

# Original BMW Accessories.

## Installation instructions.



### Retrofit - Navigation system Professional (SA 609) BMW 5 Series (E60, E61)

**Retrofit kit No.:** 65 90 0 397 300 Retrofit kit - Navigation system Professional  
65 90 0 413 216 Retrofit kit - Navigation system Professional

#### Installation time

The installation time of approx. 6 hours for vehicles without SA 606 and approx. 4 hours for vehicles with SA 606 can vary depending on the condition and scope of equipment of the vehicle.

The vehicle must be updated to the latest I-stage status by flashing before installing the retrofit. Different programming times are necessary depending on the production age of the vehicle and the work already performed on the vehicle so that no time requirements can be specified here.

The installation time does not include the time required for programming/encoding which depends on the vehicle's age and equipment.

#### Important information

**The retrofit of the car communication computer should be performed with the Service Software Station and OPSS/OPS. Refer to corresponding Service Information.**

**Should you encounter problems during the installation procedure or operation, after briefly performing troubleshooting (about half an hour) contact one of the following in order to avoid unnecessary work and costs:**

- 1. Either your national subsidiary or your regional office or**
- 2. The Support through the Aftersales Assistance Portal (ASAP) using the optional "Technical Support" application.**

**Please quote the vehicle identification number as well as the part number of the installed retrofit kit and a detailed description of the problem.**

These installation instructions are mainly intended for use in the BMW dealership network as well as by authorised BMW Service Centres.

The target group of these installation instructions are technical personnel trained on BMW vehicles with corresponding technical know-how.

All work is to be carried out with the aid of currently valid BMW repair instructions, circuit diagrams, maintenance manuals and working instructions in rational order with the specified tools (special tools) while paying particular attention to valid safety regulations.

When installing cables/lines, particular attention must be paid to ensure that they are not bent, kinked or damaged. The costs incurred will not be reimbursed by BMW AG.

Additionally installed cables/wires must be secured with cable ties.

All illustrations show LHD vehicles. Carry out the same procedure analogously on RHD vehicles.

## Ordering information

The navigation retrofit kit must be additionally ordered for vehicles without **SA 606** (please refer to EPC for identification and part number).

The trim cover for the car communication computer (CCC) in the centre of the instrument panel is not included in the retrofit kit and must be ordered separately (please refer to EPC for description and part number).

The trim cover in the headliner for vehicles without **SA 638** or **SA 644** is not included in the retrofit kit and must be ordered separately corresponding to the vehicle equipment (please refer to EPC for description and part number).

## Pictographs:



denotes information that draws attention to danger/hazards.



denotes information that draws attention to specific requirements.

◀ denotes the end of an information or warning text.

For key to pictographs, see EBA-CD or Aftersales Portal.

Do not archive the printout of these installation instructions as they are updated daily via the Aftersales Portal!

Subject to technical modifications.

