

K Installation documentation

for water heater Thermo Top Evo Motorcaravan
'Parallel' coolant circuit with engine preheating

Iveco Daily

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Iveco	Daily	IS35SC2AA	from 2017	e3*2007/46*0120

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displacement [cm ³]	Engine code
2.3D	Diesel	Euro 6	AG	115	2287	F1AGL411L
3.0D	Diesel	Euro 6	SG	132	2998	F1CGL411B

Validity	Equipment variants	Model
		Daily
Verified equipment variants	Manual air conditioning	x
	Automatic air-conditioning	x
	Halogen front fog lights	x
Unverified equipment variants	Alarm system	x

Total installation time	Note
8.5 hours	Vehicles with manual air-conditioning
9.5 hours	Vehicles with automatic air-conditioning

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1 List of abbreviations

DP	Fuel pump
HG	Heater
MCC	MultiControl (control element)
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle

2 Installation notes

2.1 Information on Validity

This installation documentation applies to vehicles listed on page 1, 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.

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo Motorcaravan	9034942_
Installation kit for Iveco Daily 2017 diesel Motorcaravan	1326237B
Additional automatic A/C kit for Iveco Daily diesel MC 2017	1326236A
Telestart option: Telestart T91 Holiday RV kit	9018150_

2.3 Notes on installation, in coordination with the end customer

- ▶ Arrange for the vehicle to be delivered with the tank only about ¼ full.
- ▶ The installation location of the following elements should be chosen in coordination with the end customer:
 - the push button in case of the Telestart and/or ThermoCall and/or ThermoConnect options
 - the MultiControl RV option

2.4 Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting the vehicle-specific components, the heater specific installation time and all other times required for the system integration and initial start-up of the heater.

The total installation time may vary for vehicle equipment other than provided.

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:

Thermo Top Evo heater Motorcaravan

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.



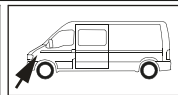
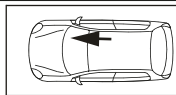
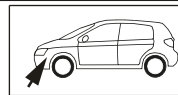
Note on a special technical feature

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	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
✓	Action
►	Necessary action
⇒	Result of an action
1 / 12 / a1	Position numbers for the image descriptions
① / ⑫ / Ⓐ	Position numbers for the image descriptions for electrical wires and components as well as coolant hose sections

4 Technical Information

Dimension specifications

- All dimensions specified in mm
- Perforated brackets and mounting angles are shown to scale
- Observe data regarding scale on the templates

Tightening torque specifications

- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm
- Tightening torque values of 5x15 retaining plate of water connection piece bolts = 7Nm
- 5x12 bolt tightening torque of 2-part heater bracket = 6Nm
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology

Temperature specification for heat shrink plastic tubings

- Fabric heat shrink tubing: shrink temperature max. 230°C
- Standard heat shrink plastic tubing: shrink temperature max. 300°C

Necessary special tools

- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Hose clamping pliers
- Hose cutter
- Automatic wire stripper 0.2 - 6 mm²
- Crimping pliers for cable lugs 0.5 – 10 mm²
- Crimping pliers for male connector 0.14 – 6 mm²
- Crimping pliers for connector 0.25 – 6 mm²
- Torque wrench for 2.0 - 10 Nm
- Deep-hole marker
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

5 Preparations

5.1 Vehicle preparation



Further information can be found in the vehicle manufacturer's technical documentation.

Vehicle area	Components to be removed	Other applicable documents
General	<ul style="list-style-type: none"> ▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system 	
Engine compartment and body	<ul style="list-style-type: none"> ▶ Disconnect the battery ▶ Detach the engine compartment fuse and relay box ▶ Servo container ▶ Air filter with intake hose ▶ Wheel well underide protection on the front passenger's side 	
Passenger compartment	<ul style="list-style-type: none"> ▶ Lower instrument panel trim on the driver's side ▶ Air-conditioning control unit 	



Carry out the following work only during the corresponding installation sequence:



DANGER

Risk of fire and explosion due to leaking fuel and escaping fuel vapours.

Vehicle body	<ul style="list-style-type: none"> ▶ Fuel tank ▶ Tank fitting 	
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5.2 Heater preparation

Engine compartment	<ul style="list-style-type: none"> ▶ Remove years that do not apply from the type and duplicate label ▶ Attach the duplicate label (type label) in the appropriate place in the engine compartment 	
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6 Installation overview

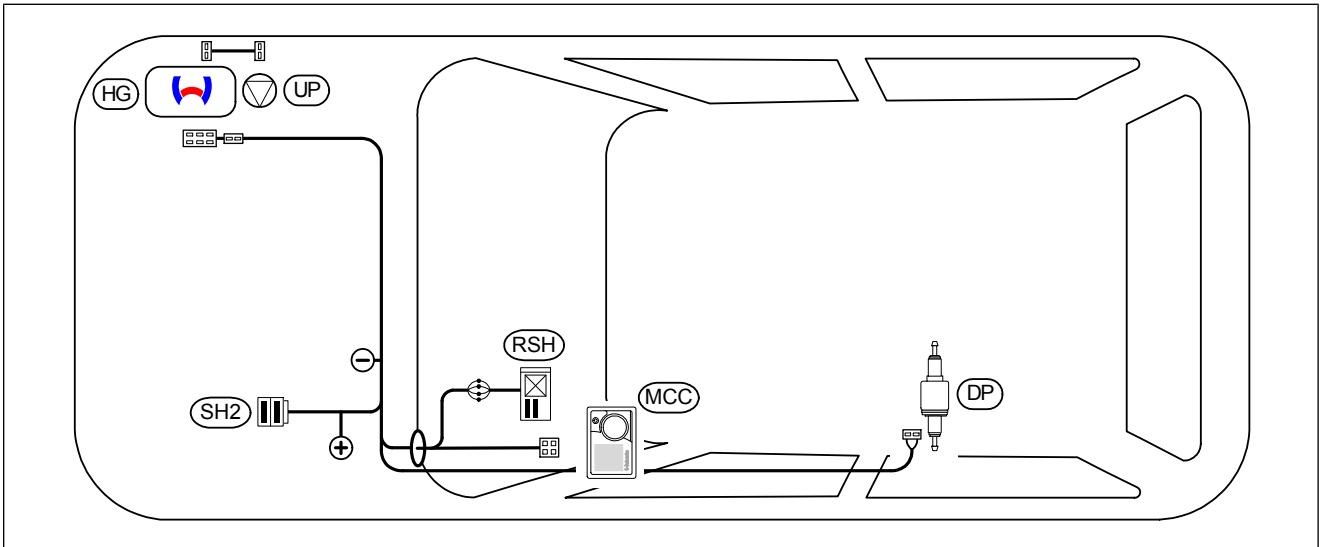
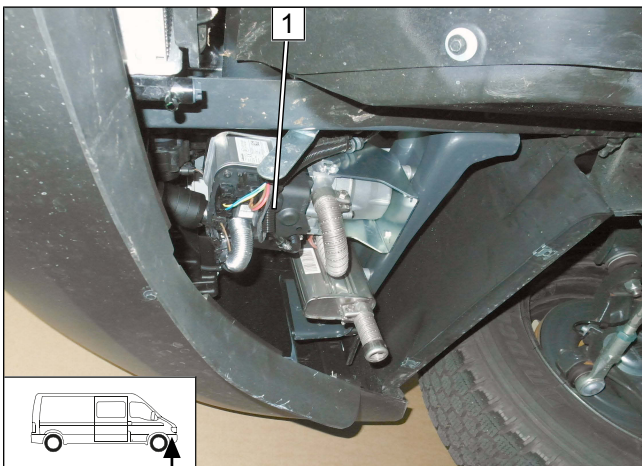


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
HG	Heater
MCC	MultiControl RV (control element)
RSH	Relay and fuse holder of passenger compartment
SH2	Fuse holder of engine compartment
UP	Coolant pump

Heater installation location



1 Heater

Fig. 2



7 Electrical system of engine compartment

Completing connector X10

► Connect yellow (ge) wire from heater wiring harness to connector X10 as shown.

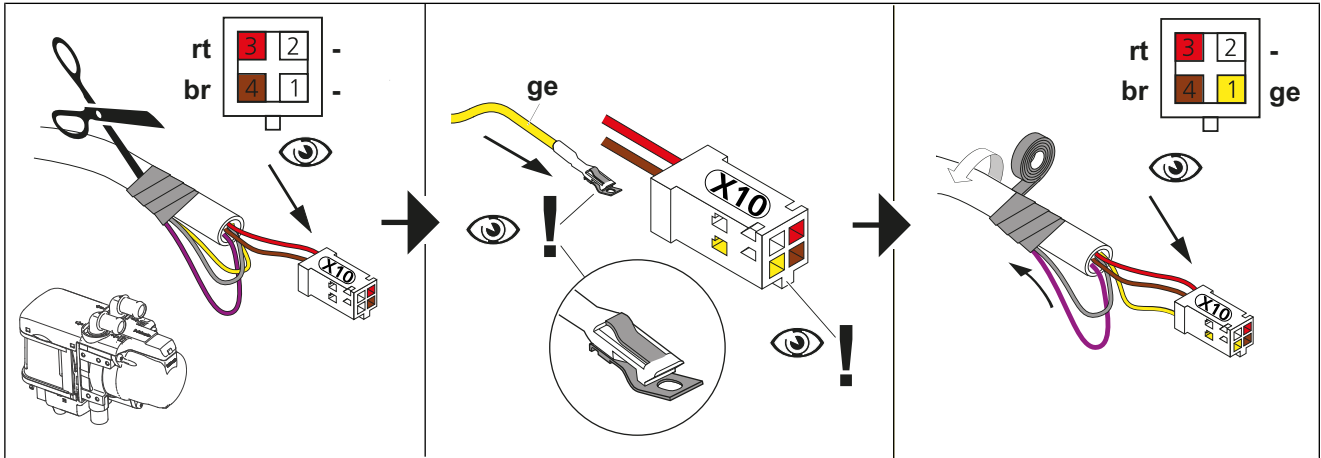


Fig. 3

Removing original vehicle relay, variant 1

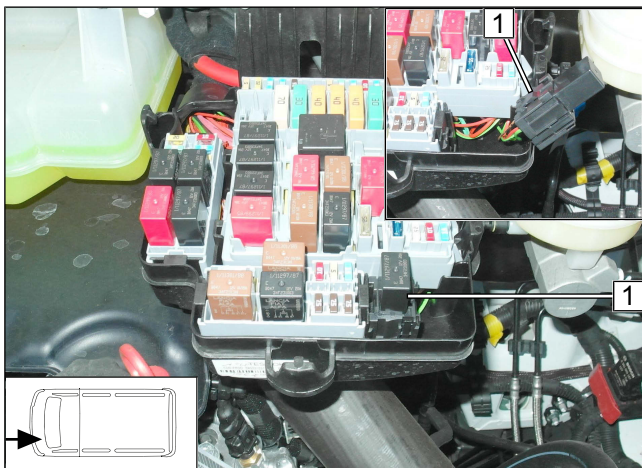


Fig. 4

1 Original vehicle relay with socket

Removing original vehicle relay, variant 2

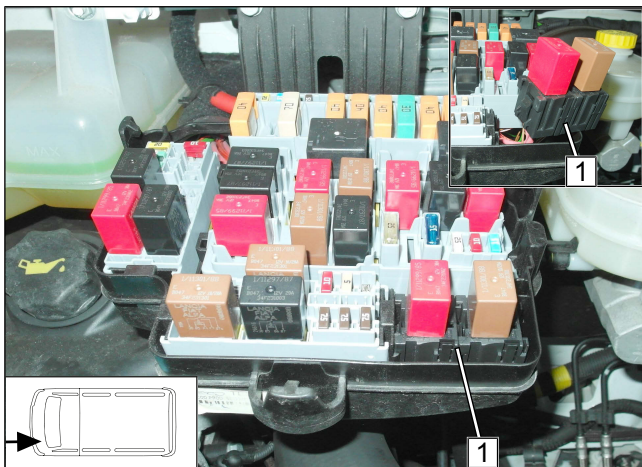


Fig. 5

1 Original vehicle relay with socket



Installing SH2

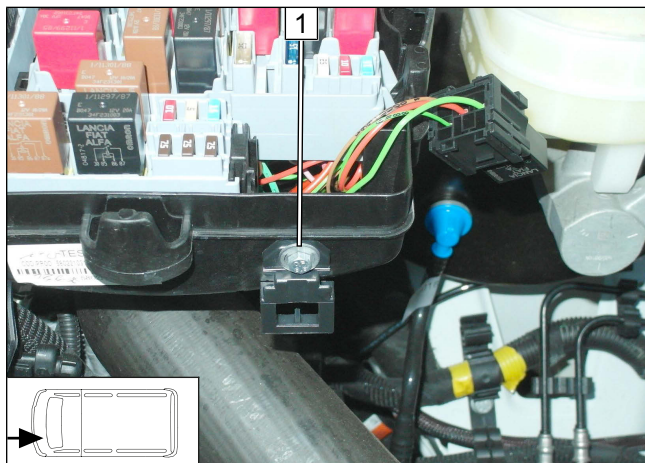


Fig. 6



Danger of damage to the electrical components

► When drilling, be careful of components located behind.

► Drill a $\varnothing 5.5$ hole at position **1**.

- 1** M5x16 bolt, large diameter washer, SH2 socket, hole, large diameter washer, nut



Fig. 7

- 1** SH2 with fuse F1 and F2

Mounting earth wire

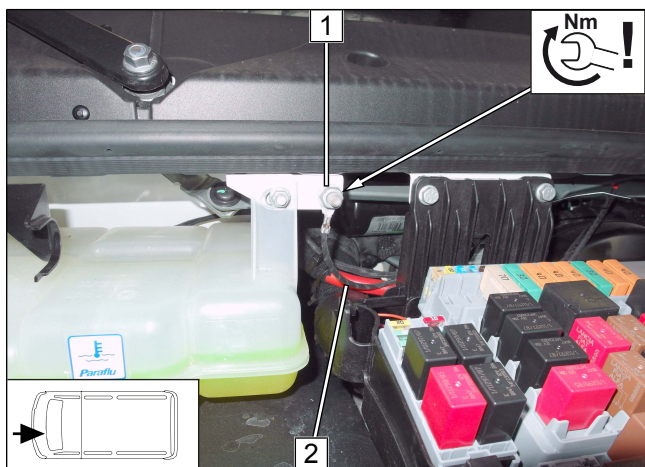


Fig. 8



DANGER

Observe tightening torque

- 1** Original vehicle earth support point
- 2** Earth wire



Mounting positive wire

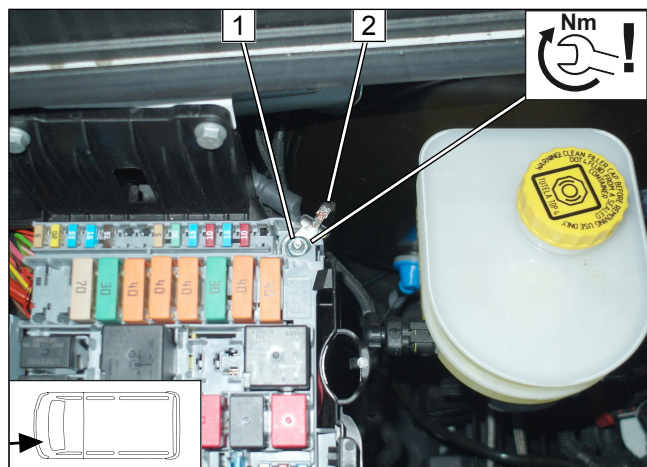


Fig. 9



DANGER

Observe tightening torque



Vehicles without a living room battery

- 1 Original vehicle positive support point
- 2 Positive wire



Vehicles with a living room battery

Route positive wire to installation location of living room battery (extend it in accordance with state-of-the-art-technology if necessary) and mount.

Routing wiring harnesses

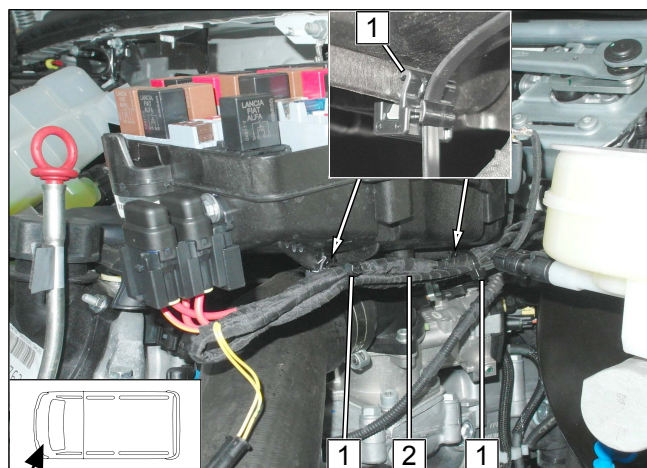


Fig. 10

- 1 Edge clip cable tie
- 2 Heater, control element, passenger compartment wiring harnesses

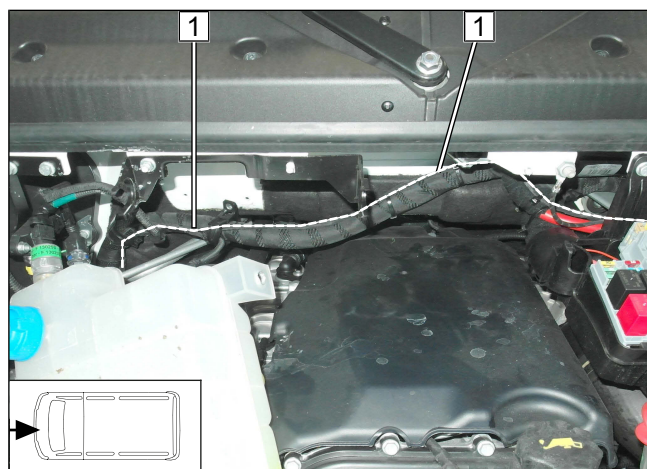


Fig. 11

► Route HG wiring harness 1 to HG installation location.

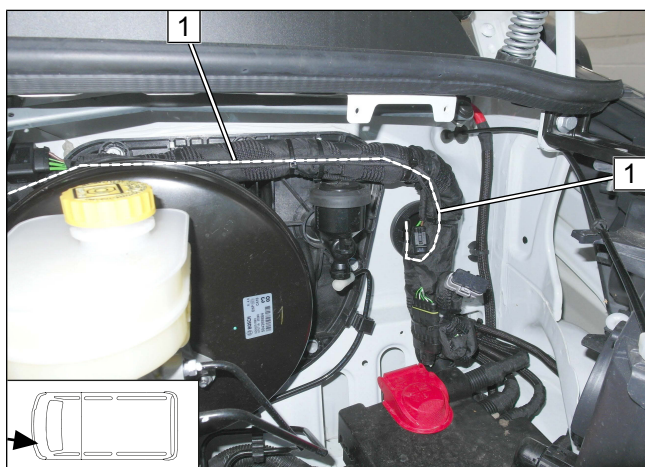


Fig. 12

► Route control element and passenger compartment wiring harnesses **1** to pass through.

