Water Heater

Thermo Top Evo5+ Parking Heater e1 00 0258

Installation documentation

Jeep Grand Cherokee

3.6 petrol V6

from model year 2011

Left-hand drive vehicle

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, specialised tools and equipment are required to install and repair Webasto heating and cooling systems.
Only original Webasto parts must be used. For this, also see the catalog of air and water heater accessories from Webasto.

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.

The initial startup is to be executed with the Webasto Thermo Test Diagnosis.

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

Ident. No.: 1317259A_EN Fee Euro 10.00

Table of Contents

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Jeep	Grand Cherokee	WK	e4 * 2007 / 46 * 0186 * ...

Engine type	Engine model	Output in kW	Displacement in cm³
ERB	Petrol V6	210	3604

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

The installation location of the digital timer must be coordinated with the end customer before the installation.

Heater/Installation Kit

Quantity	Description	Order No.:
1	Basic delivery scope for the *Thermo Top Evo*	See Price list
1	Installation kit forJeep Grand Cherokee 2011 3.6 petrol V6	1317258A
1	Heater control	See Price list

Foreword

This installation documentation applies to the Jeep Grand Cherokee 3.6 petrol V6 vehicles - for validity, see page 2 - from model year 2011 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 this installation documentation.

In any case, however, it is necessary to observe the specifications in this "installation documentation", the "operating instructions" and the "installation instructions" for the *Thermo Top Evo*.
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. Insulate and tie back loose wires.
Sharp edges should be fitted with rub protection (split-open fuel hose).
Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).
When installing an IPCU, the corresponding settings must be checked or adjusted before the installation.

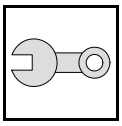
Special Tools

- Torque wrench for 2.0 - 30 Nm
- Hose clamping pliers
- Metric thread-setter kit

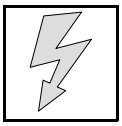
Explanatory notes on document

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.

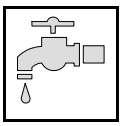
Mechanical system



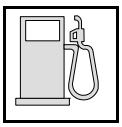
Electrical system



Coolant circuit

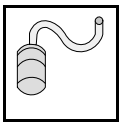


Fuel



Exhaust gas

Combustion air



Software

Special features are highlighted using the following symbols:

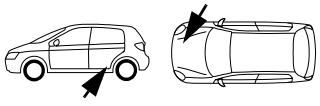
Specific risk of injury or fatal accidents.

Specific risk of damage to components.

Specific risk of fire or explosion.

Reference to general installation instructions of Webas- to 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.

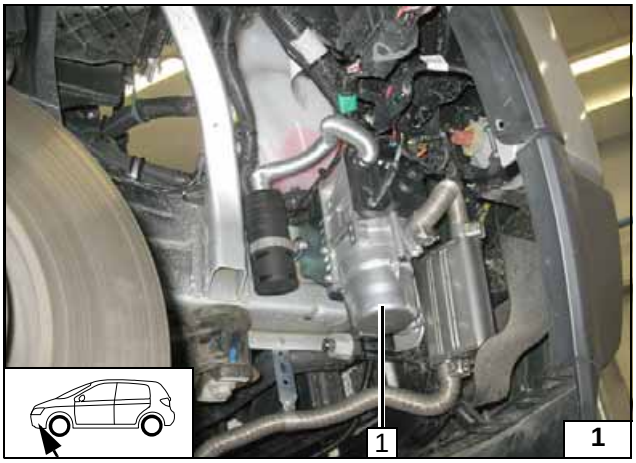
All dimensions are in mm!
Tightening torque of 5x13 heater bolts = 8Nm!
Tightening torque of 5x15 bolt of water connection piece retaining plate = 7Nm!

Preliminary work

WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Disconnect the battery "earth" connection.
- Depressurise 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 exhaust pipe (centre + end silencer).
- Remove the heat protection trim of the cardan shaft.
- Remove the cardan shaft according to the manufacturer's instructions.
- Remove the fuel lines trim at the left on the underbody.
- Remove the fuel tank according to the manufacturer's instructions.
- Remove the fuel-tank sending unit according to the manufacturer's instructions.
- Remove the right front wheel.
- Remove the right wheel well trim.
- Remove the lower engine cover.
- Drain the engine coolant.
- Remove the engine design cover.
- Remove the windscreen wipers.
- Remove the upper coolant reservoir cap.
- Loosen the central electrical box at the right in the engine compartment.
- Remove the plenum chamber from the engine.
- Remove the footwell trim under the glove compartment.
- Remove the air outlet nozzle in the right footwell.
- Remove the trim of the entrance strip on the right side (for Telestart option only).
- Remove the lower A-pillar trim in the right footwell.
- Remove the A/C control panel.
-

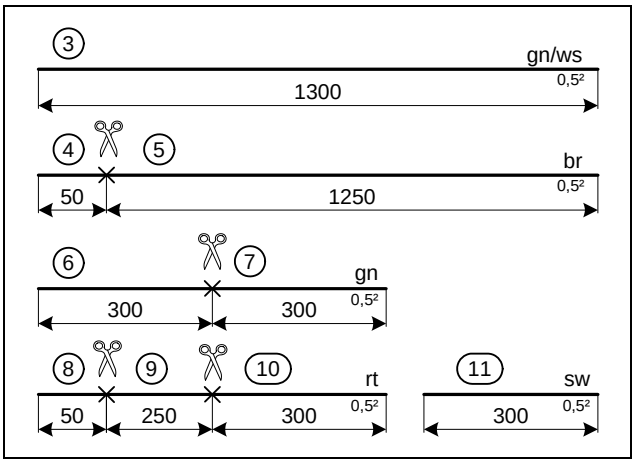
Remove page 31 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



Heater installation location

1 Heater

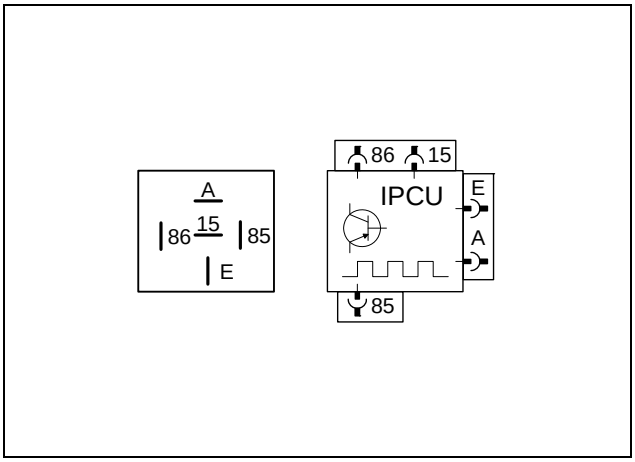
Installation location



Preparing electrical system

Wire sections retain their numbering in the entire document.

Cutting wires to length

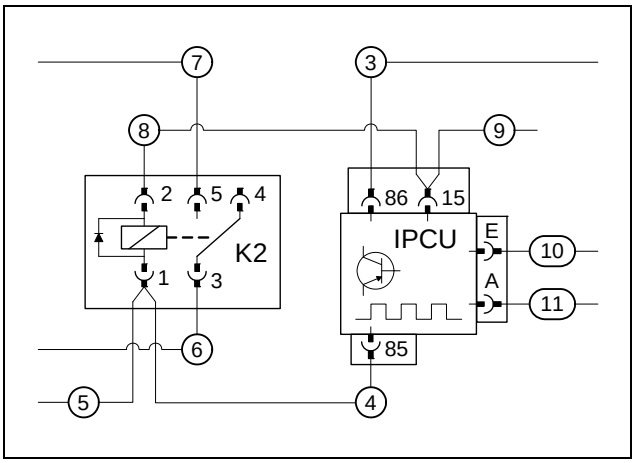


IPCU view on the contact side.
The IPCU provided in the kit is to be pre-programmed with the following settings:

Duty cycle: 62%
Frequency: 100Hz
Voltage: 10V
Function: Low-side

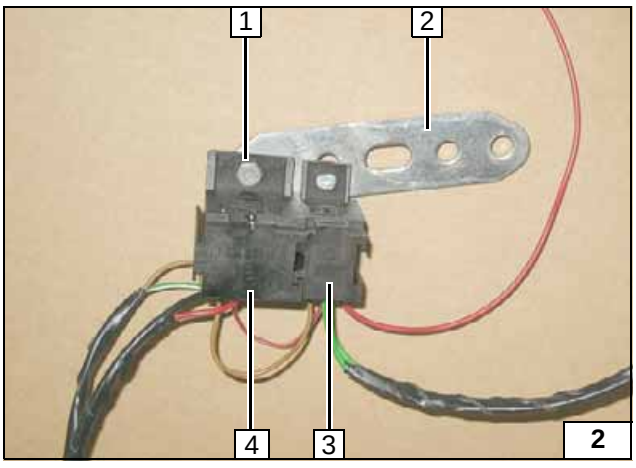
The settings must be checked during start-up of the heater, and adjusted if necessary.

Premounting IPCU and K2



Connect wires to IPCU socket and to socket of K2 relay.

Preparing IPCU and K2 relay

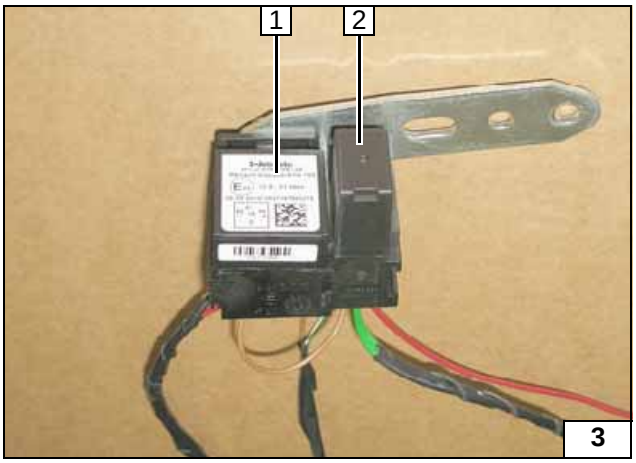


Engage relay socket **3** with IPCU socket **4**.

