



**Installation Instructions**

Date: April 2006  
Order No.: P-I-82.70/411B  
Supersedes: P-I-82.70/411A  
Group: 82

**Revision:** *Page 16, Section I, Step 4 – Memory activation step removed from version coding;  
Page 19, Section 0 – Part number change*

**SUBJECT: MODEL 219.375/376  
MODEL YEAR 2006  
CELLULAR TELEPHONE / VOICE CONTROL SYSTEM INSTALLATION**

*We are interested in your comments and suggestions—please email them to:  
[StarTekInfo@MBUSA.com](mailto:StarTekInfo@MBUSA.com)*

**⚠ WARNING**

**Do not disconnect the negative battery cable. Extensive reprogramming requirements are otherwise necessary. Wiring harnesses are therefore electrically active.**

**Severe vehicle damage, personal injury, or death from electrical shock could result.**

**Exercise extreme caution while executing these installation instructions. Keep the ignition and radio powered OFF through the final test.**

**Notes on MOST optical fibers**

- Optical fibers damage easily—handle optical fibers with care to prevent cuts, nicks, abrasions, and crushing.
- Optical fiber “ring configurations” must form a closed loop to function (i.e. couple the input of a component with the output of the preceding component).
- Identify MOST optical fibers by their orange, semi-rigid insulation.
- Electromagnetic interference (EMI) from bundled vehicle electrical harnesses does not affect optical fibers.

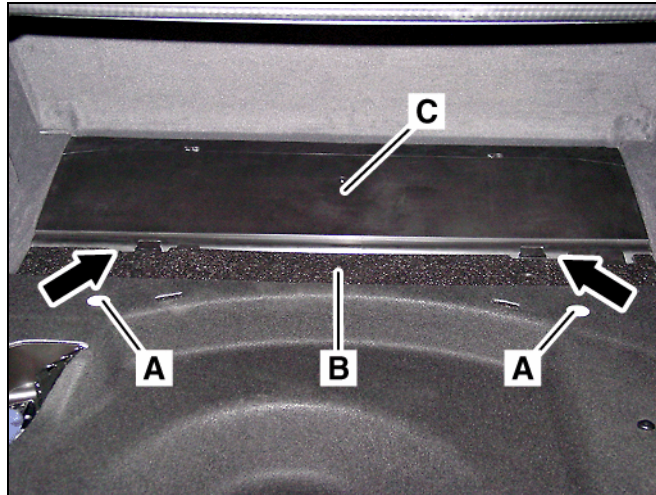
This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Records.

**NOTICE!**

**Incorrect installation of connectors can result in damaged, bent pins. Damaged, bent pins will result in component malfunction or failure. Inspect connectors before and after installation.**

**A. Installation preparation**

1. Read these installation instructions in their entirety before proceeding.
2. Unpack and compare the installation kit contents against the Parts Information list—Section O, page 19.
3. Place the operating guides and customer accessories in the glove box or appropriate storage or stowage compartment.
4. Remove the rear, center section paneling (A, Figure 1), vapor barrier (B, Figure 1), and carrier plate cover (C, Figure 1) in the trunk.
  - Refer to *WIS* document AR68.30-P-4620TX, “Remove/install spare wheel paneling”
5. Remove the right side paneling in the trunk.
  - Refer to *WIS* document AR68.30-P-4800TX, “Remove/install side paneling in trunk”

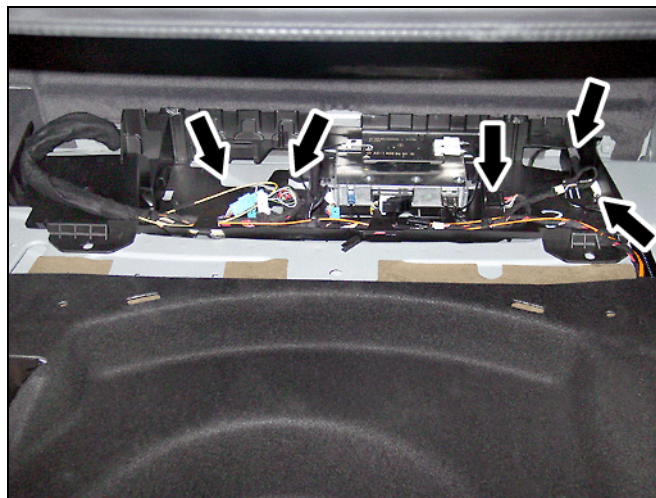


**Figure 1**

P82.70-5400-71

**B. Locating and identifying the antenna switch, VCS, microphone array, and MHI cables and connectors**

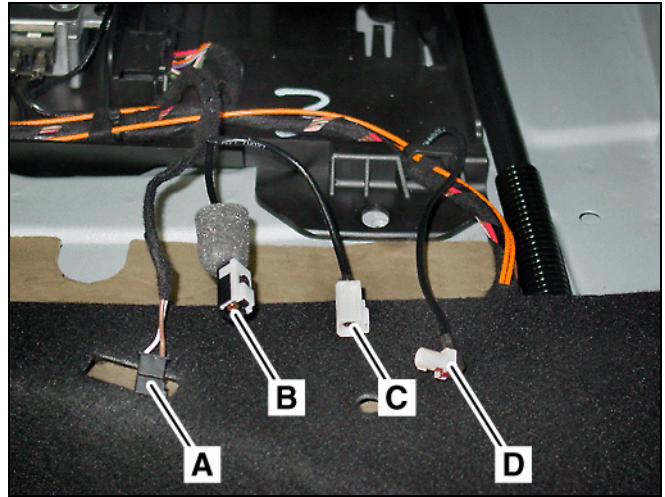
1. In the right and left side compartments of the carrier plate (Figure 2), find the telephone, microphone, and antenna cables and connectors.



