

K Installation documentation

for water heater Thermo Top Evo

'Inline' coolant circuit with engine preheating

Opel Grandland

Left-hand drive vehicle

| Manufacturer | Model | Type | Model year | EG-BE-No. / ABE | | |
|--------------|-----------|-------------------|-------------------|-----------------------|---------------------------------|-------------|
| Opel | Grandland | Z | 2019 | e2* 2007/46* 0597*... | | |
| Motorisation | Fuel | Emission standard | Transmission type | Output [kW] | Displacement [cm ³] | Engine code |
| 1.6P | Petrol | Euro 6;WLTP;DG... | 8-speed AG | 133 | 1598 | 5G06 |

| Validity | Equipment variants | Model |
|-------------------------------|--|-----------|
| | | Grandland |
| Verified equipment variants | 2 zone automatic air-conditioning | x |
| | Halogen main headlights | x |
| | Halogen front fog lights | x |
| | LED main headlights | x |
| | Static cornering light (in case of front fog lights) | x |
| | Automatic Start-Stop system | x |
| | Keyless Go | x |
| | Start button | x |
| Unverified equipment variants | Windscreen heater | x |
| | Manual air conditioning | x |

| Total installation time | Note |
|-------------------------|------|
| 8.5 hours | |

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1 List of abbreviations

| | |
|------|--|
| AG | Automatic transmission |
| ASH | Spacer bracket |
| DP | Fuel pump |
| EFIX | Exhaust end fastener |
| FF | FuelFix (tank extracting device) |
| HG | Heater |
| K2 | Additional relay |
| PWM | Pulse width modulator |
| RSH | Relay and fuse holder of passenger compartment |
| SH2 | Engine compartment fuse holder for F1/F2 |
| UP | Coolant pump |
| Veh. | Vehicle |
| Wire | Cable |
| 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.

2.2 Components used

| Designation | Order number |
|--|-------------------------------|
| Basic delivery scope of Thermo Top Evo | In accordance with price list |
| Installation kit (incl. cold start kit) for Opel Grandland petrol 2019 | 1327957A |
| In case of control element as well as Telestart 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

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, 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.



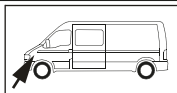
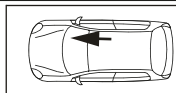
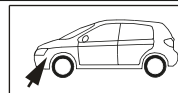
Note on a special technical feature

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 ▶ Engine control unit ▶ Engine compartment fuse and relay box cover ▶ Front wheel on the driver's side ▶ Front wheel well trim on the driver's side ▶ Engine underride protection ▶ Underride protection at the back on the front passenger's side | |
| Passenger compartment | <ul style="list-style-type: none"> ▶ Instrument panel cover on the left and on the right outer side ▶ Lower instrument panel trim on the driver's side ▶ Footwell trim on the driver's side ▶ Centre console extension in the footwell on the driver's side ▶ Footwell trim on the front passenger's side ▶ Centre console extension in the footwell on the front passenger's side ▶ Glove box ▶ Detach the rear seat and fold it up ▶ Tank fitting service lid | |

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 | |
|--------------------|--|--|

6 Installation overview

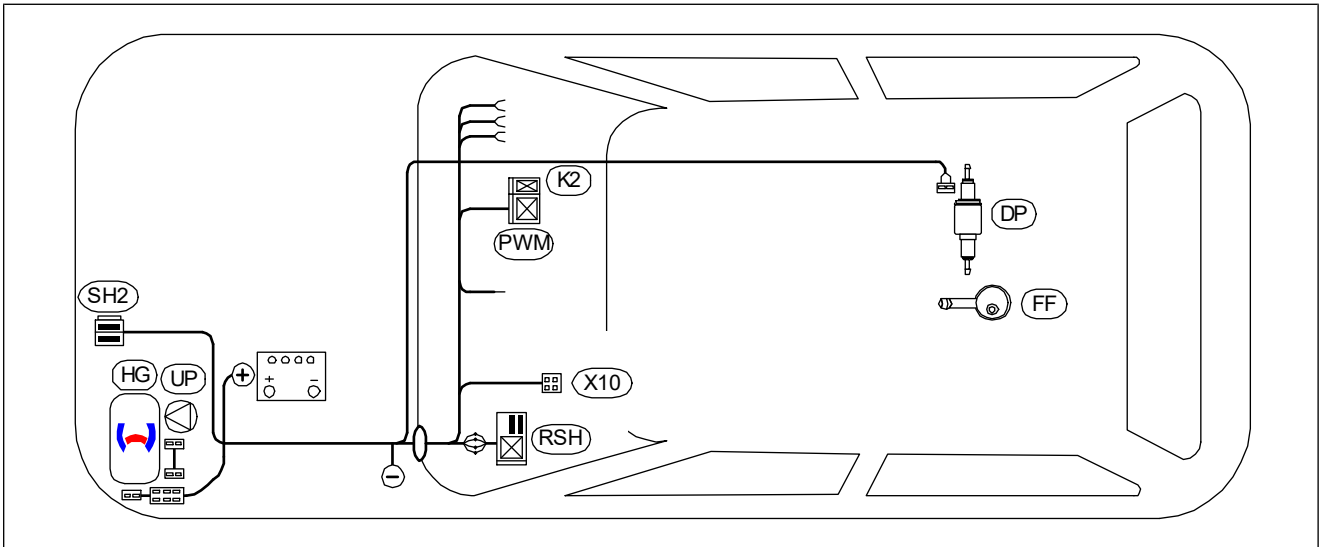


Fig. 1

Legend to installation overview

| Abbreviation | Component |
|--------------|--|
| DP | Fuel pump |
| FF | FuelFix |
| HG | Heater |
| K2 | Additional relay |
| PWM | PWM Gateway |
| RSH | Relay and fuse holder of passenger compartment |
| SH2 | Fuse holder of engine compartment |
| UP | Coolant pump |
| X10 | Female plug for control element |

Heater installation location



1 Heater

Fig. 2



7 Electrical system of engine compartment

Premounting retaining plate of SH2

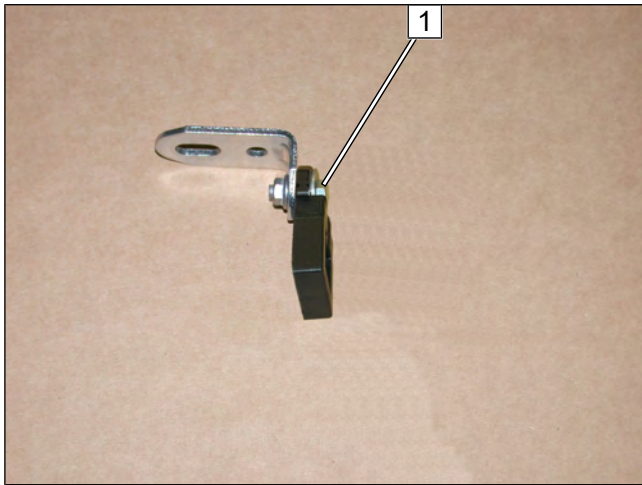


Fig. 3

- 1 M5x16 bolt, large diameter washer, retaining plate of SH2, angle bracket, large diameter washer, nut

Mounting SH2

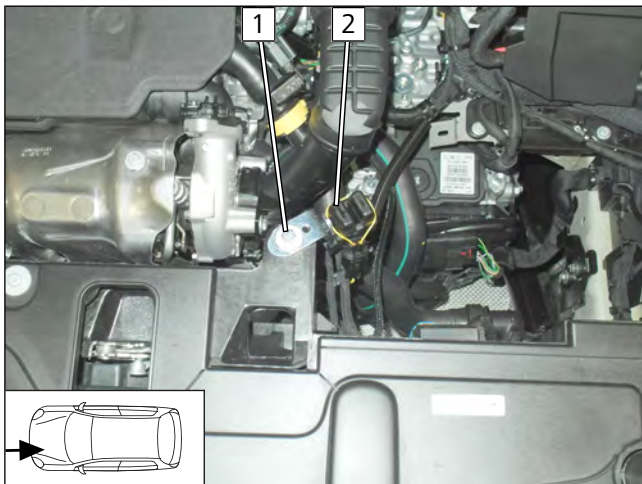


Fig. 4

- 1 M6x20 bolt, large diameter washer, premounted angle bracket, original vehicle hole, flanged nut
- 2 Premounted SH2

Routing wiring harnesses

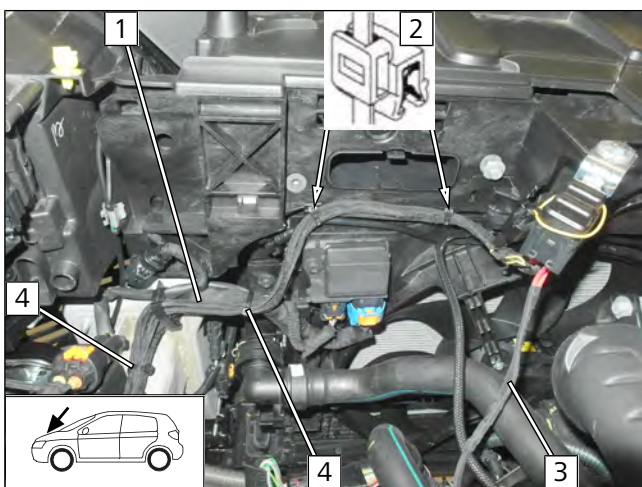


Fig. 5

- 1 Earth wire and wiring harnesses of heater, passenger compartment and control element
- 2 Edge clip cable tie
- 3 Positive wire
- 4 Cable tie



Mounting positive wire

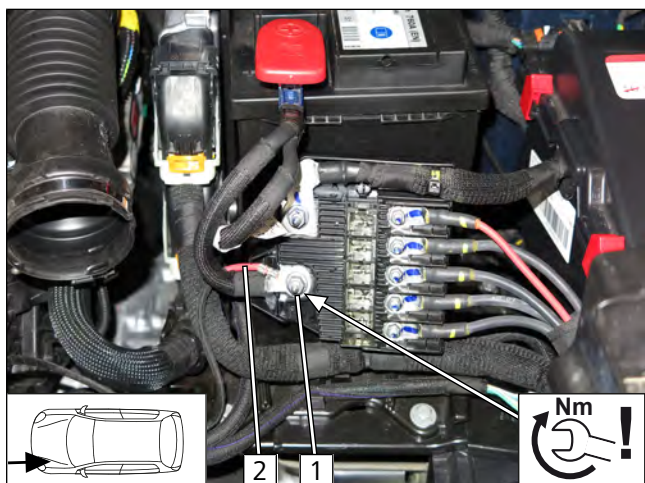


Fig. 6



DANGER

Observe tightening torque



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

- 1 Original vehicle positive point
- 2 Positive wire

Mounting earth wire

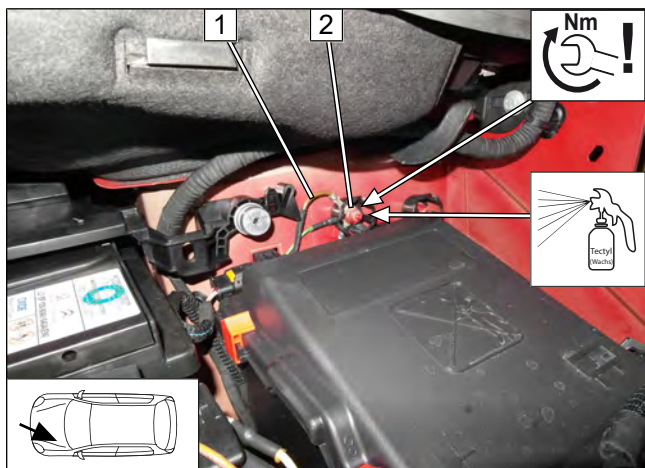


Fig. 7



DANGER

Observe tightening torque

- 1 Earth wire
- 2 Original vehicle earth point

7.1 Passenger compartment wiring harness pass through

Removing insulation

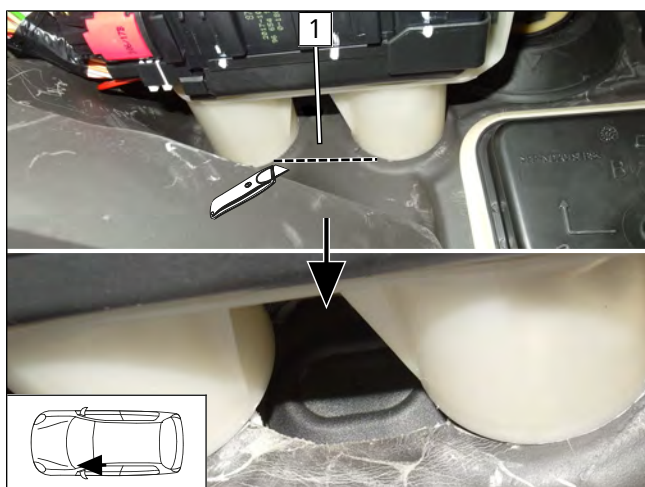


Fig. 8

► Cut the insulation **1** at the marking and fold it up.



Routing wiring harness

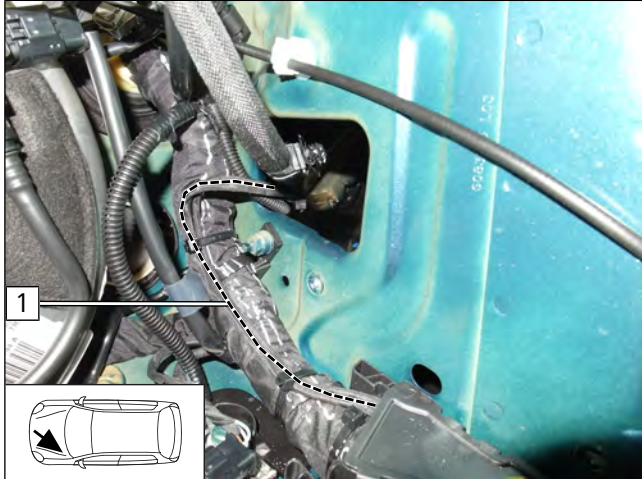


Fig. 9

- ▶ Route the heater and control element wiring harness **1** in the engine compartment and fasten with cable tie.

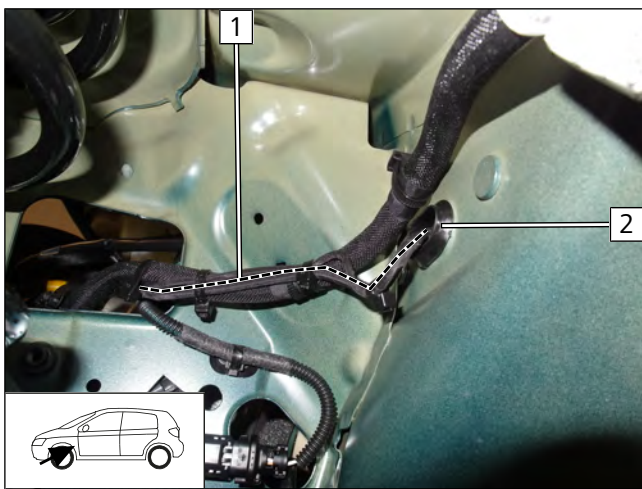


Fig. 10

- ▶ Route heater and control element wiring harness **1** in the wheel-well inner panel through protective rubber plug **2** into the passenger compartment.



8 Mechanical system

8.1 Installation location preparation

Moving wiring harness

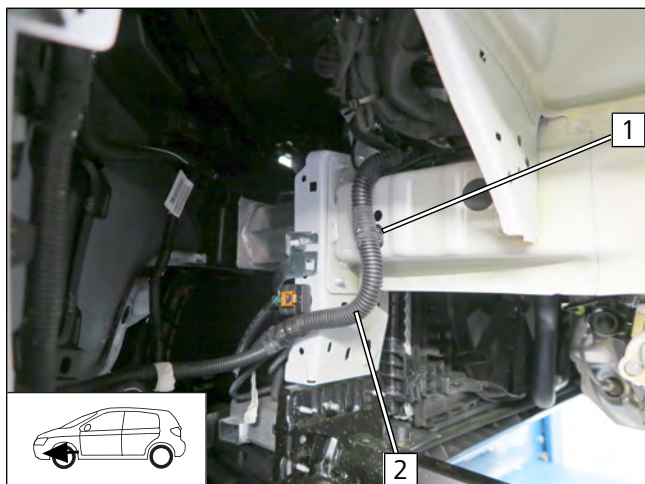


Fig. 11

- ▶ Detach original vehicle wiring harness **2** at pos. **1**. Discard clip.

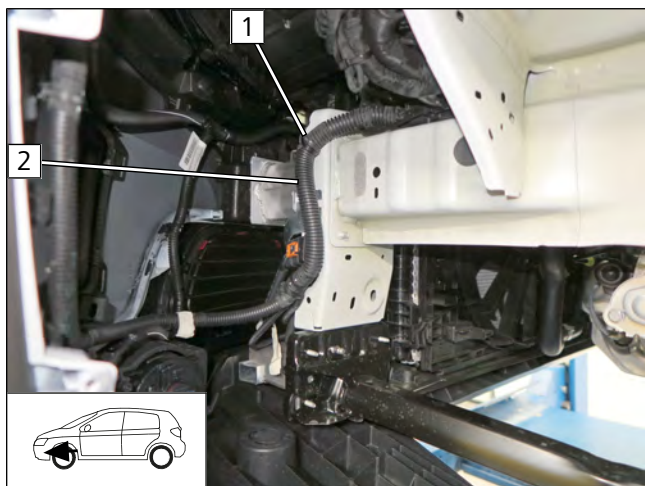


Fig. 12

- ▶ Route and fasten original vehicle wiring harness **2** as shown.

