

Water Heater Unit



Thermo Top E Additional Heater



Thermo Top C Additional Heater



Installation Instructions

smart fortwo coupe/convertible

Gasoline and Diesel
from Model Year 2007
Left-hand drive vehicle



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 warnings.

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

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Validity

Manufacturer	Model	Type	EG-BE No./ABE
smart	fortwo coupe/convertible	BR 451	e1 * 2001/116 * 0413 * ...

Engine type	Engine model	Output in kW	Displacement in cm ³
132.9	Gasoline	45	999
132.9	Gasoline	52	999
132.9	Gasoline	62	999
	Diesel	33	799

Vehicle and engine types, equipment variants and national specifications not listed in these installation instructions have not been tested. However, installation according to these installation instructions may be possible.

The installation location of the digital timer should be confirmed with the end customer before installation.

smart fortwo coupe/convertible

Heater Unit/Delivery Scope

Quantity	Description	Order No.:
1	Delivery scope of smart fortwo coupe/convertible Gasoline without heater control	1312836A
or		
1	Delivery scope of smart fortwo coupe/convertible diesel without heater control	1312837A

Optional heater control either:

Quantity	Description	Order No.:
1	Digital timer	1301122C
1	Telestart T80	9007098A
1	Telestart T100 HTM	9010148B
1	Thermo- Call TC 1.1	9001132B

Foreword

These installation instructions apply to smart fortwo coupe/convertible vehicles with a Gasoline and Diesel engine - for validity, see page 2 - from model year 2007 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* must always 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 wiring harnesses to original vehicle lines and wiring harnesses using cable ties.

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

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

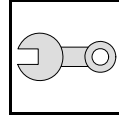
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers

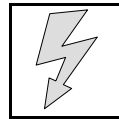
Explanatory Notes on Document

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.

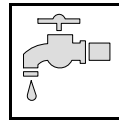
Mechanical system



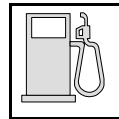
Electrical system



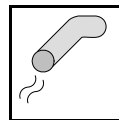
Water



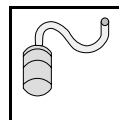
Fuel



Exhaust gas



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.

All dimensions are in mm!

Tightening torque of hose clamps = 2.0 + 0.5 Nm!

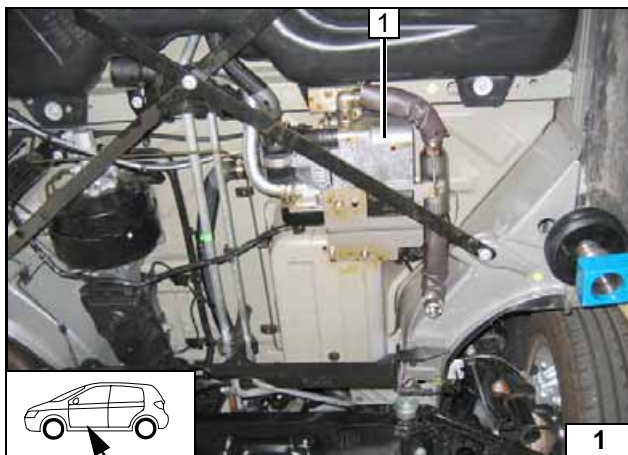
Tightening torque of Ejoy screws, Ejoy studs = 10 Nm!

Preliminary Work

WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Depressurize 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.
- Remove the entire underride protection.
- Remove the air ducting on the underbody.
- Remove the diagonal struts (convertible only).
- Remove the right rear wheel.
- Remove the right rear wheel well trim.
- Remove the fuel tank according to the manufacturer's instructions (gasoline only).
- Remove the fuel-tank sending unit according to the manufacturer's instructions (gasoline only).
- Fold back the floor trim on the front passenger side.
- Expose the battery compartment.

Remove page 21 "Operating Instructions for End Customer" and add to the vehicle operating instructions.

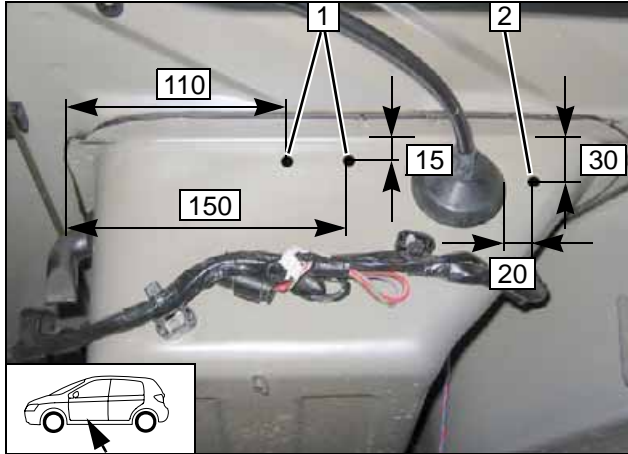


Heater unit installation location

Photo shows convertible!

1 Heater unit

Installation location



Preparing electrical system

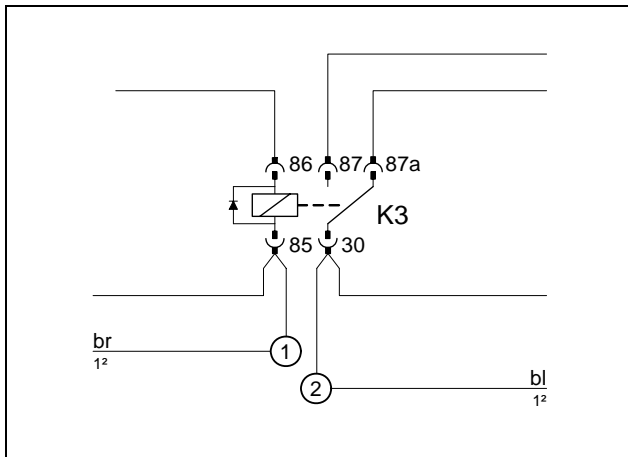
- 1 4.5 mm dia. hole [2x]
- 2 6 mm dia. hole

Holes in battery tray



- 1 Clip-type cable tie in prepared hole

Installing clip-type cable tie



Cut approx. 350 mm off wiring harness of circulating pump.
Connect blue (bl) wire ② to K3/30 and brown (br) wire to K3/85 ① as shown in wiring diagram.



