

Original BMW Accessories. Installation Instructions.



Universal BMW Bluetooth Hands-Free Kit Retrofit BMW 5 Series Saloon (E 60)

These installation instructions are only valid for cars with SA 473 (front armrest)

Retrofit kit no.:	84 64 0 307 681	Universal BMW Bluetooth hands-free kit retrofit kit
	61 12 0 442 293	Adapter cable for telephone control unit
	61 12 6 962 814	Aerial cable

Installation time

The installation time is **approx. 5.5 to 6.0 hours**. This may vary depending on the condition of the car and the equipment in it.

The installation time will decrease by **approx. 0.5 hours** for cars with a ULF control unit already fitted.

For cars without SA 606, SA 609 or SA 654, the installation time will increase by **approx. 1.0 hour** for the installation of the roof aerial.

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 hours 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

When routing fibre optic cables, make sure the bending radius is no less than 25 mm. Refer to the instructions for handling fibre optic cables acc. to TIS RA 61 00

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.

After the installation work the retrofit must be programmed / coded using SSS (software service station) via the **CIP** path.

In the following equipment variants, the ULF control unit is already fitted, connected to a large extent and doesn't need replacing:

- Cars with SA 620 without SA 609
- Cars with SA 6FL

Ordering instructions

The following parts are not included in the retrofit kit and must be ordered separately (see EPC for part number and details):

- Snap-in adapter
- ULF control unit **K**
- Centre armrest cover **O**
- Headlining trim **S** or **T** (cars without SA 620 only)
- Adapter cable (telephone control unit) **V** with socket casing **W**
- Aerial cable **X**

List of special equipment

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

SA 403	Glass roof
SA 493	Front armrest
SA 606	Radio navigation system
SA 609	Professional navigation system
SA 620	Voice input system
SA 654	DAB tuner
SA 6FF	DVD system in rear
SA 6FL	USB/audio interface

Special tools required

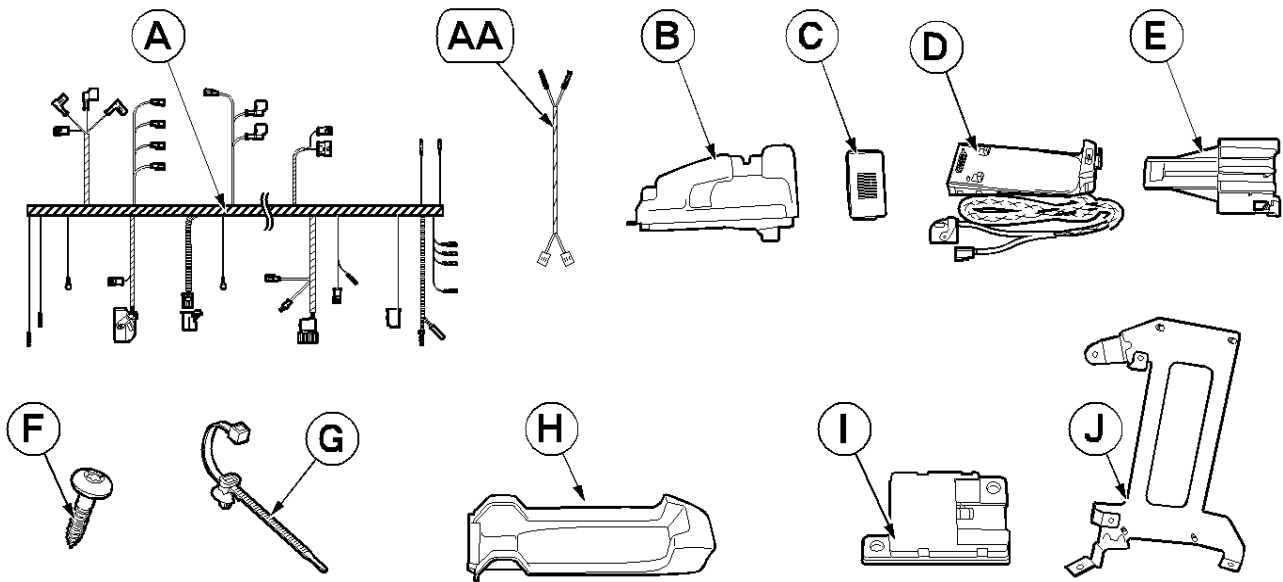
00 9 310, Installation wedges

65 2 010 Cutter set for roof aerial (cars without SA 606, SA 609 or SA 654 only)

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1. Parts list

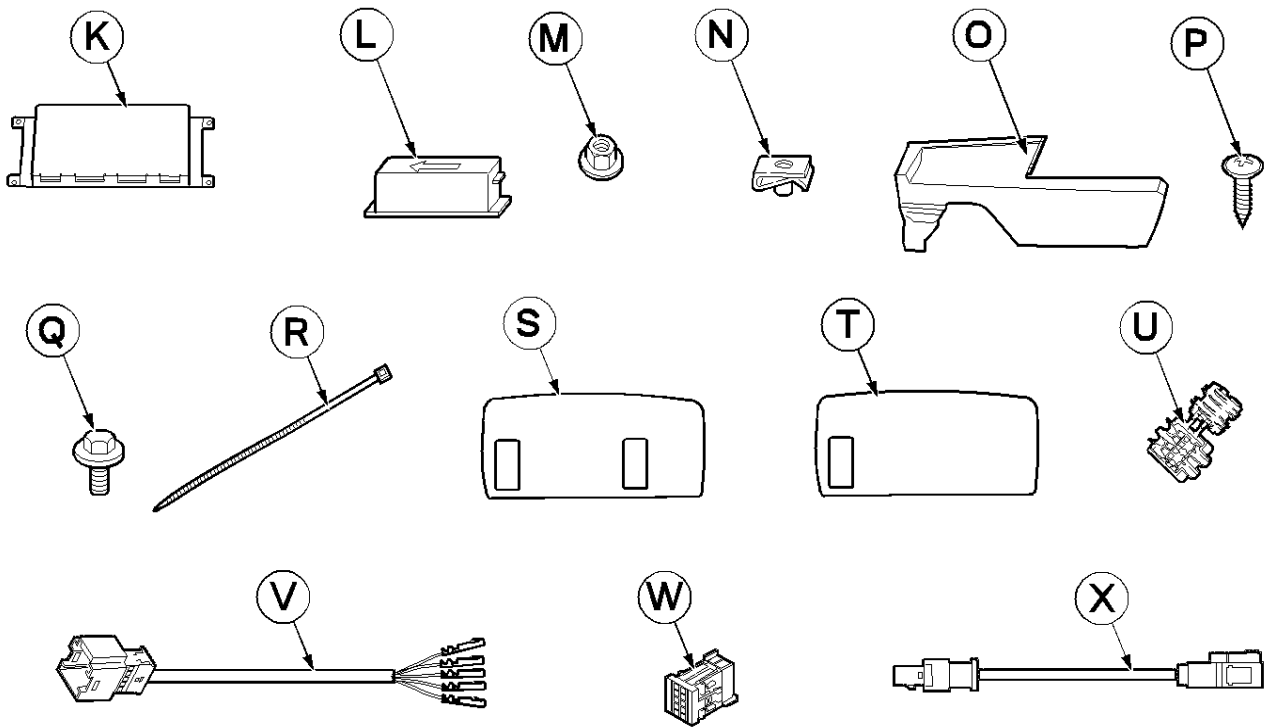


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Legend

- A** Wiring harness
- AA** ABS/DSC wiring harness (not required)
- B** Roof aerial (cars without SA 606, SA 609 or SA 654 only)
- C** Hands-free microphone trim (cars without SA 620 only)
- D** Eject box
- E** Short circuit casing (cars without ULF control unit already fitted only)
- F** Self-tapping screw (cars without SA 606, SA 609 or SA 654 only)
- G** Cable tie
- H** Telephone mounting
- I** Bluetooth aerial
- J** ULF holder (cars without ULF control unit already fitted only)

1. Parts list



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Legend

- K** ULF control unit (not supplied in the retrofit kit)
- L** Hands-free microphone (cars without SA 620 only)
- M** Hexagonal nut (4x)
- N** Speed nut
- O** Centre armrest cover (not supplied with the retrofit kit)
- P** Self-tapping screw, M5 x 12 (2x)
- Q** Hexagonal screw M5 x 14 mm (3x)
- R** Cable tie (30x)
- S** Headlining trim (not supplied in the retrofit kit, cars without SA 620 and with SA 403 only)
- T** Headlining trim (not supplied in the retrofit kit, cars without SA 620 and without SA 403 only)
- U** Miniature connector

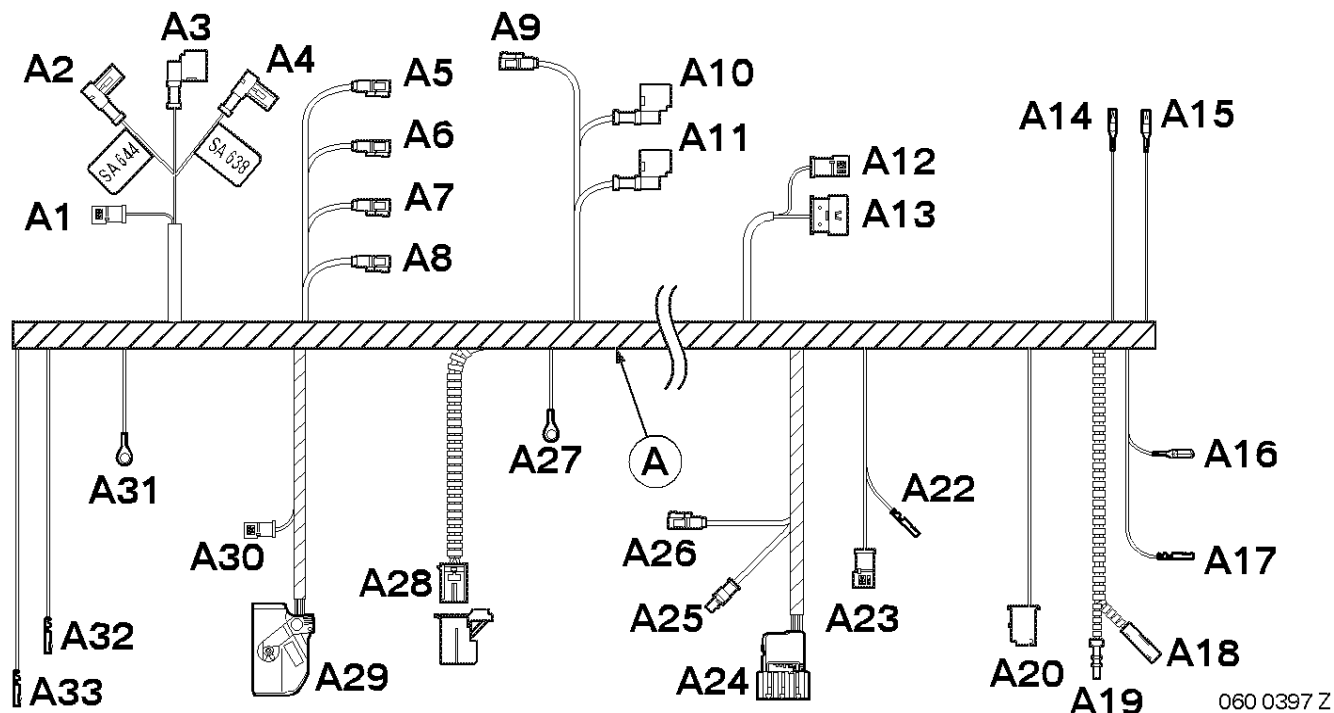
Cars with ULF control unit already fitted only

