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K

Installation documentation

for water heater Thermo Top Evo

'Island' coolant circuit without engine preheating

Hyundai Kona

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Hyundai	Kona	OS	from 2021	e4* 2007/46* 1259*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.0 T-Gdi 48 V	Petrol	EURO6;WLTP;AP;…	6-speed SG	88	998	G3LF

Validity	Equipment variants	Model
		Kona
Verified equipment variants	Automatic air-conditioning	x
	Halogen main headlights	x
	LED daytime running lights	x
	Smart Key with Start button	x
	Automatic Start-Stop system	x
	FWD	x

Total installation time	Note
8.3 hours	

Contents

1 List of abbreviations

DP	Fuel pump
EFIX	Exhaust end fastener
FF	FuelFix (tank extracting device)
Fig.	Figure
FWD	Front wheel drive
HG	Heater
RSH	Relay and fuse holder of passenger compartment
SG	Manual transmission
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle
X10	Female plug for control element

2 Installation notes

2.1 Information on Validity

This installation documentation applies to vehicles listed on page 1, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation. Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo (see 'Notes on installation')	In accordance with price list
Installation kit for Hyundai Kona 2021 petrol	1328680A
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

2.3 Notes on installation, in coordination with the end customer

▶ Arrange for the vehicle to be delivered with the tank only about ¼ full.

▶ The installation location of the following elements should be chosen in coordination with the end customer:

- the push button in case of the Telestart and/or ThermoCall and/or ThermoConnect options
- the MultiControl CAR option

We recommend:

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

2.4 Information on Total Installation Time

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

3 About this document

3.1 Purpose of the document

This installation documentation is part of the product and contains all the information required to ensure professional vehicle specific installation of the:

Thermo Top Evo heater

3.2 Warranty and liability

Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.

This liability exclusion particularly applies to improper installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.

The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components must audibly snap into place during assembly.

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components.

The initial start-up is to be executed with the Webasto Thermo Test Diagnosis.

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

3.2.1 Statutory regulations governing installation

The Thermo Top Evo heater has been type-tested and approved in accordance with ECE-R 10 (EMC) and ECE-R 122 (heater). The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

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

3.3 Safety

Qualifications of installation personnel

The installation personnel must have the following qualifications:

- Successful completion of Webasto training
- Corresponding qualification for working on technical systems

Regulations and legal requirements

The regulations from the heater's general installation and operating instructions must be observed.

3.3.1 Safety information on installation

Danger posed by live parts

▶ Prior to installation, disconnect the vehicle from the voltage supply.

▶ Make sure the electrical system is earthed correctly.

▶ Always comply with legal requirements.

▶ Observe data on type label.

Danger of fire and leaking toxic gases due to improper installation

▶ Vehicle parts in the vicinity of the heater must be protected against excessive heating by the following measures:

  ⇨ Maintain minimum safety distances.

  ⇨ Ensure adequate ventilation.

  ⇨ Use fire-resistant materials or heat shields.

Danger due to sharp edges

- Lacerations
- Short circuit due to electrical wire damage

▶ Fit protectors on sharp edges.

3.4 Using this document

Before installing and operating the heater, read this installation documentation, the installation instructions of the heater, the operating instructions and supplementary sheets provided.

3.4.1 Explanatory Notes on the Document

There is an identification mark near the respective work step to allow you to quickly allocate the other applicable documents to the Webasto components to be installed:

Generally valid Webasto documentation	
Vehicle-specific installation documentation	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

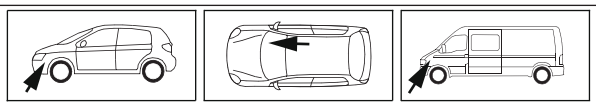
3.4.3 Work step identification marks

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

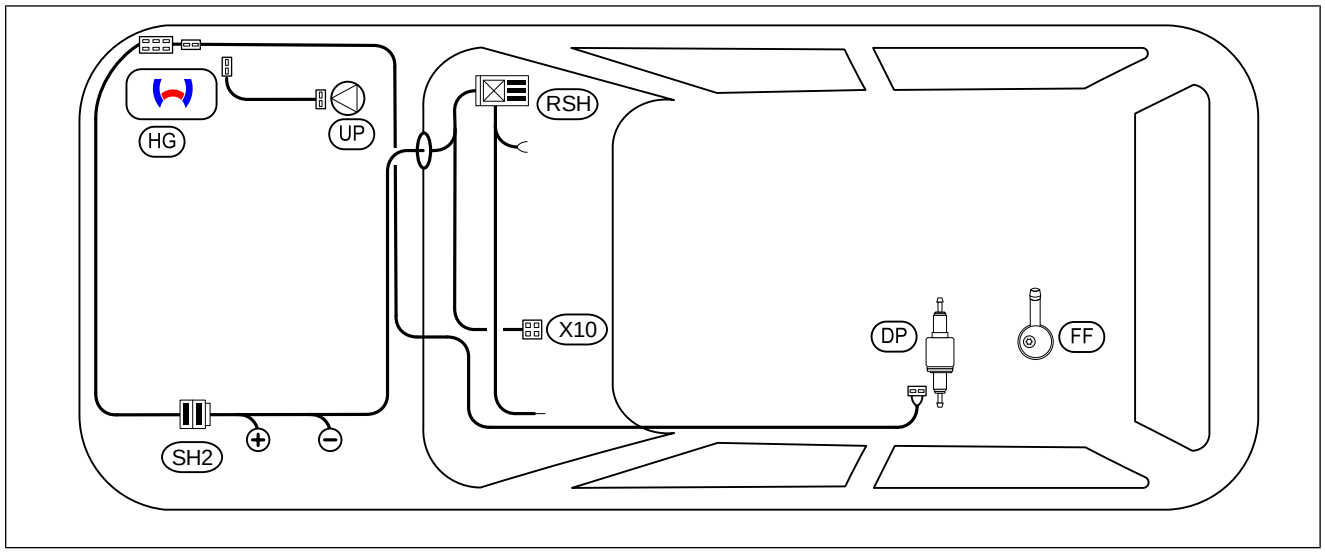
- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Hose clamping pliers
- Hose cutter
- Automatic wire stripper 0.2 - 6 mm^2
- Crimping pliers for cable lugs 0.5 – 10 mm^2
- Crimping pliers for male connector 0.14 – 6 mm^2
- Crimping pliers for connector 0.25 – 6 mm^2
- Torque wrench for 2.0 - 10 Nm
- Deep-hole marker
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

5 Vehicle preparation

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

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	▶ Disconnect the battery ▶ Air filter housing with intake hose ▶ Battery and battery carrier ▶ Engine control unit with bracket ▶ Front wheel on the front passenger's side ▶ Wheel well trim on the front passenger's side ▶ Front bumper trim ▶ Engine underride protection ▶ Underride protection on the driver's side	
Passenger compartment	▶ Footwell trim on the driver's and front passenger's side ▶ Side instrument panel trim on the driver's side ▶ Lower instrument panel trim on the driver's side ▶ Detach centre tunnel trim on the left and right ▶ Rear bench seat ▶ Tank fitting service lid	

6 Installation overview



Legend to installation overview

Abbreviation	Component
DP	Fuel pump
FF	FuelFix
HG	Heater
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder
UP	Coolant pump
X10	Female plug for control element

Heater installation location

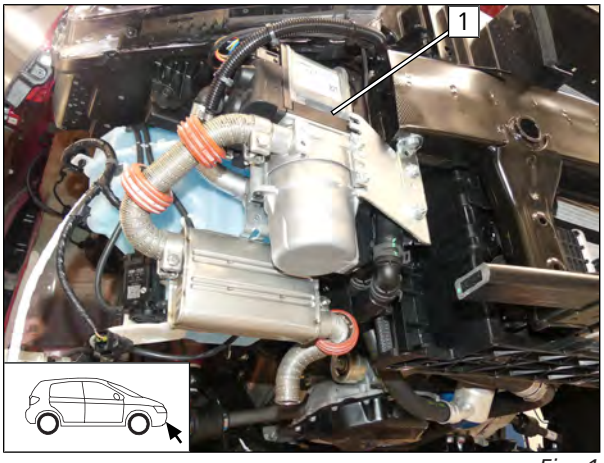


Fig. 1

1 Heater

7 Electrical system of engine compartment

Mounting perforated bracket and retaining plate of SH2

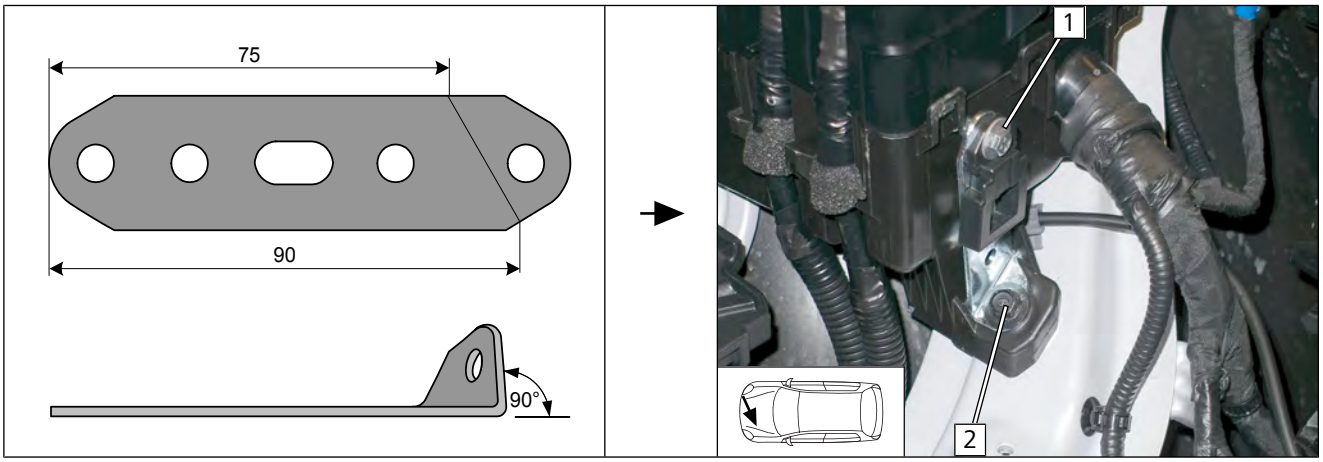


Fig. 2

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

2 Original vehicle bolt, perforated bracket

Mounting fuse holder

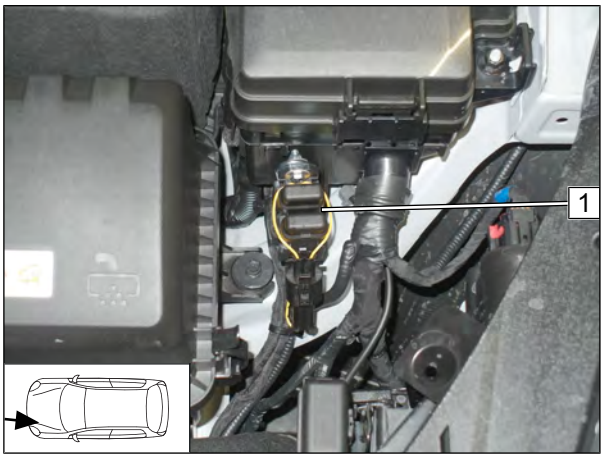


Fig. 3

1 Fuse F1/F2

Connecting positive wire

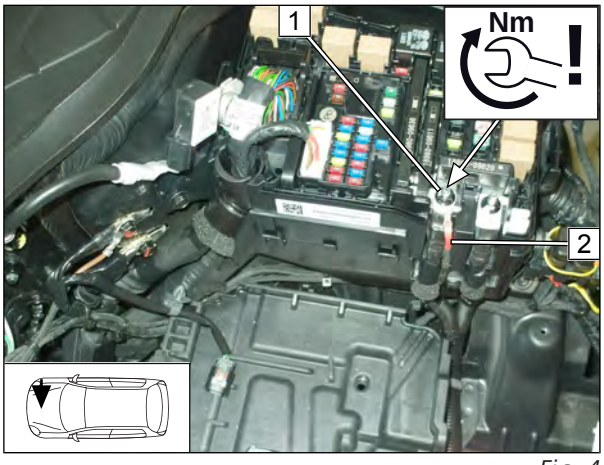


Fig. 4

DANGER

Observe tightening torque

1 Positive support point

2 Positive wire

Connecting earth wire

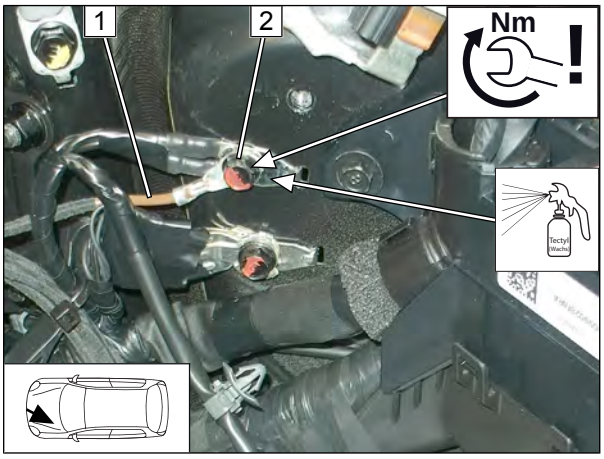


Fig. 5

DANGER

Observe tightening torque

1 Earth wire

2 Earth support point

Routing wiring harnesses

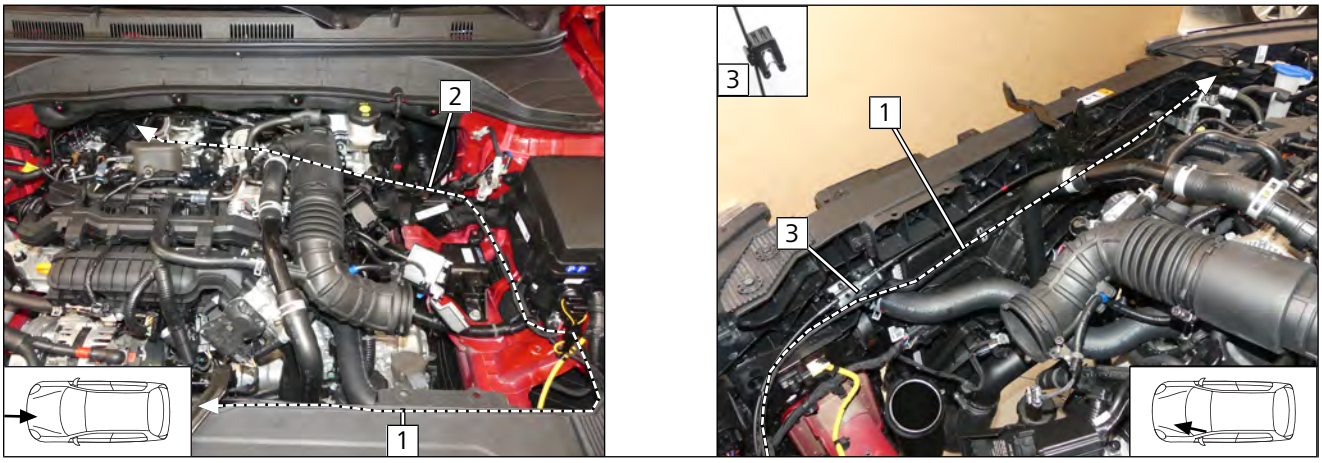


Fig. 6

- ▶ Route heater wiring harness 1 on original vehicle lines to heater installation location and fasten it.
- ▶ Route control element and passenger compartment wiring harness 2 on original vehicle lines to passenger compartment pass through and fasten it.

3 Edge clip cable tie

Passenger compartment wiring harness pass through

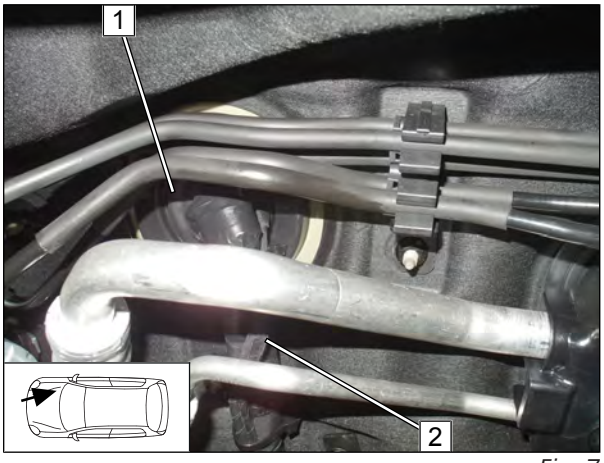


Fig. 7

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 Control element and passenger compartment wiring harnesses

