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Installation documentation

for water heater Thermo Top Evo

'Inline' coolant circuit with engine preheating

Renault Captur

Left-hand drive vehicle

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

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.0P	Petrol	EURO6; WLTP;DG…	5-speed SG	74	999	H4D

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

Total installation time	Note
8.0 hours	

Contents

1 List of abbreviations

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

2 Installation notes

2.1 Information on Validity

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

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo	In accordance with price list
Installation kit for Renault Clio/Captur petrol 2020	1327778A
MultiControl installation frame, for installation of MultiControl CAR	9030077_
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

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

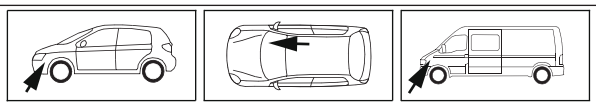
3.4.3 Work step identification marks

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 mm²
– Crimping pliers for cable lugs 0.5 – 10 mm²
– Crimping pliers for male connector 0.14 – 6 mm²
– Crimping pliers for connector 0.25 – 6 mm²
– Torque wrench for 2.0 - 10 Nm
– Deep-hole marker
– Metric thread-setter kit
– Webasto Thermo Test Diagnosis with current software

5 Preparations

5.1 Vehicle preparation

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

Vehicle area	Components to be removed	Other applicable documents
General	▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system	
Engine compartment and body	▶ Battery and battery carrier ▶ Air filter box air duct ▶ Entire air filter box with intake hose ▶ Firewall heat shield plate on the front passenger's side ▶ Front wheel on the driver's side ▶ Front wheel well trim on the driver's side ▶ Lower engine cover ▶ Underride protection on the front passenger's side	
Passenger compartment	▶ Side instrument panel trim on the driver's side ▶ Lower instrument panel trim on the driver's side ▶ Centre tunnel trim on the driver's side ▶ Shift gate trim ▶ A/C control panel ▶ Air-conditioning control unit ▶ Rear bench seat ▶ Open the tank fitting service lid	

5.2 Heater preparation

Engine compartment	▶ Remove years that do not apply from the type and duplicate label ▶ Attach the duplicate label (type label) in the appropriate place in the engine compartment	

6 Installation overview

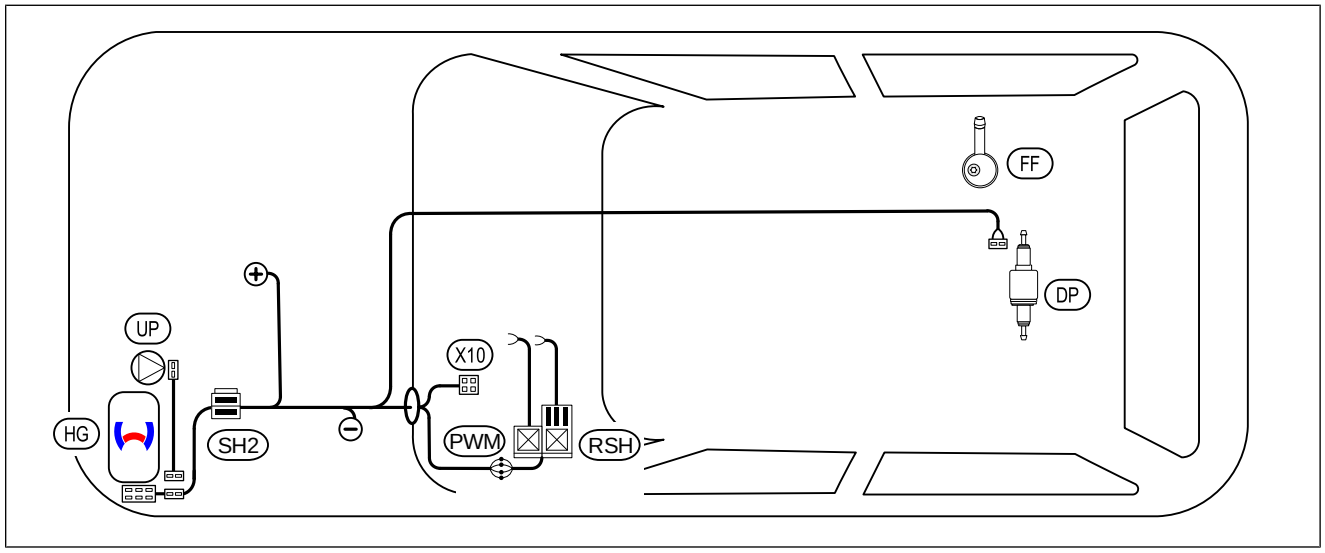


Fig. 1

Legend to installation overview

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

Heater installation location

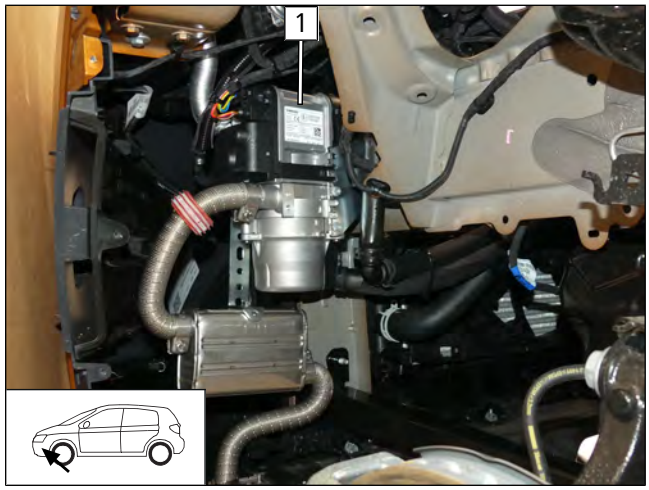


Fig. 2

1 Heater

7 Electrical system of engine compartment

Copying hole pattern, drilling hole

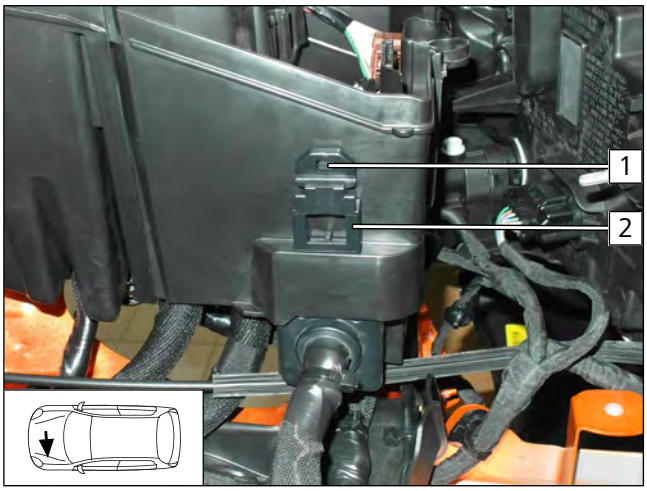


Fig. 3

- ▶ Position retaining plate of SH2 [2] as shown, copy hole pattern [1].
- ▶ Remove retaining plate of SH2 [2] again, drill a Ø5.5 hole.

Mounting retaining plate of SH2

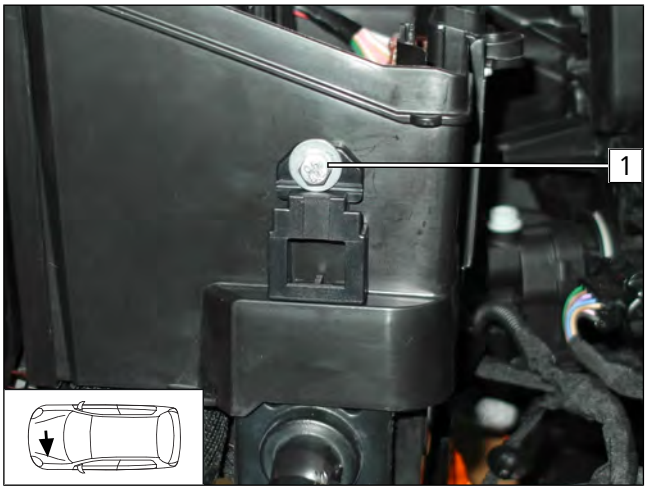


Fig. 4

[1] M5x16 bolt, large diameter washer, SH2 retaining plate, large diameter washer, nut

Installing SH2

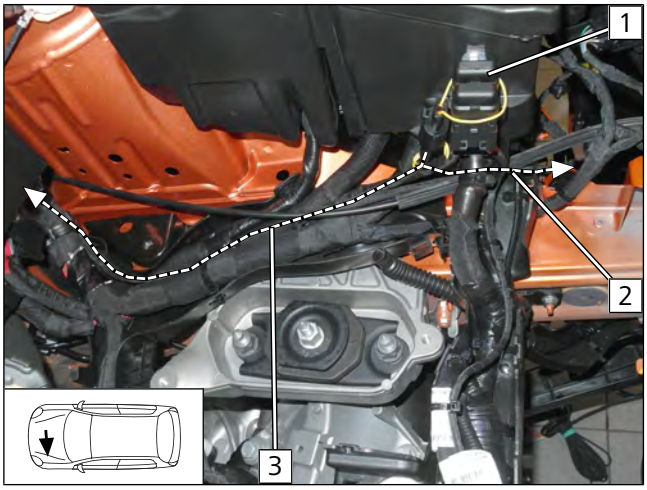


Fig. 5

[1] SH2

[2] HG wiring harness to the HG installation location

[3] Passenger compartment and control element wiring harnesses as well as earth wire to the wiring harness pass through in the passenger compartment

Passenger compartment wiring harness pass through

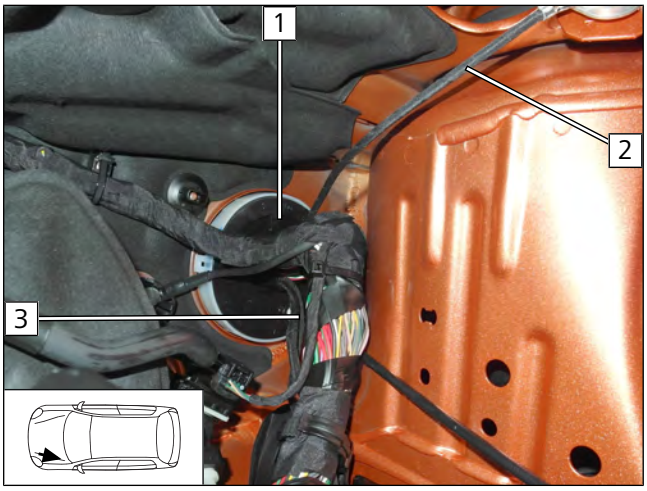


Fig. 6

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

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

Earth wire connection

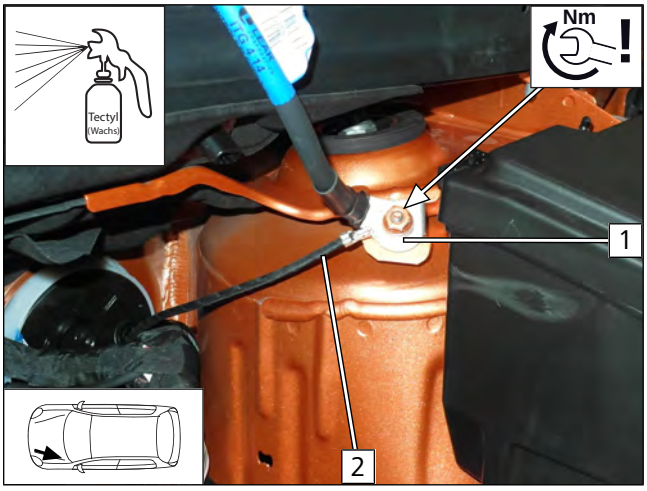


Fig. 7

DANGER

Observe tightening torque

1 Original vehicle earth support point
2 Earth wire

Positive wire routing and connection

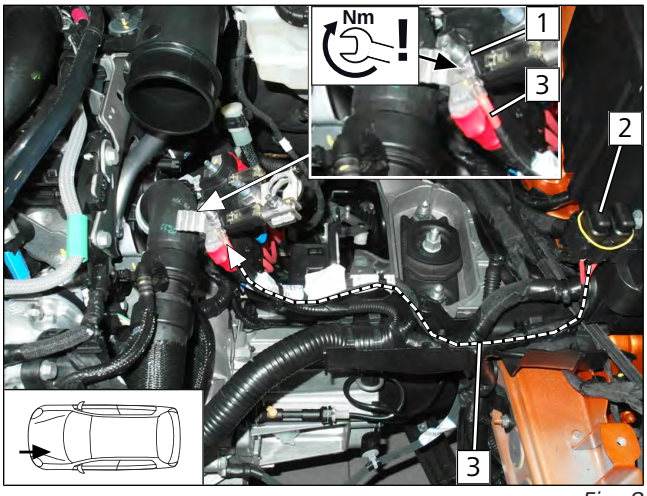


Fig. 8

DANGER

Observe tightening torque

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

1 Original vehicle positive support point
2 SH2
3 Positive wire

8 Mechanical system

8.1 Preparing installation location

Removing original vehicle clip

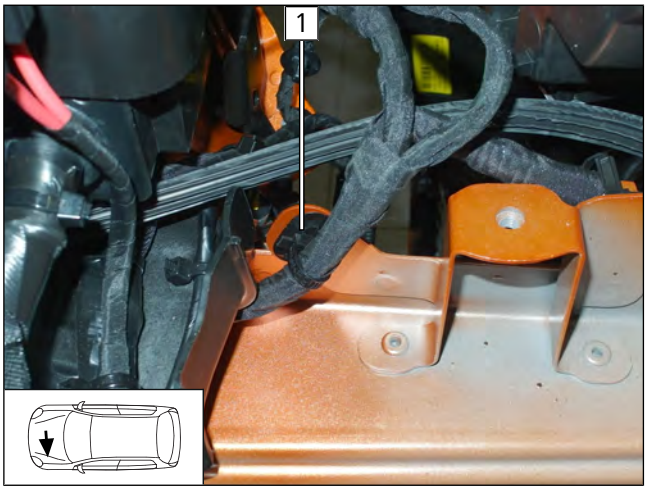


Fig. 9

[1] Original vehicle clip

Fastening HG wiring harness

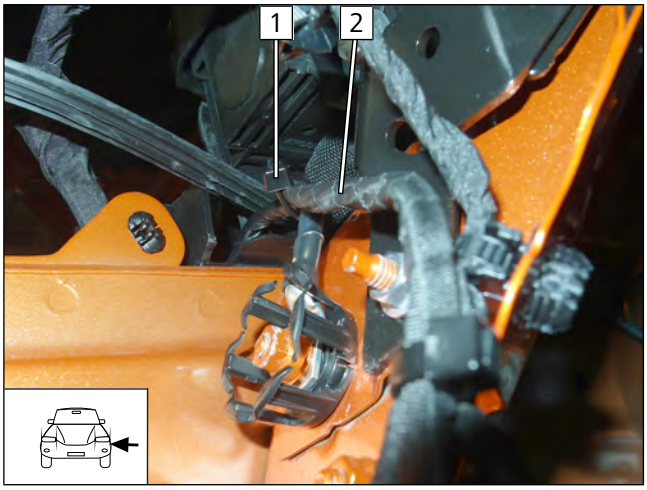


Fig. 10

▶ Attach HG wiring harness [2] to earth wire with cable tie [1].

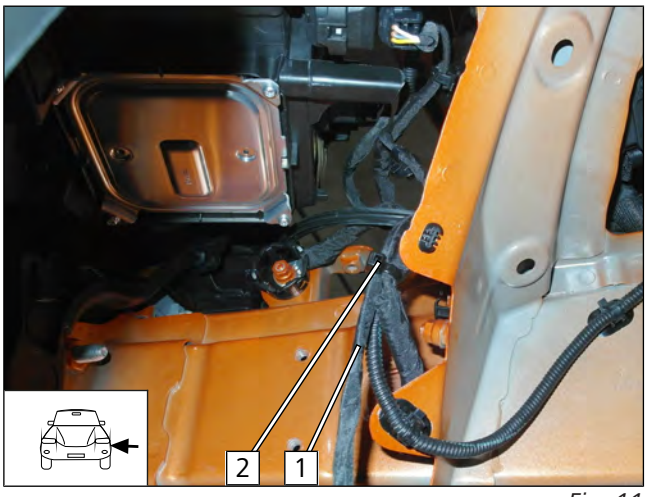


Fig. 11

▶ Attach HG wiring harness [1] to original vehicle lines with cable tie [2].

