

Original BMW Accessory. Installation Instructions.



USB/Audio Interface SA 6FL Retrofit

BMW 1 Series (E81, E82, E87, E88)

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

These installation instructions are only valid for cars from radio level 2 onwards.

Retrofit kit No.	65 41 0 443 678	USB/audio interface retrofit kit
	65 41 0 445 465	USB/audio interface retrofit

Installation time

The installation time for cars with SA 644 is **approx. 2.0 hours**, and **approx. 2.25 hours** for cars with SA 640. The installation time will be **approx. 2.5 hours** for cars without SA 640 or SA 644.

This may vary depending on the condition of the car and the equipment in it.

The vehicle must be updated to the latest I-level status by flashing before installing the retrofit. Differing programming times may be necessary depending on the production age of the vehicle and on work previously performed on the vehicle.

The installation time given does not include time needed for programming/encoding.

The total costs for the programming time should be taken into account when calculating retrofitting costs (reimbursement through warranty is not permissible).

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.

If you experience installation or function problems, limit troubleshooting to approx. 0.5 hour for mechanical or 1.0 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 special features.



Denotes the end of the instruction or other text.

Installation information

In cars with SA 620 without SA 609, High charger/hands-free electronic control unit **C** is already fitted, it is only necessary to fit USB retrofit cable **A**.

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.

Ordering instructions

Most diagnosis connection **R** and Flash adapter cover **S** must be ordered separately for cars without Flash adapters (for part number and instructions, see EPC).

The High electronic charger/hands-free module **C** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

List of special equipment

The following special equipment must be taken into consideration when installing the retrofit kit:

- SA 609** Professional navigation system
- SA 620** Voice input system
- SA 640** Car phone preparation
- SA 644** Mobile phone preparation with Bluetooth interface

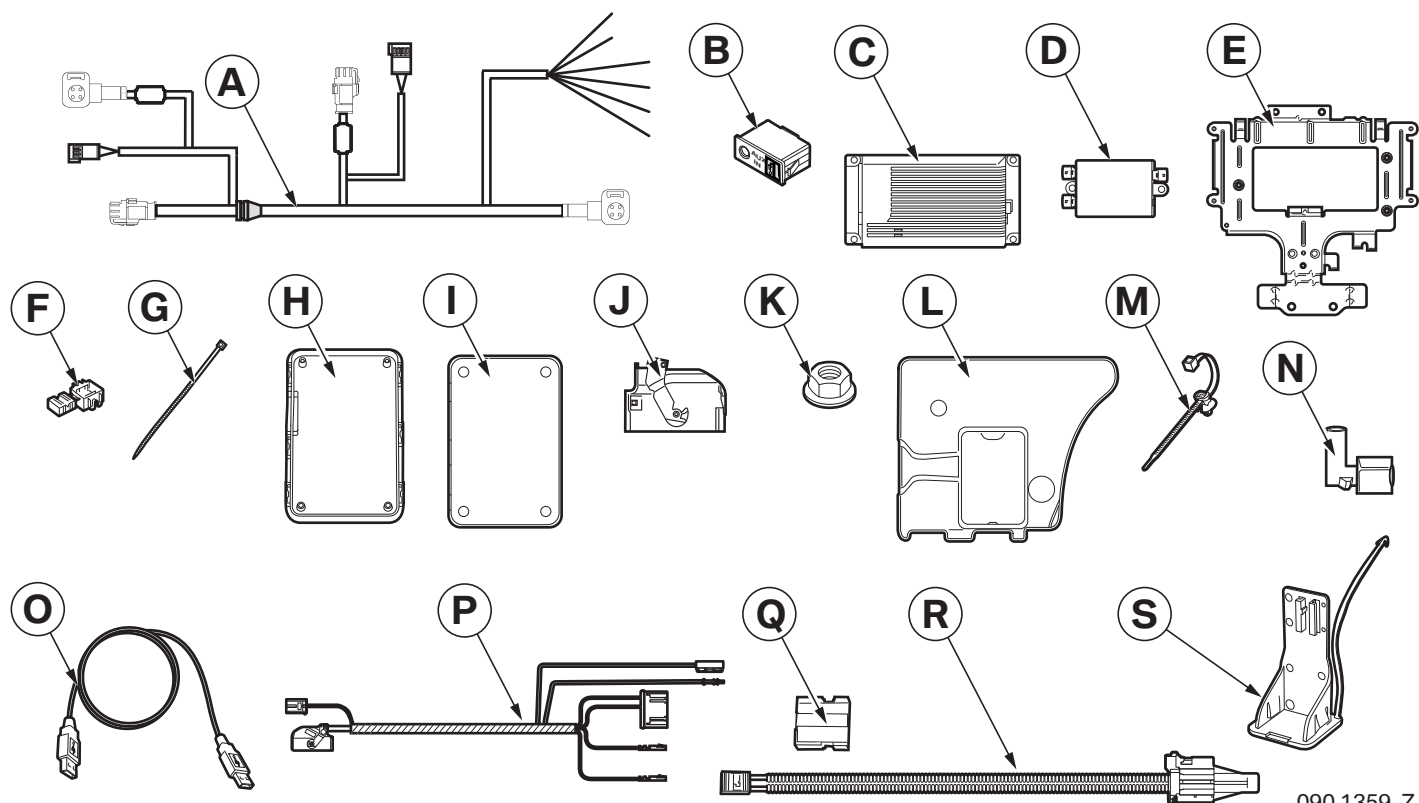
Special tools required

00 9 310, installation wedges

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1. Parts list



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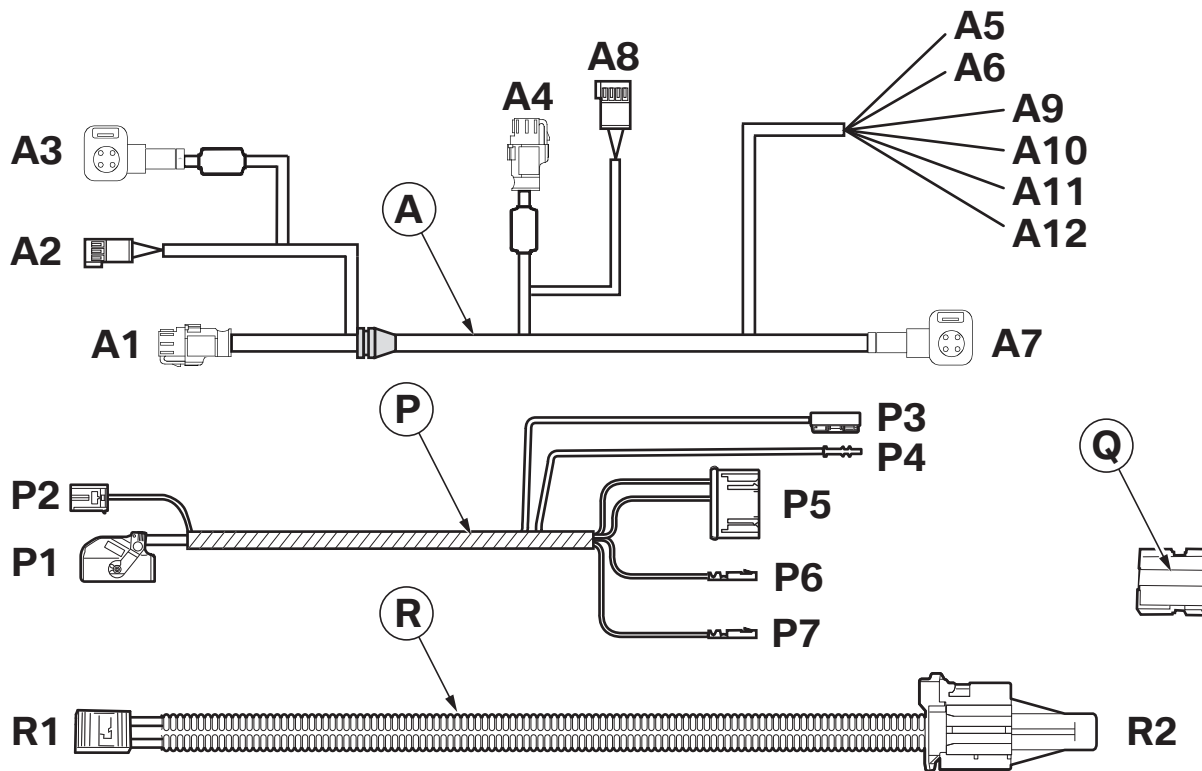
Legend