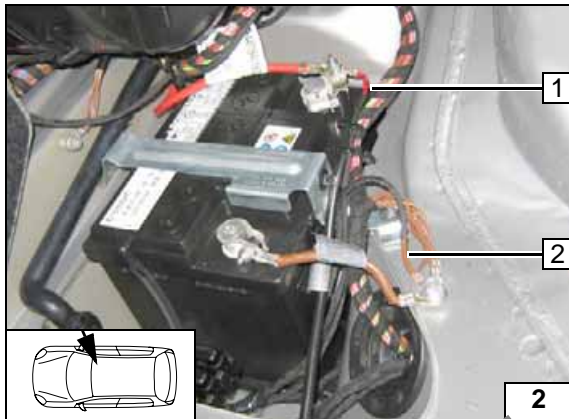
Preparing K3 relay



Electrical system

Positive and ground connection

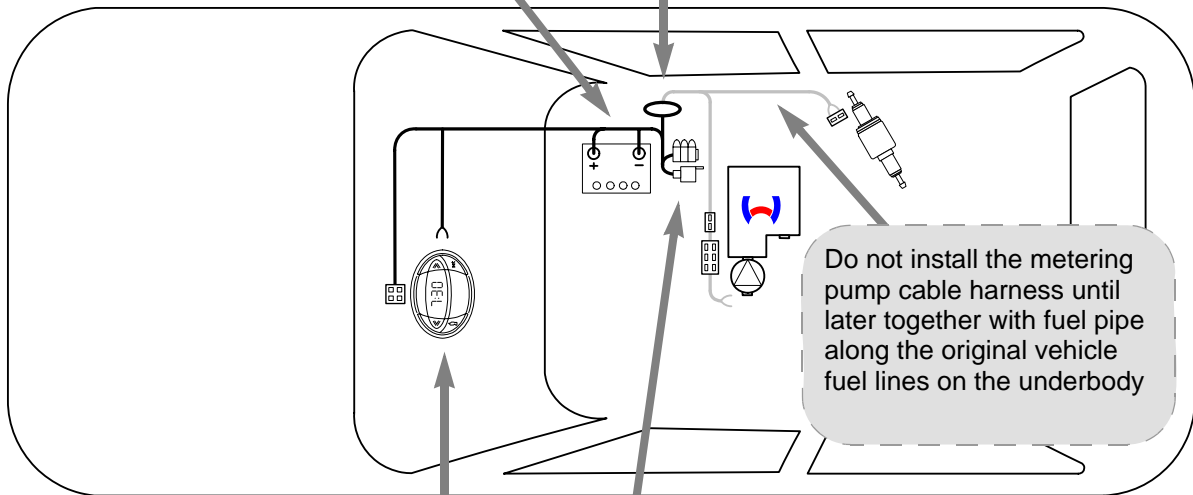
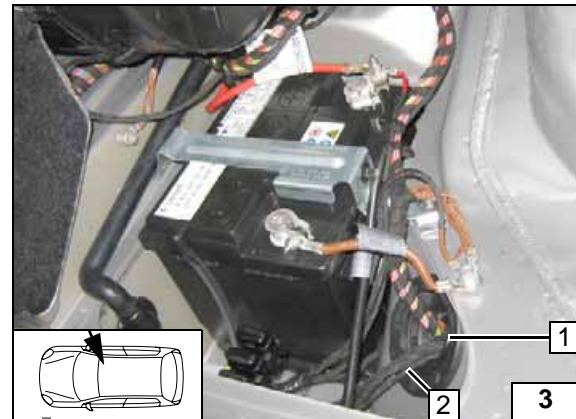
- 1 Positive wire on positive battery terminal
- 2 Ground wire on ground support point



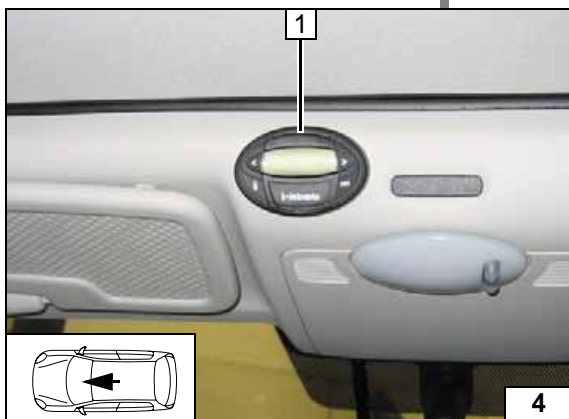
Wiring harness pass through

Route wiring harness of fan controller and wiring harness of digital timer to center console.

- 1 Protective rubber plug
- 2 Wiring harness of heater unit, blue and brown (bl and br) wires, wiring harness of metering pump

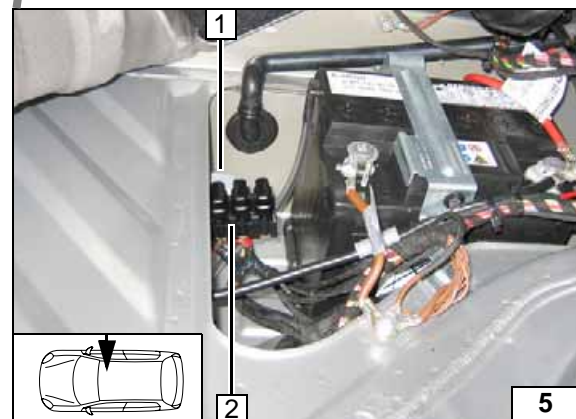


Wiring harness installation diagram



Digital timer

- 1 Digital timer

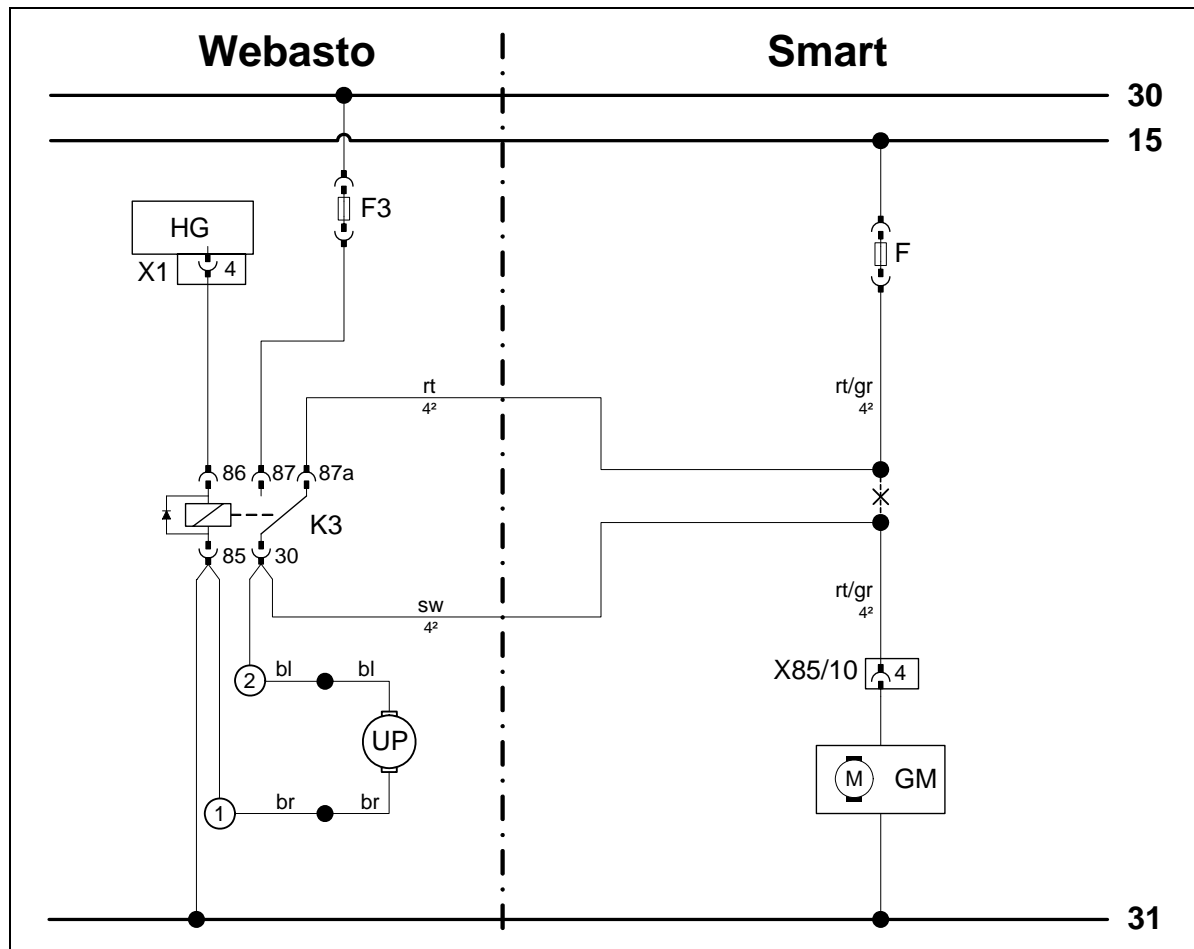


Fuse holder, relay K3

- 1 K3 relay, 5.5x13 self-tapping screw on prepared hole
- 2 Retaining plate of fuse holder, 5.5x13 self-tapping screw on prepared hole