- V** Adapter cable (not supplied in the retrofit kit)
- W** SW 10-pin socket casing (not supplied in the retrofit kit)
- X** Aerial cable (not supplied in the retrofit kit)

2. Preparatory work

	TIS no.
Conduct a brief test	---
Disconnect negative pole of battery	12 00 ...
The following components must be removed first of all	
Boot side trim, left and right	51 47 ...
Boot floor trim	51 47 210
Rear closing panel cover	51 46 050
ULF control unit in spare wheel trough (cars with ULF control unit already fitted only)	84 21 542
Rear seat and backrest side section, left, pull down the backrest	52 24 010
Headlining trim for roof aerial	---
Roof pillar trim, rear left	51 43 251
Door sill strips left, front and rear	51 47 ...
Pedal trim	51 45 185
Trim at the bottom left of the door pillar	51 43 150
Lower the A pillar trim on the left	51 43 201
Front headlining trim	51 44 ...
Driver's seat	52 14 ...
Trim for oddments box	51 16 211
M-ASK or CCC (cars without ULF control unit already fitted only)	65 83 010

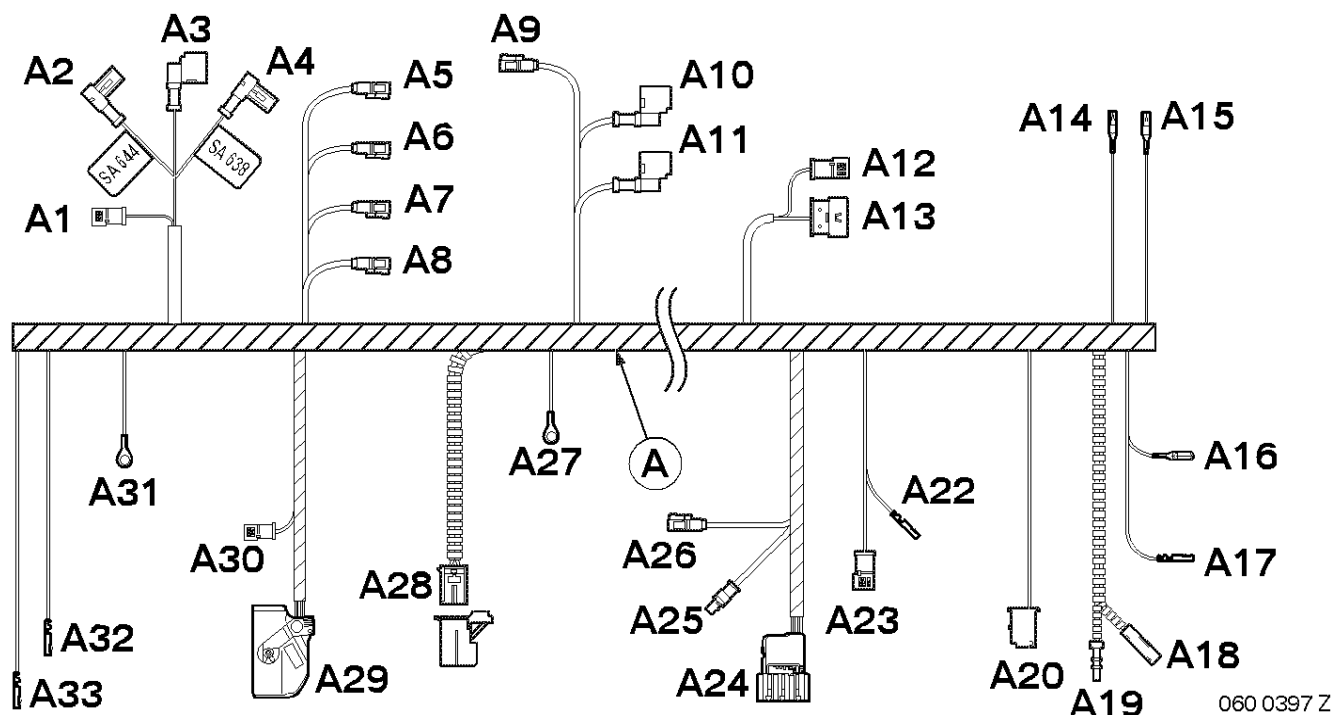
3. Connection diagram



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Item	Designation	Signal	Cable colour / Cross-section	Connection site in the car	Abbreviation / Slot
A	Wiring harness	---	---	---	---
A1	SW 3-pin socket casing	---	---	For optional aerial booster	X1765
A2	SW Fakra plug casing	---	---	On branch A3	X13323
A3	Fakra socket casing, SW	---	---	On branch A2	X13337
A4	SW Fakra plug casing	---	---	Tie back, not required	---
A5	Fakra socket casing, WS	---	---	Cars without ULF control unit already fitted only To ULF control unit K Cars with ULF control unit already fitted only To aerial cable X , branch X1	X11575 ---
A6	Fakra socket casing, SW	---	---	Tie back, not required	---
A7	Fakra socket casing, VI	---	---	Tie back, not required	---
A8	Fakra socket casing, BL	---	---	Tie back, not required	---
A9	Fakra socket casing, VI	---	---	Tie back, not required	---
A10	Fakra socket casing, BO/VI	---	---	To roof aerial B	X13363
A11	Fakra socket casing, BL	---	---	Tie back, not required	---
A12	SW 3-pin socket casing	Mic I	---	To hands-free microphone L	X13293
A13	6-pin WS socket casing	---	---	Tie back, not required	---
A14	Joint connector contact	DFAVL	GE/RT 0.35 mm ²	Insulate and tie back	---
A15	Joint connector contact	DFAVR	GE/WS 0.35 mm ²	Insulate and tie back	---
A16	Joint connector contact	58G	GR/RT 0.35 mm ²	Insulate and tie back	---
A17	Socket contact	TEL Crash	SW/RT 0.35 mm ²	Insulate and tie back	---

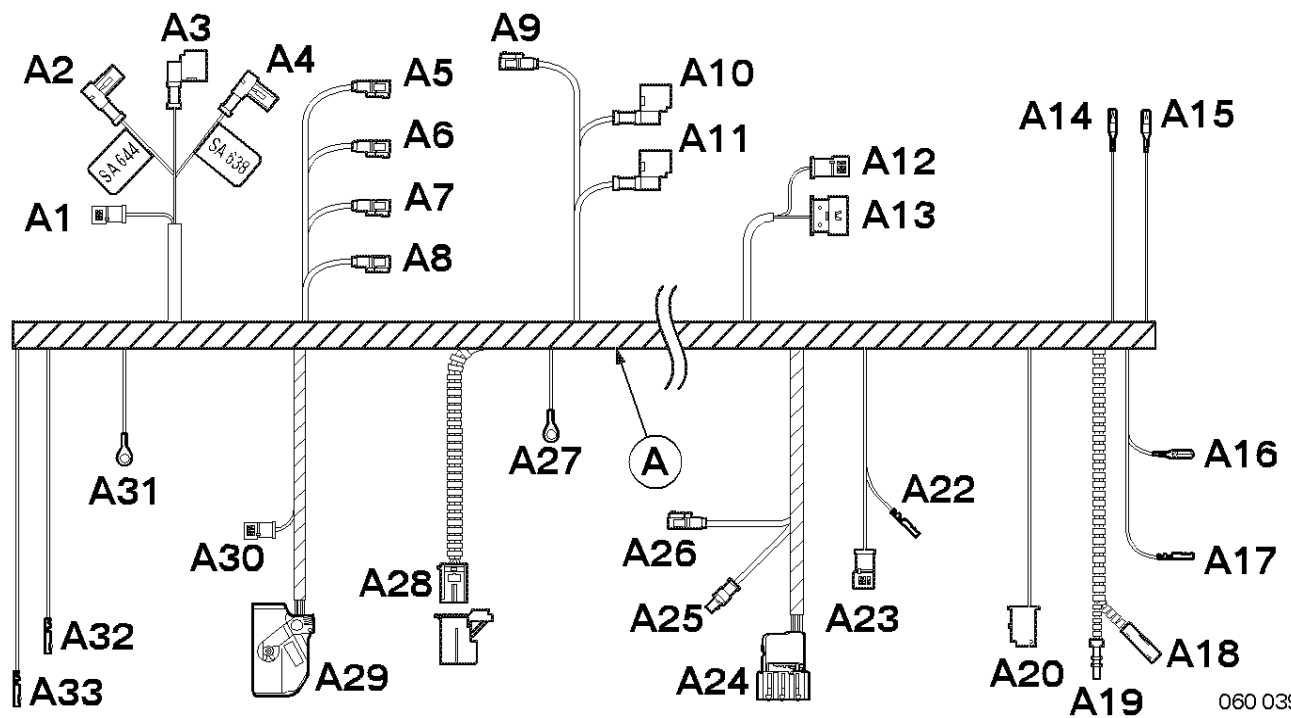
3. Connection diagram



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Item	Designation	Signal	Cable colour / Cross-section	Connection site in the car	Abbreviation / Slot
A18	Fibre optic cable connector	MOST	GN	Cars without ULF control unit already fitted only To disconnected fibre optic cable on M-ASK or CCC Cars with ULF control unit already fitted only Tie back, not required	X13815 PIN 2 ---
A19	Fibre optic cable	MOST	GN	Cars without ULF control unit already fitted only To the MOST of the fibre optic cable casing to M-ASK or CCC Cars with ULF control unit already fitted only Tie back, not required	X13815 PIN 2 ---
A20	12-pin socket casing, SW	Tel NF+/-	---	Tie back, not required	---
A22	Socket contact	TEL Wakeup	GE 0,35 mm ²	Insulate and tie back	---
A23	VI 3-pin socket casing	---	---	Tie back, not required	---
A24	SW 18-pin socket casing	---	---	To eject box D	X4545
A25	SW Fakra plug casing	---	---	To eject box D	X13514
A26	Fakra socket casing, GN	Ant BT	---	To Bluetooth aerial I	X11574
A27	Cable eyelet	31	BR 0,35 mm ²	Insulate and tie back	---