Passenger compartment wiring harness pass through

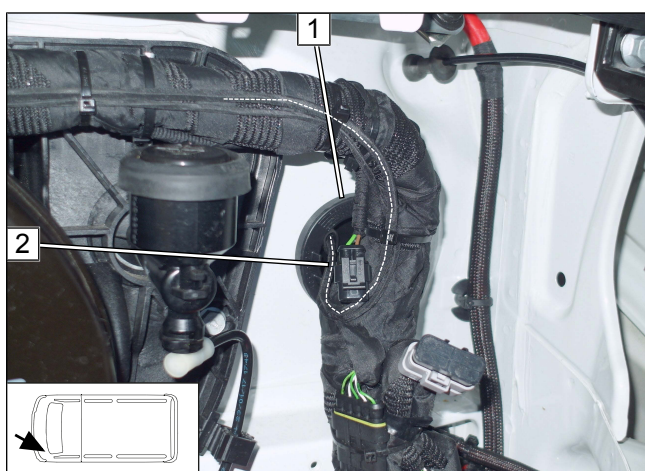


Fig. 13

- 1** Protective rubber plug
- 2** Control element and passenger compartment wiring harnesses



8 Mechanical system

8.1 Preparing installation location

Copying hole pattern

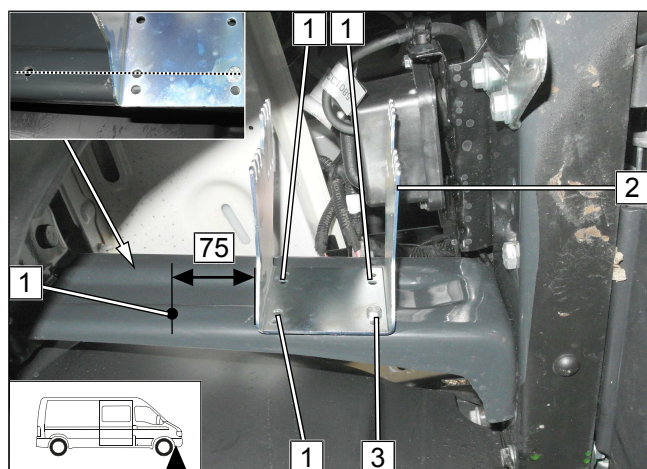


Fig. 14

► Align heater bracket **2** parallel with console as shown.

- 1** Hole pattern
- 3** M6x20 bolt, bracket, original vehicle hole, flanged nut

Drilling holes

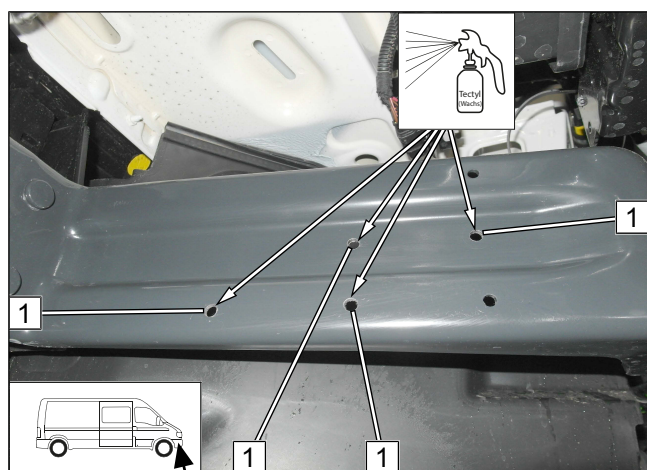


Fig. 15

- 1** Ø7 hole

Preparing heater bracket

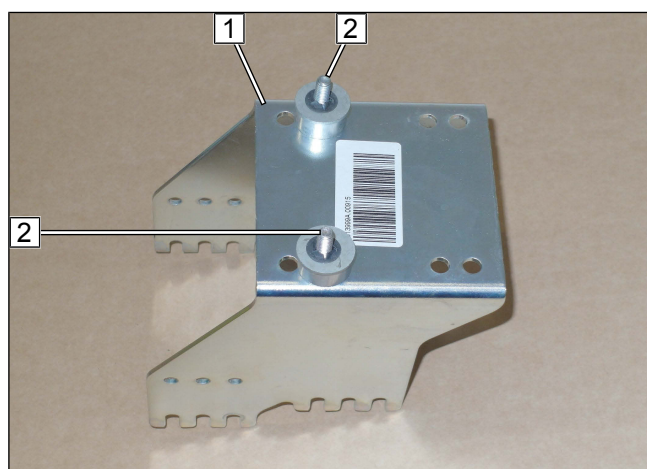


Fig. 16

- 1** Heater bracket
- 2** M6x30 bolt, 10mm spacer, large diameter washer, lock washer



Mounting heater bracket

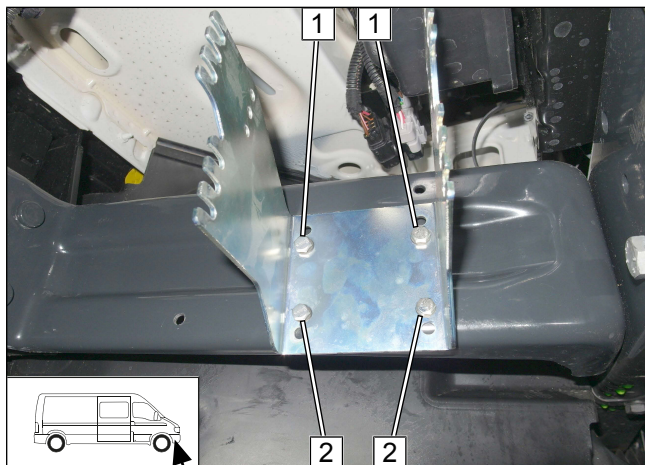


Fig. 17

- 1 Premounted bolt, flanged nut
- 2 M6x20 bolt, flanged nut

Mounting rubber-coated p-clamp

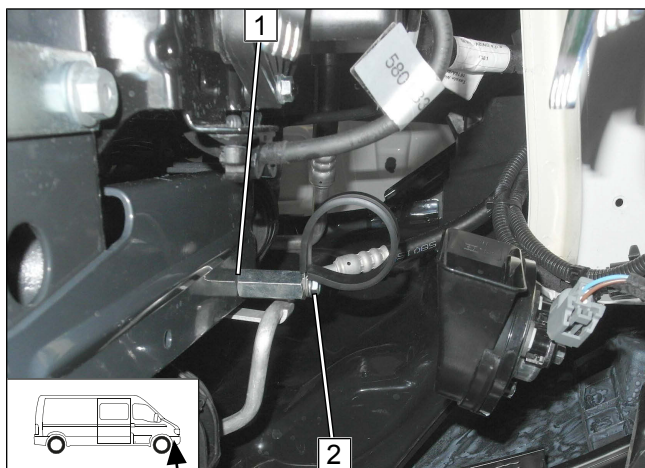


Fig. 18

- 1 M6x16 bolt with serrated flange, original vehicle hole, M6x40 spacer nut
- 2 M6x16 bolt with serrated flange, Ø48 rubber-coated p-clamp, M6x40 spacer nut

8.2 Preparing heater

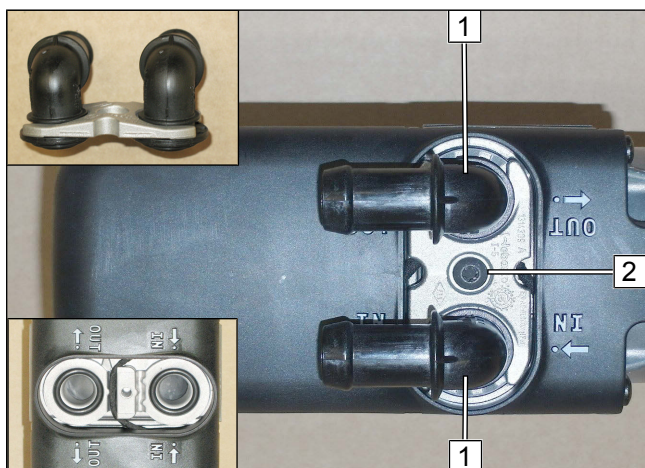


Fig. 19



Observe the general installation instructions of the heater.

- 1 Water connection piece, sealing ring
- 2 5x15 self-tapping bolt, water connection piece retaining plate



Premounting heater bolts

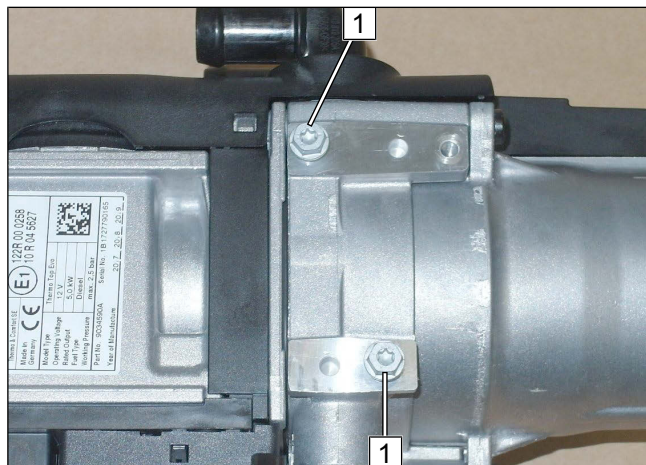


Fig. 20

- ▶ Screw 5x13 self-tapping bolt **1** in available hole by a max. of 3 thread turns.

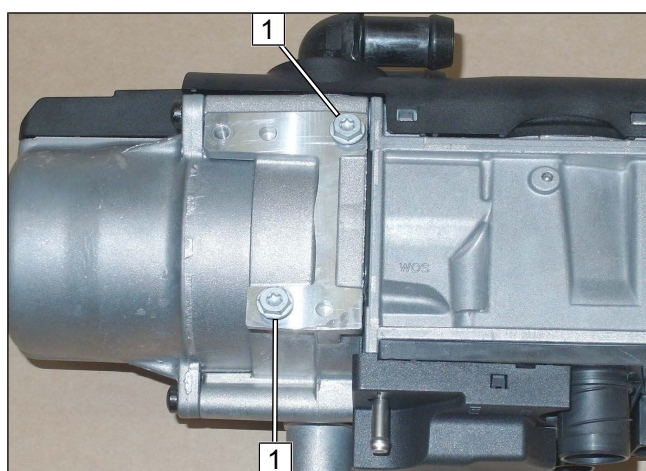


Fig. 21

- ▶ Screw 5x13 self-tapping bolt **1** in available hole by a max. of 3 thread turns.

8.2.1 Premounting coolant hoses 2.3D

Cutting hoses to length

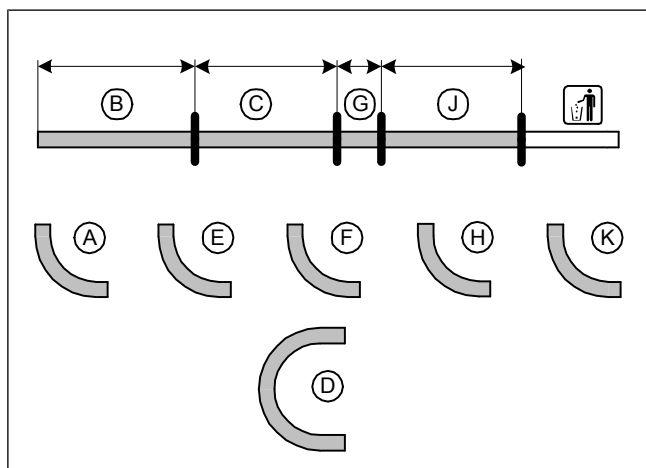


Fig. 22

(A)	90°
(B)	630
(C)	790
(D)	180°
(E)	90°
(F)	90°
(G)	140
(H)	90°
(J)	780
(K)	90°



Preparing coolant pump

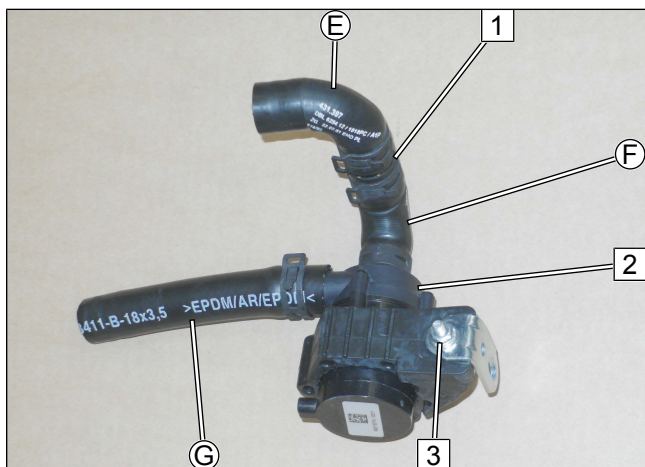


Fig. 23

All spring clips Ø25

- 1 Ø18x18 connecting pipe
- 2 Coolant pump
- 3 M6x25 bolt, coolant pump mount, angle bracket, flanged nut

Premounting thermostat

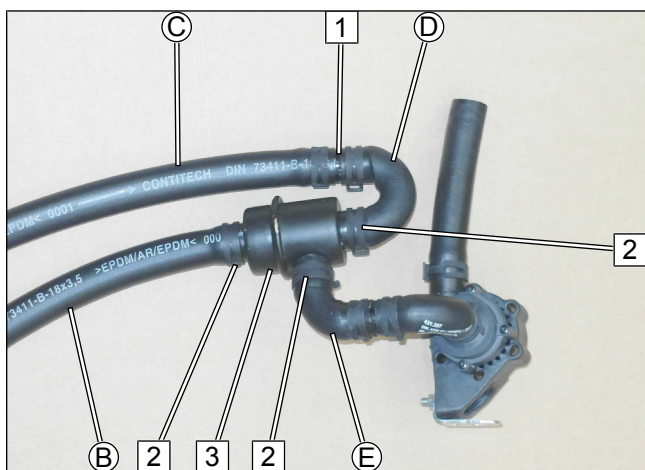


Fig. 24

All spring clips without a specific designation Ø25

- 1 Ø18x18 connecting pipe
- 2 Ø27 spring clip
- 3 Thermostat

Premounting hoses (J) and (H)

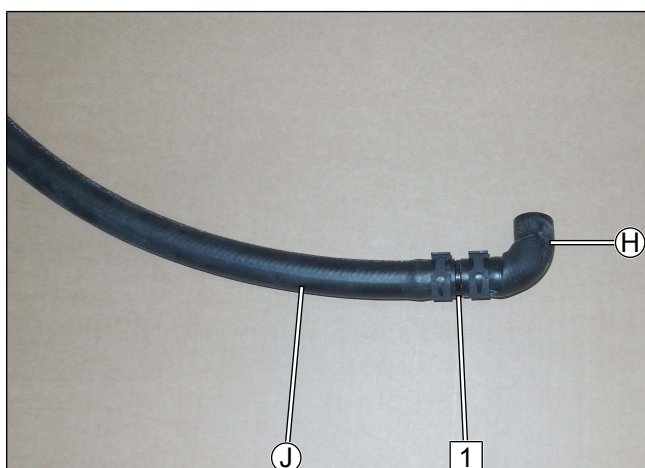


Fig. 25

All spring clips Ø25

- 1 Ø18x18 connecting pipe



Mounting hoses

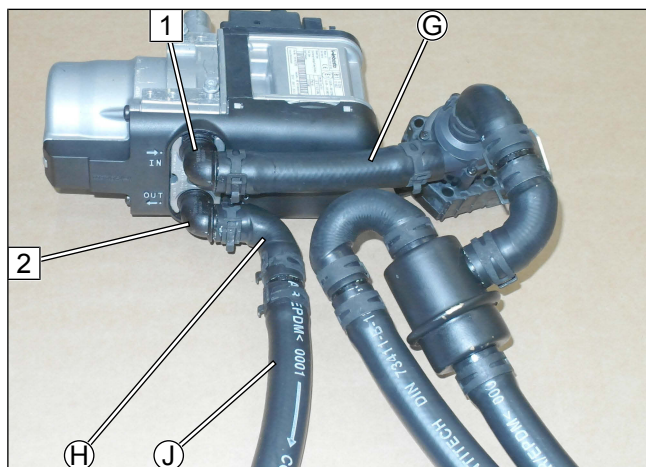


Fig. 26

All spring clips Ø25

- 1 HG/IN
- 2 Heater/OUT

8.2.2 Premounting coolant hoses 3.0D

Cutting hoses to length

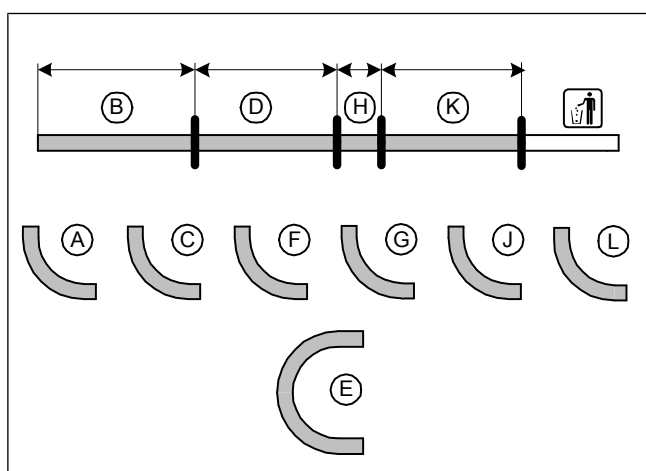


Fig. 27

A	90°
B	510
C	90°
D	670
E	180°
F	90°
G	90°
H	140
J	90°
K	650
L	90°

Preparing coolant pump

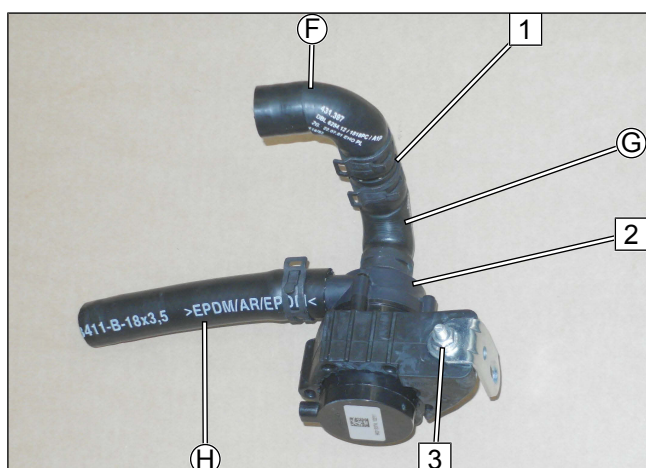


Fig. 28

All spring clips Ø25

- 1 Ø18x18 connecting pipe
- 2 Coolant pump
- 3 M6x25 bolt, coolant pump mount, angle bracket, flanged nut



Premounting thermostat

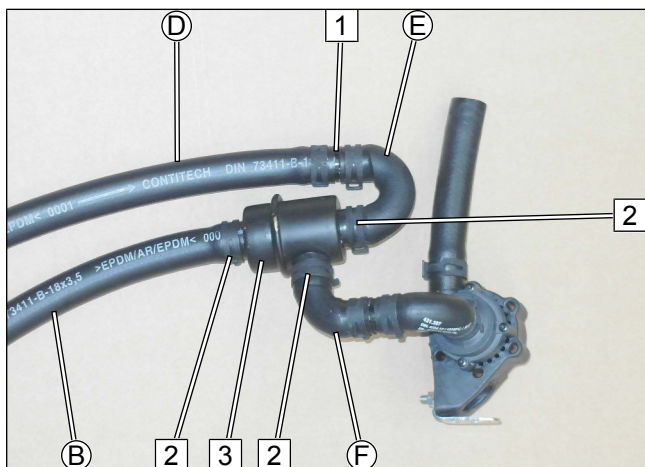


Fig. 29



All spring clips without a specific designation
Ø25

- 1 Ø18x18 connecting pipe
- 2 Ø27 spring clip
- 3 Thermostat

Premounting hoses (K) and (J)

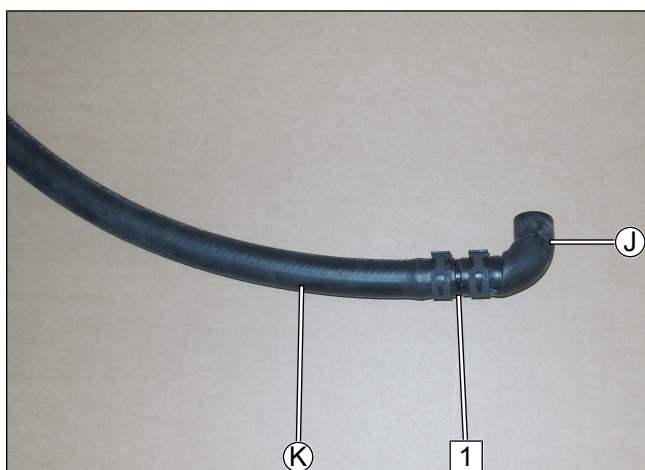


Fig. 30



All spring clips Ø25

- 1 Ø18x18 connecting pipe

Mounting hoses

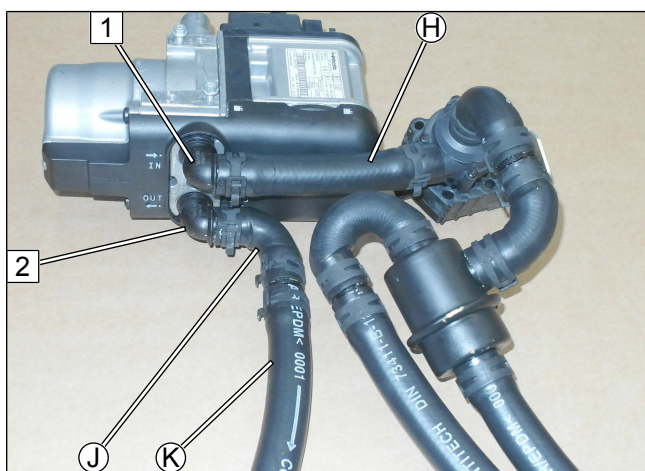


Fig. 31



All spring clips Ø25

- 1 HG/IN
- 2 Heater/OUT



8.3 Heater installation

Mounting heater

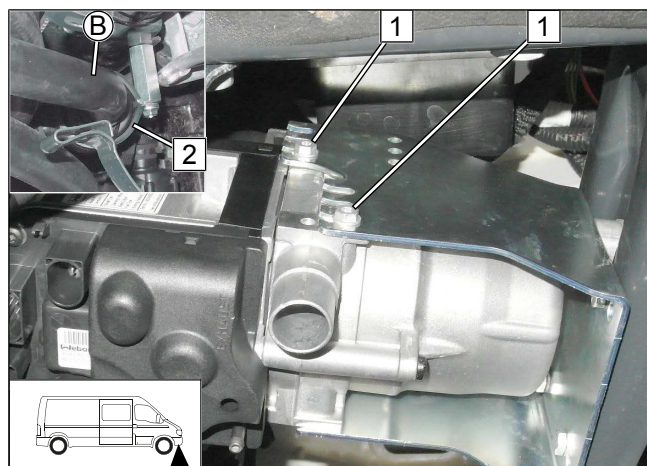


Fig. 32

► Draw hose **B** through rubber-coated p-clamp **2**.