Preparing heater bracket

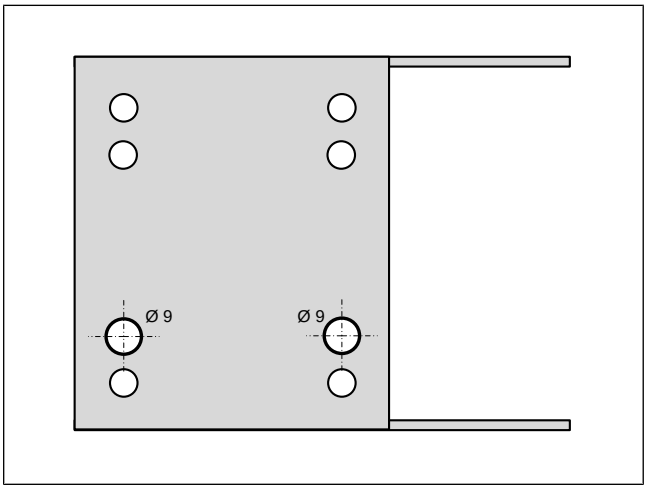


Fig. 12

Copying hole pattern

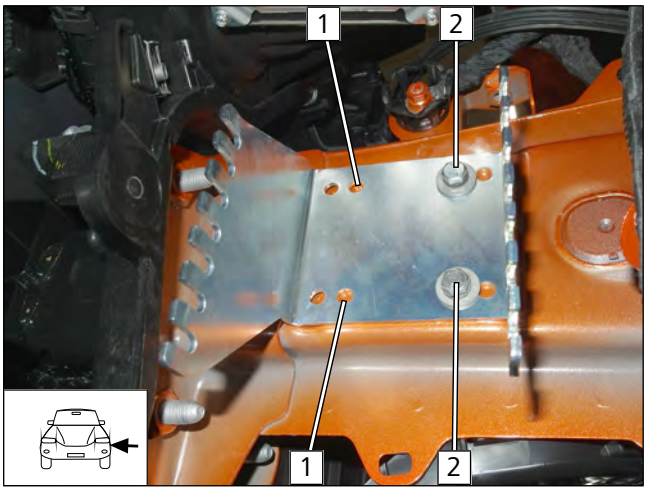


Fig. 13

▶ Install bracket.

1 Hole pattern

2 M6x20 bolt, spring lock washer, large diameter washer, HG bracket, original vehicle threaded hole

Drilling holes, inserting rivet nuts

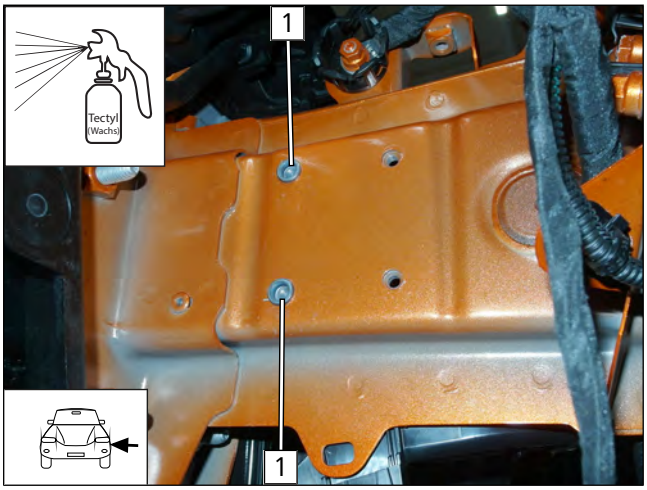


Fig. 14

1 Ø9 hole, rivet nut

Mounting bracket

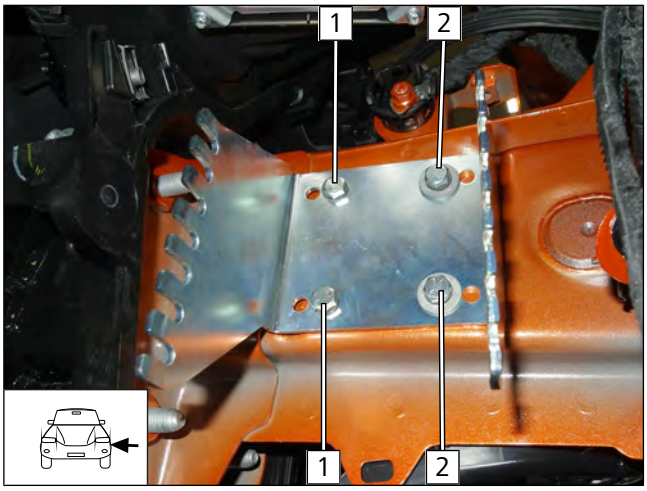


Fig. 15

1 M6x20 bolt, spring lock washer, HG bracket, rivet nut

2 M6x20 bolt, spring lock washer, large diameter washer, HG bracket, original vehicle threaded hole

8.2 Premounting heater

Mounting water connection piece

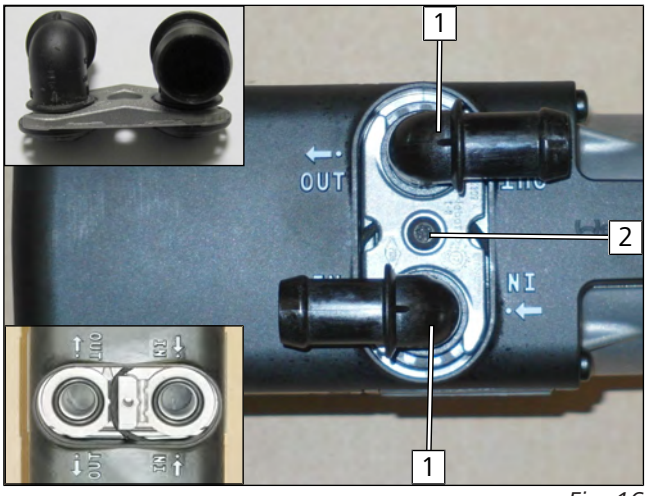


Fig. 16

Observe the general installation instructions of the heater.

1 90° water connection piece, seal

2 5x15 self-tapping bolt, water connection piece retaining plate

Premounting bolts loosely

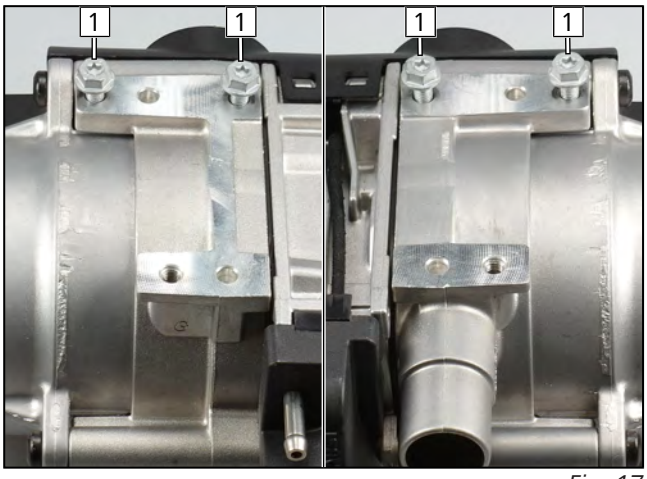


Fig. 17

▶ Screw 5x13 self-tapping bolts 1 into existing holes by a maximum of 3 thread turns.

