EN

K

Installation documentation

for water heater Thermo Top Evo

'Inline' coolant circuit with engine preheating

Kia XCeed

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Kia	XCeed	CD	from 2020	e4* 2007/46* 1299*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.6-Gdi PHEV	Petrol	Euro 6d Temp	DKG	77	1580	G4LE

Validity	Equipment variants	Model
		XCeed
Verified equipment variants	2 zone automatic air-conditioning	x
	LED main headlights	x
	LED daytime running lights	x
	Halogen front fog lights	x
	Keyless Go	x
	Start button	x
	Alarm system	x

Total installation time	Note
8.0 hours	

Contents

1 List of abbreviations

CLR	Cold start module
DKG	Dual clutch transmission
DP	Fuel pump
EFIX	Exhaust end fastener
FF	FuelFix (tank extracting device)
Fig.	Figure
HG	Heater
RSH	Relay and fuse holder of passenger compartment
RTD	Temperature sensor
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. However, installation according to this installation documentation may be possible.

2.2 Note for hybrid vehicles

Only experts in high-voltage systems for vehicles should be authorised to carry out independent work on hybrid vehicles. High-voltage systems must be taken out of operation, secured and reactivated according to the manufacturer's instructions.

2.3 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo	In accordance with price list
Installation kit (incl. cold start) for Kia XCeed petrol PHEV model year 2020	1328092A
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

2.4 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

2.5 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	K
Vehicle-specific installation documentation of the cold start kit	M
Webasto Comfort A/C control	H
Webasto Standard A/C control	G
Tank extracting device (e.g. FuelFix)	F
Exhaust end fastener (EFIX)	E
Combustion air intake silencer	L
Spacer bracket (ASH)	S

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

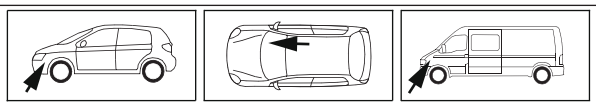
3.4.3 Work step identification marks

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 mm^2
- Crimping pliers for cable lugs 0.5 – 10 mm^2
- Crimping pliers for male connector 0.14 – 6 mm^2
- Crimping pliers for connector 0.25 – 6 mm^2
- Torque wrench for 2.0 - 10 Nm
- Deep-hole marker
- Metric thread-setter kit
- Angle drill
- 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.

DANGER

Take the high-voltage system out of operation as per the procedure described in the manufacturer's instructions and secure it.

Vehicle area	Components to be removed	Other applicable documents
General	▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system	
Engine compartment and body	▶ Air filter box ▶ Disconnect the battery ▶ Engine control unit ▶ Engine underride protection ▶ Bumper cover ▶ Underbody trim on the driver's side	
Passenger compartment	▶ Footwell trim on the front passenger's side ▶ A-pillar footwell trim on the front passenger's side ▶ Front centre tunnel trim on the front passenger's side ▶ Instrument panel side trim on the front passenger's side ▶ Glove box ▶ A/C control panel (see dismantling instructions) ▶ Rear bench seat ▶ Tank fitting service lid	

5.2 Heater preparation

Engine compartment	▶ 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

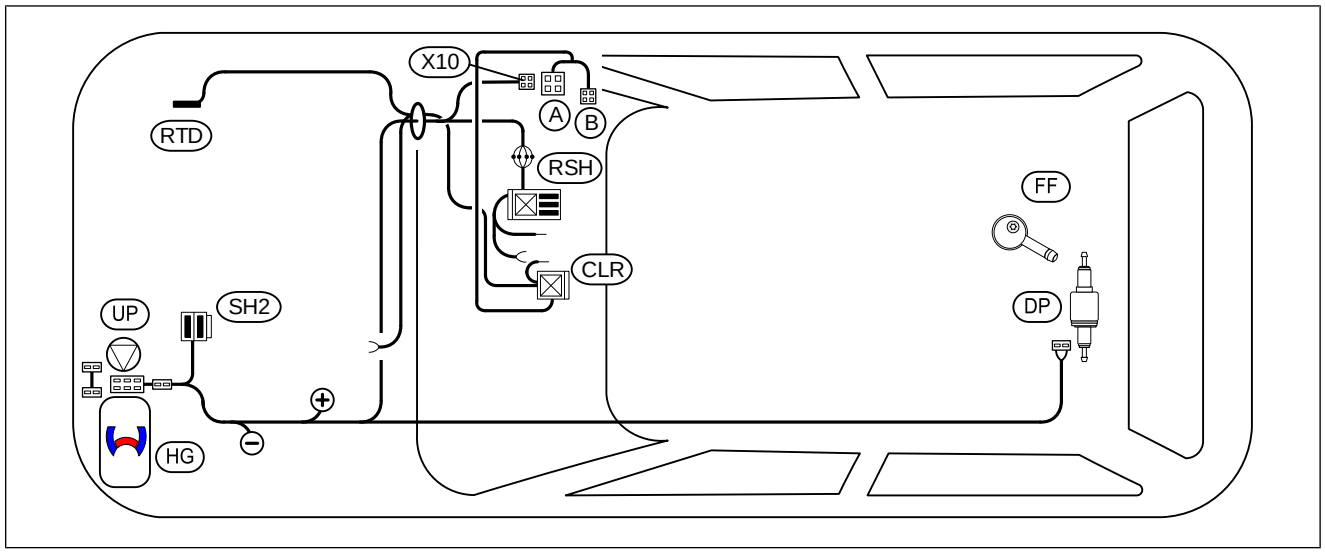


Fig. 1

Legend to installation overview

Abbreviation	Component
A/B	Adapter connector
CLR	CLR module
DP	Fuel pump
FF	FuelFix
HG	Heater
RSH	Relay and fuse holder of passenger compartment
RTD	Temperature sensor
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
X10	Control element connector

Heater installation location

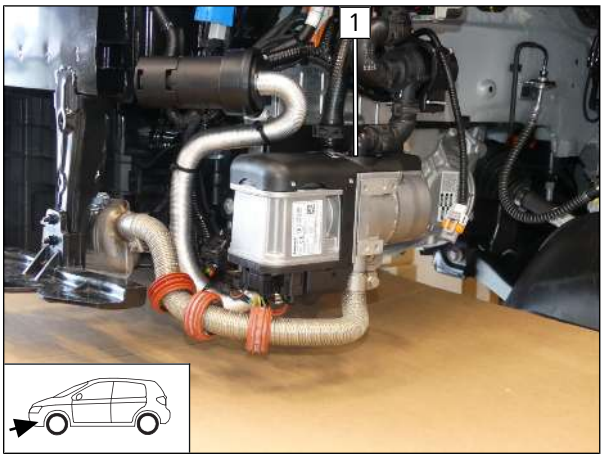


Fig. 2

1 Heater

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 retaining plate of SH2

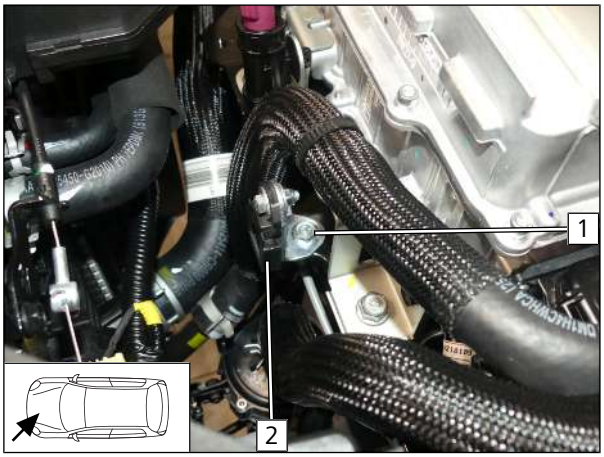


Fig. 4

1 M6x16 bolt, angle bracket, original vehicle hole

2 Premounted SH2 retaining plate

Installing SH2

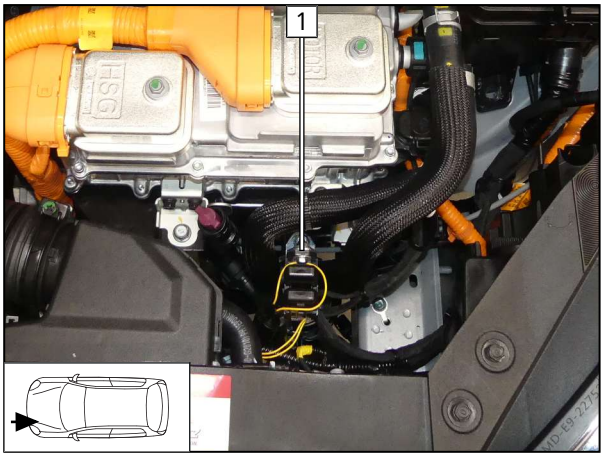


Fig. 5

1 Fuses F1 / F2

Routing wiring harnesses

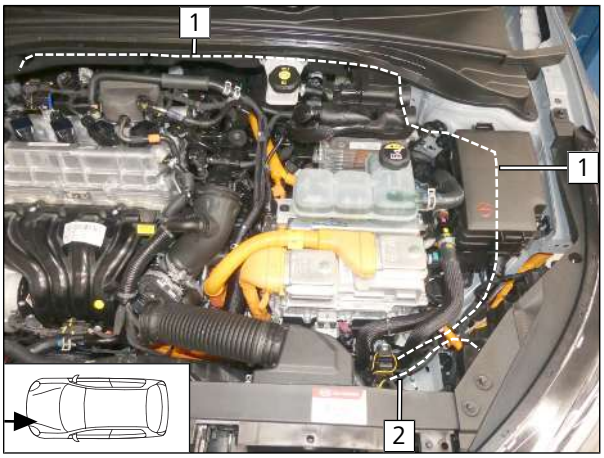


Fig. 6

- ▶ Route passenger compartment and control element wiring harnesses [1] as shown in this and the next figures.
- ▶ Route heater wiring harness [2] to HG installation location.

[1] Passenger compartment and control element wiring harnesses

[2] Heater wiring harness

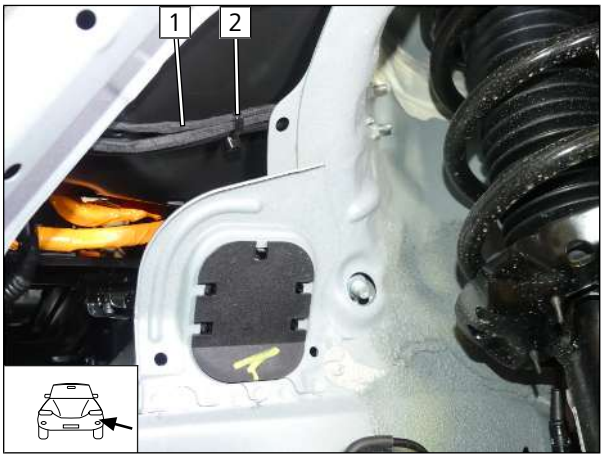


Fig. 7

- ▶ Route passenger compartment and control element wiring harnesses [1] under the battery box as shown.

[2] Cable tie

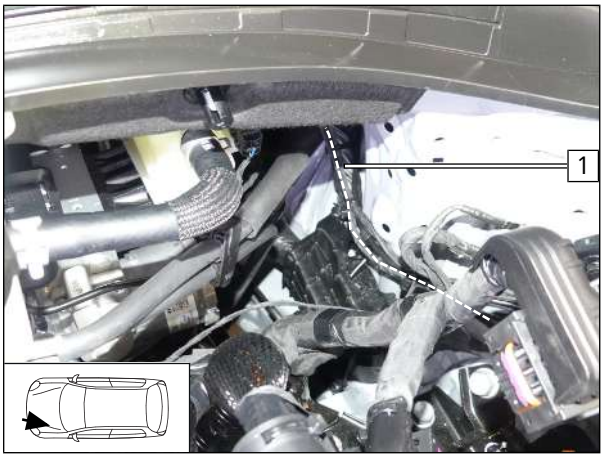


Fig. 8

[1] Passenger compartment and control element wiring harnesses

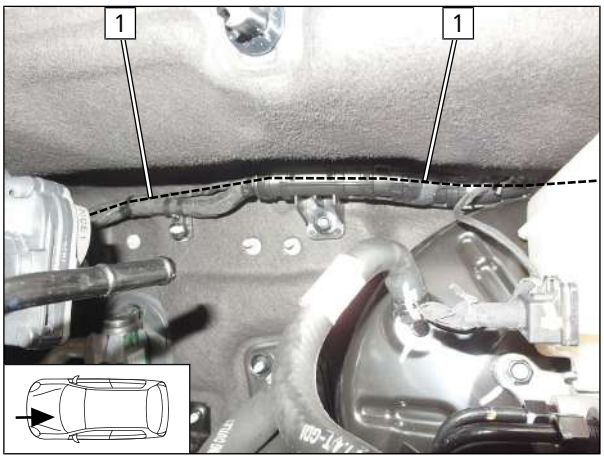


Fig. 9

1 Passenger compartment and control element wiring harnesses

Passenger compartment wiring harness pass through

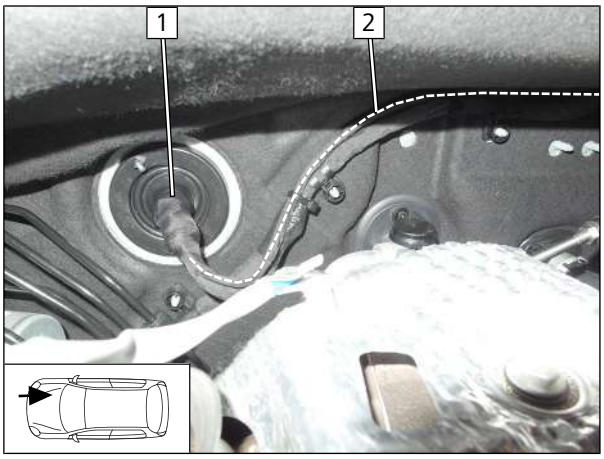


Fig. 10

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 Passenger compartment and control element wiring harnesses

Positive wire connection

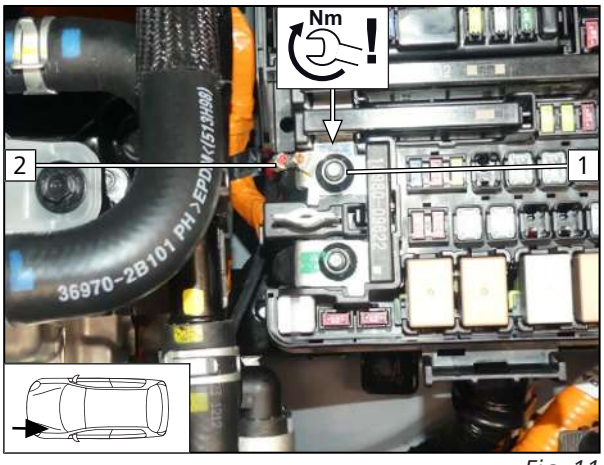


Fig. 11

DANGER

Observe tightening torque

1 Positive support point

2 Positive wire

Earth wire connection

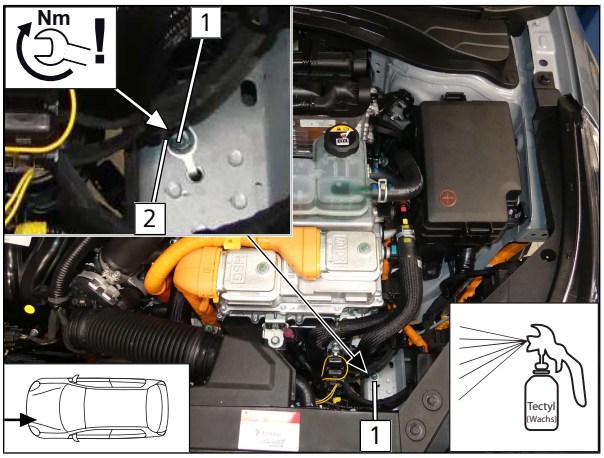


Fig. 12

DANGER

Observe tightening torque

1 Original vehicle earth point
2 Earth wire

8 Mechanical system

8.1 Preparing installation location

Loosening original vehicle wiring harness

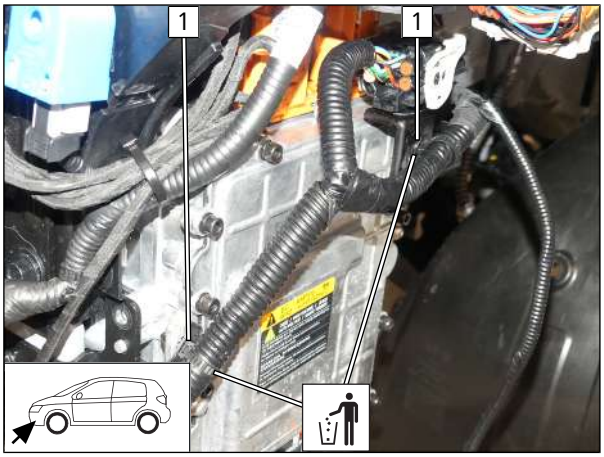


Fig. 13

▶ Remove and discard clip 1 from original vehicle wiring harness.

Preparing perforated bracket for UP

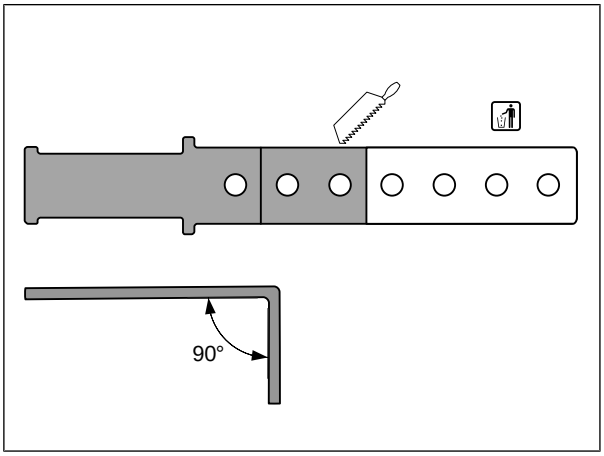


Fig. 14

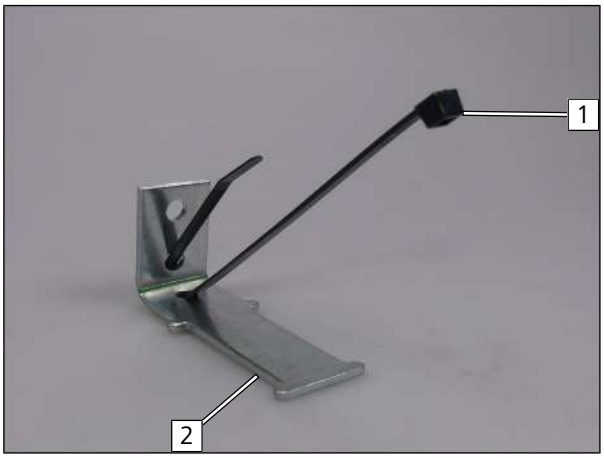


Fig. 15

▶ Premount cable tie 1 as shown.

