

Original BMW Parts and Accessories.

Installation Instructions.



Removable trailer tow hitch retrofit.

BMW X1 (F48)

Retrofit kit number

71 60 2 245 623 Electrical components retrofit kit
71 60 6 875 289 Trailer tow hitch with removable ball

Installation time

The installation time is **approx. 3.5 hours**. This may vary depending on the condition of the car and its equipment package.

If the fan frame needs to be replaced with the fan, the installation time increases by **approx. 1.0 hours**.

The installation time shown does not include any time spent on programming/coding.

The calculation of the total costs for the programming time must be factored into the calculation of retrofitting costs (no invoicing via warranty).

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 vehicles 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 rational order, using the prescribed tools (special tools) and observing current health and safety regulations.

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


To avoid unnecessary extra work and/or costs, please send an inquiry to the technical parts support team.

Quote the following information:

- Chassis number,
- Retrofit kit part number,
- A detailed description of the problem,
- And any work already carried out.

Do not archive the printout of these installation instructions. The current version can be found in the EPC.

Pictograms


 Denotes instructions that draw your attention to dangers.

 Denotes instructions that draw your attention to special features.

◀ Denotes the end of the instruction or other text.

Legal requirements

There is a type approval for the trailer tow hitch pursuant to **ECE-R55** with approval reference **E11*55R-019849**.

 These installation instructions also serve as installation confirmation. They must be printed and attached to the vehicle documents and kept in the car at all times until the trailer tow hitch has been entered in the vehicle documents. ◀


Installation information

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

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

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

After the installation work, the retrofit must be programmed/coded via the – **Conversions** – path.

-  – The fan frame and fan and the coolant radiator/repositioned coolant radiator will need to be replaced on certain cars. If you do not replace it, the trailer load will be reduced and the engine may stall.
- If the fan has to be replaced, please refer to the EPC to find the appropriate module (BTE 615552) and power distributor (BTE 614730). ◀

Ordering instructions

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

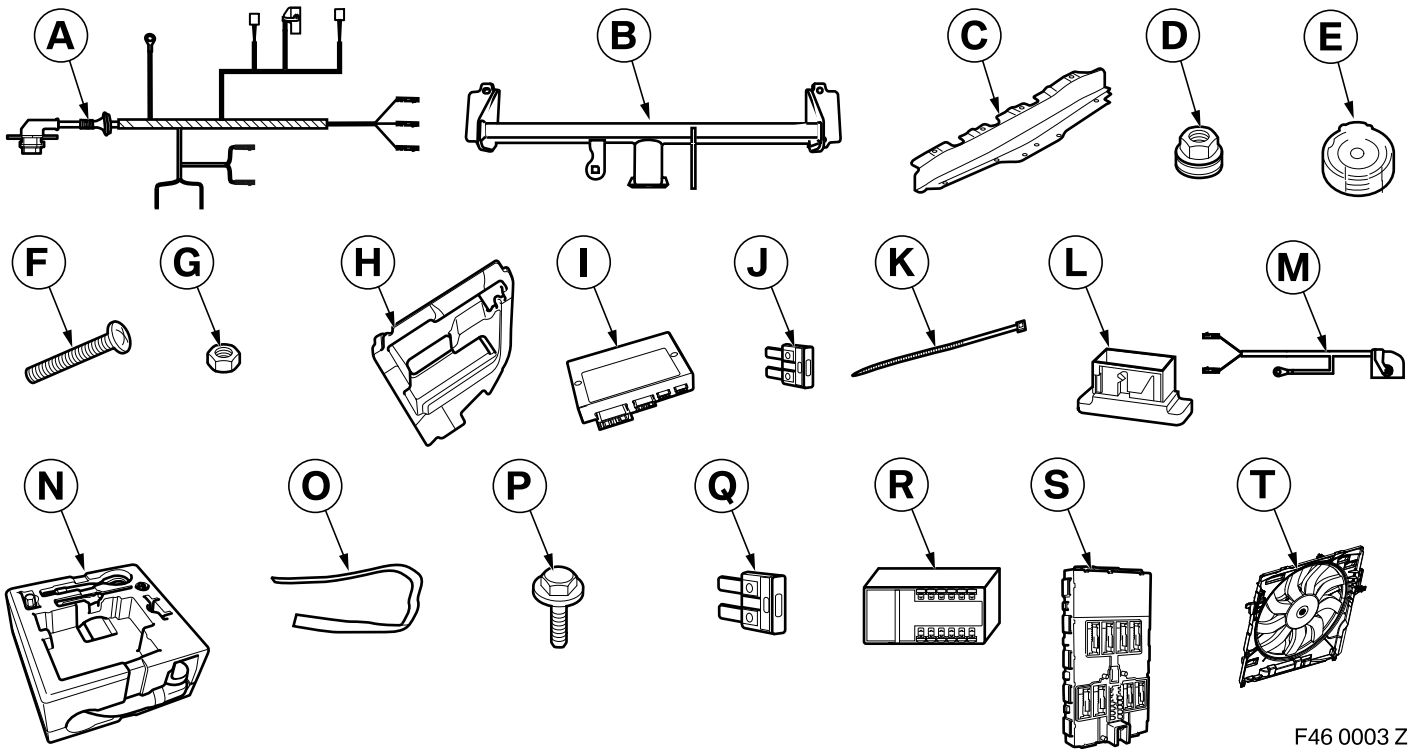
- Heat insulation **C**
- AAG control unit **I**
- Mini 5 A fuse **J** (3 x)
- Bus interface **L** (for cars without an existing bus interface only)
- ATO 20 A fuse **Q** (3 x)
- Fuse holder **R**
- BDC control unit **S**
- Fan frame with fan **T** (see EPC HG 17)

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 for retrofit kit



F46 0003 Z

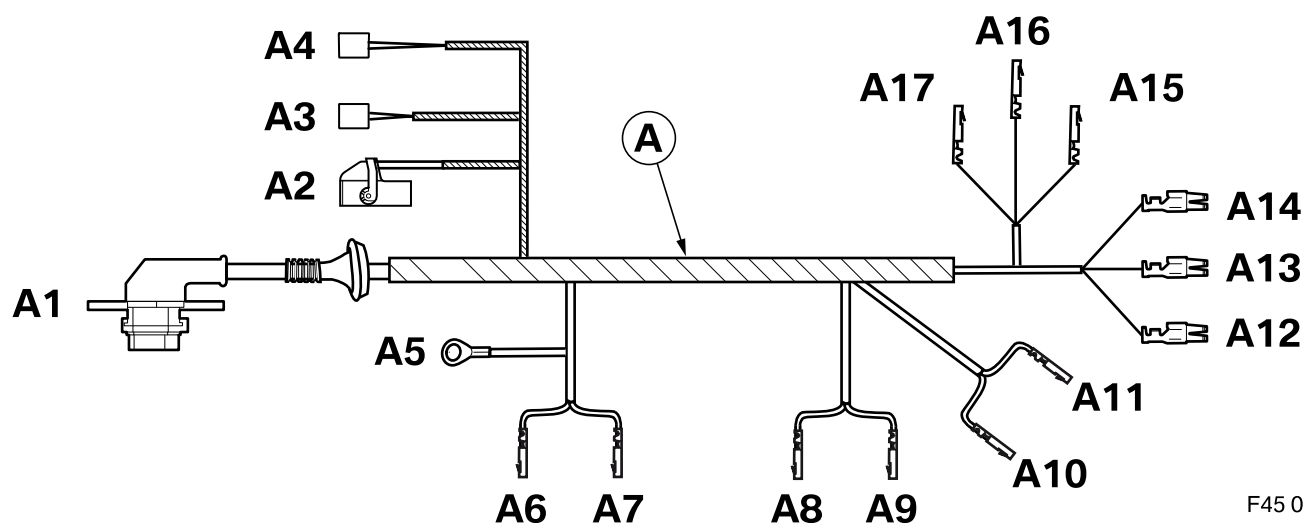
Legend

- A** Retrofit wiring harness
- B** Trailer tow hitch
- C** Heat insulation (not supplied with the retrofit kit)
- D** M12 hexagon nut (4 x)
- E** Socket
- F** M5 pan-head screw (3 x)
- G** M5 hexagon screw (3 x)
- H** Module holder
- I** AAG control unit (not supplied in the retrofit kit)
- J** Mini 5 A fuse (6 x)
- K** Cable ties (15 x)
- L** Bus interface (for cars without bus interface, not supplied with the retrofit kit only)
- M** Retrofitting the bus interface (for cars without an existing bus interface only)
- N** Storage tray (only for cars without spare wheel)
- O** Velcro strip (only for cars without spare wheel)
- P** M6 hexagonal bolt with washer (for cars without a spare wheel only)
- Q** 20 A fuse (3 x, not included in the retrofit kit)
- R** Fuse holder (not supplied with the retrofit kit)
- S** BDC control unit (not supplied in the retrofit kit)
- T** Fan frame with fan (not supplied with the retrofit kit)