- 1** Cable tie

Preparing bracket

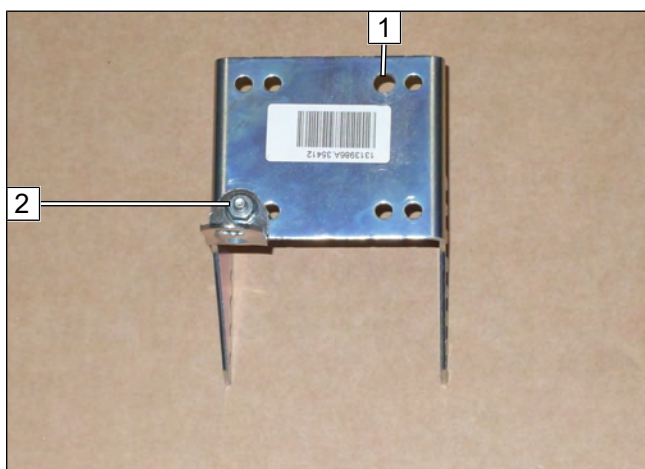


Fig. 13

- 1** Drill hole to $\text{Ø}8.5$
- 2** M6x16 bolt, bracket, angle bracket, flanged nut



Inserting rivet nut

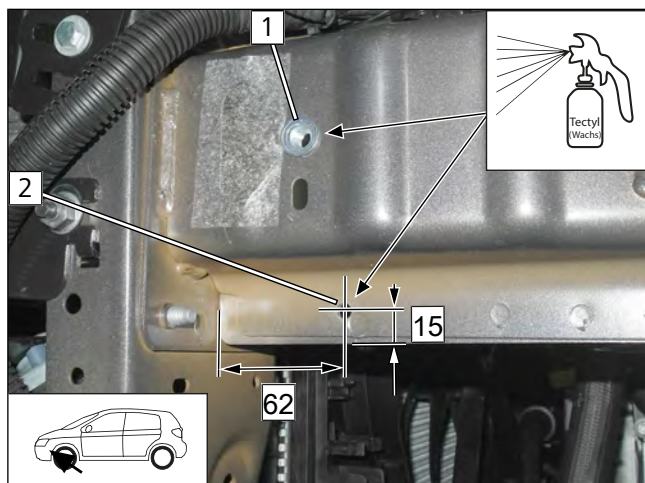


Fig. 14

- 1 Drill out hole to $\text{\O}12.5$, M8 rivet nut
- 2 $\text{\O}7$ hole for coolant pump

Copying hole pattern

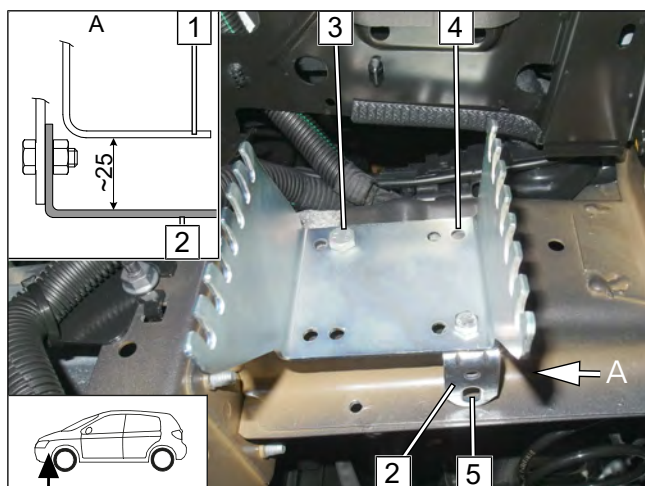


Fig. 15

► Align bracket as shown.

- 1 Vehicle carrier
- 2 Angle bracket premounted
- 3 M8x25 bolt
- 4 Copy hole pattern
- 5 Copy hole pattern

Drilling holes, inserting rivet nuts

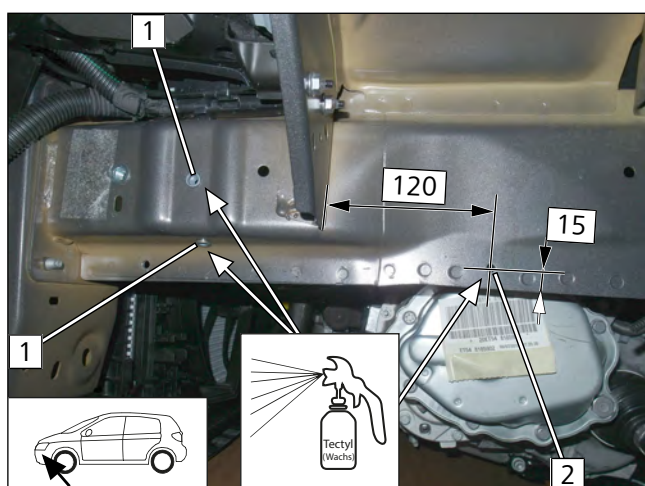


Fig. 16

- 1 $\text{\O}9$ hole, M6 rivet nut
- 2 $\text{\O}7$ hole



Preparing perforated bracket

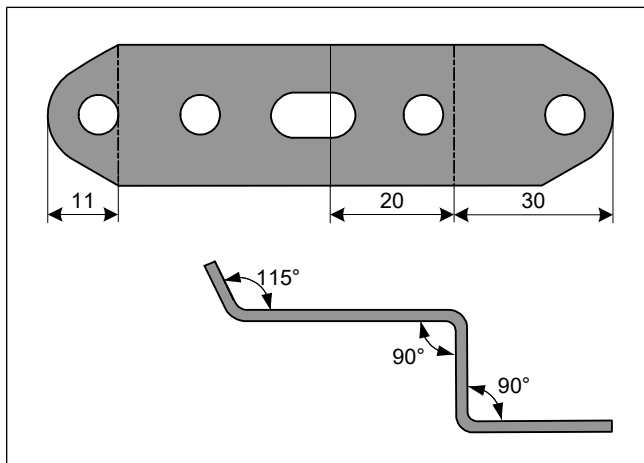


Fig. 17

Premounting exhaust silencer

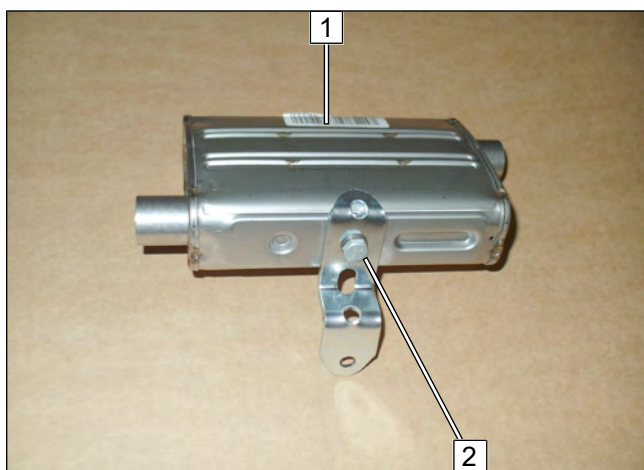


Fig. 18

- 1 Exhaust silencer
- 2 M6x16 bolt, spring lockwasher, perforated bracket

Mounting exhaust silencer

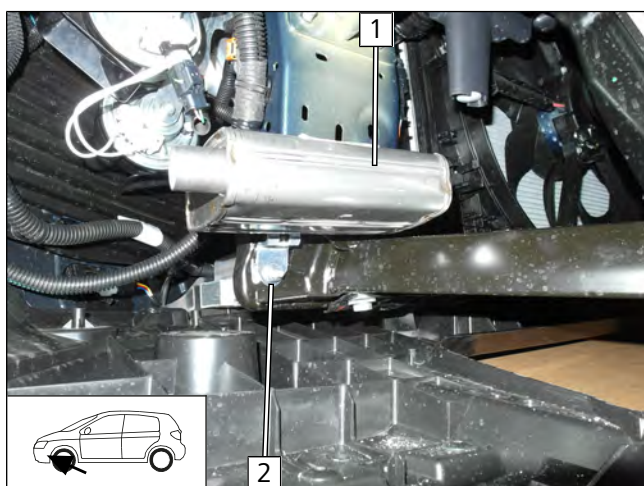


Fig. 19

- 1 Exhaust silencer
- 2 Original vehicle bolt, flanged nut



Mounting coolant pump

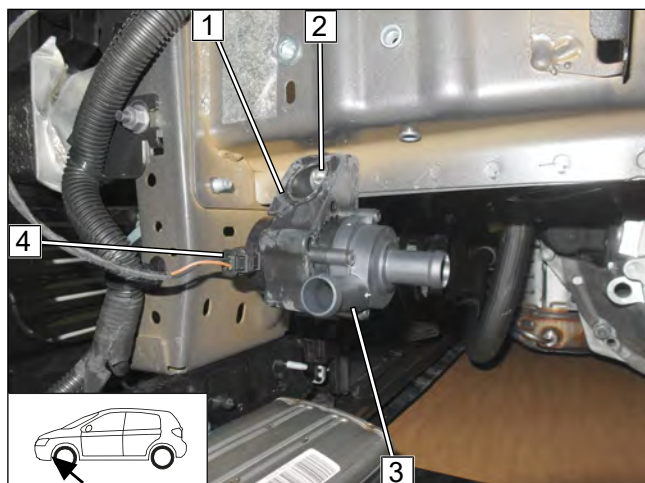


Fig. 20

- 1 Coolant pump mount
- 2 M6x25 bolt, flanged nut
- 3 Coolant pump
- 4 Coolant pump wiring harness connector

Mounting bracket

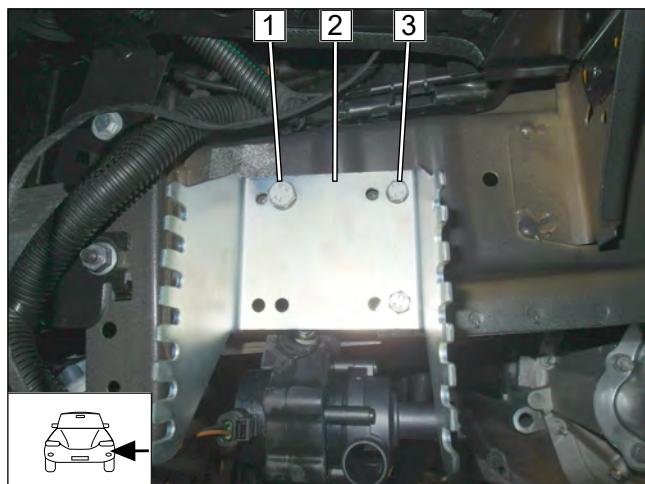


Fig. 21

- 1 M8x25 bolt, spring lockwasher, 5 spacer pre-mounted loosely
- 2 Bracket
- 3 M6x25 bolt, spring lockwasher, 5 spacer pre-mounted loosely

Mounting bracket

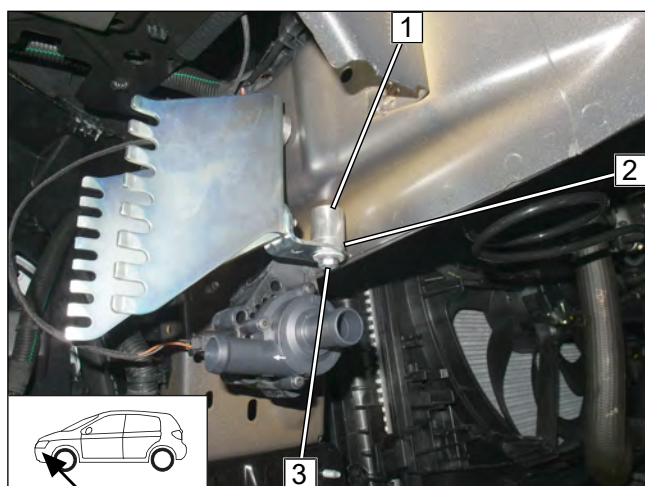


Fig. 22



► Align bracket and tighten all screw connections.

- 1 20 spacer
- 2 5 spacer
- 3 M6x40 bolt, spring lockwasher, large diameter washer



8.2 Premounting heater

Mounting water connection piece

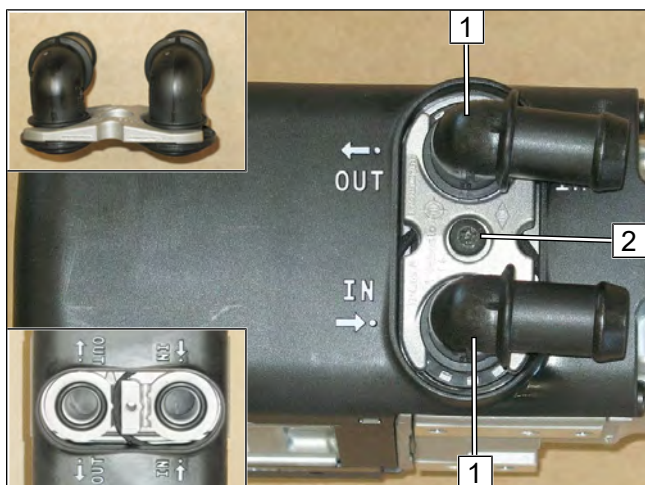


Fig. 23



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 bolts

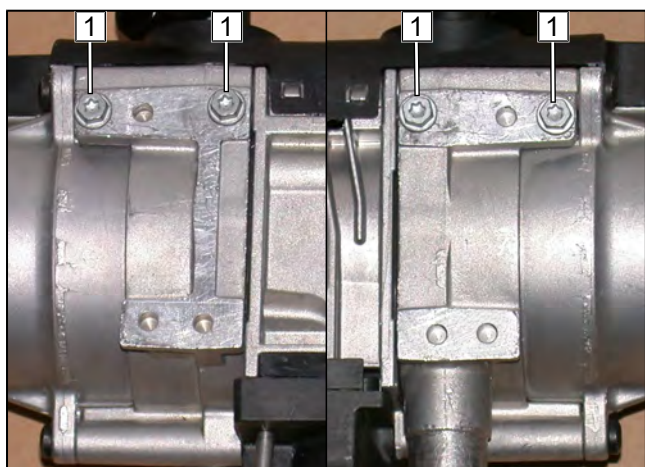


Fig. 24

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

Cutting to length /assigning hoses

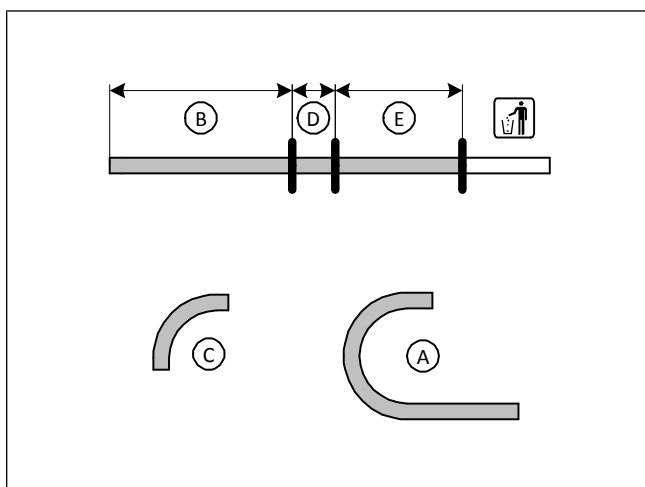


Fig. 25

| | |
|----------|-----------|
| A | 180°, Ø18 |
| B | 830 |
| C | 90°, Ø18 |
| D | 70 |
| E | 850 |



Preparing hoses

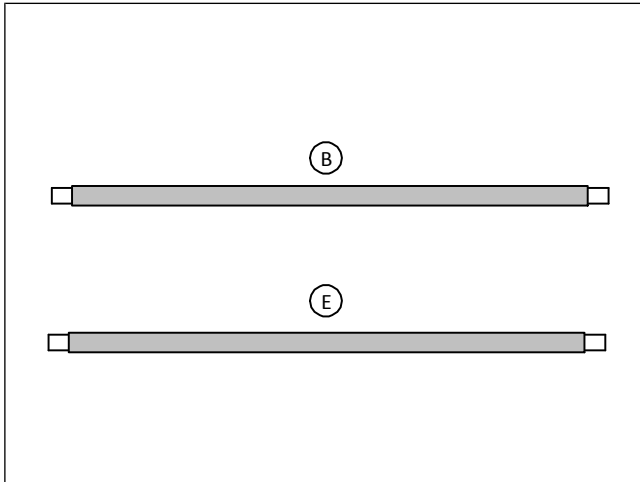


Fig. 26



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

Premounting hoses

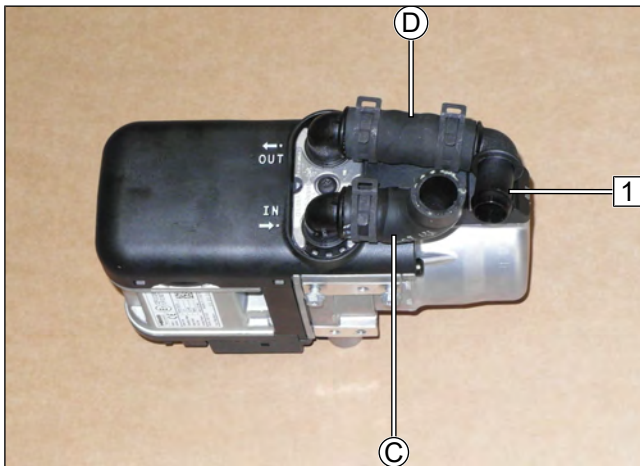


Fig. 27



All spring clips Ø25

- 1 Ø18x18 / 90° connecting pipe

Mounting combustion air and fuel line

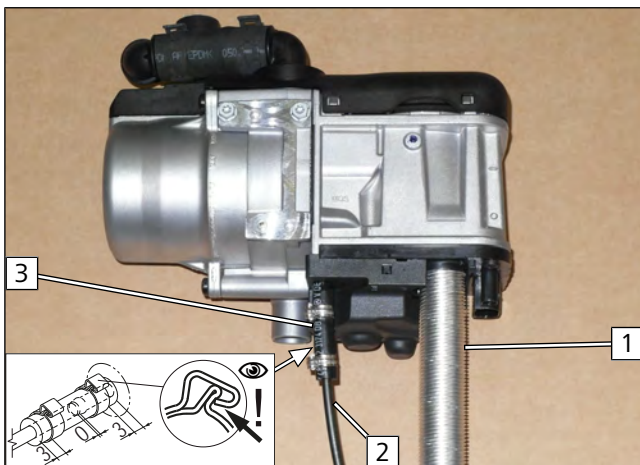


Fig. 28

- 1 Combustion air pipe
- 2 Fuel line
- 3 Hose section, Ø10 clamp [2x]



8.3 Heater mounting

Heater mounting

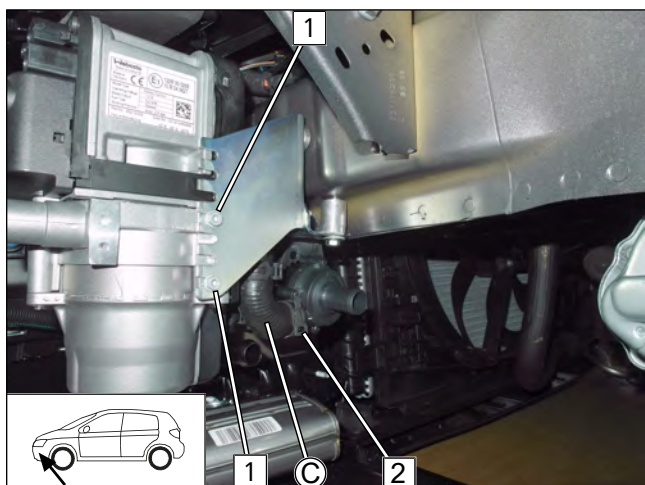


Fig. 29



Observe the general installation instructions of the heater.

