

# Original BMW Accessories.

## Installation Instructions.



### USB Interface Retrofit for ACM

**BMW 1 Series (E81, E82, E87)**

**BMW 3 Series (E90, E91, E92, E93)**

**BMW 5 Series (E60, E61)**

**BMW 6 Series (E63, E64)**

**BMW X5 (E70)**

**These installation instructions only apply to cars with ACM.**

**Retrofit kit No.:** 65 50 0 433 281 USB retrofit kit on ACM

#### Installation time

The installation time is **approx. 1.5 hours**. This may vary depending on the condition of the car and the equipment in it.

The installation time will increase by **approx. 1.0 hour** in conjunction with ACM.

#### Important information

These installation instructions are primarily designed for use within the BMW dealership organisation and by authorised BMW service companies.

In any event, the target group for these installation instructions is specialist personnel trained on BMW cars with the appropriate specialist knowledge.

All work must be completed using the latest BMW repair manuals, circuit diagrams, servicing manuals and work instructions, in a rational order, using the prescribed tools (special tools) and observing current health and safety regulations.

**In the event of any installation or function problems, restrict the troubleshooting session to about 0.5 hours for mechanical work or 1 hour for electrical work.**

In order to reduce costs and avoid any additional expense, send a query immediately to the Technical Parts Support via the Aftersales Assistance Portal (ASAP).

Specify the following information:

- Chassis number
- Part number of the retrofit kit
- A precise description of the problem
- Work steps already carried out

Do not archive the hard copy of these installation instructions since daily updates are made by ASAP!

#### Pictograms



Denotes instructions that draw your attention to dangers.



Denotes instructions that draw your attention to special features.

◀ Denotes the end of the instruction or other text.

### **Installation information**

For USB audio playback, it is necessary to connect pawl plug **A2** into the AUX-IN socket.

Ensure that the cables and/or lines are not kinked or damaged as you install them in the car. The costs thereby incurred will not be reimbursed by BMW AG.

Additional cables/lines that you install must be secured with cable ties.

If the specified PIN chambers are occupied, bridges, double crimps or twin-lead terminals must be used.

All pictures show LHD cars; proceed accordingly on RHD cars.

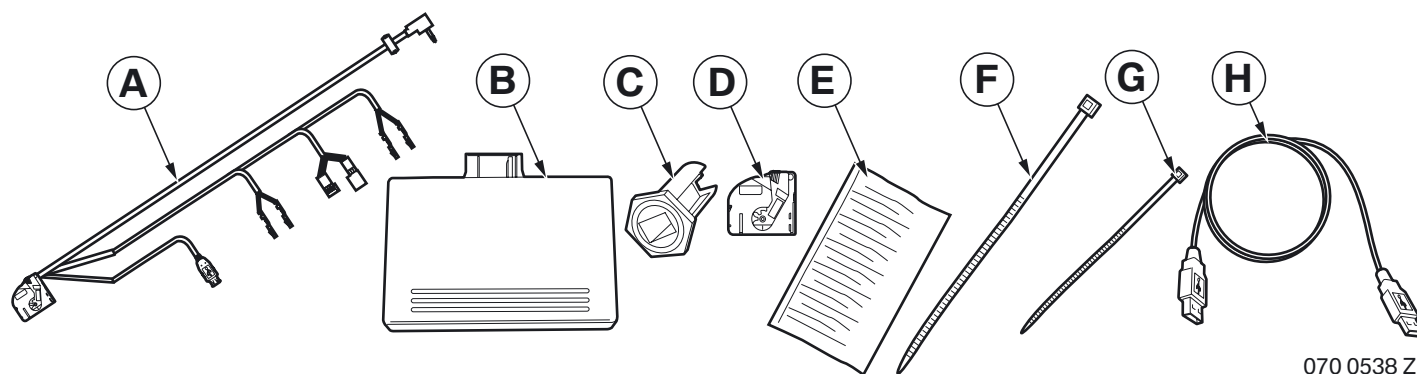
### **Special tools required**

00 9 317 Trim wedge

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## 1. Parts list



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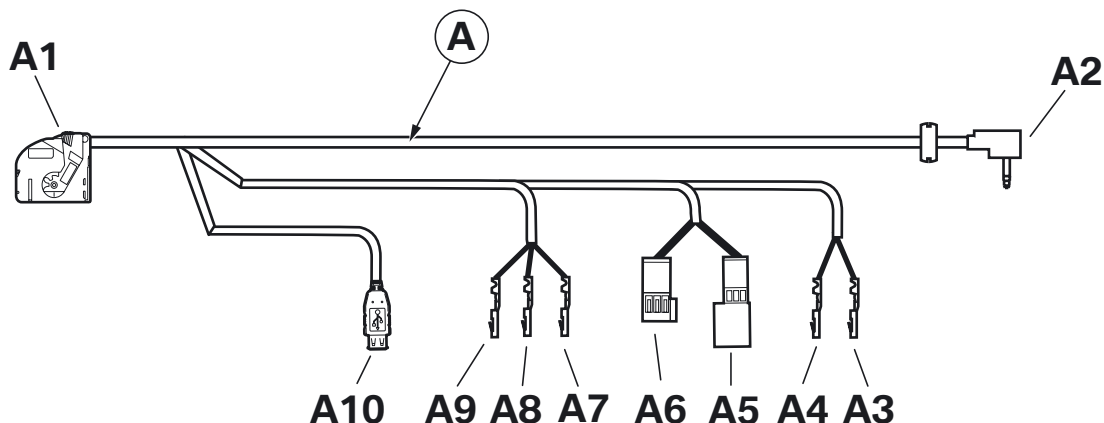
### Legend

- A** Retrofit cable
- B** USB interface
- C** USB holder
- D** SW 18-pin socket casing
- E** Protective strip
- F** Cable tie 445 x 4.8 mm (2x)
- G** Cable tie 200 x 3.6 mm (10x)
- H** USB cable (to be given to the customer)

## 2. Preparatory work

	<b>TIS No.</b>
Conduct a brief test	---
Disconnect negative pole of battery	12 00 ...
<b>The following components must be removed first of all</b>	
Trim at the bottom right of the dashboard	51 45 ...
Glovebox with casing	51 16 ...
Pedal trim (E90, E91, E92, E93, E60, E61, E63, E64 cars only)	51 45 185
Unfasten the storage compartment (all cars except for E70 and E60, E61, E63, E64 cars with AUX-IN socket accessory)	51 16 200
Centre console trim (E70 cars only)	51 16 160
Right side trims on the storage compartment (E70 cars only)	51 16 ...

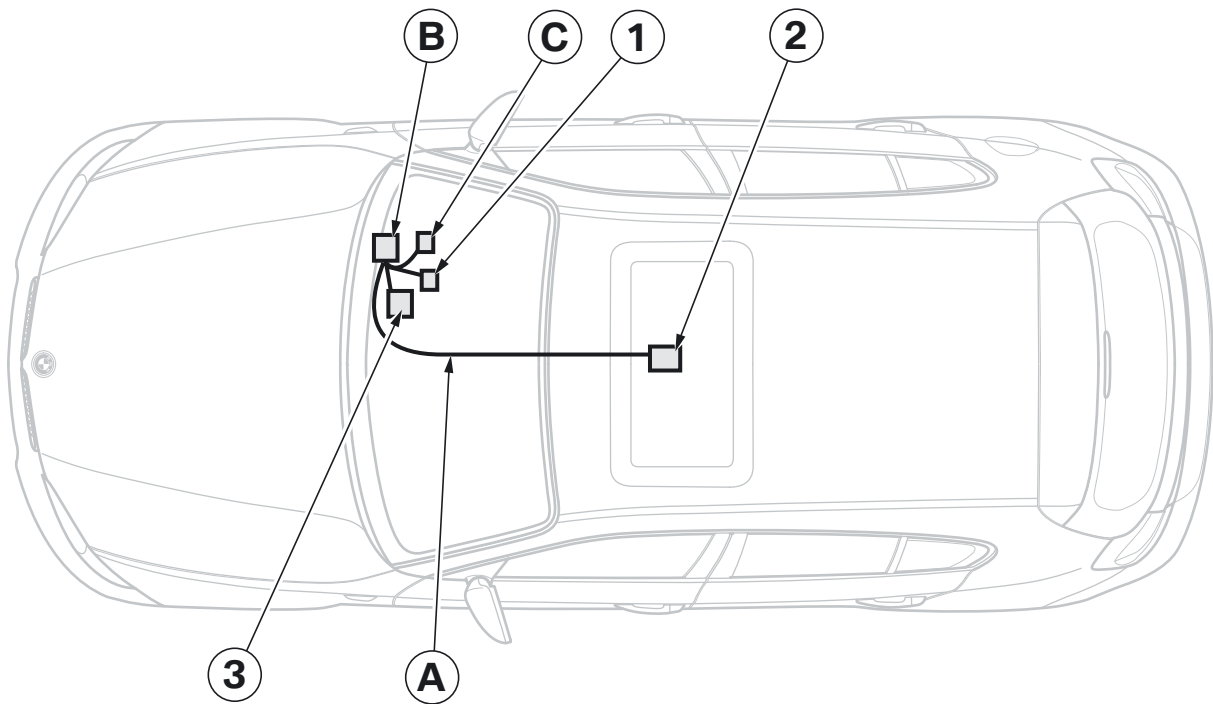
### 3. Retrofit cable connection diagram



