

H Installation documentation

"Webasto Comfort" A/C control for Thermo Top Evo water heater

BMW X3 / X4 / 5 Series

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
BMW	X3	G01	from 2018	e1* 2007/46* 1797*...
BMW	X4	G01	from 2018	e1* 2007/46* 1881*...
BMW	5 Series	G30 / G31	from 2018	e1* 2007/46* 1688*...

Validity	Equipment variants	Model		
		X3	X4	5 Series
Verified equipment variants	2 zone automatic air-conditioning			x
	3 zone automatic air-conditioning	x	x	

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1 List of abbreviations

CCL	CCL Gateway
Fig.	Figure
GW	Gateway
HG	Heater
K2	Additional relay
K3	K3 additional relay
K4	K4 additional relay
K5	K5 additional relay
KSG	Air-conditioning control unit
SH2	Engine compartment fuse holder for F1/F2
Wire	Cable

2 Installation notes

2.1 Information on validity

This installation documentation applies to vehicles - see page 1 – and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation. Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

2.2 Components used

Designation	Order number
Additional 'Webasto Comfort' A/C control kit for BMW X3 / X4 / 5 Series automatic A/C 2018	1326680A

2.3 Validity Notes

This installation documentation applies only in combination with:

Designation	Order number
Installation kit for BMW X3 / X4 2018 diesel	1326600_
Installation documentation for BMW X3 / X4 2018 diesel	1326601_

or

Designation	Order number
Installation kit for BMW 5 Series 2018 diesel	1326676_
Installation documentation for BMW 5 Series 2018 diesel	1326677_

or

Designation	Order number
Installation kit for BMW 5 Series 2018 petrol	1326674_
Installation documentation for BMW 5 Series 2018 diesel	1326675_

3 About this document

3.1 Purpose of the document

This installation documentation is part of the product and contains all the information required to ensure professional vehicle specific installation of the:

'Webasto Comfort' air-conditioning control installation kit

3.2 Warranty and liability

Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.

This liability exclusion particularly applies to improper installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.

The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components must audibly snap into place during assembly.

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components.

The initial start-up is to be executed with the Webasto Thermo Test Diagnosis.

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

3.2.1 Statutory regulations governing installation

The Thermo Top Evo heater has been type-tested and approved in accordance with ECE-R 10 (EMC) and ECE-R 122 (heater). The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

3.3 Safety

Qualifications of installation personnel

The installation personnel must have the following qualifications:

- Successful completion of Webasto training
- Corresponding qualification for working on technical systems

Regulations and legal requirements

The regulations from the heater's general installation and operating instructions must be observed.

3.3.1 Safety information on installation

Danger posed by live parts

- ▶ Prior to installation, disconnect the vehicle from the voltage supply.
- ▶ Make sure the electrical system is earthed correctly.
- ▶ Always comply with legal requirements.
- ▶ Observe data on type label.

Danger of fire and leaking toxic gases due to improper installation

- ▶ Vehicle parts in the vicinity of the heater must be protected against excessive heating by the following measures:
 - ⇒ Maintain minimum safety distances.
 - ⇒ Ensure adequate ventilation.
 - ⇒ Use fire-resistant materials or heat shields.

Danger due to sharp edges

- Lacerations
- Short circuit due to electrical wire damage
- ▶ Fit protectors on sharp edges.

3.4 Using this document

Before installing and operating the heater, read this installation documentation, the installation instructions of the heater, the operating instructions and supplementary sheets provided.

3.4.1 Explanatory Notes on the Document

There is an identification mark near the respective work step to allow you to quickly allocate the other applicable documents to the Webasto components to be installed:

Generally valid Webasto documentation	
Vehicle-specific installation documentation	
Vehicle-specific installation documentation of the cold start kit	
Webasto Comfort A/C control	
Webasto Standard A/C control	
Tank extracting device (e.g. FuelFix)	
Exhaust end fastener (EFIX)	
Combustion air intake silencer	
Spacer bracket (ASH)	

3.4.2 Use of symbols



DANGER

Type and source of the risk

Consequences: Failure to follow the instructions can result in death

► Actions to protect yourself against risks.



WARNING

Type and source of the risk

Consequences: Failure to follow the instructions can lead to serious or even fatal injuries

► Actions to protect yourself against risks.



CAUTION

Type and source of the risk

Consequences: Failure to follow the instructions can lead to minor injuries

► Actions to protect yourself against risks.



Type and source of the risk

Consequences: Failure to follow the instructions can lead to material damage

► Actions to protect yourself against risks.



Reference to the vehicle manufacturer's specific documents.



a note on a special technical feature

3.4.3 Work step identification marks

The ongoing work step is indicated on the outside top corner of the page:

Mechanical system	Electrical System	High-voltage	Coolant
Combustion air	Fuel	Exhaust gas	Software

3.4.4 Orientation aid

--	--	--

The arrow indicates the position on the vehicle and the viewing angle

3.4.5 Use of highlighting

Highlight	Explanation
►	Necessary action
⇒	Result of an action
1 / 12 / a1	Position numbers for the image descriptions

Highlight	Explanation
① / ⑫ / ①	Position numbers for the image descriptions for electrical wires and coolant hose sections

4 Technical Information

Dimension specifications

- All dimensions specified in mm

Tightening torque specifications

- Tighten all screw connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology

Necessary special tools

- Automatic wire stripper 0.2 - 6 mm²
- Crimping pliers for cable lugs 0.5 – 10 mm²
- Crimping pliers for tab connector 0.14 – 6 mm²
- Crimping pliers for connector 0.25 – 6 mm²
- Torque wrench for 2.0 - 10 Nm
- Deep-hole marker

