EN

K

Installation documentation

for water heater Thermo Top Evo

'Island' coolant circuit without engine preheating

Jeep Wrangler

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Jeep	Wrangler	JL	from 2019	e4* 2001/116* 0116*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
2.2 CRDi	Diesel	Euro 6;WLTP;BG;…	8-speed AG	147	2143	N-S14

Validity	Equipment variants	Model
		Wrangler
Verified equipment variants	2 zone automatic A/C	x
	LED main headlights	x
	LED front fog lights	x
	Long wheelbase, 5-door vehicle	x
	Short wheelbase, 3-door vehicle	x
	4 WD	x
Unverified equipment variants	Alarm system	x
	Halogen main headlights	x

Total installation time	Note
8.6 hours	

Contents

1 List of abbreviations

AG	Automatic transmission
CL	CL GW
DP	Fuel pump
FF	FuelFix (tank extracting device)
Fig.	Figure
HG	Heater
MV	Solenoid valve
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle

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 Jeep Wrangler JL 2.2D model year 2019	1327907A
Additional 'Webasto Comfort' A/C control kit for Jeep	1325260_
Rivet for wheel well trim, Jeep order No.	3x K06506007AA
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

2.3 Notes on installation, in coordination with the end customer

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

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

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

We recommend:

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

2.4 Information on Total Installation Time

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

3 About this document

3.1 Purpose of the document

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

Thermo Top Evo heater

3.2 Warranty and liability

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

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

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

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

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

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

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

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

3.2.1 Statutory regulations governing installation

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

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

3.3 Safety

Qualifications of installation personnel

The installation personnel must have the following qualifications:

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

Regulations and legal requirements

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

3.3.1 Safety information on installation

Danger posed by live parts

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

▶ Make sure the electrical system is earthed correctly.

▶ Always comply with legal requirements.

▶ Observe data on type label.

Danger of fire and leaking toxic gases due to improper installation

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

  ⇨ Maintain minimum safety distances.

  ⇨ Ensure adequate ventilation.

  ⇨ Use fire-resistant materials or heat shields.

Danger due to sharp edges

- Lacerations
- Short circuit due to electrical wire damage

▶ Fit protectors on sharp edges.

3.4 Using this document

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

3.4.1 Explanatory Notes on the Document

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

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

3.4.2 Use of symbols

DANGER

Type and source of the risk

Consequences: Failure to follow the instructions can result in death

▶ Actions to protect yourself against risks.

WARNING

Type and source of the risk

Consequences: Failure to follow the instructions can lead to serious or even fatal injuries

▶ Actions to protect yourself against risks.

CAUTION

Type and source of the risk

Consequences: Failure to follow the instructions can lead to minor injuries

▶ Actions to protect yourself against risks.

Type and source of the risk

Consequences: Failure to follow the instructions can lead to material damage

▶ Actions to protect yourself against risks.

Reference to the vehicle manufacturer's specific documents.

Note on a special technical feature

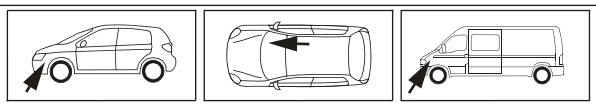
3.4.3 Work step identification marks

The ongoing work step is indicated on the outside top corner of the page:

Mechanical system	Electrical system	High-voltage	Coolant

Combustion air	Fuel	Exhaust	Software

3.4.4 Orientation aid



The arrow indicates the position on the vehicle and the viewing angle

3.4.5 Use of highlighting

Highlight	Explanation
✓	Action
▶	Necessary action
⇨	Result of an action
1 / 12 / a1	Position numbers for the image descriptions
① / ⑫ / Ⓐ	Position numbers for the image descriptions for electrical wires and components as well as coolant hose sections

4 Technical Information

Dimension specifications

- All dimensions specified in mm
- Perforated brackets and mounting angles are shown to scale
- Observe data regarding scale on the templates

Tightening torque specifications

- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm
- Tightening torque values of 5x15 retaining plate of water connection piece bolts = 7Nm
- 5x12 bolt tightening torque of 2-part heater bracket = 6Nm
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology

Temperature specification for heat shrink plastic tubings

- Fabric heat shrink tubing: shrink temperature max. 230°C
- Standard heat shrink plastic tubing: shrink temperature max. 300°C

Necessary special tools

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

5 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	▶ Disconnect the battery ▶ Front wheel on the driver's side ▶ Wheel-well inner panel on the driver's side ▶ Wheel-well inner panel on the front passenger's side ▶ Engine design cover ▶ big coolant expansion tank with bracket	
Passenger compartment	▶ Carpet on the driver's side, folded back ▶ Cover under steering wheel and control unit located behind ▶ Inside door sill trim on the driver's side	

DANGER

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

Carry out the following work only during the corresponding installation sequence:

Vehicle body	▶ Remove the fuel tank	

5.2 Heater preparation

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

6 Installation overview

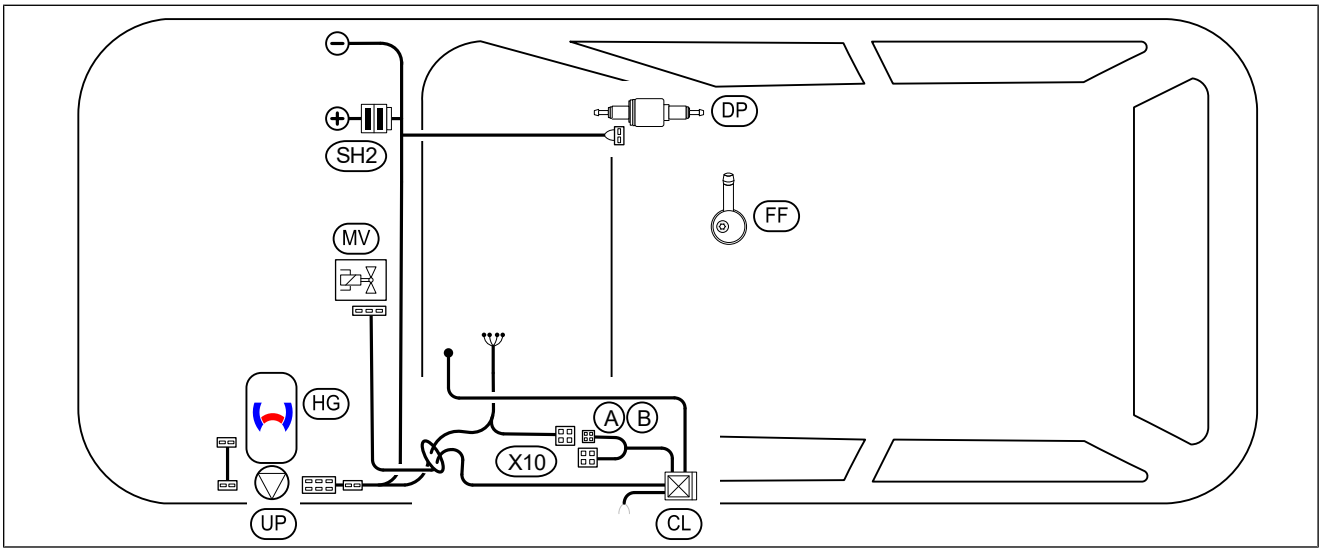


Fig. 1

Legend to installation overview

Abbreviation	Component
A/B	Adapter connector
CL	CL GW
DP	Fuel pump
FF	FuelFix
HG	Heater
MV	Solenoid valve
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
X10	Female plug for control element

Heater installation location

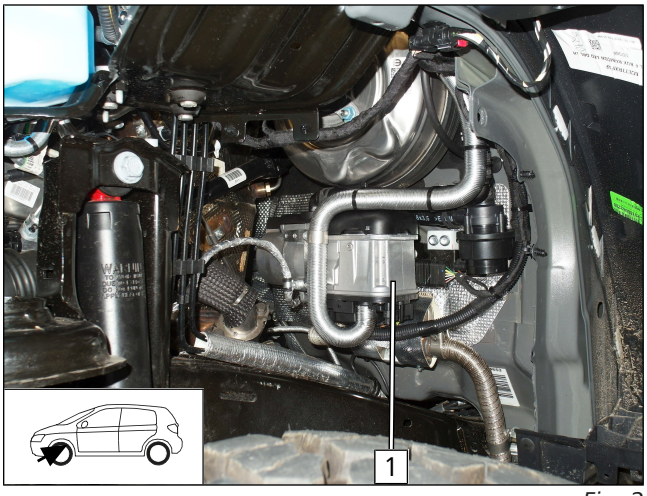


Fig. 2

1 Heater

7 Electrical system of engine compartment

Premounting SH2

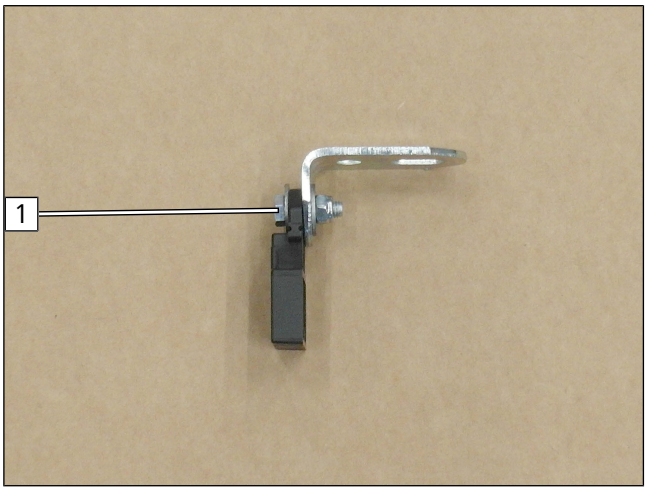


Fig. 3

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

Mounting SH2

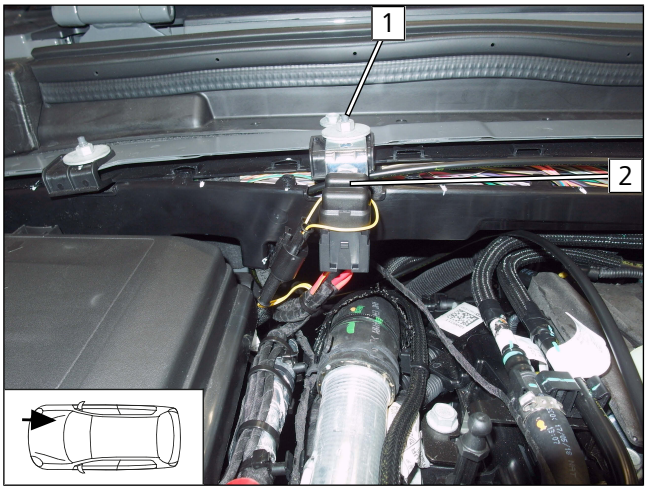


Fig. 4

[1] Original vehicle stud bolt, premounted angle bracket, original vehicle washer with nut

[2] Fuse F1/F2

Wiring routing overview

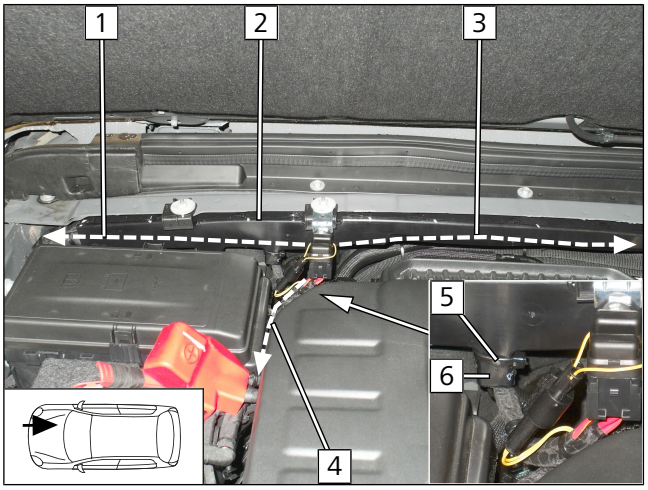


Fig. 5

▶ Open original vehicle cable duct [2].

▶ Route earth wire, fuel pump wiring harness as well as HG and control element wiring harnesses through cable duct [6] into original vehicle cable duct [2].

[1] Earth wire, fuel pump wiring harness

[3] HG and control element wiring harnesses

[4] Positive wire

[5] Cable tie

Mounting positive wire

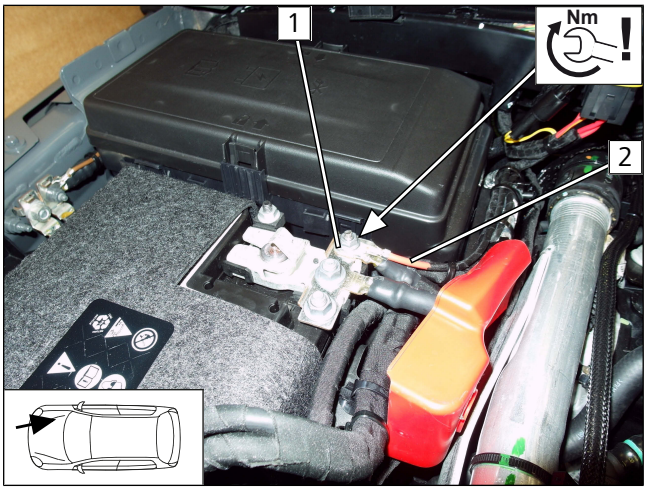


Fig. 6

DANGER

Observe tightening torque

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

1 Original vehicle positive support point
2 Positive wire

Mounting earth wire

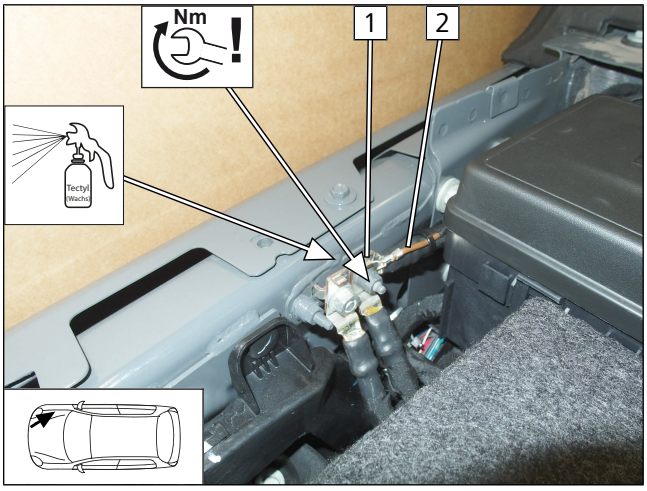


Fig. 7

DANGER

Observe tightening torque

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

1 Original vehicle earth support point
2 Earth wire

Passenger compartment wiring harness pass through

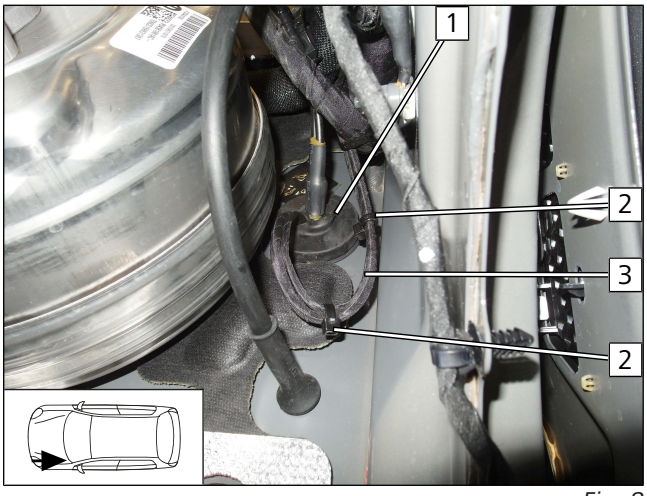


Fig. 8

1 Grommet
2 Cable tie
3 Passenger compartment and control element wiring harnesses

Routing wiring harness to HG installation location

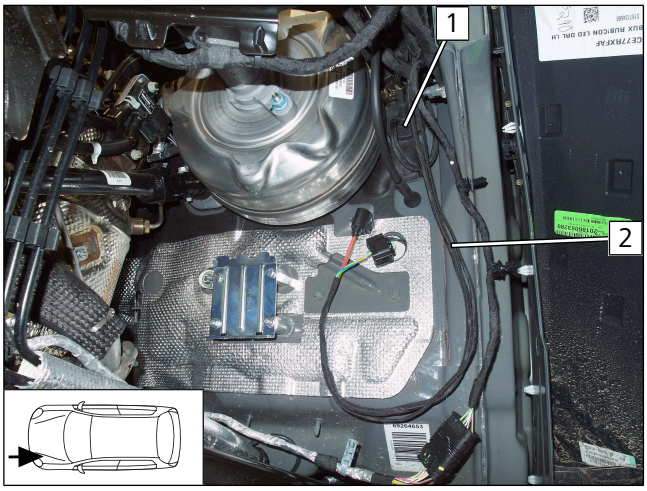


Fig. 9

1 Pass through to passenger compartment
2 Heater wiring harness

8 Mechanical system

8.1 Preparing installation location

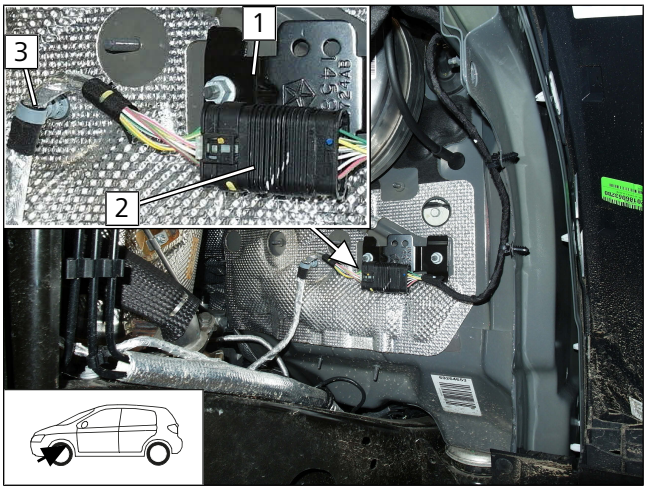


Fig. 10

- ▶ Dismantle original vehicle bracket [1].
- ▶ Detach connector [2] from bracket.
- ▶ Remove cable holder [3] from stud bolt.

Cutting insulation mat

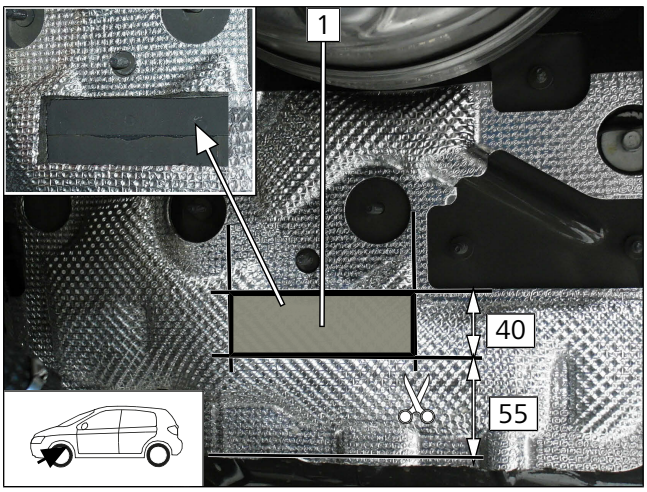


Fig. 11

[1] Cut-out

Premounting spacer

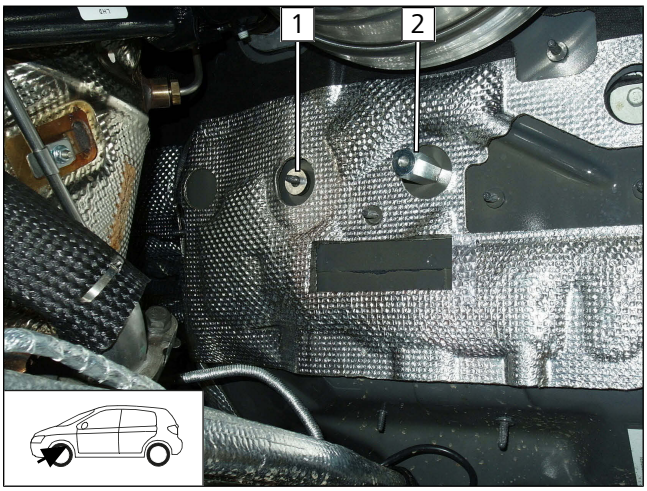


Fig. 12

[1] Distance washer (5)
[2] M6x40 spacer nut

Premounting angle bracket

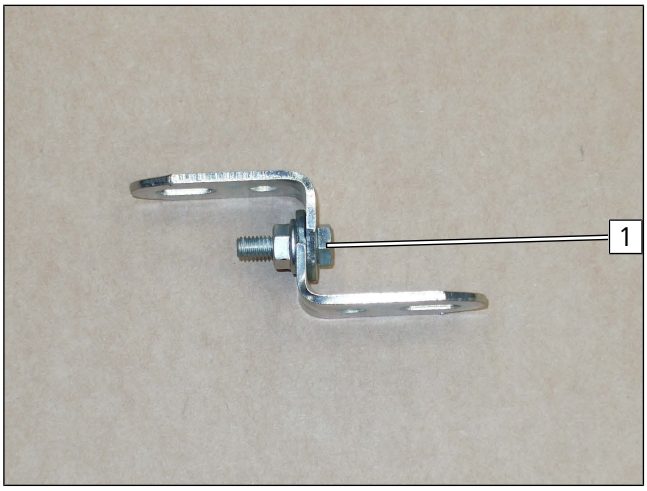


Fig. 13

1 M6x20 bolt, angle bracket, angle bracket, flanged nut

Assigning two-part bracket

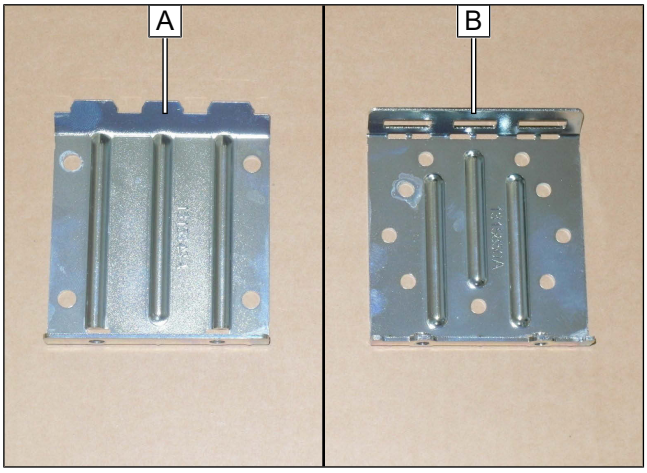


Fig. 14

Premounting bracket A

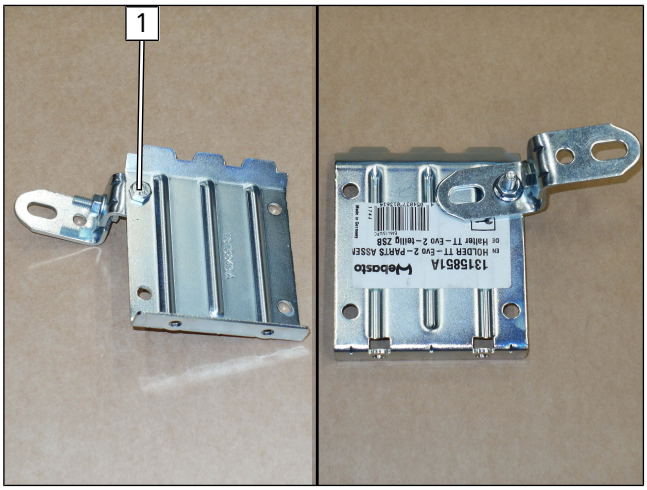


Fig. 15

1 M6x20 bolt, bracket **A**, premounted angle bracket, flanged nut

Copying hole pattern

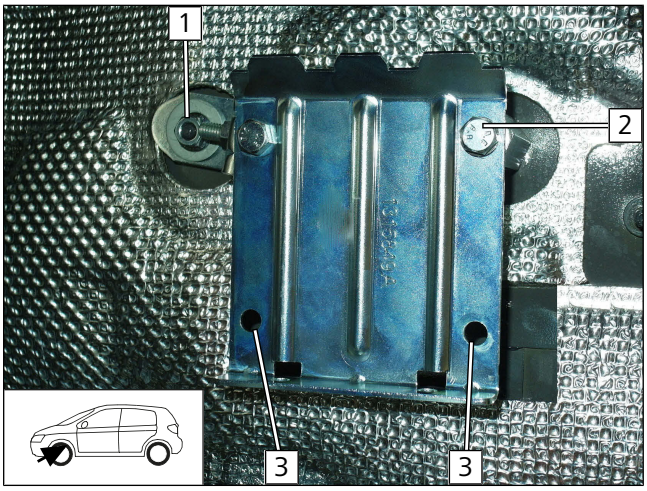


Fig. 16

▶ Align bracket [A] horizontally and mount as shown in fig.