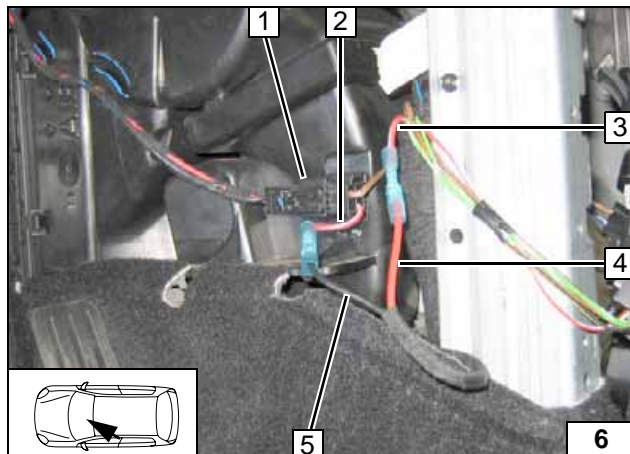
Fan controller for manual air conditioning



Wiring diagram

Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater unit connector	X85/10	4-pin connector GM	bl	blue
F3	25 A fuse	F	Fuse	sw	black
K3	Fan relay			br	brown
UP	Circulating pump			gr	gray
				X	Cutting point
				Wiring colors may vary.	

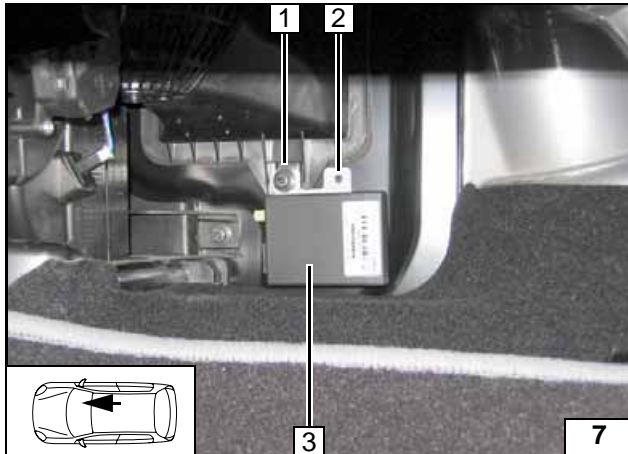
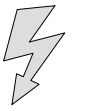
Legend



Connection on 4-pin connector 1 X85/10 of heater or air conditioner. Produce connections as shown in wiring diagram.

- 2 Red/gray (rt/gr) wire from connector X85/10, Pin 4
- 3 Red/gray (rt/gr) wire from fuse
- 4 Red (rt) wire from K3/87a
- 5 Black (sw) wire from K3/30

Connection on connector X85/10

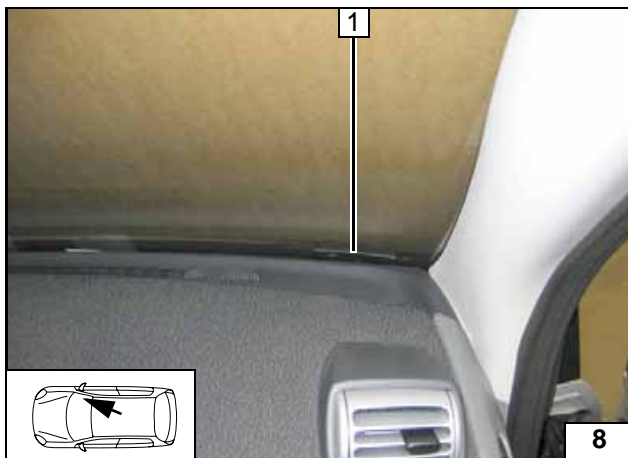


Remote option (Telestart)

- 1 Original vehicle stud bolt, flanged nut
- 2 Bracket
- 3 Receiver

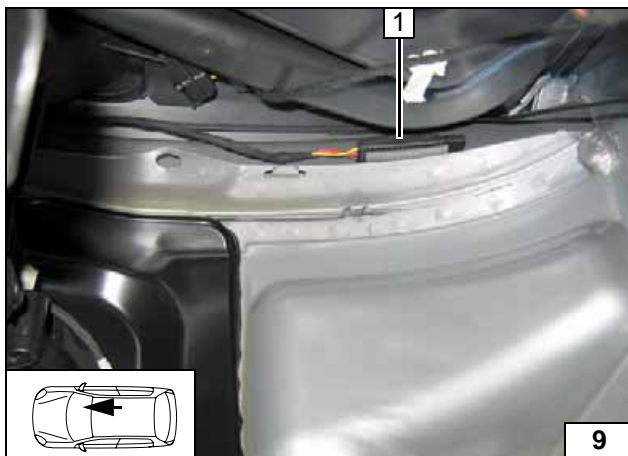


Installing receiver



- 1 Antenna

Installing antenna



Temperature sensor for HTM100 only

- 1 Fasten temperature sensor with double-sided adhesive tape



Installing temperature sensor



Fuel

CAUTION!

Open the vehicle's fuel tank cap, 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 wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties. Mount the fuel line and wiring harness with rub protection on sharp edges.

WARNING!

