‘Webasto Comfort’ Air-Conditioning Control

Installation Documentation

BMW
2 Series Active Tourer (F45) / 2 Series Gran Tourer (F46) / X1BMW (F48)

Validity

Manufacturer	Model	Type	EG BE No. / ABE
BMW	2 Series Active Tourer / Gran Tourer	UKL-L	e1 * 2007 / 46 * 0371 * ...
BMW	X1	UKL-L	e1 * 2007 / 46 * 0371 * ...

From model year 2016
Left-hand drive vehicle

Verified equipment variants: Multi-zone automatic air-conditioning (2 zones)

Not verified: Passenger compartment monitoring

BMW BMW2 Series Active Tourer / Gran Tourer / X1

Table of Contents

Necessary Components

- Additional kit A/C control ‘Webasto Comfort’ Mini / BMW 2 Series / 3 Series / X1 2016 : **1324388**_

Information on Validity

This installation documentation applies only in combination with:

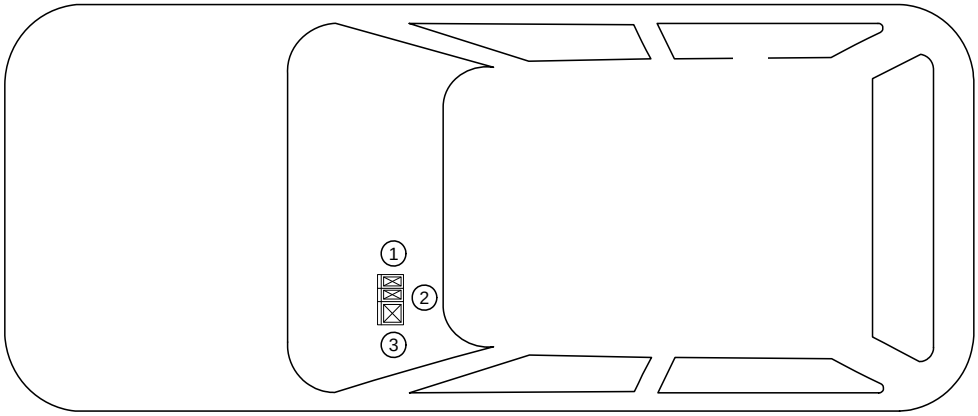
- Installation kit for BMW 2 Series Active/Gran Tourer / X1 petrol and diesel: **1324379**_
  and installation documentation for BMW 2 Series / X1: **1324380**_

  or
- Installation kit for BMW 2 Series Active/Gran Tourer 2.0 diesel (inline): **1325209**_
  and installation documentation for BMW 2 Series: **1325207**_

Installation Overview

Legend:

1. Relay K3
2. Relay K2
3. CCL-Gateway



Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

The improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide, leading to serious injury or death.

To install and repair Webasto heating and cooling systems you need to have completed a special company training course and have the appropriate technical documentation, special tools and special equipment.

Installation and repair may ONLY be carried out by persons trained and certified in a Webasto training course. NEVER try to install or repair Webasto heating or cooling systems if you have not completed a Webasto training course, you do not have the necessary technical skills and you do not have the technical documentation, tools and equipment available to ensure that you can complete the installation and repair work properly.

Only use genuine Webasto parts. See the Webasto air and water heaters accessories catalogue for this purpose.

1.2 Operation

To ensure safe operation, we recommend having the heater checked every two years by an authorised Webasto dealer, especially when used over a long period and/or under extreme environmental conditions.

Do not operate the heater in closed rooms due to the danger of poisoning and suffocation.

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel diesel (DIN EN 590) or petrol (DIN EN 228).

The heater may not be cleaned with a high-pressure cleaner.

1.3 Please note

ALWAYS follow all Webasto installation and operating instructions and observe all warnings.

To become familiar with and understand all functions and properties of the heater, the operating instructions must be read carefully and observed at all times.

For proper, safe installation and repair work, the installation instructions with all warnings and safety information must be carefully read and observed at all times. Please always contact a workshop authorised by Webasto for all installation and repair work.

Important

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, 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.

Sharp edges should be fitted with rub protection. 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 startup 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.

2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 04 5627

Note

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.

Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

Note

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

2.1 Excerpt from ECE regulation 122 (heating system) paragraph 5 for the installation of the heater

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

2.1.1. Subject to paragraph 2.1.2. combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

2.4. Exhaust system

2.4.1. The exhaust outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

Information on Validity

This installation documentation applies to BMW 2 Series Active Tourer / 2 Series Gran Tourer / X1 Petrol and diesel vehicles - for validity, see page 1 - from model year 2016 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.

Technical Information

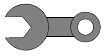
Special Tools
- Automatic wire stripper, 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector, 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Webasto Thermo Test Diagnosis with current software

Dimensions
- All dimensions are in mm.

Tightening torque values
Tighten bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

Explanatory Notes on Document

You will find an identification mark on the outside top right corner of the page in question to provide you with a quick overview of the individual working steps.

Mechanical System 

Electrical System 

Software 

Special features are highlighted using the following symbols:

Specific risk of damage to components. 

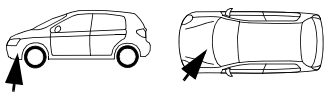
Specific risk due to electrical voltage. 

Specific risk of injury or fatal accidents. 

Specific risk of fire or explosion. 

Reference to the manufacturer's vehicle-specific documents or to the general installation instructions of Webasto components. 

Reference to a special technical feature. 

The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle. 

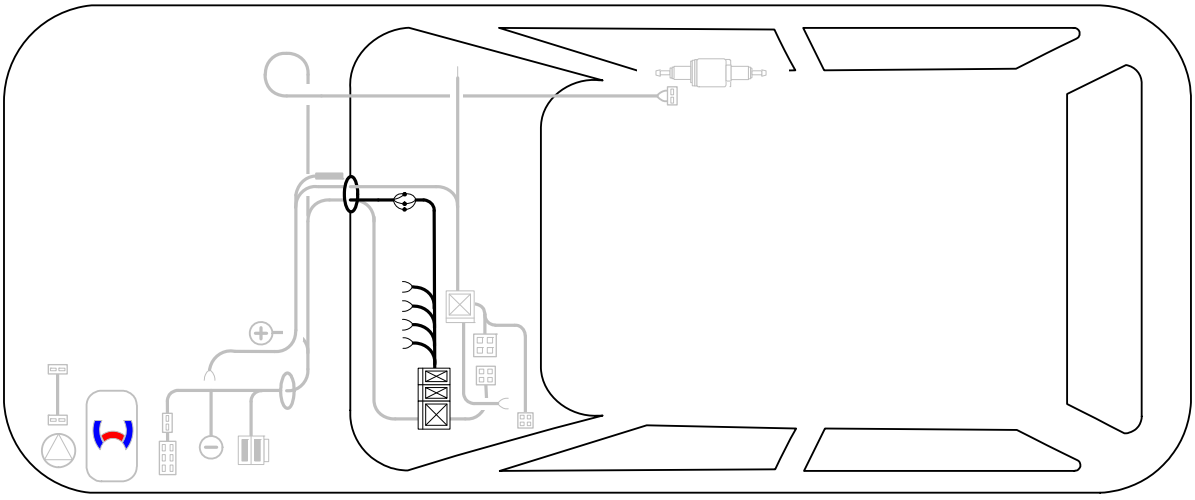
Tightening torque according to the manufacturer's vehicle-specific documents. 