Bending perforated bracket

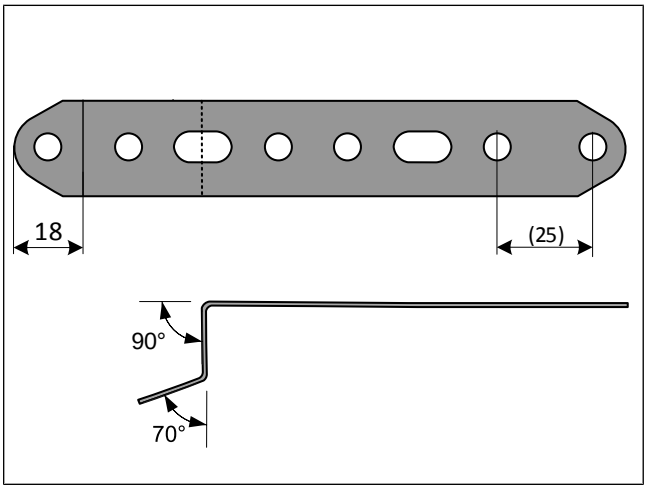


Fig. 18

Premounting exhaust silencer

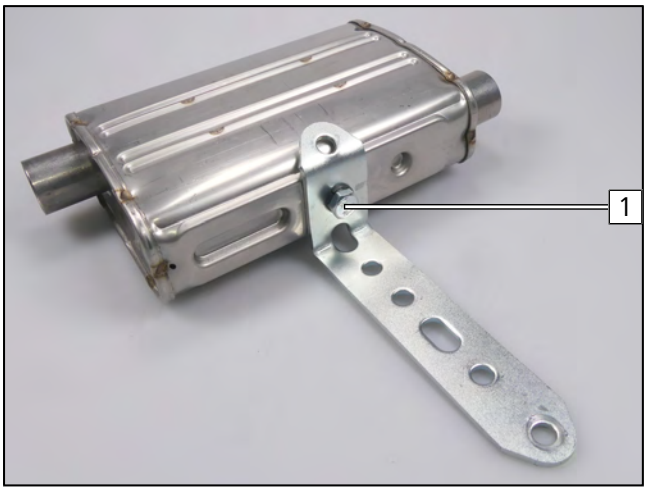


Fig. 19

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

Mounting exhaust silencer

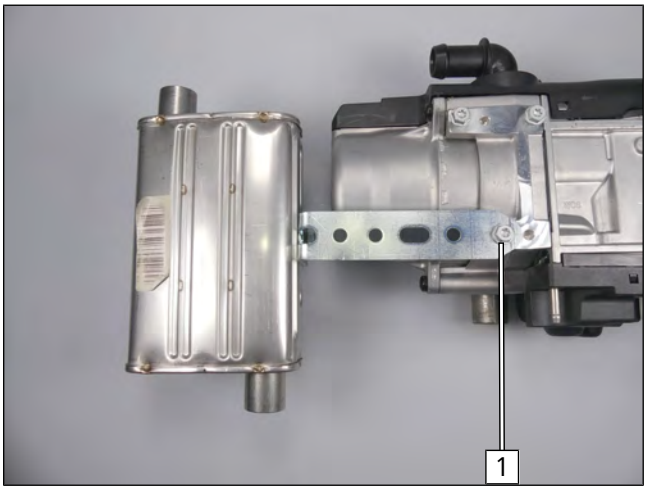


Fig. 20

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

Mounting fuel hose

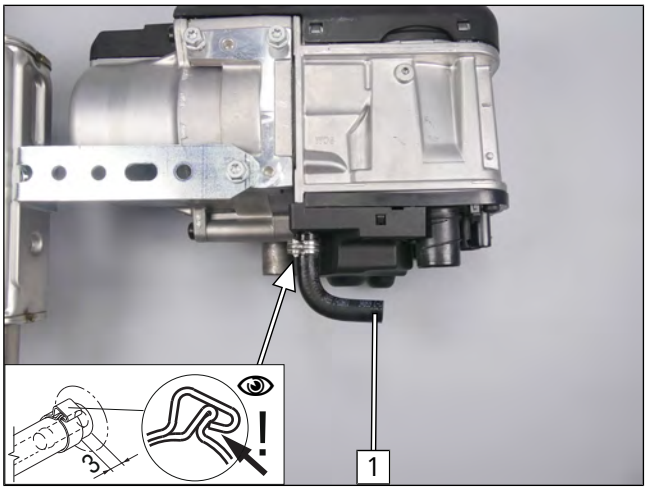


Fig. 21

1 90° moulded hose, Ø10 clamp

Shortening and bending perforated bracket

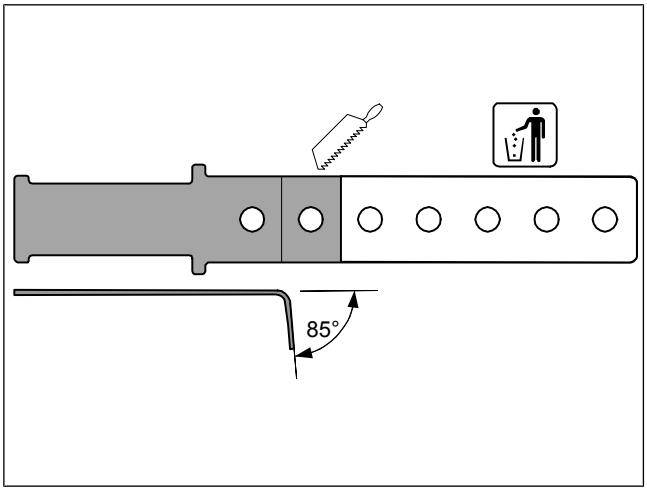


Fig. 22

Premounting coolant pump

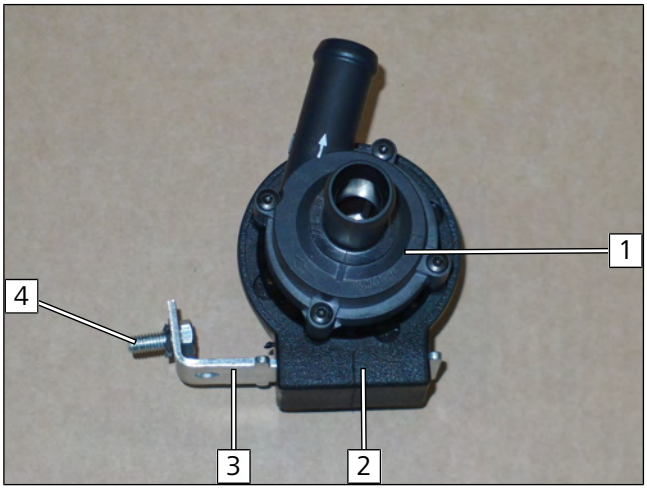


Fig. 23

1 Coolant pump
2 Coolant pump mount
3 Perforated bracket
4 M6x16 bolt, perforated bracket, lock washer

Cutting hoses to length

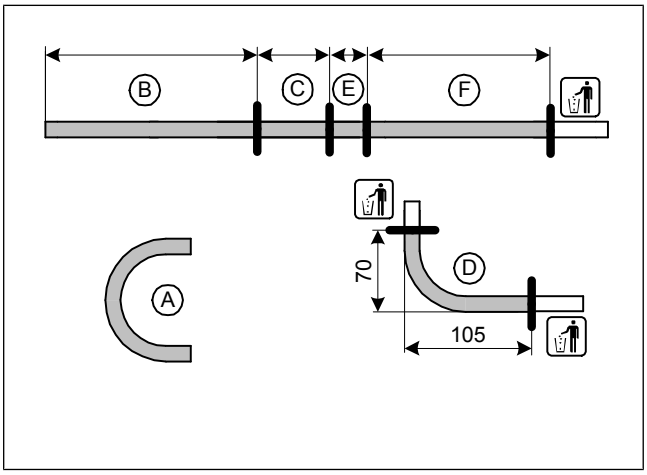


Fig. 24

Ⓐ	180° moulded hose
Ⓑ	630
Ⓒ	160
Ⓓ	90° moulded hose
Ⓔ	60
Ⓕ	680

Mounting fabric heat shrink tubing

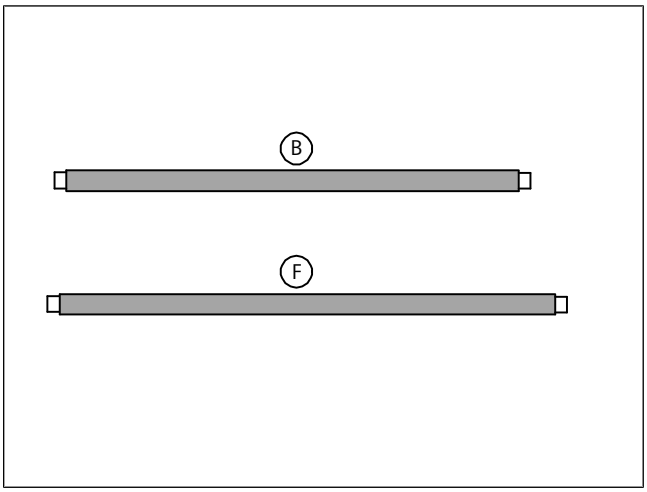


Fig. 25

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

Connecting hose Ⓓ to coolant pump outlet and HG/IN

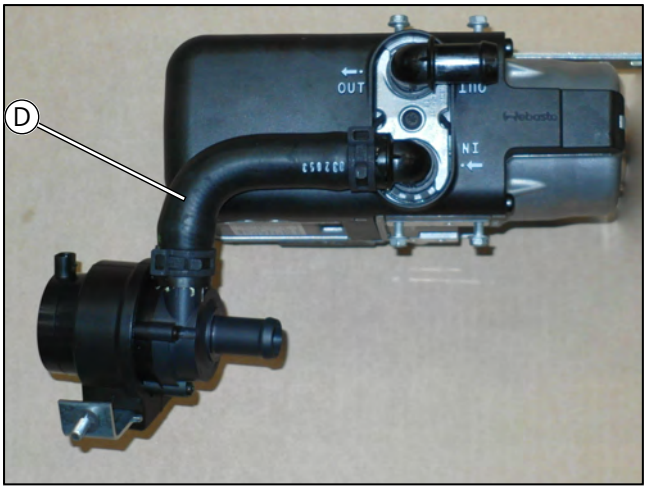


Fig. 26

All spring clips Ø25

Mounting coolant pump wiring harness

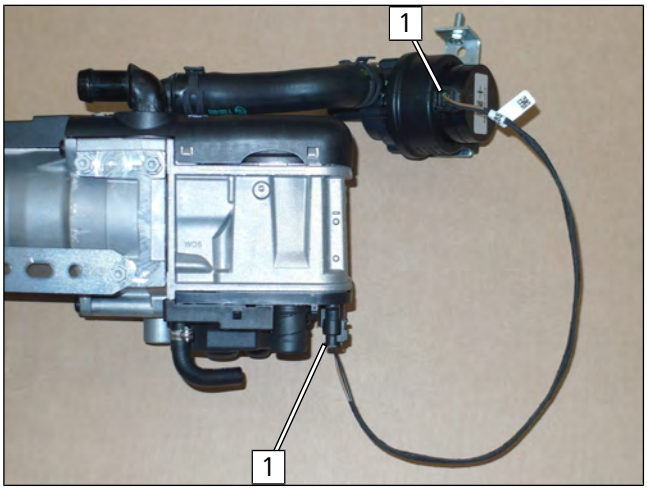


Fig. 27

1 Coolant pump wiring harness connector

8.3 Heater mounting

Mounting heater

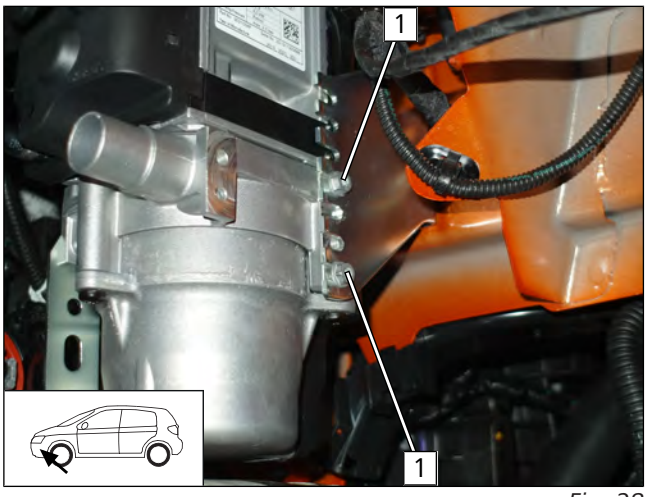


Fig. 28

1 Tighten 5x13 self-tapping bolt

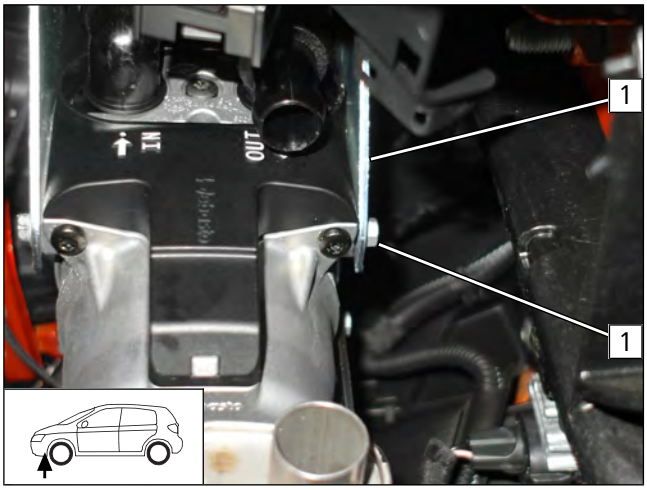


Fig. 29

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

Mounting HG wiring harness connector

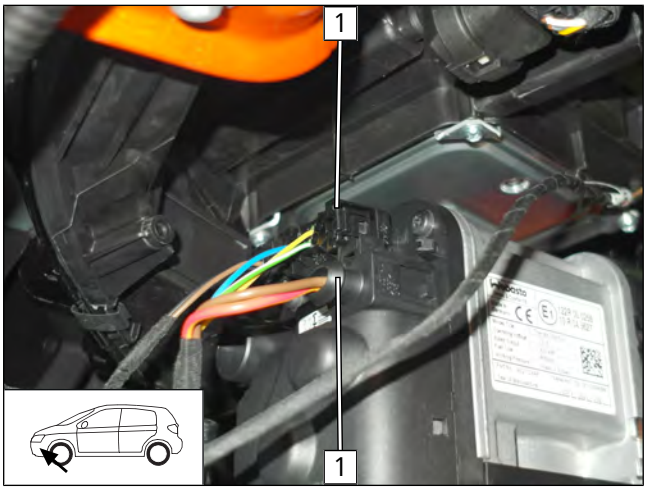


Fig. 30

1 Heater wiring harness connector

Mounting coolant pump

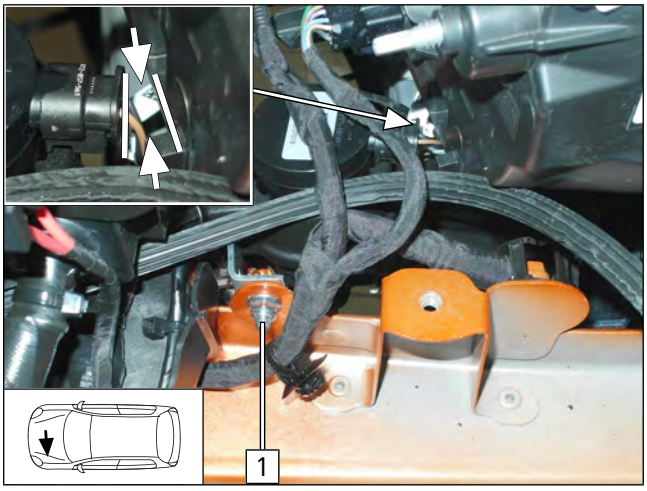
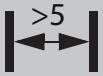


Fig. 31

Ensure sufficient distance between coolant pump wiring harness connector and headlight, correct if necessary.



1 Premounted bolt on coolant pump, original vehicle hole, flanged nut

9 Fuel

DANGER

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

The incorrect installation of the fuel extractor can cause damage and fire.

- ▶ Avoid electrostatic discharges and open fire
- ▶ When working on the fuel system, ensure sufficient ventilation and bleeding
- ▶ Open the fuel tank cap of the vehicle
- ▶ Ventilate the fuel tank
- ▶ Re-close the tank lock
- ▶ Catch any fuel running off with an appropriate container

Danger of damage to components

- ▶ Install fuel line and fuel pump wiring harness so that they are protected against stone impact
- ▶ Provide rub protection for fuel line and wiring harness in areas where there are sharp edges

Dismantling fuel pump connector X7

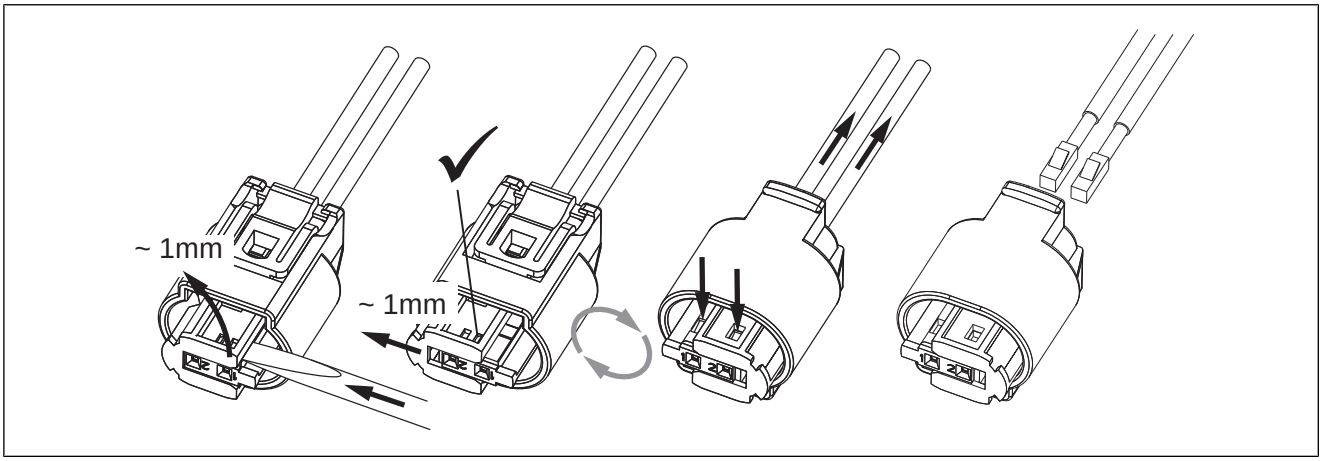


Fig. 32

9.1 Routing fuel line

Connecting heater

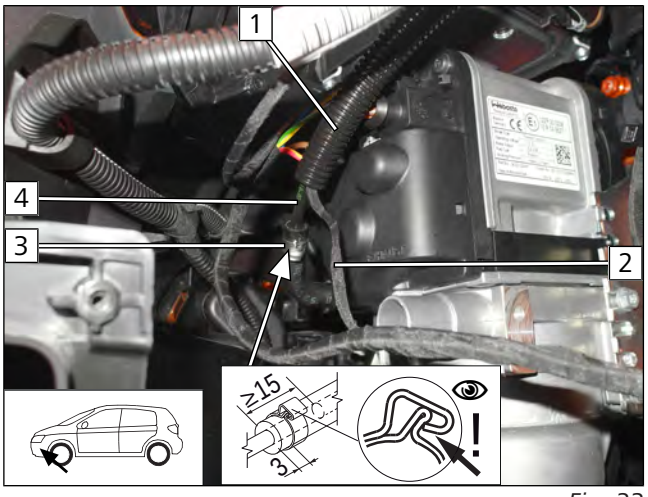


Fig. 33

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

[3] Ø10 clamp

Routing fuel line

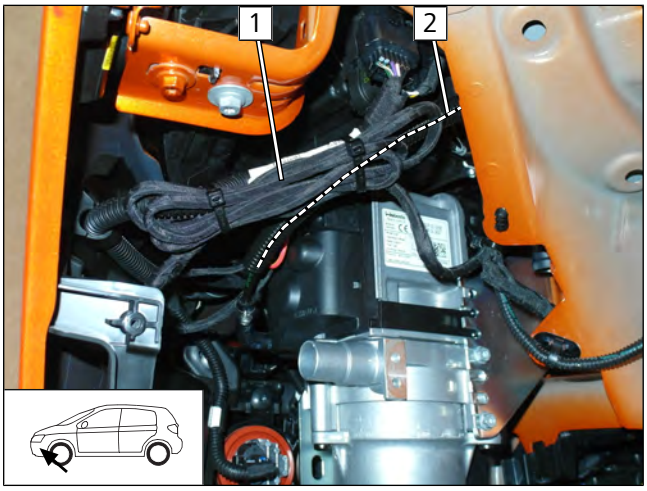


Fig. 34

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

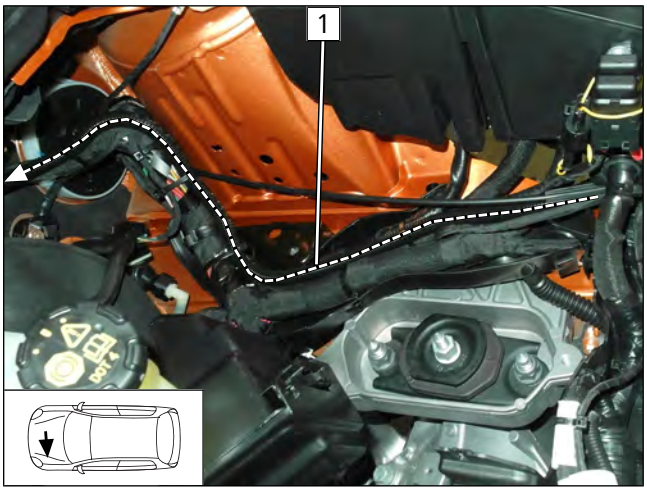


Fig. 35

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

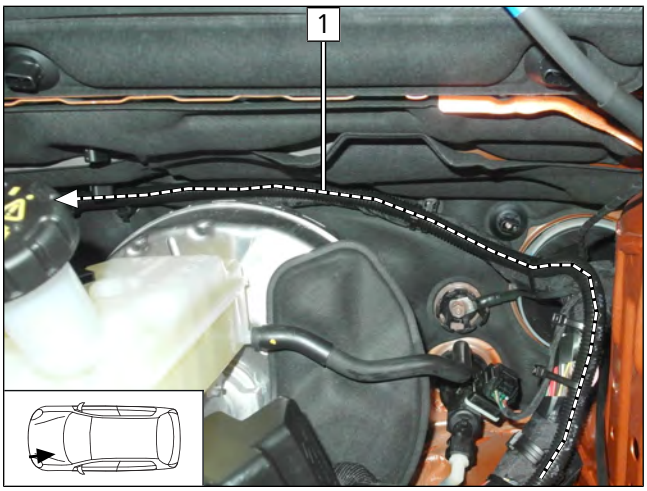


Fig. 36

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

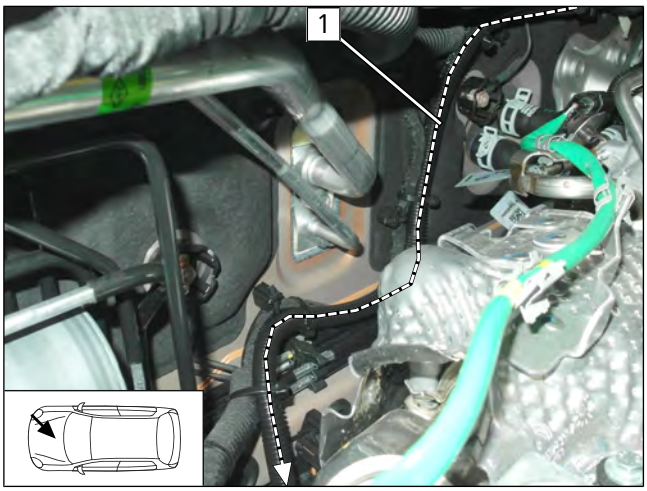


Fig. 37

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

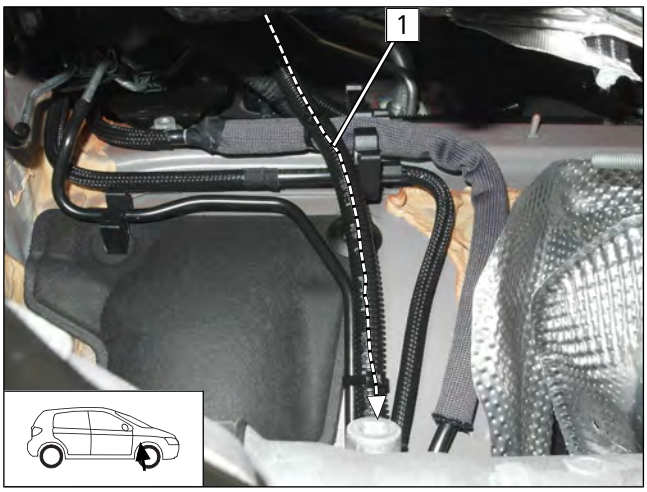


Fig. 38

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

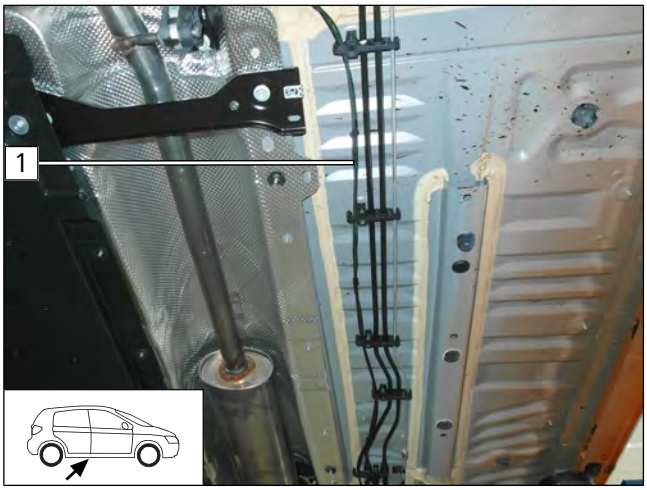


Fig. 39

▶ Route fuel line and fuel pump wiring harness **1** along original vehicle lines to the fuel pump installation location and attach with cable ties.

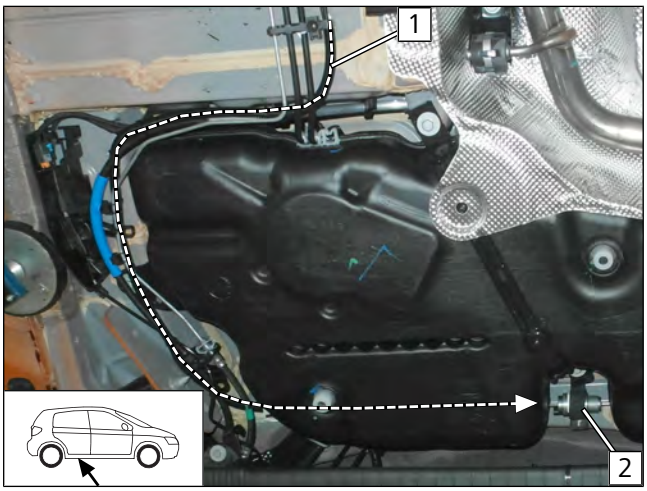


Fig. 40

▶ Draw fuel line and fuel pump wiring harness into Ø10 corrugated tube [1], route along original vehicle lines to the fuel pump installation location [2] and fasten with cable ties.