2 Perforated bracket

Mounting perforated bracket for UP

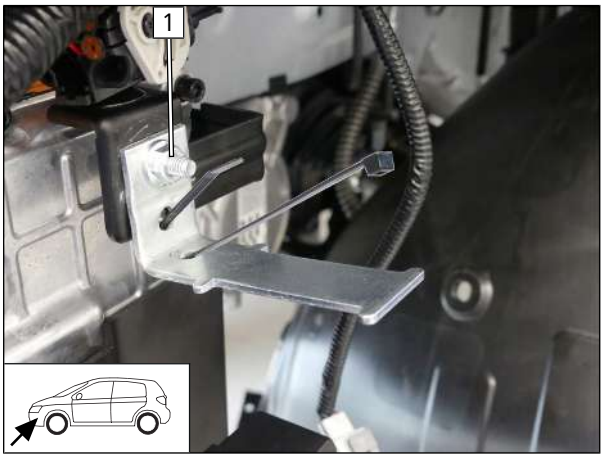


Fig. 16

1 M6x16 bolt, original vehicle hole, prepared perforated bracket, flanged nut

Routing wiring harnesses

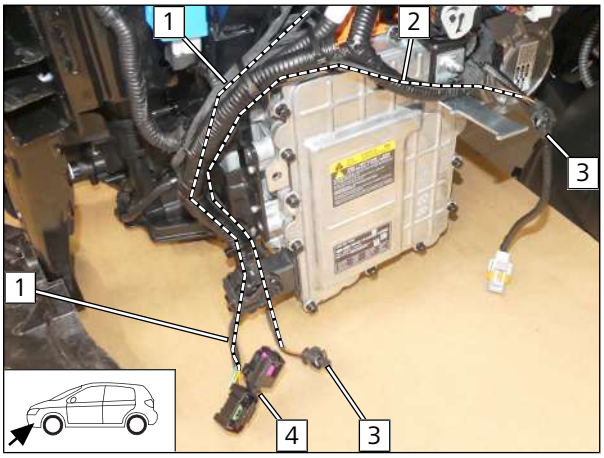


Fig. 17

1 Heater wiring harness
2 Coolant pump wiring harness
3 Coolant pump wiring harness connector
4 Heater wiring harness connector

Fastening wiring harnesses

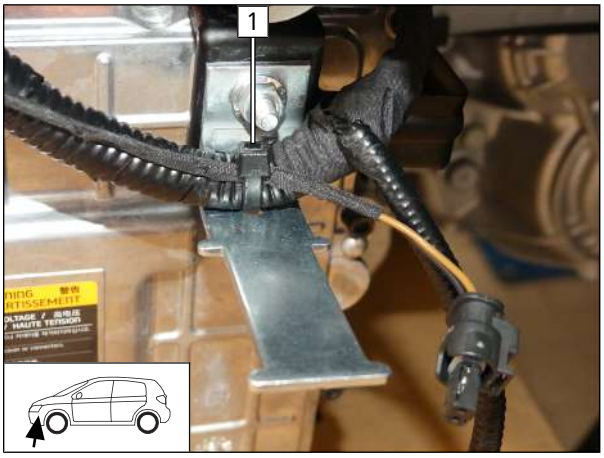


Fig. 18

▶ Secure original vehicle wiring harness and coolant pump wiring harness with cable tie **1**.

Inserting rivet nut

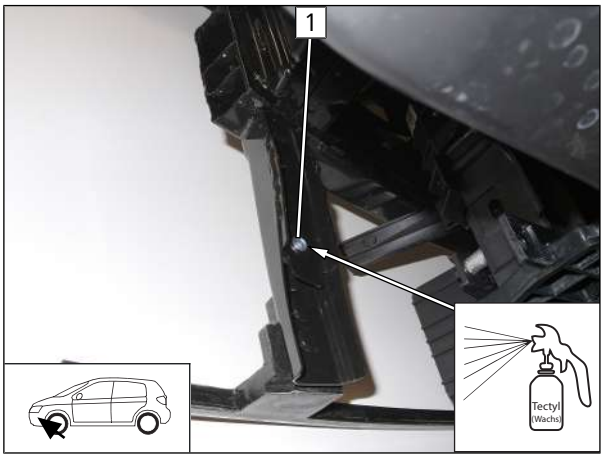


Fig. 19

▶ Enlarge original vehicle hole to Ø9, insert rivet nut **1**.

8.2 Premounting heater

Observe the general installation instructions of the heater.

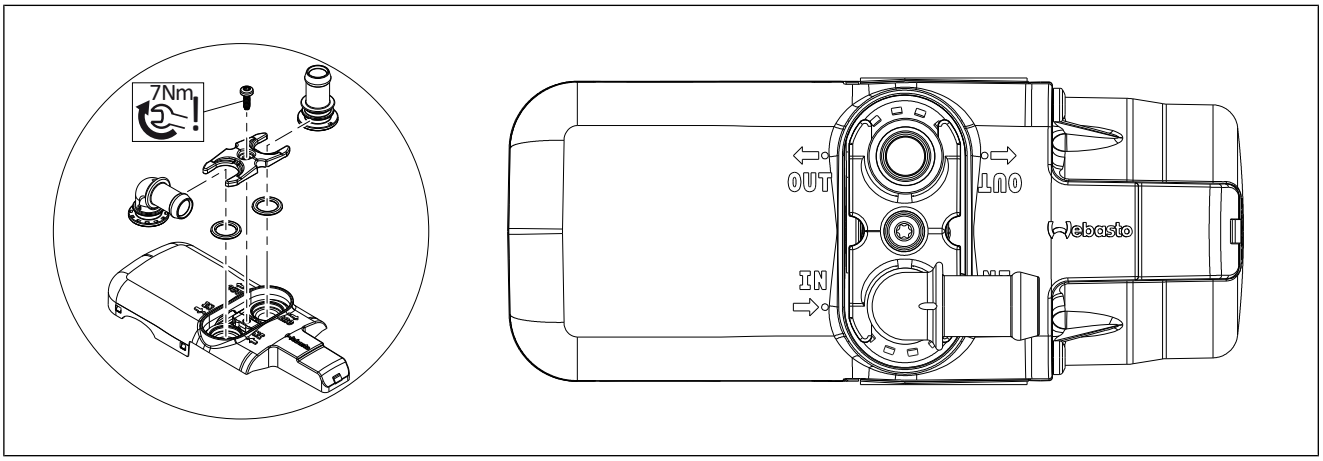


Fig. 20

Assigning two-part bracket

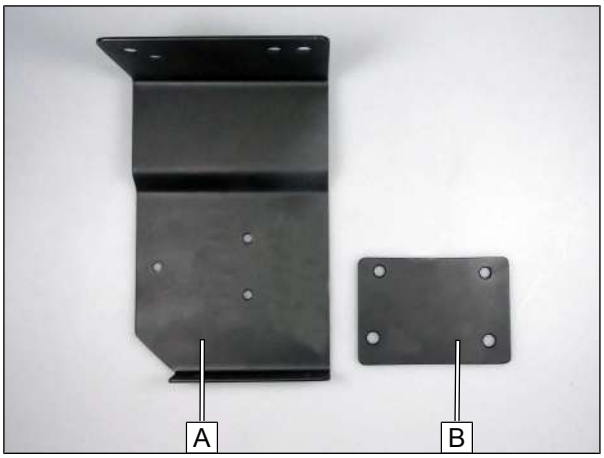


Fig. 21

Premounting bracket A on heater

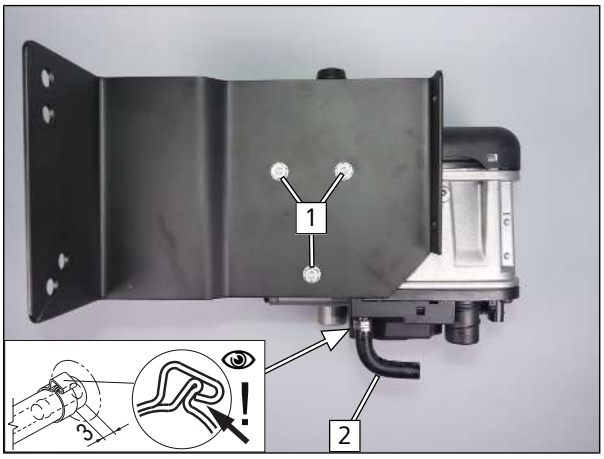


Fig. 22

1 M5x13 self-tapping bolt, bracket A, heater
2 90° moulded hose, Ø10 clamp

Mounting lock washer

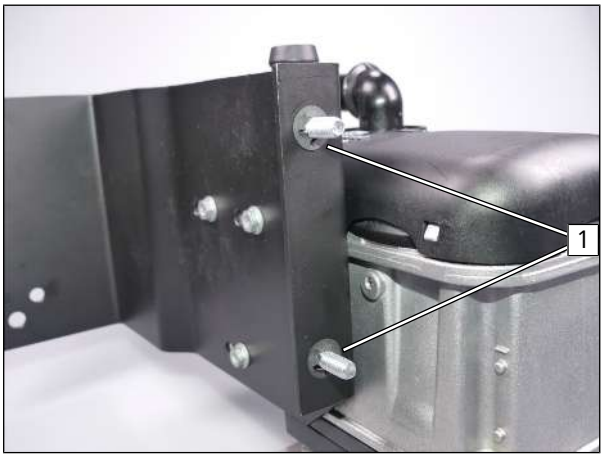


Fig. 23

1 M6x20 bolt, bracket A, lock washer

8.3 Heater mounting

Remove bolts

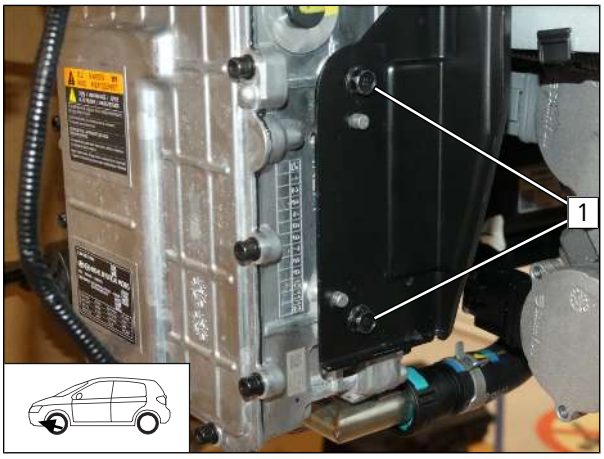


Fig. 24

Observe the general installation instructions of the heater.

▶ Remove original vehicle bolt 1, it will be reused.

Mounting heater

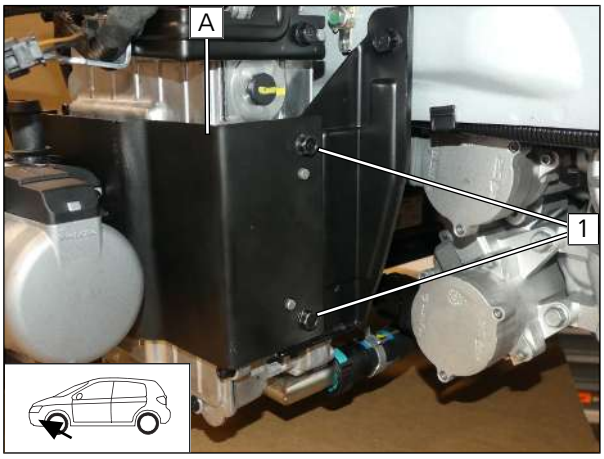


Fig. 25

▶ Fasten premounted bracket A with original vehicle bolt **1**.

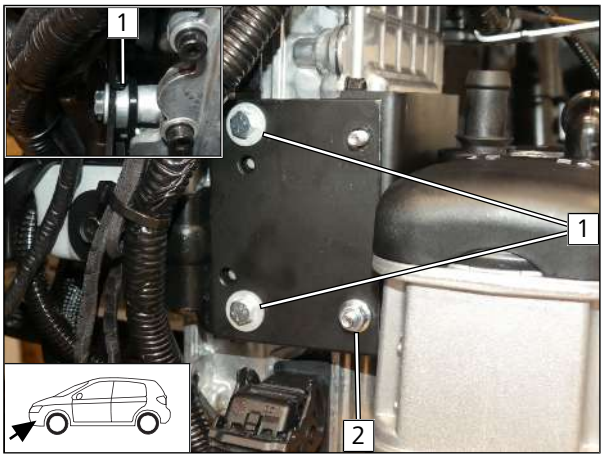


Fig. 26

1 M6x20 bolt, large diameter washer, bracket B, 5mm spacer, original vehicle thread

2 Premounted M6x20 bolt bracket A, bracket B, flanged nut

Preparing perforated bracket for combustion air intake silencer mount

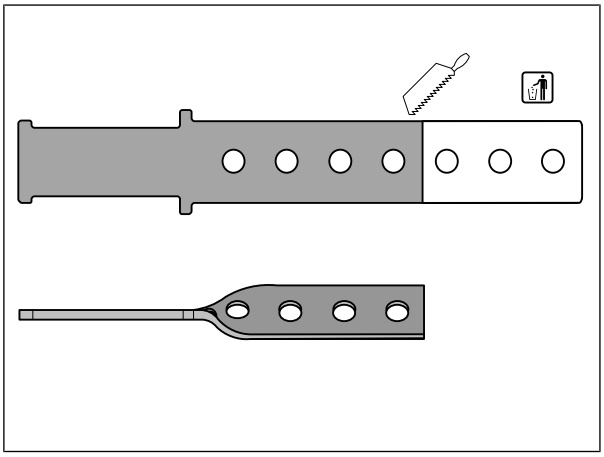


Fig. 27

▶ Shorten perforated bracket as shown and twist by 45°.

Premounting combustion air intake silencer mount

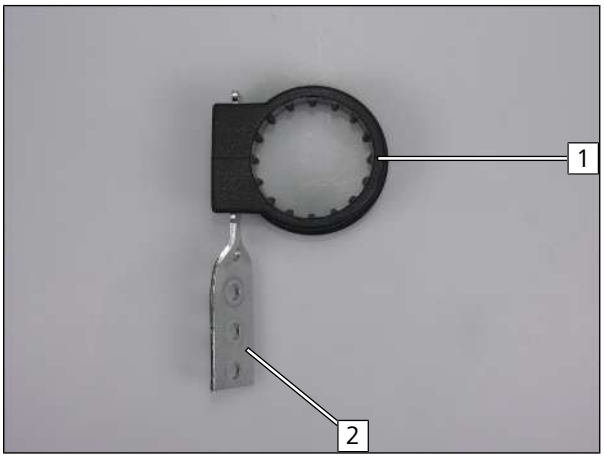


Fig. 28

1 Combustion air intake silencer mount
2 Perforated bracket

Mounting perforated bracket for combustion air intake silencer

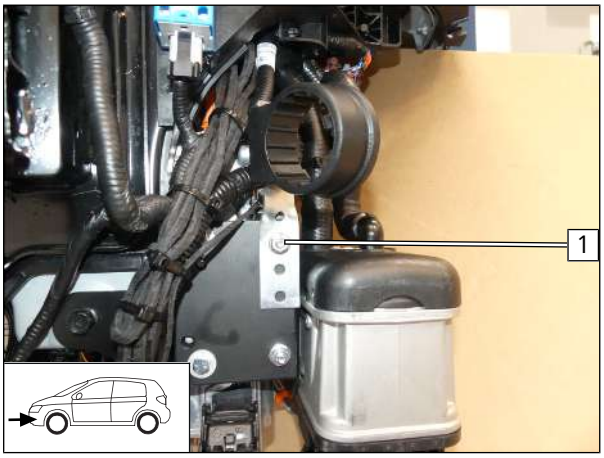


Fig. 29

1 Premounted M6x20 bolt bracket A, bracket B, perforated bracket, flanged nut

Mounting wiring harnesses

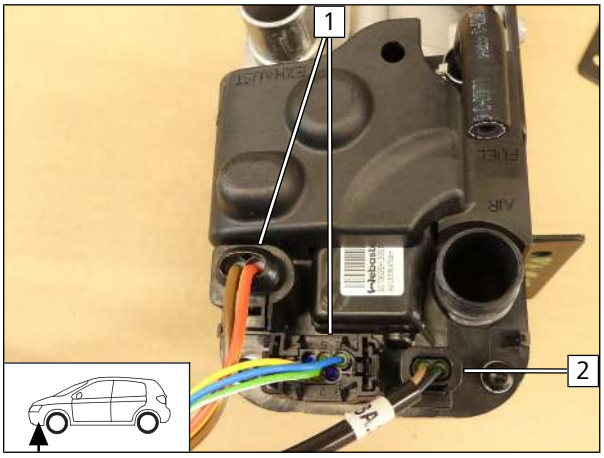


Fig. 30

1 Heater wiring harness connector
2 Coolant pump wiring harness connector

9 Coolant

9.1 Preliminary Work

Cutting hoses to length

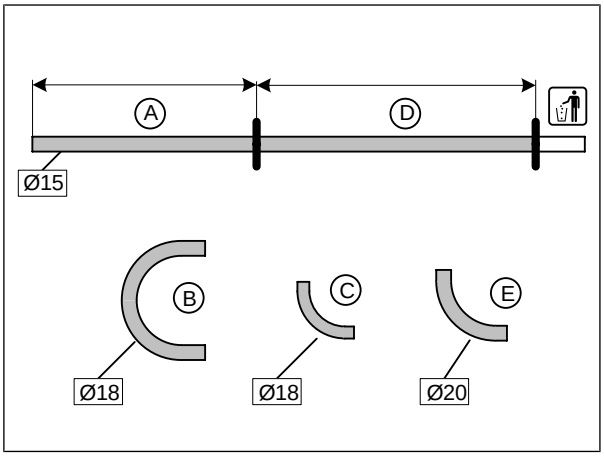


Fig. 31

Ⓐ 1070
Ⓑ 180°
Ⓒ 90°
Ⓓ 1260
Ⓔ 90°

Cutting fabric heat shrink tubing to length

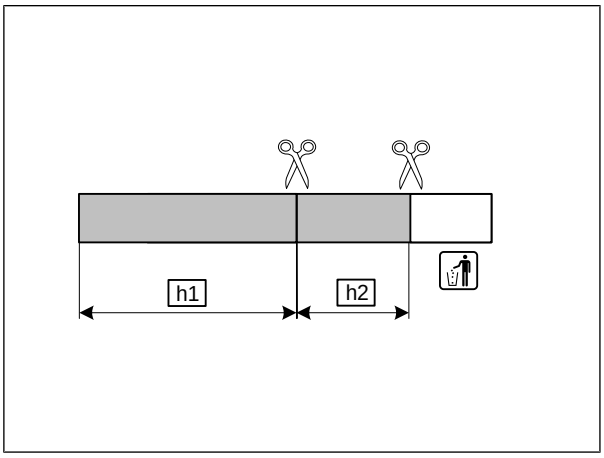


Fig. 32

h1 600
h2 280

Preparing hoses Ⓐ and Ⓓ as a hose group

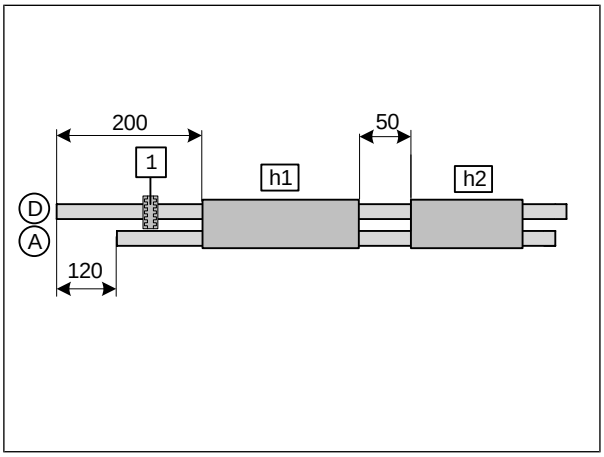


Fig. 33

- ▶ 1. Slide on fabric heat shrink tubings **h1** and **h2** as shown
- ▶ 2. Shrink, use at most 230 °C