**Figure 2**

P82.70-5401-71

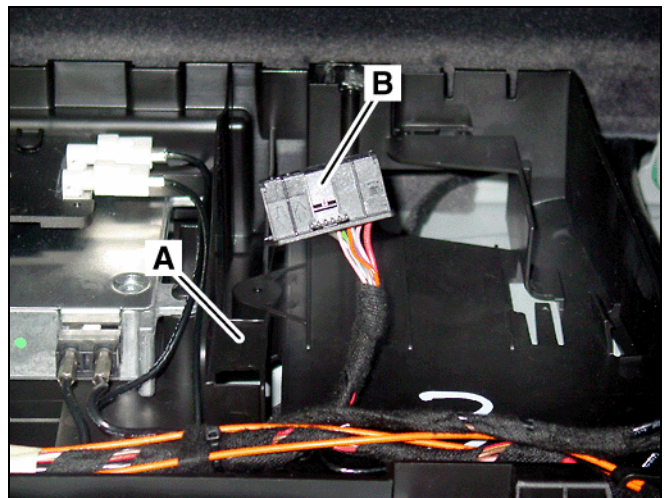
2. In the right side compartment of the carrier plate, find the:
  - Antenna switch 2-pin power supply connector (A, Figure 3)
  - Telephone FAKRA female, black connector (B, Figure 3)
3. In the right side compartment of the carrier plate, find and disconnect the coupled:
  - Tele Aid FAKRA female, white connector (C, Figure 3)
  - Main antenna FAKRA male, white connector (D, Figure 3)



**Figure 3**

P82.70-5402-71

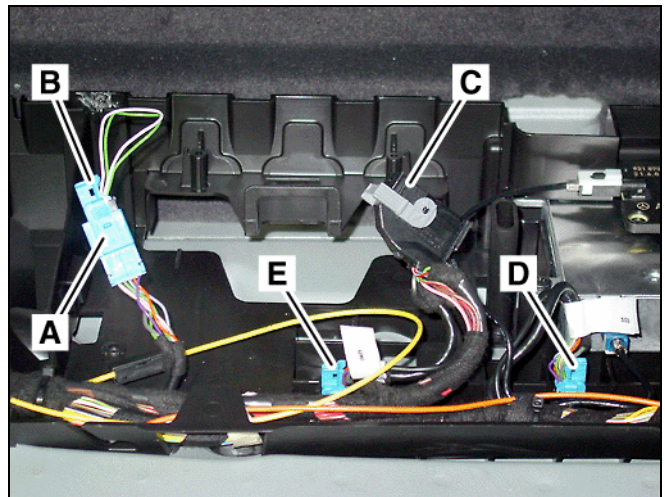
4. In the right side compartment of the carrier plate, find and remove from its connector holder (A, Figure 4), the:
  - VCS power supply connector (B, Figure 4)



**Figure 4**

P82.70-5403-71

5. In the left side compartment of the carrier plate, find the:
  - Tele Aid microphone connector (A, Figure 5) and connected jumper (B, Figure 5) with green and white looped wires
  - MHI power supply connector (C, Figure 5)
6. In the connector holders embedded in the carrier plate floor of the left side and center compartments of the carrier plate, find the:
  - VCS microphone connector (D, Figure 5) labeled with "SDS"
  - MHI microphone connector (E, Figure 5) labeled "UHI"



**Figure 5**

P82.70-5404-71

### C. Installing and connecting the MHI control module

1. Mount the MHI control module (Figure 6) to the embedded bracket in the left side compartment of the carrier plate:
  - a. Insert the back of the MHI control module between the upper clip (A, Figure 6) and carrier plate floor.
  - b. Fasten the front mounting tabs (Arrows, Figure 6) of the MHI control module to the carrier plate floor with two M4 hex head self-tapping screws.

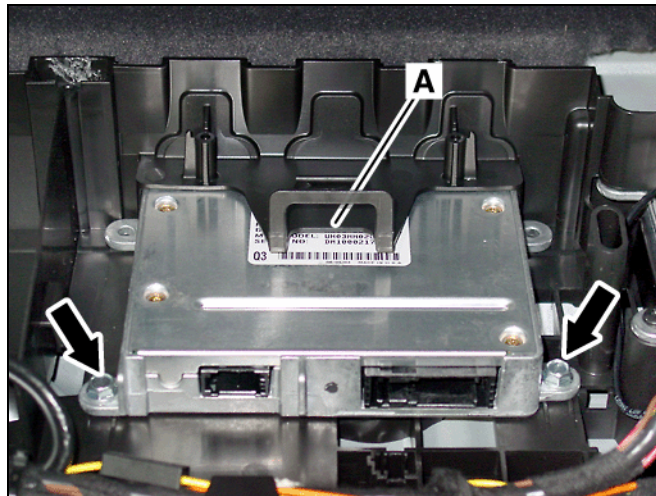


Figure 6

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2. Connect the MHI power supply connector to the MHI control module (Figure 7).

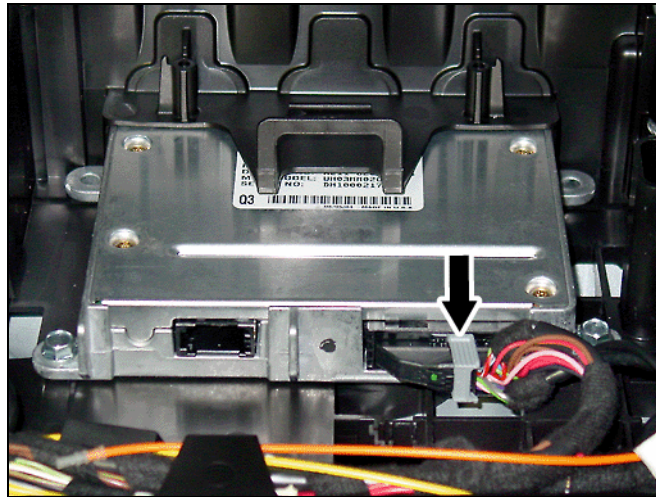


Figure 7

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#### D. Installing and connecting the antenna switch

1. Mount the antenna switch (Figure 8) to the embedded bracket in the right side compartment of the carrier plate with two M4 x 6 Phillips head machine screws.

