

# K Installation Documentation

for water heaters Thermo Top Evo

'Inline' coolant circuit with engine preheating

## Ford Ranger / Ranger Raptor

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Ford	Ranger	2AB	from 2021	e5* 2007/46* 0080*...
Ford	Ranger Raptor	2AB	from 2021	e5* 2007/46* 0080*...

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displacement [cm <sup>3</sup> ]	Engine code
2.0 EcoBlue	Diesel	EURO 6;WLTP;CI;...	6-speed SG	96	1996	DD0J
2.0 EcoBlue	Diesel	EURO 6;WLTP;CI;...	6-speed SG	125	1996	BC2X
2.0 EcoBlue	Diesel	EURO 6;WLTP;CI;...	10-speed AG	125	1996	BC2X
2.0 EcoBlue	Diesel	EURO 6;WLTP;CI;...	10-speed AG	156	1996	YN2X

Validity	Equipment variants	Model
		Ranger
Verified equipment variants	2 zone automatic air-conditioning	x
	LED main headlights	x
	Start button	x
	Double cabin, 4 doors, 5 seats	x
	Extra cabin, double doors, 2+2 seats	x
	Alarm system with passenger compartment monitoring	x
	AWD	x

Total installation time	Note
9.0 hours	

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# 1 List of abbreviations

AAC	Automatic air-conditioning
AG	Automatic transmission
AWD	All-wheel drive
DP	Fuel pump
FF	FuelFix (tank extracting device)
HG	Heater
lg.	long
SG	Manual transmission
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle
X10	Female plug for control element

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## 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 Ford Ranger diesel 2021	1328630B
Additional 'Webasto Comfort' A/C control kit for Ford with AAC	1324050_
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

### 2.3 Notes on installation, in coordination with the end customer

- ▶ Arrange for the vehicle to be delivered with the tank only about ¼ full.
- ▶ The installation location of the following elements should be chosen in coordination with the end customer:
  - the push button in case of the Telestart and/or ThermoCall and/or ThermoConnect options
  - the MultiControl CAR option

### 2.4 Information on Total Installation Time

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

The total installation time may vary for vehicle equipment other than provided.

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## 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
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### 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	
Vehicle-specific installation documentation of the cold start kit	
Webasto Comfort A/C control	
Webasto Standard A/C control	
Tank extracting device (e.g. FuelFix)	
Exhaust end fastener (EFIX)	
Combustion air intake silencer	
Spacer bracket (ASH)	

#### 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.



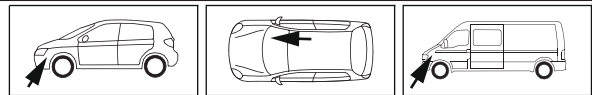
Note on a special technical feature

#### 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
<b>1</b> / <b>12</b> / <b>a1</b>	Position numbers for the image descriptions
<b>①</b> / <b>⑫</b> / <b>Ⓐ</b>	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<sup>2</sup>
- Crimping pliers for cable lugs 0.5 – 10 mm<sup>2</sup>
- Crimping pliers for male connector 0.14 – 6 mm<sup>2</sup>
- Crimping pliers for connector 0.25 – 6 mm<sup>2</sup>
- 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	<ul style="list-style-type: none"> <li>▶ Open the fuel tank cap</li> <li>▶ Ventilate the fuel tank</li> <li>▶ Close the fuel tank cap again</li> <li>▶ Depressurise the cooling system</li> </ul>	
Engine compartment and body	<ul style="list-style-type: none"> <li>▶ Disconnect the battery</li> <li>▶ Air filter box</li> <li>▶ Detach the water drain chamber on the right</li> <li>▶ Remove the coolant expansion tank</li> <li>▶ Detach the rubber cover in the wheel well on the left and right</li> <li>▶ Engine underdrive protection (if present)</li> </ul>	
Passenger compartment	<ul style="list-style-type: none"> <li>▶ A/C control panel (see 'Webasto Comfort' A/C control installation documentation)</li> <li>▶ Lower instrument panel trim on the front passenger's side</li> </ul>	



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



### **DANGER**

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

Vehicle area	Components to be removed	Other applicable documents
Vehicle body	<ul style="list-style-type: none"> <li>▶ Rear wheel well trim on the driver's side</li> <li>▶ Filler neck bolt</li> <li>▶ Tank in accordance with the manufacturer's instructions</li> </ul>	

### 5.2 Heater preparation

Engine compartment	<ul style="list-style-type: none"> <li>▶ Remove years that do not apply from the type and duplicate label</li> <li>▶ Attach the duplicate label (type label) in the appropriate place in the engine compartment</li> </ul>	
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## 6 Installation overview

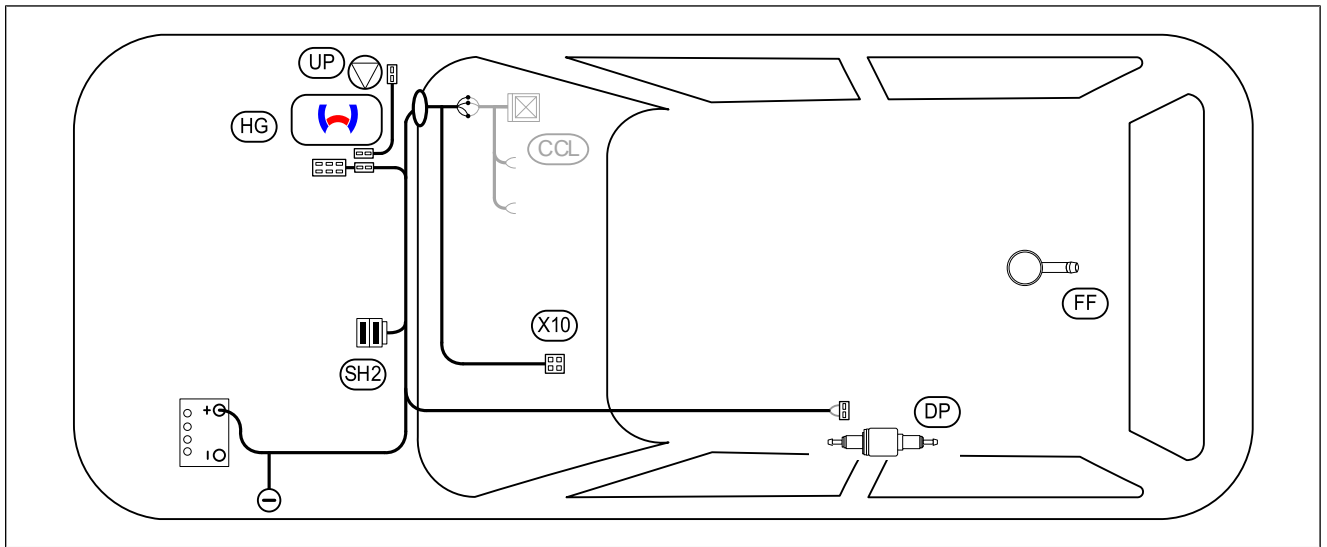


Fig. 1

### Legend to installation overview

Abbreviation	Component
DP	Fuel pump
FF	FuelFix
HG	Heater
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
X10	Female plug for control element

### Heater installation location

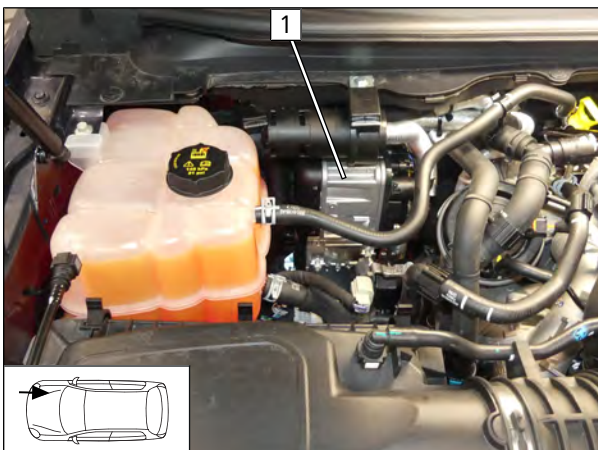


Fig. 2

**1** Heater



## 7 Electrical system of engine compartment

### Installing SH2

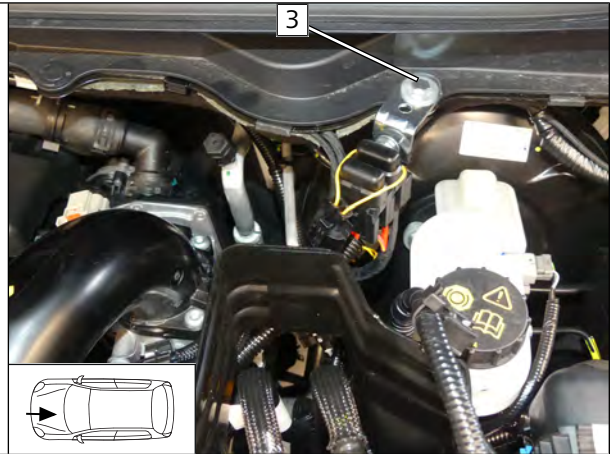
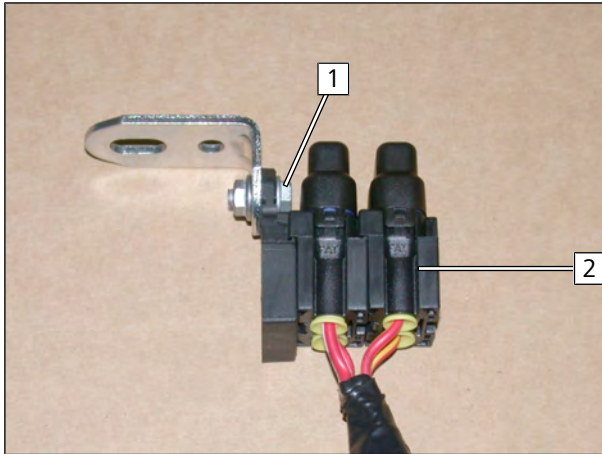


Fig. 3

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

► Remove and discard clip at pos. 3.

- 3 M6x20 bolt, large diameter washer, angle bracket, original vehicle hole, large diameter washer, flanged nut

### Earth and positive connection

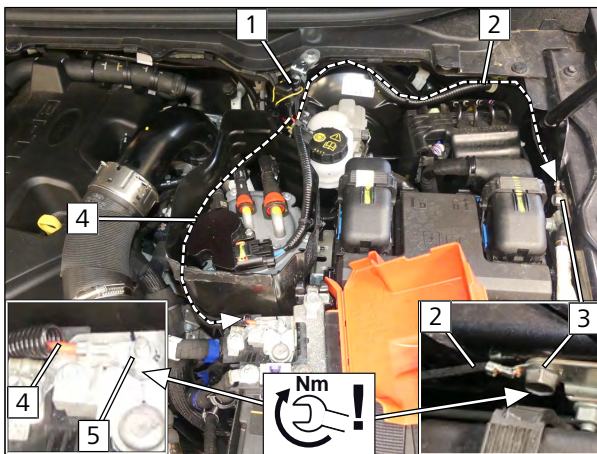


Fig. 4



### DANGER

Observe tightening torque



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

- 1 SH2
- 2 Earth wire, Ø8 cable lug
- 3 Earth support point
- 4 Positive wire in Ø10, 270 long corrugated tube, Ø8 cable lug
- 5 Positive battery terminal

### HG wiring harness routing

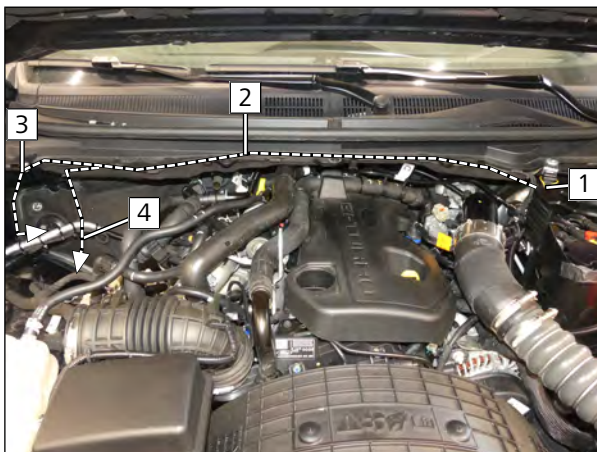


Fig. 5

- 1 SH2
- 2 Heater, passenger compartment and control element wiring harnesses behind insulation mat
- 3 Passenger compartment and control element wiring harnesses to the passenger compartment pass through
- 4 HG wiring harness to the HG installation location



## Passenger compartment wiring harness pass through

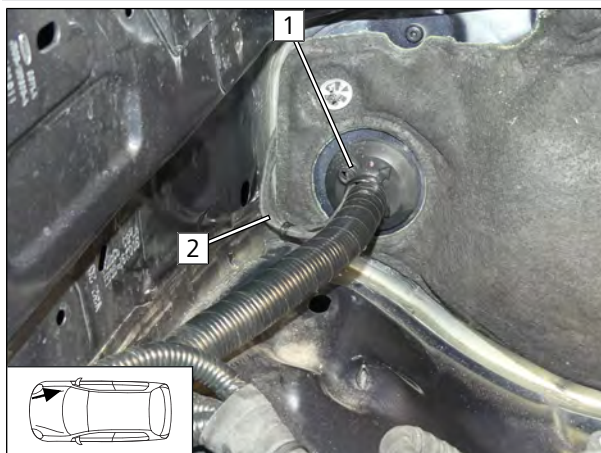


Fig. 6



### WARNING

#### Risk of water penetration

- ▶ Route the wiring harnesses in the engine compartment upwards to the pass through and outside the direct dripping area of the water drain chamber cover (water drain).
- ▶ Seal the pass through by using an appropriate sealing compound.

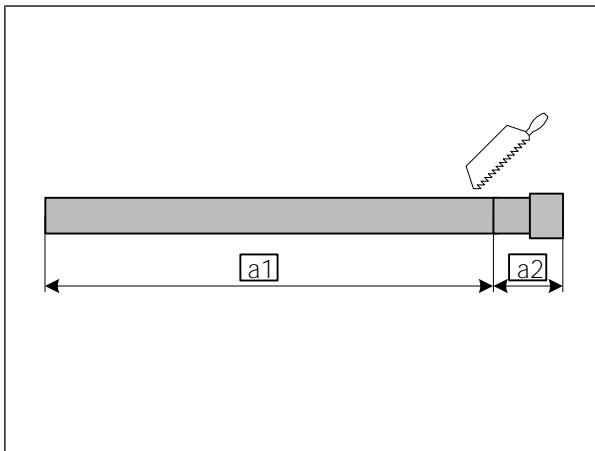
- 1 Protective rubber plug
- 2 Passenger compartment and control element wiring harnesses



## 8 Exhaust

### 8.1 Preliminary Work

#### Cutting exhaust pipe to length



**a1** 900

**a2** 100

Fig. 7

#### Premounting exhaust silencer

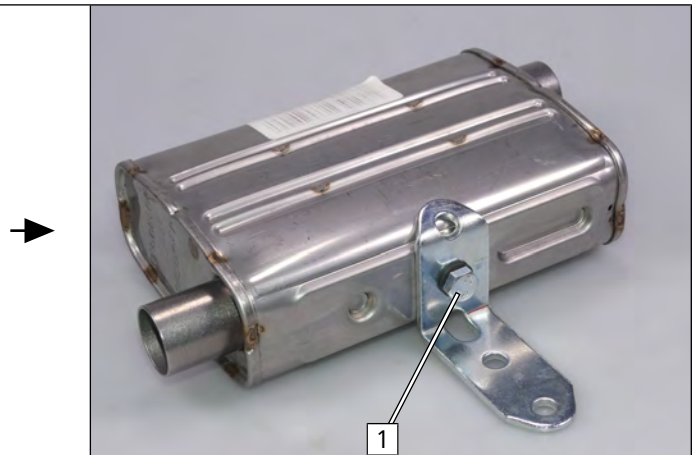
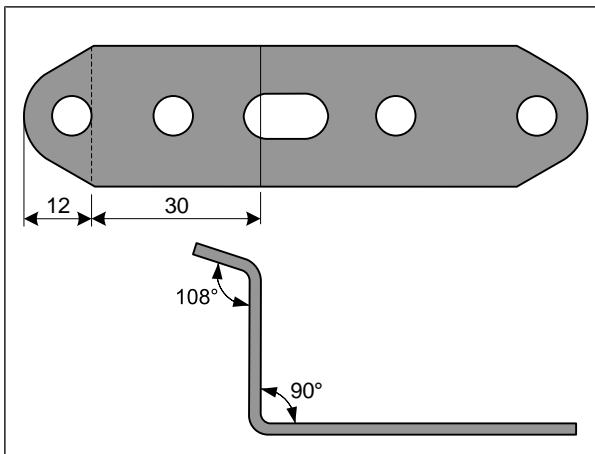
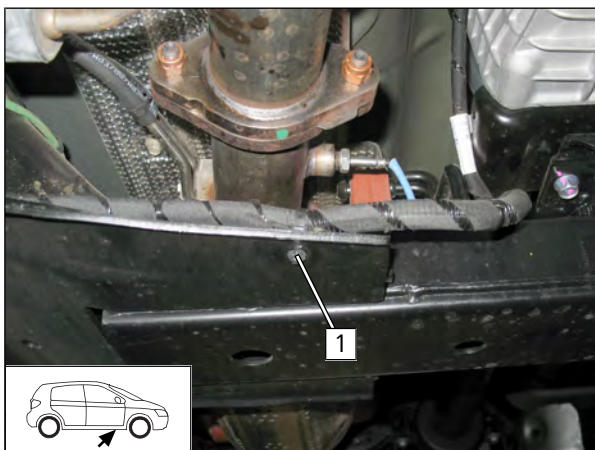


Fig. 8

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

#### Detaching original vehicle wiring harness (if present)



► Detach retaining clip **1**.

