



Parts and Accessories. Installation Instructions.

Rear-View Camera Retrofit BMW 7 Series (E65 and E66)

These installation instructions are only valid for cars with SA 609 (navigation system).

Retrofit kit No.: 84 21 0 302 940

Installation time

The installation time is approx 3.0 - 3.5 hours, but this may vary depending on the condition of the car and the equipment in it.

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.

Ensure that the cables/lines are not kinked or damaged as you install them in the car. The costs incurred as a result of this 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.

Before you install the retrofit system, test the control module status with the CIP (coding, customising, programming) test program. If the test detects incorrect statuses in one or more control modules, these must be updated first using the "Load software" function.

All the figures show LHD cars, proceed accordingly on RHD cars.

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 caution text.

See the EBA CD or Aftersales Portal for explanations of the pictograms.

Do not archive the hard copy of these installation instructions since daily updates are made by Aftersales Portal.

Subject to technical modifications.

List of special equipment

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

SA 609 Navigation system

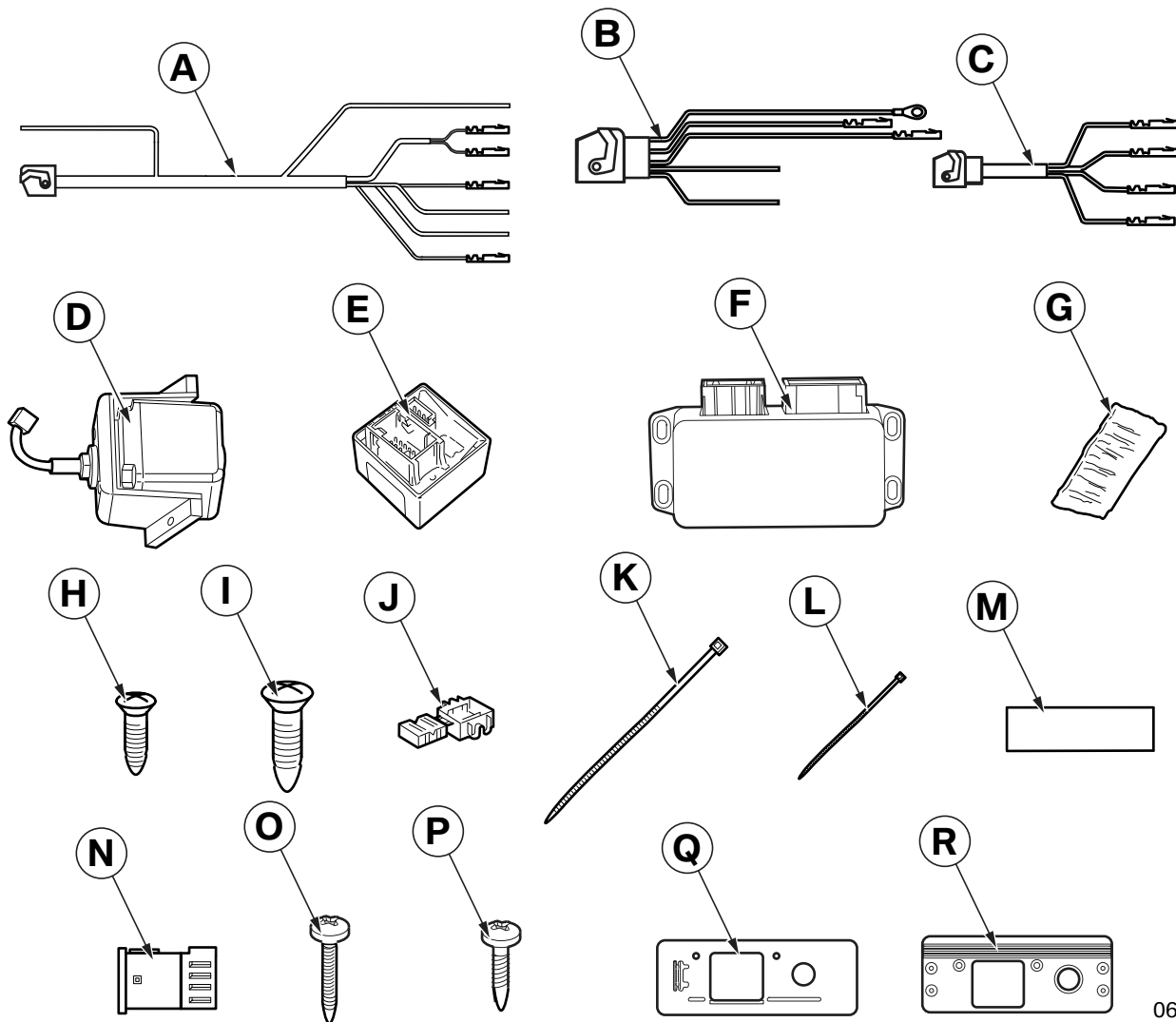
Special tools required

None

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1. Parts list



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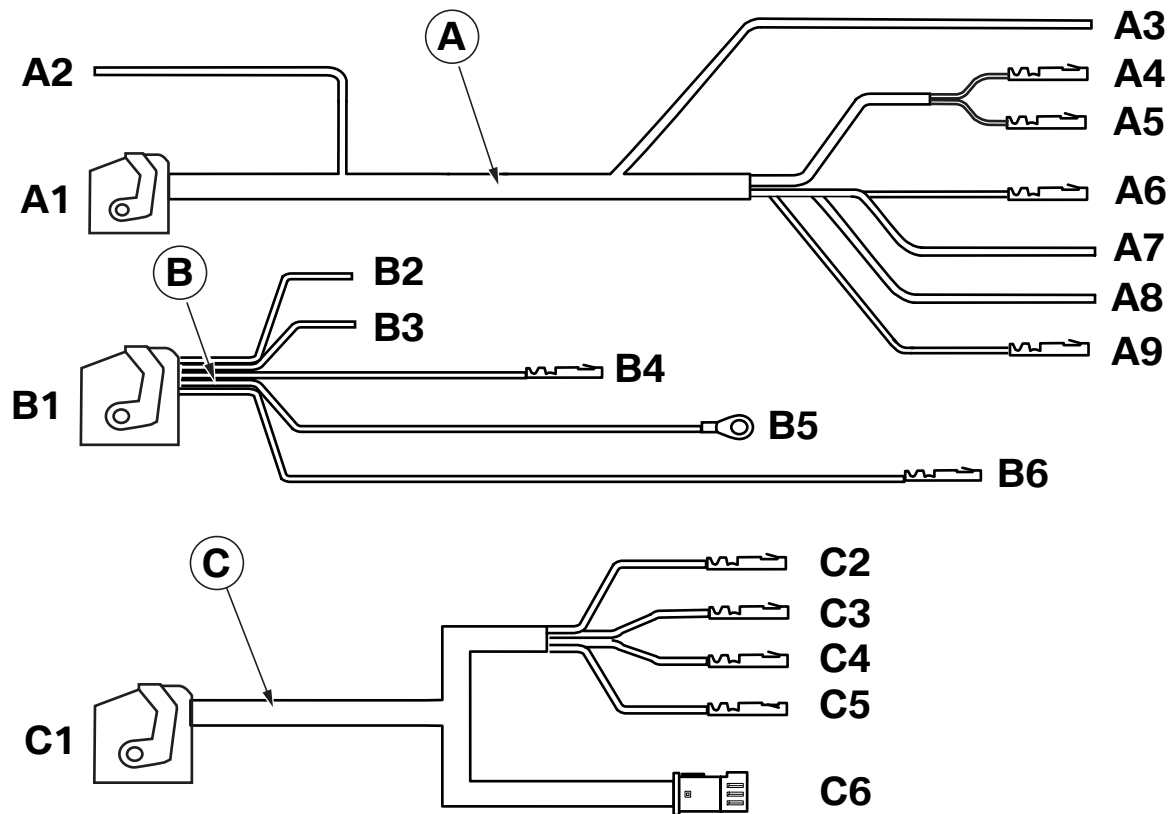
Legend

- | | | | |
|---|---|---|---|
| A | Camera cable | J | Miniature connector (5x) |
| B | Power supply cable | K | Cable tie 292 x 4.8 mm |
| C | Adapter cable | L | Cable tie 200 x 3.6 mm (20x) |
| D | Rear-view camera | M | Sealing strip (2x) |
| E | Control unit | N | Blue 4-pin socket casing |
| F | Switchbox | O | Philips screw 3.5 x 16 mm (6x) (not required) |
| G | Protective strip | P | Philips screw 3.5 x 8 mm (4x) (not required) |
| H | Fillister head self-tapping screw 3.5 x 9.5 mm (2x) | Q | Mounting plate (not required) |
| I | Fillister head self-tapping screw 4.2 x 13 mm (4x) | R | Mounting plate (not required) |

2. Preparations

	TIS No.
Conduct a brief test	---
Disconnect the negative pole of the battery	12 00 ...
The following components must be removed first of all	
Trim for boot lid at bottom	51 49 005
Trim for boot lid at top	51 49 006
Centre rear lamp	63 21 186
Boot floor trim	51 47 101
Left boot – wheel arch trim	51 47 151
Right boot – wheel arch trim	51 47 161
Control unit cover right (splash guard)	---
Rear closing panel trim	---
Navigation computer	65 90 510