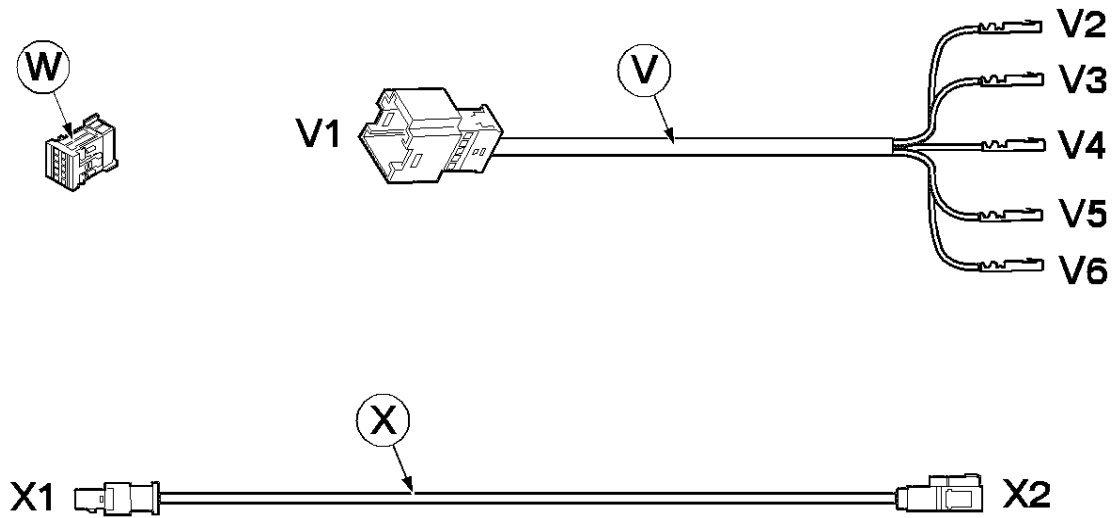
3. Connection diagram



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Item	Designation	Signal	Cable colour / Cross-section	Connection site in the car	Abbreviation / Slot
A28	2-pin SW fibre optic cable casing	MOST	---	Cars without ULF control unit already fitted only To ULF control unit K Cars with ULF control unit already fitted only Tie back, not required	X10634 ---
A29	54-pin WS socket casing	---	---	Cars without ULF control unit already fitted only To ULF control unit K Cars with ULF control unit already fitted only Connect cable in socket casing W	X695 ---
A30	SW 3-pin socket casing	---	---	Tie back, not required	---
A31	Cable eyelet	31	BR	To the earth post in the rear left wheel arch	X13793
A32	Socket contact	15	GN/BR 0.75 mm ²	Insulate and tie back	---
A33	Socket contact	30	RT/BR 0.75 mm ²	Cars built before 09/05 only On fuse holder at the rear right Cars built after 09/05 only On fuse holder at the rear right	X11015 PIN 3 X11012 PIN 39

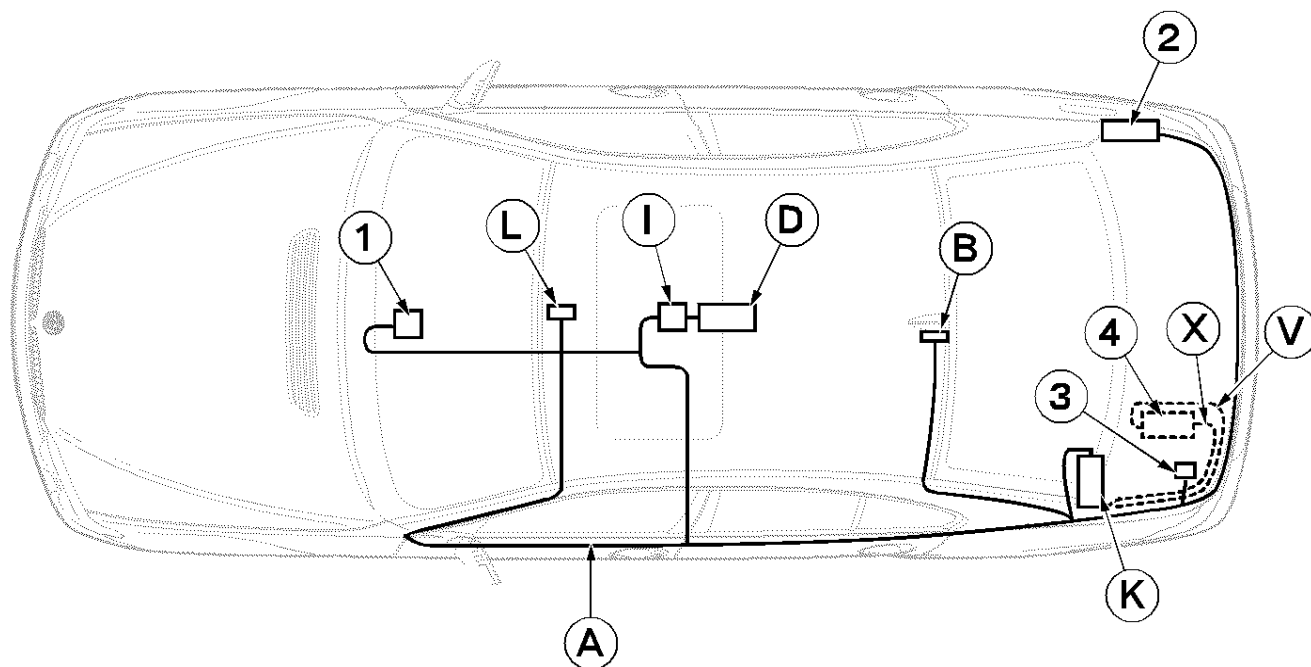
4. Extra connection diagram (cars with ULF control unit already fitted only)



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Item	Designation	Signal	Cable colour / Cross-section	Connection site in the car	Abbreviation / Slot
V	Adapter cable	---	---	---	---
V1	SW 10-pin plug casing	---	---	To socket casing W	---
V2	Socket contact	Mic +	SW 0.35 mm ²	To ULF control unit in spare wheel trough, BL 54-pin socket casing	X14133 PIN 1
V3	Socket contact	Mic -	GE 0.35 mm ²	To ULF control unit in spare wheel trough, BL 54-pin socket casing	X14133 PIN 19
V4	Socket contact	Shield	TR 0.35 mm ²	To ULF control unit in spare wheel trough, BL 54-pin socket casing	X14133 PIN 21
V5	Socket contact	Cradle On	BR/WS 0.35 mm ²	To ULF control unit in spare wheel trough, BL 54-pin socket casing	X14133 PIN 11
V6	Socket contact	Cradle Key+	GN 0.35 mm ²	To ULF control unit in spare wheel trough, BL 54-pin socket casing	X14133 PIN 32
W	SW 10-pin socket casing	---	---	Connect disconnected cable of branch A29	---
X	Aerial cable	---	---	---	---
X1	Fakra plug casing, GN	---	---	To branch A5	X11575
X2	Fakra socket casing, GN	---	---	To ULF control unit in spare wheel trough	X11575

5. Installation and cabling diagram

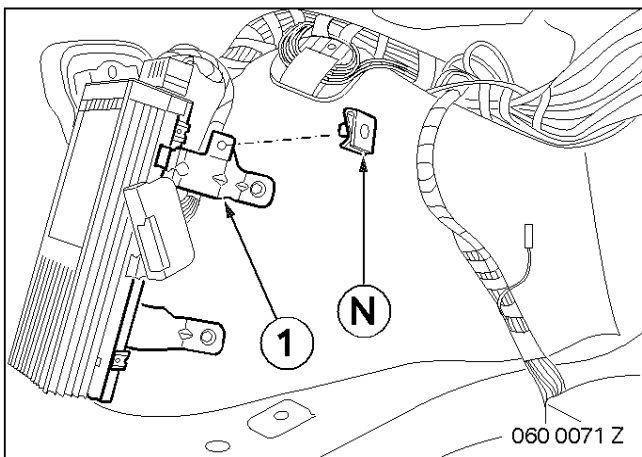


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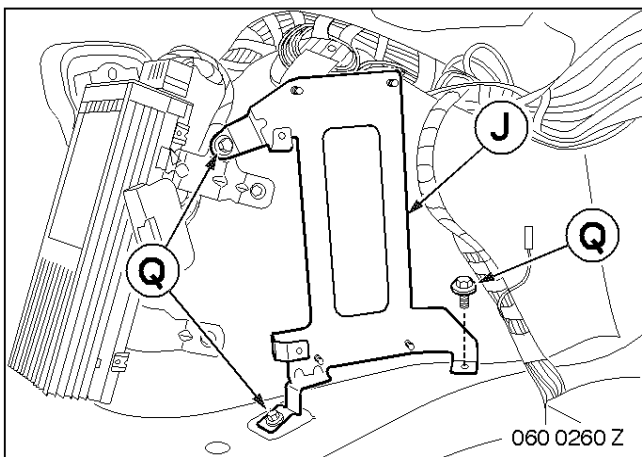
Legend

- A** Wiring harness
 - B** Roof aerial
 - D** Eject box
 - I** Bluetooth aerial
 - K** ULF control unit (cars without ULF control unit already fitted only)
 - L** Hands-free microphone
 - V** Adapter cable (cars with ULF control unit already fitted only)
 - X** Aerial cable (cars with ULF control unit already fitted only)
-
- 1** M-ASK or CCC (cars without ULF control unit already fitted only)
 - 2** Fuse holder at the rear right
 - 3** Earth post **X13793** on the rear left wheel arch
 - 4** ULF control unit already fitted

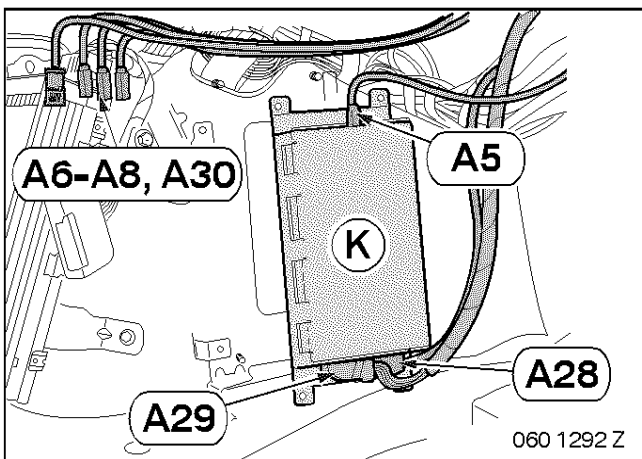
6. To install and connect the ULF control unit (cars without ULF control unit already fitted only)



Place a speed nut **N** on the holder (1).