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Item	Designation	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A	Retrofit cable	---	---	---	---
A1	BL 18-pin socket casing	---	---	On USB interface <b>B</b>	---
A2	Pawl plug	---	---	Plug into AUX-IN socket for playback of USB audio	---
A3	Socket contact	Video +	SW 0.35 mm <sup>2</sup>	With socket casing <b>D</b> on branch <b>A16</b> of the ACM wiring harness	A16 PIN 15
A4	Socket contact	Video -	WS 0.35 mm <sup>2</sup>	With socket casing <b>D</b> on branch <b>A16</b> of the ACM wiring harness	A16 PIN 6
A5	SW 3-pin plug casing	---	---	On branch <b>A20</b> of the ACM wiring harness	A20
A6	SW 3-pin socket casing	---	---	<b>Switching regulator connection (camera system power supply)</b> Insulate and tie back	---
A7	Socket contact	RX	GR/WS 0.35 mm <sup>2</sup>	Connect to branch <b>A15</b> of the ACM wiring harness (ACM unit connection)	A15 PIN 11
A8	Socket contact	TX	BL/BR 0.35 mm <sup>2</sup>	Connect to branch <b>A15</b> of the ACM wiring harness (ACM unit connection)	A15 PIN 10
A9	Socket contact	Terminal 31	BR 0.5 mm <sup>2</sup>	Connect to branch <b>A15</b> of the ACM wiring harness (ACM unit connection)	A15 PIN 22
A10	USB socket	---	---	In USB holder <b>C</b>	---

#### 4. Installation and cabling diagram for E81, E82, E87 cars

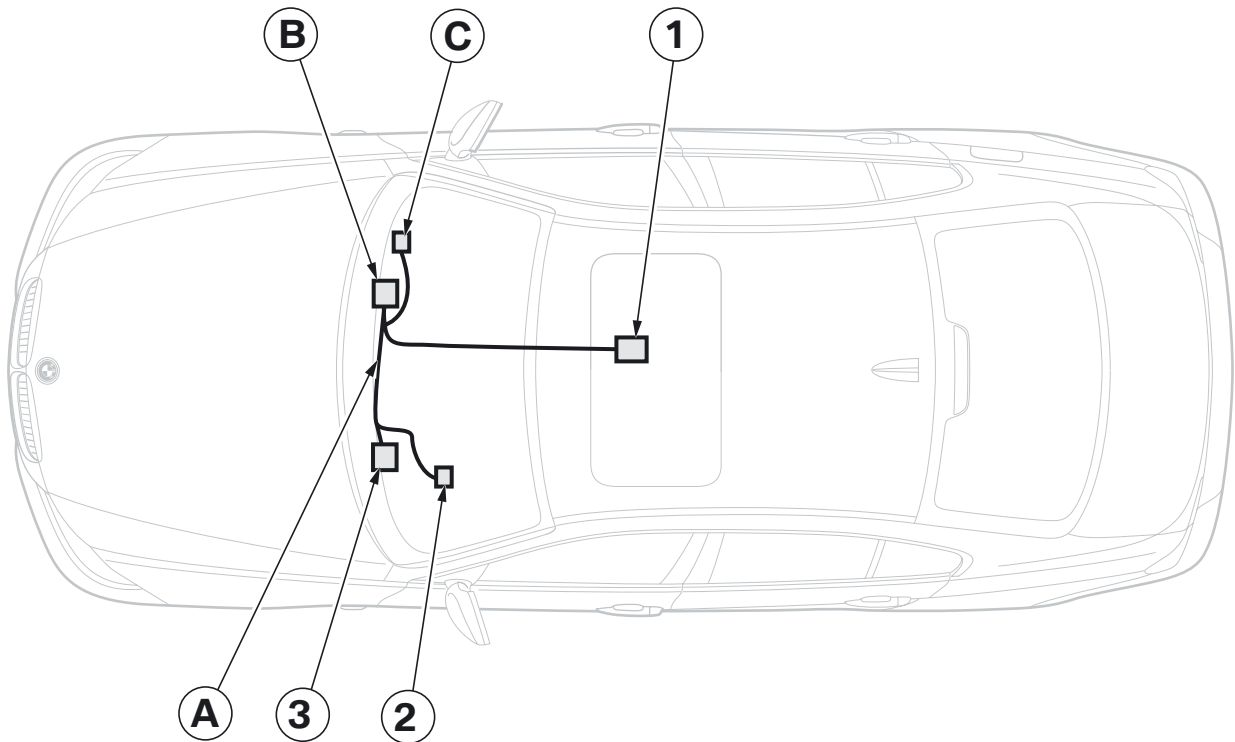


087 0830 Z

#### Legend

- A** Retrofit cable
- B** USB interface
- C** USB holder
  
- 1** Branches **A16** and **A20** of the ACM wiring harness
- 2** AUX-IN socket
- 3** ACM unit (branch **A15** of the ACM wiring harness)