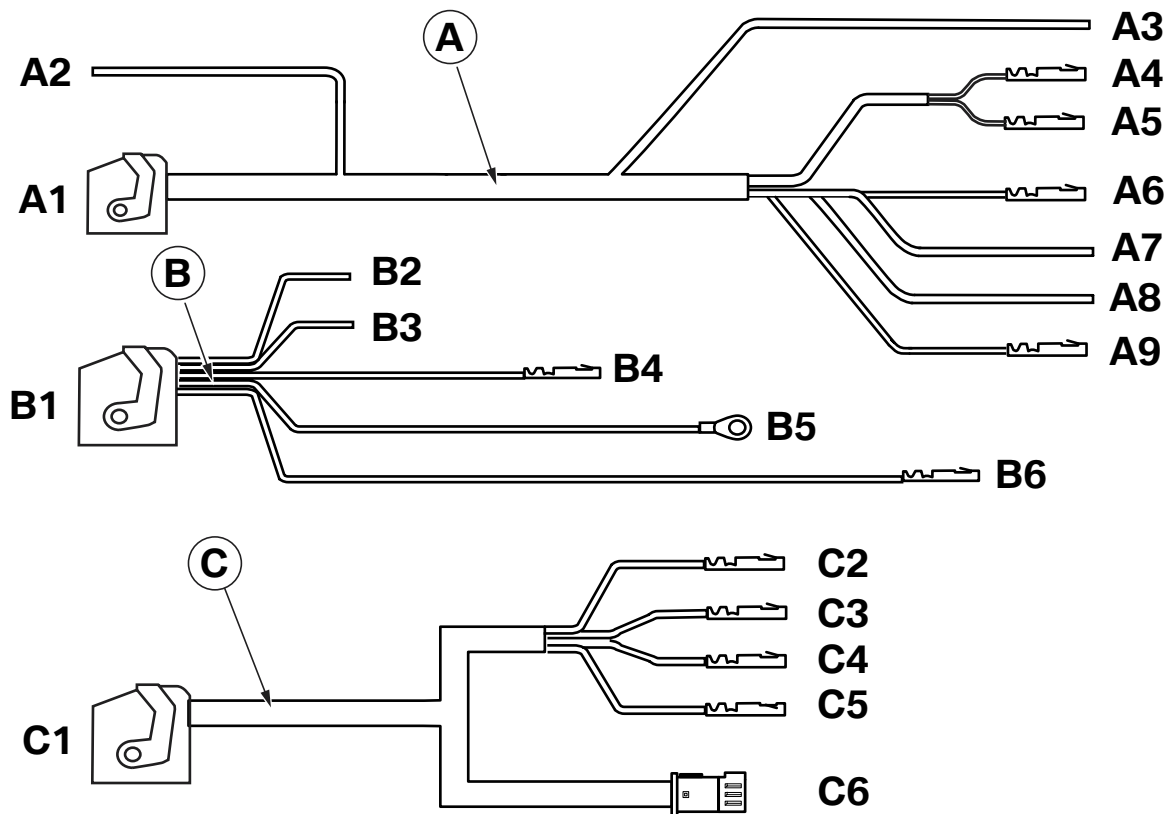
3. Connection diagram



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Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A	Camera cable	---	---	---	---
A1	Black 12-pin socket casing	---	---	To control unit E	---
A2	Cable open	RFS	GN 0.75 mm ²	To left registration plate light or reversing light, with miniature connector on white/yellow cable	X709 PIN 1
A3	Cable open	RFS	GN 0.75 mm ²	Insulate and tie back	---
A4	Socket contact	Video +	Transparent 0.14 mm ²	To branch B1	PIN 24
A5	Socket contact	Video -	SW/BR 0.35 mm ²	To branch B1	PIN 11
A6	Socket contact	RSF inv	SW 0.25 mm ²	To branch B1	PIN 23
A7	Cable open	Terminal 30	RT 0.75 mm ²	To branch B2 , with miniature connector on red cable	PIN 25
A8	Cable open	Terminal 31	BR 0.75 mm ²	To branch B3 , with miniature connector on brown cable	PIN 12
A9	Socket contact	TA	WS 0.25 mm ²	Insulate and tie back	---

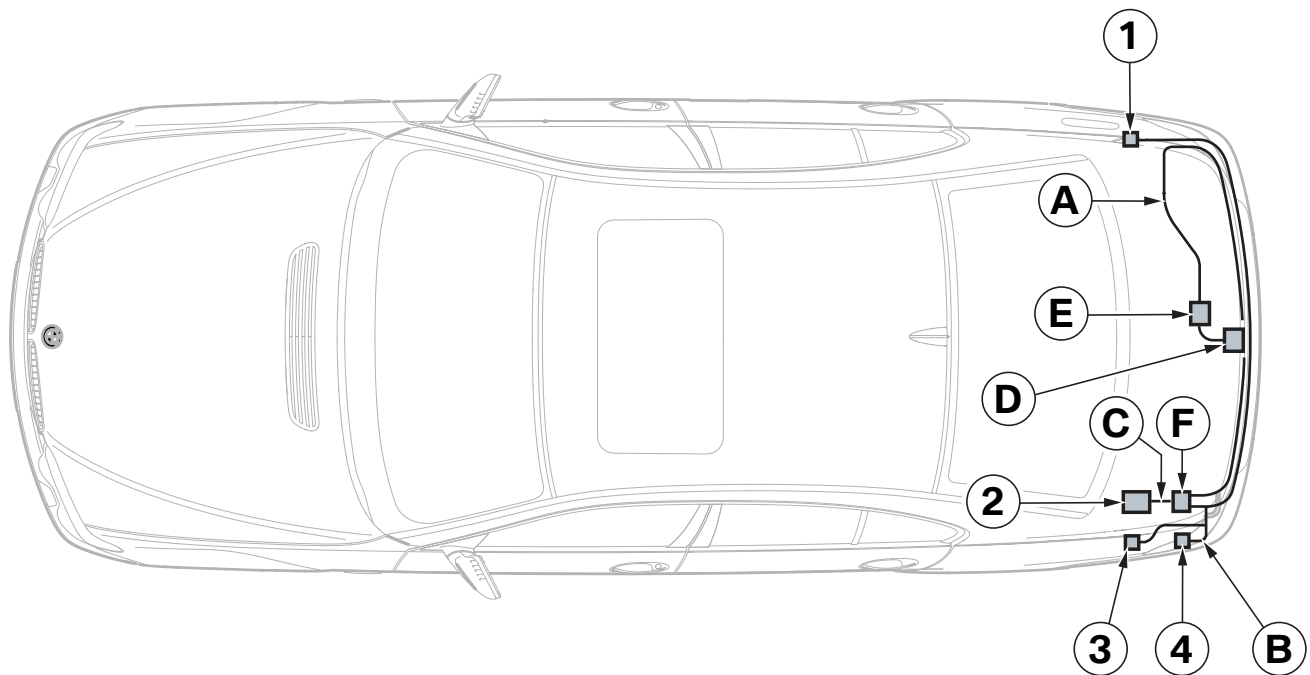
3. Connection diagram



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Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
B	Power supply cable	---	---	---	---
B1	Blue 26-pin socket casing	---	---	To switchbox F	---
B2	Cable open	Terminal 30	RT 0.75 mm ²	To branch A7 , with miniature connector on red cable	---
B3	Cable open	Terminal 31	BR 0.75 mm ²	To branch A8 , with miniature connector on brown cable	---
B4	Socket contact	Terminal 30	RT 0.75 mm ²	Terminal 30 joint connector, behind module holder	X1889
B5	Eyelet M6	Terminal 31	BR 0.75 mm ²	Terminal 31 joint connector, below left tail light	X13094
B6	Socket contact	Terminal R	VI/WS 0.50 mm ²	To power module A71	X1856 PIN 18
C	Adapter cable	---	---	---	---
C1	18-pin natural socket casing	---	---	To switchbox F	---
C2	Socket contact	NAVR	WS/RT 0.35 mm ²	To navigation unit plug A112	X1312 PIN 3
C3	Socket contact	NAVG	WS/GN 0.35 mm ²	To navigation unit plug A112	X1312 PIN 4
C4	Socket contact	NAVB	VI 0.35 mm ²	To navigation unit plug A112	X1312 PIN 5
C5	Socket contact	NAV_31	Shield	To navigation unit plug A112	X1312 PIN 13
C6	Blue 4-pin plug casing	---	---	To disconnected cables in car, with socket casing N	---

