EN

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Installation documentation

for Thermo Top Evo water heater

'Inline' coolant circuit with engine preheating

Hyundai Santa Fe

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Hyundai	Sante Fe	TM	from 2018	e4* 2007/46* 1318*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
2.2D	Diesel	Euro 6d Temp	AG	147	2199	D4HB

Validity	Equipment variants	Model
		Santa Fe
Verified equipment variants	2 zone automatic A/C	x
	LED main headlights	x
	Dynamic cornering light	x
	LED daytime running lights	x
	2 WD	x
	4 WD	x
	Alarm system	x
	Start button	x
	Automatic Start-Stop system	x
	Keyless Go	x
Unverified equipment variants	Manual air-conditioning	x
	Halogen main headlights	x
	Matrix LED main headlights	x

Total installation time	Note
8.0 hours	

Contents

1 List of abbreviations

AG	Automatic transmission
ASH	Spacer bracket
DP	Fuel pump
EFIX	Exhaust end fastener
FF	FuelFix (tank extracting device)
Fig.	Figure
HG	Heater
MCC	MultiControl (control element)
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump

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	In accordance with price list
Installation kit for Hyundai Santa Fe 2.2 diesel 2018	1327038A
In case of control element as well as Telestart indicator lamp in consultation with end customer	In accordance with price list
In case of MultiControl CAR installation – installation frame for MultiControl	9030077_

2.3 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.

2.4 Installation recommendations

Arrange for the vehicle to be delivered with the tank only about ¼ full.
For the MultiControl CAR option, the recommended installation locations for the Telestart or ThermoCall push button should be confirmed with the end customer.
Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

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

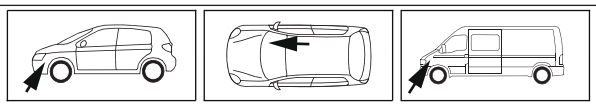
3.4.3 Work step identification marks

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
▶	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 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

Specified temperature for fabric heat shrink tubing
– Shrink temperature max. 230°C

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

5 Preparing measures

5.1 Vehicle preparation

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

Vehicle area	Components to be removed	Other applicable documents
General	▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system	
Engine compartment and body	▶ Intake hose of air filter box ▶ Battery and battery carrier ▶ Air filter box ▶ Engine compartment fuse and relay box cover ▶ Left front wheel ▶ Wheel well trim on the front left ▶ Engine underride protection ▶ Left underride protection	
Passenger compartment	▶ Footwell trim on the driver's side ▶ Side instrument panel trim on the driver's side ▶ Lower instrument panel trim on the driver's side ▶ Fuse and relay box on the driver's side ▶ Switch panel left on the driver's side ▶ Rear seat bench on the left ▶ Open the service lid on the left	

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

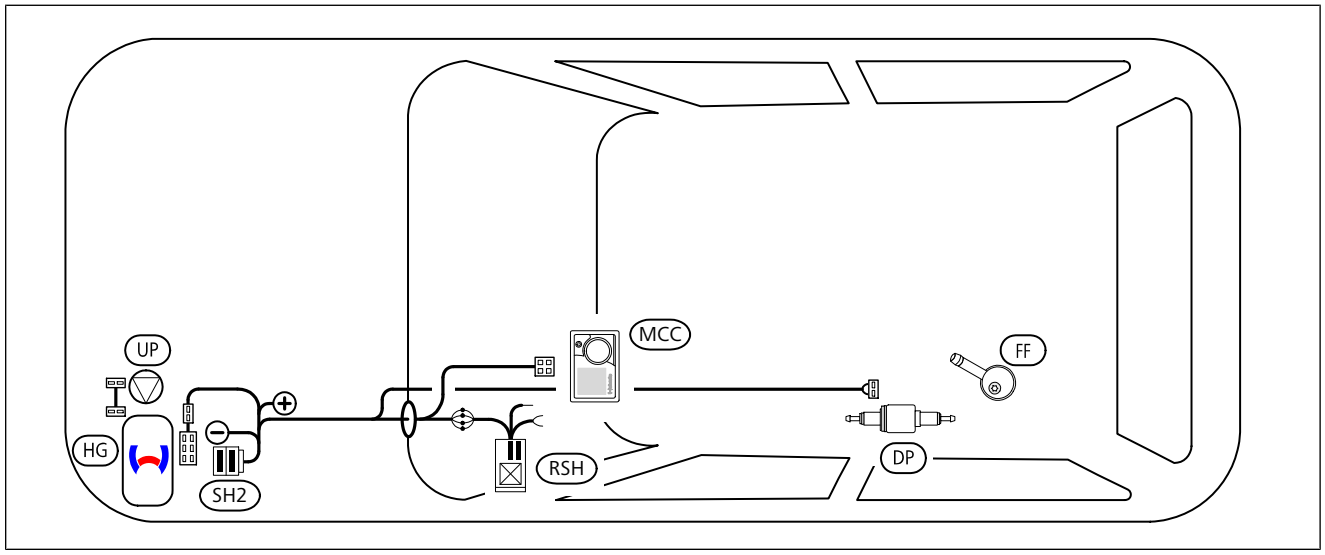


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
FF	FuelFix
HG	Heater
MCC	MultiControl CAR
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump

Heater installation location

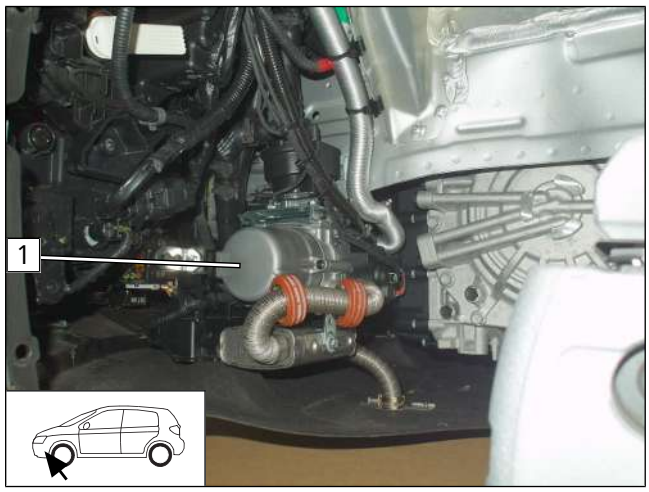


Fig. 2

1 Heater

7 Electrical system of engine compartment

Premounting retaining plate of SH2

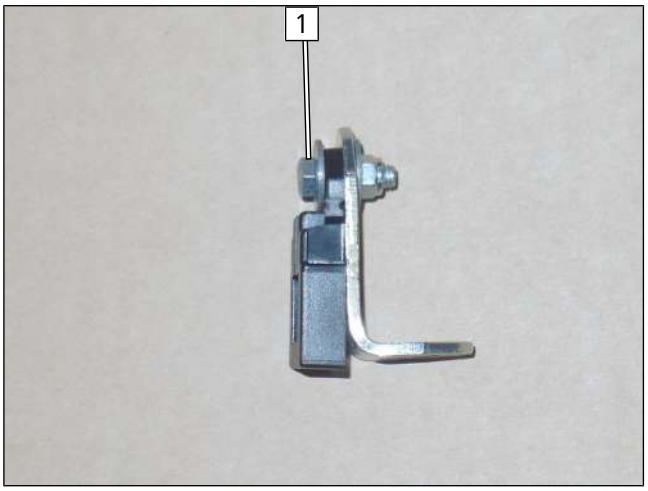


Fig. 3

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

Mounting SH2

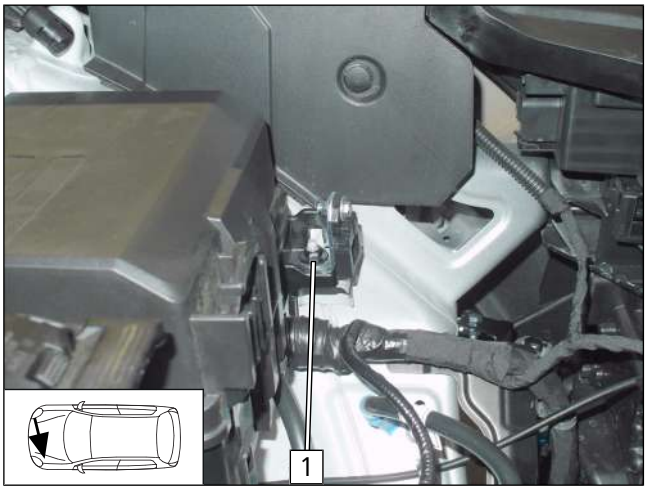


Fig. 4

1 Original vehicle stud bolt, premounted retaining plate, original vehicle nut

Fig. 5

1 SH2 with fuse F1/F2

Mounting positive wire

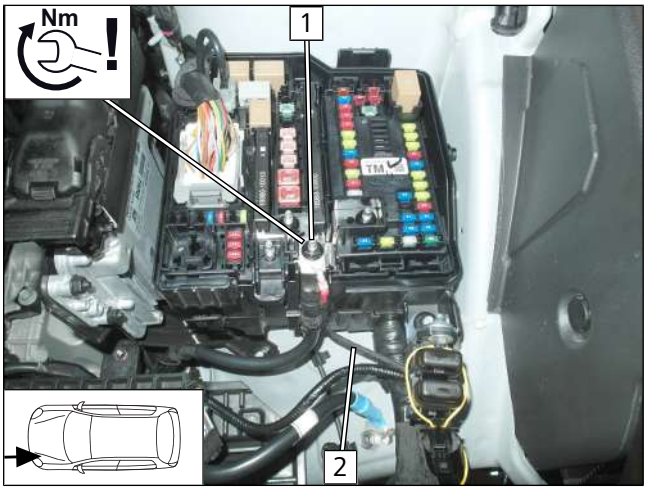


Fig. 6

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Original vehicle positive support point

2 Positive wire

Mounting earth wire

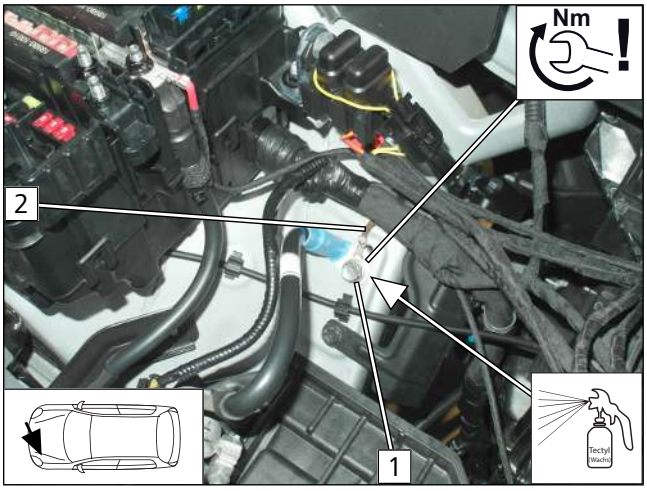


Fig. 7

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Original vehicle earth support point

2 Earth wire

Routing wiring harnesses

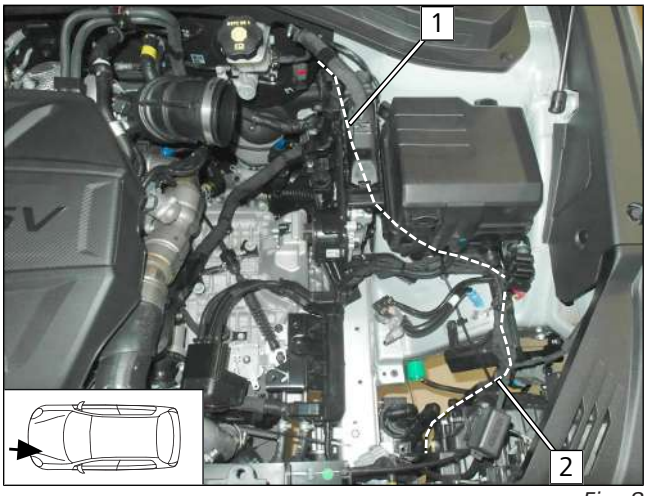


Fig. 8

1 Passenger compartment and control element wiring harnesses

2 Heater wiring harness

Passenger compartment wiring harness pass through

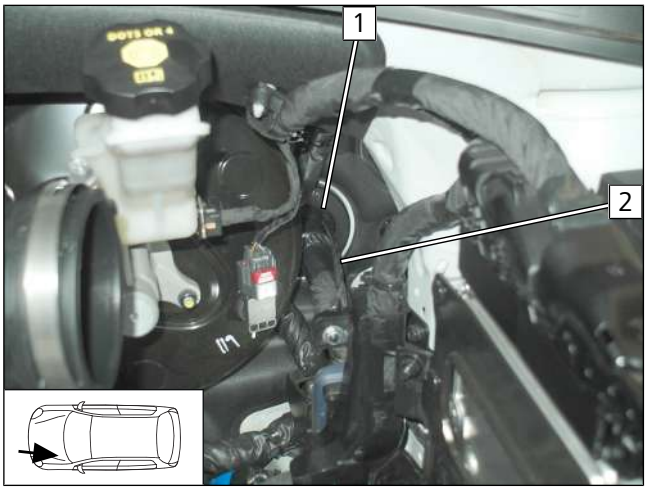


Fig. 9

1 Protective rubber plug

2 Passenger compartment and control element wiring harnesses

8 Mechanical system

8.1 Preparing installation location

Detaching connector

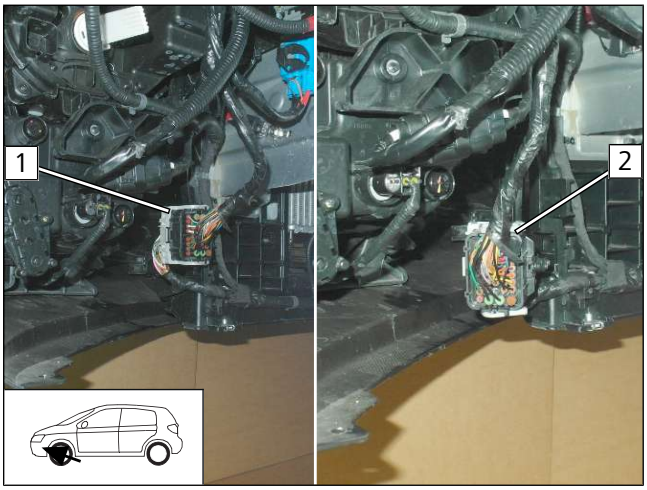


Fig. 10

▶ Detach original vehicle connector 1.

2 Original vehicle connector, detached

Shortening tab

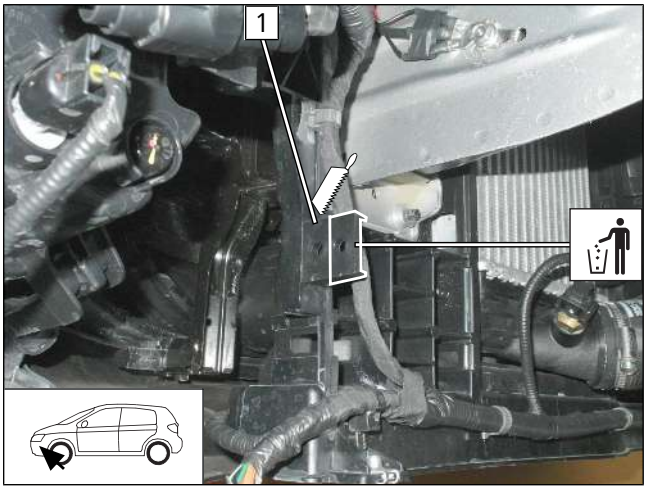


Fig. 11

▶ Shorten original vehicle tab 1 as shown in Fig..

Mounting angle bracket

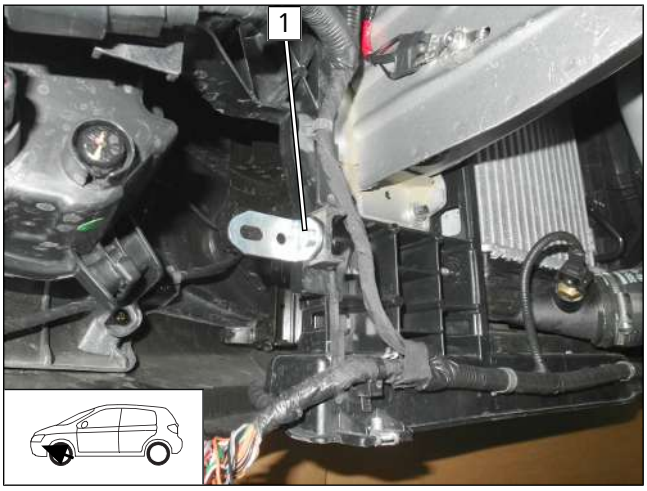


Fig. 12

1 M6x16 bolt, angle bracket, shortened tab, flanged nut

Fastening connector

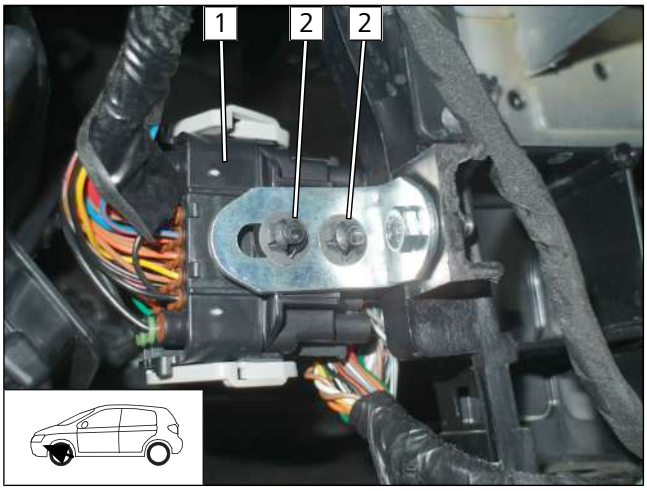


Fig. 13

[1] Original vehicle connector

[2] Original vehicle connector bracket, angle bracket, lock washer

Routing wiring harness

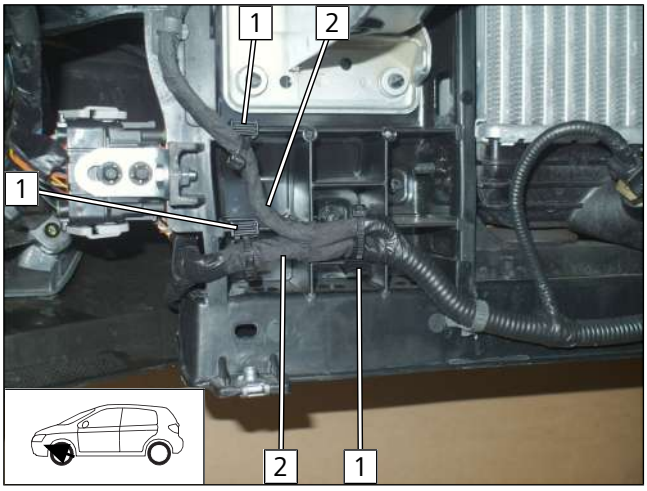


Fig. 14

▶ Route original vehicle wiring harness [2] as shown and fasten with edge clip cable tie [1].