## 5. Installation and cabling diagram for E90, E91, E92, E93 cars



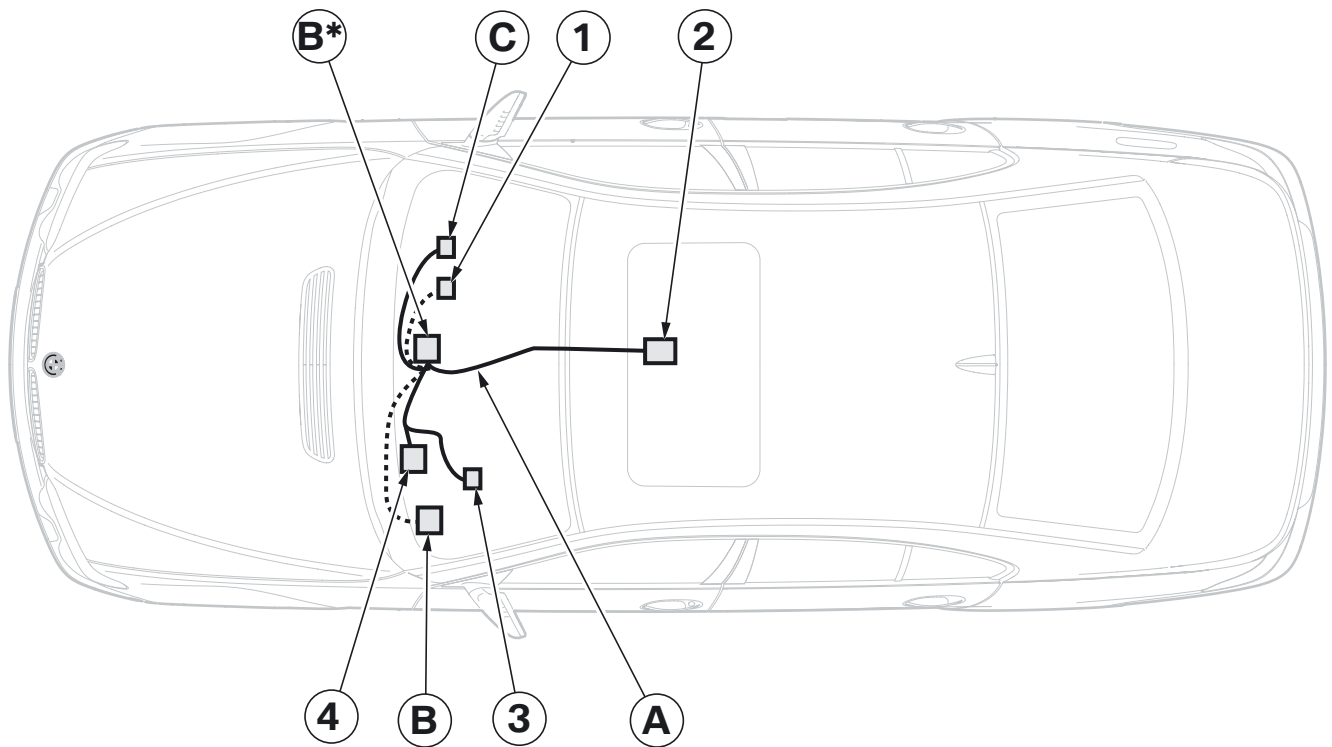
090 1226 Z

### Legend

- A** Retrofit cable
- B** USB interface
- C** USB holder
  
- 1** AUX-IN socket
- 2** Branches **A16** and **A20** of the ACM wiring harness
- 3** ACM unit (branch **A15** of the ACM wiring harness)



## 6. Installation and cabling diagram for E60, E61, E63, E64 cars

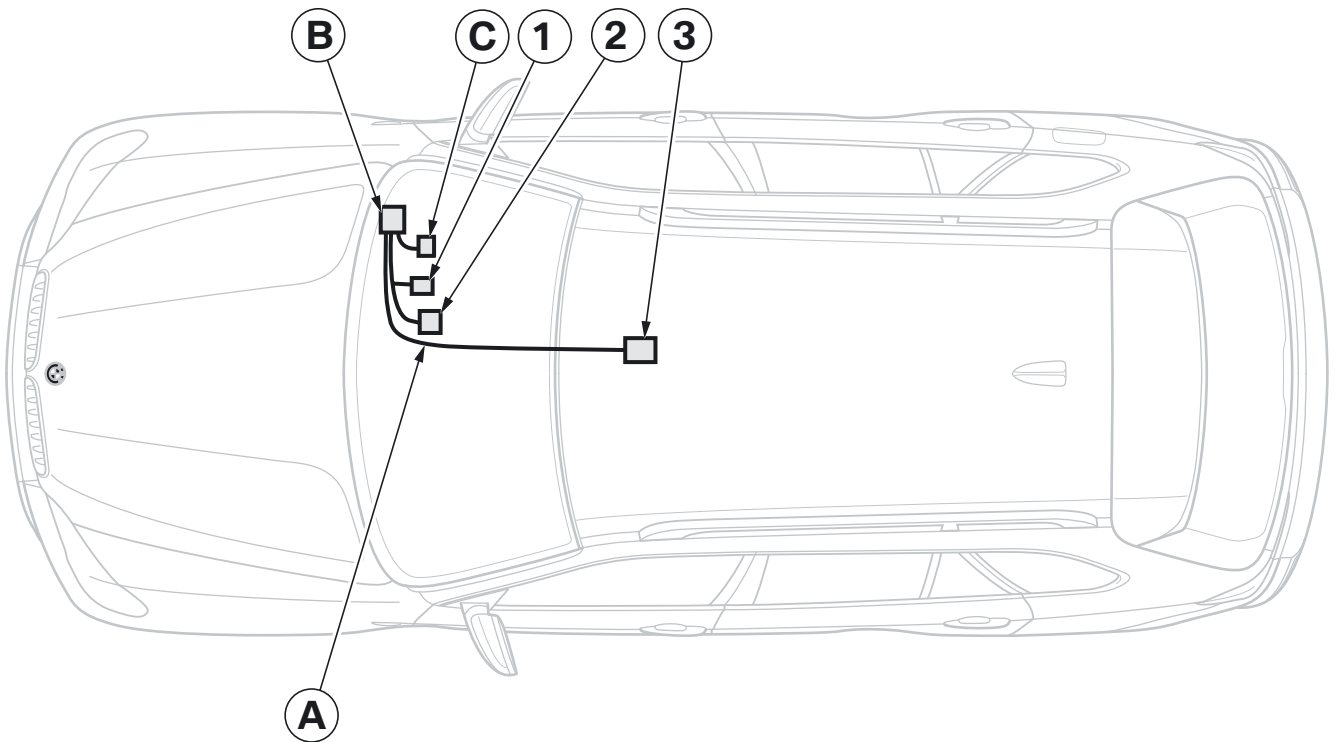


060 1302 Z

### Legend

- A** Retrofit cable
- B** USB interface in E60, E61 cars
- B\*** USB interface in E63, E64 cars
- C** USB holder
  
- 1** Accessory AUX-IN socket
- 2** Original AUX-IN socket
- 3** Branches **A16** and **A20** of the ACM wiring harness
- 4** ACM unit (branch **A15** of the ACM wiring harness)

## 7. Installation and cabling diagram for E70 cars

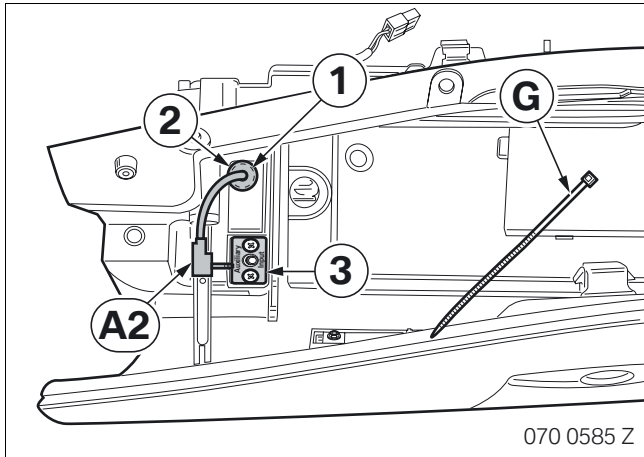


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### Legend

- A** Retrofit cable
- B** USB interface
- C** USB holder
  
- 1** Branches **A16** and **A20** of the ACM wiring harness
- 2** ACM unit (branch **A15** of the ACM wiring harness)
- 3** AUX-IN socket

## 8. To drill the hole for the AUX cable



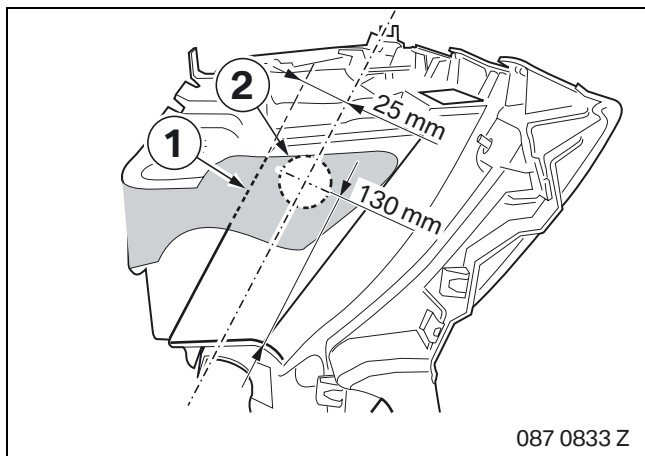
▣ The depiction is an example. The hole must be drilled specifically according to the type of car or customer's wish in the vicinity of the AUX socket (3). ◀

Drill a 9.5 mm hole (1) through in the vicinity of the AUX socket (3).

