Parts and Accessories.
Installation Instructions.

Adaptive curve light retrofit
BMW 3 Series Saloon (E90)

These installation instructions are valid only for cars with SA 521 (rain-light sensor) and without SA 522 (xenon light).

Retrofit kit No. 63 13 0 399 704
63 13 0 404 196

Installation time
The installation time is approx. 5.5 hours, but this may vary depending on the condition of the car and the equipment in it.

Important information
This retrofit kit may only be used in conjunction with SA 502 (headlight cleaning system).

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.

To avoid unnecessary extra work and/or costs, if any installation or function problems occur, after a brief troubleshooting session (approx. 0.5 hours), an inquiry is to be sent straight away to the technical parts support via the Aftersales Assistance Portal (ASAP), quoting the chassis number, the part number of the retrofit kit and a precise description of the problem.

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

See ASAP for details of the pictograms.

Pictograms

Denotes instructions that draw your attention to special features.

◂ denotes the end of the instruction or other text.

Subject to technical modifications.

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.

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 in exactly the same way on RHD cars.

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

Ordering instructions
The following parts are not supplied in the retrofit kit and must be ordered separately (see EPC for part number and details).

- Footwell module **G**
- Light control **H**

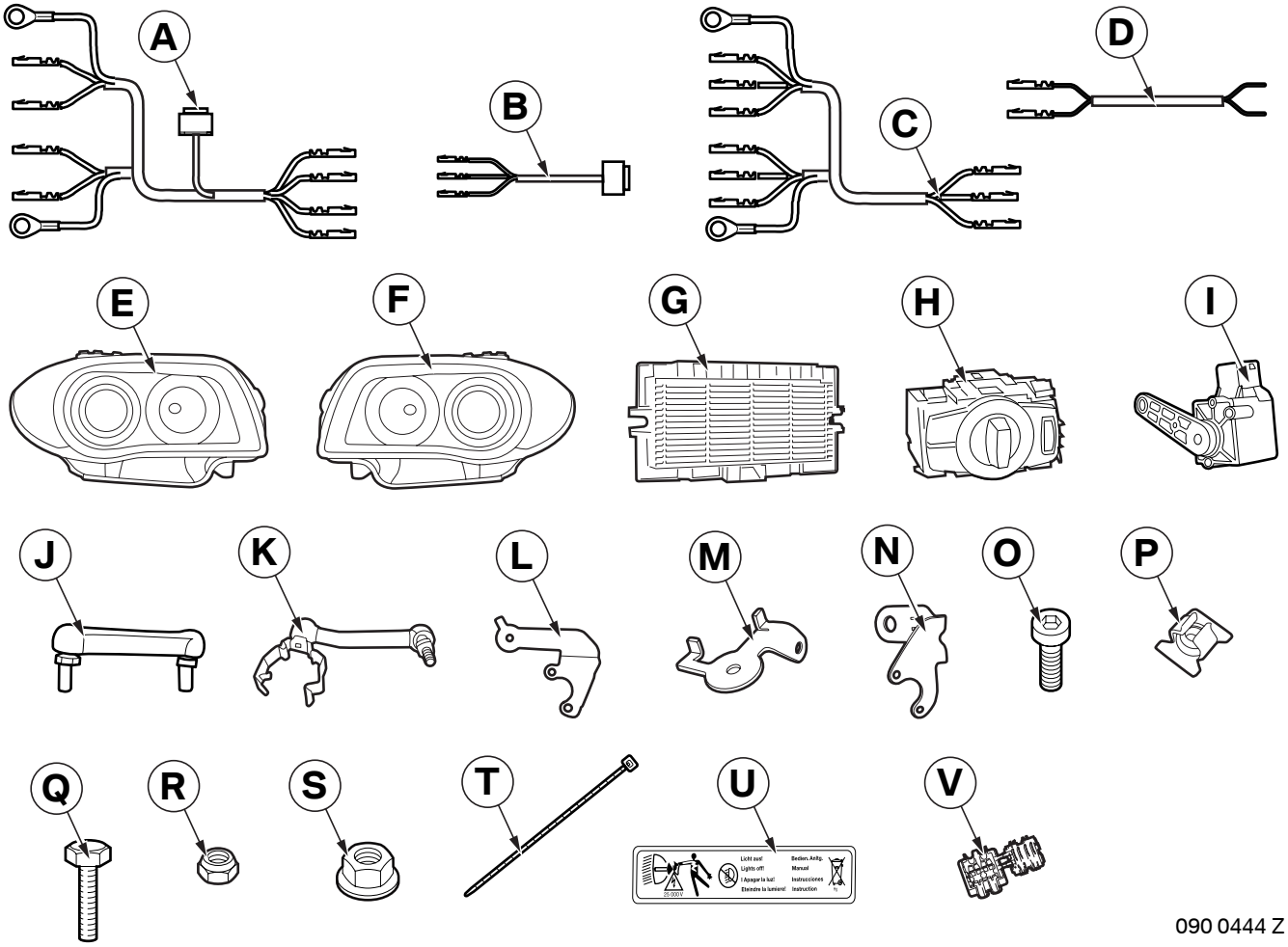
List of special equipment
The following special equipment must be taken into consideration when installing the retrofit kit:

SA 502 Headlight cleaning system

Special tools required
00 9 317, Installation wedges

Contents

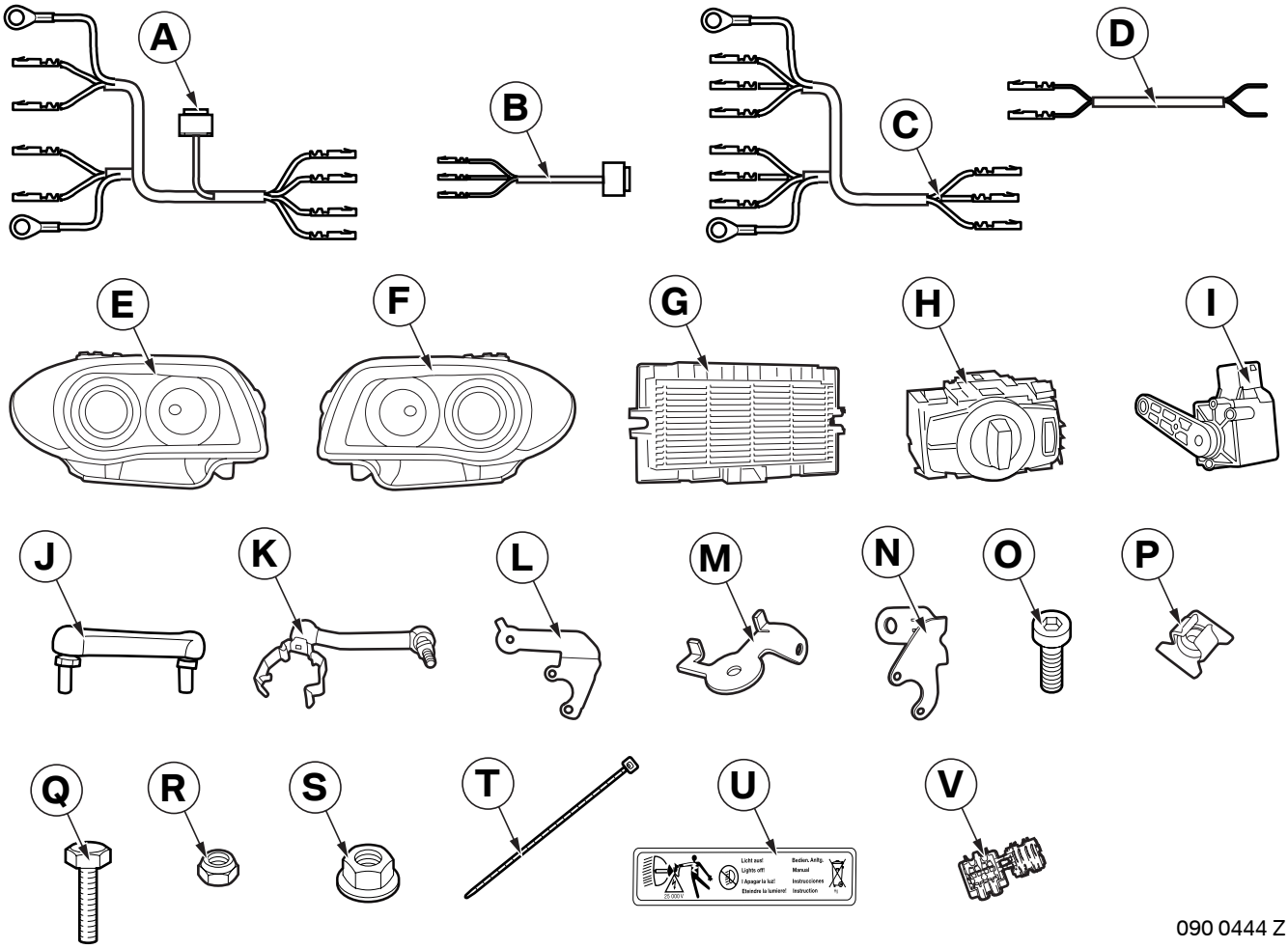
1. Parts list



Legend

A Xenon wiring harness
B Rear level sensor wiring harness
C ALC wiring harness
D Connection cable
E Right headlight
F Left headlight
G Footwell module (not supplied with the retrofit kit)
H Light control (not supplied with the retrofit kit)
I Level sensor (2x)
J Rear control rod
K Front control rod
L Rear holder
M Control rod holder
N Front holder

1. Parts list



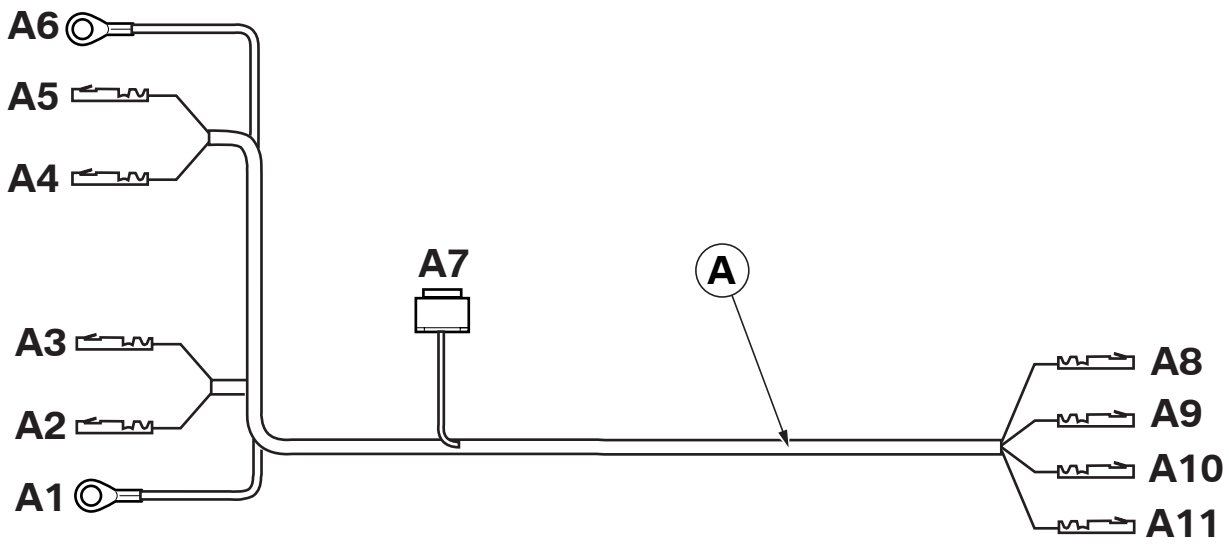
Legend

O Allen screw M5 x 10 (4x)
P Expanding nut M6 (2x)
Q Hexagonal screw M6 x 16 mm (2x)
R Hexagonal nut M6 (3x)
S Collar nut M12 x 1.5
T Cable tie 200 x 3.6 mm (20x)
U Warning sticker (2x)
V Miniature connector (2x)

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	
Front bumper trim	51 11 156
Replace the two headlights with right headlight **E** and left headlight **F**	63 12 010
Glove compartment	51 16 360
Pedal trim	51 45 185
Side footwell trims on the left A pillar	51 43 070
Replace the light control with light control **H**	61 31 037
Replace the footwell module with footwell module **G**	61 35 115
Inside door sill strip, front left	51 47 000
Inside door sill strip, rear left	51 47 030
Rear seat	51 16 366
Backrest side section on left rear seat	52 26 008
Power unit bottom guard, front	51 47 490
Front left and rear left wheels	36 10 300
Rear left wheel arch cover	51 71 041
Cars without SA 502 (headlight cleaning system only)	
Retrofit the headlight cleaning system	---

3. Xenon wiring harness connection diagram



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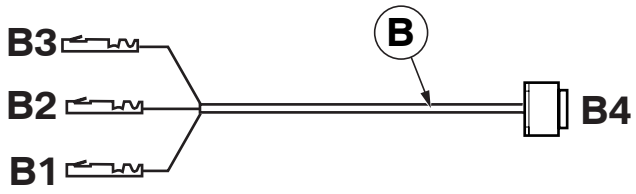
Branch/ Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A	Xenon wiring harness	---	---	---	---
A1	Eyelet	Terminal 31	BR 2.5 mm²	To the joint connector behind the left headlight	X165
A2	Socket contact	Terminal 31	BR 2.5 mm²	To left headlight **F**, 12-pin plug SW	X13420 PIN 2
A3	Socket contact	Bi-xenon	BR/GE 0.35 mm²	To left headlight **F**, 12-pin plug SW	X13420 PIN 5
A4	Socket contact	Bi-xenon	BR/GE 0.35 mm²	To right headlight **E**, 12-pin plug SW	X13421 PIN 5
A5	Socket contact	Terminal 31	BR 2.5 mm²	To right headlight **E**, 12-pin plug SW	X13421 PIN 2
A6	Eyelet	Terminal 31	BR 2.5 mm²	To the joint connector behind the right headlight	X166
A7	6-pin BR socket casing	---	---	To front level sensor **I**	X18032
A8	Socket contact	Bi-xenon	BR/GE 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 41
A9	Socket contact	HSVL	GR/GN 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 49
A10	Socket contact	HSVL-	GR/WS 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 26
A11	Socket contact	HSVL+	GR/BR 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 31

4. Rear level sensor wiring harness connection diagram



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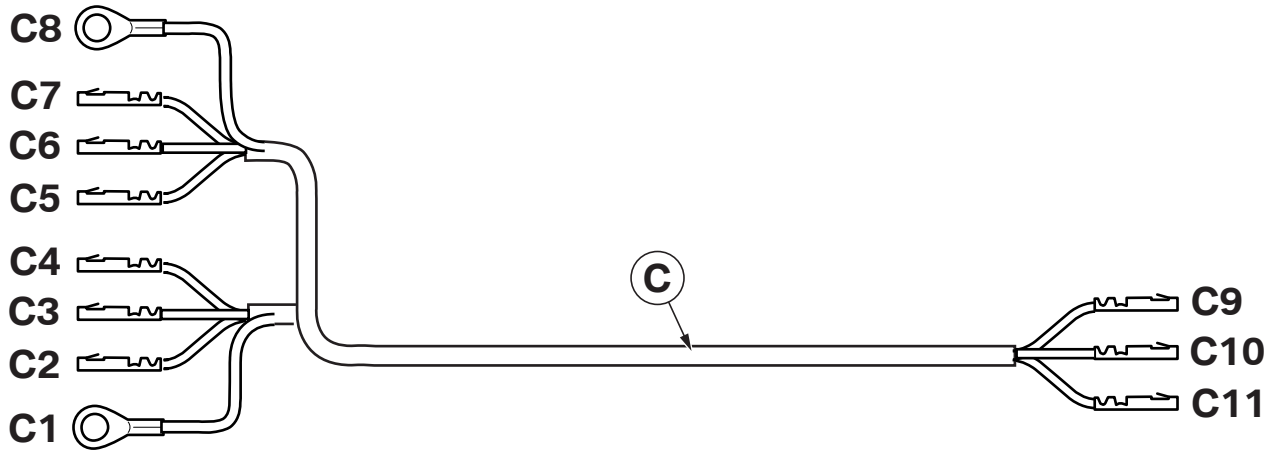
Branch/ Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
B	Rear level sensor wiring harness	---	---	---	---
B1	Socket contact	HSHR	SW/GN 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 48
B2	Socket contact	HSHR-	SW/WS 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 27
B3	Socket contact	HSHR+	SW/GR 0.35 mm²	To footwell module **G**, 51-pin plug SW	X14260 PIN 29
B4	6-pin BR socket casing	---	---	To rear level sensor **I**	X1450