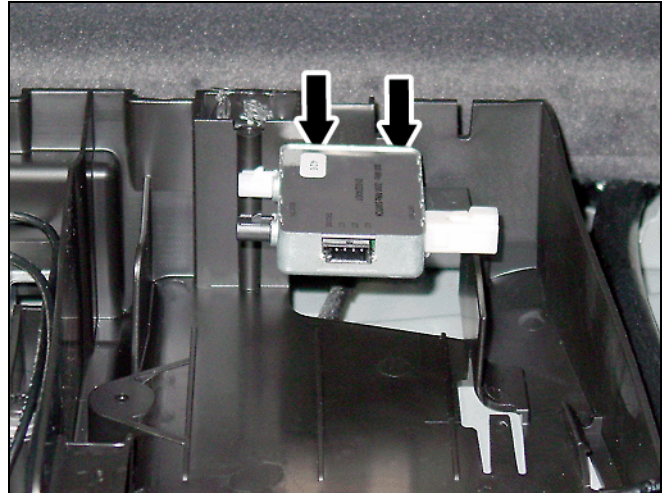


Figure 8

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2. Connect the telephone FAKRA female, black connector to the antenna switch jack labeled "BOOSTER" (A, Figure 9).
3. Connect the Tele Aid FAKRA female, white connector to the antenna switch jack labeled "LCT" (B, Figure 9).
4. Connect the main antenna FAKRA male, white connector to the antenna switch jack labeled "ANTENNA" (C, Figure 9).
5. Connect the 2-pin power supply connector to the antenna switch (D, Figure 9).

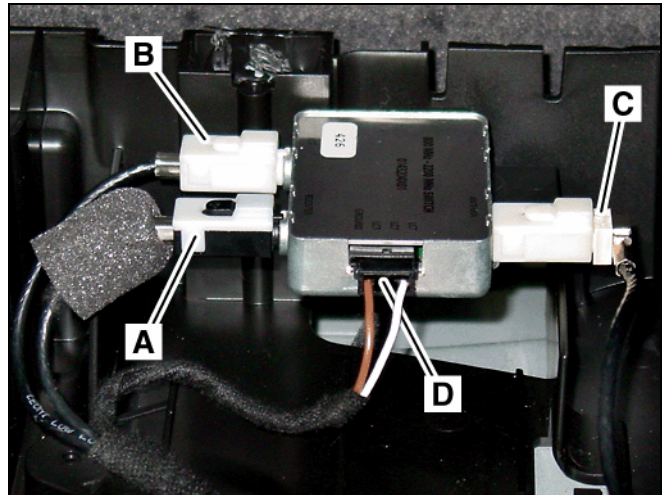


Figure 9

P82.70-5408-71

## E. Installing and connecting the control module for the Voice Control System (VCS)

1. Mount the VCS control module (Figure 10) to the embedded bracket in the right side compartment—under the antenna switch—of the carrier plate:
  - a. Slide the right side tab (A, Figure 10) of the VCS control module under the bracket clip on the carrier plate floor.
  - b. Secure the left side tab (B, Figure 10) of the VCS control module with a self-tapping Phillips head screw.

**Note:** Face the receptacle for the power supply connector out, toward the vehicle rear (Figure 10).

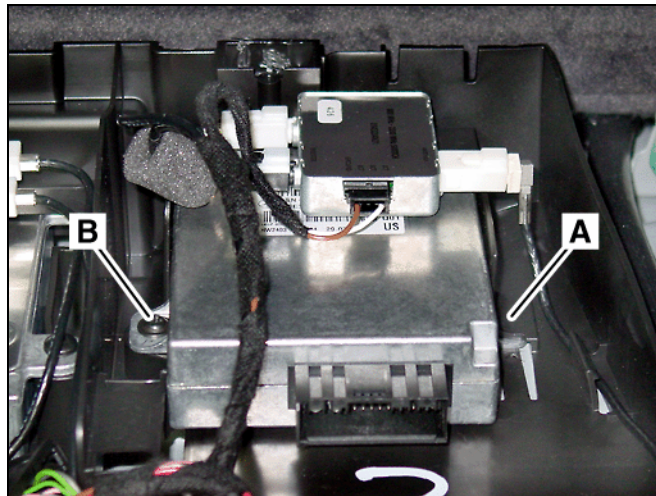


Figure 10

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2. Connect the VCS power supply connector (Figure 11) to the VCS control module.

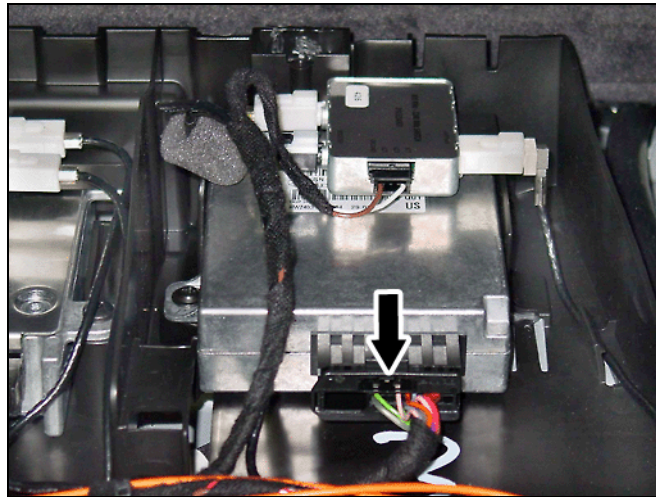


Figure 11

P82.70-5410-71

## F. Installing the MOST adapter cable and configuring the MOST ring

### NOTICE!

Improper handling of optical fibers can damage the fibers.

Damaged optical fibers can cause component malfunction.

Handle optical fibers with care to prevent cuts, nicks, abrasions, and crushing.

1. Find the MOST adapter cable (Figure 12) for CTEL and VCS in the kit.

**Note:** Identify the MOST adapter cable for CTEL and VCS by its two connectors (A and B, Figure 12) and one coupling (C, Figure 12).

2. Carefully remove the optical fiber end (Arrow, Figure 13) from the coupling (A, Figure 13) of the yellow MOST cable in the left side compartment of the carrier plate.