Guide branch **A2** through the hole (1) from the inside (take the protective cap off branch **A2** for this) and insert rubber grommet (2).

Plug the cable of branch **A2** into the AUX socket (3) and secure it with cable tie **G** behind the rubber grommet (2) to prevent it being pulled out any further.

## 9. Installation for E81, E82, E87, E90, E91, E92, E93 cars

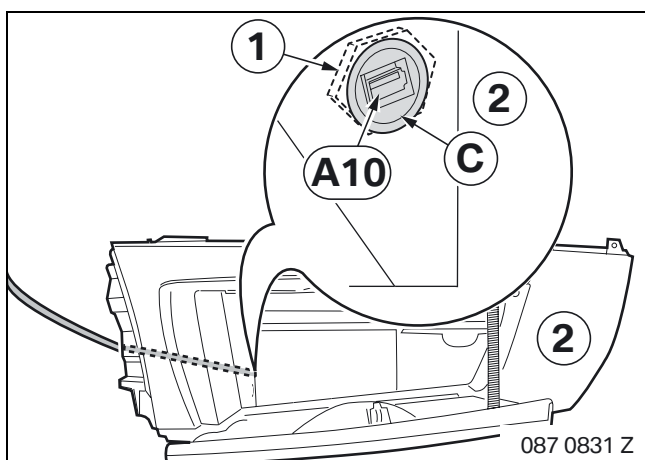


### E87 cars built before 03/07 only

Cut the insulating mat at the dashed line (1).

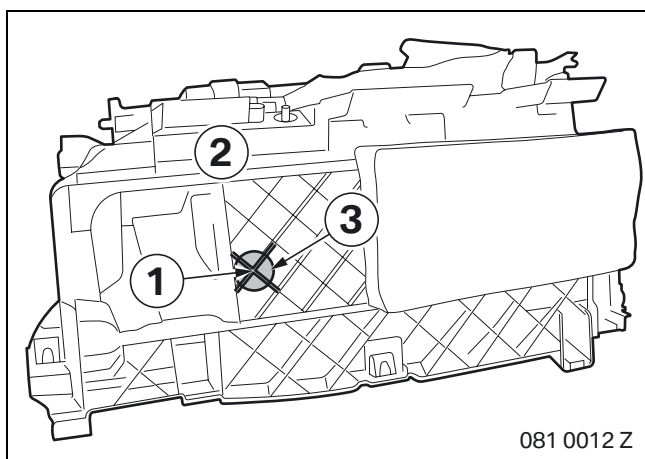
Mark the hole (2) on the glovebox at the dimensions shown and drill through.

Enlarge the hole (2) to a diameter of 25 mm with a step drill bit.



Install USB holder **C** and branch **A10** as follows:

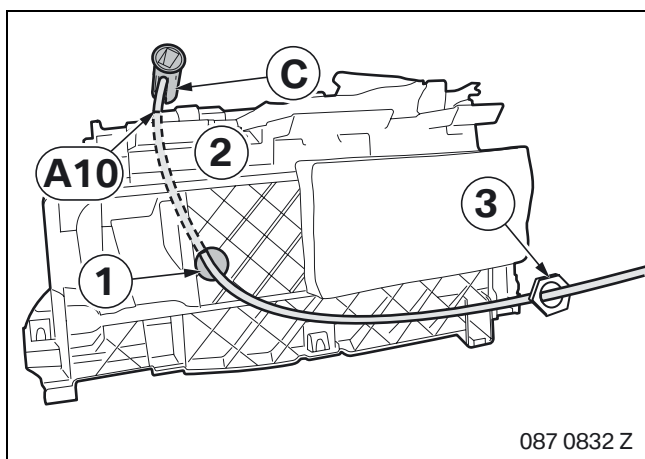
- Push the nut (1) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole in the glovebox (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox (2) and screw on from behind using a nut (1)



### E87 cars built after 03/07 and E81, E82 only

Remove the reinforcement (1) in the marked area of the glovebox (2).

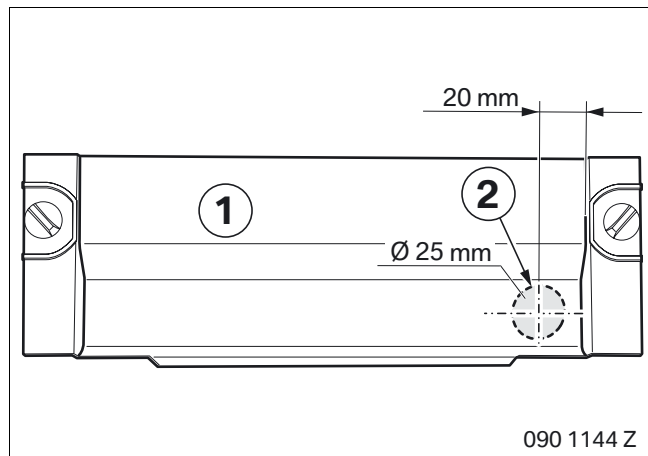
Mark the hole (3) at the middle of the cross and drill using a 25 mm step drill bit.



Install USB holder **C** and branch **A10** as follows:

- Push the nut (3) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole (1) in the glovebox (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox (2) and screw on from behind using a nut (3)

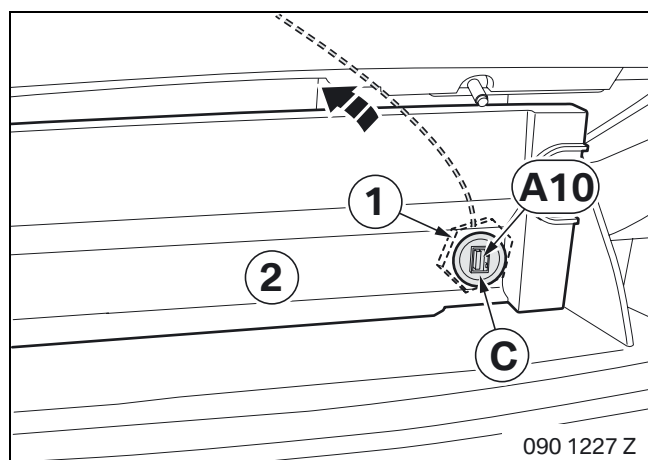
## 9. Installation for E81, E82, E87, E90, E91, E92, E93 cars



### E90, E91, E92, E93 cars only

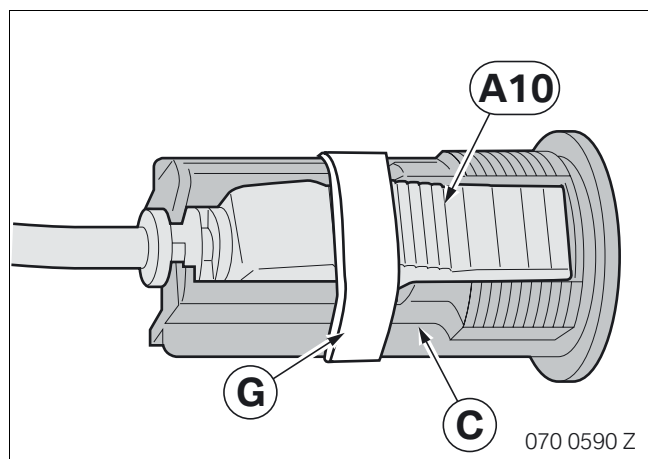
Remove the service flap (1) from the glovebox.

Drill a hole (2) in the cover of the service flap (1) at the dimensions shown, using a 25 mm step drill bit.