- A** USB retrofit cable
- B** USB/AUX-IN jack
- C** High charger/hands-free electronic control unit (not supplied in the retrofit kit)
- D** USB HUB
- E** Holder
- F** Miniature connector (2x)
- G** Cable tie (10x)
- H** USB HUB protective socket
- I** USB HUB protective socket cover
- J** 54-pin cover cap (cars with SA 640 or SA 644 only)
- K** Hexagonal nut M5 (4x)
- L** Front left footwell inlay (2x)
- M** Cable tie with holder (2x)
- N** Fakra casing
- O** USB cable (to be given to the customer)
- P** Power supply retrofit cable (for cars without SA 640 or SA 644 only)
- Q** SW 4-pin socket casing (for cars without SA 640 or SA 644 only)
- R** Most diagnosis connection
(cars without Flash adapter built after 09/08 only, not supplied with the retrofit kit)
- S** Flash adapter cover
(cars without Flash adapter built after 09/08 only, not supplied with the retrofit kit)

2. Preparatory work

	ISTA no.
Conduct a brief test	---
Disconnect negative pole of battery	12 00...
The following components must be removed first of all	
Luggage compartment floor trim	51 47 101
Wheel arch trim in luggage compartment on left	51 47 151
Backrest side section on the rear seat, left	52 26 008
Door sill strip at the front left (interior)	51 47 000
Door sill strip at the rear left (interior)	51 47 030
Centre console oddments box	51 16 200
Driver's seat	52 13 000
Pedal trim (only cars without Flash adapter built after 09/08)	51 45 185
Rear seat	52 26 005
Audio jack	---
In addition for cars with SA 644	
Remove Low charger/hands-free electronic control unit with holder (is not required)	84 11 660
Additionally in cars without SA 640 or SA 644	
M-ASK or CCC	65 83 010

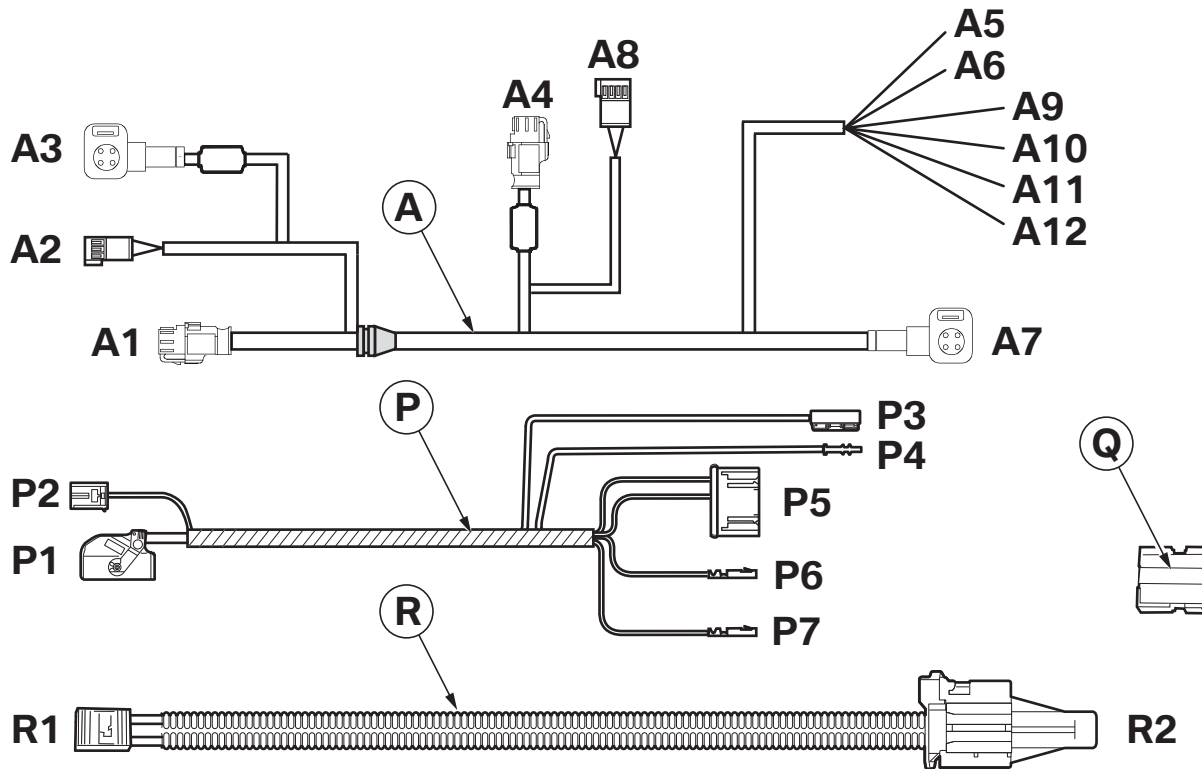
3. Connection diagram



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Item/ branch	Designation	Signal	Cable colour/ cross-section	Connection/installation site in the car	Abbreviation/ slot
A	USB retrofit cable	---	---	---	---
A1	HSD socket casing, 4-pin WS	---	---	On USB HUB D	X17178
A2	SW 3-pin socket casing	PIN 1 Terminal 30 PIN 3 Terminal 31	RT/GE 0.75 mm ² BR 0.75 mm ²	On USB HUB D	X17177
A3	HSD socket casing, 4-pin SW	---	---	On USB HUB D	X17180
A4	HSD socket casing, 4-pin WS	---	---	Connection to USB/AUX-IN jack B	X17183
A5	Open cable	Terminal 31	BR 0.75 mm ²	With miniature connector F on BR cable of 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 36
A6	Open cable	Terminal 30	RT/GE 0.75 mm ²	With miniature connector F on BR cable of 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 17
A7	HSD socket casing, 4-pin SW	---	---	---	---
A8	SW 4-pin socket casing	---	---	Connection to USB/AUX-IN jack B	X14118
A9	Socket contact	AUX_NF left	VI 0.35 mm ²	In 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 4
A10	Socket contact	AUX_NF right	WS/RT 0.35 mm ²	In 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 5
A11	Socket contact	AUX_NF_ ground	WS/GN 0.35 mm ²	In 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 22
A12	Socket contact	AUX_Schirm	Shield 0.35 mm ²	In 54-pin socket casing of High charger/hands-free electronic control unit C	X14133 PIN 23