Preliminary Work

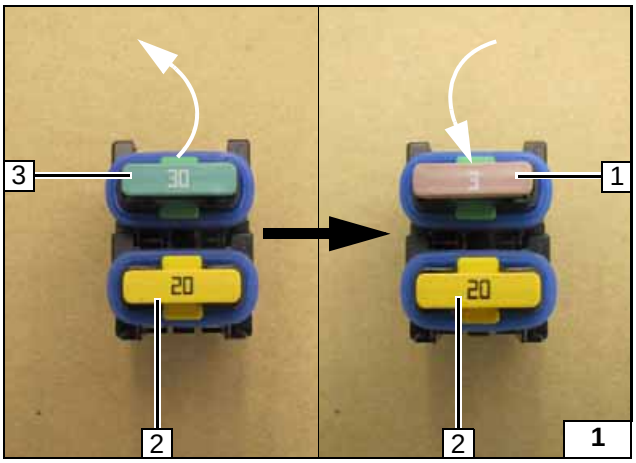
Vehicle

- Disconnect the battery.
- Remove the lateral instrument panel trim on the left and right.
- Remove the lower instrument panel trim on the left and the right.
- Remove the air duct in the footwell on the left.
- Remove the front trim of the centre console on the left and on the right.
- Remove the glove box.

Electrical System



Wiring harness routing diagram for passenger compartment



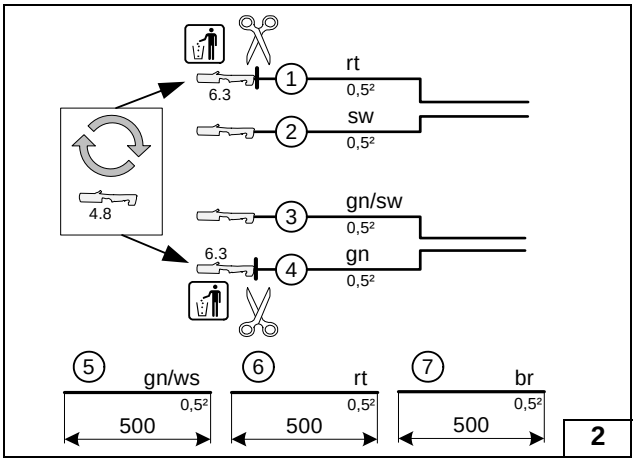
Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