8 Mechanical system

8.1 Preparing heater bracket

Adapting HG bracket

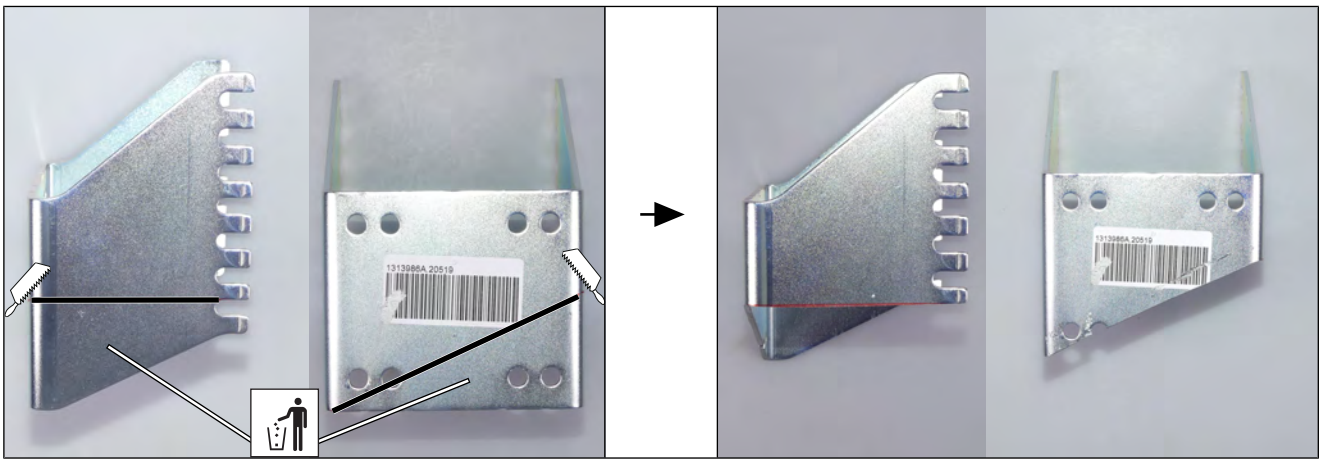


Fig. 8

Drilling holes

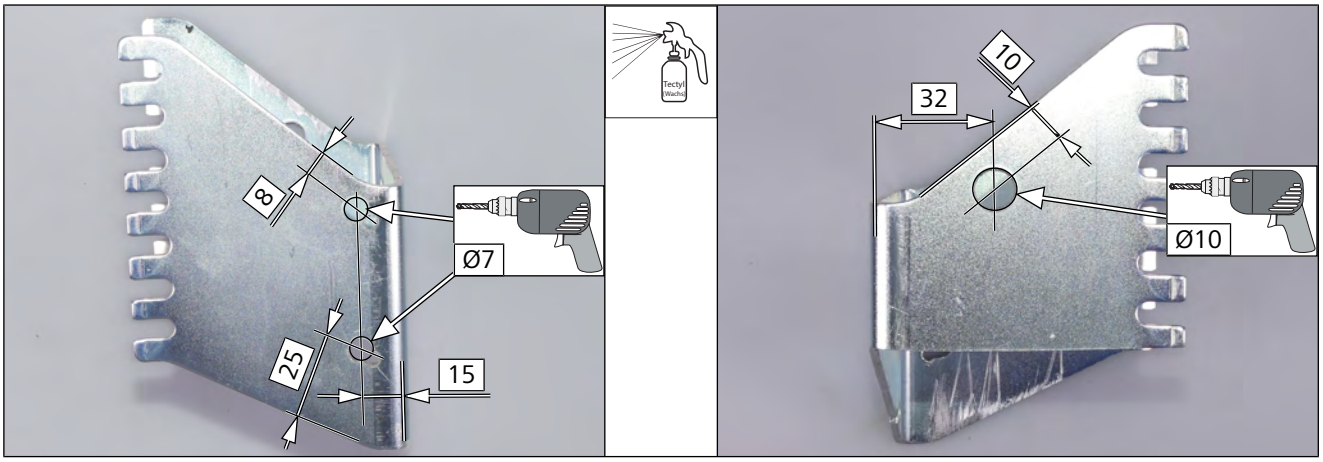


Fig. 9

Mounting perforated bracket loosely

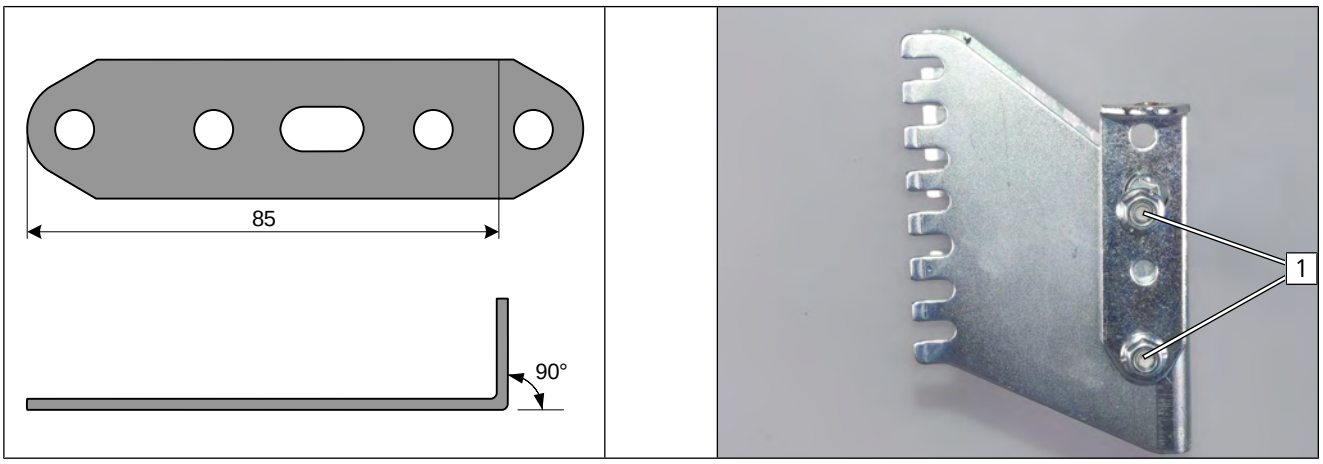


Fig. 10

1 M6x12 bolt, HG bracket, perforated bracket, flanged nut

8.2 Installation location preparation

Removing and discarding original vehicle bolts 1

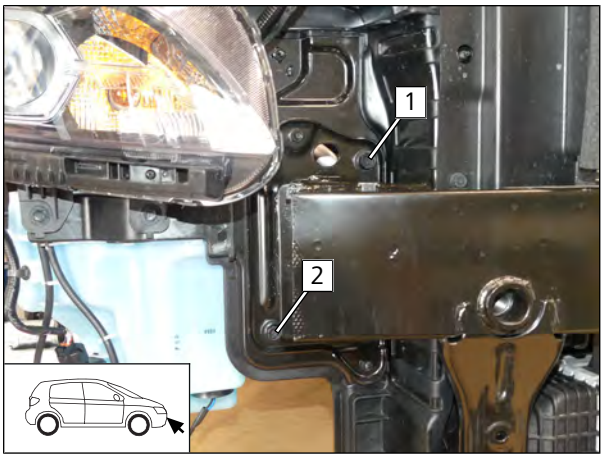


Fig. 11

1 Position for screwing on combustion air silencer bracket at a later time

2 Position for screwing on HG bracket at a later time

Copying hole pattern, drilling hole, mounting HG bracket

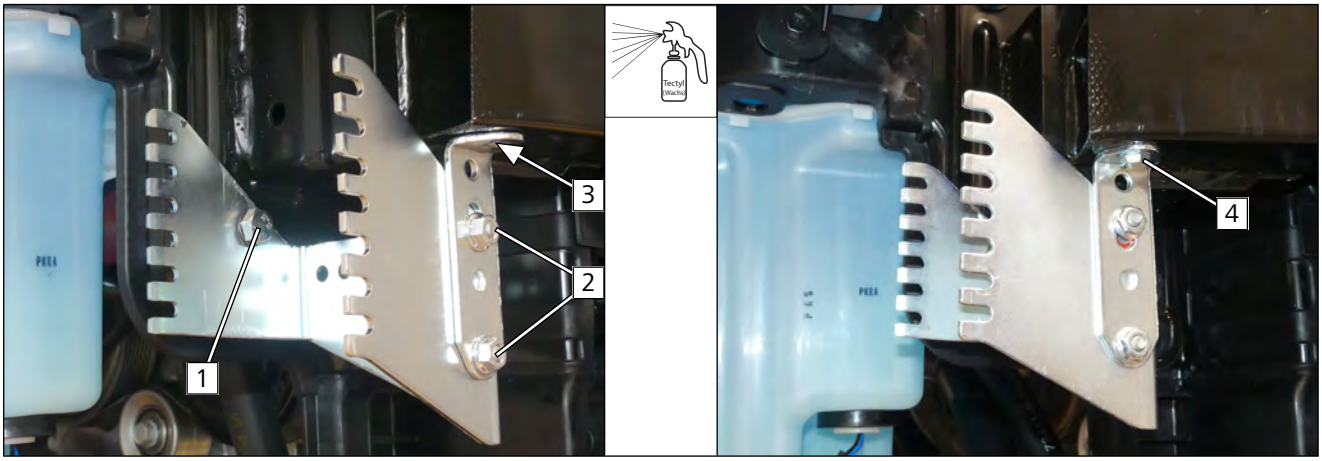


Fig. 12

1 M8x55 bolt, spring lock washer, HG bracket, spacer (10), original vehicle threaded hole

2 Align bracket, fasten flanged nut

3 Hole pattern, Ø7 hole

4 M6x20 bolt, perforated bracket, hole in carrier, flanged nut

8.3 Premounting heater

Mounting M5x13 self-tapping bolts and M6/5x25 stud bolts

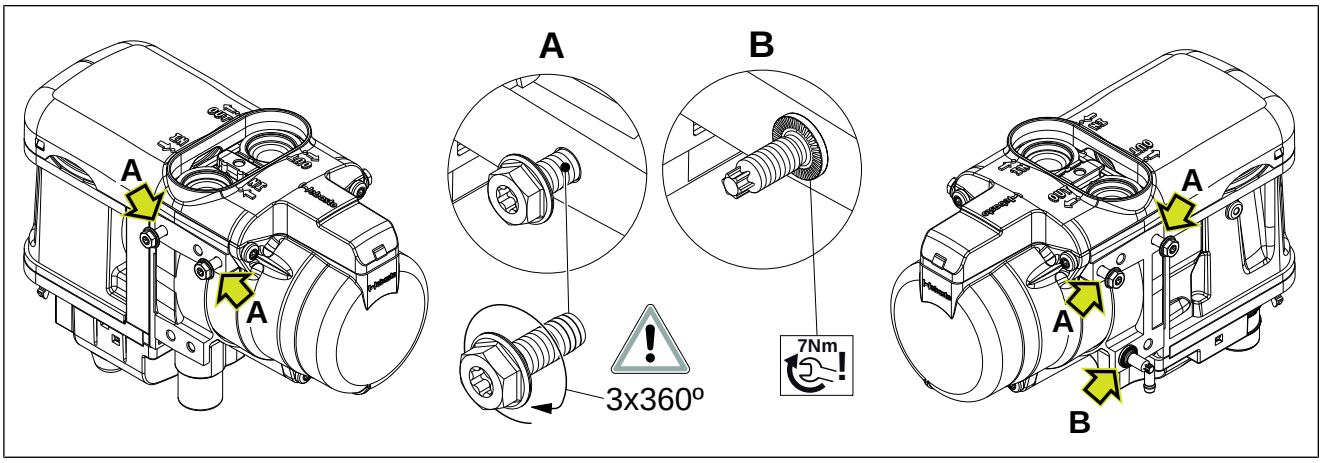


Fig. 13

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

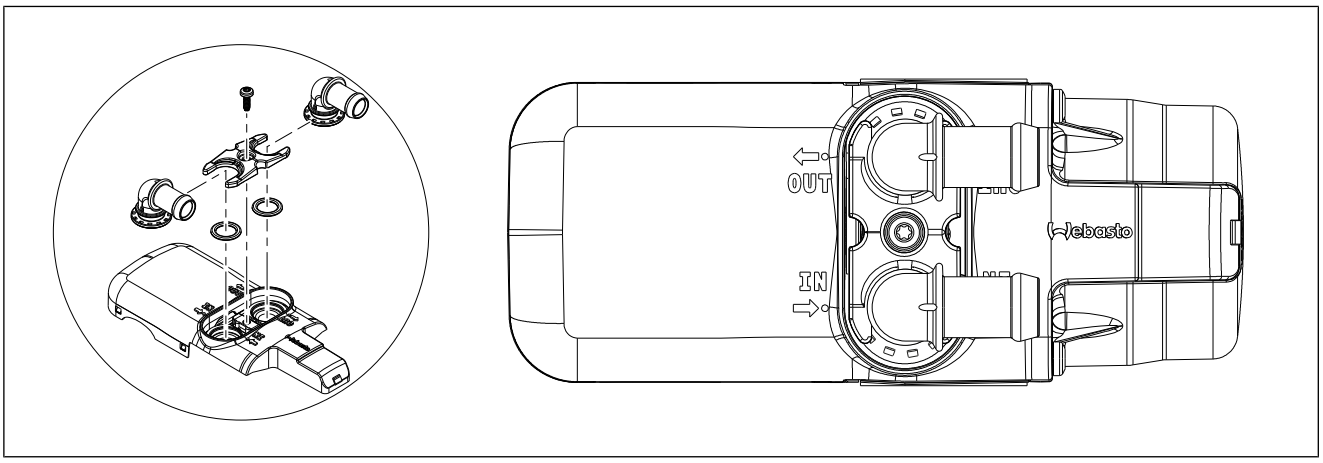


Fig. 14

Cutting hoses to length

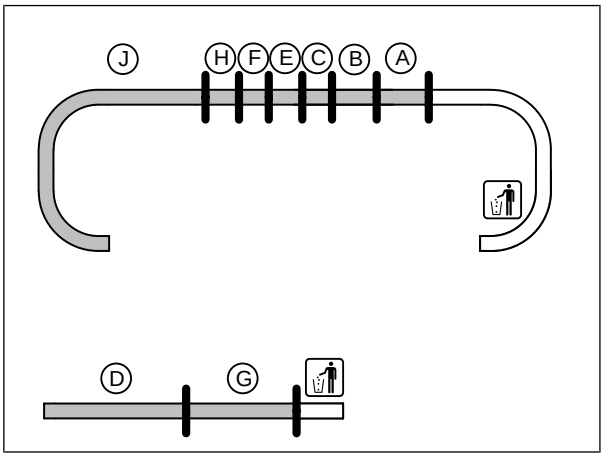


Fig. 15

- (A) 450
- (B) 290
- (C) 90
- (D) 570
- (E) 90
- (F) 60
- (G) 510
- (H) 90
- (J) 810

Mounting hoses Ⓔ and Ⓕ onto HG

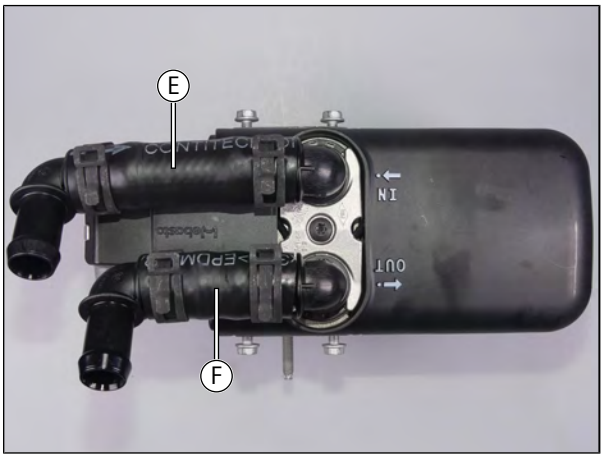


Fig. 16

All spring clips Ø25
All connecting pipes Ø18x18/90°

8.4 Heater installation

Mounting heater

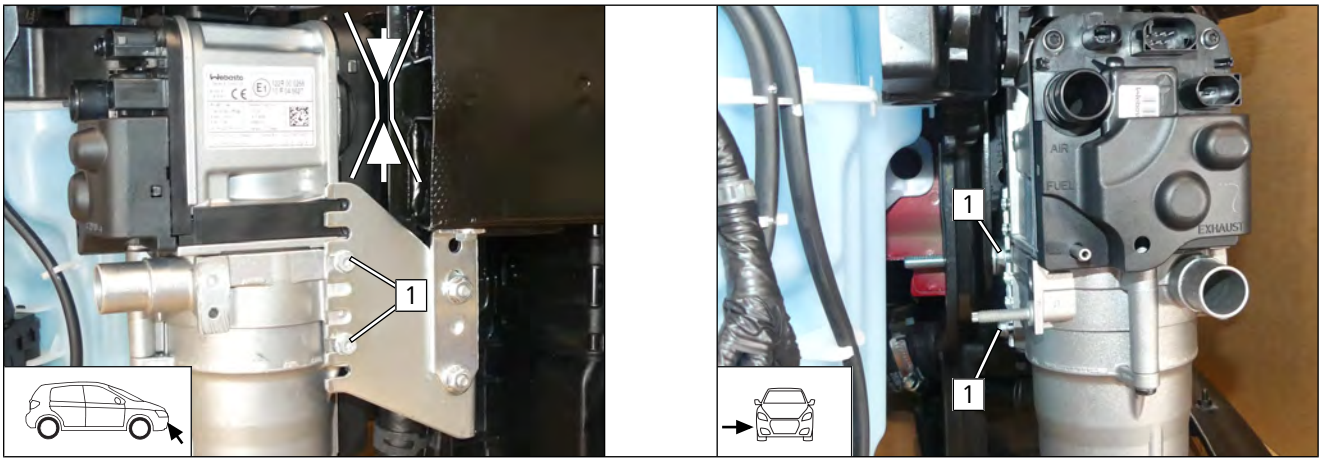


Fig. 17

Observe the general installation instructions of the heater.

Danger of damage to components
Align heater and ensure sufficient distance from carrier, correct if necessary.

▶ Tighten M5x13 self-tapping bolt [1].

Mounting heater wiring harness

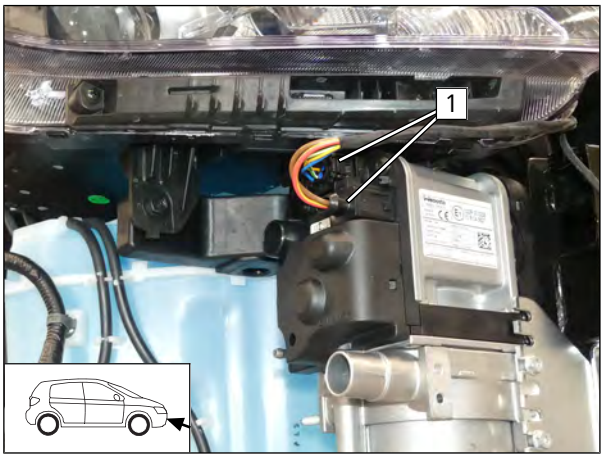


Fig. 18

1 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

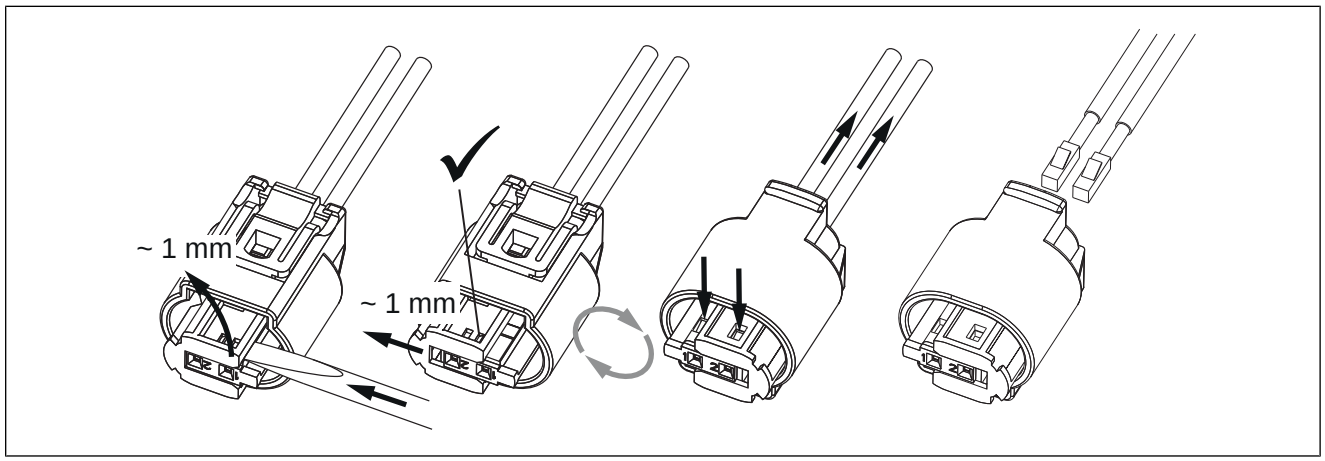


Fig. 19

9.1 Routing fuel line

Connection to heater

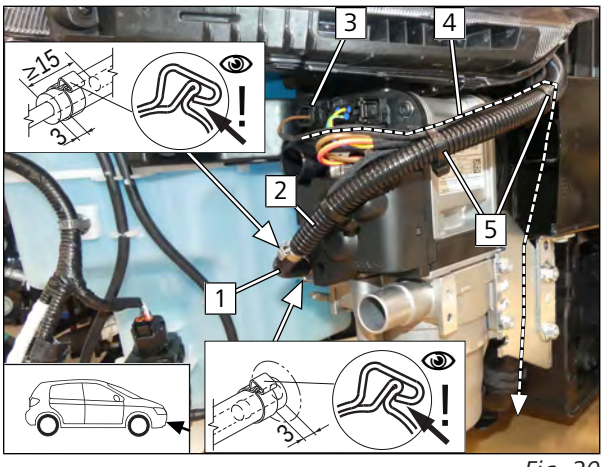


Fig. 20

- ▶ Draw fuel line and fuel pump wiring harness into Ø10 corrugated tube [2] and route into the engine compartment.
- ▶ Route coolant pump wiring harness [4] as shown and fasten using cable tie [5].

[1] 90° moulded hose, Ø10 clamp [2x]

[3] Coolant pump wiring harness connector

Routing fuel line

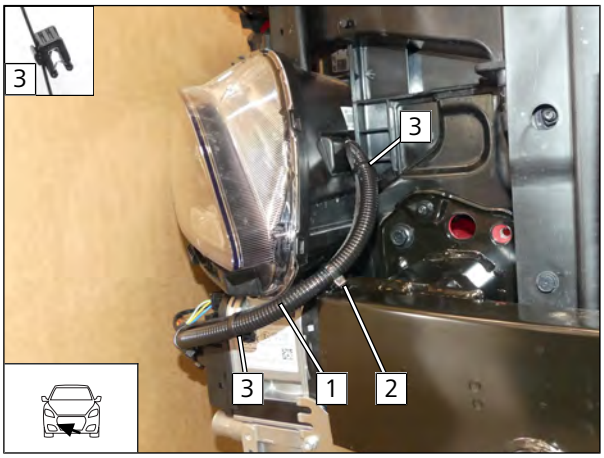


Fig. 21

▶ Route corrugated tube with fuel line and fuel pump wiring harness **1** in the engine compartment and fasten.

