

Original BMW Accessories. Installation Instructions.



Trailer tow hitch retrofit (pivot-mounted version)

Retrofit kit No.:	71 60 2 166 385	Electrical components retrofit kit
	71 60 6 796 696	Electrically pivot-mounted trailer tow hitch

Installation time

The installation time is **approx. 4.0 hours**, or **approx. 4.5 hours** on cars without SA 220 or SA 508. The installation times may vary depending on condition of the car and the equipment in it.

The charge for the total costs for the programming time is to be taken into account in when calculating the retrofit costs (settlement must not be made via warranty).

The installation time does not include any time for programming/encoding, as this depends on the age of the car and the equipment in it.

Important information

These installation instructions are primarily designed for use within the BMW dealership organisation and by authorised BMW service companies.

In any event, the target group for these installation instructions is specialist personnel trained on BMW cars with the appropriate specialist knowledge.

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

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

In order to reduce costs and avoid any additional expense, send a query immediately to the Technical Parts Support via the Aftersales Assistance Portal (ASAP).

Specify the following information:

- Chassis number,
- Part number of the retrofit kit,
- A precise description of the problem,
- Work steps already carried out.

Do not archive the hard copy of these installation instructions since daily updates are made via 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 other text.

Installation information

Ensure that the cables and/or lines are not kinked or damaged as you install them in the car. The costs thereby incurred 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 must be applied or twin-lead terminals must be used.

After installation, the retrofit must be programmed / coded using ISSS (Integrated Software Service Station) via the – **Retrofits** – path.

All pictures show LHD cars; proceed accordingly on RHD cars.

Ordering instructions

The electric fan must be exchanged in various cars (see EPC-HG-17 for part numbers and further details). If you do not replace the electric fan, the towing capacity will be reduced and the engine may stop.

If the "fan cowl with fan" is replaced, the "power distribution box with fuse" and "electric fan power supply cable" must also be replaced.

Further information can be found in table 612306 "B+ main wiring harness wiring harnesses" and table 612331 "Battery power distribution box".

The engine mounting block must be exchanged in various cars (see EPC for part numbers and further details).

Thermal insulation must be fitted in various cars. These are not supplied in the retrofit kit and must be ordered separately (see EPC for part number and details).

Legal requirements

A type approval in accordance with EC Directive 94/20/EC Annex VII exists for the towing hitch, with EC homologation mark **e1*1861**.

If you comply with these regulations and notes in these installation instructions, no special acceptance test pursuant to § 19 of the German Road Traffic Licensing Directive and no special entry in the vehicle registration document is necessary.

Section 10 of these installation instructions is to be given to the customer.

List of special equipment

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

SA 220 Automatic Levelling System
SA 508 Park Distance Control (PDC)