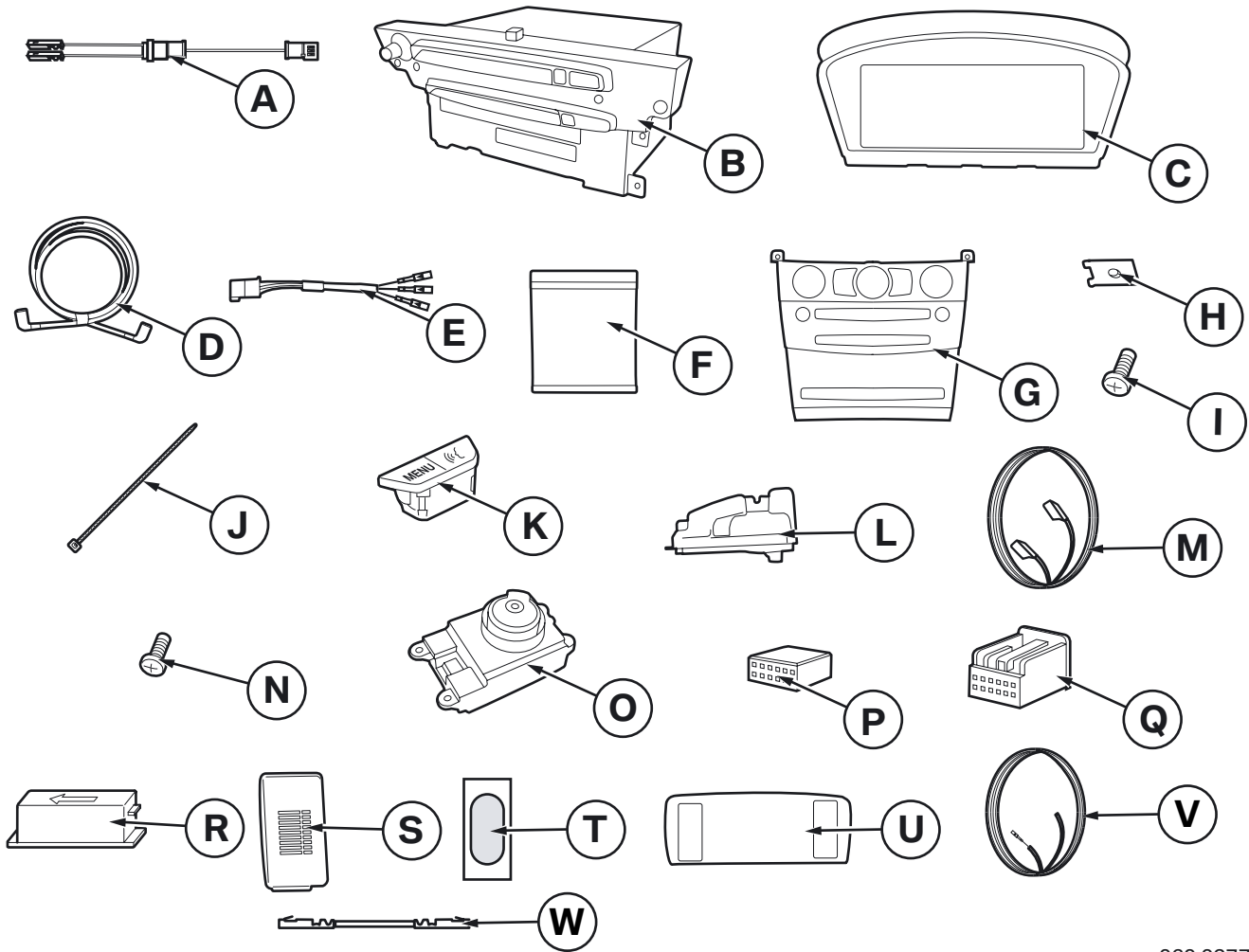
## Required special tools

00 9 310

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# 1. Parts overview

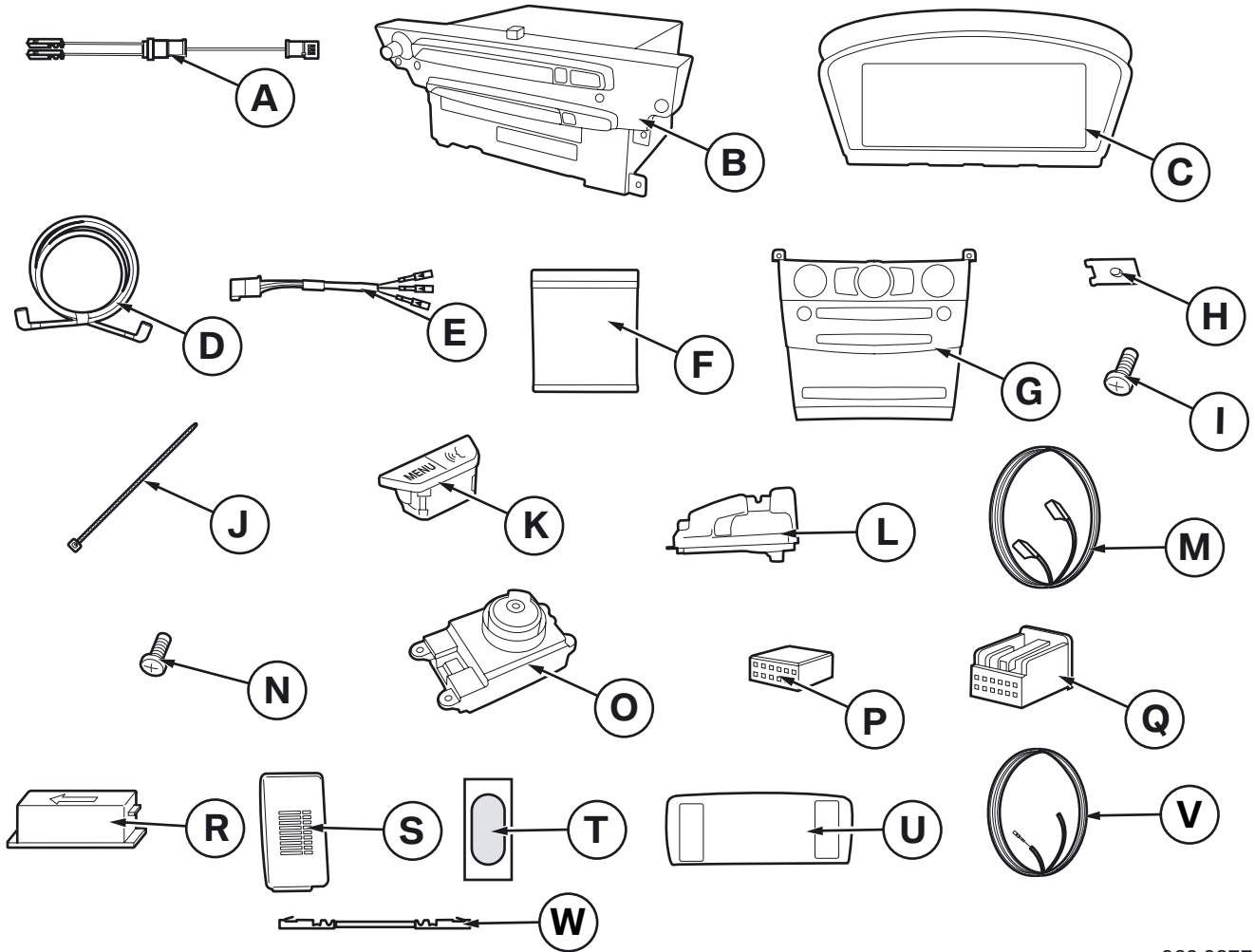


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## Key

- A Wiring loom for voice recognition system
- B Car communication computer (CCC)
- C 8.8" on-board monitor
- D LVDS cable
- E Wiring loom for CCC fan
- F Protective strip
- G Centre instrument panel trim cover (not included in parts kit)
- H Speed nut (2x)
- I Pan-head tapping screw 4.2 x 16 (2x)
- J Cable tie (15x)
- K Menu/voice activation button
- L GPS antenna (included in navigation retrofit parts kit)
- M GPS antenna cable (included in navigation retrofit parts kit)
- N Self-tapping screw (included in navigation retrofit parts kit)
- O Controller High
- P Socket housing (3x)
- Q Cover cap (3x)

1. Parts overview



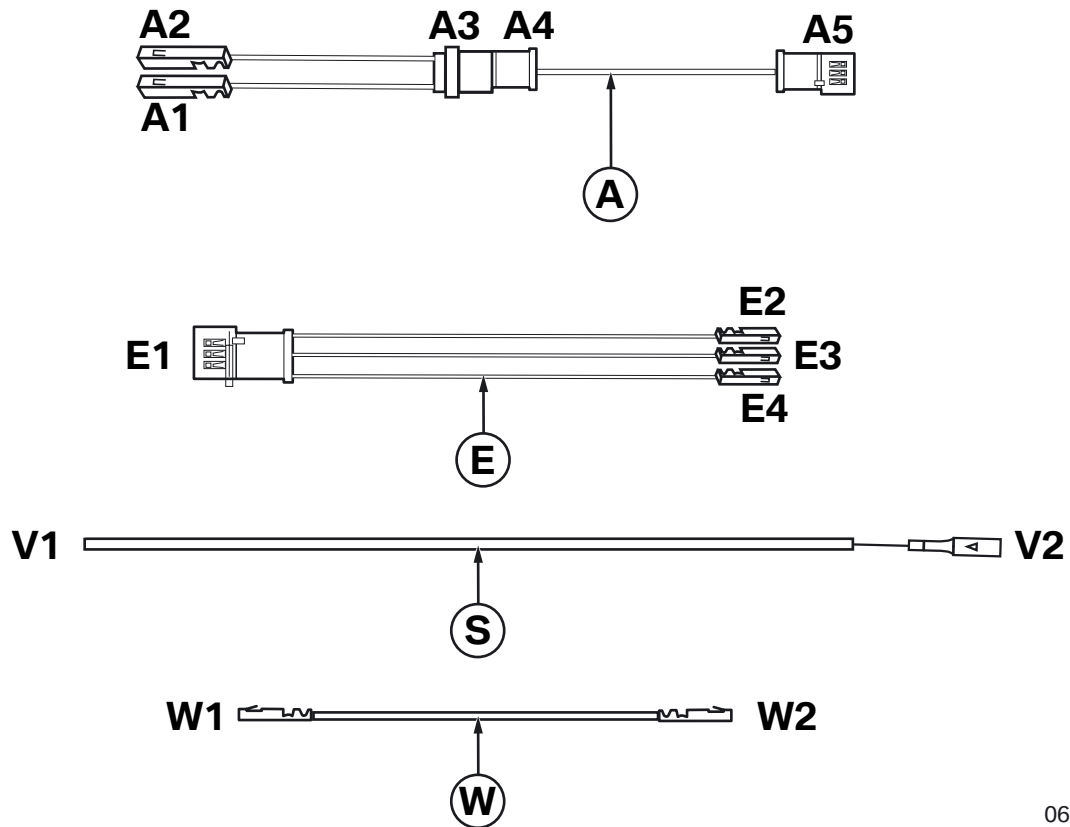
060 0277 V

- R Hands-free microphone
- S Trim cover for hands-free microphone
- T Trim cover for microphone (only for vehicles without SA 638 or SA 644)
- U Trim cover for headliner (only for vehicles without SA 638 or SA 644, not included in the retrofit kit)
- V Cable, navigation
- W Connecting cable (only for vehicles as from 09/2005)