1 M5x16 bolt, large diameter washer, flanged nut
2 Perforated bracket

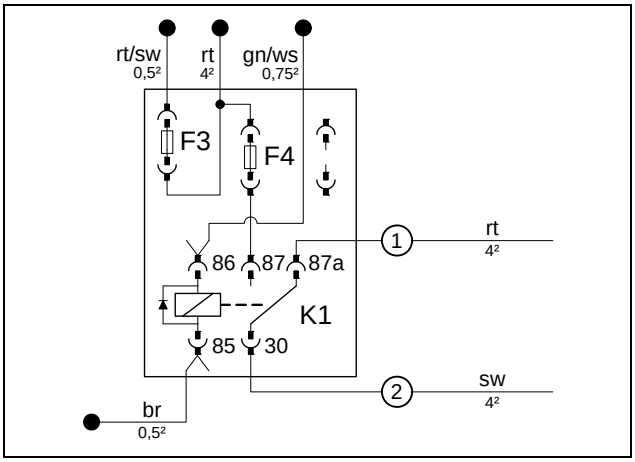
Premounting IPCU and K2 relay

Mounting IPCU and K2 relay



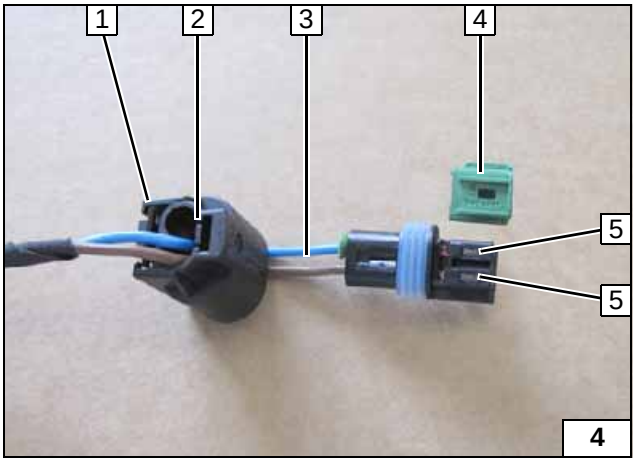
1 IPCU
2 K2 relay

Preparing fuse holder of passenger compartment



Produce connections as shown in wiring diagram. Connect wires of fan wiring harness to K1 relay socket. Green/white (gn/ws) wire ③ and brown (br) wire ⑤ will be mounted in the passenger compartment only. Insert fuse F4 25A. Install K1 relay only later.

Removing connector



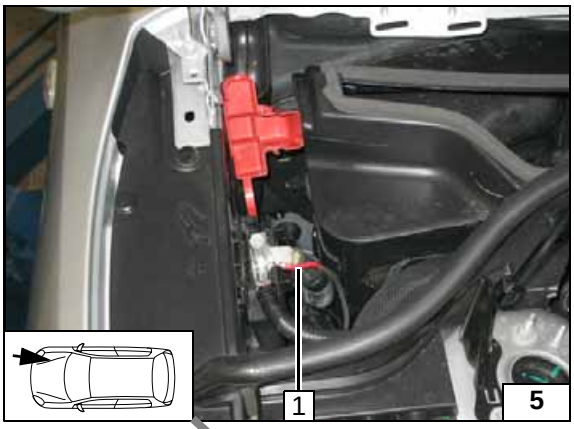
Complete connector of metering pump after routing. Pin assignment is not relevant.

1 Connector housing
2 Lock
3 Blue/brown (bl/br) wires
4 Coding
5 Timer lock

Electrical system

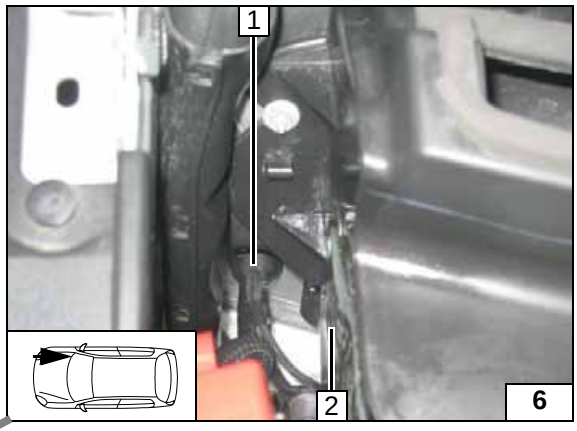
Positive wire

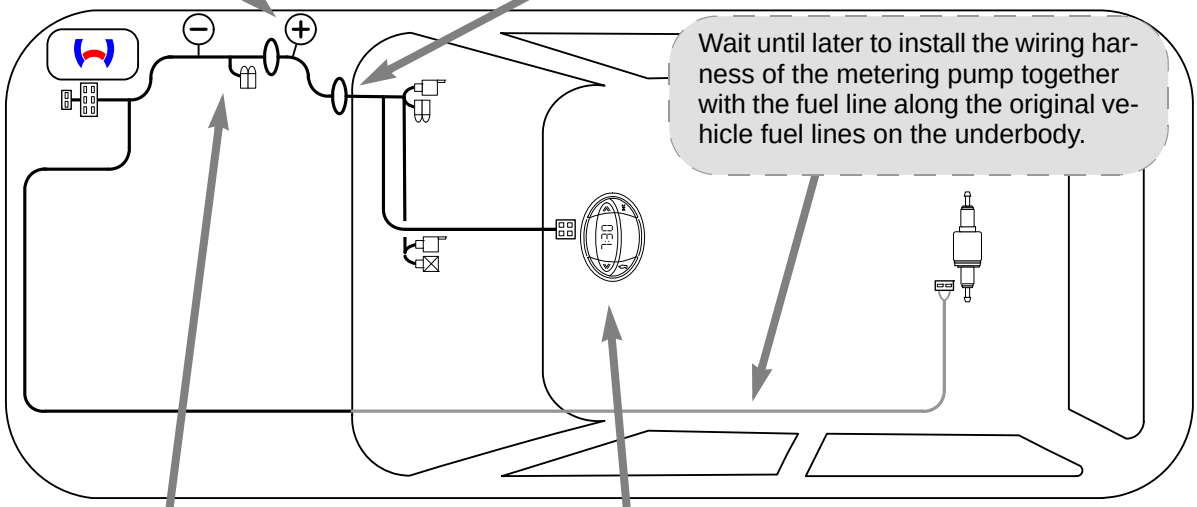
1 Positive wire on original vehicle positive support point



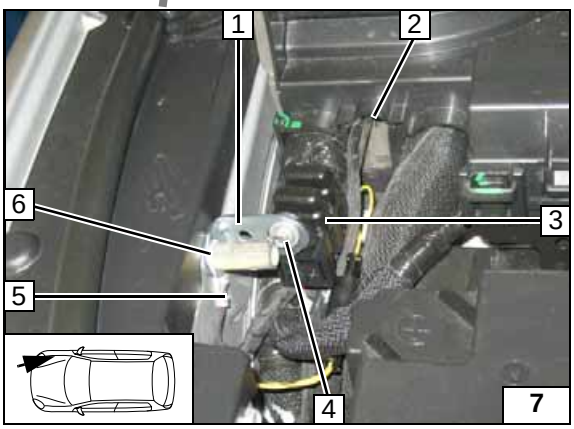
Wiring harness pass through

1 Cable grommet



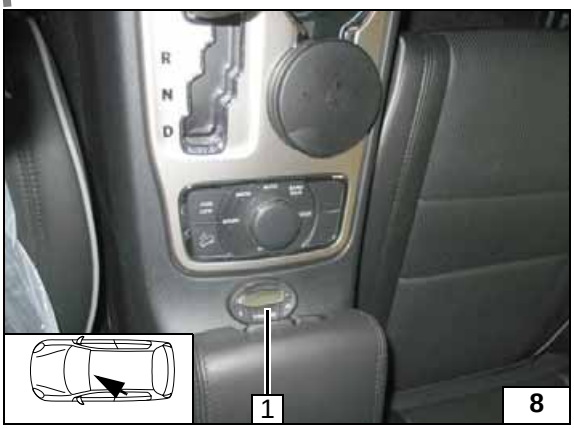


Wiring harness routing diagram



Fuse holder of engine compartment, earth wire

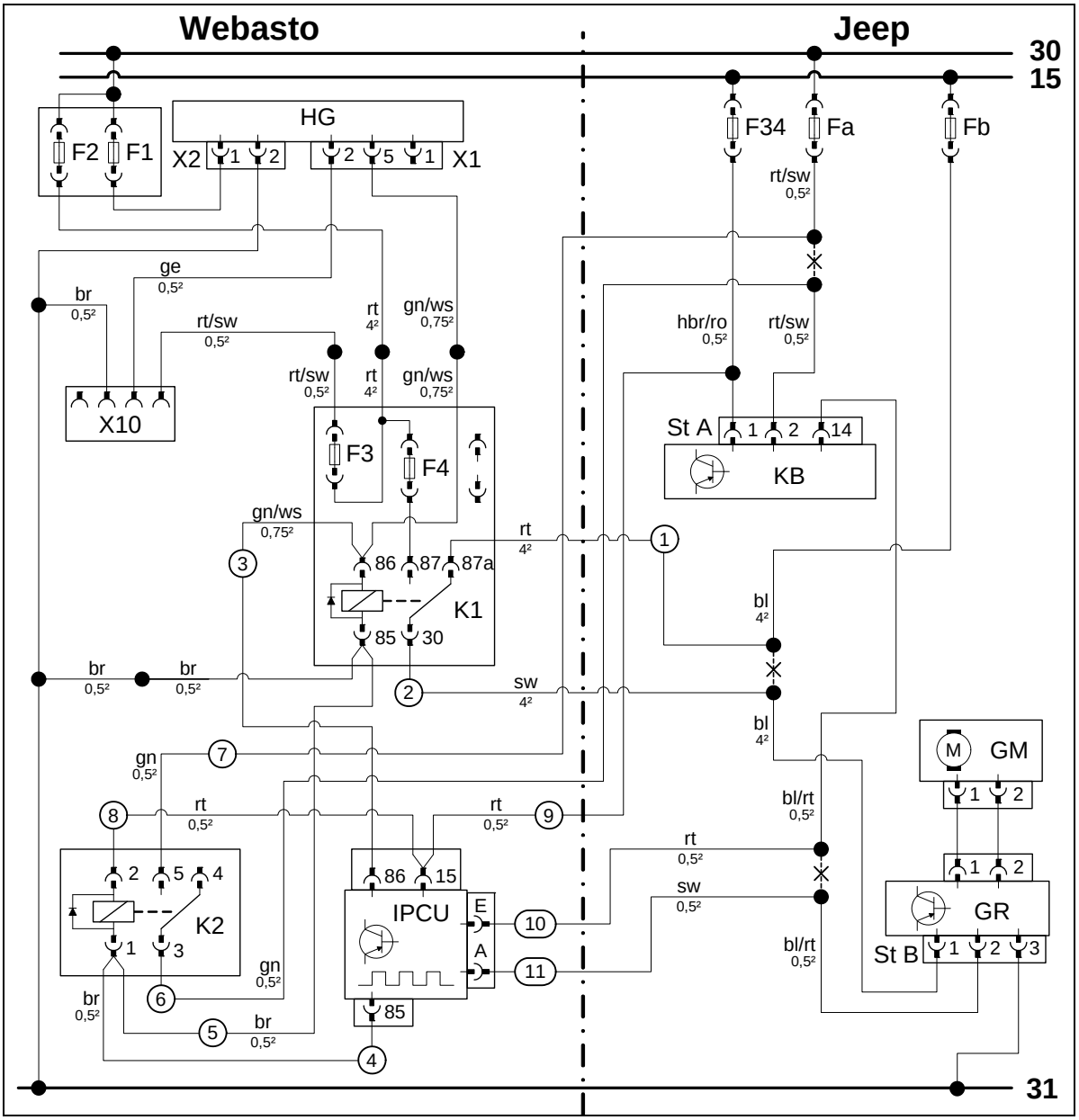
1 Angle bracket
2 Cable pass through via partition wall
3 F1-2 fuses
4 M5x16 bolt, washer [2x], retaining plate for fuse holder, nut
5 Earth wire with 8 mm dia. cable lug
6 Original vehicle earth support point