2 Edge clip cable tie

3 Cable tie

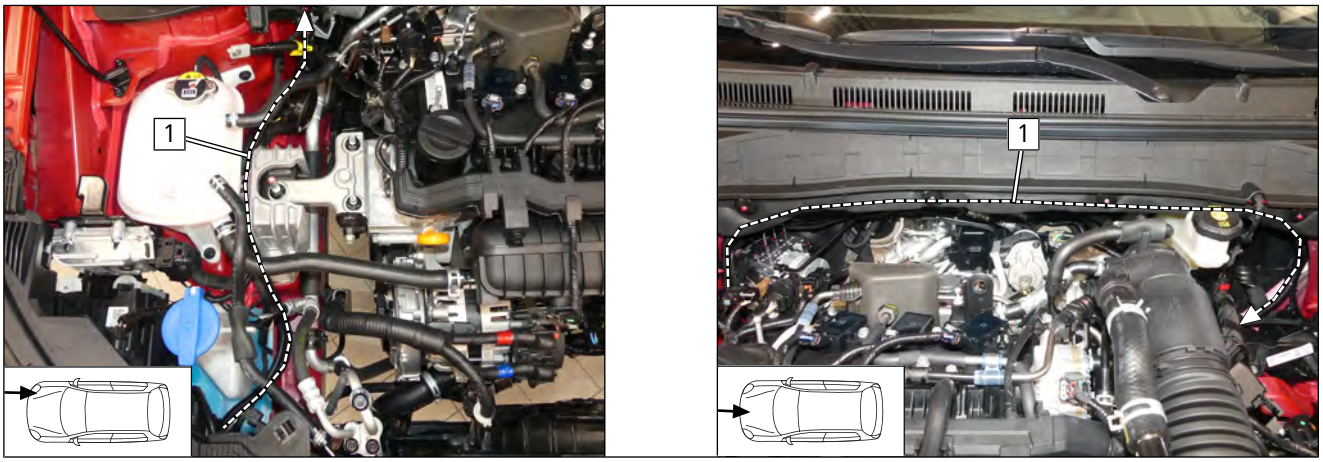


Fig. 22

▶ Route corrugated tube with fuel line and fuel pump wiring harness **1** in the engine compartment to the firewall and fasten. Route the line and wiring harness behind the insulation mat without using a corrugated tube.

▶ At the end of the insulation mat draw the line and wiring harness into a corrugated tube and route to the underbody.

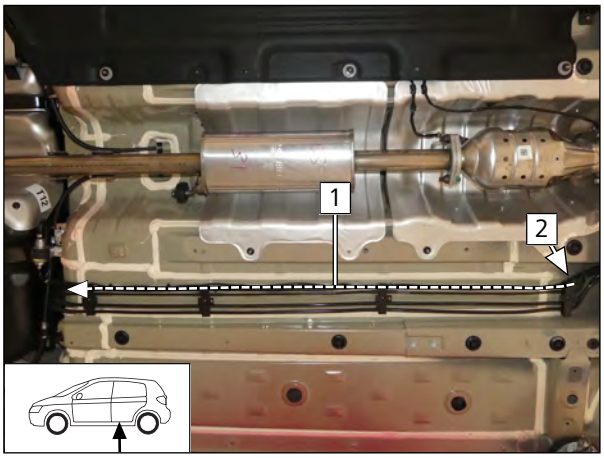


Fig. 23

▶ Route fuel line and fuel pump wiring harness **1** without corrugated tube on original vehicle lines to fuel pump installation location.

2 End of corrugated tube

Premounting fuel pump

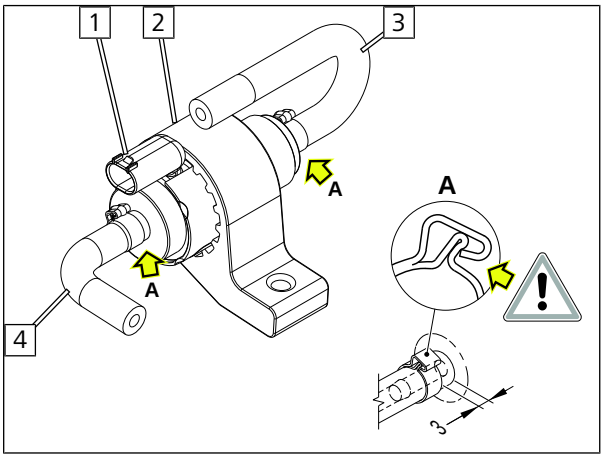


Fig. 24

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

1 Fuel pump
2 Fuel pump mount
3 180° moulded hose, Ø10 clamp
4 90° moulded hose, Ø10 clamp

Shortening perforated bracket

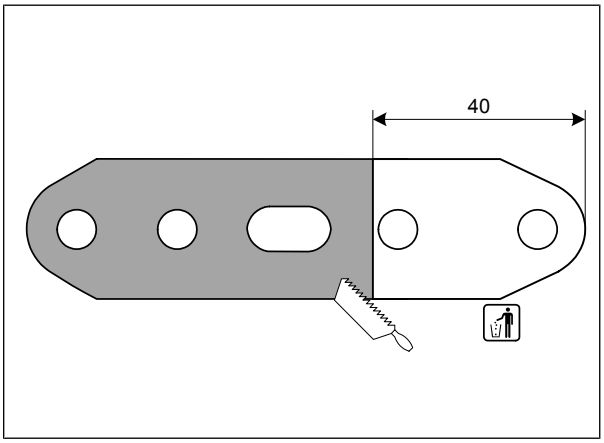


Fig. 25

Premounting fuel pump

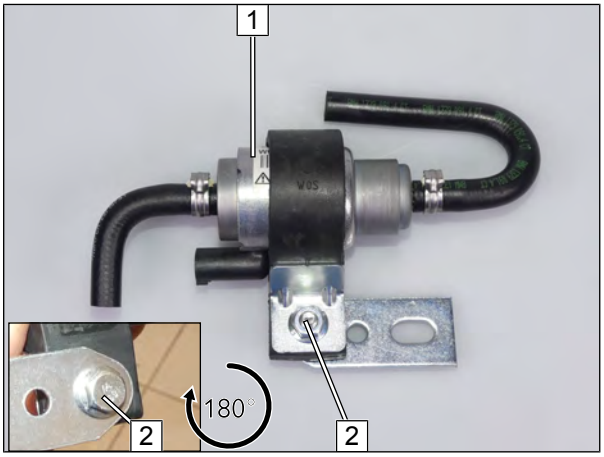


Fig. 26

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

Assembling fuel pump connector X7

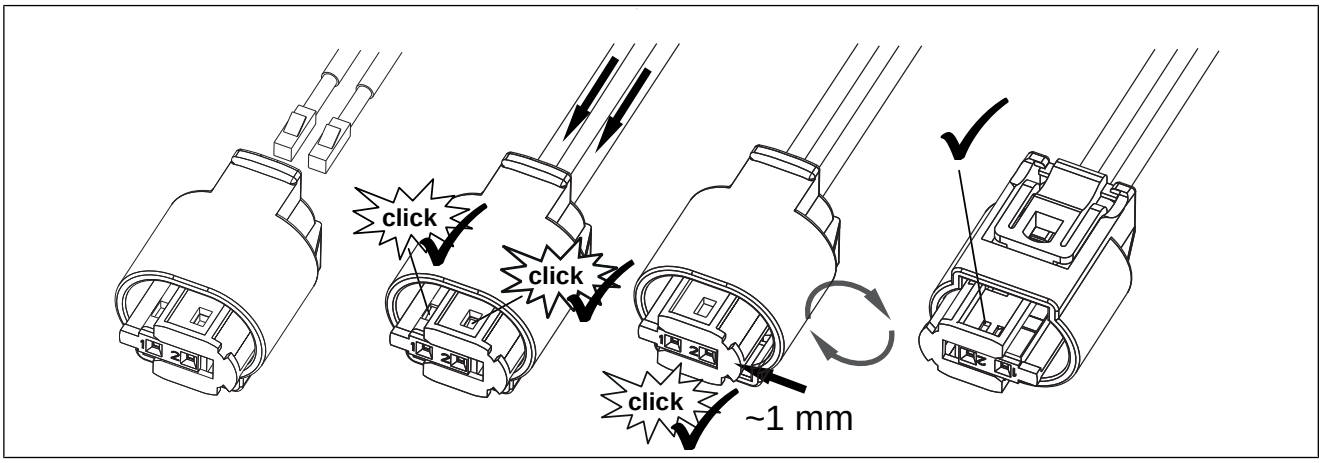


Fig. 27

Mounting and connecting fuel pump

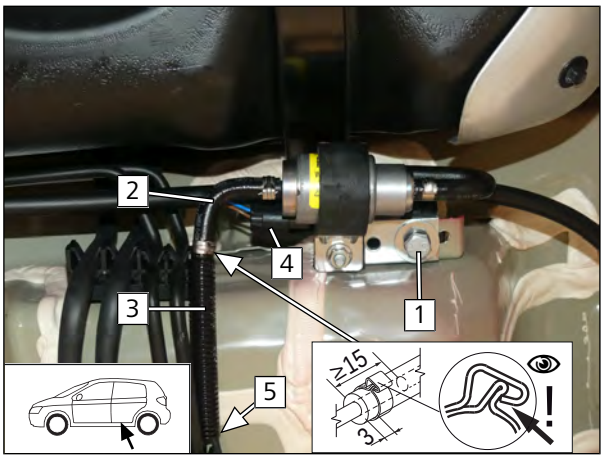


Fig. 28

1 Replace original vehicle bolt with M8x20 bolt, spring lock washer, large diameter washer, pre-mounted perforated bracket, original vehicle threaded hole

2 Premounted 90° hose section, Ø10 clamp

3 Heater fuel line in corrugated tube

4 Fuel pump wiring harness, connector X7 mounted

5 End of corrugated tube

9.2 Installing FuelFix

Removing rear seat

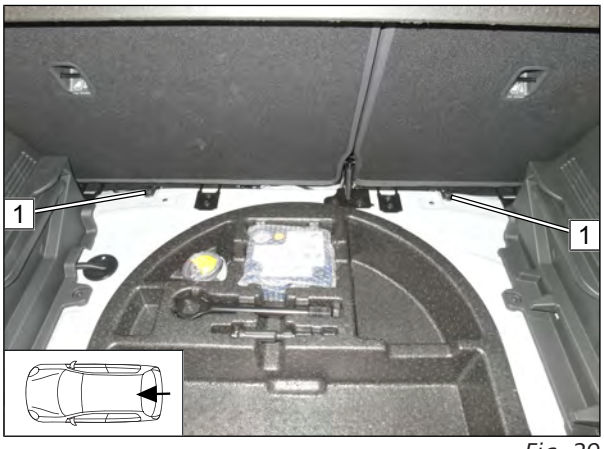


Fig. 29

▶ Unclip rear seat in the front area and remove original vehicle bolt at position 1.

Work steps F1, F2

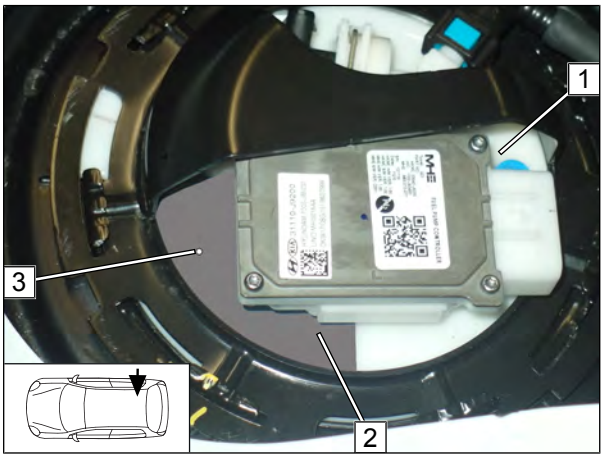


Fig. 30

Observe the installation instructions of the tank extracting device.

1 Tank fitting

2 Cut out and position drilling template as shown in fig..

3 Copy hole pattern

Work step F3

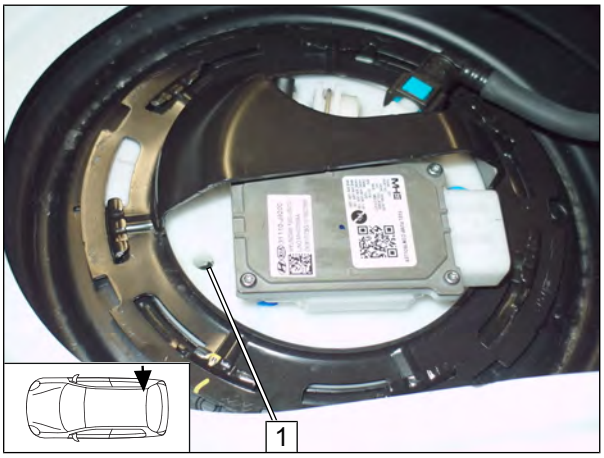


Fig. 31

DANGER

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

1 Hole made with provided drill

Work steps F4, F5

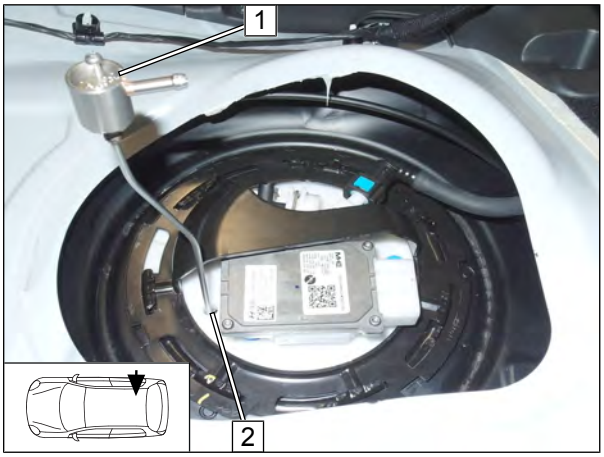


Fig. 32

▶ Bend FuelFix 1 according to template and cut to length. Insert in hole 2.

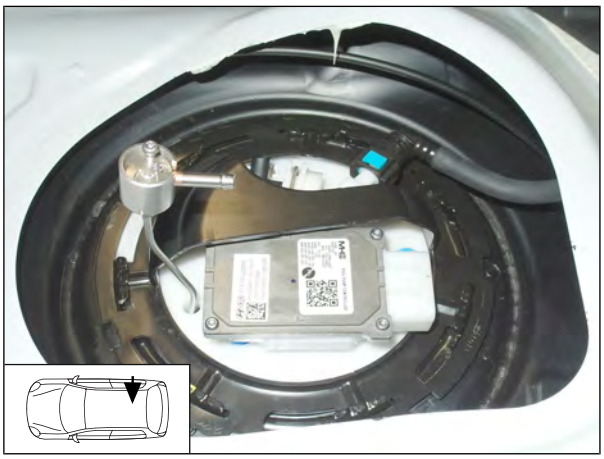


Fig. 33

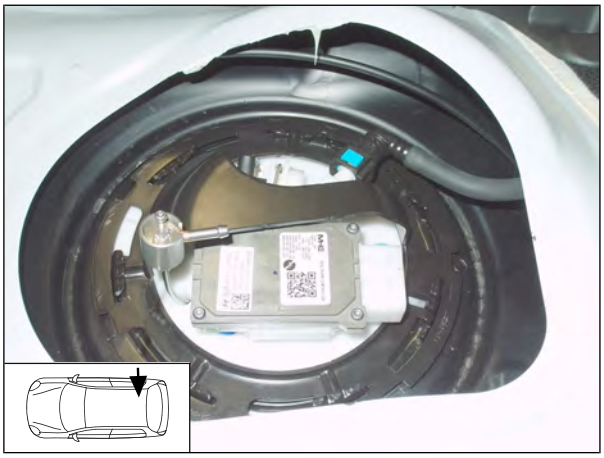


Fig. 34

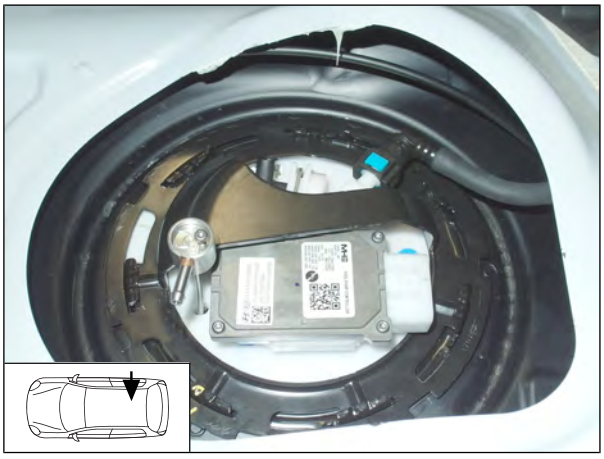


Fig. 35

Work steps F5.3, F5.4

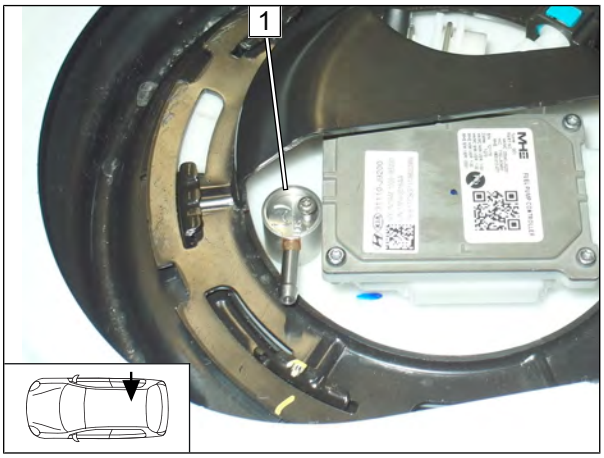


Fig. 36

▶ Align FuelFix [1] as shown.