2. Preparatory work

	ISTA/AIR No.
Disconnect the negative battery cable	61 20 900
The following components must be removed first of all	
Rear bumper trim	51 12 156
Luggage compartment floor trim	51 47 101
Luggage compartment wheel arch trim, right	51 47 161
Rear seat bench	52 26 005
Rear right (interior) door sill cover strip	51 47 030
Bottom right B-pillar trim	51 43 150
Front right (interior) door sill cover strip	51 47 000
Bottom right A-pillar trim	51 43 075
Replace body domain controller (BDC)	
Only if fan replacement is necessary	
Replace the fan frame with fan	17 11 035

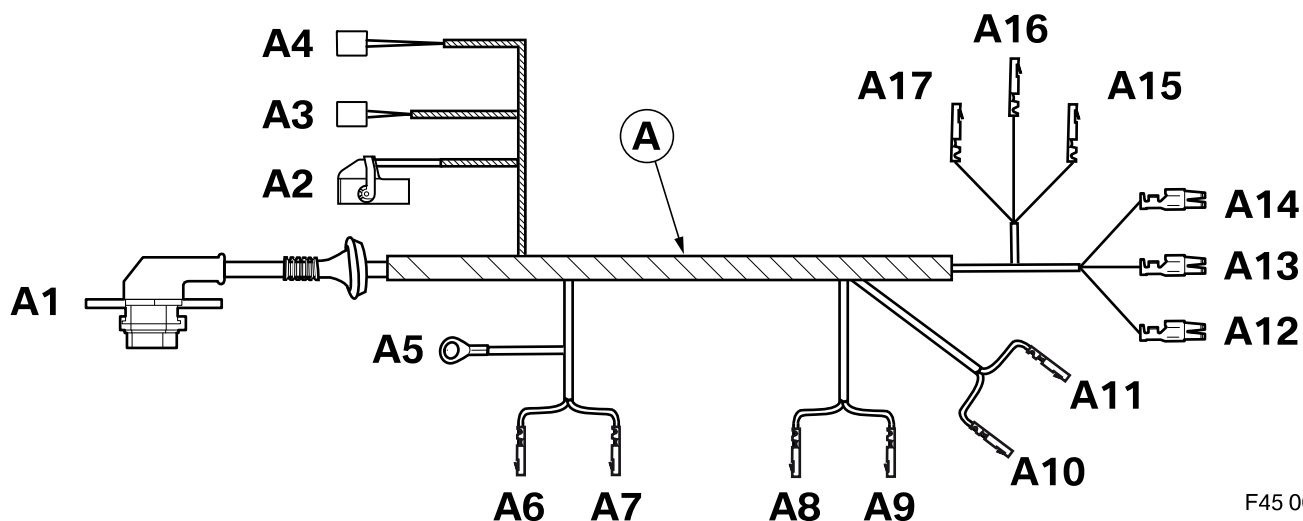
3. Retrofit wiring harness connection diagram



F45 0031 Z

Item	Designation	Signal	Cable colour/ cross-section	Connection lo- cation in the car	Abbreviation/ slot
A	Retrofit wiring harness	---	---	---	---
A1	SW 13-pin socket casing	---	---	Connect to socket E	---
A2	SW 24-pin socket casing	---	---	Connect to control unit I	A255*1B
A3	SW 6-pin socket casing	---	---	Connect to control unit I	A255*2B
A4	SW 10-pin socket casing	---	---	Connect to control unit I	A255*3B
A5	M6 ring eyelet	Terminal 31	BR	Screw onto rear right wheel arch ground support point	Z10*7B
A6	Socket contact	B-CAN_H	SW/RT 0,35 mm ²	Only cars with previously-installed R2 bus interface Connect to plug R2*1B Cars without an existing bus interface R2 only Connect to branch M1	R2*1B PIN 9 M1 PIN 9
A7	Socket contact	B-CAN_L	SW/WS 0,35 mm ²	Only cars with previously-installed R2 bus interface Connect to plug R2*1B Cars without an existing bus interface R2 only Connect to branch M1	R2*1B PIN 22 M1 PIN 22
A8	Socket contact	WBL	BL 0,35 mm ²	Connect to BDC plug A258	A258*3B PIN 17
A9	Socket contact	BLSH	SW/GE 0,35 mm ²	Connect to BDC plug A258	A258*3B PIN 16
A10	Socket contact	Terminal 30F_ON	RT/GR 0,35 mm ²	Connect to BDC plug A258	A258*3B PIN 4
A11	Socket contact	Terminal 30F_OFF	BL/GE 0,35 mm ²	Connect to BDC plug A258	A258*3B PIN 5
A12	Double flat spring contact	Terminal 30B_F63	RT/SW 2,50 mm ²	Connect to front fuse box Z7	Z7*4B PIN 28
A13	Double flat spring contact	Terminal 30F_F120	RT/M 2,50 mm ²	Connect to front fuse box Z7	Z7*7B PIN 1

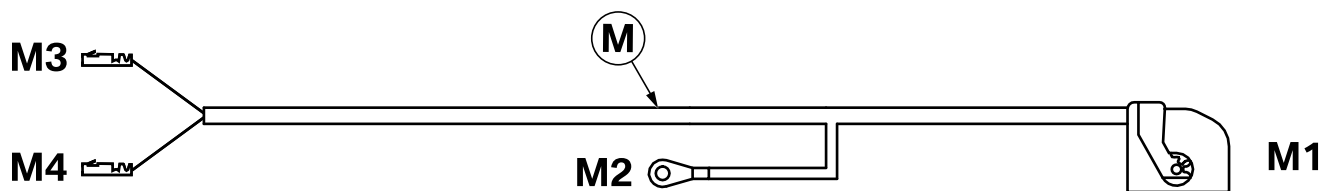
3. Retrofit wiring harness connection diagram



F45 0031 Z

Position	Designation	Signal	Cable colour/ cross-section	Connection lo- cation in the car	Abbreviation/ slot
A14	Double flat spring con- tact	Terminal 30F_F119	RT/GE 2.50 mm ²	Connect to front fuse box Z7	Z7*7B PIN 2
A15	Socket contact	Terminal 30F_OFF	BL/GE 0.35 mm ²	Connect to front fuse box Z7	Z7*7B PIN 10
A16	Socket contact	Terminal 30F_ON	RT/GR 0.35 mm ²	Connect to front fuse box Z7	Z7*7B PIN 11
A17	Socket contact	Terminal 31	BR 0.35 mm ²	Connect to front fuse box Z7	Z7*7B PIN 12

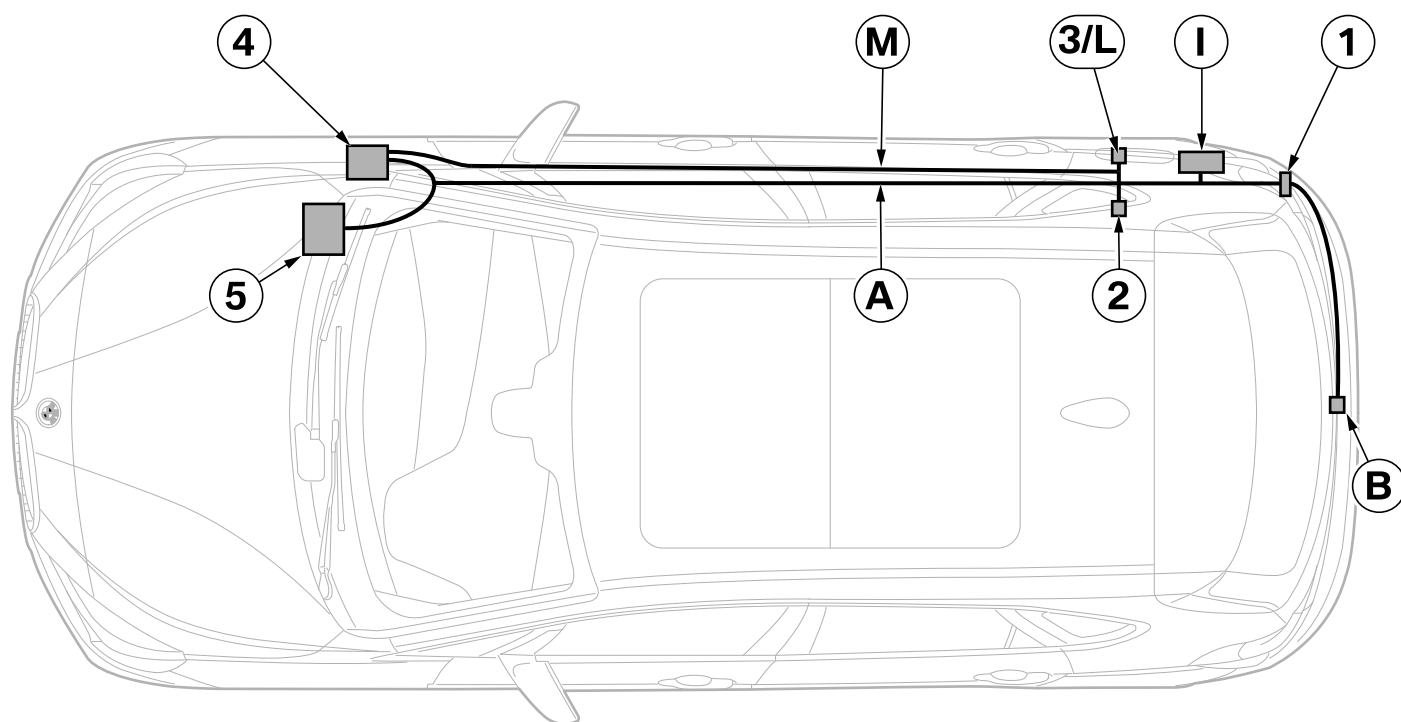
4. Bus interface retrofit wiring harness connection diagram



