

# Original BMW Group Parts and Accessories. Installation Instructions.



## Advanced Car Eye 2.0 Retrofit.

All BMW and MINI models as per EPC listing

### Retrofit kit number

66 21 2 457 032	BMW Advanced Car Eye 2.0
66 21 2 457 699	BMW Advanced Car Eye 2.0 (UK/TH)
66 21 2 457 701	MINI Advanced Car Eye 2.0 (UK/TH)
66 21 2 457 035	MINI Advanced Car Eye 2.0

### Installation time

The installation time for the BMW Advanced Car Eye front and rear-view camera retrofit is **approx. 2.0 hours**.

If only the BMW Advanced Car Eye front camera retrofit is being installed, the installation time is reduced to **approx. 1.0 hour**.

On cars that have the rear windscreen in the tailgate, the installation time increases by **0.5 hours**.

These times 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.

These installation instructions are intended for use by qualified specialist staff trained on BMW cars with the relevant expert knowledge.

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

**If you experience installation or functional problems, restrict troubleshooting to approx. 0.5 hours for mechanical work and 1.0 hour for electrical work.**

To avoid unnecessary extra work and/or costs, send an inquiry straight away to the technical parts support team via the Aftersales Assistance Portal (ASAP).

Quote the following information:

- VIN,
- retrofit kit part number,
- a detailed description of the problem,
- any work already carried out.

Do not archive the hard copy of these installation instructions, since daily updates are supplied in ASAP.

### Pictograms

 Denotes instructions that draw your attention to dangers.

 Denotes instructions that draw your attention to special features.

◀ Denotes the end of the instruction or warning text.

 **Refer to safety instructions for working on electric/hybrid cars, see ISTA/AIR 61 00 ...**

**The high-voltage system must be disconnected from the supply before starting the work.**

**Do not start the work if the KOMBI does not indicate that the power supply has been disconnected. Danger of death!**

**In this case a certified electrician, qualified to work on 1000 V DC systems, and using suitable measuring instruments and methods, must establish that the power supply has been disconnected before work is started.**

**In these cases, you must contact Technical Support. In addition, the car must be locked and cordoned off using tapes!**

### Installation information

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

Additional cables/wires that are installed must be secured with cable ties. If the specified PIN chambers are occupied, bridges, double crimps, or twin-lead terminals must be used.

All illustrations show LHD (left-hand drive) cars; proceed similarly on RHD (right-hand drive) cars.

Front camera **B** must not restrict the driver's field of vision. The lens of front camera **B** must be within the wiper area of the windscreen wipers and outside of the screen-printed strip.

Ensure that the function of the sun visor and the adjustment range of the interior rear-view mirror are not restricted.

After installing front camera **B**, all buttons and the SD card slot must be freely accessible.

 The rear window camera **C** cannot be installed on any convertible models or F54 cars. ◀

The rear window camera **C** must not restrict the driver's field of vision. Ideally the rear window camera **C** should be positioned in the area blocked by the headrests (or 3rd row of seats).

The rear window camera **C** must be installed in the same way as front camera **B** on the rear window in an area cleaned by the windscreen wiper.

When affixing the front camera **B**, it must be ensured that no excessive tension or pressure is exerted on the camera by the connection cable, as the front camera **B** may otherwise become detached.

Tapes **J** and **K** and the adhesive strips, which have already been installed on the front and rear cameras, may only be used once.

 On cars where rear window camera **C** is not installed, branch **A5** must be tied back and stowed so that it does not rattle. ◀

### Ordering instructions

The double flat spring contact **E** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

The socket contact **F** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

The fuse **G** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

The fuse **H** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

The ring eyelet **O** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

The double flat spring contact with twin-lead terminal **P** is not included in the retrofit kit and must be ordered separately (see EPC for part number and further details).

### **Customer information**

Print out the “Customer information” section at the end of the installation instructions and present it to the customer.

### **List of special equipment**

**SA 415** Roller blind for rear window

**SA 416** Sun protection roller blinds

### **Special tools required**

Refer to the relevant ISTA/AIR repair manual for details of the special tool required.

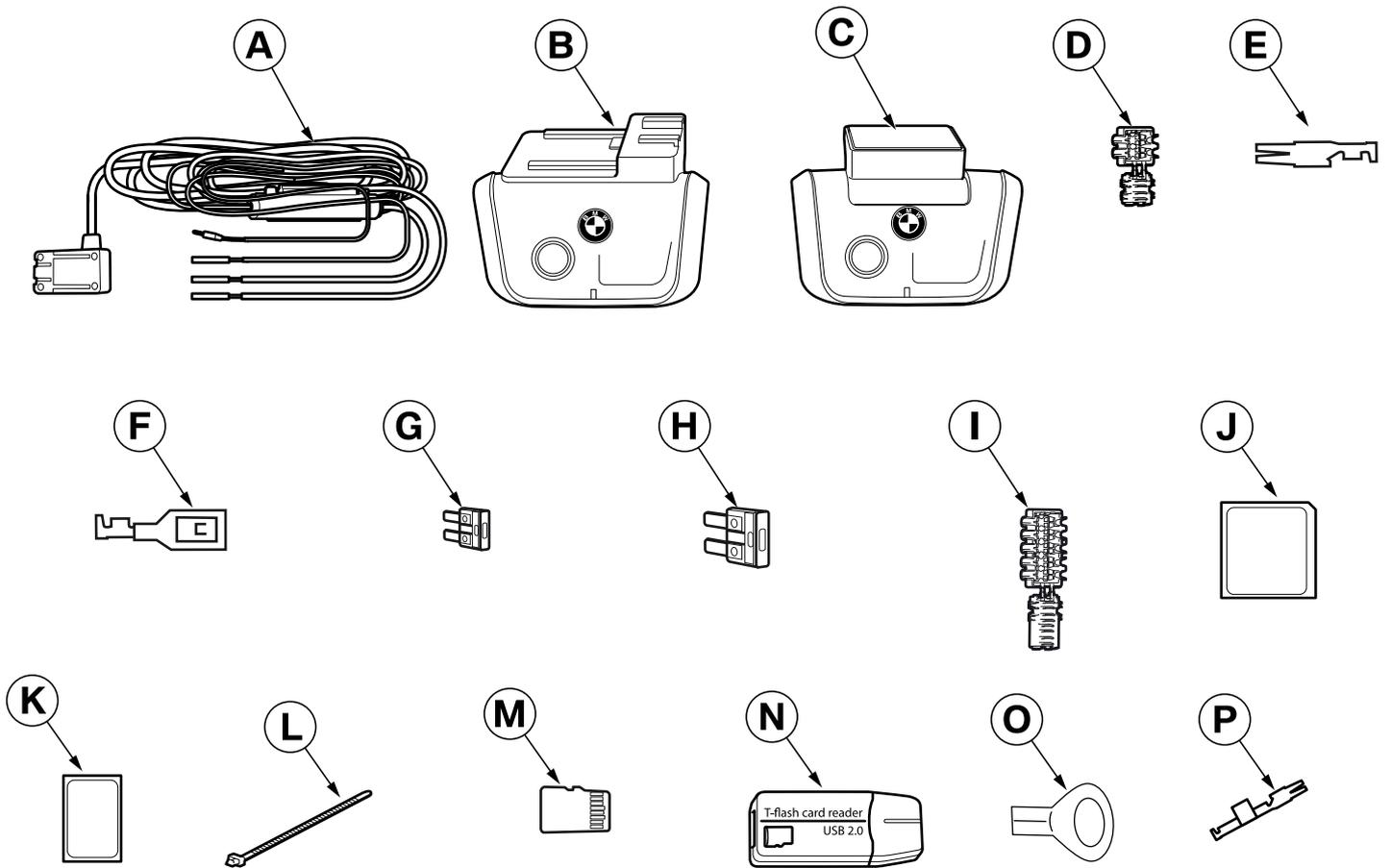
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## 1. Parts list



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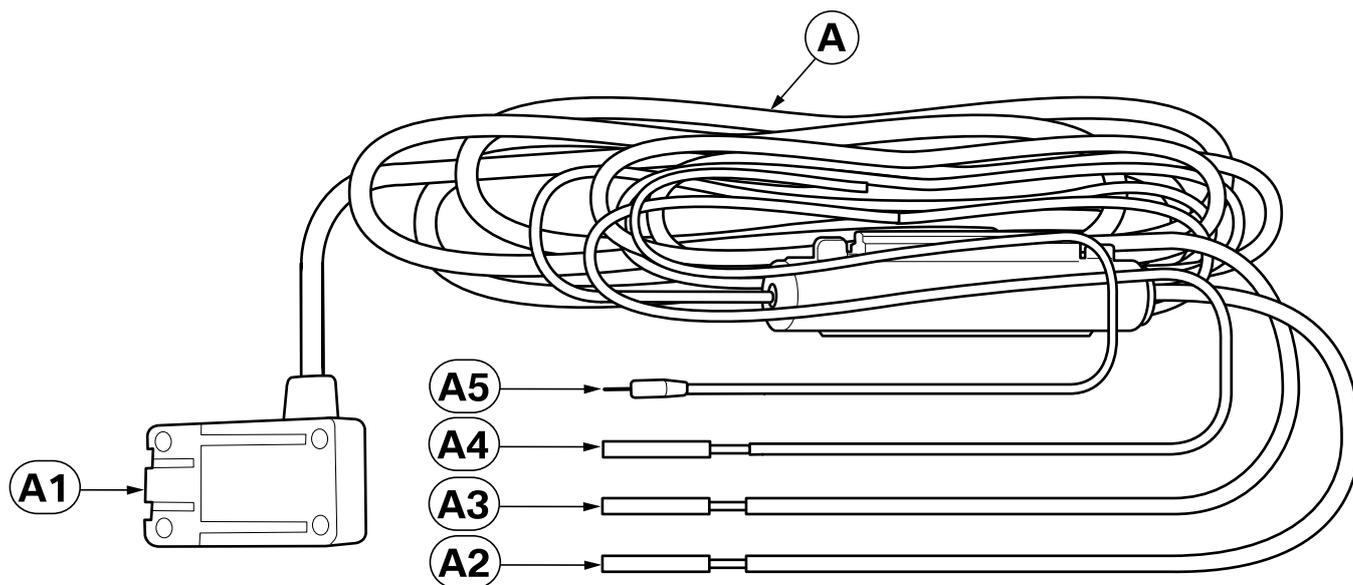
### Legend

- A** Retrofit wiring harness
- B** Front camera
- C** Via-window camber (not for convertibles or F54 cars)
- D** 2-way miniature connector (2 x)
- E** Double flat spring contact (2 x, not supplied with the retrofit kit)
- F** Socket contact (2 x, not supplied with the retrofit kit)
- G** MINI fuse (5A) (not included in the retrofit kit)
- H** ATO fuse (5A) (not included in the retrofit kit)
- I** 5-way miniature connector
- J** Tape for front camera
- K** Tape for rear window camera
- F** Cable ties (20 x)
- M** Micro SD card
- N** Micro SD card to USB adapter
- O** 6 mm eyelet (not included in the retrofit kit)
- P** Double flat spring contact with twin-lead terminal (not supplied with the retrofit kit)

## 2. Preparatory work

	ISTA/AIR No.
Disconnect all negative battery cables	61 20 900
Release and disconnect various plug connections	61 13 ...
Cut, strip and crimp cables	61 11 ...
Open the plug housing and remove the contacts from various connection systems	61 13 ...
Instructions for handling the documents: Repair manual, technical data, tightening torques	00 11 ...
Instructions for handling wiring harnesses and cables	61 00 ...
<b>The following components must be removed first of all</b>	
<b>All cars with CAS control unit</b>	
Trim for front left A pillar	51 43 201
Pedal trim	51 45 184
Side footwell trim on the left A pillar	51 43 070
Trim on bottom left B-pillar (only if installing the rear window camera)	51 43 150
Rear seat (only if installing the rear window camera)	52 26 ...
Rear left backrest side section (only if installing the rear window camera)	52 26 ...
Trim on rear left roof pillar (only if installing the rear window camera)	51 43 ...
<b>F15, F16, F20, F21, F22, F23, F3x, F45, F46, F48, F49, F8x, F9x, G0x, G1x, G3x, F5x F6x cars only</b>	
Trim for front right A pillar	51 43 201
Bottom right dashboard trim	51 45 181
Side footwell trim on right A pillar	51 43 075
Trim on bottom right B-pillar (only if installing the rear window camera)	51 43 150
Rear seat (only if installing the rear window camera)	52 26 ...
Rear right backrest side section (only if installing the rear window camera)	52 26 ...
Trim on rear right roof pillar (only if installing the rear window camera)	51 43 ...
Loosen the front right-hand power distributor	---
<b>Also on cars with rear windscreen in the tailgate</b>	
Tailgate trim	51 49 000
<b>Also for G01, G02, G05, G07, G08 cars</b>	
Loosen the rear right power distribution box	---

### 3. Retrofit wiring harness connection diagram for E series

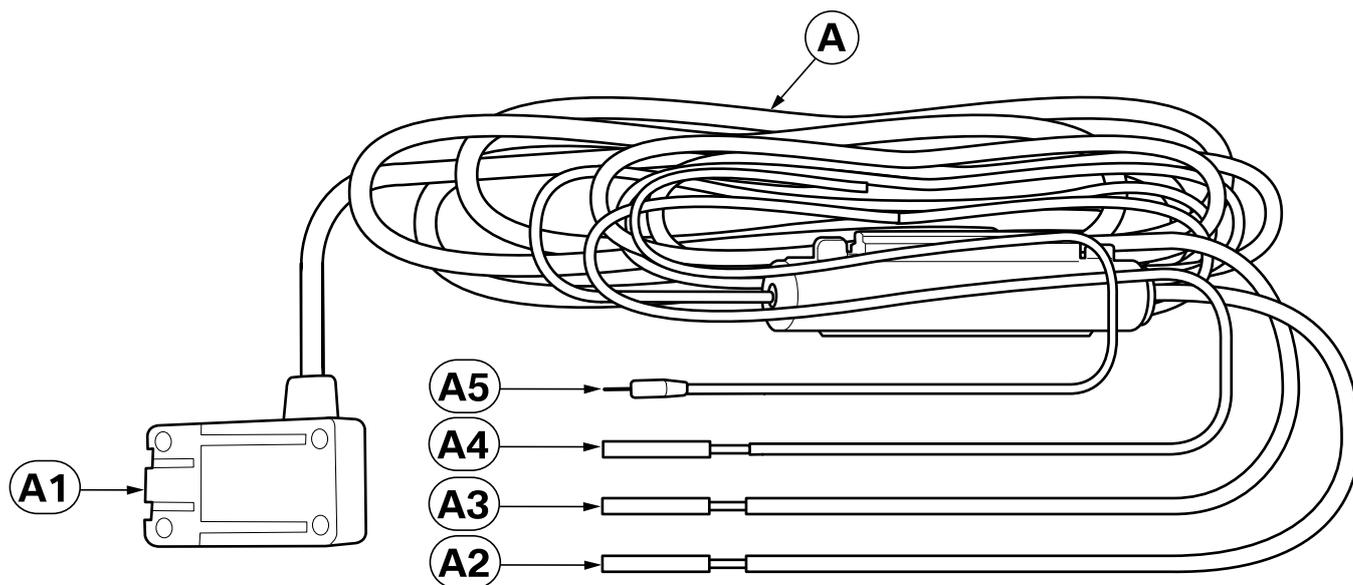


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With miniature connector <b>I</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 34
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 14
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 12
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

#### 4. Retrofit wiring harness connection diagram for F15, F16, F20, F21, F22, F23 F30, F31, F32, F33, F34, F35, F36, F8x

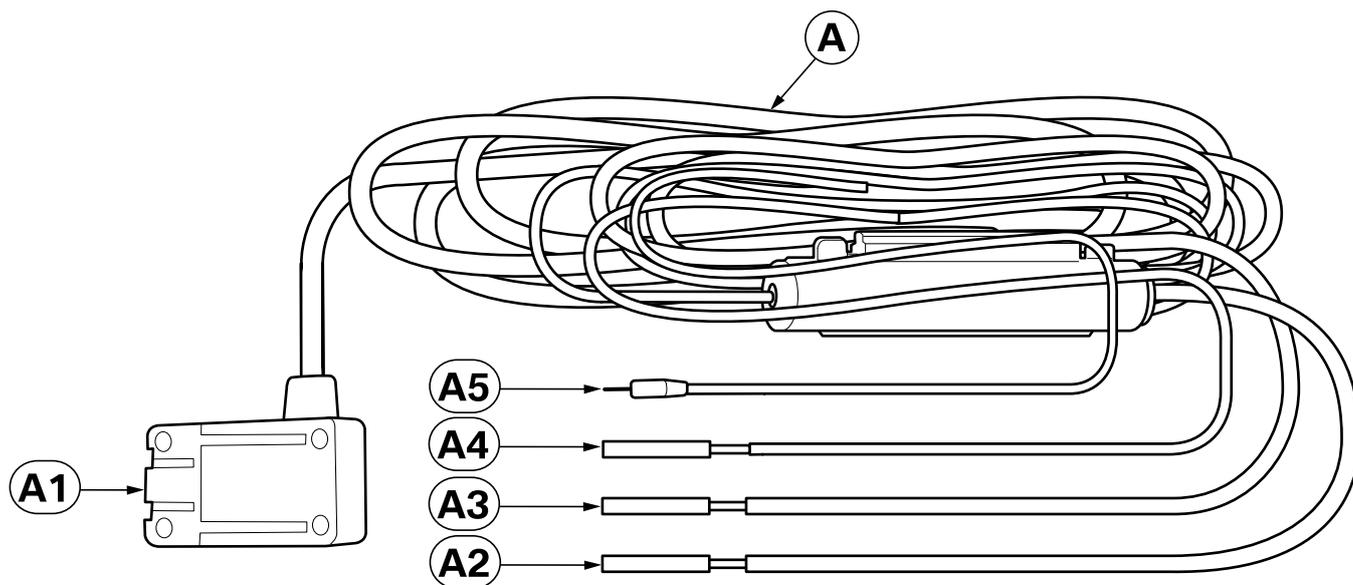


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With double flat spring contact <b>E</b> to fuse box <b>Z7</b>	Z7*6B PIN 6
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With double flat spring contact <b>E</b> to fuse box <b>Z7</b>	Z7*3B PIN 3/3a
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

## 5. Retrofit wiring harness connection diagram for F0x, F10, F11, F12, F13, F18, F25, F26

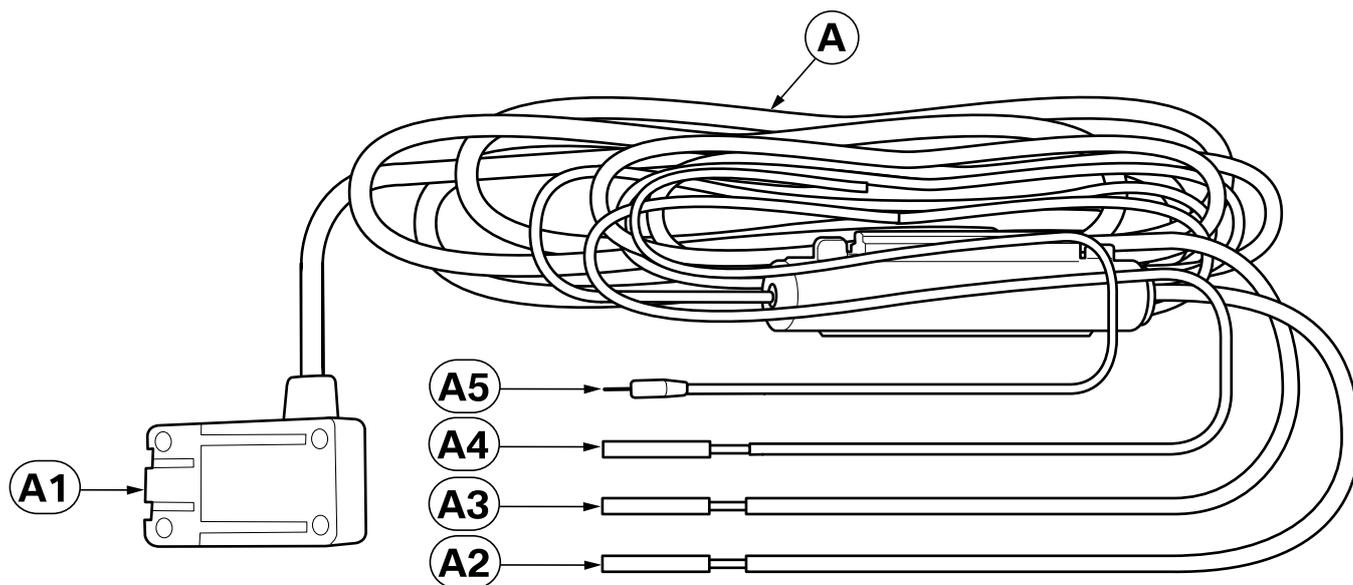


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With miniature connector <b>I</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 34
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 14
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 12
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

## 6. Retrofit wiring harness connection diagram for F4x, F52 built before 07/17

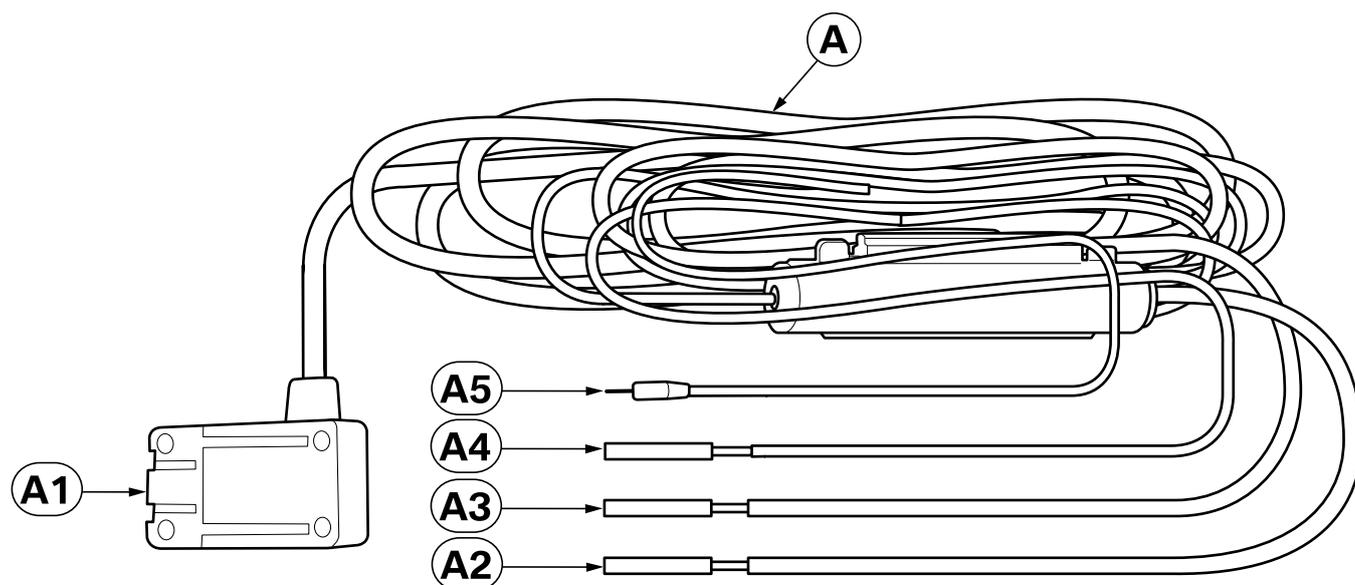


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*2B PIN 7
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*3B PIN 22
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

## 7. Retrofit wiring harness connection diagram for F39, F4x, F52 built after 07/17



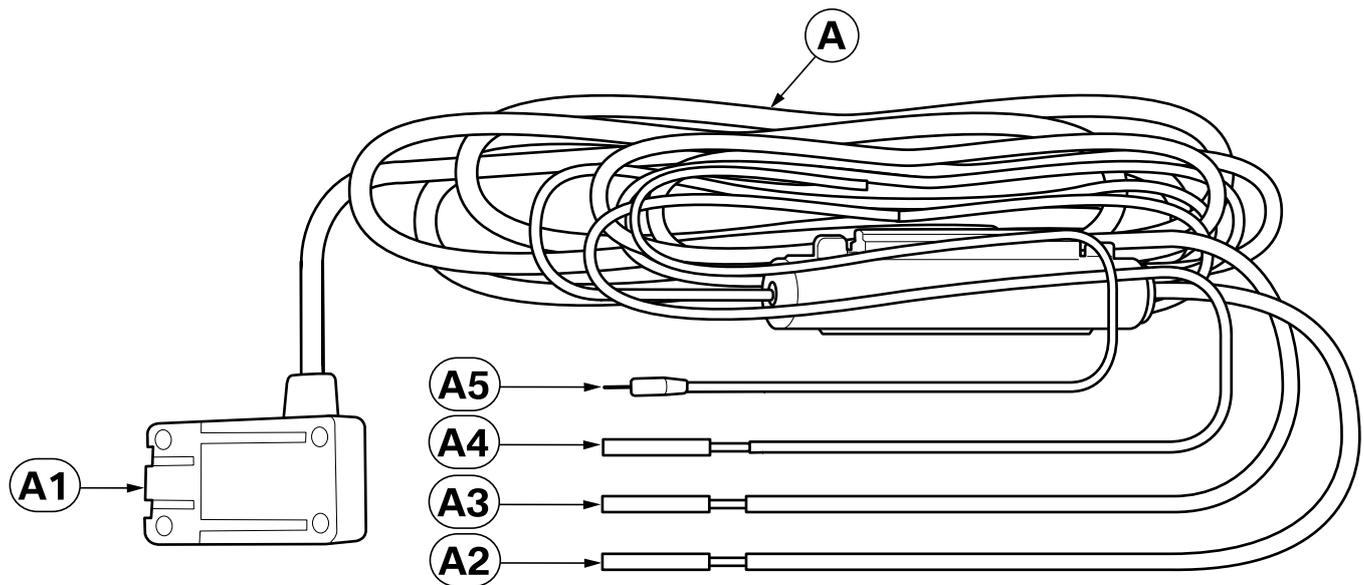
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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With double flat spring contact <b>E</b> to fuse box <b>Z7</b>	Z7*2B PIN 7/PIN 9 *
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*3B PIN 22
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

\* Depending on available slot in plug **Z7\*2B**.