1 Positioning rubber isolator

Premounting coolant pump

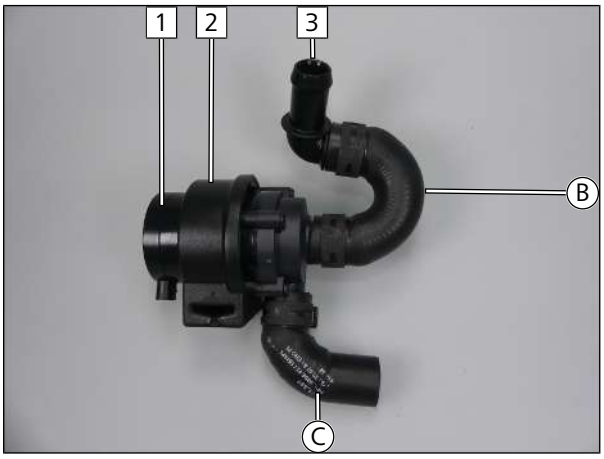


Fig. 34

All spring clips Ø25

1 Coolant pump
2 Coolant pump mount
3 90°, 18x18 connecting pipe

Preparing perforated bracket

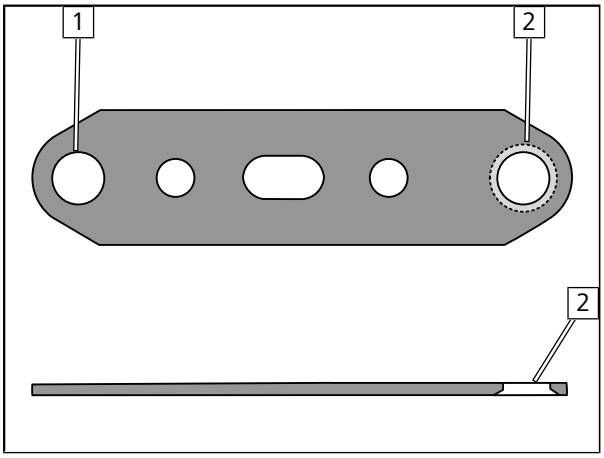


Fig. 35

▶ Drill out hole 1 to Ø 8.
▶ Enlarge hole 2 to Ø8 and countersink using a Ø12 drill bit.

1 Perforated bracket mounting point
2 Hose bracket mounting point

Premounting hose bracket

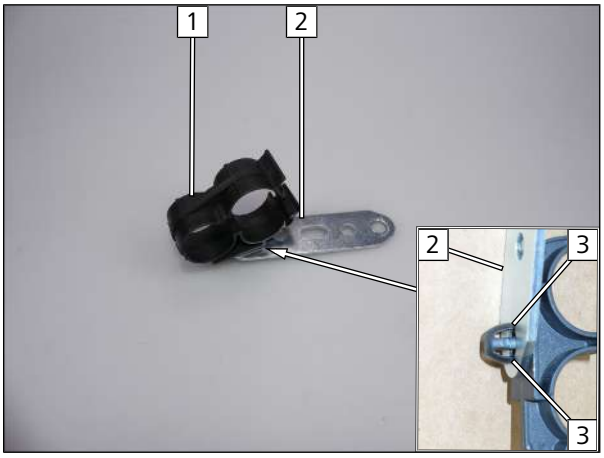


Fig. 36

Ensure correct assembly of hose bracket 1 at position 3.

2 Prepared perforated bracket

Installing perforated bracket

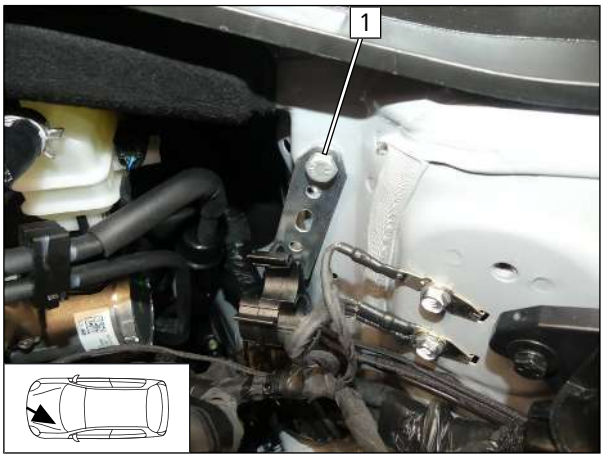


Fig. 37

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

Connecting premounted coolant pump to HG/IN

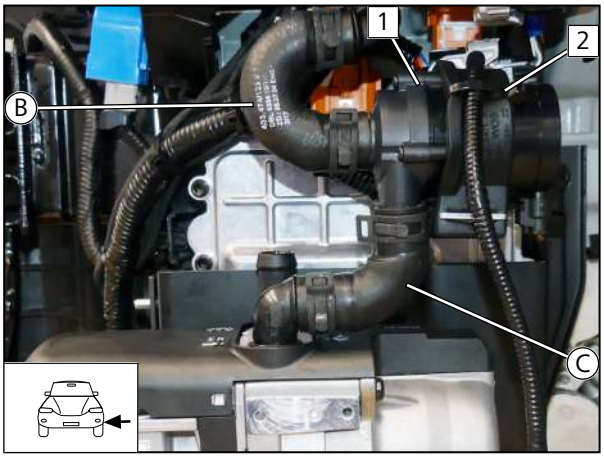


Fig. 38

All spring clips Ø25

1 Coolant pump

2 Coolant pump mount

9.2 Hose routing diagram

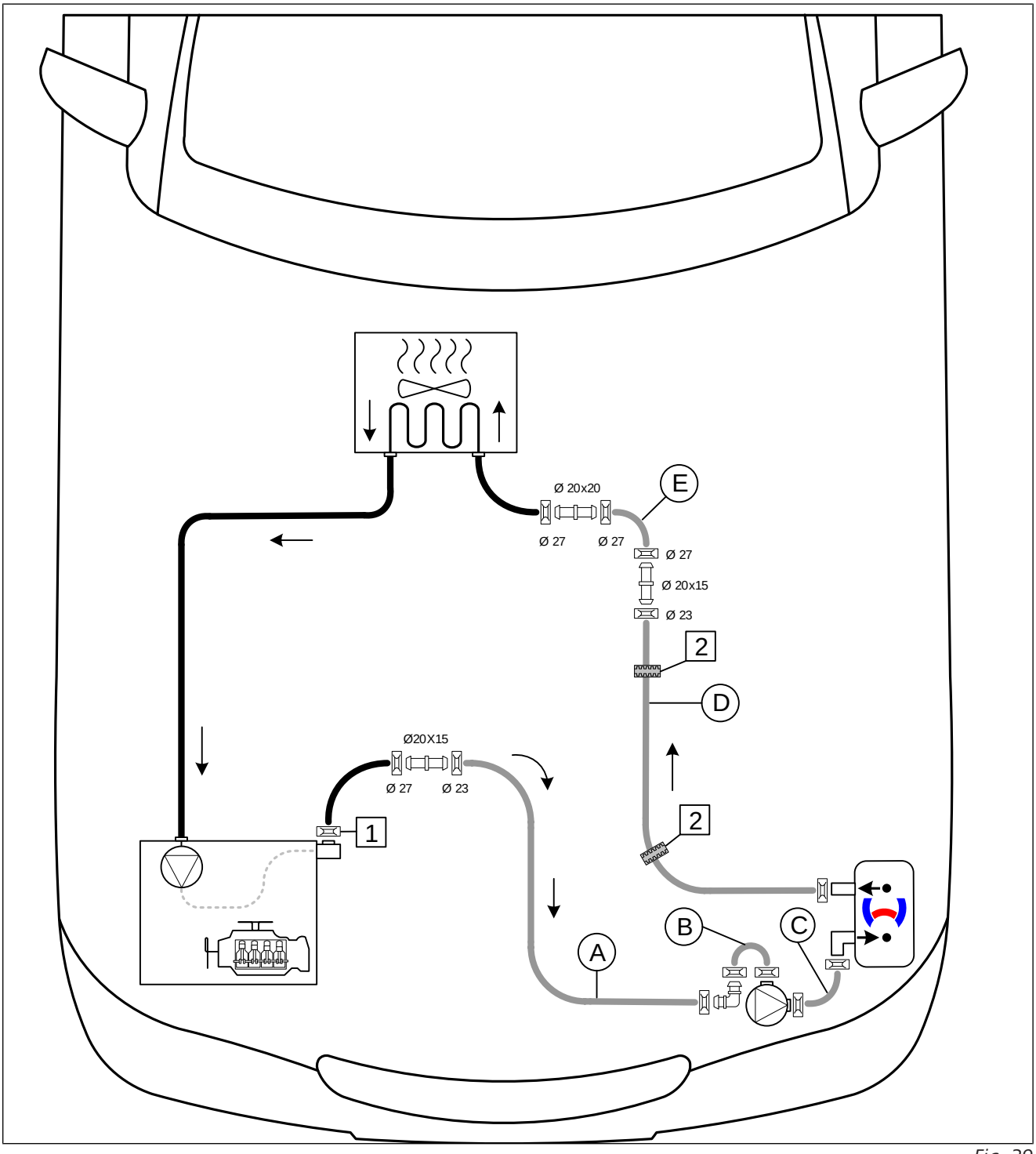


Fig. 39

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation = 18x18

1 Original vehicle spring clip

2 Rubber isolator

9.3 Coolant circuit installation

Mounting hose group Ⓐ/Ⓓ

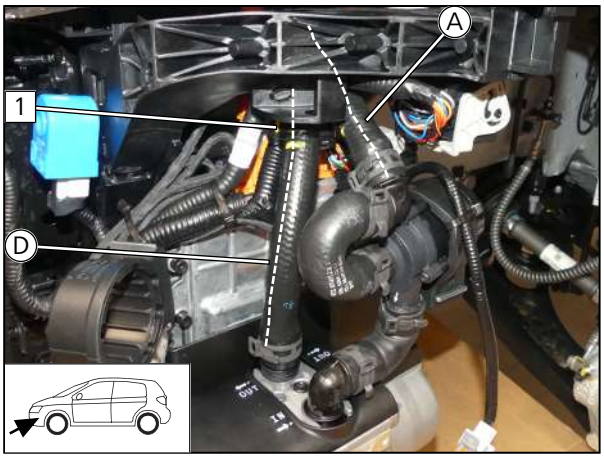


Fig. 40

- ▶ Route hose group Ⓐ/Ⓓ in the engine compartment.
- ▶ Position rubber isolator 1.

Routing and fastening hose group Ⓐ/Ⓓ

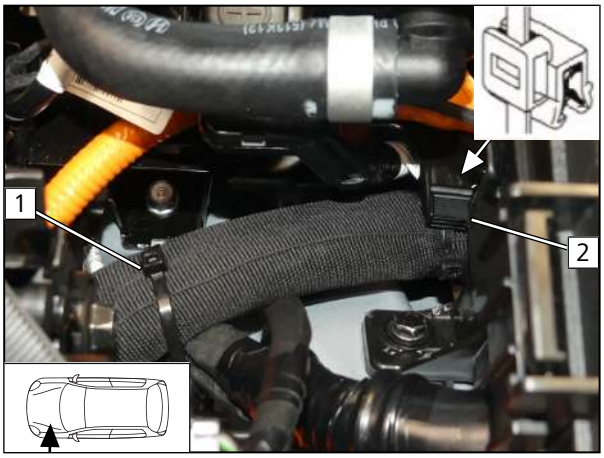


Fig. 41

Danger of damage to components

- ▶ Ensure sufficient distance from neighbouring components, correct if necessary.

- ▶ Route hose group Ⓐ/Ⓓ under the fuse holder in the direction of the firewall.
- ▶ Loop cable tie 1 around hose group Ⓐ/Ⓓ and mount original vehicle wiring harness.

  2 Edge clip cable tie

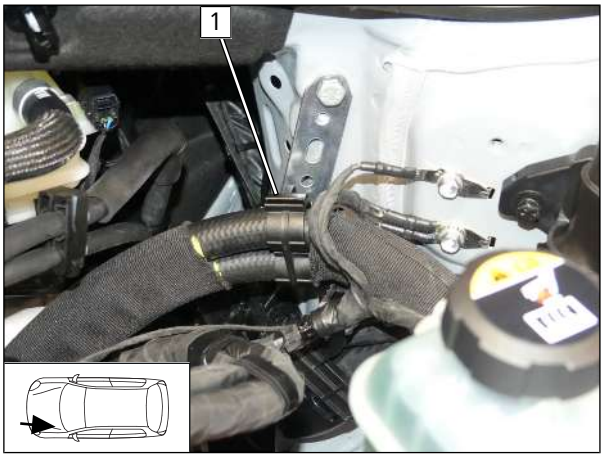


Fig. 42

- ▶ Close premounted hose bracket 1.

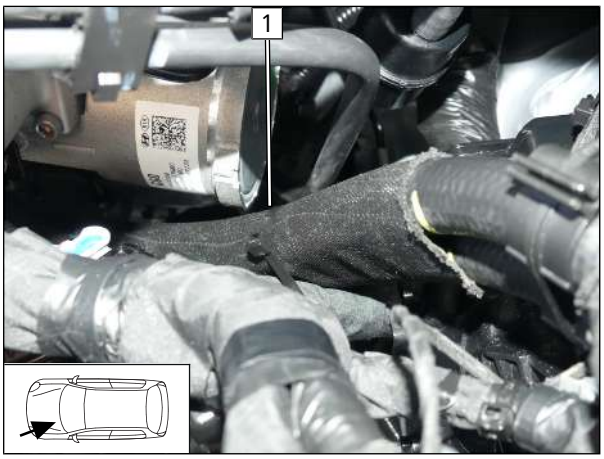


Fig. 43

▶ Fix hose group Ⓐ/Ⓓ with cable tie 1 to original vehicle wiring harness

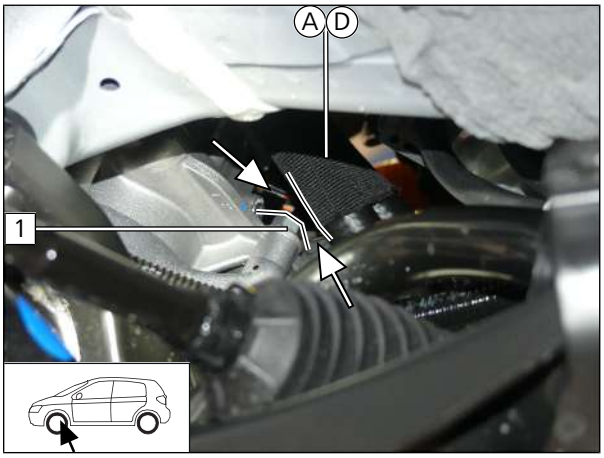


Fig. 44

Ensure sufficient distance to transmission at position 1, correct if necessary.

>5

Disconnecting heat exchanger inlet/engine outlet hose

Fig. 45

▶ Disconnect heat exchanger inlet/engine outlet hose 1. Original vehicle spring clip will be reused.

Preparing hose of heat exchanger inlet / engine outlet

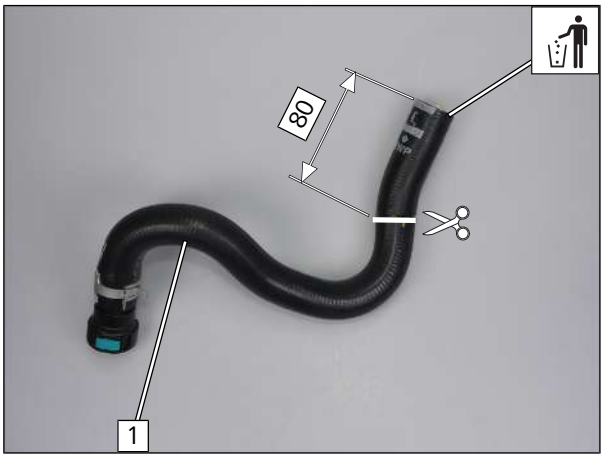


Fig. 46

▶ Shorten heat exchanger inlet/engine outlet hose **1** as shown.