5. ALC wiring harness connection diagram



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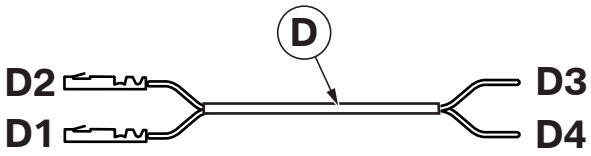
Branch/ Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
C	ALC wiring harness	---	---	---	---
C1	Eyelet	Terminal 31	BR/SW 0.75 mm²	To the joint connector behind the left headlight	X165
C2	Socket contact	SMC	GN/SW 0.5 mm²	To left headlight **F**, 12-pin plug SW	X13420 PIN 9
C3	Socket contact	LIN_LEUC_L	WS/RT 0.35 mm²	To left headlight **F**, 12-pin plug SW	X13420 PIN 10
C4	Socket contact	Terminal 31	BR/SW 0.75 mm²	To left headlight **F**, 12-pin plug SW	X13420 PIN 11
C5	Socket contact	SMC	GN/SW 0.5 mm²	To right headlight **E**, 12-pin plug SW	X13421 PIN 9
C6	Socket contact	LIN_LEUC_R	WS/GE 0.35 mm²	To right headlight **E**, 12-pin plug SW	X13421 PIN 10
C7	Socket contact	Terminal 31	BR/SW 0.75 mm²	To right headlight **E**, 12-pin plug SW	X13421 PIN 11
C8	Eyelet	Terminal 31	BR/SW 0.75 mm²	To the joint connector behind the right headlight	X166
C9	Socket contact	LIN_LEUC_R	WS/GE 0.35 mm²	To footwell module **G**, SW 51-pin plug	X14260 PIN 24
C10	Socket contact	LIN_LEUC_L	WS/RT 0.35 mm²	To footwell module **G**, SW 51-pin plug	X14260 PIN 25
C11	Socket contact	SMC	GN/SW 0.35 mm²	To footwell module **G**, SW 51-pin plug	X14260 PIN 42

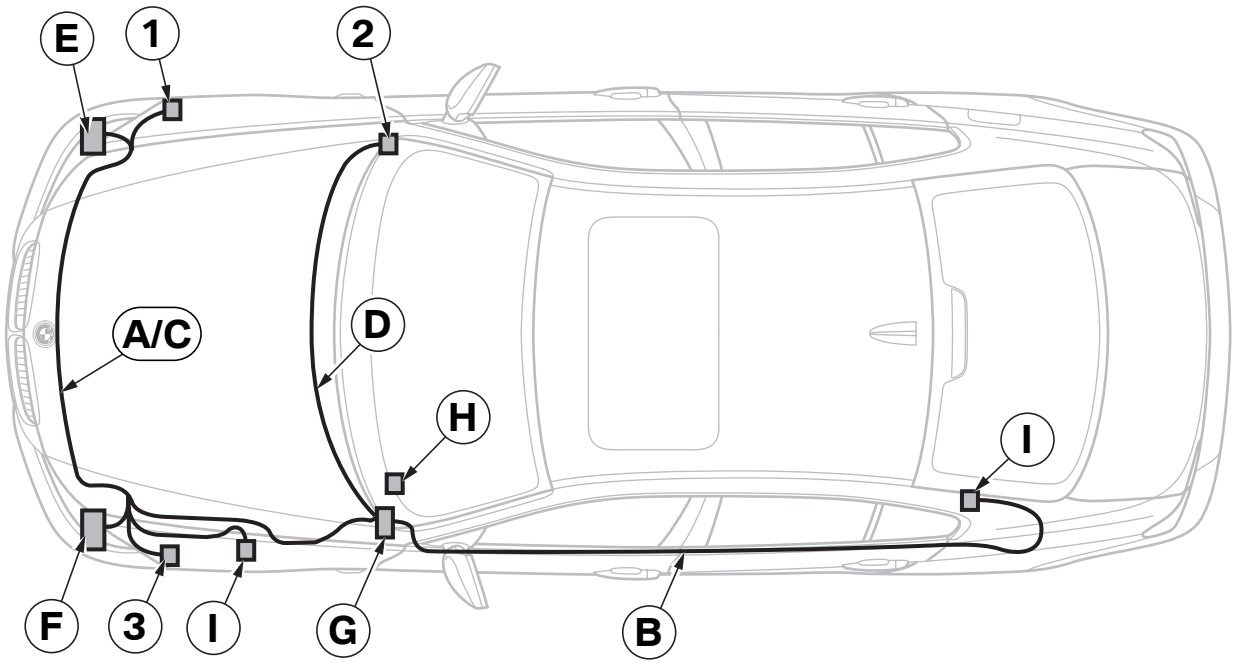
6. Connection cable connection diagram



090 0570 Z

Branch/ Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
D	Connection cable	---	---	---	---
D1	Socket contact	PT-CAN_H	BL/RT 0.35 mm²	To footwell module **G**, SW 51-pin plug	X14260 PIN 44
D2	Socket contact	PT-CAN_L	RT 0.35 mm²	To footwell module **G**, SW 51-pin plug	X14260 PIN 43
D3	Cable open	PT-CAN_H	BL/RT 0.35 mm²	To the junction box, BL 54-pin plug, using a miniature connector **V** to the BL/RT cable	X14271 PIN 1
D4	Cable open	PT-CAN_L	RT 0.35 mm²	To the junction box, BL 54-pin plug, using a miniature connector **V** to the RT cable	X14271 PIN 2

7. Installation and cabling diagram (LHD cars only)



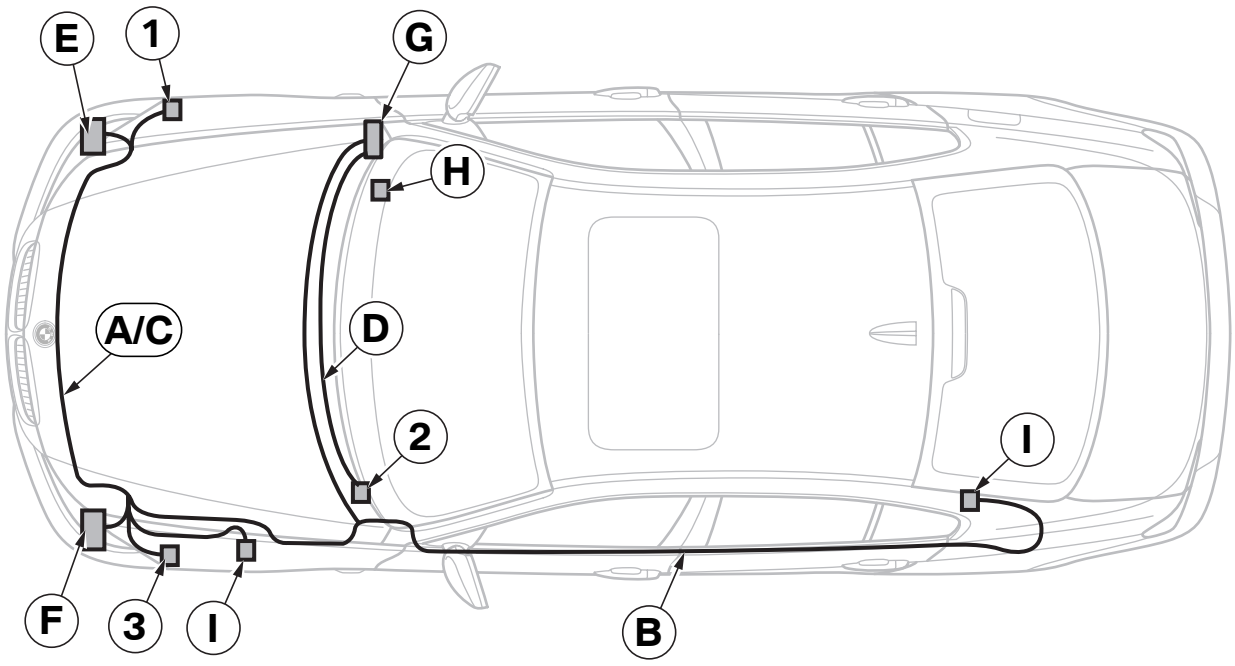
090 0457 Z

Legend

A Xenon wiring harness
B Rear level sensor wiring harness
C ALC wiring harness
D Connection cable
E Right headlight, plug **X13421**
F Left headlight, plug **X13420**
G Footwell module, plug **X14260**
H Light control
I Level sensors

