

Original BMW Accessories. Installation Instructions.



Rear view camera retrofit BMW X5 (E70)

These installation instructions are only valid for cars with:

- **SA 508 (PDC) with SA 601 (TV function)**
- **SA 508 (PDC) with SA 609 (Navigation) without SA 696 (MMC).**

Retrofit kit no.: 66 21 0 417 969 Rear-view camera retrofit kit

Installation time

The installation time is **approx. 4.0 hours**. This may vary depending on the condition of the car and the equipment in it.

Before starting the modification work, always flash the vehicle up to the latest I-level. Depending on the production age of the car and the work already carried out on it, the programming times will vary which means that we cannot quote a specific time for this. The installation time does not take the time taken for programming/encoding into account. This time depends on the age 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.

If any installation or function problems occur, limit the troubleshooting session to approx. 0.5 hours for mechanical work or 1.0 hour for electrical work.

To avoid unnecessary extra work and/or costs, send a request immediately to Technical Support via the Aftersales Assistance Portal (ASAP).


At the same time, provide the following information:


- vehicle identification number,
- part number of the retrofit kit,
- precise description of the problem,
- operations already performed.

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

All pictures 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 other text.

Installation Information

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.

List of optional equipment

The following optional equipment must be taken into account during installation of the retrofit kit:

SA 601 **TV function**

SA 609 **Navigation**

Special tools required

00 9 317 Trim panel wedge

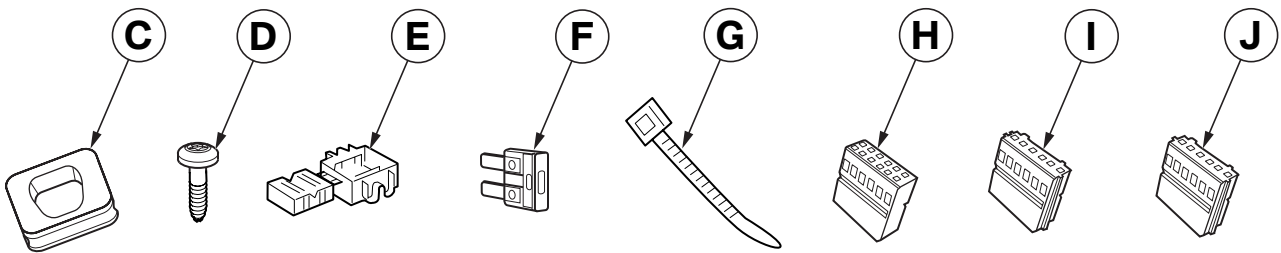
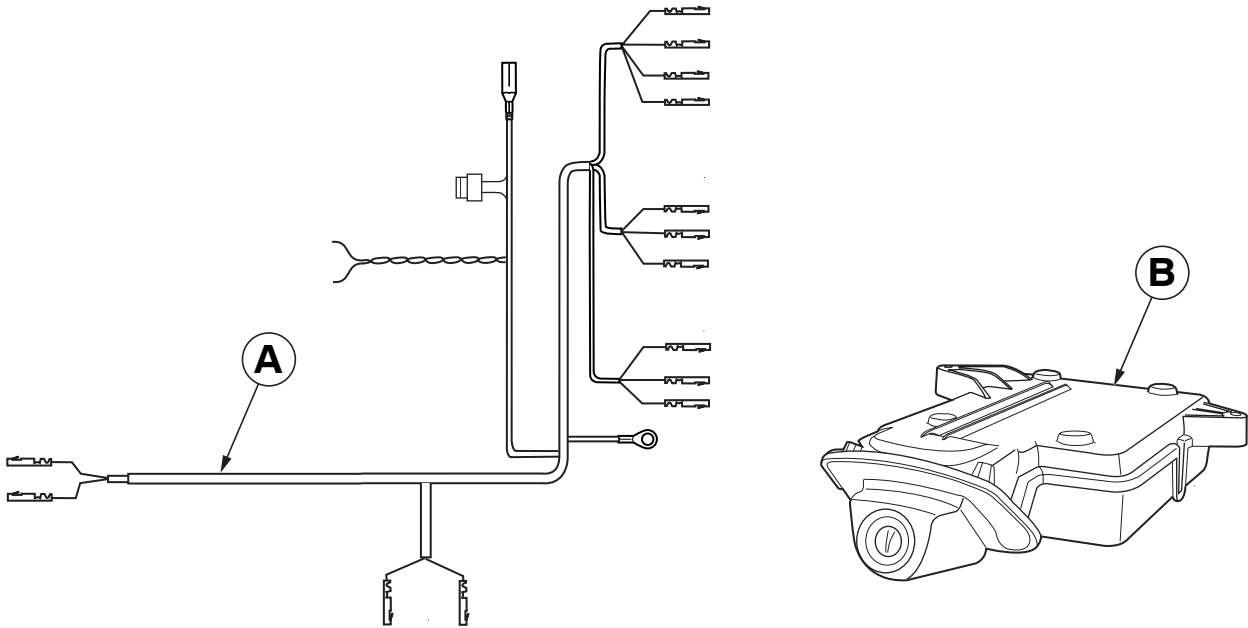
Information for the customer

The “Customer information” chapter at the end of the Installation Instructions must be printed out and handed over to the customer.