3. Connection diagram

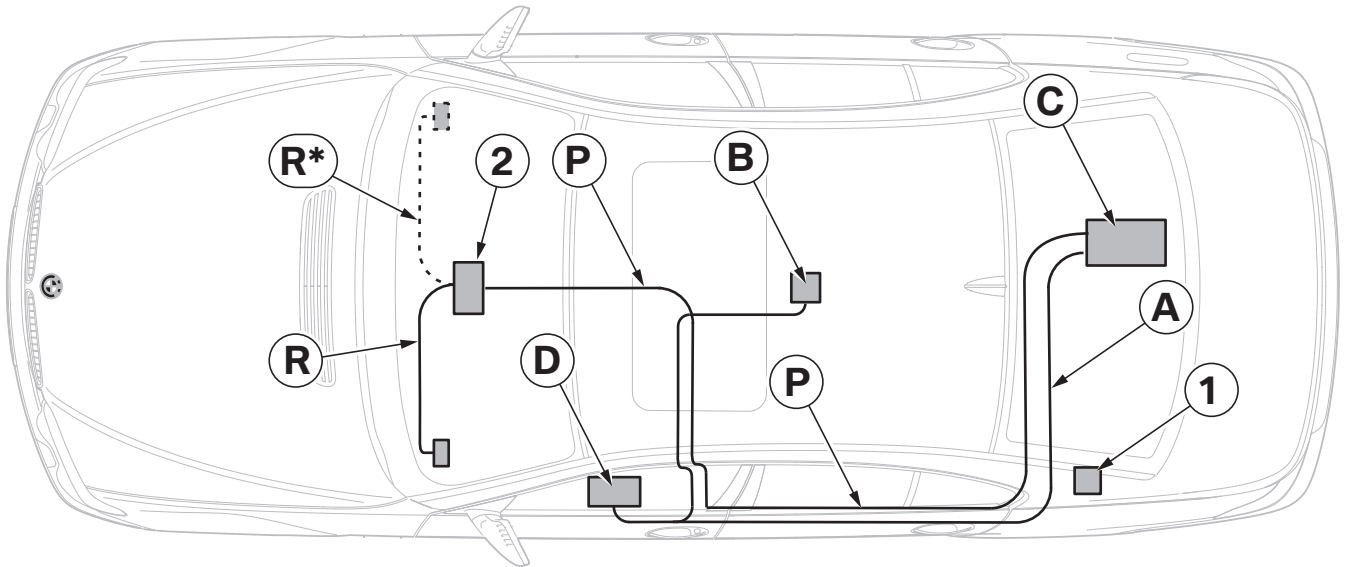


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Item/ branch	Designation	Signal	Cable colour/ cross-section	Connection/installation site in the car	Abbreviation/ slot
P1	GN 54-pin socket casing	---	---	To High charger/hands-free electronic control unit C	X14133
P2	SW 2-pin fibre optic cable casing	MOST	---	On High charger/hands-free electronic control unit C	X14134
P3	Fibre optic cable connector	MOST	GN	On disconnected fibre optic cable of M-ASK or CCC	---
P4	Fibre optic cable	MOST	OR	On M-ASK or CCC	X13815 PIN 2
P5	SW 4-pin plug casing	---	---	On socket casing Q	---
P6	Socket contact	Terminal 31	BR 2.5 mm ²	On M-ASK or CCC	X13812 PIN 12
P7	Socket contact	Terminal 30g	RT/GN 2.5 mm ²	On M-ASK or CCC	X13812 PIN 15
Q	SW 4-pin socket casing	---	---	For cars without SA 640 or SA 644 only	
R	Most diagnosis connection retrofit	---	---	Only cars without Flash adapter built after 09/08	---
R1	SW 2-pin fibre-optic cable plug	---	---	On radio receiver	X13812
R2	2-pin SW Flash connection	---	---	Clip into Flash adapter cover S	---

4. Installation and cabling diagram

 The cable routing and positions of the control units are identical for left-hand and right-hand drive cars. ◀



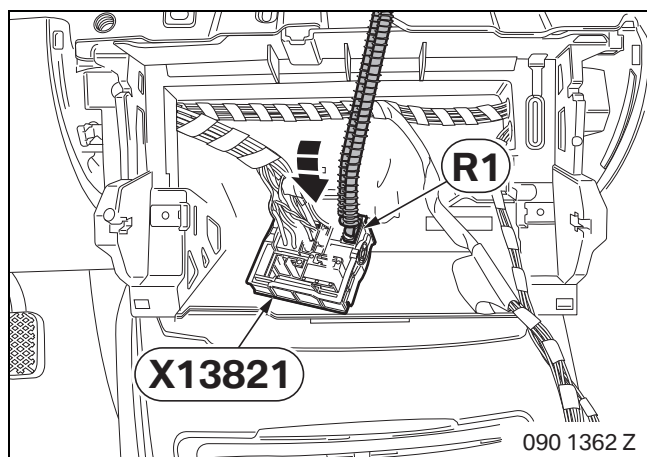
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Legend

- A** USB retrofit cable
- B** USB/AUX-IN jack
- C** High charger/hands-free electronic control unit
- D** USB HUB
- P** Power supply retrofit cable (for cars without SA 640 or SA 644 only)
- R** Most diagnosis connection (right-hand drive cars without Flash adapter built after 09/08 only)
- R*** Most diagnosis connection (left-hand drive cars without Flash adapter built after 09/08 only)

- 1** Fibre optic cable distributor station
- 2** M-ASK/CCC

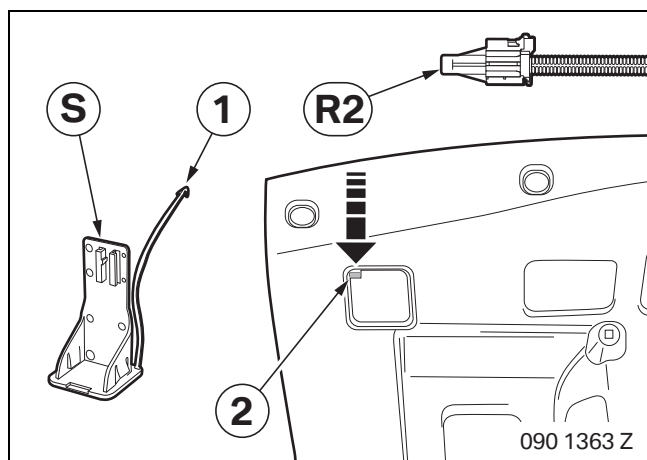
**5. To route and connect the Most diagnosis connection
(only cars without Flash adapter built after 09/08)**



▶ When routing fibre optic cables, make sure the bending radius is no less than 25 mm. ◀

Connect branch **R1** to radio plug **X13812** (16-pin SW).

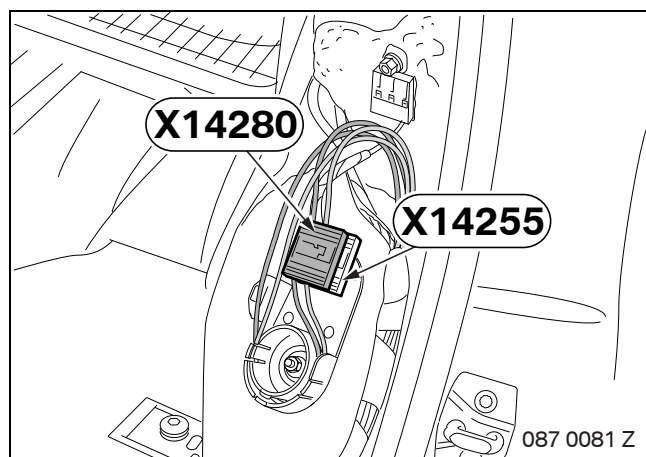
Route branch **R2** into the footwell.



Secure the Flash adapter cover **S** using securing strap (1) from the outside to the pedal trim (2).

