




Water heater unit



Feel the drive

Thermo Top E Auxiliary Heating	 00 0003
Thermo Top C Auxiliary Heating	 00 0002
Thermo Top P Auxiliary Heating	 00 0104

Installation instructions

Toyota RAV 4

Petrol
From model year 2006
For left-hand drive vehicles only

Automatic air conditioning



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
Toyota	RAV 4	A3	e6*2001/116*105...

Engine type	Engine model	Power in kW	Engine capacity in cm ³
1AZ-FE	Petrol	112	1998

Vehicle and engine types as well as equipment variants, 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	Commercial supply of required control	See price list
1	Installation kit for Toyota RAV 4 Petrol	1310903A

Recommended heater unit for the relevant vehicle class:

Vehicle	Heater unit
Compact car	Thermo Top E
Mid-class, station wagon	Thermo Top C
Luxury, van, off-roader	Thermo Top P

Select the heater unit based on the size of the vehicle passenger compartment and the customer's comfort requirements.



Foreword

These installation instructions apply to vehicles Toyota RAV 4 with Petrol 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, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* are to be observed in any event.

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 for example bore holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329)!

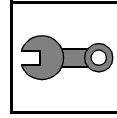
Special Tools

- Torque spanner for 2.0 - 10 Nm
- Vise-grip wrench

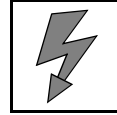
Explanatory Notes on the Document

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.

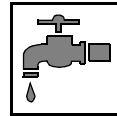
Mechanics



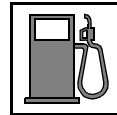
Electrics



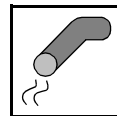
Water connection



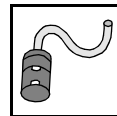
Fuel connection



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.



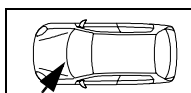
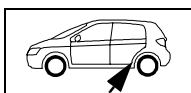
Specific risk of fire or explosion.



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



Reference to a special technical feature.

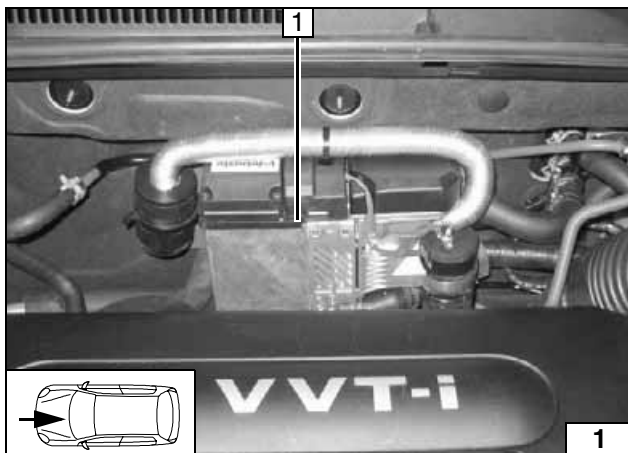


The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

Preliminary Work

WARNING!

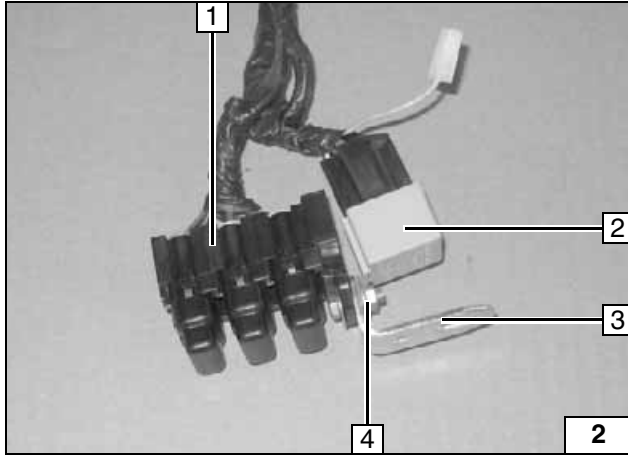
- Disconnect the battery.
- Let off pressure in the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Completely remove the air filter housing cover assembly.
- Remove the cooling water reservoir cover
- Remove the windshield washer arm assembly.
- Remove the cooling water reservoir cover in the engine compartment.
- Remove the left suspension strut mount.
- Open the tank cap, ventilate the tank.
- Close the tank cap again.
- Remove the left underride protection
- Remove the lower engine cover
- Remove air tank according to manufacturer's instructions.
- Remove tank mounting according to manufacturer's instructions.
- Remove the lower glove compartment cover (only for Remote Start or Thermo Call).
- Remove the glove compartment (only for Remote start or Thermo Call).
- Remove the side panelling in the right footwell of the center console (for Remote Start or Thermo Call).
- Remove the lower cover to the driver-side dashboard
- Remove the side panel in the left footwell of the center console.
- Loosen the AC amplifier in the middle console (only for automatic air conditioning).
- Please remove page 26 "Operating instructions for the end customer" and add this to the vehicle operating instructions.



Heater Unit Installation Location

- 1 Heater unit

Installation location



Preparing the Electronics

Pre-assemble the cable harness according to the figure.

- 1 Fuse holder
- 2 K3 blower relay
- 3 Angle bracket
- 4 M5/12 bolt, washer, M5 flanged nut



**Preparing
the Cable
Harness
Heater Unit**

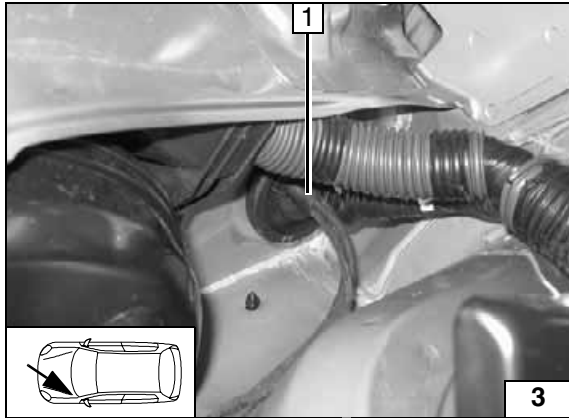


Electrical Connections



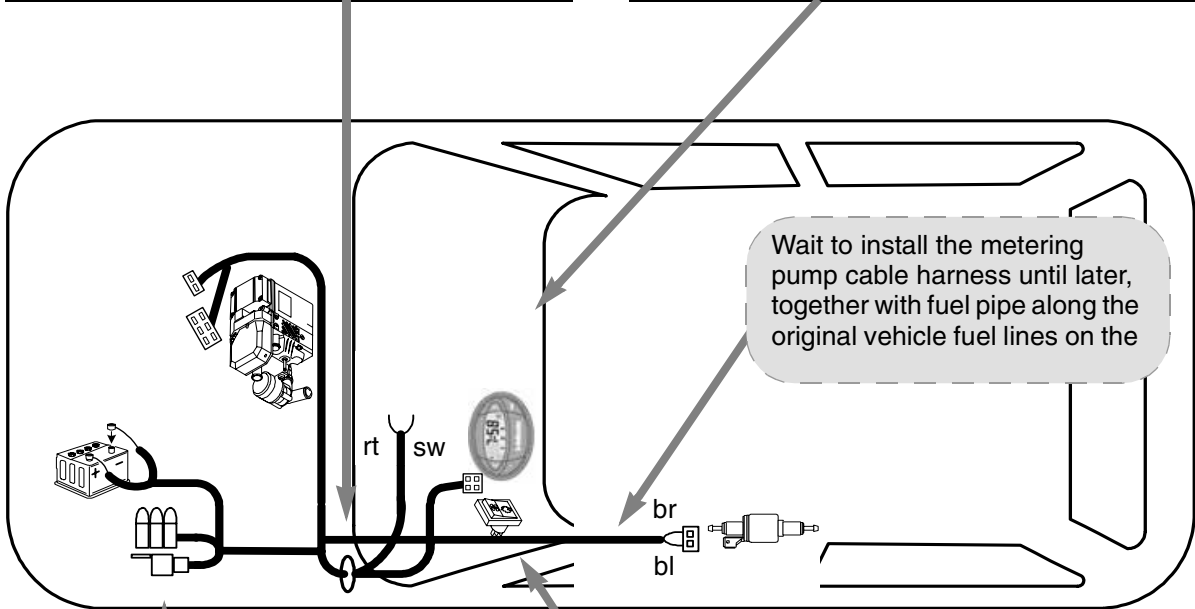
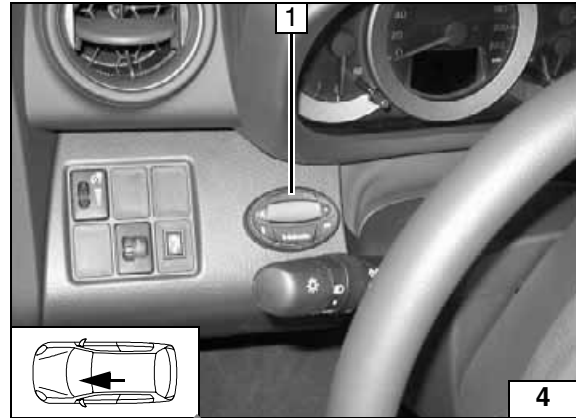
Cable harness feed-through