4. Installation and cabling diagram



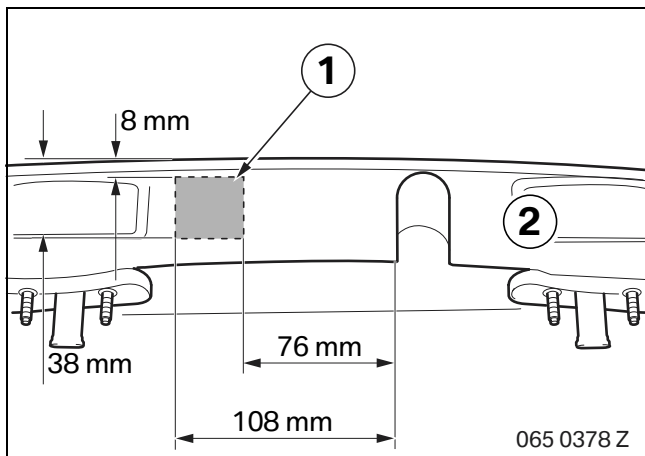
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Legend

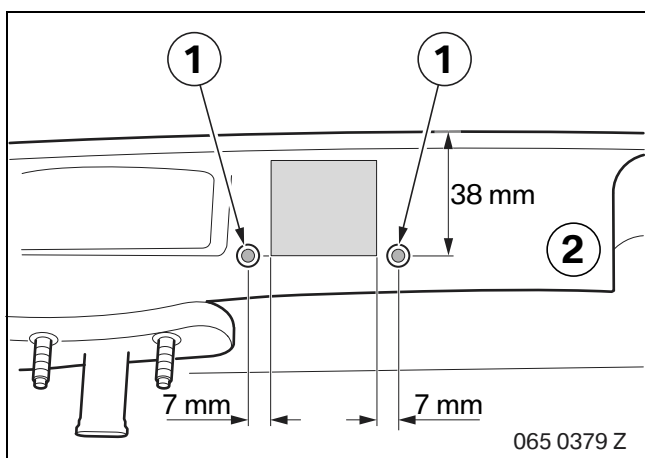
- A Camera cable
- B Power supply cable
- C Adapter cable
- D Rear-view camera
- E Control unit
- F Switchbox

- 1 Power module **A71**, plug **X1856**
- 2 Navigation computer **A112**
- 3 Terminal 30 joint connector **X1889**
- 4 Terminal 31 joint connector **X13094**

5. To install the rear-view camera

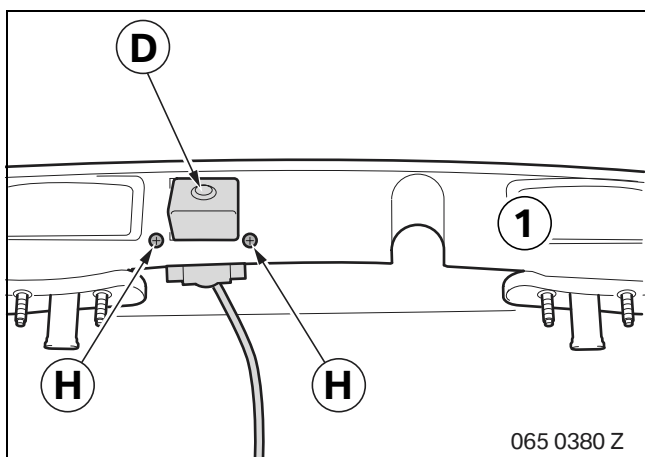


Mark the dimensions on the rear lamp (2) and cut out in the marked area (1) with a saw.

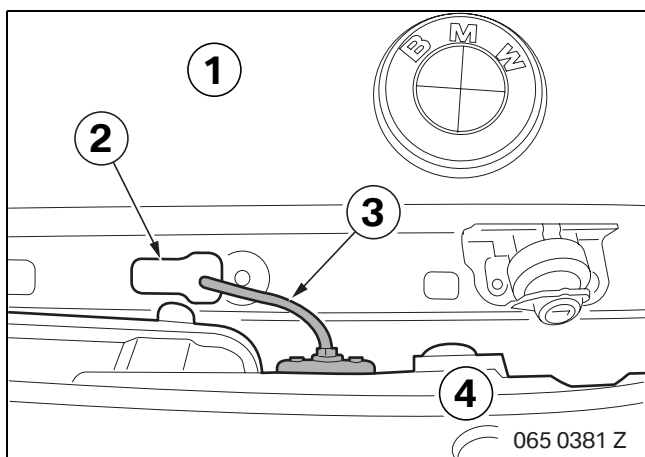


Mark the dimensions on the rear lamp (2) and drill out the drilling positions (1) with a 3.5 mm twist drill bit.

Countersink the drilling positions (1).