Preparing fuel pump perforated bracket

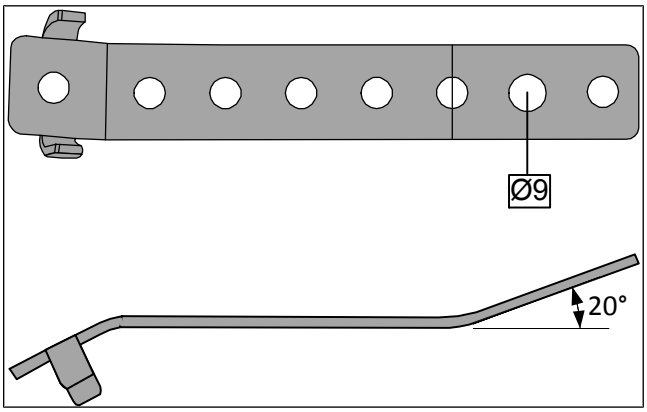


Fig. 41

Premounting fuel pump mount

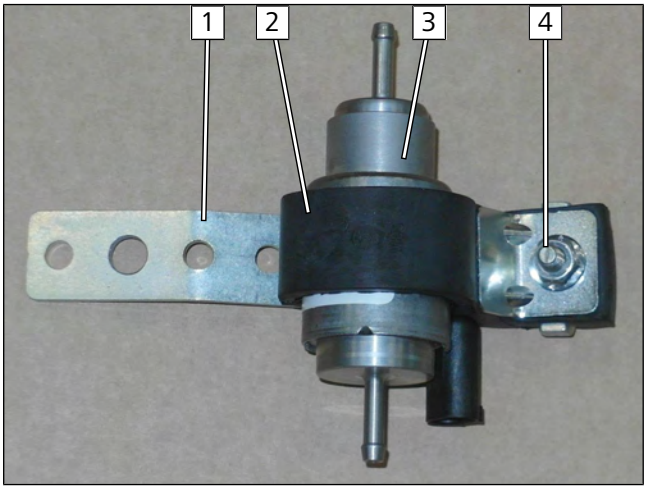


Fig. 42

[1] Perforated bracket
[2] Fuel pump mount
[3] Fuel pump
[4] M6x25 bolt, perforated bracket, fuel pump mount, support angle bracket, flanged nut

Mounting and aligning fuel pump

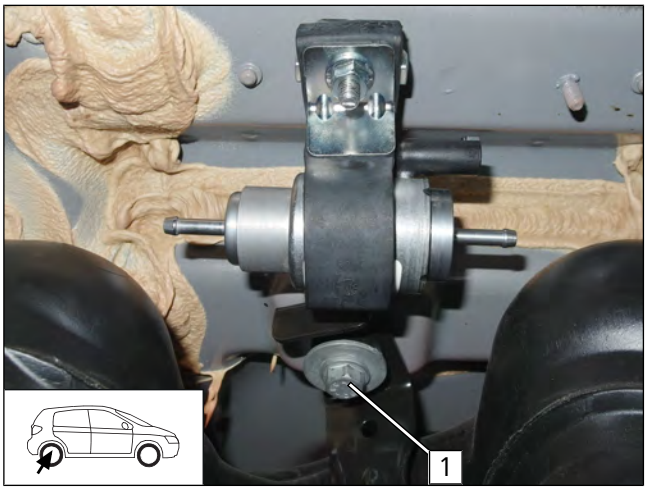


Fig. 43

[1] Original vehicle bolt with washer of the fuel tank mounting

Assembling fuel pump connector X7

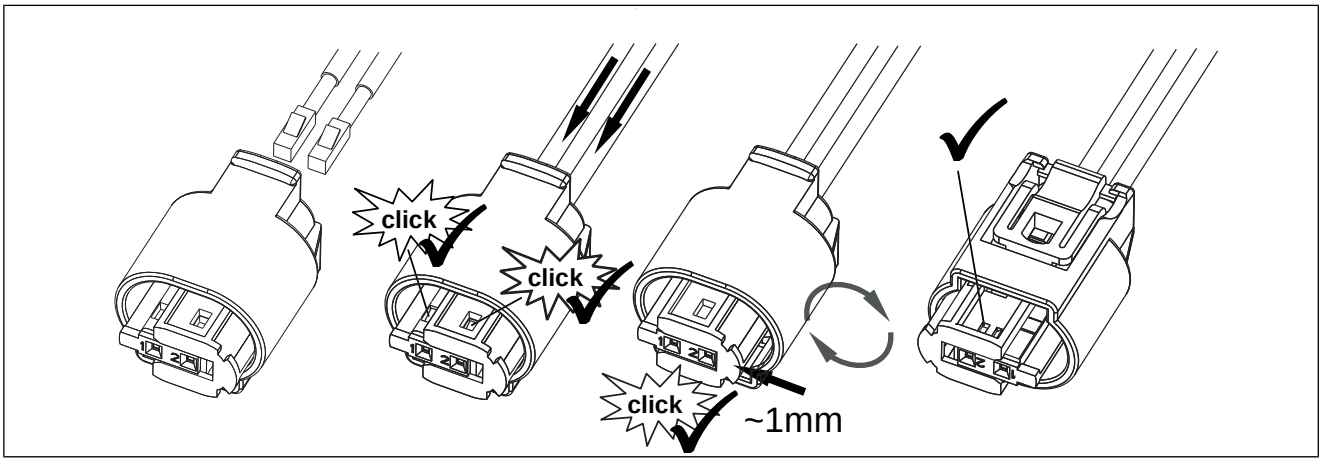


Fig. 44

Fuel pump connection

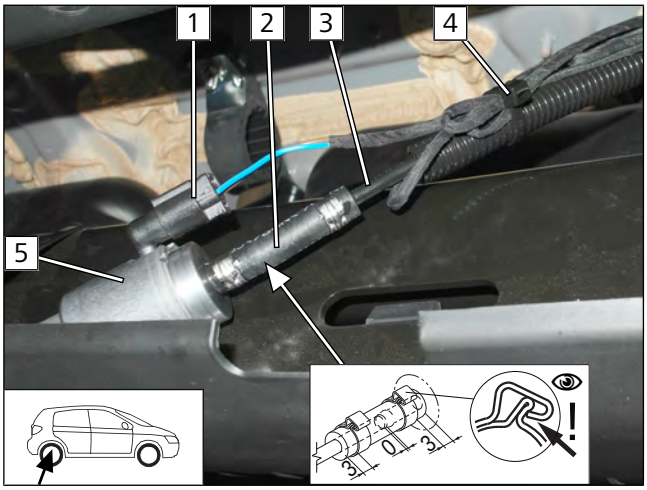


Fig. 45

▶ Remove fuel pump [5] from the mount to connect it.

[1] Fuel pump wiring harness, connector X7 mounted

[2] Hose section, Ø10 clamp [2x]

[3] Heater fuel line

[4] Attach the rest of the wiring harness with a cable tie

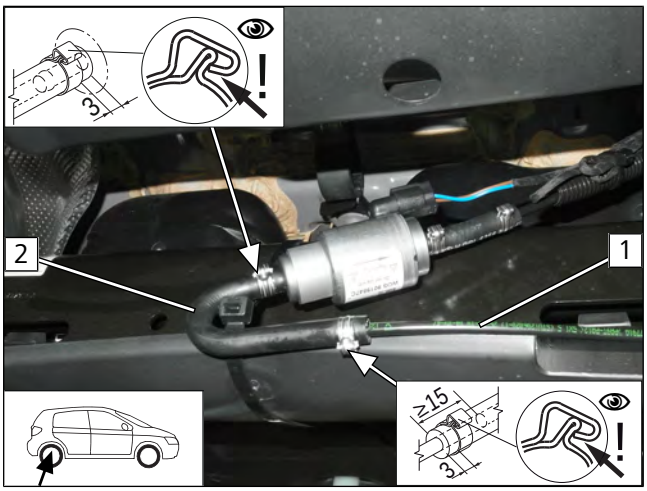


Fig. 46

1 Fuel line of FuelFix
2 180° moulded hose, Ø10 clamp [2x]

Routing fuel line

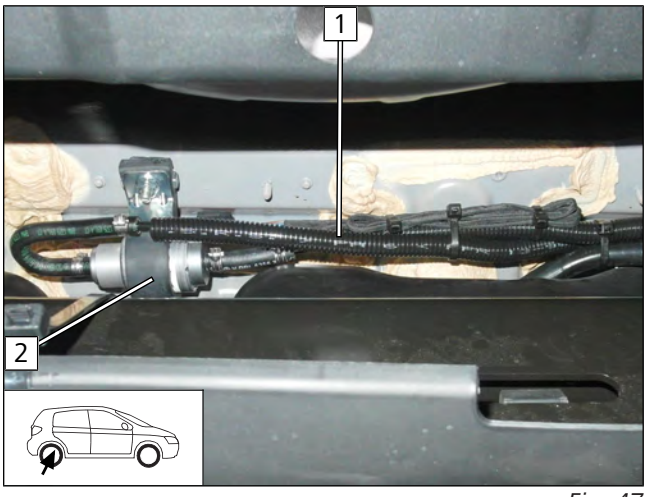


Fig. 47

- ▶ Thread fuel line of FuelFix through mount 2, reinstall the fuel pump in mount 2.
- ▶ Route corrugated tube 1 with fuel line to the tank fitting and attach with cable ties.

9.2 Installing FuelFix

View of drilling template

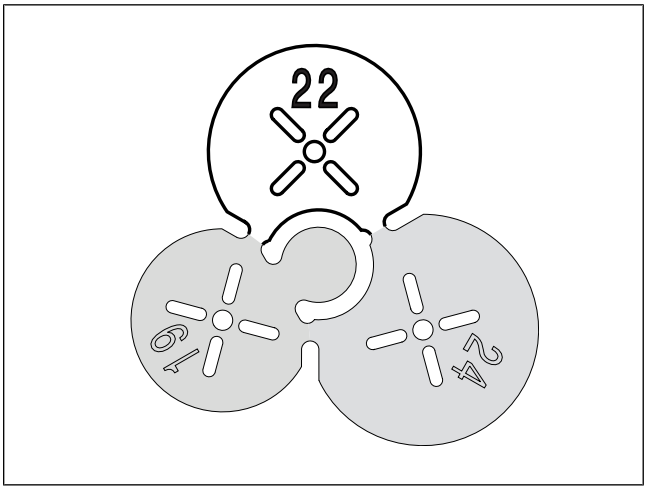


Fig. 48

Work steps F1, F2

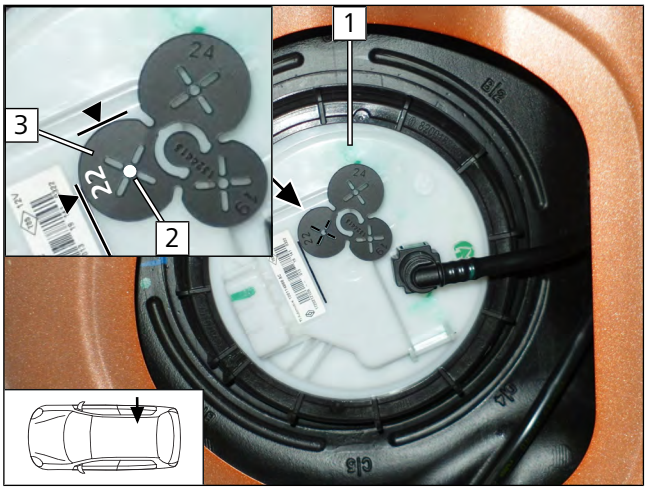


Fig. 49

Observe the installation instructions of the tank extracting device.

▶ Position template [3] at the markings as shown.

[1] Tank fitting
[2] Copy hole pattern

Work step F3

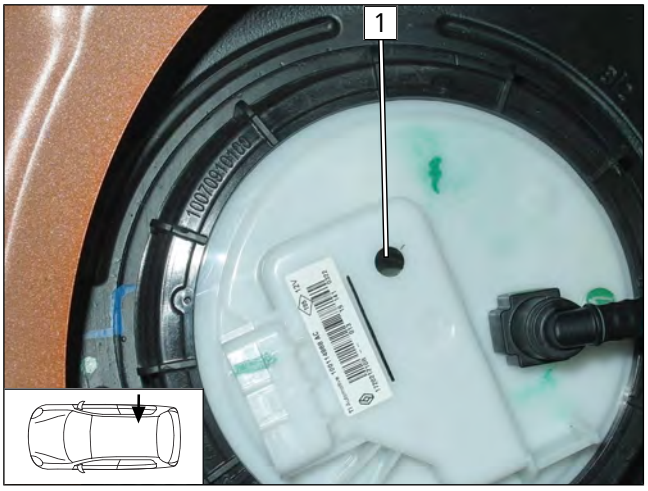


Fig. 50

DANGER

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

[1] Hole made with provided drill

Work steps F4, F5

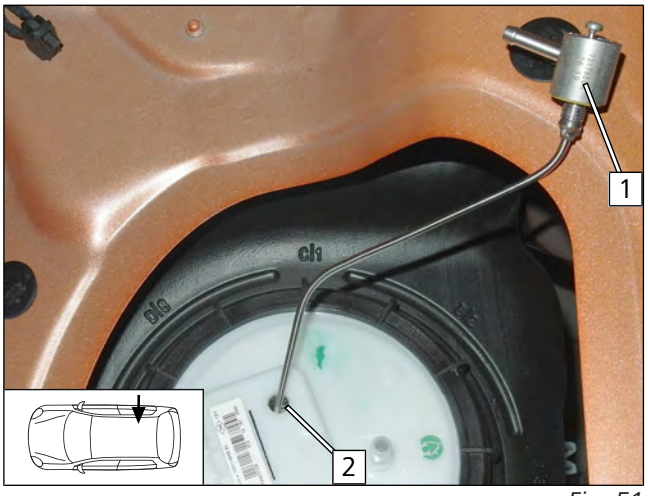


Fig. 51

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

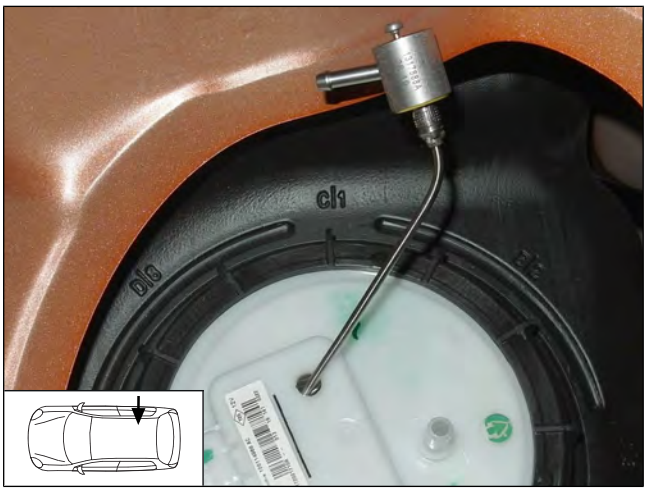


Fig. 52

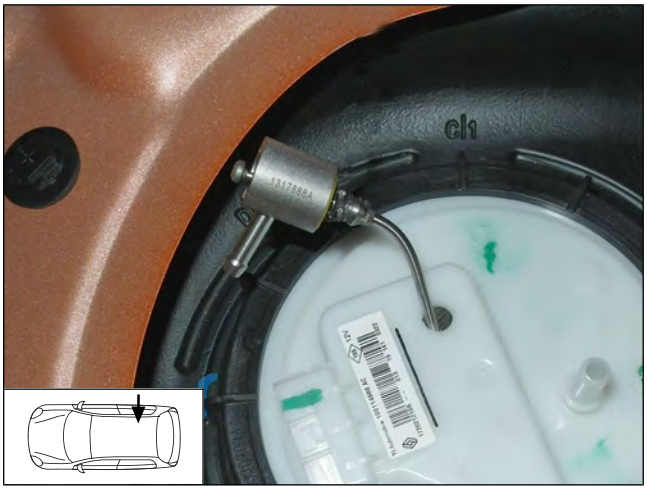


Fig. 53

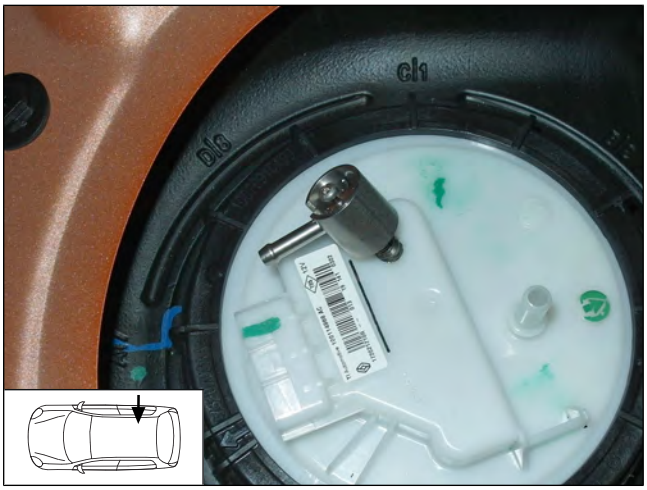


Fig. 54

Work steps F5.3, F5.4

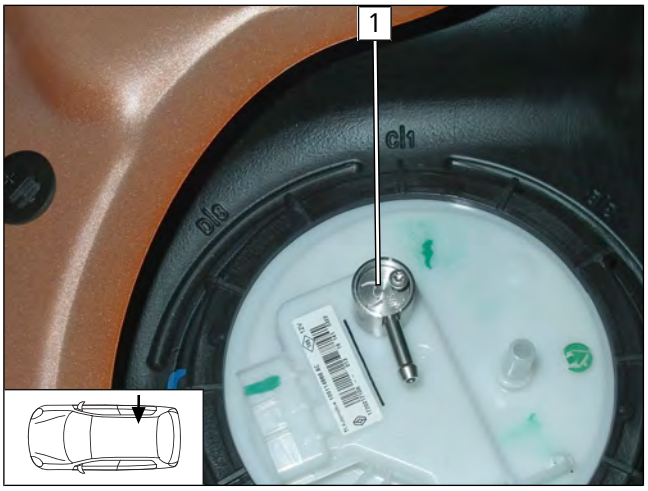


Fig. 55

▶ Align FuelFix [1] as shown.