Work step F6

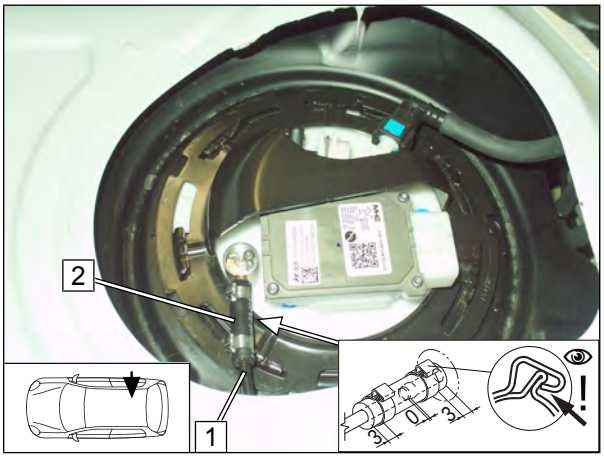


Fig. 37

[1] Fuel line of FuelFix

[2] Hose section, Ø10 clamp [2x]

Work step F7

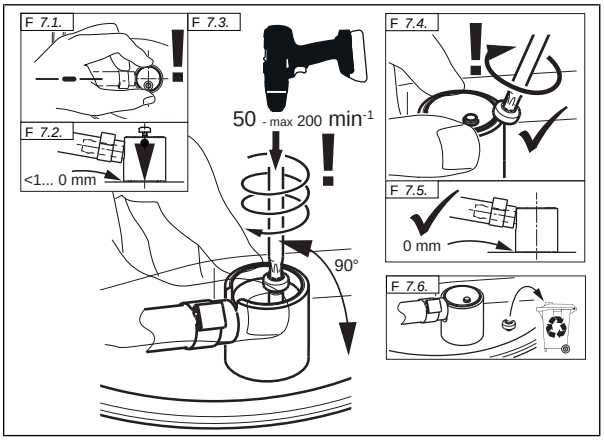


Fig. 38

DANGER

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

Work step F8

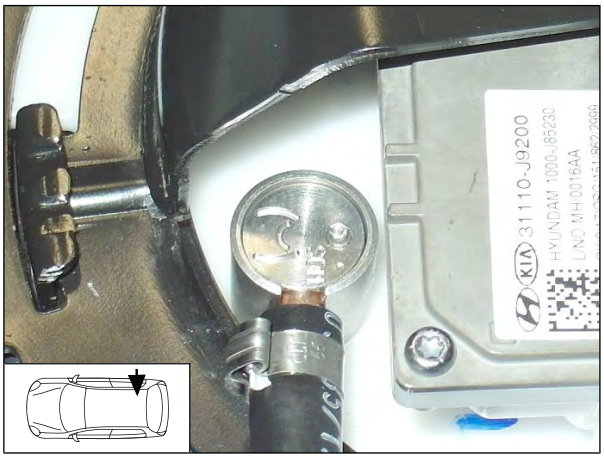


Fig. 39

Securing fuel line

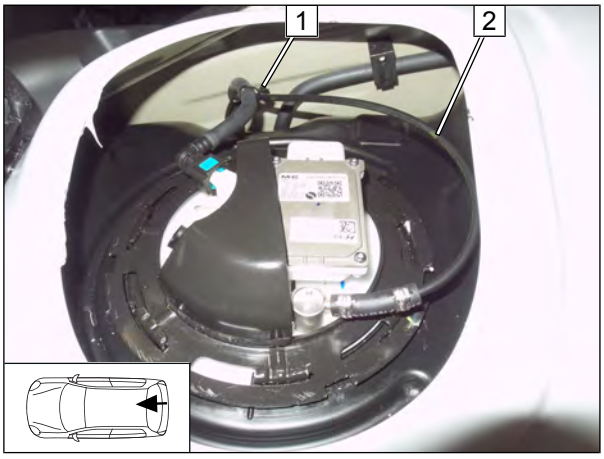


Fig. 40

▶ Attach fuel line 2 using cable tie 1 in a suitable location for tension relief.

9.3 Fuel pump connection

Connecting fuel line of

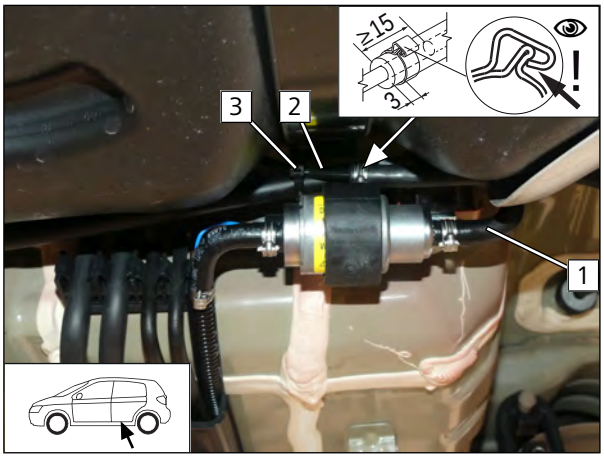
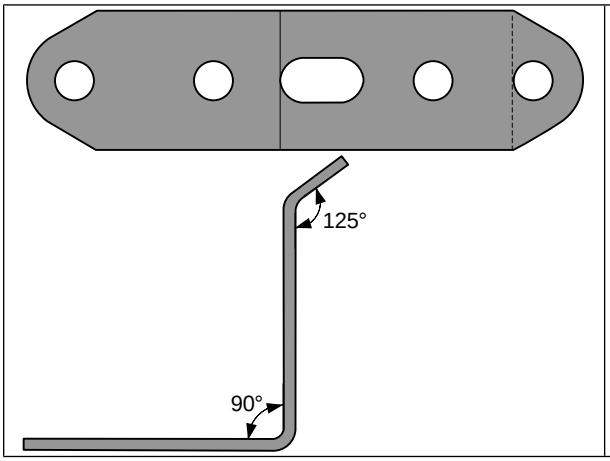


Fig. 41

1 Premounted 180° moulded hose, Ø10 clamp
2 Fuel line of FuelFix
3 Cable tie

10 Exhaust part 1

Premounting exhaust silencer



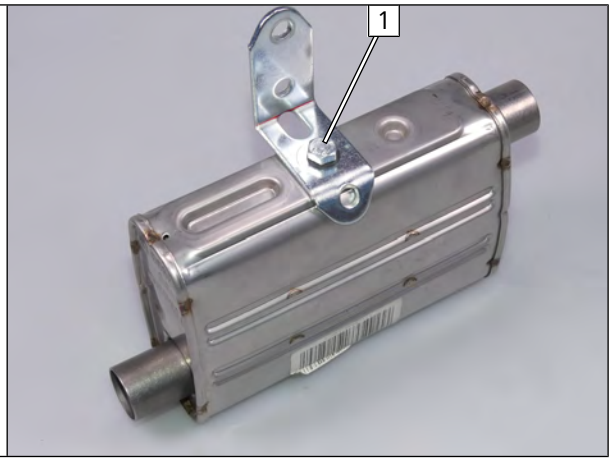


Fig. 42

1 M6x16 bolt, spring lock washer, perforated bracket, exhaust silencer

Mounting exhaust silencer

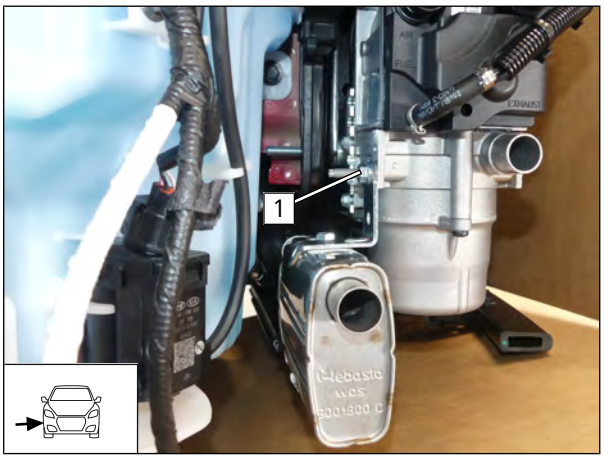
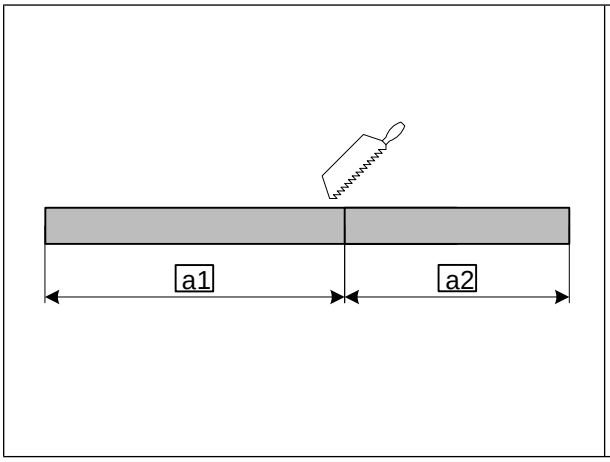


Fig. 43

1 Stud bolt on HG, perforated bracket, flanged nut

Preparing exhaust pipes



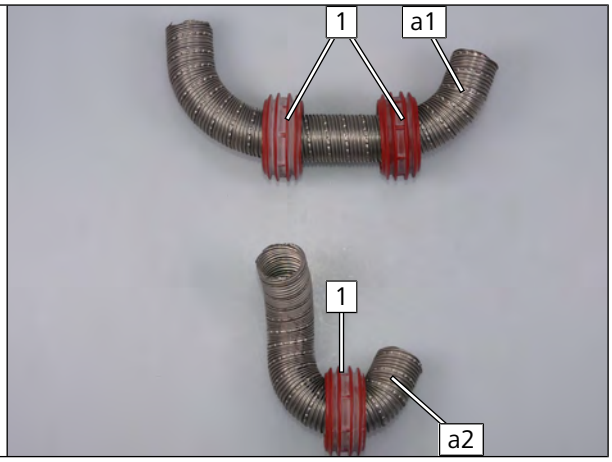


Fig. 44

a1 220

a2 160

1 Spacer bracket

Mounting exhaust pipe **a1**

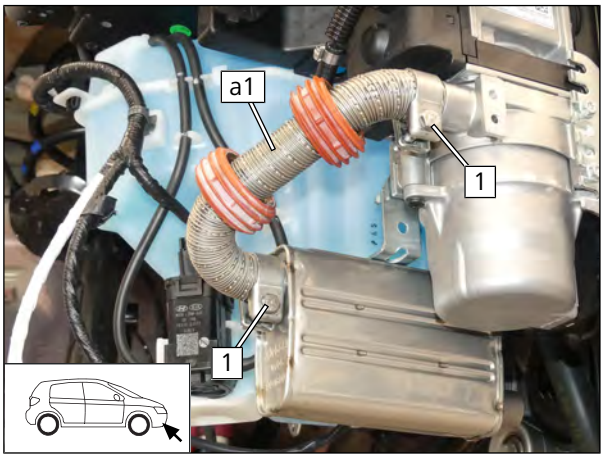


Fig. 45

1 Hose clamp

11 Combustion air

Preparing and mounting perforated bracket

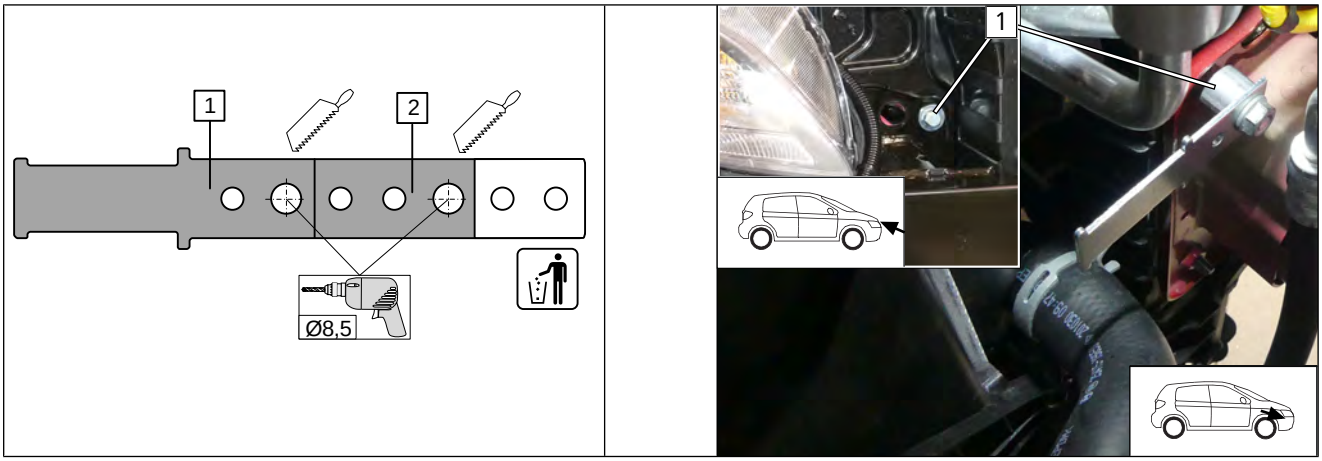


Fig. 46

1 Perforated bracket section 1

2 Perforated bracket section 2

1 M8x40 bolt, spring lock washer, large diameter washer, original vehicle threaded hole, spacer (15), perforated bracket section 1, flanged nut

Cutting combustion air pipe **s1** to length

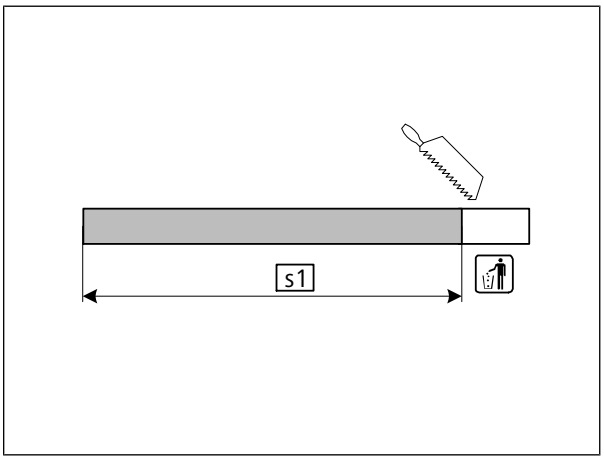


Fig. 47

s1 470

Premounting combustion air intake silencer

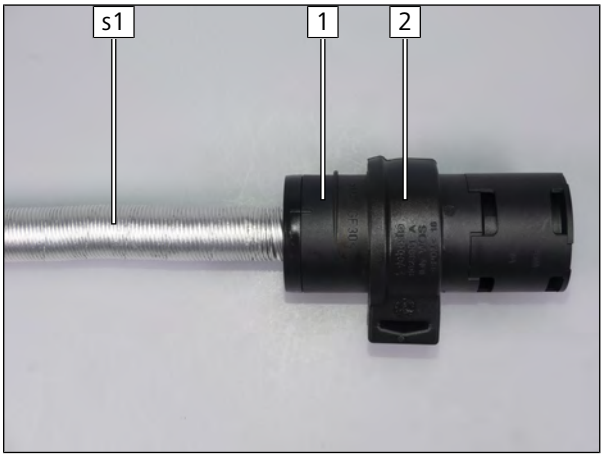


Fig. 48

Observe the installation instructions of the combustion air intake silencer.

1 Combustion air intake silencer

2 Combustion air intake silencer mount

Mounting combustion air intake silencer

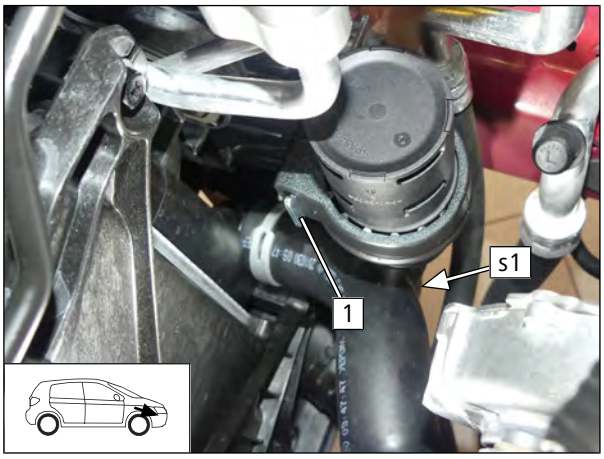


Fig. 49

[1] Slide combustion air intake silencer mount onto perforated bracket

[s1] Insert it downwards

Positioning spacer

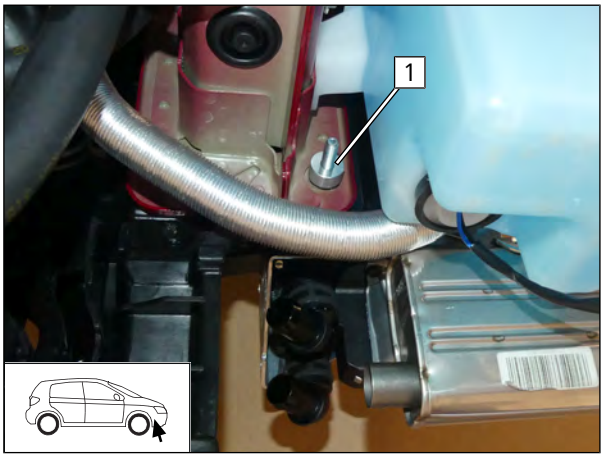


Fig. 50

[1] Mounted M8x55 bolt (HG bracket installation), spacer (10)