Install USB holder **C** and branch **A10** as follows:

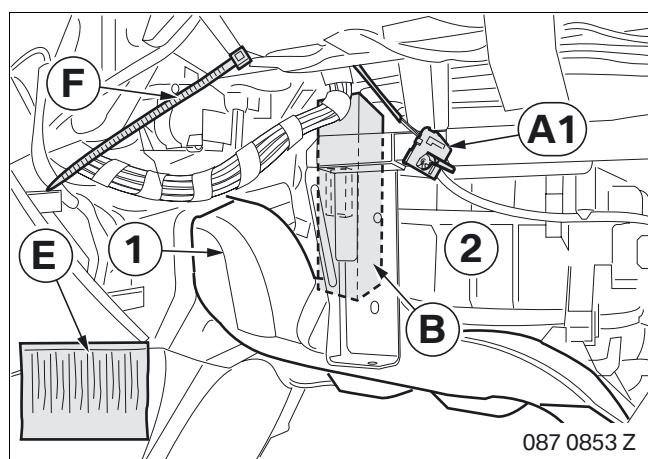
- Push the nut (1) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole in the glovebox (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox (2) and screw on from behind using a nut (1)



### All cars

Secure branch **A10** in USB holder **C** with cable tie **G**.

Install the glovebox.



### E81, E82, E87 cars only

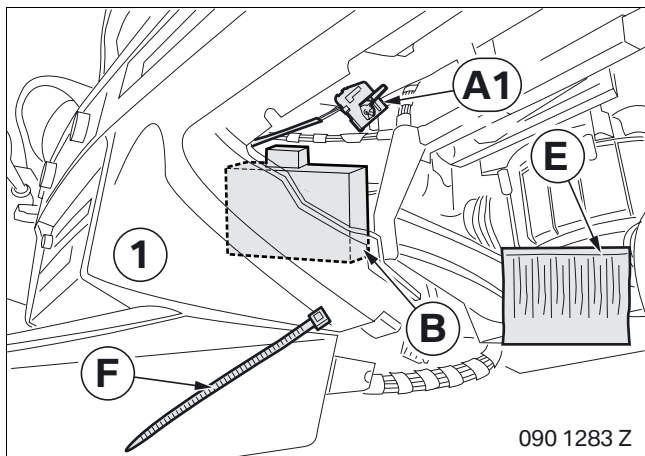
Remove the heating duct (1).

Connect branch **A1**, BL 18-pin socket casing, to USB interface **B**.

Stick protective strips **E** around USB interface **B** and use cable ties **F** to attach to the standard wiring harness next to the heating box (2).

Install the heating duct (1).

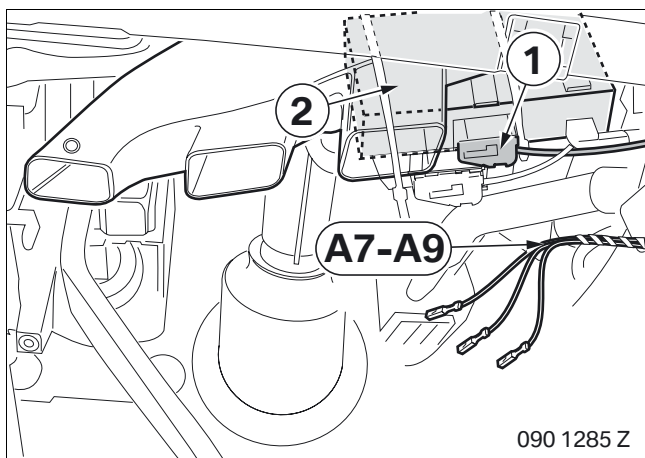
## 9. Installation for E81, E82, E87, E90, E91, E92, E93 cars



### E90, E91, E92, E93 cars only

Connect branch **A1**, BL 18-pin socket casing, to USB interface **B**.

Stick protective strips **E** around USB interface **B** and use cable ties **F** to attach to the standard wiring harness next to the dashboard (1).



### All cars

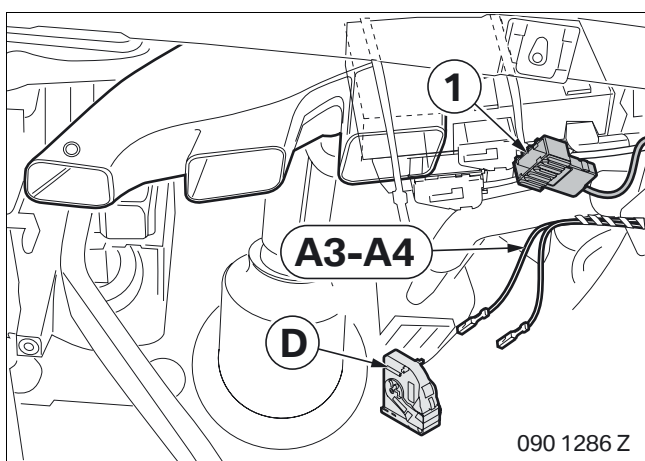
▶ E90, E91, E92, E93 cars are illustrated. See the installation and cabling diagram for the position of the plug (1) in E81, E82, E87. ◀

Disconnect branch (1), BL 26-pin socket casing (branch **A15** of the ACM wiring harness) from the ACM unit and unlock.

Connect branches **A7-A9** to branch (1) as follows:

- Branch **A27**, GRWS cable, to pin 11
- Branch **A8**, BL/BR cable, to pin 10
- Branch **A9**, BR cable, to pin 22

Lock the branch (1) and connect to the ACM unit (2).



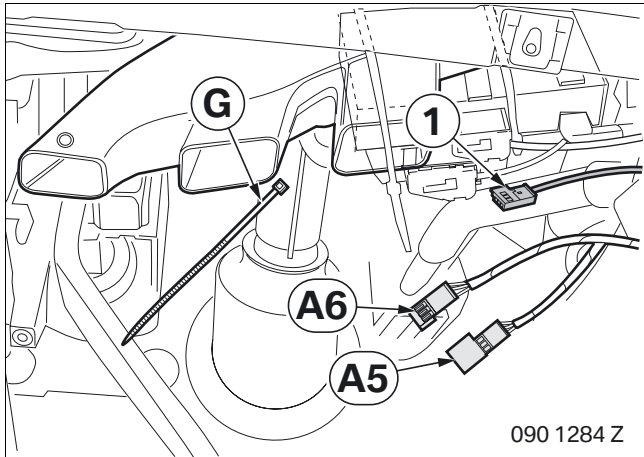
▶ E90, E91, E92, E93 cars are illustrated. See the installation and cabling diagram for the position of the plug (1) in E81, E82, E87. ◀

Connect branches **A3-A4** as follows to socket casing **D**:

- Branch **A3**, SW cable, to pin 15
- Branch **A4**, WS cable, to pin 6

Connect socket casing **D** to branch (1), SW 18-pin plug casing (branch **A16** of the ACM wiring harness).

## 9. Installation for E81, E82, E87, E90, E91, E92, E93 cars



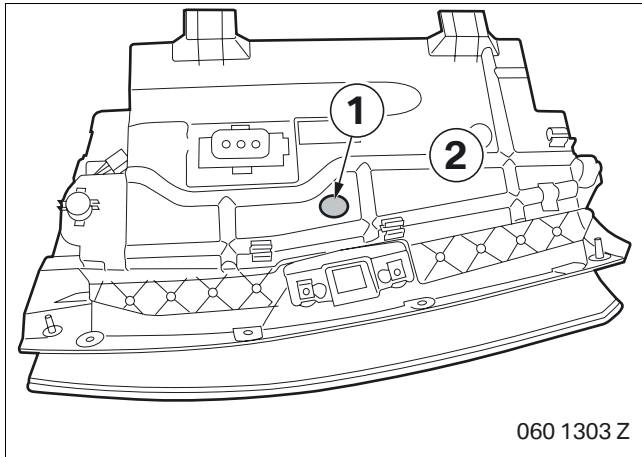
▶ E90, E91, E92, E93 cars are illustrated. See the installation and cabling diagram for the position of the plug (1) in E81, E82, E87. ◀

Connect branch (1), SW 3-pin socket casing (branch **A20** of the ACM wiring harness) to branch **A5**, SW 3-pin plug casing.

Tie back branch **A6**, SW 3-pin socket casing.