☐ Note cable colours. ◀

## 8. Retrofit wiring harness connection diagram for G1x, G3x built before 07/17

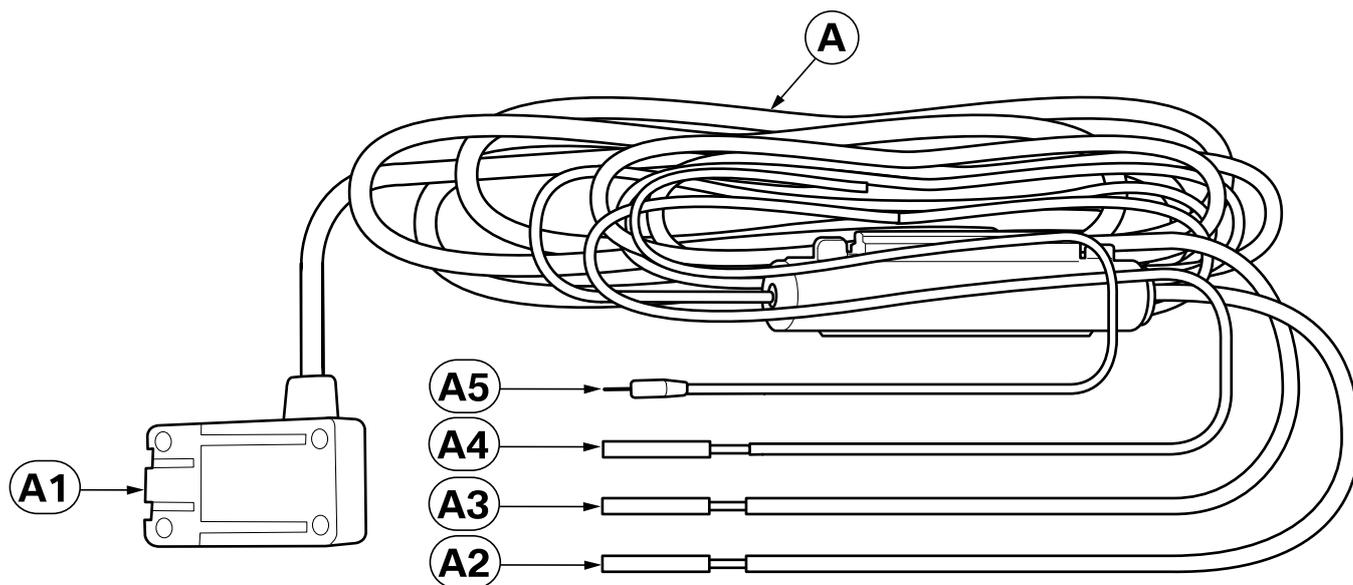


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 31
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 6
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*32B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

## 9. Retrofit wiring harness connection diagram for F90, G1x, G3x built after 07/17

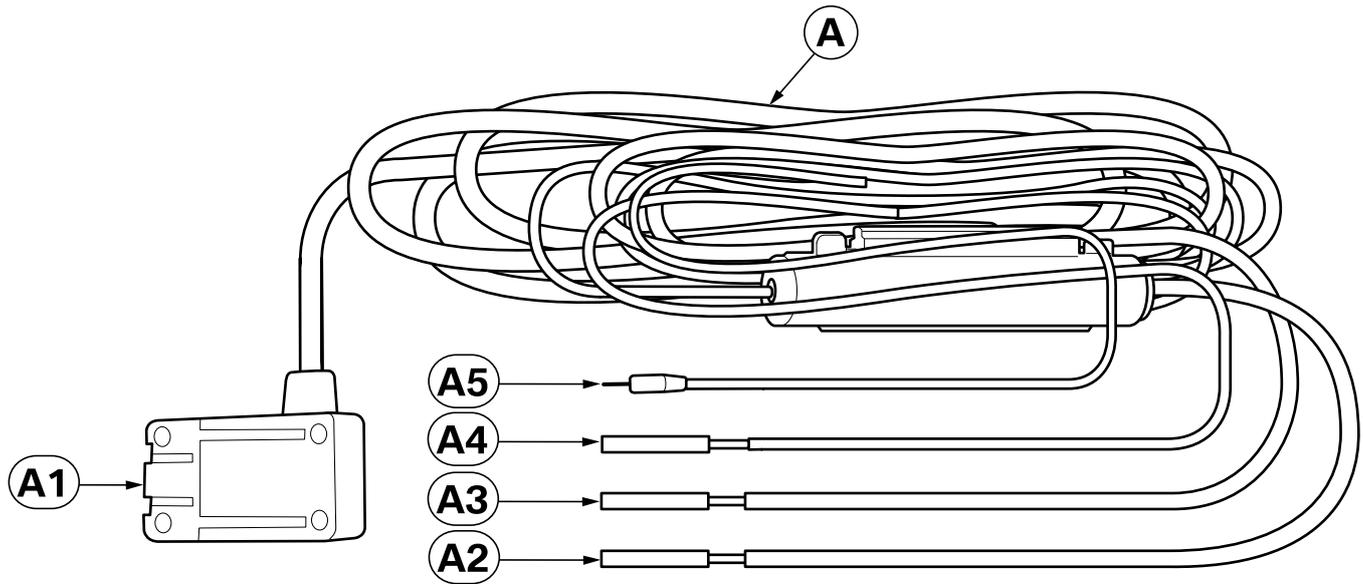


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 33
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 6
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*32B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

## 10. Retrofit wiring harness connection diagram for G01, G02, G08

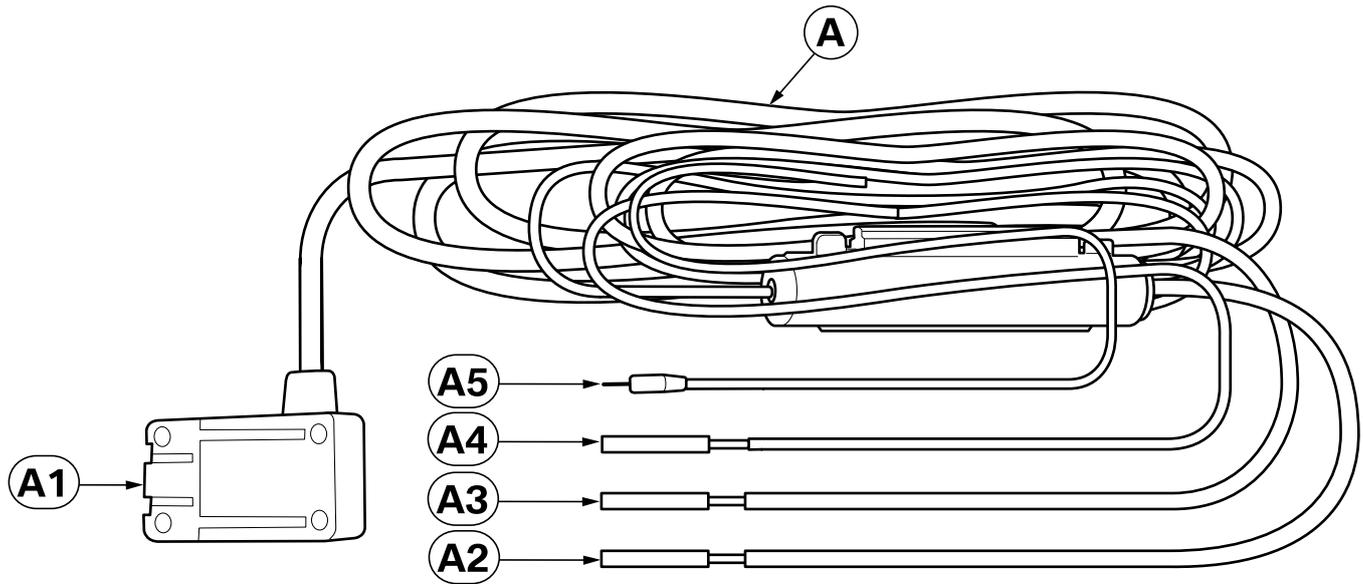


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 21
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z2</b>	Z2*3B PIN 2
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*14B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

# 11. Retrofit wiring harness connection diagram for G05, G07

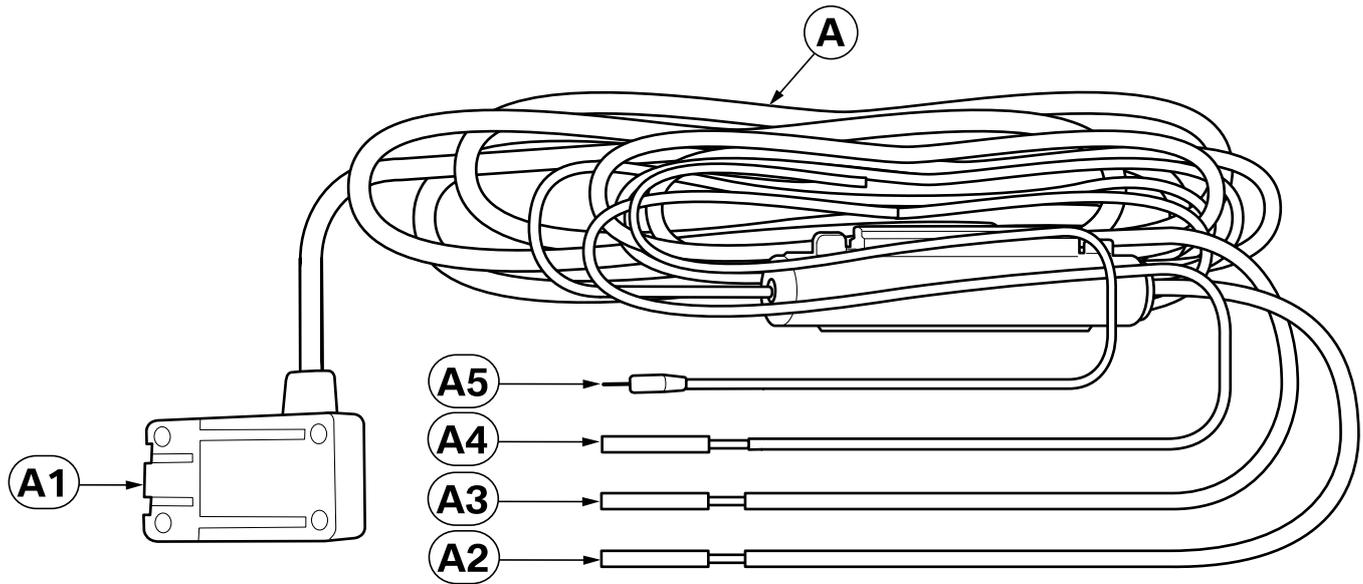


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>C</b>	---
A2	Open cable	Terminal 30	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 23
A3	Open cable	Terminal 15	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z2</b>	Z2*3B PIN 12
A4	M6 ring eyelet	Terminal 31	SW 0.35 mm <sup>2</sup>	On ground support point <b>Z10</b> under the front pas- senger footwell carpet	Z10*4B
A5	Connection cable for rear window camera	---	---	To rear view camera <b>C</b>	---

 Note cable colours. ◀

## 12. Retrofit wiring harness connection diagram for G20, G29

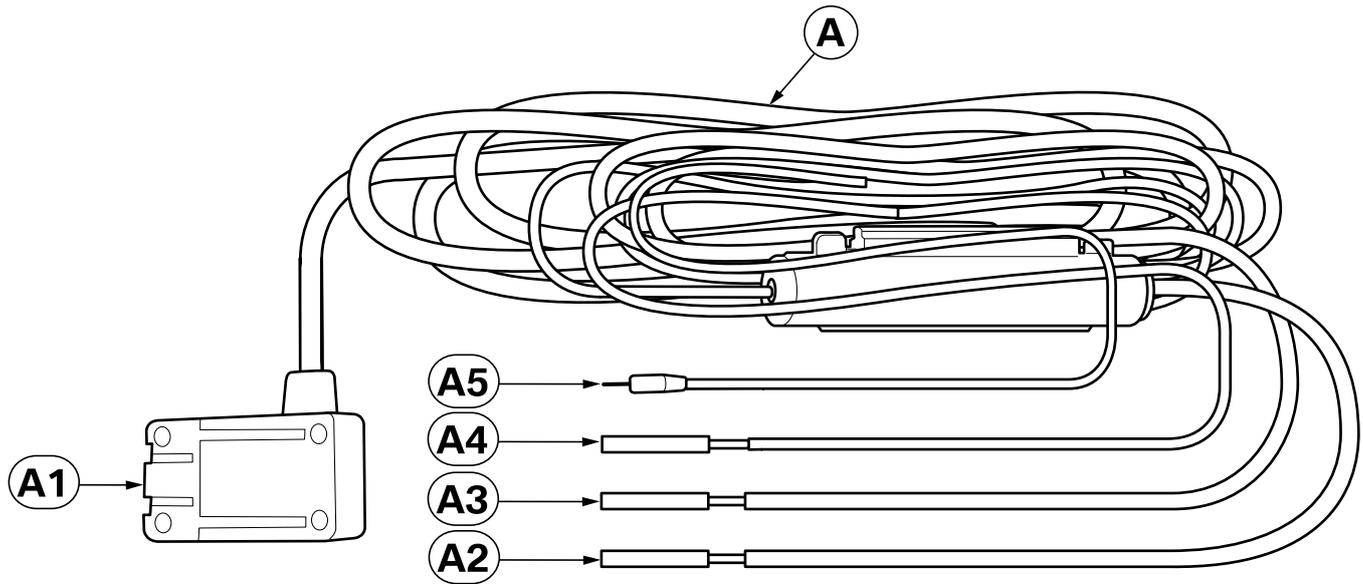


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>C</b>	---
A2	Open cable	Terminal 30	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z44</b>	Z44 PIN 23
A3	Open cable	Terminal 15	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z2</b>	Z2*3B PIN 2
A4	M6 ring eyelet	Terminal 31	SW 0.35 mm <sup>2</sup>	On ground support point <b>Z10</b> under the front pas- senger footwell carpet	Z10*44B
A5	Connection cable for rear window camera	---	---	To rear view camera <b>C</b>	---

▶ Note cable colours. ◀

### 13. Retrofit wiring harness connection diagram for R series

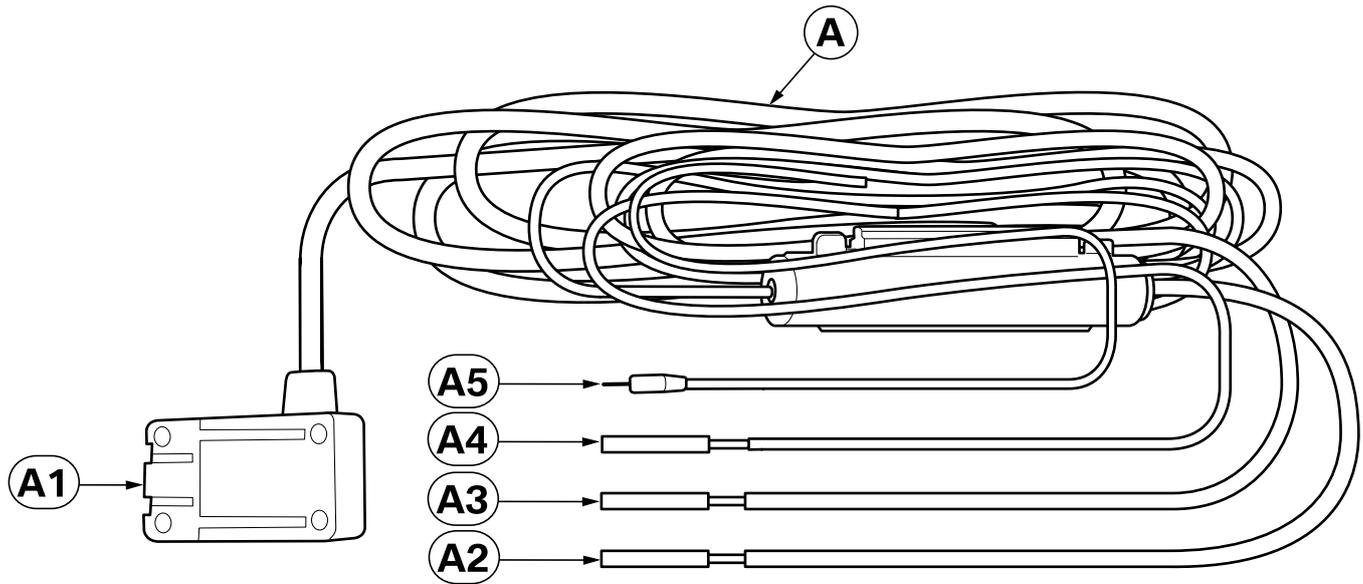


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With miniature connector <b>I</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 34
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 14
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With miniature connec- tor <b>D</b> to CAS control unit <b>A16</b>	X13376/A16*1B PIN 12
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

# 14. Retrofit wiring harness connection diagram for F57 (no rear window camera installation), F55, F56

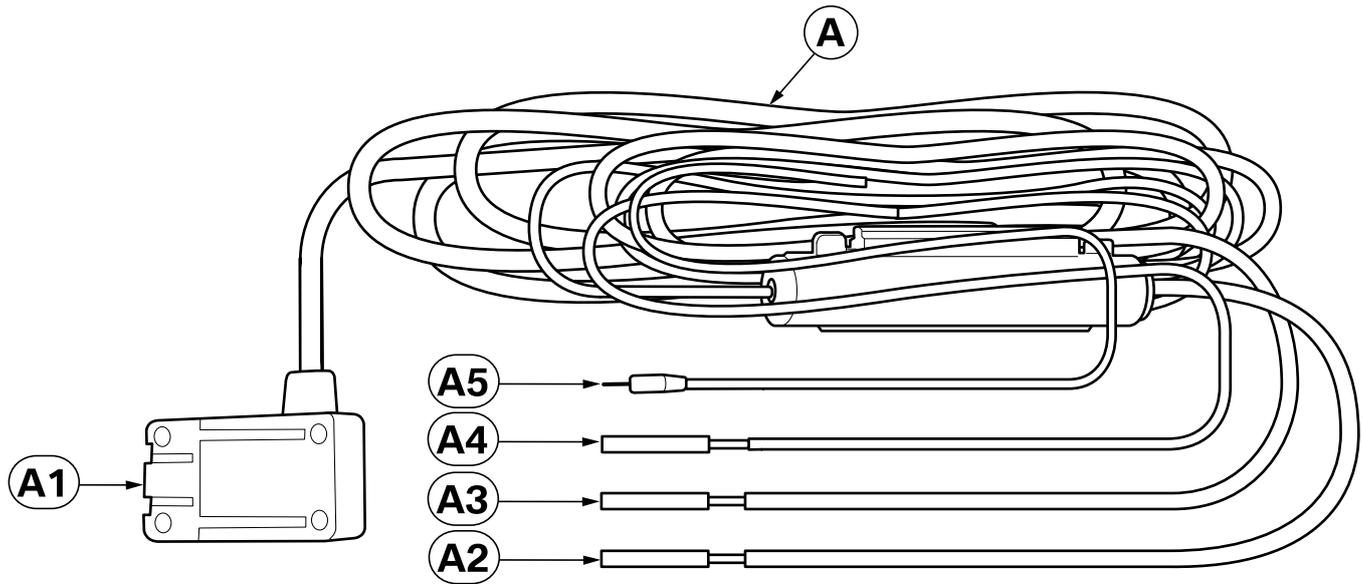


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Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*2B PIN 6
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*3B PIN 22
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

**15. Retrofit wiring harness connection diagram for F54 (no rear window camera installation), F60, F60 PHEV built before 07/17**

