

K Installation documentation

for water heater Thermo Top Evo

'Island' coolant circuit without engine preheating

Renault Captur

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Renault	Captur	RJB	2020	e2* 2007/46* 0684*...

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displacement [cm ³]	Engine code
1.3P	Petrol	EURO6; WLTP;DG...	6-speed SG	96	1332	H5H
1.3P	Petrol	EURO6; WLTP;DG...	7-speed DKG	113	1332	H5H

Validity	Equipment variants	Model
		Captur
Verified equipment variants	Automatic air-conditioning	x
	LED main headlights	x
	LED daytime running lights	x
	Start button with keycard	x
	Halogen front fog lights	x
	FWD	x

Total installation time	Note
9 hours	

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1 List of abbreviations

DKG	Dual clutch transmission
DP	Fuel pump
EFIX	Exhaust end fastener
Fig.	Figure
FWD	Front wheel drive
HG	Heater
PWM	Pulse width modulator
RSH	Relay and fuse holder of passenger compartment
SG	Manual transmission
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle
X10	Female plug for control element

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. However, installation according to this installation documentation may be possible.

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo (see 'Notes on installation')	In accordance with price list
Installation kit for Renault Captur petrol 2020	1328498A
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

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 CAR option

We recommend:

- installing a Thermo Top Evo 4. The heater is integrated into the coolant circuit as an 'island' and heats up the vehicle passenger compartment. There is no engine pre-heating.

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

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.



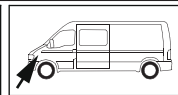
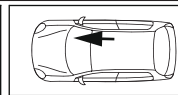
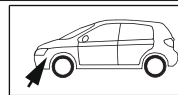
Note on a special technical feature

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"> ▶ Battery and battery carrier ▶ Air filter box air duct ▶ Entire air filter box with intake hose ▶ Firewall heat shield plate on the front passenger's side ▶ Front wheel on the driver's side ▶ Front part of front wheel well trim on the driver's side ▶ Lower engine cover ▶ Underride protection on the front passenger's side ▶ Tank underride protection 	
Passenger compartment	<ul style="list-style-type: none"> ▶ Shift gate trim ▶ Side instrument panel trim on the driver's side ▶ Centre tunnel trim on the driver's side ▶ Lower instrument panel trim on the driver's side ▶ A/C control panel ▶ Rear bench seat ▶ Open the tank fitting service lid 	



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	▶ Tank fitting in accordance with the manufacturer's instructions	
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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

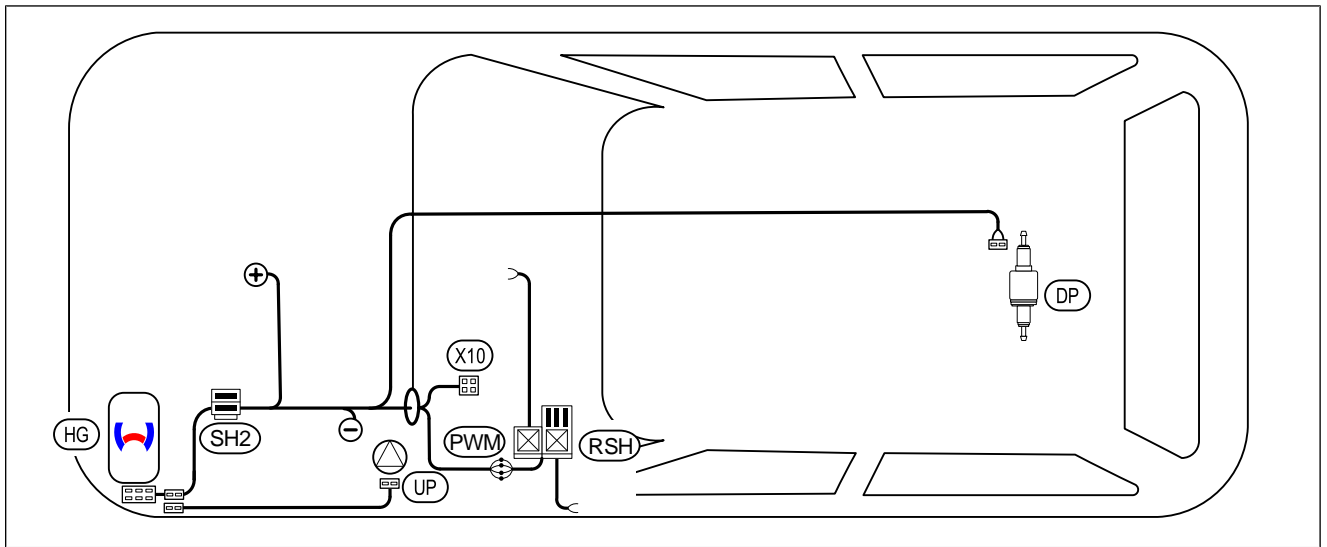
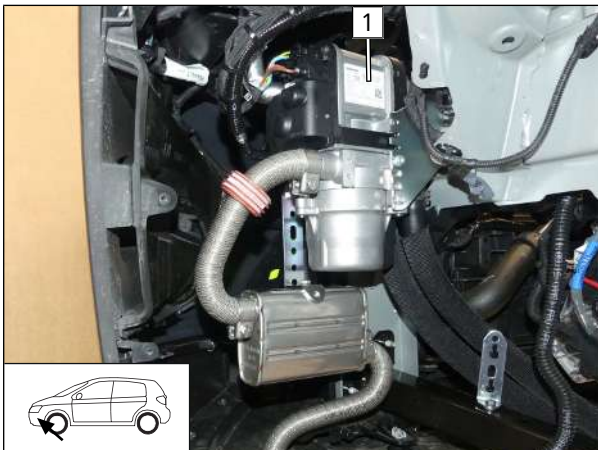


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
HG	Heater
PWM	PWM Gateway
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
X10	Female plug for control element

Heater installation location



1 Heater

Fig. 2



7 Electrical system of engine compartment

Copying hole pattern, drilling hole

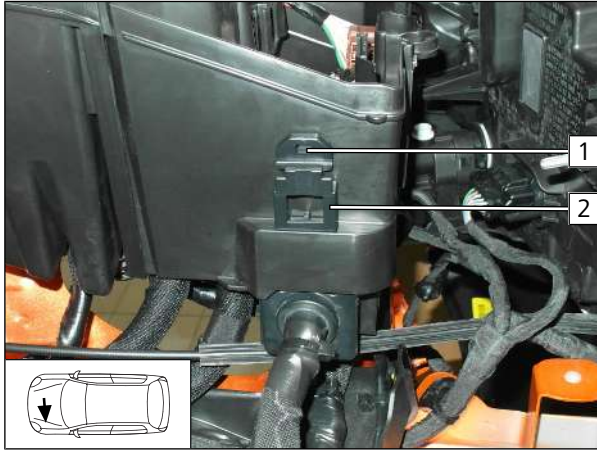
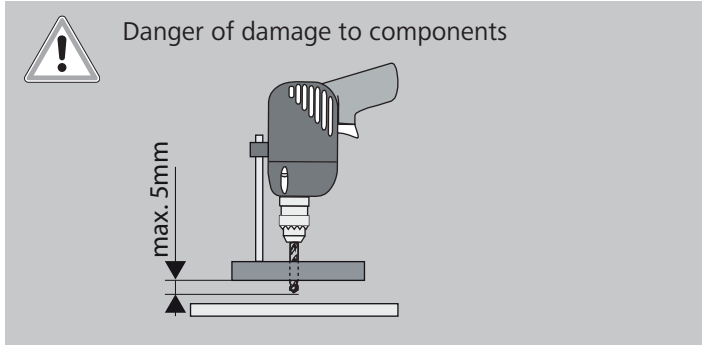


Fig. 3



- ▶ Position retaining plate of SH2 [2] as shown, copy hole pattern [1].
- ▶ Remove retaining plate of SH2 [2] again, drill a $\varnothing 5.5$ hole.

Mounting retaining plate of SH2

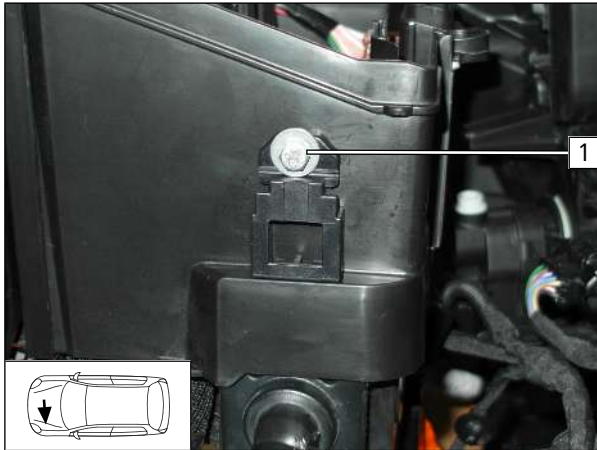


Fig. 4

- [1] M5x16 bolt, large diameter washer, retaining plate of SH2, drilled hole, large diameter washer, nut

Installing SH2

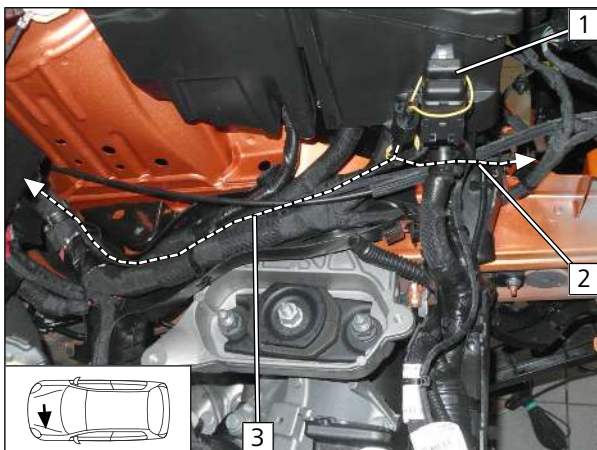


Fig. 5

- [1] SH2
- [2] HG wiring harness to the HG installation location
- [3] Passenger compartment and control element wiring harnesses as well as earth wire to the wiring harness pass through in the passenger compartment



Passenger compartment wiring harness pass through

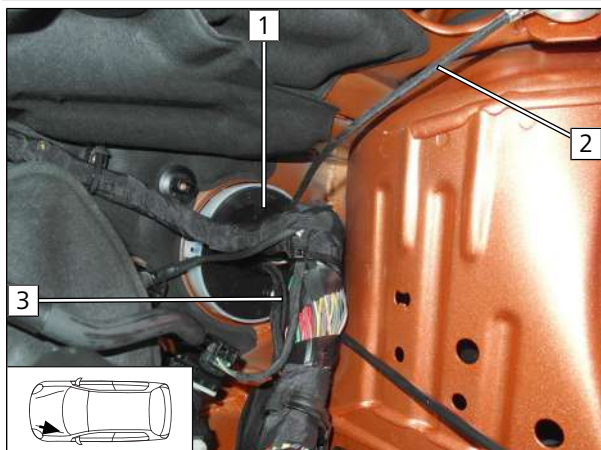


Fig. 6



To prevent water seeping into the passenger compartment, the wiring harness must be routed upwards to the protective rubber plug and this plug must then be sealed with a suitable sealing compound.

- 1 Protective rubber plug
- 2 Earth wire
- 3 Passenger compartment and control element wiring harnesses

Earth wire connection

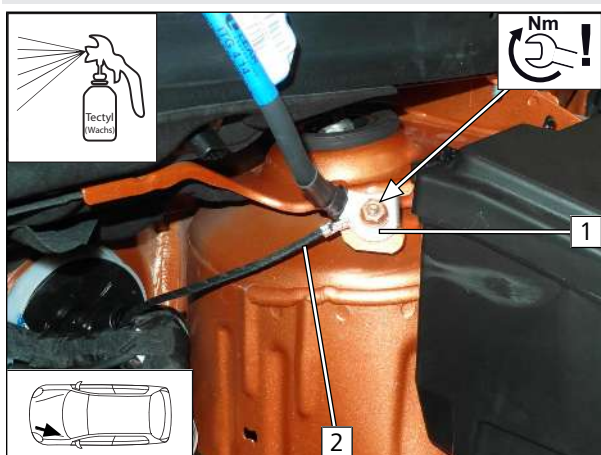


Fig. 7



DANGER

Observe tightening torque

- 1 Original vehicle earth support point
- 2 Earth wire

Positive wire routing and connection

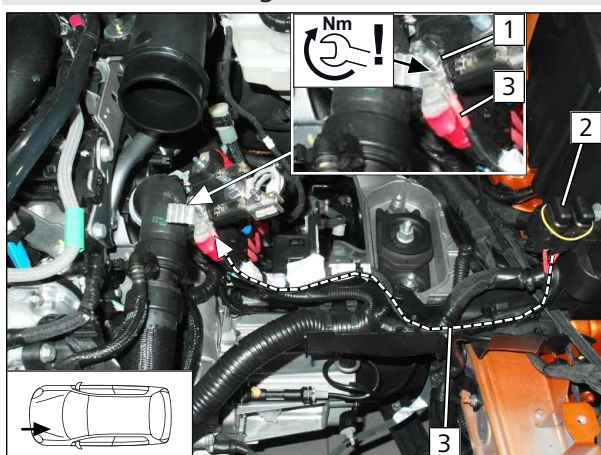


Fig. 8



DANGER

Observe tightening torque



The Fig. shows the installation situation. The battery is connected during the final work phase.

- 1 Original vehicle positive support point
- 2 SH2
- 3 Positive wire



8 Mechanical system

8.1 Preparing installation location

Fastening HG wiring harness

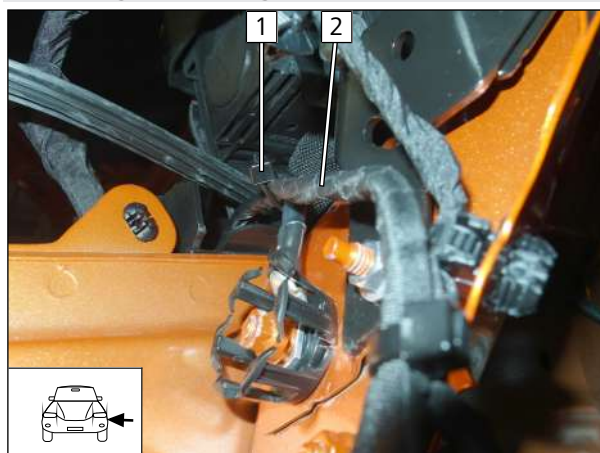


Fig. 9

► Attach HG wiring harness **1** to earth wire with cable tie **2**.

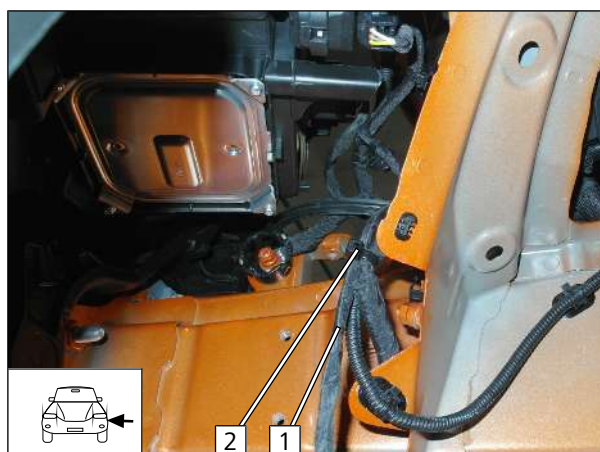


Fig. 10

► Attach HG wiring harness **1** to original vehicle lines with cable tie **2**.

Preparing heater bracket

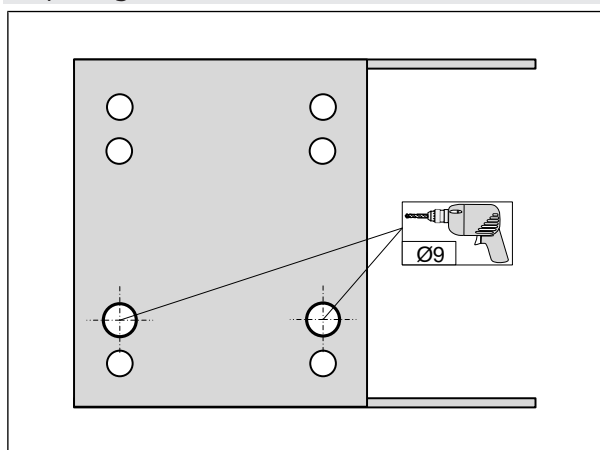


Fig. 11



Copy hole pattern

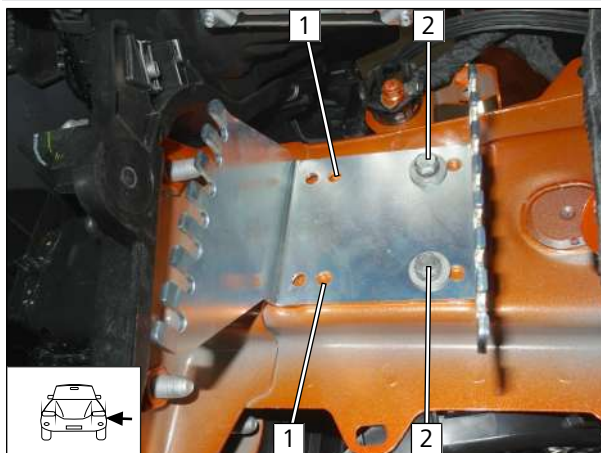


Fig. 12

► Mount bracket and align parallel.