1 Joint connector **X166**
2 Junction box, plug **X14271**
3 Joint connector **X165**

8. Installation and cabling diagram (RHD cars only)



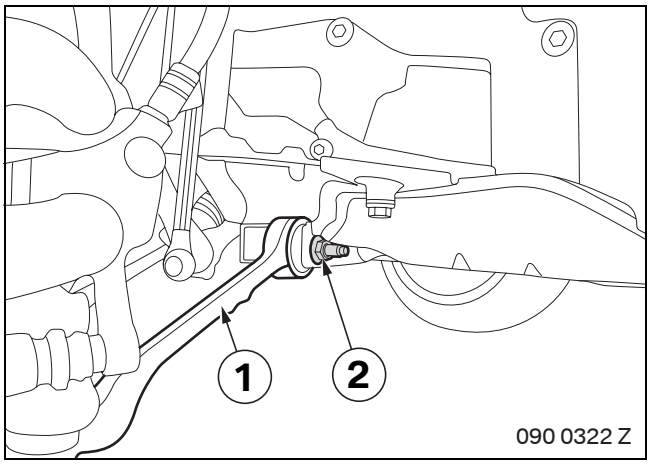
090 0458 Z

Legend

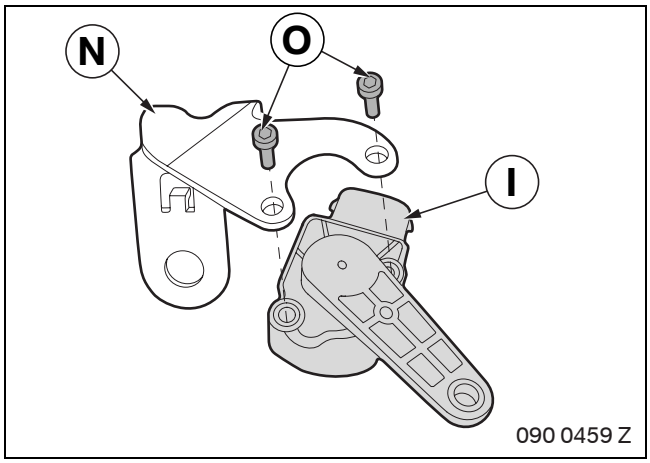
A Xenon wiring harness
B Rear level sensor wiring harness
C ALC wiring harness
D Connection cable
E Right headlight, plug **X13420**
F Left headlight, plug **X13420**
G Footwell module, plug **X14260**
H Light control
I Level sensors

1 Joint connector **X166**
2 Junction box, plug **X14271**
3 Joint connector **X165**

9. To install the front level sensor

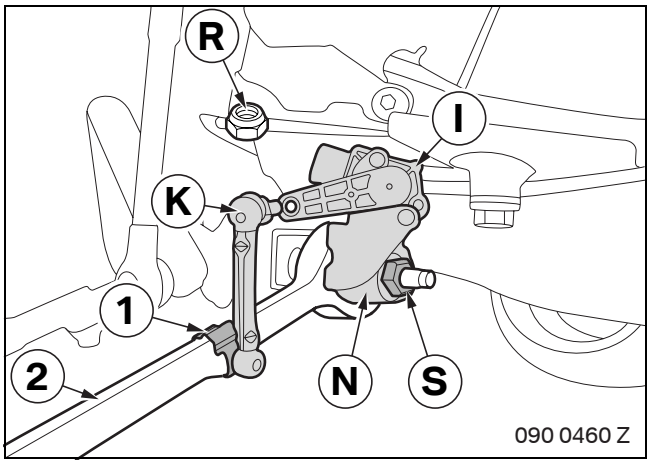


Unscrew the collar nut (2) from the left control arm (1).



Secure the level sensor **I** to the front holder **N** using Allen screws **O**.

Tightening torque 5 Nm.



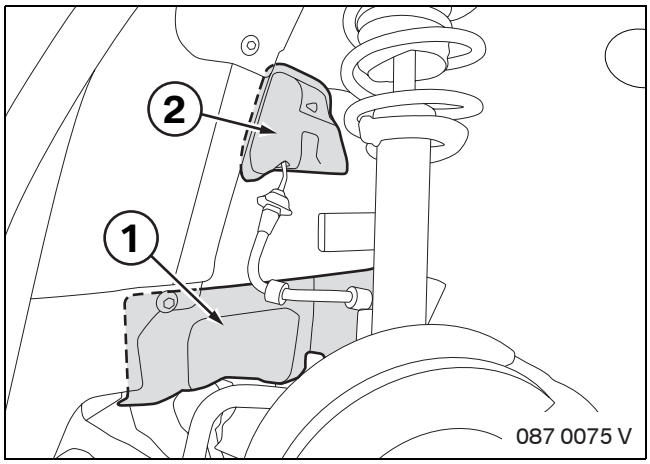
Secure the front holder **N** with collar nut **S**.

Tightening torque 68 Nm.

Place the clap (1) for the front control rod **K** around the recess for the control arm (2) and lock it.

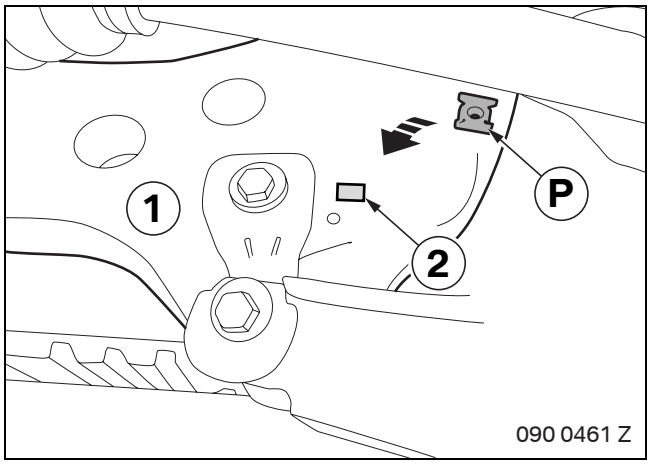
Secure the front control rod **K** to the level sensor **I** using a hexagonal nut **R**.

Tightening torque 8 Nm.

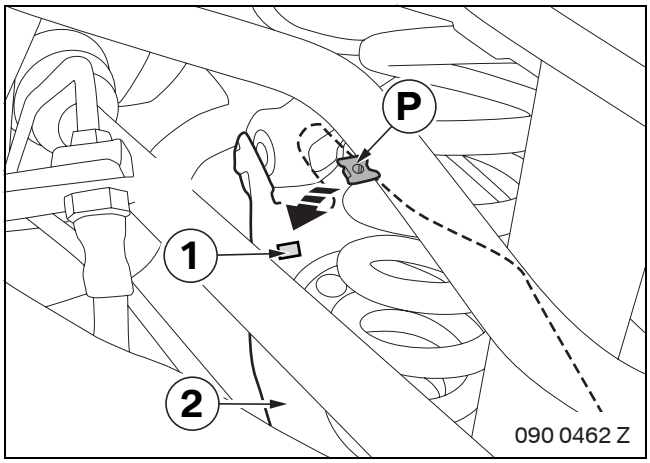


Remove covers (1) and (2) in the front left wheel arch.