Premounting perforated bracket section 2, fastening combustion air intake pipe

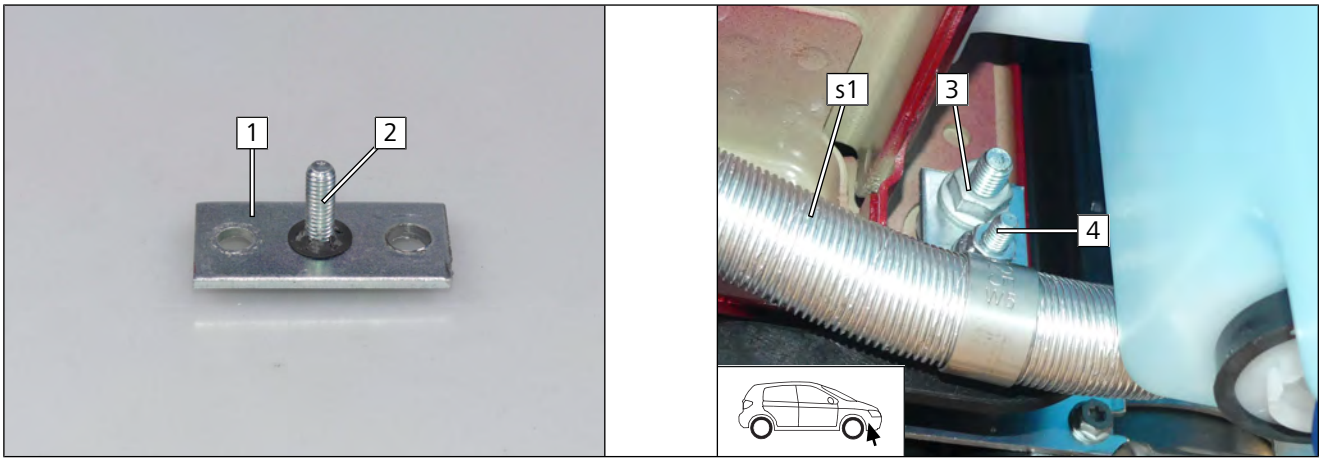


Fig. 51

[1] Perforated bracket section 2

[2] M6x20 bolt, lock washer

[3] M8x55 bolt, spacer (10), perforated bracket section 2, flanged nut

[4] Premounted M6x20 bolt, Ø25 pipe clamp, flanged nut

Fastening combustion air intake pipe

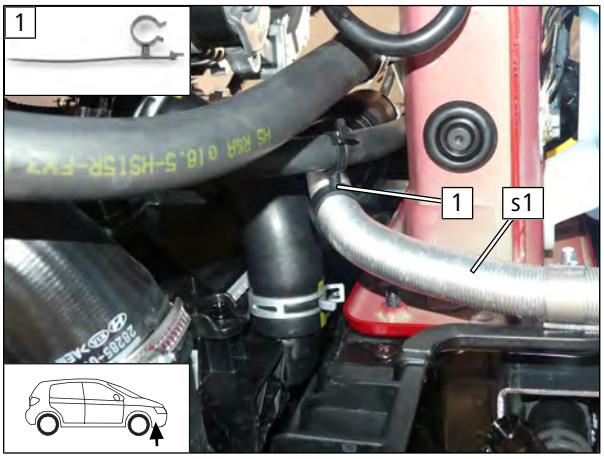


Fig. 52

1 Cable tie with hose bracket around combustion air intake pipe **s1** and original vehicle A/C line

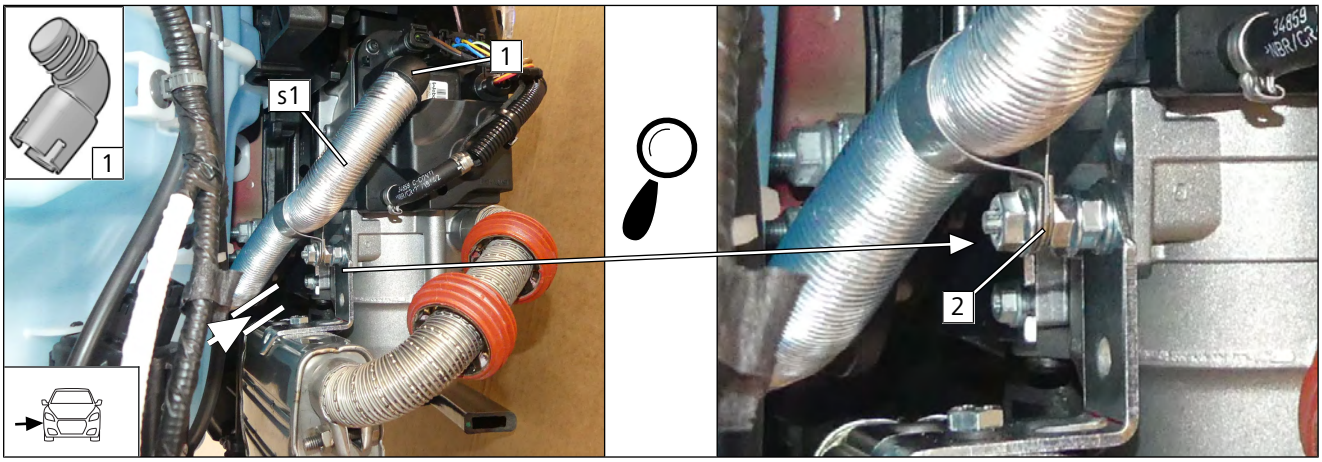


Fig. 53

Danger of damage to components

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

1 Screw inlet elbow on combustion air intake pipe **s1**, then click it on the HG connection piece

2 Stud bolt (exhaust silencer installation), M6 flanged nut used as spacer, Ø25 p-clamp, flanged nut

12 Coolant

12.1 Hose routing diagram

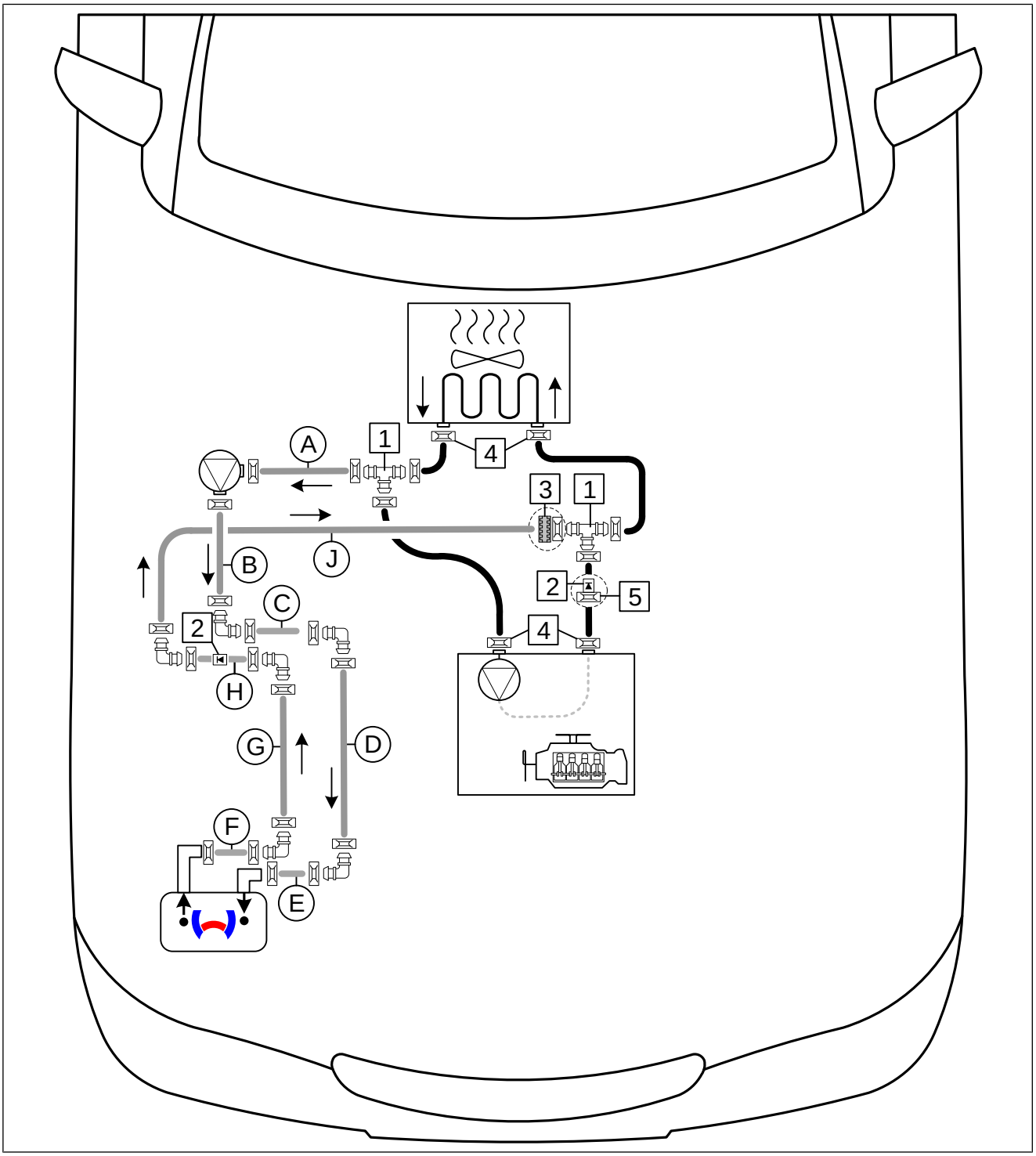


Fig. 54

All spring clips without a specific designation = Ø25

All connecting pipe or = Ø18x18

1 T-piece; 2 Non-return valve of hose; 3 Rubber isolator above spring clip; 4 original vehicle spring clip; 5 Ø27 spring clip above non-return valve of hose

12.2 Coolant circuit installation

Dismantling original vehicle hoses

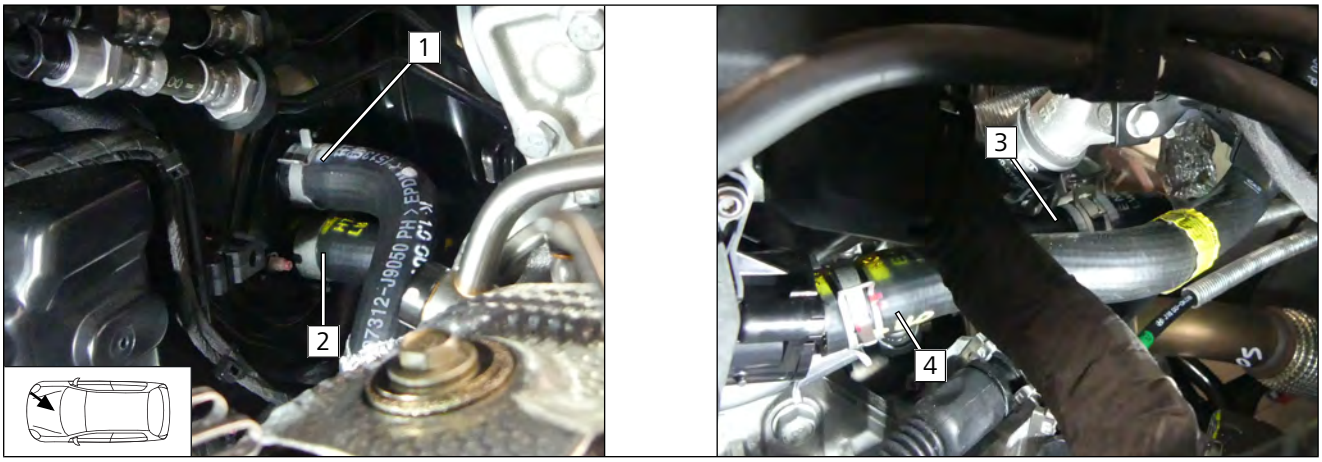


Fig. 55

1 Disconnect heat exchanger outlet hose, spring clip will be reused

2 Disconnect heat exchanger inlet hose, spring clip will be reused

3 Pull off engine inlet quick-release coupling

4 Disconnect engine outlet hose, spring clip will be reused

Cutting point 1

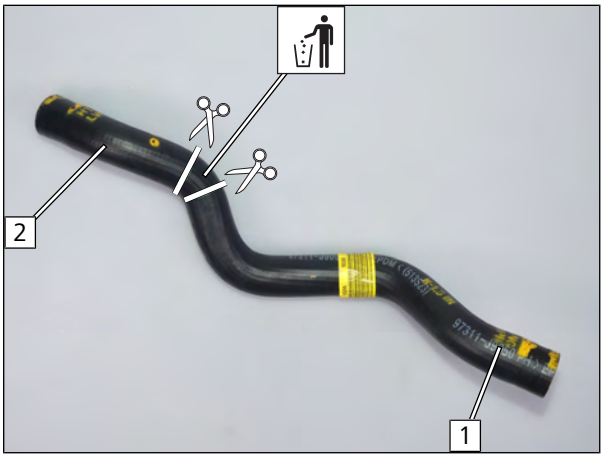


Fig. 56

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

1 Engine outlet hose section

2 Heat exchanger inlet hose section

Mounting non-return valve of hose in engine outlet hose section

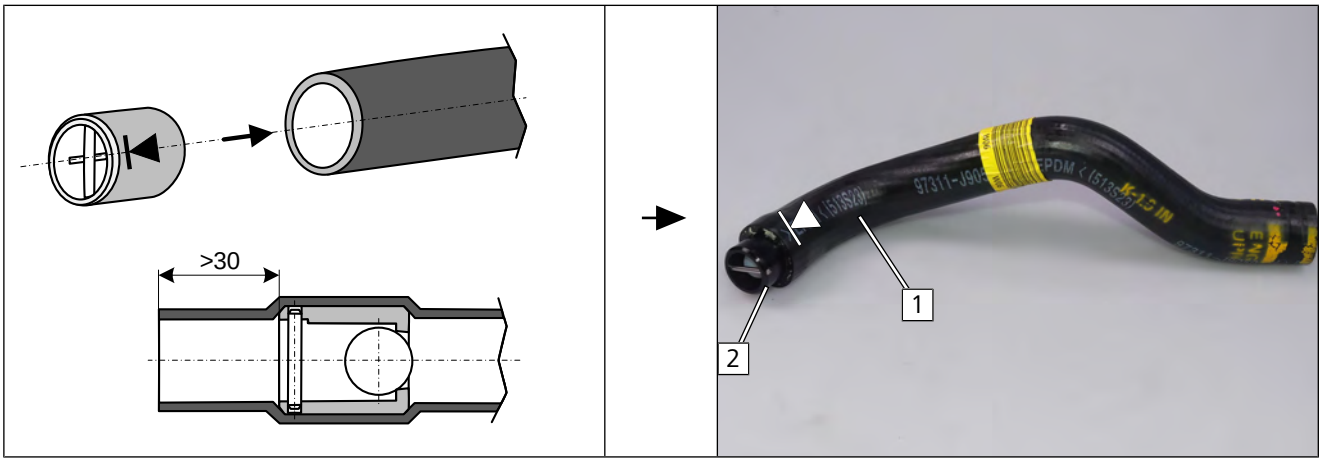


Fig. 57

1 Engine outlet hose section
2 Non-return valve of hose

Premounting T-piece hose group 1

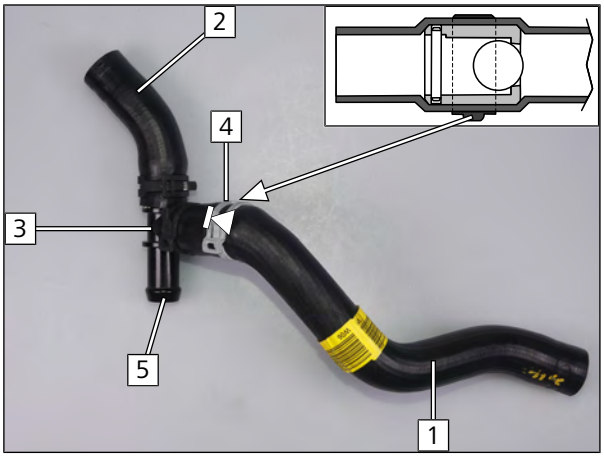


Fig. 58

1 Engine outlet hose section
2 Heat exchanger inlet hose section
3 T piece 1
4 Ø27 spring clip above non-return valve of hose
5 Connecting hose (J)

Cutting point 2, premounting T-piece hose group 2

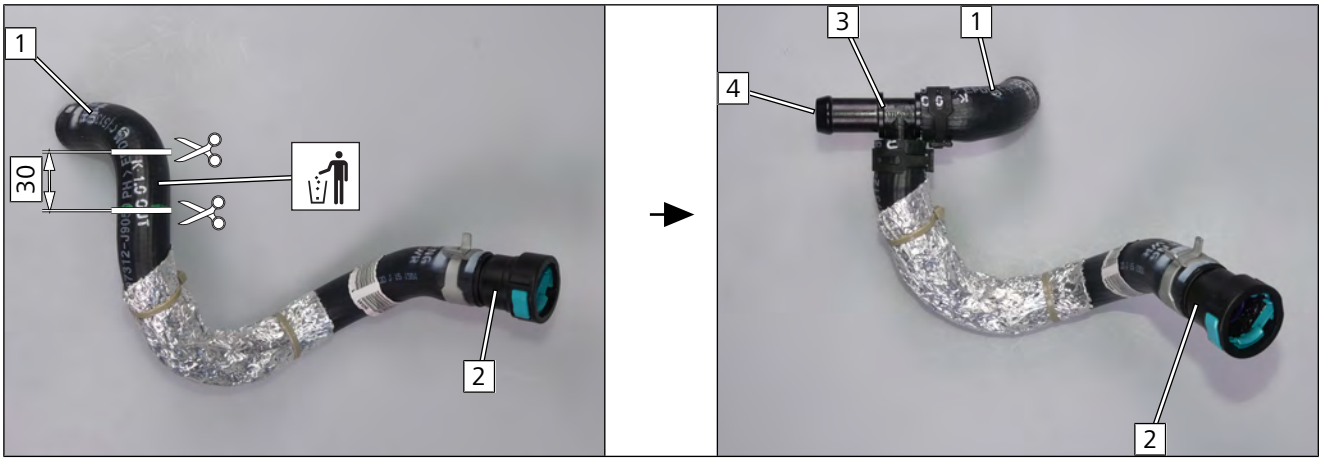


Fig. 59

1 Heat exchanger outlet hose section
2 Engine inlet hose section
3 T piece 2
4 Hose (A) connection

Mounting T-piece hose group 1

Fig. 60

1 Heat exchanger inlet connection with original vehicle spring clip

2 Engine outlet connection with original vehicle spring clip

Mounting T-piece hose group 2

Fig. 61

1 Heat exchanger outlet connection with original vehicle spring clip

2 Engine inlet connection with quick-release coupling

Premounting mount and tubular rivet on coolant pump

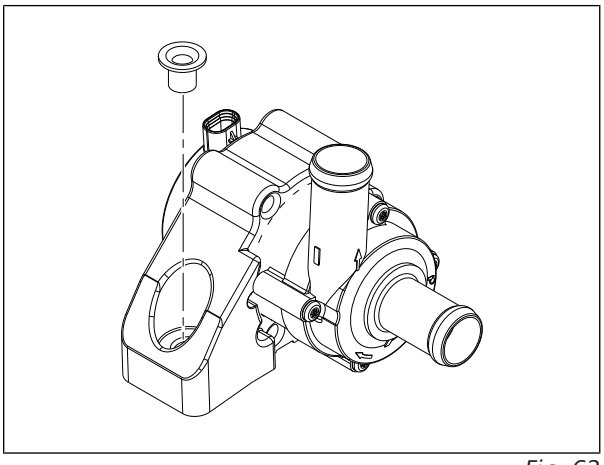


Fig. 62

Mounting coolant pump

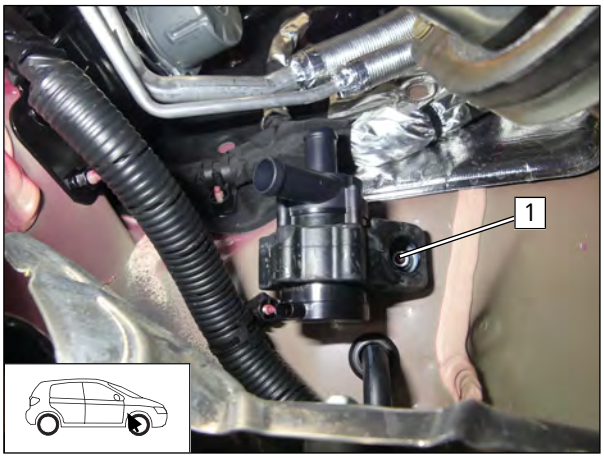


Fig. 63

[1] Original vehicle stud bolt, coolant pump mount, flanged nut

Mounting non-return valve in hose (H)

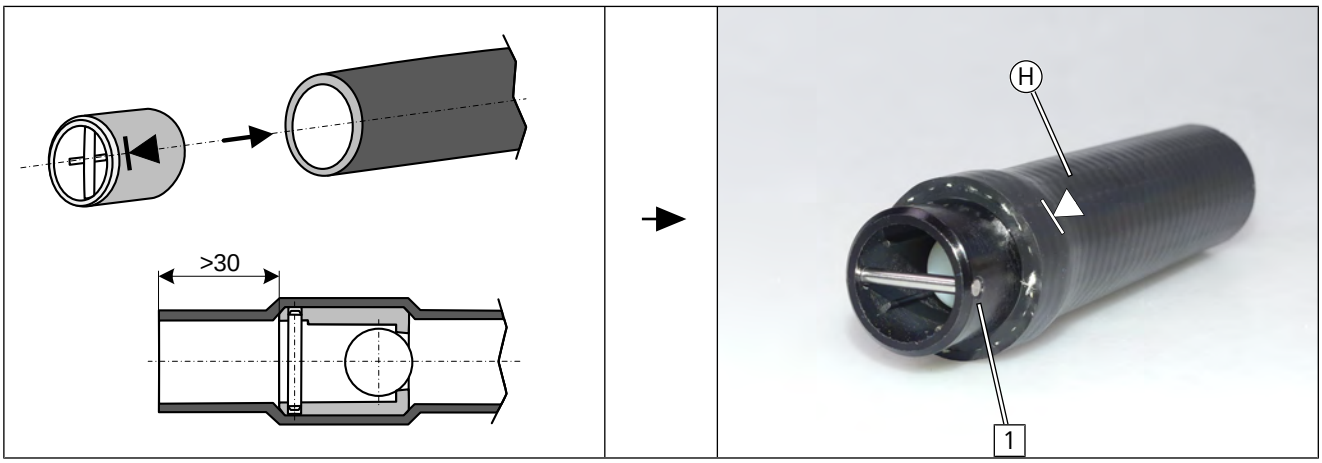


Fig. 64

[1] Non-return valve of hose of engine outlet

Premounting hose group

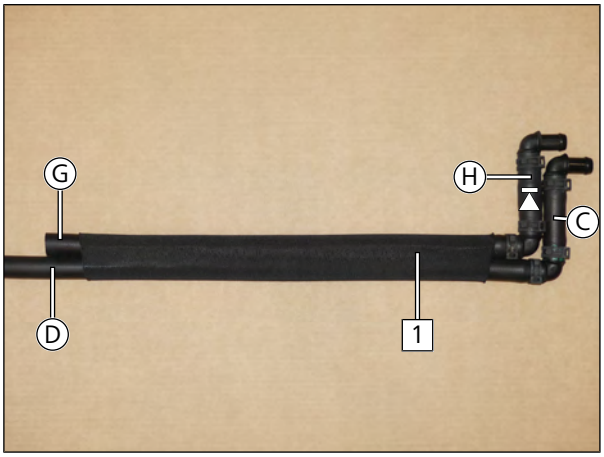


Fig. 65

Mount fabric heat shrink tubing [1].

