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
2.0 T-GDI	Petrol	Euro 6;WLTP;BG;…	8-speed AG	199	1995	ESS

Validity	Equipment variants	Model
		Wrangler
Verified equipment variants	2 zone automatic air-conditioning	x
	LED main headlights	x
	LED front fog lights	x
	Long wheelbase	x
	Short wheelbase	x
	4 WD	x
Unverified equipment variants	Alarm system	x
	Halogen main headlights	x

Total installation time	Note
9.1 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
RSH	Relay and fuse holder of passenger compartment
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 (see 'Notes on installation')	In accordance with price list
Installation kit for Jeep Wrangler JL 2.0P model year 2019	1327946A
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

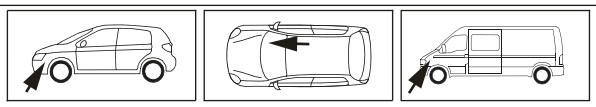
3.4.3 Work step identification marks

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 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	K
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	K
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	K H

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	K

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

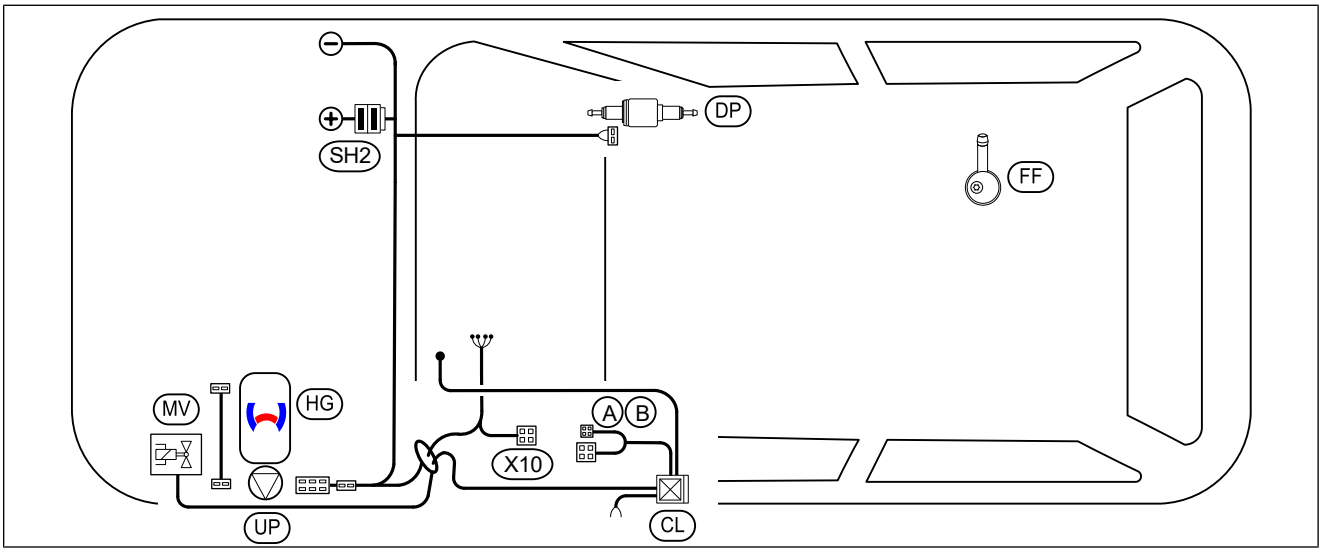


Fig. 1

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

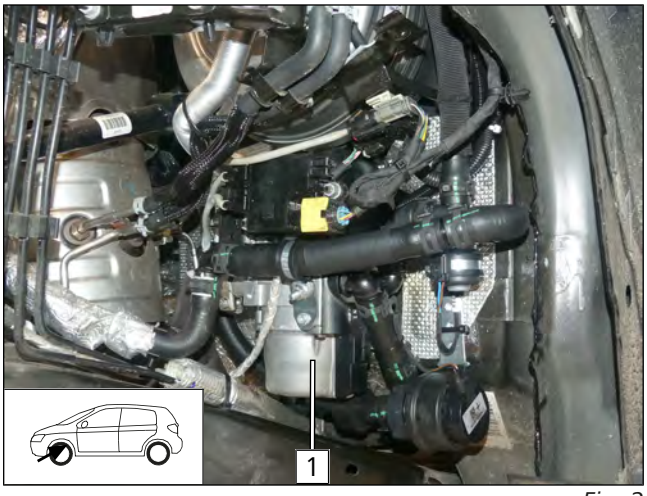
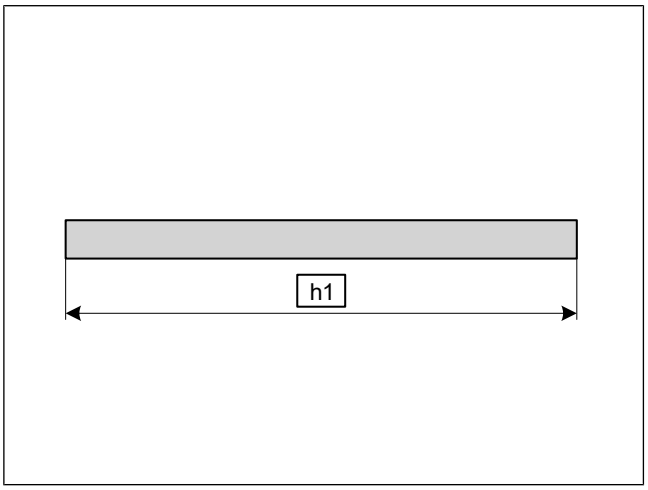


Fig. 2

1 Heater

7 Electrical system of engine compartment

Cutting Ø13 slit corrugated tube to length



h1 500

Fig. 3

Premounting wiring harness

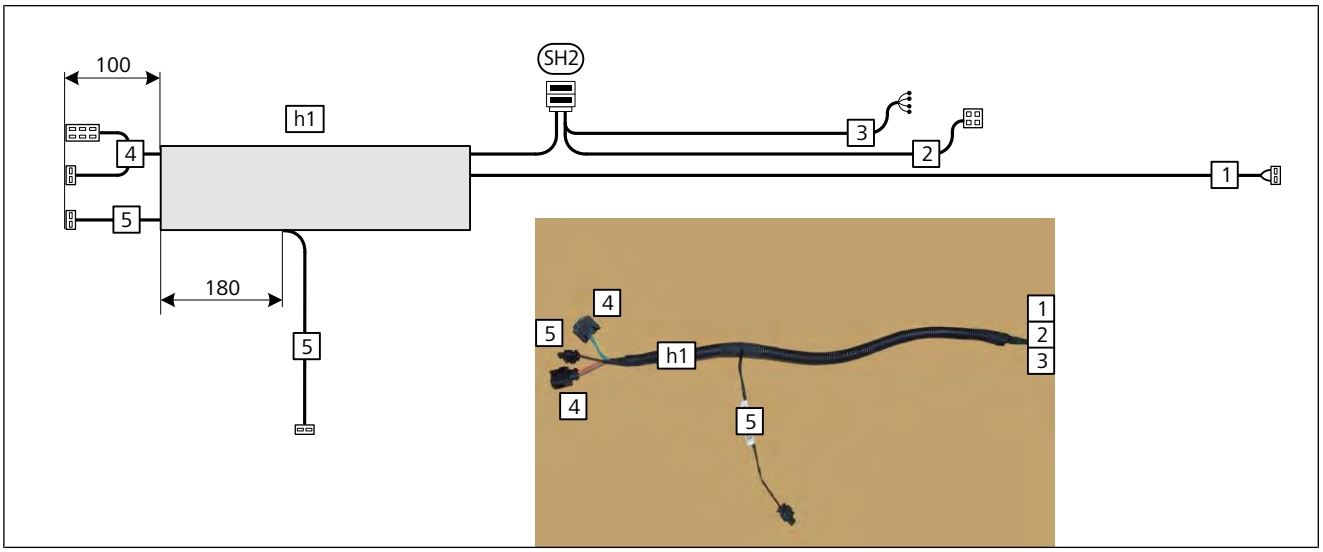


Fig. 4

▶ Seal the ends of corrugated tube **h1** with insulating tape.

1 Fuel pump wiring harness
2 Control element wiring harness
3 Passenger compartment wiring harness
4 Heater wiring harness with connectors X1 and X2
5 Coolant pump wiring harness

Premounting retaining plate of SH2

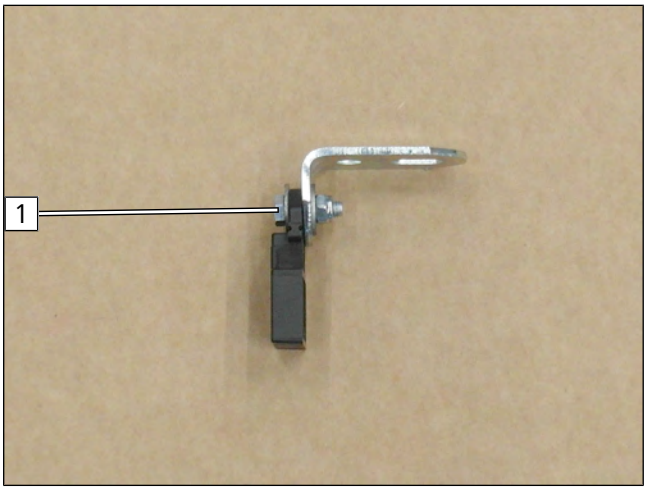


Fig. 5

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

Mounting SH2

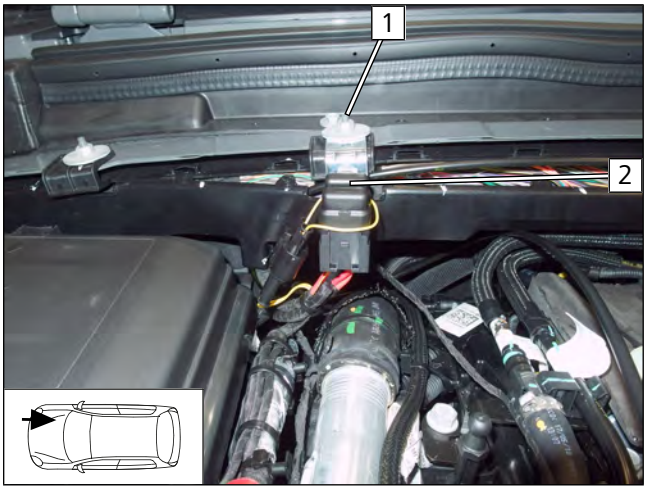


Fig. 6

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

2 Fuse F1/F2

Wiring routing overview

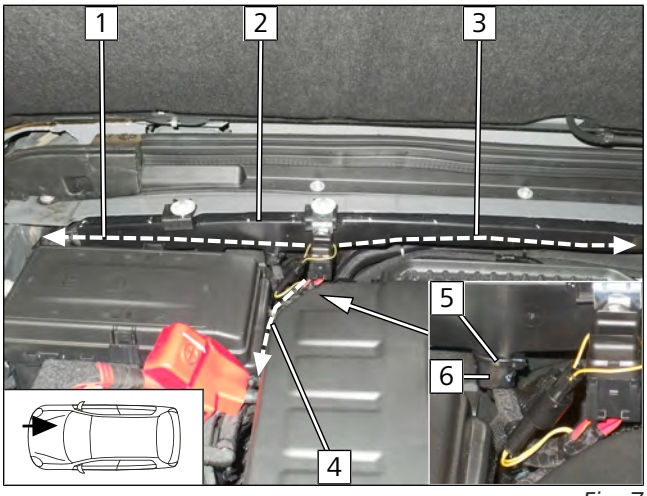


Fig. 7

- ▶ 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

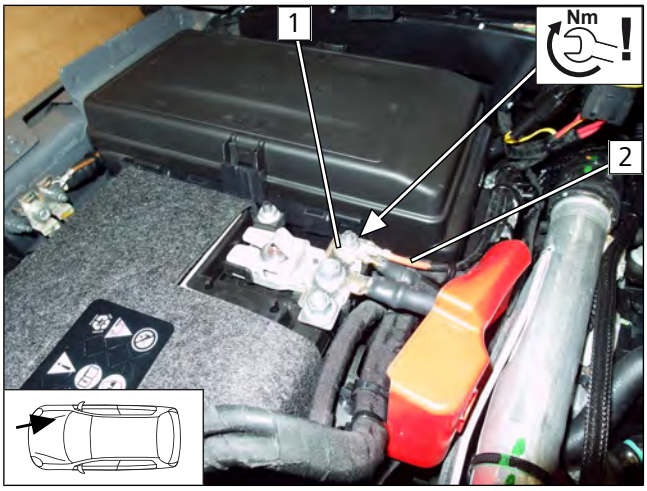


Fig. 8

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] Positive wire

Mounting earth wire

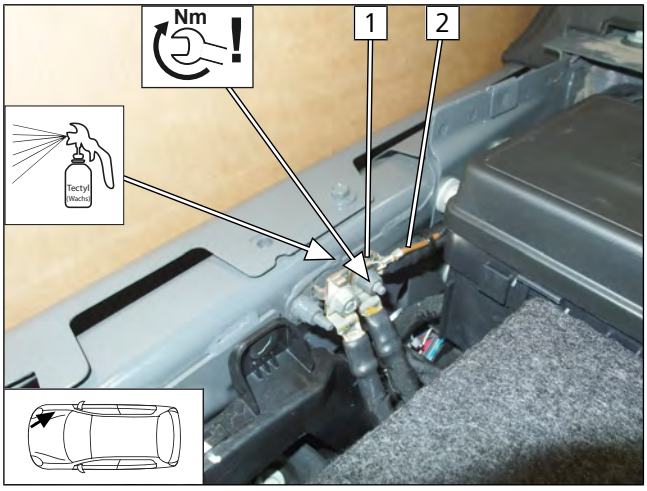


Fig. 9

DANGER

Observe tightening torque

[1] Original vehicle earth support point

[2] Earth wire

Passenger compartment wiring harness pass through

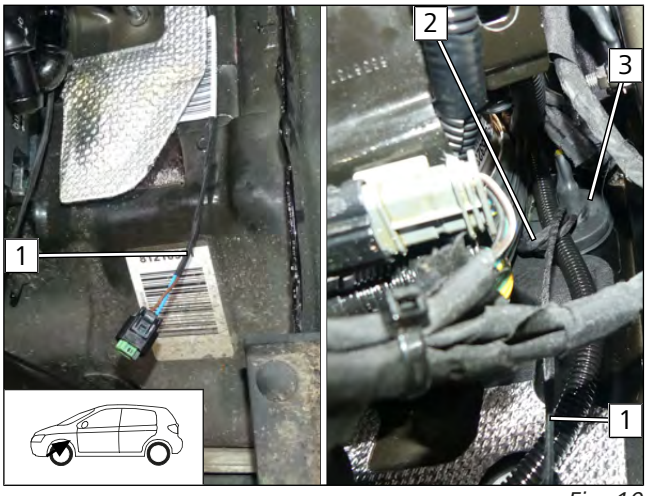


Fig. 10

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

▶ Route solenoid valve wiring harness [1] and passenger compartment and control element wiring harnesses [2] through protective rubber plug [3] into the passenger compartment. Approx. 400mm of solenoid valve wiring harness [1] have to remain in the engine compartment for the solenoid valve installation.

8 Mechanical system

8.1 Preparing installation location

Removing original vehicle control unit

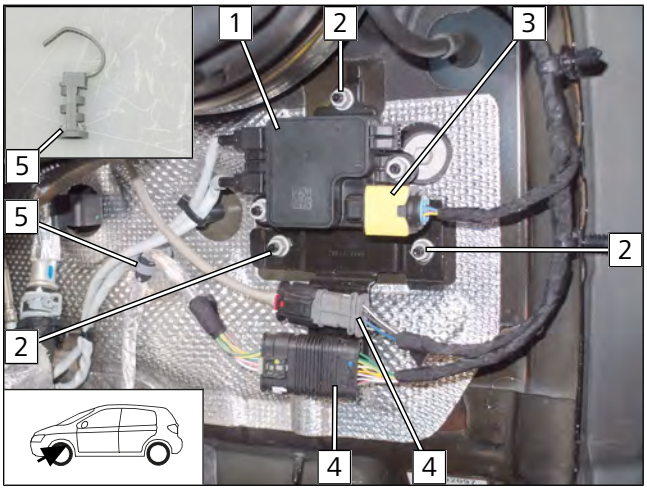


Fig. 11

- ▶ Remove original vehicle control unit with bracket [1].
- ▶ Disconnect connector [3] and detach connectors [4] from bracket.
- ▶ Pull cable holder [5] from stud bolt and remove from wiring harness. It will be reused later.

[2] Original vehicle nut

Cutting out insulation mat

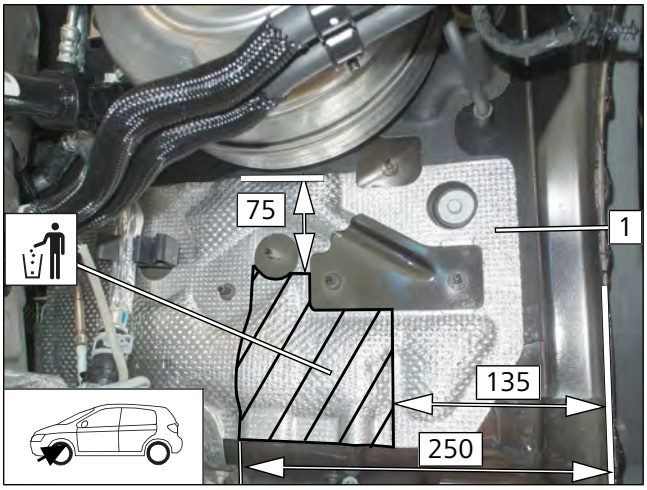


Fig. 12

- ▶ Cut out marked area on insulation mat [1].

Drilling hole

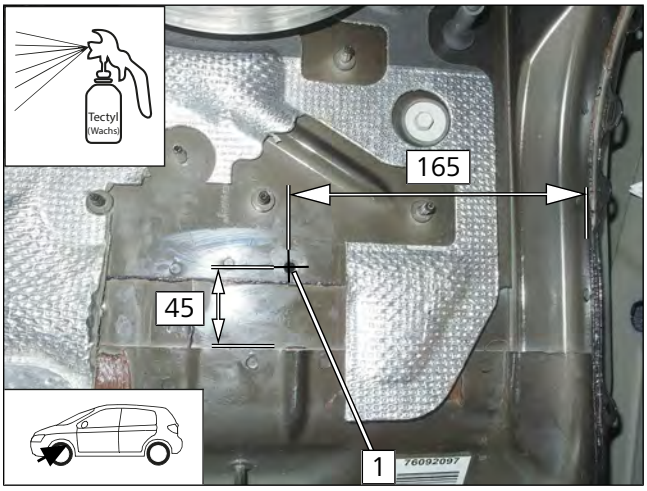


Fig. 13

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

[1] Ø7 hole

Premounting bolts

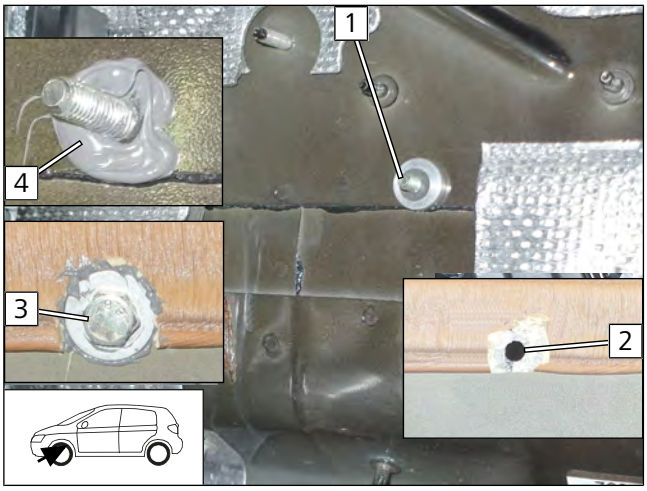


Fig. 14

Block the bolt in the passenger compartment when mounting the lock washer.