Digital timer

1 Digital timer

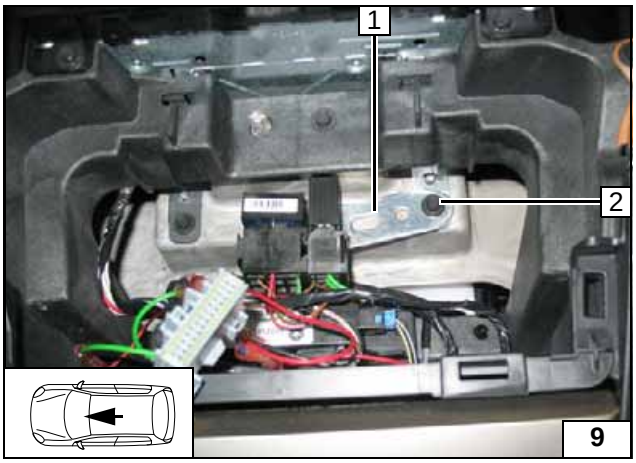
Fan controller



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-Evo	GM	Fan motor	rt	red
X1	6-pin heater connector	KB	A/C control panel	sw	black
X2	2-pin heater connector	St A	26-pin connector of KB	ge	yellow
X10	Heater control	F34	Fuse	gn	green
MV	Solenoid valve	Fa	Fuse	ro	pink
K1	Fan relay	Fb	Fuse	ws	white
K2	Additional relay	GR	Fan controller	br	brown
F1	20A fuse	St B	3-pin connector GR	hbr	light brown
F2	30A fuse			bl	blue
F3	1A fuse				
F4	25 A fuse				
IPCU	Pulse width modulator				
IPCU settings:					
Duty cycle:	62%				
Frequency:	100Hz				
Voltage:	10V			**X**	Cutting point
Function:	Low-side			Wiring colours may vary.	

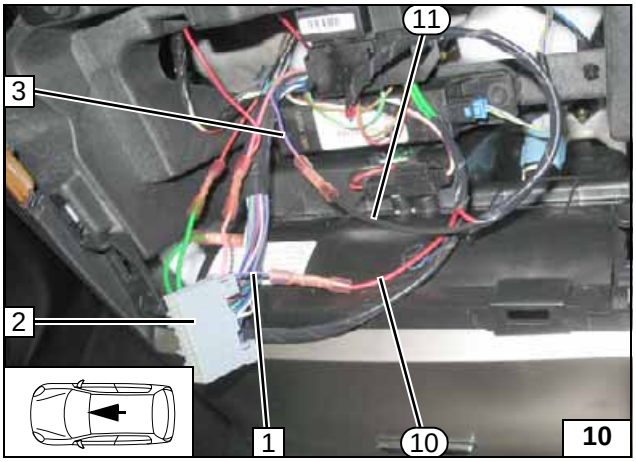
Wiring diagram

Legend



1 Perforated bracket
2 Original vehicle bolt

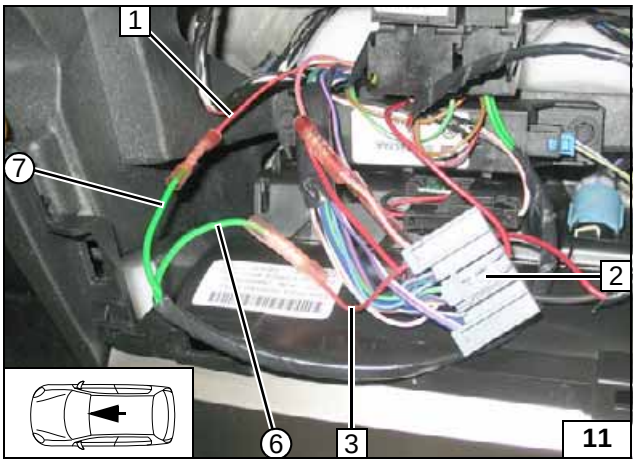
Premounting K2 relay and IPCU



Connection to 26-pin connector **2** from A/C control panel. Produce connections as shown in wiring diagram.

1 Blue/red (bl/rt) wire of A/C control panel connector Pin 14
2 Blue/red (bl/rt) wire of fan controller
⑩ Red (rt) wire from IPCU/E
⑪ Black (sw) wire from IPCU/A

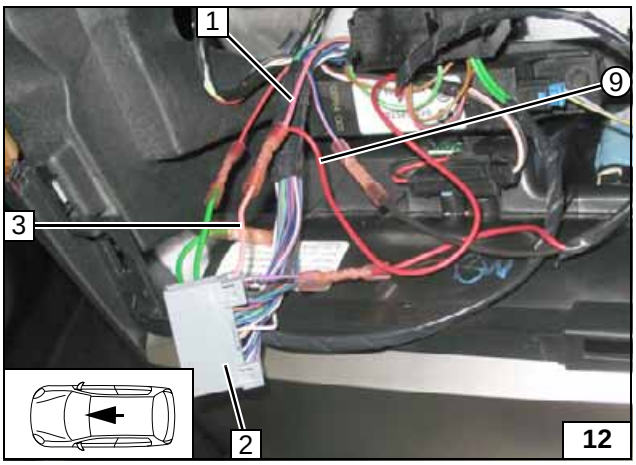
Connecting A/C control panel IPCU



Connection to 26-pin connector **2** from A/C control panel. Produce connections as shown in wiring diagram.

1 Red/black (rt/sw) wire from Fuse Fa
3 Red/black (rt/sw) wire of A/C control panel connector Pin 2
⑥ Green (gn) wire of K2/3
⑦ Green (gn) wire of K2/5

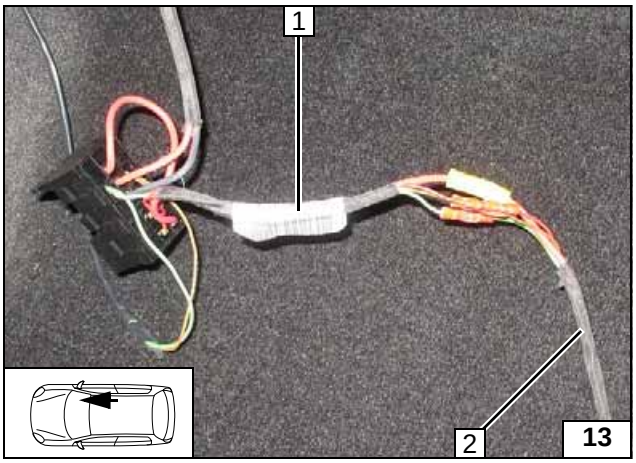
Connecting K2 relay of A/C control panel



Connection to 26-pin connector **2** from A/C control panel. Make connections according to wiring diagram. Route green/white (gn/ws) wire ③ of IPCU/86 and brown (br) wire ⑤ of K2/1 relay from centre console in the front passenger side footwell.

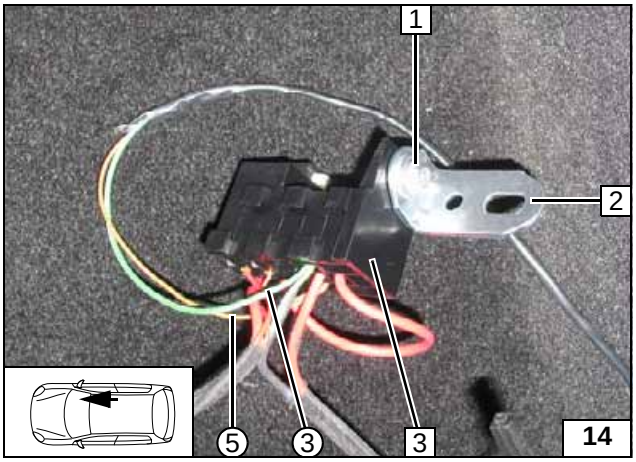
1 Light brown/pink (hbr/ro) wire from fuse F34
3 Light brown/pink (hbr/ro) wire of A/C control panel connector Pin 1
⑨ Red (rt) wire from IPCU/15

Connecting IPCU/15



Connect same colour wires of wiring harness of passenger compartment fuse holder **1** with wiring harness of heater **2** as shown in wiring diagram.

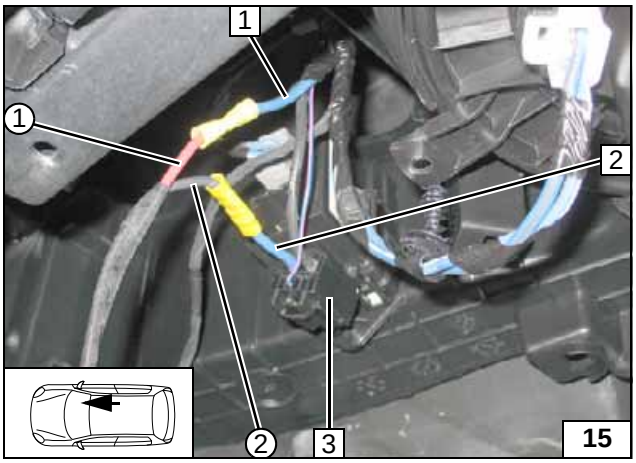
Connecting wiring harnesses



Make connections according to wiring diagram. Connect green/white (gn/ws) wire ③ to terminal 86 and brown (br) wire ⑤ to terminal 85 of IPCU socket. Install K1 relay only later.