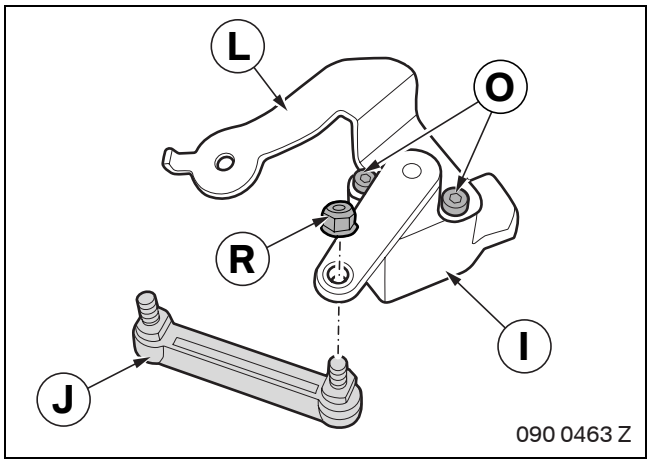
10. To install and connect the rear level sensor



Position the expanding nut **P** in the opening (2) on the front of the left axle mounting (1).



Position the expanding nut **P** in the opening (1) on the left camber control arm (2).

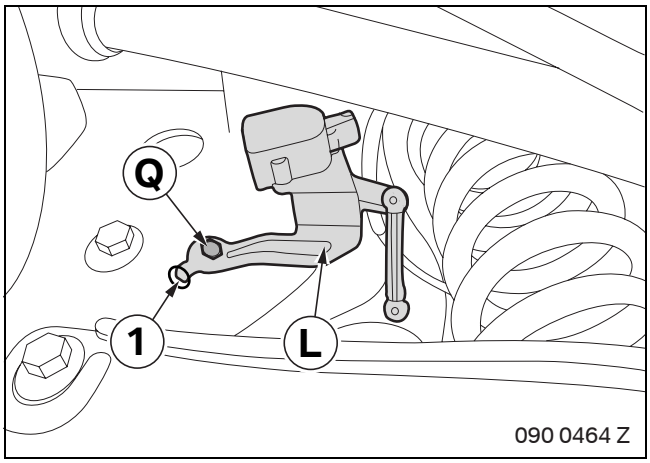


Secure the level sensor **I** as shown to the rear holder **L** using Allen screws **O**.

Tightening torque 5 Nm.

Secure the rear control rod **J** to the level sensor **I** using a hexagonal nut **R**.

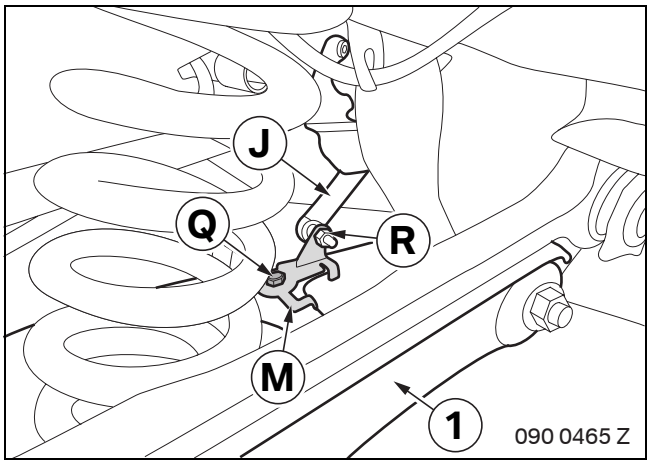
Tightening torque 8 Nm.



Place the rear holder **L** in the hole (1) and secure it with a hexagonal screw **Q**.

Tightening torque 8 Nm.

10. To install and connect the rear level sensor

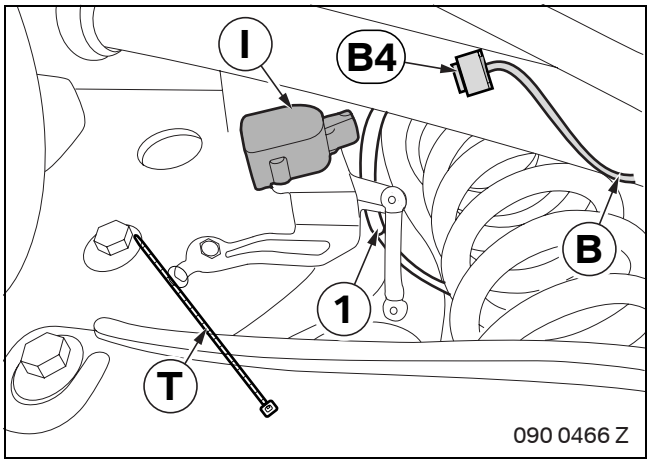


Secure the control rod holder **M** to the camber control arm (1) using a hexagonal screw **Q**.

Tightening torque 8 Nm. ◂

Secure the rear control rod **J** to the control rod holder **M** using a hexagonal nut **R**.

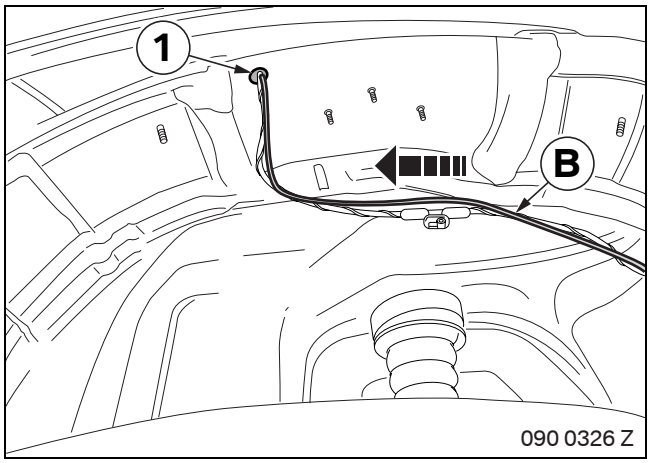
Tightening torque 8 Nm. ◂



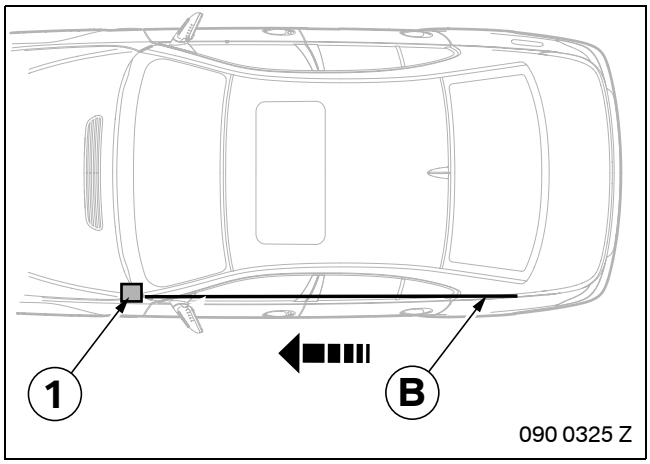
Connect branch **B4** to level sensor **I**.

Secure the rear level sensor wiring harness **B** in such a way that it cannot come into contact with the moving parts of the suspension. ◂

Route the rear level sensor wiring harness **B** along the ABS sensor cable (1) into the wheel arch and secure it with cable ties **T**.

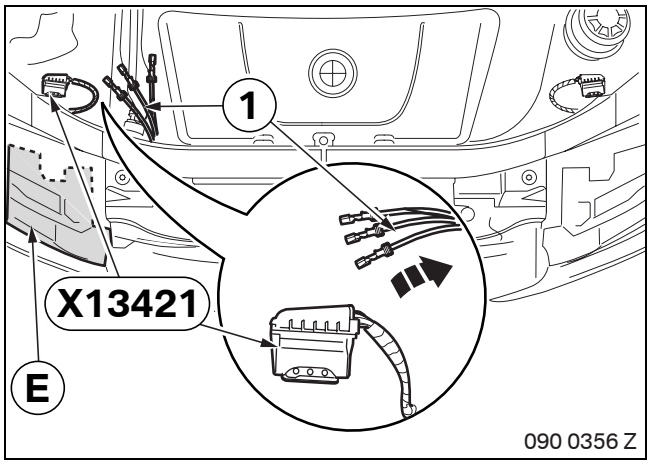


Route the rear level sensor wiring harness **B** along the ABS sensor cable and through the grommet (1) into the interior.