2 20A heater fuse F1

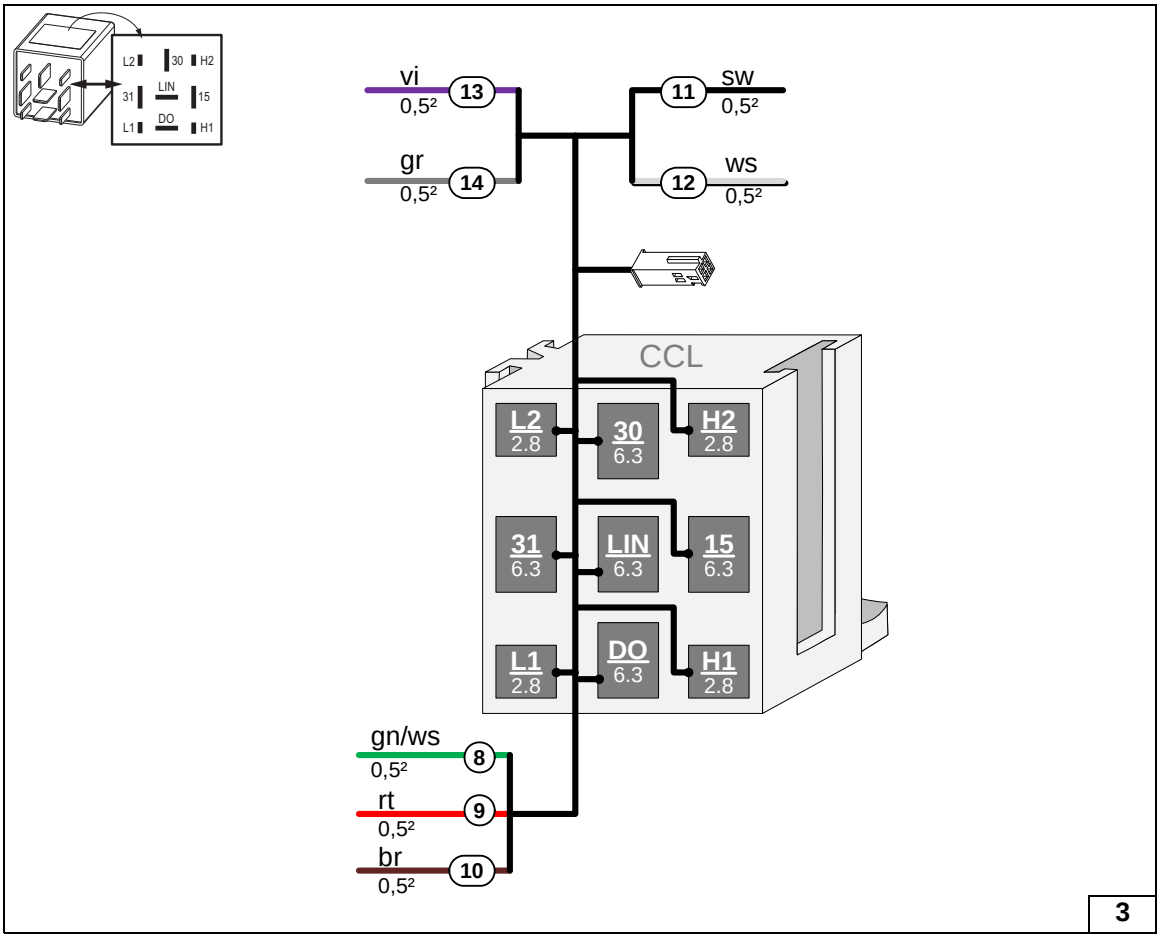
Preparing engine compartment fuses



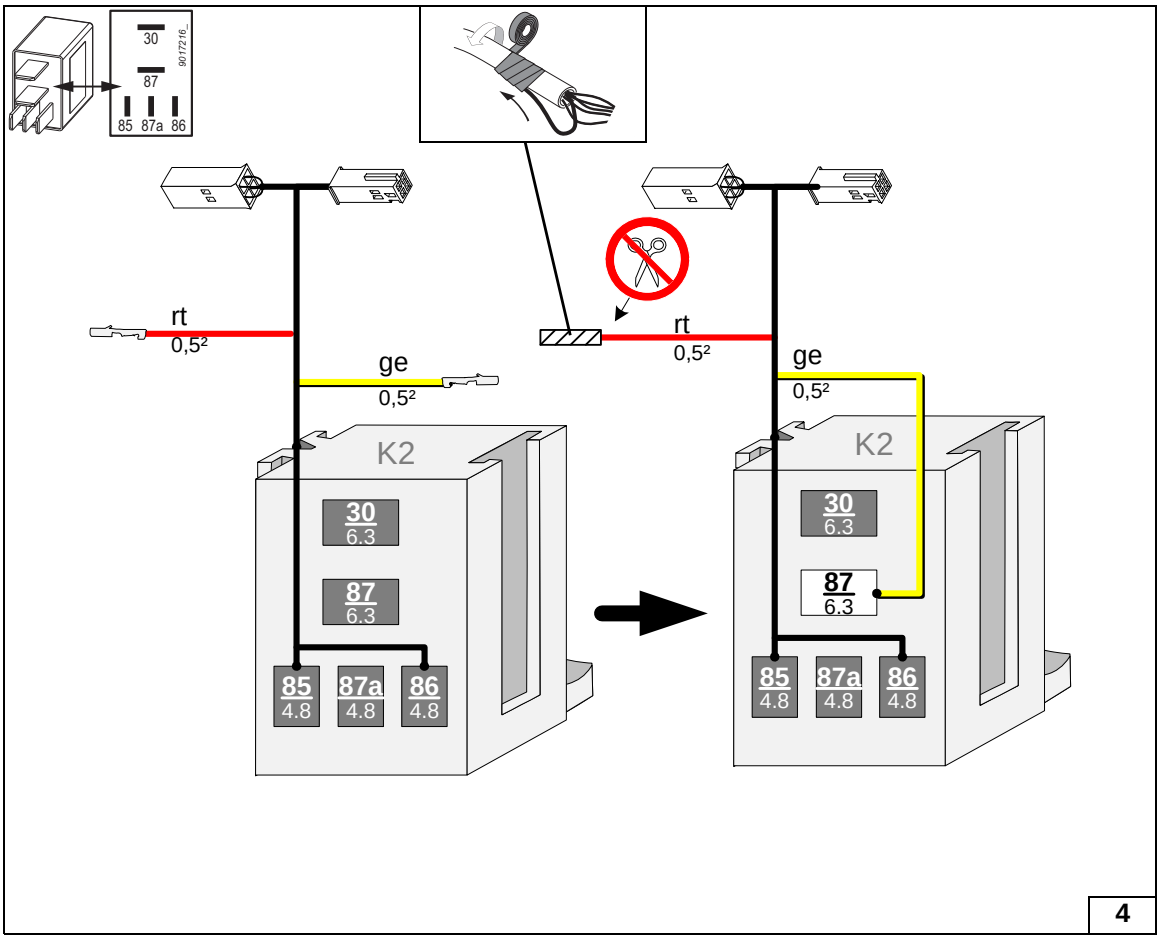
Draw wires ⑤, ⑥ and ⑦ into protective sleeving.

① Red (rt) wire of power supply wiring harness
② Black (sw) wire of power supply wiring harness
③ Green/black (gn/sw) wire of A/C control wiring harness
④ Green (gn) wire of A/C control wiring harness