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1. Parts overview



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Legend

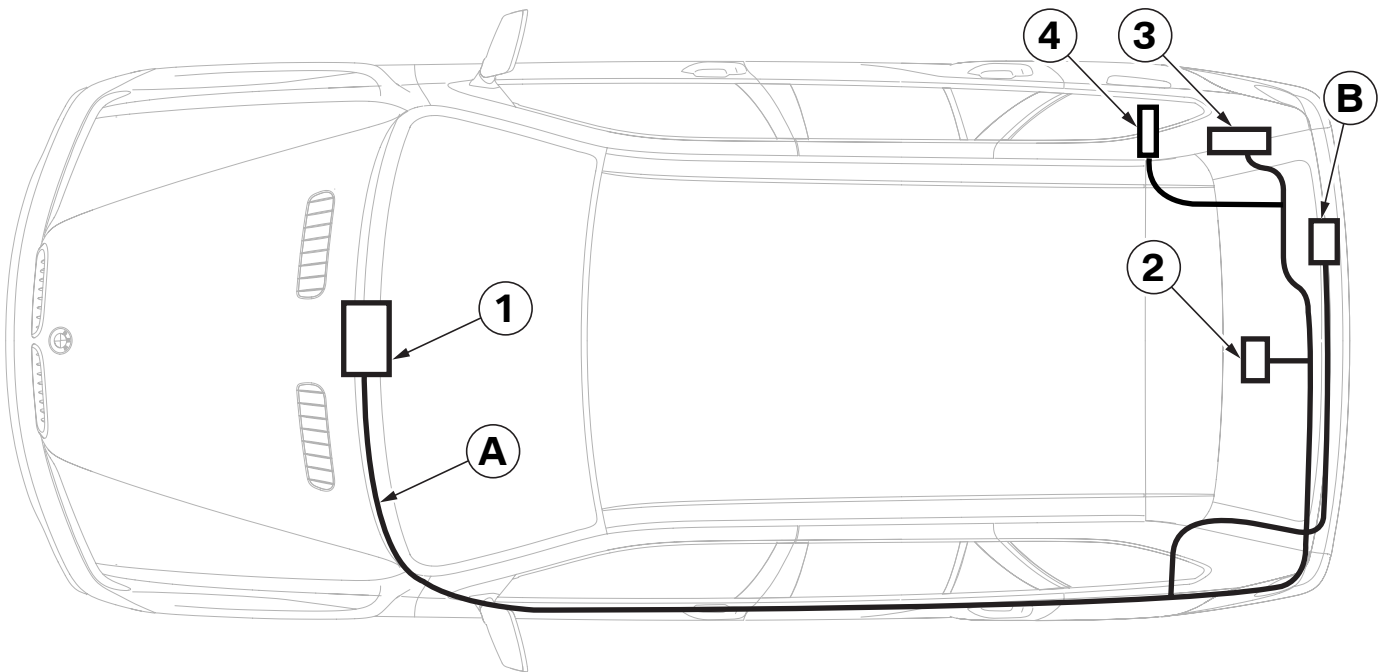
- A** Cable kit, rear-view camera (1x)
- B** Rear-view camera (1x)
- C** Rubber grommet (1x)
- D** Bolt (2x)
- E** Miniature connectors (3x)

- F** Miniature fuse 10A (1x)
- G** Cable tie (20x)
- H** Bushing housing, 12-pole (1x)
- I** Bushing housing, WS, 6-pole (1x)
- J** Bushing housing, SW, 6-pole (1x)

2. Preparatory work

	TIS No.
Perform quick test	—
Disconnect negative terminal of battery	12 00 ...
Dismantle the following components in advance	
Rear seat	52 24 005
Entrance strip, front left	51 47 000
Entrance strip, rear left	51 47 030
B-column trim, left	51 43 150
Luggage compartment floor covering	51 47 101
Rear seat back left, in vehicles with split rear seats	52 24 015
Luggage compartment wheel housing, left	51 47 151
Trunk wheel housing trim, right	51 47 161
Panel trim, footwell on A-column, left	51 43 070
Panel, pedal	51 45 185
Tailgate panel, top	51 49 060
D-pillar panel, left	51 43 252
Video module only in SA 601	65 50 011
Tail panel cover	51 46 050
Navigation computer/CCC	65 90 511