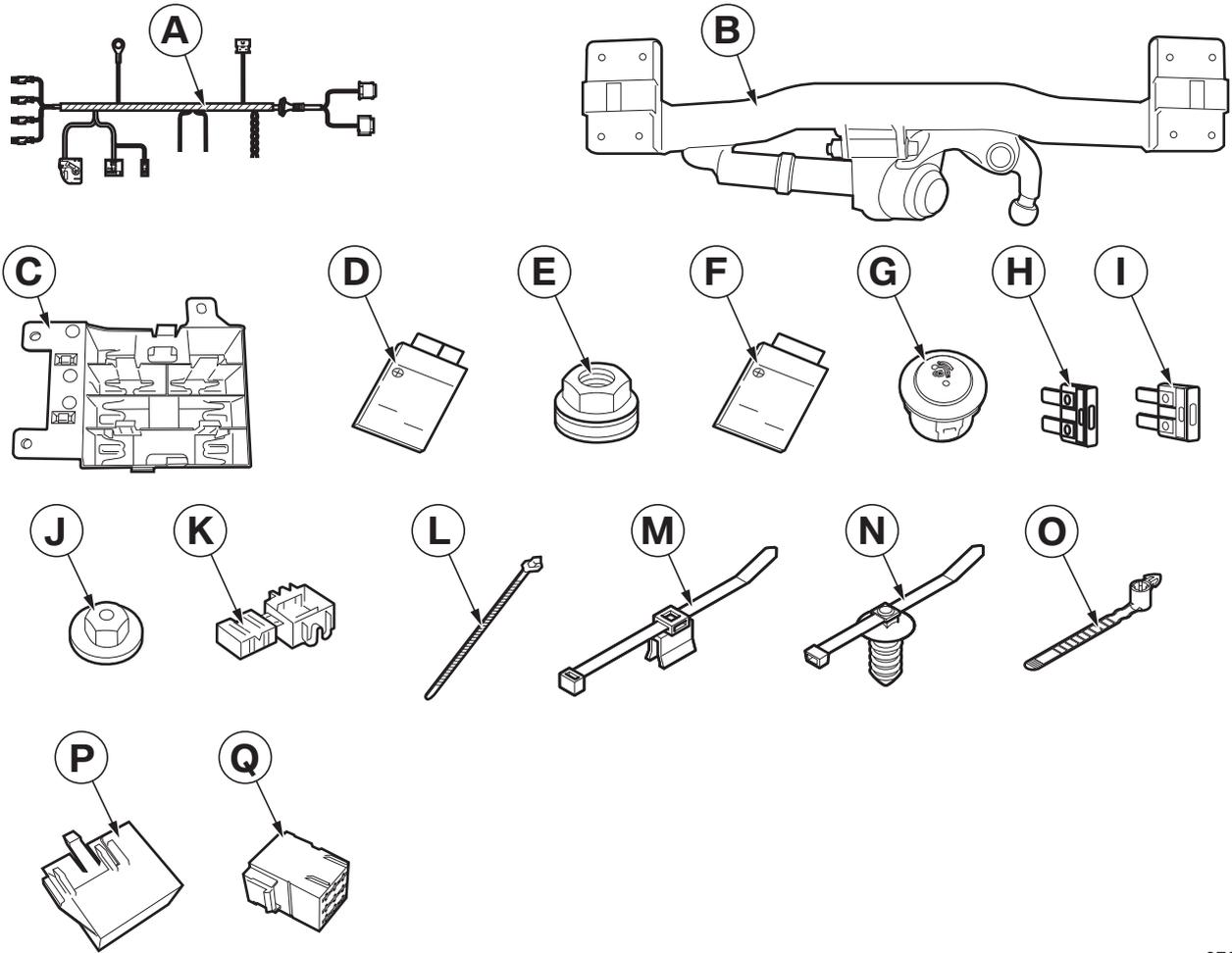
Special tools required

None

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1. Parts list



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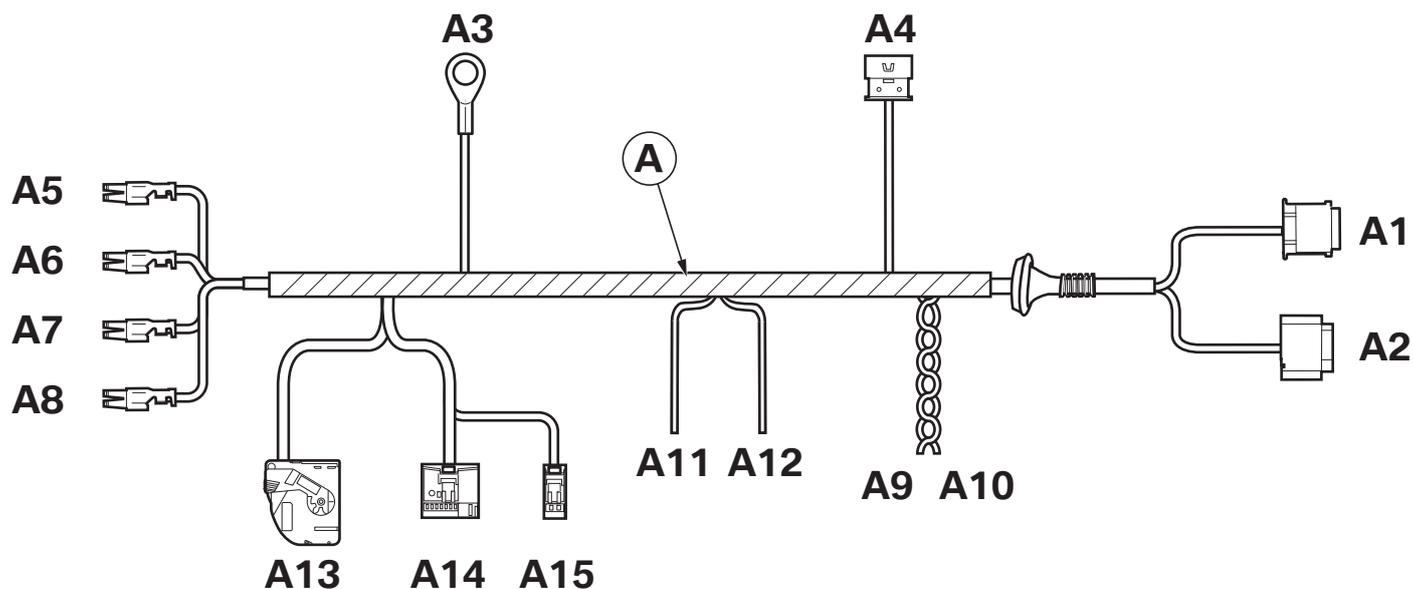
Legend

- A** Retrofit cable
- B** Pivot-mounted towing hitch
- C** Control unit carrier (cars without SA 220, SA 508 only)
- D** Towing hitch control unit
- E** Hexagon nut with washer (8 x)
- F** AHM4 trailer module
- G** Button
- H** Fuse 20 A (3 x)
- I** Fuse 20 A Mini
- J** Plastic nut (3 x, cars without SA 220, SA 508 only)
- K** Miniature connector (6 x)
- L** Cable tie 200 x 3.6 mm (20 x)
- M** Cable tie with holder (2 x)
- N** Cable tie with holder
- O** Cable tie with holder
- P** Holder for trailer module
- Q** 6-pin socket casing, BL

2. Preparatory work

	ISTA no.
Conduct a brief test	---
Disconnect negative pole of battery	12 00 ...
The following components must be removed first of all	
Rear bumper support	51 12 050
Left backrest side section (cars without SA 220 or SA 508 only)	---
Right boot wheel arch trim	51 47 161
Release the rear fuse holder	61 13 ...
Trim on bottom left of C-pillar (only cars with third row of seats, without SA 220 or SA 508)	51 43 230
Left rear doorsill trim (interior) (cars without SA 220 or SA 508 only)	51 47 030
Lower left door pillar trim (cars without SA 220 or SA 508 only)	51 43 150
Front left doorsill trim (interior) (cars without SA 220 or SA 508 only)	51 47 000
Lower left A-pillar trim (cars without SA 220 or SA 508 only)	51 43 070
Pedal trim (cars without SA 220 or SA 508 only)	51 45 185