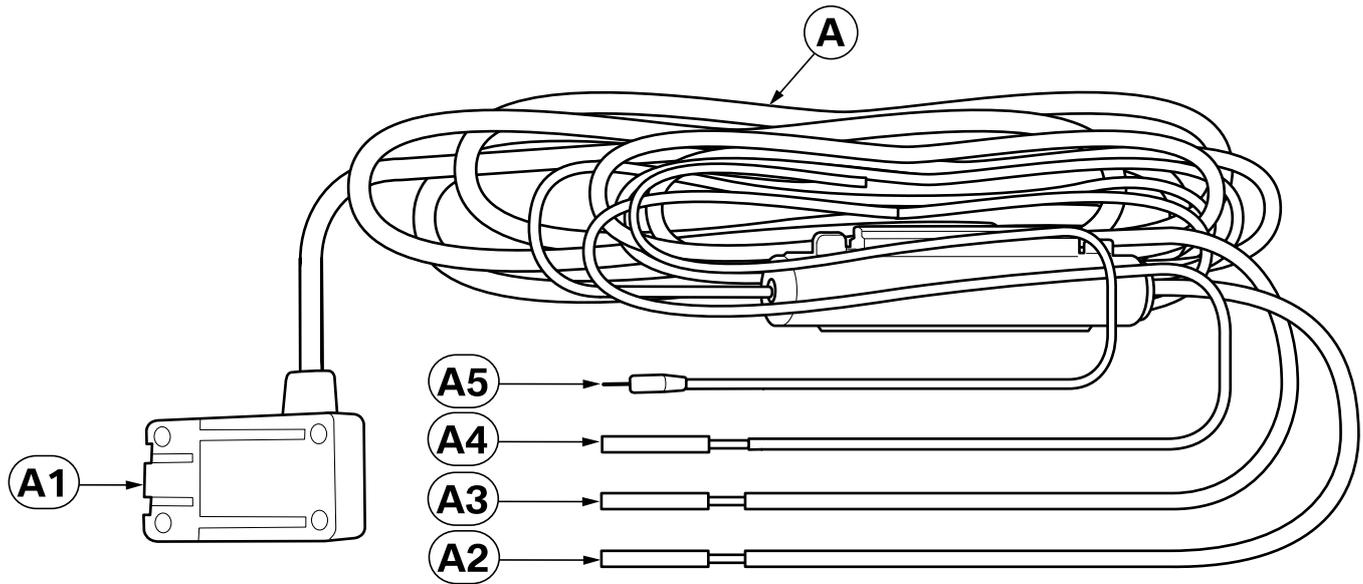


001 1374 Z

Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With double flat spring contact <b>E</b> to fuse box <b>Z7</b>	Z7*2B PIN 7
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*3B PIN 22
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

 Note cable colours. ◀

**16. Retrofit wiring harness connection diagram for F54 (no rear window camera installation), F60, F60 PHEV built after 07/17**



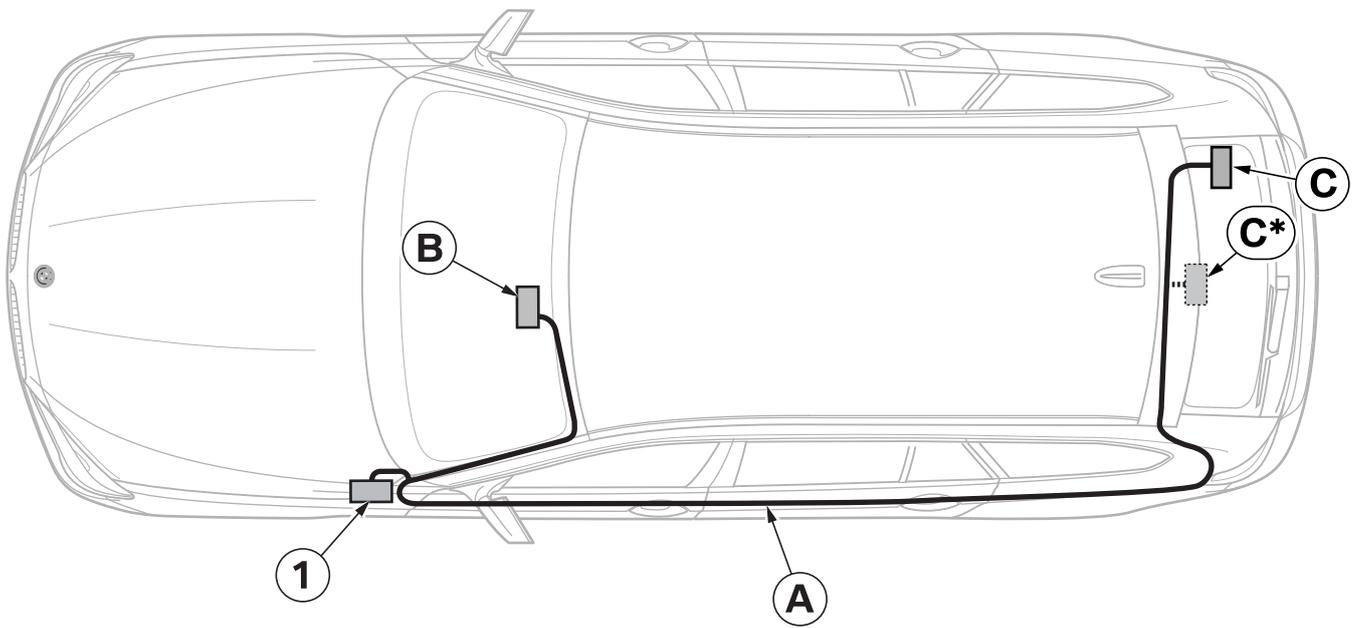
001 1374 Z

Position	Designation	Signal	Cable colour/ Cross-section	Connection lo- cation in the car	Abbreviation/ Slot
A	Retrofit wiring harness	---	---	---	---
A1	Locking plug	---	---	To front camera <b>B</b>	---
A2	Open cable	Terminal 30	GE 0.35 mm <sup>2</sup>	With double flat spring contact <b>E</b> to fuse box <b>Z7</b>	Z7*2B PIN 7/PIN9 *
A3	Open cable	Terminal 15	RT 0.35 mm <sup>2</sup>	With socket contact <b>F</b> on fuse box <b>Z7</b>	Z7*3B PIN 22
A4	Open cable	Terminal 31	SW 0.35 mm <sup>2</sup>	With eyelet <b>O</b> to ground support point <b>Z10</b>	Z10*6B
A5	Connection cable for rear window camera	---	---	To rear window camera <b>C</b>	---

\* Depending on available slot in plug **Z7\*2B**.

◻ Note cable colours. ◀

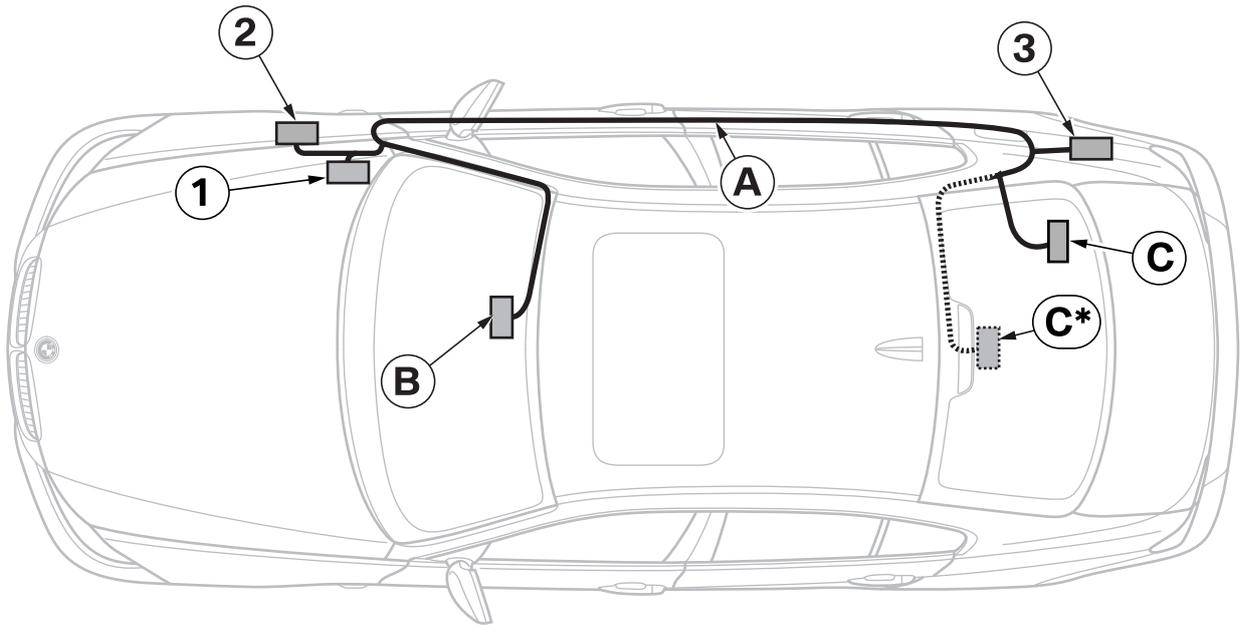
## 17. Installation and cabling diagram for cars with CAS control unit



F26 0144 Z

- A** Retrofit wiring harness
- B** Front camera
- C** Rear window camera, preferred installation position for cars with fixed rear window
- C\*** Rear window camera, preferred installation position for cars with a rear window in the tailgate and optional installation position for cars with a fixed rear window without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds)
- 1** CAS control unit **A16**

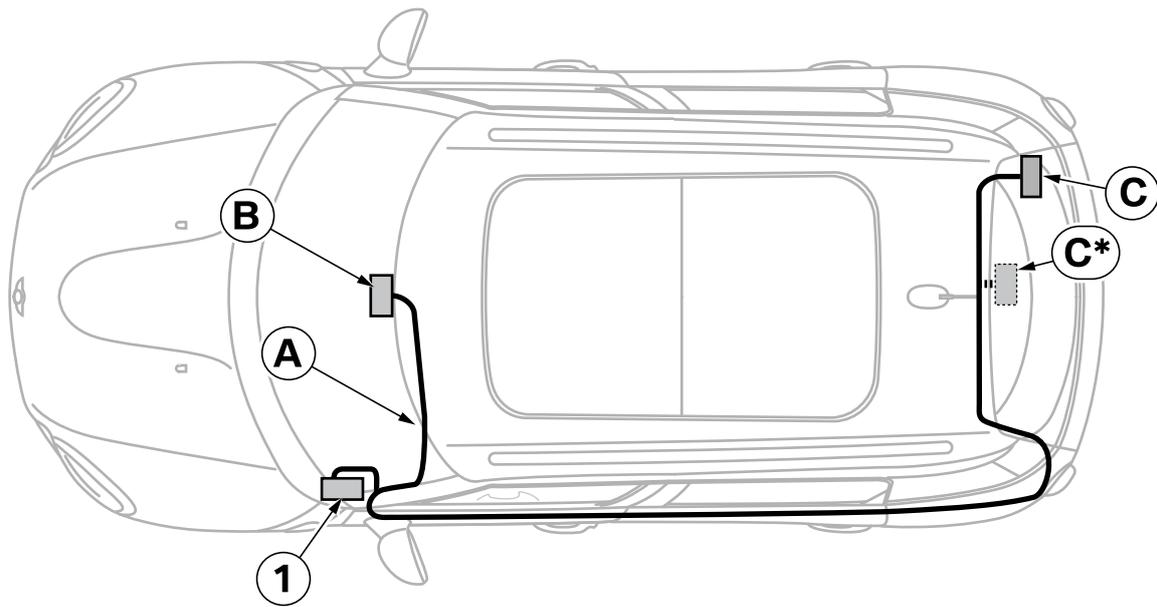
**18. Installation and cabling diagram for F15, F16, F20, F21, F22, F23, F3x, F4x, F52, F8x, F90, G0x, G1x, G20, G29, G3x**



F26 0146 Z

- A** Retrofit wiring harness
- B** Front camera
- C** Rear window camera, preferred installation position for cars with fixed rear window
- C\*** Rear window camera, preferred installation position for cars with a rear window in the tailgate and optional installation position for cars with a fixed rear window without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds)
  
- 1** Front right fuse box **Z7 (F15, F16, F85, F86, F20, F21, F22, F23, F30, F31, F32, F33, F34, F35, F36, F39, F45, F46, F48, F49 cars only)**
- 2** Front right fuse box **Z44 (F90, G01, G02, G05, G07, G08, G11, G12, G20, G29, G30, G31, G32, G38 cars only)**
- 3** Rear right fuse box **Z2 (G01, G02, G05, G07, G08, G20, G29, cars only)**

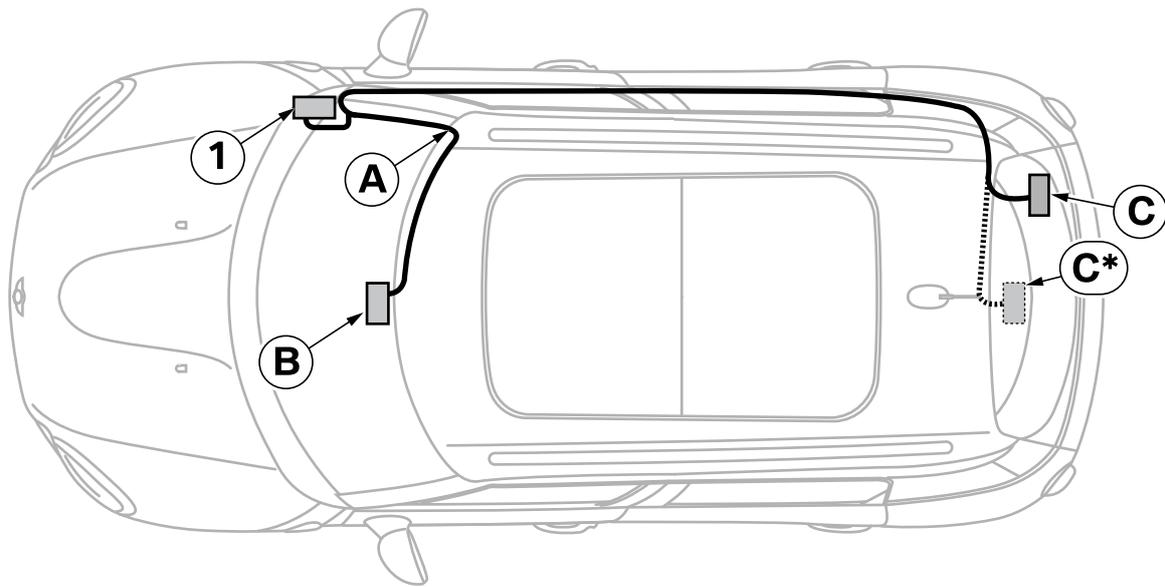
## 19. Installation and cabling diagram for R Series



F26 0147 Z

- A** Retrofit wiring harness
- B** Front camera
- C** Rear window camera, preferred installation position for cars with fixed rear window
- C\*** Rear window camera, preferred installation position for cars with a rear window in the tailgate and optional installation position for cars with a fixed rear window without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds)
- 1** CAS control unit **A16**

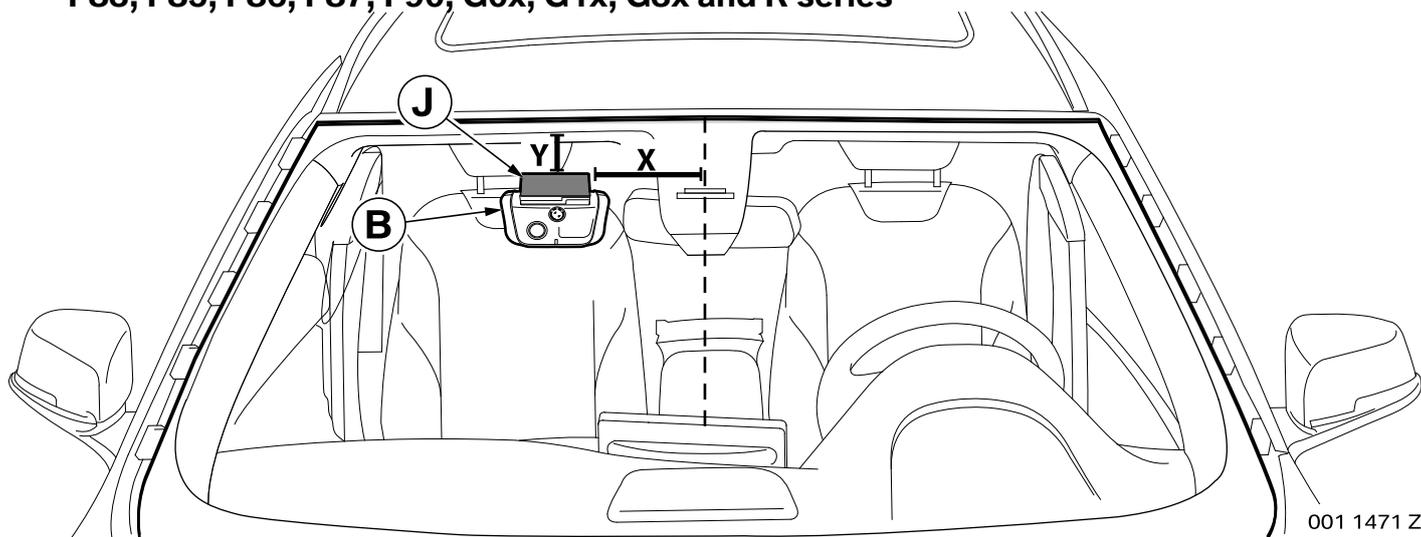
**20. Installation and cabling diagram for F54, F57 (no rear window camera installation), F55, F56, F60, F60 PHEV**



F26 0145 Z

- A** Retrofit wiring harness
- B** Front camera
- C** Rear window camera, preferred installation position for cars with fixed rear window
- C\*** Rear window camera, preferred installation position for cars with a rear window in the tailgate and optional installation position for cars with a fixed rear window without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds)
- 1** Front right fuse box **Z7**

**21. Installation position of front camera for E series (apart from E89) F0x, F10, F11, F12, F13, F15, F16, F18, F2x, F30, F31, F32, F33, F34, F35, F36, F39, F5x, F6x, F80, F82, F83, F85, F86, F87, F90, G0x, G1x, G3x and R series**



001 1471 Z

 Front camera **B** must not restrict the driver's field of vision. Front camera **B** must be installed within the windscreen wiper's wipe area and outside the coloured sun protection strip.

After installing front camera **B**, all buttons, plugs and the SD card slot must be freely accessible.

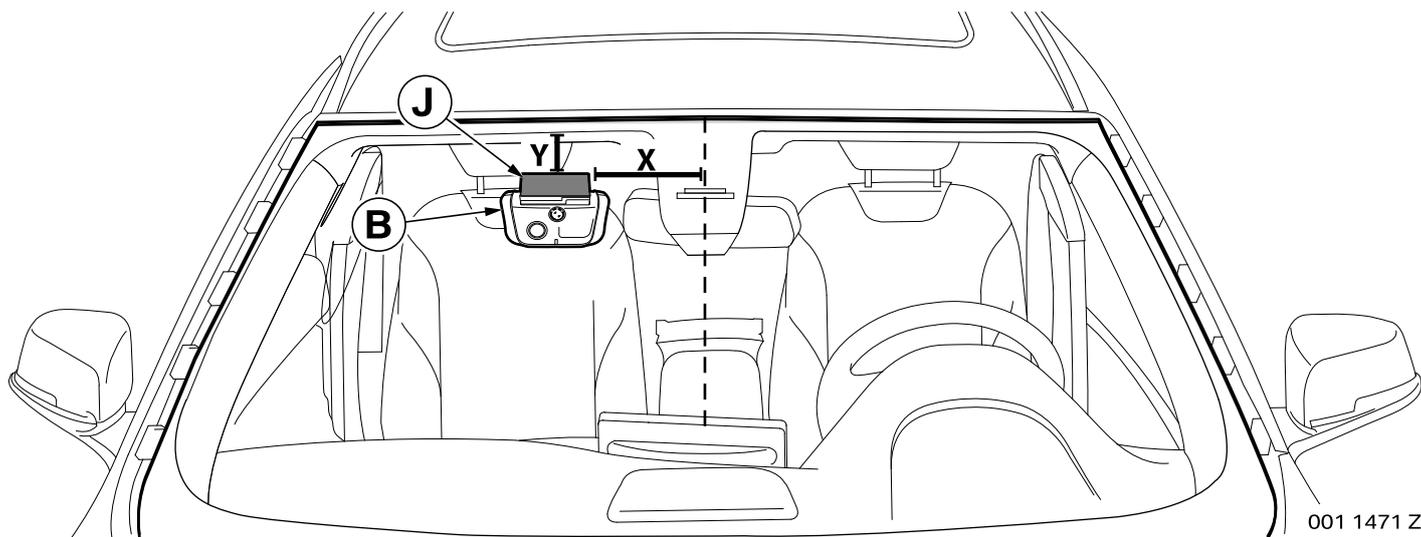
The bonding surfaces must be clean and free of grease. Apply at room temperature only (minimum 20 °C).

Tape **J** and the adhesive strip which is already installed on the front camera **B** may only be used once. If the tape and/or adhesive strip is positioned incorrectly once, they must be replaced. ◀

Affix tape **J** to the prescribed position on the front windscreen.

- Y = 20 mm
- X = 200 mm

## 22. Installation position for E89, F45, F46, F48, F49



001 1471 Z

Front camera **B** must not restrict the driver's field of vision. Front camera **B** must be installed within the windscreen wiper's wipe area and outside the coloured sun protection strip.

After installing front camera **B**, all buttons, plugs and the SD card slot must be freely accessible.

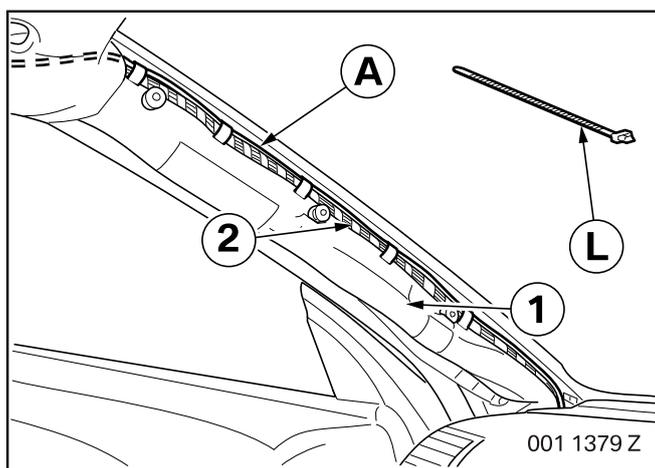
The bonding surfaces must be clean and free of grease. Apply at room temperature only (minimum 20 °C).

Tape **J** and the adhesive strip which is already installed on the front camera **B** may only be used once. If the tape and/or adhesive strip is positioned incorrectly once, they must be replaced. ◀

Affix tape **J** to the prescribed position on the front windscreen.