Cutting to length / assigning wires

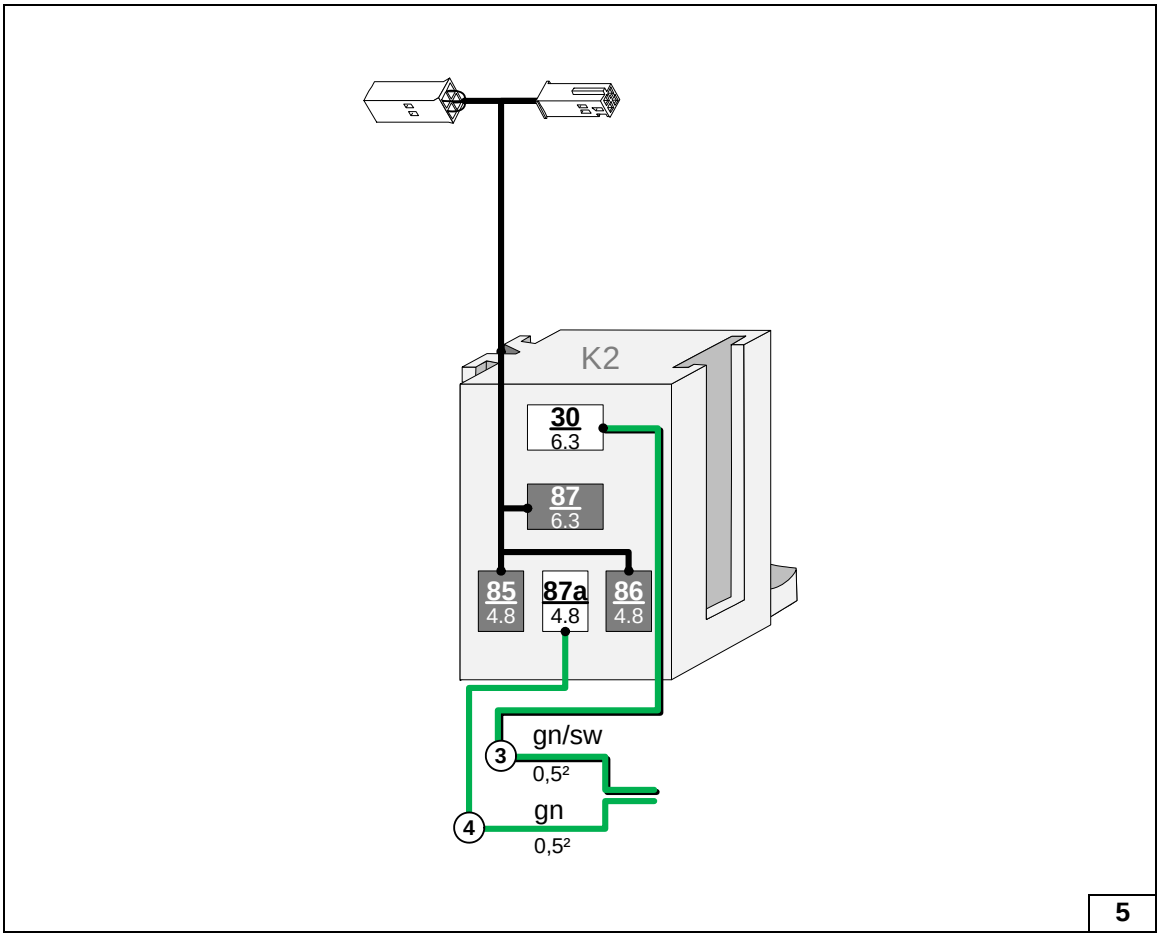


View of CCL-Gateway wiring harness and wires to be used



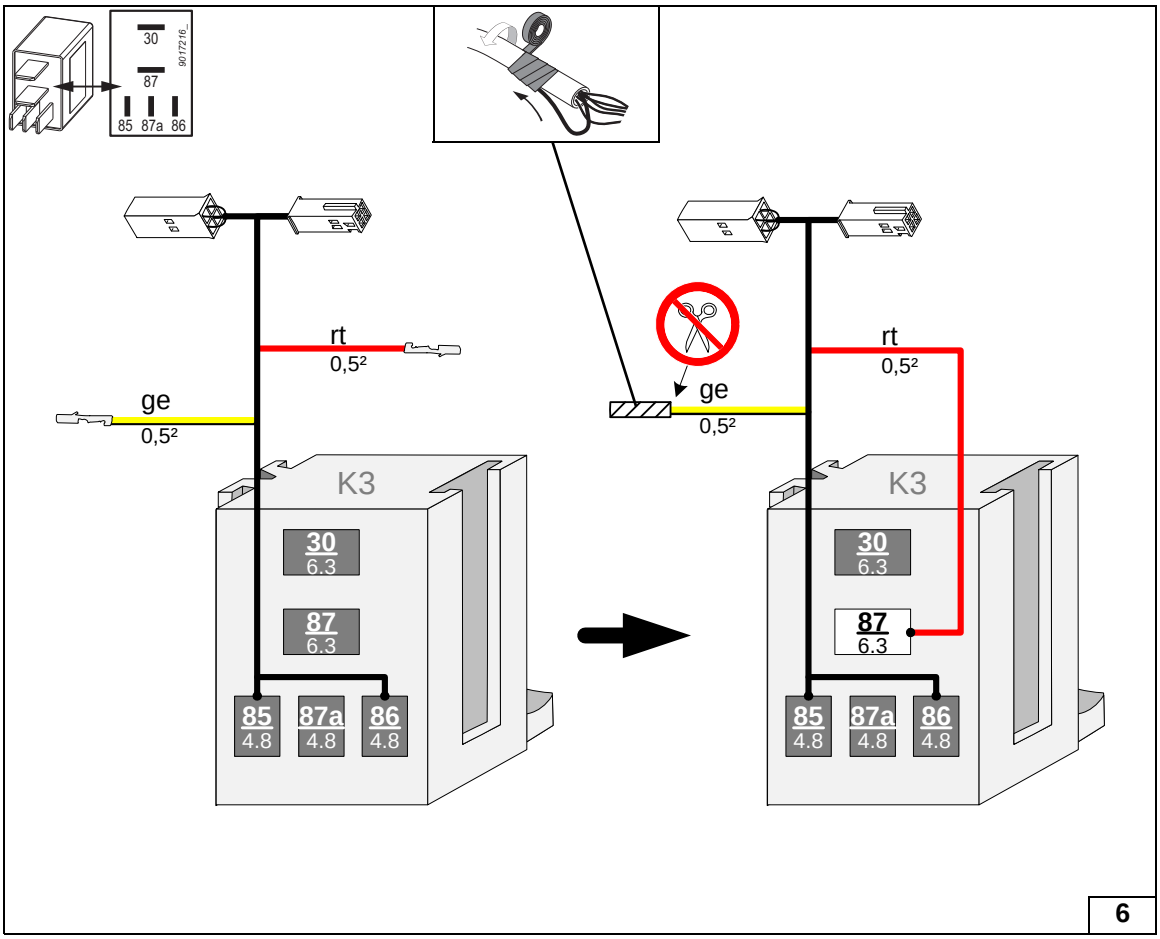
4

Premounting / assigning wiring harness of relay K2



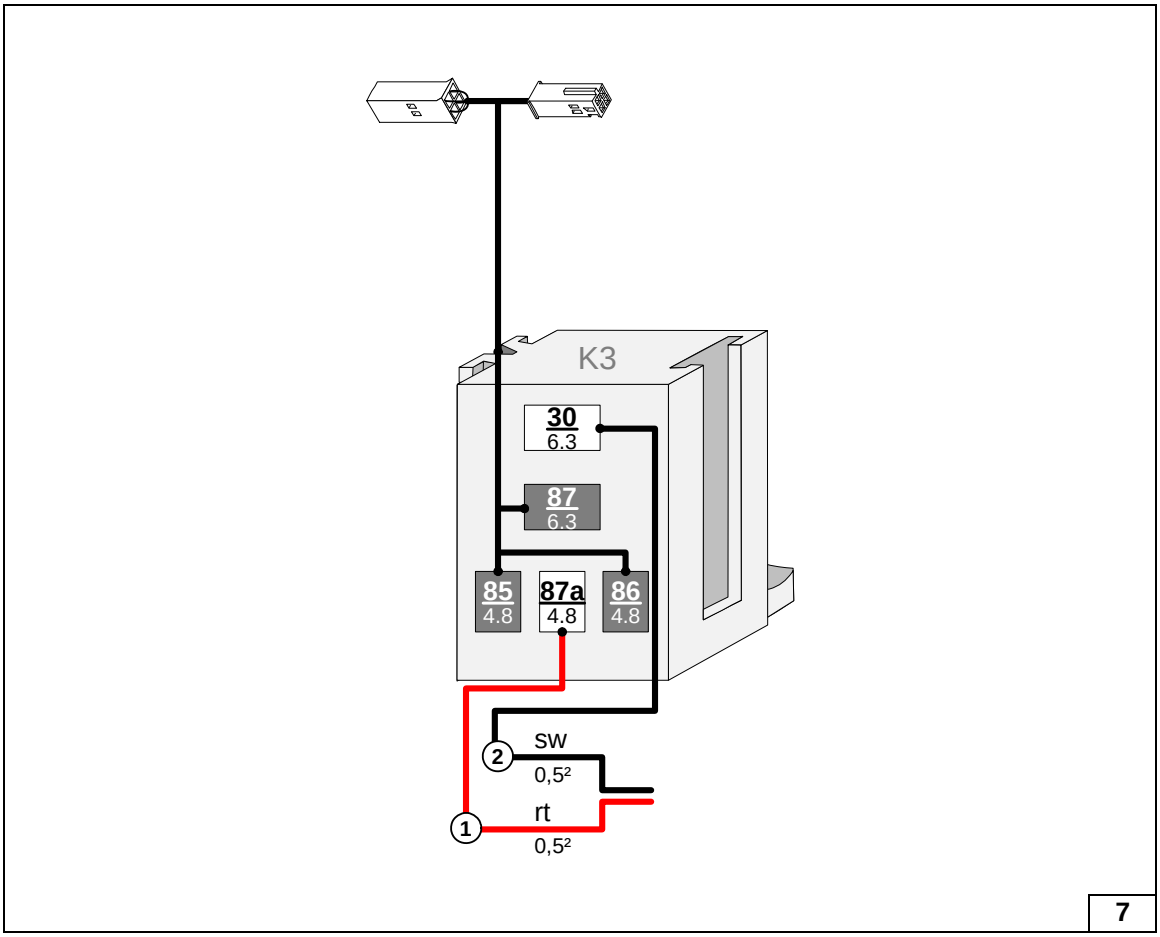
5

Connecting wires to wiring harness of relay K2



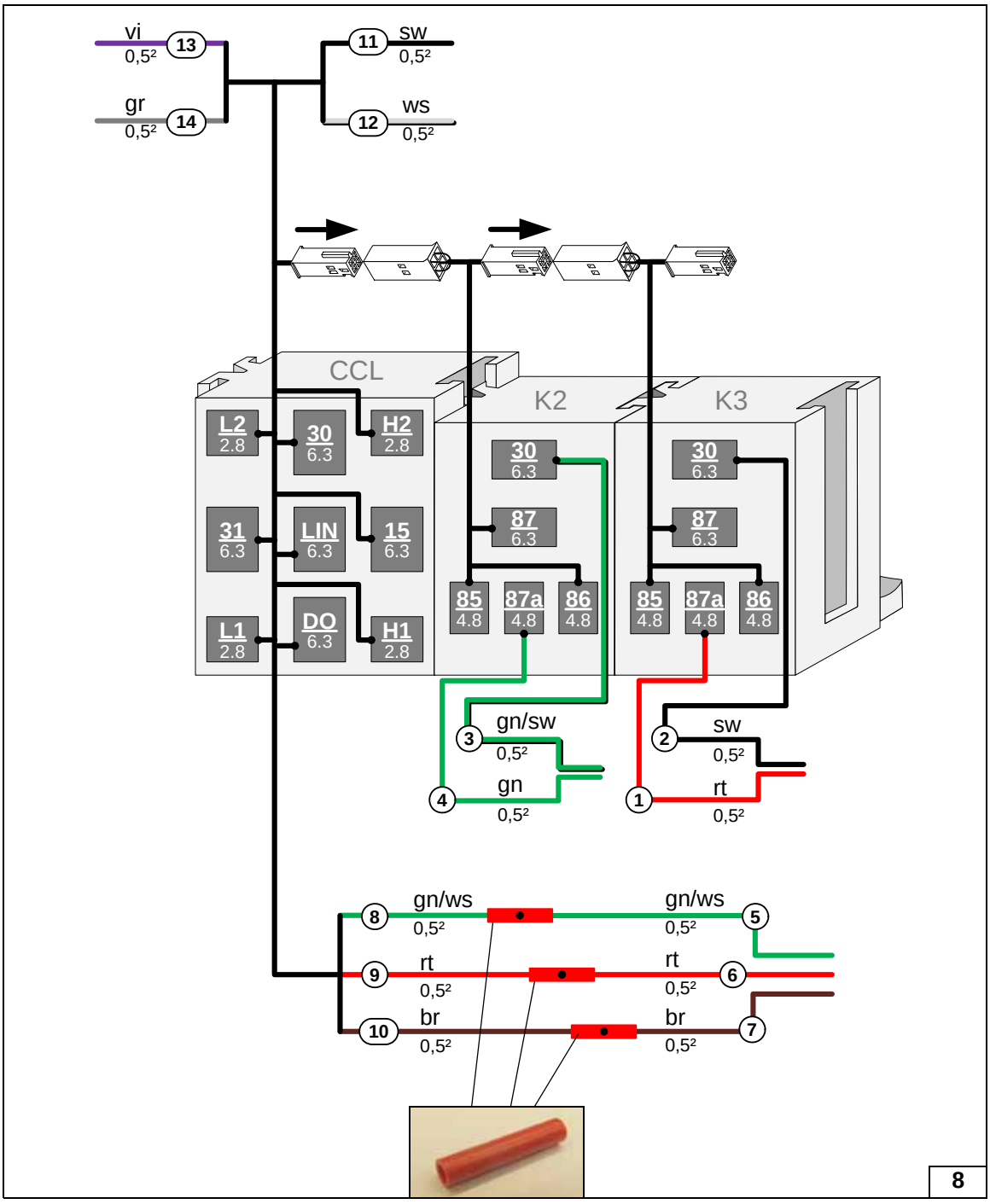
6

Premounting / assigning wiring harness of relay K3



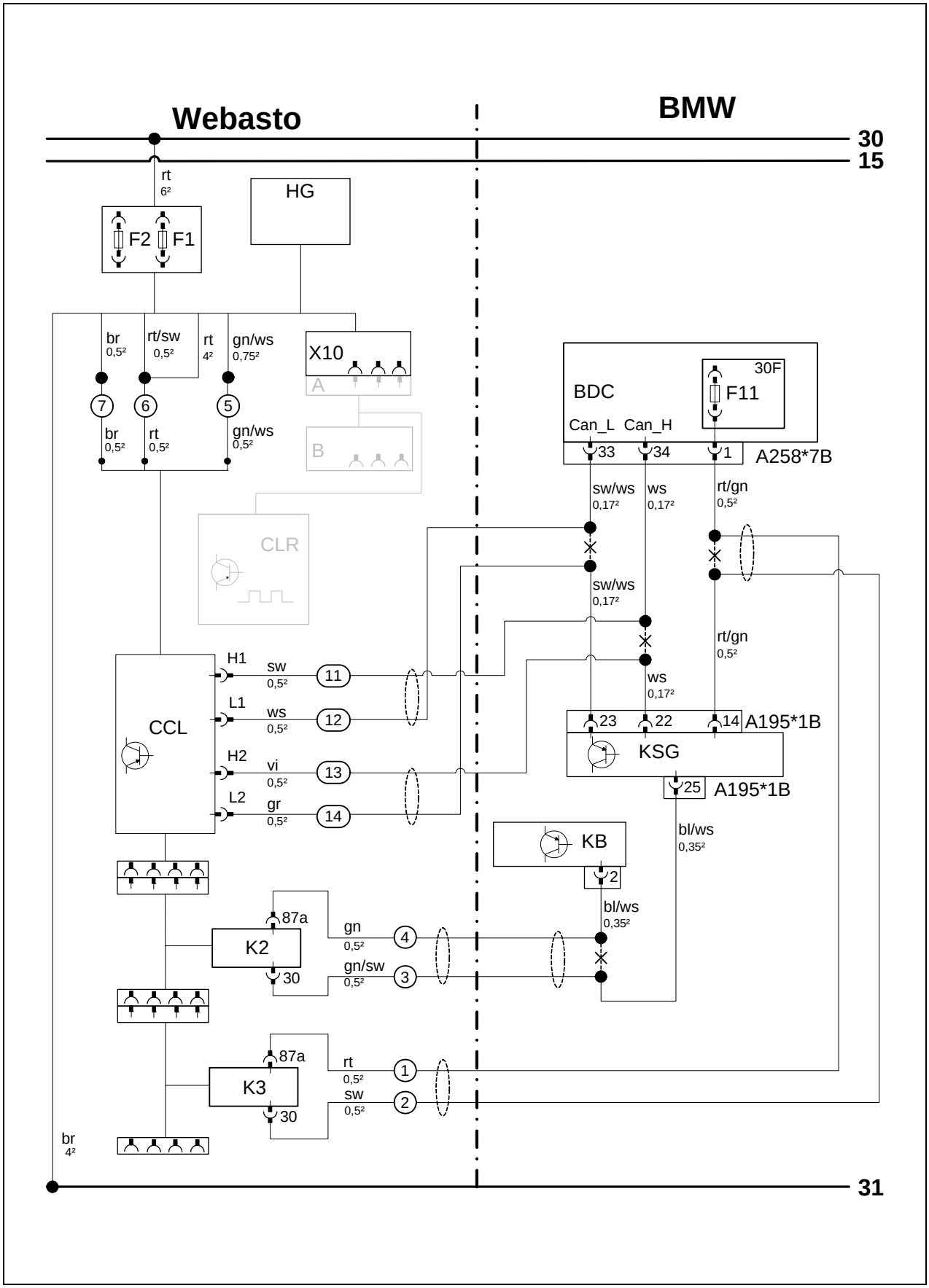
7

Connecting wires to wiring harness of relay K3



Interlocking CCL-Gateway, relay K2 and relay K3 sockets, inserting connectors in sockets, connecting wires