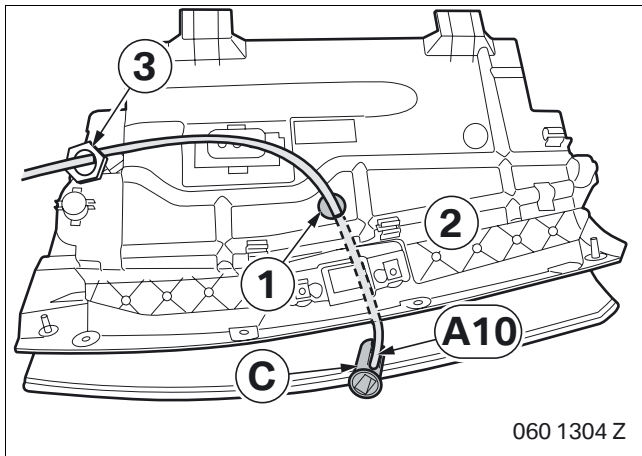
Secure the retrofit cable to the standard wiring harness using cable ties **G**.

## 10. Installation for E60, E61, E63, E64 cars



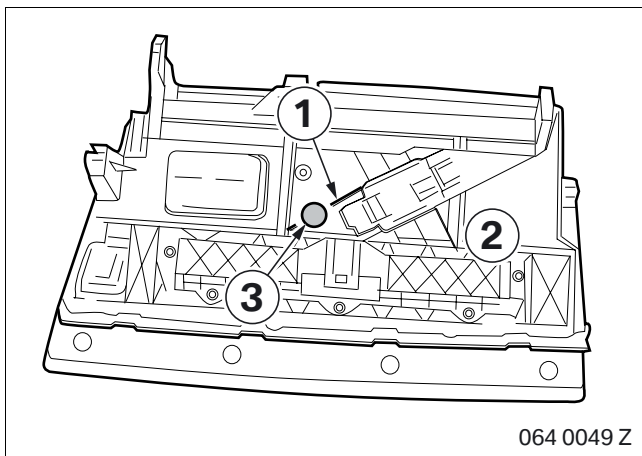
### E60 and E61 cars only

Mark the hole (1) in the illustrated area of the glovebox (2) and drill through using a 25 mm step drill bit.



Install USB holder **C** and branch **A10** as follows:

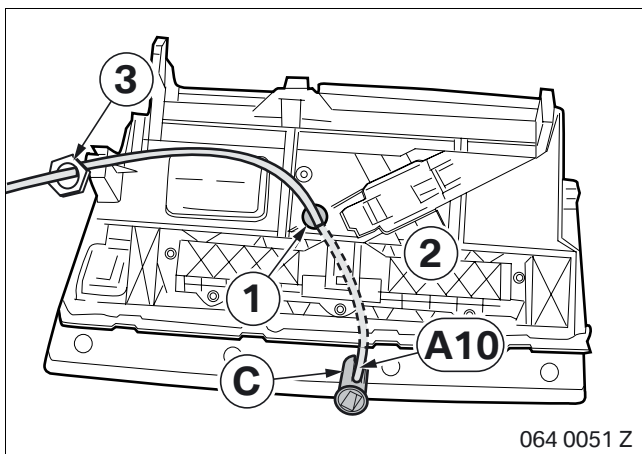
- Push the nut (3) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole (1) in the glovebox (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox (2) and screw on from behind using a nut (3)



### E63, E64 cars only

Remove the reinforcement (1) from the area of the hole (3) on the glovebox (2).

Mark the hole (3) in the area shown and drill using a 25 mm step drill bit.

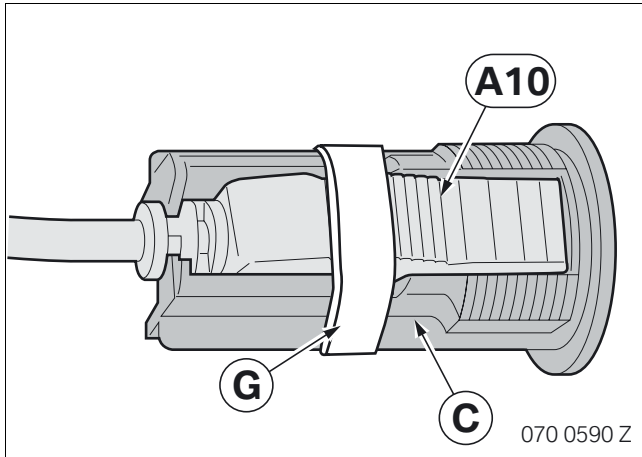


Install USB holder **C** and branch **A10** as follows:

- Push the nut (3) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole (1) in the glovebox (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox (2) and screw on from behind using a nut (3)

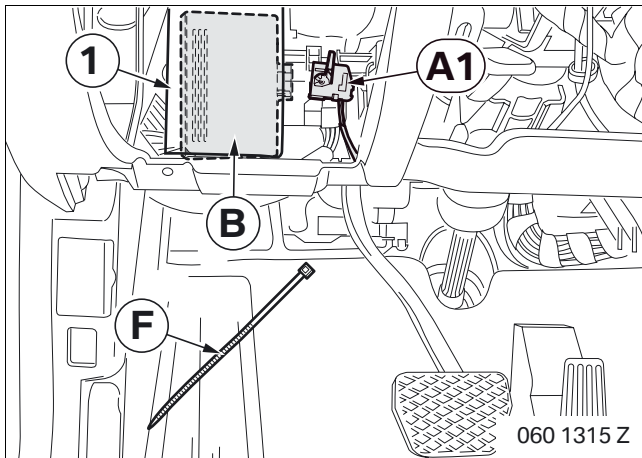


## 10. Installation for E60, E61, E63, E64 cars



### All cars

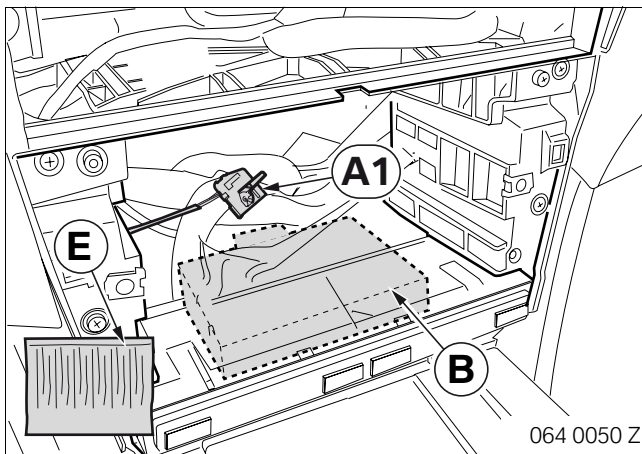
Secure branch **A10** in USB holder **C** with cable tie **G**.  
Install the glovebox.



### E60 and E61 cars only

Connect branch **A1**, BL 18-pin socket casing, to USB interface **B**.

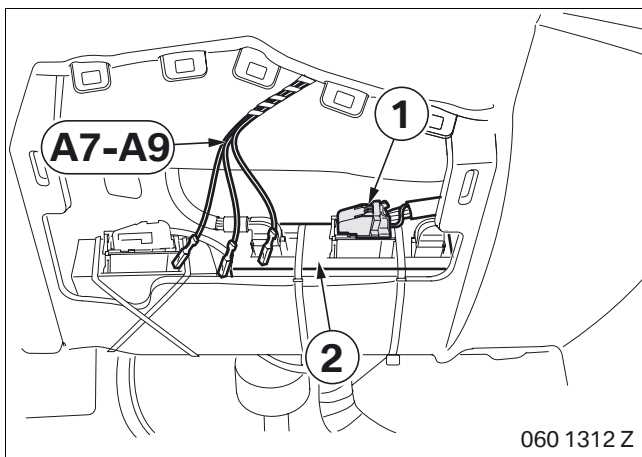
Secure USB interface **B** on the CAS control unit (1) from behind using cable ties **F**.



### E63, E64 cars only

Connect branch **A1**, BL 18-pin socket casing, to USB interface **B**.

Stick protective strips **E** around USB interface **B** and push into the central tunnel below the M-ASK/CCC.