1 Tighten 5x13 self-tapping bolt

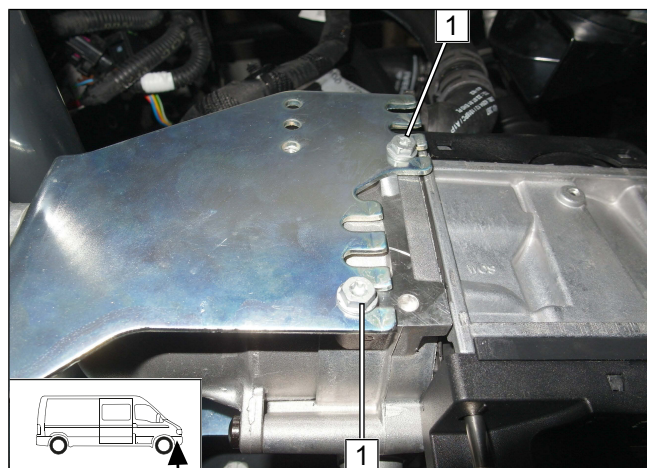


Fig. 33

1 Tighten 5x13 self-tapping bolt

Mounting heater and coolant pump wiring harnesses

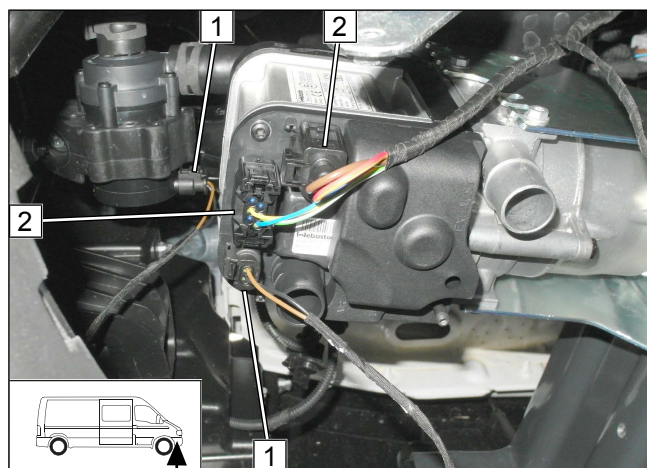


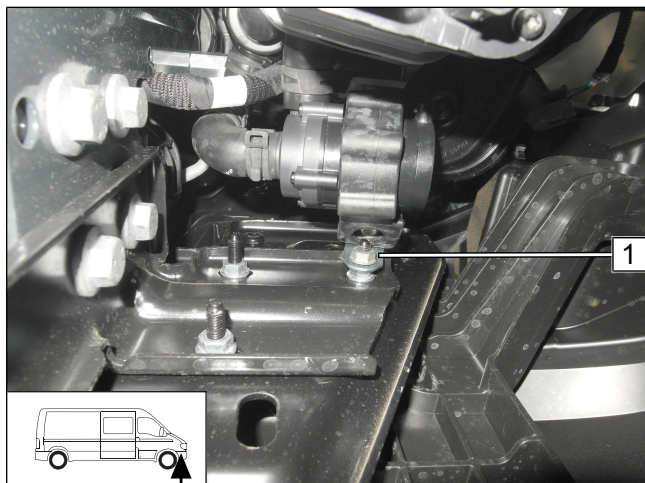
Fig. 34

1 Coolant pump wiring harness connector

2 Heater wiring harness connector



Fastening coolant pump



- 1 Original vehicle stud bolt, angle bracket, flanged nut

Fig. 35



9 Fuel



DANGER

Risk of fire and explosion due to leaking fuel and escaping fuel vapours.

The incorrect installation of the fuel extractor can cause damage and fire.

- ▶ Avoid electrostatic discharges and open fire
- ▶ When working on the fuel system, ensure sufficient ventilation and bleeding
- ▶ Open the fuel tank cap of the vehicle
- ▶ Ventilate the fuel tank
- ▶ Re-close the tank lock
- ▶ Catch any fuel running off with an appropriate container



Danger of damage to components

- ▶ Install fuel line and fuel pump wiring harness so that they are protected against stone impact
- ▶ Provide rub protection for fuel line and wiring harness in areas where there are sharp edges

Dismantling fuel pump connector X7

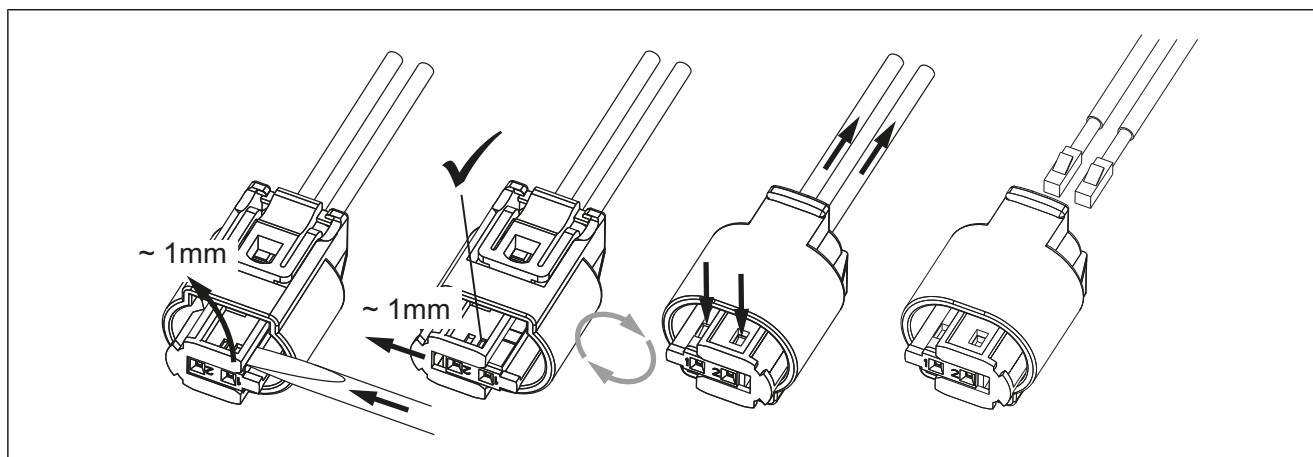


Fig. 36

9.1 Routing fuel line

Connection to heater

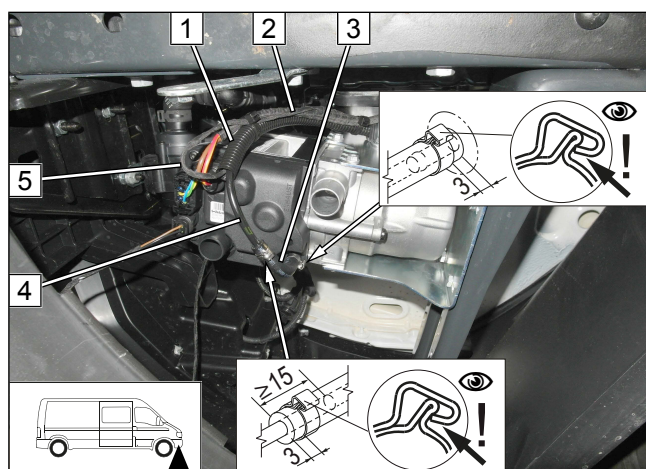


Fig. 37

- ▶ Draw fuel line **4** and fuel pump wiring harness **5** into Ø10 corrugated tube **1**.
- ▶ Fasten corrugated tube and HG wiring harness **2** with cable ties.
 - 3** 90° moulded hose, Ø10 clamp [2x]



Securing corrugated tube

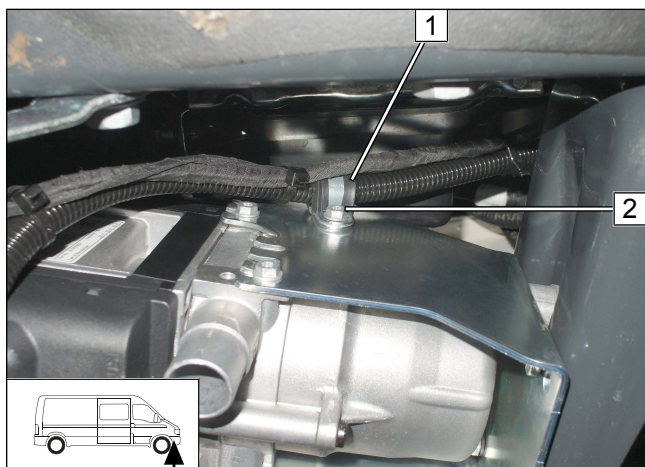


Fig. 38

- 1 Ø15 rubber-coated p-clamp
- 2 5x13 self-tapping bolt

Routing in engine compartment

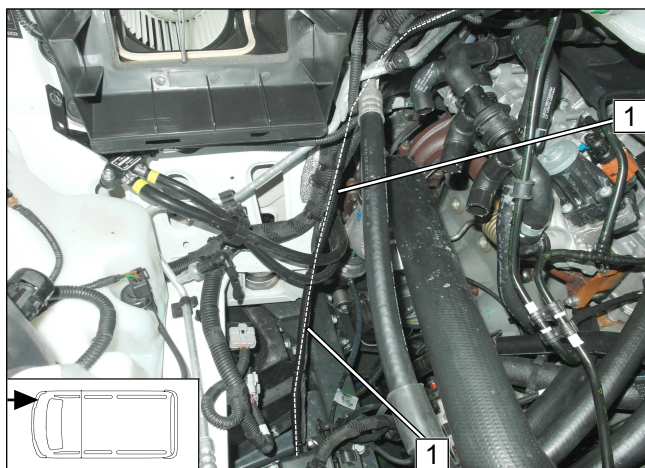


Fig. 39

- Route corrugated tube 1 along original vehicle lines and attach.

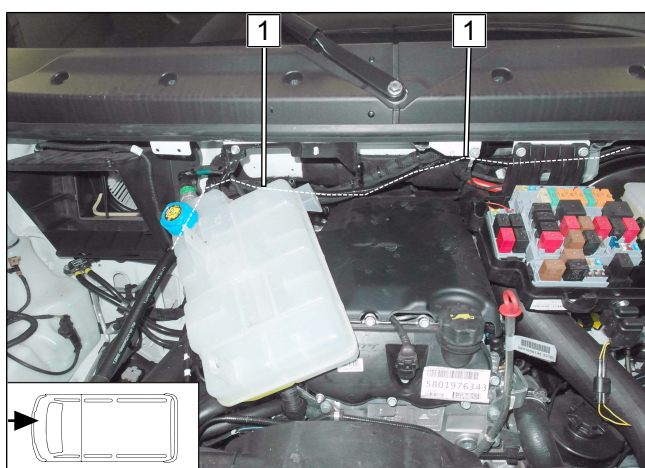


Fig. 40

- Route corrugated tube 1 along original vehicle lines and attach.

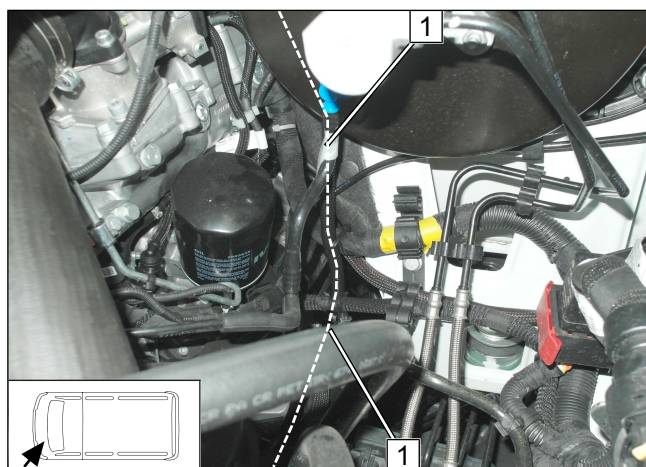


Fig. 41

- ▶ Route corrugated tube **1** to underbody and attach to original vehicle lines.

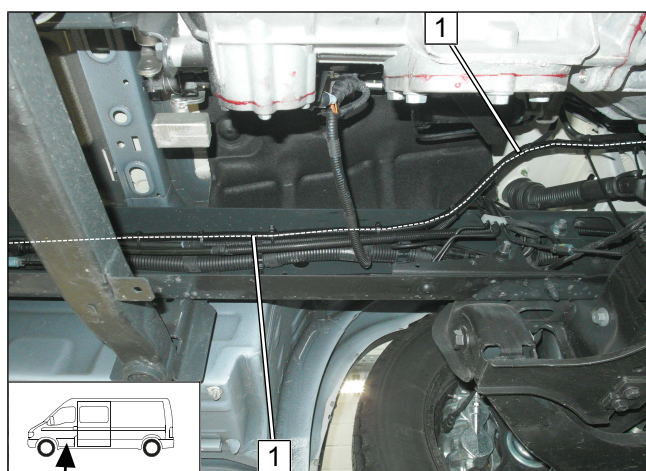


Fig. 42

- ▶ Route corrugated tube **1** to fuel pump installation location and fasten to original vehicle lines.

Mounting fuel pump

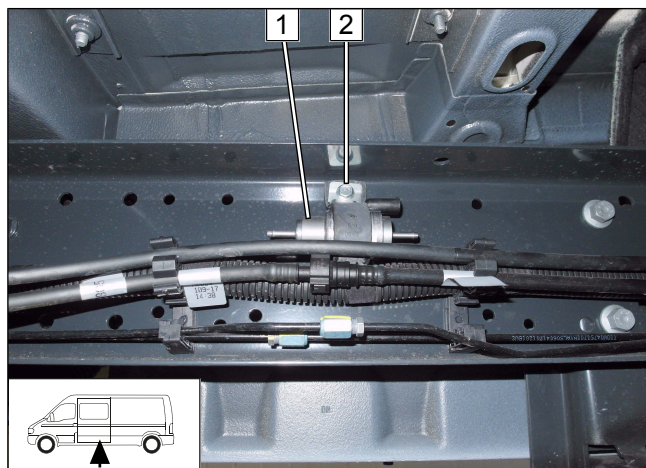


Fig. 43

- 1** Fuel pump
- 2** M6x25 bolt, support angle bracket, fuel pump mount, original vehicle hole, flanged nut



Assembling fuel pump connector X7

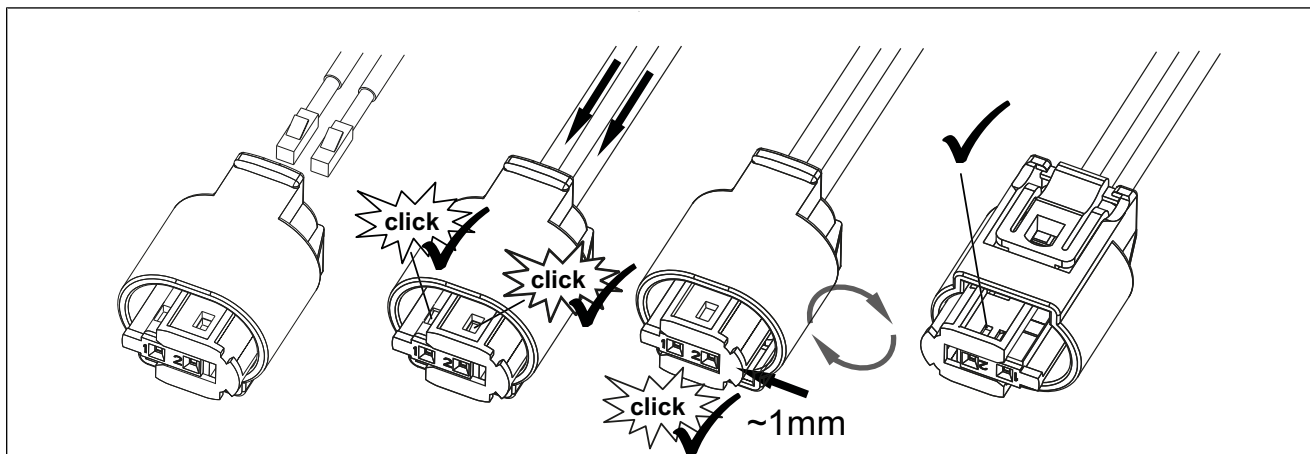
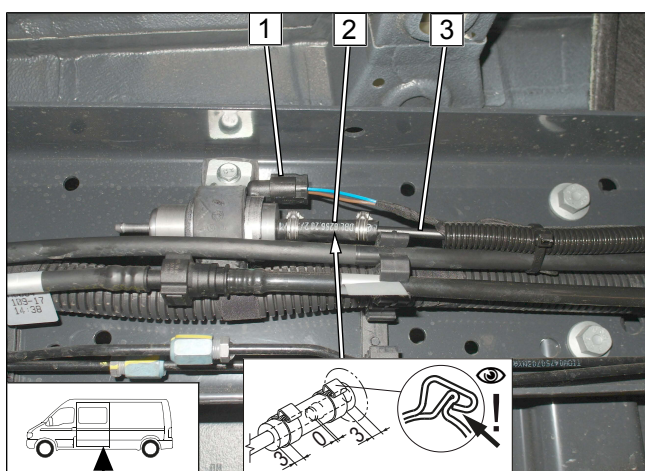


Fig. 44

Fuel pump connection



- 1 Fuel pump wiring harness, connector X7 mounted
- 2 Hose section, Ø10 clamp [2x]
- 3 Heater fuel line

Fig. 45

9.2 Installing tank extracting device

Drilling Ø6 hole

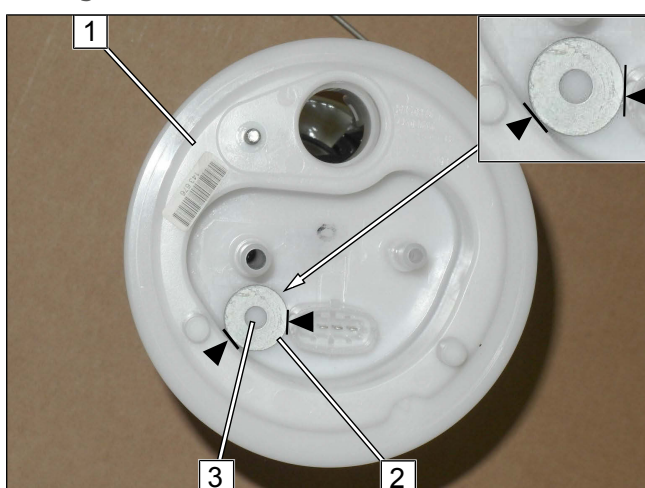



Fig. 46

 Further information can be found in the vehicle manufacturer's technical documentation.

