. 44: Identifying Bolts For Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts -arrows- at speaker -1- and remove speaker.
- Unplug the connector.

Installing

Installation is the reverse of removal, paying attention to the following:

- Tighten speaker bolts to 2 Nm.

Center treble speaker, removing and installing

Removing

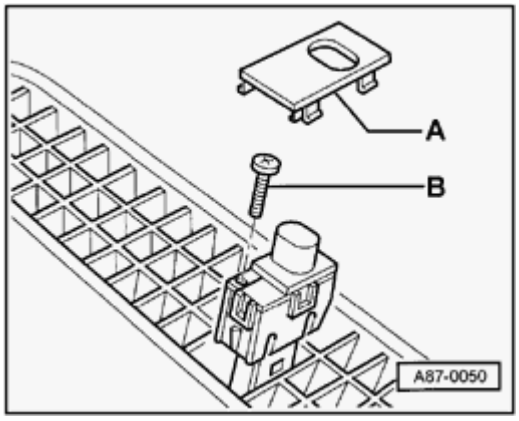

Fig. 45: Removing Photo Sensor
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully pry off cover -A- of photo sensor.
- Remove bolt -B-.
- Unplug the connector.
- Remove defroster vent.

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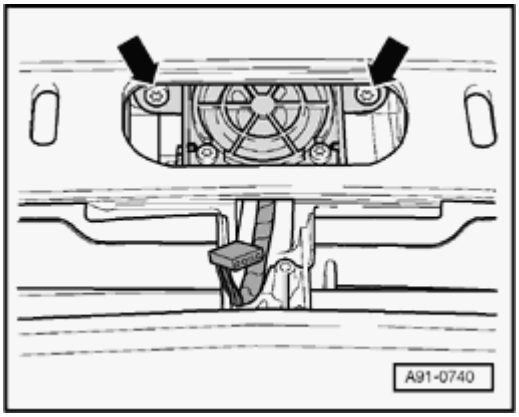

Fig. 46: Identifying Bolts For Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts -arrows-.
- Swing speaker out and disconnect harness connector.

Installing

Installation is the reverse of removal, paying attention to the following:

- Tighten speaker bolts to 2 Nm.
- Tighten bolt for defroster vent and photo sensor to 0.8 Nm.

Amplifier for the rear speakers or BOSE amplifier, removing and installing

Removing

- Remove right side trim in luggage compartment.

Refer to **70 - INTERIOR TRIM**

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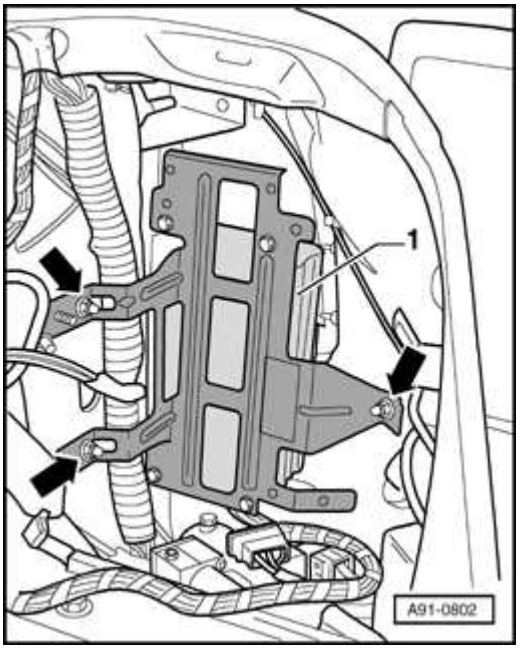

Fig. 47: Identifying Nuts, Retaining Plate, And Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts -arrows- and remove retaining plate with amplifier -1-.
- Unplug the connector.
- If necessary, unbolt amplifier from retaining plate.

Installing

Installation is the reverse of removal, paying attention to the following:

- Tighten threaded connections of retaining plate.

Tightening torques

Component		Nm
Amplifier to retaining plate		9
Retaining plate to chassis		9

Antennas in rear lid - overview

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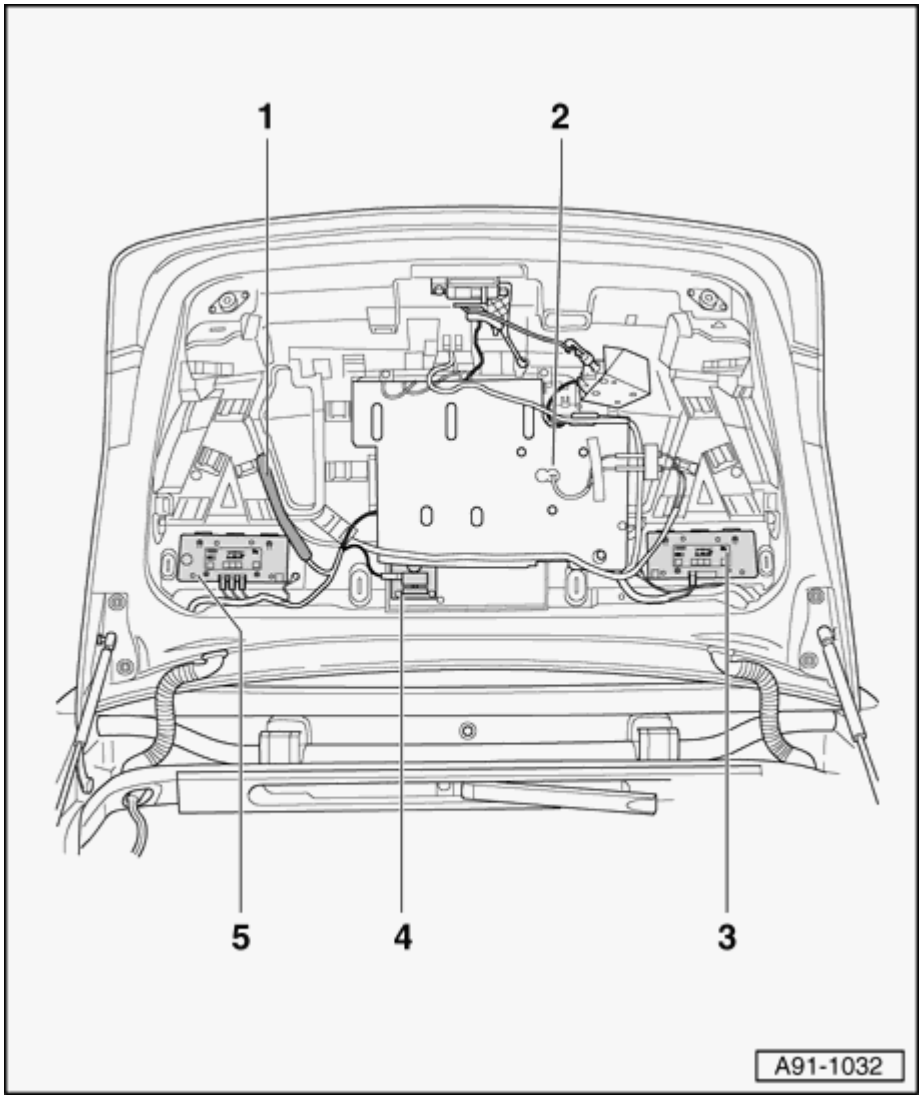

Fig. 48: Antennas In Rear Lid - Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Central Locking and Anti-theft Alarm System Antenna -R47-

2 - Satellite Tuner Antenna -R172-

- Removing and installing. See **Satellite tuner antenna, removing and installing**

3 - Right Antenna Module -R109-

- Removing and installing. See **Right Antenna Module -R109- removing and installing**

4 - Antenna for Navigation System (GPS) -R50-

5 - Left Antenna Module -R108-

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- Removing and installing. See **Left Antenna Module -R108- removing and installing**

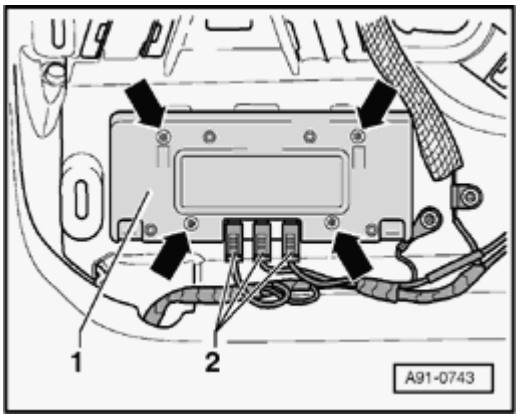

Fig. 49: Identifying Left Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Left Antenna Module -R108- removing and installing

- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

- Unplug the connectors -2-.
- Remove bolts -arrows- and remove left antenna module -1-.
- Connect harness connectors according to the color coding.
- Tighten threaded connections of antenna module to 3.5 Nm.

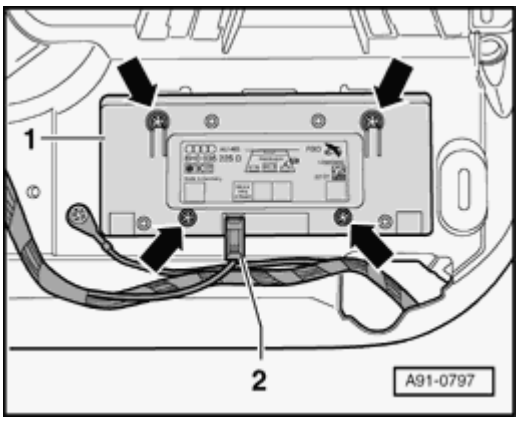

Fig. 50: Identifying Connectors, Bolts, And Left Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Right Antenna Module -R109- removing and installing

- Remove rear lid trim.

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Refer to **70 - INTERIOR TRIM**

- Unplug the connector -2-.
- Remove bolts -arrows- and remove right antenna module -1-.
- Tighten threaded connections of antenna module to 3.5 Nm.

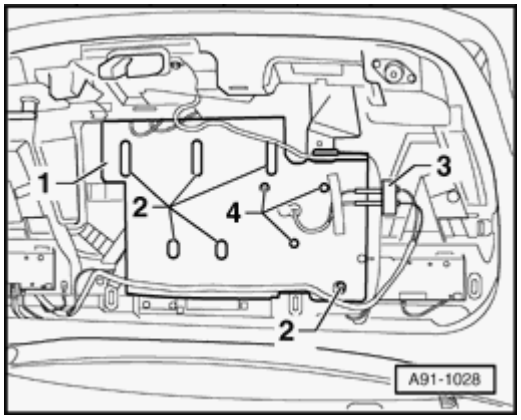

Fig. 51: Identifying Connector, Bolts, And Right Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Satellite tuner antenna, removing and installing

- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

- Disconnect harness connectors -3-.
- Remove bolts -2- and remove base plate -1- with antenna.
- Remove bolts -4- and remove antenna from base plate -1-.

Installation is performed in the reverse order of removal.

NAVIGATION SYSTEM IV

Navigation system IV

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch the ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting vehicle battery, re-code and check operation of anti-theft radio. Also check operation of clock and power windows according to Repair Information and/or Owner's Manual.**

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NOTE:

- **Further measures after reconnecting power supply:**

Refer to

- **24 MULTIPORT FUEL INJECTION (MFI)** for 1.8 LITER 4-CYL. 5V TURBO FUEL INJECTION & IGNITION, ENGINE CODE(S): AMB
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 2.0 LITER 4-CYL. 4V TURBO FUEL INJECTION IGNITION, ENGINE CODE(S): BPG, BWT
- **24 MULTIPORT FUEL INJECTION (MFI)** for 3.0 LITER 6-CYL. 5V FUEL INJECTION & IGNITION, ENGINE CODE(S): AVK, BGN
- **24 - FUEL INJECTION SYSTEM** for 3.2 V6 4V FUEL INJECTION IGNITION, ENGINE CODE(S): BKH
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 4V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BNS
- **24 MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 5V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BHF

General description

All displays appear on the instrument cluster which is connected via the CAN-bus.

All entries are made via buttons on multi-function switch.

A radio with speakers is necessary for voice output

The system consists of:

- Multi-function switch (operating unit)
- Instrument cluster (display unit)
- Control module for navigation with CD-mechanism (central unit and navigation unit)
- GPS-antenna

Navigation system IV, general overview

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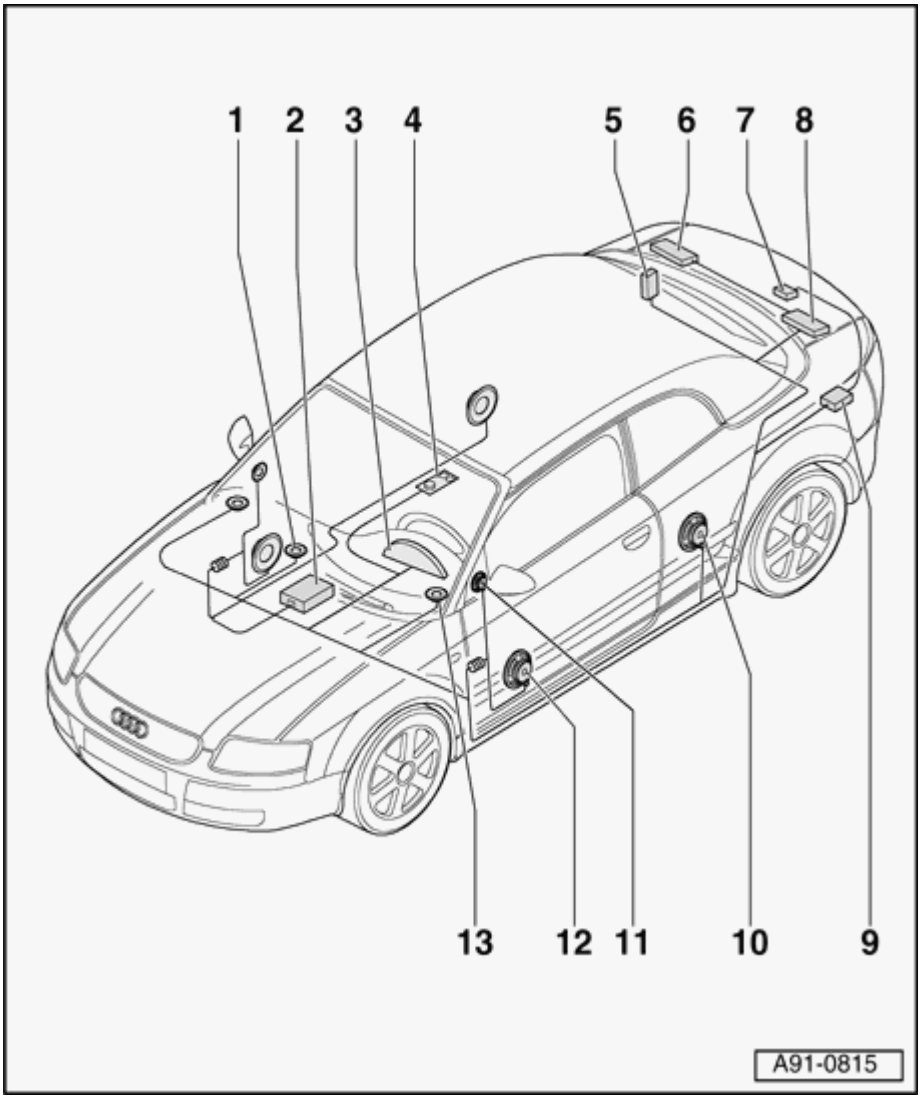

Fig. 52: Navigation System IV, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Center loudspeaker

- In instrument panel
- Removing and installing. Refer to **Center treble speaker, removing and installing**

2 - Radio -R-

- In center console
- Removing and installing, starting on. Refer to **"Concert II" radio, removing and installing**

3 - Display in instrument cluster

- Removing and installing instrument cluster:

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Refer to **90 INSTRUMENTS**

4 - Function Selector Switch II -E272-

- In center console
- Removing and installing. Refer to **Function Selector Switch II -E272-, removing and installing**

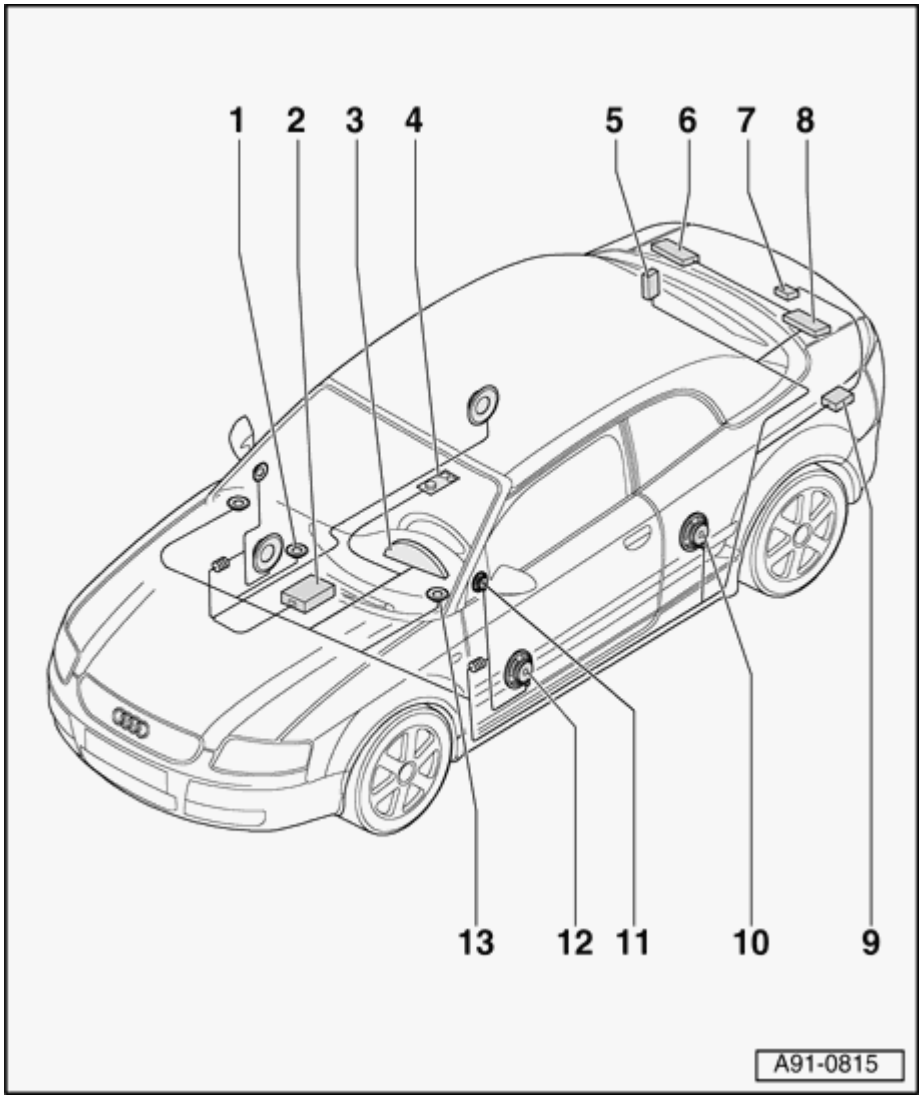

Fig. 53: Navigation System IV, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Amplifier -R12- for the rear speaker or BOSE amplifier (only for "BOSE sound system")

- In luggage compartment, right rear behind side trim
- Amplifier for the rear speakers or BOSE amplifier removing and installing. Refer to **Amplifier for the rear speakers or BOSE amplifier, removing and installing**

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6 - Right Antenna Module -R109-

- Behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

7 - Navigation antenna (GPS) -R50

- Behind the rear lid trim
- Removing and installing. Refer to **Antennas in rear lid - overview**

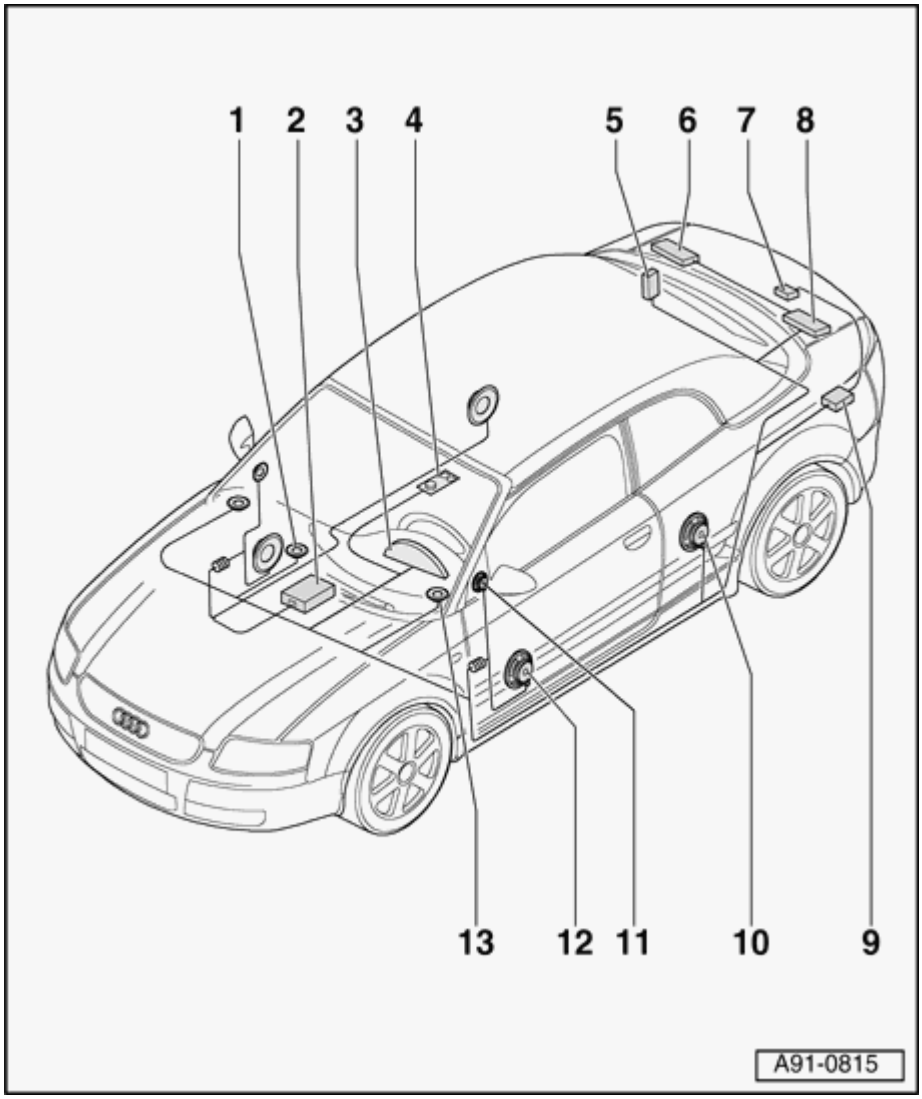

Fig. 54: Navigation System IV, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

8 - Left Antenna Module -R108-

- Behind the rear lid trim

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- Removing and installing. Refer to **Antennas in rear lid - overview**

9 - Control module for navigation with CD mechanism -J401

- In left base mount in luggage compartment
- Removing and installing. Refer to **Control module for navigation with CD-mechanism -J401-, removing and installing**

10 - Left Rear Speaker -R4-, Right Rear Speaker -R5-

- In rear side trim (bottom)
- Speaker (active): Mid-range/bass with treble bridge
- BOSE-speakers: Mid-range/bass
- Removing and installing. Refer to **Removing**

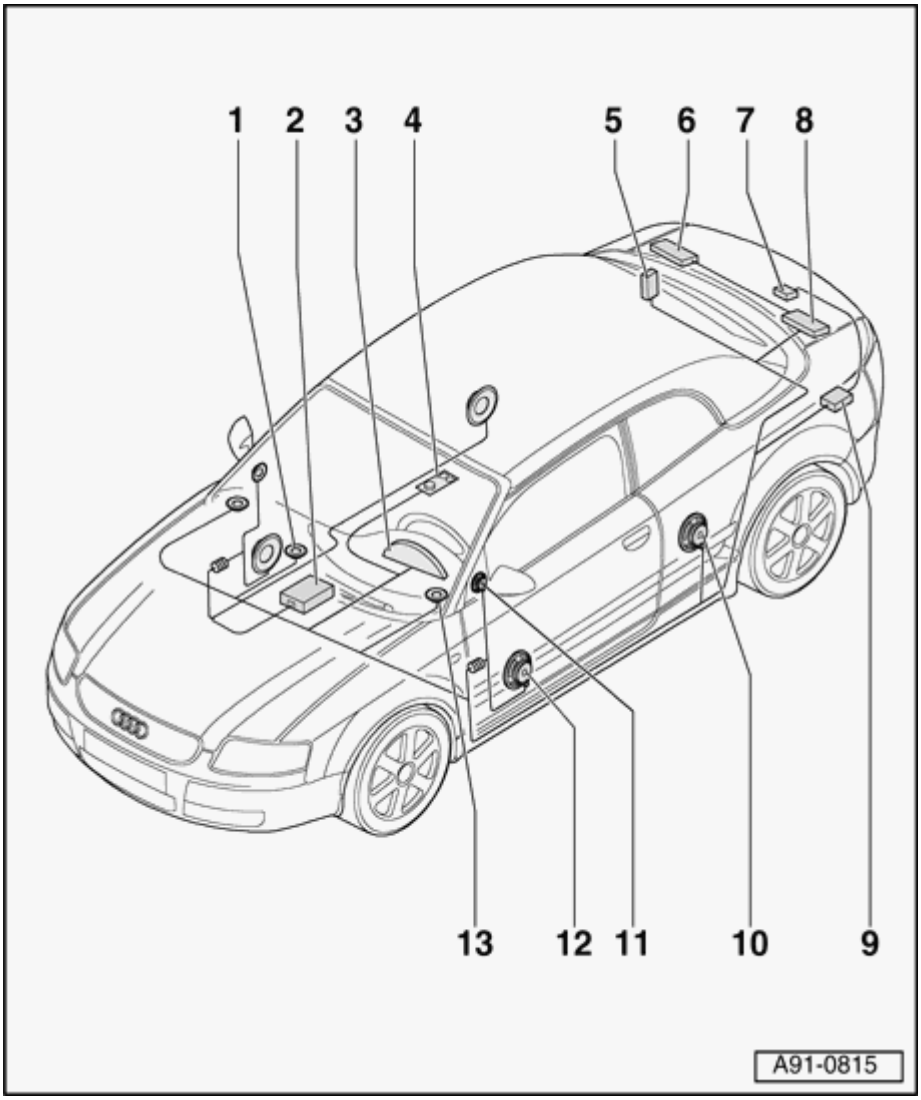

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Fig. 55: Navigation System IV, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

11 - Treble speaker, left front -R20-, Treble speaker, right front -R22-

- In front door (top)
- Removing and installing. Refer to **Front treble speaker, removing and installing**

12 - Bass speaker, left front -R21-, Bass speaker, right front -R23-

- In front door trim (bottom)
- Removing and installing. Refer to **Speakers in front doors, removing and installing**

13 - Left Front DSP Midrange Speaker -R103-, Right Front DSP Midrange Speaker -R104-

- In instrument panel
- Removing and installing. Refer to **Speaker in instrument panel, removing and installing**

Navigation system IV, design

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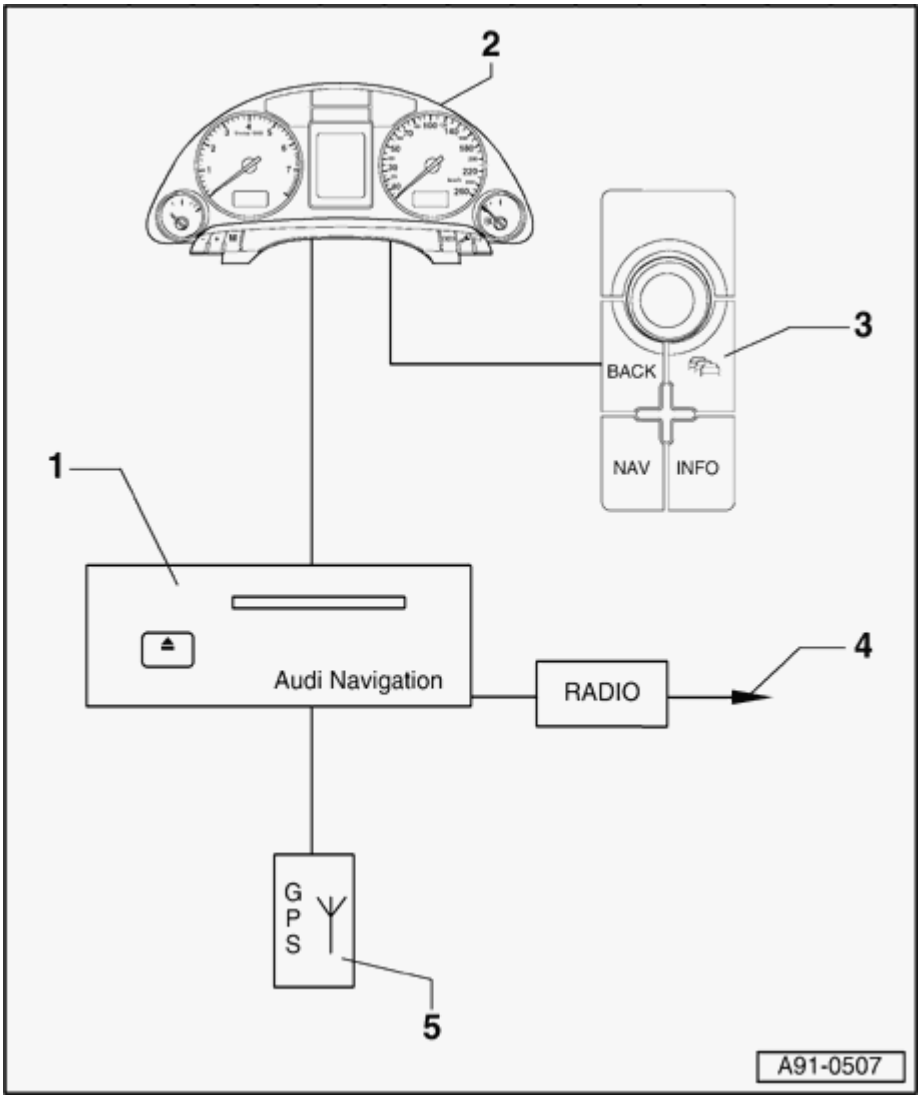

Fig. 56: Navigation System IV, Design
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Control module for navigation with CD-mechanism (central unit and navigation unit)

- In left base mount in luggage compartment

2 - Instrument cluster (display unit)

3 - Board computer function selector switch (operating unit)

- In center console

4 - to the speakers activated for voice output

5 - Navigation antenna (GPS)

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- Behind the rear lid trim

Connectors at rear of Control module for navigation with CD-mechanism -J401

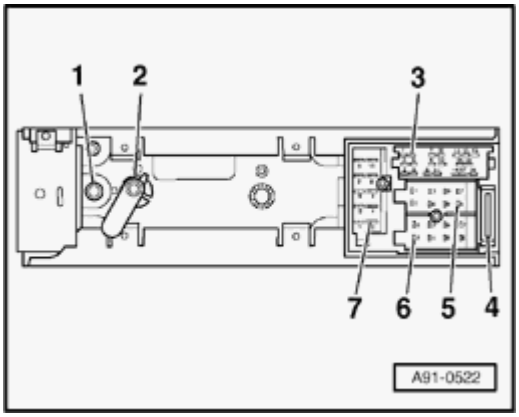

Fig. 57: Identifying Connectors At Rear Of Control Module For Navigation With CD-Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - GPS antenna connection

2 - Retainer bar for antenna connection

3 - Multi-pin connector I, 20-pin, black

4 - Fuse

5 - Multi-pin connector II, 8-pin, brown

6 - Multi-pin connector III, 8-pin, black

7 - Multi-pin connector IV, 10-pin, red

Multi-pin harness connectors I, II, III, and IV on reverse side of Control module for navigation with CD-mechanism -J401-

NOTE: Unmentioned connector terminals are not assigned.

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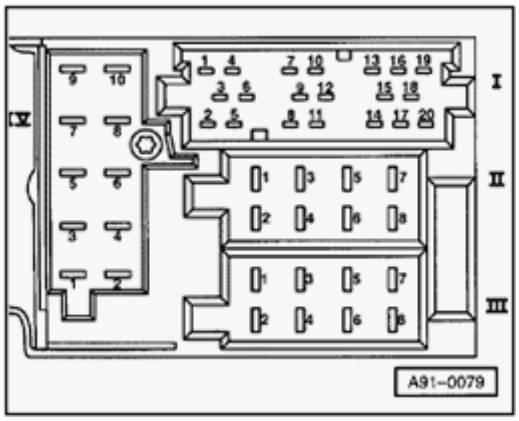

Fig. 58: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector I, 20-pin

2 - CAN-Bus high (display)

5 - CAN-Bus low (display)

13 - low frequency + (voice output)

14 - Radio muting (output)

15 - low frequency - (voice output)

16 - Telephone low frequency (+)

17 - Telephone muting (input)

19 - Telephone low frequency (-)

Multi-pin connector II, 8-pin, brown

Not assigned

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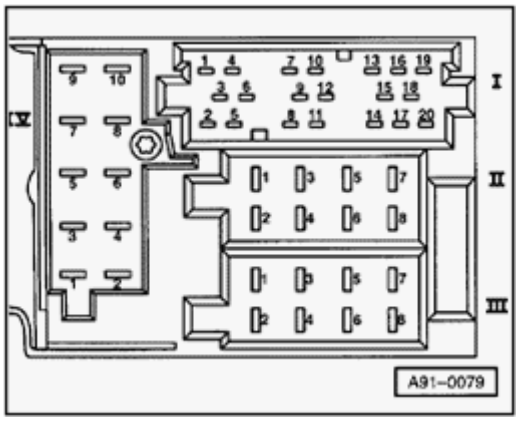

Fig. 59: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector III, 8-pin, black

1 - Gala (RPM signal)

2 - Reverse light switch

3 - L diagnostic

4 - Terminal 15

7 - Terminal 30

8 - Terminal 31

Multi-pin connector IV, 10-pin, red

Not assigned

Function Selector Switch II -E272-, removing and installing

Removing

- Pull up parking brake lever.

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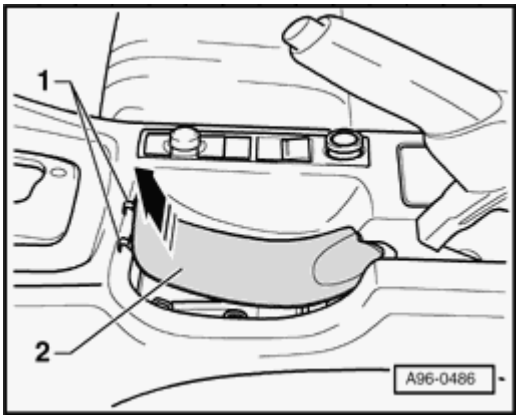

Fig. 60: Unclipping Cover Below The Parking Brake Lever At Mounting Springs
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip cover -2- below the parking brake lever at mounting springs -1-.

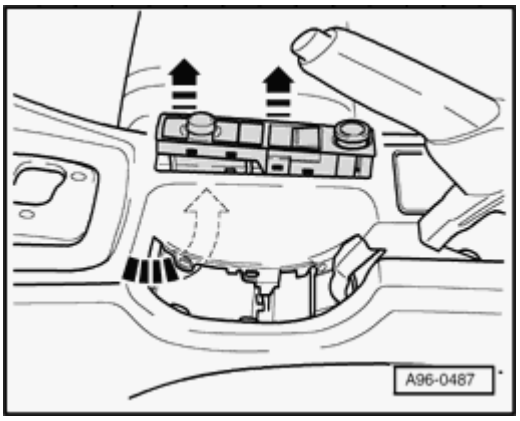

Fig. 61: Pressing Out Convertible Top Operation Switch/Navigation From Center Console
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Grasp opening below parking brake lever and press Convertible Top Operation Switch/navigation out of center console from bottom -arrows-.

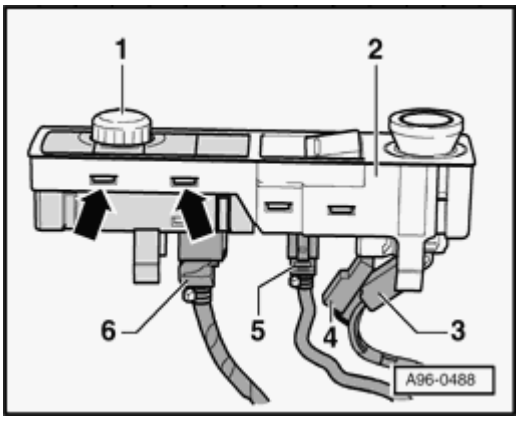

Fig. 62: Identifying Electrical Harness Connectors, Catches, Navigation Switch, And Mounting Frame

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connectors -3 to 6-.
- Carefully release catches -arrows- using a small screwdriver.
- Remove Function Selector Switch II position 1 from mounting frame -2-.

Installing

Installation is the reverse of removal.

Control module for navigation with CD-mechanism -J401-, removing and installing

Special Tools and Equipment

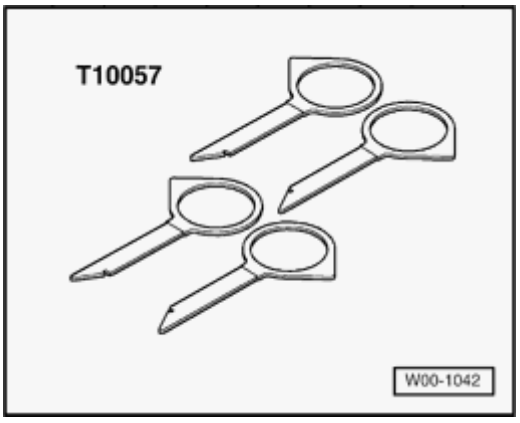

Fig. 63: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- T10057 radio removal tool

Removing

- Open lid in left luggage compartment side trim.

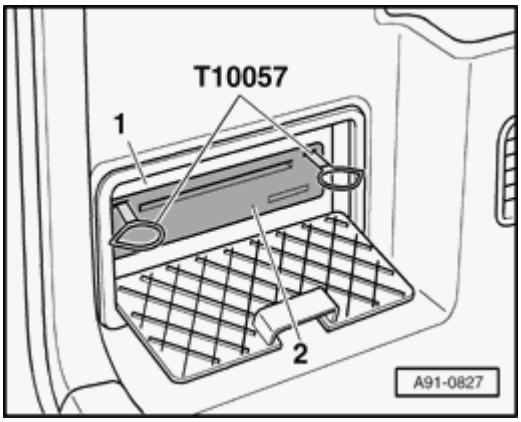

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Fig. 64: Insert Two Hooks Of T10057 Radio Removal Tool Into Front Of Control Module For Navigation With CD Drive
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two hooks of T10057 radio removal tool into the front of Control module for navigation with CD drive -2-.

- Top L - left top
- Top R - right top

- Pull Control module for navigation with CD-mechanism out of mounting frame -1-.
- Disconnect electrical harness connectors and antenna wire at rear of control module for navigation with CD-mechanism.
- Remove radio removal tool from control module for navigation with CD-mechanism, press locking latches at control module to do so.

Installing

Installation is the reverse of removal, paying attention to the following:

NOTE:

- **After installation of a new control module for navigation, the navigation must remain switched on for a specific time so that the system data of the respective satellites can be loaded. This procedure should be performed outdoors and can last up to 20 minutes. Only following this is the navigation useable.**

Antennas in rear lid - overview

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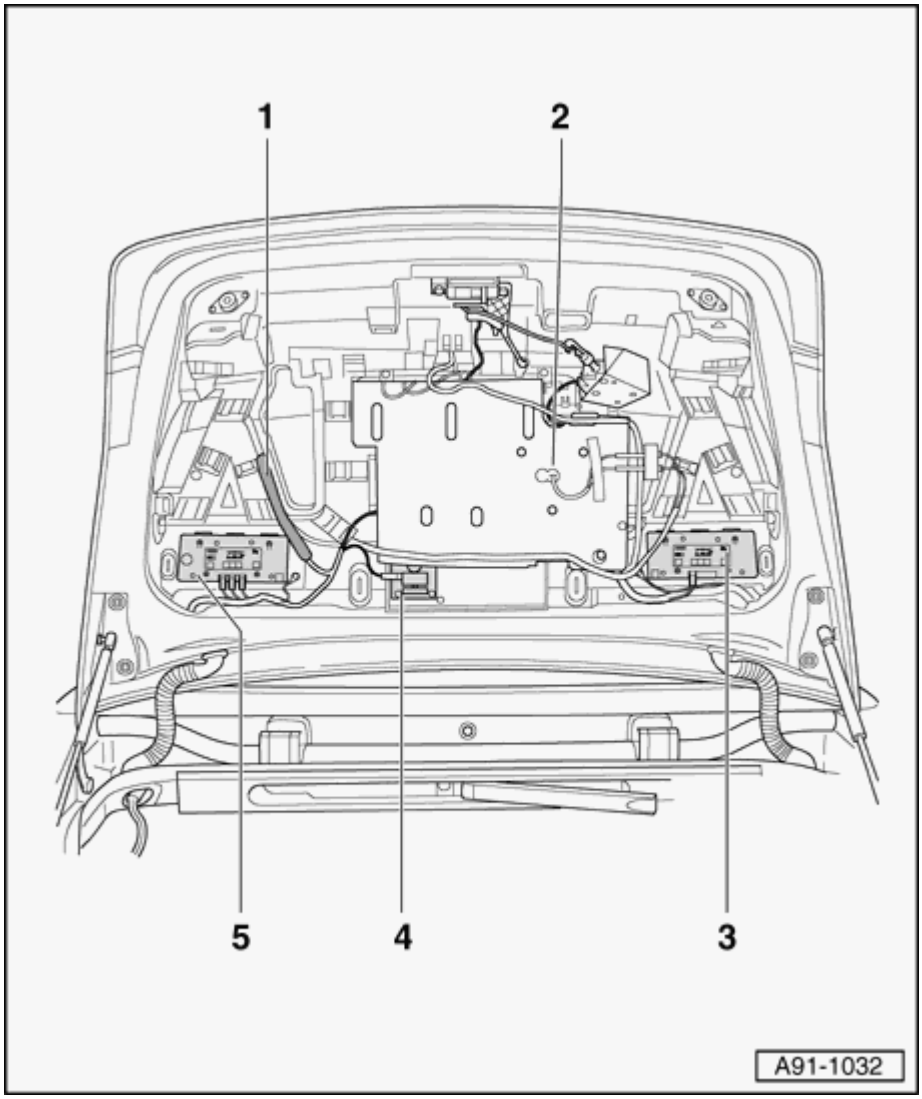

Fig. 65: Antennas In Rear Lid - Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Central Locking and Anti-theft Alarm System Antenna -R47-

2 - Satellite Tuner Antenna -R172-

- Removing and installing. Refer to **Satellite tuner antenna, removing and installing**

3 - Right Antenna Module -R109-

- Removing and installing. See **Right Antenna Module -R109-, removing and installing**

4 - Navigation antenna (GPS) -R50-

- Removing and installing. See **Antenna for Navigation System (GPS) -R50-, removing and installing**

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5 - Left Antenna Module -R108-

- Removing and installing. See **Left Antenna Module -R108-, removing and installing**

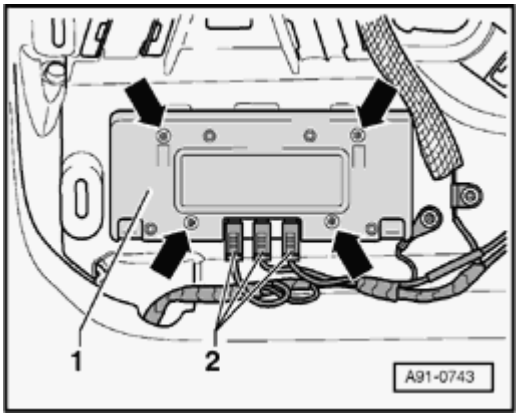

Fig. 66: Identifying Left Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Left Antenna Module -R108-, removing and installing

- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

- Unplug electrical connectors -2-.
- Remove bolts -arrows- and remove left antenna module -1-.
- Connect harness connectors according to the color coding.
- Tighten connections of antenna module to 3.5 Nm.

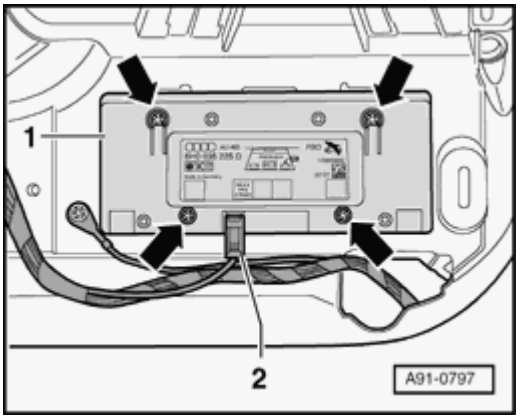

Fig. 67: Identifying Connectors, Bolts, And Left Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Right Antenna Module -R109-, removing and installing

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- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

- Unplug electrical connector -2-.
- Remove bolts -arrows- and remove right antenna module -1-.
- Tighten connections of antenna module to 3.5 Nm.

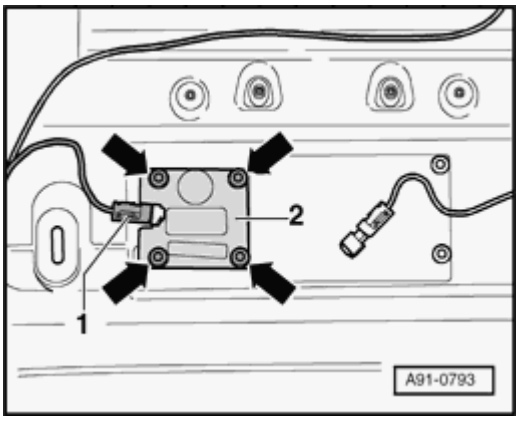

Fig. 68: Identifying Connector, Bolts, And Right Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Antenna for Navigation System (GPS) -R50-, removing and installing

- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

- Unplug connector -1-.
- Remove bolts -arrows- and remove GPS antenna -2-.
- Tighten connections of GPS antenna to 3.5 Nm.

Satellite tuner antenna, removing and installing

Removing

- Remove rear lid trim.

Refer to **70 - INTERIOR TRIM**

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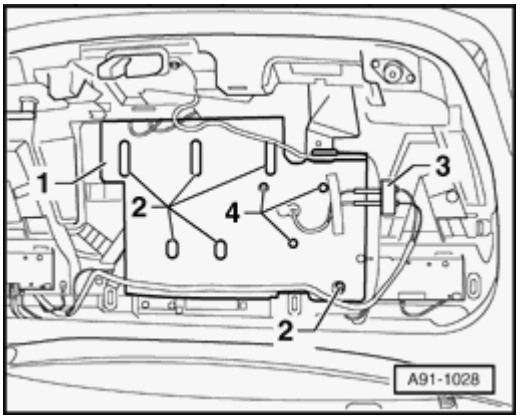

Fig. 69: Identifying Connector, Bolts, And Right Antenna Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connectors -3-.
- Remove bolts -2- and remove base plate -1- with antenna.
- Remove bolts -4- and remove antenna from base plate -1-.

Installing

Installation is performed in the reverse order of removal.

STEERING COLUMN ELECTRONIC SYSTEMS CONTROL MODULE -J527-

Steering Column Electronic Systems Control Module -J527-

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch the ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting vehicle battery, re-code and check operation of anti-theft radio. Also check operation of clock and power windows according to Repair Information and/or Owner's Manual.**

NOTE:

- **Further measures after reconnecting power supply:**

Refer to

- **24 MULTIPORT FUEL INJECTION (MFI)** for 1.8 LITER 4-CYL. 5V TURBO FUEL INJECTION & IGNITION, ENGINE CODE(S): AMB
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 2.0 LITER 4-CYL. 4V TURBO FUEL INJECTION IGNITION, ENGINE CODE(S): BPG, BWT
- **24 MULTIPORT FUEL INJECTION (MFI)** for 3.0 LITER 6-CYL. 5V FUEL INJECTION &

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IGNITION, ENGINE CODE(S): AVK, BGN

- **24 - FUEL INJECTION SYSTEM** for 3.2 V6 4V FUEL INJECTION IGNITION, ENGINE CODE(S): BKH
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 4V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BNS
- **24 MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 5V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BHF

General description

Steering Column Electronic Systems Control Module -J527- is part of the complete system "steering column switch module" (SCSM). For example, it receives its signals from the steering column switch.

Use VAS 5051 tester to check Steering Column Electronic Systems Control Module -J527-.

Terminal assignment at Steering Column Electronic Systems Control Module -J527- (front)

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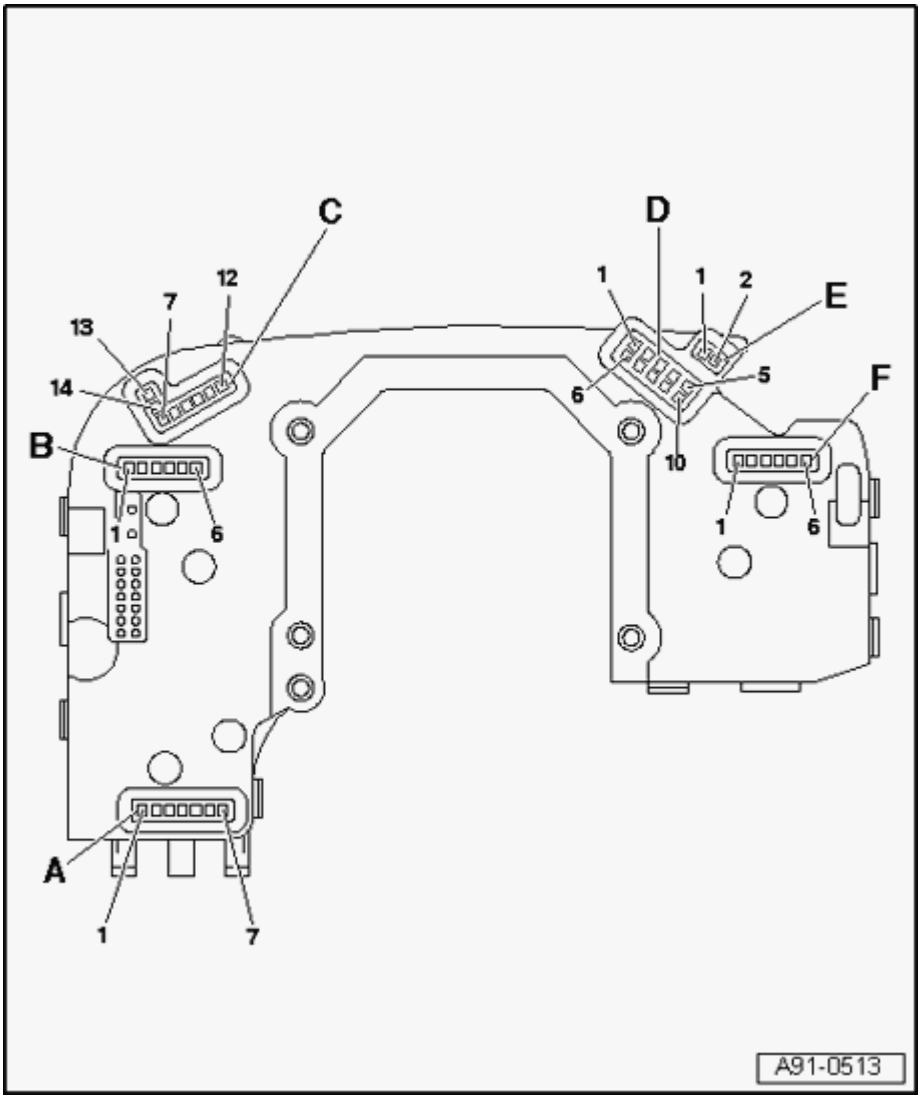

Fig. 70: Steering Column Electronic Systems Control Module (Front) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - Cruise control system connector

1 - Ground (GND)

2 - Hold

3 - Distance

4 -12 V power supply

5 - Mount/Tip function "Off"

6 - Acceleration/Deceleration

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7 - Engaged "Off"

B - Turn signal connector

1 - Ground (GND)

2 - Radio remote control (special vehicles)

3 - Alarm (special vehicles)

4 - Not used

5 - Headlight flasher/headlight switch

6 - Turn signal

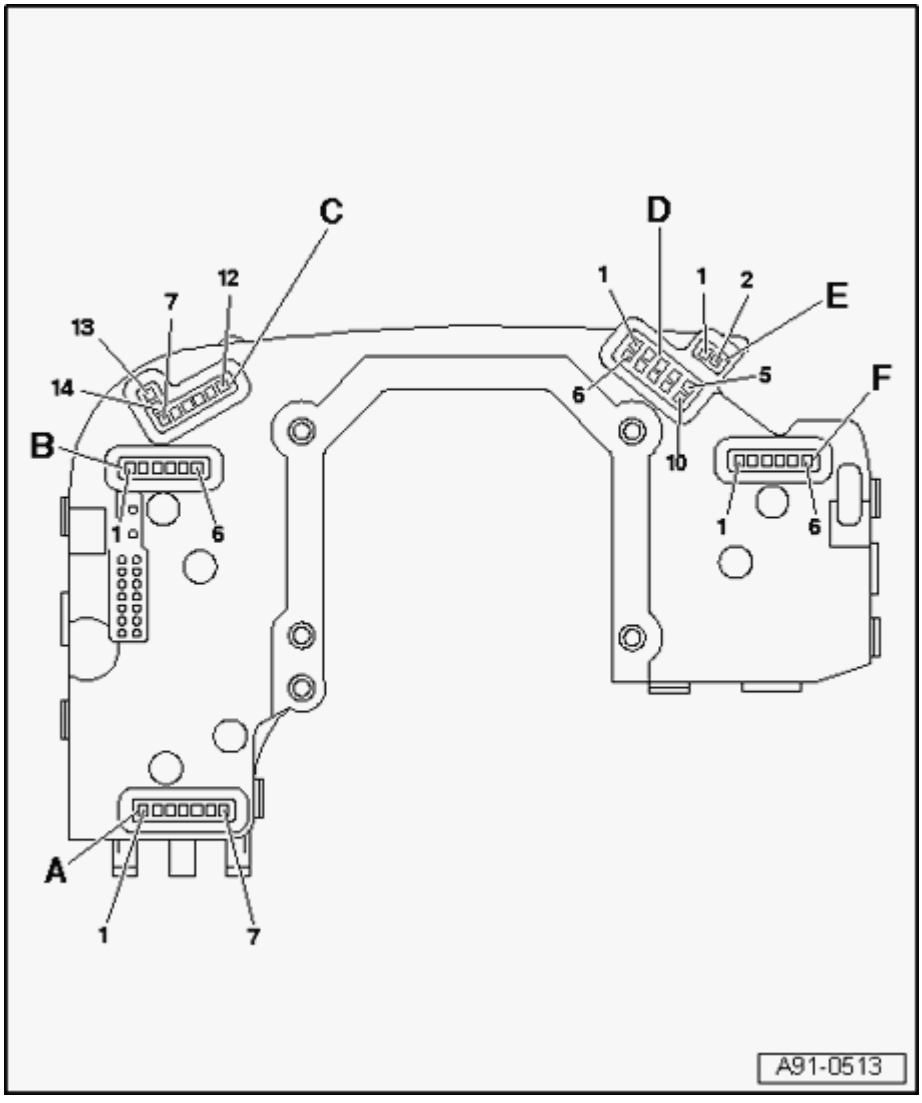

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Fig. 71: Steering Column Electronic Systems Control Module (Front) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Connector for multi-function steering wheel/tiptronic/heated steering wheel

7 - Push-button "-"

8 - Multi-function steering wheel "+"- power supply

9 - Multi-function steering wheel data

10 - Heat sensor/push - button "+"

11 - Multi-function steering wheel dimmer

12 - Tiptronic ground (GND)

13 - Steering wheel heating "+"

14 - Steering wheel heating "-"

D - Steering angle sensor

1 - Light barrier 5

2 - Light barrier 3

3 - Light barrier 1

4 -12 V voltage supply

5 - 5 V voltage supply

6 - Light barrier 6

7 - Light barrier 4

8 - Light barrier 2

9 - Steering angle sensor Ground (GND)

10 - Light barrier 7

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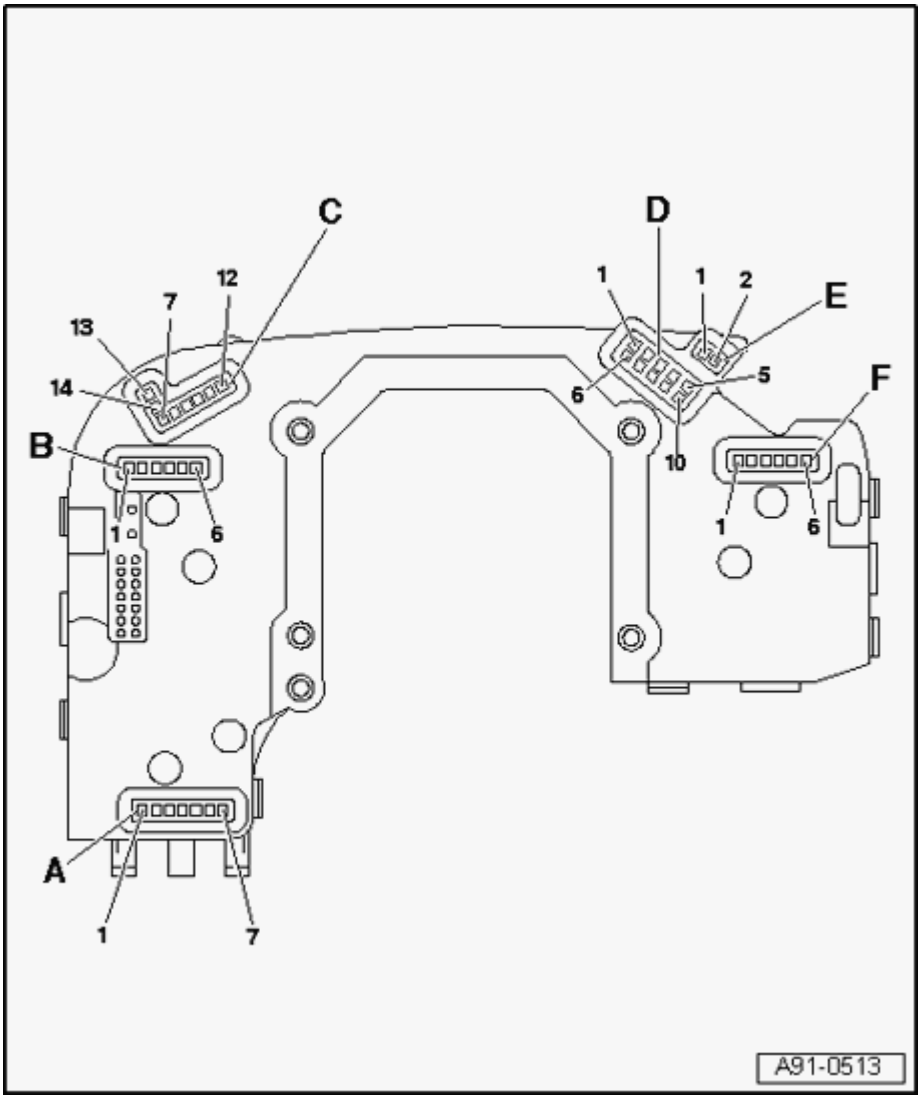

Fig. 72: Steering Column Electronic Systems Control Module (Front) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

E - Signal horn

1 - Horn Ground (GND)

2 - Horn

F - Wiper system

1 - Ground (GND)

2 - Wiper delay potentiometer

3 - Trip computer

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4 - Not Used

5 - Washer

6 - Wipers

Terminal assignment at Steering Column Electronic Systems Control Module -J527- (rear)

Multi-pin connector, 16-pin

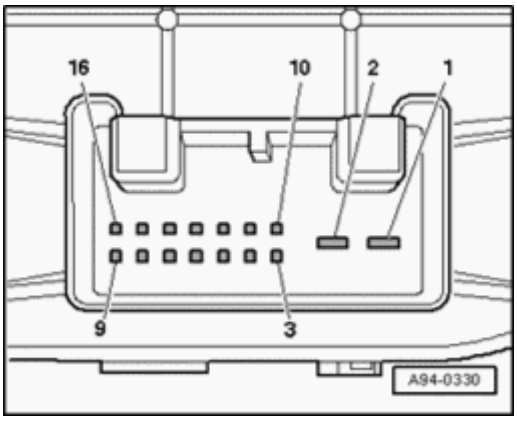

Fig. 73: Steering Column Electronic Systems Control Module (Rear) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Ground (GND)

2 - Terminal 30

3 - Screening for CAN bus

4 - Not assigned

5 - Cruise Control System engages in Off position

6 - Alarm (special vehicles)

7 - Radio remote control (special vehicles)

8 - Comfort system databus Low

9 - Comfort system databus High

10 - Data bus drive (screened) High

11 - Data bus drive (screened) Low

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12 - Ignition lock terminal 75

13 - Ignition lock terminal 15

14 - Ignition lock S-contact

15 - Ignition lock terminal 50

16 - Ignition lock terminal P

MULTI-FUNCTION STEERING WHEEL

Multi-function steering wheel

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch the ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting vehicle battery, re-code and check operation of anti-theft radio. Also check operation of clock and power windows according to Repair Information and/or Owner's Manual.**

NOTE:

- **Further measures after reconnecting power supply:**

Refer to

- **24 MULTIPORT FUEL INJECTION (MFI)** for 1.8 LITER 4-CYL. 5V TURBO FUEL INJECTION & IGNITION, ENGINE CODE(S): AMB
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 2.0 LITER 4-CYL. 4V TURBO FUEL INJECTION IGNITION, ENGINE CODE(S): BPG, BWT
- **24 MULTIPORT FUEL INJECTION (MFI)** for 3.0 LITER 6-CYL. 5V FUEL INJECTION & IGNITION, ENGINE CODE(S): AVK, BGN
- **24 - FUEL INJECTION SYSTEM** for 3.2 V6 4V FUEL INJECTION IGNITION, ENGINE CODE(S): BKH
- **24 - MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 4V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BNS
- **24 MULTIPORT FUEL INJECTION (MFI)** for 4.2 LITER V8 5V FUEL INJECTION AND IGNITION, ENGINE CODE(S): BHF

General description

Function description:

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Six function buttons are integrated into the steering wheel for better operation of the radio system. In addition, the multi-function steering wheel is electrically heated (optional).

The electronics integrated in the steering wheel take over the transmission of the six function buttons to CAN-bus and dimming of the function buttons. On vehicles with automatic transmission, 2 additional buttons can be installed for Tiptronic shifting function. The electronics in the steering wheel cannot be replaced individually, the entire steering wheel must be replaced in case of a fault.

The multi-function steering wheel is part of the complete system "switch module-steering column (SMSC) and transmits its data to the Steering Column Electronic Systems Control Module -J527-.

Multi-function steering wheel, general overview

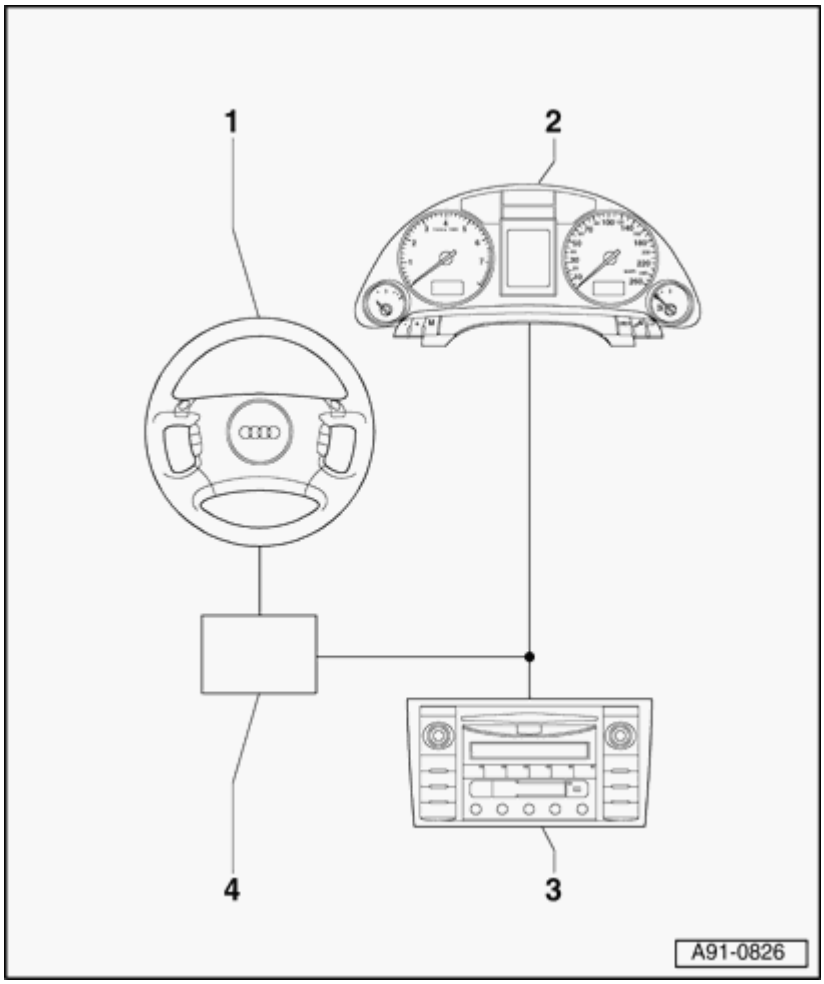

Fig. 74: Multi-Function Steering Wheel, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-function steering wheel

- With integrated control switches
- With steering wheel-integrated electronics

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2 - Instrument cluster

3 - Radio

- In center console

4 - Steering Column Electronic Systems Control Module -J527-

- Terminal assignment of Steering Column Electronic Systems Control Module -J527-. Refer to **Terminal assignment at Steering Column Electronic Systems Control Module -J527- (front)**

Operating switch on multi-function steering wheel, removing and installing

Removing

- Remove driver's side airbag unit.

Refer to **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS**

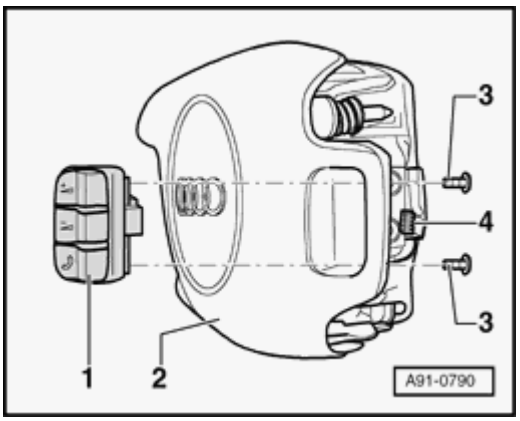

Fig. 75: Identifying Bolts, Connector, Operating Switch, And Airbag Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts -3-.
- Unplug the connector -4-.
- Slide operating switch -1- out of airbag unit -2- toward front.

Installing

Installation is the reverse of removal, paying attention to the following:

NOTE: When installing, make sure the connecting wires of connector -4- are reinserted into the guides.

- Tighten bolts -3- of operating switch to 1.1 Nm.

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ACCESSORIES & EQUIPMENT

Communication

91 - COMMUNICATION

RADIO SYSTEMS

General information

CAUTION:

- **Disconnect battery ground wire before working on electrical system.**
- **On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.**

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Only use Radio R and components from the Audi program because this is the only way to ensure problem-free installation and optimal reception.

All Radios R are coded to Comfort in the instrument cluster (anti-theft coding). When removing and installing the same Radio R , coding is not necessary after disconnecting voltage supply when removing and installing the same instrument cluster.

Radio generation II+ introduced from KW 45/06.

This used two tuners with "phase diversity" for reception.

Further removal steps are the same as with the "Symphony" radio.

If "Transport" appears in the display after switching on the Radio R , transport mode must be deactivated.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Information on Radio R and CD Changer R41 retrofitting

The connectors for the original Audi Radio R are provided in the radio package. Commercial radio units with different connectors must be connected with adapter cable.

When connecting the speed signal, ensure it is not short circuited. Otherwise, malfunctions can occur in the

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vehicle.

Using commercially available radios can cause interference with the antenna amplifier because the original Audi Radio R has "remotely powered antennas" which receive voltage supply from the Radio R via the middle conductor of the high frequency cable. Use the remote power adapter from Audi.

For CD preparation, the CD changer R41 wiring harness is already installed in the vehicle. The connecting wire can only be used with genuine Audi CD-changers R41.

Antenna system with Diversity function

The "Symphony" / from MY04, "Concert" /from MY05 and "Chorus" systems have an antenna system with diversity function. This improves and optimizes reception quality.

In addition to the roof antenna and rear window antenna with amplifier, an antenna in the rear or side with an amplifier is also used.

Individual antennas with amplifier are controlled via the Antenna Selection Control Module J515 (Diversity box).

The signal going via the antenna wire (HF) from Antenna Selection Control Module J515 into Radio R is checked and the results is output back to the Antenna Selection Control Module J515 via an additional antenna connection (IF).

If the antenna signal is too weak, the Antenna Selection Control Module J515 switches to another antenna (diversity function).

This switching process is neither seen nor heard.

The procedure is the same as "switching diversity".

With "phase diversity" , the Radio R has two internal tuners with one input each (AM/FM1, FM2).

If the signal received is interrupted, both signals are digitalized and separated in the tuners in the Radio R so that the disrupted signals are blocked out as much as possible.

If the reception signal is not disrupted, the Radio R constantly compares which antenna (amplifier) has the strongest reception. This is then transferred

In this case, the second tuner checks the frequency band in the background for better reception frequencies for the selected station. If a better signal is found, this tuner switches to reception and the other to the background.

BOSE system with "AudiPilot"

On vehicles with BOSE sound from MY04, an additional microphone, the Inside Microphone R74 is installed in the Front Interior Light W1. The Inside Microphone R74 is switched directly with the Amplifier R12 (BOSE).

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The Amplifier R12 (BOSE) is then in a position to the adapt the sound characteristics of the BOSE system to the changing interior noise. For example, if the interior noise becomes louder, the volume is then automatically increased according to prescribed sound curves.

The interior noise is less dominant, the sound experience improves.

Function test, see --> **Inside Microphone R74 , function test**

Transport mode in "Symphony II+"

The "Symphony" generation II+ has a special protection lock for the internal CD changer.

This is active when the unit is shifted and must be deactivated after installation.

In the same way, the transport protection must be activated before removing the unit.

Transport mode, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

Radio system overview

"Chorus" through KW 21/04

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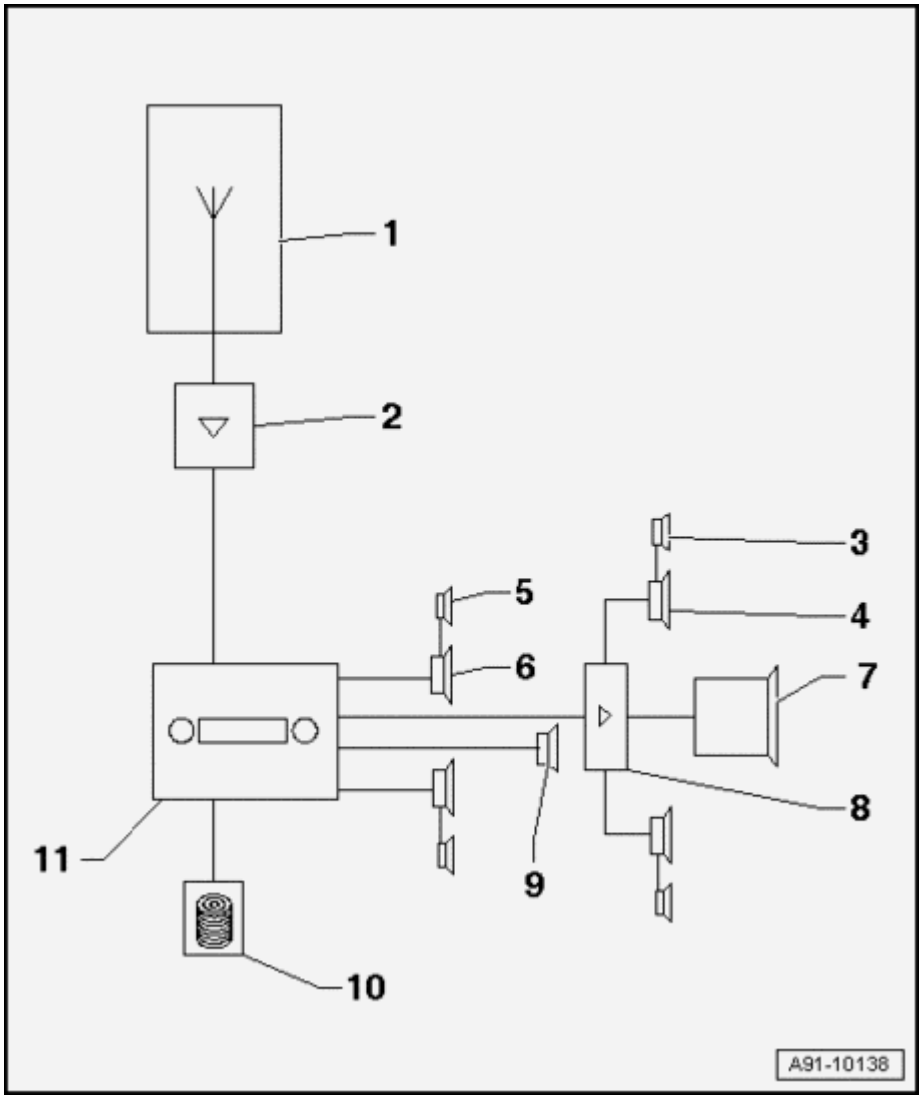

Fig. 1: Radio System Overview; "Chorus" Through KW 21/04
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM window antennas

2 - Sedan Antenna Amplifier R24 : behind roof end trim

- Avant Left Antenna Module R108 : Behind luggage compartment left side trim

3 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

4 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

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7 - Sedan Bass Loudspeaker R100 : in rear shelf/ Avant: behind luggage compartment right side trim

8 - Amplifier R12 behind luggage compartment right side trim

9 - Inside Loudspeaker R70 in front center instrument panel

10 - CD Changer R41 in glove compartment

11 - Radio R in upper center console

BOSE "Chorus" through KW 21/04

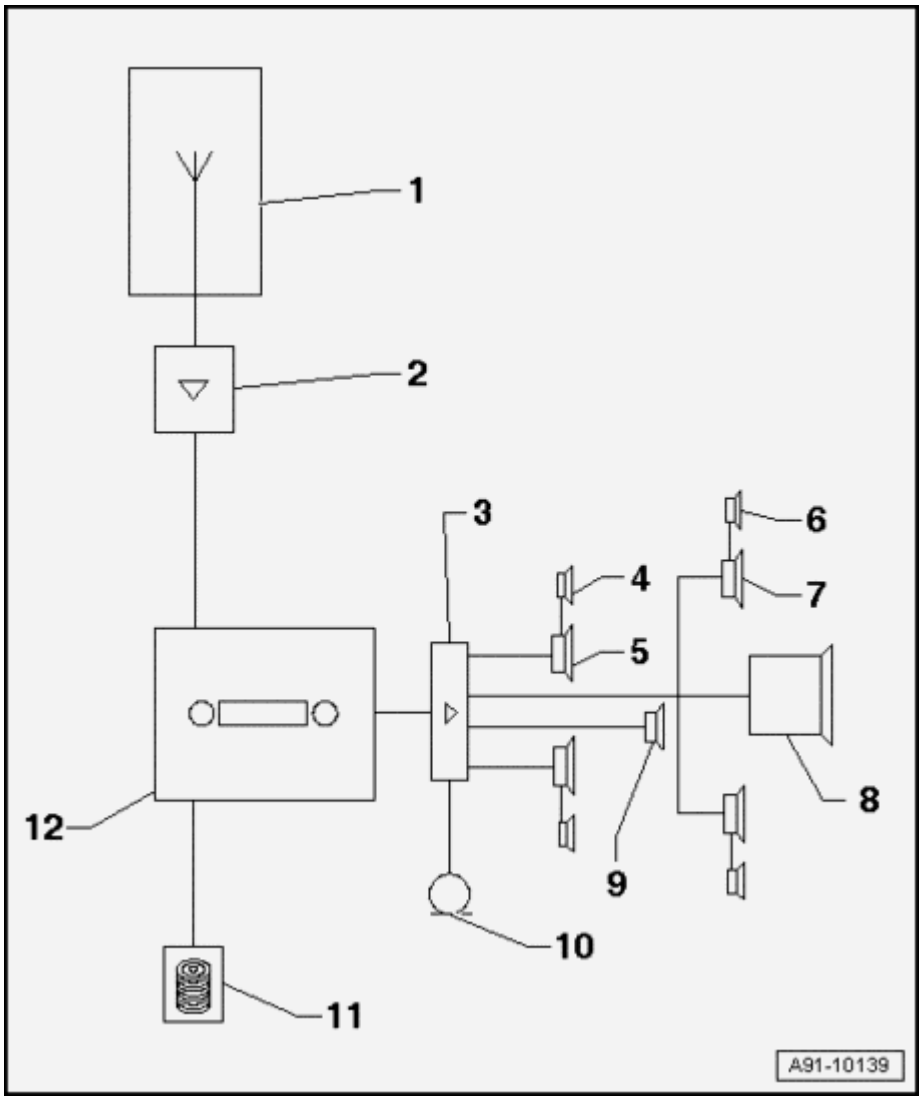

Fig. 2: Radio System Overview; Bose "Chorus" Through KW 21/04
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM window antennas

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2 - Sedan Antenna Amplifier R24 : behind roof end trim

- Avant Left Antenna Module R108 : Behind luggage compartment left side trim

3 - Amplifier R12 behind luggage compartment right side trim

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

7 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

8 - Sedan Bass Loudspeaker R100 : in rear shelf/ Avant: behind luggage compartment right side trim

9 - Inside Loudspeaker R70 in front center instrument panel

10 - Inside Microphone R74 in Front Interior Light W1

11 - CD Changer R41 in glove compartment

12 - Radio R in upper center console

"Concert" / "Symphony" /from KW 22/04 "Chorus" , sedan

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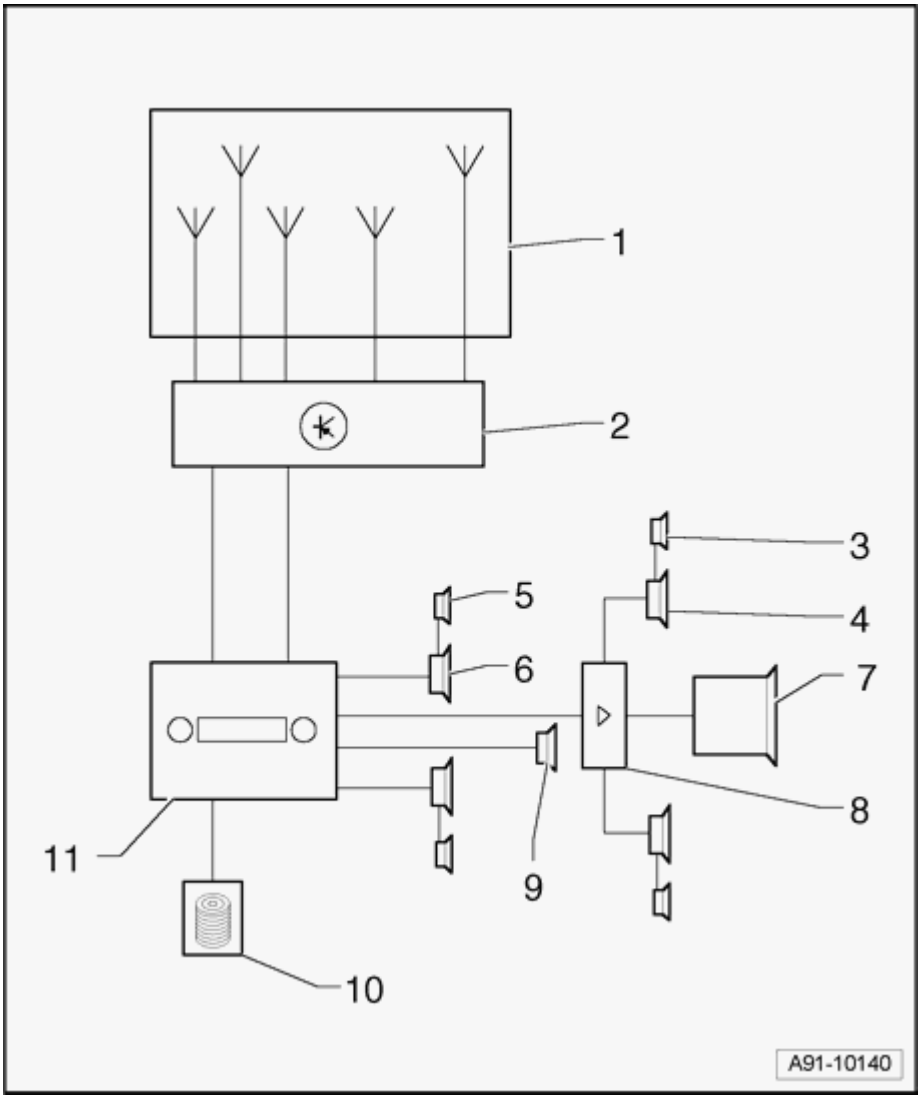

Fig. 3: Radio System Overview; "Concert" / "Symphony" /From KW 22/04 "Chorus" , Sedan
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

4 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Bass Loudspeaker R100 in parcel shelf

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8 - Amplifier R12 behind luggage compartment right side trim

9 - Inside Loudspeaker R70 in front center instrument panel

10 - CD Changer R41 in glove compartment

11 - Radio R in upper center console

"Concert" / "Symphony" /from KW 22/04 "Chorus" , Avant

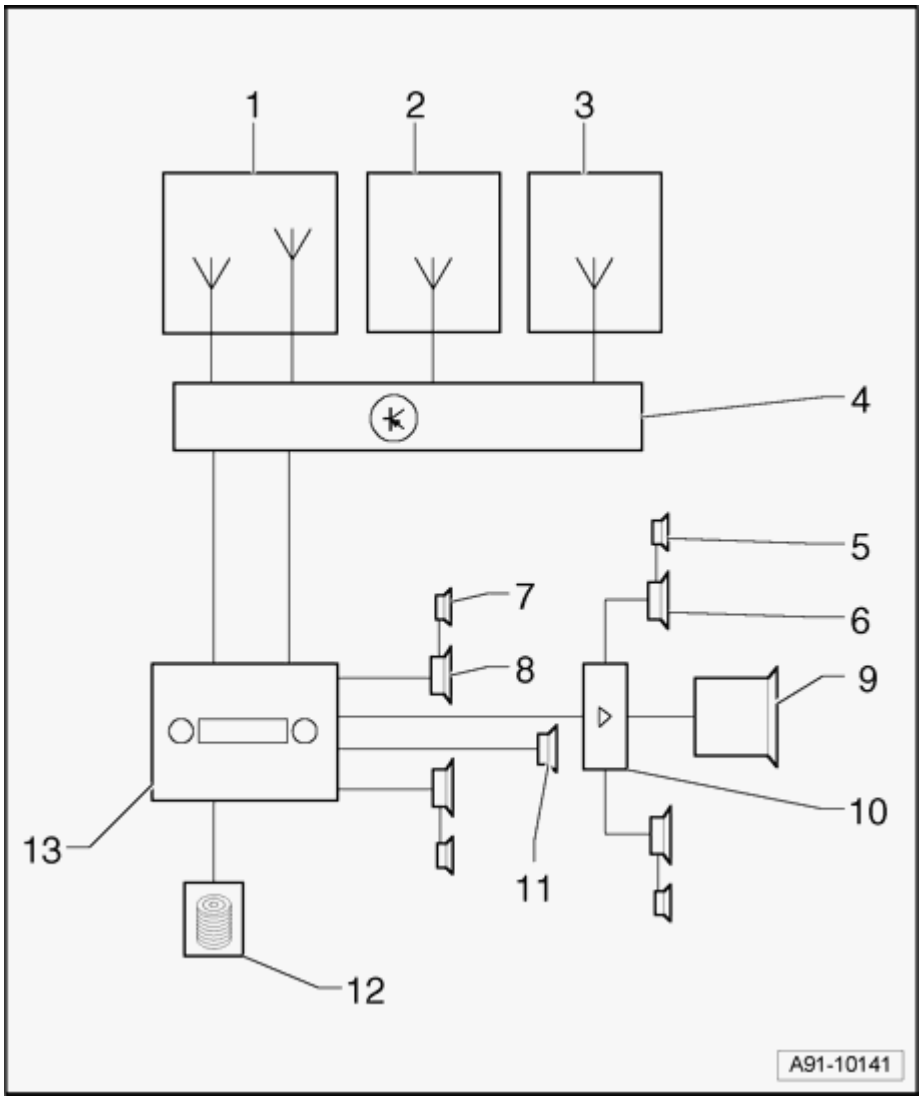

Fig. 4: Radio System Overview; "Concert" / "Symphony" /From KW 22/04 "Chorus" , Avant
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - left rear AM/FM1 window antennas

2 - FM2 rear window antennas

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3 - right rear FM3 window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