1 M5x16 bolt, large diameter washer, flanged nut
2 Angle bracket
3 Fuse holder of passenger compartment
③ Geen/white (gn/ws) wire of IPCU/86
⑤ Brown (br) wire from IPCU/85

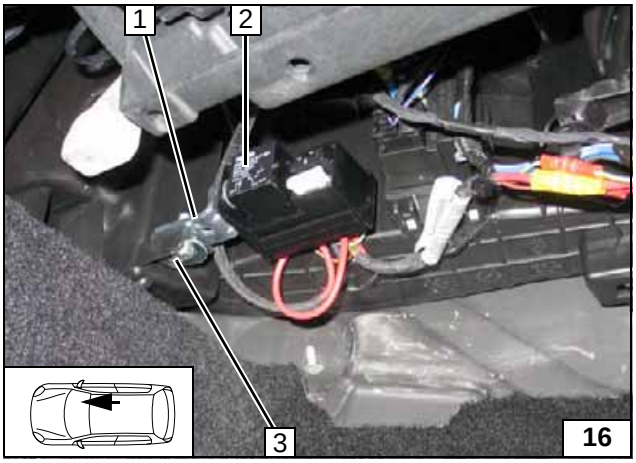
Preparing fuse holder of passenger compartment



Connection to 3-pin connector **3** from fan controller. Produce connections as shown in wiring diagram.

1 Blue (bl) wire of fuse
2 Blue (bl) wire of fan controller connector Pin 1
① Red (rt) wire from K1/87a
② Black (sw) wire from K1/30

Connecting fan controller



Mount K1 relay **2** after installation.

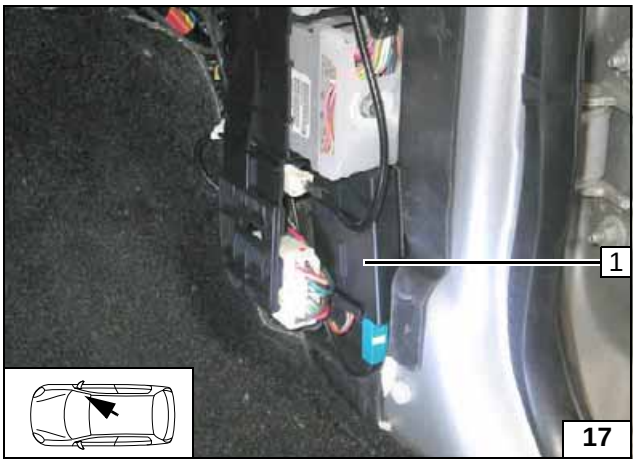
1 Angle bracket
3 M6x20 bolt, large diameter washer, flanged nut, original vehicle hole

Installing fuse holder

Remote option (Telestart)

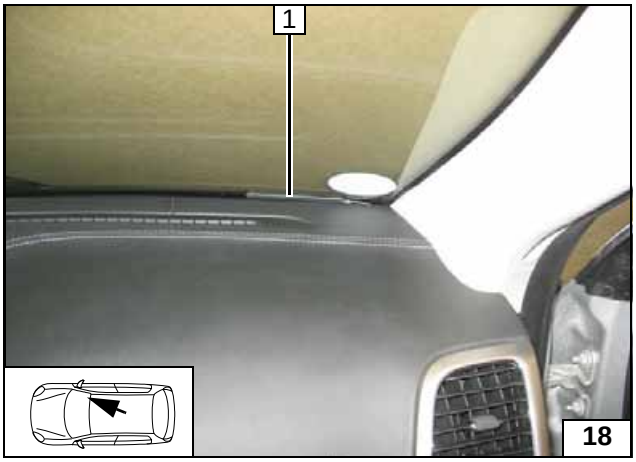
Installing receiver

Fasten receiver **1** with adhesive tape.



1 Antenna

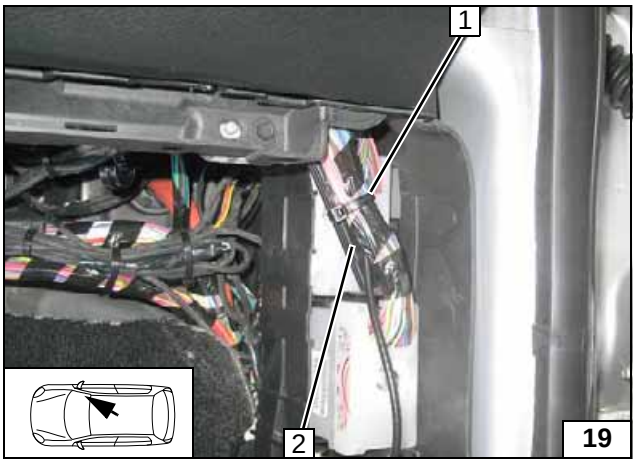
Installing antenna

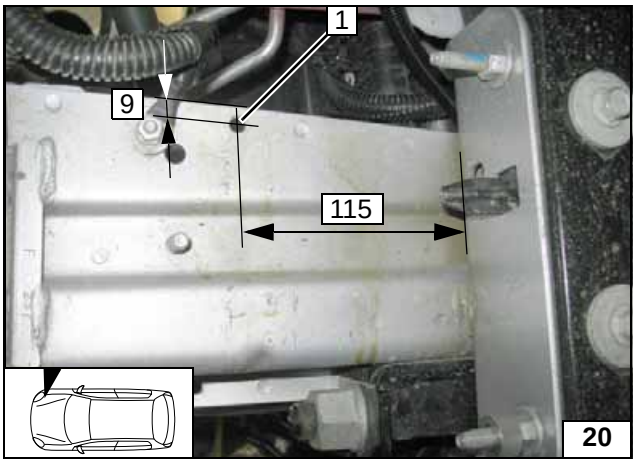


Temperature sensor T100 HTM

Installing temperature sensor

Fasten temperature sensor **2** with cable tie **1**.

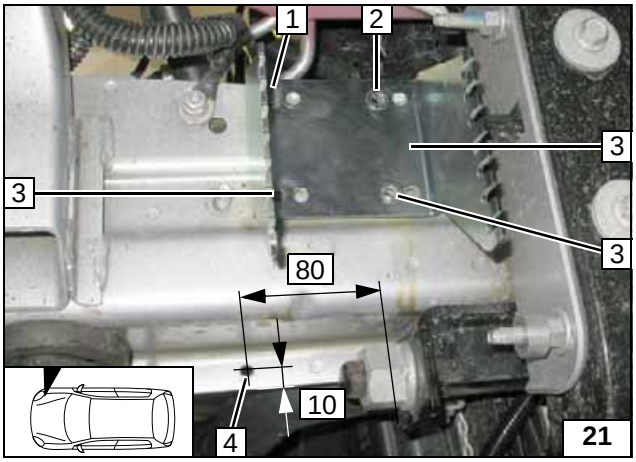




Preparing installation location

1 7 mm dia. hole

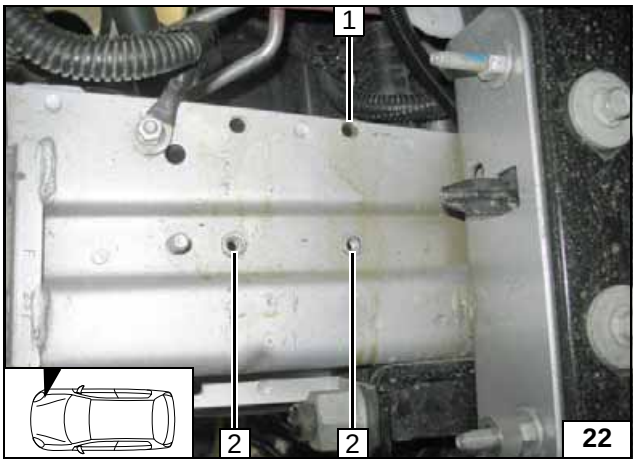
Hole in frame side member



Install bracket **3** loosely and align vertically.

1 M6x20 bolt, flanged nut
2 Copy hole pattern [3x]
4 7 mm dia. hole

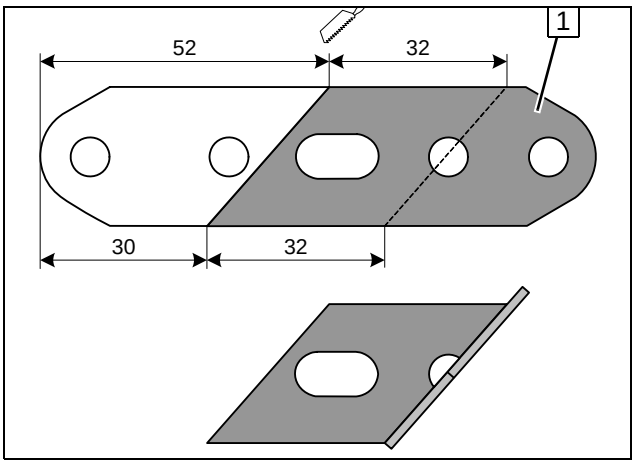
Copying hole pattern



Remove bracket.

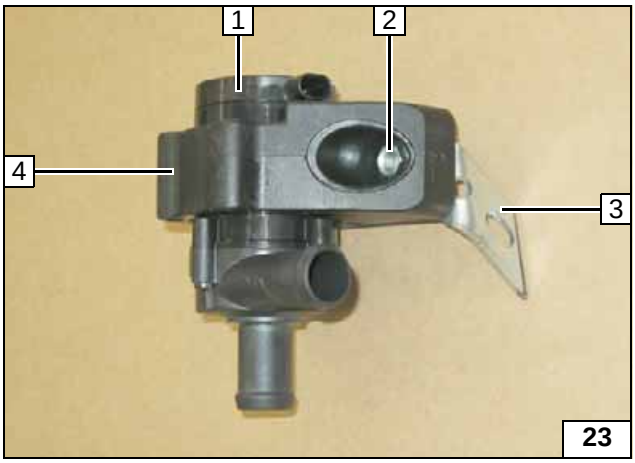
1 7 mm dia. hole
2 9.1 mm dia. hole; rivet nut [2x each]

Installing rivet nut



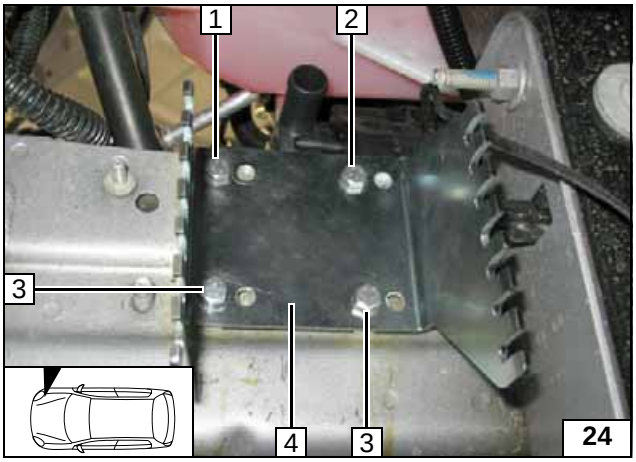
Cut perforated bracket **1** to length and bend by 90°.