F45 0035 Z

Item	Designation	Signal	Cable colour/ cross-section	Connection lo- cation in the car	Abbreviation/ slot
M	Bus interface retrofit wiring harness	---	---	Cars without an existing bus interface R2	---
M1	SW 26-pin socket casing	---	---	Connect to bus interface L	---
M2	M6 ring eyelet	Terminal 31	BR	Screw onto rear right wheel arch ground sup- port point	Z10*7B
M3	Socket contact to twisted cable	B-CAN_H	OR 0.35 mm ²	Connect to BDC plug A258	A258*8B PIN 50
M4	Socket contact to twisted cable	B-CAN_H	BR/GE 0.35 mm ²	Connect to BDC plug A258	A258*8B PIN 49

5. Installation and cabling diagram for LHD (left-hand drive) cars

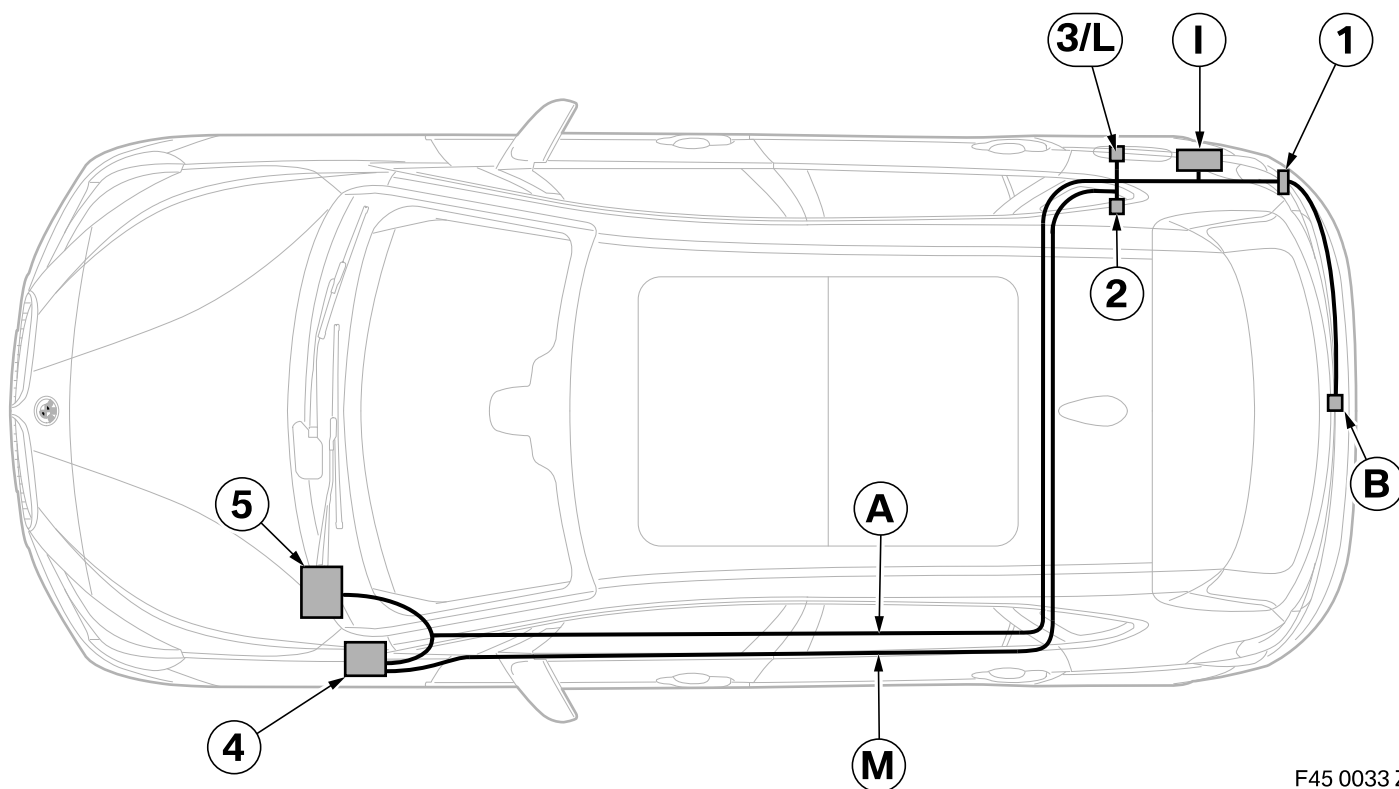


F45 0032 Z

- A** Retrofit wiring harness
- B** Trailer tow hitch
- I** Control unit
- L** Bus interface (for cars without an existing bus interface **R2** only)
- M** Bus interface retrofit wiring harness (for cars without an existing bus interface **R2** only)

- 1** Drilling point/rubber grommet
- 2** Ground support point **Z10*7B**
- 3** Bus interface **R2/L**, plug **R2*1B** or branch **M1**
- 4** BDC **A258** plug **A258*3B** and **A258*8B**
- 5** Fuse box **Z7**, modules **Z7*4B** and **Z7*7B**

6. Installation and cabling diagram for RHD (right-hand drive) cars

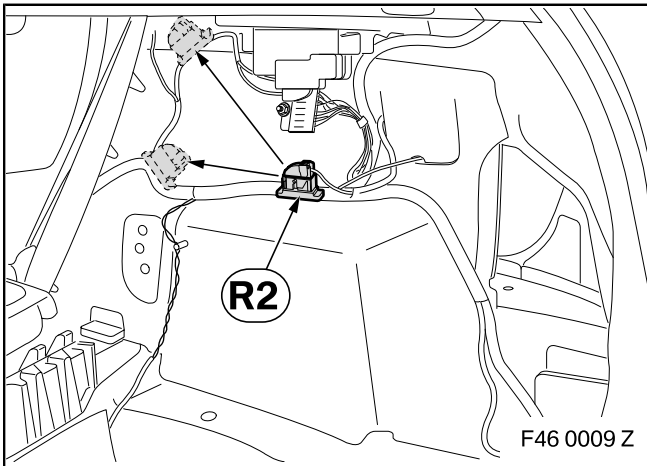


F45 0033 Z

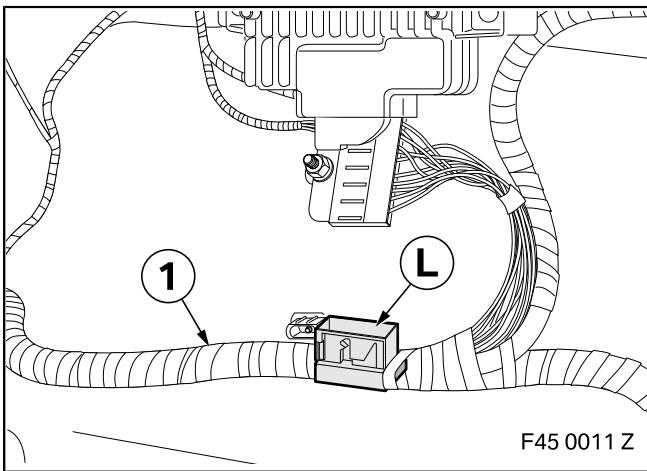
- A** Retrofit wiring harness
- B** Trailer tow hitch
- I** Control unit
- L** Bus interface (for cars without an existing bus interface **R2** only)
- M** Bus interface retrofit wiring harness (for cars without an existing bus interface **R2** only)

- 1** Drilling point/rubber grommet
- 2** Ground support point **Z10*7B**
- 3** Bus interface **R2/L**, plug **R2*1B** or branch **M1**
- 4** BDC **A258** plug **A258*3B** and **A258*8B**
- 5** Fuse box **Z7**, modules **Z7*4B** and **Z7*7B**

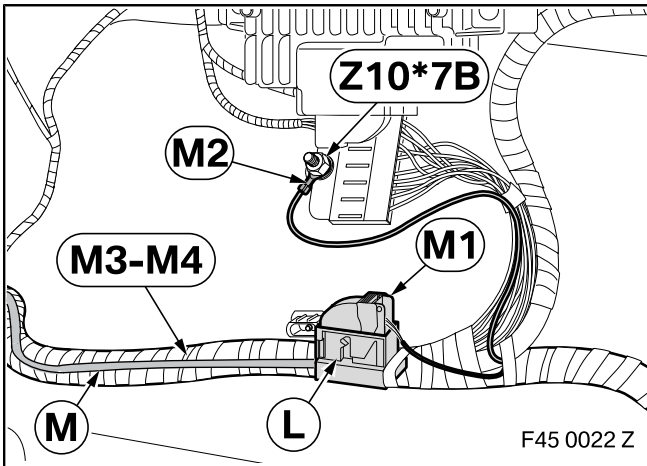
7. Retrofit the bus interface (for cars without an existing bus interface only)