### All cars

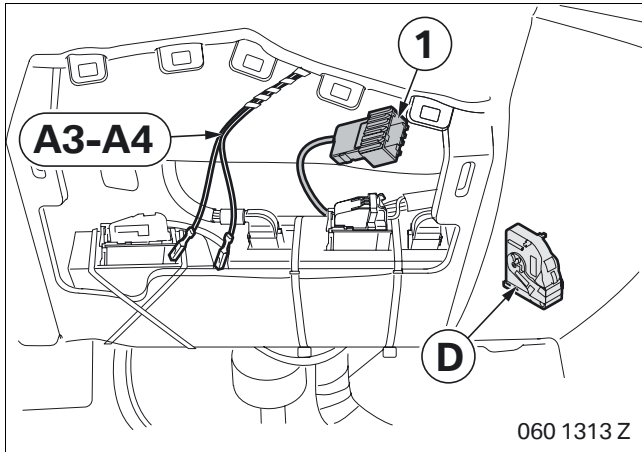
Disconnect branch (1), BL 26-pin socket casing (branch **A15** of the ACM wiring harness) from the ACM unit and unlock.

Connect branches **A7-A9** to branch (1) as follows:

- Branch **A27**, GRWS cable, to pin 11
- Branch **A8**, BL/BR cable, to pin 10
- Branch **A9**, BR cable, to pin 22

Lock the branch (1) and connect to the ACM unit (2).

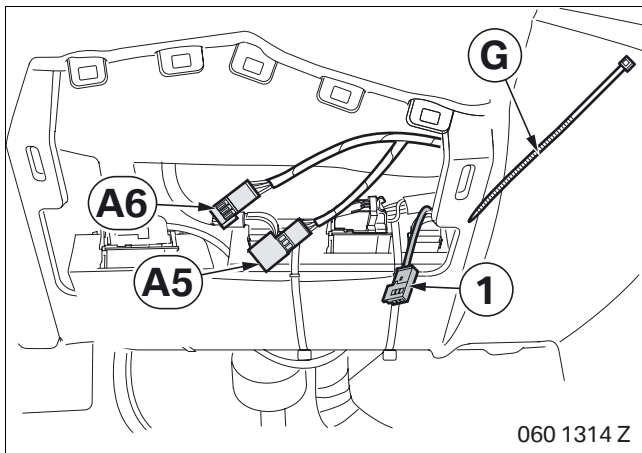
## 10. Installation for E60, E61, E63, E64 cars



Connect branches **A3-A4** as follows to socket casing **D**:

- Branch **A3**, SW cable, to pin 15
- Branch **A4**, WS cable, to pin 6

Connect socket casing **D** to branch (1), SW 18-pin plug casing (branch A16 of the ACM wiring harness).

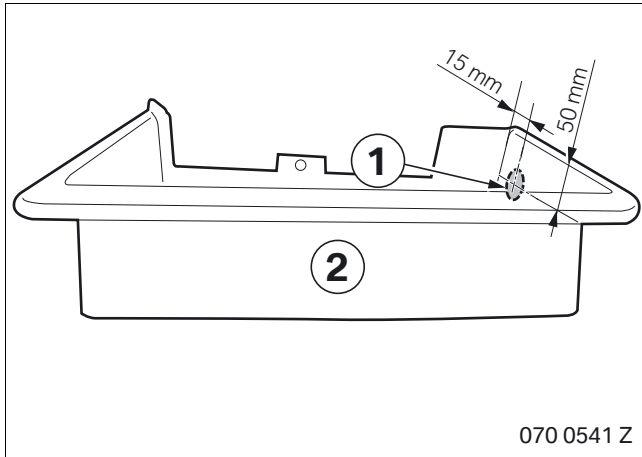


Connect branch (1), SW 3-pin socket casing (branch **A20** of the ACM wiring harness) to branch **A5**, SW 3-pin plug casing.

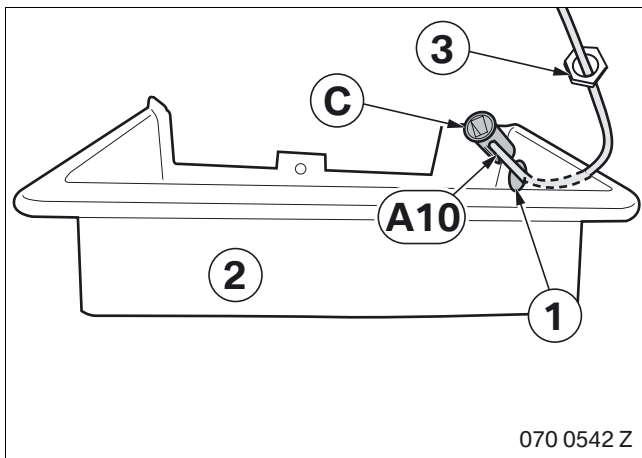
Tie back branch **A6**, SW 3-pin socket casing.

Secure the retrofit cable to the standard wiring harness using cable ties **G**.

## 11. Installation for E70 cars

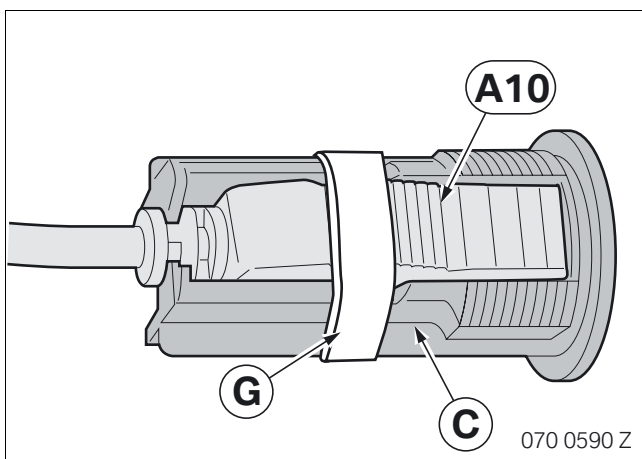


Drill a hole (1) on the glovebox insert (2) at the dimensions shown and drill through using a 25 mm step drill bit.

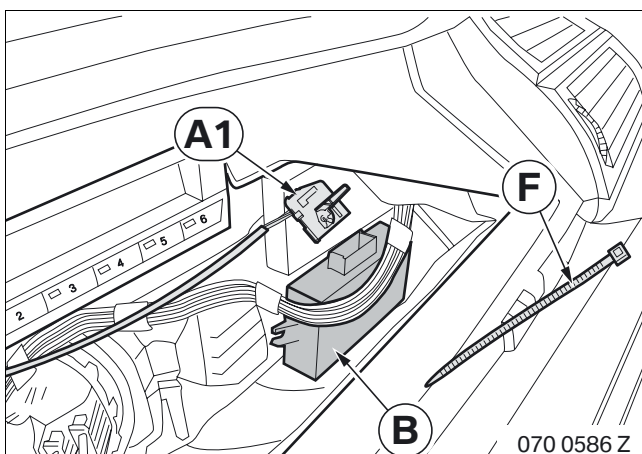



Install USB holder **C** and branch **A10** as follows:

- Push the nut (3) of USB holder **C** over branch **A10**
- Route branch **A10** from behind through the hole (1) in the glovebox insert (2)
- Insert branch **A10** into USB holder **C**
- Insert USB holder **C** into the glovebox insert (2) and screw on from behind using a nut (3)



Secure branch **A10** in USB holder **C** with cable tie **G**.

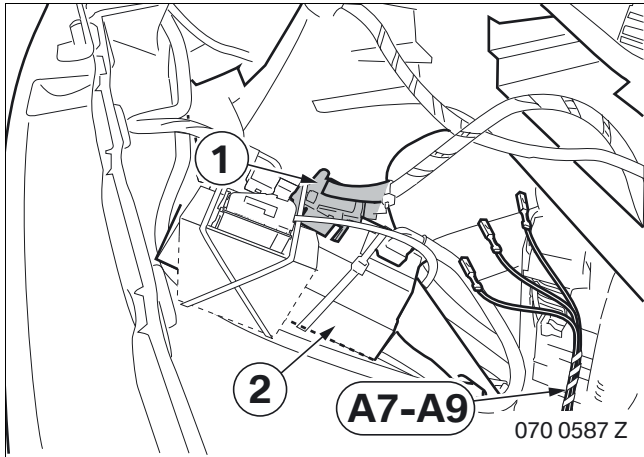


 In cars with a polystyrene insert, this must be cut open at the appropriate place. ◀

Secure USB interface **B** to the dashboard support using cable ties **F**.