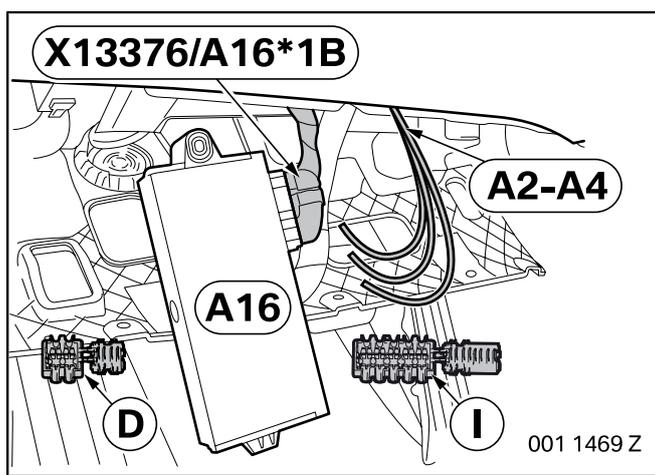
- Y = 60 mm
- X = 200 mm

## 23. Retrofit wiring harness connection for E series cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

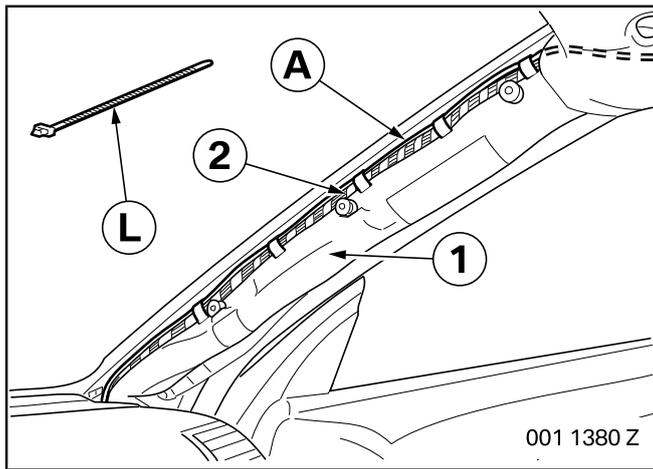
Route retrofit wiring harness **A** along the left A pillar into the footwell.



Connect branches **A2-A4** as follows to CAS control unit **A16**, plug **X13376/A16\*1B**:

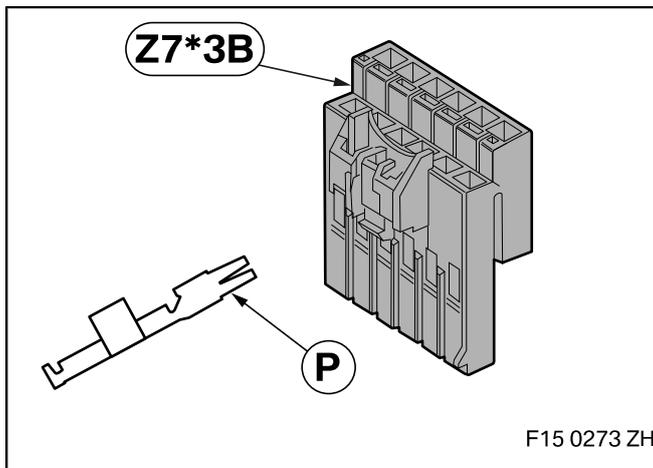
- Branch **A2**, GE cable, using miniature connector **I** to the line from PIN 34
- Branch **A3**, RT cable, using miniature connector **D** to the cable from PIN 14
- Branch **A4**, SW cable, using miniature connector **D** to the line from PIN 12

## 24. Retrofit wiring harness connection for F15, F16, F20, F21, F22, F23, F30, F31, F32, F33, F34, F35, F36, F8x cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. **!**

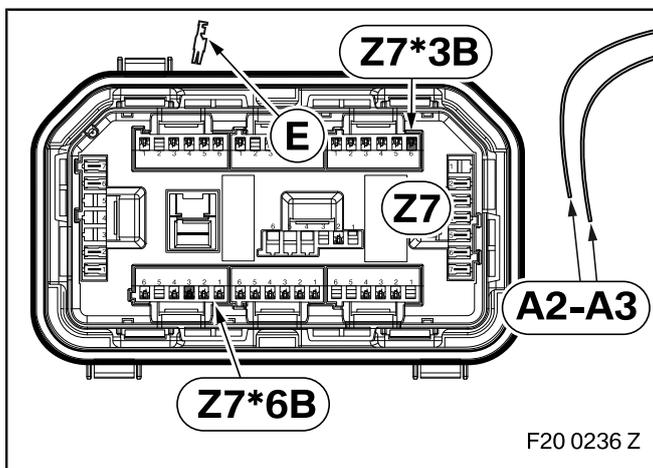
Route retrofit wiring harness **A** along the right A pillar into the footwell.



If PIN 3 on plug **Z7\*3B**, BL 6+6-pin socket housing is occupied, disconnect the standard RT/GE cable from PIN 3 and cut off the flat spring contact.

Crimp the flat spring contact with twin-lead terminal **P** to the standard RT/GE cable.

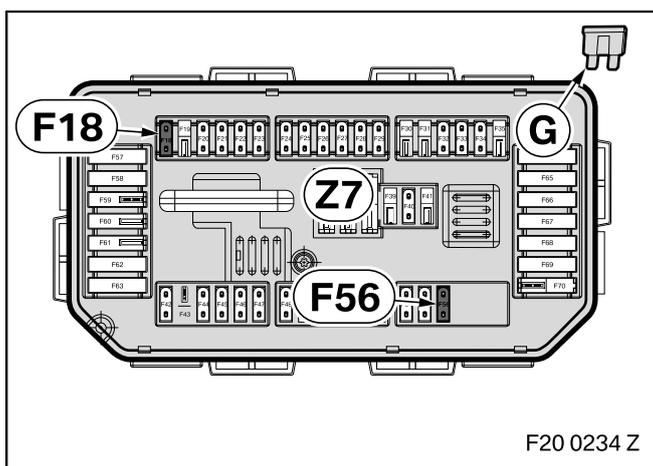
Connect the standard RT/GE cable with the crimped flat spring contact with twin-lead terminal **P** to PIN 3 of plug **Z7\*3B**.



Route branches **A2-A3** to the installation point of power distributor **Z7**.

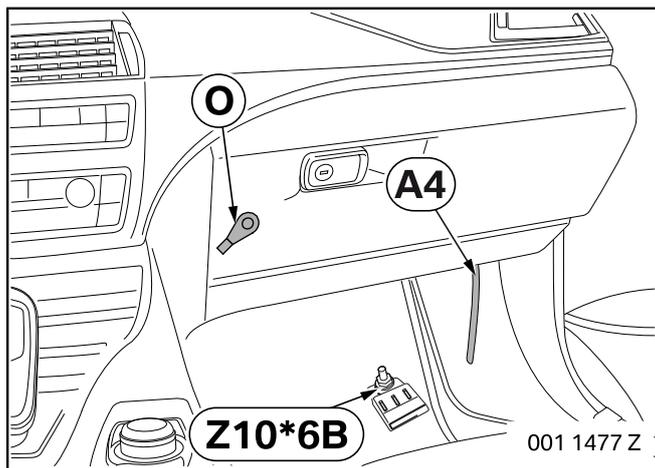
Connect branches **A2-A3** as follows to power distributor **Z7**:

- Connect branch **A2**, GE cable, with crimped double flat spring contact **E** to PIN 6 of plug **Z7\*6B**
- Connect branch **A3**, RT cable, with crimped double flat spring contact **E** to PIN 3/3a of plug **Z7\*3B**



Insert fuse **G** into slot **F18** and **F56** in fuse box **Z7**.

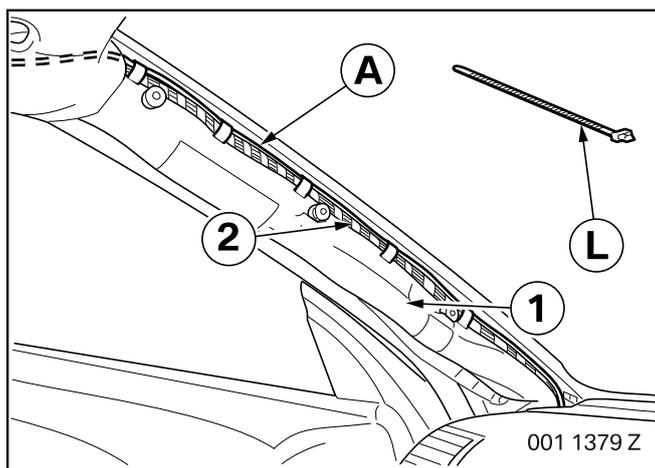
## 24. Retrofit wiring harness connection for F15, F16, F20, F21, F22, F23, F30, F31, F32, F33, F34, F35, F36, F8x cars



Route branch **A4** to the installation point of ground support point **Z10\*6B**.

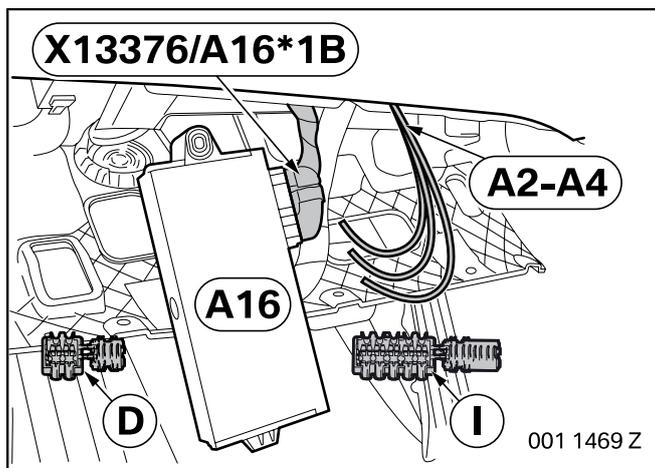
Screw branch **A4** with crimped eyelet **O** onto ground support point **Z10\*6B**.

## 25. Retrofit wiring harness connection for F0x, F10, F11, F12, F13, F18, F25, F26 cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

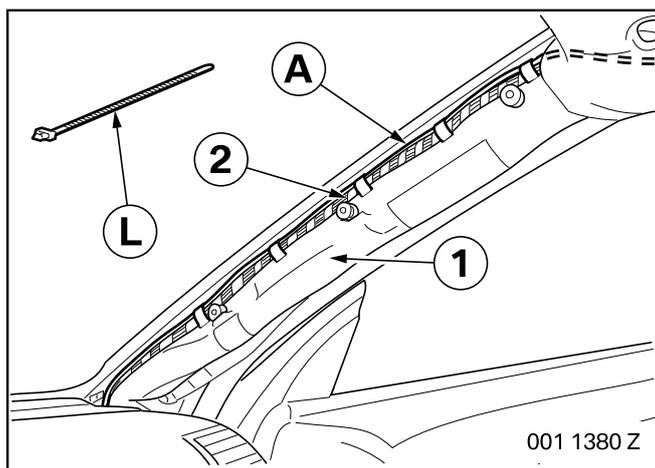
Route retrofit wiring harness **A** along the left A pillar into the footwell.



Connect branches **A2-A4** as follows to CAS control unit **A16**, plug **X13376/A16\*1B**:

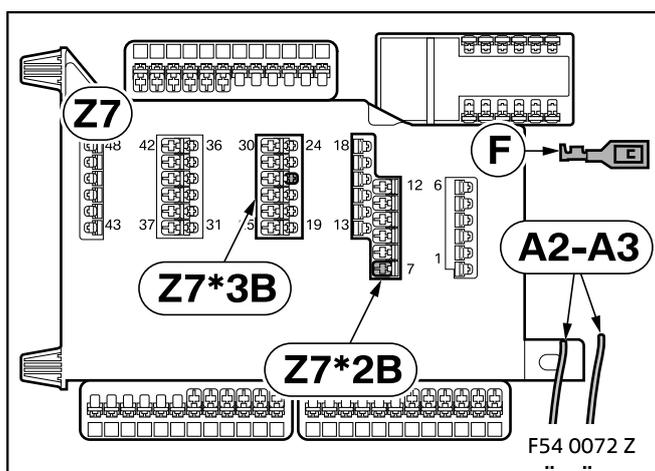
- Branch **A2**, GE cable, using miniature connector **I** to the line from PIN 34
- Branch **A3**, RT cable, using miniature connector **D** to the cable from PIN 14
- Branch **A4**, SW cable, using miniature connector **D** to the line from PIN 12

## 26. Retrofit wiring harness connection for F4x, F52 cars built before 07/17



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. **!**

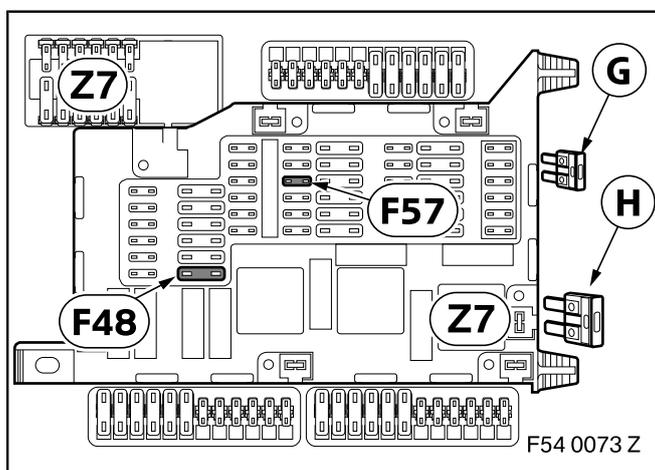
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branches **A2-A3** to the installation point of power distributor **Z7**.

Connect branches **A2-A3** as follows to power distributor **Z7**:

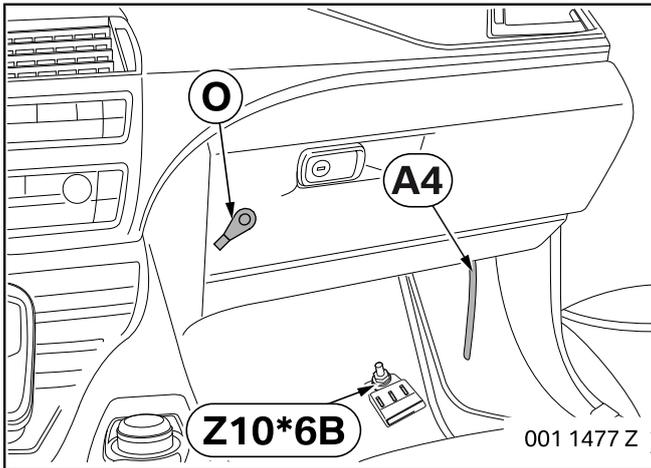
- Connect branch **A2**, GE cable, with crimped double flat spring contact **F** to PIN 7 of plug **Z7\*2B**
- Connect branch **A3**, RT cable, with crimped socket contact **F** to PIN 22 of plug **Z7\*3B**



Insert fuse **H** into slot **F48** of fuse box **Z7**.

Insert fuse **H** into slot **F57** of fuse box **Z7**.

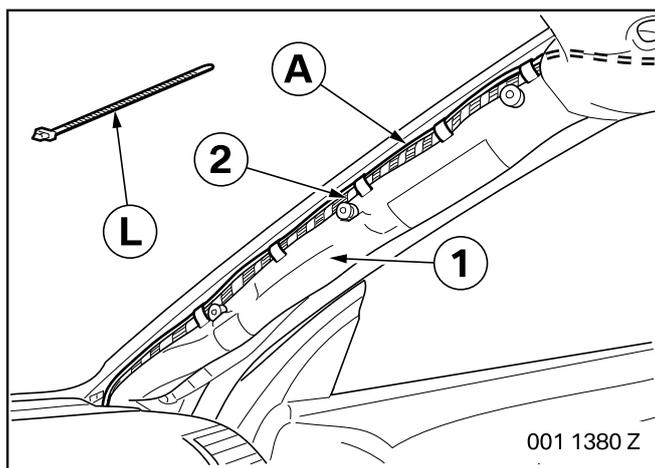
## 26. Retrofit wiring harness connection for F4x, F52 cars built before 07/17



Route branch **A4** to the installation point of ground support point **Z10\*6B**.

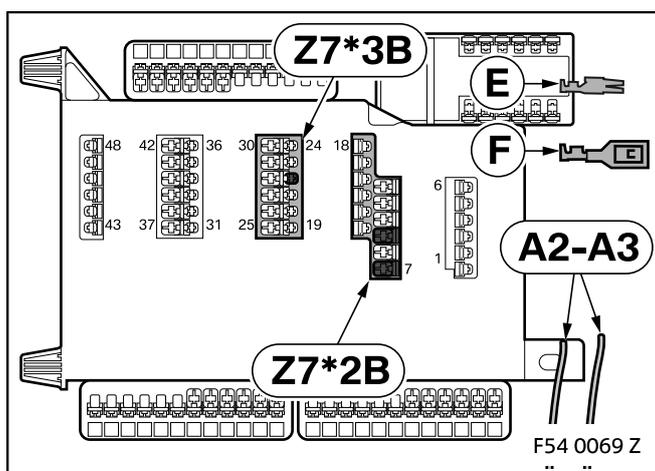
Screw branch **A4** with crimped eyelet **O** onto ground support point **Z10\*6B**.

## 27. Retrofit wiring harness connection for F39, F4x, F52 cars built after 07/17



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

Route retrofit wiring harness **A** along the right A pillar into the footwell.

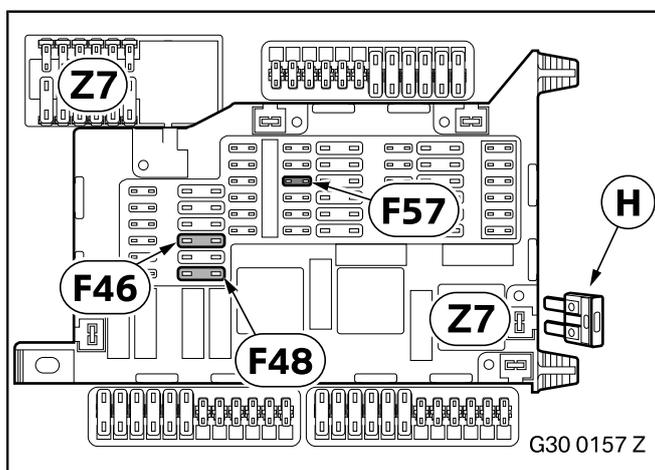


◀ PIN of branch **A2** depends on the empty slot. ◀

Route branches **A2-A3** to the installation point of power distributor **Z7**.

Connect branches **A2-A3** as follows to power distributor **Z7**:

- Connect branch **A2**, GE cable, with crimped double flat spring contact **E** to PIN 7 or PIN 9 of plug **Z7\*2B**
- Connect branch **A3**, RT cable, with crimped socket contact **F** to PIN 22 of plug **Z7\*3B**



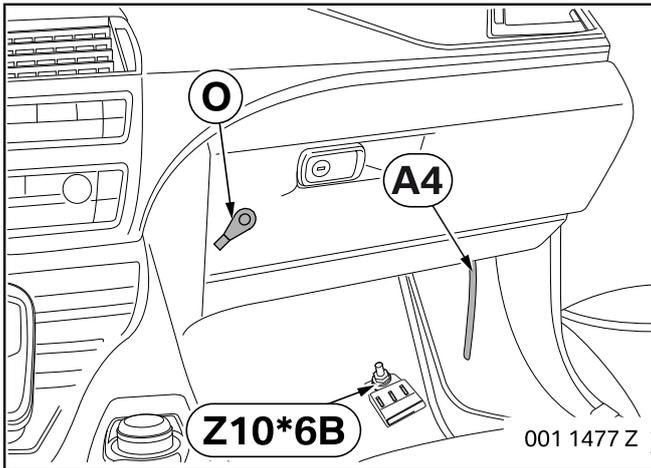
◀ The slot for fuse **H** depends on the PIN for branch **A2**: ◀

- PIN 7 = Slot F48
- PIN 9 = Slot F46

Insert fuse **H** into slot **F46** or **F48** in fuse box **Z7**.

Insert fuse **G** into slot **F57** of fuse box **Z7**.

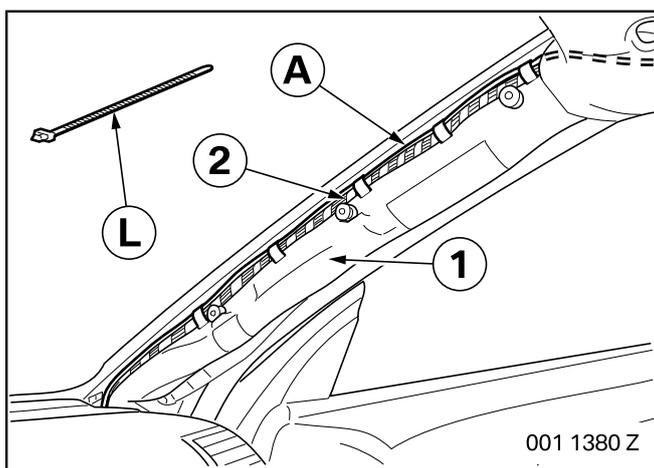
## 27. Retrofit wiring harness connection for F39, F4x, F52 cars built after 07/17



Route branch **A4** to the installation point of ground support point **Z10\*6B**.

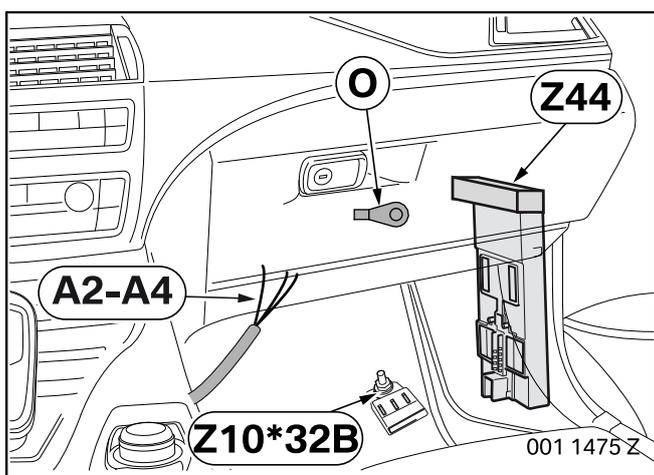
Screw branch **A4** with crimped eyelet **O** onto ground support point **Z10\*6B**.