3. Assembly and layout diagram for cars with SA 609 without SA 696



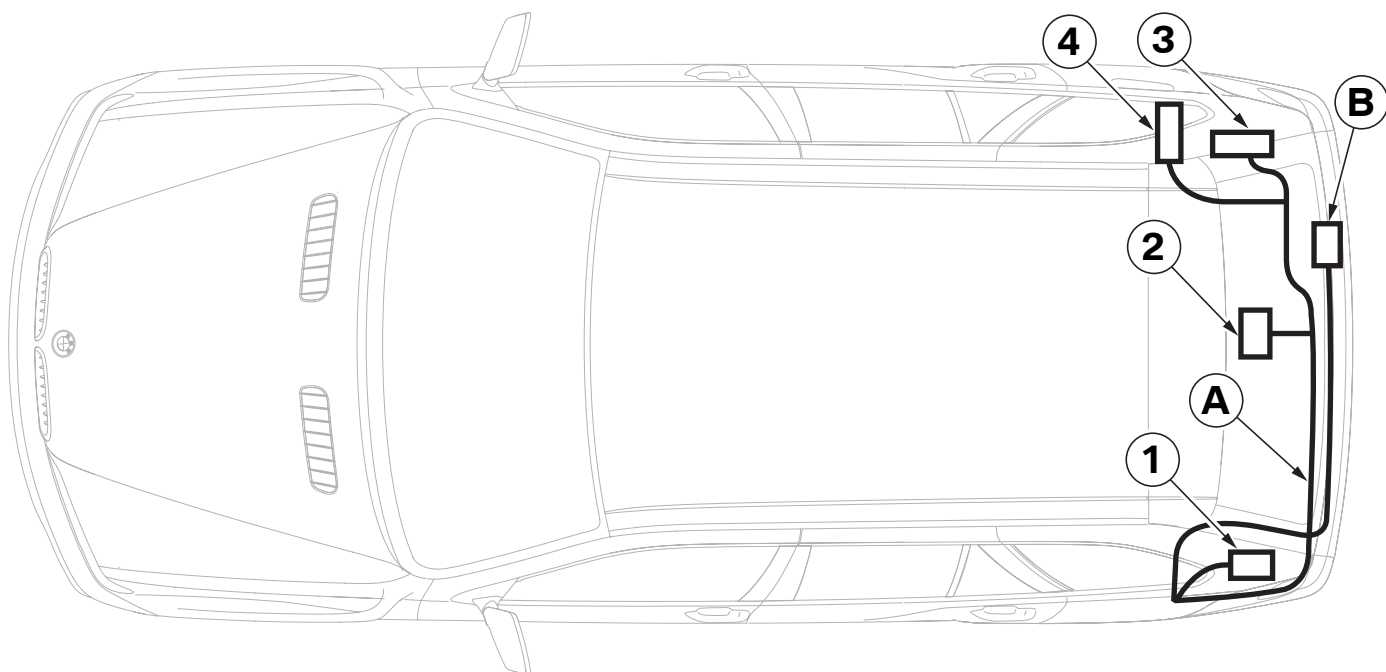
070 0071 E

Legend

A Cable kit, rear-view camera
B Rear-view camera

1 Navigation computer/CCC
2 Ground loom connector **X151**
3 Fuse carrier **X11012**
4 K-CAN **X300**

4. Assembly and layout diagram for cars with SA 601 (TV function)



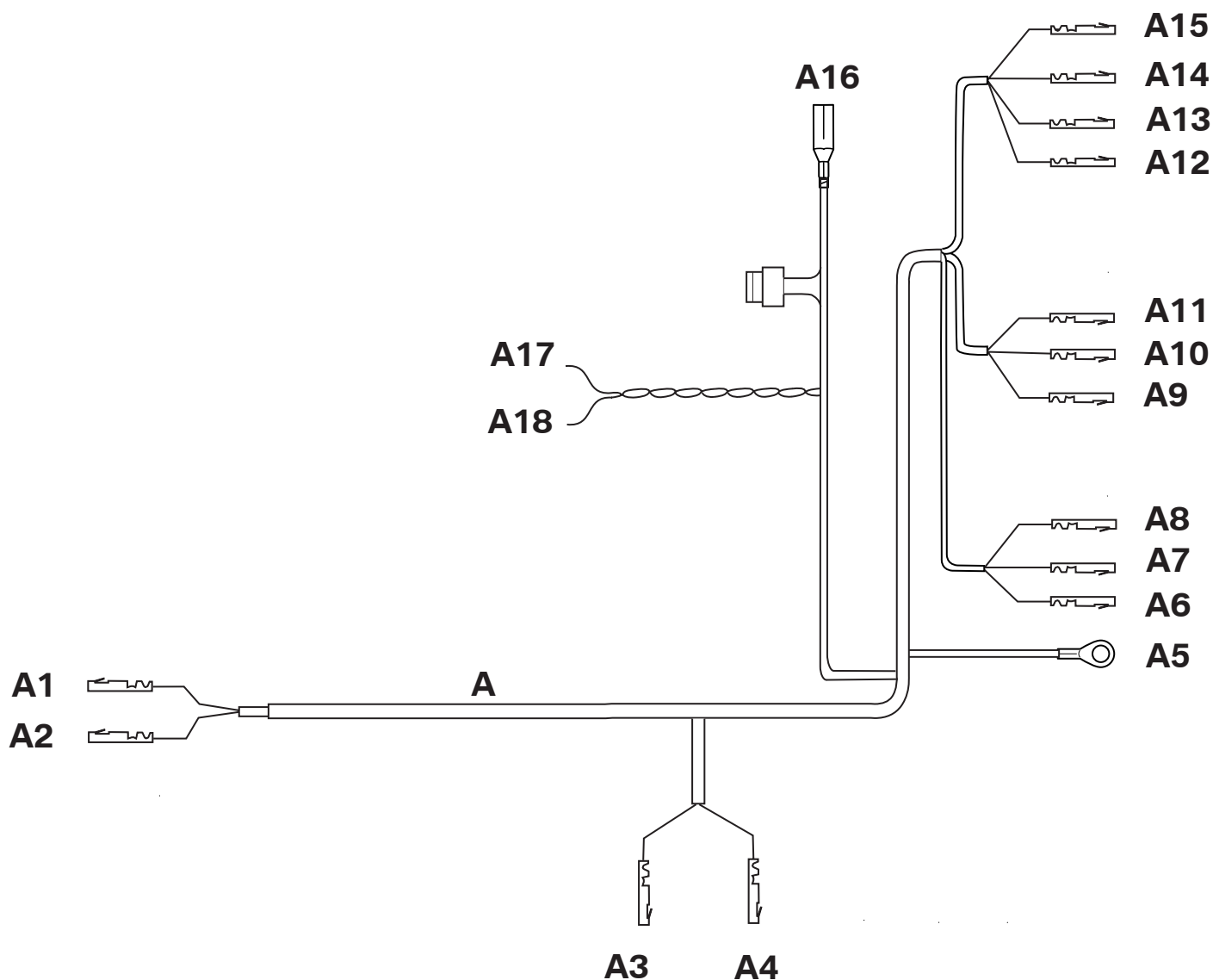
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Legend

A Cable kit, rear-view camera
B Rear-view camera

1 Video module **X18804**
2 Ground loom connector **X151**
3 Fuse carrier **X11012**
4 K-CAN **X300**

5. Overview of connections



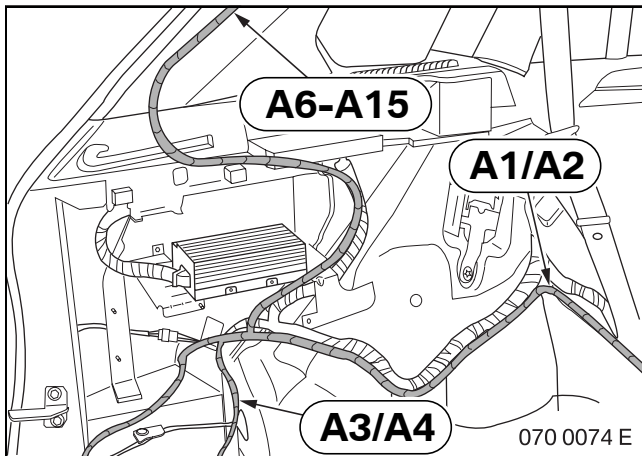
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Item	Description	Signal	Wire colour/ cross section	Connection location in vehicle	Designation/ plug-in location
A	Cable kit, rear-view camera	---	---	---	---
A1	Female contact	FBAS, rear-view camera	SW 0.35 mm ²	Without SA 601 , on navigation computer N38, bushing housing H , WS, 12-pole	X13814 PIN 4
A2	Female contact	FBAS GND, rear-view camera	GE 0.35 mm ²	Without SA 601 , on navigation computer N38, bushing housing H , WS, 12-pole	X13814 PIN 2
A3	Female contact	FBAS, rear-view camera	GE/SW 0.35 mm ²	With SA 601 , on video module	X18804 PIN 1
A4	Female contact	FBAS GND, rear-view camera	GN 0.35 mm ²	With SA 601 , on video module	X18804 PIN 10
A5	Eye ring	Terminal 31	BR 0.5 mm ²	On ground loom connector	X151