- ▣ The installation site of bus interface **R2** may vary. When connecting branches **A6-A7**, use the ISTA/AIR documentation to ensure that bus interface **R2** is used. ◀

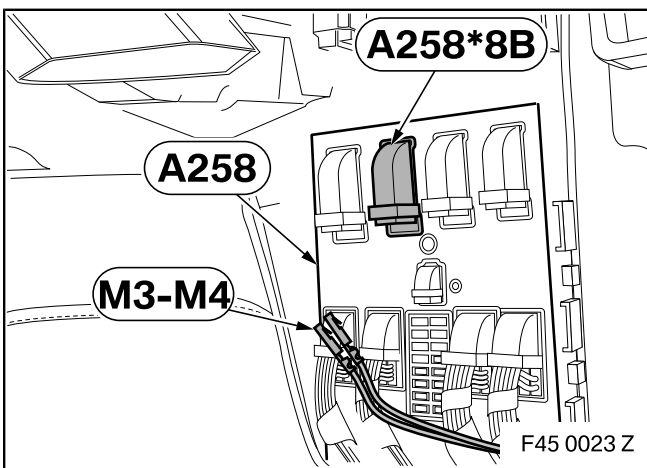


Secure bus interface **L** using insulating tape to the standard wiring harness (1).



Connect bus interface retrofit wiring harness **M** as follows:

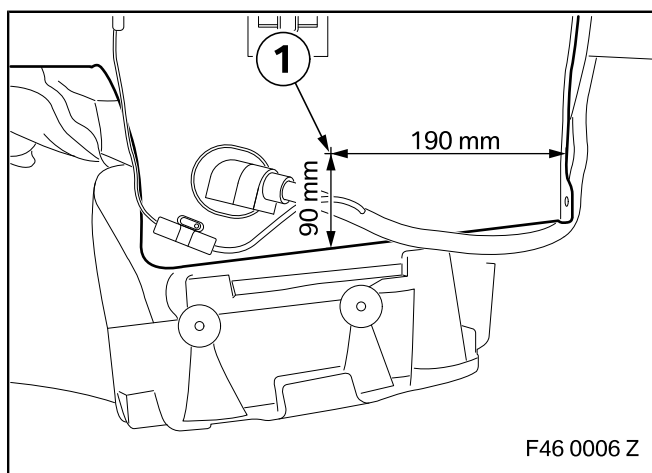
- Connect branch **M1** to bus interface **L**
- Screw branch **M2**, M6 ring eyelet, onto ground support point **Z10*7B**
- Route branches **M3-M4** onwards to the location of the BDC



Connect branches **M3-M4** as follows to plug **A258*8B**, SW 54-pin socket housing, on BDC **A258**:

- Branch **M3**, OR cable, to PIN 50
- Branch **M4**, BR/GE cable, to PIN 49

8. Installing the trailer tow hitch

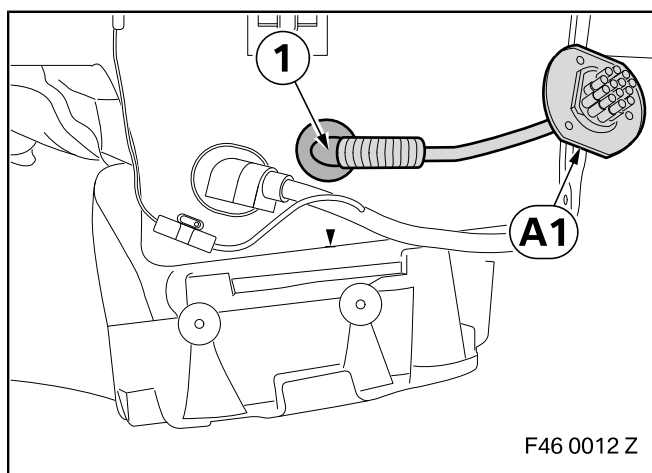


⊲ When drilling, ensure that you do not damage the cable behind. ◀

Mark and centre-punch the drilling point (1) on the right-hand rear underbody as per the dimensions.

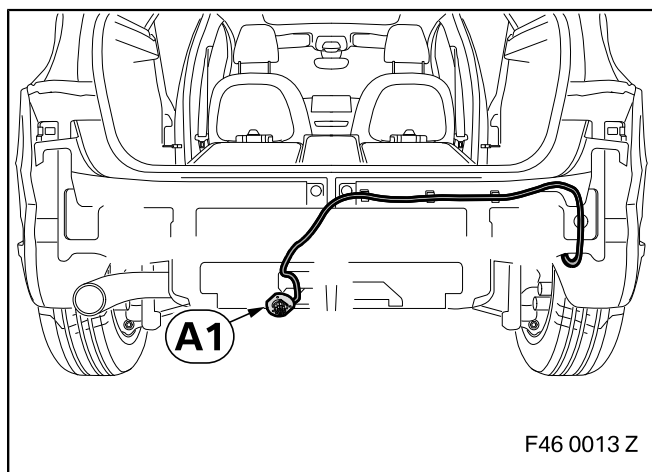
Drill through the right-hand rear underbody at the drilling point (1) and enlarge the hole using a 30 mm step drill bit.

Deburr the hole and coat the bare surfaces with preservative.

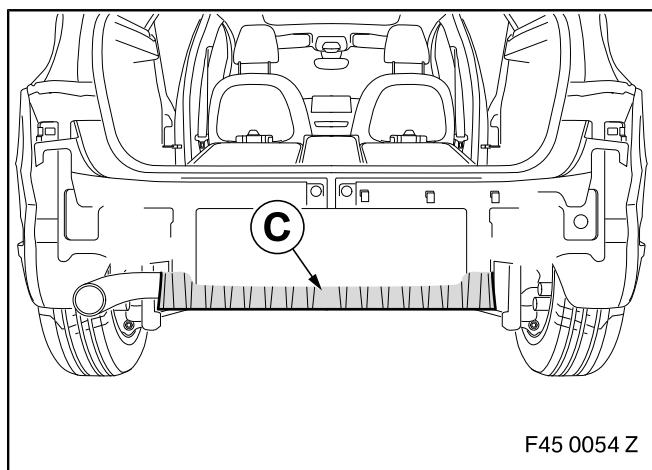


Insert grommet (1) into the hole so it is waterproof.

Route cable branch **A1** outside the car.

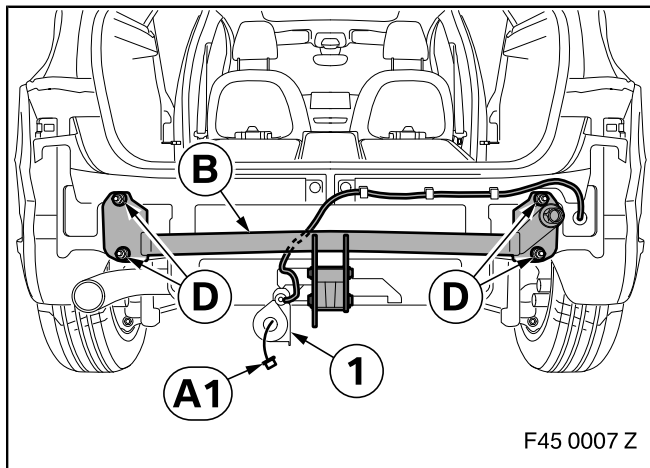


Route the cable branch **A1** outside the car to the location of the trailer tow hitch.



Fit heat insulation **C** using existing fastening material.

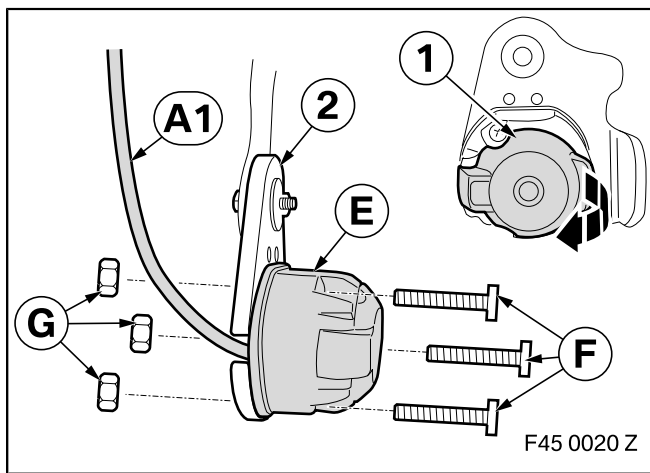
8. Installing the trailer tow hitch



▶ Note the tightening torque value: 108 Nm. ◀

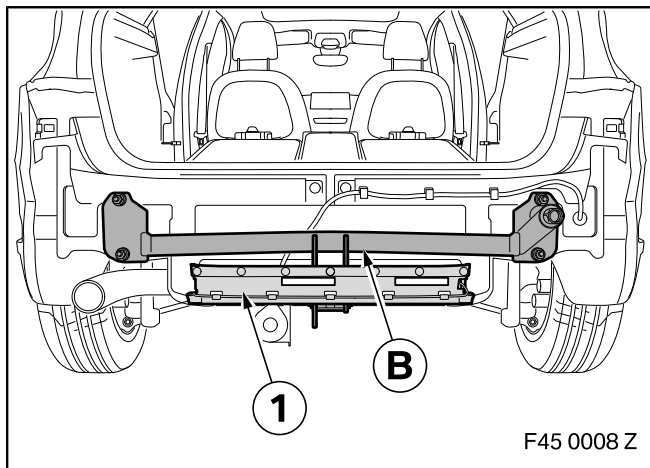
Bolt trailer tow hitch **B** into place using hexagon nuts **D**.