- ▶ Tighten 5x13 self-tapping bolt **1**.
- ▶ Slide hose **C** onto coolant pump outlet and fasten with \varnothing 25 spring clip **2**.

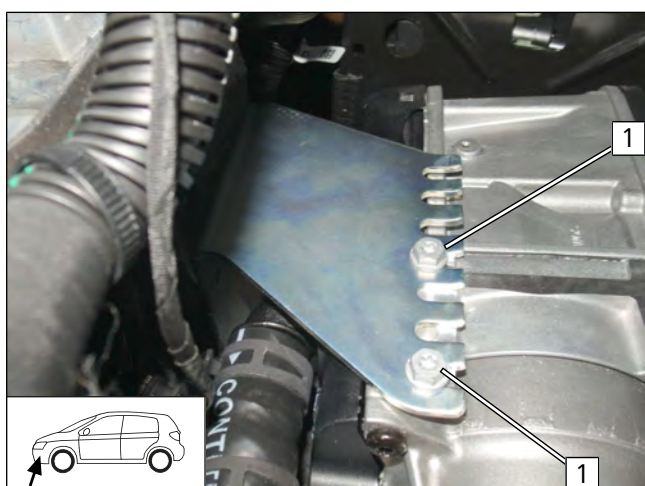


Fig. 30

- ▶ Tighten 5x13 self-tapping bolt **1**.

Mounting wiring harnesses

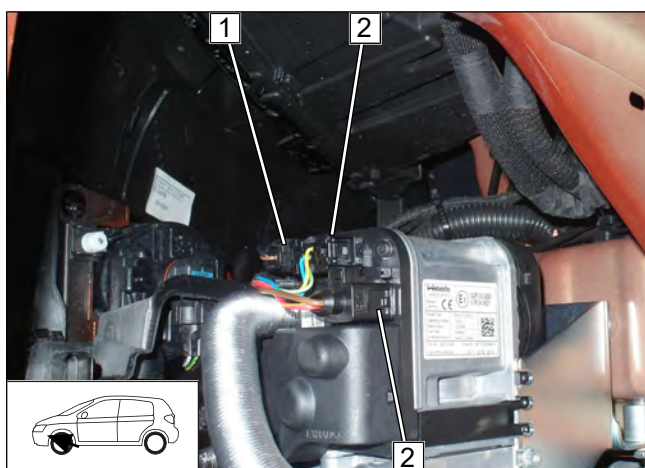


Fig. 31

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

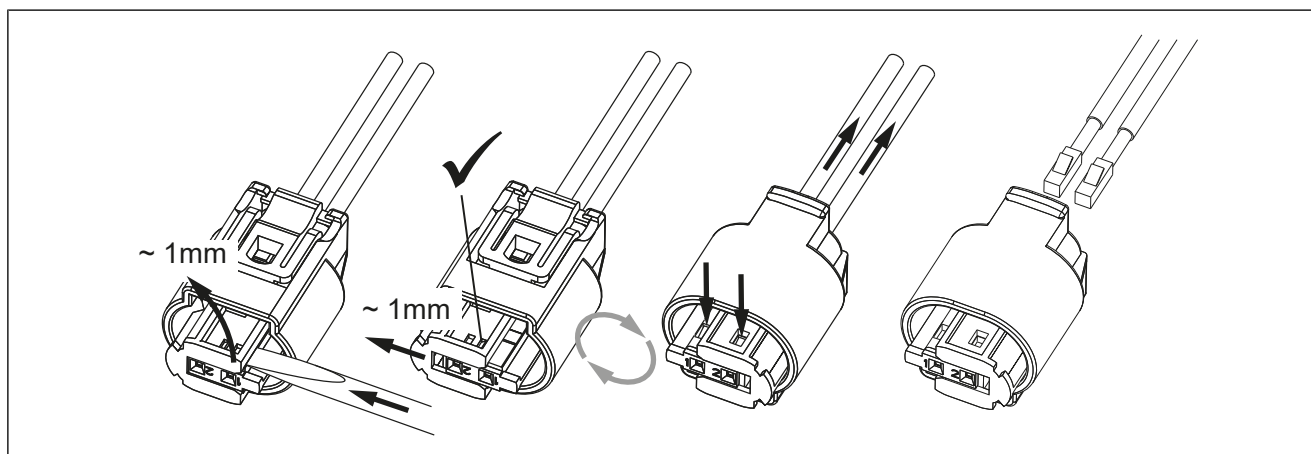
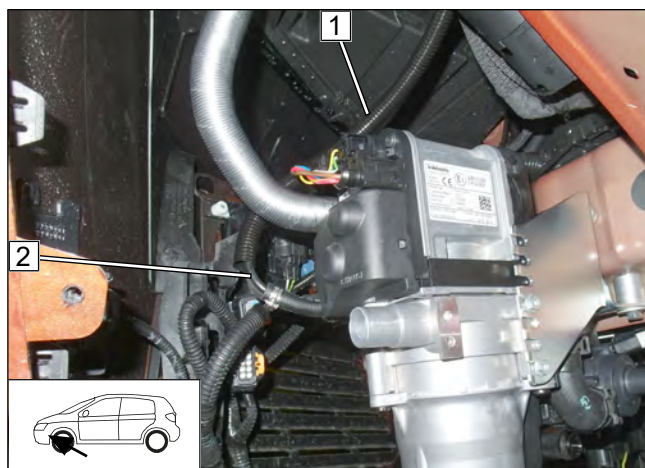


Fig. 32

9.1 Routing fuel line

Connection to heater



- ▶ Draw fuel line and fuel pump wiring harness **2** into Ø10 corrugated tube **1** and route into the engine compartment.

Fig. 33



Routing in engine compartment

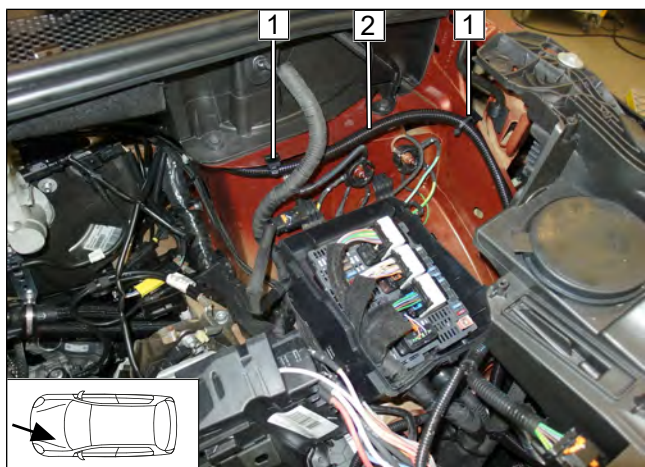


Fig. 34

- 1 Edge clip cable tie
- 2 Fuel line and fuel pump wiring harness in corrugated tube

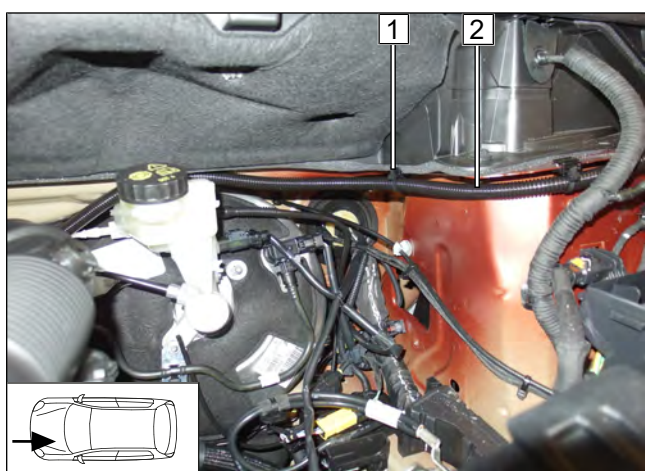


Fig. 35

- 1 Edge clip cable tie
- 2 Fuel line and fuel pump wiring harness in corrugated tube

Routing in engine compartment

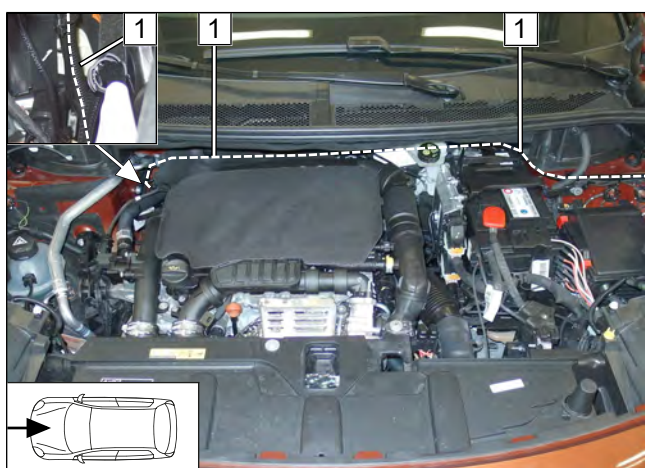


Fig. 36

- Route fuel line and wiring harness of DP in corrugated tube 1 behind the insulation mat to the right side of the vehicle and further to the underbody.



Routing on underbody

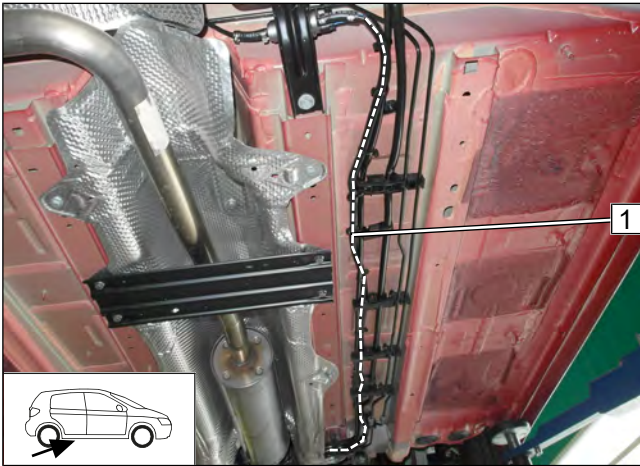


Fig. 37

- Route fuel line and DP wiring harness in corrugated tube **1** on the underbody along the original vehicle fuel line to the installation location of the DP.

Bending perforated bracket at an angle

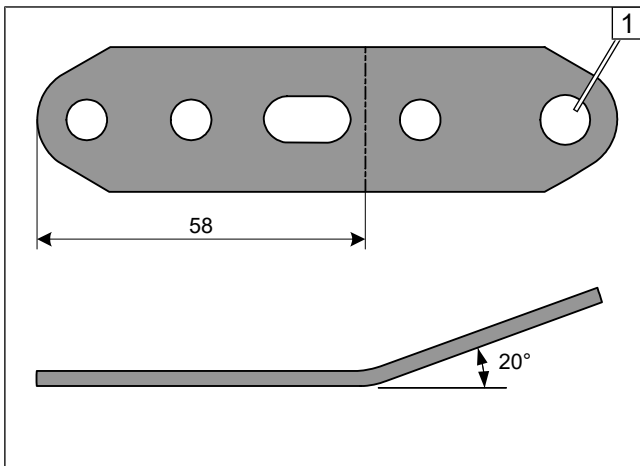


Fig. 38

- 1** Enlarge hole to $\text{Ø}8.5$

Premounting fuel pump

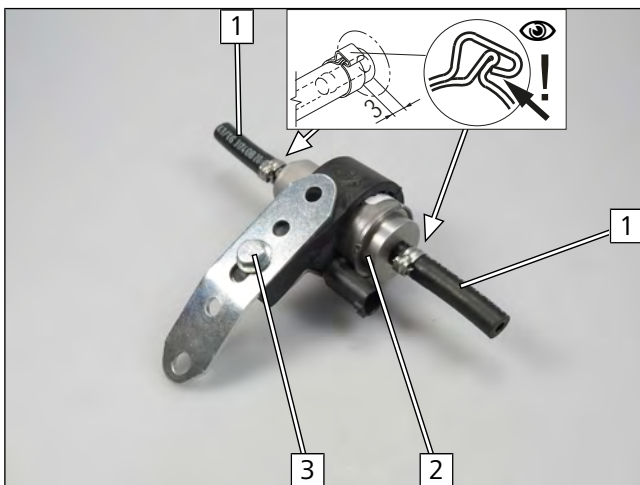
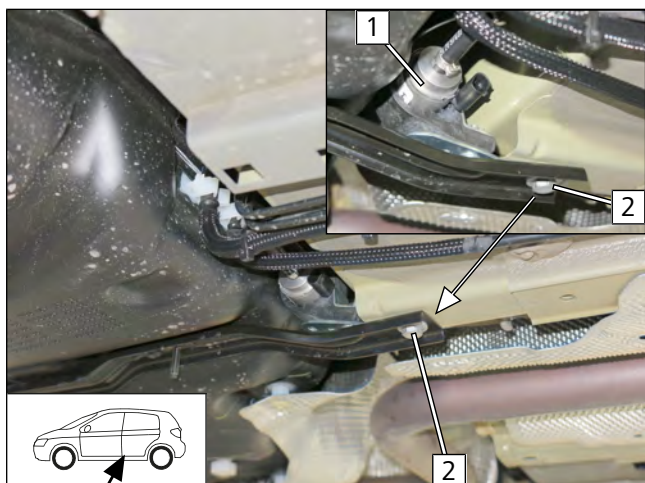


Fig. 39

- 1** Hose section, $\text{Ø}10$ clamp
- 2** DP
- 3** M6x25 bolt, perforated bracket, DP mount, support angle bracket, flanged nut



Mounting fuel pump



- 1 DP premounted
- 2 Original vehicle bolt

Fig. 40

Assembling fuel pump connector X7

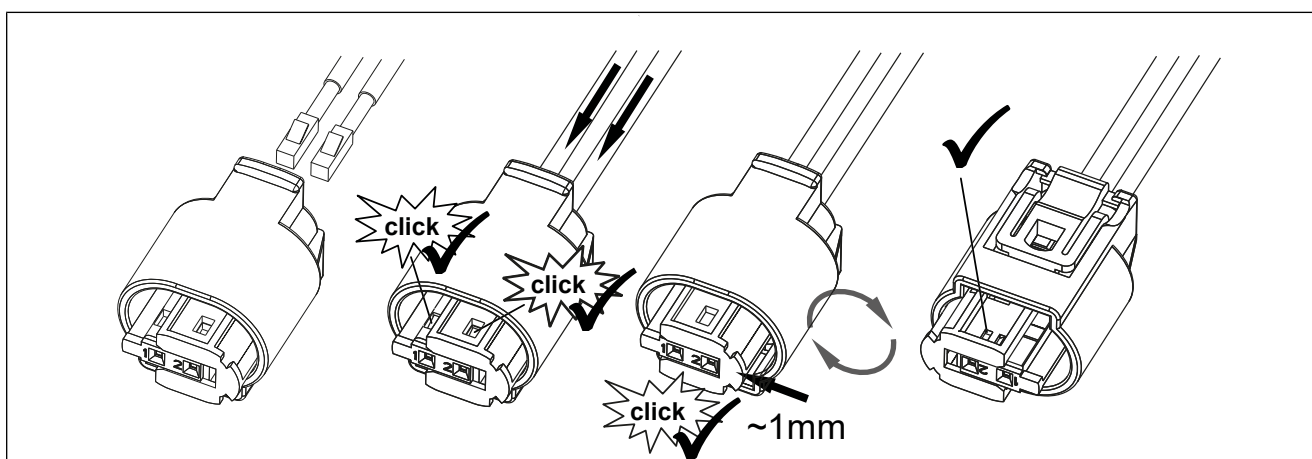
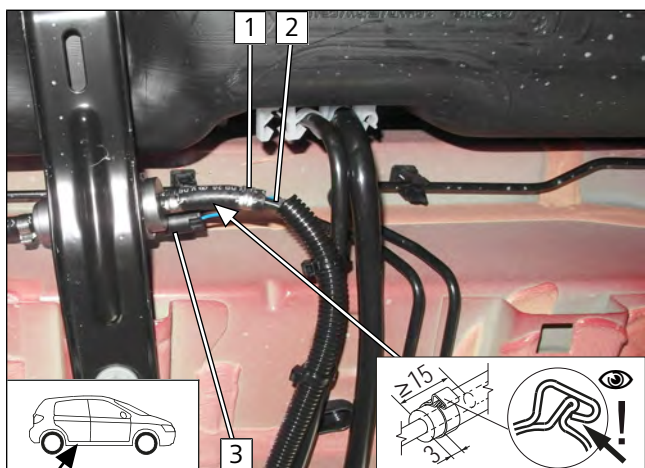


Fig. 41

Fuel pump connection



- 1 Ø10 clamp
- 2 HG fuel line
- 3 Fuel pump wiring harness, X7 connector mounted

Fig. 42



9.2 Rear seat dismantling instructions

Loosening rear seat

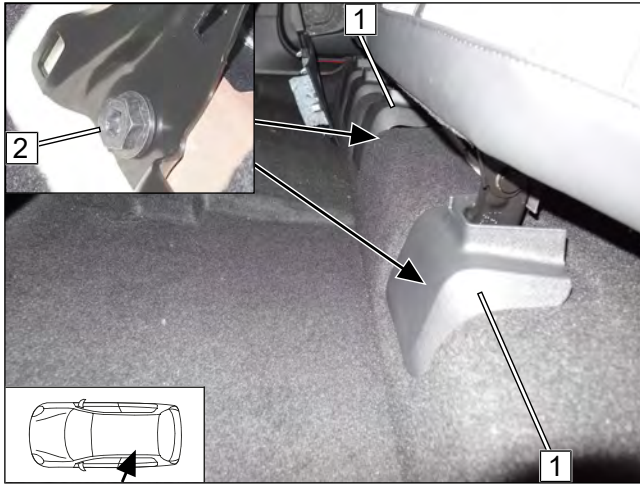


Fig. 43

- 1 Cap
- 2 Remove original vehicle bolt

Folding up left rear seat and uncovering service lid

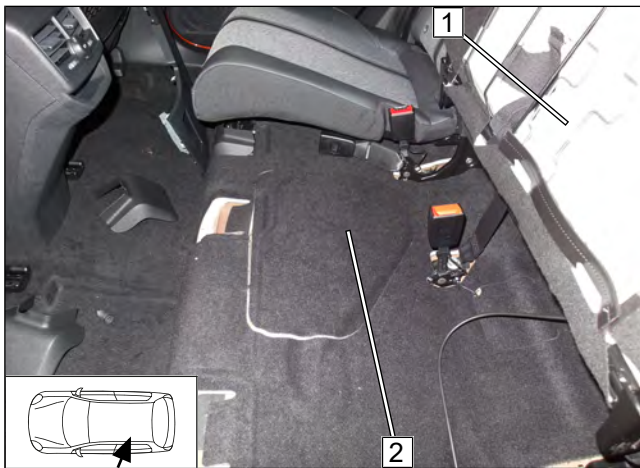


Fig. 44

- 1 Fold up rear seat
- 2 Open insulation mat

9.3 Installing FuelFix

Preparing drilling template

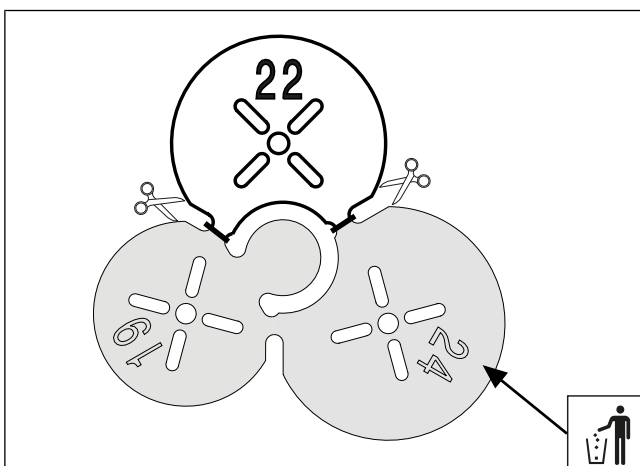


Fig. 45



Copying hole pattern

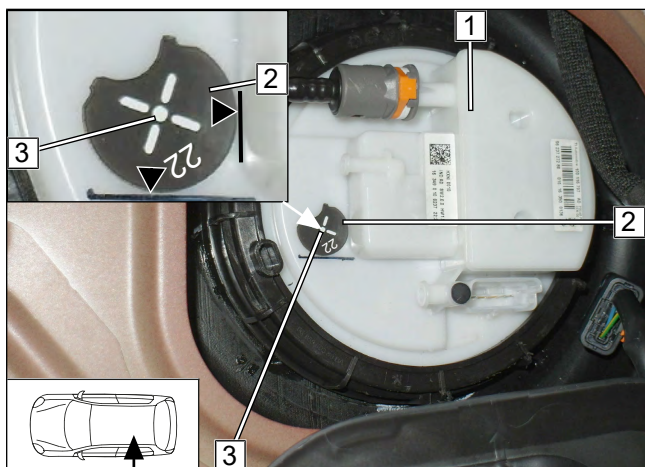


Fig. 46



Observe the installation instructions of the tank extracting device.