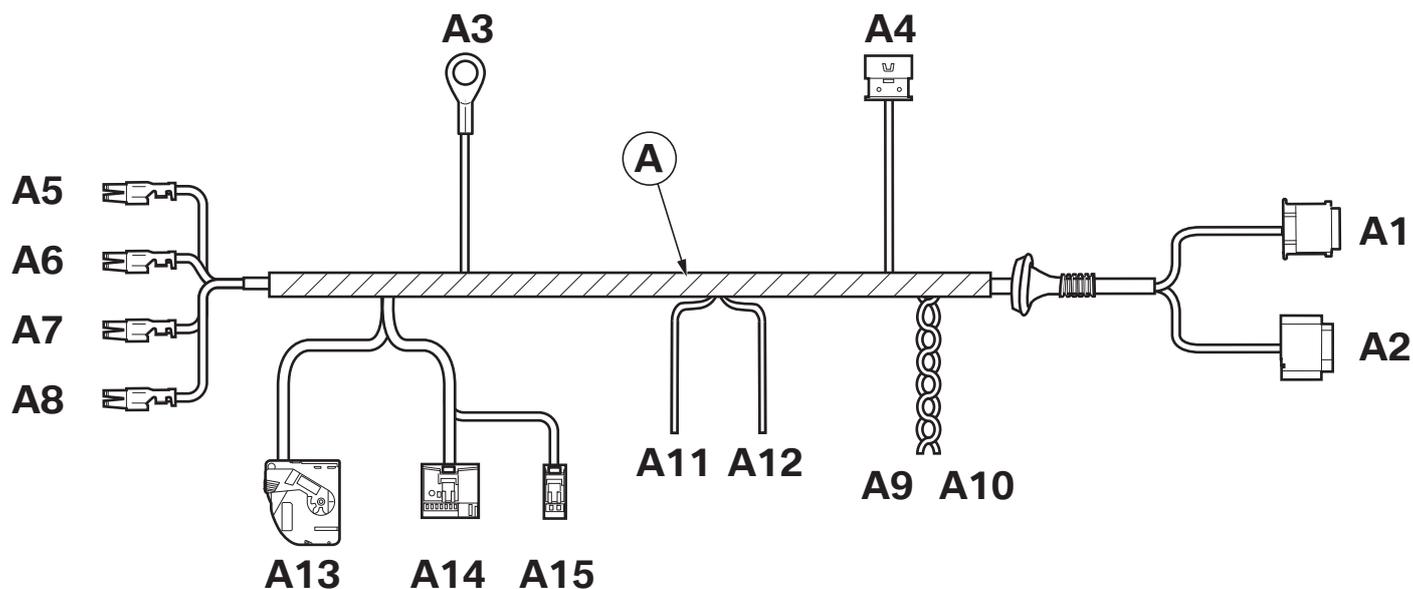
3. Connection diagram



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Branch / Item	Designation	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A	Retrofit wiring harness	---	---	---	---
A1	12-pin socket casing, SW	---	---	To towing hitch B	X10963B
A2	6-pin socket casing, SW	---	---	To towing hitch B	X16987B
A3	Eyelet M6	Terminal 31	BR	To earth support point, right-hand rear wheel arch	X13790
A4	NT 4-pin socket casing	---	---	To button G	S841
A5	Socket contact	Terminal 30	RT/VI 2.50 mm ²	To fuse holder A42	X11014 PIN 2
A6	Socket contact	Terminal 30	RT/GN 2.50 mm ²	To fuse holder A42	X11014 PIN 3
A7	Socket contact	Terminal 30	RT/SW 2.50 mm ²	To fuse holder A42	X11011 PIN 1
A8	Socket contact	Terminal 30	RT/SW 2.50 mm ²	To fuse holder A42	X11016 PIN 1