Secure the ULF holder **J** using hexagonal screws **Q**.

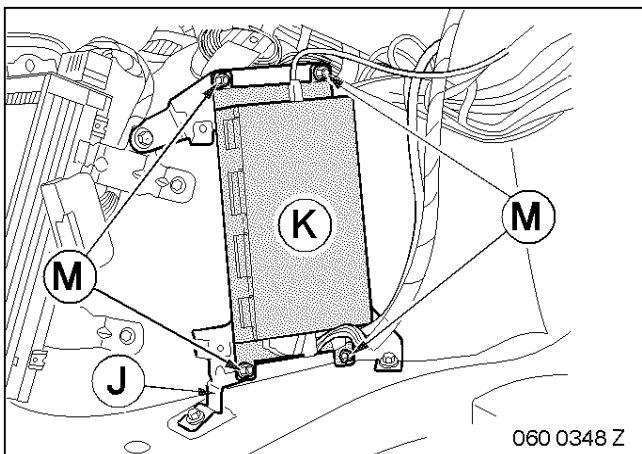


Connect the following branches to ULF control unit **K**:

- Branch **A5**, WS plug
- Branch **A28**, fibre optic cable casing
- Branch **A29**, white 54-pin plug

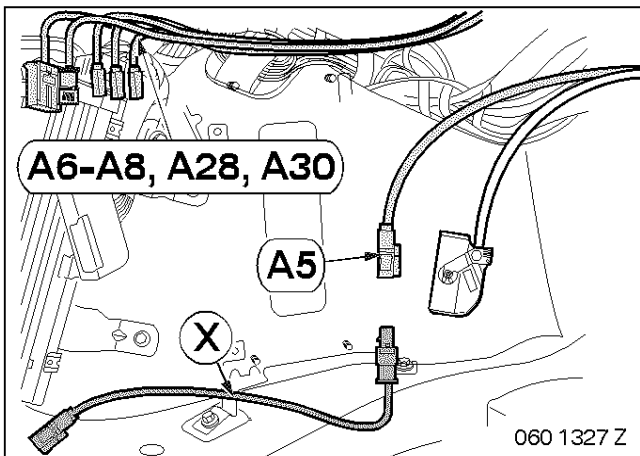
Tie back the following branches:

- Branch **A6**, SW plug
- Branch **A7**, VI plug
- Branch **A8**, VI plug
- Branch **A30**, SW 3-pin plug



Secure the ULF control unit **K** to the ULF holder **J** using hexagonal nuts **M**.

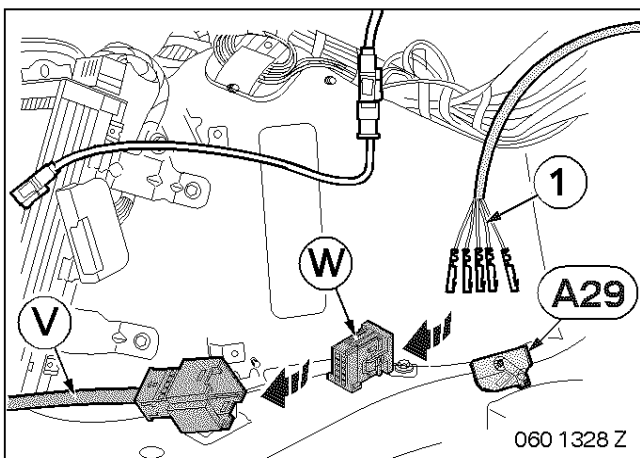
7. To connect the ULF control unit (cars with ULF control unit already fitted only)



Connect branch **A5**, WS plug, to aerial cable **X**.

Tie back the following branches:

- Branch **A6**, SW plug
- Branch **A7**, VI plug
- Branch **A8**, VI plug
- Branch **A28**, fibre optic cable casing
- Branch **A30**, SW 3-pin plug

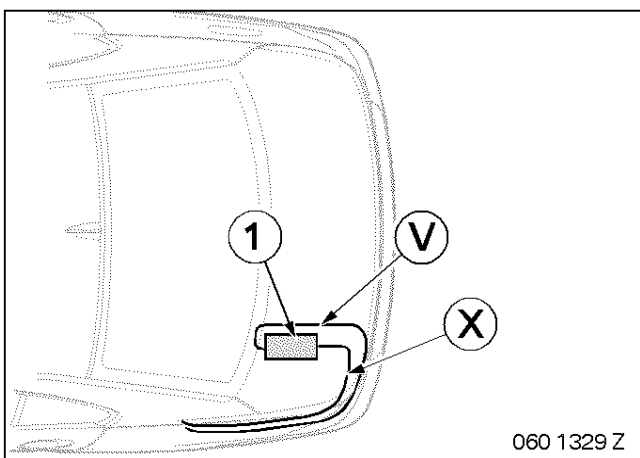


Disconnect the following cables (1) from branch **A29**, white 54-pin, and connect socket casing **W**:

- BRWS cable from PIN 19 to PIN 1
- WS cable from PIN 1 to PIN 2
- Screen cable from PIN 21 to PIN 3
- SW cable from PIN 32 to PIN 4
- BRWS cable from PIN 11 to PIN 5

Disconnect, individually insulate and tie back all remaining cables from **A29**.

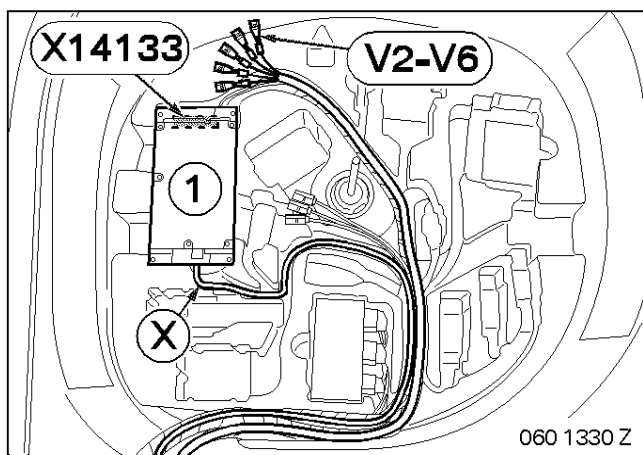
Connect socket casing **W** to adapter cable **V**.



Route adapter cable **V** and aerial cable **X** along the wiring harness as follows:

- to rear bulkhead
- into the control unit holder
- to the installation site of the ULF control unit (1)

7. To connect the ULF control unit (cars with ULF control unit already fitted only)



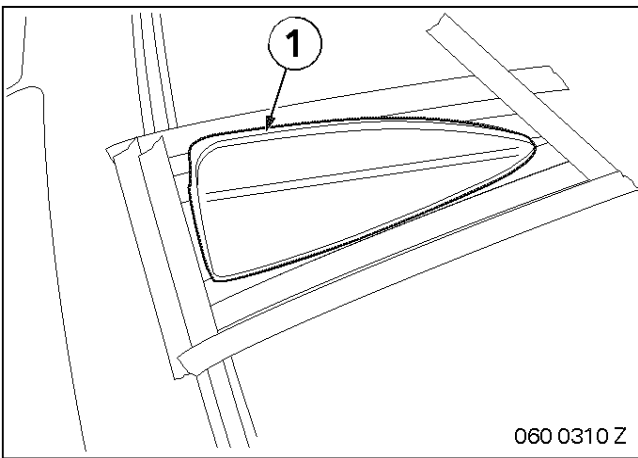
Disconnect and open plug **X14133** (BL 54-pin) from the ULF control unit (1).

Connect branches **V2-V6** to plug **X14133** as follows:

- Branch **V2**, SW cable, to PIN 1
- Branch **V3**, GE cable, to PIN 19
- Branch **V4**, TR cable, to PIN 21
- Branch **V5**, BR/WS cable, to PIN 11
- Branch **V6**, GN cable, to PIN 32

Connect plug **X14133** and aerial cable **X** to ULF control unit (1).

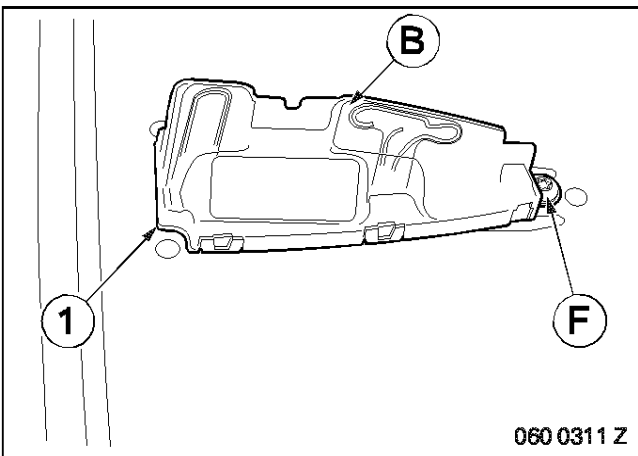
8. To install the roof aerial (cars without SA 606, SA 609 or SA 654 only)



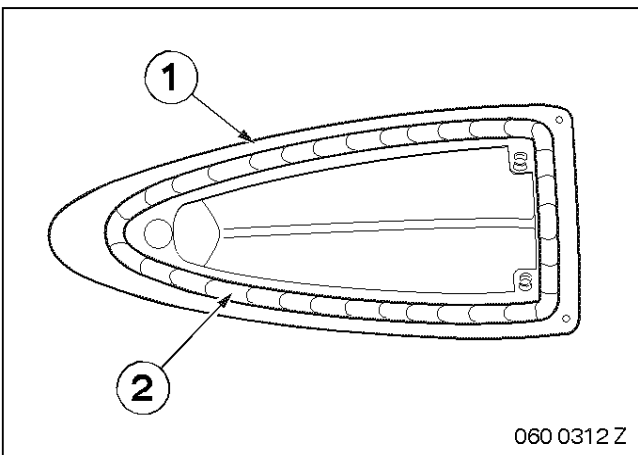
▶ Mask the area around the roof aerial to prevent damaging the paintwork. ◀

Carefully cut the empty casing (1) for the roof aerial off the roof with the special tool.