Guide branch **A1** through the pivot device socket (1).

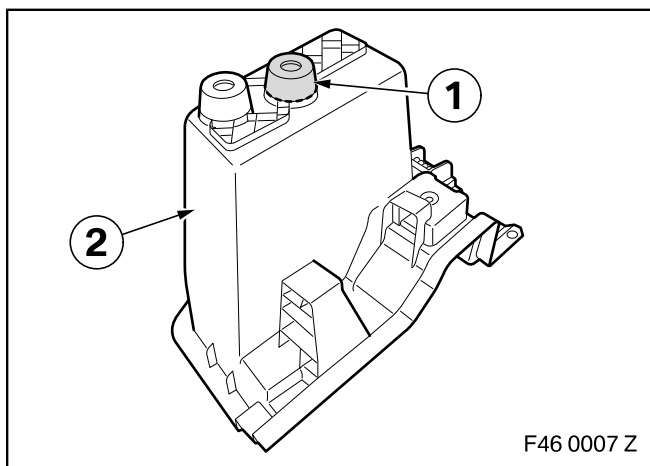


▶ The socket cover (1) must open to the left. ◀

Connect branch **A1** to socket **E** and secure it to the swivel device socket (2) with pan-head screws **F** and hexagonal nuts **G**.

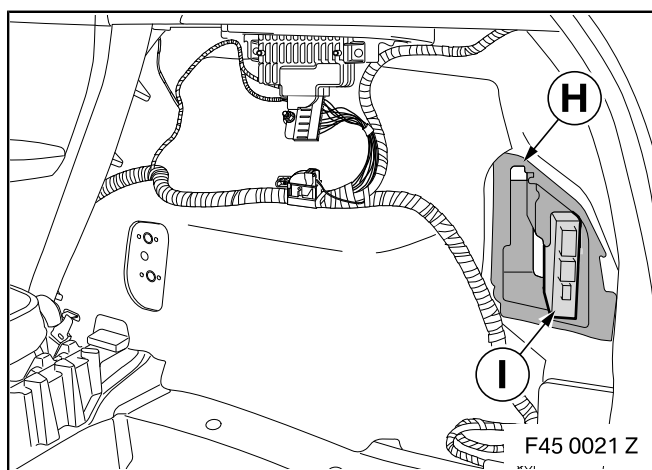


Fit the support (1) using the existing fastening material to trailer tow hitch **B**.



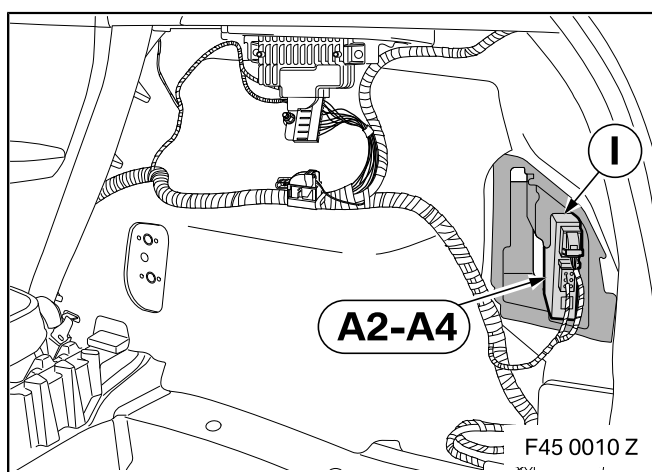
Modify the support (1) of the storage compartment (2) for the cable bushing as required.

9. Routing and connecting the retrofit wiring harness

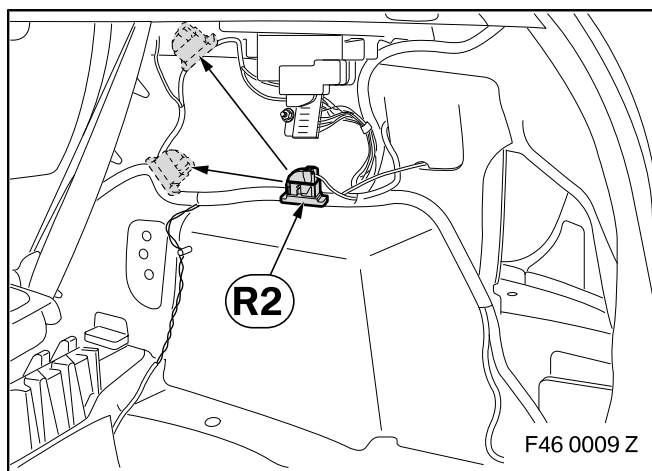


Install module holder **H**.

Install control unit AAG **I** in module holder **H**.

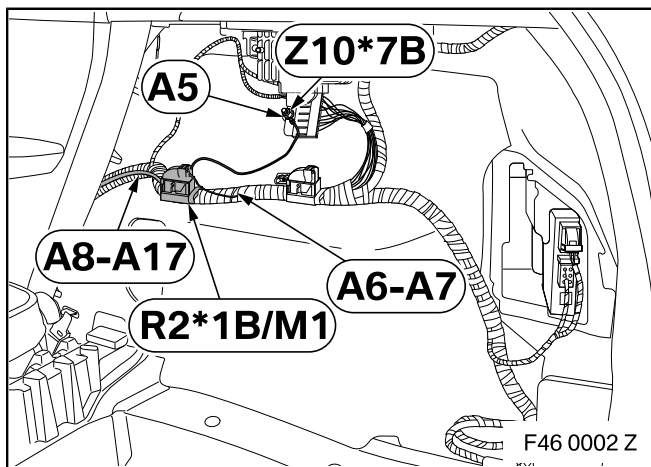


Connect branches **A2-A4** to AAG control unit **I**.



▶ The installation site of bus interface **R2** may vary. When connecting branches **A6-A7**, use the ISTA/AIR documentation to ensure that bus interface **R2** is used. ◀

9. Routing and connecting the retrofit wiring harness



☐ The installation site of bus interface **R2** may vary. Ensure that bus interface **R2** is used when you connect branches **A6-A7**. ◀

Connect branches **A6-A7** as follows to plug **R2*1B** or branch **M1**, SW 26-pin socket housing:

- Branch **A6**, SW/RT cable, to PIN 9
- Branch **A7**, SW/WS cable, to PIN 22

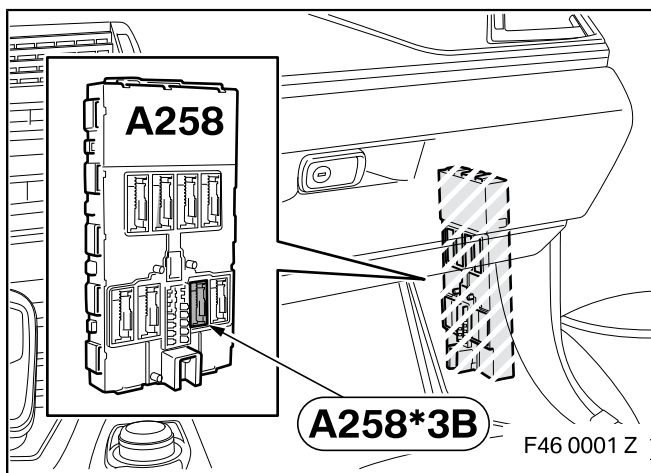
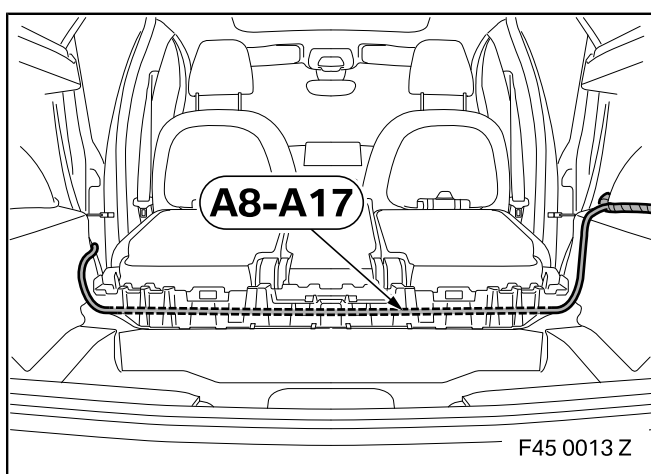
Screw branch **A5**, M6 ring eyelet, onto ground support point **Z10*7B**.

LHD (left-hand drive) cars only

Route branches **A8-A17** along the left-hand side of the car to the location of the BDC on the right A-pillar.