Work step F6

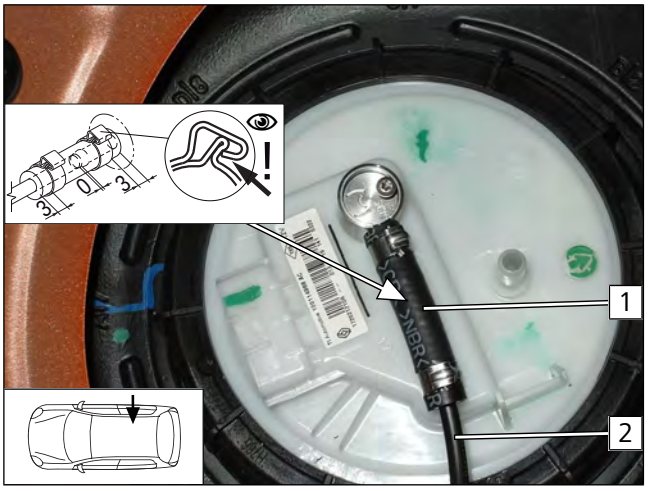


Fig. 56

[1] Hose section, Ø10 clamp [2x]

[2] Fuel line of FuelFix

Work step F7

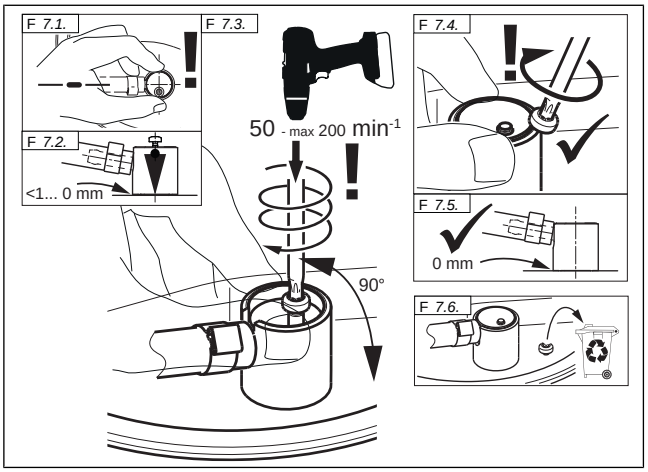


Fig. 57

DANGER

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

Work step F8

Fig. 58

▶ Ensure firm seating of FuelFix.

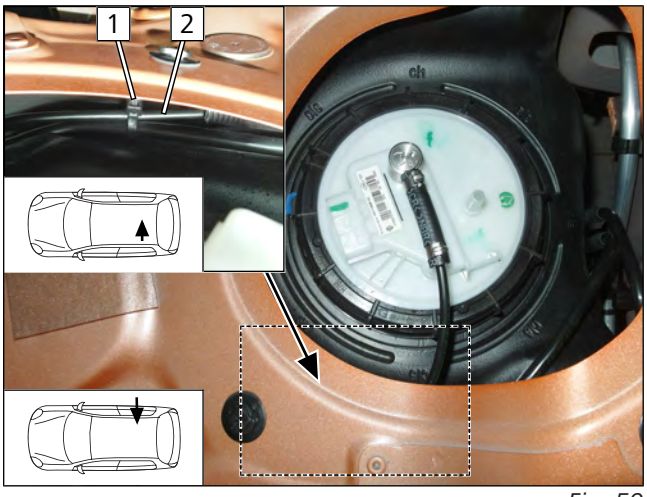


Fig. 59

▶ Attach fuel line 2 with cable tie 1 to original vehicle fuel line.

10 Combustion air

Removing insulation mat

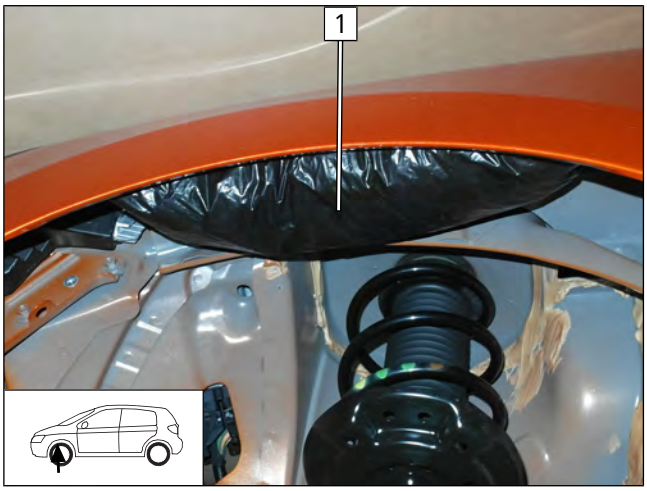


Fig. 60

1 Insulation mat

Shortening perforated bracket

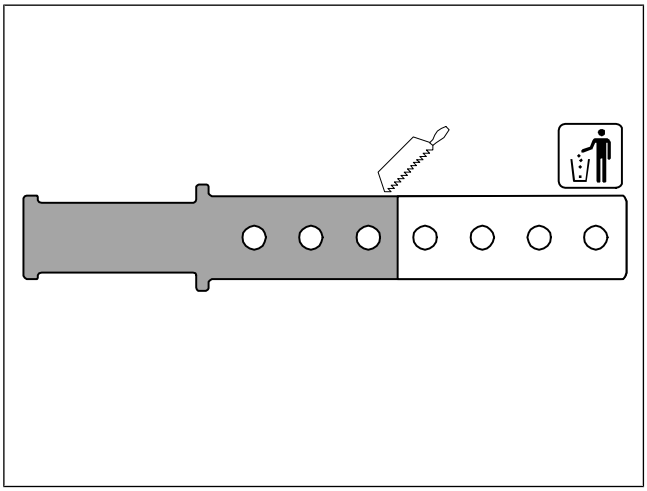


Fig. 61

Installing perforated bracket

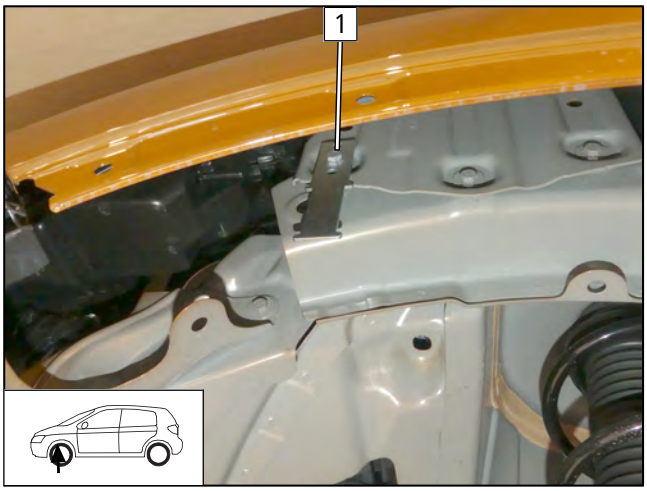


Fig. 62

▶ Remove original vehicle bolt at position 1

1 M6x25 bolt, spring lock washer, shortened perforated bracket, spacer (8), original vehicle hole

Premounting combustion air intake silencer

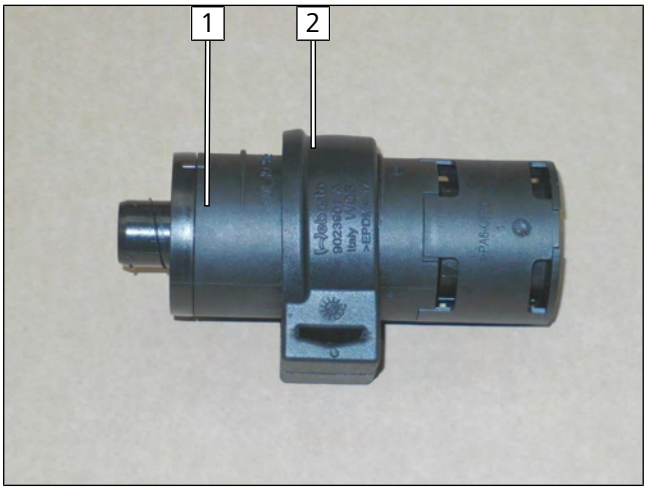


Fig. 63

1 Combustion air intake silencer
2 Combustion air intake silencer mount

Cutting combustion air intake pipe to length

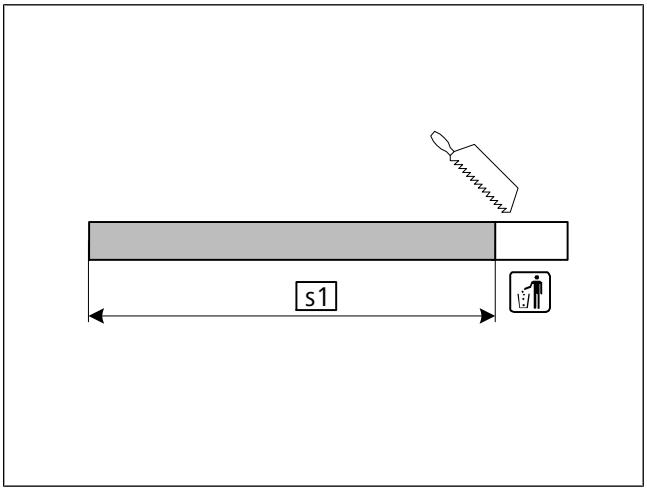


Fig. 64

s1 380

Mounting combustion air intake pipe

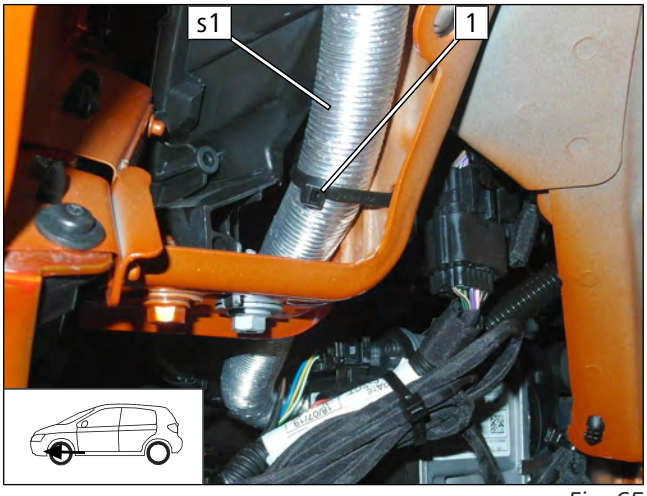


Fig. 65

Observe the installation instructions of the combustion air intake silencer.

▶ Mount combustion air intake pipe s1 onto HG, route through opening and fasten using cable tie 1 and threading it through original vehicle hole.

Mounting combustion air intake silencer

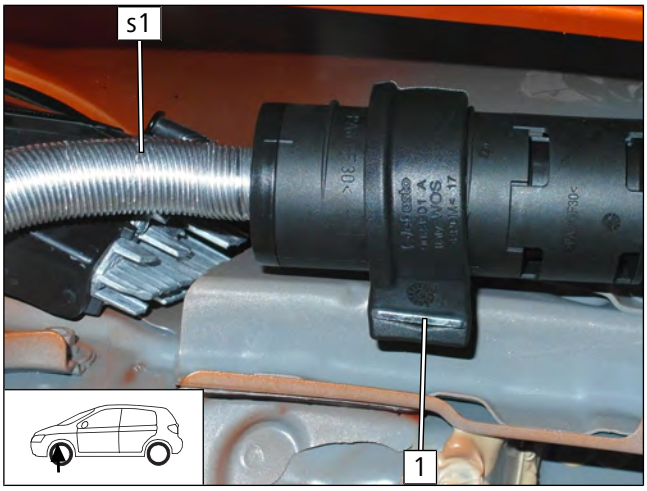


Fig. 66

▶ Mount combustion air intake silencer onto combustion air intake pipe **s1**, slide combustion air intake silencer mount onto perforated bracket **1**.