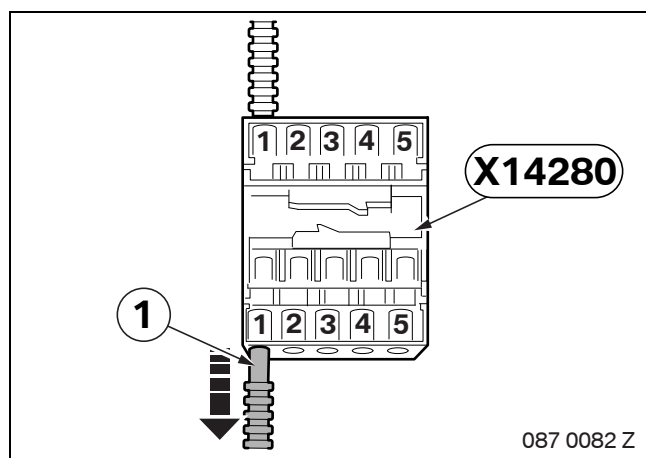
Clip branch **R2** into the Flash adapter cover **S**.

6. To connect the fibre optic cables (cars with SA 640 only)

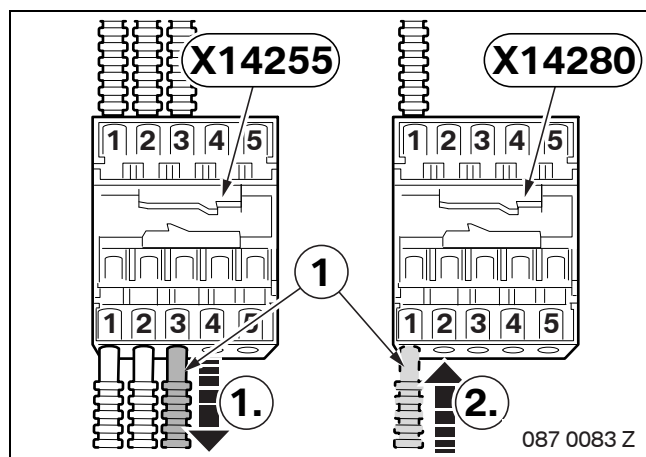


Release preparation distributor station **X14280** and main distributor station **X14255** behind the left backrest part.

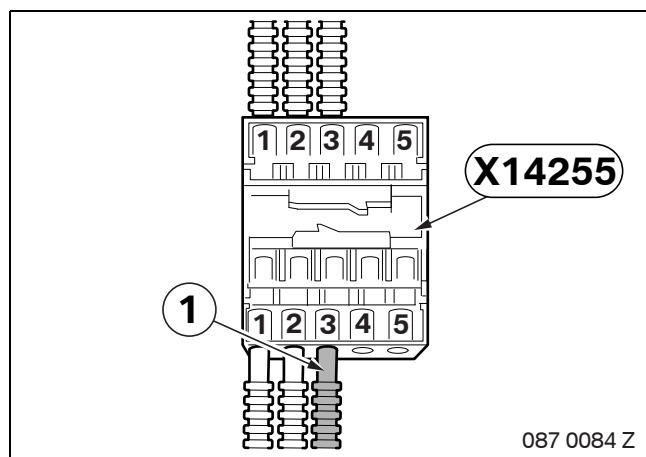
Remove the cover caps from the distributor stations.



Disconnect the bottom fibre optic cable (1) from PIN 1 on preparation distributor station **X14280**.



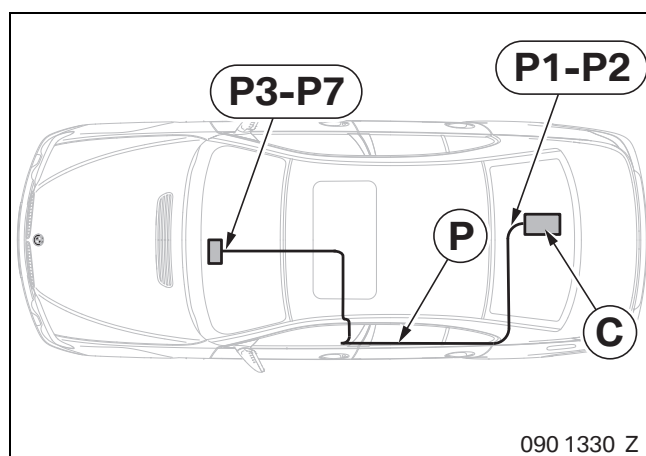
Disconnect bottom fibre optic cable (1) from main distributor station **X14255** and connect it to PIN 1 of preparation distributor station **X14280**.



Connect the fibre optic cable (1) that you disconnected from preparation distributor station **X14280** to the cleared PIN in main distributor station **X14255**.

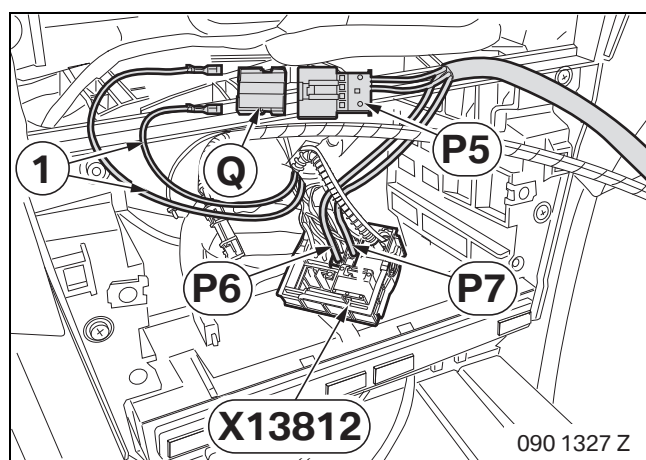
Place the caps on the distributor stations and secure the distributor stations to the car.

7. To install and connect the power supply retrofit cable (for cars without SA 640 or SA 644 only)



Route branches **P1-P2** to the installation site of High charger/hands-free electronic control unit **C**.

Route branches **P3-P7** to the installation site of the M-ASK or CCC.



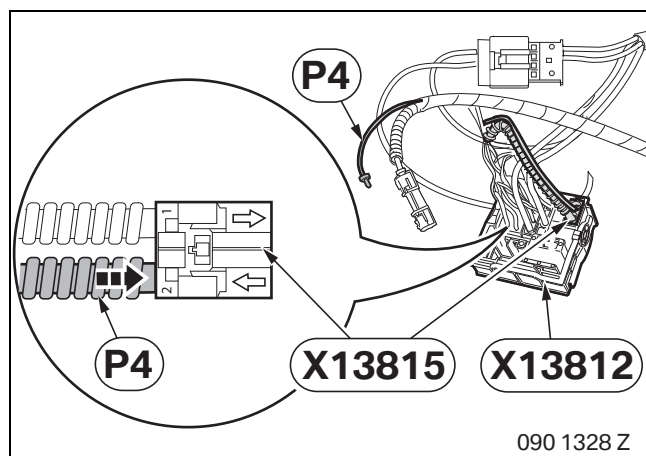
Disconnect the cables (1) from plug **X13812** (SW 16-pin) of the M-ASK or CCC and connect to socket casing **Q**:

- RT/GN cable from PIN 15 to socket casing **Q** PIN 1
- BR cable from PIN 12 to socket casing **Q** PIN 2

Connect branches **A1** and **A2** to plug **X13812** as follows:

- Branch **P7**, RT cable, to PIN 15
- Branch **P6**, BR cable, to PIN 12

Connect branch **P5** to socket casing **Q**.