RHD (right-hand drive) cars only

Route branches **A8-A17** along the left-hand side of the car to the location of the BDC on the left A-pillar.

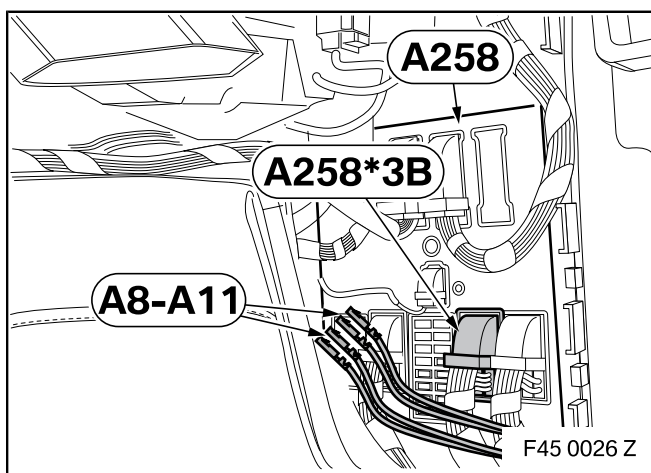


All cars

Connection locations on BDC **A258**:

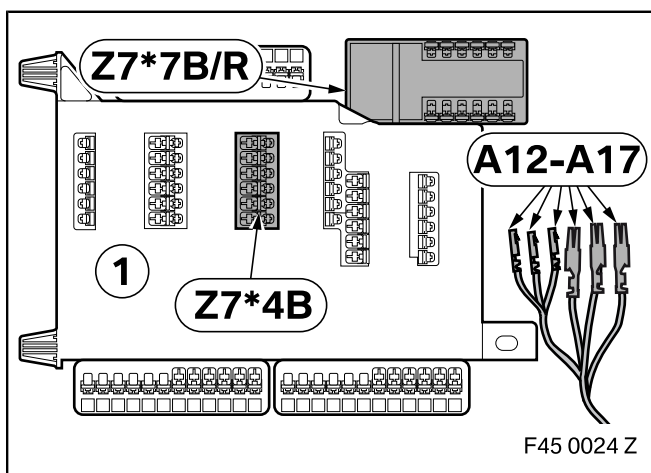
- **A258*3B**, SW 54-pin socket housing

9. Routing and connecting the retrofit wiring harness



Connect branches **A8-A11** as follows to plug **A258*3B**, SW 54-pin socket housing, on BDC **A258**:

- Branch **A8**, BL cable, to PIN 17
- Branch **A9**, SW/GE cable, to PIN 16
- Branch **A10**, RT/GR cable, to PIN 4
- Branch **A11**, BL/GE cable, to PIN 5

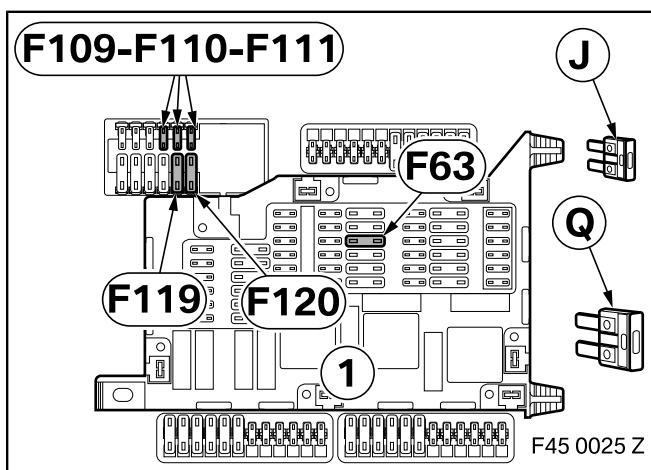


⚠ Fuses can fall out when connecting the plug to the front fuse box (1). Ensure that all the fuses are replaced in their correct position. If fuse holder **Z7*7B** is not present, use fuse holder **R**. ◀

Connect branch **A12**, RT/SW cable, to PIN 28 on module **Z7*4B** on the front fuse box (1):

Connect branches **A13-A17** as follows to fuse holder **Z7*7B** on the front fuse box (1):

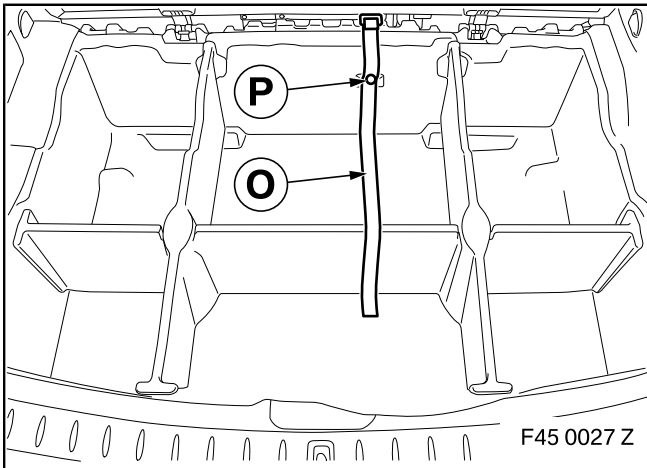
- Branch **A13**, RT/VI cable, to PIN 1
- Branch **A14**, RT/GE cable, to PIN 2
- Branch **A15**, BL/GE cable, to PIN 10
- Branch **A16**, RT/GR cable, to PIN 11
- Branch **A17**, BR cable, to PIN 12



Insert fuses **Q** into slots **F119** and **F120** and **F63** of the fuse box (1).

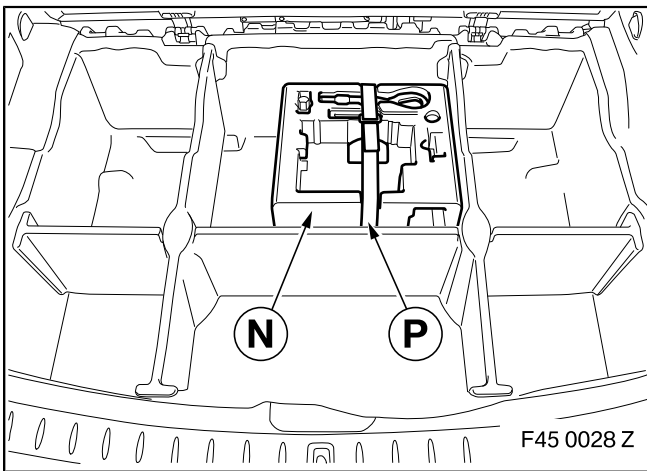
Insert fuses **J** into slots **F109**, **F110** and **F111** of the fuse box (1).

10. Fitting the oddments tray

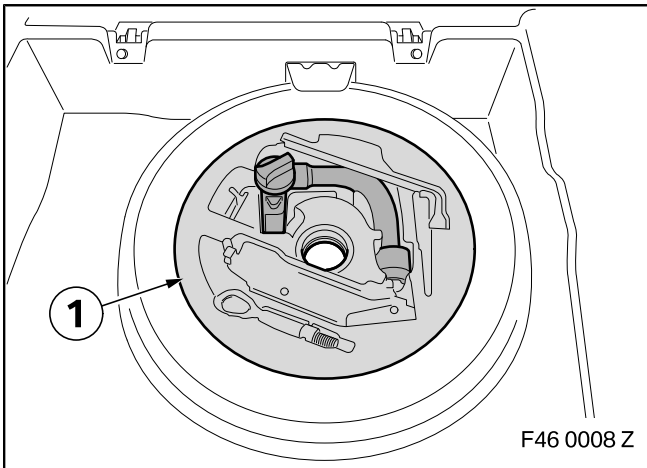


Only cars without spare wheel

Screw on Velcro strip **O** using hexagon screw **P** in the spare wheel trough.



Insert oddments tray **N** into the spare wheel trough and lash tightly in place using Velcro strip **P**.



Only cars with spare wheel

Stow the tow ball and accessories in the spare wheel tray (1).