- 1 Protective rubber sleeve

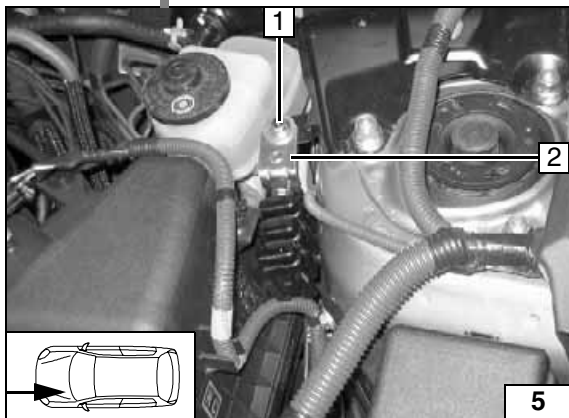


Time switch

- 1 Time switch

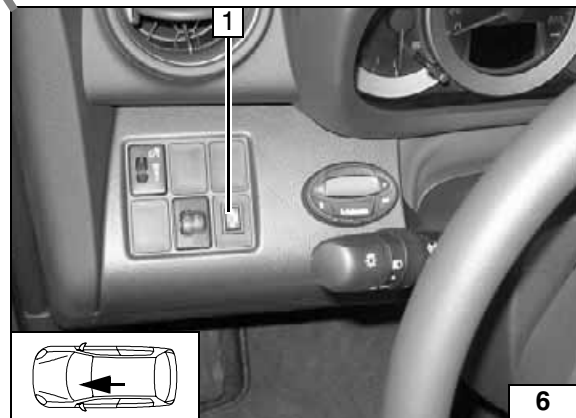


Cable harness installation diagram



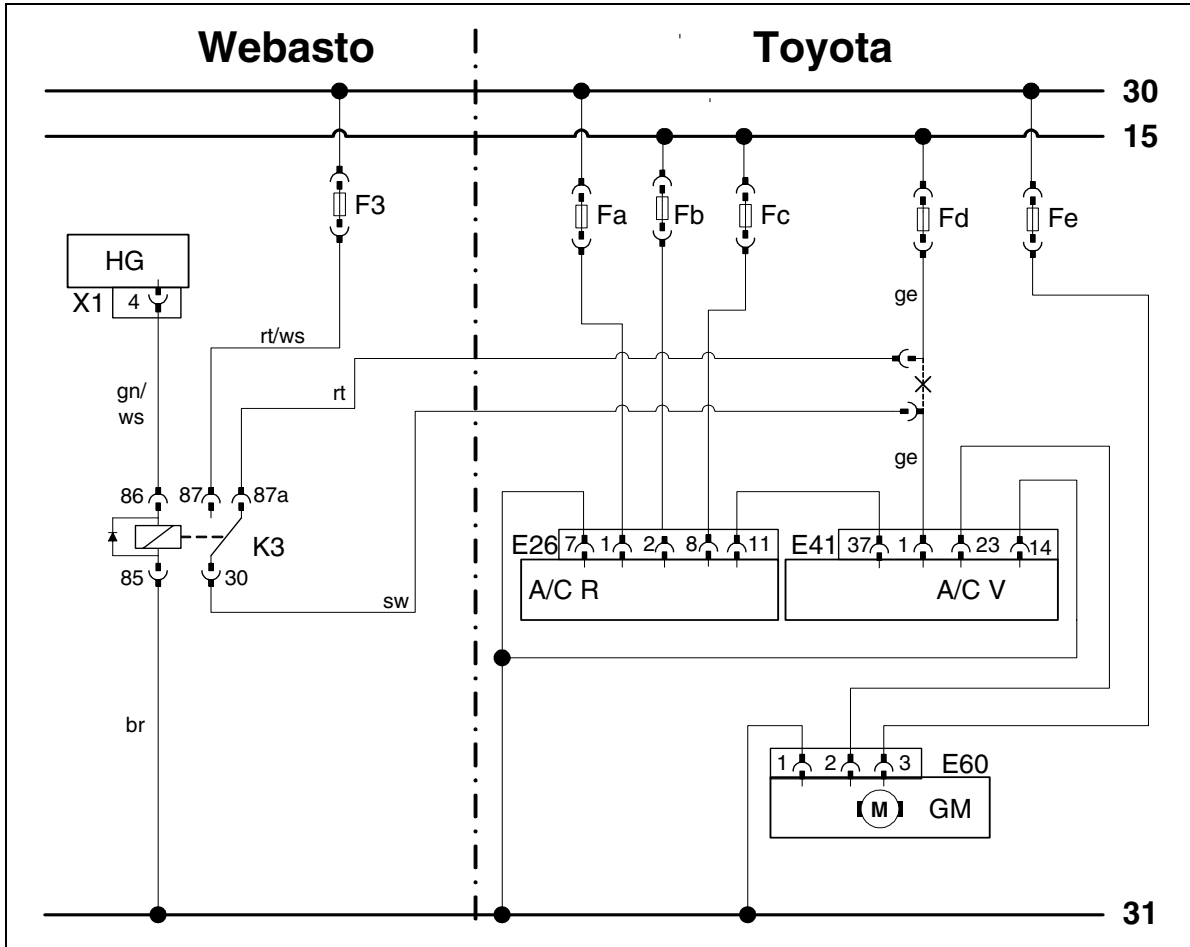
Fuse holder, K3 relay

- 1 Original vehicle stay bolt
- 2 Preassembled angle bracket, body washer, M6 flanged nut



Summer / winter switch option

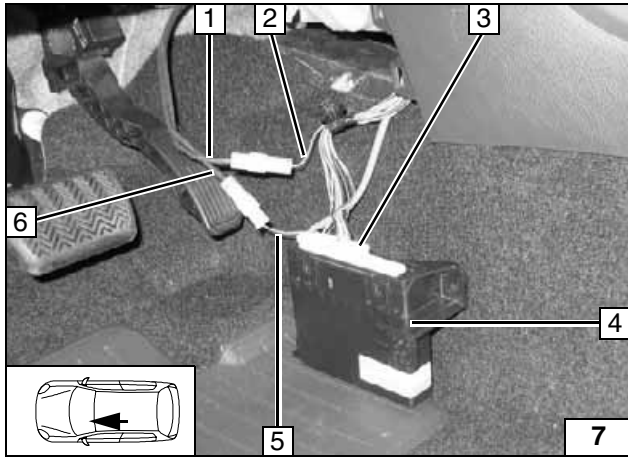
- 1 Summer / winter switch, hole Ø 12 mm



Automatic air conditioning circuit diagram

Webasto components		Components Toyota RAV 4		Colours and symbols	
HG	heater unit TT-C/E	GM	blower motor	rt	red
X1	6-pin heater unit connector	A/C R	Control (Integration Control and Panel Assembly)	ws	white
F3	Fuse, new 10A			sw	black
K3	blower relay	A/C V	A/C amplifier	br	brown
				ge	yellow
		Fa	Fuse 10A ECU-B		
		Fb	Fuse 10A ECU-IG1		
		Fc	Fuse, 7.5A ACC		
		Fd	Fuse 10A ECU-IG2		
		Fe	Fuse, 50A HTR		
				X	splitting point

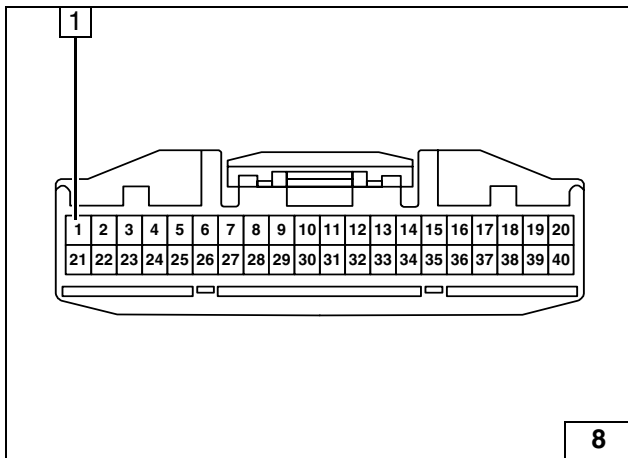
Legend



Automatic air conditioning blower control

Connection to 40-pin connector 3 white E41 from the AC amplifier 4.
Reconnect according to the circuit diagram.

- 1 Red (rt) wire from K3/87a
- 2 Yellow (ge) wire from fuse ECU-IG
- 6 Wire (sw) from K3/30
- 5 Yellow (ge) wire to connector pin 1

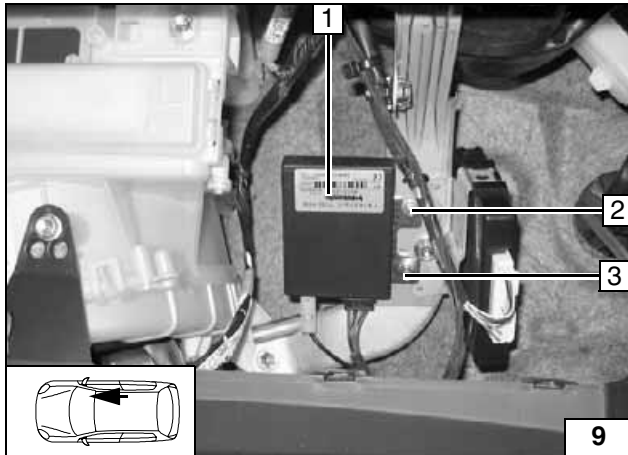


- 1 Connector E41 pin 1



Connecting the blower motor

Connector E41, contact side

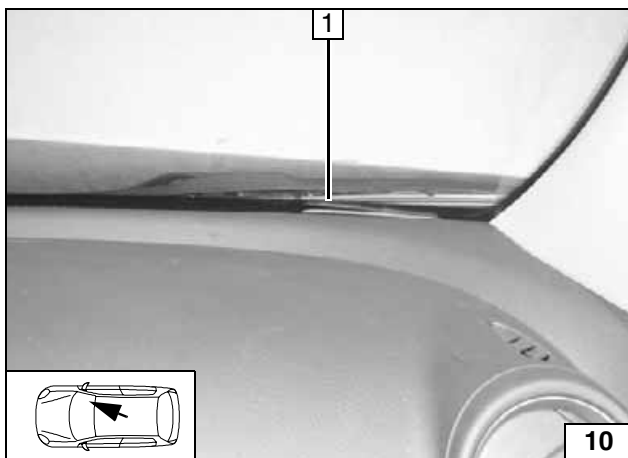


Remote Start Option

- 1 Receiver, bracket
- 2 M5x12 bolt, washer, flanged nut
- 3 M5x12 bolt, washer, flanged nut