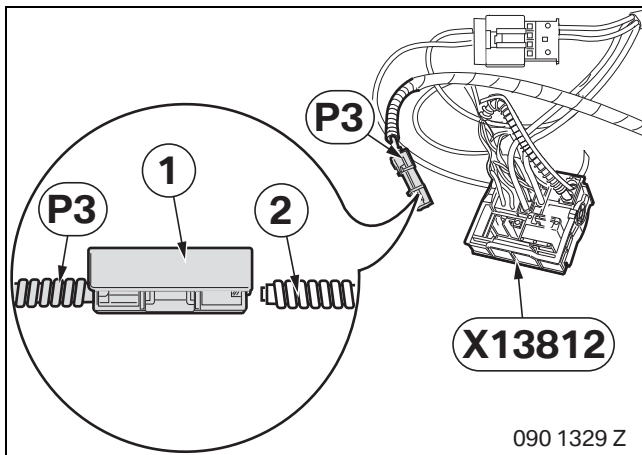


Unclip fibre optic cable casing **X13815** (SW 2-pin) from plug **X13812** (SW 16-pin) of the ASK or CCC.

Disconnect the outgoing fibre optic cable from fibre optic cable casing **X13815** PIN 2 and connect branch **P4**, OR cable.

Clip fibre optic cable casing **X13815** into plug **X13812**.

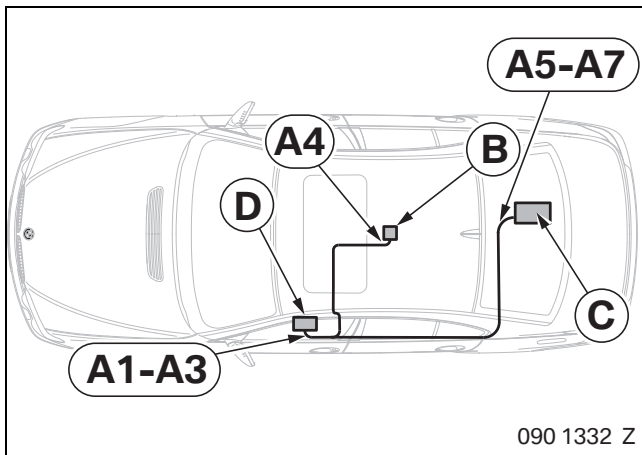
**7. To install and connect the power supply retrofit cable
(for cars without SA 640 or SA 644 only)**



Release the fibre optic cable connector (1) of branch **P3** and connect the previously disconnected fibre optic cable (2).

Connect plug **X13812** (SW 16-pin) to the ASK or CCC.

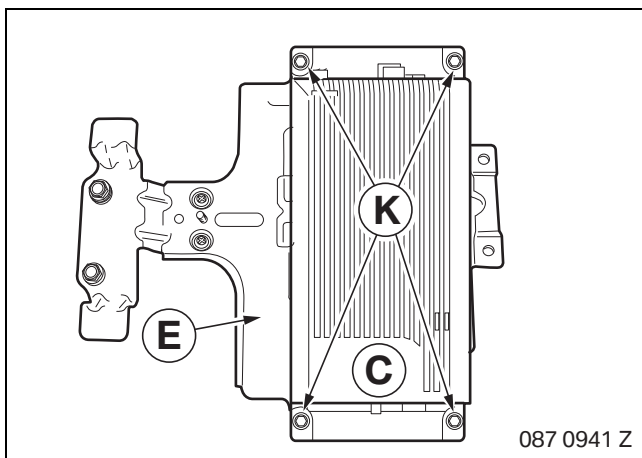
8. To route the USB retrofit cable and connect the High charger/hands-free electronic control unit



Route branches **A1-A3** to the installation site for the USB HUB **D**.

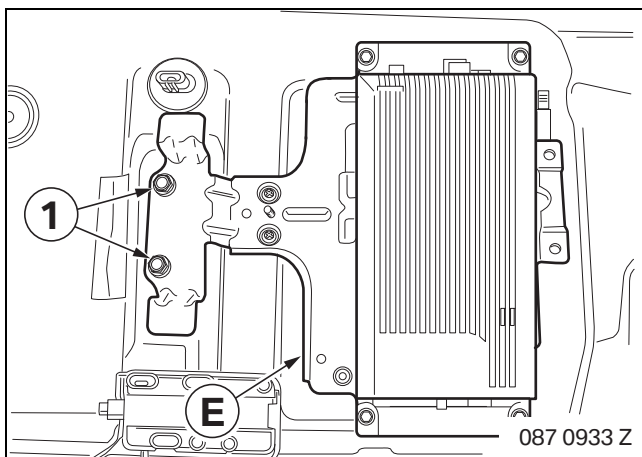
Route branch **A4** to the installation site of the USB/AUX-IN jack.

Route branches **A5-A7** to the installation site of High charger/hands-free electronic control unit **C**.

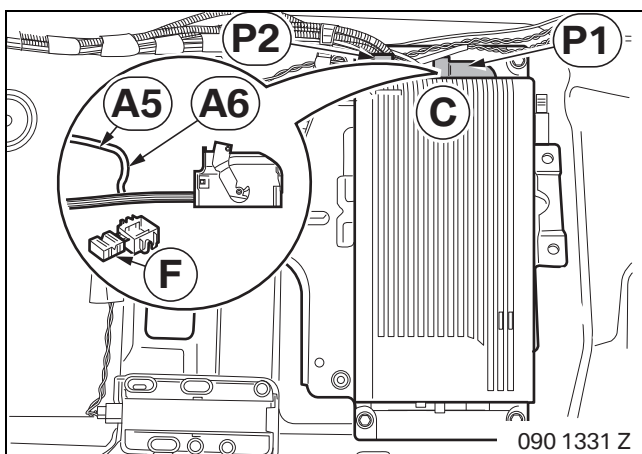


▶ The High charger/hands-free electronic control unit is already installed in cars with SA 620 without SA 609. ◀

Screw High charger/hands-free electronic control unit **C** onto holder **E** using hexagonal nuts **K**.



Connect holder **E** into the lugs in the car and screw on with the existing nuts (1).



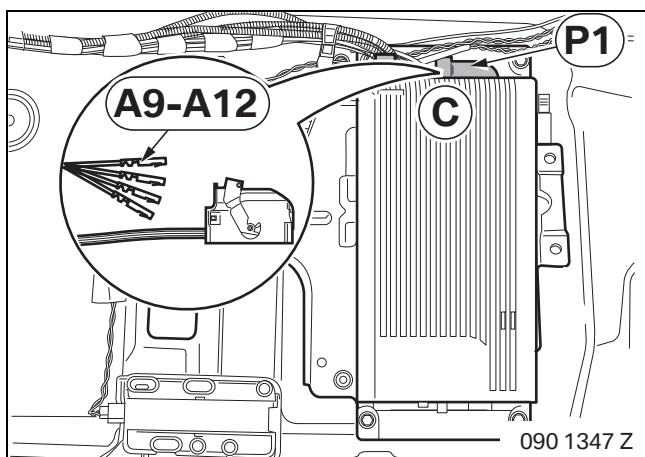
Cars without SA 640 or SA 644 only

Route branches **A5** and **A6** in the luggage compartment and connect to the same colour on branch **P1** (54-pin) using miniature connector **F** as follows:

- Branch **A5**, BR cable, to wire from PIN 36
- Branch **A6**, RT/GE cable, to wire from PIN 17

Connect branch **P2** to High charger/hands-free electronic control unit **C**.