Use sealing and adhesive compound according to the specifications of the vehicle manufacturer.

- ▶ Remove body putty for Ø12 washer at pos. **2**, apply sealing compound.
- ▶ Position M6x20 bolt, large diameter washer **3** as shown.
- ▶ Apply sealing compound **4**, on the engine compartment side, as shown, mount spacer (5) and lock washer **1**.

Assigning two-part bracket

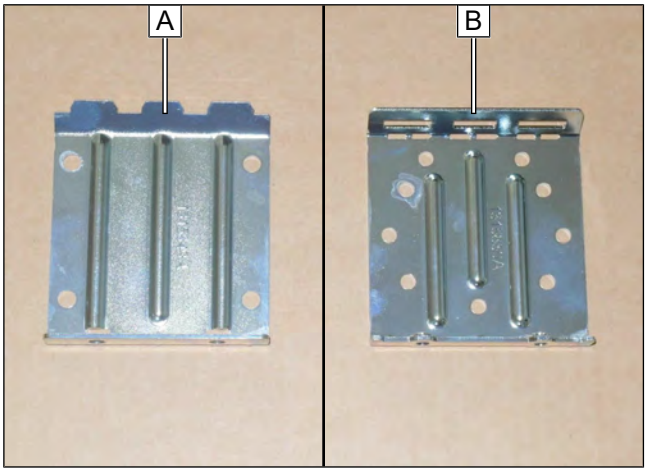


Fig. 15

Preparing bracket **A**

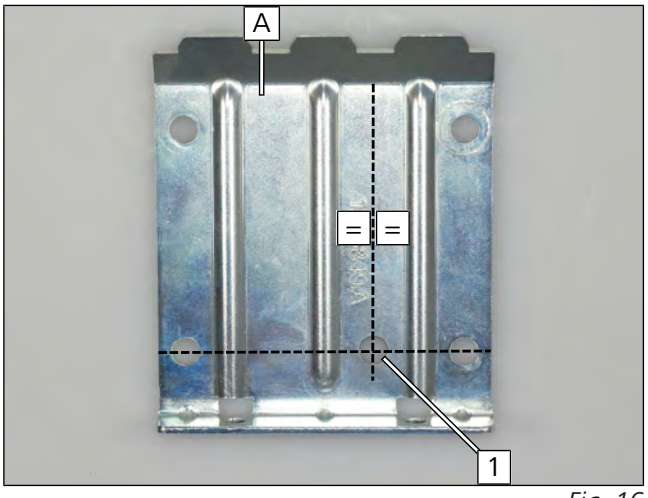


Fig. 16

1 Ø7 hole

Copying hole pattern, drilling hole

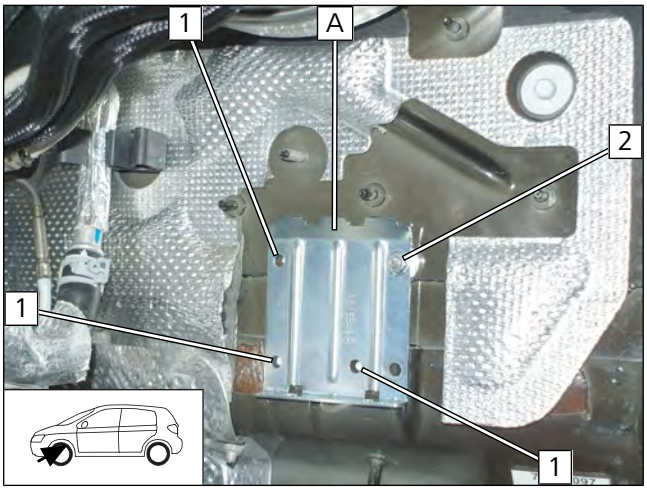


Fig. 17

- ▶ Align bracket **A** horizontally and mount as shown in fig.
  - **1** Copy hole pattern, Ø7 hole
  - **2** Premounted M6x20 bolt, bracket **A**, flanged nut
- ▶ Remove bracket **A** again.
- ▶ Drill Ø7 hole.

Preparing holes

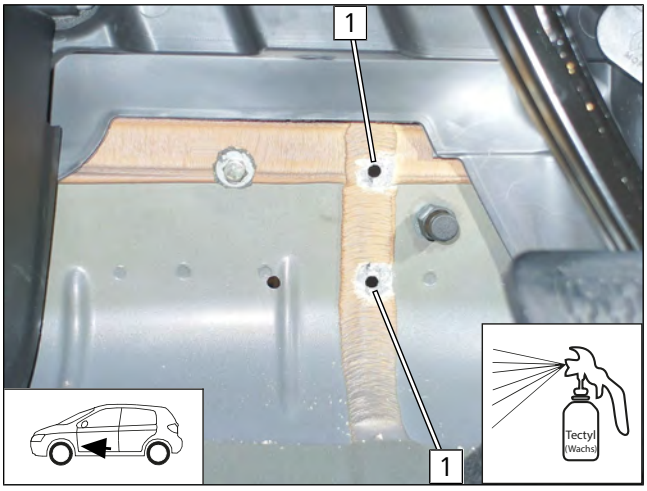


Fig. 18

- ▶ Remove body putty for Ø12 washer at pos. **1**.

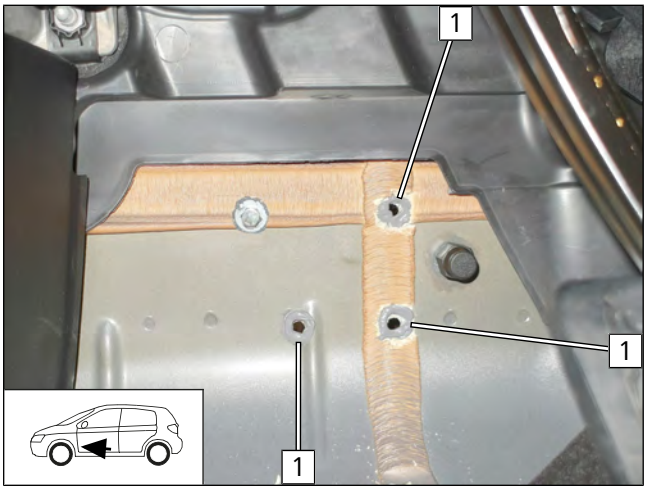


Fig. 19

Use sealing and adhesive compound according to the specifications of the vehicle manufacturer.

- ▶ Apply sealing compound at position **1** as shown.

Premounting bolts in passenger compartment

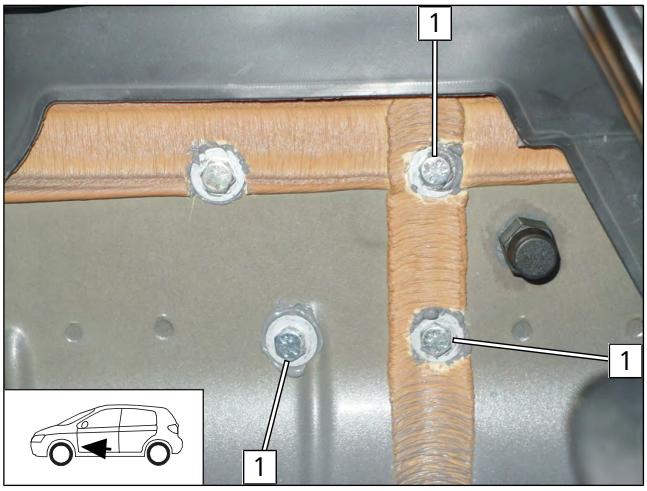


Fig. 20

1 M6x20 bolt, large diameter washer, drilled hole

Mounting spacers

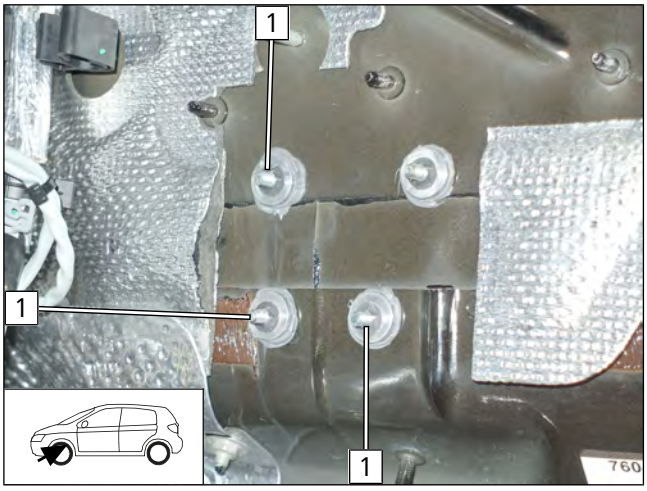


Fig. 21

▶ Before installation, apply sealing compound between body and large diameter washer at position **1**.

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

1 M6x20 bolt, spacer (5), lock washer

Mounting bracket **A**

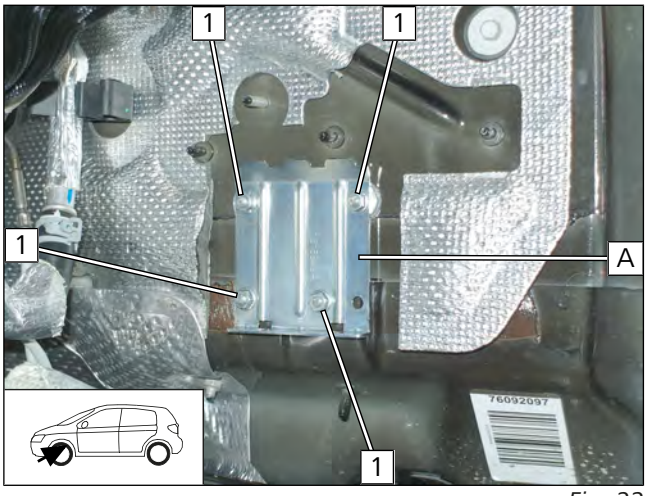


Fig. 22

1 Premounted bolt, bracket A, flanged nut

Copying hole pattern, drilling hole

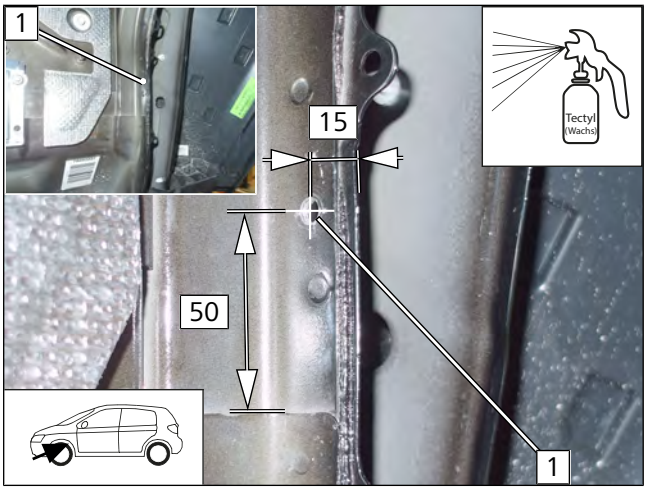


Fig. 23

1 Ø7 hole

Premounting cable tie

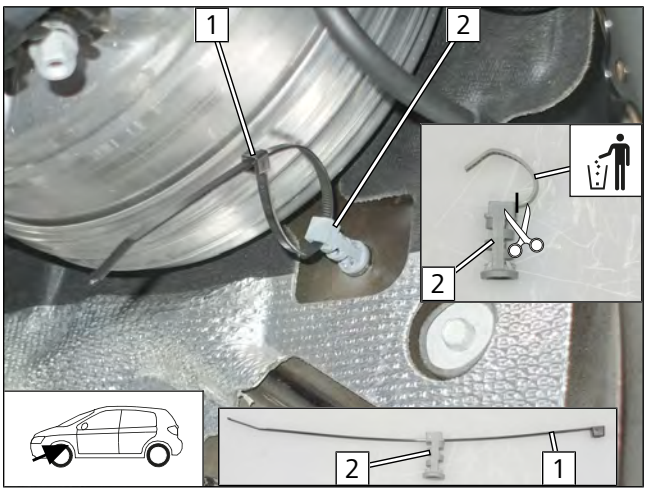


Fig. 24

▶ Prepare original vehicle cable holder **2** as shown and mount onto original vehicle stud bolt.

1 Cable tie

Routing heater and coolant pump wiring harnesses

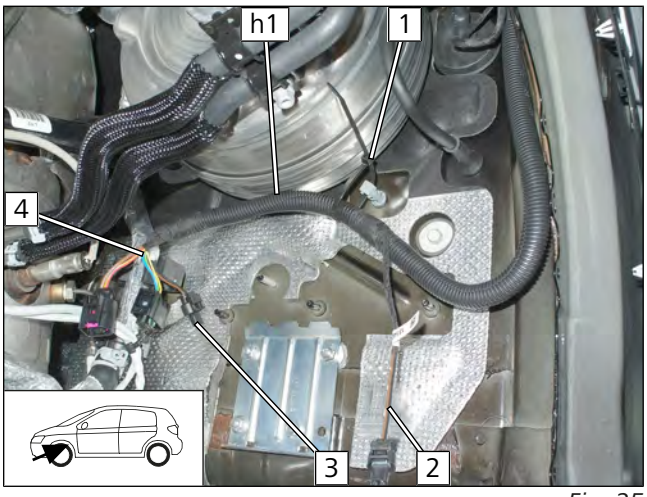


Fig. 25

▶ Route corrugated tube **h1** with heater wiring harness **4** and coolant pump wiring harness **3** through cable tie **1** as shown.

2 Coolant pump wiring harness

8.2 Premounting heater

Mounting water connection piece

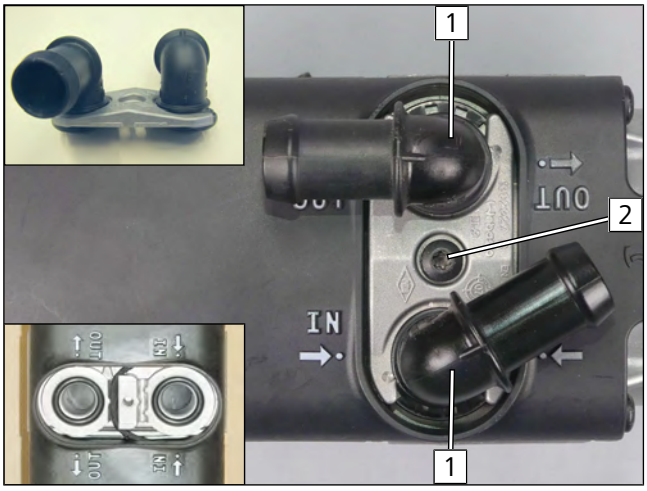


Fig. 26

Observe the general installation instructions of the heater.

[1] 90° water connection piece, seal

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

Mounting bracket [B] on HG

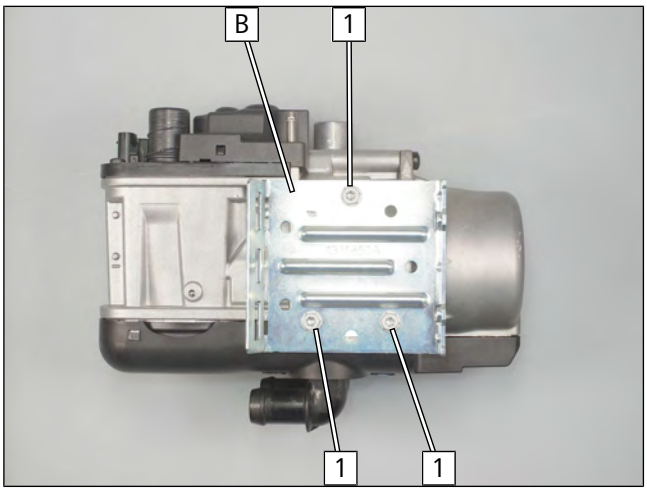


Fig. 27

[1] 5x15 self-tapping bolt

Mounting fuel line

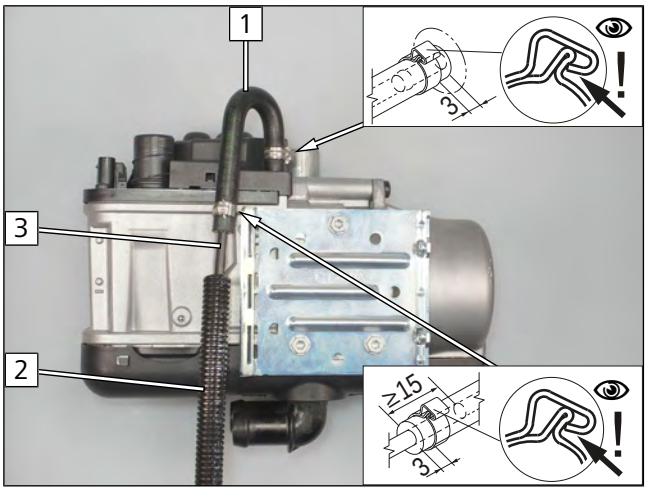


Fig. 28

[1] 180° moulded hose, Ø10 clamp [2x]

[2] Ø10 corrugated tube

[3] Fuel line

Cutting combustion air intake pipe to length

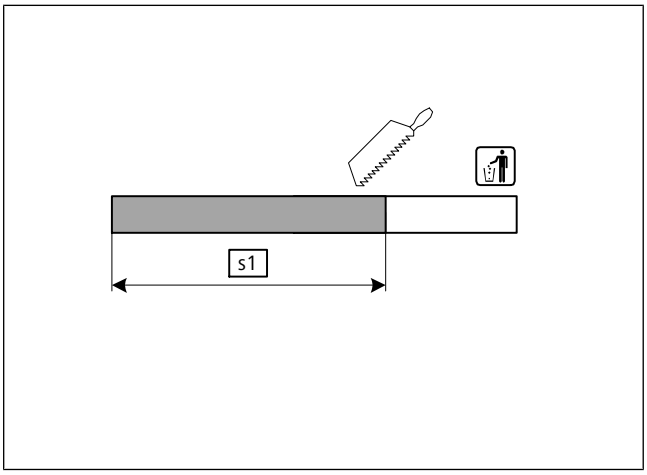


Fig. 29

s1 770

Mounting combustion air intake pipe

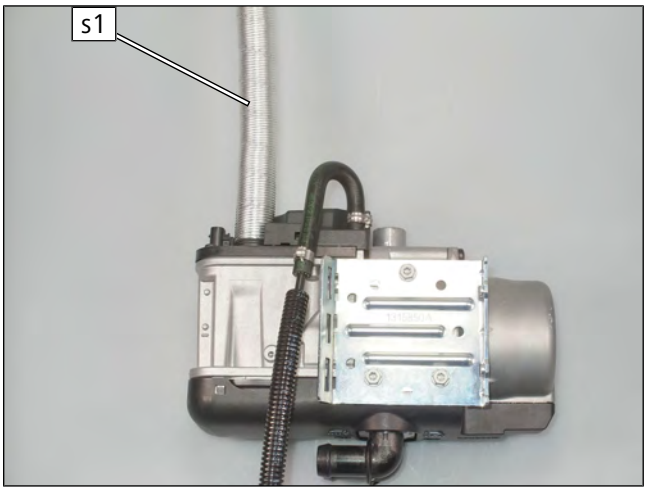


Fig. 30

8.3 Mounting heater

Mounting wiring harnesses

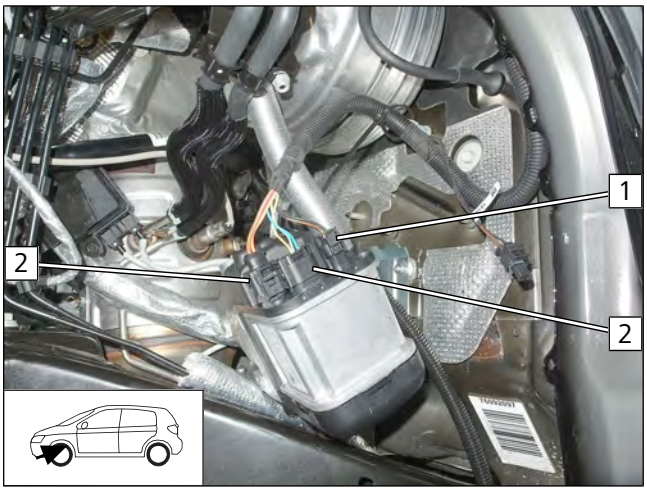


Fig. 31

1 Coolant pump wiring harness connector

2 Heater wiring harness connector

View of bracket A and B assembly

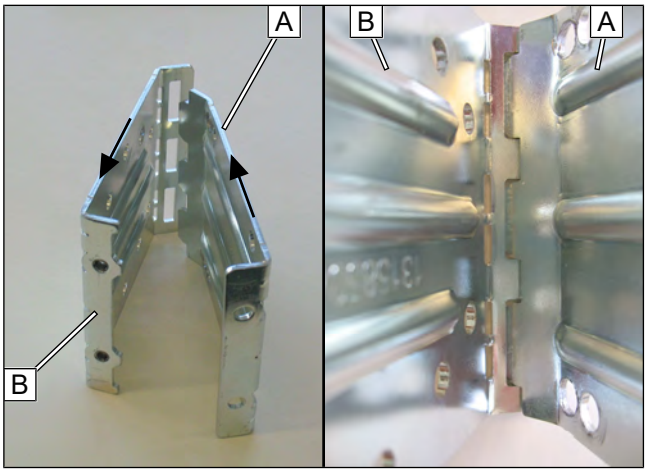


Fig. 32

Observe the general installation instructions of the heater.