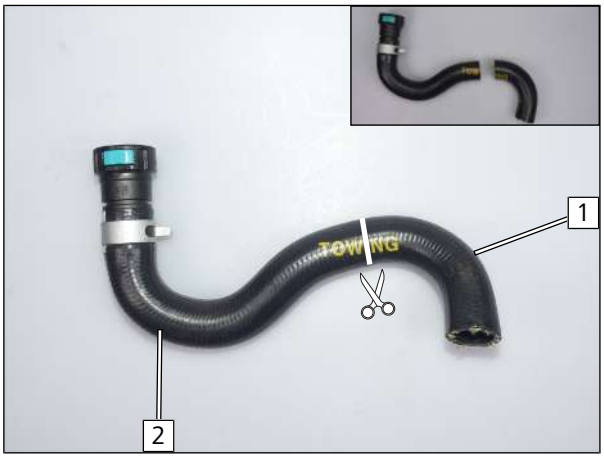


Fig. 47

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

1 Engine outlet hose section

2 Heat exchanger inlet hose section

Premounting engine outlet hose section

Fig. 48

1 Ø27 spring clip

2 20x15 connecting pipe

Premounting heat exchanger inlet hose section

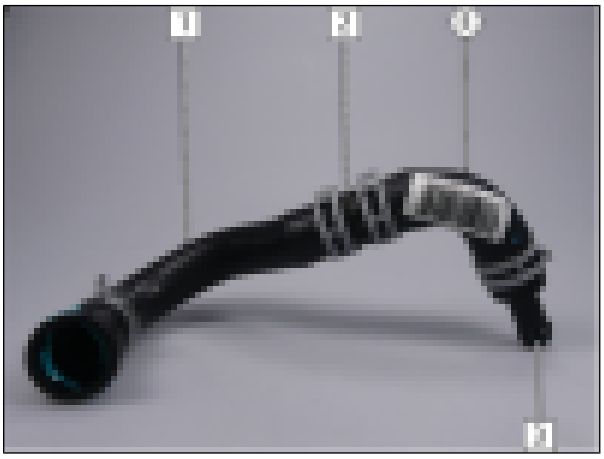


Fig. 49

All spring clips Ø27

1 Heat exchanger inlet hose section
2 20x20 connecting pipe
3 20x15 connecting pipe

Engine outlet connection

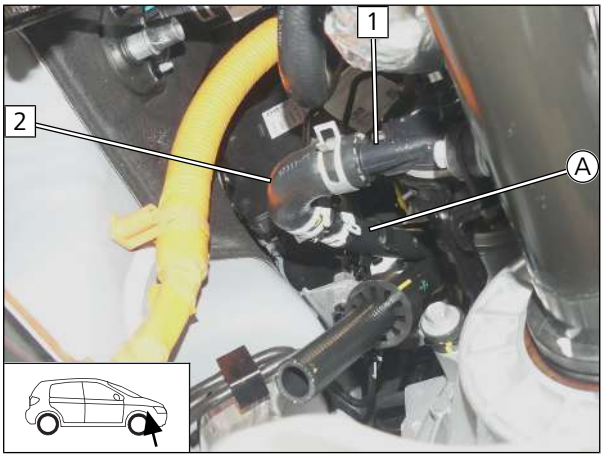


Fig. 50

1 Engine outlet connection piece
2 Engine outlet hose section

Mounting hose bracket

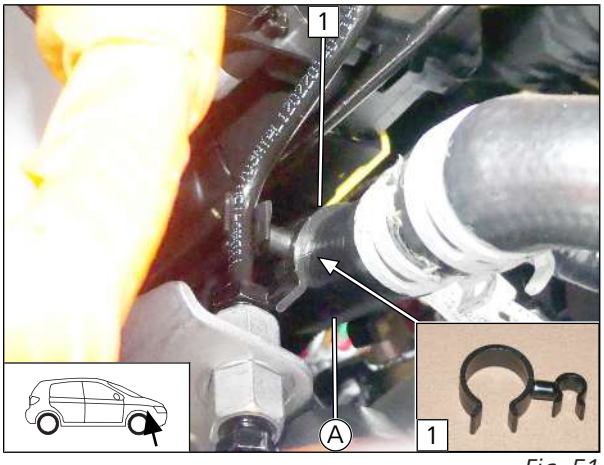


Fig. 51

▶ 4x22 hose bracket 1 between original vehicle line 2 and hose Ⓐ.

Heat exchanger inlet connection

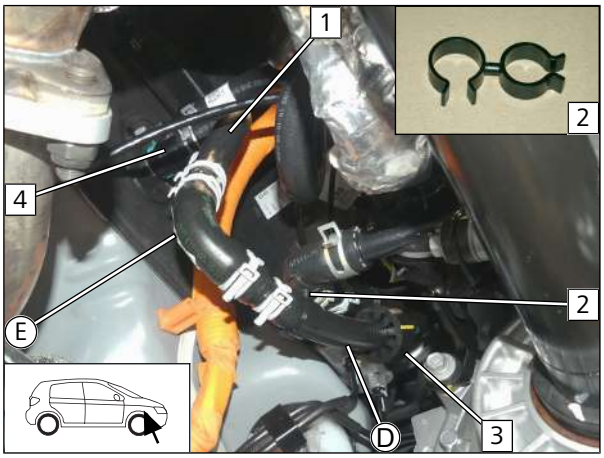


Fig. 52

Danger of damage to components

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

▶ Position rubber isolator **3** on original vehicle line distributor.

1 Heat exchanger inlet hose section
2 20/22 hose bracket
4 Heat exchanger inlet connection piece

10 Combustion air

Mounting combustion air intake silencer and line

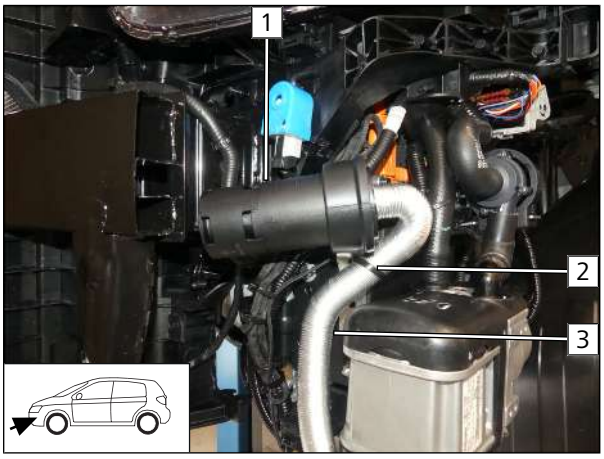


Fig. 53

Observe the installation instructions of the combustion air intake silencer.

1 Combustion air intake silencer
2 Cable tie
3 Combustion air intake line

11 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

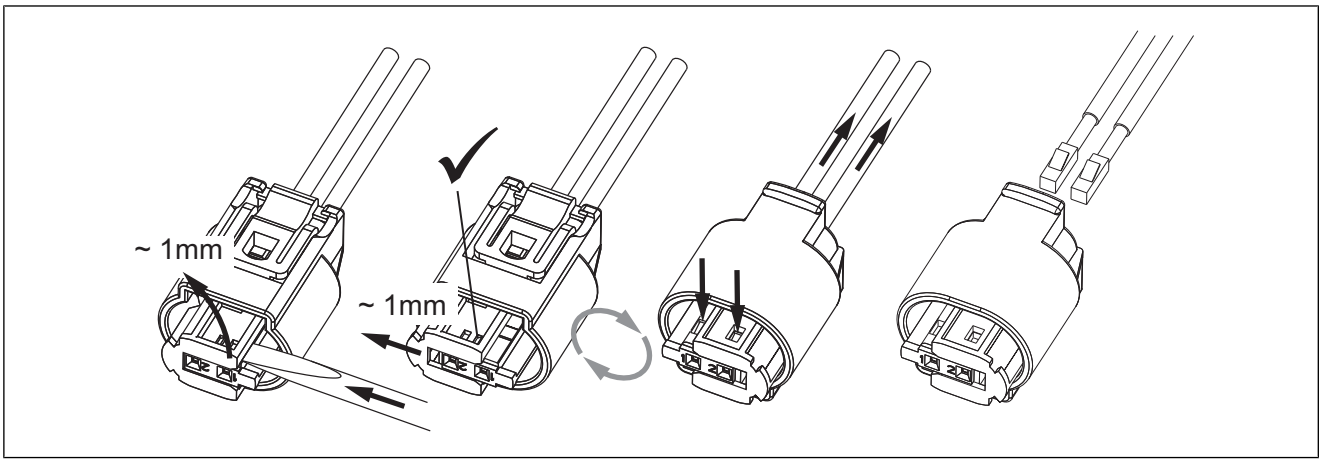


Fig. 54

11.1 Routing fuel line

Connection to heater

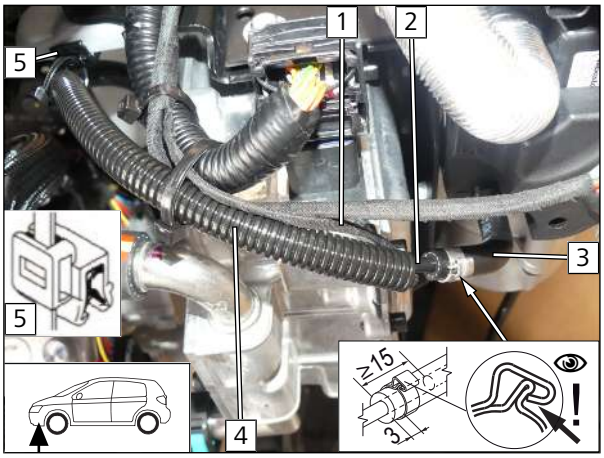


Fig. 55

- ▶ Draw fuel line [2] and fuel pump wiring harness [1] into Ø10 corrugated tube [4].

[3] 90° moulded hose, Ø10 clamp

[5] Edge clip cable tie

Installing lines

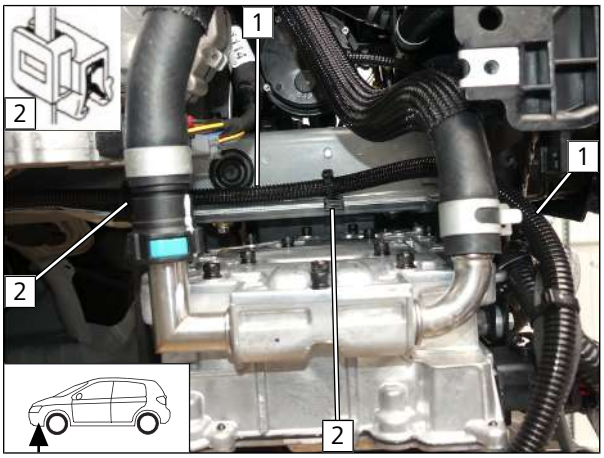


Fig. 56

▶ Route corrugated tube 1 with fuel line and fuel pump wiring harness along the inverter and fasten with edge clip cable tie 2.

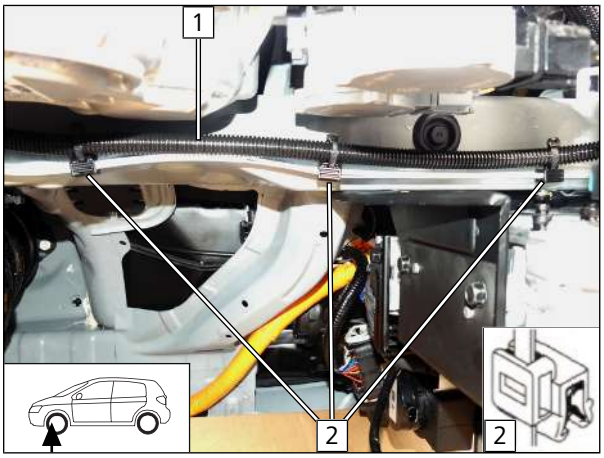


Fig. 57

▶ Route corrugated tube 1 with fuel line and fuel pump wiring harness along the vehicle frame in the direction of the drive shaft and fasten with edge clip cable tie 2.

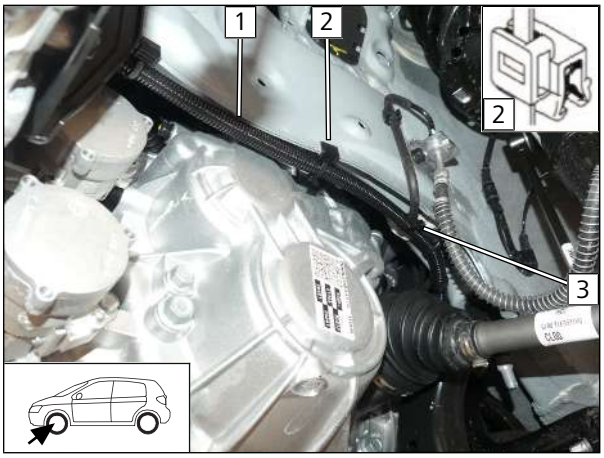


Fig. 58

Danger of damage to components

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

▶ Route corrugated tube 1 with fuel line and fuel pump wiring harness over the drive shaft and attach with cable tie 3 to brake line.

▶ Fasten edge clip cable tie 2 as shown.

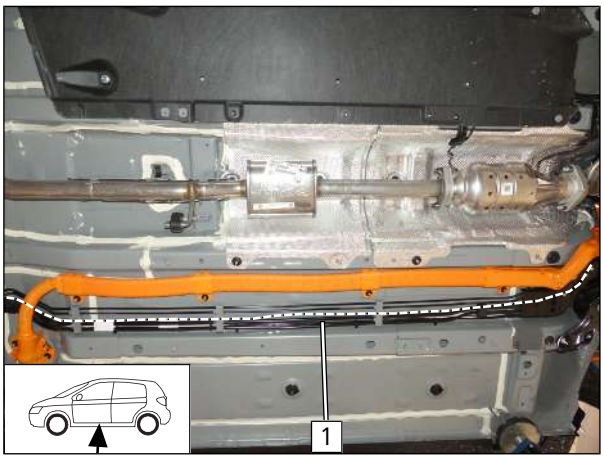


Fig. 59

▶ Route fuel line and fuel pump wiring harness 1 on original vehicle lines to the fuel pump installation location and attach.

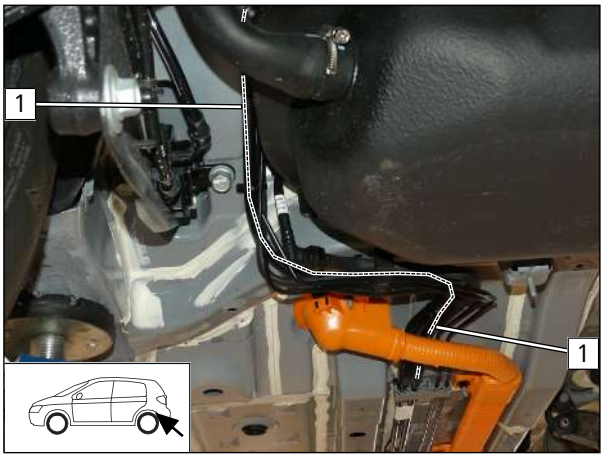


Fig. 60

▶ Draw fuel line and fuel pump wiring harness into Ø10 corrugated tube 1 and route along the fuel tank to the fuel pump installation location.