- [1] Original vehicle stud bolt, spacer (5), premounted angle bracket, large diameter washer, flanged nut
- [2] M6x20 bolt, spring lock washer, bracket [A], spacer nut
- [3] Hole pattern

▶ Remove bracket [A] again.

Drilling hole

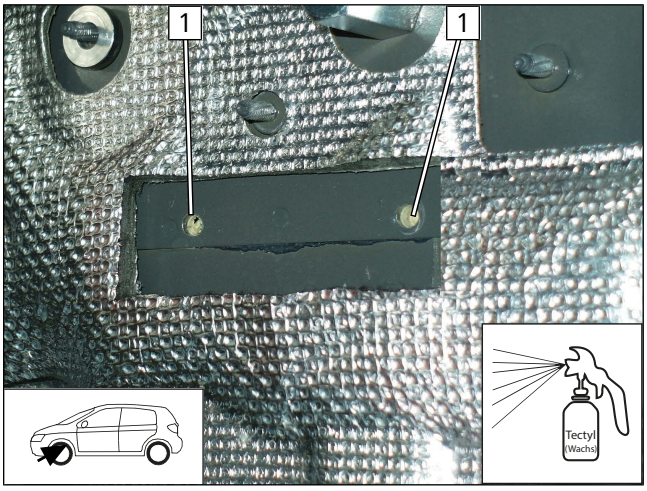
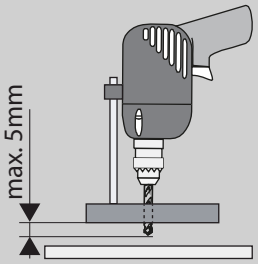


Fig. 17

Danger of damage to components



▶ The carpet in the footwell on the driver's side must be folded back.

- [1] Ø7 hole

Preparing installation location in passenger compartment

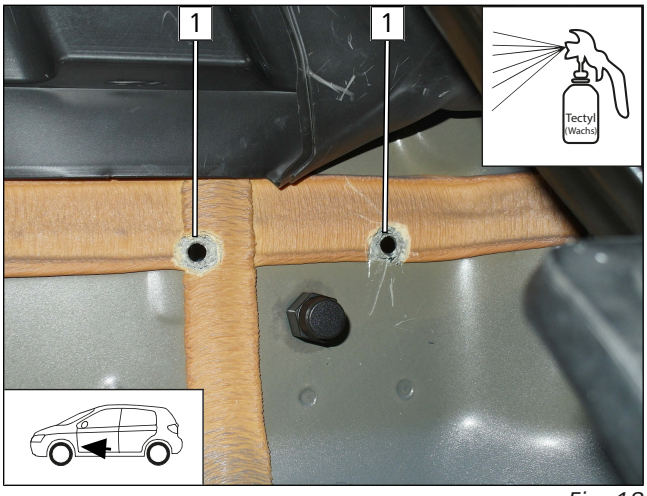


Fig. 18

▶ Remove sealing compound for Ø12 washer at pos. [1].

Premounting bolts in passenger compartment

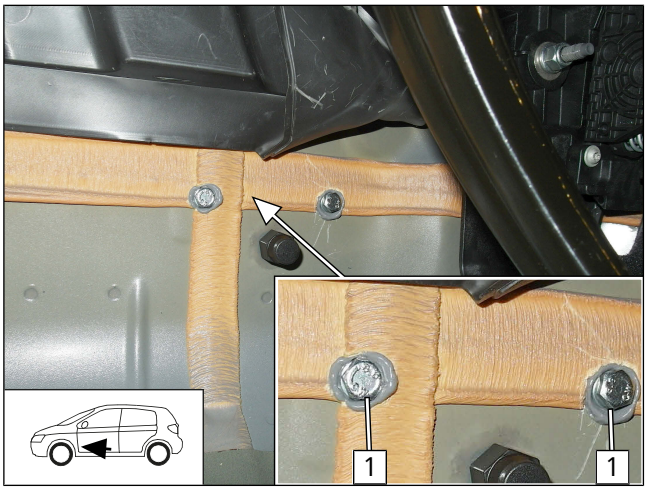


Fig. 19

▶ Apply sealant before mounting the bolts.

1 M6x55 bolt, washer with inner Ø d_i 6.4 / outer Ø d_a 12, drilled hole

Mounting spacers

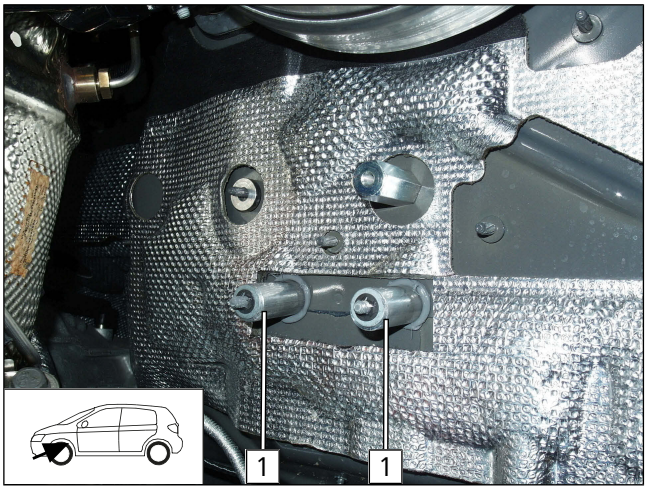


Fig. 20

Block the bolts in the passenger compartment when mounting the lock washers.

▶ Apply sealant before mounting the bolts.

1 M6x55 bolt, spacer (40), lock washer

Mounting bracket **A**

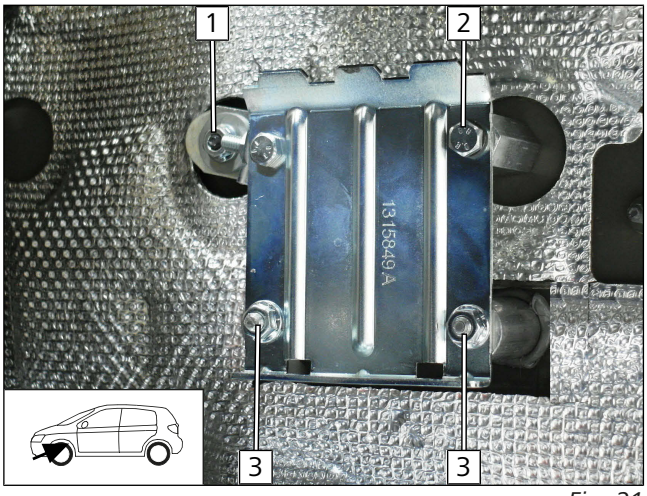


Fig. 21

1 Original vehicle stud bolt, spacer (5), premounted angle bracket, large diameter washer, flanged nut

2 M6x20 bolt, spring lock washer, bracket **A**, spacer nut

3 M6x55 bolt, spacer (40), lock washer, bracket **A**, flanged nut

Sealing bolt heads in passenger compartment

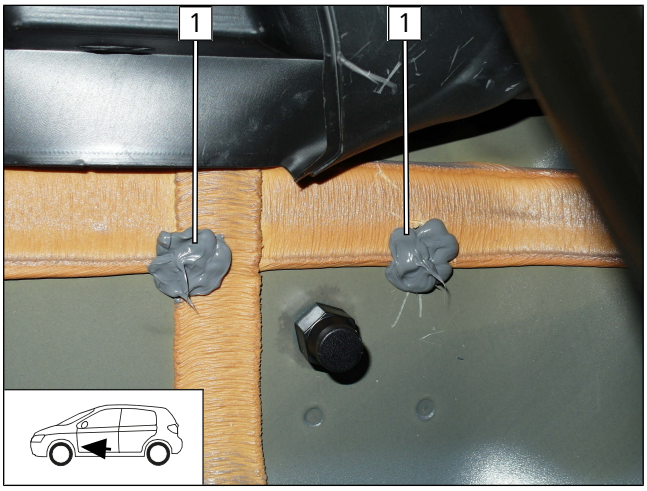


Fig. 22

[1] Sealant

8.2 Premounting heater

Mounting water connection piece

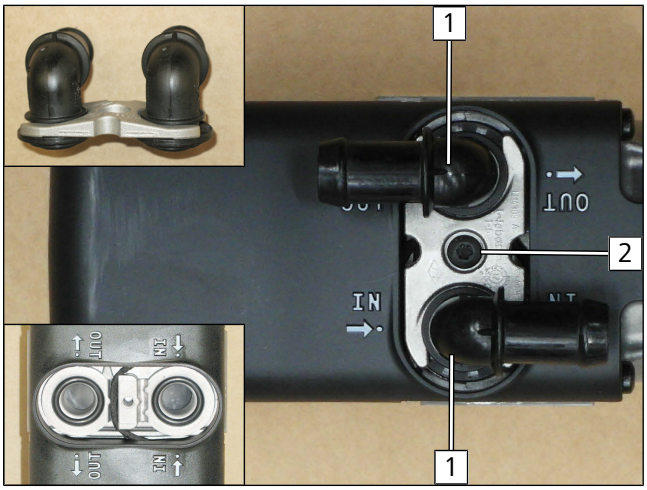


Fig. 23

Observe the general installation instructions of the heater.

[1] Water connection piece, seal

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

Mounting bracket [B] on HG

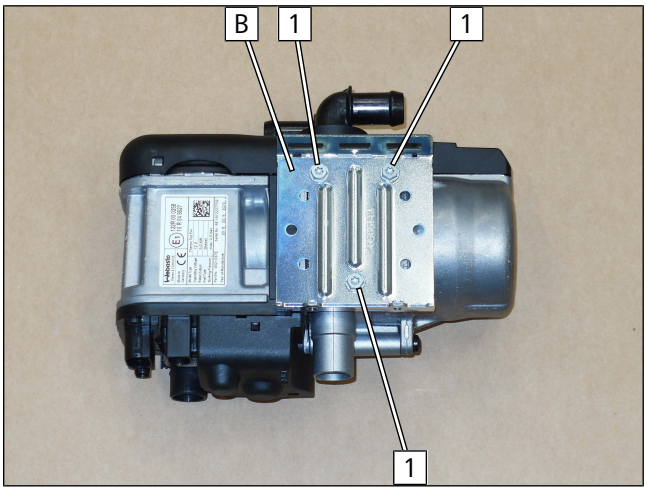


Fig. 24

[1] 5x15 self-tapping bolt

Preparing foam

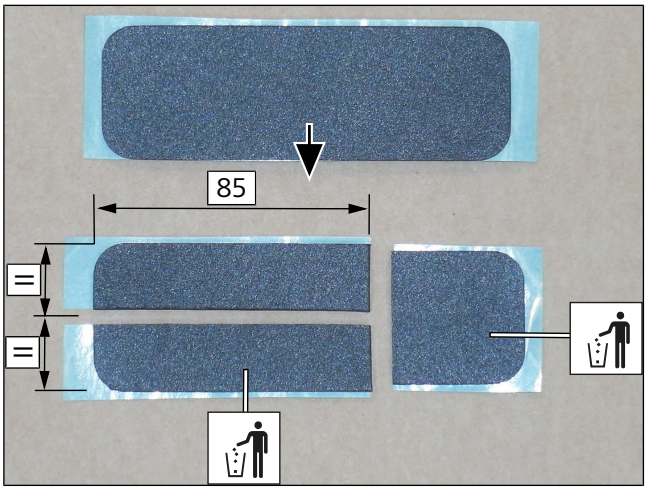


Fig. 25

Gluing foam onto bracket **B**

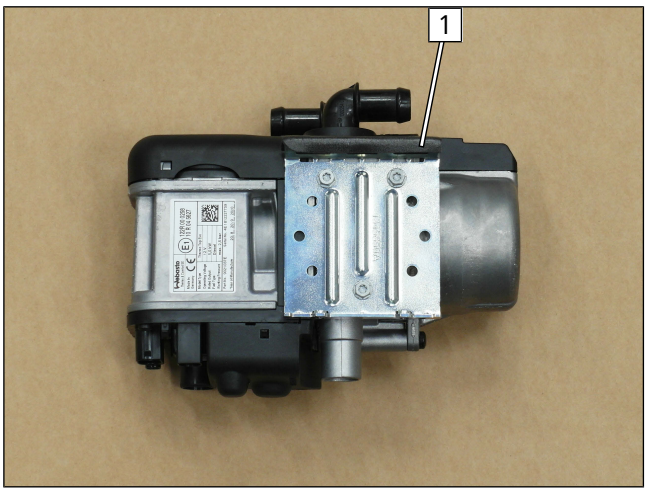


Fig. 26

1 Foam

Removing foam from openings in bracket **B**

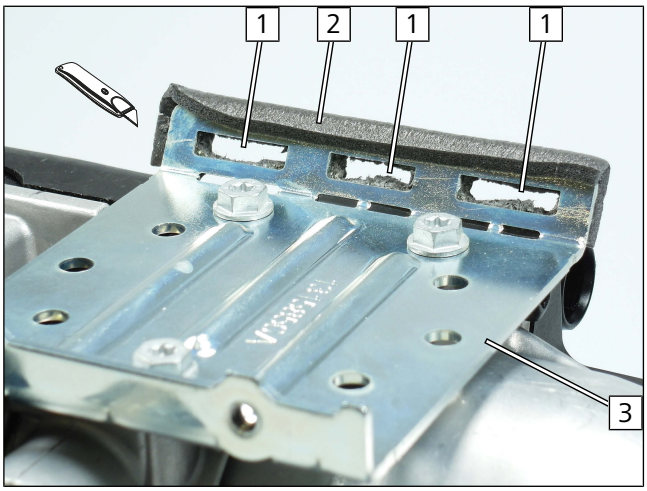


Fig. 27

1 Foam removed from openings
2 Foam
3 Bracket **B**

Adapting original vehicle bracket

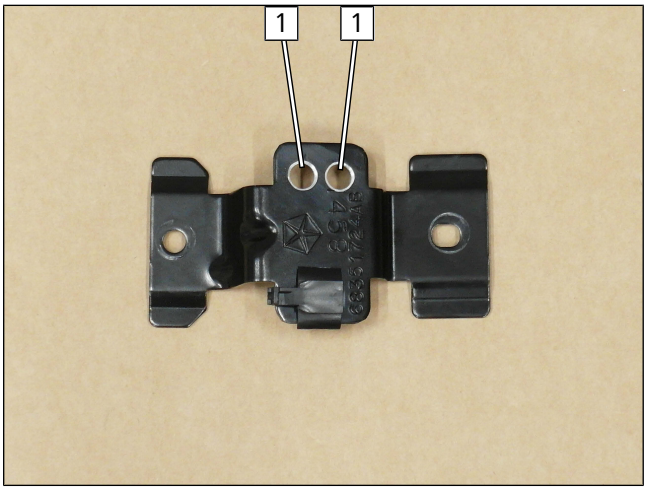


Fig. 28

1 Drill out hole to Ø8.5

Bending perforated bracket, drilling holes

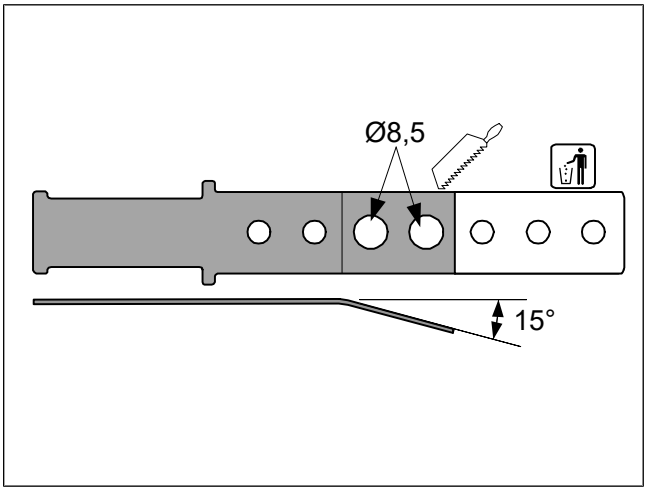


Fig. 29

Premounting coolant pump

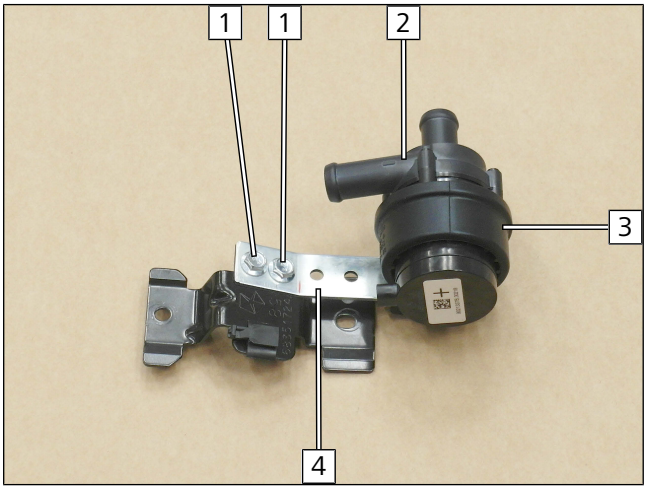


Fig. 30

▶ Push perforated bracket 4 onto coolant pump mount 3.

1 M6x16 bolt with serrated flange, perforated bracket, original vehicle bracket, flanged nut

2 Coolant pump

Cutting hoses to length

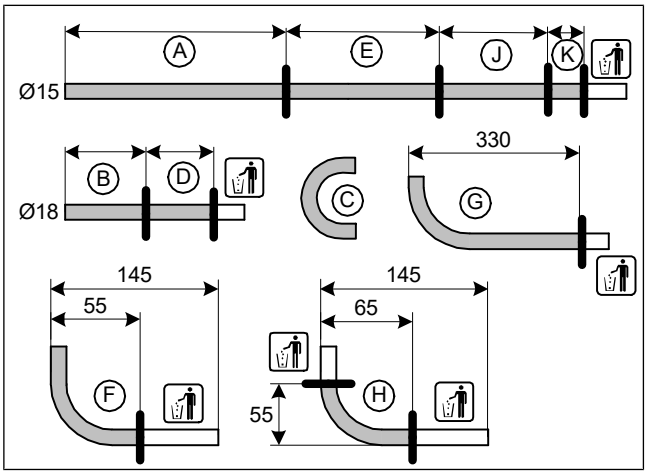


Fig. 31

Ⓐ	960
Ⓑ	170
Ⓒ	180° moulded hose
Ⓓ	190
Ⓔ	620
Ⓕ / Ⓗ	90° moulded hose
Ⓖ	90° moulded hose
Ⓙ	410
Ⓚ	80

Mounting fabric heat shrink tubings

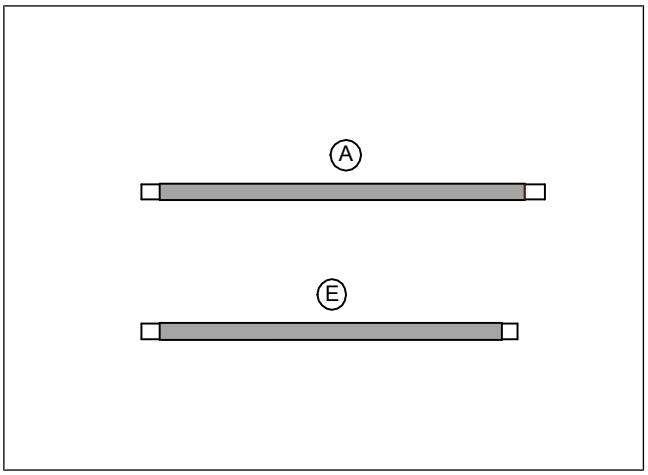


Fig. 32

▶ 1. Slide on and cut to length

▶ 2. Shrink, use at most 230 °C

Mounting hoses on HG

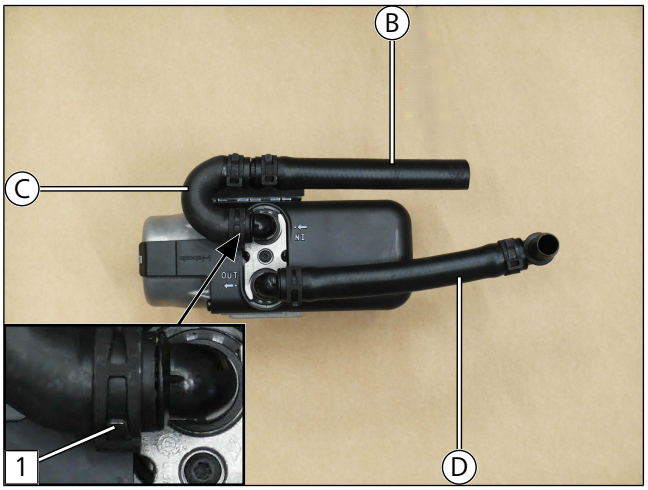


Fig. 33

All spring clips Ø25

Ø18x18/180° or Ø18x18/90° connecting pipes

▶ Note the position of the spring clip fastener at pos. 1.