Fig. 9



## 8.2 Exhaust silencer and exhaust pipe installation- vehicles with SG

### Preparing perforated bracket

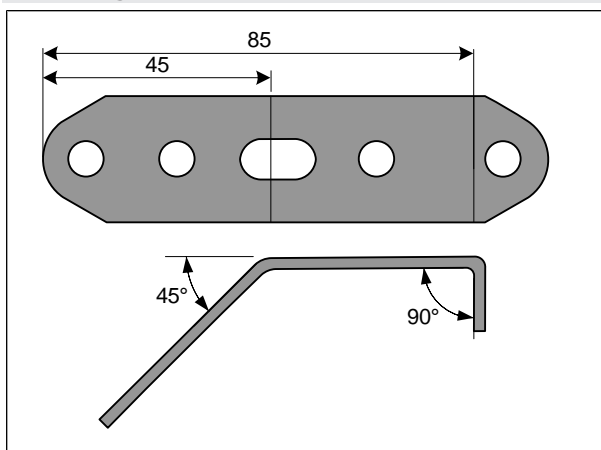


Fig. 10

### Preparing exhaust pipe **a1**

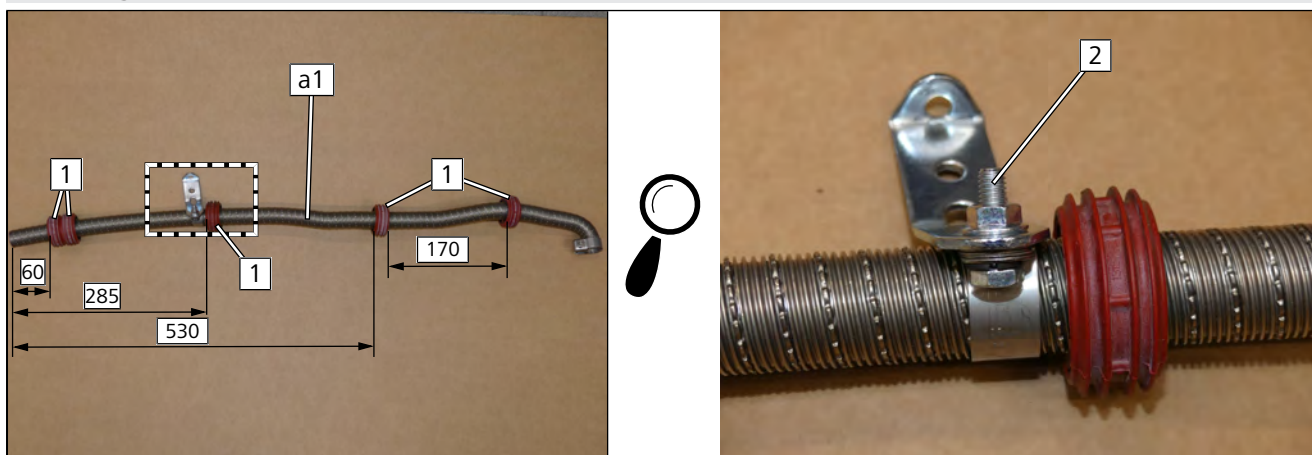


Fig. 11

**1** Premounting spacer bracket

**2** M6x20 bolt, Ø25 pipe clamp, perforated bracket, flanged nut

### Preparing perforated bracket

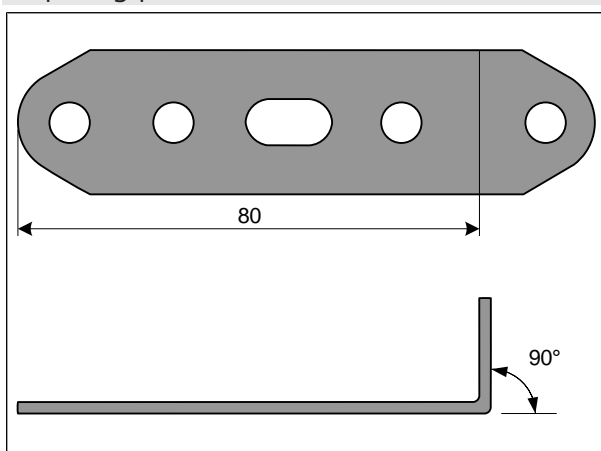


Fig. 12



## Mounting exhaust silencer and exhaust pipe

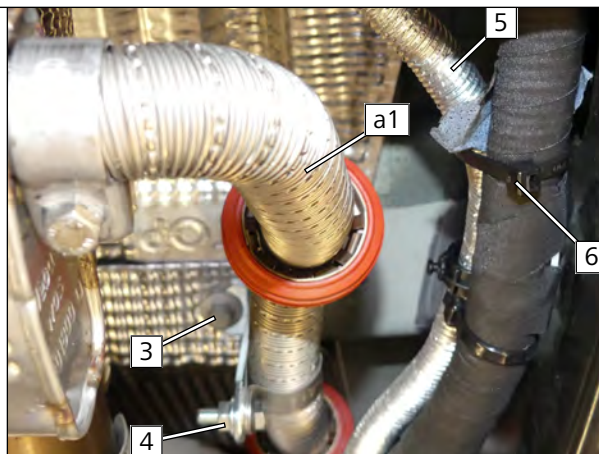
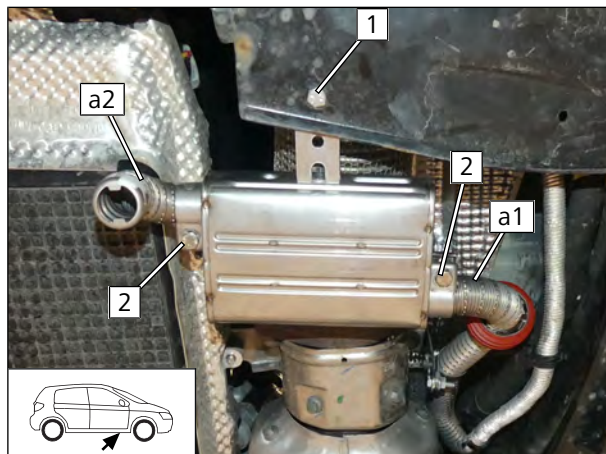


Fig. 13

- 1** M6x20 bolt, original vehicle hole, perforated bracket, flanged nut
- 2** Hose clamp
- 3** Original vehicle bolt, perforated bracket, original vehicle thread
- 4** M6x20 bolt, perforated bracket, pipe clamp, flanged nut
- 5** Fasten original vehicle line with cable tie **6**.

## Fastening original vehicle wiring harness (if present)

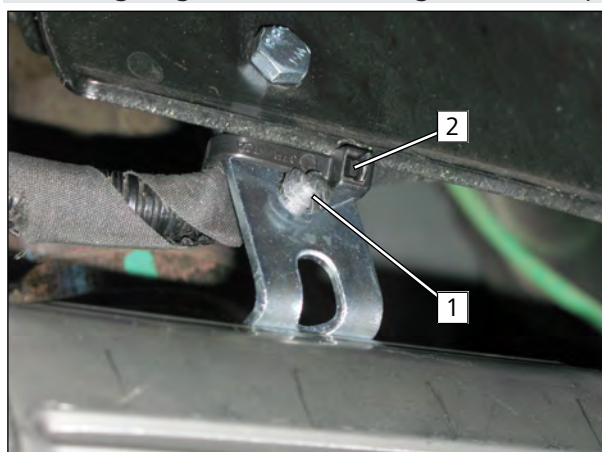


Fig. 14

- Insert retaining clip **1** of original vehicle wiring harness in hole of perforated bracket and fasten with cable tie **2**.

## Routing to HG installation location and fastening exhaust pipe **a1**

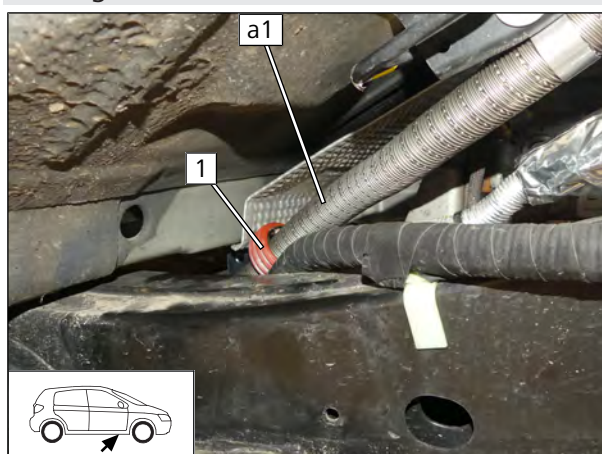


Fig. 15

- 1** Align spacer bracket with original vehicle wiring harness



## Fastening exhaust pipe **a1**

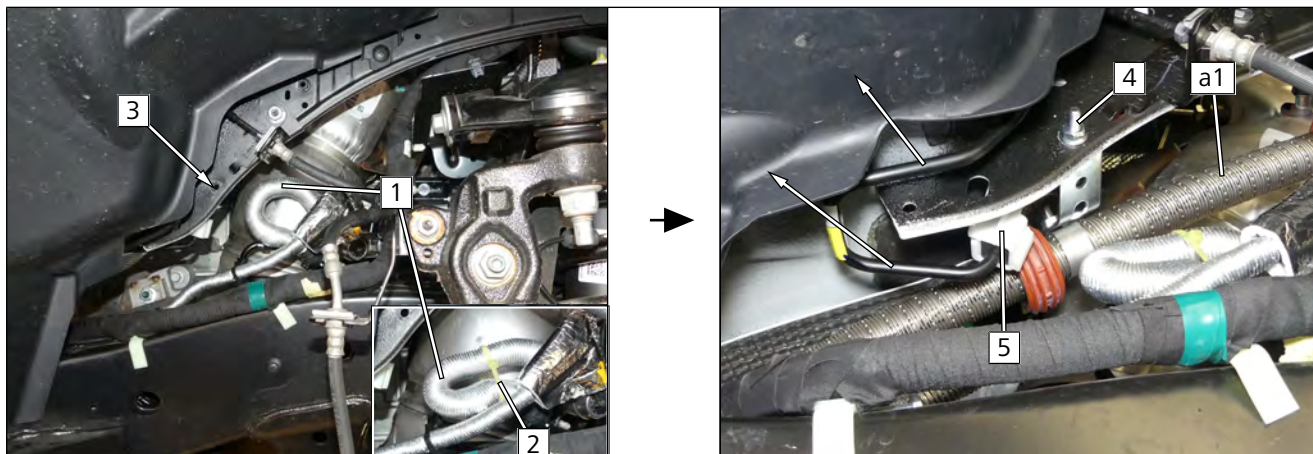


Fig. 16

- 1** Bundle original vehicle hose with white cable tie **2**.
- 3** Original vehicle hole to fasten prepared exhaust pipe **a1**
- 4** M6x20 bolt, perforated bracket, original vehicle hole, flanged nut
- 5** Align carefully brake line in the direction of the arrow.

## Checking distance

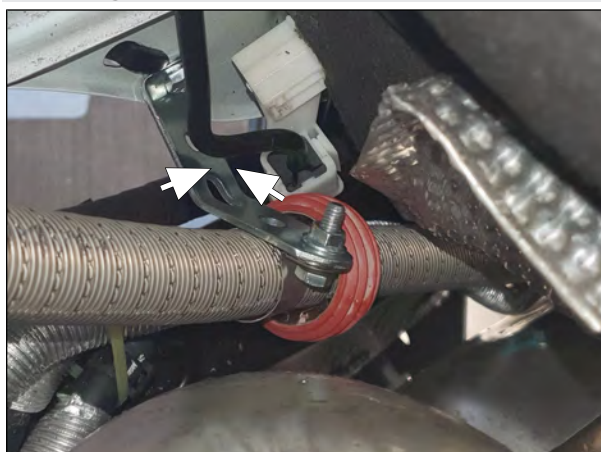


Fig. 17



Ensure sufficient distance between brake line and perforated bracket, correct if necessary.





### 8.3 Exhaust silencer and exhaust pipe installation- vehicles with AG

#### Preparing exhaust pipe **a1**

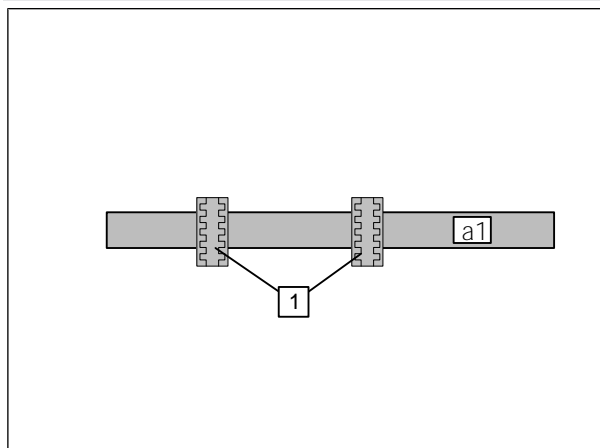


Fig. 18

**1** Premounting spacer bracket

#### Preparing perforated bracket

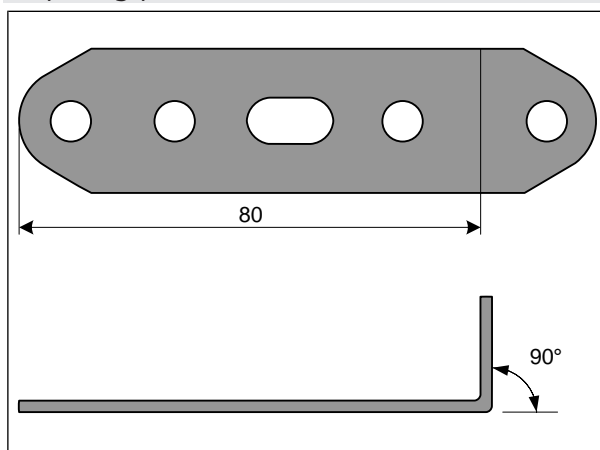


Fig. 19





## Mounting exhaust silencer and exhaust pipe

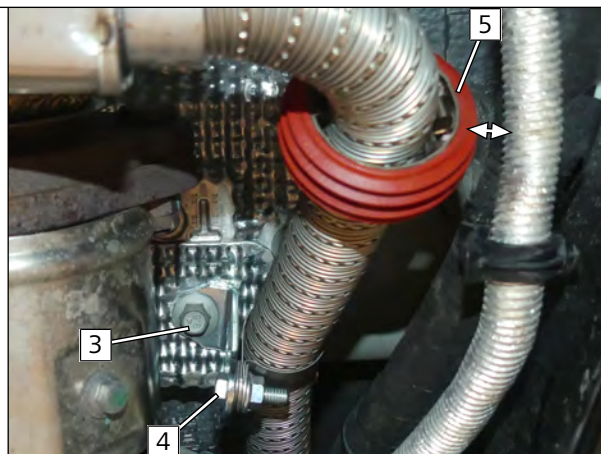
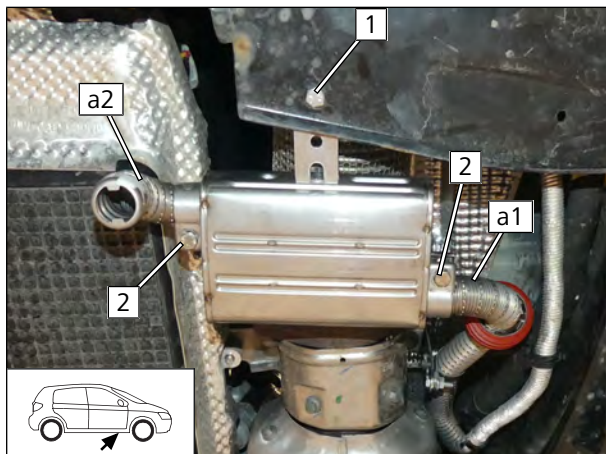


Fig. 20

- 1 M6x20 bolt, original vehicle hole, perforated bracket, flanged nut
- 2 Hose clamp

- 3 Original vehicle bolt, perforated bracket, original vehicle thread
- 4 M6x20 bolt, perforated bracket, pipe clamp, flanged nut
- 5 Align spacer bracket with original vehicle line as shown

## Fastening original vehicle wiring harness (if present)

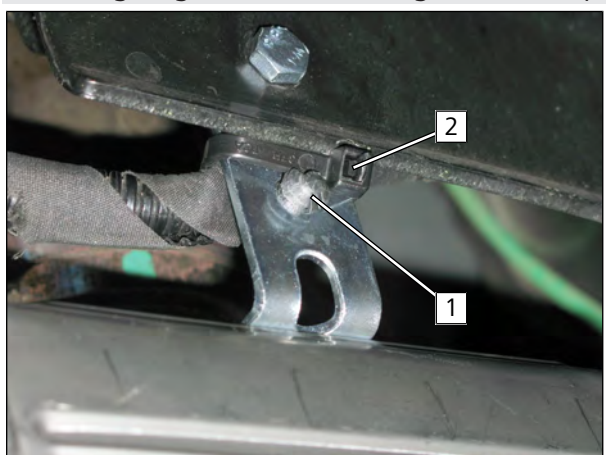


Fig. 21

- Insert retaining clip **1** of original vehicle wiring harness in hole of perforated bracket and fasten with cable tie **2**.