## 28. Retrofit wiring harness connection for G1x, G3x cars built before 07/18



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

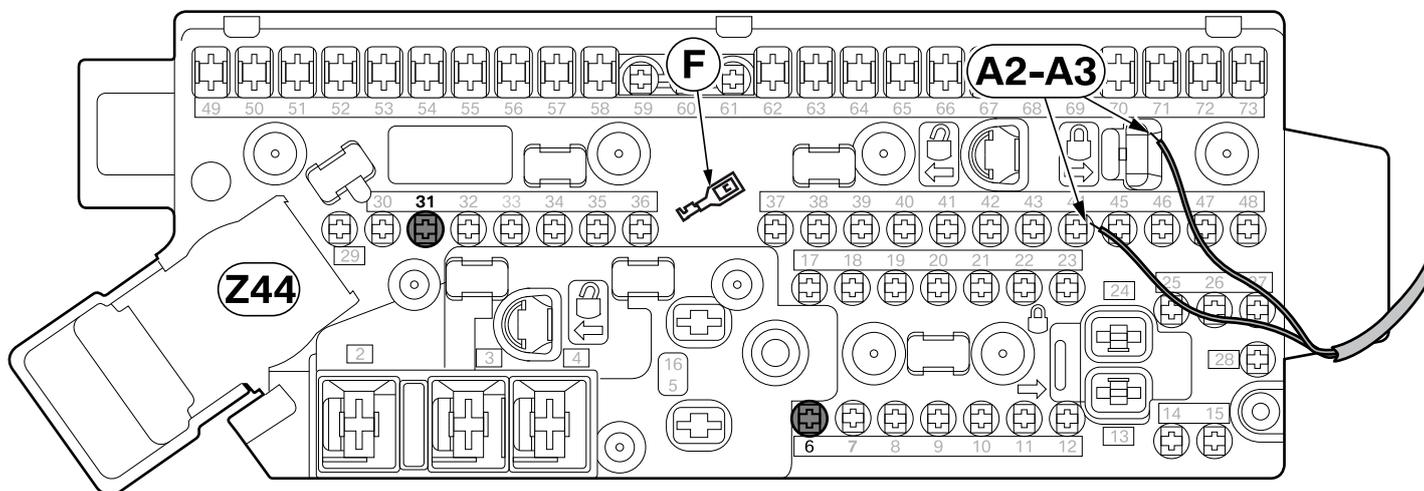
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branches **A2-A3** to the location of power distributor **Z44**.

Route branch **A4** to the installation point of ground support point **Z10\*32B**.

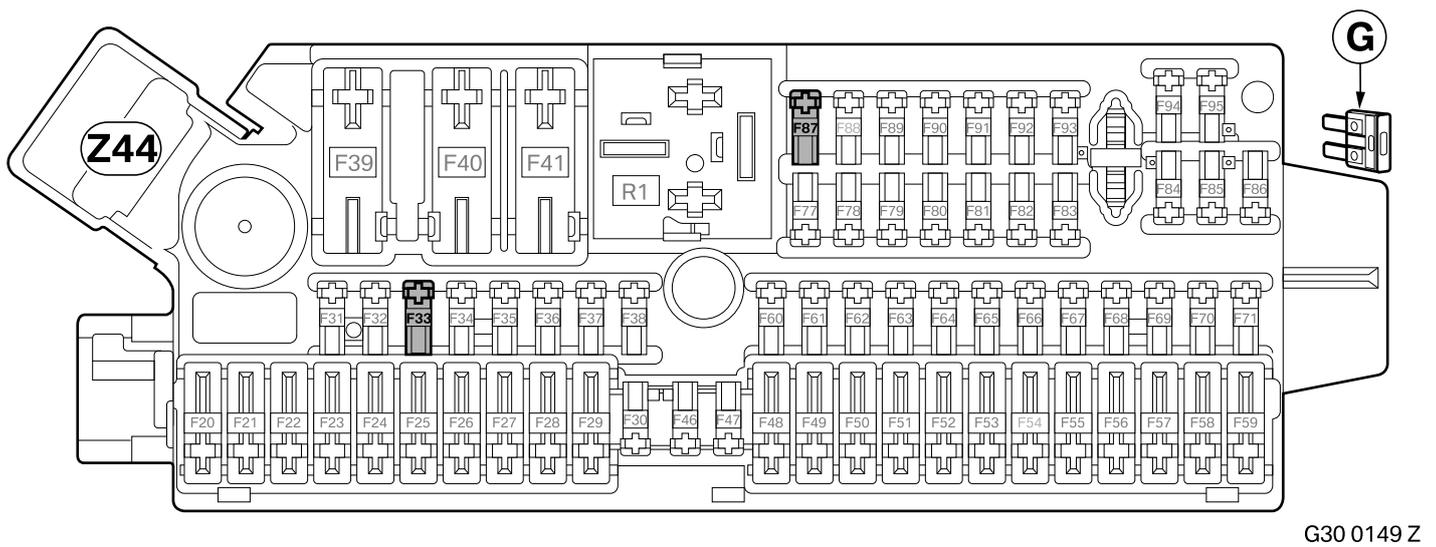
Secure branch **A4** to ground support point **Z10\*32B** using crimped eyelet **O**.



Connect branches **A2-A3** as follows to power distributor **Z44**:

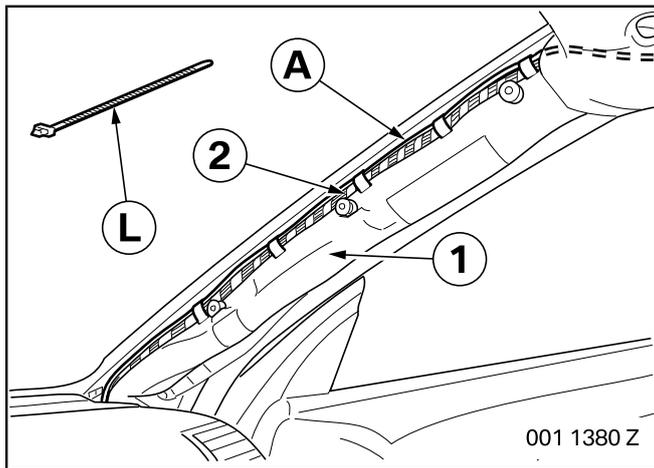
- Branch **A2**, GE cable, with crimped socket contact **F** to PIN 31
- Branch **A3**, RT cable, with crimped socket contact **F** to PIN 6

## 28. Retrofit wiring harness connection for G1x, G3x cars built before 07/18



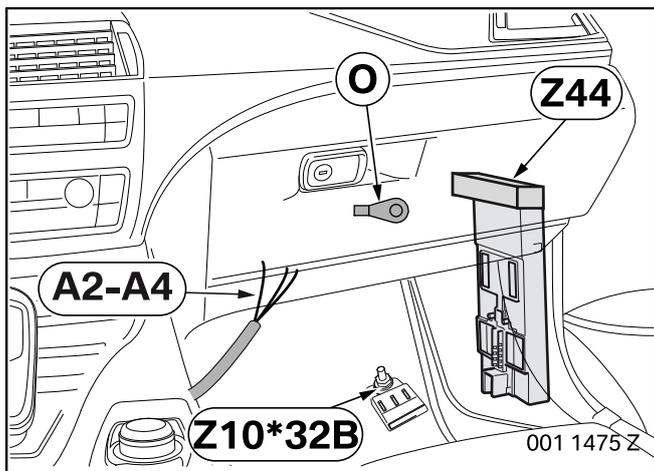
Insert fuse **G** into slot **F33** and **F87** in fuse box **Z44**.

## 29. Retrofit wiring harness connection for F90, G1x, G3x cars built after 07/18



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **H** to ensure that the function of the airbag (1) is not adversely affected. ◀

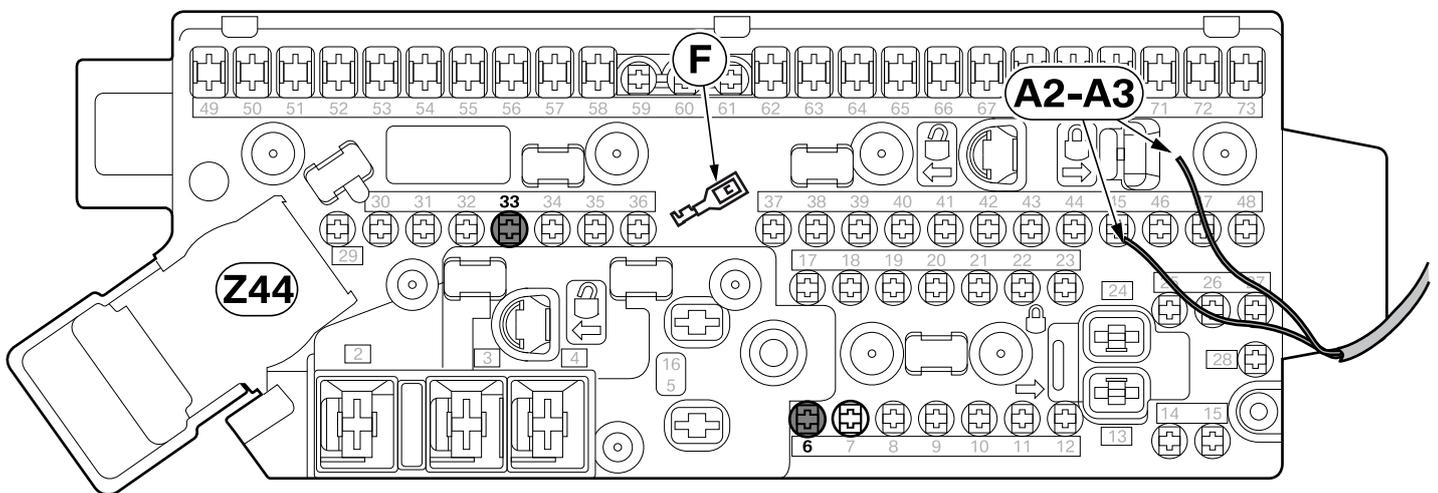
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branches **A2-A3** to the location of power distributor **Z44**.

Route branch **A4** to the location of ground support point **Z10\*32B**.

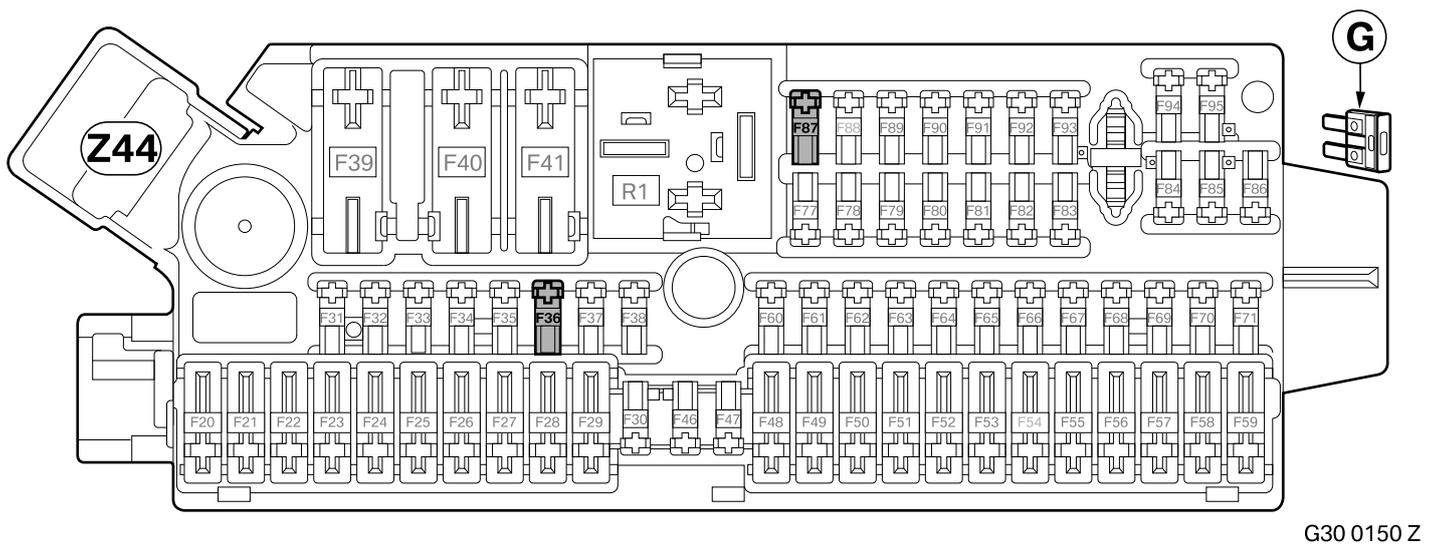
Secure branch **A4** to ground support point **Z10\*32B** using crimped eyelet **O**.



Connect branches **A2-A3** as follows to power distributor **Z44**:

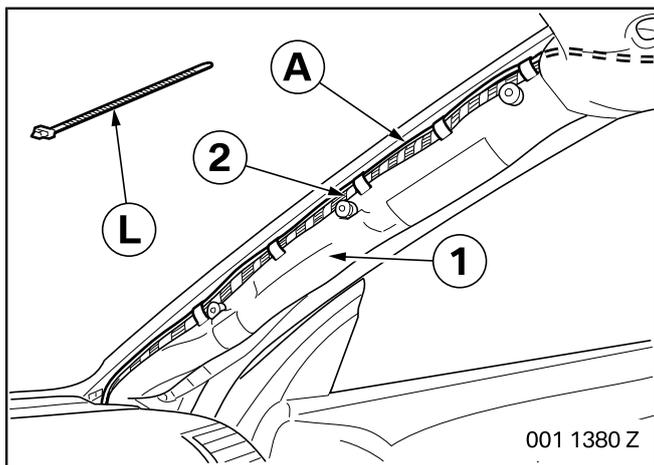
- Connect branch **A2**, GE cable, using crimped socket contact **F**, to PIN 33
- Connect branch **A3**, RT cable, using crimped socket contact **F**, to PIN 6

## 29. Retrofit wiring harness connection for F90, G1x, G3x cars built after 07/18



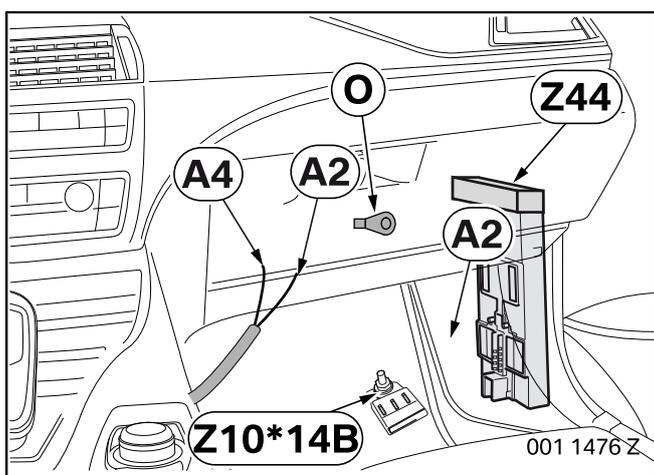
Insert fuse **G** into slot **F36** and **F87** in fuse box **Z44**.

### 30. Retrofit wiring harness connection for G01, G02, G08 cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

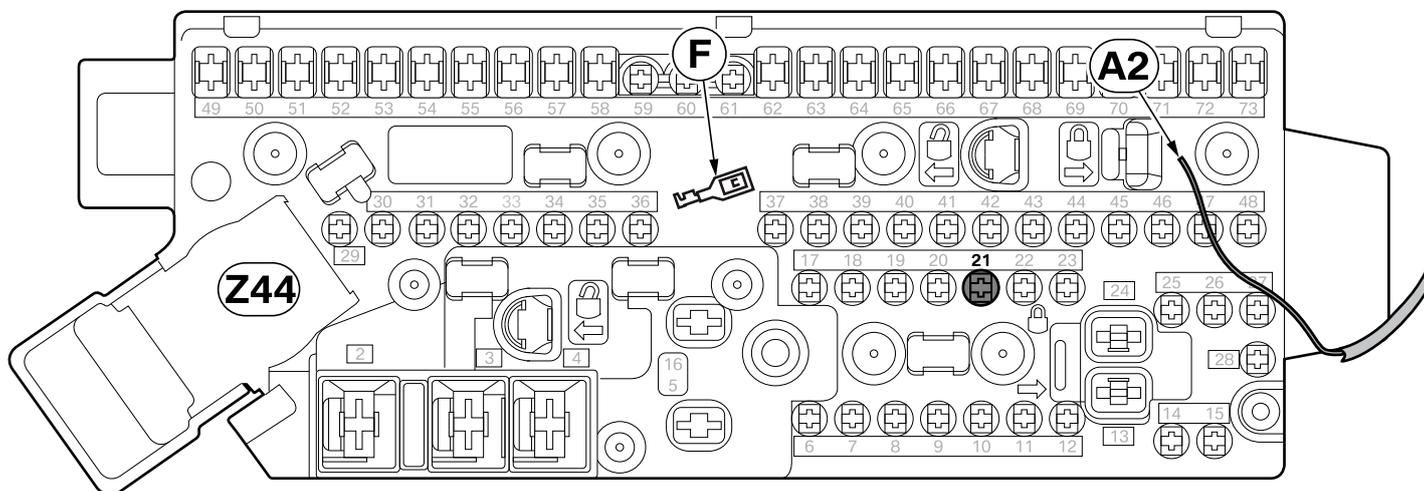
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branch **A2** to the installation point of power distributor **Z44**.

Route branch **A4** to the installation point of ground support point **Z10\*14B**.

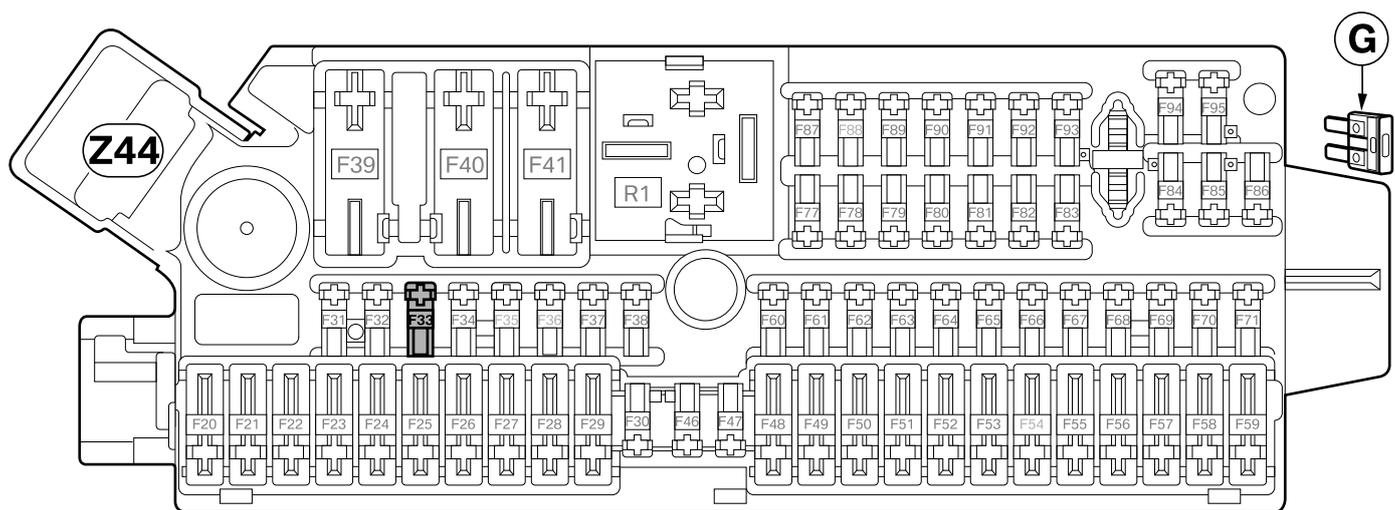
Secure branch **A4** to ground support point **Z10\*14B** using crimped eyelet **O**.



Connect branch **A2** as follows to power distributor **Z44**:

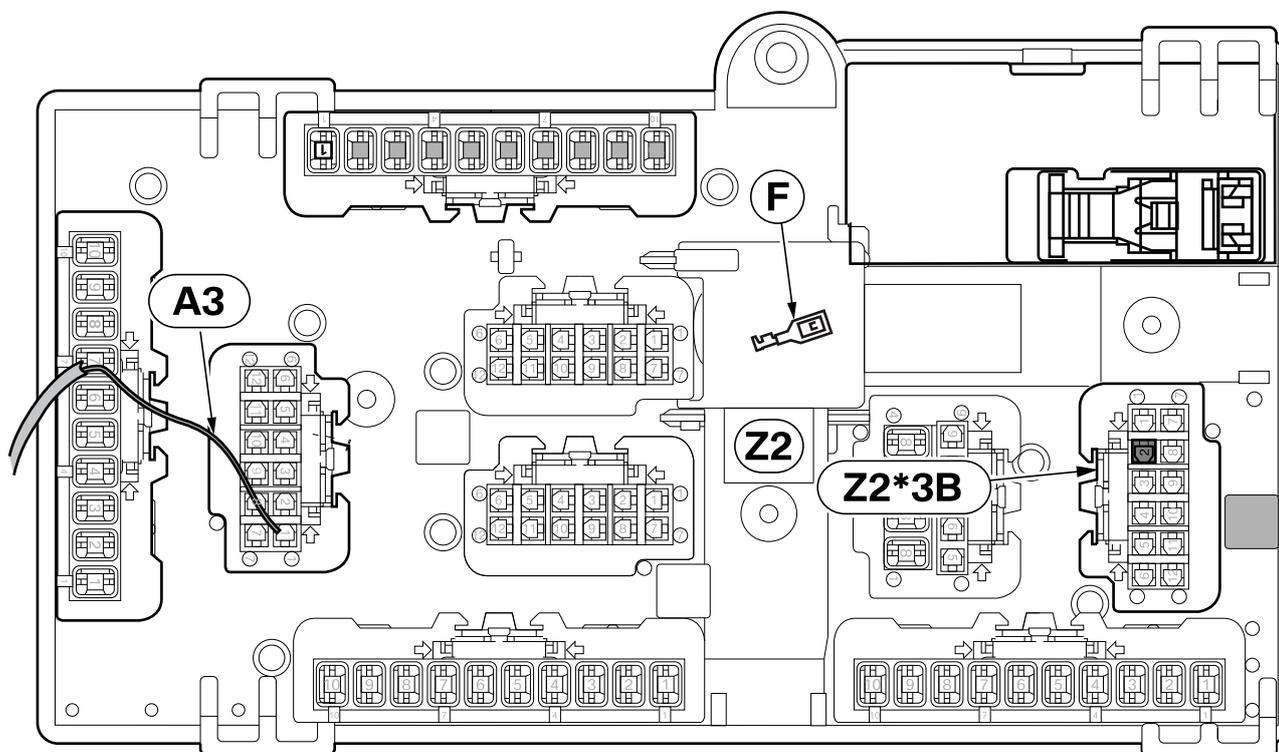
- Branch **A2**, GE cable, with crimped socket contact **F** to PIN 21

### 30. Retrofit wiring harness connection for G01, G02, G08 cars



G30 0171 Z

Insert fuse **G** into slot **F33** in fuse box **Z44**.