- 1 Hole pattern
- 2 M6x20 bolt, spring lock washer, large diameter washer, HG bracket, original vehicle threaded hole

Drilling holes, inserting rivet nuts

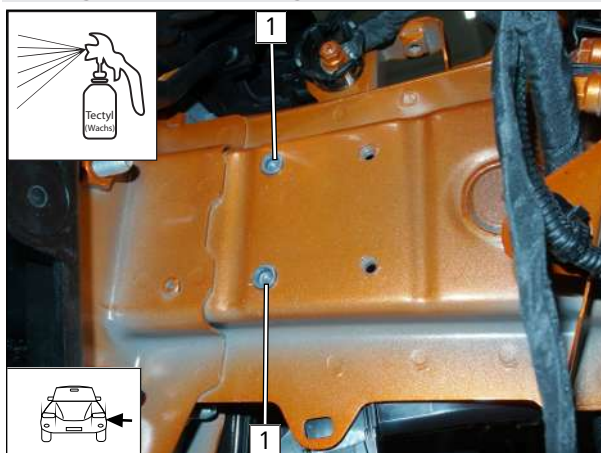


Fig. 13

- 1 Ø9 hole, rivet nut

Mounting bracket

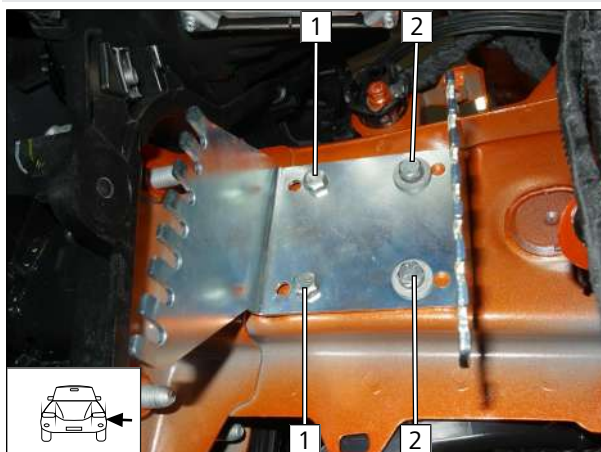


Fig. 14

- 1 M6x20 bolt, spring lock washer, HG bracket, rivet nut
- 2 M6x20 bolt, spring lock washer, large diameter washer, HG bracket, original vehicle threaded hole



8.2 Premounting heater

Mounting, aligning and fastening with 7Nm water connection piece with sealing ring and retaining plate

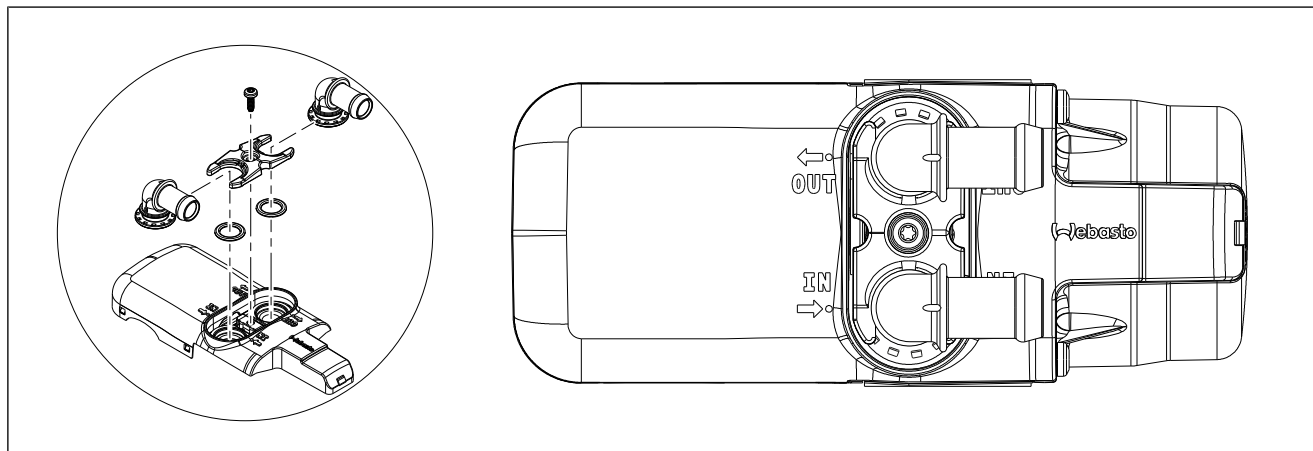


Fig. 15

Premounting M5x13 self-tapping bolts

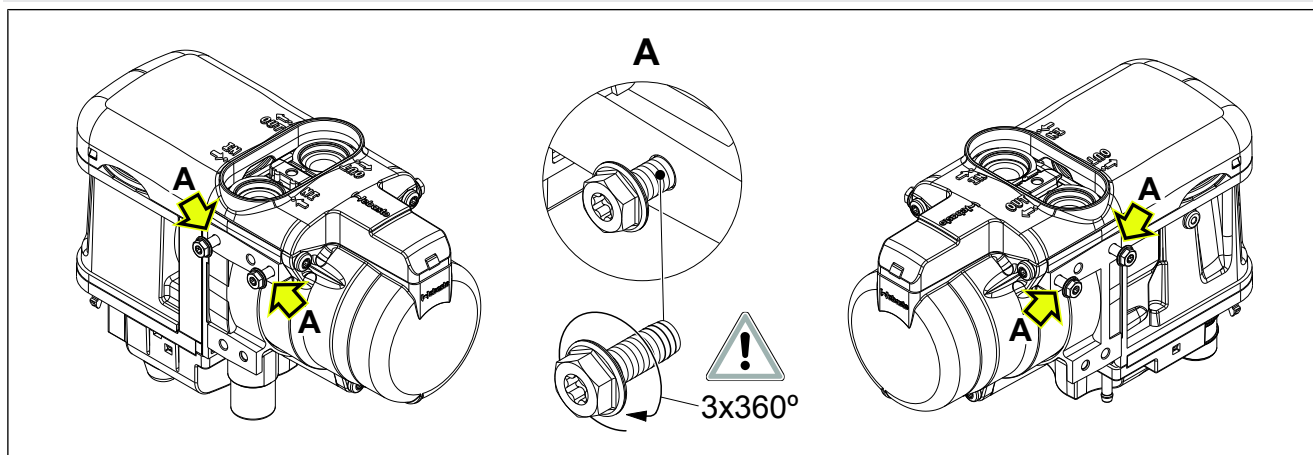


Fig. 16

Bending perforated bracket

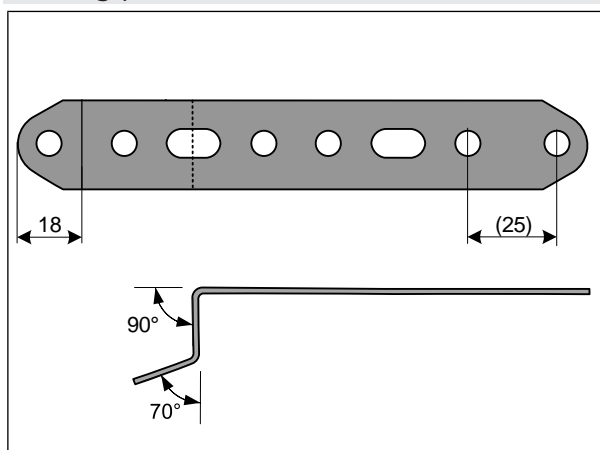


Fig. 17



Premounting exhaust silencer



Fig. 18

- 1 M6x16 bolt, spring lockwasher, perforated bracket, exhaust silencer

Mounting exhaust silencer



Fig. 19

- 1 5x13 self-tapping bolt, perforated bracket, hole in HG

Mounting fuel hose

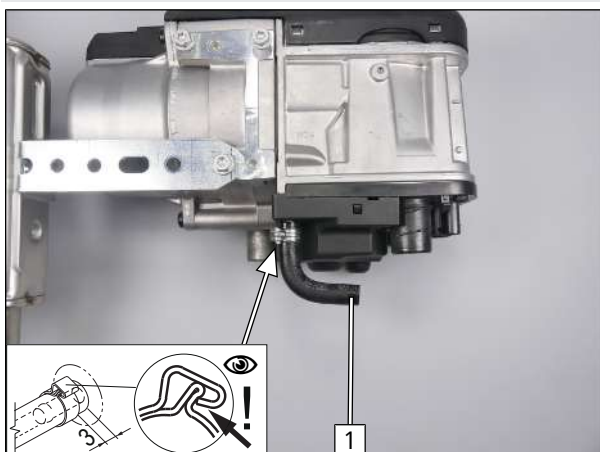


Fig. 20

- 1 90° moulded hose, Ø10 clamp



8.3 Heater mounting

Mounting heater

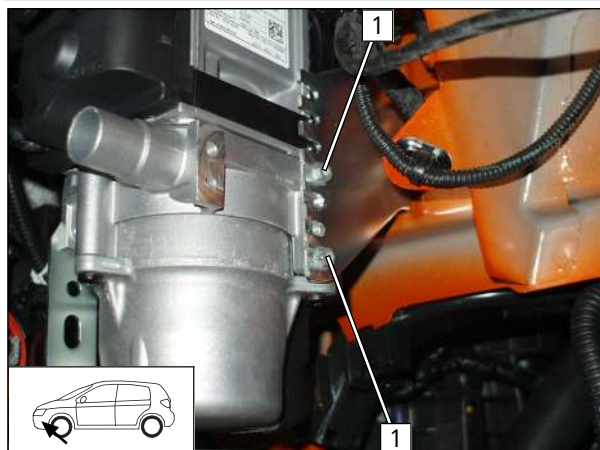


Fig. 21

- 1 Tighten 5x13 self-tapping bolt



Fig. 22

- 1 Tighten 5x13 self-tapping bolt (1x covered)

Mounting HG wiring harness connector

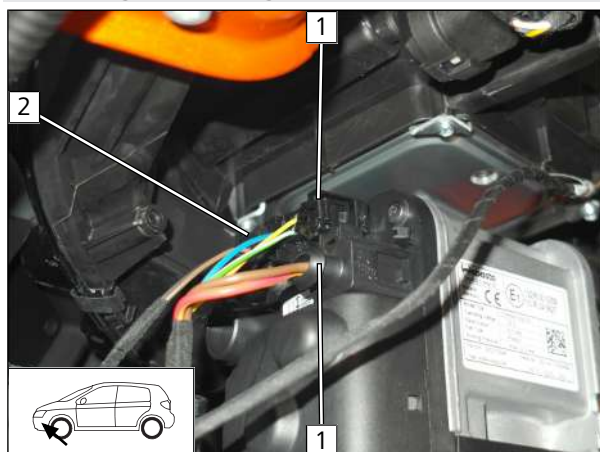


Fig. 23

- 1 Heater wiring harness connector
- 2 Coolant pump wiring harness connector



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

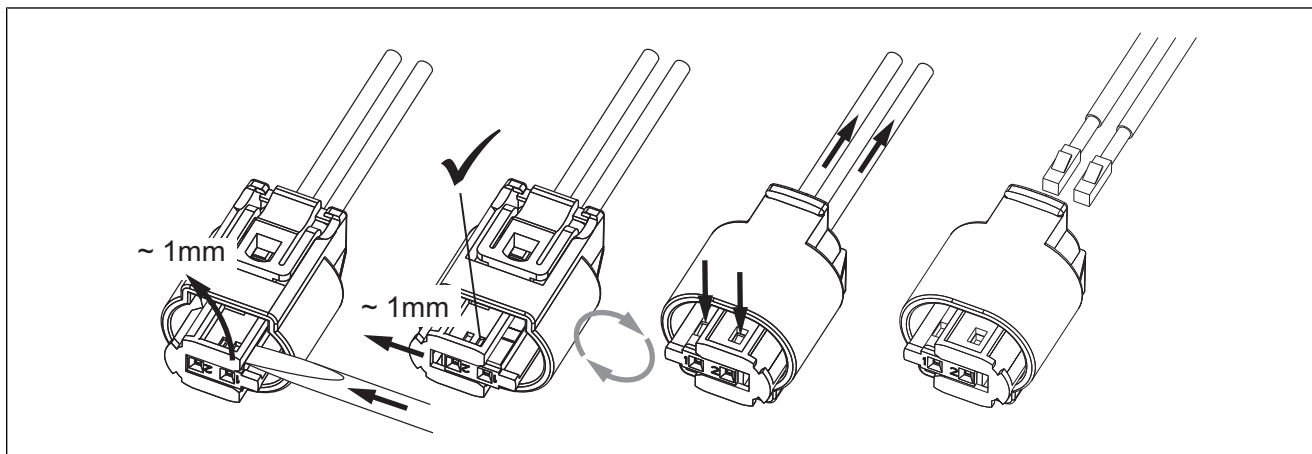
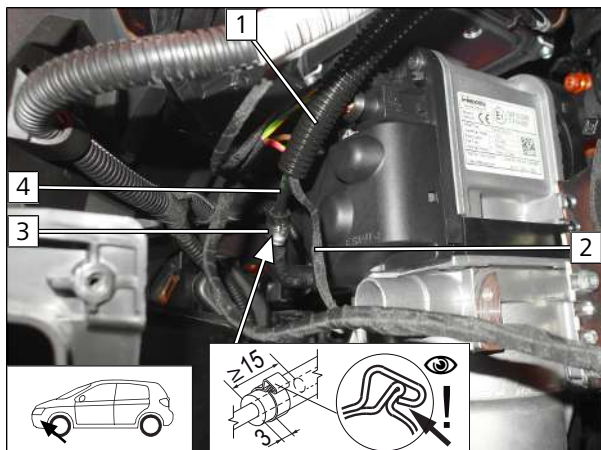


Fig. 24

9.1 Routing fuel line

Connecting heater



- ▶ Draw fuel line **4** and fuel pump wiring harness **2** into $\varnothing 10$ corrugated tube **1**.

3 $\varnothing 10$ clamp

Fig. 25



Routing fuel line

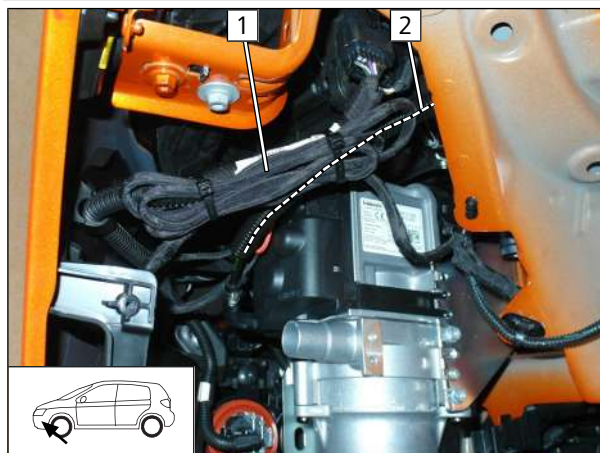


Fig. 26

- ▶ Route corrugated tube **2** in the engine compartment.
- ▶ Attach the rest of the HG wiring harness **1** with cable ties.

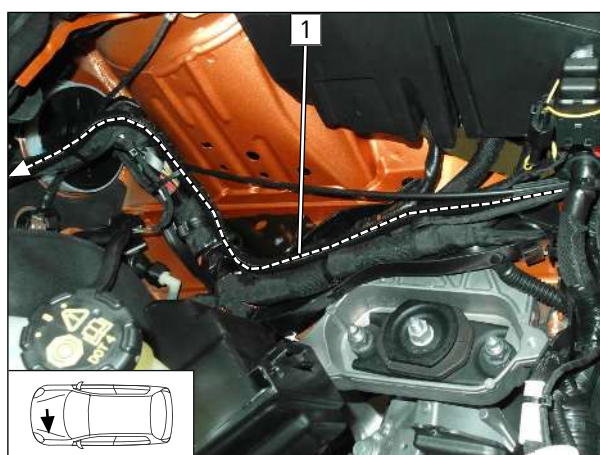


Fig. 27

- ▶ Route corrugated tube **1** along original vehicle lines to the firewall and attach with cable ties.

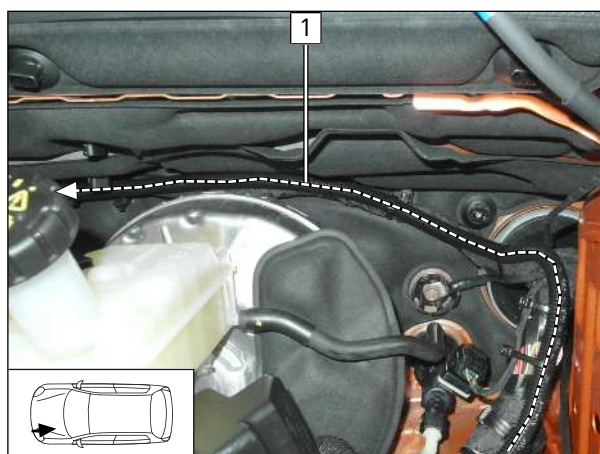


Fig. 28

- ▶ Route corrugated tube **1** along the firewall on original vehicle lines and attach with cable ties.

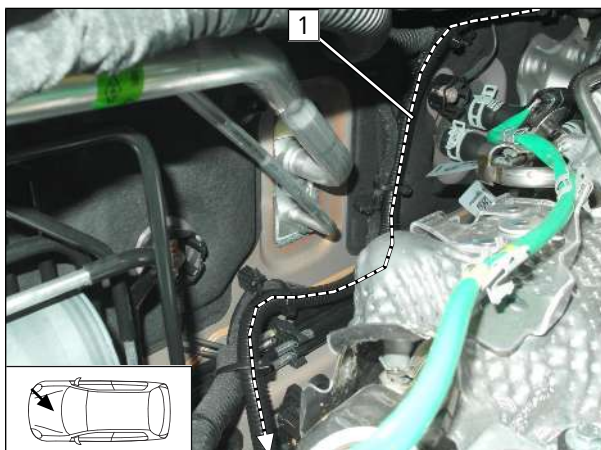


Fig. 29

- ▶ Route corrugated tube **1** along the bulkhead on original vehicle lines and attach with cable ties.

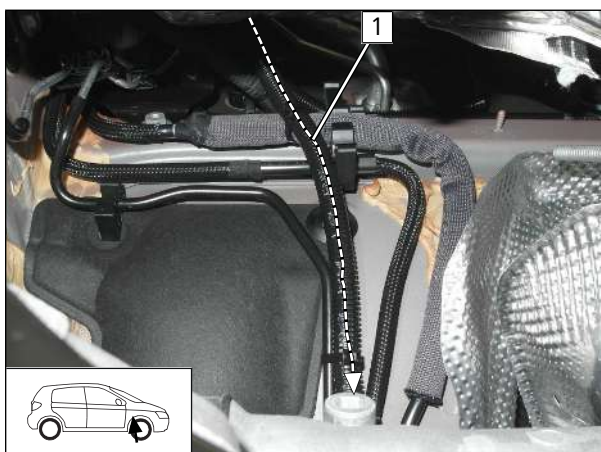


Fig. 30

- ▶ Route corrugated tube **1** along original vehicle lines to the underbody and attach with cable ties.

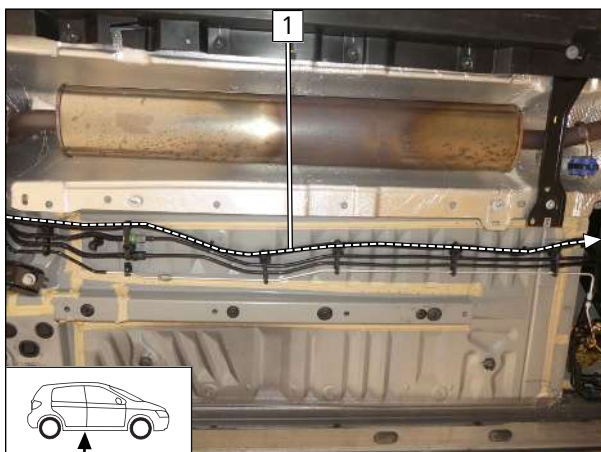


Fig. 31

- ▶ Route fuel line and fuel pump wiring harness in corrugated tube **1** along original vehicle lines to fuel pump installation location and fasten with cable ties.