Preparing perforated bracket



1 Circulating pump
2 M6x25 bolt, flanged nut
3 Perforated bracket
4 Circulating pump mounting

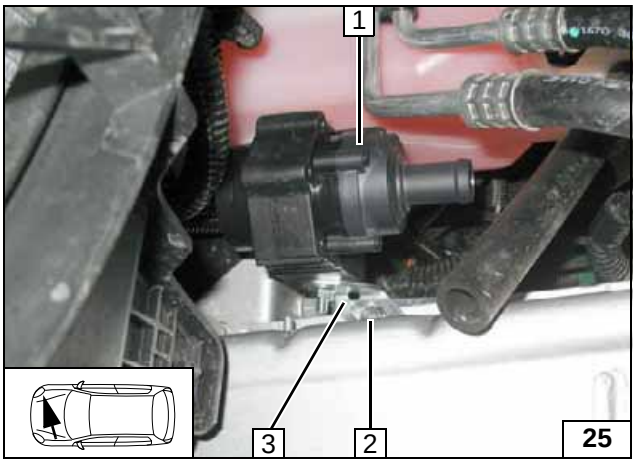
Premounting circulating pump



Insert perforated bracket of circulating pump between bracket **4** and frame side member at position **2** (see following figure). Insert one 5mm shim each time between bracket **4** and frame side member at position **3**.

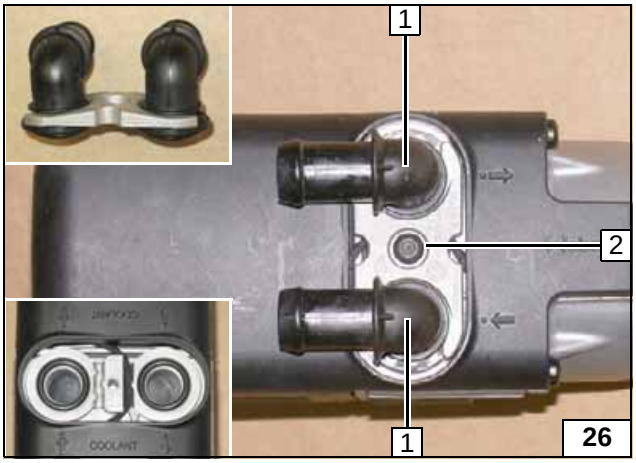
1 M6x20 bolt, flanged nut
2 M6x20 bolt, perforated bracket, flanged nut
3 M6x20 bolt, spring lockwasher, 5 mm shim [2x each]

Installing bracket and circulating pump



1 Circulating pump
2 M6x20 bolt, perforated bracket, flanged nut
3 Perforated bracket

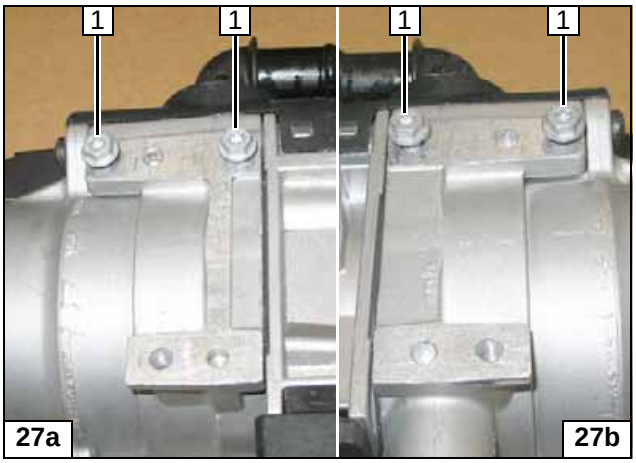
Installing bracket and circulating pump



Preparing heater

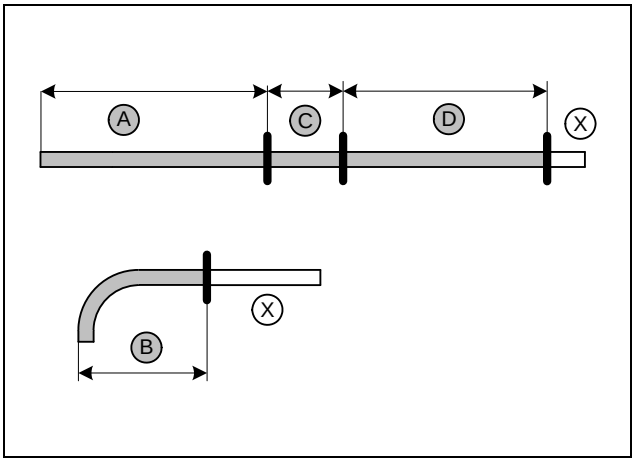
1 90° water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



Pre-tap threads with 5x13 self-tapping bolt **1** [4x] and install loosely (turn max. 3 threads).

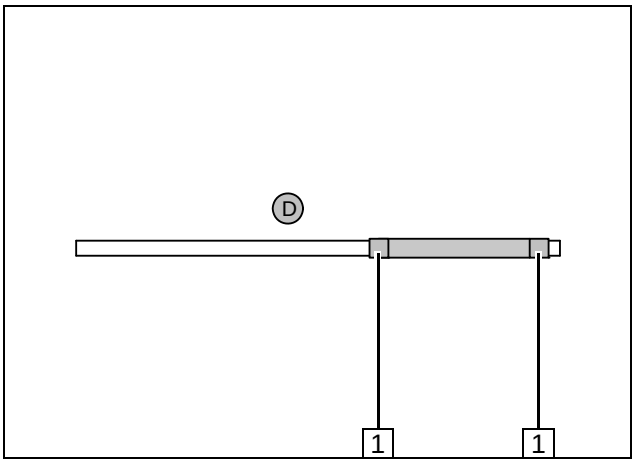
Premounting bolts loosely



Discard section **X**.
Hose **B** = 90°, 18 mm dia. moulded hose

A = 600
B = 130
C = 100
D = 800

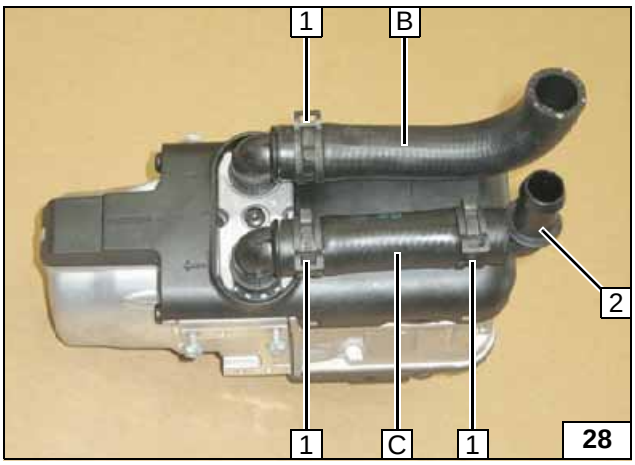
Cutting hoses to length



Slide braided protection hose on hose **D** and cut to length.
Cut heat shrink plastic tubing to length.

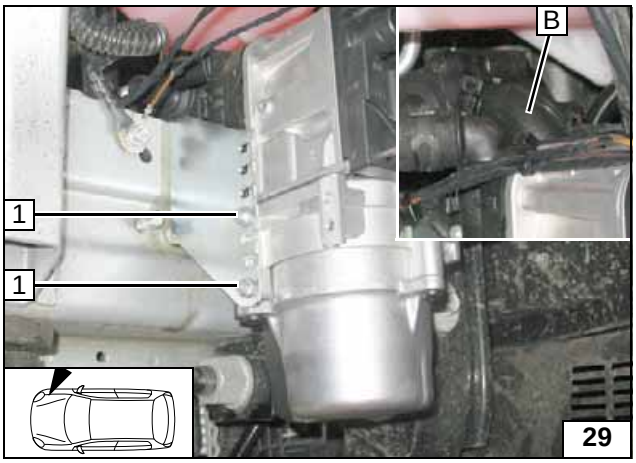
1 50 mm long heat shrink plastic tubing [2x]

Preparing hoses



1 25 mm dia. spring clip [3x]
2 90°, 18x18 mm dia. connecting pipe

Premounting hoses

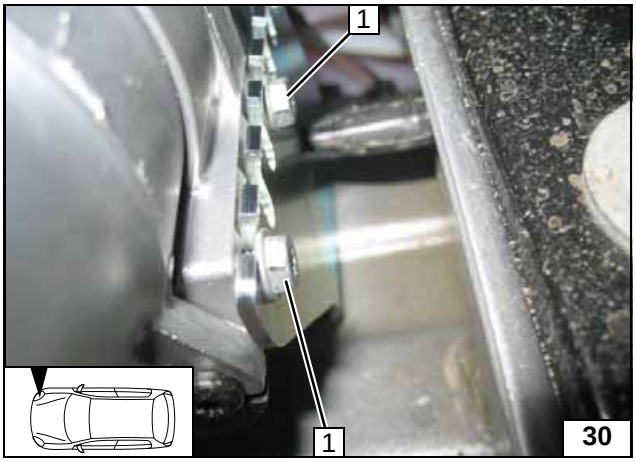


Installing heater

Before installing the heater in the bracket, mount hose **B** on circulating pump with 25 mm dia. spring clip.