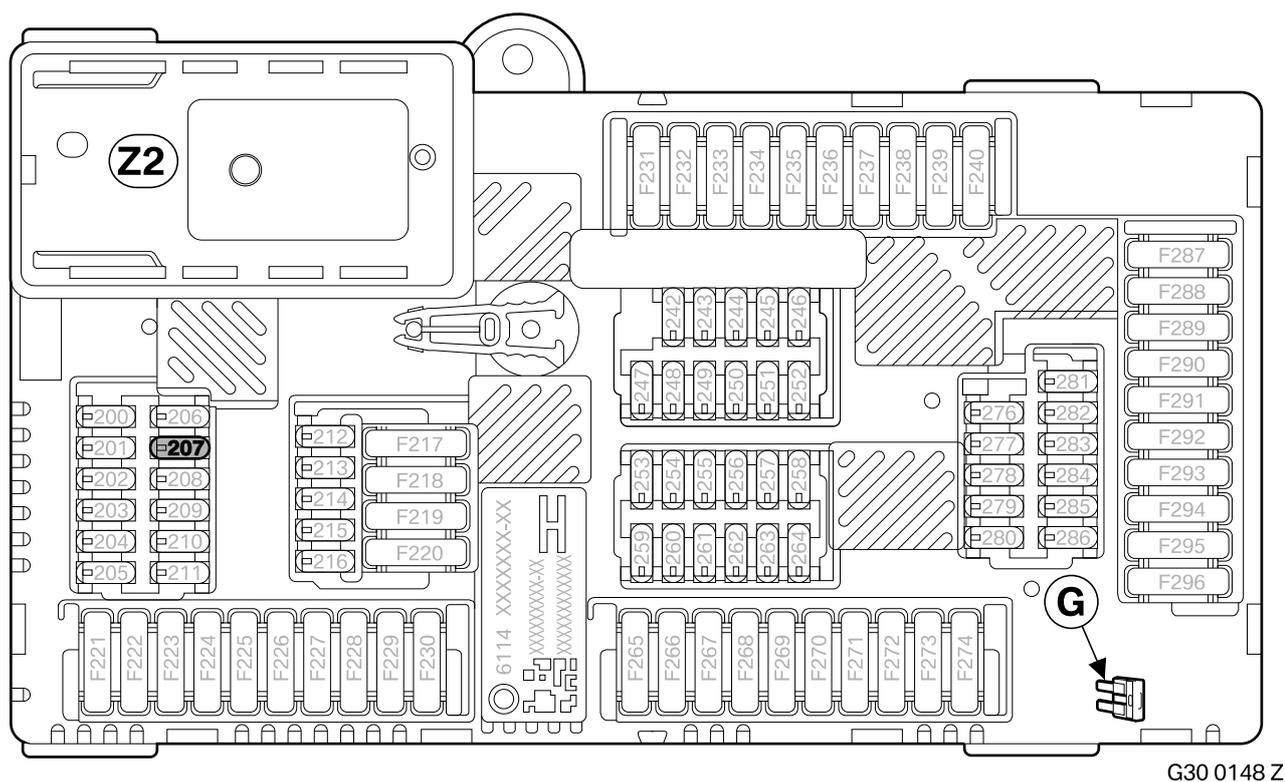


001 1465 Z

Extend branch **A3** using conventional workshop equipment and route to installation location **Z2**.

Crimp socket contact **F** to the extended branch **A3** and connect it to PIN 2 in fuse box **Z2\*3B**.

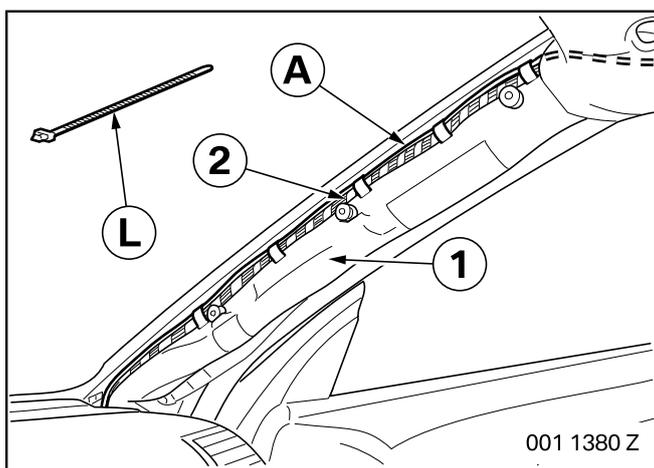
### 30. Retrofit wiring harness connection for G01, G02, G08 cars



G30 0148 Z

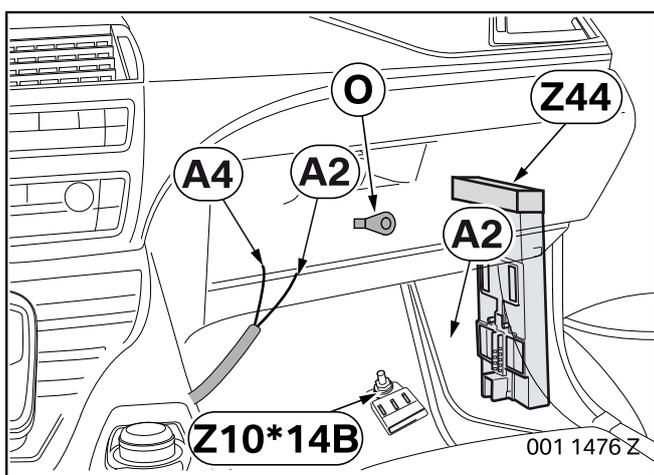
Insert fuse **G** into slot **F207** in fuse box **Z2**.

### 31. Retrofit wiring harness connection for G05, G07 cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

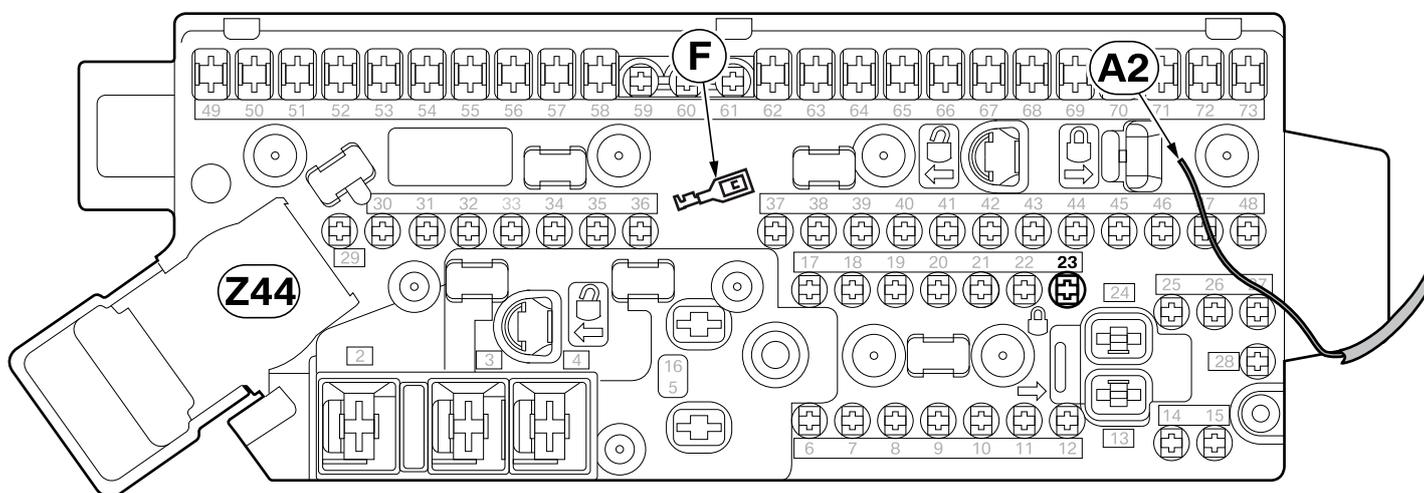
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branch **A2** to the installation point of power distributor **Z44**.

Route branch **A4** to the installation point of ground support point **Z10\*14B**.

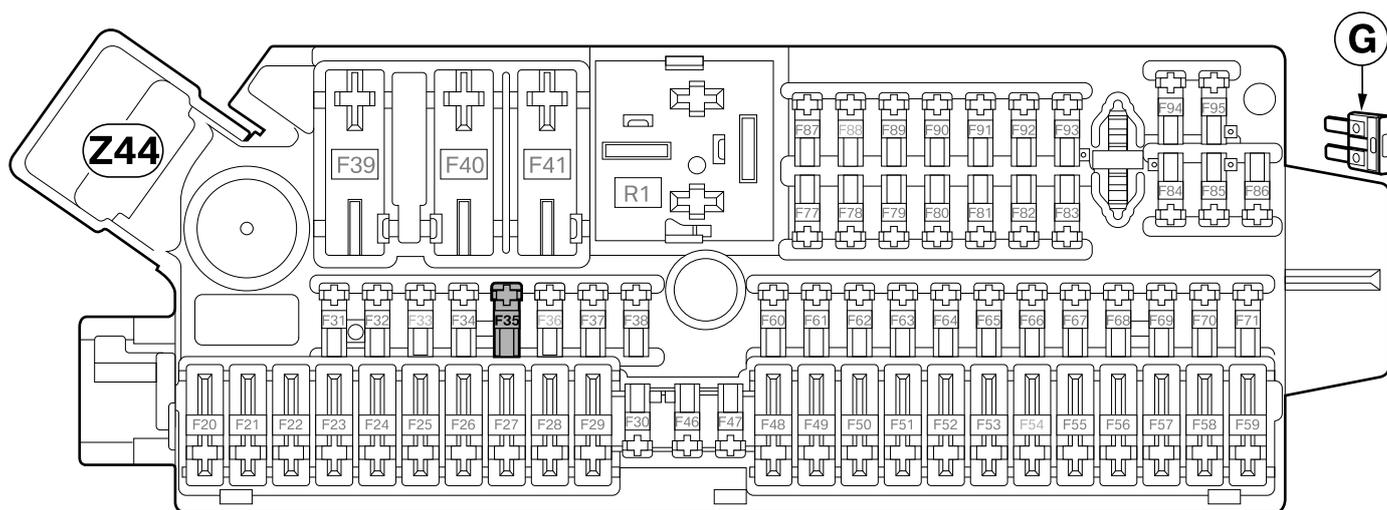
Secure branch **A4** to ground support point **Z10\*14B** using crimped eyelet **O**.



Connect branch **A2** as follows to power distributor **Z44**:

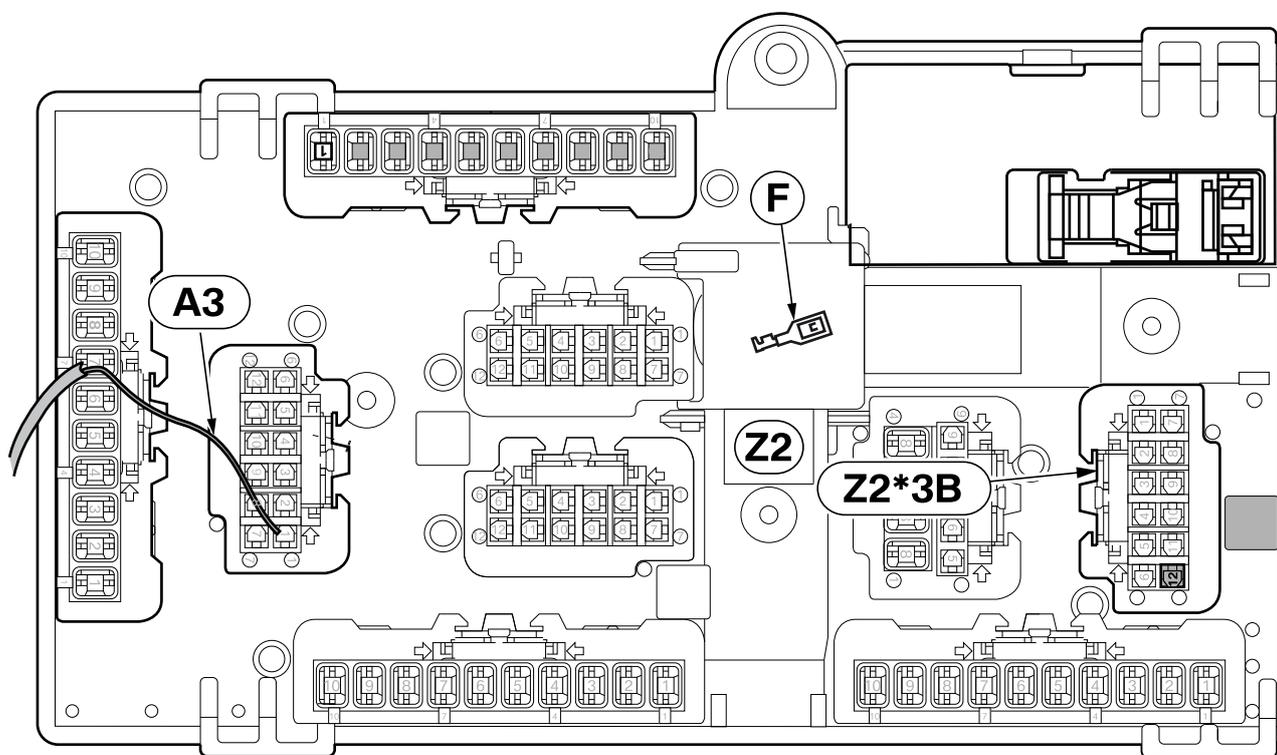
- Branch **A2**, GE cable, with crimped socket contact to PIN 23

### 31. Retrofit wiring harness connection for G05, G07 cars



G30 0154 Z

Insert fuse **G** into slot **F35** in fuse box **Z44**.

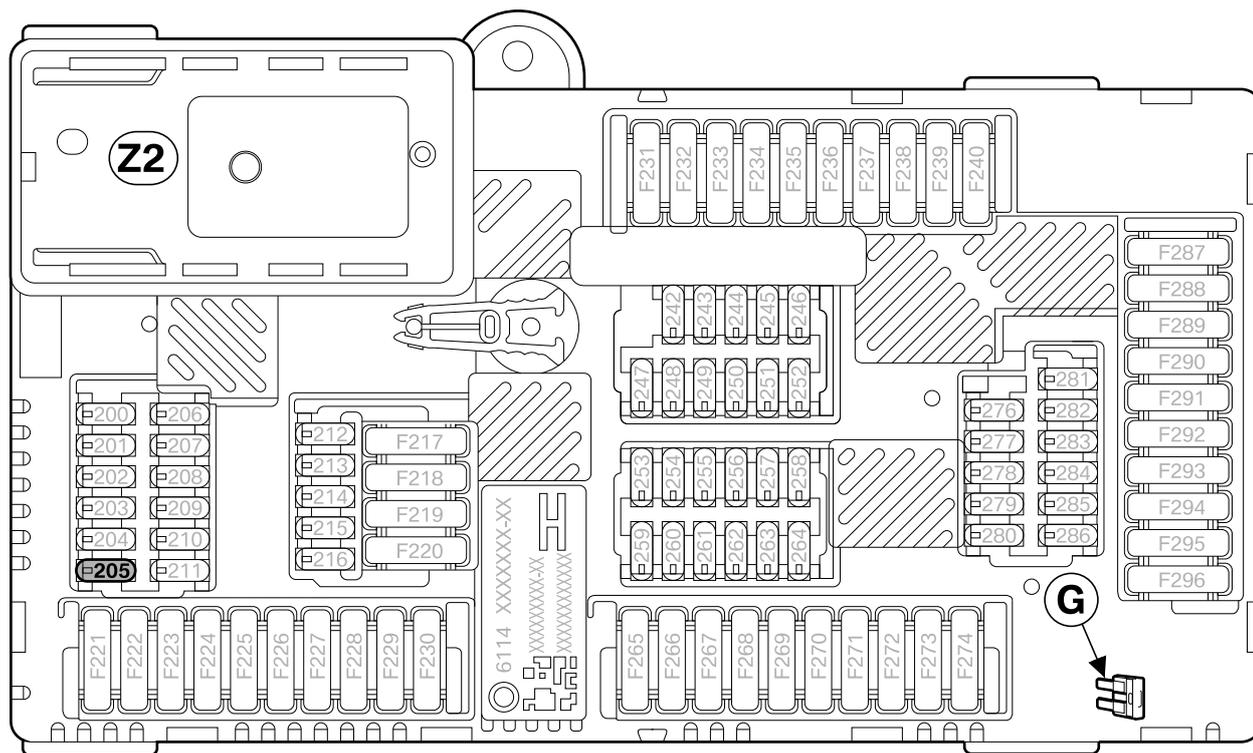


001 1510 Z

Extend branch **A3** using conventional workshop equipment and route to installation location **Z2**.

Crimp socket contact **F** to the extended branch **A3** and connect it to PIN 12 in fuse box **Z2\*3B**.

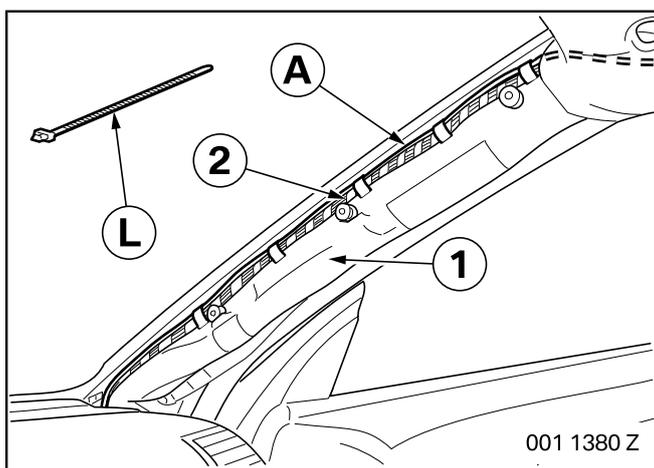
### 31. Retrofit wiring harness connection for G05, G07 cars



G30 0166 Z

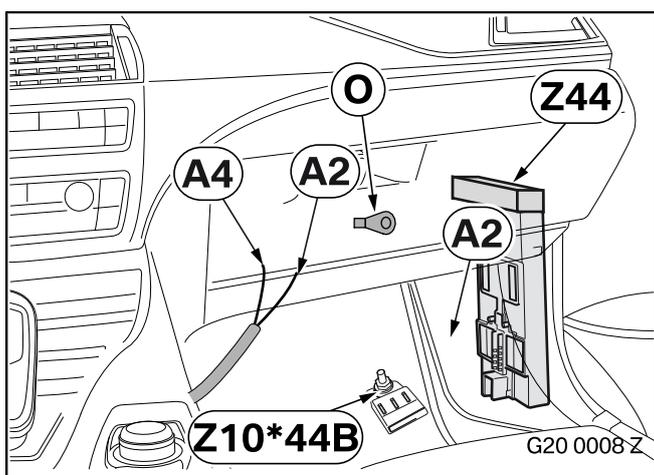
Insert fuse **G** into slot **F205** in fuse box **Z2**.

## 32. Retrofit wiring harness connection for G20, G29 cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

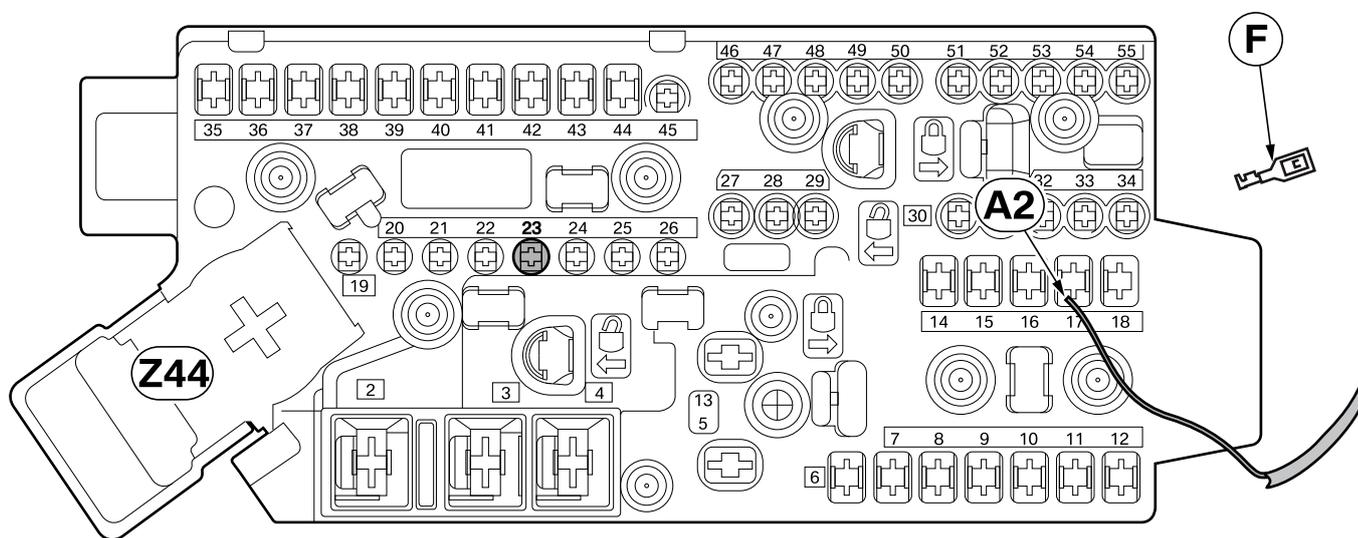
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branch **A2** to the installation point of power distributor **Z44**.

Route branch **A4** to the installation point of ground support point **Z10\*44B**.

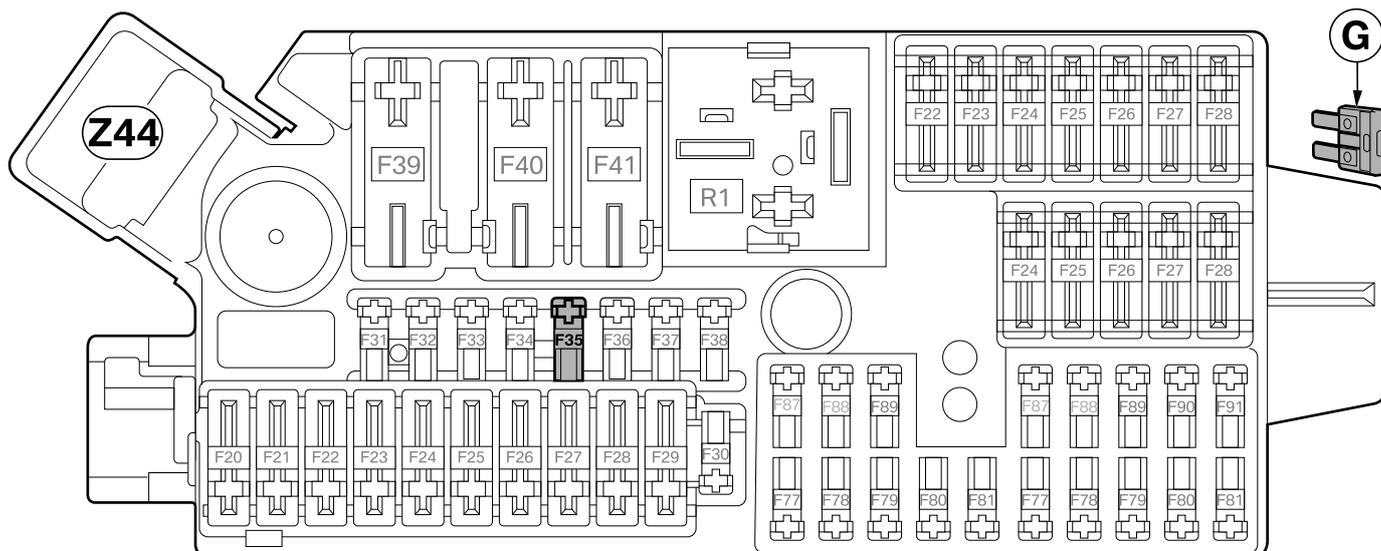
Secure branch **A4** to ground support point **Z10\*44B** using crimped eyelet **O**.