Connect branch **A1**, BL 18-pin socket casing, to USB interface **B**.

## 11. Installation for E70 cars

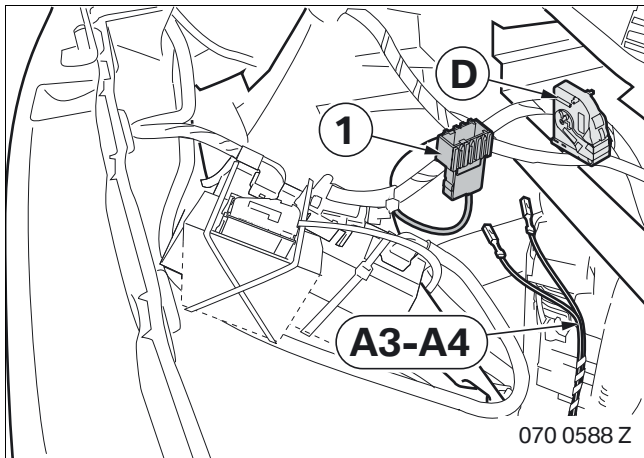


Disconnect branch (1), BL 26-pin socket casing (branch **A15** of the ACM wiring harness) from the ACM unit and unlock.

Connect branches **A7–A9** to branch (1) as follows:

- Branch **A27**, GR/WS cable, to pin 11
- Branch **A8**, BL/BR cable, to pin 10
- Branch **A9**, BR cable, to pin 22

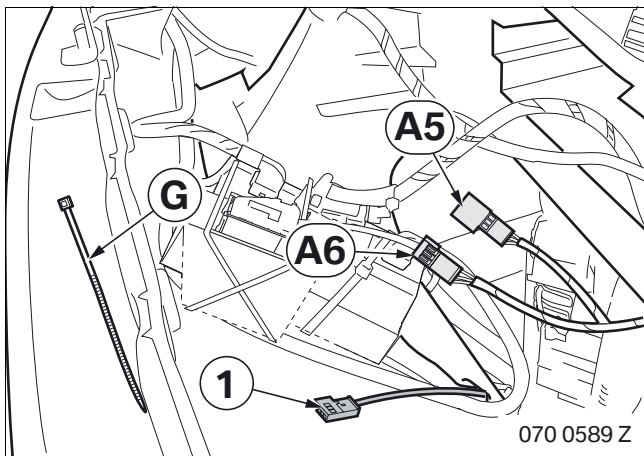
Lock the branch (1) and connect to the ACM unit (2).



Connect branches **A3–A4** as follows to socket casing **D**:

- Branch **A3**, SW cable, to pin 15
- Branch **A4**, WS cable, to pin 6

Connect socket casing **D** to branch (1), SW 18-pin plug casing (branch **A16** of the ACM wiring harness).



Connect branch (1), SW 3-pin socket casing (branch **A20** of the ACM wiring harness) to branch **A5**, SW 3-pin plug casing.

Tie back branch **A6**, SW 3-pin socket casing.

Secure the retrofit cable to the standard wiring harness using cable ties **G**.

Install the glovebox insert.

## 12. Concluding work and coding

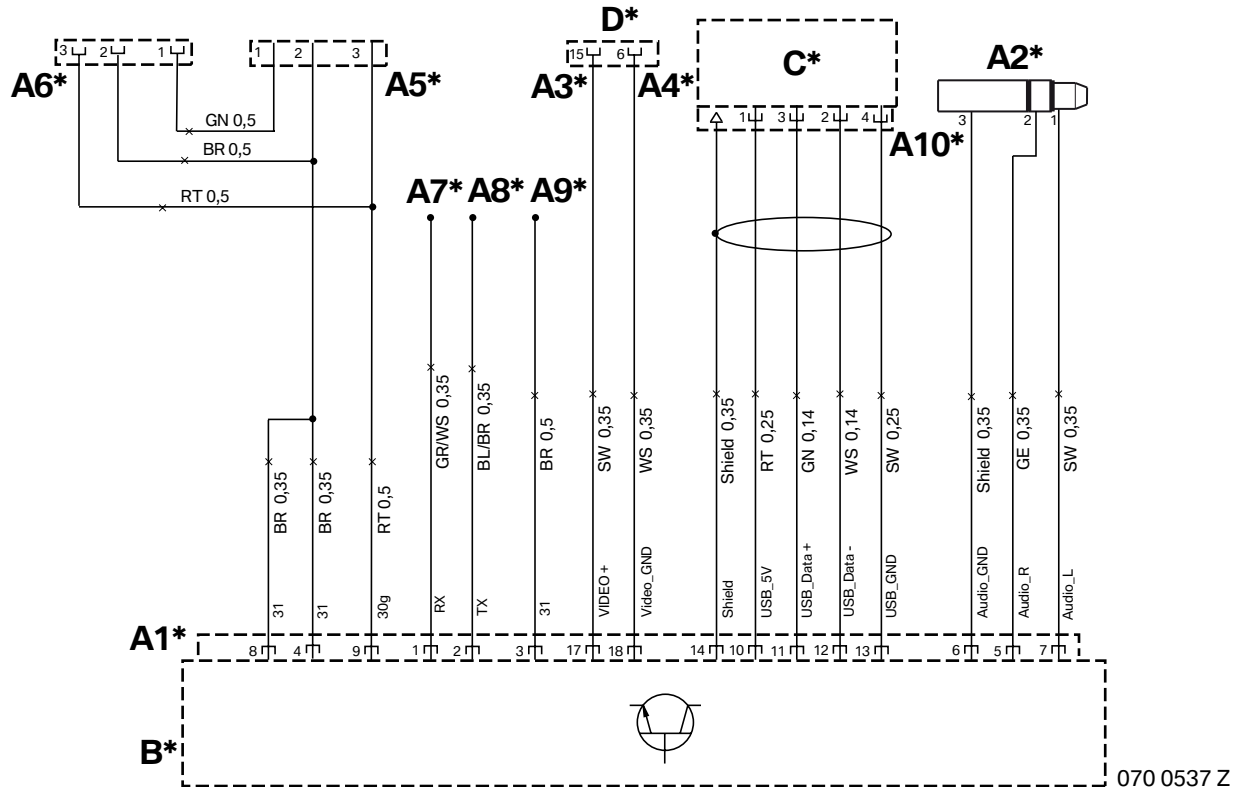
This retrofit system does not require coding.

- Connect the battery
- Conduct a brief test
- Conduct a function test
- Re-assemble the car



USB cable **H** is to be given to the customer. ◀

## 13. Circuit diagram



### Legend

- A1\*** BL 18-pin socket casing, on USB interface **B\***
- A2\*** SW pawl plug
- A3\*** Socket contact, with socket casing **D\*** on branch **A16** of the ACM wiring harness
- A4\*** Socket contact, with socket casing **D\*** on branch **A16** of the ACM wiring harness
- A5\*** SW 3-pin plug casing on branch **A20** of the ACM wiring harness
- A6\*** SW 3-pin socket casing on branch **A20** of the ACM wiring harness
- A7\*** Socket contact, connect to branch **A15**, PIN 11, of the ACM wiring harness
- A8\*** Socket contact, connect to branch **A15**, PIN 10, of the ACM wiring harness
- A9\*** Socket contact, connect to branch **A15**, PIN 22, of the ACM wiring harness
- A10\*** USB socket, in USB holder **C\***
- B\*** USB interface
- C\*** USB holder
- D\*** SW 18-pin socket casing

All the designations marked with an asterisk (\*) apply only to these installation instructions or this circuit diagram.

### Cable colours

<b>BL</b>	Blue	<b>GR</b>	Grey
<b>BR</b>	Brown	<b>RT</b>	Red
<b>GE</b>	Yellow	<b>SW</b>	Black
<b>GN</b>	Green	<b>WS</b>	White