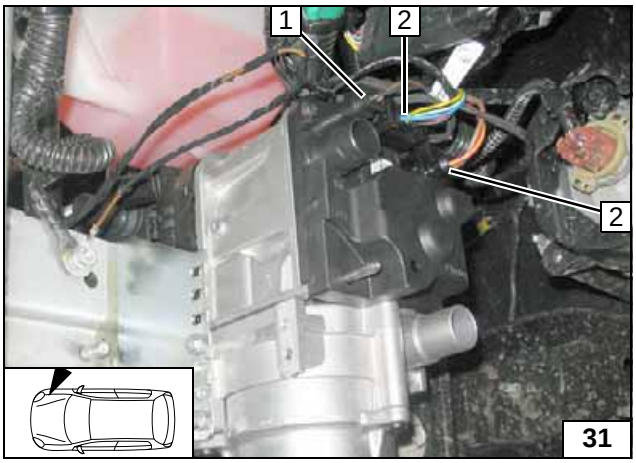
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



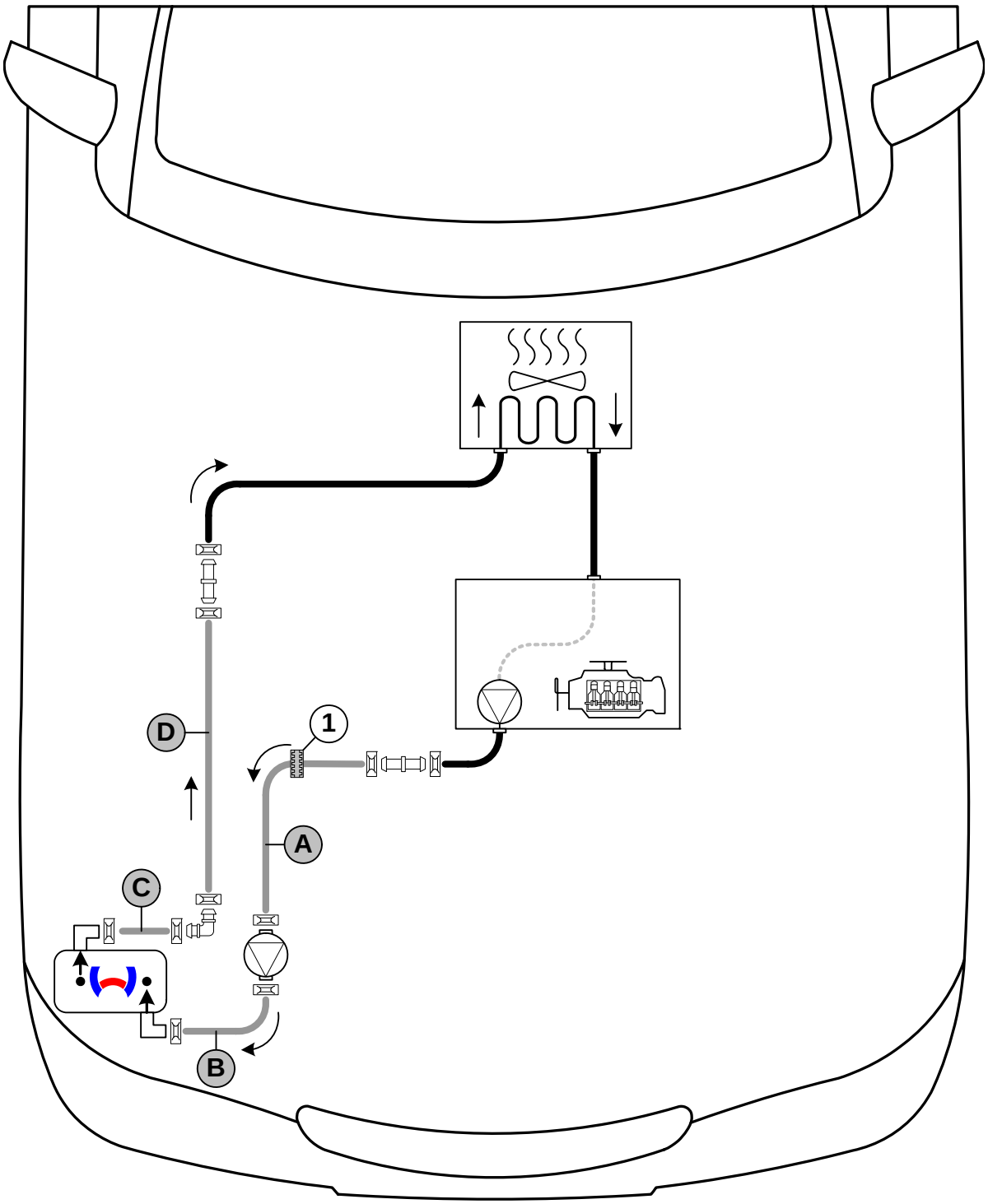
1 Wiring harness of circulating pump
2 Wiring harness of heater [2x]

Mounting wiring harnesses

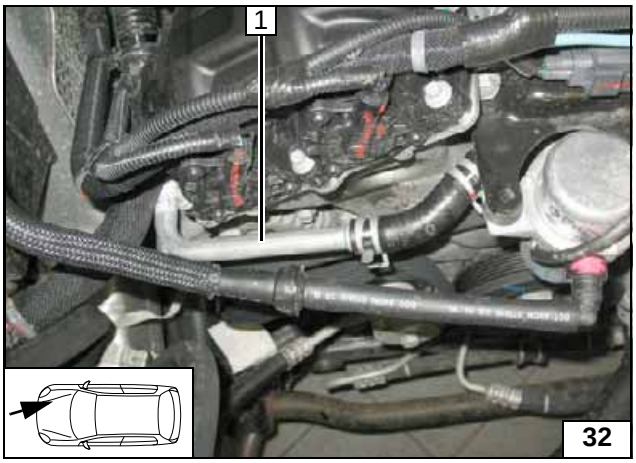
Coolant circuit

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 hose, the heater must be filled with coolant.
The connection should be "inline" based on the following diagram:

Hose routing diagram

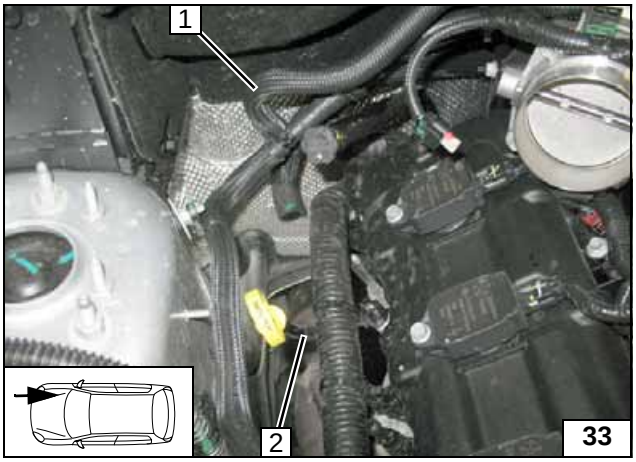


All spring clips = 25 mm dia.
1 = Black (sw) rubber isolator .
All connecting pipes and = 18x18 mm dia.



Remove and discard pipe of engine outlet / heat exchanger inlet **1**. Spring clips will not be reused.

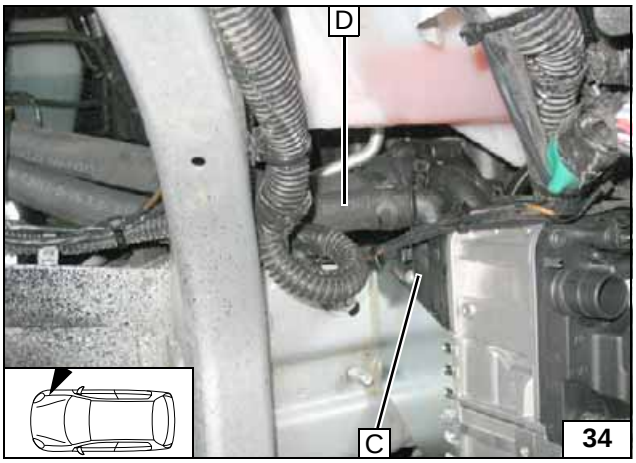
Cutting point



After dismantling the pipe, re-install the guide tube of the oil dipstick **2** with two bolts.

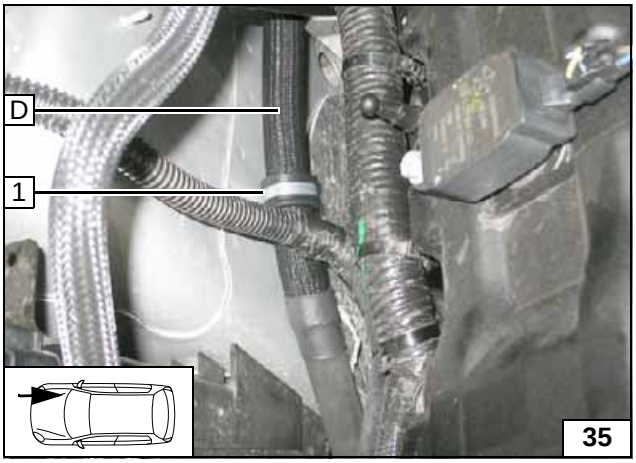
1 Hose section on heat exchanger inlet

Cutting point



Install hose **D** on the frame side member of the heat exchanger inlet.

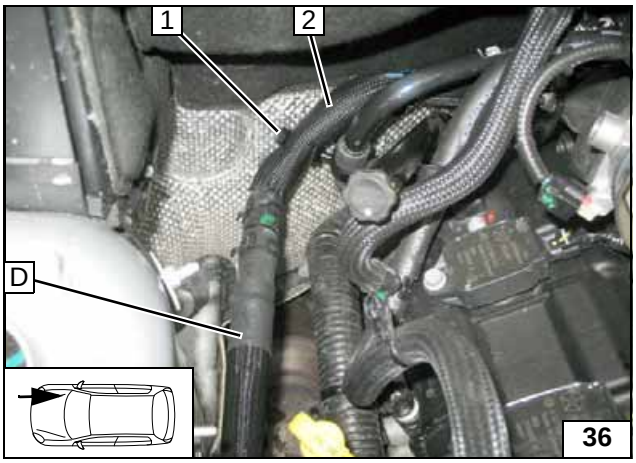
Connecting heater outlet



Route hose **D** through rubber-coated pipe clamp.

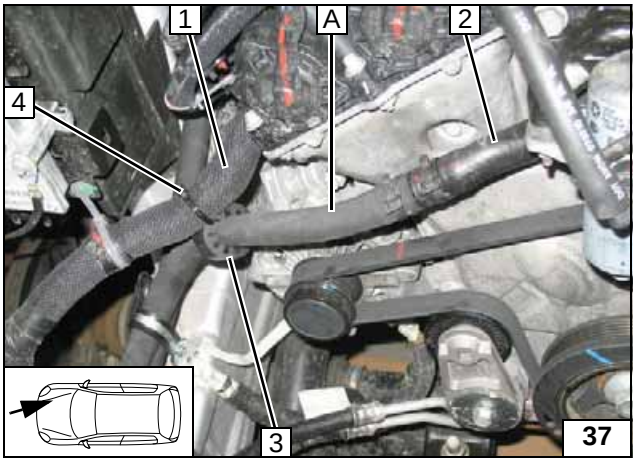
1 25 mm dia. rubber-coated pipe clamp, M6 flanged nut, original vehicle stud bolt

Routing in engine compartment



1 Hose bracket
2 Hose on heat exchanger inlet

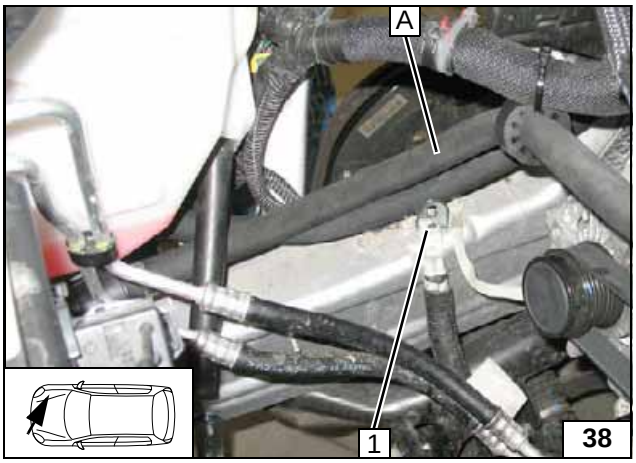
Connecting heat exchanger inlet



Slide black (sw) rubber isolator **3** onto hose **A** and fasten with cable tie **4** on original vehicle wiring harness **1**.