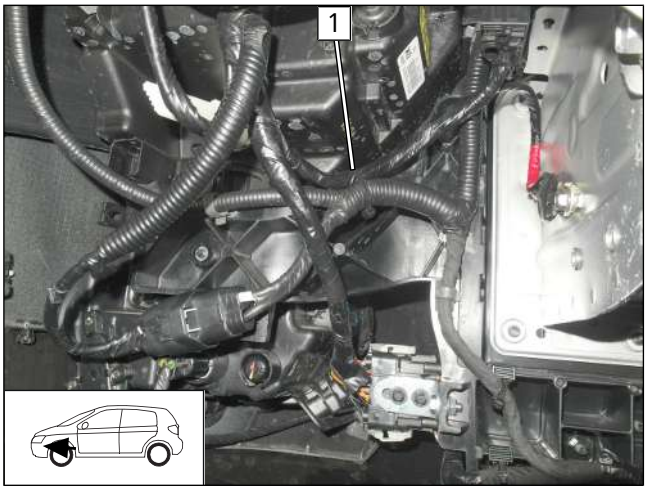


Fig. 15

▶ Fasten original vehicle wiring harness with edge clip cable tie [1] as shown.

Removing original vehicle relay

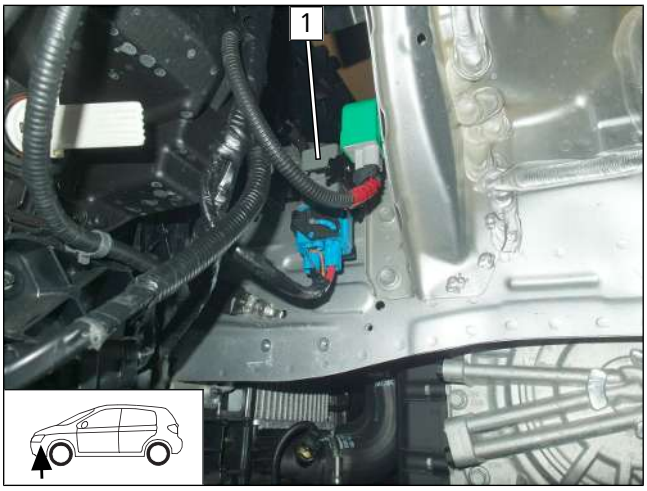


Fig. 16

1 Original vehicle relay

Premounting original vehicle relay

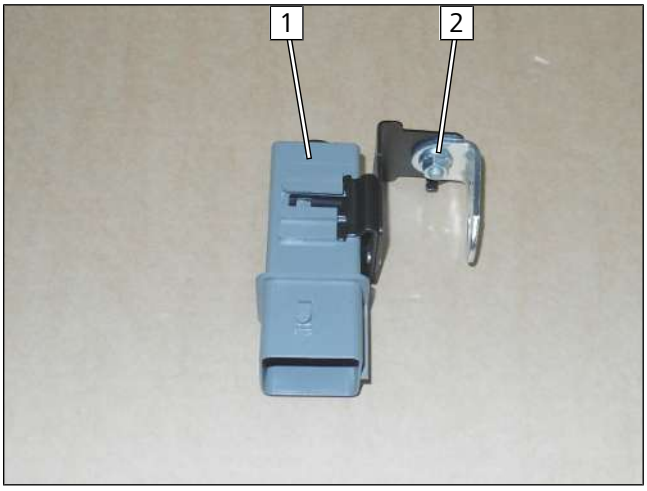


Fig. 17

1 Original vehicle relay

2 M6x12 bolt, relay bracket, angle bracket, flanged nut

Fastening original vehicle relay

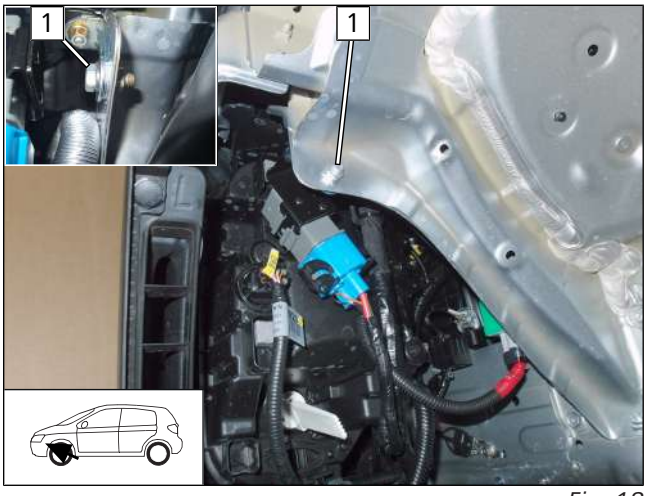


Fig. 18

1 M8x20 bolt, spring lockwasher, large diameter washer, angle bracket, original vehicle thread

Copying hole pattern

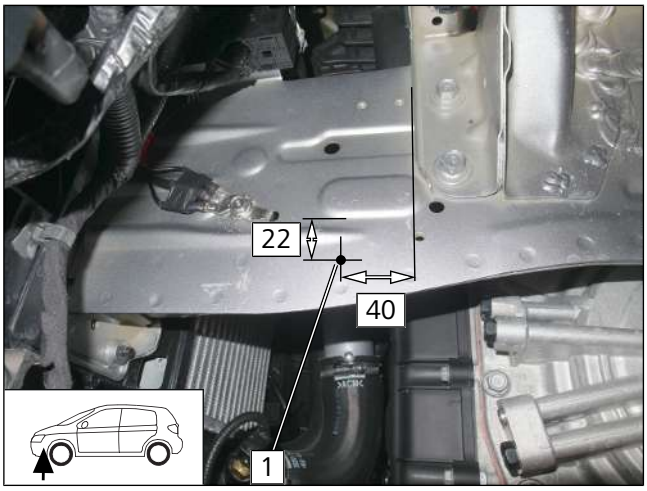


Fig. 19

1 Hole pattern

Inserting rivet nut

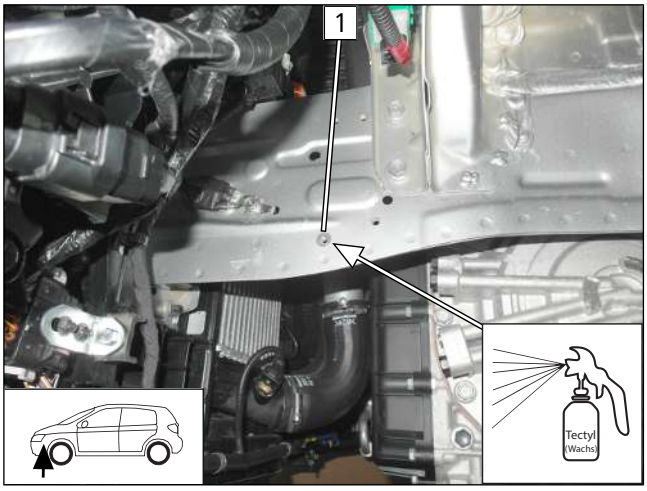


Fig. 20

1 Ø9 hole, rivet nut

Assigning bracket

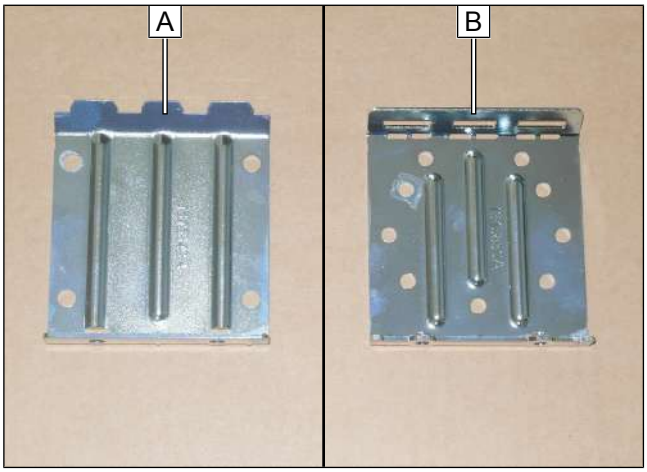


Fig. 21

Preparing bracket A

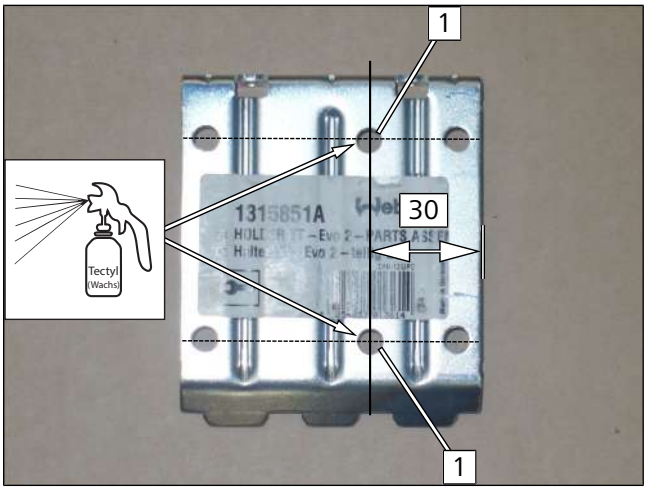


Fig. 22

1 Ø7 hole

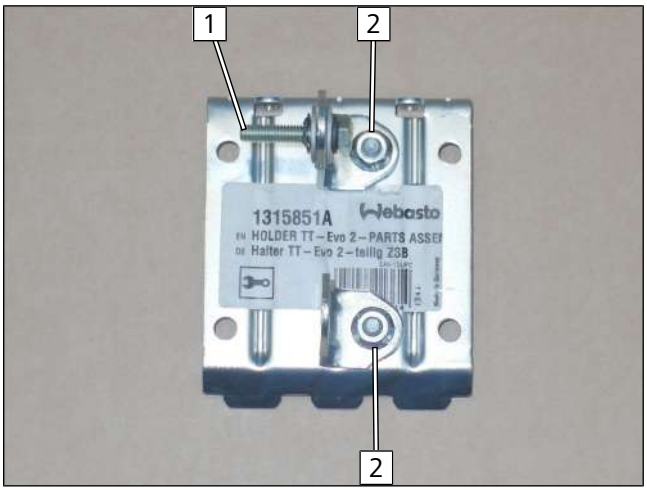


Fig. 23

1 M6x25 bolt, spring lockwasher, large diameter washer, angle bracket, large diameter washer, lock washer

2 M6x12 bolt, bracket A, angle bracket, flanged nut

Copying hole pattern

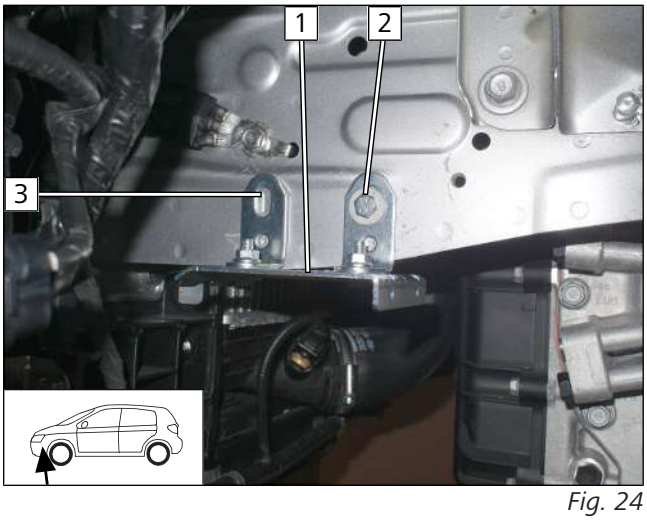


Fig. 24

▶ Align premounted bracket **1** as shown.

2 Prepared M6x25 bolt, rivet nut

3 Copy hole pattern

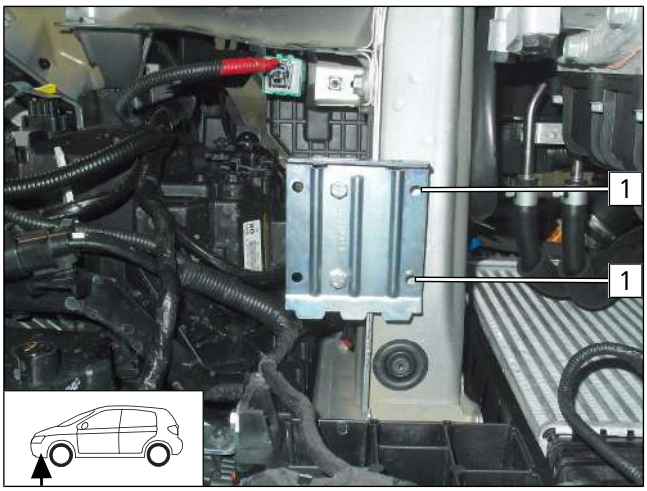


Fig. 25

1 Copying hole pattern

▶ Remove bracket.

Inserting rivet nut

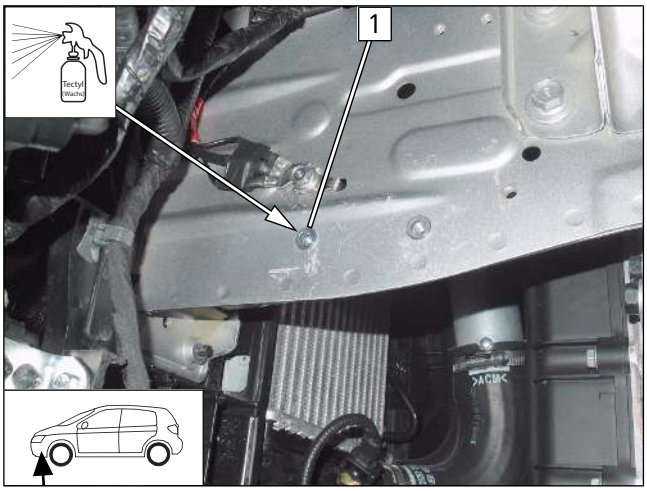


Fig. 26

1 Ø9 hole, rivet nut

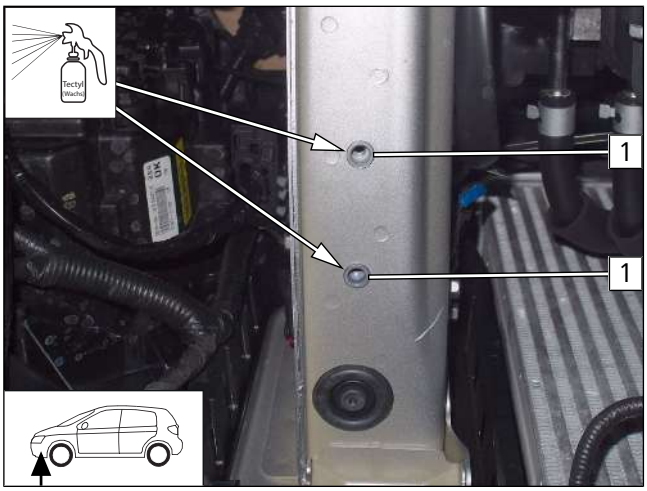


Fig. 27

1 Ø9 hole, rivet nut

Preparing bracket A

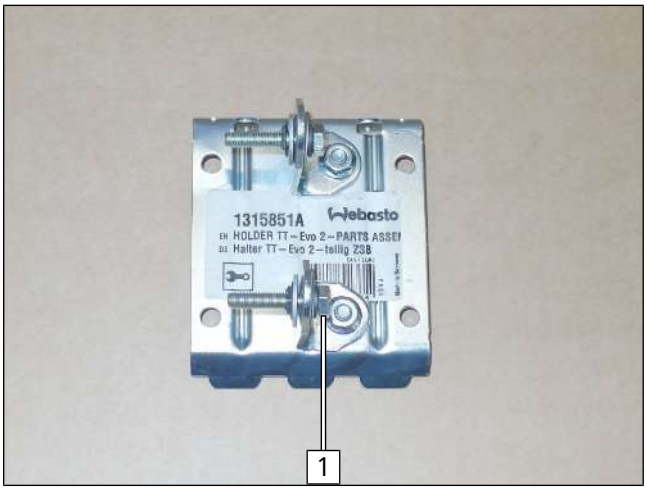


Fig. 28

1 M6x25 bolt, spring lockwasher, large diameter washer, angle bracket, large diameter washer, lock washer

Mounting bracket A

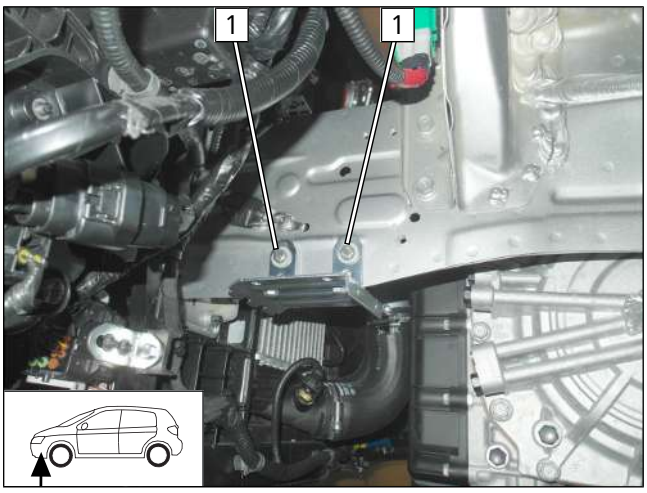


Fig. 29

1 Mount premounted bolt loosely

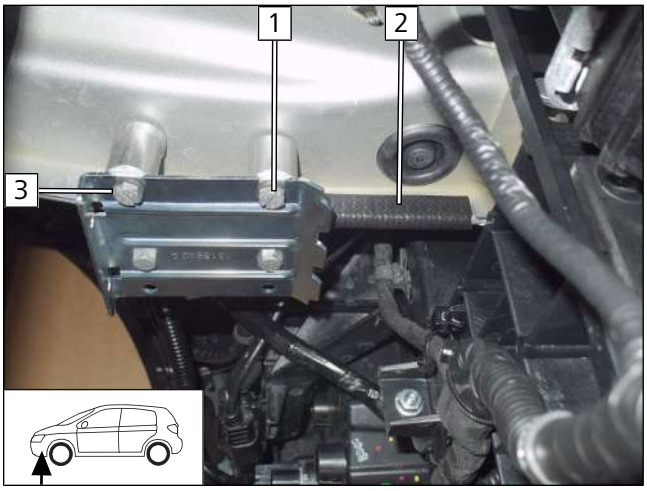


Fig. 30

Tighten all loose screw connections.

1 M6x50 bolt, spring lockwasher, bracket A, 20 spacer, rivet nut

2 80 long edge protection

3 M6x50 bolts, spring lockwasher, bracket A, 20 spacer, 5 spacer, rivet nut

8.2 Premounting heater

Mounting water connection piece

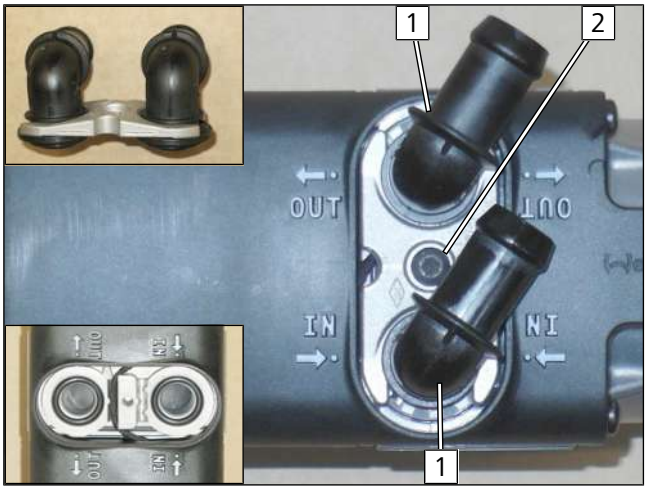


Fig. 31

Observe the general installation instructions of the heater.