The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



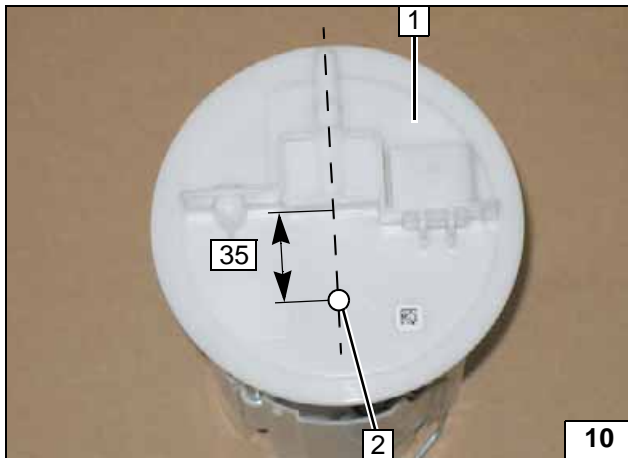
Removing fuel



Installing fuel standpipe



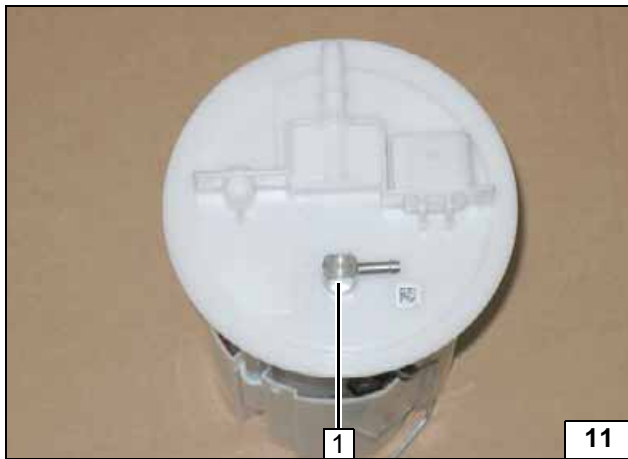
Connecting fuel line



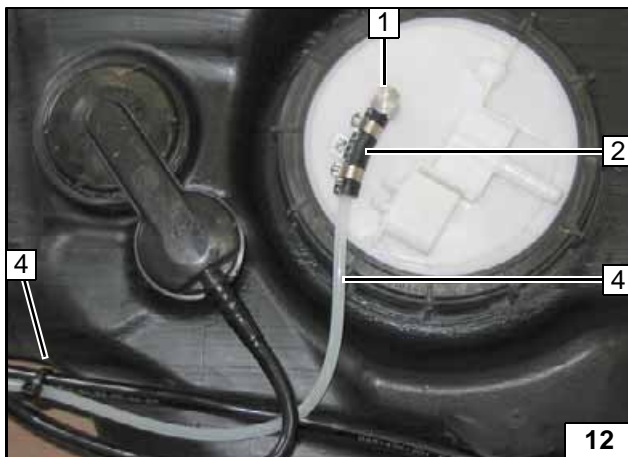
Fuel removal on gasoline engines

Remove fuel tank according to manufacturer's specifications. Remove fuel-tank sending unit **1** in accordance with manufacturer's specifications.

2 Copy hole pattern, 6 mm dia. hole

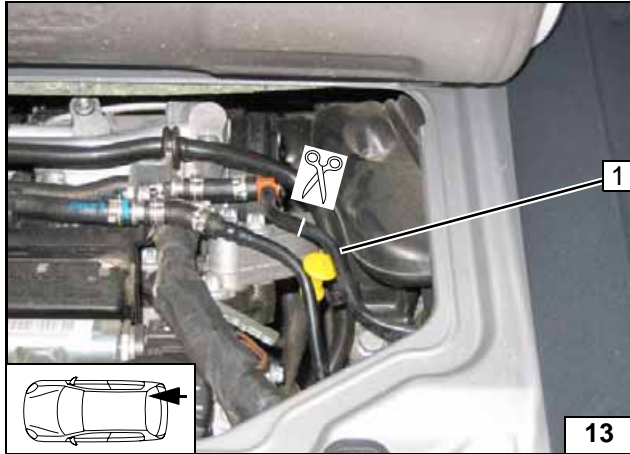


Shape fuel standpipe **1** according to template, cut to length and install.



Install fuel-tank sending unit according to manufacturer's specifications.

- 1** Fuel standpipe
- 2** Hose section, 10 mm dia. Caillau clamp [2x]
- 3** Fuel line
- 4** Cable tie

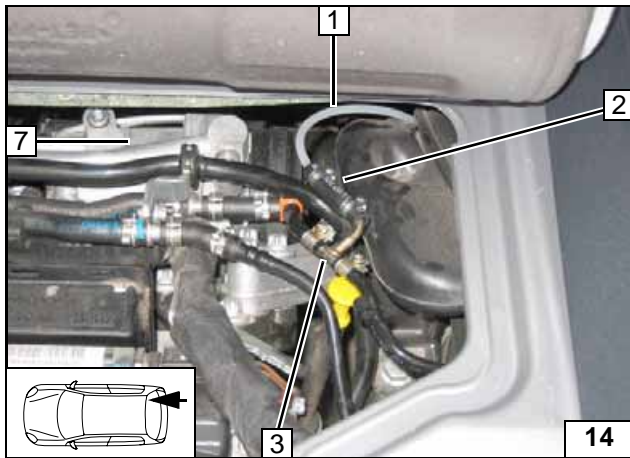


Fuel removal on diesel engines

Cut off return line 1 at marking.



Removing fuel

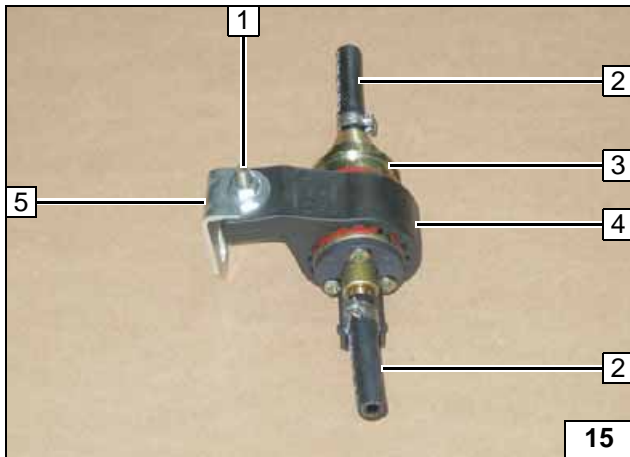


Route fuel line 1 along fuel filler pipe to metering pump.

- 2 Hose section, 10 mm dia. clamp [2x]
- 3 6x5x6 fuel standpipe, 8 mm dia. clamp [2x]



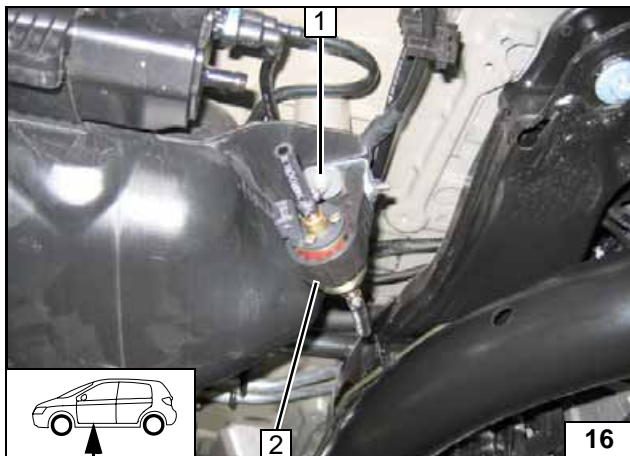
Mounting fuel standpipe



All vehicles

- 1 M6x20 bolt, flanged nut
- 2 Hose section, 10 mm dia. Caillau clamp [2x each]
- 3 Metering pump
- 4 Bracket of metering pump
- 5 Angle bracket

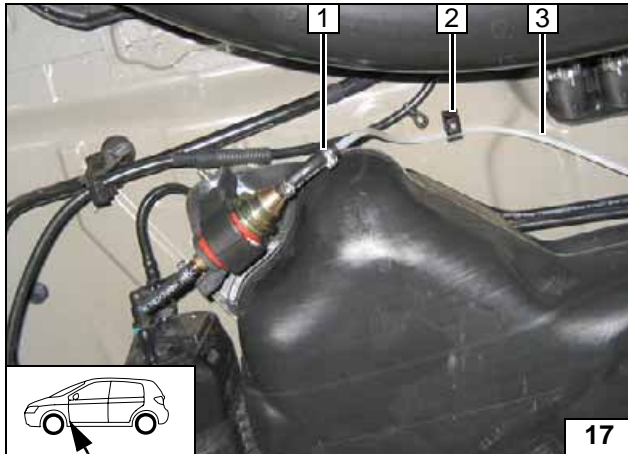
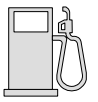
Premounting metering pump



- 1 Original vehicle bolt of tank mount
- 2 Preassembled metering pump



Installing metering pump

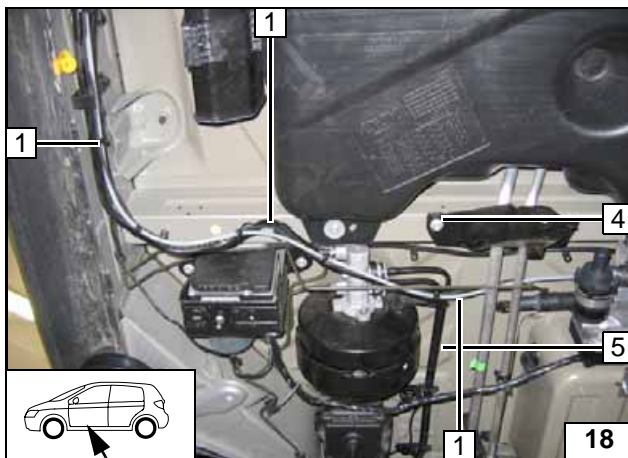


Check the position of the components; adjust if necessary.