## 2. Preparatory work

	<b>TIS No.</b>
Perform quick test	---
Disconnect negative terminal of battery	12 00 ...
<b>Remove the following components</b>	
Rear seat (only on vehicles without SA 606)	52 24 005
Side section of backrest (only on vehicles without SA 606)	52 26 008
Storage compartment, driver's side	51 16 ...
Footwell side trim panel at A-pillar	51 43 070
Trim panel for door pillar, bottom	51 43 150
Trim panel for roof pillar at rear (only on vehicles without SA 606)	51 43 251
Trim panel for roof pillar at rear (front) (only on vehicles without SA 606)	51 43 255
Audio system controller	65 12 200
Lower headlining at rear (only on vehicles without SA 606)	---
C-pillar trim panel (E61) (only on vehicles without SA 606)	51 43 255
D-pillar trim panel (E61) (only on vehicles without SA 606)	51 45 259
Decor strip on instrument panel, right	51 45 380
Trim cover on instrument panel, centre	51 45 310
On-board monitor	65 82 050
Pedal assembly cover	51 45 185
Button unit	61 31 193
Button for controller	61 31 192
Controller, front	61 31 195
Remove storage compartment	51 16 200
Left-hand A-pillar trim panel, lower headliner	---
Trim cover for headliner, front	---

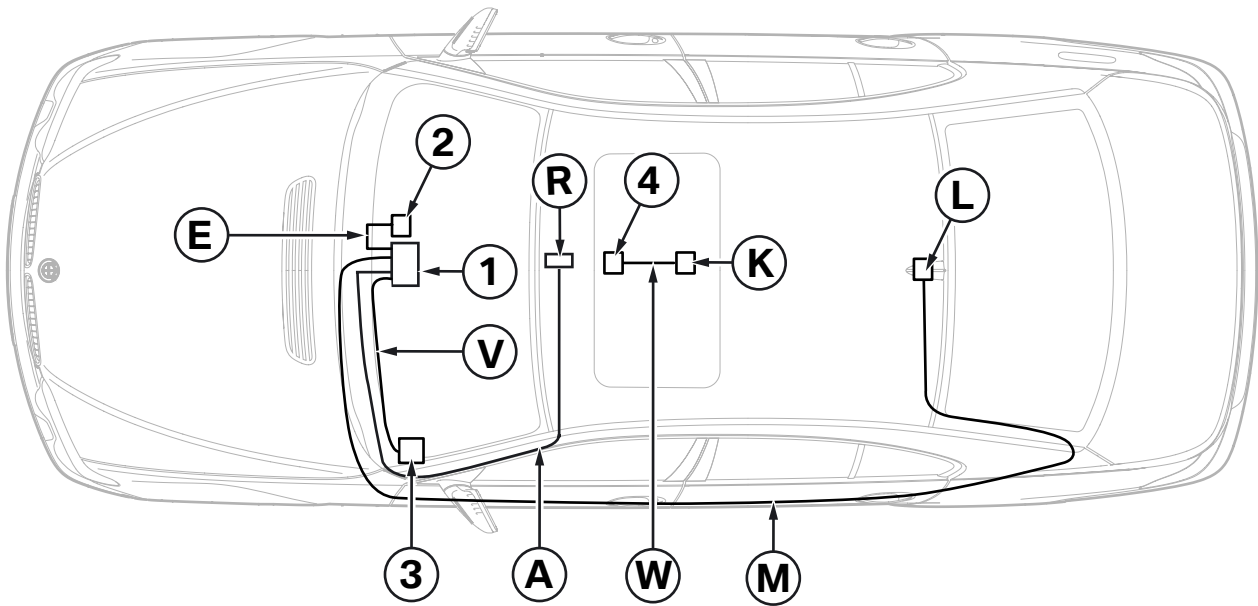
### 3. Overview of connections



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Item	Description	Signal	Wire colour / cross section	Connection location in vehicle	Designation / plug-in location
A	Wiring loom for voice recognition system	---	---	---	---
A1	Socket contact	MIC (+)	WS/GN 0.35 mm <sup>2</sup>	At radio connector <b>X13814</b>	X13814 PIN 1
A2	Socket contact	MIC (-)	WS/RT 0.35 mm <sup>2</sup>	At radio connector <b>X13814</b>	X13814 PIN 6
A3	WS 3-pin pin housing	---	---	At branch <b>A4</b>	X13293
A4	WS 3-pin socket housing	---	---	At branch <b>A3</b>	X3759
A5	SW 3-pin socket housing	---	---	At hands-free microphone <b>R</b>	X2759
E	Wiring loom for CCC fan	---	---	---	---
E1	SW 3-pin socket housing	---	---	At CCC fan	X14055
E2	Socket contact	Fan (+)	RT/SW 0.35 mm <sup>2</sup>	At radio connector <b>X13813</b>	X13813 PIN 1
E3	Socket contact	Fan (-)	BR 0.35 mm <sup>2</sup>	At radio connector <b>X13813</b>	X13813 PIN 5
E4	Socket contact	Diagnosis	WS 0.35 mm <sup>2</sup>	At radio connector <b>X13813</b>	X13813 PIN 11
V	Wiring loom, navigation	---	---	---	---
V1	Wire open	---	BR/RT 0.35 mm <sup>2</sup>	At CAS control unit	X10318 PIN 31
V2	Socket contact	DFAHL	BR/RT 0.35 mm <sup>2</sup>	At radio connector <b>X13814</b>	X13814 PIN 12
W	Connecting cable	---	---	<b>Only vehicles produced after 09/2005</b>	---
W1	Socket contact	PTT	WS/GE 0.35 mm <sup>2</sup>	At iDrive <b>A167</b> , 8-pin connector, SW	X10387 PIN 6
W2	Socket contact	PTT	WS/GE 0.35 mm <sup>2</sup>	At menu/voice activation button <b>K</b> , 4-pin connector, SW	X14099 PIN 2

## 4. Installation and layout diagram



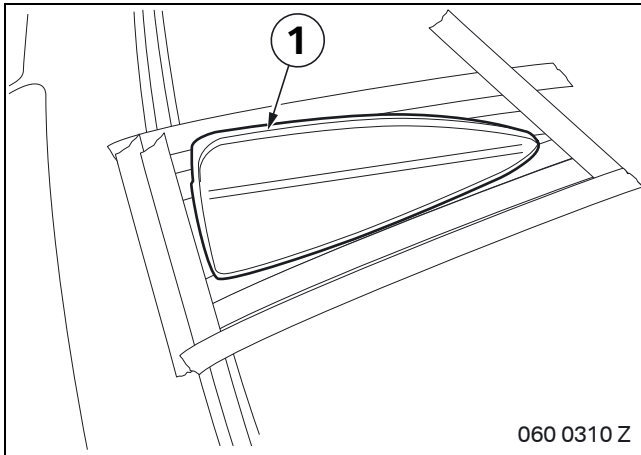
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### Key

- A Wiring loom for voice recognition system
  - E Wiring loom for CCC fan
  - L GPS antenna
  - K Menu/voice activation button
  - M GPS antenna cable (only for vehicles without SA 606)
  - R Hands-free microphone
  - V Wiring loom, navigation
  - W Connecting cable (only for vehicles built after 09/2005)
- 
- 1 CCC
  - 2 CCC fan
  - 3 CAS
  - 4 iDrive



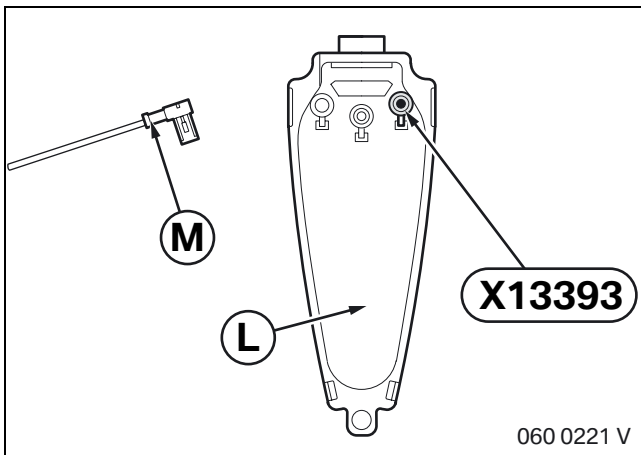
## 5. Installing GPS antenna and antenna cable (only for vehicles without SA 606)



- ▶ Mask off the area about the roof antenna to avoid damaging the paintwork. ◀

Use special tool to carefully detach the empty housing (1) of the roof antenna from the roof.