► Work steps F1, F2

- 1 Tank fitting
- 2 Position Ø22 drilling template as shown
- 3 Hole pattern

Hole for FuelFix

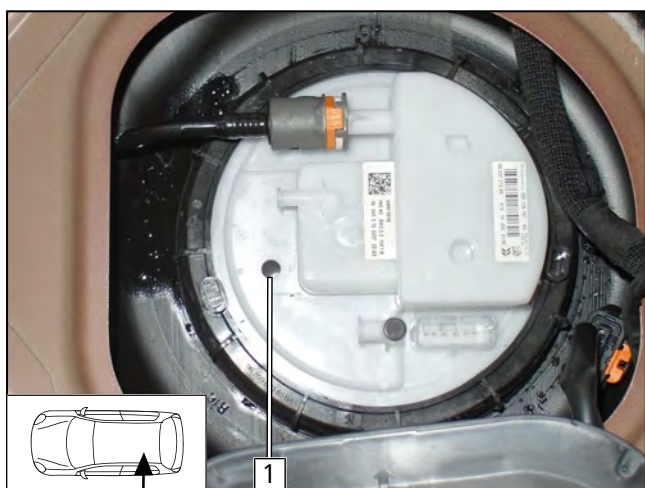


Fig. 47



DANGER

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

► Work step F3

- 1 Hole made with provided drill

Inserting FuelFix

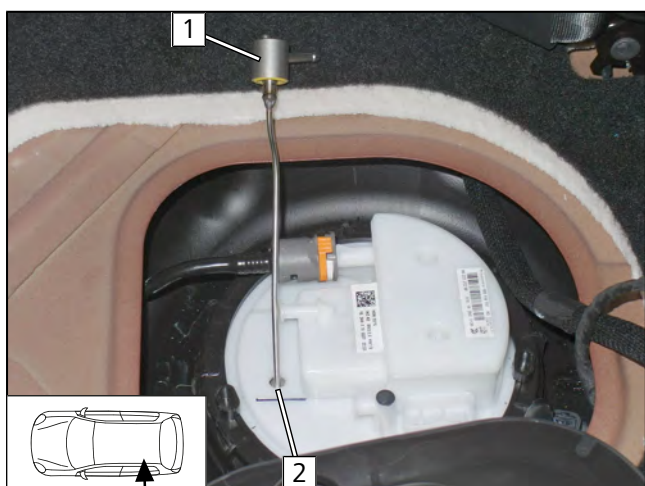


Fig. 48

► Work steps F4, F5

► Bend FuelFix 1 as shown in template and cut to length. Insert in hole 2.

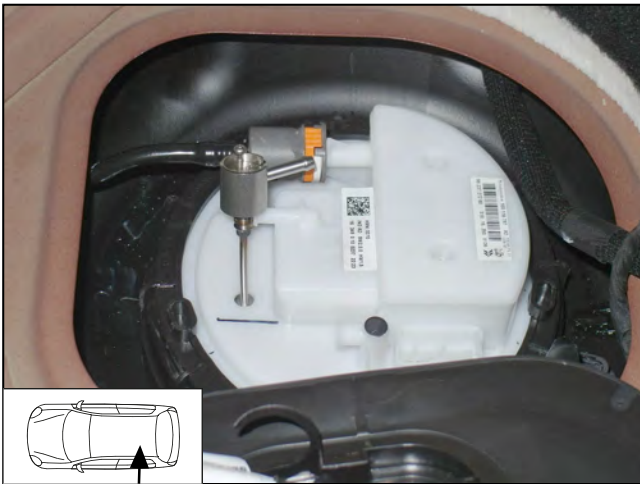


Fig. 49

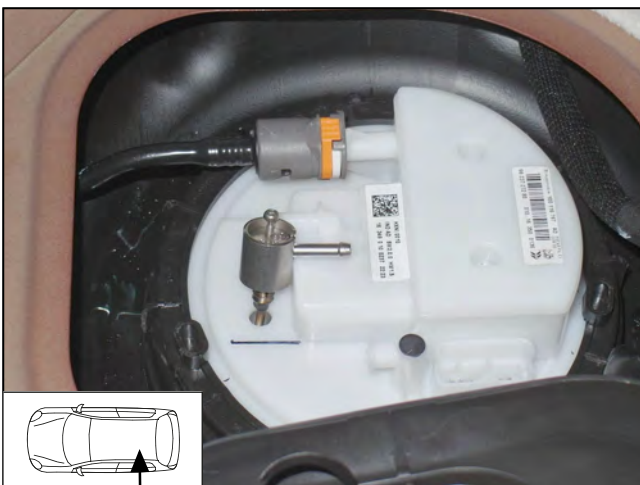


Fig. 50

Aligning FuelFix

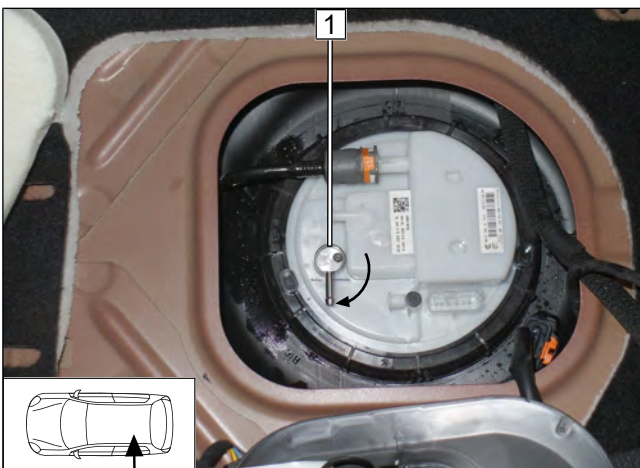


Fig. 51

- ▶ Work steps F5.3, F5.4
- ▶ Align FuelFix **1** as shown.



Connecting fuel line

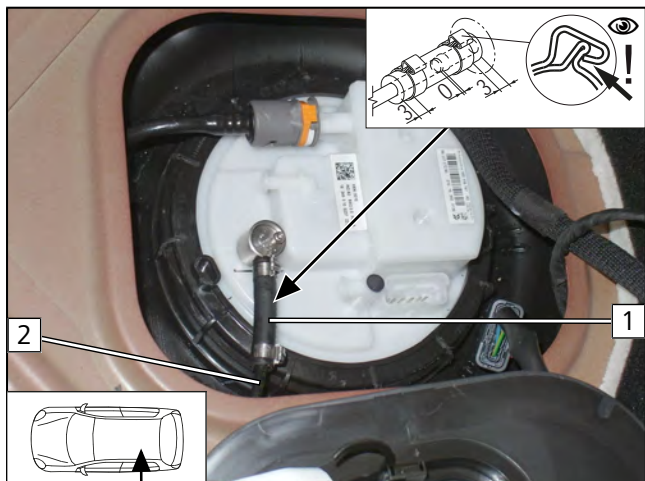


Fig. 52

► Work step F6

- 1 Hose section, Ø10 clamp [2x]
- 2 Fuel line

Mounting FuelFix

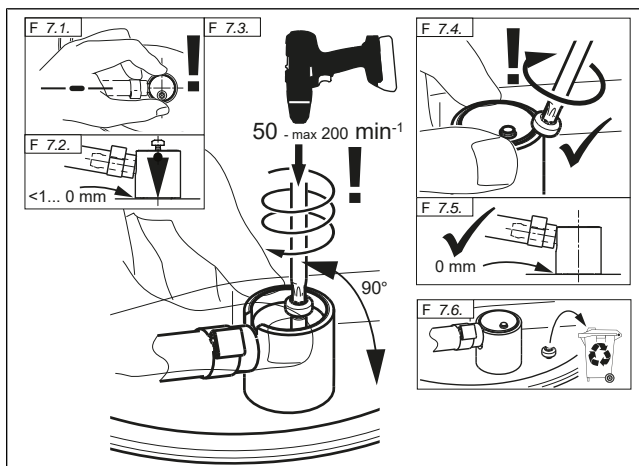


Fig. 53



DANGER

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

► Work step F7

Checking firm seating of FuelFix

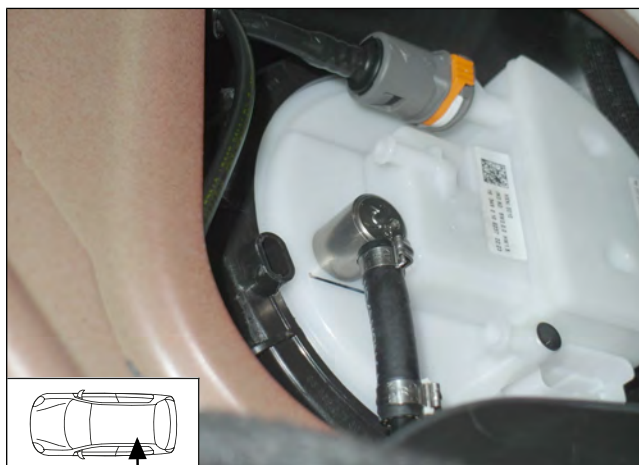


Fig. 54

► Work step F8



Securing fuel line

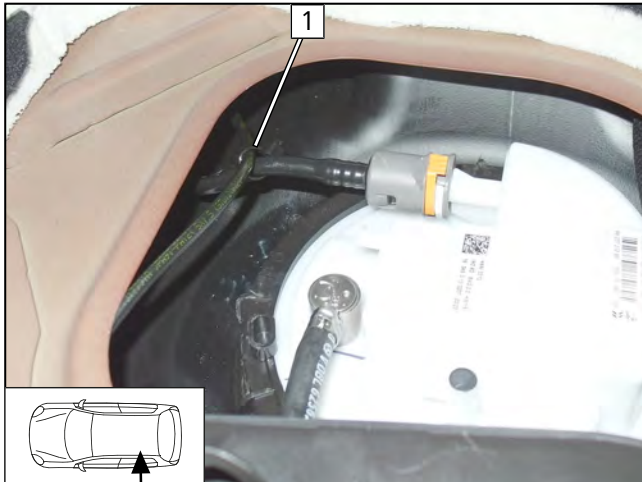


Fig. 55

- 1 Cable tie for tension relief

9.4 Fuel pump connection

Connecting fuel line of FuelFix

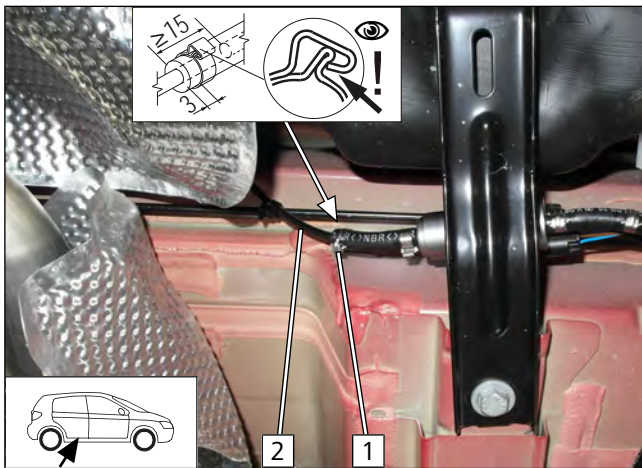


Fig. 56



Danger of damage to components

Attach corrugated tube to original vehicle lines using cable ties.

- 1 Ø10 clamp
- 2 Fuel line of FuelFix



10 Combustion air

Mounting combustion air intake silencer

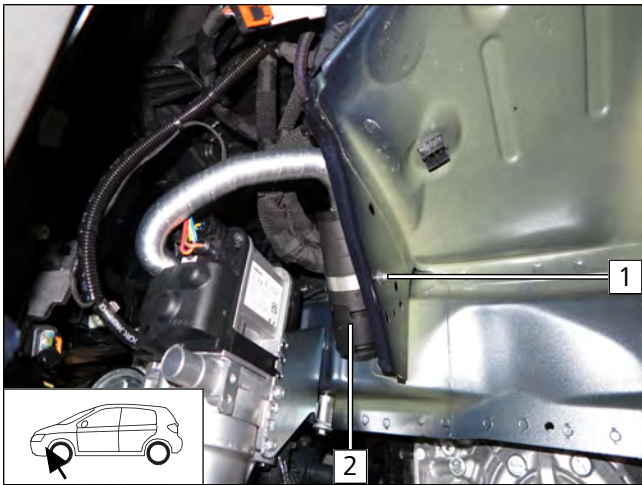


Fig. 57



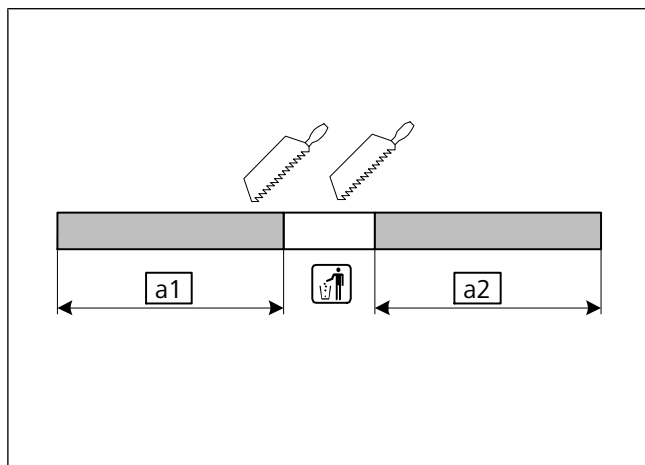
Observe the installation instructions of the combustion air intake silencer.

- 1 M5x16 bolt, Ø51 clamp, washer, original vehicle hole, washer, nut
- 2 Combustion air intake silencer



