

# Water heater unit

## Supplementary heating *Thermo Top C*

e1  
00 0002

## Installation instructions

### Jeep Commander

Diesel

From model year 2006

For left-hand drive vehicles only



#### **WARNING!**

**Hazard warning:**

**Incorrect installation or repair of Webasto heating systems may cause a fire or result in the emission of carbon monoxide, which can be fatal. Serious or fatal injuries can be caused as a result.**

**Specialist company training, technical documentation, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.**

**NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.**

**ALWAYS follow all Webasto installation and repair instructions and observe all warning instructions.**

**Webasto does not accept any liability for defects and damage that are attributable to an installation by untrained staff.**

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## Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Daimler Chrysler (USA)	Jeep Commander	WH	e4 * 2001 / 116 * 0095 * ...

Engine type	Engine model	Power in kW	Engine capacity in cm <sup>3</sup>
642980	Diesel	155/160	2987

Vehicle and engine types, equipment variants as well as national specifications, which are not listed in these installation instructions, have not been tested. Installation according to these installation instructions may, however, be possible.

The installation location of a time switch and summer / winter switch should be confirmed with the end customer before installation.

## Heater unit / Installation kit

Amount	Description	Order no.:
1	Scope of delivery TT-C Diesel with time switch	89244D
1	Scope of delivery TT-C Diesel with remote start	9007165A
1	Installation kit for Jeep Commander 3.0 D	9015619A

### Foreword

These installation instructions apply to Jeep Commander vehicles with diesel engines – re. validity, see page 2 – from model year /2006 and later, 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 these installation instructions.

However, where this is the case the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top P* should be observed. The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

### General instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and cable harnesses to original vehicle lines and cable harnesses using cable clips.

Sharp edges should be fitted with edge protectors (split open plastic hose).

Spray unfinished body areas, such as bore holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

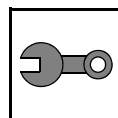
### Special tools

- Torque spanner for 2.0 - 10 Nm
- Vice-grip wrench
- Riveting nut tool
- Angle drill
- Chrysler/Jeep special tools 9340
- 11x plastic rivets to fasten the wheel-house panel are Original Jeep order no. 06500911.

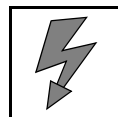
## Explanatory notes on the document

To provide you with a quick overview of the individual working steps, you will find an identification mark on the outside top right corner of the page in question.

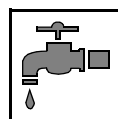
### Mechanics



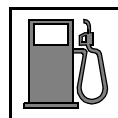
### Electrics



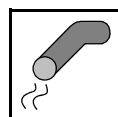
### Water connection



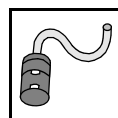
### Fuel connection



### Exhaust system



### Combustion air



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



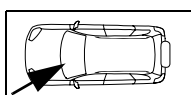
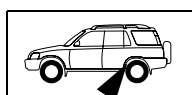
Specific risk of fire or explosion.



Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.



Reference to a special technical feature.



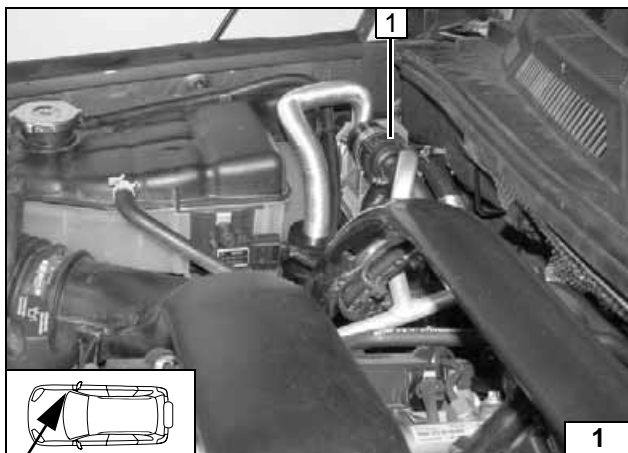
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

## Preliminary work

### WARNING!

- Disconnect the battery.
- Let off pressure in the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Open the tank cap, ventilate the tank.
- Close the tank cap again.
- Remove the lower engine cover.
- Remove the lower gear cover.
- Remove air tank according to manufacturer's instructions.
- Remove front right wheel-house panel.
- Pull rubber gasket off water reservoir.
- Remove the glove compartment.
- Open the lower footwell panel on the driver's side.
- Remove the middle air nozzle panel on the dashboard.
- Open the operating console and pull the white 22-pin from the air conditioning control.
- Disassemble the underbody panel for the air conditioner and water lines for the back of the car, near the passenger seat.

Please remove page 25 "Operating instructions for the end customer" and add this to the operating instructions.



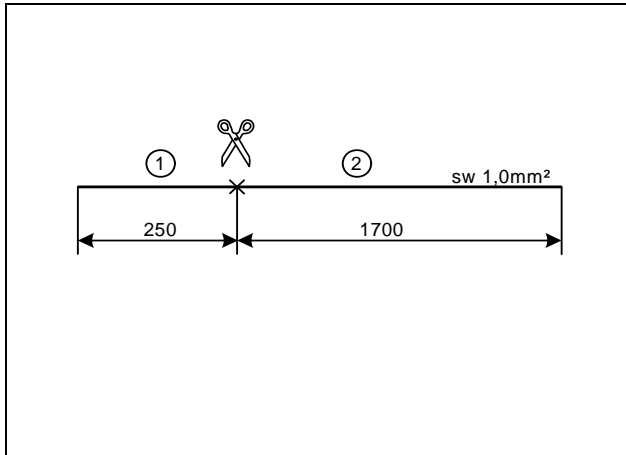
### Heater unit installation location

- 1 Heater unit

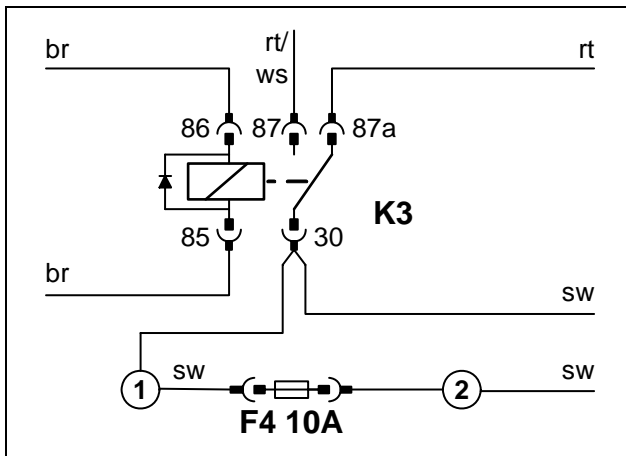
Installation location



## Preparing the electrics



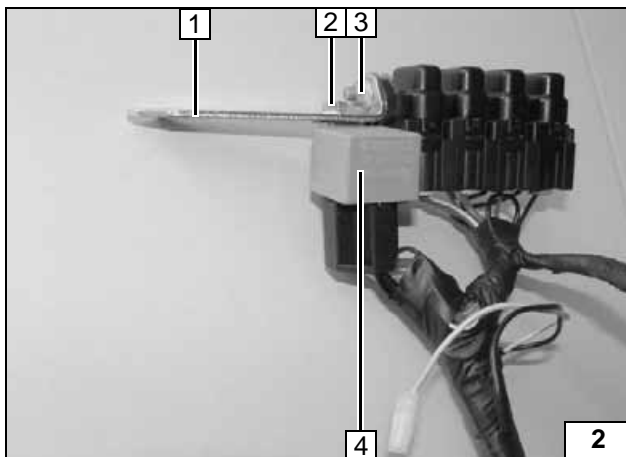
**Cutting wires into sections**



Reconnect according to the circuit diagram. Pull the wire section 2 into the enclosed insulation hose and add to the blower control cable harness in the passenger compartment fuses.



**Preparing fuse F4**



Bend the fastening strap according to the template



- 1 Fastening strap with holes
- 2 K3 relay mounting plate (bent 90°), M5x16 bolt, washer, flanged nut on fastening strap
- 3 Fuse holder retaining plate, screw M5x16, washers, nuts
- 4 K3 relay

**Pre-assembling the fuse holder and K3 relay**

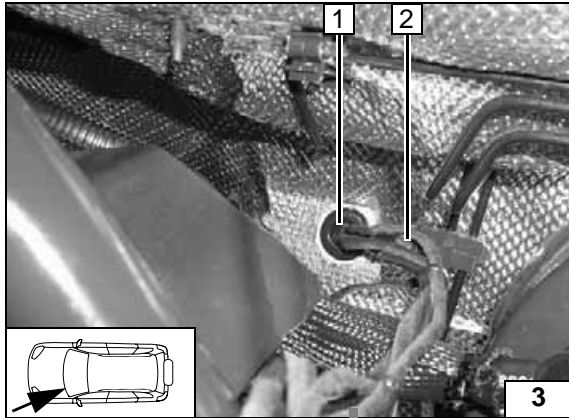


## Electrical Connections

### Cable harness feed-through

Punch an Ø 8mm hole in the protective rubber sleeve.