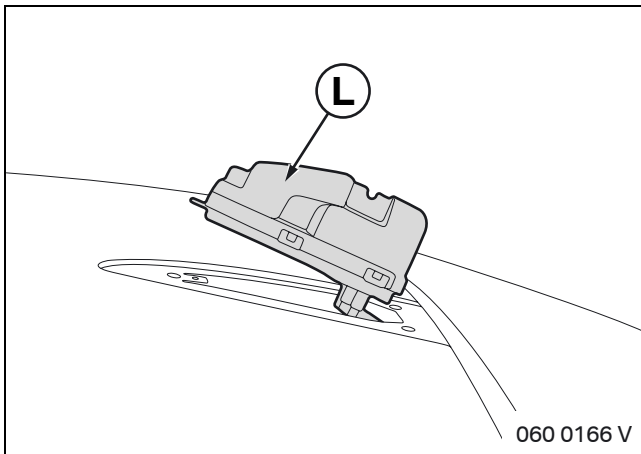
Clean surfaces in adhesion area of empty housing (1) and roof.



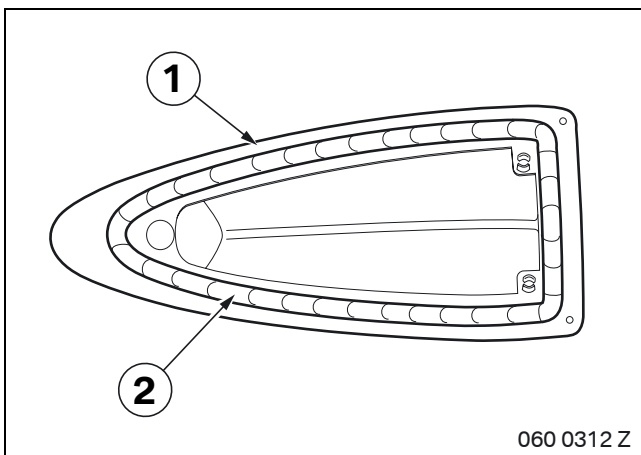
- ▶ If the vehicle is equipped with a car telephone, the existing antenna must be replaced by the GPS antenna.

The antenna cable of the car telephone must then be connected to the GPS antenna L. ◀

Connect GPS antenna cable M to connector X13393 of GPS antenna L.



Plug in antenna L at rear and secure at the front with screw N from the parts kit.

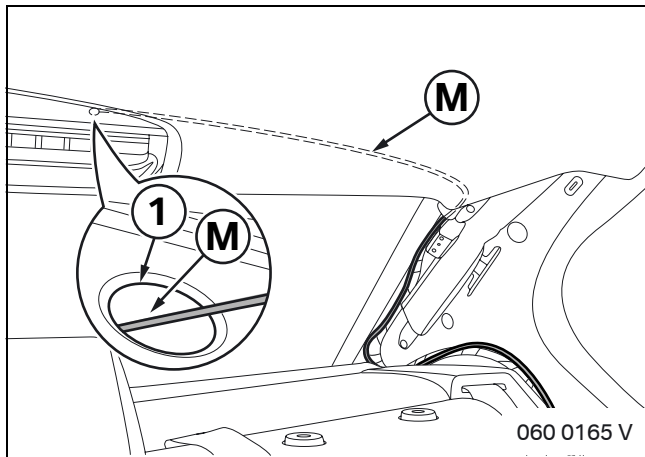


- ▶ The adhesion surfaces must be clean and free of oil and grease. Minimum processing temperature of adhesive 20 °C. Minimum hardening time of adhesive 4 hours. ◀

Apply an approx. 8 mm wide and 8 mm high bead of adhesive (2) on the empty housing (1).

Carefully place empty housing (1) in its original position, press lightly and secure with adhesive tape.

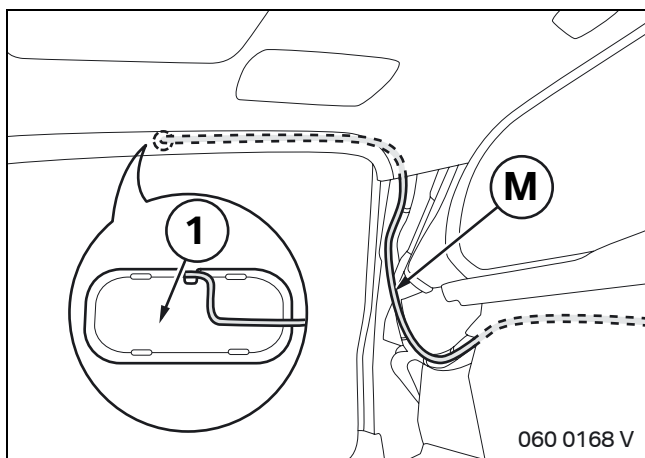
5. Installing GPS antenna and antenna cable (only for vehicles without SA 606)



**For E60 only:**

Pull antenna cable **M** through opening (1).

Route antenna cable **M** behind the headliner to the C-pillar. Route antenna cable **M** further along the existing vehicle wiring harness to the driver's footwell and from here further to the centre console.



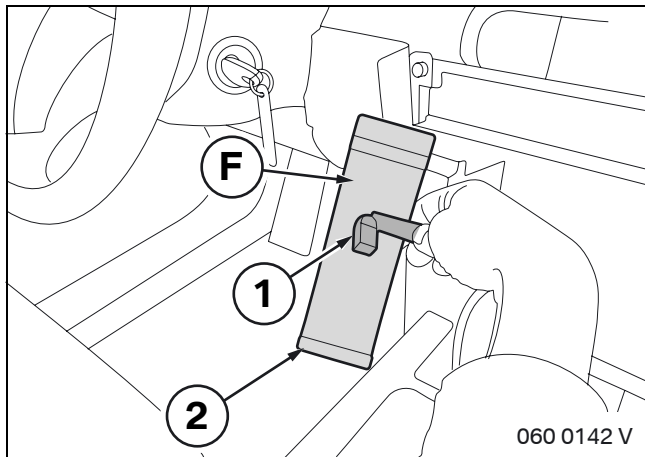
**For E61 only:**

Pull antenna cable **M** through opening (1).

Route antenna cable **M** behind the headliner to the D-pillar. Route antenna cable **M** further along the existing vehicle wiring harness to the driver's footwell and from here further to the centre console.

Trim cap (1) if necessary.