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

Mounting perforated brackets (2x) and edge protection

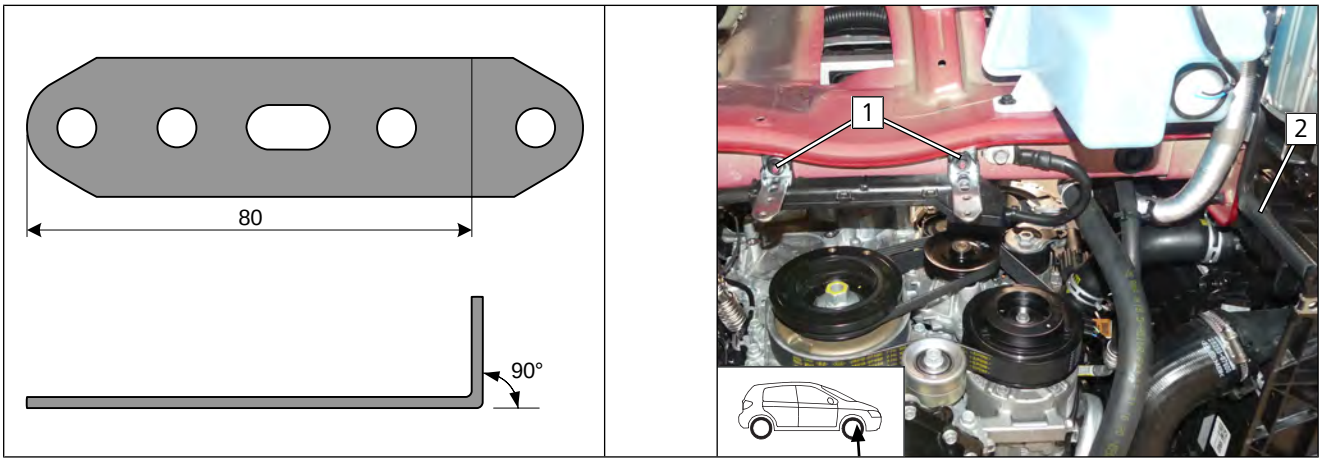


Fig. 66

1 Original vehicle stud bolt, perforated bracket, original vehicle flanged nut

2 100 lg. edge protection

Mounting and routing hoses Ⓓ and Ⓖ

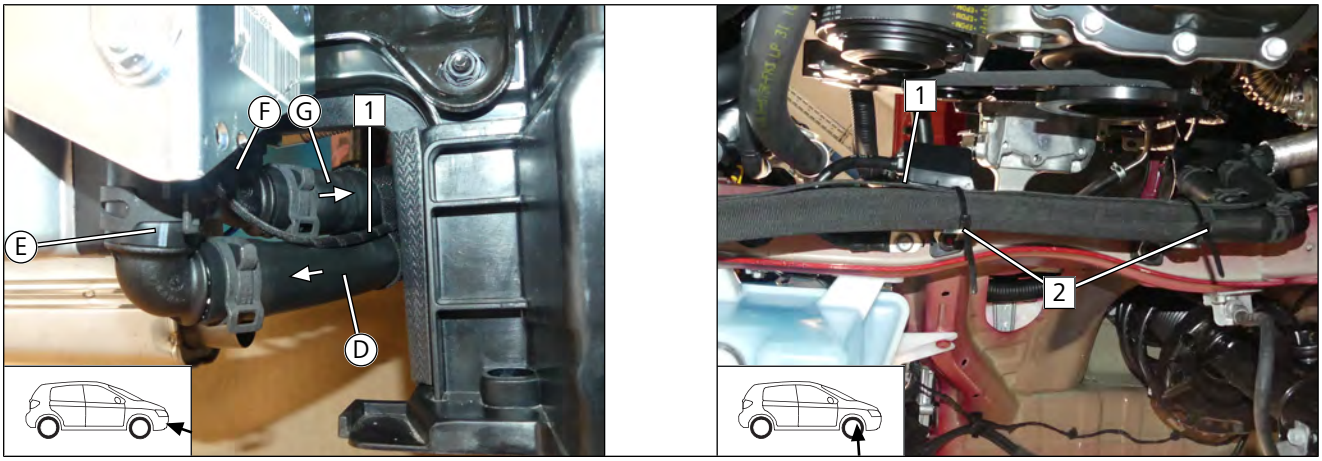


Fig. 67

▶ Route coolant pump wiring harness 1 along the hoses.

1 Coolant pump wiring harness

2 Mount cable tie loosely around hoses and perforated bracket

Cutting to length and assigning heat protection hose

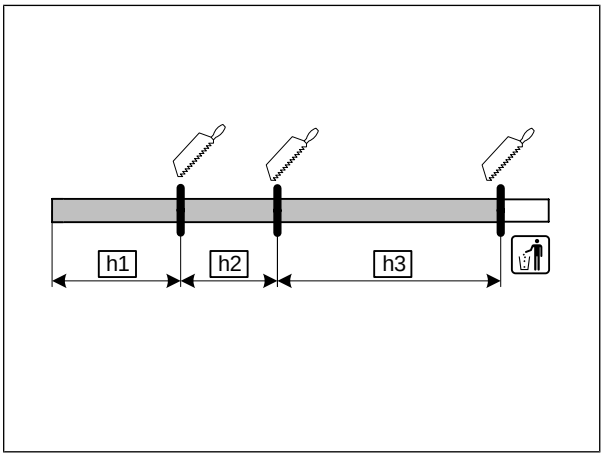


Fig. 68

h1 390

h2 230

h3 750

Mounting hose Ⓑ onto hose Ⓒ and coolant pump outlet

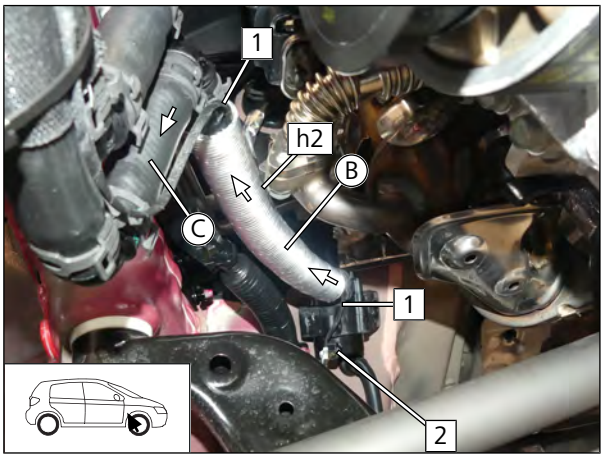


Fig. 69

- ▶ Draw coolant pump wiring harness 1 and hose Ⓑ through heat protection hose h2.
- ▶ Mount coolant pump wiring harness connector 2.

Mounting hose Ⓐ on T-piece 2

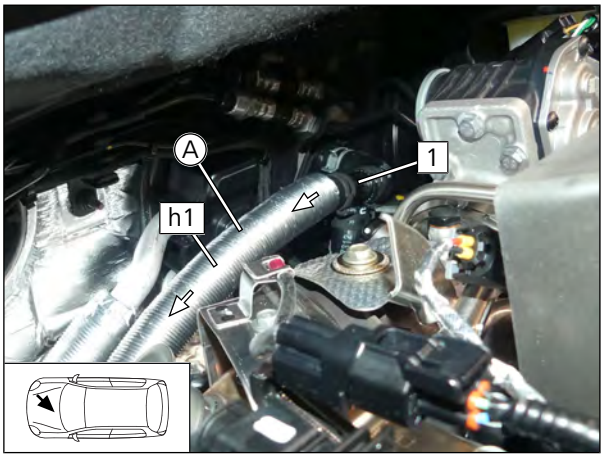


Fig. 70

- ▶ Push heat protection hose h1 onto hose Ⓐ, then mount onto T-piece 2 1.

Mounting hose Ⓐ onto coolant pump inlet

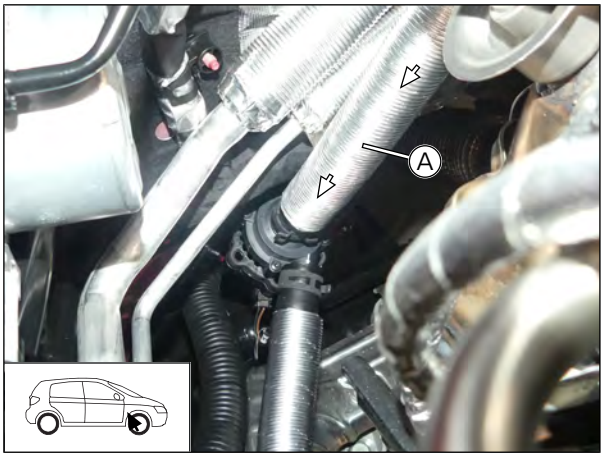


Fig. 71

Premounting hose Ⓙ

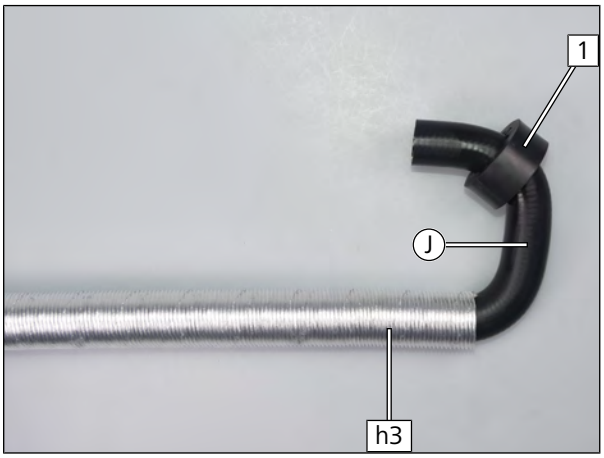


Fig. 72

▶ Push heat protection hose h3 onto hose Ⓙ.

1 Rubber isolator

Connecting hose Ⓙ to T-piece 1

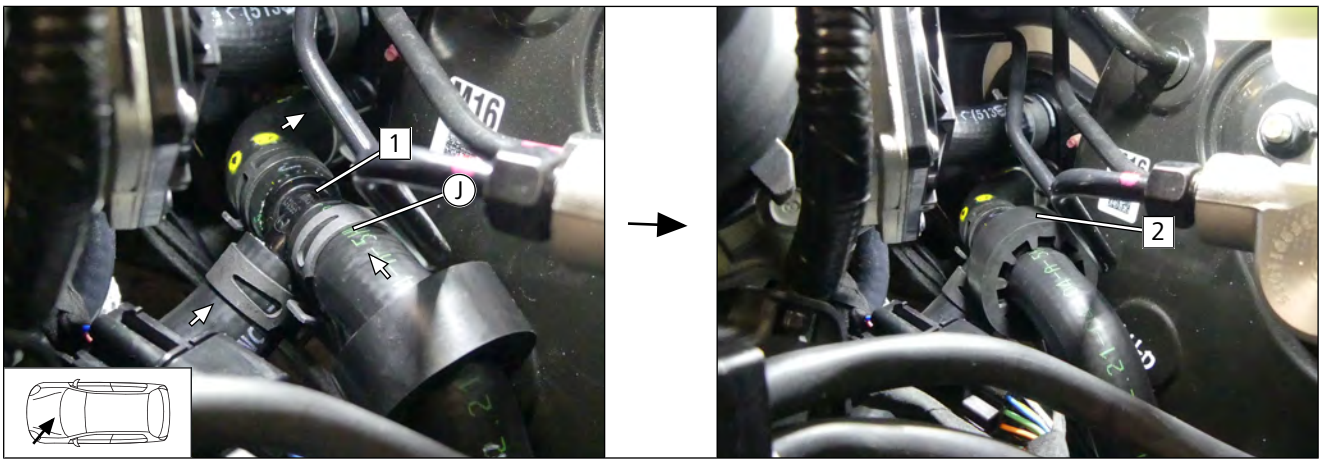


Fig. 73

1 T piece 1

▶ Push rubber isolator 2 onto spring clip and align it with brake booster.

Connecting hose Ⓙ to hose Ⓗ

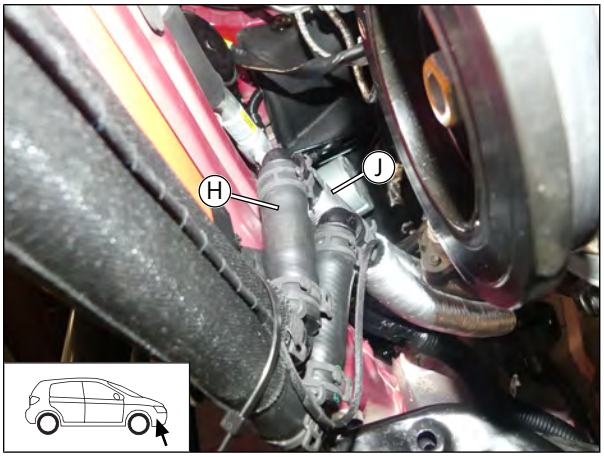
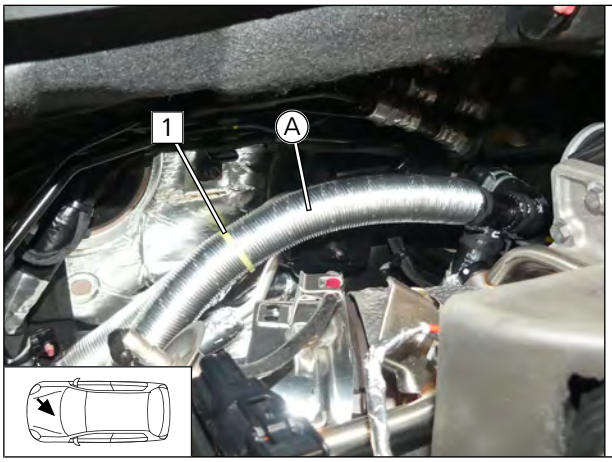


Fig. 74

Fastening hoses



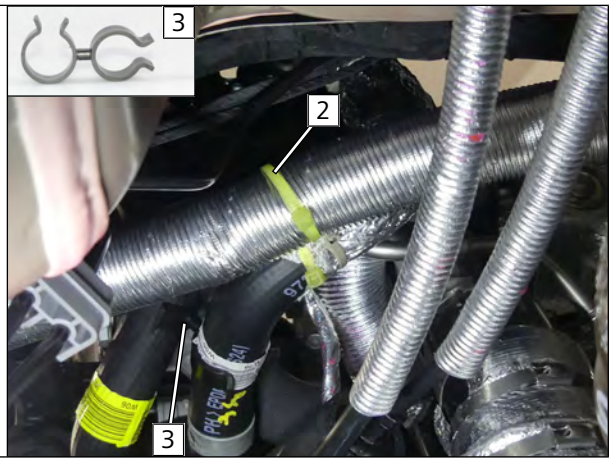


Fig. 75

1 White cable tie around hose Ⓐ and original vehicle A/C line

2 Two interlaced white cable ties, around hose Ⓙ and original vehicle hose

3 Hose bracket between original vehicle hoses

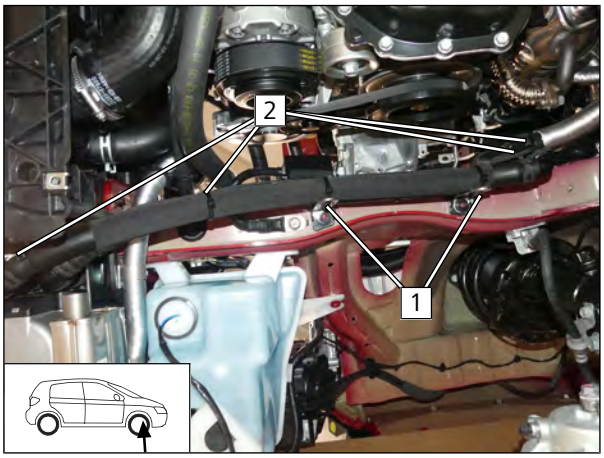


Fig. 76

1 Tighten premounted cable tie

2 Cable tie at a suitable location around hoses and coolant pump wiring harness

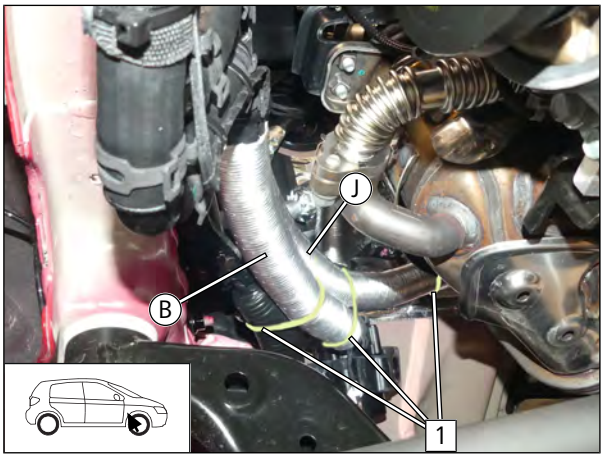


Fig. 77

1 White cable tie around hose Ⓑ, hose Ⓙ and original vehicle wiring harness

13 Exhaust part 2

Mounting exhaust pipe a2

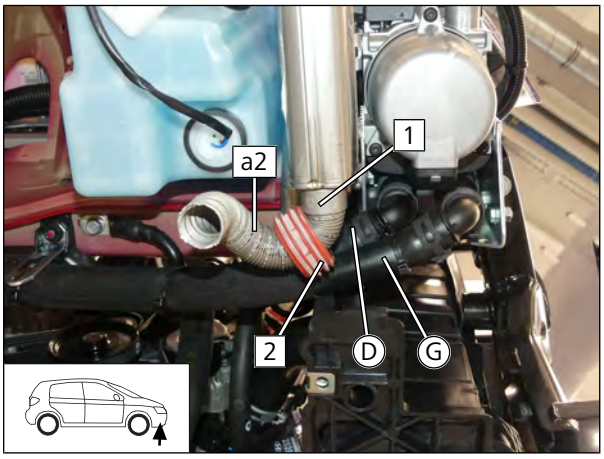


Fig. 78

1 Hose clamp
2 Align spacer bracket with hoses (D) and (G)

EFIX installation - Work steps E1, E2

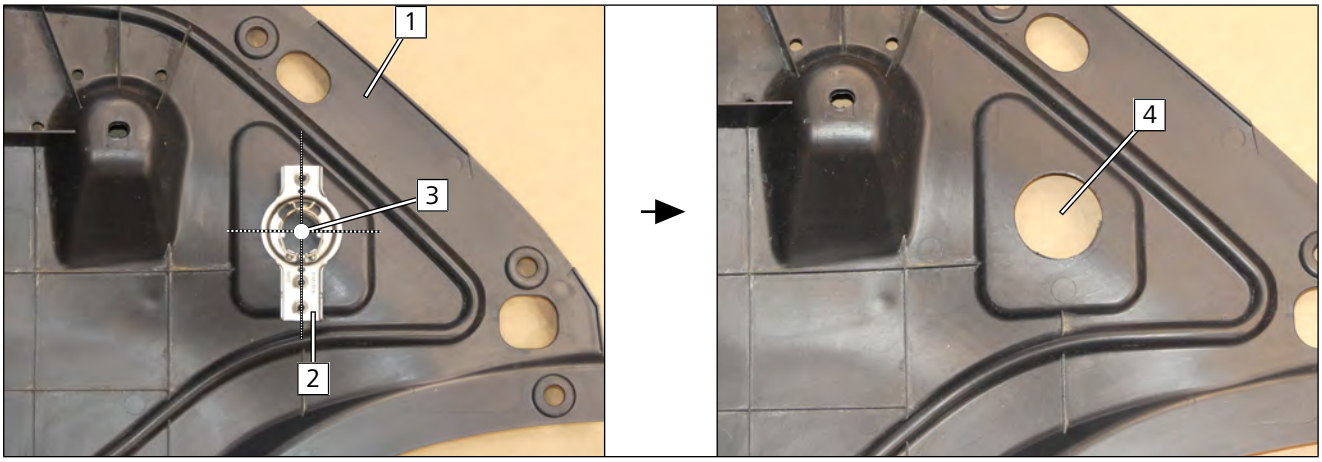


Fig. 79

Observe the EFIX installation instructions.