6 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

9 - Bass Loudspeaker R100 behind luggage compartment right side trim

10 - Amplifier R12 behind luggage compartment right side trim

11 - Inside Loudspeaker R70 in front center instrument panel

12 - CD Changer R41 in glove compartment

13 - Radio R in upper center console

"Concert" / "Symphony" /from KW 22/04 "Chorus" , BOSE sedan

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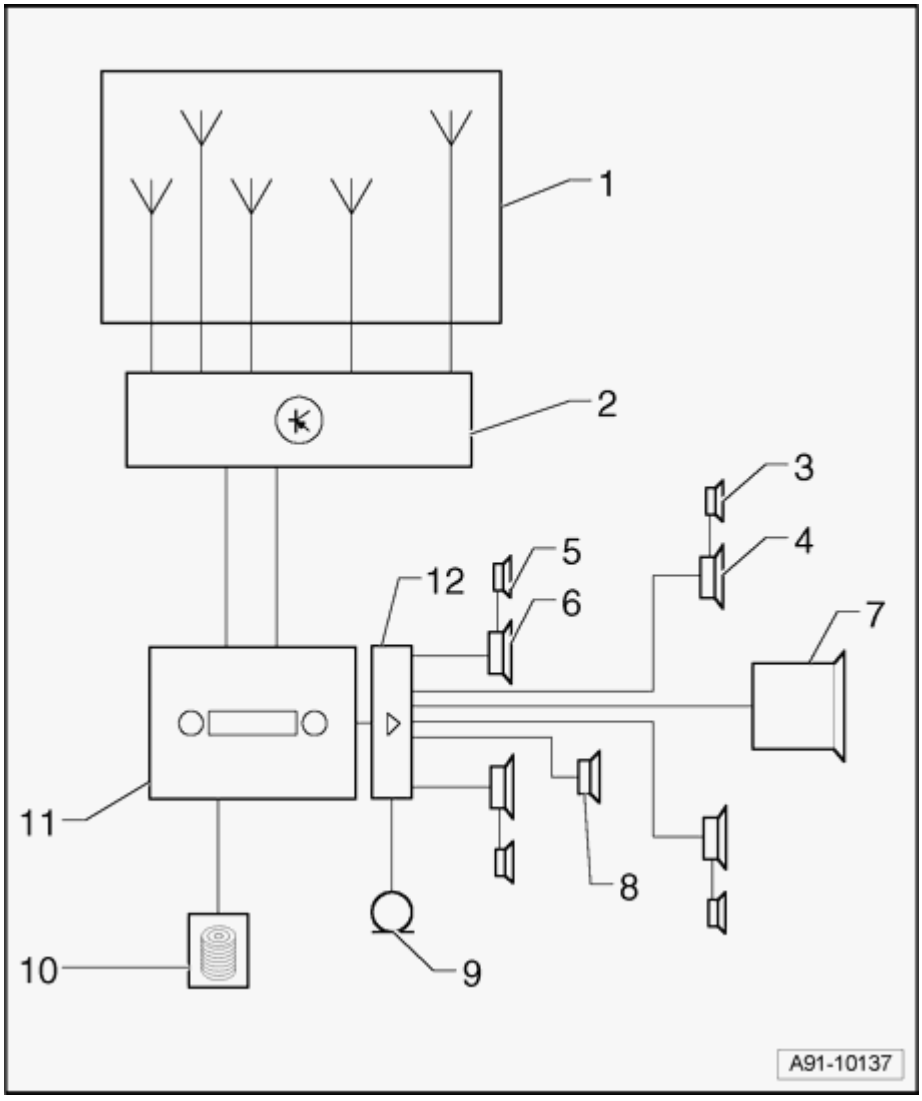

Fig. 5: Radio System Overview; "Concert" / "Symphony" /From KW 22/04 "Chorus" , Bose Sedan
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

4 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Bass Loudspeaker R100 in parcel shelf

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8 - Inside Loudspeaker R70 in front center instrument panel

9 - Inside Microphone R74 in Front Interior Light W1

10 - CD Changer R41 / iPod Baseplate R192 in glove compartment

11 - Radio R in upper center console

12 - Amplifier R12 behind luggage compartment right side trim

"Concert" / "Symphony" /from KW 22/04 "Chorus" , BOSE Avant

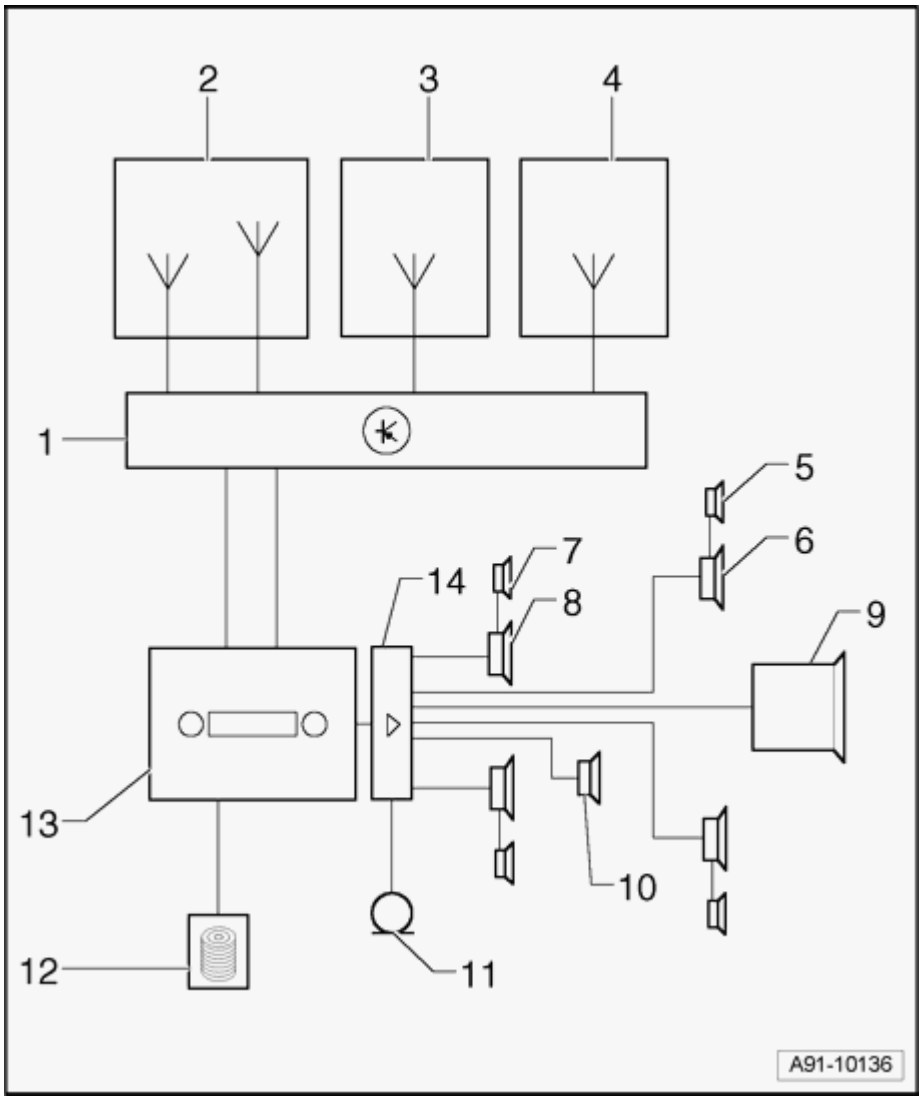

Fig. 6: Radio System Overview; "Concert" / "Symphony" /From KW 22/04 "Chorus" , Bose Avant
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Left Antenna Module R108 behind luggage compartment left side trim

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2 - left rear AM/FM1 window antennas

3 - FM2 rear window antennas

4 - right rear FM3 window antennas

5 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

6 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

9 - Bass Loudspeaker R100 behind the luggage compartment right side trim

10 - Inside Loudspeaker R70 in front center instrument panel

11 - Inside Microphone R74 in Front Interior Light W1

12 - CD Changer R41 / iPod Baseplate R192 in glove compartment

13 - Radio R in upper center console

14 - Amplifier R12 luggage compartment right side trim

Radio preparation

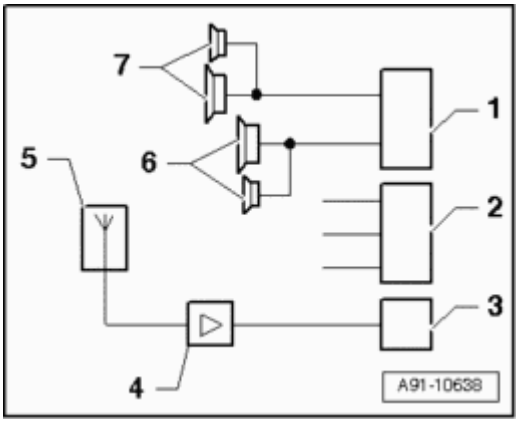

Fig. 7: Radio Preparation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Speaker connector (T8d, brown)

2 - Voltage supply connector (T8c, black)

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3 - HF antenna connector

4 - Antenna Amplifier R24 behind roof end trim (sedan)/ Left Antenna Module R108 behind luggage compartment left side trim (Avant)

5 - Rear Window Antenna 1 R130

6 - left front speaker

7 - right front speaker

Connectors and connector assignments

"Chorus" through KW 21/04

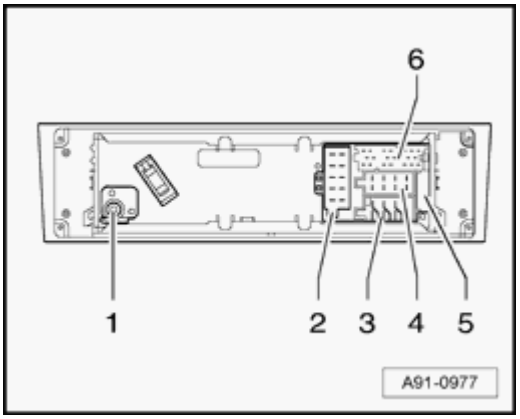

Fig. 8: Connectors And Connector Assignments; "Chorus" Through KW 21/04
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - HF connector (black) from Antenna Amplifier R24 / Left Antenna Module R108

2 - Multi-pin connector IV, 10-pin, (T10l) red

3 - Multi-pin connector III, 8-pin, (T8) black

4 - Multi-pin connector II, 8-pin, (T8a) brown

5 - Device fuse

6 - Multi-pin connector I, 20-pin, (T20d) black

NOTE:

- **Unlisted connector terminals are not assigned.**

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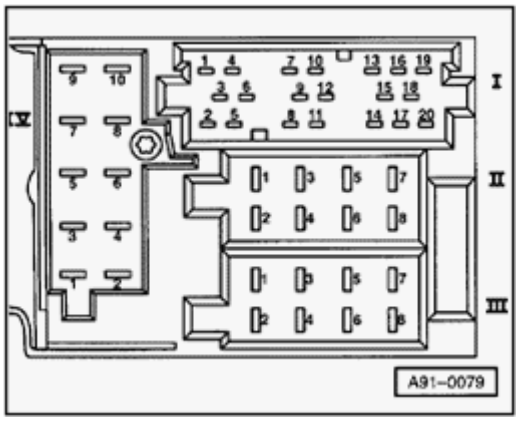

Fig. 9: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Multi-pin connector IV, 10-pin, (T10l) red

1 - NF mute from Telephone Transceiver R36

3 - NF (+) from Telephone Transceiver R36 (not with Nav IV)

4 - NF (-) from Telephone Transceiver R36 (not with Nav IV)

5 - NF (+) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

6 - NF (-) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

7 - Navigation control wire from Navigation System with CD Drive Control Module J401 (only with Nav IV)

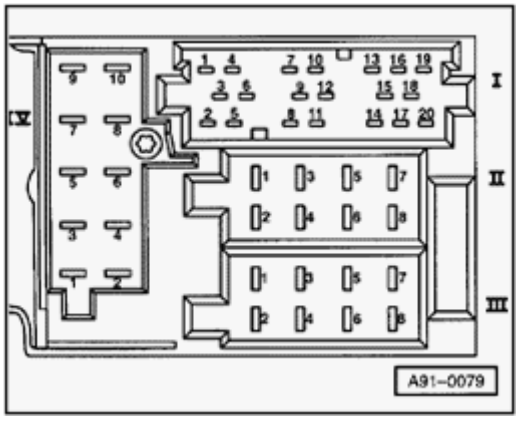

Fig. 10: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

3 - Multi-pin connector III, 8-pin, (T8) black

1 - BOSE coding to ground (only with BOSE)

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2 - Anti-theft warning system ground from Comfort System Central Control Module J393

3 - L-diagnostic

7 - Terminal 30

8 - Terminal 31

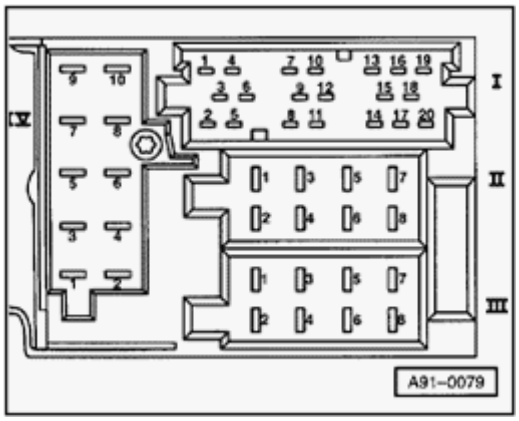

Fig. 11: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Multi-pin connector II, 8-pin, (T8a) brown

3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

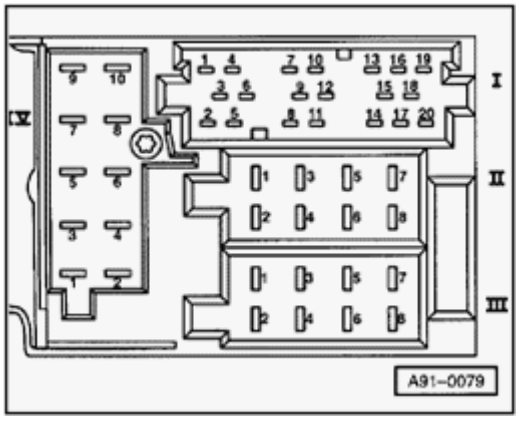

Fig. 12: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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6 - Multi-pin connector I, 20-pin, (T20d) black

1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - CAN-Bus High (Infotainment)

10 - CD ground to CD Changer R41

12 - CAN-Bus Low (Infotainment)

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - CD ground to CD Changer R41

19 - Left signal from CD Changer R41

20 - Right signal from CD Changer R41

"Concert " / "Chorus" from KW 22/04

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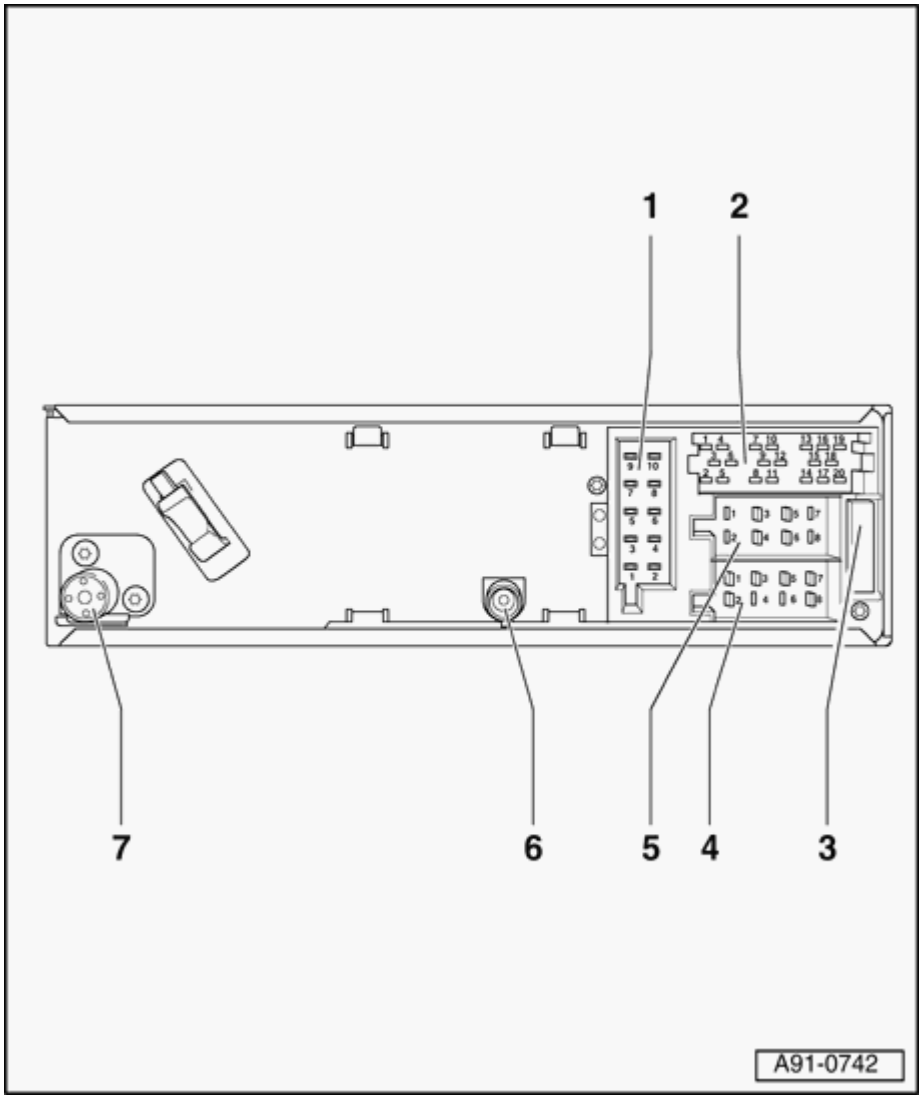

Fig. 13: Identifying Multi-Pin Connectors On Rear Of "Concert II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

2 - Multi-pin connector I, 20-pin, (T20d) black

3 - Device fuse

4 - Multi-pin connector III, 8-pin, (T8) black

5 - Multi-pin connector II, 8-pin, (T8a) brown

6 - IF connection (yellow) to Antenna Selection Control Module J515 / Left Antenna Module R108

7 - HF connection (black) to Antenna Selection Control Module J515 / Left Antenna Module R108

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NOTE:

- **Unlisted connector terminals are not assigned.**

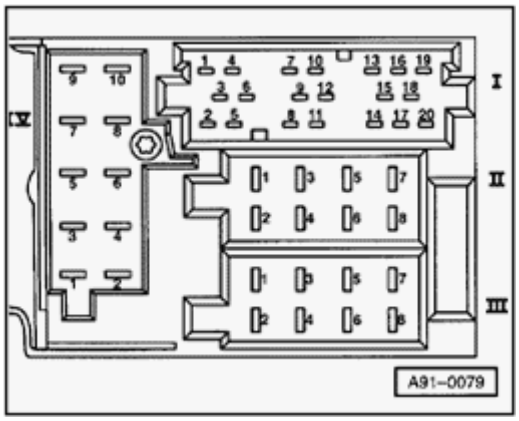

Fig. 14: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

1 - NF mute from Telephone Transceiver R36 /preliminary setup for cell phone package

3 - NF (+) from Telephone Transceiver R36 (not with Nav IV)/preliminary setup for cell phone package

4 - NF (-) from Telephone Transceiver R36 (not with Nav IV)/preliminary setup for cell phone package

5 - NF (+) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

6 - NF (-) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

7 - Navigation control wire from Navigation System with CD Drive Control Module J401 (only with Nav IV)

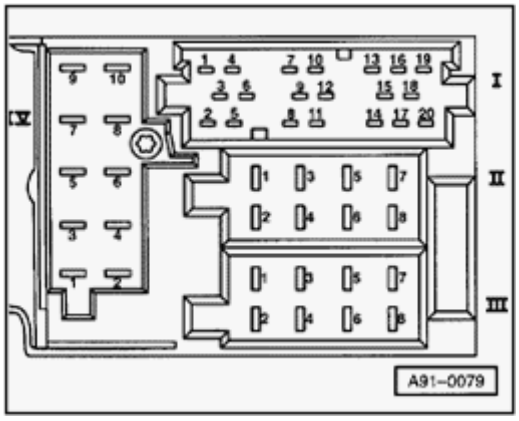

Fig. 15: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Multi-pin connector I, 20-pin, (T20d) black

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1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - CAN-Bus High (Infotainment)

10 - CD ground to CD Changer R41

12 - CAN-Bus Low (Infotainment)

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - CD ground to CD Changer R41

19 - Left signal from CD Changer R41

20 - Right signal from CD Changer R41

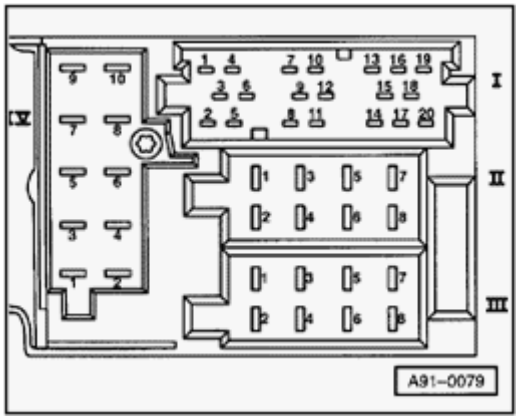

Fig. 16: Identifying Multi-Pin Harness Connectors

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Multi-pin connector III, 8-pin, (T8) black

1 - BOSE coding to ground (only with BOSE

2 - Anti-theft warning system ground from Comfort System Central Control Module J393

3 - L-diagnostic

7 - Terminal 30

8 - Terminal 31

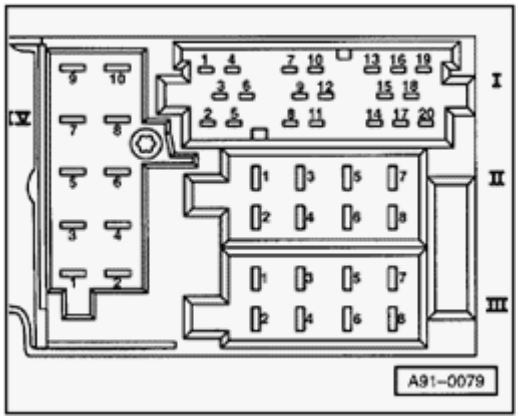

Fig. 17: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Multi-pin connector II, 8-pin, (T8a) brown

3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

"Symphony"

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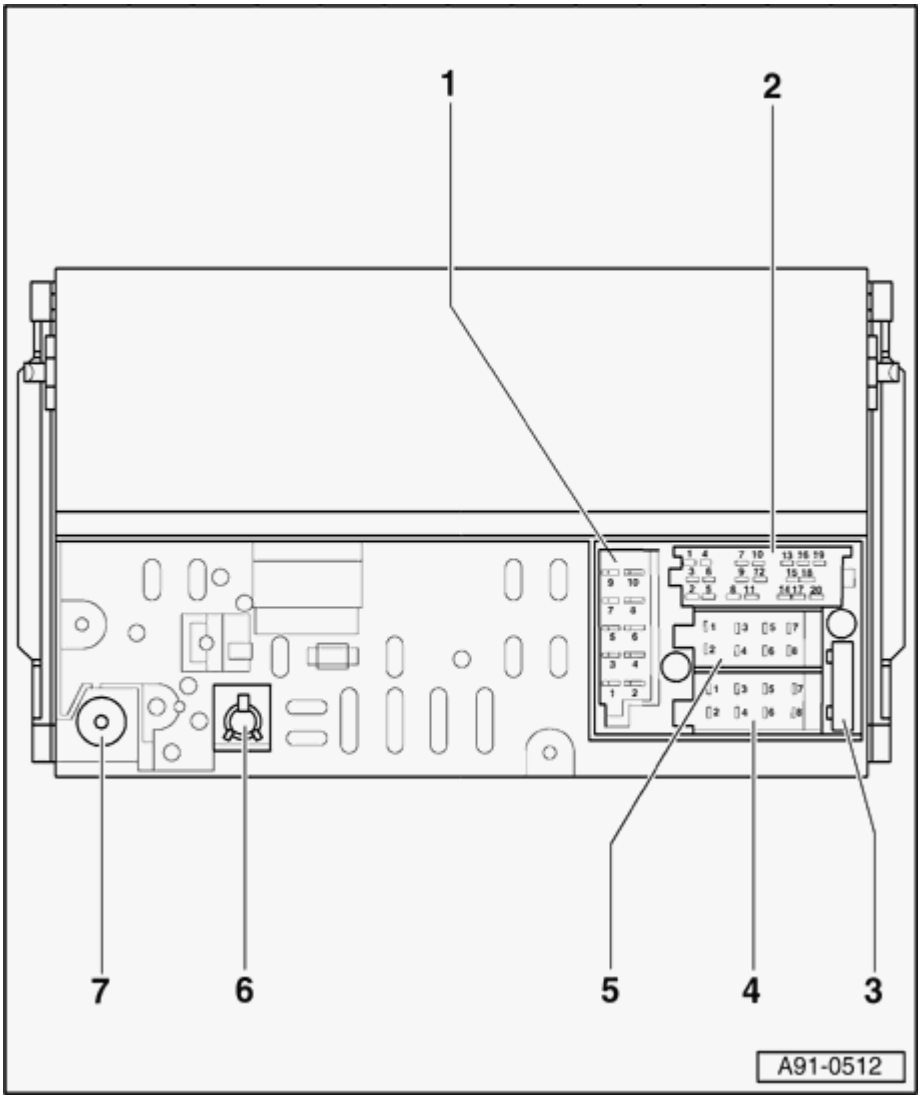

Fig. 18: Identifying Multi-Pin Connectors On Rear Of "Symphony II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

2 - Multi-pin connector I, 20-pin, (T20d) black

3 - Device fuse

4 - Multi-pin connector III, 8-pin, (T8) black

5 - Multi-pin connector II, 8-pin, (T8a) brown

6 - IF connection (yellow) to Antenna Selection Control Module J515 / Left Antenna Module R108

7 - HF connection (black) to Antenna Selection Control Module J515 / Left Antenna Module R108

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NOTE:

- **Unlisted connector terminals are not assigned.**

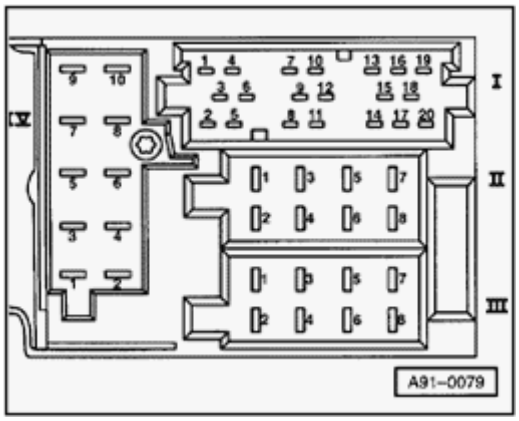

Fig. 19: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

1 - NF mute from Telephone Transceiver R36 /preliminary setup for cell phone package

3 - NF (+) from Telephone Transceiver R36 (not with Nav IV)/preliminary setup for cell phone package

4 - NF (-) from Telephone Transceiver R36 (not with Nav IV)/preliminary setup for cell phone package

5 - NF (+) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

6 - NF (-) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

7 - Navigation control wire from Navigation System with CD Drive Control Module J401 (only with Nav IV)

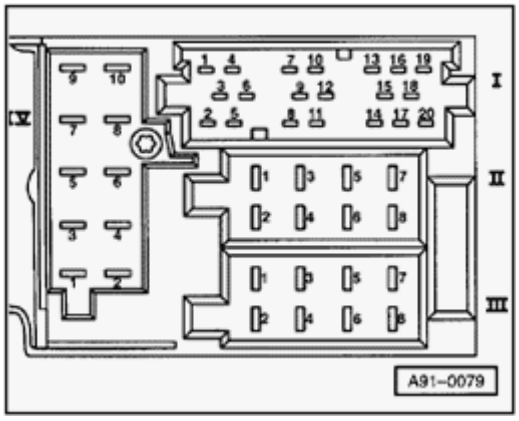

Fig. 20: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Multi-pin connector I, 20-pin, (T20d) black

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1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - CAN-Bus High (Infotainment)

10 - CD ground to CD Changer R41

12 - CAN-Bus Low (Infotainment)

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - CD ground to CD Changer R41

19 - Left signal from CD Changer R41

20 - Right signal from CD Changer R41

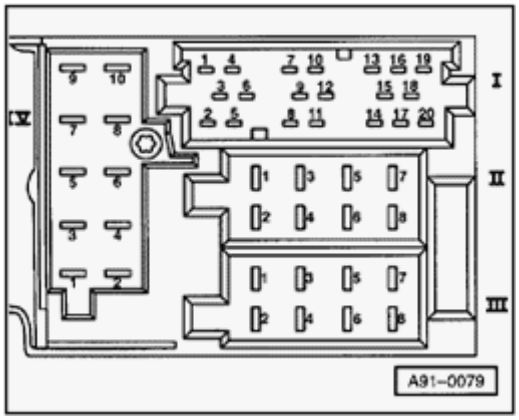

Fig. 21: Identifying Multi-Pin Harness Connectors

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Multi-pin connector III, 8-pin, (T8) black

1 - BOSE coding to ground (only with BOSE)

2 - Anti-theft warning system ground from Comfort System Central Control Module J393

3 - L-diagnostic

7 - Terminal 30

8 - Terminal 31

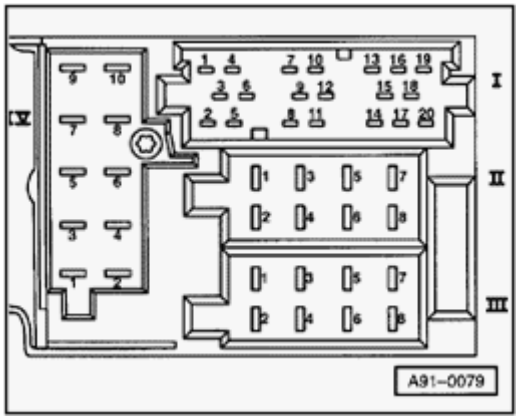

Fig. 22: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Multi-pin connector II, 8-pin, (T8a) brown

3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

"Chorus" / "Concert" / "Symphony" (radio generation II+) from KW 45/06

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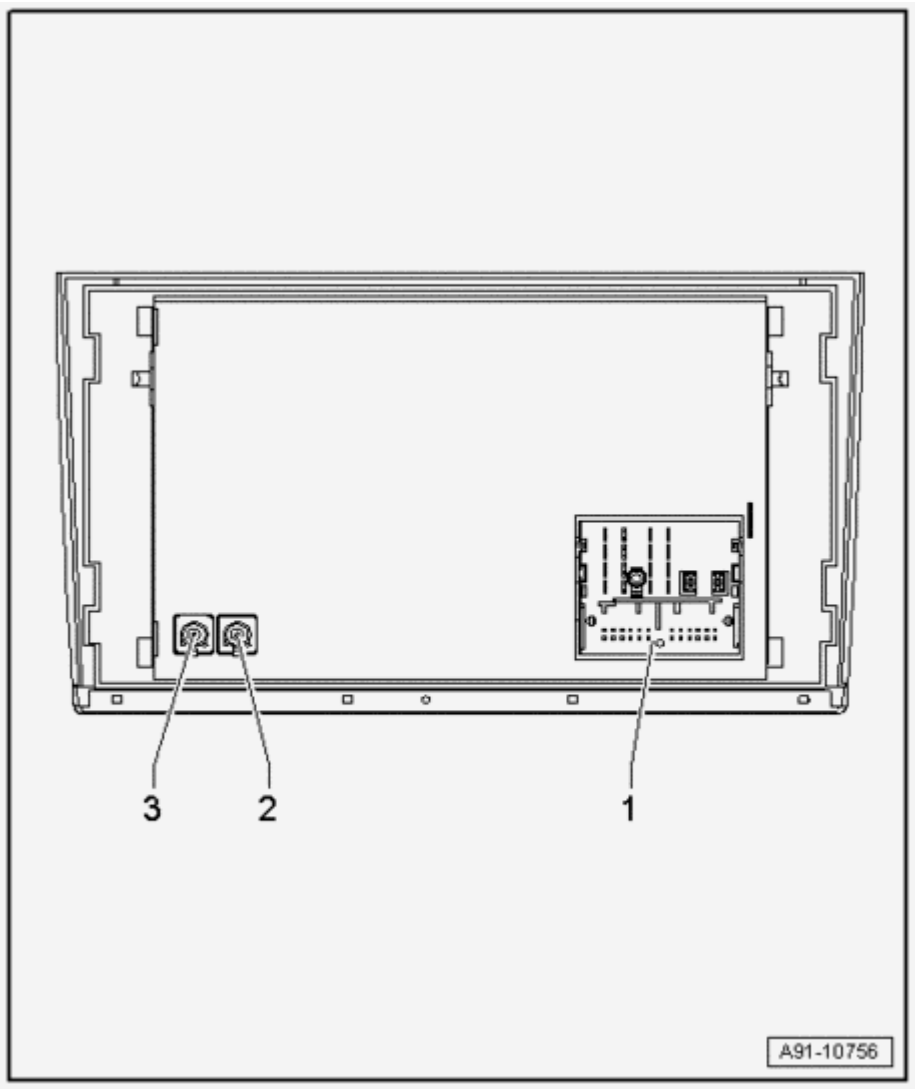

Fig. 23: "Chorus" / "Concert" / "Symphony" (Radio Generation II+) From KW 45/06
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connector block with 4 multi-pin connectors and fuse

2 - HF1 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

3 - HF21 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

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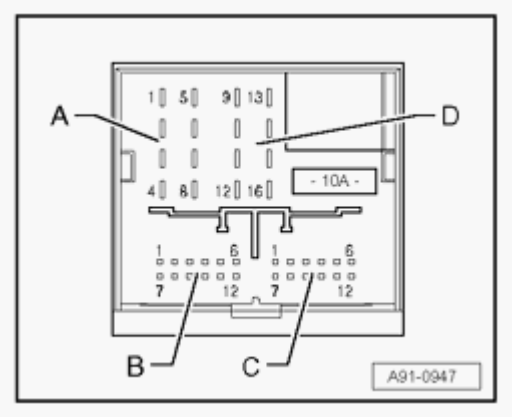

Fig. 24: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - 8-pin multi-pin connector (T8h) black

2 - Right front speaker (+) (not with BOSE)

3 - Left front speaker (+) (not with BOSE)

6 - Right front speaker (-) (not with BOSE)

7 - Left front speaker (-) (not with BOSE)

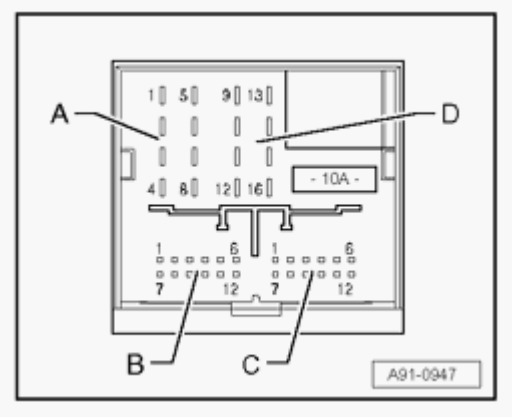

Fig. 25: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Multi-pin connector, 12-pin (T12f) blue

1 - NF in left (not used)

2 - CD ground to CD Changer R41

3 - NF in ground (not used)

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4 - Permanent positive to CD Changer R41

5 - BOSE coding to ground (only with BOSE)

6 - CD data out to CD Changer R41

7 - NF in right (not used)

8 - Left signal from CD Changer R41

9 - Right signal from CD Changer R41

10 - Positive switched to CD Changer R41

11 - CD data in from CD Changer R41

12 - CD CLK from CD Changer R41

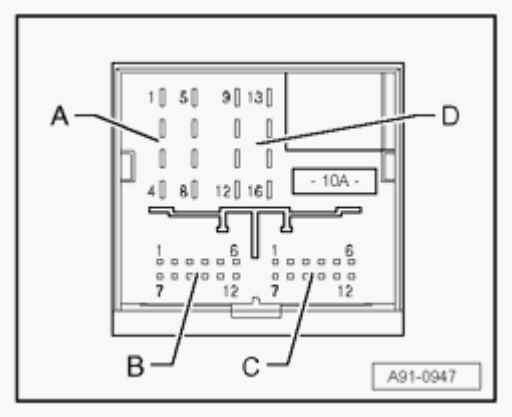

Fig. 26: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - multi-pin connector, 12-pin (T12) green

1 - Speed signal (not used)

3 - Left front signal to Amplifier R12 (only with BOSE)

5 - Left rear signal to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

6 - NF (-) from Telephone Transceiver R36 /preliminary setup for cell phone package

7 - K diagnostic (not used)

8 - Signal ground to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

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9 - Right front signal to Amplifier R12 (only with BOSE)

10 - Audio Pilot in/out (not used)

11 - Right rear signal to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

12 - NF (+) from Telephone Transceiver R36 /preliminary setup for cell phone package

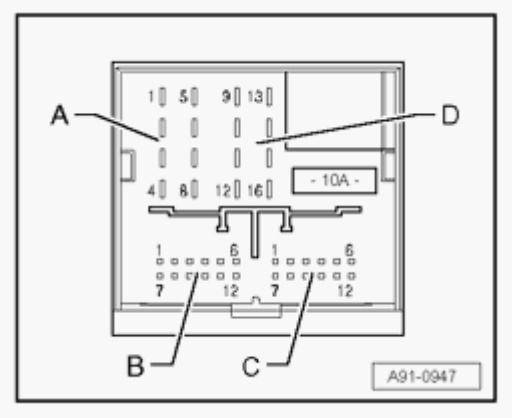

Fig. 27: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

D - 8-pin multi-pin connector (T8h) black

9 - CAN-Bus High (Infotainment)

10 - CAN-Bus Low (Infotainment)

11 - NF mute from preliminary setup for cell phone preparation

12 - Terminal 31

13 - Positive switched to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

14 - Anti-theft warning system (not used)

15 - Terminal 30

16 - Permanent positive connected with PIN 15 (anti-theft warning system)

CD Changer R41

NOTE:

- **Unlisted connector terminals are not assigned.**

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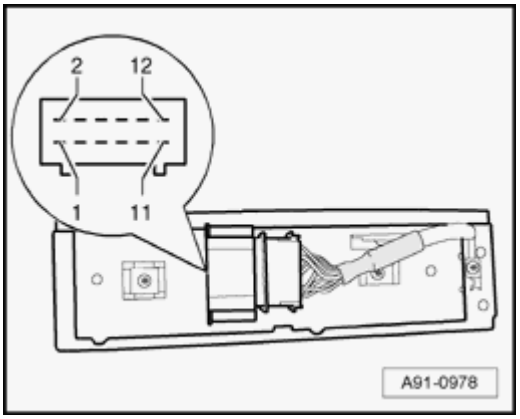

Fig. 28: CD Changer R41 12-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector

1 - CD data out to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

2 - CD CLK out to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

3 - Ground from Radio R /terminal 31 (with RNS-E/radio generation II+)

4 - CD data in from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

6 - Permanent positive from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

7 - Right signal to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

8 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

9 - Signal ground from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

10 - Left signal to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

iPod Baseplate R192

NOTE:

- **Unlisted connector terminals are not assigned.**

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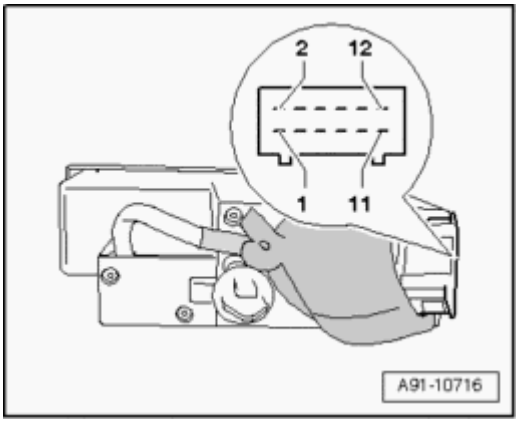

Fig. 29: Ipod Baseplate R192 12-Pin Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector (T12a)

1 - Data out to Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

2 - CLK out to Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

3 - Terminal 31

4 - Data in from Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

6 - Permanent positive from Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

7 - Right signal to Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

8 - Positive switched from Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

9 - Signal ground from Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

10 - Left signal to Radio R / Operating Electronics, Navigation Control Module J402 / Radio/Navigation Display Control Module J503

11 - TOC Check Control (not used)

12 - Terminal 58 (not used)

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Digital Sound System Control Module R12

NOTE:

- **Unlisted connector terminals are not assigned.**

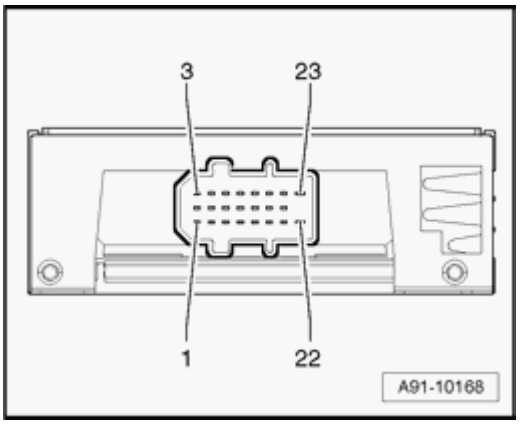

Fig. 30: Digital Sound System Control Module R12 23-Pin Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Blue 23-pin multi-pin connector

1 - Right rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

2 - Signal ground from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

3 - Left rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

9 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

14 - Bass Loudspeaker R100 (+)

15 - Bass Loudspeaker R100 (-)

17 - Loudspeaker, left rear (+)

18 - Loudspeaker, left rear (-)

20 - Loudspeaker, right rear (+)

21 - Loudspeaker, right rear (-)

22 - Terminal 31

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23 - Terminal 30

Amplifier R12 BOSE (25-pin)

NOTE:

- **Unlisted connector terminals are not assigned.**

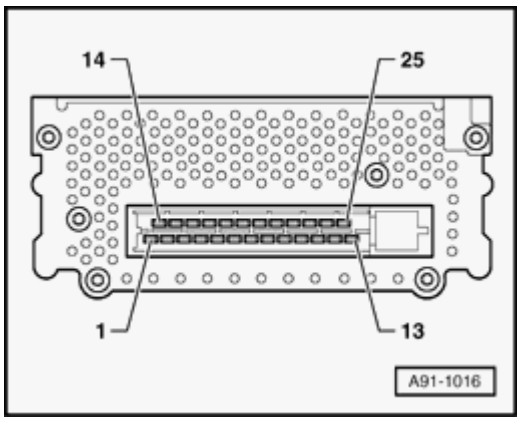

Fig. 31: Identifying 25-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector, 25-pin

1 - Inside Loudspeaker R70 (+)

2 - Inside Loudspeaker R70 (-)

6 - Signal ground from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

7 - Right rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

8 - Left rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

9 - Right front signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

10 - Left front signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

11 - Terminal 31

13 - Terminal 30

14 - Bass Loudspeaker R100 (+)

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15 - Bass Loudspeaker R100 (-)

16 - Loudspeaker, left rear (-)

17 - Loudspeaker, left rear (+)

18 - Loudspeaker, right rear (+)

19 - Loudspeaker, right rear (-)

20 - Loudspeaker, left rear (+)

21 - Loudspeaker, left rear (-)

22 - Loudspeaker, right rear (+)

23 - Loudspeaker, right rear (-)

25 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

Amplifier R12 BOSE (32-pin)

NOTE:

- **Unlisted connector terminals are not assigned.**

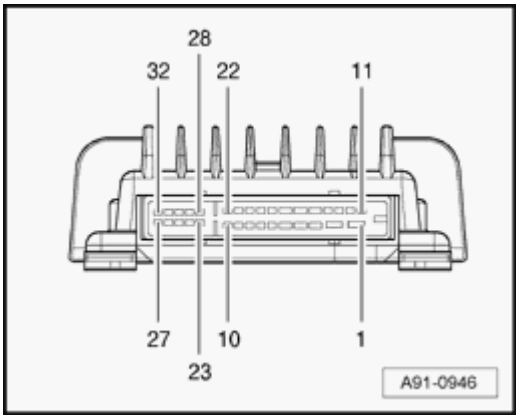

Fig. 32: Identifying 32-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector, 32-pin

1 - Terminal 30

2 - Terminal 31

3 - Bass Loudspeaker R100 (+)

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4 - Loudspeaker, left rear (-)

5 - Loudspeaker, right rear (+)

6 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

7 - Signal ground from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

13 - Inside Loudspeaker R70 (-)

14 - Inside Loudspeaker R70 (+)

15 - Bass Loudspeaker R100 (-)

16 - Loudspeaker, left rear (+)

17 - Loudspeaker, right rear (-)

19 - Left front signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

20 - Right front signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

21 - Left rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

22 - Right rear signal from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

26 - Loudspeaker, right rear (-)

27 - Loudspeaker, right rear (+)

29 - Microphone input (+) from Inside Microphone R74

30 - Microphone input (-) from Inside Microphone R74 (-)

31 - Loudspeaker, left rear (+)

32 - Loudspeaker, left rear (-)

Antenna amplifier connections

Antenna Selection Control Module J515 , sedan

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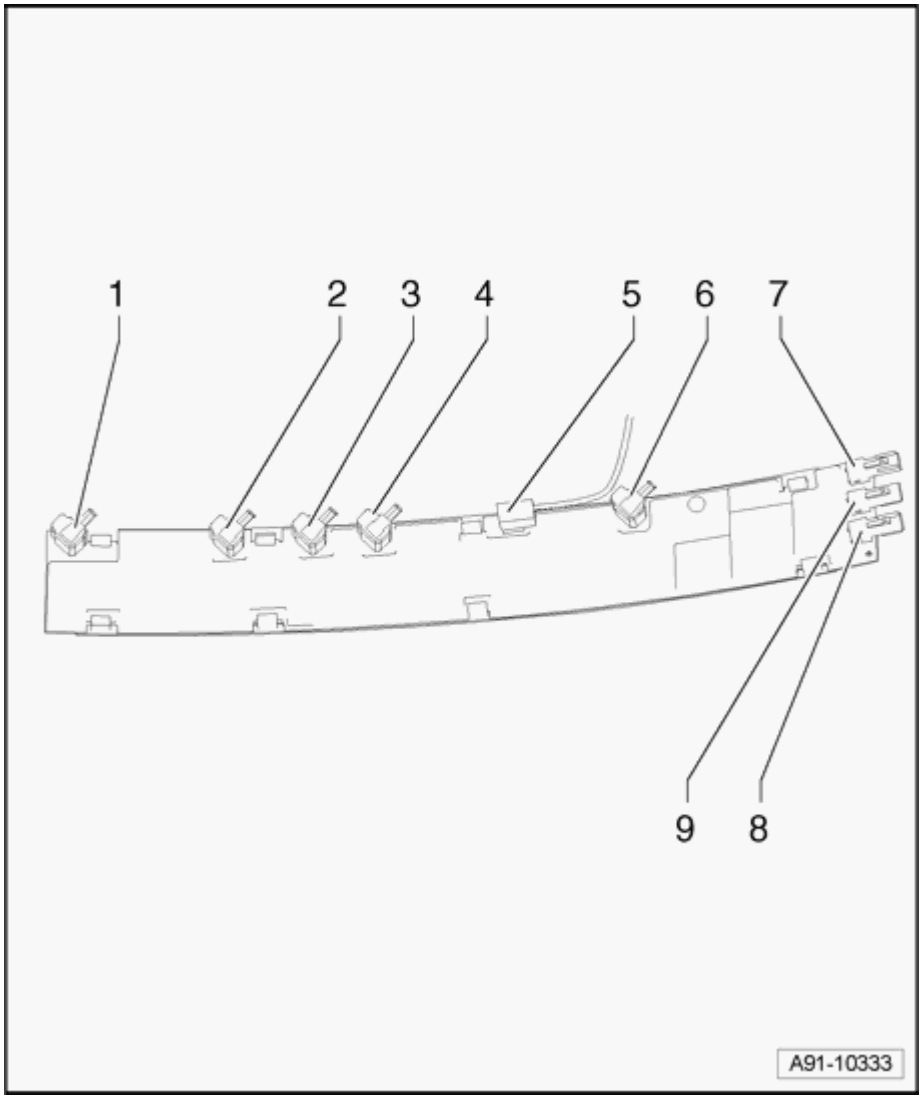

Fig. 33: Antenna Selection Control Module J515 , Sedan
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - TV1 connection to Navigation/TV Tuner J415

2 - TV2 connection to Navigation/TV Tuner J415

3 - TS connection to Auxiliary Heater Radio Receiver R64

4 - TV3 connection to Navigation/TV Tuner J415

5 - Ground connection

6 - TV4 connection to Navigation/TV Tuner J415

7 - HF connection (white) to Radio R / Navigation System with CD Drive Control Module J401 /

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Radio/Navigation Display Control Module J503

8 - CLS connection (gray) to Comfort System Central Control Module J393

9 - HF connection (yellow) from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

Antenna Amplifier R24 , sedan only with radio generation II+

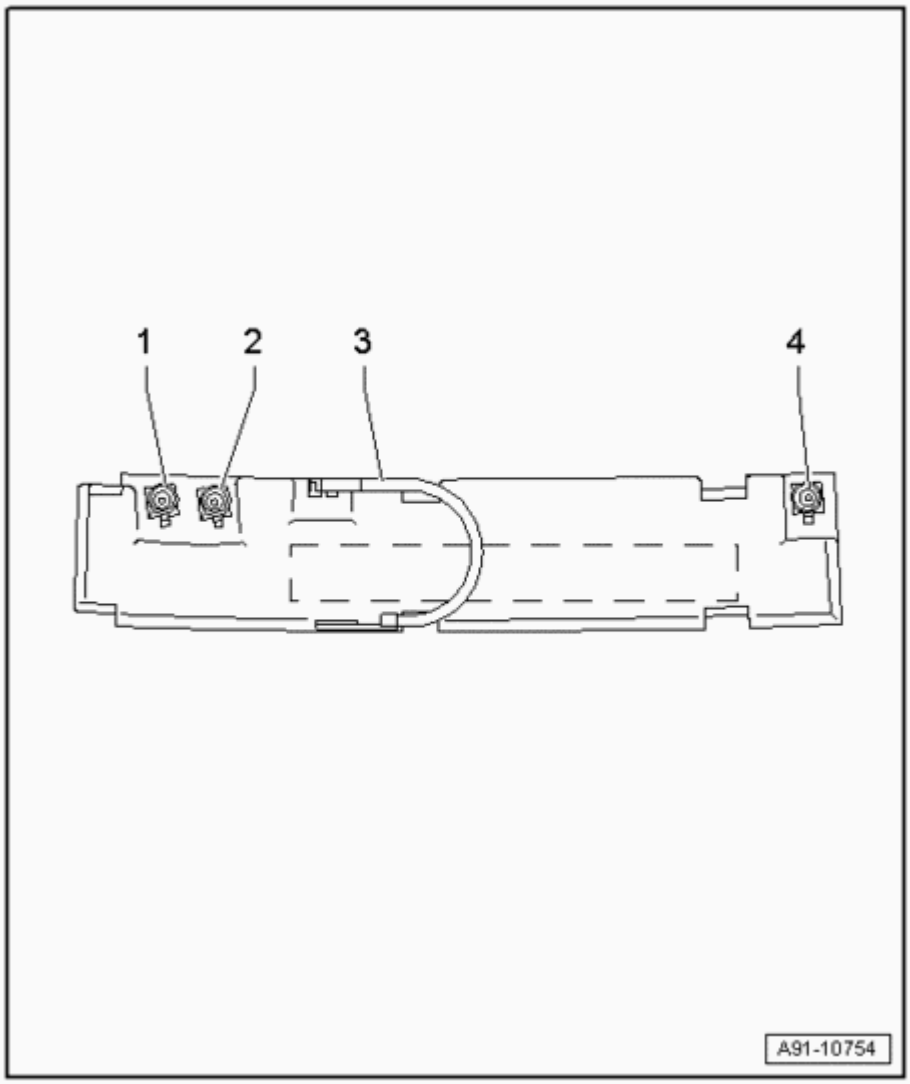

Fig. 34: Antenna Amplifier R24 , Sedan Only With Radio Generation II+
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM1 connection (white) to Radio R

2 - FM2 connection (yellow) to Radio R

3 - Ground connection

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4 - CLS connection (gray) to Comfort System Central Control Module J393

Left Antenna Module R108 , Avant

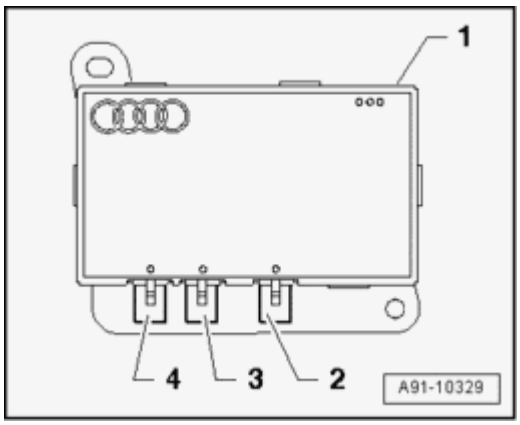

Fig. 35: Left Antenna Module R108 , Avant
Courtesy of VOLKSWAGEN UNITED STATES, INC.

only "Chorus" through KW 21/04

1 - Connection for window antennas

- 1 - CLS
- 2 - FM/TS
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

3 - TS connection (yellow) to Auxiliary Heater Radio Receiver R64

4 - AM/FM connection (white) to Radio R

All without TV antennas

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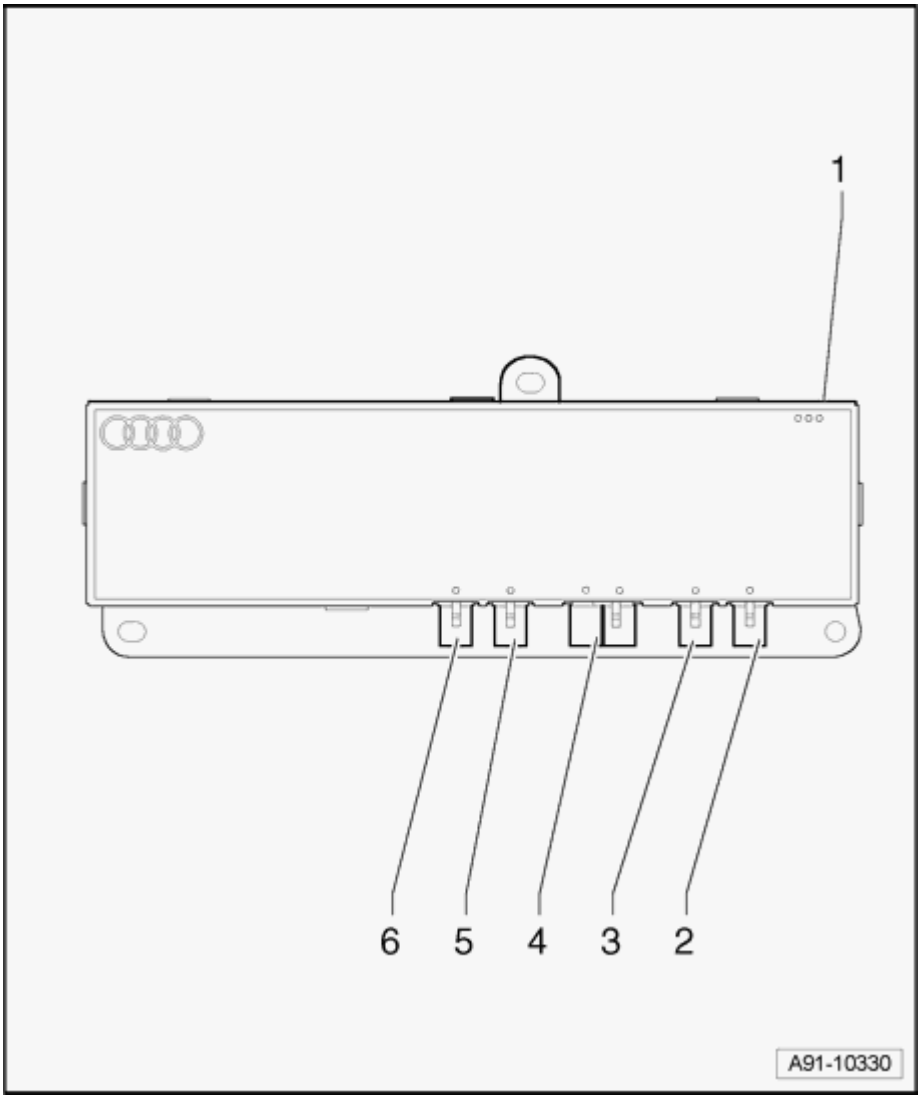

Fig. 36: Connections For All Without TV Antennas
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connection for window antennas

- 1 - CLS
- 2 - FM1/TS
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

3 - TS connection (yellow) to Auxiliary Heater Radio Receiver R64

4 - HF/IF connection (yellow) to/from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

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5 - FM3 connection (black) from Right Antenna Module R109

6 - FM2 connection (brown) from rear window antenna

All with TV antennas

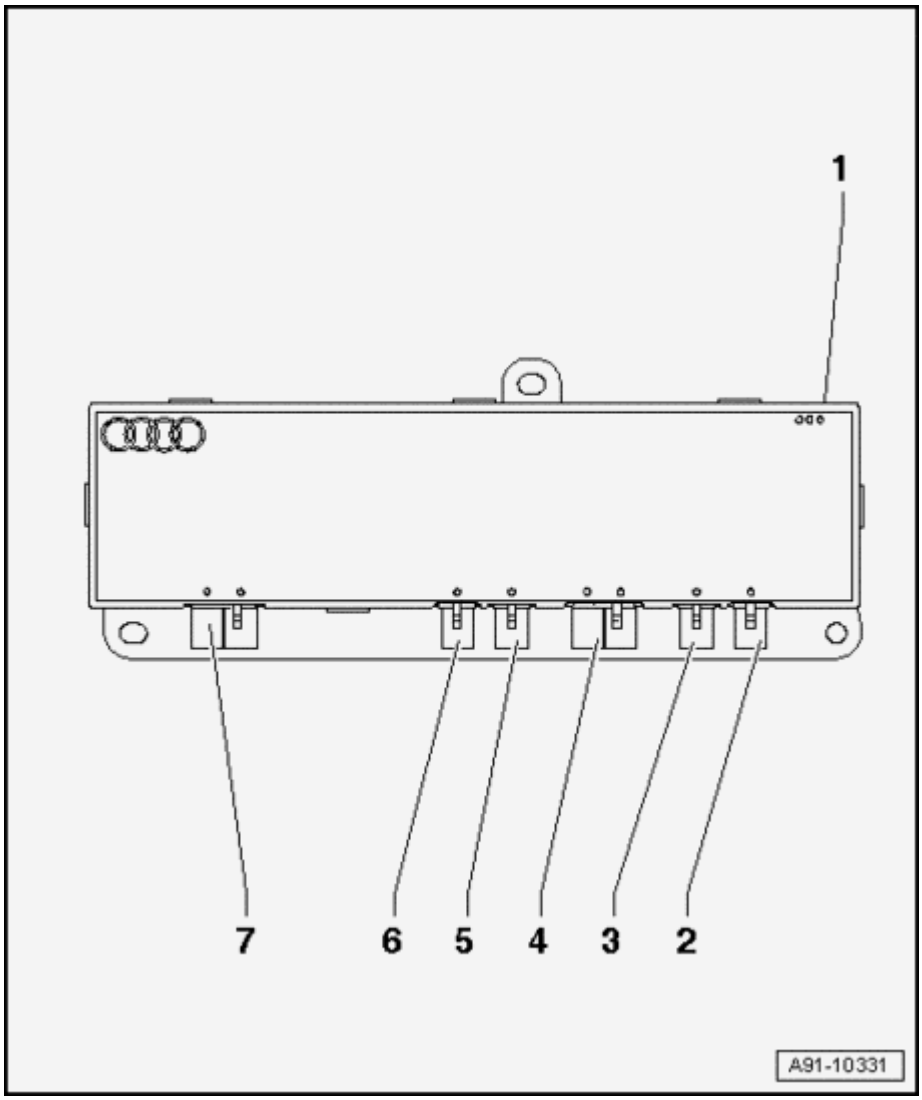

Fig. 37: Connections For All With TV Antennas
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connection for window antennas

- 1 - TV1/CLS
- 2 - FM1/TS
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

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3 - TS connection (yellow) to Auxiliary Heater Radio Receiver R64

4 - HF/IF connection (yellow) to/from Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

5 - FM3 connection (black) from Right Antenna Module R109

6 - FM2/TV2 connection (brown) from rear window antenna

7 - TV1/TV2 connection (green) to Navigation/TV Tuner J415

Only radio generation II+

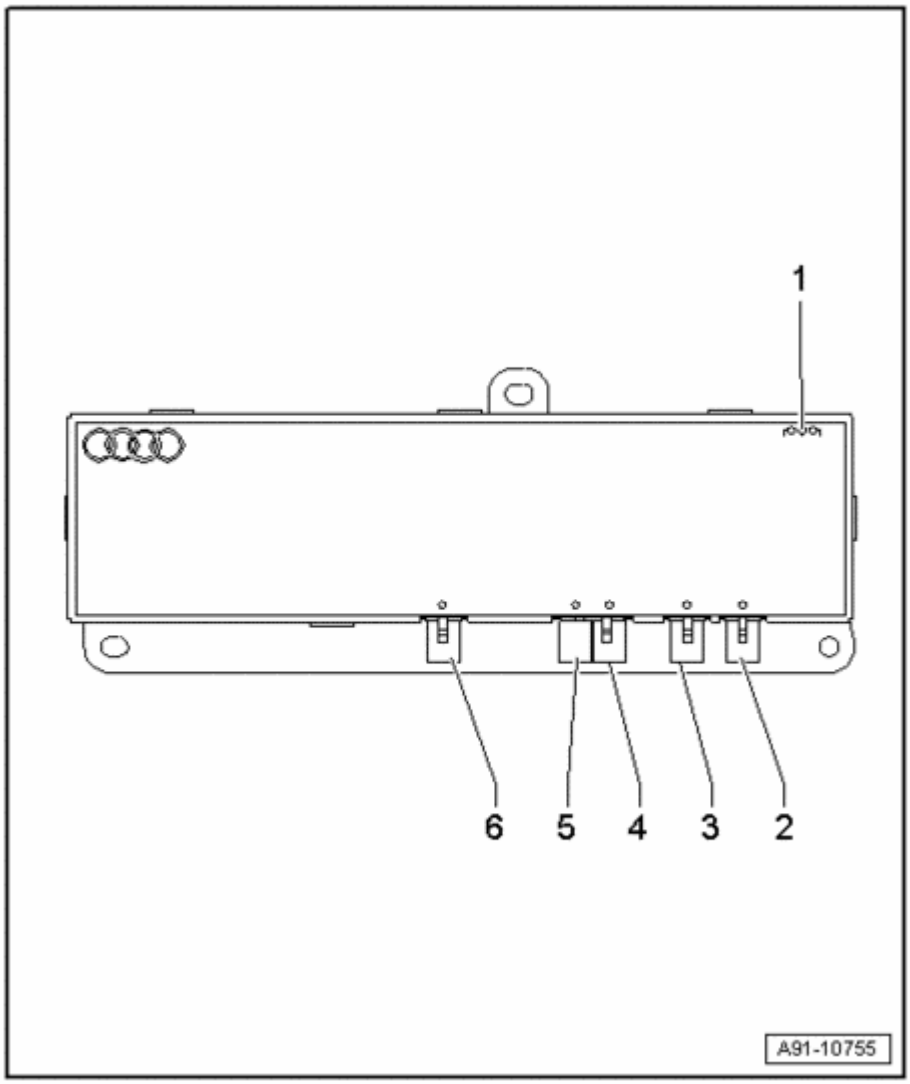

Fig. 38: Only Radio Generation II+
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connection for window antennas

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- 1 - CLS
- 2 - FM1/TS
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

3 - TS connection (yellow) to Auxiliary Heater Radio Receiver R64

4 - AM/FM1 connection (yellow) to Radio R

5 - FM2 connection (yellow) to Radio R

6 - FM2 connection (brown) from rear window antenna

Right Antenna Module R109 connections, Avant

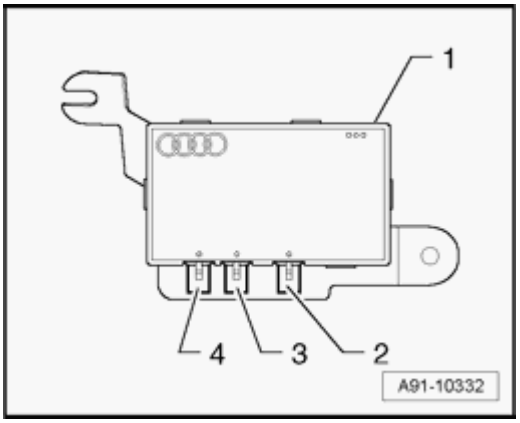

Fig. 39: Right Antenna Module R109 Connections, Avant
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - Connection for window antennas

- 1 - FM3/TV3
- 2 - TV4

2 - FM3 connection (black) to Left Antenna Module R108

3 - TV3 connection (green) to Navigation/TV Tuner J415

4 - TV4 connection (brown) to Navigation/TV Tuner J415

Total overview - Sedan component locations

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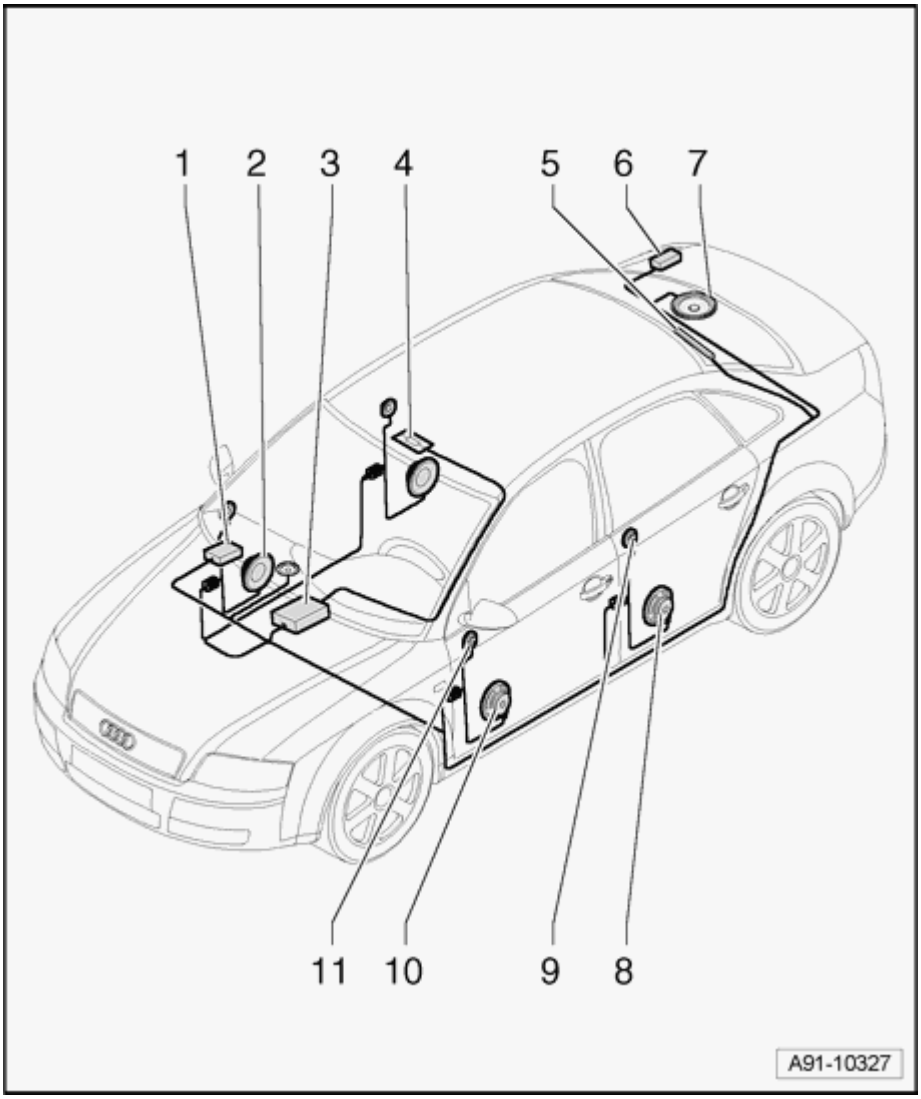

Fig. 40: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Radio R

- In center console, at top
- "Chorus" connections /from KW 22/04
- "Concert" connections
- "Chorus" / "Concert" , removing and installing --> **"Chorus" / "Concert" , removing and installing**

- "Symphony" connections
- Radio generation II+ connections
- "Symphony" , removing and installing --> **"Symphony" radio, removing and installing**
- "Symphony II+" transport protection, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

4 - Inside Microphone R74

- In Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

5 - Antenna Amplifier R24 / Antenna Selection Control Module J515

- Behind roof end trim
- Antenna Amplifier R24 connections --> **Antenna amplifier connections**
- Antenna Selection Control Module J515 connections
- Radio generation II+ connections

- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

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- In parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

8 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

10 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing --> **Speakers in doors, removing and installing**

11 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

General overview - Avant component locations

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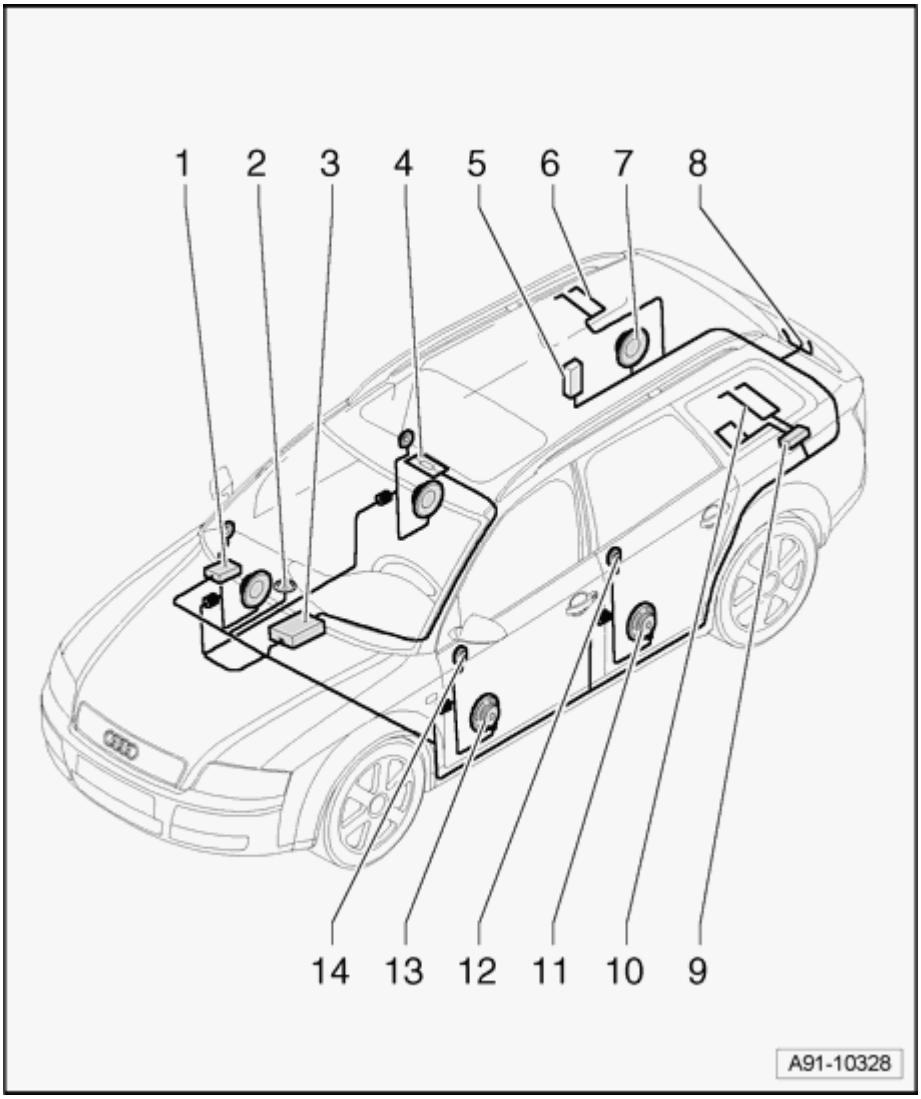

Fig. 41: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Radio R

- In center console, at top
- "Chorus" connections /from KW 22/04
- "Concert" connections
- "Chorus" / "Concert" , removing and installing --> **"Chorus" / "Concert" , removing and installing**
- "Symphony" connections
- Radio generation II+ connections
- "Symphony" , removing and installing --> **"Symphony" radio, removing and installing**
- "Symphony II+" transport protection, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

4 - Inside Microphone R74

- In Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

5 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

6 - Right rear window antennas

- FM3

7 - Bass Loudspeaker R100

- Behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Rear window antennas

- FM2

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9 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Only radio generation II+ connections **Only radio generation II+**
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

10 - Left rear window antennas

- AM/FM1

11 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

12 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

13 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing --> **Speakers in doors, removing and installing**

14 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

"Chorus" / "Concert" , removing and installing

Special tools, testers and auxiliary items required

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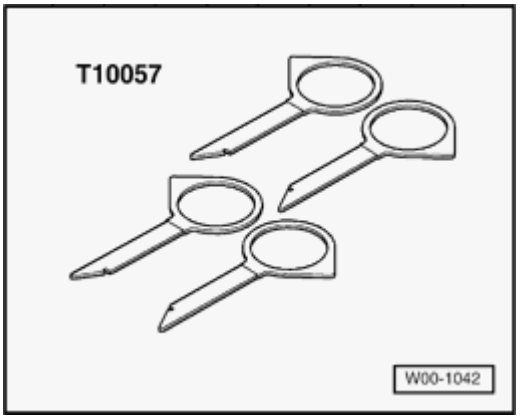

Fig. 42: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

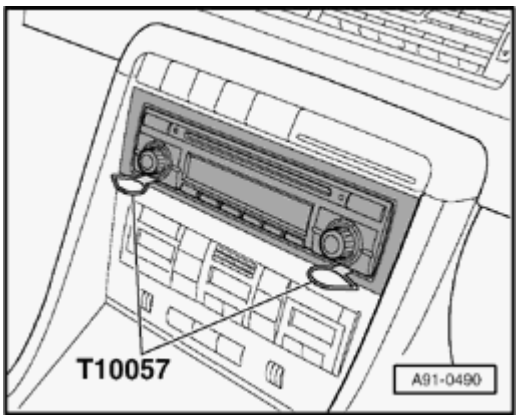

Fig. 43: Pushing Two Clips Of Radio Removal Tool T10057 Into Front Of Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two clips on Radio Release Tool T10057 in release slits on Radio R until they engage. Points on grip eyes face outward.
- Remove Radio R from instrument panel.
- Release connectors at radio R and remove.
- Remove Radio Release Tool T10057 by pressing locking tabs on Radio R.

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Installing

- Connect all harness connectors.
- Carefully slide radio R into instrument panel and let it engage in mounting frame.

"Symphony" radio, removing and installing

Special tools, testers and auxiliary items required

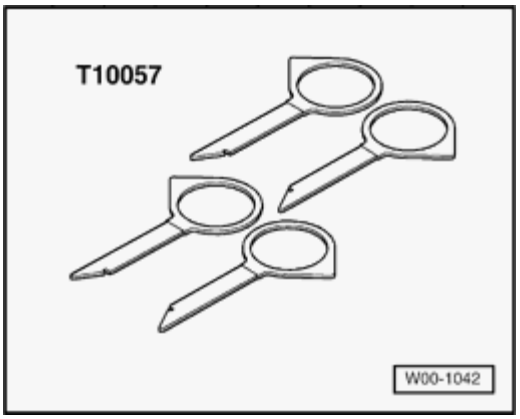

Fig. 44: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Activate transport mode in "Symphony II+" --> **"Symphony II+" in transport mode, activating/deactivating**.
- Turn off all electrical components.
- Remove ignition key.

Removing

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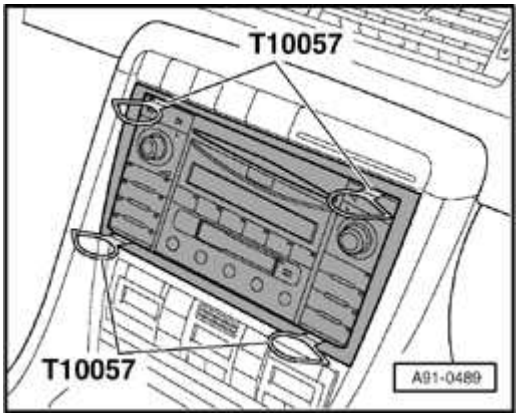

Fig. 45: Pushing Four Clips Of Radio Removal Tool T10057 Into Front
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert Radio Release Tool T10057 in release slits on Radio R until they engage. Points on grip eyes face outward.
- Remove Radio R from instrument panel.
- Release connectors at radio R and remove.
- Remove Radio Release Tool T10057 by pressing locking tabs on Radio R.

Installing

- Connect all harness connectors.
- Carefully slide radio R into instrument panel and let it engage in mounting frame.
- Deactivate transport mode in "Symphony II+" --> **"Symphony II+" in transport mode, activating/deactivating**.

"Symphony II+" in transport mode, activating/deactivating

Transport mode must be activated before sending every "Symphony II+" radio.

After activation, the internal CD changer drive is in transport position.

After replacing a "Symphony II+" , transport mode must be deactivated after installation.

Transport mode, activating

"Symphony" is connected and installed.

- Press station buttons 3 and 5 and TONE button at the same time.

After about 5 seconds, "TRANSPORT" appears on the radio display.

Transport mode, deactivating

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" II+Symphony" is connected and installed.

- Press CANCEL button.

"TRANSPORT" display goes out.

Transport mode is deactivated.

CD Changer R41 , removing and installing

Special tools, testers and auxiliary items required

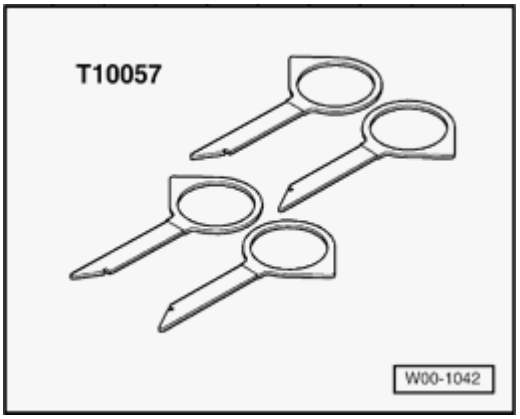

Fig. 46: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- Turn off all electrical components.
- Remove ignition key.

Removing

- Open glove box.

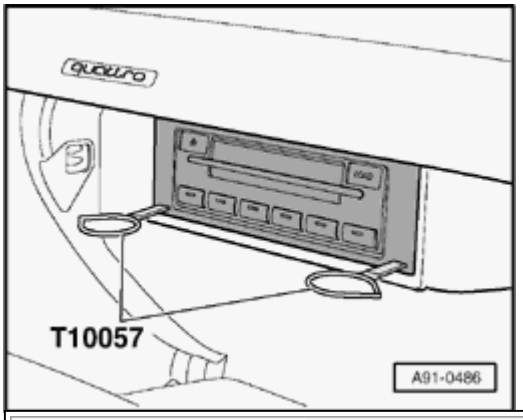

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Fig. 47: Inserting Two Hooks Of T10057 Radio Removal Tool Into Front Of CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two clips on Radio Release Tool T10057 in release slits on CD Changer R41 until they engage. Points on grip eyes face outward.
- Pull CD Changer R41 out of mounting frame.
- Release connectors on CD Changer R41 and remove.
- Remove Radio Release Tool T10057 by pushing locking tabs on CD Changer R41 to do so.

Installing

- Connect harness connector.
- Slide CD Changer R41 into mounting frame until it engages.
- Check wiring connection to Radio R (not radio generation II+).

Wiring connection to Radio R / CD Changer R41 (through KW 44/06), checking

- Switch radio R off.

"Chorus"

- Press CC/CD button on radio R and at the same time, switch radio R on.

"Concert"

- Press CC button on radio R and at the same time, switch radio R on.

"Symphony"

- Press station button 4 on radio R and simultaneously switch radio R on and hold down switch-on button.

All

NOTE:

- **Data wire from radio R to CD changer R41 is not checked.**

Wire connection OK

Indication on radio display:

- "CDC CONNECTED"

Wire connection not OK

Indication on radio display:

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- "NO CDC"
- Check electrical connector at radio R.
- Repeat wiring check and if not OK, check wire connector according to wiring diagram --> Electrical Wiring Diagrams, Troubleshooting and Component Locations.

iPod Baseplate R192 , removing and installing

Special tools and workshop equipment required

- Trim removal wedge 3409

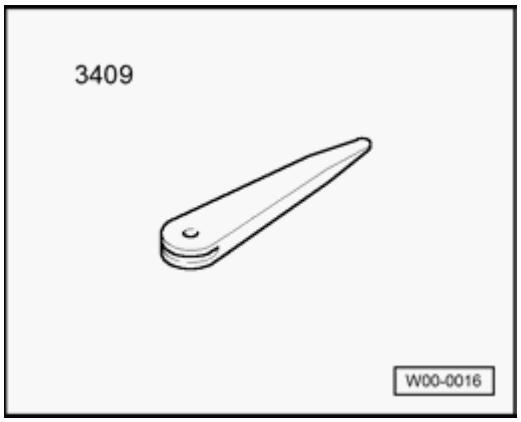

Fig. 48: Identifying Trim Removal Wedge 3409
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Open glove box.

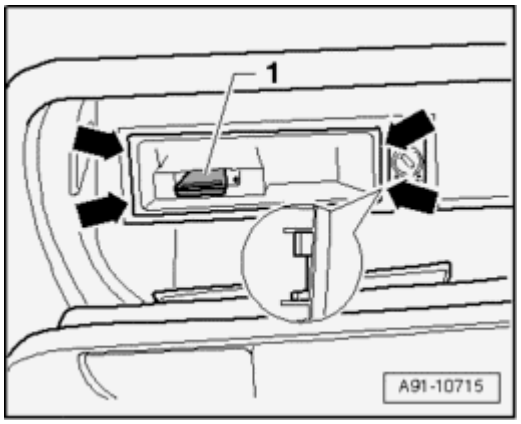

Fig. 49: Removing Ipod From Ipod Baseplate R192
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove iPod - **1** - from iPod Baseplate R192.
- Using Trim Removal Wedge 3409 , carefully pry iPod Baseplate R192 out of retainer - **arrows** -.
- Remove iPod Baseplate R192 from glove compartment and disconnect connection.

Installing

- Install in reverse order.

Speakers in doors, removing and installing

Left Front Bass Speaker R21 , removing and installing

Removal and installation of Left Front Bass Speaker R21 and Right Front Bass Speaker R23 are the same.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove front door trim --> - **70 - INTERIOR TRIM** .

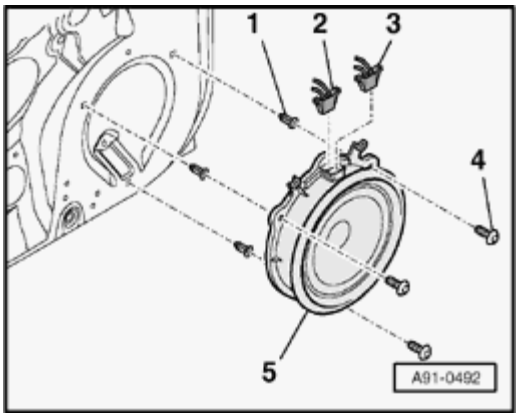

Fig. 50: Identifying Connectors, Left Front Bass Speaker R21 And Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **2** - and - **3** - on Left Front Bass Speaker R21 - **5** -.
- Remove bolts - **4** - (2 Nm) on Left Front Bass Speaker R21 - **5** - , disengage retaining tab on speaker in installation opening and remove speaker - **5** -.

Installing

- Install in reverse order.

Left Front Midrange Speaker R26 , removing and installing

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Removal and installation of Left Front Midrange Speaker R26 and Right Front Midrange Speaker R27 are identical.

Special tools, testers and auxiliary items required

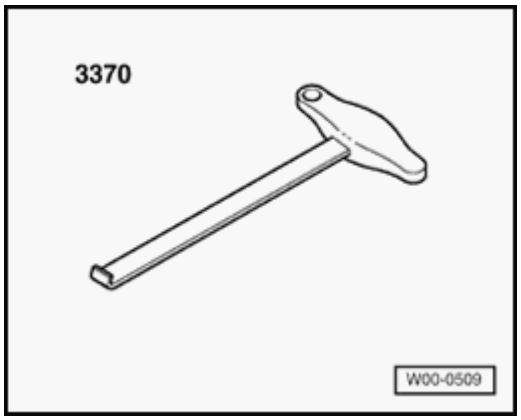

Fig. 51: Identifying Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Special hook 3370

- Turn off all electrical components.
- Remove ignition key.

Removing

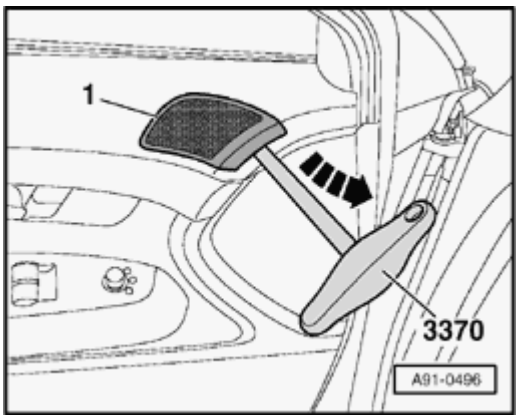

Fig. 52: Removing Speaker Cover At Top Of Door Trim Upward With Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove speaker cover - **1** - at top of door trim upward with Special Hook 3370 - **arrow** -.

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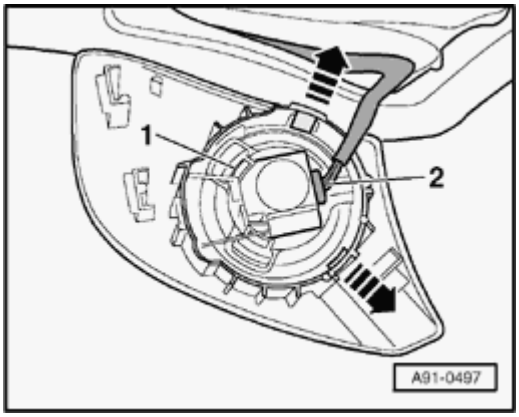

Fig. 53: Identifying Electrical Connector, Left Front Midrange Speaker R26, And Retaining Tabs
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **2** - on Left Front Midrange Speaker R26 - **1** -.
- Release retaining tabs - **arrows** - and remove Left Front Midrange Speaker R26 - **1** -.

Installing

- Install in reverse order.

Left Rear Bass Speaker R15 , removing and installing

Removal and installation of Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17 are the same.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove rear door trim --> - **70 - INTERIOR TRIM** .

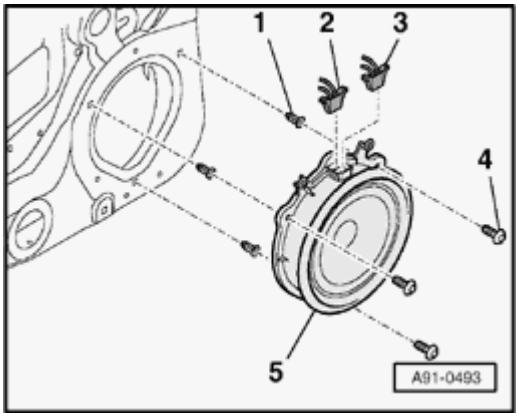

Fig. 54: Identifying Connectors, Left Rear Bass Speaker, And Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Disconnect connectors - **2** - and - **3** - on Left Rear Bass Speaker R15 - **5** -.
- Remove bolts - **4** - (2 Nm) on Left Rear Bass Speaker R15 - **5** - , disengage retaining tab on speaker in installation opening and remove speaker - **5** -.

Installing

- Install in reverse order.

Left Rear Midrange Speaker R34 , removing and installing

Removal and installation of Left Rear Midrange Speaker R34 and Right Rear Midrange Speaker R35 are the same.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove rear door trim --> - **70 - INTERIOR TRIM** .