Enlarging hole in perforated bracket

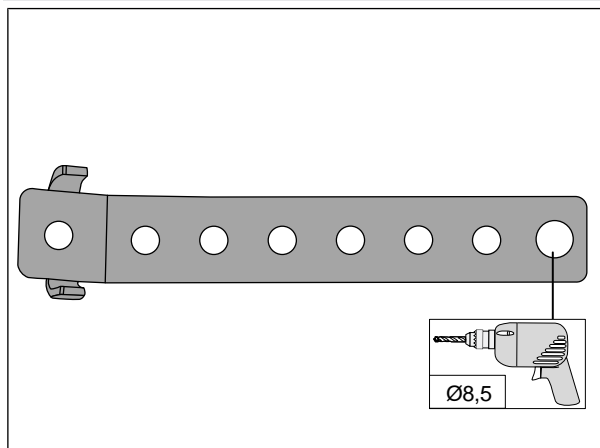


Fig. 32

Premounting fuel pump

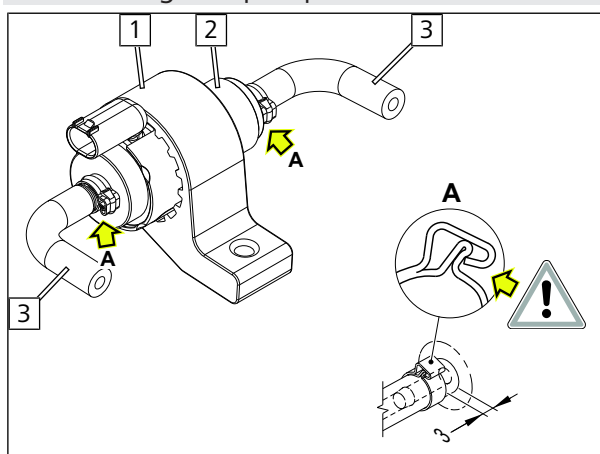


Fig. 33



The alignment of the fuel pump and fuel hoses will be carried out afterwards, during the installation.

- 1 Fuel pump mount
- 2 Fuel pump
- 3 90° moulded hose, Ø10 clamp

Mounting fuel pump



Fig. 34

- 1 M8x20 bolt, spring lock washer, perforated bracket, original vehicle threaded hole



Assembling fuel pump connector X7

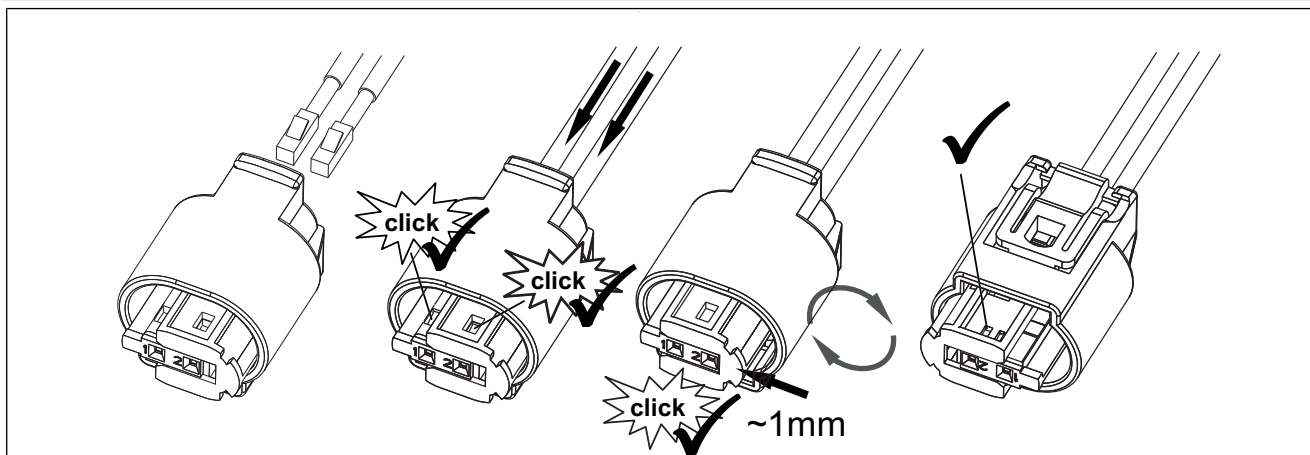


Fig. 35

Fuel pump connection

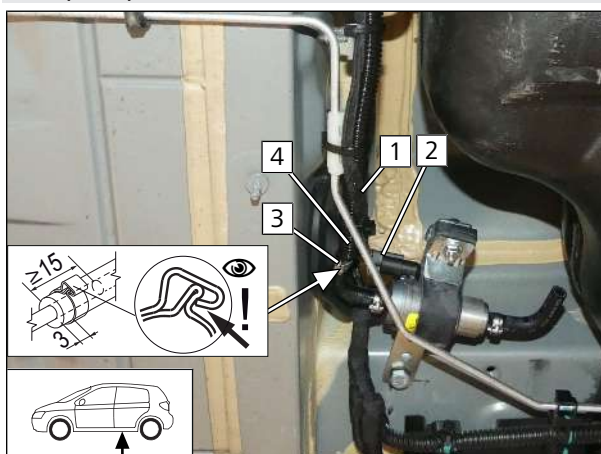


Fig. 36

- 1 Rest of wiring harness fastened with cable tie
- 2 Fuel pump wiring harness, connector X7 mounted
- 3 Ø10 clamp
- 4 Heater fuel line in corrugated tube

9.2 Installing tank extracting device

View of drilling template

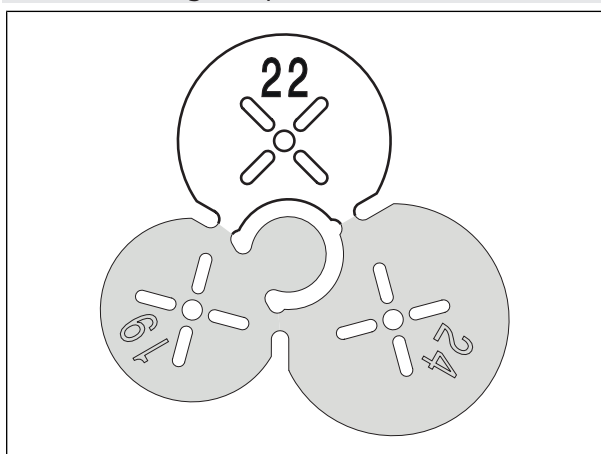


Fig. 37



Copying hole pattern

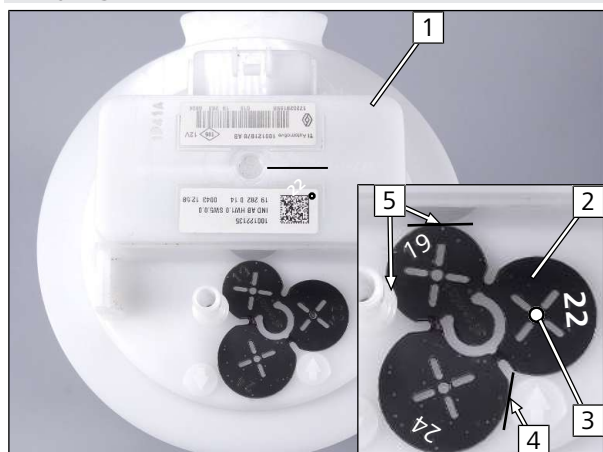


Fig. 38



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



Dismantle tank fitting in accordance with manufacturer's instructions.

- Position drilling template **2** on the tank fitting as shown. Position $\varnothing 19$ template at pos. **5** and $\varnothing 24$ template at pos. **4**.

- 1** Tank fitting
- 3** Hole pattern

Hole for tank extracting device



Fig. 39

- 1** $\varnothing 6$ hole

Inserting and aligning tank extracting device



Fig. 40



Observe the installation instructions of the tank extracting device.

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

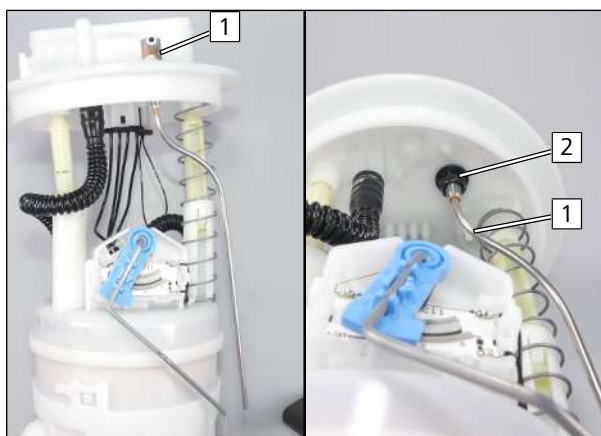


Fig. 41

- 1 Tank extracting device
- 2 Locking nut

Mounting hose section



Fig. 42

- 1 Tank extracting device
- 2 Hose section, Ø10 clamp

Mounting tank fitting



Fig. 43



Reinstall tank fitting **1** in accordance with manufacturer's instructions.



Connecting fuel line

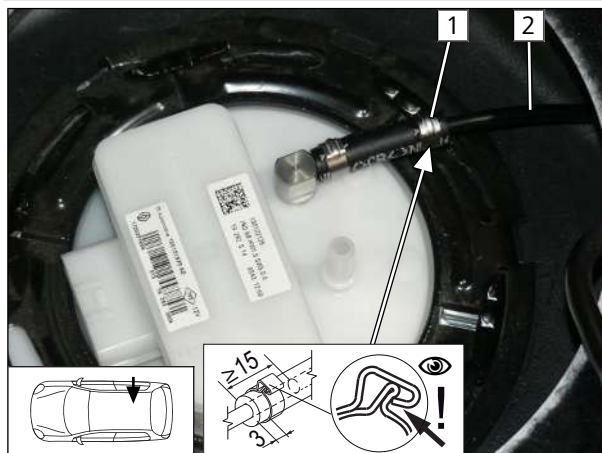


Fig. 44

- 1 Ø10 clamp
- 2 Fuel line of tank extracting device

Securing fuel line

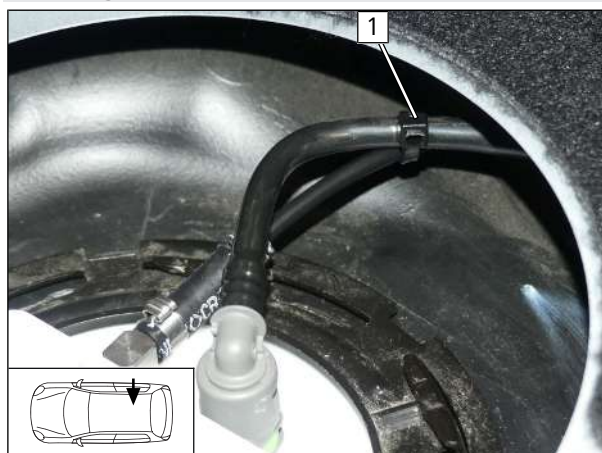


Fig. 45

- 1 Cable tie for tension relief around fuel line and original vehicle line

Fuel pump connection

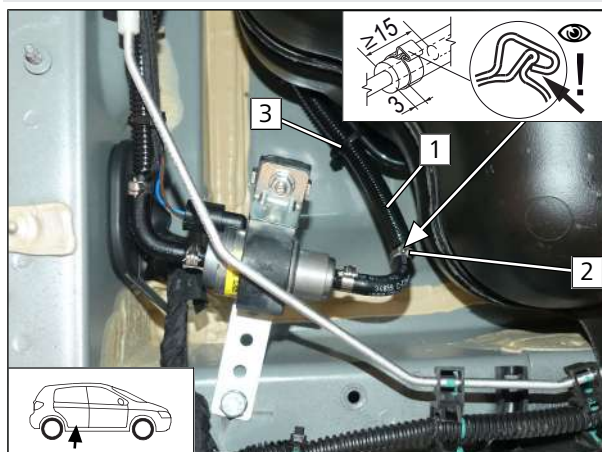


Fig. 46

- 1 Fuel line of tank extracting device in corrugated tube
- 2 Ø10 clamp
- 3 Cable tie



10 Combustion air

Removing insulation mat

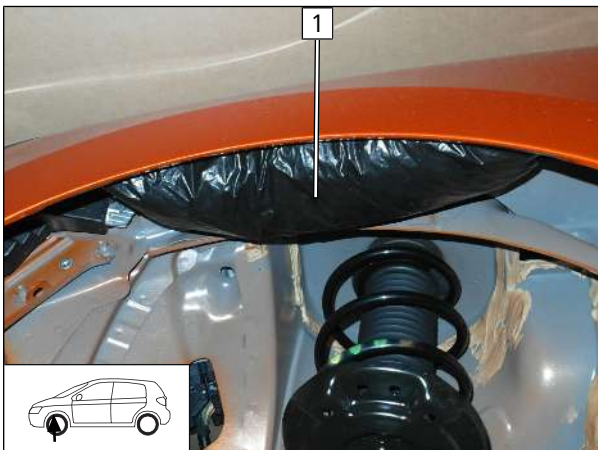


Fig. 47

- 1 Insulation mat

Shortening perforated bracket

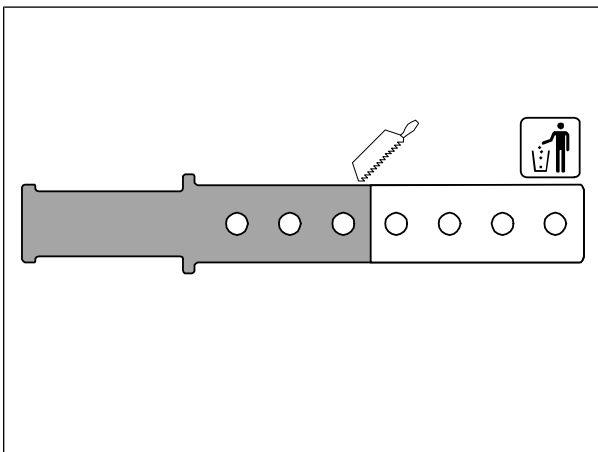


Fig. 48

Installing perforated bracket

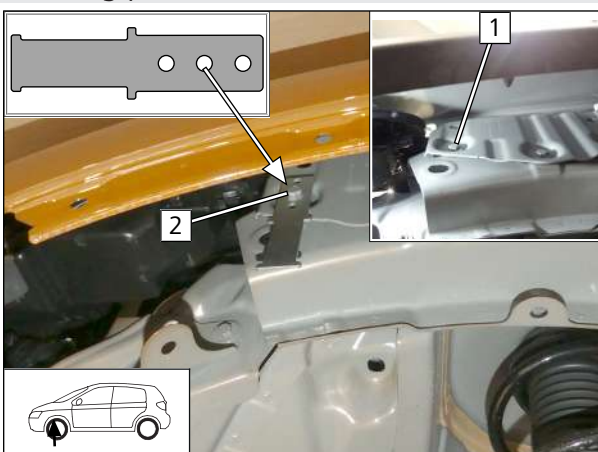


Fig. 49

► Remove original vehicle bolt at pos. **1** and discard.

- 2** M6x25 bolt, spring lock washer, perforated bracket, spacer (8), original vehicle hole



Premounting combustion air intake silencer

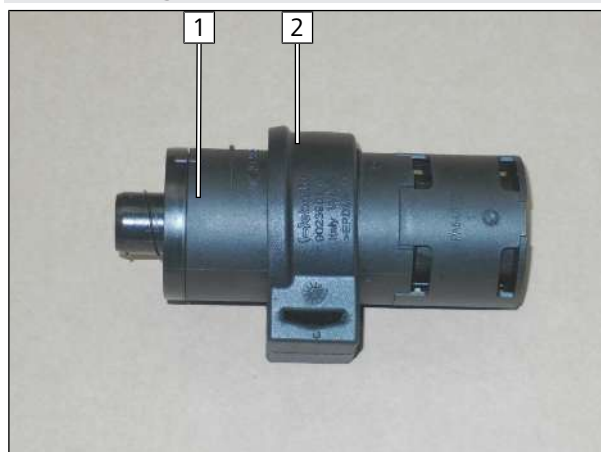


Fig. 50

- 1 Combustion air intake silencer
- 2 Combustion air intake silencer mount

Mounting combustion air intake pipe

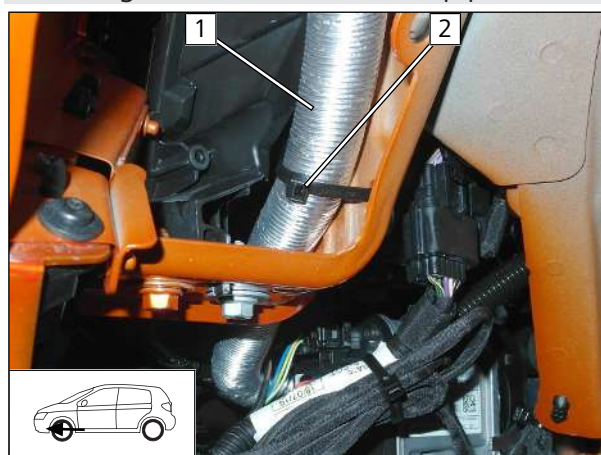


Fig. 51



Observe the installation instructions of the combustion air intake silencer.

- Mount combustion air intake pipe 1 onto HG, route through opening and attach with cable tie 2 passed through the original vehicle hole.

Mounting combustion air intake silencer

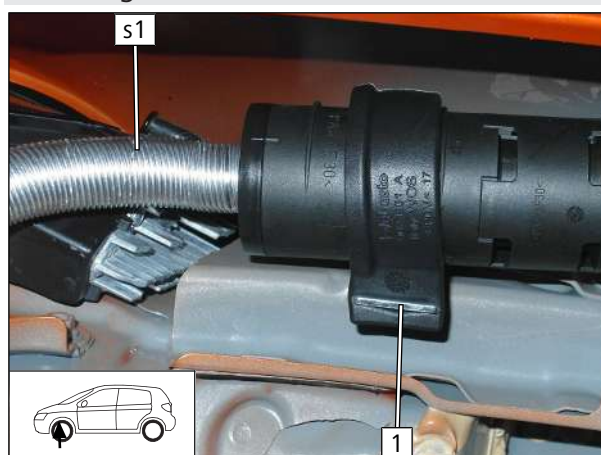
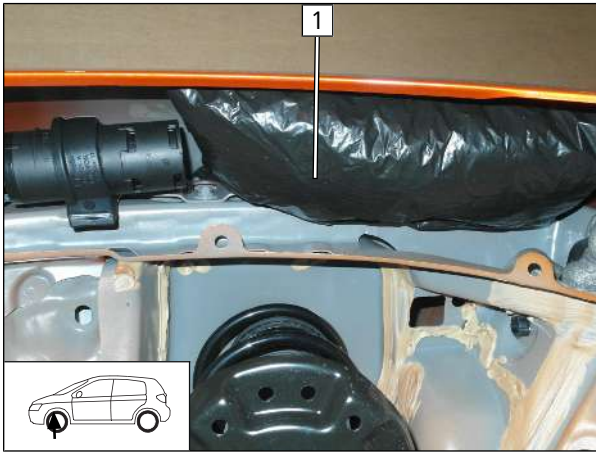


Fig. 52

- Mount combustion air intake silencer onto combustion air intake pipe 1, slide combustion air intake silencer mount onto perforated bracket 2.



Gluing on insulation mat



The openings in the combustion air intake silencer must not be covered.