Assembling the receiver



- 1 Antenna

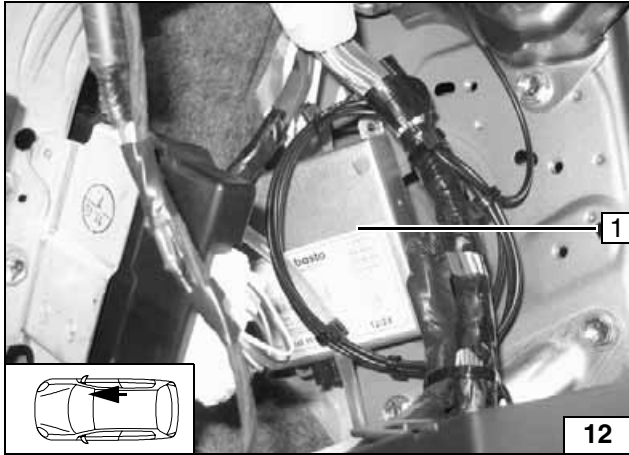
Assembling the antenna



Temperature sensor for HTM100 only

- 1 Temperature sensor, cable clip
- 2 Original vehicle cable harness behind glove compartment under the air duct

Assembling the temperature sensor

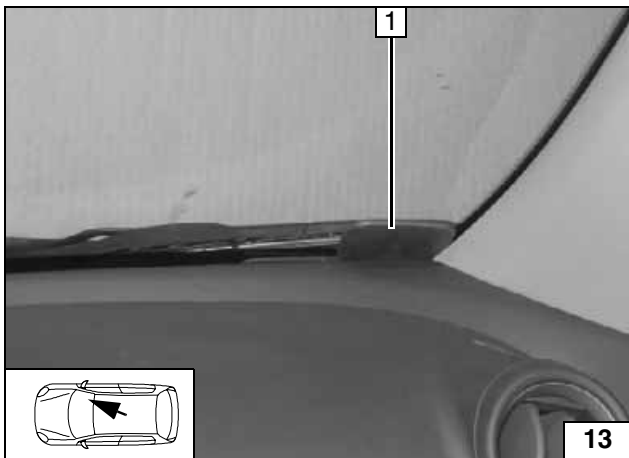


Thermo Call Option

- 1 Receiver, dual lock self-adhesive (2x)

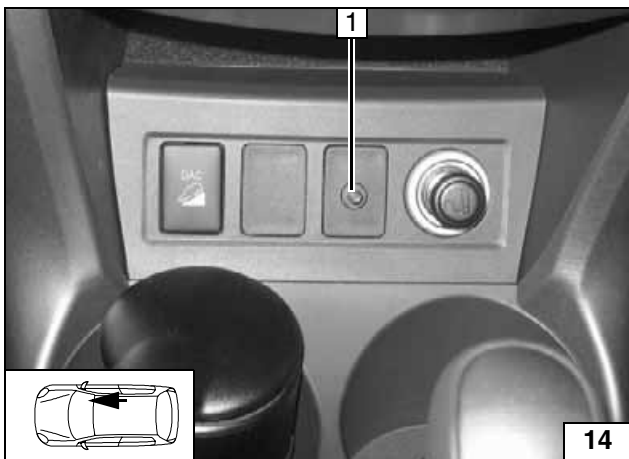


Assembling the receiver



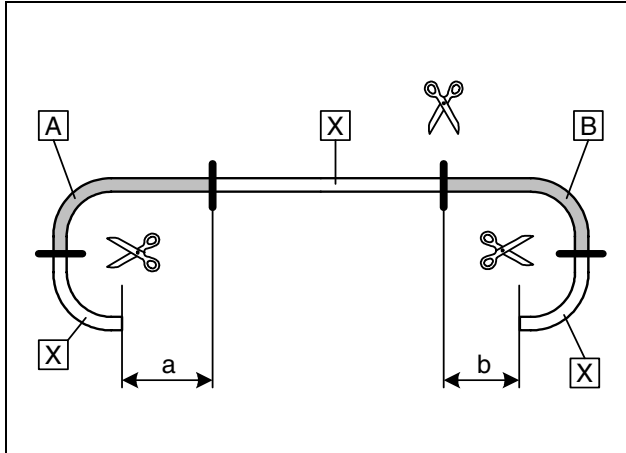
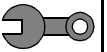
- 1 Antenna

Assembling the antenna



- 1 Tip switch

Assembling the tip switch



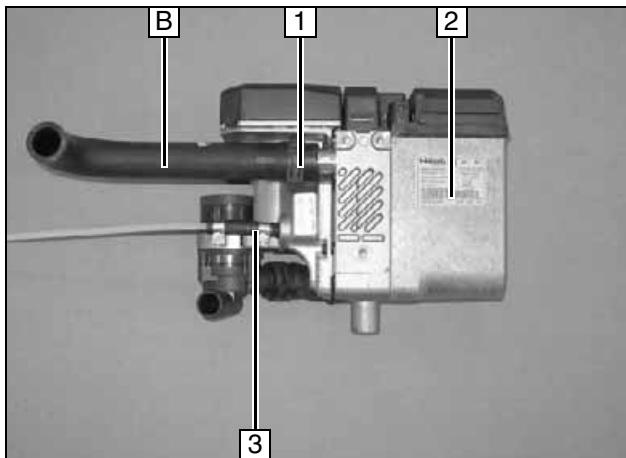
Preparing the Heater Unit

a = 80mm
b = 125mm

Dispose of section X

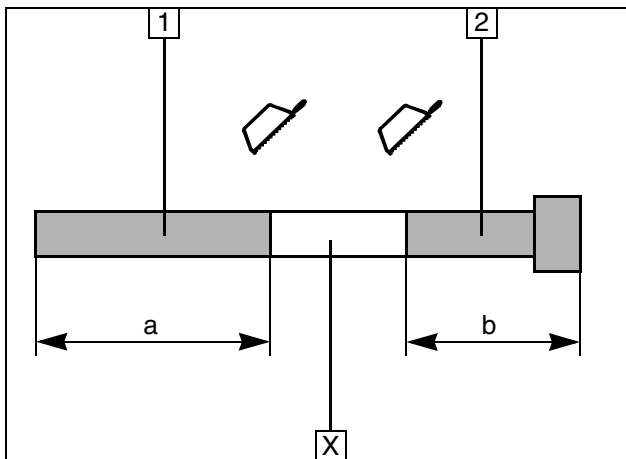


Cutting water hoses to length



- 2 Heater unit
- 1 Spring band clamp Ø 27mm
- 3 Hose section, Ø 10mm hose clamps [2x], Mecanyl fuel line cut down to 2,500 mm

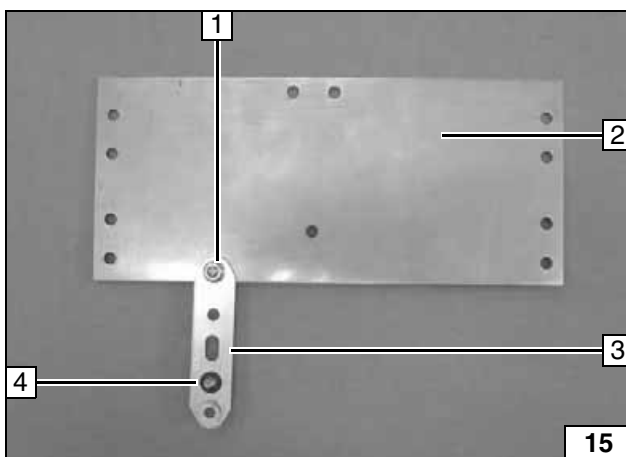
Pre-assemble the Heater Unit



- 1 Exhaust pipe
a = 630mm
- 2 Exhaust end section
b = 285mm

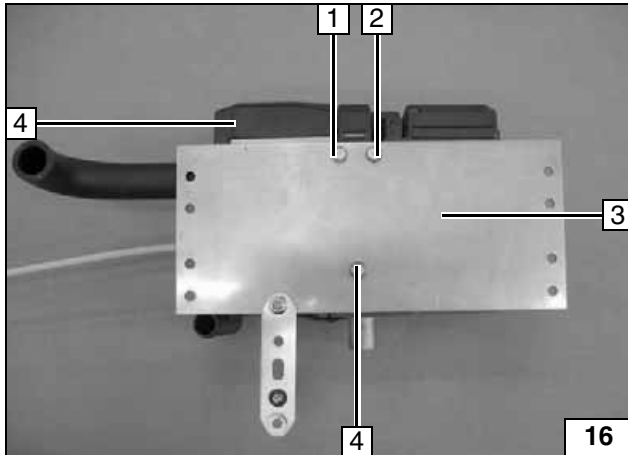
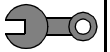
Dispose of section X

Preparing the exhaust pipe



- 2 Bracket
- 3 Fastening strap with holes
- 1 M6x12 bolt, M6 flanged nut
- 4 M6x12 bolt, bolt protector

Pre-assembling the bracket

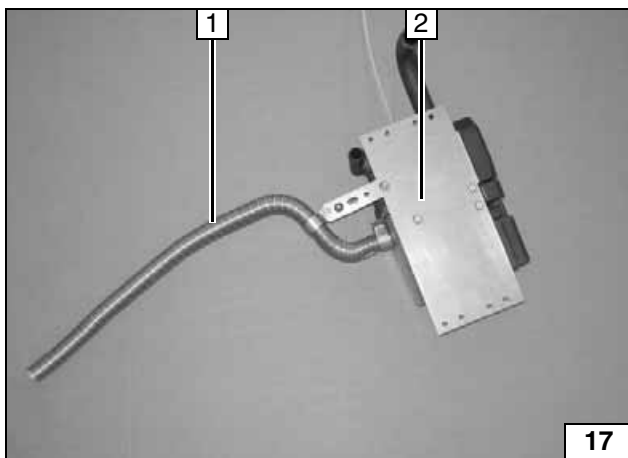


E-jot screw bolts tightening torque 10 Nm!
Between bracket and heater unit according to the figure