5. Overview of connections

Item	Description	Signal	Wire colour/cross section	Connection location in vehicle	Designation/ plug-in location
A6	Female contact	FBAS, rear-view camera	GE/SW 0.35 mm ²	With SA 601 , to rear-view camera	J PIN 2
A7	Female contact	FBAS GND, rear-view camera	GN 0.35 mm ²	With SA 601 , to rear-view camera	J PIN 6
A8	Female contact	Screen	TR 0.35 mm ²	With SA 601 , to rear-view camera	J PIN 4
A9	Female contact	FBAS, rear-view camera	SW 0.35 mm ²	Without SA 601 , to rear-view camera	J PIN 2
A10	Female contact	FBAS GND, rear-view camera	GE 0.35 mm ²	Without SA 601 , to rear-view camera	J PIN 6
A11	Female contact	Screen	TR 0.35 mm ²	Without SA 601 , to rear-view camera	J PIN 4
A12	Female contact	Terminal 31	BR 0.5 mm ²	To rear-view camera	I PIN 3
A13	Female contact	K-CAN low	GN 0.35 mm ²	To rear-view camera	I PIN 6
A14	Female contact	K-CAN high	OR/GN 0.35 mm ²	To rear-view camera	I PIN 1
A15	Female contact	Terminal 30g	RT/GN 0.5 mm ²	To rear-view camera	I PIN 4
A16	Flat male connector	Terminal 30g	RT/GN 0.5 mm ²	To fuse carrier in luggage compartment, right	X11012 PIN 8
A17	End of line open	K-CAN low	GN 0.35 mm ²	To PDC control unit, with miniature connector	X300 PIN 8
A18	End of line open	K-CAN high	OR/GN 0.35 mm ²	To PDC control unit, with miniature connector	X300 PIN 2

6. Installing the rear-view camera



Route connecting point of cable kit rear-view camera **A** as follows:

For cars without SA 601.

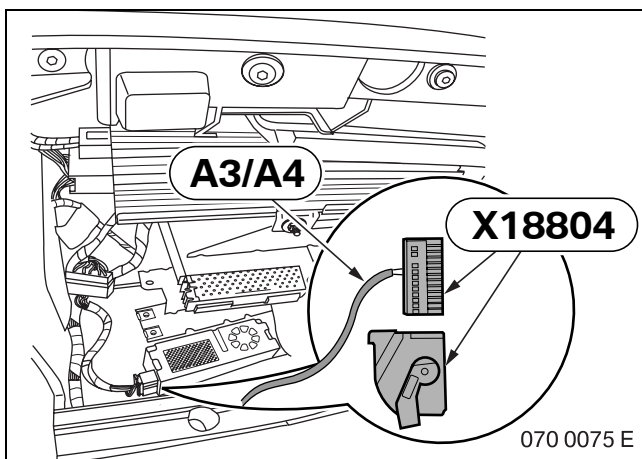
- **A1** and **A2** in direction of navigation computer/CCC.

For cars with SA 601.

Insulate connecting point **A1** and **A2** and tie back in the vicinity of the video module.

For all vehicles.

- **A3** and **A4** to luggage compartment, left.
- **A6** to **A15** in direction of tailgate.



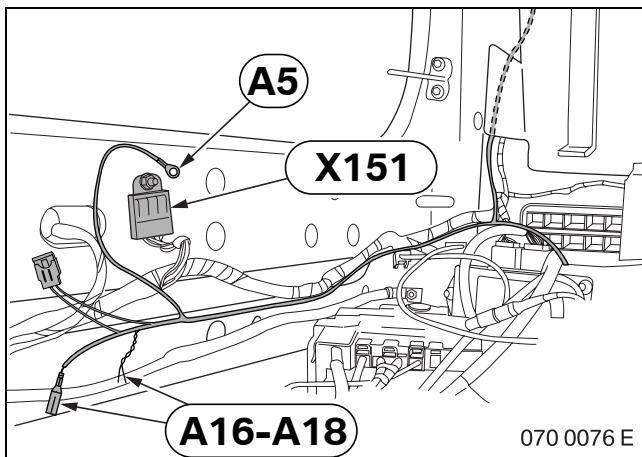
For cars with SA 601.

Pin connecting points into video module plug **X18804**, WS, as follows:

- **A3**, GESW, in PIN 1.
- **A4**, GN, in PIN 10.

For cars without SA 601.

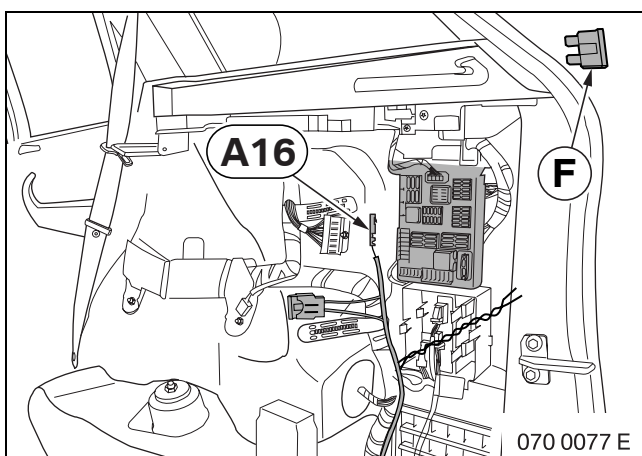
Insulate and tie back connecting points **A3** and **A4**.



For all vehicles.

Bolt connecting point **A5**, BR, to the ground loom connector on tail panel **X151**.

Route connecting point **A16-A18** along the vehicle wiring harness in the direction of luggage compartment fuse carrier.