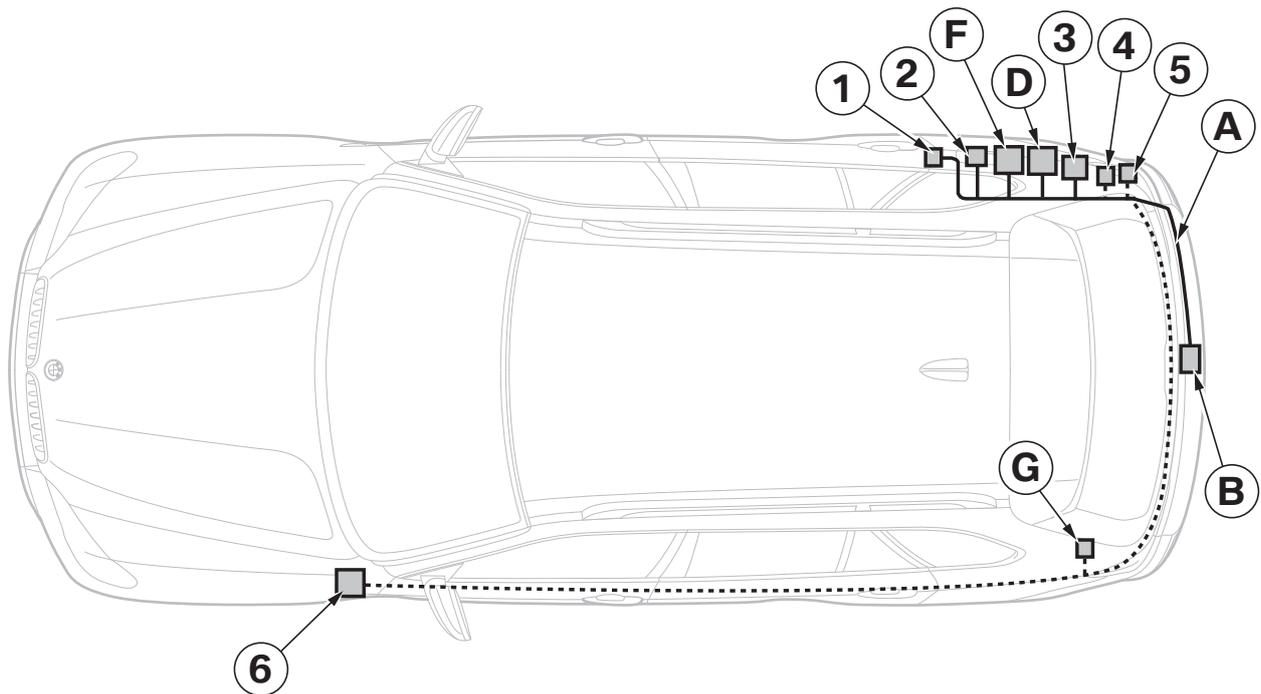
3. Connection diagram



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Branch / Item	Designation	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A9	Cable open	K-CAN H	OR/GN 0.35 mm ²	Cars without SA 220 or SA 508 only With miniature connector K to the OR/GN cable of the standard wiring harness on the footwell module Cars with SA 220 or SA 508 only With miniature connector K to the OR/GN cable of air suspension control unit A118a or with miniature connector K to the OR/GN cable of PDC control unit A81a	X14260 Pin 46 X1448 Pin 24 X300 Pin 2
A10	Cable open	K-CAN L	GN 0.35 mm ²	Cars without SA 220 or SA 508 only With miniature connector K to the GN cable of the standard wiring harness on the footwell module Cars with SA 220 or SA 508 only With miniature connector K to the GN cable of air suspension control unit A118a or with miniature connector K to the GN cable of PDC control unit A81a	X14260 Pin 45 X1448 Pin 25 X300 Pin 8
A11	Cable open	BL_M	SW/GE 0.75 mm ²	In the area of the rear right wheel arch, connect with miniature connector K to the SW/GE cable of standard wiring harness	---
A12	Cable open	Terminal 49_HR	BL/BR 0.75 mm ²	Using miniature connector K to the BL/BR cable of the standard wiring harness on the right rear light	X318 Pin 3
A13	20-pin socket casing, SW	---	---	To trailer module F	X14443
A14	16-pin socket casing, BL	---	---	To towing hitch control unit D	X16928
A15	4-pin socket casing, SW	---	---	To towing hitch control unit D	X16973

4. Installation and cabling diagram



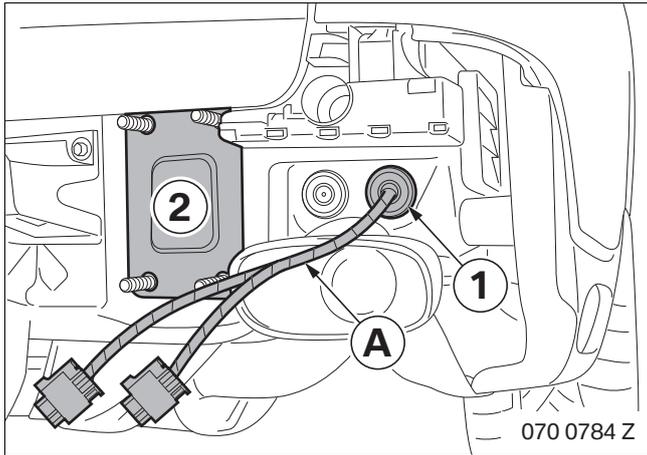
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Legend

- A Wiring harness
- B Trailer tow hitch
- D Towing hitch control unit
- F Trailer module
- G Button

- 1 Earth support point **X13790**
- 2 Centre brake light pick-up
- 3 Fuse holder **A42**
- 4 K-CAN H/L pick-up (cars with SA 220 or SA 508 only)
- 5 Terminal pick-up 49 HR
- 6 K-CAN H/L pick-up on footwell module (cars without SA 220 or SA 508 only)

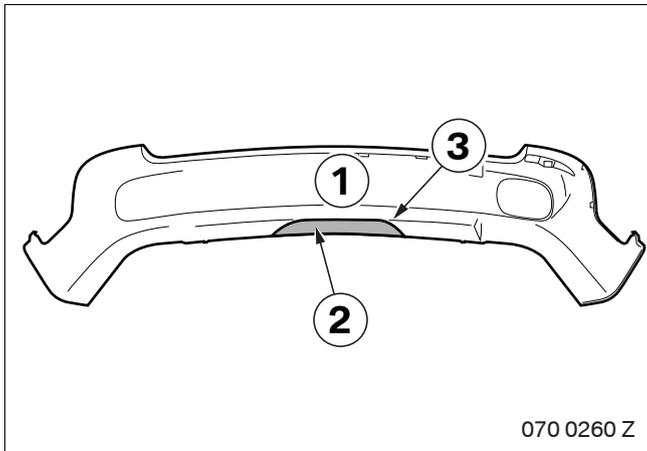
5. Installing the towing hitch



▶ Guide any vacuum line through the grommet of retrofit cable **A**. ◀

Remove the sealing cover (1) and guide retrofit cable **A** through.

Remove existing seal (2) left and right.

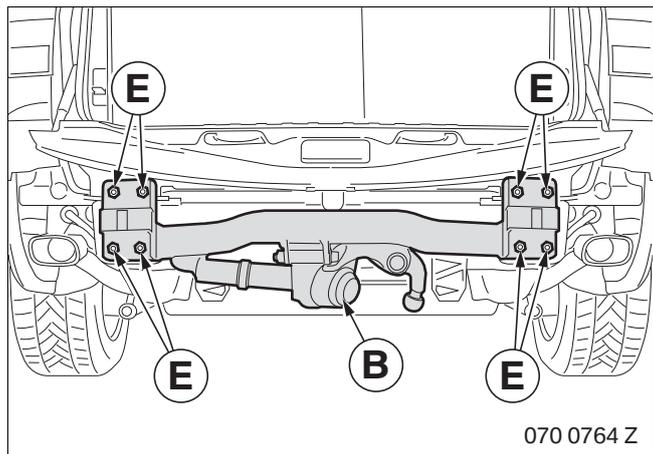


▶ Note the marking (3) on the bumper trim (1). ◀

Saw out the bumper trim (1) in the marked area (2).