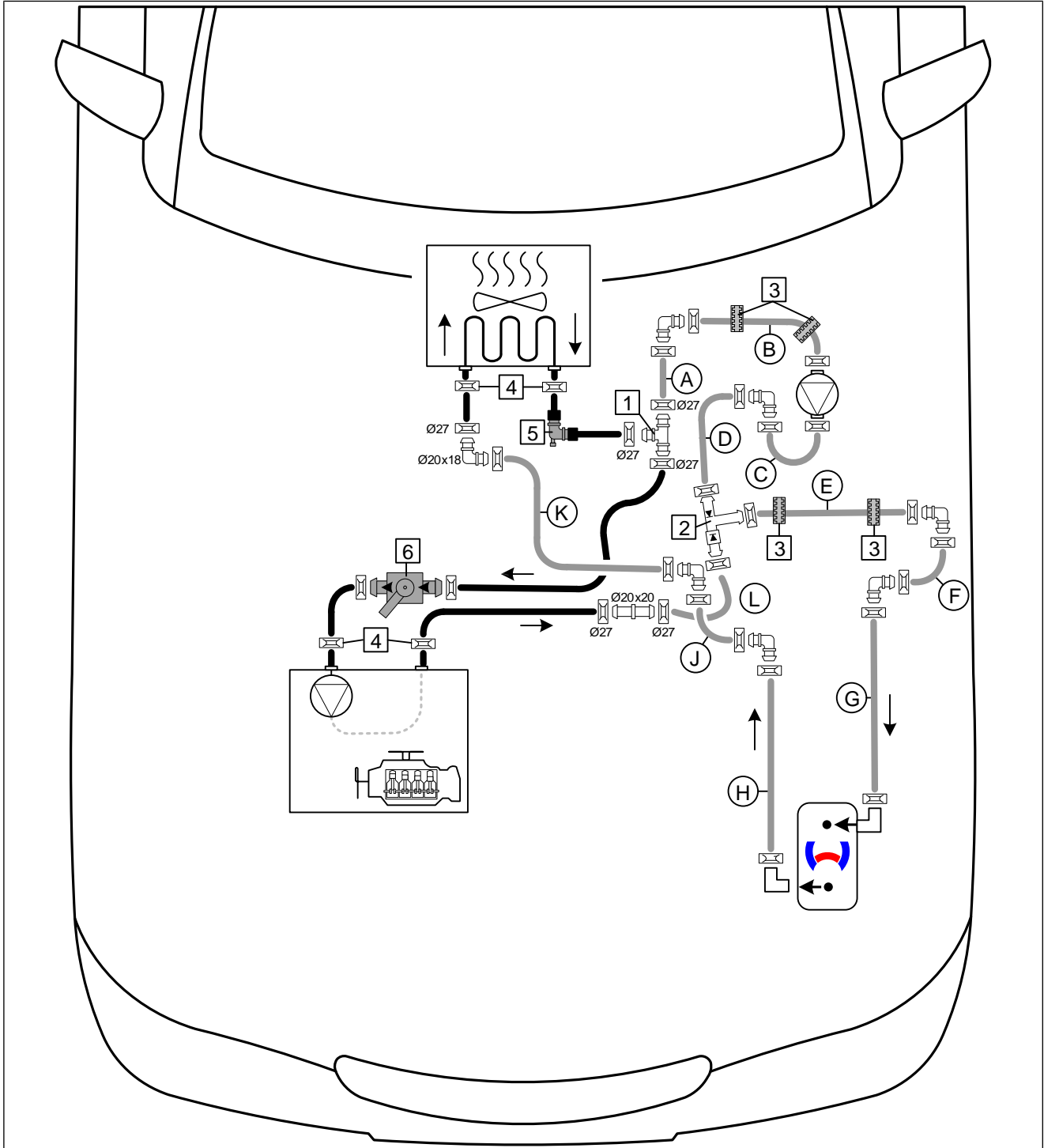
1 Insulation mat

Fig. 53



11 Coolant

11.1 Hose routing diagram



All spring clips without a specific designation  = Ø25

All connecting pipes without a specific designation  or  = Ø18x18

- 1** T-piece; **2** Double non-return valve; **3** Rubber isolator; **4** Original vehicle spring clip;
- 5** Original vehicle bleeder valve; **6** Original vehicle shut-off valve



11.2 Preliminary Work

Dismantling hoses

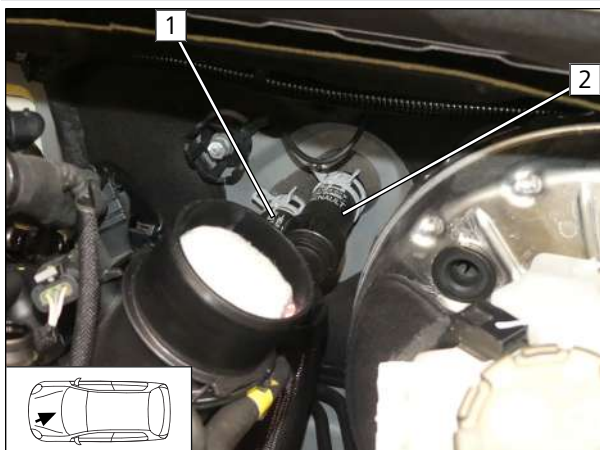


Fig. 54

Original vehicle clamps will be reused

- ▶ Disconnect hose of heat exchanger inlet / engine outlet **1** and hose of heat exchanger outlet / engine inlet **2**.

Cutting point 1

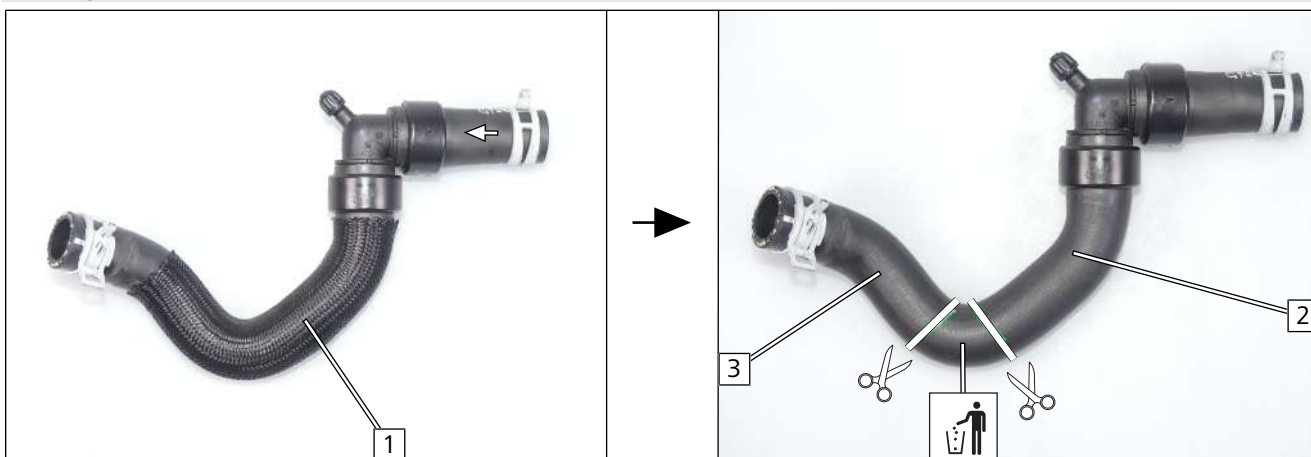


Fig. 55

- ▶ Remove braided protection **1** from heat exchanger outlet/engine inlet hose.

- 2** Heat exchanger outlet hose section
- 3** Engine inlet hose section

Cutting hoses to length

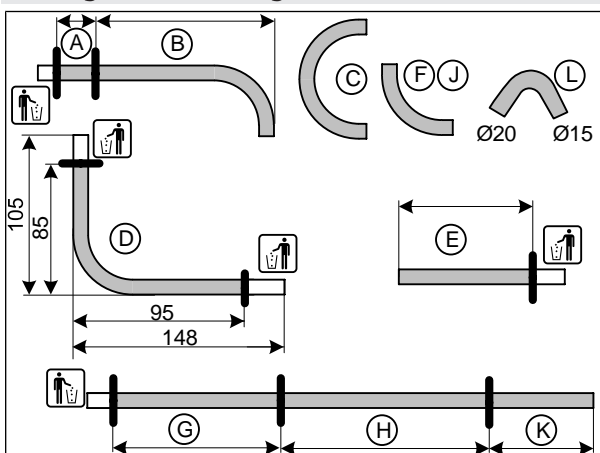


Fig. 56

- (A)** 60
- (B)** 280
- (C)** 180° moulded hose
- (D)** 90° moulded hose
- (E)** 350
- (F / J)** 90° moulded hose
- (G)** 86
- (H)** 91
- (J)** 80
- (K)** 28
- (L)** 135° moulded hose



Mounting fabric heat shrink tubings onto hoses **G** and **H**

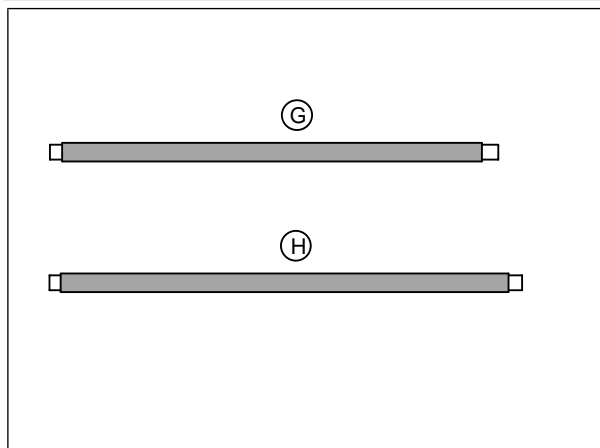


Fig. 57



- ▶ 1. Slide on and cut to length
- ▶ 2. Shrink, use at most 230 °C

Premounting T-piece hose group

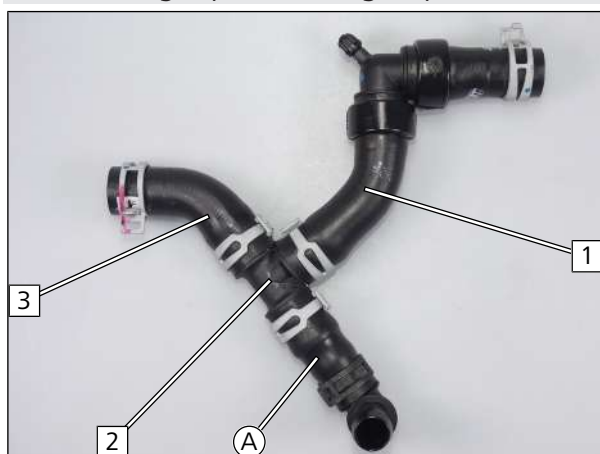


Fig. 58

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

Mounting hose **B** onto hose **A**



Fig. 59

- 1** Rubber isolator



Preparing perforated bracket

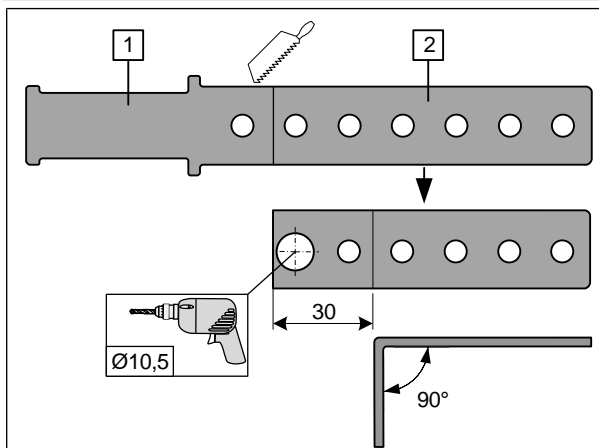


Fig. 60

- 1 Coolant pump perforated bracket
- 2 Perforated bracket 1 for fastening the coolant hoses

Premounting coolant pump



Fig. 61

- 1 Coolant pump
- 2 Coolant pump mount
- 3 M6x30 bolt, coolant pump perforated bracket, spacer (5), lock washer

Mounting coolant pump 1 onto hose B

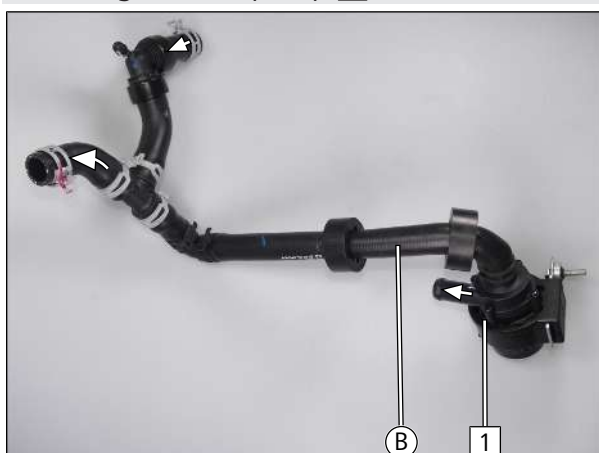


Fig. 62



Cutting point 2

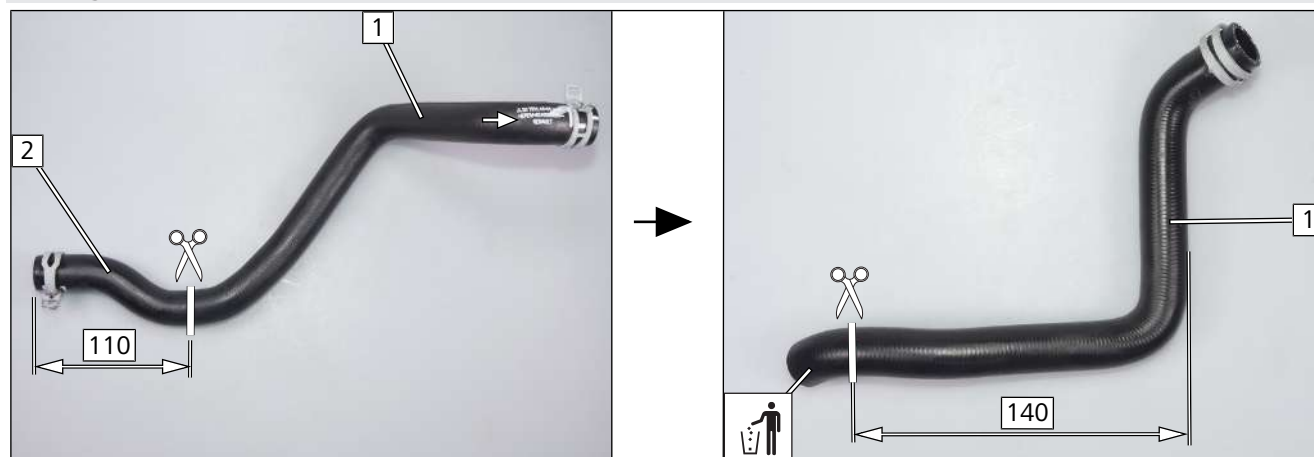


Fig. 63

► Cut heat exchanger inlet/engine outlet hose as shown.

- 1 Heat exchanger inlet hose section
- 2 Engine outlet hose section

Connecting hose C to hose D

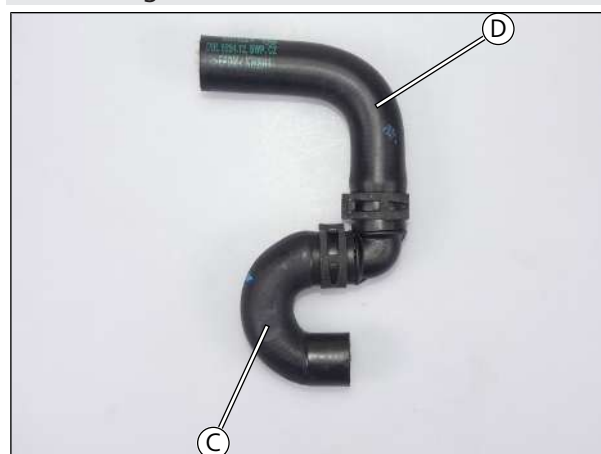


Fig. 64

► Connect short side of hose D to hose C.

Connecting hose L to engine outlet hose section 1

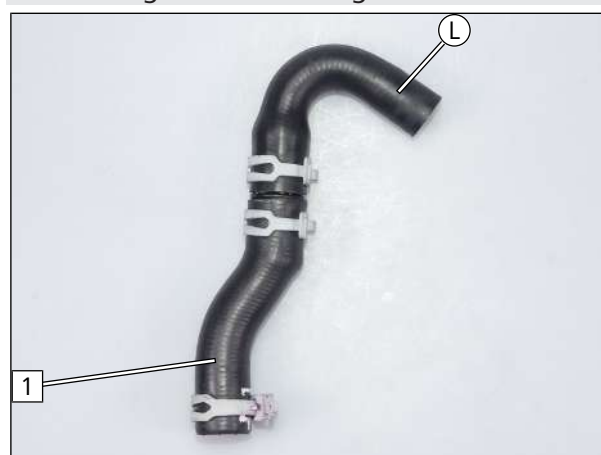


Fig. 65



Premounting double non-return valve hose group



Fig. 66

1 Double non-return valve

Mounting rubber isolator 1 onto hose E

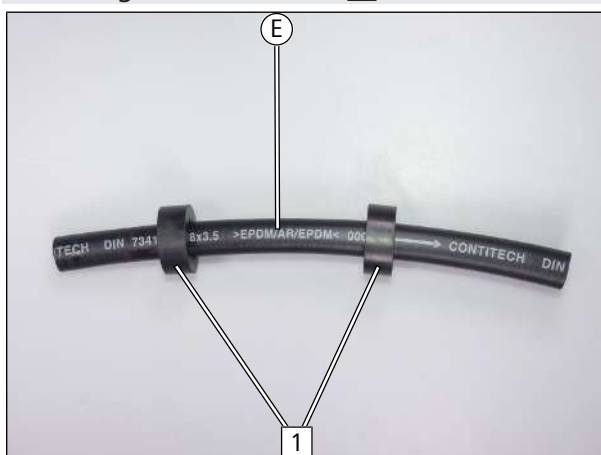


Fig. 67

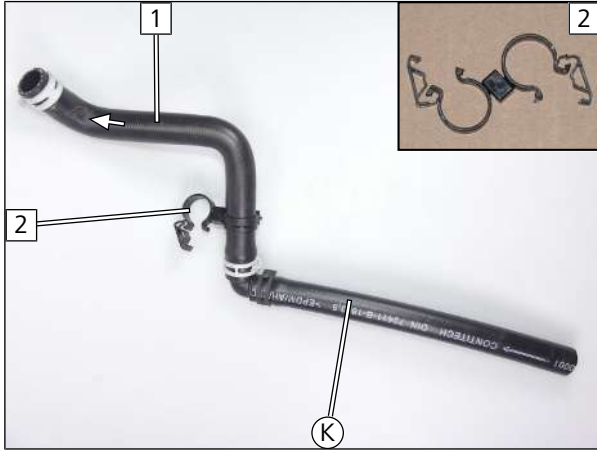
Connecting hose E to double non-return valve 1



Fig. 68



Connecting hose **K** to heat exchanger inlet hose section **1**



2 Hose bracket

Fig. 69



11.3 Coolant circuit installation



Figures show a vehicle with manual transmission, but apply to all vehicles.