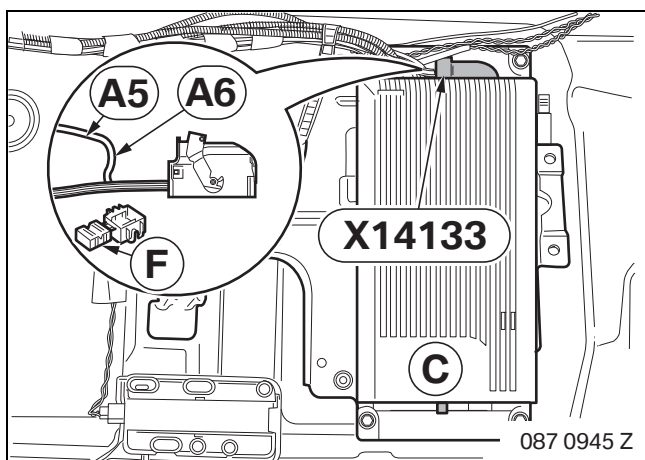
8. To route the USB retrofit cable and connect the High charger/hands-free electronic control unit



Connect branches **A9** and **A12** as follows to plug **P1**:

- Branch **A9**, VI cable, to PIN 4
- Branch **A10**, WS/RT cable, to PIN 5
- Branch **A11**, WS/GN cable, to PIN 22
- Branch **A12**, shield, to PIN 23

Connect branch **P1** to High charger/hands-free electronic control unit **C**.

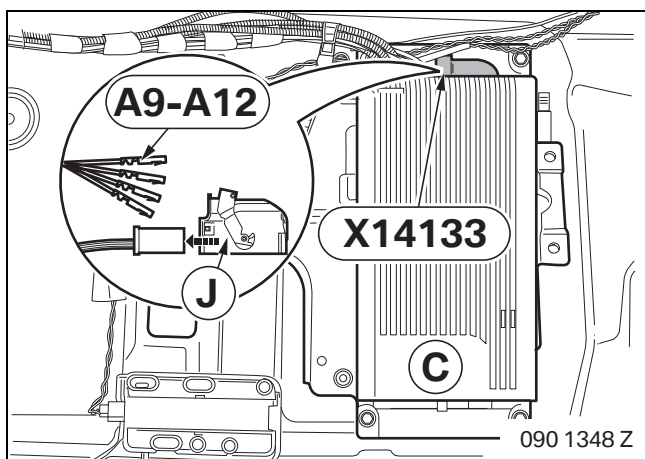


Cars with SA 640 or SA 644 only

Route branches **A5** and **A6** in the luggage compartment and connect to the same colour in plug **X14133** (54-pin) using miniature connector **F** as follows:

- Branch **A5**, BR cable, to wire from PIN 36
- Branch **A6**, RT/GE cable, to wire from PIN 17

Connect the fibre-optic cable plug (1) to High charger/hands-free electronic control unit **C**.

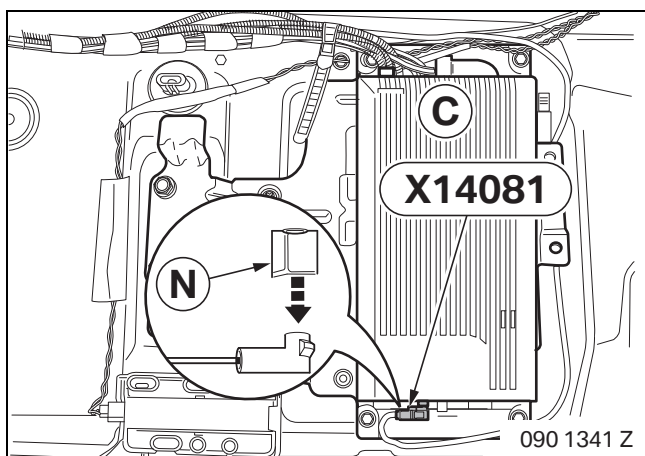


Replace the original cover cap of plug **X14133** with cover cap **J**.

Connect branches **A9** and **A12** as follows to plug **X14133**:

- Branch **A9**, VI cable, to PIN 4
- Branch **A10**, WS/RT cable, to PIN 5
- Branch **A11**, WS/GN cable, to PIN 22
- Branch **A12**, shield, to PIN 23

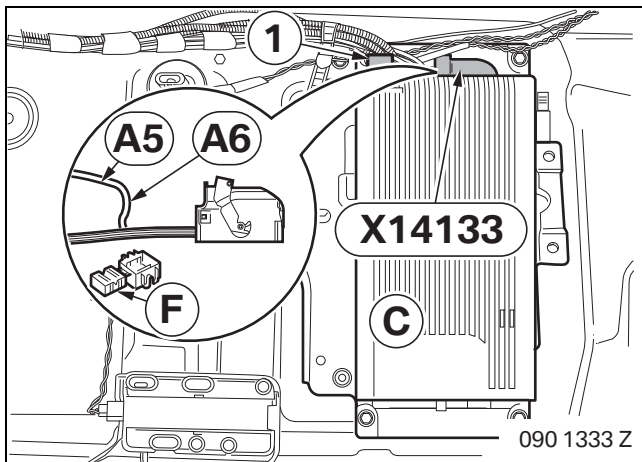
Connect plug **X14133** to High charger/hands-free electronic control unit **C**.



Replace the original casing of plug **X14081** with Fakra casing **N**.

Connect plug **X14081** to High charger/hands-free electronic control unit **C**.

8. To route the USB retrofit cable and connect the High charger/hands-free electronic control unit

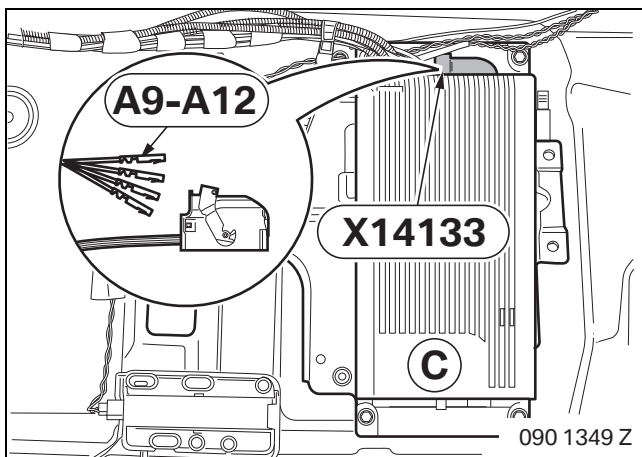


Cars with SA 620 without SA 609 only

▶ The High charger/hands-free electronic control unit is already installed in cars with SA 620 without SA 609. ◀

Route branches **A5** and **A6** in the luggage compartment and connect to the same colour in plug **X14133** (54-pin) using miniature connector **F** as follows:

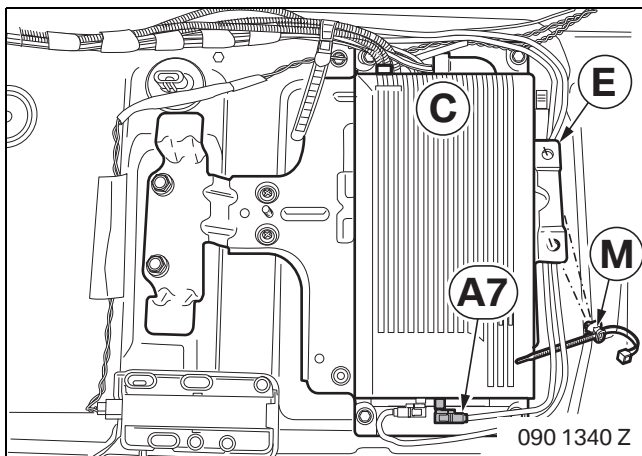
- Branch **A5**, BR cable, to wire from PIN 36
- Branch **A6**, RT/GE cable, to wire from PIN 17



Connect branches **A9** and **A12** as follows to plug **X14133**:

- Branch **A9**, VI cable, to PIN 4
- Branch **A10**, WS/RT cable, to PIN 5
- Branch **A11**, WS/GN cable, to PIN 22
- Branch **A12**, shield, to PIN 23

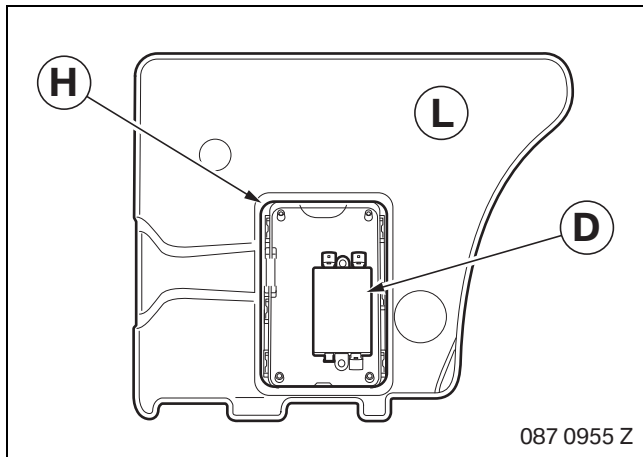
Connect plug **X14133** to High charger/hands-free electronic control unit **C**.