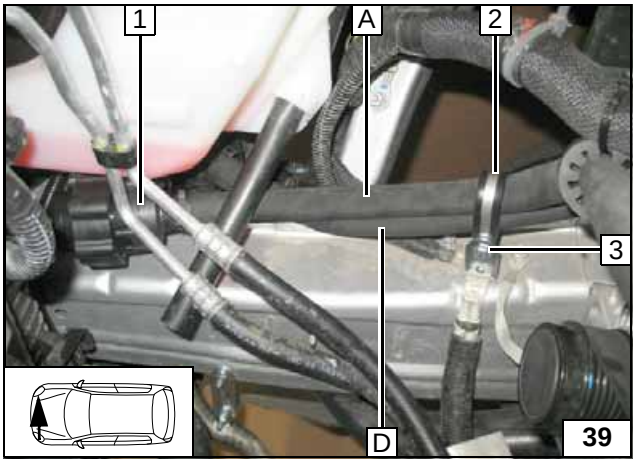
2 Hose on engine outlet

Connecting engine outlet



Route hose **A** to the circulating pump. Fasten angle bracket **1** on original vehicle earth support point.

Routing in engine compartment



Mount wiring harness of circulating pump on circulating pump **1**. Align hoses. Ensure sufficient distance to neighbouring components.

2 38 mm dia. rubber-coated pipe clamp
3 M6x20 bolt, flanged nut

Connecting circulating pump

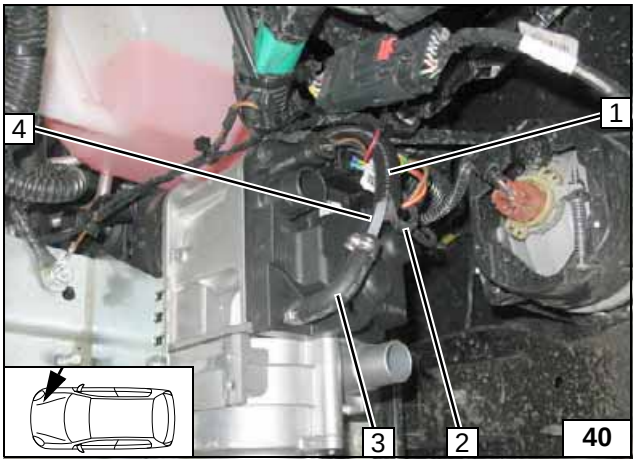
Fuel

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.

Route 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.

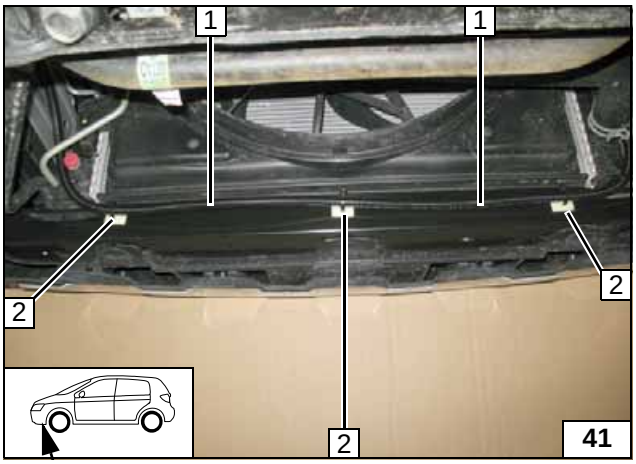
WARNING!
The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



Install fuel line **4** and wiring harness of metering pump **2** in corrugated tube **1** in the engine compartment.

3 90° moulded hose, 10 mm dia. clamp [2x]

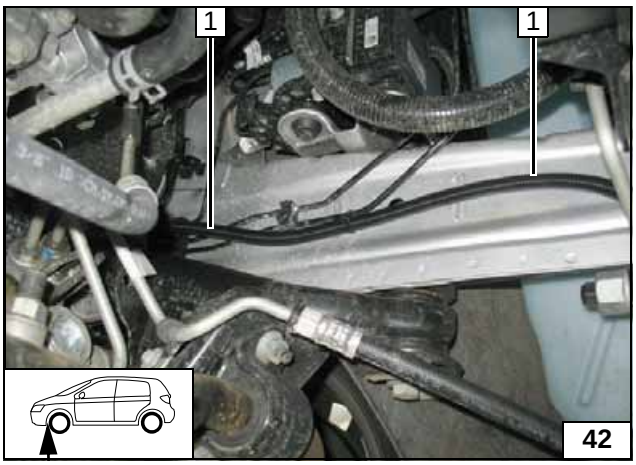
Connecting heater



Route fuel line and wiring harness of metering pump in corrugated tube **1** to the left hand side of the vehicle.

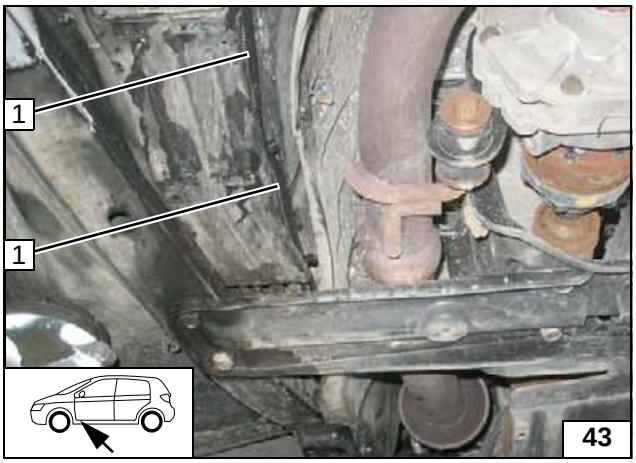
2 Adhesive base, cable tie [3x each]

Routing lines



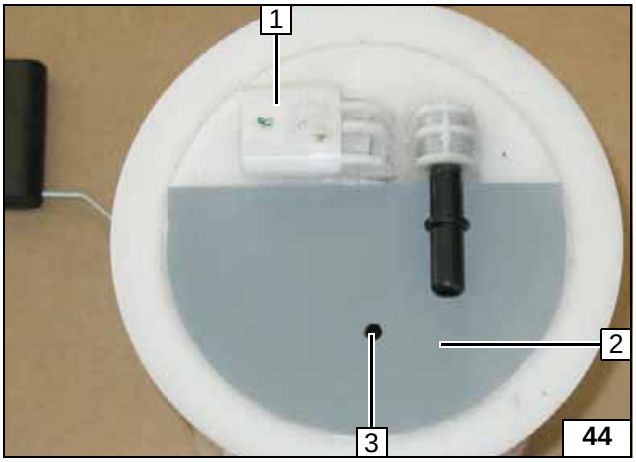
Route fuel line and wiring harness of metering pump in corrugated tube **1** on original vehicle lines to the rear.

Routing lines



Route fuel line and wiring harness of metering pump in corrugated tube **1** on original vehicle lines to the rear.

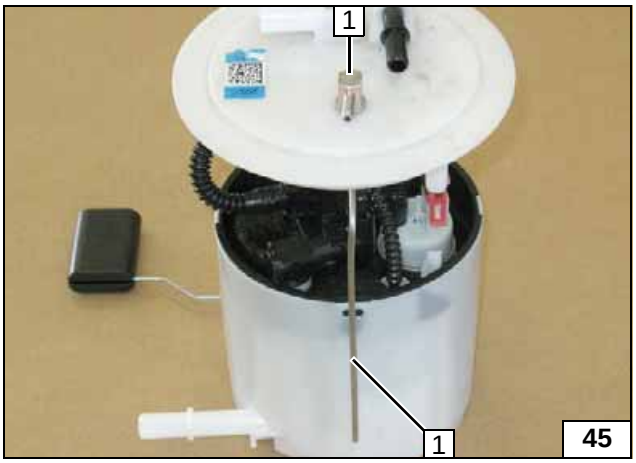
Routing lines



Remove the tank according to the manufacturer's instructions. Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Cut out template of fuel-tank sending unit **2** and apply.

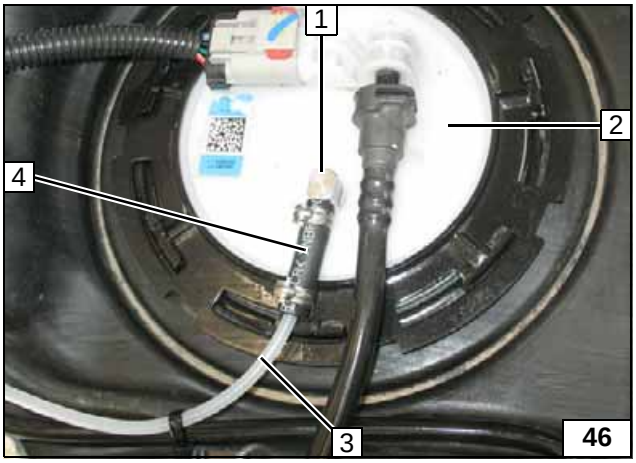
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

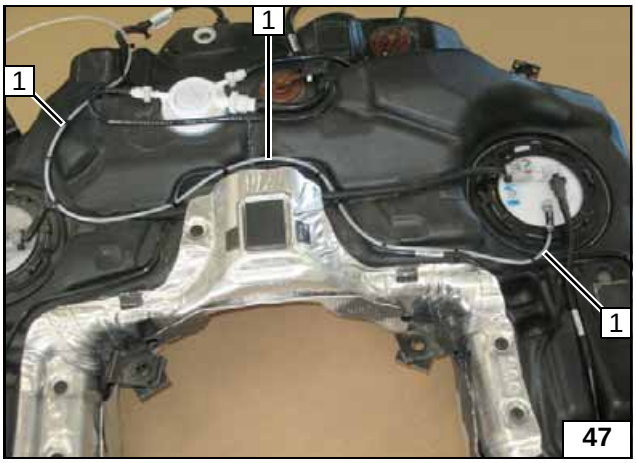
Installing fuel standpipe



Install fuel-tank sending unit **2** in accordance with manufacturer's instructions.