11 Exhaust part 1

Preparing exhaust pipe

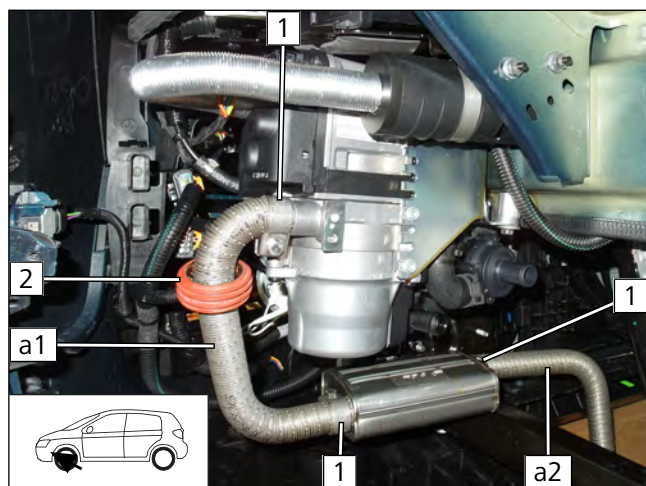


a1 300

a2 260

Fig. 58

Mounting exhaust pipe and ASH



1 Hose clamp

2 ASH

Fig. 59



12 Coolant

12.1 Hose routing diagram

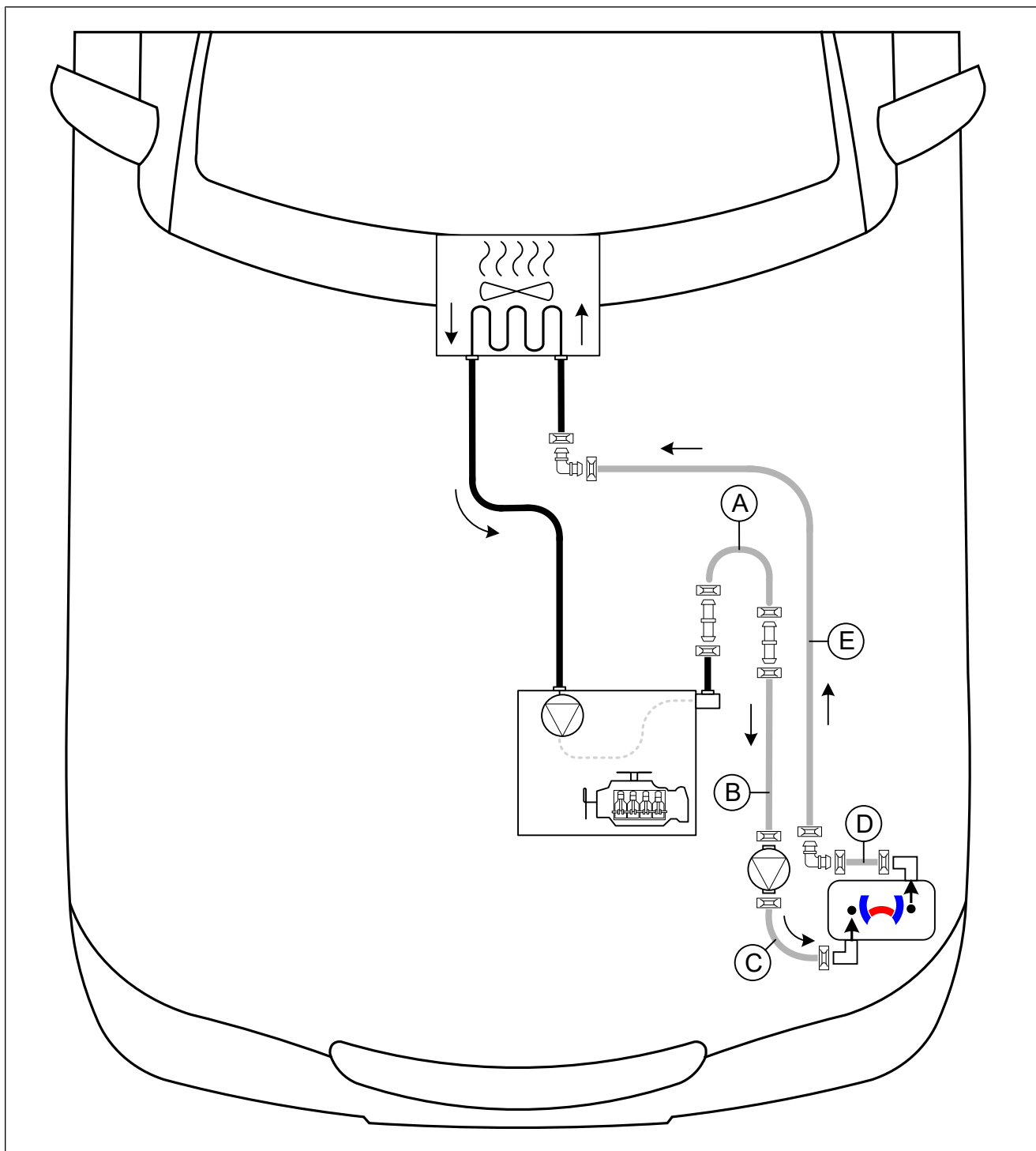





Fig. 60

All spring clips  = Ø25

All connecting pipes  and  = Ø18x18



12.2 Coolant circuit installation

Preparing perforated bracket 1

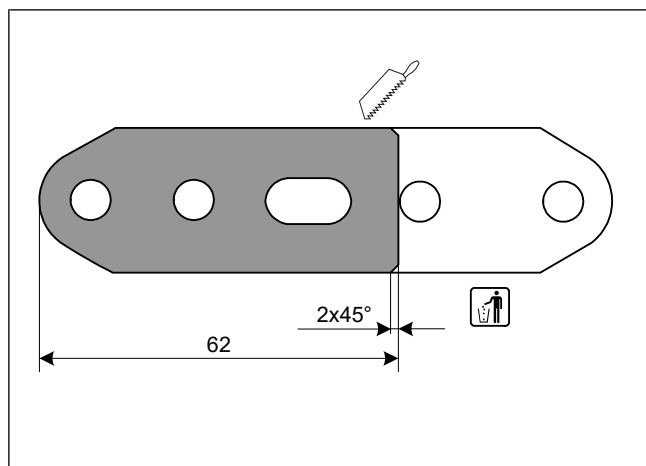
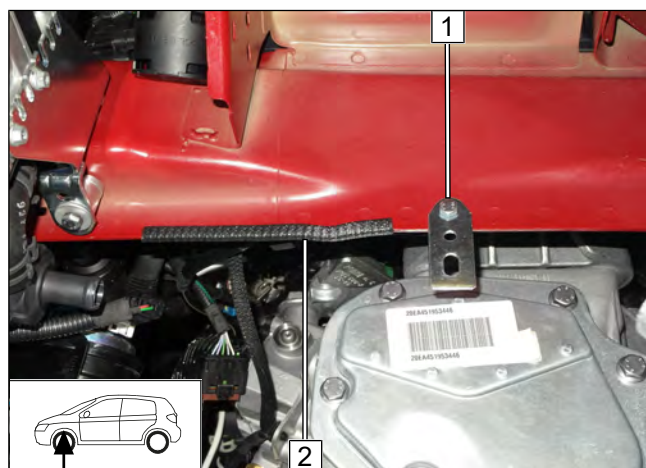


Fig. 61

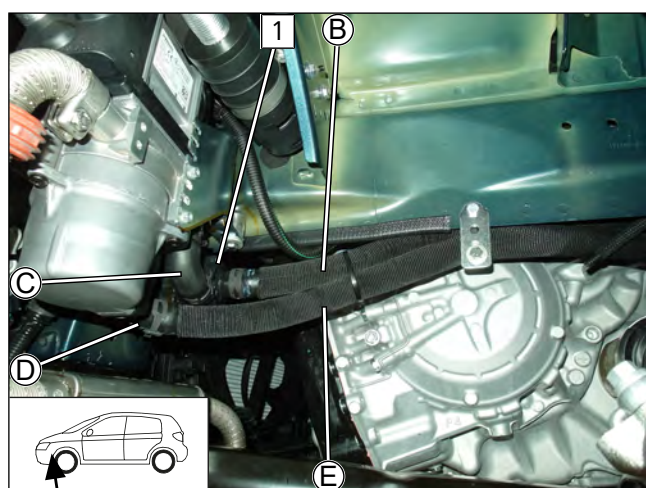
Mounting perforated bracket 1



- 1 M6x12 bolt, perforated bracket 1, flanged nut
- 2 200 long edge protection

Fig. 62

Connecting heater



- Connect hose (B) to coolant pump (1). Connect hoses (D) and (E).

Fig. 63



Routing to the engine compartment

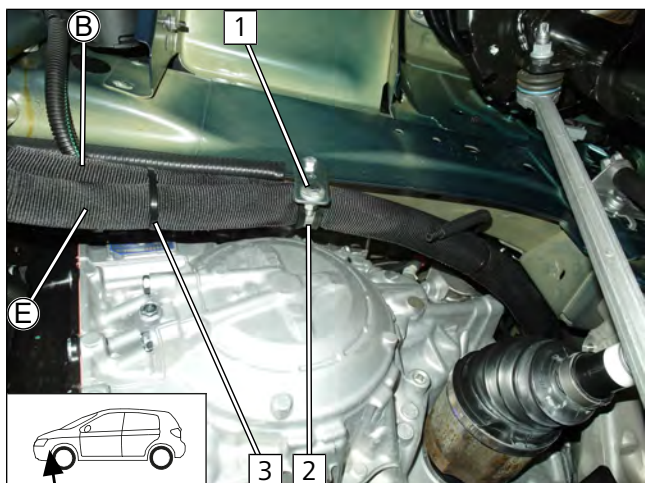


Fig. 64



Danger of damage to components

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

- 1 M6x16 bolt, large diameter washer, flanged nut
- 2 Ø38 rubber-coated p-clamp
- 3 Cable tie

Preparing perforated bracket 2

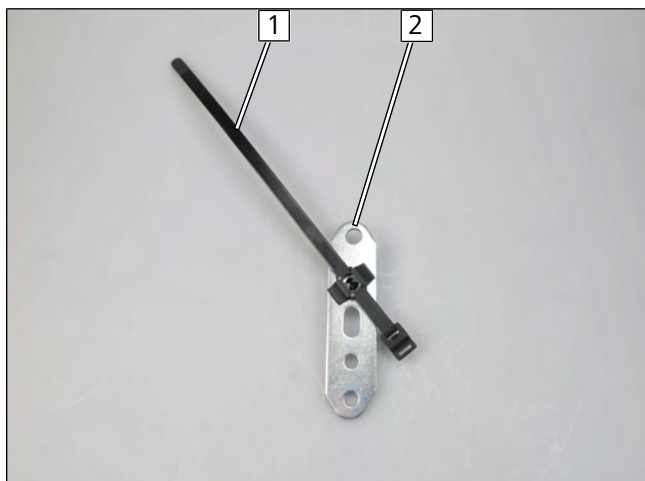


Fig. 65

- 1 Clip-type cable tie
- 2 Drill out hole to Ø8.5

Cutting point

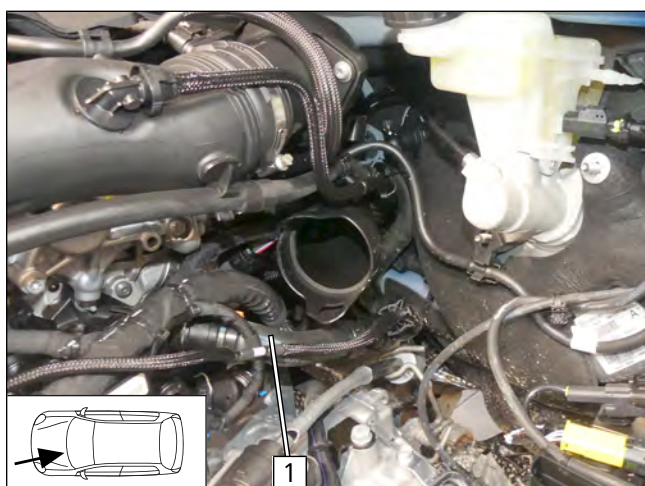
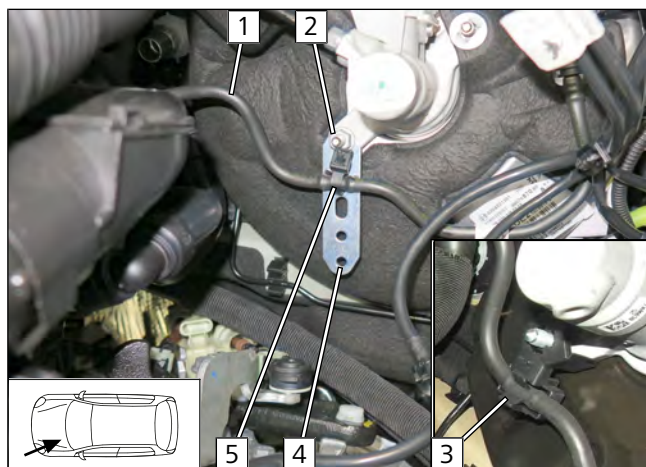


Fig. 66

► Remove hose of engine outlet / heat exchanger inlet **1**.



Mounting perforated bracket 2 loosely, fastening vacuum line

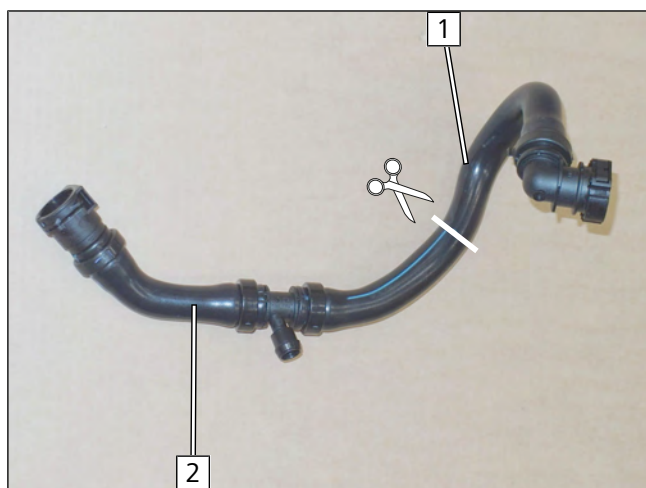


► Dismantle original vehicle bracket **3** of vacuum line **1** at position **2** and discard. Do not remove original vehicle nut.

- 2** Original vehicle stud bolt and nut, flanged nut
- 4** Perforated bracket
- 5** Close clip-type cable tie

Fig. 67

Cutting engine outlet / heat exchanger inlet hose to length



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

Fig. 68

Premounting heat exchanger inlet hose section



- 1** Heat exchanger inlet hose section

Fig. 69



Heat exchanger inlet connection

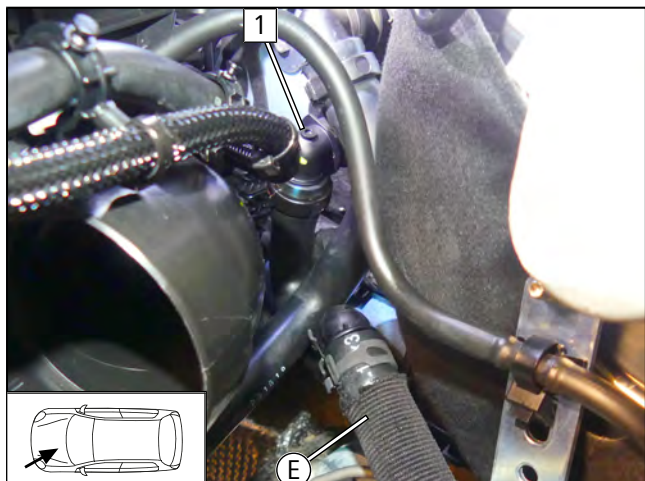


Fig. 70

- 1 Heat exchanger inlet hose section

Premounting hose (A)

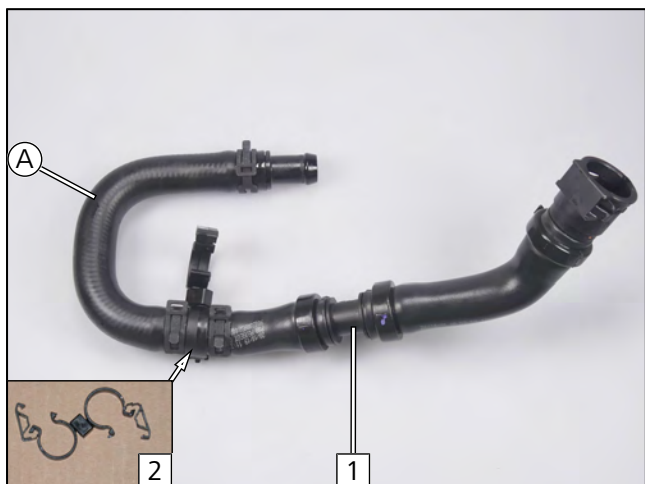


Fig. 71

- 1 Engine outlet hose section
- 2 Lockable hose bracket

Engine outlet connection

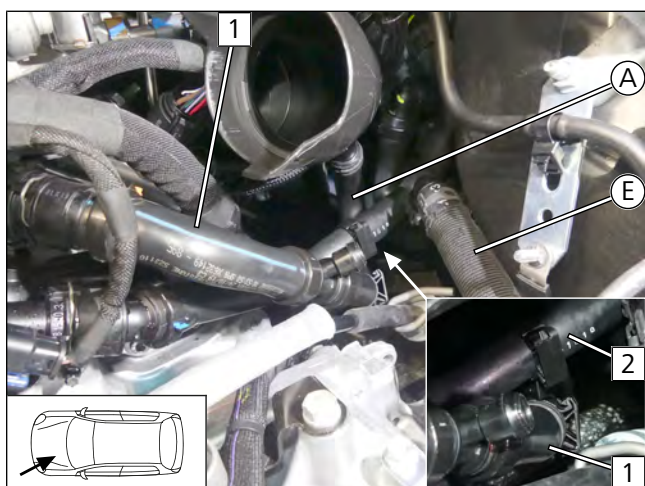


Fig. 72

- 1 Engine outlet hose section
- 2 Lockable hose bracket on original vehicle engine inlet hose



Connecting hose **B**

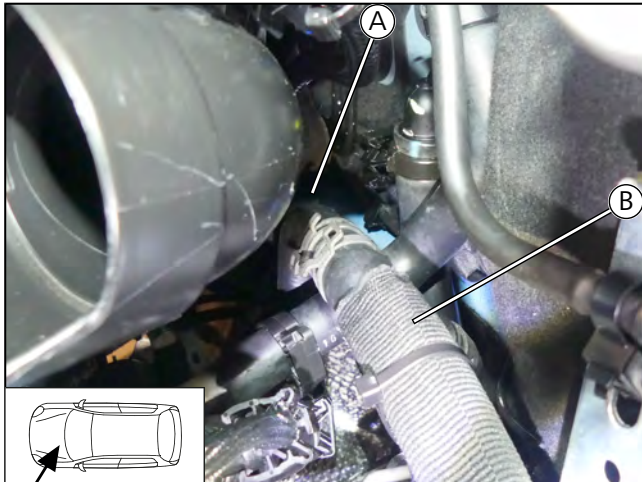


Fig. 73

Routing and fastening hoses **B** and **E**

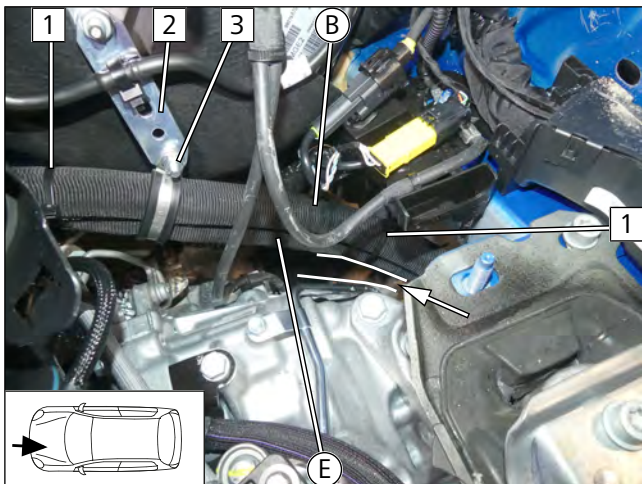


Fig. 74



Danger of damage to components

Ensure sufficient distance between hoses and transmission, correct if necessary.