5 Installation overview

X3 / X4

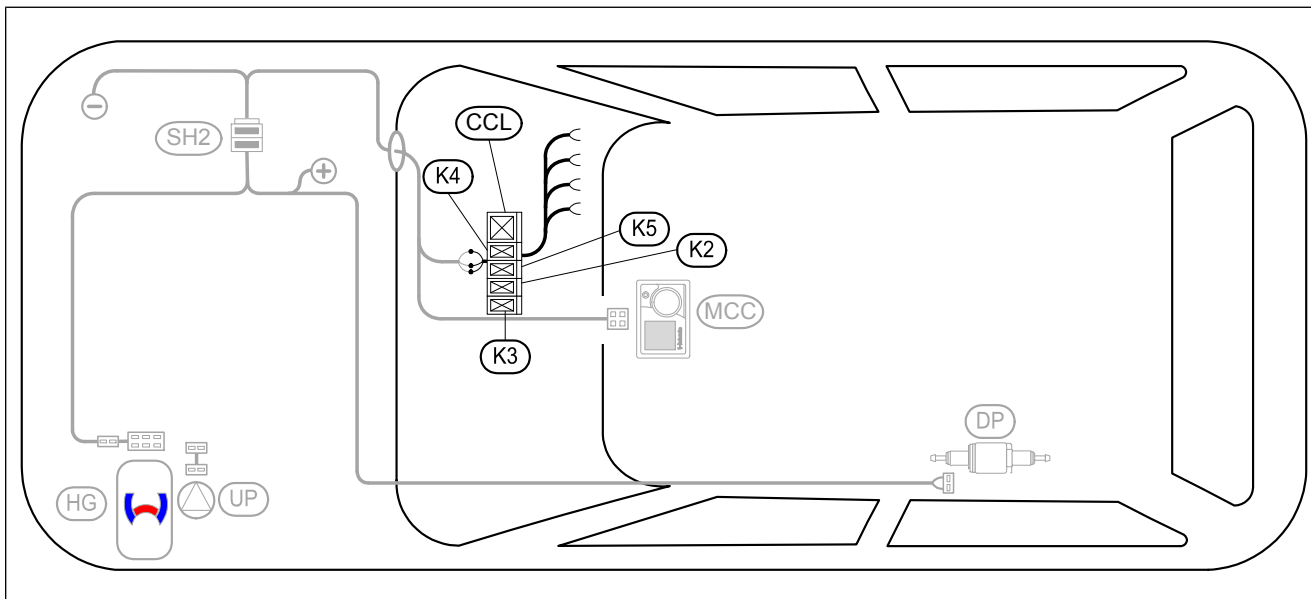


Fig. 1

5 Series

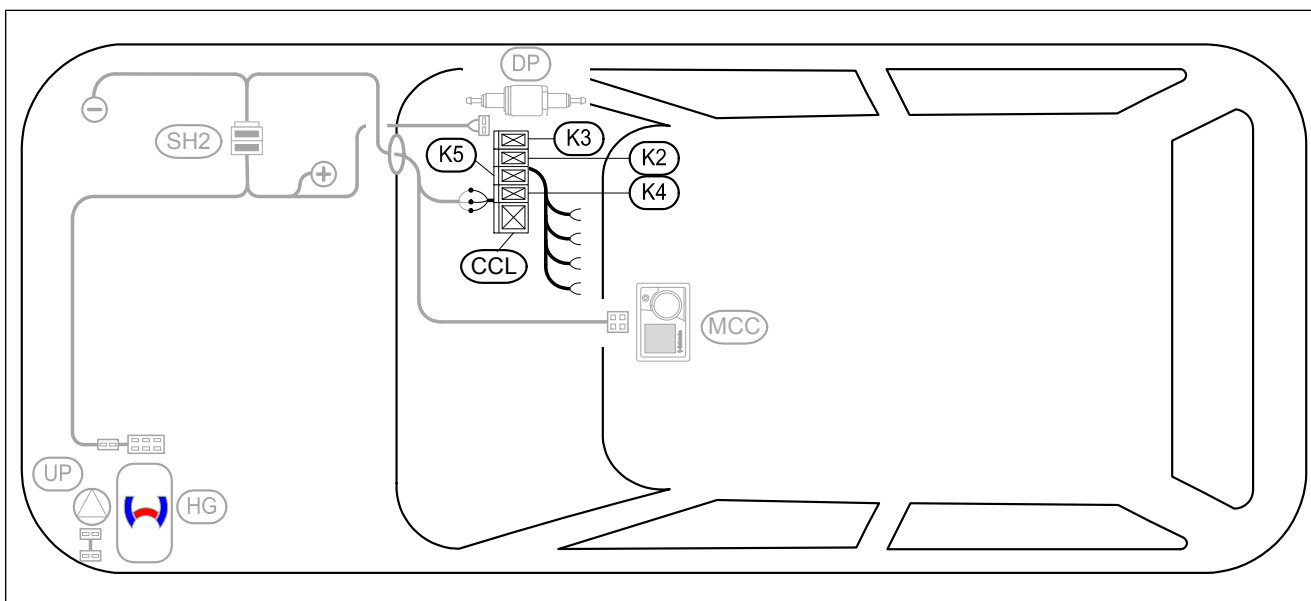


Fig. 2

Legend to installation overview

Abbreviation	Component
CCL	CCL GW
K2	K2 additional relay
K3	K3 additional relay
K4	K4 additional relay
K5	K5 additional relay



6 Electrical system

6.1 Electrical system preparation

Preparing SH2

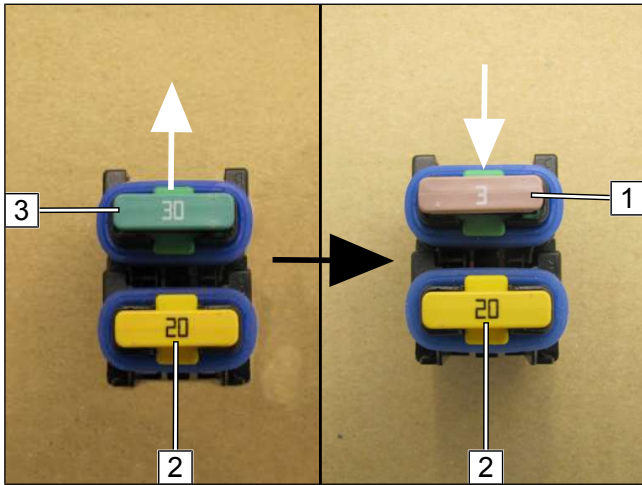


Fig. 3

► Replace 30A passenger compartment main fuse F2 **3** with 3A fuse **1**.

2 Fuse F1: 20A

Assigning wires

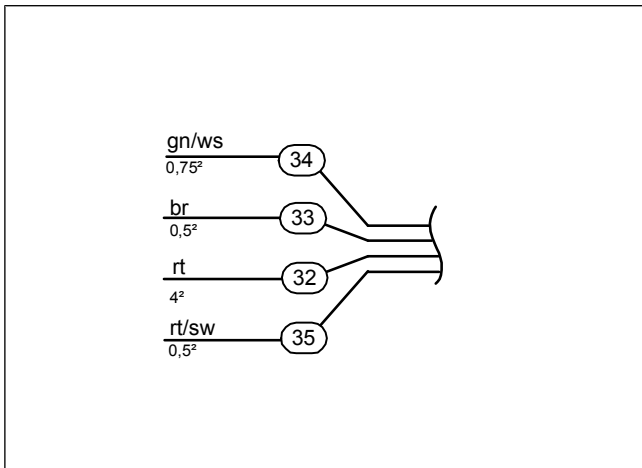


Fig. 4



Wire sections retain their numbering in the entire document.

- 32** Red (rt) wire of heater wiring harness F2
- 33** Brown (br) wire of heater wiring harness, earth 31
- 34** Green/white (gn/ws) wire of heater wiring harness X1/5
- 35** Red/black (rt/sw) wire of heater wiring harness X10

Preparing / assigning wires

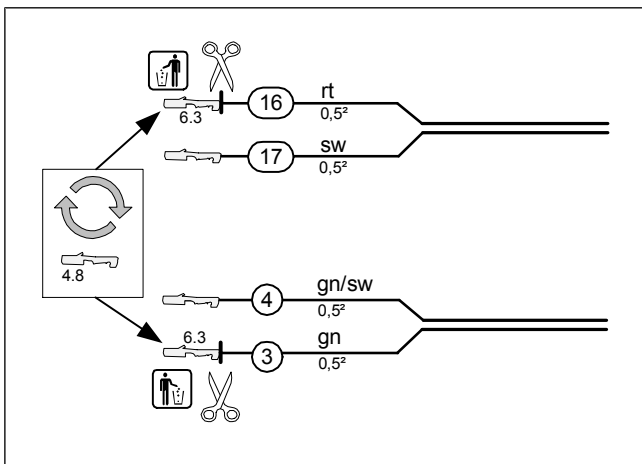


Fig. 5



Preparing CCL

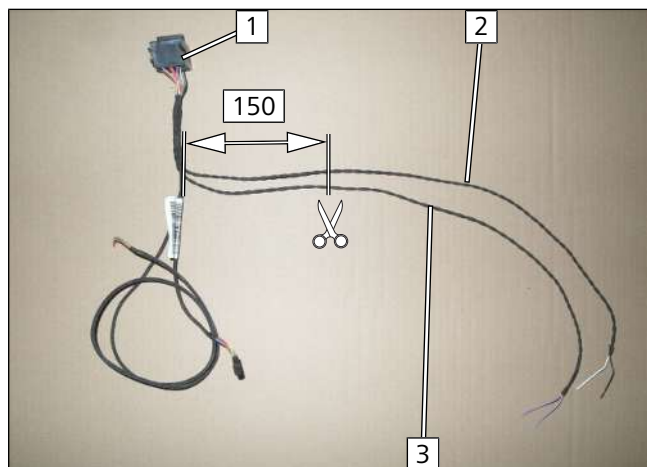


Fig. 6

- ▶ Cut wiring harness **2** with black and white (sw/ws) wire and wiring harness **3** with violet and grey (vi/gr) as shown in Fig..
- ▶ Remove approximately 5cm of wiring harness wrapping from all interfaces.

1 CCL socket

Assigning wires

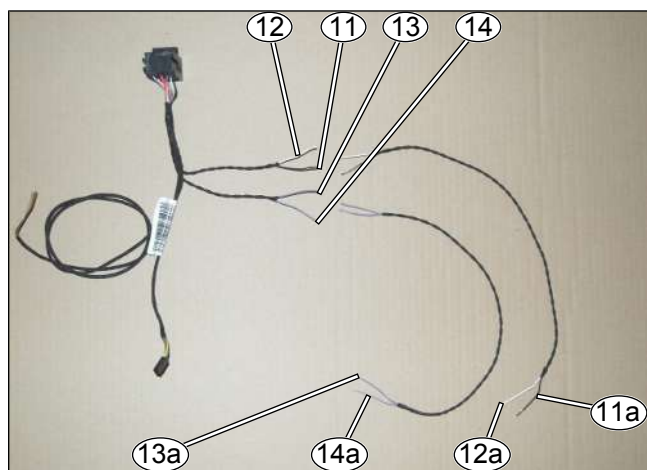


Fig. 7

- 11** Black (sw) wire
- 11a** Black (sw) wire
- 12** White (ws) wire
- 12a** White (ws) wire
- 13** Violet (vi) wire
- 13a** Violet (vi) wire
- 14** Grey (gr) wire
- 14a** Grey (gr) wire