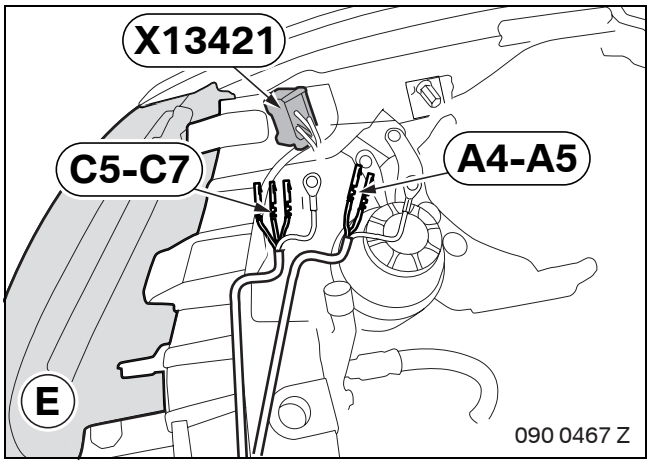
Route the rear level sensor wiring harness **B** along the standard wiring harness into the footwell on the driver's side (1).

11. To install and connect the wiring harnesses



Disconnect the following cables (1) from plug **X13421** (12-pin SW) on the right headlight **E**, insulate them individually and tie them back:

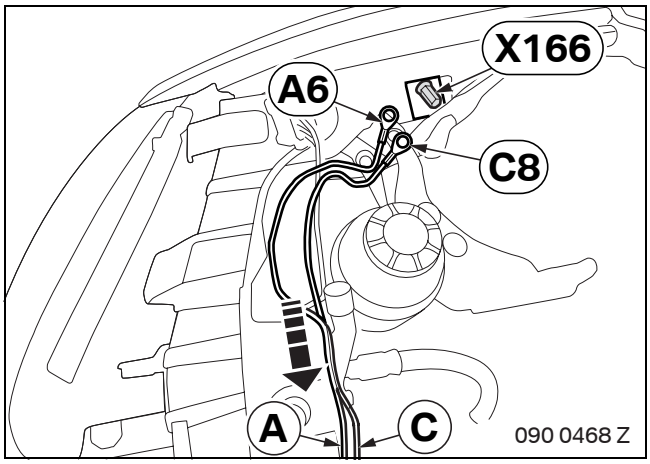
- GE/BR cable from PIN 9
- BL/SW cable from PIN 10
- BL/BR cable from PIN 11



Connect branches **A4 - A5** and branches **C5 - C7** as follows to plug **X13421** (12-pin SW) on the right headlight **E**:

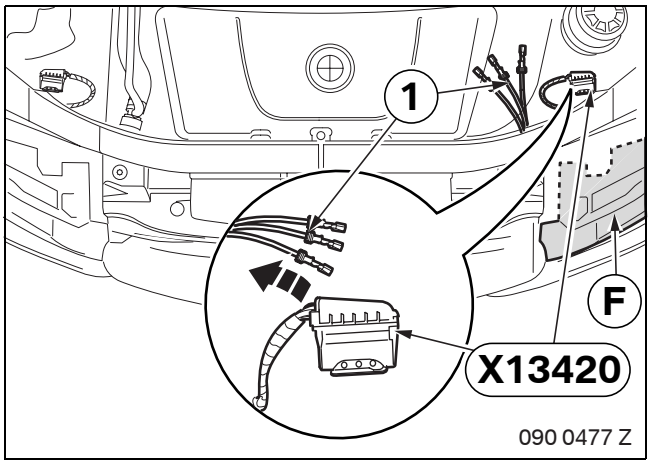
- Branch **A4**, BR/GE cable, to PIN 5
- Branch **A5**, BR cable, to PIN 2
- Branch **C5**, GN/SW cable, to PIN 9
- Branch **C6**, WS/GE cable, to PIN 10
- Branch **C7**, BL/SW cable, to PIN 11

Connect plug **X13421** to the right headlight **E**.



Secure branch **A6**, BR cable, and branch **C8**, BR/SW cable, to joint connector **X166**.

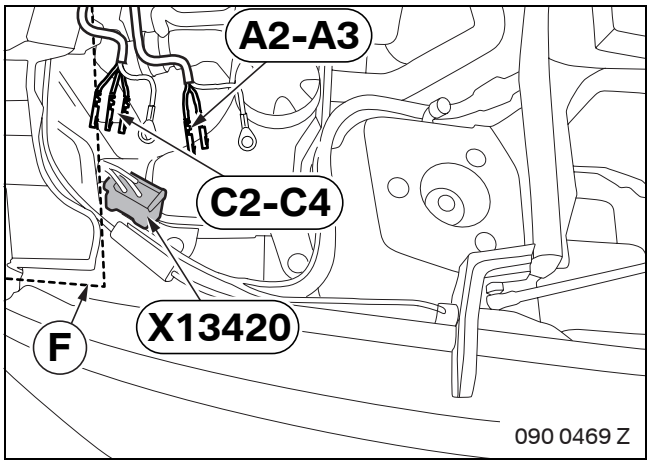
Route the xenon wiring harness **A** and ALC wiring harness **C** to the left-hand side of the car.



Disconnect the following cables (1) from plug **X13420** (12-pin SW) on the left headlight **F**, insulate them individually and tie them back:

- GE/BR cable from PIN 9
- BL/RT cable from PIN 10
- BL/BR cable from PIN 11

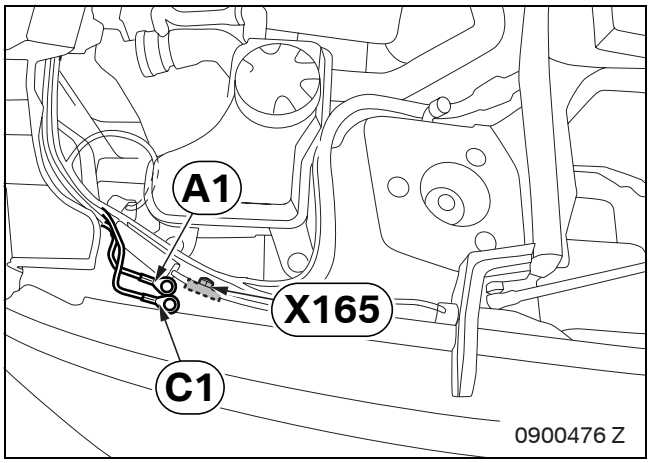
11. To install and connect the wiring harnesses



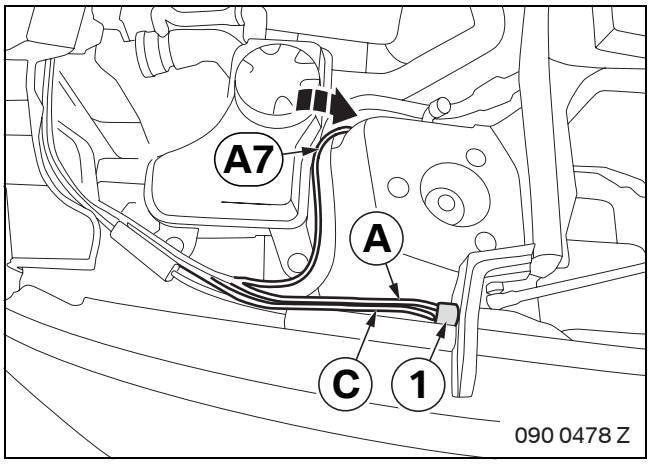
Connect branches **A2 - A3** and branches **C2 - C4** as follows to plug **X13420** (12-pin SW):

- Branch **A2**, BR cable, to PIN 2
- Branch **A3**, BR/GE cable, to PIN 5
- Branch **C2**, GN/SW cable, to PIN 9
- Branch **C3**, WS/RT cable, to PIN 10
- Branch **C4**, BL/SW cable, to PIN 11

Connect plug **X13420** to the left headlight **F**.