Clean the surfaces in the bonding areas on the empty casing (1) and roof.



Slide in the roof aerial **B** at the rear (1) and secure it at the front with a self-tapping screw **F**.

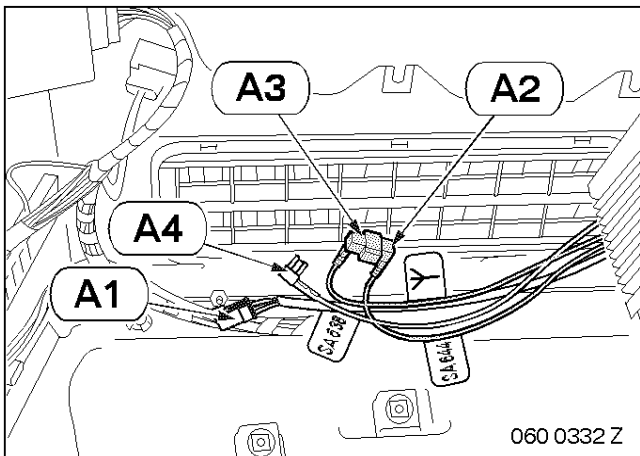


▶ The bonding surfaces must be clean and free of grease. The temperature of the adhesive must be at least 20 °C. The hardening time of the adhesive is at least 4 hours. ◀

Apply a bead of adhesive (2) around 8 mm wide and 8 mm high to the empty casing (1).

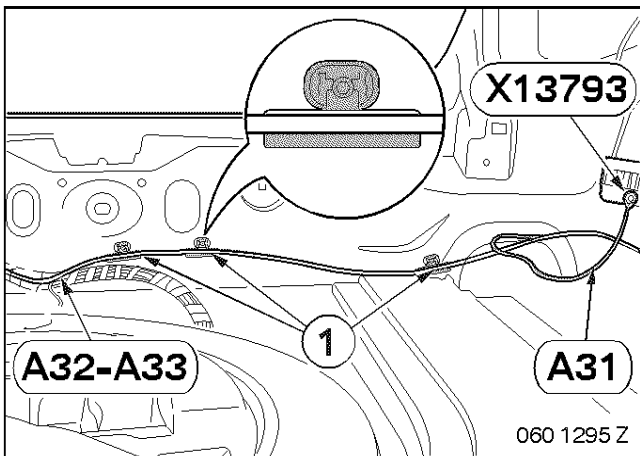
Carefully place the empty casing (1) in its original position, press lightly and secure it with adhesive tape.

9. To install and connect the cable kit



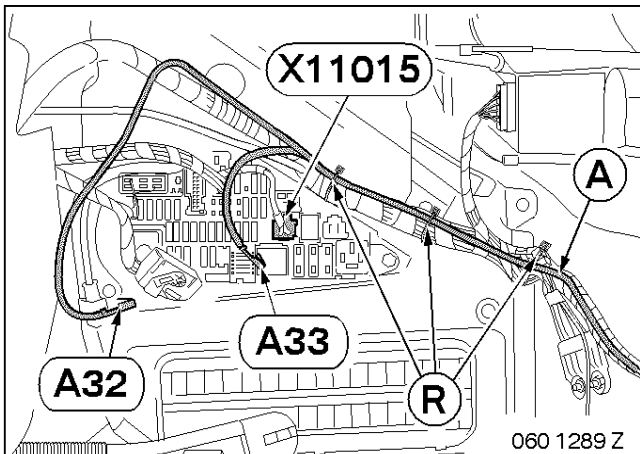
Connect branch **A3** (aerial symbol) to branch **A2** (SA 644).

Tie back branch **A1** and branch **A4** (SA 638), they are not required.



Connect branch **A31** to earth post **X13793**, on the rear left wheel arch.

Route branches **A32** and **A33** along the closing panel to the right side of the boot and secure it using cable holders (1).



Route branches **A32** and **A33** to the fuse holder at the rear right and secure the wiring harness **A** to the vehicle wiring harness with cable ties **R**.

Insulate branch **A32**, GN/BR cable, and tie it back.

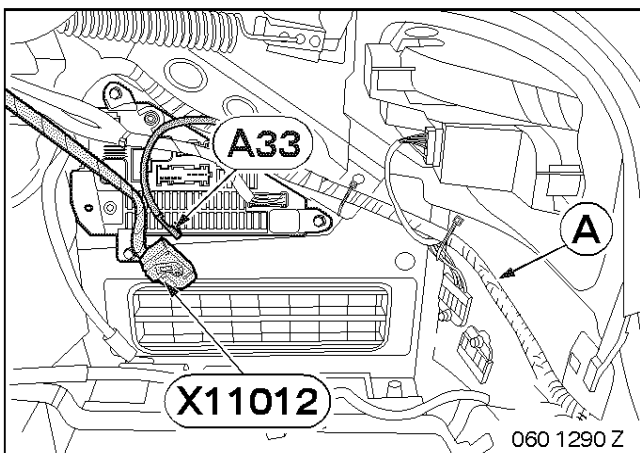
Cars built before 09/05 only

Disconnect and release plug **X11015** from the fuse holder.

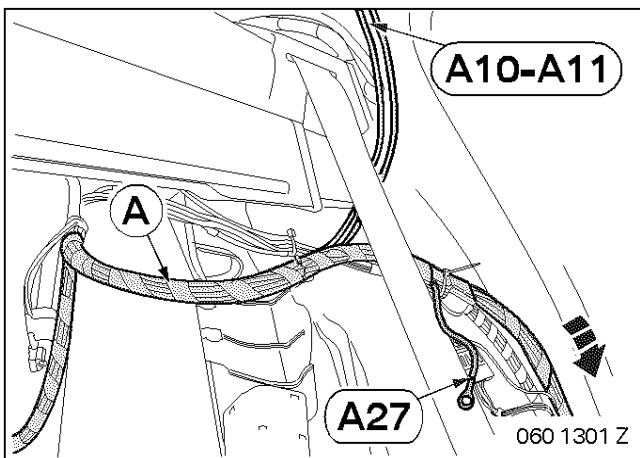
Connect branch **A33**, RT/BR cable, to PIN 3 of plug **X11015**.

Cars built after 09/05 only

Connect branch **A33**, RT/BR cable, to PIN 39 of plug **X11012**.



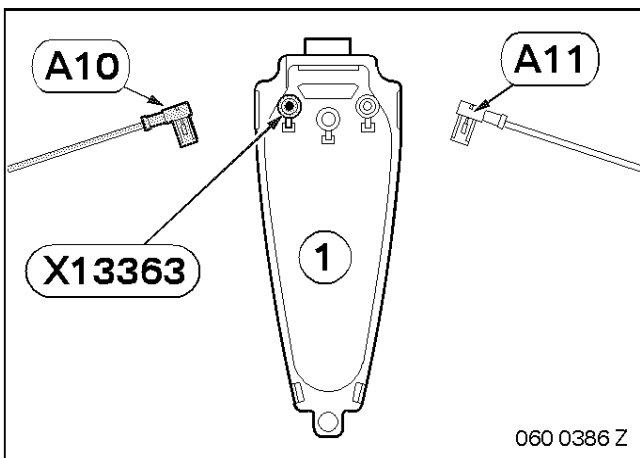
9. To install and connect the cable kit



Route branch **A10**, BOMI, and branch **A11**, BL, to the installation site of the roof aerial.

Insulate branch **A27** and tie it back.

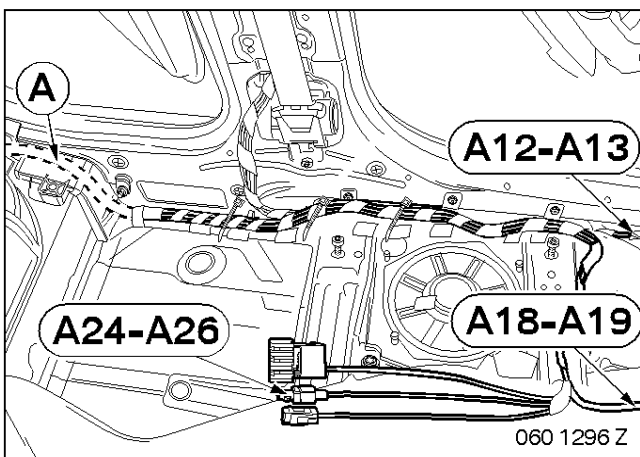
Route wiring harness **A** along the standard wiring harness to the door sill.



Route branches **A10-A11** to the roof aerial (1).

Connect branch **A10**, VI, to connector **X13363** on the roof aerial (1).

Tie back branch **A11**, BL.