Premounting fuel pump

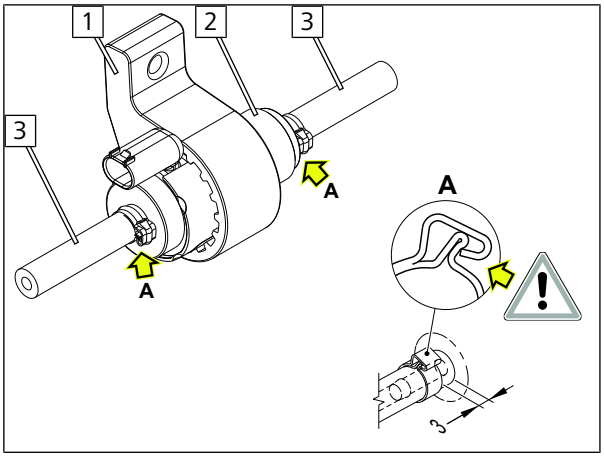


Fig. 61

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 Hose section, Ø10 clamp

Preparing fuel pump bracket

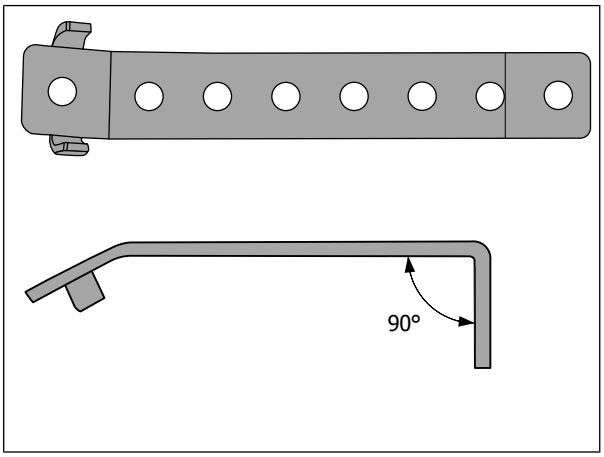


Fig. 62

Mounting fuel pump bracket

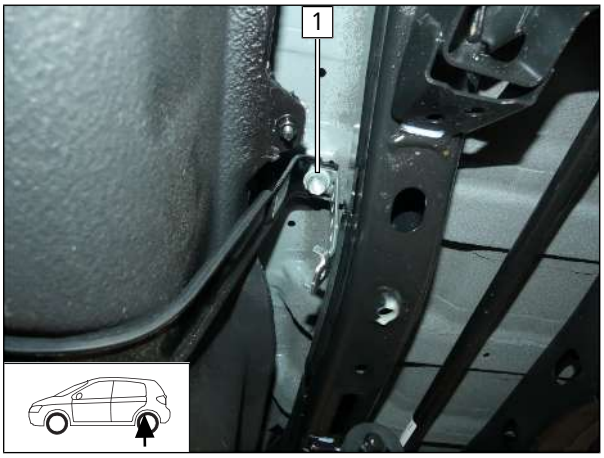


Fig. 63

1 Original vehicle bolt, fuel pump bracket, tank strap, original vehicle threaded hole

Mounting fuel pump

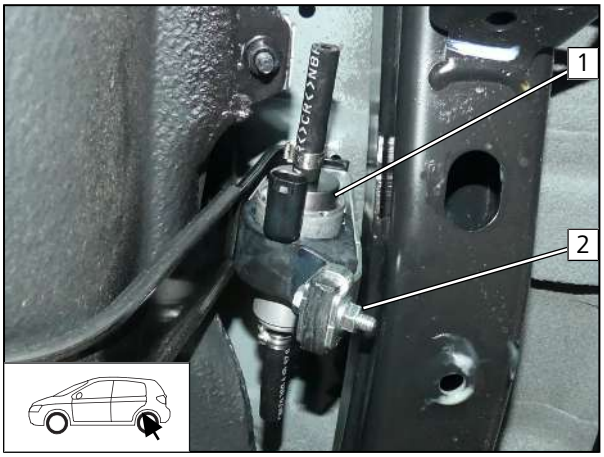


Fig. 64

Danger of damage to components

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

1 Premounted fuel pump

2 M6x25 bolt, support angle bracket, fuel pump mount, bracket, flanged nut

Assembling fuel pump connector X7

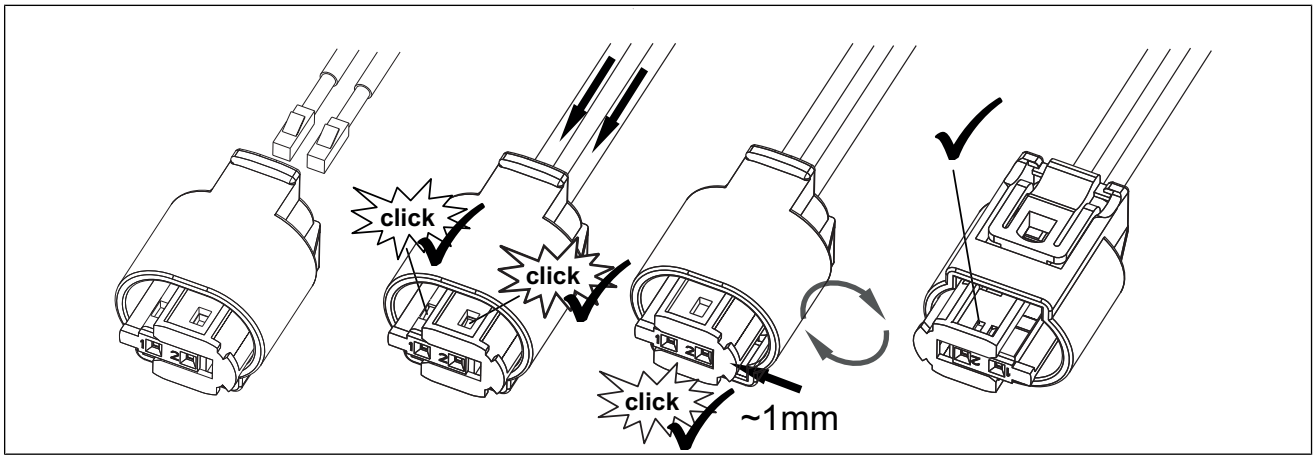


Fig. 65

Connecting fuel pump

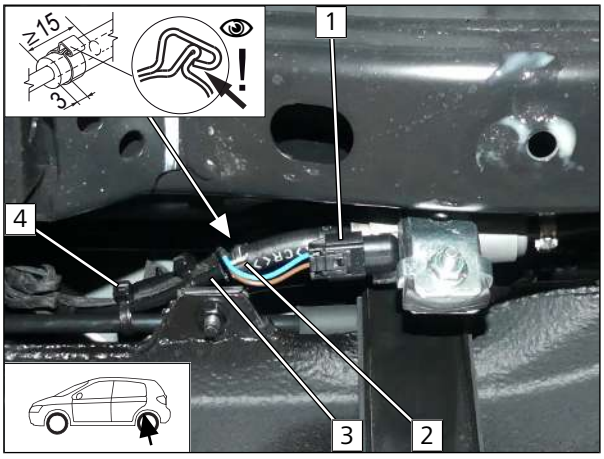


Fig. 66

1 Fuel pump wiring harness, connector X7 mounted
2 Ø10 clamp
3 Heater fuel line
4 Cable tie

11.2 FuelFix installation

Work steps F1, F2

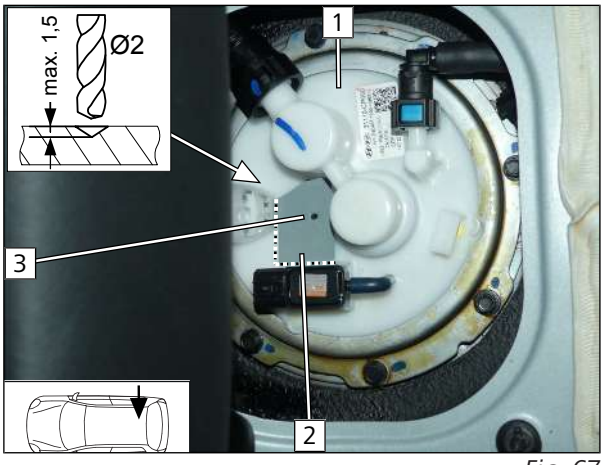


Fig. 67

Observe the installation instructions of the tank extracting device.

1 Tank fitting
2 Cut out and position drilling template as shown in fig..
3 Ø2 centring hole

Work step F3

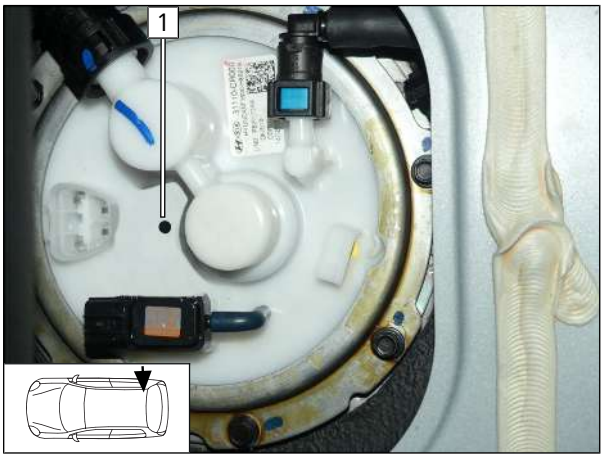


Fig. 68

DANGER

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

[1] Hole made with provided drill

Work step F5

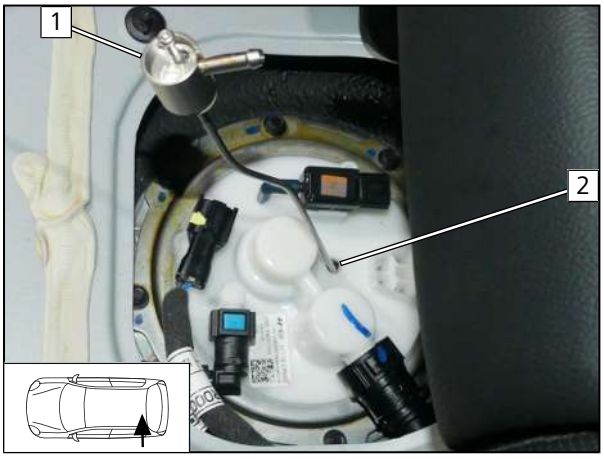


Fig. 69

▶ Insert FuelFix [1] in hole [2].

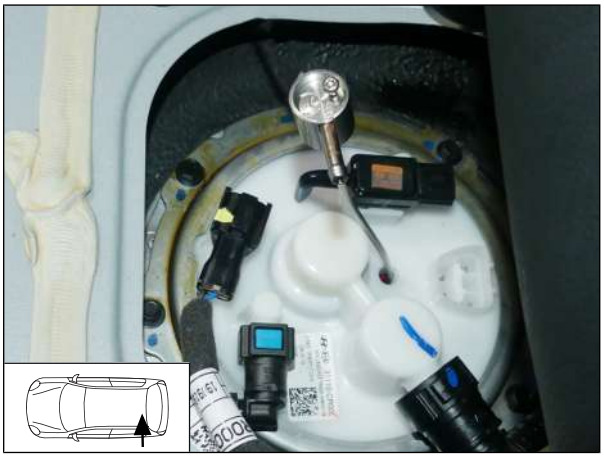


Fig. 70

Fig. 71

Work steps F5.3, F5.4

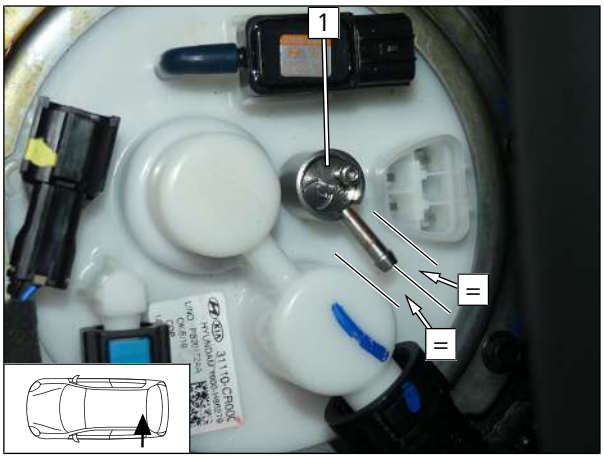


Fig. 72

▶ Align and centre FuelFix [1] as shown.

Work step F6

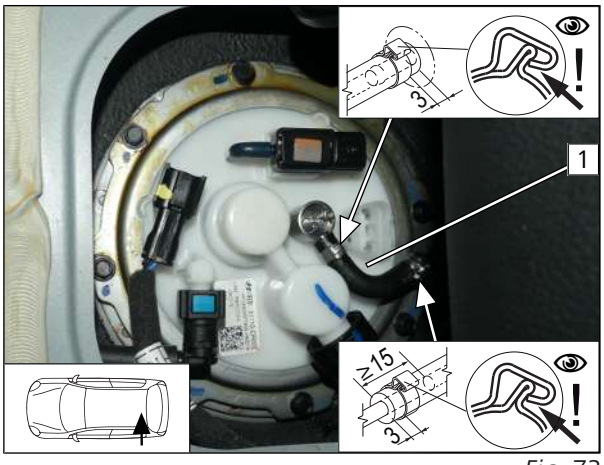


Fig. 73

[1] 90° moulded hose, Ø10 clamp [2x]

Work step F7

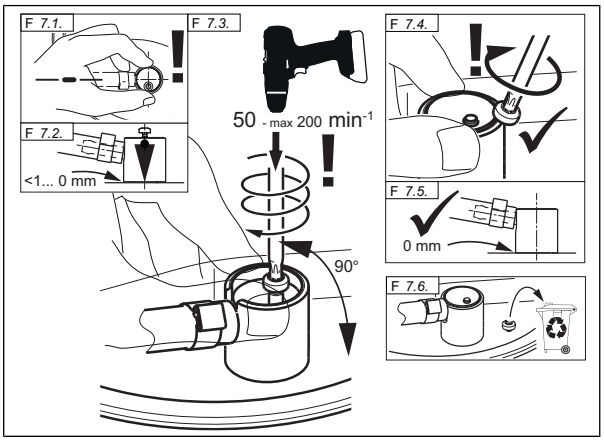


Fig. 74

DANGER

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

Work step F8

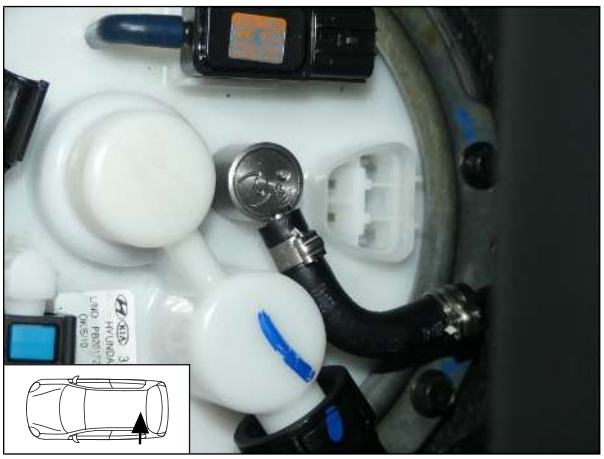


Fig. 75

▶ Check if FuelFix is firmly mounted.

Securing fuel line

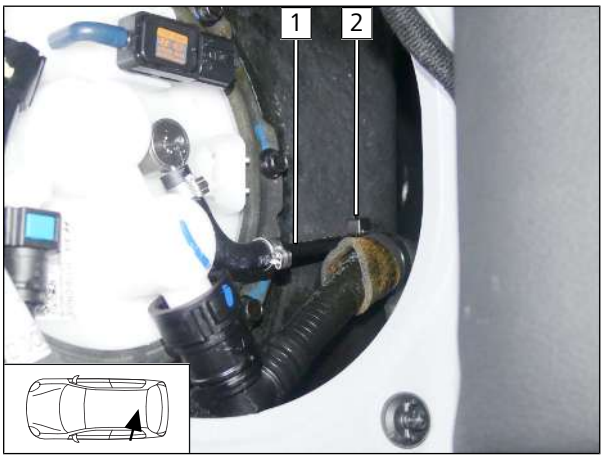


Fig. 76

▶ Secure FuelFix fuel line [1] using cable tie [2] for tension relief.

11.3 Fuel pump connection

Connecting fuel line of FuelFix

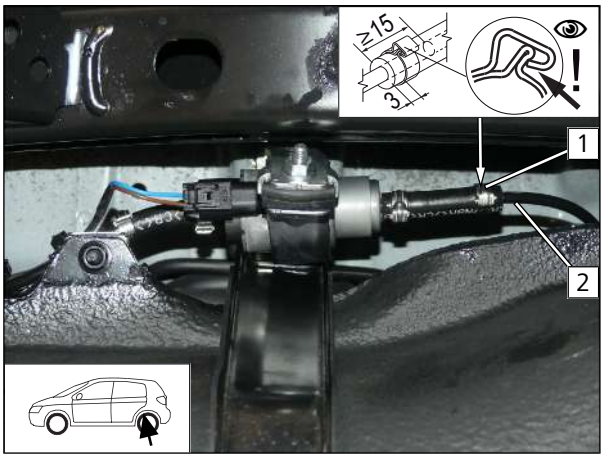


Fig. 77

1 Ø10 clamp
2 Fuel line of FuelFix

12 Exhaust

Preparing perforated bracket

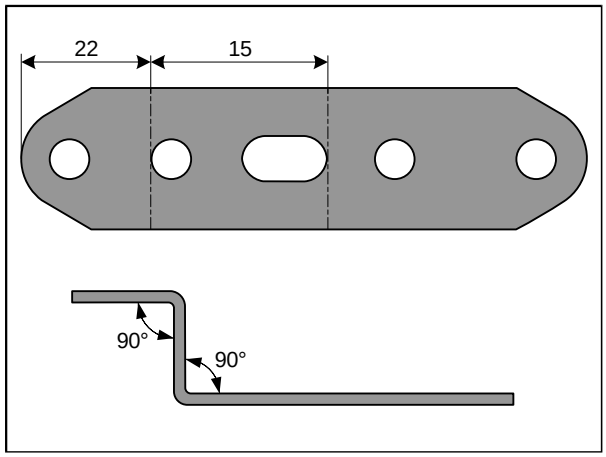


Fig. 78

Premounting exhaust silencer

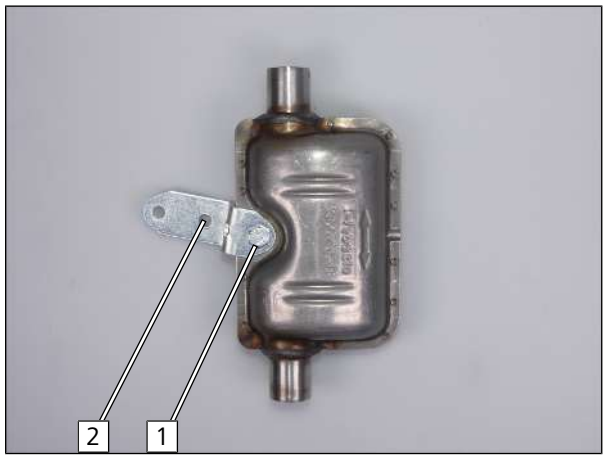


Fig. 79

1 M6x16 bolt, perforated bracket, exhaust silencer, flanged nut

2 Fastening point for the following assembly

Mounting exhaust silencer

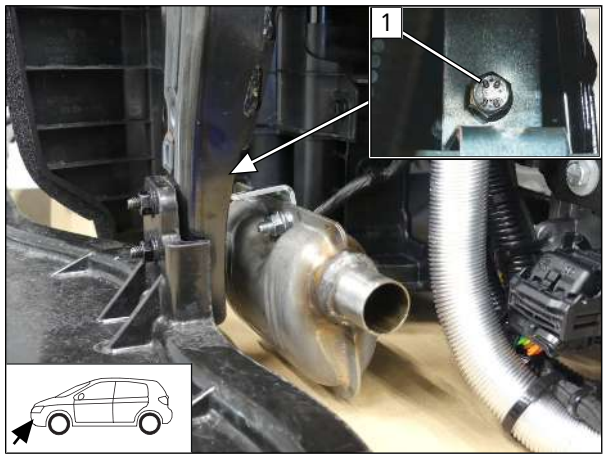


Fig. 80

1 M6x16 bolt, spring lockwasher, angle bracket, rivet nut

Securing wiring harness

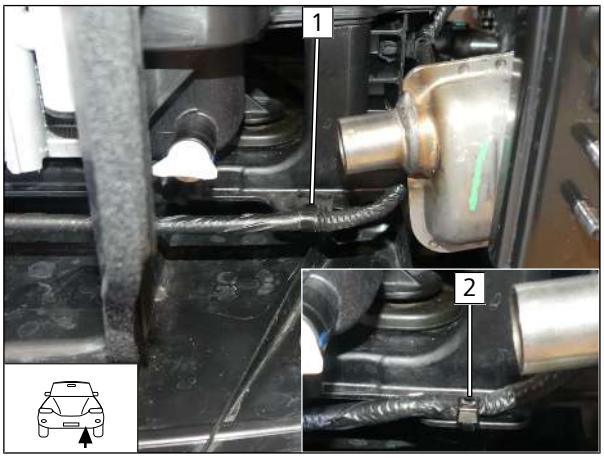


Fig. 81

Danger of damage to components

▶ Ensure sufficient distance between original vehicle wiring harness and exhaust silencer, correct if necessary.

▶ Remove original vehicle bracket 1 and fasten original vehicle wiring harness with cable tie 2 as shown.

Preparing exhaust pipes

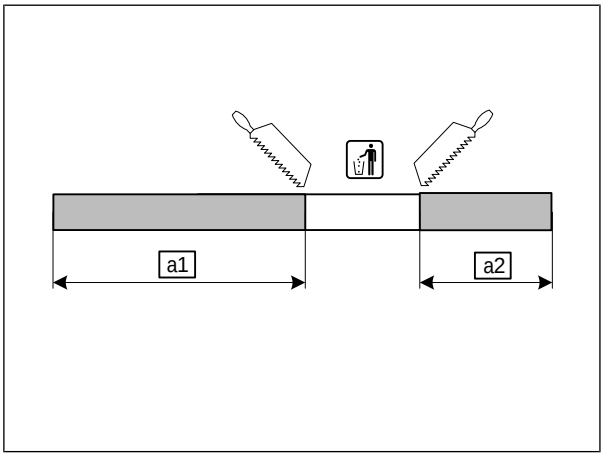


Fig. 82

a1 460

a2 140

Mounting exhaust pipe a1

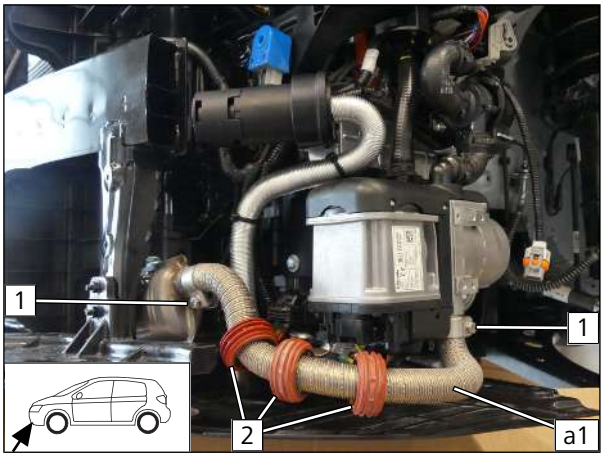


Fig. 83

Danger of damage to components

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

▶ Position spacer bracket 2 on exhaust pipe **a1** before the installation.