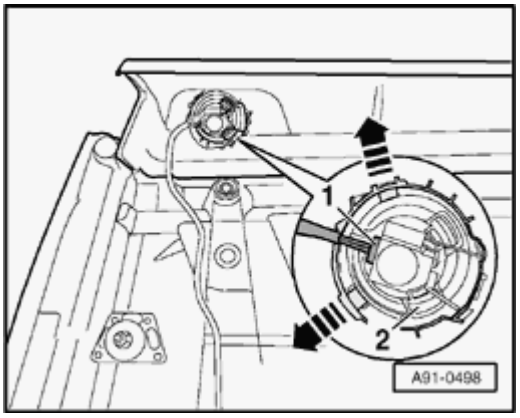

Fig. 55: Identifying Electrical Connection, Left Rear Midrange Speaker, And Retaining Tabs
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **1** - from Left Rear Midrange Speaker R34 - **2** -.
- Release retaining tabs - **arrows** - and remove Left Rear Midrange Speaker R34 - **2** -.

Installing

- Install in reverse order.

Inside Loudspeaker R70 , removing and installing

- Turn off all electrical components.
- Remove ignition key.

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Removing

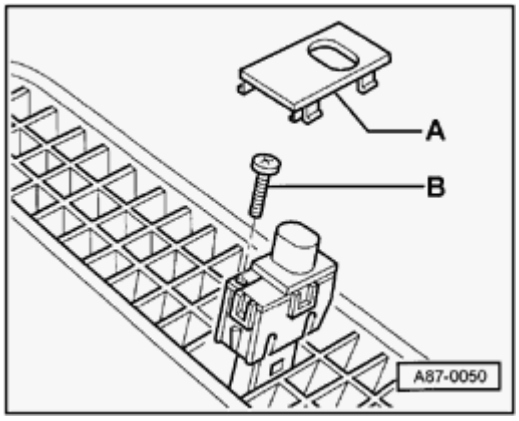

Fig. 56: Removing Photo Sensor
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully pry off cover - **A** - on Sunlight Photo Sensor (3241) G107.
- Remove bolt - **B** - (1 Nm).
- Disconnect connector on Sunlight Photo Sensor (3241) G107 and remove it.

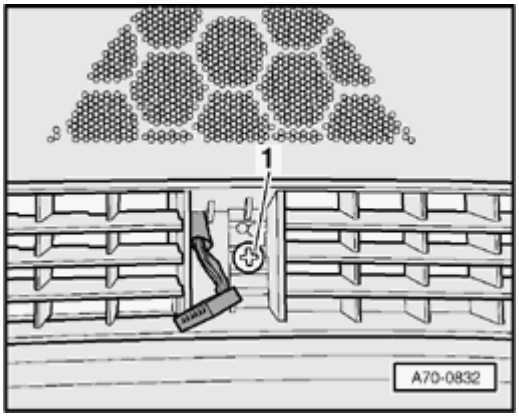

Fig. 57: Removing Center Defroster Vent
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **1** - (1 Nm).
- Remove defroster vent.

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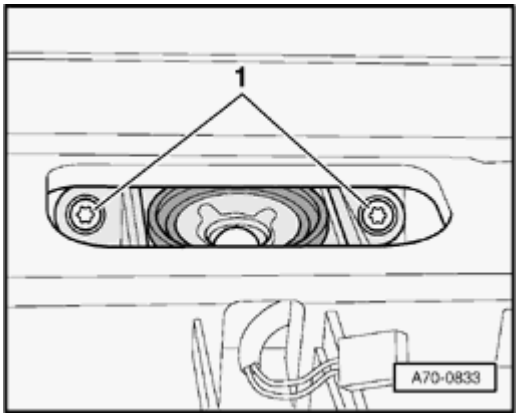

Fig. 58: Removing Instrument Panel Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove screws - **1** - (2 Nm) on Inside Loudspeaker R70.
- Tip Inside Loudspeaker R70 out and disconnect connector on it.

Installing

- Install in reverse order.

Bass Loudspeaker R100 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove rear parcel shelf --> - **70 - INTERIOR TRIM**

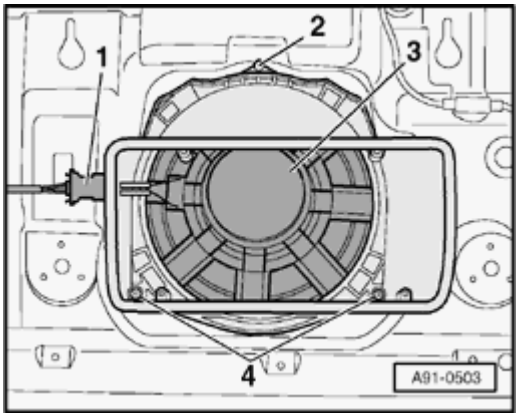

Fig. 59: Identifying Screws, Connector, And Bass Loudspeaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 2 screws - **4** - (2 Nm) from parcel shelf.

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- Remove two screws - **2** - (2 Nm) from luggage compartment.
- Disconnect connector - **1** - on Bass Loudspeaker R100 - **3** - and remove speaker upward.

Installing

- Install in reverse order.

Bass Loudspeaker R100 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove luggage compartment right side trim --> - **70 - INTERIOR TRIM** .

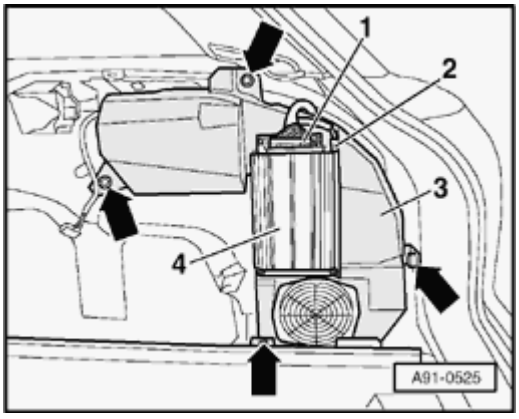

Fig. 60: Identifying Connectors, Bolts, Amplifier, And Bass Loudspeaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **1** - and - **2** - on Amplifier R12.
- Remove bolts - **arrows** - (2 Nm).
- Remove Bass Loudspeaker R100 - **3** - together with Amplifier R12 - **4** -.
- Remove Amplifier R12 --> **Amplifier R12 , Avant, removing and installing** or --> **BOSE Amplifier R12 , Avant, removing and installing**.

Installing

- Install in reverse order.

Amplifier R12 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

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Removing

- Remove luggage compartment right side trim --> - **70 - INTERIOR TRIM** .

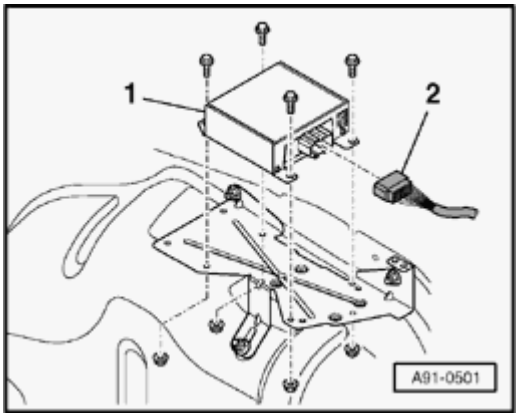

Fig. 61: Identifying Connector And Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **2** - on Amplifier R12 - **1** -.
- Remove bolts (4 Nm) and remove Amplifier R12 - **1** -.

Installing

- Install in reverse order.

Amplifier R12 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Open right luggage compartment storage bin.

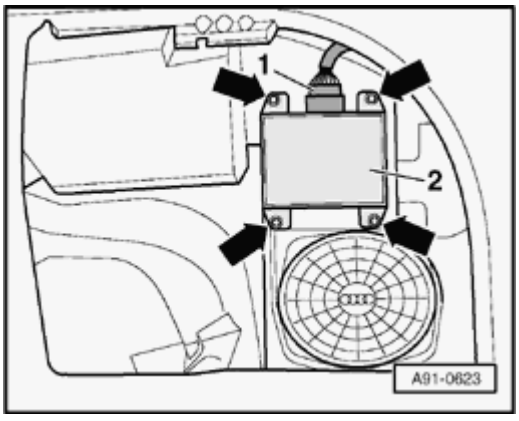

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Fig. 62: Identifying Connector, Bolts, And Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - on Amplifier R12 - **2** -.
- Remove bolts - **arrows** - (3 Nm) and remove Amplifier R12 - **2** -.

Installing

- Install in reverse order.

BOSE Amplifier R12 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove luggage compartment right side trim --> - **70 - INTERIOR TRIM** .

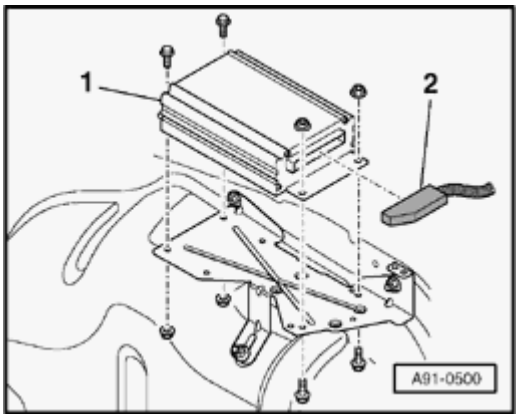

Fig. 63: Identifying Connector And Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **2** - on Amplifier R12 - **1** -.
- Remove bolts (4 Nm) and remove Amplifier R12 - **1** -.

Installing

- Install in reverse order.

BOSE Amplifier R12 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

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Removing

- Open right luggage compartment storage bin.

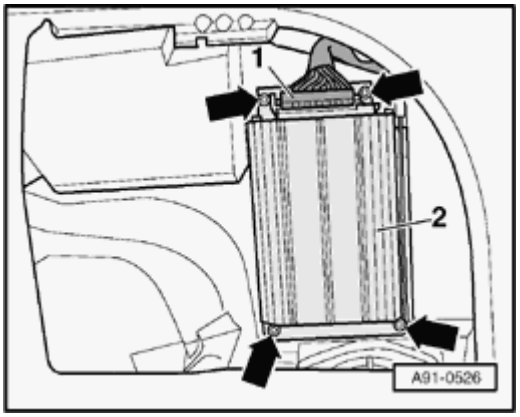

Fig. 64: Identifying Connector, Bolts, And Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - on Amplifier R12 - **2** -.
- Remove bolts - **arrows** - (3 Nm) and remove Amplifier R12 - **2** -.

Installing

- Install in reverse order.

Inside Microphone R74 , function test

With BOSE sound, and Inside Microphone R74 is installed to determine interior noise (AudioPilot). This is switched directly with the Amplifier R12. If interior noise increases, the Amplifer R12 (AudioPilot) automatically increases volume according to a predetermined pattern.

After switching on the Radio R , the Amplifier R12 determines the gauge of the Inside Microphone R74 voltage supply. If the result is OK, there is no reaction.

In contrast, if no Inside Microphone R74 is installed, three short tones sound one after another.

In case of short circuit, three individual tones are heard.

Function test

- Switch the Radio R on and set it to a station (pop music, if possible).
- Set the volume to approx. "20".
- Now lightly tap on the Inside Microphone R74 (Front Interior Light W1) several times.

The volume of the station selected on the Radio R must increase noticeably during the tapping. The procedure is done slowly.

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- Stop tapping.

The volume of the station selected on the Radio R must decrease noticeably.

Inside Microphone R74 , removing and installing

Special tools, testers and auxiliary items required

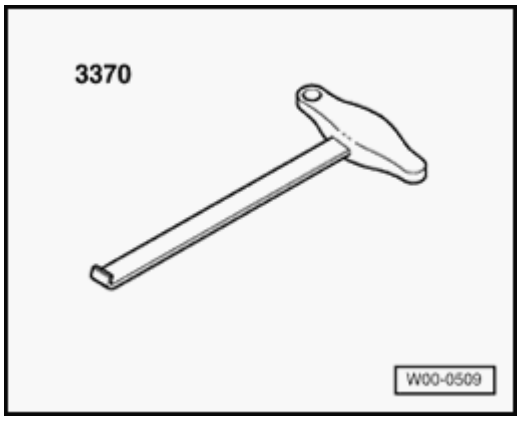

Fig. 65: Identifying Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Special hook 3370

Removing

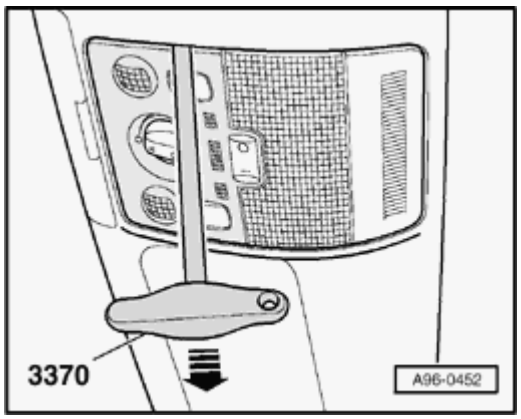

Fig. 66: Removing Interior Lamp Module Trim Using Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully remove cover on Front Interior Light W1 with Special Hook 3370.

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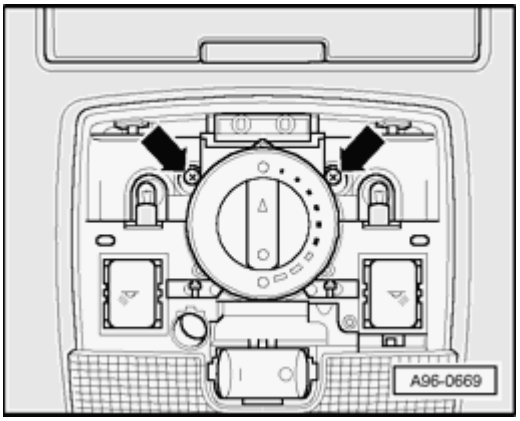

Fig. 67: Locating Bolts For Front Interior Light
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (3 Nm).
- Tip Front Interior Light W1 downward and out.

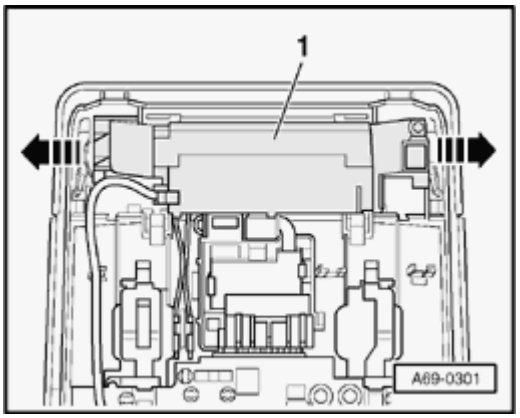

Fig. 68: Releasing Retaining Clips And Remove Radar Interior Monitoring Control Module From Front Interior Light
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If present, release retaining clips - **arrows** - and remove Radar Interior Monitoring Control Module 1 G303 - **1** - from Front Interior Light W1.

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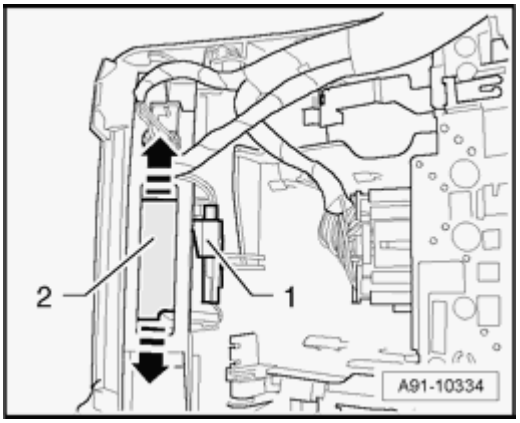

Fig. 69: Identifying Connector, Inside Microphone R74, And Retaining Hooks
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - on Inside Microphone R74 - **2** -.
- Release retaining hooks - **arrows** - and remove Inside Microphone R74 - **2** -.

Installing

- Install in reverse order.

Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .

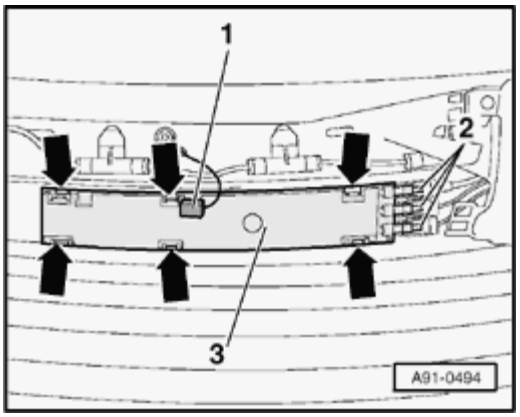

Fig. 70: Identifying Ground Wire, Retaining Tabs, Electrical Connectors And Antenna Amplifier
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect ground wire - **1** -.

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- Release retaining tabs - **arrows** - and remove Antenna Amplifier R24 / Antenna Selection Control Module J515 - **3** -.
- Disconnect electrical connectors - **2** -.

Installing

- Install in reverse order.

Left Antenna Module R108 , Avant, removing and installing

"Chorus" (through KW 21/04)

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove left luggage compartment side trim --> - **70 - INTERIOR TRIM** .

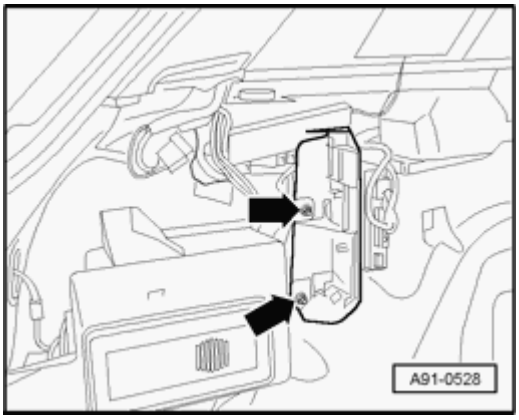

Fig. 71: Removing Towing Recognition Control Module J345 Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If present, remove Towing Recognition Control Module J345 bracket - **arrows** - (2 Nm).

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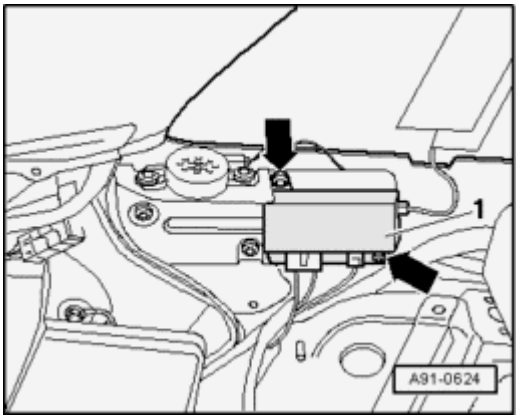

Fig. 72: Removing Bolts Left Antenna Module R108
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors on Left Antenna Module R108 - **1** -.
- Remove bolts - **arrows** - (2 Nm) and remove Left Antenna Module R108 - **1** -.

Installing

- Install in reverse order.

"Concert" / "Symphony" /from KW 22/04 "Chorus"

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove luggage compartment left side trim --> - **70 - INTERIOR TRIM** .

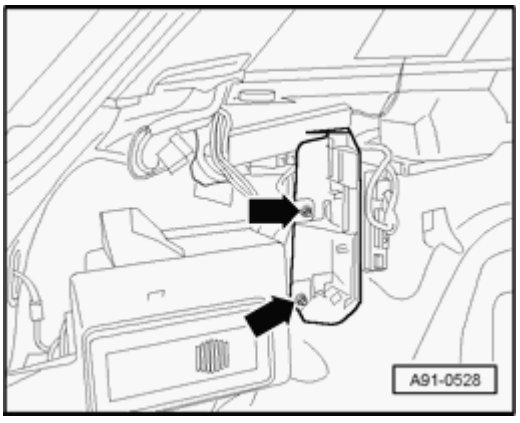

Fig. 73: Removing Towing Recognition Control Module J345 Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If present, remove Towing Recognition Control Module J345 bracket - **arrows** - (2 Nm).

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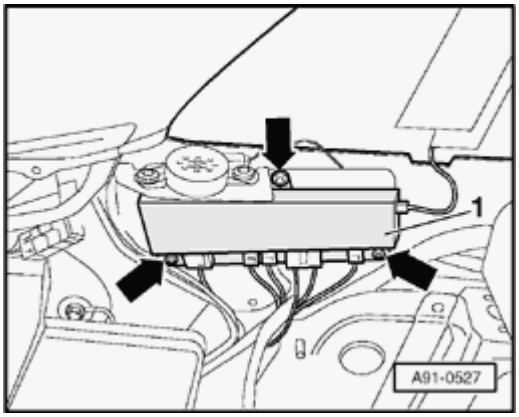

Fig. 74: Removing Bolts Left Antenna Module R108
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors on Left Antenna Module R108 - **1** -.
- Remove bolts - **arrows** - (2 Nm) and remove Left Antenna Module R108 - **1** -.

Installing

- Install in reverse order.

SATELLITE RADIO SYSTEMS, USA

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Only use Radio R and components from the Audi program because this is the only way to ensure problem-free installation and optimal reception.

All Radios R are coded to Comfort in the instrument cluster (anti-theft coding). When removing and installing the same Radio R , coding is not necessary after disconnecting voltage supply when removing and installing the same instrument cluster.

Radio generation II+ introduced from KW 22/06.

This used two tuners with "phase diversity" for reception.

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Further removal steps are the same as with the "Symphony" radio.

If "Transport" appears in the display after switching on the Radio R , transport mode must be deactivated.

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Information on Radio R / CD Changer R41 retrofitting

The connectors for the original Audi Radio R are provided in the radio package. Commercial radio units with different connectors must be connected with adapter cable.

When connecting the speed signal, ensure it is not short circuited. Otherwise, malfunctions can occur in the vehicle.

Using commercially available radios can cause interference with the antenna amplifier because the original Audi Radio R has "remotely powered antennas" which receive voltage supply from the Radio R via the middle conductor of the high frequency cable. Use the remote power adapter from Audi.

For CD preparation, the CD changer R41 wiring harness is already installed in the vehicle. The connecting wire can only be used with genuine Audi CD-changers R41.

Antenna system with Diversity function

The "Symphony" / from MY04, "Concert" /from MY05 and "Chorus" systems have an antenna system with diversity function. This improves and optimizes reception quality.

In addition to the roof antenna and rear window antenna with amplifier, an antenna in the rear or side with an amplifier is also used.

Individual antennas with amplifier are controlled via the Antenna Selection Control Module J515 (Diversity box).

The signal going via the antenna wire (HF) from Antenna Selection Control Module J515 into the Radio R is checked and the result is output back to the Antenna Selection Control Module J515 via an additional antenna connection (IF).

If the antenna signal is too weak, the Antenna Selection Control Module J515 switches to another antenna (diversity function).

This switching process is neither seen nor heard.

The procedure is the same as "switching diversity".

With "phase diversity" , the Radio R has two internal tuners with one input each (AM/FM1, FM2).

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If the signal received is interrupted, both signals are digitalized and separated in the tuners in the Radio R so that the disrupted signals are blocked out as much as possible.

If the reception signal is not disrupted, the Radio R constantly compares which antenna (amplifier) has the strongest reception. This is then transferred

In this case, the second tuner checks the frequency band in the background for better reception frequencies for the selected station. If a better signal is found, this tuner switches to reception and the other to the background.

BOSE systems with "AudiPilot"

On vehicles with BOSE sound from MY04, an additional microphone, the Inside Microphone R74 is installed in the Front Interior Light W1. The Inside Microphone R74 is switched directly with the Amplifier R12 (BOSE).

The Amplifier R12 (BOSE) is then in a position to the adapt the sound characteristics of the BOSE system to the changing interior noise. For example, if the interior noise becomes louder, the volume is then automatically increased according to prescribed sound curves.

The interior noise is less dominant, the sound experience improves.

Function test, see --> **Inside Microphone R74 , function test**.

Transport protection in "Symphony II+"

The "Symphony" Radio R generation II+ has a special protection lock for the internal CD changer.

This is active when the unit is shifted and must be deactivated after installation.

In the same way, the transport protection must be activated before removing the unit.

Transport protection, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

Radio system overview

BOSE Satellite Radio Systems, sedan

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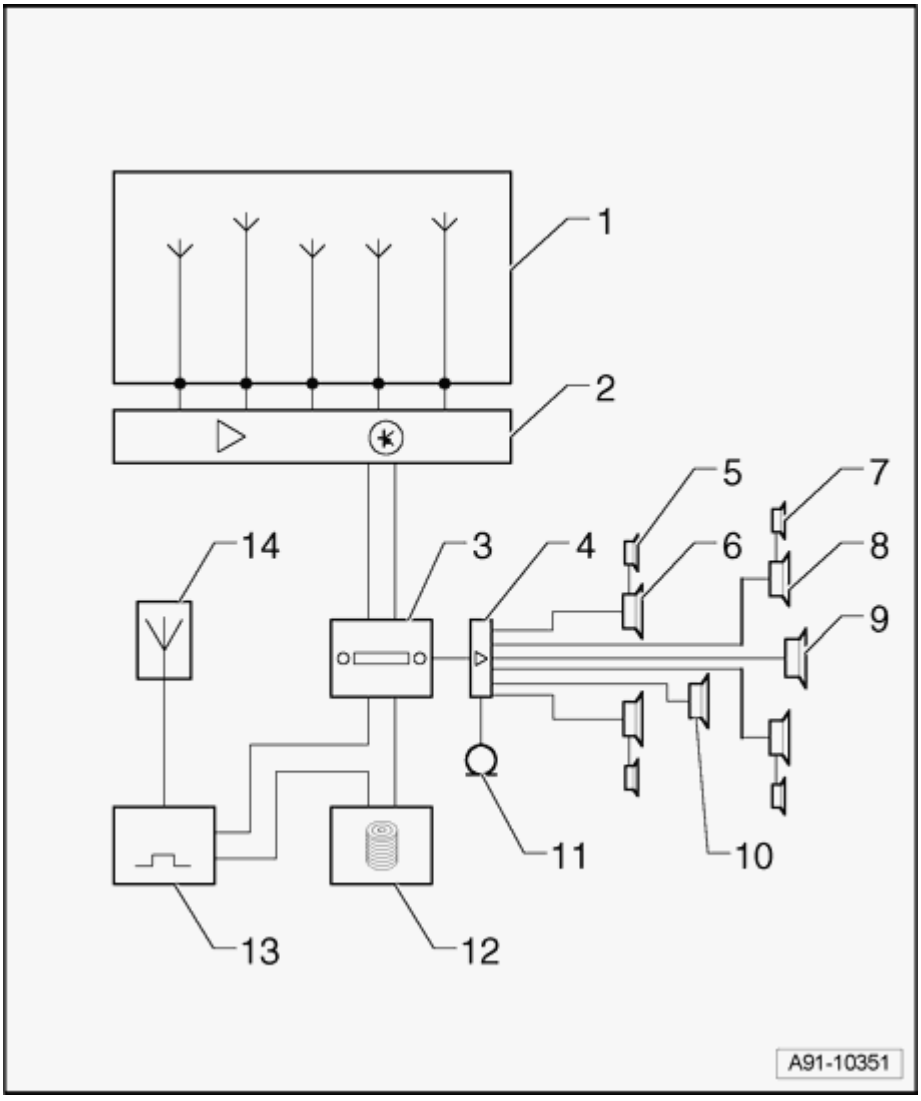

Fig. 75: Bose Satellite Radio Systems, Sedan
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Radio R in upper center console

4 - Amplifier R12 behind luggage compartment right side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

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8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Bass Loudspeaker R100 in parcel shelf

10 - Inside Loudspeaker R70 in front center instrument panel

11 - Inside Microphone R74 in Front Interior Light W1

12 - CD Changer R41 / iPod Baseplate R192 in glove compartment

13 - Satellite Radio R146 behind luggage compartment left side trim

14 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

BOSE Satellite Radio Systems, Avant

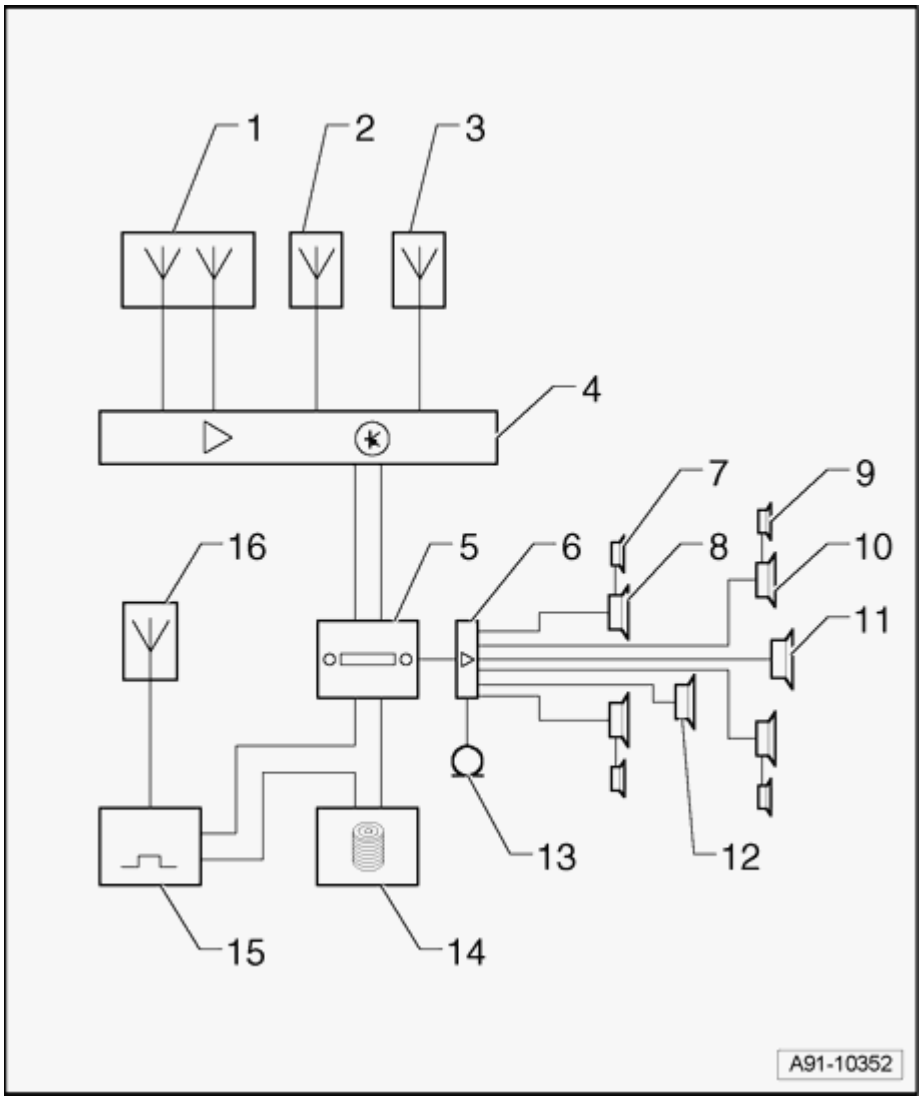

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Fig. 76: Bose Satellite Radio Systems, Avant
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - left rear AM/FM1 window antennas

2 - FM2 rear window antennas

3 - right rear FM3 window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Radio R in upper center console

6 - Amplifier R12 behind luggage compartment right side trim

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

10 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

11 - Bass Loudspeaker R100 behind luggage compartment right side trim

12 - Inside Loudspeaker R70 in front center instrument panel

13 - Inside Microphone R74 in Front Interior Light W1

14 - CD Changer R41 / iPod Baseplate R192 in glove compartment

15 - Satellite Radio R146 behind luggage compartment left side trim

16 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

Layout of communication system with Satellite Radio Systems

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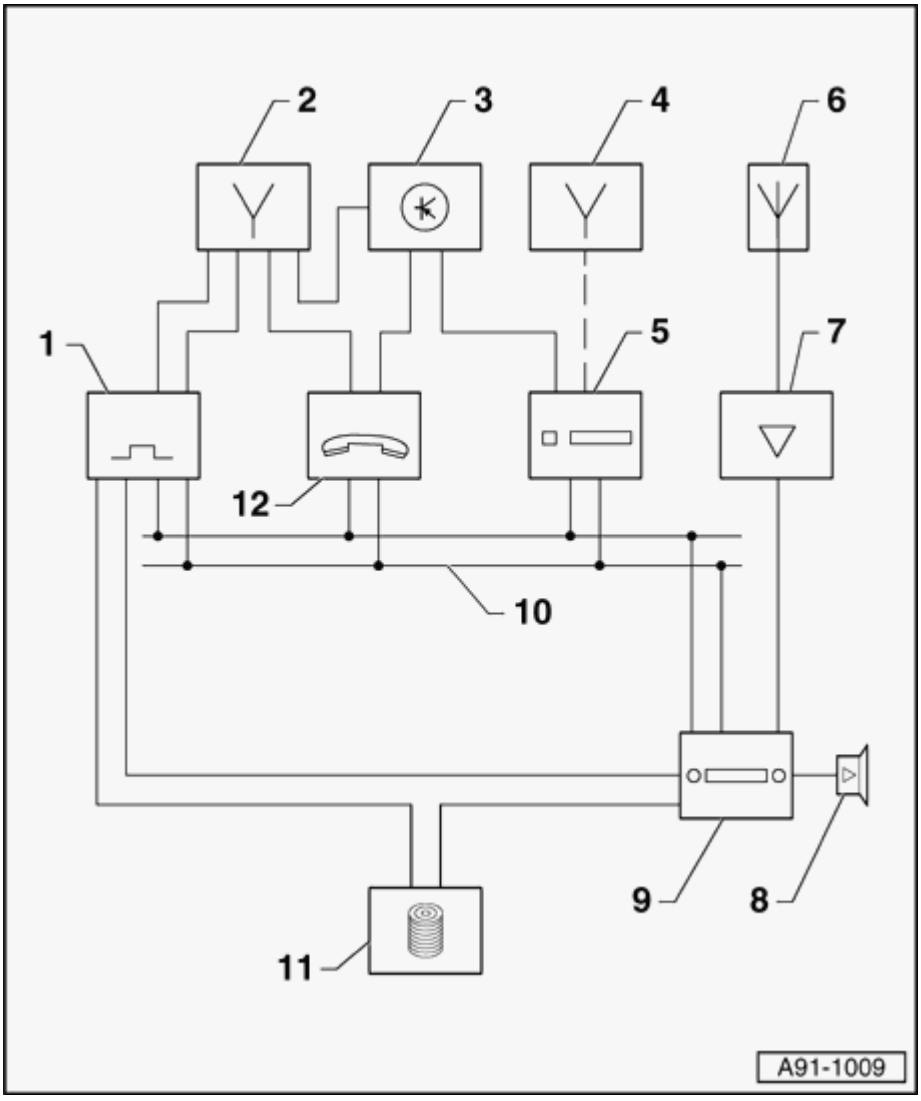

Fig. 77: Layout Of Communication System With Satellite Radio Systems
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Satellite Radio R146 behind luggage compartment left side trim

2 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

3 - GPS Antenna Splitter R110 (Avant) behind luggage compartment left side trim

4 - Navigation System Antenna R50 (sedan) behind roof end trim

5 - Navigation System with CD Drive Control Module J401 behind luggage compartment left side trim

6 - Radio antennas

7 - Antenna Selection Control Module J515 / Left Antenna Module R108

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8 - Sound system

9 - Radio R in upper center console

10 - CAN-BUS (Infotainment)

11 - CD Changer R41 / iPod Baseplate R192 in glove compartment

12 - Telephone Transceiver R36 / Telephone/Telematics Control Module J526 in electronics box under right front seat

Connectors and connector assignments

"Concert "

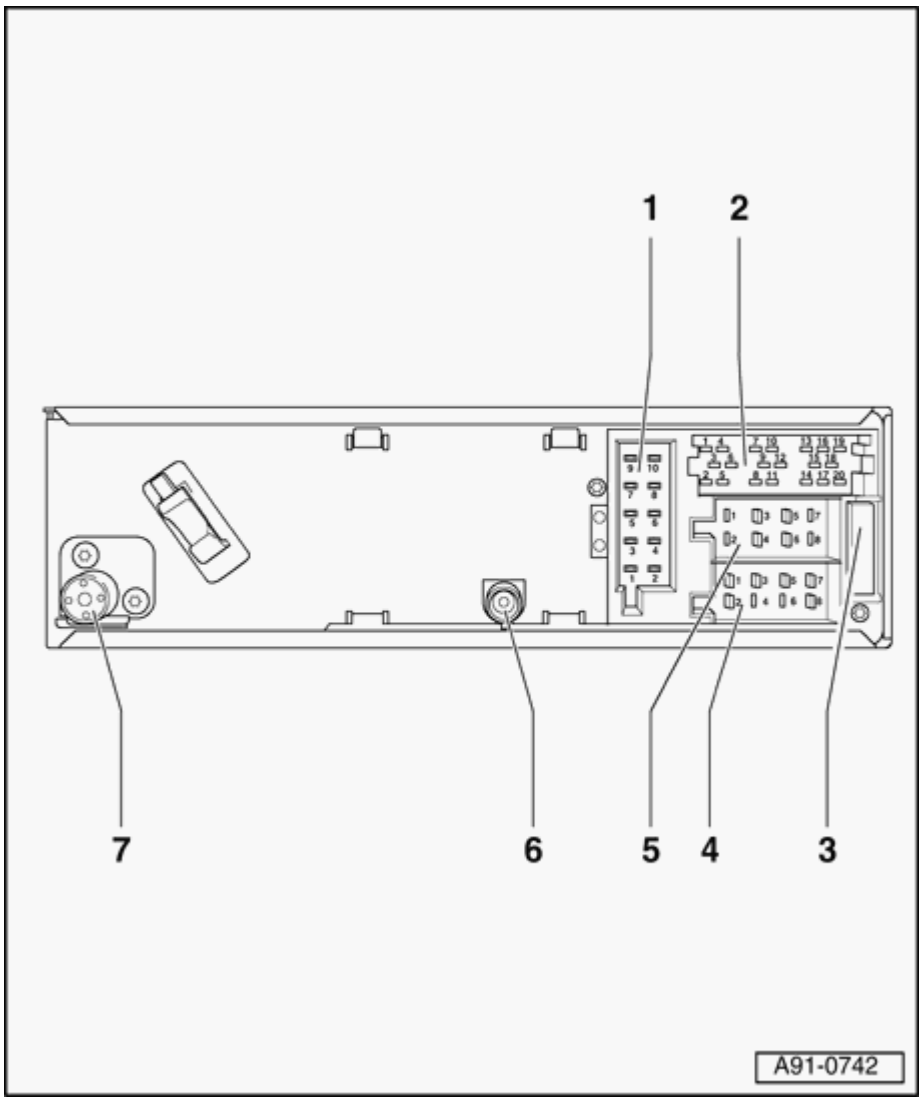

Fig. 78: Identifying Multi-Pin Connectors On Rear Of "Concert II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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1 - Multi-pin connector IV, 10-pin, (T10l) red

2 - Multi-pin connector I, 20-pin, (T20d) black

3 - Device fuse

4 - Multi-pin connector III, 8-pin, (T8) black

5 - Multi-pin connector II, 8-pin, (T8a) brown

6 - IF connection (yellow) to Antenna Selection Control Module J515 / Left Antenna Module R108

7 - HF connection (black) to Antenna Selection Control Module J515 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

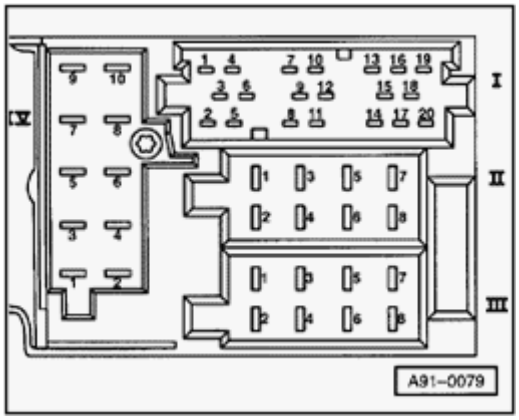

Fig. 79: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

1 - NF mute from Telephone/Telematics Control Module J526

3 - NF (+) from Telephone/Telematics Control Module J526 (not with Nav IV)

4 - NF (-) from Telephone/Telematics Control Module J526 (not with Nav IV)

5 - NF (+) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

6 - NF (-) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

7 - Navigation control wire from Navigation System with CD Drive Control Module J401 (only with Nav IV)

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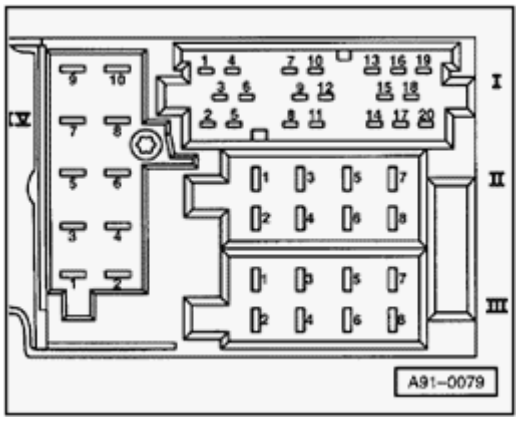

Fig. 80: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Multi-pin connector I, 20-pin, (T20d) black

1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - CAN-Bus High (Infotainment)

10 - CD ground to CD Changer R41

12 - CAN-Bus Low (Infotainment)

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - Signal ground from CD Changer R41 / Satellite Radio R146

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19 - Left signal from CD Changer R41 / Satellite Radio R146

20 - Right signal from CD Changer R41 / Satellite Radio R146

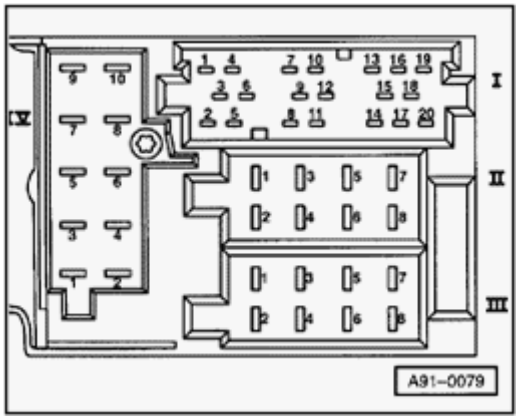

Fig. 81: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Multi-pin connector III, 8-pin, (T8) black

1 - BOSE coding to ground (only with BOSE)

2 - Anti-theft warning system ground from Comfort System Central Control Module J393

3 - L-diagnostic

7 - Terminal 30

8 - Terminal 31

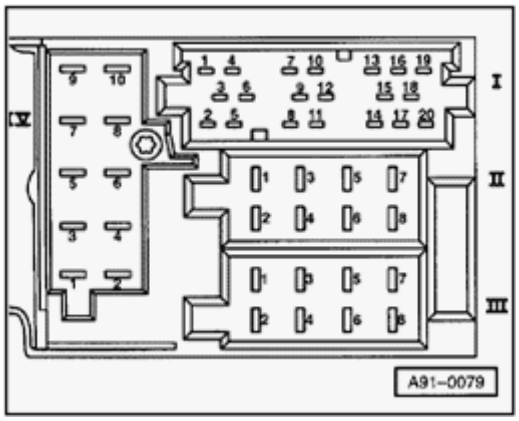

Fig. 82: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Multi-pin connector II, 8-pin, (T8a) brown

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3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

"Symphony"

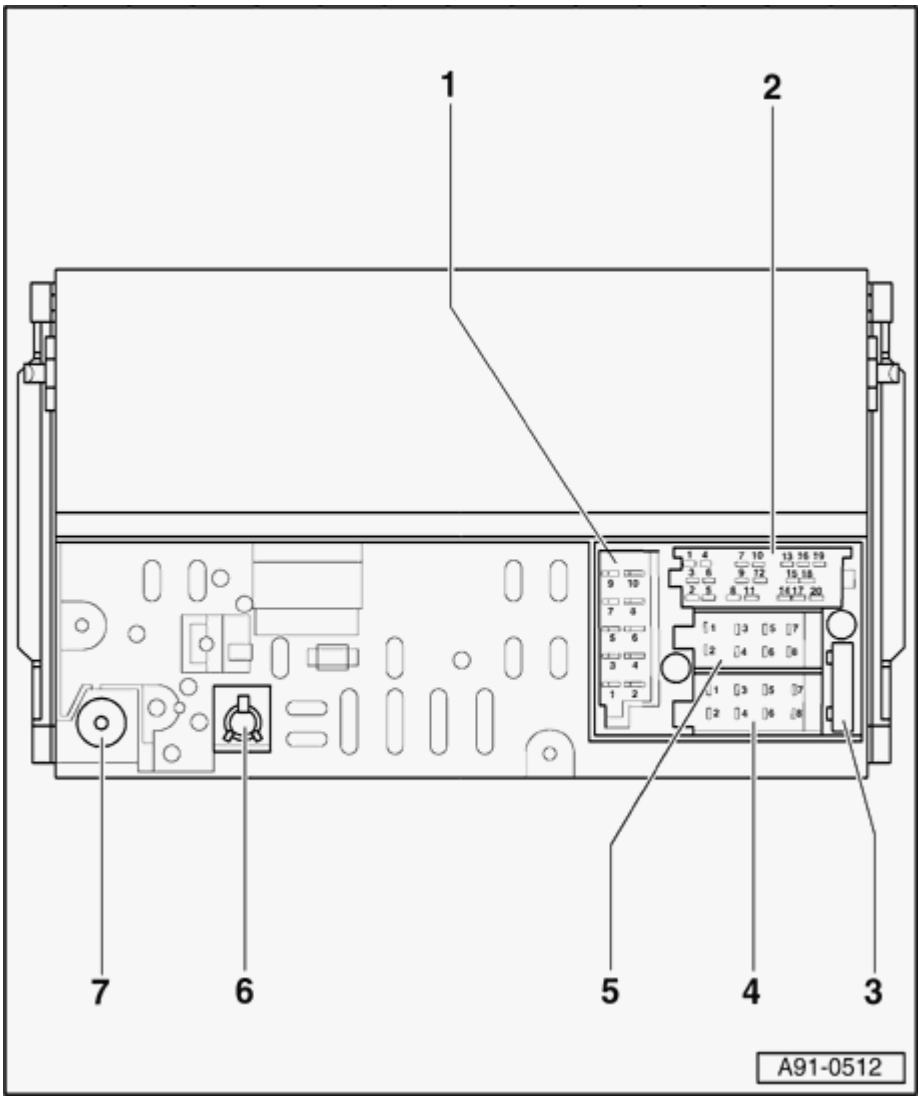

Fig. 83: Identifying Multi-Pin Connectors On Rear Of "Symphony II" Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

2 - Multi-pin connector I, 20-pin, (T20d) black

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3 - Device fuse

4 - Multi-pin connector III, 8-pin, (T8) black

5 - Multi-pin connector II, 8-pin, (T8a) brown

6 - IF connection (yellow) to Antenna Selection Control Module J515 / Left Antenna Module R108

7 - HF connection (black) to Antenna Selection Control Module J515 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

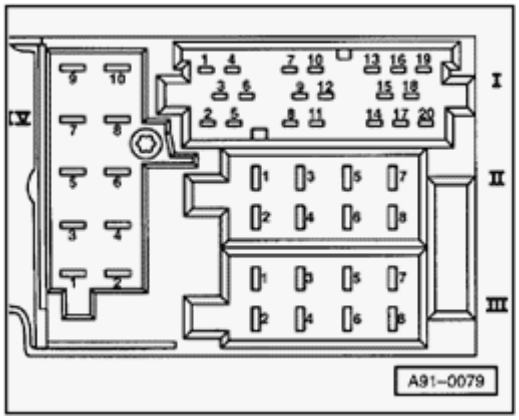

Fig. 84: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector IV, 10-pin, (T10l) red

1 - NF mute from Telephone/Telematics Control Module J526

3 - NF (+) from Telephone/Telematics Control Module J526 (not with Nav IV)

4 - NF (-) from Telephone/Telematics Control Module J526 (not with Nav IV)

5 - NF (+) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

6 - NF (-) from Navigation System with CD Drive Control Module J401 (only with Nav IV)

7 - Navigation control wire from Navigation System with CD Drive Control Module J401 (only with Nav IV)

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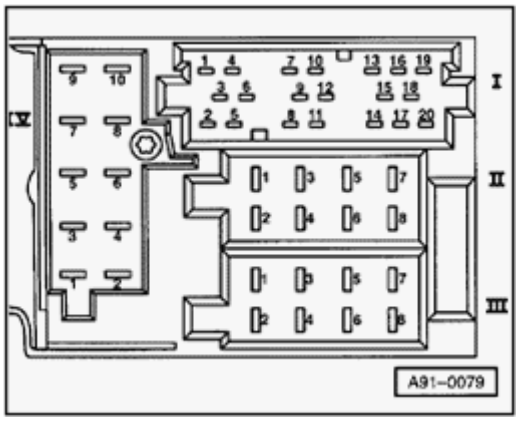

Fig. 85: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Multi-pin connector I, 20-pin, (T20d) black

1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - CAN-Bus High (Infotainment)

10 - CD ground to CD Changer R41

12 - CAN-Bus Low (Infotainment)

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - Signal ground from CD Changer R41 / Satellite Radio R146

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19 - Left signal from CD Changer R41 / Satellite Radio R146

20 - Right signal from CD Changer R41 / Satellite Radio R146

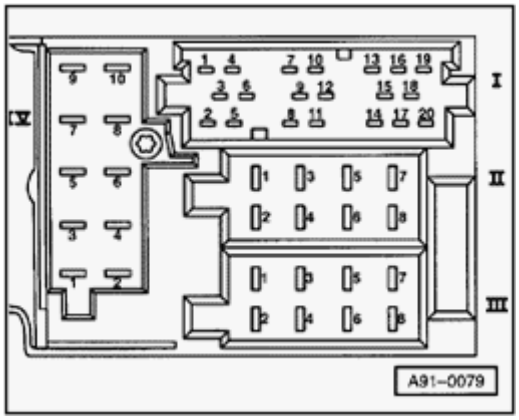

Fig. 86: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - Multi-pin connector III, 8-pin, (T8) black

1 - BOSE coding to ground (only with BOSE)

2 - Anti-theft warning system ground from Comfort System Central Control Module J393

3 - L-diagnostic

7 - Terminal 30

8 - Terminal 31

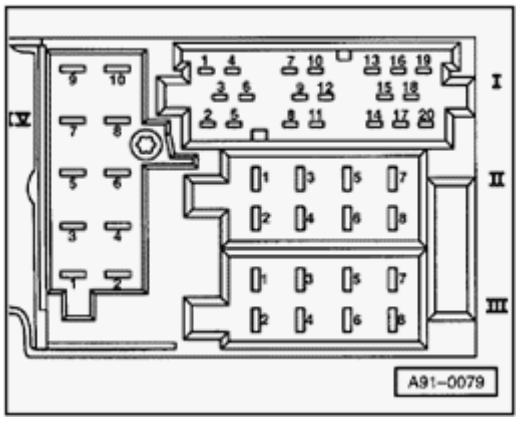

Fig. 87: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Multi-pin connector II, 8-pin, (T8a) brown

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3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

"Concert" / "Symphony" (radio generation II+) from KW 22/06

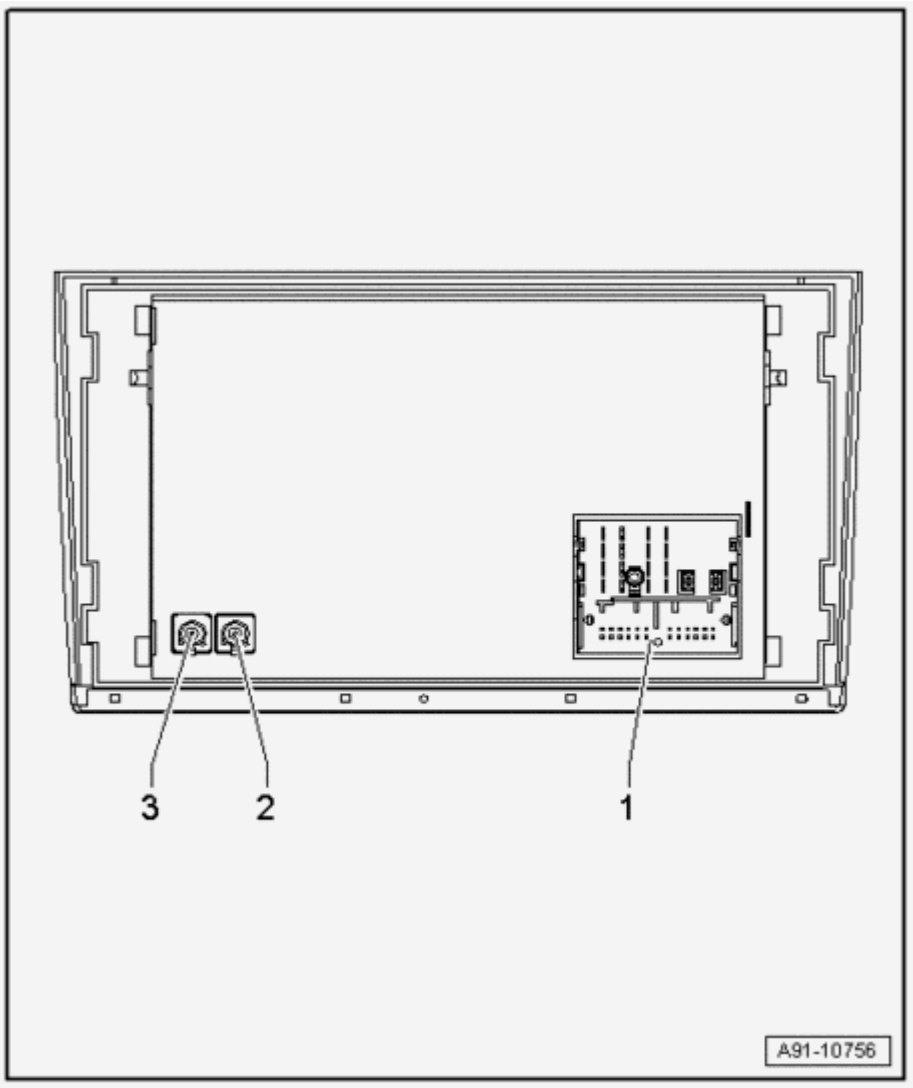

Fig. 88: "Chorus" / "Concert" / "Symphony" (Radio Generation II+) From KW 45/06
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connector block with 4 multi-pin connectors and fuse

2 - HF1 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

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3 - HF21 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

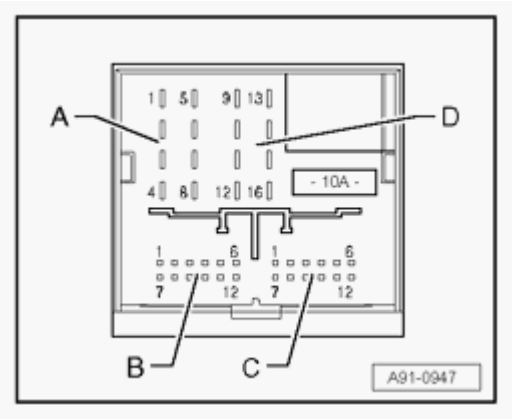

Fig. 89: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - 8-pin multi-pin connector (T8h) black

2 - Right front speaker (+) (not with BOSE)

3 - Left front speaker (+) (not with BOSE)

6 - Right front speaker (-) (not with BOSE)

7 - Left front speaker (-) (not with BOSE)

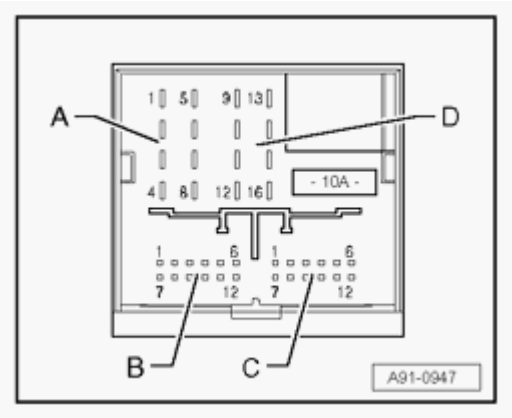

Fig. 90: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Multi-pin connector, 12-pin (T12f) blue

1 - NF in left (not used)

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2 - Signal ground from CD Changer R41 / Satellite Radio R146

3 - NF in ground (not used)

4 - Permanent positive to CD Changer R41

5 - BOSE coding to ground (only with BOSE)

6 - CD data out to CD Changer R41

7 - NF in right (not used)

8 - Left signal from CD Changer R41 / Satellite Radio R146

9 - Right signal from CD Changer R41 / Satellite Radio R146

10 - Positive switched to CD Changer R41

11 - CD data in from CD Changer R41

12 - CD CLK from CD Changer R41

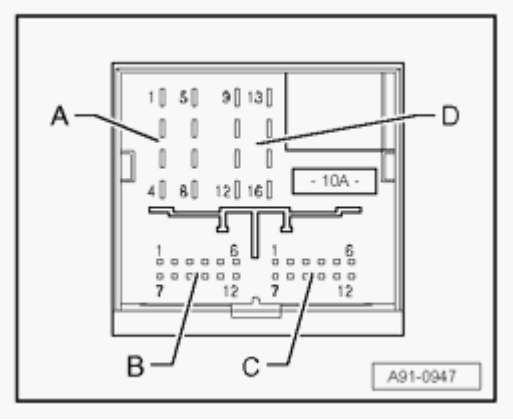

Fig. 91: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - multi-pin connector, 12-pin (T12) green

1 - Speed signal (not used)

3 - Left front signal to Amplifier R12 (only with BOSE)

5 - Left rear signal to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

6 - NF (-) from Telephone Transceiver R36

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7 - K diagnostic (not used)

8 - Signal ground to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

9 - Right front signal to Amplifier R12 (only with BOSE)

10 - Audio Pilot in/out (not used)

11 - Right rear signal to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

12 - NF (+) from Telephone Transceiver R36

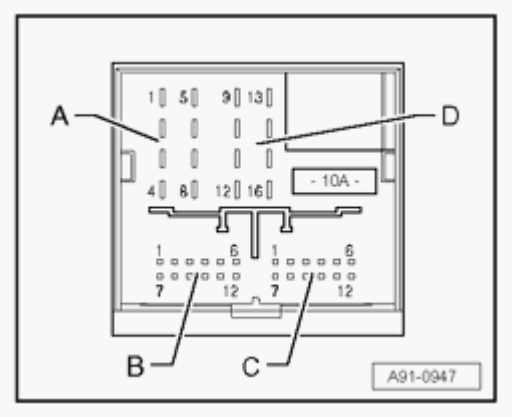

Fig. 92: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

D - 8-pin multi-pin connector (T8h) black

9 - CAN-Bus High (Infotainment)

10 - CAN-Bus Low (Infotainment)

11 - NF mute from preliminary setup for cell phone preparation

12 - Terminal 31

13 - Positive switched to Amplifier/Woofer (in left rear luggage compartment) R44 / Amplifier R12

14 - Anti-theft warning system (not used)

15 - Terminal 30

16 - Permanent positive connected with PIN 15 (anti-theft warning system)

Satellite radio R146

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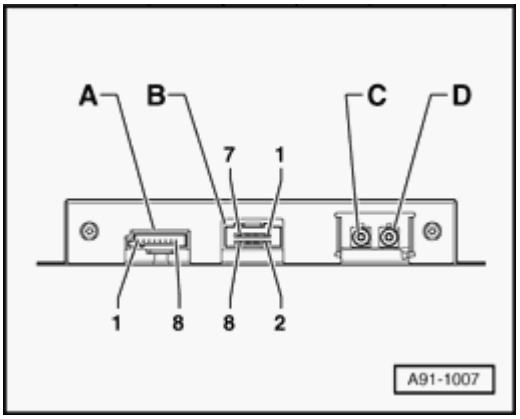

Fig. 93: Identifying 8-Pin Harness Connector And Antenna Connection For Satellite Tuner
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - 8-pin connector

B - 8-pin connector

C - Ter connection (brown) from Radio, Telephone, Navigation System Antenna R52 (up to 10/06)

D - Sat connection (green) from Radio, Telephone, Navigation System Antenna R52

NOTE:

- **Unlisted connector terminals are not assigned.**

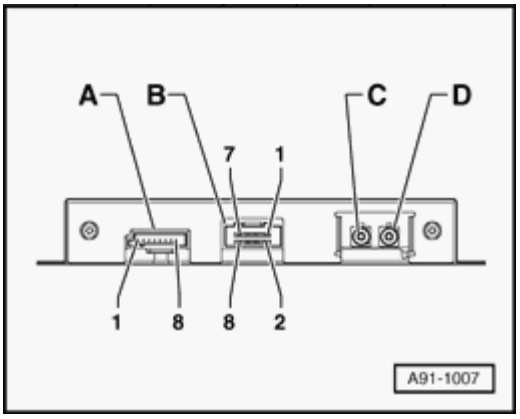

Fig. 94: Identifying 8-Pin Harness Connector And Antenna Connection For Satellite Tuner
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - multi-pin connector, 8-pin

1 - CAN-Bus High (Infotainment)

2 - CAN-Bus Low (Infotainment)

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3 - Left signal from CD Changer R41 / iPod Baseplate R192

4 - Right signal from CD Changer R41 / iPod Baseplate R192

5 - Signal ground to Radio R / Navigation System with CD Drive Control Module J401

6 - Left signal to Radio R / Navigation System with CD Drive Control Module J401

7 - Right signal to Radio R / Navigation System with CD Drive Control Module J401

8 - Signal ground from CD Changer R41 / iPod Baseplate R192

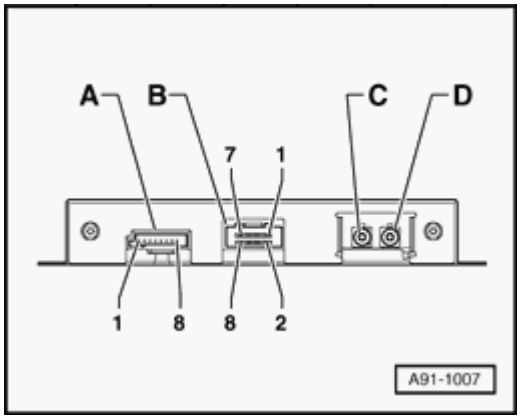

Fig. 95: Identifying 8-Pin Harness Connector And Antenna Connection For Satellite Tuner
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Multi-pin connector, 8-pin

1 - Terminal 30

2 - Terminal 31

CD Changer R41

NOTE:

- **Unlisted connector terminals are not assigned.**

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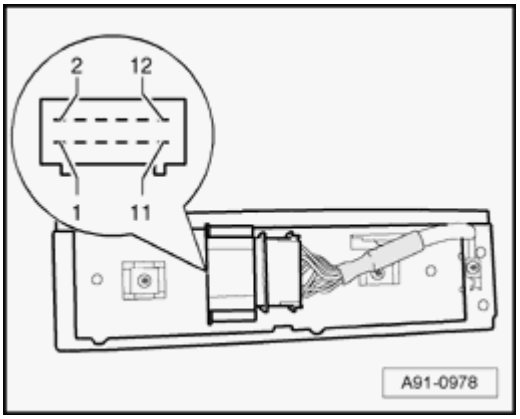

Fig. 96: CD Changer R41 12-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector, 12-pin

1 - CD data out to Radio R / Navigation System with CD Drive Control Module J401

2 - CD CLK out to Radio R / Navigation System with CD Drive Control Module J401

3 - Ground from Radio R /terminal 31 (with RNS-E/radio generation II+)

4 - CD data in from Radio R / Navigation System with CD Drive Control Module J401

6 - Permanent positive from Radio R / Navigation System with CD Drive Control Module J401

7 - Right signal to Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

8 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401

9 - Signal ground to Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

10 - Left signal to Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

iPod Baseplate R192

NOTE:

- **Unlisted connector terminals are not assigned.**

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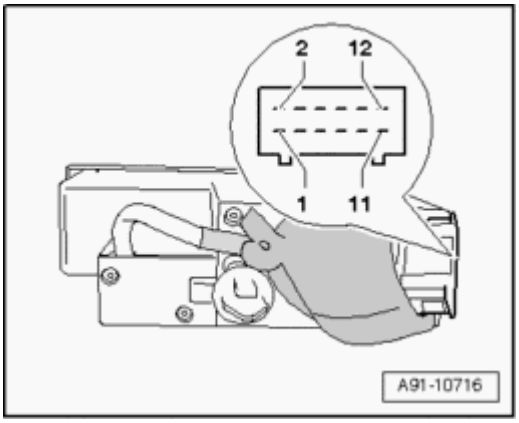

Fig. 97: Ipod Baseplate R192 12-Pin Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector (T12a)

1 - Data out to Radio R / Navigation System with CD Drive Control Module J401

2 - CLK out to Radio R / Navigation System with CD Drive Control Module J401

3 - Terminal 31

4 - Data in from Radio R / Navigation System with CD Drive Control Module J401

6 - Permanent positive from Radio R / Navigation System with CD Drive Control Module J401

7 - Right signal to Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

8 - Positive switched from Radio R / Navigation System with CD Drive Control Module J401

9 - Signal ground from Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

10 - Left signal to Radio R / Navigation System with CD Drive Control Module J401 / Satellite Radio R146

11 - TOC Check Control (not used)

12 - Terminal 58 (not used)

Antenna amplifier connections

Antenna Selection Control Module J515 , sedan

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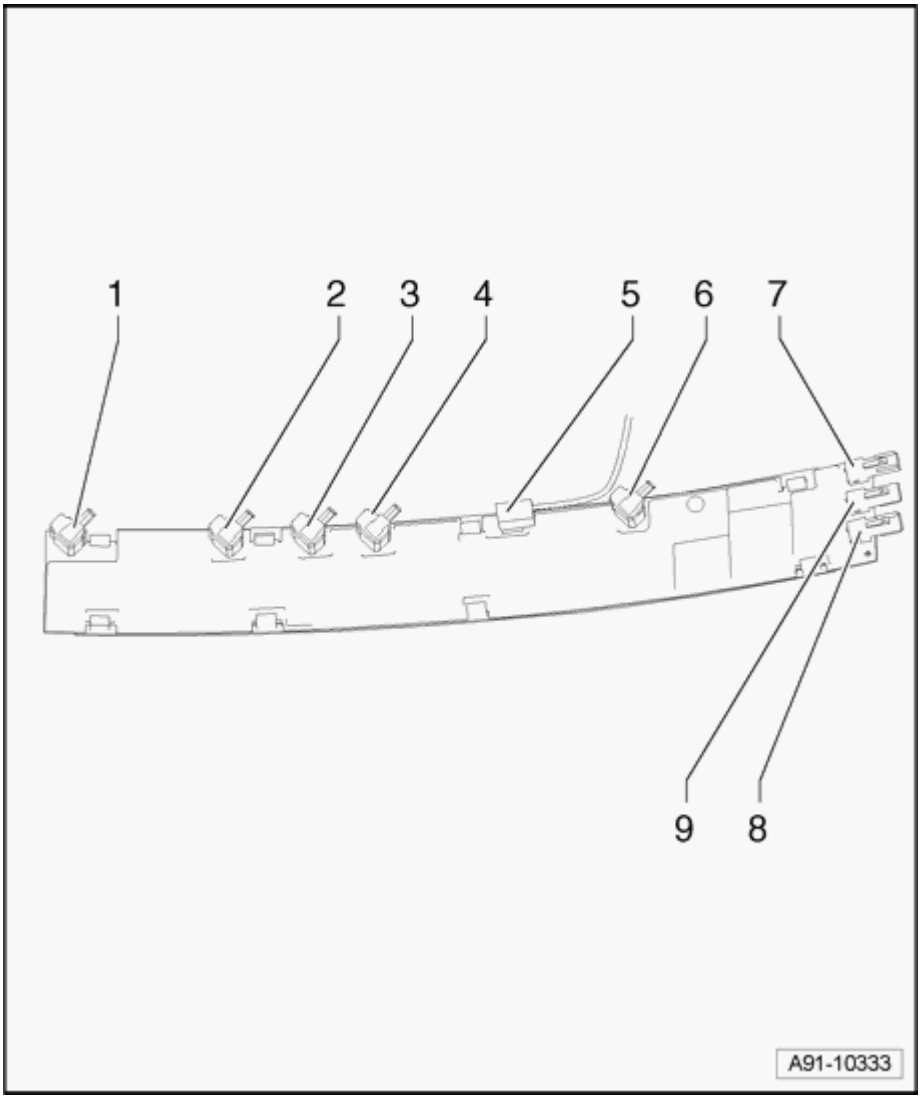

Fig. 98: Antenna Selection Control Module J515 , Sedan
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - not in use

2 - not in use

3 - not in use

4 - not in use

5 - Ground connection

6 - not in use

7 - HF connection (white) to Radio R / Navigation System with CD Drive Control Module J401

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8 - IHF connection (white) from Radio R / Navigation System with CD Drive Control Module J401

9 - CLS connection (green) to Comfort System Central Control Module J393

Antenna Amplifier R24 , sedan only with radio generation II+

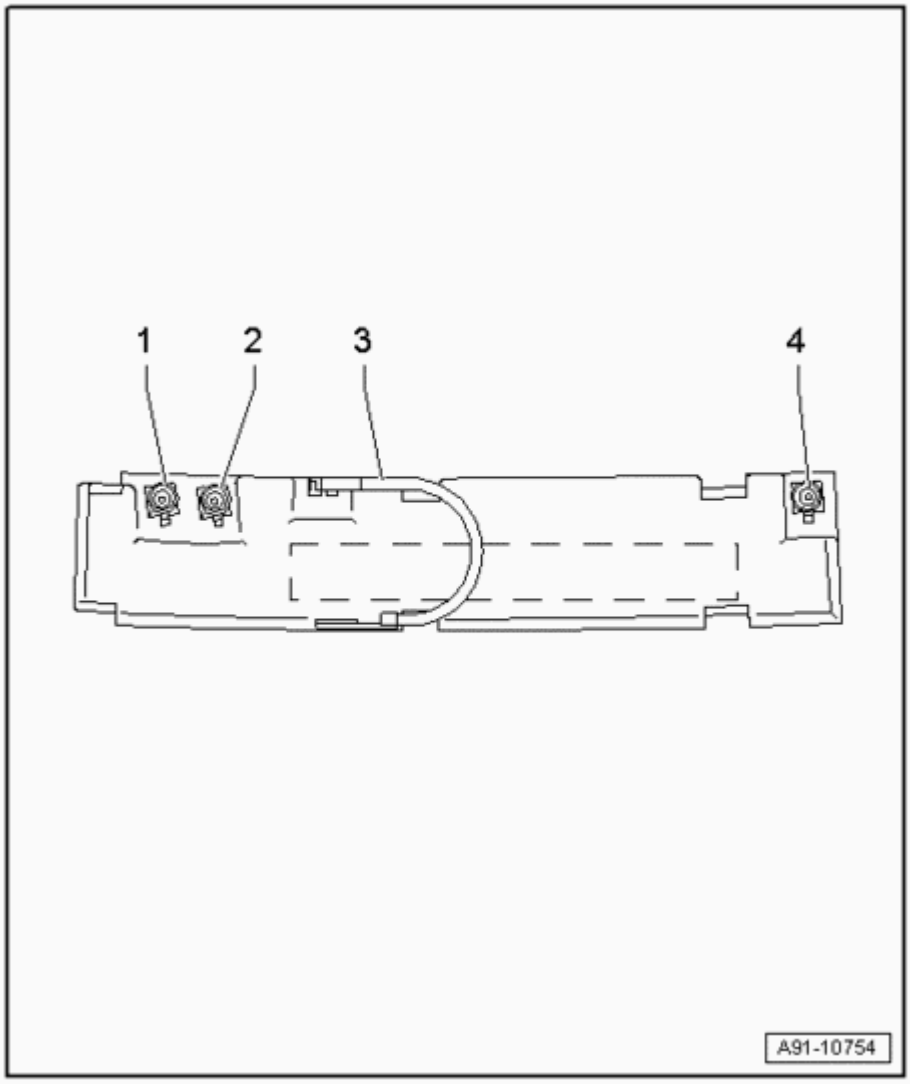

Fig. 99: Antenna Amplifier R24 , Sedan Only With Radio Generation II+
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM connection (white) to Radio R

2 - FM2 connection (yellow) to Radio R

3 - Ground connection

4 - CLS connection (gray) to Comfort System Central Control Module J393

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Left Antenna Module R108 , Avant

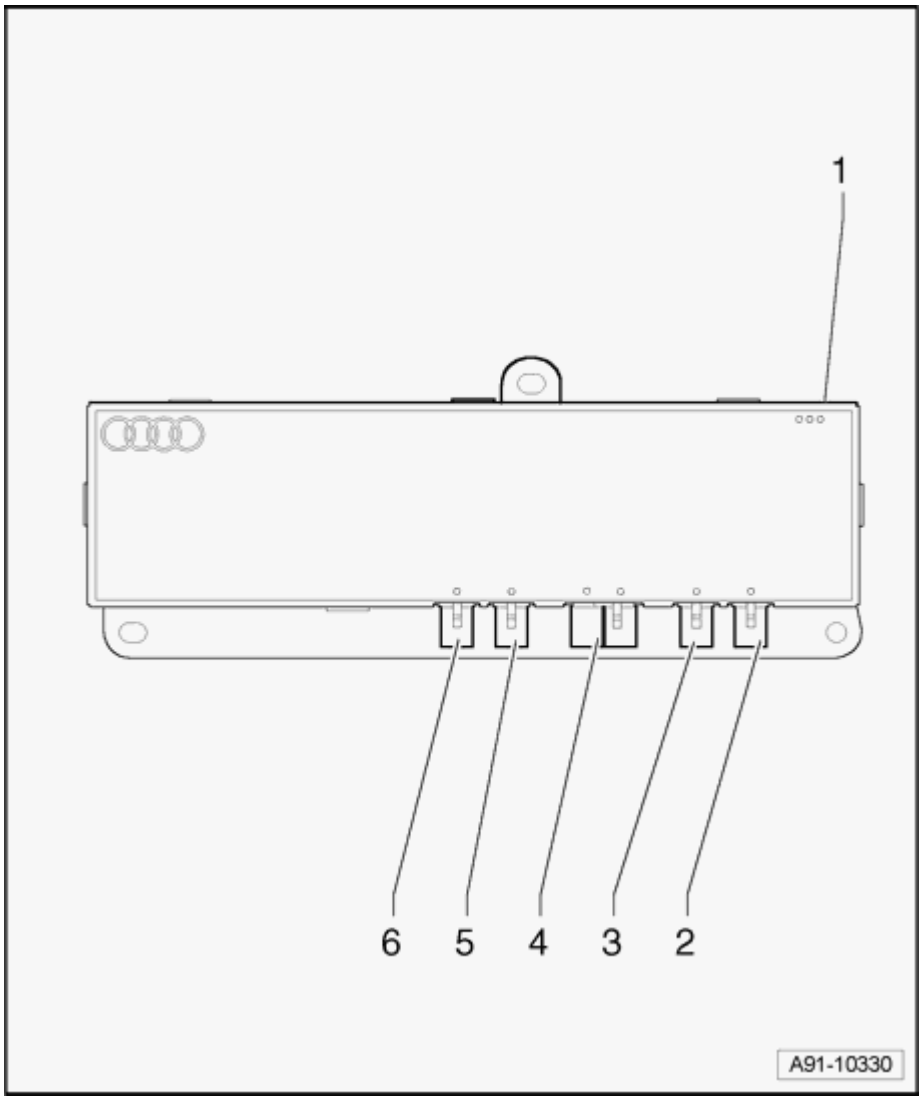

Fig. 100: Connections For All Without TV Antennas
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Left window antenna connection

- 1 - CLS
- 2 - FM1
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

3 - not in use

4 - HF/IF connection (yellow) to/from Radio R

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5 - FM3 connection (black) from right side window antennas

6 - FM2 connection (brown) from rear window antennas

Left Antenna Module R108 , Avant, only radio generation II+

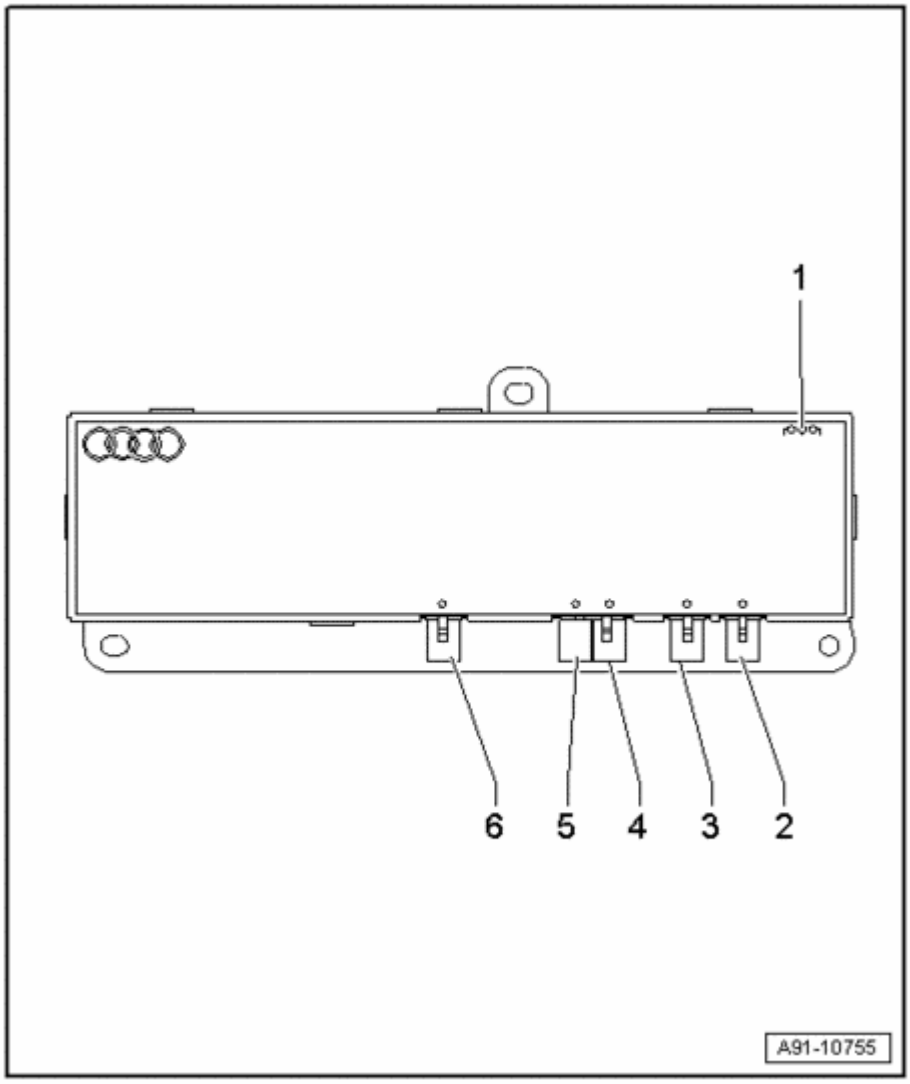

Fig. 101: Only Radio Generation II+
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Left window antennas connection

- 1 - CLS
- 2 - FM1/TS
- 3 - AM

2 - CLS connection (gray) to Comfort System Central Control Module J393

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3 - TS connection (yellow) to Auxiliary Heater Radio Receiver R64

4 - AM/FM1 connection (yellow) to Radio R

5 - FM2 connection (yellow) to Radio R

6 - FM2 connection (brown) from rear window antennas

Total overview - Sedan component locations

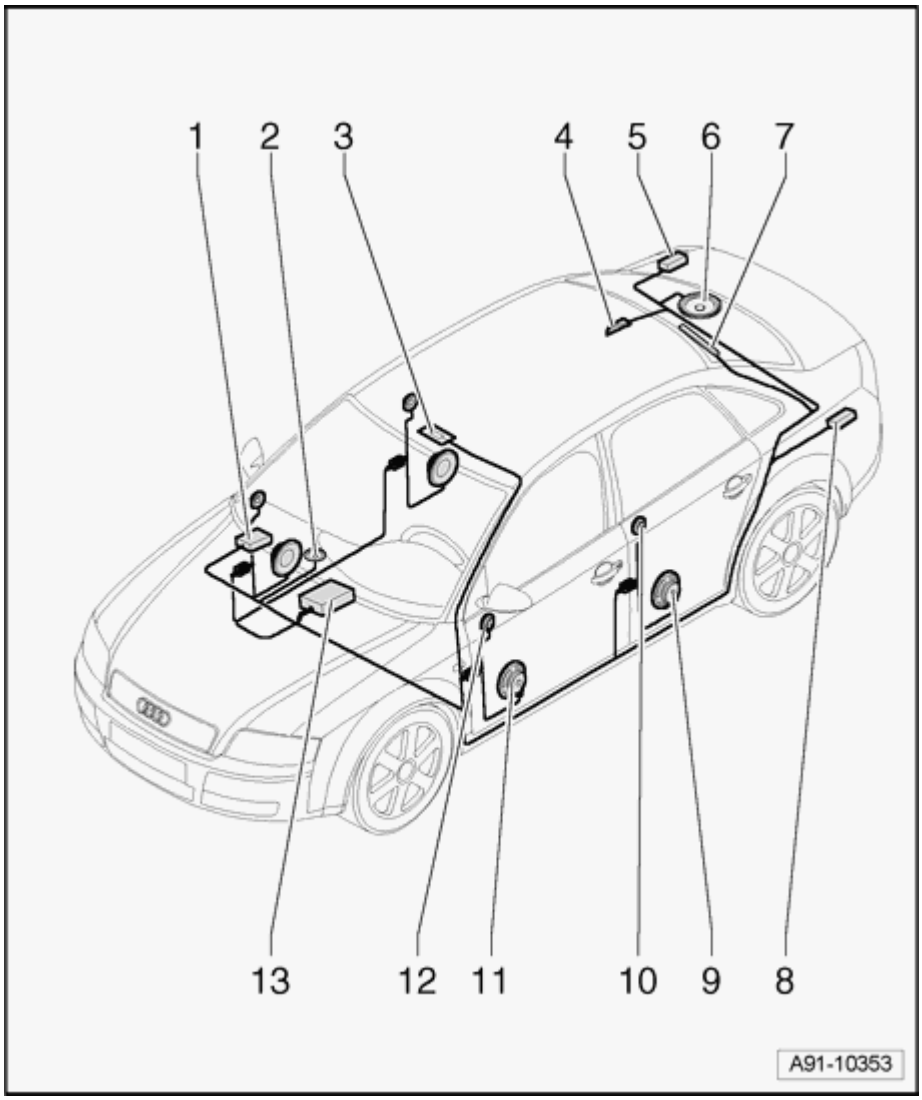

Fig. 102: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment

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- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

4 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM
- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , sedan, removing and installing**

5 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

6 - Bass Loudspeaker R100

- In parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

7 - Antenna Selection Control Module J515

- behind roof end trim

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- Connections
- Radio generation II+ connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

8 - Satellite radio R146

- Behind luggage compartment left side trim
- Connections
- Removing and installing, activating --> **Satellite Radio R146 , removing and installing, activating**

9 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

11 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

12 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

13 - Radio R

- in center console, at top
- "Concert" connections
- "Concert" , removing and installing --> **"Chorus" / "Concert" , removing and installing**
- "Symphony" connections

- Radio generation II+ connections
- "Symphony" , removing and installing --> **"Symphony" radio, removing and installing**
- "Symphony II+" transport protection, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

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General overview - Avant component locations

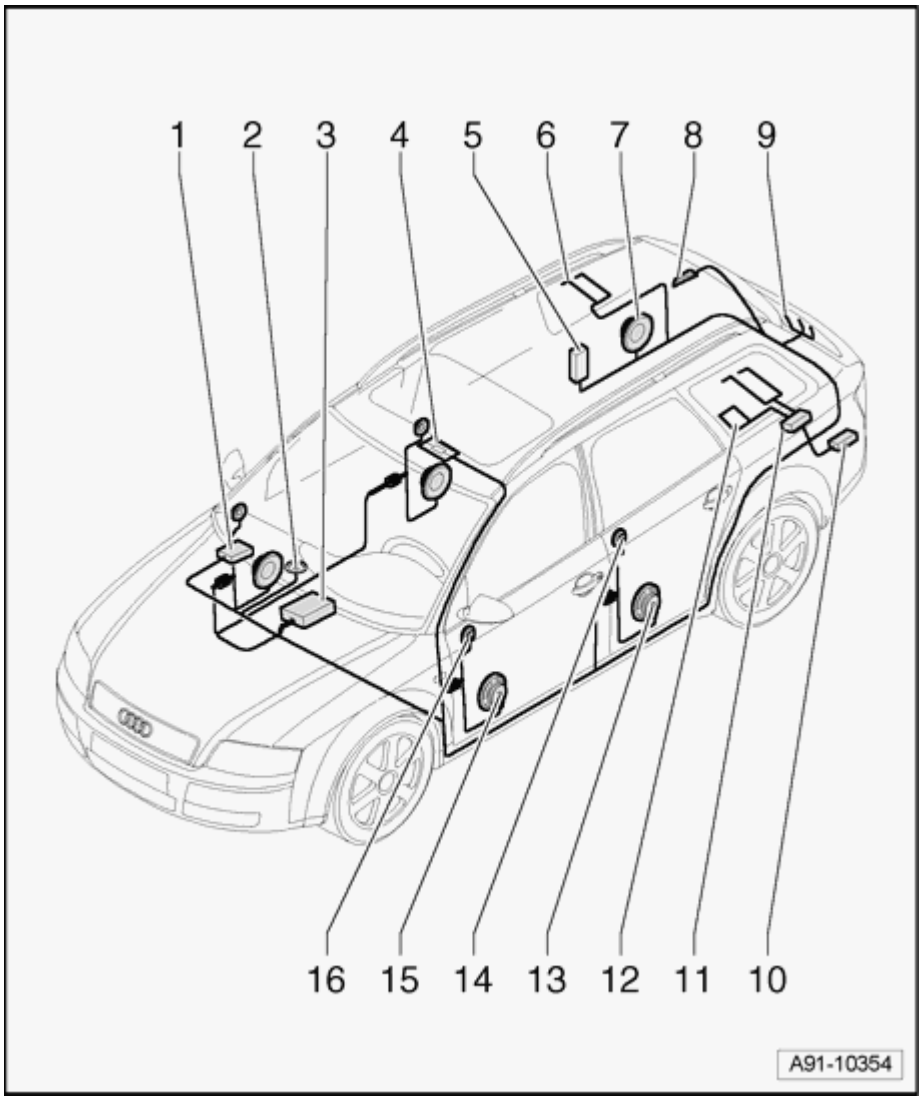

Fig. 103: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

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2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Radio R

- in center console, at top
- "Concert" connections
- "Concert" , removing and installing --> **"Chorus" / "Concert" , removing and installing**
- "Symphony" connections
- Radio generation II+ connections
- "Symphony" , removing and installing --> **"Symphony" radio, removing and installing**
- "Symphony II+" transport protection, activating/deactivating --> **"Symphony II+" in transport mode, activating/deactivating**

4 - Inside Microphone R74

- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

5 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

6 - Right rear window antennas

- FM3

7 - Bass Loudspeaker R100

- Behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM

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- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , Avant, removing and installing**

9 - Rear window antennas

- FM2

10 - Satellite radio R146

- Behind luggage compartment left side trim
- Connections
- Removing and installing, activating --> **Satellite Radio R146 , removing and installing, activating**

11 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Only radio generation II+ connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

12 - Left rear window antennas

- AM/FM1

13 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

14 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

15 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing

16 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

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Satellite Radio R146 , removing and installing, activating

Satellite Radio R146 , sedan (through MY04), removing and installing

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove base mount --> - **70 - INTERIOR TRIM** .