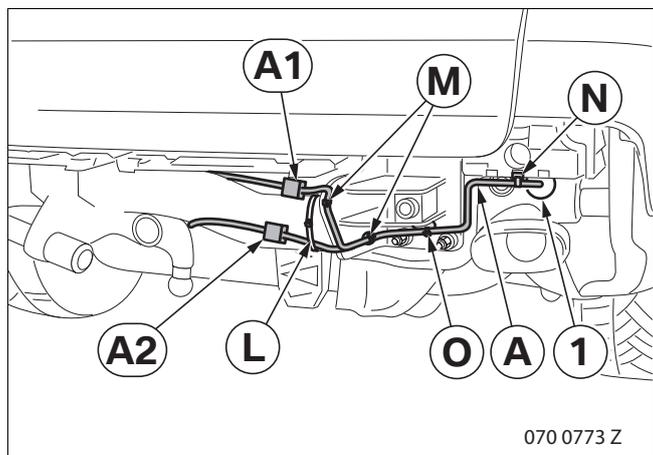
Debur the cut edges.

5. Installing the trailer tow hitch and socket



 Note the tightening torque value: 108 Nm. ◀

Secure the trailer tow hitch **B** with hexagon nuts **E**.

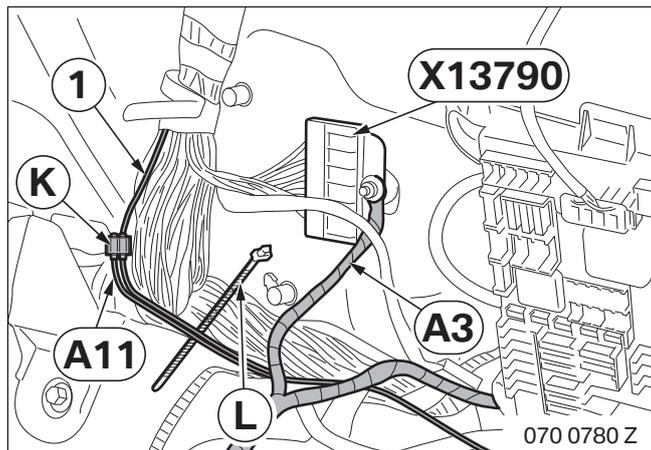


Route branches **A1** and **A2** to the socket installation point.

Lay wiring harness **A** in the bumper support (1) cable guide and secure with cable ties **M**, **N**, **O** and **L**.

Route wiring harness **A** through the hole into the boot.

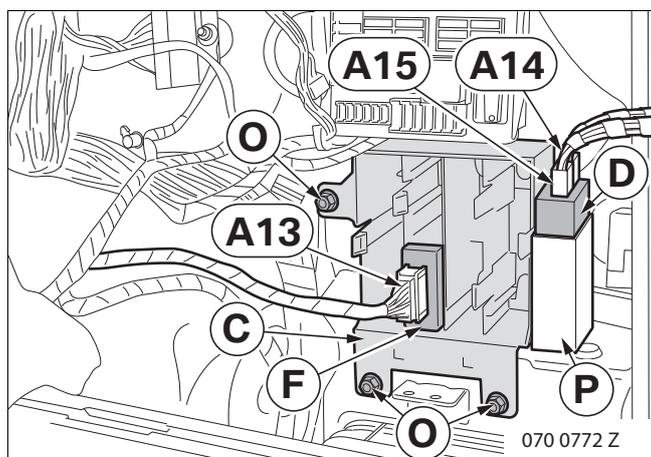
6. Installing and connecting the wiring harness



▶ Check whether the centre brake light signal is present on the standard cable (1), SW/GE cable. ◀

Connect branch **A11**, SW/GE cable, using a miniature connector **K** to the standard SW/GE cable (1) and secure it with cable tie **L**.

Screw branch **A3**, BR cable, to earth support point **X13790**.



Cars without SA 220 or SA 508 only

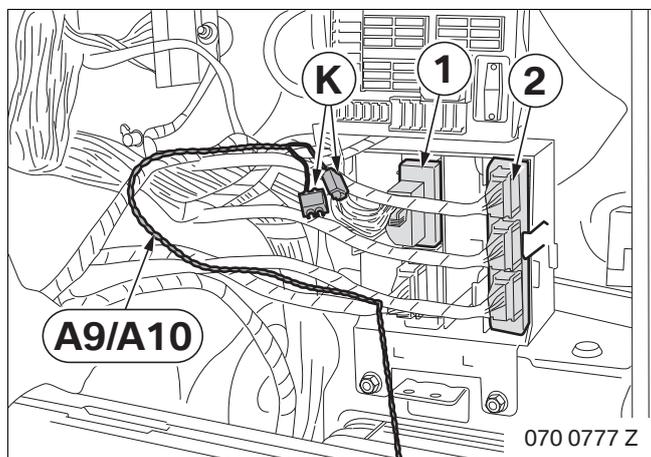
Screw on control unit holder **C** using plastic nuts **O**, push the trailer module holder **P** laterally into control unit holder **C**.

All cars

Connect branch **A13** to trailer module **F**.

Insert trailer module **F** into control unit holder **C**.

Connect branch **A14** and branch **A15** to the towing hitch control unit **D**.