► Remove tank and tank fitting **1**.

- 2 Large diameter washer, outer $\text{Ø } d_a = \text{Ø}22$
- 3 Copy hole pattern, Ø6 hole



Mounting tank extracting device

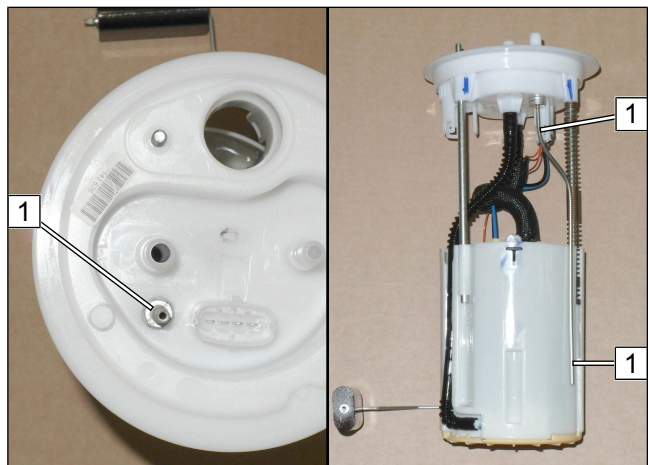


Fig. 47



Observe the installation instructions of the tank extracting device.

- Bend tank extracting device **1** according to template and cut to length.

Connecting tank extracting device

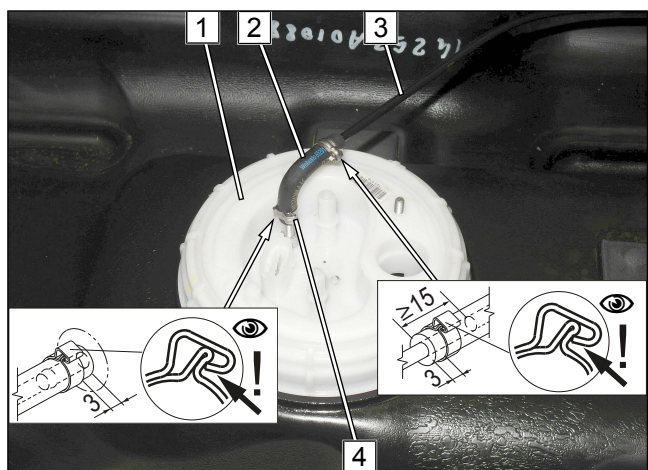


Fig. 48



Further information can be found in the vehicle manufacturer's technical documentation.

- Install tank fitting **1**.
- 2** Moulded hose, Ø10 clamp
- 3** Fuel line
- 4** Ø9 clamp

Routing and fastening fuel line of tank extracting device



Fig. 49

- 1** Fuel line of tank extracting device

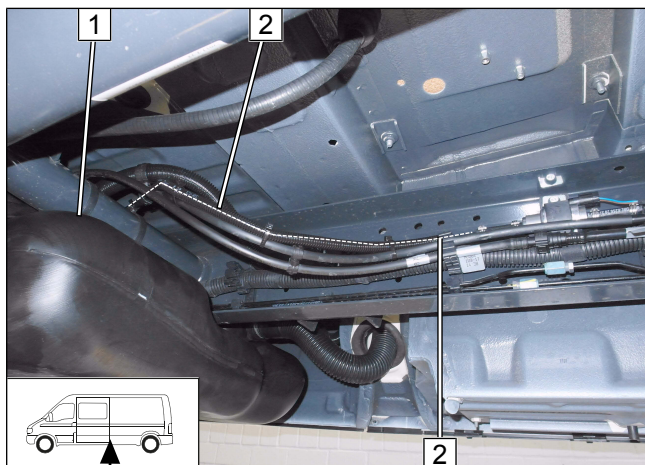


Fig. 50



Further information can be found in the vehicle manufacturer's technical documentation.

► Install tank **1**.

2 Fuel line in corrugated tube

9.3 Fuel pump connection

Connecting and fastening fuel line of tank extracting device

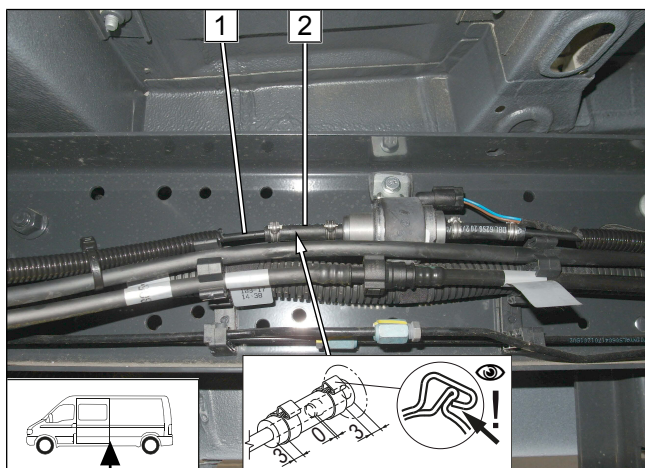


Fig. 51

1 Fuel line of tank extracting device

2 Hose section, Ø10 clamp [2x]



10 Coolant of 2.3D

10.1 Hose routing diagram

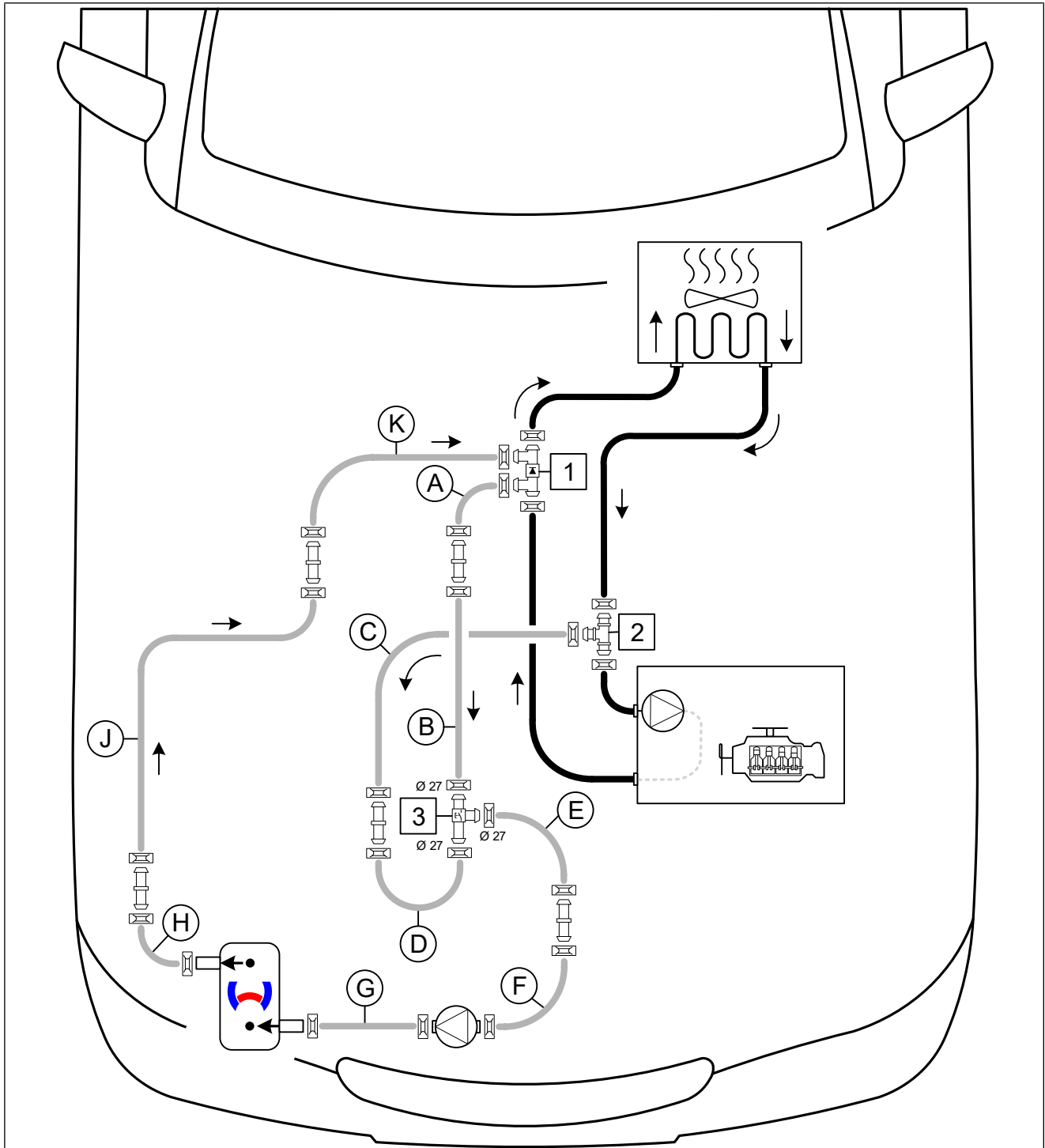


Fig. 52

All spring clips without a specific designation  = $\varnothing 25$

All connecting pipes  = $\varnothing 18 \times 18$

1 Non-return valve, **2** T-piece, **3** Thermostat



10.2 Coolant circuit installation

Cutting points

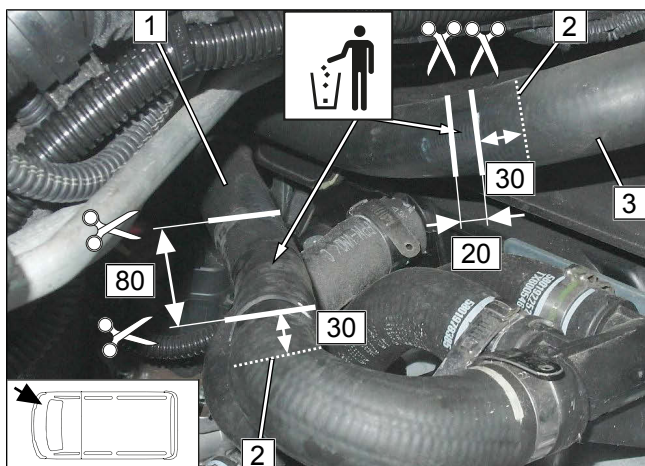


Fig. 53



Set the cutting point after the end of hose elbow **2** as shown.

- 1** Engine outlet / heat exchanger inlet hose
- 3** Heat exchanger outlet / engine inlet hose

Routing hose



Fig. 54

Connecting hose

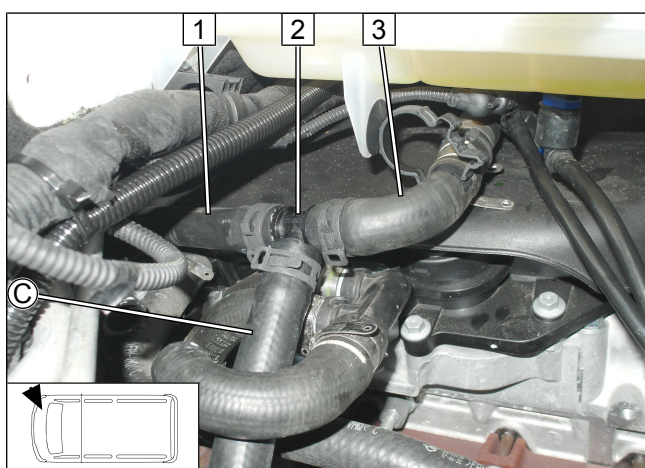


Fig. 55

- 1** Heat exchanger outlet hose section
- 2** T piece
- 3** Engine inlet hose section



Premounting non-return valve

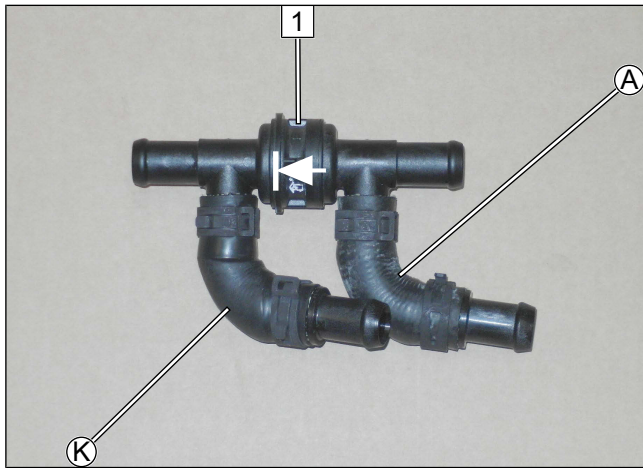


Fig. 56

- 1 Non-return valve

Mounting non-return valve

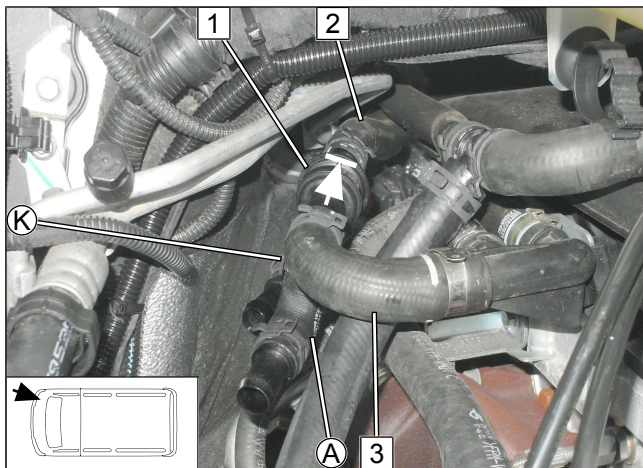


Fig. 57

- 1 Non-return valve
- 2 Heat exchanger inlet hose section
- 3 Engine outlet hose section

Routing hoses (B) and (J)

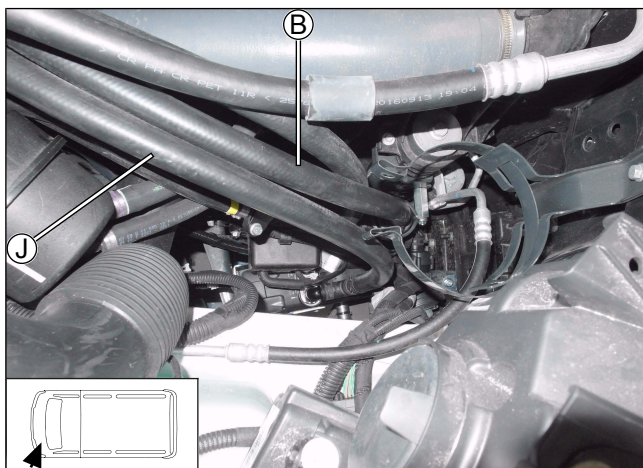


Fig. 58



Connecting hoses **B** and **J**

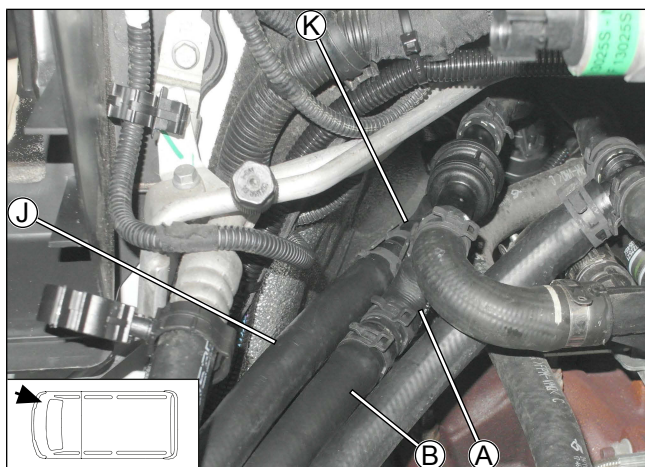


Fig. 59

Fixing hoses **B** and **J**

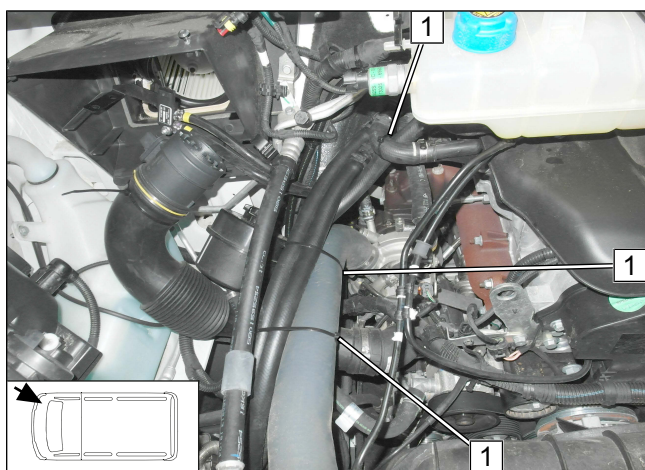


Fig. 60

1 Cable tie

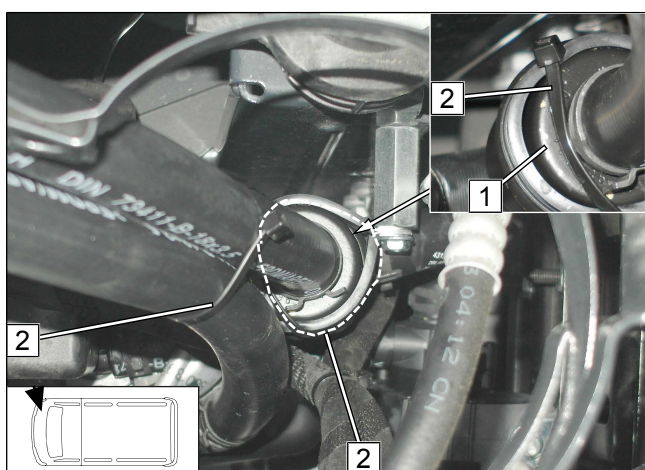


Fig. 61

► Secure thermostat **1** with cable tie **2** to prevent shifting.