- 1 10 mm dia. Caillau clamp
- 2 Spacer bracket on original vehicle stud bolt
- 3 Fuel line on hose section

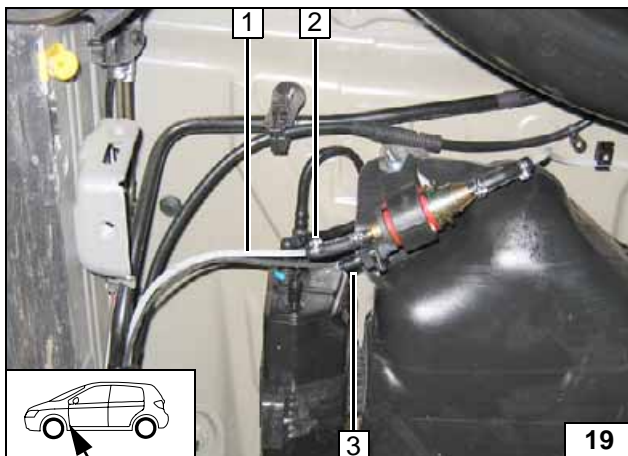


**Connect-
ing to me-
tering
pump**



- 1 Connect fuel line, wiring harness of metering pump to original vehicle lines

**Install-
ing
lines**

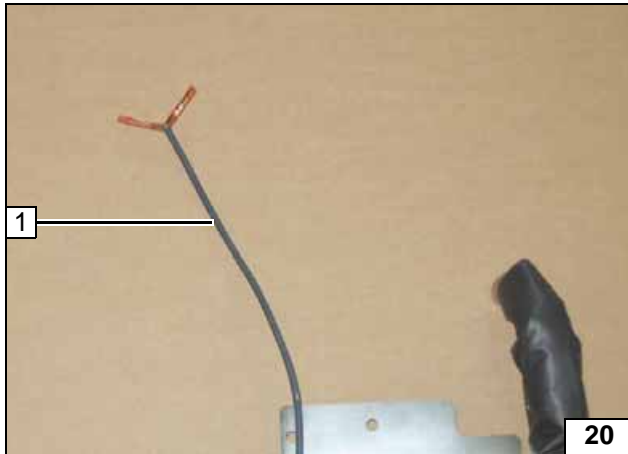
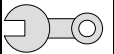


Check the position of the components; adjust if necessary.

- 1 Fuel line on hose section
- 2 10 mm dia. Caillau clamp
- 3 Wiring harness of metering pump, connector mounted



**Connect-
ing to me-
tering
pump**

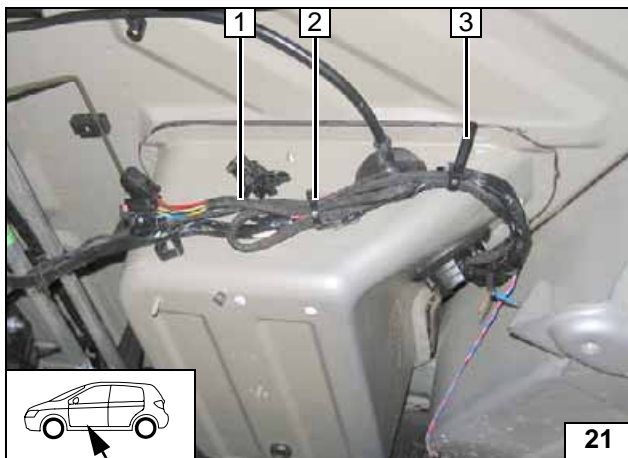


Preparing heater unit

Cut connector off wiring harness of circulating pump **1** and crimp connector [2x] onto brown and brown (br and br) wires.



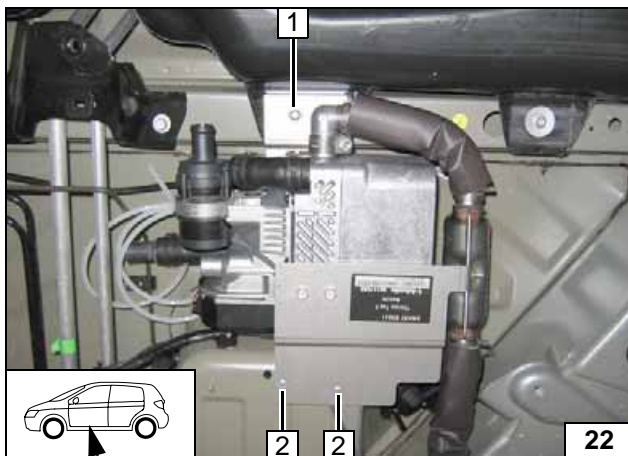
Preparing wiring harness of circulating pump



Preparing installation location

- 1 Wiring harness of heater unit
- 2 Cable tie
- 3 Clip-type cable tie

Fastening wiring harness

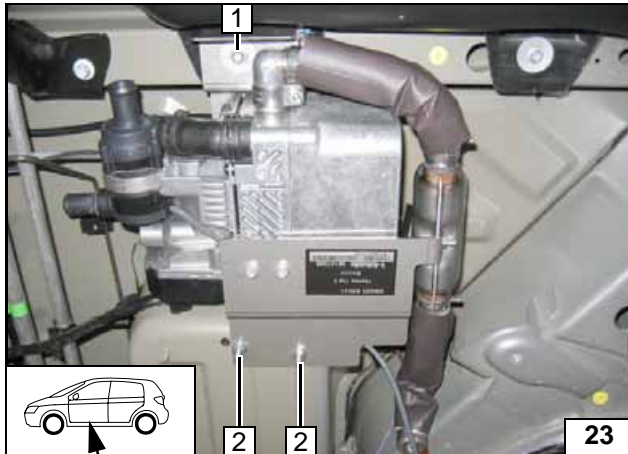
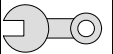


Copy hole pattern to battery tray at position **2** [2x].
Remove heater unit and drill 6.5 mm dia. hole at position **2** [2x].



- 1 Loosely mount original vehicle bolt of fuel tank bracket

Loosely mounting heater unit



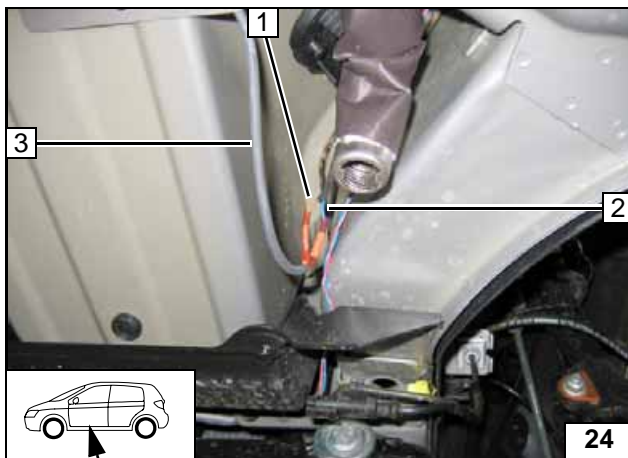
Installing heater unit

Push through bolt with large diameter washers from above.
Connect wiring harness of heater unit.