Cars with SA 220 or SA 508 only

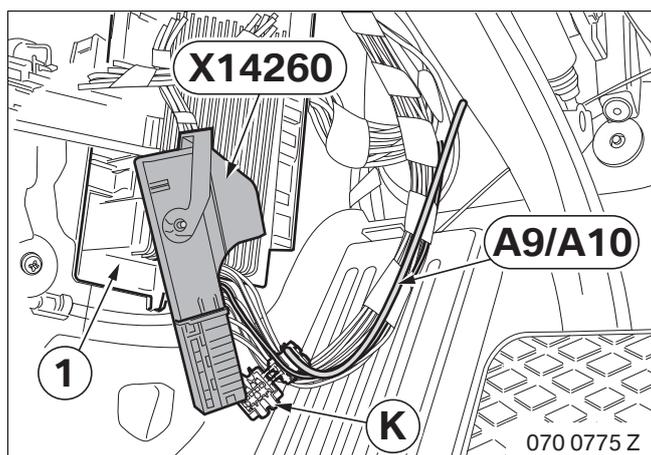
Connect branch **A9**, OR/GN cable and **A10**, GN cable, to air suspension control unit (1) or PDC control unit (2) as follows:

Connect branch **A9**, OR/GN cable and **A10**, GN cable, using miniature connectors **K** to twisted wires of the same colours on the air suspension control unit (1) or PDC control unit (2).

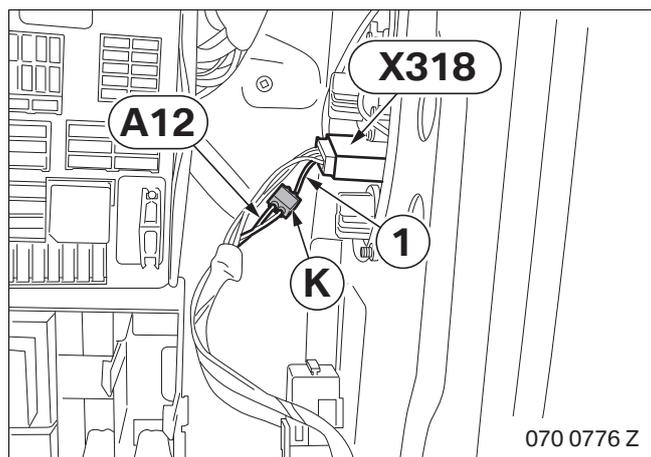
Cars without SA 220 and SA 508 only

Route branch **A9**, OR/GN cable, and branch **A10**, GN cable, via the left-hand side of the car to the footwell module.

Connect branch **A9**, OR/GN cable and **A10**, GN cable, using miniature connectors **K** to twisted wires of the same colours on plug **X14260** of the footwell module (1).

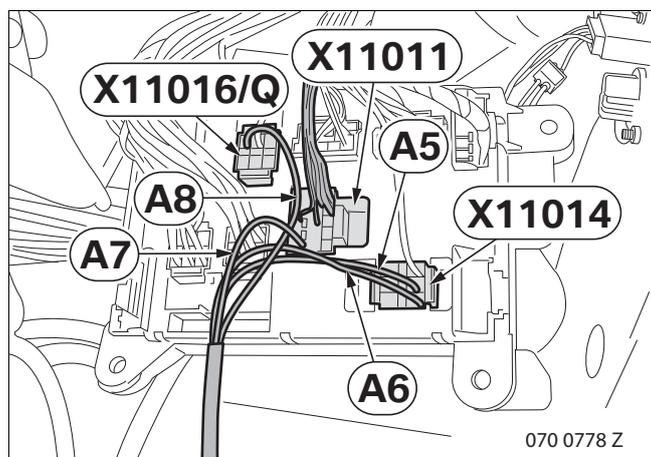


6. Installing and connecting the wiring harness



All cars

Connect branch **A12**, BL/BR cable, using miniature connector **K** to the standard BL/BR cable (1) of plug **X318** PIN 3.



▶ If plug **X11016** is not available, socket casing **Q** must be used. ◀

Branches **A7** and **A8** are the same colour. A continuity test using the system circuit diagram must be carried out before connection.

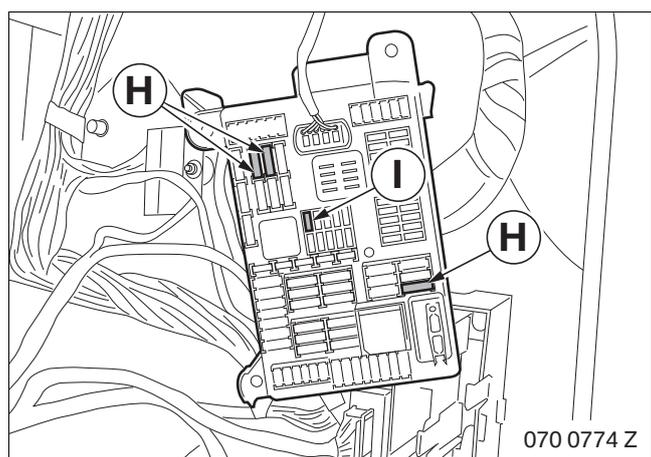
Connect branch **A8**, RT/SW cable, to BL 6-pin socket casing **X11016**, PIN 1 or socket casing **Q**.