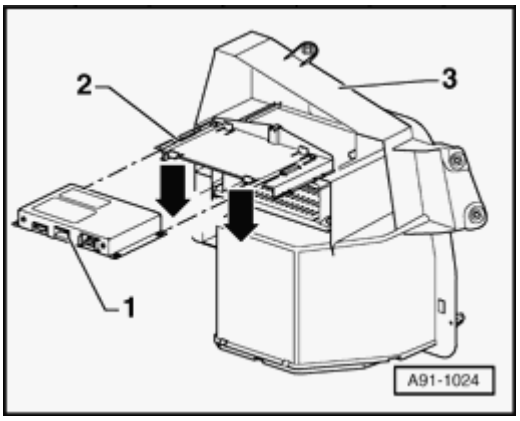

Fig. 104: Identifying Adapter Plate, Satellite Radio, And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Adapter plate - **2** - with Satellite Radio R146 - **1** - is slid into top of base mount - **3** - on rear side and engaged.

- Disconnect connectors on Satellite Radio R146 - **1** -.

The adapter plate must not be removed.

- Press both catches on adapter plate - **2** - down in direction of arrow and remove Satellite Radio R146 - **1** - from plate - **2** -.

Installing

- Install in reverse order.
- Activate Satellite Radio R146.

Satellite Radio R146 , sedan (from MY05), removing and installing

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- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Open luggage compartment.

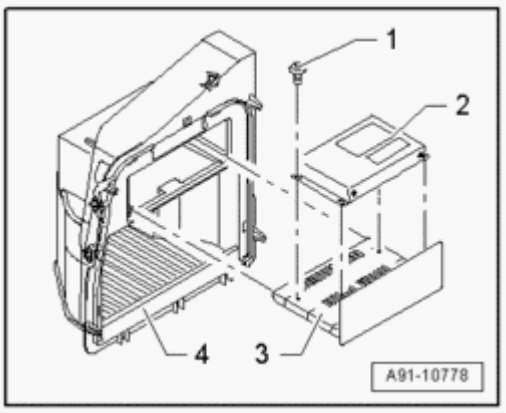

Fig. 105: Identifying Bracket, Bolt, Base Mount, And Satellite Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket - **3** - from base mount - **4** - far enough so connectors can be reached.
- Disconnect connectors on Satellite Radio R146 - **2** -.
- Remove bracket - **3** - completely from base mount - **4** -.
- Remove bolt - **1** - (3 Nm).

- Remove Satellite Radio R146 - **2** - from bracket - **3** -.

Installing

- Install in reverse order.
- Activate Satellite Radio R146.

Satellite Radio R146 , Avant (through MY04), removing and installing

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

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- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove base mount --> - **70 - INTERIOR TRIM** .

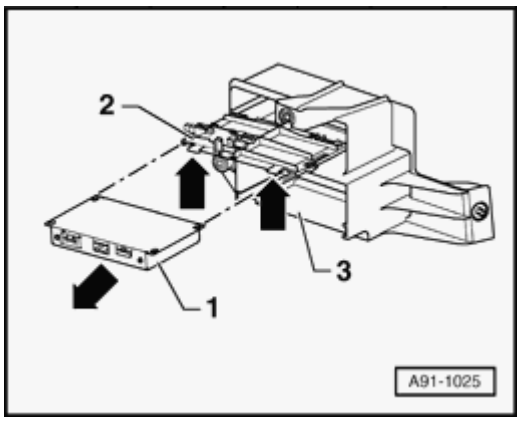

Fig. 106: Identifying Adapter Plate, Satellite Radio, And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Adapter plate - **2** - with Satellite Radio R146 - **1** - is slid into top of base mount - **3** - on rear side and engaged.

- Disconnect connectors on Satellite Radio R146 - **1** -.

The adapter plate must not be removed.

- Press both catches on adapter plate - **2** - up in direction of arrow and remove Satellite Radio R146 - **1** - from plate - **2** -.

Installing

- Install in reverse order.
- Activate Satellite Radio R146.

Satellite Radio R146 , Avant (from MY05), removing and installing

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

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Removing

- Open luggage compartment.

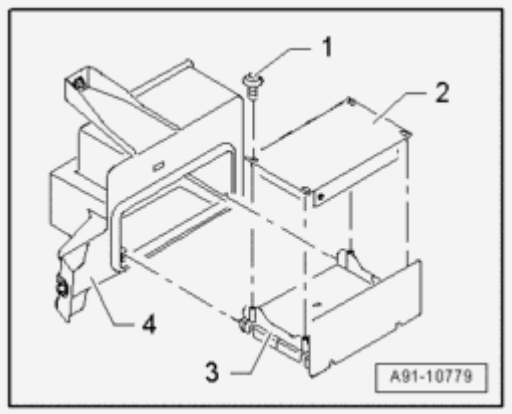

Fig. 107: Identifying Bracket, Bolt, Base Mount, And Satellite Radio
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket - **3** - from base mount - **4** - far enough so connectors can be reached.
- Disconnect connectors on Satellite Radio R146 - **2** -.
- Remove bracket - **3** - completely from base mount - **4** -.
- Remove bolt - **1** - (3 Nm).

- Remove Satellite Radio R146 - **2** - from bracket - **3** -.

Installing

- Install in reverse order.
- Activate Satellite Radio R146.

Satellite Radio R146 , activating

When using for first time or when replacing Satellite Radio R146 tuner, it must be enabled (activated) by the provider (XM or Sirius).

The subscription and application for activation can coincide with submission of all necessary data (US postal address, credit card number, radio ID (XM) or SID (Sirius)) to the providers call center.

Only SIRIUS:

SIRIUS sends the activation sequence 6 times within the first hour after apply for the activation. If no successful activation results, another activation sequence must be requested at the SIRIUS call center.

Requirements

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- Customer has subscribed to XM or Sirius
- Satellite Radio R146 is installed and connected
- Radio R is adapted/coded accordingly
- Ignition switched on

Procedure

- Switch Radio R on and selection Satellite Radio R146 reception area.
- Attempt to receive "free" channels in XM- (e.g. channel 1) or Sirius-band (only channel 184).
- Change location if necessary.

If "free" channels can be received clearly, the activation information sent by the provider (XM or Sirius) can also be received clearly.

A poor reception situation can prevent a successful activation even though activation information is being broadcast. In this case, vehicle location must be changed (an activation is also possible while vehicle is moving). There are e.g. workshops, garages, parking buildings, underground garages, fuel filling stations with extensive roofs and all other parking areas with signal shadows must be avoided.

In built-up areas with terrestial radio system coverage and in inner-cities, it is possible to activate using a repeater instead of the satellite.

Radio, Telephone, Navigation System Antenna R52 , sedan, removing and installing

The antenna wires are placed on the left and right D-pillars.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .
- Remove left and right D-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove Rear Courtesy Light W43 --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .
- Lower the rear molded headliner --> - **70 - INTERIOR TRIM** .

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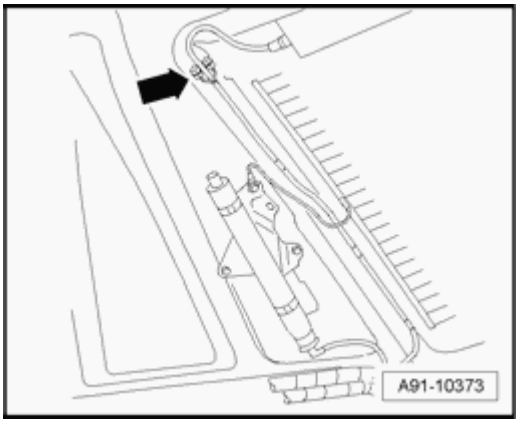

Fig. 108: Disconnecting Antenna Wiring Connection At Right Of D-Pillar
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect antenna wiring connection - **arrow** - at right of D-pillar.

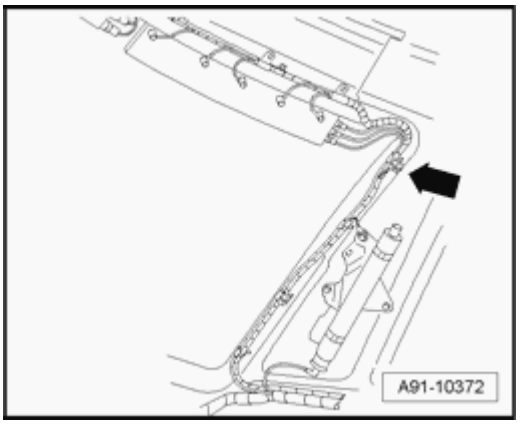

Fig. 109: Disconnecting Antenna Wiring Connection At Left Of D-Pillar
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect antenna wiring connection - **arrow** - at left of D-pillar.
- Loosen antenna wires up to Radio, Telephone, Navigation System Antenna R52.

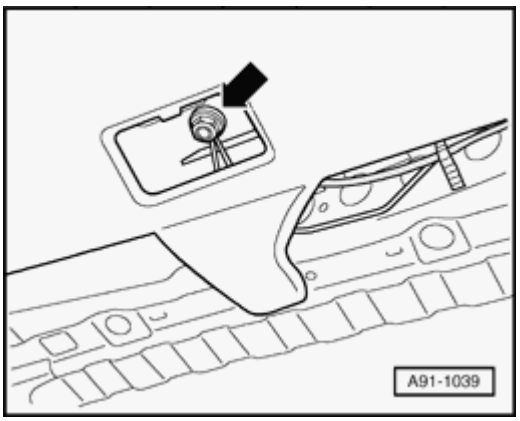

Fig. 110: Locating Nut

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut - **arrow** - (6 Nm).
- Remove Radio, Telephone, Navigation System Antenna R52 upward from roof.

Installing

- Install in reverse order.

The washer under the Radio, Telephone, Navigation System Antenna R52 nut has a cut-out through which the antenna wires must be guided.

Radio, Telephone, Navigation System Antenna R52 , Avant, removing and installing

The Radio, Telephone, Navigation System Antenna R52 antenna wires are routed differently. The antenna wires for Navigation System with CD Drive Control Module J401 and Satellite Radio R146 are routed to the left up to the devices in the base mount at the left of the luggage compartment while the Telephone Antenna R65 is placed on the right D-pillar.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .
- Remove left and right D-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove Luggage Compartment Light W3 --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .
- Remove left luggage compartment trim --> - **70 - INTERIOR TRIM** .
- Lower the rear molded headliner --> - **70 - INTERIOR TRIM** .

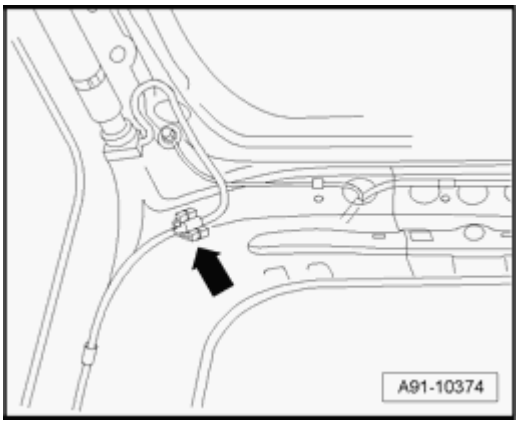

Fig. 111: Identifying Telephone Antenna R65 Wire On Right D-Pillar
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Disconnect antenna wiring connection - **arrow** - at right of D-pillar.
- Loosen antenna wires up to devices in base mount.

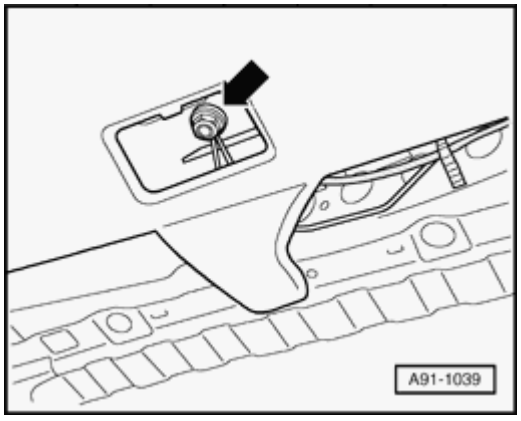

Fig. 112: Locating Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut - **arrow** - (6 Nm).
- Remove Radio, Telephone, Navigation System Antenna R52 upward from roof.

Installing

- Install in reverse order.

The washer under the Radio, Telephone, Navigation System Antenna R52 nut has a cut-out through which the antenna wires must be guided.

TELEPHONE SYSTEM

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Telephone systems

- Telephone fixed installation
- Cellular telephone preparation

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With the cell phone preparation with Bluetooth Antenna R152 , all Cellular Telephones R54 approved by Audi can be operated with the Bluetooth interface.

Information on operation and approved cellular phone types:

- www.audi.de/telefon

It is not possible to connect other devices via Bluetooth, for example headset, laptop, PDA, or similar.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Telephone systems, overview

Fixed installation telephone through MY02

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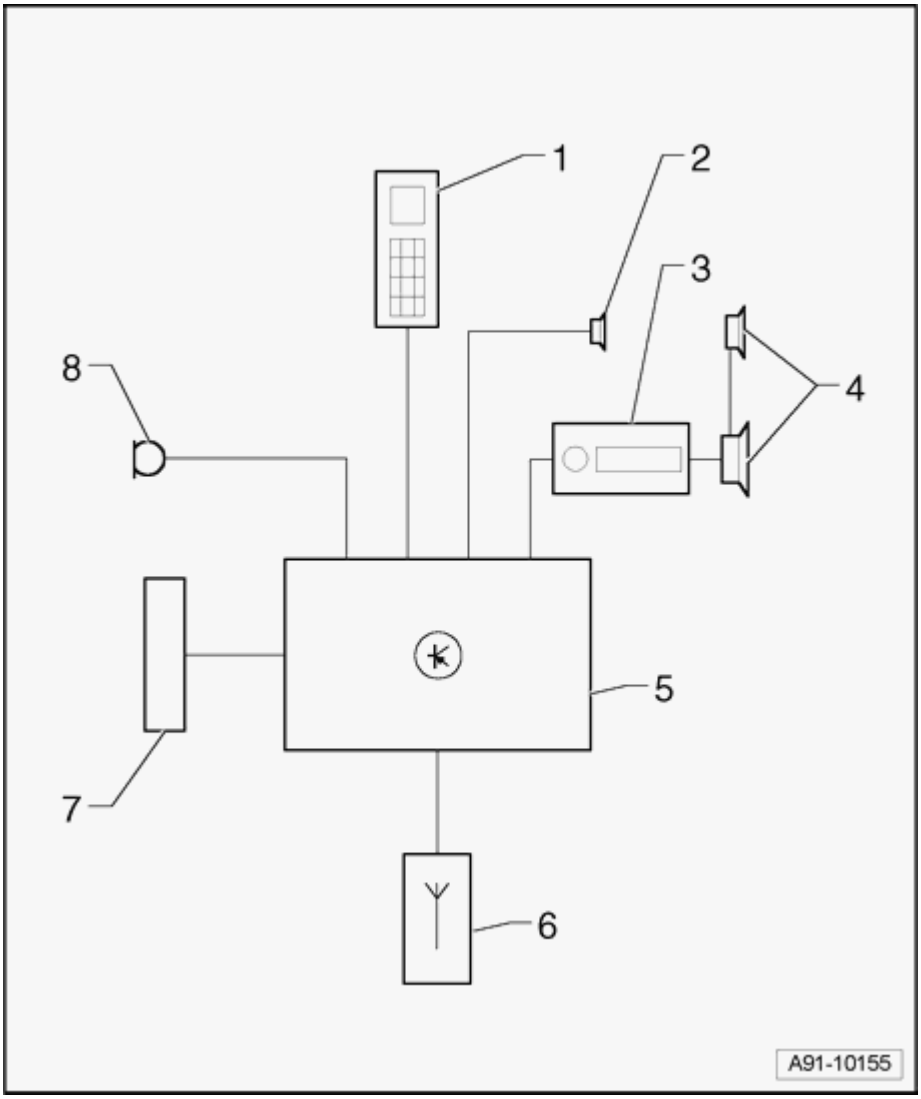

Fig. 113: Fixed Installation Telephone Through MY02
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Telephone Handset R37 on top of instrument panel/in center armrest

2 - Inside Loudspeaker R70 (vehicles without radio) in front center of instrument panel

3 - Radio R in upper center console

4 - Sound system

5 - Telephone Transceiver R36 in electronics box under right front seat

6 - Telephone Antenna R65 , sedan: behind roof end trim/Avant: Roof antenna

7 - Fax Machine R73 (Fax/laptop connector) in bottom of center console

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8 - Telephone Microphone R38 in Front Interior Light W1

Cell phone preparation, through MY02

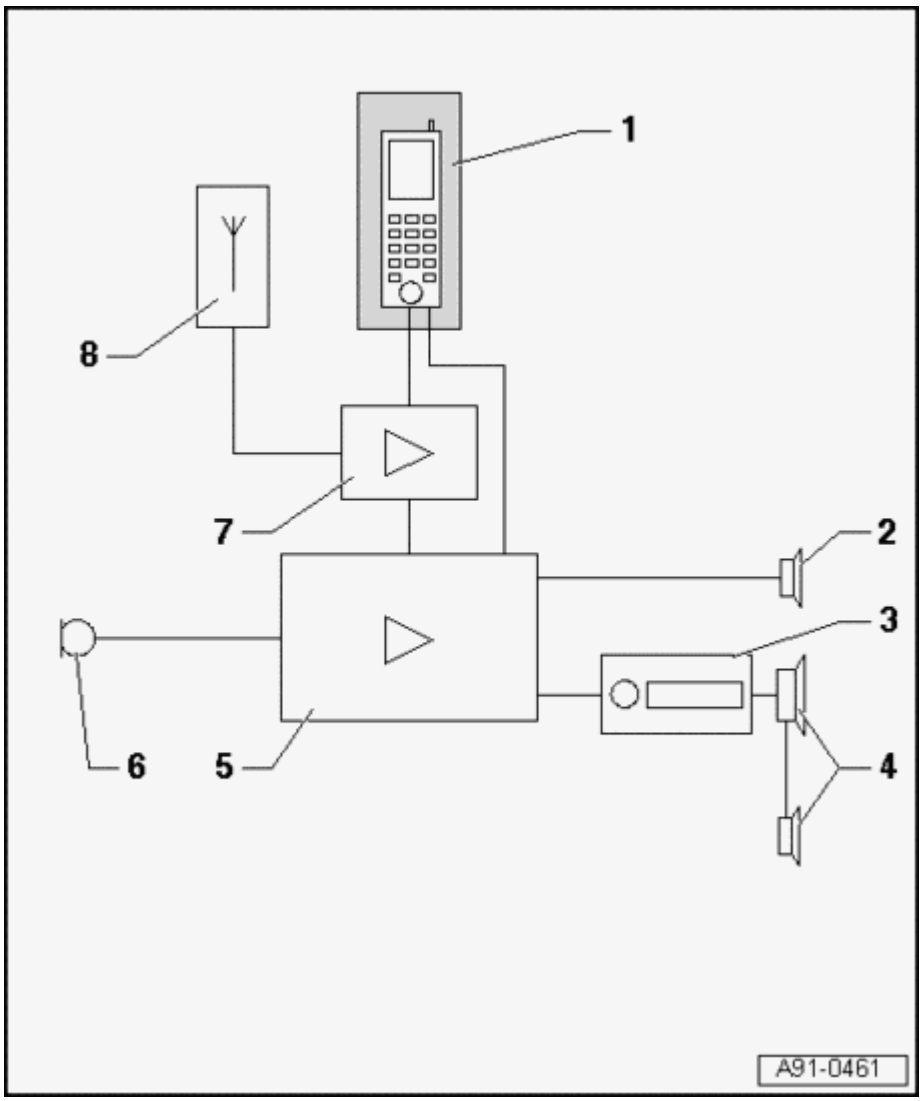

Fig. 114: Cell Phone Preparation, Through MY02
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Telephone Baseplate R126 with Cellular Telephone R54 on top of instrument panel

2 - Inside Loudspeaker R70 (vehicles without radio) in front center of instrument panel

3 - Radio R / in top of center console

4 - Sound system

5 - Operating Electronics and Telephone Control Module J412 in electronics box under right front seat

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6 - Telephone Microphone R38 in Front Interior Light W1

7 - Telephone Amplifier R86 behind luggage compartment right side trim

8 - Telephone Antenna R65 , sedan: behind roof end trim/Avant: Roof antenna

Cell phone preparation, from MY03

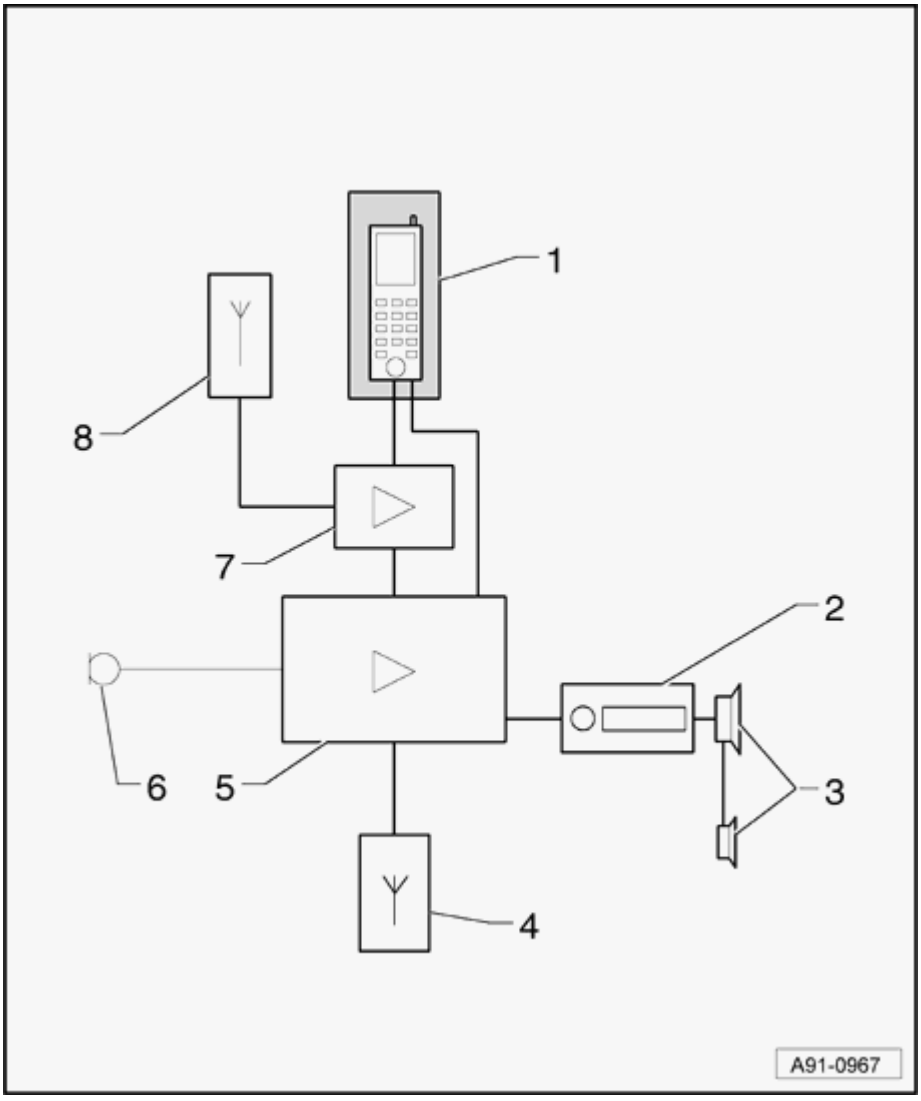

Fig. 115: Cell Phone Preparation, From MY03
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Telephone Baseplate R126 on top of instrument panel/in center armrest

2 - Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503 in top of center console

3 - Sound system

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4 - Bluetooth Antenna R152 at Telephone Transceiver R36

5 - Telephone Transceiver R36 in electronics box under right front seat

6 - Telephone Microphone R38 in Front Interior Light W1

7 - Telephone Amplifier R86 behind luggage compartment right side trim

8 - Telephone Antenna R65 , sedan: behind roof end trim/Avant: Roof antenna

Cell phone preparation preliminary setup

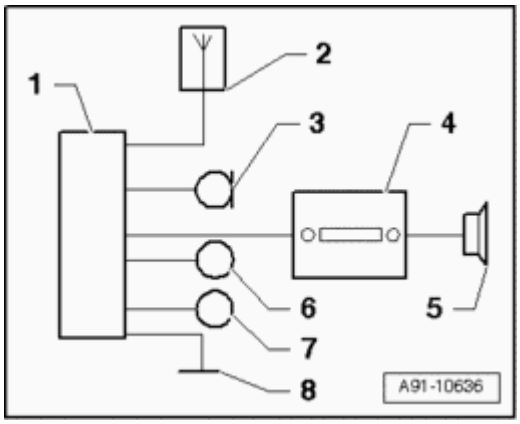

Fig. 116: Cell Phone Preparation Preliminary Setup
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Multi-pin connector, 18-pin (T18b) black, behind glove compartment

2 - Radio, Telephone, Navigation System Antenna R52

3 - Telephone Microphone R38

4 - Radio R

5 - Sound system

6 - Terminal 15

7 - Terminal 30

8 - Terminal 31

Connectors and connector assignments

Operating Electronics and Telephone Control Module J412 (cell phone preparation) through MY02

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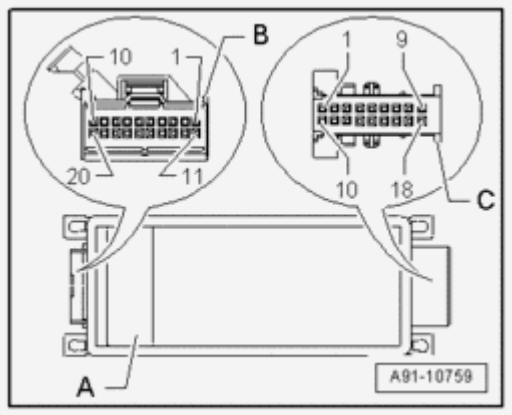

Fig. 117: Operating Electronics And Telephone Control Module J412 (Cell Phone Preparation) Through MY02
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - Operating Electronics and Telephone Control Module J412

B - Multi-pin connector, 20-pin (T20), red, to Telephone Baseplate R126

C - Black 18-pin multi-pin harness connector (T18)

NOTE:

- **Unlisted connector terminals are not assigned.**

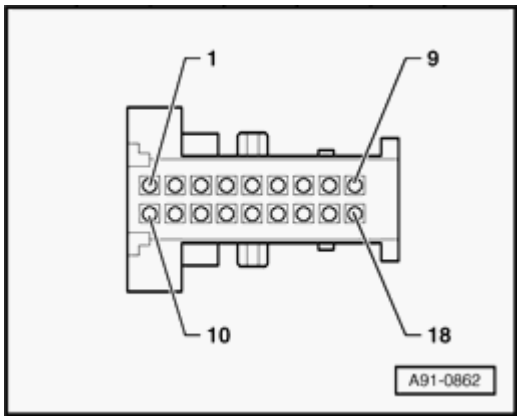

Fig. 118: Black 18-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Black 18-pin multi-pin harness connector (T18)

1 - Terminal 31

3 - Speed signal

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4 - NF mute to Radio R / Operating Electronics, Navigation Control Module J402

7 - Inside Loudspeaker R70 (-)

9 - Microphone input (-) from Telephone Microphone R38

10 - Terminal 15

11 - Terminal 30

12 - Terminal 58s

13 - Signal "cellular telephone ON" to Telephone Amplifier R86

16 - Inside Loudspeaker R70 (+)

18 - Microphone input (+) from Telephone Microphone R38 (+)

Telephone Transceiver R36 (cell phone preparation), from MY03

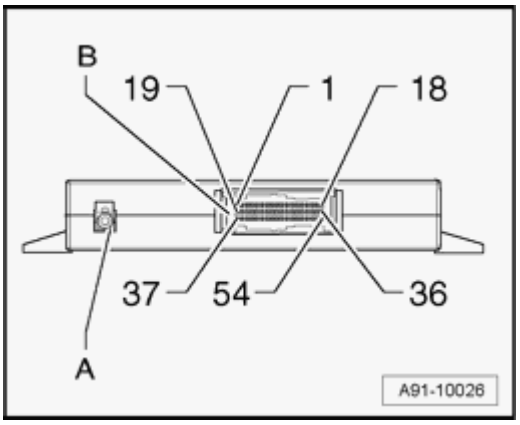

Fig. 119: Telephone Transceiver R36 (Cell Phone Preparation), From MY03
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - Bluetooth Antenna R152 connection (yellow)

B - Black 54-pin multi-pin harness connector

NOTE:

- **Unlisted connector terminals are not assigned.**

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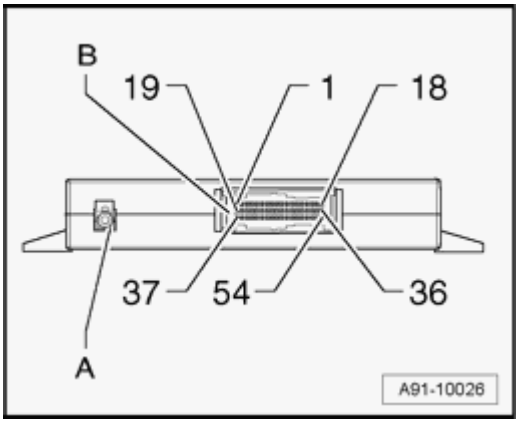

Fig. 120: Telephone Transceiver R36 (Cell Phone Preparation), From MY03
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Black 54-pin multi-pin harness connector

1 - Terminal 30

2 - Terminal 31

3 - Signal "cellular telephone ON" to Telephone Amplifier R86

8 - NF (+) to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

9 - NF (-) to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

11 - Microphone input (+) Telephone Microphone R38 / Navigation System with CD Drive Control Module J401

12 - Microphone input (-) Telephone Microphone R38 / Navigation System with CD Drive Control Module J401

15 - K diagnostic

16 - NF mute to Radio R / Navigation System with CD Drive Control Module J401

17 - CAN-Bus High (Infotainment)

18 - CAN-Bus Low (Infotainment)

37 - Terminal 30 to Telephone Baseplate R126

39 - Terminal 31 to Telephone Baseplate R126

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41 - Terminal 30 to Telephone Baseplate R126

42 - Microphone output (+) to Telephone Baseplate R126

43 - Microphone output (-) to Telephone Baseplate R126

44 - Terminal 31 (screen ground)

45 - NF (+) from Telephone Baseplate R126

46 - NF (-) from Telephone Baseplate R126

47 - SNDREQ signal from Telephone Baseplate R126

49 - Ser-Tx (+) to Telephone Baseplate R126

50 - Ser-Tx (-) to Telephone Baseplate R126

51 - Ser-Rx (+) from Telephone Baseplate R126

52 - Ser-Rx (-) from Telephone Baseplate R126

Telephone Transceiver R36 (fixed-installation telephone)

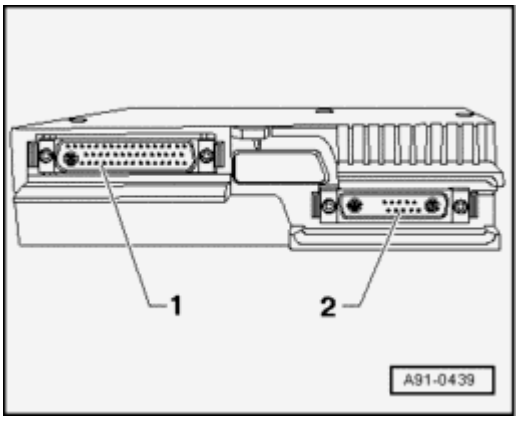

Fig. 121: Telephone Transceiver R36 (Fixed-Installation Telephone)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - Black 46-pin multi-pin harness connector (T46)

2 - Black 10-pin multi-pin harness connector (T10m)

NOTE:

- **Unlisted connector terminals are not assigned.**

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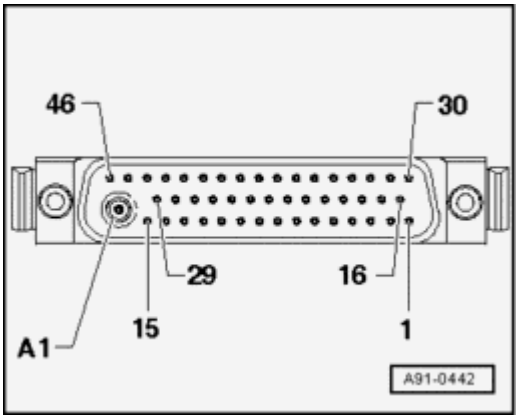

Fig. 122: Black 46-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Black 46-pin multi-pin harness connector (T46)

1 - NF (-) Inside Loudspeaker R70 / Radio R / Speech Input Control Module J507

2 - NF (+) Inside Loudspeaker R70 / Radio R / Speech Input Control Module J507

3 - Telephone Handset R37 pin 8

4 - Telephone Handset R37 pin 7

5 - Telephone Handset R37 pin 5

6 - Telephone Handset R37 pin 4

12 - Screen ground to Fax Machine R73

13 - Fax Machine R73 pin 6 (CTS)

14 - Fax Machine R73 pin 3 (TXD)

18 - Telephone Handset R37 pin 9

19 - Telephone Handset R37 pin 1

20 - Telephone Handset R37 pin 3

27 - Fax Machine R73 pin 5 (RTS)

28 - Fax Machine R73 pin 2 (RXD)

29 - Fax Machine R73 pin 7 (ground)

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30 - Microphone input (+) Telephone Microphone R38 / Speech Input Control Module J507

31 - Microphone input (-) Telephone Microphone R38 / Speech Input Control Module J507

32 - Telephone Handset R37 pin 10

33 - Telephone Handset R37 pin 6

34 - Telephone Handset R37 pin 2

35 - Telephone Handset R37 (screen ground)

38 - CAN-Bus High (Infotainment)

39 - CAN-Bus Low (Infotainment)

41 - K diagnostic

42 - Fax Machine R73 pin 4 (DTR)

43 - Fax Machine R73 pin 1 (DCD)

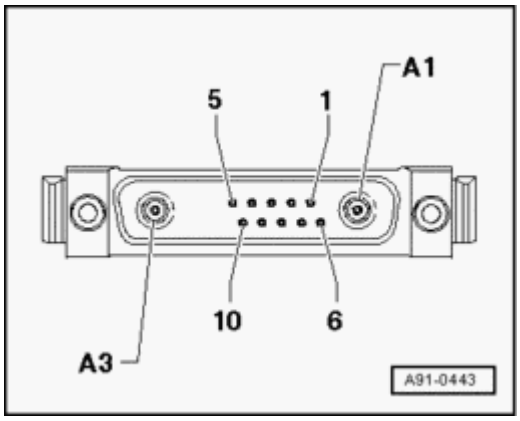

Fig. 123: Black 10-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Black 10-pin multi-pin harness connector (T10m)

1 - Terminal 30

2 - NF mute to Radio R / Speech Input Control Module J507

3 - Terminal 15

4 - Terminal 31

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5 - Terminal 31

6 - Terminal 30

7 - Terminal 30

10 - Terminal 31

A1 - GSM connection from Telephone Antenna R65

Telephone Amplifier R86

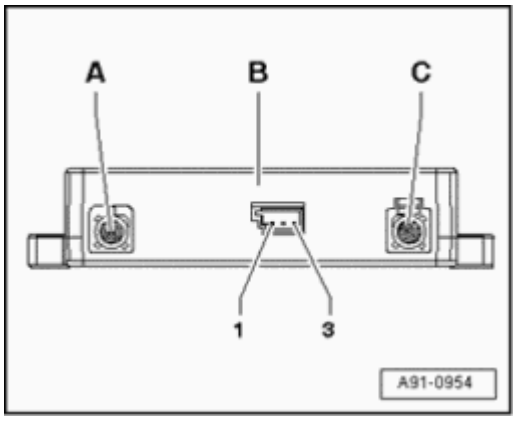

Fig. 124: Telephone Amplifier R86
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - GSM connection (purple) from Telephone Antenna R65

B - Black 3-pin multi-pin harness connector

C - Antenna connection (purple) to Cellular Telephone R54

NOTE:

- **Unlisted connector terminals are not assigned.**

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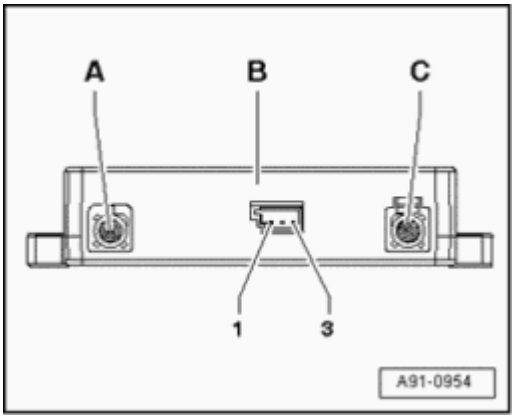

Fig. 125: Telephone Amplifier R86
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Black 3-pin multi-pin harness connector

1 - Terminal 30

2 - Terminal 31

3 - Signal "cellular telephone ON" from Telephone Transceiver R36

Cell phone preparation preliminary setup

NOTE:

- **Unlisted connector terminals are not assigned.**

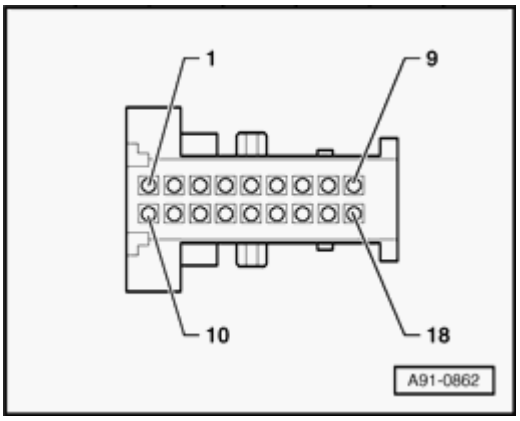

Fig. 126: Black 18-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 18-pin multi-pin harness connector (T18b)

1 - Terminal 31

4 - NF mute to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display

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Control Module J503

7 - NF (-) to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

9 - Microphone input (-) from Telephone Microphone R38

10 - Terminal 15

11 - Terminal 30

16 - NF (+) to Radio R / Navigation System with CD Drive Control Module J401 / Radio/Navigation Display Control Module J503

18 - Microphone input (+) from Telephone Microphone R38

Telephone Base plate R126

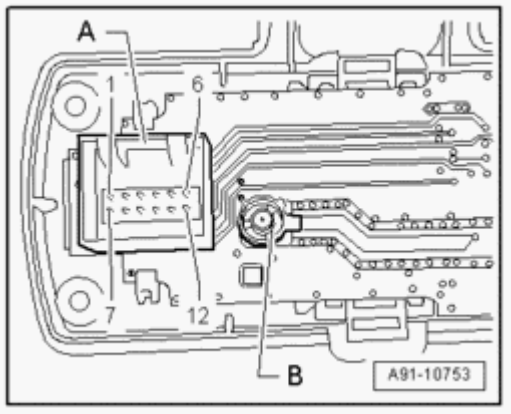

Fig. 127: Telephone Base Plate R126
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - Black 12-pin multi-pin harness connector (T12)

B - GSM connection (purple) from Telephone Antenna R65 / Telephone Amplifier R86

NOTE:

- **Unlisted connector terminals are not assigned.**

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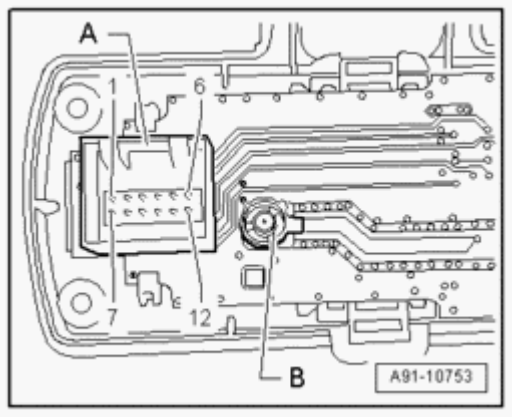

Fig. 128: Telephone Base Plate R126
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector (T12)

1 - Ser Tx (+) to Telephone Transceiver R36

2 - Terminal 30 from Telephone Transceiver R36

3 - Ser Rx (+) from Telephone Transceiver R36

4 - Terminal 31 from Telephone Transceiver R36

5 - Microphone input (+) from Telephone Transceiver R36

6 - NF (+) to Telephone Transceiver R36

7 - Ser Tx (-) to Telephone Transceiver R36

8 - Terminal 30 from Telephone Transceiver R36

9 - Ser Rx (-) from Telephone Transceiver R36

10 - SNDREQ signal to Telephone Transceiver R36

11 - Microphone input (+) from Telephone Transceiver R36

12 - NF (-) to Telephone Transceiver R36

Total overview - Sedan component locations

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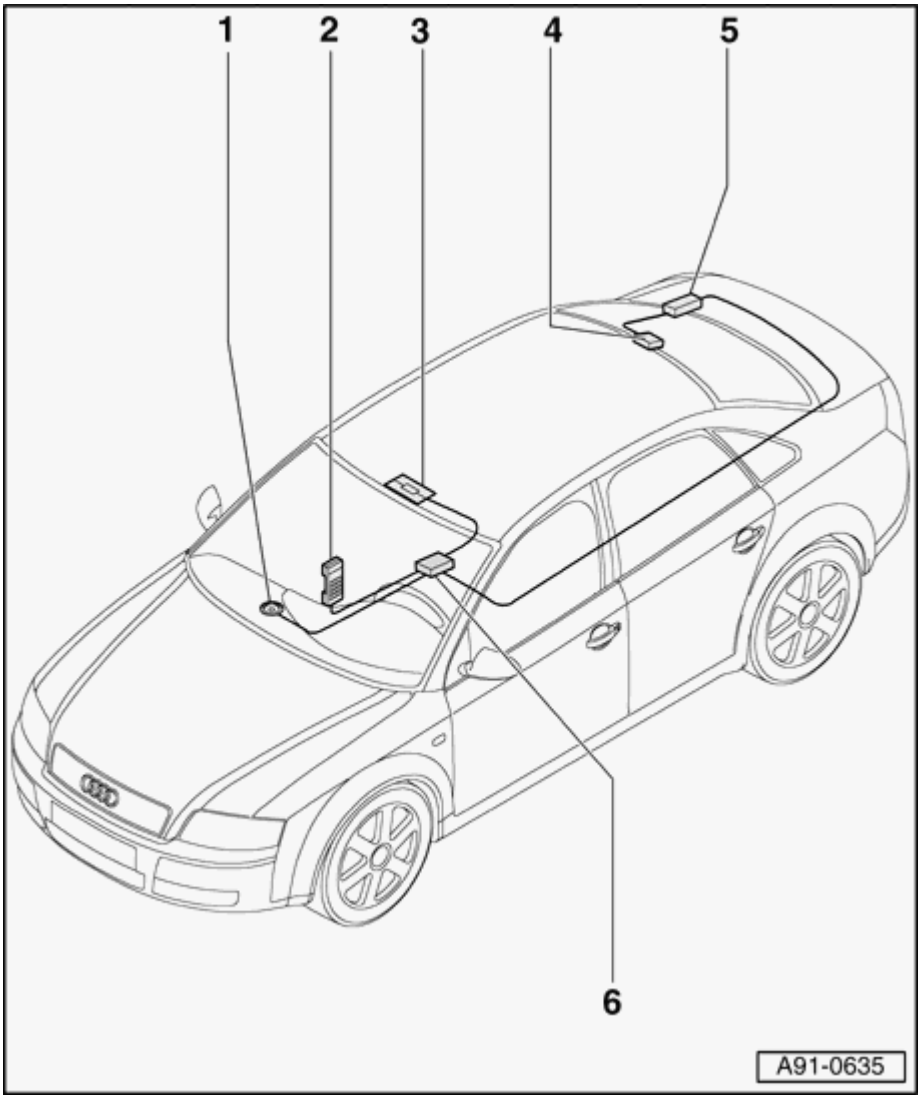

Fig. 129: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Inside Loudspeaker R70

- Vehicles without radio
- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

2 - Telephone Base plate R126

- On top of instrument panel
- Connections
- Removing and installing
- in center armrest

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- Removing and installing

3 - Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Telephone Antenna R65

- Behind roof end trim
- Removing and installing --> **Telephone Antenna R65 , Sedan, removing and installing**

5 - Telephone Amplifier R86

- Only with cell phone preparation
- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Telephone Amplifier R86 , Sedan, removing and installing**

6 - Telephone Transceiver R36

- In electronics box under right front seat
- Pin assignment for telephone (fixed installation)
- removing and installing (fixed installation telephone) --> **Telephone Transceiver R36 (telephone, fixed installation), removing and installing**
- Operating Electronics and Telephone Control Module J412 connectors.

- Connectors (cell phone preparation)
- Removing and installing --> **Telephone Transceiver R36 , removing and installing**

General overview - Avant component locations

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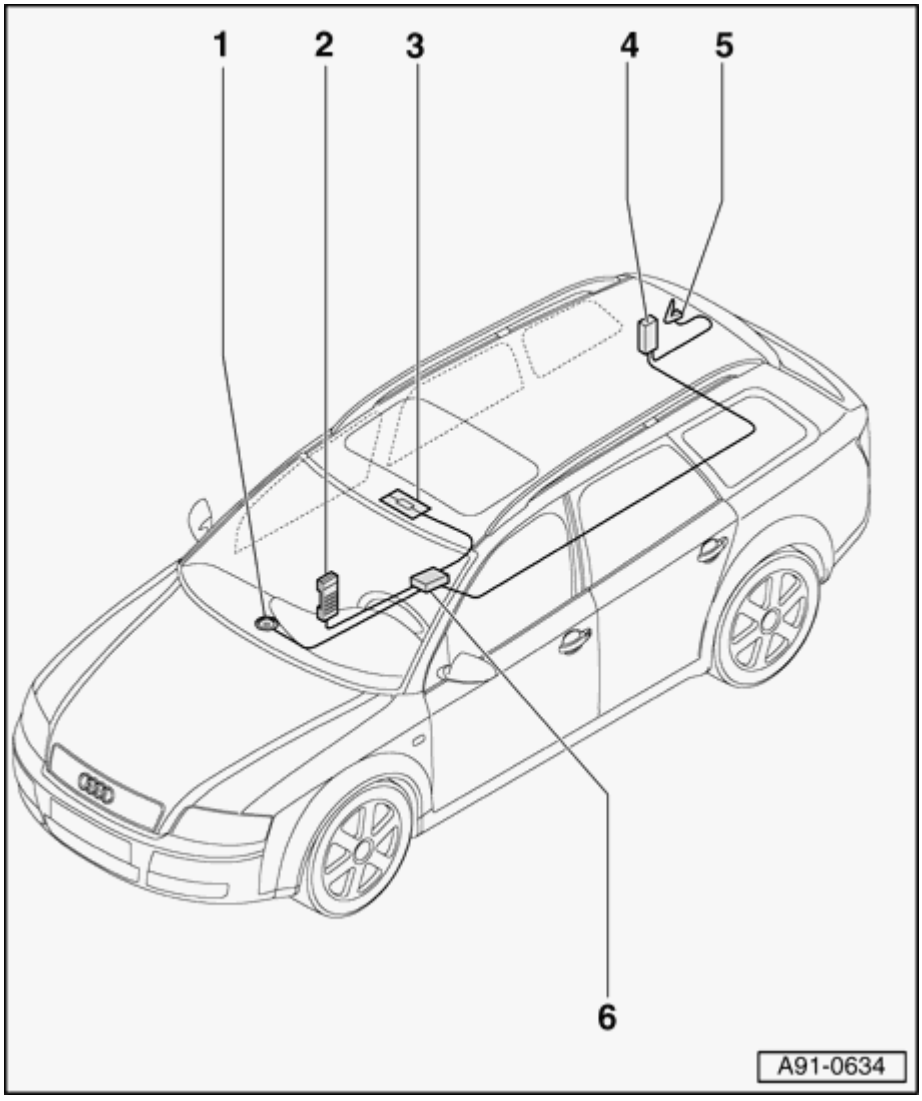

Fig. 130: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Inside Loudspeaker R70

- Vehicles without radio
- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

2 - Telephone Base plate R126

- On top of instrument panel
- Connections
- Removing and installing
- In center armrest

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- Removing and installing

3 - Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Telephone Amplifier R86

- Only with cell phone preparation
- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Telephone Amplifier R86 , Avant, removing and installing**

5 - Telephone Antenna R65 , roof antenna

- Removing and installing --> **Telephone Antenna R65 , Avant, removing and installing**

6 - Telephone Transceiver R36

- In electronics box under right front seat
- Pin assignment for telephone (fixed installation)
- Removing and installing (fixed installation telephone) --> **Telephone Transceiver R36 (telephone, fixed installation), removing and installing**
- Operating Electronics and Telephone Control Module J412 connectors.

- Connectors (cell phone preparation)
- Removing and installing --> **Telephone Transceiver R36 , removing and installing**

Telephone Baseplate R126 , removing and installing

Telephone Baseplate R126 on instrument panel

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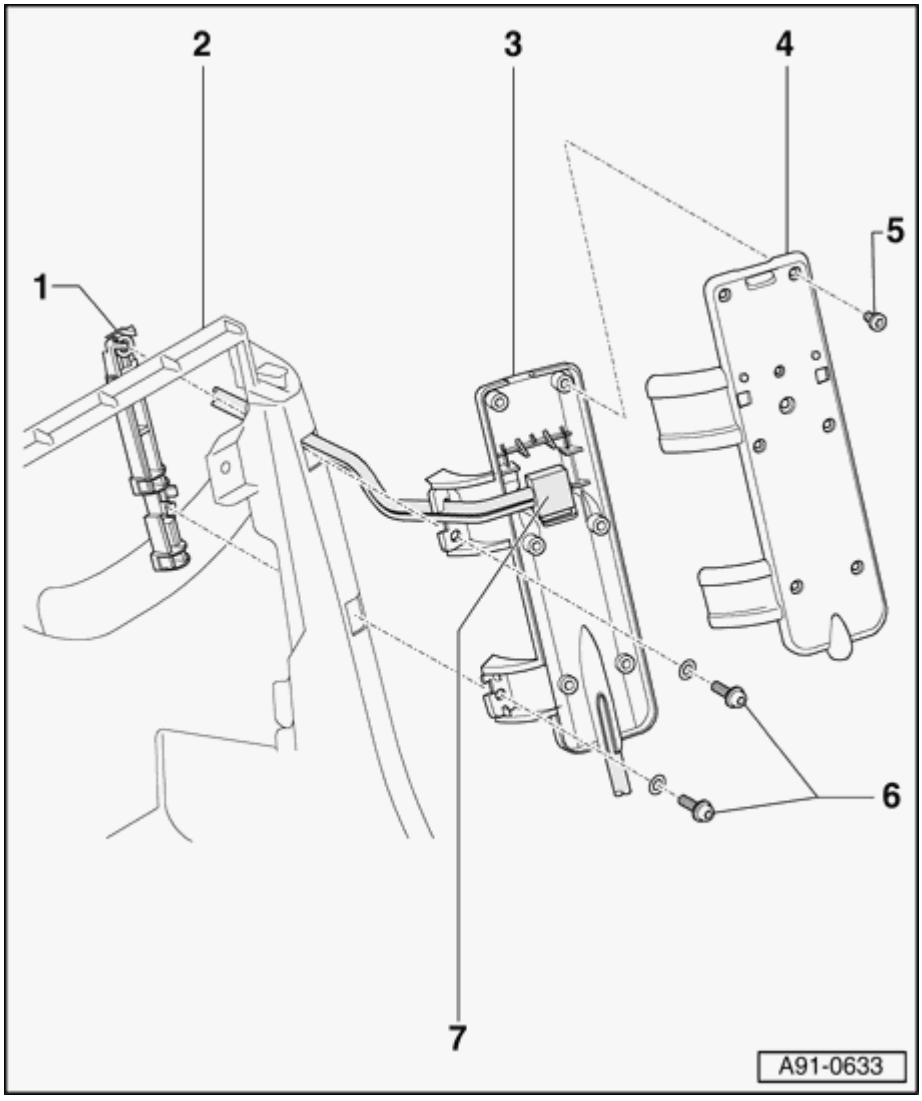

Fig. 131: Telephone Baseplate R126 On Instrument Panel
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Mount

- Placed in center console from behind

2 - Center console

- With holes for base plate
- Create holes --> - **68 - INTERIOR EQUIPMENT** .

3 - Mounting plate

4 - Base plate

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- For handset/cell phone mount

5 - 1 Nm

6 - 2 Nm

7 - Black 12-pin multi-pin harness connector (T12)

- Ensure connector is seated correctly.

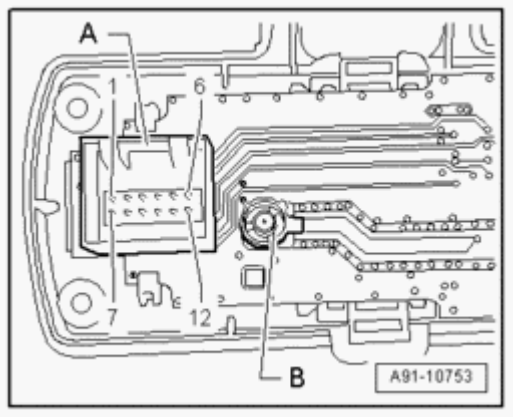

Fig. 132: Telephone Base Plate R126
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector (T12)

1 - Ser Tx (+) to Telephone Transceiver R36

2 - Terminal 30 from Telephone Transceiver R36

3 - Ser Rx (+) from Telephone Transceiver R36

4 - Terminal 31 from Telephone Transceiver R36

5 - Microphone input (+) from Telephone Transceiver R36

6 - NF (+) to Telephone Transceiver R36

7 - Ser Tx (-) to Telephone Transceiver R36

8 - Terminal 30 from Telephone Transceiver R36

9 - Ser Rx (-) from Telephone Transceiver R36

10 - SNDREQ signal to Telephone Transceiver R36

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11 - Microphone input (+) from Telephone Transceiver R36

12 - NF (-) to Telephone Transceiver R36

Telephone Baseplate R126 in center armrest

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove Cellular Telephone R54 from Telephone Baseplate R126 and unclip it.

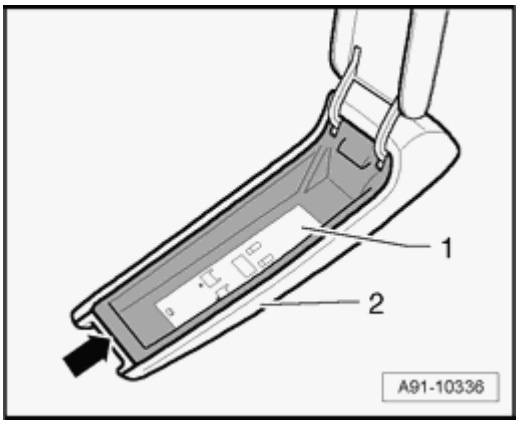

Fig. 133: Prying Storage Compartment Out Of Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Beginning at front - **arrow** - , carefully pry storage compartment - **1** - out of trim - **2** -.

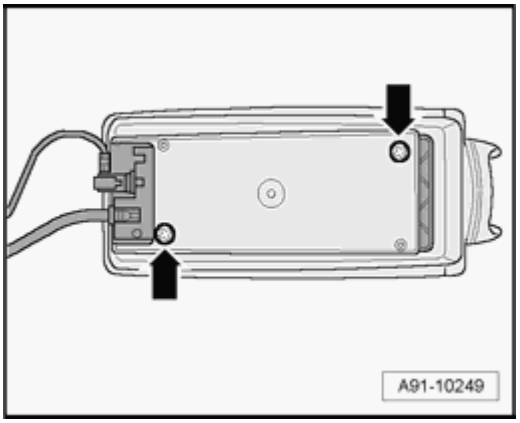

Fig. 134: Locating Bolts On Underside Of Storage Compartment
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (2 Nm) from underside of storage compartment.

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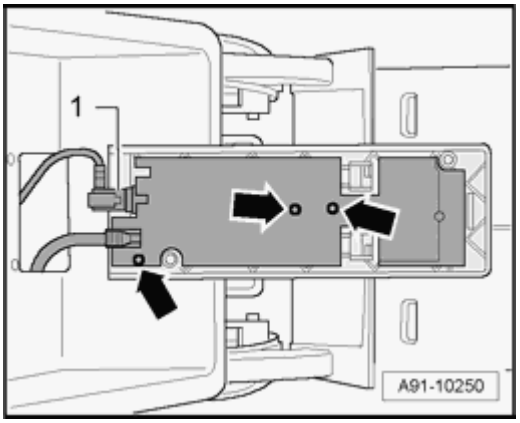

Fig. 135: Locating Connector And Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - and remove bolts - **arrows** - (1 Nm).
- Disconnect remaining connectors and remove Telephone Baseplate R126.

Installing

- Install in reverse order.

Telephone Transceiver R36 , removing and installing

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove right A-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove right front seat --> - **72 - SEAT - FRAMES** .

NOTE:

- **Safety belt on seat frame must not be loosened.**
- **Fold back the floor mat --> - 70 - INTERIOR TRIM .**

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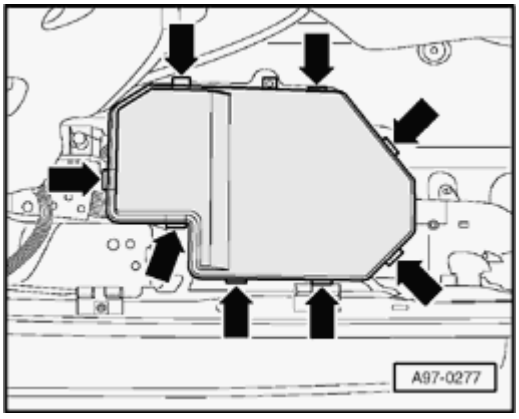

Fig. 136: Identifying Passenger Side Electronics Box Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release electronics box cover - **arrows** - and remove it.

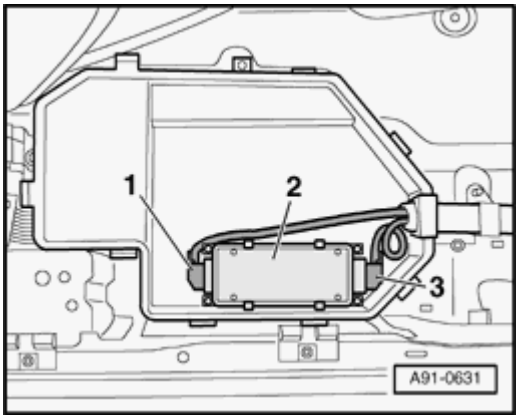

Fig. 137: Identifying Connectors And Telephone Transceiver R36
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **1** - and - **3** - on Telephone Transceiver R36 - **2** -.
- Pry Telephone Transceiver R36 - **2** - out of E-box.
- If present, remove Bluetooth Antenna R152.

Installing

- Install in reverse order.

Telephone Transceiver R36 (telephone, fixed installation), removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

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- Remove right A-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove right front seat --> - **72 - SEAT - FRAMES** .

NOTE:

- **Safety belt on seat frame must not be loosened.**
- **Fold back the floor mat --> - 70 - INTERIOR TRIM .**

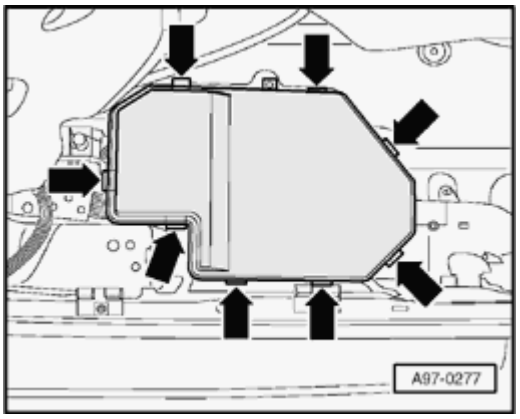

Fig. 138: Identifying Passenger Side Electronics Box Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release electronics box cover - **arrows** - and remove it.

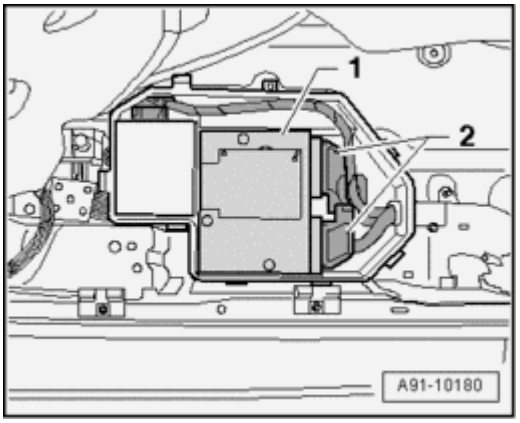

Fig. 139: Identifying Connectors On Telephone/Telematics Control Module J526
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **2** - on Telephone/Telematics Control Module J526 - **1** -.
- Remove Telephone/Telematics Control Module J526 - **1** - from electronics box.

Installing

- Install in reverse order.
- Perform adaptations and coding on Telephone/Telematics Control Module J526 if necessary.

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Telephone Amplifier R86 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove Amplifier R12 --> **Amplifier R12 , Sedan, removing and installing** / BOSE Amplifier R12 --> **BOSE Amplifier R12 , Sedan, removing and installing**.

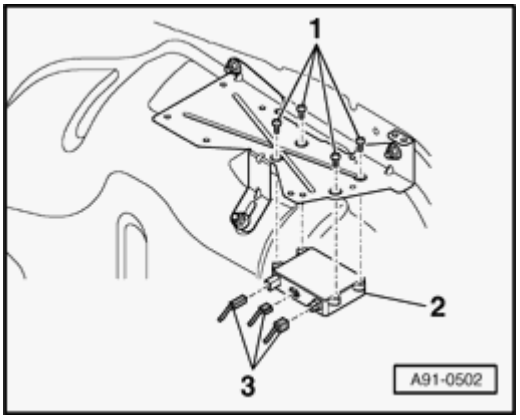

Fig. 140: Identifying Bolts, Connectors, And Telephone Amplifier R86
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **3** - on Telephone Amplifier R86 - **2** -.
- Remove bolts - **1** - (2 Nm) and remove Telephone Amplifier R86 - **2** -.

Installing

- Install in reverse order.

Telephone Amplifier R86 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

Before removing Telephone Amplifier R86 , Bass Loudspeaker R100 must be removed.

- Remove luggage compartment right side trim --> - **70 - INTERIOR TRIM** .
- Remove Bass Loudspeaker R100 --> **Bass Loudspeaker R100 , Avant, removing and installing**.

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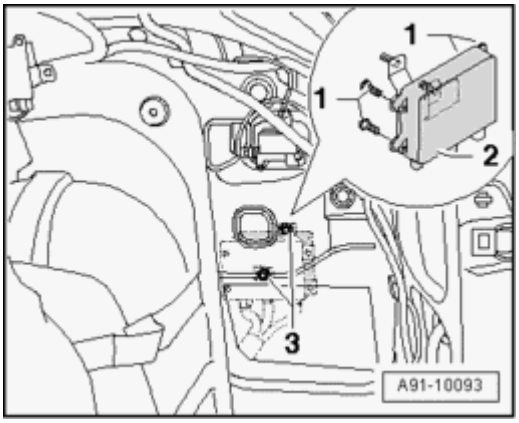

Fig. 141: Identifying Nuts, Bolts And Telephone Amplifier R86
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **3** - (3 Nm) and remove Telephone Amplifier R86 - **2** - downward.
- Disconnect connectors on Telephone Amplifier R86 - **2** -.
- Remove bolts - **1** - (2 Nm) and remove Telephone Amplifier R86 - **2** - from bracket.

Installing

- Install in reverse order.

Telephone Microphone R38 , removing and installing

Special tools, testers and auxiliary items required

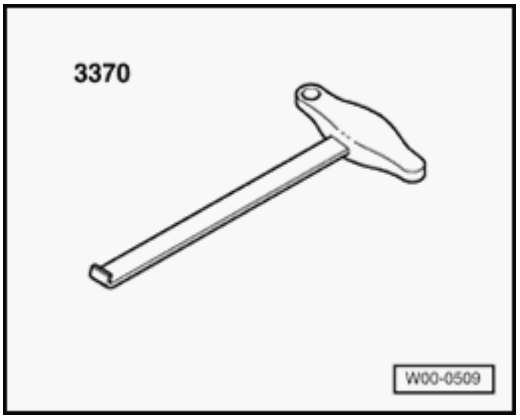

Fig. 142: Identifying Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Special hook 3370

- Turn off all electrical components.
- Remove ignition key.

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Removing

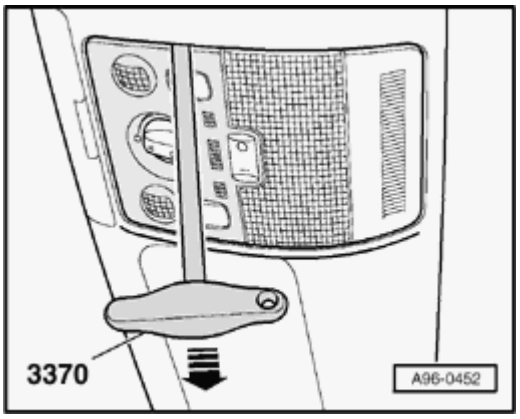

Fig. 143: Removing Interior Lamp Module Trim Using Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully remove cover from Front Interior Light W1 in - **direction of arrow** - using Special Hook 3370.

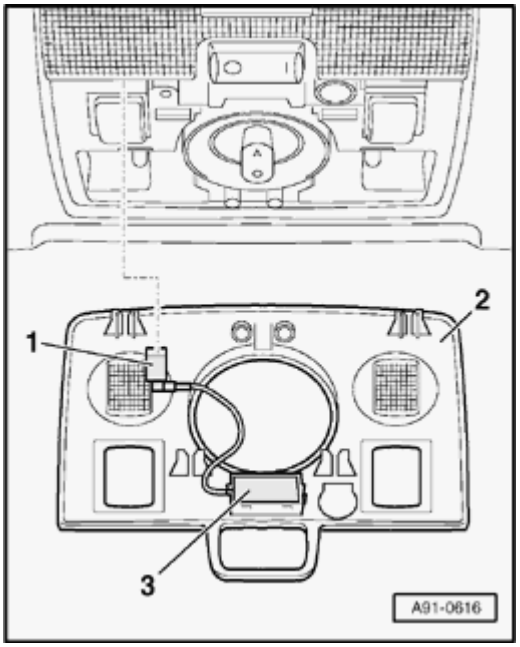

Fig. 144: Identifying Telephone Microphone R38, Bracket In Cover, And Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - on Telephone Microphone R38.
- Unclip Telephone Microphone R38 - **3** - from bracket in cover - **2** -.

Installing

- Install in reverse order.

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Telephone Antenna R65 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .

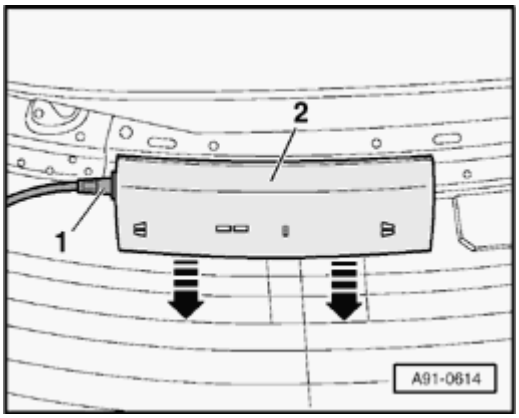

Fig. 145: Identifying Harness Connector, And Telephone Antenna R65
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - **1** - at Telephone Antenna R65 - **2** -.
- Pull off Telephone Antenna R65 - **2** - downward from edge of roof end trim - **arrows** -.

Installing

- Install in reverse order.

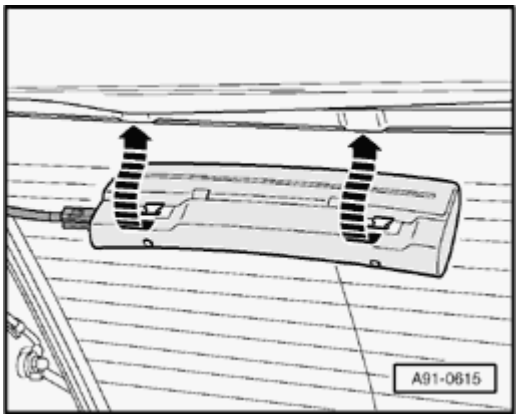

Fig. 146: Engaging Telephone Antenna R65 Retaining Clips in Mounts In Edge Of Roof End Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- When installing, ensure retaining clips on Telephone Antenna R65 - **arrows** - engage in mounts in edge

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of roof end trim.

Telephone Antenna R65 , Avant, removing and installing

The roof antenna on the Avant consists of the Telephone Antenna R65 and Navigation System Antenna R50.

The wire for the Navigation System Antenna R50 is routed up to the devices in the left luggage compartment base mount.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .
- Remove left and right D-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove Luggage Compartment Light W3 --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .
- Remove luggage compartment left side trim --> - **70 - INTERIOR TRIM** .
- Lower the rear molded headliner --> - **70 - INTERIOR TRIM** .
- Disconnect Navigation System Antenna R50 wire at control module in base mount.

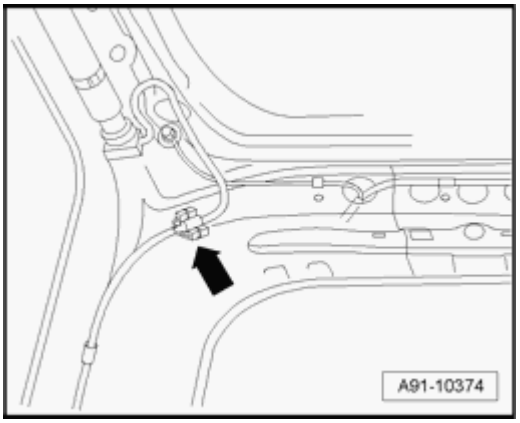

Fig. 147: Identifying Telephone Antenna R65 Wire On Right D-Pillar
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect Telephone Antenna R65 wire - **arrow** - on right D-pillar.
- Loosen antenna wires up to roof antenna.

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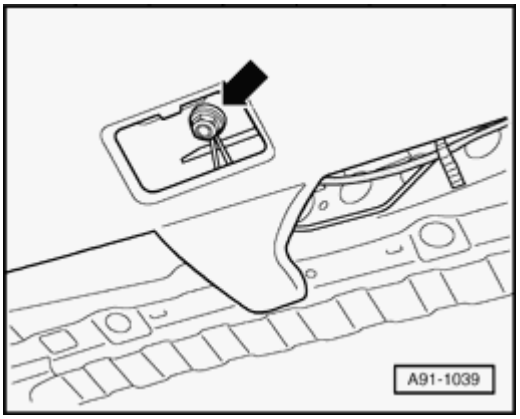

Fig. 148: Locating Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut - **arrow** - (6 Nm).
- Remove Telephone Antenna R65 upward from roof.

Installing

- Install in reverse order.

The washer under the Telephone Antenna R65 nut has a cut-out through which the antenna lines must be guided.

TELEPHONE SYSTEM - USA

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Cellular telephone preparation

- Telephone Transceiver R36
- Radio, Telephone, Navigation System Antenna R52
- Telephone Baseplate R126 with Cellular Telephone R54
- Telephone Microphone R38

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The Telephone Transceiver R36 is equipped with a Bluetooth Antenna R152. Using this, all Cellular Telephones R54 approved by Audi can be operated with the Bluetooth interface with the cell phone preparation installed in the vehicle.

It is not possible to connect other devices via Bluetooth, for example headset, laptop, PDA, or similar.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Cellular phone preparation, layout

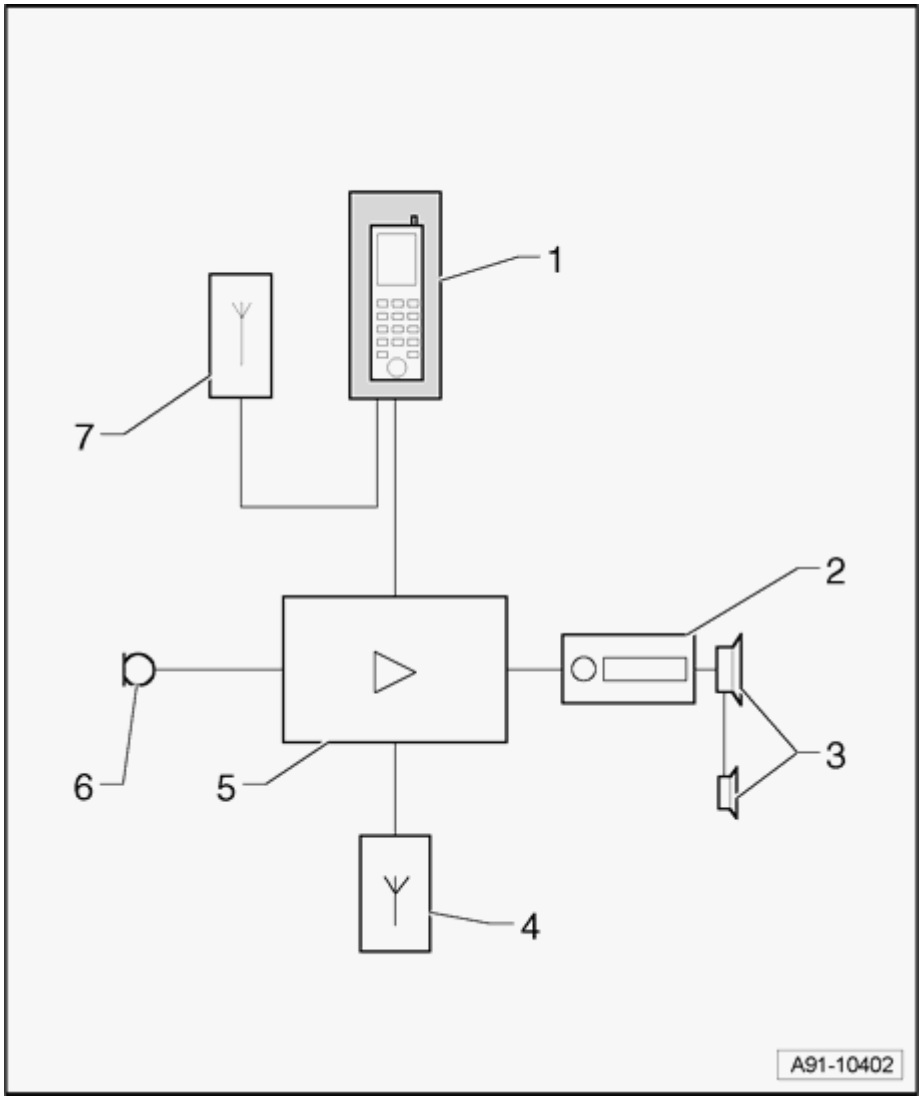

Fig. 149: Cellular Phone Preparation, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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1 - Telephone Baseplate R126 with Cellular Telephone R54 on top of instrument panel/in center armrest

2 - Radio R / Navigation System with CD Drive Control Module J401 in top of center console

3 - Sound system

4 - Bluetooth Antenna R152 at Telephone Transceiver R36

5 - Telephone Transceiver R36 in electronics box under right front seat

6 - Telephone Microphone R38 in Front Interior Light W1

7 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

Connectors and connector assignments

Telephone Transceiver R36

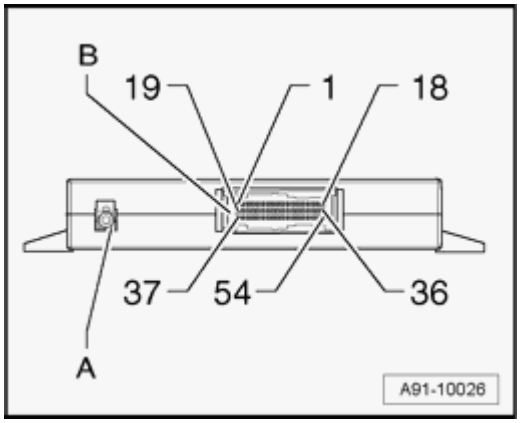

Fig. 150: Telephone Transceiver R36 (Cell Phone Preparation), From MY03
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - Bluetooth Antenna R152 connection (yellow)

B - Black 54-pin multi-pin harness connector

NOTE:

- **Unlisted connector terminals are not assigned.**

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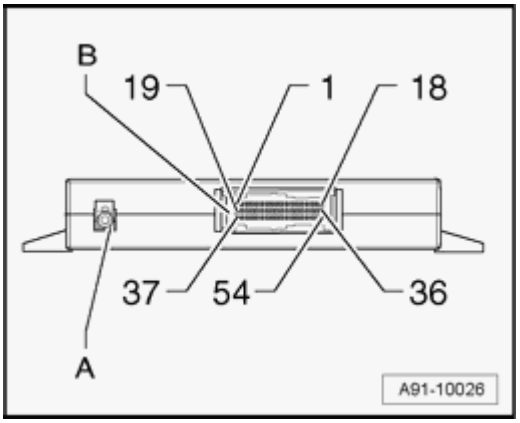

Fig. 151: Telephone Transceiver R36 (Cell Phone Preparation), From MY03
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Black 54-pin multi-pin harness connector

1 - Terminal 30

2 - Terminal 31

8 - NF (+) out to Radio R / Navigation System with CD Drive Control Module J401

9 - NF (-) out to Radio R / Navigation System with CD Drive Control Module J401

10 - Terminal 31 (screen ground) (not used)

11 - Microphone input (+) Telephone Microphone R38 / Navigation System with CD Drive Control Module J401

12 - Microphone input (-) Telephone Microphone R38 / Navigation System with CD Drive Control Module J401

15 - K diagnostic

16 - NF mute to Radio R / Navigation System with CD Drive Control Module J401

17 - CAN-Bus High (Infotainment)

18 - CAN-Bus Low (Infotainment)

37 - Terminal 30 to Telephone Baseplate R126

39 - Terminal 31 to Telephone Baseplate R126

41 - Terminal 30 to Telephone Baseplate R126

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42 - Microphone output (+) to Telephone Baseplate R126

43 - Microphone output (-) to Telephone Baseplate R126

44 - Terminal 31 (screen ground)

45 - LF input (+) from Telephone Baseplate R126

46 - LF input (-) from Telephone Baseplate R126

47 - SNDREQ signal from Telephone Baseplate R126

49 - Ser-Tx (+) to Telephone Baseplate R126

50 - Ser-Tx (-) to Telephone Baseplate R126

51 - Ser-Rx (+) from Telephone Baseplate R126

52 - Ser-Rx (-) from Telephone Baseplate R126

Telephone Base plate R126

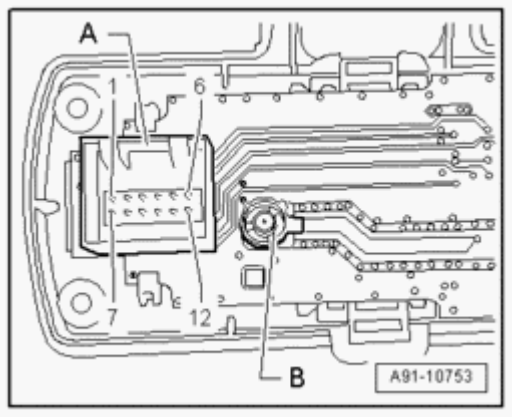

Fig. 152: Telephone Base Plate R126
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

A - Black 12-pin multi-pin harness connector (T12)

B - GSM connection (purple) from Telephone Antenna R65

NOTE:

- **Unlisted connector terminals are not assigned.**

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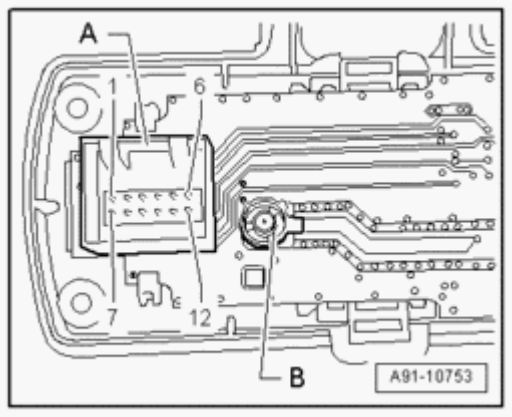

Fig. 153: Telephone Base Plate R126
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector (T12)

1 - Ser Tx (+) to Telephone Transceiver R36

2 - Terminal 30 from Telephone Transceiver R36

3 - Ser Rx (+) from Telephone Transceiver R36

4 - Terminal 31 from Telephone Transceiver R36

5 - Microphone input (+) from Telephone Transceiver R36

6 - NF (+) to Telephone Transceiver R36

7 - Ser Tx (-) to Telephone Transceiver R36

8 - Terminal 30 from Telephone Transceiver R36

9 - Ser Rx (-) from Telephone Transceiver R36

10 - SNDREQ signal to Telephone Transceiver R36

11 - Microphone input (+) from Telephone Transceiver R36

12 - NF (-) to Telephone Transceiver R36

Total overview - Sedan component locations

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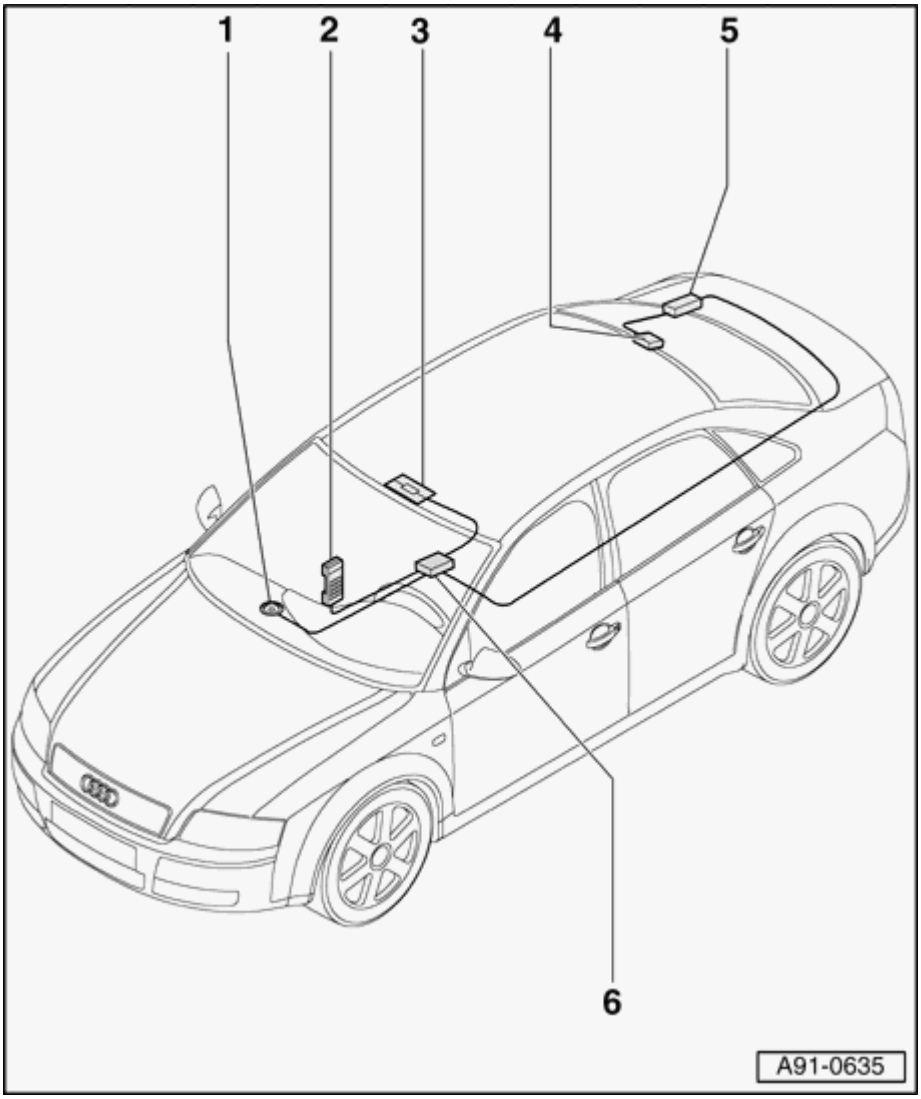

Fig. 154: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Inside Loudspeaker R70

- Vehicles without radio
- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

2 - Telephone Base plate R126

- On top of instrument panel
- Connections
- Removing and installing
- in center armrest

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- Removing and installing

3 - Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM
- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , sedan, removing and installing**

5 - not installed

6 - Telephone Transceiver R36

- In electronics box under right front seat
- Connections --> **Connectors and connector assignments**
- Removing and installing --> **Telephone Transceiver R36 , removing and installing**

General overview - Avant component locations

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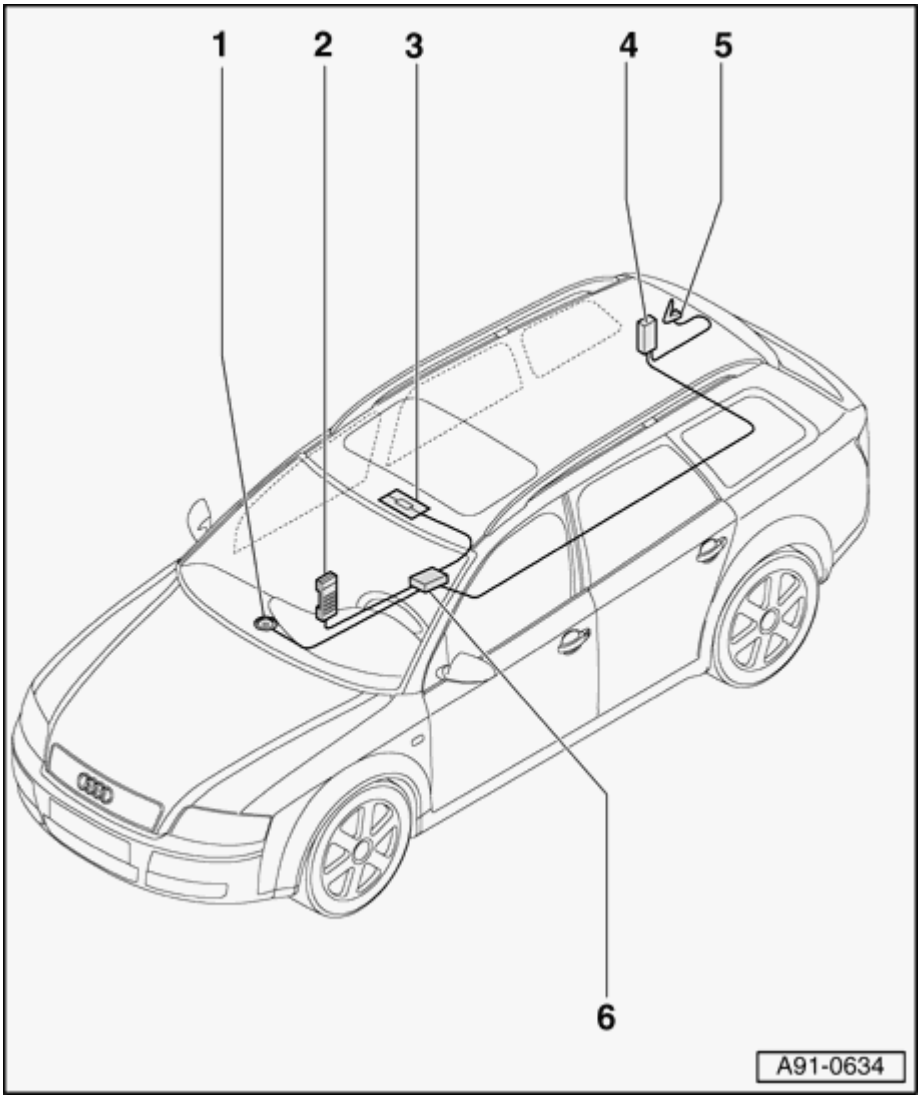

Fig. 155: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Inside Loudspeaker R70

- Vehicles without radio
- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

2 - Telephone Base plate R126

- on top of instrument panel
- Connections
- Removing and installing
- In center armrest

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- Removing and installing

3 - Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - not installed

5 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM
- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , Avant, removing and installing**

6 - Telephone Transceiver R36

- In electronics box under right front seat
- Connections --> **Connectors and connector assignments**
- Removing and installing --> **Telephone Transceiver R36 , removing and installing**

NAVIGATION SYSTEM IV (BNS 4.0)

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

BNS 4.0 (Nav IV) navigation system is an enhancement of the established navigation system III.