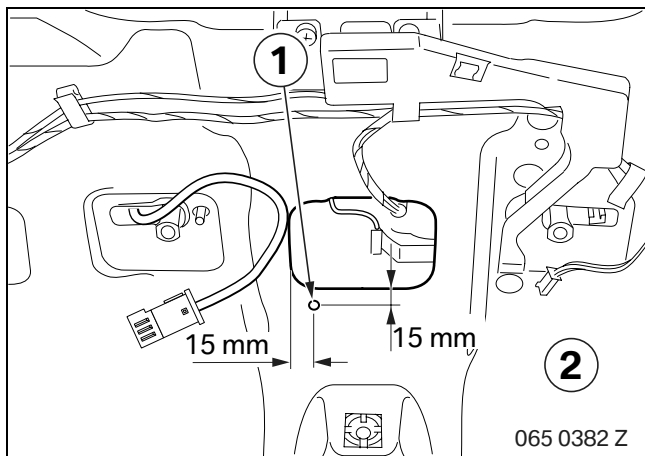
Use fillister head self-tapping screws **H** to screw rear-view camera **H** firmly onto the rear lamp (1).



Route the cable (3) of the rear-view camera through the opening (2) in the boot lid (1).

Fit the rear lamp (4).

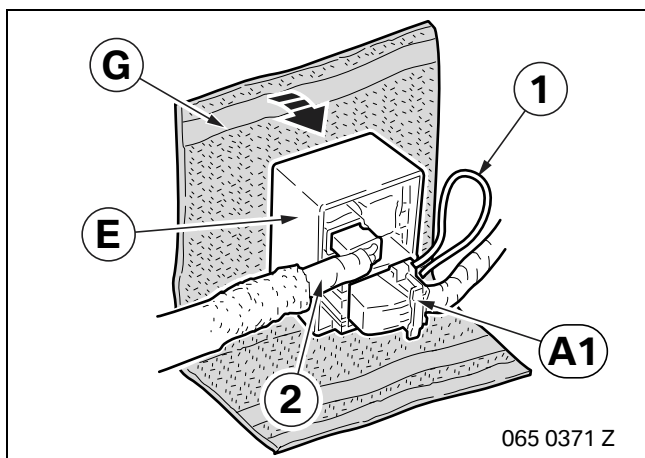
6. To install and connect the control unit



Do not damage the external panel of the boot lid. ◀

Mark the dimensions on the boot lid (2) and drill out the drilling position (1) with a 6 mm twist drill bit.

Deburr the hole and coat the bare surfaces with preservative.

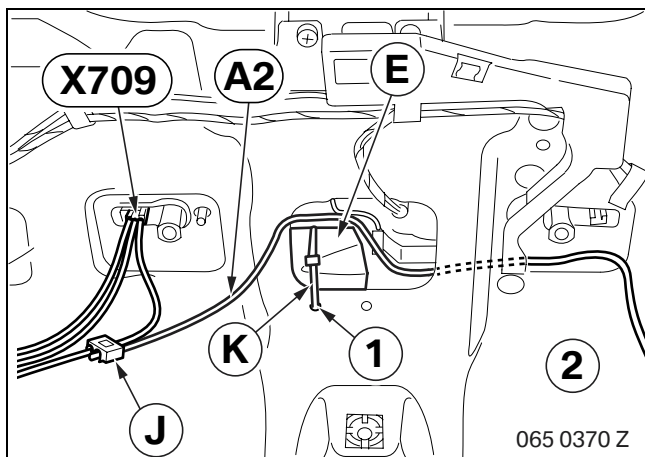


Do not cut through the cable loop (1). ◀

Connect the connection plug (2) of the rear-view camera and branch **A1** onto control unit **E**.

Affix protective strip **G** to control unit **E**.

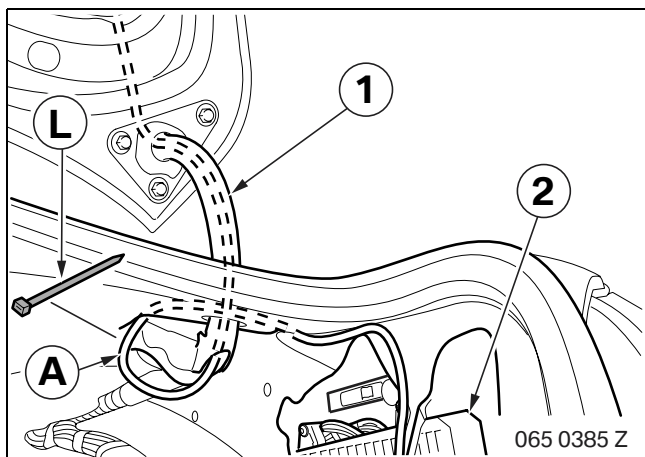
Cut off any excess lengths.



Use a cable tie **K** to secure control unit **E** to the hole (1) in the boot lid (2).

Route branch **A2** to plug **X709** of the registration plate light.

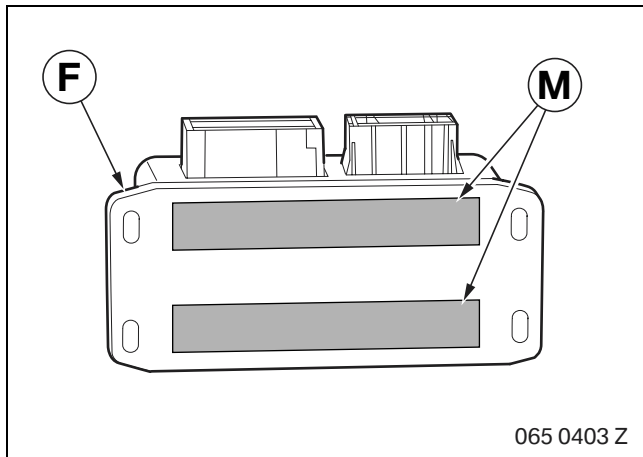
Use miniature connector **J** to connect branch **A2** to the white/yellow cable of plug **X709** (PIN 1).