Connect branches **A5** and **A6** as follows to SW 6-pin socket casing **X11014**:

Branch **A5**, RT/M cable, to PIN 2

Branch **A6**, RT/GN cable, to PIN 3

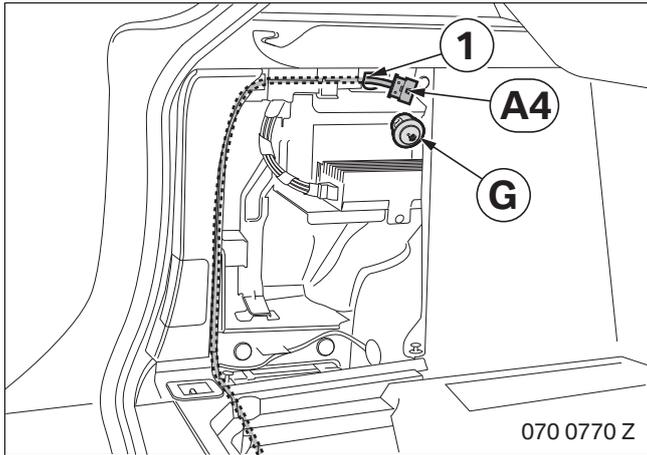
Connect branch **A7**, RT/SW cable, to WS 10-pin socket casing **X11011**, PIN 1.



Insert 20 A fuse **H** into slot 143, 144 and 116.

Insert 20 A Mini fuse **I** into slot 138.

6. Installing and connecting the wiring harness



Route branch **A4** along the car's rear wall to the left-hand side of the boot, guide it through the existing drill-hole (1) and connect it to button **G**.

Fit button **G** into the existing drill-hole (1).

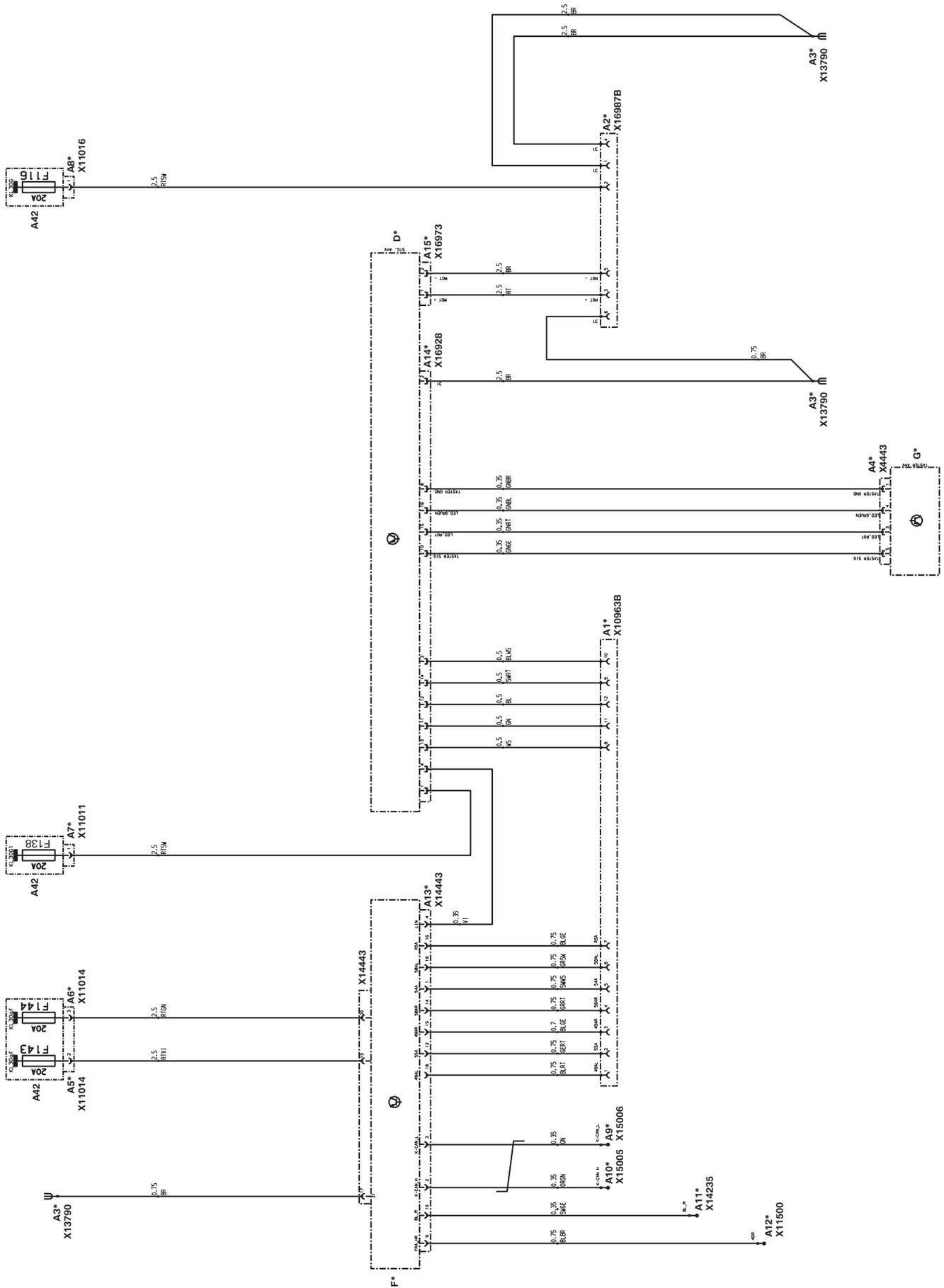
7. Concluding work and coding

The retrofit system requires coding.