1 Water connection piece, seal
2 5x15 self-tapping bolt, retaining plate of water connection piece

Mounting bracket B

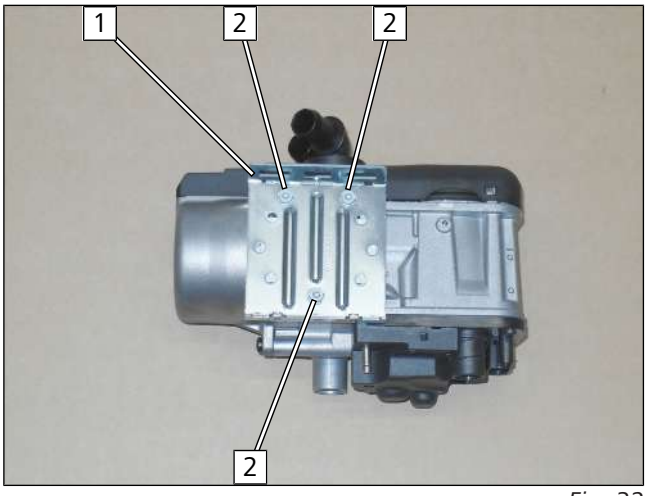


Fig. 32

1 Bracket B
2 5x13 self-tapping bolt

Mounting fuel hose and cable tie

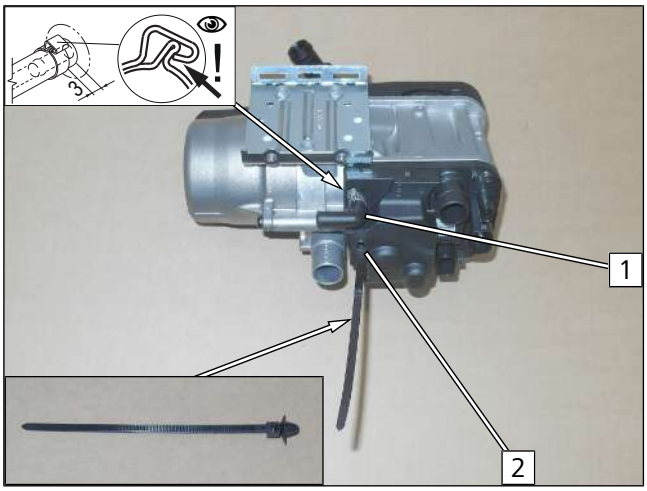
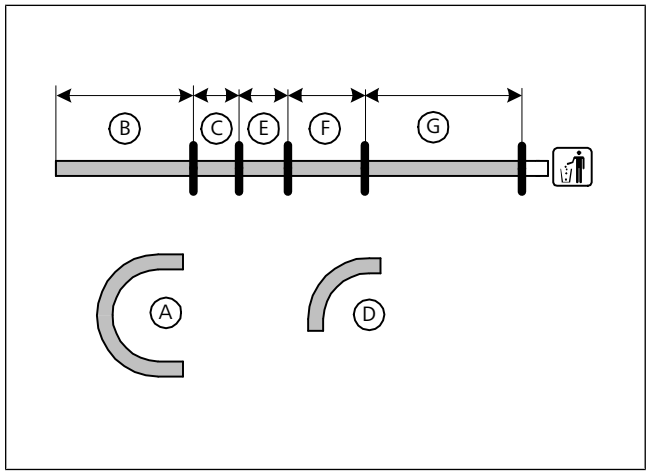


Fig. 33

1 90° moulded hose, Ø10 clamp
2 Eyelet cable tie, available hole

Cutting hoses to length



Ⓐ	Ø18, 180°
Ⓑ	800
Ⓒ	110
Ⓓ	Ø18, 90°
Ⓔ	130
Ⓕ	270
Ⓖ	850

Fig. 34

Mounting hoses Ⓓ, Ⓔ and Ⓕ

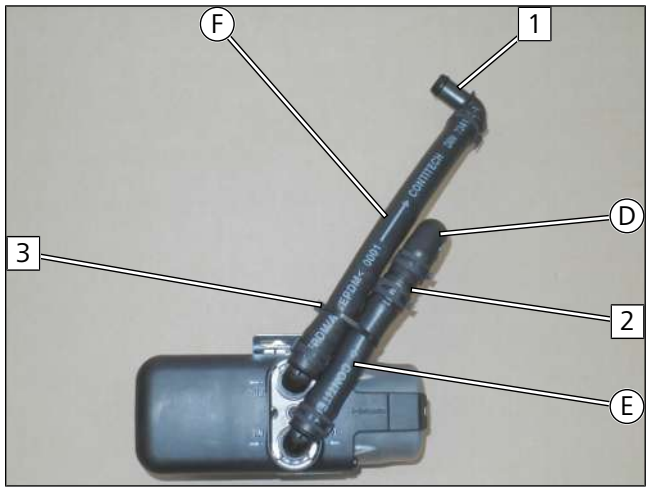


Fig. 35

All spring clips Ø25

1 90°, 18x18 connecting pipe
2 18x18 connecting pipe
3 Cable tie

Cutting combustion air pipe s1 to length

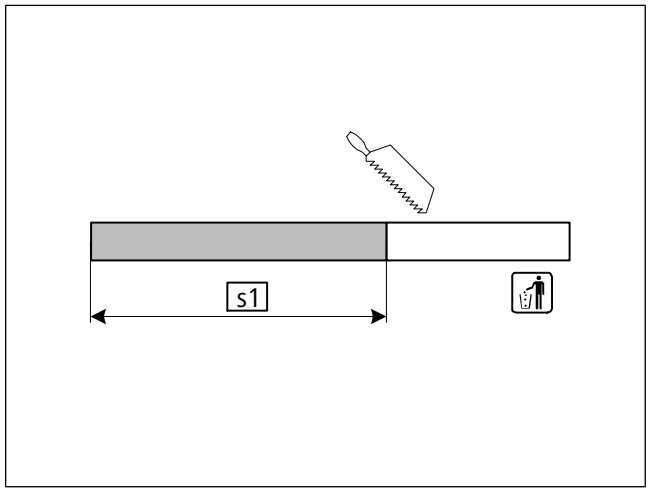


Fig. 36

s1 600

Mounting combustion air pipe **s1**

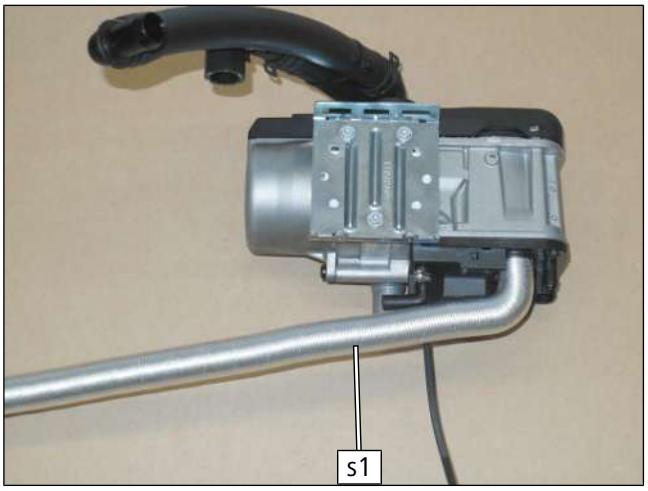


Fig. 37

Observe the installation instructions of the combustion air intake silencer.

8.3 Mounting heater

View of bracket A and B assembly

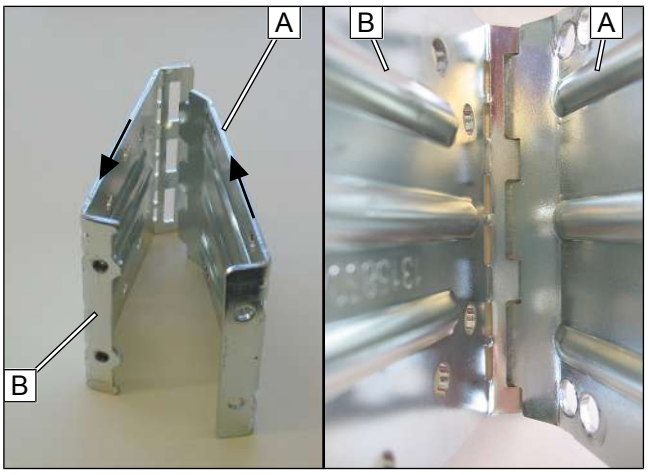


Fig. 38

Observe the general installation instructions of the heater.

▶ The recesses of bracket **B** must be guided to the locking tabs of bracket **A**.

A Bracket (mounted on the vehicle)

B Bracket (mounted on the heater)

Mounting heater

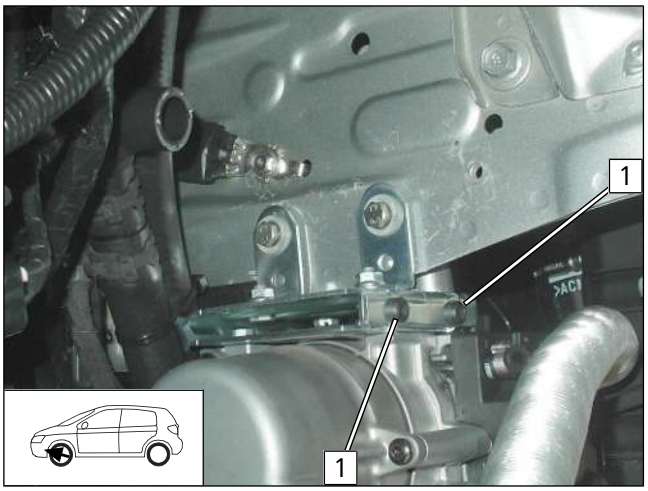


Fig. 39

1 5x12 Torx screw

9 Coolant

9.1 Hose routing diagram

'Inline' coolant circuit

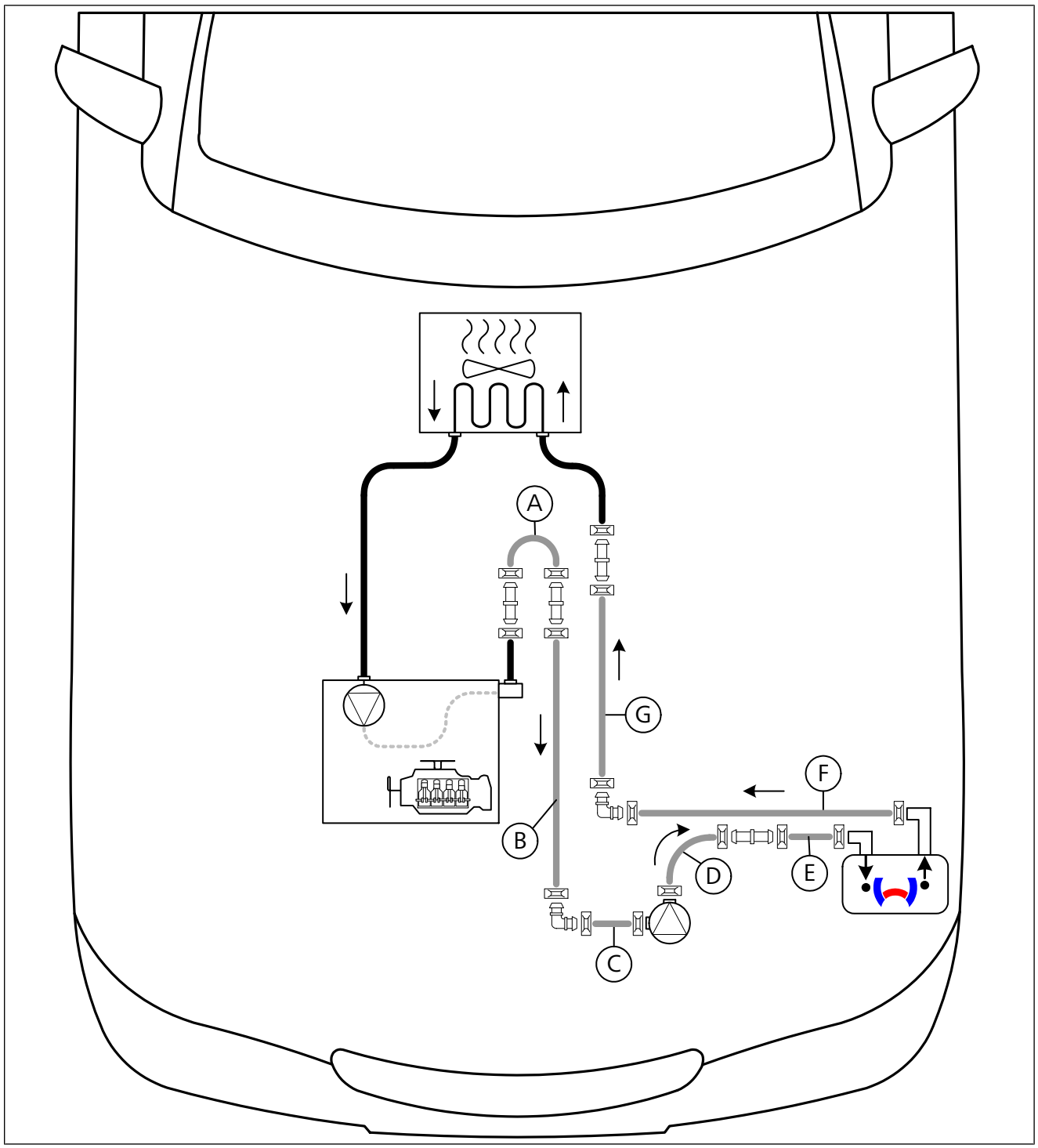


Fig. 40

All spring clips = Ø25; all connecting pipes and = Ø18x18

9.2 Coolant circuit installation

Mounting fabric protective hose

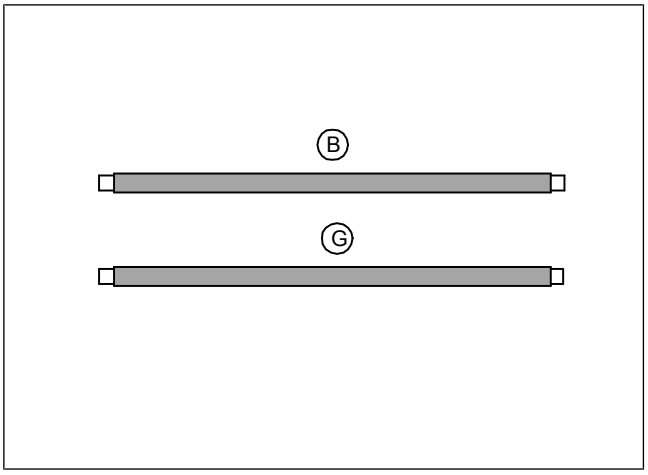


Fig. 41

▶ Push fabric protective hose onto hoses (B) and (G), cut to length and shrink.

Preparing hoses (B) and (G)

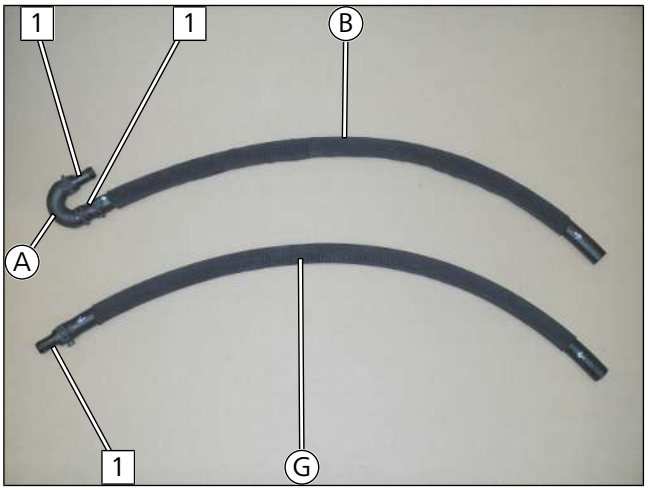


Fig. 42

All spring clips Ø25

[1] 18x18 connecting pipe

Preparing battery carrier

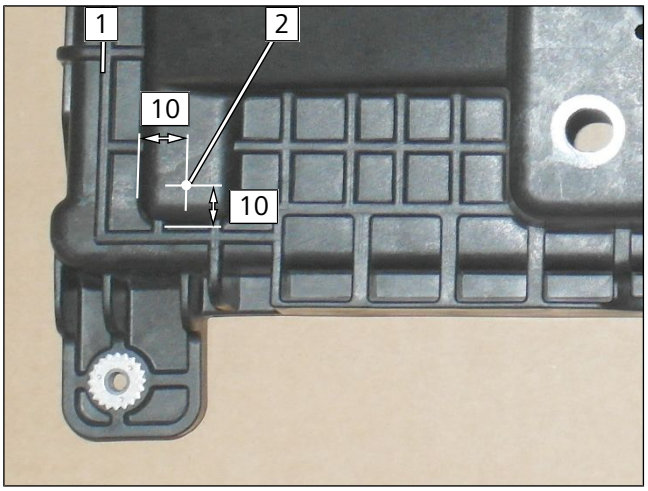


Fig. 43

[1] Battery carrier
[2] Ø7 hole

Preparing perforated bracket

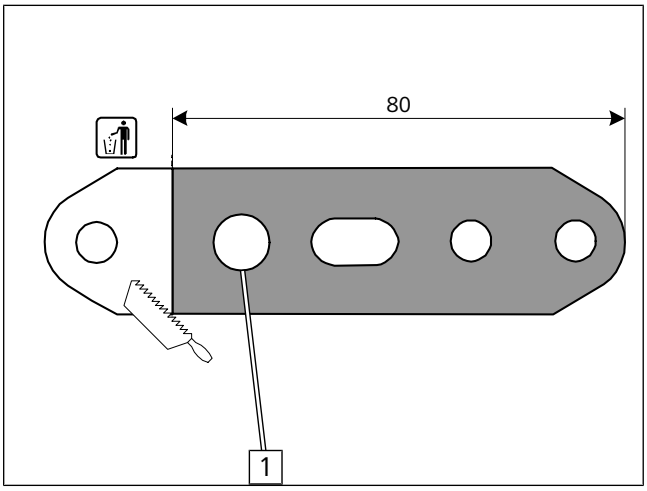


Fig. 44

1 Drill out hole to Ø8.5

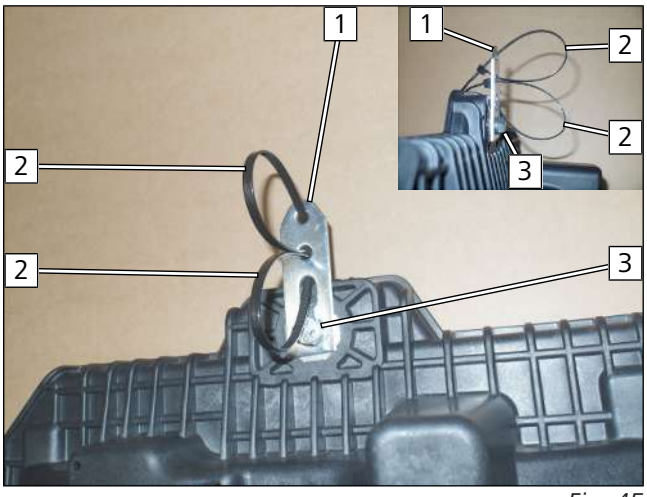


Fig. 45

1 Perforated bracket
2 Cable ties (do not close completely)
3 M8x40 bolt, spring lockwasher, perforated bracket, original vehicle thread

View of battery carrier with premounted hoses

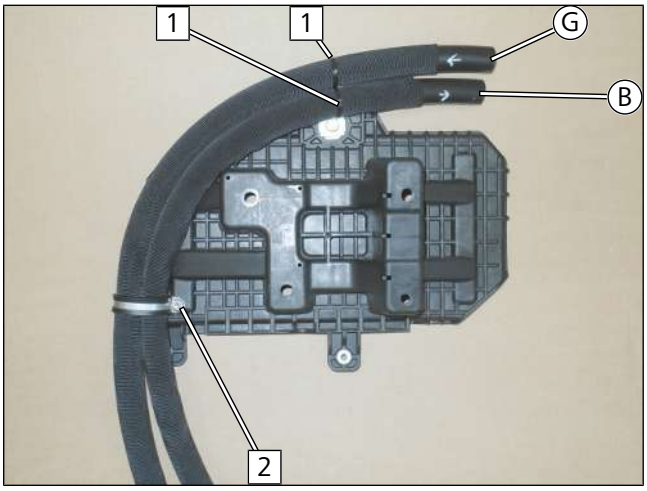


Fig. 46

▶ Premount hoses (B) and (G) on the bottom of the battery carrier loosely.