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

A Bracket (mounted on the vehicle)
B Bracket (mounted on the heater)

Mounting heater

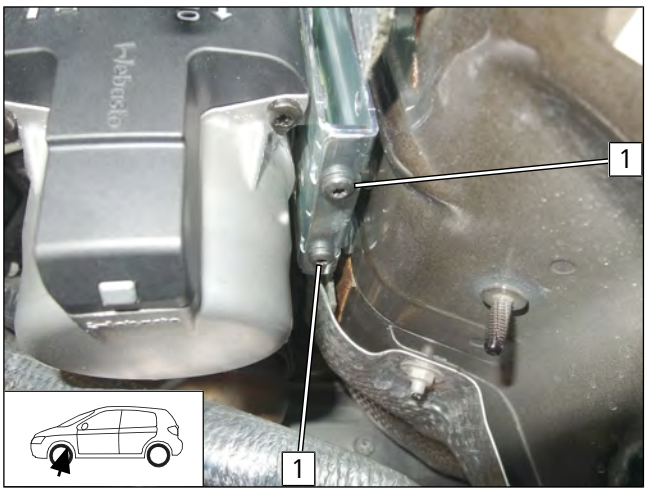


Fig. 33

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

1 M5x12 Torx screw

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

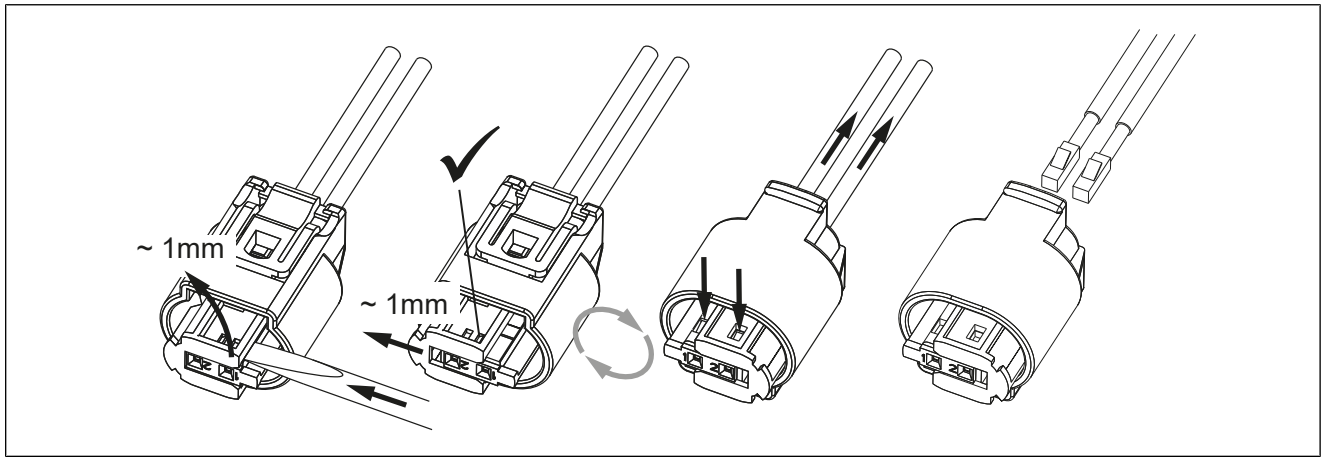


Fig. 34

9.1 Routing fuel line

Installing lines

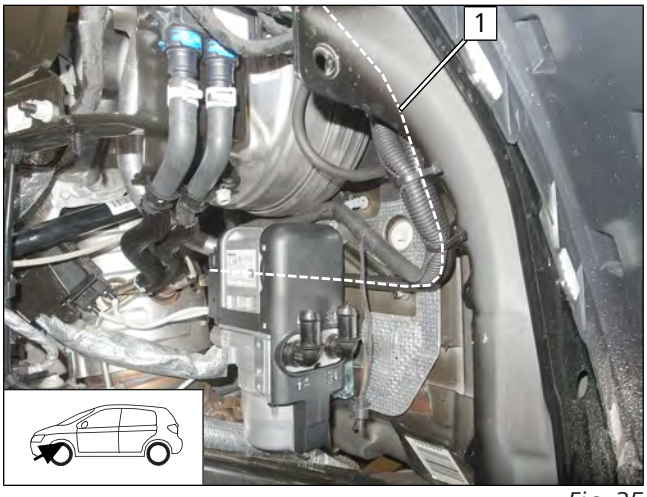


Fig. 35

- ▶ Route corrugated tube with fuel line [1] in the engine compartment up to the beginning of the cable duct and fasten with cable ties.

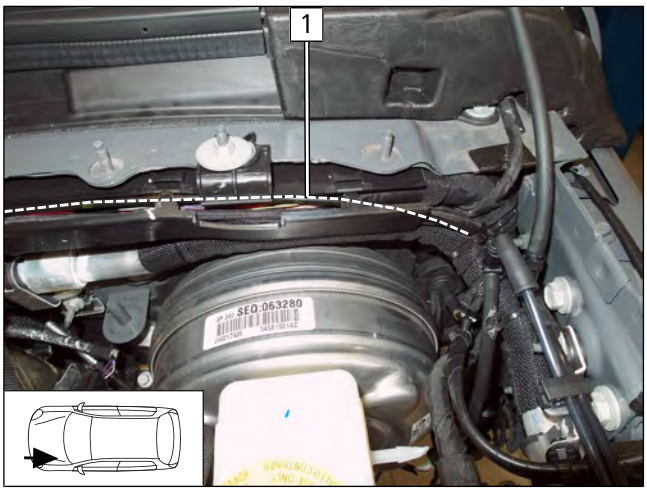


Fig. 36

- Route fuel line and fuel pump wiring harness [1] in cable duct.

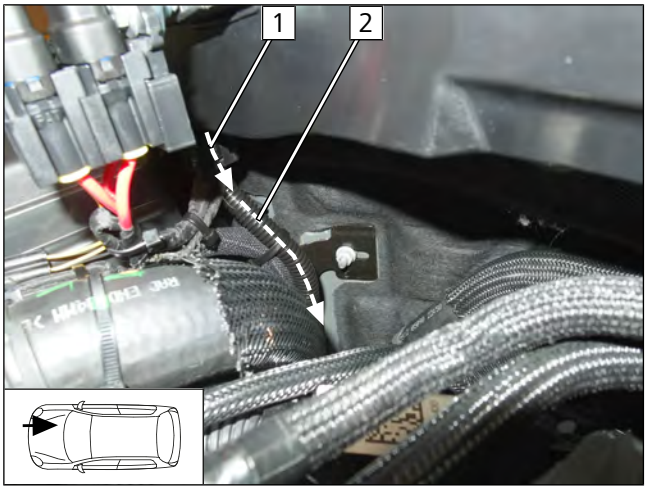


Fig. 37

- Lead fuel line and fuel pump wiring harness [1] out of the cable duct and route further in Ø10 unslit corrugated tube [2] on original vehicle coolant lines to the fuel pump installation location.
- Attach corrugated tube to original vehicle coolant lines with cable ties.
- Close the cable duct again.

Premounting fuel pump

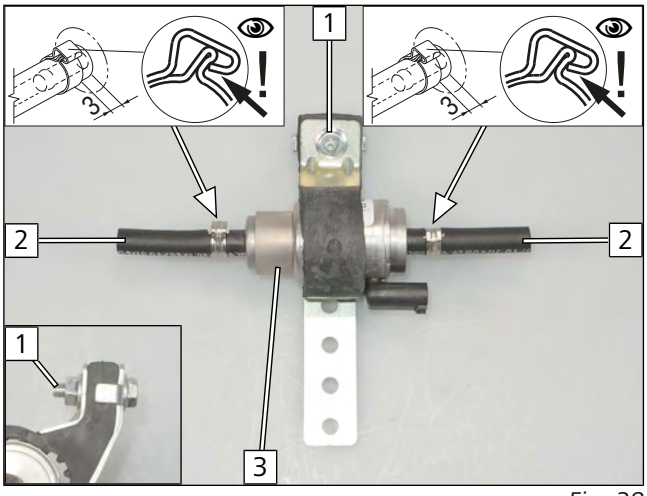


Fig. 38

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

[2] Hose section, Ø10 clamp

[3] Fuel pump

Mounting fuel pump

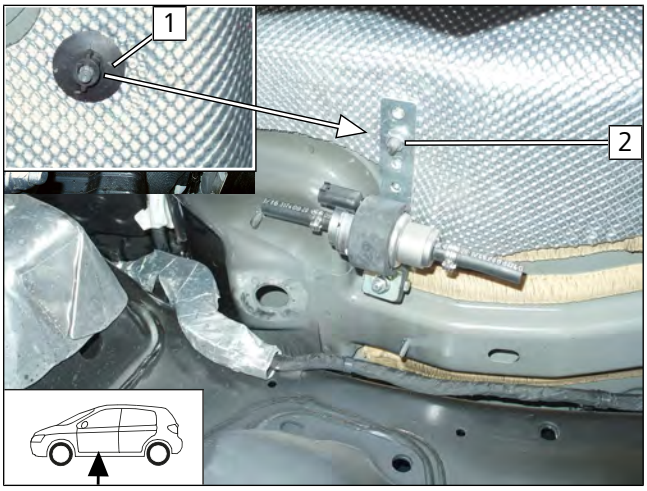


Fig. 39

▶ Remove and dispose of original vehicle plastic nut [1].

[2] Original vehicle stud bolt, perforated bracket, flanged nut

Assembling fuel pump connector X7

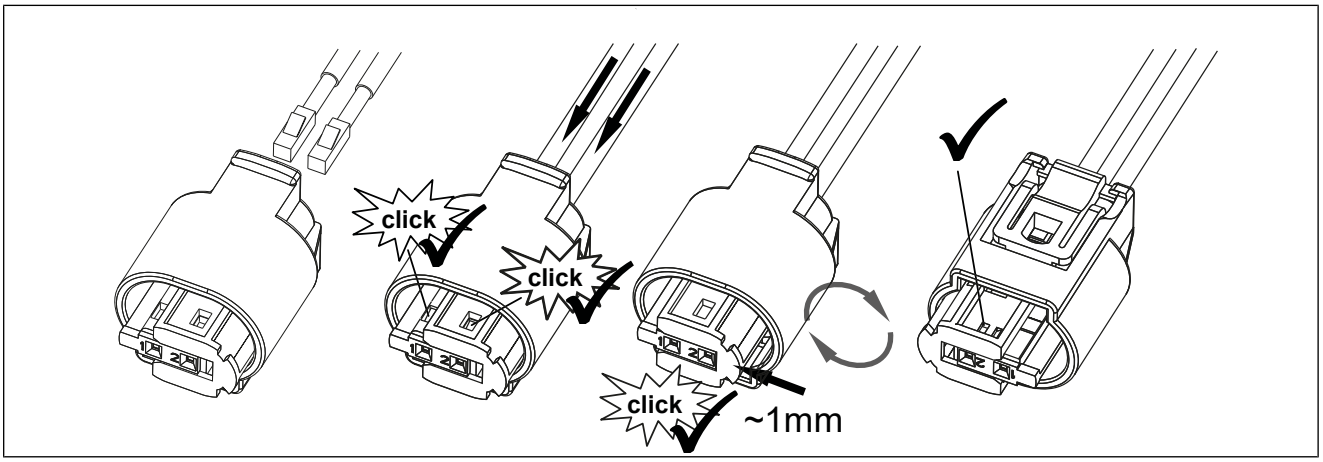


Fig. 40

Fuel pump connection

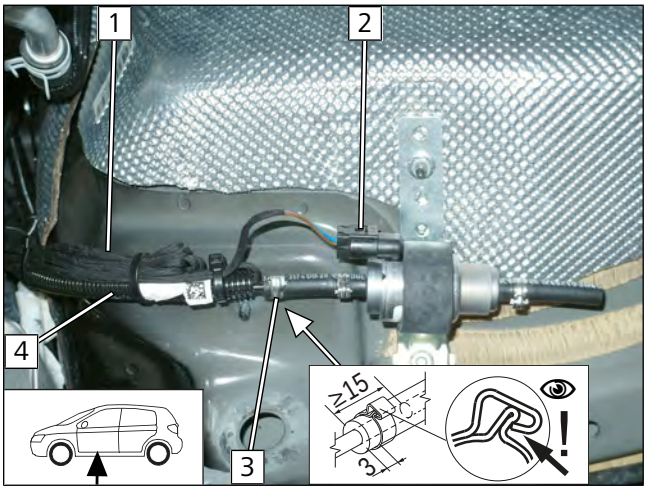


Fig. 41

[2] Fuel pump wiring harness, X7 connector mounted

[3] Ø10 clamp

[4] Heater fuel line in corrugated tube

▶ Attach the rest of wiring harness [1] to corrugated tube with a cable tie.

9.2 Installing FuelFix

Repositioning sticker

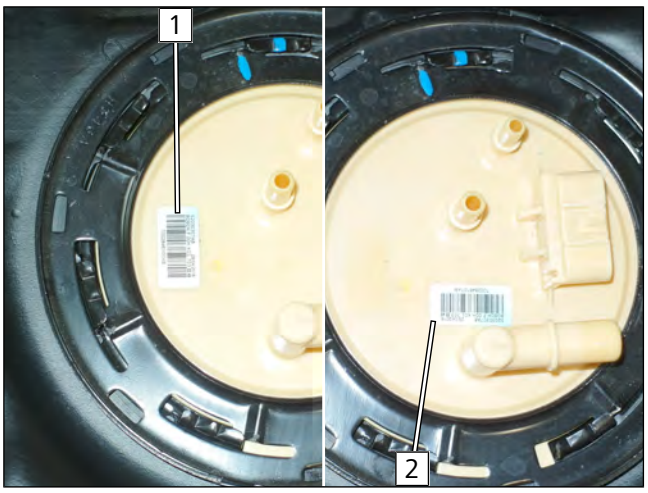


Fig. 42

1 Original position of sticker
2 New position of sticker

Preparing drilling template

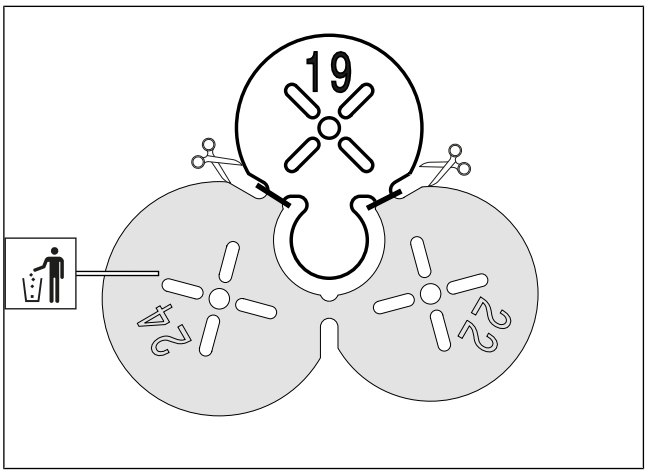


Fig. 43

Work steps F1, F2

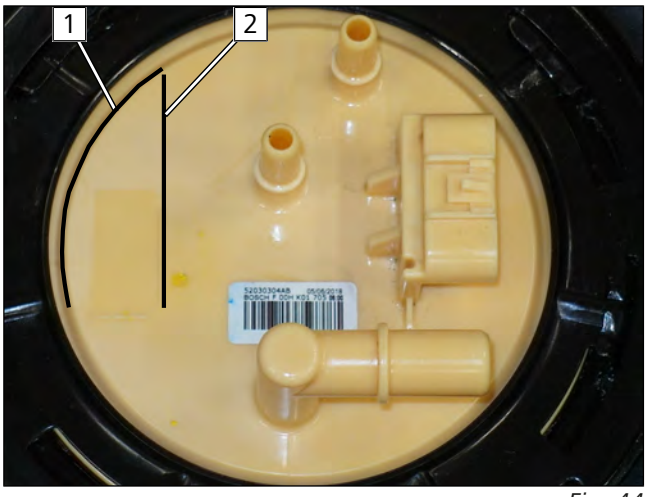


Fig. 44

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.