▶ Turn hoses Ⓒ and Ⓑ towards the bracket and position them on the foam of bracket B.

Mounting coolant pump

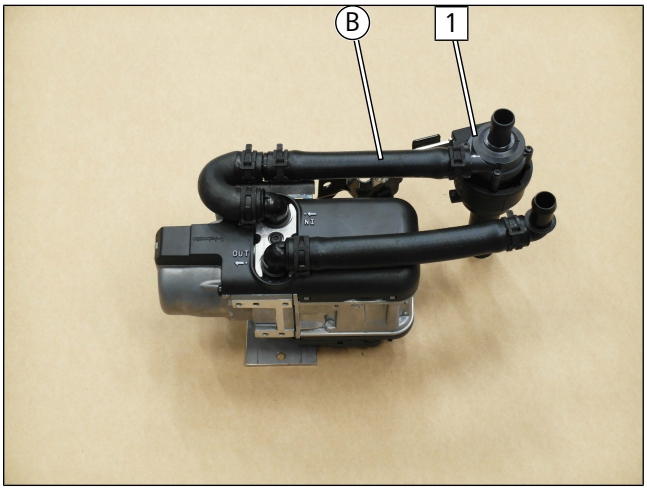


Fig. 34

Ø25 spring clip

▶ Mount coolant pump 1 onto hose (B).

Mounting coolant pump wiring harness

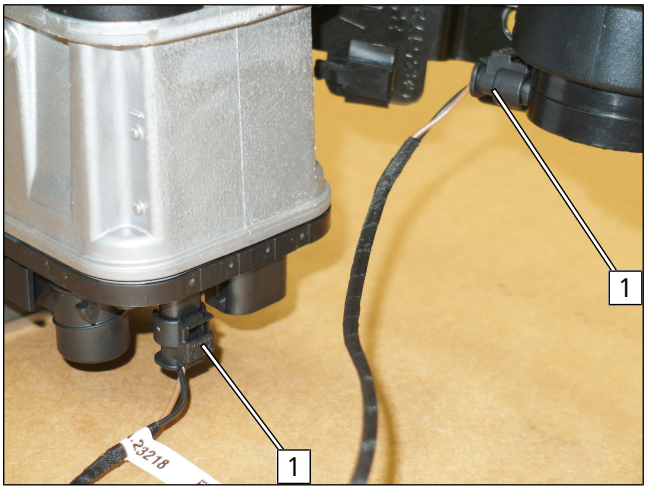


Fig. 35

1 Coolant pump wiring harness connector

Mounting fuel hose

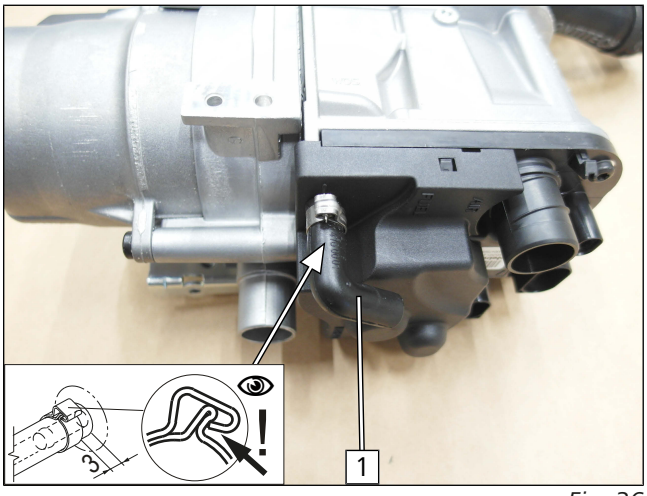


Fig. 36

▶ Mount long side of fuel hose onto HG.

1 90° moulded hose, Ø10 clamp

8.3 Mounting heater

View of bracket A and B assembly

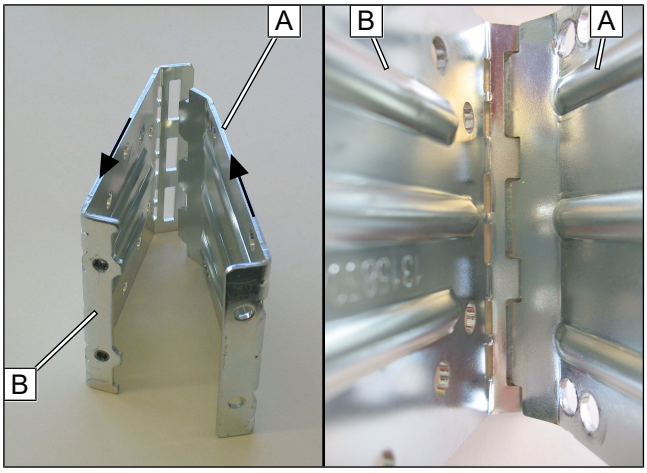


Fig. 37

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 original vehicle bracket

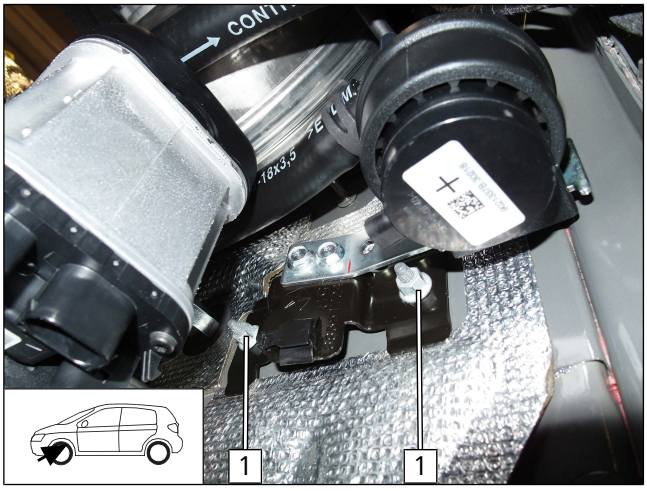


Fig. 38

1 Original vehicle stud bolt, bracket, nut

Mounting heater

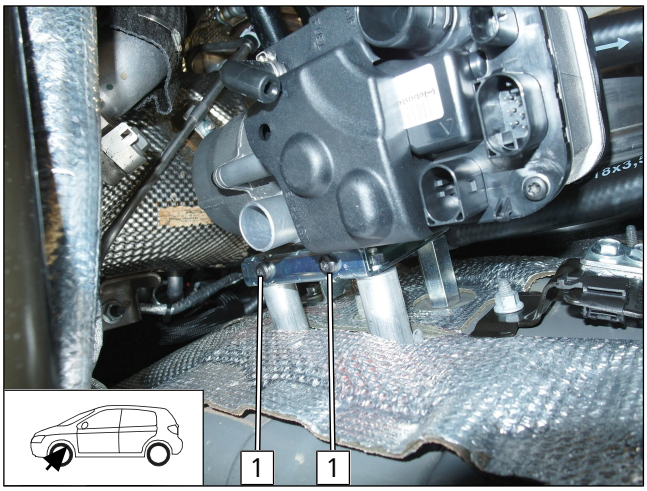


Fig. 39

▶ Check the assembly of bracket A and bracket B , then bolt them together.

1 M5x12 Torx screw

Mounting connector

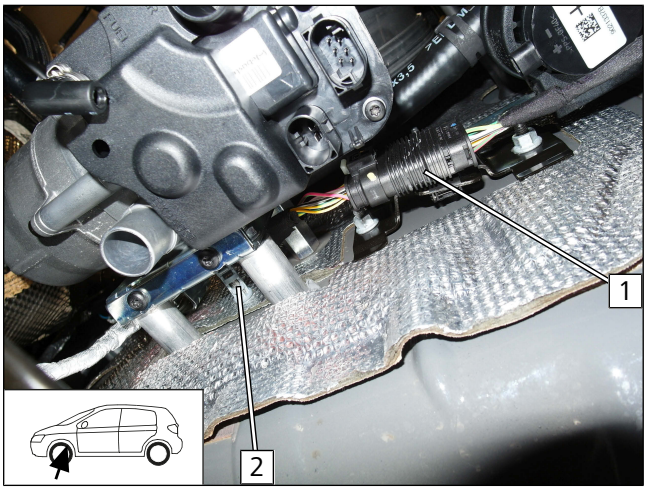


Fig. 40

▶ Click connector 1 into place.

▶ Mount cable holder 2 on the stud bolt.

Mounting heater wiring harness

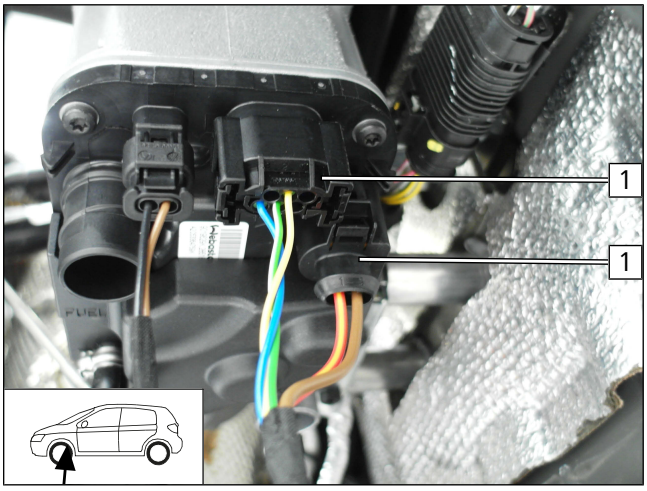


Fig. 41

1 Heater wiring harness connector

9 Fuel

DANGER

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

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

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

Danger of damage to components

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

Dismantling fuel pump connector X7

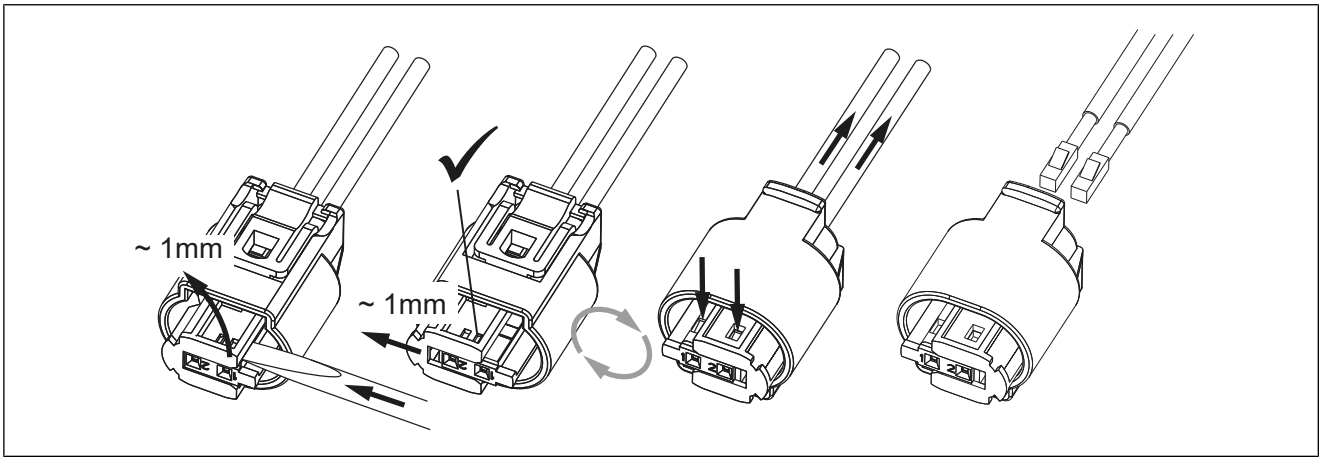


Fig. 42

9.1 Routing fuel line

Connection to heater

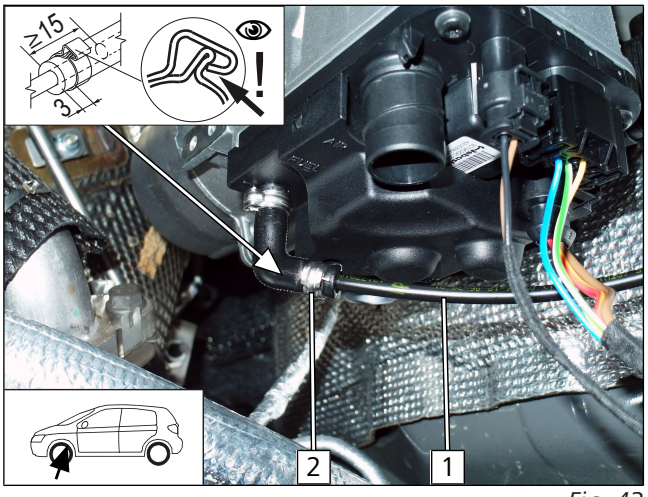


Fig. 43

1 Fuel line
2 Ø10 clamp

Installing lines

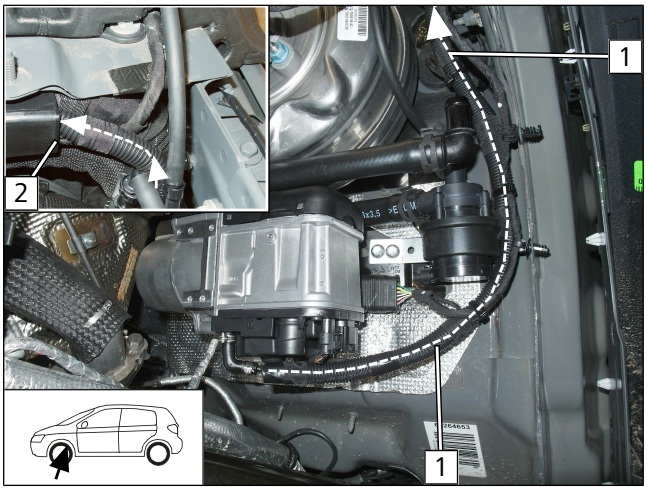


Fig. 44

- ▶ Route fuel line, fuel pump wiring harness and HG wiring harness in Ø13, slit corrugated tube [1] up to cable duct entrance [2].
- ▶ Wrap corrugated tube at regular intervals with insulating tape and attach to original vehicle wiring harness with cable ties.

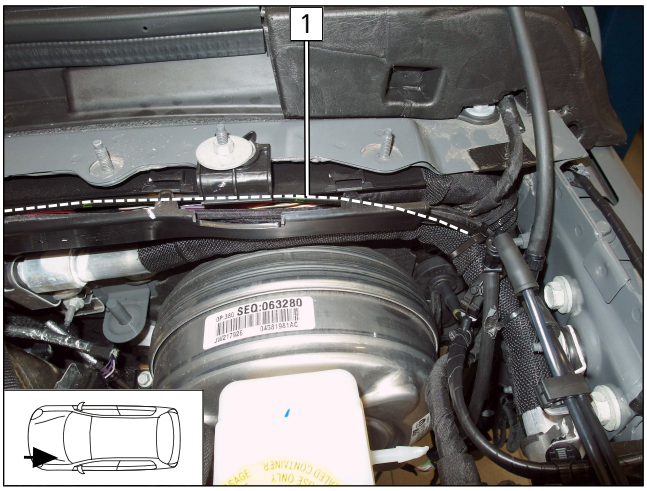


Fig. 45

- ▶ Route fuel line [1] in cable duct.

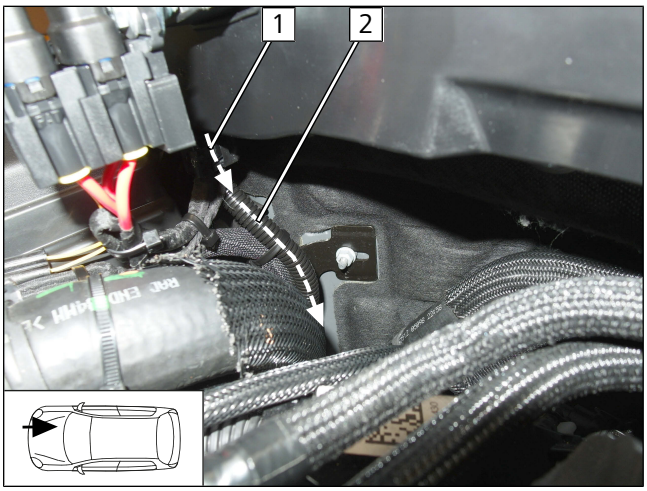


Fig. 46

- ▶ Lead fuel line [1] out of cable duct, draw into corrugated tube [2] and route further, together with fuel pump wiring harness, on original vehicle coolant lines to fuel pump installation location.
- ▶ Attach corrugated tube to original vehicle coolant lines with cable ties.
- ▶ Close cable duct.

9.2 Mounting fuel pump - vehicle with long wheelbase

Bending perforated bracket

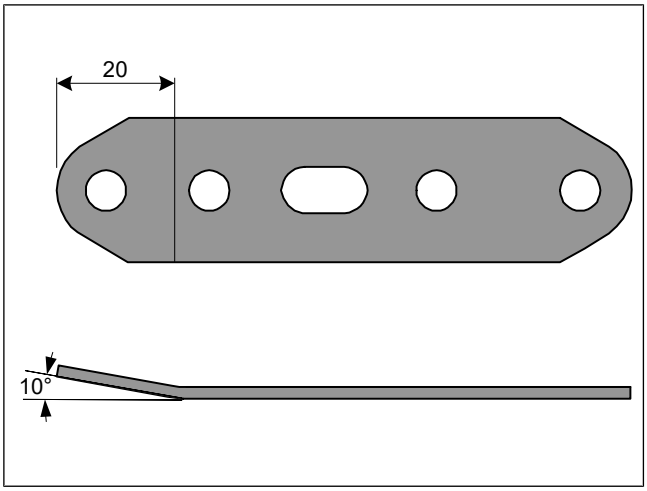


Fig. 47

Premounting fuel pump

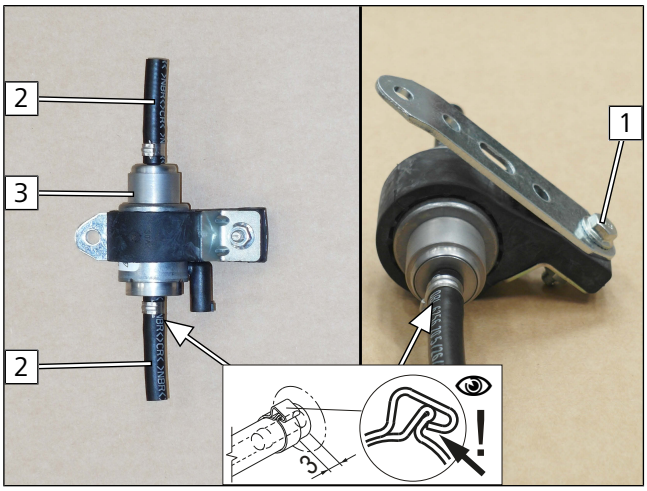


Fig. 48

1 M6x25 bolt, perforated bracket, DP mount, support angle bracket, flanged nut

2 Hose section, Ø10 clamp

3 Fuel pump

Mounting fuel pump

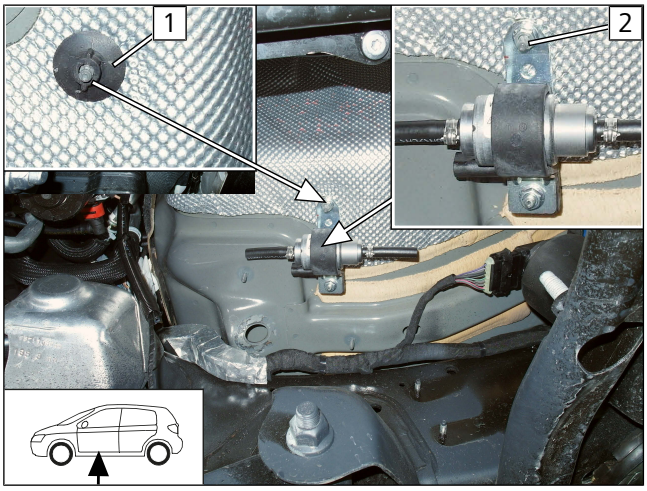


Fig. 49

▶ Remove and dispose of original vehicle plastic nut **1**.