- 1 Original vehicle bolt of tank bracket
- 2 M6x20 bolt, large diameter washer, flanged nut [2x each]



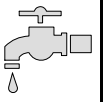
Installing heater unit



Connect wiring harness of circulating pump 3 with blue (bl) wire 2 and brown (br) wire 1 to wires of same color as shown in wiring diagram and shrink.



**Connect-
ing circu-
lating
pump**



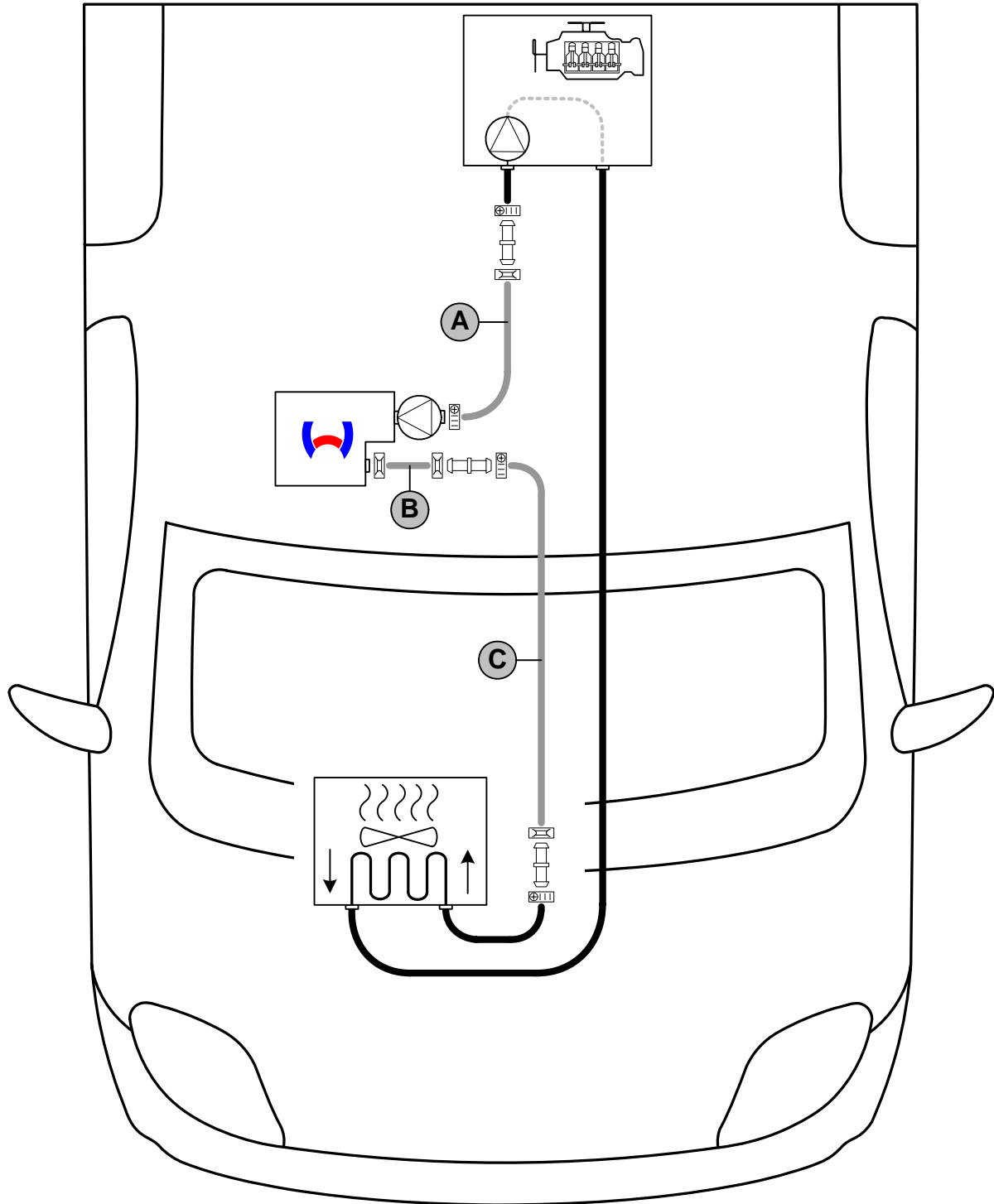
Water






WARNING!

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 ties. Position clamps so that no other hose can be damaged! When installing the coolant hose, the heater unit must be filled with coolant.

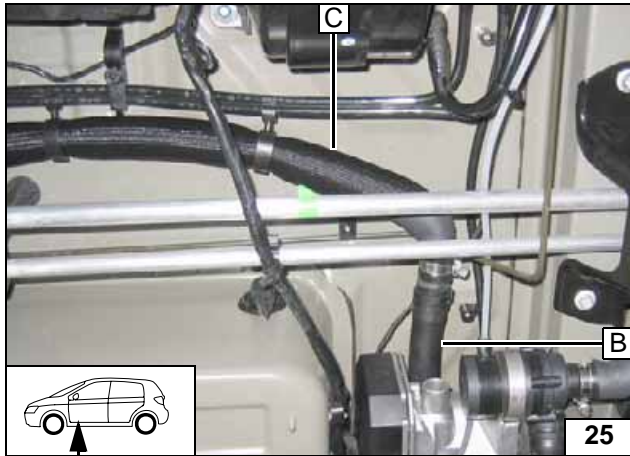
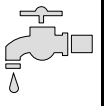
The connection should be "inline" based on the following diagram:



Coolant routing diagram

- Hose **B** = premounted on heater unit outlet!
- All connecting pipe  premounted!
- All spring clops  premounted!
- All hose clamps  = 20-27 mm dia.!

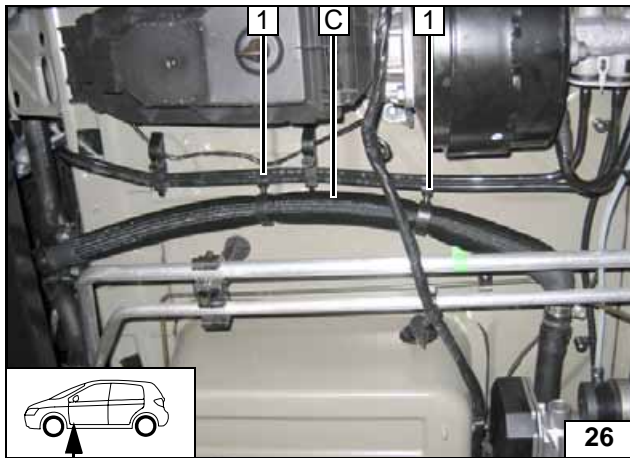




Connect 90° elbow of hose **C** to hose **B**.