- Connect the battery
- Program/encode the retrofit with ISSS (Integrated Software Service Station) via the **-Conversions-** path

 The section on "Statutory regulations pursuant to EC Directive 94/20/EC" at the end of the installation instructions is to be printed out and handed to the customer. ◀

8. System circuit diagram



8. System circuit diagram

Legend

A1*	SW 12-pin socket casing to trailer tow hitch X10963B
A2*	SW 6-pin socket casing to trailer tow hitch X16987B
A3*	Ring eyelet, to earth support point in the right-hand boot X13790
A4*	NT 4-pin socket casing, to button G* , plug X4443
A5*	Socket contact, to PIN 2 on plug X11014 of fuse holder A42
A6*	Socket contact, to PIN 3 on plug X11014 of fuse holder A42
A7*	Socket contact, to PIN 1 on plug X11011 of fuse holder A42
A8*	Socket contact, to PIN 1 on plug X11016 of fuse holder A42
A9*	Open cable, using miniature connector K* to the standard wiring harness
A10*	Open cable, using miniature connector K* to the standard wiring harness
A11*	Open cable, using miniature connector K* to the standard wiring harness
A12*	Open cable, using miniature connector K* to the standard wiring harness
A13*	SW 20-pin socket casing, to trailer module F* , plug X14443
A14*	BL 16-pin socket casing, to towing hitch control unit D* , plug X16928
A15*	SW 4-pin socket casing, to towing hitch control unit D* , plug X16973
D*	Towing hitch control unit
F*	Trailer module
G*	Button
X11011	WS 10-pin socket casing, to fuse holder
X11014	SW 6-pin socket casing, to fuse holder
X11016	BL 6-pin socket casing, to fuse holder

All the designations marked with an asterisk (*) apply only to these installation instructions or this system circuit diagram.

Cable colours

BL	Blue
BR	Brown
GE	Yellow
GN	Green
GR	Grey
NT	Natural
OR	Orange
RT	Red
SW	Black
VI	Violet
WS	White

9. Statutory regulations pursuant to EC Directive 94/20/EC

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 shall define 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 are allowed to be used for hitching up trailers with a total mass 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 technically permissible gross weight in excess of 3.5 tonnes.

9. Statutory regulations pursuant to EC Directive 94/20/EC

2. Special regulations

2.1

Fitting coupling balls and towing brackets (tow ball with trailer tow hitch)

2.1.1

When coupling balls with mountings are fitted to a vehicle type of class M1, class M2 below 3.5 tonnes and class N1, the clearance and height dimensions shown in the figure **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 rotated vertically through $a = 10^\circ$ upwards or downwards (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 are permitted to be used with trailers of a gross mass up to 3.5 tonnes. towing ball couplings are to be installed in such a way that the coupling point of the trailer when the trailer is horizontal and with a permitted 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 in which the floor or the loading bed is horizontal. In the case of trailers without such a reference plane (e.g. 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 that are to be coupled to the vehicles 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**.

9. Statutory regulations pursuant to EC Directive 94/20/EC

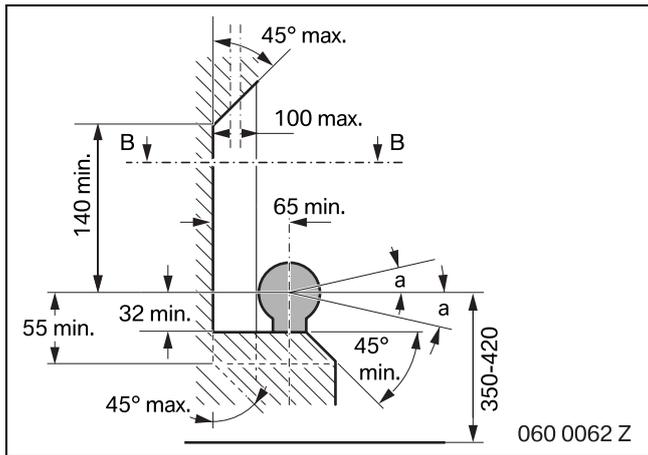


Figure 1

Space for coupling ball, side view.

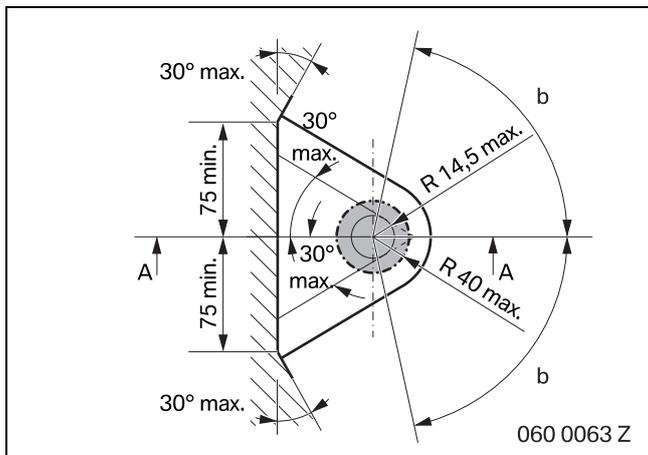


Figure 2

Space for coupling ball, plan view.

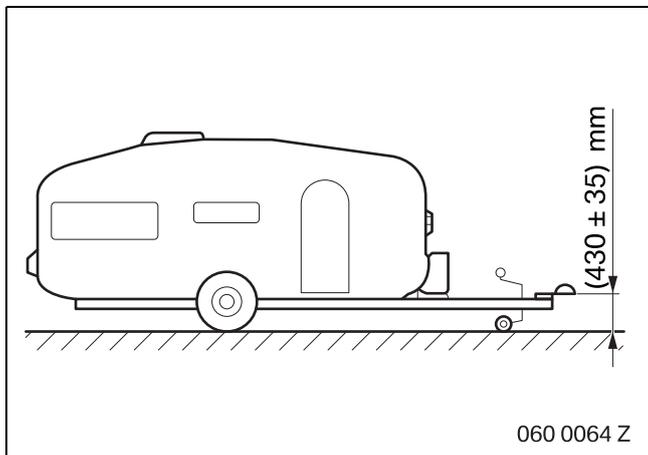


Figure 3

Installation height for the towing ball coupling.