Gluing on insulation mat

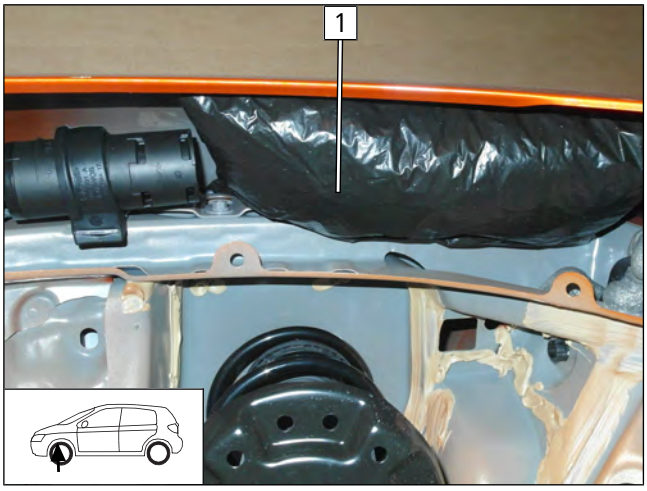


Fig. 67

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

1 Insulation mat

11 Coolant

11.1 Hose routing diagram

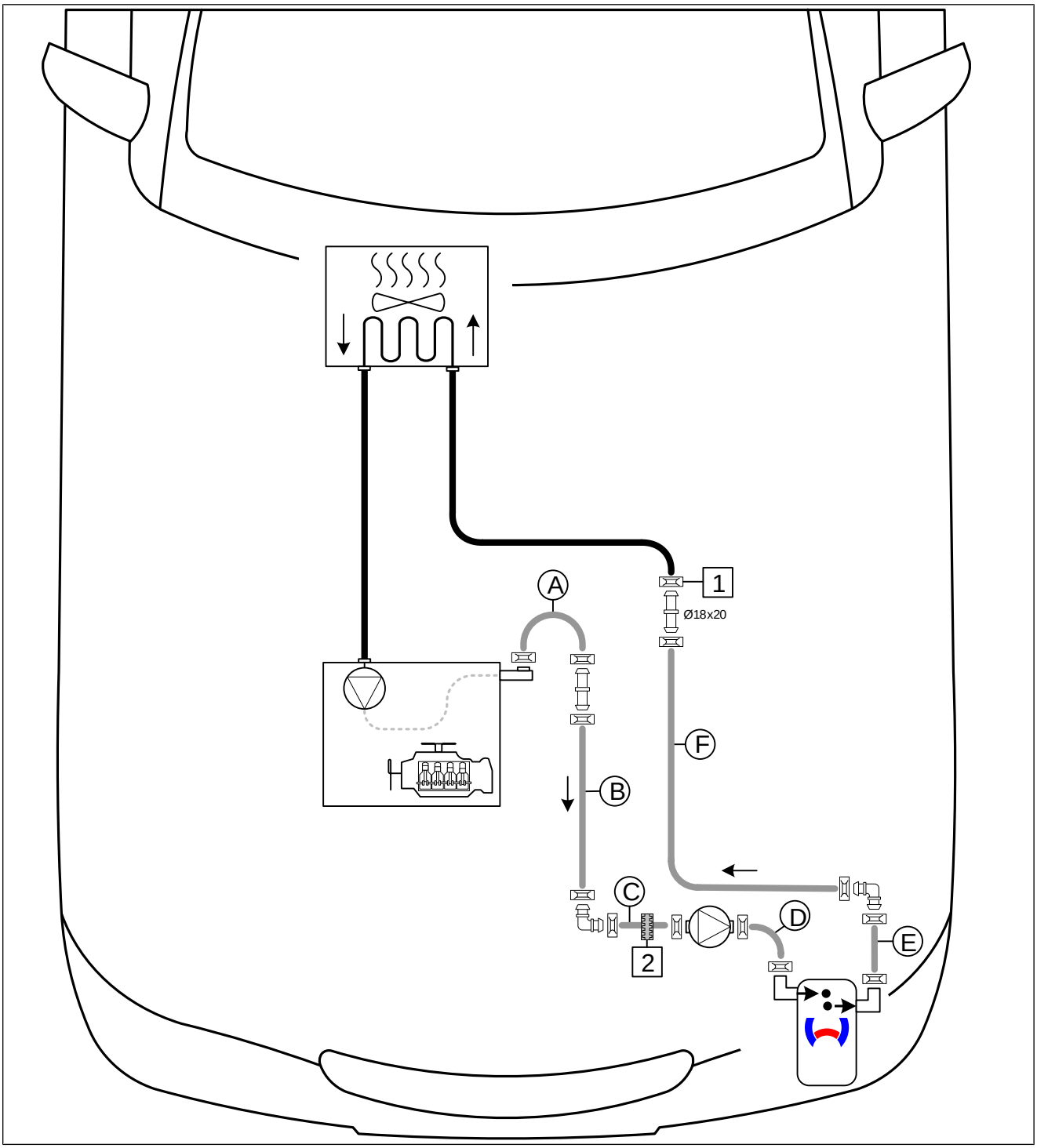


Fig. 68

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation or = Ø18x18

1 Original vehicle spring clip

2 Black (sw) rubber isolator

11.2 Coolant circuit installation

Connection of hose Ⓒ to the coolant pump

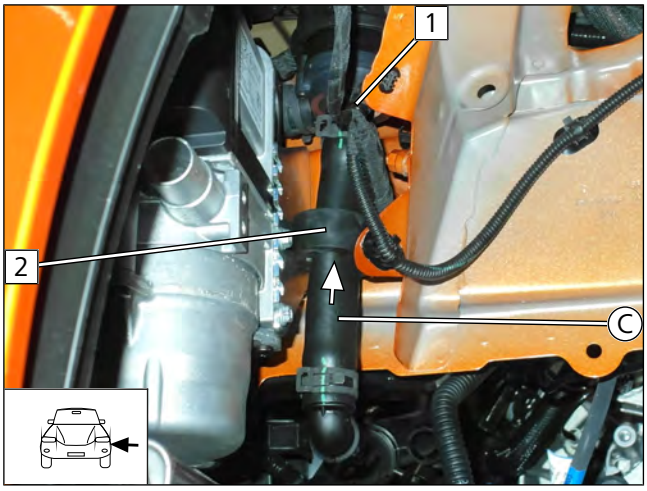


Fig. 69

1 Coolant pump inlet

2 Align black (sw) rubber isolator with HG bracket and earth support point

Connection of hose Ⓔ to HG/OUT

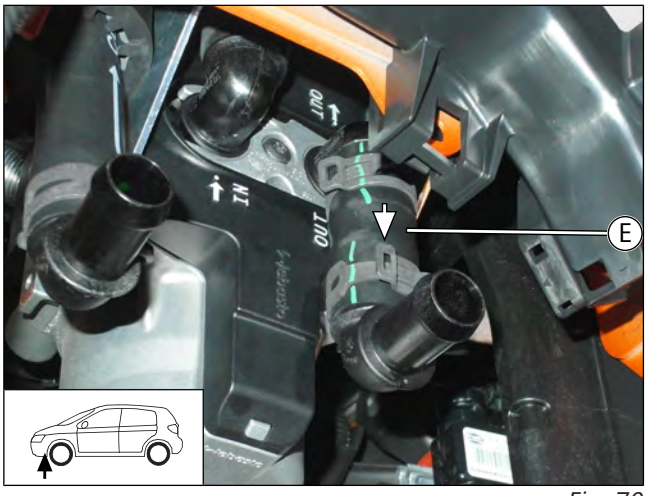


Fig. 70

Cutting point

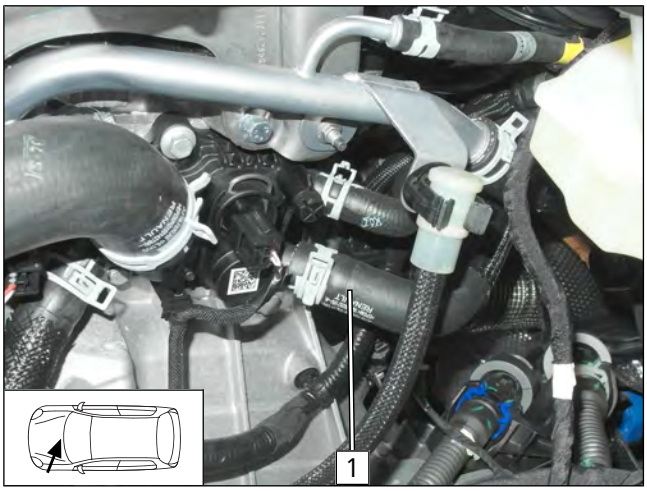


Fig. 71

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

Engine outlet/heat exchanger inlet connection

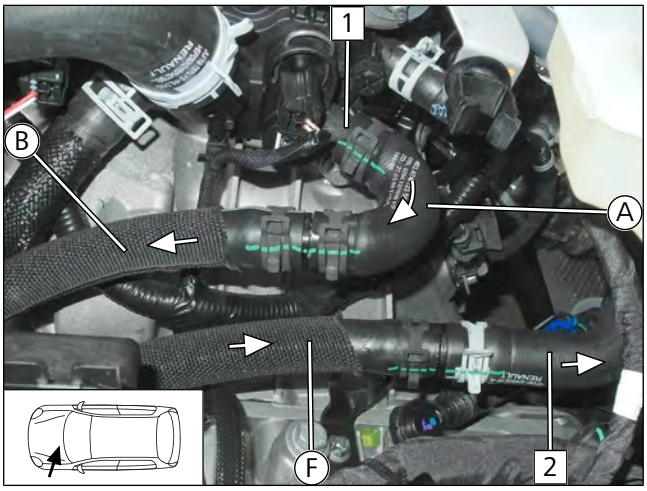


Fig. 72

1 Engine outlet connection

2 Heat exchanger inlet hose with original vehicle spring clip

Fastening hoses (B) and (F)

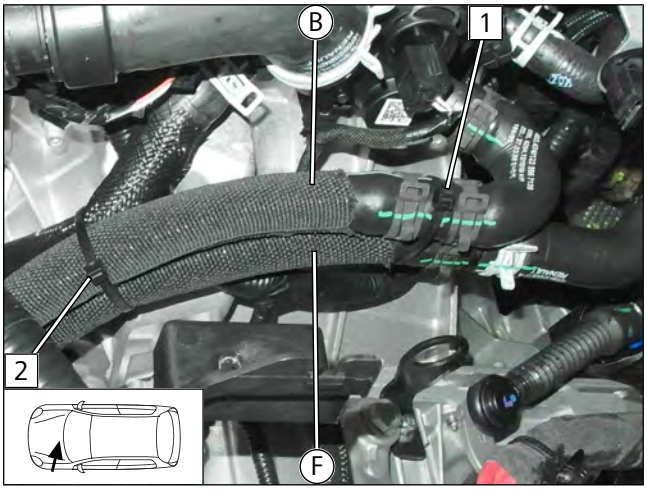


Fig. 73

1 Cable tie around hoses (B) and (F)

2 Cable tie around hoses (B), (F) and original vehicle hose

Connecting and fastening hoses (B) and (F)

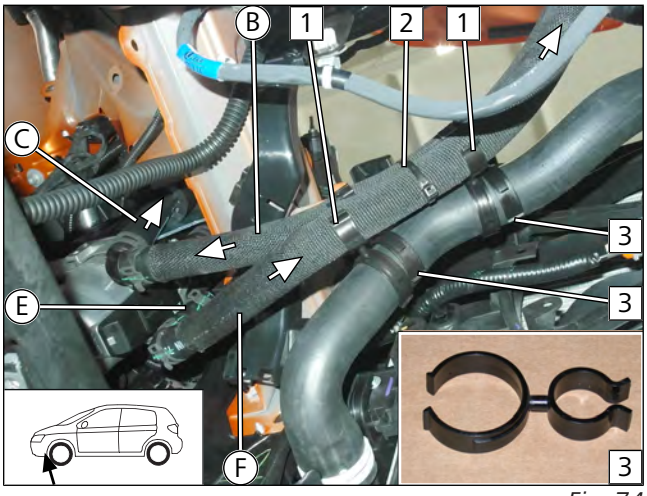


Fig. 74

▶ Connect hose (B) to hose (C).

▶ Connect hose (F) to hose (E).

1 Hose bracket around hose (F) and original vehicle hose

2 Cable tie around hoses (B) and (F)

3 Hose bracket around hose (B) and original vehicle hose

12 Exhaust

12.1 Mounting exhaust end fastener

Work steps E1, E2

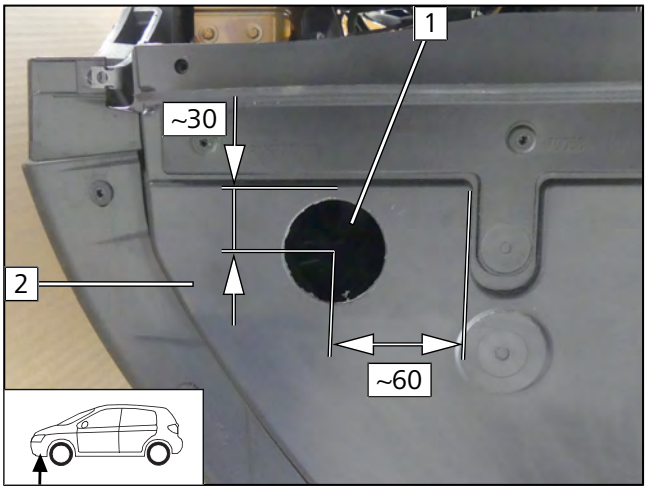


Fig. 75

Observe the EFIX installation instructions.

1 Hole
2 Underride protection

Work step E3

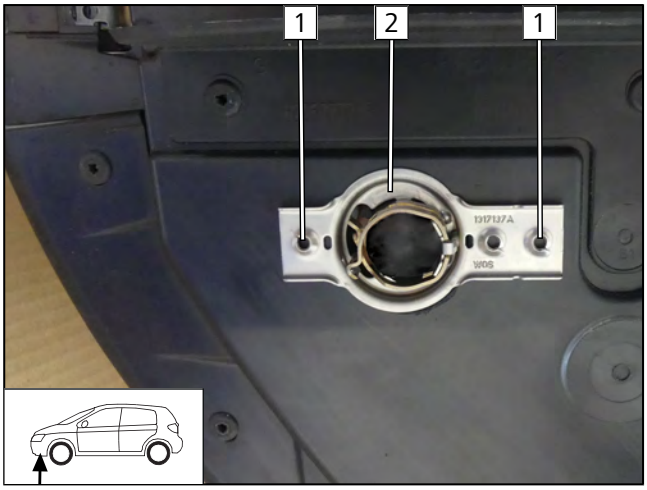


Fig. 76

1 Copy hole pattern
2 EFIX

Work step E4

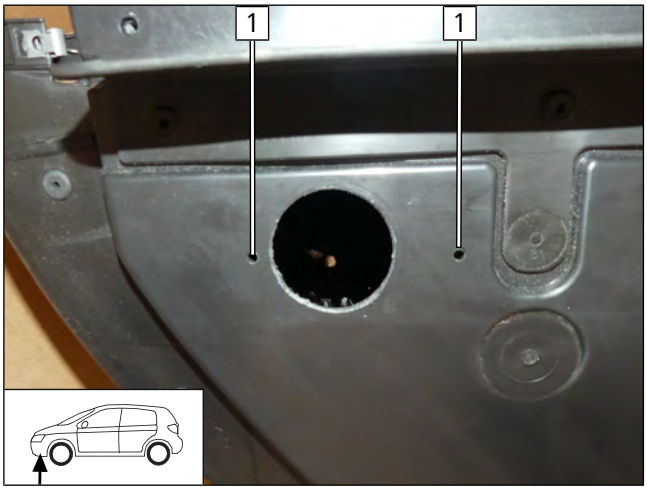


Fig. 77

1 Hole

Work step E5

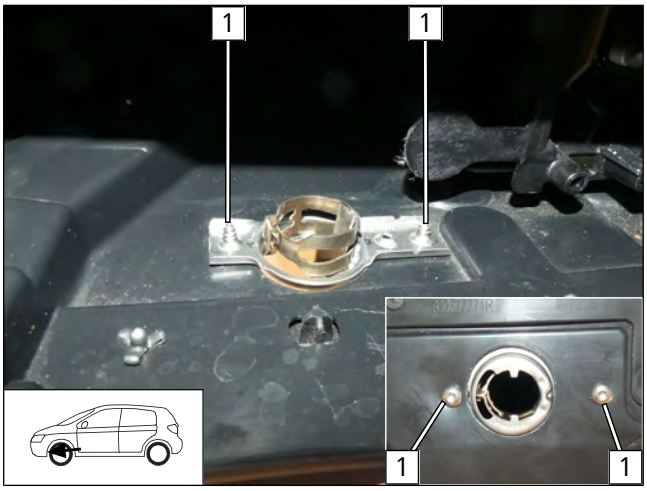


Fig. 78

1 5x13 self-tapping screw

12.2 Mounting exhaust pipe

Cutting exhaust pipe to length

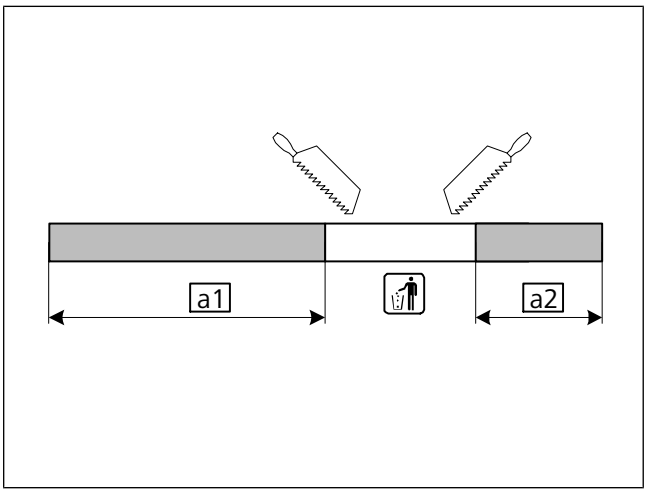


Fig. 79

a1 240
a2 260

Mounting exhaust pipe a1

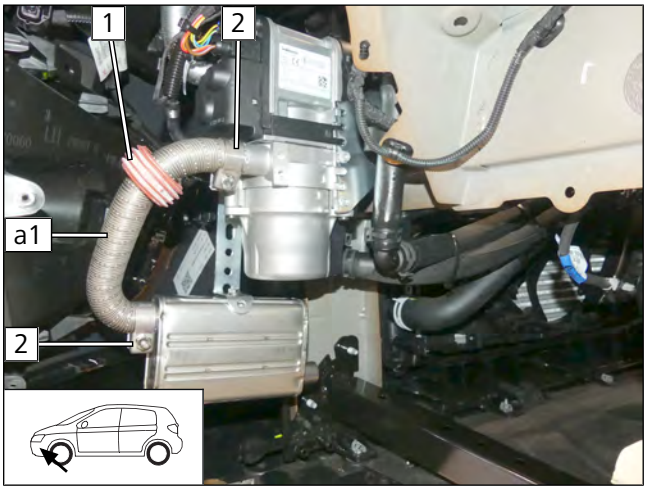


Fig. 80

1 Spacer bracket
2 Hose clamp

Mounting exhaust pipe a2

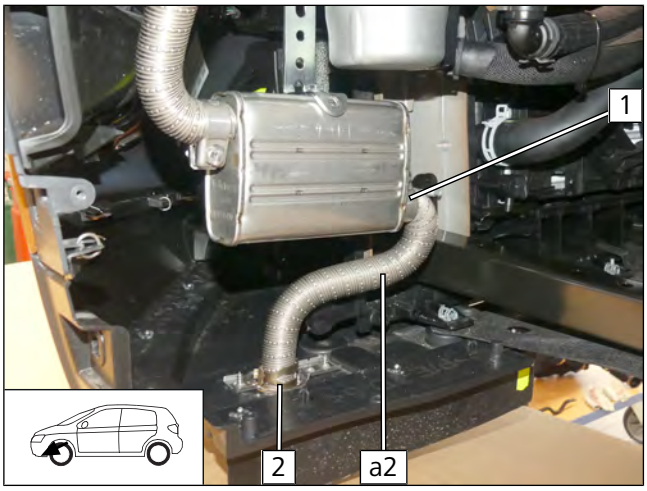


Fig. 81

1 Hose clamp
2 EFIX

Preparing wheel well trim insulation

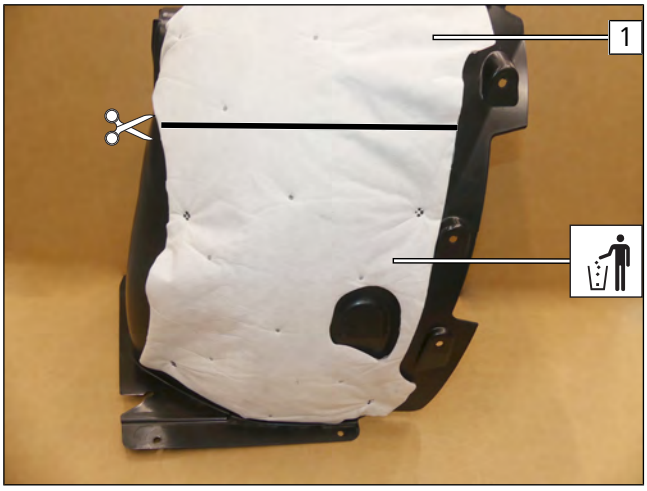


Fig. 82

▶ Cut insulation 1 as shown.