## Routing to HG installation location and fastening exhaust pipe **a1**

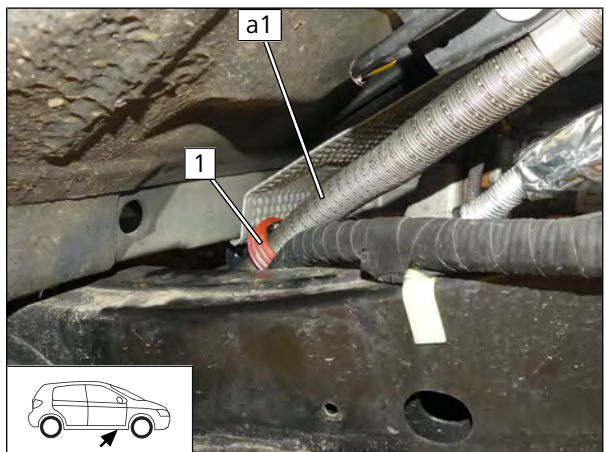


Fig. 22

- 1 Align spacer bracket with original vehicle wiring harness

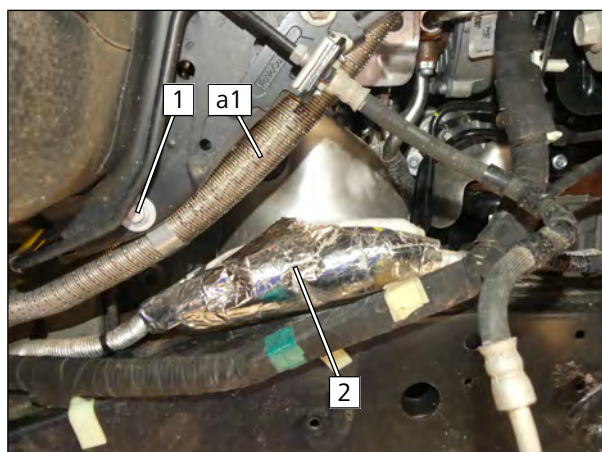


Fig. 23

- 1 M6x25 bolt, large diameter washer, original vehicle oblong hole, spacer (10), p-clamp, flanged nut
- 2 Wrap original vehicle line with aluminium tape

### Mounting spacer bracket [2x]

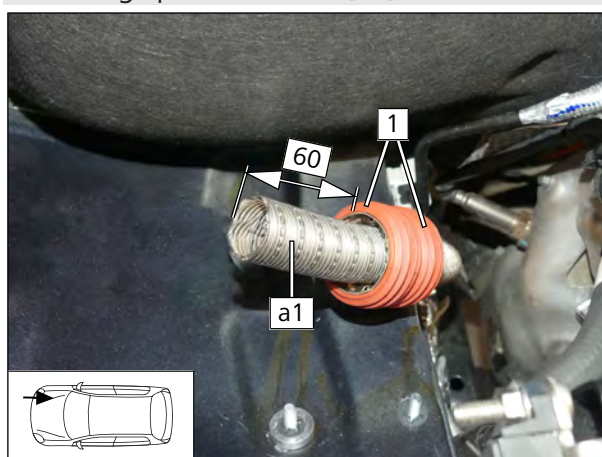


Fig. 24

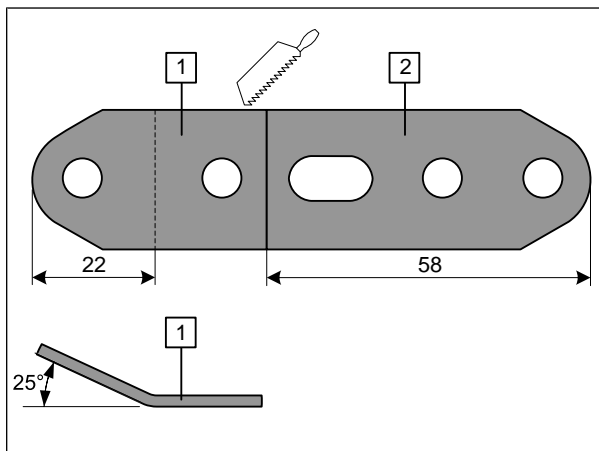
- 1 Spacer bracket



## 9 Mechanical system

### 9.1 Preparing heater bracket

#### Preparing perforated brackets



- 1 2x perforated bracket for HG bracket pre-assembling (see next fig.)
- 2 1x perforated bracket for fuel pump installation

Fig. 25

#### Premounting HG bracket

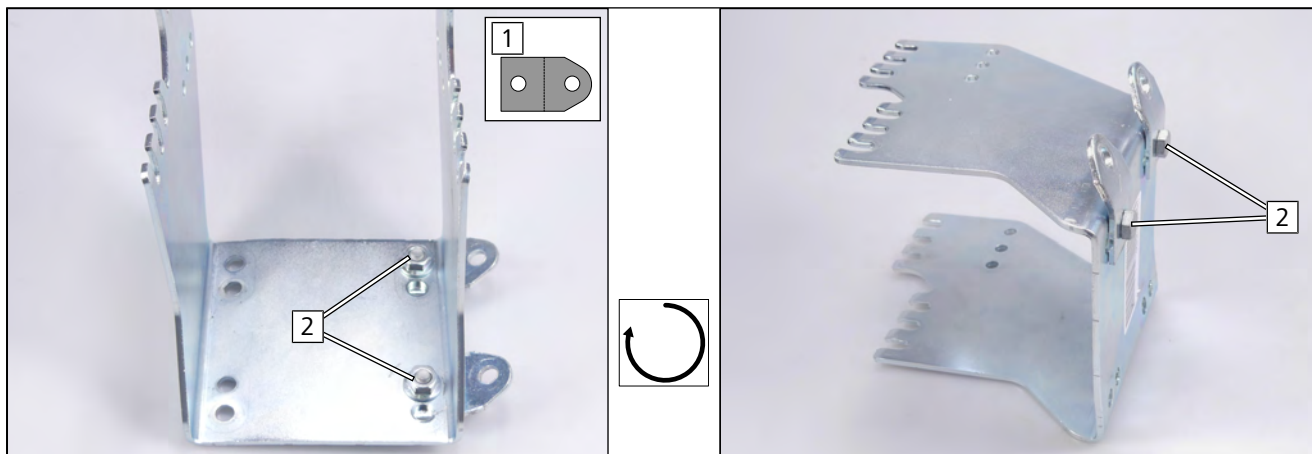


Fig. 26

- 1 2x perforated bracket section
- 2 M6x12 bolt, perforated bracket 1, bracket, flanged nut

### 9.2 Preparing installation location

#### Drilling hole

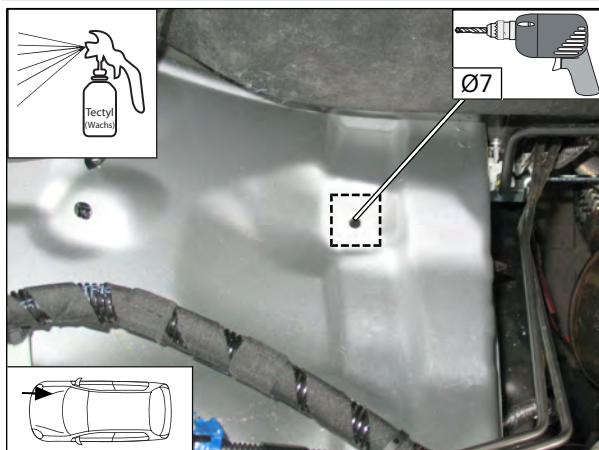
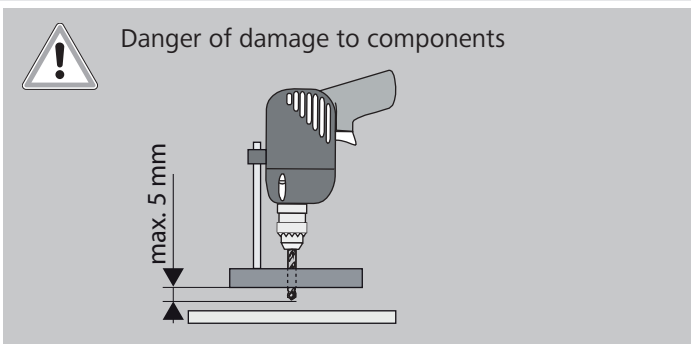


Fig. 27



- Drill a hole in the centre of the square recess as shown.



## Installing spacer nut

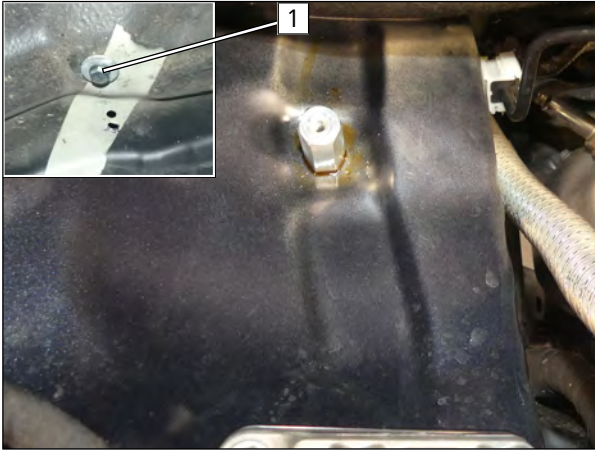


Fig. 28

- 1 M6x20 bolt, spring lock washer, large diameter washer, drilled hole, M6x40 spacer nut

## Copying hole pattern, drilling holes

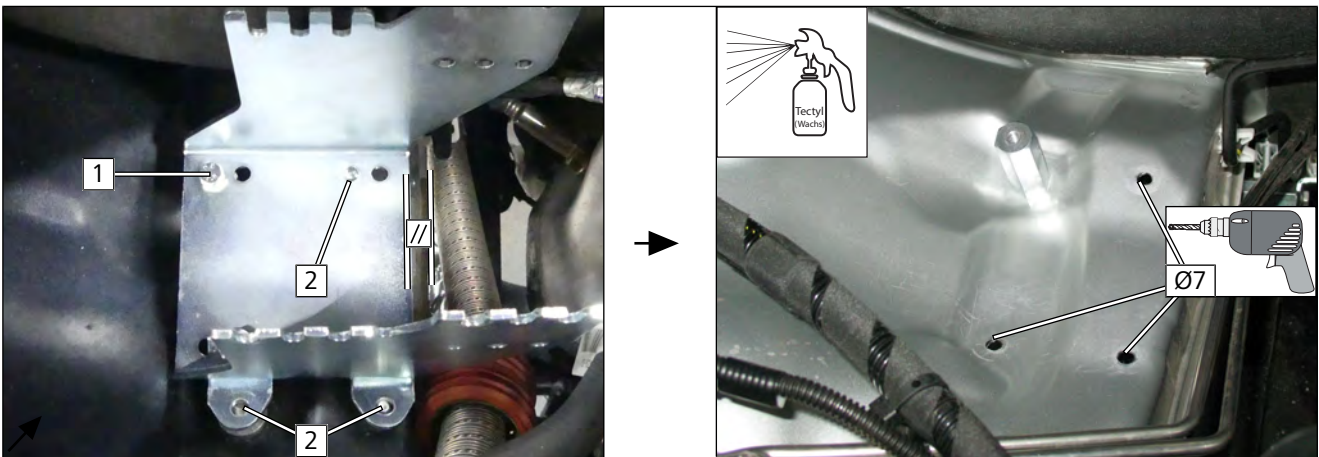


Fig. 29

► Mount bracket loosely and align parallel to wheel well as shown.

- 1 M6x20 bolt, HG bracket, spacer nut
- 2 Hole pattern

## Inserting bolts, mounting spacer nut

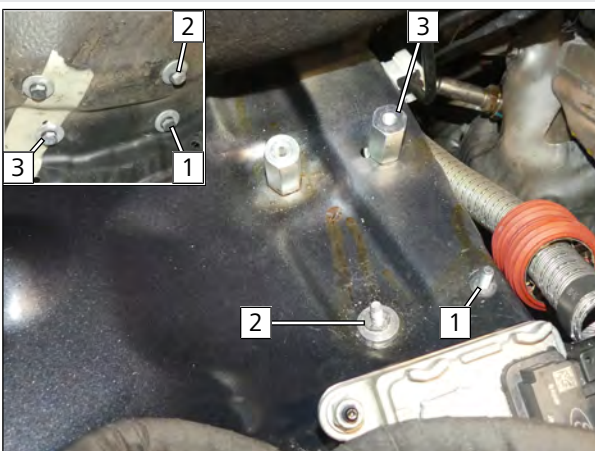


Fig. 30

- 1 M6x20 bolt, spring lock washer, large diameter washer, drilled hole, lock washer
- 2 M6x25 bolt, spring lock washer, large diameter washer, drilled hole, spacer (5), lock washer
- 3 M6x16 bolt, spring lock washer, large diameter washer, drilled hole, M6x30 spacer nut



## Mounting HG bracket, preparing exhaust pipe **a1**

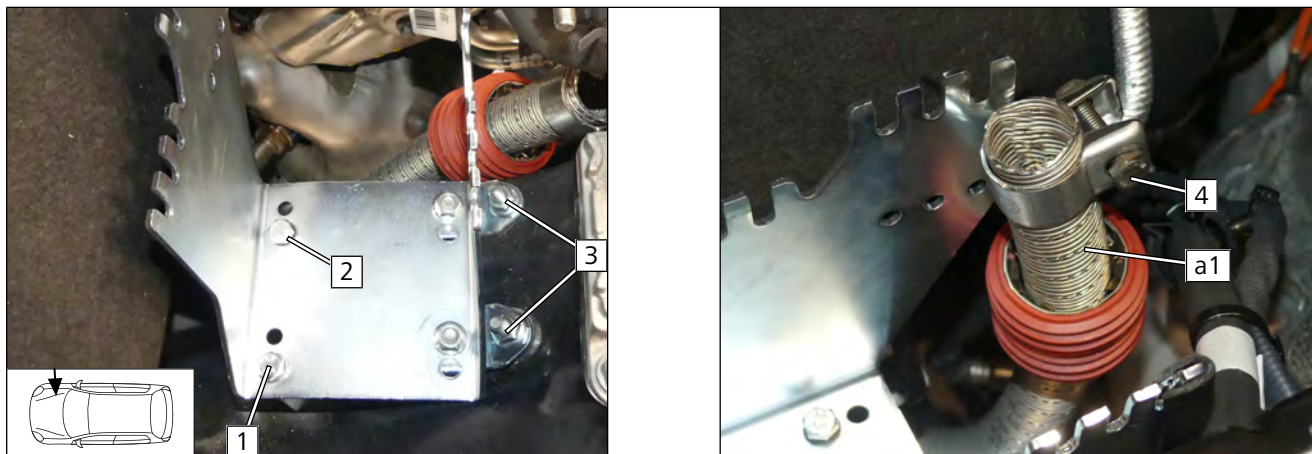


Fig. 31

- 1** M6x20 bolt, spring lock washer, HG bracket, spacer nut
- 2** M6x16 bolt, spring lock washer, HG bracket, spacer nut
- 3** Premounted bolts, perforated bracket, flanged nut
- 4** Mount hose clamp loosely