2 Original vehicle stud bolt, perforated bracket, flanged nut

9.3 Mounting fuel pump - Vehicle with short wheelbase

Premounting fuel pump

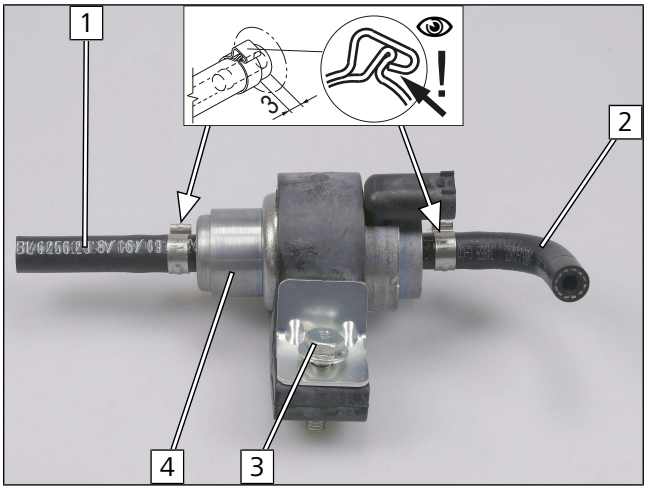


Fig. 50

1 Hose section, Ø10 clamp
2 90° moulded hose, Ø10 clamp
3 M6x25 bolt, support angle bracket; DP mount
4 Fuel pump

Mounting fuel pump

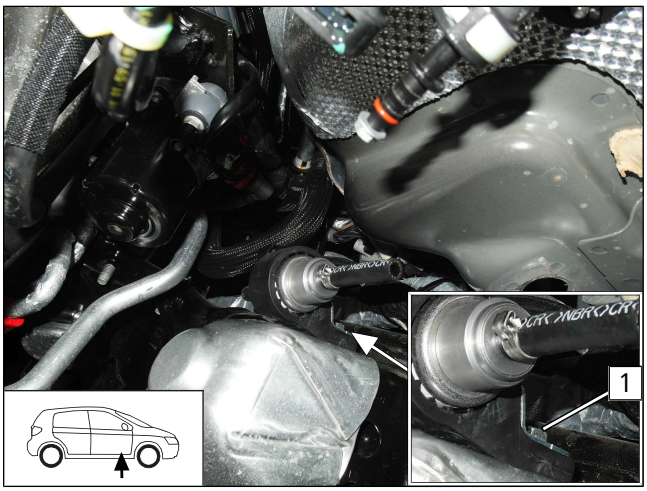


Fig. 51

1 Premounted M6x25 bolt at original vehicle threaded hole

9.4 Fuel pump connection

Assembling fuel pump connector X7

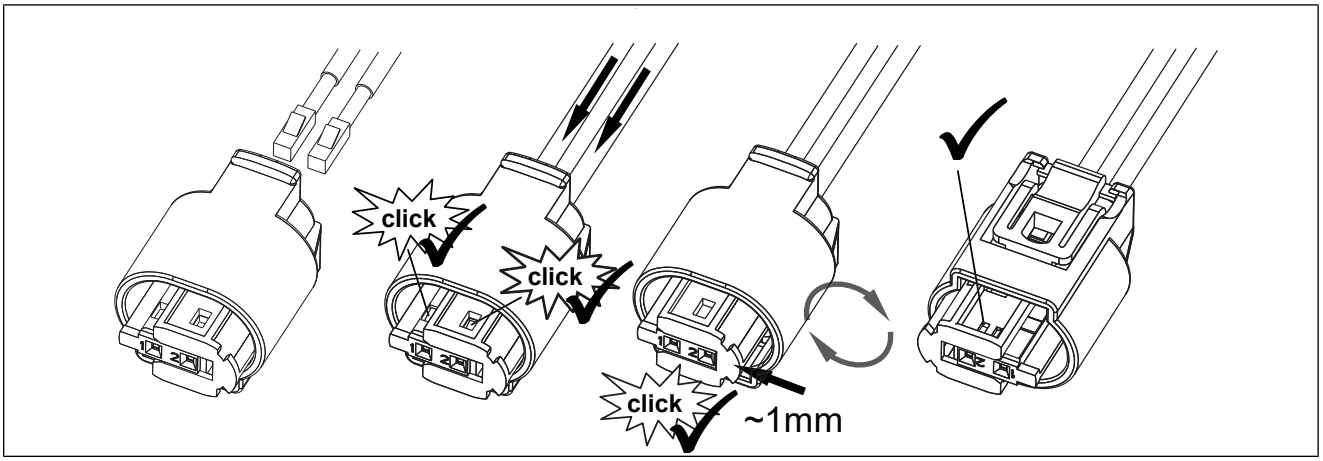


Fig. 52

Connecting fuel pump

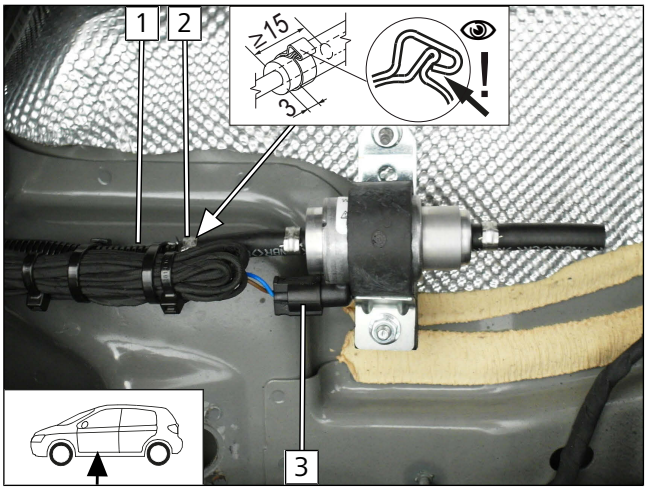


Fig. 53

Figure shows vehicle with long wheelbase

1 Heater fuel line in corrugated tube
2 Ø10 clamp
3 Fuel pump wiring harness, X7 connector mounted

▶ Attach the rest of the wiring harness to the corrugated tube with cable ties.

9.5 Installing FuelFix

Repositioning sticker

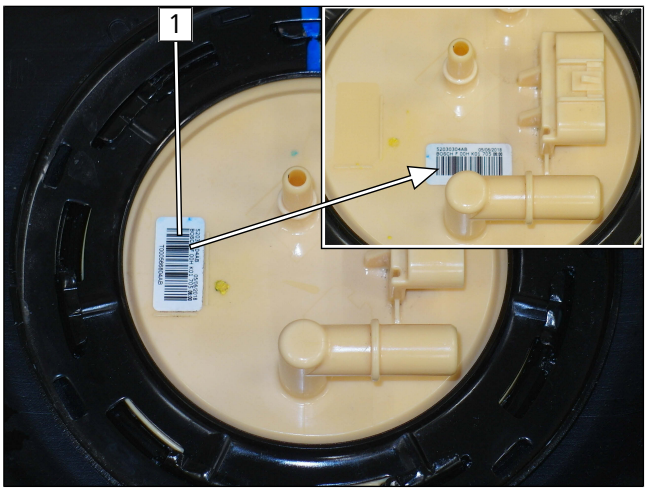


Fig. 54

1 Sticker

Preparing drilling template

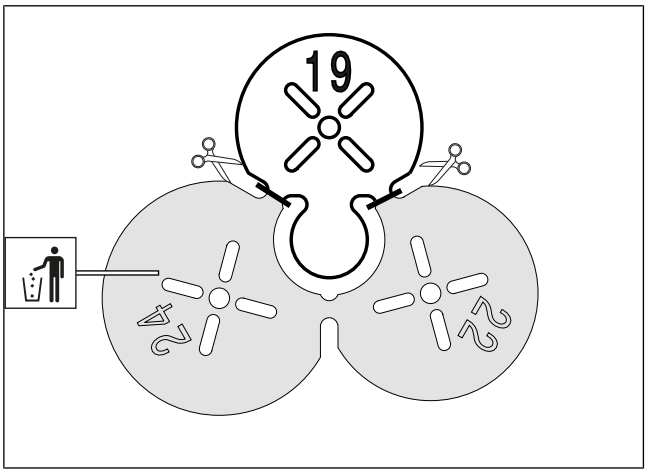


Fig. 55

Work steps F1, F2

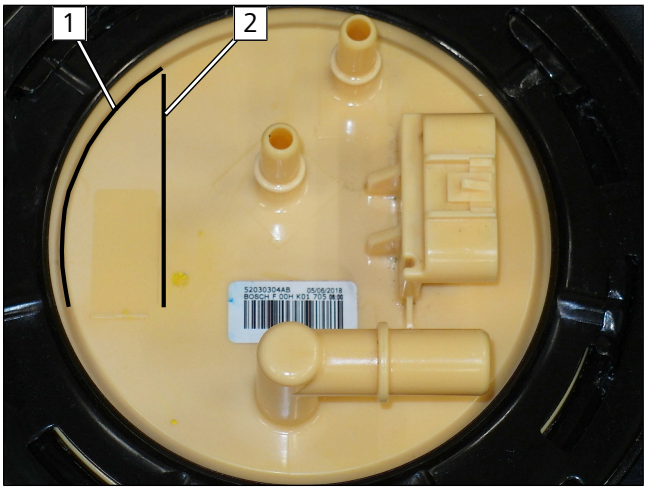


Fig. 56

Observe the installation instructions of the tank extracting device.

▶ Trace the outline of edge [1] and existing raised part [2] then extend the line as shown.

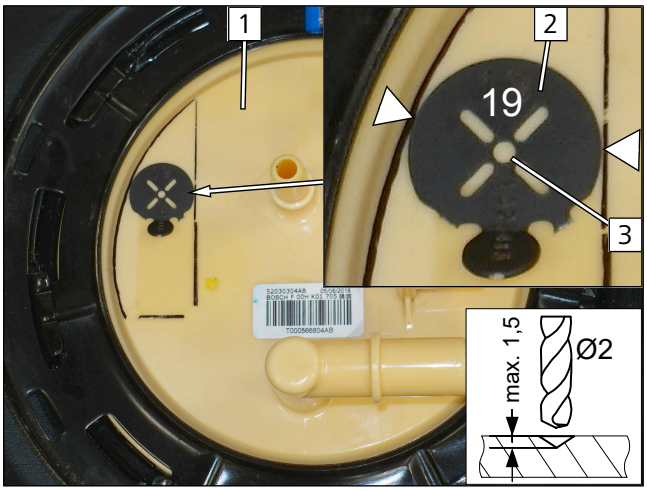


Fig. 57

[1] Tank fitting
[2] Position Ø19 drilling template as shown in fig.
[3] Ø2 centring hole

Work step F3

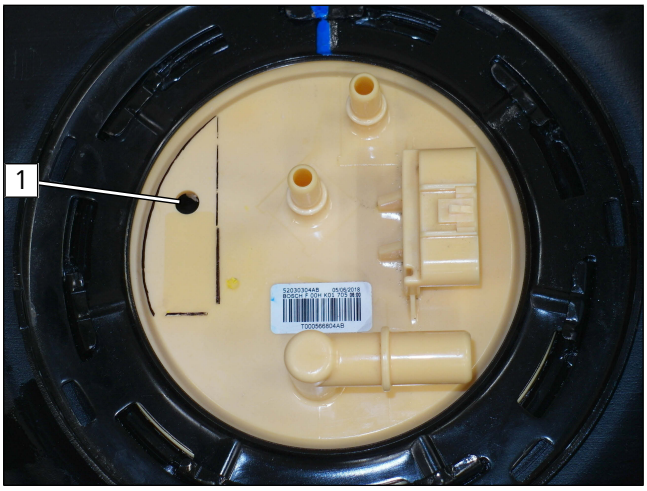


Fig. 58

DANGER

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

[1] Hole made with provided drill

Work steps F4, F5

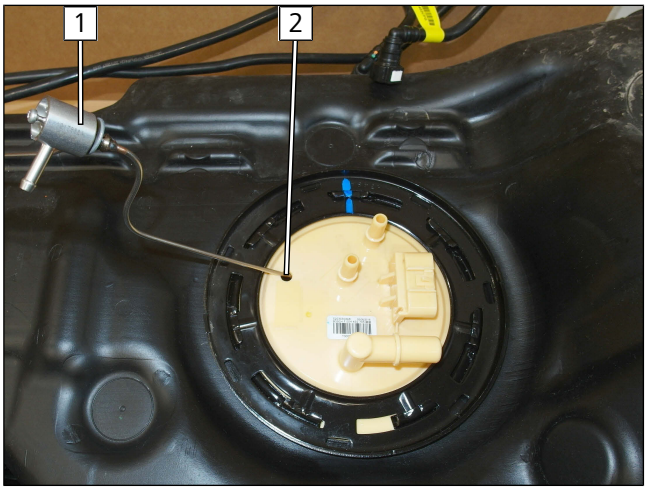


Fig. 59

▶ Insert FuelFix [1] in hole [2].

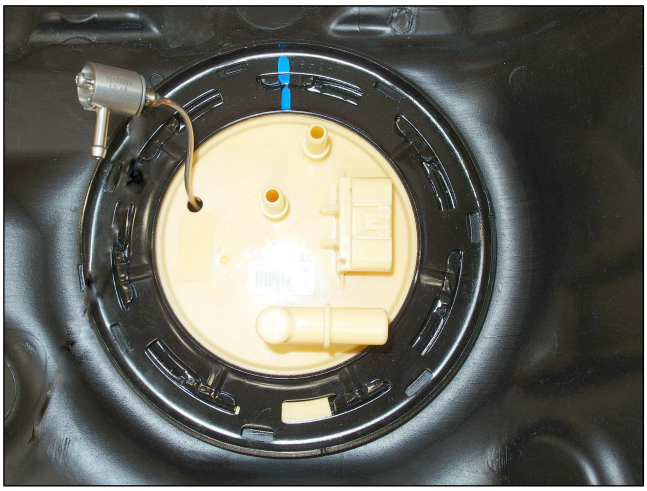


Fig. 60

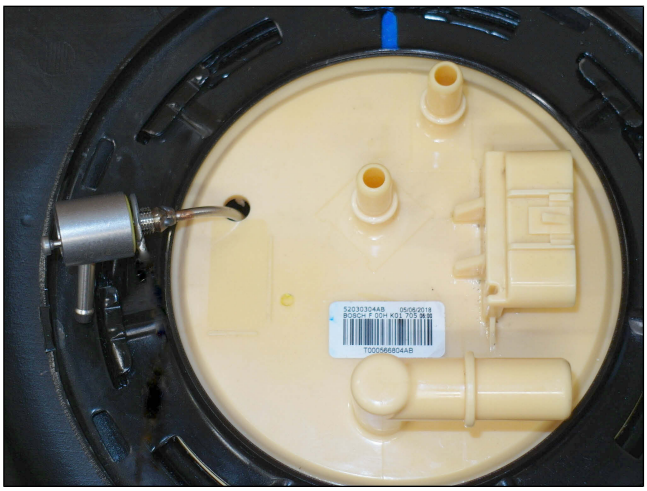


Fig. 61

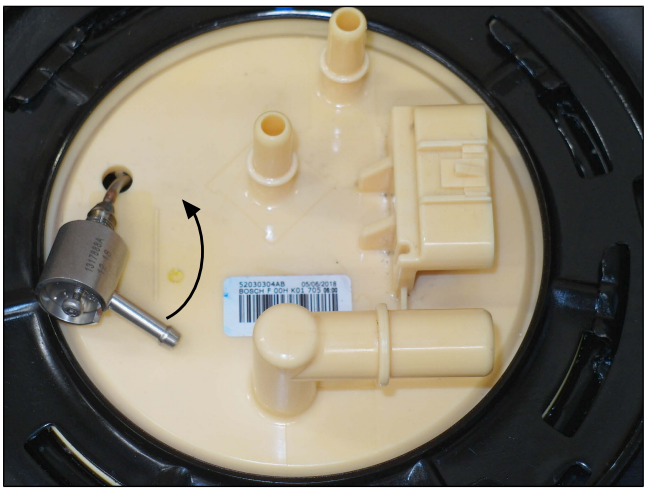


Fig. 62

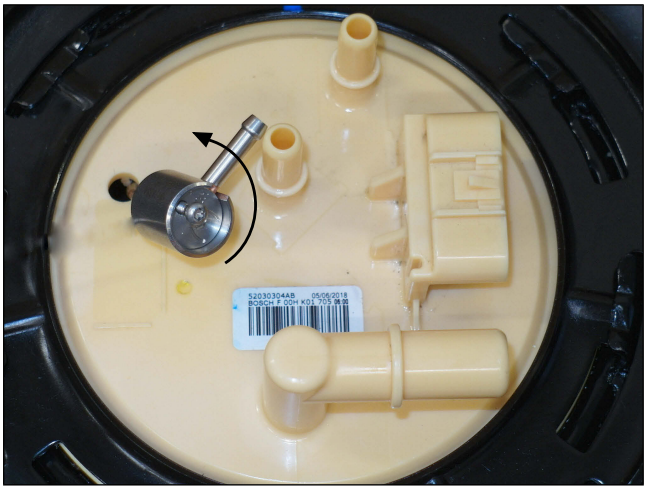


Fig. 63

Work step F5.4

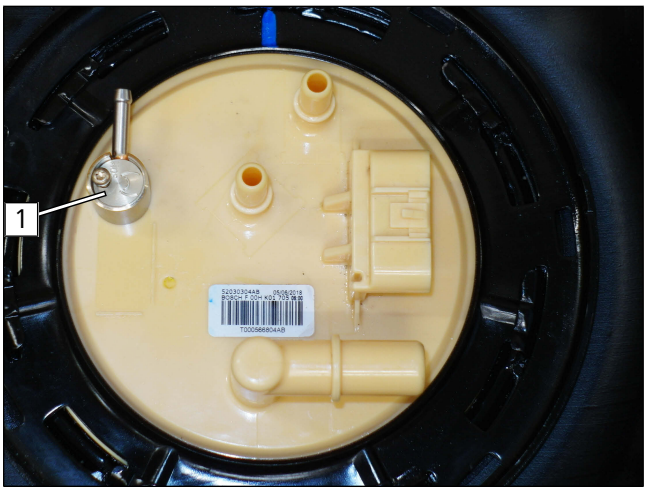


Fig. 64

▶ Align FuelFix [1] as shown.

Work step F6

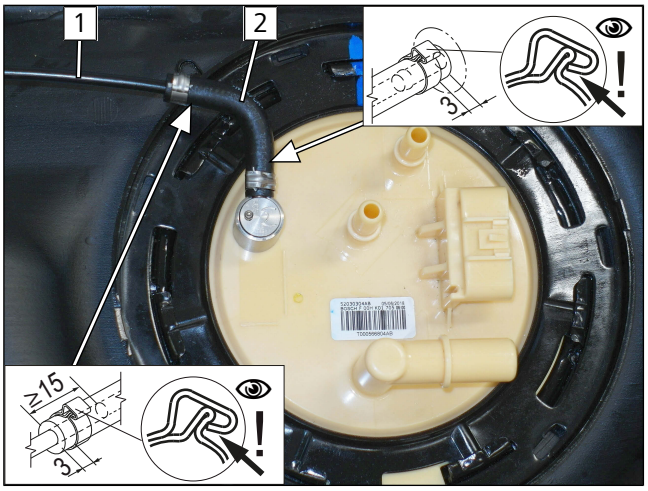


Fig. 65

1 Fuel line
2 90° moulded hose, Ø10 clamp [2x]

Work step F7

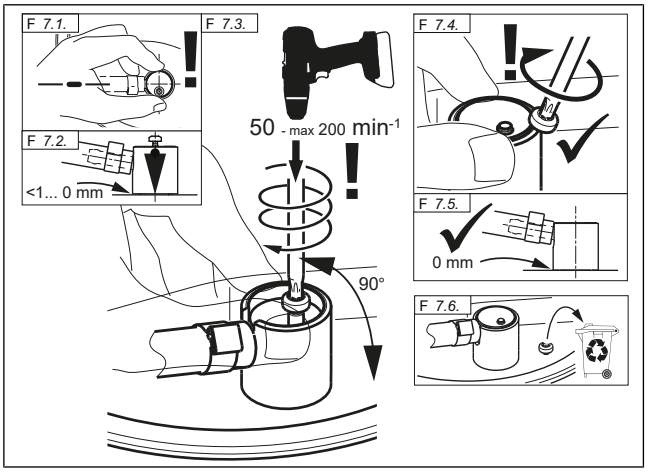


Fig. 66

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

Work step F8

Fig. 67

Securing fuel line

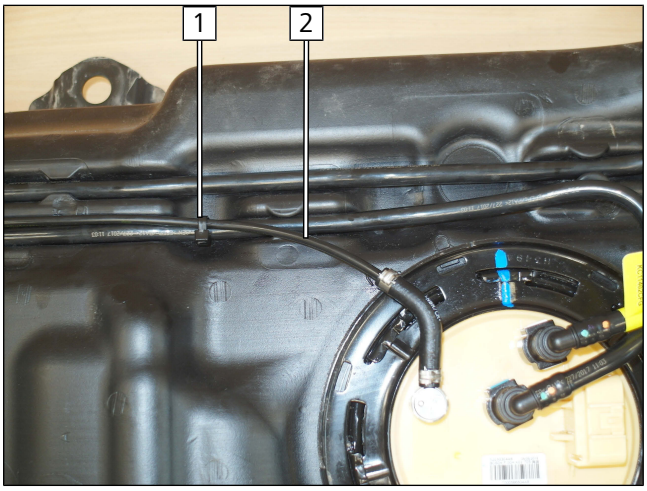


Fig. 68

1 Cable tie for tension relief
2 Fuel line

Routing fuel line

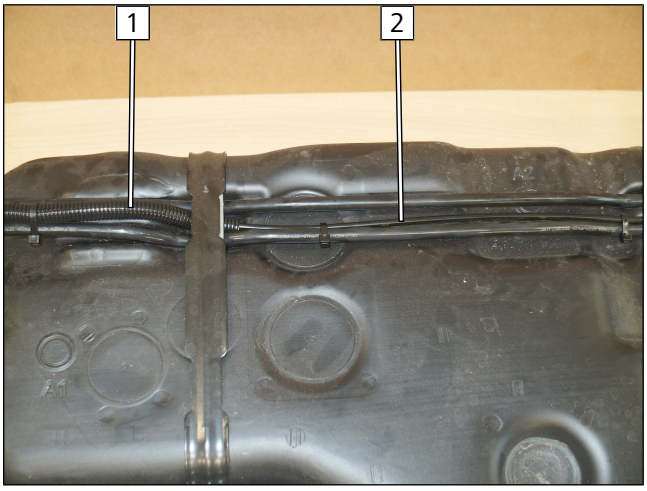


Fig. 69

▶ Route fuel line along the tank and fasten with cable ties.