Preparing CCL wires

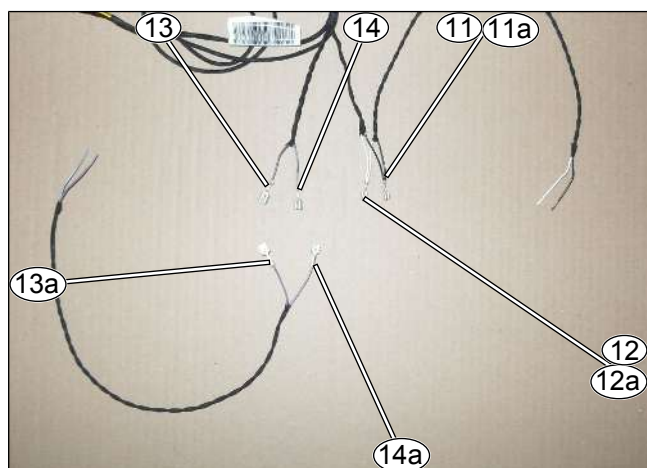


Fig. 8

- ▶ Crimp 4.8mm blade receptacles on wires **11** and **11a**.
- ▶ Crimp 4.8mm blade receptacles on wires **12** and **12a**.
- ▶ Crimp 6.3mm blade receptacles on wire **13**, **14**, **13a** and **14a**.