- 4 Heater unit
- 1 E-jot screw bolt, washer
- 2 E-jot screw bolt, washer
- 4 E-jot screw bolt, washer [3x]

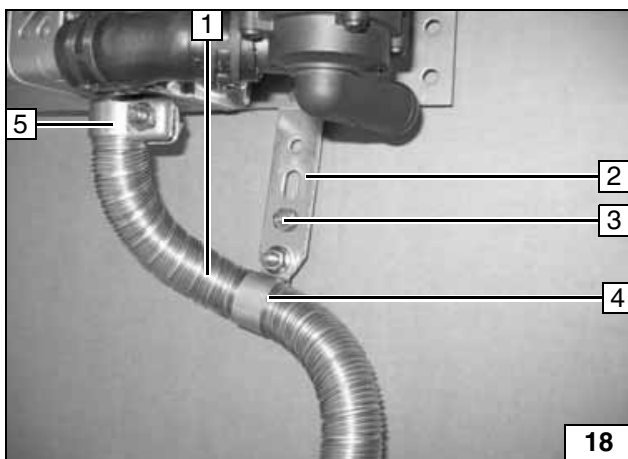


Pre-assembly of the bracket



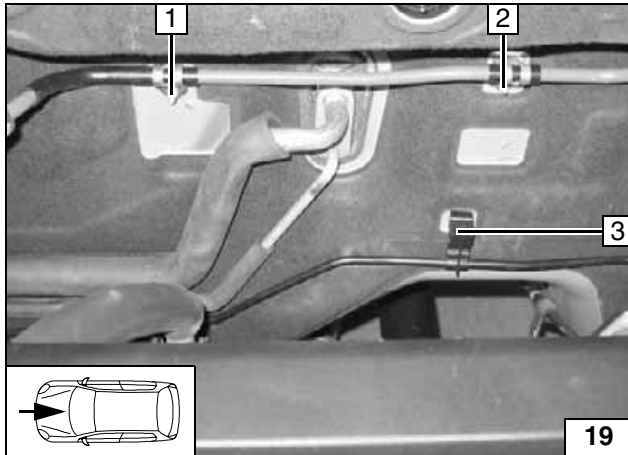
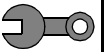
- 1 Exhaust pipe
- 2 Heater unit, bracket

Pre-assembly of the exhaust pipe



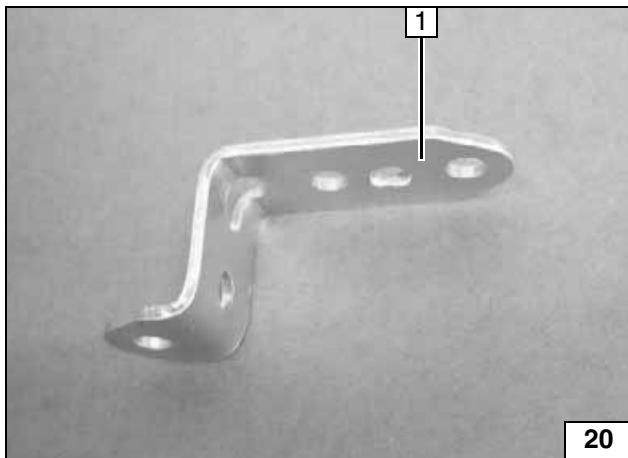
- 1 Exhaust pipe
- 5 Hose clamp
- 2 Fastening strap with holes
- 3 M6x12 bolt, spring washer, bolt protector
- 4 Tube clamp, M6x20 bolt, flanged nut M6

Pre-assembly of the exhaust pipe



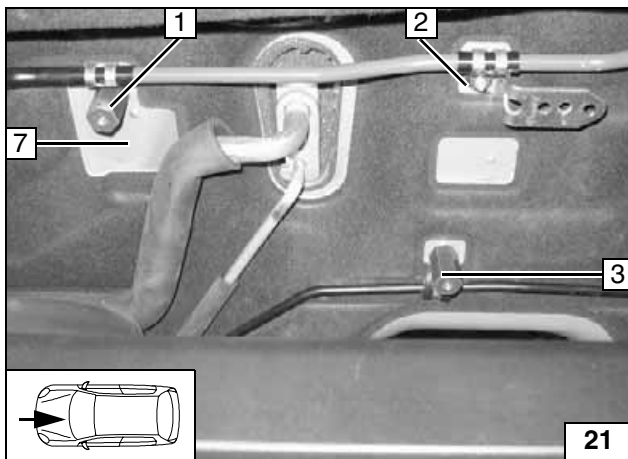
Preparing the Installation Location

- 1 Remove the original vehicle nut
- 2 Remove original vehicle bolt, this will be used again.
- 3 Remove retaining clip



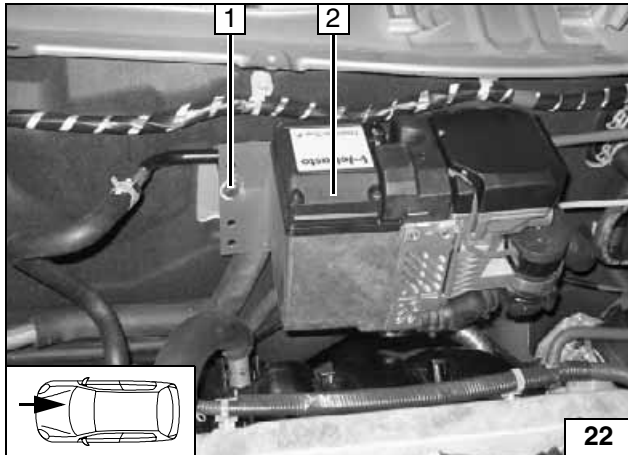
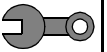
Drill and bend the fastening strap according to the template

- 1 Fastening strap with holes



- 1 M6x30 spacer nut, retaining clamp, original vehicle stay bolt
- 2 Fastening strap, retaining clamp, original vehicle stay bolts, original vehicle flanged nut
- 3 M6x30 spacer nut, Ø15mm rubber tube clamp, original vehicle line

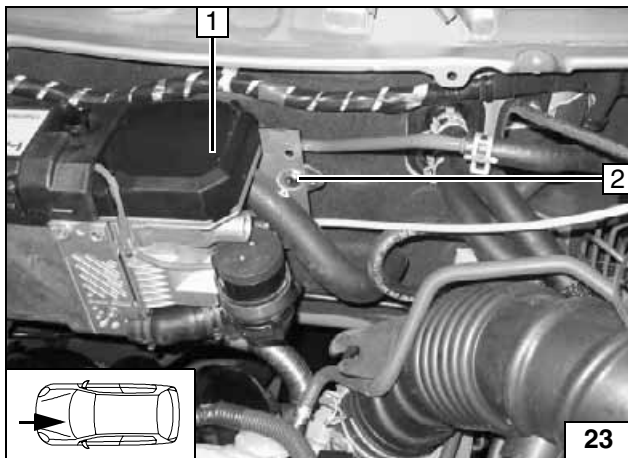
Preparing the Installation Location



Installing the Heater Unit

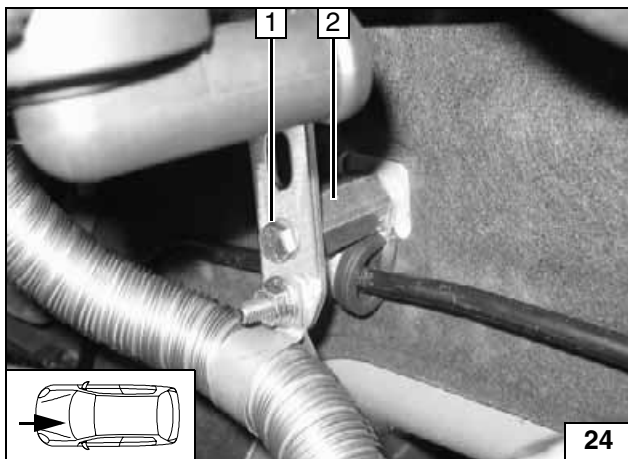
- 1 Pre-assembled heater unit
- 2 Pre-assembled M6x12 bolt, spring washer, M6x30 spacer nut

Assembling the Heater Unit



- 1 Heater unit
- 2 Pre-assembled M6x20 bolt, flanged nut M6, hole sheet

Assembling the Heater Unit



Check the position of all components; adjust if necessary. Check that they have free clearance.
Tighten all bolt connections.



- 1 Pre-assembled M6x16 bolt
- 2 Pre-assembled M6x30 spacer nut, Ø15mm rubber tube clamp

Assembling the heater unit



Fuel Connection

CAUTION!

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

Catch any fuel running off with an appropriate container.

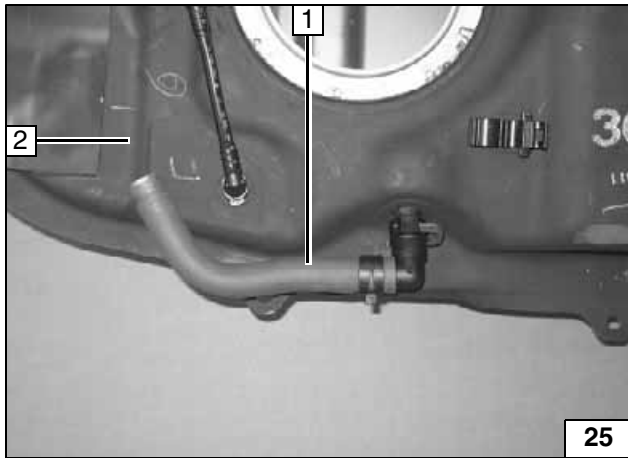
Install fuel line and metering pump cable harness so that they are protected against stone impact.

Unless specified otherwise, always fasten using cable clips!