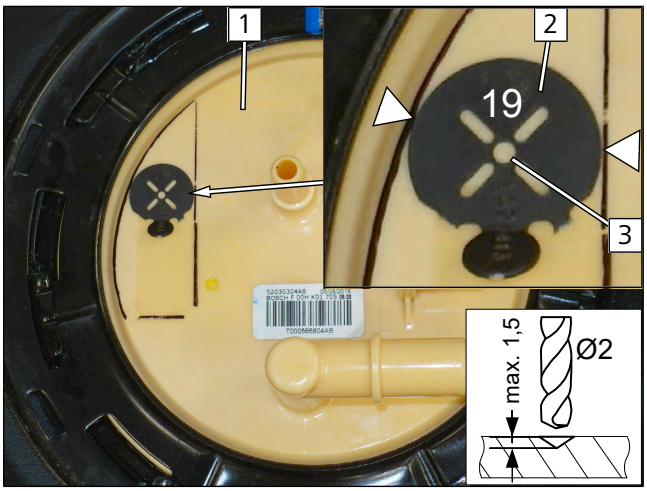


Fig. 45

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

Work step F3

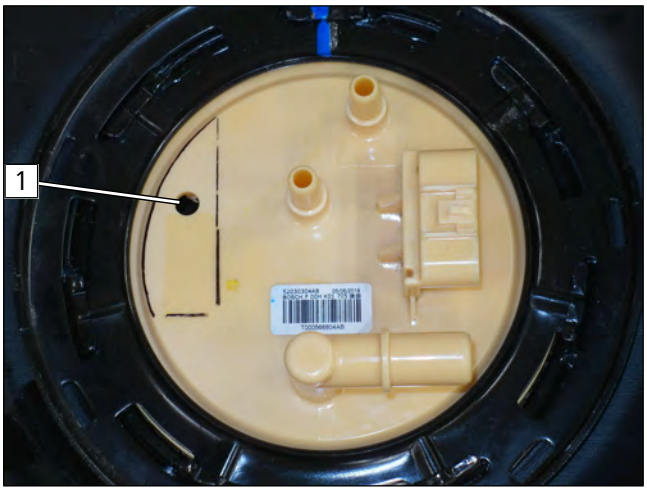


Fig. 46

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

1 Hole made with provided drill

Work steps F4, F5

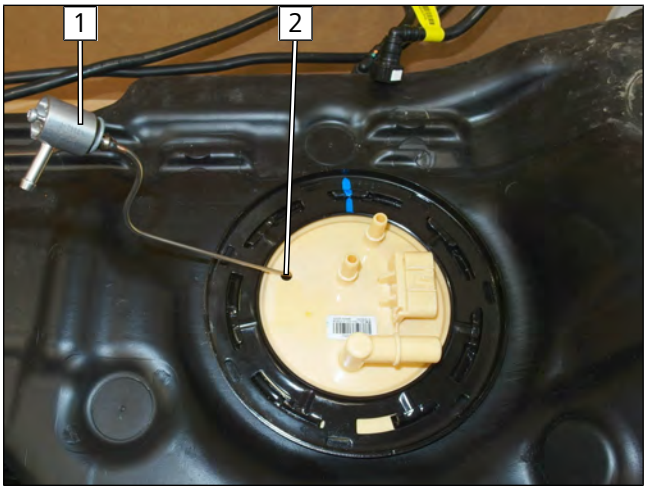


Fig. 47

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

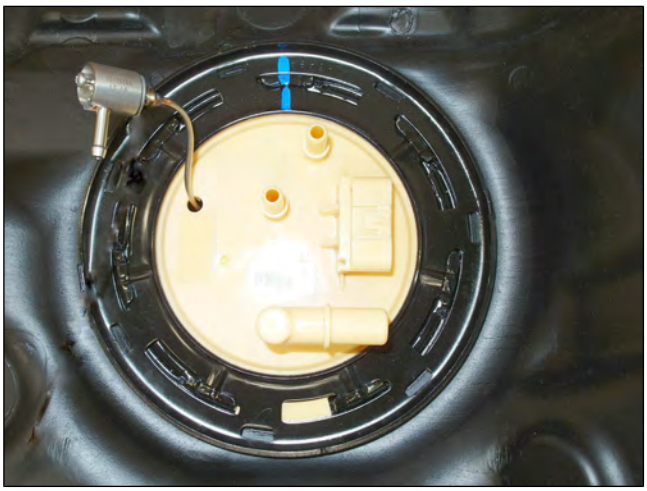


Fig. 48

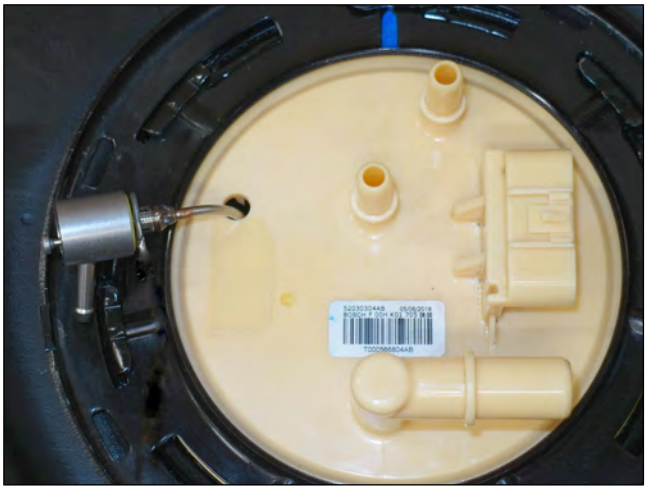


Fig. 49

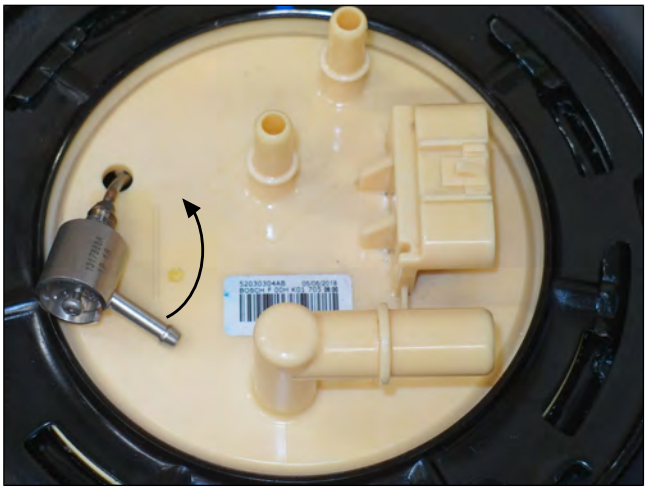


Fig. 50

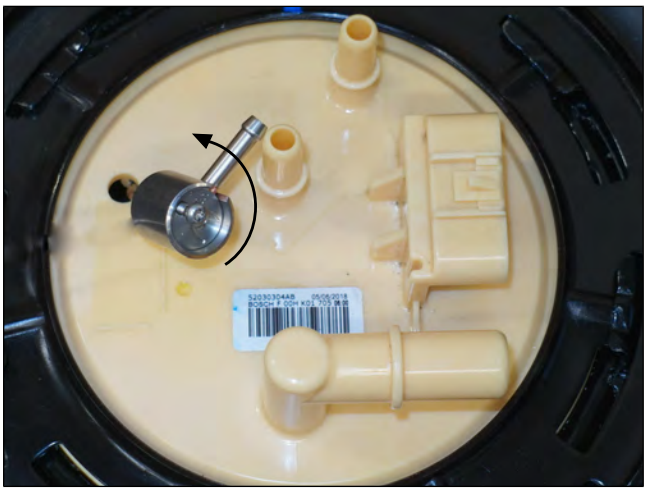


Fig. 51

Work step F5.4

Fig. 52

▶ Align FuelFix 1 as shown.

Work step F6

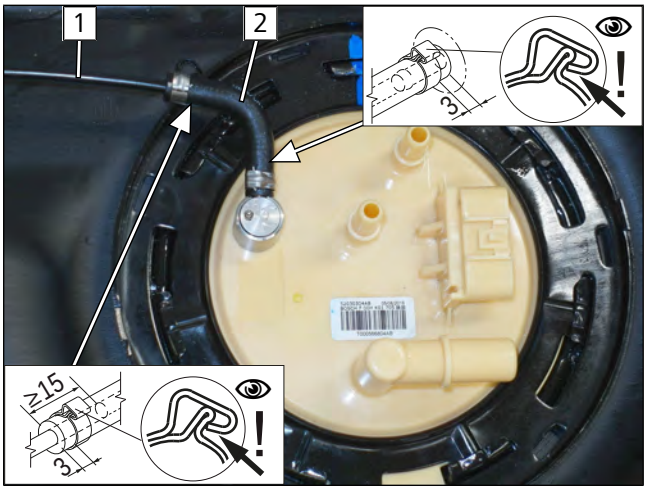


Fig. 53

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

Work step F7

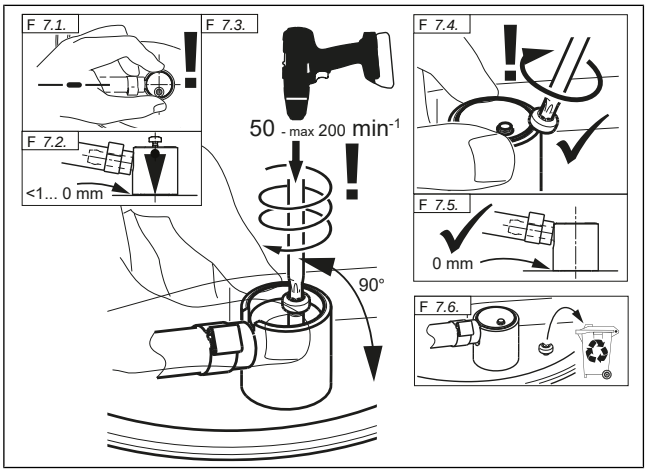


Fig. 54

DANGER

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

Work step F8

Fig. 55

Securing fuel line

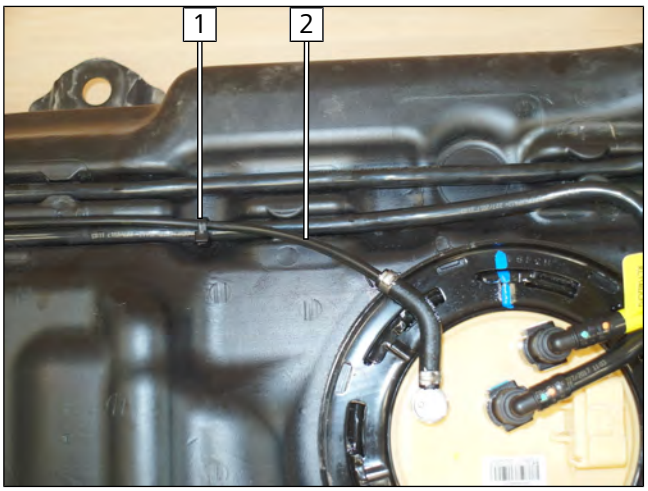


Fig. 56

1 Cable tie for tension relief
2 Fuel line

Routing fuel line

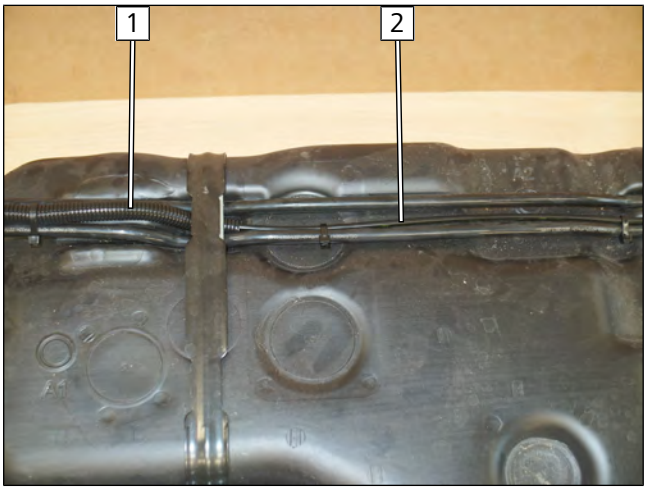


Fig. 57

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

1 Corrugated tube

2 Fuel line

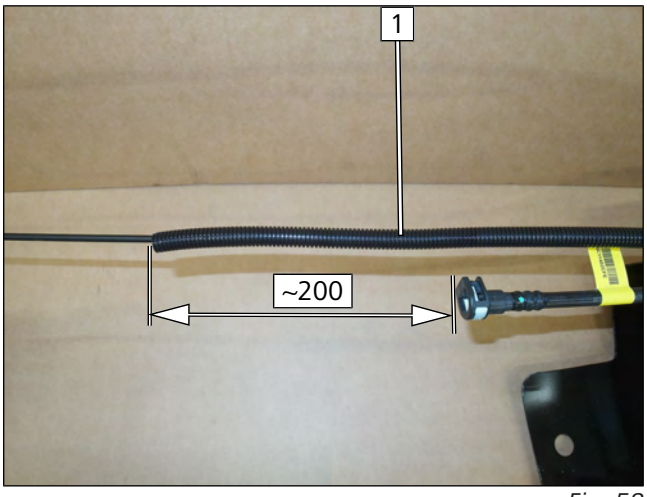


Fig. 58

1 700mm corrugated tube

9.3 Fuel pump connection

Connecting fuel line of FuelFix

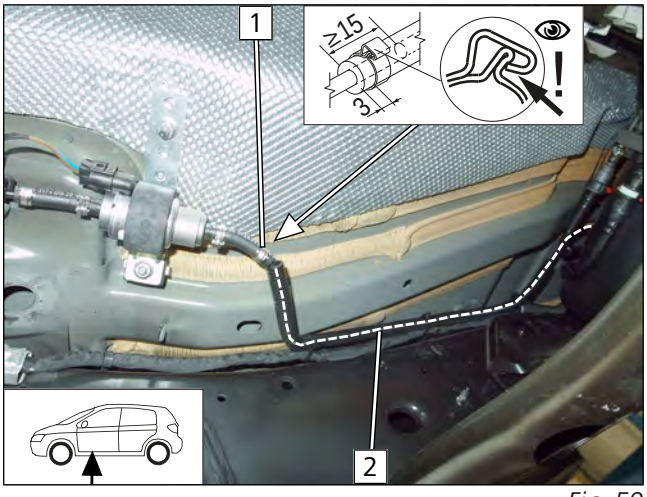


Fig. 59

▶ Route fuel line of FuelFix in corrugated tube **2** on original vehicle line to fuel pump installation location and fasten with cable ties.

1 Ø10 clamp

10 Exhaust part 1

Premounting bolts

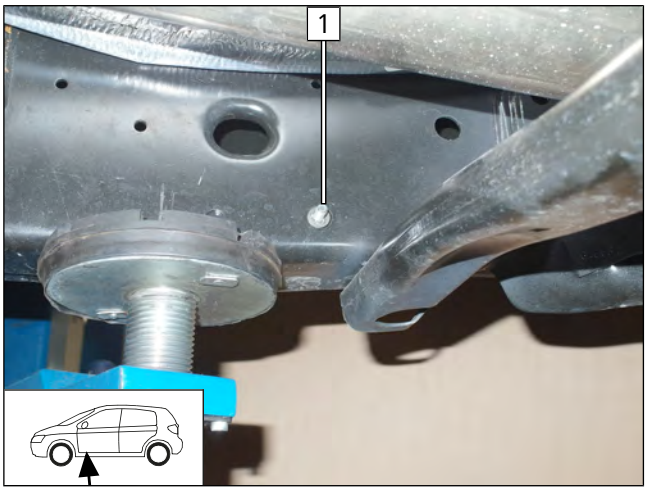


Fig. 60

1 M6x20 bolt, original vehicle hole, lock washer

Adapting angle bracket

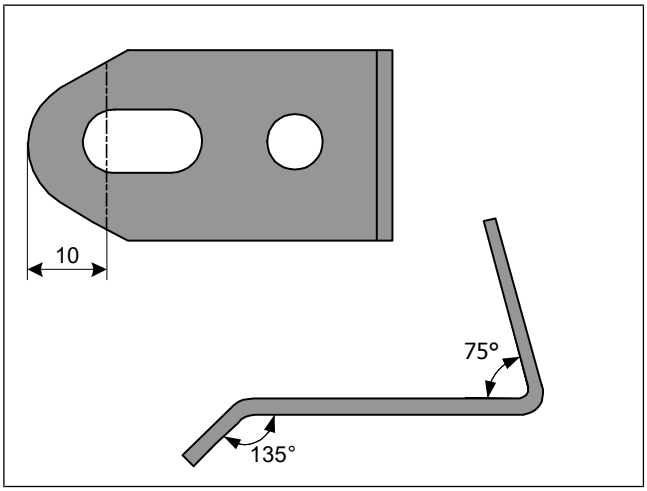


Fig. 61

Cutting exhaust pipe to length

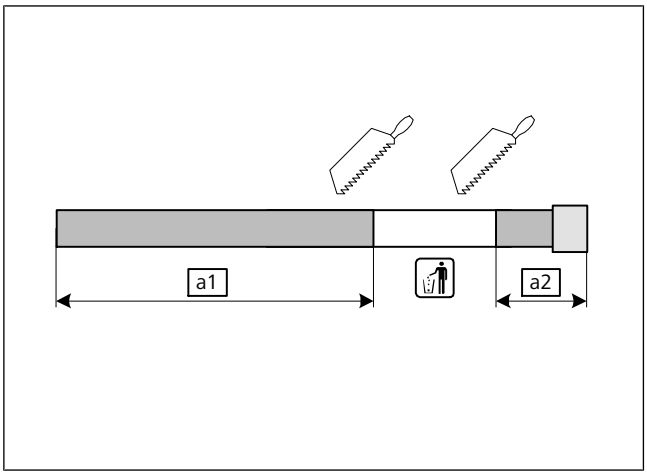


Fig. 62

a1 560

a2 50

Premounting exhaust silencer

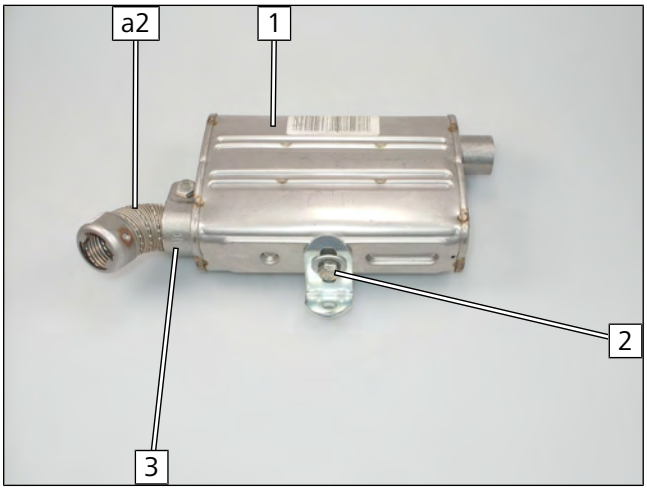


Fig. 63

- [1] Exhaust silencer
- [2] M6x16 bolt, spring lock washer, large diameter washer, angle bracket, exhaust silencer
- [3] Pipe clamp

Mounting exhaust silencer

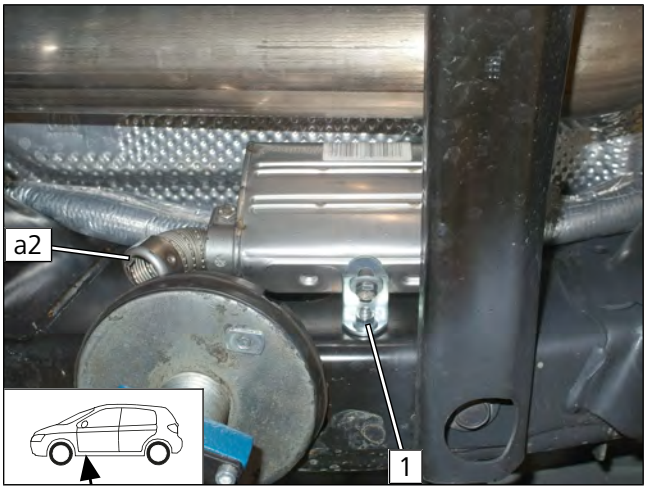


Fig. 64

- [1] Premounted bolt, angle bracket, flanged nut

Premounting exhaust pipe [a1]