- 1 Protective rubber sleeve
- 2 Operating section and blower control cable harness

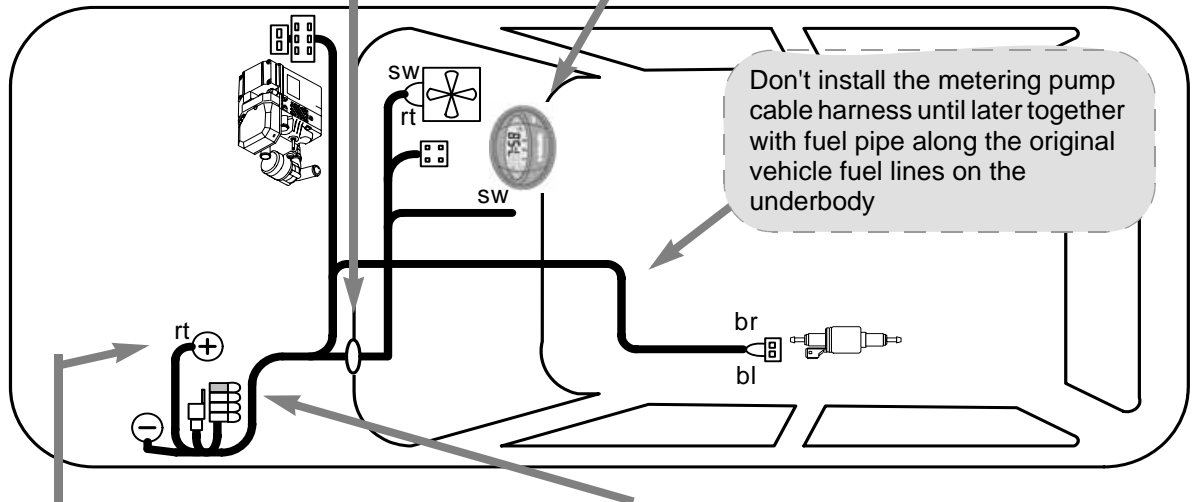
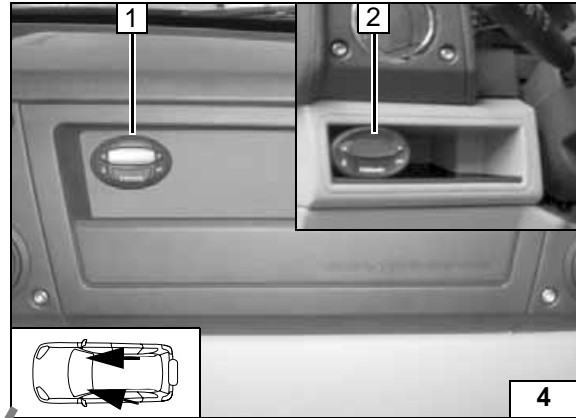


### Time switch

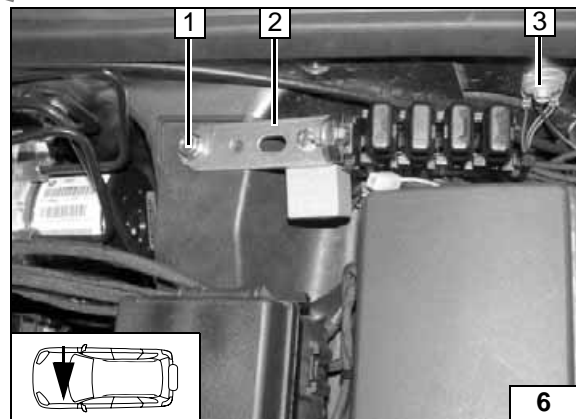
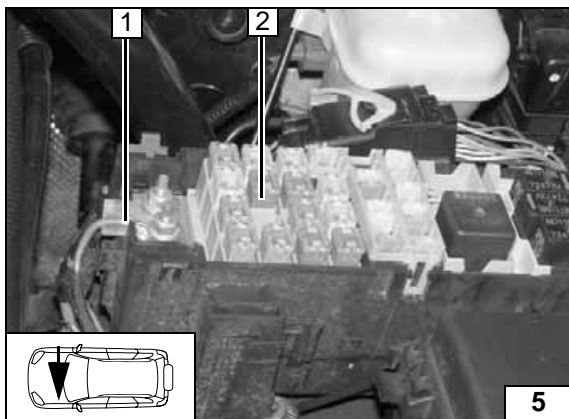
The installation locations are recommendations and should be confirmed with the end customer before installation.

In variant 2, the bracket must be made to fit and the clock mounted correspondingly.

- 1 Time switch in the passenger side glove compartment
- 2 Time switch in the driver's side storage compartment



Cable harness installation diagram

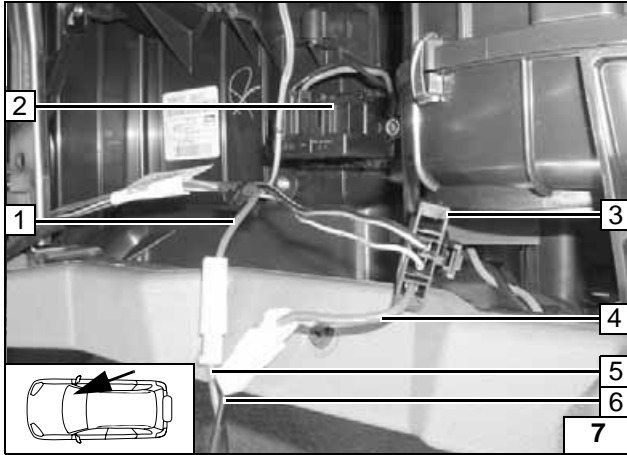


### Positive connection

- 1 Positive line to the original vehicle positive base
- 2 Original vehicle relay and fuse support

### Fuse holder, K3 relay

- 1 Original vehicle stay bolts, M6 flanged nut
- 2 Fastening strap with holes
- 3 Original ground point with ground line

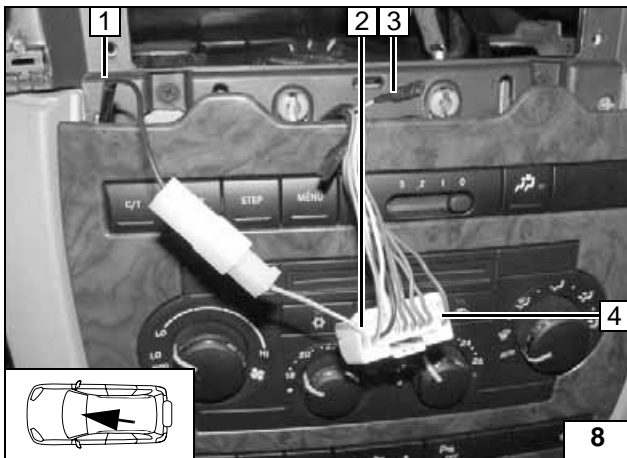


## Automatic air conditioning blower control

Connection to 4-pin connector 3 from the blower power control module at the front. Reconnect according to the circuit diagram.

- 1 Blue (bl) wire to blower relay.
- 2 Power control module connector plug-in position
- 4 Blue (bl) wire to power control module.
- 5 Red (rt) wire from K3/87a
- 6 Black (sw) wire from K3/30

**Connect-  
ing the  
blower  
motor**



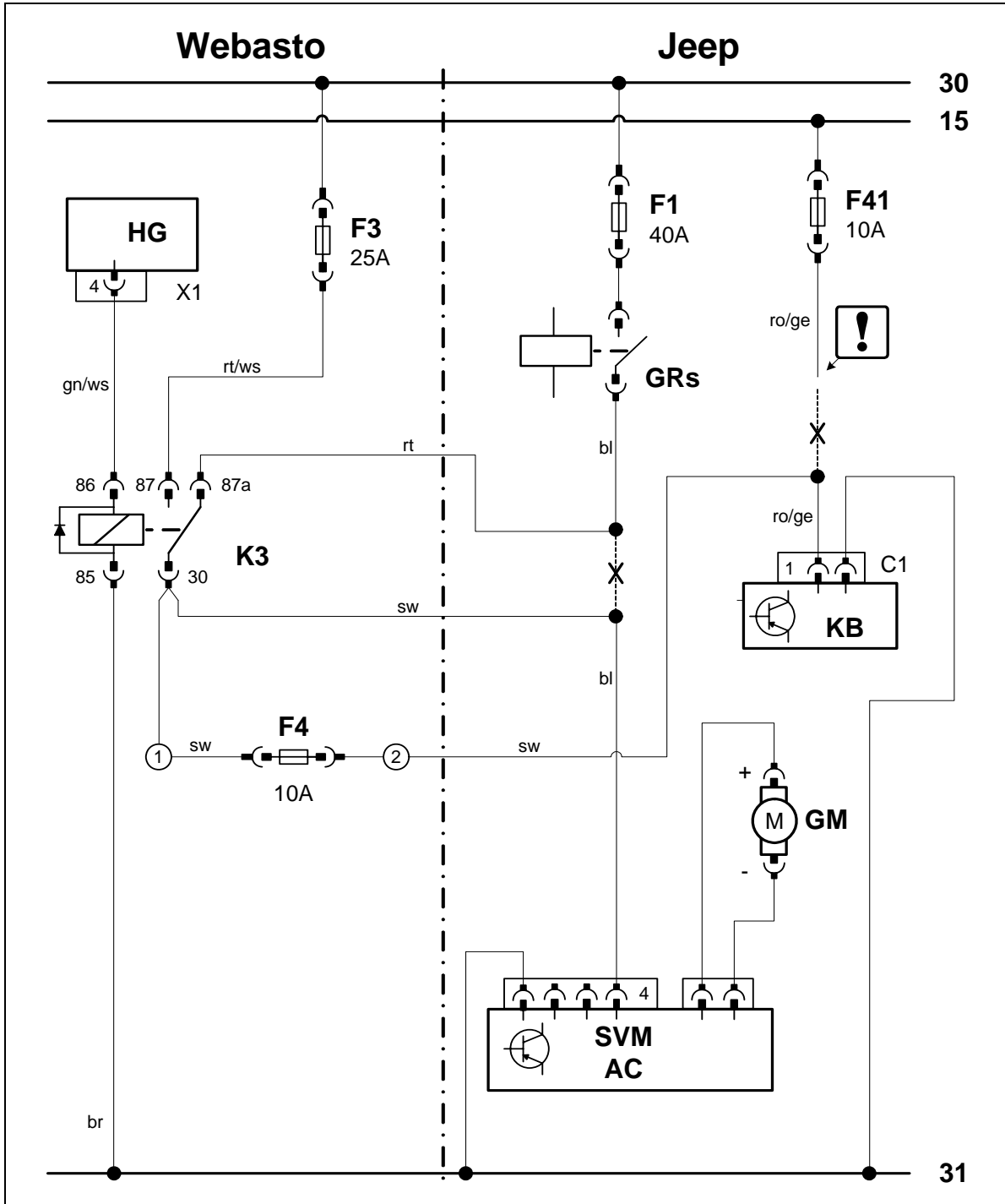
Connection to 22-pin connector C1 4 from the air conditioning control. Reconnect according to the circuit diagram.