Preparing K4 and K5 relay

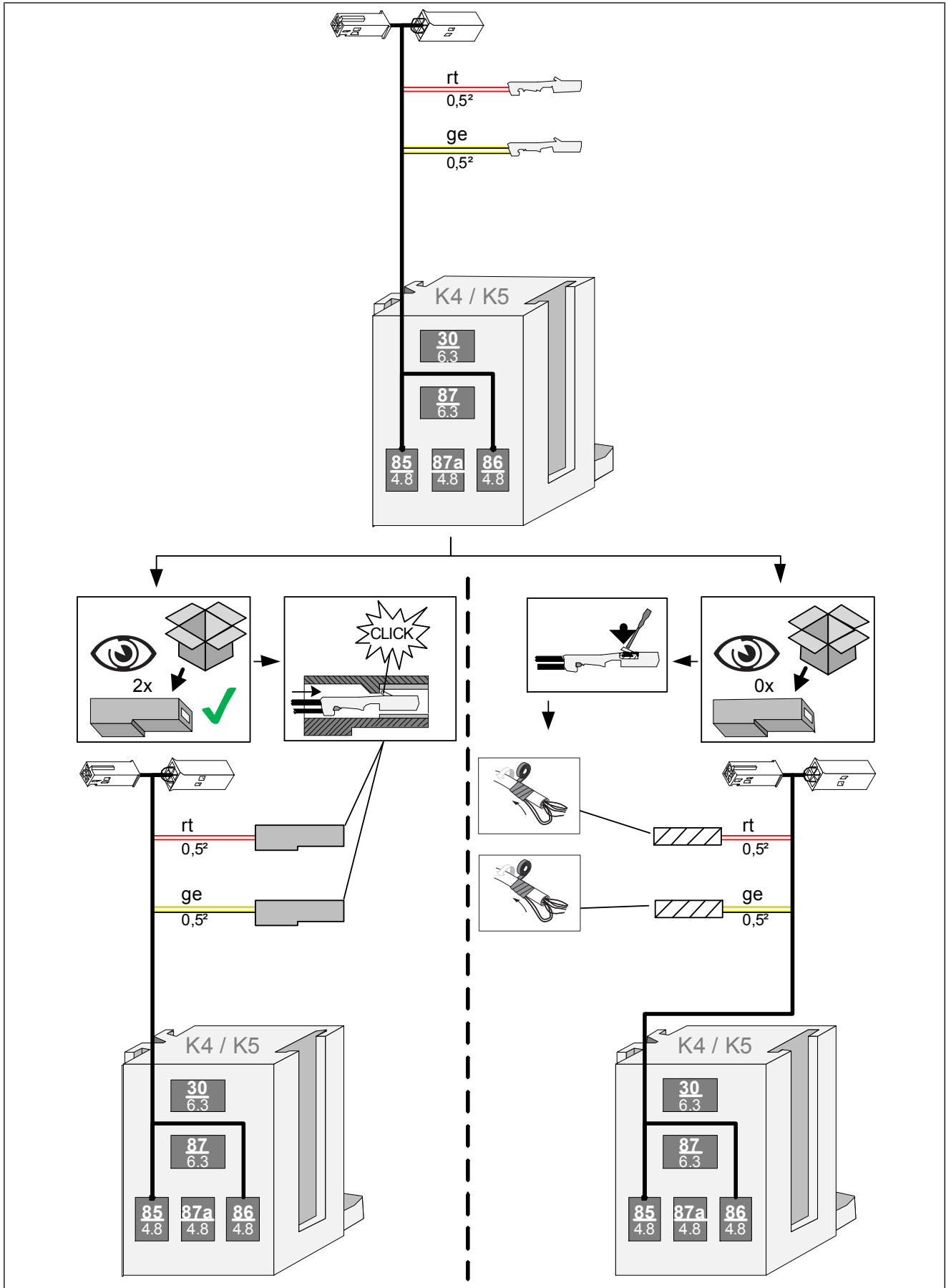


Fig. 9



Assembling / preparing CCL socket, K4 and K5 relay

- ▶ Mounting wires
- ▶ Connecting connectors and sockets

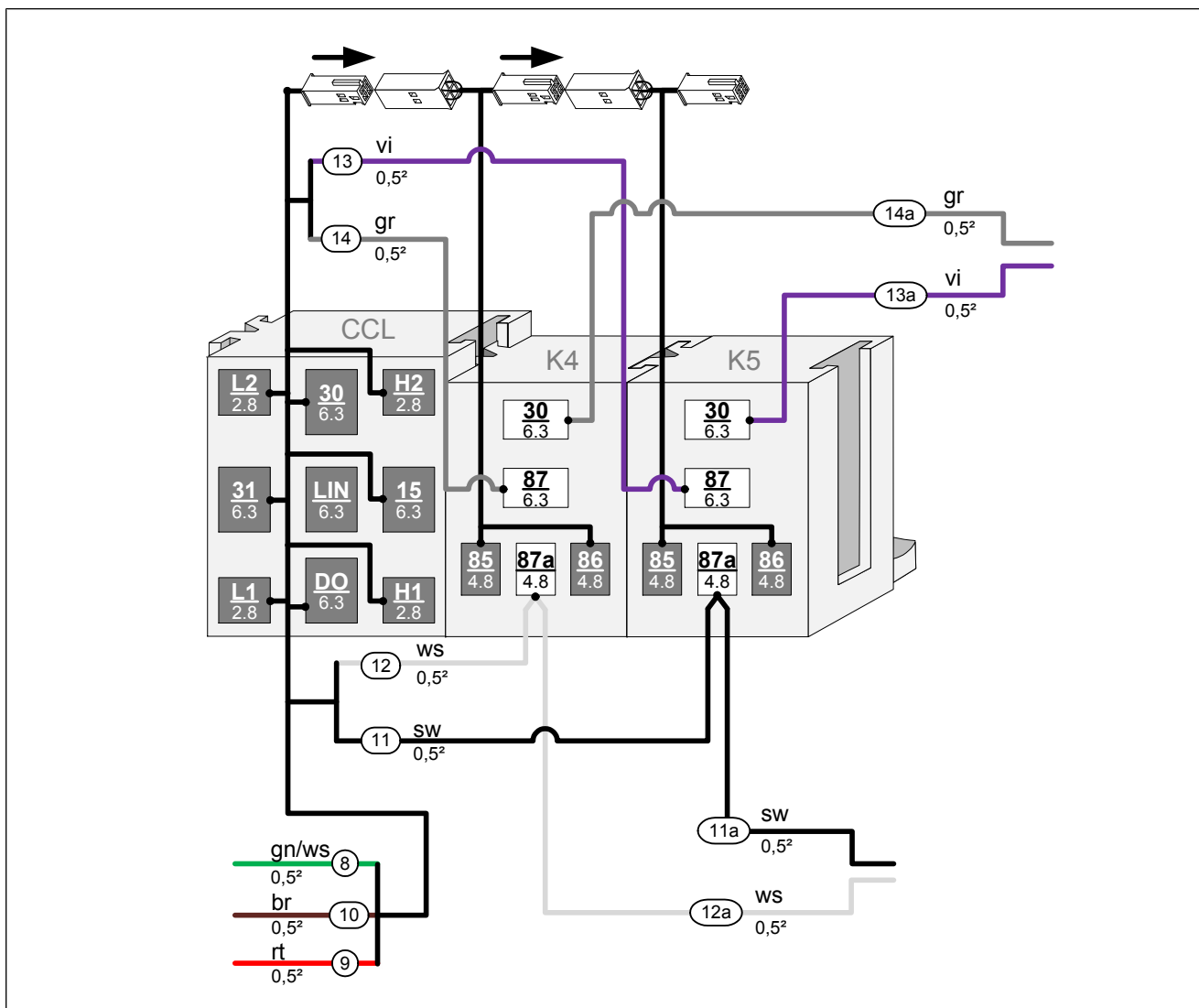


Fig. 10



Preparing relay K2, connecting wires

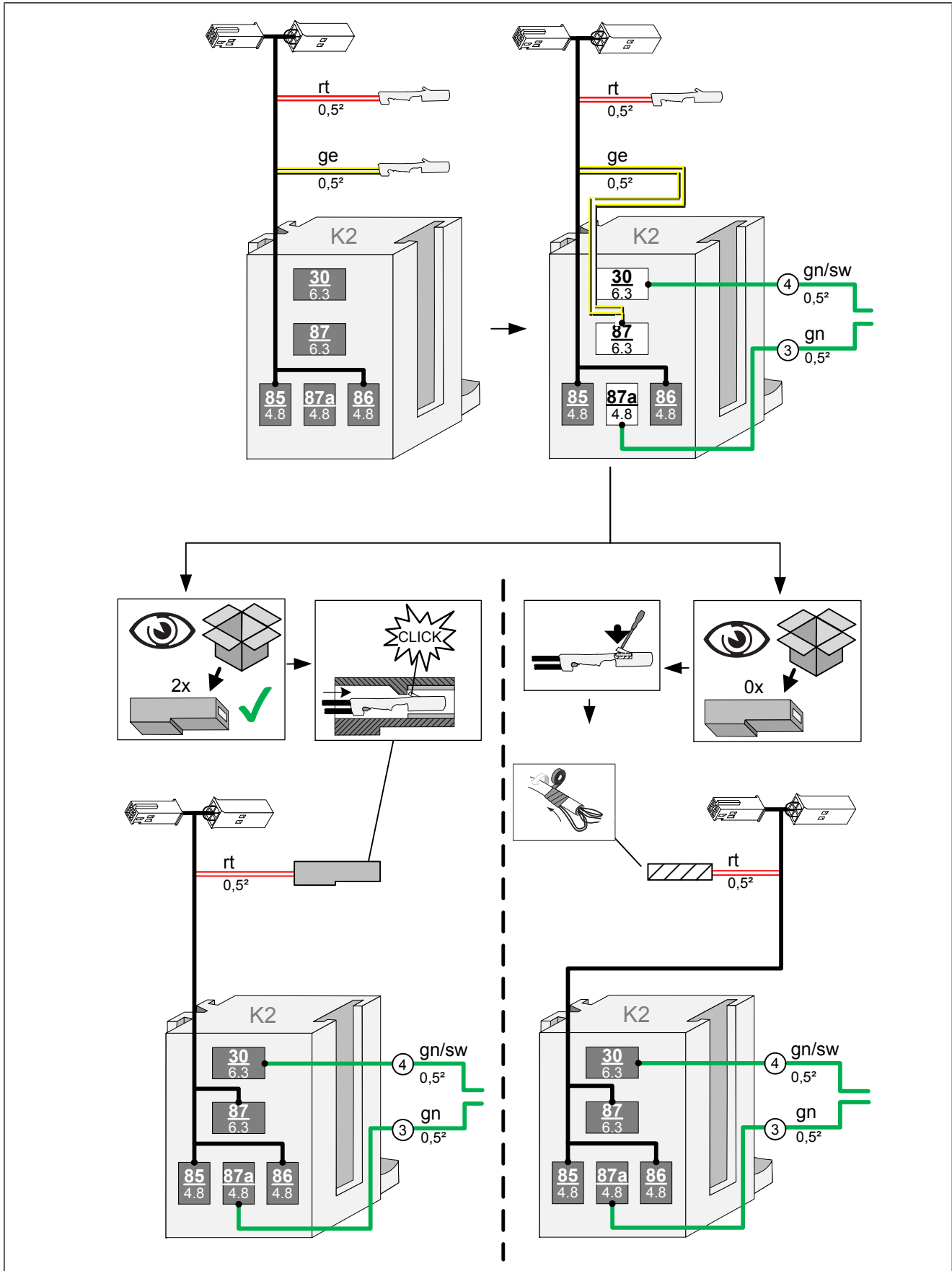


Fig. 11



Preparing relay K3, connecting wires

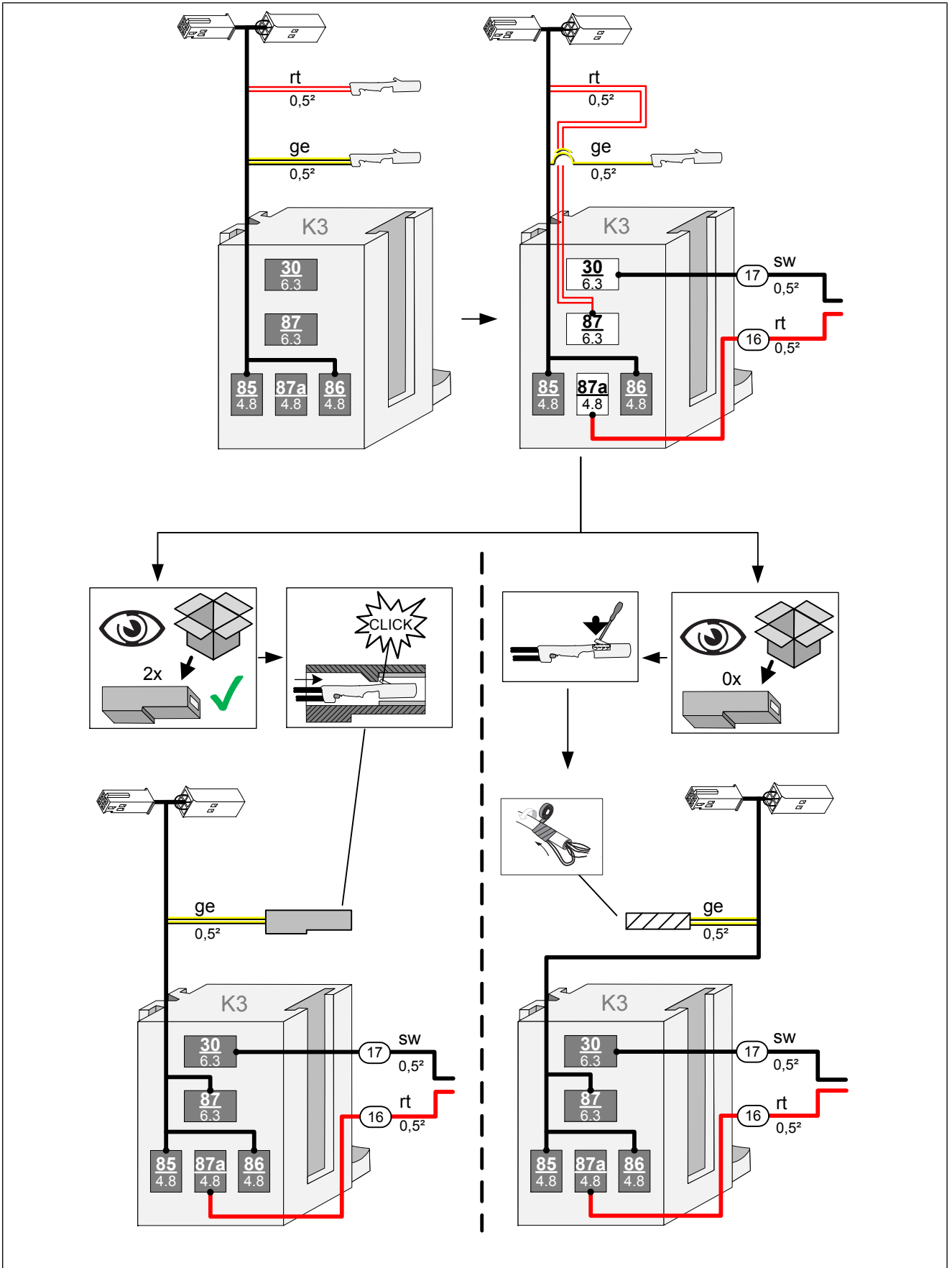


Fig. 12



Assembling CCL, relay K4, K5, K2 and K3 sockets

► Connecting connectors and sockets

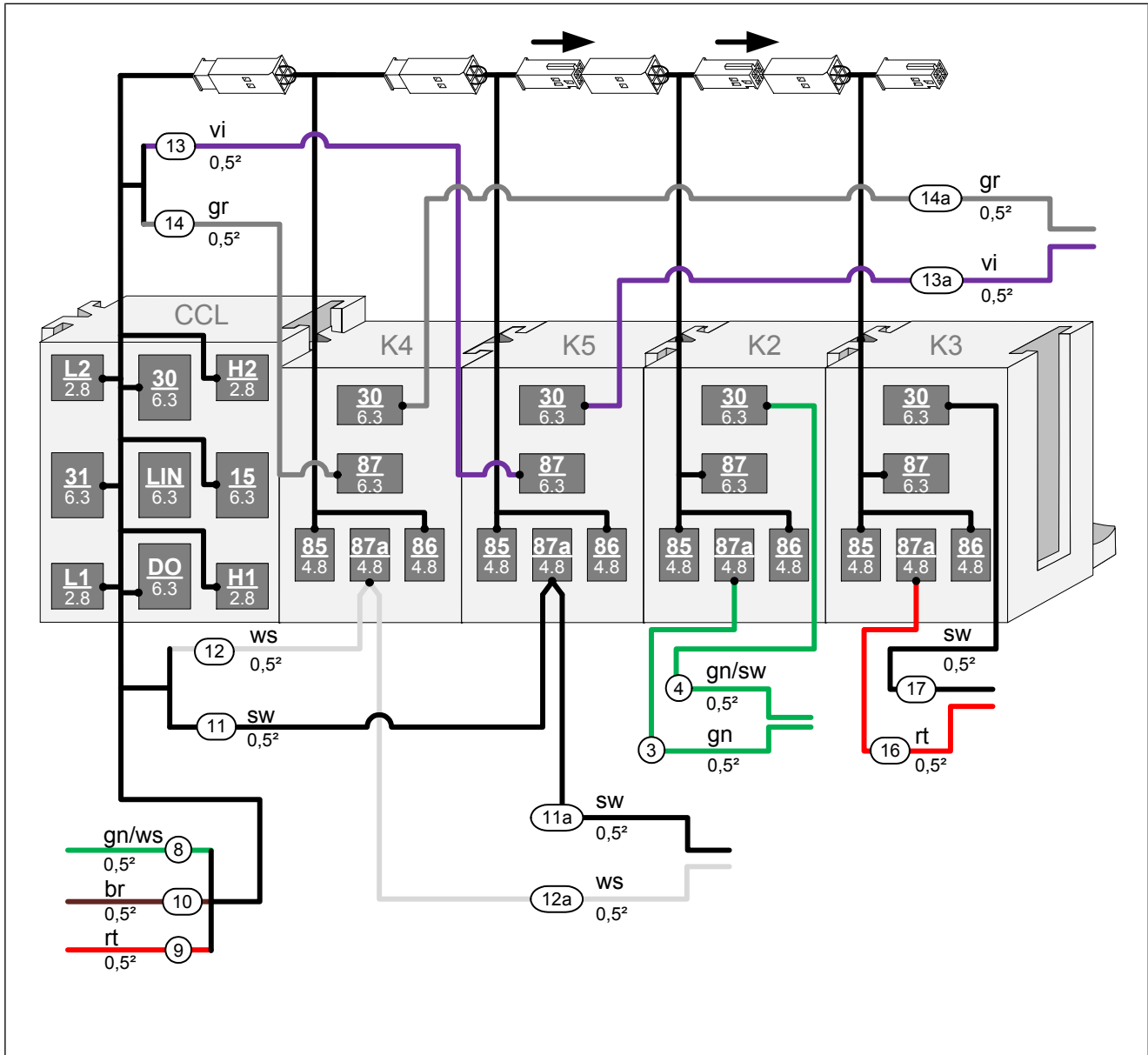


Fig. 13