1 Corrugated tube
2 Fuel line

9.6 Fuel pump connection

Connecting fuel line of FuelFix

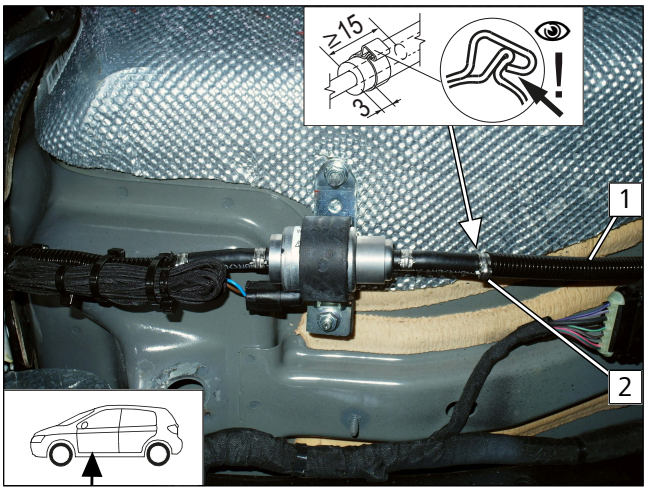


Fig. 70

Figure shows vehicle with long wheelbase

1 Fuel line of FuelFix in corrugated tube
2 Ø10 clamp

10 Coolant

10.1 Hose routing diagram

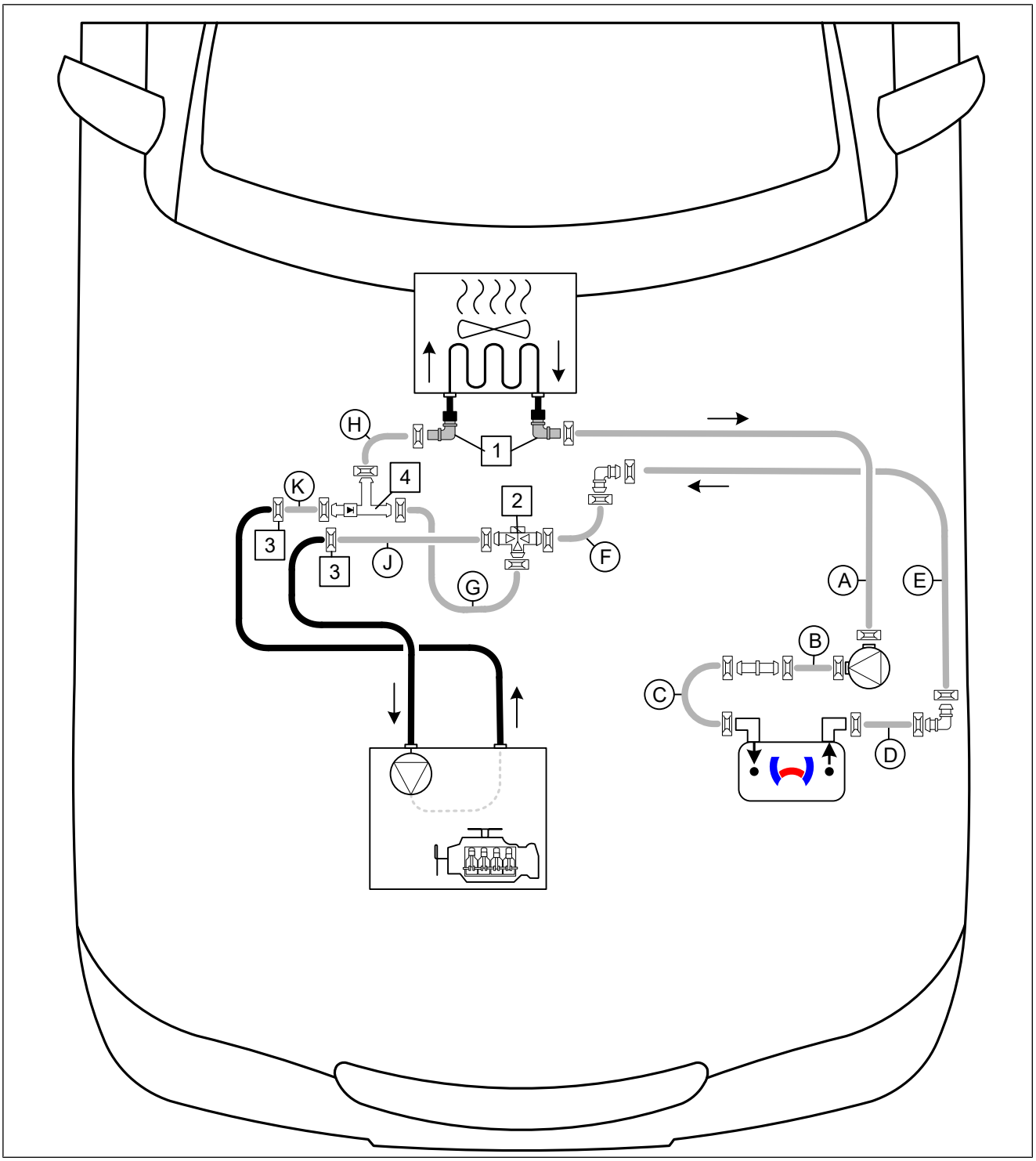


Fig. 71

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation or = Ø18x18

[1] Quick-release coupling; [2] Solenoid valve; [3] Original vehicle spring clip; [4] Non-return valve

10.2 Coolant circuit installation

Cutting foam in half

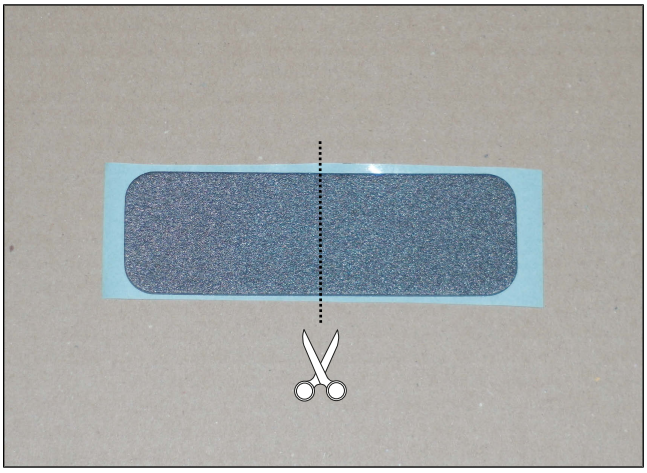


Fig. 72

Masking stud bolt

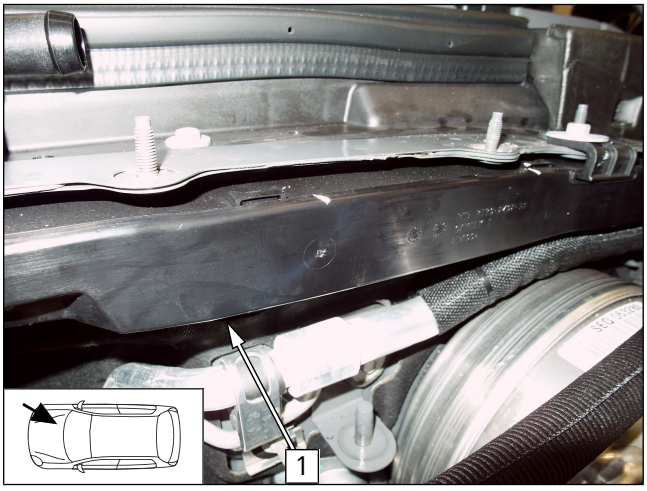


Fig. 73

▶ The stud bolt can be found at position 1.

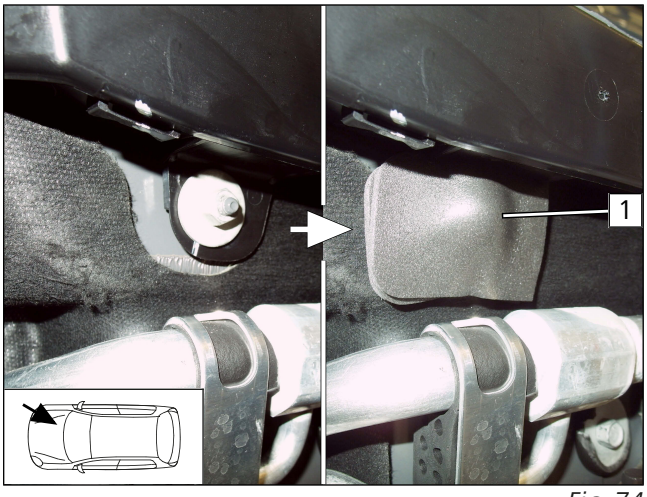


Fig. 74

▶ Glue both halves of foam 1 onto the stud bolt.

Cutting point

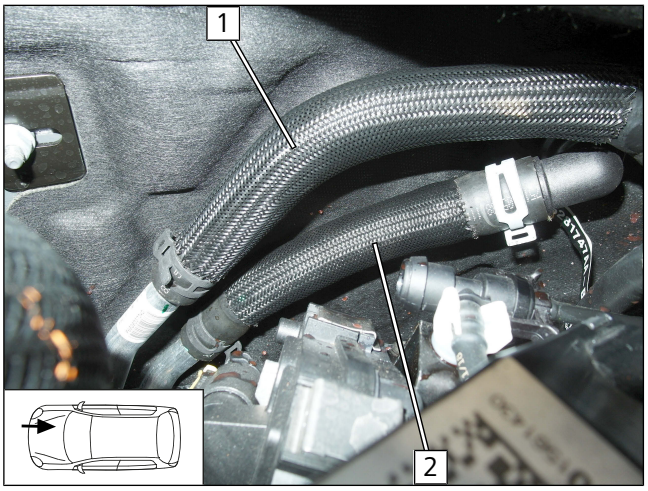


Fig. 75

- ▶ Disconnect and discard heat exchanger outlet/engine inlet hose [1].
- ▶ Disconnect and discard heat exchanger inlet/engine outlet hose [2]. Original vehicle spring clips and quick-release couplings will be reused.

Removing quick-release coupling

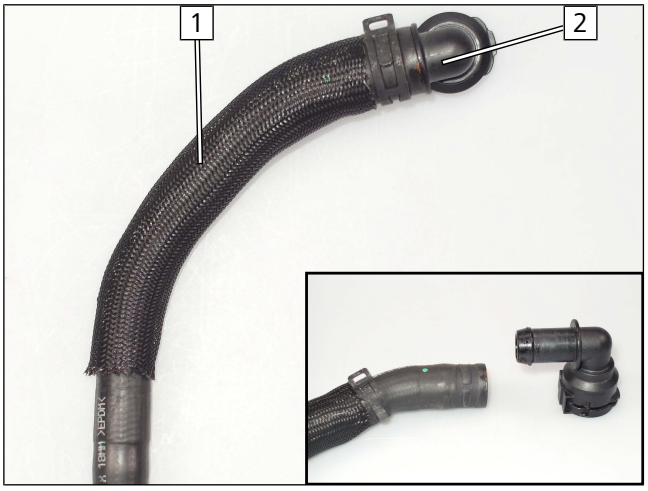


Fig. 76

- ▶ Remove quick-release coupling [2] from heat exchanger outlet/engine inlet hose [1]. Discard hose.

Mounting quick-release coupling on hose Ⓐ

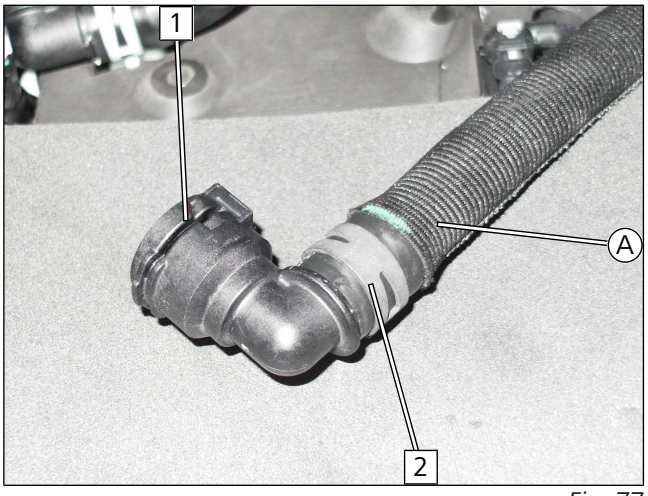


Fig. 77

- [1] Quick-release coupling
- [2] Ø25 spring clip, fastener turned downwards

Connecting hose Ⓐ to heat exchanger outlet

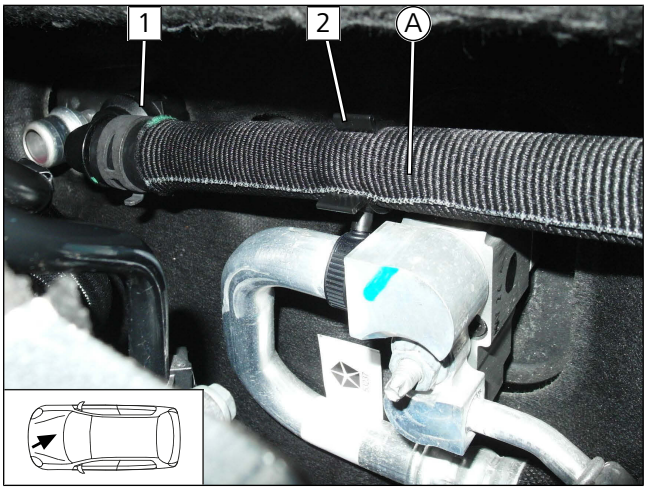


Fig. 78

- ▶ Mount quick-release coupling 1 onto heat exchanger outlet.
- ▶ Mount hose bracket cable tie onto A/C line and insert hose Ⓐ into hose bracket 2.

Connecting hose Ⓐ to coolant pump inlet

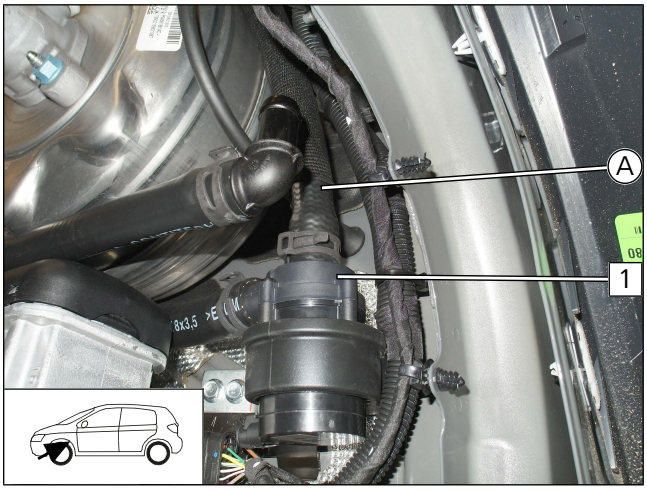


Fig. 79

1 Coolant pump

Routing hose Ⓔ upwards and connecting it to hose Ⓓ

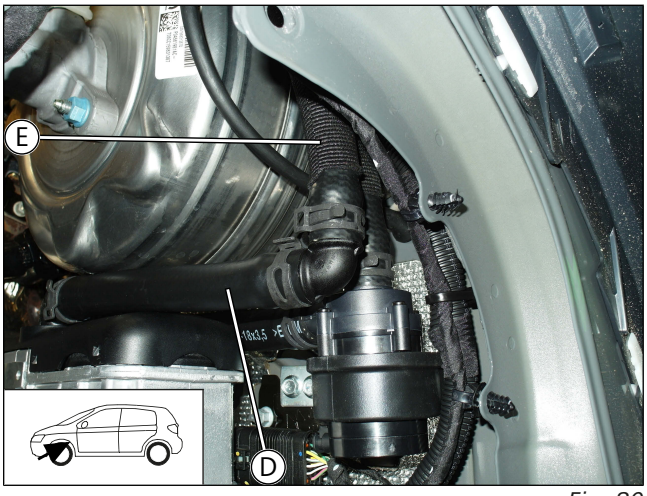


Fig. 80

Fastening hoses Ⓐ and Ⓔ

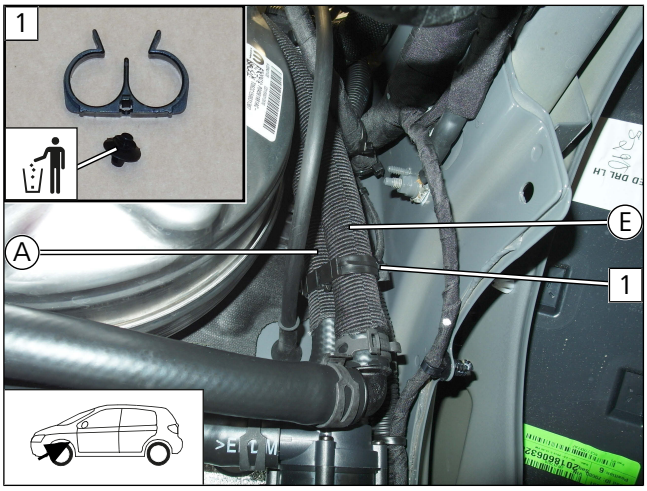


Fig. 81

1 Hose bracket

Mounting hose Ⓕ onto hose Ⓔ

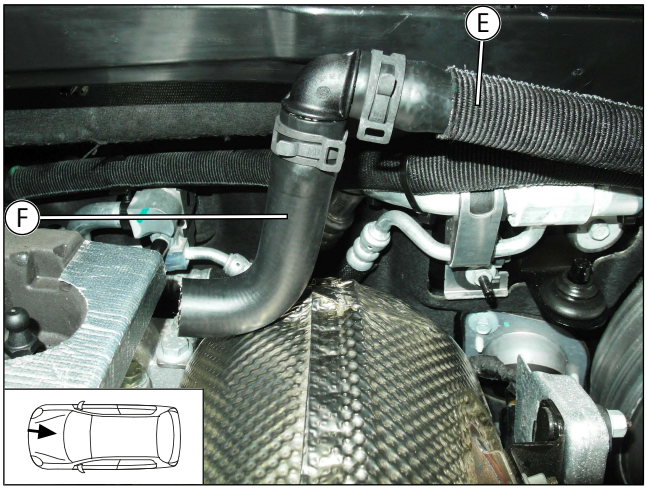


Fig. 82

Premounting non-return valve hose group

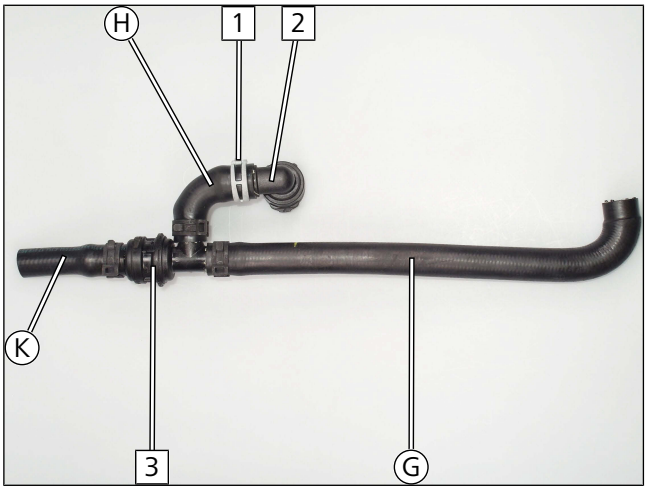


Fig. 83

1 Original vehicle spring clip
2 Quick-release coupling
3 Non-return valve

Preparing perforated bracket

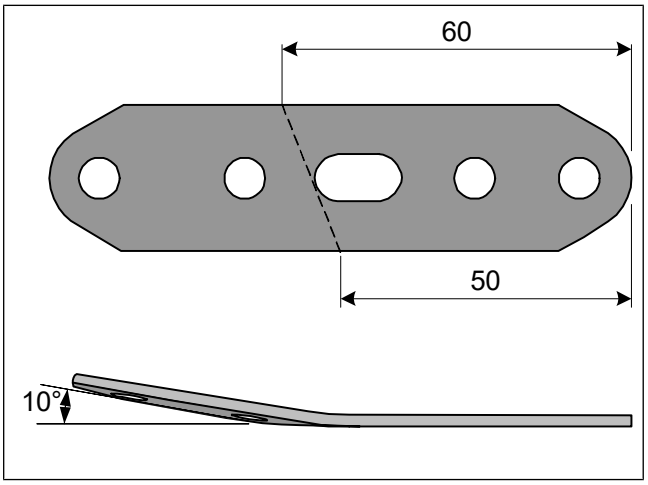


Fig. 84

Preparing solenoid valve

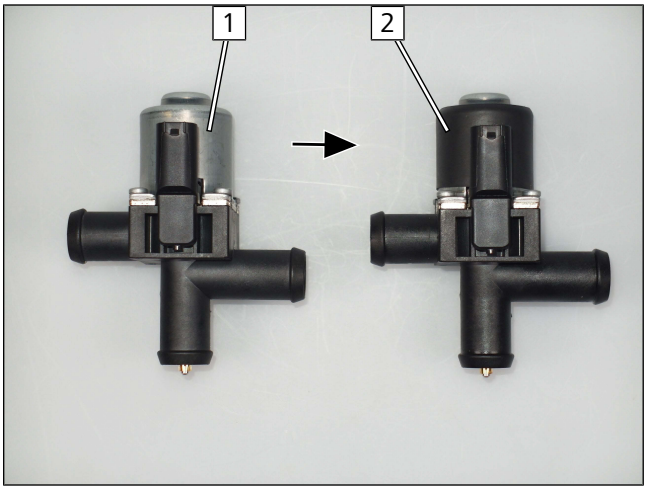


Fig. 85

1 Solenoid valve

2 30mm heat shrink plastic tubing

Preparing Ø34 rubber-coated p-clamp

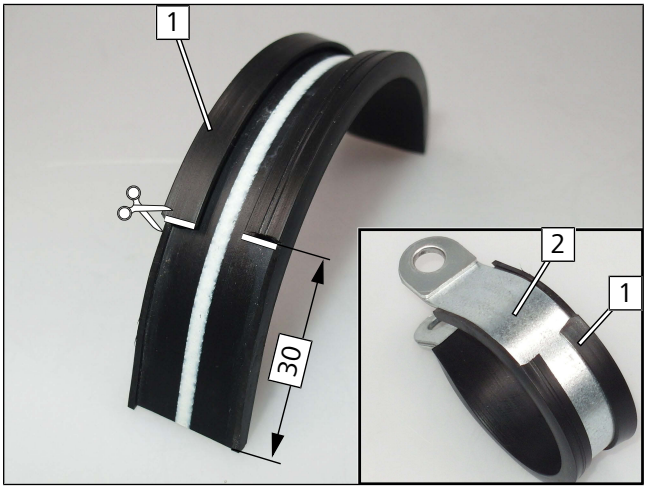


Fig. 86

▶ Remove rubber insert **1** from pipe clamp **2**, adapt it as shown, then mount it again.