Important improvements are, e.g. connection to CAN BUS (Infotainment) and dynamic route guidance.

The navigation system receives the information for dynamic route guidance from the Radio R TMC function or via the Telephone Transceiver R36.

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The system consists of:

- Function Selector Switch II E272
- Instrument cluster (display unit)
- Navigation System with CD Drive Control Module J401
- Navigation System Antenna R50

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Navigation system BNS 4.0, overview

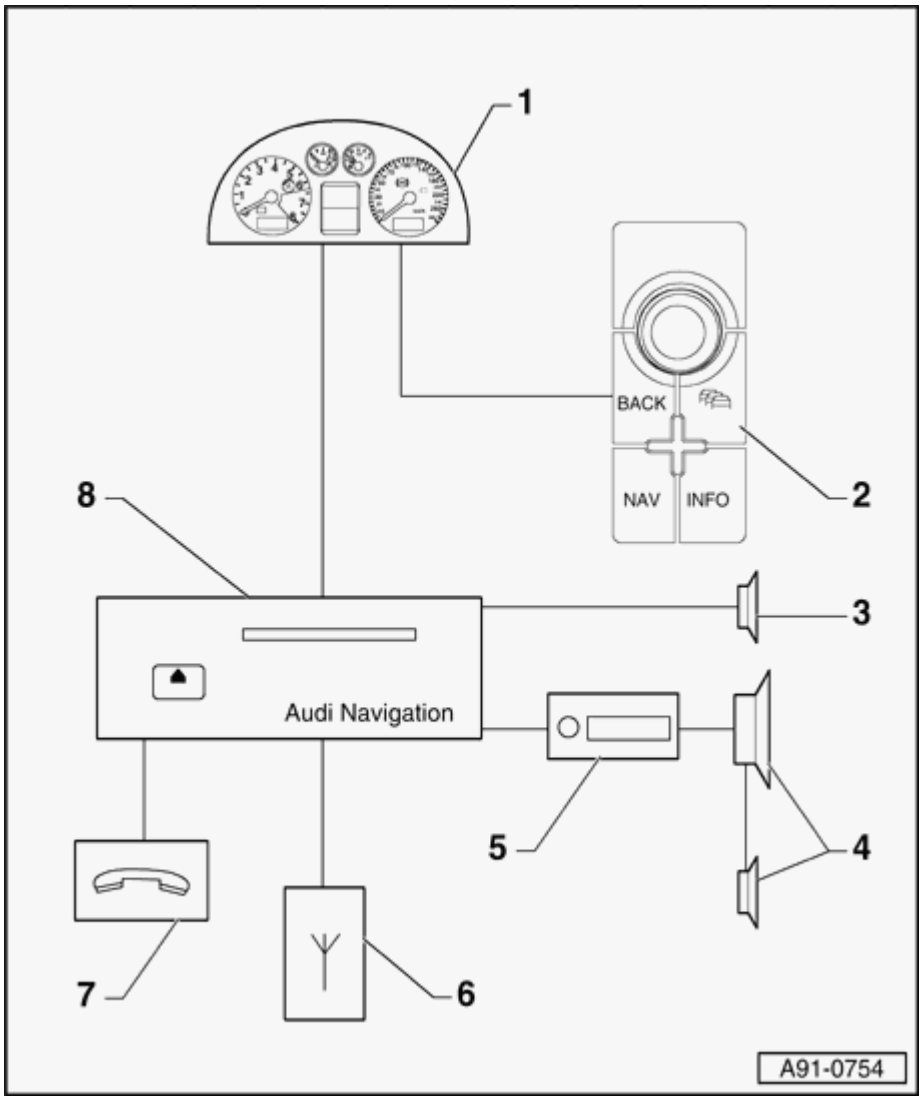

Fig. 156: Navigation System BNS 4.0, Overview

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Instrument cluster in instrument panel

2 - Function Selector Switch II E272 in lower center console

3 - Inside Loudspeaker R70 (vehicles without radio) in front center of instrument panel

4 - Sound system

5 - Radio R in upper center console

6 - Navigation System Antenna R50 , sedan: behind roof end trim/Avant: in roof antenna

7 - Telephone Transceiver R36 in electronics box under right front seat

8 - Navigation System with CD Drive Control Module J401 behind luggage compartment left side trim

Navigation System with CD Drive Control Module J401 , harness connectors

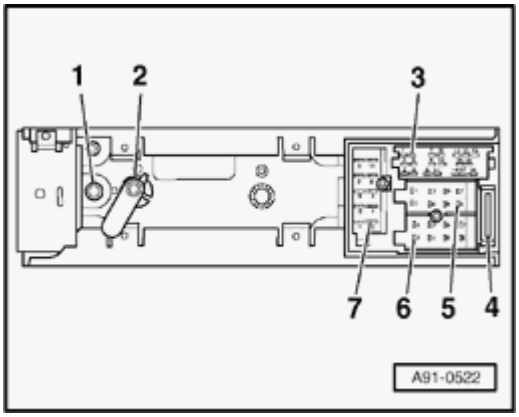

Fig. 157: Navigation System With CD Drive Control Module J401 , Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - GPS connection (blue) from Navigation System Antenna R50

2 - Antenna connection bracket

3 - Multi-pin connector I, 20-pin, (T20e) black

4 - Device fuse

5 - 8-pin multi-pin connector II (not used)

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6 - 8-pin multi-pin connector III, black (T8e)

7 - 10-pin multi-pin connector IV (not used)

NOTE:

- **Unlisted connector terminals are not assigned.**

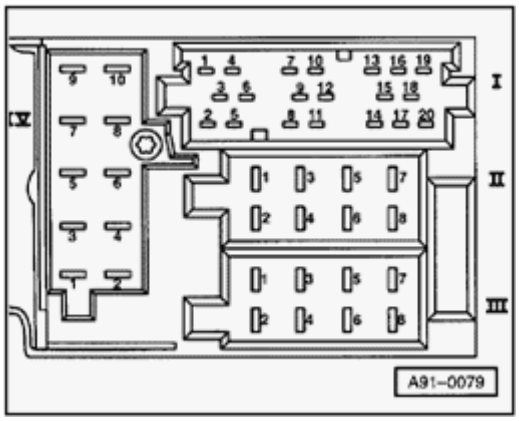

Fig. 158: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

3 - Multi-pin connector I, 20-pin, (T20e) black

2 - CAN-Bus High (Infotainment)

5 - CAN-Bus Low (Infotainment)

13 - LF (+) to Radio R

14 - NF mute to Radio R

15 - LF (-) to Radio R

16 - NF (+) from Telephone Transceiver R36

17 - NF mute from Telephone Transceiver R36

19 - NF (-) from Telephone Transceiver R36

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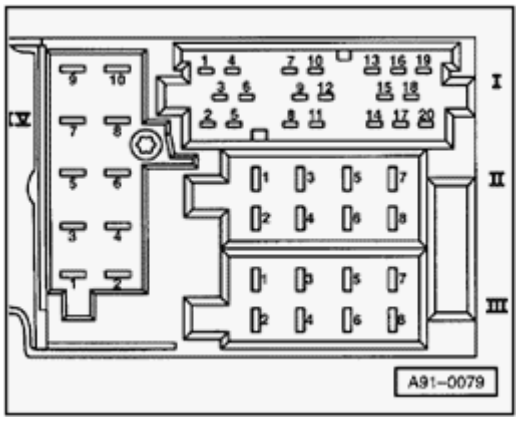

Fig. 159: Identifying Multi-Pin Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Multi-pin connector III, 8-pin, (T8e) black

1 - Speed signal

2 - Signal from Back-Up Light Switch F4

3 - L-diagnostic

4 - Terminal 15

7 - Terminal 30

8 - Terminal 31

Total overview - Sedan component locations

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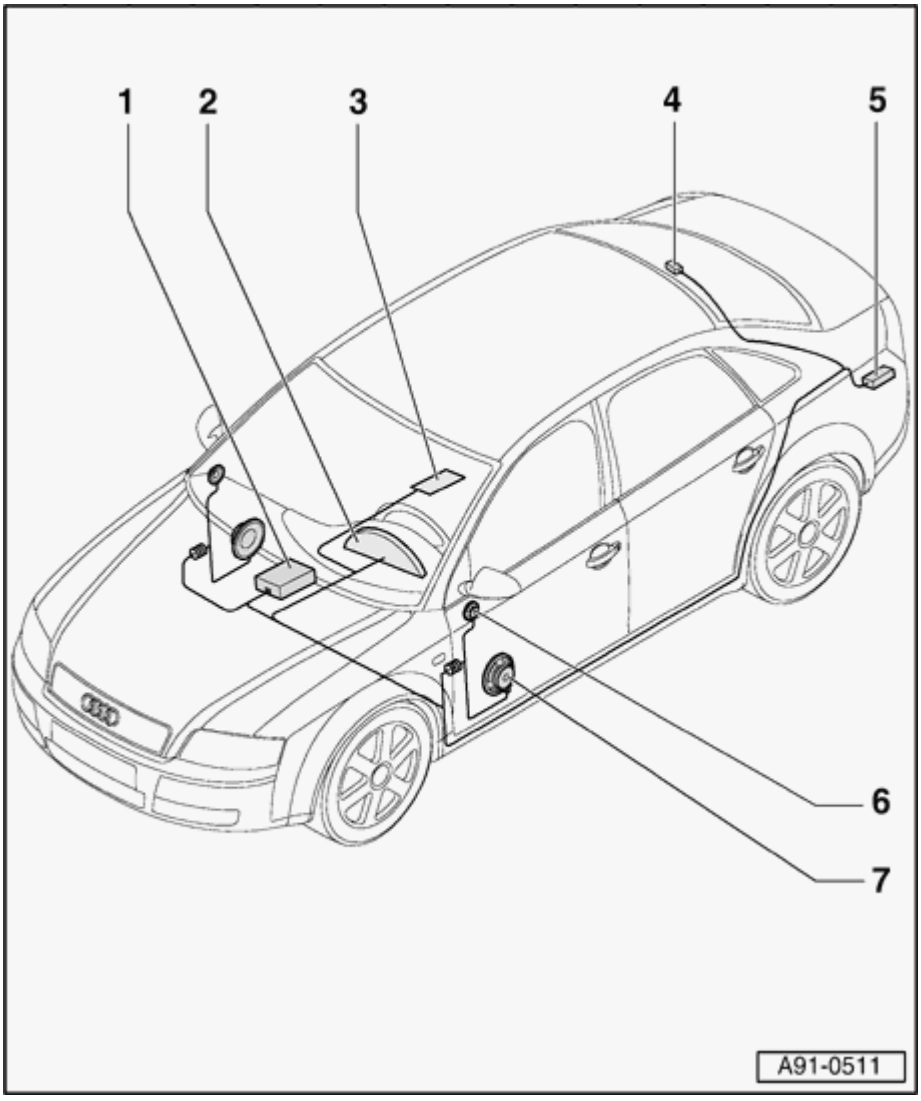

Fig. 160: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Radio R

- In center console, at top

2 - Instrument cluster display

- Instrument cluster, removing and installing --> - **90 INSTRUMENTS**

3 - Function Selector Switch II E272

- In center console, bottom
- Removing and installing --> **Function Selector Switch II E272 , removing and installing**

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4 - Navigation System Antenna R50

- Behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Navigation System with CD Drive Control Module J401

- Behind luggage compartment left side trim
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

6 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors

7 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors

General overview - Avant component locations

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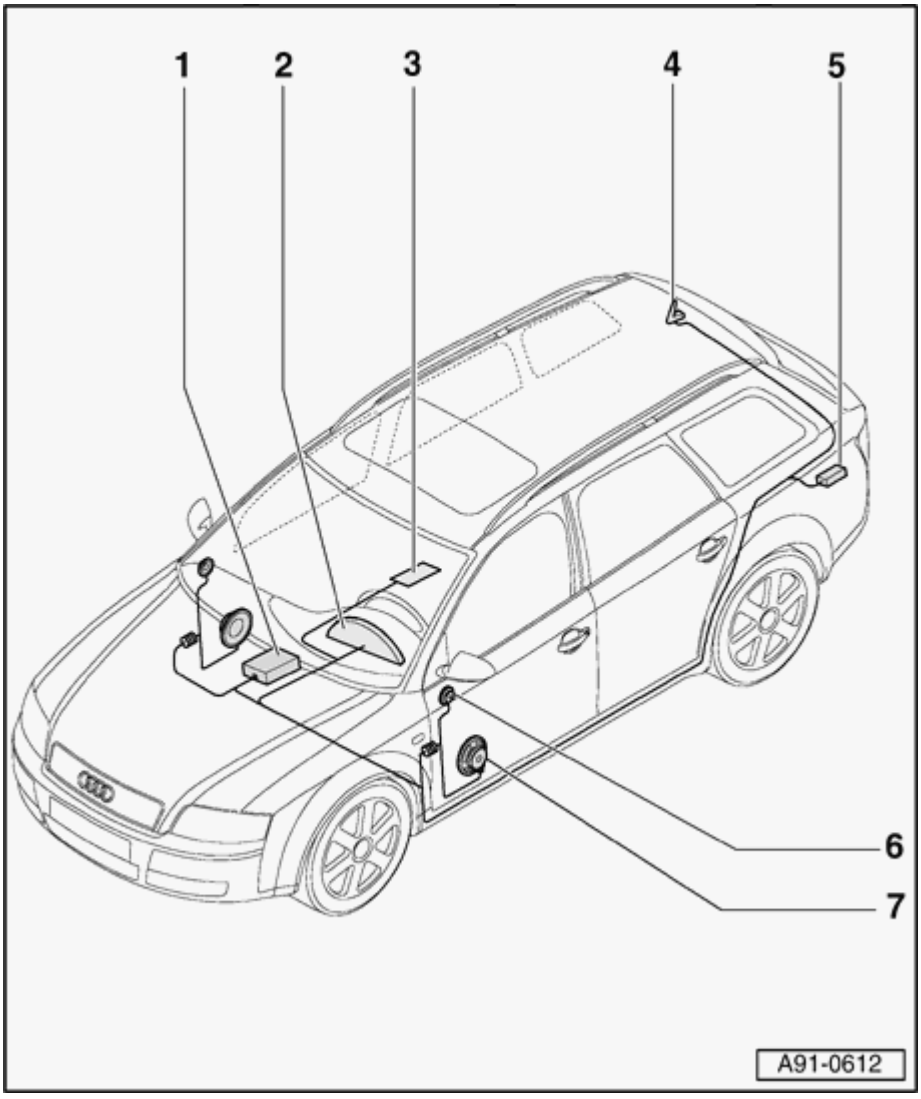

Fig. 161: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Radio R

- In center console, at top

2 - Instrument cluster display

- Instrument cluster, removing and installing --> - **90 INSTRUMENTS**

3 - Function Selector Switch II E272

- In center console, bottom
- Removing and installing --> **Function Selector Switch II E272 , removing and installing**

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4 - Navigation System Antenna R50 roof antenna

- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

5 - Navigation System with CD Drive Control Module J401

- Behind luggage compartment left side trim
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

6 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors

7 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors

Navigation System with CD Drive Control Module J401 , removing and installing

Special tools, testers and auxiliary items required

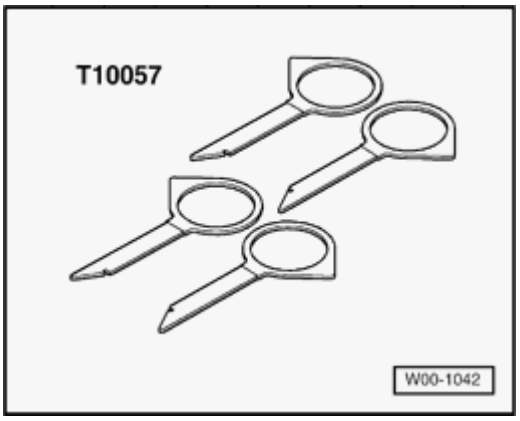

Fig. 162: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- Turn off all electrical components.
- Remove ignition key.

Removing

- Open left luggage compartment storage bin.

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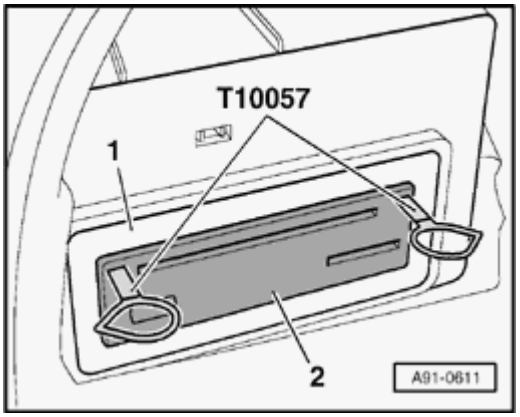

Fig. 163: Identifying Navigation System With CD Drive Control Module J401 And Installation Frame
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two clips on Radio Removal Tool T10057 into release slits on Navigation System with CD Drive Control Module J401 - **2** - until they engage. Points on grip eyes face outward.
- Remove Navigation System with CD Drive Control Module J401 - **2** - from installation frame - **1** -.
- Disconnect connectors on Navigation System with CD Drive Control Module J401 - **2** -.
- Remove Radio Release Tool T10057 by pressing locking tabs on Navigation System with CD Drive Control Module J401.

Installing

- Connect all harness connectors.
- Slide Navigation System with CD Drive Control Module J401 in until it engages in mounting frame.
- If necessary, perform adaptations on Navigation System with CD Drive Control Module J401.

Function Selector Switch II E272 , removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

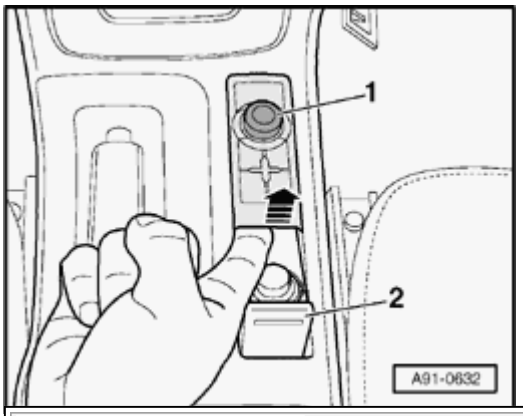

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Fig. 164: Identifying Cigarette Lighter Cover And Function Selector Switch II E272
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open cigarette lighter cover - **2** -.
- Press Function Selector Switch II E272 - **1** - out of installation opening from below as shown in illustration.
- Disconnect connector at Function Selector Switch II E272.

Installing

- Install in reverse order.

Navigation System Antenna R50 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .

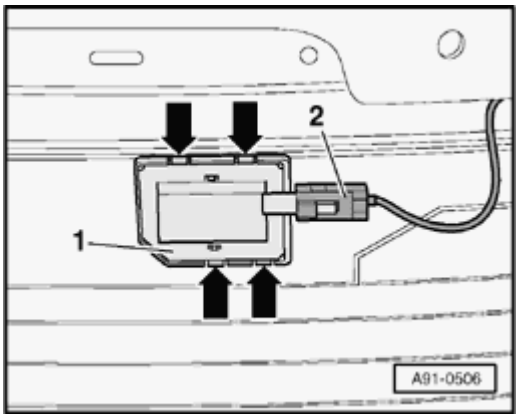

Fig. 165: Identifying Retaining Clips, Harness Connector, And Cover Navigation System Antenna R50
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release retaining clips - **arrows** - and remove cover Navigation System Antenna R50 - **1** -.
- Disconnect harness connector - **2** - on Navigation System Antenna R50 - **1** -.

Installing

- Install in reverse order.

Navigation System Antenna R50 , Avant, removing and installing

The roof antenna on the Avant consists of the Telephone Antenna R65 and Navigation System Antenna R50.

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The Navigation System Antenna R50 wire is routed up to the devices in the left luggage compartment base mount while the Telephone Antenna R65 is placed on the right D-pillar.

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove roof end trim --> - **70 - INTERIOR TRIM** .
- Remove left and right D-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove Luggage Compartment Light W3 --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .
- Remove luggage compartment left side trim --> - **70 - INTERIOR TRIM** .
- Lower the rear molded headliner --> - **70 - INTERIOR TRIM** .

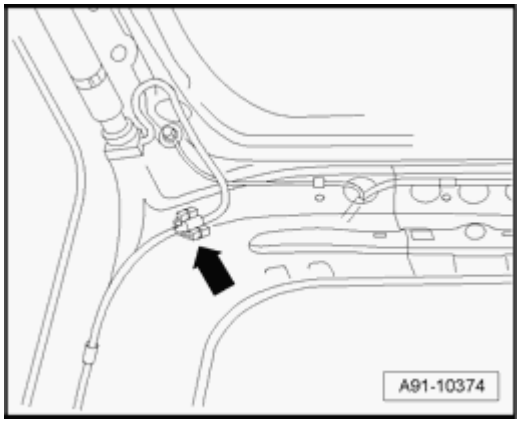

Fig. 166: Identifying Telephone Antenna R65 Wire On Right D-Pillar
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect Telephone Antenna R65 wire - **arrow** - on right D-pillar.
- Disconnect connectors at Navigation System with CD Drive Control Module J401.
- Loosen antenna wires up to roof antenna.

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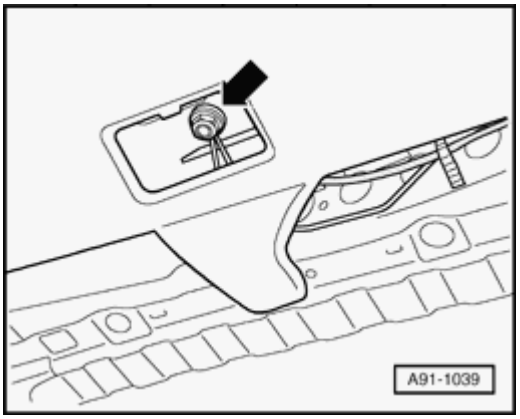

Fig. 167: Locating Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut - **arrow** - (7 Nm).
- Remove Navigation System Antenna R50 upward from roof.

Installing

- Install in reverse order.

The washer under the Navigation System Antenna R50 nut has a cut-out through which the antenna wires must be guided.

NAVIGATION SYSTEM II-D (NAVIGATION SYSTEM PLUS)

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

The Radio Navigation System (RNS) combines the functions of a navigation system with those of a vehicle radio.

The system consists of:

- Radio receiver part

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- 5-inch color display
- Navigation system with angular acceleration sensor
- CD drive for navigation system

- Navigation System Antenna R50 connection
- Antenna Selection Control Module J515 / Left Antenna Module R108 connection

Enhancements:

- CD Changer R41 connection
- Navigation/TV Tuner J415 connection

Notes

Additional information Navigation system plus operating instructions.

For CD preparation, the CD changer R41 wiring harness is already installed in the vehicle. The connecting wire can only be used with genuine Audi CD-changers R41.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Error messages on screen

If there is a malfunction in the system, either a fault is saved in the DTC and/or an error message is given on the Operating Electronics, Navigation Control Module J402 display.

Indicator in display:

RDS TMC tuner: Connection to RDS TMC Tuner is damaged or could not be configured!

This error message appears:

- No or faulty CAN communication between Operating Electronics, Navigation Control Module J402 and Navigation Interface R94 (wiring interruption or wiring not connected).
- Navigation Interface R94 is faulty.

If this malfunction occurs, no RDS TMC traffic messages can be received and setting menu "Traffic jam function" cannot be called up.

Indicator in display:

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Dynamic navigation: Telephone does not answer. Dynamic sampling only with ignition switched on.

This error message appears:

- No or faulty CAN communication between Operating Electronics, Navigation Control Module J402 and Telephone/Telematics Control Module J256 (wiring interruption or wiring not connected).
- Telephone/Telematics Control Module J256 is faulty.
- Terminal 15 is off (ignition switched off).

If this malfunction occurs, telephone cannot receive TMC traffic messages. Dynamic route guidance is not possible and the "Traffic Jam Function" setting menu cannot be called up.

Indicator in display:

Connection to log book faulty. Routes are not saved. Please enter routes manually. Please confirm with RETURN.

This error message appears:

- No or faulty CAN communication between Operating Electronics, Navigation Control Module J402 and Chip Card Reader R99 (electronic route book)
- Chip Card Reader R99 not connected or faulty.

If this malfunction occurs, data cannot be read from the Chip Card Reader R99 into the Operating Electronics, Navigation Control Module J402 and also cannot be collected on the chip card.

Indicator in display:

LOG BOOK Log book not active. Please activate on PC. Please enter routes manually.

This message appears:

- If the customer has not yet activated his electronic route book chip card on his PC after vehicle delivery.
- This message in the navigation display is not a malfunction.

Make customer aware of this.

Indicator in display:

Incorrect CD.
Insert TravelPilot DX CD-ROM.

This message appears:

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- When no DX version navigation CD was inserted.
  - Inset navigation CD with DX logo.

Make customer aware of this.

Messages are shown until malfunction is corrected or confirmed by pressing RETURN button.

Navigation system II-D, overview

Sedan

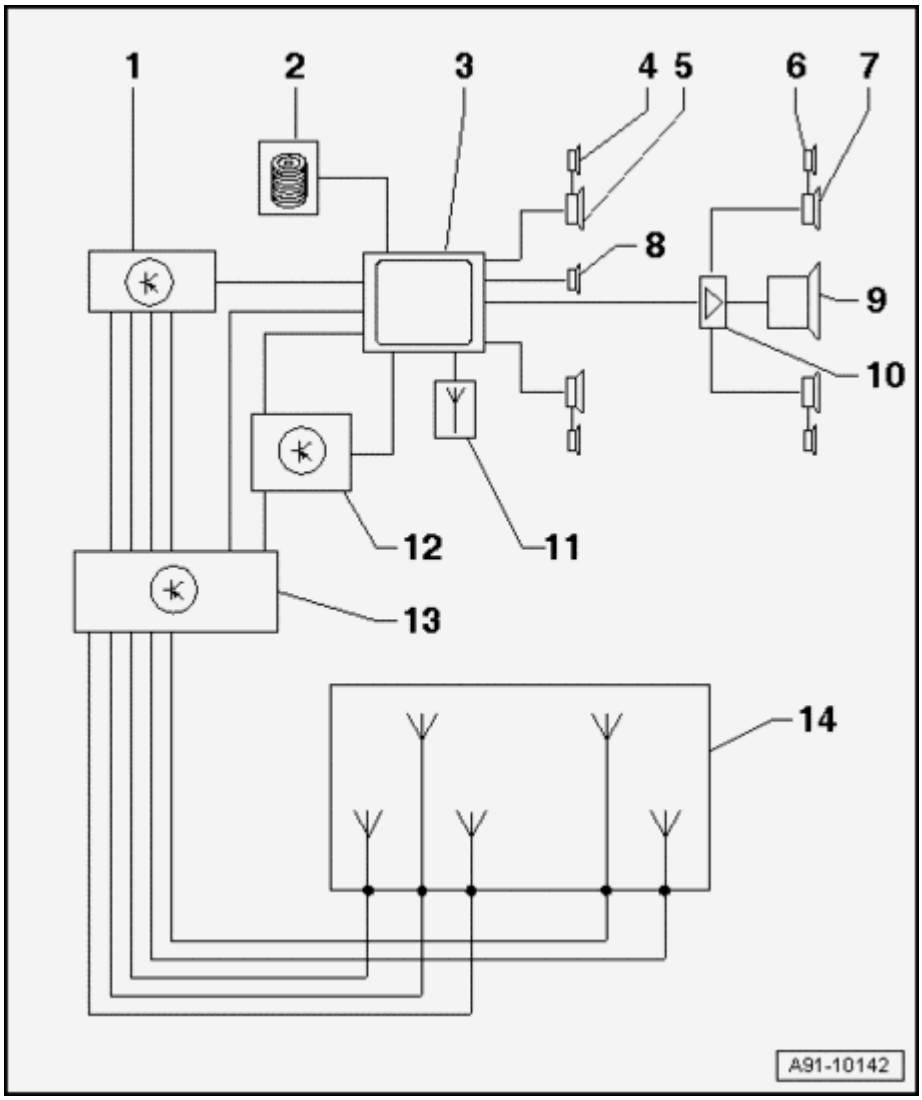

Fig. 168: Navigation System II-D, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Navigation/TV Tuner J415 behind luggage compartment left side trim

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2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402 in top of center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

7 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

8 - Inside Loudspeaker R70 in front center instrument panel

9 - Bass Loudspeaker R100 in parcel shelf

10 - Amplifier R12 behind luggage compartment right side trim

11 - Navigation System Antenna R50 behind roof end trim

12 - Navigation Interface R94 behind luggage compartment left side trim

13 - Antenna Selection Control Module J515 behind roof end trim

14 - Rear window antennas AM/FM/TV

Avant

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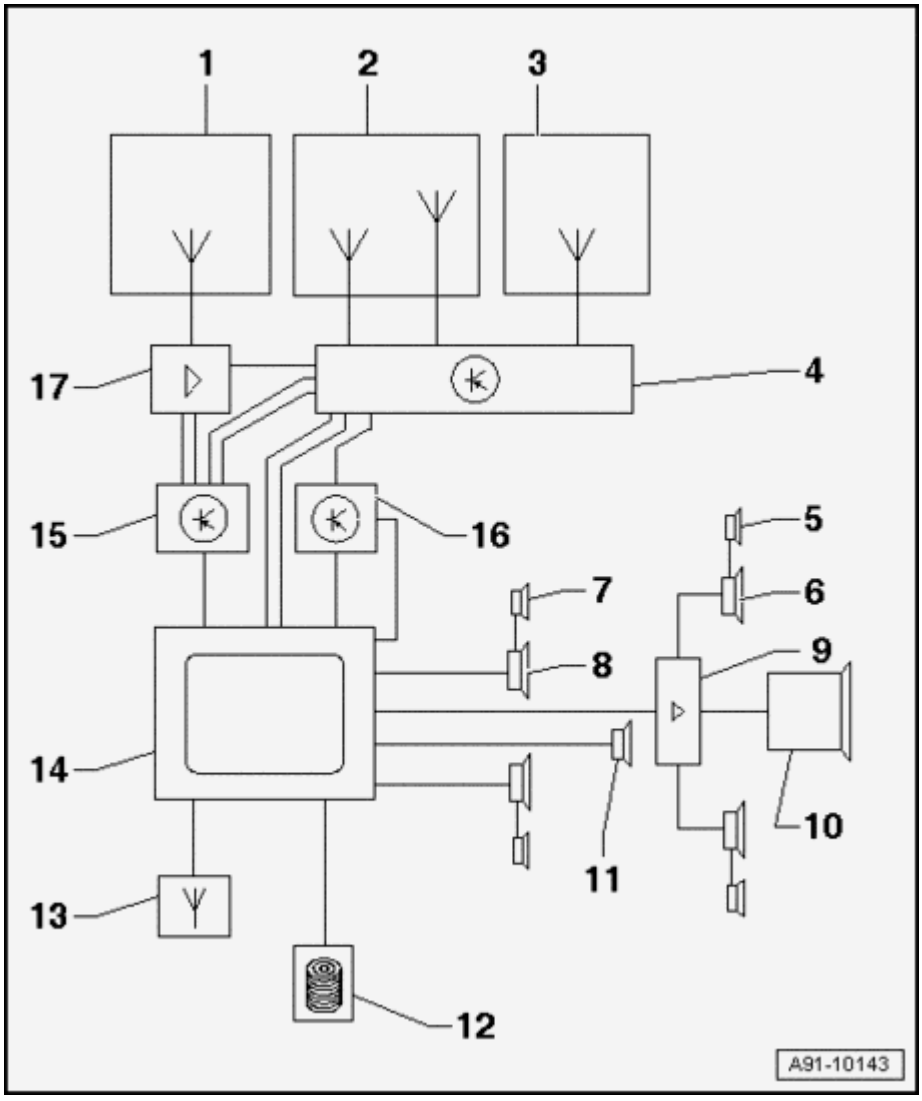

Fig. 169: Navigation System II-D, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Right rear FM3/TV3/TV4 window antennas

2 - left rear AM/FM1/TV1 window antennas

3 - FM2/TV2 rear window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

6 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

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8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

9 - Amplifier R12 behind luggage compartment right side trim

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - Inside Loudspeaker R70 in front center instrument panel

12 - CD Changer R41 in glove compartment

13 - Navigation System Antenna R50 roof antenna

14 - Operating Electronics, Navigation Control Module J402 in top of center console

15 - Navigation/TV Tuner J415 behind luggage compartment left side trim

16 - Navigation Interface R94 , behind luggage compartment left side trim

17 - Right Antenna Module R109 behind luggage compartment right side trim

BOSE, sedan

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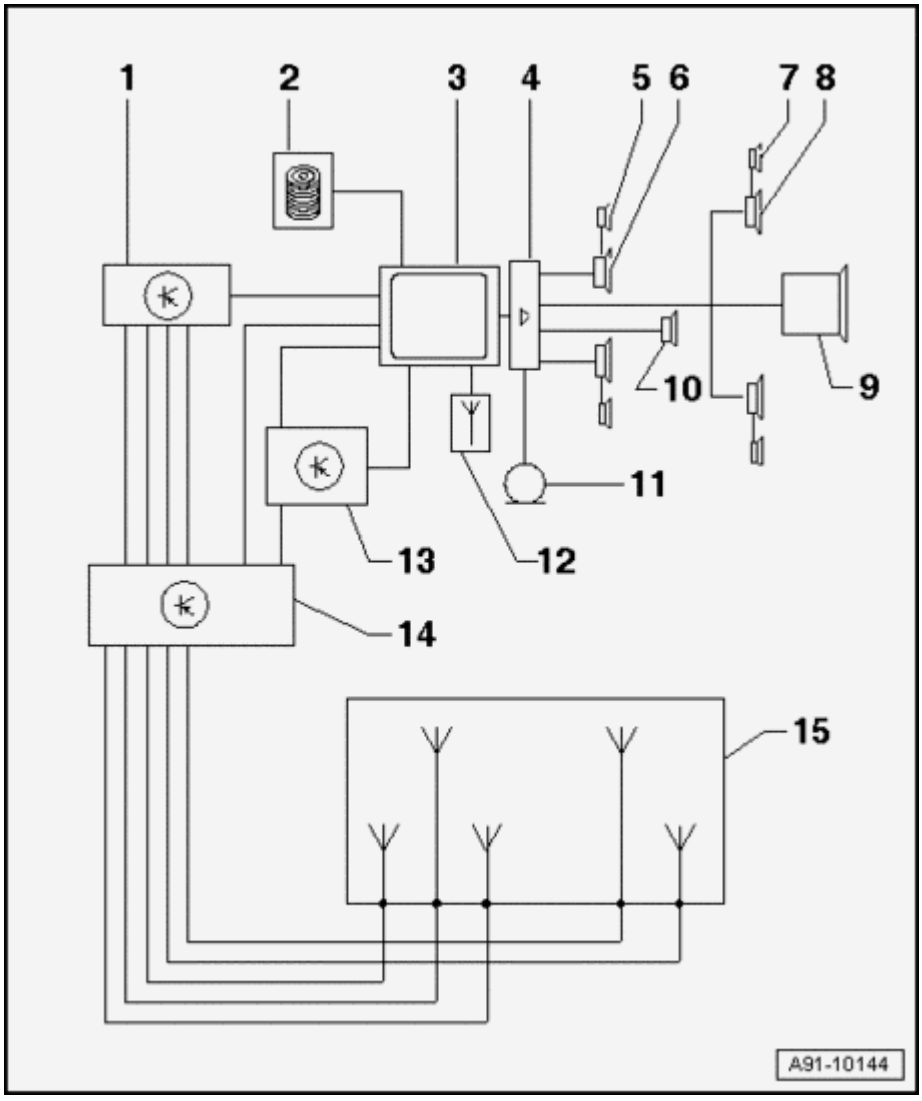

Fig. 170: Navigation System II-D, BOSE Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Navigation/TV Tuner J415 behind luggage compartment left side trim

2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402 in top of center console

4 - Amplifier R12 behind luggage compartment right side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

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8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Bass Loudspeaker R100 in parcel shelf

10 - Inside Loudspeaker R70 in front center instrument panel

11 - Inside Microphone R74 in Front Interior Light W1

12 - Navigation System Antenna R50 behind roof end trim

13 - Navigation Interface R94 behind luggage compartment left side trim

14 - Antenna Selection Control Module J515 behind roof end trim

15 - AM/FM/TV rear window antennas

BOSE, Avant

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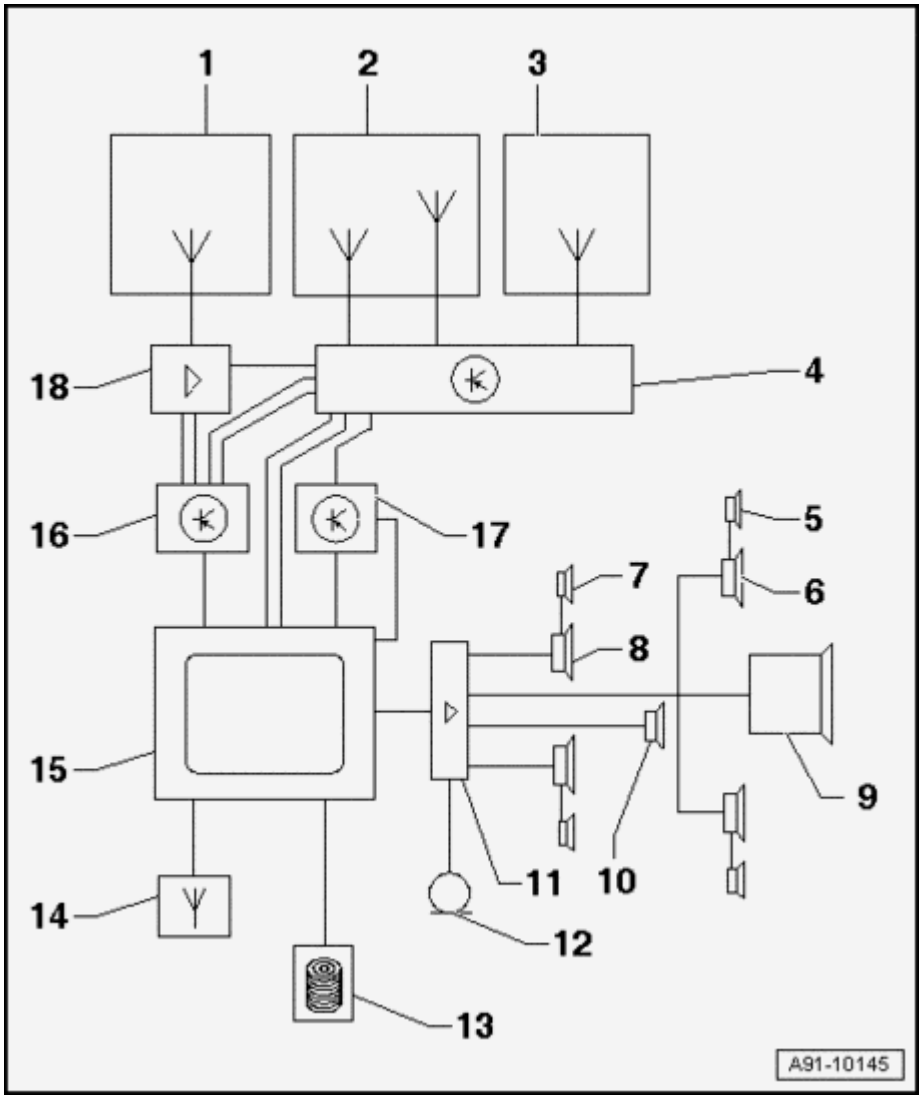

Fig. 171: Navigation System II-D, Bose Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Right rear FM3/TV3/TV4 window antennas

2 - left rear AM/FM1/TV1 window antennas

3 - FM2/TV2 rear window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

6 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

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8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

9 - Bass Loudspeaker R100 behind luggage compartment right side trim

10 - Inside Loudspeaker R70 in front center instrument panel

11 - Amplifier R12 behind luggage compartment right side trim

12 - Inside Microphone R74 in Front Interior Light W1

13 - CD Changer R41 in glove compartment

14 - Navigation System Antenna R50 roof antenna

15 - Operating Electronics, Navigation Control Module J402 in top of center console

16 - Navigation/TV Tuner J415 , behind luggage compartment left side trim

17 - Navigation Interface R94 behind luggage compartment left side trim

18 - Right Antenna Module R109 behind luggage compartment right side trim

Connectors and connector assignments

Operating Electronics, Navigation Control Module J402

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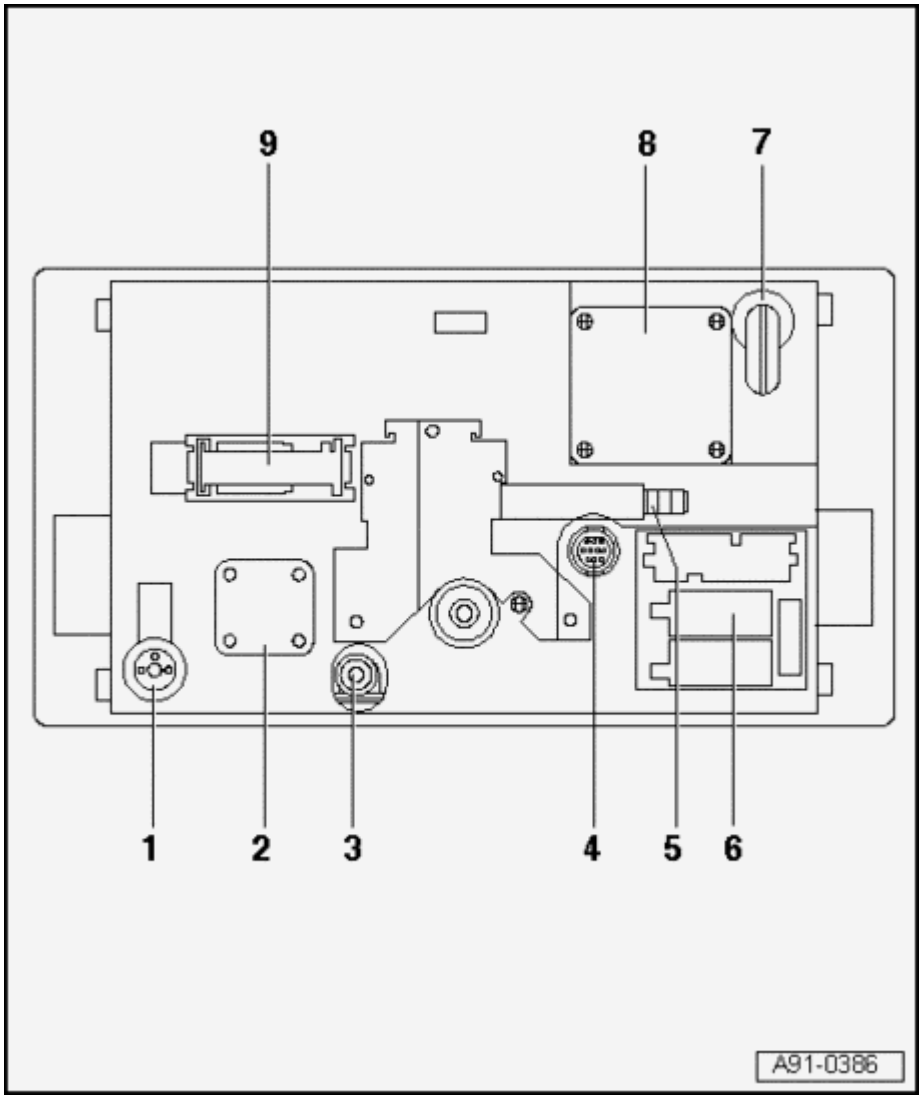

Fig. 172: Operating Electronics, Navigation Control Module J402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - HF connection (black) from Navigation Interface R94

2 - Fan

3 - IF connection (yellow) to Antenna Selection Control Module J515 / Left Antenna Module R108

4 - 11-pin multi-pin connector (T11) from Navigation/TV Tuner J415

5 - Ground connection

6 - Connector block with three multi-pin connectors and device fuse

7 - GPS connection (blue) from Navigation System Antenna R50

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8 - Fan

9 - Black 26-pin multi-pin connector (T26)

NOTE:

- **Unlisted connector terminals are not assigned.**

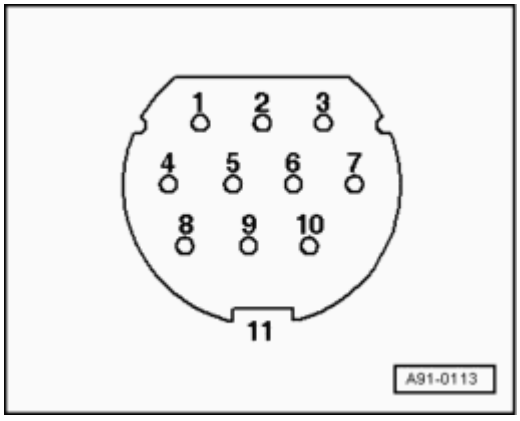

Fig. 173: 11-Pin Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

4 - 11-pin multi-pin connector (T11)

1 - Audio ground from Navigation/TV Tuner J415

2 - Left audio input from Navigation/TV Tuner J415

3 - Right audio input from Navigation/TV Tuner J415

4 - Video input sync. from Navigation/TV Tuner J415

5 - Video ground from Navigation/TV Tuner J415

6 - Switch A (NTSC=60Hz/PAL=50Hz) (not used)

7 - Switch B (Monitor On) (not used)

8 - Video input blue from Navigation/TV Tuner J415

9 - Video input green from Navigation/TV Tuner J415

10 - Video input red from Navigation/TV Tuner J415

11 - Screen ground from Navigation/TV Tuner J415

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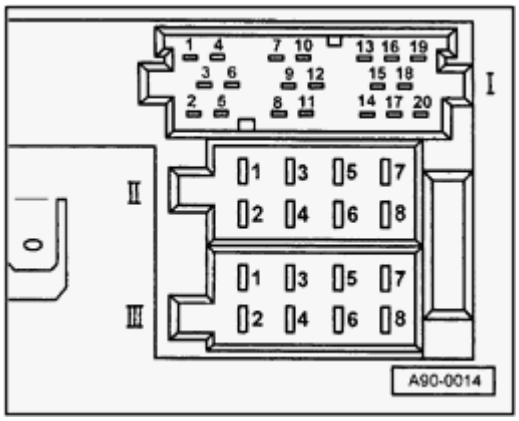

Fig. 174: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Multi-pin connector I, 20-pin, (T20d) black

1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12 (only with BOSE)

5 - Right front signal to Amplifier R12 (only with BOSE)

6 - Positive switched to Amplifier R12

7 - NF (+) from Telephone Transceiver R36

10 - CD ground to CD Changer R41

12 - NF (-) from Telephone Transceiver R36

13 - CD data in from CD Changer R41

14 - CD data out to CD Changer R41

15 - CD CLK from CD Changer R41

16 - Permanent positive to CD Changer R41

17 - Positive switched to CD Changer R41

18 - CD ground to CD Changer R41

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19 - Left signal from CD Changer R41

20 - Right signal from CD Changer R41

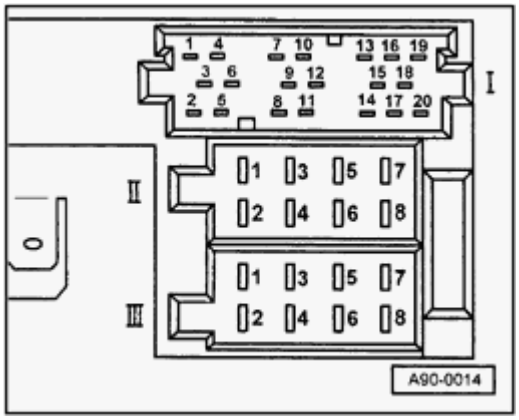

Fig. 175: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Multi-pin connector II, 8-pin, (T8a) brown

3 - Right front speaker (+) (not with BOSE)

4 - Right front speaker (-) (not with BOSE)

5 - Left front speaker (+) (not with BOSE)

6 - Left front speaker (-) (not with BOSE)

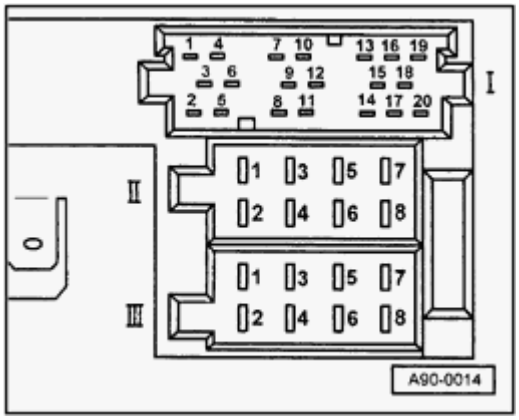

Fig. 176: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

6 - Multi-pin connector III, 8-pin, (T8) black

1 - Speed signal

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2 - NF mute from Telephone Transceiver R36

3 - L-diagnostic

4 - Terminal 86s

5 - SAFE (terminal 30) connected with pin 7

6 - Terminal 58s

7 - Terminal 30

8 - Terminal 31

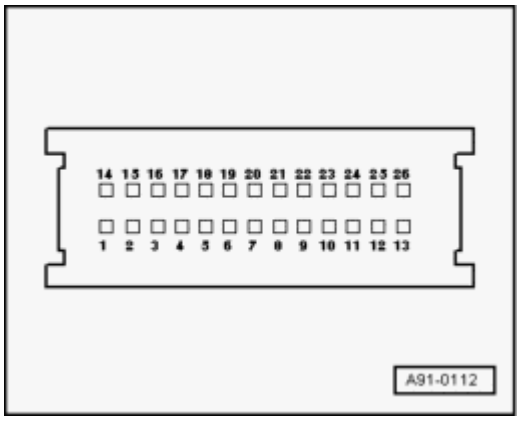

Fig. 177: Black 26-Pin Multi-Pin Connector (T26)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

9 - Black 26-pin multi-pin connector (T26)

1 - Anti-theft warning system ground from Comfort System Central Control Module J393

4 - Terminal 15

5 - Left speed sensor input

6 - FAW NF (+) (not used)

13 - CAN-BUS High (BOSCH)

14 - Positive switched (not used)

17 - Signal from Back-Up Light Switch F4

18 - Right speed sensor input (not used)

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19 - FAW NF (-) (not used)

20 - FAW NF (screen) (not used)

26 - CAN-BUS Low (BOSCH)

Navigation/TV Tuner J415

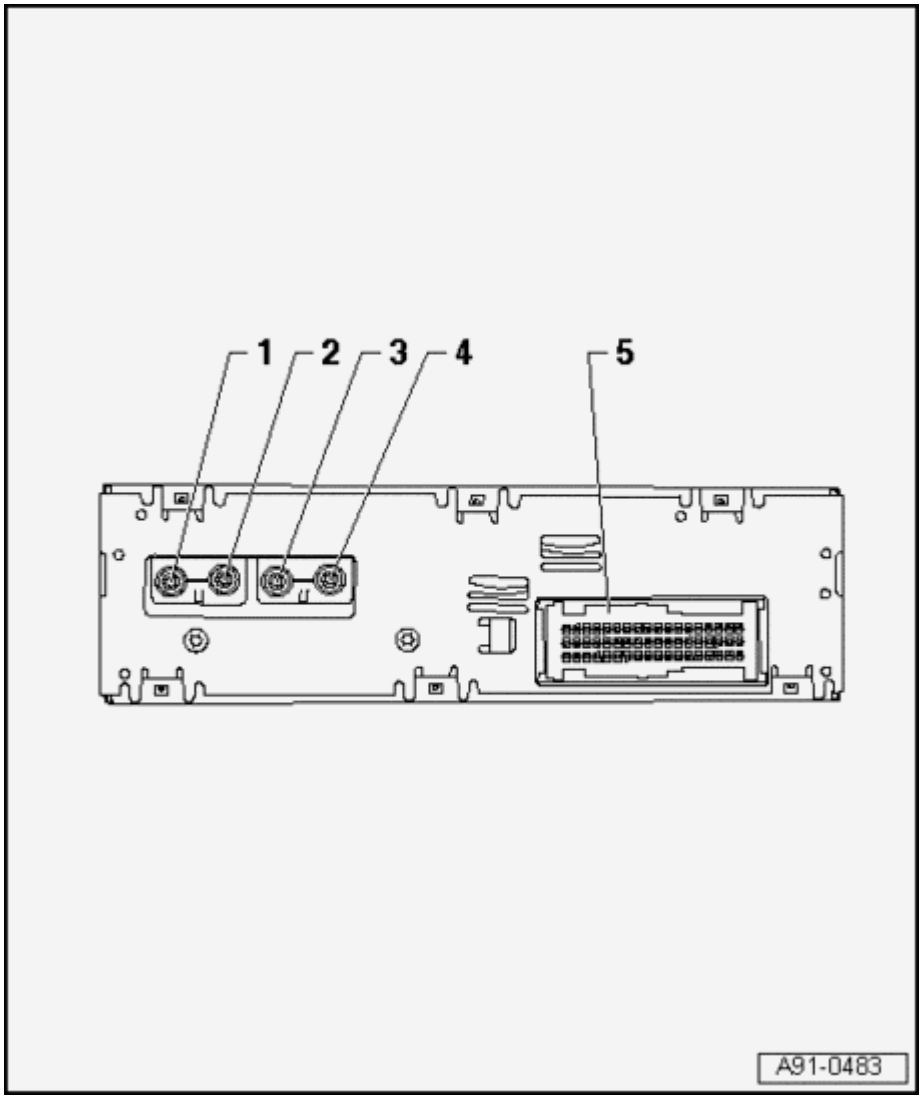

Fig. 178: Navigation/TV Tuner J415
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - TV4 connection (brown) from Antenna Selection Control Module J515 / Right Antenna Module R109

2 - TV3 connection (brown) from Antenna Selection Control Module J515 / Right Antenna Module R109

3 - TV2 connection (green) to Antenna Selection Control Module J515 / Left Antenna Module R108

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4 - TV1 connection (green) to Antenna Selection Control Module J515 / Left Antenna Module R108

5 - Black 54-pin (T54) multi-pin connector to Operating Electronics, Navigation Control Module J402

NOTE:

- **Unlisted connector terminals are not assigned.**

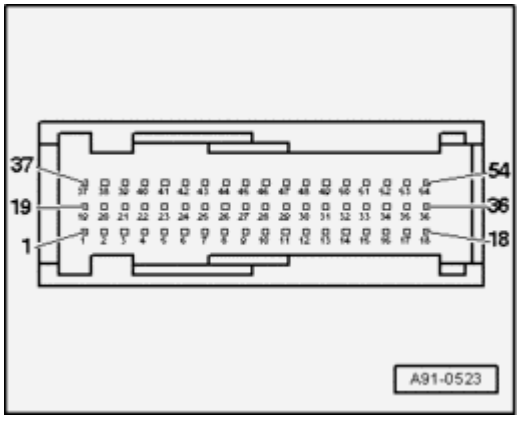

Fig. 179: Black 54-Pin Multi-Pin Harness Connector (T54)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

5 - Black 54-pin multi-pin harness connector (T54)

2 - CAN BUS Low (BOSCH) from RNS-E (Infotainment)

3 - CAN BUS High (BOSCH) from RNS-E (Infotainment)

4 - Front audio screen (not used)

5 - Right front audio output

6 - Audio ground (not used)

7 - Left front audio output

8 - Audio ground

9 - Front screen ground

10 - Front video screen

11 - Front sync. video output

12 - Video ground

13 - Front blue audio output

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14 - Video ground

15 - Front green video output

16 - Video ground

17 - Front red video output

19 - Terminal 31

20 - Terminal 30

21 - L-diagnostic

22 - Right rear video output (-) (not used)

23 - Right rear video output (+) (not used)

24 - Rear audio screen (not used)

25 - Left rear video output (-) (not used)

26 - Left rear video output (+) (not used)

27 - Rear screen ground (not used)

28 - Rear com. sync. (-) (not used)

29 - Rear com. sync. (+) (not used)

30 - Rear blue signal (-) (not used)

31 - Rear blue signal (+) (not used)

32 - Rear green signal (-) (not used)

33 - Rear green signal (+) (not used)

34 - Rear red signal (-) (not used)

35 - Rear red signal (+) (not used)

36 - Rear video screen (not used)

40 - Left rear video input (-) (not used)

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41 - Right rear video input (-) (not used)

42 - Rear A/V ground input (not used)

43 - Rear S-VHS (Y) input (not used)

44 - Rear S-VHS (C) input (not used)

45 - Rear CVBS input (not used)

46 - Rear A/V whole screen input

47 - Left front video input (-) (not used)

48 - Right front video input (-) (not used)

49 - Front A/V ground input (not used)

50 - Front S-VHS (Y) input (not used)

51 - Front S-VHS (C) input (not used)

52 - Front CVBS input (not used)

53 - Front A/V whole screen input

Navigation Interface R94

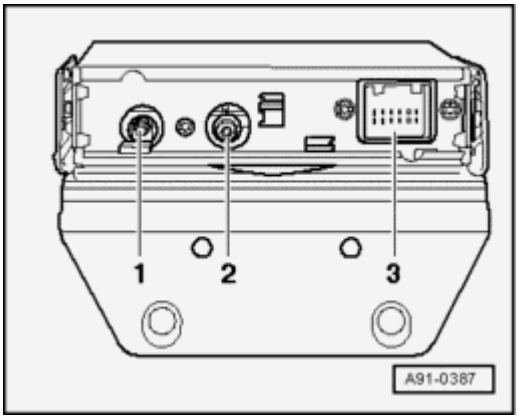

Fig. 180: Navigation Interface R94
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - HF connection (black) to Operating Electronics, Navigation Control Module J402

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2 - HF connection (black) to Antenna Selection Control Module J515 / Left Antenna Module R108

3 - Black 12-pin multi-pin harness connector

NOTE:

- **Unlisted connector terminals are not assigned.**

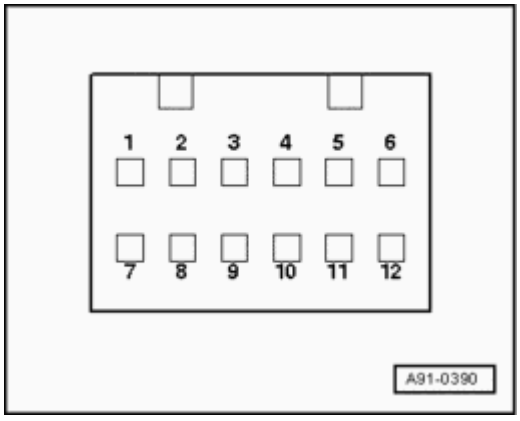

Fig. 181: Black 12-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

3 - Black 12-pin multi-pin harness 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

Total overview - Sedan component locations

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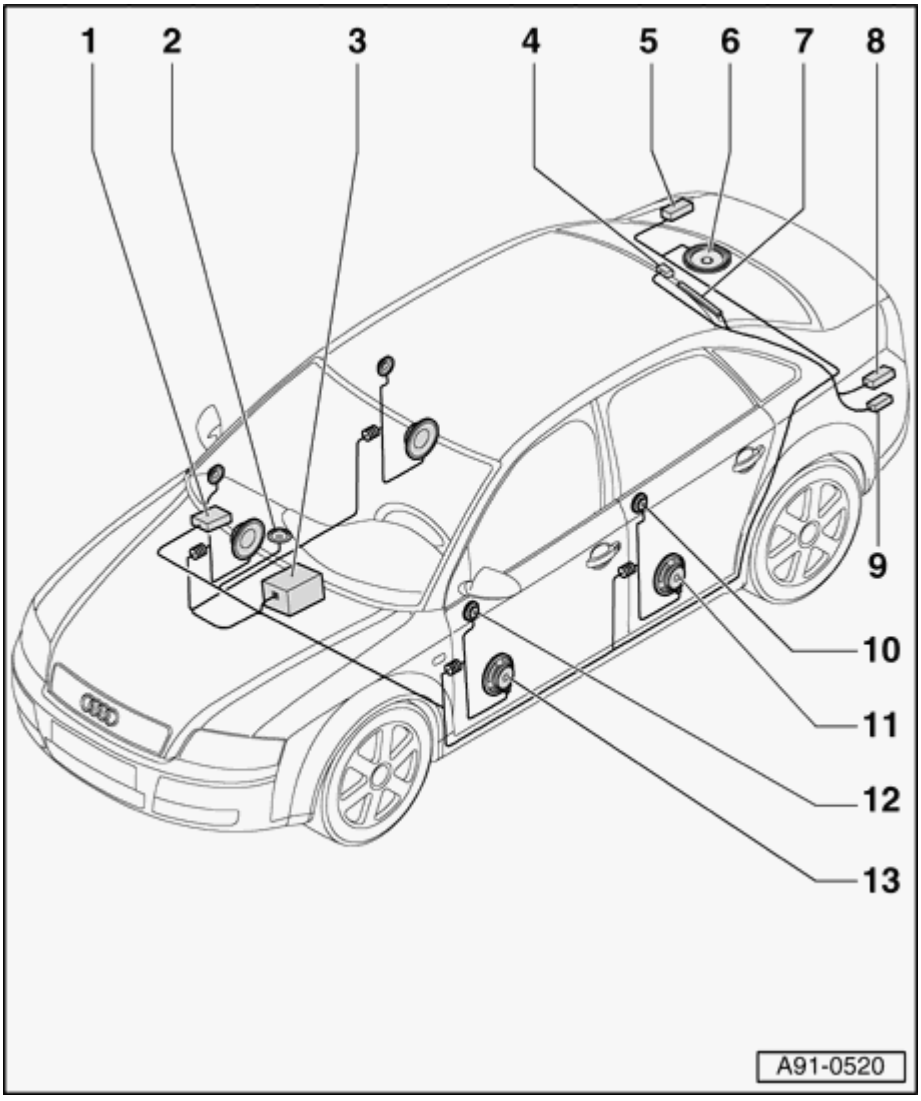

Fig. 182: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Operating Electronics, Navigation Control Module J402

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- In center console, at top
- Connections
- Removing and installing --> **Operating Electronics, Navigation Control Module J402 , removing and installing**

4 - Navigation System Antenna R50

- Behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

6 - Bass Loudspeaker R100

- In parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

7 - Antenna Selection Control Module J515

- Behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

8 - Navigation Interface R94

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation Interface R94 , Sedan, removing and installing**

9 - Navigation/TV Tuner J415

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation/TV Tuner J415 , removing and installing**

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10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

11 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

12 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

13 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing

General overview - Avant component locations

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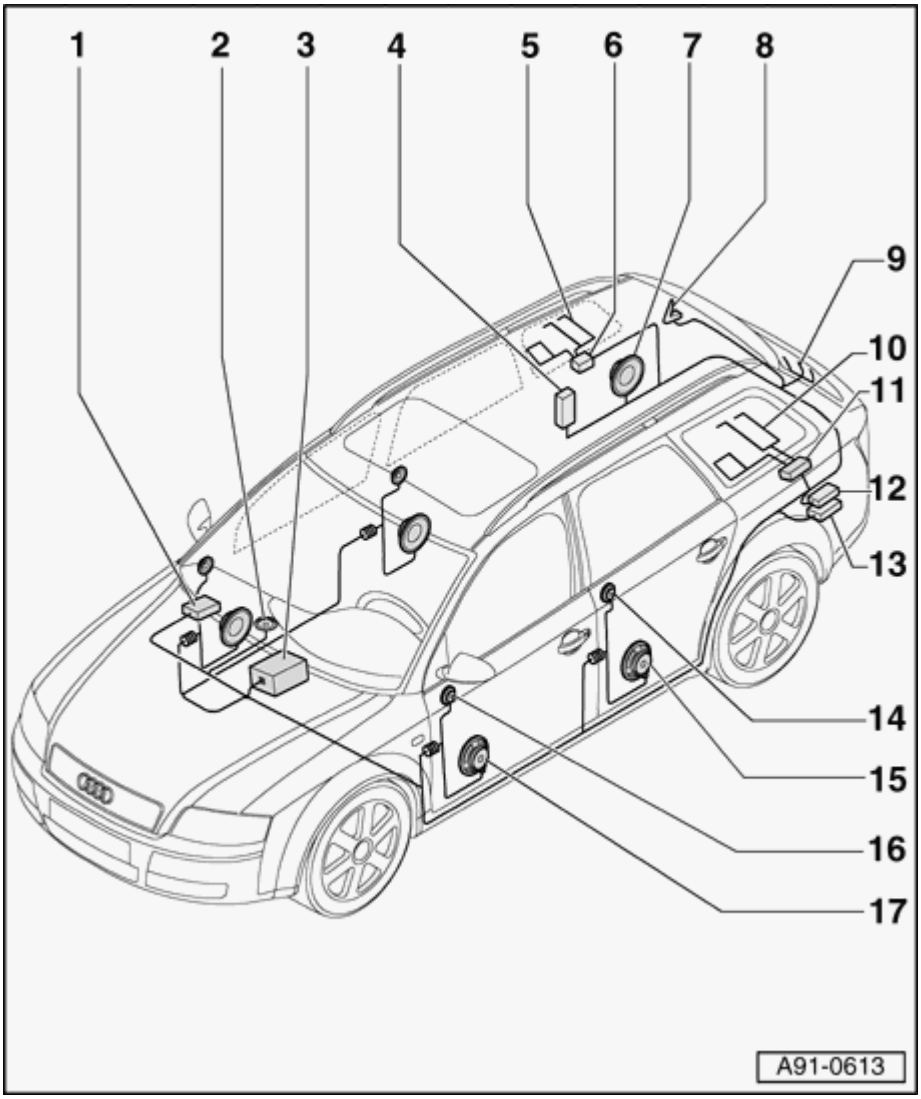

Fig. 183: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Operating Electronics, Navigation Control Module J402

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- In center console, at top
- Connections
- Removing and installing --> **Operating Electronics, Navigation Control Module J402 , removing and installing**

4 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

5 - Right rear window antennas

- FM3/TV3/TV4

6 - Right Antenna Module R109

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Right Antenna Module R109 , Avant, removing and installing**

7 - Bass Loudspeaker R100

- Behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Navigation System Antenna R50 roof antenna

- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

9 - Rear window antennas

- FM2/TV2

10 - Left rear window antennas

- AM/FM1/TV1

11 - Left Antenna Module R108

- Behind luggage compartment left side trim

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- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

12 - Navigation Interface R94

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation Interface R94 , Avant, removing and installing**

13 - Navigation/TV Tuner J415

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation/TV Tuner J415 , removing and installing**

14 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

15 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

16 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

17 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing

Operating Electronics, Navigation Control Module J402 , removing and installing

Special tools, testers and auxiliary items required

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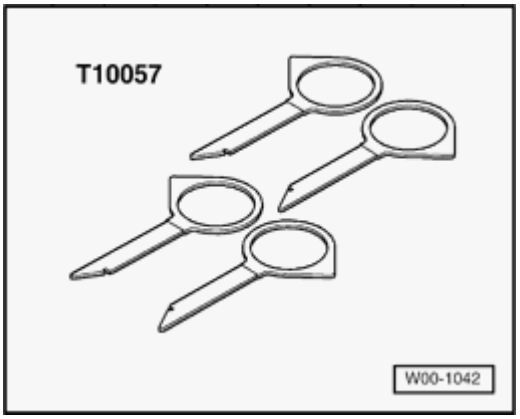

Fig. 184: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- Turn off all electrical components.
- Remove ignition key.

Removing

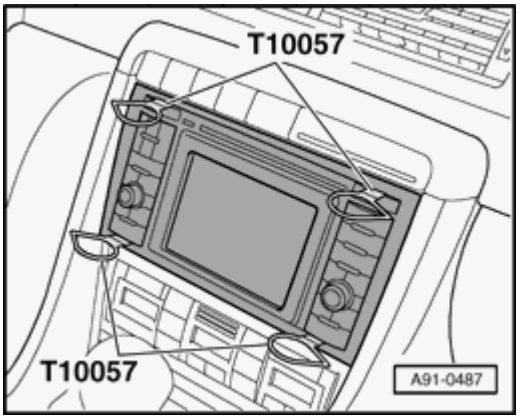

Fig. 185: Placing Radio Release Tool T10057 In Release Slits On Operating Electronics, Navigation Control Module J402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Radio Release Tool T10057 in release slits on Operating Electronics, Navigation Control Module J402 until they engage. Points on grip eyes face outward.
- Remove Operating Electronics, Navigation Control Module J402 from instrument panel.
- Release connectors on Operating Electronics, Navigation Control Module J402 and remove it.
- Remove Radio Release Tool T10057 by pressing locking tabs on Radio R.

Installing

- Connect all harness connectors.

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- Carefully slide Operating Electronics, Navigation Control Module J402 into instrument panel and allow it to engage in installation frame.
- Perform adaptations and coding on Operating Electronics, Navigation Control Module J402 if necessary.

Navigation Interface R94 , Sedan, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove left luggage compartment side trim --> - **70 - INTERIOR TRIM** .

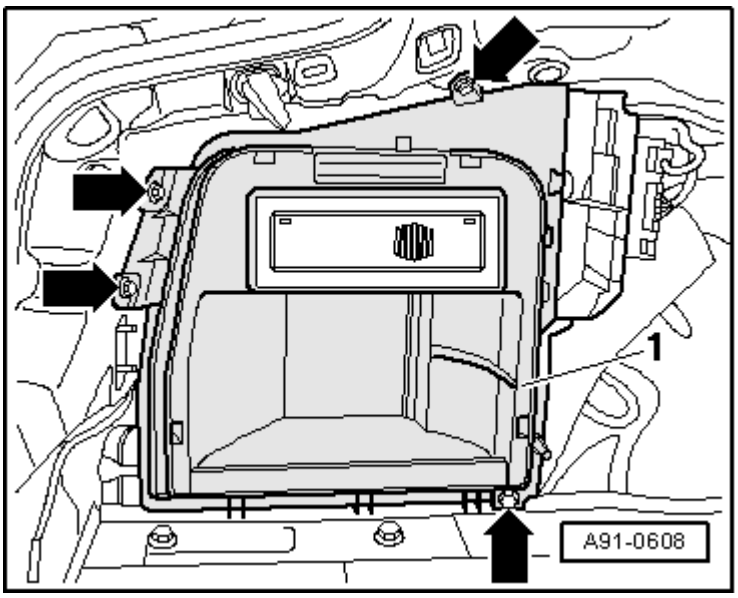

Fig. 186: Removing Screws And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (14 Nm) and remove base mount - **1** -.

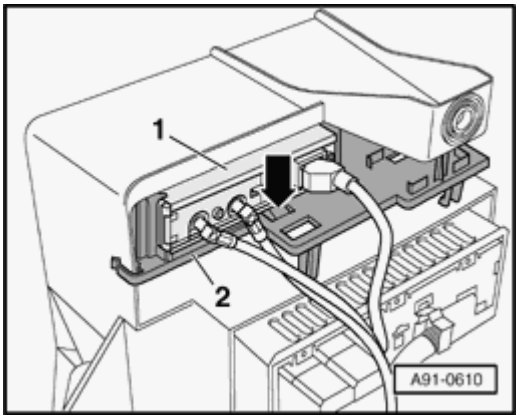

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Fig. 187: Disconnecting Electrical Connections And Antenna Wiring At Rear Of Navigation Interface
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors at Navigation Interface R94 - **1** -.
- Release Navigation Interface R94 - **1** - at catch - **arrow** - and remove from mounting plate - **2** -.

Installing

- Install in reverse order.

Navigation Interface R94 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove luggage compartment left side trim --> - **70 - INTERIOR TRIM** .

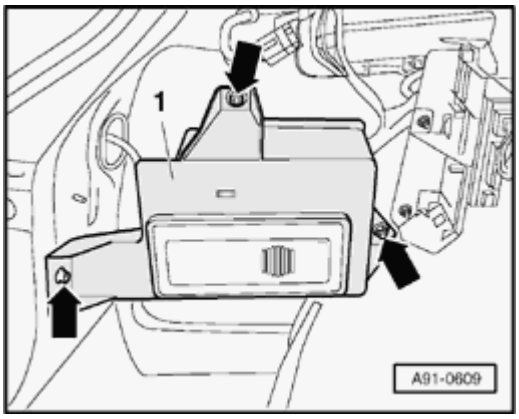

Fig. 188: Removing Screws And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (14 Nm) and remove base mount - **1** -.

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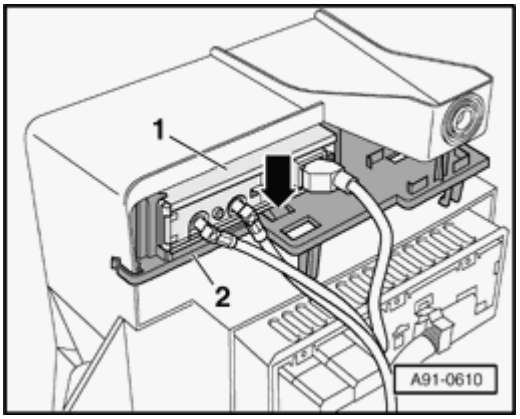

Fig. 189: Disconnecting Electrical Connections And Antenna Wiring At Rear Of Navigation Interface
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors at Navigation Interface R94 - **1** -.
- Release Navigation Interface R94 - **1** - at catch - **arrow** - and remove from mounting plate - **2** -.

Installing

- Install in reverse order.

Navigation/TV Tuner J415 , removing and installing

Special tools, testers and auxiliary items required

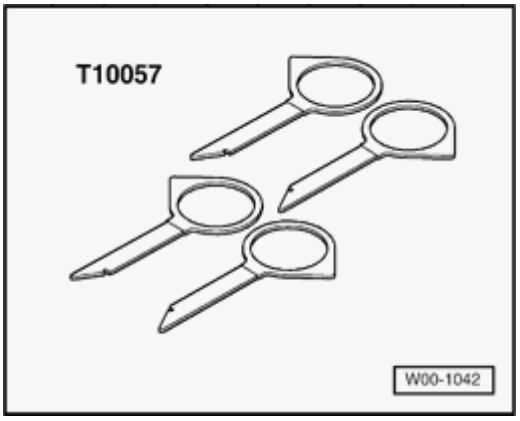

Fig. 190: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- Turn off all electrical components.
- Remove ignition key.

Removing

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- Open left luggage compartment storage bin.

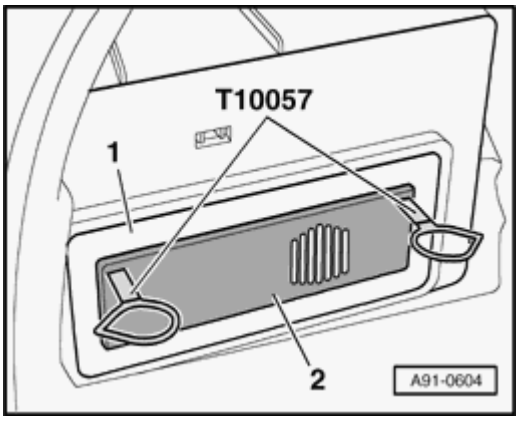

Fig. 191: Identifying Navigation/TV Tuner J415 And Installation Frame
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert two clips on Radio Removal Tool T10057 into release slits on Navigation/TV Tuner J415 - **2** - until they engage. The points at the grasp eyes show outward.
- Remove Navigation/TV Tuner J415 - **2** - from installation frame - **1** -.
- Release connectors on Navigation/TV Tuner J415 and remove it.
- Remove Radio Release Tool T10057 by pushing locking tabs on Navigation/TV Tuner J415 to do so.

Installing

- Connect all harness connectors.
- Slide Navigation/TV Tuner J415 into installation frame until it engages.
- Perform adaptations and coding on Navigation/TV Tuner J415 if necessary.

Right Antenna Module R109 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove Bass Loudspeaker R100 --> **Bass Loudspeaker R100 , Avant, removing and installing**.

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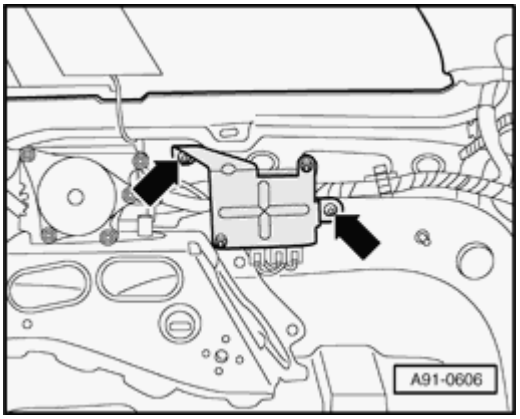

Fig. 192: Locating Bolts On Right Antenna Module R109 Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (7 Nm) on Right Antenna Module R109 bracket.
- Disconnect connectors on Right Antenna Module R109.

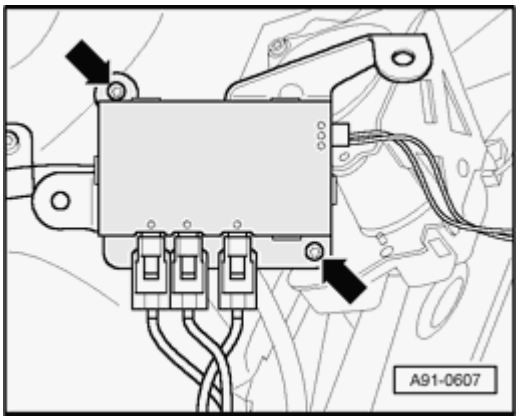

Fig. 193: Remove Bolts For Right Antenna Module R109
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (2 Nm) and remove Right Antenna Module R109 from bracket.

Installing

- Install in reverse order.

RNS-E NAVIGATION SYSTEM

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service

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mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

RNS-E navigation system is an enhancement of the established navigation system II-D. The Board Computer Function Selector Switch E91 is integrated in the unit (MMI operation). A DVD (Europakarte) is used as a navigation CD.

Screen folds away. DVD drive and two card readers are located behind.

In addition to the navigation system, the RNS-E has a radio, two MP3 card readers and connections for Navigation/TV Tuner J415 and CD Changer R41. The DVD drive can play music CDs.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

Error messages on screen

If there is a malfunction in the system, either a fault is saved in the DTC and/or an error message is given on the Navigation System with CD Drive Control Module J401 display.

At this time, the following error messages can be shown on the Navigation System with CD Drive Control Module J401 display.

Indicator in display:

DVD rear error Please check DVD

This error message appears:

- DVD cannot be read.
- DVD is faulty.
- DVD drive is faulty.

  - See if DVD drive can read a replacement DVD.

Same error:

  - Perform in adaptation channel 41.

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Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

Indicator in display:

CD/DVD drive defect. Unable to read data. Consult your dealer.

This error message appears:

- DVD drive cannot read DVD data.
- DVD is faulty.
- DVD drive is faulty.

  - See if DVD drive can read a replacement DVD.