1 Hose clamp

Mounting exhaust pipe **a2**

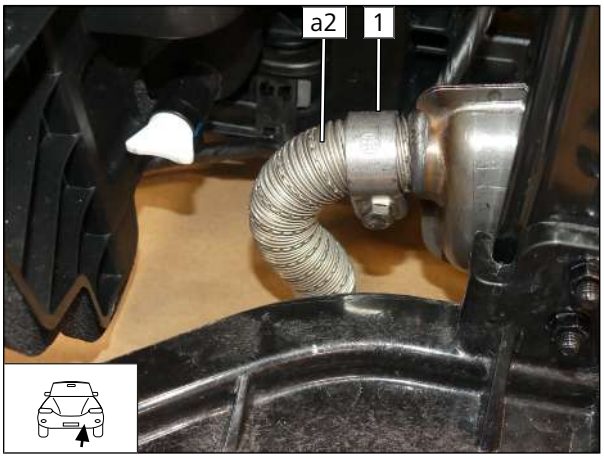


Fig. 84

Danger of damage to components

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

1 Hose clamp

Work step E1

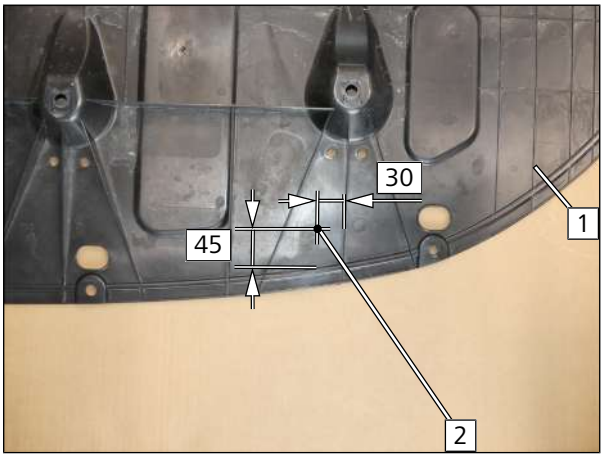


Fig. 85

Observe the EFIX installation instructions.

1 Underride protection

2 Copy hole pattern, hole

Work steps E3 and E4

Fig. 86

▶ Position EFIX **1** in the middle of drilled hole as shown.

2 Copy hole pattern, hole

Work step E5

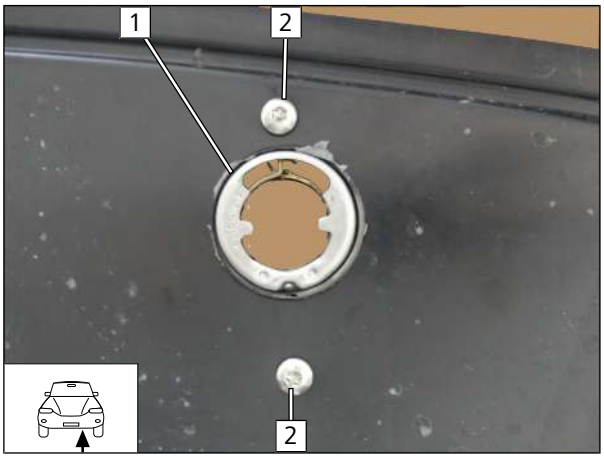


Fig. 87

▶ Mount EFIX **1**.

2 5x13 self-tapping screw

Work steps E6-E8

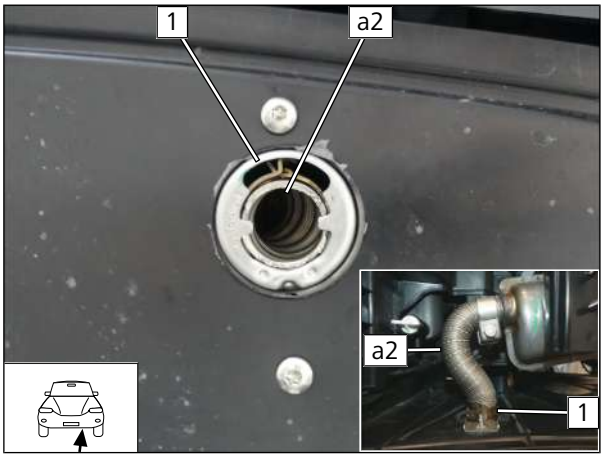


Fig. 88

▶ Mount underride protection.

▶ Mount exhaust pipe **a2**.

1 EFIX

13 Final work in engine compartment

Gluing foam

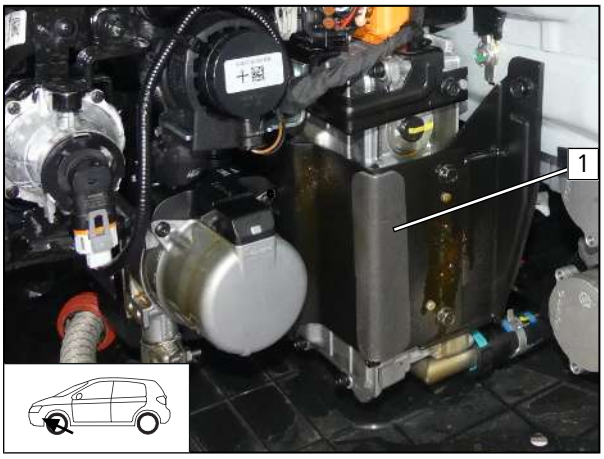


Fig. 89

1 Self-adhesive foam strips

14 Electrics of the cold start system

14.1 Electrical system preparation

Assigning wires

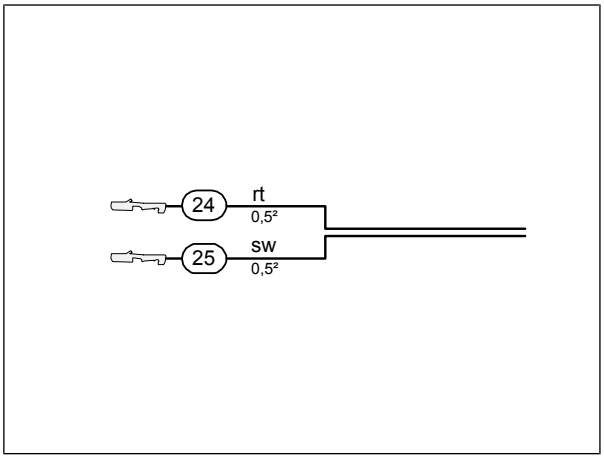


Fig. 90

(24) Red (rt) wire of cold start wiring harness

(25) Black (sw) wire of cold start wiring harness

Preparing CLR module

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

▶ Detach black (sw) wire from terminal A and insulate.

▶ Connect red (rt) wire (24) and black (sw) wire (25).

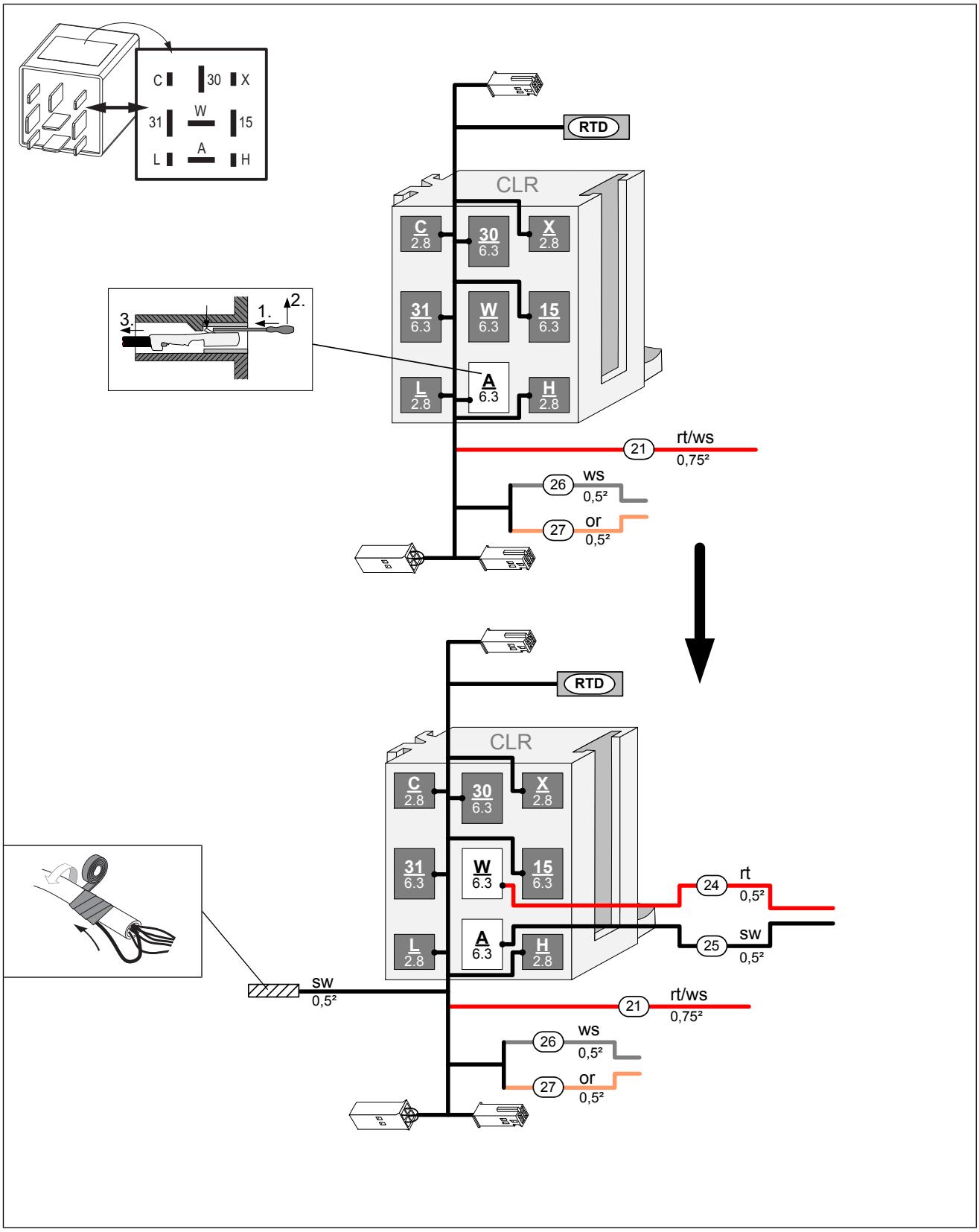


Fig. 91

14.2 Wiring diagram

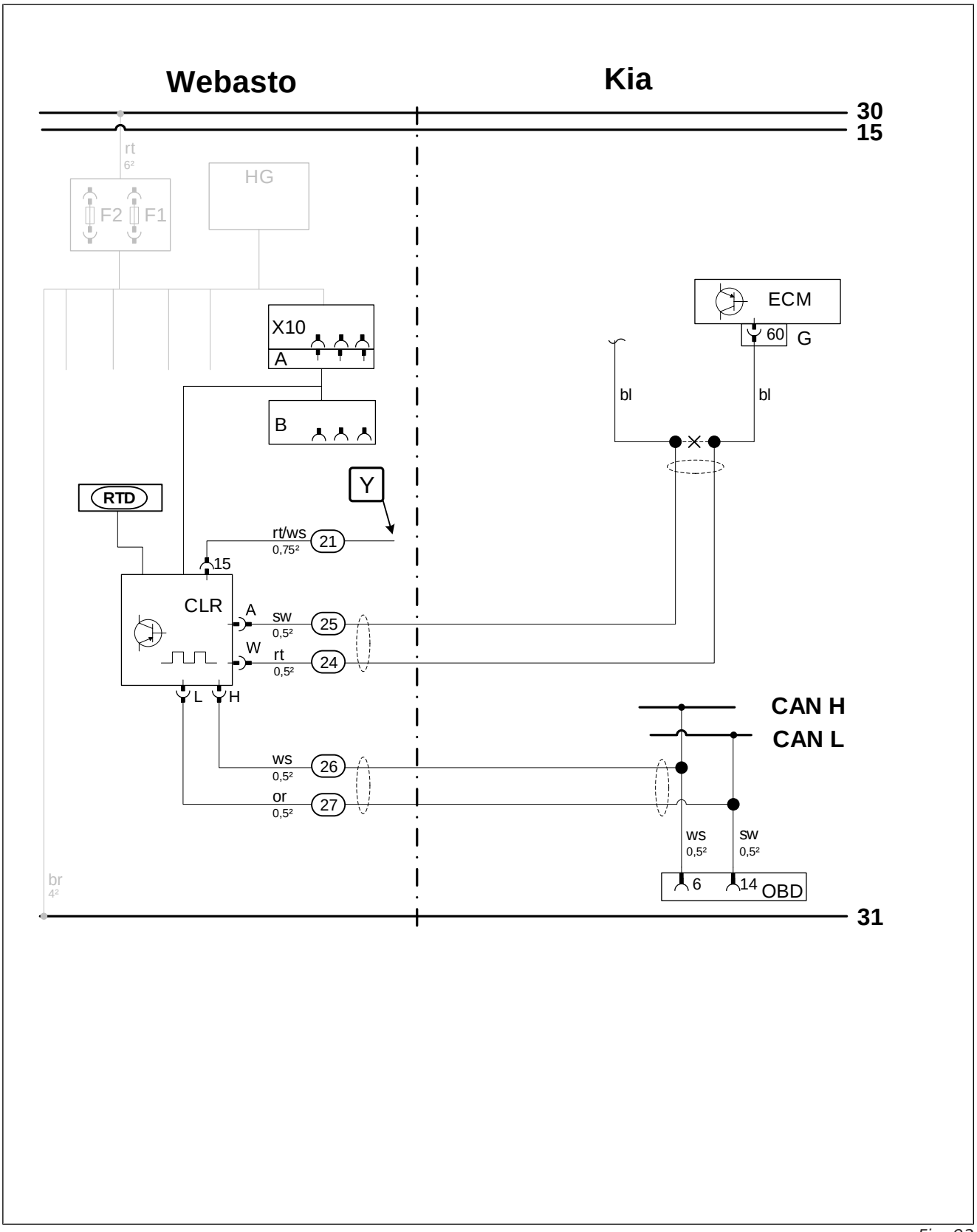


Fig. 92

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
ECM	Engine control unit	X	Cutting point
G	94-pin ECM connector	Y	Connection takes place together with the connection of the fan controller
OBD	ON-Board Diagnosis		

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 Connection in passenger compartment

Premounting perforated bracket

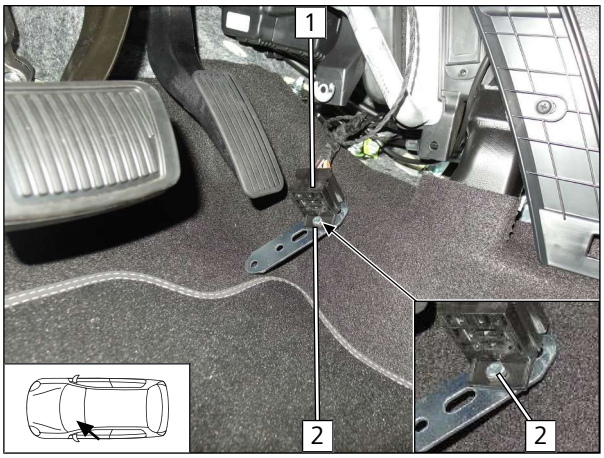


Fig. 93

[1] CLR module socket

[2] M5x16 bolt, large diameter washer, CLR module socket, large diameter washer, nut

Premounting CLR module

Fig. 94

[1] CLR module

Installing CLR module

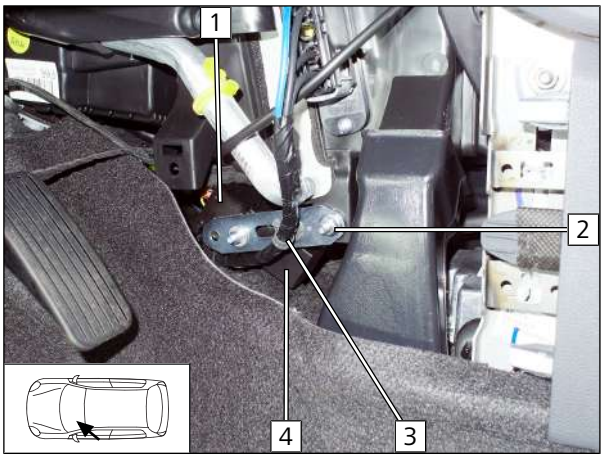


Fig. 95

▶ Detach original vehicle wiring harness at position [2] and fasten it afterwards to perforated bracket at position [3].