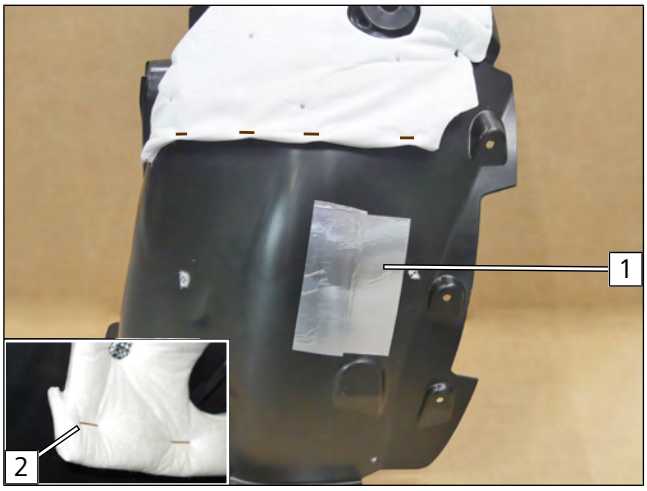


Fig. 83

▶ Cut heat protection film 1 in half and glue onto wheel well trim as shown.

▶ Fold insulation as shown and fasten using suitable means (e.g. staples 2).

Checking distance

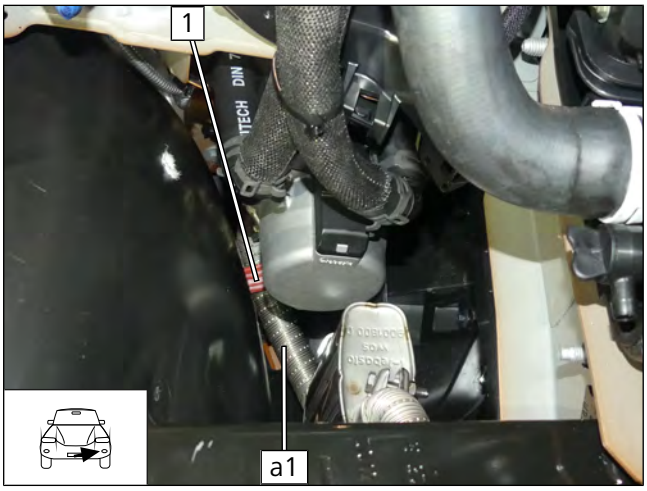
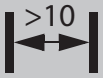


Fig. 84

▶ Install wheel well trim.

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



1 Align spacer bracket with wheel well trim

13 Electrical system of passenger compartment

13.1 Electrical system preparation

Preparing / assigning wires

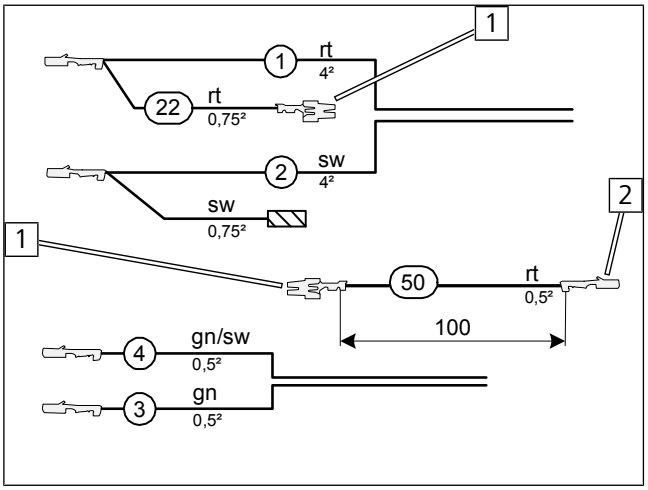


Fig. 85

Wire sections retain their numbering in the entire document.

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

Assembling PWM GW and RSH sockets, connecting wires

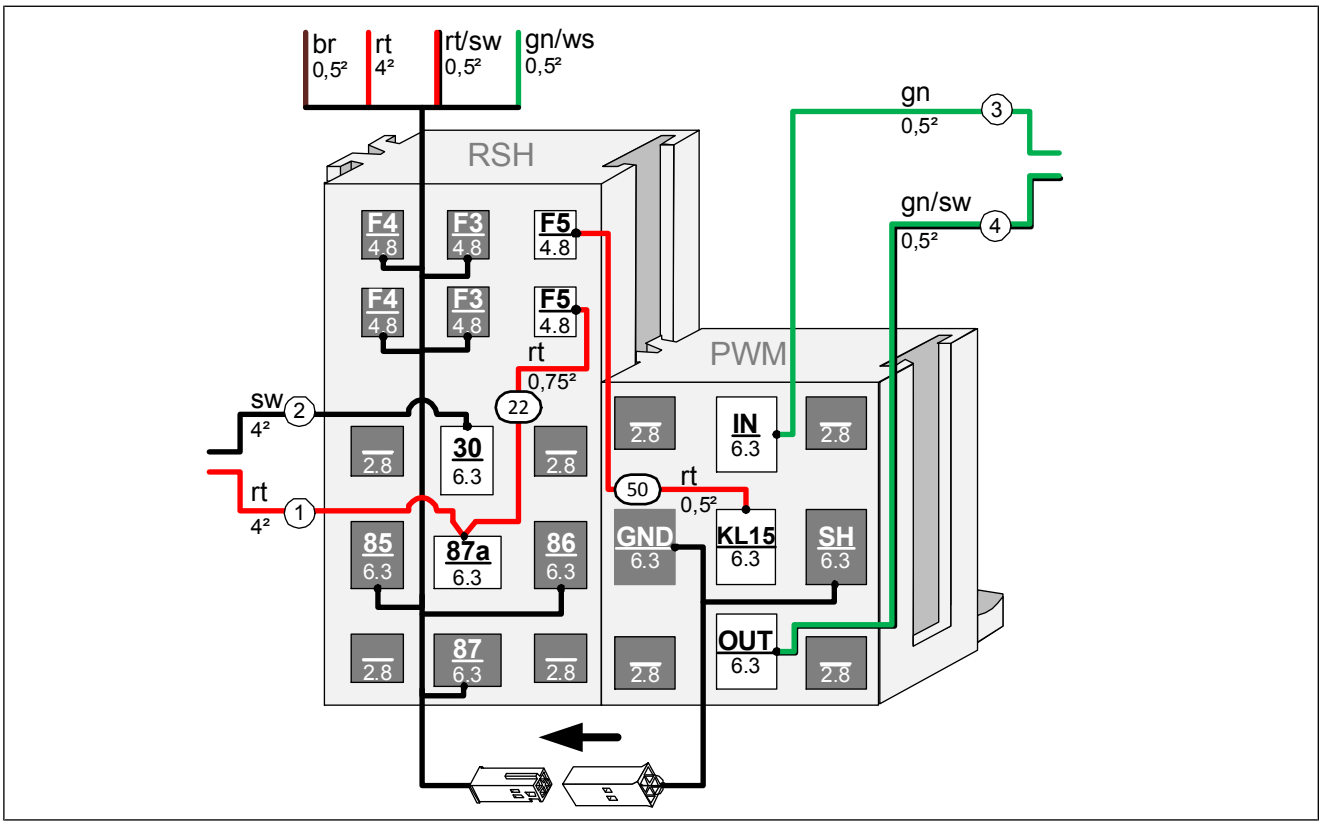


Fig. 86

View of PWM GW

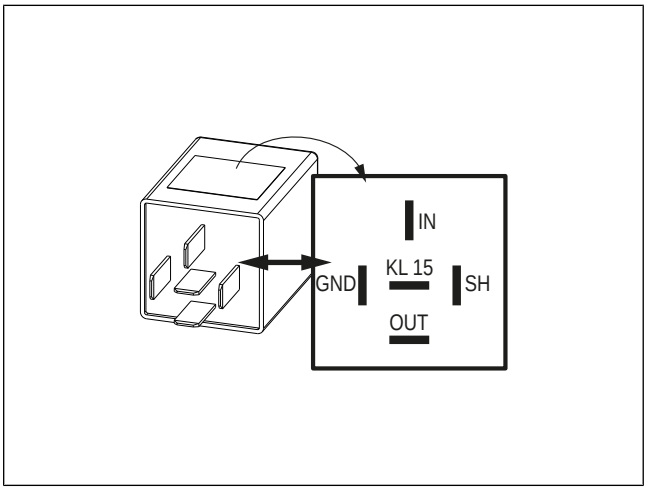


Fig. 87

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

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

Mounting angle bracket on RSH

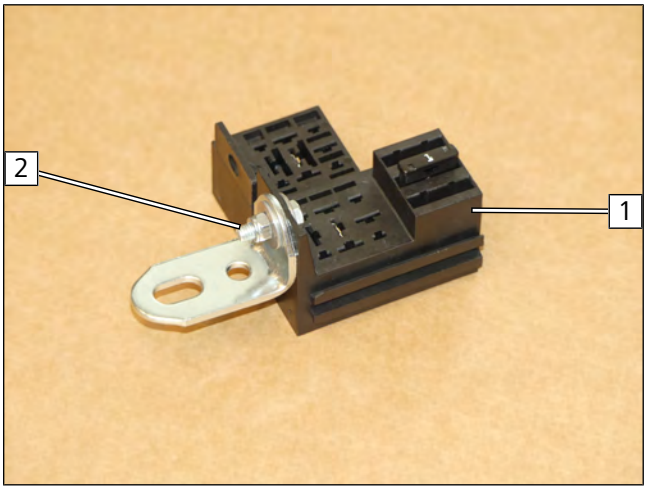


Fig. 88

1 RSH

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

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

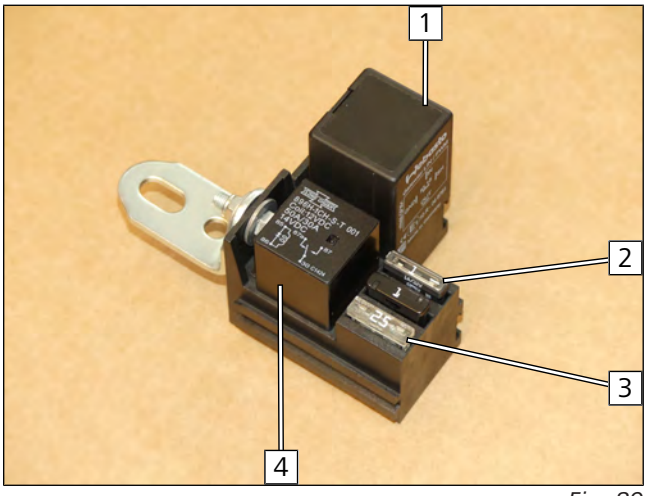


Fig. 89

1 PWM GW

2 1A fuse F5

3 25A fuse F4

4 Relay K1

13.2 Wiring diagram

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

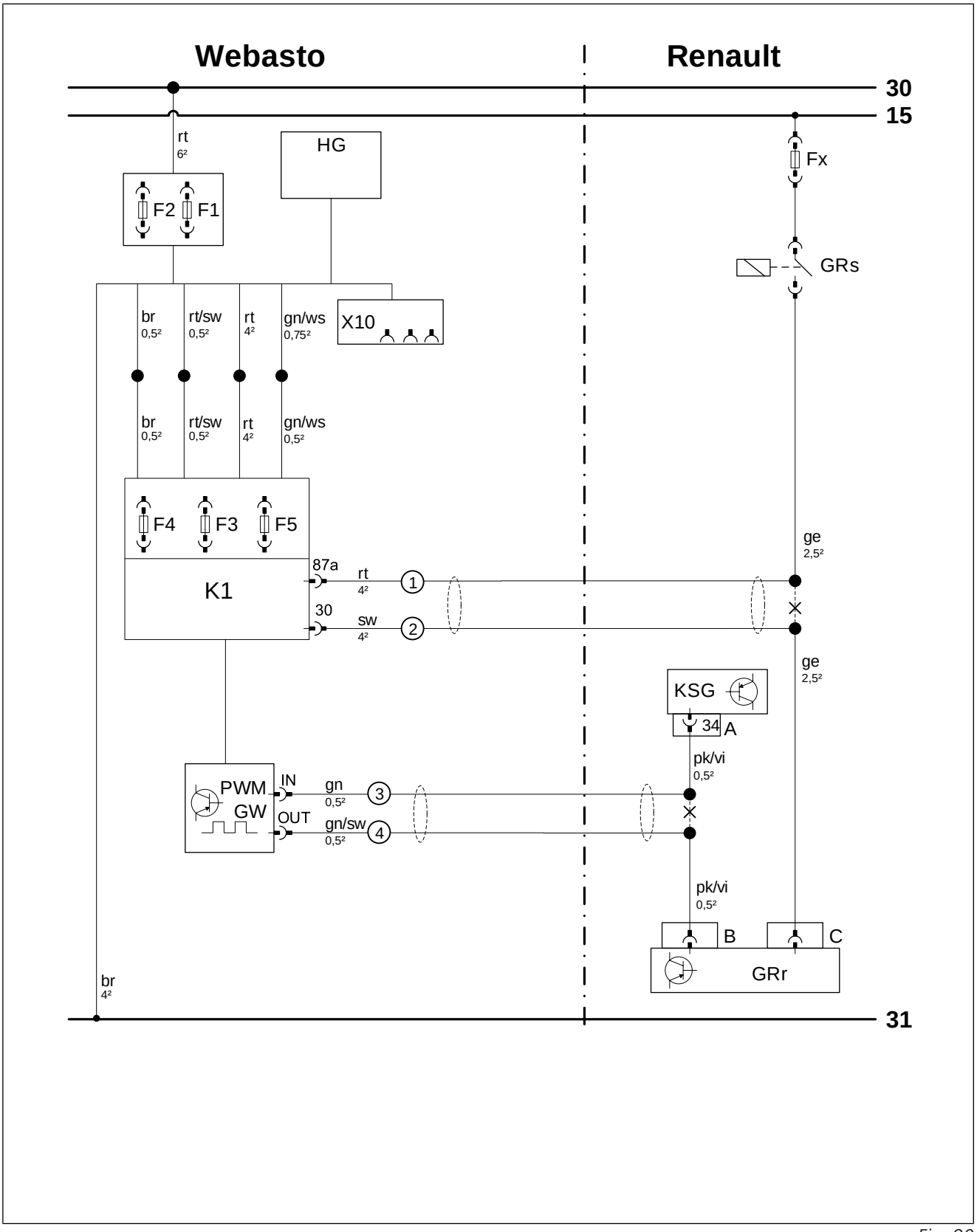


Fig. 90

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
Fx	Fuse	X	Cutting point
GRs	Fan relay		
KSG	Air-conditioning control unit		
A	KSG connector		
GRr	Fan controller		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Male plug for CLR module wiring harness	bg	beige
B	Female plug for CLR module wiring harness	bl	blue
C	Male plug for adapter wiring harness	br	brown
D	Female plug for adapter wiring harness	dbl	dark blue
E	Male plug for Plug&Play wiring harness	dgn	dark green
F	Female plug for Plug&Play wiring harness	ge	yellow
CCL GW	Micro Gateway CAN CAN LIN	gn	green
CL GW	Micro SPS CAN / WBus (Gateway CAN LIN)	gr	grey
CLR	CAN LIN Rxx (cold start module)	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	la	salmon
F0	Additional fuse for power supply	or	orange
F1	Heater main fuse	pk	pink
F2	Passenger compartment fan controller main fuse	rt	red
F3	Control element fuse	sw	black
F4	Fan controller fuse	vi	violet
F5	Additional fuse	ws	white
HG	Heater TT-Evo		
K1	Relay K1		
K2	Relay K2		
K3	Relay K3		
LA	Power adapter		
LIN GW	LIN Gateway		
MV	Solenoid valve		
PWM GW	LIN Gateway / PWM (pulse width modulator)		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	Female plug for control element		

13.3 Instrument panel trim removal notes

Removing shift lever trim

Fig. 91

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

Dismantling centre console frame

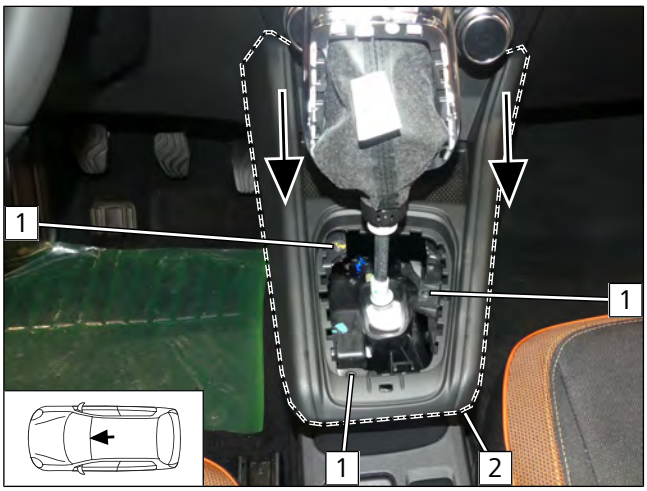


Fig. 92

▶ Undo screws 1.