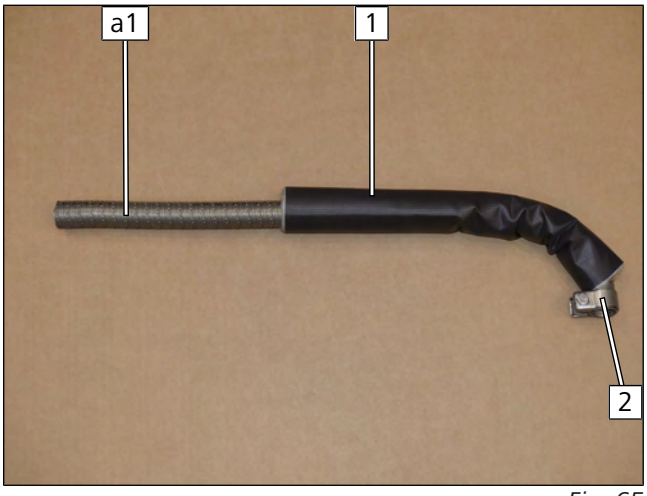


Fig. 65

- [1] Heat protection hose
- [2] Pipe clamp

11 Coolant

11.1 Hose routing diagram

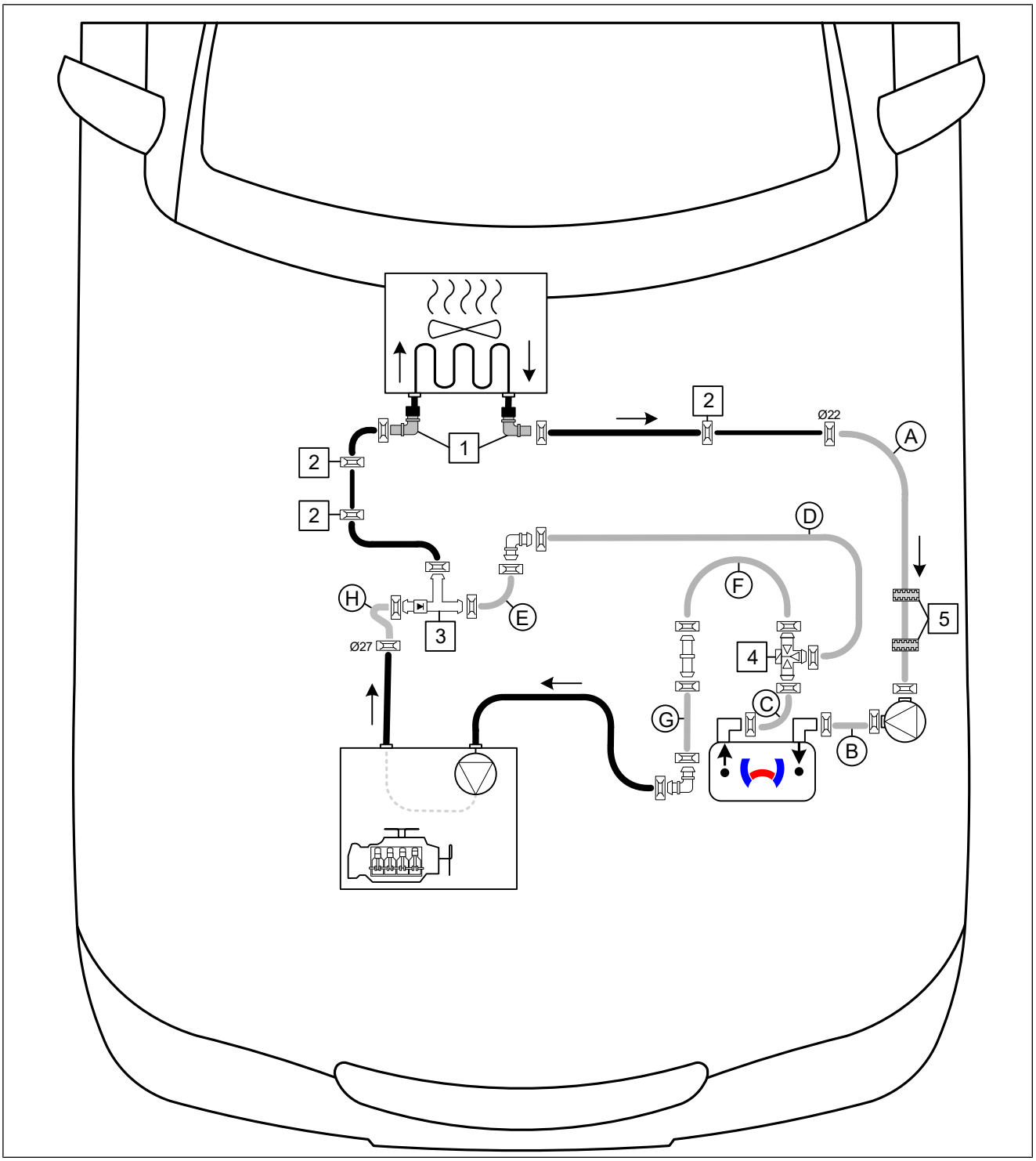


Fig. 66

All spring clips without a specific designation = Ø25

All connecting pipe or = Ø18x18

[1] Quick-release coupling; [2] Original vehicle spring clip; [3] Non-return valve; [4] Solenoid valve; [5] Rubber isolator

11.2 Coolant circuit installation

Adapting original vehicle control unit bracket

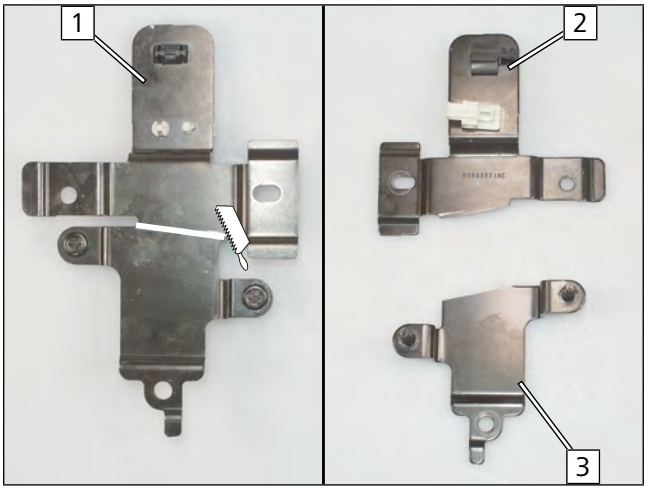


Fig. 67

1 Control unit bracket
2 Original vehicle bracket, part 1
3 Original vehicle bracket, part 2

Mounting original vehicle control unit

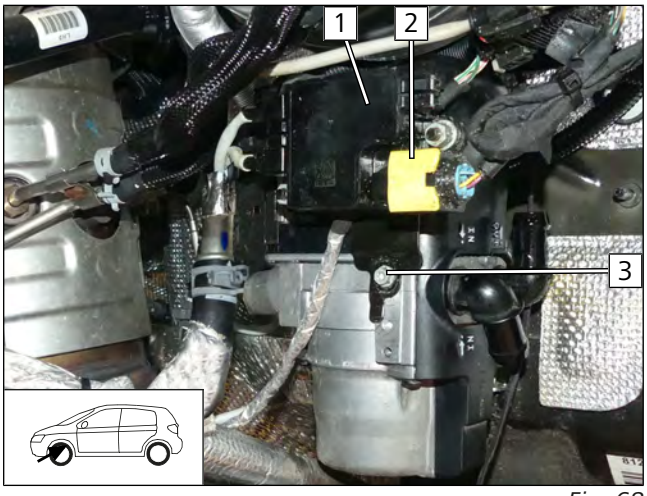


Fig. 68

1 Control unit
2 Connect the connector
3 5x16 self-tapping bolt, control unit bracket part 2, hole in HG

Premounting heat exchanger outlet/engine inlet hose

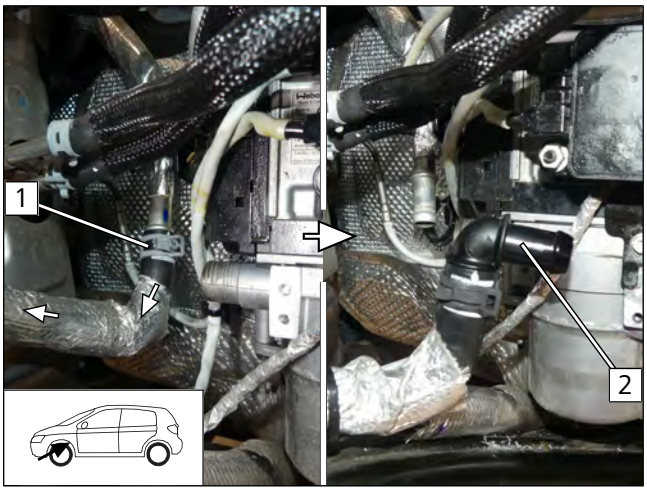


Fig. 69

- ▶ Disconnect heat exchanger outlet/engine inlet hose 1 from heat exchanger outlet connection piece. Discard spring clip.
- ▶ Mount 90° connecting pipe 2 with Ø25 spring clip onto the engine inlet hose.

Bending perforated bracket

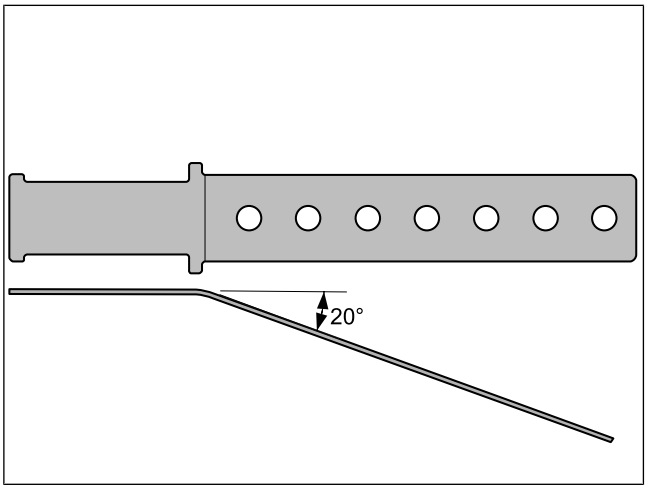


Fig. 70

Premounting coolant pump

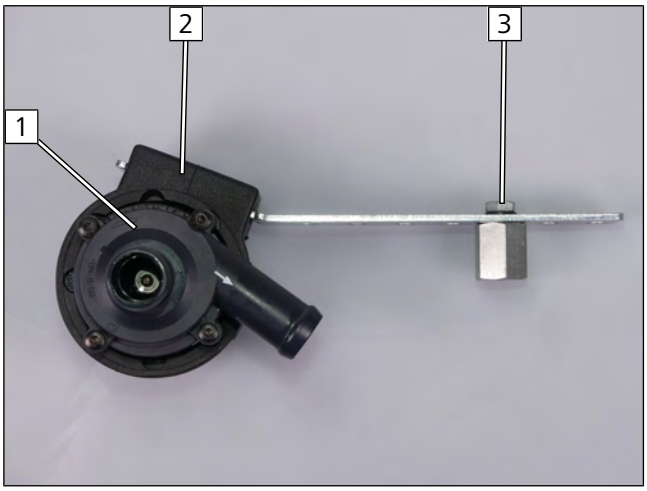


Fig. 71

1 Coolant pump
2 Coolant pump mount
3 M6x12 bolt, spring lock washer, perforated bracket, spacer nut (20)

Cutting to length /assigning hoses

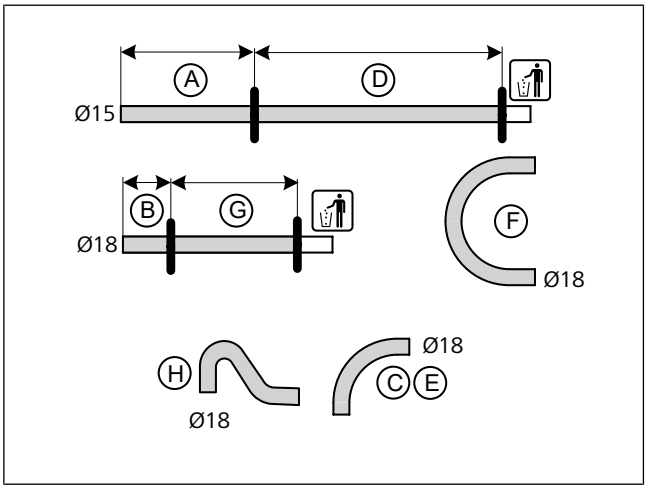


Fig. 72

Ⓐ	280
Ⓑ	90
Ⓒ / Ⓔ	90° moulded hose
Ⓓ	680
Ⓕ	180° moulded hose
Ⓖ	220
Ⓗ	Moulded hose

Mounting fabric heat shrink tubing

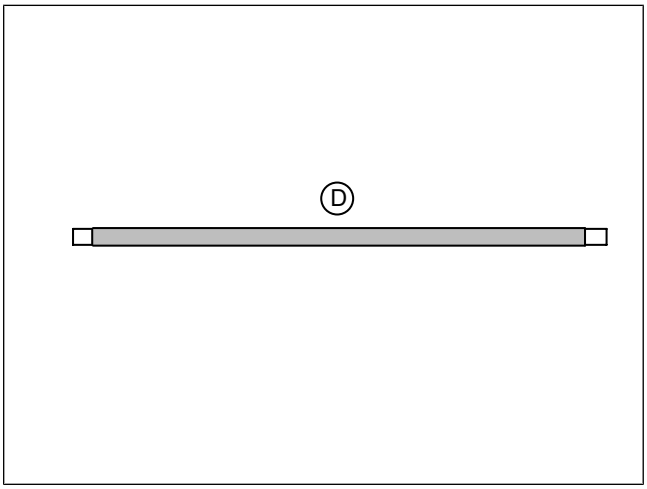


Fig. 73

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

Premounting coolant pump hose group

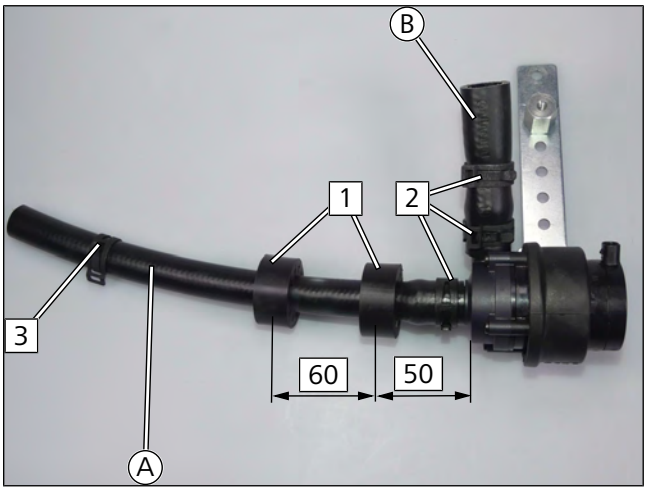


Fig. 74

1 Rubber isolator
2 Ø25 spring clip
3 Ø22 spring clip

Mounting coolant pump hose group

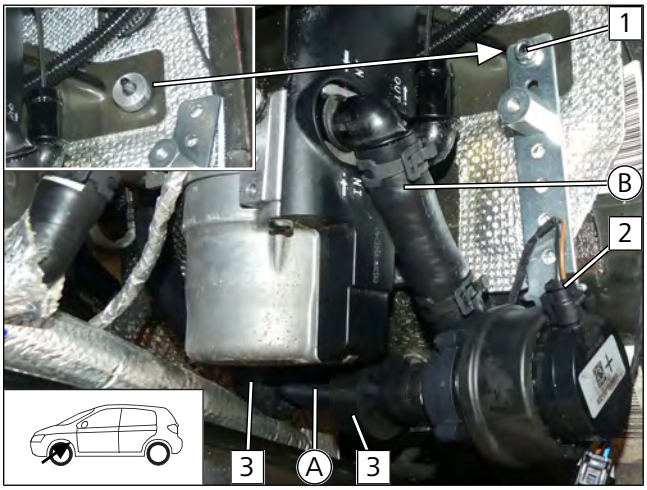


Fig. 75

▶ Position spacer (8) on original vehicle stud bolt **1**.
▶ Route hose **A** under the HG to the heat exchanger outlet pipe.
▶ Mount hose **B** on HG/IN.

1 Original vehicle stud bolt, spacer, perforated bracket, flanged nut
2 Mount coolant pump connector
3 Aligning rubber isolator

Mounting hose Ⓐ on heat exchanger outlet

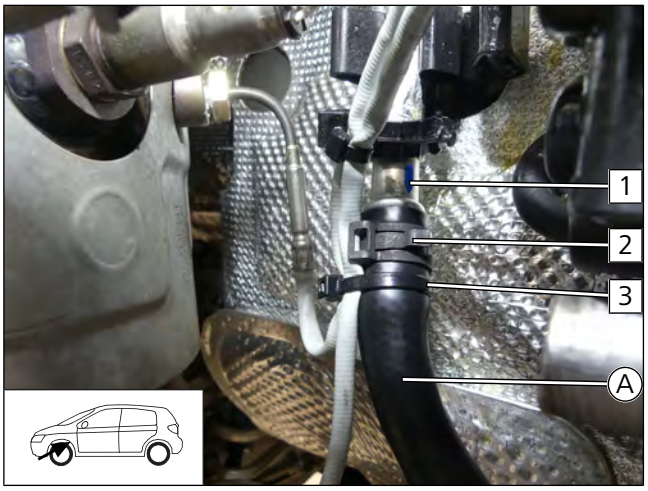


Fig. 76

1 Heat exchanger outlet hose
2 Ø22 spring clip
3 Cable tie around hose Ⓐ and original vehicle line

Fastening coolant pump wiring harness

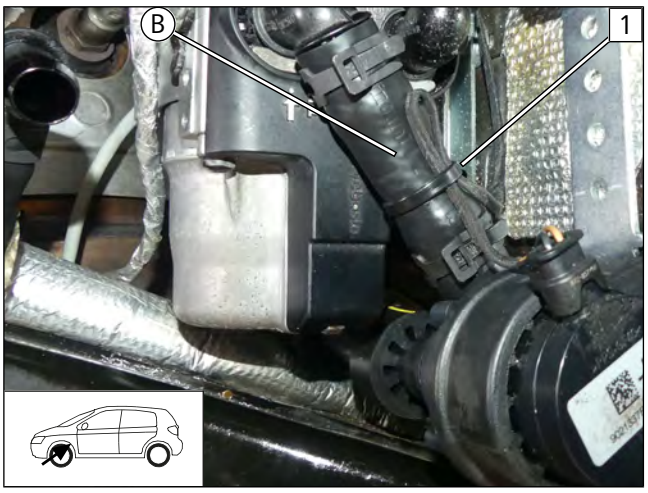


Fig. 77

1 Cable tie around hose Ⓑ and coolant pump wiring harness

Cutting heat shrink plastic tubing to length

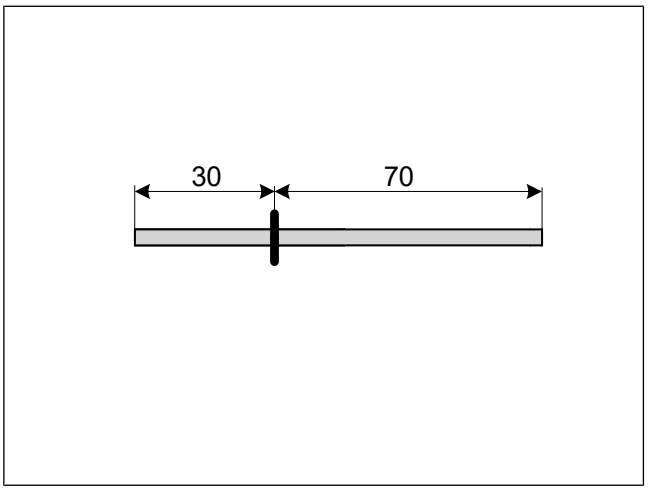


Fig. 78

Preparing solenoid valve

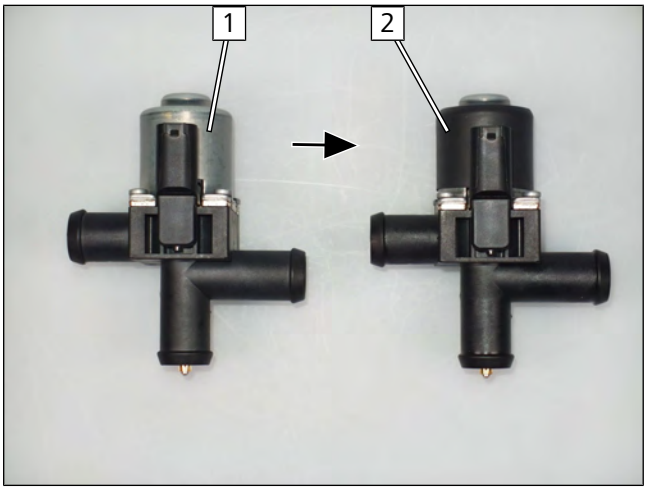


Fig. 79

Mount 30mm heat shrink plastic tubing [2] and use at most 300°C to shrink it.