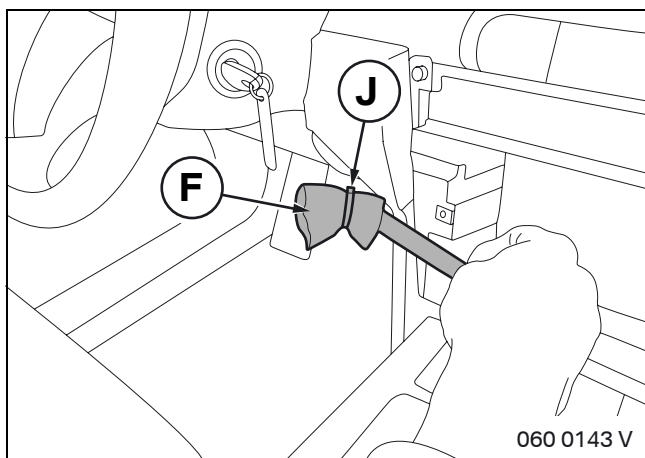
## 6. Installing car communication computer (CCC)



Cut through protective strip **F** in the centre transversely with respect to the adhesive strips.

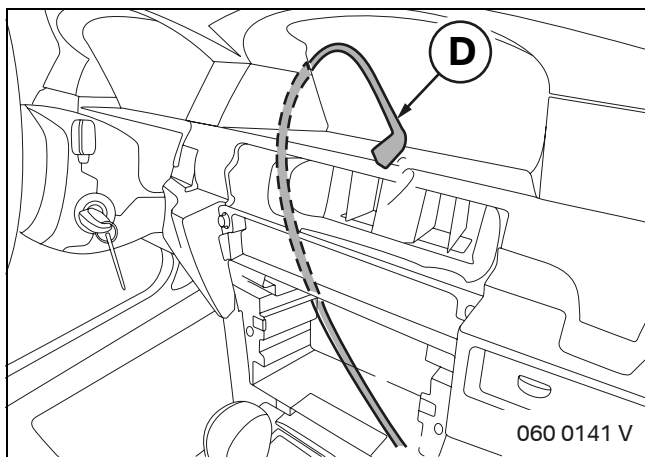
Wrap protective strip **F** around connector (1) of existing LVDS cable and seal off with adhesive strip (2).


Perform the same procedure on the connector of the LVDS cable at the audio system controller.



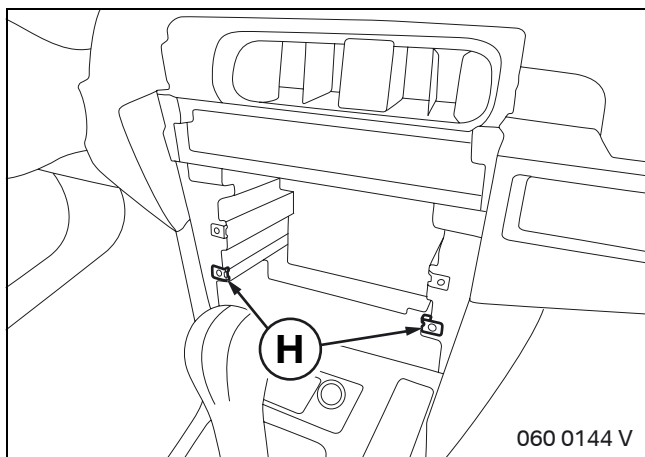
Additionally secure protective strip **F** with adhesive tape **J**.

Perform the same procedure on the connector of the LVDS cable at the audio system controller.



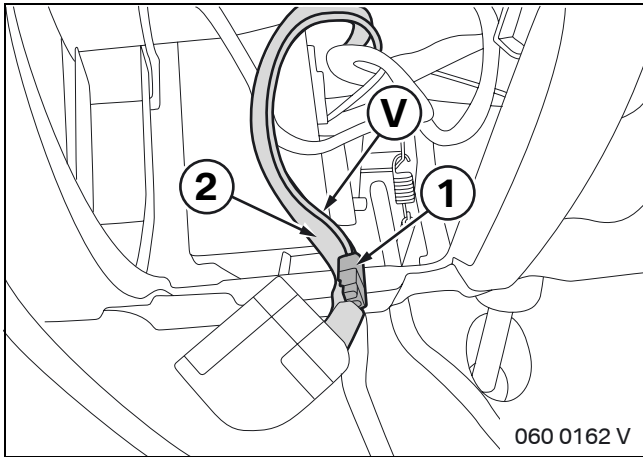
 Connect violet plug to 8.8" on-board monitor **C** and blue plug to CCC **B** later. ◀

Run LVDS cable **D**, rear left ventilation duct, down to the centre console carrier.



Fit speed nuts **H** on centre console carrier.

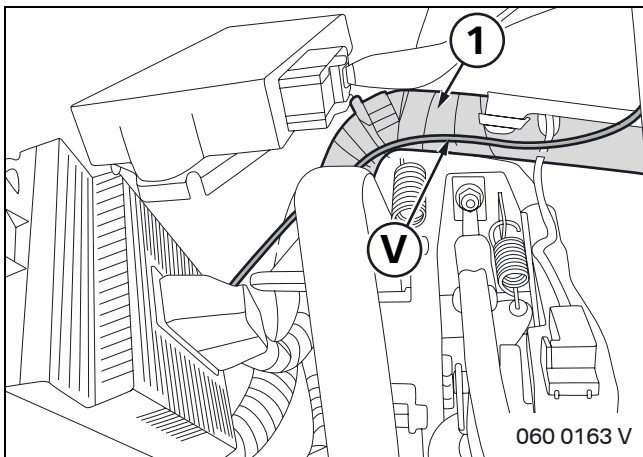
## 6. Installing car communication computer (CCC)



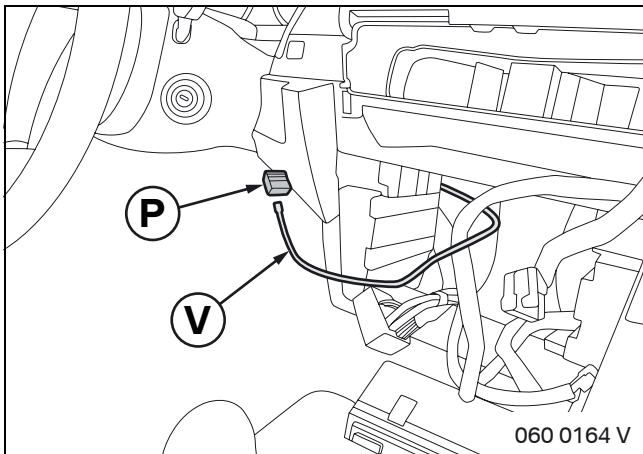
### For vehicles built before 09/2004:

Unplug connector **X10318** from CAS control unit. Connect navigation cable **V** with miniature connector (1) to PIN 31, BR/RT wire.

Run navigation cable **V** along existing wiring harness (2) to the steering column.



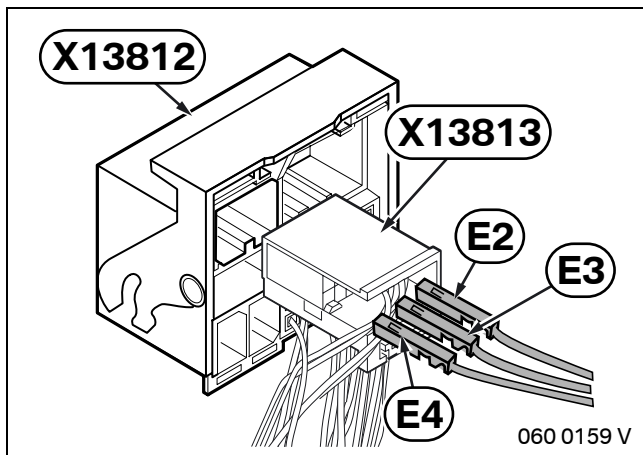
Run navigation cable **V** along existing wiring harness (1) to the centre console.