Fan Controller

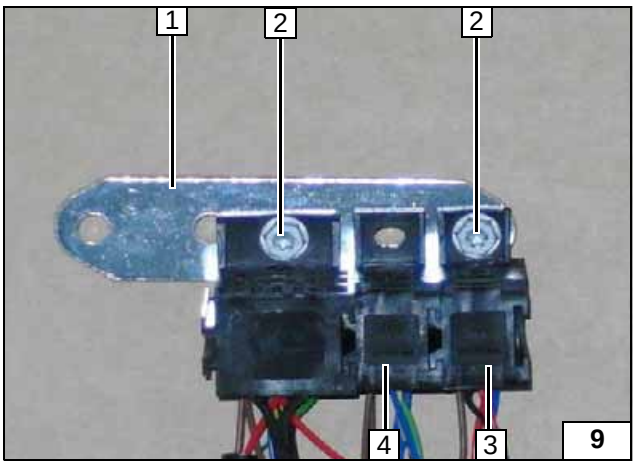


System wiring diagram

Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	BDC	Body Domain Control	rt	red
F1	20A fuse	30F	Plus disconnected	sw	black
F2	3A fuse	F11	7.5A fuse	ge	yellow
X10	4-pin socket of heater control	A258*7B	Connector of BDC	gn	green
		KSG	A/C control unit	ws	white
A	Connector of CLR module wiring harness	A195*1B	26-pin heater connector of KSG	br	brown
		KB	A/C control panel	gr	grey
B	Socket of CLR module wiring harness			bl	blue
				vi	violet
CLR	CLR module			(!)	Insulate and tie back wire ends