- 1 Black (sw) wire from fuse F4
- 2 Red/yellow (rt/ge) wire to pin 1
- 3 Insulate and tie back red/yellow (rt/ge) wire

**Connect-  
ing the air  
condition-  
ing  
control**



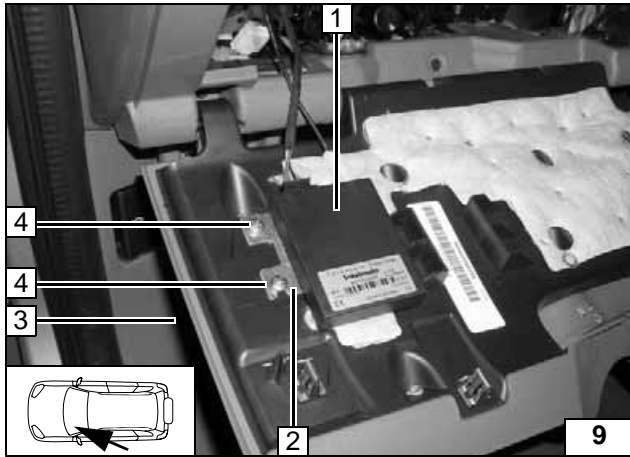




Automatic air conditioning circuit diagram

Webasto components		Jeep components		Colors and symbols	
HG	Heater unit TT-C	GM	Blower motor	rt	red
X1	HG connector	GRs	Blower relay	ws	white
F3	Fuse 25A	KB	Air conditioning control	sw	black
K3	Blower relay	F1	Fuse 40A	br	brown
F4	Fuse 10A	F41	Fuse 10A	gn	green
		C1	22-pin connector for air conditioning control	bl	blue
		SVM AC	Power control module for blower motor for front automatic air conditioning	ge	yellow
				ro	pink
				!	Insulate and tie back wire ends
				X	Splitting point

Legend

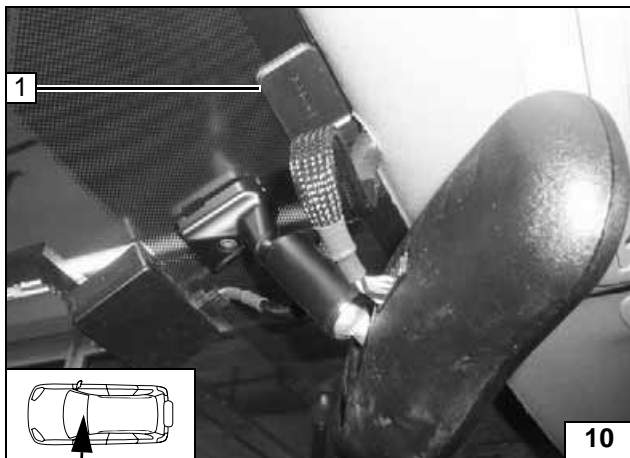


## Remote start option

- 3 Service lid
- 1 Receiver
- 2 Bracket
- 4 Self-tapping screw [2x]



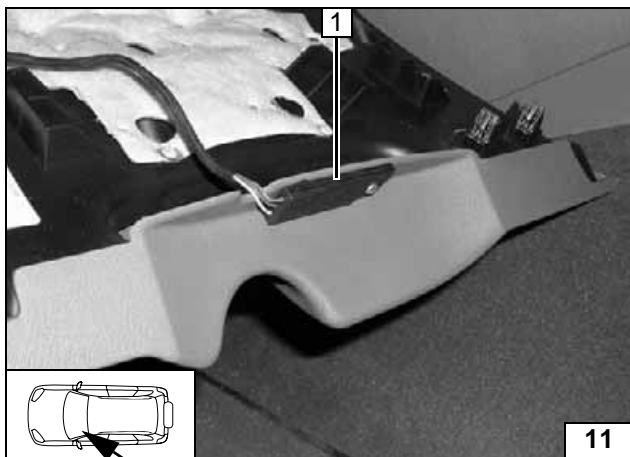
**Assembling the receiver**



- 1 Antenna



**Assembling the antenna**

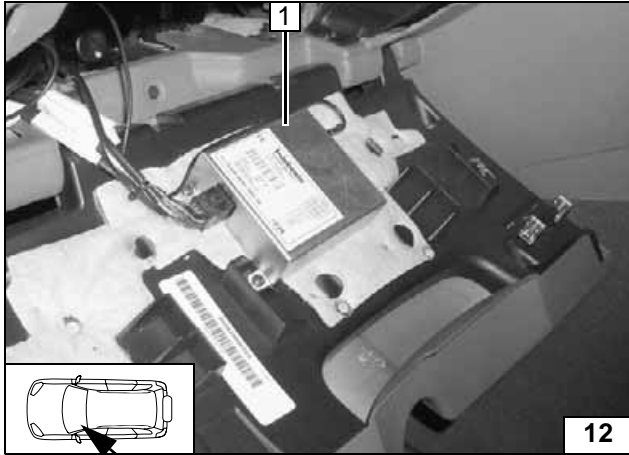


## Only for remote start T100 HTM

- 1 Temperature sensor with self-tapping screw on the service lid



**Assembling the temperature sensor**

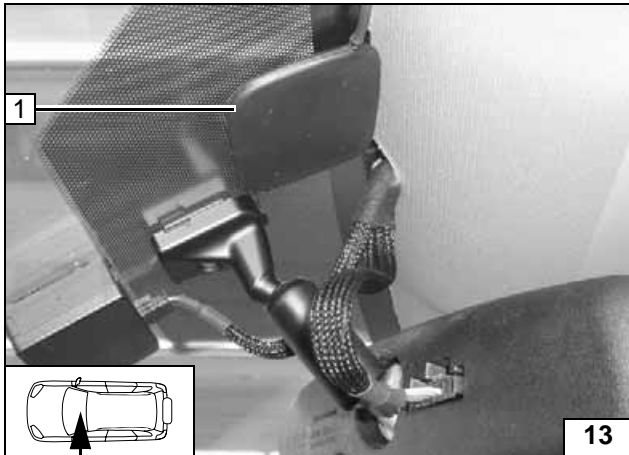


## Thermo Call option

- 1 Receiver with self-tapping screws [4x] on the service lid



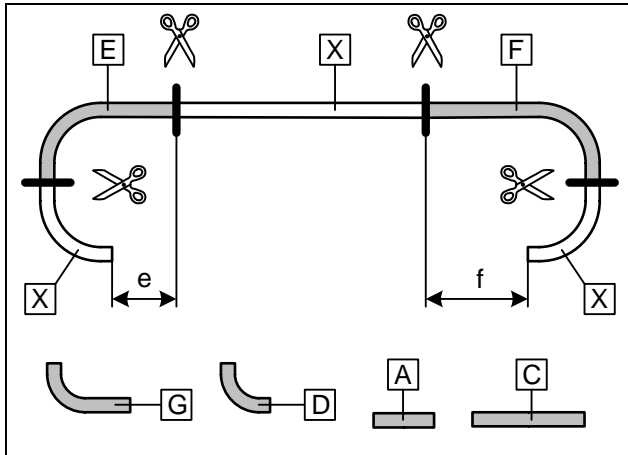
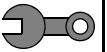
Assembling the receiver



- 1 Antenna



Assembling the antenna

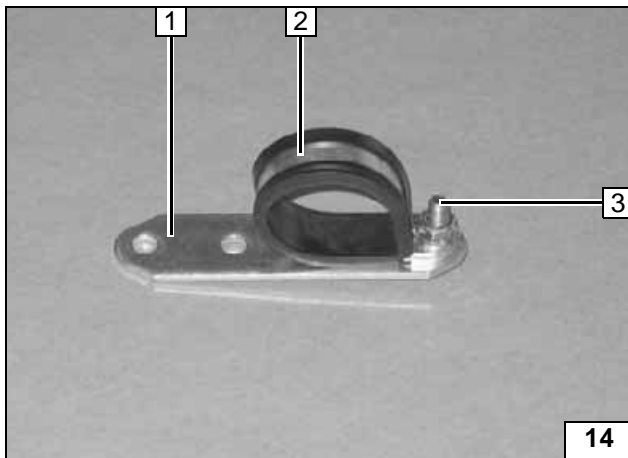


## Preparing the Heater Unit

- e = 20mm
- f = 760mm
- G = 90° moulded hose 18x18
- D = 90° moulded hose 15x18
- A = moulded hose 60mm long 18x18
- C = moulded hose 120mm long 15x15

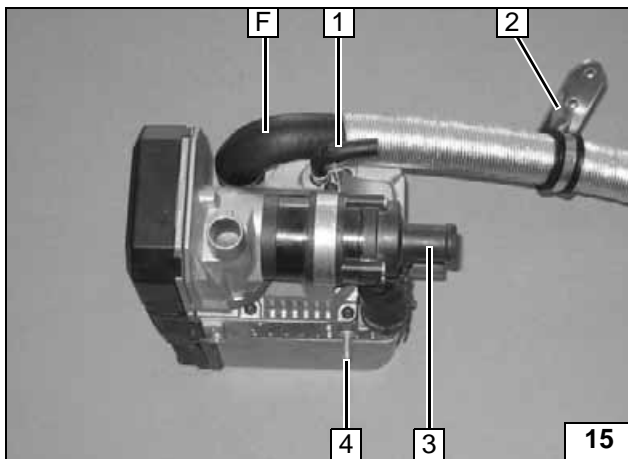
Dispose of section **X**  
Slide enclosed heat protection hose onto hose **F**.

**Cutting water hoses to length**



- 1 Fastening strap with holes
- 2 Rubberized tube clamp
- 3 M6x20 bolt, flanged nut M6

**Pre-assembling the hose bracket**

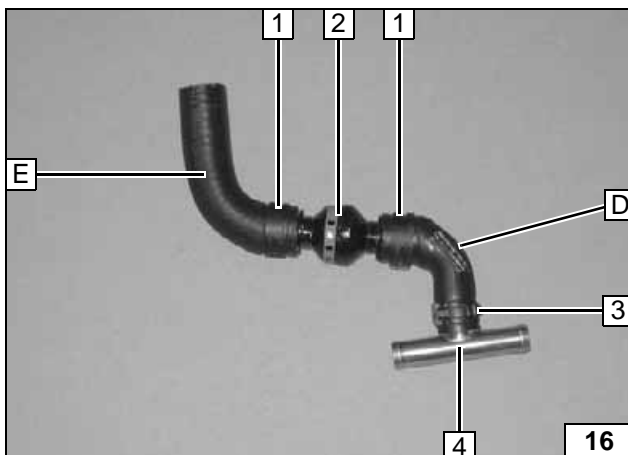


Replace the serial pump cover with the axial pump cover **3**. Mount the hose **F** with 90° bend and hose clamps  $\varnothing$  27 mm on heater unit outlet.

Eject screw bolts **4** tightening torque 10 Nm!