Same error:

  - Perform in adaptation channel 41.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

RNS-E navigation system, overview

Sedan

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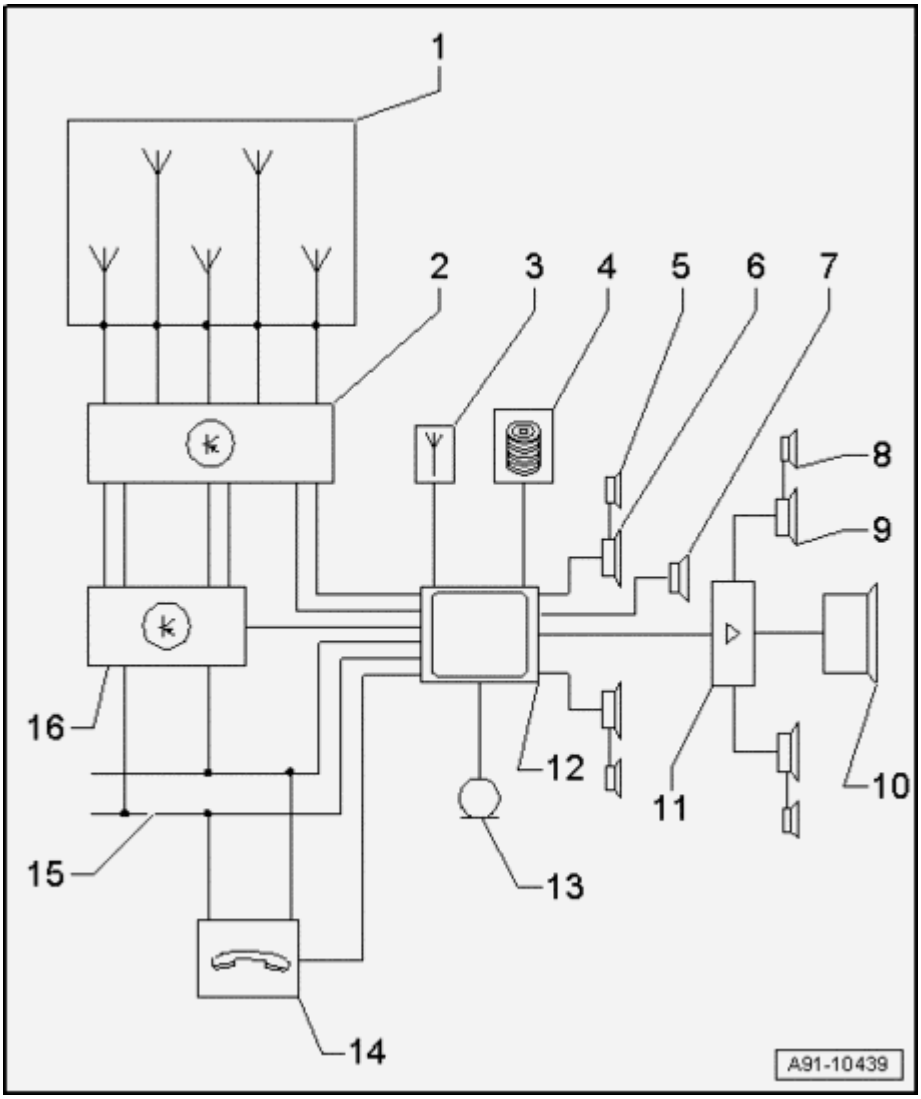

Fig. 194: RNS-E Navigation System, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Rear window antennas AM/FM/TV

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Navigation System Antenna R50 behind roof end trim

4 - CD Changer R41 / iPod Baseplate R192 in glove compartment

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

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8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 in parcel shelf

11 - Amplifier R12 behind luggage compartment right side trim

12 - Navigation System with CD Drive Control Module J401 in top of center console

13 - Telephone Microphone R38 in Front Interior Light W1 (from MY06 with RNS-E high)

14 - Telephone Transceiver R36 in electronics box under right front seat

15 - CAN-BUS (Infotainment)

16 - Navigation/TV Tuner J415 behind luggage compartment left side trim

Avant

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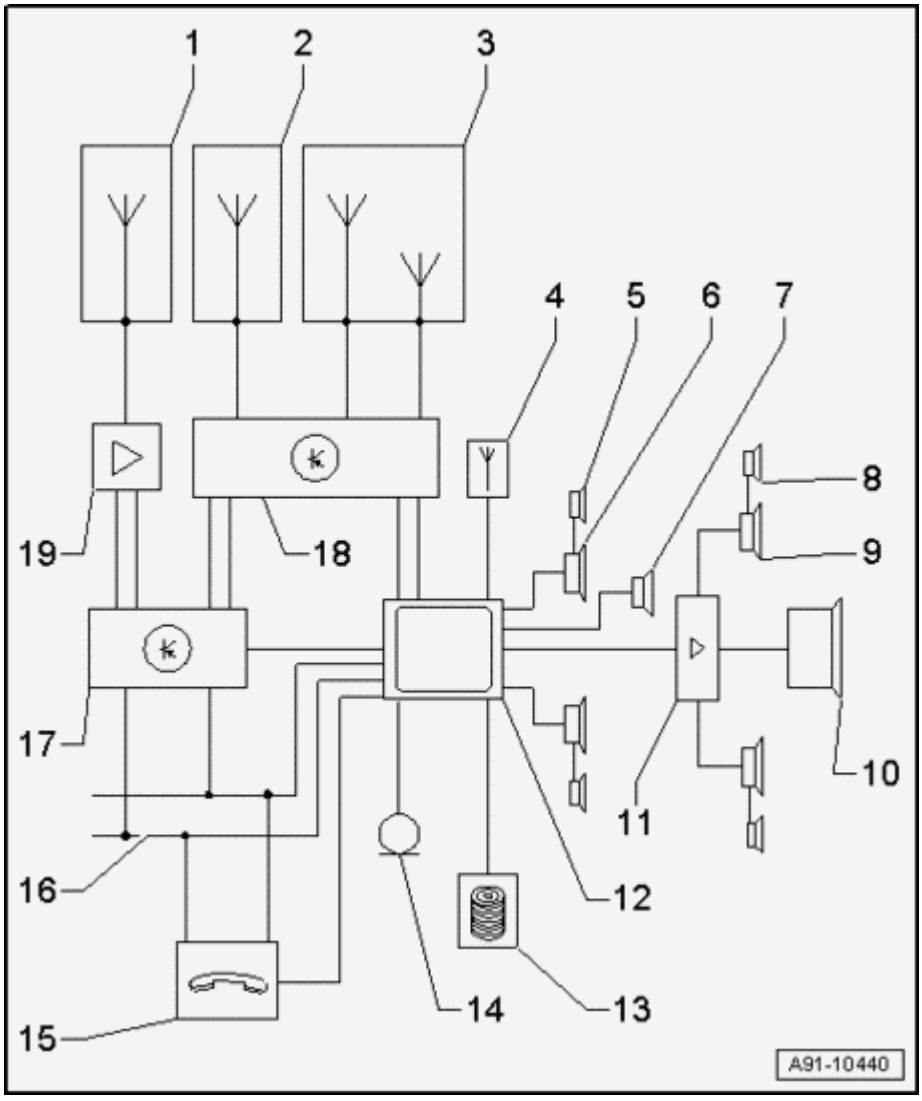

Fig. 195: RNS-E Navigation System, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Right rear FM3/TV3/TV4 window antennas

2 - FM2/TV2 rear window antennas

3 - left rear AM/FM1/TV1 window antennas

4 - Navigation System Antenna R50 in roof antenna

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

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8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - Amplifier R12 behind luggage compartment right side trim

12 - Navigation System with CD Drive Control Module J401 in top of center console

13 - CD Changer R41 / iPod Baseplate R192 in glove compartment

14 - Telephone Microphone R38 in Front Interior Light W1 (from MY06 with RNS-E high)

15 - Telephone Transceiver R36 in electronics box under right front seat

16 - CAN-BUS (Infotainment)

17 - Navigation/TV Tuner J415 behind luggage compartment left side trim

18 - Left Antenna Module R108 behind luggage compartment left side trim

19 - Right Antenna Module R109 behind luggage compartment right side trim

BOSE, sedan

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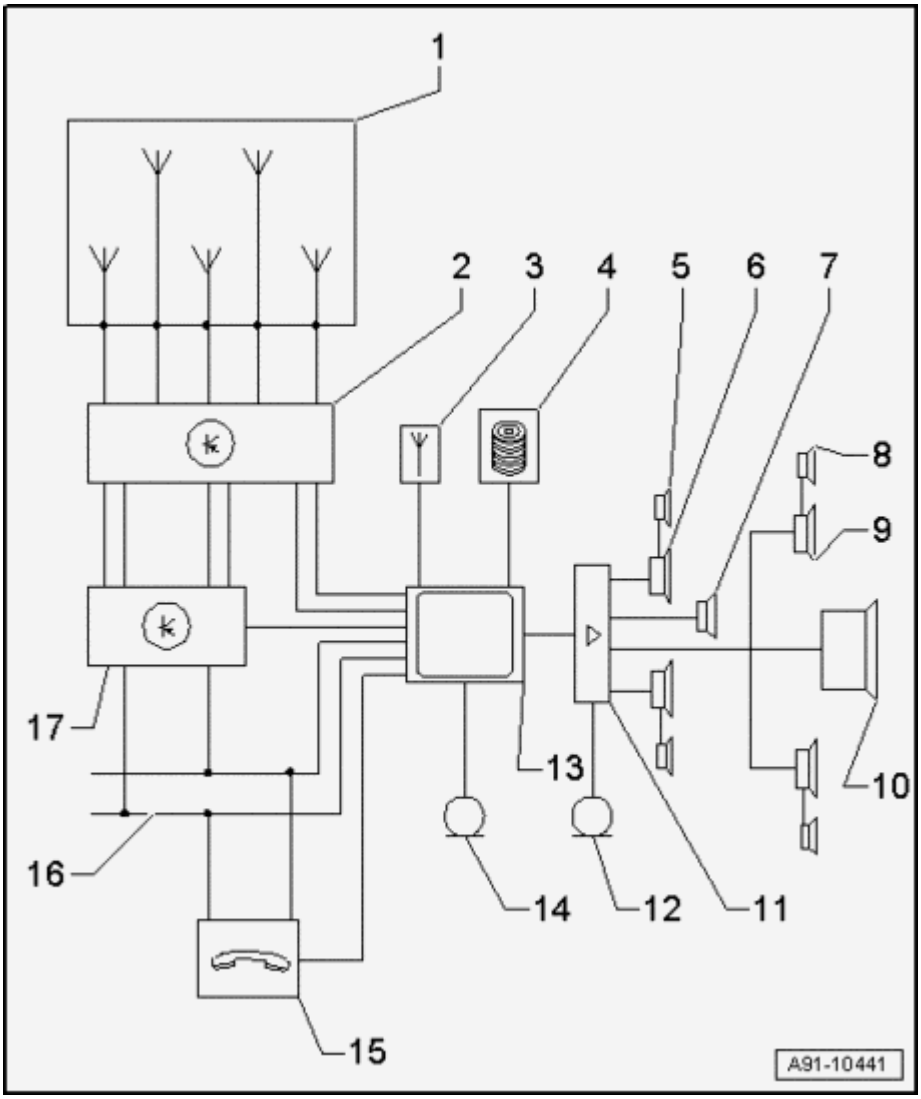

Fig. 196: RNS-E Navigation System, BOSE, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Rear window antennas AM/FM/TV

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Navigation System Antenna R50 behind roof end trim

4 - CD Changer R41 / iPod Baseplate R192 in glove compartment

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

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8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 in parcel shelf

11 - Amplifier R12 behind luggage compartment right side trim

12 - Inside Microphone R74 in Front Interior Light W1

13 - Navigation System with CD Drive Control Module J401 in top of center console

14 - Telephone Microphone R38 in Front Interior Light W1 (from MY06 with RNS-E high)

15 - Telephone Transceiver R36 in electronics box under right front seat

16 - CAN-BUS (Infotainment)

17 - Navigation/TV Tuner J415 behind luggage compartment left side trim

BOSE, Avant

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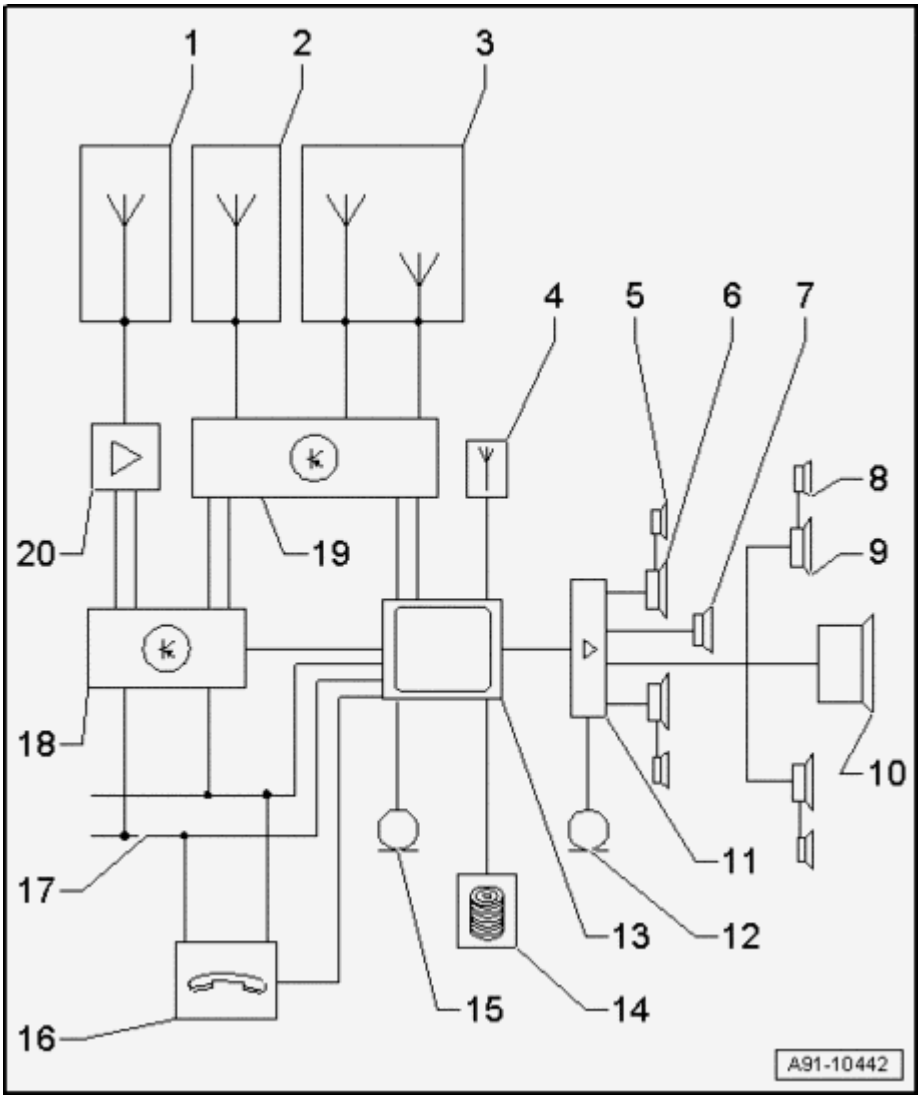

Fig. 197: RNS-E Navigation System, BOSE, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Right rear FM3/TV3/TV4 window antennas

2 - FM2/TV2 rear window antennas

3 - Rear left window antenna with AM/FM1/TV

4 - Navigation System Antenna R50 in roof antenna

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

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8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - Amplifier R12 behind luggage compartment right side trim

12 - Inside Microphone R74 in Front Interior Light W1

13 - Navigation System with CD Drive Control Module J401 in top of center console

14 - CD Changer R41 / iPod Baseplate R192 in glove compartment

15 - Telephone Microphone R38 in Front Interior Light W1 (from MY06 with RNS-E high)

16 - Telephone Transceiver R36 in electronics box under right front seat

17 - CAN-BUS (Infotainment)

18 - Navigation/TV Tuner J415 behind luggage compartment left side trim

19 - Left Antenna Module R108 behind luggage compartment left side trim

20 - Right Antenna Module R109 behind luggage compartment right side trim

Navigation System with CD Drive Control Module J401 , harness connectors

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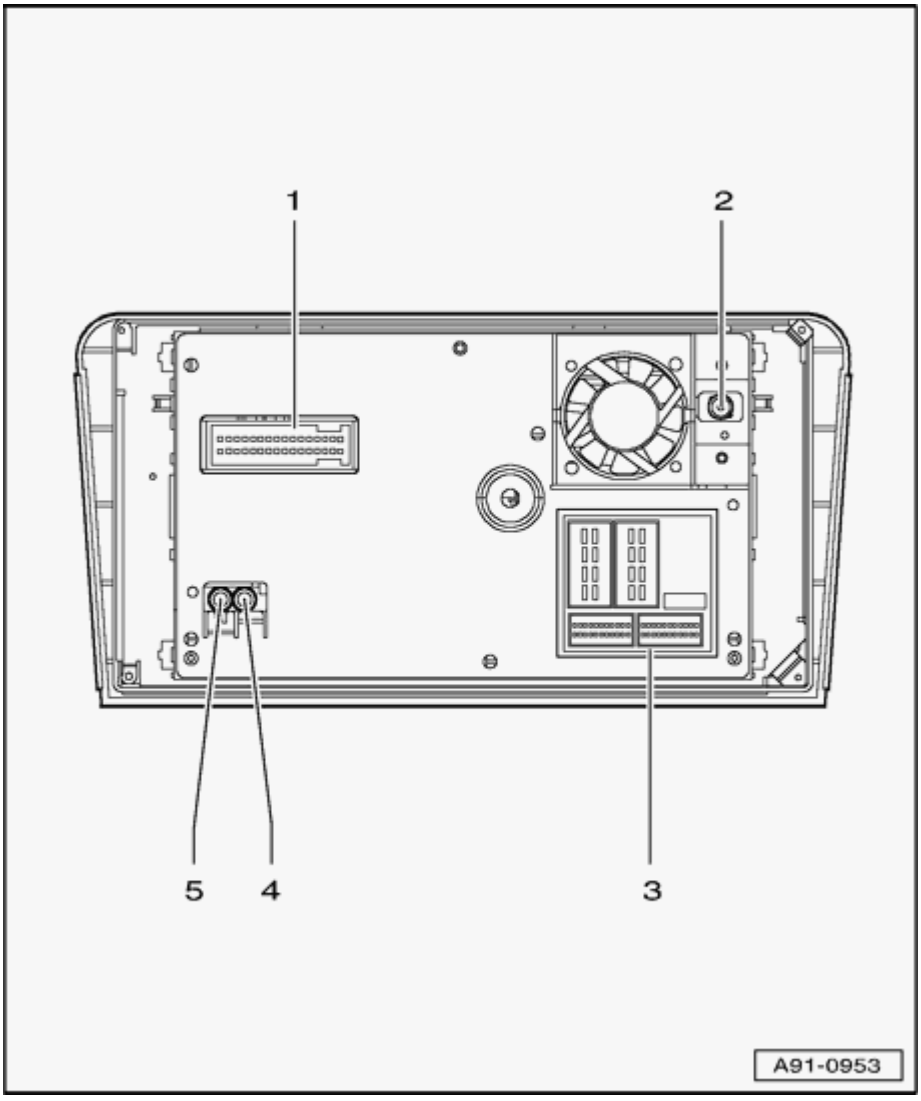

Fig. 198: Navigation System With CD Drive Control Module J401 , Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Black 32-pin multi-pin connector (T32f) to Navigation/TV Tuner J415

2 - Navigation System Antenna R50 GPS connection (blue)

3 - Connection block with four multi-pin connectors and a fuse for unit

4 - IF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

5 - HF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

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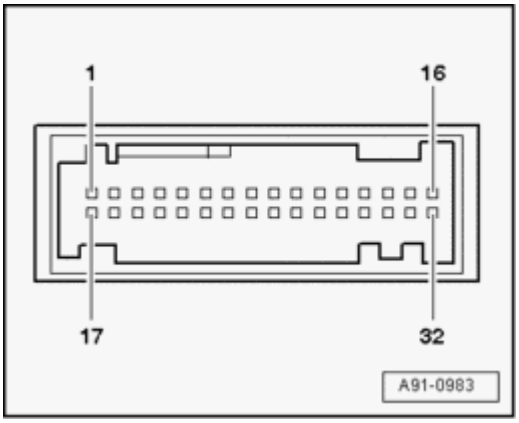

Fig. 199: Black 32-Pin Multi-Pin Harness Connector (T32F)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Black 32-pin multi-pin harness connector (T32f)

13 - Right audio input from Navigation/TV Tuner J415

15 - Video input sync. from Navigation/TV Tuner J415

16 - Video input green from Navigation/TV Tuner J415

27 - Screen ground from Navigation/TV Tuner J415

28 - Audio ground from Navigation/TV Tuner J415

29 - Left audio input from Navigation/TV Tuner J415

30 - Video ground from Navigation/TV Tuner J415

31 - Video input blue from Navigation/TV Tuner J415

32 - Video input red from Navigation/TV Tuner J415

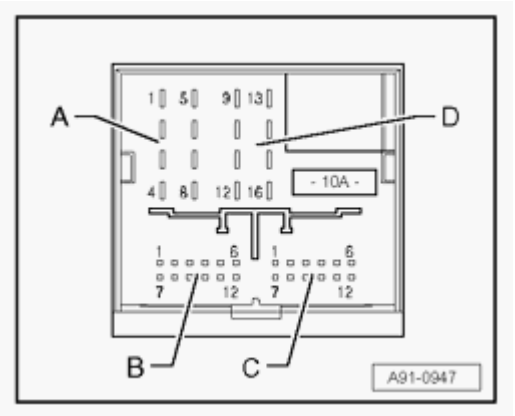

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Fig. 200: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - Brown 8-pin multi-pin connector (T8q)

2 - Right front speaker (+) (not with BOSE)

3 - Left front speaker (+) (not with BOSE)

6 - Right front speaker (-) (not with BOSE)

7 - Left front speaker (-) (not with BOSE)

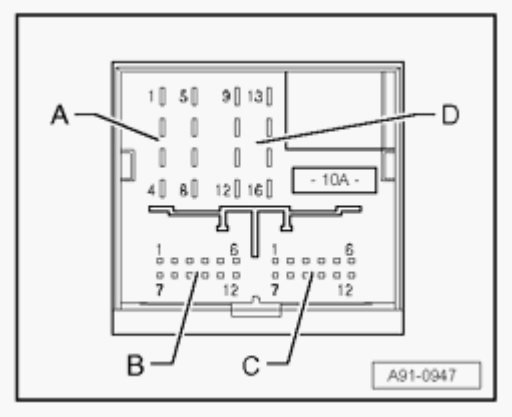

Fig. 201: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Blue 12-pin multi-pin connector (T12n)

2 - CD ground to CD Changer R41

3 - Speed signal

4 - Permanent positive to CD Changer R41

5 - L-diagnostic

6 - CD data out to CD Changer R41

7 - BOSE coding to ground (only with BOSE)

8 - Left signal from CD Changer R41

9 - Right signal from CD Changer R41

10 - Positive switched to CD Changer R41

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11 - CD data in from CD Changer R41

12 - CD CLK from CD Changer R41

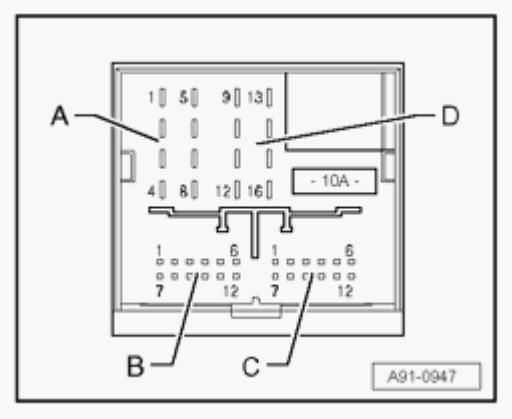

Fig. 202: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Green 12-pin multi-pin connector (T12m)

1 - Microphone input (-) from Telephone Microphone R38 (from MY06)

2 - Signal from Back-Up Light Switch F4 (not used)

3 - Left front signal to Amplifier R12 (only with BOSE)

4 - Microphone output (-) to Telephone Transceiver R36 (from MY06)

5 - Left rear signal to Amplifier R12

6 - NF (-) from Telephone Transceiver R36 /preliminary setup for cell phone package

7 - Microphone input (+) from Telephone Microphone R38 (from MY06)

8 - Signal ground to Radio R12

9 - Right front signal to Amplifier R12 (only with BOSE)

10 - Microphone output (+) to Telephone Transceiver R36 (from MY06)

11 - Right rear signal to Amplifier R12

12 - NF (+) from Telephone Transceiver R36 /preliminary setup for cell phone package

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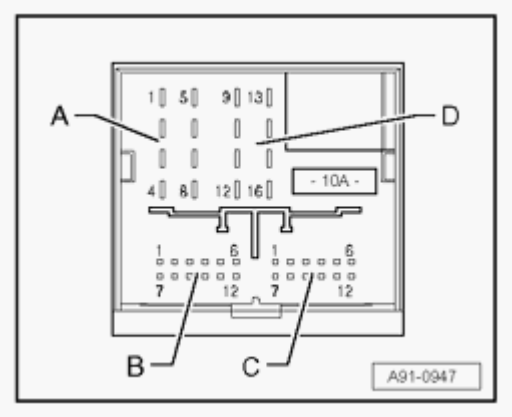

Fig. 203: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

D - Black 8-pin multi-pin connector D (T16j)

9 - CAN-Bus High (Infotainment)

10 - CAN-Bus Low (Infotainment)

11 - NF mute from Telephone Transceiver R36 (through MY04)

12 - Terminal 31

13 - Positive switched to Amplifier R12

14 - Anti-theft warning system ground from Comfort System Central Control Module J393

15 - Terminal 30

16 - Permanent positive (not used)

Navigation/TV Tuner J415 connections

Connectors and connector assignments

Total overview - Sedan component locations

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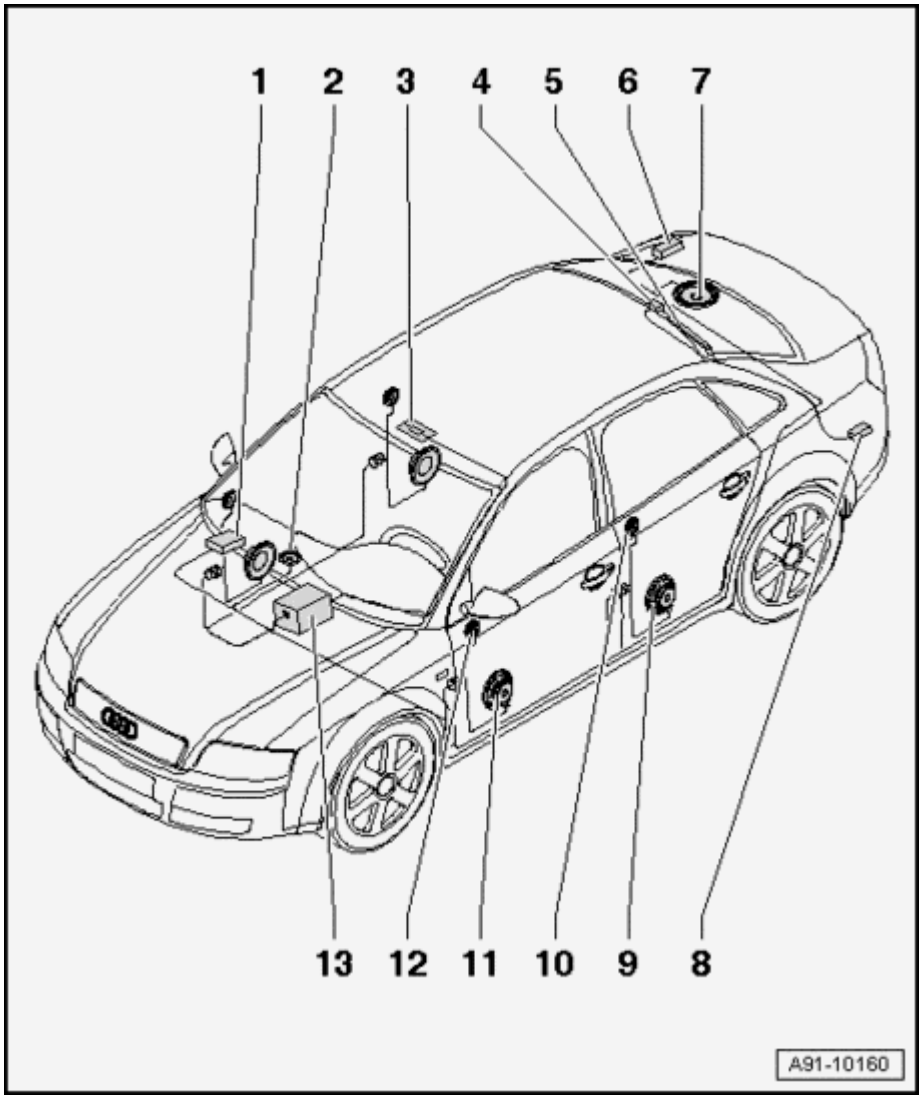

Fig. 204: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- Only with BOSE
- In Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Navigation System Antenna R50

- Behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Antenna Selection Control Module J515

- Behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

- In parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

8 - Navigation/TV Tuner J415

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- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation/TV Tuner J415 , removing and installing**

9 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- In bottom of rear doors
- Removing and installing

10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

11 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- In bottom of front doors
- Removing and installing

12 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- In top of front doors
- Removing and installing

13 - Navigation System with CD Drive Control Module J401

- In center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

General overview - Avant component locations

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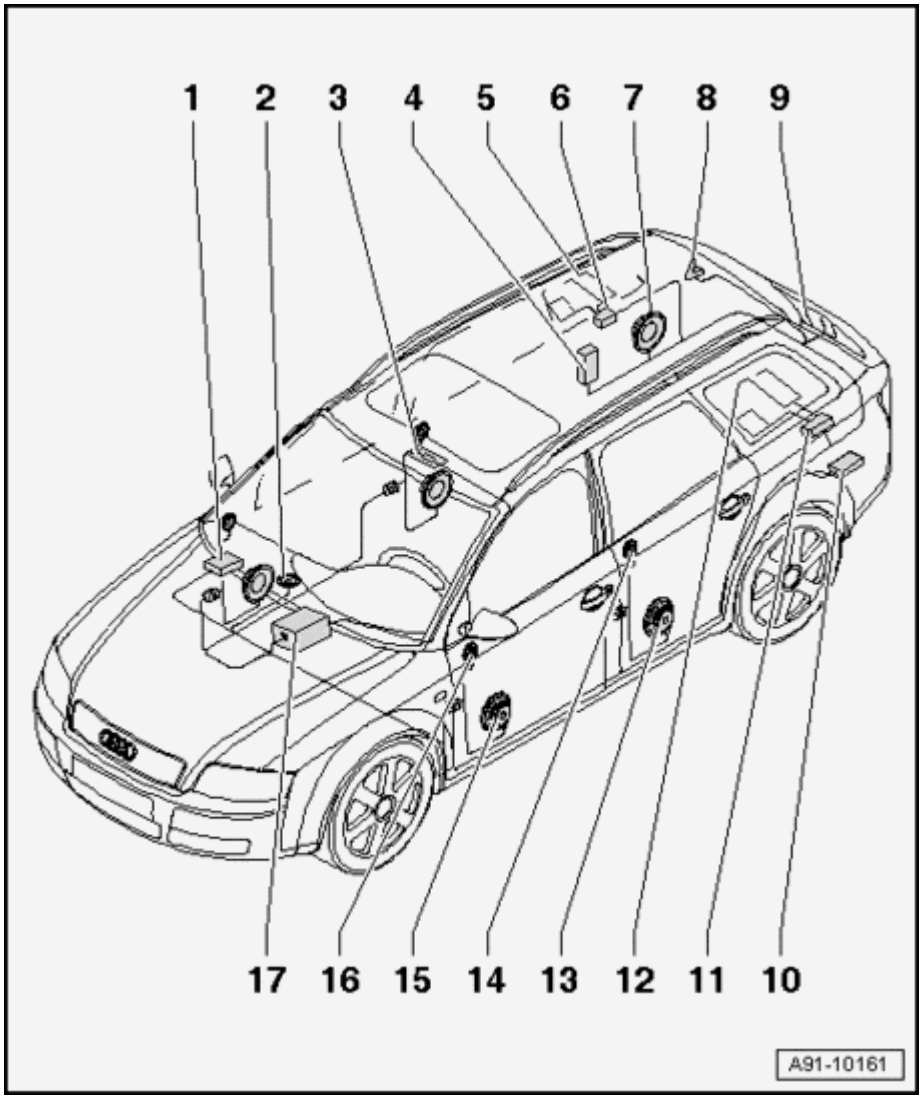

Fig. 205: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- Only with BOSE
- In Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

5 - Right rear window antennas

- FM3TV3/TV4

6 - Right Antenna Module R109

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Right Antenna Module R109 , Avant, removing and installing**

7 - Bass Loudspeaker R100

- Behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Navigation System Antenna R50 roof antenna

- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

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9 - Rear window antennas

- FM2/TV2

10 - Navigation/TV Tuner J415

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Navigation/TV Tuner J415 , removing and installing**

11 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

12 - Left rear window antennas

- AM/FM1/TV1

13 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

14 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- In top of rear doors
- Removing and installing

15 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

16 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

17 - Navigation System with CD Drive Control Module J401

- in center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**

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- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

Navigation System with CD Drive Control Module J401 , removing and installing

Special tools, testers and auxiliary items required

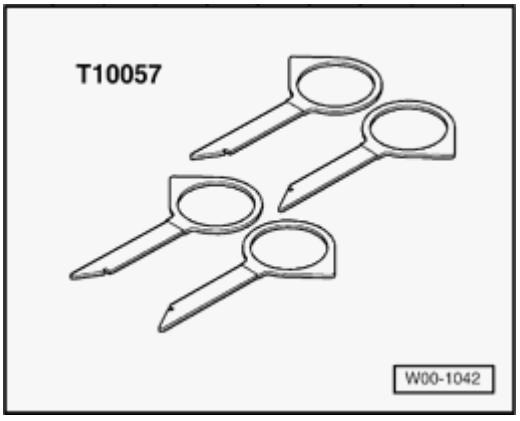

Fig. 206: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

  - If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

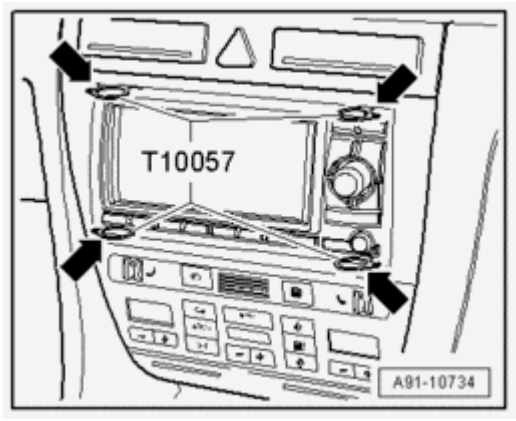

Fig. 207: Placing Radio Release Tool T10057 In Release Slits On Operating Electronics, Navigation

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Control Module J402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Radio Release Tool T10057 - **arrows** - in release slits on Operating Electronics, Navigation Control Module J402 until they engage. Points on grip eyes face outward.
- Remove Operating Electronics, Navigation Control Module J402 from instrument panel.
- Release connectors on Operating Electronics, Navigation Control Module J402 and remove it.
- Remove Radio Release Tool T10057 by pushing locking tabs on Operating Electronics, Navigation Control Module J402 to do so.

Installing

- Connect all harness connectors.
- Carefully slide Operating Electronics, Navigation Control Module J402 into instrument panel and allow it to engage in installation frame.

RNSE-E NAVIGATION SYSTEM, USA

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

The navigation system RNS-E is an advancement. The function selection switch is integrated in the unit (MMI operation). A DVD is used as the navigation CD.

Screen folds away. DVD drive and two card readers are located behind.

In addition to the navigation system, the RNS-E contains a radio, two MP3 card readers and connections for Satellite Radio R146 , CD Changer R41 and cellular telephone. The DVD drive can play music CDs.

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

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Error messages on screen

If there is a malfunction in the system, either a fault is saved in the DTC and/or an error message is given on the Navigation System with CD Drive Control Module J401 display.

At this time, the following error messages can be shown on the Navigation System with CD Drive Control Module J401 display.

Indicator in display:

CD/DVD is unreadable Please check the CD/DVD

This error message appears:

- DVD cannot be read.
- DVD is faulty.
- DVD drive is faulty.

  - See if DVD drive can read a replacement DVD.

Same error:

  - Perform in adaptation channel 41.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

Indicator in display:

CD/DVD drive defect. Unable to read data. Consult your dealer.

This error message appears:

- DVD drive cannot read DVD data.
- DVD is faulty.
- DVD drive is faulty.

  - See if DVD drive can read a replacement DVD.

Same error:

  - Perform in adaptation channel 41.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

RNS-E navigation system, overview

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Sedan

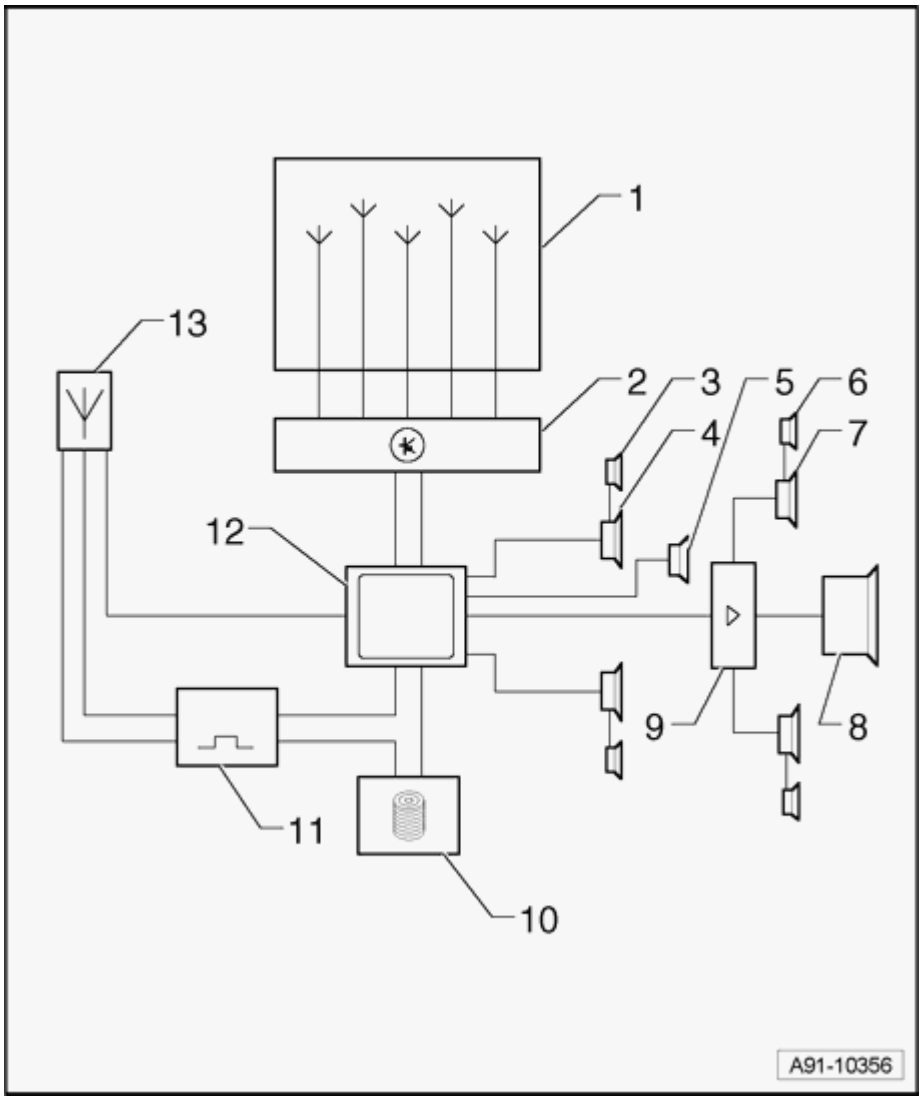

Fig. 208: RNS-E Navigation System, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

4 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

5 - Inside Loudspeaker R70 in front center instrument panel

6 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

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7 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

8 - Bass Loudspeaker R100 in parcel shelf

9 - Amplifier R12 behind luggage compartment right side trim

10 - CD Changer R41 / iPod Baseplate R192 in glove compartment

11 - Satellite Radio R146 behind left luggage compartment side trim

12 - Navigation System with CD Drive Control Module J401 in top of center console

13 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

Avant

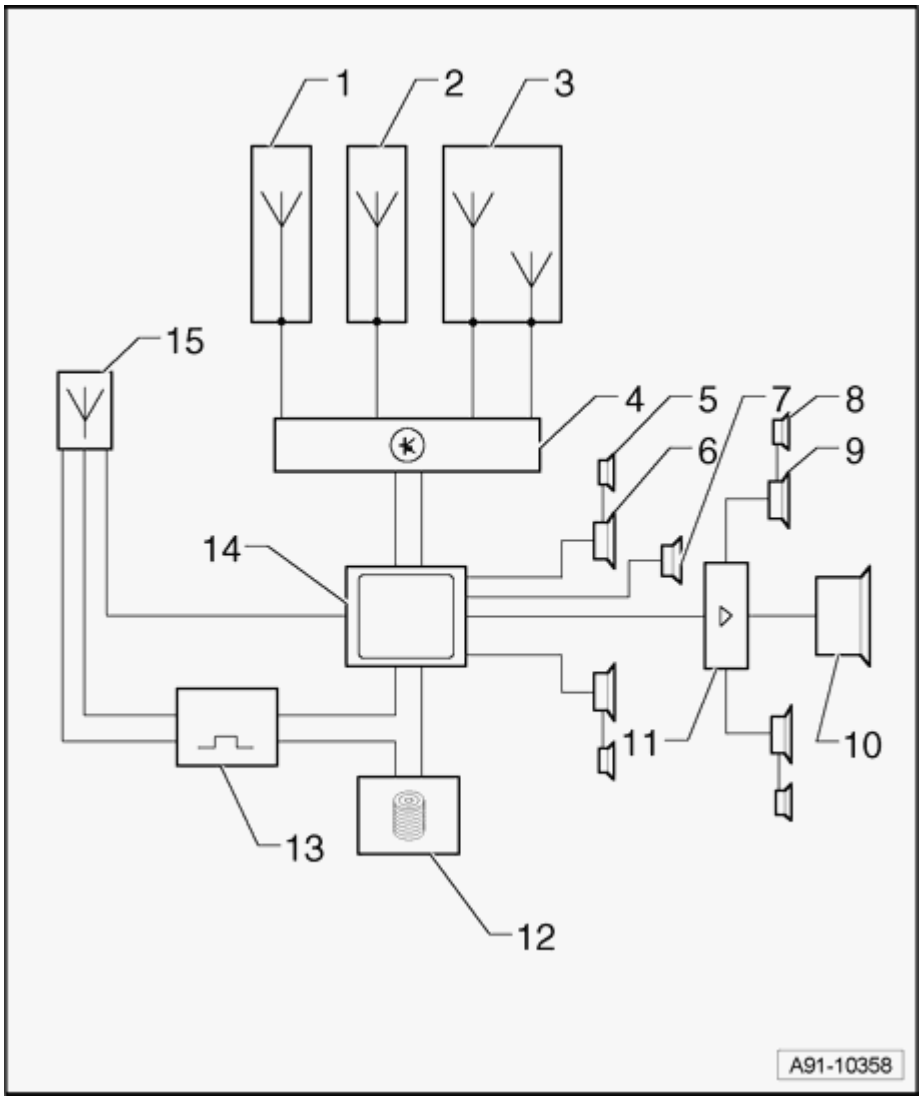

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Fig. 209: RNS-E Navigation System, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - right rear FM3 window antennas

2 - FM2 rear window antennas

3 - left rear AM/FM1 window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - Amplifier R12 behind luggage compartment right side trim

12 - CD Changer R41 / iPod Baseplate R192 in glove compartment

13 - Satellite Radio R146 behind left luggage compartment side trim

14 - Navigation System with CD Drive Control Module J401 in top of center console

15 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

BOSE, sedan

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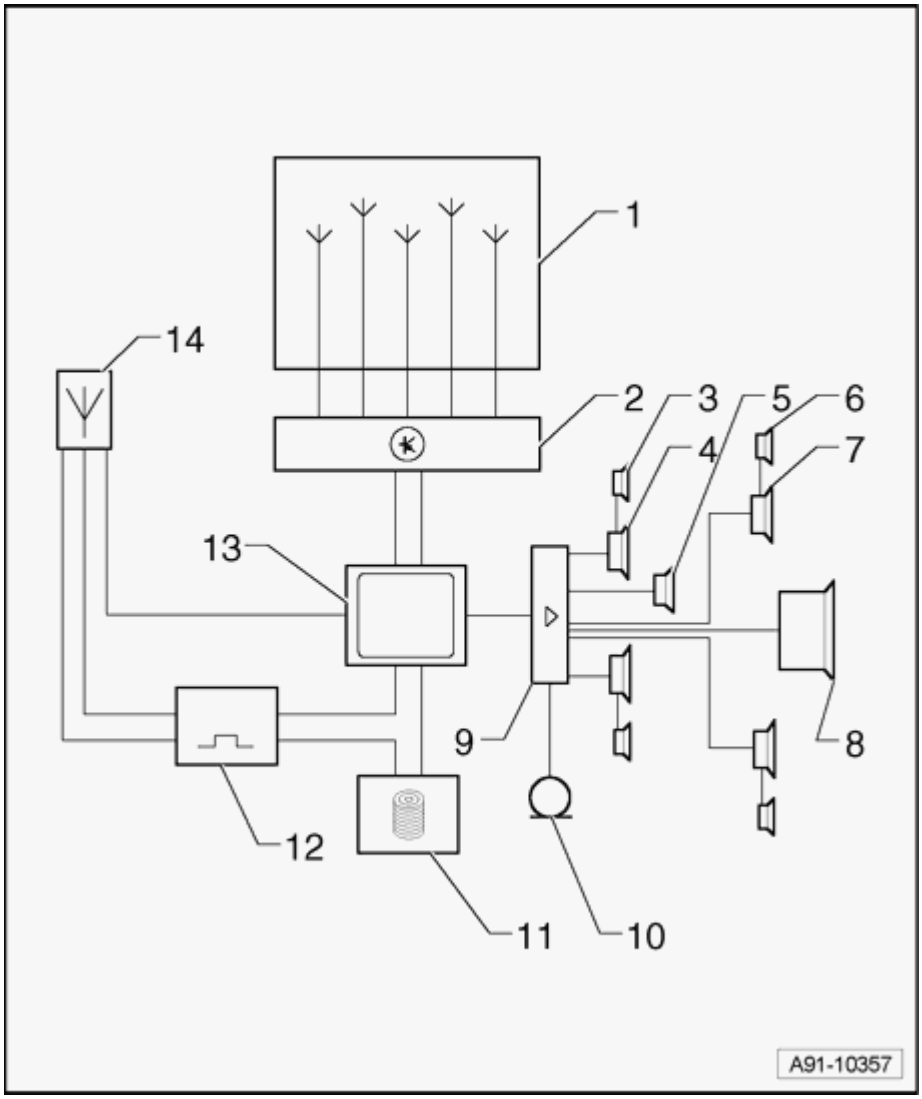

Fig. 210: RNS-E Navigation System, BOSE, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Antenna Selection Control Module J515 behind roof end trim

3 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

4 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

5 - Inside Loudspeaker R70 in front center instrument panel

6 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

7 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

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8 - Bass Loudspeaker R100 in parcel shelf

9 - Amplifier R12 behind luggage compartment right side trim

10 - Inside Microphone R74 in Front Interior Light W1

11 - CD Changer R41 / iPod Baseplate R192 in glove compartment

12 - Satellite Radio R146 behind left luggage compartment side trim

13 - Navigation System with CD Drive Control Module J401 in top of center console

14 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

BOSE, Avant

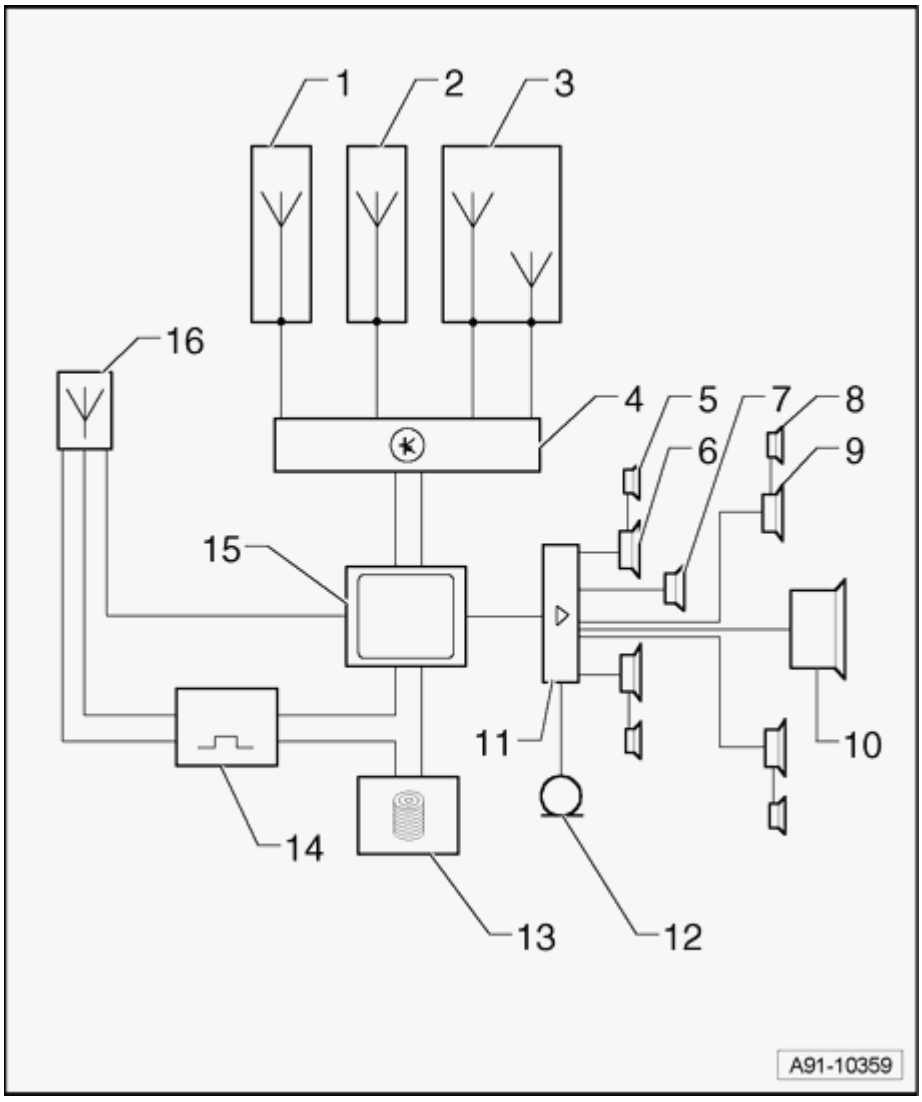

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Fig. 211: RNS-E Navigation System, BOSE, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - right rear FM3 window antennas

2 - FM2 rear window antennas

3 - left rear AM/FM1 window antennas

4 - Left Antenna Module R108 behind luggage compartment left side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - Amplifier R12 behind luggage compartment right side trim

12 - Inside Microphone R74 in Front Interior Light W1

13 - CD Changer R41 / iPod Baseplate R192 in glove compartment

14 - Satellite Radio R146 behind left luggage compartment side trim

15 - Navigation System with CD Drive Control Module J401 in top of center console

16 - Radio, Telephone, Navigation System Antenna R52 (Ter/Sat/GPS/GSM) roof antenna

Navigation System with CD Drive Control Module J401 , harness connectors

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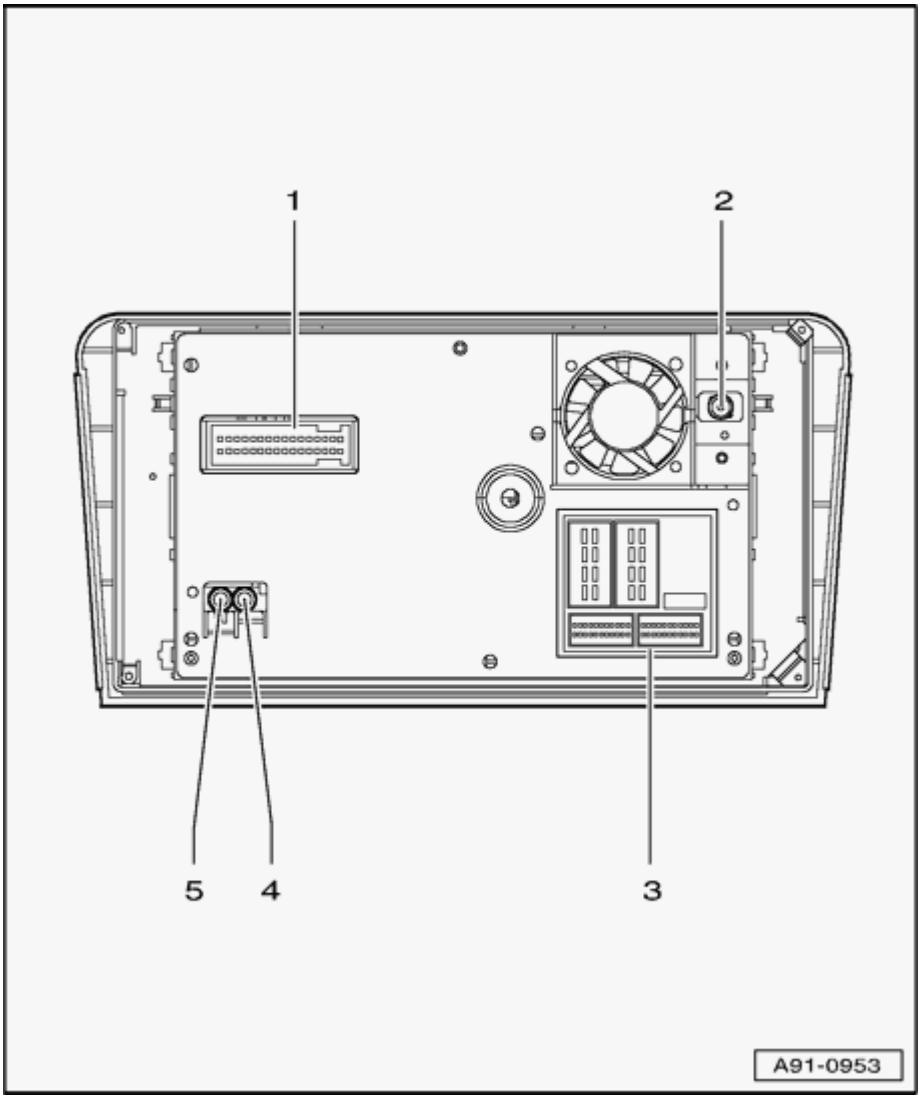

Fig. 212: Navigation System With CD Drive Control Module J401 , Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - 32-pin multi-pin connector, not used

2 - Radio, Telephone, Navigation System Antenna R52 GPS connection (blue) (Ter/Sat/GPS/GSM)

3 - Connection block with four multi-pin connectors and a fuse for unit

4 - IF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

5 - HF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

NOTE:

- **Unlisted connector terminals are not assigned.**

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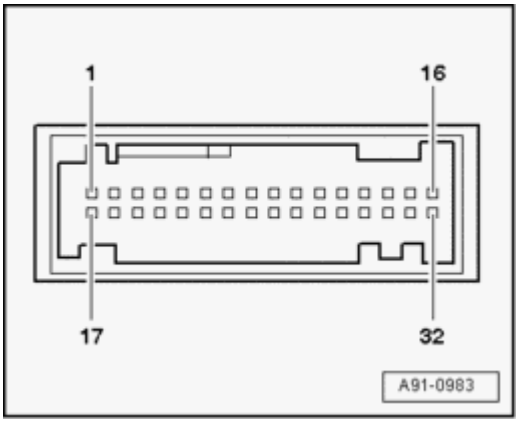

Fig. 213: Black 32-Pin Multi-Pin Harness Connector (T32F)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - 32-pin multi-pin connector

Connector not used

13 - Right audio input

15 - Video input sync.

16 - Green video input

27 - Screen ground

28 - Audio ground

29 - Left video input

30 - Video ground

31 - Blue video input

32 - Red video input

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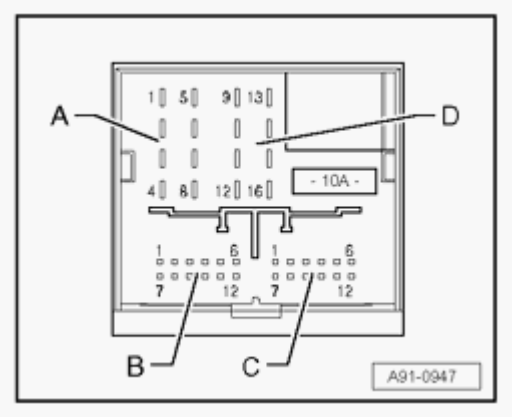

Fig. 214: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - Brown 8-pin multi-pin connector (T8q)

2 - Right front speaker (+) (not with BOSE)

3 - Left front speaker (+) (not with BOSE)

6 - Right front speaker (-) (not with BOSE)

7 - Left front speaker (-) (not with BOSE)

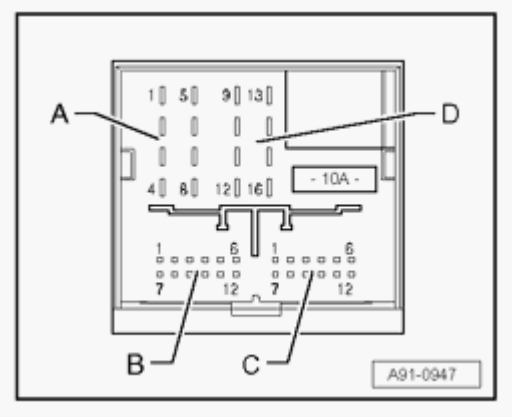

Fig. 215: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Blue 12-pin multi-pin connector (T12n)

2 - Signal ground from CD Changer R41 / Satellite Radio R146

3 - Speed signal (not used)

4 - Permanent positive to CD Changer R41

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5 - L-diagnostic

6 - CD data out to CD Changer R41

7 - BOSE coding to ground (only with BOSE)

8 - Left signal from CD Changer R41 / Satellite Radio R146

9 - Right signal from CD Changer R41 / Satellite Radio R146

10 - Positive switched to CD Changer R41

11 - CD data in from CD Changer R41

12 - CD CLK from CD Changer R41

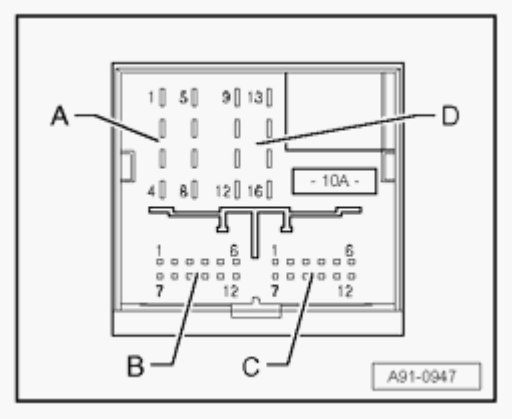

Fig. 216: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Green 12-pin multi-pin connector (T12m)

1 - Microphone input (-) (not used)

2 - Signal from Back-Up Light Switch F4 (not used)

3 - Left front signal to Amplifier R12 (only with BOSE)

4 - Microphone output (-) (not used)

5 - Left rear signal to Amplifier R12

6 - NF (-) from Telephone Transceiver R36

7 - Microphone input (+) (not used)

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8 - Signal ground to Radio R12

9 - Right front signal to Amplifier R12 (only with BOSE)

10 - Microphone output (+) (not used)

11 - Right rear signal to Amplifier R12

12 - NF (+) from Telephone Transceiver R36

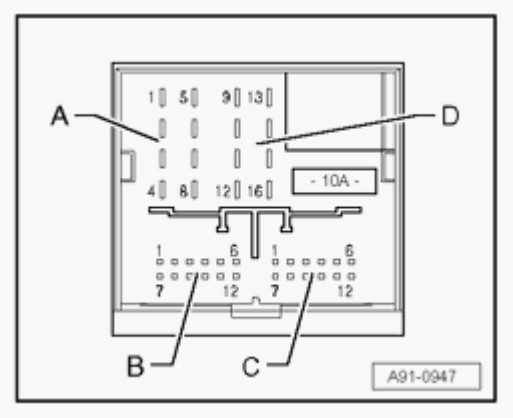

Fig. 217: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

D - Black 8-pin multi-pin connector D (T16j)

9 - CAN-Bus High (Infotainment)

10 - CAN-Bus Low (Infotainment)

11 - NF mute, not used

12 - Terminal 31

13 - Positive switched to Amplifier R12

14 - Anti-theft warning system ground from Comfort System Central Control Module J393

15 - Terminal 30

16 - Permanent positive (not used)

Total overview - Sedan component locations

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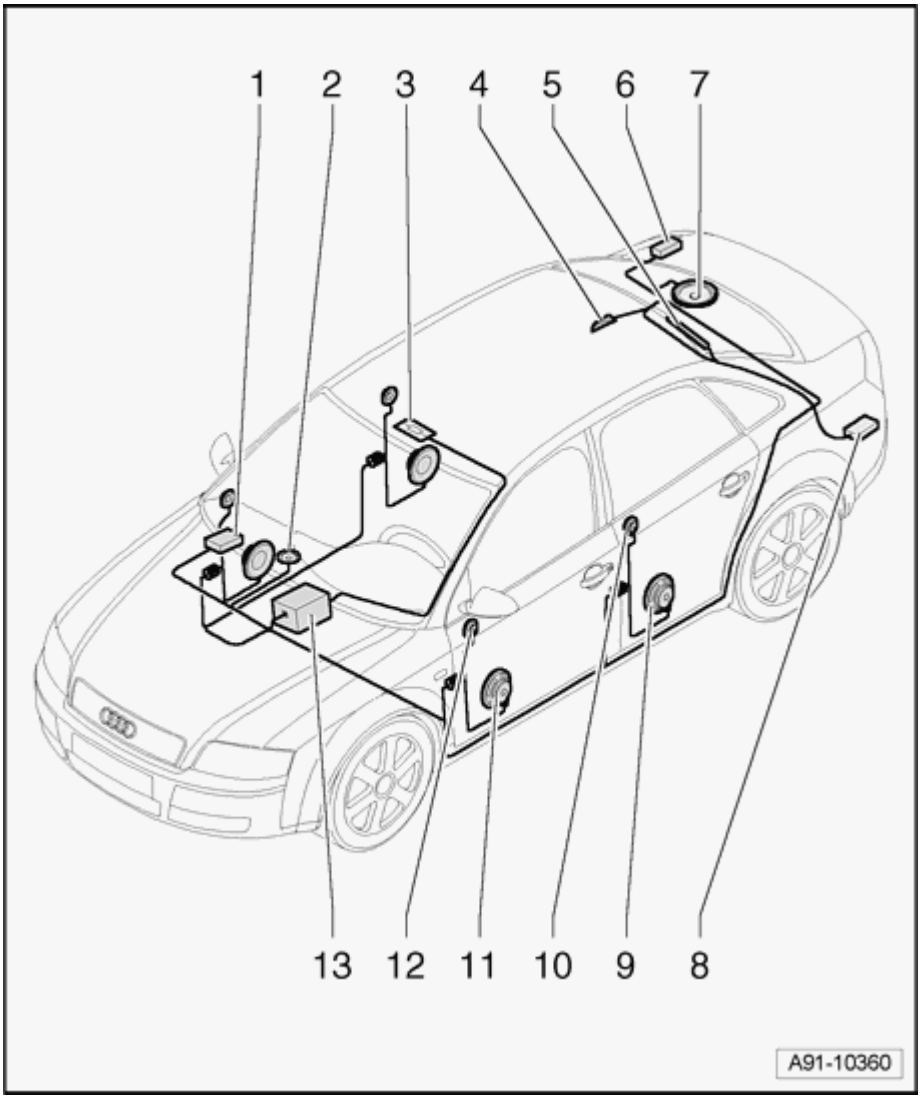

Fig. 218: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- in Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM
- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , sedan, removing and installing**

5 - Antenna Selection Control Module J515

- behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

- in parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

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8 - Satellite radio R146

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Satellite Radio R146 , removing and installing, activating**

9 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

11 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

12 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

13 - Navigation System with CD Drive Control Module J401

- in center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

General overview - Avant component locations

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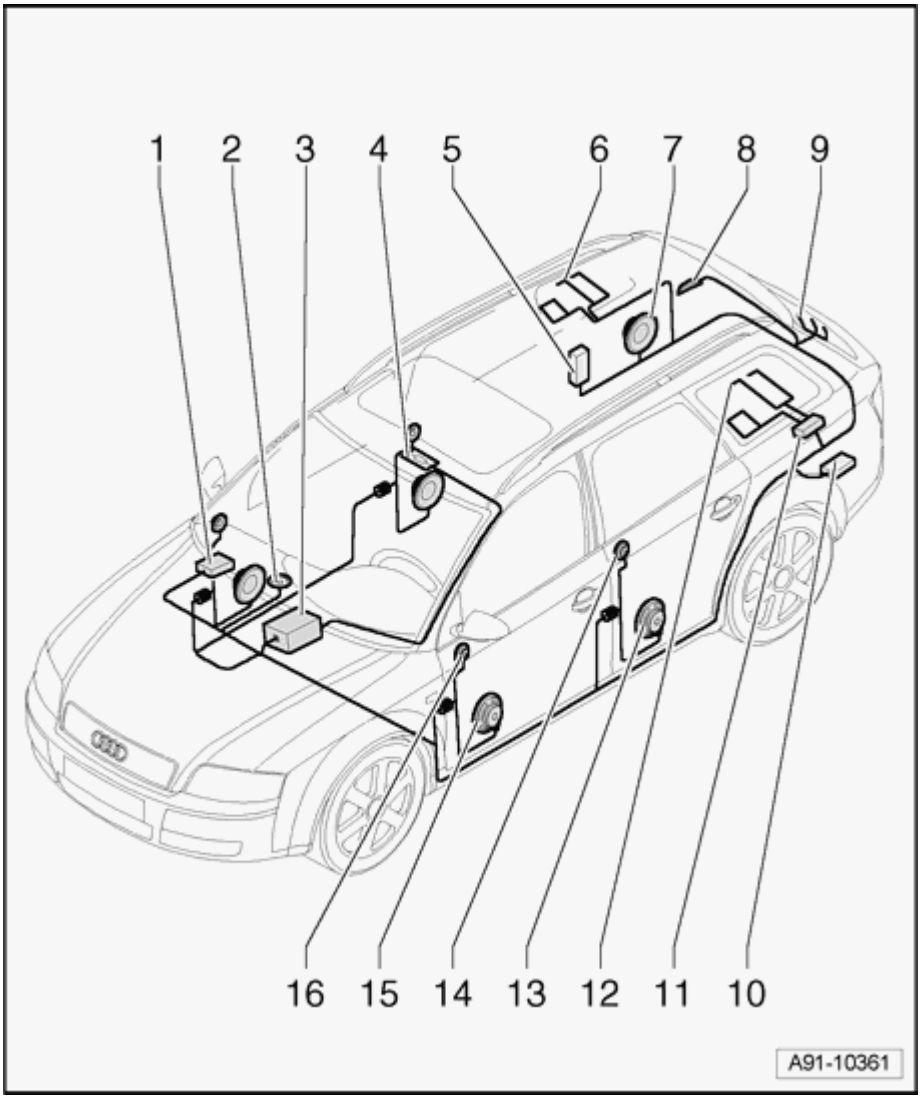

Fig. 219: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Navigation System with CD Drive Control Module J401

- in center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

4 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- In Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

5 - Digital Sound System Control Module R12

- Behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

6 - Right rear window antennas

- FM3

7 - Bass Loudspeaker R100

- behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Radio, Telephone, Navigation System Antenna R52

- Ter/Sat/GPS/GSM

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- Roof antenna
- Removing and installing --> **Radio, Telephone, Navigation System Antenna R52 , Avant, removing and installing**

9 - Rear window antennas

- FM2

10 - Satellite radio R146

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Satellite Radio R146 , removing and installing, activating**

11 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

12 - Left rear window antennas

- AM/FM1

13 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

14 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

15 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

16 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

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RNS-JP3 NAVIGATION SYSTEM, JAPAN

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .

Description

The RNS-JP3 navigation system consists of the navigation unit in the top of the center console. A DVD and MD player is installed behind the tilting operating and display unit.

By evaluation data from the GPS system, an installed gyro-sensor and the speed signal, the RNS-JP3 determines the vehicle position in the scope of a map stored on a DVD.

Using these measured values, the system determines the vehicles direction and distance traveled. These values are compared with the street network saved on the navigation DVD.

When the vehicle is moving, the position is constantly updated (compound navigation). Plausibility comparisons increase the certainty of the position display. If the calculated position does not lie on the saved street network, it is corrected by the navigation computer.

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

RNS-JP3 navigation system, overview

Sedan

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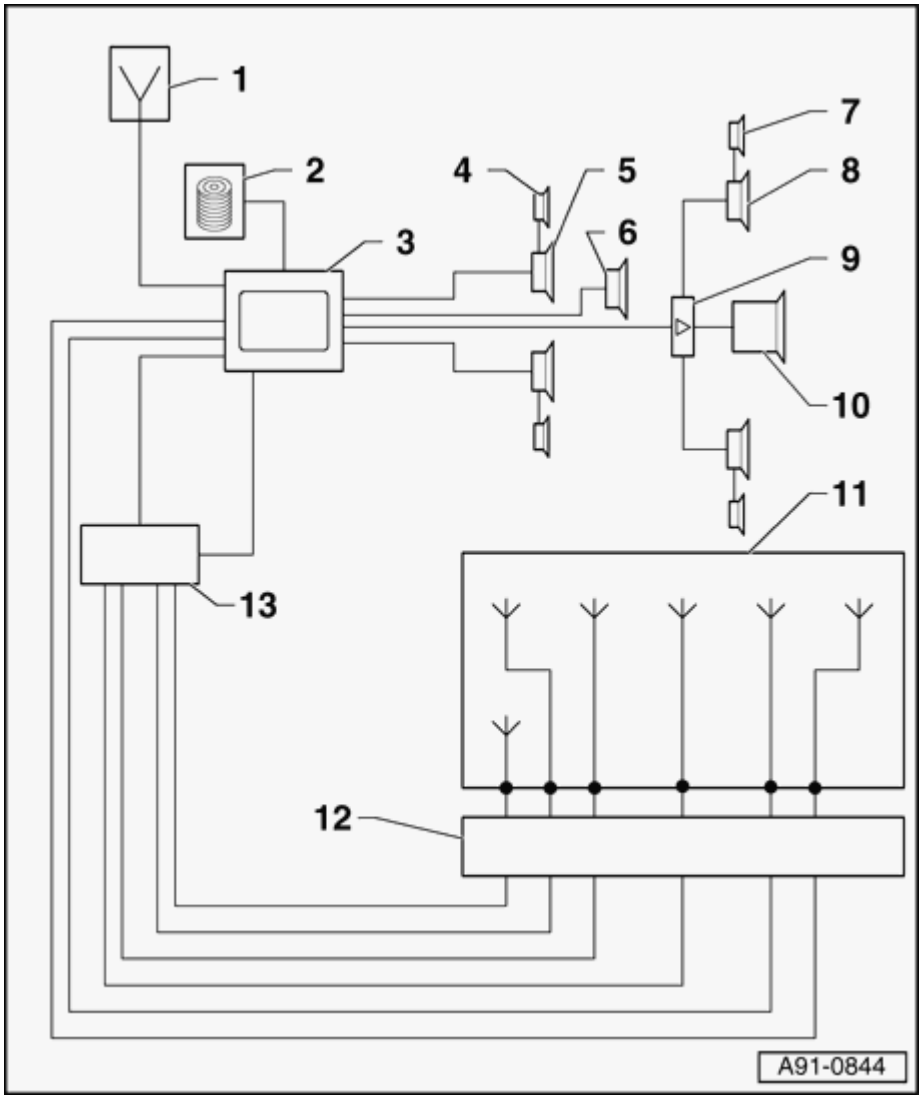

Fig. 220: RNS-JP3 Navigation System, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Navigation System Antenna R50 behind roof end trim

2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402 in top of center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Inside Loudspeaker R70 in front center instrument panel

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

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8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Amplifier R12 behind luggage compartment right side trim

10 - Bass Loudspeaker R100 in parcel shelf

11 - Rear window antennas AM/FM/TV

12 - Antenna Amplifier R24 behind roof end trim

13 - Antenna Selection Control Module J515 behind luggage compartment left side trim

Avant

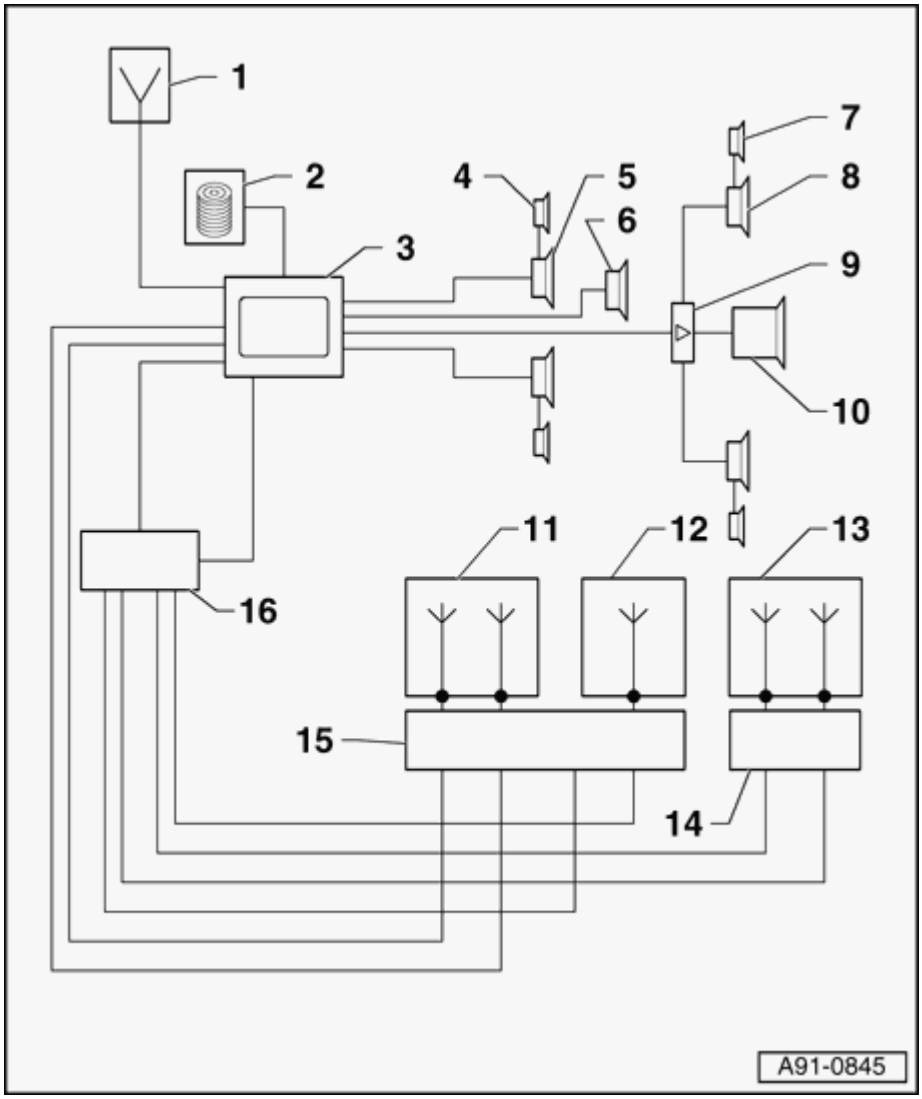

Fig. 221: RNS-JP3 Navigation System, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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1 - Navigation System Antenna R50 roof antenna

2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402 in top of center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Inside Loudspeaker R70 in front center instrument panel

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Amplifier R12 behind luggage compartment right side trim

10 - Bass Loudspeaker R100 behind luggage compartment right side trim

11 - left rear AM/FM1/TV1 window antennas

12 - FM2/TV2 rear window antennas

13 - Right rear FM3/TV3/TV4 window antennas

14 - Right Antenna Module R109 behind luggage compartment right side trim

15 - Left Antenna Module R108 behind luggage compartment left side trim

16 - Antenna Selection Control Module J515 behind luggage compartment left side trim

BOSE, sedan

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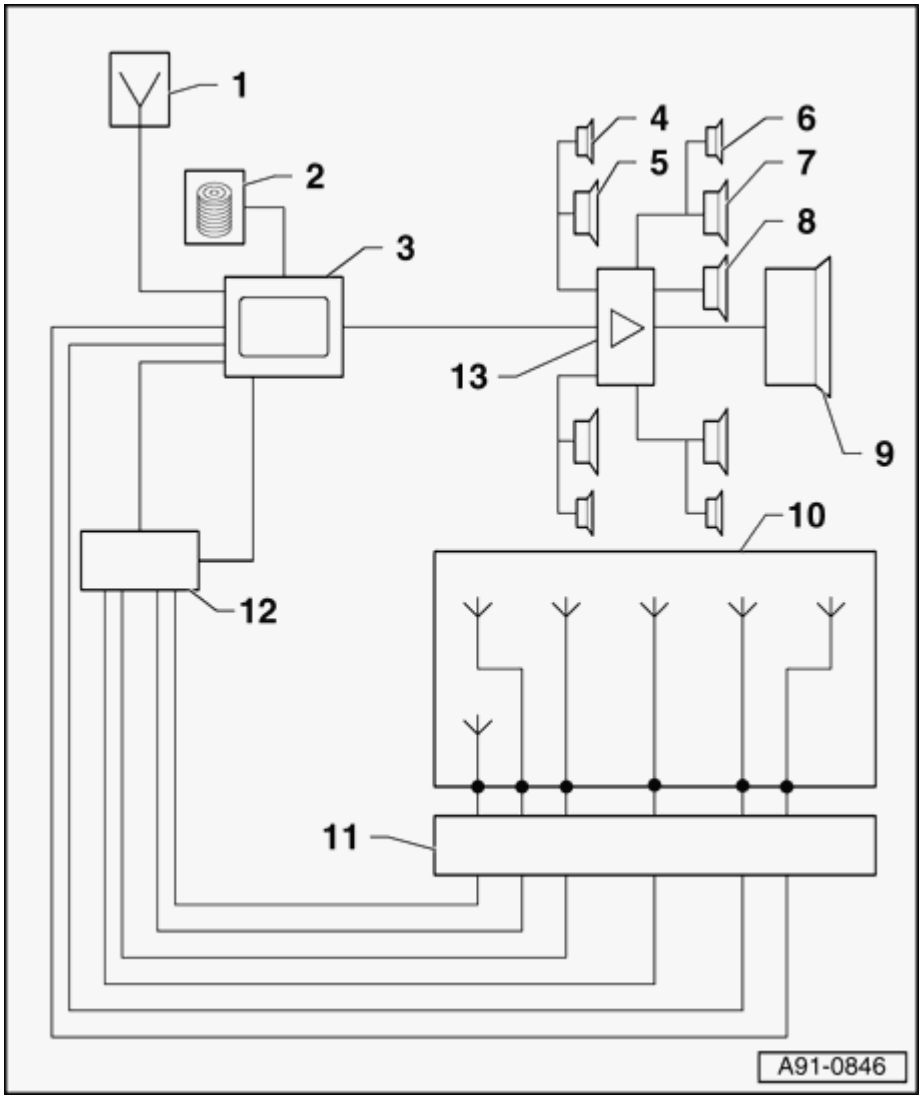

Fig. 222: RNS-JP3 Navigation System, BOSE, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Navigation System Antenna R50 behind roof end trim

2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402 in top of center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

7 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

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8 - Inside Loudspeaker R70 in front center instrument panel

9 - Bass Loudspeaker R100 in parcel shelf

10 - Rear window antennas AM/FM/TV

11 - Antenna Amplifier R24 behind roof end trim

12 - Antenna Selection Control Module J515 behind luggage compartment left side trim

13 - Amplifier R12 behind luggage compartment right side trim

BOSE, Avant

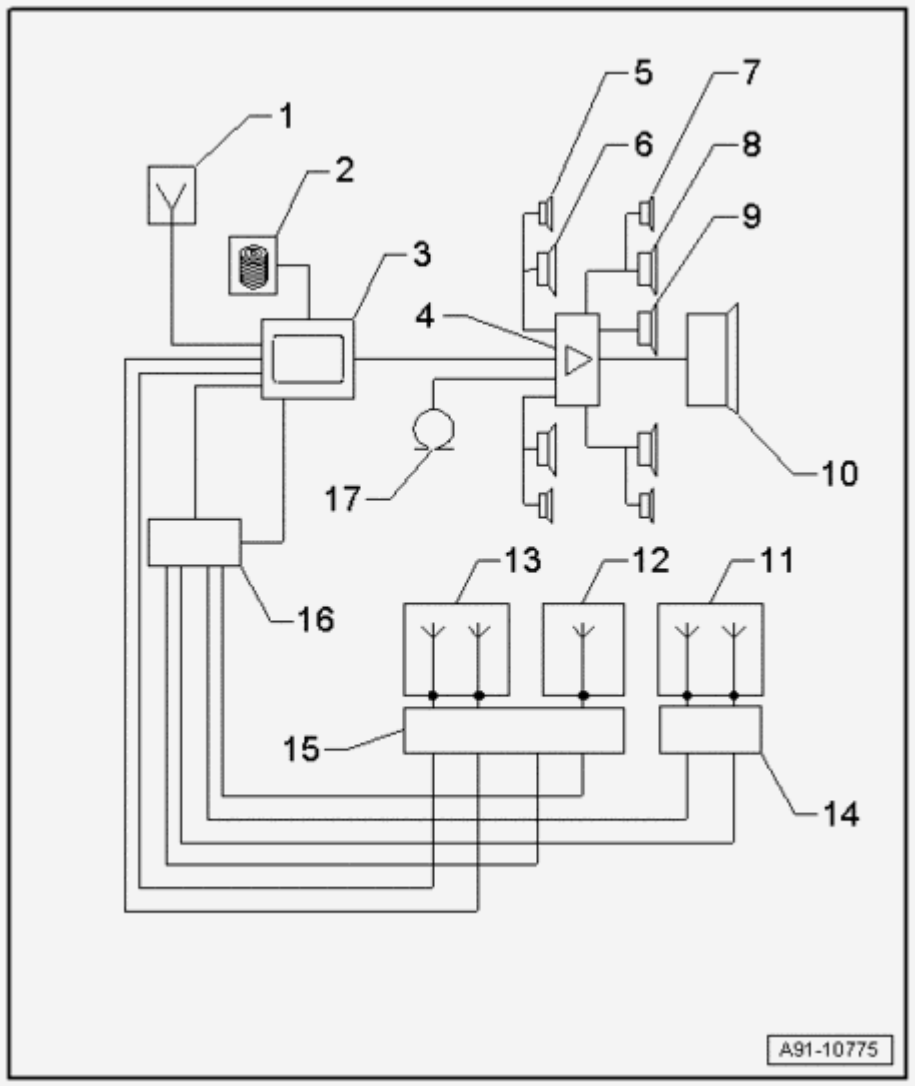

Fig. 223: RNS-JP3 Navigation System, BOSE, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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1 - Navigation System Antenna R50 roof antenna

2 - CD Changer R41 in glove compartment

3 - Operating Electronics, Navigation Control Module J402

4 - Amplifier R12 behind luggage compartment right side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Inside Loudspeaker R70 in front center instrument panel

10 - Bass Loudspeaker R100 behind luggage compartment left side trim

11 - Left rear FM3/TV3/TV4 window antennas

12 - FM2/TV2 rear window antennas

13 - Right rear AM/FM1/TV1 window antennas

14 - Right Antenna Module R109 behind luggage compartment right side trim

15 - Left Antenna Module R108 behind luggage compartment left side trim

16 - Antenna Selection Control Module J515 behind luggage compartment left side trim

17 - Inside Microphone R74 in Front Interior Light W1

Connectors and connector assignments

Operating Electronics, Navigation Control Module J402

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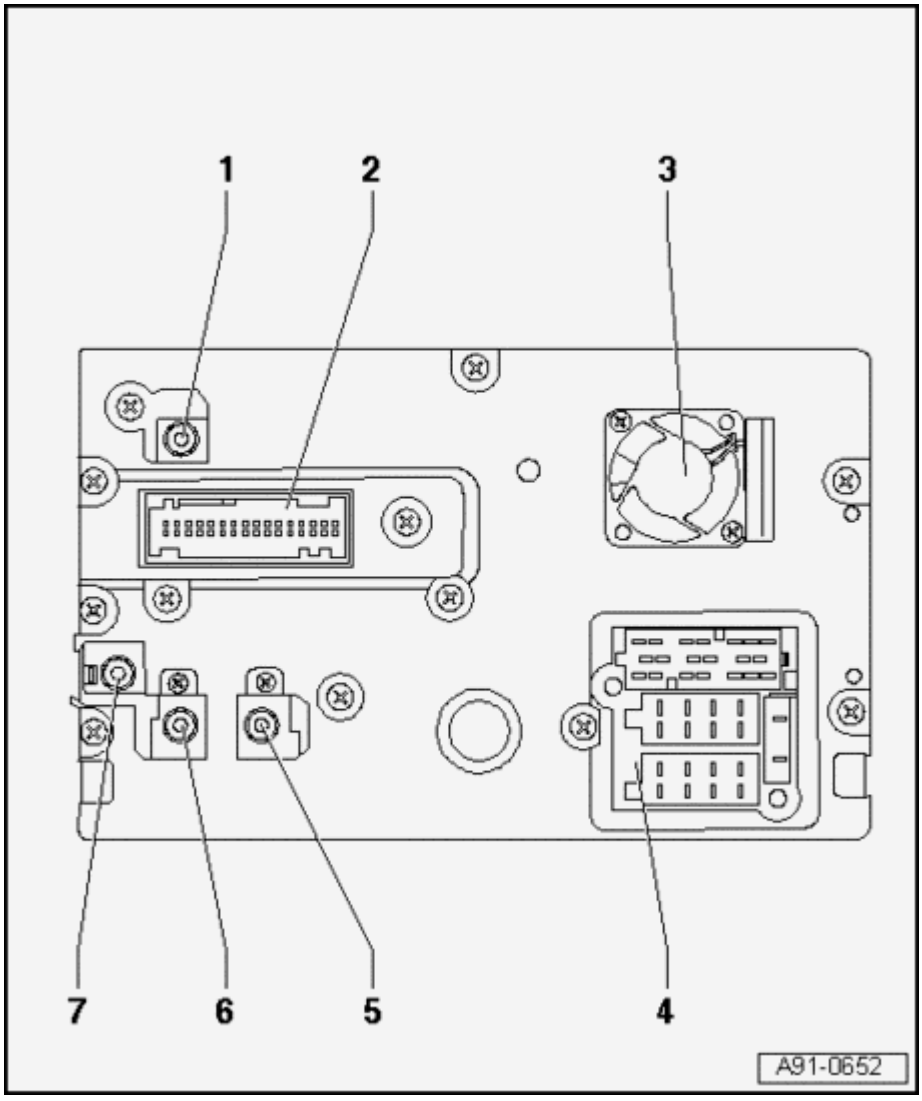

Fig. 224: Operating Electronics, Navigation Control Module J402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - GPS connection (blue) from Navigation System Antenna R50

2 - Black 32-pin multi-pin harness connector (T32f)

3 - Fan

4 - Connector block with three multi-pin connectors and device fuse

5 - Antenna Selection Control Module J515 TV connection (green)

6 - FM2 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

7 - FM1 connector (white) from Antenna Amplifier R24 / Left Antenna Module R108

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NOTE:

- **Connector assignments not listed are free or not used.**

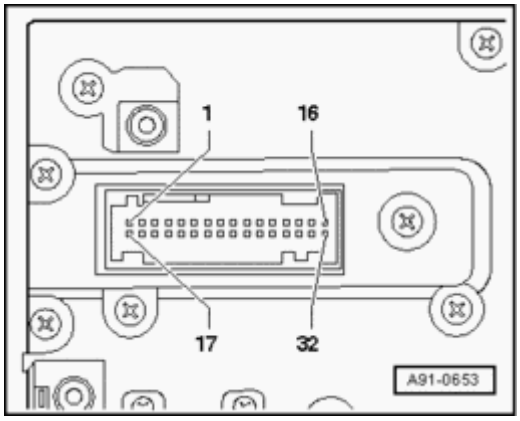

Fig. 225: Black 32-Pin Multi-Pin Harness Connector (T32F)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

2 - Black 32-pin multi-pin harness connector (T32f)

1 - Terminal 15

8 - Selection 1 to Antenna Selection Control Module J515

9 - Selection 2 to Antenna Selection Control Module J515

22 - Signal from Back-Up Light Switch F4

24 - Screen ground to Antenna Selection Control Module J515

25 - Antenna Selection Control Module J515 diagnostic

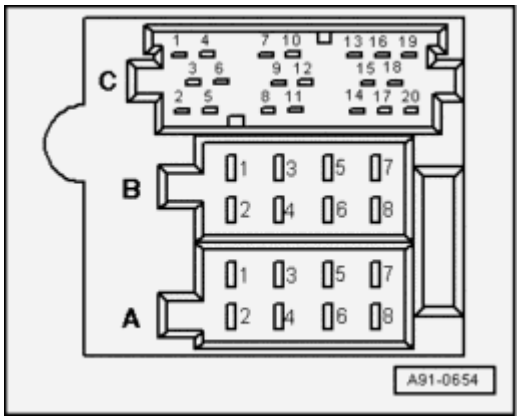

Fig. 226: Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Black 20-pin multi-pin harness connector (T20d)

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1 - Left rear signal to Amplifier R12

2 - Right rear signal to Amplifier R12

3 - Signal ground to Radio R12

4 - Left front signal to Amplifier R12

5 - Right front signal to Amplifier R12

6 - Positive switched to Amplifier R12

8 - CAN-Bus High (Infotainment)

9 - CAN-Bus Low (Infotainment)

10 - CD ground to CD Changer R41

11 - CD mute to CD Changer R41

12 - Permanent positive to CD Changer R41

13 - CD-TX (+) from CD Changer R41

14 - CD-TX (-) from CD Changer R41

16 - Left signal (-) from CD Changer R41

17 - Positive switched to CD Changer R41

18 - Right signal (-) from CD Changer R41

19 - Left signal (+) from CD Changer R41

20 - Right signal (+) from CD Changer R41

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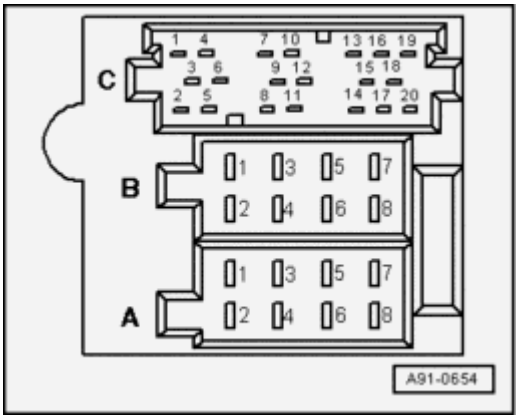

Fig. 227: Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Brown 8-pin multi-pin connector (T8a)

3 - Loudspeaker, right front (+)

4 - Loudspeaker, right front (-)

5 - Loudspeaker, left front (+)

6 - Loudspeaker, left front (-)

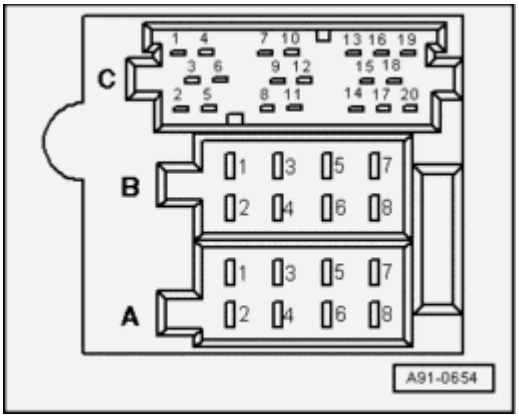

Fig. 228: Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - 8-pin multi-pin connector (T8h) black

1 - Speed signal

3 - K-wire

4 - Terminal 86s

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7 - Terminal 30

8 - Terminal 31

Antenna Selection Control Module J515

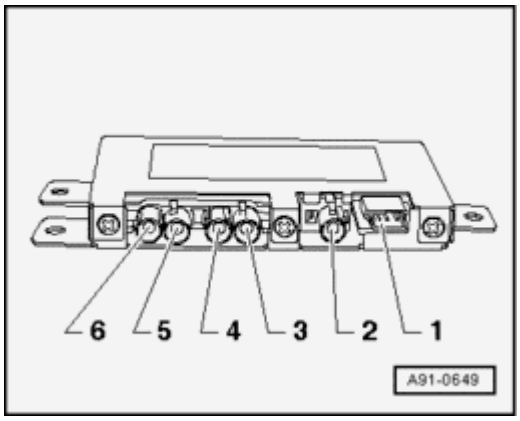

Fig. 229: Antenna Selection Control Module J515
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Black 3-pin multi-pin harness connector (T3i)

2 - TV connection (green) to Operating Electronics, Navigation Control Module J402

3 - TV 4 connection (black) from Right Antenna Module R109

4 - TV 3 connection (black) from Right Antenna Module R109

5 - TV 2 connection (black) from Left Antenna Module R108

6 - TV 1 connection (black) from Left Antenna Module R108

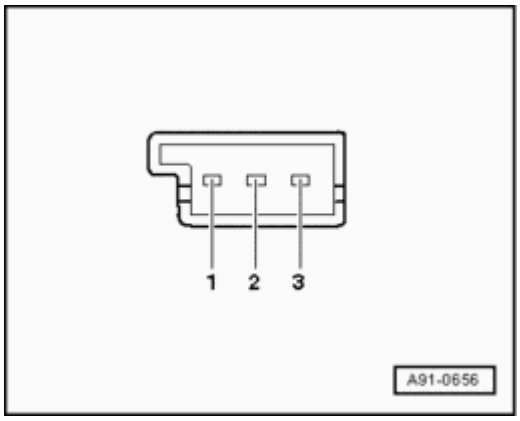

Fig. 230: Black 3-Pin Multi-Pin Harness Connector (T3I)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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1 - Black 3-pin multi-pin harness connector (T3i)

1 - Selection 2 from Operating Electronics, Navigation Control Module J402

2 - Selection 1 from Operating Electronics, Navigation Control Module J402

3 - Operating Electronics, Navigation Control Module J402 diagnostic

Component locations, general overview

Sedan

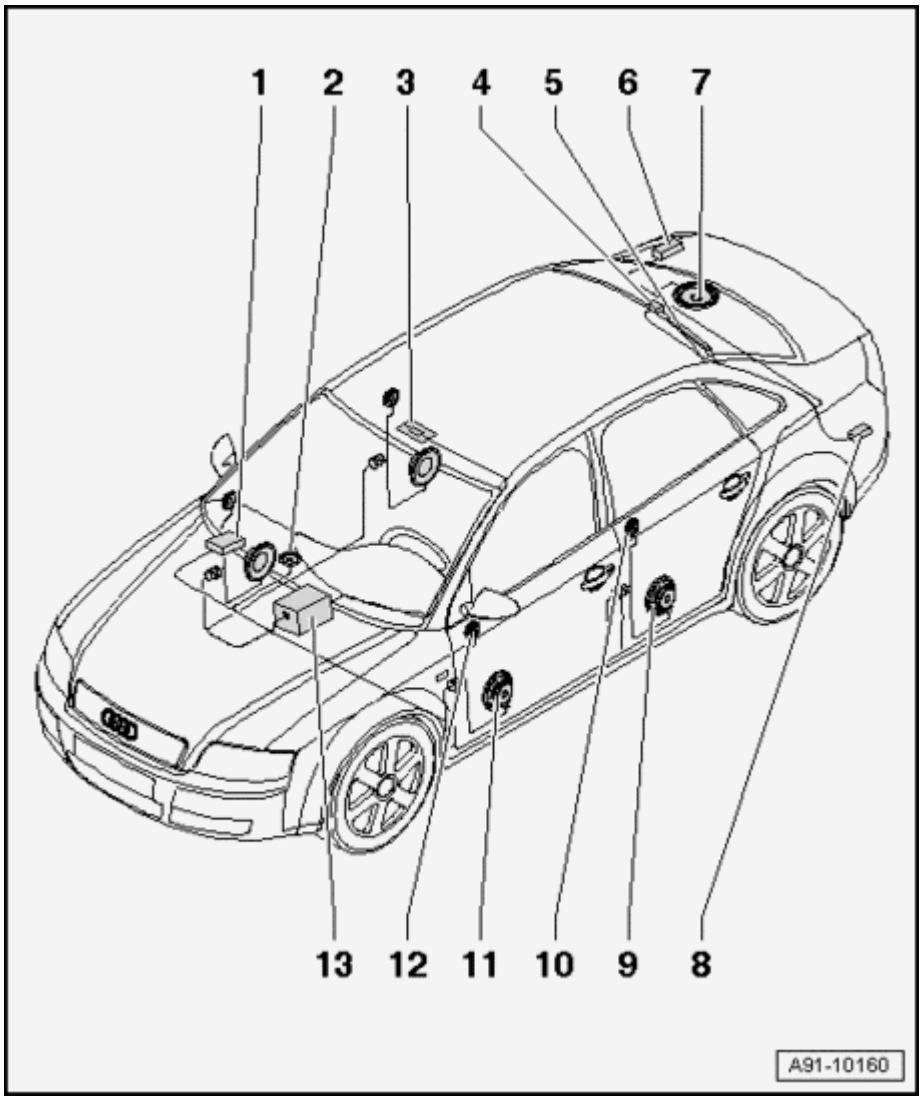

Fig. 231: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

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- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- in Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Navigation System Antenna R50

- behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Antenna Amplifier R24

- behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

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- in parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

8 - Antenna Selection Control Module J515

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Antenna Selection Control Module J515 , sedan, removing and installing - sedan**

9 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

11 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

12 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

13 - Navigation System with CD Drive Control Module J401

- in center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

Avant

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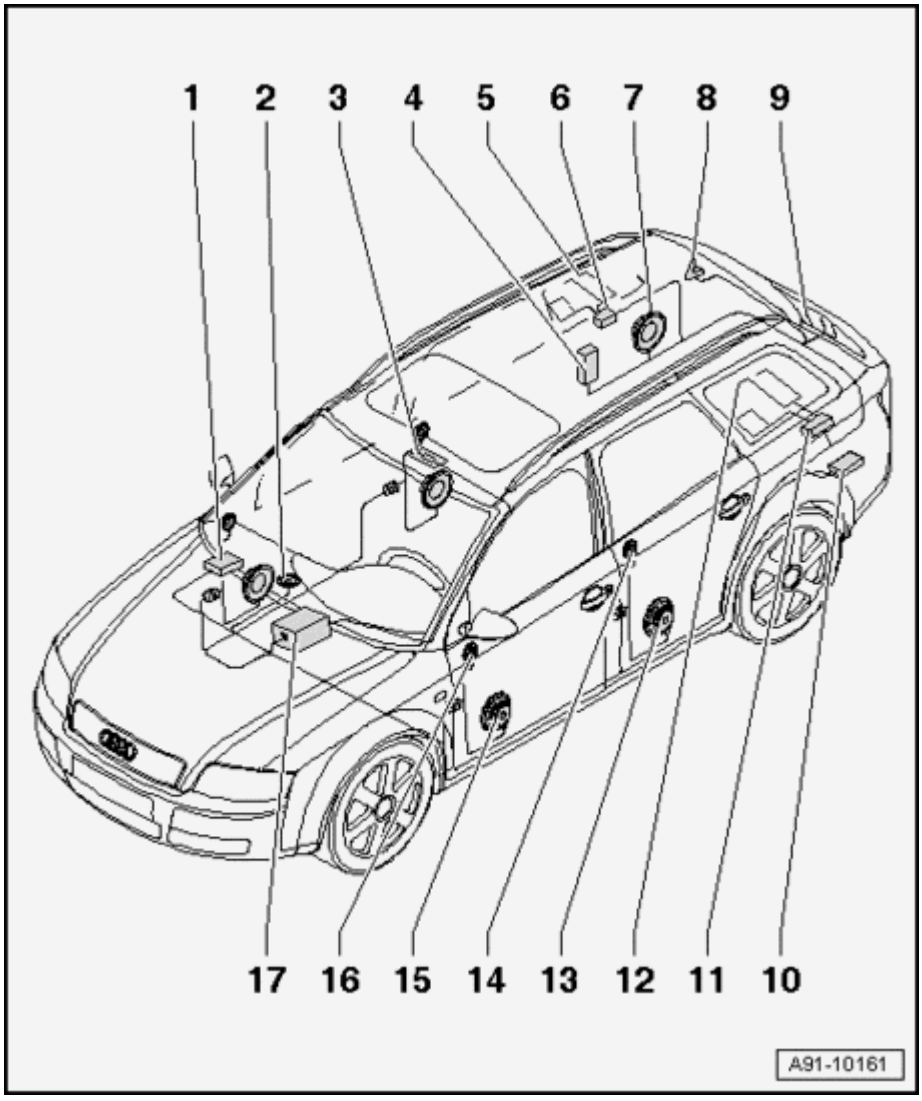

Fig. 232: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

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- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- in Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections

- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

5 - Right rear window antennas

- FM3TV3/TV4

6 - Right Antenna Module R109

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Right Antenna Module R109 , Avant, removing and installing**

7 - Bass Loudspeaker R100

- behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Navigation System Antenna R50 roof antenna

- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

9 - Rear window antennas

- FM2/TV2

10 - Antenna Selection Control Module J515

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- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Antenna Selection Control Module J515 , sedan, removing and installing - sedan**

11 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

12 - Left rear window antennas

- AM/FM1/TV1

13 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

14 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

15 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

16 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

17 - Navigation System with CD Drive Control Module J401

- in center console, at top
- Connections --> **Navigation System with CD Drive Control Module J401 , harness connectors**
- Removing and installing --> **Navigation System with CD Drive Control Module J401 , removing and installing**

Operating Electronics, Navigation Control Module J402 , removing and installing

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Special tools, testers and auxiliary items required

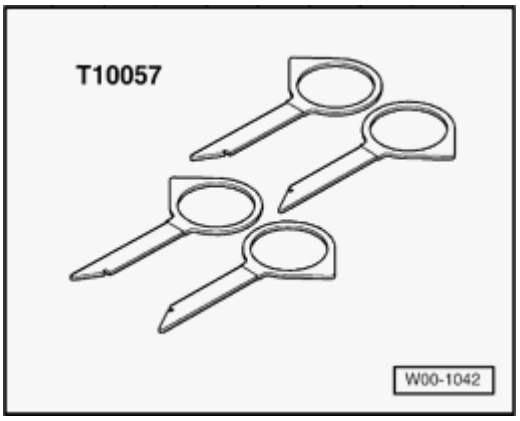

Fig. 233: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- Turn off all electrical components.
- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

Removing

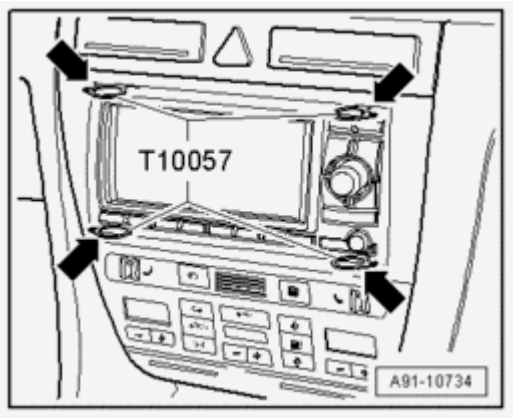

Fig. 234: Placing Radio Release Tool T10057 In Release Slits On Operating Electronics, Navigation Control Module J402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Radio Release Tool T10057 - **arrows** - in release slits on Operating Electronics, Navigation Control Module J402 until they engage. Points on grip eyes face outward.
- Remove Operating Electronics, Navigation Control Module J402 from instrument panel.
- Release connectors on Operating Electronics, Navigation Control Module J402 and remove it.