! Danger of kinking and chafing. Camera cable **A** must be attached to the existing wiring harness using cable ties **L**. ◀

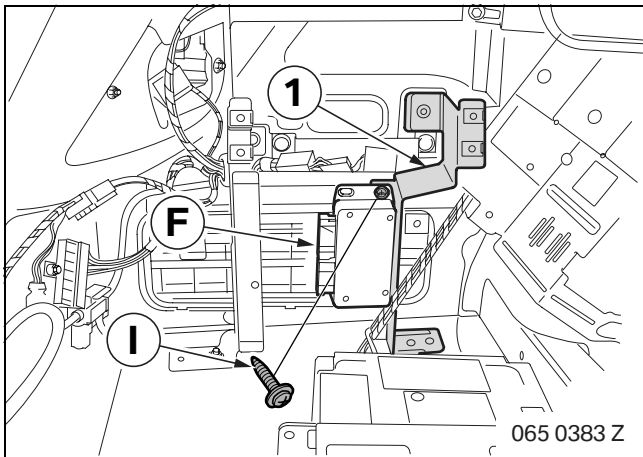
Route camera cable **A** through the hinge pillar (1) into the boot to the fuse holder (2).

7. To install the switchbox



Affix sealing strip **M** to the rear of switchbox **F**.

▷ Depending on the equipment in the car, there are two possible ways of installing switchbox **F**. ◀

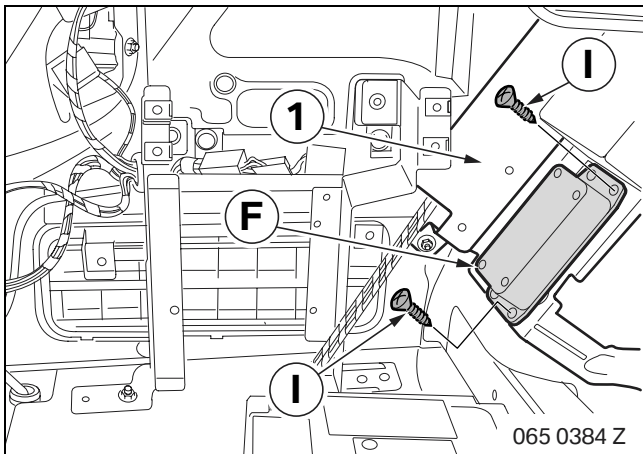


First possibility

Place switchbox **F** against the front base support system (1) and transfer two holes.

Drill through the front base support system (1) with a 3.5 mm twist drill bit.

Screw switchbox **F** on firmly using fillister head self-tapping screws **I**.



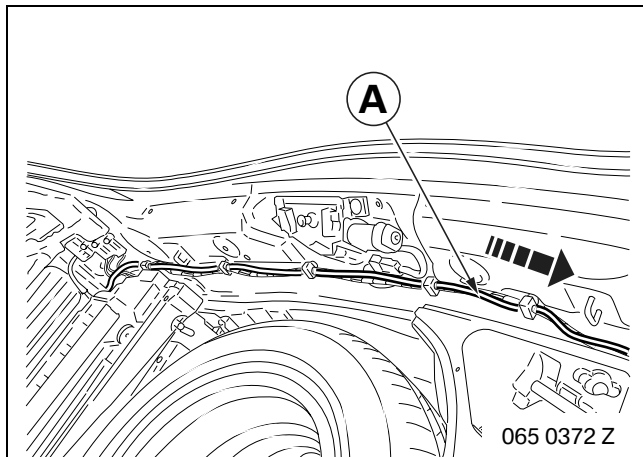
Second possibility

Place switchbox **F** against the holder (1) and transfer three holes.

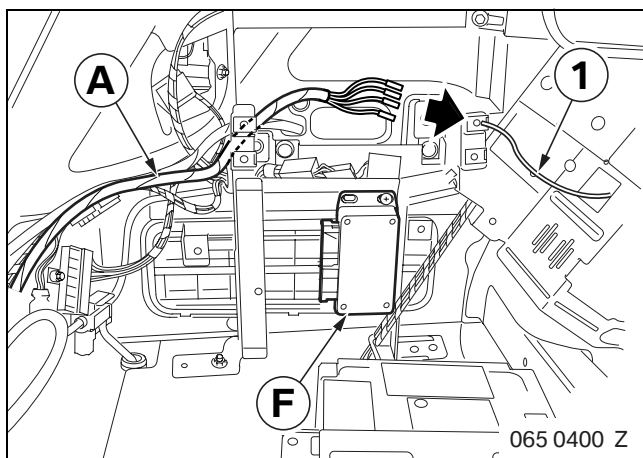
Drill through the holder (1) with a 3.5 mm twist drill bit.

Screw switchbox **F** on firmly using fillister head self-tapping screws **I**.

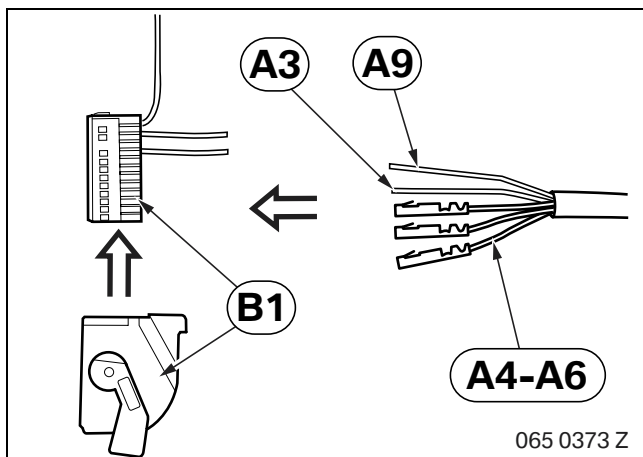
8. To install and connect the camera cable



Route camera cable **A** to the right side of the boot.