1 Cable tie
2 M6x20 bolt, drilled hole, Ø38 rubber-coated p-clamp, flanged nut

Premounting coolant pump

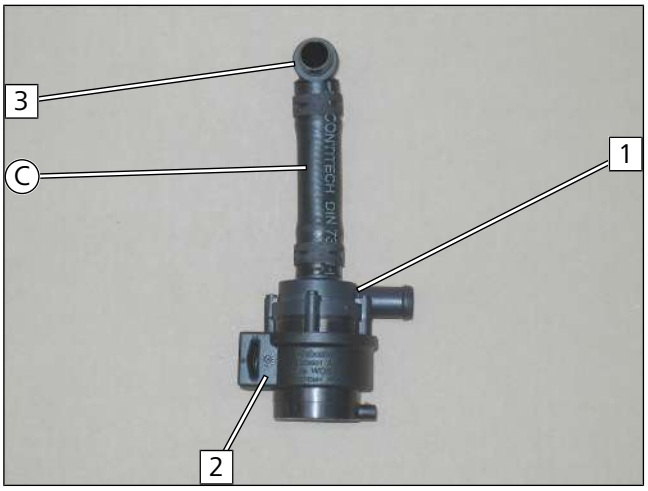


Fig. 47

All spring clips Ø25

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

Preparing bracket of coolant pump mount

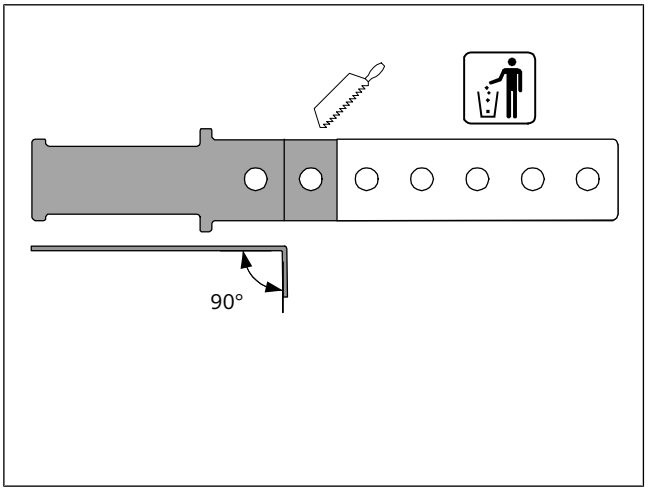


Fig. 48

Mounting bracket

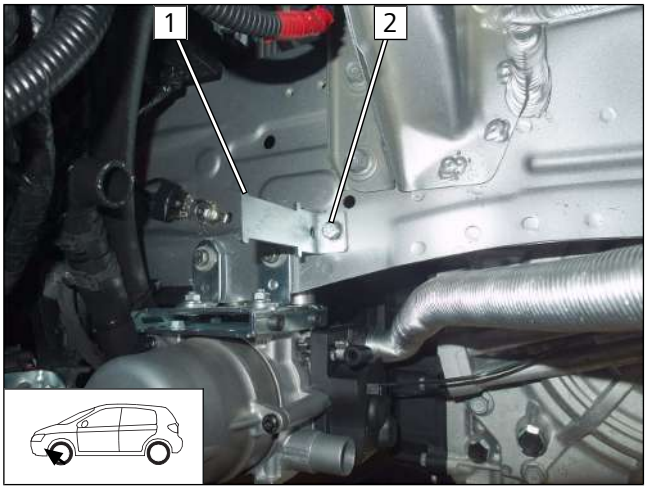


Fig. 49

1 Prepared bracket
2 M6x20 bolt, spring lockwasher, bracket, original vehicle thread

Mounting coolant pump

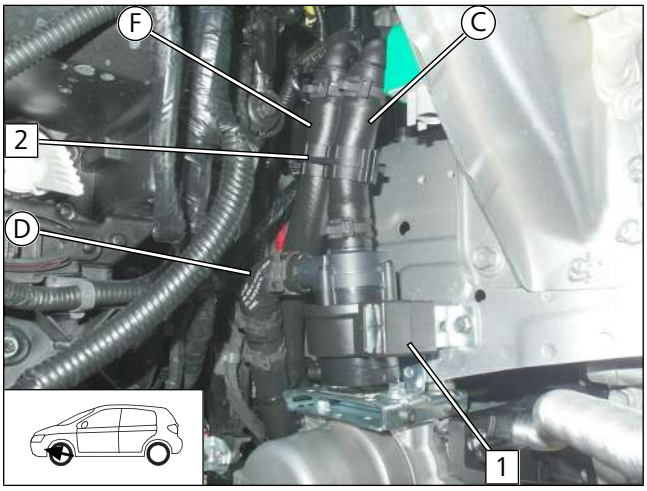


Fig. 50

1 Coolant pump mount
2 Closable hose bracket

Moving original vehicle connector

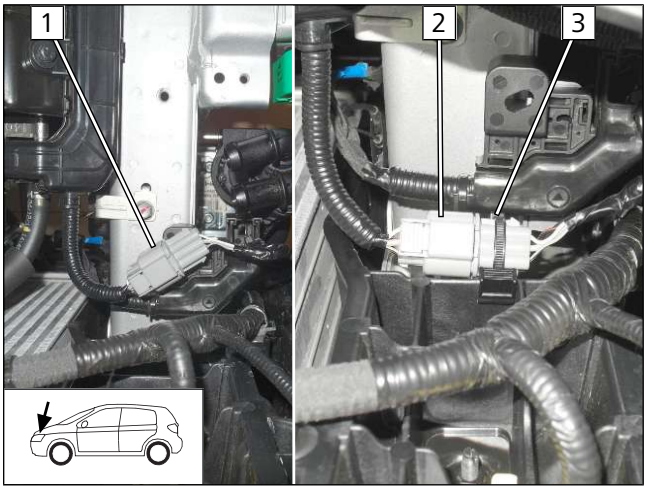


Fig. 51

1 Remove original vehicle connector
2 Mount original vehicle connector
3 Edge clip cable tie

Cutting point

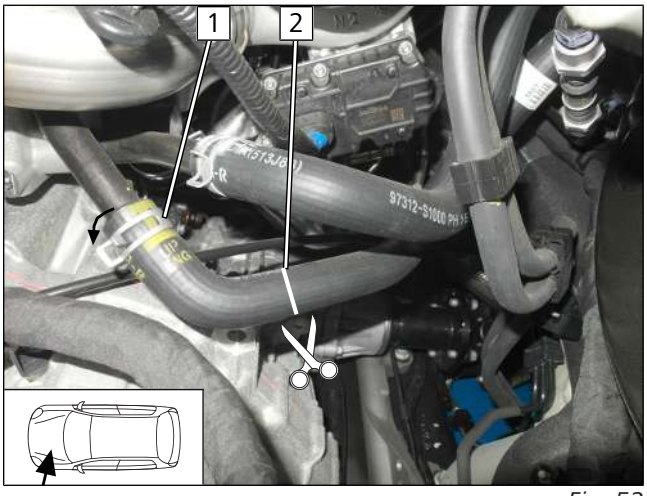


Fig. 52

▶ Turn original vehicle spring clip 1 downwards in the direction of the arrow.

2 Cutting point

Connecting heater

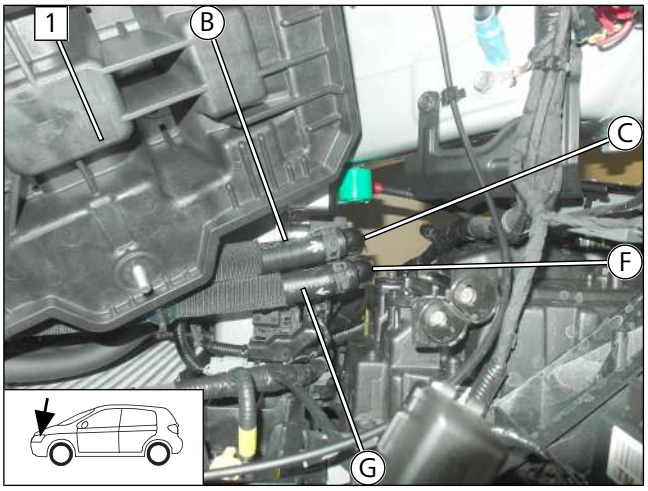


Fig. 53

▶ Mount battery carrier 1.

Engine outlet connection

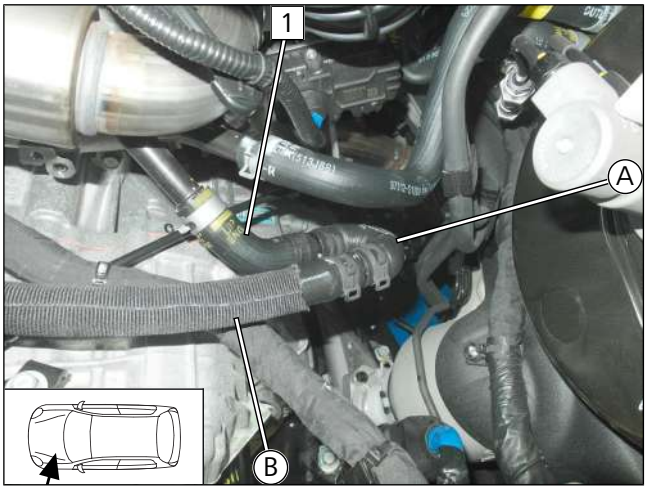


Fig. 54

1 Engine outlet hose section

Heat exchanger inlet connection

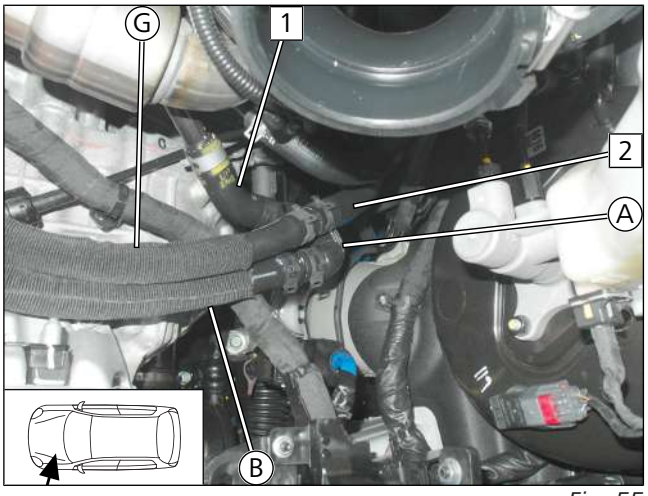


Fig. 55

1 Engine outlet hose section
2 Heat exchanger inlet hose section

Routing in engine compartment

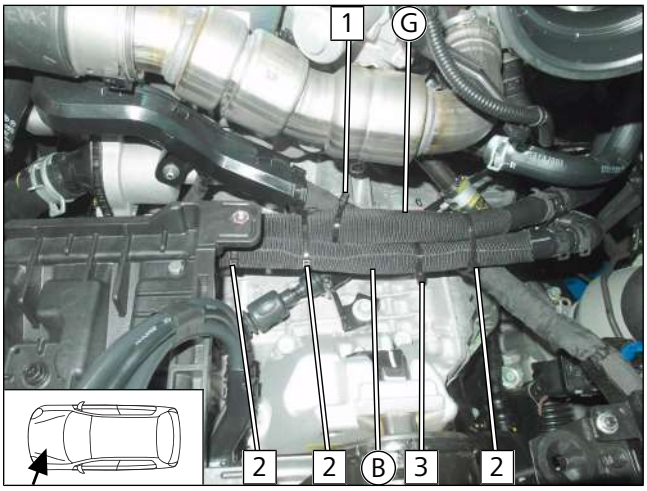


Fig. 56

Danger of damage to components

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

1 Cable tie around hose **G** and original vehicle wiring harness

2 Cable ties around hoses **B** and **G**

3 Cable tie around hose **B** and original vehicle wiring harness

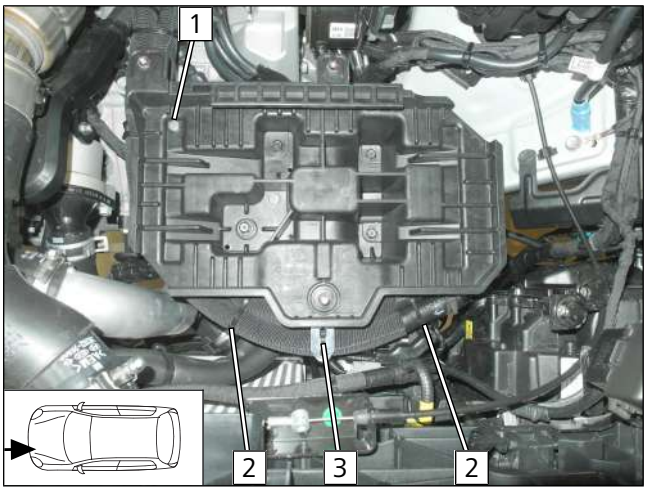


Fig. 57

▶ Tighten rubber-coated p-clamp at position **1** and cable tie at position **3**.

2 Cable tie

10 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

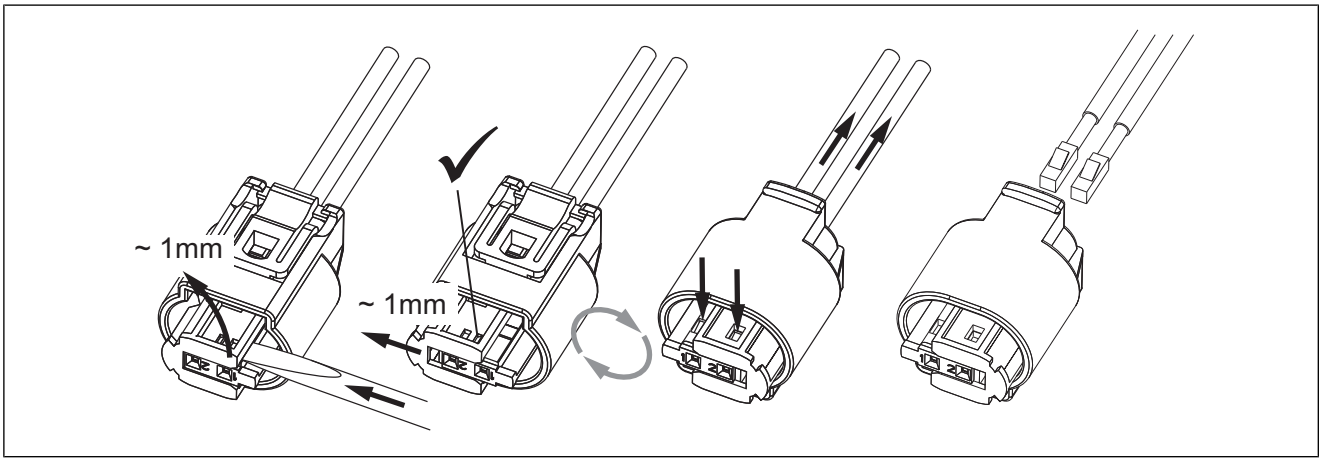


Fig. 58

10.1 Routing fuel line

Connecting wiring harnesses

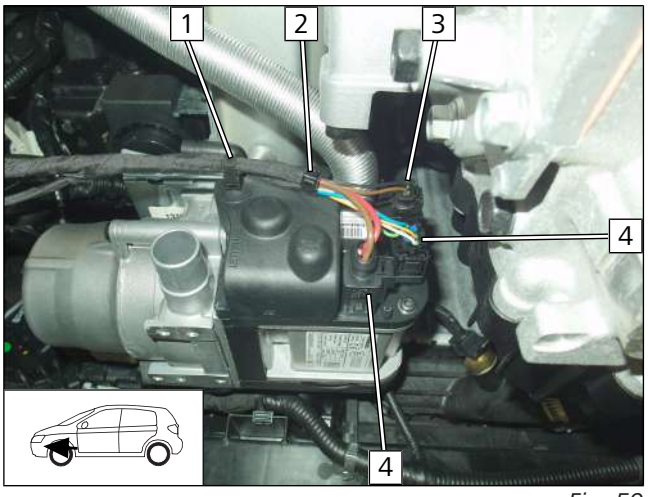


Fig. 59

1 Close eyelet cable tie
2 Cable tie
3 Coolant pump wiring harness
4 Heater wiring harness

Connecting heater

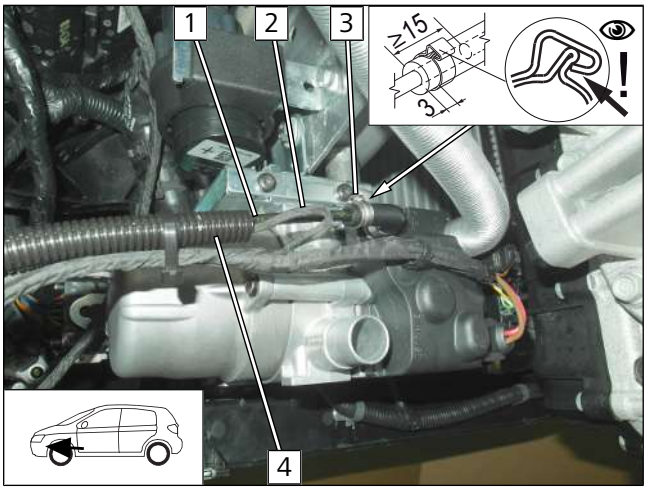


Fig. 60

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

[3] Ø10 clamp

Installing lines

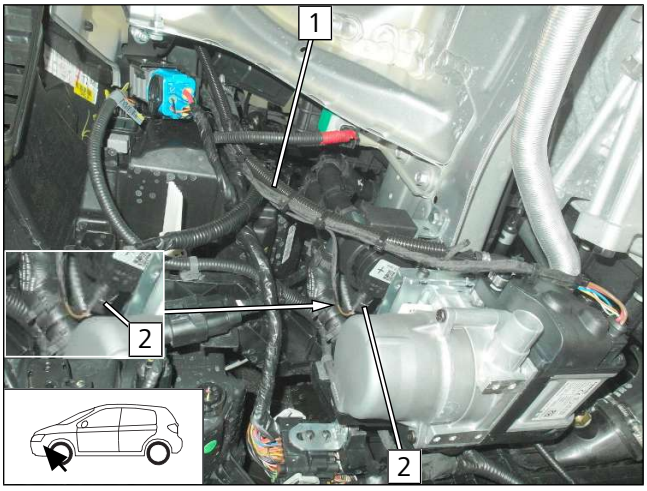


Fig. 61

▶ Fasten corrugated tube and heater wiring harness [1] together using a cable tie.