- 1 Cable tie
- 2 Align and fasten perforated bracket
- 3 M6x20 bolt, Ø38 rubber-coated p-clamp, flanged nut

Preparing edge clip cable tie

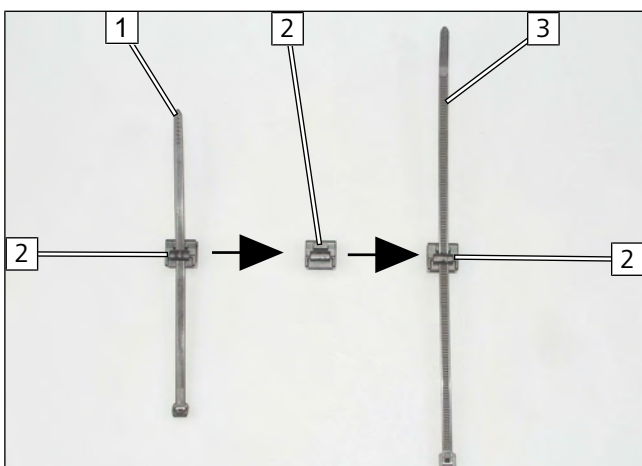
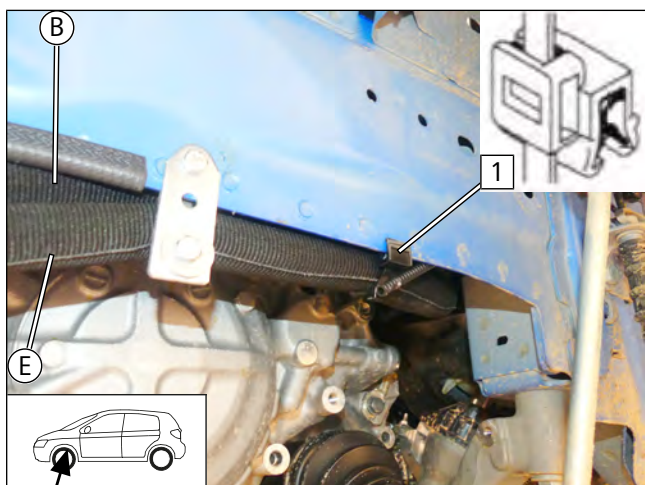


Fig. 75

- 1 Remove original cable tie
- 2 Clip
- 3 Reinstall cable tie



1 Edge clip cable tie around hoses **B** and **E**

Fig. 76



13 Exhaust part 2

Drilling hole

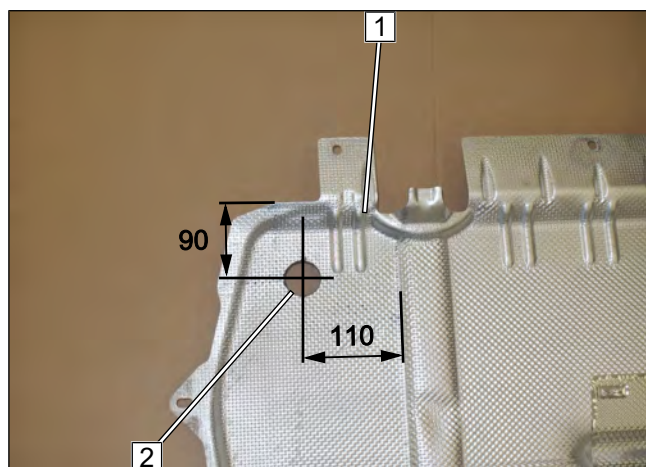


Fig. 77



Observe the EFIX installation instructions.

► Work step E1

- 1 Underride protection
- 2 Hole

Copying hole pattern, drilling hole

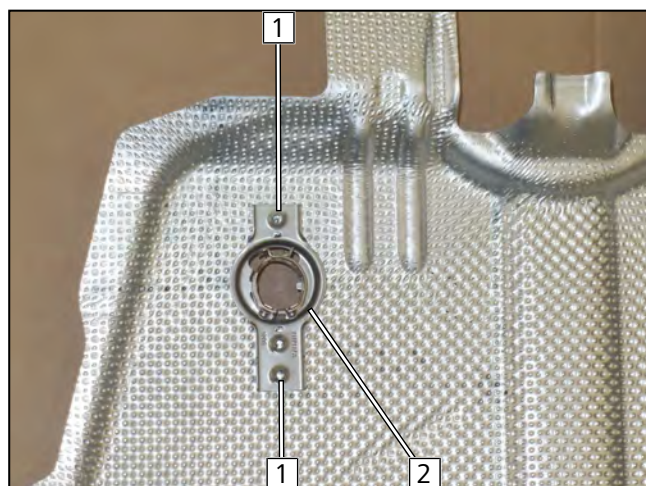


Fig. 78

► Work steps E3, E4

- 1 Hole pattern, hole
- 2 EFIX

Mounting EFIX



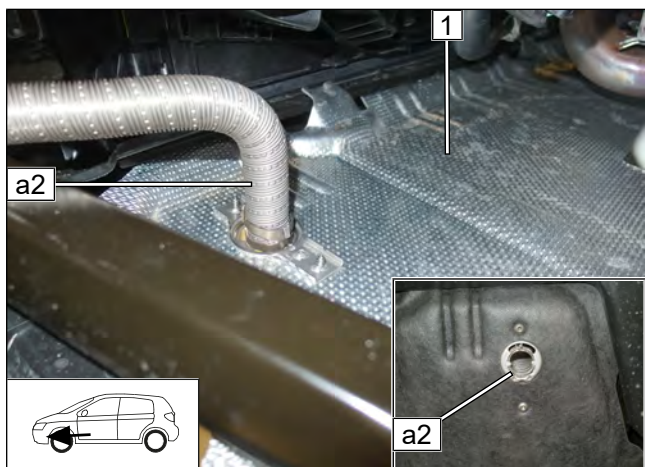
Fig. 79

► Work step E5

- 1 5x13 self-tapping screw



Mounting exhaust pipe **a2** in EFIX



- ▶ Work steps E6-8
- ▶ Mount underide protection **1**.

Fig. 80



14 Final work for exhaust system

Sticking on heat protection film



Fig. 81

- ▶ Cut the heat protection film **2** in half and stick on wheel-well inner panel **1** as shown.

Checking distance

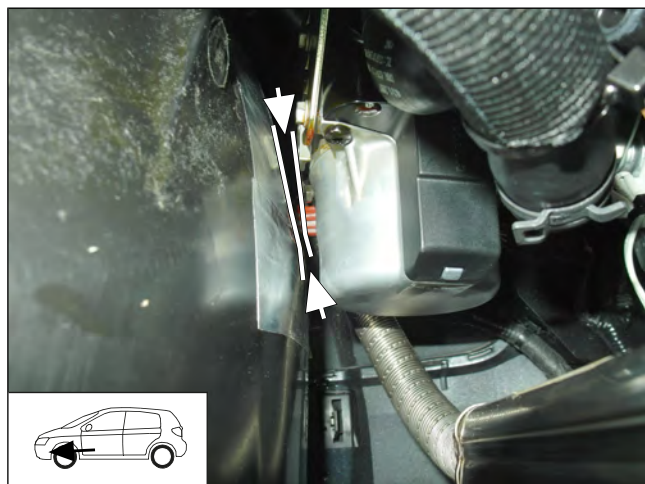


Fig. 82

- ▶ Mount wheel-well inner panel.



Ensure sufficient distance from neighbouring components, correct if necessary.



Aligning SH2

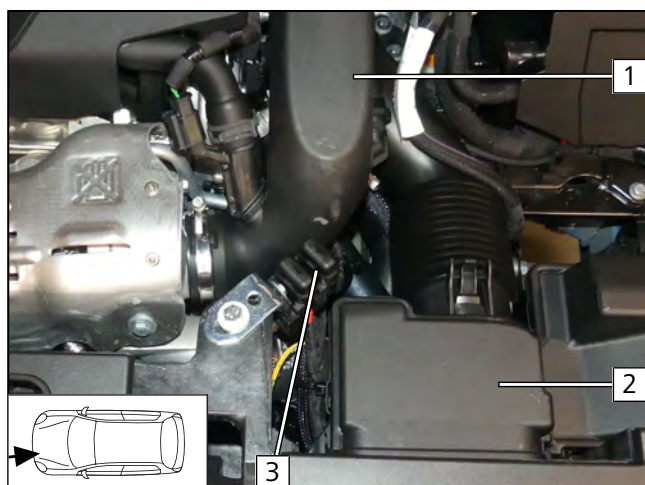


Fig. 83

- ▶ Align SH2 **3** midway between air filter box **2** and charge-air tube **1**.



Ensure sufficient distance from neighbouring components, correct if necessary.





15 Electrical system of passenger compartment

15.1 Installing cold start system



Integrate the cold start system in accordance with the separate installation documentation 'Cold start for Opel Grandland'.

15.2 Preparing electrical system

Assigning / preparing wires

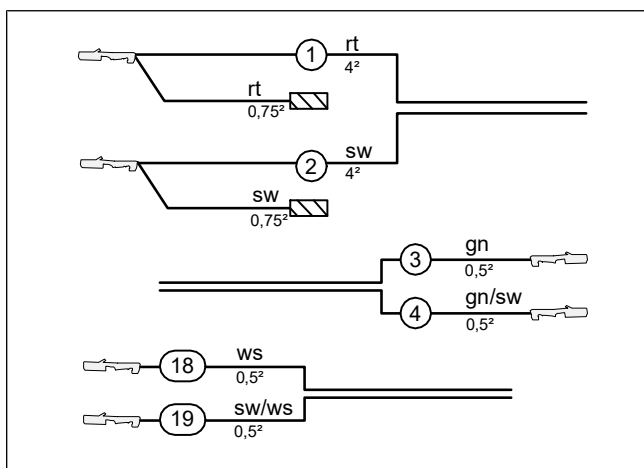


Fig. 84



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
- ③ Green (gn) wire from wiring harness of PWM control
- ④ Green/black (gn/sw) wire from wiring harness of PWM control
- ⑱ White (ws) wire of isolating relay wiring harness
- ⑲ Black/white (sw/ws) wire of isolating relay wiring harness

Assigning wires

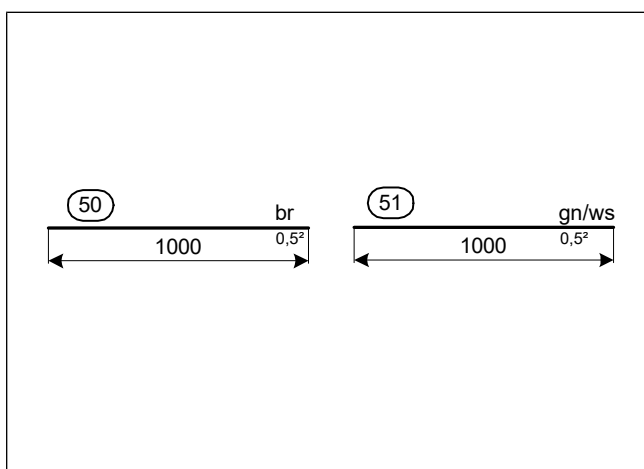
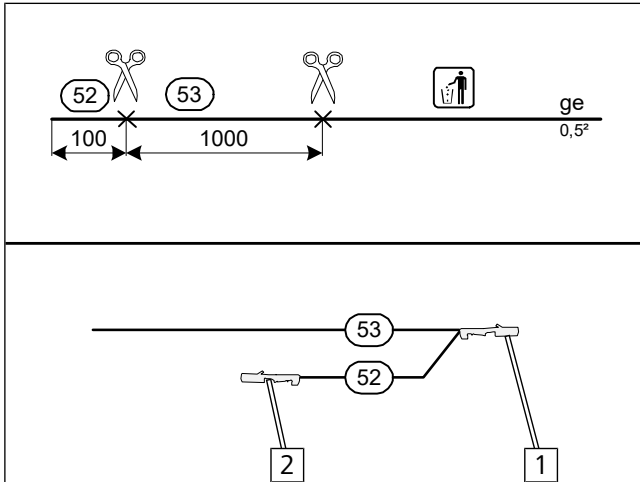


Fig. 85



Assigning / preparing wires



- 1 4.8 blade receptacle
- 2 6.3 blade receptacle

Fig. 86

Connecting wires in RSH

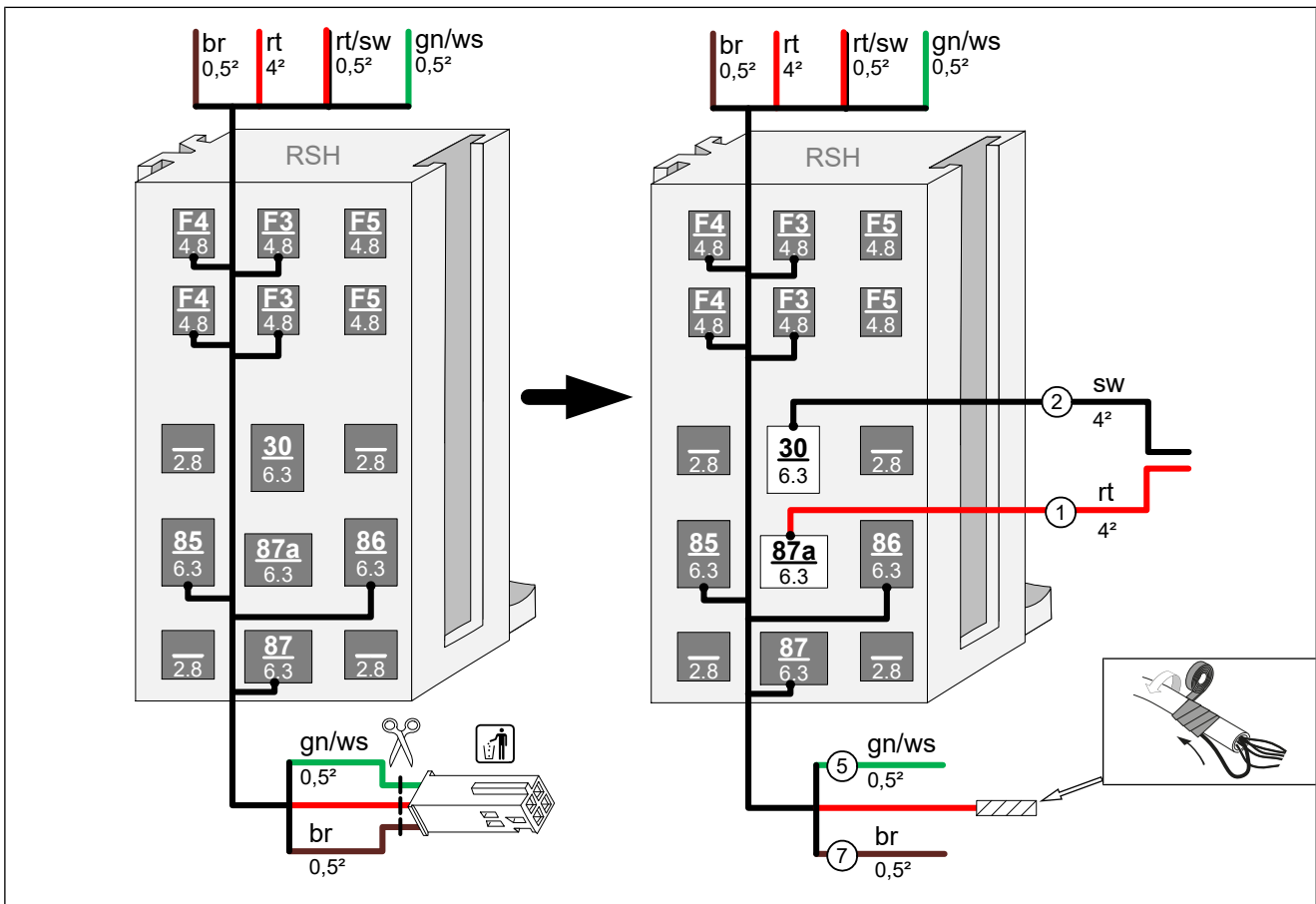


Fig. 87



View of PWM GW

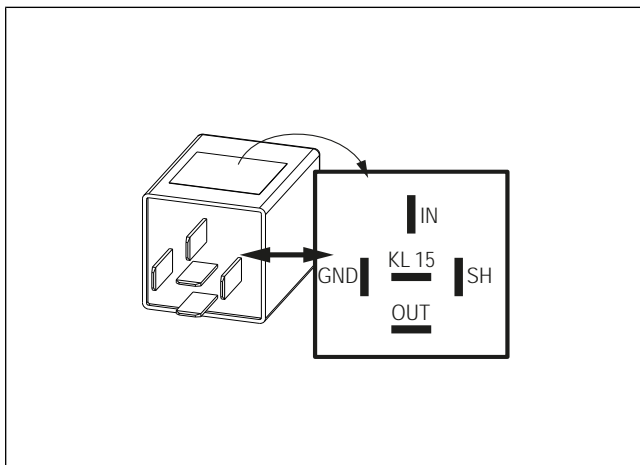


Fig. 88

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

| Parameters | Setting |
|------------|--------------|
| Duty cycle | 70% |
| Frequency | 400Hz |
| Voltage | not relevant |
| Function | Low side |