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- Remove Radio Release Tool T10057 by pushing locking tabs on Operating Electronics, Navigation Control Module J402 to do so.

Installing

- Connect all harness connectors.
- Carefully slide Operating Electronics, Navigation Control Module J402 into instrument panel and allow it to engage in installation frame.

Antenna Selection Control Module J515 , sedan, removing and installing - sedan

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove left luggage compartment side trim --> - **70 - INTERIOR TRIM** .

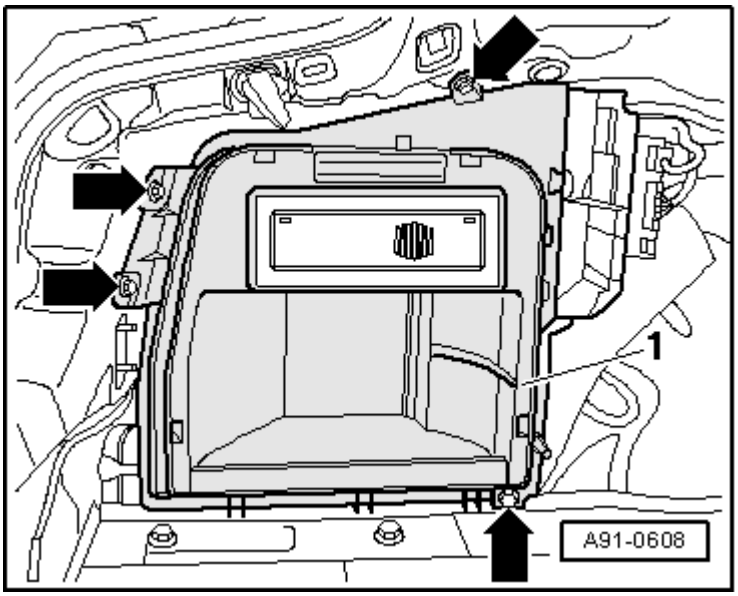

Fig. 235: Removing Screws And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - (14 Nm) and remove base mount - **1** -.

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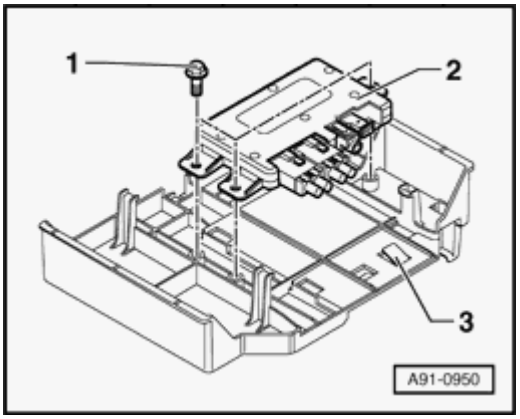

Fig. 236: Identifying Retainer, Bolts, And Connectors On Antenna Selection Control Module J515
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retainer - **3** - from base mount.
- Remove bolts - **1** - (2 Nm).
- Disconnect connectors on Antenna Selection Control Module J515 - **2** -.

Installing

- Install in reverse order.

Antenna Selection Control Module J515 , Avant, removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove left luggage compartment side trim --> - **70 - INTERIOR TRIM** .

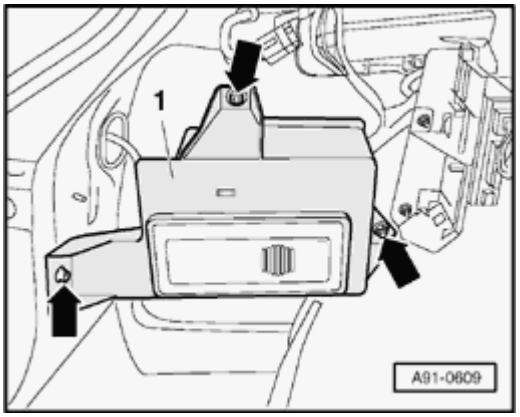

Fig. 237: Removing Screws And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove bolts - **arrows** - (14 Nm) and remove base mount - **1** -.

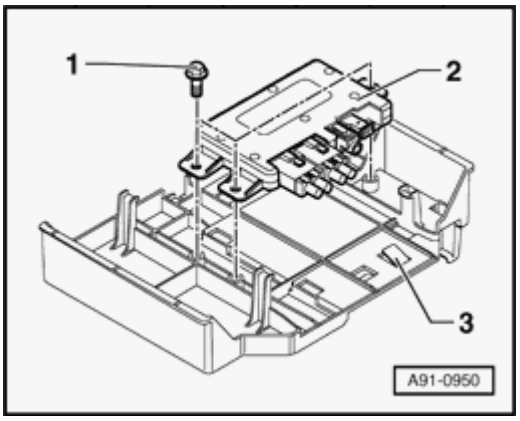

Fig. 238: Identifying Retainer, Bolts, And Connectors On Antenna Selection Control Module J515
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retainer - **3** - from base mount.
- Remove bolts - **1** - (2 Nm).
- Disconnect connectors on Antenna Selection Control Module J515 - **2** -.

Installing

- Install in reverse order.

RNS-JP4 NAVIGATION SYSTEM, JAPAN

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .

Description

The navigation system JP4 consists of an "aftermarket" RNS.

All connections necessary for the navigation unit are present in the vehicle. Sound system and antennas are installed.

In case of retrofitting, only the navigation unit (RNS) is installed.

Repairs on antenna wires --> - **97 WIRING** .

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Repair to CAN bus lines --> - **97 WIRING** .

RNS-JP4, overview

Sedan

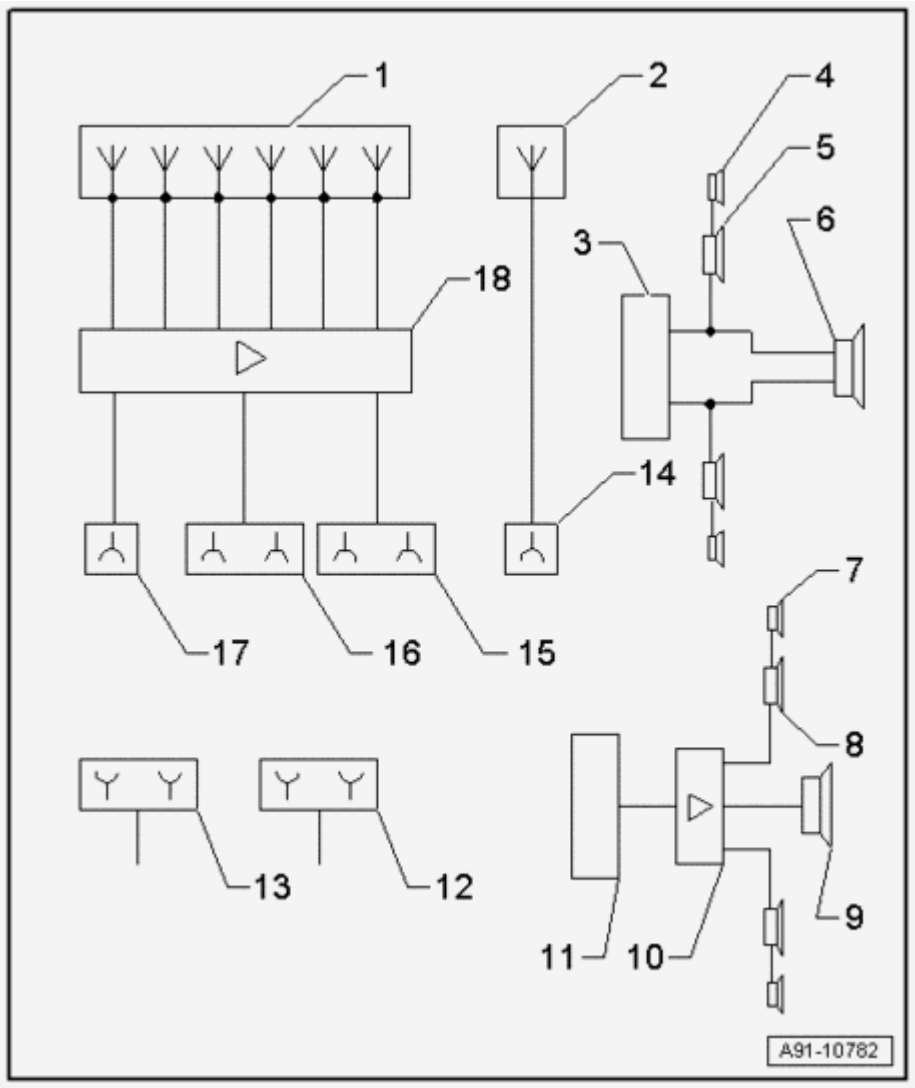

Fig. 239: RNS-JP4, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Window antenna

2 - Navigation System Antenna R50 behind roof end trim

3 - Black 4-pin multi-pin speaker connection

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

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5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Inside Loudspeaker R70 in front center instrument panel

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Bass Loudspeaker R100 in parcel shelf

10 - Amplifier R12 behind luggage compartment right side trim

11 - Black 12-pin multi-pin Amplifier R12 connection

12 - Black 12-pin multi-pin voltage supply connection

13 - Black 2-pin multi-pin CAN BUS (Infotainment) connection

14 - GPS connection (blue) from Navigation System Antenna R50

15 - TV3/TV3 connection (green) from Antenna Selection Control Module J515

16 - TV1/TV2 connection (brown) from Antenna Selection Control Module J515

17 - AM/FM connection (white) from Antenna Selection Control Module J515

18 - Antenna Selection Control Module J515 behind roof end trim

Avant

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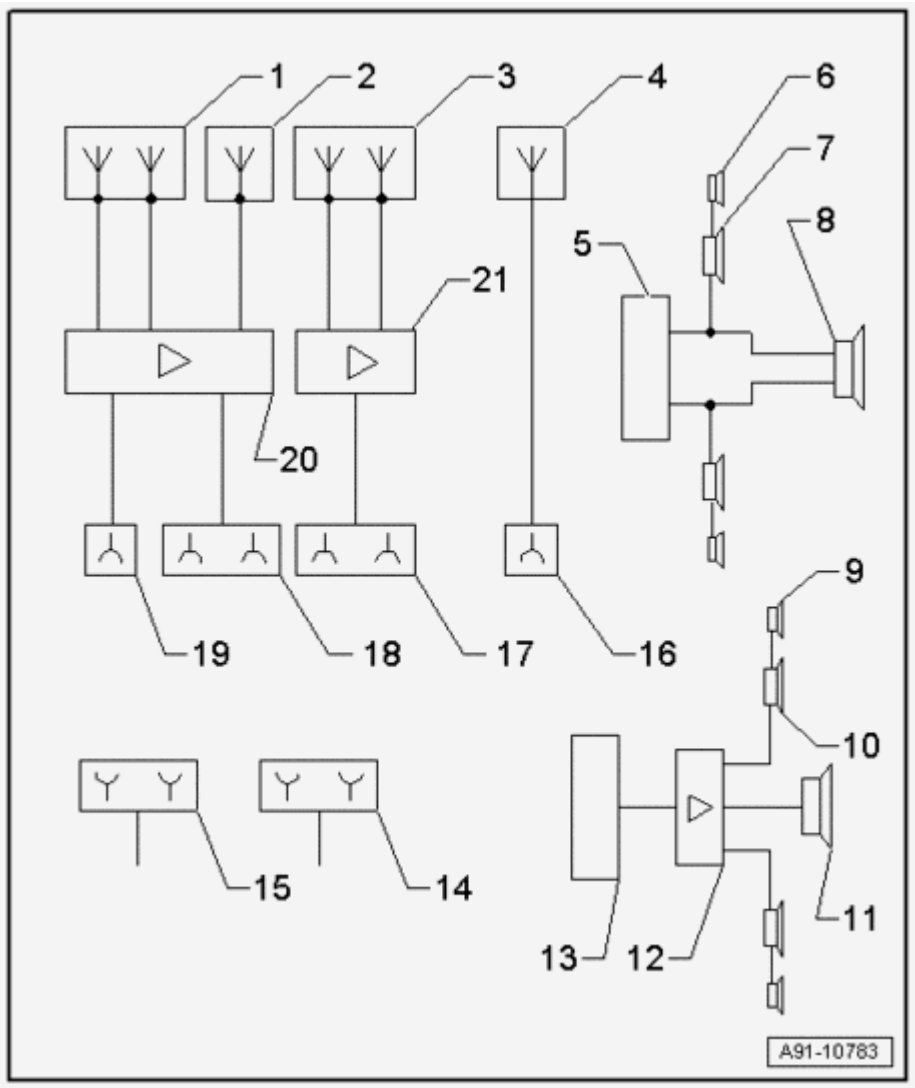

Fig. 240: RNS-JP4, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - TV1/TV2 window antennas

2 - AM/FM rear window antennas

3 - TV3/TV4 window antennas

4 - Navigation System Antenna R50 roof antenna

5 - Black 4-pin multi-pin speaker connection

6 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

7 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

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8 - Inside Loudspeaker R70 in front center instrument panel

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

10 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

11 - Bass Loudspeaker R100 behind luggage compartment right side trim

12 - Amplifier R12 behind luggage compartment right side trim

13 - Black 12-pin multi-pin Amplifier R12 connection

14 - Black 12-pin multi-pin voltage supply connection

15 - Black 2-pin multi-pin CAN BUS (Infotainment) connection

16 - GPS connection (blue) from Navigation System Antenna R50

17 - TV3/TV4 connection (green) from Right Antenna Module R109

18 - TV1/TV2 connection (brown) from Left Antenna Module R108

19 - AM/FM connection (white) from Left Antenna Module R108

20 - Left Antenna Module R108 behind luggage compartment left side trim

21 - Right Antenna Module R109 behind luggage compartment right side trim

Connectors and connector assignments

Sound system

NOTE:

- **Connector assignments not listed are free or not used.**

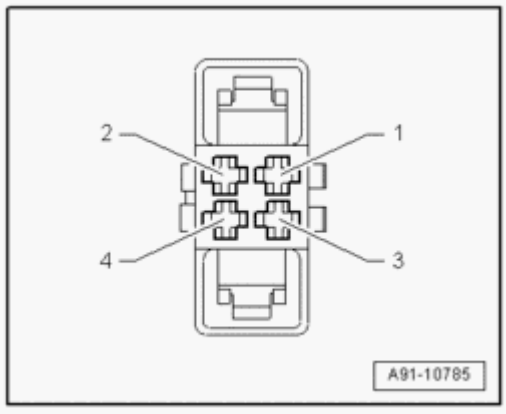

Fig. 241: Black 4-Pin Multi-Pin Harness Connector

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 4-pin multi-pin harness connector

3 - Speaker (+) front right

4 - Speaker (-) front right

5 - Speaker (+) front left

6 - Speaker (-) front left

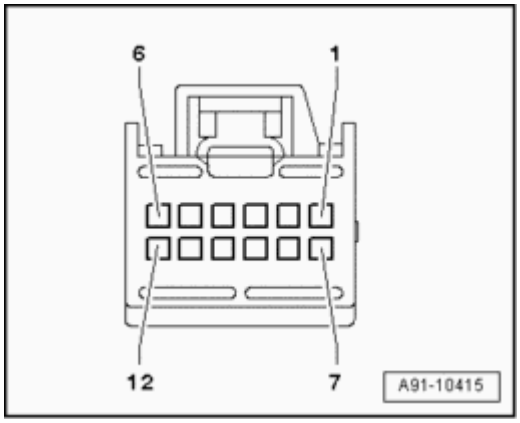

Fig. 242: Black 12-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 12-pin multi-pin harness connector

1 - Left rear signal (+) to Amplifier/Woofer (in left rear luggage compartment) R44

4 - Positive switched to Amplifier/Woofer (in left rear luggage compartment) R44 /

7 - Right rear signal (+) to Amplifier/Woofer (in left rear luggage compartment) R44

10 - Signal (-) to Amplifier/Woofer (in left rear luggage compartment) R44

CAN BUS, voltage supply

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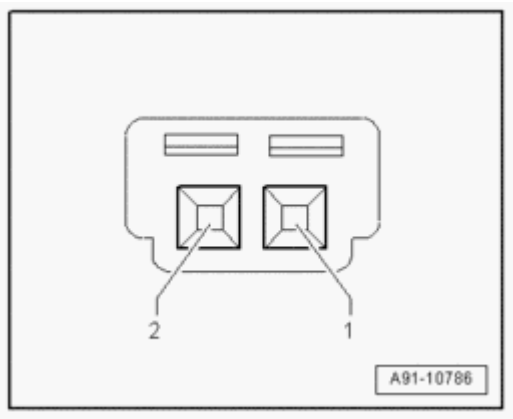

Fig. 243: 2-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 2-pin multi-pin harness connector

1 - CAN-Bus High (Infotainment)

2 - CAN-Bus Low (Infotainment)

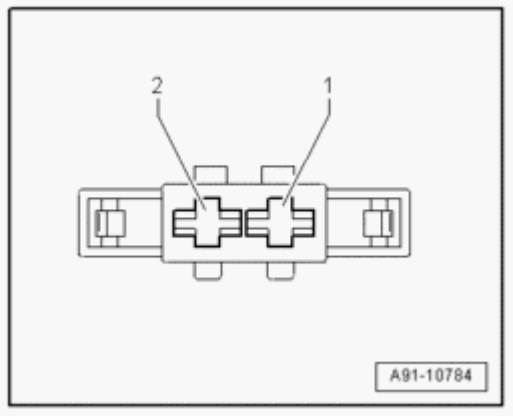

Fig. 244: 2-Pin Multi-Pin Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Black 2-pin multi-pin harness connector

1 - Terminal 30

2 - Terminal 31

Antennas

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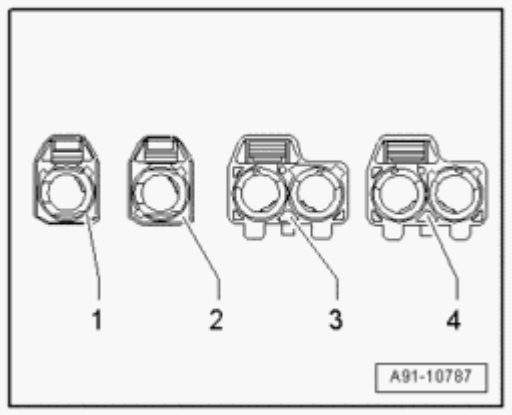

Fig. 245: Identifying Antennas
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors

1 - GPS connection (blue) from Navigation System Antenna R50

2 - AM/FM connection (white) from Antenna Amplifier R24 / Left Antenna Module R108

3 - TV3/TV4 connection (green) from Antenna Amplifier R24 / Right Antenna Module R109

4 - TV1/TV2 connection (brown) from Antenna Amplifier R24 / Left Antenna Module R108

Total overview - Sedan component locations

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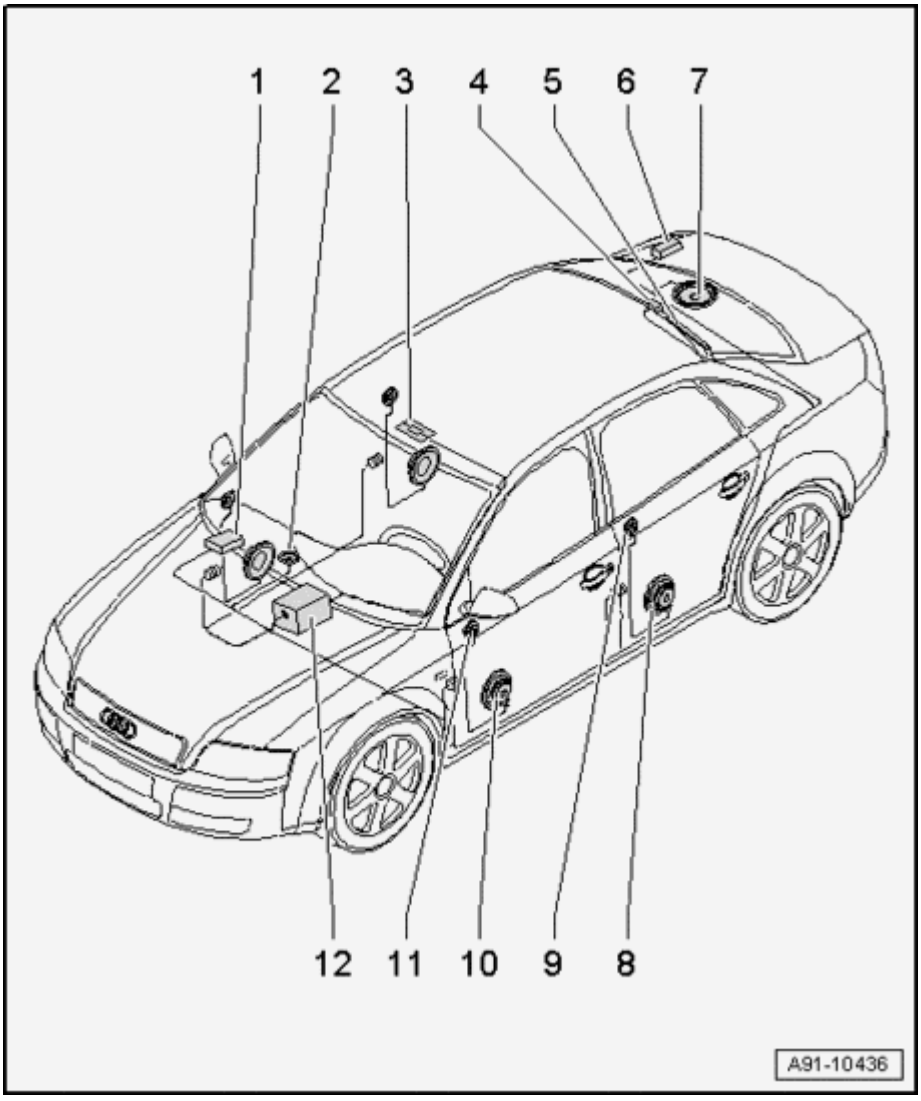

Fig. 246: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

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- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

4 - Navigation System Antenna R50

- behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Antenna Selection Control Module J515

- behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

- in parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

8 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

10 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

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- in bottom of front doors
- Removing and installing

11 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

12 - RNS-JP4 connections/antenna connections

- in center console, at top
- Connections --> **Connectors and connector assignments**

General overview - Avant component locations

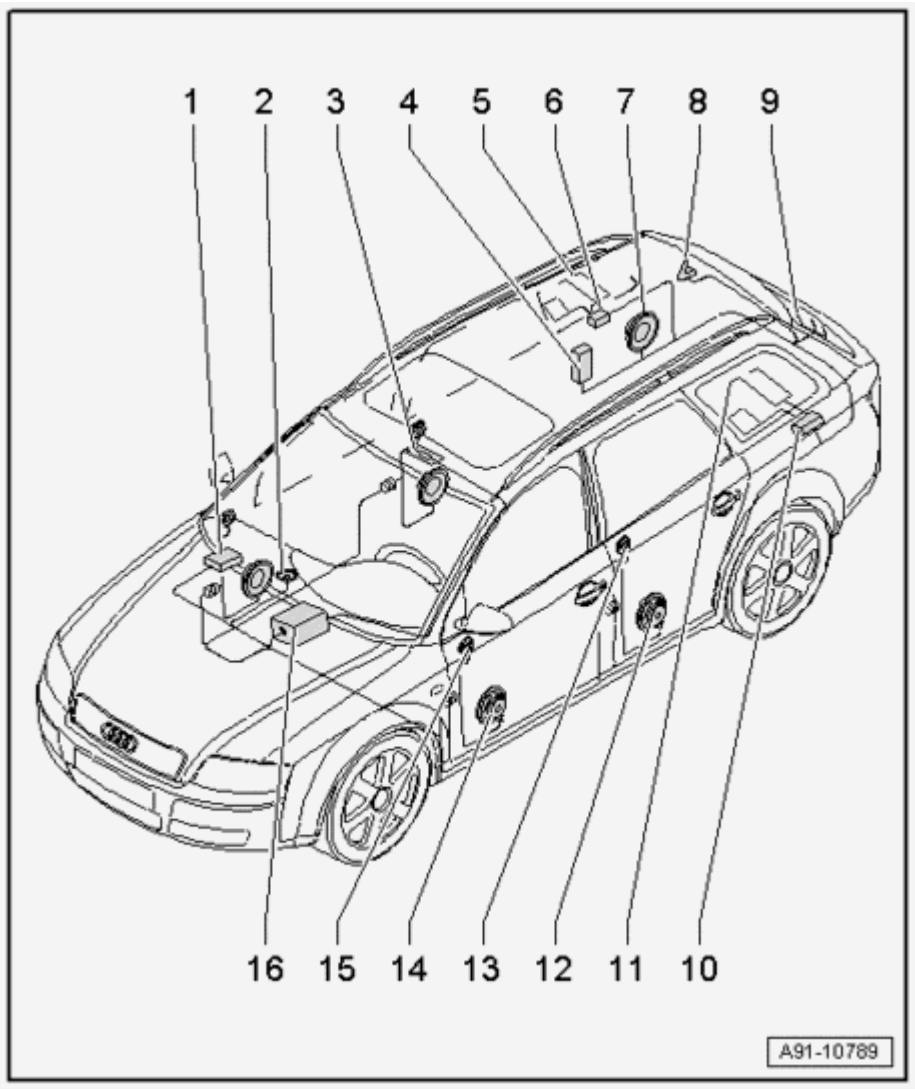

Fig. 247: General Overview - Avant Component Locations

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

2 - Inside Loudspeaker R70

- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

- Telephone Microphone R38

- in Front Interior Light W1
- Removing and installing --> **Telephone Microphone R38 , removing and installing**

4 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

5 - Right rear window antennas

- FM3TV3/TV4

6 - Right Antenna Module R109

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Right Antenna Module R109 , Avant, removing and installing**

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7 - Bass Loudspeaker R100

- behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

8 - Telephone Antenna R65 / Navigation System Antenna R50 roof antenna

- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

9 - Rear window antennas

- FM2/TV2

10 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

11 - Left rear window antennas

- AM/FM1/TV1

12 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

13 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

14 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

15 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

16 - RNS-JP4 connections/antenna connections

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- in center console, at top
- Connections --> **Connectors and connector assignments**

RNS LOW NAVIGATION SYSTEM

General information

CAUTION: Disconnect battery ground wire before working on electrical system.

On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

RNS low is the "Low" variant of the RNS-E.

In addition to the navigation system, the RNS low includes a Radio R , CD Player R89 and connections for CD Changer R41 and cellular telephone. The CD drive can play music CDs.

The function selection switch is integrated in the unit (MMI operation).

Diagnosis is performed using "Guided Fault-Finding".

Repairs on antenna wires --> - **97 WIRING** .

Repair to CAN bus lines --> - **97 WIRING** .

RNS low navigation system, overview

Sedan

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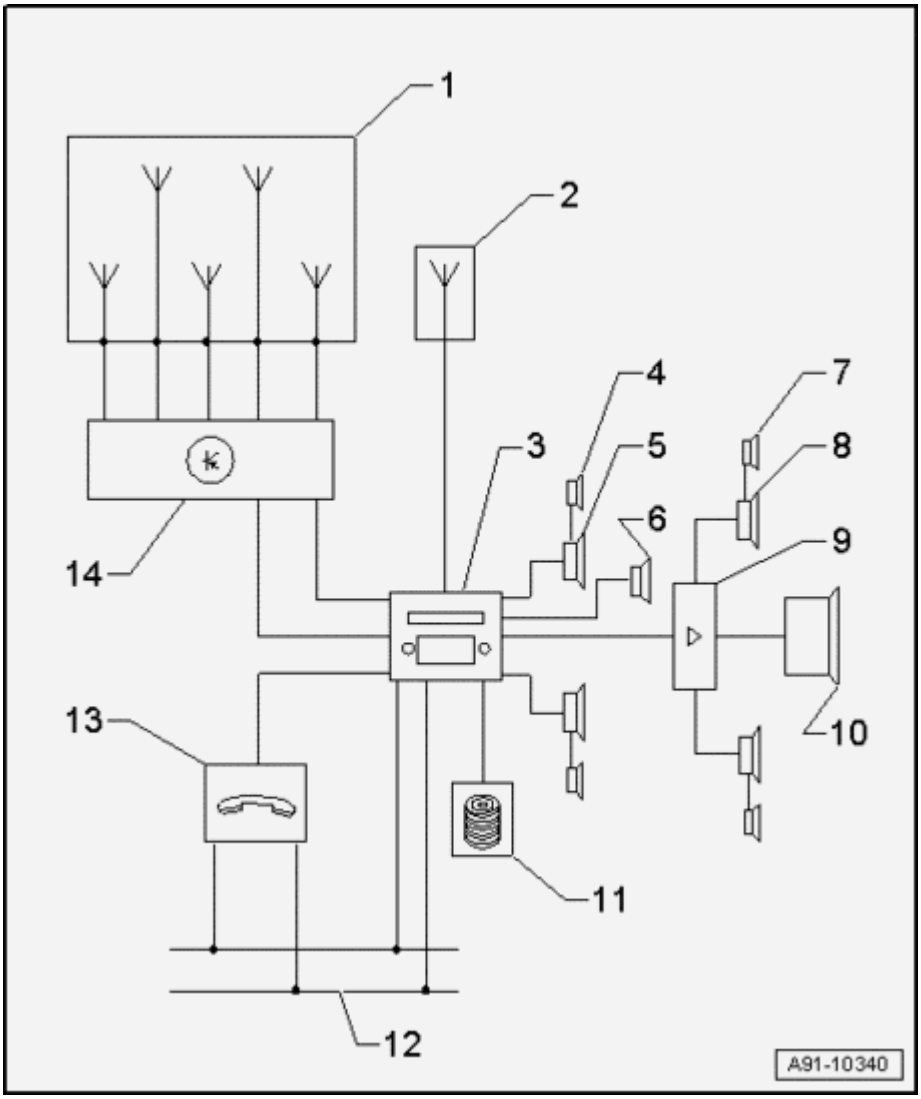

Fig. 248: RNS Low Navigation System, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Navigation System Antenna R50 behind roof end trim

3 - Radio/Navigation Display Control Module J503 in top of center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Inside Loudspeaker R70 in front center instrument panel

7 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

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8 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

9 - Amplifier R12 behind luggage compartment right side trim

10 - Bass Loudspeaker R100 in parcel shelf

11 - CD Changer R41 / iPod Baseplate R192 in glove compartment

12 - CAN-BUS (Infotainment)

13 - Telephone Transceiver R36 in electronics box under right front seat

14 - Antenna Selection Control Module J515 behind roof end trim

Avant

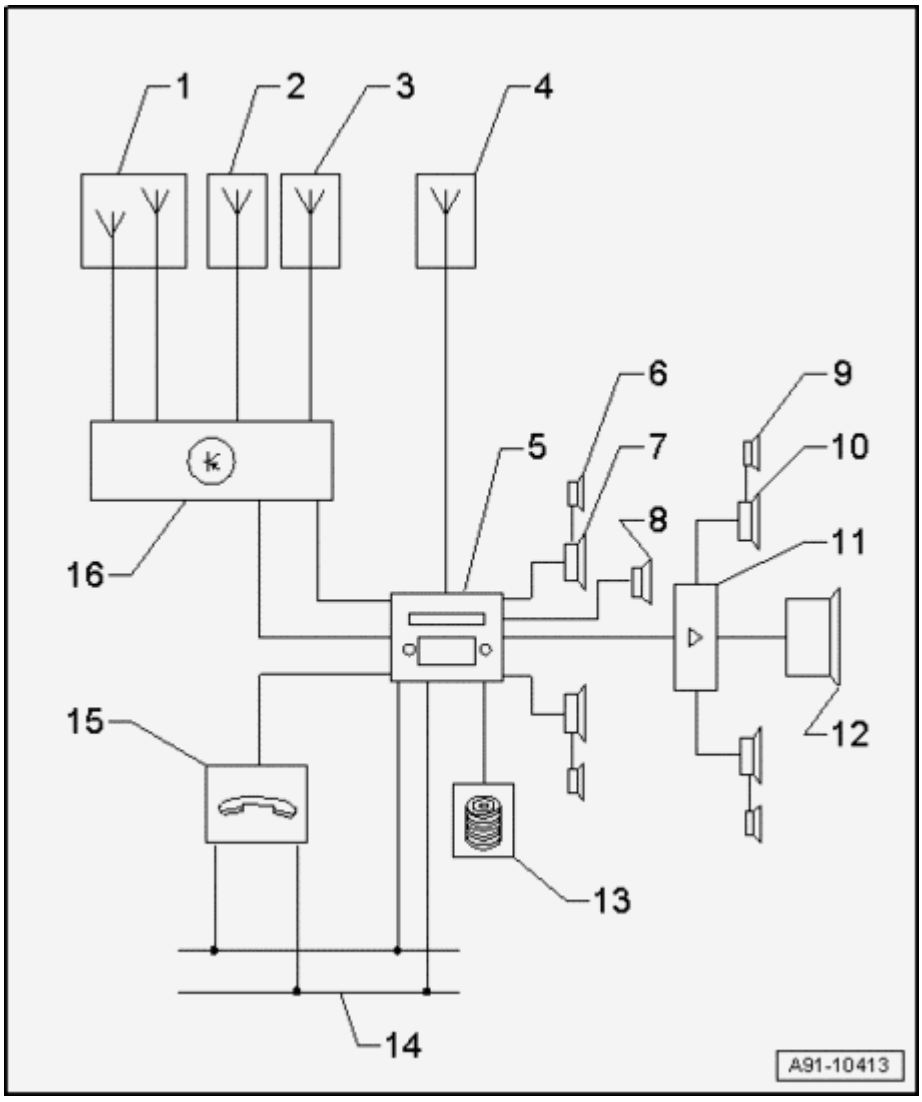

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Fig. 249: RNS Low Navigation System, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - right rear FM3 window antennas

2 - FM2 rear window antennas

3 - left rear AM/FM1 window antennas

4 - Antenna R11 (GPS/GSM) roof antenna

5 - Radio/Navigation Display Control Module J503 in top of center console

6 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

7 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

8 - Inside Loudspeaker R70 in front center instrument panel

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

10 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

11 - Amplifier R12 behind luggage compartment right side trim

12 - Bass Loudspeaker R100 behind luggage compartment right side trim

13 - CD Changer R41 / iPod Baseplate R192 in glove compartment

14 - CAN-BUS (Infotainment)

15 - Telephone Transceiver R36 in electronics box under right front seat

16 - Left Antenna Module R108 behind luggage compartment left side trim

BOSE, sedan

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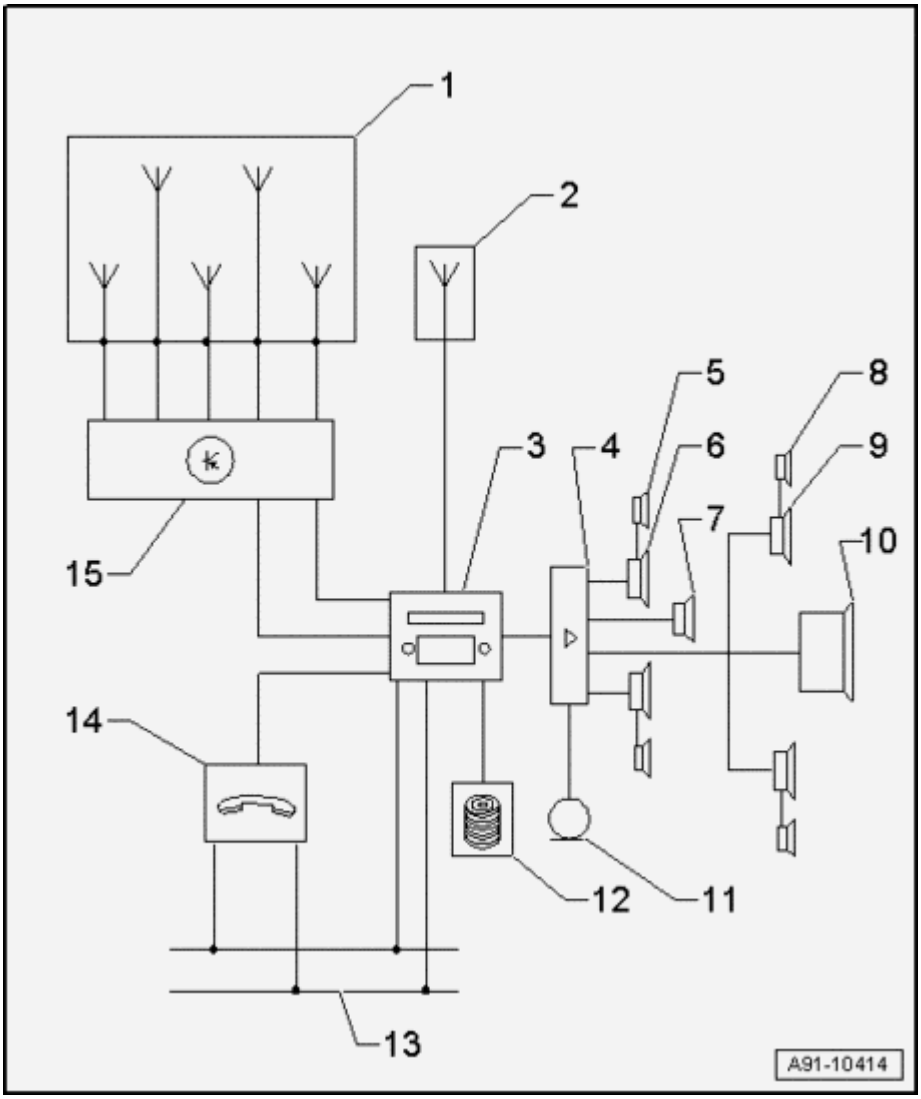

Fig. 250: RNS Low Navigation System, BOSE, Sedan Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - AM/FM rear window antennas

2 - Navigation System Antenna R50 behind roof end trim

3 - Radio/Navigation Display Control Module J503 in top of center console

4 - Amplifier R12 behind luggage compartment right side trim

5 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

6 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

7 - Inside Loudspeaker R70 in front center instrument panel

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8 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

9 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

10 - Bass Loudspeaker R100 in parcel shelf

11 - Inside Microphone R74 in Front Interior Light W1

12 - CD Changer R41 / iPod Baseplate R192 in glove compartment

13 - CAN-BUS (Infotainment)

14 - Telephone Transceiver R36 in electronics box under right front seat

15 - Antenna Selection Control Module J515 behind roof end trim

BOSE, Avant

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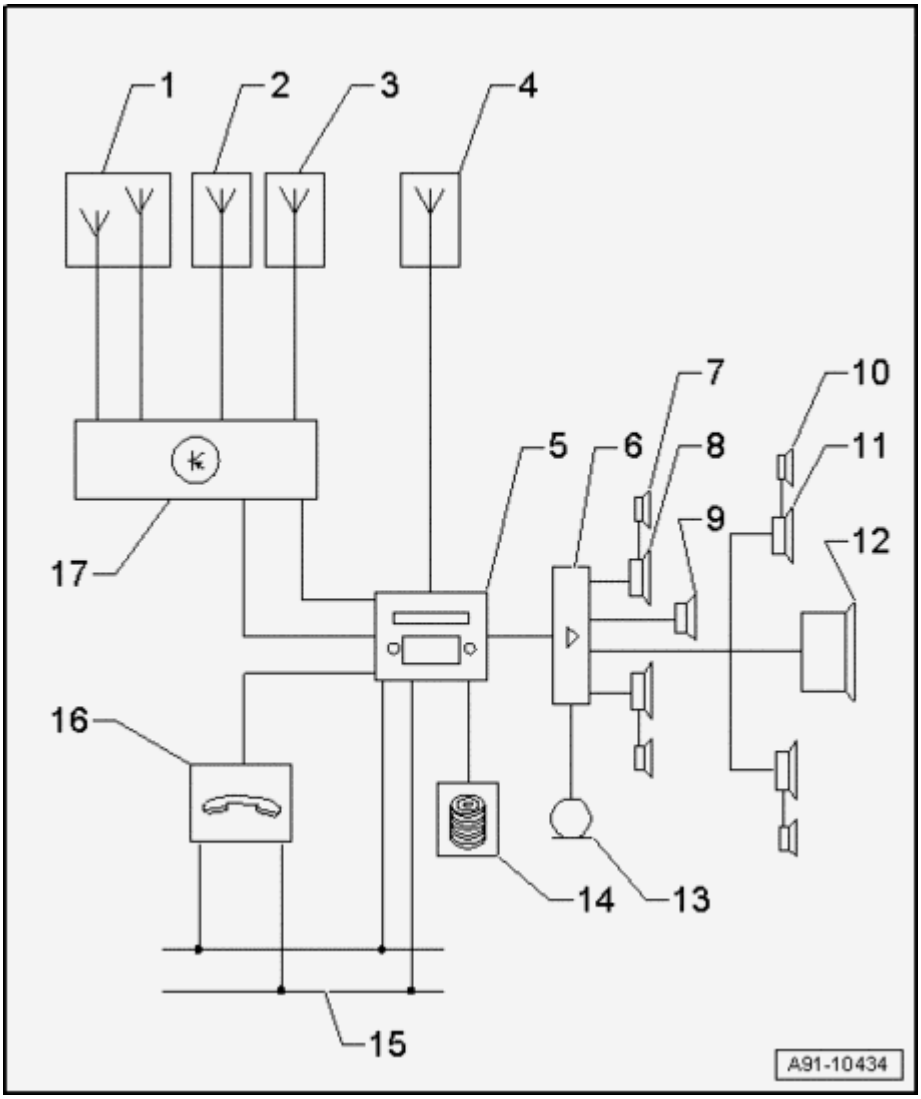

Fig. 251: RNS Low Navigation System, Bose, Avant Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - right rear FM3 window antennas

2 - FM2 rear window antennas

3 - left rear AM/FM1 window antennas

4 - Antenna R11 (GPS/GSM) roof antenna

5 - Radio/Navigation Display Control Module J503 in top of center console

6 - Amplifier R12 behind luggage compartment right side trim

7 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

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8 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 in front doors

9 - Inside Loudspeaker R70 in front center instrument panel

10 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35 at top in rear doors

11 - Left Rear Bass Speaker R15 / Right Rear Bass Speaker R17 at bottom in rear doors

12 - Bass Loudspeaker R100 behind luggage compartment right side trim

13 - Inside Microphone R74 in Front Interior Light W1

14 - CD Changer R41 / iPod Baseplate R192 in glove compartment

15 - CAN-BUS (Infotainment)

16 - Telephone Transceiver R36 in electronics box under right front seat

17 - Left Antenna Module R108 behind luggage compartment left side trim

Radio/Navigation Display Control Module J503 , connections

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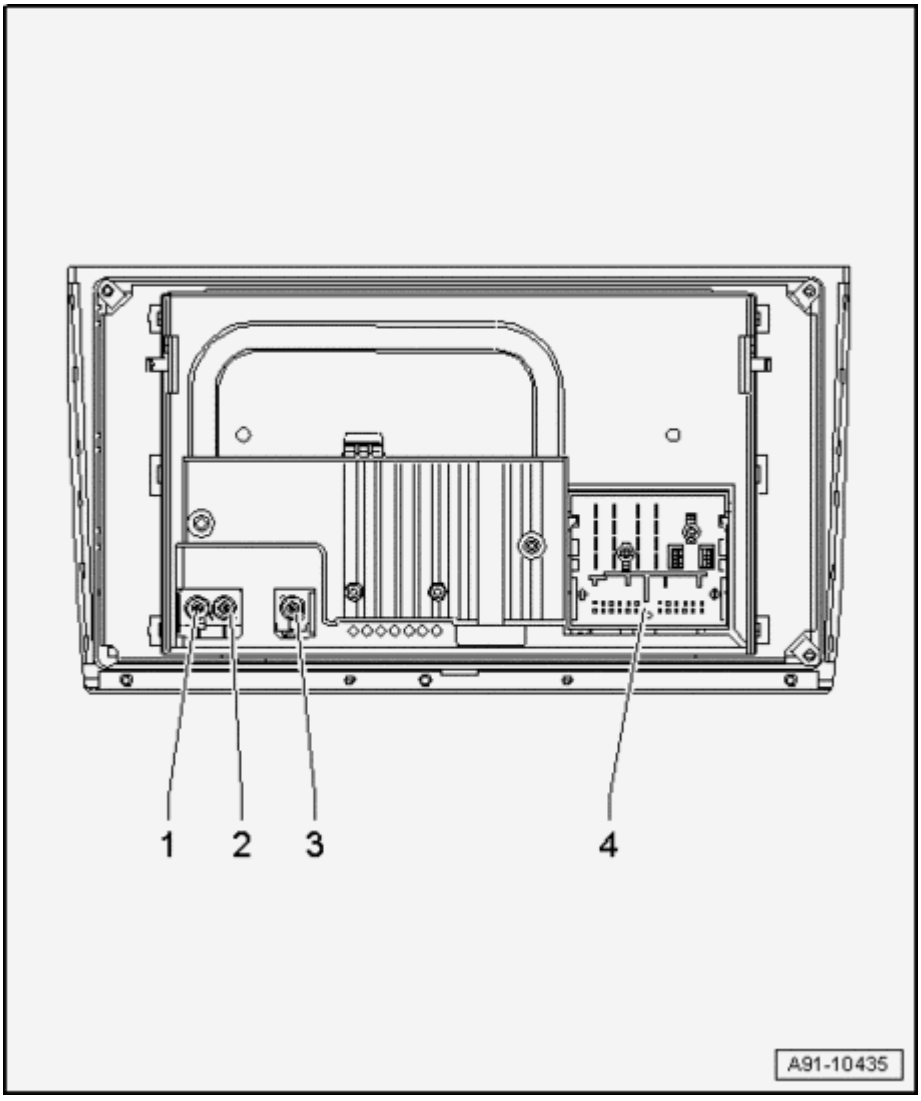

Fig. 252: Radio/Navigation Display Control Module J503 , Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - HF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

2 - IF connection (white) to Antenna Selection Control Module J515 / Left Antenna Module R108

3 - GPS connection (blue) from Antenna R11

4 - Connection block with four multi-pin connectors and a fuse for unit

NOTE:

- **Unlisted connector terminals are not assigned.**

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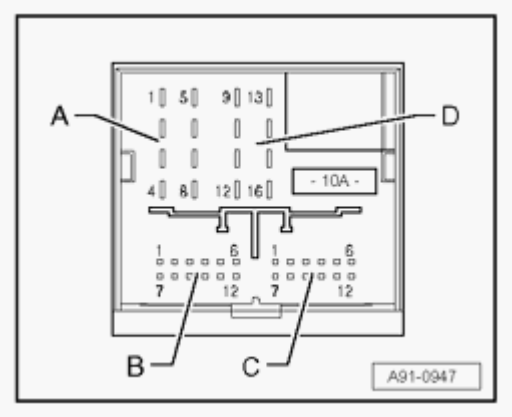

Fig. 253: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - Brown 8-pin multi-pin connector (T8q)

2 - Right front speaker (+) (not with BOSE)

3 - Left front speaker (+) (not with BOSE)

6 - Right front speaker (-) (not with BOSE)

7 - Left front speaker (-) (not with BOSE)

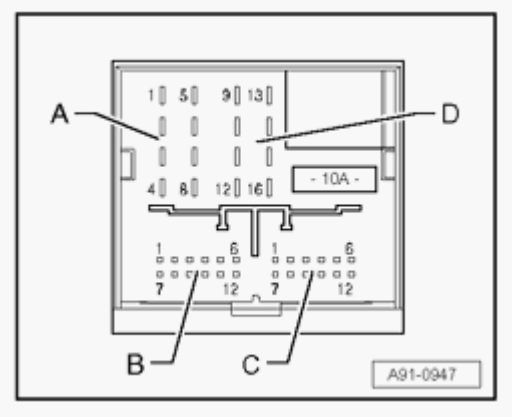

Fig. 254: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

B - Blue 12-pin multi-pin connector (T12n)

1 - Left signal from Digital Radio (DAB) R147

2 - CD ground to CD Changer R41

3 - Signal ground from Digital Radio (DAB) R147

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4 - Permanent positive to CD Changer R41

5 - BOSE coding to ground (only with BOSE)

6 - CD data out to CD Changer R41

7 - Right signal from Digital Radio (DAB) R147

8 - Left signal from CD Changer R41

9 - Right signal from CD Changer R41

10 - Positive switched to CD Changer R41

11 - CD data in from CD Changer R41

12 - CD CLK from CD Changer R41

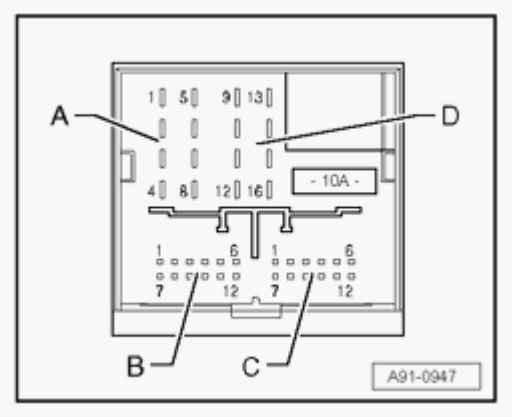

Fig. 255: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

C - Green 12-pin multi-pin connector (T12m)

1 - Speed signal (not used)

2 - Signal from Back-Up Light Switch F4 (not used)

3 - Left front signal to Amplifier R12 (only with BOSE)

5 - Left rear signal to Amplifier R12

6 - NF (-) from Telephone Transceiver R36 /preliminary setup for cell phone package

7 - L-diagnostic

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8 - Signal ground to Radio R12

9 - Right front signal to Amplifier R12 (only with BOSE)

11 - Right rear signal to Amplifier R12

12 - NF (+) from Telephone Transceiver R36 /preliminary setup for cell phone package

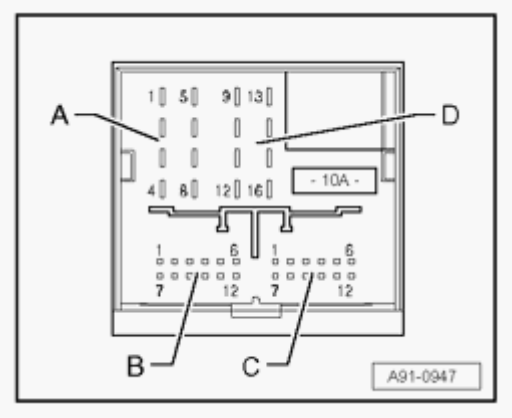

Fig. 256: Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

D - Black 8-pin multi-pin connector (T16j)

9 - CAN-Bus High (Infotainment)

10 - CAN-Bus Low (Infotainment)

11 - NF mute from preliminary setup for cell phone preparation

12 - Terminal 31

13 - Positive switched to Amplifier R12

14 - Anti-theft warning system ground from Comfort System Central Control Module J393

15 - Terminal 30

16 - Permanent positive to PIN 15 (anti-theft protection)

Total overview - Sedan component locations

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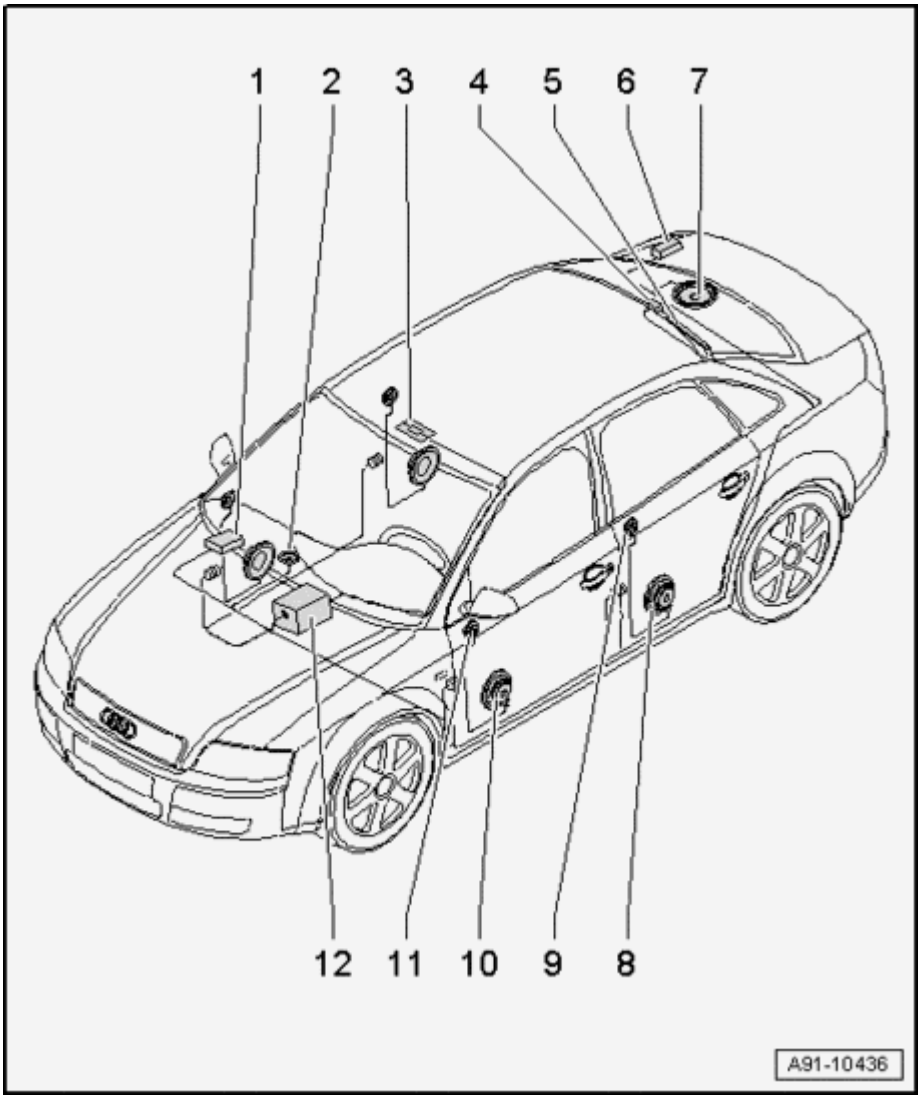

Fig. 257: Total Overview - Sedan Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

4 - Navigation System Antenna R50

- behind roof end trim
- Removing and installing --> **Navigation System Antenna R50 , Sedan, removing and installing**

5 - Antenna Selection Control Module J515

- behind roof end trim
- Connections
- Removing and installing --> **Antenna Amplifier R24 / Antenna Selection Control Module J515 , sedan, removing and installing**

6 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Sedan, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Sedan, removing and installing**

7 - Bass Loudspeaker R100

- in parcel shelf
- Removing and installing --> **Bass Loudspeaker R100 , Sedan, removing and installing**

8 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

9 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

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- in top of rear doors
- Removing and installing

10 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

11 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

12 - Radio/Navigation Display Control Module J503

- in center console, at top
- Connections --> **Radio/Navigation Display Control Module J503 , connections**
- Removing and installing --> **Radio/Navigation Display Control Module J503 , removing and installing**

General overview - Avant component locations

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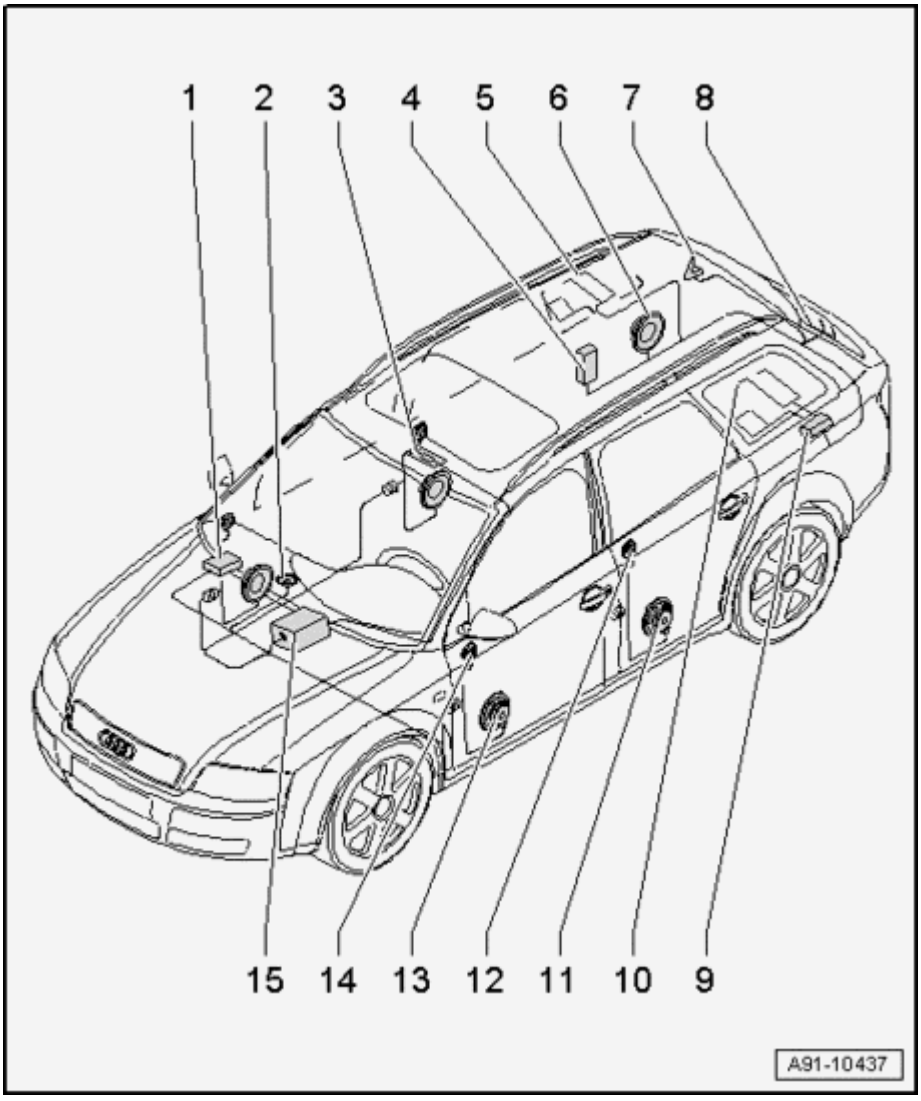

Fig. 258: General Overview - Avant Component Locations
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment
- Connections
- Removing and installing --> **CD Changer R41 , removing and installing**

- iPod Baseplate R192

- Connections
- Removing and installing --> **iPod Baseplate R192 , removing and installing**

2 - Inside Loudspeaker R70

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- In front instrument panel, center
- Removing and installing --> **Inside Loudspeaker R70 , removing and installing**

3 - Inside Microphone R74

- only with BOSE
- in Front Interior Light W1
- Function test --> **Inside Microphone R74 , function test**
- Removing and installing --> **Inside Microphone R74 , removing and installing**

4 - Digital Sound System Control Module R12

- behind luggage compartment right side trim
- Connections
- Removing and installing --> **Amplifier R12 , Avant, removing and installing**
- BOSE connections
- BOSE, removing and installing --> **BOSE Amplifier R12 , Avant, removing and installing**

5 - Right rear window antennas

- FM3

6 - Bass Loudspeaker R100

- behind luggage compartment right side trim
- Removing and installing --> **Bass Loudspeaker R100 , Avant, removing and installing**

7 - Antenna R11

- GPS/GSM
- Roof antenna
- Removing and installing --> **Navigation System Antenna R50 , Avant, removing and installing**

8 - Rear window antennas

- FM2

9 - Left Antenna Module R108

- Behind luggage compartment left side trim
- Connections
- Removing and installing --> **Left Antenna Module R108 , Avant, removing and installing**

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10 - Left rear window antennas

- AM/FM1

11 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors
- Removing and installing

12 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors
- Removing and installing

13 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors
- Removing and installing

14 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors
- Removing and installing

15 - Radio/Navigation Display Control Module J503

- in center console, at top
- Connections --> **Radio/Navigation Display Control Module J503 , connections**
- Removing and installing --> **Radio/Navigation Display Control Module J503 , removing and installing**

Radio/Navigation Display Control Module J503 , removing and installing

Special tools, testers and auxiliary items required

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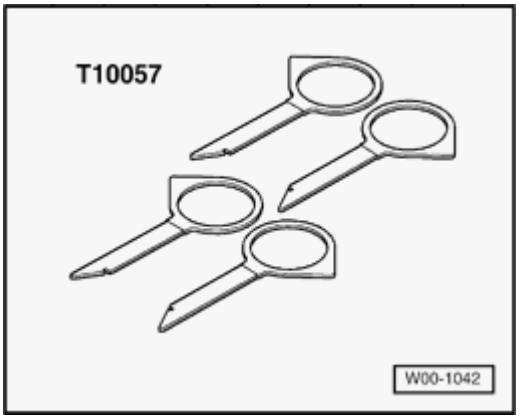

Fig. 259: Identifying Special Tools - Radio Removal Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Radio removal tool T10057

- If control module is replaced, select "Replacement" function for appropriate control module in "Guided Fault-Finding" routine.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

- Turn off all electrical components.
- Remove ignition key.

Removing

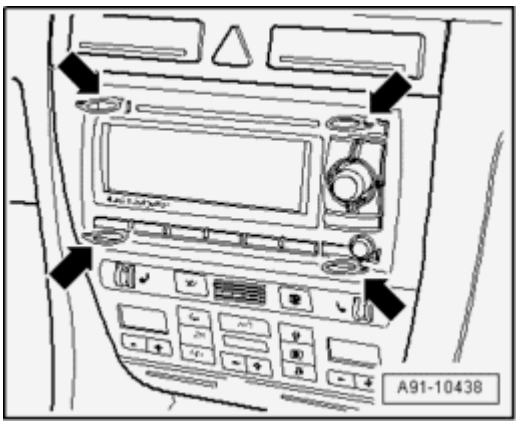

Fig. 260: Placing Radio Release Tool T10057 In Release Slits On Radio/Navigation Display Control Module J503
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Radio Release Tool T10057 - **arrows** - in release slits on Radio/Navigation Display Control Module J503 until they engage. Points on grip eyes face outward.
- Remove Radio/Navigation Display Control Module J503 from instrument panel.
- Release connectors on Radio/Navigation Display Control Module J503 and remove it.

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- Remove Radio Release Tool T10057 by pressing locking tabs on Radio/Navigation Display Control Module J503.

Installing

- Connect all harness connectors.
- Carefully slide Radio/Navigation Display Control Module J503 into instrument panel and allow it to engage in installation frame.

TELEMATICS

General information

CAUTION: Before beginning repairs on the electrical system:

- **Switch off all electrical components.**
- **Switch the ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **Prior to disconnecting vehicle battery on vehicles equipped with Audi Telematics by OnStar, switch-off the emergency (back-up) battery for Telephone/Telematics Control Module J526 --> Emergency Battery (Telematics) A16 , switching on/off.**
- **After reconnecting vehicle battery on vehicles equipped with Audi Telematics by OnStar, switch-on the emergency (back-up) battery for Telephone/Telematics Control Module J526 --> Emergency Battery (Telematics) A16 , switching on/off.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified in --> - 27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**

CAUTION:

- **OnStar will cease telematics service/support of the Audi telematics system on December 31, 2007 (information at time of publication). Audi telematics systems will not function from this time on.**
- **Under no circumstances should any telematics system diagnosis or repairs be carried out after December 31, 2007.**

The telematics system installed as optional equipment from model year 2002 through 10.04 production.

Telematics is an in-vehicle communication system that uses cellular, Internet and Global Positioning System (GPS) technologies to provide the customer with safety, security and convenience services.

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GPS is a "constellation" of 24 satellites that orbit the earth and constantly broadcast radio signals. The Telematics/Telephone Control Module receives GPS data, decodes it, and transmits the vehicles location to the service providers call center via the national cellular network.

Telematics services for Audi customers are provided by OnStar via a dedicated call center. Service plans may provide route directions and concierge services as well as emergency or vehicle repair services. For details Audi Telematics by OnStar Owners Manual.

During events where the Airbag Control Module processes a crash signal, the vehicle emergency flashers are activated and the doors are unlocked via the respective door control modules. In addition, the telematics system automatically places an emergency call to the OnStar call center.

Telematics hardware includes the driver operated telematics control head (which contains the OnStar control buttons and system status light), microphone, backup loudspeaker, roof-mounted GPS/Cellular antenna, Telematics/Telephone Control Module (with supporting software) and related wiring.

An emergency (back-up) battery for the telematics control module is also used in case the vehicle battery goes dead or becomes disconnected due to accident, impact etc..

All telematics components are factory installed/integrated into the vehicle electrical system.

An optional cellular telephone is integrated with the telematics system. Telephone antenna type, quantity and location varies by model.

Telematics System, layout:

- Sedan --> **Telematics System - Sedan, layout**
- Avant --> **Telematics System - Avant, layout**

Telematics System, component overview:

- Sedan --> **Telematics System - Sedan, component overview**
- Avant --> **Telematics System - Avant, component overview**

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the telematics system. Always read the Audi Telematics by OnStar owners manual and review all telematics functions.

NOTE:

- **Additional information:**

Audi Telematics by OnStar Owners Manual

-->Self Study Program - Course Number 993203 "Audi Telematics by OnStar"

Wiring Diagrams Component Locations

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Antenna cable repairs --> - **97 WIRING** .

CAN-Bus wire repairs --> - **97 WIRING**

On Board Diagnostic (OBD), function

The telephone/telematics system has extensive On Board Diagnostic (OBD) capabilities.

Telephone/Telematics Control Module J526 has a Diagnostic Trouble Code (DTC) memory. If a malfunction occurs in one of the components or wires which is monitored by the system, a record of the type of malfunction is stored in DTC memory.

Troubleshoot telephone/telematics system malfunctions and code or adapt system functions by performing OBD program using Vehicle Diagnosis, Testing and Information System VAS 5051/5052 in operating mode "Guided Fault Finding".

VAS 5051/5052 connected and in mode "Guided Fault Finding" :

- Enter appropriate model, equipment and model year information and press ">" to confirm.

After the DTC memory of all control modules has been checked:

- Press "Go to" button
- Select: "Function / Component Selection"
- Select: "Body (01; 27; 50 - 97)"
- Select: "Electrical Equipment (01; 90 - 97)"
- Select: "01 - On Board Diagnostic (OBD) capable systems"
- Select: "75 - Telematics USA"
- Select: appropriate option
- Follow tester prompts.

Audi Telematics by OnStar, functions

Telematics Control Head - OnStar controls

The Telematics Control Head is integrated with the front interior light module. The control head contains three separate buttons as well as a system status indicator light (LED).

The OnStar "Star" button is used to contact the OnStar call center to request various convenience services. It is also used to initialize/activate the owners subscription to OnStar services and/or update the customers account in the event that the Telephone/Telematics Control Module requires replacement.

The "Emergency" button is used to contact the OnStar call center to request emergency services such as fire department, police etc.

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The Communication "Dot" button is used to end a call to the OnStar call center, place or answer personal calls (in conjunction with the optional digital cellular telephone), or cancel a call if one of the other buttons is accidentally pressed.

NOTE:

- **Use of certain OnStar services requires a subscribers Personal Identification Number(s) (PIN). For complete system operation details, refer to Audi Telematics by OnStar Owners Manual**

Telematics Control Head - OnStar system status light

The system status light is located between the Communication and Emergency buttons. The green light comes on after a self-check routine is performed (approx. 10- 15 seconds after ignition is switched on).

Indicated conditions:

- Green: Indicates system has passed self-test and is ready to place or receive calls. Light remains on even in areas without cellular coverage.
- Blinking green: Indicates a call has been initiated or is in progress.
- Red: Indicates system has not passed self-test or indicates system malfunction.

NOTE:

- **System troubleshooting using system status light**

OnStar Personal Calling

An optional digital cellular telephone with specific features integrated into the telematics system is also available.

OnStar and OnStar Personal Calling are activated separately.

NOTE:

- **Use of certain OnStar services requires a subscribers Personal Identification Number(s) (PIN). For complete system operation details, refer to Audi Telematics by OnStar Owners Manual.**

Telematics System, troubleshooting using OnStar system status light

The following allows technicians to perform an initial evaluation of telematics system operation status for troubleshooting using the OnStar system status light (and pre-recorded system messages where applicable).

NOTE:

- **After pressing either the OnStar or Emergency button, a recorded message announces: "connecting to OnStar," followed by progression tones. Normal connection time is 10 - 15 seconds. However, due to local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.**

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Condition - system status light "green" plus:

- Message "unable to connect to OnStar" and disconnect
- Message "OnStar request ended"
- Nothing happens
- Cellular message

Indicates system cellular reception is affected. Proceed as follows:

- Relocate vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).

Shortcomings in the vehicles cellular/GPS antenna system also affects connectivity.

- Check all cellular/GPS antenna connections, and perform OBD program using VAS 5051/5052 in mode "Vehicle Self Diagnosis" or "Guided Fault Finding". Check for DTCs related to antenna function.

If still unable to connect:

- Record the VIN and customer details and call OnStar Customer Care at 1-888-390-4050. Identify yourself to the advisor as an Audi technician. The advisor will verify the customers account is active. Further troubleshooting assistance may be given.

Condition - system status light "red" :

System hardware (vehicle portion) is affected. Perform OBD program --> **On Board Diagnostic (OBD), function**

NOTE:

- **In the event any of the OnStar control buttons are either inadvertently or deliberately pressed for longer than 15 seconds, the OBD program assumes a button is sticking. The red status light will come on and a DTC loads in memory. Perform OBD program using VAS 5051/5052 and check DTC memory for DTC 01526 "mechanical malfunction". Inform customers accordingly.**

Telematics System - Sedan, layout

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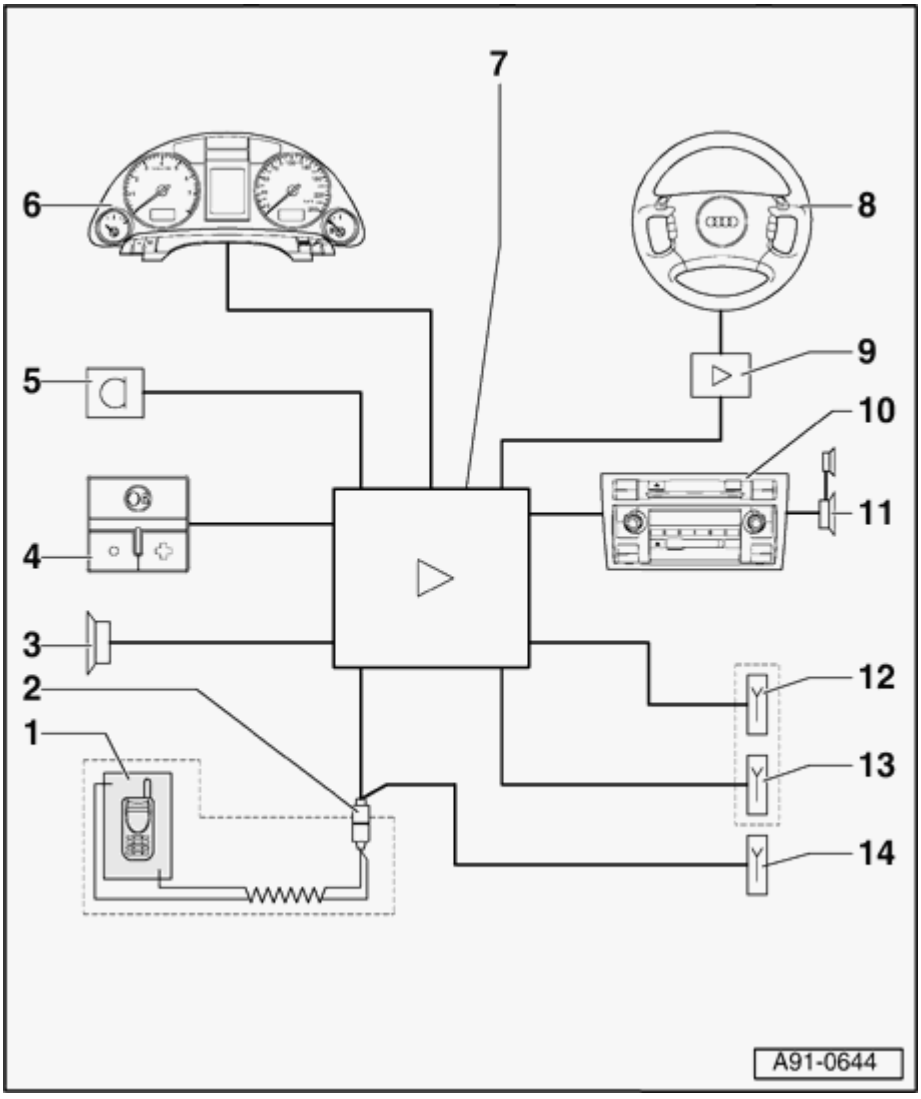

Fig. 261: Telematics System - Sedan, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Cellular Telephone

- Optional - only in conjunction with telematics system

2 - Harness connector for cellular telephone preparation

- In center console storage compartment

3 - Auxiliary Speaker (Telematics) R91

- In drivers storage compartment

4 - Telematics Control Head E264

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- With telematics system control buttons
- Integrated with front interior lamp module

5 - Telephone Microphone R38

- Integrated with front interior lamp module

6 - Instrument Cluster Control Module J285

7 - Telephone/Telematics Control Module J526

- In Electronics box under front passengers seat

8 - Multi-function steering wheel

9 - Steering Column Electronic Systems Control Module J527

10 - Radio R

- In center instrument panel

11 - Radio system loudspeakers

- Used for speech messages

12 - Auxiliary Antenna (Telematics) R90

- Integrated with roof antenna

13 - Navigation System Antenna R50

- Integrated with roof antenna

14 - Telephone Antenna R65

- Under rear headliner trim

Telematics System - Avant, layout

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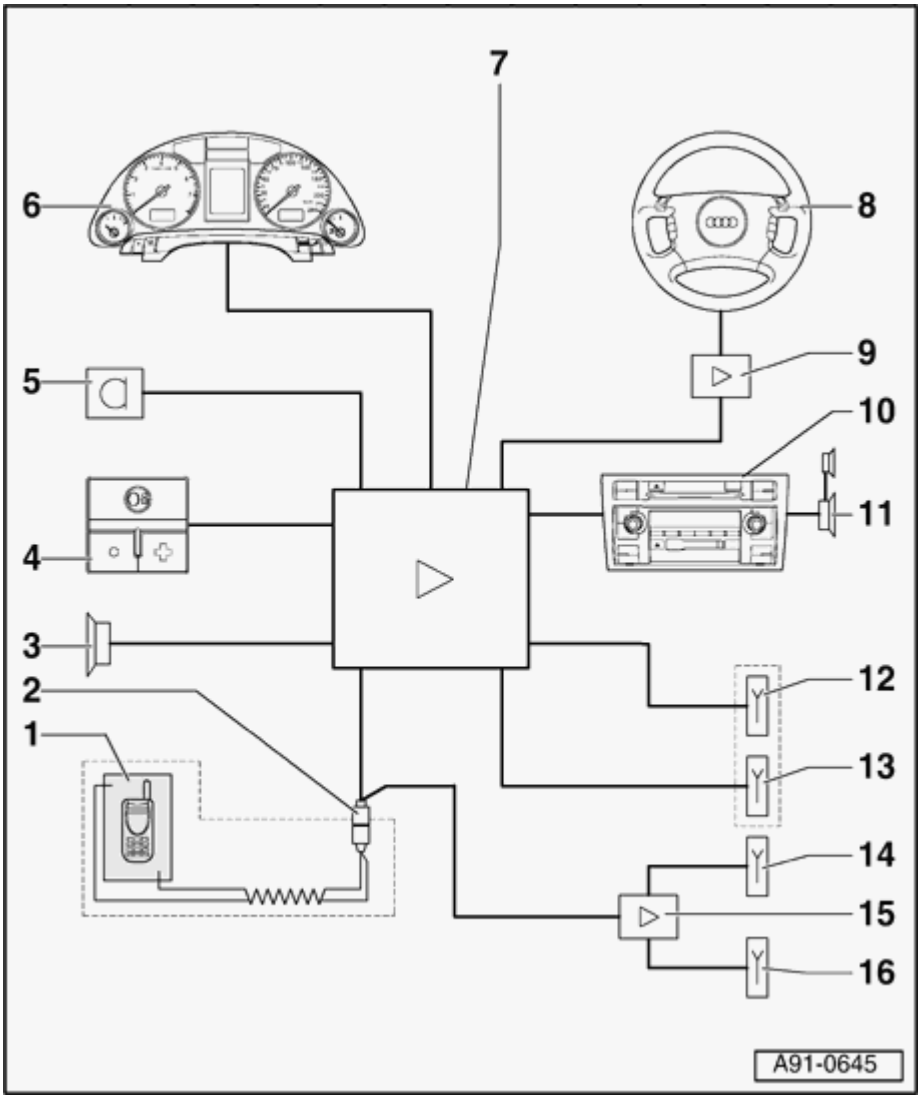

Fig. 262: Telematics System - Avant, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Cellular Telephone

- Optional - only in conjunction with telematics system

2 - Harness connector for cellular telephone preparation

- In center console storage compartment

3 - Auxiliary Speaker (Telematics) R91

- In drivers storage compartment

4 - Telematics Control Head E264

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- With telematics system control buttons
- Integrated with front interior lamp module

5 - Telephone Microphone R38

- Integrated with front interior lamp module

6 - Instrument Cluster Control Module J285

7 - Telephone/Telematics Control Module J526

- In Electronics box under front passengers seat

8 - Multi-function steering wheel

9 - Steering Column Electronic Systems Control Module J527

10 - Radio R

- In center instrument panel

11 - Radio system loudspeakers

- Used for speech messages

12 - Auxiliary Antenna (Telematics) R90

- Integrated with roof antenna

13 - Navigation System Antenna R50

- Integrated with roof antenna

14 - Telephone Antenna R65

- Under front bumper cover

15 - Antenna Splitter R87

- In Electronics box under front passenger seat

16 - Telephone Antenna 2 R127

- Under rear bumper cover

Telephone/Telematics Control Module J526 , multi-pin connector assignments

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Telephone/Telematics Control Module J526 , connector view

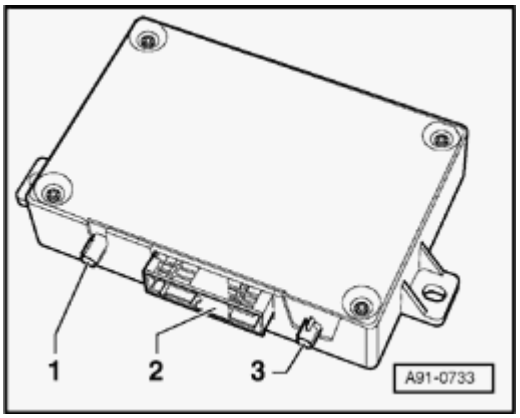

Fig. 263: Telephone/Telematics Control Module J526 , Connector View
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Connection - GPS antenna

2 - 42-pin connector

3 - Connection - Telematics antenna

Telephone/Telematics Control Module J526 , multi-pin connector assignments

NOTE:

- **Terminals which are not listed are vacant/unassigned.**

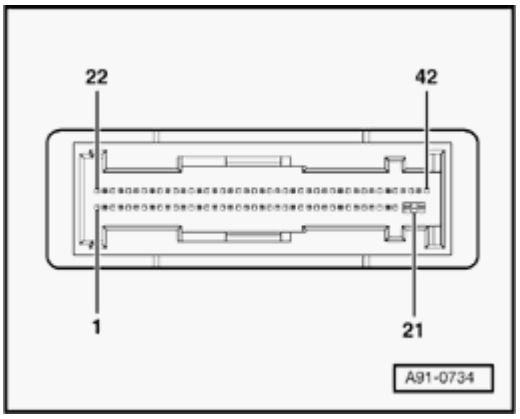

Fig. 264: Telephone/Telematics Control Module J526 , Multi-Pin Connector Assignments
Courtesy of VOLKSWAGEN UNITED STATES, INC.