### 9.3 Premounting heater

#### Premounting M5x13 self-tapping bolts

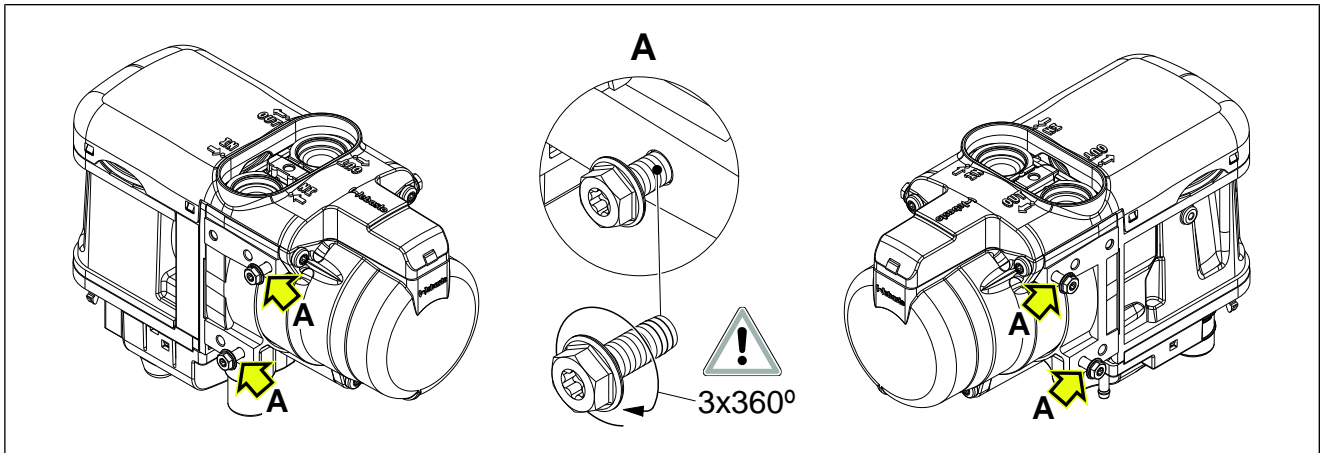


Fig. 32

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

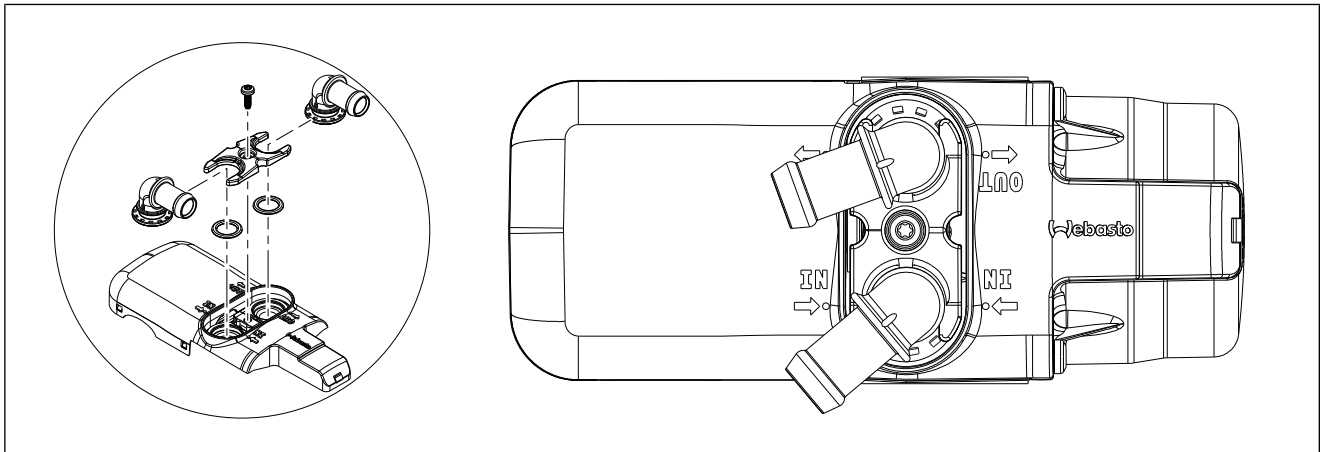


Fig. 33

#### Shortening exhaust elbow

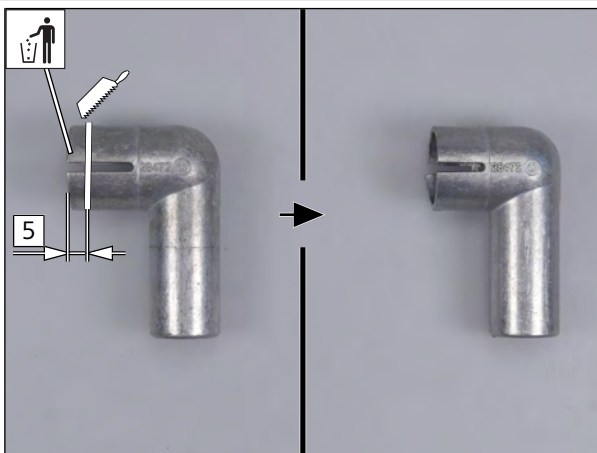


Fig. 34



## Mounting exhaust elbow

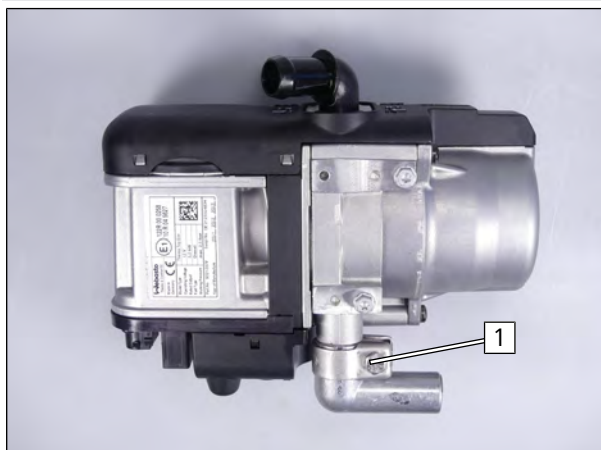


Fig. 35

- 1 Hose clamp

## Mounting fuel hose and coolant pump wiring harness connector

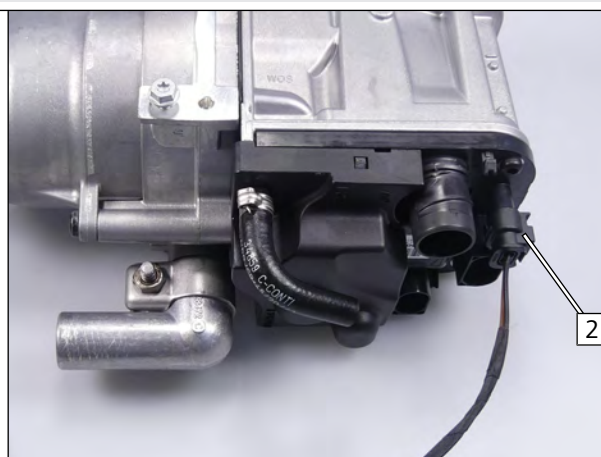
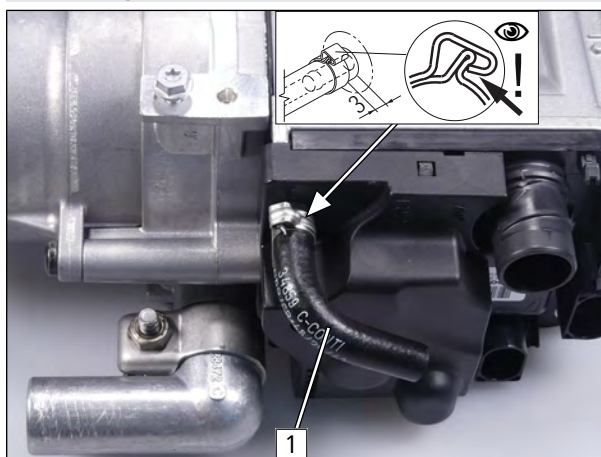


Fig. 36

- 1 90° moulded hose, Ø10 clamp

- 2 Coolant pump wiring harness connector

## 9.4 Heater mounting

### Mounting heater

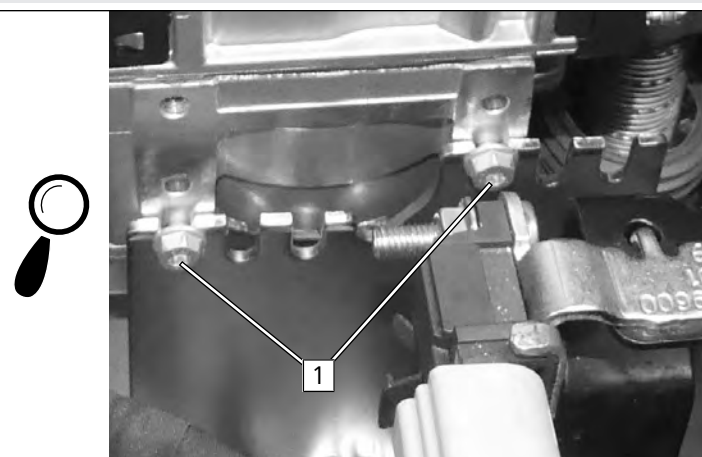
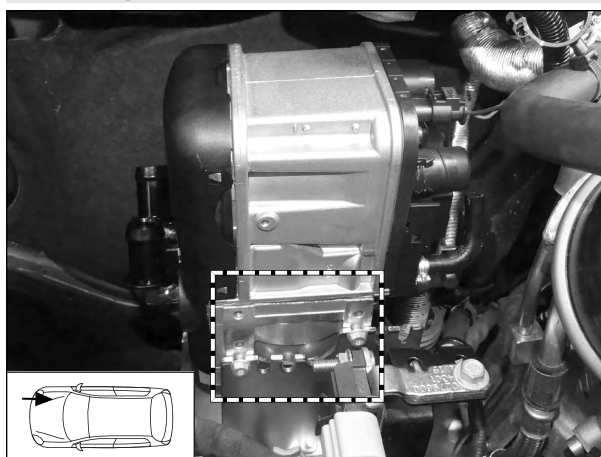


Fig. 37

- 1 Tighten 5x13 self-tapping bolt (2x covered on opposite sides)



## Mounting and aligning exhaust pipe **a1**

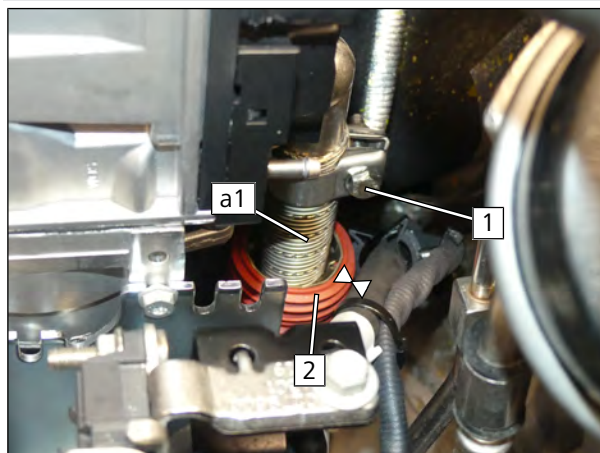



Fig. 38

 90° fuel hose section removed for a better view.

- 1** Hose clamp
- 2** Align spacer bracket with original vehicle line

## Mounting HG wiring harness connector

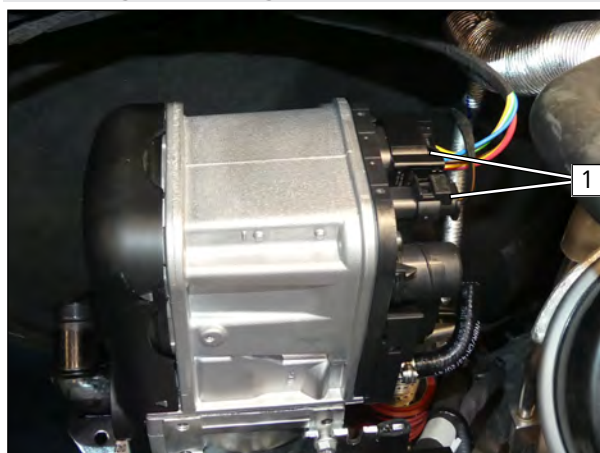


Fig. 39

- 1** Heater wiring harness connector





## 10 Fuel



### DANGER

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

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

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



### Danger of damage to components

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

### Dismantling fuel pump connector X7

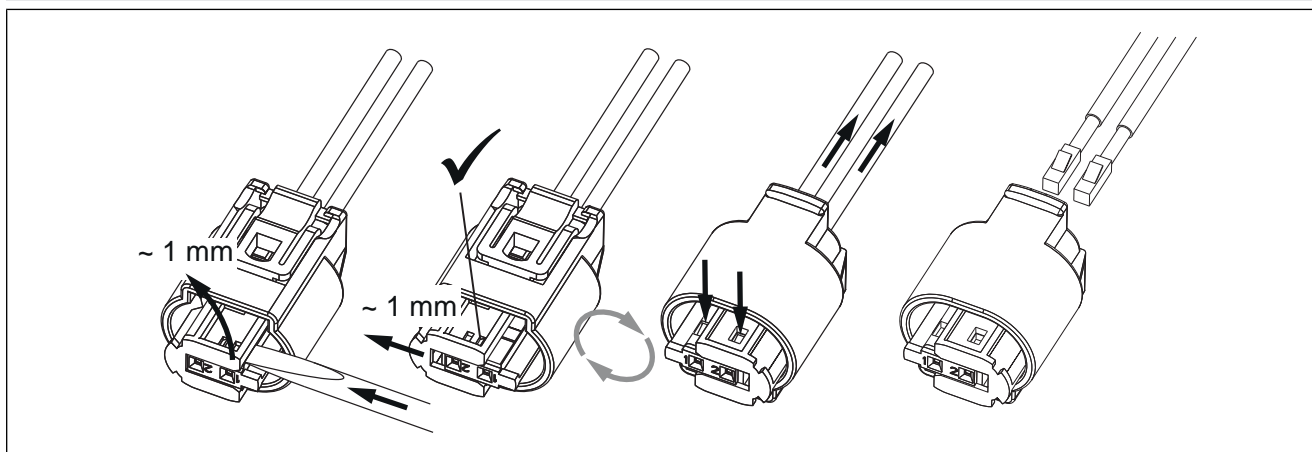


Fig. 40



## 10.1 Routing fuel line

### Connection to heater

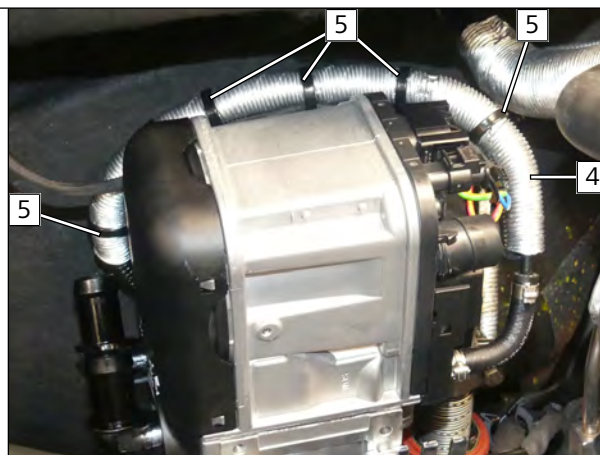
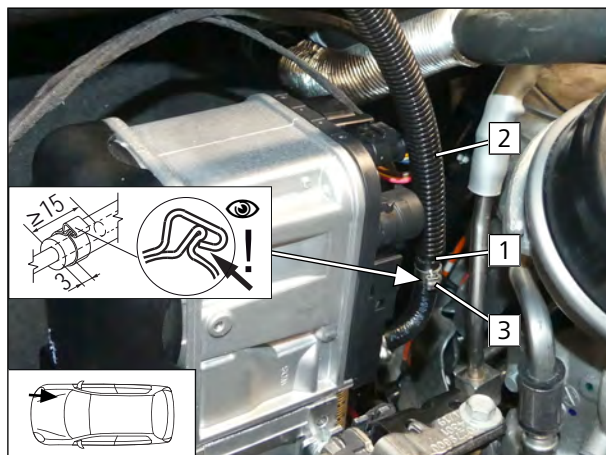
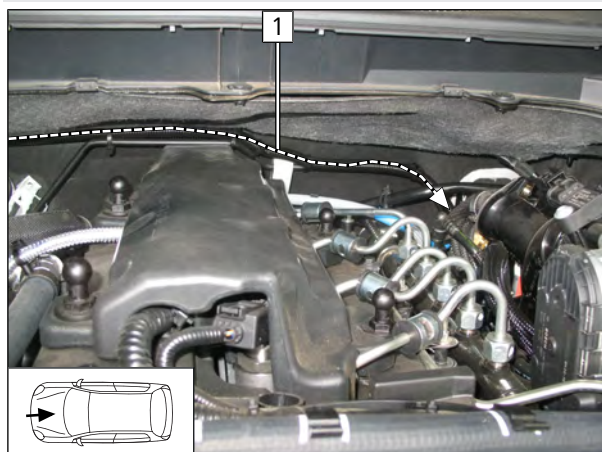


Fig. 41

- 1 Fuel line and fuel pump wiring harness in Ø10, 2100 long corrugated tube 2
- 3 Ø10 clamp

- 4 Ø14.5, 300 lg. heat protection hose on corrugated tube
- 5 Cable tie

### Installing lines



► Route corrugated tube 1 along original vehicle lines to the driver's side and further to the underbody and fasten with cable ties.

Fig. 42

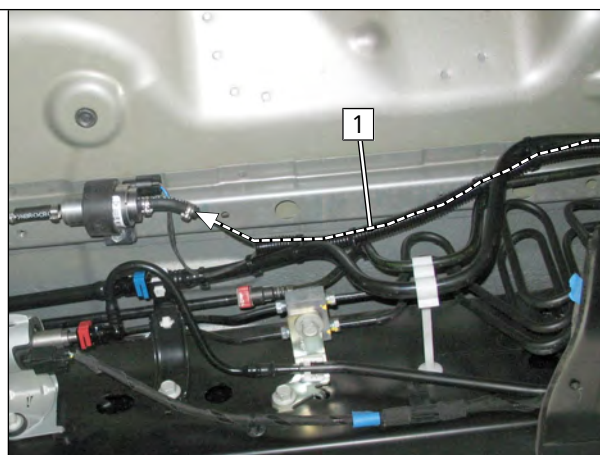
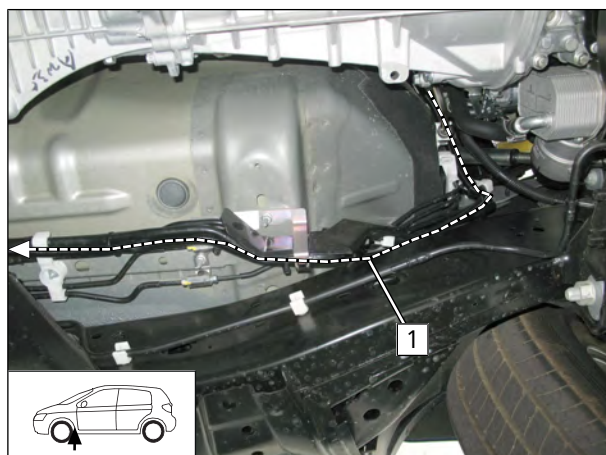


Fig. 43

► Route corrugated tube 1 along original vehicle lines on the underbody to the fuel pump installation location and fasten with cable ties.