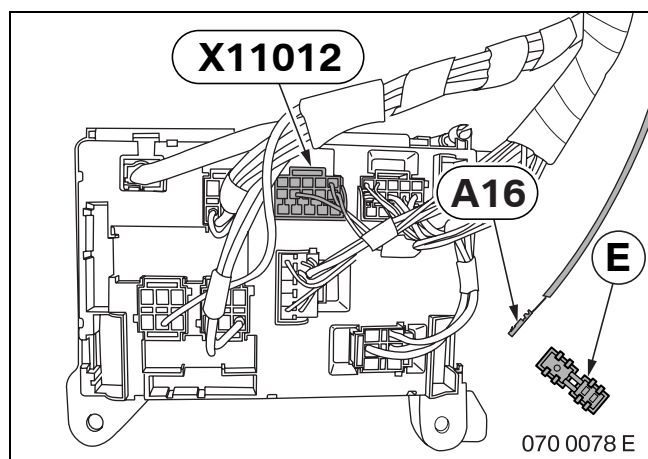
Route connecting point **A16**, RTGN, to the fuse carrier on the right of the luggage compartment.

Insert 10A fuse **F** in slot 108.

If slot 108 already has a fuse of more than 10A, fuse **F** is not required.

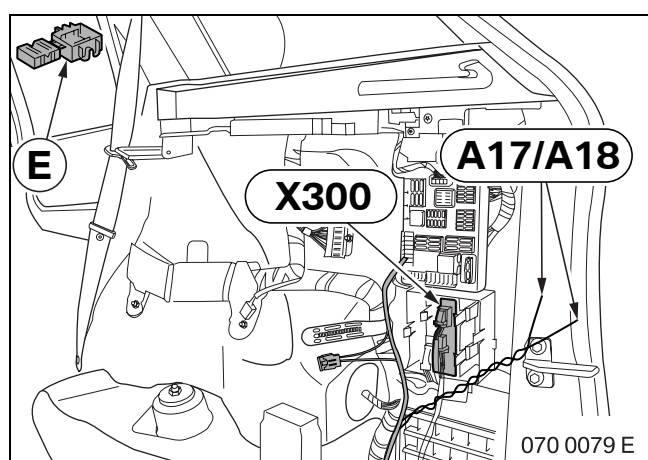
If slot 108 has a fuse of less than 10A, this must be replaced by fuse **F**.

6. Installing the rear-view camera



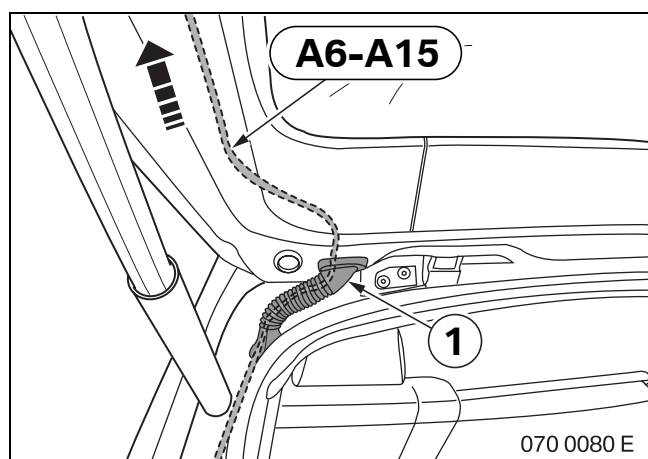
Pin connecting point **A16**, RTGN, into plug **X11012**, GR, PIN 8 from fuse carrier luggage compartment.

If PIN 8 is occupied, disconnect socket contact from connecting point **A16** and attach parallel fixing with miniature connector **E** to **X11012** PIN 8.

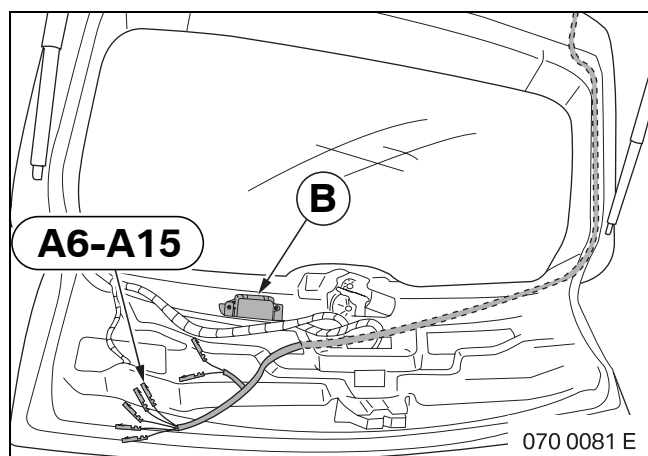


Connect connecting point to plug **X300** of PDC electronic control unit with miniature connector **E** as follows:

- **A17**, GN, to cable, GN, from PIN 8.
- **A18**, ORGN, to cable, ORGN, from PIN 2.

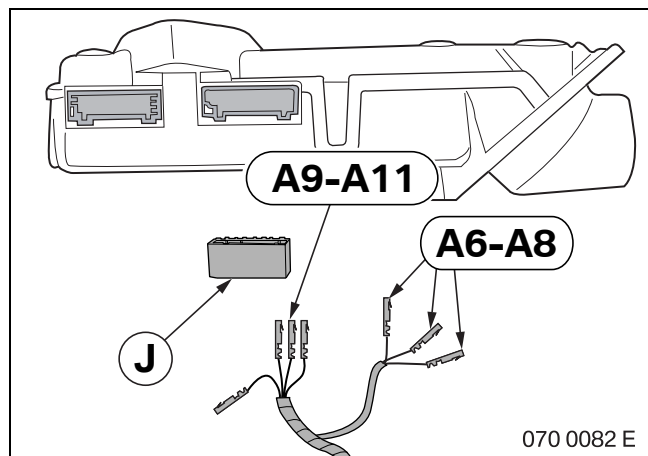


Thread connecting points **A6** to **A15** through rubber grommet (1) in tailgate, left side.



Thread connecting points **A6** to **A15** to the installation point of rear-view camera **B** as shown in the picture.

6. Installing the rear-view camera



Only for cars with SA 601.