- 1 90° moulded hose, hose clamps  $\varnothing$  10mm
- 2 Pre-assembled hose bracket

**Pre-assembling the heater unit**

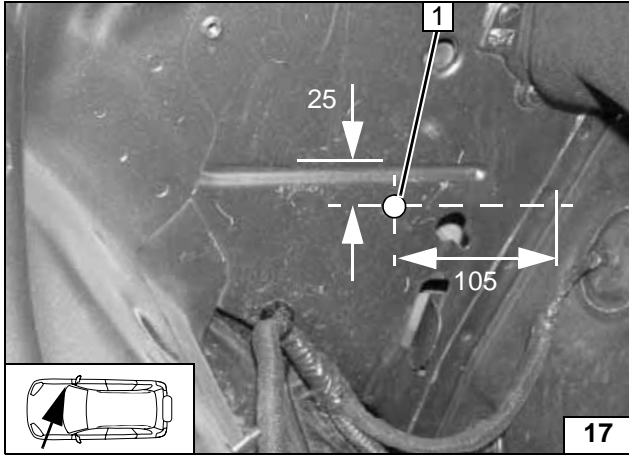
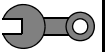


Check the flow direction for the diodes **2**.

- E** 90° moulded hose 18 x 18
- D** 90° moulded hose 15x18
- 1** Spring band clamp  $\varnothing$  27mm [2x]
- 3** Spring band clamp  $\varnothing$  22mm
- 4** T-piece 15x15x15

**Pre-assembling hose B and hose D**



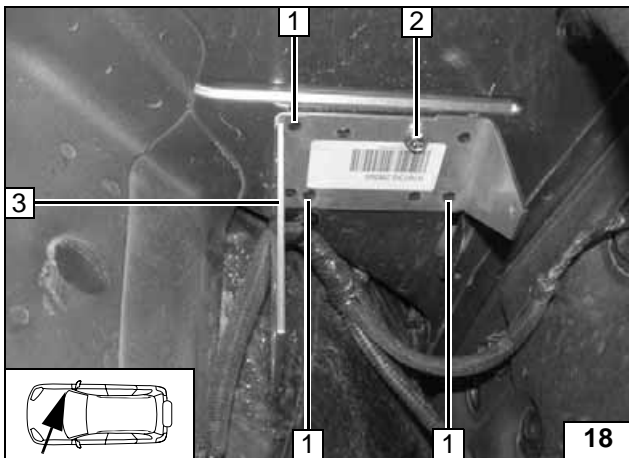


## Preparing the Installation Location

Transfer hole image according to the illustration, drill 1 Ø 9.1 mm bore hole and insert rivet nuts.



Inserting rivet nuts

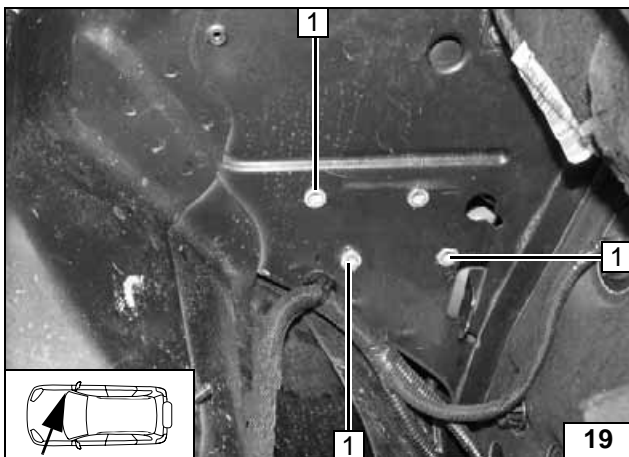


Loosen the bracket 3 and transfer the hole images to position 1 [3x].

2 Edged bolt M6x16 to rivet nut

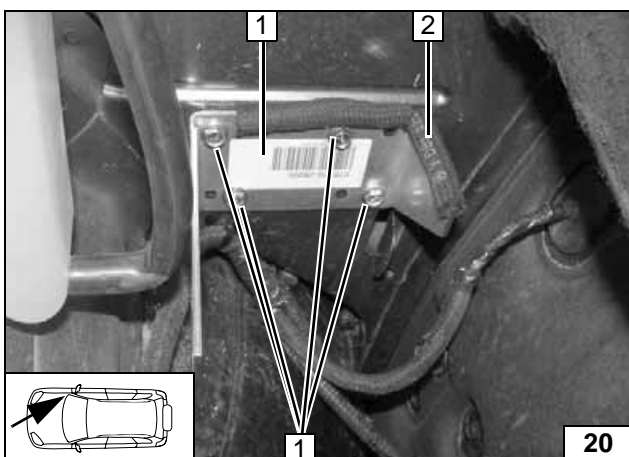


Transferring hole image



1 Ø 9.1mm bore hole, rivet nut [3x]

Inserting rivet nuts



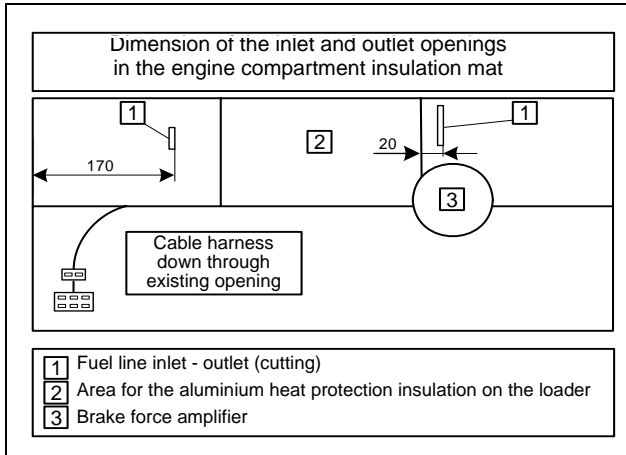
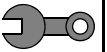
Slit open the enclosed fuel hose 2 and use this as wear protection.

1 Bracket

3 Edged bolt M6x16 [4x] to rivet nut



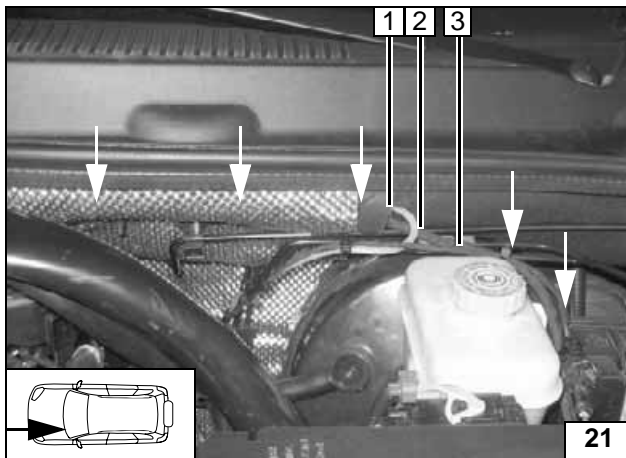
Assembling the bracket



Make 2 openings (cuts) in the engine compartment insulating mat according to the sketch for the cable harness and fuel pipe.



**Cutting the insulating mat**

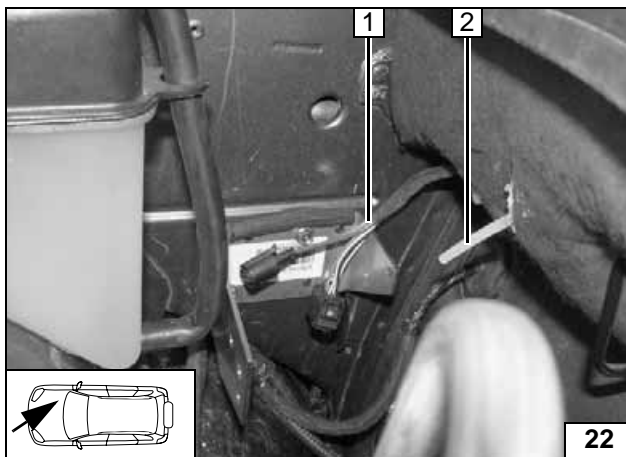


Route the cable harness and fuel line to the cut slit and behind the heat protection panelling to the right side of the vehicle.



**Run the cable harness and fuel line to the heater unit**

- 1 Cut
- 2 Fuel line
- 3 Heater unit cable harness

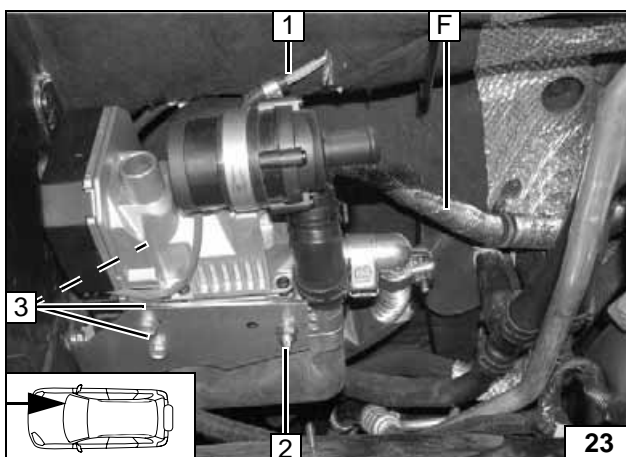


Pull the fuel line 2 out of the slit. Run the cable harness heater unit 1 from the existing opening (hidden).



**Run the cable harness and fuel line**

- 1 Heater unit cable harness
- 2 Fuel line



## Assembling the Heater Unit

Prior to assembly, put on the heater unit cable harness Run the hose F to the engine compartment rear bulk.

Ejot screw bolt, tightening torque 10 Nm!

- 2 Flanged nuts on ejot stay bolts
- 3 Ejot screw bolts [3x], (3rd ejot screw covered by heater unit)
- 1 Fuel line, Ø10 mm hose clamps on preassembled 90° moulded hose.