## Premounting fuel pump

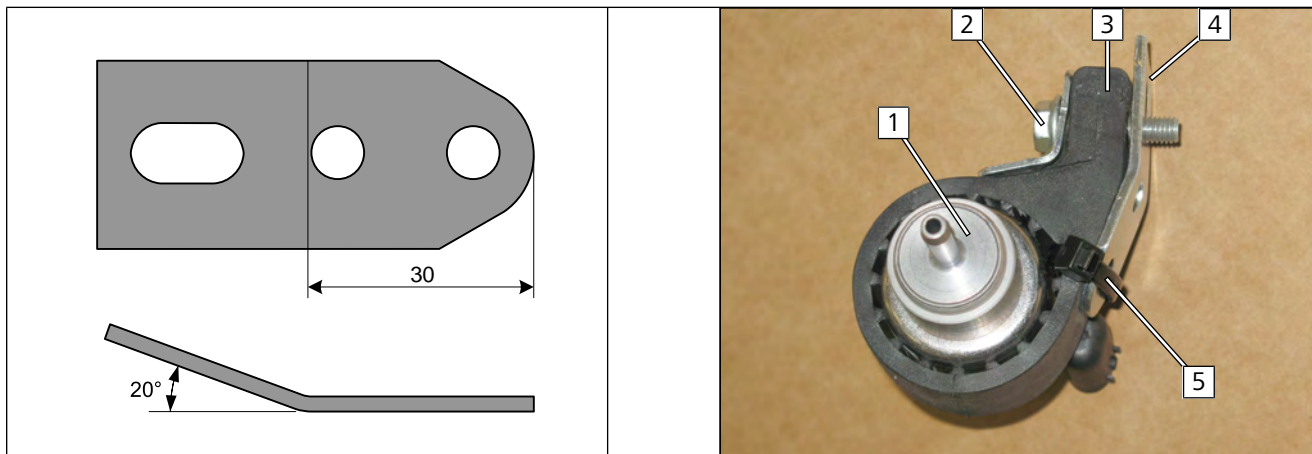


Fig. 44

► Bend perforated bracket **2** mentioned in section 'Mechanical system - preparing HG bracket'.

- 1** Fuel pump
- 2** M6x25 bolt, support angle bracket
- 3** Fuel pump mount
- 4** Perforated bracket
- 5** Cable tie

## Preparing fuel pump installation location



Fig. 45

### Variant 1 - fuel pump installation location

- 1** Drill out original vehicle hole to Ø9, insert rivet nut

### Variant 2 - fuel pump installation location

- 1** Original vehicle threaded hole



## Mounting fuel pump

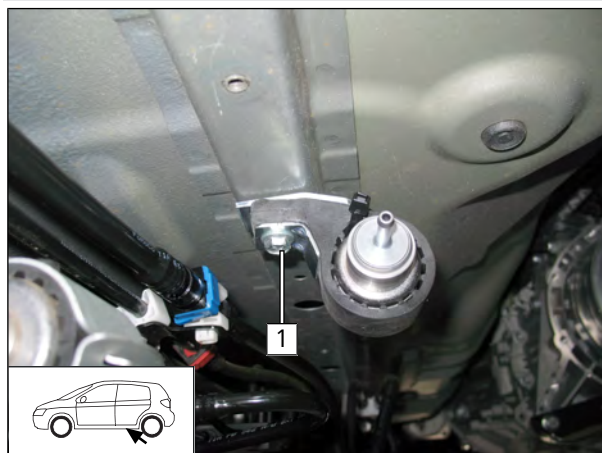


Fig. 46

- 1 Premounted bolt in rivet nut or threaded hole

## Assembling fuel pump connector X7

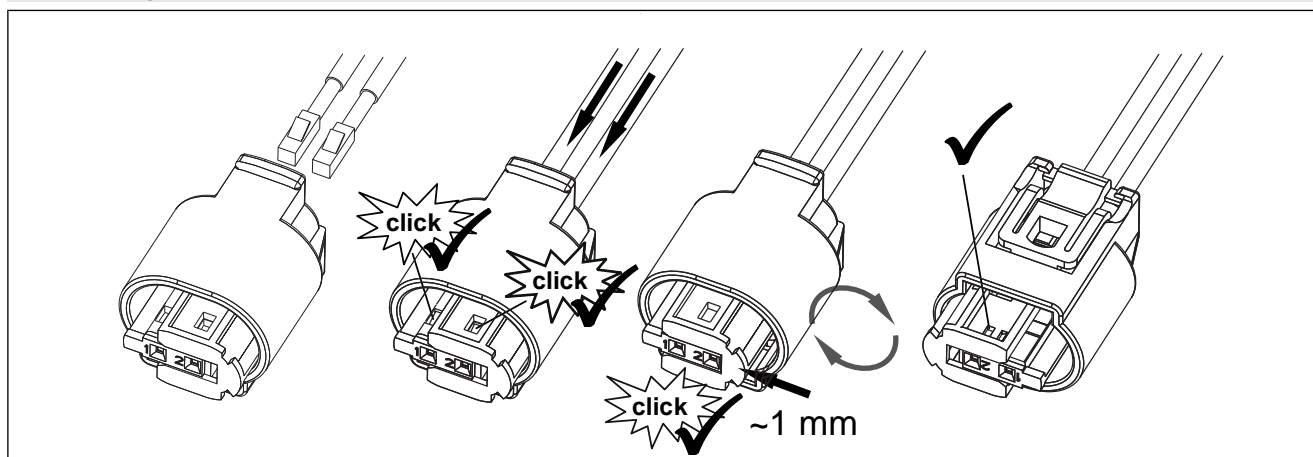


Fig. 47

## Connecting fuel pump

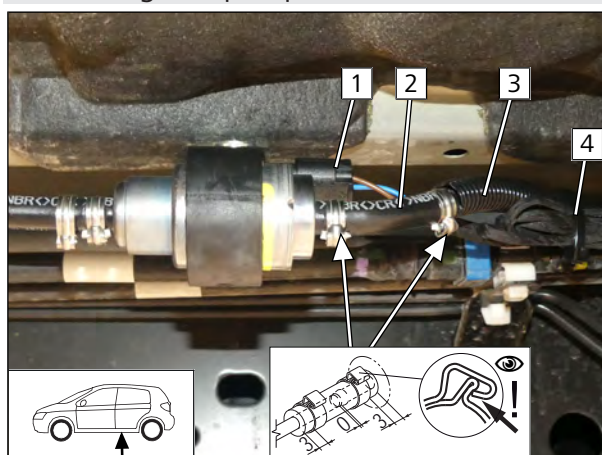


Fig. 48

- 1 Fuel pump wiring harness, connector X7 mounted
- 2 Hose section, Ø10 clamp [2x]
- 3 HG fuel line in corrugated tube
- 4 Fasten the rest of the fuel pump wiring harness with cable ties



Dismantle the tank in accordance with the manufacturer's instructions.



## 10.2 Installing FuelFix – all vehicles except for Raptor Special Edition

### Preparing drilling template

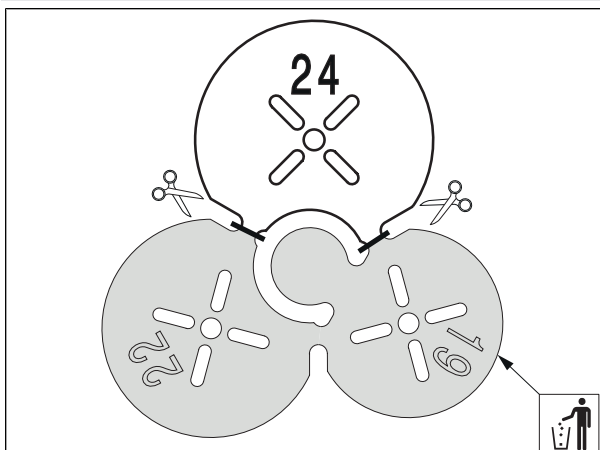


Fig. 49

### Work steps F1, F2



Fig. 50



Observe the installation instructions of the tank extracting device.

- 1 Position Ø24 drilling template as shown in fig.
- 2 Copy hole pattern
- 3 Tank fitting

### Work step F3

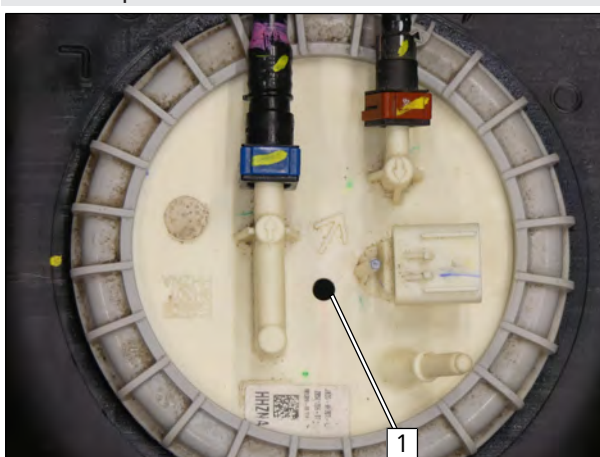


Fig. 51



### DANGER

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

- 1 Hole made with provided drill



Work steps F4, F5

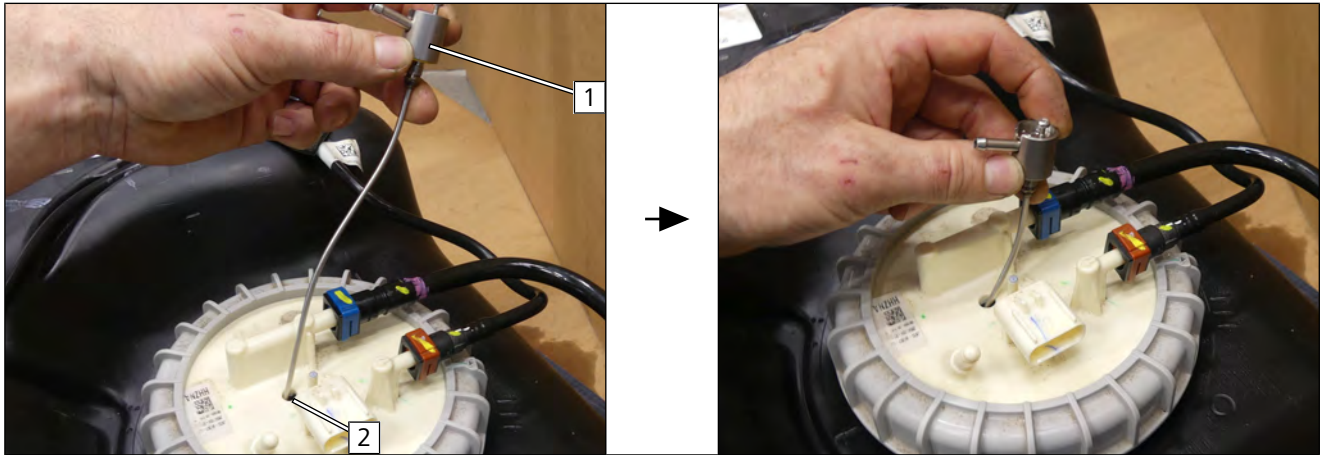


Fig. 52

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

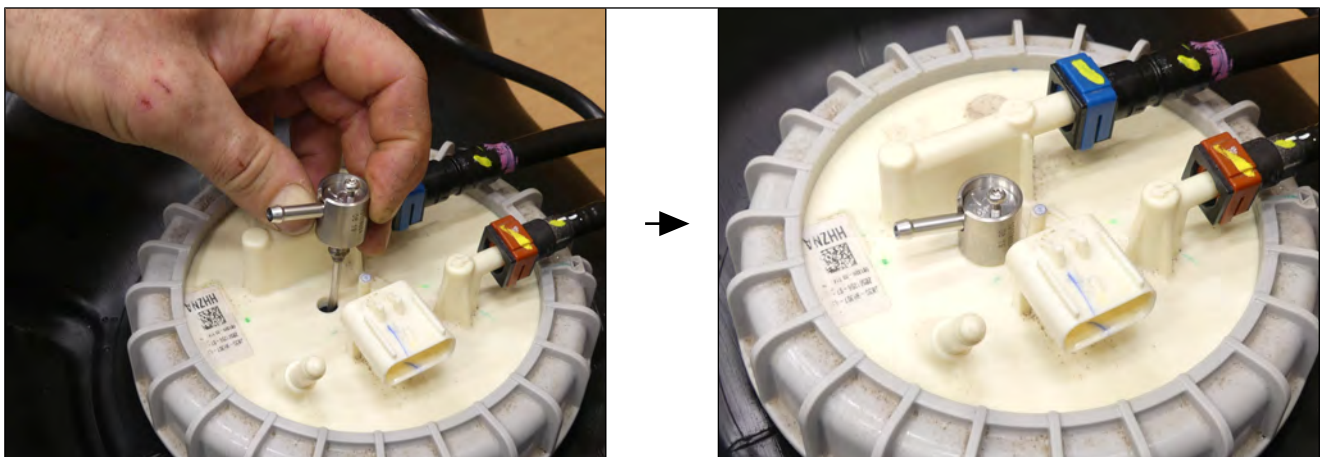


Fig. 53

Work steps F5.3, F5.4

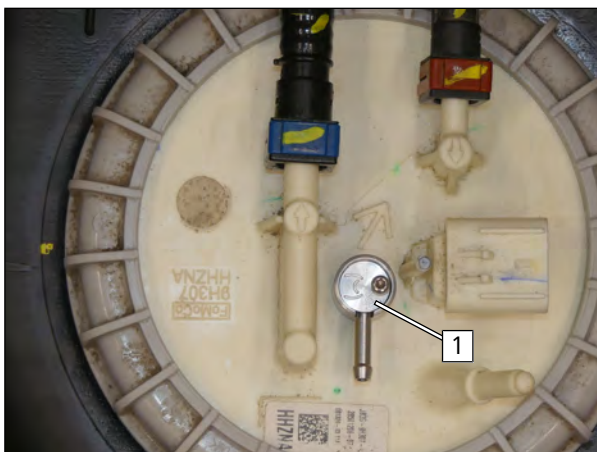


Fig. 54

► Align FuelFix **1** as shown.



## Work step F6

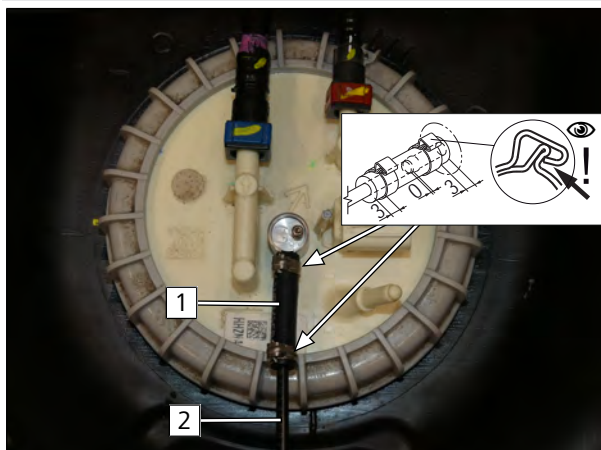


Fig. 55

- 1 Hose section,  $\varnothing 10$  clamp [2x]
- 2 Fuel line of FuelFix

## Work step F7

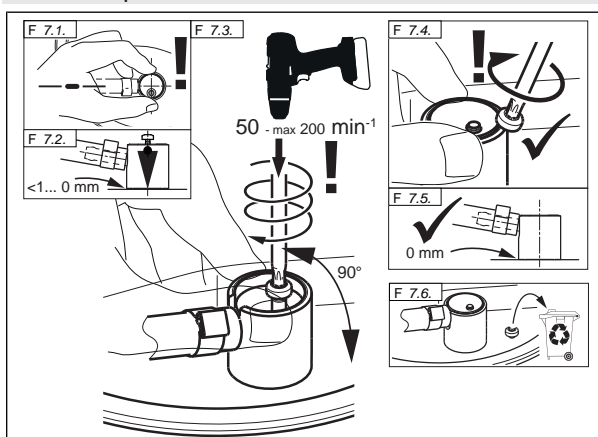


Fig. 56



### DANGER

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

## Work step F8

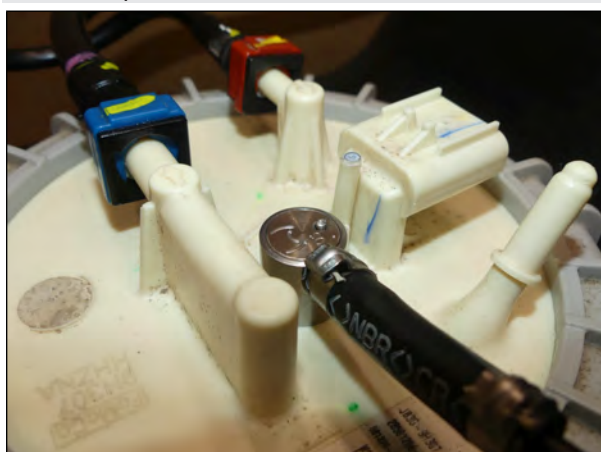


Fig. 57



## Securing fuel line

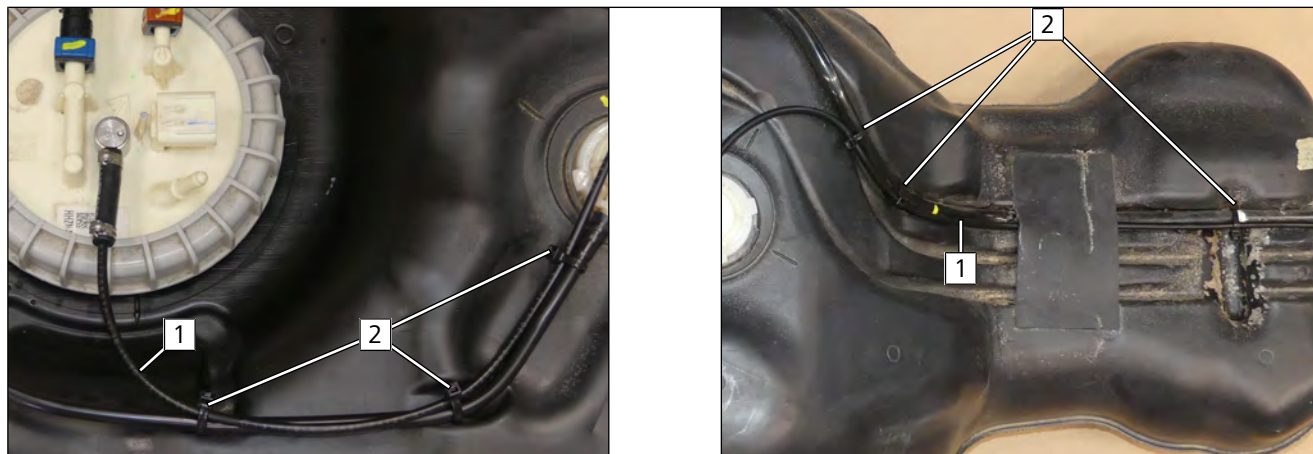


Fig. 58

- 1 Fuel line of FuelFix
- 2 Cable tie for tension relief



Mount the tank as per the manufacturer's instructions.