Pin connecting point in bushing housing **J**, SW, as follows:

- **A6**, GESW, in PIN 2.
- **A7**, GN, in PIN 6.
- **A8**, shield, in PIN 4.

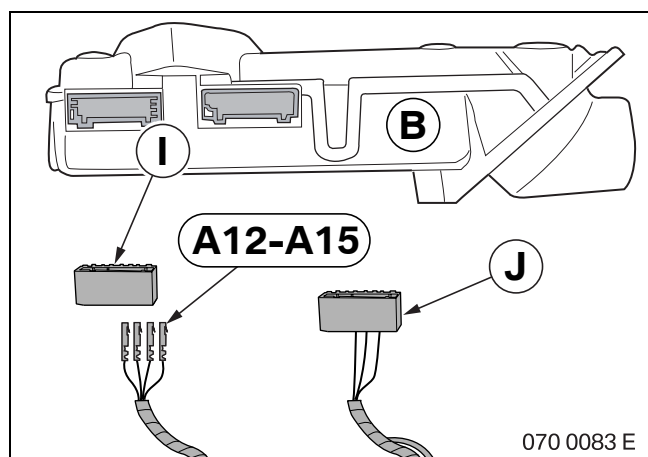
Insulate and tie back connecting points **A9**, **A10** and **A11**.

Only for cars without SA 601.

Pin connecting points in bushing housing **J**, SW, as follows:

- **A9**, SW, in PIN 2.
- **A10**, GE, in PIN 6.
- **A11**, shield, in PIN 4.

Insulate and tie back connecting points **A6**, **A7** and **A8**.

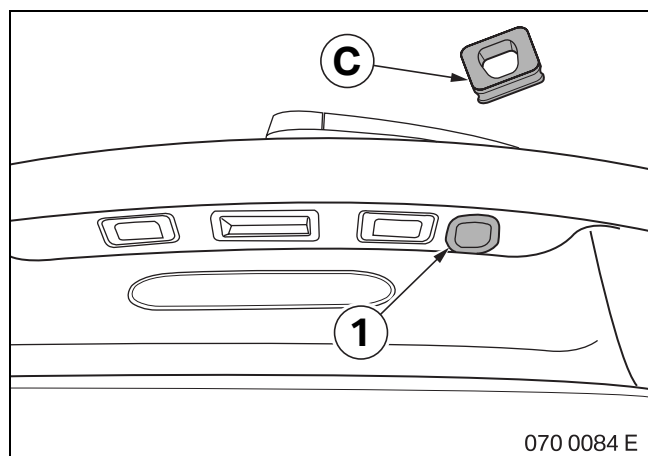


For all vehicles.

Pin connecting points in bushing housing **I**, WS, as follows:

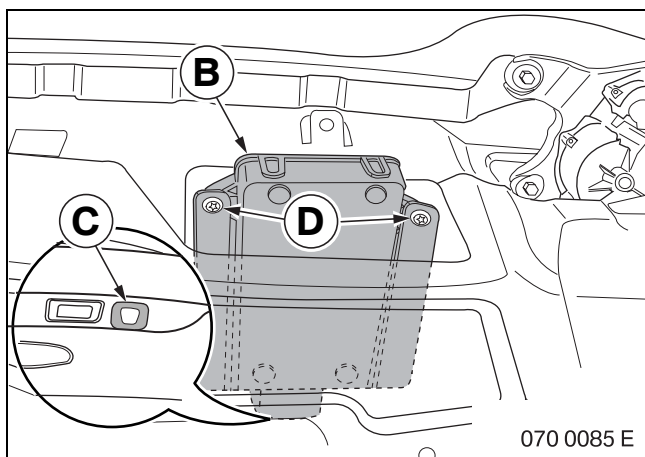
- **A12**, BR, in PIN 3.
- **A13**, GN, in PIN 6.
- **A14**, ORGN, in PIN 1.
- **A15**, RTGN, in PIN 4.

Plug bushing housing **I**, WS, and **J**, SW, into camera **B**.



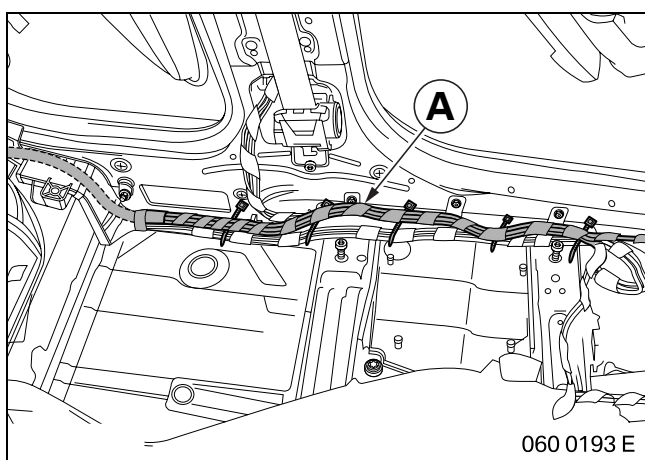
Remove protective cap (1) from tailgate and insert rubber seal **C** in aperture.

6. Installing the rear-view camera



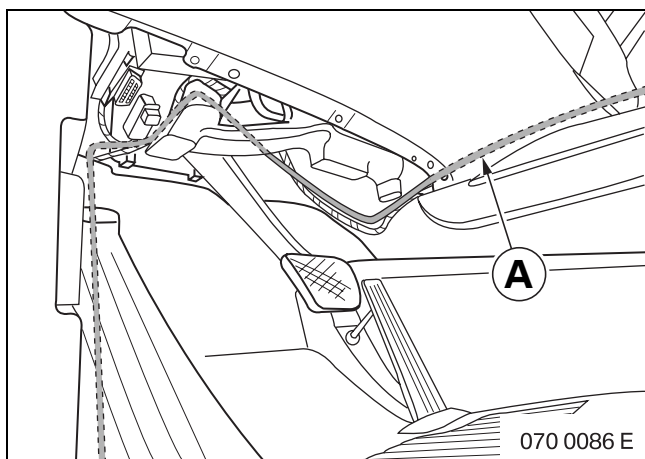
Insert camera **B** with lens into rubber seal **C** from the inside.
Secure camera **B** with two Torx bolts **D**.