1 Underbody trim
2 EFIX
3 Copy hole pattern
4 Hole

Work steps E3, E4

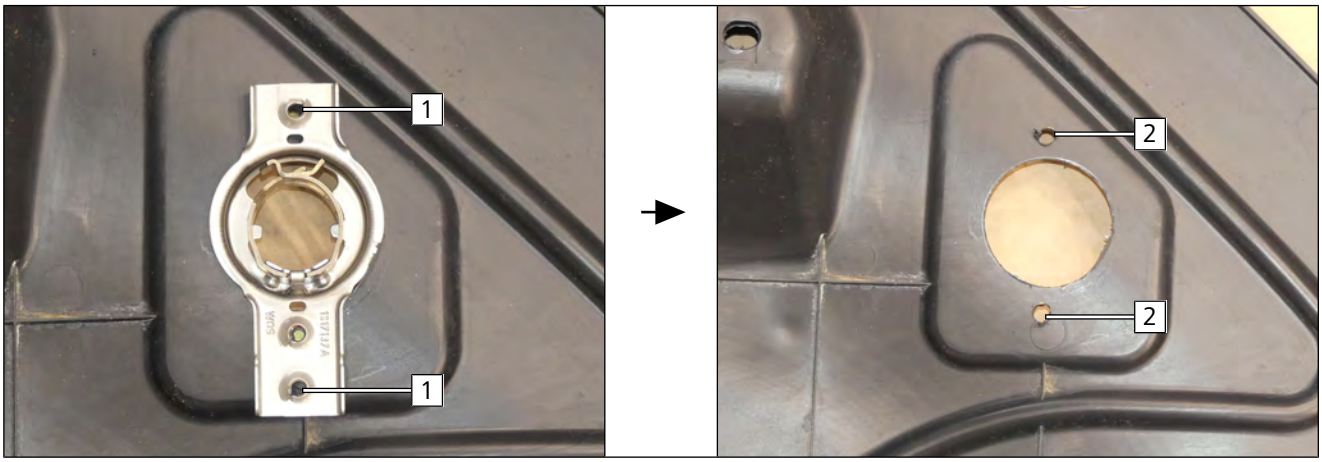


Fig. 80

1 Copy hole pattern

2 Hole

Work step E5

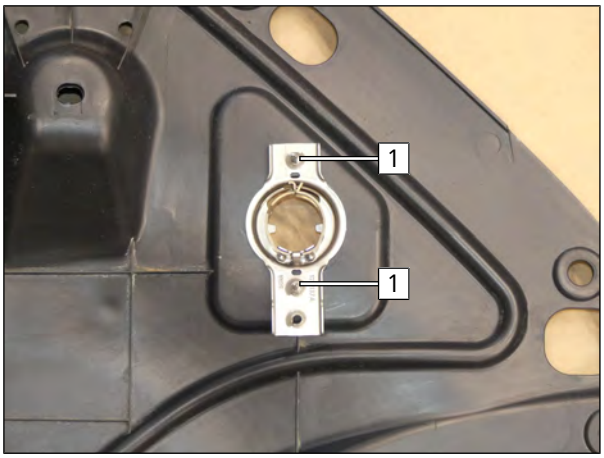


Fig. 81

1 5x13 self-tapping screw

14 Final work in engine compartment

Adapting bumper trim

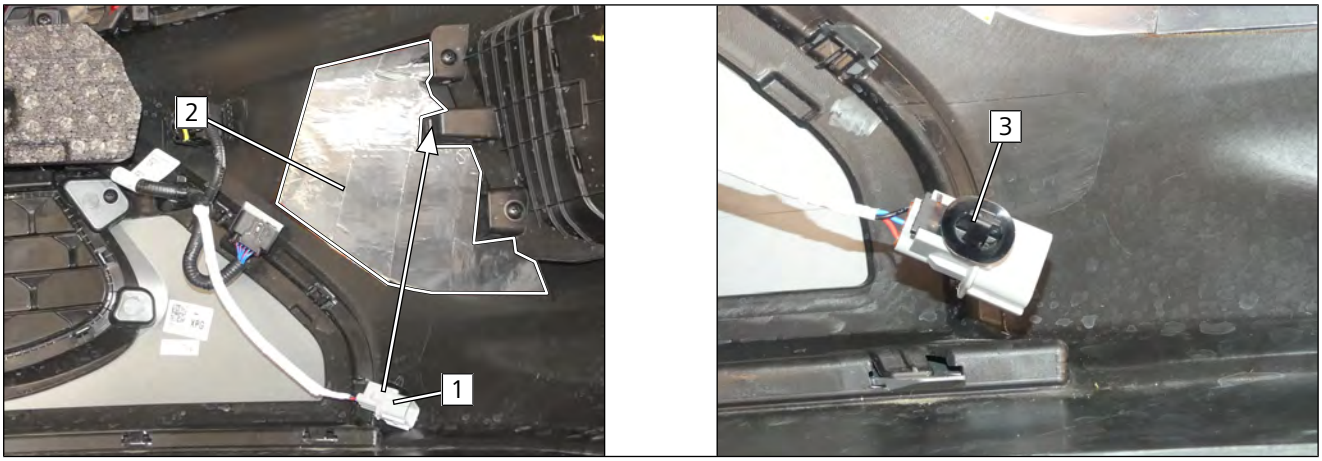


Fig. 82

1 Detach connector
2 Glue heat protection film in markted area
3 Remove and discard clip

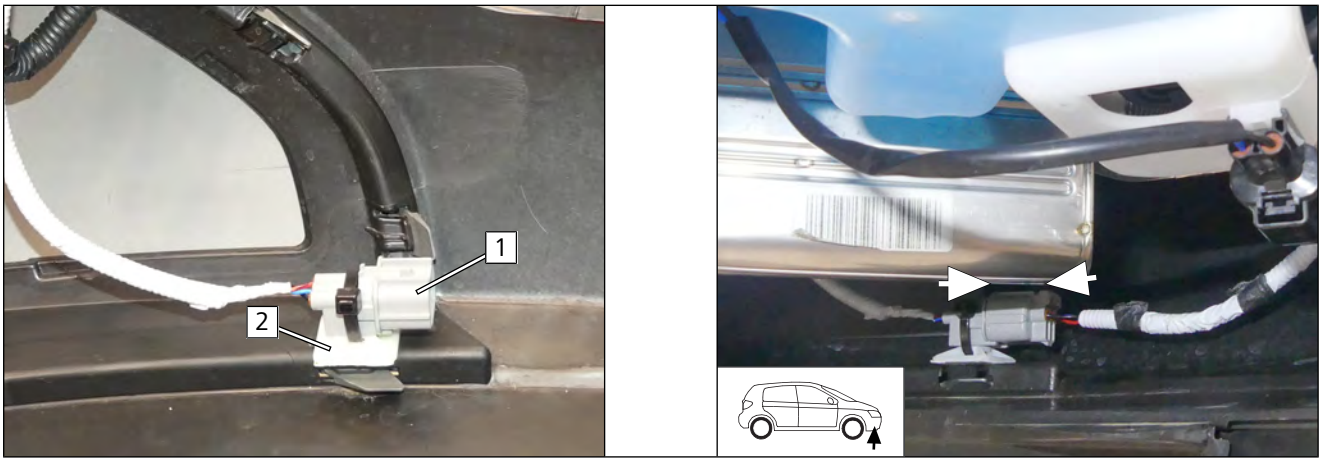


Fig. 83

1 Connectors
2 Adhesive base with cable tie (degrease the bonding surfaces)

▶ Mount bumper trim.

Ensure sufficient distance from neighbouring components, correct if necessary.

Work steps E6 - E8

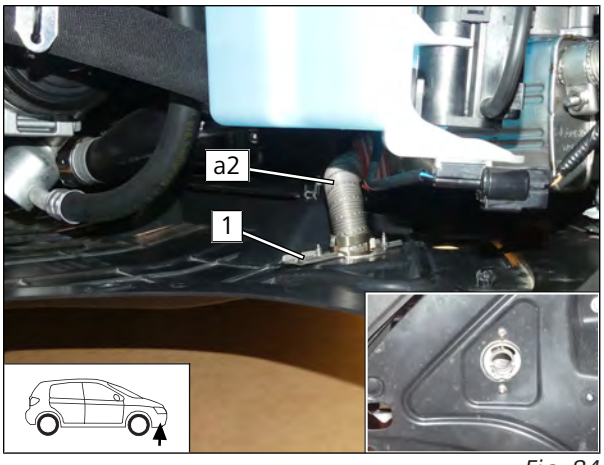


Fig. 84

Observe the EFIX installation instructions.

1 EFIX

15 Electrical system of passenger compartment

15.1 Electrical system preparation

Assigning wires

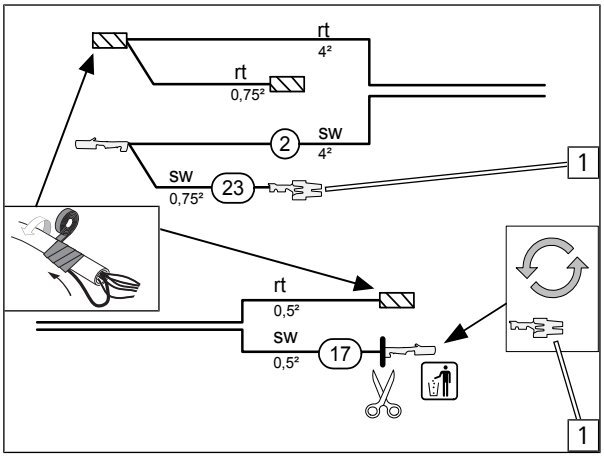


Fig. 85

Wire sections retain their numbering in the entire document.

1 Flat spring contact
2 Black (sw) wire of fan wiring harness
17 Black (sw) wire of power supply wiring harness

Connecting wires to RSH

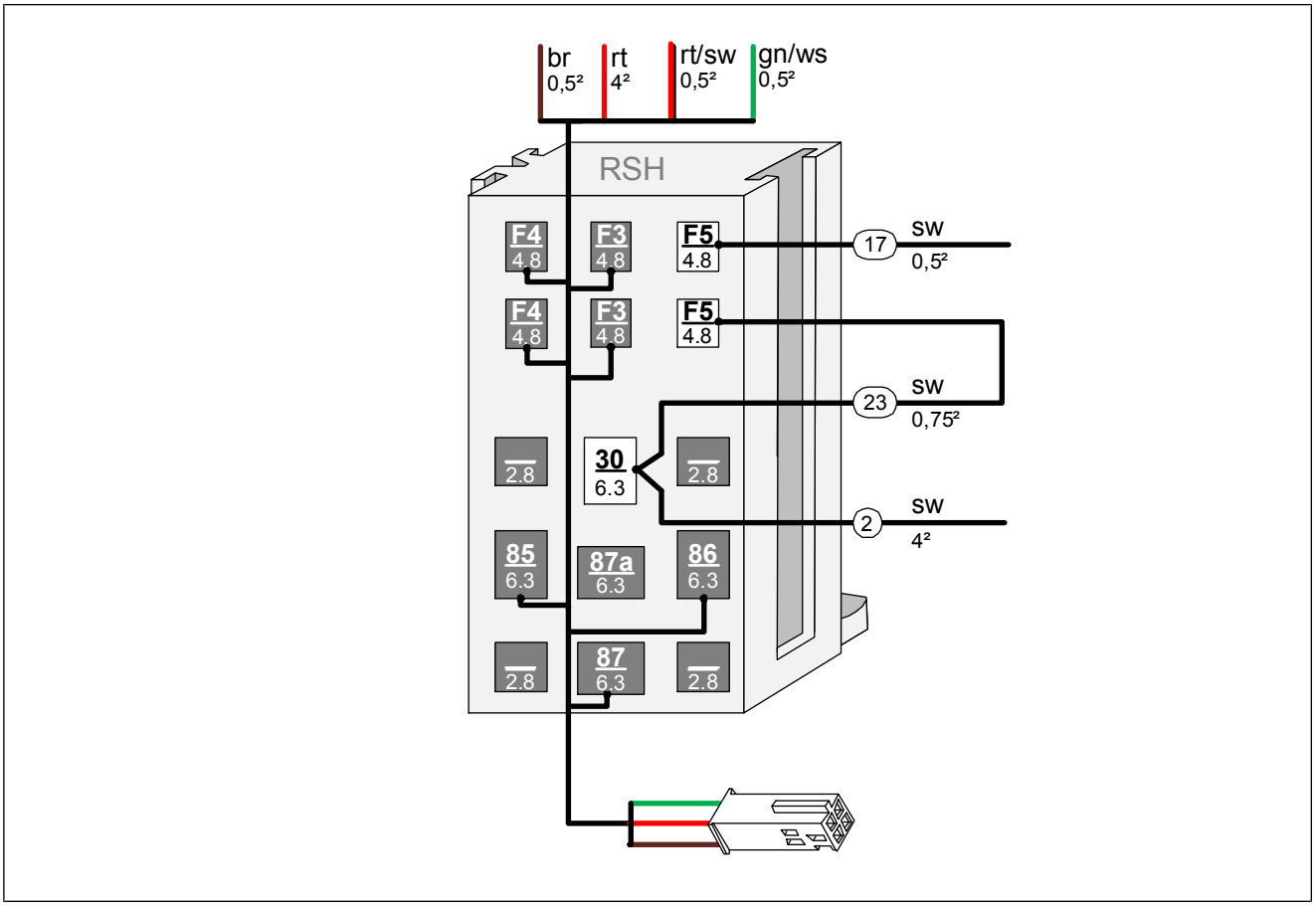


Fig. 86

Preparing angle bracket

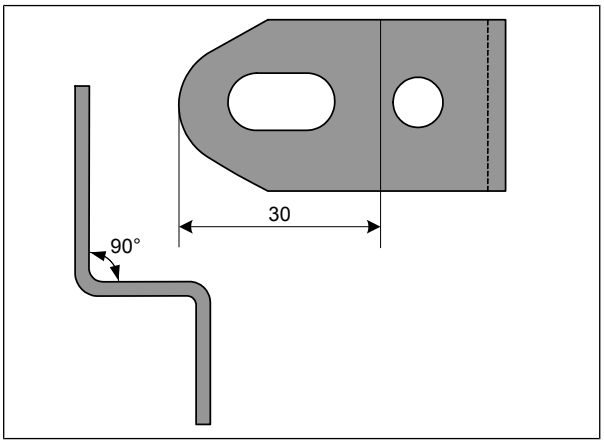


Fig. 87

Premounting RSH

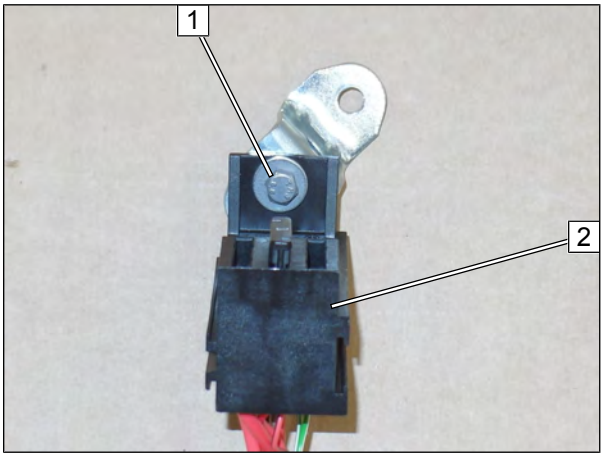


Fig. 88

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

2 RSH

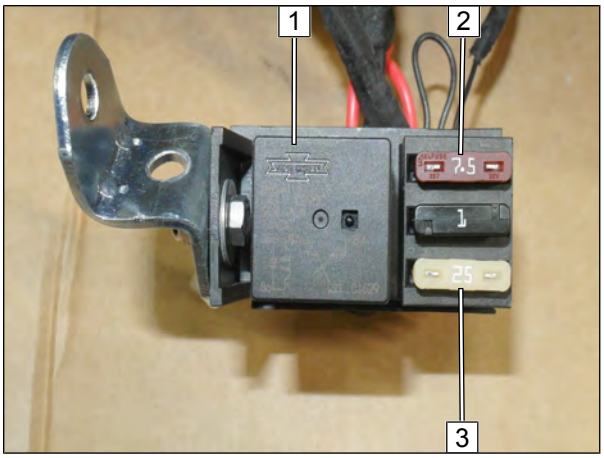


Fig. 89

1 Relay K1

2 7.5A fuse F5

3 25A fuse F4

15.2 Wiring diagram

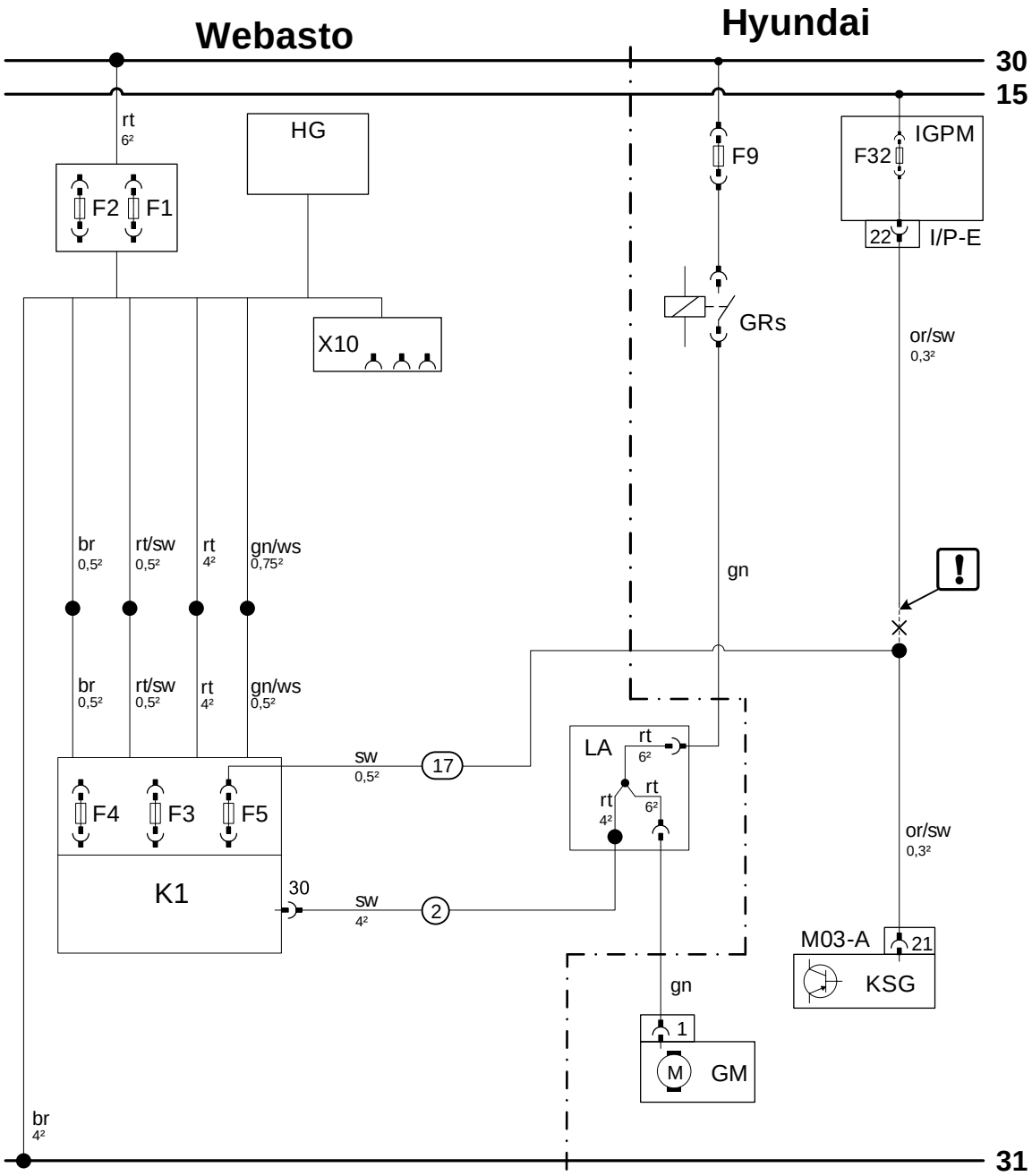


Fig. 90

Legend to wiring diagram

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

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Explanation
IGPM	Fuse and relay box of passenger compartment	X	Cutting point
F32	Fuse 7.5A		Insulate wire ends and tie back
I/P-E	32-pin IGPM connector		
F9	Fuse 40A		
GRs	Fan relay		
KSG	Air-conditioning control unit		
M03-A	40-pin KSG connector		
GM	Fan motor		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Male plug for CLR module wiring harness	bg	beige
B	Female plug for CLR module wiring harness	bl	blue
C	Male plug for adapter wiring harness	br	brown
D	Female plug for adapter wiring harness	dbl	dark blue
E	Male plug for Plug&Play wiring harness	dgn	dark green
F	Female plug for Plug&Play wiring harness	ge	yellow
CCL GW	Micro Gateway CAN CAN LIN	gn	green
CL GW	Micro SPS CAN / WBus (Gateway CAN LIN)	gr	grey
CLR	CAN LIN Rxx (cold start module)	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	la	salmon
F0	Additional fuse for power supply	or	orange
F1	Heater main fuse	pk	pink
F2	Passenger compartment fan controller main fuse	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