Installing perforated bracket

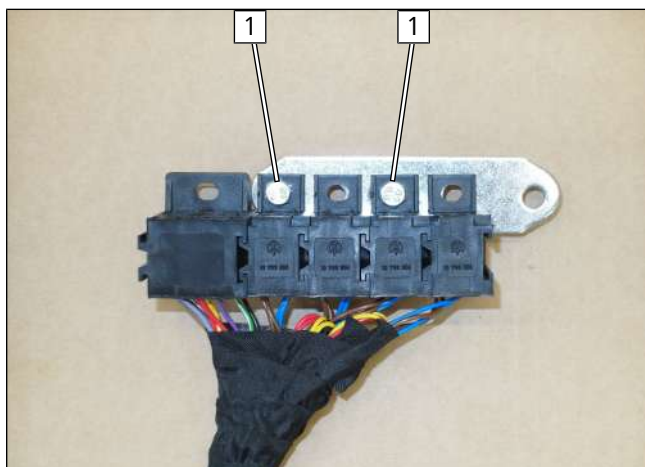


Fig. 14

- 1 M5x12 bolt, premounted socket, perforated bracket, flanged nut

Mounting CCL and relay

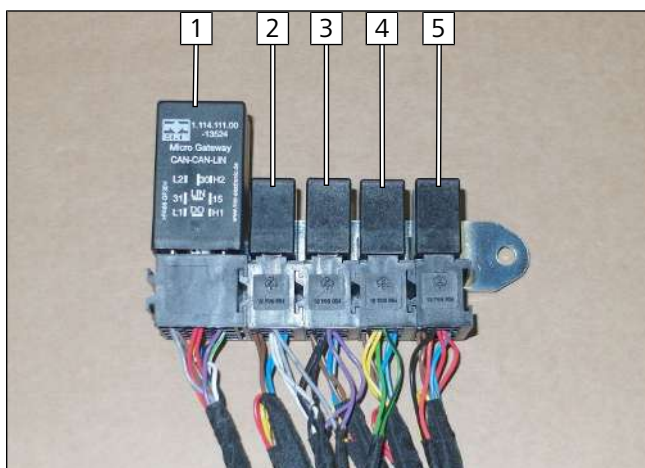


Fig. 15

- 1 CCL
- 2 Relay K4
- 3 Relay K5
- 4 Relay K2
- 5 Relay K3

Mounting relay block

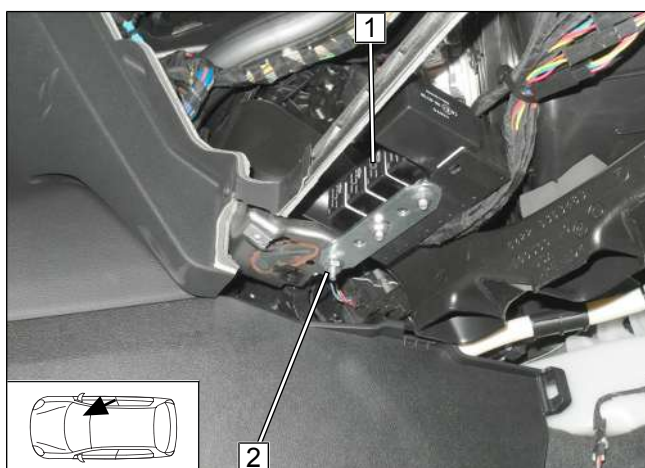
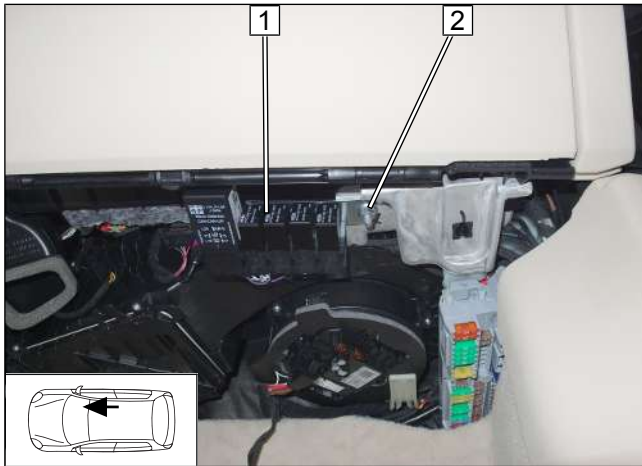


Fig. 16

 X3 / X4

- 1 Premounted relay
- 2 Original vehicle stud bolt, perforated bracket, flanged nut



5 Series

- 1 Premounted relay
- 2 Original vehicle stud bolt, perforated bracket, flanged nut