Mounting coolant pump

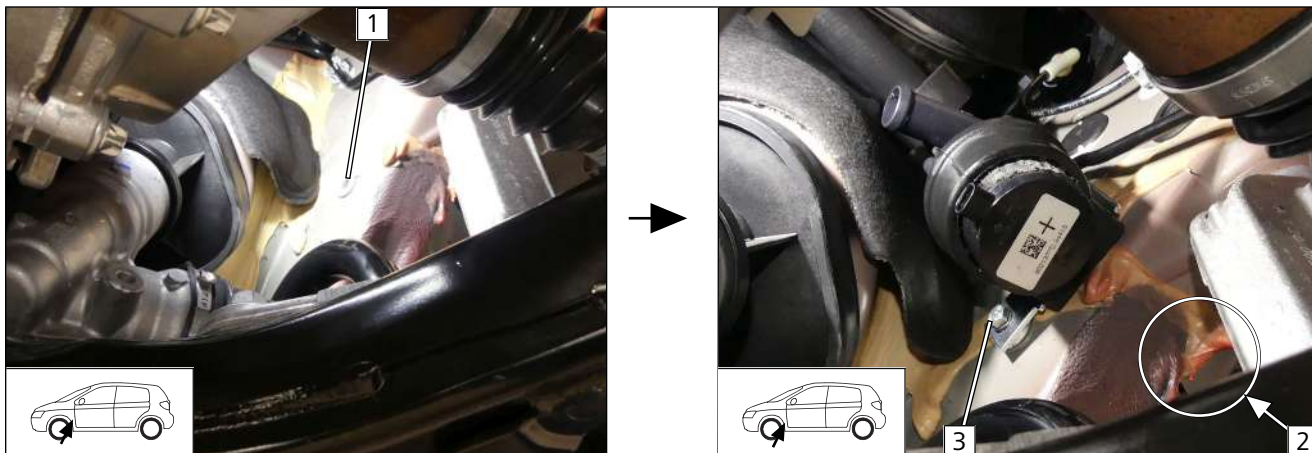


Fig. 70

1 Original vehicle threaded hole

- ▶ Insert hose group with T-piece and coolant pump through opening **2** from the outside.
- ▶ Mount premounted coolant pump **3**.

Routing hose **B**

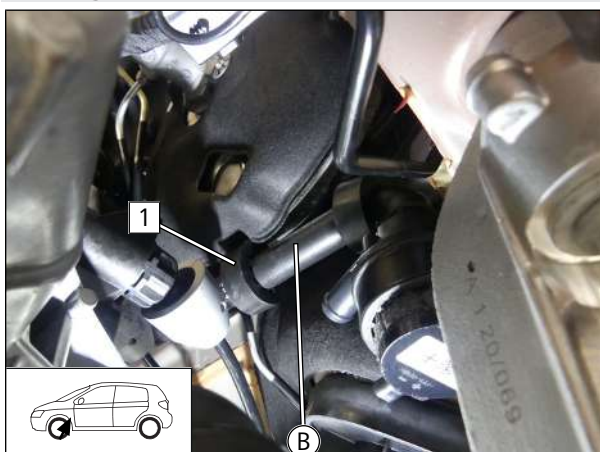


Fig. 71



Mounting T-piece hose group

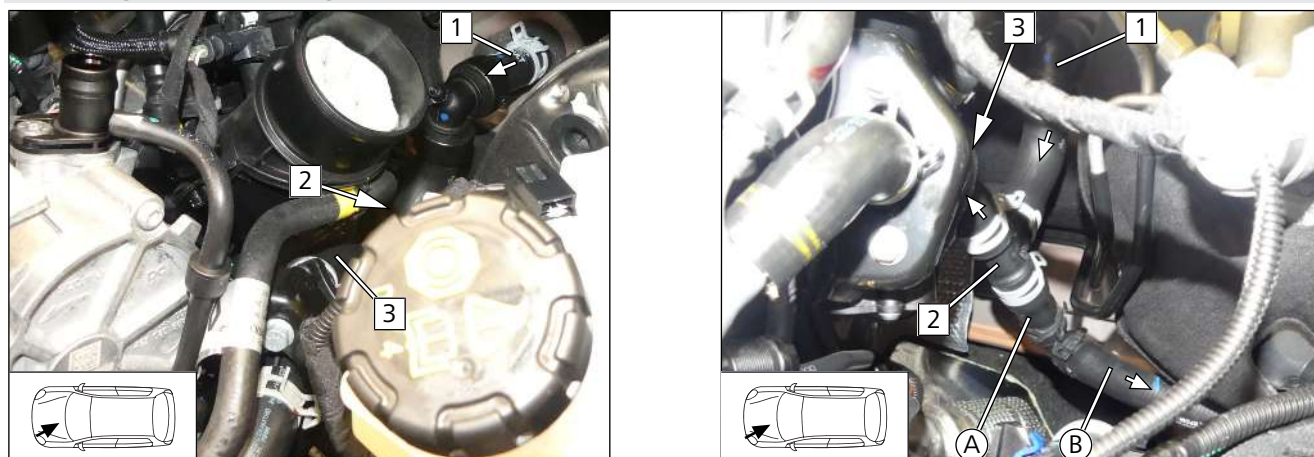


Fig. 72

- 1 Heat exchanger outlet connection with original vehicle spring clip
- 2 T piece
- 3 Engine inlet connection

Fastening hose (B)

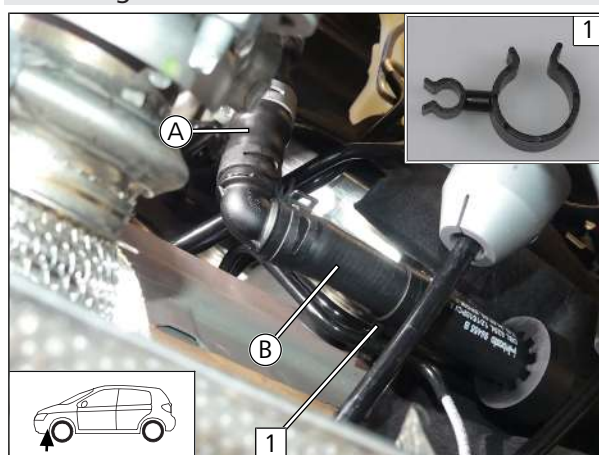


Fig. 73

- 1 Hose bracket between hose (B) and brake line

Mounting coolant pump wiring harness connector 1

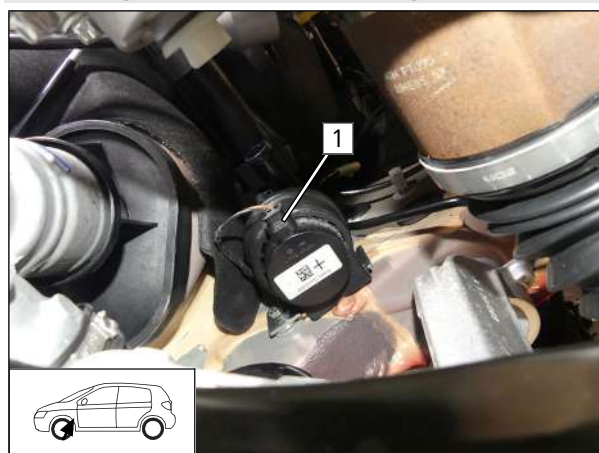


Fig. 74



Mounting hose group with double non-return valve

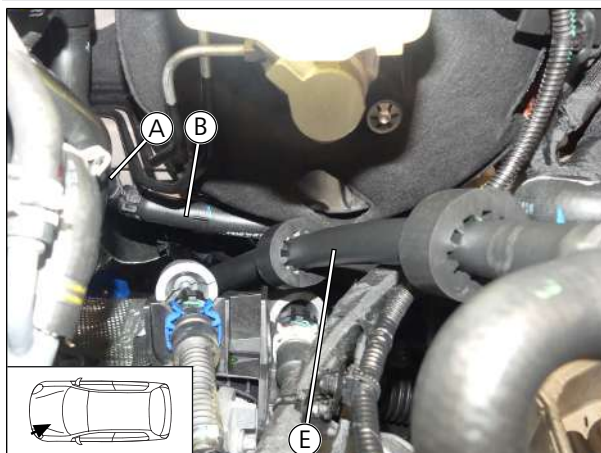


Fig. 75

► Route hose (E) through gearshift cable downwards.

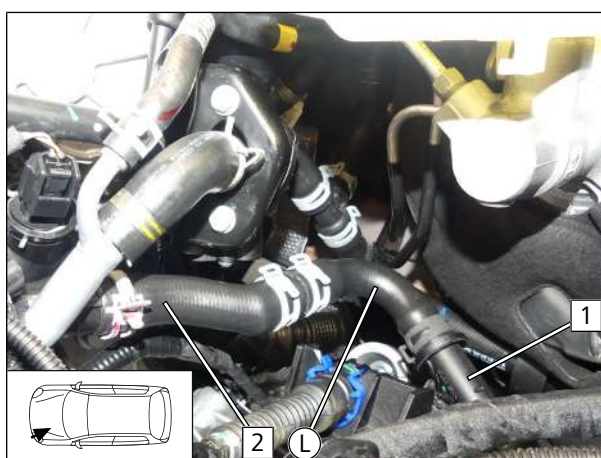


Fig. 76

- 1 Double non-return valve
- 2 Engine outlet connection

Connecting hose (C) to coolant pump

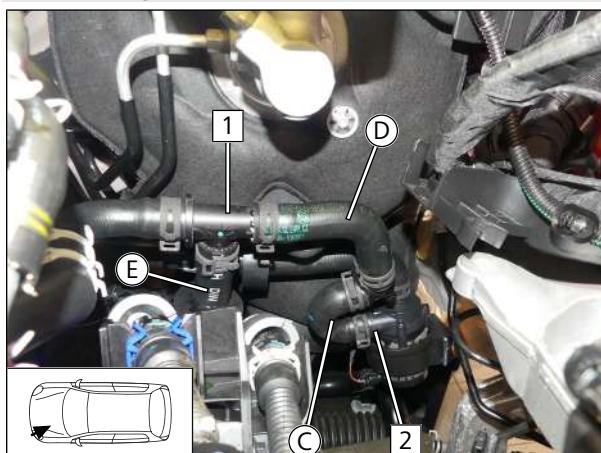


Fig. 77

- 1 Double non-return valve
- 2 Coolant pump/OUT



Fastening hoses

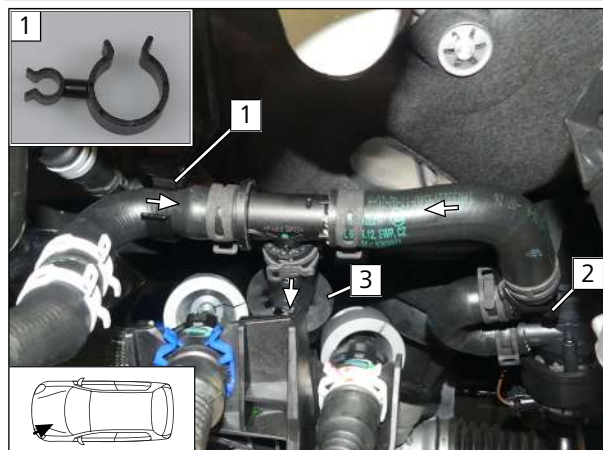


Fig. 78

- 1 Hose bracket between hose **L** and brake line
- 2 Cable tie through rubber isolator (covered) and 90° connecting pipe between hoses **C** and **D**
- 3 Align rubber isolator between gearshift cables

Heat exchanger inlet connection



Fig. 79

- 1 Heat exchanger inlet connection with original vehicle spring clip

Fastening hose **A**

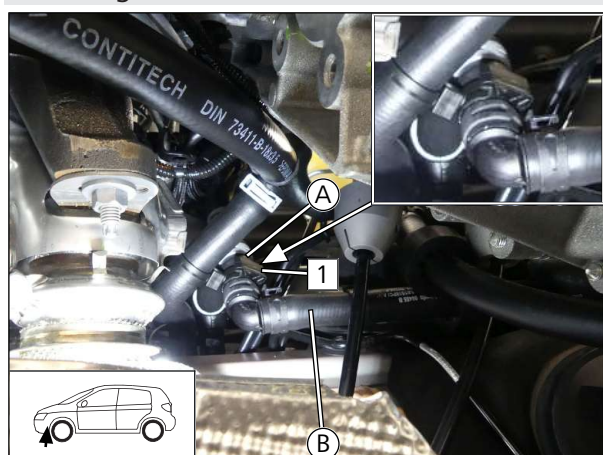


Fig. 80

- Attach hose **A** using premounted hose bracket **1**.



Mounting hoses (F) and (J)



Fig. 81

Preparing perforated bracket 2

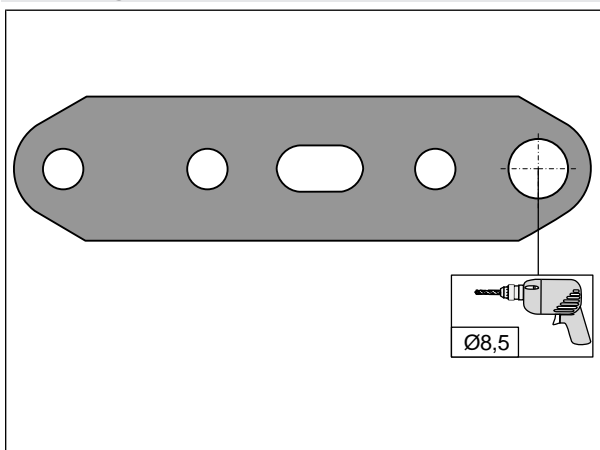


Fig. 82

Preparing perforated bracket 3

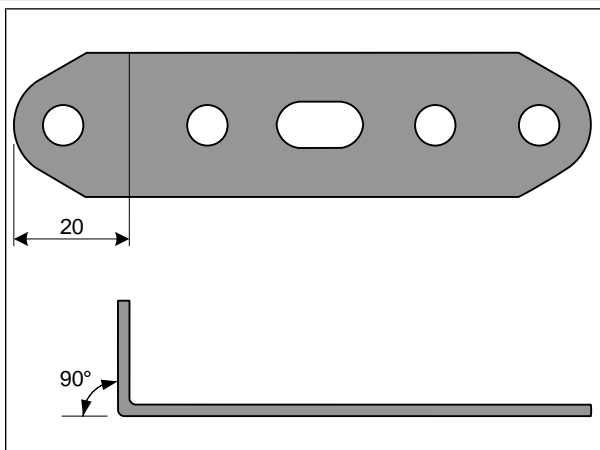


Fig. 83



Preparing perforated bracket 4

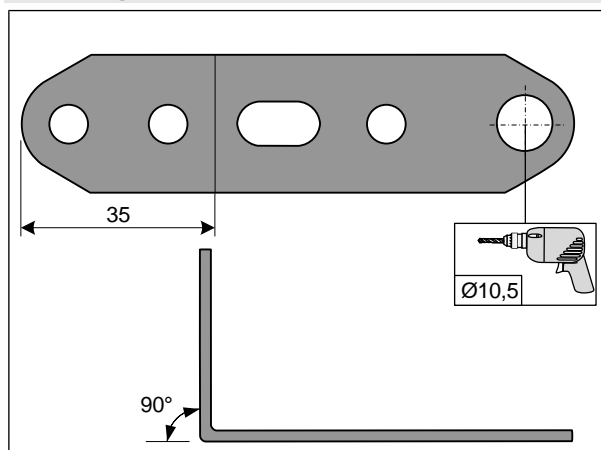


Fig. 84

Inserting rivet nut

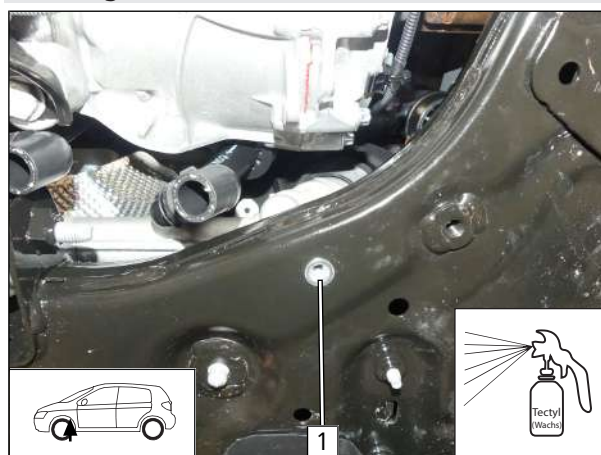


Fig. 85

► Enlarge original vehicle hole to Ø12, insert M8 rivet nut **1**

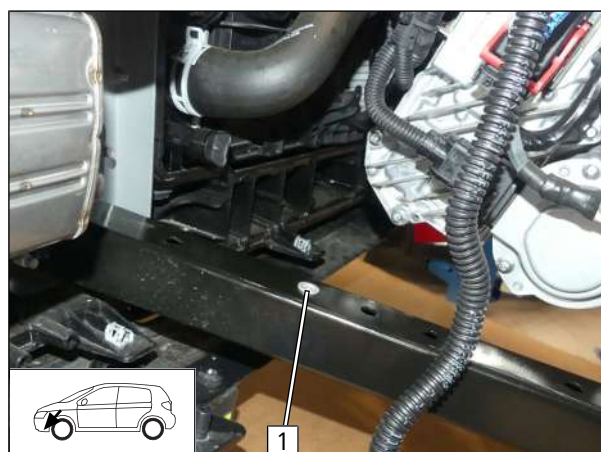


Fig. 86

1 Aluminium M6 rivet nut in original vehicle hole



Mounting perforated bracket 1 and 2

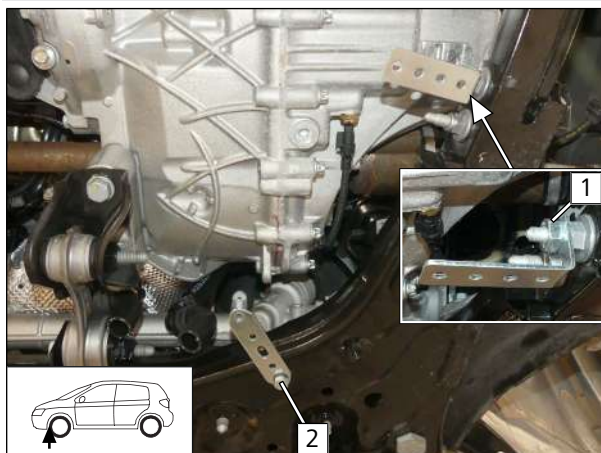


Fig. 87

- 1 Original vehicle stud bolt, perforated bracket 1, M10 nut
- 2 M8x20 bolt, spring lock washer, perforated bracket 2, rivet nut