▶ Remove frame 2 by loosening it in the opposite direction of travel.

Removing trim

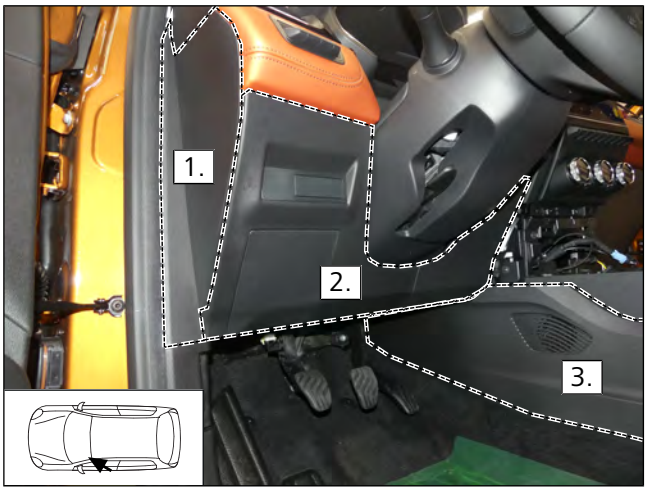


Fig. 93

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

13.4 Fan controller

Detaching fuse and relay box

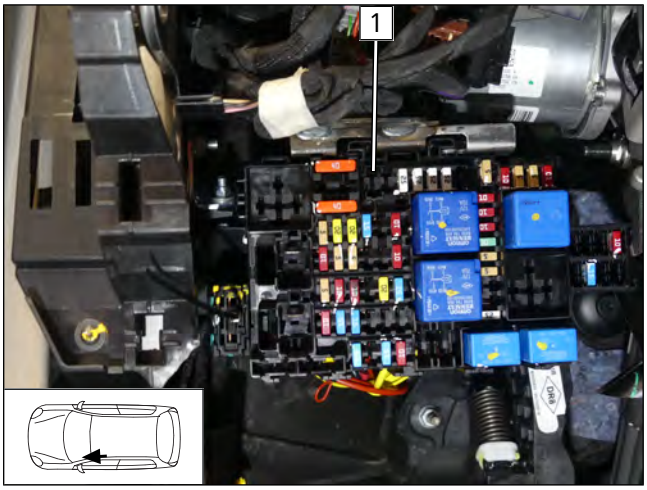


Fig. 94

1 Detach the fuse and relay box

RSH installation location

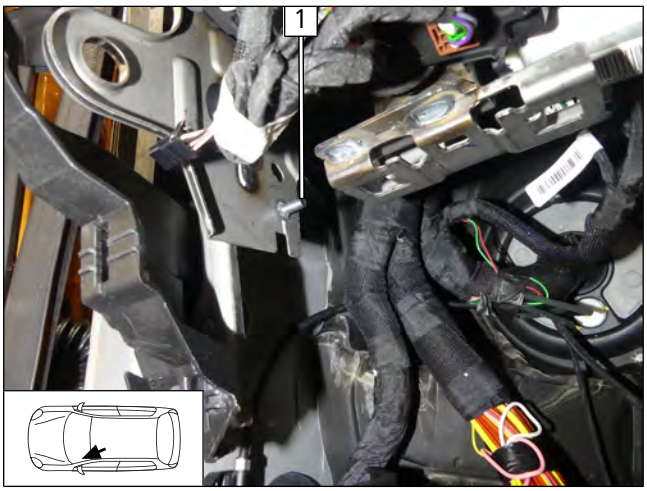


Fig. 95

1 M6x16 bolt, original vehicle hole, lock washer

Mounting RSH

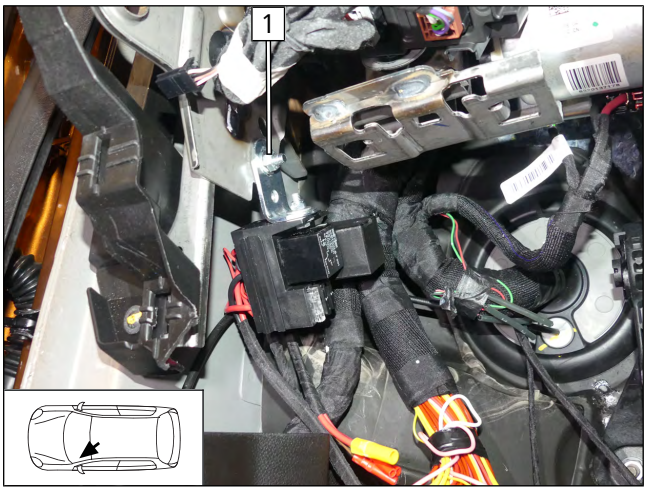


Fig. 96

1 M6x16 bolt, lock washer, angle bracket, flanged nut

Connecting same colour wires of wiring harnesses

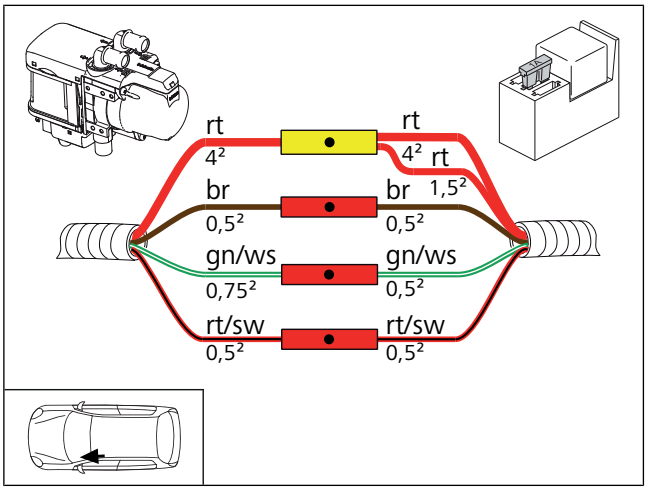


Fig. 97

View of fuse and relay box

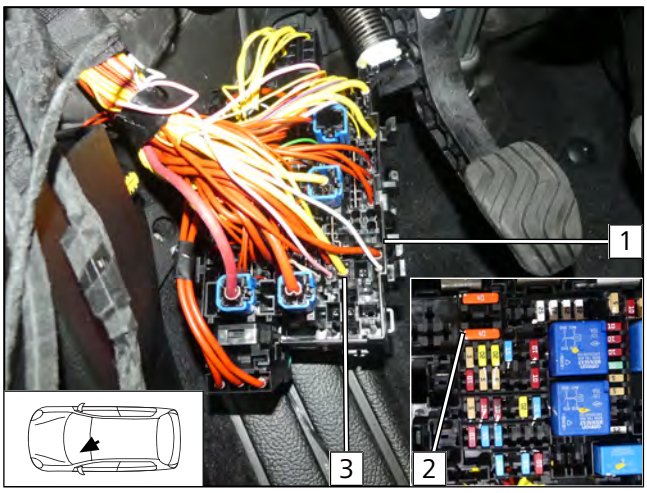


Fig. 98

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

1 Fuse and relay box
2 Fuse 40A

Connecting fan controller

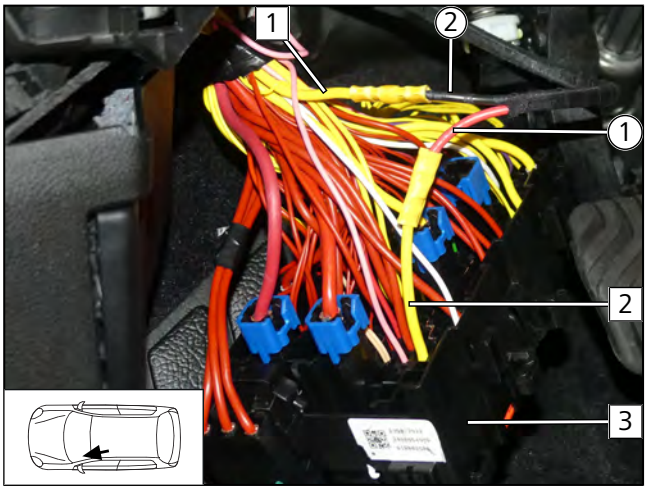


Fig. 99

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

Connecting air-conditioning control unit

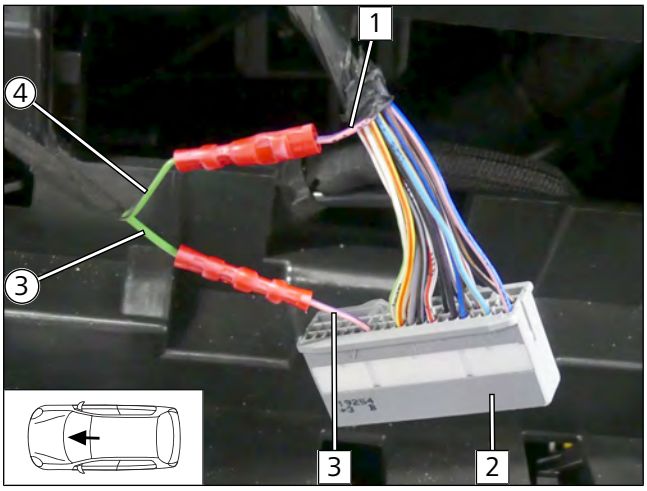


Fig. 100

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

13.5 Control element installation

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

14 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'.

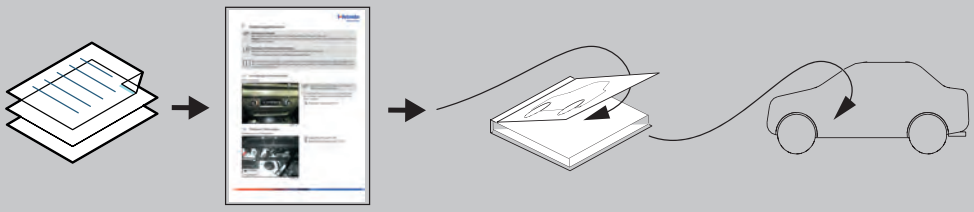
▶ Initial operation and functional test

▶ 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.

Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany

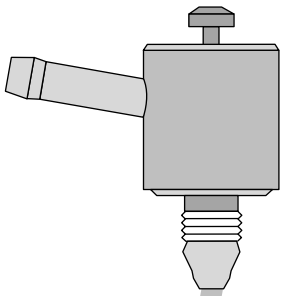
Company address:
Friedrichshafener Str. 9
82205 Gilching
Germany

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

CE

WWW.WEBASTO.COM

15 FuelFix template



100mm

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

0

100mm

16 Operating instructions

Information regarding the heating time:

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

Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

▶ Deactivate passenger compartment monitoring for the heating operation

Note for parking heater function

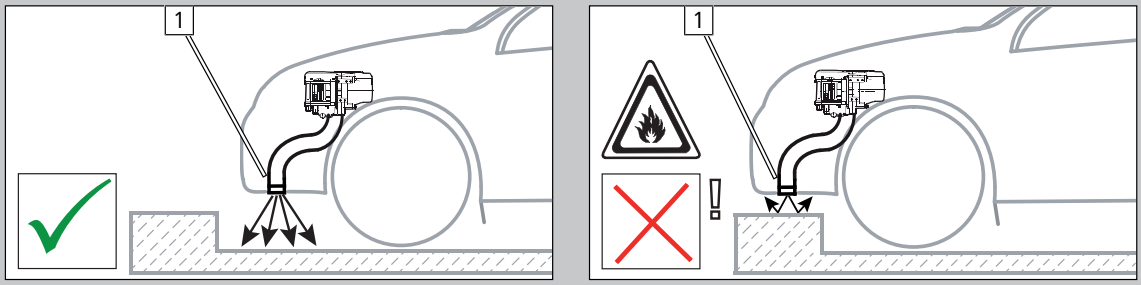
Your vehicle is equipped with a passenger compartment and engine preheating unit.

Note for current consumption in case of parking heating mode

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

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

Notes on parking heater exhaust outlet 1



16.1 A/C control panel settings

Automatic A/C control panel

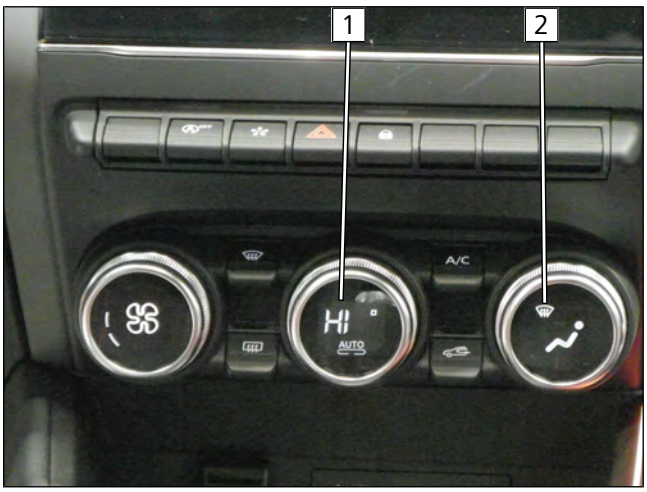


Fig. 101

Before parking the vehicle, make the following settings:

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

16.2 Installation location of fuses

Fuses in engine compartment

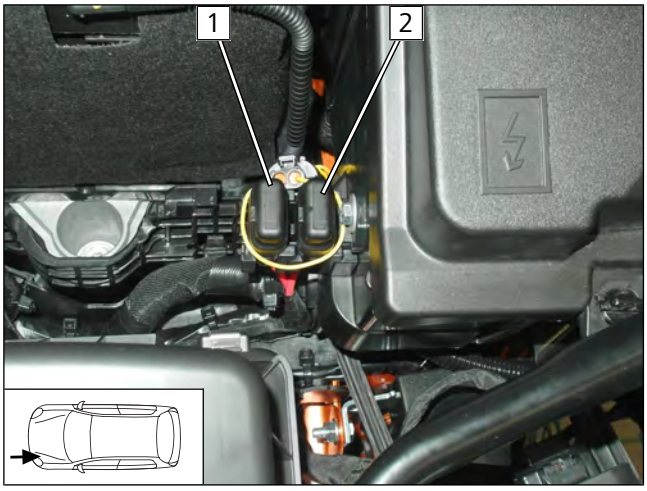


Fig. 102

1 F1 - 20A heater main fuse

2 F2 - 30A passenger compartment main fuse

Fuses in passenger compartment

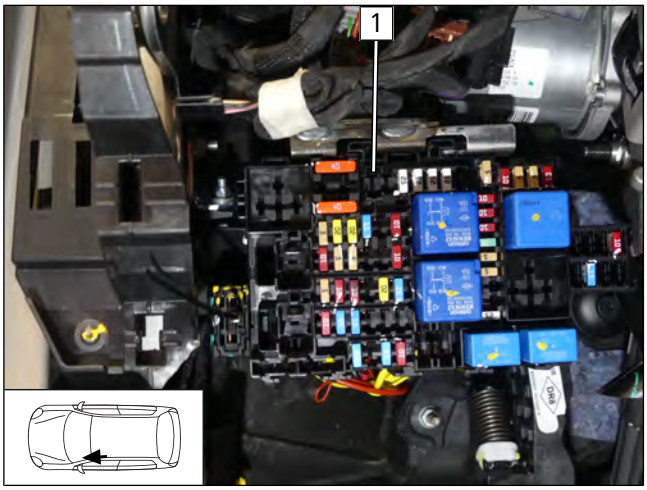


Fig. 103

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

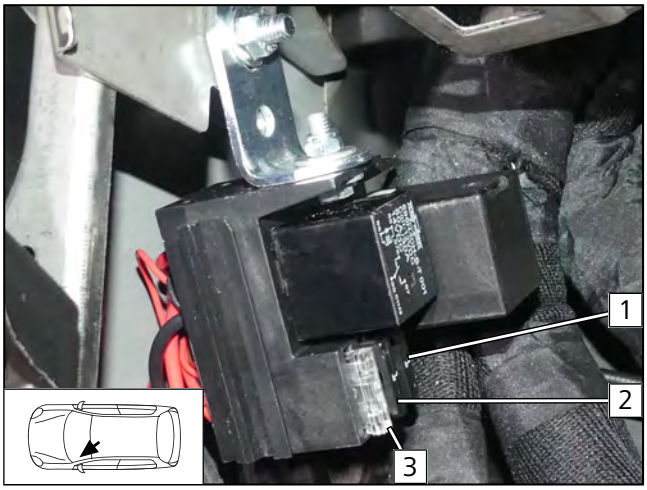


Fig. 104

1 F5 – 1A additional fuse

2 F3 - 1A control element fuse

3 F4 - 25A fan controller fuse