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

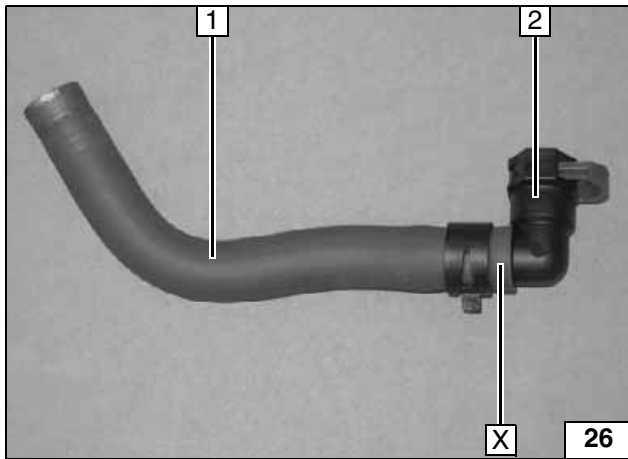
WARNING!

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



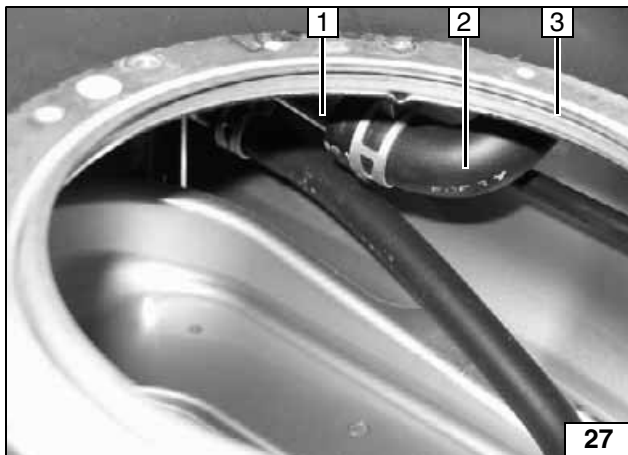
Remove the tank ventilation line.

- 2 Fuel tank
- 1 Tank ventilation line



Remove the quick coupling, the coupling piece will not be used again, the spring band clamp will be used again. Place marking at position X

- 1 Tank ventilation line
- 2 Quick coupling
- 3 Quick coupling



Remove the inside 90° hose bend for the tank ventilation, this will be used again.

- 1 Tank ventilation pipe line
- 2 90° tank ventilation pipe angle
- 3 Fuel tank



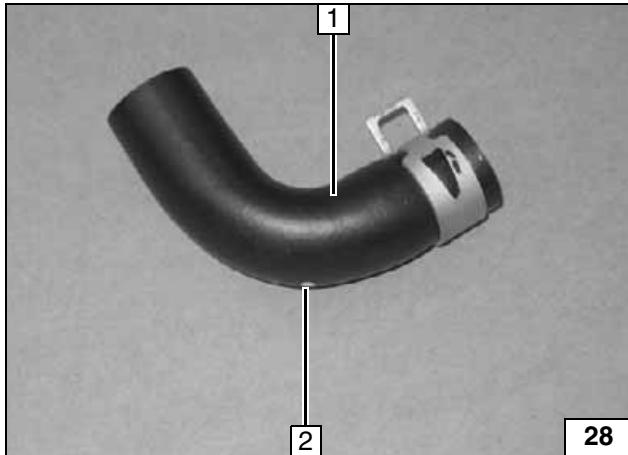
Preparing the fuel take-off



Preparing the fuel take-off



Preparing the fuel take-off

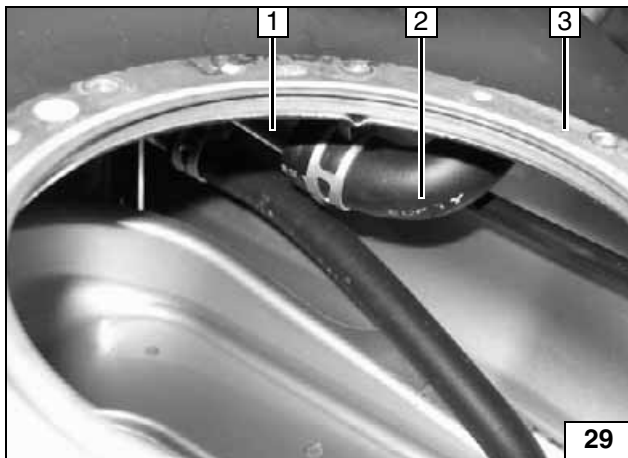


Drill pipe angle at position 2 (Ø 3 mm).

- 1 Molded hose
- 2 Drill Ø 3-4mm bore hole



Preparing the fuel take-off

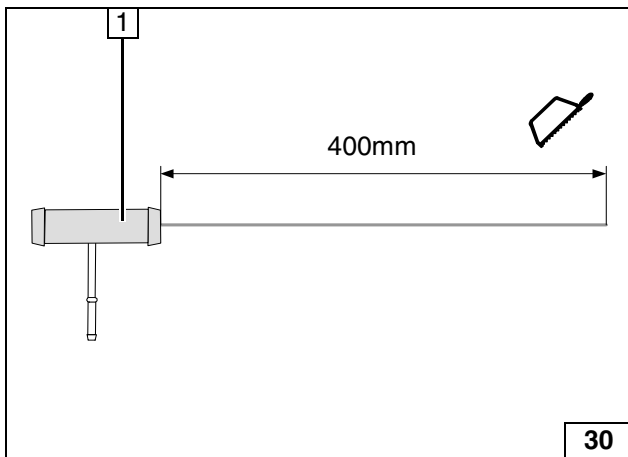


Replace the tank ventilation pipe angle

- 1 Tank ventilation pipe line
- 2 90° tank ventilation pipe angle
- 3 Fuel tank

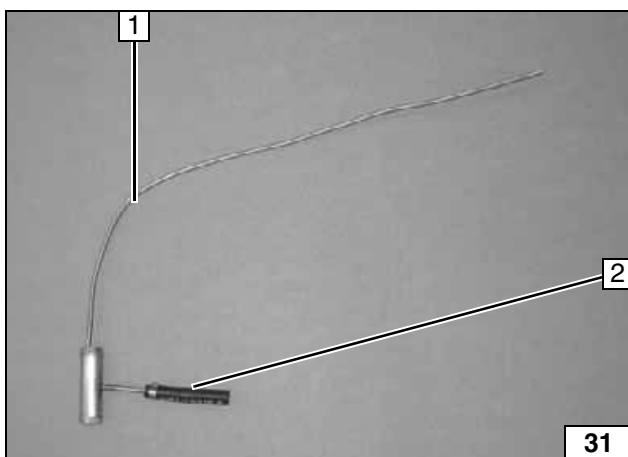


Preparing the fuel take-off



1 Tank extracting device

Cut down the tank extracting device

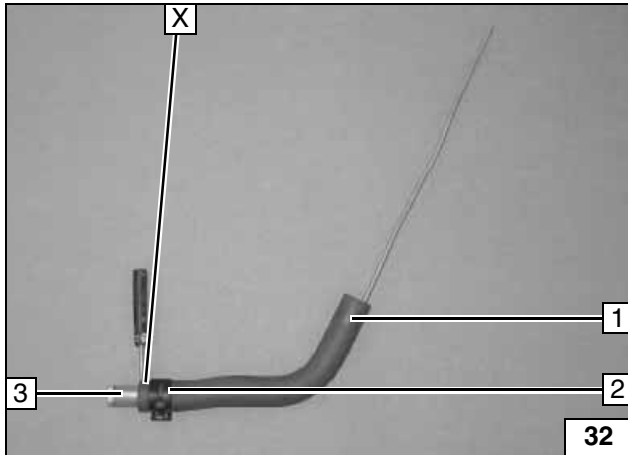


Bend the tank extracting device to size according to the template.

- 1 Tank extracting device
- 2 Molded hose Ø 3.5 mm x 4.5 mm, universal clip Ø 8 mm



Preparing the tank extracting device

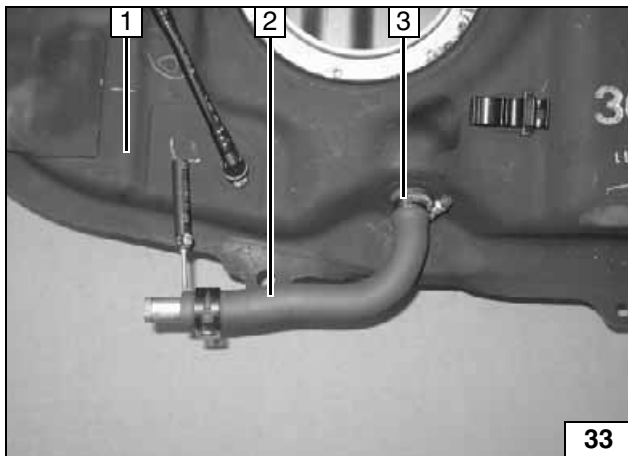


Assemble the tank ventilation line according to the illustration, note the **X** marking!