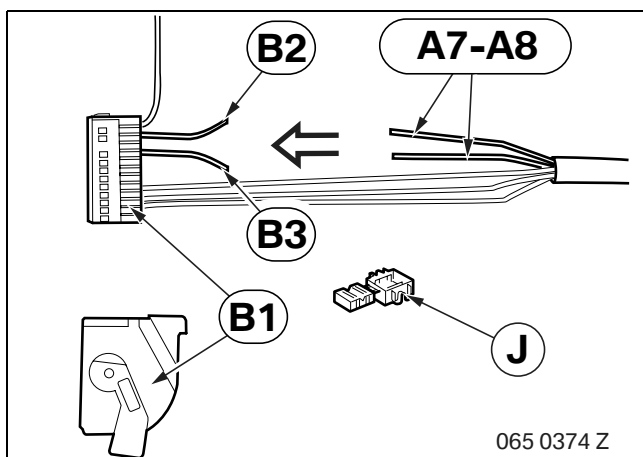
Route camera cable **A** to switchbox **F**.
Remove the draw-in tool (1).



Insulate branch **A3**, green cable, and branch **A9**, white cable, and tie them back.

Connect branches **A4 - A6** to branch **B1**, blue plug, as follows:

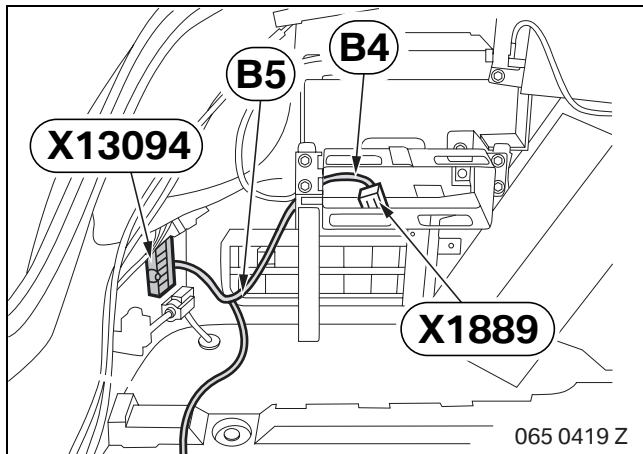
- Branch **A4**, transparent cable, in PIN 24
- Branch **A5**, black/brown cable, in PIN 11
- Branch **A6**, black cable, in PIN 23



Connect branches **A7** and **A8** to branch **B1**, blue plug, as follows:

- Branch **A7**, red cable, with miniature connector **J** to branch **B2**, red cable (PIN 25)
- Branch **A8**, brown cable, with miniature connector **J** to branch **B3**, brown cable (PIN 12)

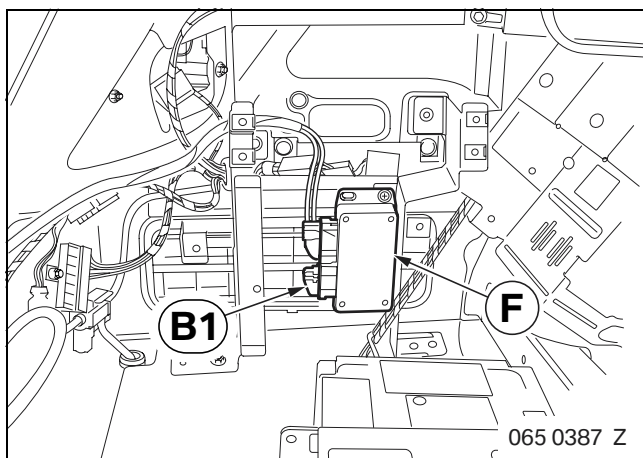
9. To install and connect the power supply cable



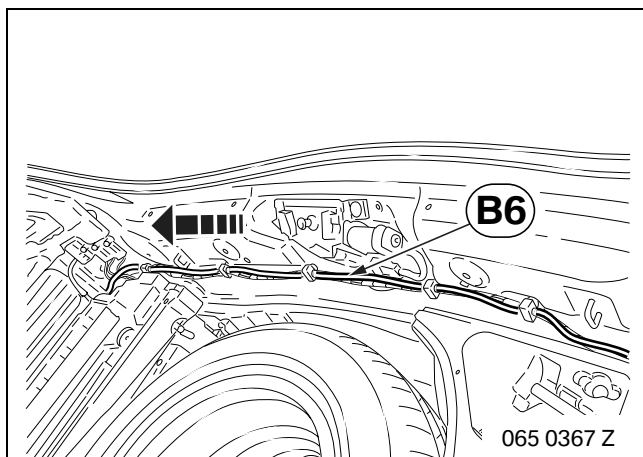
Unfasten tied-back joint connector terminal 30 **X1889** (red/white cable).

Connect branch **B4**, red cable, to joint connector terminal 30 **X1889**.

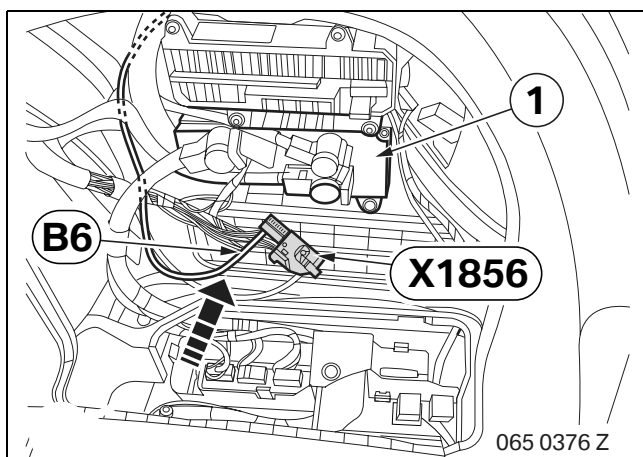
Screw branch **B5**, brown cable, onto joint connector terminal 31 **X13094**.