Preparing PWM GW socket and connecting/assigning wires

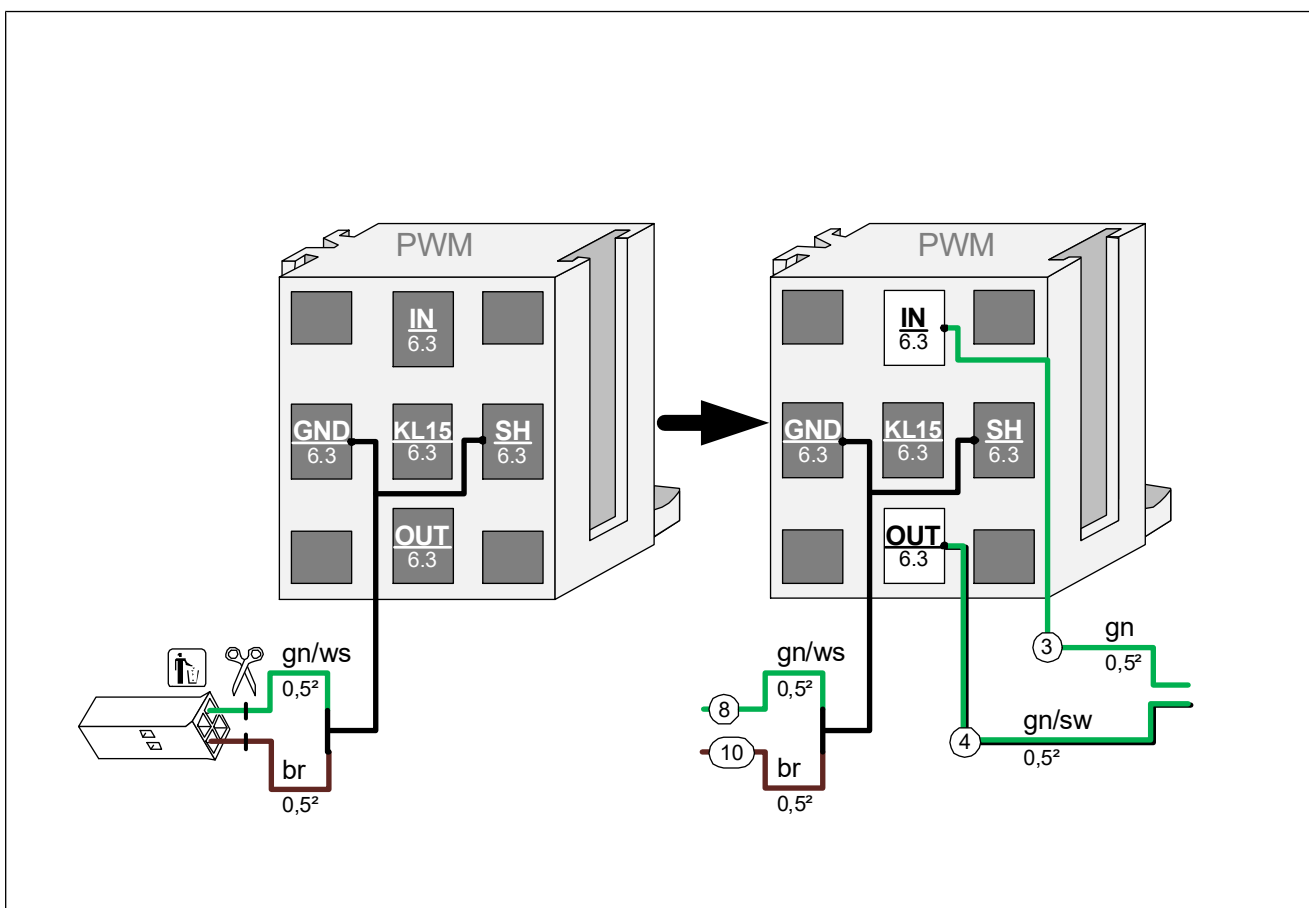


Fig. 89



Connecting wires to K2 relay socket

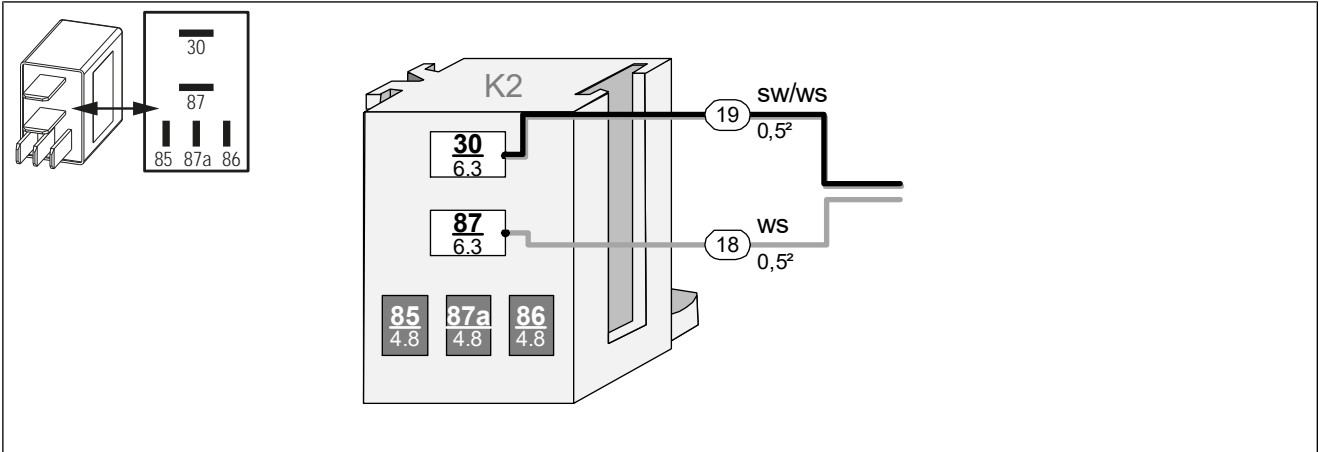


Fig. 90

Assembling K2 relay socket and PWM GW, connecting wires

► Draw wires 50, 51 and 53 into provided protective sleeving.

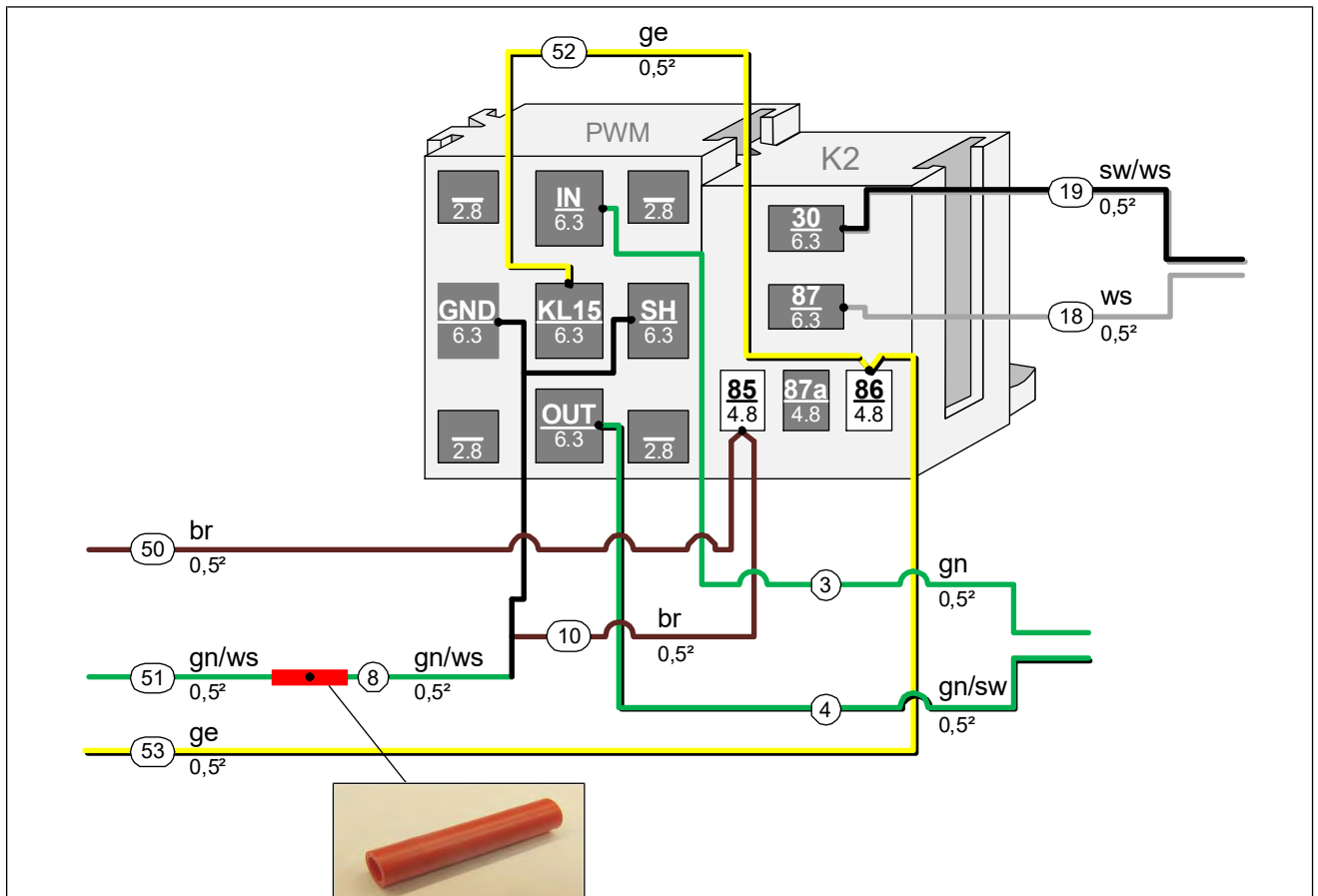


Fig. 91



Premounting K2 relay and PWM GW

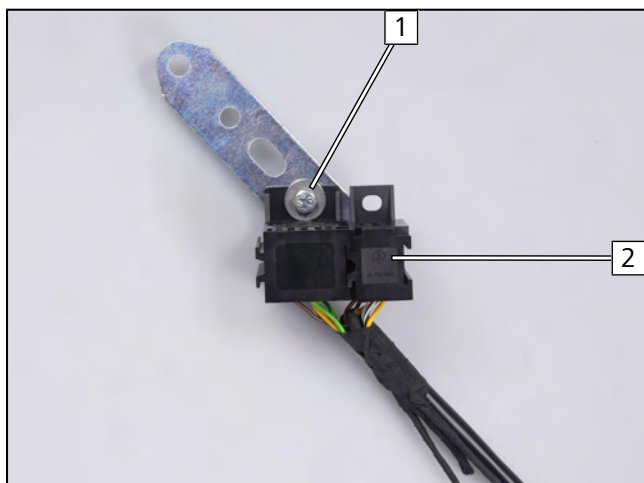


Fig. 92

- 1 M5x16 bolt, large diameter washer, PWM GW socket, perforated bracket, large diameter washer, nut
- 2 Relay K2 socket

Mounting PWM GW and relay K2

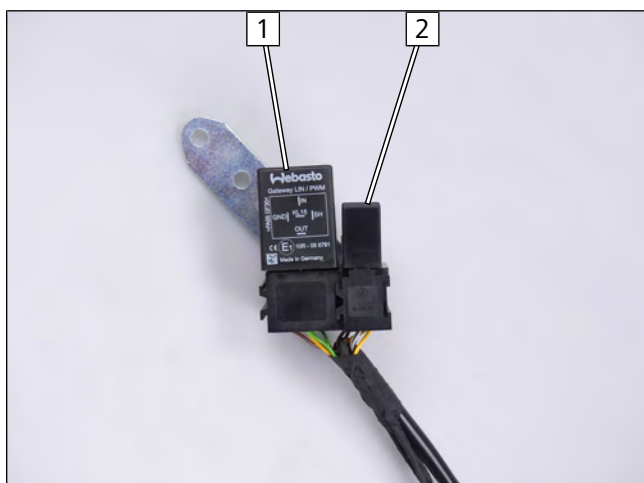


Fig. 93

- 1 PWM GW
- 2 Relay K2



15.3 Wiring diagram

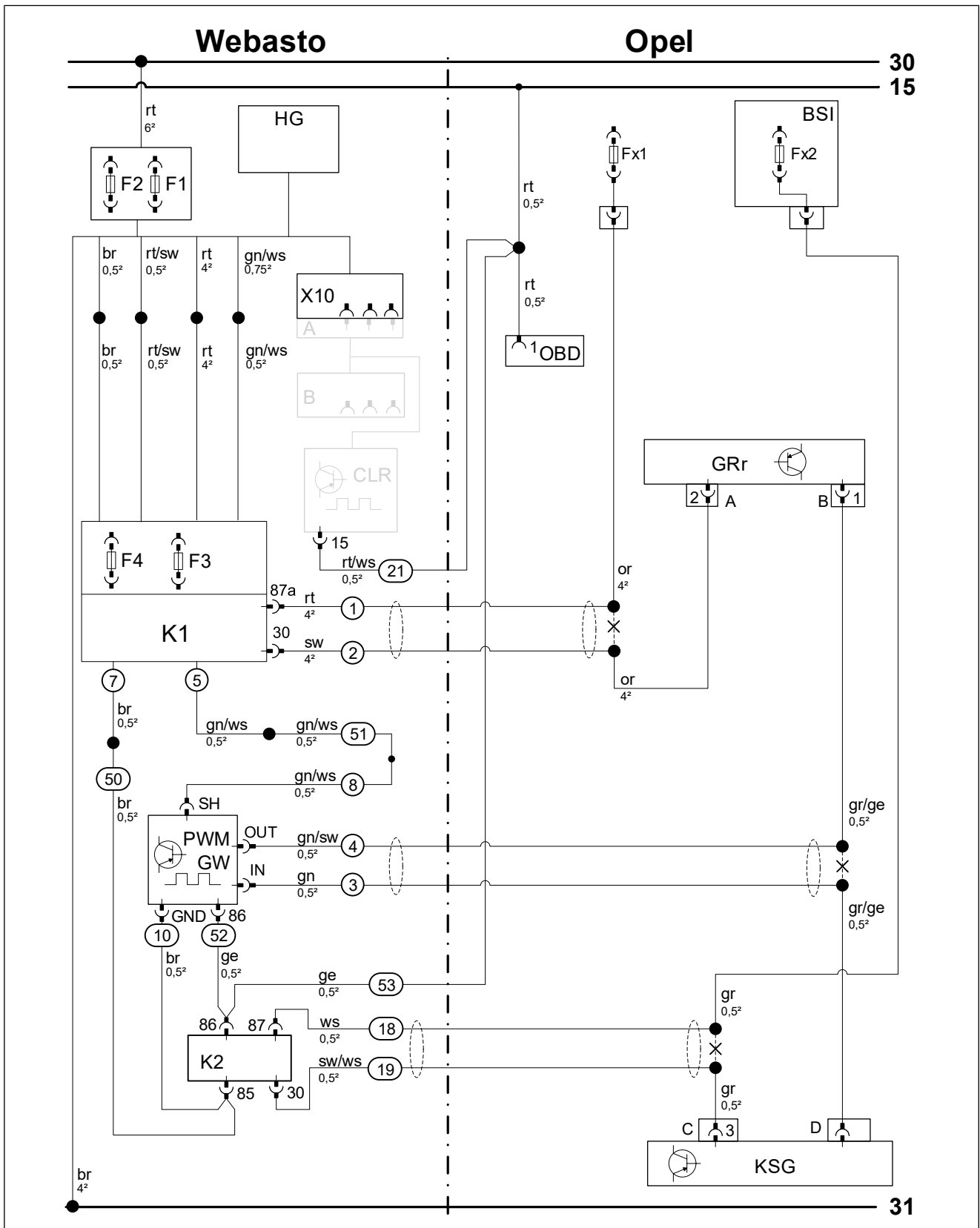


Fig. 94



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 |
| BSI | Passenger compartment central electrical box | X | Cutting point |
| Fx1 | Fuse | | |
| Fx2 | Fuse | | |
| GRr | Fan controller | | |
| A | 2-pin GRr connector | | |
| B | 2-pin GRr connector | | |
| OBD | OBD socket outlet | | |
| KSG | Air-conditioning control unit | | |
| C | 6-pin KSG connector | | |
| D | 40-pin KSG connector | | |

| 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 | | |



15.4 Fan controller

Assembling RSH and CLR module sockets

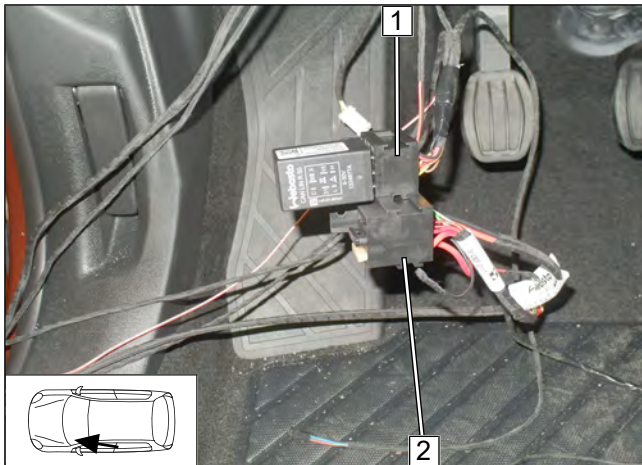


Fig. 95

- 1 CLR module socket
- 2 RSH socket

Mounting RSH

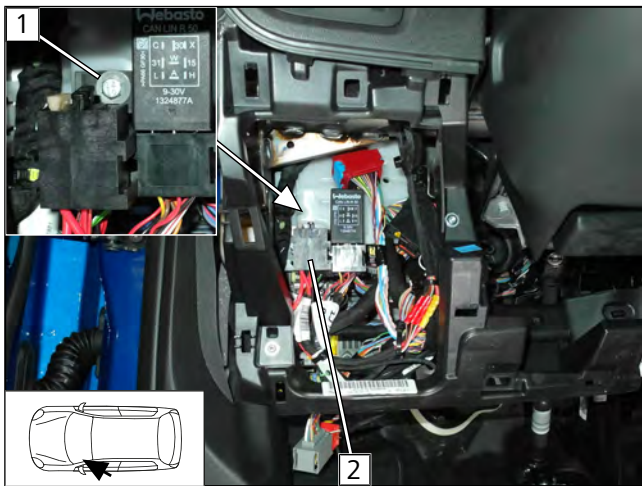


Fig. 96

- 1 M5x16 bolt, large diameter washer, RSH, original vehicle hole, large diameter washer, nut
- 2 RSH

Mounting relay K1 and fuse F4

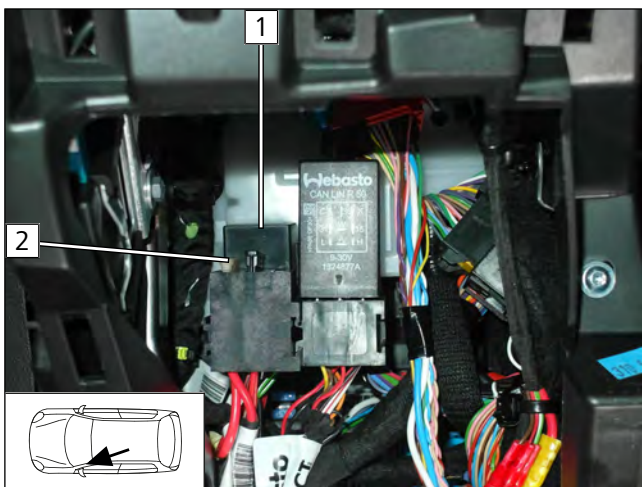


Fig. 97

- 1 Relay K1
- 2 Fuse F4: 25A



Connecting same colour wires of wiring harnesses

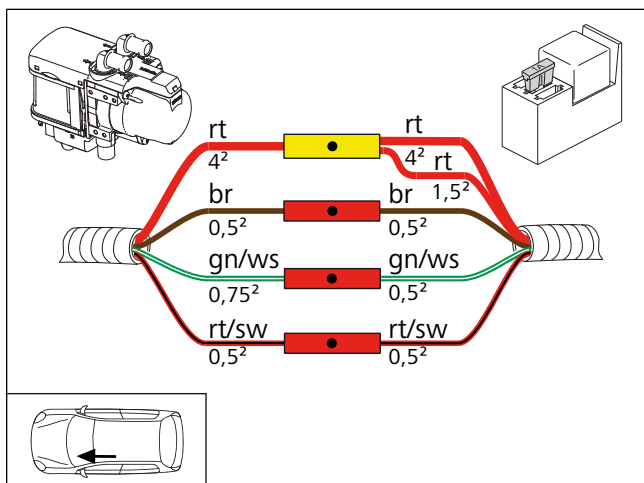
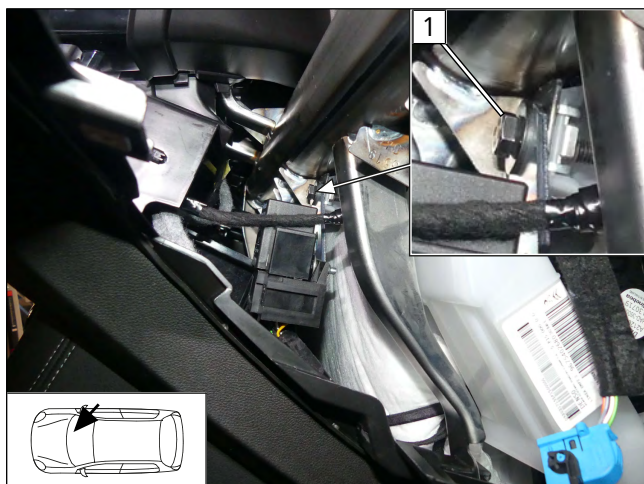


Fig. 98

Mounting relay K2 and PWM module



- 1 Original vehicle bolt, perforated bracket, original vehicle thread

Fig. 99



Connecting line to RSH wiring harness

► Route wires **50**, **51** and **53** in protective sleeving to the driver's side.