Installing perforated bracket on solenoid valve

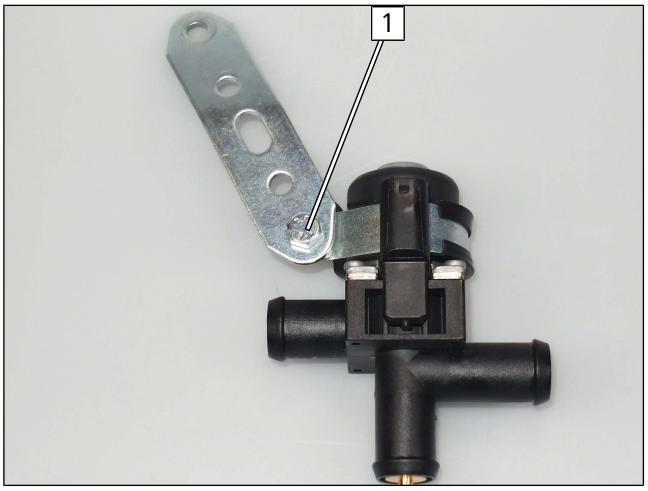


Fig. 87

1 M6x20 bolt, perforated bracket, rubber-coated p-clamp, pipe clamp, flanged nut

Mounting hoses J and G on solenoid valve

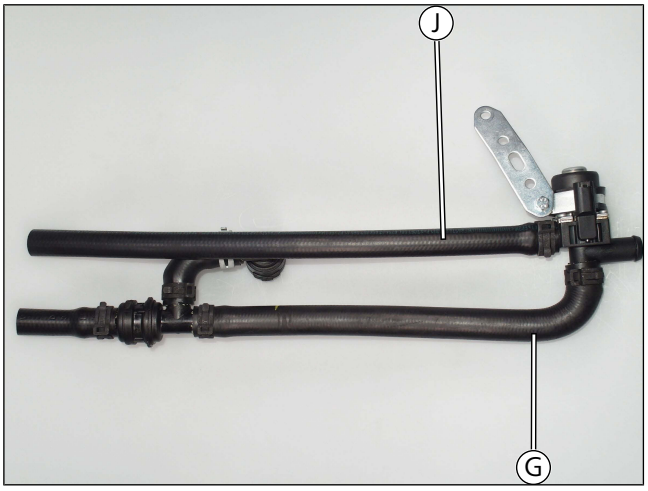


Fig. 88

Installing hose group in engine compartment

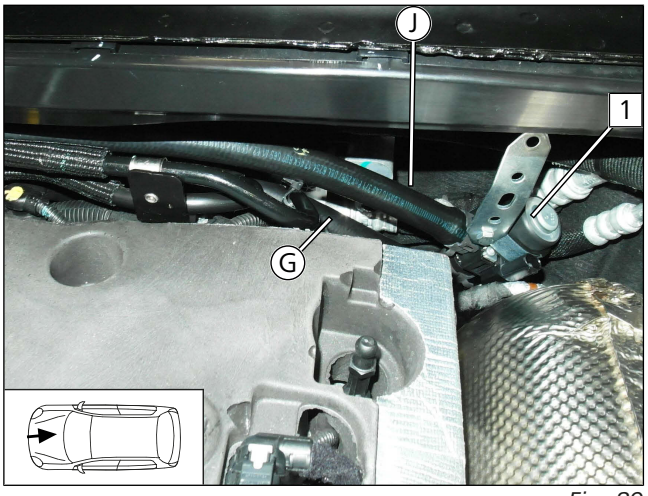


Fig. 89

1 Solenoid valve

Connection of hose Ⓚ to engine outlet

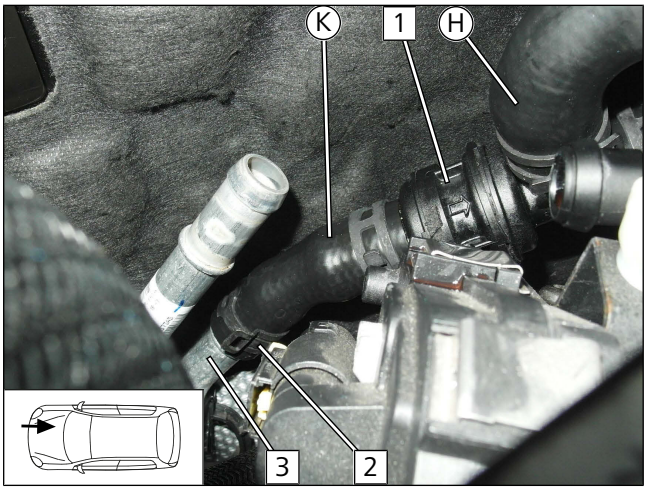


Fig. 90

1 Non-return valve
2 Original vehicle spring clip
3 Engine outlet connection piece

Connection of hose Ⓗ to heat exchanger inlet

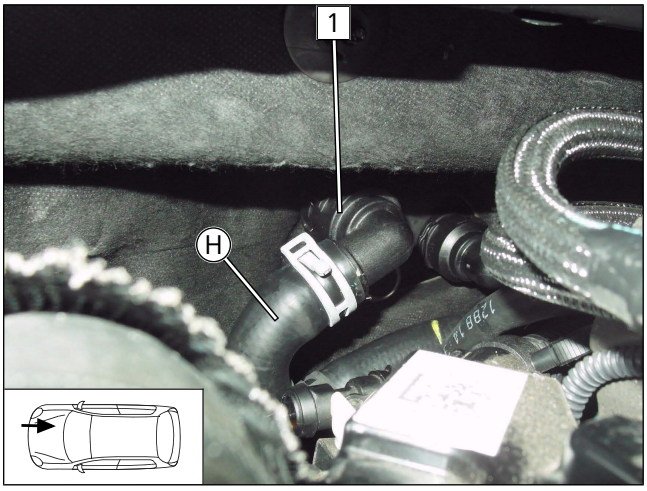


Fig. 91

1 Quick-release coupling on heat exchanger inlet

Connection of hose Ⓙ to engine inlet

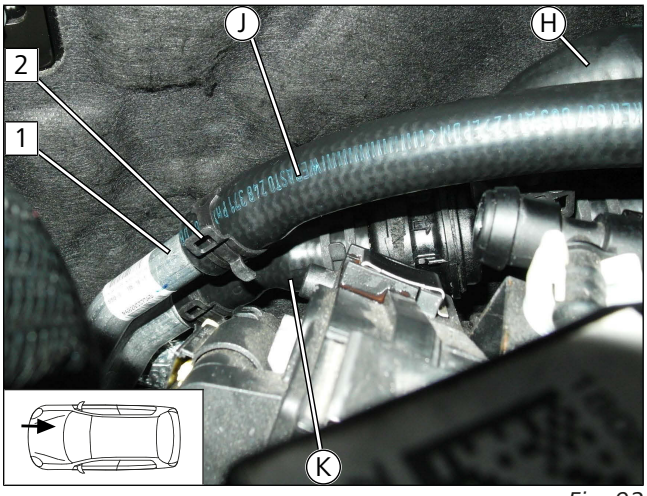


Fig. 92

1 Engine inlet connection piece
2 Original vehicle spring clip

Installing protective hose

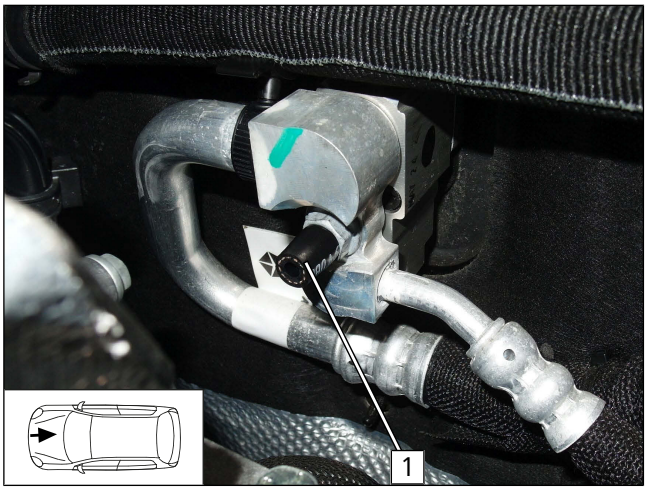


Fig. 93

▶ Mount 20mm fuel hose 1 for protection on original vehicle stud bolt.

Mounting solenoid valve

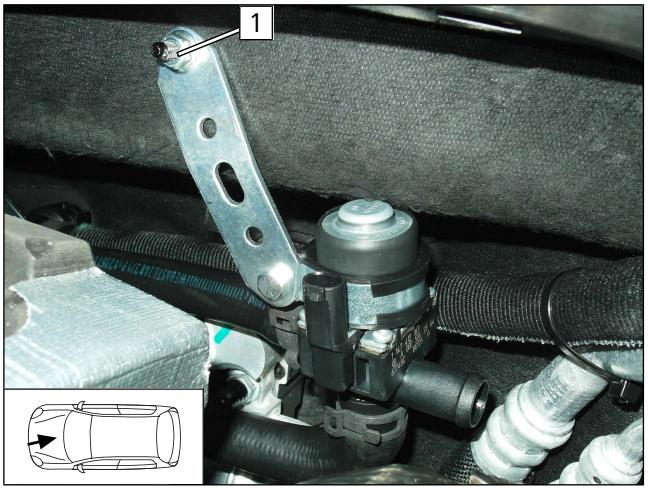


Fig. 94

1 Original vehicle stud bolt, perforated bracket, M6 flanged nut

Aligning hose Ⓖ ausrichten

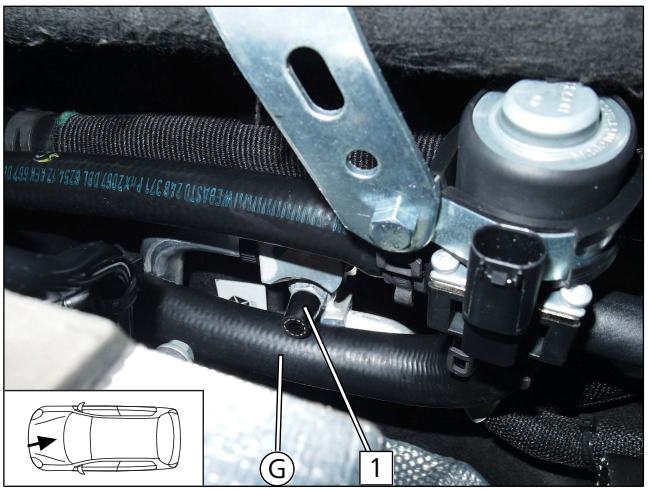


Fig. 95

▶ Route hose Ⓖ below protective hose 1 as shown.

Mounting hose Ⓕ on solenoid valve

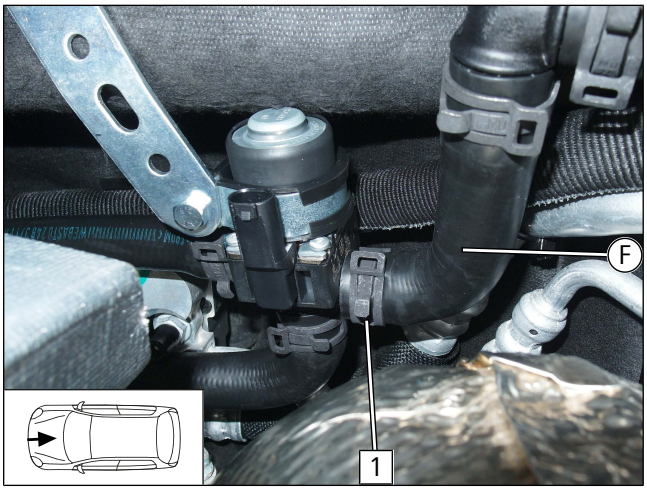


Fig. 96

1 Spring clip

Fastening hoses

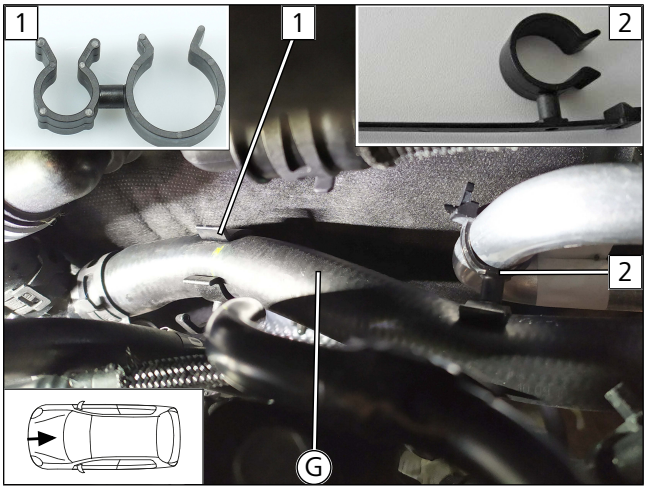


Fig. 97

1 Hose bracket around hose Ⓖ and original vehicle line

2 Hose bracket around hose Ⓖ and A/C line

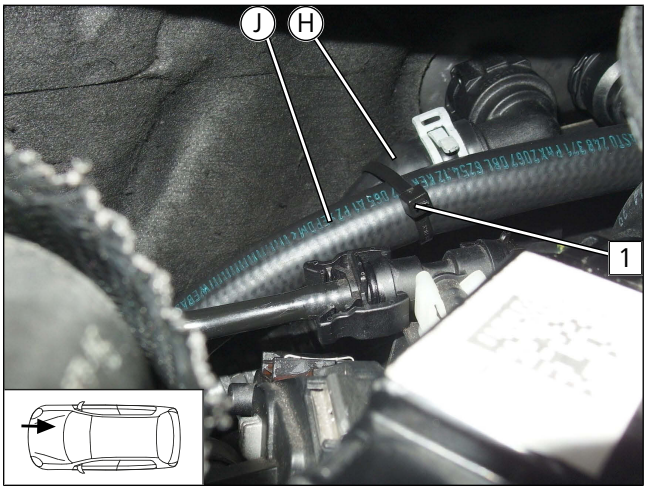


Fig. 98

Danger of damage to components

▶ Ensure sufficient distance between spring clip fastener and hose Ⓙ, correct if necessary.

1 Cable tie around hoses Ⓙ and Ⓗ

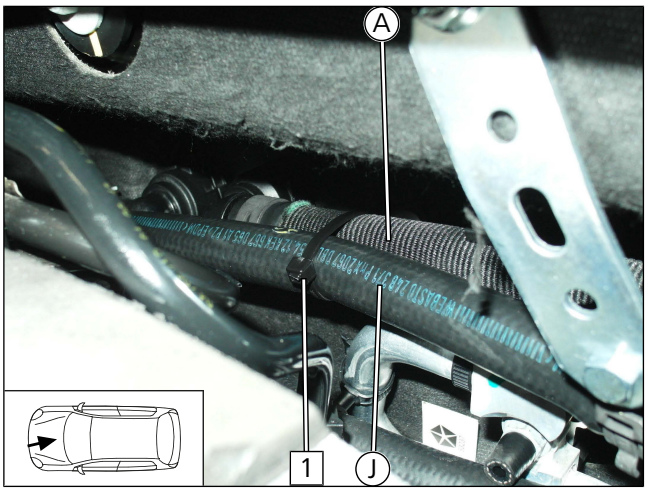


Fig. 99

1 Cable tie around hoses (A) and (J)

Adapting expansion tank bracket

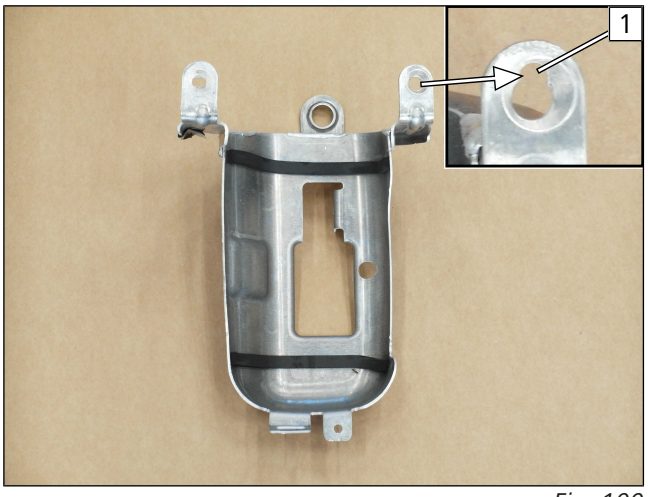


Fig. 100

▶ Create an oblong hole by enlarging the existing hole at pos. 1.

Mounting expansion tank bracket

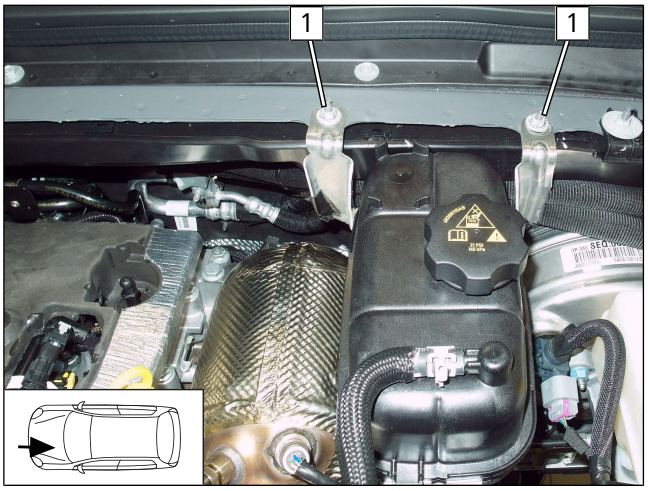


Fig. 101

▶ Move the expansion tank bracket as far as possible in the direction of the engine compartment.

▶ Distance check according to next figure.

1 Original vehicle stud bolt, expansion tank bracket , original vehicle nut

Checking distance

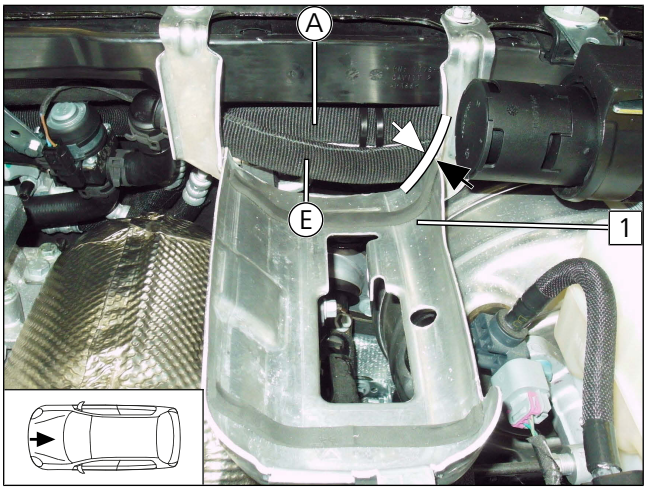


Fig. 102

▶ Ensure sufficient distance between hoses Ⓐ and Ⓔ and coolant expansion tank bracket 1, correct if necessary.

11 Exhaust

Attaching original vehicle lines

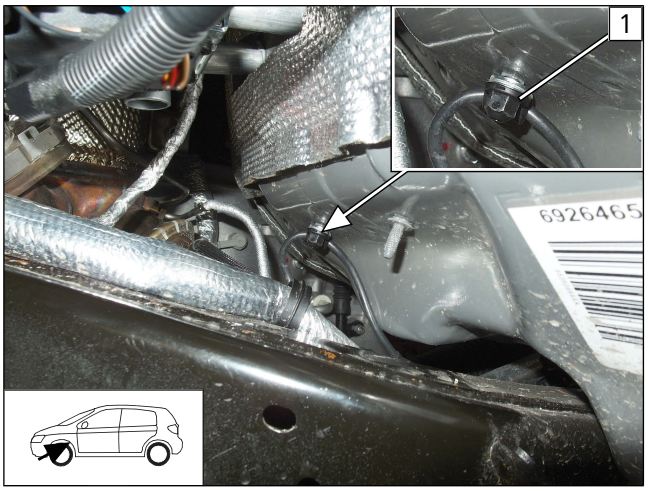


Fig. 103

[1] Original vehicle stud bolt, Ø8 rubber-coated p-clamp, original vehicle line, plastic nut

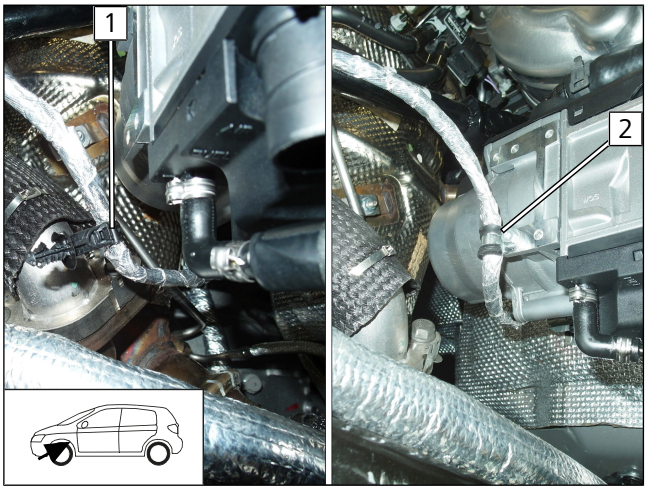


Fig. 104

▶ Detach original vehicle line, discard clip [1].