▶ Route corrugated tube in the engine compartment.

[2] Connect coolant pump wiring harness

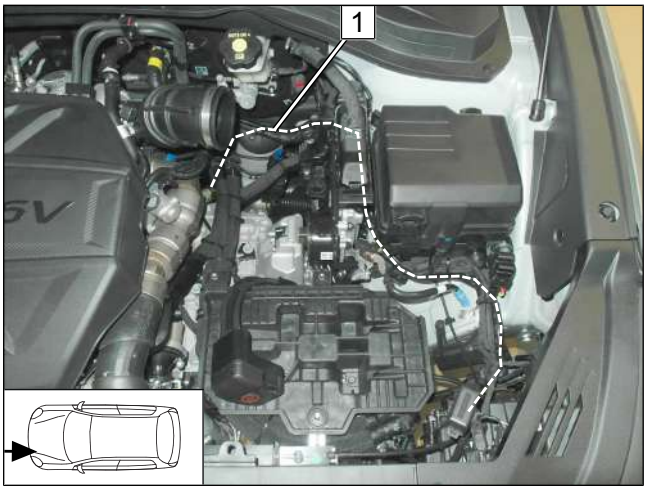


Fig. 62

▶ Route corrugated tube with fuel line and fuel pump wiring harness [1] in engine compartment on original vehicle lines to underbody and fasten using cable ties.

Fig. 63

▶ Route corrugated tube with fuel line and fuel pump wiring harness **1** on underbody on original vehicle lines to fuel pump installation location and fasten using cable ties.

10.2 Fuel pump installation

Premounting fuel pump

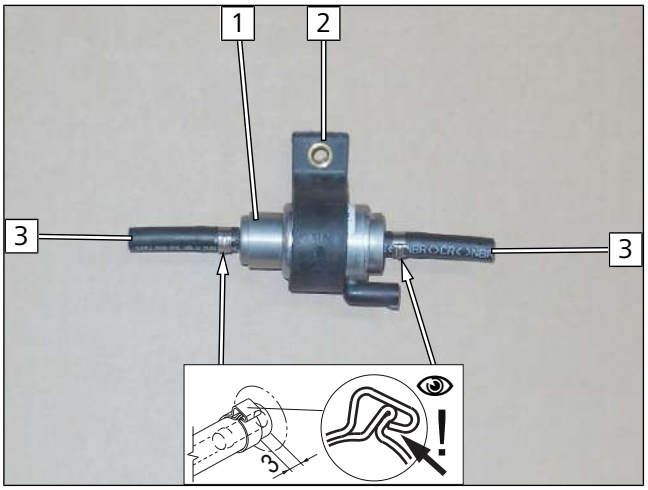


Fig. 64

1 Fuel pump
2 Fuel pump mount
3 Hose section, Ø10 clamp

Mounting fuel pump

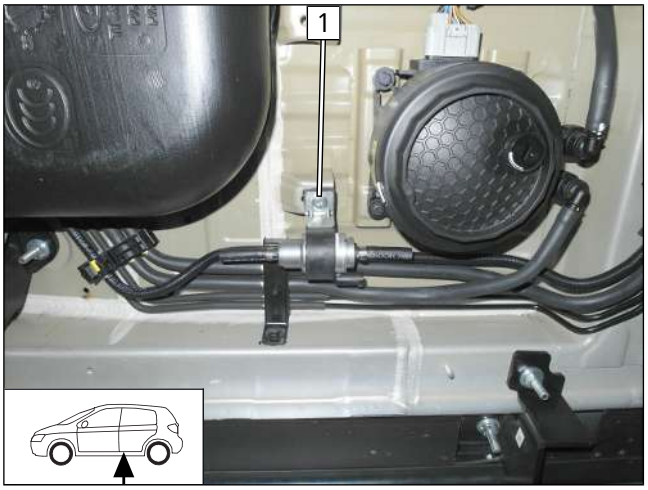


Fig. 65

1 M6x25 bolt, support angle bracket, premounted fuel pump, original vehicle thread

Assembling fuel pump connector X7

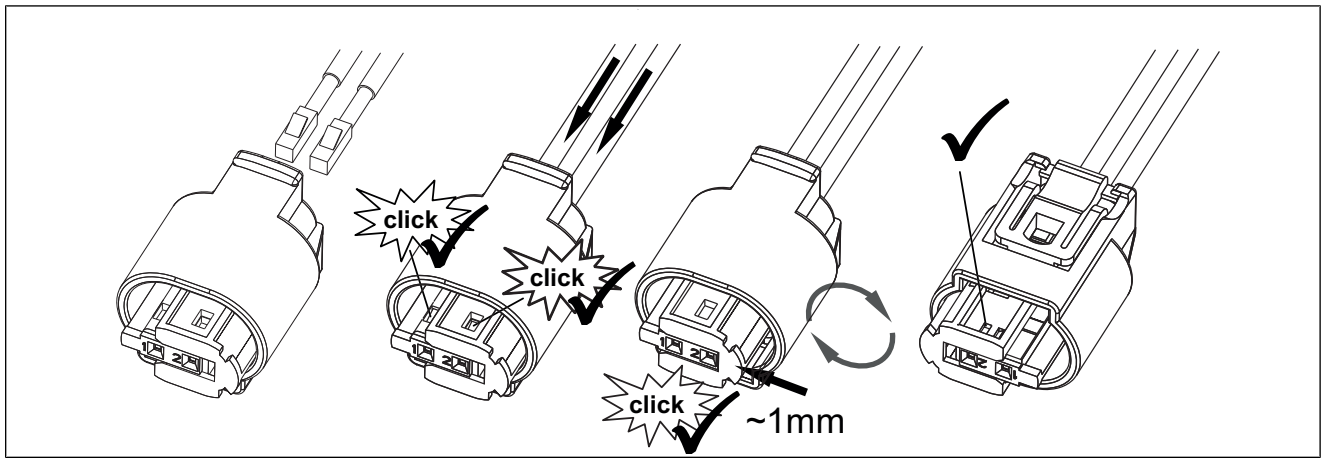


Fig. 66

Connecting fuel line

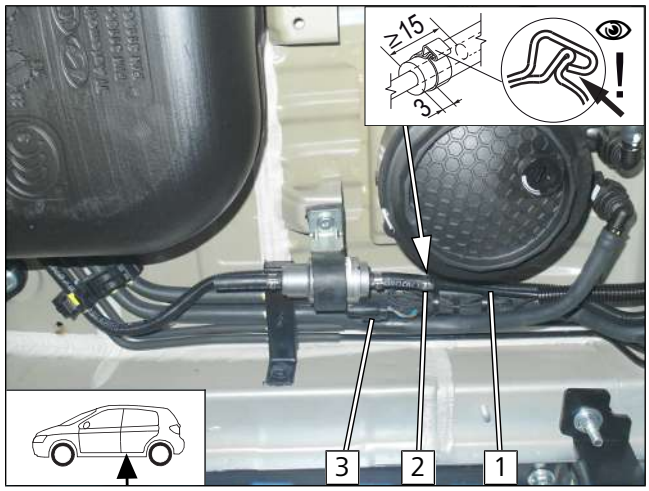


Fig. 67

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

10.3 Installing FuelFix

Preparing drilling template

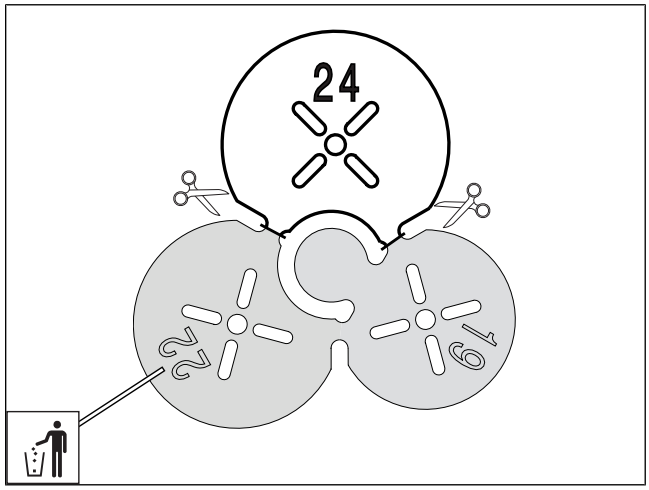


Fig. 68

Work steps F1, F2

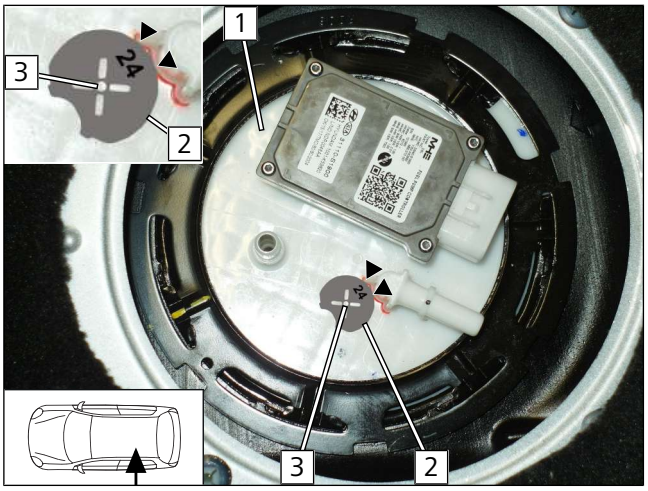


Fig. 69

Observe the installation instructions of the tank extracting device.

▶ Copy hole pattern [3].

[1] Tank fitting

[2] Create drilling template on the raised parts as shown

Work step F3

Fig. 70

DANGER

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

▶ Pierce hole [1] with provided drill.

Work steps F4, F5

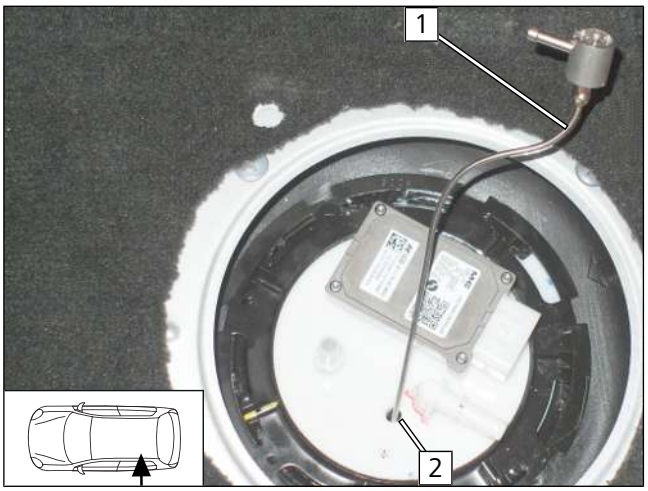


Fig. 71

▶ Bend FuelFix [1] as shown in template and cut to length. Insert in hole [2].

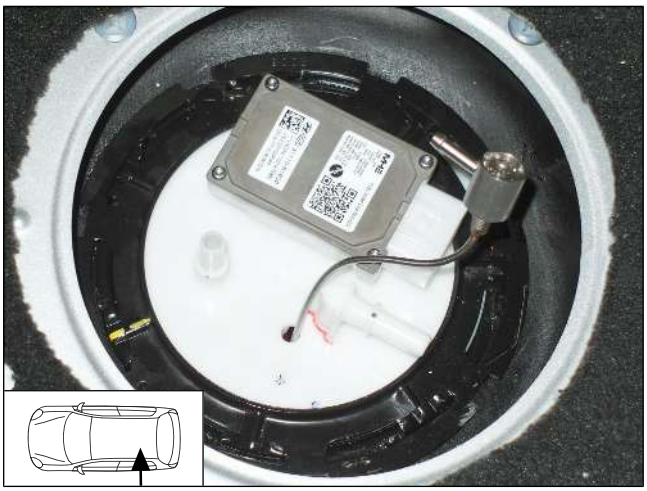


Fig. 72

Fig. 73

Work steps F5.3, F5.4

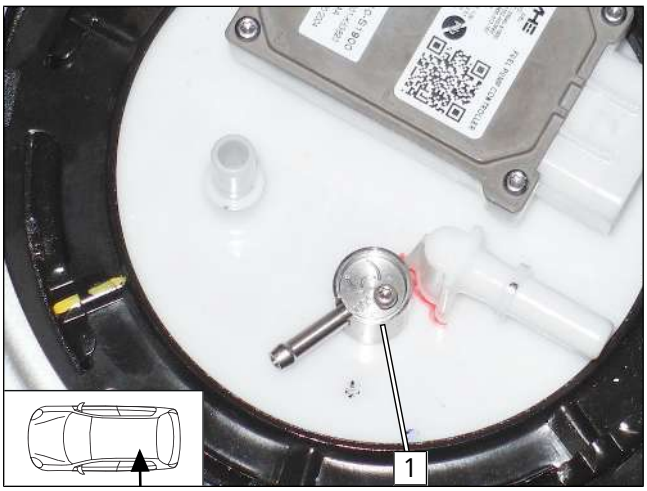


Fig. 74

▶ Align FuelFix [1] as shown.

Work step F6

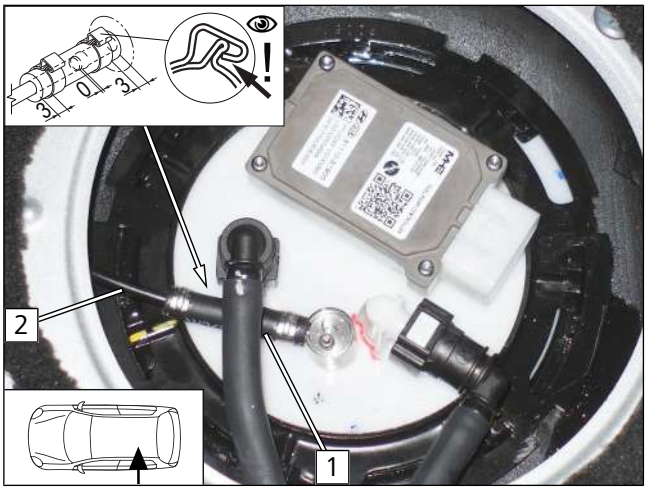


Fig. 75

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

Work step F7

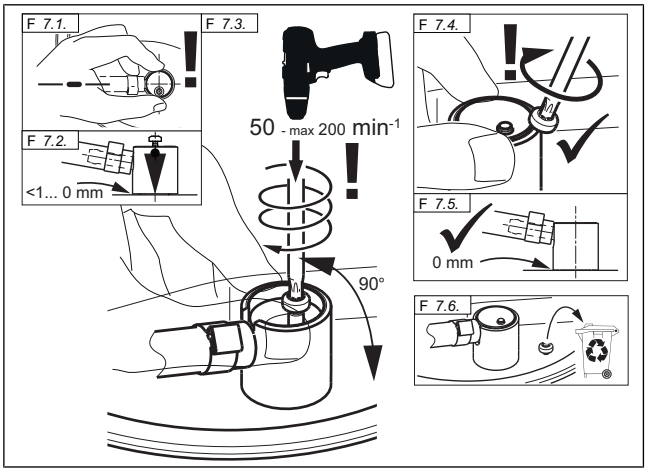


Fig. 76

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

Work step F8

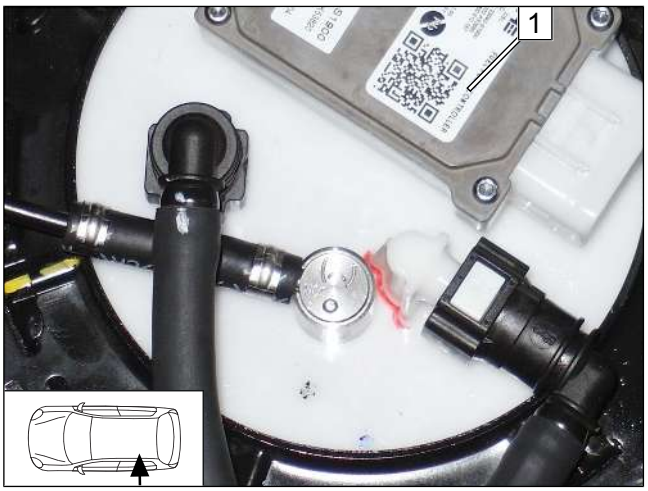


Fig. 77

▶ Check firm seating.

Securing fuel line

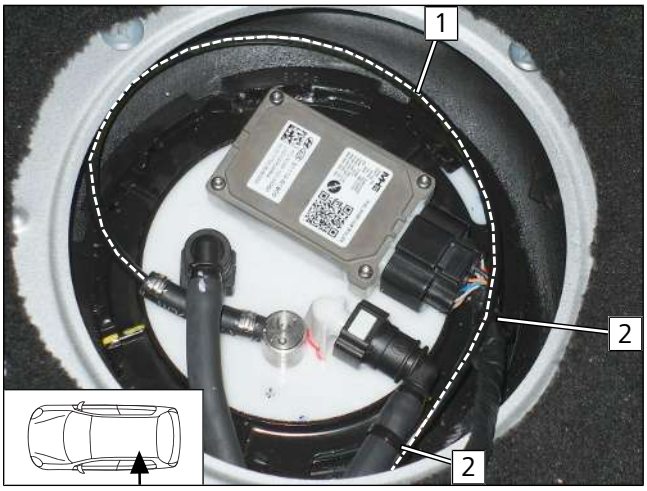


Fig. 78

1 Fuel line of FF
2 Cable tie for tension relief

Fuel pump connection

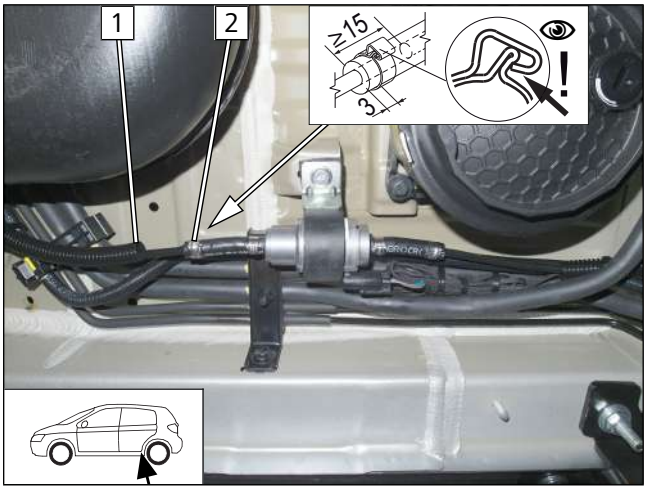


Fig. 79

Danger of damage to components

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

1 Fuel line of FF in corrugated tube
2 Ø10 clamp

11 Combustion air

Preparing combustion air pipe installation

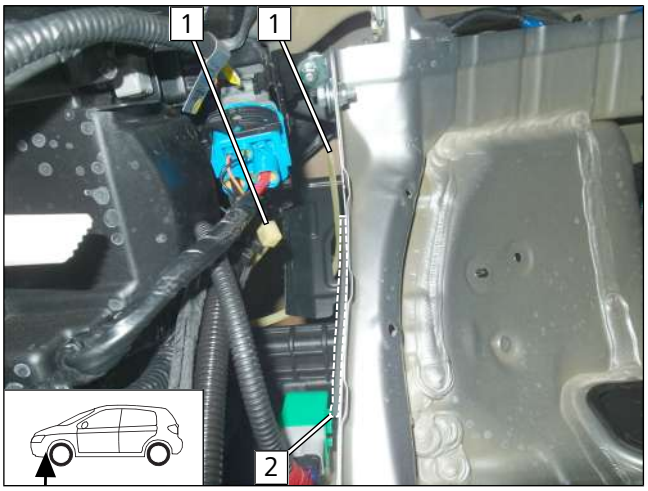


Fig. 80

▶ Position cable tie [1] and self-adhesive foam [2] as shown in fig.