▶ If socket housing **X13814** is already fitted on the radio connector, plug in navigation cable **V** at PIN 12. ◀

Plug in navigation cable **V** at socket housing **P** PIN 12. Plug socket housing **P** into cover cap **Q**.

## 6. Installing car communication computer (CCC)




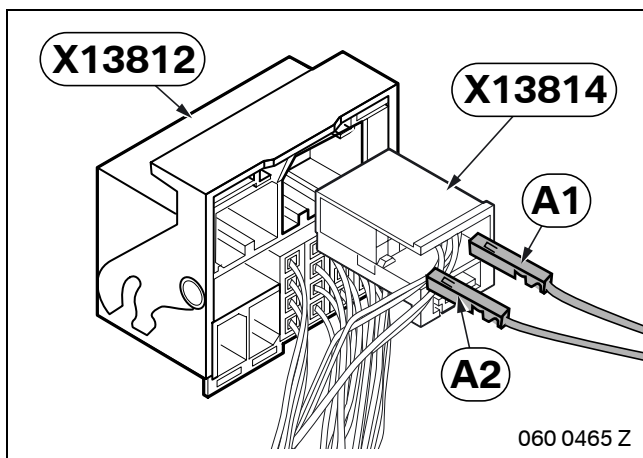
### For all vehicles:

Unplug connector **X13813** from connector **X13812**.

Connect wiring loom for CCC fan **E** to connector **X13813** as follows:

RT/SW wire at PIN 1,  
BR wire at PIN 5,  
WS wire at PIN 11

 If there is no connector **X13813** installed in the vehicle, use socket housing **P**. ◀




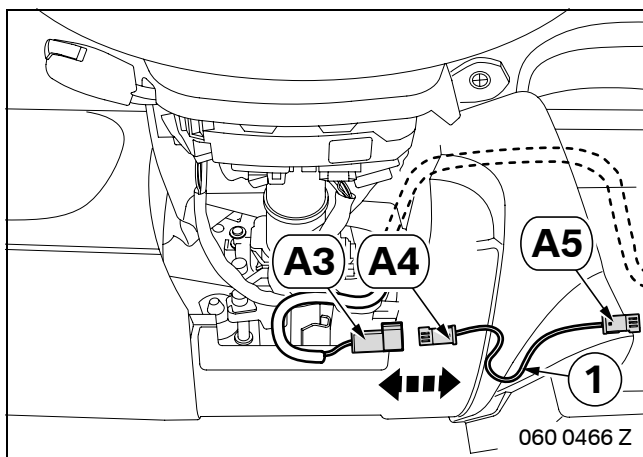
Unplug connector **X13814** from connector **X13812**.

Connect branches **A1-A2** at connector **X13814** as follows:

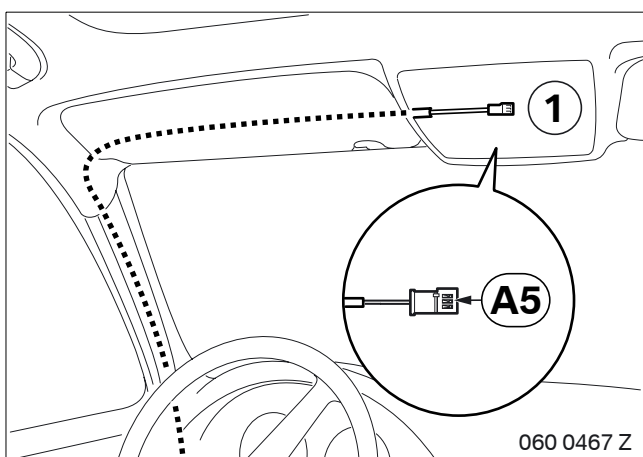
- **A1**, WS/GR wire at PIN 1
- **A2**, WS/RT wire at PIN 6

Plug connector **X13814** into connector **X13812**.

 If there is no connector **X13814** installed in the vehicle, use socket housing **P**. ◀

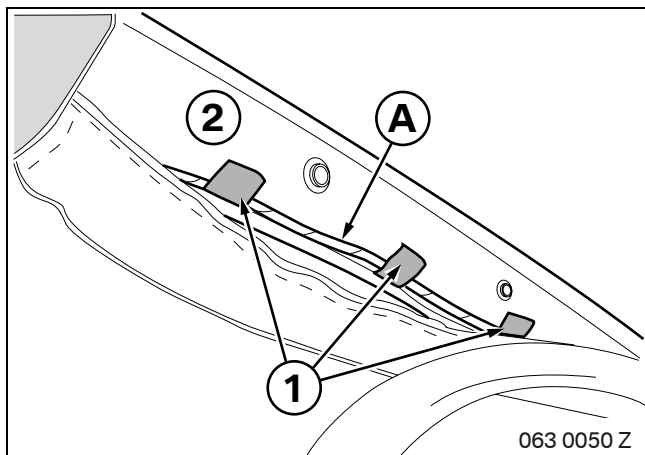


Run branches **A3-A5** to the steering column.




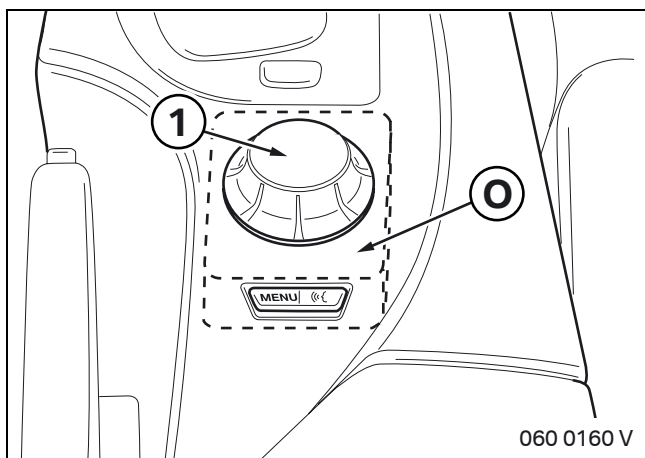
Route branch **A5** along left A-pillar over lowered headliner to opening in roof panel (1).

## 6. Installing car communication computer (CCC)



Secure wiring loom **A** with adhesive fabric tape (1) to left-hand A-pillar (2).