[2] 5x13 bolt, Ø8 rubber-coated p-clamp, original vehicle line, HG hole

Installing spacer nut

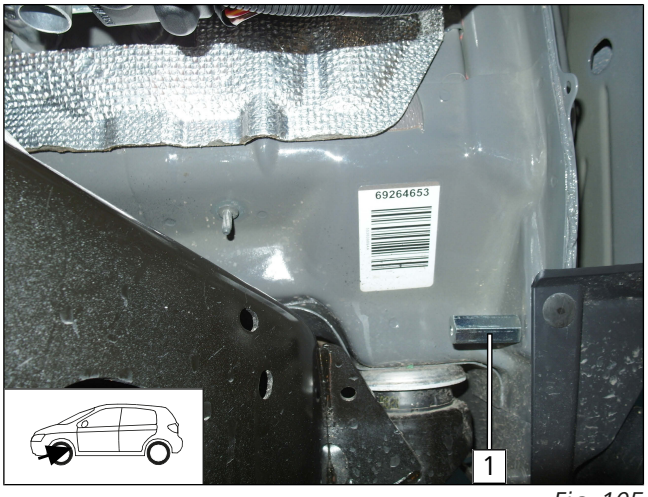


Fig. 105

[1] Spacer nut (40) on available stud bolt

Bending perforated bracket

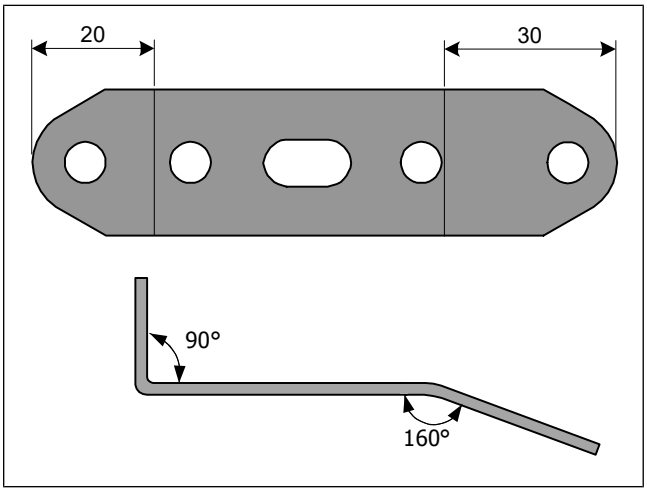


Fig. 106

Cutting exhaust pipe to length

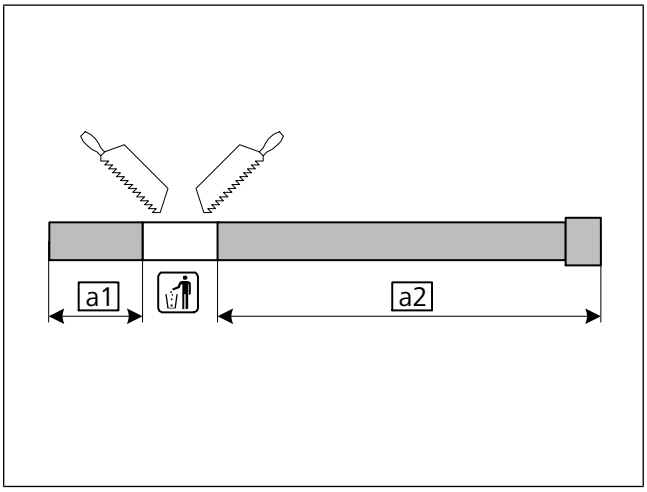


Fig. 107

a1 180

a2 640

Premounting exhaust silencer

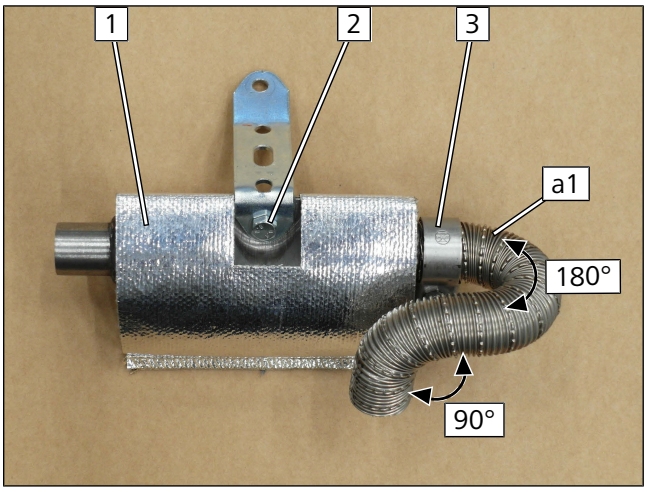


Fig. 108

▶ Bend exhaust pipe **a1** as far as possible as shown.

1 Insulating sleeve

2 M6x20 bolt, perforated bracket, exhaust silencer, flanged nut

3 Pipe clamp

Mounting exhaust silencer

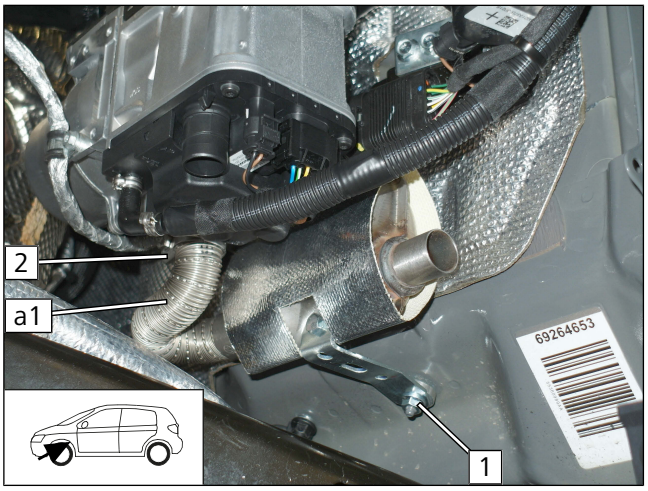


Fig. 109

Danger of damage to components

▶ Ensure sufficient distance between hose and AGSD, correct if necessary.

[1] Original vehicle stud bolt, spacer (5), perforated bracket, flanged nut

[2] Pipe clamp

Mounting exhaust pipe [a2]

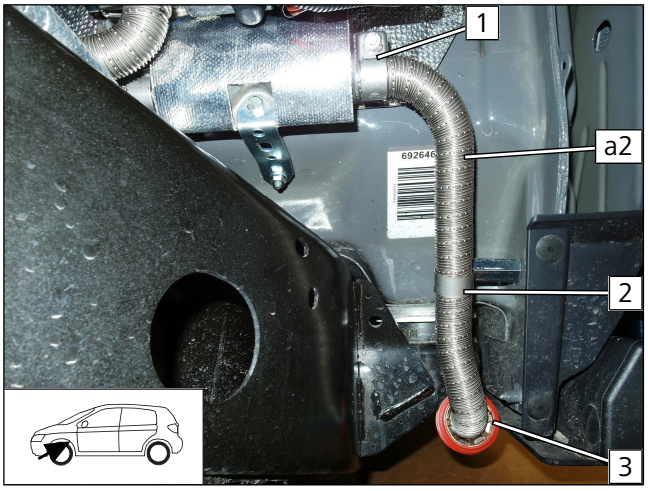


Fig. 110

▶ Slide spacer bracket [3] [3x] onto exhaust pipe [a2].

[1] Pipe clamp

[2] M6x16 bolt, spring lock washer, p-clamp, exhaust pipe [a2], premounted spacer nut

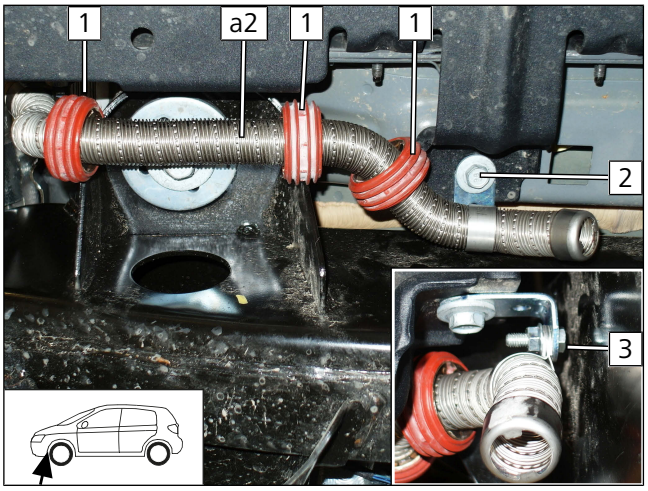


Fig. 111

Figure shows [a2] installation for vehicles with long wheelbase

[1] Spacer bracket

[2] Original vehicle bolt, large diameter washer, angle bracket, original vehicle threaded hole

[3] M6x20 bolt, angle bracket, pipe clamp, flanged nut

Preparing angle bracket

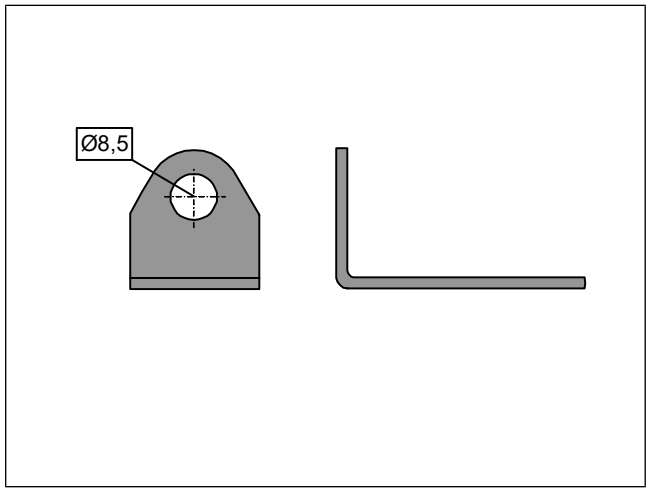


Fig. 112

Only necessary for vehicles with short wheelbase

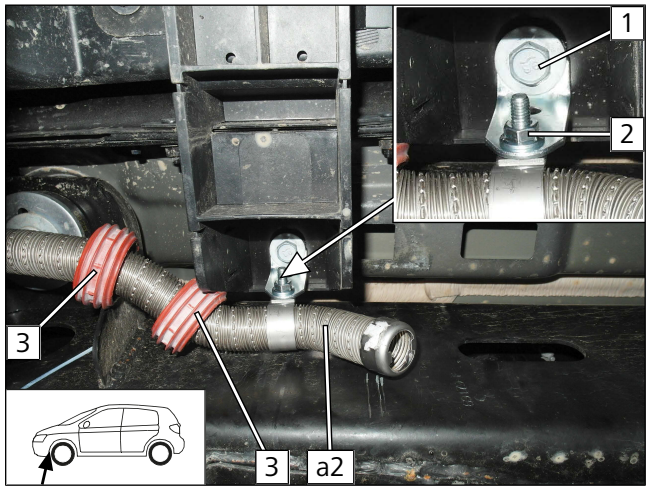


Fig. 113

Figure shows **a2** installation for vehicles with short wheelbase

1 Original vehicle bolt, large diameter washer, angle bracket, original vehicle threaded hole

2 M6x20 bolt, angle bracket, pipe clamp, flanged nut

3 Spacer bracket

12 Combustion air

Shortening perforated bracket

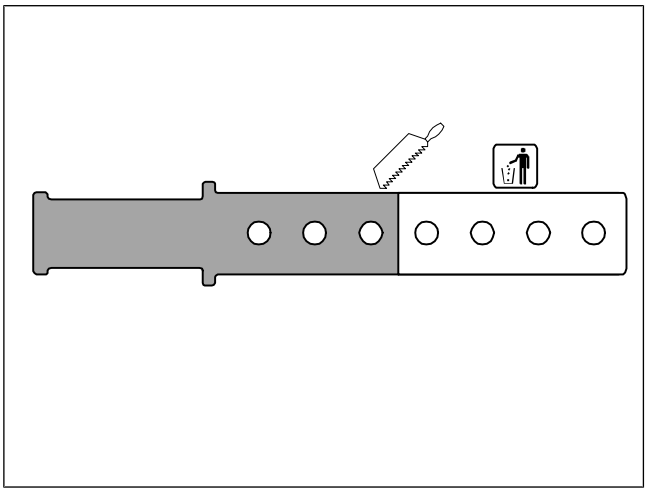


Fig. 114

Premounting combustion air intake silencer

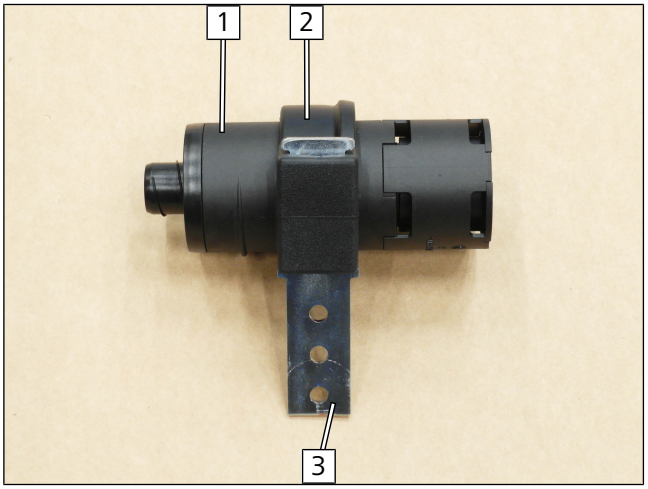


Fig. 115

1 Combustion air intake silencer
2 Mount
3 Perforated bracket

Cutting combustion air intake pipe to length

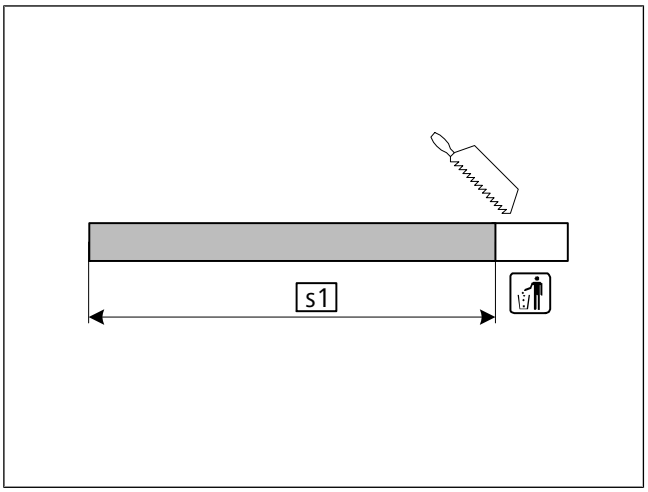


Fig. 116

s1 800

Mounting combustion air intake line on HG and routing it

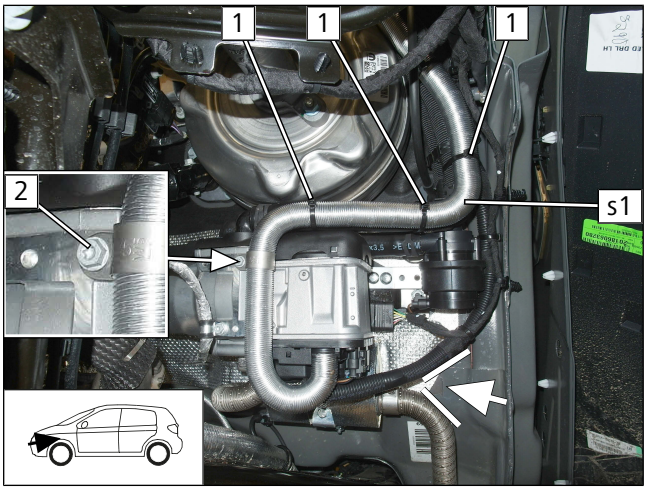


Fig. 117

Observe the installation instructions of the combustion air intake silencer.

Danger of damage to components

▶ Ensure sufficient distance between HG wiring harness and exhaust pipe, correct if necessary.

▶ Mount combustion air intake line **s1** on HG and route it upwards, along the wiring harness as shown.

1 Cable tie

2 5x13 bolt, p-clamp, HG hole

Mounting combustion air intake silencer

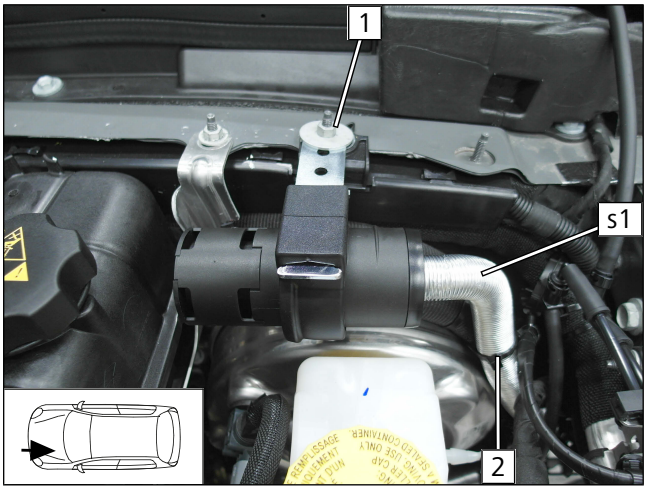


Fig. 118

▶ Mount combustion air intake line **s1** on combustion air intake silencer.

▶ Align the combustion air intake silencer horizontally by slightly bending the perforated bracket.

1 Original vehicle stud bolt, perforated bracket, original vehicle nut with washer

2 Cable tie

13 Electrical system of passenger compartment

13.1 Electrical System Preparation

Dismantling connector of solenoid valve wiring harness

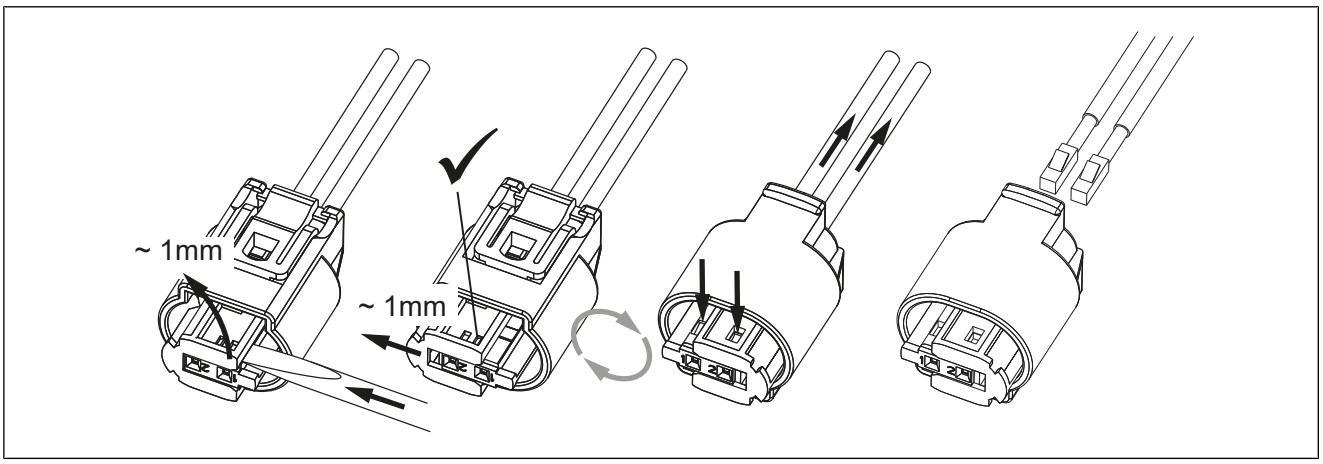


Fig. 119

Preparing and assigning wires

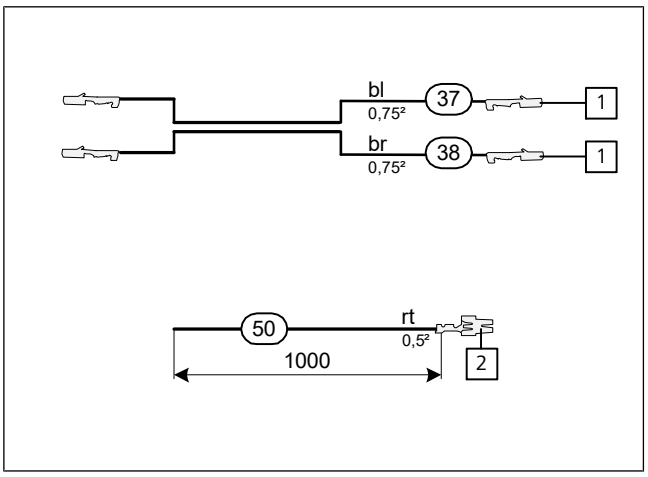


Fig. 120

Wire sections retain their numbering in the entire document.

▶ Draw wire (50) into provided protective sleeving.

- [1] 6.3 female connector
- [2] Flat spring contact
- (37) Blue (bl) wire of solenoid valve wiring harness
- (38) Brown (br) wire of solenoid valve wiring harness

Preparing CL GW

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

▶ Connect blue (bl) wire (37) and brown (br) wire (38).