Checking distance

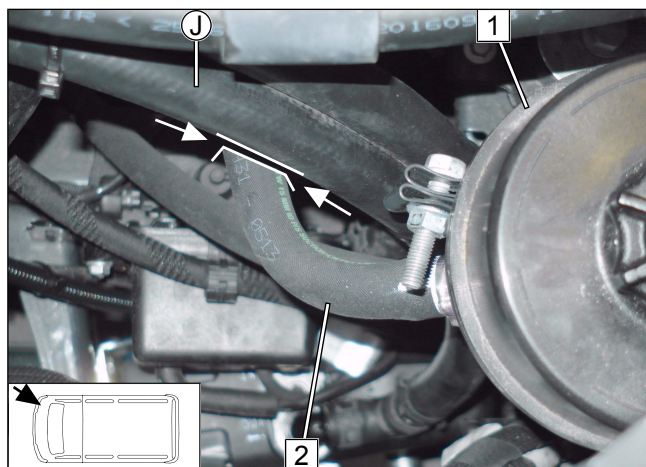


Fig. 62



Ensure sufficient distance from neighbouring components, correct if necessary.



► Mount servo container **1**.

2 Hydraulic hose

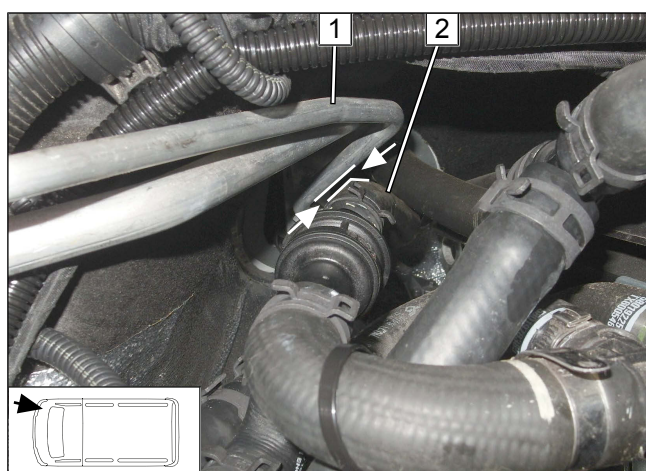


Fig. 63



Ensure sufficient distance from neighbouring components, correct if necessary.



1 Air-conditioning line

2 Heat exchanger inlet hose section



11 Coolant for 3.0 D vehicles

11.1 Hose routing diagram

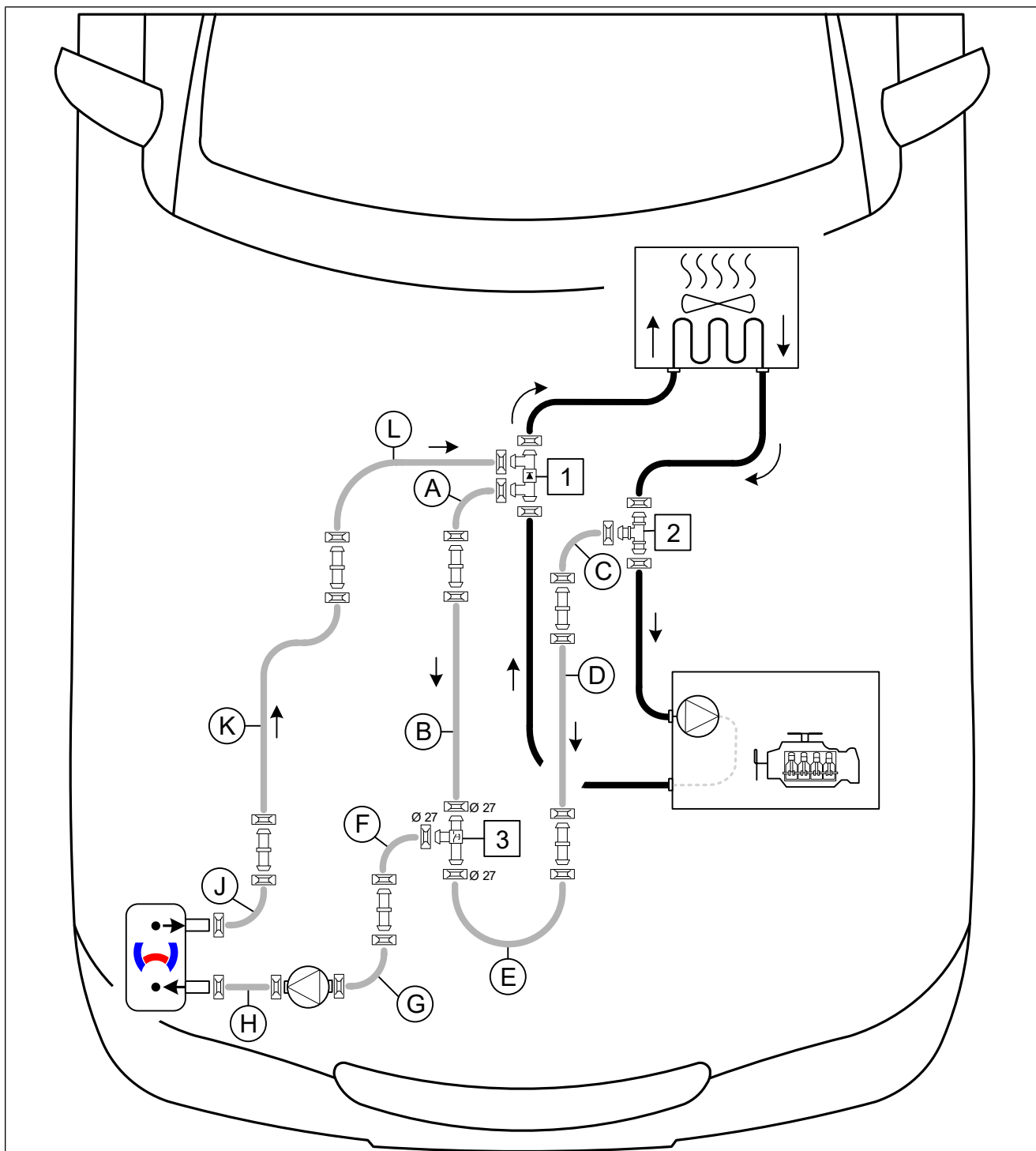


Fig. 64

All spring clips without a specific designation  = Ø25

All connecting pipes  = Ø18x18

1 Non-return valve, **2** T-piece, **3** Thermostat



11.2 Coolant circuit installation

Cutting points

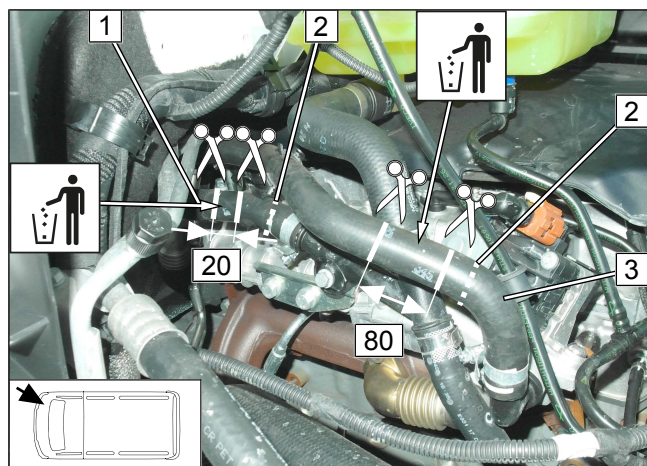


Fig. 65

Set the cutting point 30mm after the end of hose elbow **2** as shown.

- 1** Heat exchanger outlet / engine inlet hose
- 3** Engine outlet / heat exchanger inlet hose

Connecting hose **C**

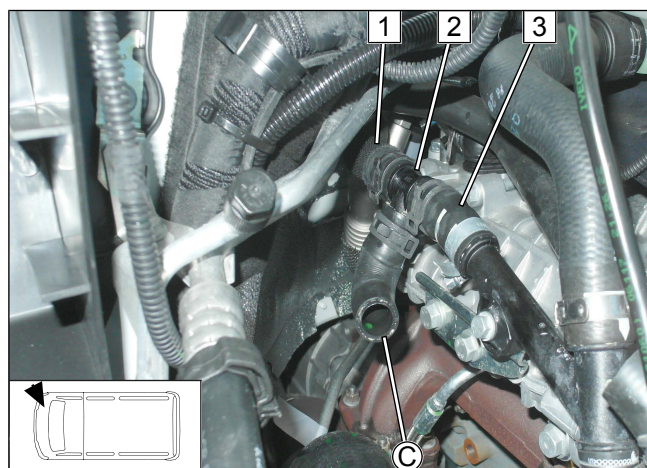


Fig. 66

- 1** Heat exchanger outlet hose section
- 2** T piece
- 3** Engine inlet hose section

Routing hose **D**

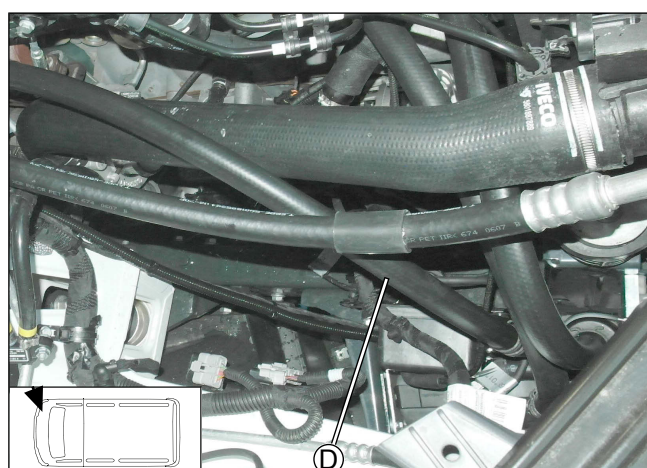


Fig. 67



Connecting hose **D**

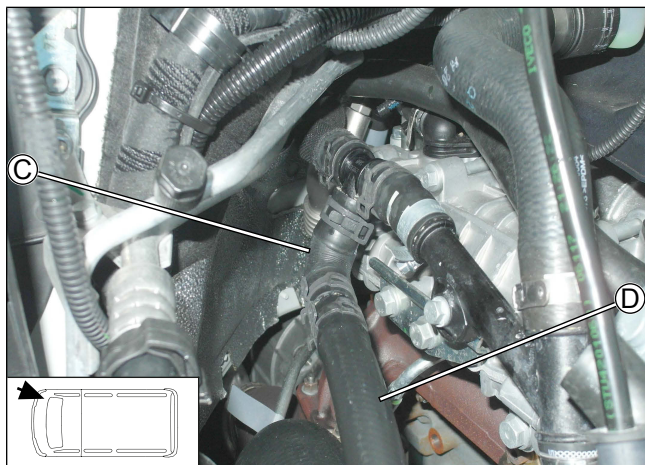


Fig. 68

Premounting non-return valve

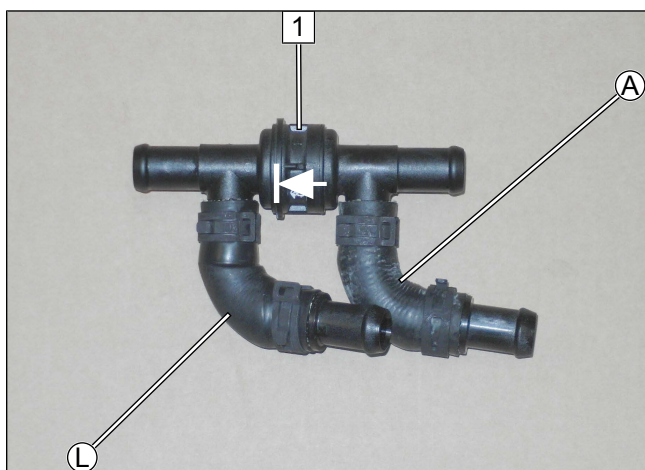


Fig. 69

- 1** Non-return valve

Mounting non-return valve

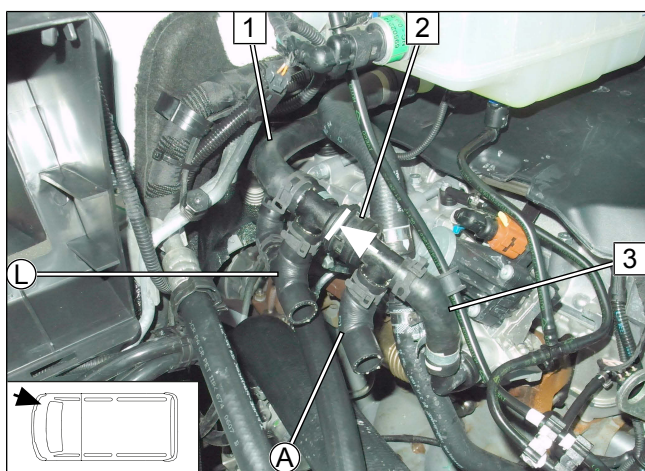


Fig. 70

- 1** Heat exchanger inlet hose section
- 2** Non-return valve
- 3** Engine outlet hose section



Connecting hoses **B** and **K**

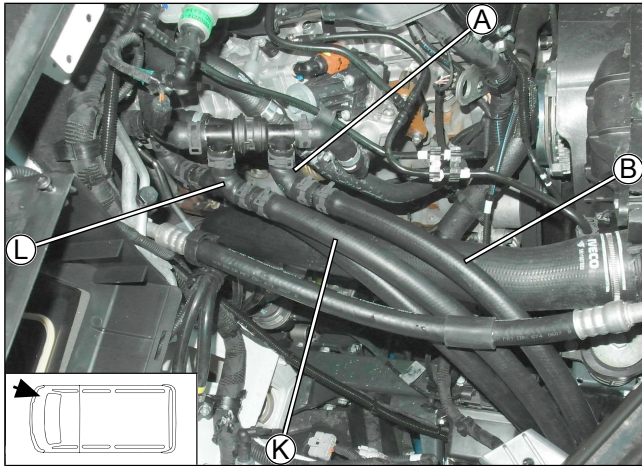


Fig. 71

Aligning and fastening hoses

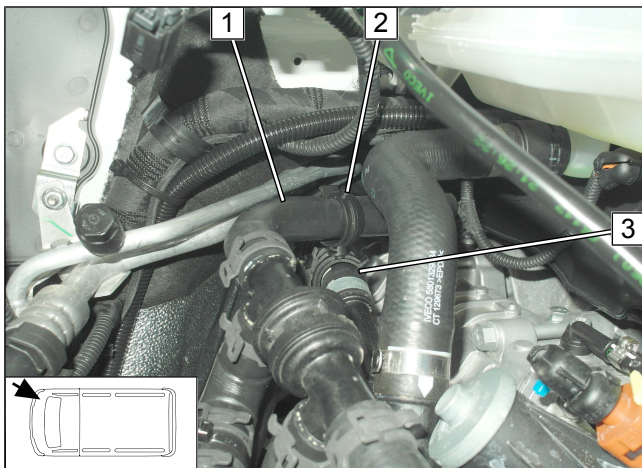


Fig. 72

- 1** Heat exchanger inlet hose section
- 2** Original vehicle hose bracket
- 3** Heat exchanger outlet hose section

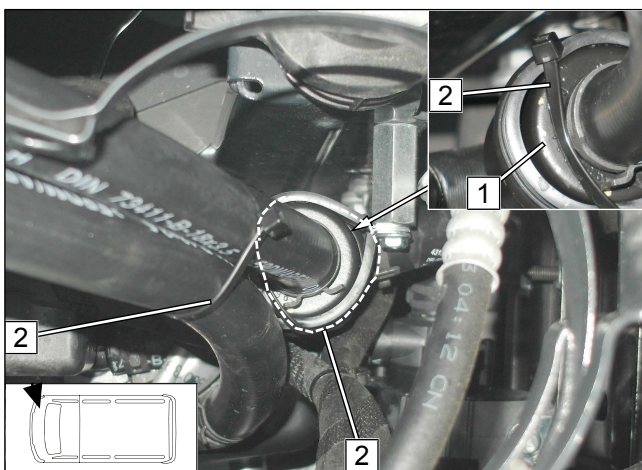


Fig. 73

- Secure thermostat **1** with cable tie **2** to prevent shifting.

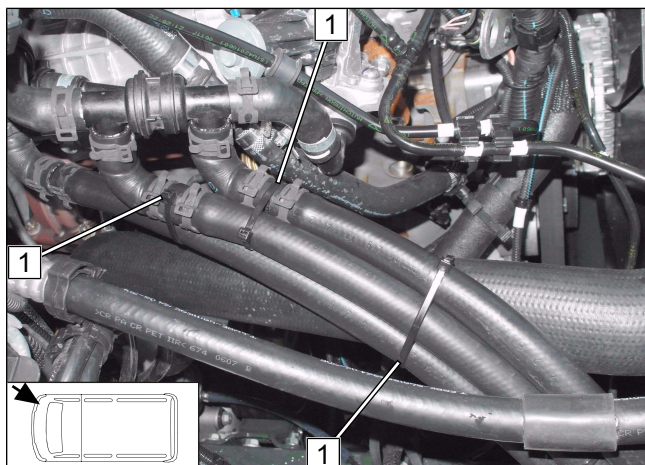


Fig. 74



Danger of damage to components

► Ensure sufficient distance from neighbouring components, correct if necessary.

1 Cable tie



12 Exhaust

Preparing exhaust pipe

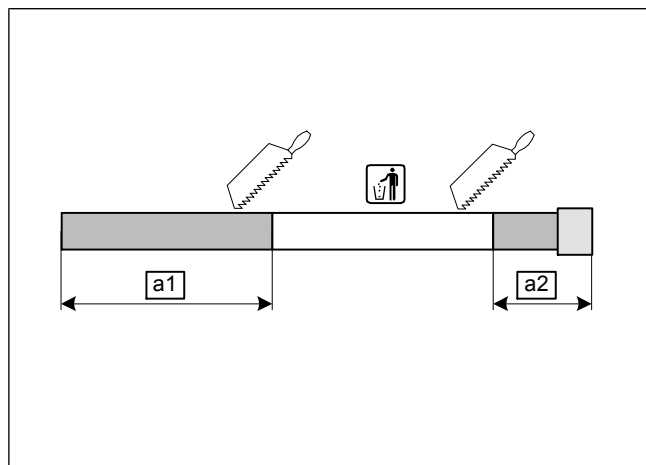


Fig. 75

a1 360

a2 70

Mounting exhaust silencer

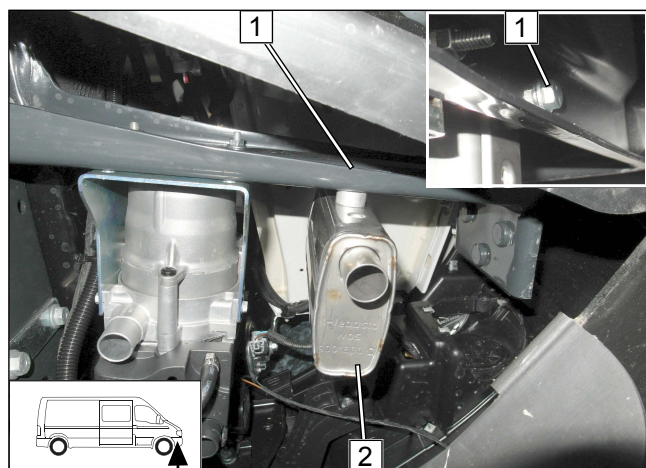


Fig. 76

1 M6x25 bolt with serrated flange, original vehicle hole, 10mm spacer

2 Exhaust silencer

Mounting exhaust pipe **a1**

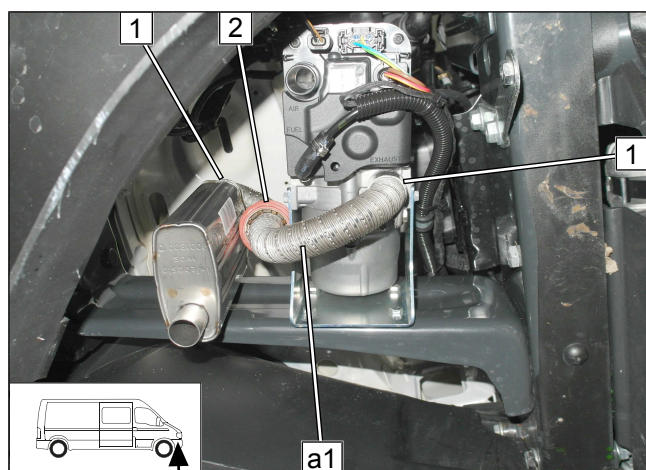


Fig. 77



Danger of damage to components

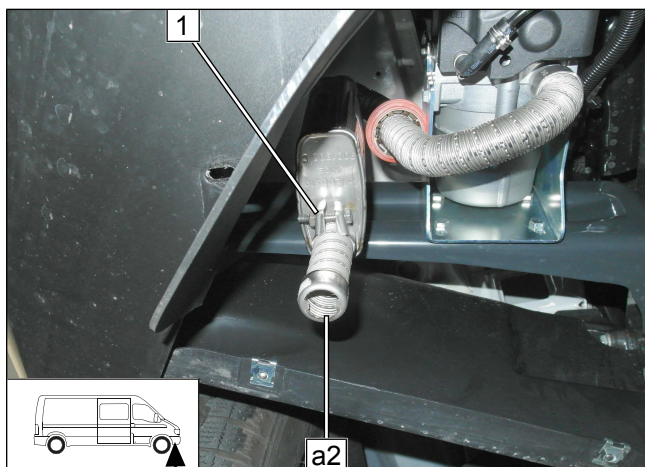
► Ensure sufficient distance between exhaust pipe **a1** and neighbouring components, correct if necessary.