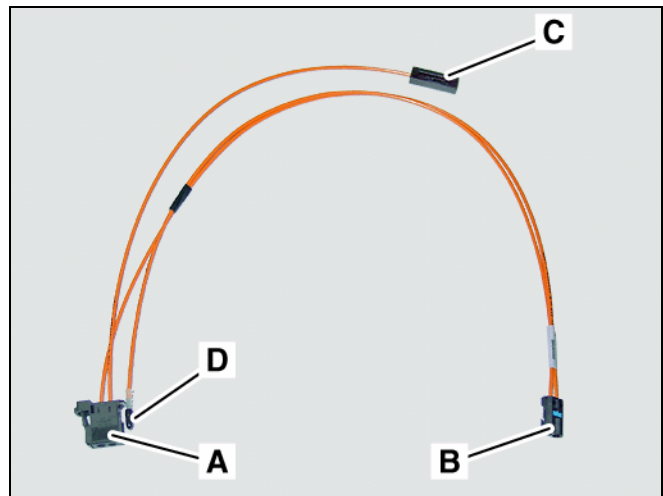


Figure 12

P82.70-5411-71

3. Insert the optical fiber end (Arrow, Figure 13) removed from the coupling of the yellow MOST cable into the coupling (C, Figure 12) of the MOST adapter cable (A, Figure 14).
4. Remove the protective cap from the optical fiber end (D, Figure 12) and insert the fiber end into the coupling (A, Figure 13) of the yellow MOST cable (B, Figure 14).

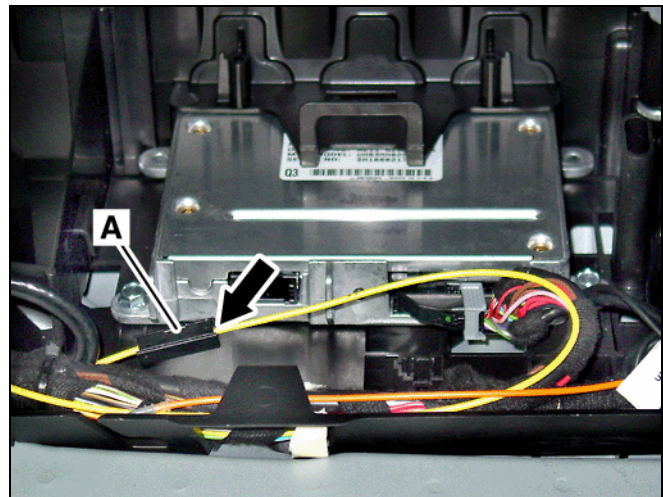


Figure 13

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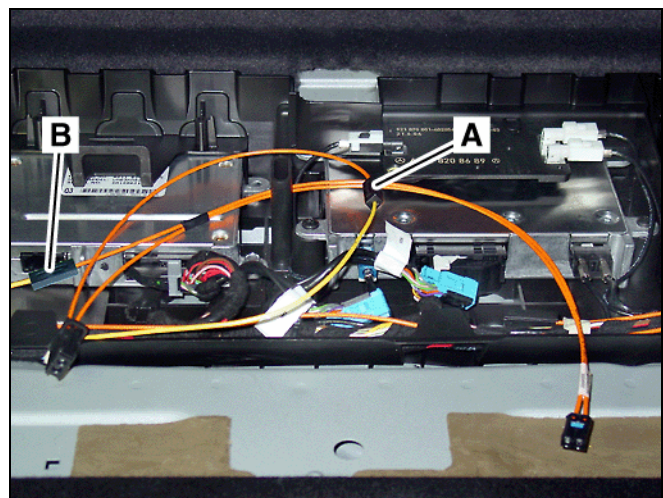


Figure 14

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5. Connect the larger connector (A, Figure 12) of the MOST adapter cable to the MHI control module (Figure 15).

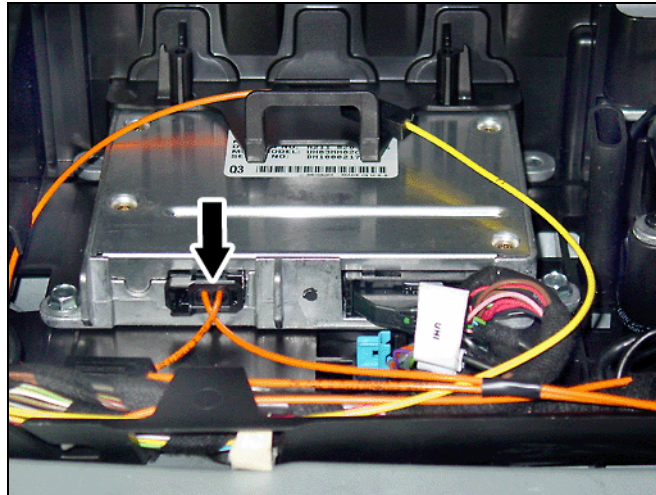


Figure 15

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6. Insert the smaller connector (B, Figure 12) of the MOST adapter cable into the open receptacle in the VCS power supply connector connected to the VCS control module (Figure 16).

**Note:** The smaller keyed connector of the MOST adapter cable fits the VCS power supply connector only one way (i.e. there is no way to insert the connector incorrectly).

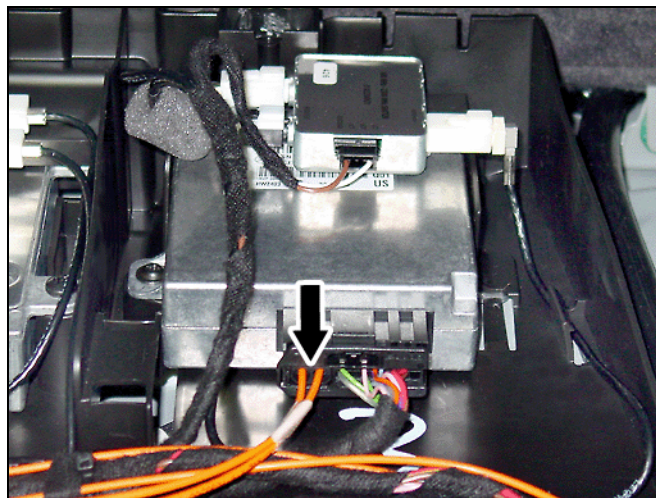


Figure 16

P82.70-5415-71

7. To keep the MOST cables tension free, allow the coupled loop to fall over the MHI control module, behind the bracket upper clip, and run the length between the MHI and VCS control modules along the carrier plate inside edge (Figure 17).