Cars without ULF control unit already fitted only

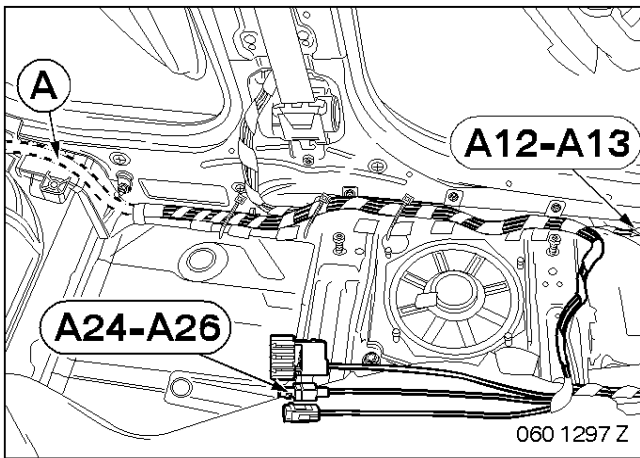
Insulate and tie back the following branches to a suitable point:

- Branch **A14**, GE/RT cable
- Branch **A15**, GE/WS cable
- Branch **A16**, GR/RT cable
- Branch **A17**, SW/RT cable
- Branch **A20**, 12-pin SW socket casing
- Branch **A22**, GE cable
- Branch **A23**, 3-pin VI socket casing

Route wiring harness **A** along the standard wiring harness as follows:

- Branches **A12-A13** to the left A pillar
- Branches **A18-A19** to the centre console and then towards the M-ASK or CCC
- Branches **A24-A26** to the centre console

9. To install and connect the cable kit



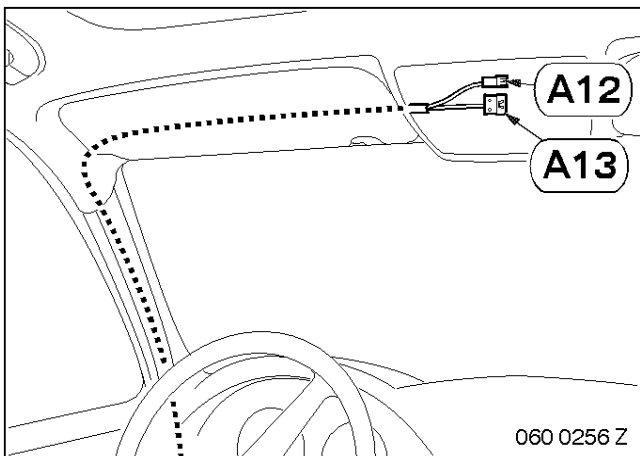
Cars with ULF control unit already fitted only

Insulate and tie back the following branches to a suitable point:

- Branch **A14**, GE/RT cable
- Branch **A15**, GE/WS cable
- Branch **A16**, GR/RT cable
- Branch **A17**, SW/RT cable
- Branch **A18**, fibre optic cable connector
- Branch **A19**, fibre optic cable
- Branch **A20**, 12-pin SW socket casing
- Branch **A22**, GE cable
- Branch **A23**, 3-pin VI socket casing

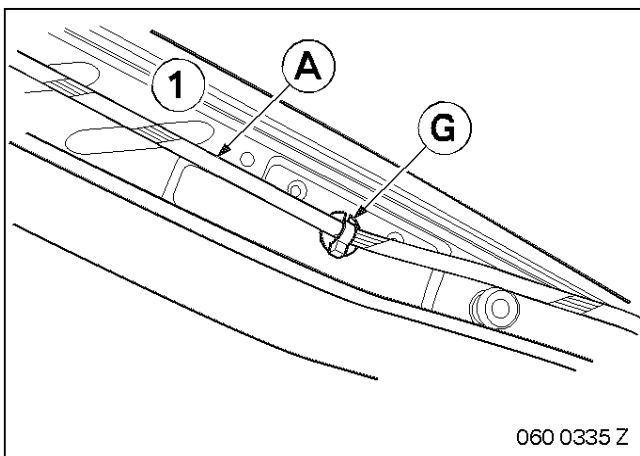
Route wiring harness **A** along the standard wiring harness as follows:

- Branches **A12–A13** to the left A pillar
- Branches **A24–A26** to the centre console



All cars


Route branches **A12–A13** to the left A pillar via the lowered headlining to the opening in the roof trim.

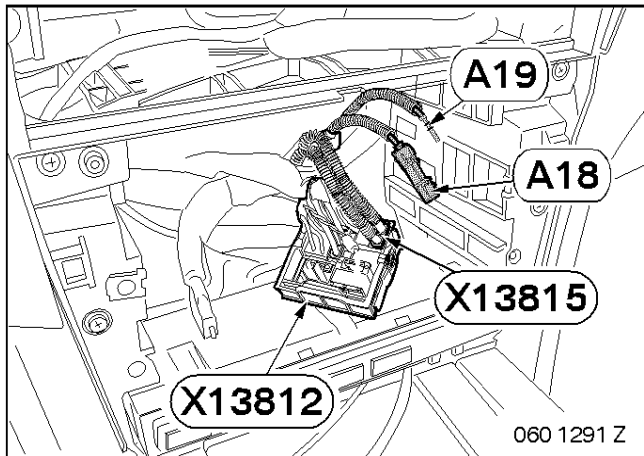


Secure wiring harness **A** to the left A pillar (1) using a cable tie **G**.

- Ensure that wiring harness **A** is routed and secured behind the head airbag. ◀

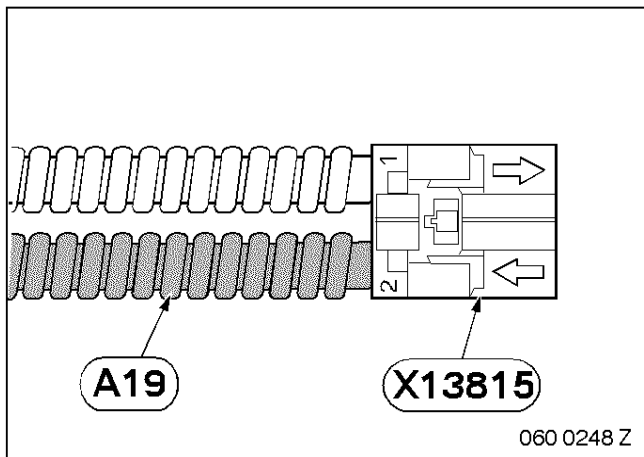
10. To connect the fibre optic cable of the wiring harness (cars without ULF control unit already fitted only)

 In cars with the ULF control unit already fitted, the fibre optic cables are already fitted in the car and connected. ◀



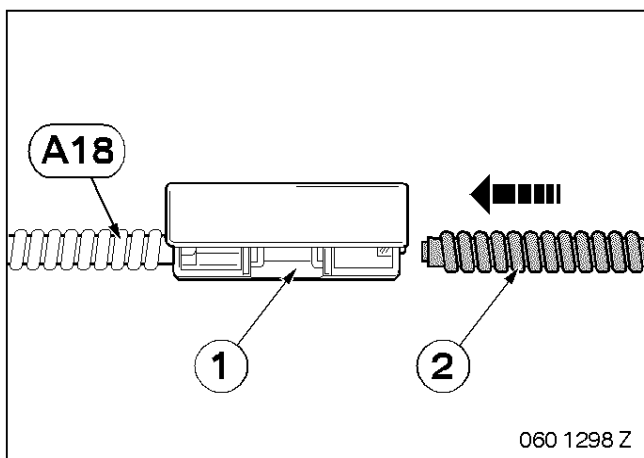
Route branches **A18–A19** to the M-ASK or CCC.

Unclip fibre optic cable casing **X13815** from plug **X13812**.



Disconnect the outgoing fibre optic cable from fibre optic cable casing **X13815** PIN 2 and connect branch **A19**.

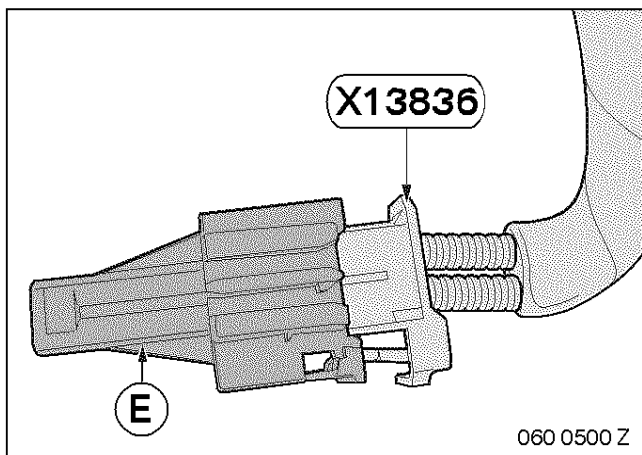
Clip fibre optic cable casing **X13815** into plug **X13812** and connect it to the M-ASK or CCC.



Release the fibre optic cable connector (1) of branch **A18**.

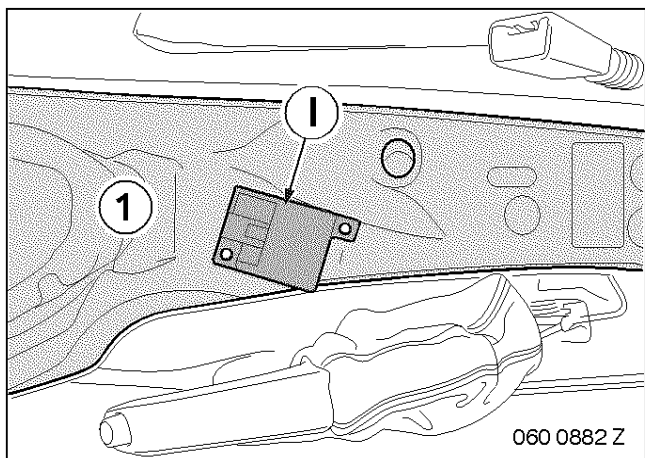
Connect the fibre optic cable (2) you previously disconnected.

10. To connect the fibre optic cable of the wiring harness
(cars without ULF control unit already fitted only)



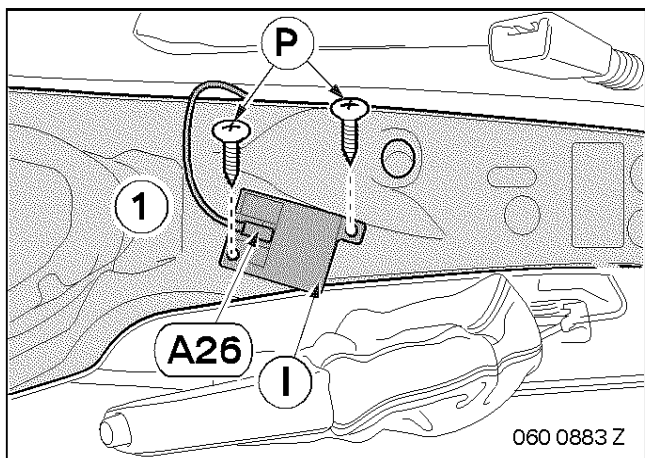
Replace the flash adapter casing on the fibre optic cable casing **X13836** with the short circuit casing **E**.