[1] CLR module socket

[2] M6x20 bolt, large diameter washer, original vehicle hole, perforated bracket, flanged nut

[4] CLR module

Repositioning connectors A and B to the front passenger's side and connecting with control element wiring harnesses

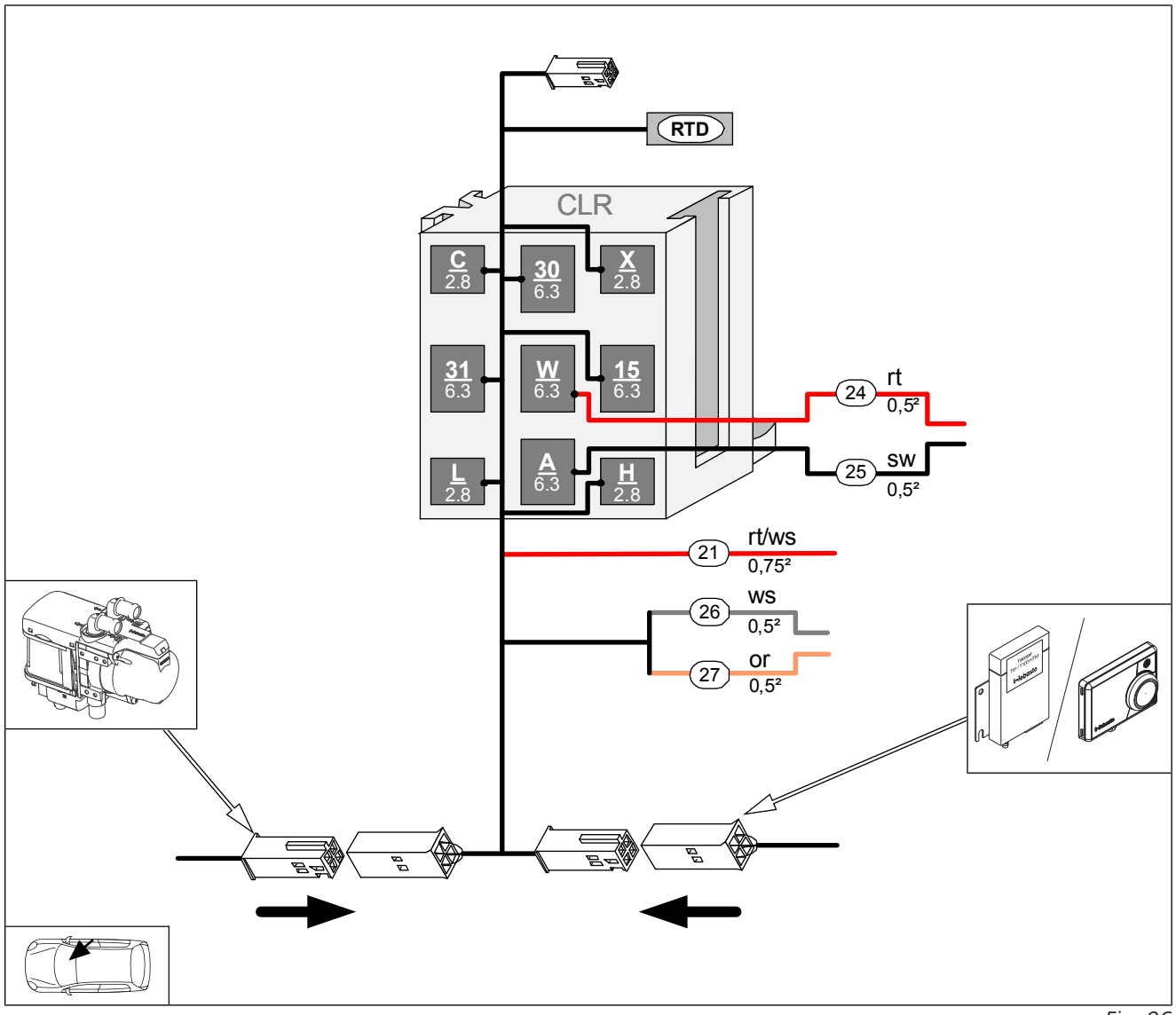


Fig. 96

Connection to OBD socket outlet

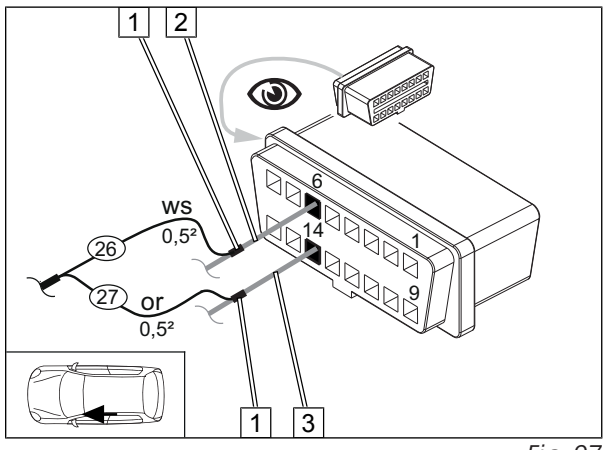


Fig. 97

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 White (ws) wire of OBD socket outlet/ pin 6

3 Black (sw) wire of OBD socket outlet/pin 14

26 White (ws) wire of CLR module/ H cold start wiring harness

27 Orange (or) wire of CLR module/ L cold start wiring harness

14.4 Routing in engine compartment

Installing lines

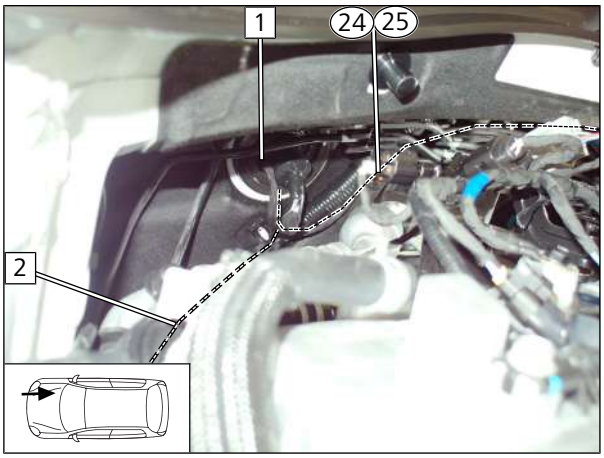


Fig. 98

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.

▶ Route wires (24) and (25) as well as wiring harness of temperature sensor (RTD) [2] in the engine compartment and fasten using cable ties.

[1] Protective rubber plug

Routing and fastening temperature sensor (RTD) in engine compartment

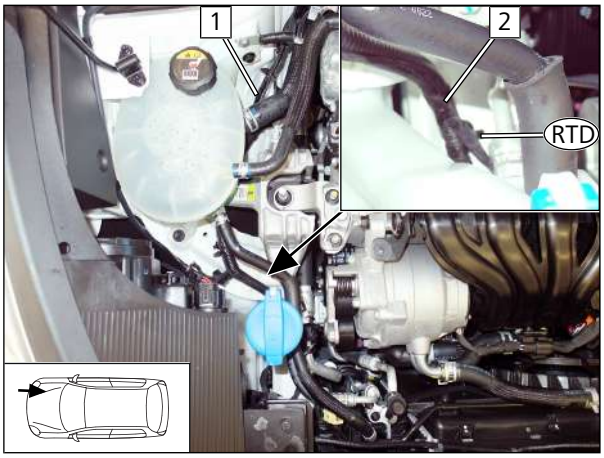


Fig. 99

▶ Fasten (RTD) with cable tie [2] as shown in Fig.

[1] Wiring harness of RTD

Routing and fastening wires (24) and (25) in engine compartment

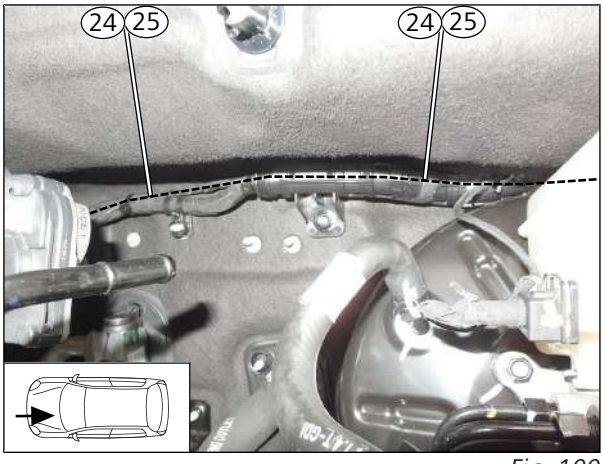


Fig. 100

▶ Route wires (24) and (25) to the engine control unit and fasten with cable ties.

14.5 Connection to engine control unit

Detaching engine control unit connector

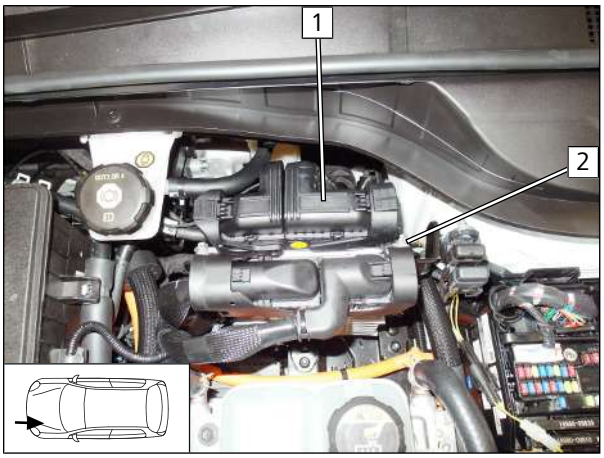


Fig. 101

1 94-pin connector G

2 Engine control unit

View of engine control unit connector G

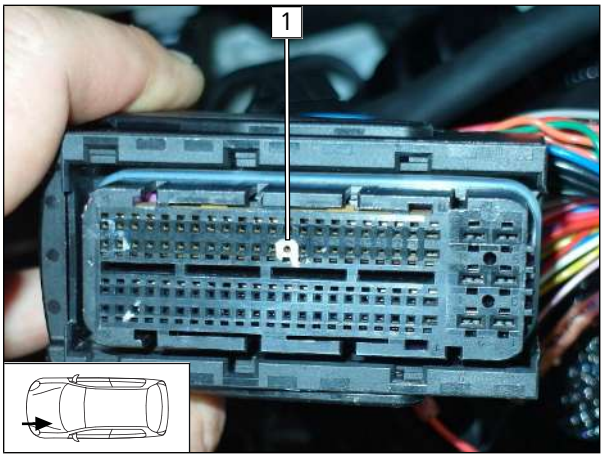


Fig. 102

1 Engine control unit connector G / pin 60, contact side

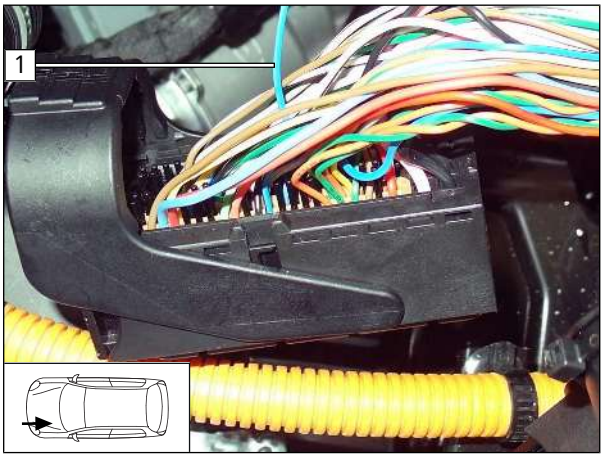


Fig. 103

▶ Remove the upper cover from the connector and detach part of the wiring harness wrapping. Insulate and reinstall after completion.

1 Blue (bl) wire of engine control unit connector G / pin 60, wire side

Connection to engine control unit

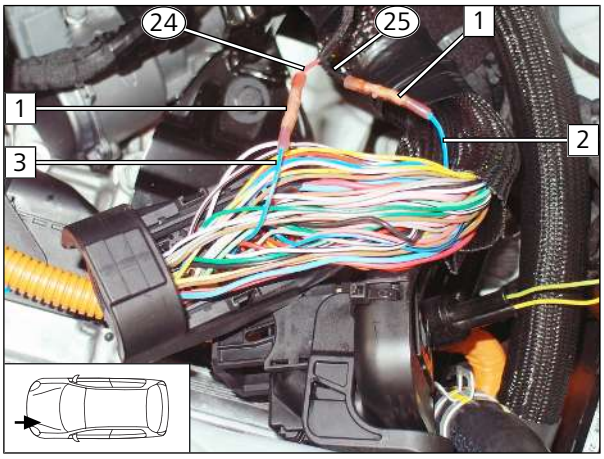


Fig. 104

▶ Crimp and shrink butt connector **1**

2 Blue (bl) wire

3 Blue (bl) wire of engine control unit connector G / pin 60

24 Red (rt) wire of CLR module/W from cold start wiring harness

25 Black (sw) wire of CLR module/A from cold start wiring harness

15 Electrical system of passenger compartment

15.1 Electrical system preparation

Preparing and assigning wires

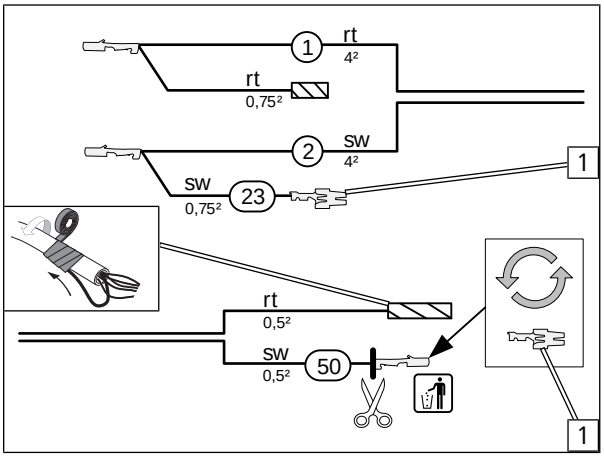


Fig. 105

Wire sections retain their numbering in the entire document.

- 1 Flat spring contact
- (1) Red (rt) wire of fan wiring harness
- (2) Black (sw) wire of fan wiring harness
- (23) Black (sw) wire of available additional line outlet
- (50) Black (sw) wire of power supply wiring harness

Connecting wires to RSH

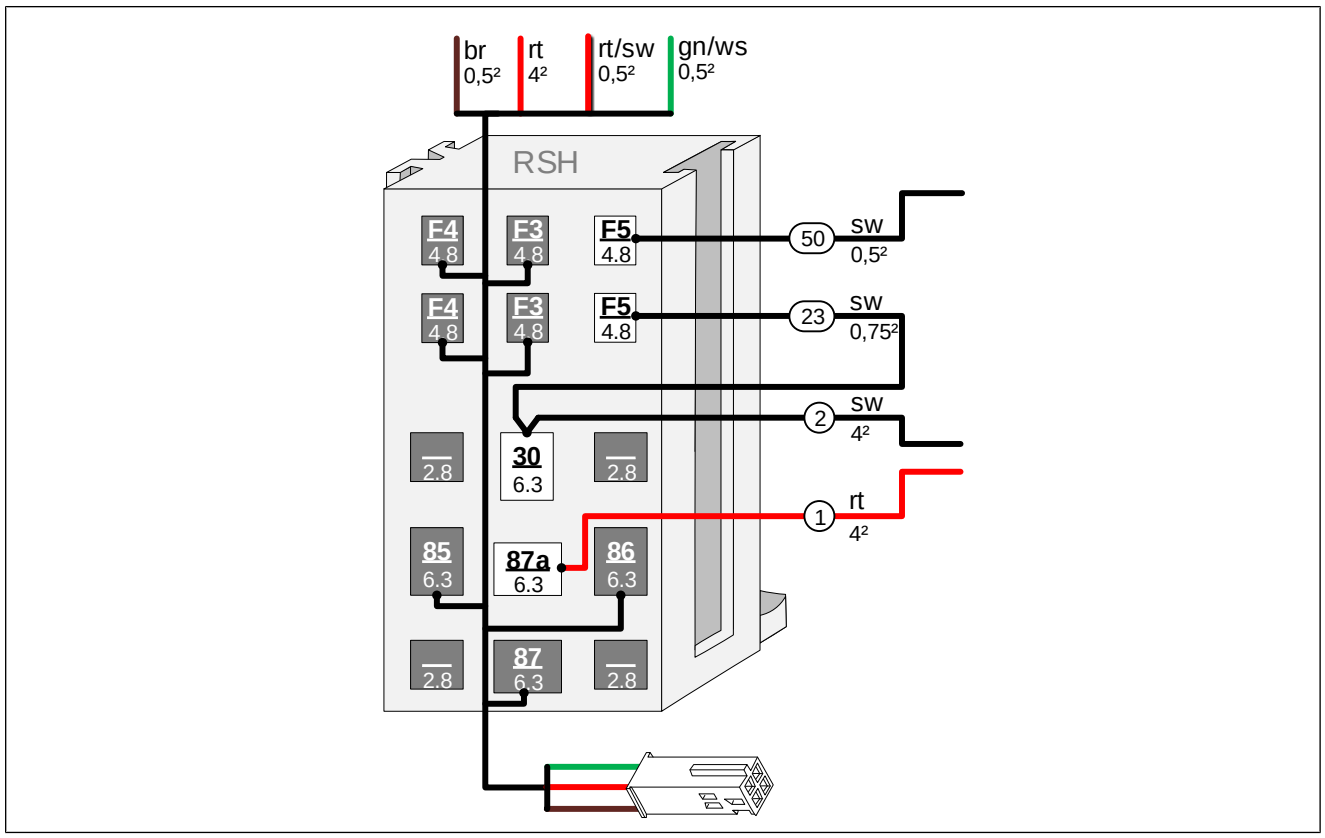


Fig. 106

Removing original vehicle button strip with trim piece

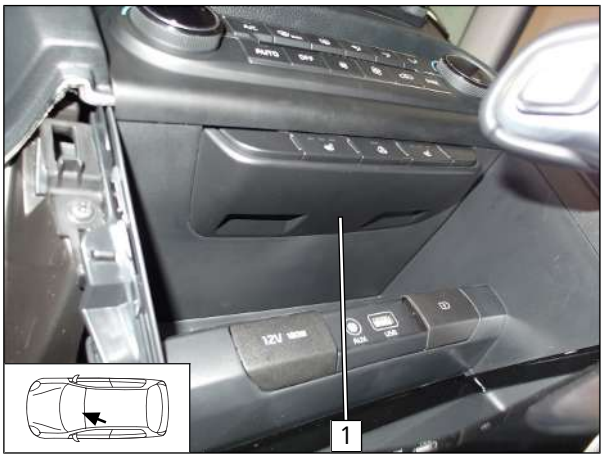


Fig. 107

1 Original vehicle button strip with trim piece

Removing the A/C control panel

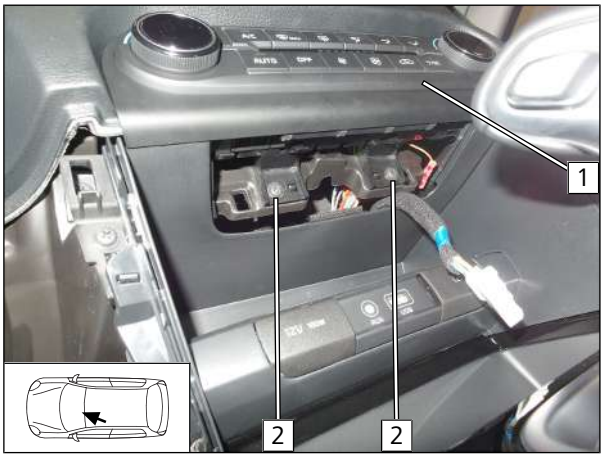


Fig. 108

1 A/C control panel
2 Original vehicle bolt

15.2 Wiring diagram

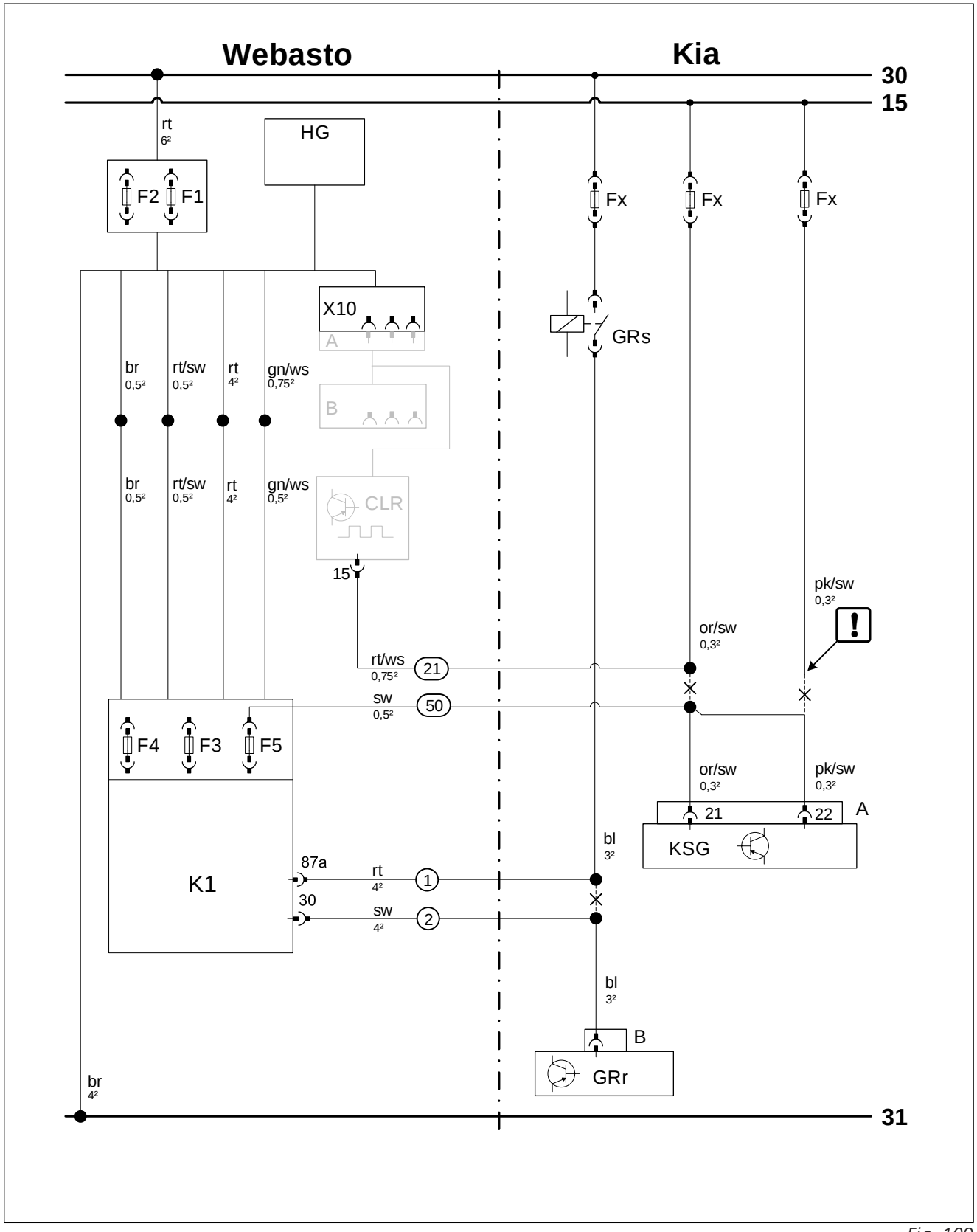


Fig. 109

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	X	Cutting point
GRs	Fan relay		insulate and tie back
KSG	Air-conditioning control unit		
A	40-pin KSG connector		
GRr	Fan controller		
B	4-pin GRr 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	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		