CCL	CCL-Gateway				
K2	Additional relay			**X**	Cutting point
K3	Additional relay			Wiring colours may vary.	

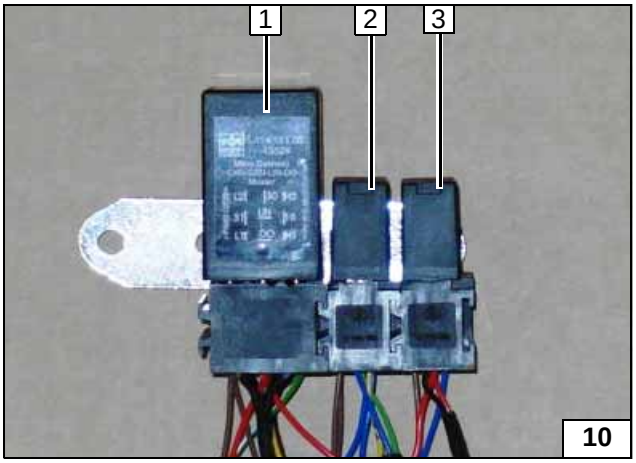
Premounting CCL Gateway, relay K2 and relay K3 sockets



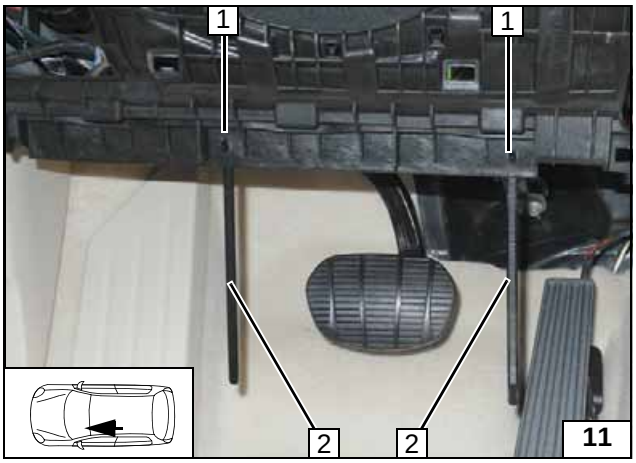
Produce all following electrical connections as shown in the wiring diagram.

1 Perforated bracket
2 M5x13 bolt, flanged nut [2x each]
3 Socket of relay K3
4 Socket of relay K2

Inserting CCL Gateway, relay K2 and relay K3



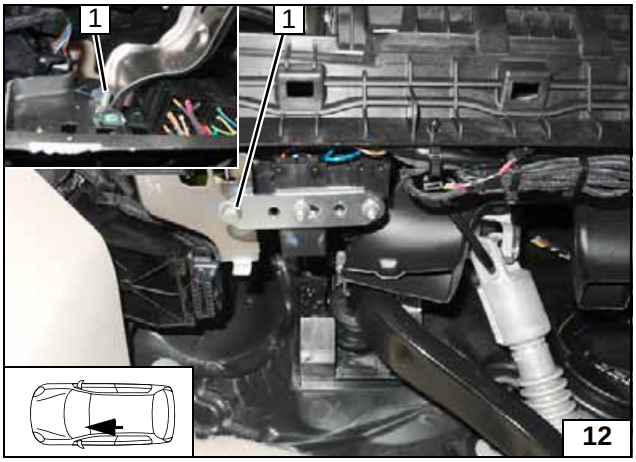
1 CCL Gateway
2 Relay K2
3 Relay K3



Drill 6.0mm dia. hole at position **1**.