1 Hose clamp

2 Position spacer



Mounting exhaust pipe **a2**



Danger of damage to components

► Ensure sufficient distance between exhaust pipe **a2** and neighbouring components, correct if necessary.

1 Hose clamp

Fig. 78



13 Combustion air

Cutting combustion air pipe **s1** to length

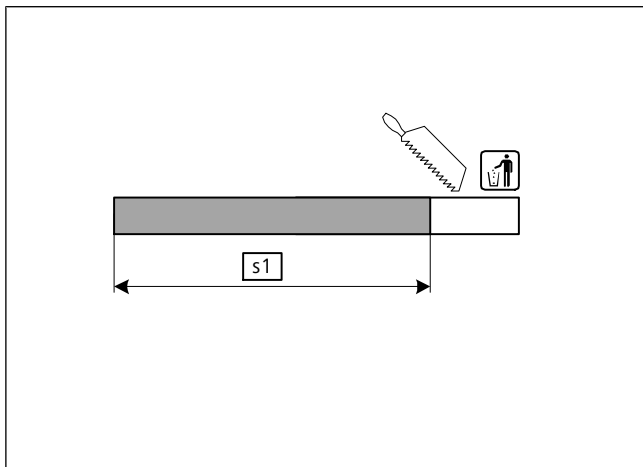


Fig. 79

s1 300

Mounting combustion air pipe **s1**

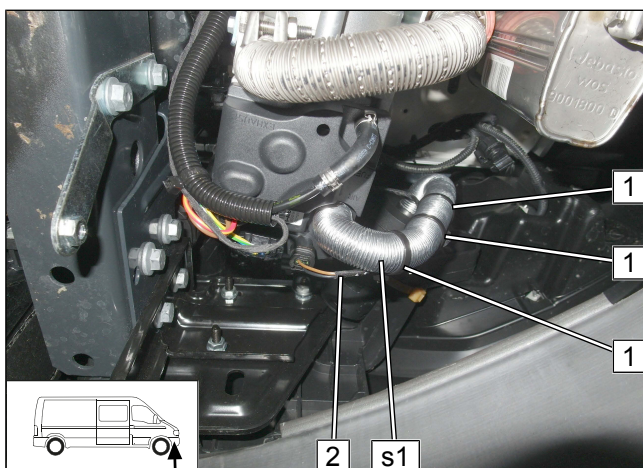


Fig. 80

- ▶ Fasten coolant pump wiring harness **2** with cable tie **1** to combustion air pipe **s1**.

Mounting combustion air intake silencer

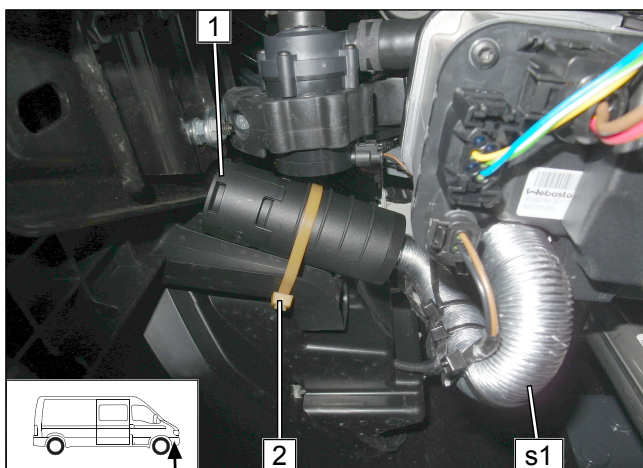



Fig. 81

 Observe the installation instructions of the combustion air intake silencer.

- ▶ Fasten combustion air intake silencer **1** with yellow cable tie **2** to original vehicle strut.



14 Final work in engine compartment

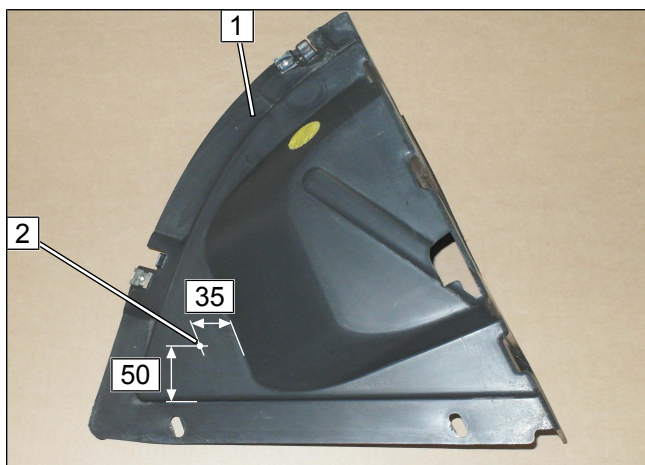


Fig. 82

- 1 Wheel well underside protection
- 2 Copy hole pattern, Ø60 hole

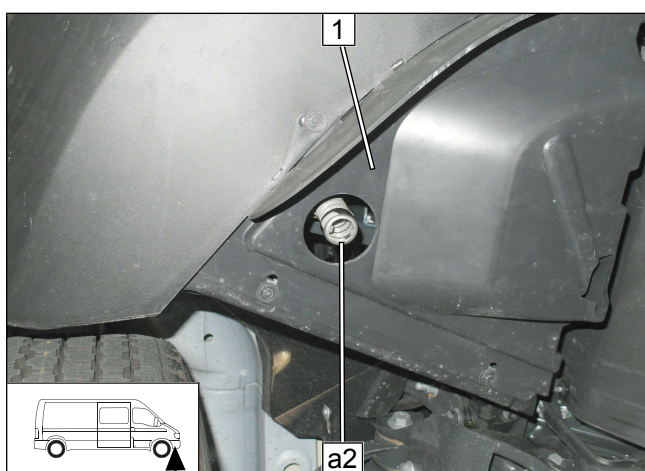


Fig. 83

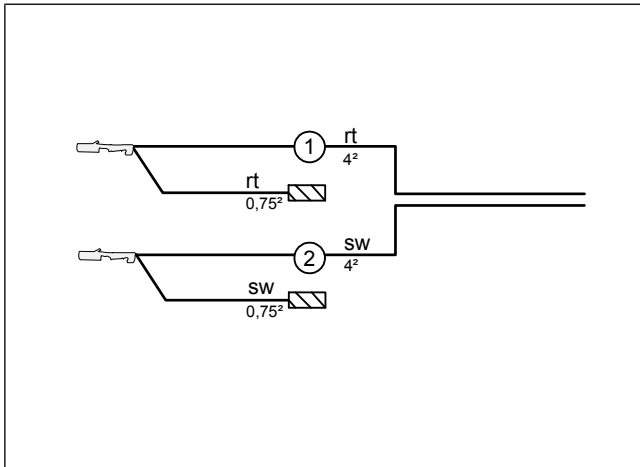
- Mount wheel well underside protection 1. Align exhaust pipe a2.



15 Electrical system of passenger compartment

15.1 Electrical system preparation

Assigning wires



Wire sections retain their numbering in the entire document.

- ① Red (rt) wire of fan wiring harness
- ② Black (sw) wire of fan wiring harness

Fig. 84

Connecting wires to RSH

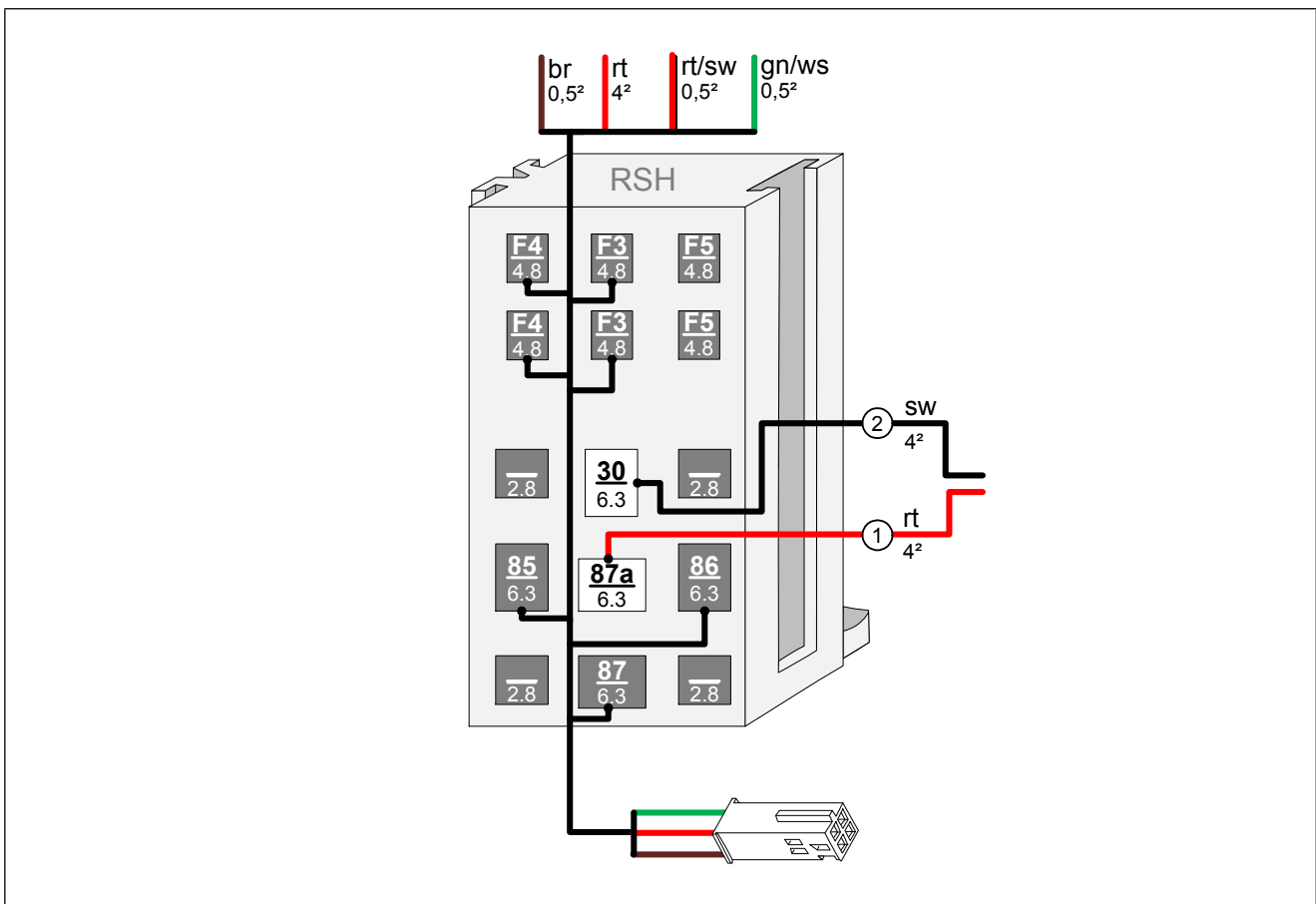


Fig. 85



Premounting RSH

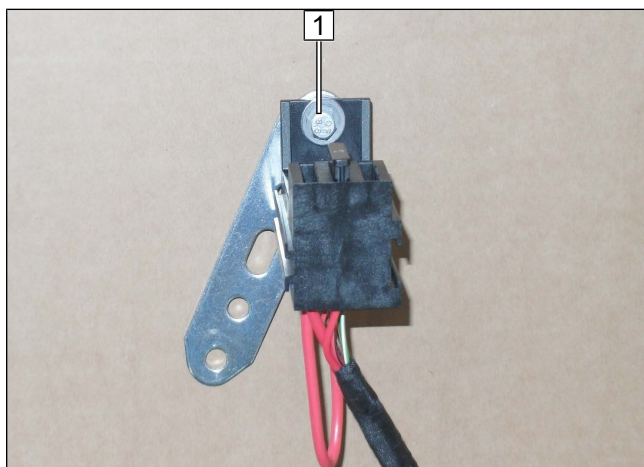


Fig. 86

- 1 M5x16 bolt, large diameter washer, RSH, perforated bracket, large diameter washer, nut

Preparing RSH installation

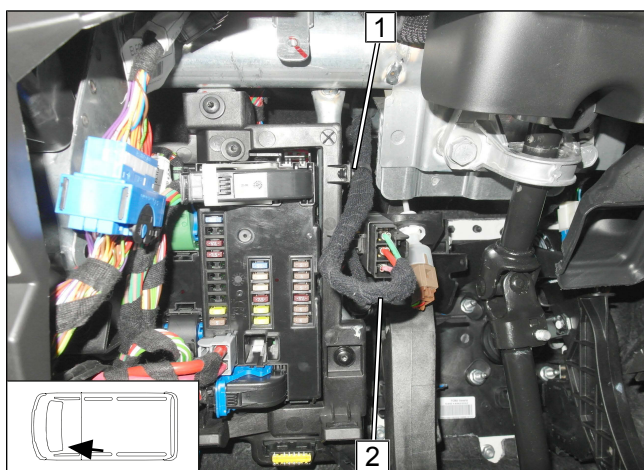


Fig. 87

- Disengage original vehicle wiring harness 2 at position 1.

Mounting RSH

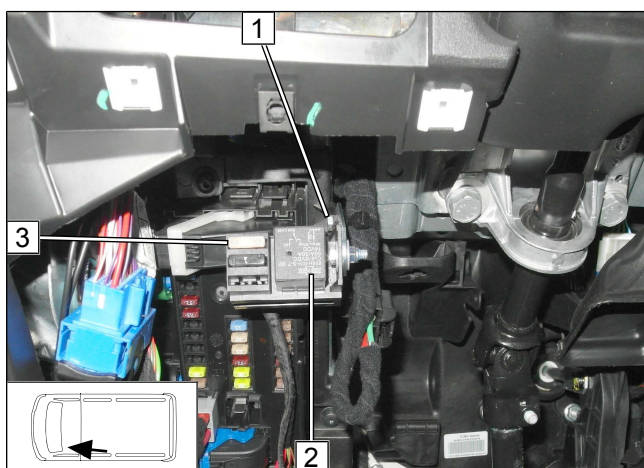


Fig. 88

- Fasten original vehicle wiring harness to perforated bracket using a cable tie.
- 1 M6x20 bolt, perforated bracket, original vehicle tab, flanged nut
- 2 Relay K1
- 3 25A fuse F4 (manual air-conditioning), 5A fuse F4 (automatic air-conditioning)



Connecting same colour wires of wiring harnesses

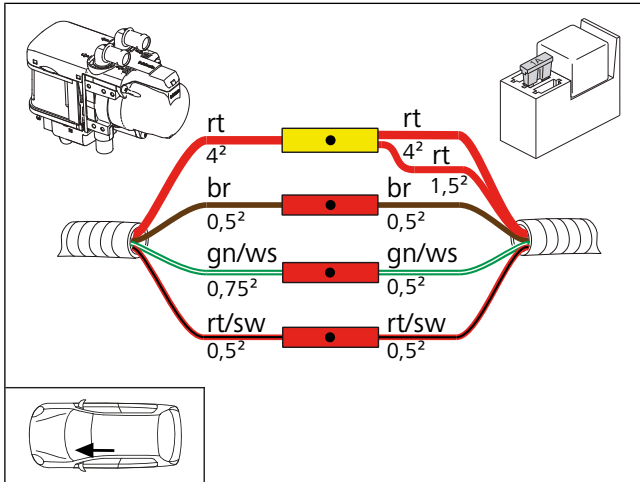


Fig. 89



15.2 Manual air conditioning

15.2.1 System wiring diagram for manual air-conditioning

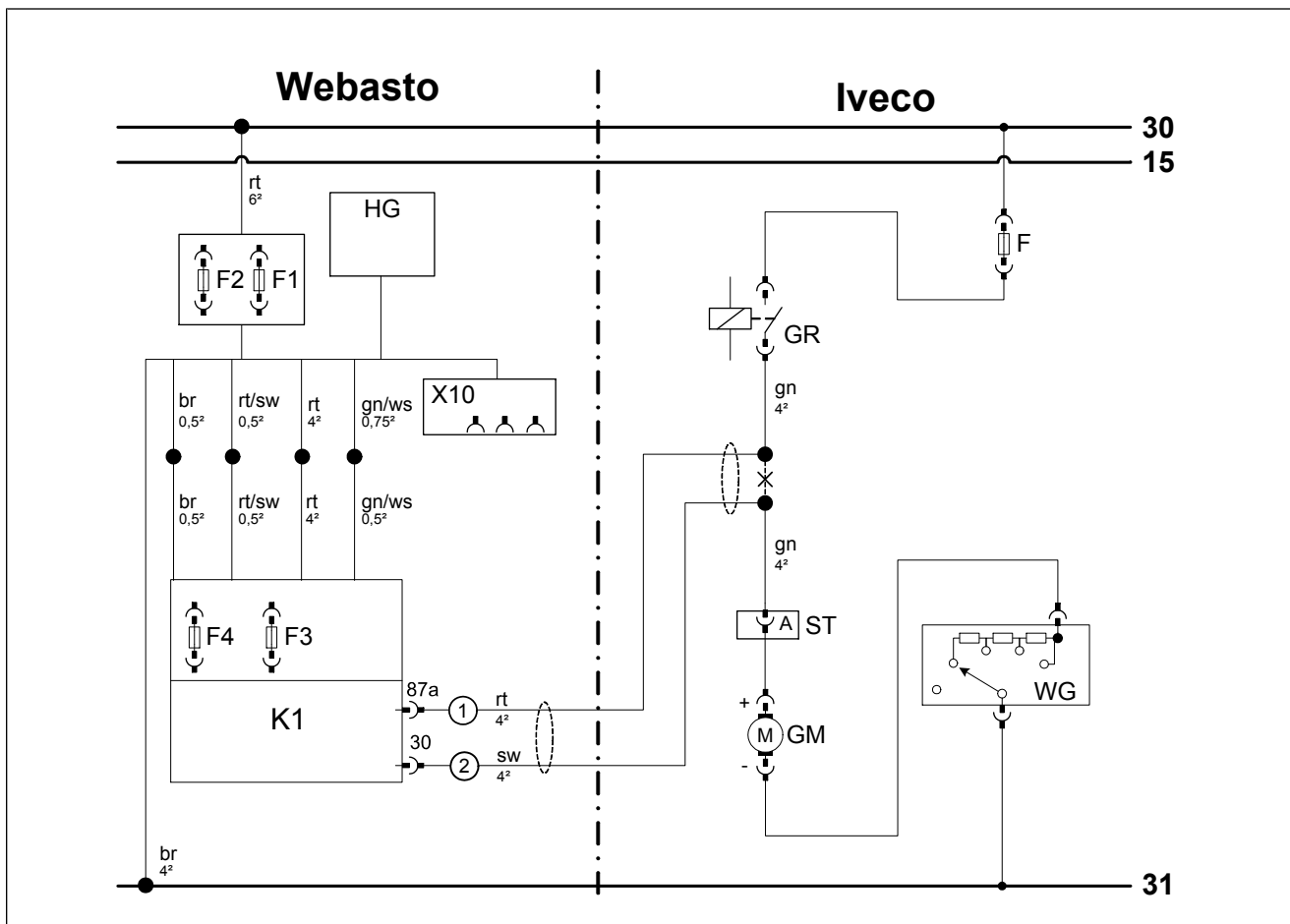


Fig. 90



Legend to wiring diagram



The vehicle connector and component designations are freely chosen by Webasto.
Cable colours may vary.