Fig. 17



Connecting HG wiring harness to CCL wiring harness in passenger compartment

all vehicles

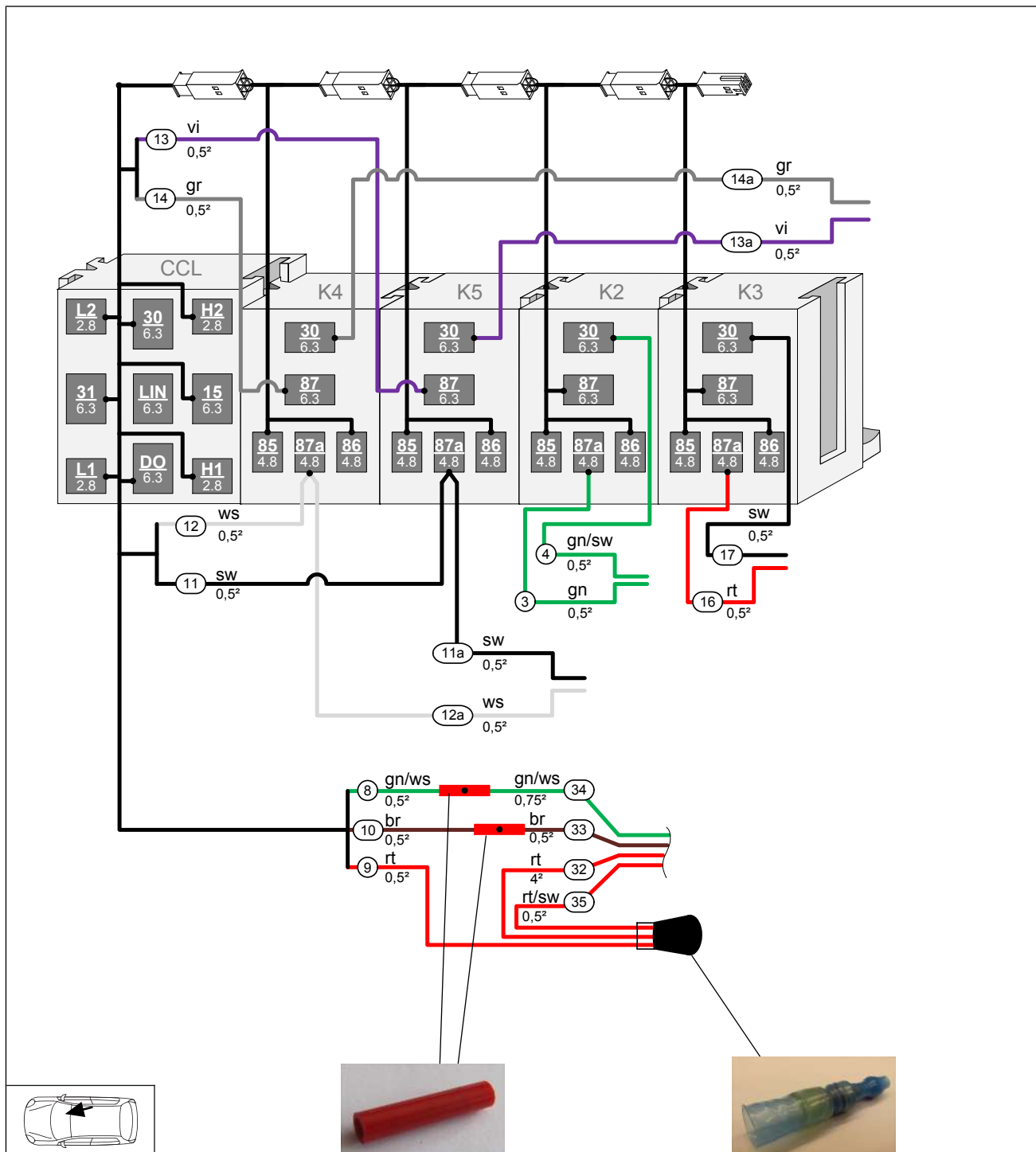


Fig. 18



6.2 System wiring diagram part 1

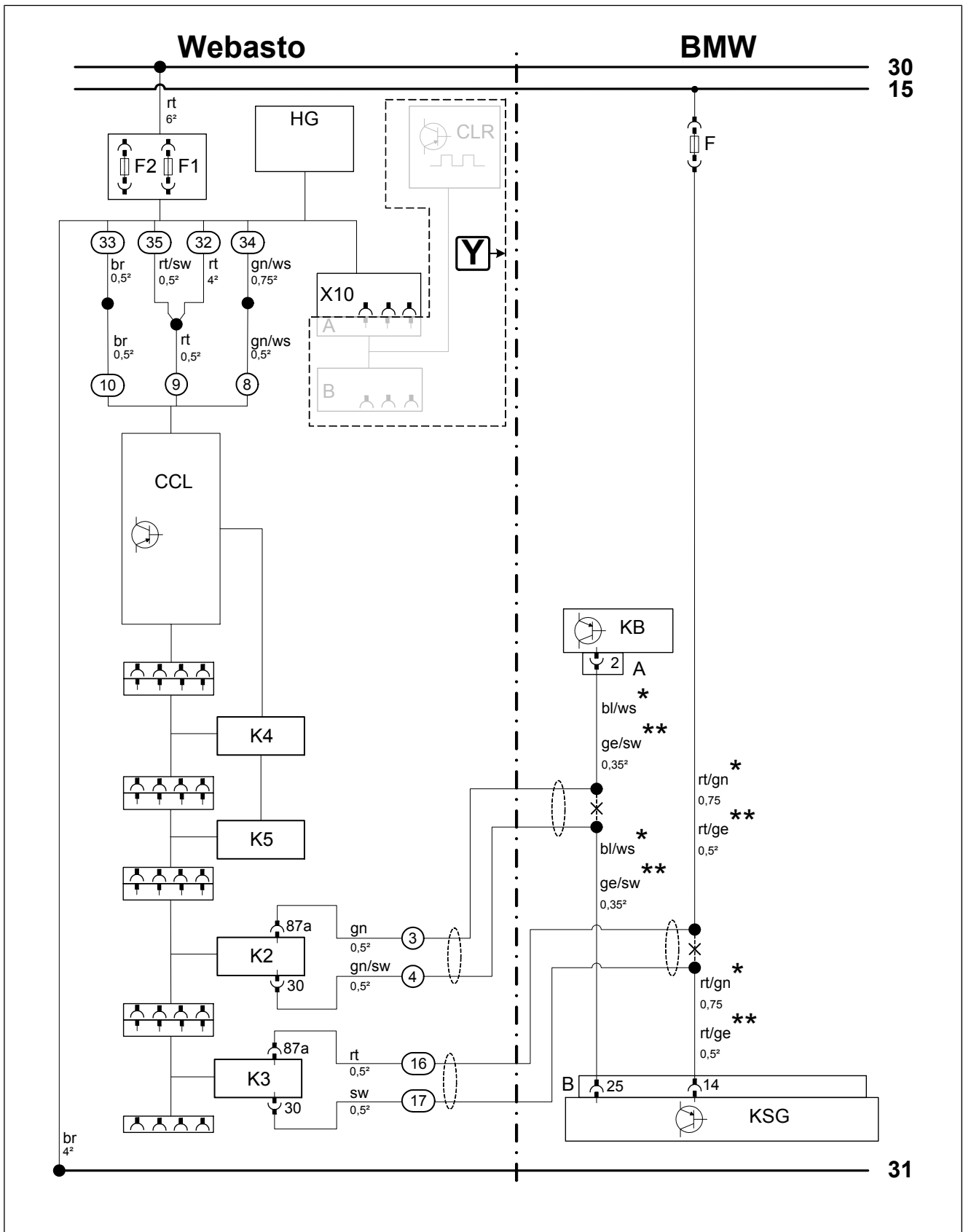


Fig. 19



Legend to wiring diagram

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
F	7.5A KSG fuse	X	Cutting point
KB	A/C control panel	*	5 Series
A	KB connector	**	X3 / X4
KSG	Air-conditioning control unit	Y	Only available with 5 Series
B	26-pin KSG connector		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Connector of CLR module wiring harness	bg	beige
B	Socket of CLR module wiring harness	bl	blue
C	Adapter wiring harness connector	br	brown
D	Adapter wiring harness socket	dbl	dark blue
CCL GW	CAN CAN LIN Gateway	dgn	dark green
CL GW	CAN LIN Gateway	ge	yellow
CLR	Cold start module	gn	green
D1	Diode	gr	grey
D2	Diode group	hbl	light blue
F0	Additional fuse for power supply	hgn	light green
F1	Heater main fuse	or	orange
F2	Passenger compartment fan controller main fuse	pk	pink
F3	Control element fuse	rt	red
F4	Fan controller fuse	sw	black
F5	Additional fuse	vi	violet
HG	Heater TT-Evo	ws	white
K1	Relay K1		
K2	Relay K2		
K3	Relay K3		
LIN GW	LIN Gateway		
PWM GW	Pulse width modulator gateway		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	4-pin socket of control element		
Y	Power adapter		