- 1 Tank ventilation line
- 2 Original vehicle spring band clamp
- 3 Tank extracting device

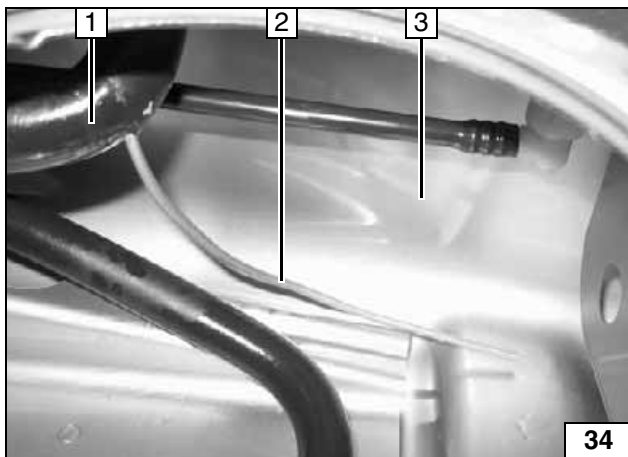


Tank extracting device



- 1 Fuel tank
- 2 Tank extracting device, ventilation line
- 3 Hose clamps Ø 16-24mm

Insert fuel take-off

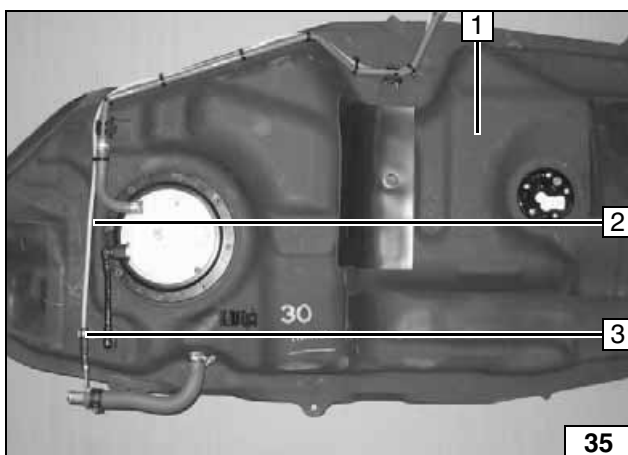


Shape the tank extracting device according to figure.

- 1 Tank ventilation hose section in the tank
- 2 fuel extractor
- 3 Fuel tank



Insert fuel take-off

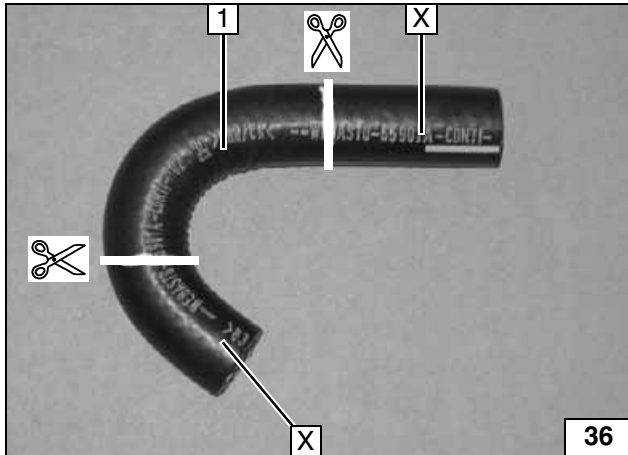


Assemble tank mounting according to manufacturer's instructions. Fasten the fuel line to the original vehicle fuel line with cable clips.

- 1 Fuel tank
- 2 Molded hose Ø 3.5 mm x 4.5 mm, universal clip Ø 10mm
- 3 Mecanyl fuel line



Placement of the fuel line

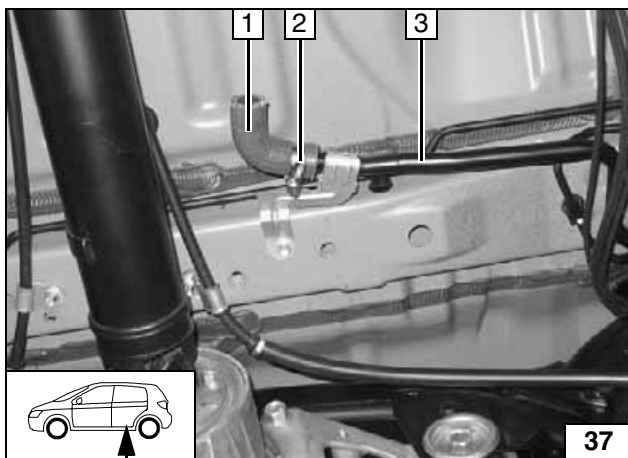


Dispose of section X

1 Molded hose

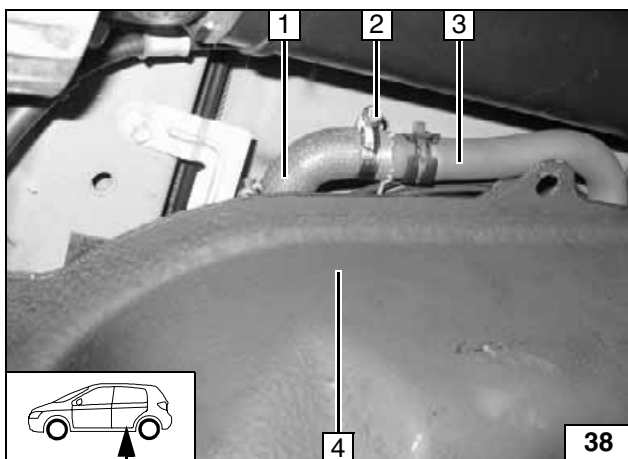


Preparing the tank ventilation molded hose



1 Tank ventilation molded hose
2 Hose clamps Ø 16-24mm
3 Tank ventilation pipe line

Tank ventilation line assembly

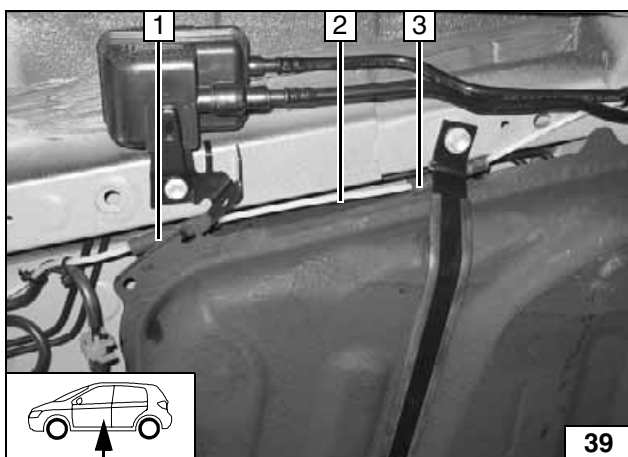


Assemble fuel tank according to manufacturer's instructions. Connect pre-assembled molded hose with tank extracting device connecting pieces

4 Fuel tank
1 Tank ventilation molded hose
2 Hose clamps Ø 16-24mm
3 Tank ventilation hose, tank extracting device



Tank ventilation line assembly

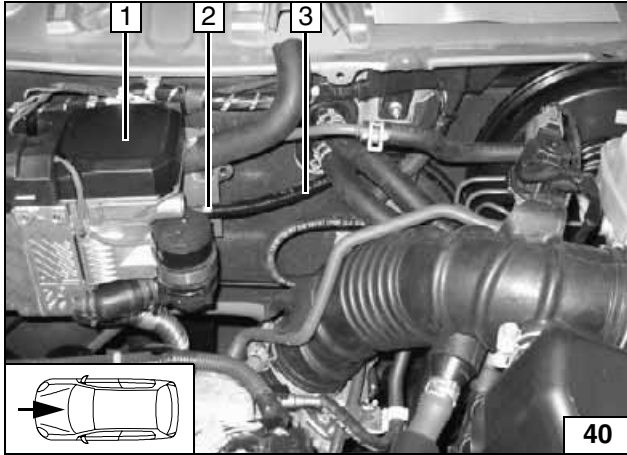


Use 8x12 molded hose as edge protector.

1 Molded hose 8x12, cable clips
2 Mecanyl fuel line
3 Molded hose 8x12, cable clips



Placement of the fuel line

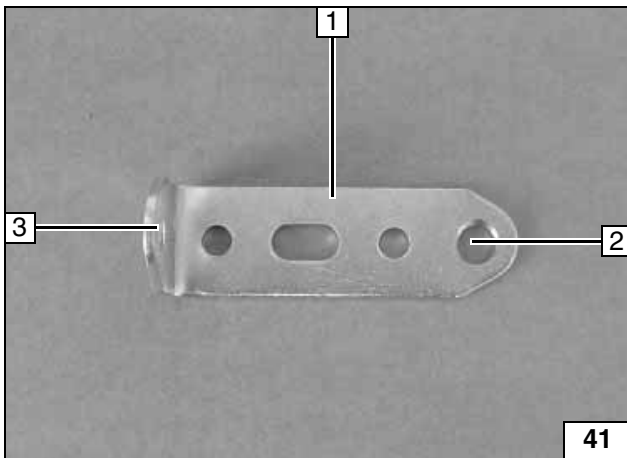


Slide the enclosed flexible hose on the Mecanyl fuel pipe and run this together with the cables for the metering pump along the original vehicle fuel lines to the vehicle underbody.

- 1 Heater unit
- 2 Pre-assembled Mecanyl fuel line
- 3 Flexible hose



Connecting to the heater unit

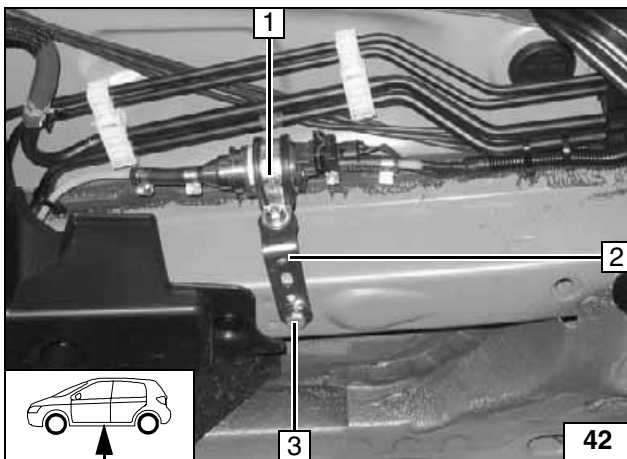


Bend and drill the fastening strip according to the figure

- 1 Fastening strip
- 2 Hole Ø 8.5mm
- 3 Angle 90°



Working the fastening strap

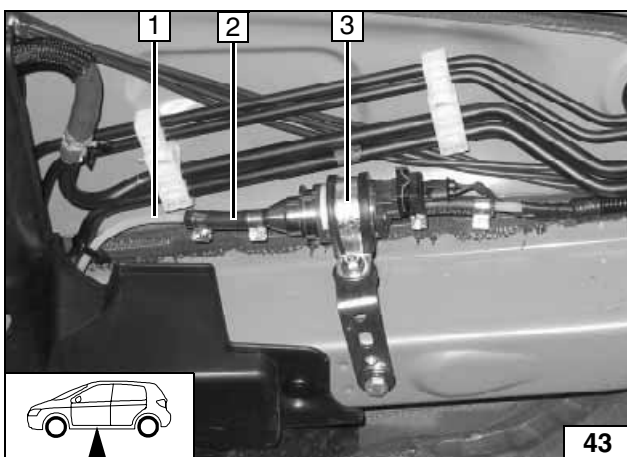


Note the installation position of the metering pump, see the Installation Instructions.