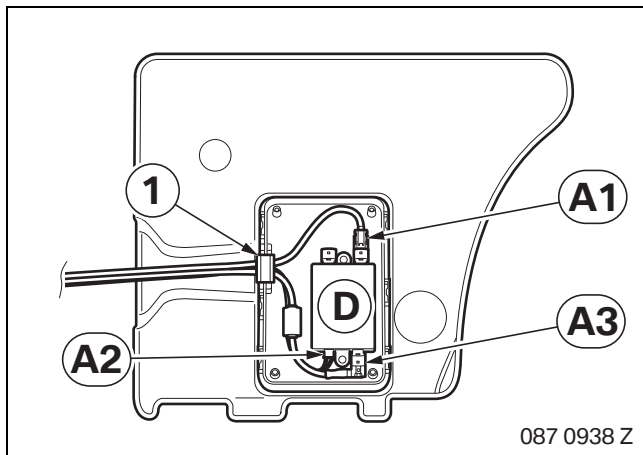
All cars

Connect branch **A7** to High charger/hands-free electronic control unit **C** and secure to holder **E** with cable tie **M**.

9. To install the USB HUB

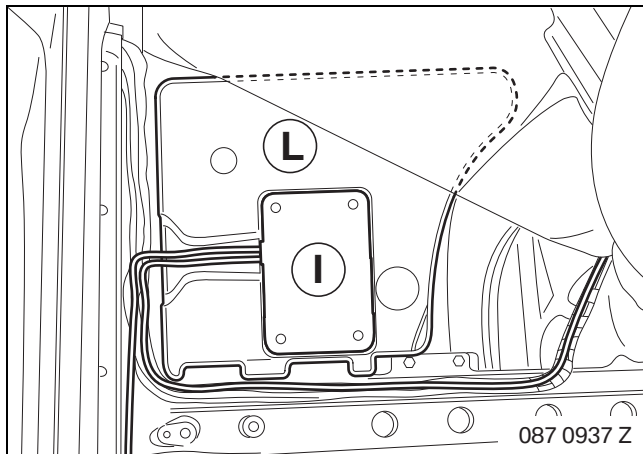


Place USB HUB protective socket **H** in footwell inlay **L**.
Clip USB HUB **D** into USB-HUB protective socket **H**.



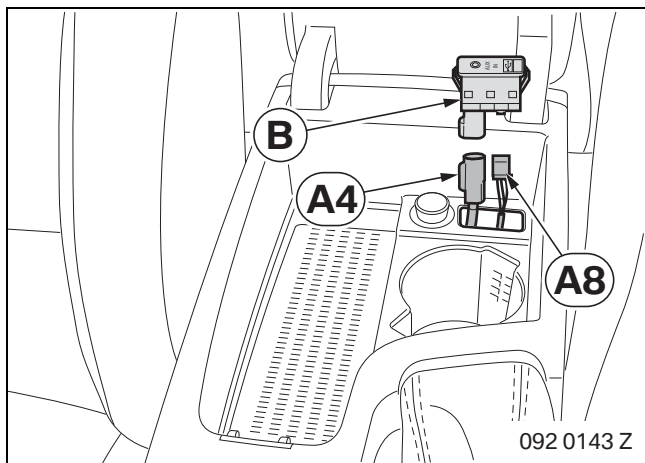
Connect branches **A1**–**A3** to USB-HUB **D**.

▶ Ensure that the rubber grommet (1) is correctly positioned in the USB HUB protective socket guide. ◀



Close the USB HUB protective socket with cap **I**.
Insert footwell inlay **L** on the floor of the car at the front left.

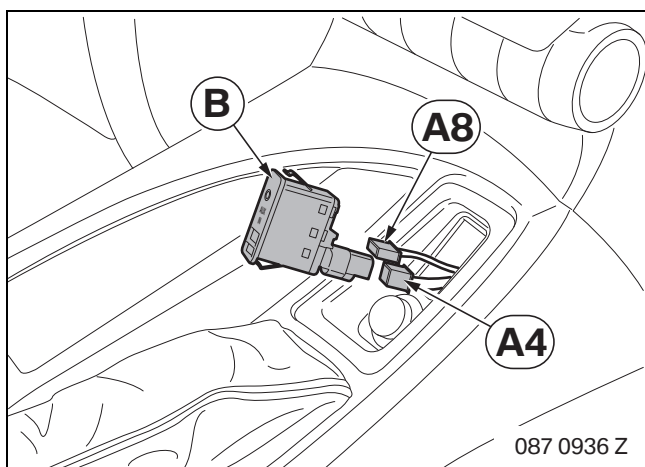
10. To install and connect the USB/AUX-IN jack



3 Series only

Connect branches **A4** and **A8** to USB/AUX-IN jack **B**.

Clip USB/AUX-IN jack **B** into the centre console.



1 Series only

Connect branches **A4** and **A8** to USB/AUX-IN jack **B**.

Clip USB/AUX-IN jack **B** into the centre console.