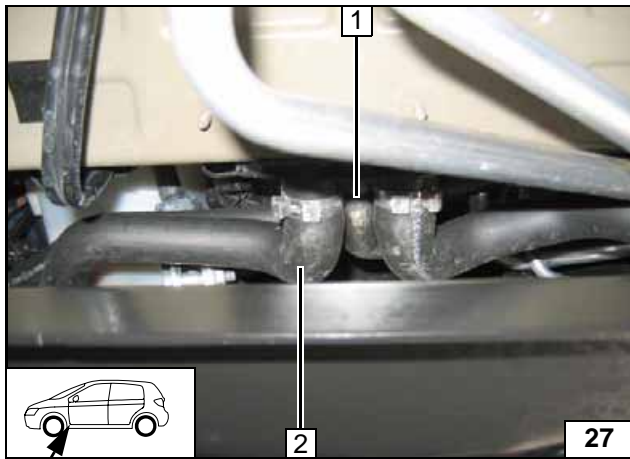


**Connect-
ing heater
unit outlet**



1 Spacer bracket on original vehicle brake lines

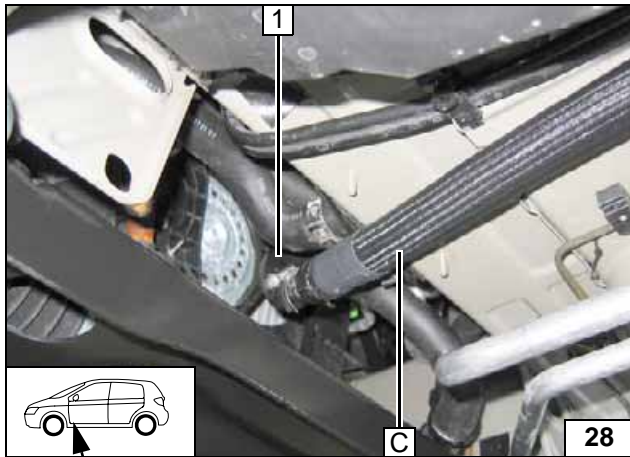
**Routing on
underbody**



Pull off coolant hose **2** for easier installation. Pull hose of heat exchanger inlet **1** off connection piece. Discard clamp.



**Cutting
point**

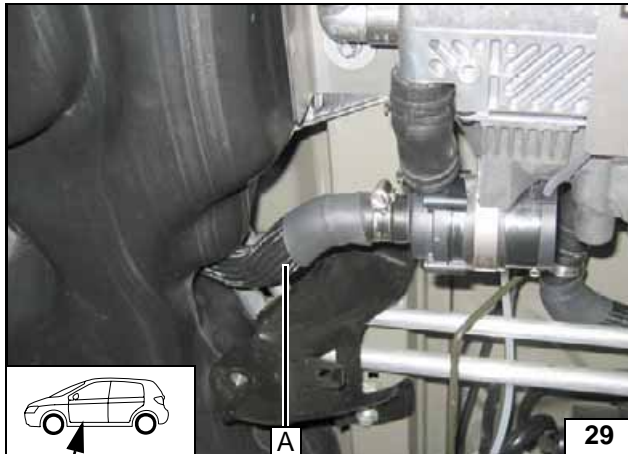
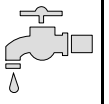


Ensure sufficient distance to neighboring components.



1 Hose section of heat exchanger inlet

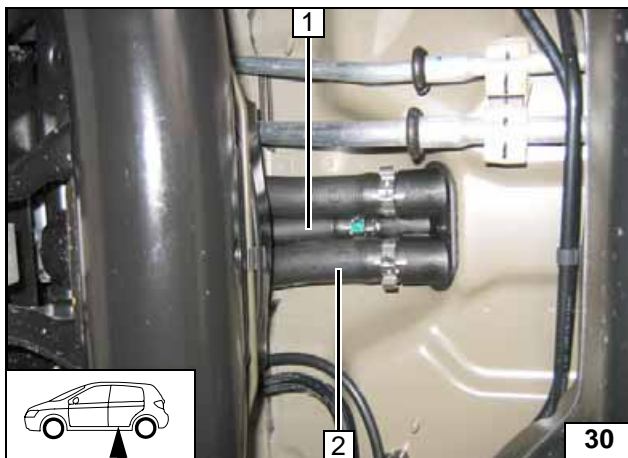
**Connect-
ing heat
exchanger
inlet**



Fasten hose **A** to circulating pump with 90° elbow.



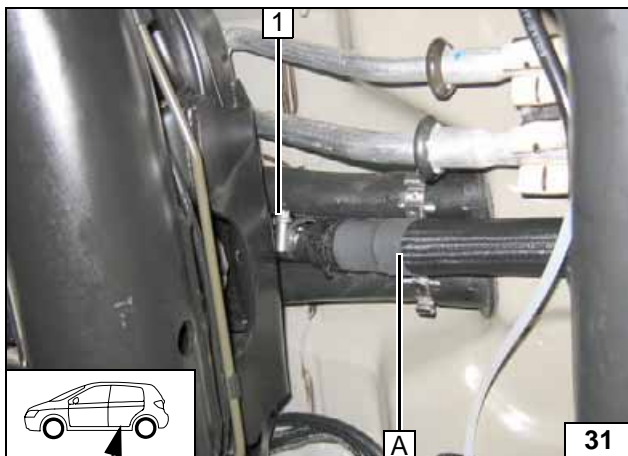
**Connect-
ing heater
unit inlet**



Pull off coolant hose **2** for easier installation. Pull hose of engine outlet **1** off connection piece. Discard clamp.



**Cutting
point**

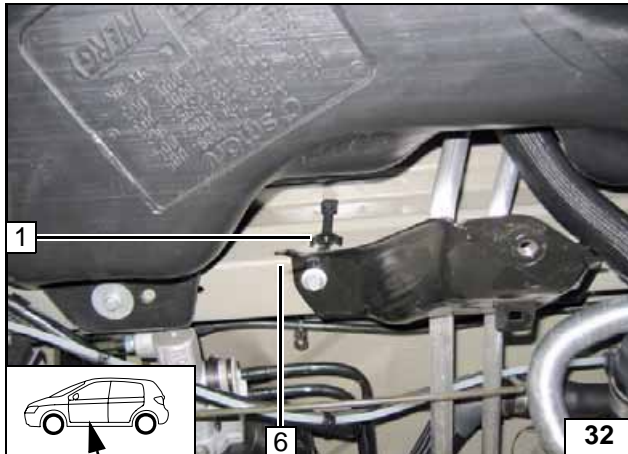
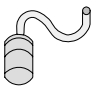


Ensure sufficient distance to neighboring components.



1 Hose of engine outlet

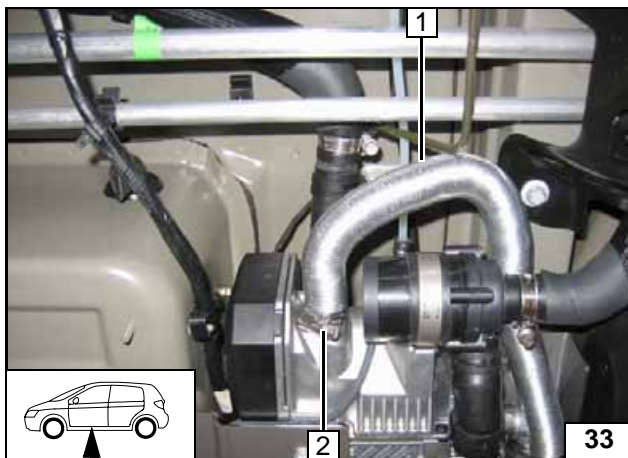
**Connect-
ing engine
outlet**



Combustion air

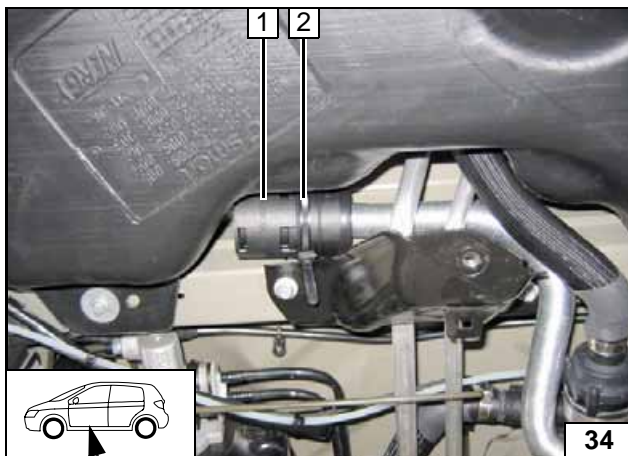
- 1 Clip-type cable tie in existing hole