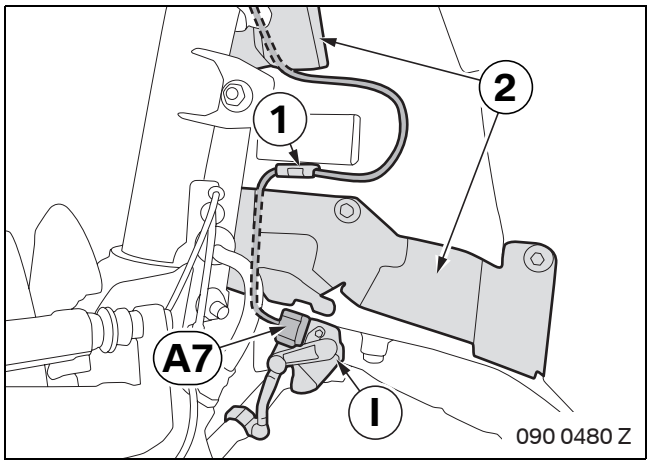


Secure branch **A1**, BR cable, and branch **C1**, BR/SW cable, to joint connector **X165**.



Route branch **A7** (6-pin BR plug) along the standard wiring harness into the wheel arch.

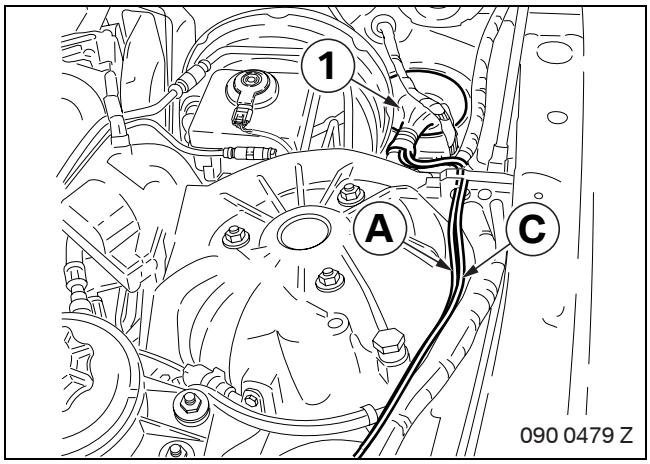
Route the xenon wiring harness **A** and ALC wiring harness **C** through the grommet (1) to the DSC control module.



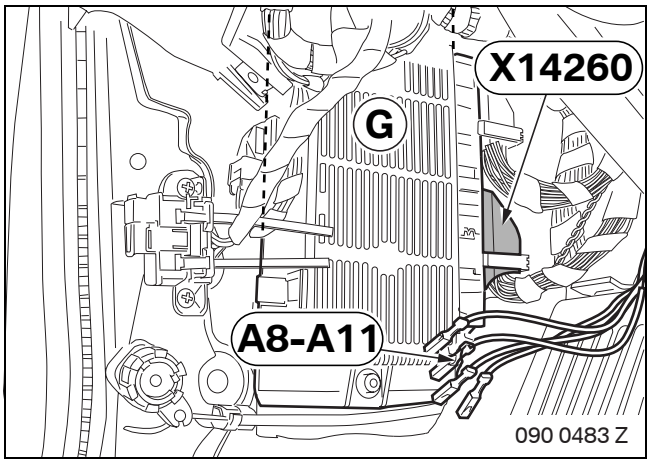
Route branch **A7** (6-pin BR plug) along the standard wiring harness to the front level sensor **I** and connect it.

Fit the cable holder (1) and install the covers (2).

11. To install and connect the wiring harnesses

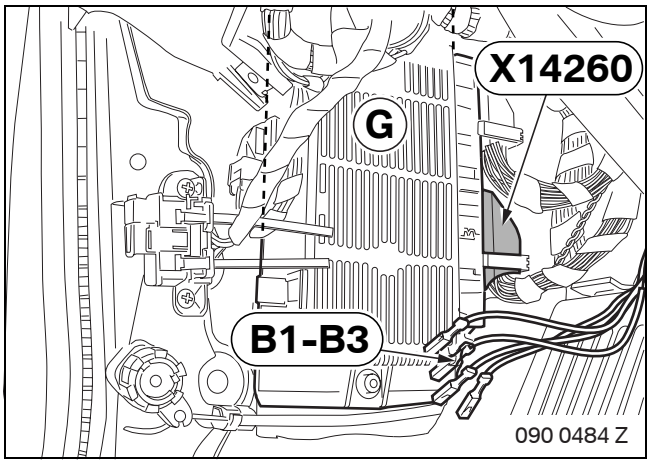


Route the xenon wiring harness **A** and ALC wiring harness **C** through the grommet (1) into the interior.



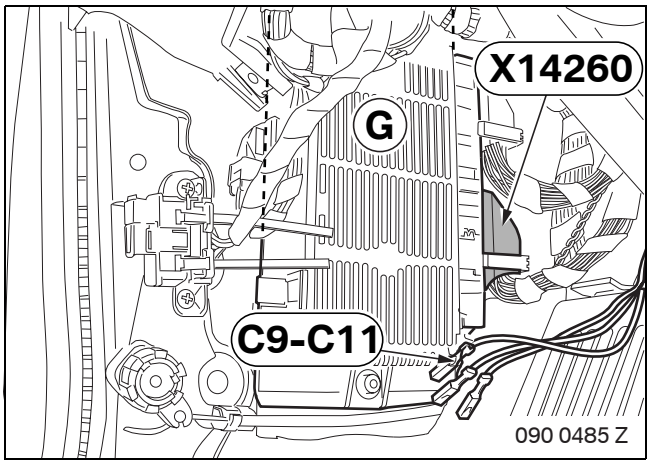
Connect branches **A8** - **A11** as follows to plug **X14260** (51-pin SW) in the footwell module **G**:

- Branch **A8**, BR/GE cable, to PIN 41
- Branch **A9**, GR/GN cable, to PIN 49
- Branch **A10**, GR/WS cable, to PIN 26
- Branch **A11**, GR/BR cable, to PIN 31



Connect branches **B1** - **B3** as follows to plug **X14260** (51-pin SW) in the footwell module **G**:

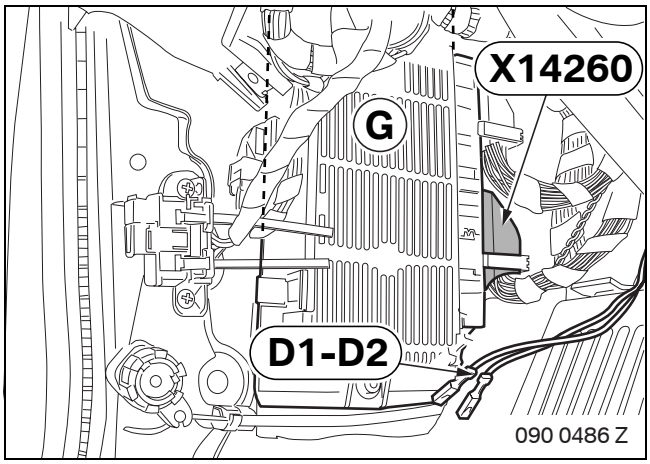
- Branch **B1**, SW/GN cable, to PIN 48
- Branch **B2**, SW/WS cable, to PIN 27
- Branch **B3**, SW/GR cable, to PIN 29



Connect branches **C9** - **C11** as follows to plug **X14260** (51-pin SW) in the footwell module **G**:

- Branch **C9**, WS/GE cable, to PIN 24
- Branch **C10**, WS/RT cable, to PIN 25
- Branch **C11**, GN/SW cable, to PIN 42