Mounting perforated bracket 3

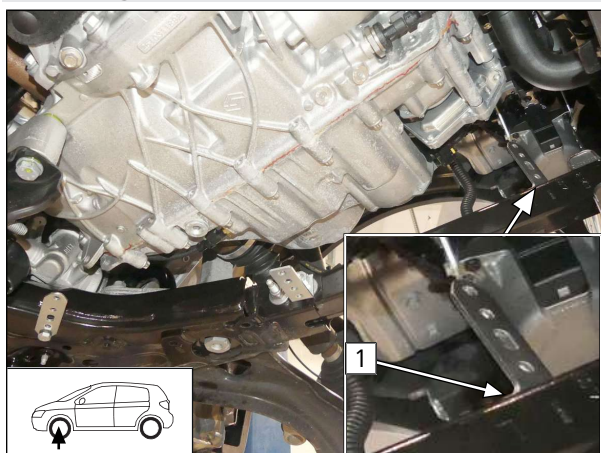


Fig. 88

- 1 M6x20 bolt, spring lock washer, perforated bracket 3, rivet nut

Routing and mounting hose (G)

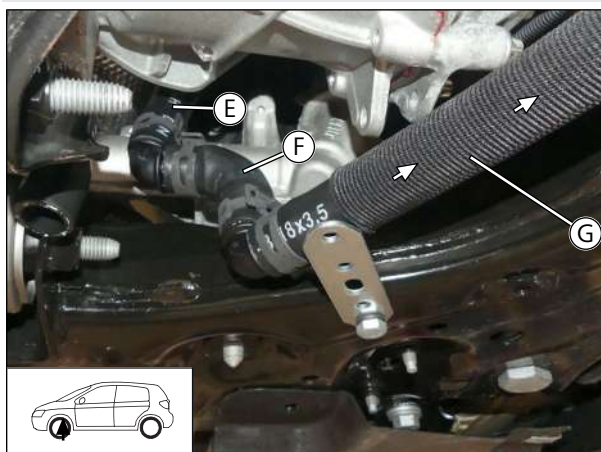


Fig. 89

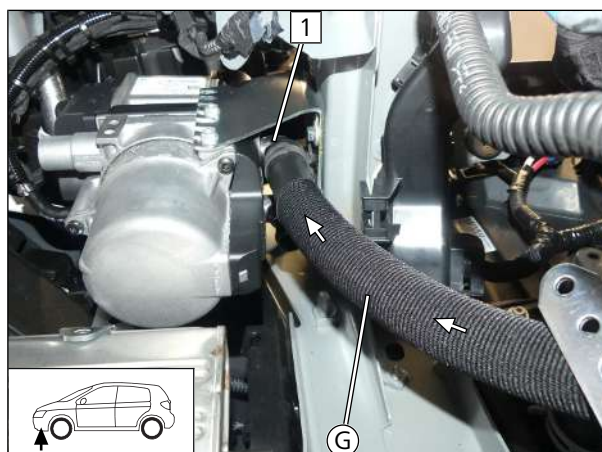


Fig. 90

1 HG/IN connection

Routing and mounting hose (H)

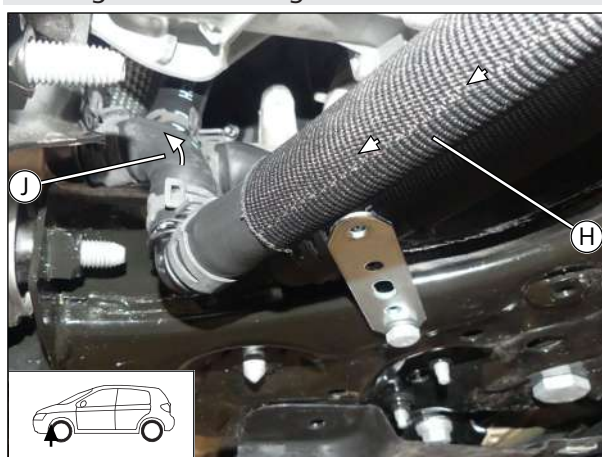


Fig. 91

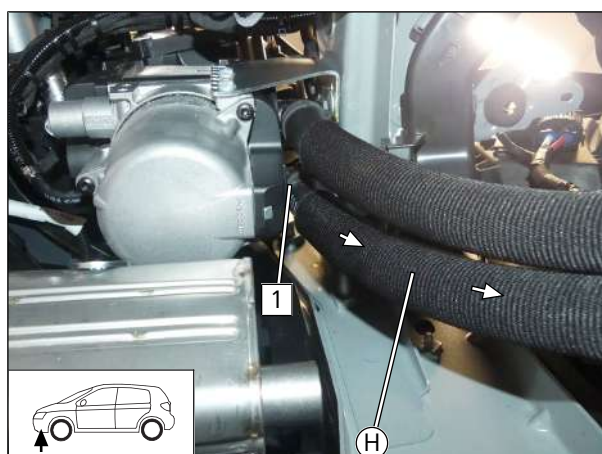


Fig. 92

1 HG/OUT connection



Fastening hoses

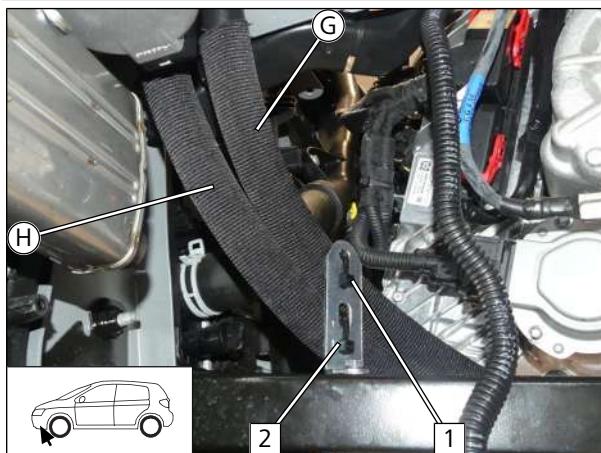


Fig. 93

- 1 Cable tie around hose **G** and perforated bracket 3
- 2 Cable tie around hose **H** and perforated bracket 3

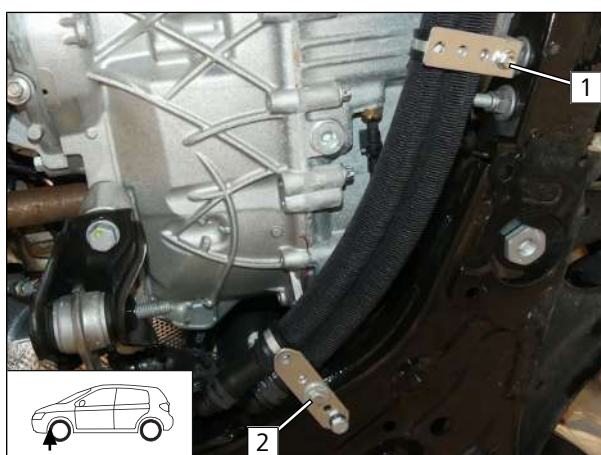


Fig. 94

- 1 M6x12 bolt, perforated bracket 1, Ø38 rubber-coated p-clamp, flanged nut, mount loosely
- 2 M6x20 bolt, large diameter washer, oblong hole of perforated bracket 2, Ø38 rubber-coated p-clamp, flanged nut, mount loosely

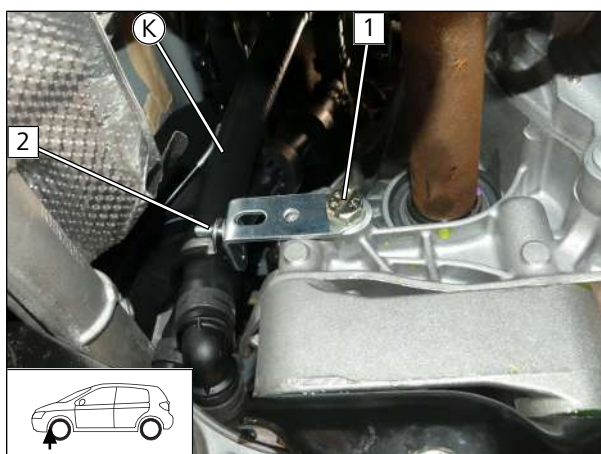


Fig. 95

- 1 M10x16 bolt, spring lock washer, perforated bracket 4, original vehicle threaded hole
- 2 M6x20 bolt, perforated bracket 4, 38mm dia. rubber-coated p-clamp, lock washer



Aligning hoses, checking distance

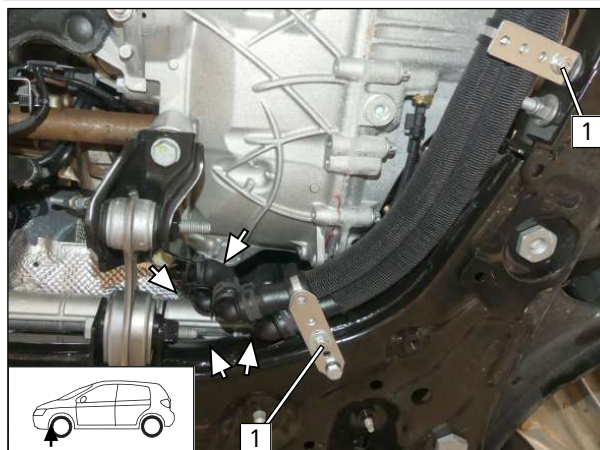


Fig. 96

► Align all hoses, tighten clamp **1**.



Danger of damage to components

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

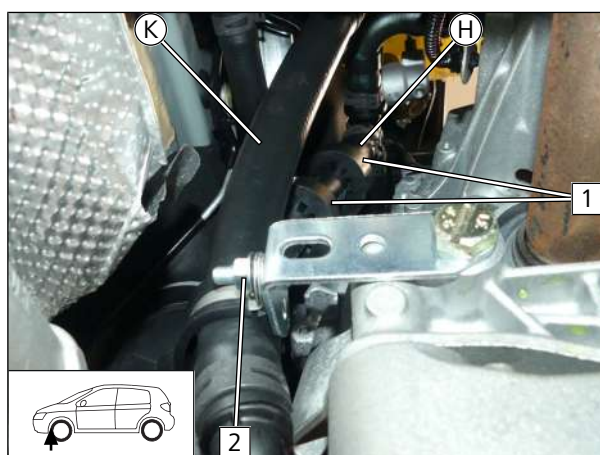


Fig. 97

1 Align rubber isolator with transmission

2 Premounted rubber-coated p-clamp, flanged nut



12 Exhaust

12.1 Mounting exhaust end fastener

Work steps E1, E2

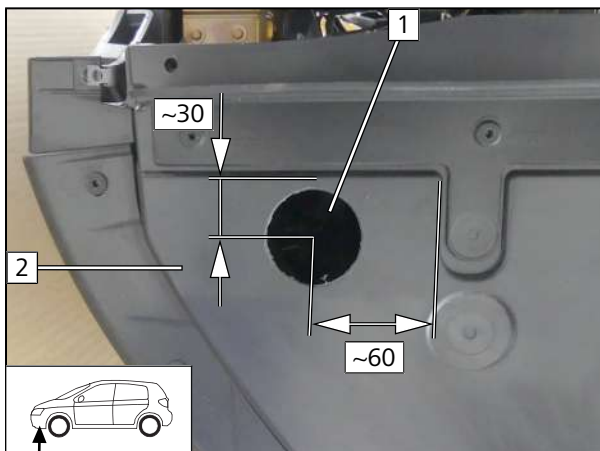


Fig. 98



Observe the EFIX installation instructions.

- 1 Hole
- 2 Underride protection under bumper trim

Work step E3

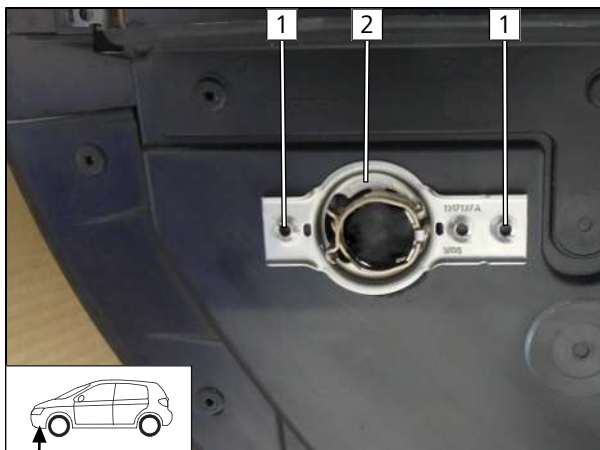


Fig. 99

- 1 Copy hole pattern
- 2 EFIX

Work step E4

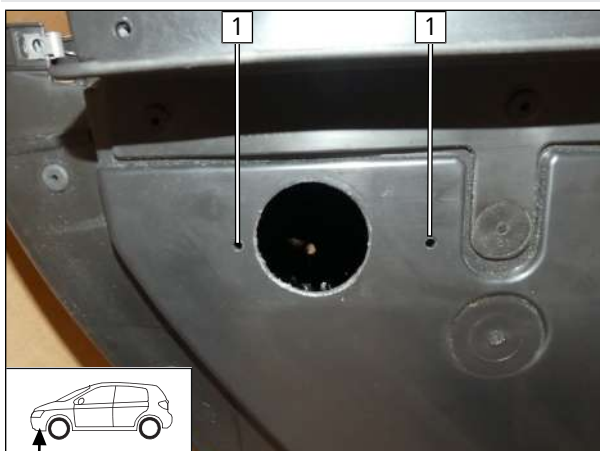


Fig. 100

- 1 Hole



Work step E5

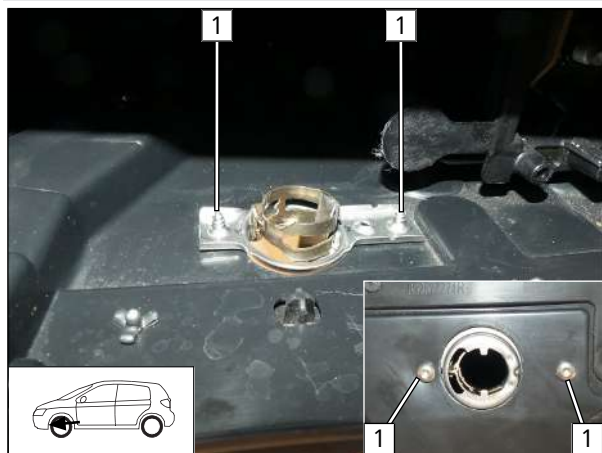


Fig. 101

- 1 5x13 self-tapping screw

12.2 Mounting exhaust pipe

Cutting exhaust pipe to length

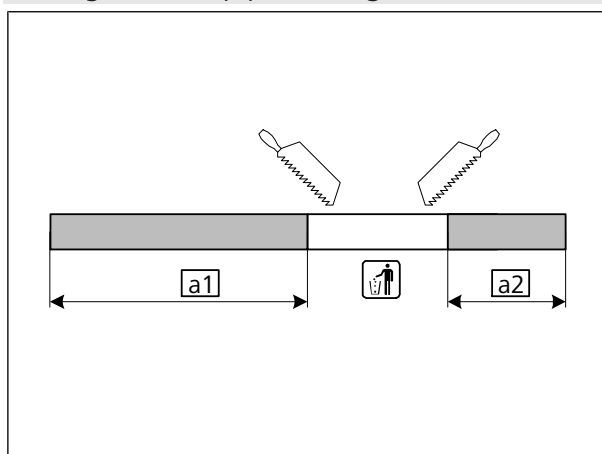


Fig. 102

- a1 240
- a2 260

Mounting exhaust pipe a1

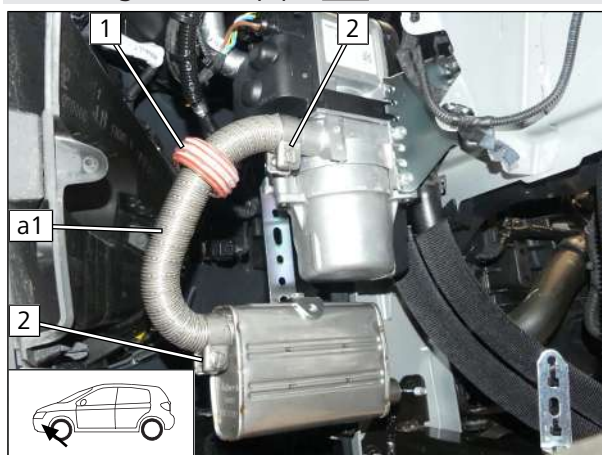
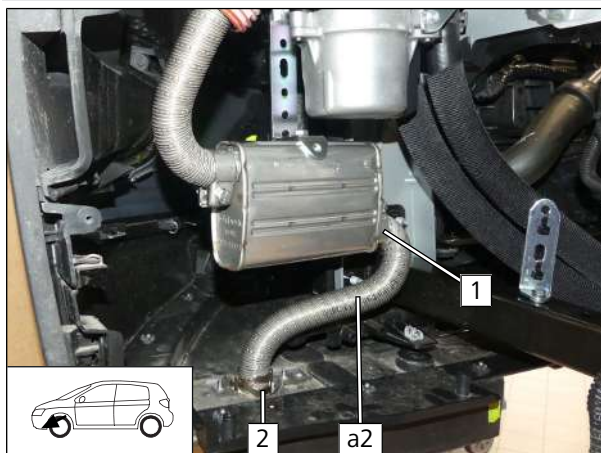


Fig. 103

- 1 Spacer bracket
- 2 Hose clamp



Mounting exhaust pipe **a2**



- 1** Hose clamp
- 2** EFIX

Fig. 104

Preparing wheel well trim insulation



- Cut insulation **1** as shown.

Fig. 105



- Cut heat protection film **1** in half and glue onto wheel well trim as shown.
- Fold insulation as shown and fasten using suitable means (e.g. staples **2**).

Fig. 106



Checking distance

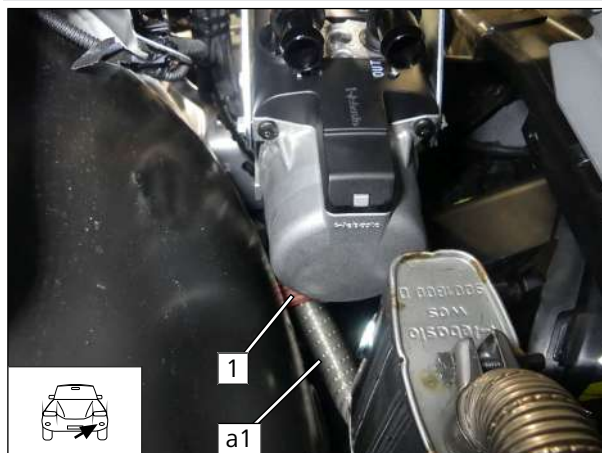


Fig. 107

► Install wheel well trim.



Hoses **G** and **H** removed for a better view.



Ensure sufficient distance between exhaust pipe **a1** and wheel well trim, correct if necessary.