**Mounting
cable tie**



- 1 Combustion-air intake pipe
- 2 27 mm dia. clamp

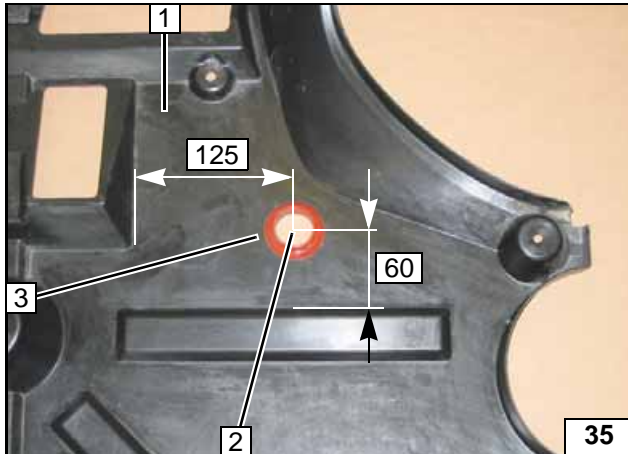
**Installing
intake pipe**



- 1 Intake muffler
- 2 Clip-type cable tie



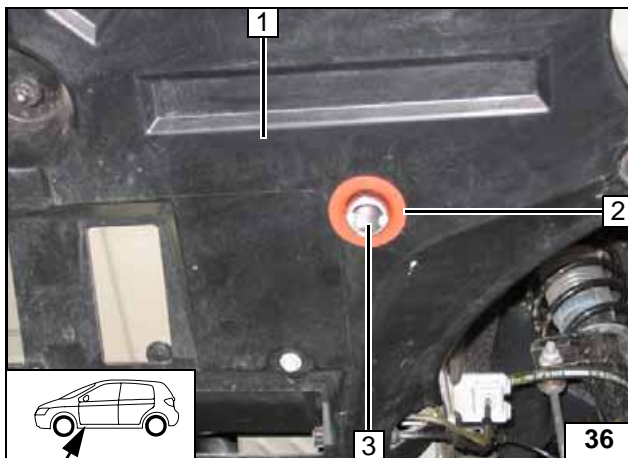
**Installing
muffler**



Exhaust gas

- 1 Underride protection
- 2 42 mm dia. hole
- 3 Red (rt) rubber isolator

Cutting out
underride
protection

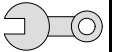


Align exhaust end section 3 flush on red rubber isolator 2.

- 1 Underride protection



Mounting
rubber
isolator



Final Work

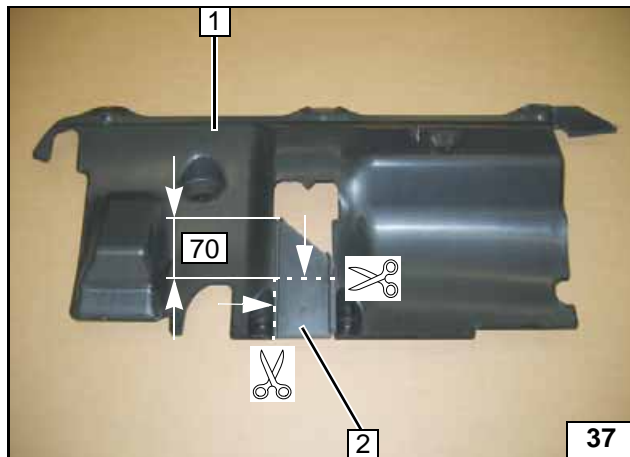
WARNING!

Reassemble the disassembled components in reverse order.
 Check all hoses, clamps and all electrical connections for firm seating.
 Secure all loose cables using cable ties.
 Only use manufacturer-approved coolant.
 Spray the heater unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Connect the battery
- Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.
- Set the digital timer.
- Make settings on A/C control panel according to the "Operating Instructions for End Customer".
- Check the proper operation of the additional heater, see the operating instructions/installation instructions.
- Attach the "Switch off additional heater before refueling" sticker to the left-hand B-pillar.



**Cutting out
air ducting**



Cut out section 2 at marking and discard.

1 Air ducting



Webasto AG
 Postfach 80 - 82132 Stockdorf
 Hotline 01805 / 932278 - Hotfax 0395 / 5592-353
<http://www.webasto.de>

Operating Instructions for End Customer



Please remove page and add to the vehicle operating instructions.

Note:

We recommend matching the heating time to the driving time.

Heating time = driving time

Example:

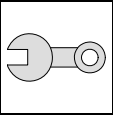
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Before parking the vehicle, make the following settings:

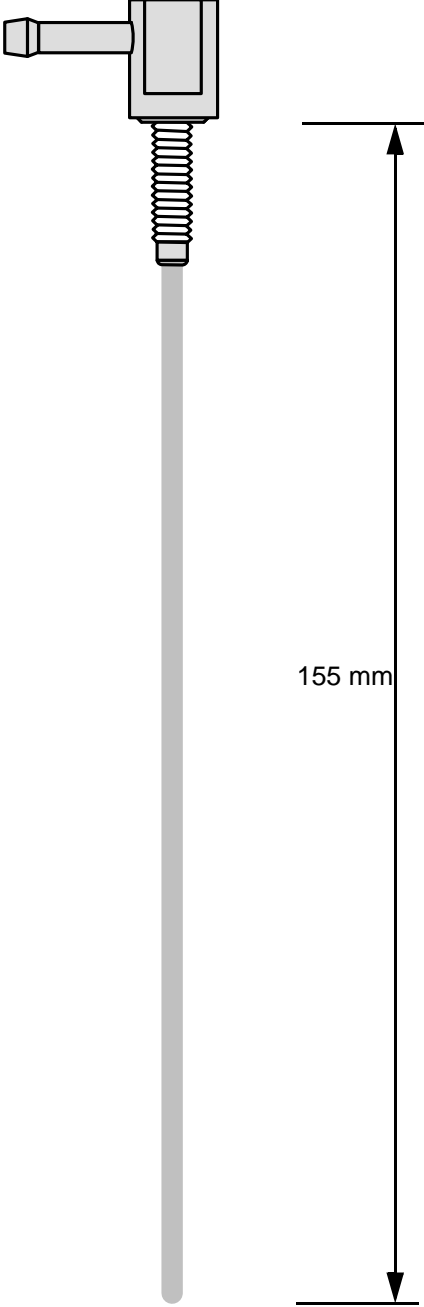


- 1 Air outlet to windshield
- 2 Set fan to level "1"
- 3 Set temperature to "max."

Air conditioning



Template for Gasoline Fuel Standpipe



100 mm



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

100 mm

0