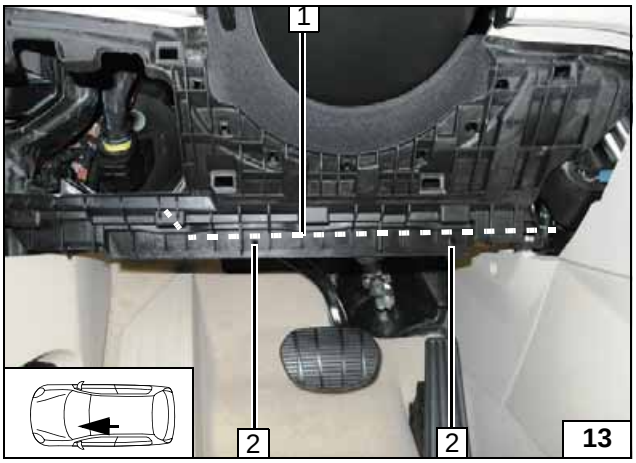
2 Eyelet cable tie

Installing eyelet cable tie



1 M6X20 bolt, spring lockwasher, pre-mounted perforated bracket, original vehicle threaded hole

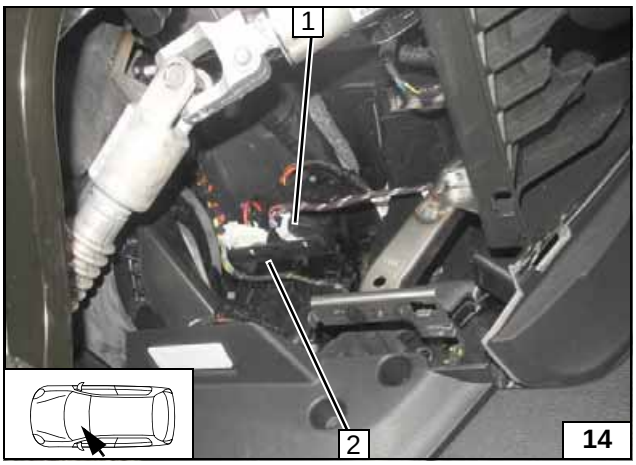
Installing CCL Gateway, relay K2 and relay K3 sockets



Route wires ⑤, ⑥ and ⑦ to the front passenger's side.

1 Power supply wiring harness, A/C control, wires from CCL-Gateway wiring harness ⑧, ⑨, ⑩, ⑪, ⑫, ⑬ and ⑭
2 Eyelet cable tie [2x]

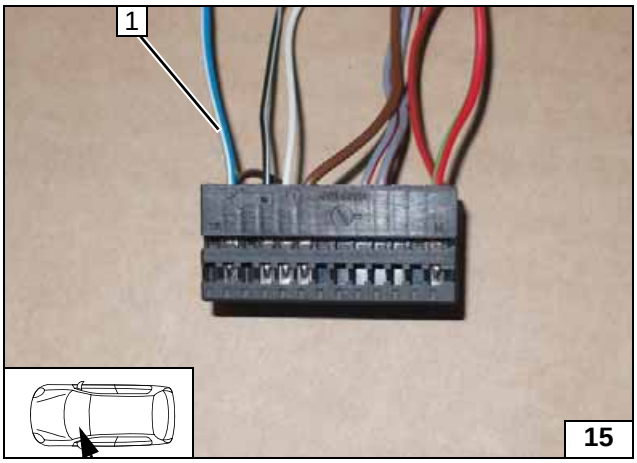
Routing of wires and wiring harnesses



Remove the air duct in the footwell on the left.

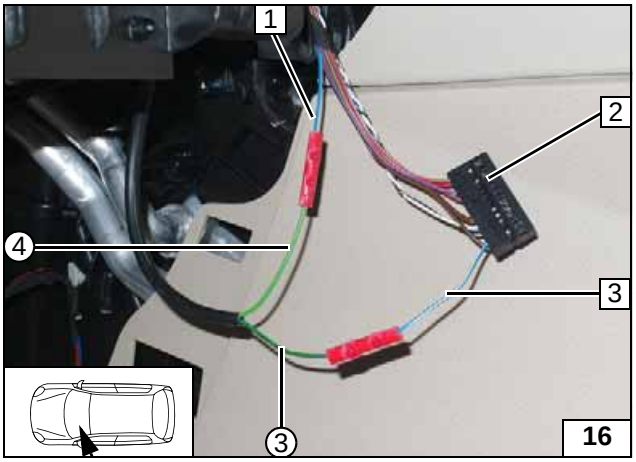
1 26-pin connector A195*1B of KSG
2 A/C control unit

Pulling out 26-pin connector A195*1B



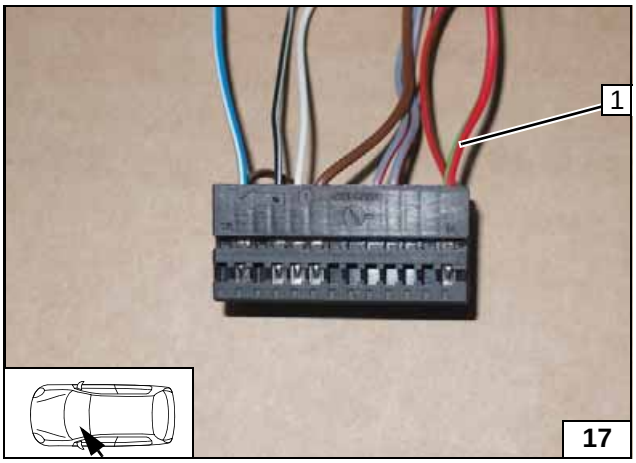
1 Blue/white (bl/ws) wire in pin 25

View of 26-pin connector A195*1B/ pin 25



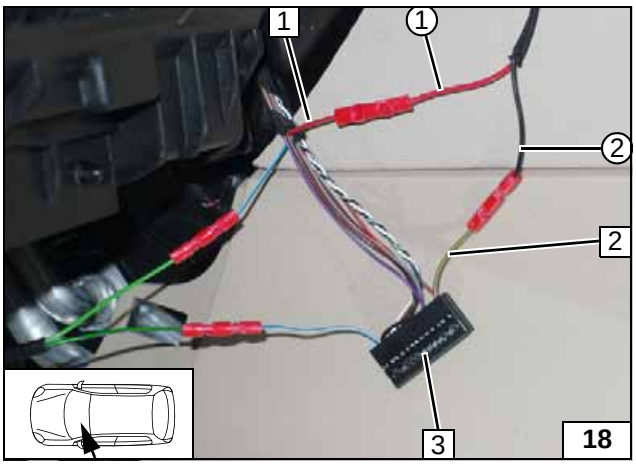
1 Blue/white (bl/ws) wire of connector from KB/ pin 2
2 26-pin connector A195*1B of KSG
3 Blue/white (bl/ws) wire of connector A195*1B/ pin 25
③ Green/black (gn/sw) wire of K2/ 30 from A/C control wiring harness
④ Green (gn) wire of K2/ 87a from A/C control wiring harness