11. Concluding work and coding

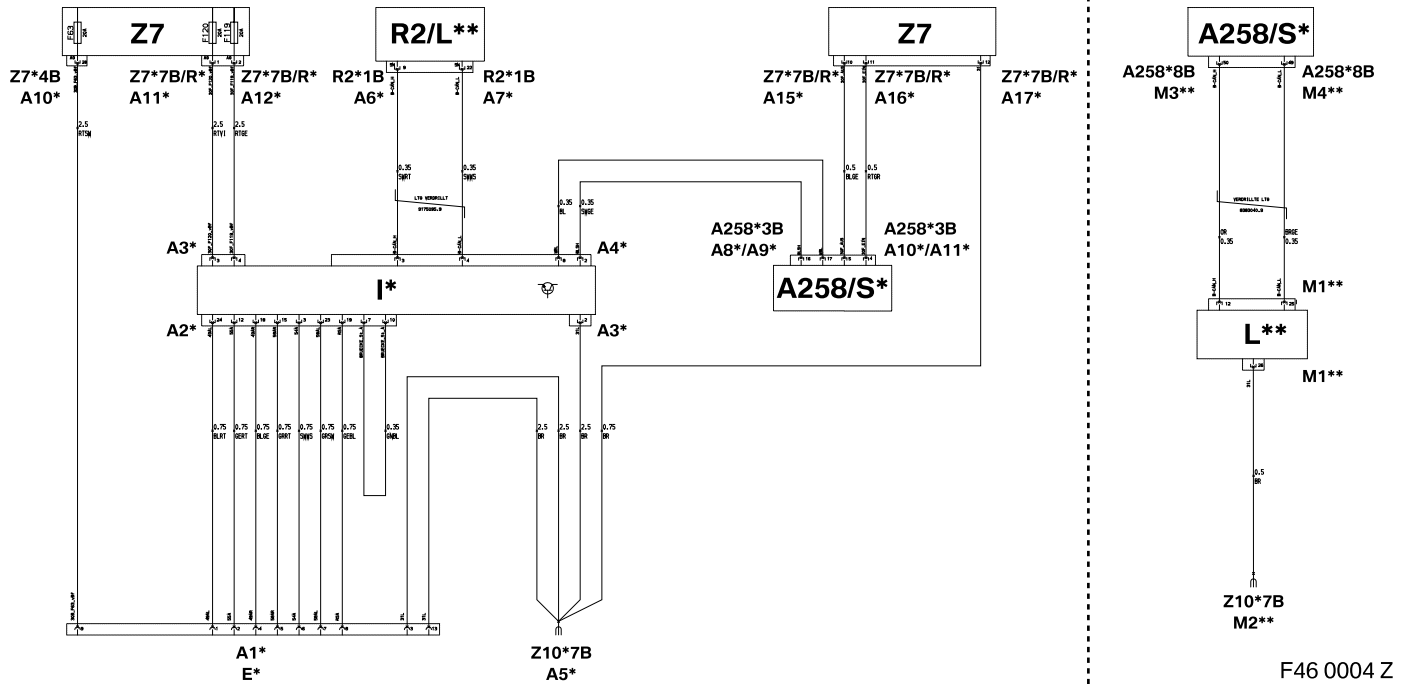
The retrofit system requires programming/coding.

- Connect the battery
- Connect the battery charger to the car
- Connect the car to the ISTA/AIR workshop system
- Open the ISTA/AIR car programming facility
- Please refer to the instructions provided in the ISTA/AIR application documentation for working with ISTA/AIR

Two sessions are required for coding the removable trailer tow hitch:

- **Session 1:** Select "Preparation for removable trailer tow hitch retrofit" using the – **Conversions** – path and work through the action plan
- **Session 2:** Select "Preparation for retrofit removable trailer tow hitch" using the – **Conversions** – path and work through the action plan
- If necessary, carry out a vehicle test using the ISTA/AIR system, and note, or work through, any errors that have been recorded
- Conduct a function test
- Re-assemble the car
- The sections entitled "Customer information" and "Statutory regulations under ECE Directive R55" at the end of these Installation Instructions must be printed out and given to the customer
- Give the keys, caps and operating instructions enclosed with the retrofit to the customer

12. Wiring diagram



Legend

- A1*** SW 13-pin socket housing to socket **E***
A2* SW 24-pin socket housing, to control unit **I***
A3* SW 6-pin socket housing, to control unit **I***
A4* SW 10-pin socket housing, to control unit **I***
A5* M6 ring eyelet, to ground support point **Z10*7B** of rear right wheel arch
A6* Socket contact, SW/RT cable, to PIN 9 of plug **R2*1B/M1****
A7* Socket contact, SW/WS cable, to PIN 22 of plug **R2*1B/M1****
A8* Socket contact, BL cable, to PIN 17 of plug **A258*3B**
A9* Socket contact, SW/GE cable, to PIN 16 of plug **A258*3B**
A10* Socket contact, RT/GR cable, to PIN 4 of plug **A258*3B**
A11* Socket contact, BL/GE cable, to PIN 5 of plug **A258*3B**
A12* Double flat spring contact, RT/SW cable, to PIN 28 of plug **Z7*4B**
A13* Double flat spring contact, RT/VI cable, to PIN 1 of plug **Z7*7B**
A14* Double flat spring contact, RT/GE cable, to PIN 2 of plug **Z7*7B**
A15* Socket contact, BL/GE cable, to PIN 10 of plug **Z7*7B**
A16* Socket contact, RT/GR cable, to PIN 11 of plug **Z7*7B**
A17* Socket contact, BR cable, to PIN 12 of plug **Z7*7B**
- M1**** SW 26-pin socket housing, to bus interface **L****
M2** M6 ring eyelet, to ground support point **Z10*7B** of rear right wheel arch
M3** Socket contact, OR cable, to PIN 50 of plug **A258*8B**
M4** Socket contact, BR/GE cable, to PIN 49 of plug **A258*8B**
- E*** Socket
I* AAG control unit
L** Bus interface R2 (only for cars without bus interface **R2** already installed)
R* Fuse holder

12. Wiring diagram

A258 Body Domain Controller **BDC**
R2 Bus interface on the rear right wheel arch
Z7 Front fuse box

A258*3B SW 54-pin socket casing on **BDC**
A258*8B SW 54-pin socket casing on **BDC**
R2*1B SW 26-pin socket housing on bus interface **R2**
Z7*4B Module on fuse box **Z7**
Z7*7B Fuse holder on fuse box **Z7**
Z10*7B Ground support point on the rear right wheel arch

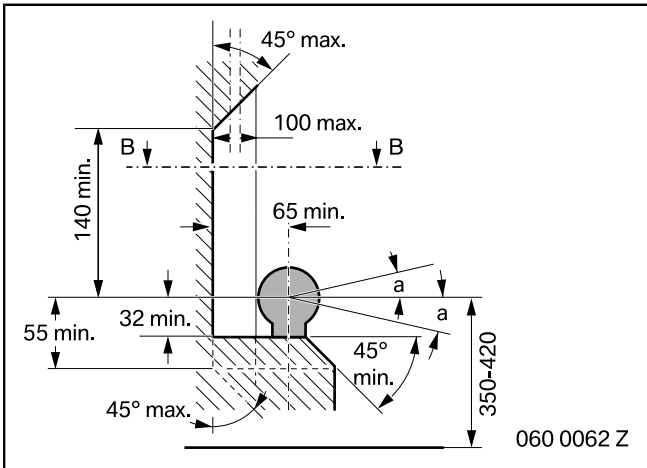
All of the designations marked with * apply only to these installation instructions or this wiring diagram.

All of the designations marked with ** apply only to cars without the **R2** bus interface already installed.

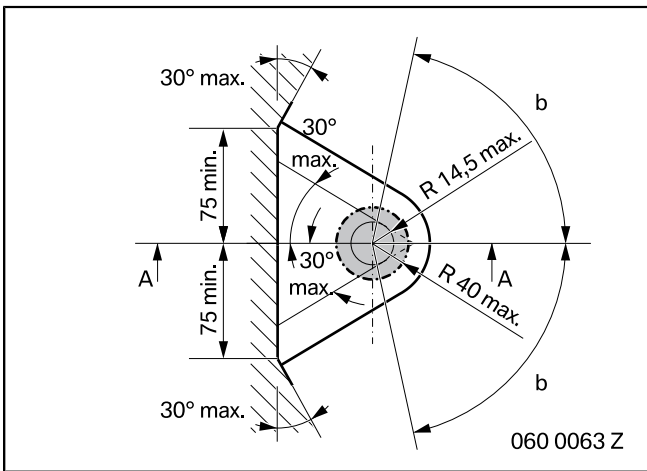
Cable colours

BL	Blue	GR	Grey	RT	Red
BO	Bordeaux	L-GN	Light green	SW	Black
BR	Brown	NT	Natural	TR	Transparent
GE	Yellow	OR	Orange	VI	Violet
GN	Green	RO	Pink	WS	White

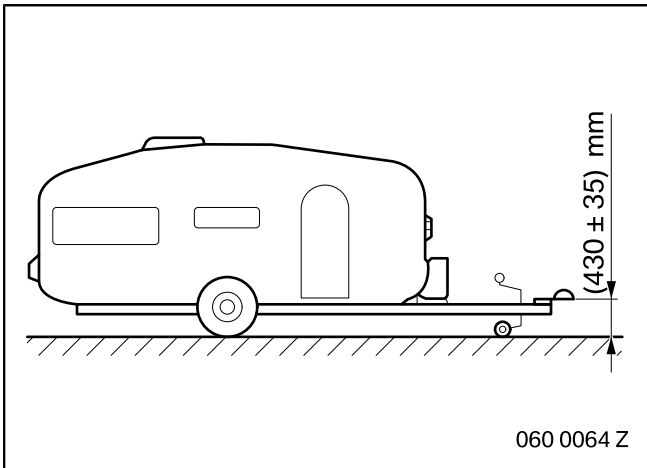
13. Coupling ball clearances and installation height for towing ball coupling



Space for coupling ball, side view.