11. Concluding work and coding

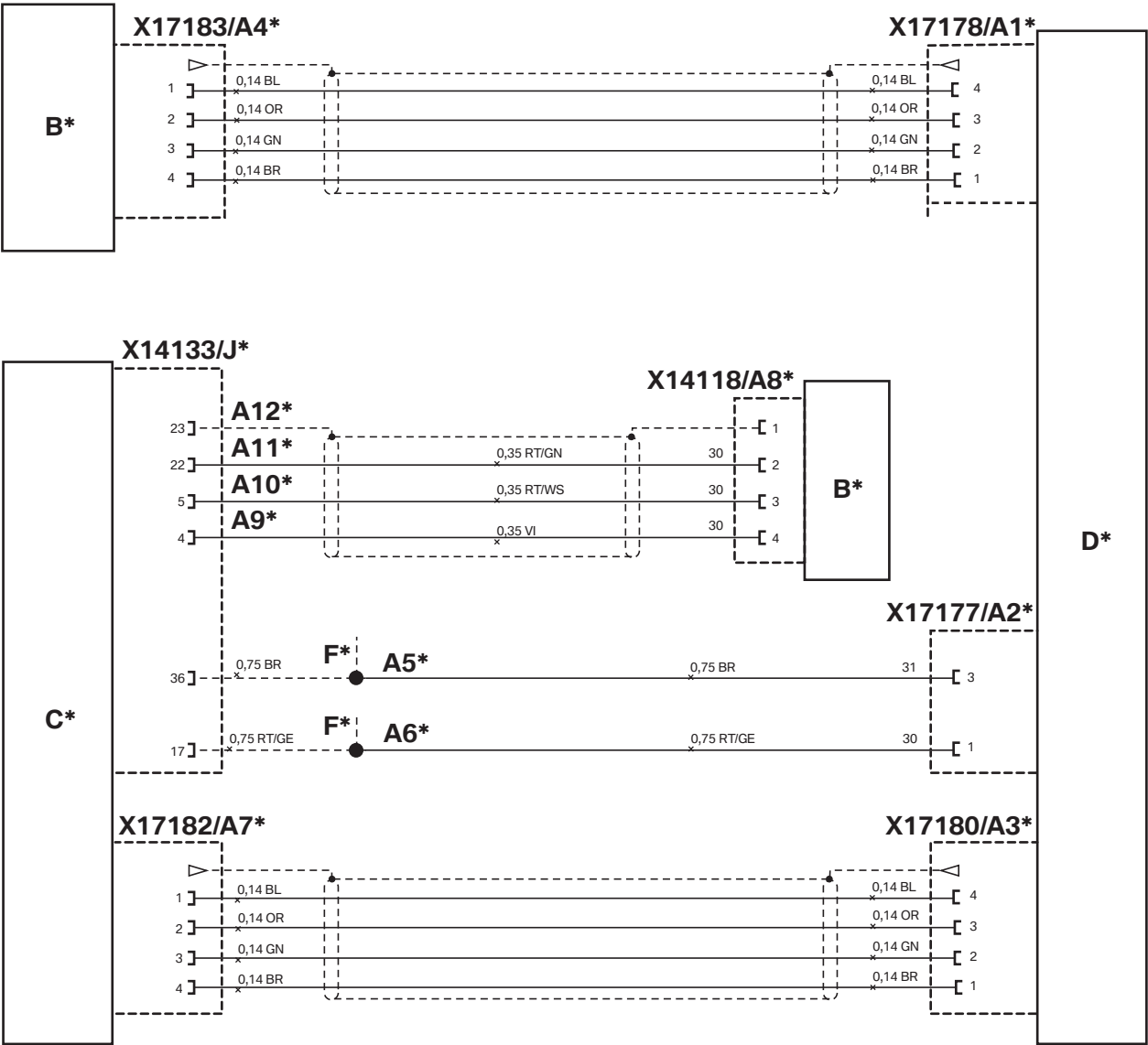
This retrofit system requires coding.

- Connect the battery
- Encode the retrofit with SSS (software service station) via the **CIP** path
- Conduct a brief test
- Re-assemble the car



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

12. Circuit diagram of USB retrofit cable



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12. Circuit diagram of USB retrofit cable

Legend

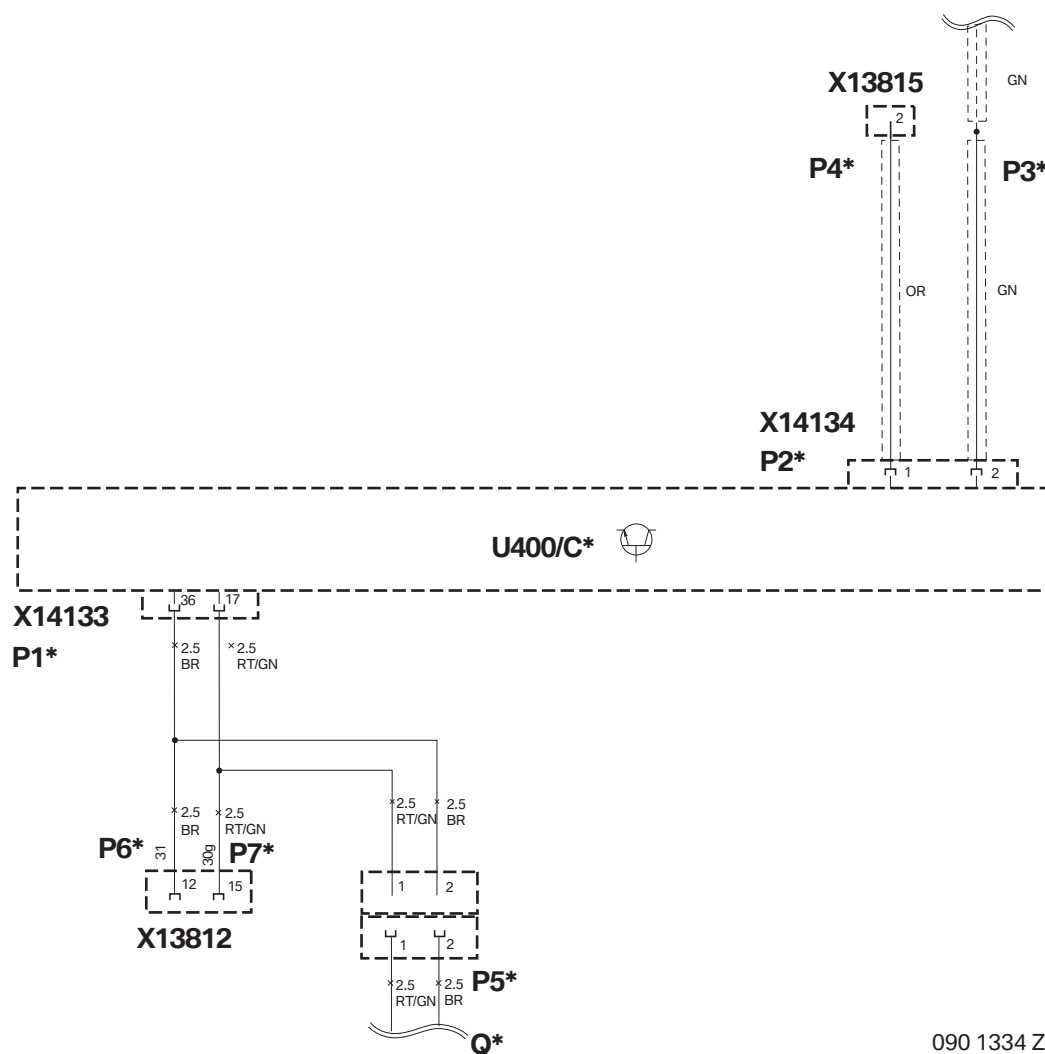
B*	USB/AUX-IN jack
C*	High charger/hands-free electronic control unit
D*	USB HUB
F*	Miniature connector
J*	54-pin socket casing X14133
A1*	WS 4-pin HSD socket casing X17178
A2*	SW 3-pin socket casing X17177
A3*	SW 4-pin HSD socket casing X17180
A4*	WS 4-pin HSD socket casing X17183
A5*	Open cable, terminal 31 pick-up
A6*	Open cable, terminal 30 pick-up
A7*	SW 4-pin HSD socket casing X17182
A8*	SW 4-pin socket casing X14118
A9*	Socket contact X14133
A10*	Socket contact X14133
A11*	Socket contact X14133
A12*	Socket contact X14133

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

Cable colours

BL	Blue
BR	Brown
GE	Yellow
GN	Green
OR	Orange
RT	Red
SW	Black
WS	White
VI	Violet

13. Circuit diagram of power supply retrofit cable



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Legend

- P1*** GN 54-pin socket casing **X14133**
- P2** SW 2-pin fibre optic cable casing **X14134** High charger/hands-free electronic control unit **C**
- P3*** Fibre optic cable connector
- P4*** OR fibre optic cable, in SW 2-pin fibre-optic cable casing **X13815**
- P5*** SW 4-pin plug casing
- P6*** Socket contact **X13812**
- P7*** Socket contact **X13812**

- Q*** SW 4-pin socket casing

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

Cable colours

BR	Brown
GN	Green
OR	Orange
RT	Red