Fastening combustion air silencer

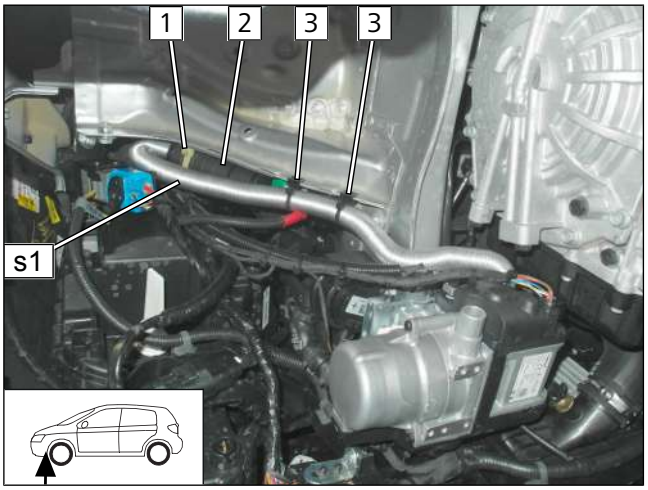


Fig. 81

Observe the installation instructions of the combustion air intake silencer.

[1] Close cable tie
[2] Combustion air silencer
[3] Edge clip cable tie

Checking distance

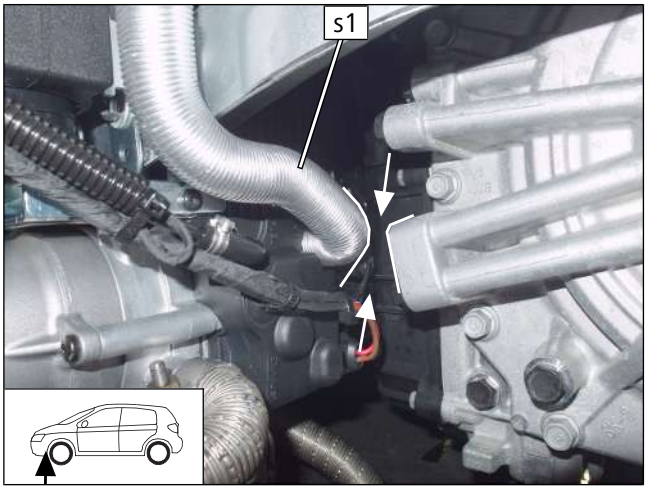


Fig. 82

Danger of damage to components

▶ Ensure sufficient distance between [s1] and transmission, correct if necessary.

12 Exhaust

Mounting angle bracket

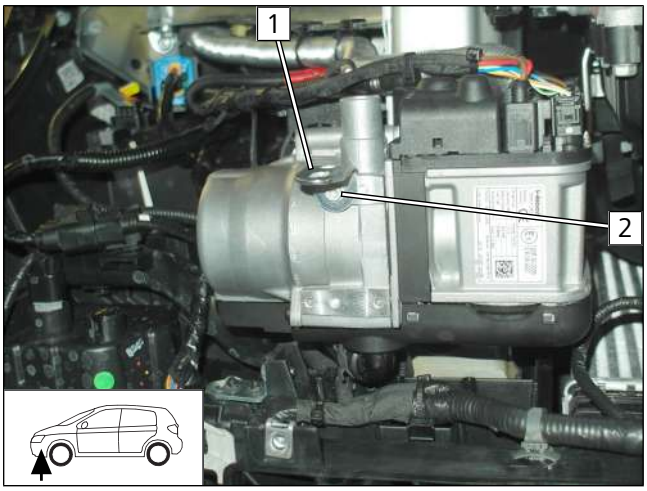


Fig. 83

1 Angle bracket
2 5x13 self-tapping bolt

Mounting exhaust silencer

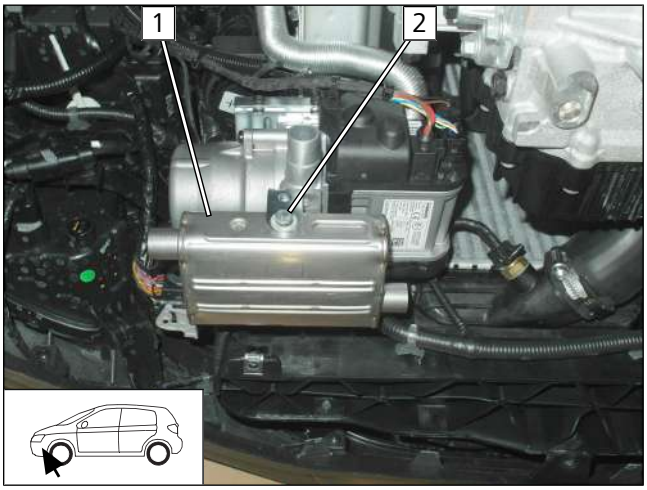


Fig. 84

1 Exhaust silencer
2 M6x16 bolt, spring lockwasher, large diameter washer

Cutting exhaust pipe to length

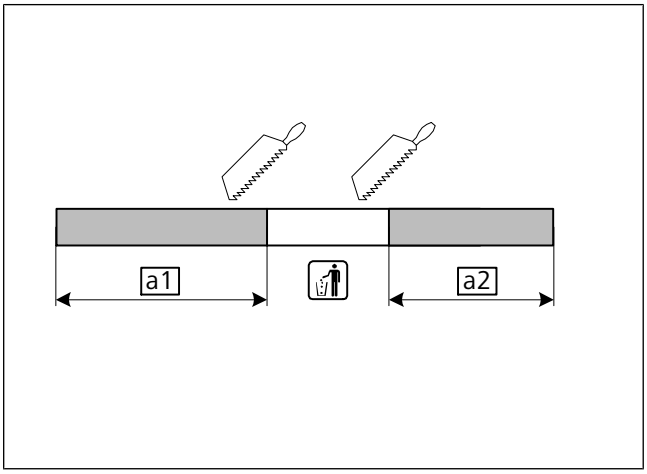


Fig. 85

a1 250
a2 200

Preparing exhaust pipe **a1**

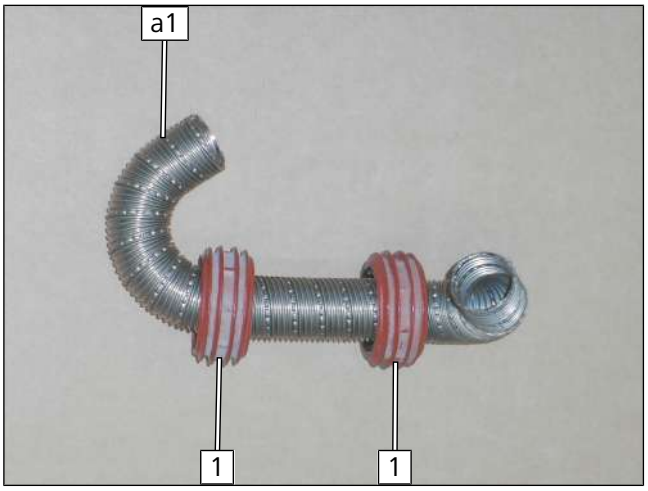


Fig. 86

▶ Bend exhaust pipe **a1** as shown.

1 ASH

Installing exhaust pipe **a1**

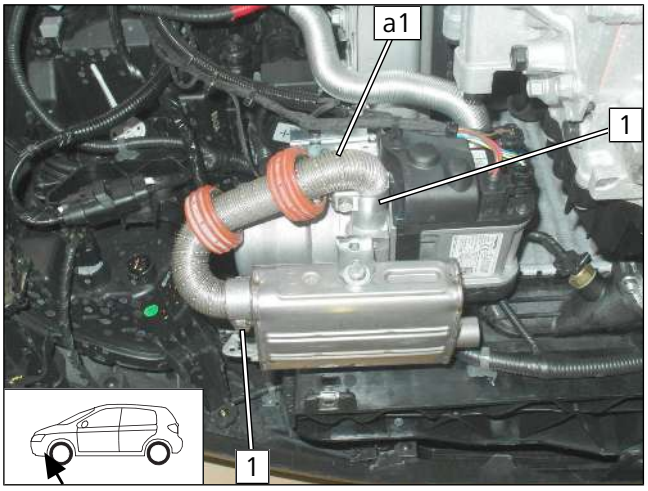


Fig. 87

1 Hose clamp

Preparing exhaust pipe **a2**

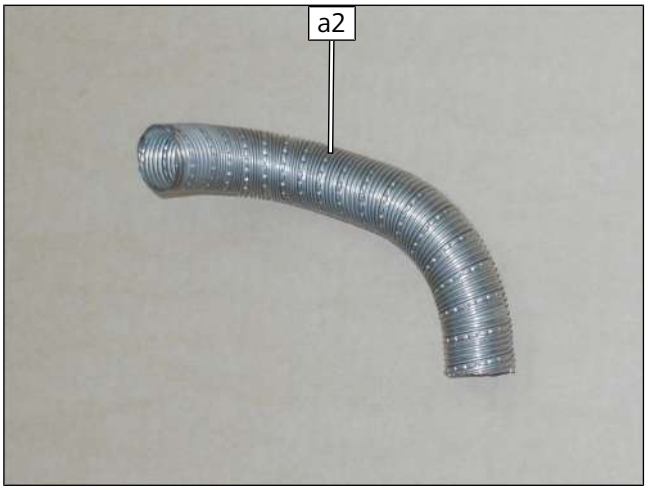


Fig. 88

▶ Bend exhaust pipe **a2** as shown.

Mounting exhaust pipe a2

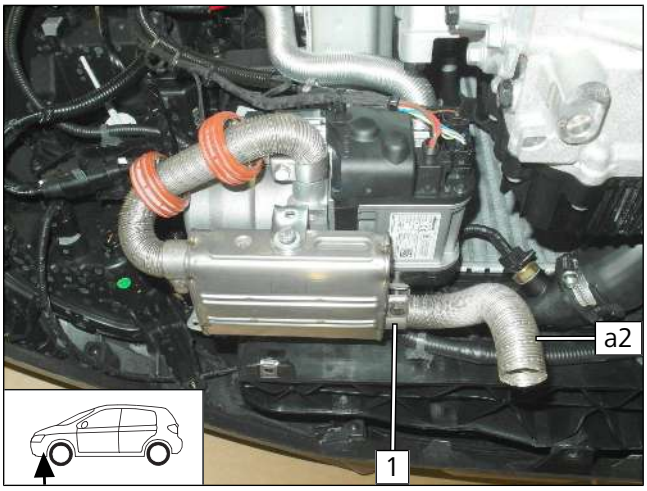


Fig. 89

1 Hose clamp

Mounting EFIX, work step E1

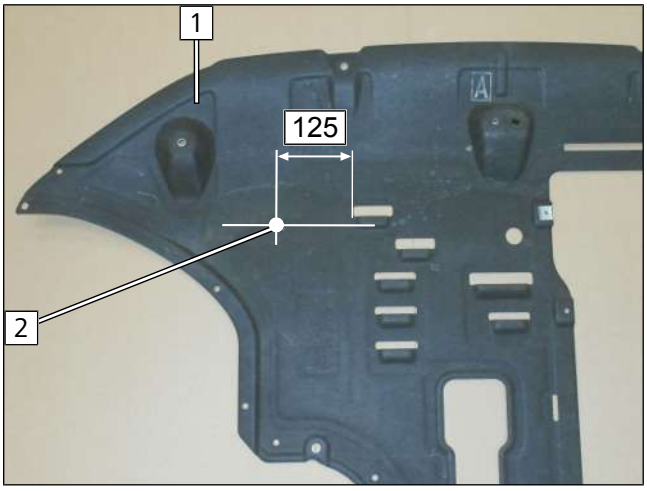


Fig. 90

Observe the EFIX installation instructions.

▶ Copy hole pattern 2.

1 Underride protection

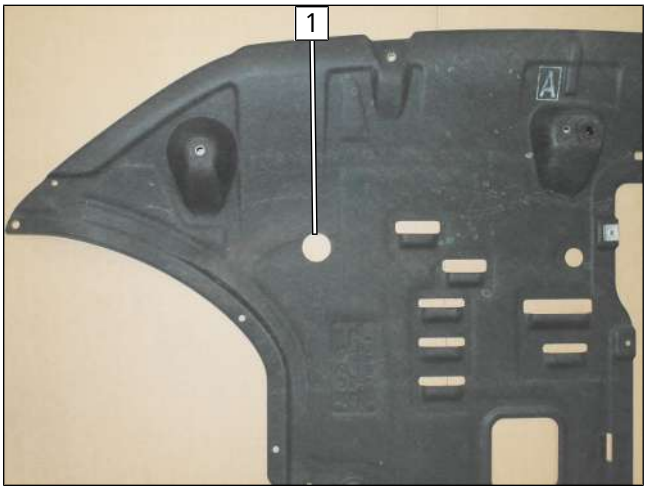


Fig. 91

▶ Drill hole 1.

Work step E3

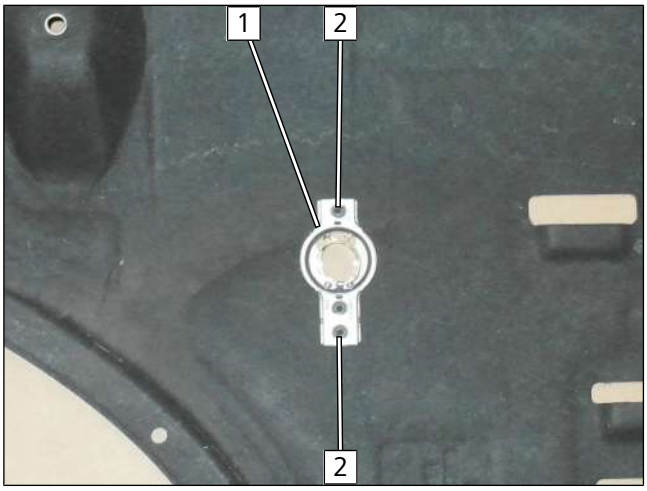


Fig. 92

▶ Copy hole pattern **2**.

1 EFIX

Work step E4

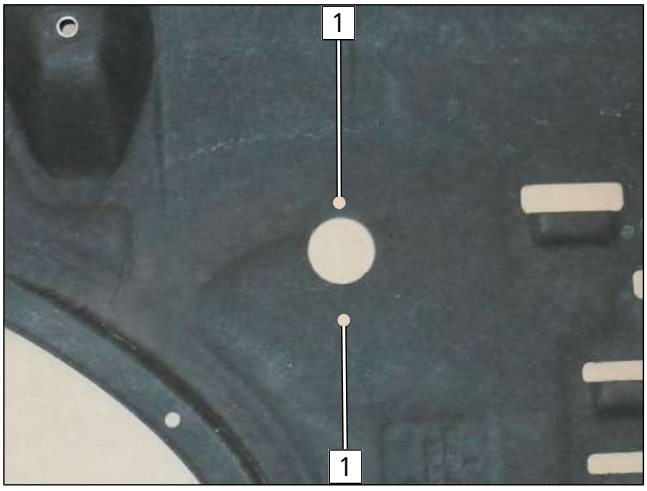


Fig. 93

▶ Drill hole **1**.

Work step E5

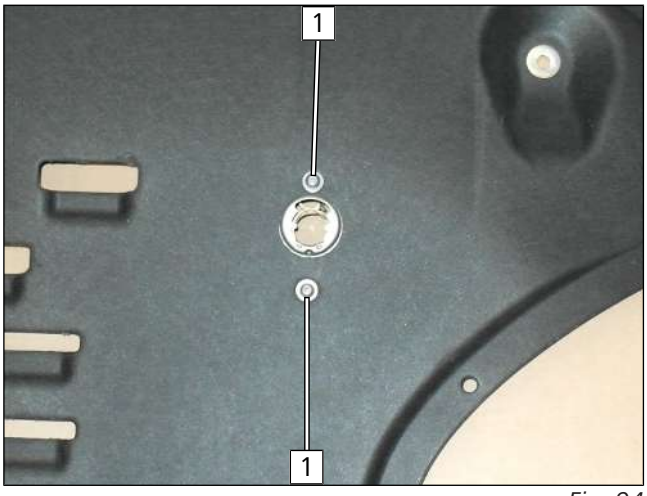


Fig. 94

1 5x13 self-tapping screw, large diameter washer

Work steps 6-8

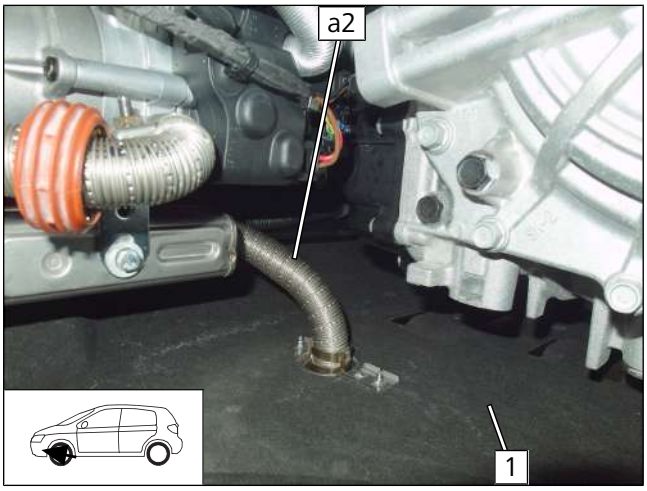


Fig. 95

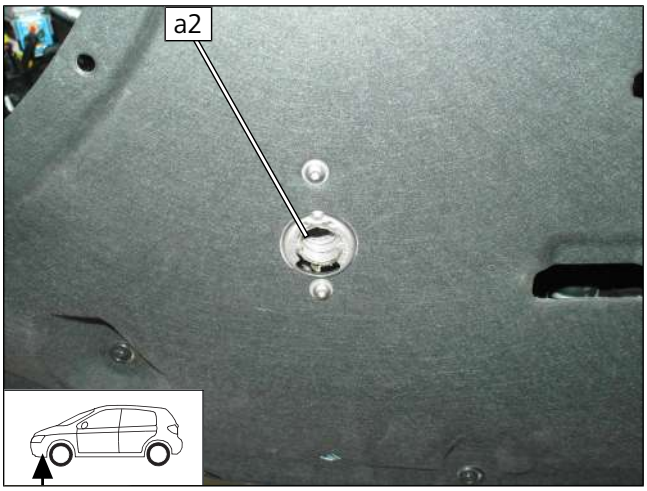


Fig. 96

▶ Mount underride protection **1**.