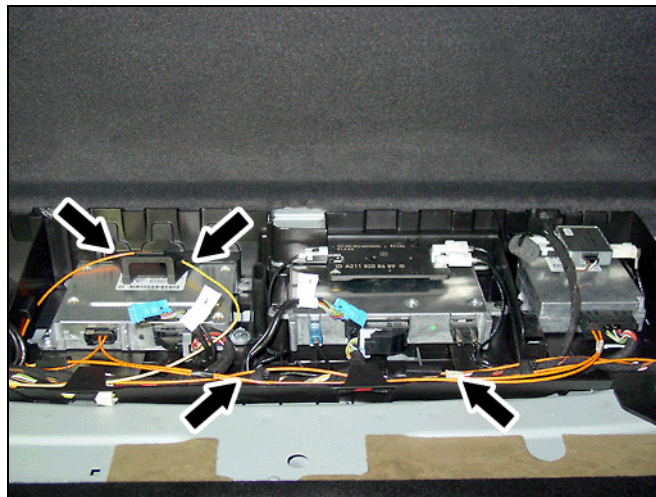


Figure 17

P82.70-5416-71



## G. Connecting the microphone array connectors

1. Remove the jumper (A, Figure 18) with looped green and white wires from the Tele Aid microphone connector (B, Figure 18).

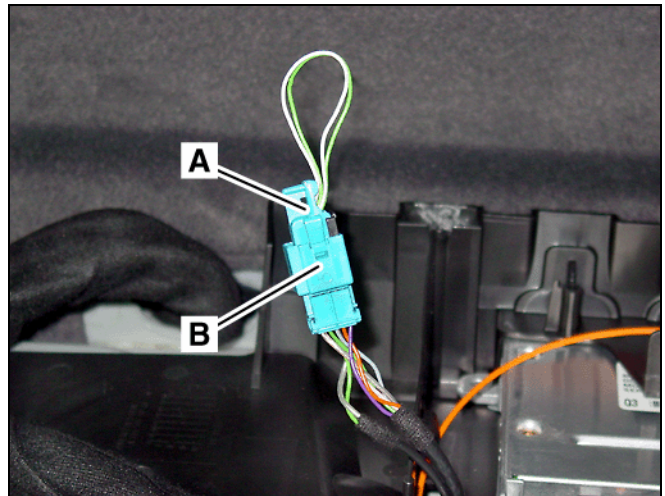


Figure 18

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2. Remove the VCS microphone connector (A, Figure 19) labeled with "SDS" from the connector holder embedded in the carrier plate floor and connect it to the Tele Aid microphone connector (B, Figure 19).
3. Leave the MHI microphone connector (C, Figure 19) labeled "UHI" in the connector holder embedded in the carrier plate floor.

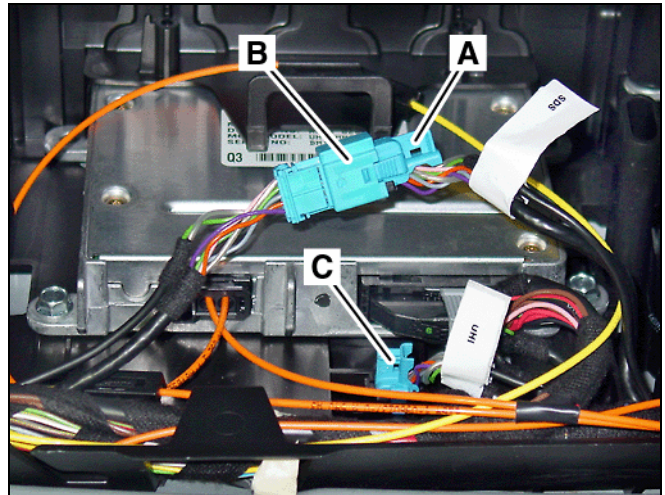


Figure 19

P82.70-5418-71

## H. Locating and identifying the linear compensator cables and connectors

1. On the exposed wheel well on the right side of the trunk, carefully cut the wire ties securing the cables for the linear compensator (Figure 20).

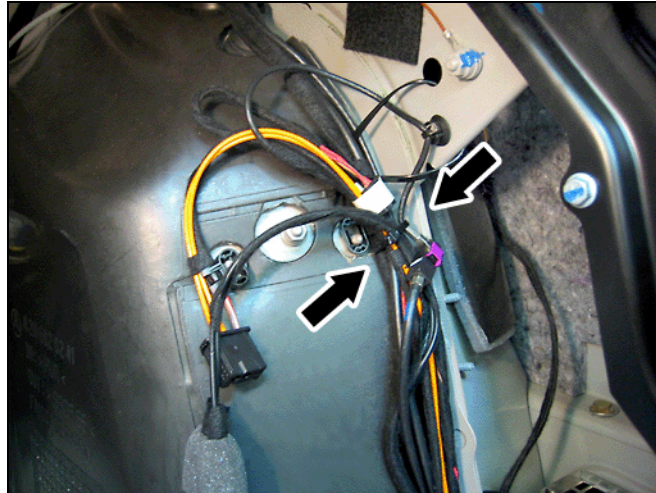


Figure 20

P82.70-5419-71

2. Disconnect the coupled antenna connectors and identify the:
  - FAKRA antenna male connector (A, Figure 21)
  - FAKRA antenna female connector (B, Figure 21)
3. Identify the:
  - Linear compensator power supply connector (C, Figure 21)