Mounting RSH passenger compartment

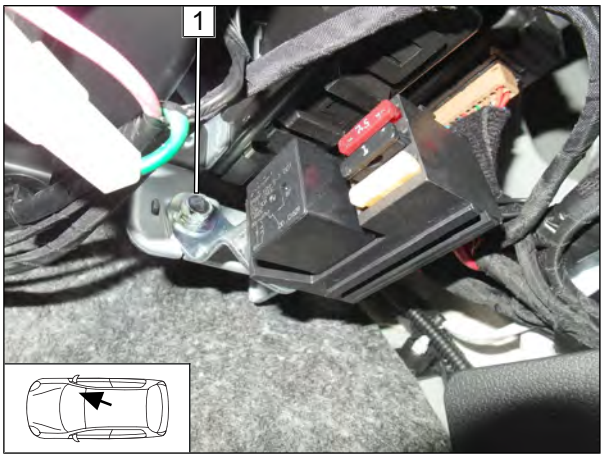


Fig. 91

[1] Original vehicle bolt

Connecting same colour wires of wiring harnesses

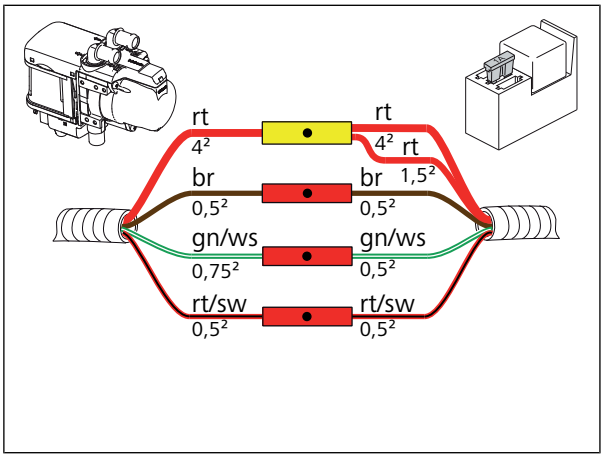


Fig. 92

Fan motor connection

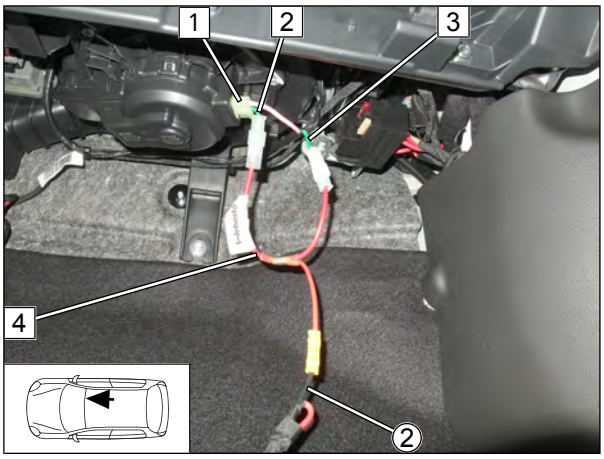


Fig. 93

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

▶ Connect to 2-pin connector [1] from fan motor.

[2] Green (gn) wire of 2-pin connector, pin 1
[3] Green (gn) wire of GRs
[4] Power adapter LA
(2) Black (sw) wire of fan wiring harness

Connecting KSG

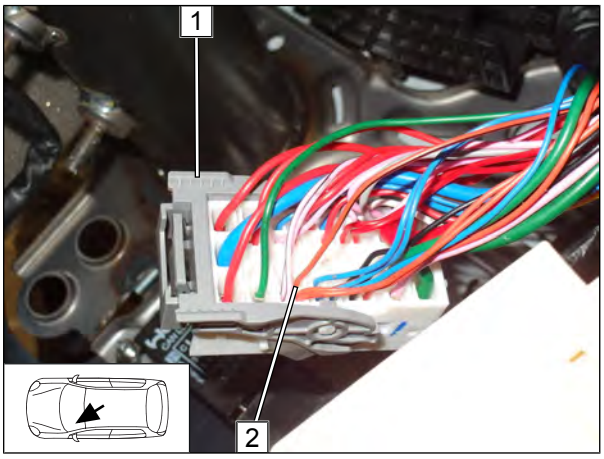


Fig. 94

[1] 32-pin connector of I/P-E

[2] Orange/black (or/sw) wire from pin 22 of fuse F32

Connecting air-conditioning control unit

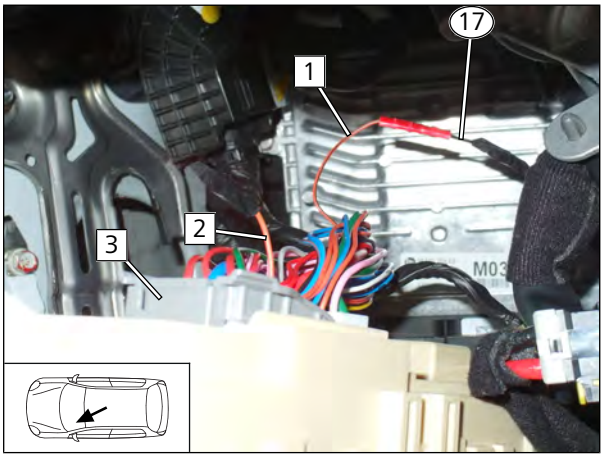


Fig. 95

- ▶ Connection to 32-pin connector I/P-E [3] of passenger compartment fuse and relay box IGPM.
- ▶ Route black (sw) wire (17) of power supply wiring harness to the driver's side.

[1] Orange/black (or/sw) wire from connector M03, pin 21

[2] Orange/black (or/sw) wire from connector I/P-E, pin 22 of fuse F32

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).

▶ 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'.

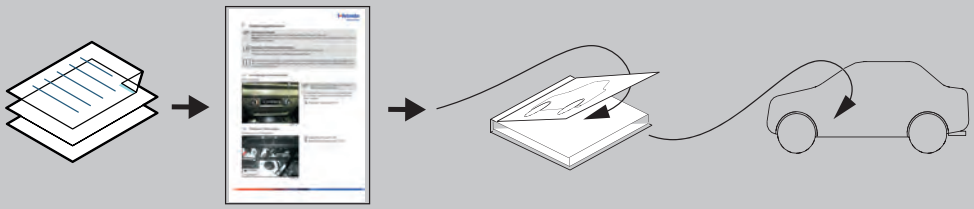
▶ Initial operation and functional test

▶ 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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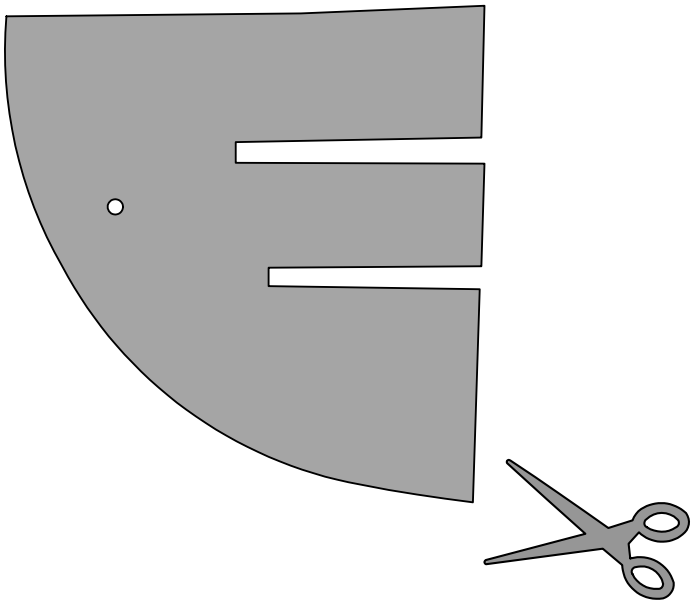
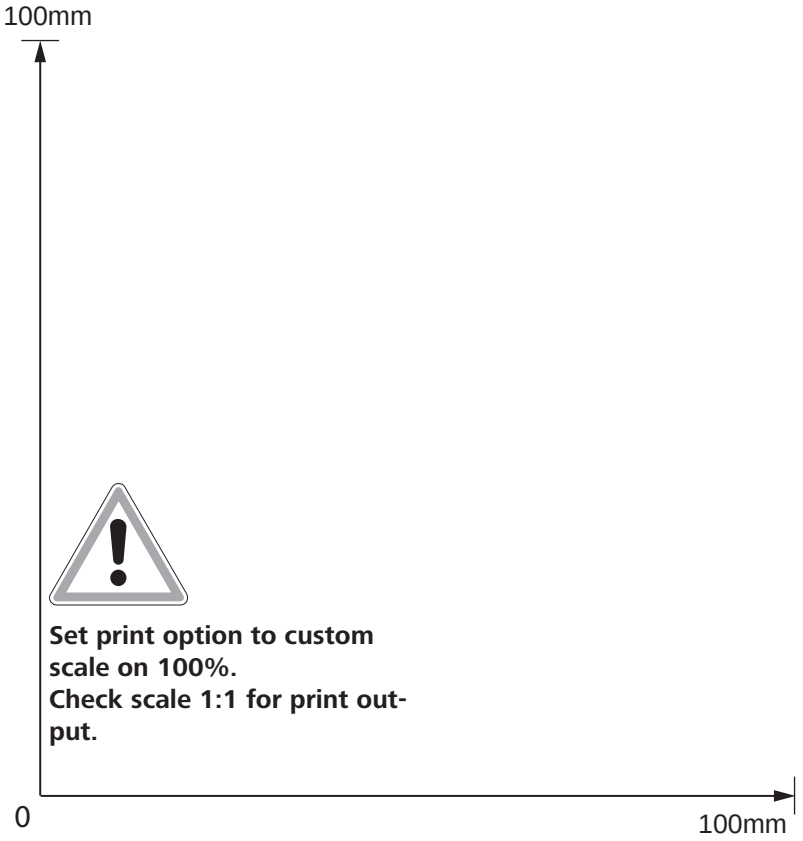
17 Drilling template FuelFix





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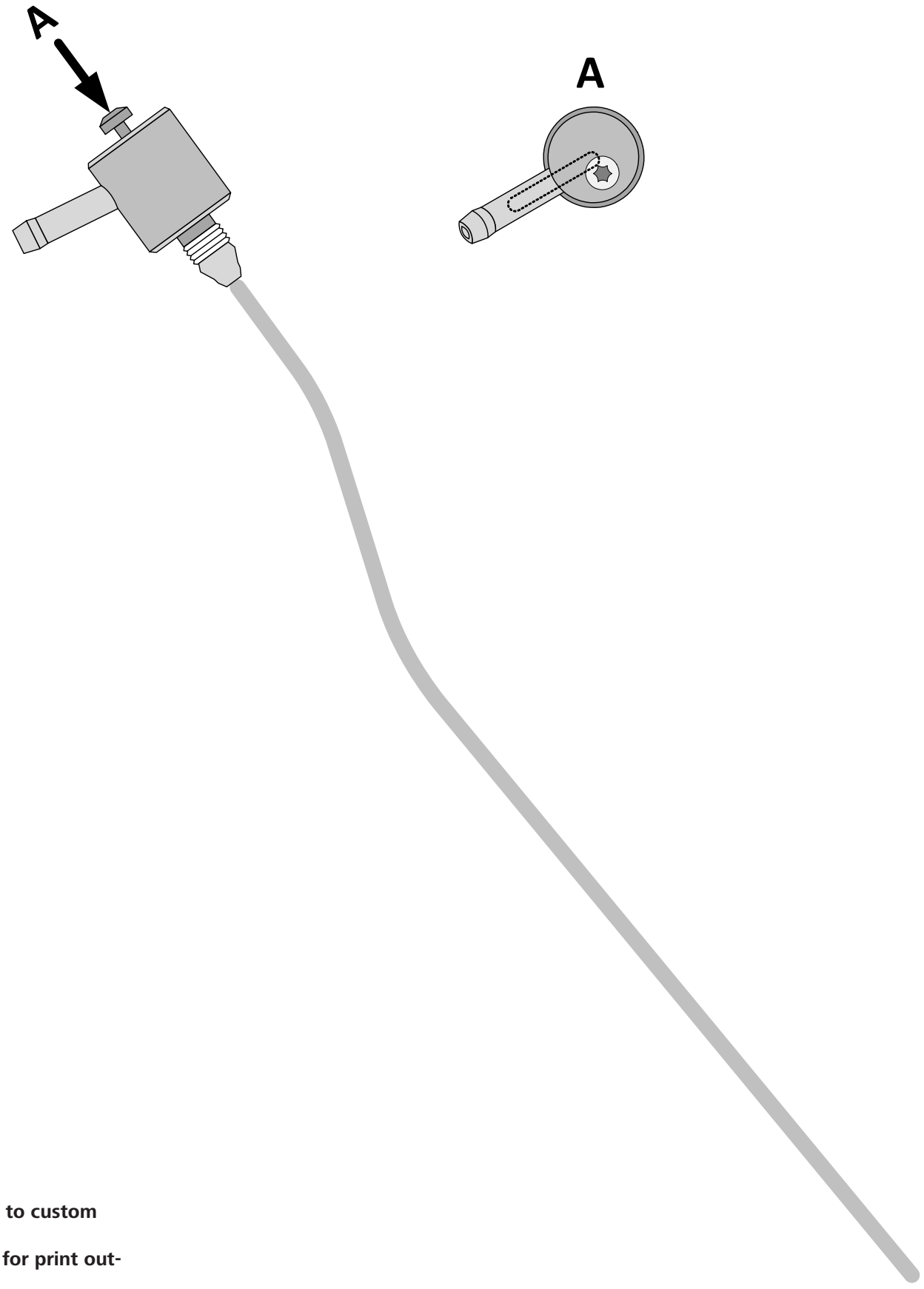
Check scale 1:1 for print output.

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

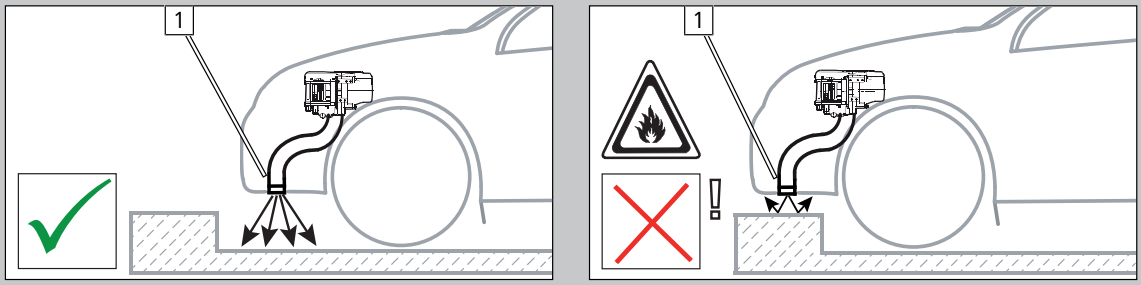
Depending on the vehicle model, there may be an increased quiescent current consumption message in the vehicle information system during or directly after operation in parking heating mode.

▶ 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 preheating unit. There is **no** engine pre-heating.

Notes on parking heater exhaust outlet 1



19.1 A/C control panel settings

A/C control panel

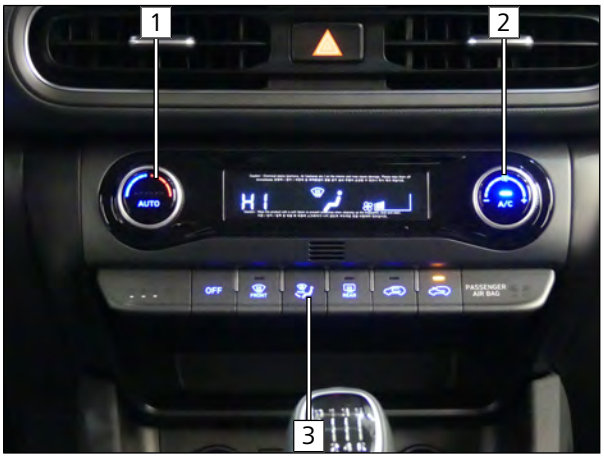


Fig. 96

Before parking the vehicle, make the following settings:

1 Set temperature to ‘HI’
2 Set fan to level ‘2’, max. ‘3’
3 Air outlet to windscreen

19.2 Installation location of fuses

Fuses in engine compartment

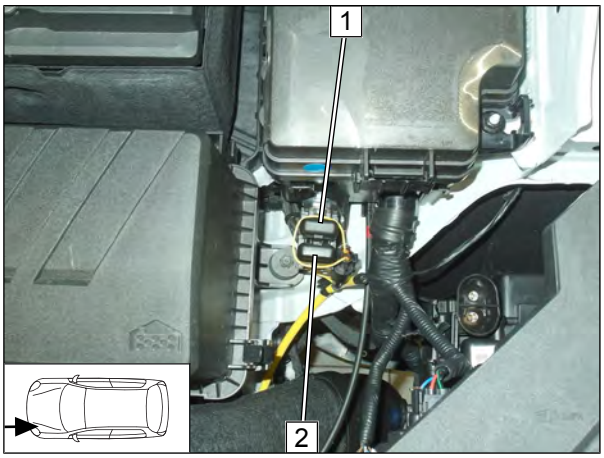


Fig. 97

1 F2 - 30A passenger compartment fan controller main fuse

2 F1 - 20A heater main fuse

Fuses in passenger compartment

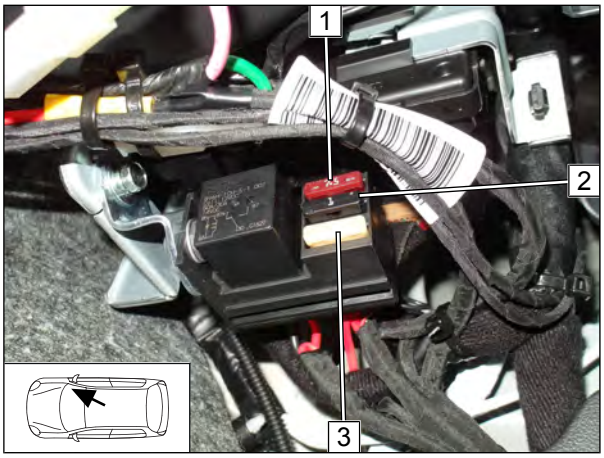


Fig. 98

1 F5 - 7.5A fan controller fuse

2 F3 - 1A control element fuse

3 F4 - 25A fan fuse