### 10.3 Installing FuelFix - Raptor Special Edition

#### Moving label

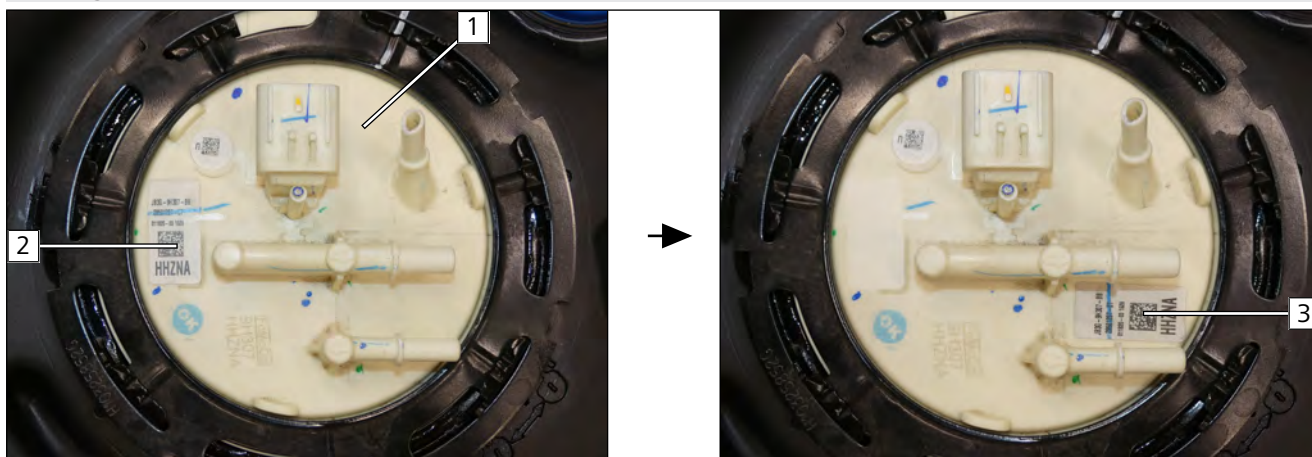


Fig. 59

- 1 Tank fitting
- 2 Original position of label
- 3 New position of label

#### Preparing drilling template

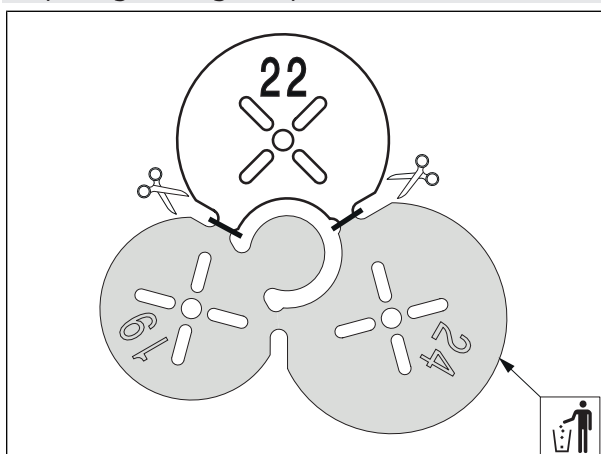


Fig. 60

#### Work steps F1, F2

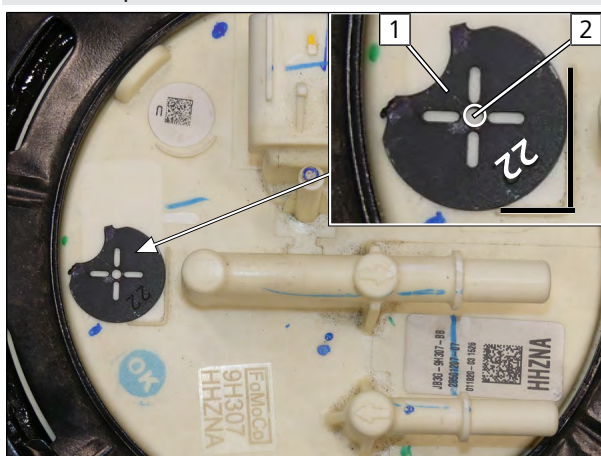


Fig. 61



Observe the installation instructions of the tank extracting device.

- 1 Position  $\varnothing 22$  drilling template as shown in fig.
- 2 Copy hole pattern



### Work step F3



Fig. 62



### DANGER

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

- 1 Hole made with provided drill

### Work steps F4, F5

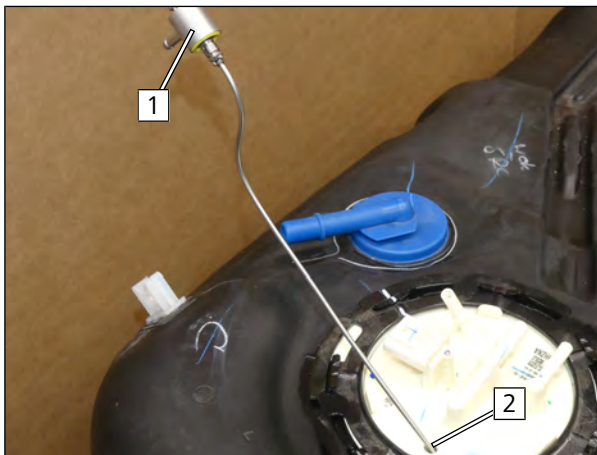


Fig. 63

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

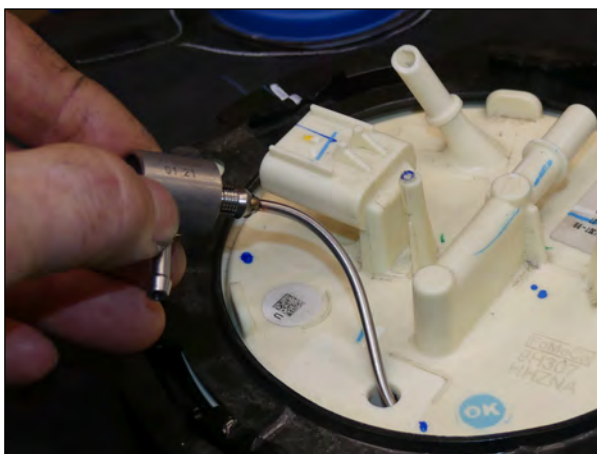


Fig. 64



## Work steps F5.3, F5.4



Fig. 65

► Align FuelFix **1** as shown.

## Work step F6

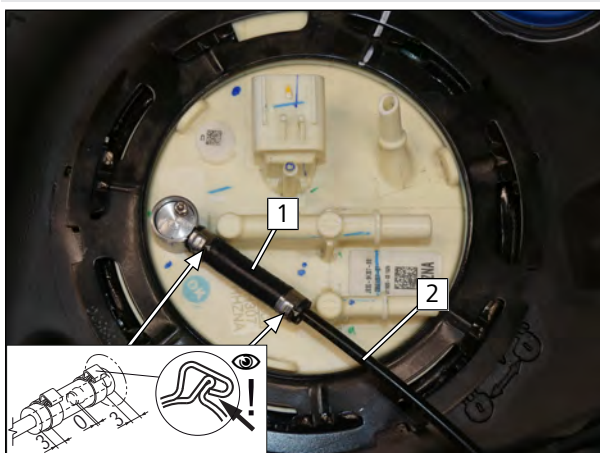


Fig. 66

- 1** Hose section, Ø10 clamp [2x]
- 2** Fuel line of FuelFix

## Work step F7

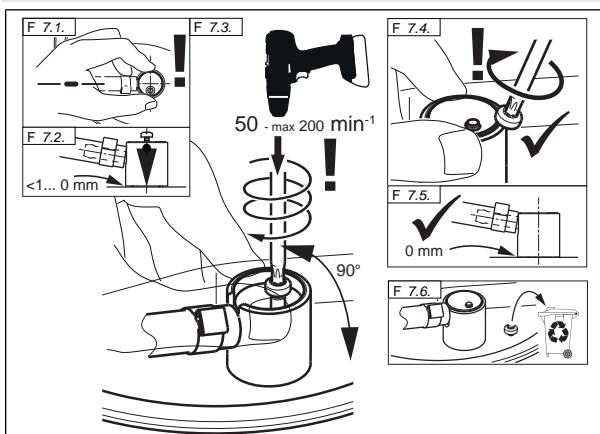


Fig. 67



## DANGER

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



## Work step F8



Fig. 68

## Securing fuel line

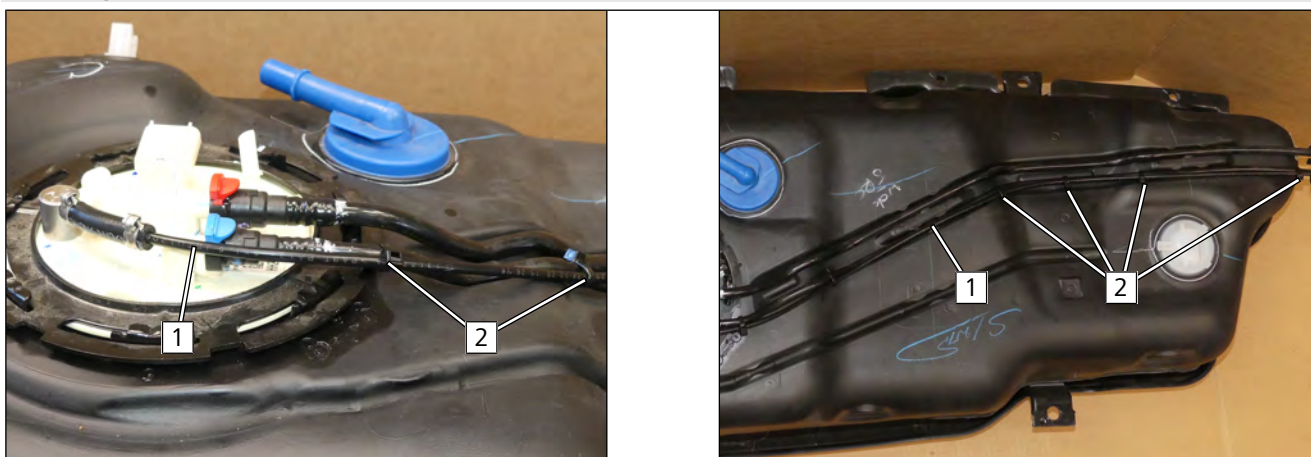


Fig. 69

- 1 Fuel line of FuelFix
- 2 Cable tie for tension relief

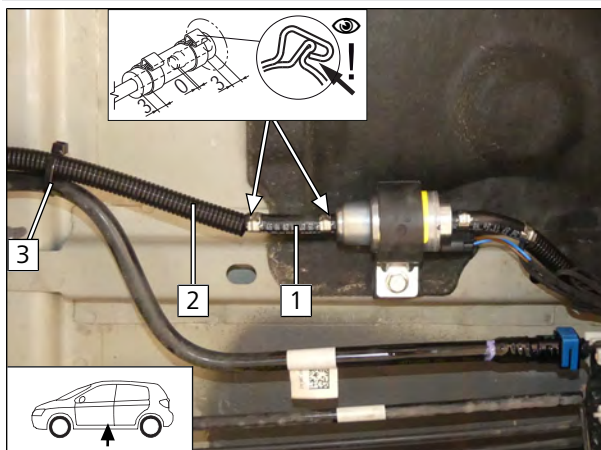


Mount the tank as per the manufacturer's instructions.



## 10.4 Fuel pump connection - all models

### Connecting fuel line of FuelFix



- 1 Hose section,  $\varnothing 10$  clamp [2x]
- 2 Fuel line of FuelFix in corrugated tube
- 3 Cable tie

Fig. 70



# 11 Coolant

## 11.1 Hose routing diagram

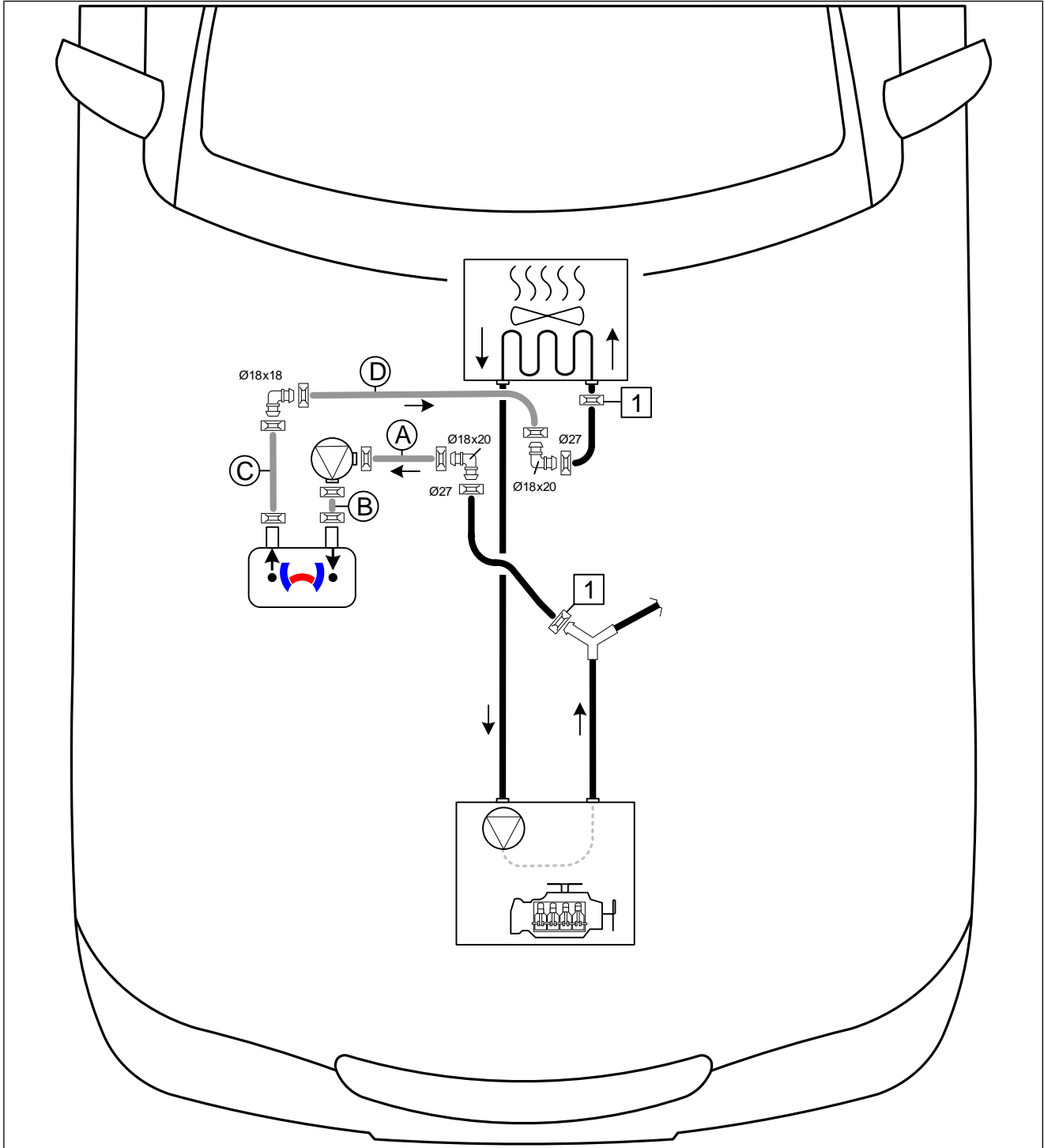


Fig. 71

All spring clips without a specific designation  = Ø25

**1** Original vehicle spring clip



## 11.2 Coolant circuit installation

### Cutting hoses to length

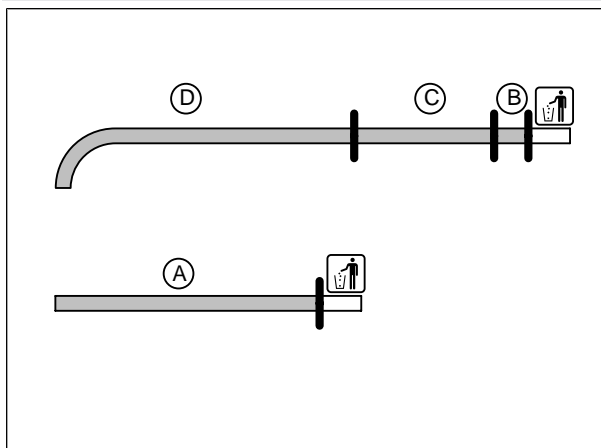


Fig. 72

- Ⓐ 260
- Ⓑ 65
- Ⓒ 110
- Ⓓ 290

### Disconnecting heat exchanger inlet/engine outlet hose

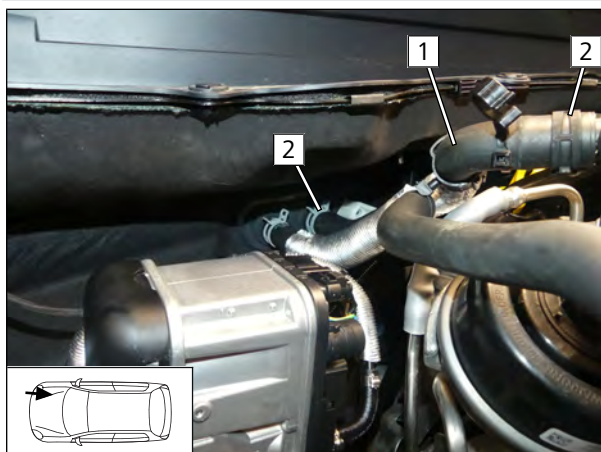


Fig. 73

- 1 Heat exchanger inlet / engine outlet hose
- 2 Original vehicle spring clip, will be reused