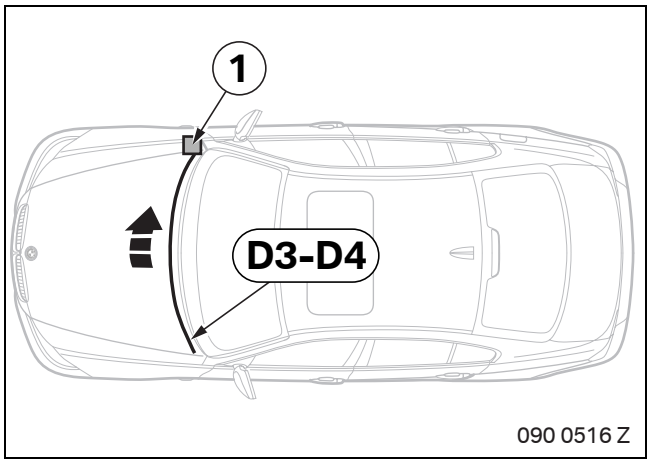
11. To install and connect the wiring harnesses



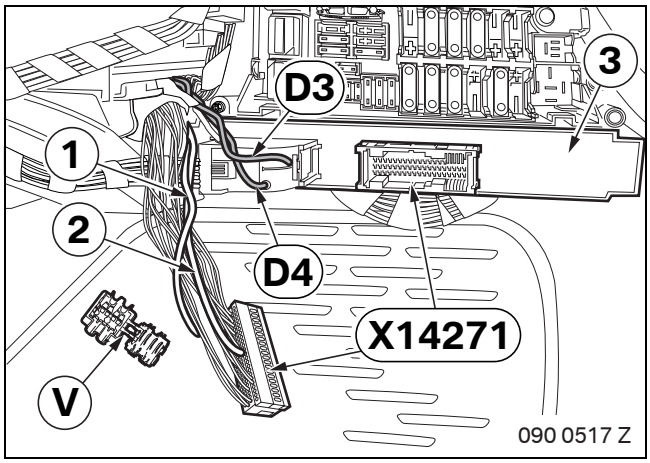
Connect branches **D1** - **D2** as follows to plug **X14260** (51-pin SW) in the footwell module **G**:

- Branch **D1**, BL/RT cable, to PIN 44
- Branch **D2**, RT cable, to PIN 43

Connect plug **X14260** to the footwell module **G**.



Route branches **D3** - **D4** to the footwell on the passenger side (1).



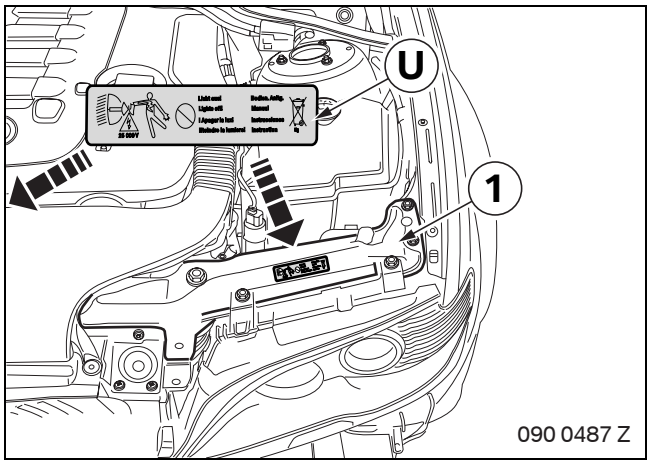
Connect branches **D3** - **D4** as follows to plug **X14271** (54-pin BL) on the junction box (3) using miniature connectors **V**:

- Branch **D3**, BL/RT cable, to the same-coloured cable (1) on PIN 1
- Branch **D4**, RT cable, to the same-coloured cable (2) on PIN 2

12. Concluding work and coding

This retrofit system requires coding.

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

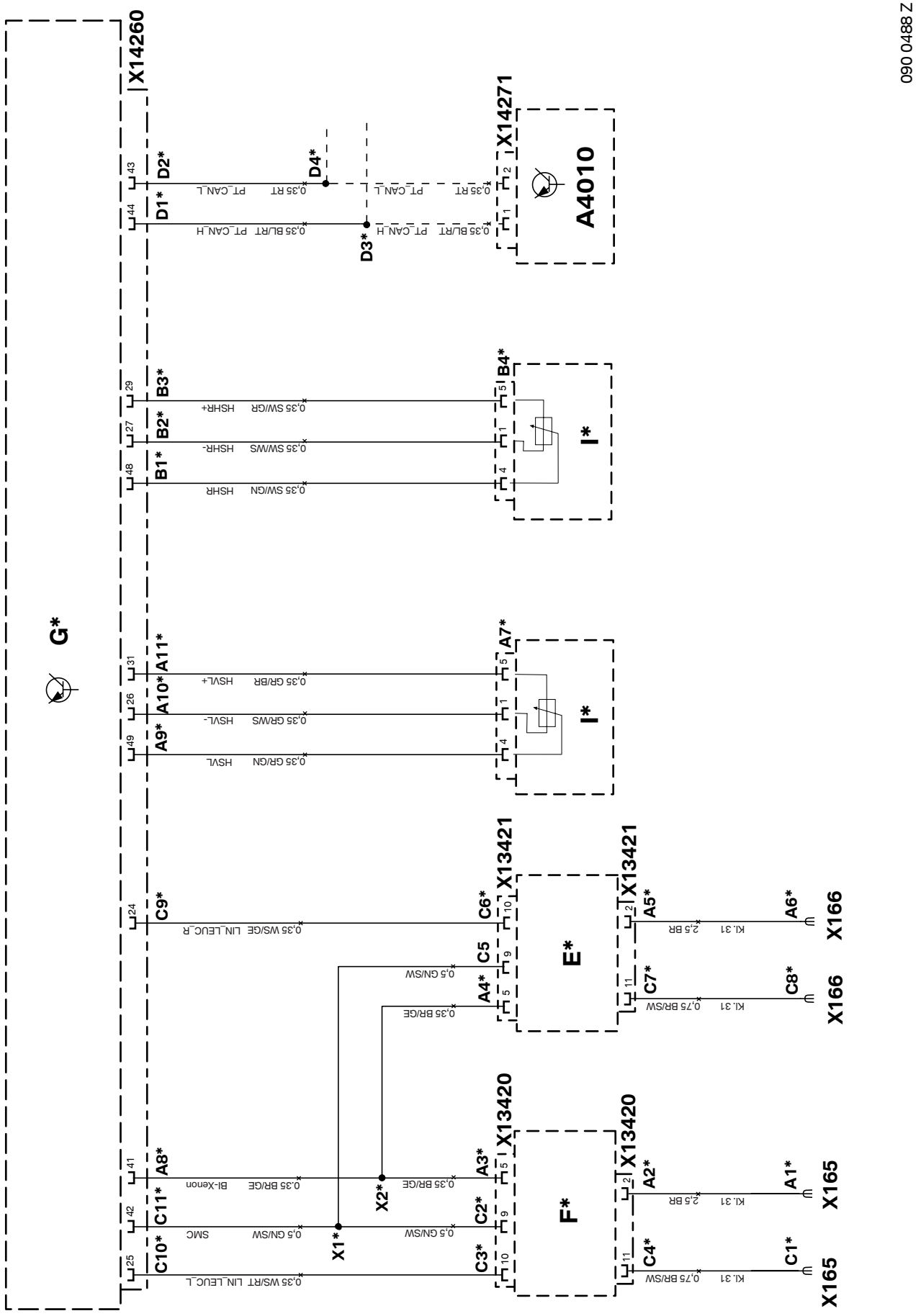


Affix warning stickers **U** on both sides of the cross traverse (1).

Conduct a function test on the automatic headlight adjustment control.

Test the default headlight setting and adjust if necessary.

13. Circuit diagram



13. Circuit diagram

Legend

A4010	Junction box
A7*	6-pin plug SW **(X18032)**
B4*	6-pin plug SW **(X1450)**
E*	Right headlight **(E127)**
F*	Left headlight **(E126)**
G*	Footwell module **(A4011)**
I*	Front level sensor **(B42)** and rear level sensor **(B64)**
X1*	SMC connector
X2*	Bi-xenon connector
X165	Terminal 31 joint connector
X166	Terminal 31 joint connector
X13420	12-pin plug SW
X13421	12-pin plug SW
X14260	51-pin plug SW
X14271	54-pin BL plug

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
WS	White