ATTENTION: protect connection socket from overheating using suitable means.

[1] Solenoid valve

Mounting hose Ⓒ on solenoid valve

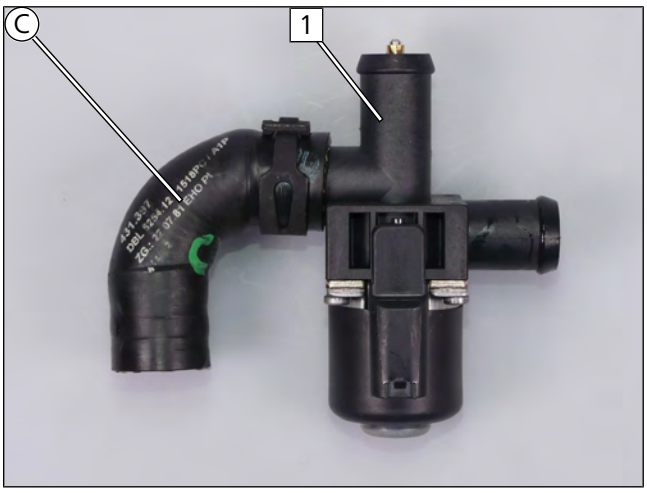


Fig. 80

[1] Solenoid valve

Preparing perforated bracket

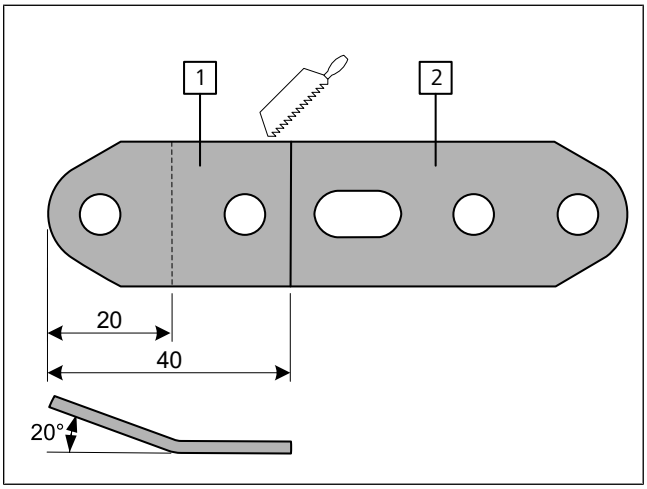


Fig. 81

[1] Perforated bracket 1

[2] Perforated bracket 2

Premounting solenoid valve hose group

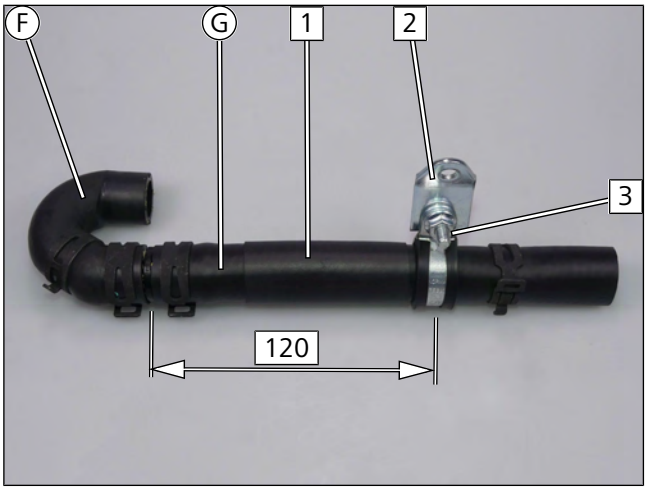


Fig. 82

Mount 70mm heat shrink plastic tubing 1 and use at most 300°C to shrink it.

2 Perforated bracket 1

3 M6x20 bolt, perforated bracket 1, Ø25 rubber-coated p-clamp, flanged nut

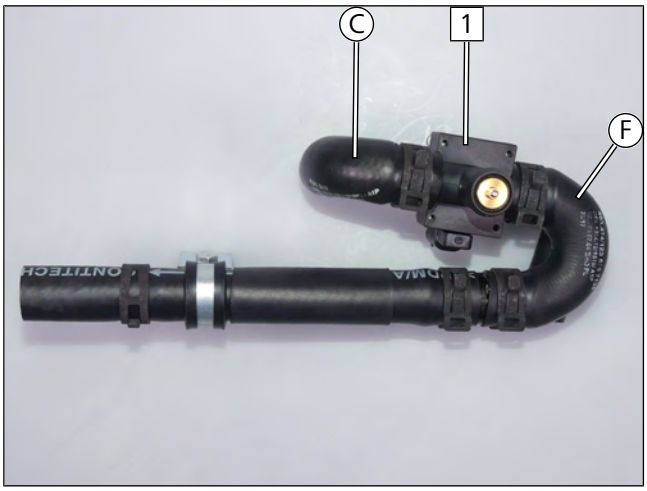


Fig. 83

Note the position of the spring clip fastener

1 Solenoid valve

Mounting solenoid valve hose group

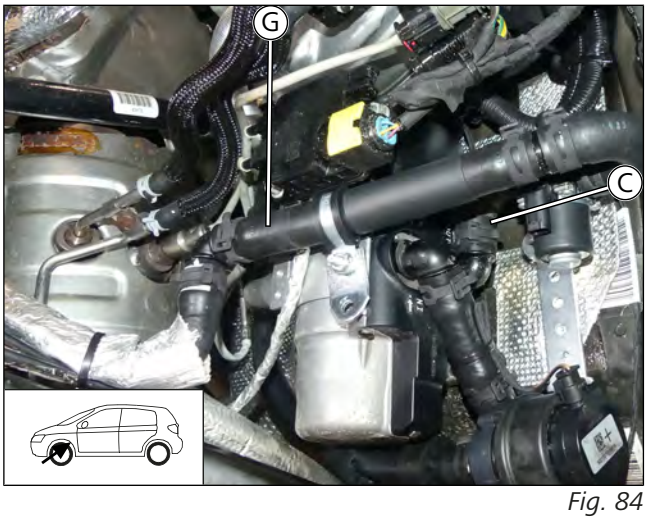


Fig. 84

▶ Connect hose G to engine inlet hose.

▶ Mount hose C onto HG/OUT.

Fastening solenoid valve hose group

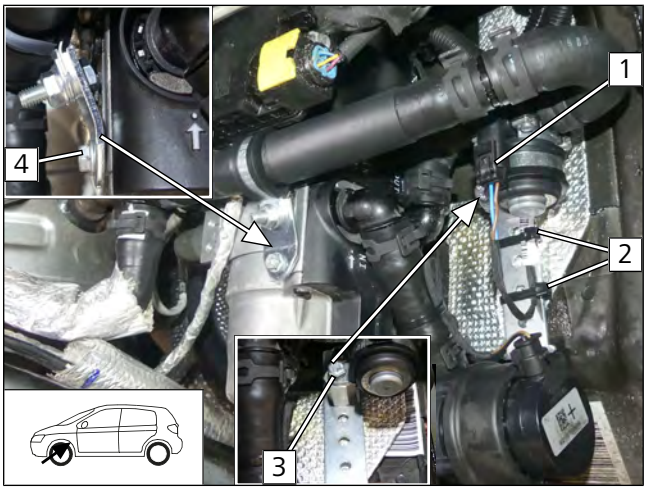


Fig. 85

▶ Mount connector of solenoid valve wiring harness **1** and fasten with cable tie **2**.

3 M6x16 bolt, spring lock washer, Ø34 rubber-coated p-clamp, premounted spacer nut

4 5x13 self-tapping bolt, perforated bracket, hole in HG

Connection of hose Ⓓ to solenoid valve

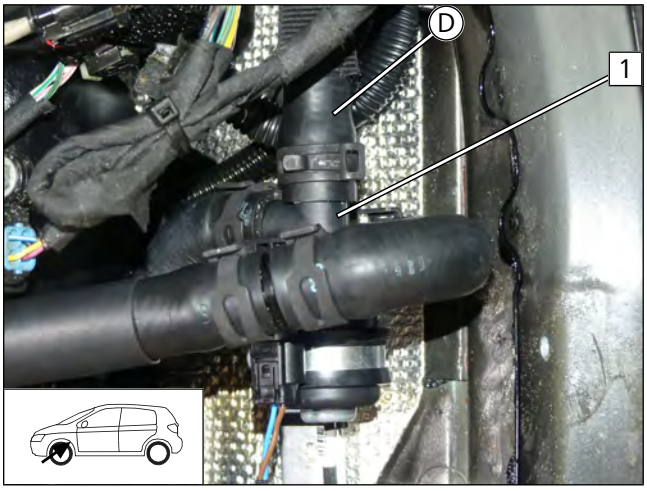


Fig. 86

1 Solenoid valve

Fastening engine inlet hose

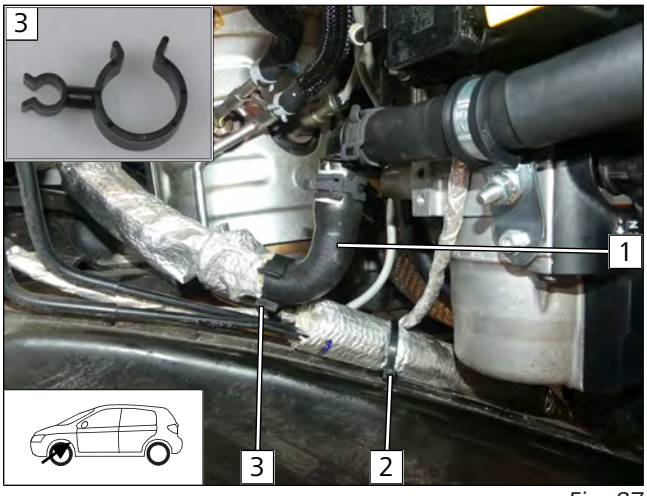


Fig. 87

1 Engine inlet hose

2 Cable tie

3 Hose bracket around engine inlet hose and original vehicle line

Cutting foam in half

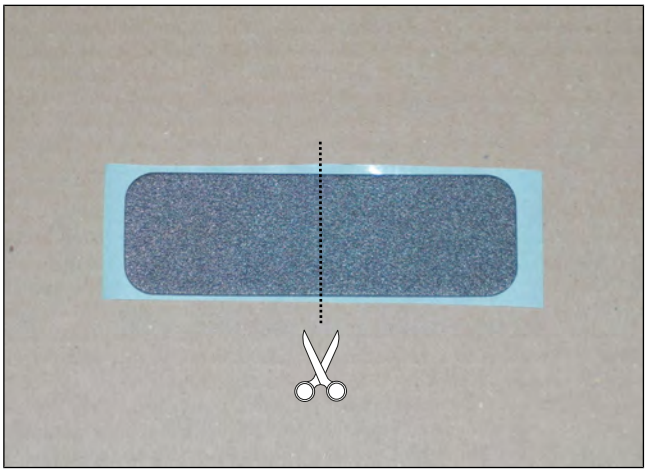


Fig. 88

Masking stud bolt

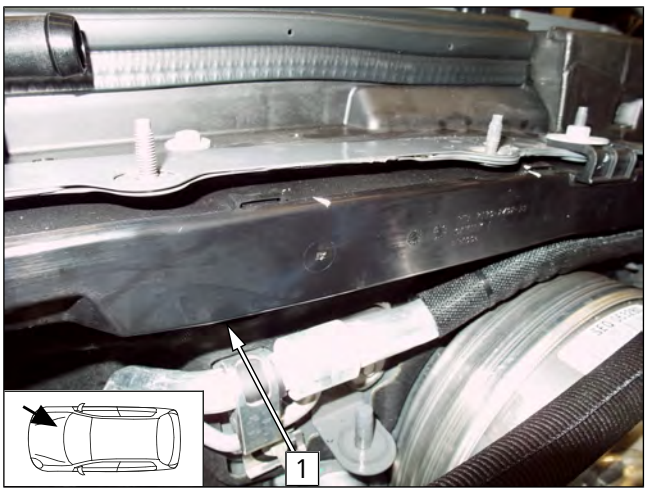


Fig. 89

▶ The stud bolt can be found at position 1.

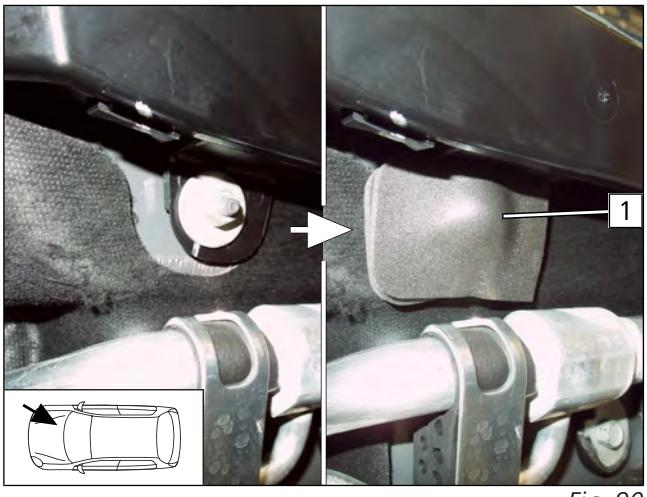


Fig. 90

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

Cutting point

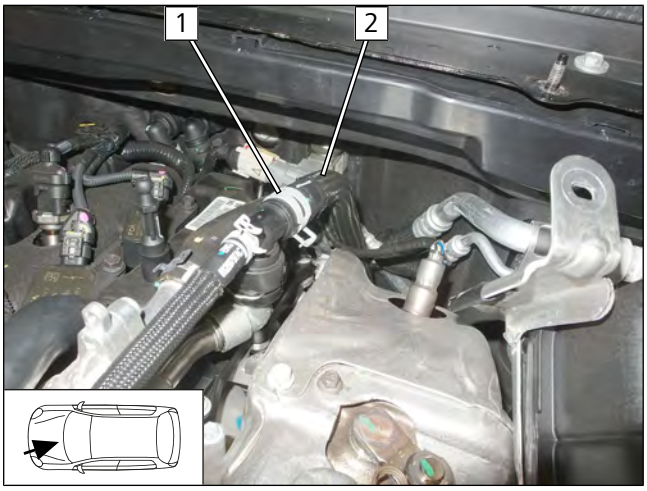


Fig. 91

▶ Disconnect heat exchanger inlet/engine outlet hose [2]. Discard original vehicle spring clip [1].

Dismantling heat exchanger inlet connection

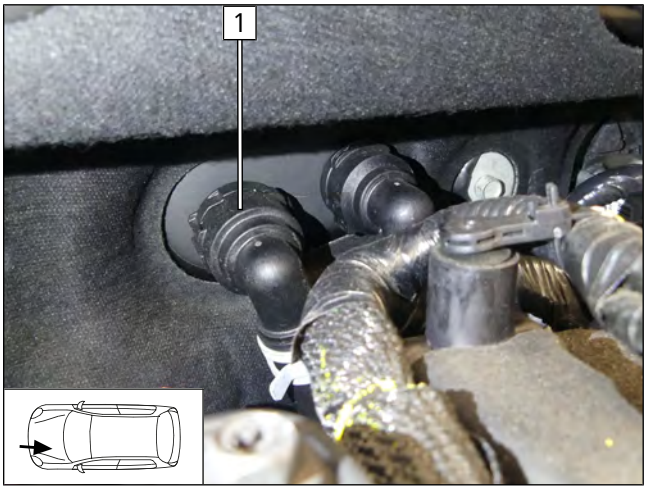


Fig. 92

▶ Remove quick-release coupling from heat exchanger inlet connection piece [1].

Shortening heat exchanger inlet hose

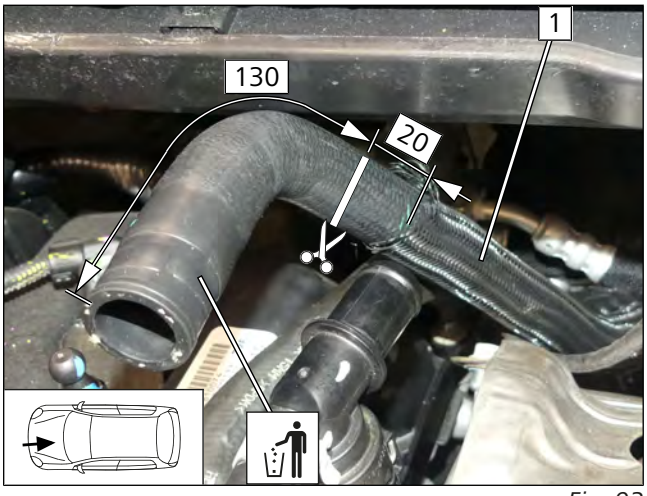


Fig. 93

▶ Detach heat exchanger inlet hose /pipe group [1] from original vehicle hose bracket (behind the engine block on the firewall), pull it up, remove fabric tubing protector on the connection side of the engine outlet as shown and shorten the hose.

Disconnecting lambda sensor connector

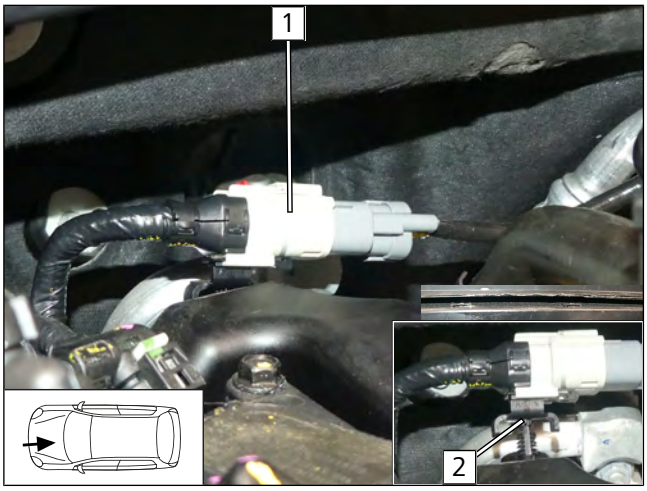


Fig. 94

▶ Separate the connection plug of lambda sensor 1 from clip 2.