11. To install and connect the Bluetooth aerial and eject box



Cars built before 09/05 only

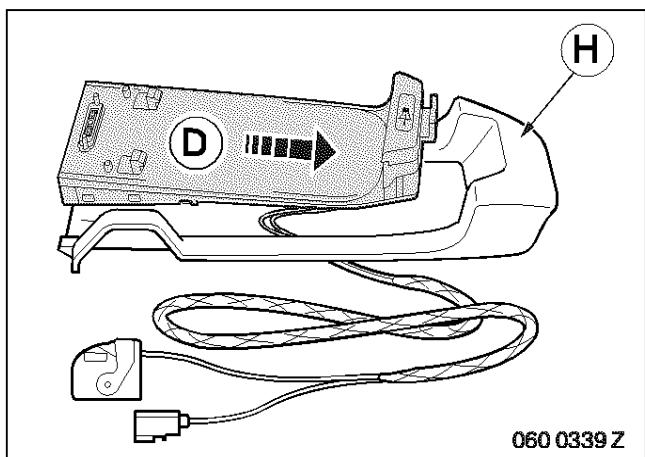
Place the Bluetooth aerial **I** on the air duct (1) in the centre armrest, mark the holes and drill them with a 2.5 mm drill bit.



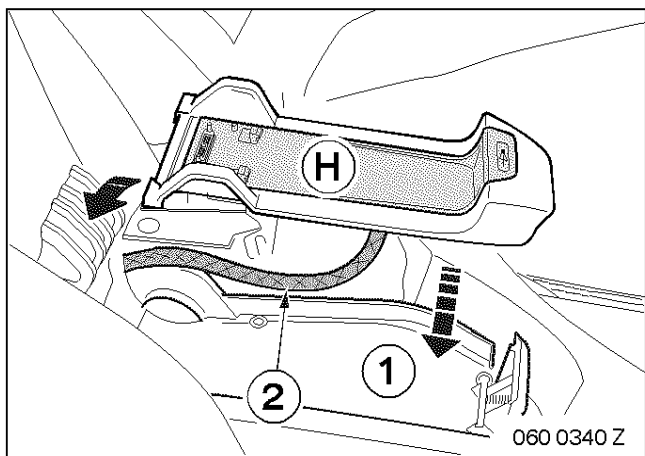
All cars

Use self-tapping screws **P** to secure Bluetooth aerial **I** to the air duct (1).

Connect branch **A26** to the Bluetooth aerial **I**.



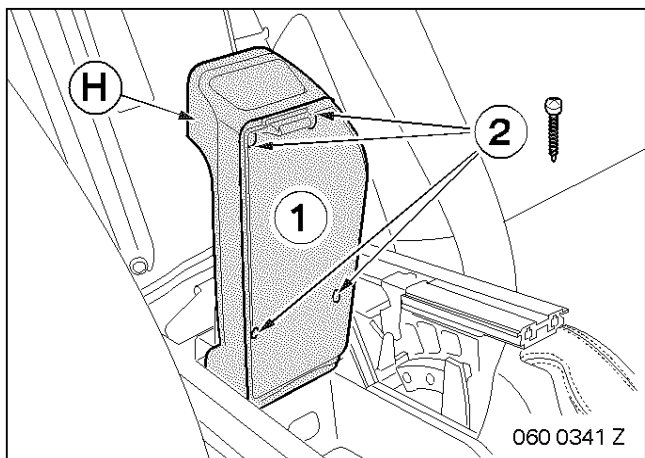
Insert the eject box **D** into the telephone mounting **H**.



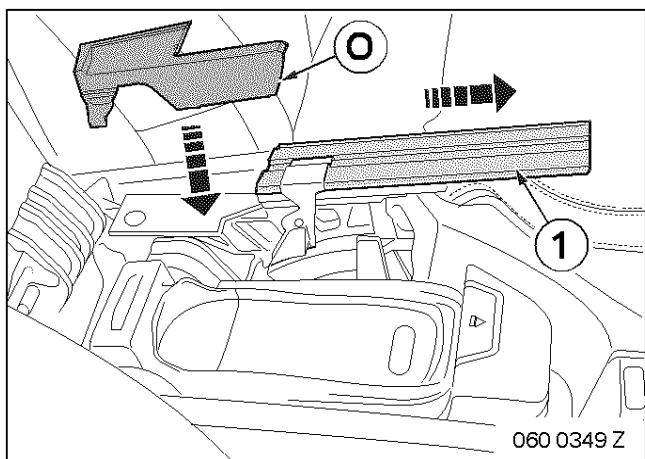
Route the cable (2) to the rear through the centre armrest oddments tray (1).



Place the eject box with telephone mounting **H** in the centre armrest oddments box (1).

11. To install and connect the eject box and Bluetooth aerial

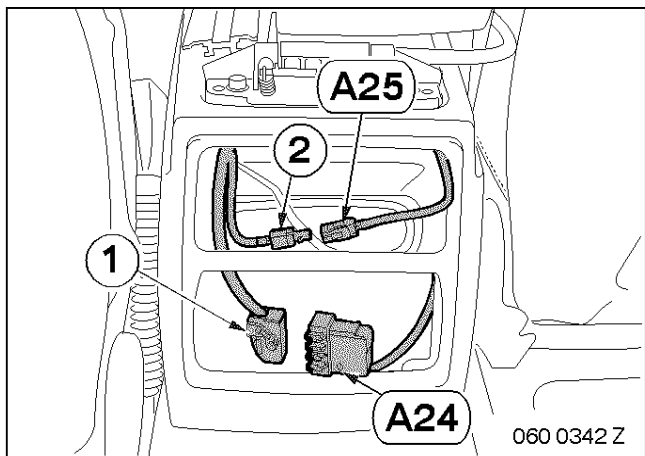


Secure the telephone mounting **H** in the centre armrest oddments box (1) with fillister head screws (2).



 Push the centre armrest adjustment unit (1) as far as forwards possible. This is only possible when the handbrake is released. 

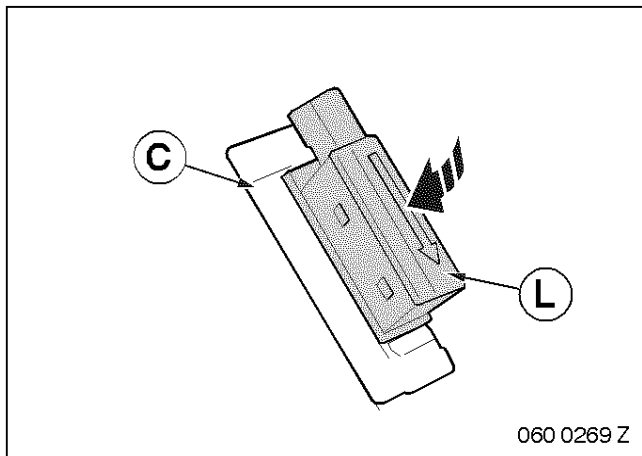
Clip the centre armrest cover **O** into the centre console.




Connect branch **A24** to the plug (1) on the eject box.

Connect branch **A25** to the FAKRA plug (2) in the eject box.

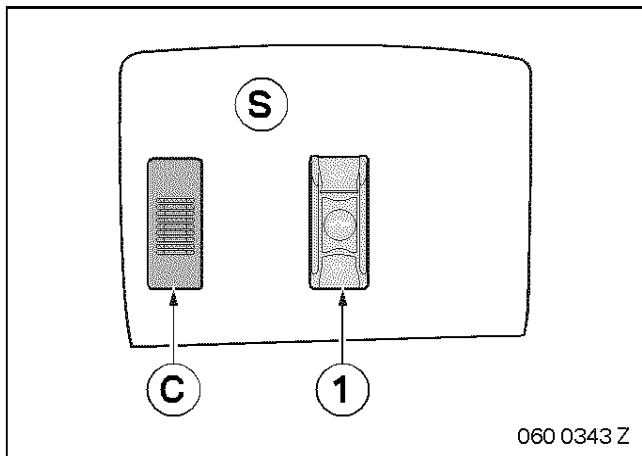
12. To install and connect the hands-free microphone



Cars without SA 620 only

 The arrow on the hands-free microphone **L** must point to the front of the car when installed. ◀

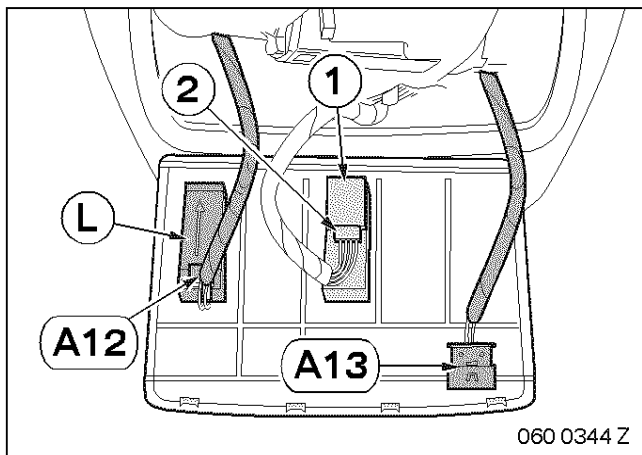
Clip the hands-free microphone **L** into the hands-free microphone trim **C**.



Cars without SA 620 and with SA 403 only

Unclip the sunroof button (1) from the standard trim.

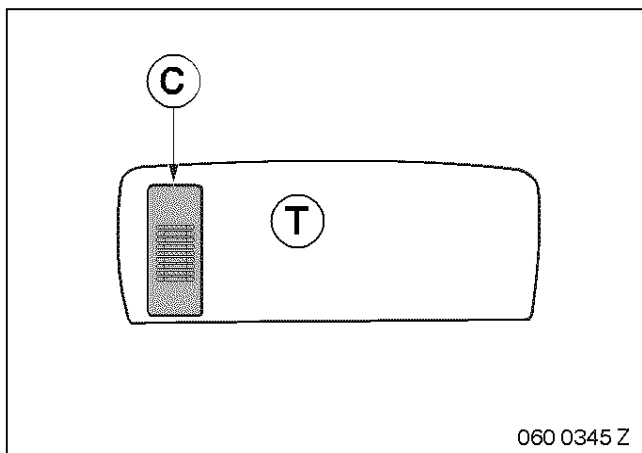
Clip the sunroof button (1) and hands-free microphone trim **C** into the headlining trim **S**.



Connect the plug (2) to the sunroof button (1).

Connect branch **A12** to the hands-free microphone **L**.