### Cutting point

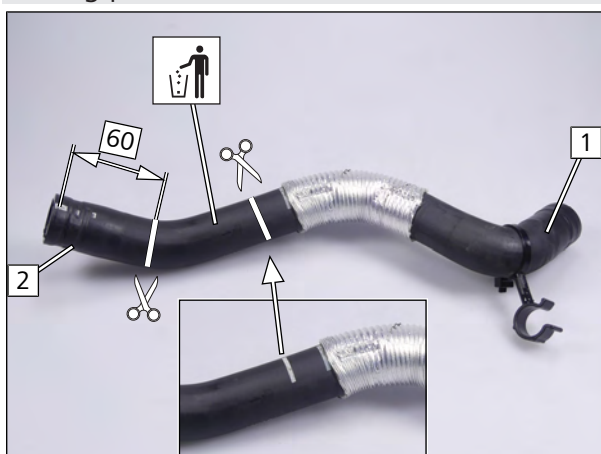


Fig. 74

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

- 1 Engine outlet connection
- 2 Heat exchanger inlet connection



### Premounting hoses

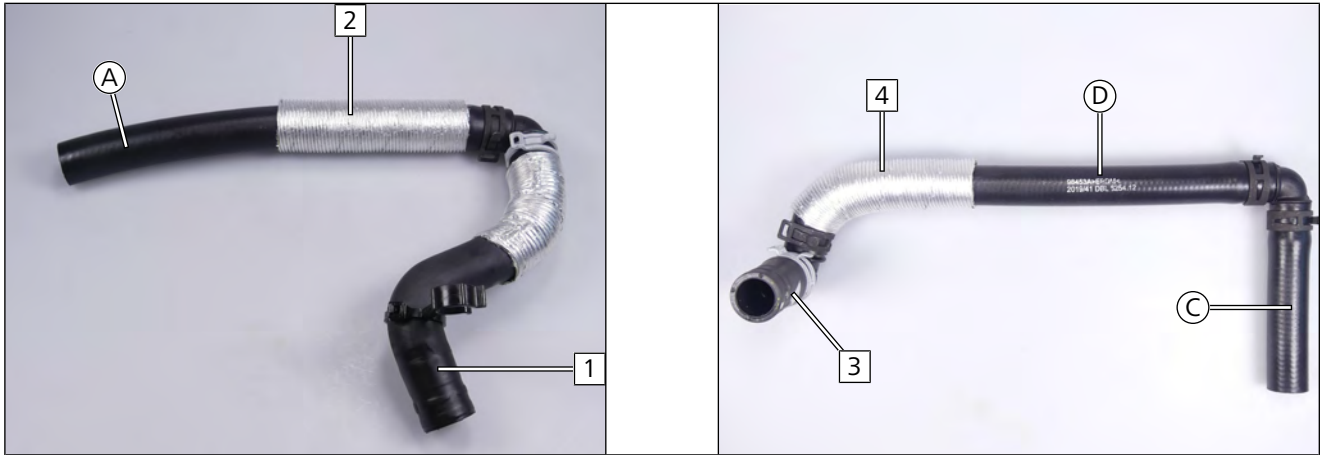


Fig. 75

- 1 Engine outlet connection
- 2 110 long heat protection hose
- 3 Heat exchanger inlet connection
- 4 110 long heat protection hose

### Premounting coolant pump

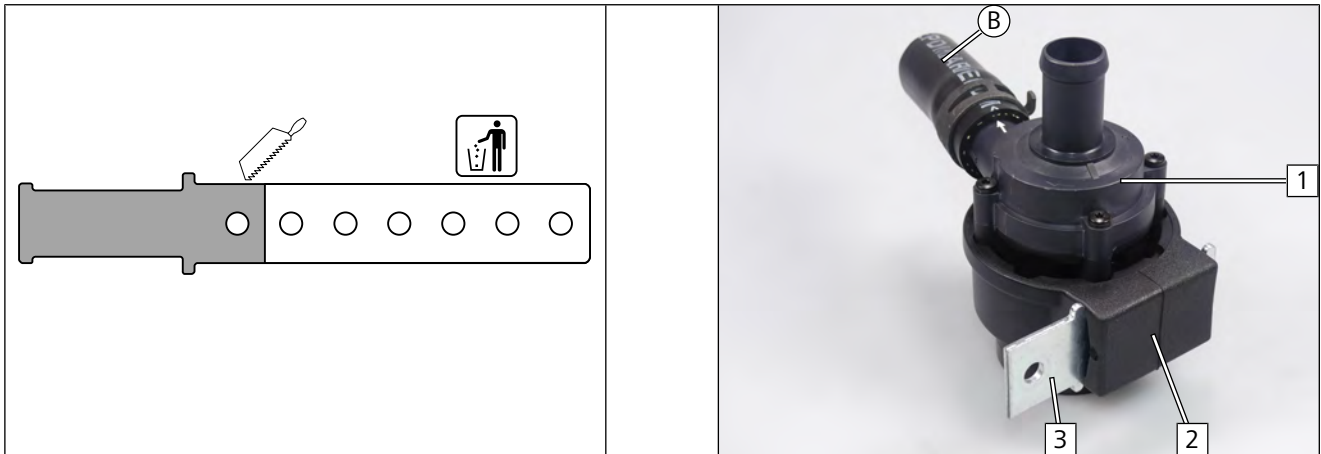


Fig. 76

- 1 Coolant pump
- 2 Coolant pump mount
- 3 Perforated bracket





## Preparing coolant pump installation

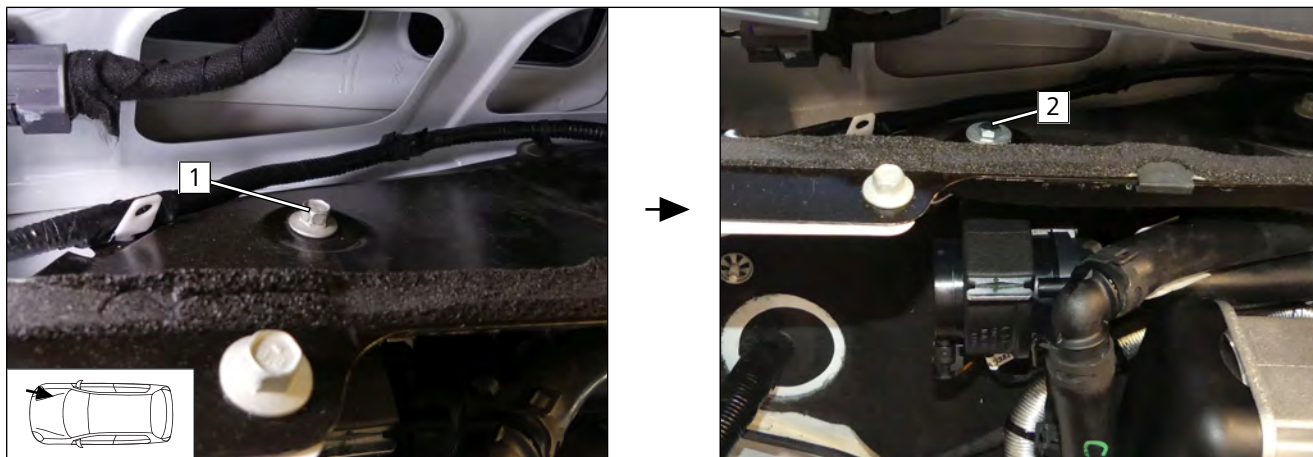


Fig. 77

**1** Remove and discard original vehicle bolt.

**2** M6x20 bolt, large diameter washer, original vehicle thread

## Mounting coolant pump and hose **B** onto HG/IN

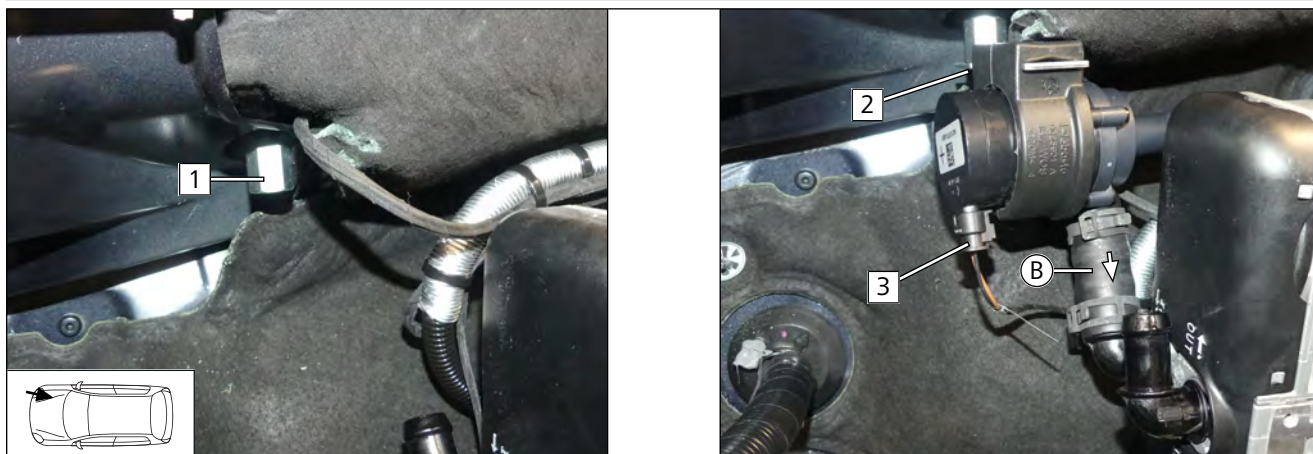


Fig. 78

**1** Original vehicle stud bolt, M6x20 spacer nut

**2** M6x12 bolt, spring lock washer, perforated bracket, spacer nut

**3** Coolant pump wiring harness connector



### Routing hose **A**

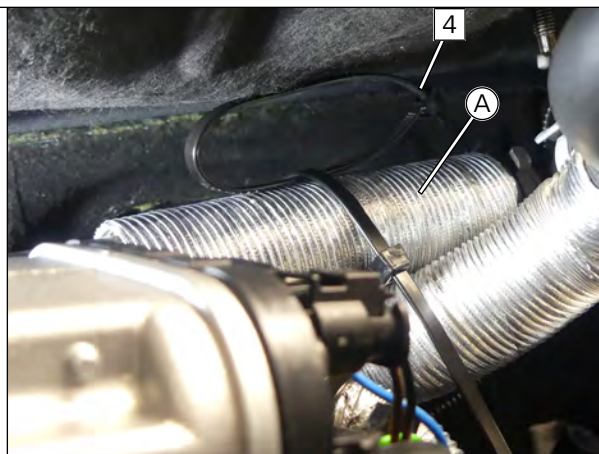
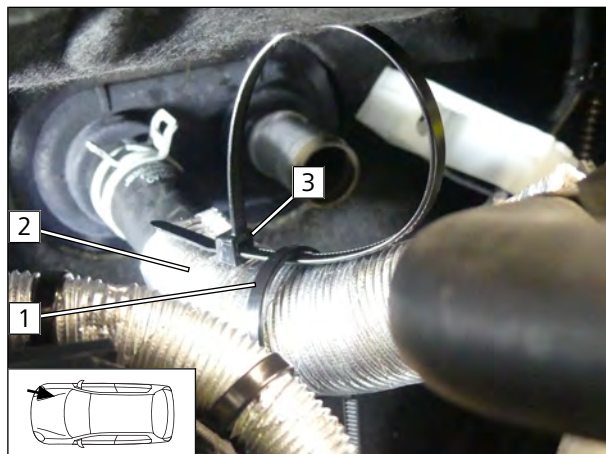


Fig. 79

- 1** Cable tie around hose of heat exchanger outlet/engine inlet **2**
- 3** Premount cable tie

► Draw hose **A** through premounted cable tie.

- 4** Premount cable tie

### Mounting hose **A** on coolant pump

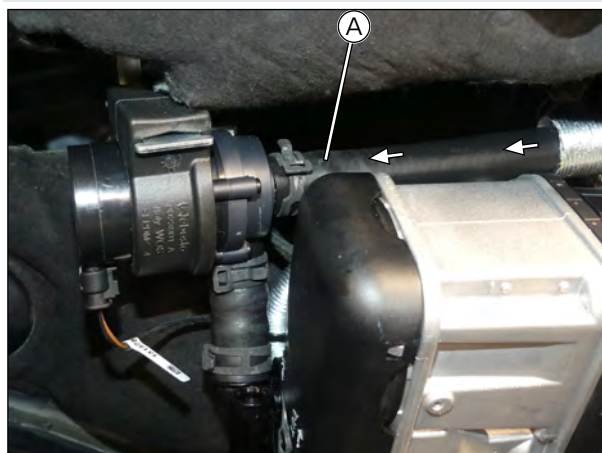


Fig. 80

### Connection to engine outlet

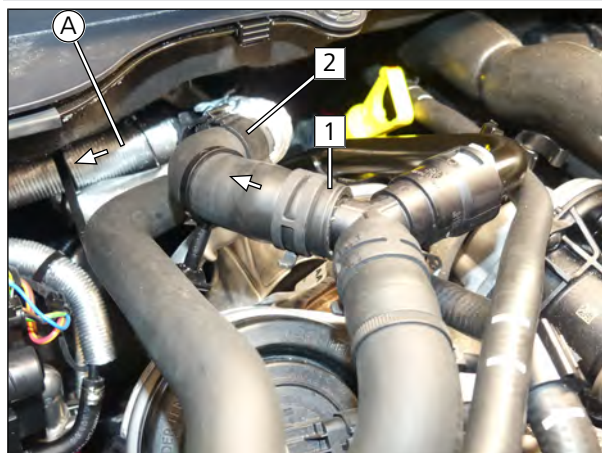


Fig. 81

- 1** Engine outlet connection with original vehicle spring clip
- 2** Lock original vehicle clamp



## Connection to heat exchanger inlet

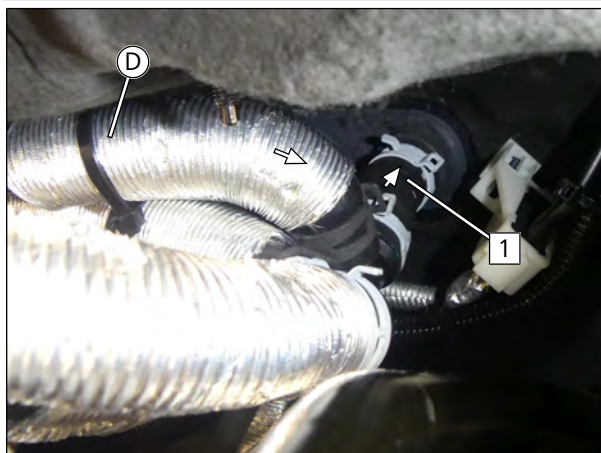


Fig. 82

► Draw hose **D** through premounted cable tie.

- 1 Heat exchanger inlet connection with original vehicle spring clip

## Connecting hose **C** to HG/OUT

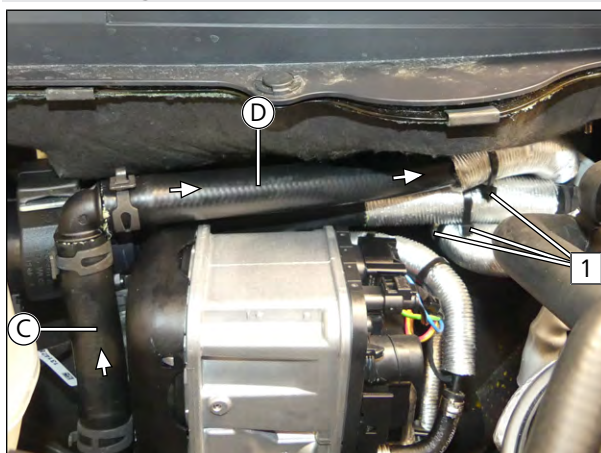


Fig. 83

- 1 Close all premounted cable ties



## 12 Combustion air

### Cutting combustion air intake pipe to length

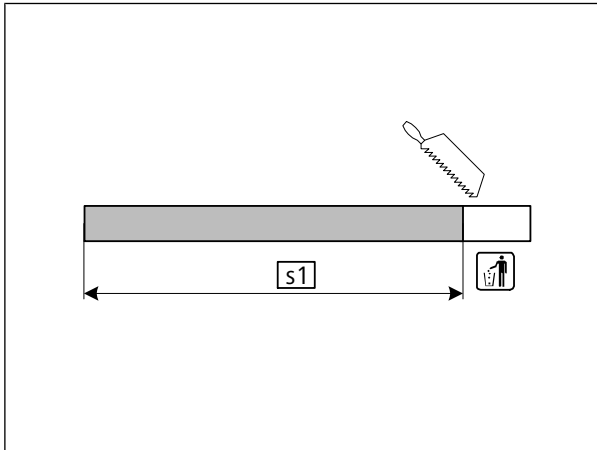


Fig. 84

**s1** 130

### Premounting combustion air intake silencer

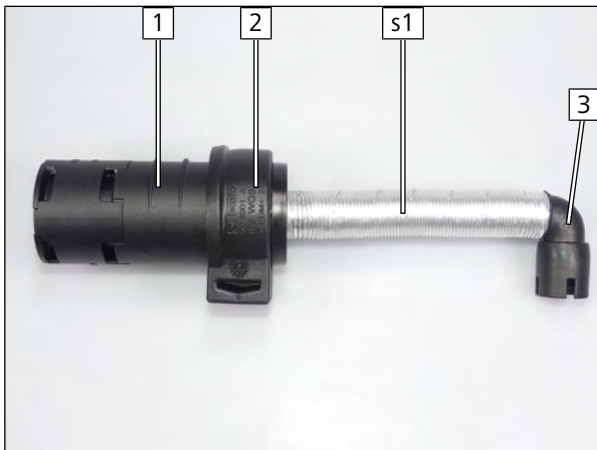


Fig. 85



Observe the installation instructions of the combustion air intake silencer.