Connect branch **A2** as follows to power distributor **Z44**:

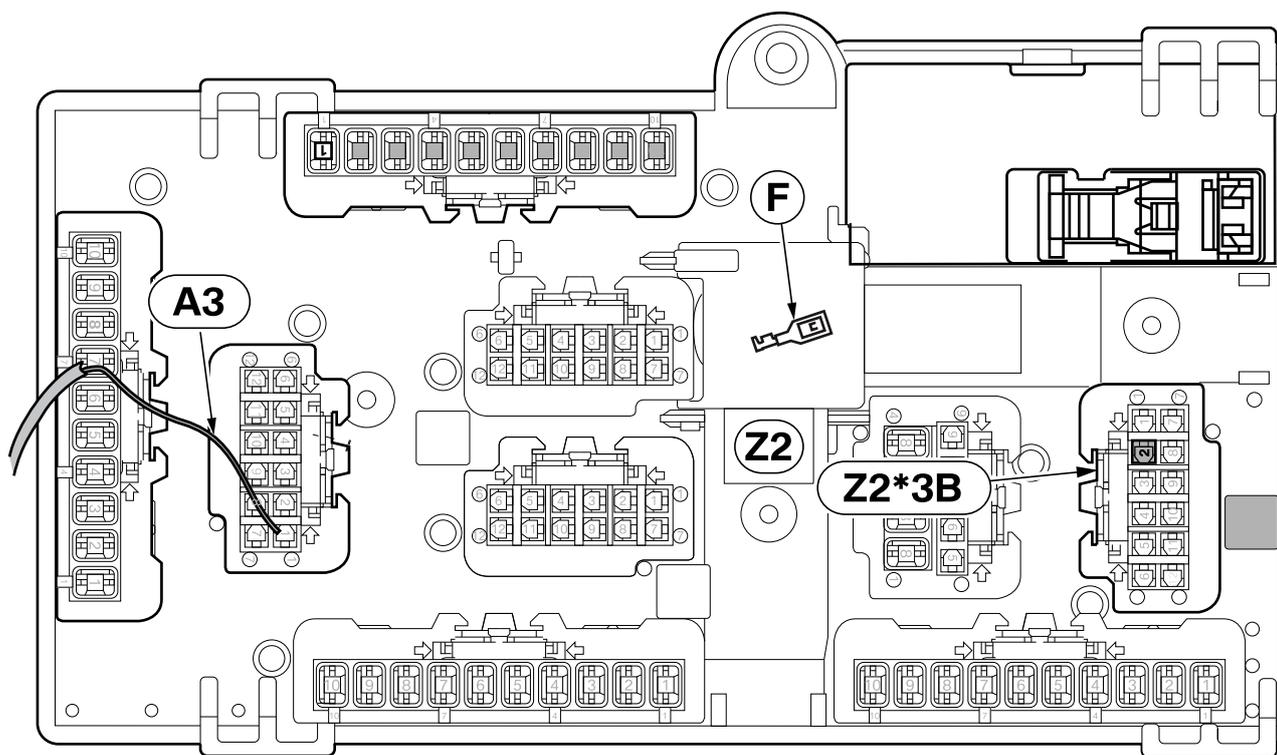
- Branch **A2**, GE cable, with crimped socket contact to PIN 23

## 32. Retrofit wiring harness connection for G20, G29 cars



G05 0070 Z

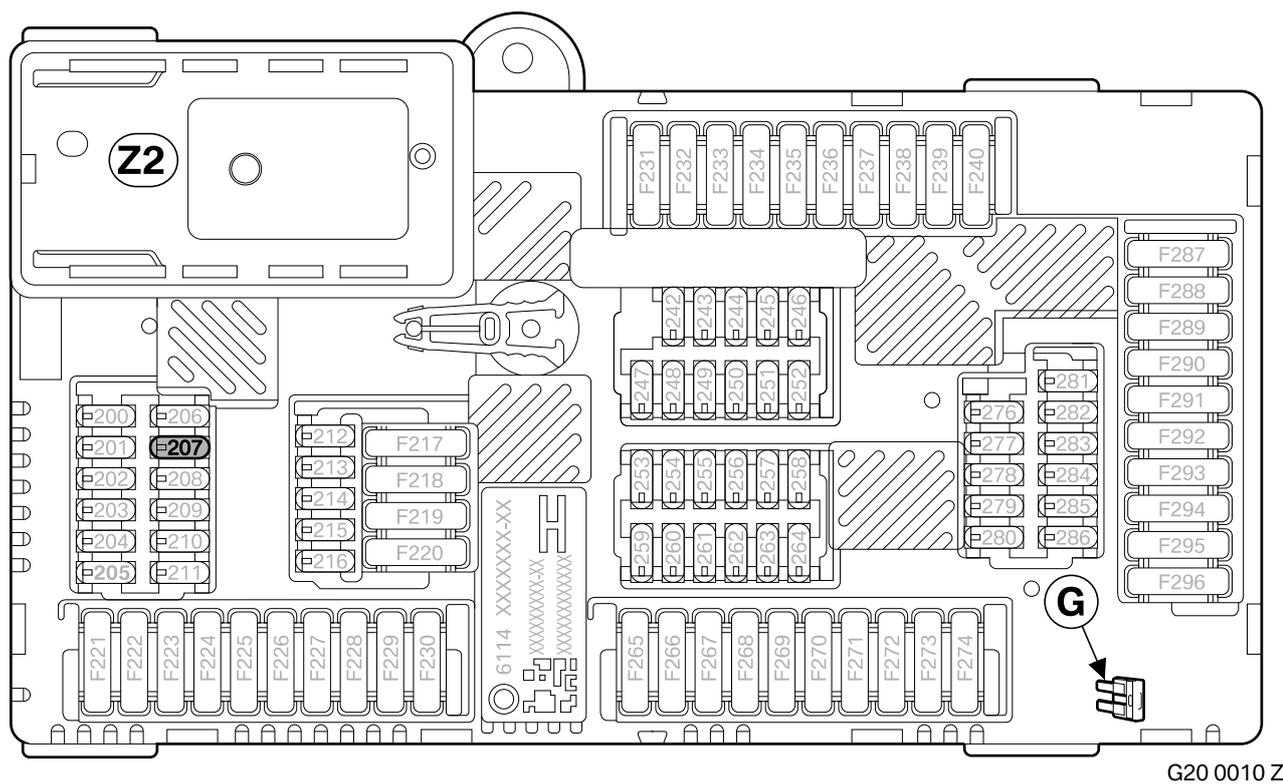
Insert fuse **G** into slot **F35** in fuse box **Z44**.



G20 0011 Z

Extend branch **A3** using conventional workshop equipment and route to installation location **Z2**.  
Crimp socket contact **F** to the extended branch **A3** and connect it to PIN 2 in fuse box **Z2\*3B**.

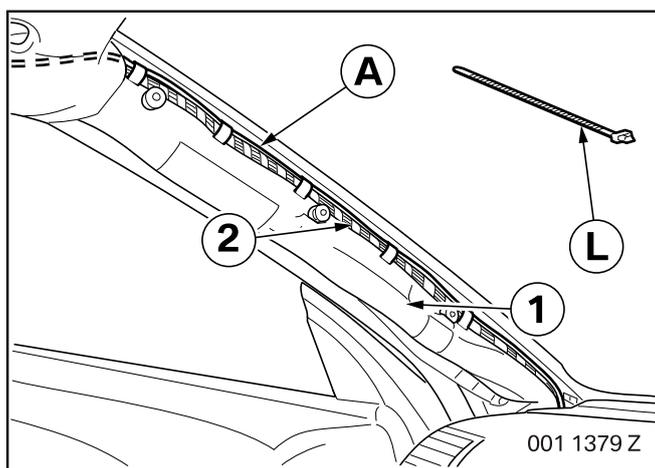
## 32. Retrofit wiring harness connection for G20, G29 cars



G20 0010 Z

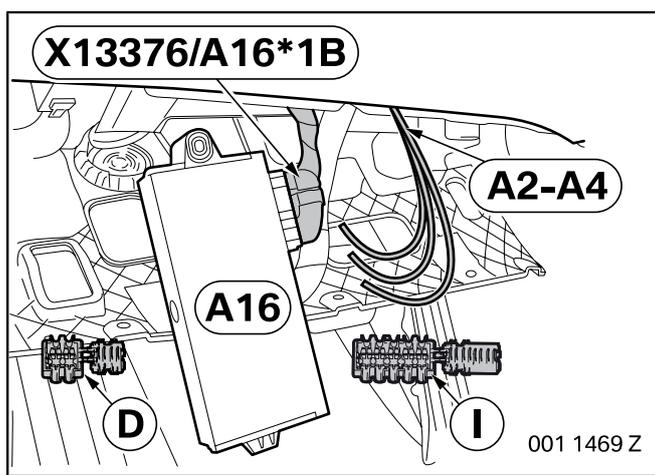
Insert fuse **G** into slot **F207** in fuse box **Z2**.

### 33. Retrofit wiring harness connection for R series cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

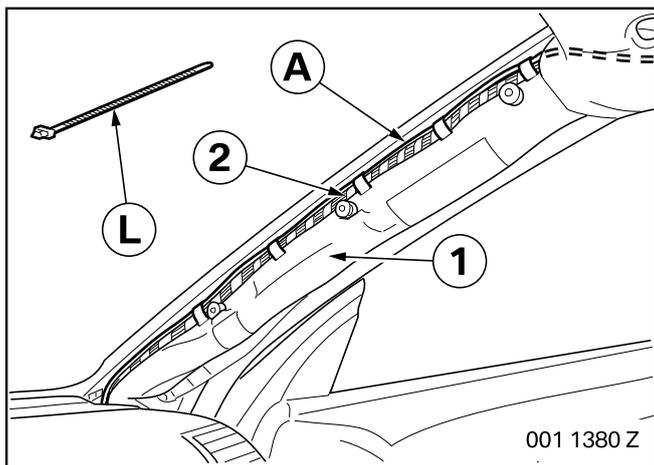
Route retrofit wiring harness **A** along the left A pillar into the footwell.



Connect branches **A2-A4** as follows to CAS control unit **A16**, plug **X13376/A16\*1B**:

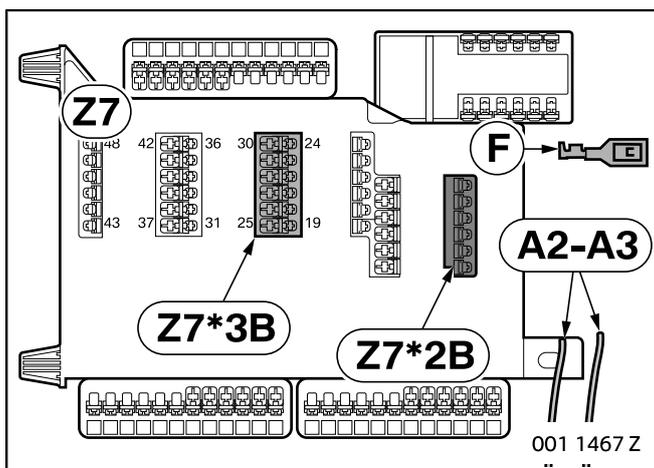
- Branch **A2**, GE cable, using miniature connector **I** to the line from PIN 34
- Branch **A3**, RT cable, using miniature connector **D** to the cable from PIN 14
- Branch **A4**, SW cable, using miniature connector **D** to the line from PIN 12

### 34. Retrofit wiring harness connection for F55, F56 and F57 cars



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

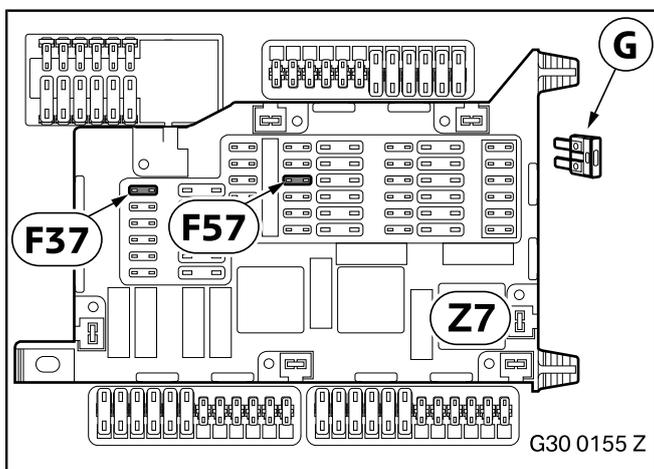
Route retrofit wiring harness **A** along the right A pillar into the footwell.



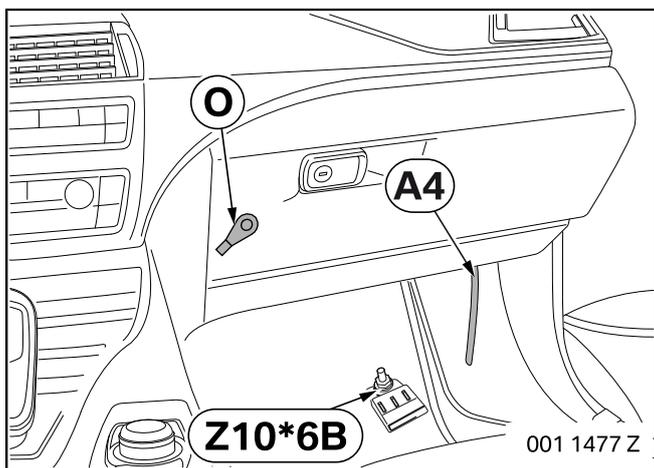
Route branches **A2-A3** to the installation point of power distributor **Z7**.

Connect branches **A2-A3** as follows to power distributor **Z7**:

- Connect branch **A2**, GE cable, with crimped double flat spring contact **E** to PIN 6 of plug **Z7\*2B**
- Connect branch **A3**, RT cable, with crimped socket contact **F** to PIN 22 of plug **Z7\*3B**



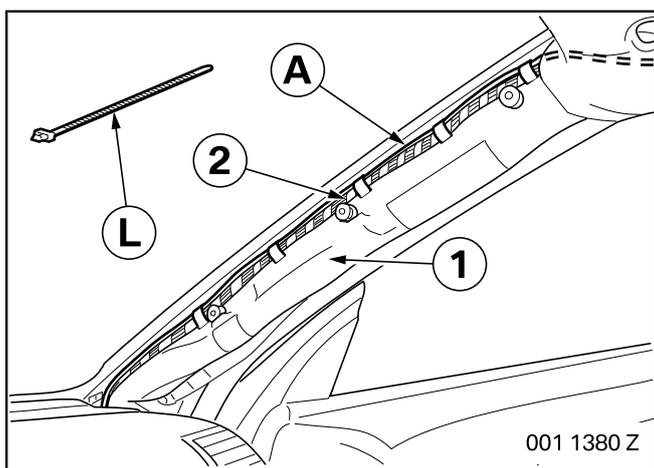
Insert fuse **G** into slot **F37** and **F57** in fuse box **Z7**.



Route branch **A4** to the installation point of ground support point **Z10\*6B**.

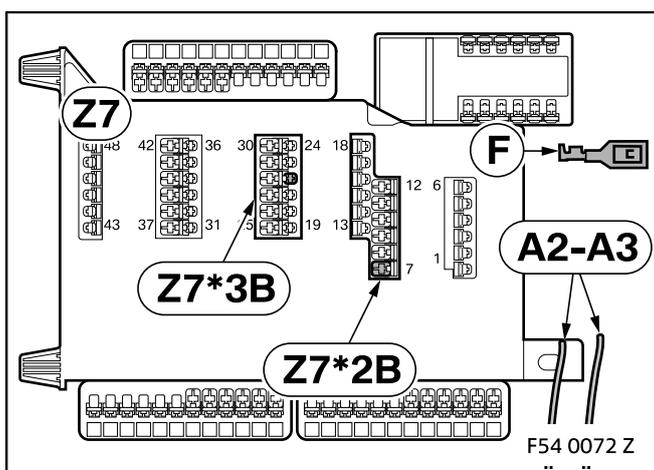
Screw branch **A4** with crimped eyelet **O** onto ground support point **Z10\*6B**.

### 35. Retrofit wiring harness connection for F54, F60 and F60 PHEV cars built before 07/17



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

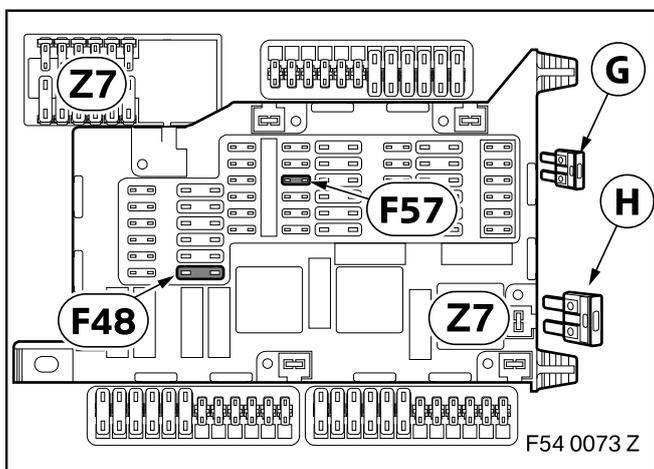
Route retrofit wiring harness **A** along the right A pillar into the footwell.



Route branches **A2-A3** to the installation point of power distributor **Z7**.

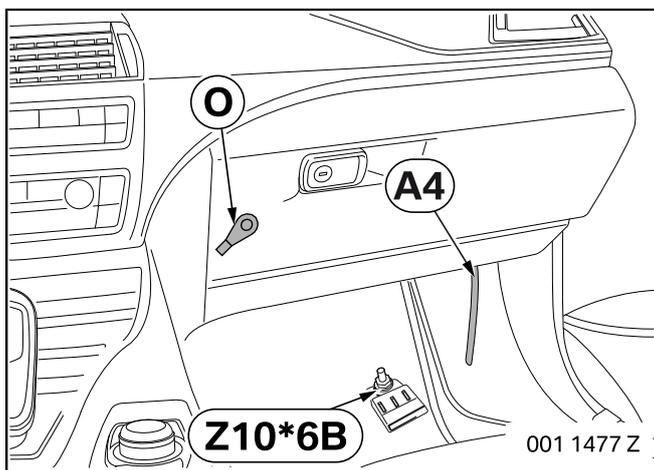
Connect branches **A2-A3** as follows to power distributor **Z7**:

- Connect branch **A2**, GE cable, with crimped socket contact **F** to PIN 7 of plug **Z7\*2B**
- Connect branch **A3**, RT cable, with crimped socket contact **F** to PIN 22 of plug **Z7\*3B**



Insert fuse **H** into slot **F48** of fuse box **Z7**.

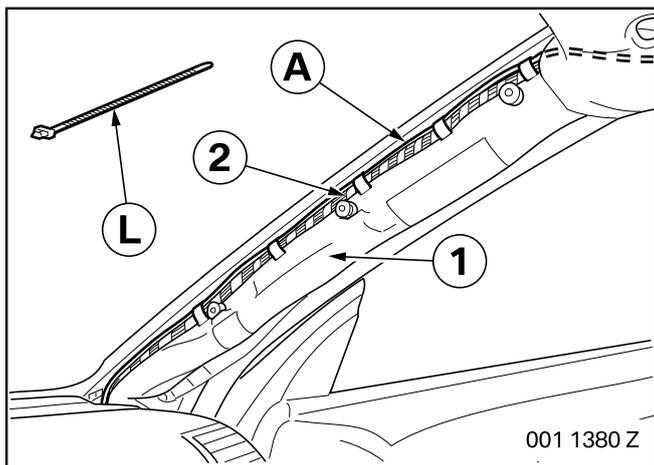
Insert fuse **H** into slot **F64** of fuse box **Z7**.



Route branch **A4** to the installation point of ground support point **Z10\*6B**.

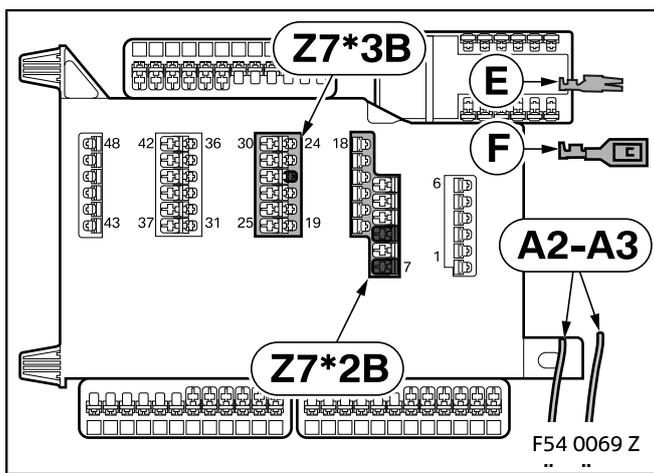
Secure branch **A4** with crimped ring eyelet **O** to ground support point **Z10\*6B**.

### 36. Retrofit wiring harness connection for F54, F60 and F60 PHEV cars built after 07/17



**!** Secure wiring harness **A** to the standard wiring harness (2) with cable tie **L** to ensure that the function of the airbag (1) is not adversely affected. ◀

Route retrofit wiring harness **A** along the right A pillar into the footwell.

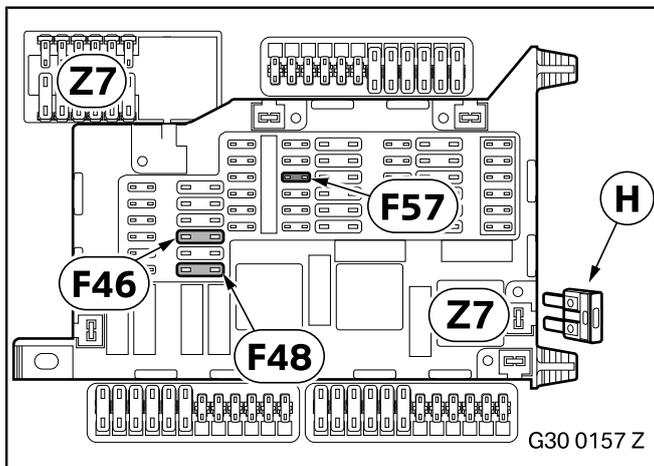


▶ PIN of branch **A2** depends on the empty slot. ◀

Route branches **A2-A3** to the installation point of power distributor **Z7**.