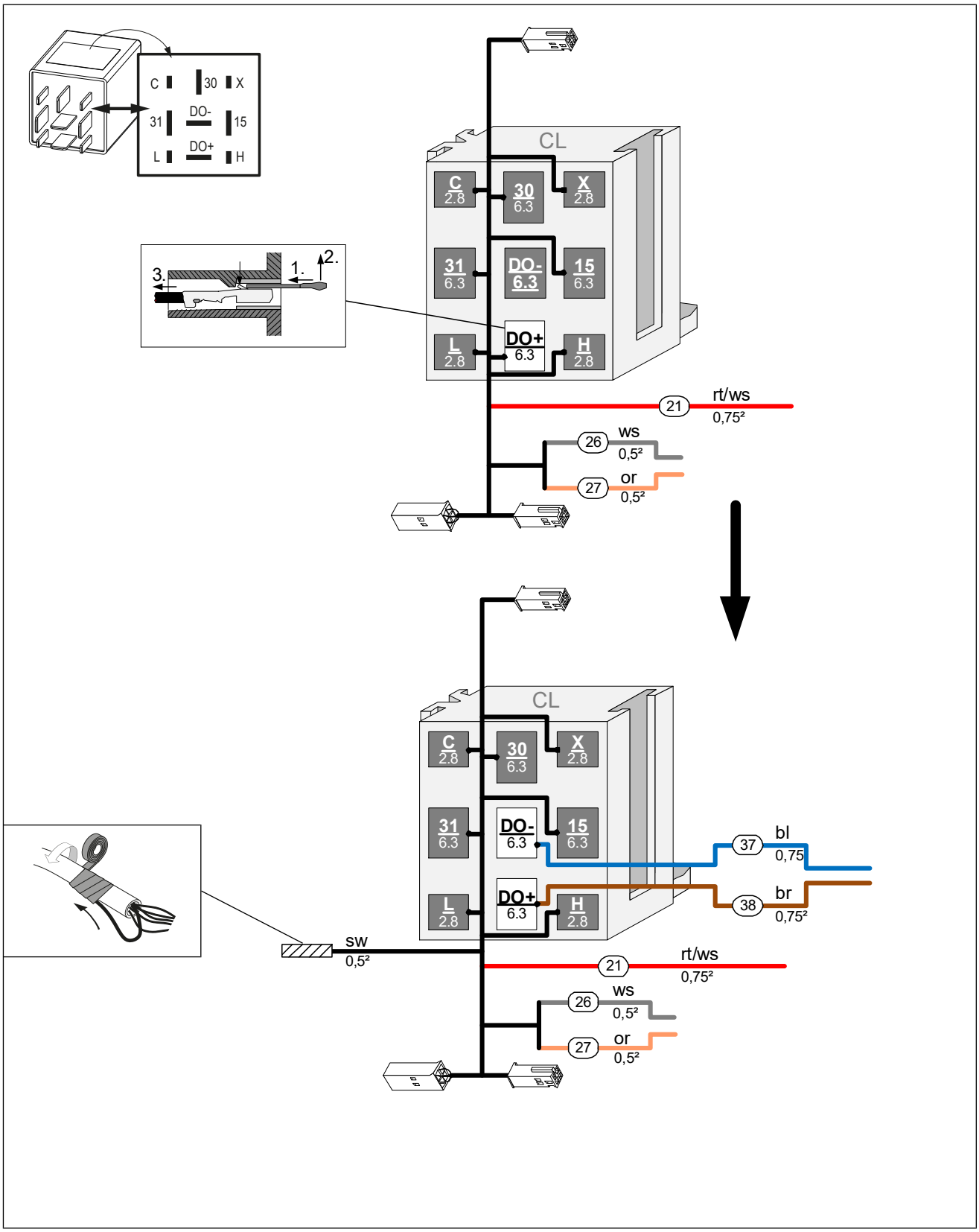


Fig. 121

13.2 Wiring diagram

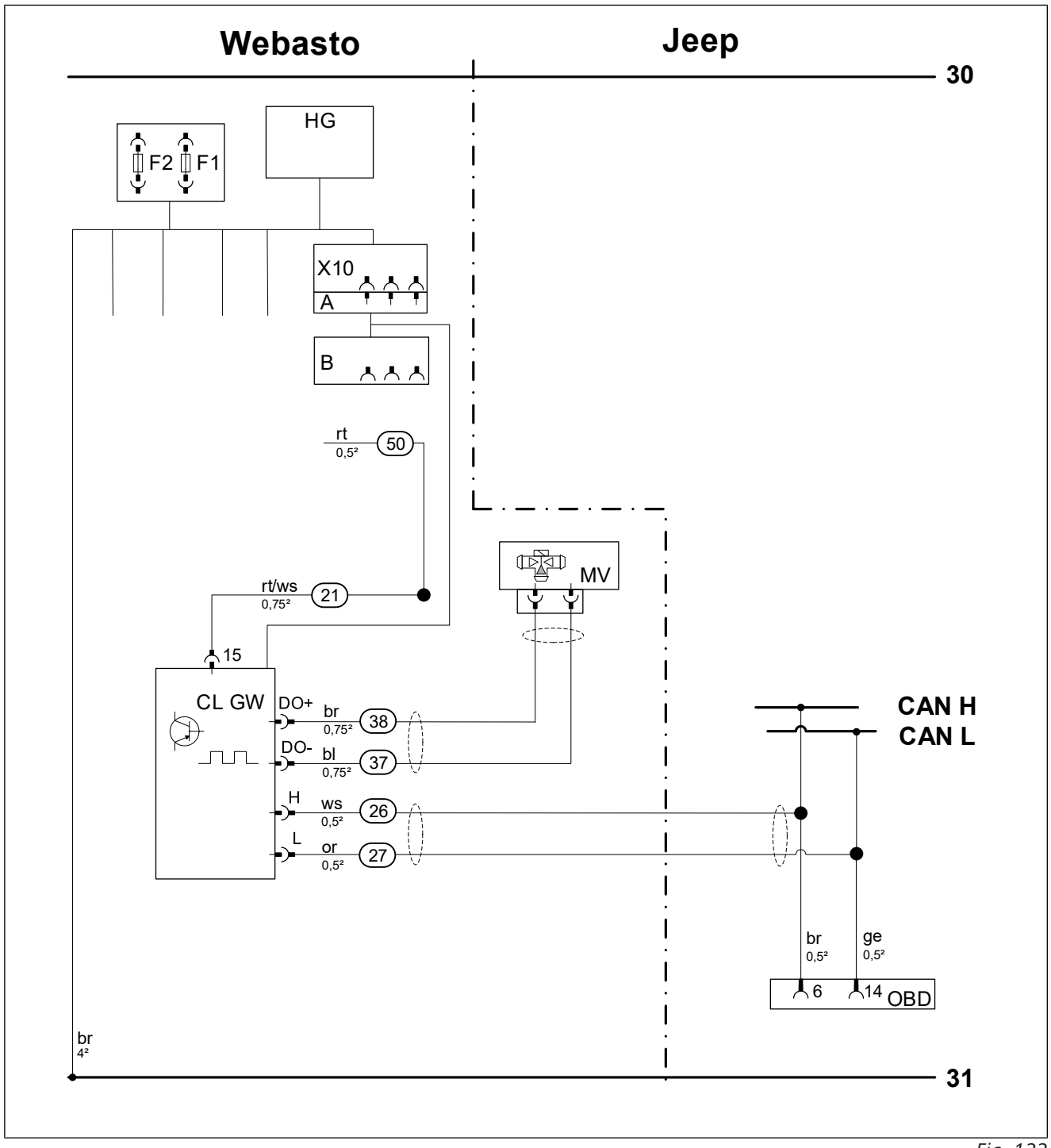


Fig. 122

Legend to wiring diagram

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

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
OBD	ON-Board Diagnosis		

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

Cutting to length and bending perforated bracket

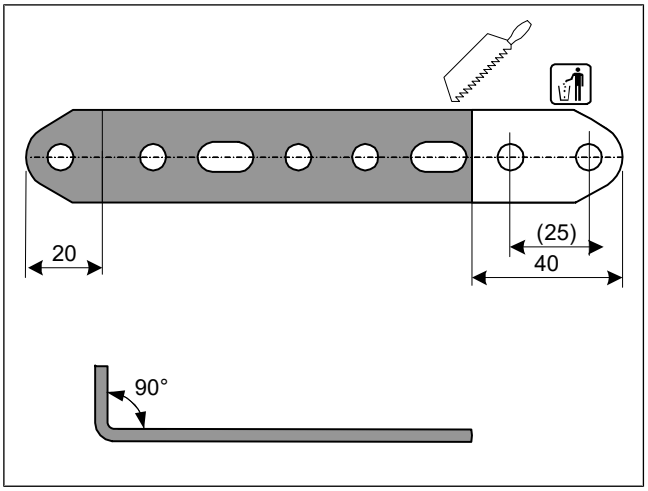


Fig. 123

Premounting CL GW socket

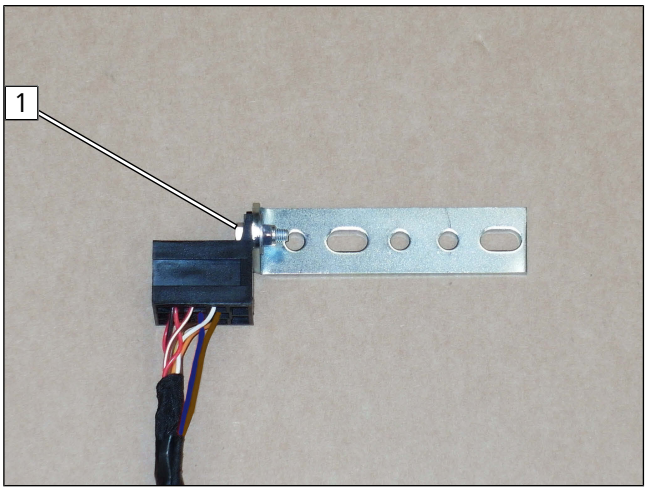


Fig. 124

1 M5x16 bolt, large diameter washer, CL GW socket, perforated bracket, large diameter washer, nut

Mounting CL GW

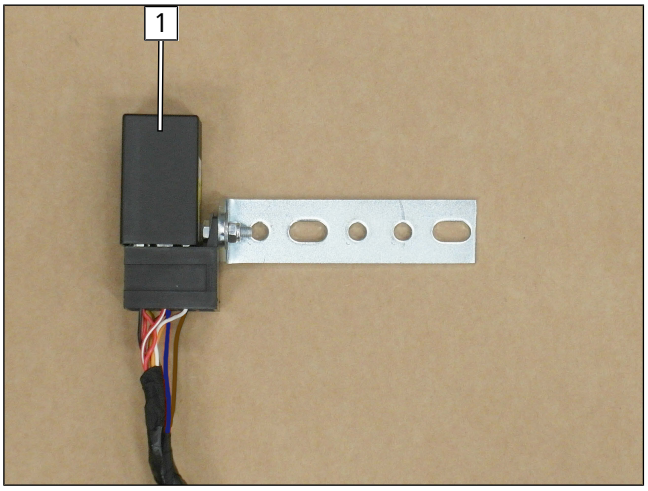


Fig. 125

1 CL GW

Mounting CL GW

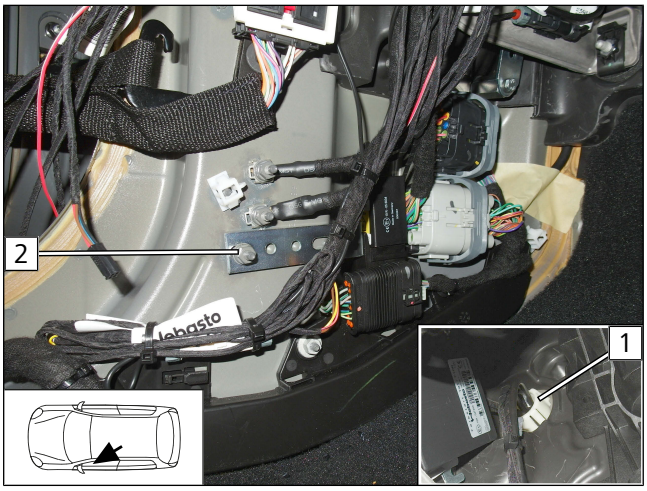


Fig. 126

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

- ▶ Route wires (37) and (38) through cable grommet [1] into the engine compartment and to the solenoid valve.
- ▶ Route wires (26) and (27) to the OBD socket outlet.

[2] Original vehicle stud bolt, premounted perforated bracket, original vehicle nut

Preparing CL GW

- ▶ Connect wire (50) with wire (21).
- ▶ Connect connectors and sockets.

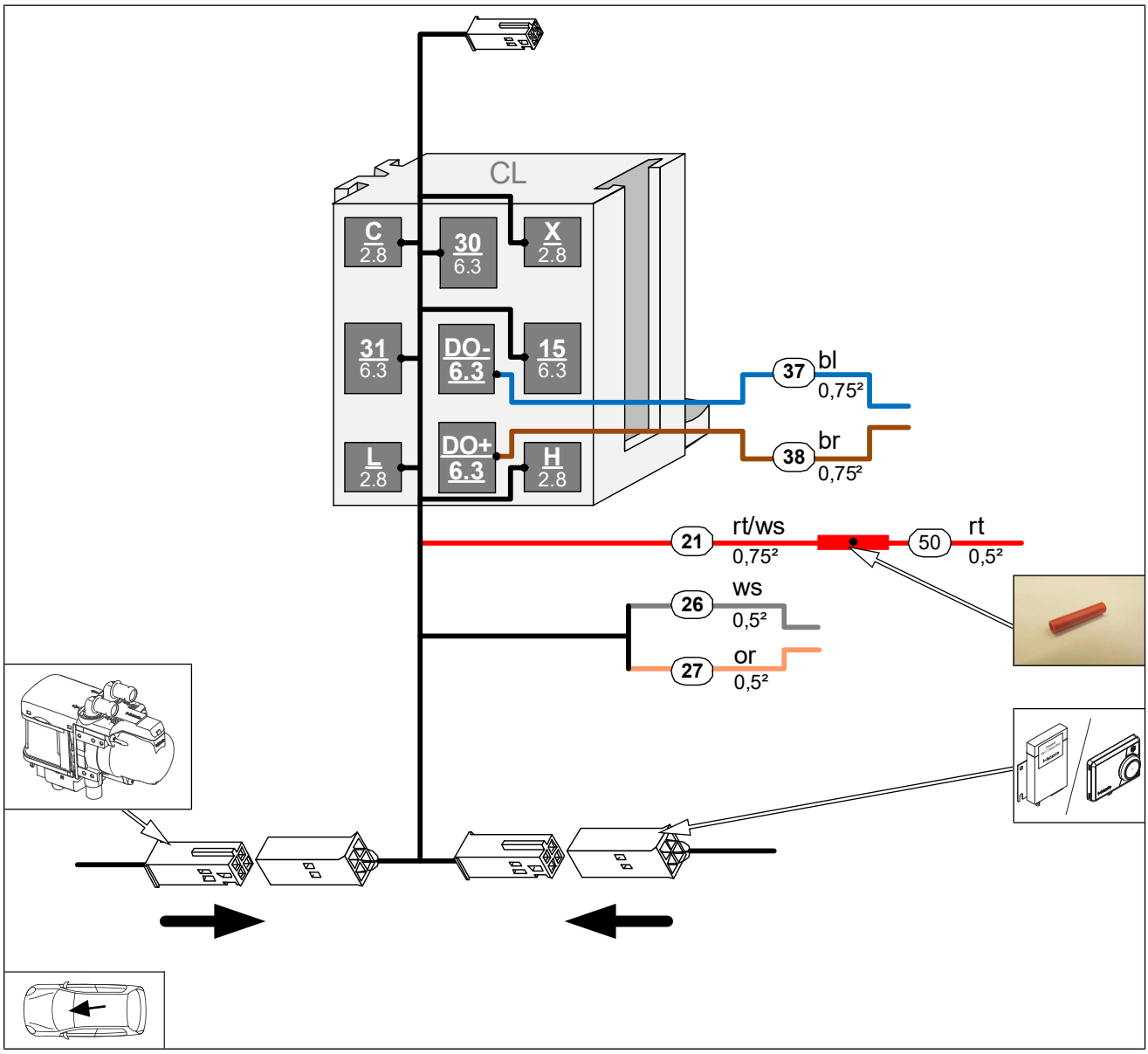


Fig. 127

Connection to OBD socket outlet

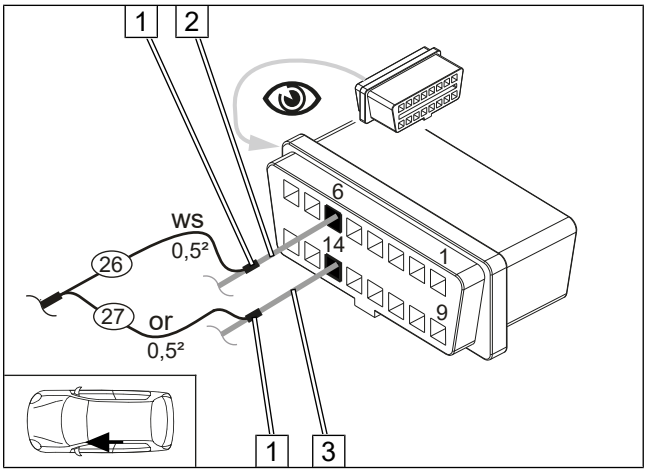


Fig. 128

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

▶ Remove OBD socket outlet from bracket.

▶ Crimp and shrink butt connector 1

2 Brown (br) wire of OBD socket outlet/ pin 6

3 Yellow (ge) wire of OBD socket outlet/ pin 14

26 White (ws) wire of CLR module/ H, CL GW wiring harness

27 Orange (or) wire of CLR module/ L, CL GW wiring harness

Assembling solenoid valve connector

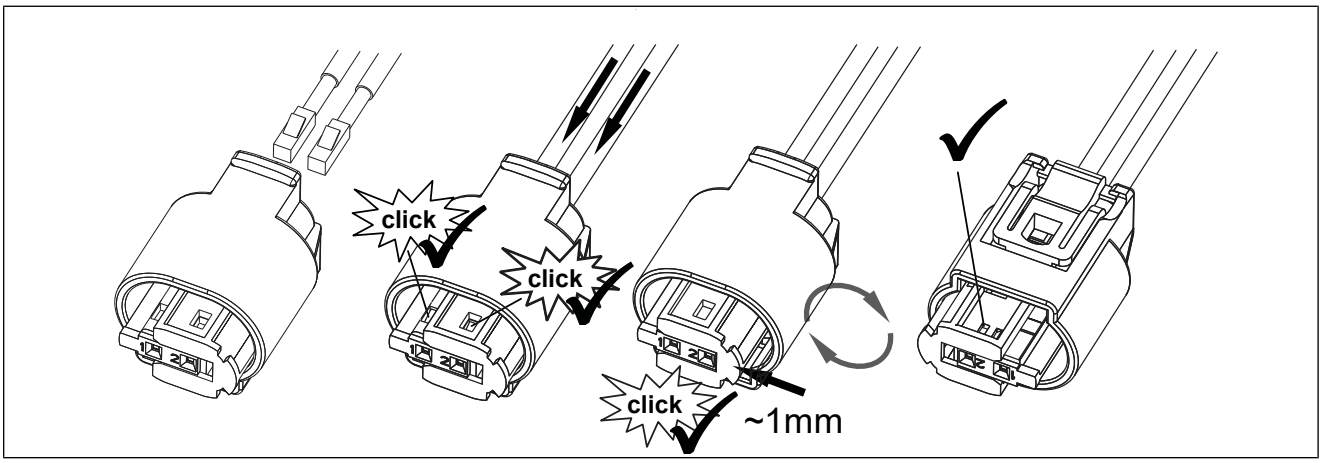


Fig. 129

Mounting connector on solenoid valve

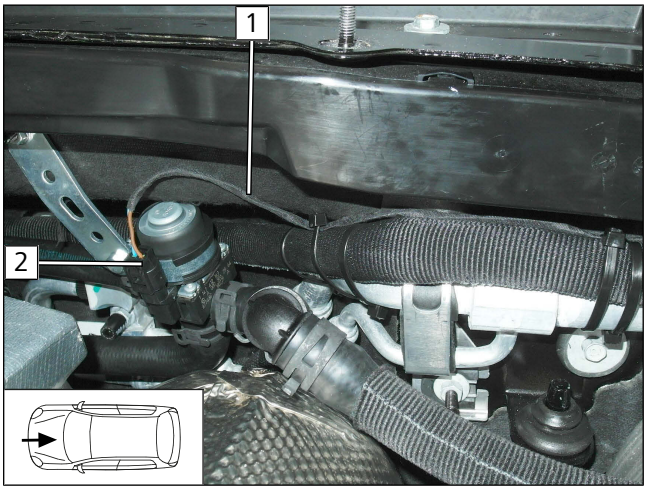


Fig. 130

▶ Route solenoid valve wiring harness 1 in engine compartment to solenoid valve.

2 Solenoid valve connector

13.4 Air-conditioning control

Integrate the air-conditioning control as per the separate installation documentation:

'**Webasto Comfort**' A/C control installation documentation for Jeep Wrangler JL with AAC

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 in engine compartment

Fastening hoses

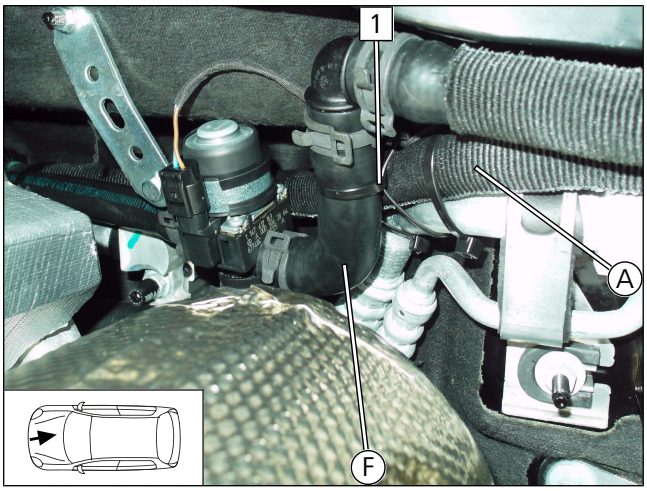


Fig. 131

▶ Interlace two cable ties [1], wrap one cable tie around hose Ⓐ and A/C line and one around hose Ⓕ.

Checking distance

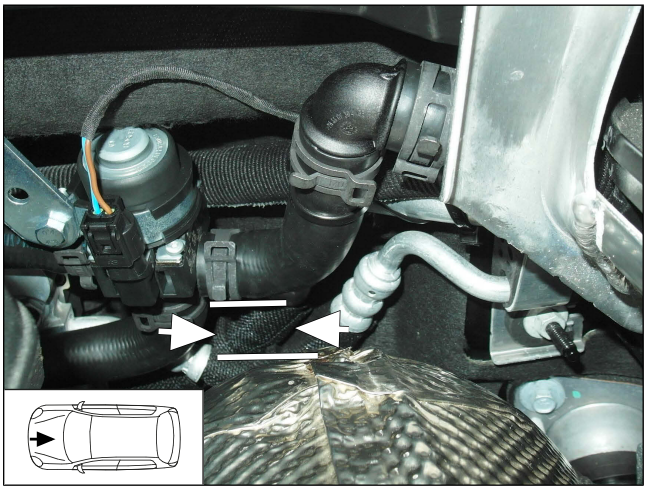


Fig. 132

Danger of damage to components

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

15 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

▶ If the fan function or A/C control panel settings need to be checked, see the installation documentation in the additional kit 'Webasto Comfort' A/C control, section 'Final work'

▶ Initial start-up and function check

▶ 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

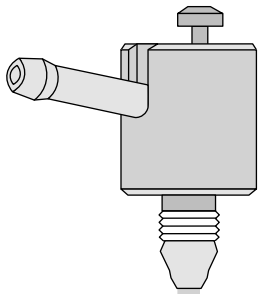
Company address:
Friedrichshafener Str. 9
82205 Gilching
Germany

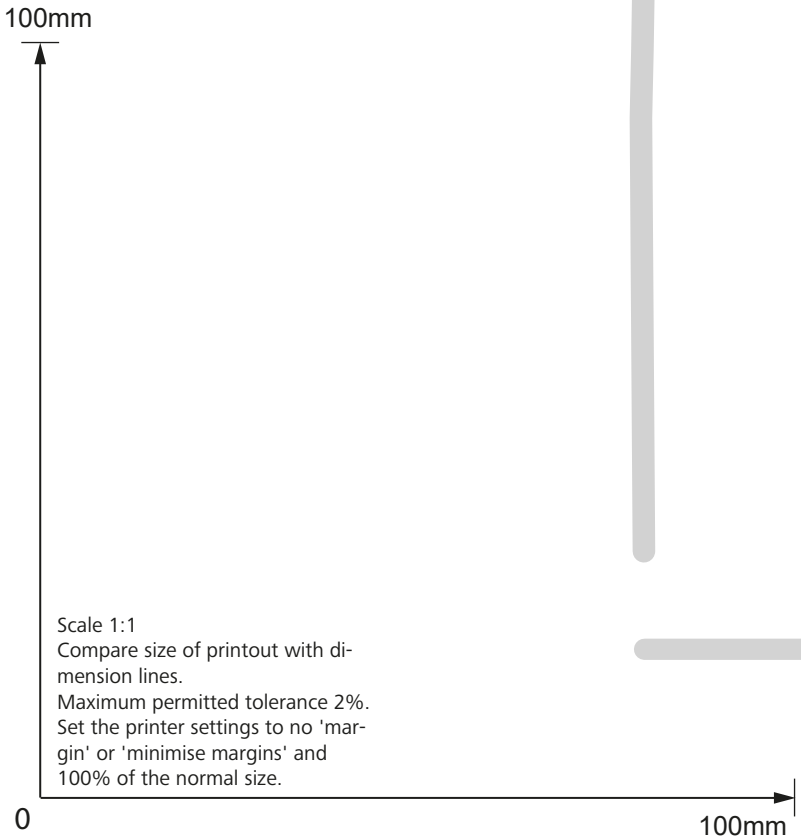
Technical Extranet: https://dealers.webasto.com

CE

WWW.WEBASTO.COM

16 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.