- 3 M6x20 bolt, spring washer, existing threaded insert M8
- 1 Metering pump, silentblock, flanged nut M6, rubber tube clamp
- 2 Fastening strip



Metering pump installation location



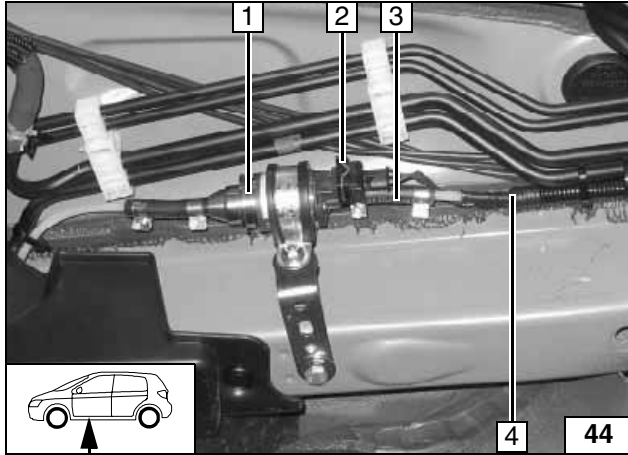
Fuel line from the fuel extractor on the intake side of the metering pump [side without connector].

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

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



Connecting to the metering pump

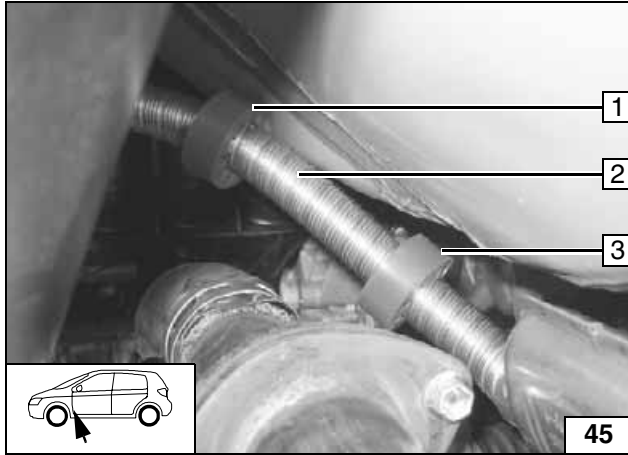
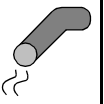


Fuel line from the heater unit on the pressure side of the metering pump [side with connector].
Check the position of the components; adjust if necessary. Check that they have free clearance.

- 1 Metering pump
- 2 Hose section, Ø 10mm hose clamps [2x]
- 3 Metering pump connector, cables
- 4 Flexible hose, Mecanyl fuel pipe, metering pump wire harness



**Connec-
ting to the
metering
pump**



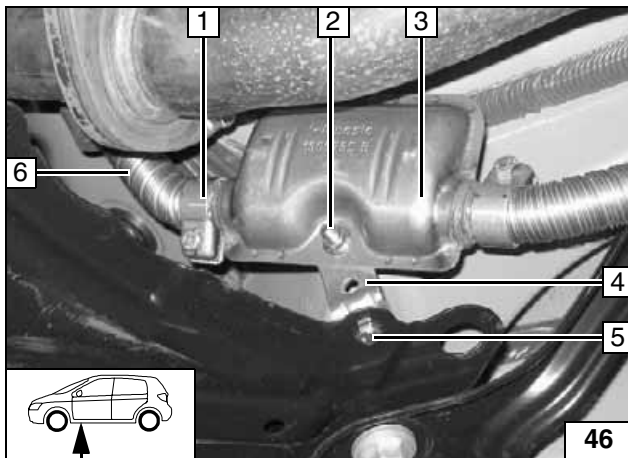
Exhaust System

Slide on red rubber spacer (2x) according to the figure

- 1 Red rubber spacer
- 2 Pre-assembled exhaust line from the heater unit
- 2 Red rubber spacer



Assembling the exhaust pipe

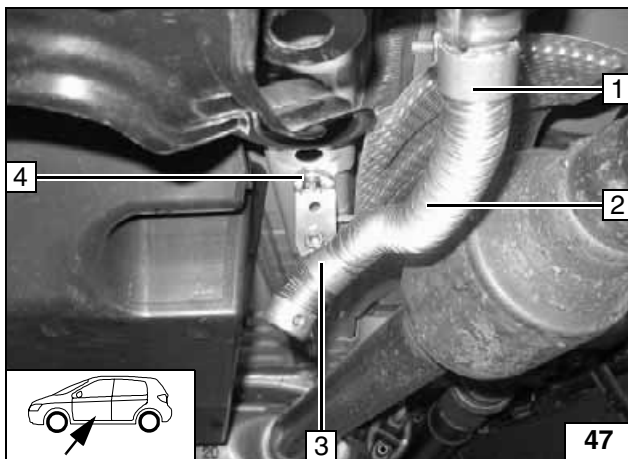


Ensure sufficient distance from adjacent components.

- 6 Exhaust pipe
- 3 Exhaust silencer
- 3 Hose clamp
- 4 Angle bracket
- 2 M6x20 bolt, flanged nut M6
- 5 M6x20 bolt, flanged nut M6



Assembling the silencer

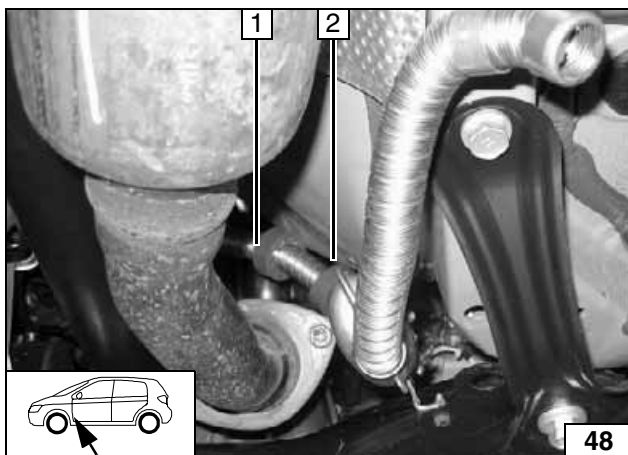


Ensure sufficient distance from adjacent components.

- 1 Exhaust silencer, hose clamp
- 2 Exhaust end section
- 4 M6x20 bolt, spring washer, angle bracket, original vehicle threaded insert
- 3 Tube clamp, M6x20 bolt, flanged nut M6



Assembling the exhaust pipe

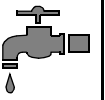


Ensure sufficient distance from adjacent components.

- 1 Red rubber spacer
- 2 Red rubber spacer



Align the spacer rubber



Water Connection

WARNING!

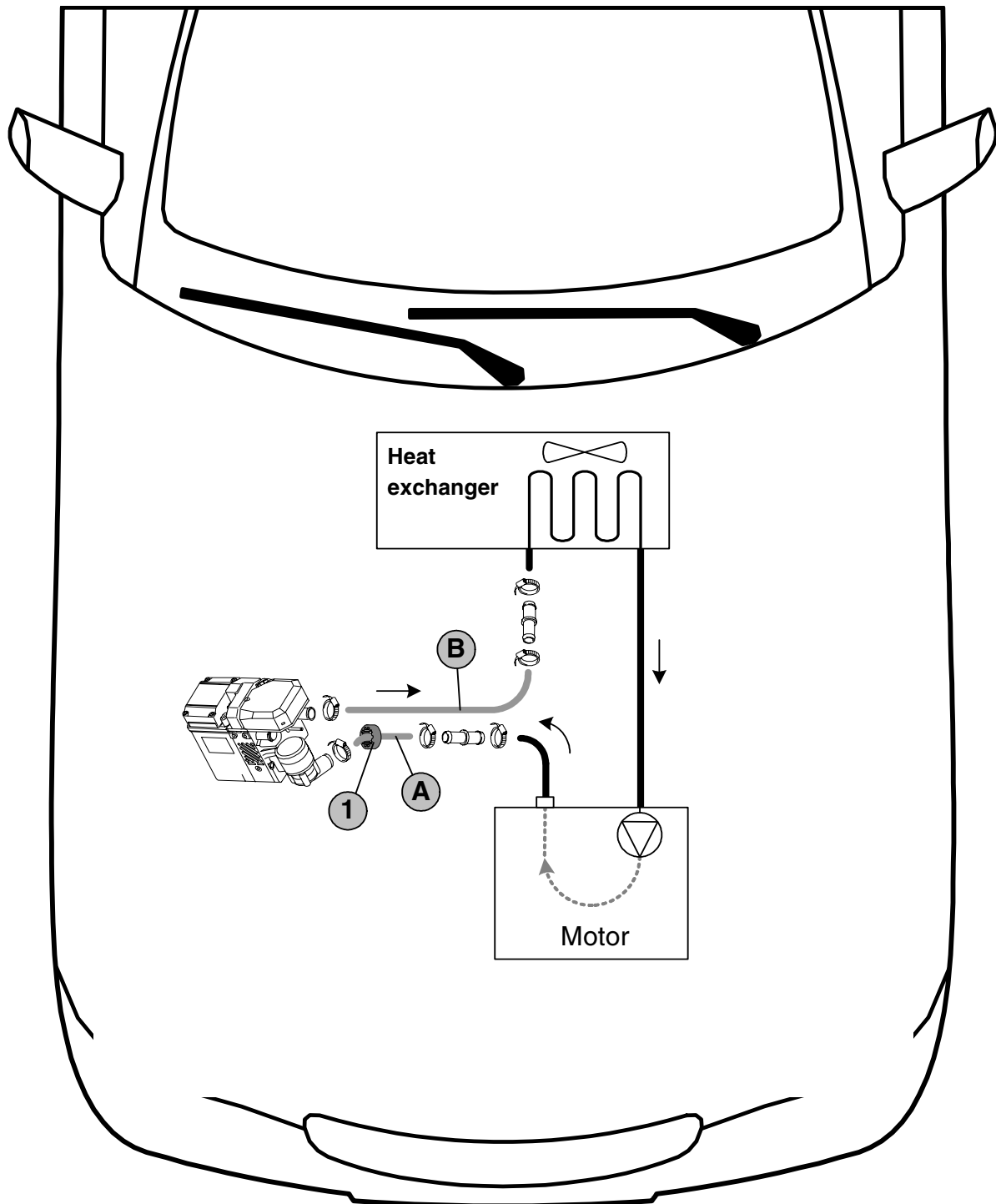
Tighten all hose clamps to 2.0 + 0.5 Nm.