Connect branch **B1**, blue plug, to switchbox **F**.




Route branch **B6**, violet/white cable, to the boot on the right.

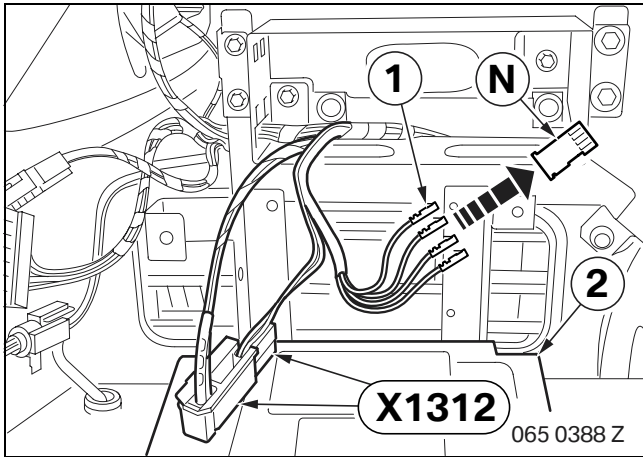


Route branch **B6**, violet/white cable, to the power module (1).

Connect branch **B6**, violet/white cable, to PIN 18 of plug **X1856**.

 If pin chamber 18 is occupied, use miniature connector **J** to connect branch **B6** to the violet/white cable of PIN 18. ◀

10. To install and connect the adapter cable

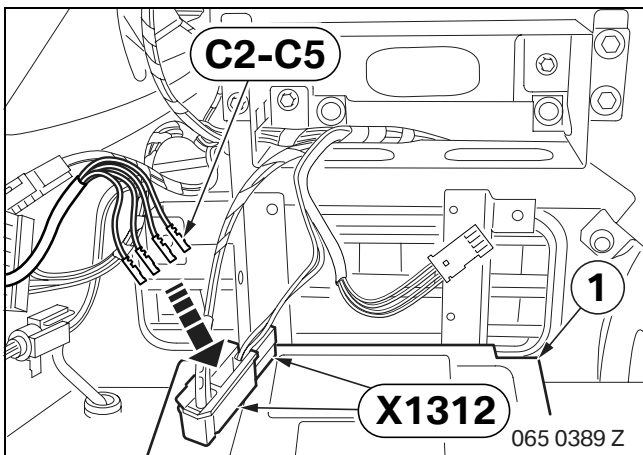


Disconnect the following cables (1) from plug **X1312** of the navigation computer (2):

- Red cable from PIN 3
- Green cable from PIN 4
- Blue cable from PIN 5
- Shield from PIN 13

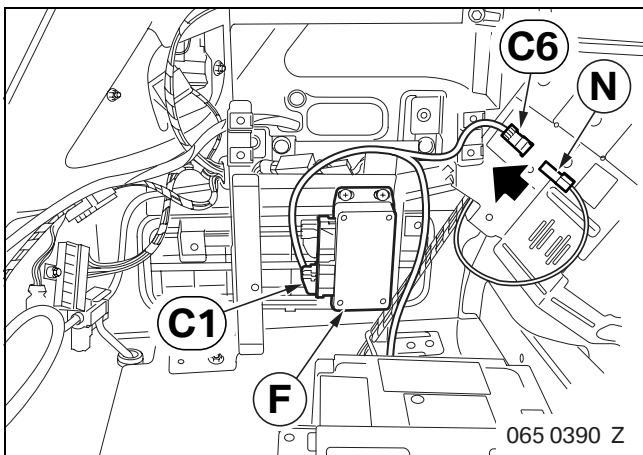
Connect the disconnected cables into socket casing **N** as follows:

- Red cable in PIN 3
- Green cable in PIN 1
- Blue cable in PIN 2
- Shield in PIN 4



Connect branches **C2 – C5** as follows to plug **X1312** of the navigation computer (1):

- Branch **C2**, white/red cable, in PIN 3
- Branch **C3**, white/green cable, in PIN 4
- Branch **C4**, violet cable, in PIN 5
- Branch **C5**, shield, in PIN 13



Connect socket casing **N** to branch **C6**, blue plug.

Connect branch **C1**, natural colour plug, to switchbox **F**.

11. Concluding work and coding

This retrofit system does not require coding.

- Connect the battery
- Conduct a brief test

Check the function of the rear-view camera as follows:

- Switch on the ignition
- Deactivate the help texts in the Settings menu
- Select the Navigation menu
- Select full-screen display in the Navigation menu
- Engage reverse; an image must appear on the on-board monitor
- Disengage reverse gear

The on-board monitor must switch over after about 5 seconds.

- Re-assemble the car

12. Circuit diagram

Legend

A1*	Rear-view camera
A2*	Control unit
A3*	Switchbox
A112	Navigation computer
A71	Power module
X1*	Black 4-pin socket casing
X2*	Black 12-pin socket casing
X3*	Blue 4-pin socket casing
X4*	Miniature connector
X5*	Miniature connector
X6*	Socket contact
X7*	Cable open
X8*	Blue 26-pin socket casing
X9*	18-pin natural socket casing
X709	Blue 3-pin plug
X1312	Black 20-pin plug
X1856	Black 18-pin plug
X1889	Terminal 30 joint connector
X13094	Terminal 31 joint connector

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
GR	Grey
RT	Red
SW	Black
VI	Violet
WS	White