Preparing perforated bracket

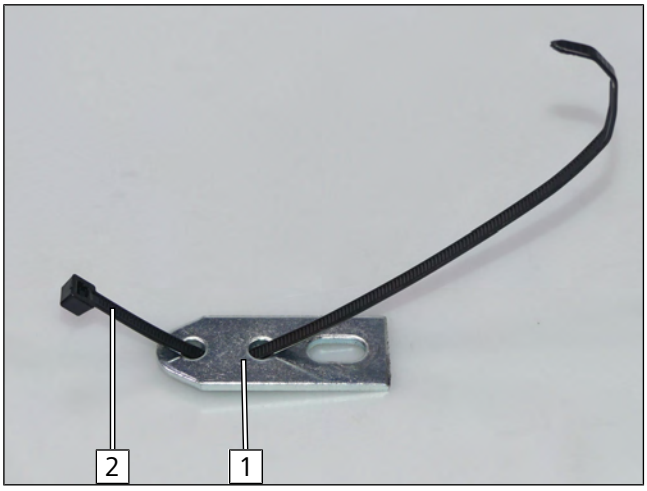


Fig. 95

1 Perforated bracket 2
2 Cable tie

Mounting perforated bracket 2

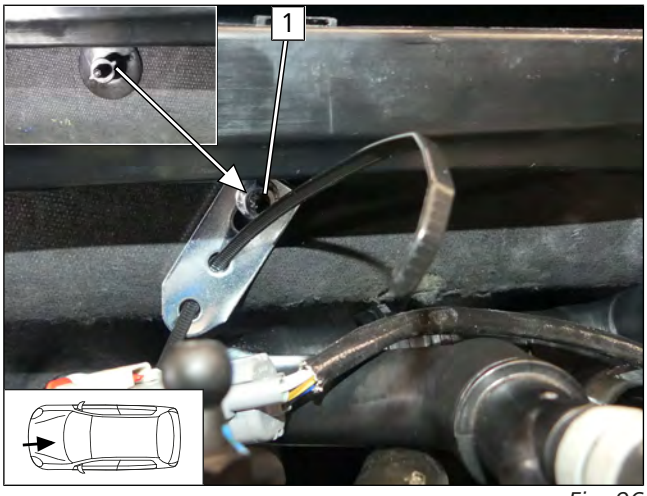


Fig. 96

▶ Remove plastic nut from original vehicle stud bolt at pos. 1.

▶ Mount perforated bracket 2 with flanged nut on original vehicle stud bolt.

Mounting lambda sensor connector

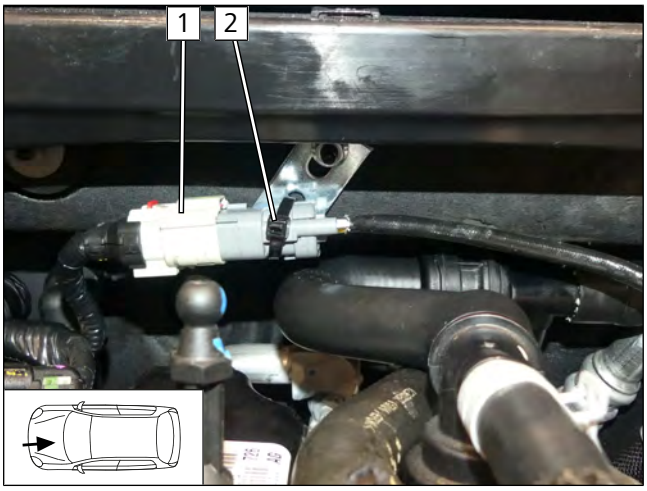


Fig. 97

▶ Fasten connector 1 with premounted cable tie 2.

Premounting non-return valve hose group

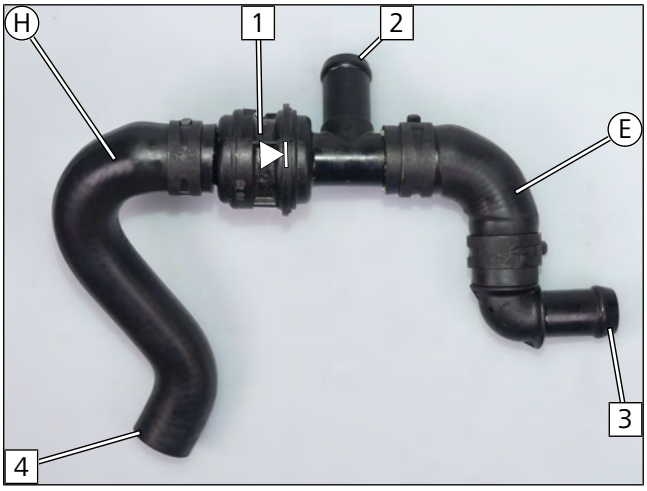


Fig. 98

1 Non-return valve
2 Connection to heat exchanger inlet
3 Connection to hose (D)
4 Connection to engine outlet

Mounting non-return valve hose group

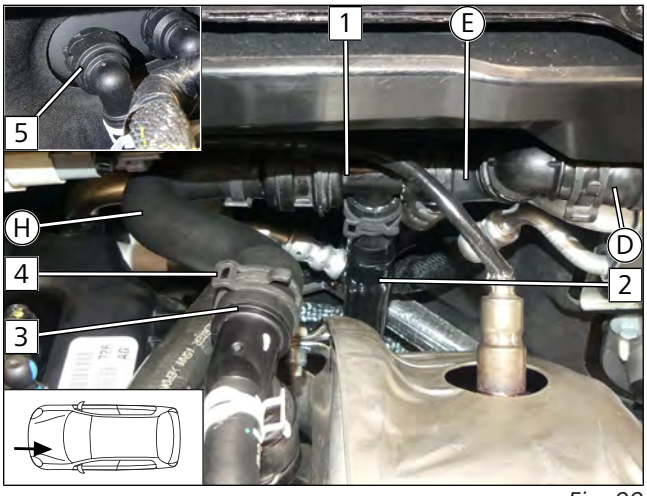


Fig. 99

1 Non-return valve
2 Heat exchanger inlet hose
3 Hose of engine outlet
4 Ø27 spring clip

▶ Mount quick-release coupling 5 onto heat exchanger inlet.

Fastening hoses

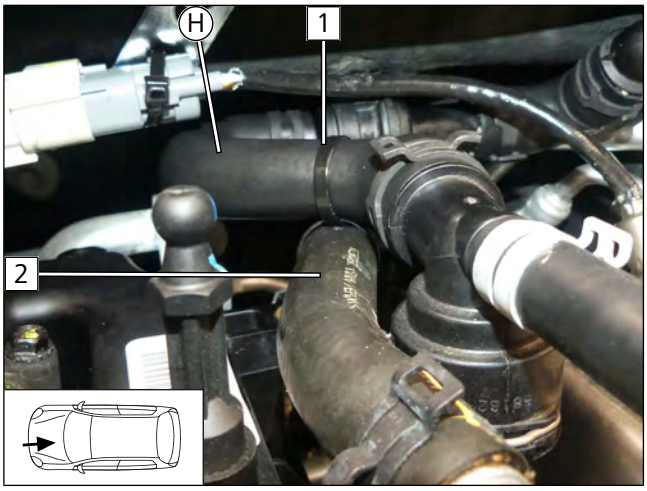


Fig. 100

▶ Interlace two cable ties 1 and fasten hose (H) and original vehicle hose 2 together.

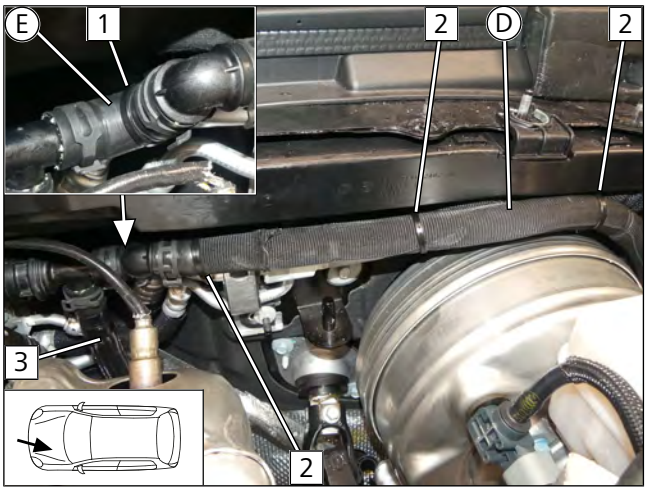


Fig. 101

▶ Fix heat exchanger inlet hose 3 again at the bottom of the firewall.

1 Cable tie around hose (E) and A/C line

2 Cable tie around hose (D) and A/C line

Adapting expansion tank bracket

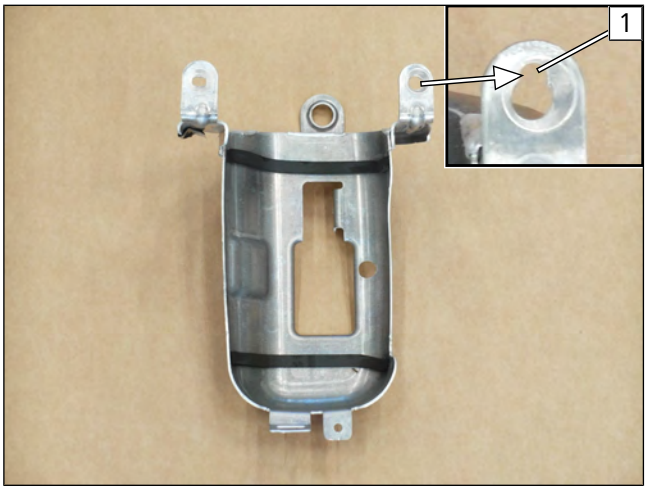


Fig. 102

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

Mounting expansion tank

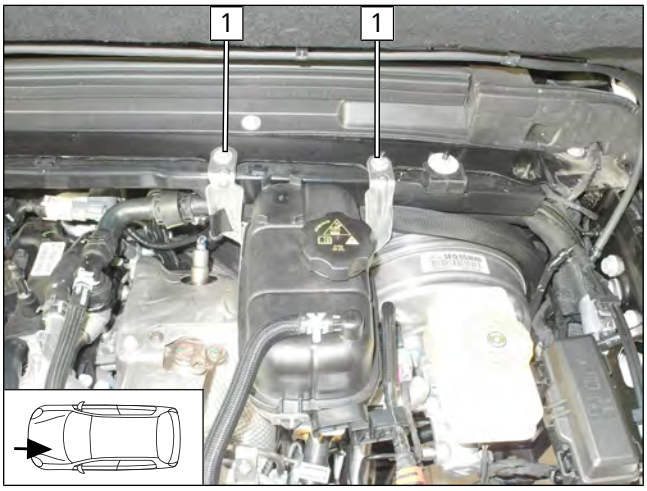


Fig. 103

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

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

12 Combustion air

Shortening perforated bracket

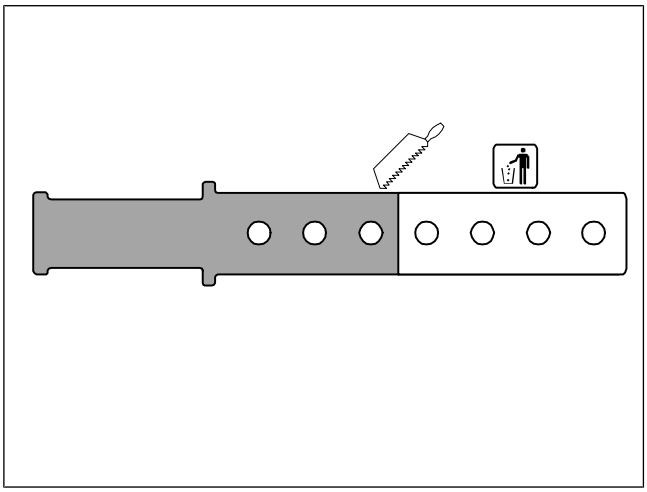


Fig. 104

Premounting combustion air intake silencer

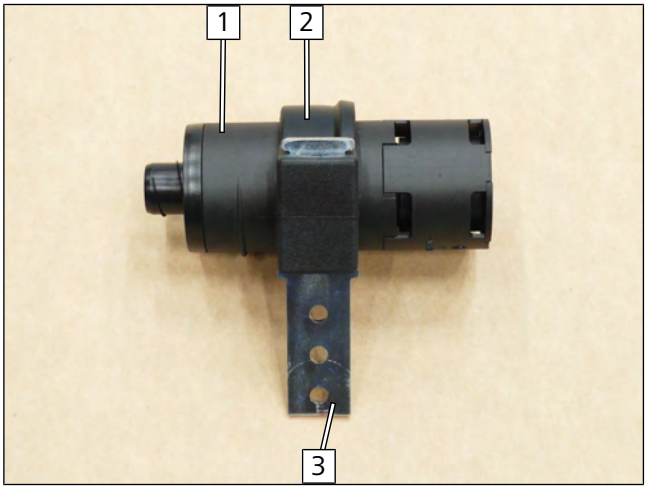


Fig. 105

1 Combustion air intake silencer
2 Mount
3 Perforated bracket

Routing combustion air intake pipe s1

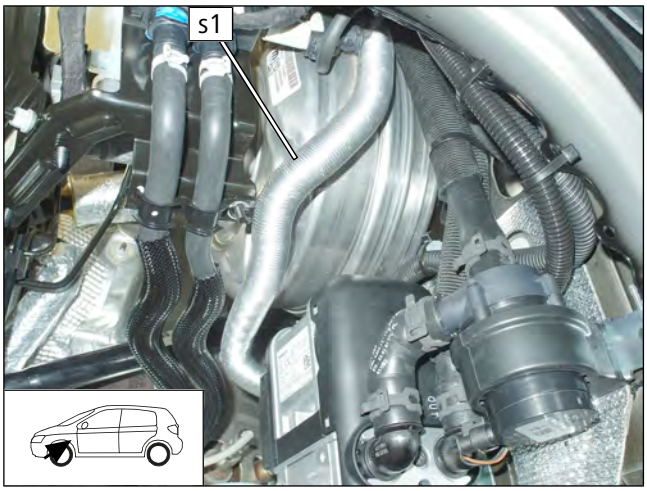


Fig. 106

Observe the installation instructions of the combustion air intake silencer.

Fixing combustion air intake pipe **s1**

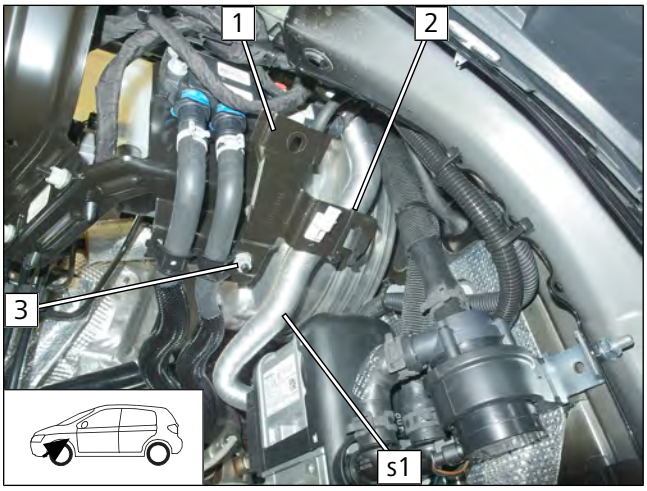


Fig. 107

1 Original vehicle bracket, part 1

2 Cable tie, for fastening **s1**

3 Original vehicle stud bolt, bracket part 1, original vehicle flanged nut

Mounting combustion air intake silencer

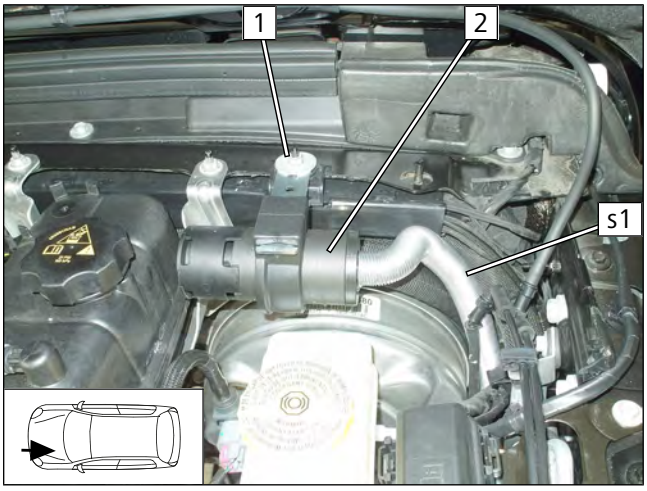


Fig. 108

- ▶ Mount combustion air pipe **s1** on combustion air intake silencer **2**.
- ▶ 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

13 Exhaust part 2

Mounting exhaust pipe **a1**

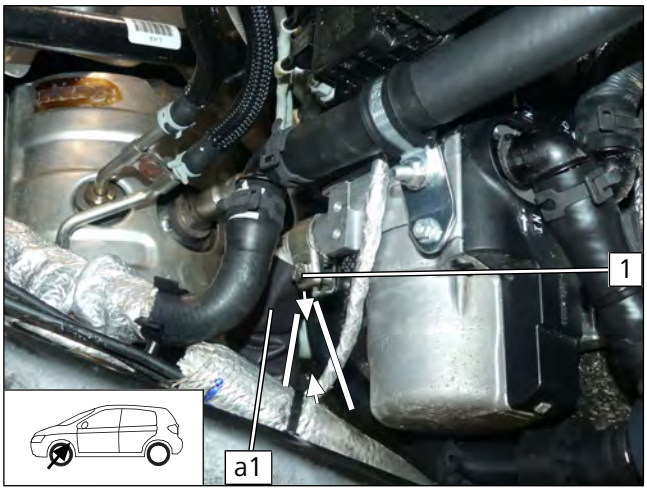


Fig. 109

Danger of damage to components

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

1 Pipe clamp

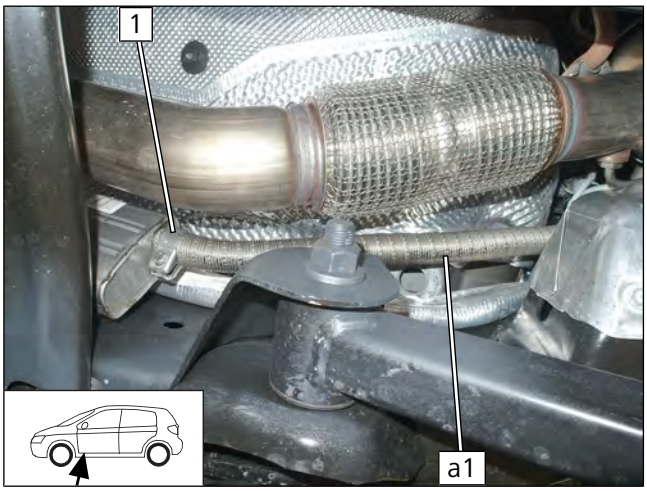


Fig. 110

Danger of damage to components

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

1 Pipe clamp

14 Electrical system of passenger compartment

14.1 Electrical System Preparation

Preparing wiring harness

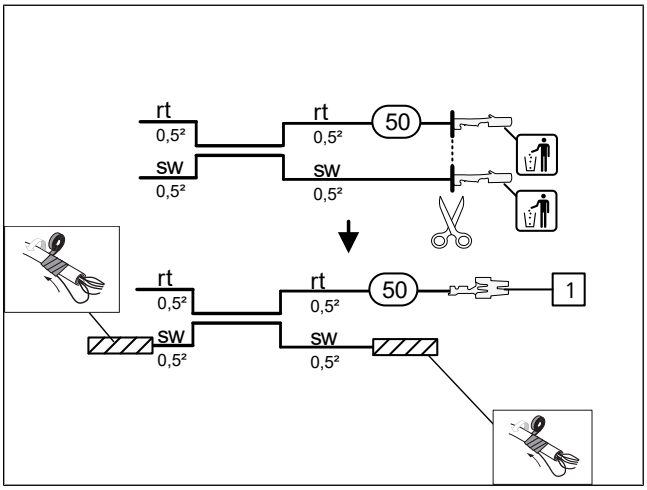


Fig. 111

Wire sections retain their numbering in the entire document.