Any coolant 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!

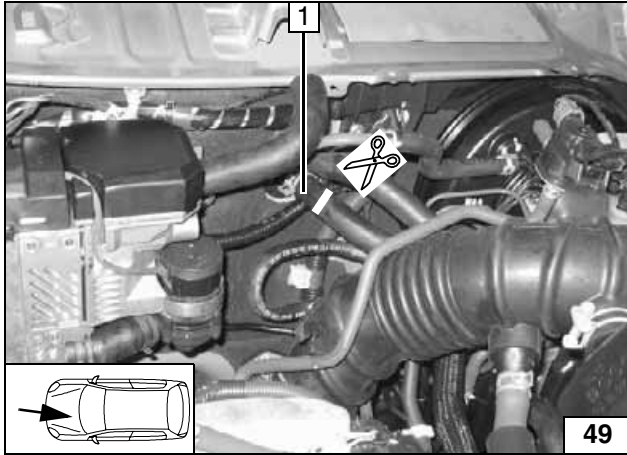
The connection should be "inline" based on the following diagram:



Water installation diagram

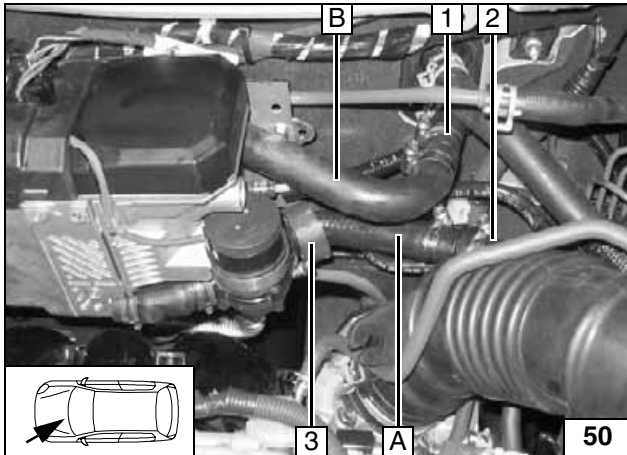
All hose clamps = Ø 20-27 mm. All connecting pipes = Ø 17x20.
Position 1 = black rubber profile.





1 Engine outlet exhaust hose

splitting point

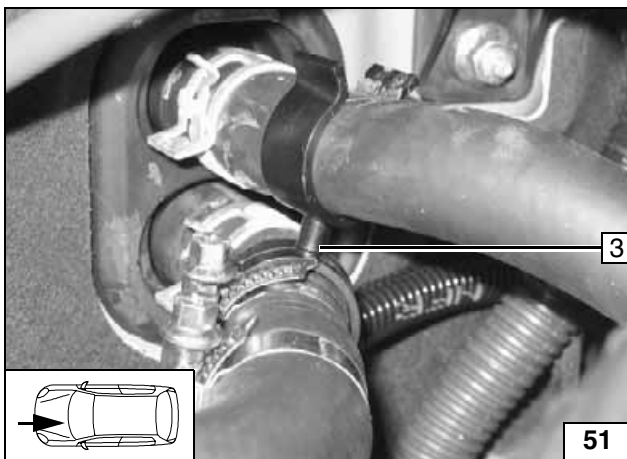


Before connecting, fill the water hoses with coolant.

- 1 Heat exchanger inlet hose section
- 2 Engine exhaust hose section
- 3 Black rubber profile



Installing in the engine compartment

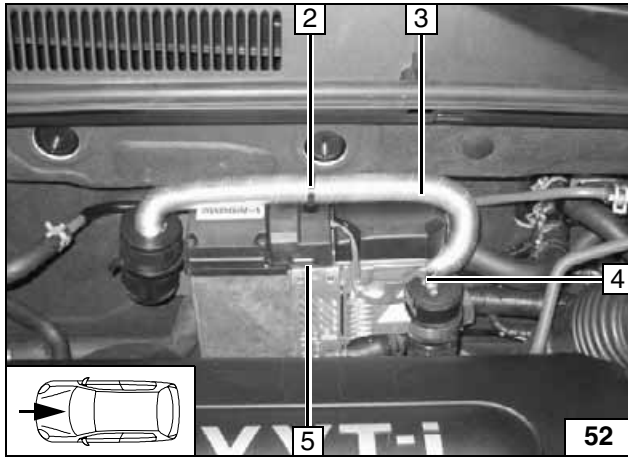
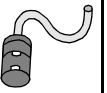


Inserting spacer bracket according to the figure.

- 1 Spacer bracket



Inserting spacer bracket



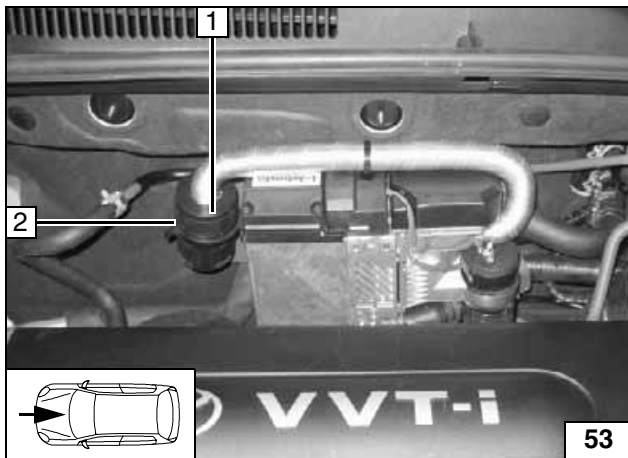
Combustion Air

Punch out perforated hole in the heater unit cover, insert the cable clips.

- 5 Heater unit
- 3 Combustion air intake pipe
- 4 Ø 27mm hose clamp
- 2 Clip-on cable clip



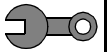
Assembling the vacuum line.



- 1 Combustion air intake silencer
- 2 Retaining clip in bore hole



Assembling the silencer



Final Work

WARNING!

Reassemble disassembled components in reverse order.

Check that all hose lines, hose, spring band clamps and universal clips, and all electrical connections are securely fastened.

Secure all loose cables using cable clips.

Only use manufacturer-approved coolant.

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

- Connect battery.
- Start engine, bleed coolant circuit according to the vehicle manufacturer's specifications, top up with coolant.
- Set the time switch.
- Make settings according to "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:

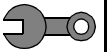


- 1 Temperature to "HI"
- 2 Air outlet to windscreen, AC off
- 3 Blower to setting "2", max. "3"

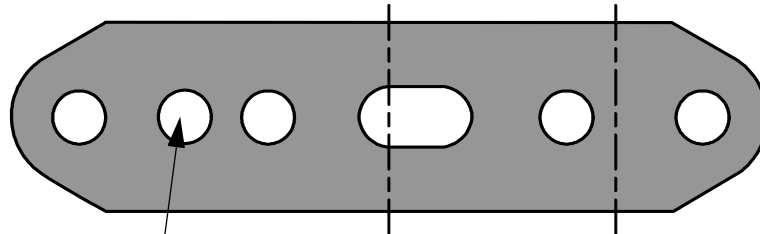
For vehicles with automatic airconditioning

For short distance trips, it is not recommended that the rear window heating be used.

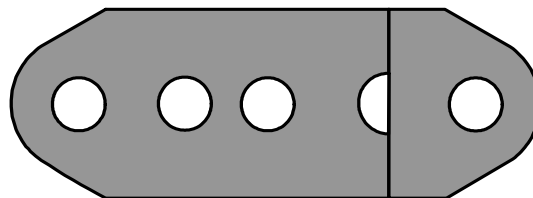
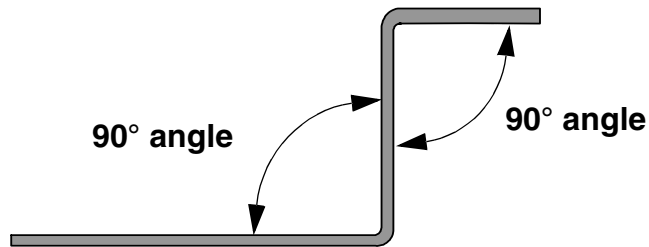
Rule of thumb for operating the auxiliary heating: driving time = heating time.



Fastening Strap Template



Ø 7mm bore hole



100mm



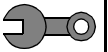
Scale 1:1

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

Set the printer settings to "no margin" or "minimize margins"
and 100% of the normal size.

100mm

0



Tank Extracting Device Template