15.3 Fan controller

Preparing RSH

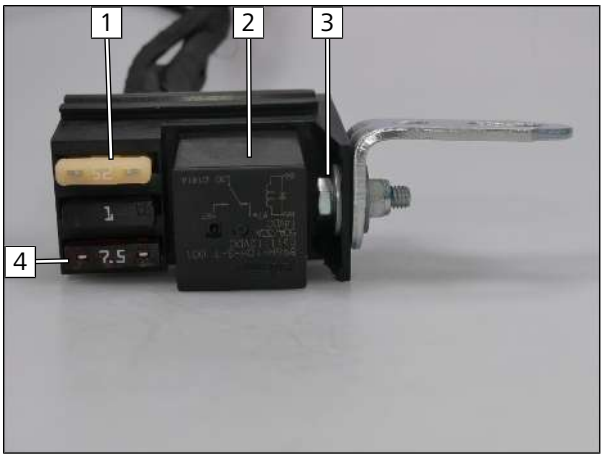


Fig. 110

1 Fuse F4: 25A
2 Relay K1
3 M5x16 bolt, large diameter washer, RSH, angle bracket, large diameter washer, nut
4 Fuse F5: 7.5A

Mounting RSH

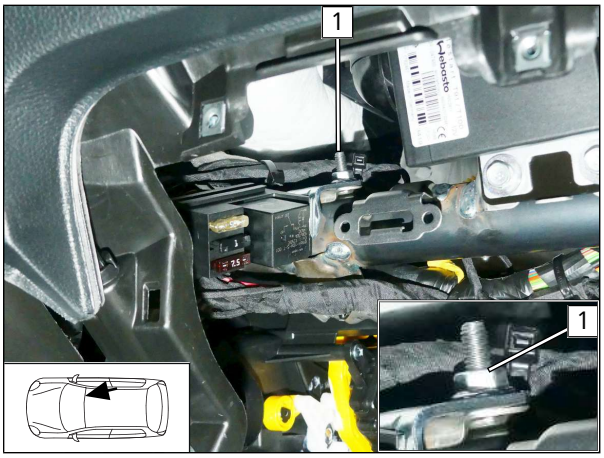


Fig. 111

1 Original vehicle stud bolt, angle bracket, flanged nut

Connecting same colour wires of wiring harnesses

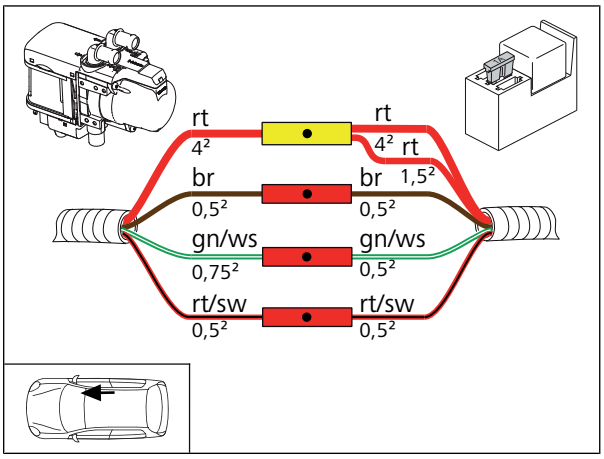


Fig. 112

Connection to fan controller

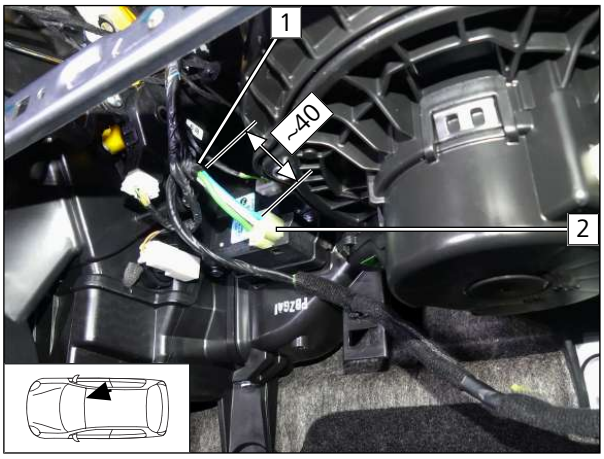


Fig. 113

▶ Remove approx. 40mm insulation of original vehicle wiring harness [1] from connector B of fan controller [2].

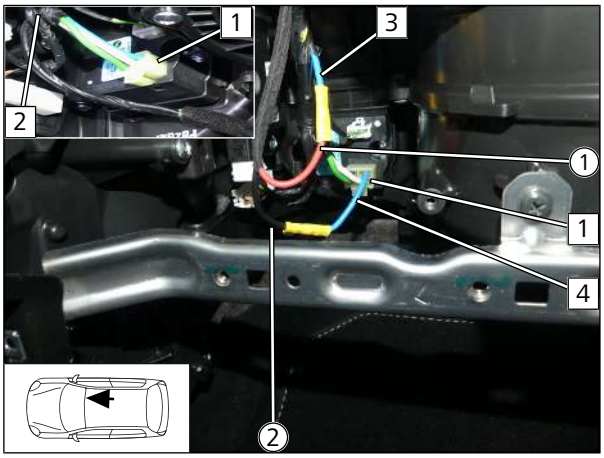


Fig. 114

[1] 4-pin GRr connector B
[2] Original vehicle wiring harness
[3] Blue (bl) wire of GRs
[4] Blue (bl) wire of GRr connector B
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness

Connection to air-conditioning control unit

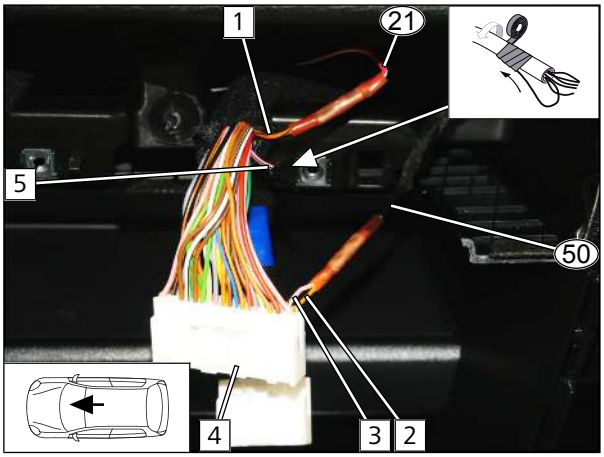


Fig. 115

▶ Insulate and tie back pink/black (pk/sw) wire [5].

[1] Orange/black (or/sw) wire
[2] Orange/black (or/sw) wire of connector A, pin 21
[3] Pink/black (pk/sw) wire of connector A, pin 22
[4] 40-pin connector A
㉑ Red/white (rt/ws) wire from CLR module/ 15
㊿ Black (sw) wire of power supply wiring harness

15.4 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)

Activation of the hybrid system as per the manufacturer's instructions

Reactivate the hybrid system before connecting the 12V vehicle battery:
1. Activate the hybrid system
2. Connect the battery (12V)

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

▶ See general heater installation instructions for notes on initial start-up and function check

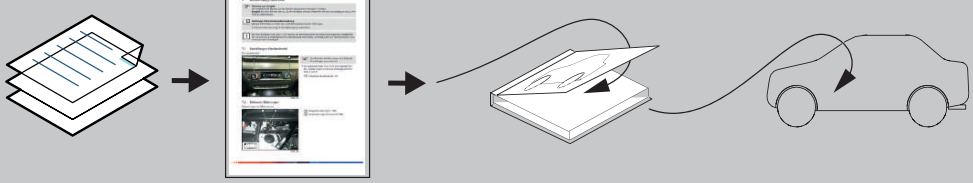
▶ Make settings on A/C control panel according to the 'Operating Instructions'

▶ Affix 'Switch off parking heater before refuelling' caution label in area of filler point

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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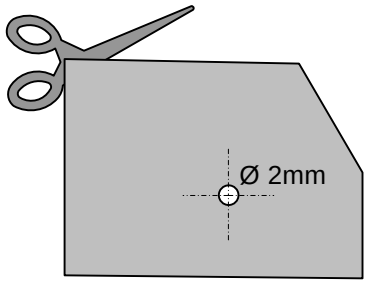
17 FuelFix drilling template



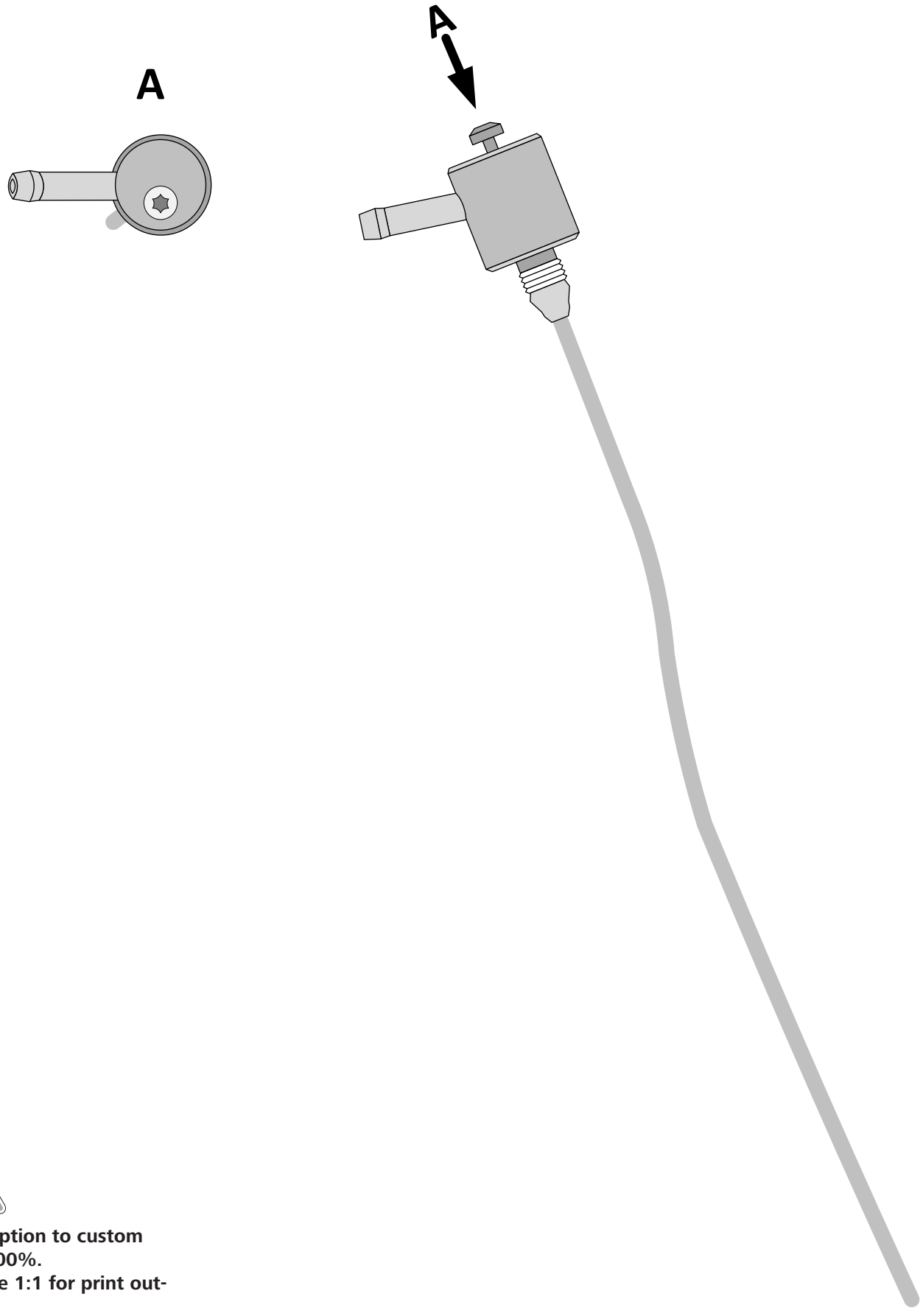
100mm

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

0

100mm

18 FuelFix template



100mm

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

0

100mm

19 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 current consumption in case of parking heating mode

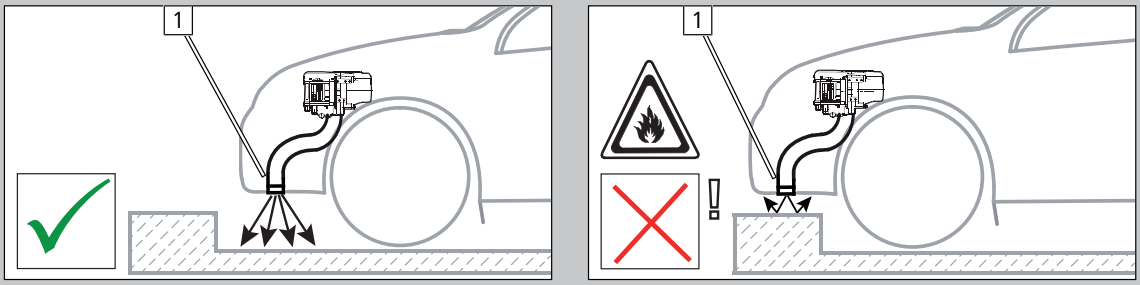
Depending on the vehicle model, there may be an increased quiescent current consumption message in the vehicle information system during or directly after operation in parking heating mode.

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

Note for parking heater function

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

Notes on parking heater exhaust outlet 1



19.1 A/C control panel settings

Automatic A/C control panel

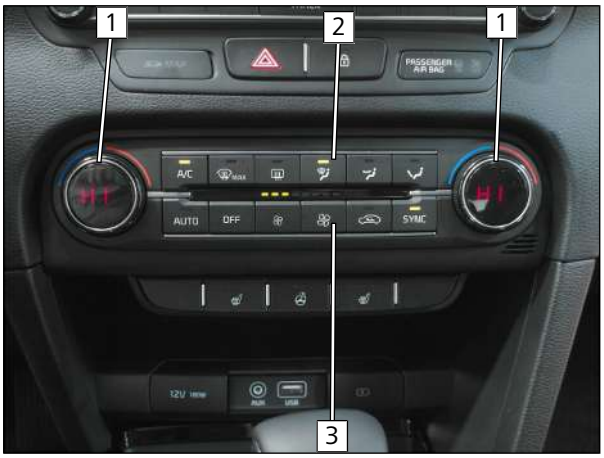


Fig. 116

Before parking the vehicle, make the following settings:

1 Temperature on both sides to 'HI'
2 Air outlet to windscreen
3 Set fan to level '2', max. '3'

19.2 Installation location of fuses

Fuses in engine compartment

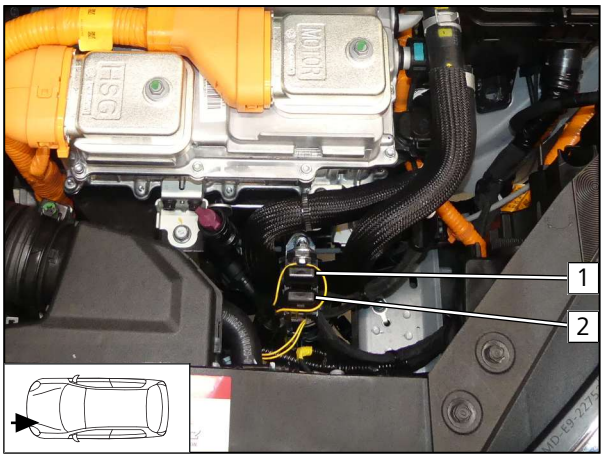


Fig. 117

1 F2 - 30A passenger compartment fan controller main fuse

2 F1 - 20A heater main fuse

Fuses in passenger compartment

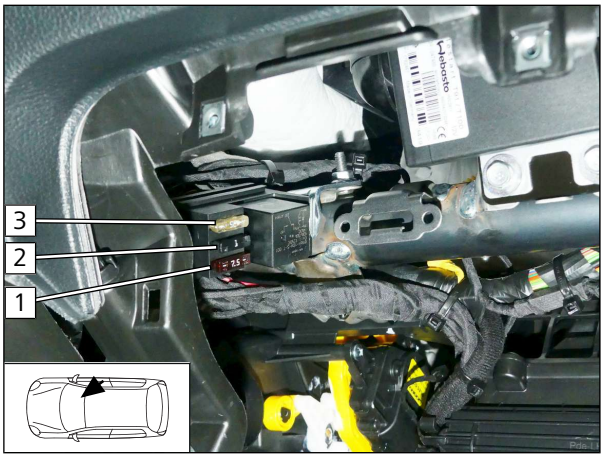


Fig. 118

1 F5 - 7.5A fan additional fuse

2 F3 - 1A control element fuse

3 F4 - 25A fan controller fuse