Tightening torque: 66 54 1 AZ.

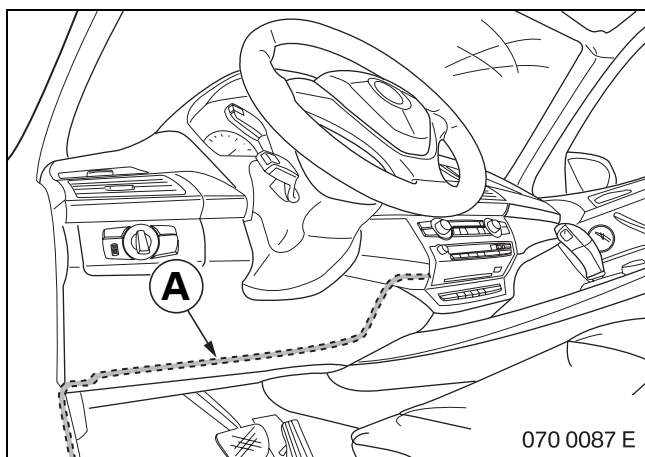


Only for cars without SA 601.

Route cable kit **A** along the vehicle wiring harness towards the front.

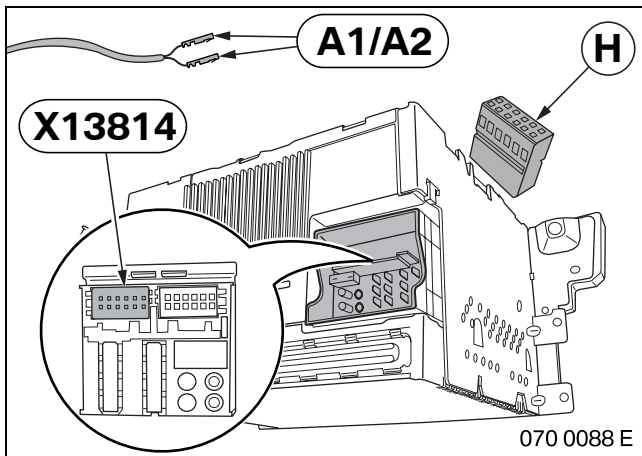


Route cable kit **A** in the vicinity of the driver footwell to the centre console.



Route cable kit **A** to the navigation computer/CCC.

6. Installing the rear-view camera



Make the pinning in plug **X13814**, 12-pole, WS, as follows:

- Connecting point **A1**, SW, in PIN 4.
- Connecting point **A2**, GE, in PIN 2.

If socket insert **X13814** is not connected, bushing housing **H** is used.

7. Finishing off and encoding

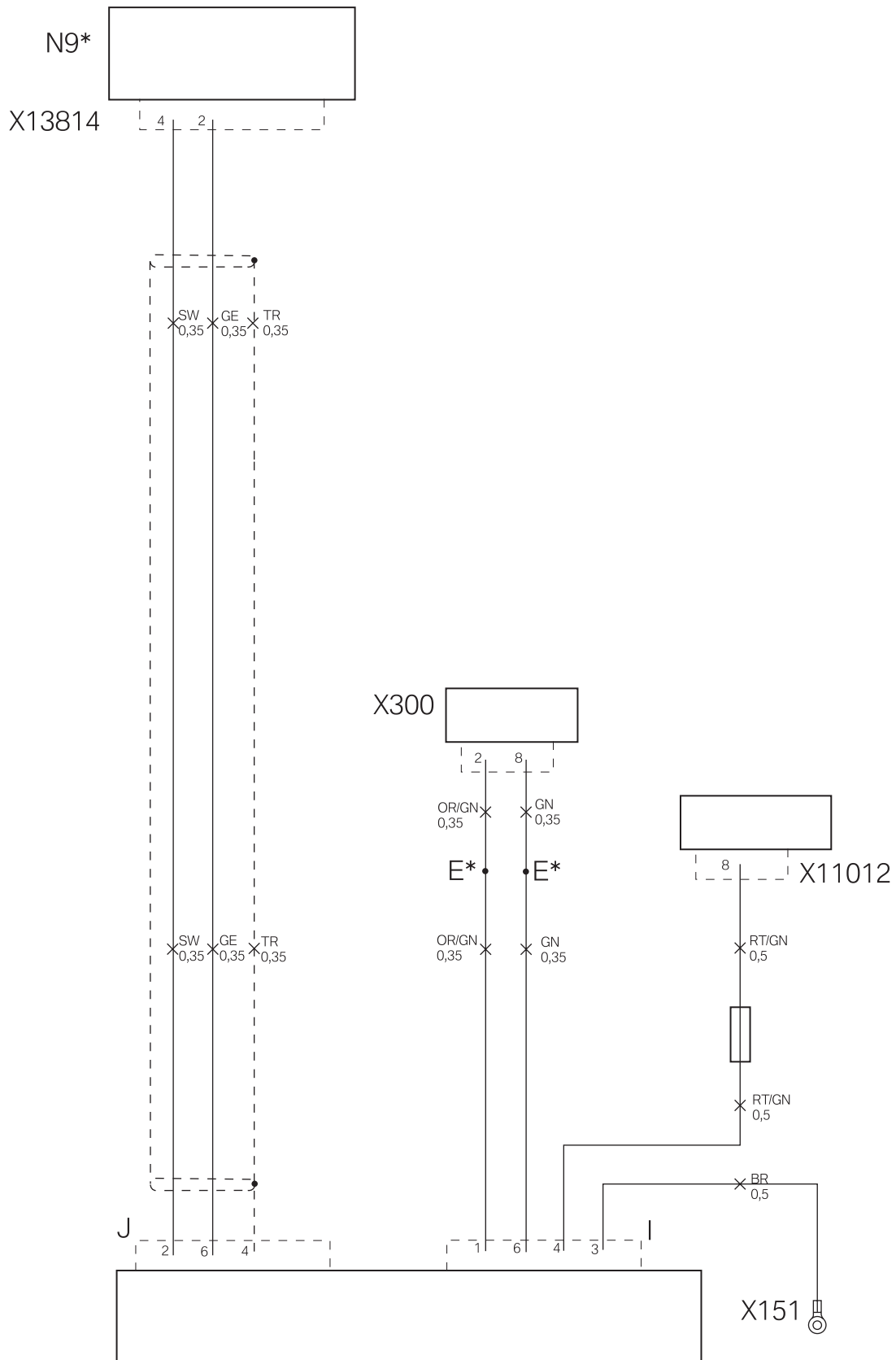
- Connect the battery
- Switch on the ignition
- Connect the battery
- Code/program the retrofit with DISPlus or GT-1 via the path – **Retrofit/CIP**
- Perform quick test
- Conduct a function test