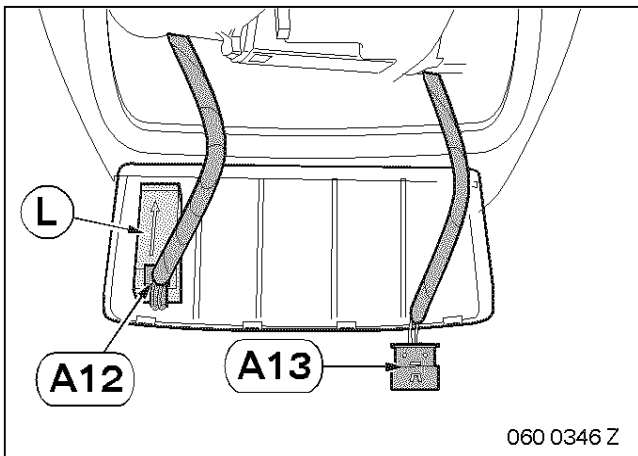
Tie back branch **A13**, it is not required.



Cars without SA 620 and without SA 403 only

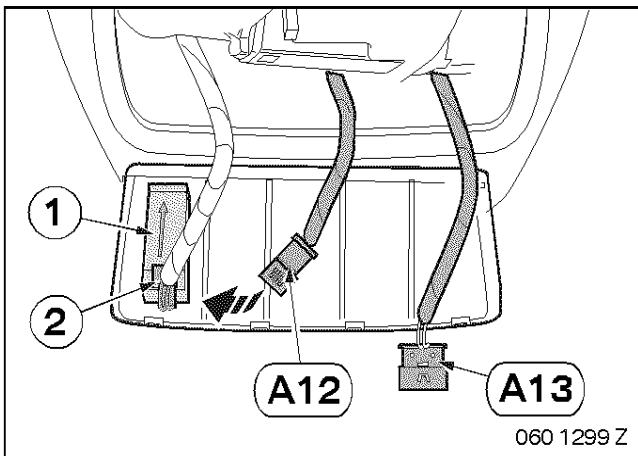
Clip the hands-free microphone trim **C** into the headlining trim **T**.

12. To install and connect the hands-free microphone



Connect branch **A12** to the hands-free microphone **L**.

Tie back branch **A13**, it is not required.



Cars with SA 620 only

Detach standard plug (2) from microphone (1) and tie back.

Connect branch **A12** to the microphone (1).

Tie back branch **A13**, it is not required.


13. 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
- Register the mobile phone (see section 14)
- Conduct a function test
- Re-fit the car components as required

14. Pairing the mobile phone

Setting on the car

 This car is not supplied with a Bluetooth code card. The Bluetooth code required for the registration process, an arbitrary number with up to 16 figures, can be freely selected. ◀

- Switch on the ignition, the main menu will appear in the Control Display
- Open the information menu >i< in the Control Display
- Select menu point **COMMUNICATION SETTINGS**
- In the Bluetooth menu select **SETTINGS**
- Select and activate **BLUETOOTH COMMUNICATION**

 Bluetooth is indicated as activated by a check in a square. ◀

- Select menu point **TELEPHONE.**
- The follow appears: **BLUETOOTH CAN BE CONNECTED IN THIS MENU**

Preparations using the mobile phone

Other work must be completed on the mobile phone and the procedures differ from model to model, see the manual supplied with your mobile phone, for example in the following sections:

- Search for Bluetooth equipment
- Connect Bluetooth equipment
- Activate Bluetooth equipment

Concluding the pairing procedure

- Select **ADD DEVICE** on the Control Display
- Enter a freely selectable Bluetooth code using the number pad on the Control Display and confirm your entry
- Enter the same Bluetooth code in the mobile phone using menu point **BLUETOOTH PASKEY**
- The message **HANDS-FREE ACCEPTED** will appear on the mobile
- The registration process has been completed successfully

Notes


If the registration process was not completed successfully, switch off the ignition and repeat the entire process rapidly.

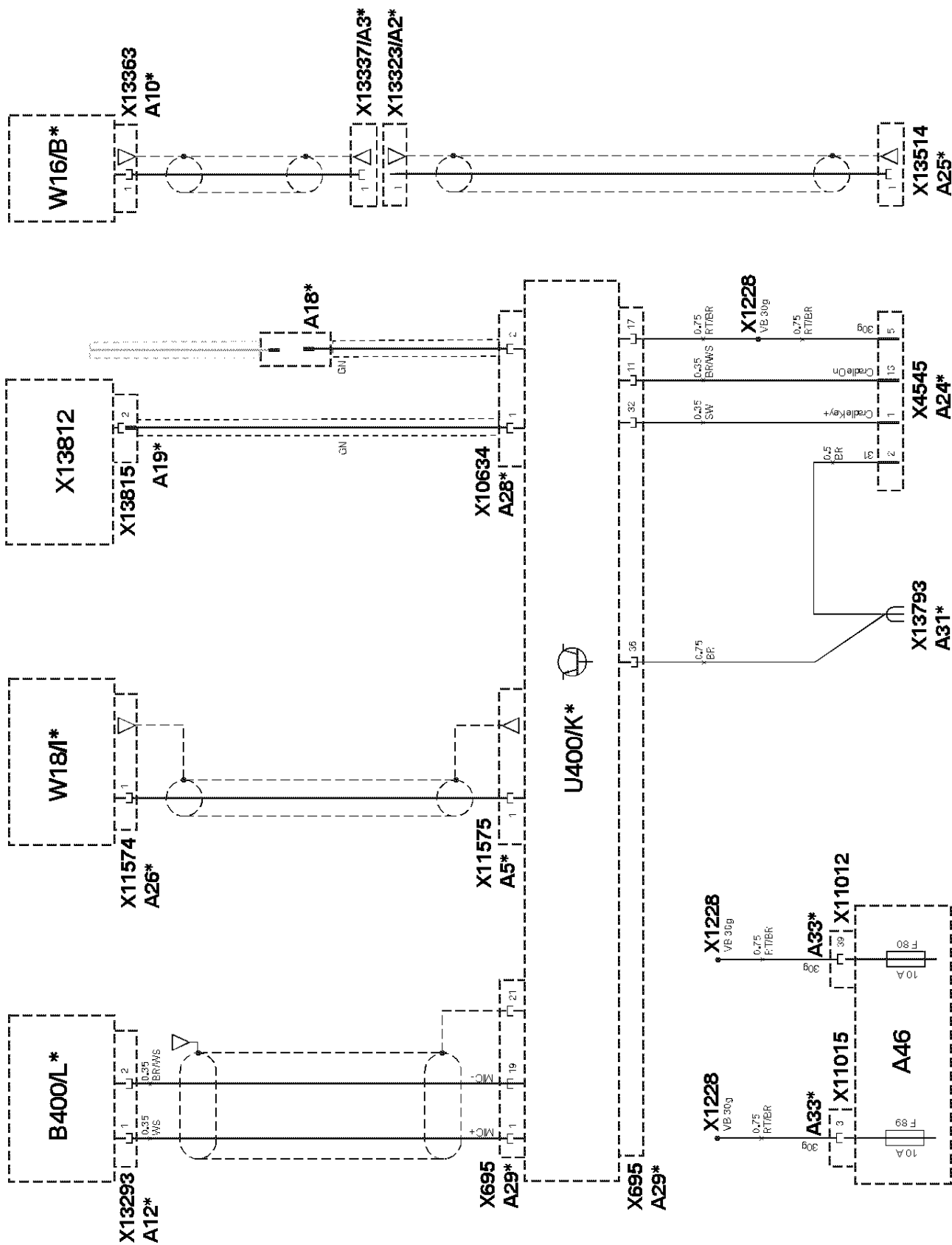
BMW recommends that phones only be used in Original BMW snap-in adapters. This is the only way to ensure a perfect connection via the external aerial. Otherwise poor reception may occur when using the telephone and interference when using the audio system.

Service information

If the Bluetooth control module is replaced as part of service work, the mobile phone must be re-registered.

15. Circuit diagram (cars without ULF control unit already fitted only)

 Branches not shown are not required and must be tied back. ◀



060 1300 Z

15. Circuit diagram (cars without ULF control unit already fitted only)

Legend

A46	Rear fuse holder
B*	Roof aerial W16
I*	Bluetooth aerial W18
K*	ULF control unit U400
L*	Hands-free microphone B400
A2*	SW Fakra plug casing X13322
A3*	SW Fakra socket casing X13337
A5*	WS Fakra socket casing X11575
A10*	BOMI Fakra socket casing X13363
A12*	Socket casing, 3-pin SW X13293
A18*	Fibre optic cable connector
A19*	Fibre optic cable
A24*	SW 18-pin socket casing X4545
A25*	SW Fakra plug casing X13514
A26*	GN Fakra socket casing X11574
A28*	Fibre optic cable casing, SW 2-pin X10634
A29*	Socket casing, WS 54-pin X695
A31*	Ring eyelet M6, terminal 31 pick-up X13793
A33*	Socket contact, terminal 30 pick-up
X1228	Terminal 30 connector
X11012	Socket casing, SW 41-pin (cars built after 09/05 only)
X11015	Socket casing, GN 15-pin (cars built before 09/05 only)
X13812	SW 16-pin socket casing
X13815	Fibre optic cable casing, SW 2-pin

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

16. Circuit diagram (cars with ULF control unit already fitted only)

Legend

A46	Rear fuse holder
B*	Roof aerial W16
I*	Bluetooth aerial W18
K*	ULF control unit U400
L*	Hands-free microphone B400
A2*	SW Fakra plug casing X13322
A3*	SW Fakra socket casing X13337
A5*	WS Fakra socket casing
A10*	BOMI Fakra socket casing X13363
A12*	Socket casing, 3-pin SW X13293
A24*	SW 18-pin socket casing X4545
A25*	SW Fakra plug casing X13514
A26*	GN Fakra socket casing X11574
A29*	54-pin WS socket casing
A31*	Ring eyelet M6, terminal 31 pick-up X13793
A33*	Socket contact, terminal 30 pick-up
V1*	SW 10-pin plug casing
V2*	Socket contact
V3*	Socket contact
V4*	Socket contact
V5*	Socket contact
V6*	Socket contact
W*	SW 10-pin socket casing
X1*	Fakra plug casing, GN
X2*	GN Fakra socket casing X11575
X1228	Terminal 30g connector
X11012	Socket casing, SW 41-pin (cars built after 09/05 only)
X11015	Socket casing, GN 15-pin (cars built before 09/05 only)
X14133	BL 54-pin socket casing

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

17. Cable colours

BL	Blue
BO	Bordeaux (Burgundy)
BR	Brown
GE	Yellow
GN	Green
GR	Grey
RT	Red
SW	Black
TR	Transparent
VI	Violet
WS	White