- 1** Combustion air intake silencer
- 2** Combustion air intake silencer mount
- 3** 90° angle bracket

### Preparing combustion air intake silencer installation location

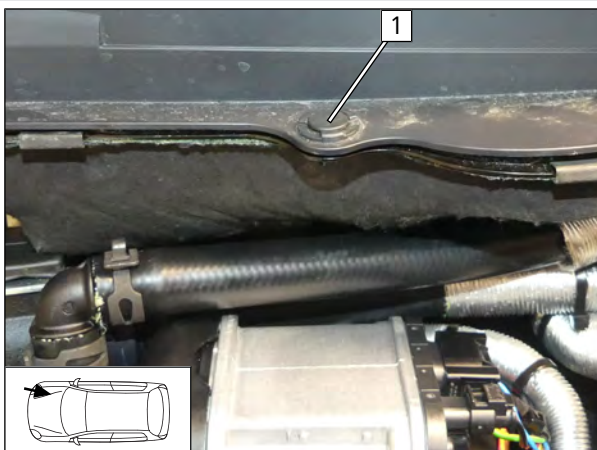


Fig. 86

- 1** Remove and discard original vehicle clip



## Preparing and mounting perforated bracket

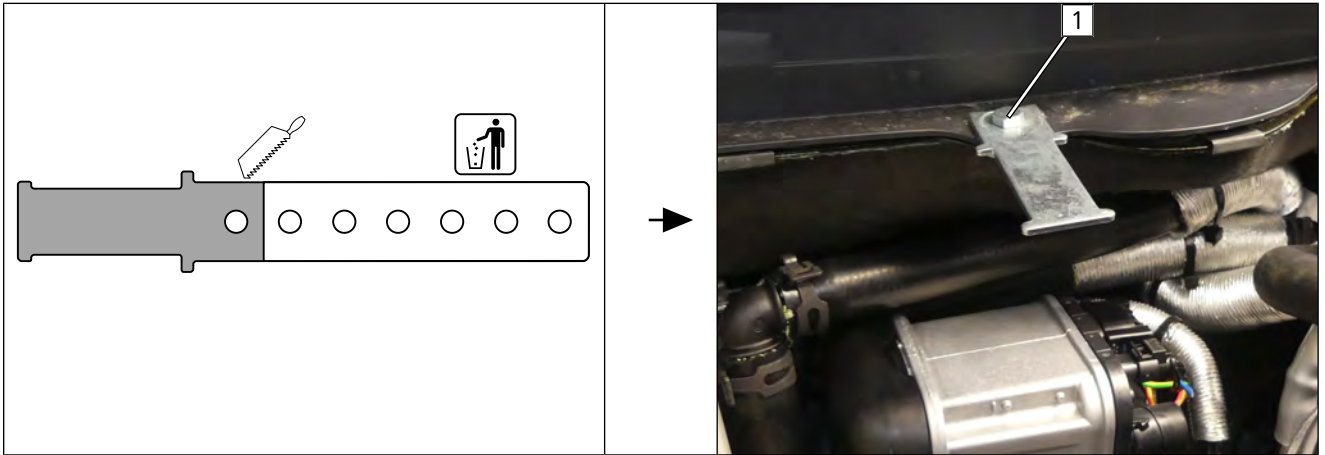


Fig. 87

- 2 M6x20 bolt, perforated bracket, original vehicle hole, large diameter washer, flanged nut

## Mounting combustion air intake silencer

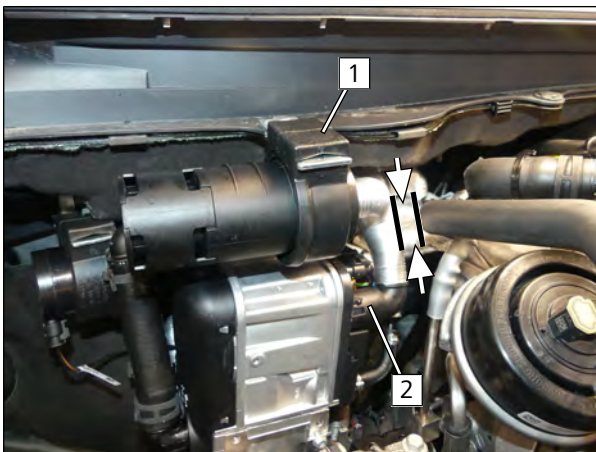


Fig. 88



Danger of damage to components

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

- Slide combustion air intake silencer mount **1** onto perforated bracket.
- Mount 90° angle bracket **2** onto HG (click).



## 13 Final work in engine compartment

### Copying hole pattern, drilling hole in underride protection

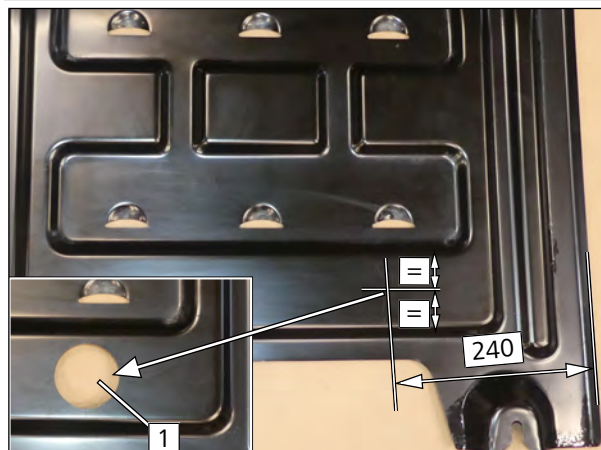


Fig. 89

1 Ø60 hole

### Aligning exhaust pipe a2

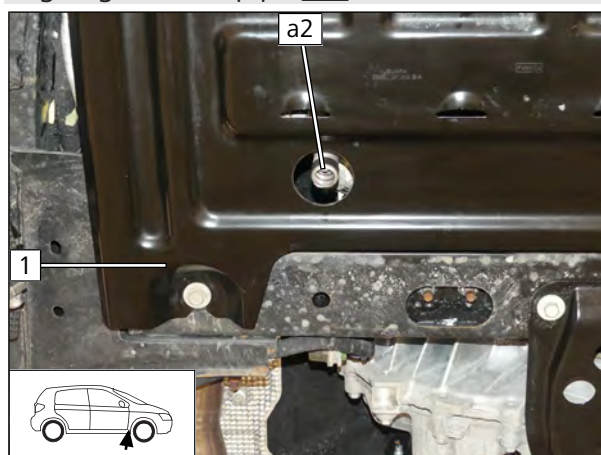


Fig. 90

- ▶ Mount underride protection **1**.
- ▶ Align exhaust pipe **a2** with the centre of the hole.

### Mounting rubber trim – only for vehicles with SG

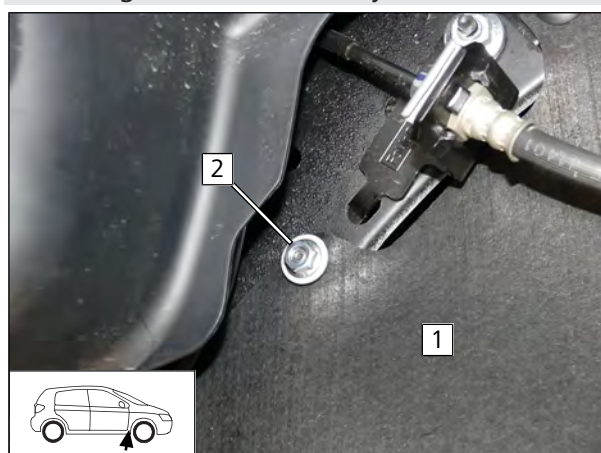


Fig. 91

- 1 Rubber trim
- 2 Mounted M6x20 bolt (exhaust pipe attachment), large diameter washer, flanged nut



## 14 Electrical system of passenger compartment

### 14.1 Air-conditioning control

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



'Webasto Comfort' A/C control installation documentation for Ford with AAC

### 14.2 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 kit 'Webasto Comfort' A/C control, section 'Final work'

▶ Initial start-up and function check

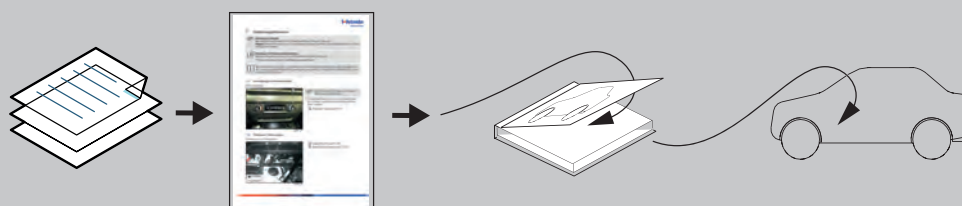
▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck



**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.







This is a translation from the original German installation instructions.  
To request this Installation Documentation in another language, please locate and contact your local Webasto dealer.  
You can find your nearest dealer at: <https://dealerlocator.webasto.com/en-int>.

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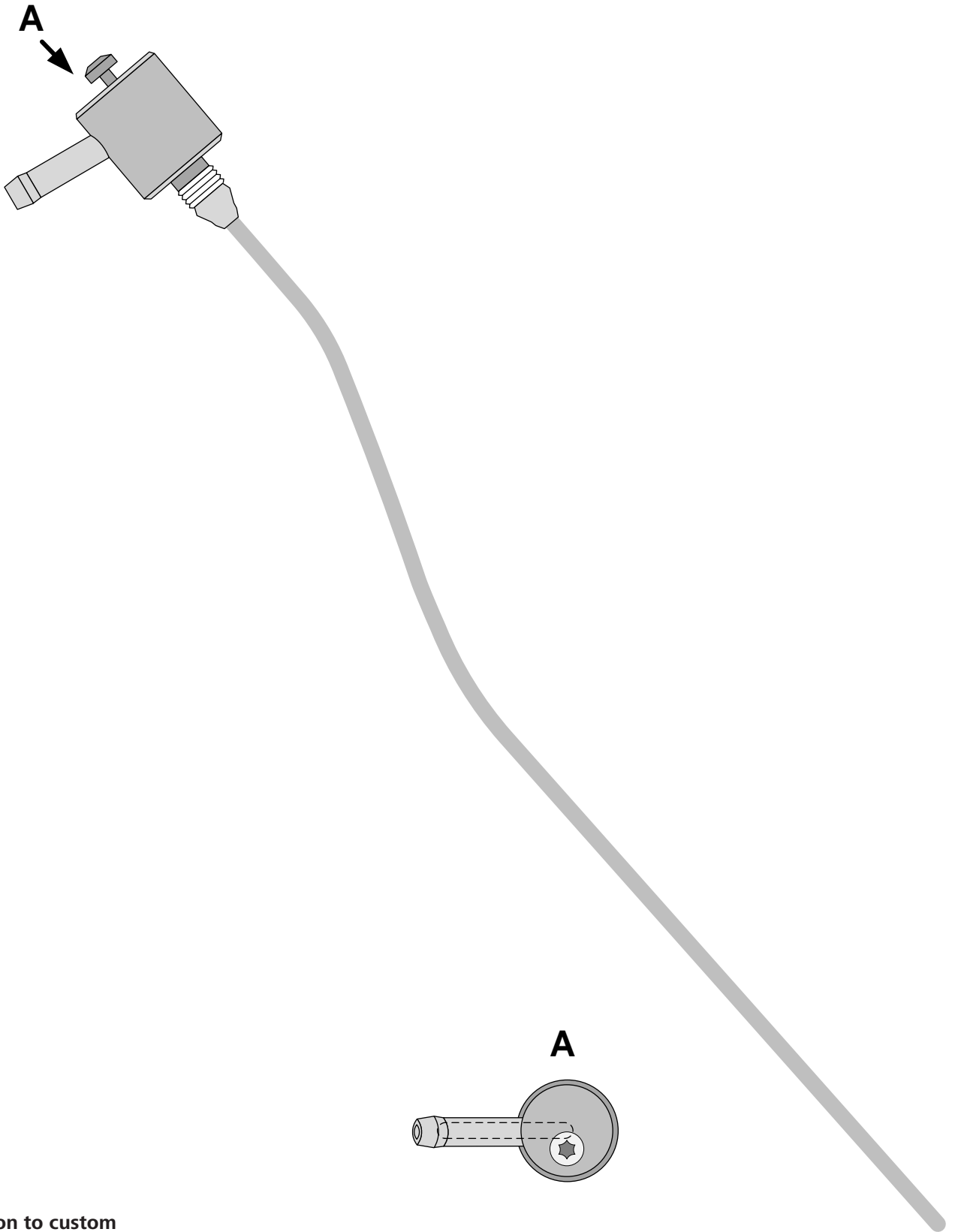
Technical Extranet: <https://dealers.webasto.com>



[WWW.WEBASTO.COM](http://WWW.WEBASTO.COM)



# 16 FuelFix template – all vehicles except for Raptor Special Edition



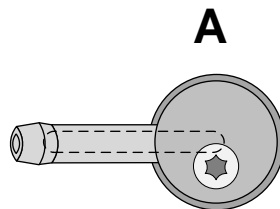
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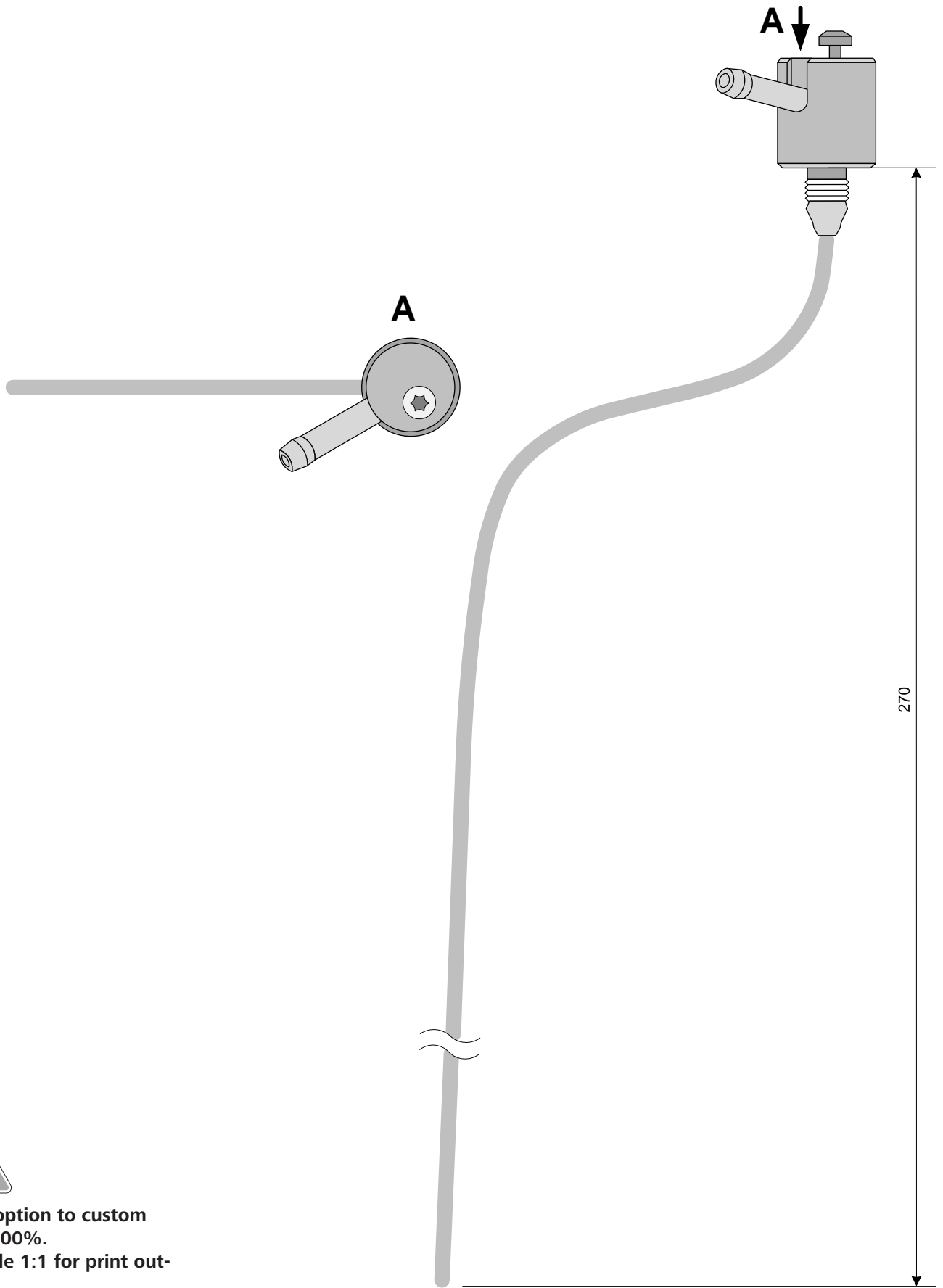
**Set print option to custom scale on 100%.  
Check scale 1:1 for print output.**







# 17 FuelFix template - Raptor Special Edition



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