1 Align spacer bracket with wheel well trim



13 Final work in engine compartment

Installing underbody trim

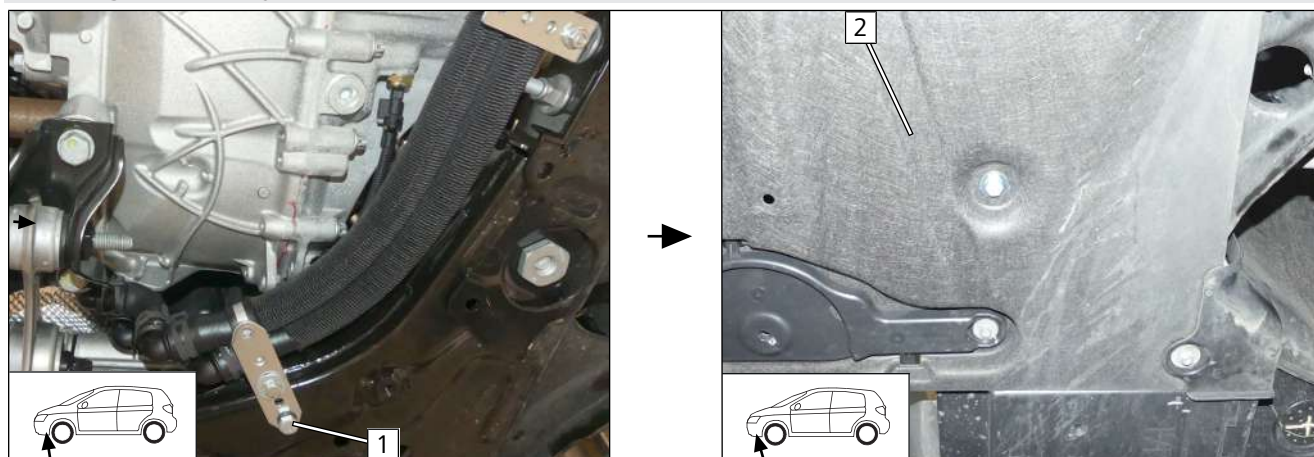


Fig. 108

- ▶ Remove M8 bolt **1** from perforated bracket **2**, position underbody trim **2** and reinstall bolt with additional large diameter washer.



14 Electrical system of passenger compartment

14.1 Electrical system preparation

Preparing / assigning wires

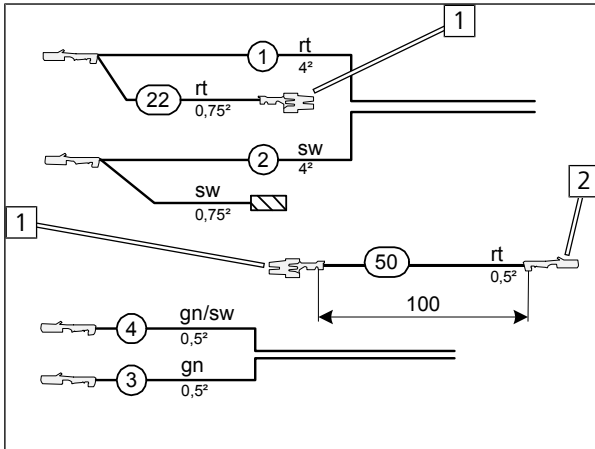


Fig. 109



Wire sections retain their numbering in the entire document.

- 1 Flat spring contact
- 2 Female connector
- 1 Red (rt) wire of fan wiring harness
- 2 Black (sw) wire of fan wiring harness
- 3 Green (gn) wire of PWM control wiring harness
- 4 Green/black (gn/sw) wire of PWM control wiring harness

Assembling PWM GW and RSH sockets, connecting wires, connecting male and female connectors

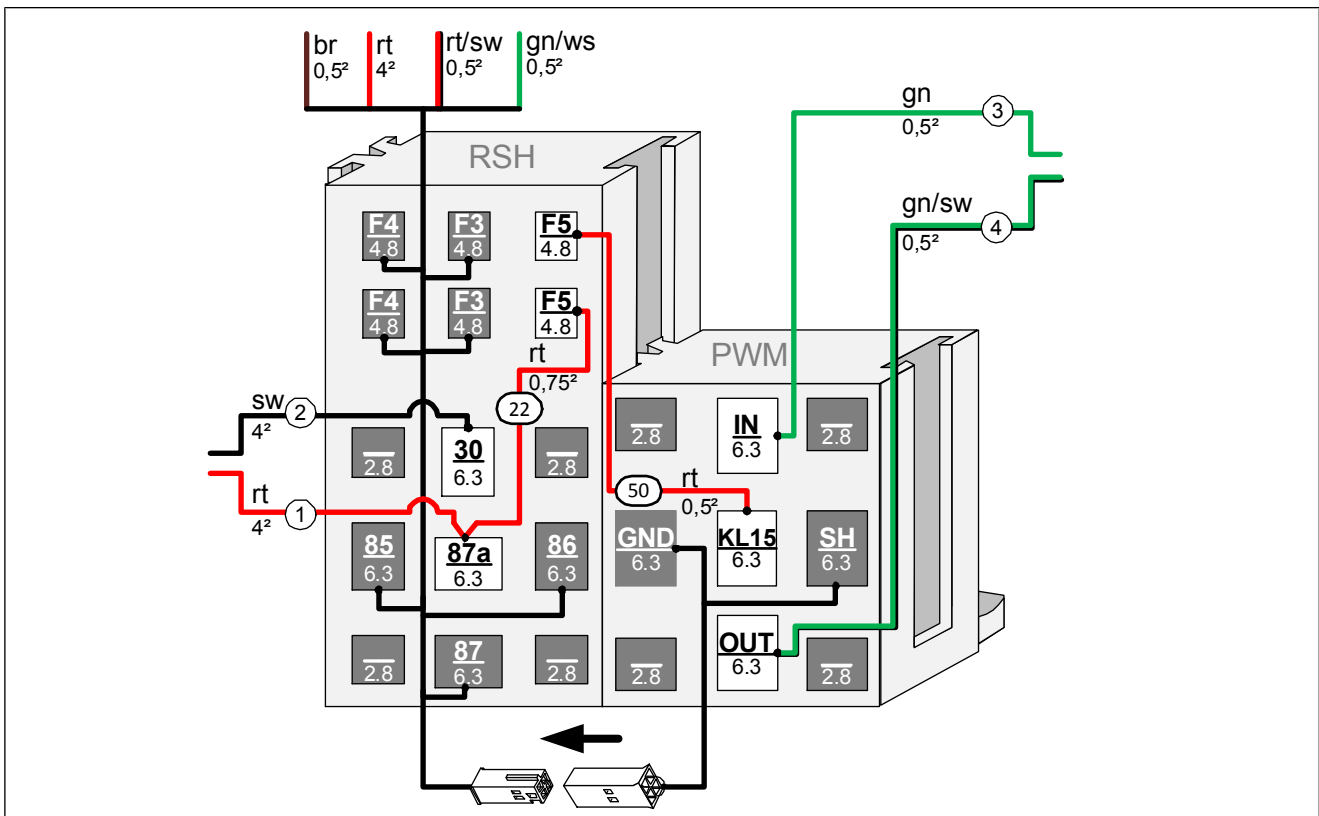


Fig. 110



View of PWM GW

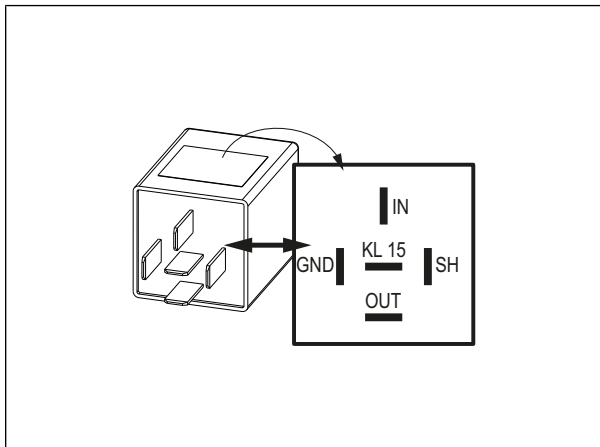


Fig. 111

► Check PWM GW settings when starting up the heater and adjust if necessary.

Parameter	Setting
Duty cycle	60%
Frequency	500Hz
Voltage	not relevant
Function	Low side

Mounting angle bracket on RSH

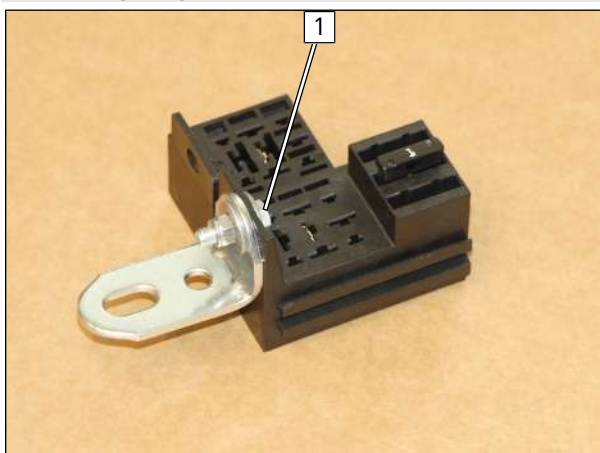


Fig. 112

- 1 M5x16 bolt, large diameter washer, RSH socket, angle bracket, large diameter washer, nut

Mounting relay K1, PWM GW as well as fuses F4 and F5

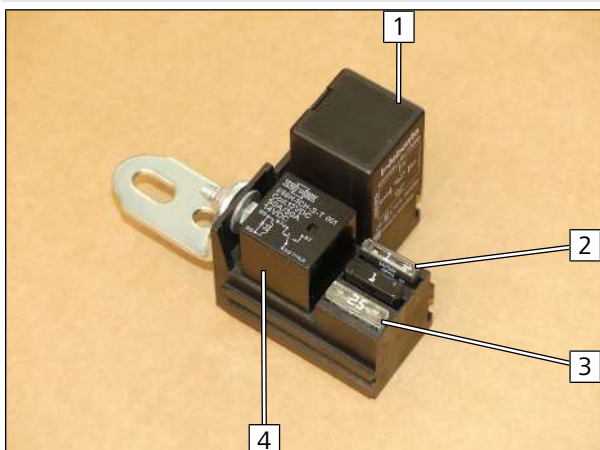


Fig. 113

- 1 PWM GW
- 2 1A fuse F5
- 3 25A fuse F4
- 4 Relay K1



14.2 Wiring diagram



Interactive wiring diagram with WD Code **71829** at <https://my.webasto.com>

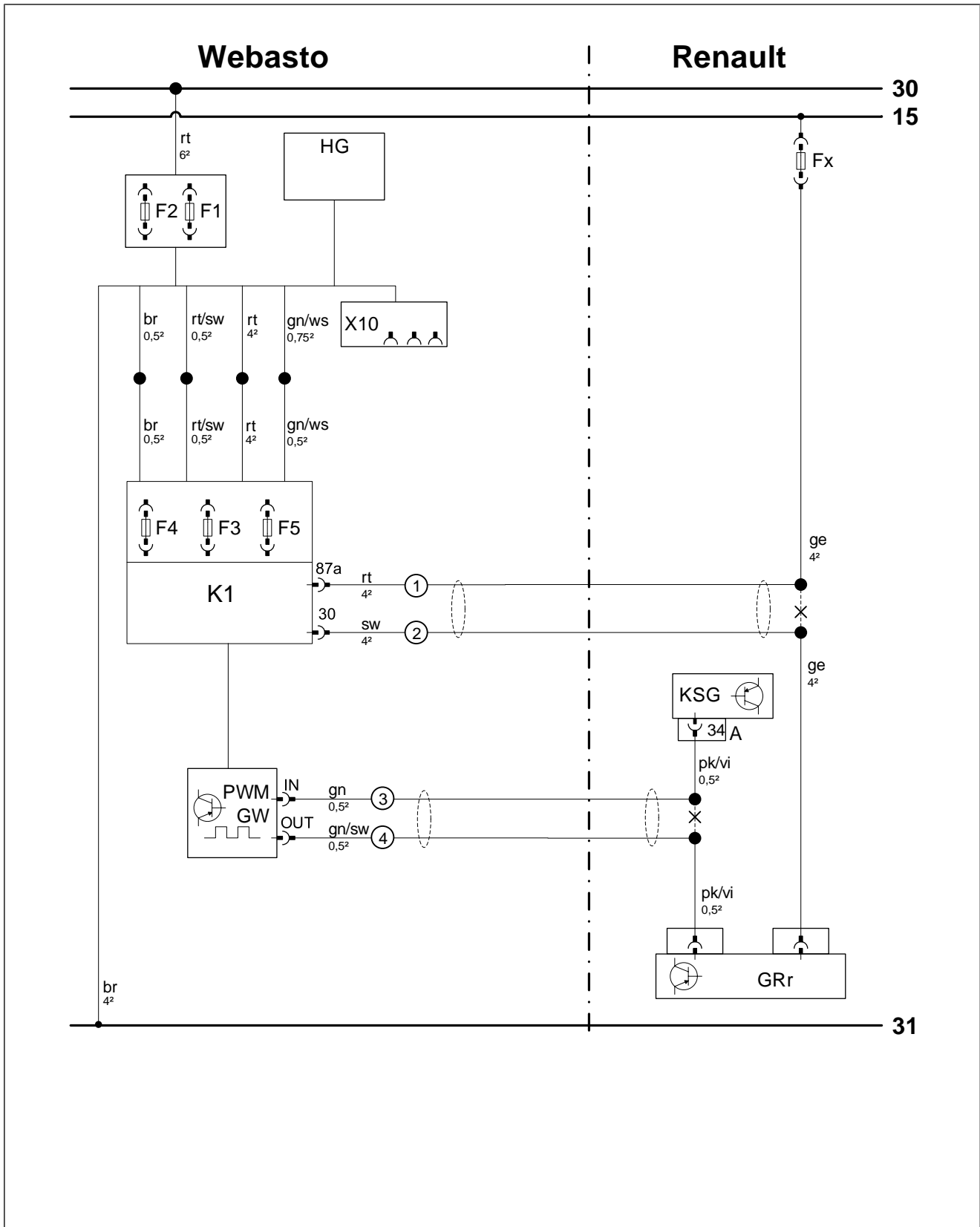


Fig. 114



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	Explanation
Fx	Fuse 40A	X	Cutting point
KSG	Air-conditioning control unit		
A	40-pin KSG connector		
GRr	Fan controller		

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	ro	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		
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		



14.3 Instrument panel trim removal notes - vehicles with SG

Removing shift lever trim



Fig. 115

- ▶ Detach shift lever frame **1** with the shift lever boot and pull upwards. (See next Fig.)

Dismantling centre console frame

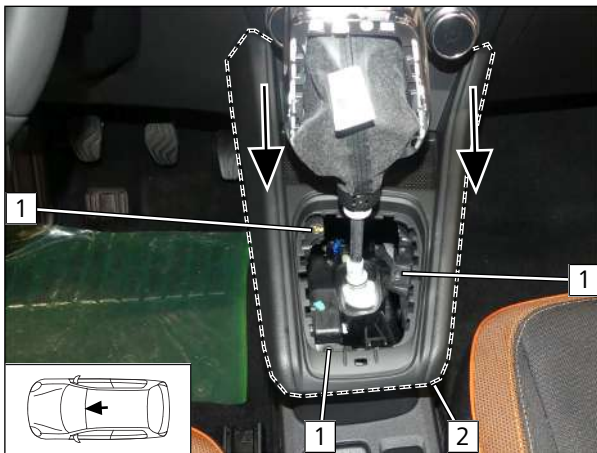


Fig. 116

- ▶ Undo screws **1**.
- ▶ Remove frame **2** by loosening it in the opposite direction of travel.

Removing trim

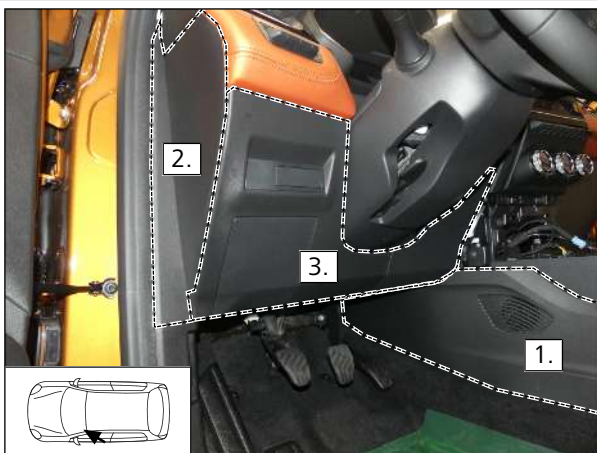


Fig. 117

- ▶ Remove the marked pieces of trim in the indicated order as shown.



14.4 Instrument panel trim removal notes - vehicles with DKG

Removing shift knob



- ▶ To release clip **2**, pull knob **1** upwards and move it slightly back and forth (do not turn).

Fig. 118

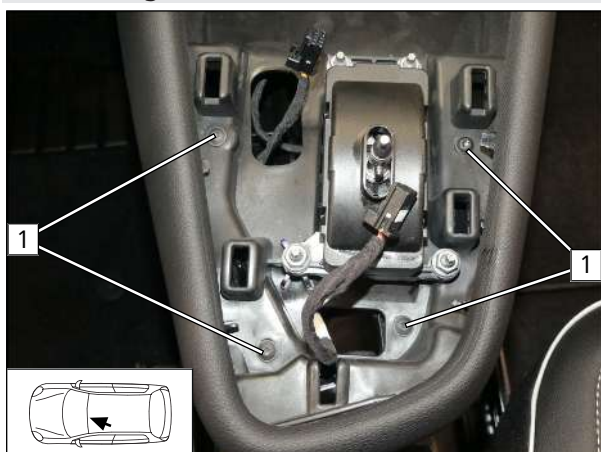
Dismantling centre console trim piece



- ▶ Detach trim piece **1** by pulling it up and disconnect all connectors below.

Fig. 119

Dismantling centre console



- ▶ Undo bolts **1**. Pull centre console upwards, then backwards.

Fig. 120



Removing A/C control panel trim piece

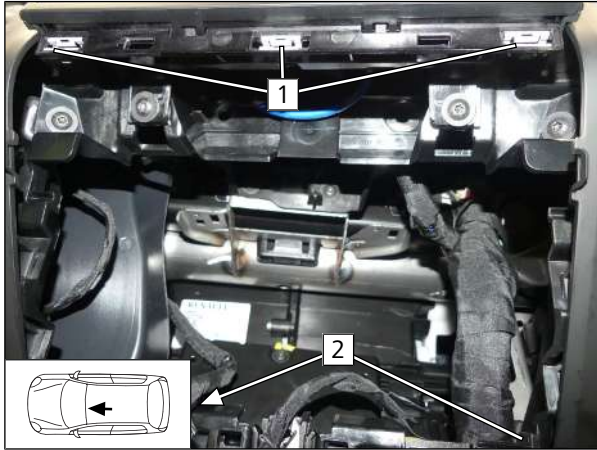


Fig. 121

- ▶ Detach trim piece at pos **1**.
- ▶ Undo all screw fitting at pos. **2** (covered on the left side).