6.3 Fan controller part 1

Position of KSG connector B

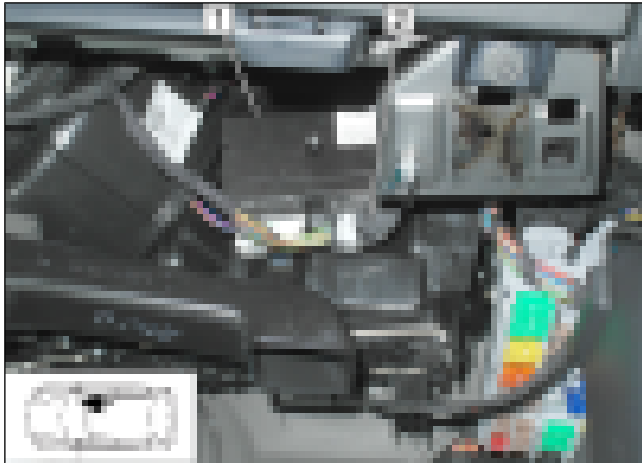


Fig. 20

X3 / X4

- 1 KSG
- 2 26-pin, black KSG connector B

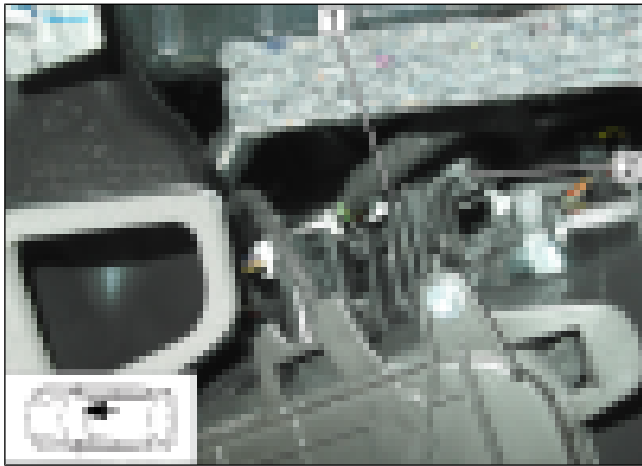


Fig. 21

5 Series

- 1 26-pin, black KSG connector B
- 2 KSG

View of KSG connector



Fig. 22

all vehicles

- 1 Removed 26-pin KSG connector B



Connecting wires ③ and ④

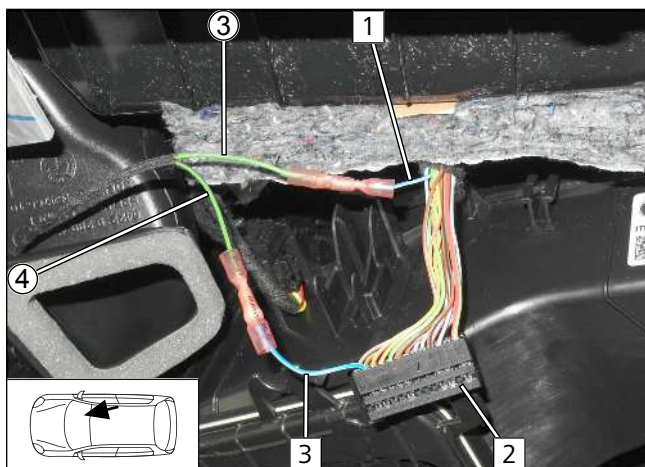


Fig. 23



Produce all following electrical connections as shown in the system wiring diagram.

- 1 Wire (cable colour according to system wiring diagram) of KB connector A / pin 2
- 2 26-pin KSG connector
- 3 Wire (cable colour according to system wiring diagram) of KSG connector B / pin 25
- 3 Green (gn) wire of K2/87a from A/C control wiring harness
- 4 Green/black (gn/sw) wire of K2/30 from A/C control wiring harness

Connecting wires ⑬ and ⑭

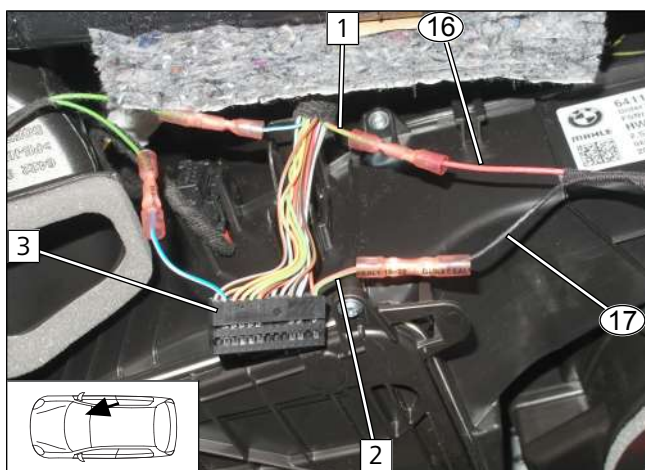


Fig. 24

- 1 Wire (cable colour according to system wiring diagram) of fuse F
- 2 Wire (cable colour according to system wiring diagram) of KSG connector B / pin 14
- 3 26-pin KSG connector
- 16 Black (sw) wire of K3/87a from power supply wiring harness
- 17 Black (sw) wire of K3/30 from power supply wiring harness



6.4 System wiring diagram part 2

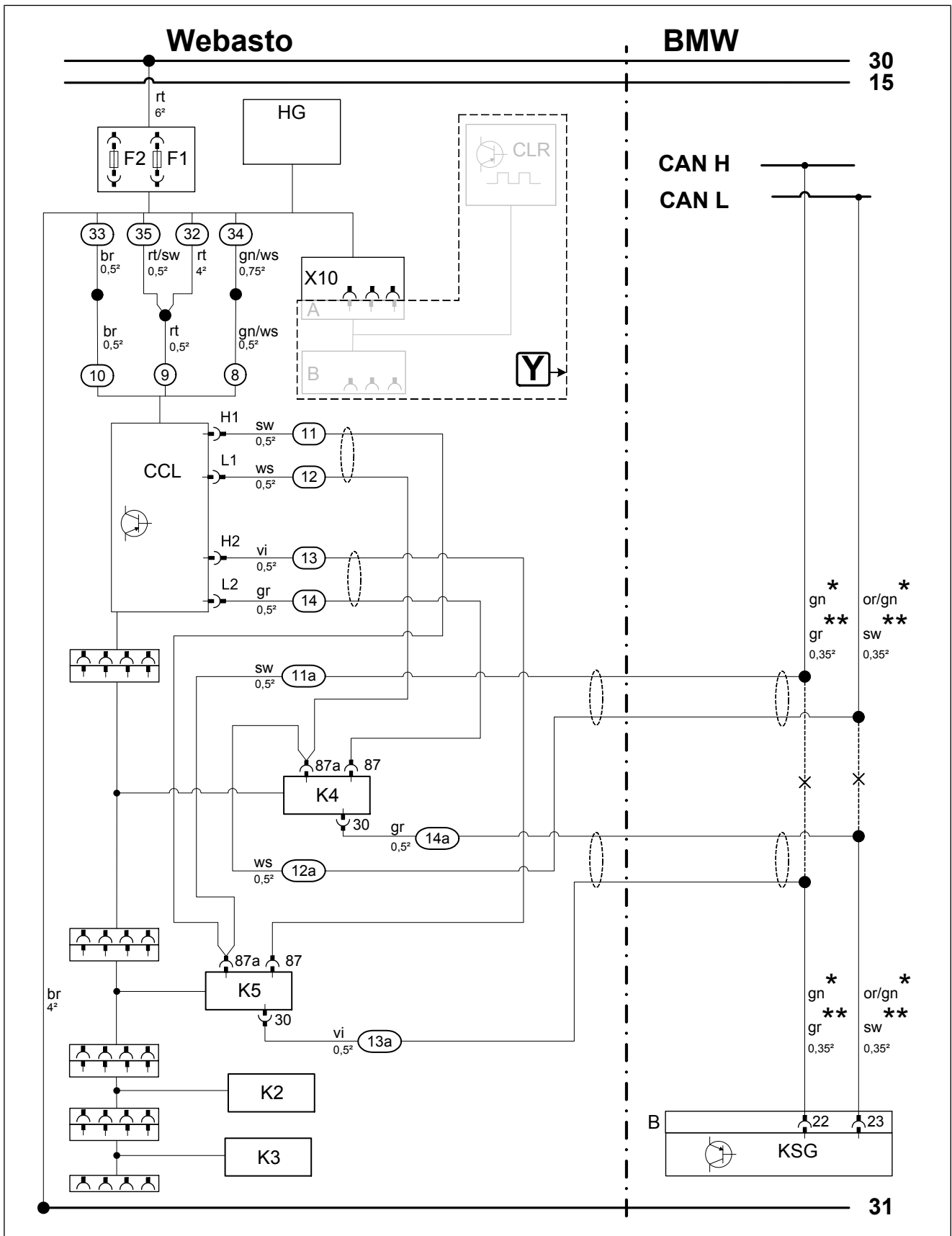


Fig. 25



Legend to wiring diagram

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
KSG	Air-conditioning control unit	X	Cutting point
B	26-pin KSG connector	*	5 Series
		**	X3 / X4
		Y	Only available with 5 Series