**Assembling the heater unit**

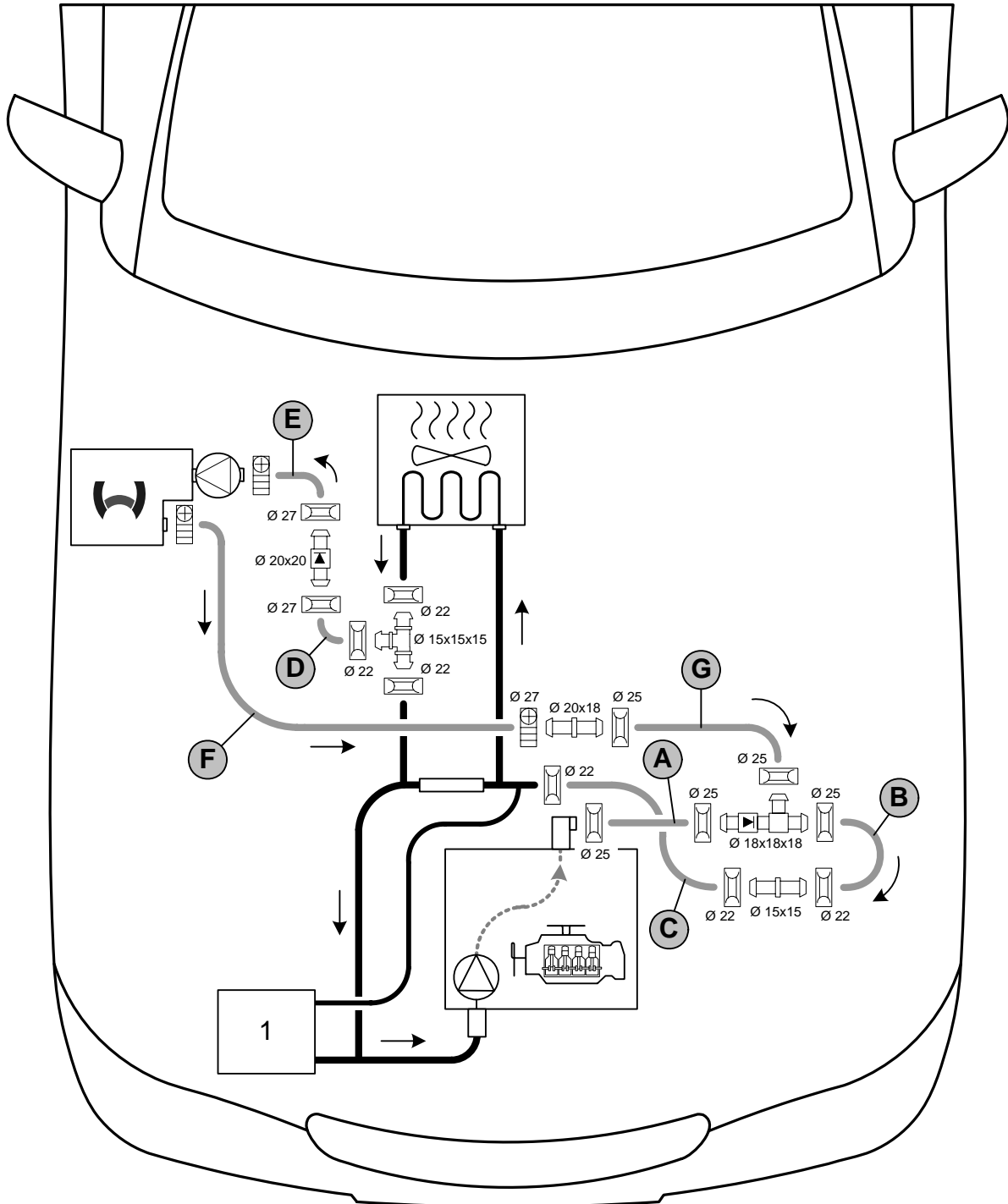


## Water Connection

### WARNING!

Tighten all hose clamps to 2.0 + 0.5 Nm. Any cold water running off should be collected using an appropriate container! Install hoses so that they are kink-free! Unless specified otherwise, always fasten using cable clips! Position hose clamps and spring band clamps so that no other hose can be damaged!

The connection should be "inline" based on the following diagram:



Water installation diagram

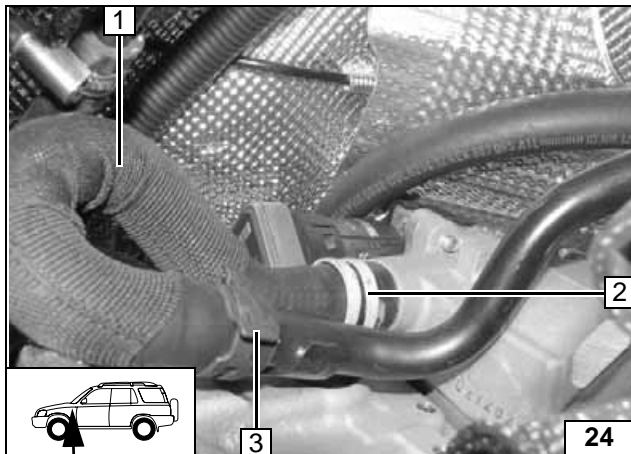
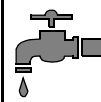
Symbol	Description
	Connecting pipe
	Check valve with 2 connections
<b>1</b>	Equalizing reservoir

Symbol	Description
	Hose clamp
	Connecting pipe with 3 connections

Symbol	Description
	Spring band clamp
	Check valve with 3 connections

Hose B = Original vehicle curved hose shortened.

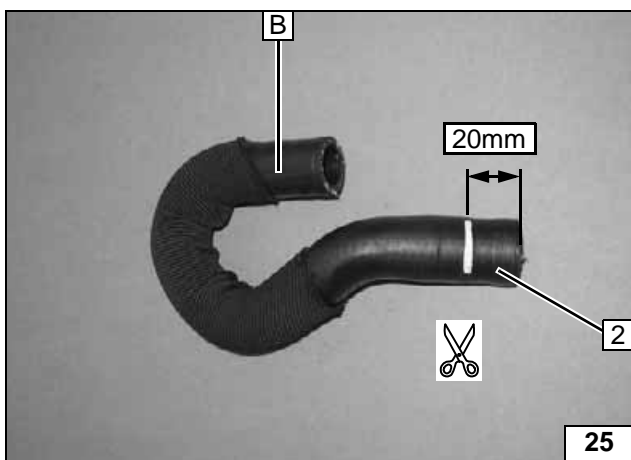




Remove original vehicle water hose **1** (hose **B**). Dispose of spring band clamp **2**, **3** will be used again.



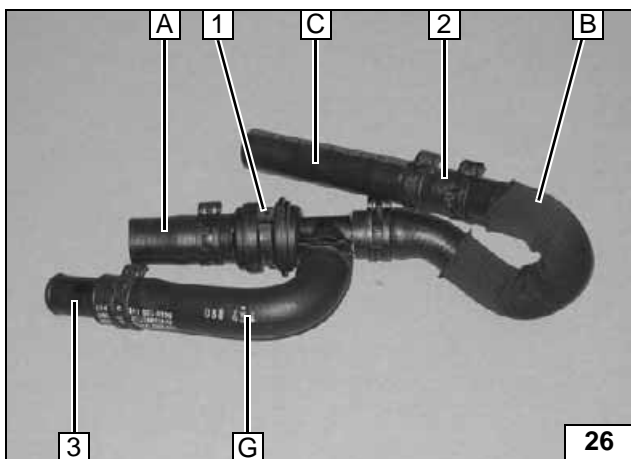
**Splitting point**



Shorten original vehicle water hose **1** (hose **B**) by 20 mm. Dispose of hose section **2**.



**Shortening hose**

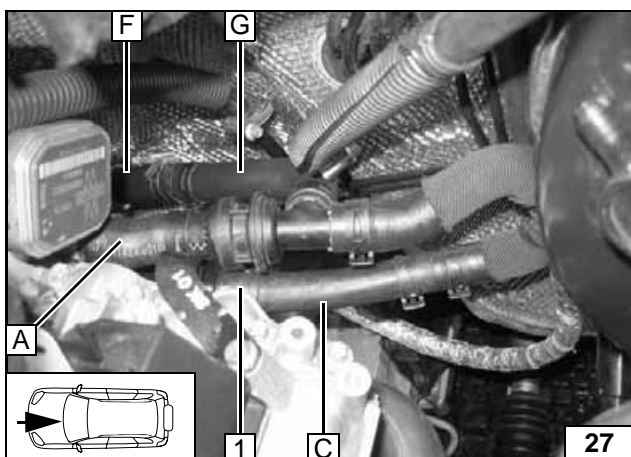


Check the flow direction for the check valve 18x18x18 **1**.

- 2** Connecting pipe 15x15 mm, spring band clamp Ø 22mm [2x]
- 3** Connecting pipe 18x18, spring clip Ø 25mm



**Pre-assembly of the hose group**

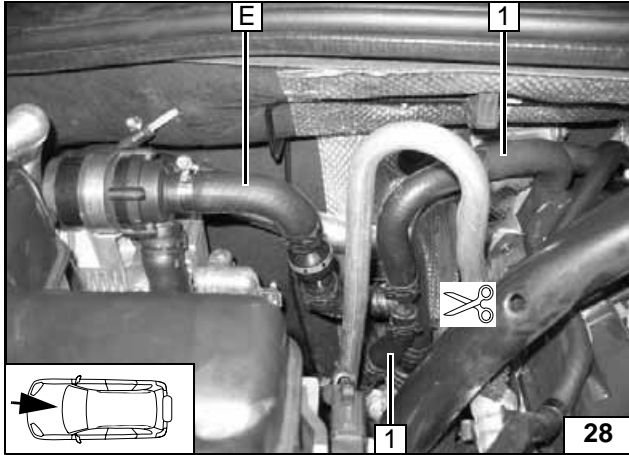


Connect hose **A** to the connecting piece for the engine outlet and hose **C** with the original vehicle clamps **1** to the heat exchange inlet connecting piece. Connect hose **G** to hose **F**.



**Connecting the engine outlet and heat exchanger inlet**

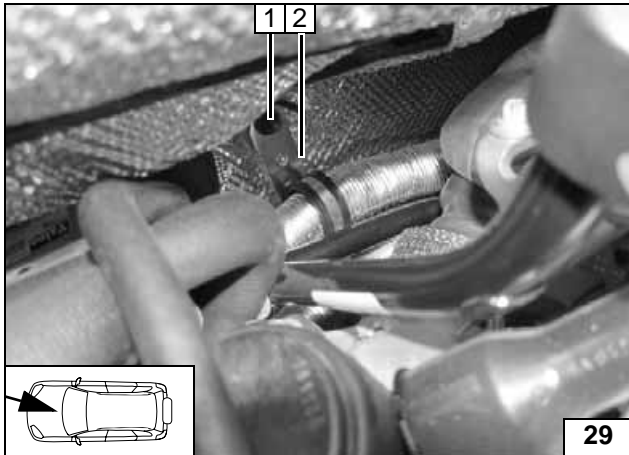




Separate the original vehicle hose from the heat exchange outlet **1** according to the illustration and insert the T-piece from the pre-assembled hose group in the splitting point.  
Connect hose **E** to heater unit inlet.