Removing trim

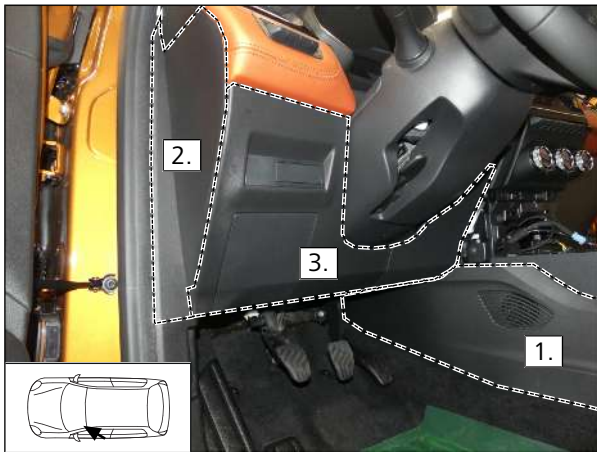


Fig. 122

- ▶ Remove the marked pieces of trim in the indicated order as shown.

14.5 Fan controller

Detaching fuse and relay box

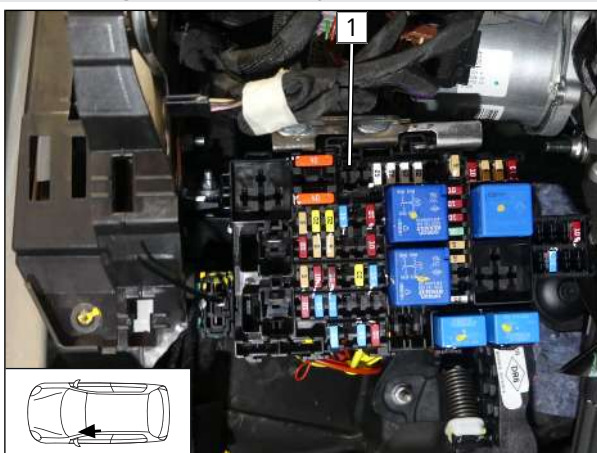


Fig. 123

- 1** Detach the fuse and relay box



RSH installation location

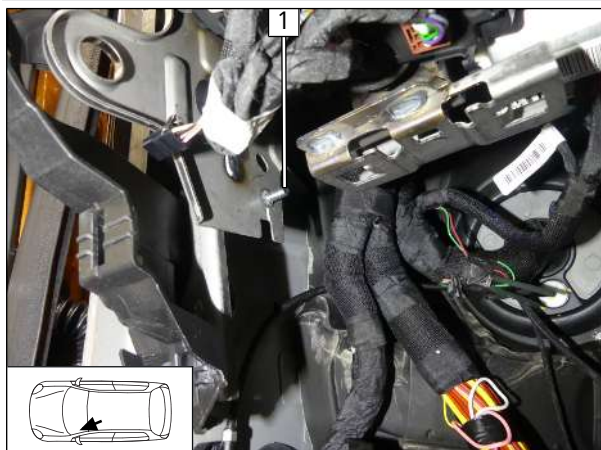


Fig. 124

- 1 M6x16 bolt, original vehicle hole, lock washer

Mounting RSH

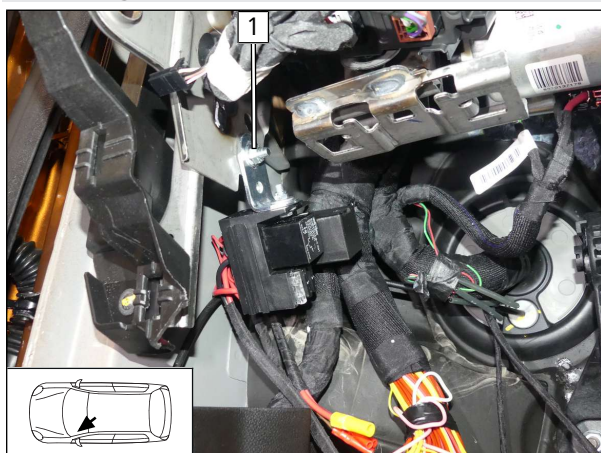


Fig. 125

- 1 Premounted bolt, angle bracket, flanged nut

Connecting same colour wires of wiring harnesses

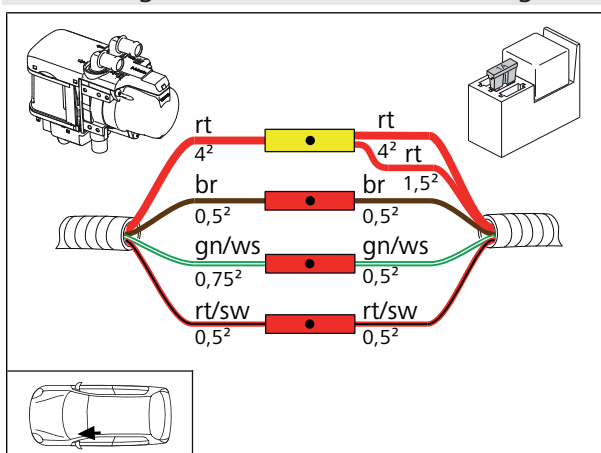


Fig. 126



View of fuse and relay box

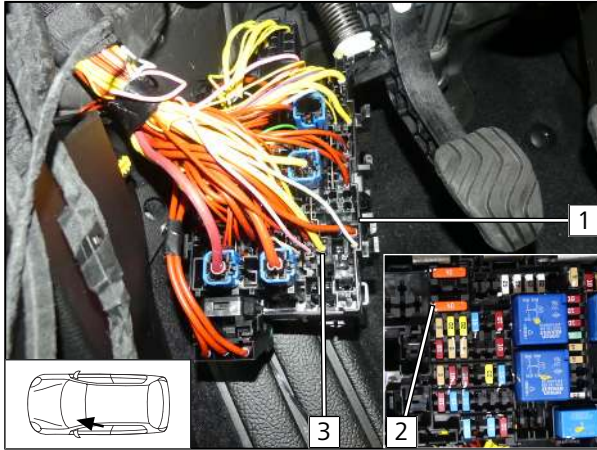


Fig. 127



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

- 1 Fuse and relay box
- 2 Fuse 40A
- 3 Yellow (ge) wire of fuse and relay box

Connecting fan controller

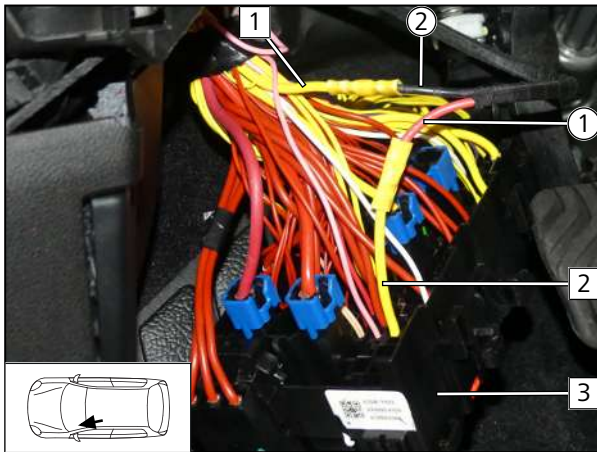


Fig. 128

- 1 Yellow (ge) wire of GRr
- 2 Yellow (ge) wire of fuse and relay box
- 3 Fuse and relay box
- 1 Red (rt) wire of K1/87a fan wiring harness
- 2 Black (sw) wire of K1/30 fan wiring harness

Locating KSG connector A

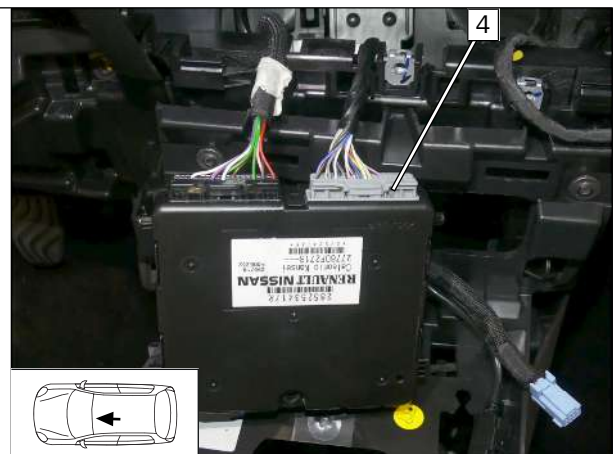
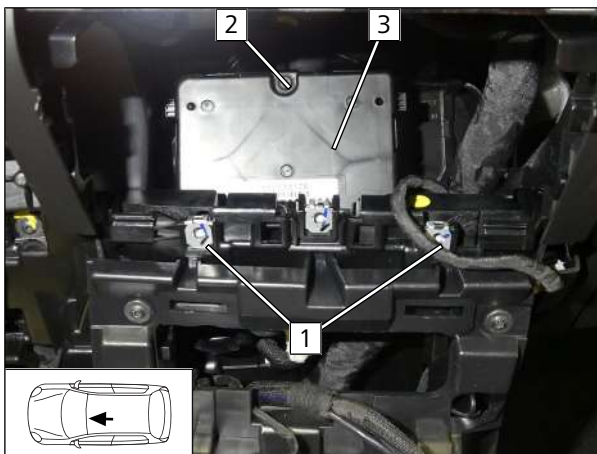


Fig. 129

- ▶ Undo bolt 1, remove A/C control panel.
- ▶ Undo bolt 2, slide KSG 3 down and take it out.

- 4 Disconnect KSG connector A



Connecting air-conditioning control unit

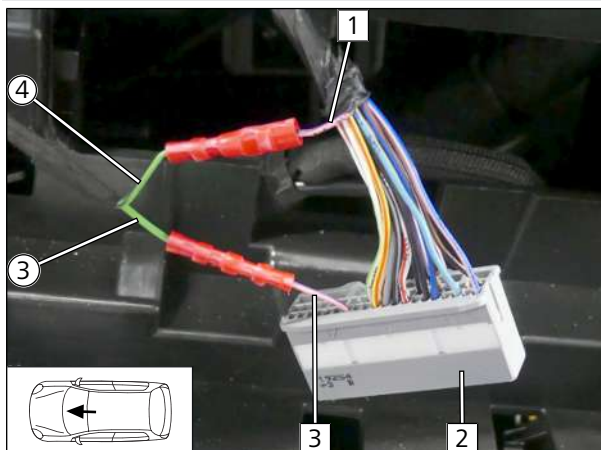


Fig. 130

- 1 Pink/violet (pk/vi) wire
- 2 Air-conditioning control unit connector
- 3 Pink/violet (pk/vi) wire of KSG connector A/ pin 34
- 3 Green (gn) wire of PWM GW/IN wiring harness from PWM control
- 4 Green/black (gn/sw) wire of PWM GW/OUT wiring harness from PWM control

14.6 Control element installation



Install the control element in accordance with the provided relevant general installation documentation. The installation location of the optional control element MultiControl or the push button of the Telestart or ThermoCall/ThermoConnect options should be confirmed with the end customer and should comply with the installation conditions.



15 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 CAR, teach Telestart transmitter

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

▶ Initial operation and functional test

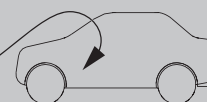
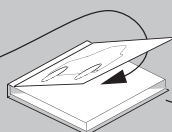
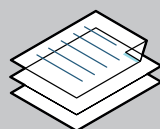
▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck



Vehicle event log after parking heating mode

- ✓ Components of the original vehicle air conditioning system are activated during parking heating mode. Other vehicle components remain inactive, which in some circumstances may be interpreted as an error and can be filed as such in the event log. An increased power consumption (quiescent current) may also be registered for some vehicles.

▶ If an incorrect installation can be excluded, these entries are exclusively related to the parking heating mode situation and have no effect on the vehicle functions in driving mode.



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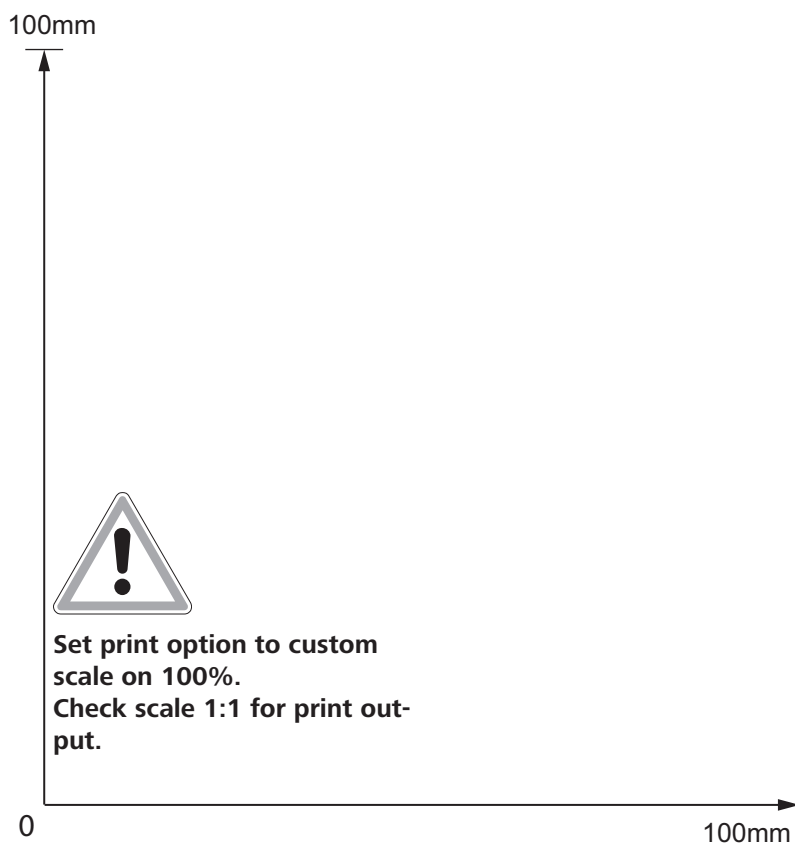
Technical Extranet: <https://dealers.webasto.com>



WWW.WEBASTO.COM



16 Tank extracting device template



**Set print option to custom scale on 100%.
Check scale 1:1 for print output.**

17 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



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.



Note for current consumption in case of parking heating mode

Depending on the vehicle model, there may be an increased quiescent current consumption message in the vehicle information system during or directly after operation in parking heating mode.

- ▶ This is not an error that can affect the vehicle on a technical level.



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.

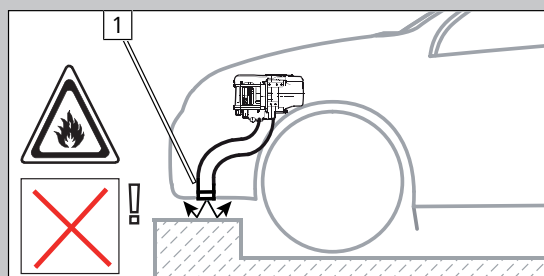
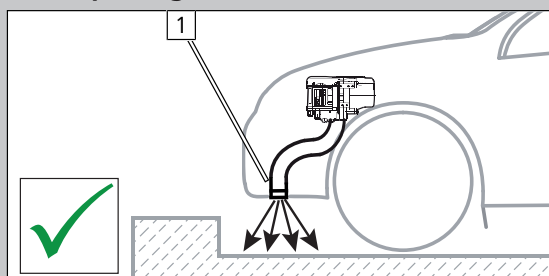


Note for parking heater function

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



Notes on parking heater exhaust outlet ¹



17.1 A/C control panel settings

Automatic A/C control panel

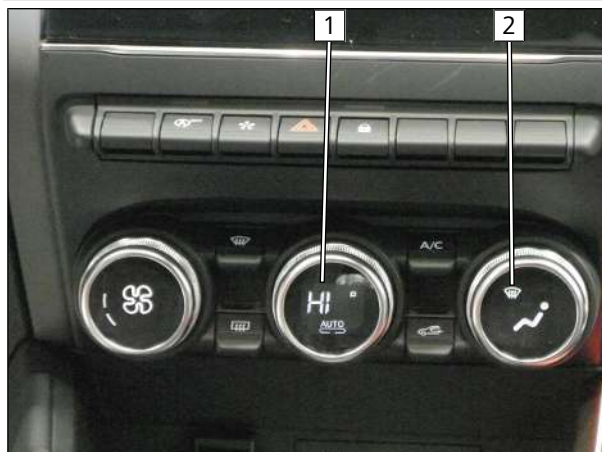


Fig. 131



Before parking the vehicle, make the following settings:

- 1 Set temperature to 'HI'
- 2 Air outlet to windscreen

17.2 Installation location of fuses

Fuses in engine compartment

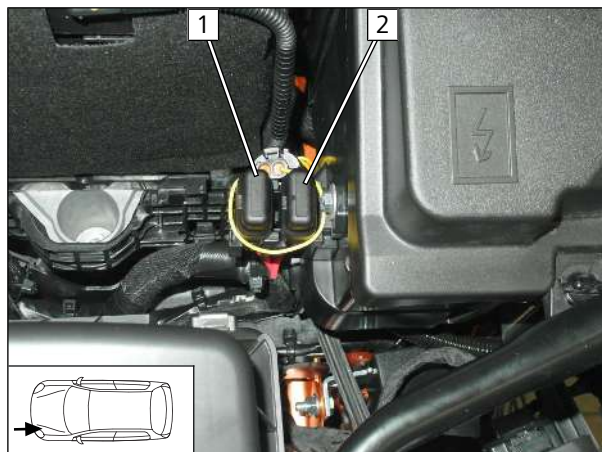


Fig. 132

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

Fuses in passenger compartment

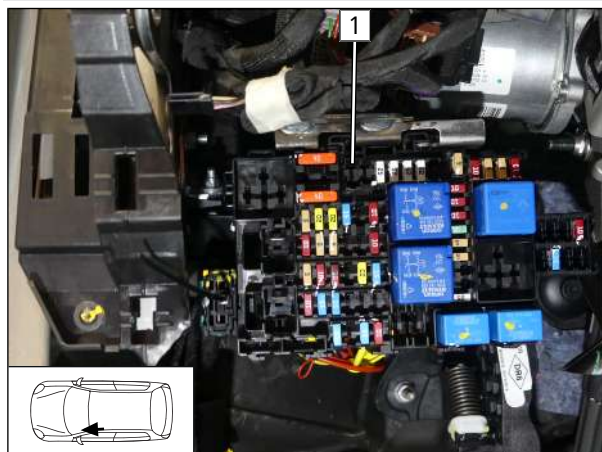
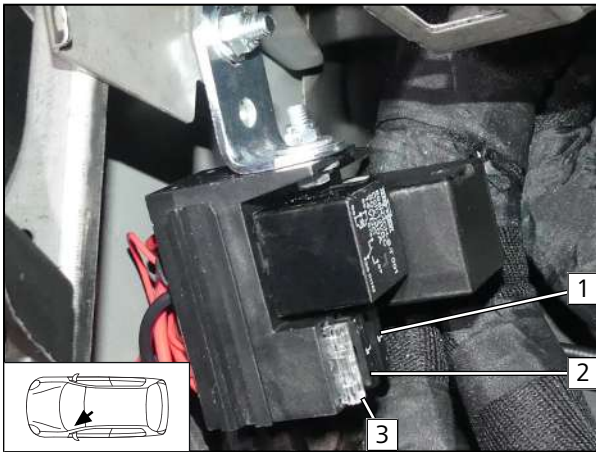


Fig. 133

- 1 Installation location of passenger compartment relay and fuse holder behind the fuse and relay box



- 1 F5 – 1A additional fuse
- 2 F3 - 1A control element fuse
- 3 F4 - 25A fan controller fuse

Fig. 134