Connecting KSG



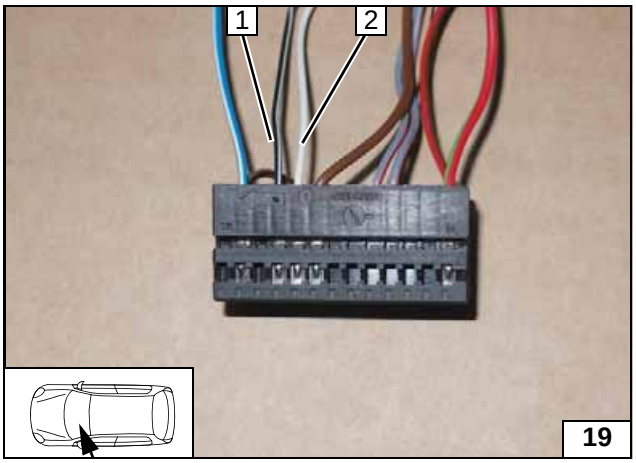
1 Red/green (rt/gn) wire in pin 14

View of 26-pin connector A195*1B/ pin 14



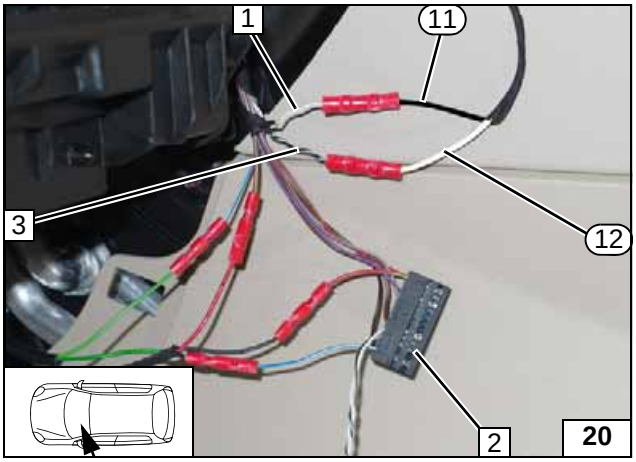
1 Red/green (rt/gn) wire of BDC connector A258*7B/ pin 1
2 Red/green (rt/gn) wire of connector A195*1B/ pin 14
3 26-pin connector A195*1B of KSG
① Red (rt) wire of K3/ 87a from power supply wiring harness
② Black (sw) wire of K3/ 30 from power supply wiring harness

Connecting KSG



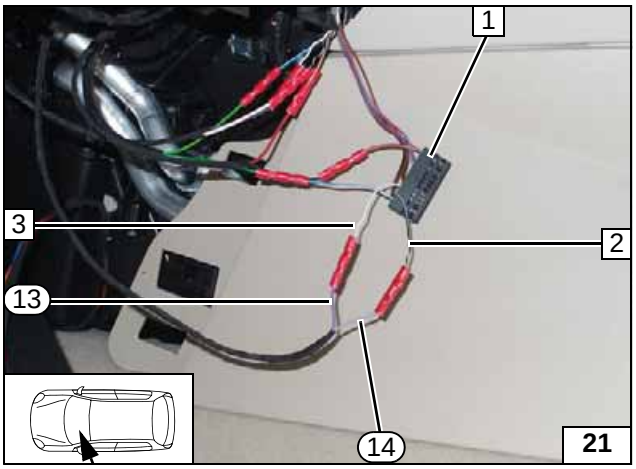
1 Black/white (sw/ws) wire in pin 23
2 White (ws) wire in pin 22

View of 26-pin connector A195*1B/ pin 22 and 23



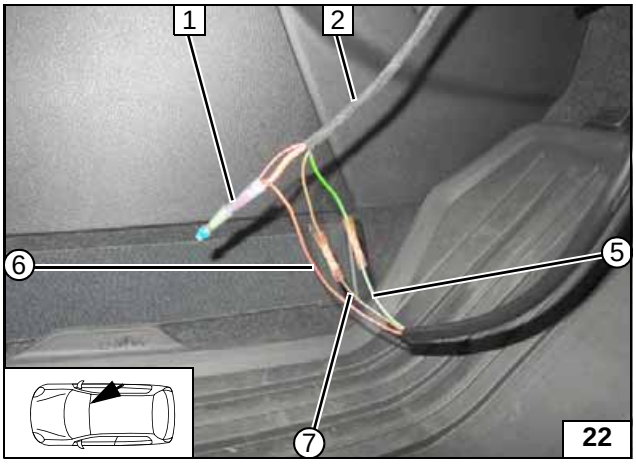
1 White (ws) wire of BDC connector A258*7B/ pin 34
2 26-pin connector A195*1B of KSG
3 Black/white (sw/ws) wire of BDC connector A258*7B/ pin 33
(11) Black (sw) wire of CCL/ H1 from CCL-Gateway wiring harness
(12) White (ws) wire of CCL/ L1 from CCL-Gateway wiring harness

Connecting BDC



1 26-pin connector A195*1B of KSG
2 Black/white (sw/ws) wire of connector A195*1B / pin 23
3 White (ws) wire of connector A195*1B/ pin 22
(13) Violet (vi) wire of CCL/ H2 from CCL-Gateway wiring harness
(14) Grey (gr) wire of CCL/ L2 from CCL-Gateway wiring harness

Connecting KSG



Connect red (rt) wire 4², red/black (rt/sw) wire 0,5² of heater wiring harness **2** and red (rt) wire (6) of CCL-Gateway/ 30 wire (9) with solder wire terminator **1**.

(5) Green/white (gn/ws) wire of wire (8) from CCL/ 15
(7) Brown (br) wire of wire (10) from CCL/ 31

Connecting same colour wires of wiring harnesses

Final Work

Warning:
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.

- **Make settings on the A/C control panel according to the ‘operating instructions’.**

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82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

Webasto
Feel the Drive

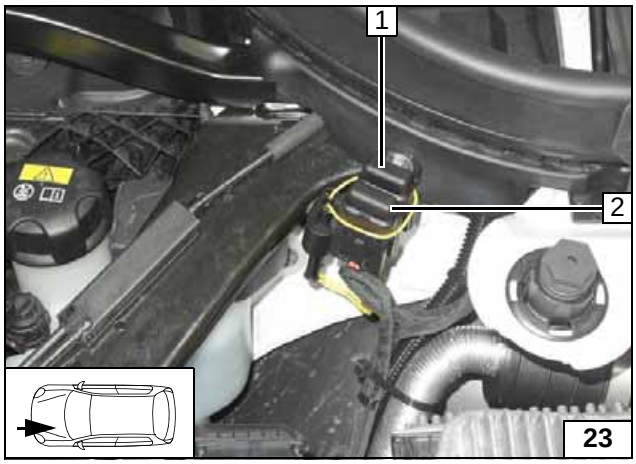
‘Webasto Comfort’ Operating Instructions

Please remove page and add to the vehicle operating instructions.

Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Note:
Your vehicle is equipped with a Comfort air-conditioning control system.
This means that **no** settings are required on the A/C control panel before parking the vehicle.
All necessary presettings like the fan speed, temperature and flap positioning will be automatically set.



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

Engine compartment fuses