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
F	Fan fuse	X	Cutting point
GR	Fan relay		
ST	Adapter		
WG	Resistor group		
GM	Fan motor		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Male plug for CLR module wiring harness	bg	beige
B	Female plug for CLR module wiring harness	bl	blue
C	Male plug for adapter wiring harness	br	brown
D	Female plug for adapter wiring harness	dbl	dark blue
E	Male plug for Plug&Play wiring harness	dgn	dark green
F	Female plug for Plug&Play wiring harness	ge	yellow
CCL GW	Micro Gateway CAN CAN LIN	gn	green
CL GW	Micro SPS CAN / WBus (Gateway CAN LIN)	gr	grey
CLR	CAN LIN Rxx (cold start module)	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	la	salmon
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		
LA	Power adapter		
LIN GW	LIN Gateway		
MV	Solenoid valve		
PWM GW	LIN Gateway / PWM (pulse width modulator)		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	Female plug for control element		



15.2.2 Fan controller

Fan motor connection

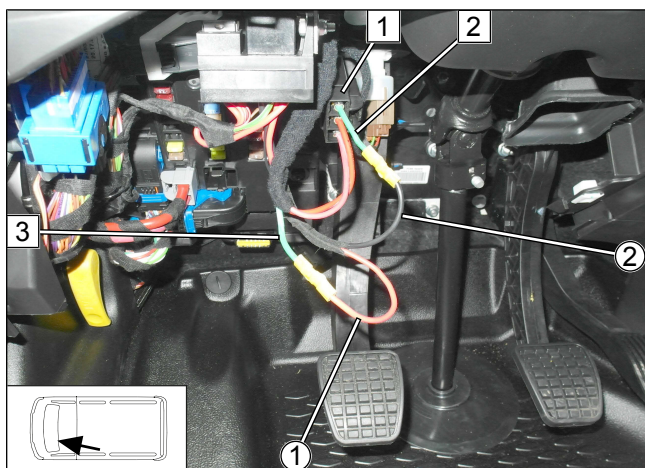


Fig. 91

- 1 Adapter ST
- 2 Green (gn) wire of adapter ST/ pin A
- 3 Green (gn) wire of fan relay
- ① Red (rt) wire of K1/87a fan wiring harness
- ② Black (sw) wire of K1/30 fan wiring harness



15.3 Automatic air-conditioning

15.3.1 A/C control unit dismantling instructions

Removing instrument panel storage compartment

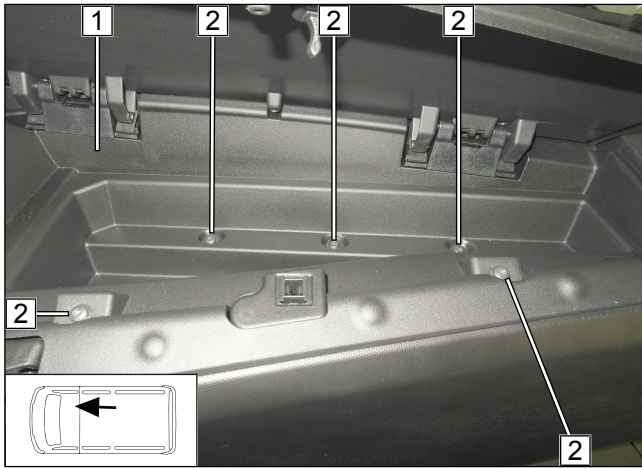


Fig. 92

- 1 Storage compartment
- 2 Remove original vehicle bolt

Removing the instrument panel trim

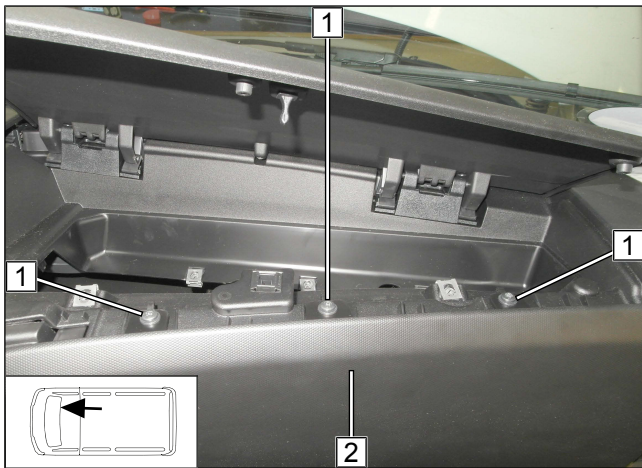


Fig. 93

- 1 Remove original vehicle bolt
- 2 Instrument panel trim

Removing instrument cluster trim piece

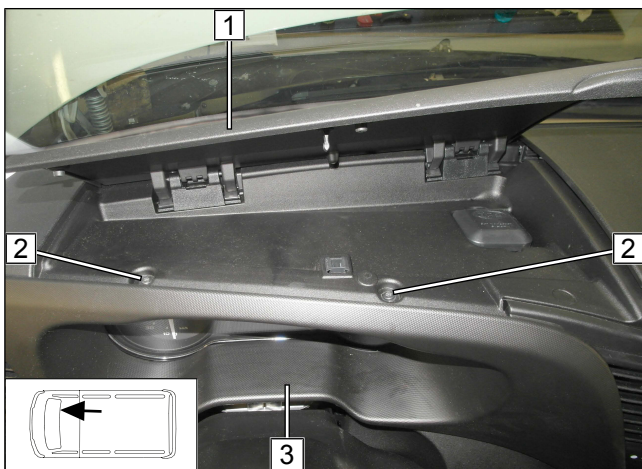


Fig. 94

- 1 Open the storage compartment cover on the left
- 2 Remove original vehicle bolt
- 3 Instrument cluster trim

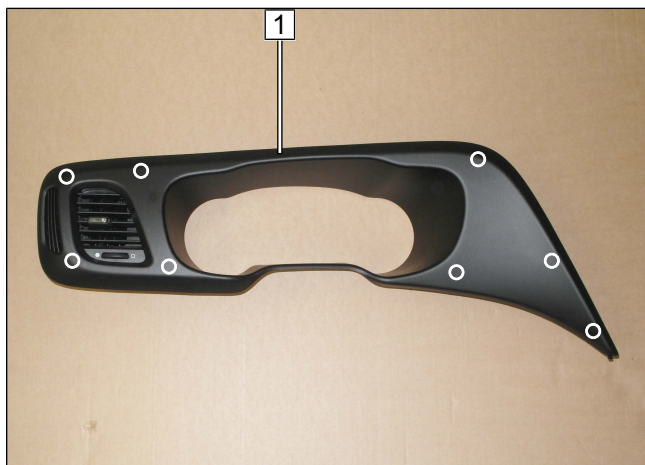


Fig. 95

- 1 Instrument cluster trim
- O Fastening points, clipped on

Dismantling radio cage variant 1

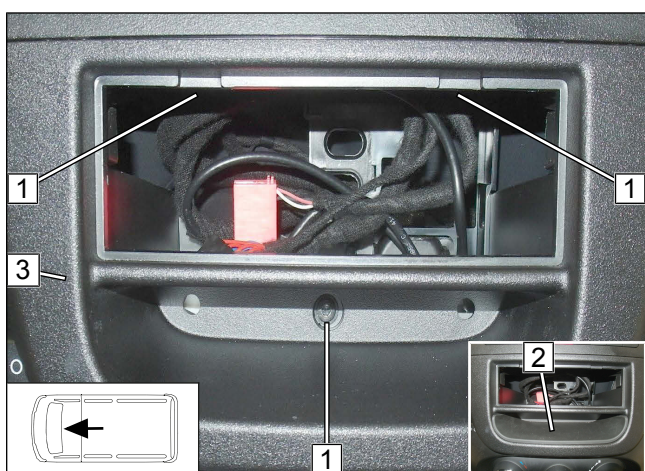


Fig. 96

► Remove rubber insert **2** before dismantling the radio cage.

- 1 Remove original vehicle bolt
- 3 Radio cage trim piece (if present)

Dismantling radio cage variant 2



Fig. 97

- 1 Screen with trim piece
- O Fastening points, clipped on



Removing switch panel

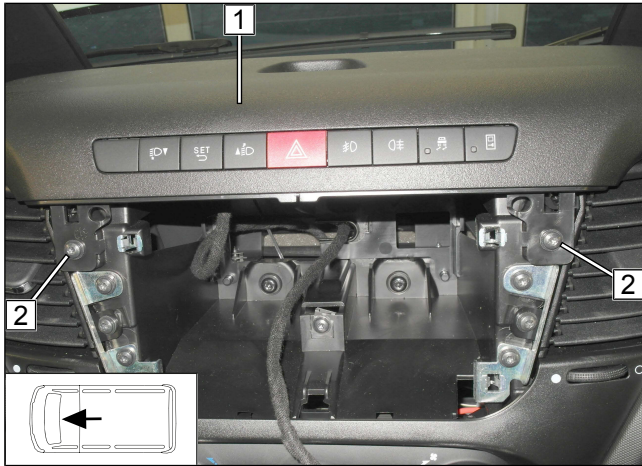


Fig. 98

- 1 Switch panel
- 2 Remove original vehicle bolt

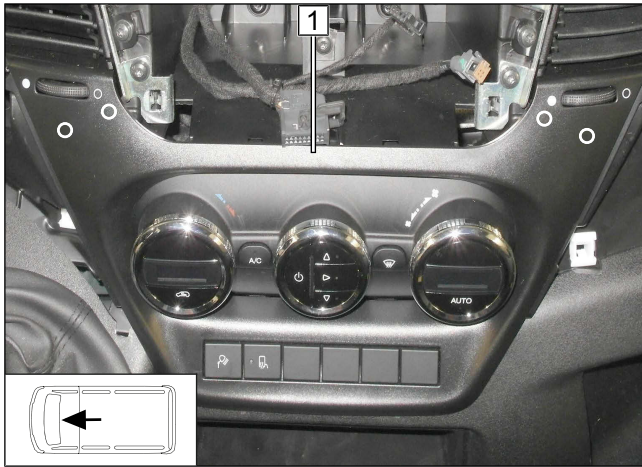


Fig. 99

- 1 KSG trim
- O Fastening points, clipped on

Removing KSG

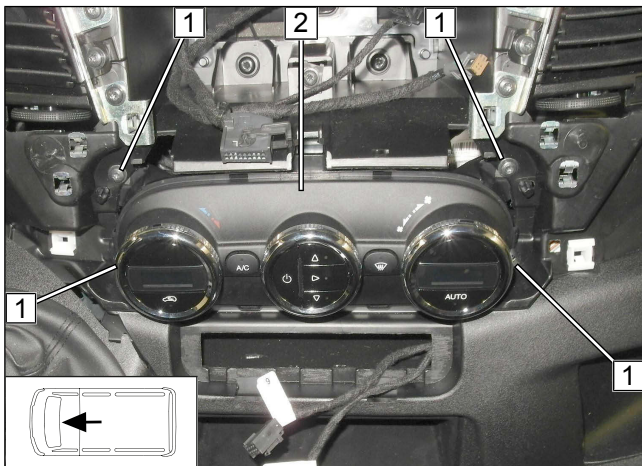


Fig. 100

- 1 Remove original vehicle bolt
- 2 KSG



15.3.2 System wiring diagram for automatic air-conditioning

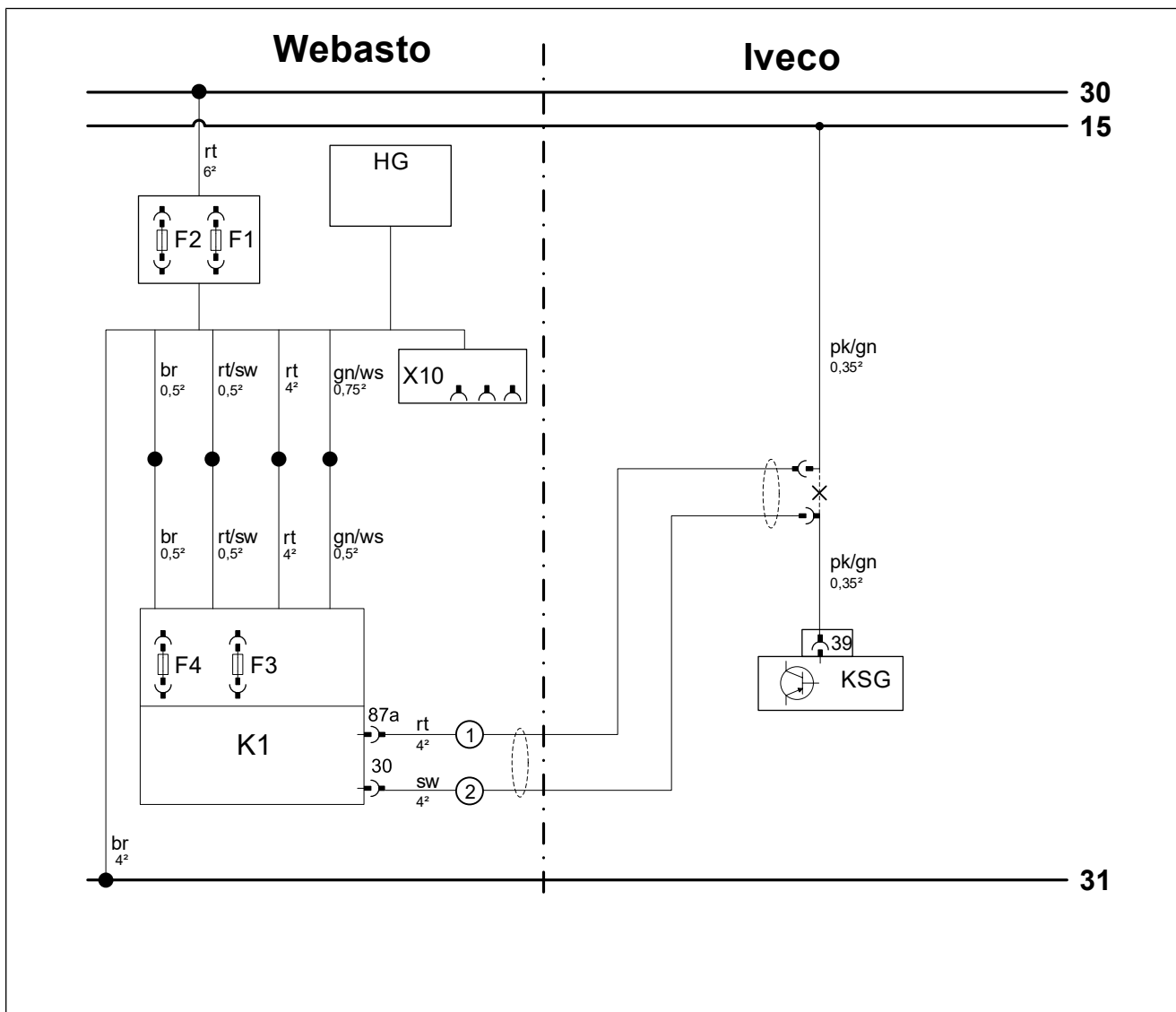


Fig. 101



Legend to wiring diagram



The vehicle connector and component designations are freely chosen by Webasto.
Cable colours may vary.

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
KSG	Air-conditioning control unit	X	Cutting point

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Male plug for CLR module wiring harness	bg	beige
B	Female plug for CLR module wiring harness	bl	blue
C	Male plug for adapter wiring harness	br	brown
D	Female plug for adapter wiring harness	dbl	dark blue
E	Male plug for Plug&Play wiring harness	dgn	dark green
F	Female plug for Plug&Play wiring harness	ge	yellow
CCL GW	Micro Gateway CAN CAN LIN	gn	green
CL GW	Micro SPS CAN / WBus (Gateway CAN LIN)	gr	grey
CLR	CAN LIN Rxx (cold start module)	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	la	salmon
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		
LA	Power adapter		
LIN GW	LIN Gateway		
MV	Solenoid valve		
PWM GW	LIN Gateway / PWM (pulse width modulator)		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	Female plug for control element		



15.3.3 Fan controller

View of KSG connector

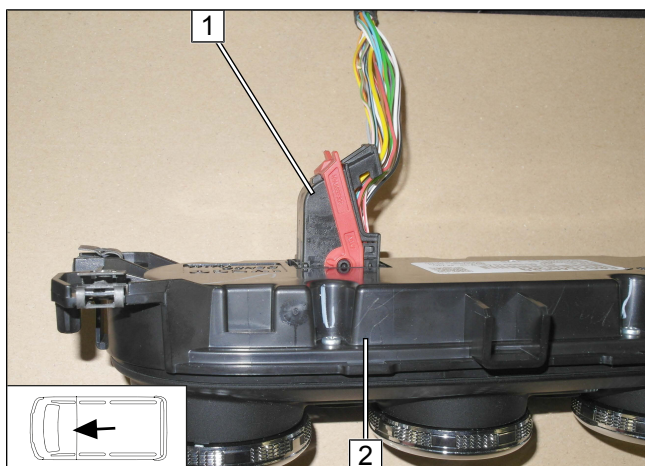


Fig. 102

- 1 KSG connector
- 2 KSG

Connecting KSG

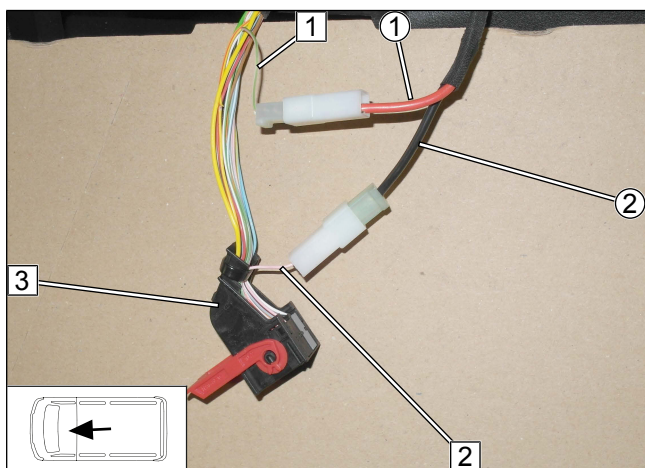


Fig. 103

- 1 Pink/green (pk/gn) wire of +15
- 2 Pink/green (pk/gn) wire of KSG connector/ pin 39
- 3 KSG connector
- ① Red (rt) wire of K1/87a fan wiring harness
- ② Black (sw) wire of K1/30 fan wiring harness



16 Electrical system of control elements

16.1 MultiControl RV

MultiControl RV installation

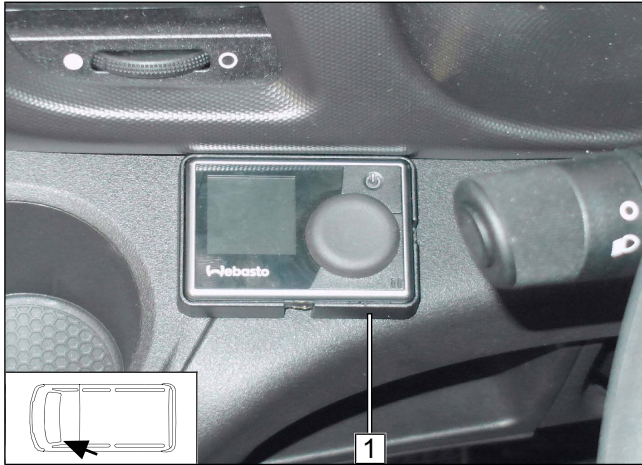


Fig. 104



Observe the MultiControl RV installation documentation.