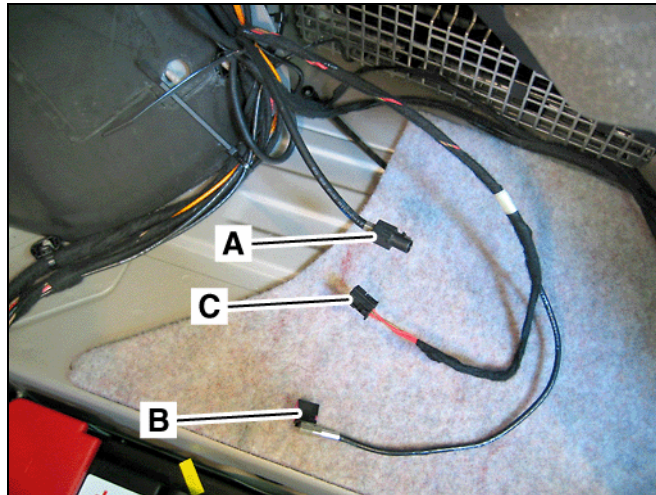
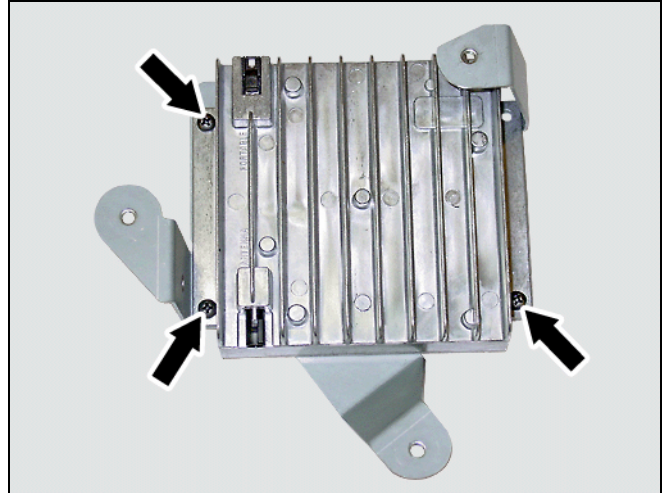


Figure 21

P82.70-5420-71

**I. Mounting the linear compensator to the bracket, connecting the linear compensator, and installing the bracket assembly**

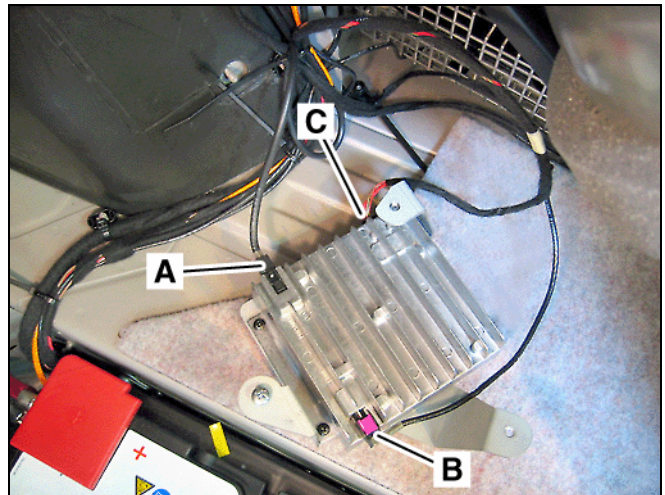
1. Mount the linear compensator to the bracket with three M4 x 6 Phillips head machine screws (Figure 22).



**Figure 22**

P82.70-5421-71

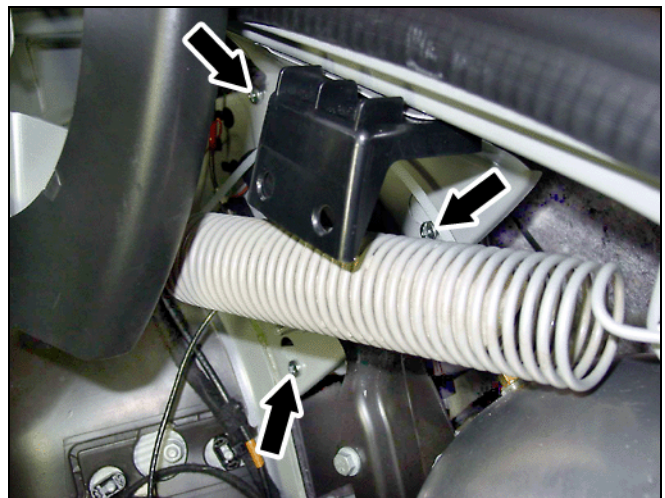
2. Place the linear compensator/bracket assembly within reach of its cable connectors (Figure 23).
3. Connect the FAKRA antenna male connector to the linear compensator jack labeled "PORTABLE" (A, Figure 23).
4. Connect the FAKRA antenna female connector to the linear compensator jack labeled "ANTENNA" (B, Figure 23).
5. Connect the power supply connector to the linear compensator (C, Figure 23).



**Figure 23**

P82.70-5422-71

6. Mount the linear compensator/bracket assembly behind the reinforcement panel facing the tension spring for the trunk lid with three M5 Phillips head machine screws (Figure 24).



**Figure 24**

P82.70-5423-71

## J. Installing the contact plate and cradle

1. Open the center console compartment and remove the mounting tray for the contact plate by reaching underneath (Figure 25) and releasing the three clips (Arrows, Figure 26) on the underside.

**Note:** Push the clips on the mounting tray underside to the left and then up to release them.



Figure 25

P82.70-5424-71

2. Remove the knockout (A, Figure 26) from the mounting tray for the contact plate by pressing it out from underneath.

### NOTICE!

**Excessive force will crack or break plastic.**

**Applying excessive force while removing the knockout can crack or break the plastic mounting tray.**

**Do not apply excessive force when removing the knockout from the mounting tray for the contact plate.**



Figure 26

P82.70-5425-71

3. Find the kit-included contact plate (A, Figure 27) and identify the FAKRA antenna male connector (B, Figure 27) and the power supply male connector (C, Figure 27).