13 Final work in engine compartment

Removing insulation

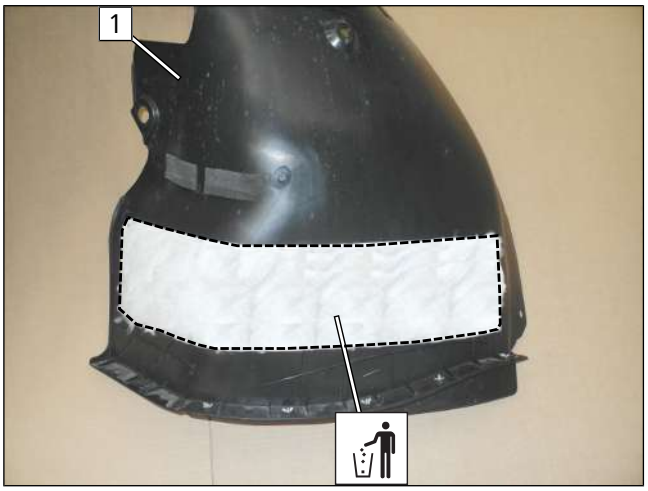


Fig. 97

1 Wheel well trim

Aligning ASH

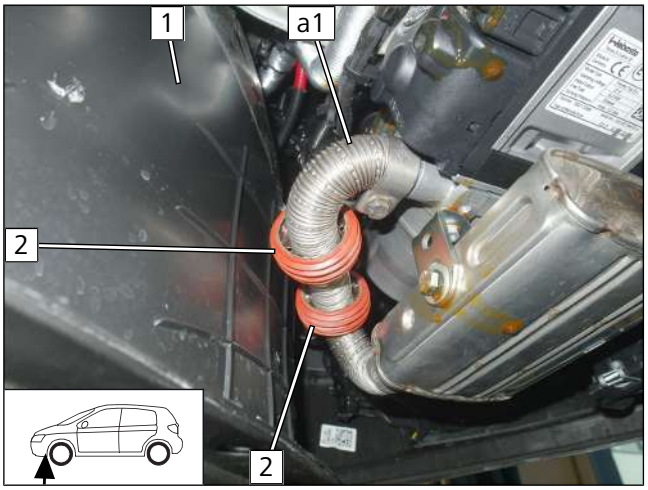


Fig. 98

Danger of damage to components

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

▶ Install wheel well trim 1.

2 ASH

Checking distance

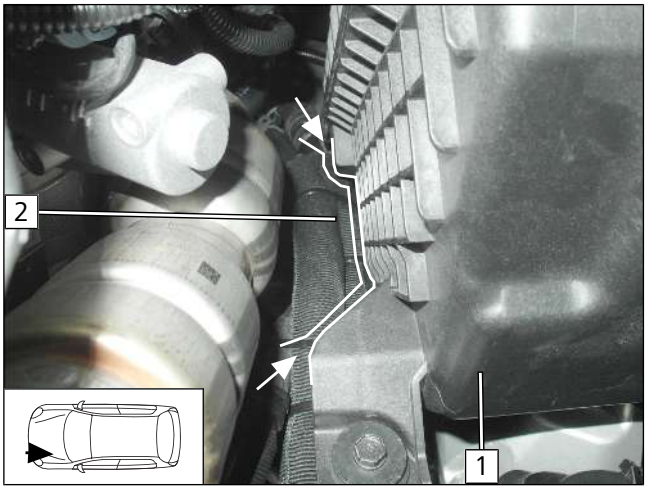


Fig. 99

Danger of damage to components

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

1 Air filter box

2 Hoses (B) and (G)

14 Electrical system of passenger compartment

14.1 Electrical system preparation

Assigning wires

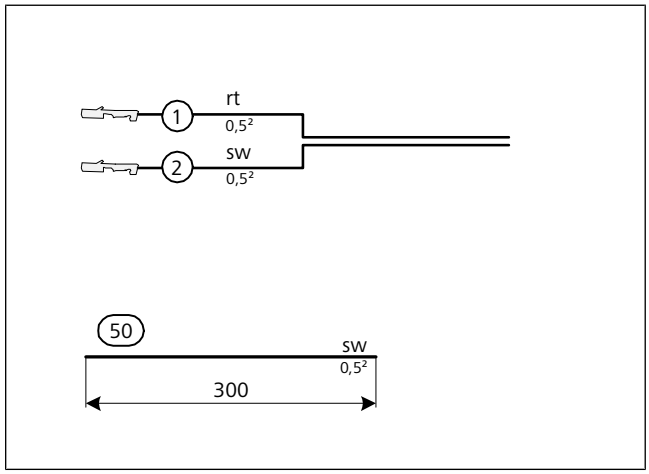


Fig. 100

Wire sections retain their numbering in the entire document.

▶ Draw wire (50) into provided protective sleeving.

(1) Red (rt) wire of fan wiring harness
(2) Black (sw) wire of fan wiring harness
(50) Black (sw) wire of power supply wiring harness

Connecting wires to RSH

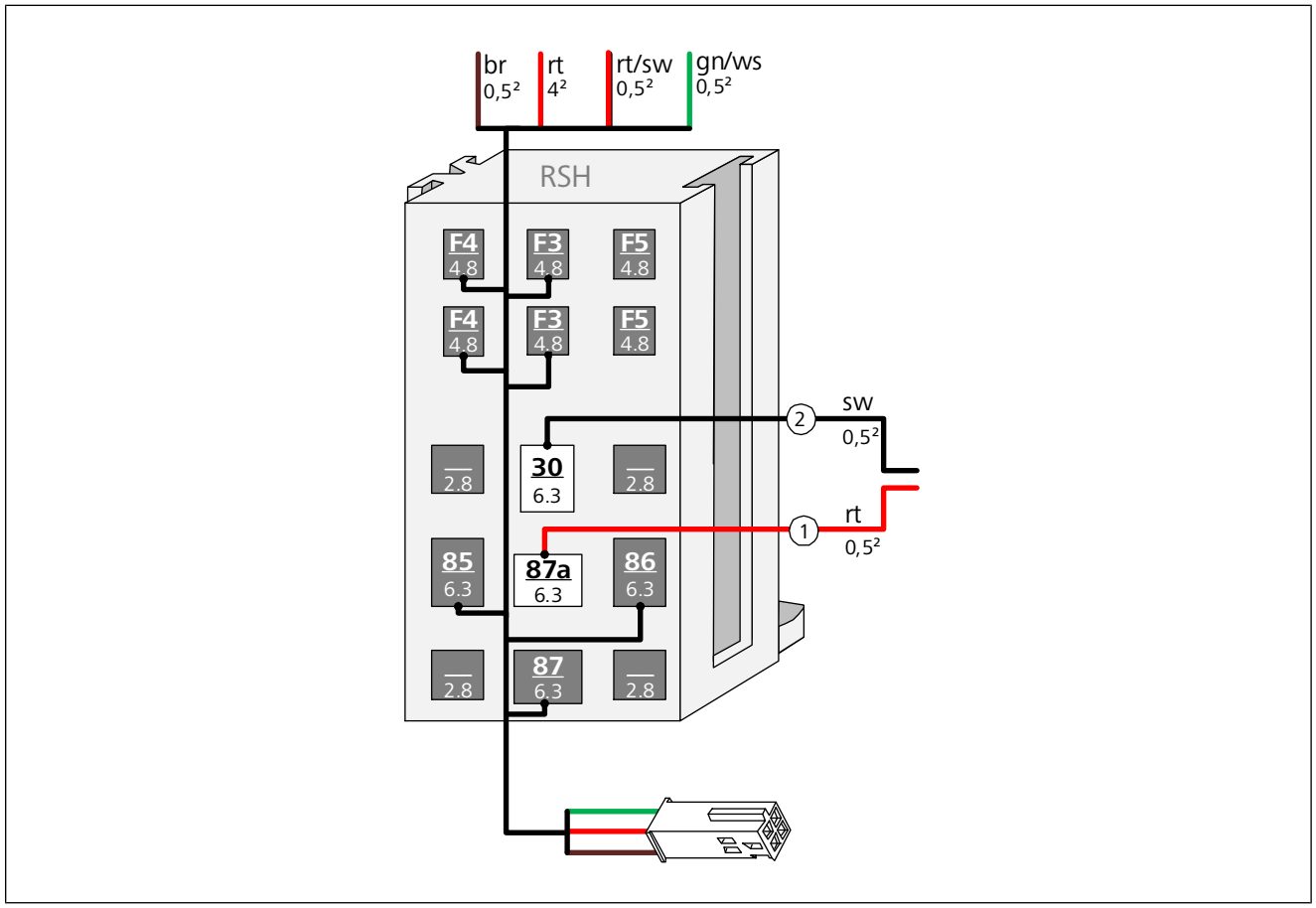


Fig. 101

Premounting RSH

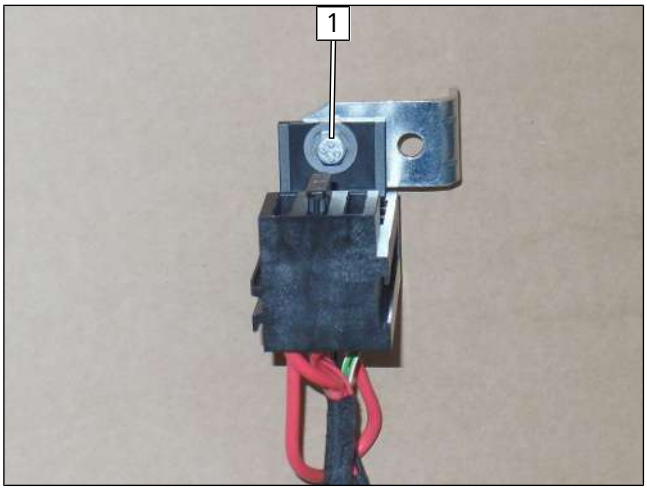


Fig. 102

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

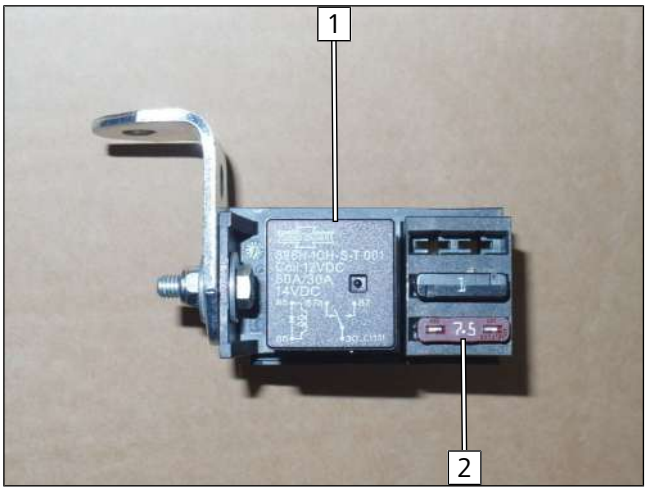


Fig. 103

1 Relay K1

2 7.5A fuse F4

14.2 Wiring diagram

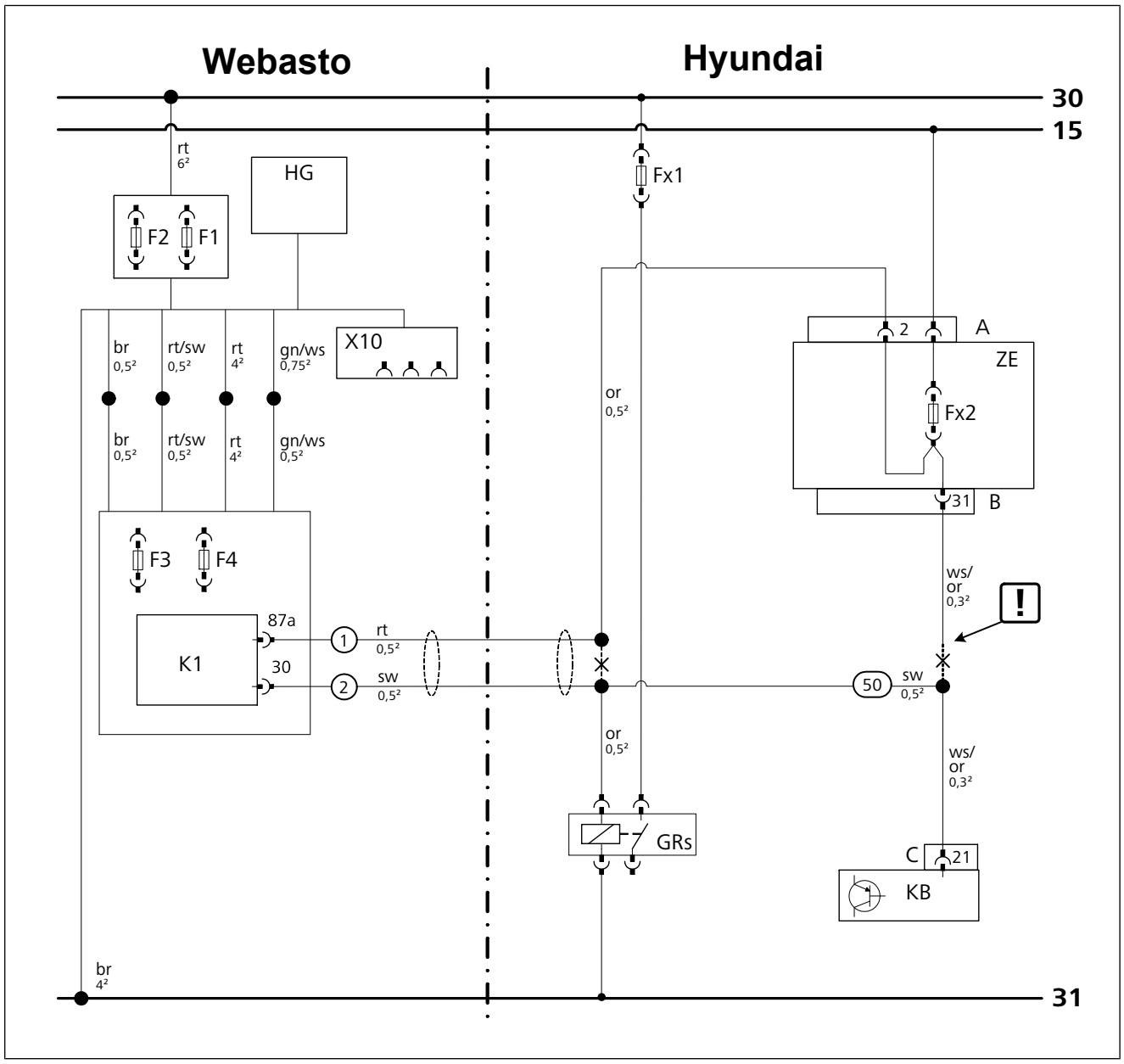


Fig. 104

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
Fx1	Fuse	X	Cutting point
ZE	Passenger compartment central electrical box		Insulate wire ends and tie back
Fx2	Fuse		
A	ZE connector		
B	ZE connector		
GRs	Fan relay		
KB	A/C control panel		
C	KB 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	CAN CAN LIN Gateway	gn	green
CL GW	CAN LIN Gateway	gr	grey
CLR	Cold start module	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	or	orange
F0	Additional fuse for power supply	pk	pink
F1	Heater main fuse	rt	red
F2	Passenger compartment fan controller main fuse	sw	black
F3	Control element fuse	vi	violet
F4	Fan controller fuse	ws	white
F5	Additional fuse		
HG	Heater TT-Evo		
K1	Relay K1		
K2	Relay K2		
K3	Relay K3		
LIN GW	LIN Gateway		
PWM GW	Pulse width modulator gateway		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	Female plug for control element		
Y	Power adapter		

14.3 Fan controller

View of connector B

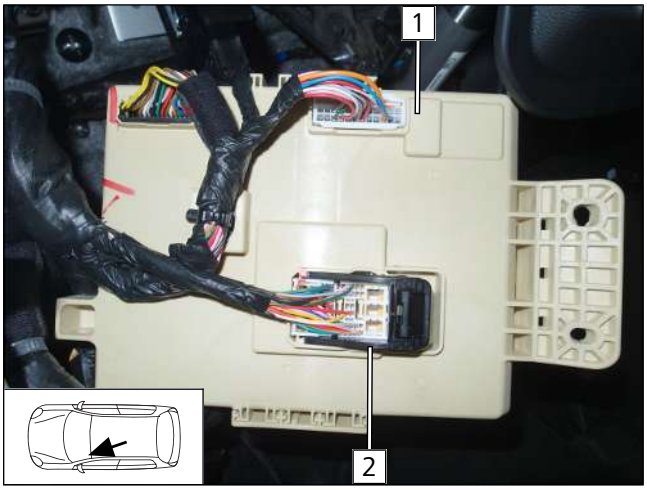


Fig. 105

▶ Detach passenger compartment central electrical box 1.

2 ZE connector B

Connecting wire 50 to connector B

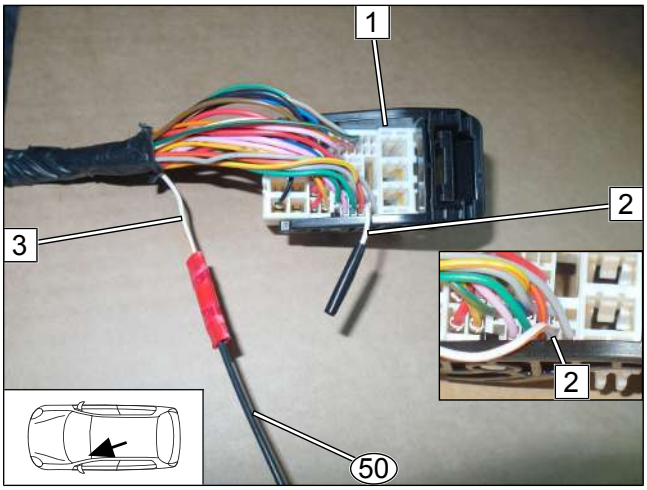


Fig. 106

1 Connector B
2 White/orange (ws/or) wire of connector B/pin 31
3 White/orange (ws/or) wire of connector C/pin 21
50 Black (sw) wire for additional line

View of connector A

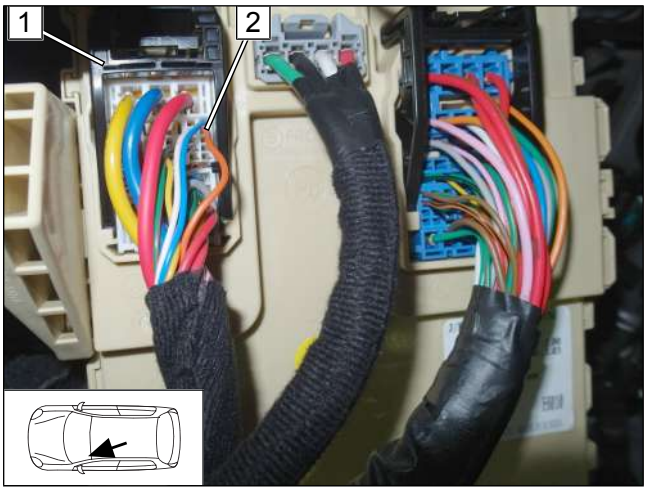


Fig. 107

▶ Mount passenger compartment central electrical box.