- 1 MultiControl RV installation frame

16.2 Remote option (Telestart)

Mounting receiver

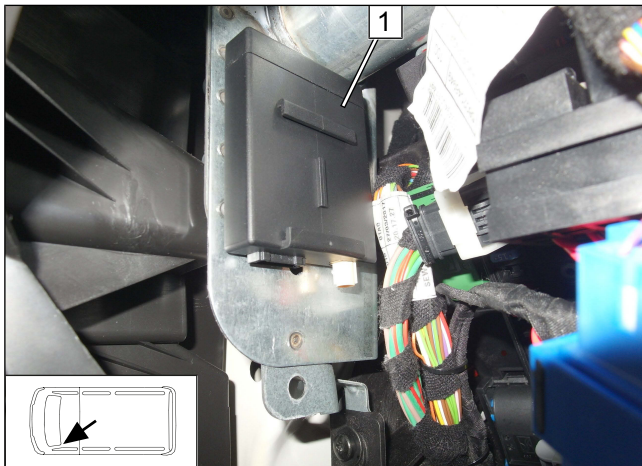


Fig. 105



Observe the Telestart installation documentation.

- Fasten Telestart receiver **1** with double-sided adhesive tape.

Mounting temperature sensor, only in case of T100 HTM

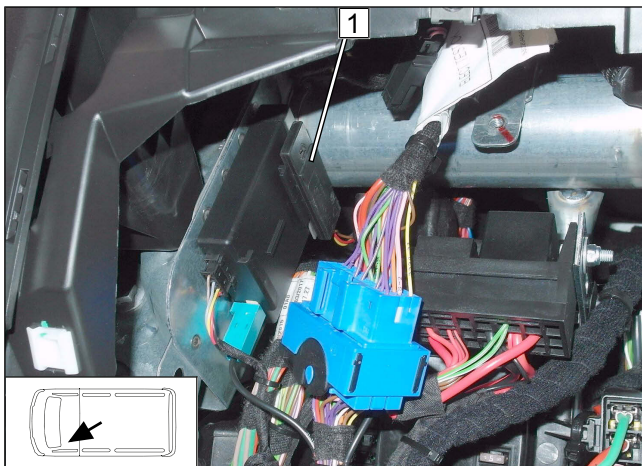


Fig. 106

- Fasten temperature sensor **1** using double-sided adhesive tape.



Mounting aerial

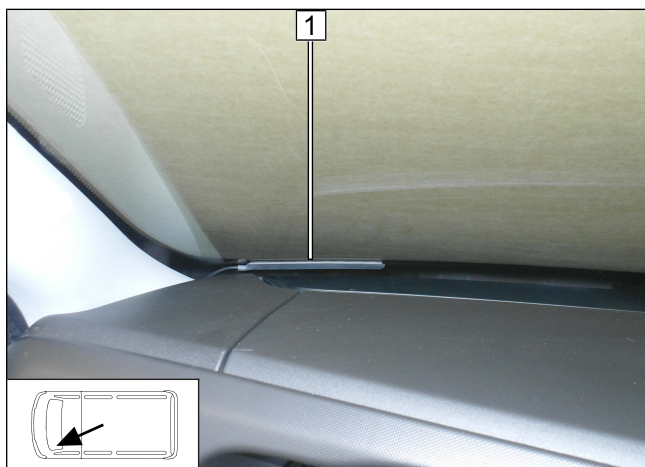


Fig. 107

1 Aerial

16.3 ThermoCall option

Mounting receiver

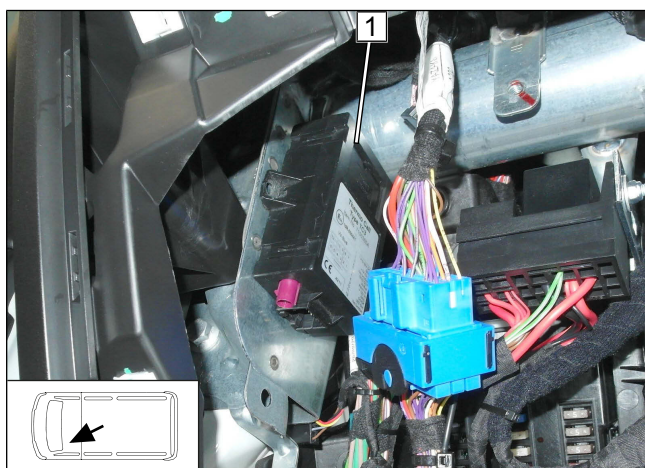


Fig. 108



Observe the ThermoCall installation documentation.

► Fasten receiver 1 using double-sided adhesive tape.

Mounting aerial (optional)

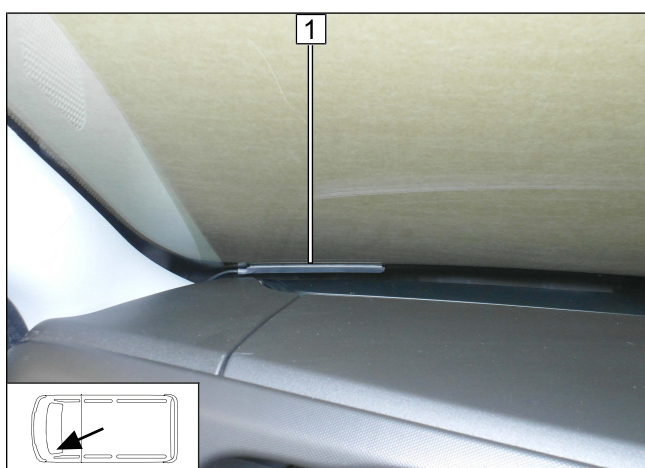


Fig. 109

1 Aerial



17 Final work



Further information can be found in the vehicle manufacturer's technical documentation.

- ▶ Mount removed parts in reverse order.



▶ Check all hoses, clamps and all electrical connections for firm seating.

▶ Insulate and tie back loose lines

▶ Spray heater and electrical components with anti-corrosion wax (Tectyl 100K).

▶ Connect the battery.



Only use manufacturer-approved coolant.

- ▶ Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.



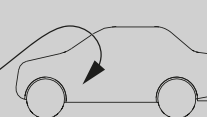
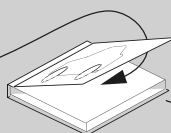
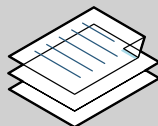
Further information can be found in the general installation and operating instructions of the Webasto components.

▶ Program MultiControl RV, pair Telestart transmitter

▶ Make settings on A/C control panel according to the 'Operating Instructions'

▶ Initial start-up and function check

▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck



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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Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany

Company address:
Friedrichshafener Str. 9
82205 Gilching
Germany

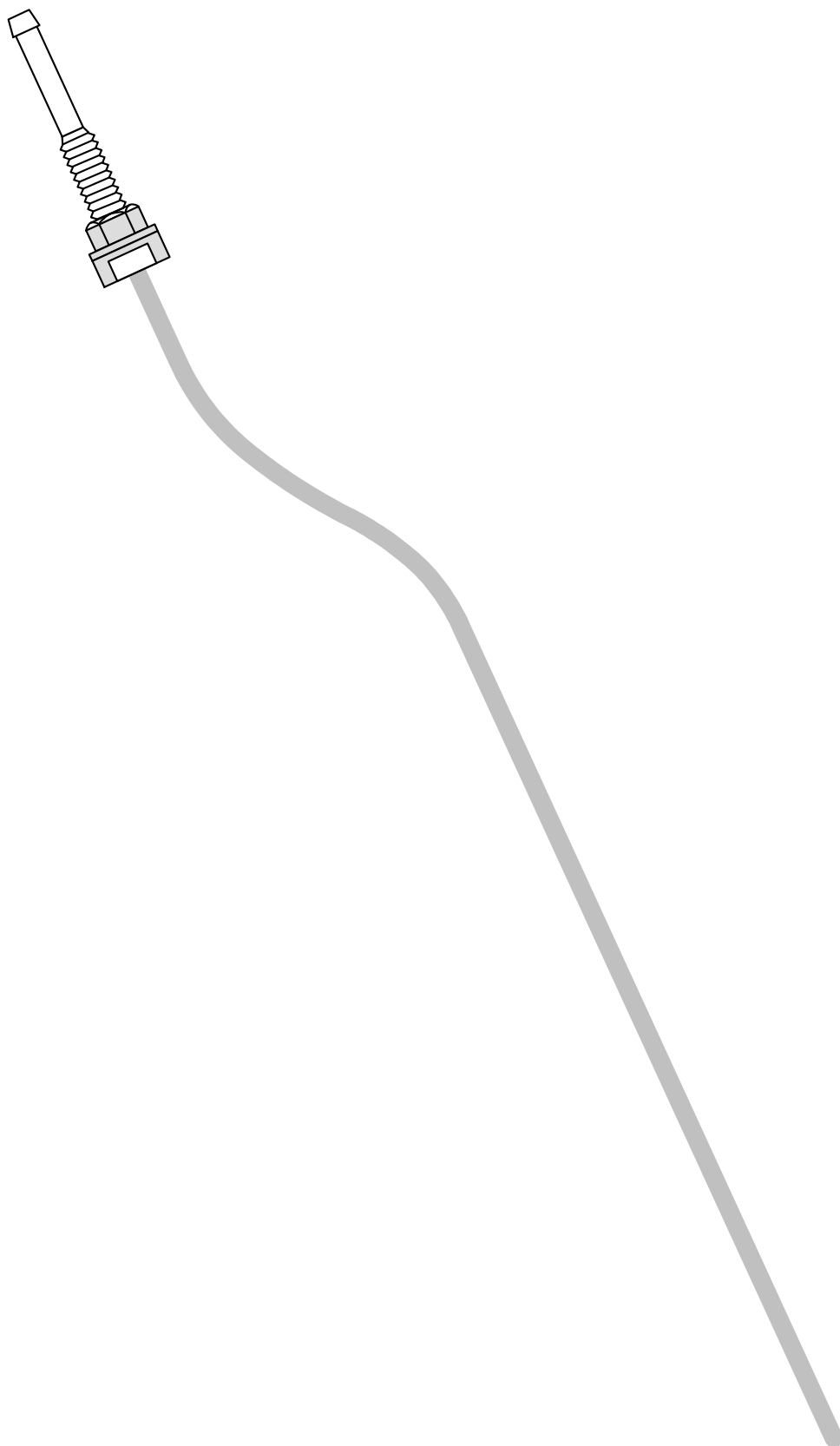
Technical Extranet: <https://dealers.webasto.com>



WWW.WEBASTO.COM



18 Tank extracting device template



100mm

100mm

Scale 1:1
Compare size of printout with dimension lines.
Maximum permitted tolerance 2%.
Set the printer settings to no 'margin' or 'minimise margins' and 100% of the normal size.

0

19 Operating instructions for manual air-conditioning



Information regarding the heating time:

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.



Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

- ▶ Deactivate passenger compartment monitoring for the heating operation

19.1 Windscreen defrosting settings

A/C control panel settings

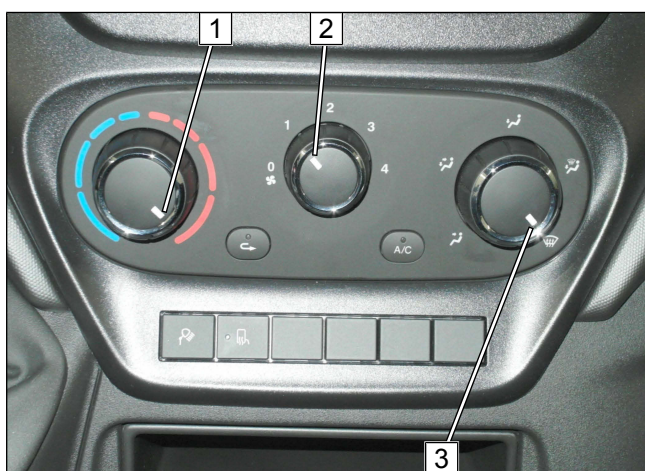


Fig. 110



Before parking the vehicle, make the following settings:

- 1 Set temperature to 'max.'
- 2 Set fan speed to level '1', max. '2'
- 3 Air outlet to windscreen

19.2 Settings for continuous heating mode

A/C control panel settings

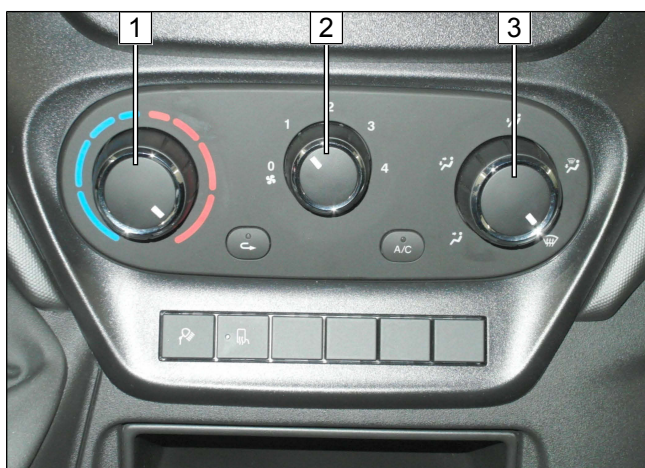


Fig. 111



Please note that the vehicle battery should be provided with sufficient charging current in the continuous heating mode.



Before parking the vehicle, make the following settings:

- ▶ The settings for the continuous heating mode can be adjusted as needed in case of 230V vehicle supply.

- 1 Temperature as desired
- 2 Fan speed as desired
- 3 Air outlet as desired

19.3 Installation location of fuses

Fuses in engine compartment

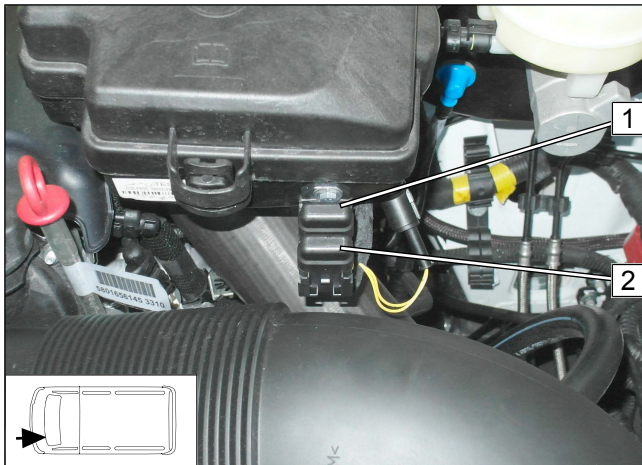


Fig. 112

- 1 F2 - 30A main fuse of passenger compartment
- 2 F1 - 20A heater main fuse

Fuses in passenger compartment

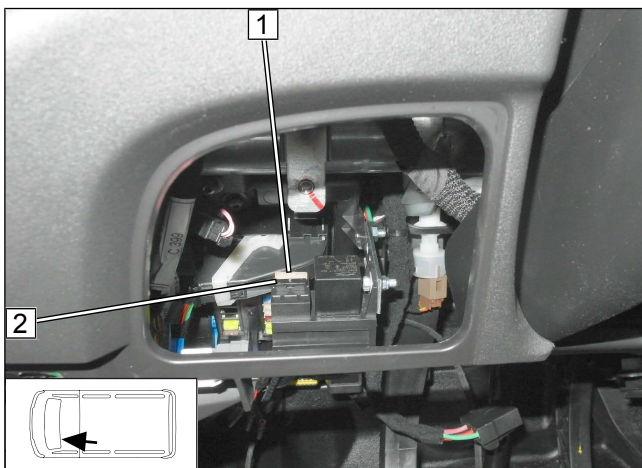


Fig. 113

- 1 F4 - 25A fan controller fuse
- 2 F3 - 1A control element fuse

20 Operating instructions for automatic air-conditioning



Information regarding the heating time:

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.



Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

- ▶ Deactivate passenger compartment monitoring for the heating operation

20.1 Windscreen defrosting settings

A/C control panel settings

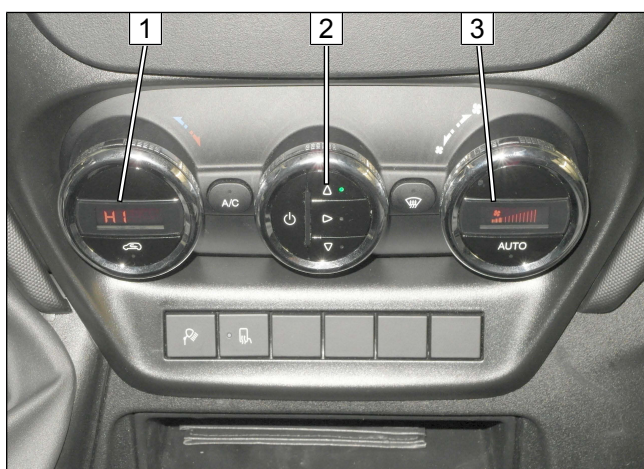


Fig. 114



Before parking the vehicle, make the following settings:

- 1 Set temperature to 'HI'
- 2 Air outlet to windscreen
- 3 Set fan speed to level '1', max. '2'

20.2 Settings for continuous heating mode

A/C control panel settings



Fig. 115



Please note that the vehicle battery should be provided with sufficient charging current in the continuous heating mode.



Before parking the vehicle, make the following settings:

- ▶ The settings for the continuous heating mode can be adjusted as needed in case of 230V vehicle supply.

- 1 Temperature as desired
- 2 Air outlet as desired
- 3 Fan speed as desired

20.3 Installation location of fuses

Fuses in engine compartment



Fig. 116

- 1 F2 - 30A main fuse of passenger compartment
- 2 F1 - 20A heater main fuse

Fuses in passenger compartment

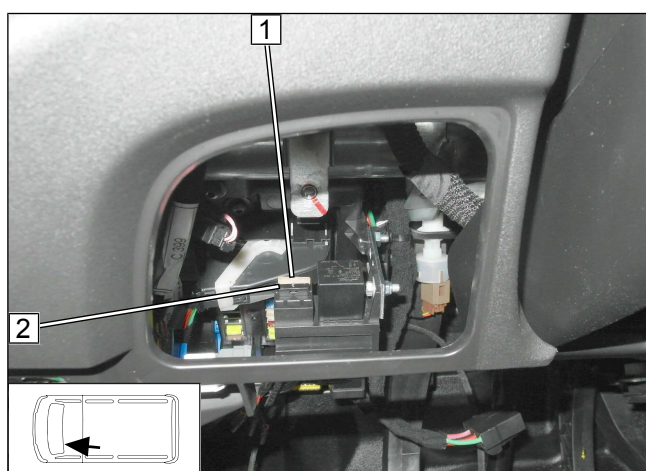


Fig. 117

- 1 F4 - 5A fan controller fuse
- 2 F3 - 1A control element fuse