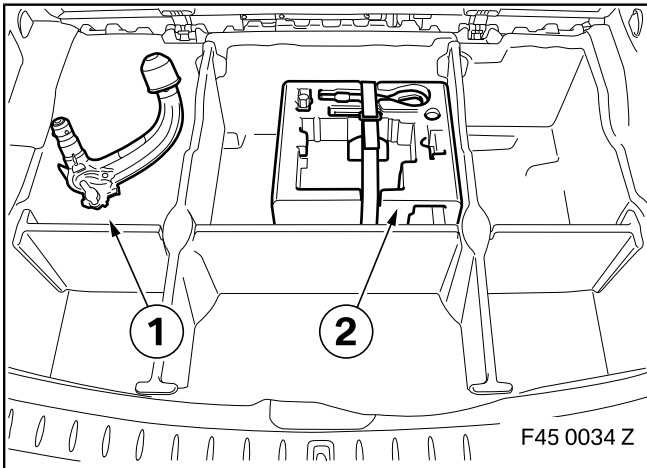
Space for coupling ball, plan view.



Installation height for the towing ball coupling.

14. Customer information

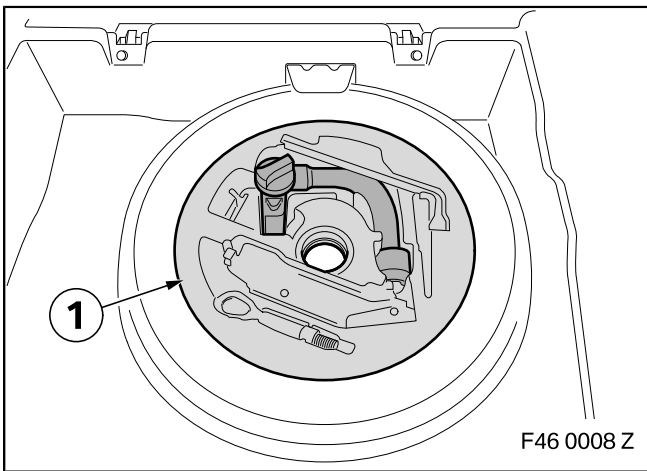
! The ball head must be removed when not in use and securely stowed in the oddments tray of your car's lower storage space floor. Never carry the ball head (1) loose and unsecured in the boot. ◀



Remove the ball head (1).

Store the ball head in the oddments tray (2).

Secure the oddments tray (2) to prevent it from sliding around.



Remove the ball head. Store the ball head in the spare wheel trough (1).

15. Statutory regulations under ECE Directive R55

Appendix VII

Regulations for the homologation of a vehicle for the optional installation of mechanical connection devices (trailer tow hitches)

1. General regulations

1.1

The vehicle manufacturer determines which types and classes of connecting devices can be fitted onto the vehicle type, and specifies the values D, V ¹, S or U (if applicable) which are based on the design of the vehicle type in combination with the planned type of connecting devices. The code values D, V, S or U of the connecting devices approved in accordance with this directive must be greater than or equal to those specified for the vehicle type in question.

1.2

The connection devices must be installed on the vehicle type in accordance with the installation instructions specified by the vehicle manufacturer and in compliance with the manufacturer of the connection device and the Technical Service. The vehicle manufacturer defines the permitted points for securing the connection devices to the vehicle type and, if necessary, the mountings, installation plates, etc. that must be mounted on this specific vehicle type.

1.3

Only automatic hitches may be used for hitching up trailers with a gross weight of more than 3.5 tonnes to motor vehicles; these automatic hitches must permit an automatic hitching procedure.

1.4

When connecting devices of class B, D, E and H are fitted to trailers, it is always necessary to assume a value of 32 tonnes for the total mass T of the towing vehicle in order to calculate the D value. If the D value of the connecting device for T = 32 tonnes is not sufficient, the resultant restriction relating to the mass T of the towing vehicle and the mass of the vehicle combination (towing vehicle and trailer) must be specified in the approval sheet for the trailer.

¹ The V value must only be specified for vehicles with a maximum technical gross weight in excess of 3.5 tonnes.

15. Statutory regulations under ECE Directive R55

2. Special regulations

2.1

Fitting coupling balls and towing brackets (ball head with coupling device)

2.1.1

When coupling balls with holders are fitted to a vehicle type of class M1, class M2 below 3.5 tonnes or class N1, the clearance and height dimensions shown in figures **1** and **2** must be maintained. This requirement does not apply to off-road vehicles in the sense of Appendix II of Directive 92/53/EEC. Unspecified details are to be selected to suit the appropriate purpose. The dimensions and angles must be checked using suitable measuring instruments.

2.1.2

The vehicle manufacturer must supply installation instructions for coupling balls and towing brackets. These installation instructions must specify whether the attachment area requires reinforcing.

2.1.3

It must also be possible to couple and uncouple coupling heads when the longitudinal axis of the coupling head in relation to the centre line of the coupling ball and towing bracket

a) is turned horizontally through $b = 60^\circ$ to the right or left (see Figure **2**),

b) is turned vertically through $a = 10^\circ$ to the right or left (see Figure **1**),

c) is rotated axially through 10° to the right or left.

2.1.4

The mounted coupling ball must not obscure the rear registration plate or the space provided for the rear registration plate; otherwise, a ball that can be removed without requiring special tools must be used.

2.2

Installing towing ball couplings

2.2.1

Class B coupling heads may be used with trailers of a maximum gross weight of up to 3.5 tonnes. Towing ball couplings must be installed in such a way that the coupling point of the trailer (when the trailer is horizontal with less than the maximum axle load) is $430 \text{ mm} \pm 35 \text{ mm}$ above the horizontal wheel contact level (see Figure 3). The horizontal position for caravans and trailers is the position at which the floor or the loading bed is horizontal. For trailers without a reference plane of this nature (for example boat trailers and the like), the manufacturer must specify a suitable reference line for defining the horizontal position. The required height only applies to trailers to be coupled to the cars listed in 2.1.1.

2.2.2

It must be possible to operate coupling heads safely within the clearance of the coupling ball as shown in figures **1** and **2**.

15. Statutory regulations under ECE Directive R55

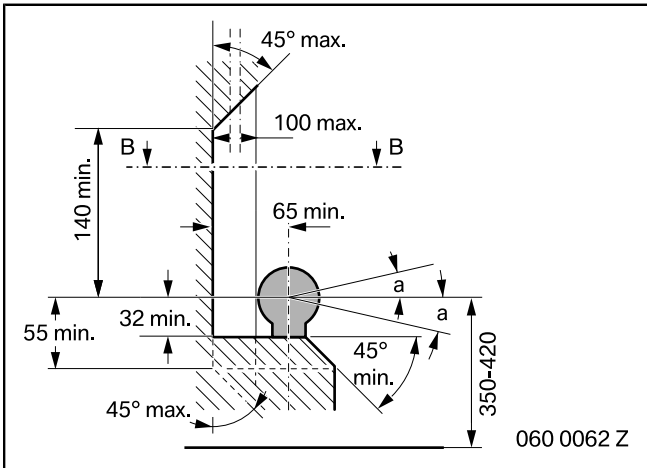


Figure 1

Space for coupling ball, side view.

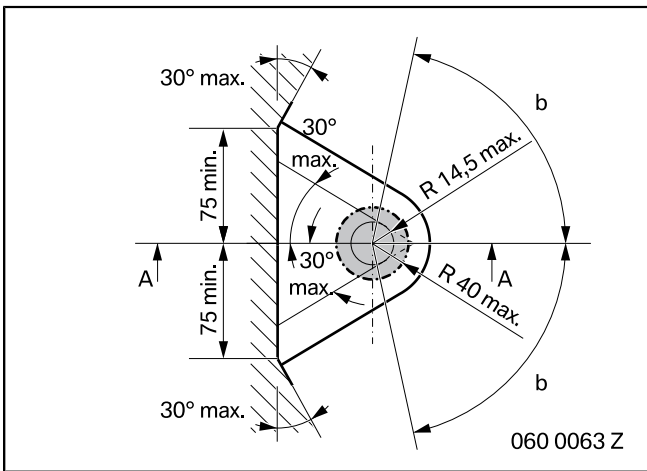


Figure 2

Space for coupling ball, plan view.

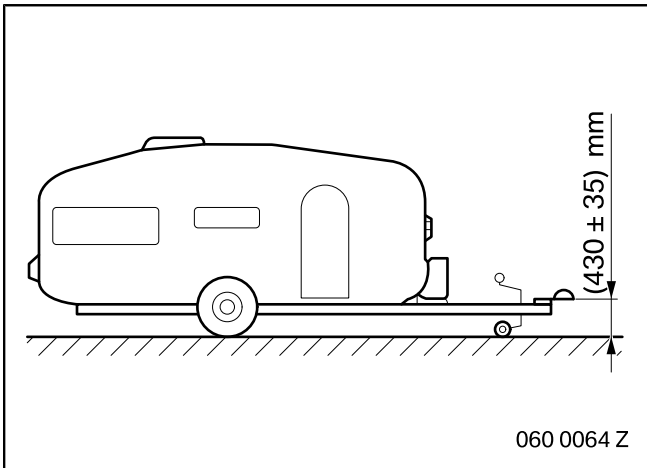


Figure 3

Installation height for the towing ball coupling.