1 ZE connector A
2 Orange (or) wire from A connector/pin 2

Connecting wires ① and ② to connector A

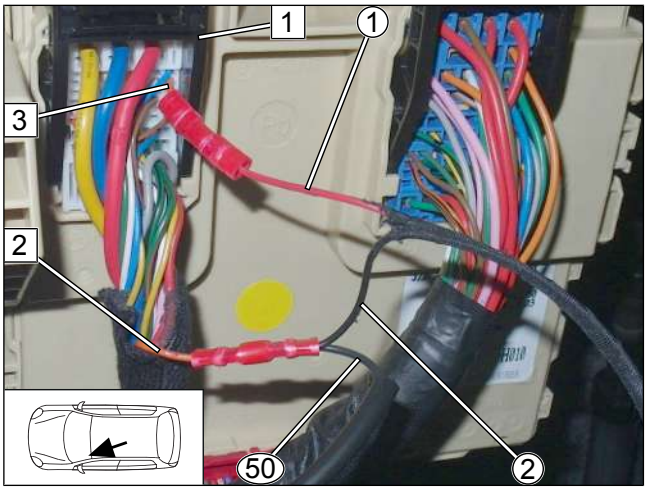


Fig. 108

1 ZE connector A
2 Orange (or) wire of GRs
3 Orange (or) wire from connector A/pin 2
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
50 Black (sw) wire for additional line

Mounting RSH

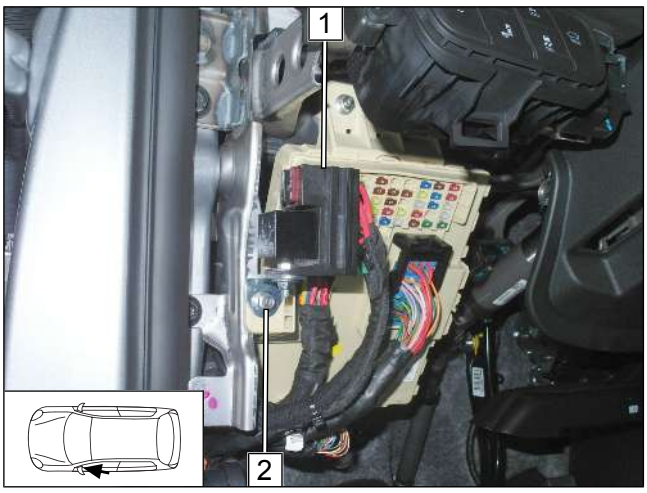


Fig. 109

1 Premounted RSH
2 Original vehicle nut

Connecting same colour wires of wiring harnesses

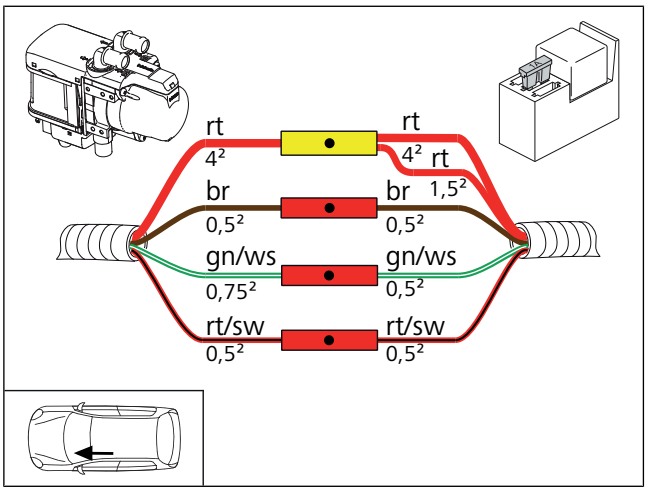


Fig. 110

Fastening battery

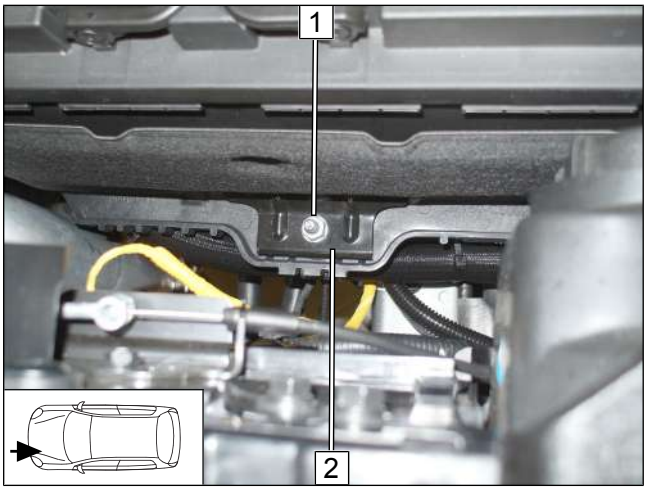


Fig. 111

1 Premounted 8x40 bolt, flanged nut
2 Battery attachment

15 Electrical system of control elements

15.1 MultiControl CAR option

Mounting MultiControl CAR

Fig. 112

Observe the MultiControl CAR installation documentation.

15.2 Telestart option

Preparing receiver bracket Telestart

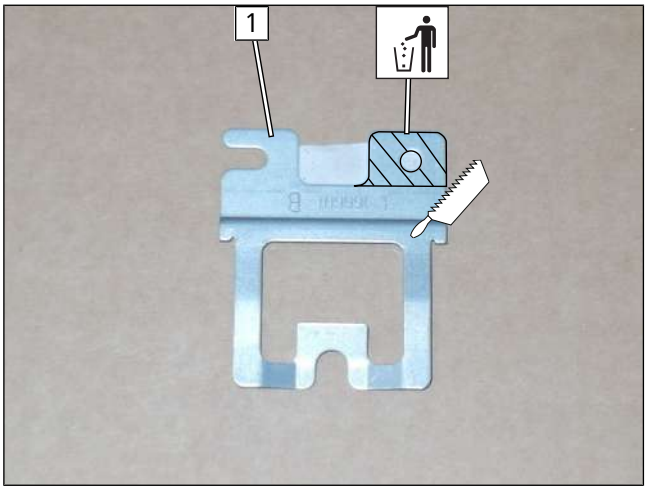


Fig. 113

▶ Prepare Telestart receiver bracket 1 as shown.

Bending Telestart receiver bracket

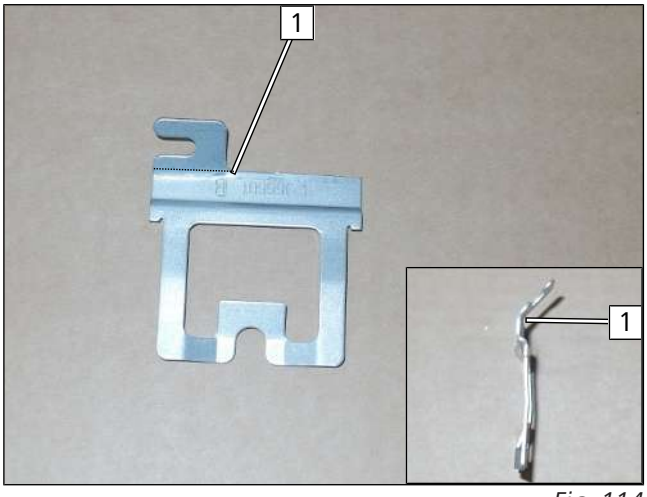


Fig. 114

1 Bracket

Mounting Telestart receiver bracket

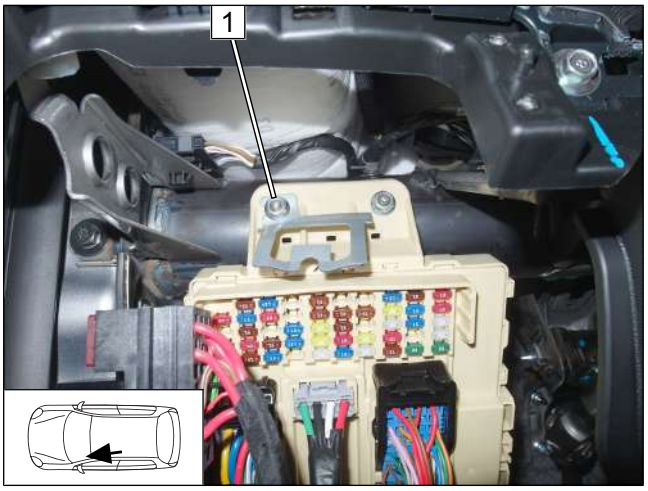


Fig. 115

1 Original vehicle stud bolt, Telestart bracket, original vehicle nut

Mounting receiver

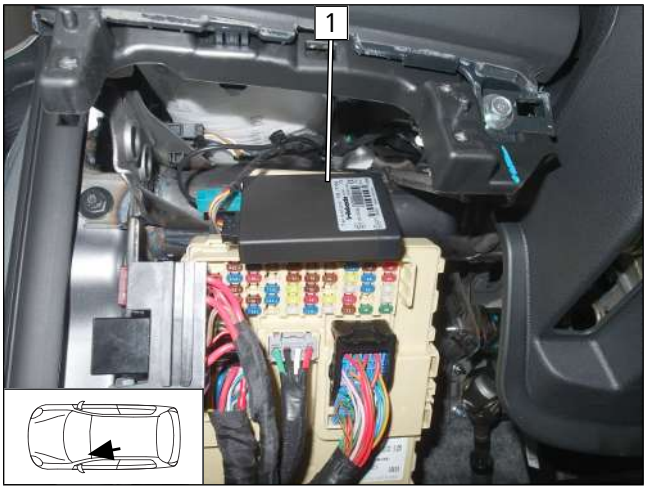


Fig. 116

Observe the Telestart installation documentation.

▶ Push Telestart receiver 1 onto the bracket and assemble.

Mounting temperature sensor, only in case of T100 HTM

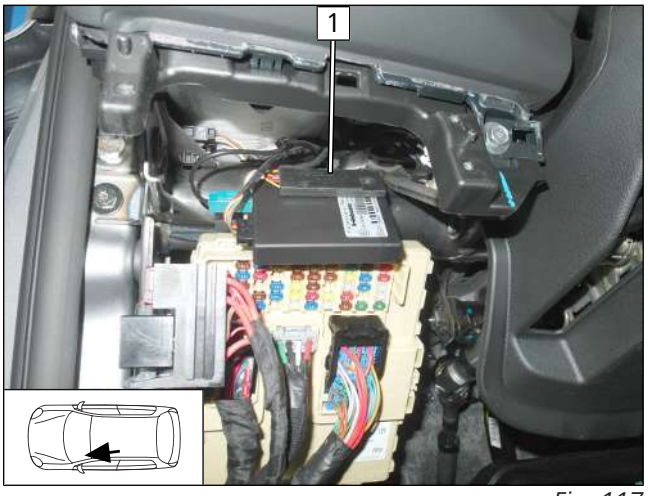


Fig. 117

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

Mounting aerial

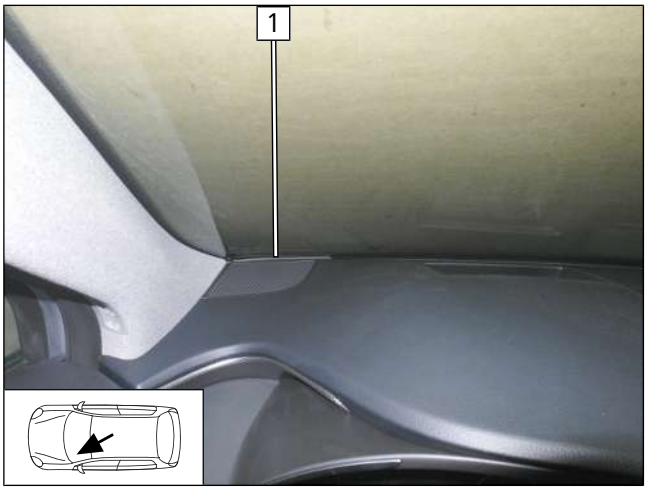


Fig. 118

1 Aerial

15.3 ThermoCall option

Mounting receiver

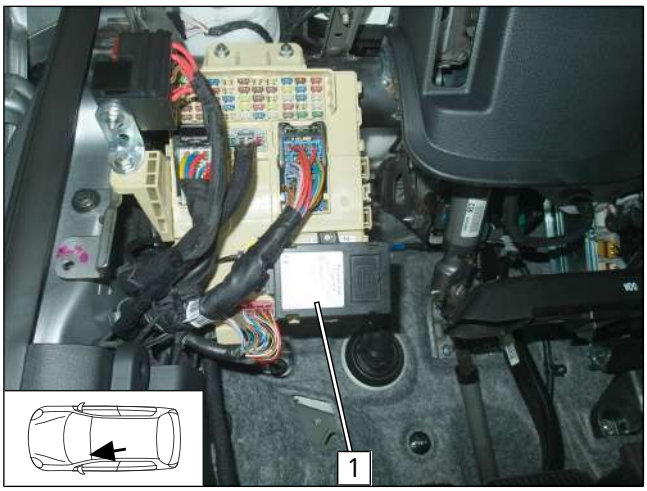


Fig. 119

Observe the ThermoCall installation documentation.

▶ Fasten receiver 1 using double-sided adhesive tape.

Mounting aerial (optional)

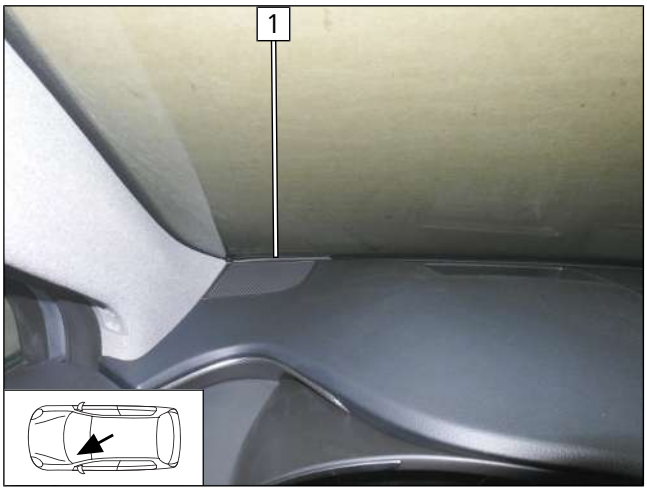


Fig. 120

1 Aerial

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.

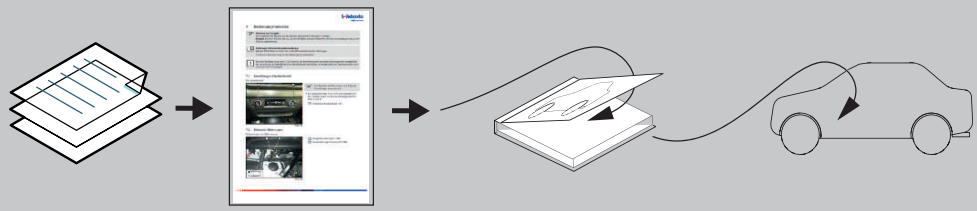
Further information can be found in the general installation and operating instructions of the Webasto components.

▶ 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



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.

Webasto Thermo & Comfort SE
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82199 Gilching
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82205 Gilching
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Technical Extranet: https://dealers.webasto.com

CE

WWW.WEBASTO.COM

17 FuelFix template

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

18 Operating instructions for automatic air-conditioning

Information regarding the heating time:

We recommend matching the heating time to the driving time (heating time = driving time)
Example: for a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

▶ Deactivate passenger compartment monitoring for the heating operation

Note for parking heater function

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

18.1 A/C control panel settings

Automatic A/C control panel

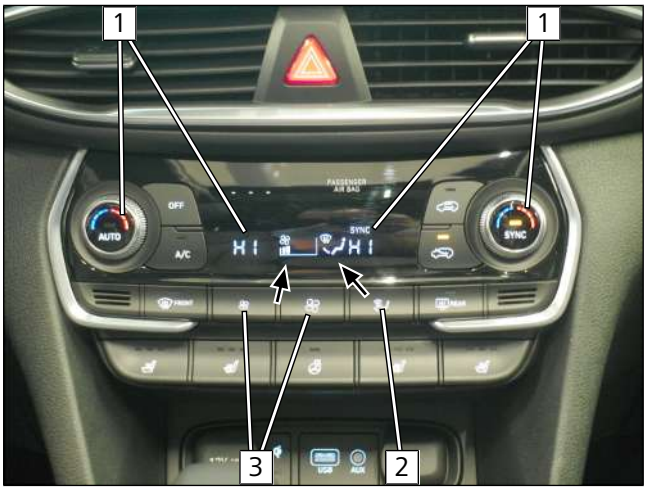

Fig. 121

Before parking the vehicle, make the following settings:

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

18.2 Installation location of fuses

Fuses in engine compartment

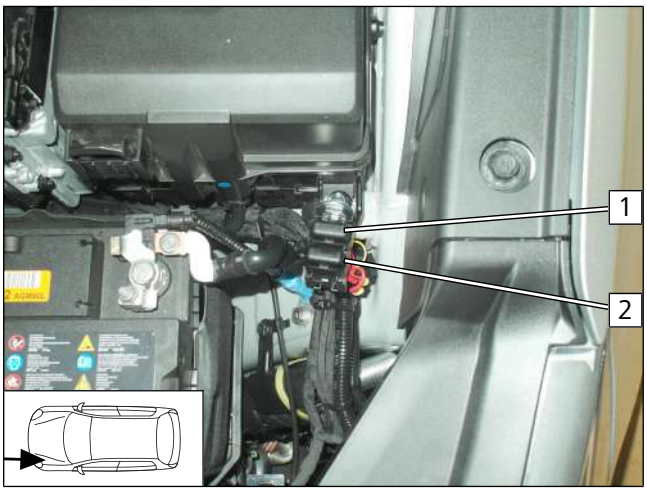

Fig. 122

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

Fuses in passenger compartment

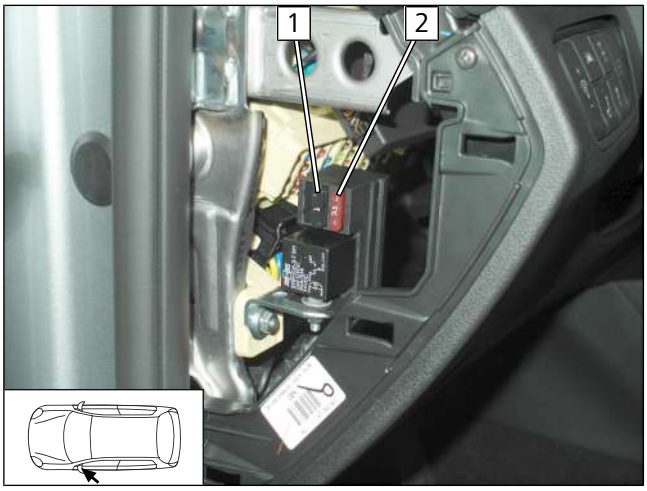

Fig. 123

1 F3 - 1A control element fuse
2 F4 - 7.5A fan controller fuse