42-pin, multi-pin connection - T42

1 - Horn

2 - Door lock

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3 - Cellular telephone - audio input

4 - Cellular telephone - battery feedback

5 - Cellular telephone - Ground (GND)

6 - Cellular telephone - Transmit (RS232)

7 - Cellular telephone - Line 1 (Tx)

8 - Cellular telephone - shielded Ground (GND)

9 - CAN-Bus High - Infotainment

10 - Audio out - (+)

11 - Emergency speaker - (+)

12 - Inside microphone - (+)

13 - Data Link Connector (DLC)

14 - Switched positive - Terminal X

15 - LED - Red

16 - LED - Green

18 - Ground (GND) - Terminal 31

19 - Ground (GND) - Terminal 31

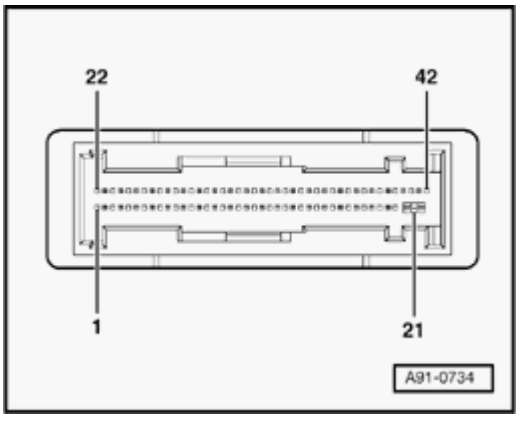

Fig. 265: Telephone/Telematics Control Module J526 , Multi-Pin Connector Assignments
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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42-pin, multi-pin connection - T42, continued

22 - Lights

23 - Door unlock

24 - Cellular telephone Audio Output

25 - Cellular telephone - Audio Ground

26 - Cellular telephone - Power

27 - Cellular telephone - Receive (RS232)

28 - Cellular telephone - Line 2 (Rx)

29 - Cellular telephone - Hook Switch

30 - CAN Bus - Low - Infotainment

31 - Audio out

32 - Emergency Speaker - (-)

33 - Inside microphone - (-)

34 - Mute

35 - Keypad In

36 - Keypad Power

38 - Airbag (Crash) Line output

39 - Battery positive (B+) - Terminal 30

40 - Battery positive (B+) - Terminal 30

41 - Backup battery - (+)

42 - Backup battery - (+)

Telematics System - Sedan, component overview

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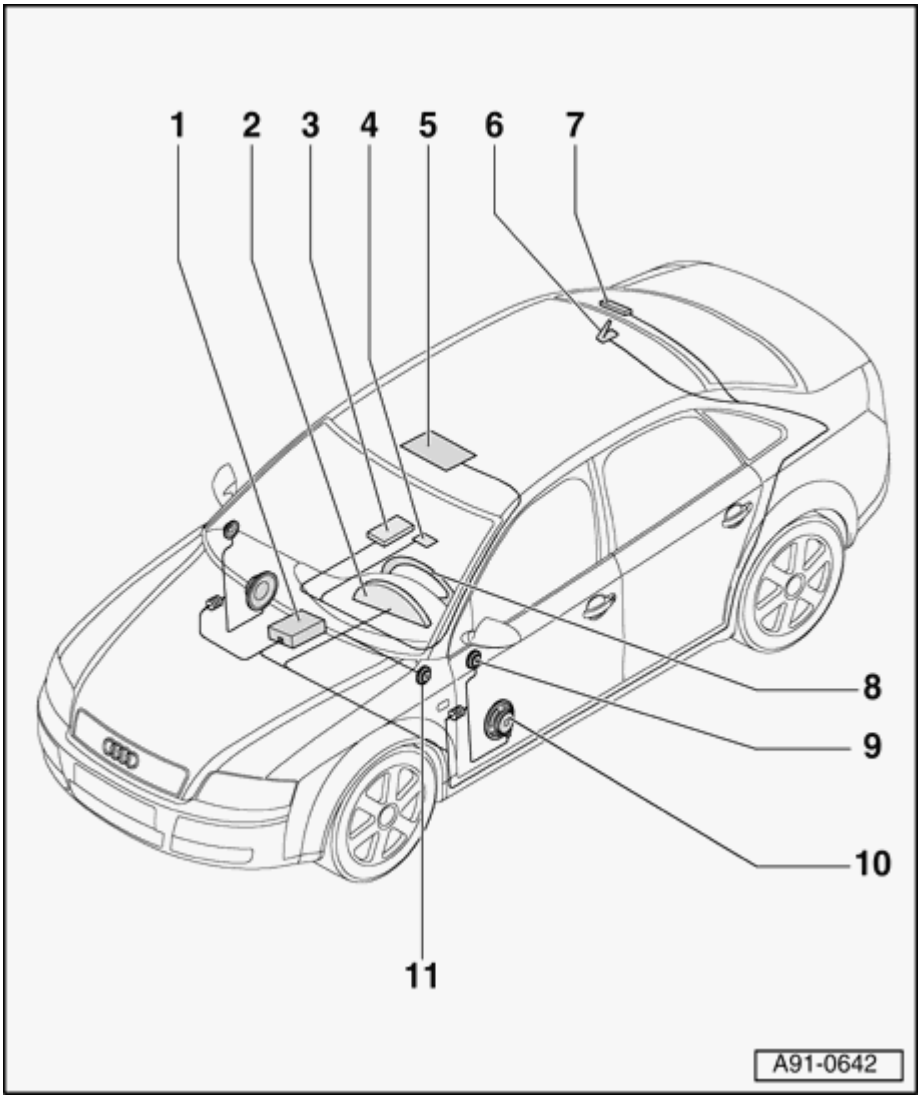

Fig. 266: Telematics System - Sedan, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Radio R

- In center instrument panel

2 - Instrument Cluster Control Module J285

3 - Telephone/Telematics Control Module J526

- In Electronics box under front passengers seat
- Multi-pin connector assignments
- Removing and installing --> **Telephone/Telematics Control Module J526 , removing and installing**
- Replacing and configuring --> **Telephone/Telematics Control Module J526 , replacing and configuring**

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4 - Harness connector for cellular telephone preparation

- In center console storage compartment

5 - Telematics Control Head E264

- With telematics system control buttons
- Integrated with front interior lamp module and inside microphone
- Removing and installing --> **Telematics Control Head E264 , removing and installing**

6 - Roof antenna with Navigation System Antenna R50 and Auxiliary Antenna (Telematics) R90

- Removing and installing --> **Roof antenna with Navigation System Antenna R50 and Auxiliary Antenna (Telematics) R90 , removing and installing**

7 - Telephone Antenna R65

- Under rear headliner trim
- Removing and installing --> **Telephone Antenna R65 - Sedan, removing and installing**

8 - Multi-function steering wheel

- Line output via Steering Column Electronic Systems Control Module J527

9 - Radio system speaker

- Used for telematics service speech messages

10 - Radio system speaker

- Used for telematics service speech messages

11 - Auxiliary Speaker (Telematics) R91

- In drivers storage compartment
- Removing and installing --> **Auxiliary Speaker (Telematics) R91 , removing and installing**

Telematics System - Avant, component overview

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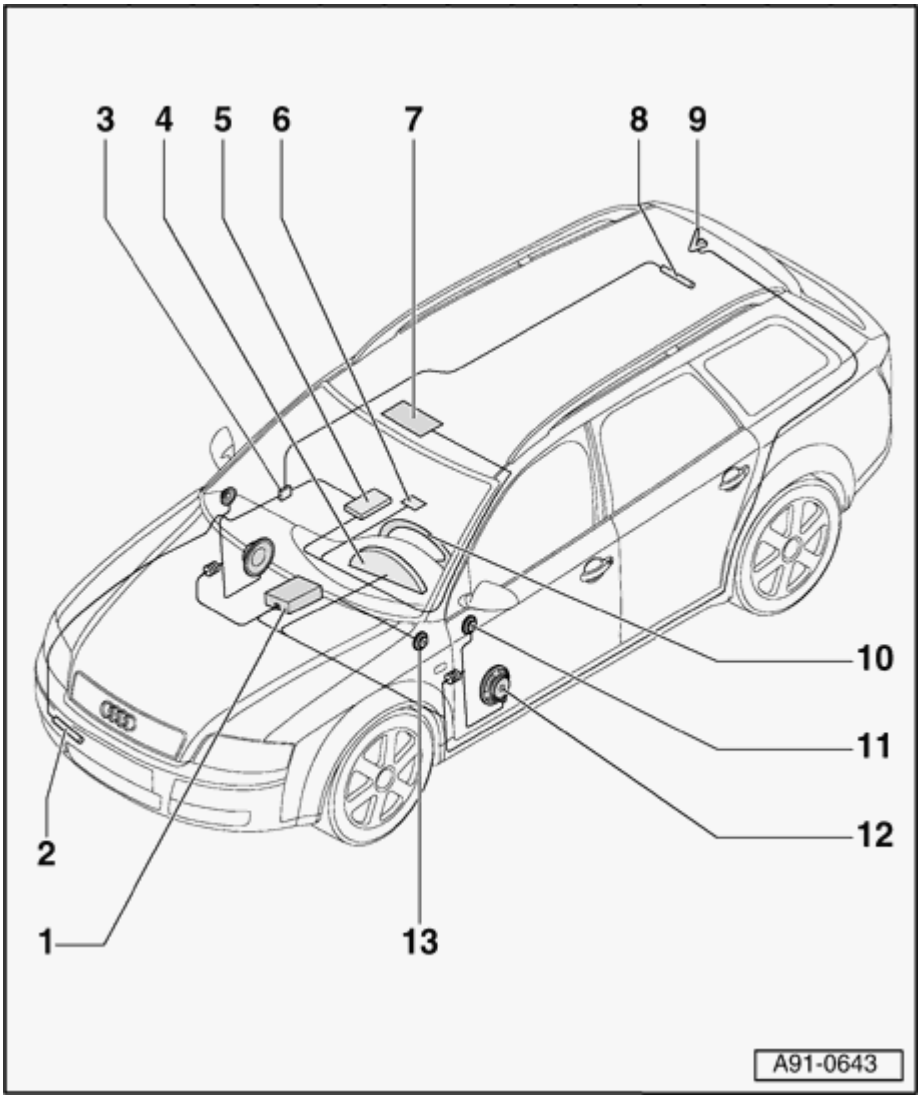

Fig. 267: Telematics System - Avant, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Radio R

- In center instrument panel

2 - Telephone Antenna R65

- Under front bumper cover
- Removing and installing --> **Telephone Antenna R65 and Telephone Antenna 2 R127 - Avant, removing and installing**

3 - Antenna Splitter R87

- In Electronics box under front passenger seat.

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- Removing and installing --> **Antenna Splitter R87 - Avant, removing and installing**

4 - Instrument Cluster Control Module J285

5 - Telephone/Telematics Control Module J526

- In Electronics box under front passengers seat
- Multi-pin connector assignments
- Removing and installing --> **Telephone/Telematics Control Module J526 , removing and installing**
- Replacing and configuring --> **Telephone/Telematics Control Module J526 , replacing and configuring**

6 - Harness connector for cellular telephone preparation

- In center console storage compartment

7 - Telematics Control Head E264

- With telematics system control buttons
- Integrated with front interior lamp module and inside microphone
- Removing and installing --> **Telematics Control Head E264 , removing and installing**

8 - Telephone Antenna 2 R127

- Under rear bumper cover
- Removing and installing --> **Telephone Antenna R65 and Telephone Antenna 2 R127 - Avant, removing and installing**

9 - Roof antenna with Navigation System Antenna R50 and Auxiliary Antenna (Telematics) R90

- Removing and installing --> **Roof antenna with Navigation System Antenna R50 and Auxiliary Antenna (Telematics) R90 , removing and installing**

10 - Multi-function steering wheel

- Line output via Steering Column Electronic Systems Control Module J527

11 - Radio system speaker

- Used for telematics service speech messages

12 - Radio system speaker

- Used for telematics service speech messages

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13 - Auxiliary Speaker (Telematics) R91

- In drivers storage compartment
- Removing and installing --> **Auxiliary Speaker (Telematics) R91 , removing and installing**

Service mode, activating/deactivating

CAUTION:

- **Telephone/Telematics Control Module J526 must be put in service mode before disconnecting Battery A.**
- **If this is not done, the Emergency Battery (Telematics) A16 in Telephone/Telematics Control Module J526 is discharged.**

Service mode, activating

- Switch Telematics on.
- Press button sequence "#4610#" on the Telephone Handset R37.
- Confirm entry by pressing Navi button on Telephone Handset R37.

Shown on display:

Leave service mode

Service mode is activated, Battery A can be disconnected.

Service mode, deactivating

The Battery A is connected.

Telematics is switched on.

Shown on display:

Leave service mode

- Press the Navi button on the Telephone Handset R37.

Service mode is deactivated.

Telephone/Telematics Control Module J526 , removing and installing

NOTE:

- **The following procedure describes control module removal and installation only.**
- **If the control module is replaced, the OnStar system needs to be configured and the emergency (backup) battery must be replaced.**

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- **DO NOT exchange Telephone/Telematic Control Modules between vehicles!. Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar and National Cellular Telephone Network to identify the vehicle and administer the customers account.**

CAUTION:

- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Switch off Emergency Battery (Telematics) A16 --> **Emergency Battery (Telematics) A16 , switching on/off**
- Remove A-pillar trim: --> - **70 - INTERIOR TRIM** .
- Remove front passengers seat --> - **72 - SEAT - FRAMES** .

NOTE:

- **Seat belt need not be removed from seat frame.**
- **Pull back floor carpet..**

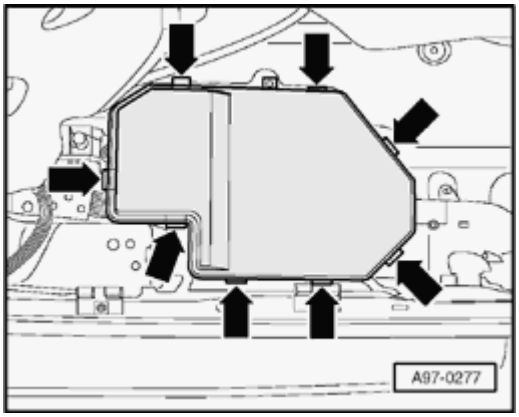

Fig. 268: Identifying Passenger Side Electronics Box Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release cover for electronics box - **arrows** - and remove.

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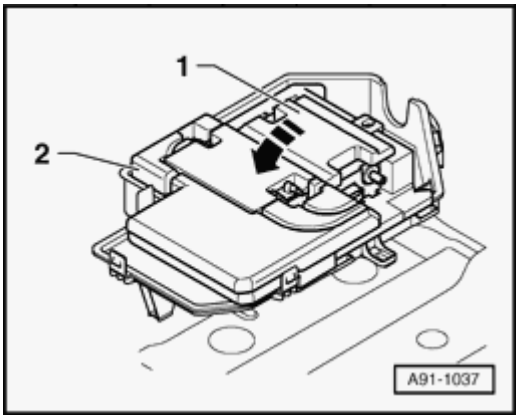

Fig. 269: Opening Lid Of Mounting Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open lid - **1** - of mounting box - **2** - in direction of - **arrow** -.

Avant only:

- Disconnect cable connection to Antenna Splitter R87.

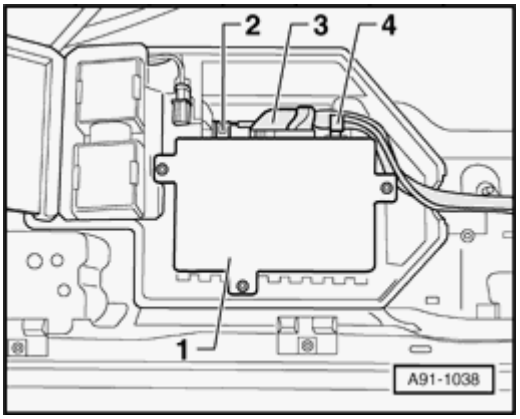

Fig. 270: Identifying Electrical/Antenna Connection And Control Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical/antenna connections - **2** - , - **3** - and - **4** -.
- Remove control module - **1** - from mounting box.

Installing:

- Install in reverse order of removal, noting the following.
- If existing control module is reinstalled, switch on Emergency Battery (Telematics) A16 --> **Emergency Battery (Telematics) A16 , switching on/off**

NOTE:

- **Ensure correct seating and fit of electrical connections.**

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- **Antenna connections (couplings) must be properly aligned and tight to ensure proper reception.**
- **If control module is replaced, replace Emergency Battery (Telematics) A16 --> Emergency Battery (Telematics) A16 , removing and installing and configure control module --> Telephone/Telematics Control Module J526 , replacing and configuring**

Telephone/Telematics Control Module J526 , replacing and configuring

After replacing the Telephone/Telematic Control Module, the OnStar system needs to be configured and the newly-installed emergency (back-up) battery must be switched on as described below.

Have the VIN and customer details on hand.

NOTE:

- **DO NOT exchange Telephone/Telematics Control Module J526 between vehicles!. Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar and National Cellular Telephone Network to identify the vehicle and administer the customers account.**
- **Failure to configure the control module after replacement will prevent OnStar services and features from functioning, and will result in a customer return for repair.**
- **Always replace Emergency Battery (Telematics) A16 after replacing Telephone/Telematics Control Module J526.**

Replacing:

- Where applicable, carefully record the 8-character Station Identification (STID) number and Electronic Serial Number (ESN) from labels on replacement control module.

NOTE:

- **If the STID number and ESN are not located on a data label, continue with procedure. This data can be determined using OBD program once new module is installed and coded.**

- Remove and replace control module --> **Telephone/Telematics Control Module J526 , removing and installing** ,
- Replace Emergency Battery (Telematics) A16 --> **Emergency Battery (Telematics) A16 , removing and installing**
- Connect and use VAS 5051/5052 in mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

After all control modules have been registered and DTC memories checked:

- Press "Go to"

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- Select: "Function/Component Selection"
- Select: "Body, (01; 27; 50-97)"
- Select: "Electrical equipment" (01; 27, 90-97"

- Select: "01 - On Board Diagnostic (OBD) capable systems"
- Select: "75- Telematics USA"
- Select: "Functions - Telematic"
- Select: "J526 - Telephone/Telematic Ctrl. Module, coding"

- Follow the testers coding procedure prompts. Ensure applicable vehicle equipment information is entered as requested.

When coding is complete:

- Return to "Functions - Telematic " list
- Select: "J526 - Telephone/Telematic Ctrl. Module, service mode disco. battery "
- If necessary, press ">" to advance
- Select/press button "2 - New emergency battery has been installed (reset counter)"

- Follow the testers adaptation prompts.

If the STID number and ESN do not appear on the new control module, proceed as follows:

- Return to select "Functions - Telematic"
- Select: "J526 - Telephone/Telematic Ctrl. Module, measuring value block"
- Read display group 78 data
- Record 8-character ESN from displayed data.

Example of display group 78 data: 098000A84E7941USA3

Designations:

- 098 = Build Group prefix
- 000 = Placeholders
- A84E7941 = 8-character Electronic Serial Number (ESN) (example only! - each control module ESN is different)
- USA = USA telematics version

- 3 = Check digit

- Read display group 79 data
- Record 8-character STID number from displayed data.

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Example of display group 79 data: 09900007A14CBF

Designations:

- 099 = Build Group prefix
- 00 = Placeholders
- 007A14CB = 8-character Station Identification (STID) number (example only! - each control module STID is different)
- F = Check digit

Continued for all:

- Exit and return to start screen
- Select: "Vehicle Self Diagnosis "
- Select: vehicle system "75 - "Telematics USA"
- Select: function "05 - "Erase DTC Memory "
- Select: function "06 "End Output "
- Switch off ignition and wait a few moments
- Switch on ignition
- Return to select vehicle system in Vehicle Self Diagnosis "75 - "Telematics USA"
- Select: function "02 - Check DTC Memory "

No DTCs must be present.

- Check and confirm the green status indicator light in telematics control head is on
- Select: function "06 - End Output "
- Disconnect VAS 5051/5052 from Data Link Connector (DLC)

Control module, configuring:

- Drive vehicle outside to area away from tall buildings, and with no overhead obstructions (trees, bridges, etc.).
- Press the blue "OnStar" button. A recorded introduction will be heard.
- Press the "OnStar" button again at any time during the recording (it is not necessary to wait for the recording to finish).
- When an OnStar call center advisor answers, identify yourself as an Audi Technician, and that you have replaced the "Vehicle Communications Interface Unit (VCIM)".
- Supply advisor with STID number and ESN from new module. Supply the VIN and customer details if necessary. The advisor will guide you through the system configuration and update of the customers account.

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- When configuration is complete, end call by pressing the Communications "DOT" button.
- Wait ten minutes and press the "OnStar" button again to verify system operation. Inform call center advisor you are an Audi Technician performing a quality check after VCIM replacement/system configuration.
- End call by pressing the Communications "DOT" button.

NOTE:

- **Normal connection time is 10 - 15 seconds. However, depending on local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.**
- **If the message: "unable to contact OnStar " is heard, try relocating vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).**
- **If the message: "OnStar request ended " is heard, the cellular connection was interrupted before the connection was completed. Wait for a short period of time before repeating connection attempt.**
- **If you are still unable to connect, call OnStar Customer Care at 1-888-390-4050. The advisor will verify the customers OnStar account is active.**

Emergency Battery (Telematics) A16 , switching on/off

In order to avoid unnecessary discharge of the emergency (back-up) battery, it must always be switched off prior to disconnecting the vehicle battery, and switched back on after the vehicle battery is reconnected.

Should the existing Telephone/Telematics Control Module J526 be removed and reinstalled, the emergency (back-up battery) must be switched off prior to removal, and switched on after reinstallation.

Should the Telephone/Telematics Control Module J526 be replaced and configured, the emergency (back-up battery) must be switched off prior to removal, replaced, and switched on after control module installation and coding --> **Emergency Battery (Telematics) A16 , removing and installing**

Preparation:

- Connect and use VAS 5051/5052 in mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

After all control modules have been registered and DTC memories checked:

- Press "Go to"
- Select: "Function/Component Selection"
- Select: "Body, (01; 27; 50-97)"
- Select: "Electrical equipment" (01; 27, 90-97"
- Select: "01 - On Board Diagnostic (OBD) capable systems"

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- Select: "75- Telematics USA"
- Select: "Functions - Telematic"
- Select: "J526 - Telephone/Telematic Ctrl. Module, service mode disco. battery "

- If necessary, press ">" to advance

Switching off:

- Select/press button "3 - Service mode activating (no load on emergency battery)"
- Follow the testers prompts.

Switching on:

- Select/press button "1 - Service mode deactivating (normal operating condition)"
- Follow the testers prompts.

Emergency Battery (Telematics) A16 , removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Switch off Emergency Battery (Telematics) A16 --> **Emergency Battery (Telematics) A16 , switching on/off**
- Remove A-pillar trim: --> - **70 - INTERIOR TRIM** .
- Remove front passengers seat --> - **72 - SEAT - FRAMES** .

NOTE:
- **Seat belt need not be removed from seat frame.**
- **Pull back floor carpet..**

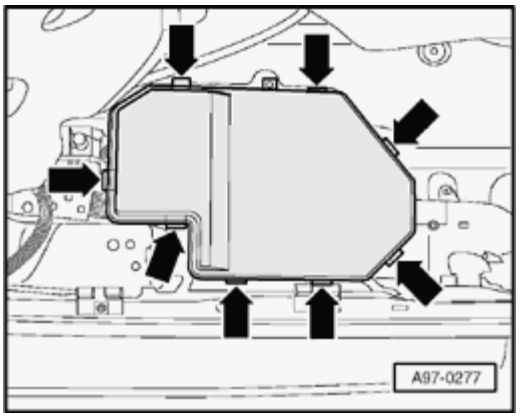

Fig. 271: Identifying Passenger Side Electronics Box Cover

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release cover for electronics box - **arrows** - and remove.

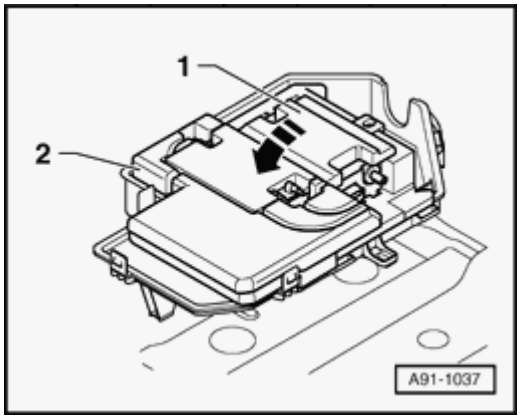

Fig. 272: Opening Lid Of Mounting Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open lid - **1** - of mounting box - **2** - in direction of - **arrow** -.

Avant only:

- Disconnect cable connection to Antenna Splitter R87.

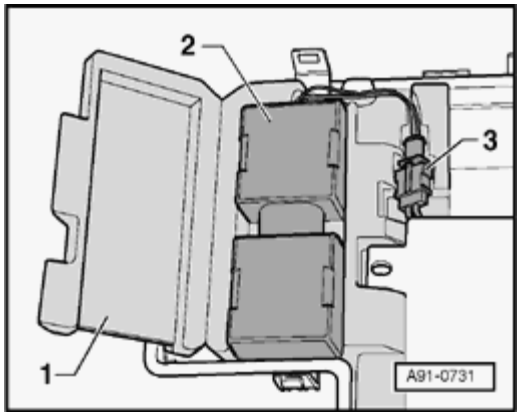

Fig. 273: Identifying Electrical Harness Connector And Emergency Battery
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connector - **3** -.
- Remove emergency battery - **2** - from bracket.

Installing:

Install in reverse order of removal, noting the following:

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Reinstallation of existing emergency (back-up) battery:

- Switch on emergency (back-up) battery (VAS 5051/5052 still connected and in "75 - Telematics USA - Functions" mode)
- Select/press button "1 - Service mode deactivating (normal operating condition)"
- Follow the testers prompts.

Installation of new emergency (back-up) battery:

- Switch on emergency (back-up) battery and reset counter (VAS 5051/5052 still connected and in "75 - Telematics USA - Functions" mode)
- Select/press button "2 - New emergency battery has been installed (reset counter)"
- Follow the testers prompts.

Antenna Splitter R87 - Avant, removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove A-pillar trim: --> - **70 - INTERIOR TRIM** .
- Remove front passengers seat --> - **72 - SEAT - FRAMES** .

NOTE:
- **Seat belt need not be removed from seat frame.**
- **Pull back floor carpet..**

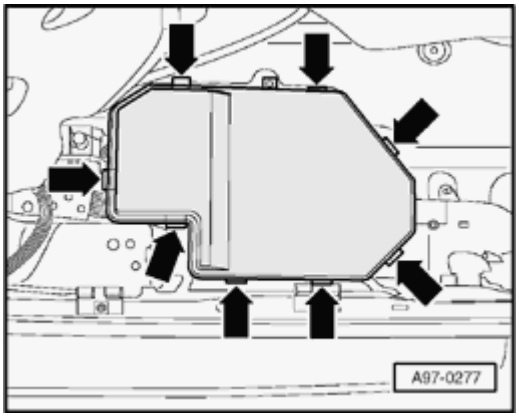

Fig. 274: Identifying Passenger Side Electronics Box Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release cover for electronics box - **arrows** - and remove.

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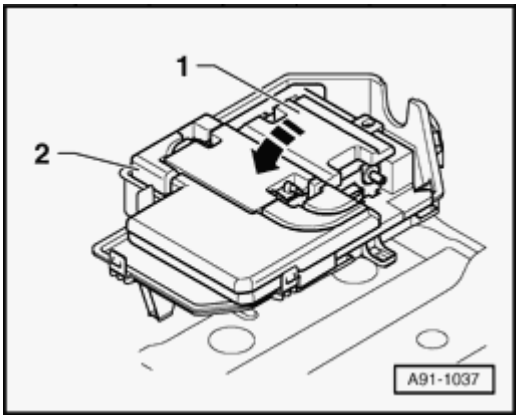

Fig. 275: Opening Lid Of Mounting Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open lid **- 1 -** of mounting box **- 2 -** in direction of **- arrow -**.
- Disconnect antenna cable connections and remove splitter.

Installing:

Install in reverse order of removal, noting the following:

NOTE:

- **Ensure correct seating and fit of electrical connections.**
- **Antenna connections (couplings) must be properly aligned and tight to ensure proper reception.**

Telematics Control Head E264 , removing and installing

The telematics control head is integrated with the front interior light module.

NOTE:

- **In the event any of the OnStar control buttons are either inadvertently or deliberately pressed for longer than 15 seconds, the OBD program assumes a button is sticking. The red status light will come on and a DTC loads in memory. Perform OBD program using VAS 5051/5052 and check DTC memory for DTC 01526 "mechanical malfunction". Inform customers accordingly.**
- **A faulty control button cannot be replaced separately. Replace complete telematics control head.**

CAUTION:

- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

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- Remove front interior lamp module --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .

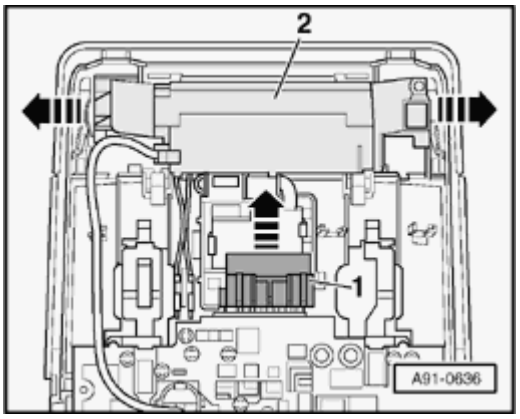

Fig. 276: Pressing Off Connector Guide
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully lift connector guide - **1** - and press off in direction of - **arrow** -.

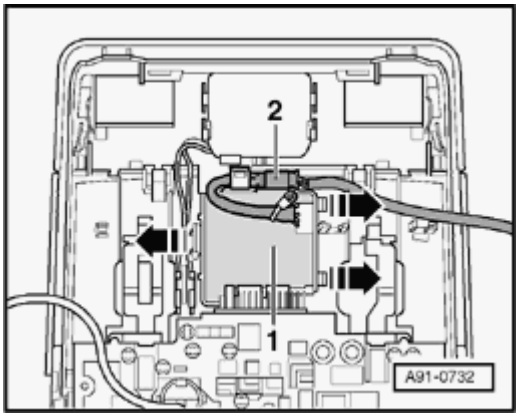

Fig. 277: Identifying Retaining Hooks, Button, And Electrical Connection
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release retaining hooks - **arrows** - and remove button - **1** -.
- Disconnect electrical connection - **2** - and remove switch module.

Installing:

- Install in reverse order of removal.

Telephone Microphone R38 , removing and installing

Telephone microphone is integrated with the front interior light module.

Special tools, testers and auxiliary items required

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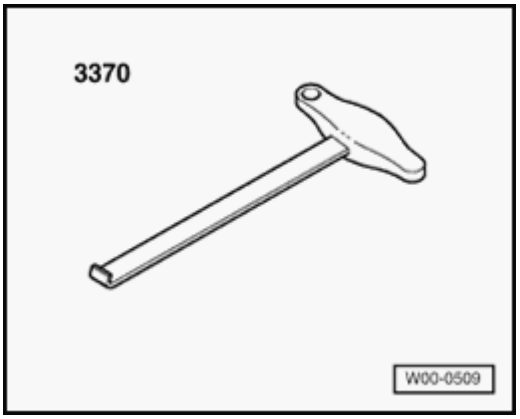

Fig. 278: Identifying Special Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Hook 3370

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

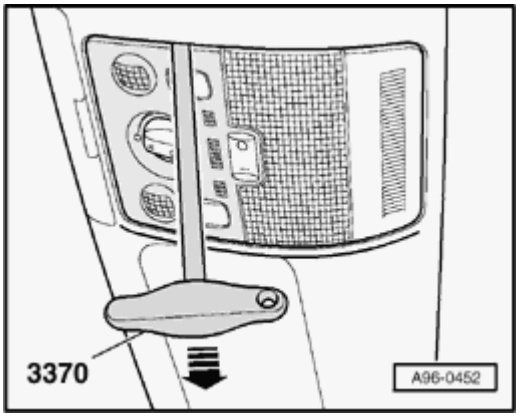

Fig. 279: Removing Interior Lamp Module Trim Using Hook 3370
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully remove front interior lamp module trim using hook 3370 - **arrow** - as illustrated.

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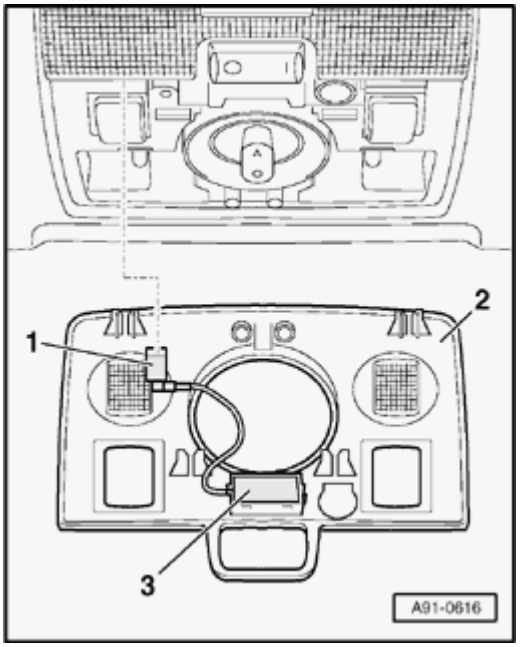

Fig. 280: Identifying Telephone Microphone R38, Bracket In Cover, And Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **1** - at microphone.
- Unclip microphone - **3** - from retainer in cover panel - **2** -.

Installing:

- Install in reverse order of removal.

Auxiliary Speaker (Telematics) R91 , removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove drivers storage compartment --> - **70 - INTERIOR TRIM** and fold downwards.

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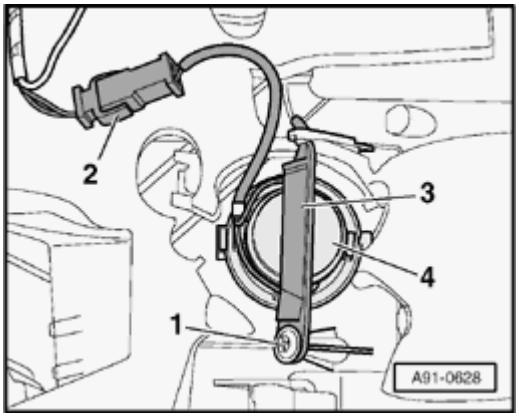

Fig. 281: Auxiliary Speaker, Removing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **2** -.
- Remove screw - **1** - (1.5 Nm), remove bracket - **3** - and speaker - **4** -.

Installing:

- Install in reverse order of removal.

Telephone Antenna R65 - Sedan, removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove rear headliner trim --> - **70 - INTERIOR TRIM** .

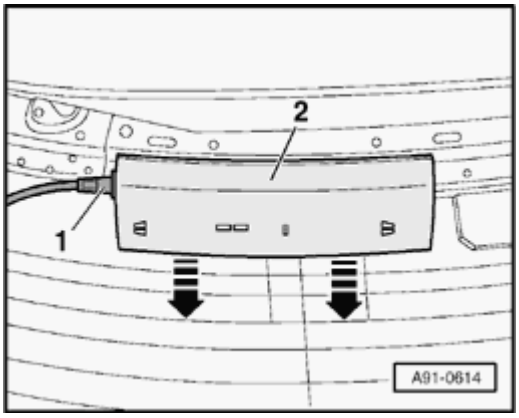

Fig. 282: Identifying Harness Connector, And Telephone Antenna R65
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **1** - at antenna - **2** -.

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- Pull antenna - **2** - down off rear edge of roof - **arrows** -.

Installing:

- Install in reverse order of removal, noting the following:

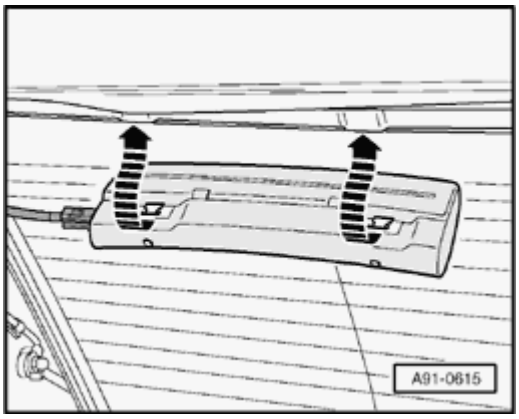

Fig. 283: Engaging Telephone Antenna R65 Retaining Clips in Mounts In Edge Of Roof End Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Ensure retaining clips for antenna - **arrows** - engage in recesses in rear edge of roof.

Telephone Antenna R65 and Telephone Antenna 2 R127 - Avant, removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove front or rear bumper cover --> - **63 BUMPER** .

NOTE:
- **Rear antenna is depicted here.**
- **Disconnect applicable antenna cable connection in interior/engine compartment.**

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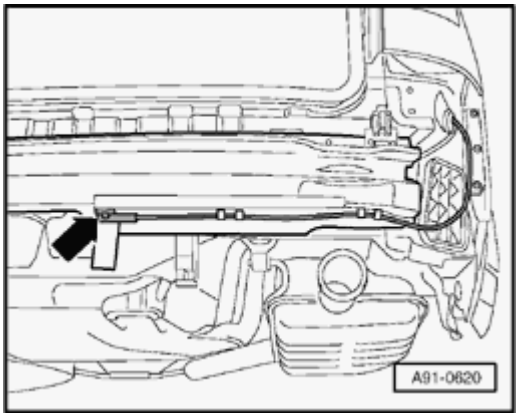

Fig. 284: Removing Fastener And Unclipping Antenna Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove fastener as applicable (screw or pop rivet) - **arrow** - and unclip antenna cable.

Installing:

- Install in reverse order of removal.

Roof antenna with Navigation System Antenna R50 and Auxiliary Antenna (Telematics) R90 , removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove rear headliner trim --> - **70 - INTERIOR TRIM** .
- Remove D-pillar trim on both sides: --> - **70 - INTERIOR TRIM** .
- Remove Luggage Compartment Light W3 --> - **96 LIGHTS, SWITCHES - INTERIOR, ANTI-THEFT** .
- Remove left luggage compartment trim --> - **70 - INTERIOR TRIM** .

- Carefully pull down headliner at rear.
- Disconnect antenna cable at applicable control module in sub-compartment.
- Disconnect antenna cable for Telephone Antenna R65 at right D-pillar.
- Release antenna wires up to roof antenna.

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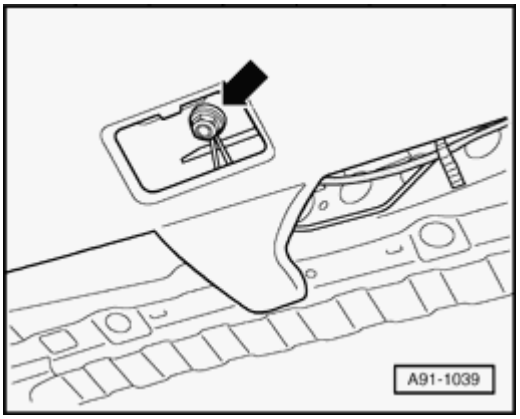

Fig. 285: Locating Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut **- arrow -** (6 Nm).
- Remove antenna from roof.

Installing:

- Install in reverse order of removal.

The washer under the retaining nut for the antenna has a gap through which the antenna cables must be guided.

GPS Antenna Splitter R110 - Avant, removing and installing

CAUTION:
- **Switch off all electrical components.**
- **Switch ignition off and remove ignition key.**

Removing:

- Remove left luggage compartment trim --> - **70 - INTERIOR TRIM** .

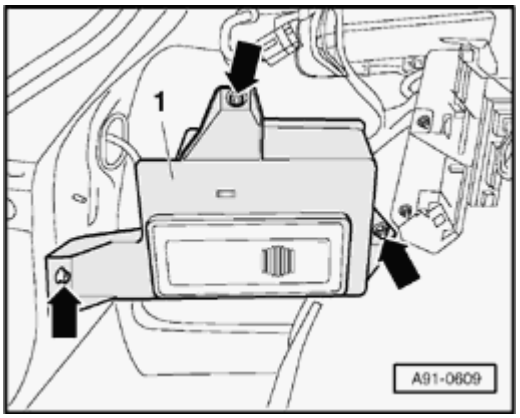

Fig. 286: Removing Screws And Base Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove screws - **arrows** - (14 Nm) and remove base mounting - **1** -.

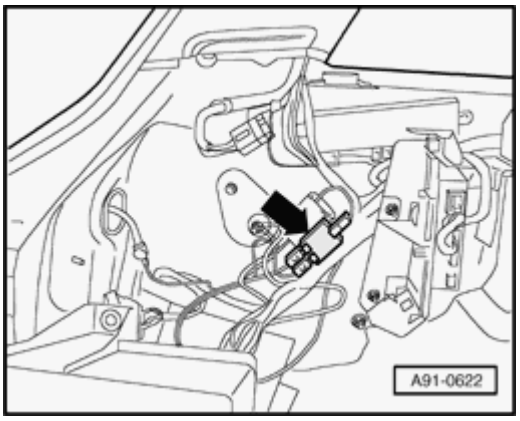

Fig. 287: Removing GPS Antenna Splitter R110
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove GPS Antenna Splitter R110 - **arrow** -.

Installing:

- Install in reverse order of removal.

SPEECH CONTROL SYSTEM

General information

CAUTION:
- **Disconnect battery ground wire before working on electrical system.**
- **On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.**

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

The telephone and Telematics system are operated acoustically with the voice control system.

Telephone and Telematics functions be initiated easily by speaking commands. System is activated via the PTT button in the multi-function steering wheel.

Diagnosis is performed using "Guided Fault-Finding".

Repair to CAN bus lines --> - **97 WIRING** .

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Speech control system, layout

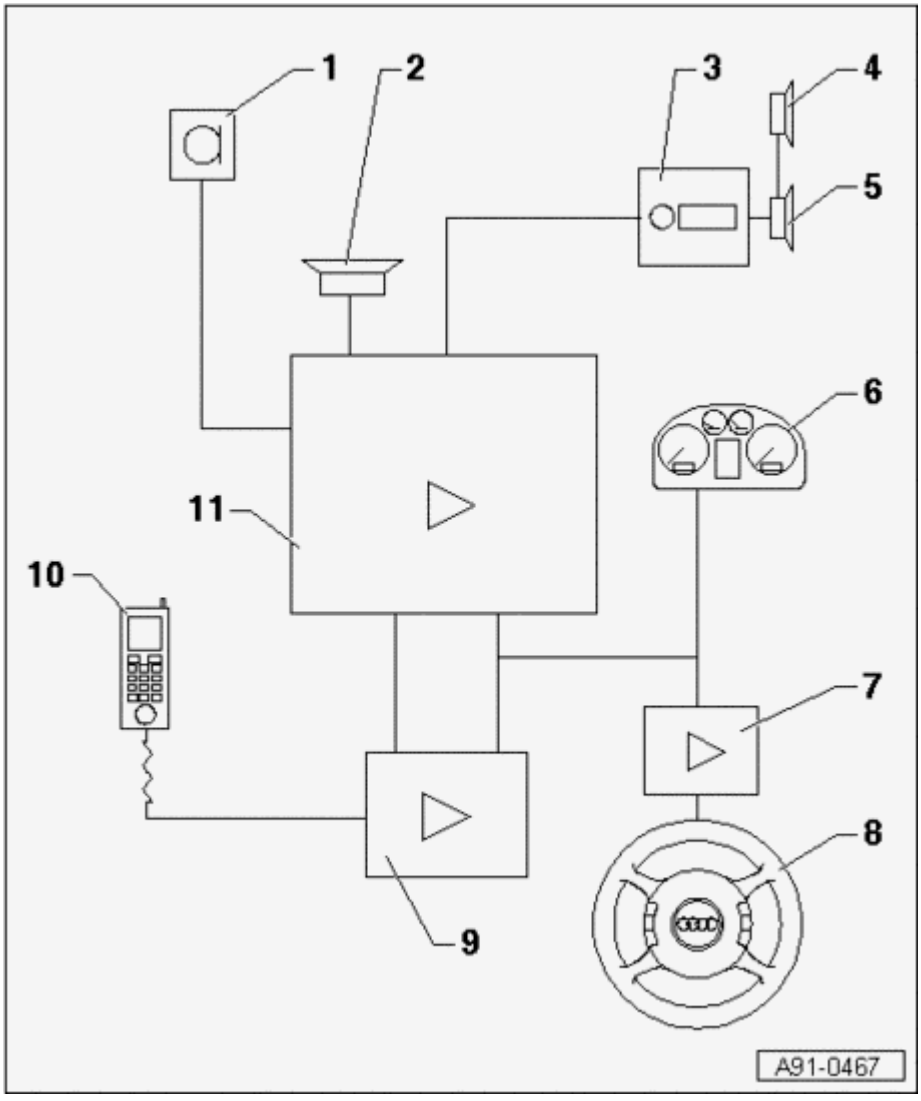

Fig. 288: Speech Control System, Layout
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Telephone Microphone R38 in Front Interior Light W1

2 - Inside Loudspeaker R70 in front center of instrument panel (through MY01)

3 - Radio R in upper center console

4 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27 at top in front doors

5 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23 at bottom in front doors

6 - Instrument cluster in instrument panel

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7 - Steering Column Electronic Systems Control Module J527 on the steering column

8 - Multi-function steering with PTT button

9 - Telephone/Telematics Control Module J526 in electronics box under front right seat

10 - Telephone Handset R37 on top right of center console

11 - Speech Input Control Module J507 in electronics box under right front seat

Speech Input Control Module J507 , connectors

NOTE:

- **Unlisted connector terminals are not assigned.**

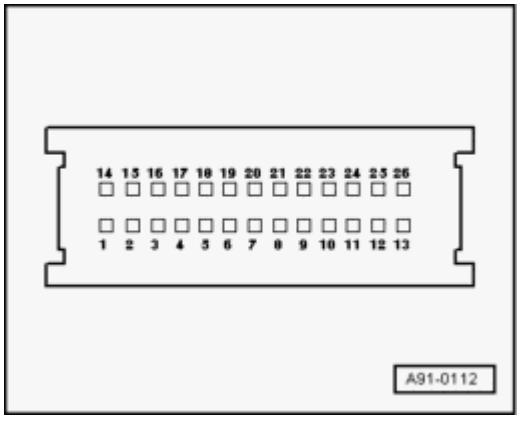

Fig. 289: Black 26-Pin Multi-Pin Connector (T26)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-pin connector, 26-pin

1 - NF (-) from Telephone/Telematics Control Module J526

2 - NF (+) from Telephone/Telematics Control Module J526

3 - Terminal 15

5 - NF mute to Radio R

6 - NF mute from Telephone/Telematics Control Module J526

7 - K diagnostic

8 - CAN-Bus Low (Infotainment)

9 - CAN-Bus High (Infotainment)

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13 - Terminal 31

14 - NF (+) to Inside Loudspeaker R70 / Radio R

15 - NF (-) to Inside Loudspeaker R70 / Radio R

16 - Microphone output (+) to Telephone/Telematics Control Module J526

17 - Microphone output (-) to Telephone/Telematics Control Module J526

18 - Microphone input (+) from Telephone Microphone R38 (+)

19 - Microphone input (-) from Telephone Microphone R38 (-)

20 - Fax Machine R73 pin 8 (ground)

21 - Fax Machine R73 pin 9 (TXT)

22 - Fax Machine R73 pin 10 (RXD)

26 - Terminal 30

Component locations, general overview

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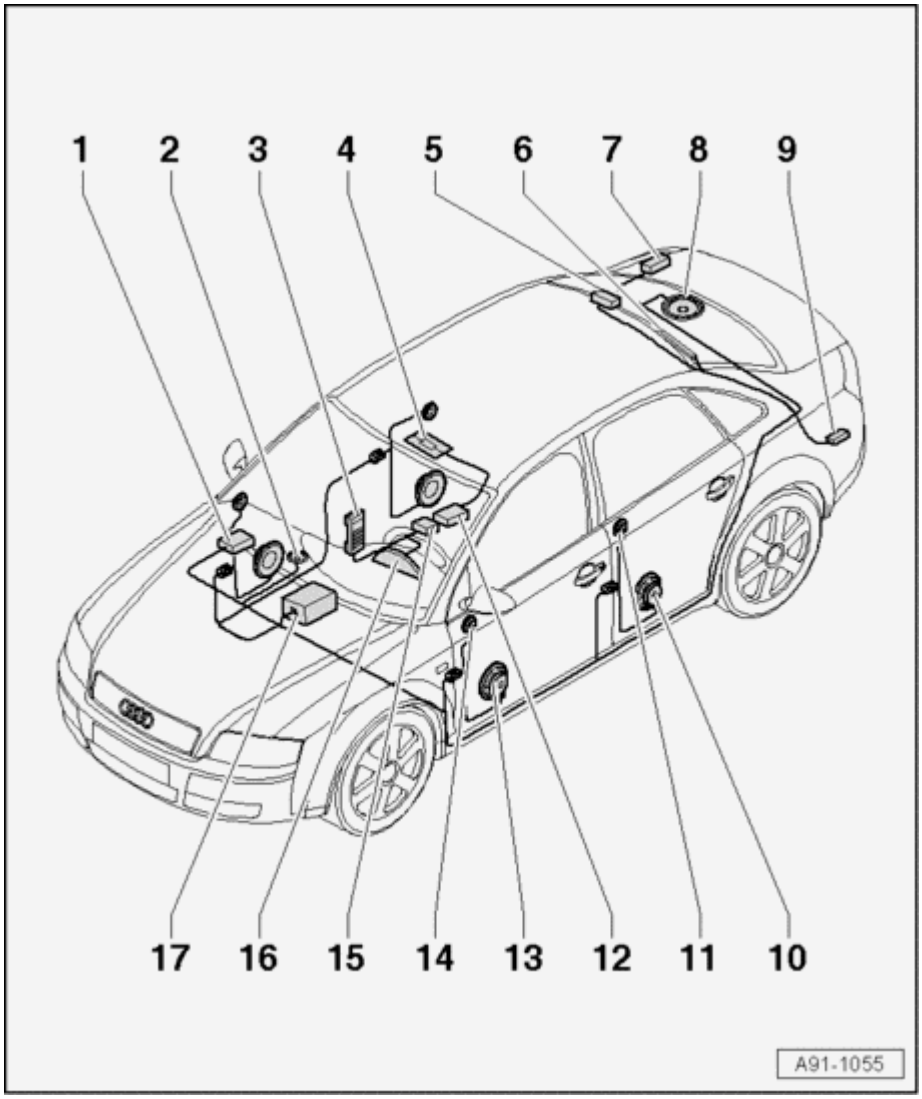

Fig. 290: Component Locations, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - CD Changer R41

- In glove compartment

2 - Inside Loudspeaker R70

- In front instrument panel, center

3 - Telephone Handset R37

- on top right of instrument panel

4 - Telephone Microphone R38

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- in Front Interior Light W1

5 - Telephone Antenna R65

Sedan:

- behind roof end trim

Avant:

- Roof antenna

6 - Antenna Selection Control Module J515

- behind roof end trim

7 - Digital Sound System Control Module R12

- behind luggage compartment right side trim

8 - Bass Loudspeaker R100

- in parcel shelf

9 - Navigation/TV Tuner J415

- Behind luggage compartment left side trim

10 - Left Rear Bass Speaker R15 and Right Rear Bass Speaker R17

- in bottom of rear doors

11 - Left Rear Midrange Speaker R34 / Right Rear Midrange Speaker R35

- in top of rear doors

12 - Telephone/Telematics Control Module J526

- in electronics box under right front seat
- Connections --> **Telephone/Telematics Control Module J526 , multi-pin connector assignments**
- Removing and installing --> **Telephone/Telematics Control Module J526 , removing and installing**

13 - Left Front Bass Speaker R21 / Right Front Bass Speaker R23

- in bottom of front doors

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14 - Left Front Midrange Speaker R26 / Right Front Midrange Speaker R27

- in top of front doors

15 - Speech Input Control Module J507

- in electronics box under passengers seat
- Connections --> **Speech Input Control Module J507 , connectors**
- Removing and installing --> **Speech Input Control Module J507 , removing and installing**

16 - Instrument cluster display

- in instrument panel

17 - Radio R

- in center console, at top

Speech Input Control Module J507 , removing and installing

- Turn off all electrical components.
- Remove ignition key.

Removing

- Remove right A-pillar trim --> - **70 - INTERIOR TRIM** .
- Remove right front seat --> - **72 - SEAT - FRAMES** .

NOTE:

- **Safety belt on seat frame must not be loosened.**
- **Fold back the floor mat --> - 70 - INTERIOR TRIM .**

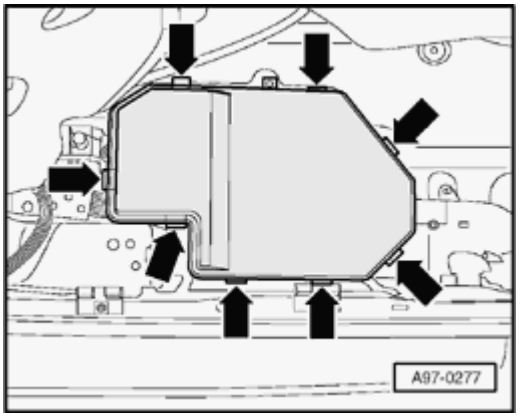

Fig. 291: Identifying Passenger Side Electronics Box Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Release electronics box cover - **arrows** - and remove it.

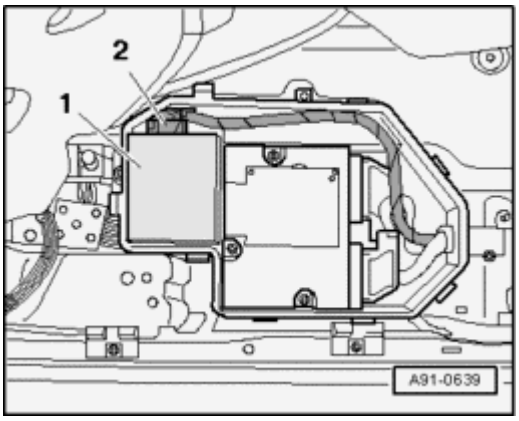

Fig. 292: Identifying Connector For Speech Input Control Module J507
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **2** - on Speech Input Control Module J507 - **1** -.
- Remove Speech Input Control Module J507 - **1** -.

Installing:

- Install in reverse order.
- Perform adaptations and coding on Speech Input Control Module J507 if necessary.

MULTIFUNCTION STEERING WHEEL

General information

CAUTION:

- **Disconnect battery ground wire before working on electrical system.**
- **On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.**

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

Six function buttons are integrated in the steering wheel to facilitate radio and telephone operation when driving. In addition, multi-function steering wheel is heated electrically.

The electronics installed in the steering wheel converts button signals to the LIN data bus (single wire bus) and dims function buttons. On vehicles with automatic transmission, 2 additional switches can be installed for Tiptronic. The electronics in the steering wheel cannot be replaced individually. In case of faulty electronics,

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the entire steering wheel must be replaced.

The multi-function steering wheel is part of the complete "Steering column switch module" (SMLS) system and delivers data via the LIN data bus to the Steering Column Electronic Systems Control Module J527.

Diagnosis is performed using "Guided Fault-Finding".

Repair to CAN bus lines --> - **97 WIRING** .

Multi-function steering wheel, general overview

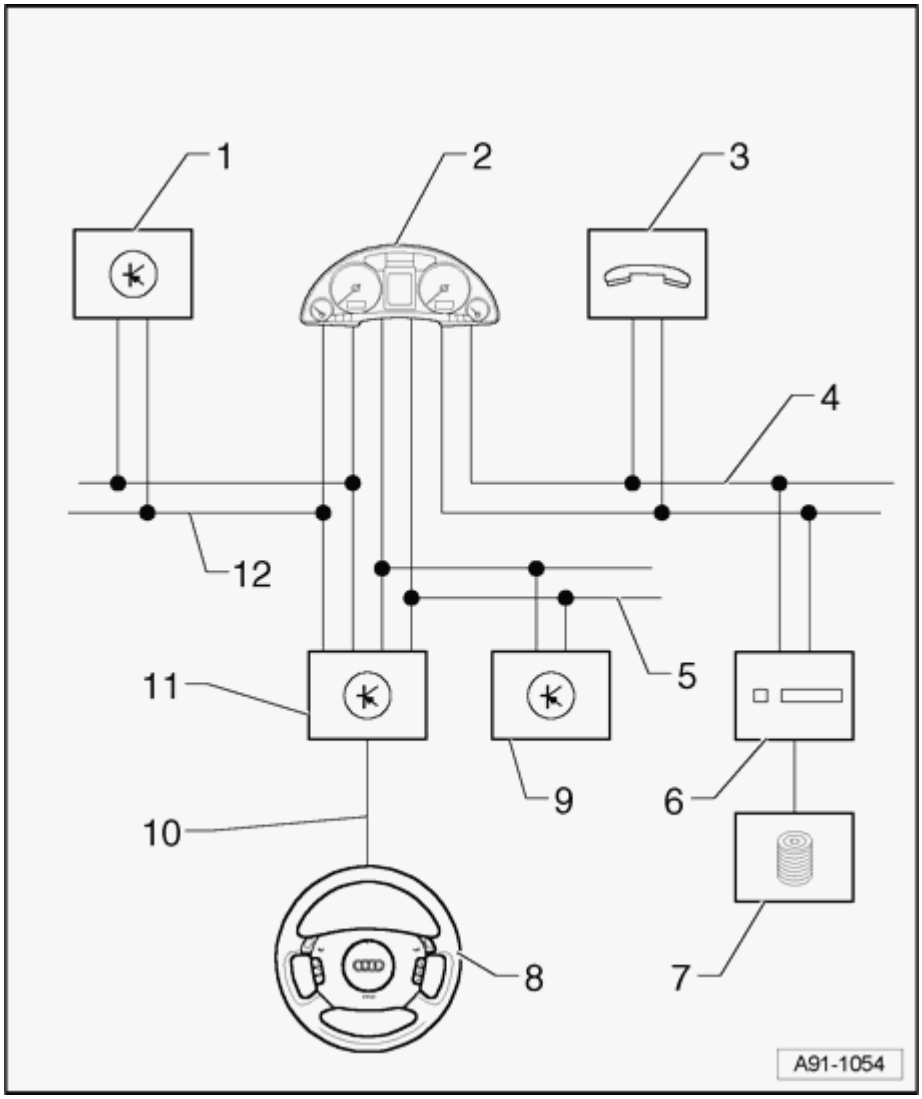

Fig. 293: Multi-Function Steering Wheel, General Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Engine Control Module (ECM) J623 in plenum chamber

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2 - Dash panel insert

3 - Telephone/Telematics Control Module J526 / Telephone Transceiver R36 in electronics box under right front seat

4 - CAN-BUS (Infotainment)

5 - CAN-Bus (Comfort)

6 - Radio R / Navigation System with CD Drive Control Module J401 in top of center console

7 - CD Changer R41 in glove compartment

8 - Multifunction Steering Wheel

- Multi-function buttons, removing and installing --> **Multi-function buttons, removing and installing**
- Tiptronic Switch, removing and installing --> **Tiptronic Switch, removing and installing**

9 - Vehicle Electrical System Control Module J519 behind drivers side storage compartment (left-hand drive)/behind glove compartment (right-hand drive)

10 - LIN data bus (single wire bus)

11 - Steering Column Electronic Systems Control Module J527 on the steering column

- Connector assignment --> **Steering Column Electronic Systems Control Module J527 , connector assignment**

12 - CAN bus (powertrain)

Multi-function buttons, removing and installing

Two versions of the multi-function steering wheel are used.

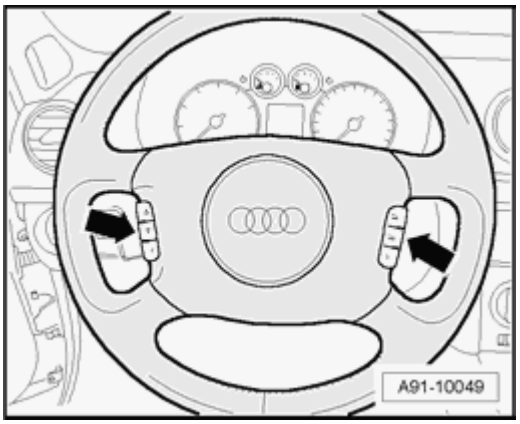

Fig. 294: Multi-Function Steering Wheel (1 Of 2)

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-function steering wheel with two blocks of buttons

Multi-function buttons, removing and installing.

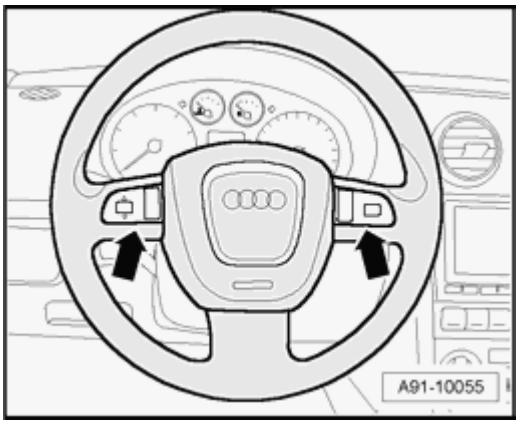

Fig. 295: Multi-Function Steering Wheel (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-function steering wheel with roller buttons

Multi-function buttons, removing and installing.

Multi-function steering wheel with two blocks of buttons

Removing

- In vehicles with Telematics, activate Telephone/Telematics Control Module J526 --> **Service mode, activating/deactivating** service mode.
- Disconnect battery ground wire --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .
- Follow safety precautions for airbag systems --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .
- Remove drivers airbag --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .

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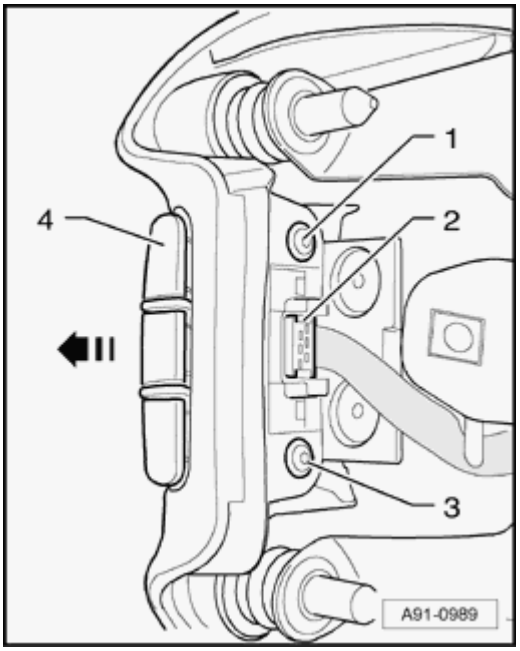

Fig. 296: Identifying Electrical Connection, Screws, And Switch Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **2** -.
- Remove screws - **1** - and - **3** - (1 Nm).
- Remove switch unit - **4** - in direction of arrow from airbag unit.

Installing

- Install in reverse order.
- Ensure all connections have engaged and lines lie in proper guides.

Multi-function steering wheel with roller buttons

Removing

- In vehicles with Telematics, activate Telephone/Telematics Control Module J526 --> **Service mode, activating/deactivating** service mode.
- Disconnect battery ground wire --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .
- Follow safety precautions for airbag systems --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .
- Remove drivers airbag --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .

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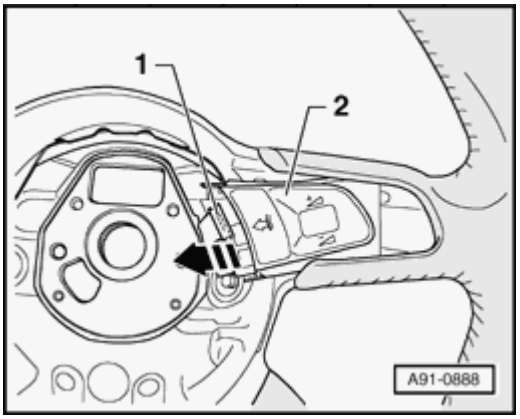

Fig. 297: Identifying Harness Connector And Slide Button
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - **1** - at button - **2** -.
- Slide button - **2** - out of steering wheel in direction of arrow.
- Turn the button around.

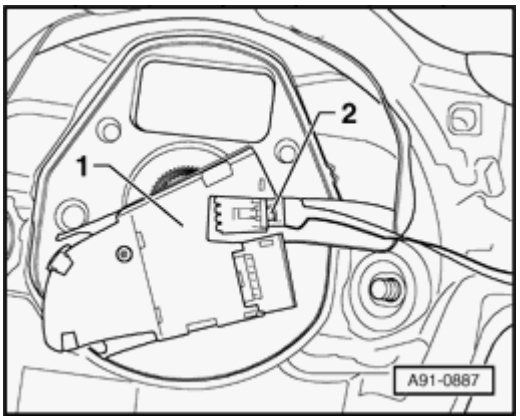

Fig. 298: Identifying Harness Connector And Tiptronic Switch At Multi-Function Button
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - **2** - to Tiptronic switch at multi-function button - **1** - and remove it.

Installing

- Install in reverse order.

Removing and installing the left multi-function button is identical.

Tiptronic Switch, removing and installing

Two versions of the multi-function steering wheel are used.

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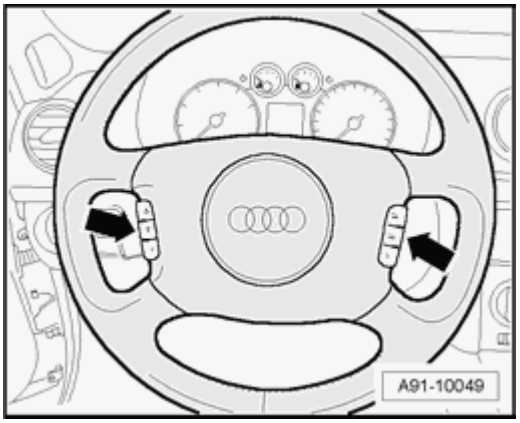

Fig. 299: Multi-Function Steering Wheel (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-function steering wheel with two blocks of buttons

Tiptronic Switch, removing and installing.

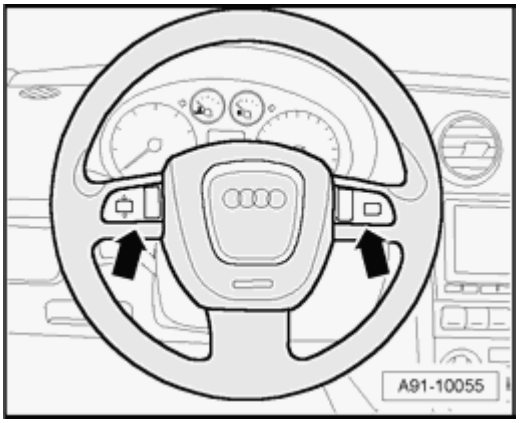

Fig. 300: Multi-Function Steering Wheel (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Multi-function steering wheel with roller buttons

Tiptronic Switch, removing and installing.

Multi-function steering wheel with two blocks of buttons

Removing

- In vehicles with Telematics, activate Telephone/Telematics Control Module J526 --> **Service mode, activating/deactivating** service mode.
- Disconnect battery ground wire --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .
- Follow safety precautions for airbag systems --> - **69 - PASSENGER PROTECTION - AIRBAGS,**

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SEAT BELTS .

- Remove drivers airbag --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .

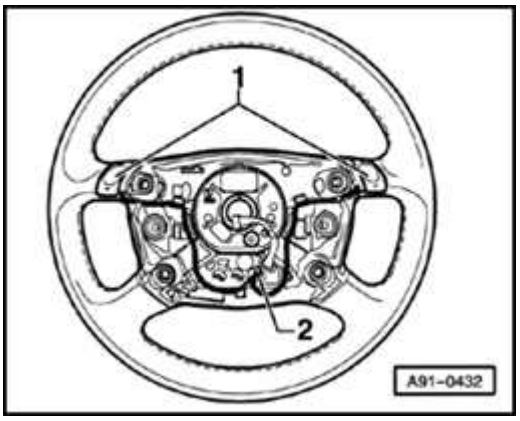

Fig. 301: Identifying Electrical Connection And Buttons
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connection - **2** -.
- Rotate buttons - **1** - inward (to steering wheel center point) and remove.

Installing

- Install in reverse order.
- Ensure all connections have engaged and lines lie in corresponding guides.

Multi-function steering wheel with roller buttons

Removing

- In vehicles with Telematics, activate Telephone/Telematics Control Module J526 --> **Service mode, activating/deactivating** service mode.
- Disconnect battery ground wire --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** .
- Follow safety precautions for airbag systems --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .
- Remove drivers airbag --> - **69 - PASSENGER PROTECTION - AIRBAGS, SEAT BELTS** .

- Pull off decorative ring from steering wheel.

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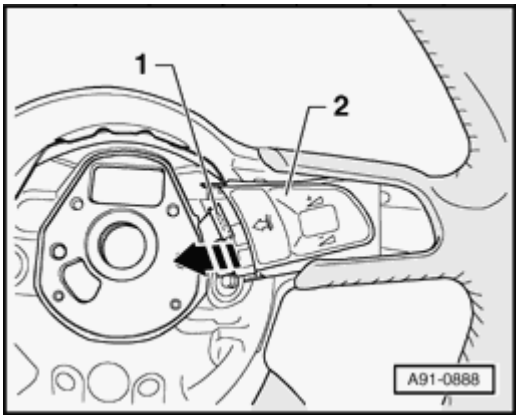

Fig. 302: Identifying Harness Connector And Slide Button
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slide multi-function button - **2** - out of steering wheel in direction of arrow.
- Turn the button around.

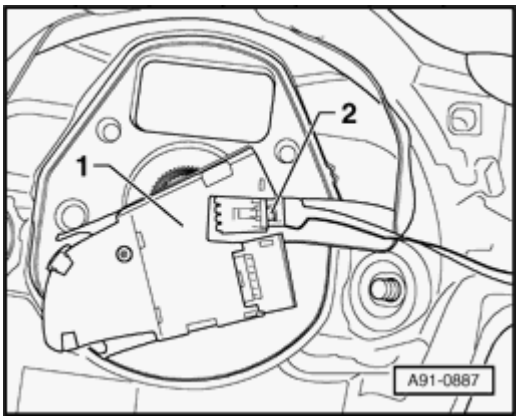

Fig. 303: Identifying Harness Connector And Tiptronic Switch At Multi-Function Button
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - **2** - at multi-function button - **1** -.

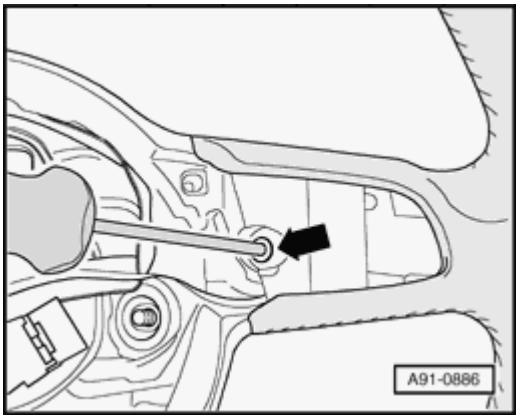

Fig. 304: Removing Bolt And Tiptronic Switch

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **arrow** - and remove Tiptronic switch downward.

Installing

- Install in reverse order.

Removing and installing the left switch is identical.

STEERING COLUMN ELECTRONIC SYSTEMS CONTROL MODULE J527

General information

CAUTION:

- **Disconnect battery ground wire before working on electrical system.**
- **On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.**

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

The Steering Column Electronic Systems Control Module J527 is a part of the "steering column switch module". The "steering column switch module" consists of:

- Left and right steering column switch
- airbag spiral spring
- Steering Angle Sensor G85
- Ignition/Starter Switch D
- Steering Column Electronic Systems Control Module J527

The Steering Column Electronic Systems Control Module J527 exchanges data between vehicle control modules (e.g. Vehicle Electrical System Control Module J519) and steering column modules (e.g. steering column switch) and steering wheel modules (e.g. airbag).

In addition, multi-function steering wheel button signals are process and relayed via CAN BUS.

Diagnosis is performed using "Guided Fault-Finding".

Repair to CAN bus lines --> - **97 WIRING** .

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Steering Column Electronic Systems Control Module J527 , connector assignment

Front side

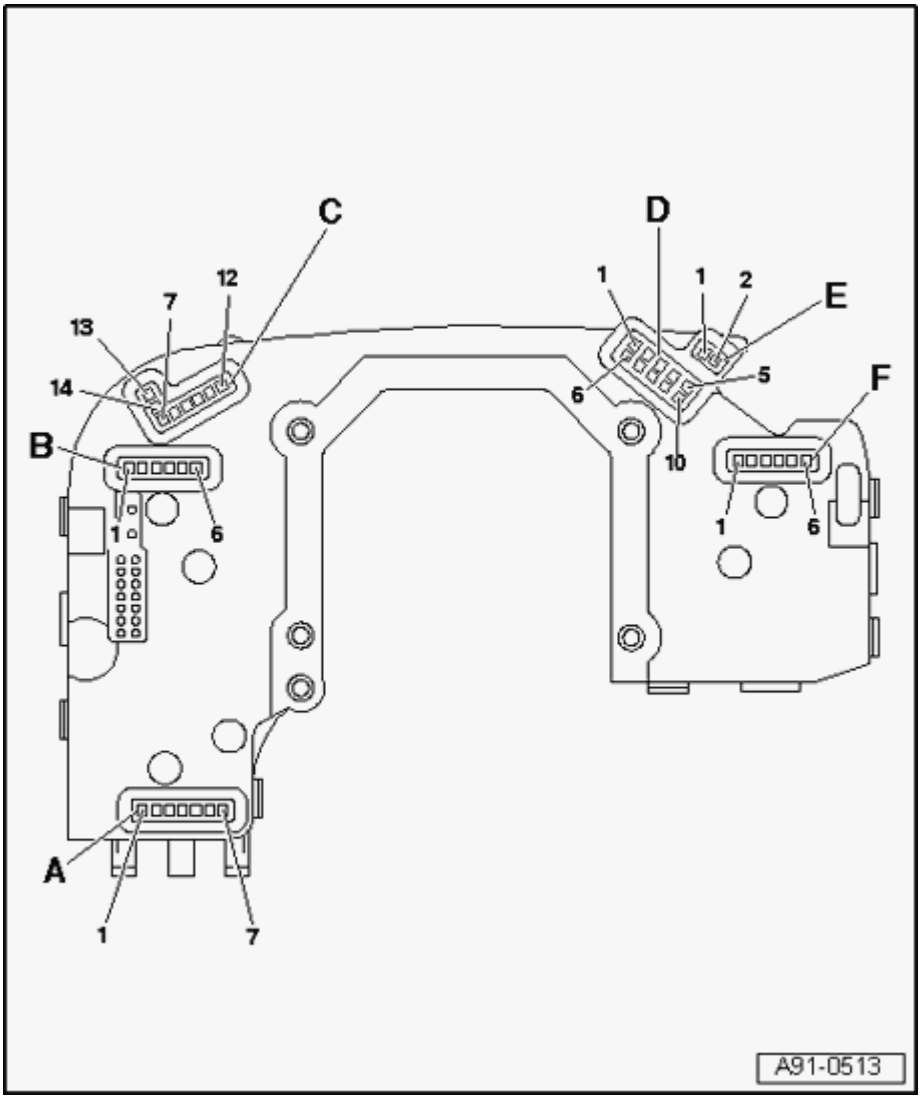

Fig. 305: Steering Column Electronic Systems Control Module (Front) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A - Cruise control connector

1 - Terminal 31

2 Fix

3 Distance

4 - Terminal 30

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5 Activation/touch control function (Off)

6 Acceleration/deceleration

7 - Engaged (Off)

B - Turn signal indicator connector

1 - Terminal 31

2 Radio telephone (special-purpose vehicles)

3 Alarm (special-purpose vehicles)

5 Headlight flasher/light control

6 Turn signal indicators

C - Harness connector of multi-function steering wheel/Tiptronic/heated steering wheel

7 - Touch (-)

8 - Multi-function steering wheel (terminal 30)

9 - Multi-function steering wheel (LIN data bus)

10 - Sensor heating/touch (+)

11 Multi-function steering wheel/dimmer

12 - Tiptronic Ground

13 - Steering wheel heating (+)

14 - Steering wheel heating (-)

D - Steering Angle Sensor G85

1 Light barrier 5

2 Light barrier 3

3 Light barrier 1

4 - Terminal 30

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5 - Voltage supply (5 V)

6 Light barrier 6

7 Light barrier 4

8 Light barrier 2

9 - Terminal 31

10 Light barrier 7

E - Horn H1

1 - Terminal 31

2 Horn

F - Wiper system

1 - Terminal 31

2 Intermittent wipe potentiometer

3 - Board computer

5 Wash

6 Wipe

Rear side

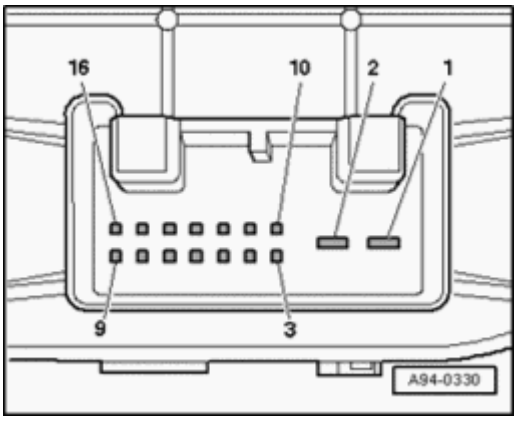

Fig. 306: Steering Column Electronic Systems Control Module (Rear) Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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16-pin multi-pin connector (T16a)

1 - Terminal 31

2 - Terminal 30

5 - Cruise control switched "Off"

6 - Alarm (special-purpose vehicles)

7 - Radio telephone (special-purpose vehicles)

8 - CAN-Bus Low (Comfort)

9 - CAN-Bus High (Comfort)

10 - CAN-Bus High (powertrain)

11 - CAN-Bus Low (powertrain)

12 - Ignition terminal lock 75

13 - Ignition lock S terminal

14 - Ignition terminal lock 15

15 - Ignition terminal lock 50

16 - Ignition lock terminal P

ELECTRONIC ROUTE BOOK

General information

CAUTION:

- **Disconnect battery ground wire before working on electrical system.**
- **On vehicles with Telematics, activate Telephone/Telematics Control Module J526 service mode before disconnecting Battery A --> Service mode, activating/deactivating.**

If the Battery A is reconnected, follow the procedure for disconnecting and connecting the Battery A --> - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** . Deactivate Telephone/Telematics Control Module J526 service mode --> **Service mode, activating/deactivating**.

Description

The starting position, mileage driven and destination are transferred via the navigation system II-D, through the

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CAN BUS (Infotainment) and to the Chip Card Reader R99 (electronic route book) and saved on the card chip.

Electronic route book, overview

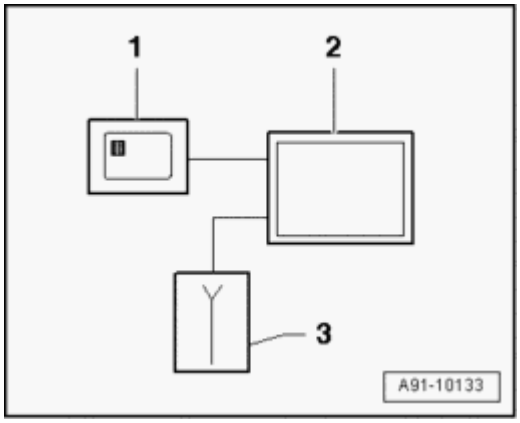

Fig. 307: Electronic Route Book, Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Chip Card Reader R99

2 - Operating Electronics, Navigation Control Module J402 (NAV II-D)

3 - Navigation System Antenna R50

Error message

Error messages appear on the Operating Electronics, Navigation Control Module J402 display.

Indicator in display:

Connection to chip reader faulty. Routes are not saved. Please enter routes manually. Please confirm with RETURN.

Error message is shown until RETURN button is pressed.

Malfunction cause:

CAN BUS (Infotainment) from Operating Electronics, Navigation Control Module J402 to Chip Card Reader R99 interrupted.

- Check CAN BUS connection --> Electrical Wiring Diagrams, Troubleshooting and Component Locations.

Chip Card Reader R99 is faulty.

- Replace Chip Card Reader R99 --> **Chip Card Reader R99 , removing and installing**.

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Chip Card Reader R99 , removing and installing

Removing

- Remove glove compartment --> - **68 - INTERIOR EQUIPMENT** .
- Carefully unclip wire to Chip Card Reader R99 and disconnect connector.

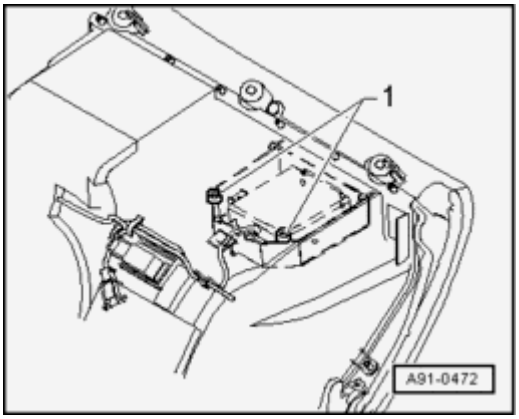

Fig. 308: Removing Screws And Carefully Sliding Chip Card Reader R99 Out Of Glove Compartment
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove screws - **1** - (1 Nm) and carefully slide Chip Card Reader R99 out of glove compartment.

Installing

- Install in reverse order.
- The Operating Electronics, Navigation Control Module J402 must be adapted accordingly the first time the Chip Card Reader R99 is installed or when module is replaced.

Use the Vehicle Diagnosis, Testing and Information System VAS 5051 to do so.

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