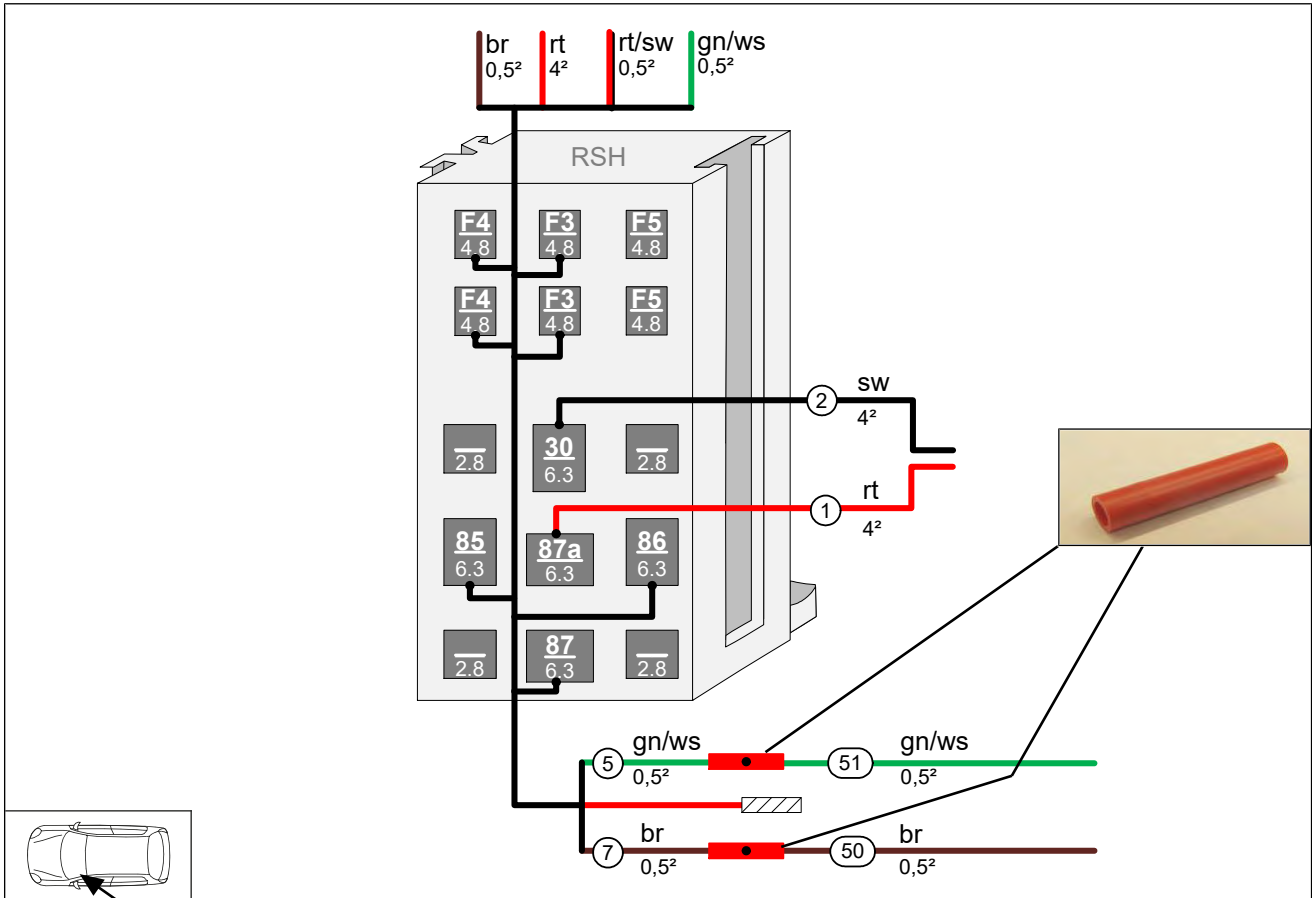


Fig. 100

Connection to OBD socket outlet

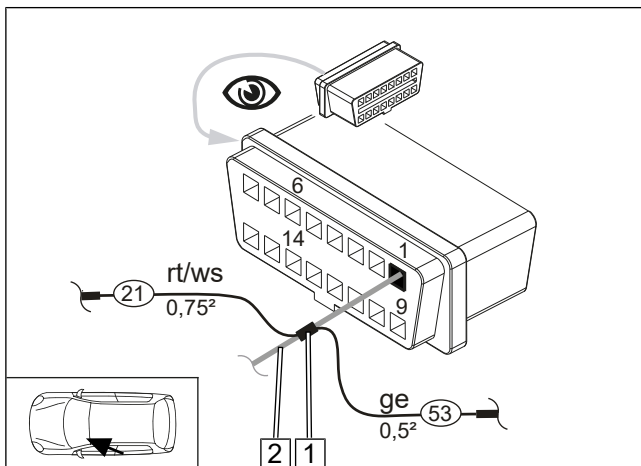


Fig. 101



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

► Remove OBD socket outlet from bracket.



► Crimp and shrink butt connector **1**

2 Red (rt) wire of OBD/pin 1

21 Red/white (rt/ws) wire from CLR module/ 15

53 Yellow (ge) wire from K2 relay/86



Connecting fan controller

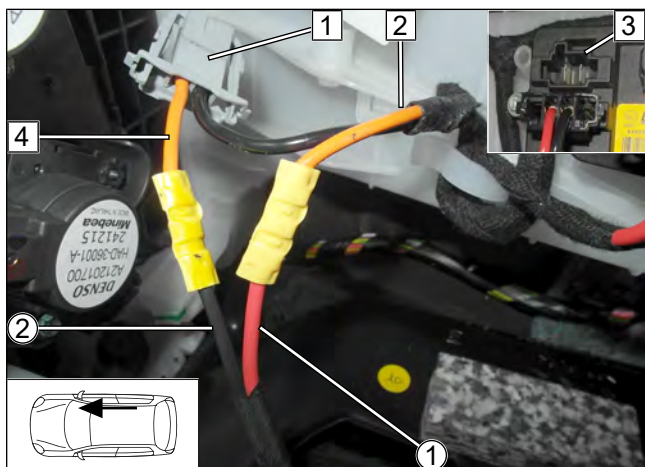


Fig. 102

- 1 2-pin connector A of fan controller
- 2 Orange (or) wire from Fx1 fuse
- 3 Slot A
- 4 Orange (or) wire from connector A/pin 2
- 1 Red (rt) wire of fan wiring harness
- 2 Black (sw) wire of fan wiring harness

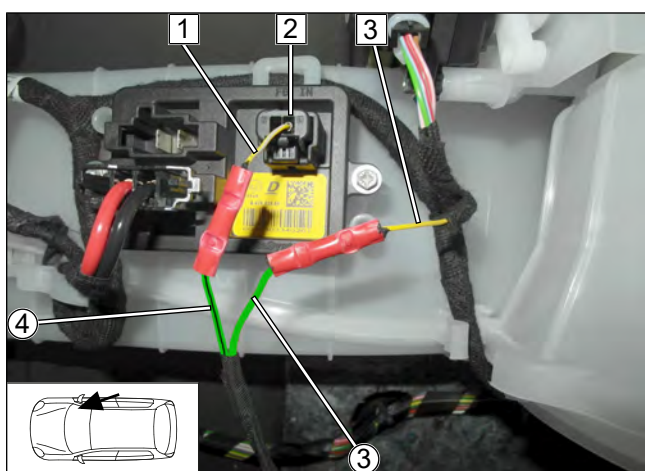


Fig. 103

- 1 Grey/yellow (gr/ge) wire from connector B/pin 1
- 2 2-pin B connector of fan controller
- 3 Grey/yellow (gr) wire from connector D
- 3 Green (gn) wire from wiring harness of PWM control
- 4 Green/black (gn/sw) wire from wiring harness of PWM control

Connection to air-conditioning control unit

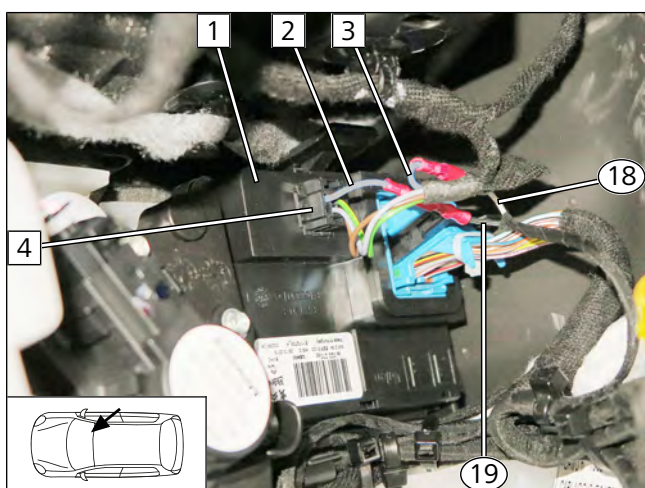


Fig. 104

- 1 Air-conditioning control unit
- 2 Grey (gr) wire of connector C/pin 3
- 3 Grey (gr) wire of fuse Fx2
- 4 6-pin connector C of air-conditioning control unit
- 18 White (ws) wire of isolating relay wiring harness
- 19 Black/white (sw/ws) wire of isolating relay wiring harness

15.5 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.



16 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

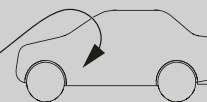
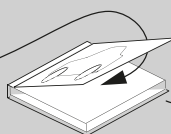
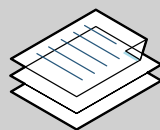
▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck



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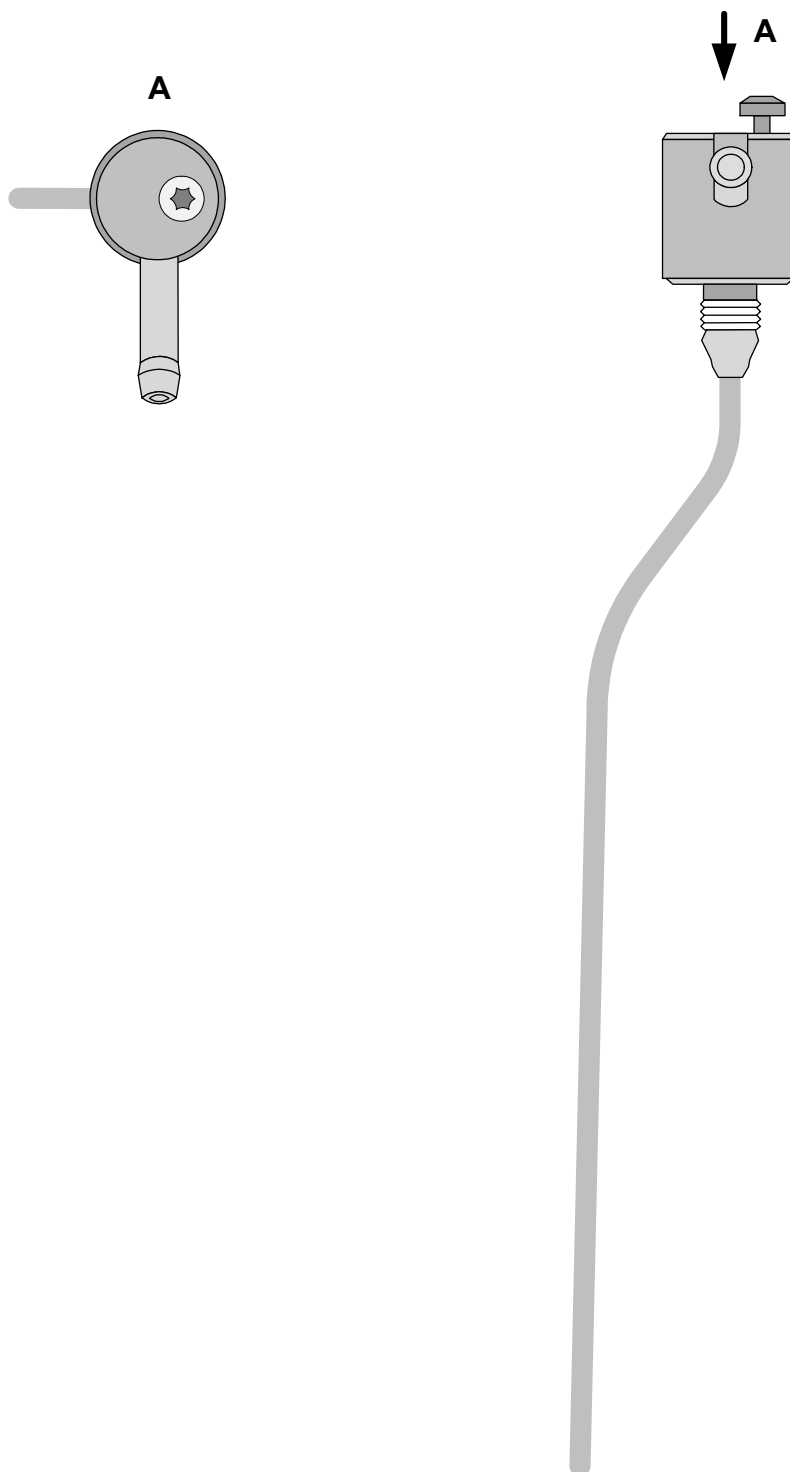
Technical Extranet: <https://dealers.webasto.com>



WWW.WEBASTO.COM



17 FuelFix template



100mm

0

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.

18 Operating instructions



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



Note for parking heater function

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



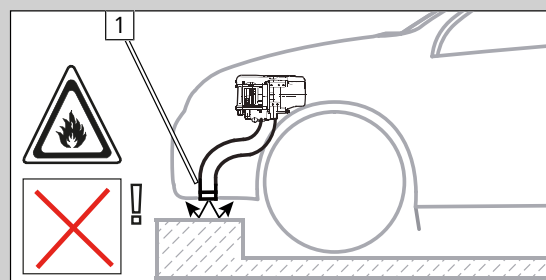
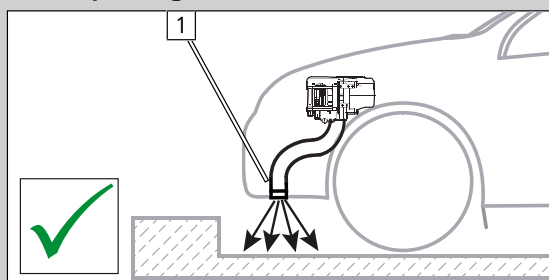
Note for current consumption in case of parking heating mode

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 on parking heater exhaust outlet ¹



18.1 A/C control panel settings

Automatic A/C control panel

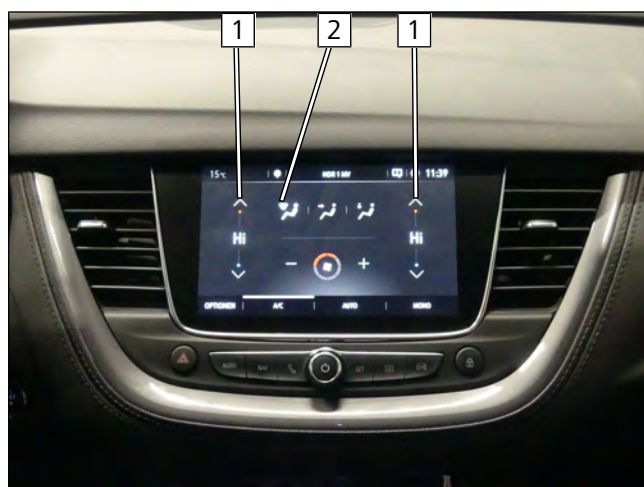


Fig. 105



Before parking the vehicle, make the following settings:

- ▶ The fan speed must not be preset.

- 1 Temperature on both sides to 'Hi'
- 2 Air outlet to 'upwards'

18.2 Installation location of fuses

Fuses in engine compartment

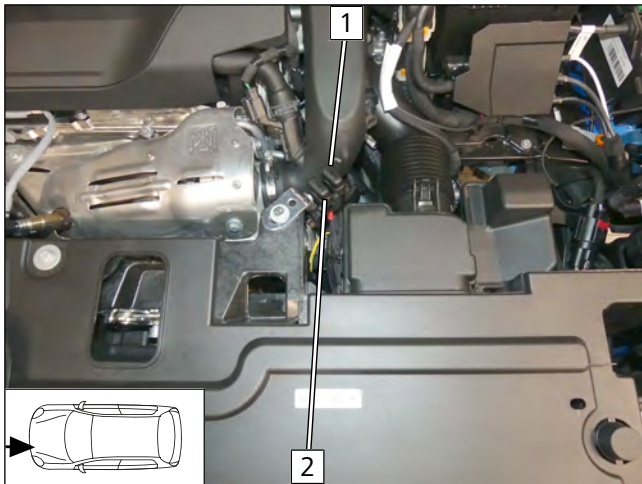


Fig. 106

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

Fuses in passenger compartment

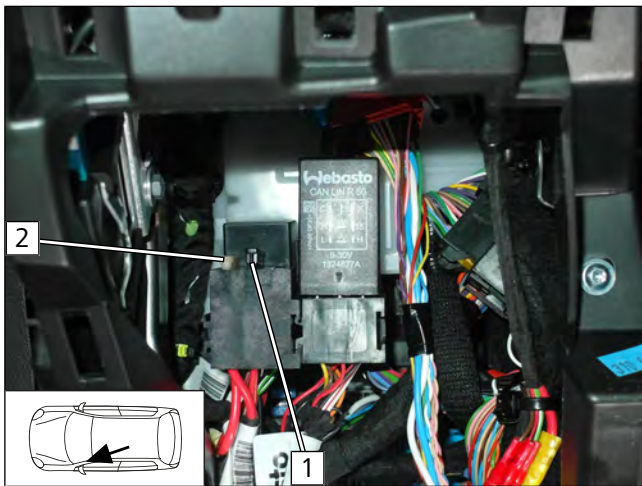


Fig. 107

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