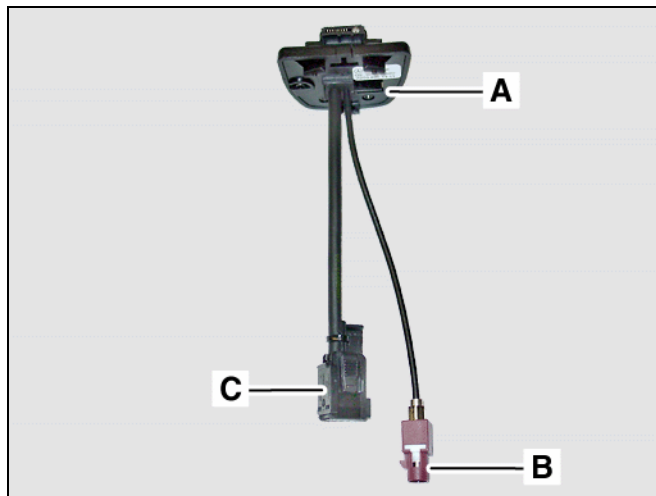


Figure 27

P82.70-5426-71

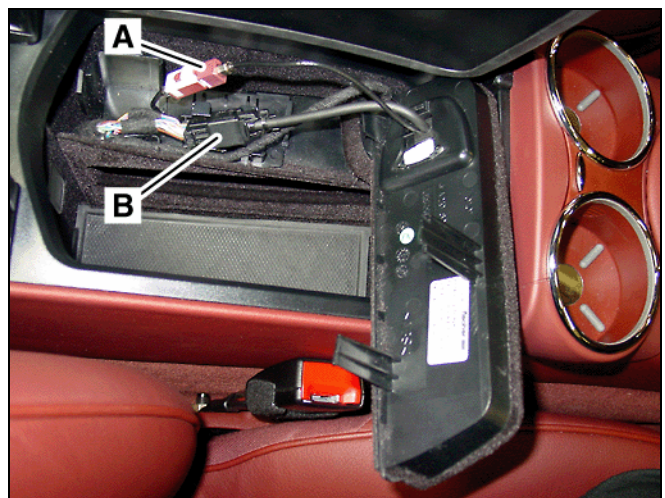
4. Feed the power supply cable and FAKRA cable of the contact plate through the knockout hole from the top side of the mounting tray (Figure 28).



**Figure 28**

P82.70-5427-71

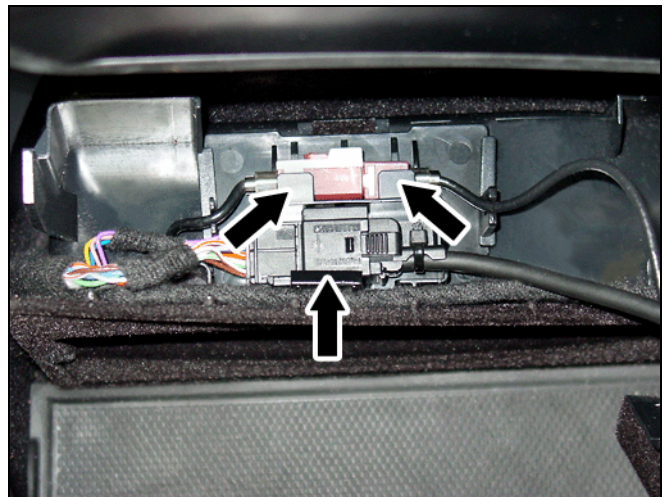
5. Connect the FAKRA antenna male connector of the contact plate to the FAKRA female connector of the console harness (A, Figure 29).
6. Connect the power supply male connector of the contact plate to the power supply female connector of the console harness (B, Figure 29).



**Figure 29**

P82.70-5428-71

7. Secure the coupled FAKRA antenna connectors and power supply connectors in the clips (Figure 30) on the exposed floor of the center console compartment.



**Figure 30**

P82.70-5429-71

8. Reinstall the mounting tray with contact plate (Figure 31) by inserting the three clips on the mounting tray underside into the slots in the compartment mounting base until they snap into place.



**Figure 31**

P82.70-5430-71

9. Attach the cradle—according to telephone type—to the contact plate by placing it atop and slightly behind the contact plate and then sliding it forward until an audible click sounds (Figure 32).



**Figure 32**

P82.70-5431-71

10. Insert the telephone into the cradle (Figure 33).



**Figure 33**

P82.70-5432-71

### K. Installing the push-to-talk (PTT) lever for the Voice Control System (VCS)

1. Remove the plastic plug in the mounting hole for the PTT lever on the right side of the steering column by carefully inserting a small flathead screwdriver into the slot in the plug and prying it out (Figure 34).



**Figure 34**

P82.70-5433-71

2. Insert the PTT lever into the mounting hole rotating it until its grooves interlock with the teeth in the mounting hole and then push the lever completely into the mounting hole (Figure 35).



**Figure 35**

P82.70-5434-71

## L. Version coding

1. Connect the Star Diagnosis to the vehicle.
2. Set the MOST ring configuration to match Figure 36 via path:

**Control units > Information and communication > Audio, video, navigation and telematics > AGW – Audio gateway > Retrofitting of MOST components or iPod > Retrofitting of MOST components > F2: Restart of optical ring > F2: Actual configuration of MOST components > Verify “Telecommunications” and “Voice control system” is listed under Actual Values and configuration of the MOST components matches that of Figure 36 > F2: To continue > F3: Yes, to write the current actual configuration to MOST master > F2: Erase fault memory**

**Note:** The MOST ring configuration in Figure 36 is an example of a configuration including all possible components. Some installations will not include all the components shown in the example. If a component is not present, connect the preceding component to the component following the one not present.