1 Flat spring contact

Preparing solenoid valve wiring harness

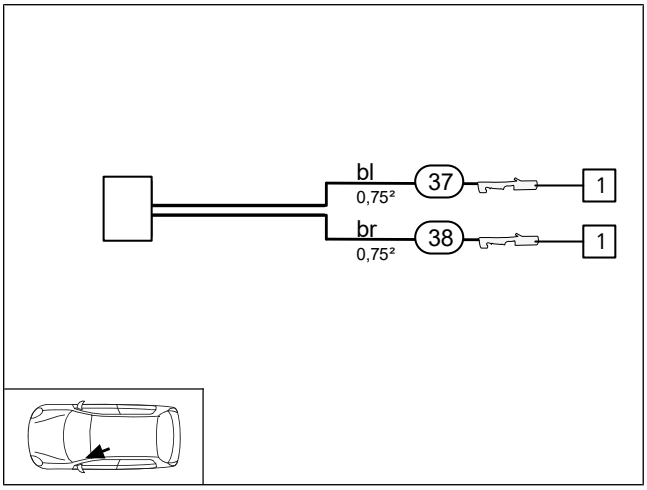


Fig. 112

1 6.3 female connector
37 Blue (bl) wire of solenoid valve wiring harness
38 Brown (br) wire of solenoid valve wiring harness

14.2 Wiring diagram

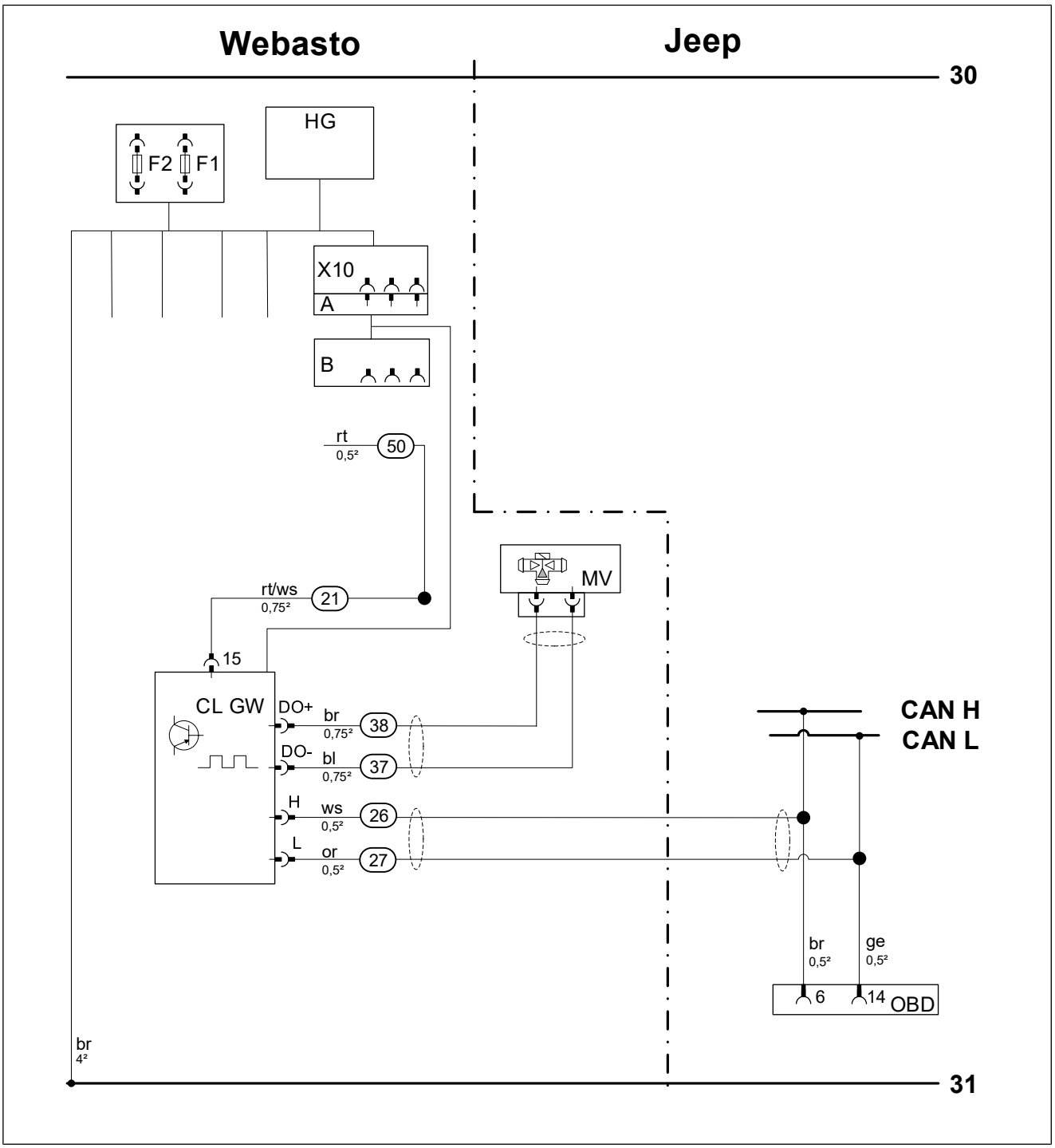


Fig. 113

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		

14.3 Solenoid valve control

Preparing CL GW

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

▶ Route blue (bl) wire (37) and brown (br) wire (38) to the CL GW installation location and connect.

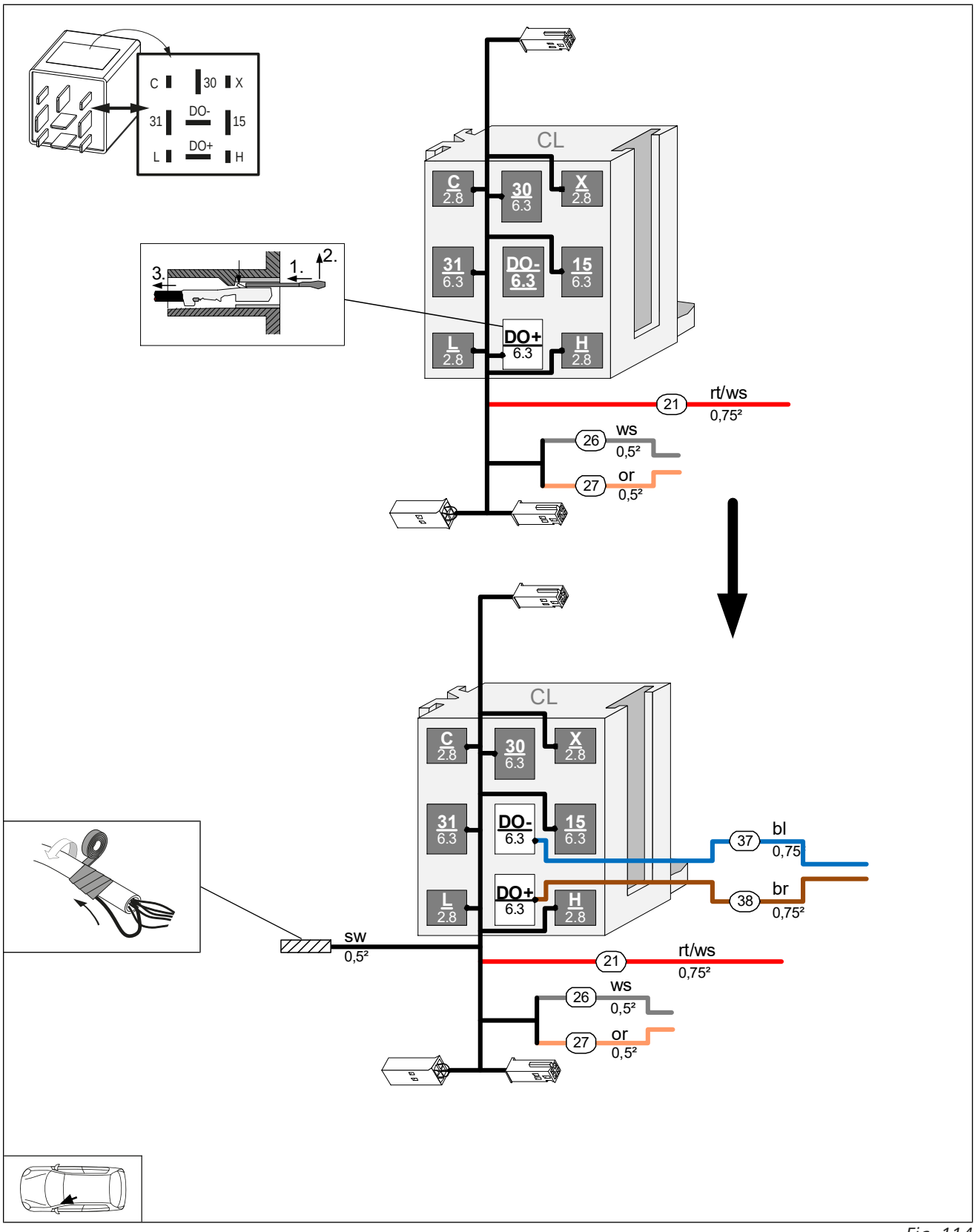


Fig. 114

Cutting to length and bending perforated bracket

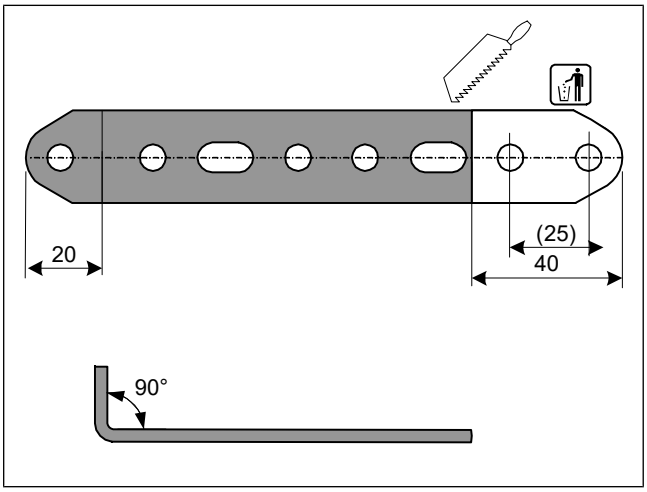


Fig. 115

Premounting CL GW socket

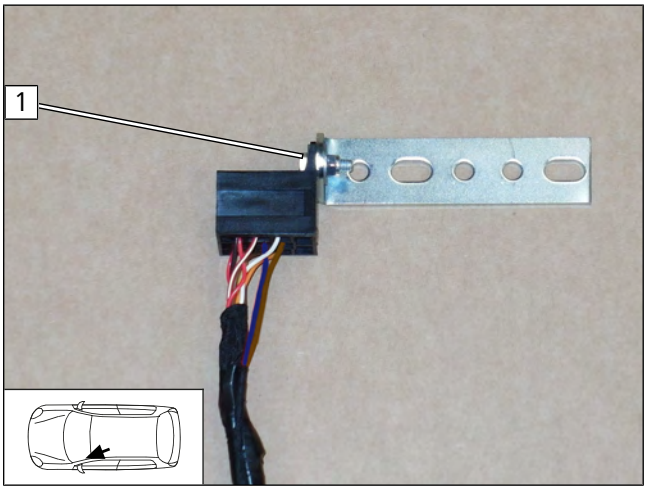


Fig. 116

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

Premounting CL GW

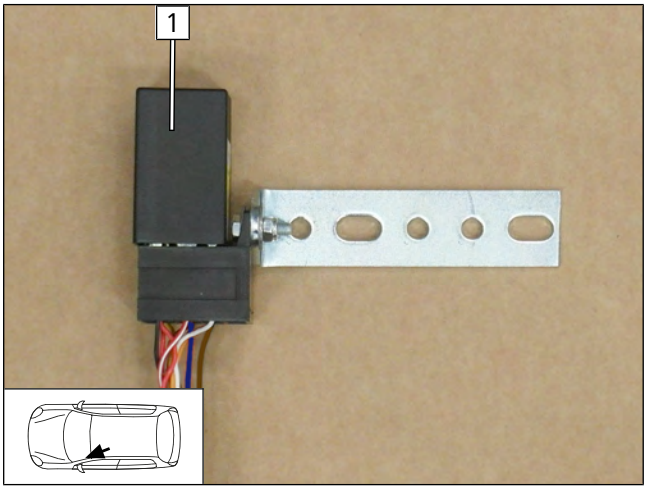


Fig. 117

1 CL GW

Mounting CL GW

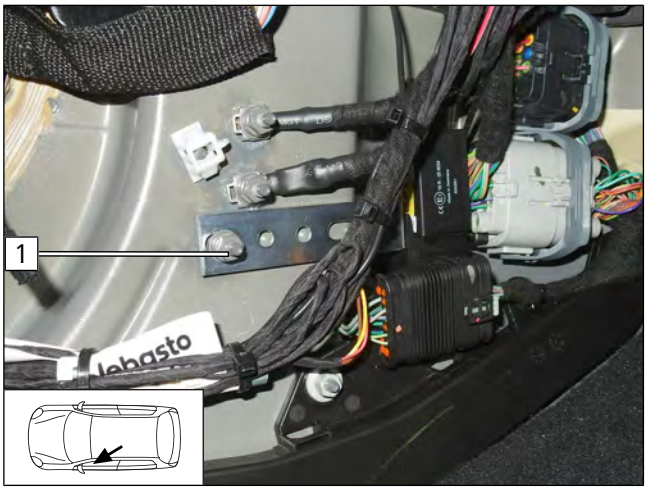


Fig. 118

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

▶ Route wires (26) and (27) to OBD socket outlet.

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

Mounting CL GW

▶ Connect wire (50) with wire (21) and route to RSH installation location (see A/C control installation documentation).

▶ Connect connectors and sockets.

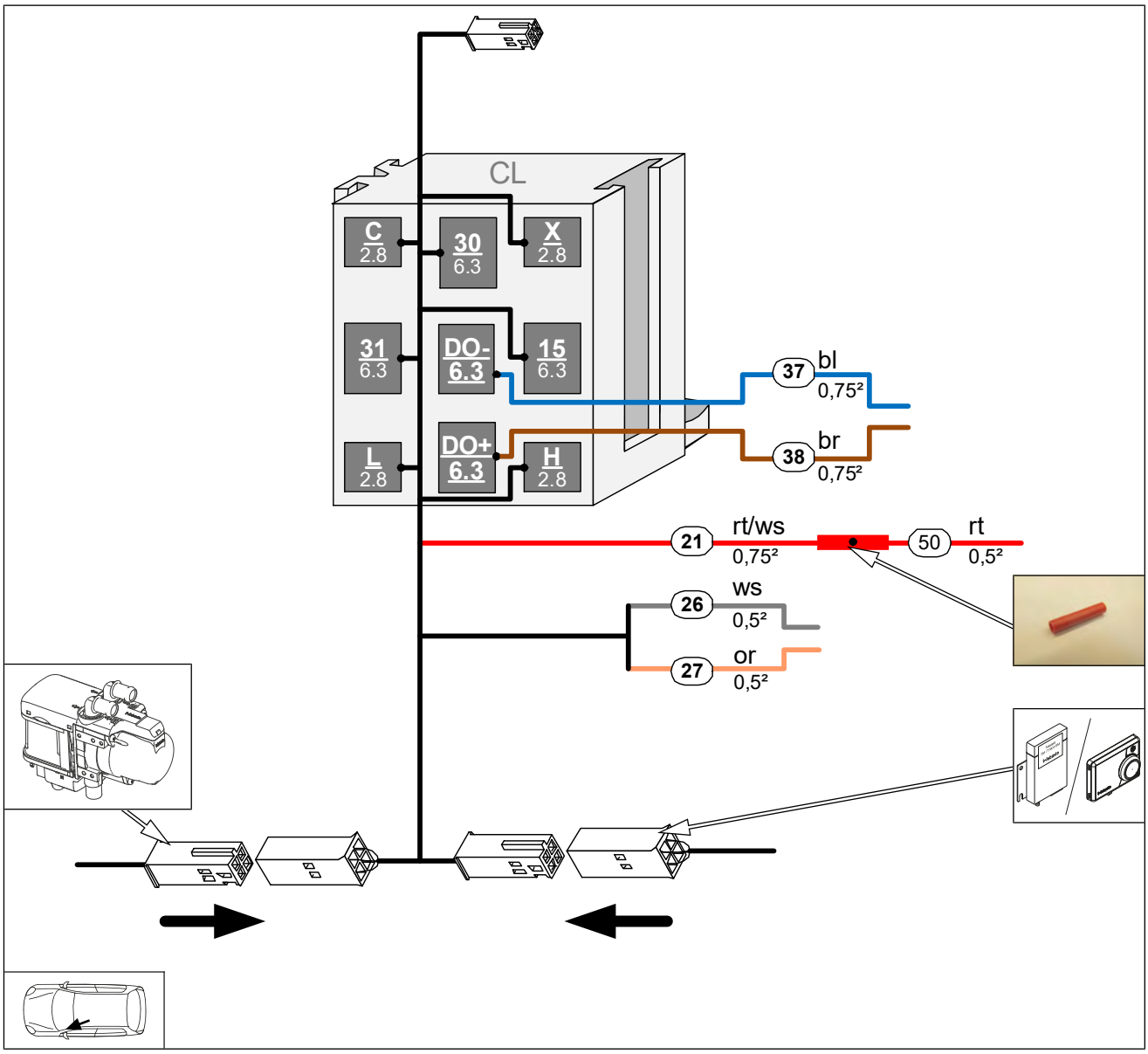


Fig. 119

Connection to OBD socket outlet

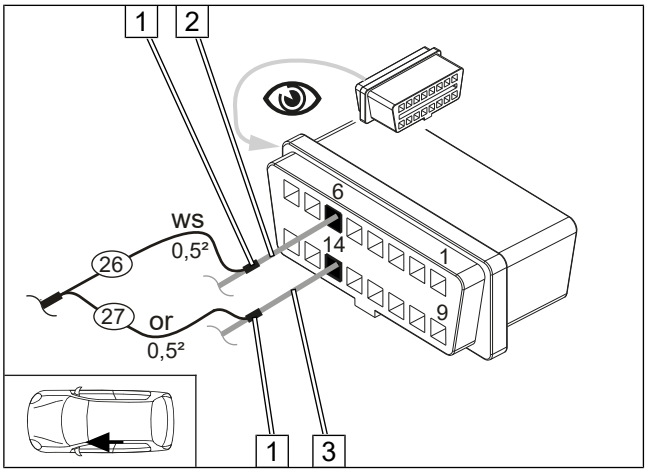


Fig. 120

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

14.4 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

14.5 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.

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 'Webasto Standard' A/C control or 'Webasto Comfort' kit, section Final work

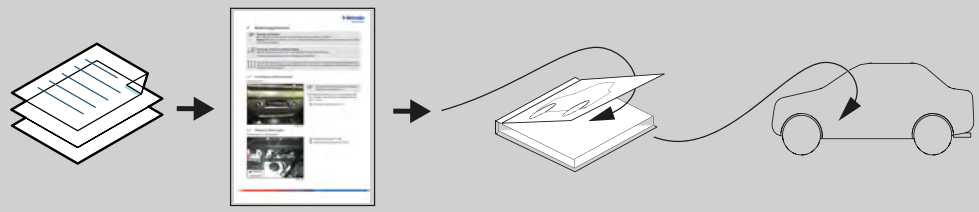
▶ Initial start-up and function check

▶ 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.

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CE

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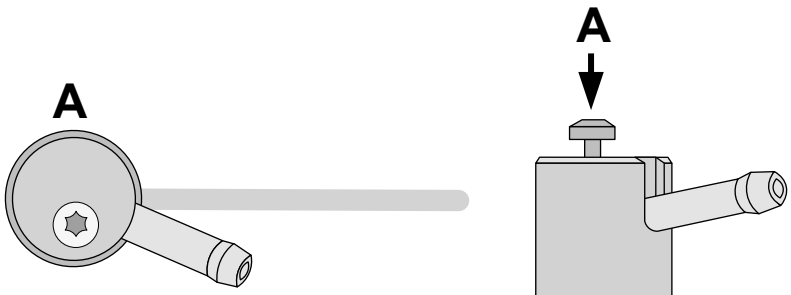

100mm

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