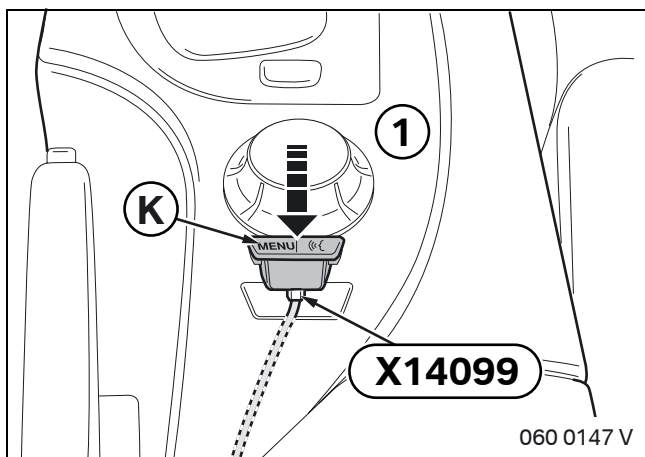
 Make sure that wiring loom **A** is installed and secured behind the head airbag. ◀



Install controller **O** from the parts kit as described under TIS No. 61 31 195

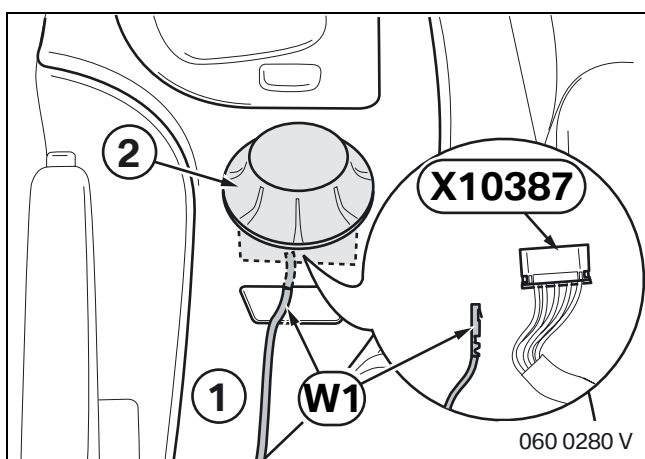
Reinstall controller knob (1) as described under TIS No. 61 31 192.

Install storage compartment as described under TIS No. 51 16 200.




### Only for vehicles built before 09/2005:

Plug in connector **X14099** at menu/voice activation button **K**. Clip menu/voice activation button **K** into centre console (1).



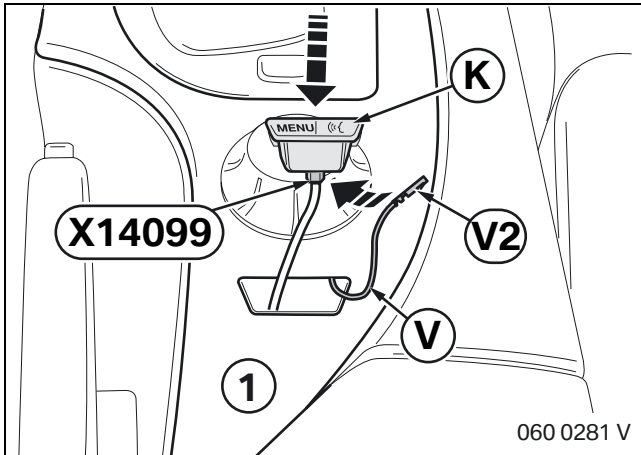
### Only for vehicles built after 09/2005:

 Remove trim cover for storage compartment (1) as described under TIS No. 51 16 211. ◀

Unplug connector **X10387** (8-pin, SW) from iDrive (2).

Plug in branch **W1**, WS/GE wire, at PIN 6.

## 6. Installing car communication computer (CCC)

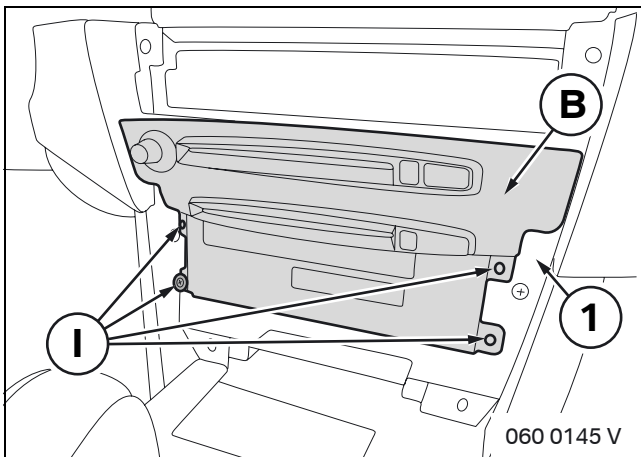


Plug in branch **W2**, WS/GE wire, at PIN 2 of connector **X14099** (4-pin, SW).

Plug in connector **X14099** at menu/voice activation button **K**.

Tie back excess length of connecting cable **W**.

Clip menu/voice activation button **K** in trim cover for storage compartment (1).



### For all vehicles:

Make all connections at the CCC **B**.

Connect branch **E1** at CCC fan.

▶ Tie back the old LVDS cable of the vehicle wiring harness (see figure 060 0142 V).

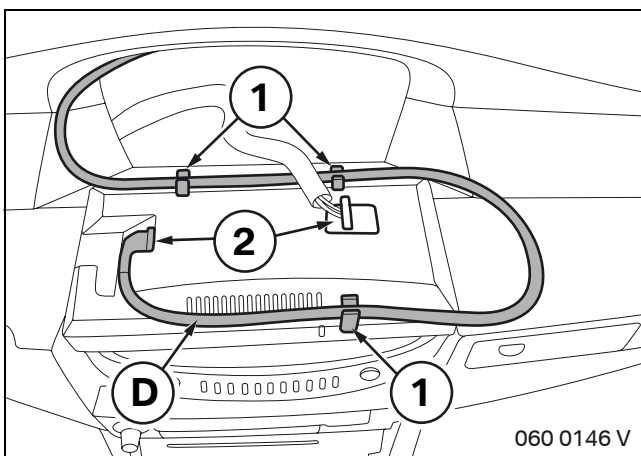
If necessary cut open several centimetres of the wiring harness sheathing. ◀

⚠ Take particular care when fitting the CCC **B** to ensure that the wiring harness is not trapped and no parts of the interior trim are damaged. ◀

Insert CCC **B** in the centre console carrier (1) and secure with pan-head tapping screws **I**.

Tightening torque 2.1 - 2.5 Nm.

Clip centre console switch cluster and automatic climate control panel into new instrument panel trim cover, centre **G**. Connect cables and install finisher.



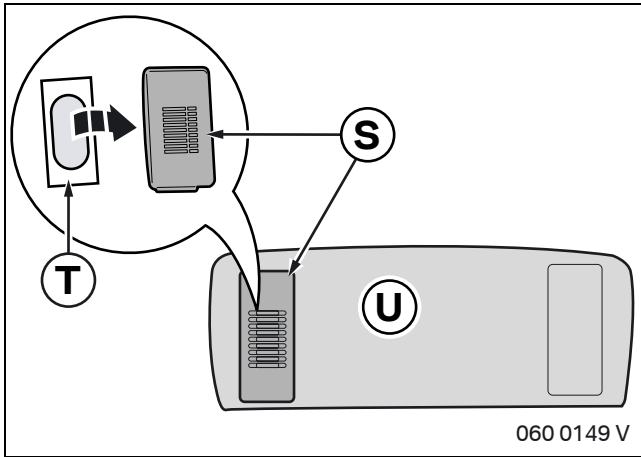
Secure LVDS cable **D** with wide bends in the retaining fixtures (1) of the 8.8" on-board monitor **B**.

Plug in connector (2).