### **NOTICE!**

**Match the MOST ring configuration to Figure 36.**

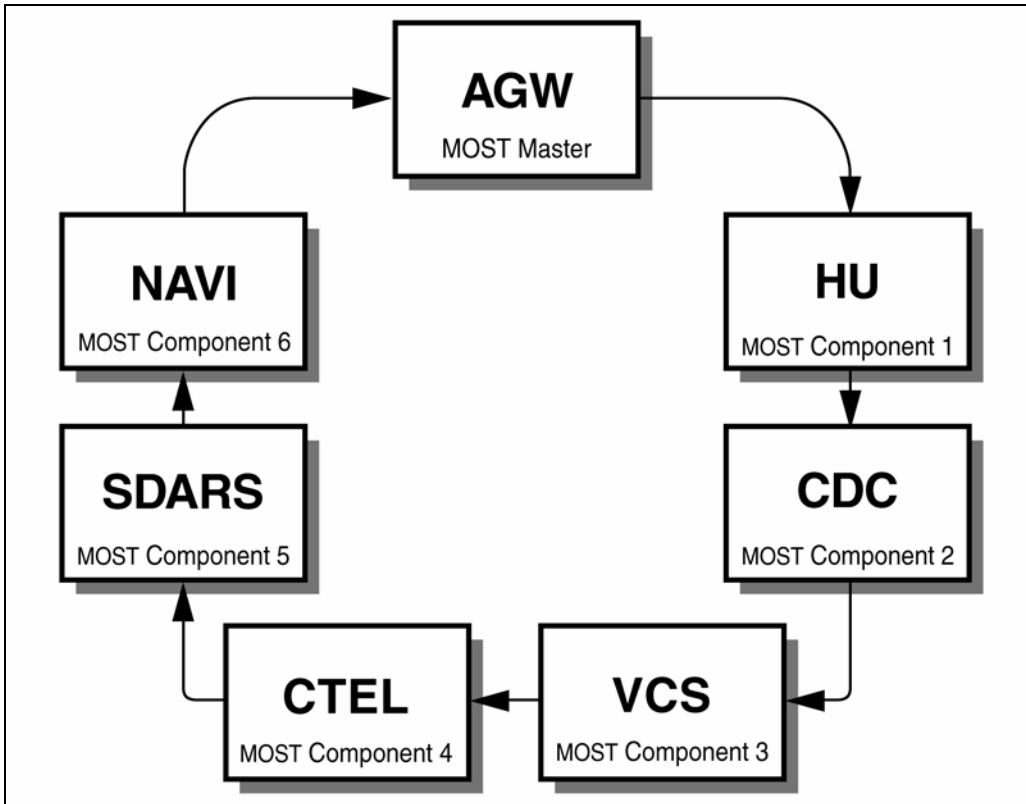
**Failure to have the configuration match Figure 36 will result in erroneous system operation and/or intermittent malfunctioning of some or all components.**

**DO NOT alter the configuration in Figure 36 to match the vehicle configuration.**

3. Set the Tele Aid control module to recognize telephone presence via path:  
**Control units > Information and communication > Audio, video, navigation and telematics > TELE-AID > Control unit adaptations > Model series, Telephone adapter for portable CTEL (UHI) > Set “Model series” to C219, Set “Telephone adapter” to FITTED, press F5 > F3: Yes/Coding > F2 to confirm coding was carried out**
4. *Set the instrument cluster to recognize telephone presence via path:*  
*Control units > Information and communication > IC - instrument cluster > Control unit adaptations > Version coding > Optional equipment > Select “CTEL cellular telephone” > Set “CTEL cellular telephone” to PRESENT, then press F3 > F5: To save changes > F3: To transfer coding to the control unit*
5. Check the DTC memory of all installed components and the head unit. Investigate and identify any present DTCs. Once identified, correct the source of the DTCs and clear the DTC memory.  
**Note:** Powering up the newly installed system prior to version coding will set errors in the MOST ring configuration. Ignore these errors during the initial DTC check. If the DTCs return after clearing, a configuration error exists. Locate and correct the error.
6. Confirm no new DTCs are present in the MOST system group.



**M. MOST ring configuration**



**Figure 36**

P82.70-5435-11

## **N. Final assembly and function testing**

1. Verify proper telephone operation per the following checklist:
  - ✓ Handset dialing is functioning correctly—Use an active telephone to dial a valid telephone number. Listen for a dial tone and ring.
  - ✓ Head unit dialing is functioning correctly—Use an active telephone to dial a valid telephone number. Listen for a dial tone and ring over the vehicle audio system and then end the call via the steering wheel controls.
  - ✓ Handset incoming/outgoing call audio is clear—Use an active telephone to dial a telephone number, connect and either speak to a live person or leave a voicemail message.
  - ✓ Hands-free incoming/outgoing audio is clear—Use an active telephone to dial a telephone number, connect and either speak to a live person or leave a voicemail message.
  - ✓ Automatic memory download is functioning—Connect the telephone to the vehicle and wait 3 minutes for the download to complete. After 3 minutes, check several random phonebook locations and match the received and dialed call list to the telephone's list. (It may be necessary to store a test number in the telephone handset for this feature to operate. Stored numbers should be available for dialing from the head unit after automatic download.)
  - ✓ Signal strength—Note the telephone signal strength before and after connected to the vehicle. The signal strength should stay constant or increase when the telephone is connected to the vehicle. If the signal strength decreases, a problem exists.
2. Reinstall the right side paneling in the trunk.
  - Refer to WIS document AR68.30-P-4800TX, "Remove/install side paneling in trunk"
3. Reinstall the carrier plate cover (C, Figure 1), vapor barrier (B, Figure 1), and rear, center section paneling (A, Figure 1) in the trunk.
  - Refer to WIS document AR68.30-P-4620TX, "Remove/install spare wheel paneling"

## O. Parts Information

Qty.	Part Name	Part Number / Exchange
	<b>Vehicle core installation kit</b>	<b>BQ 682 0955</b>
1	Hardware kit	BQ 682 0462
1	Linear compensator, dual band	BQ 682 0829
1	Control module, MHI	BQ 682 0936
	<b>CLS-Class vehicle completer kit</b>	<b>BQ 682 0954</b>
1	Lever, PTT	A 000 545 11 44
1	Contact plate	A 203 820 13 11
1	Cable, MOST, w/voice control	A 211 540 66 33
1	Bracket, linear compensator	A 211 545 67 40
1	Antenna switch w/FAKRA connections	A 220 827 18 42
1	Control module, voice control	BQ 682 0929
1	Manual, voice control	P-2799-04A
	<b>Cradle kits</b>	
1	Motorola V600 cradle	BQ 682 0919
	<u>or</u>	
1	Motorola V60s cradle	BQ 682 0925
	<u>or</u>	
1	Motorola V60i/x cradle	BQ 682 0988
	<u>or</u>	
1	Motorola V710 cradle	<b><i>B6 787 5844</i></b>

**Note:** This installation, and any subsequent related installation and/or workmanship issues, cannot be claimed under warranty.