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

- System activation via I-Drive in the menu
- Engage reverse; an image must appear on the on-board monitor
- Disengage reverse gear
- Reassemble the vehicle

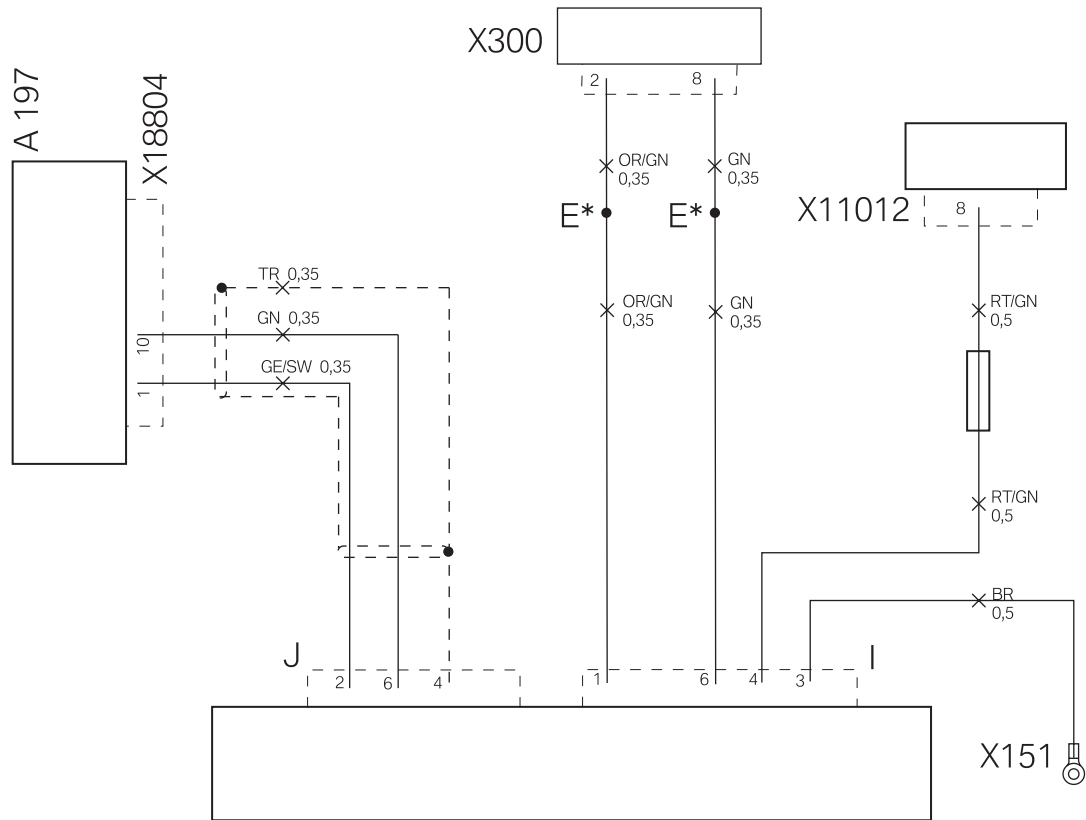
 Adjust visible area (calibration) of the camera in accordance with **TIS 66 53 010**. ◀

8. Circuit diagram for cars with SA 609 without SA 696



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9. Circuit diagram for cars with SA 601



070 0090 E

9. Circuit diagram

Key

A197	Video module
E*	Miniature connector
I	6-pole bushing housing, WS, to rear-view camera
J	6-pole bushing housing, SW, to rear-view camera
N9	CCC/navigation computer
X151	Eye ring, on ground loom connector
X300	12-pole bushing housing, SW, on PDC control unit
X11012	15-pole bushing housing, WS, on fuse carrier in luggage compartment, right
X13814	12-pole bushing housing, WS, on CCC
X18804	18-pole bushing housing, WS, on video module

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

Cable colours

GE	Yellow
GN	Green
RT	Red
BL	Blue
SW	Black
TR	Transparent
BR	Brown
OR	Orange

10. Customer information

Basic functions of rear-view camera

The basic function of the rear-view camera system is the optical recording of a wide angle view (approx. 120°) from the rear end of the car.

The image is recorded by the lens of the rear-view camera system and then forwarded in electronic form to the CCC (Car Communication Computer).

Recording area

The overall recording area of the rear-view camera systems ranges from the bumper at the bottom to an angle of 10° above the horizontal.

Different screen areas are displayed in the vertical direction according to the car's road speed.

Additional functions

To make parking and manoeuvring easier, assisting graphics are displayed in the camera image. The following assisting graphics can be displayed:

- Lane help lines
- Turning circle lines
- Obstacle markings
- Trailer tow hitch zoom.

In addition, the brightness can be adjusted or the image completely switched off.

System activation

The rear-view camera system is ready to transmit after reverse gear has been engaged.

In the event that the camera system is not available, a corresponding alarm is sent as a CC message.

System deactivation

Automatic or indirect system deactivation

The rear-view camera is automatically deactivated under the following conditions:

- if a certain coded road-speed value V_{max} forwards (approx. 20km/h) is exceeded or
- if coded distance (approx. 50 m) is exceeded when driving forwards.

Deactivation by car user

The rear-view camera can be deactivated by user during the rear-view camera image display on the CID (Central Information Display) by:

- actuating iDrive (pop-up menu)
- actuating the PDC button.

The next time the reverse gear is engaged, the rear-view camera starts to transmit again.

Permanent system deactivation

The rear-view camera can be deactivated with the menu key.