⚠ Take particular care when installing the 8.8" on-board monitor **C** to ensure that the LVDS cable **D** is not bent. ◀

▶ Tie back the old LVDS cable of the vehicle wiring harness (see figure 060 0142 V) in the are behind the 8.8" on-board monitor **C**. If necessary cut open several centimetres of the wiring harness sheathing. ◀

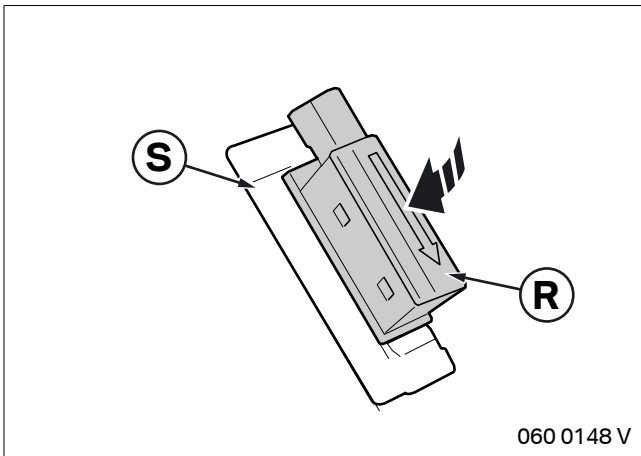
## 6. Installing car communication computer (CCC)




### Only vehicles without SA 638 or SA 644

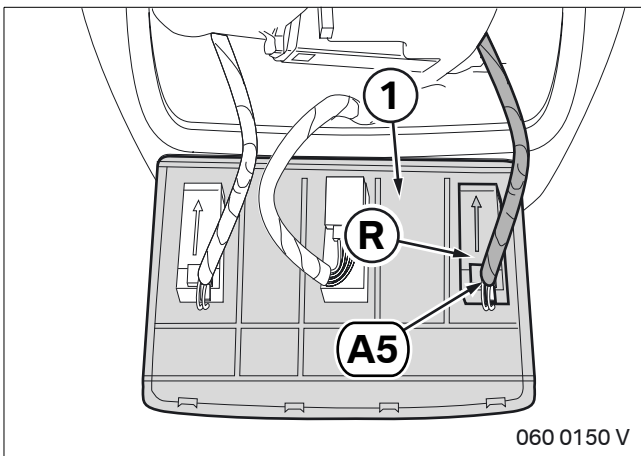
Clip trim cover for microphone **T** into trim cover for hands-free microphone **S**.

Clip trim cover for hands-free microphone **S** into trim cover for headliner **U**.



 When installed, the arrow on the hands-free microphone **R** must point in forward direction. ◀

Clip hands-free microphone **R** into trim cover for hands-free microphone **S**.



Clip hands-free microphone **R** into trim cover for headliner (1) and connect branch **A5** to hands-free microphone **R**.

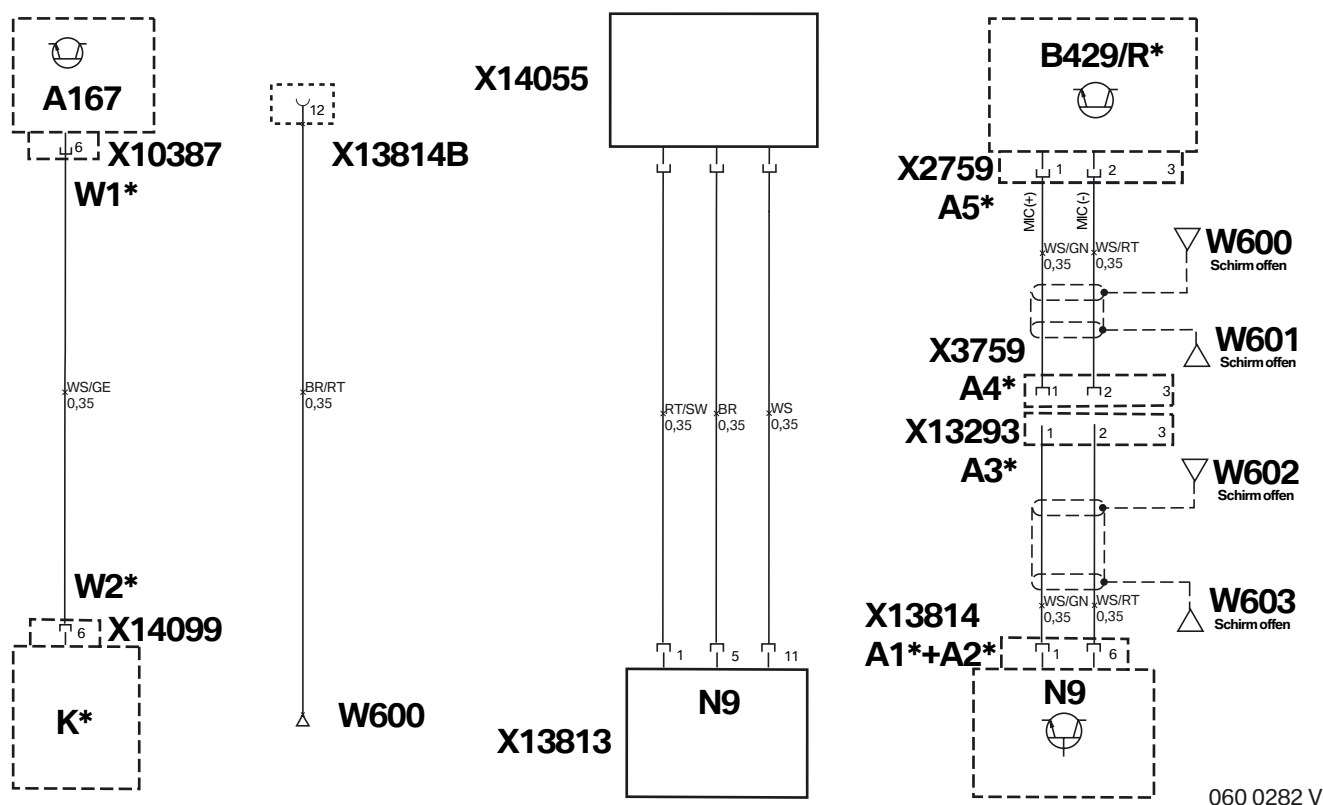


## 7. Finishing off and encoding

The retrofit system requires encoding.

- Reconnect vehicle battery
- Encode retrofit via the path - **Retrofit/Nav Pro**
- Perform quick test
- Perform function test
- Reassemble vehicle in reverse order of removal.

## 8. Circuit diagram



060 0282 V

### Key

- A167** iDrive
- B429** Hands-free microphone **R\***
- N9** Car communication computer (CCC)
- K\*** Menu/voice activation button
  
- X2759** 3-pin socket housing, SW, **A5\***, at hands-free microphone **R\***
- X3759** 3-pin socket housing, WS, **A4\***, at WS 3-pin pin housing, **A3\***
- X10387** 8-pin socket housing, SW, **W1\***, at iDrive
- X13293** 3-pin pin housing, WS, **A3\***, at WS 3-pin socket housing, **A4\***
- X13813** 12-pin socket housing at car communication computer
- X13814** WS 12-pin socket housing, **A1\*+A2\***, at car communication computer
- X14055** 3-pin socket housing at CCC fan
- X14099** 4-pin socket housing, SW, **W2\***, at menu/voice activation button **K\***
  
- W600** Shielding open
- W601** Shielding open
- W602** Shielding open
- W603** Shielding open

All designations marked \* only apply to these installation instructions or this circuit diagram

## 8. Circuit diagram

### Wire colours

GN	Green
GE	Yellow
RT	Red
WS	White
BR	Brown
SW	Black