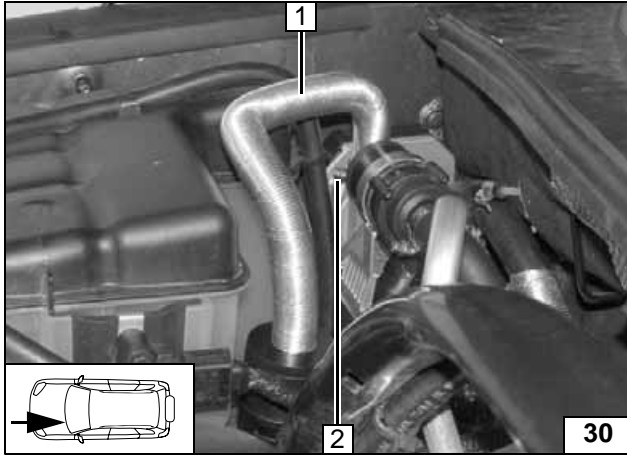
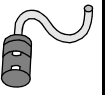


**Connecting the heater unit inlet**



**2** Hose bracket  
**1** Plastic washer on existing stay bolts

**Fastening the hose bracket**

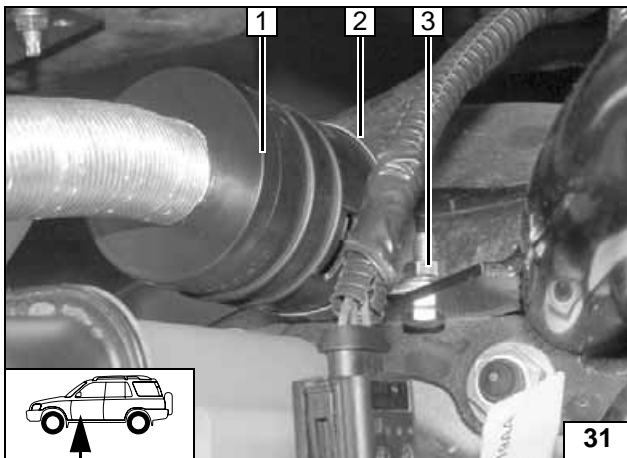


## Combustion air

- 1 Intake hose
- 2 Ø 27 mm hose clamp



**Intake  
hose  
placement**



- 1 Intake silencer
- 2 Ø 52mm clamp
- 3 M6x16 bolt, flanged nut M6 on original vehicle hole

**Assemble  
the intake  
silencer**



## Fuel Connection

### CAUTION!

Open the vehicle's tank-cap lock, ventilate the tank and then re-close the tank lock.

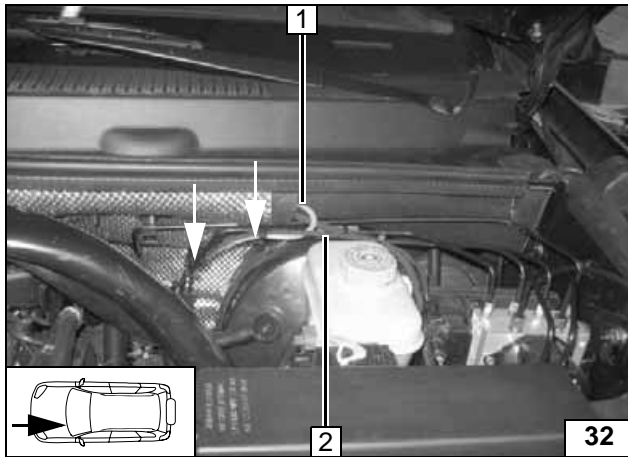
Empty the tank before removing it. Catch any fuel running off with an appropriate container.

Install fuel line and metering pump cable harness so that they are protected against impact from rocks! Unless specified otherwise, always fasten using cable clips!

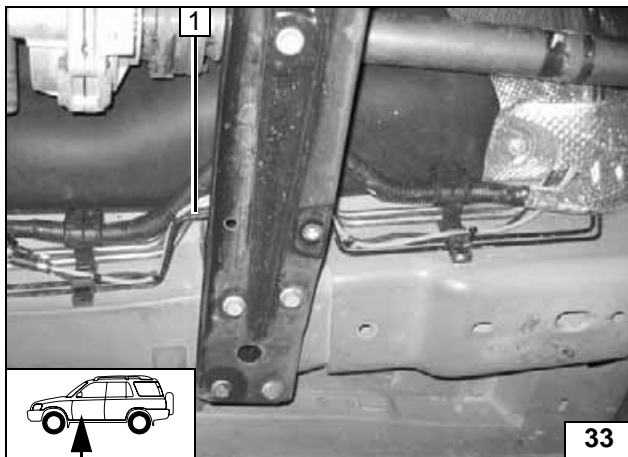
Fit the fuel line and cable harness with edge protectors around sharp edges.

### WARNING!

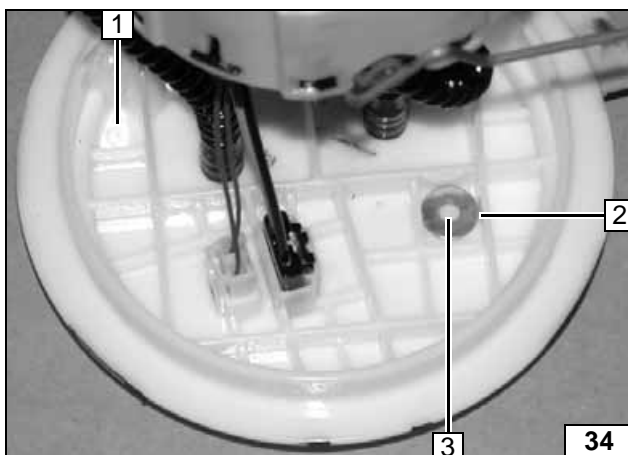
The fuel line and cable harness to the metering pump should be installed based on the cable harness installation diagram.



Run the mecanyl fuel line 1 together with the cable harness metering pump 2 along the original vehicle lines to the underbody.



1 Mecanyl fuel pipe, metering pump cable harness



Remove tank mounting according to manufacturer's instructions. With special Jeep tool no. 9340!

- 1 Tank mounting
- 2 Insert Ø 5 mm body washer between the ridges
- 3 Copy the hole image, Ø 6mm bore hole

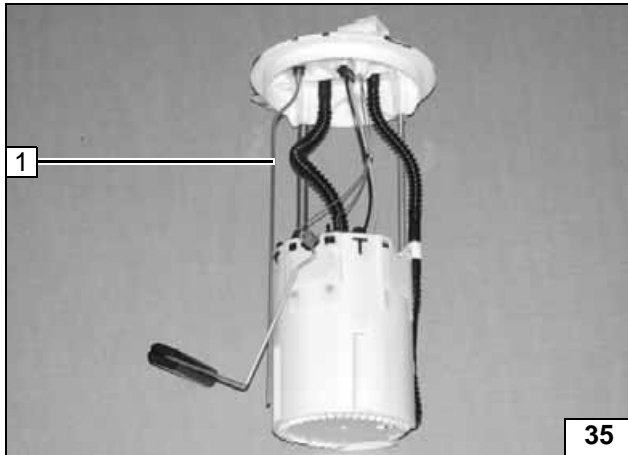


Installation of wires

Installation of wires



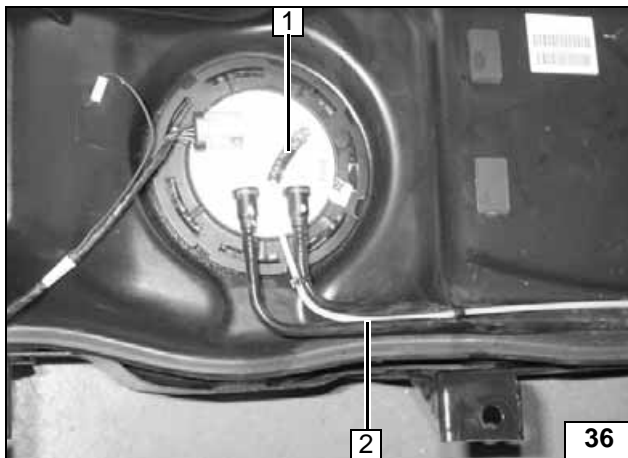
Installing the tank extracting device



Shape, cut into sections, and insert the tank extracting device 1 in the tank mounting.

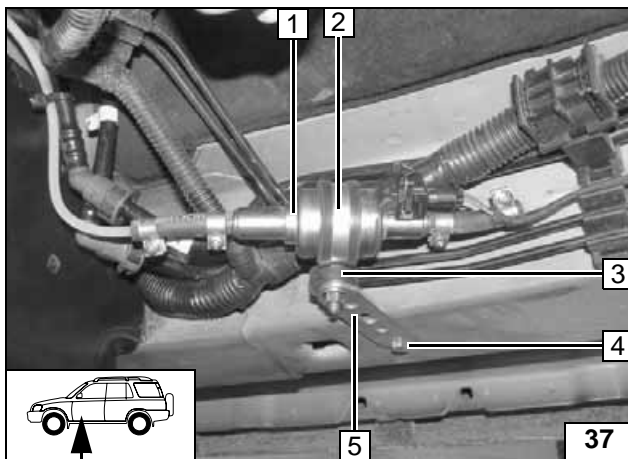


## Installing the tank extracting device



- 1 Hose section, Ø 10 mm hose clamps [2x]
- 2 Mecanyl fuel line

## Connecting the fuel line



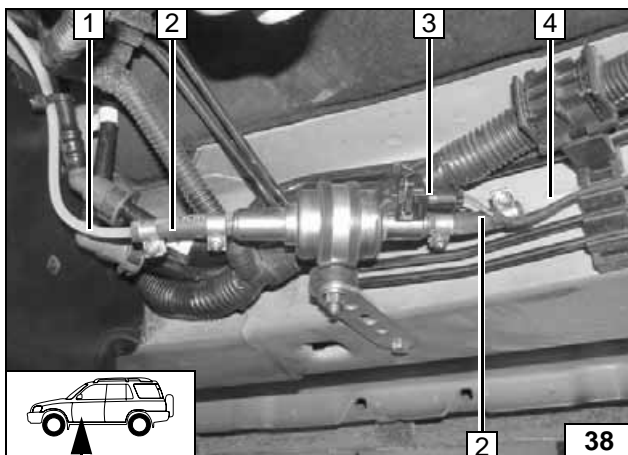
Note the installation position of the metering pump, see the Installation Instructions. The installation location is on the left before the vehicle tank.