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Connector of CLR module wiring harness	br	brown
B	Socket of CLR module wiring harness	bg	beige
C	Adapter wiring harness connector	dbl	dark blue
D	Adapter wiring harness socket	dgn	dark green
CCL GW	CAN CAN LIN Gateway	ge	yellow
CL GW	CAN LIN Gateway	gn	green
CLR	Cold start module	gr	grey
D1	Diode	hbl	light blue
D2	Diode group	hgn	light green
F0	Additional fuse for power supply	or	orange
F1	Heater main fuse	pk	pink
F2	Passenger compartment fan controller main fuse	rt	red
F3	Control element fuse	sw	black
F4	Fan controller fuse	vi	violet
F5	Additional fuse	ws	white
HG	Heater TT-Evo		
K1	Relay K1		
K2	Relay K2		
K3	Relay K3		
LIN GW	LIN Gateway		
PWM GW	Pulse width modulator gateway		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	4-pin socket of control element		
Y	Power adapter		



6.5 Fan controller part 2

Connecting wires **13a** and **14a**

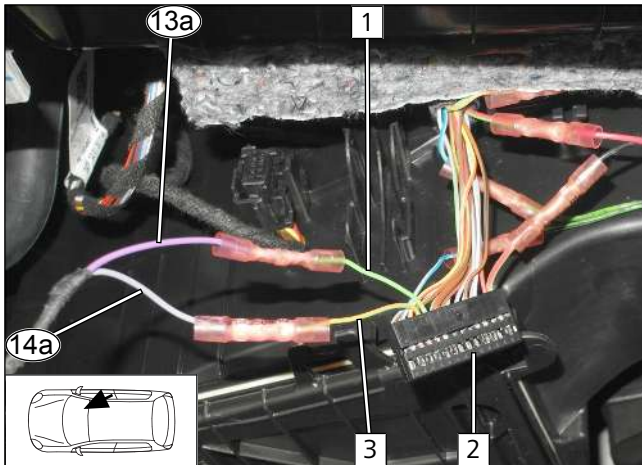


Fig. 26

- 1** Wire (cable colour according to system wiring diagram) of connector B / pin 22
- 2** 26-pin KSG connector
- 3** Wire (cable colour according to system wiring diagram) of connector B / pin 23
- 13a** Violet (vi) wire of K5/30 from CCL wiring harness
- 14a** Grey (gr) wire of K4/30 from CCL wiring harness

Connecting wires **11a** and **12a**

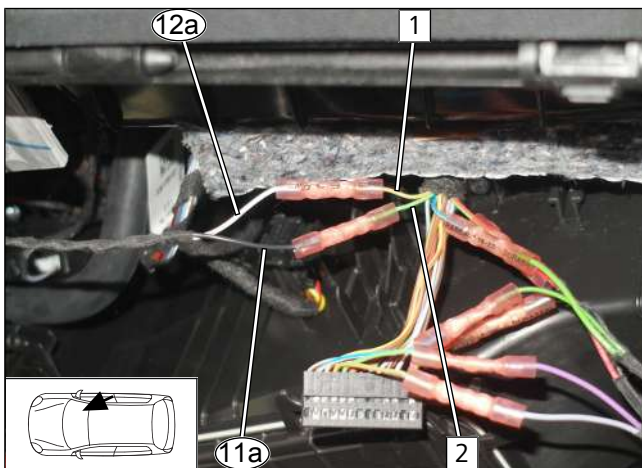


Fig. 27

- 1** Wire (cable colour according to system wiring diagram) of CAN-L
- 2** Wire (cable colour according to system wiring diagram) of CAN-H
- 11a** Black (sw) wire of CCL / H1 / K5
- 12a** White (ws) wire of CCL / L1 / K4



7 Final work



- ▶ Final work is not carried out until the installation of the heater in the vehicle has been completed
- ▶ Check all electrical connections for firm seating
- ▶ Insulate and tie back loose lines



These are the original instructions. The German language is binding.
You can request your language if it is missing. The telephone number of each country can be found in the Webasto service centre leaflet or the website of the respective Webasto representative of your country.

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Only within Germany
Tel: 0395 5592 444
E-mail: technikcenter@webasto.com



WWW.WEBASTO.COM

8 X3 / X4 operating instructions



Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

- ▶ Deactivate passenger compartment monitoring for the heating operation



Notes about the A/C control panel presettings

Your vehicle is equipped with a comfort air-conditioning control. As a result, **no** settings are required on the A/C control panel when switching off the vehicle. All necessary presettings, such as fan speed, temperature and flap positions are set automatically.



Notes about the active parking heating mode

The vehicle fan is deactivated when the vehicle is opened and is available again once the ignition is switched on.

After the vehicle is closed again, it can take several minutes for it to be active again.

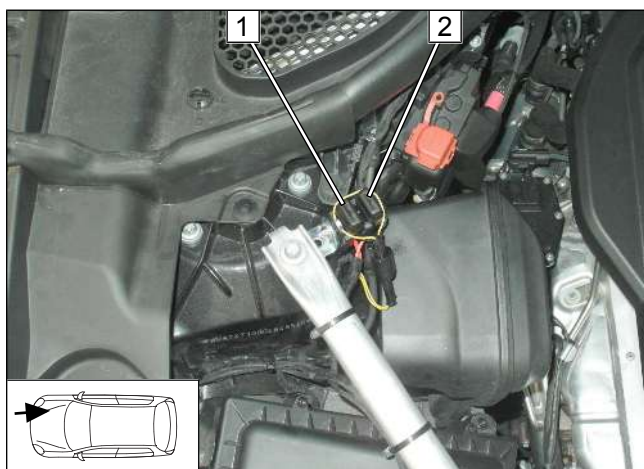


Note for parking heater function

Your vehicle is equipped with a passenger compartment preheating unit. There is **no** engine pre-heating.

8.1 Installation location of fuses

Fuses in engine compartment



- 1 F1 - 3A main fuse of passenger compartment
- 2 F2 - 20A heater main fuse

Fig. 28

9 5 Series operating instructions



Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

- ▶ Deactivate passenger compartment monitoring for the heating operation



Notes about the A/C control panel presets

Your vehicle is equipped with a comfort air-conditioning control. As a result, **no** settings are required on the A/C control panel when switching off the vehicle. All necessary presets, such as fan speed, temperature and flap positions are set automatically.



Notes about the active parking heating mode

The vehicle fan is deactivated when the vehicle is opened and is available again once the ignition is switched on.

After the vehicle is closed again, it can take several minutes for it to be active again.

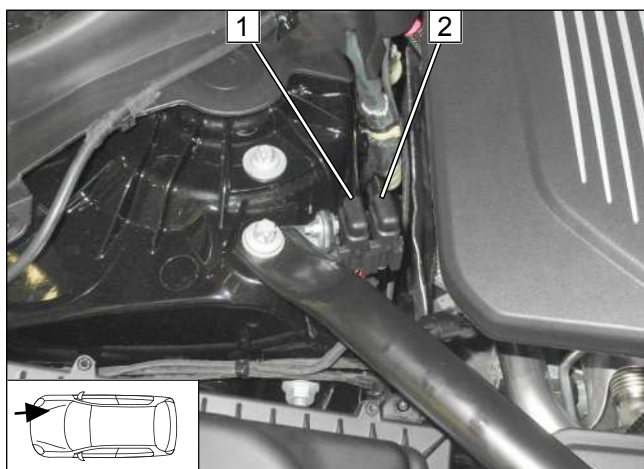


Note for parking heater function

Your vehicle is equipped with a passenger compartment and engine preheating unit.

9.1 Installation location of fuses

Fuses in engine compartment



- 1 F1 - 3A main fuse of passenger compartment
- 2 F2 - 20A heater main fuse

Fig. 29