Connect branches **A2-A3** as follows to power distributor **Z7**:

- Connect branch **A2**, GE cable, with crimped socket contact **F** to PIN 7 or PIN 9 of plug **Z7\*2B**
- Connect branch **A3**, RT cable, with crimped socket contact **F** to PIN 22 of plug **Z7\*3B**

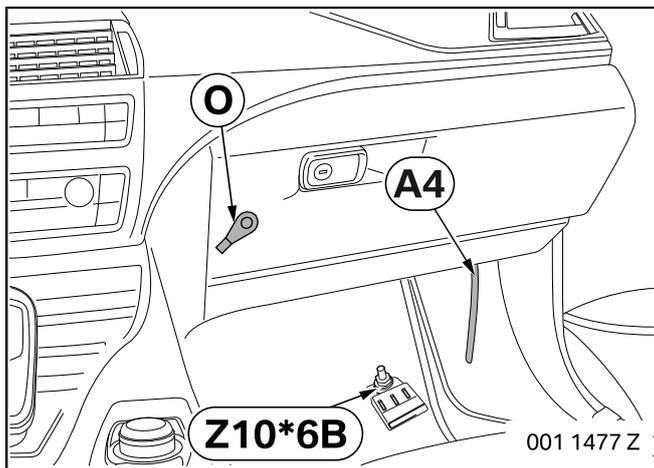


▶ The slot for fuse **H** depends on the PIN for branch **A2**

- PIN 7 = Slot F48
- PIN 9 = Slot F46

Insert fuse **H** into slot **F46** or **F48** in fuse box **Z7**.

Insert fuse **H** into slot **F64** of fuse box **Z7**.

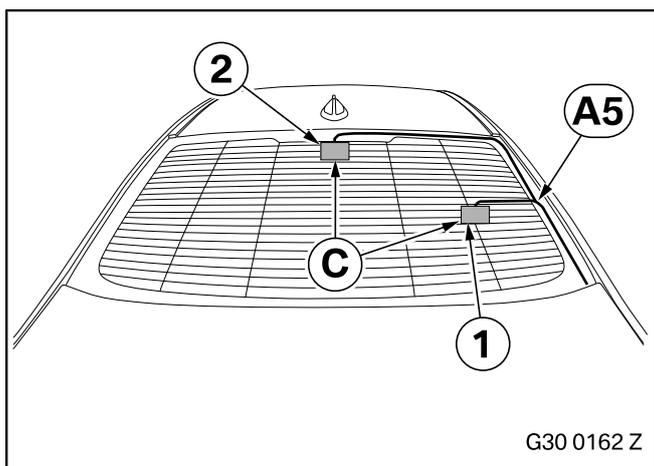


Route branch **A4** to the installation point of ground support point **Z10\*6B**.

Secure branch **A4** with crimped ring eyelet **O** to ground support point **Z10\*6B**.

### 37. Connection and installation of the rear window camera in cars with a fixed rear window (not for convertibles or F54)

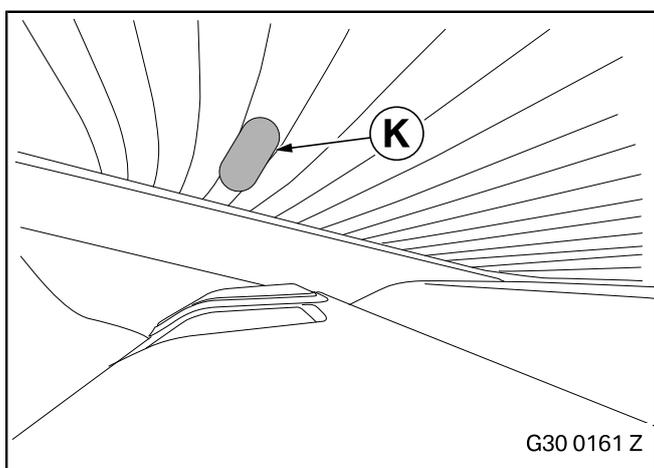
▶ The bonding surfaces must be clean and free of grease. Apply at room temperature only (minimum 20 °C). ◀



▶ The rear window camera **C** must not restrict the driver's field of vision. Ideally the rear window camera **C** should be positioned in the area blocked by the headrests. ◀

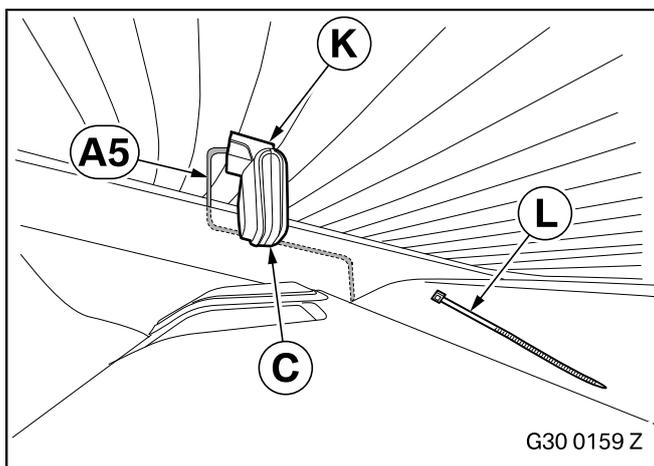
The suggested location (1) for the rear window camera **C** is at the bottom right.

An optional location (2) for the rear window camera **C** in cars without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds) is the top centre.



#### Suggested location (1)

Apply the tape **K** at the location for the rear window camera on the rear window without air bubbles.

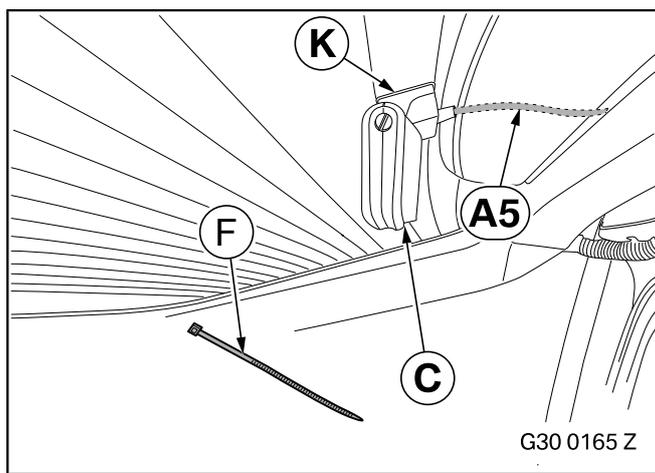
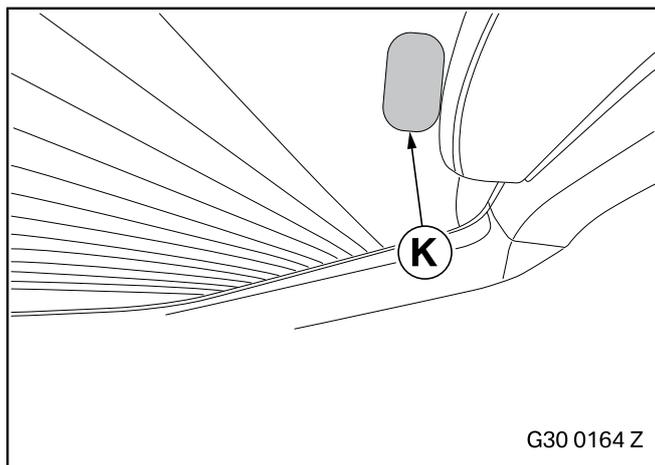


Affix the rear window camera **C** accurately on tape **K**.

Route branch **A5** along the standard wiring harness to the rear window and connect to rear window camera **C**.

▶ Secure the cable from **A5** behind the trim using cable tie **L**. ◀

### 37. Connection and installation of the rear window camera in cars with a fixed rear window (not for convertibles or F54)



#### Optional location (2) only for cars without SA 415 / SA 416 (roller blind for rear window/sun protection roller blinds)

Apply the tape **K** at the location for the rear window camera on the rear window without air bubbles.

▶ The rear window camera **C** must not restrict the driver's field of vision. ◀

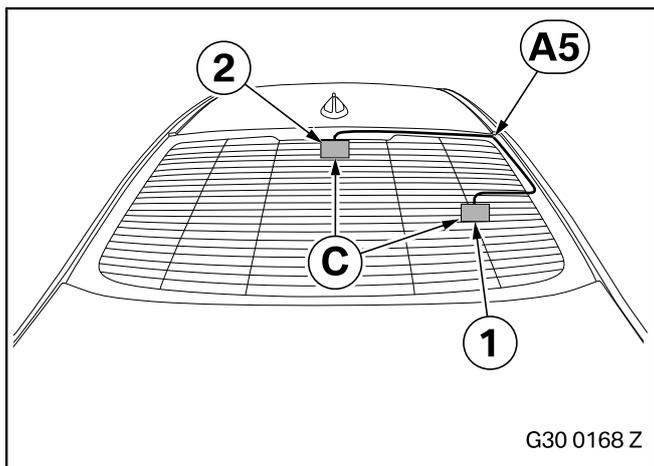
Affix the rear window camera **C** accurately on tape **K**.

Route branch **A5** along the standard wiring harness to the rear window and connect to rear window camera **C**.

▶ Secure the cable from branch **A5** behind the trim using cable tie **L**. ◀

### 38. Connection and installation of the rear window camera in cars with a glued rear window in the tailgate (not for convertibles or F54)

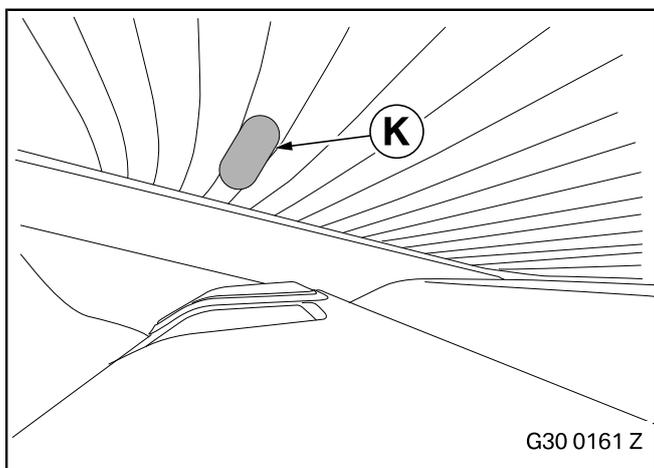
▶ The bonding surfaces must be clean and free of grease. Apply at room temperature only (minimum 20 °C). ◀



▶ The rear window camera **C** must not restrict the driver's field of vision. Ideally the rear window camera **C** should be positioned in the area blocked by the headrests. ◀

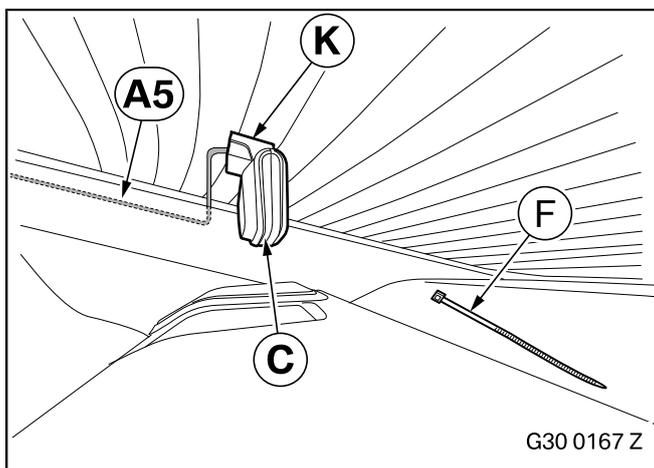
The suggested location (1) for the rear window camera **C** is at the bottom right.

An optional location (2) for the rear window camera **C** is the top centre.



#### Suggested location (1)

Apply the tape **K** at the location for the rear window camera on the rear window without air bubbles.

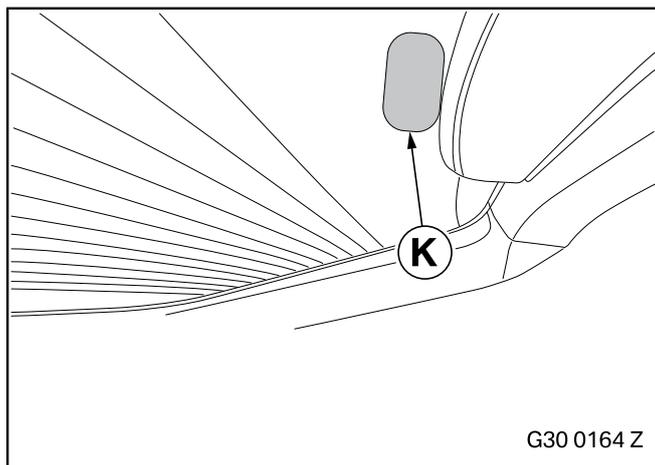


Affix the rear window camera **C** accurately on tape **K**.

Route branch **A5** along the standard wiring harness to the rear window and connect to rear window camera **C**.

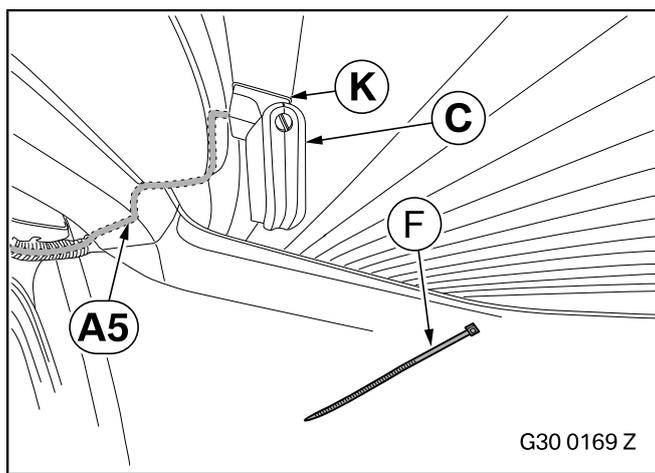
▶ Secure the cable from branch **A5** behind the trim using cable ties **L** only when the tailgate is fully open. ◀

### 38. Connection and installation of the rear window camera in cars with a glued rear window in the tailgate (not for convertibles or F54)



#### Optional location of the rear window camera (2)

Apply the tape **K** at the location for the rear window camera on the rear window without air bubbles.



Affix the rear window camera **C** accurately on tape **K**.

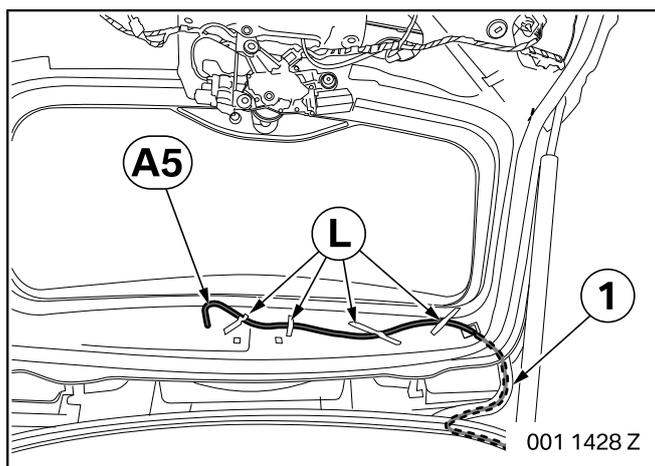
☐ The rear window camera **C** must not restrict the driver's field of vision. ◀

Route branch **A5** along the standard wiring harness to the rear window and connect to rear window camera **C**.

☐ Secure the cable from branch **A5** behind the trim using cable tie **L** only when the rear window is fully open. ◀

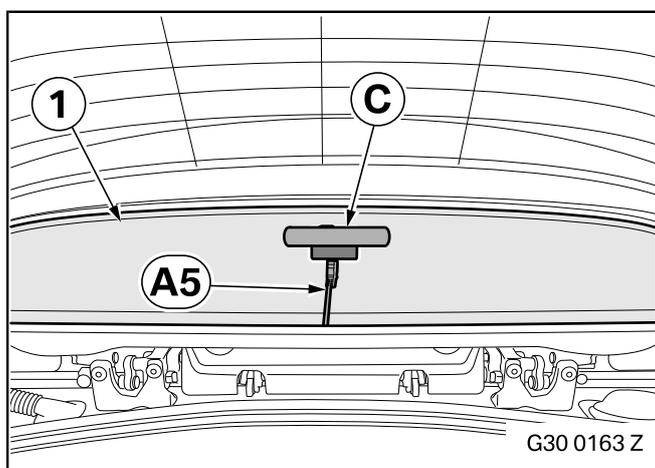
### 39. Connection and installation of the rear window camera in cars with a moving rear window in the tailgate (not for convertibles or F54)

▶ The bonding surfaces must be clean and free of grease. Apply at room temperature only (minimum 20 °C). ◀



Route branch **A5** as shown along the standard wiring harness, through the rubber grommet (1), to the installation location of the rear window camera **C** and secure it with standard workshop equipment.

▶ Secure the cable from branch **A5** behind the trim using cable ties **L** only when the tailgate is fully open. ◀



▶ The rear window camera **C** must not restrict the driver's field of vision. ◀

Install the boot lid trim (1).

Affix the rear window camera **C** to the centre of the trim (1).

Connect branch **A5** to rear window camera **C**.

## 40. Concluding work and coding

The retrofit system does not require programming/coding.

- Adjust the front and rear window camera as per the customer information
- Remove the protective film from the camera lens on the front and rear window cameras
- Conduct a function test
- Re-assemble the car

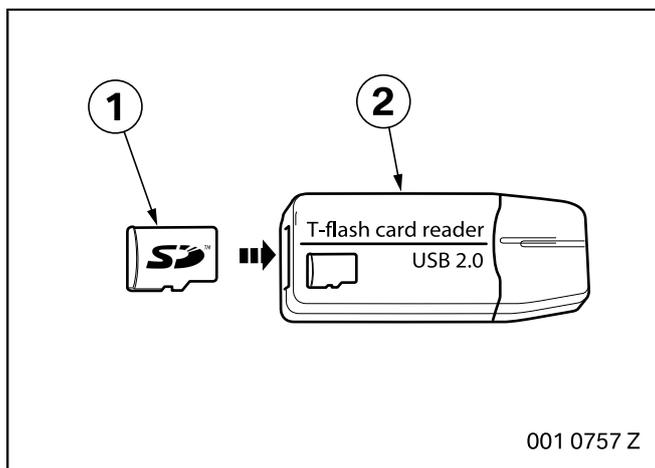
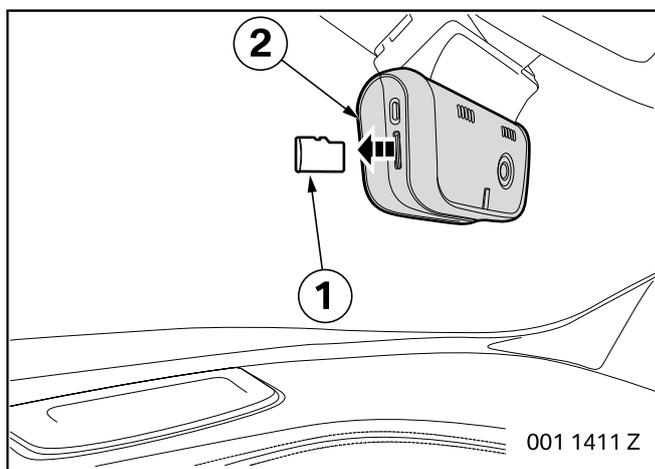
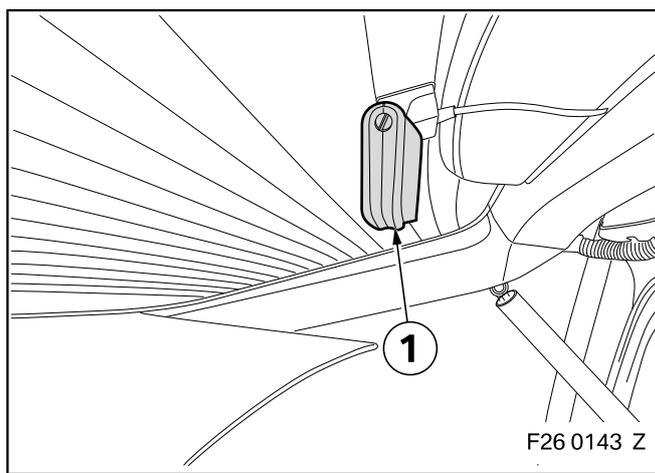
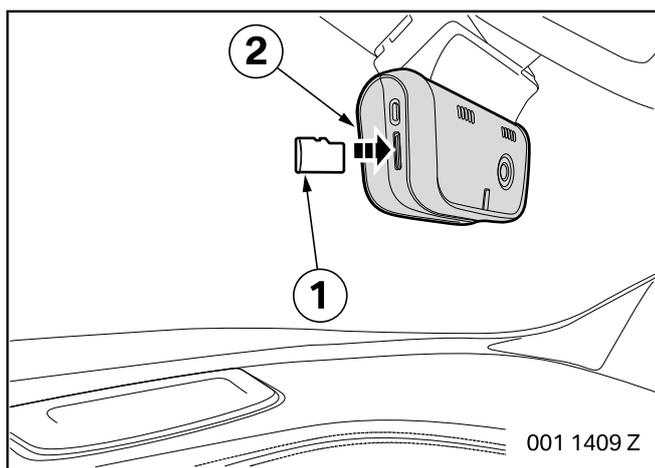
The following parts must be given to the customer:

- Micro SD card **M**
- Micro SD card to USB **N**
- Customer information/owner's manual and, if available, supplementary declaration of conformity

### Firmware update

 The firmware update must absolutely be carried out using the ACE app on the customer's mobile phone. ◀

## 41. Customer information



### Commissioning

- ▶ The micro SD card (1) may only be inserted into and removed from the front camera (2) when it is switched off/disconnected since otherwise data could be damaged and malfunctions may occur. ◀

Slide the micro SD card (1) into the front camera (2).

### Adjusting the rear window camera

- ⚠ **Danger of accidents!** All settings must only be carried out while the car is stationary. ◀

Only the upper quarter of the image should show sky over the horizon. The middle 2/4 display the traffic situation and the lowest quarter shows the near area, or the tailgate.

Swivel or tilt the rear-window camera (1) until the angle of the rear-window camera (1) corresponds to the definition described above.

### Reading data via the PC

- ▶ The micro SD card (1) may only be inserted into removed from the front camera (2) when it is switched off since otherwise data could be damaged and malfunctions may occur. ◀

Slide the micro SD card (1) out of the front camera (2).

Slide the micro SD card (1) into the USB adapter (2).

Connect the USB adapter (2) to your PC.

The reference source for the required software can be found in the supplied operating instructions.

## 41. Customer information

### Switch on the ignition

Model	Built in or after	Number of presses of the Start-Stop button (in quick succession)
1 Series	2004	Press once
2 Series	2013	Press once
3 Series	2005	Press once
4 Series	2013	Press once
5 Series	2009	Press once
5 Series	2017	Press three times
6 Series	2011	Press once
6 Series GT	2017	Press three times
7 Series	2008	Press once
7 Series	2015	Press three times
X1	2009	Press once
X2	2018	Press once
X3	2011	Press once
X3	2017	Press three times
X4	2014	Press once
X4	2018	Press three times
X5	2013	Press once
X5	2018	Press three times
X6	2014	Press once
X7	2019	Press three times
Z4	2009	Press once
All other new BMW derivatives	2018	Press three times
All MINI models	2014	Press once