Run the M6 flanged nut and body washer to the original vehicle hole.



## Metering pump installation location

- 5 Fastening strap on original vehicle hole with M6x20 bolt and M6 flanged nut
- 1 Metering pump
- 2 Rubberized tube clamp
- 3 Silentblock, flanged nut M6 [2x]
- 4 M6x20 bolt, body washer, flanged nut on existing hole



Fuel line 4 from the heater unit on the pressure side of the metering pump [side with connector].

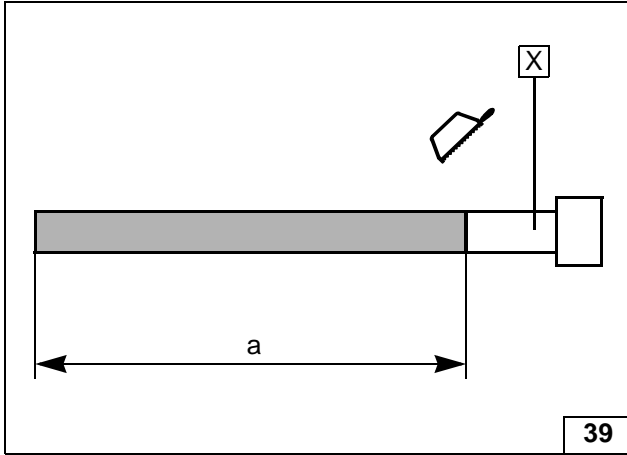
Fuel line from the tank extracting device 1 on the intake side of the metering pump [side without connector].

Check the position of the components; adjust if necessary. Check that they have free clearance.



## Connecting to metering pump

- 1 Fuel line from the tank extracting device
- 2 Hose section, Ø 10 mm hose clamps [2x].
- 3 Metering pump cable harness in the connector housing
- 4 Fuel line from the heater unit

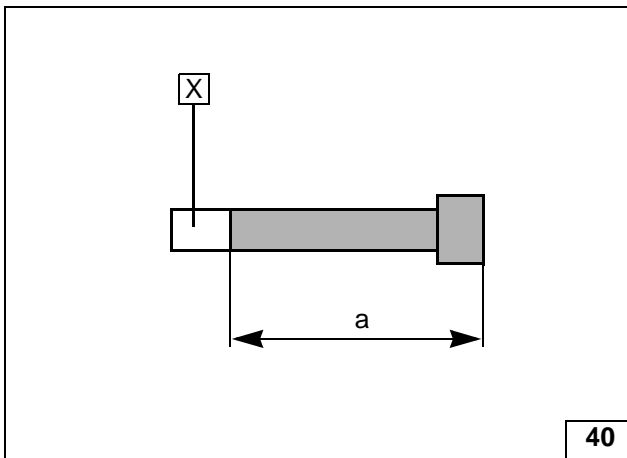


## Exhaust System

$a = 1,120 \text{ mm}$

Dispose of section X

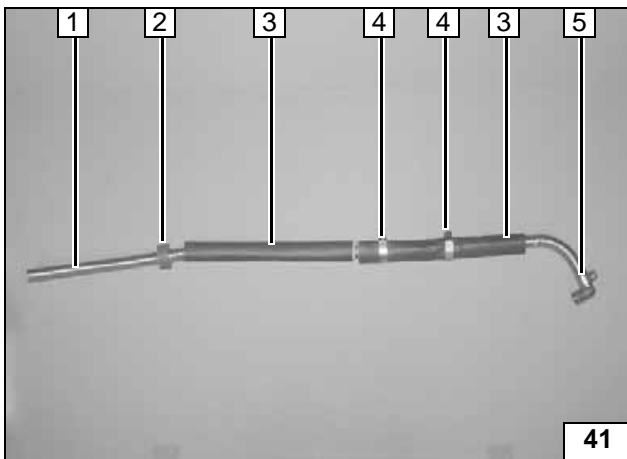
**Cutting down the exhaust line**



Enclosed exhaust line (Ident. No.: 19975A)  
 $a = 60 \text{ mm}$  use as end piece

Dispose of section X

**Cutting down end section**

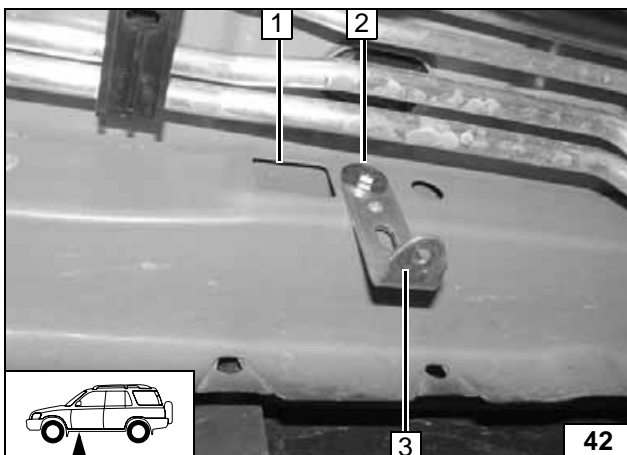


Loosely fit the exhaust line 1, the exact alignment of the components will be done later.

- 2 Rubber profile, red
- 3 Exhaust insulation [2x]
- 4  $\text{\O} 33\text{mm}$  tube clamp [2x]
- 5 Exhaust crimper, hose clamp



**Pre-assembling the exhaust pipe**



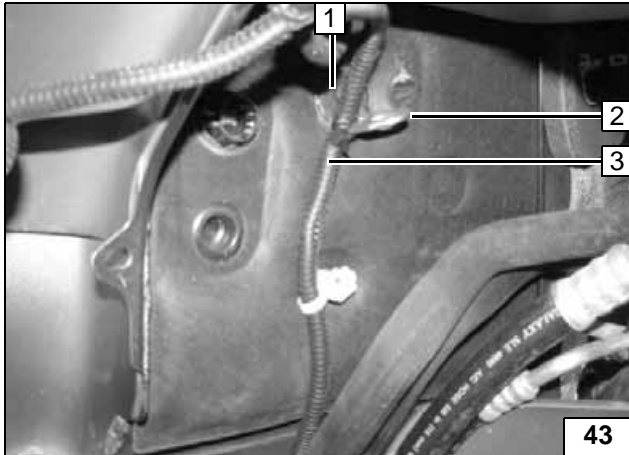
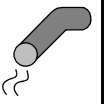
Bend the fastening strap 3 according to the template  
Assembly is through the lateral rocker panel opening 1.

- 2 M6x16 edged bolt, body washer, flanged nut



**Exhaust silencer bracket**



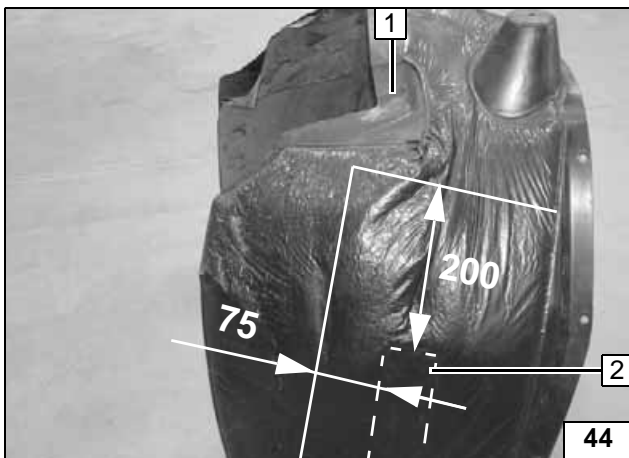


Attach the original vehicle cable harness **3** to the bracket **2**.

- 1 Original vehicle bolt



**Assembling the exhaust bracket**

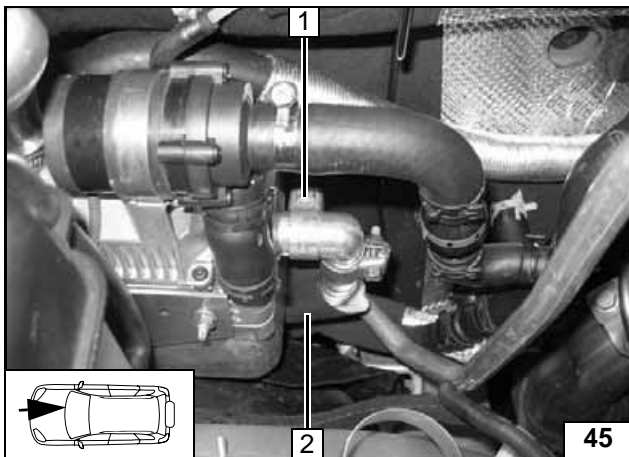


Cut noise protection matt, dispose of section **For better illustration, the print in the matt has a dotted line.**

- 1 Wheel-house panel with noise protection matt.
- 2 Print



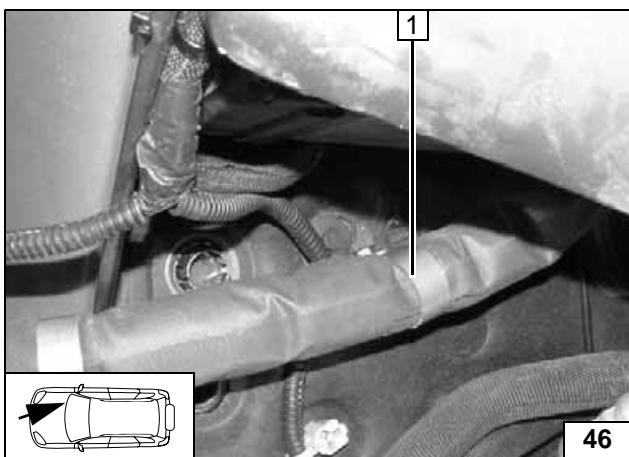
**Preparing the wheel-house panel**



2 Place the exhaust pipe with insulation tight on the heater unit

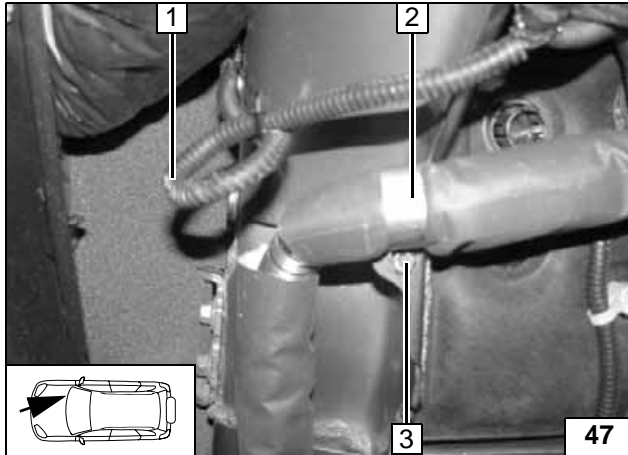
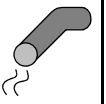
- 1 Hose clamp

**Assembling the exhaust pipe.**



1  $\varnothing$  33mm clamp, M6x20 bolt, flanged nut M6 on the bracket

**Assembling the exhaust pipe.**

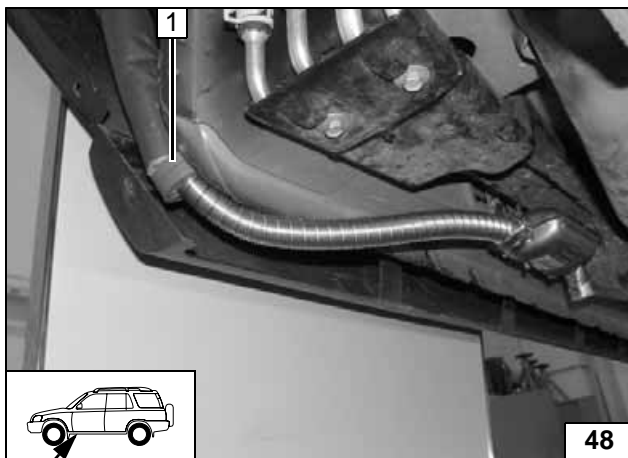


Remove clip from original vehicle cable harness **1** at position **3**. Tie back the cable harness **1** according to illustration

- 2** Ø 33mm hose clamp
- 3** M6x16 bolt, flanged nut on original vehicle hole



**Assembling the exhaust line and end piece**

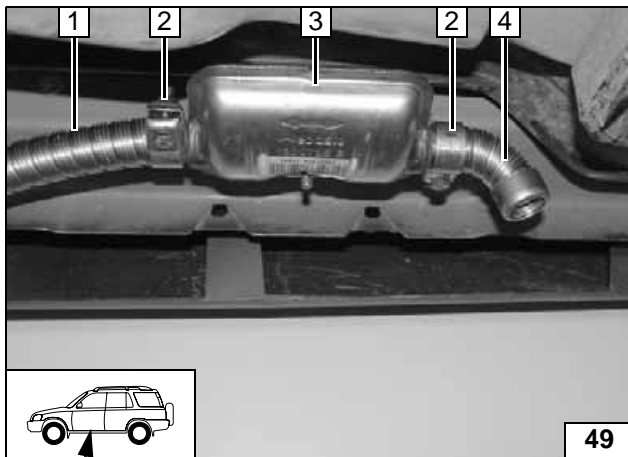


Aligning the exhaust pipe

- 1** Position red (rt) rubber profile



**Aligning the exhaust pipe**



- 1** Exhaust line from the heater unit
- 2** Hose clamp [2x]
- 3** Silencer
- 4** End section



**Assembling the silencer**



## Final work

### WARNING!

Reassemble disassembled components in reverse order.

Check that all hose lines and all electrical connections are securely fastened.

Secure all loose cables using cable clips.

Spray heating unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Connect battery
- Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.
- Check the coolant system for leaks according to the manufacturer's instructions.
- Set the time switch.
- Set the vehicle heating with automatic air conditioning or without automatic air conditioning according to the "operating instructions for the end customer".
- Check that the auxiliary heating operates properly, see operating instructions / installation instructions.
- Attach the "Switch off auxiliary heating before re-fuelling" sticker onto the left side of the B-pillar.



# Webasto

*Feel the drive*

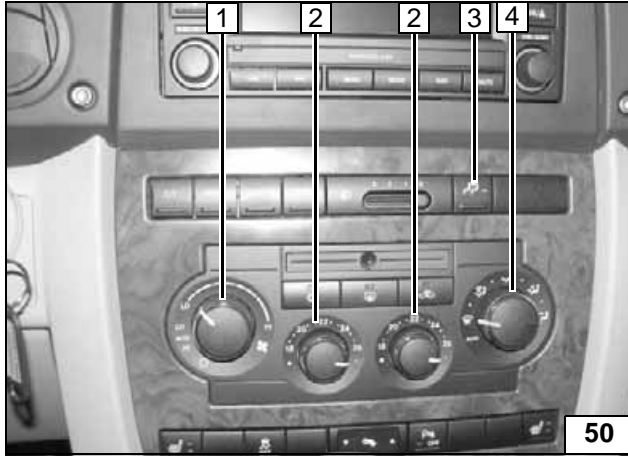
Webasto AG  
Postfach 80 - 82132 Stockdorf - Hotline 0 18 05 / 93 22 78  
Hotfax (0395) 55 92-353 - <http://www.webasto.de>



## Operating instructions for the end customer

Please remove page and add to the vehicle operating instructions.

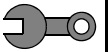
Before parking the vehicle, make the following settings:



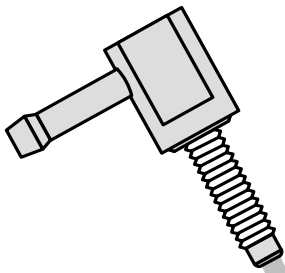
- 1 Blower set to level "2" possibly "1"
- 2 Temperature to "max." on both sides
- 3 Deactivate the blower for the back of the car.
- 4 Air outlet to windscreen



For  
vehicles  
with  
automatic  
air  
conditioni  
ng



Tank Extracting Device



100mm



Scale 1:1

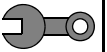
Compare the size of the printed version with dimension lines.  
Permitted tolerance a maximum of 2%.

Printer settings to "100%" and no margin.

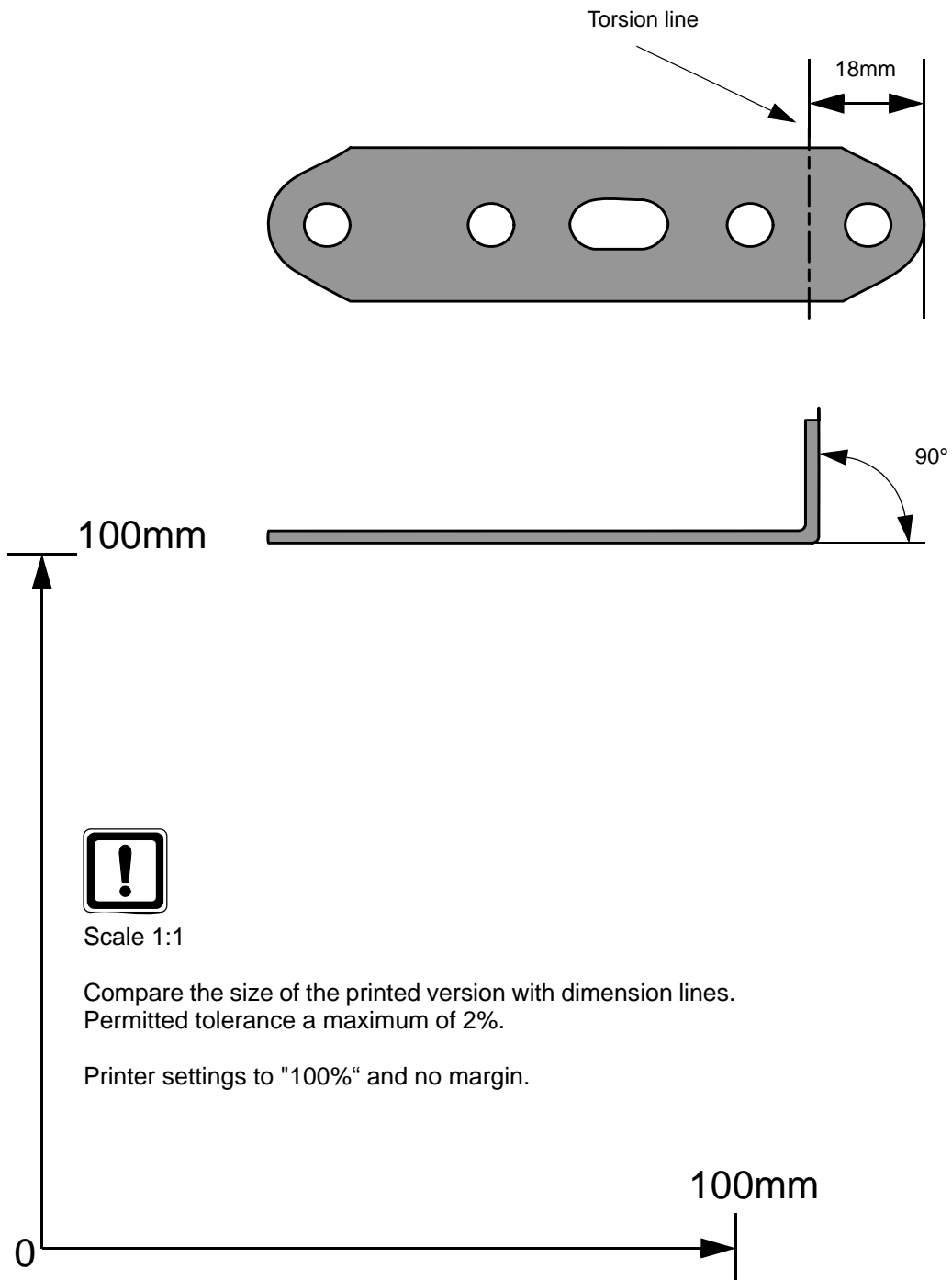
100mm



0



Template Fastening Strap Template



Scale 1:1

Compare the size of the printed version with dimension lines.  
Permitted tolerance a maximum of 2%.

Printer settings to "100%" and no margin.