1 Fuel standpipe
3 Fuel line
4 Hose section, 10 mm dia. clamp [2x]

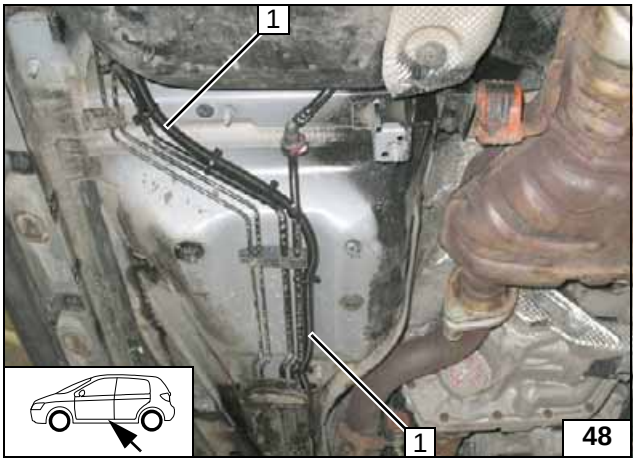
Connecting fuel line



Install tank after routing according to manufacturer's instructions.

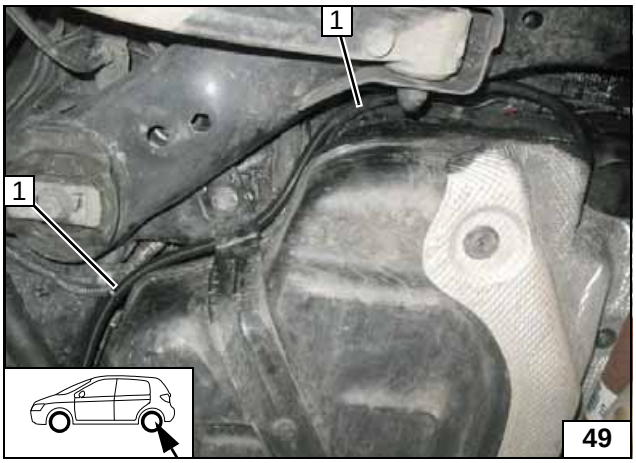
1 Fuel line

Routing fuel line



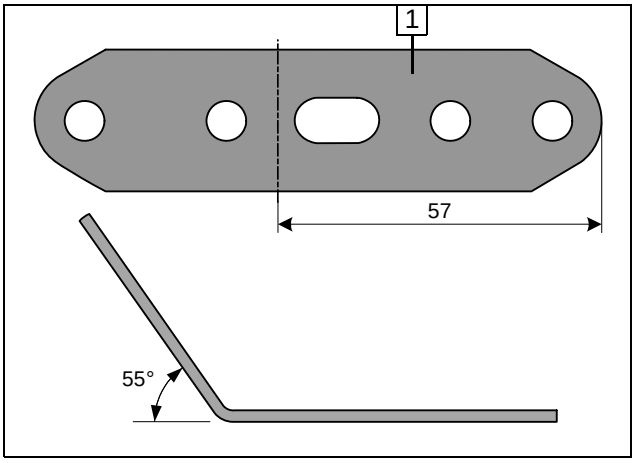
Route fuel line and wiring harness of metering pump in corrugated tube **1** on original vehicle lines to the rear.

Routing lines



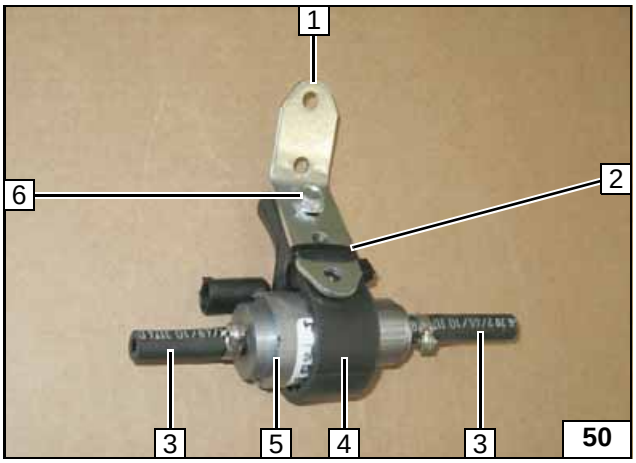
Route fuel line and wiring harness of metering pump in corrugated tube **1** to the installation location of the metering pump.

Routing lines



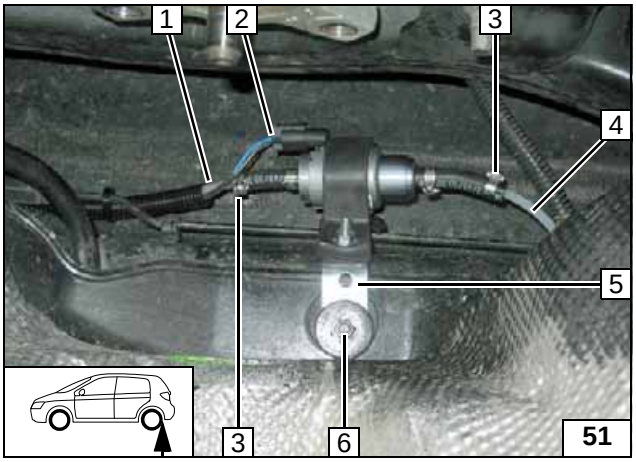
1 Perforated bracket

Preparing perforated bracket



1 Perforated bracket
2 Cable tie
3 Hose section, 10 mm dia. clamp [2x each]
4 Metering pump mounting
5 Metering pump
6 M6x25 bolt, flanged nut

Premounting metering pump



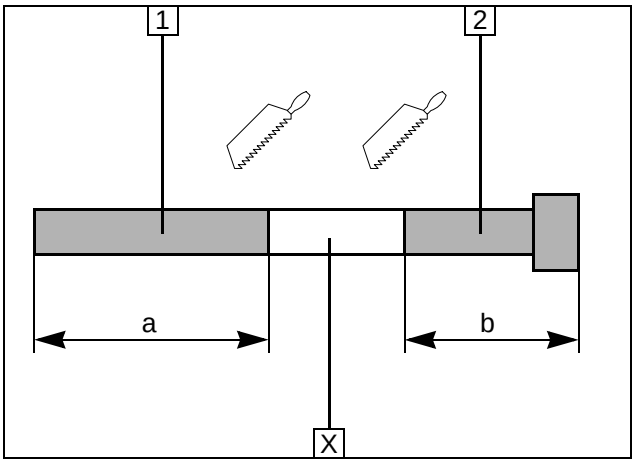
Check the position of the components; adjust if necessary. Check that they have freedom of movement.

1 Fuel line of heater
2 Wiring harness of metering pump, connector mounted
3 10 mm dia. clamp [2x]
4 Fuel line of fuel standpipe
5 Perforated bracket
6 Original vehicle bolt

Installing metering pump

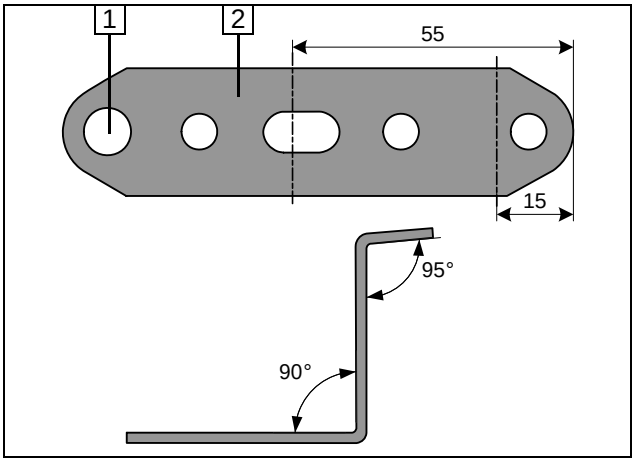
Exhaust gas

Discard section **X**.



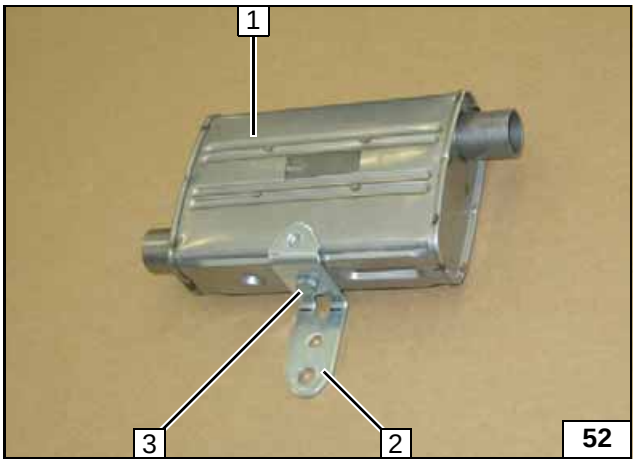
1 Exhaust pipe
a = 220
2 Exhaust end section
b = 580

Preparing exhaust pipe



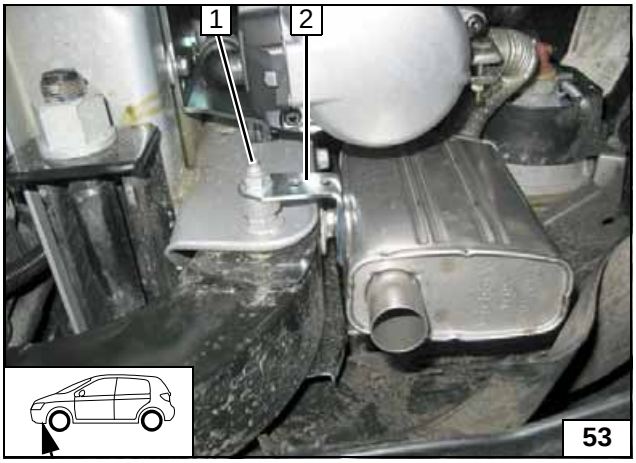
1 8.5 mm dia. hole
2 Perforated bracket

Preparing perforated bracket



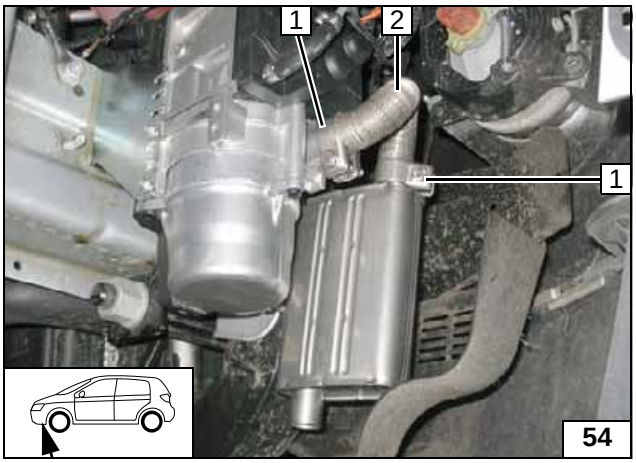
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premounting silencer



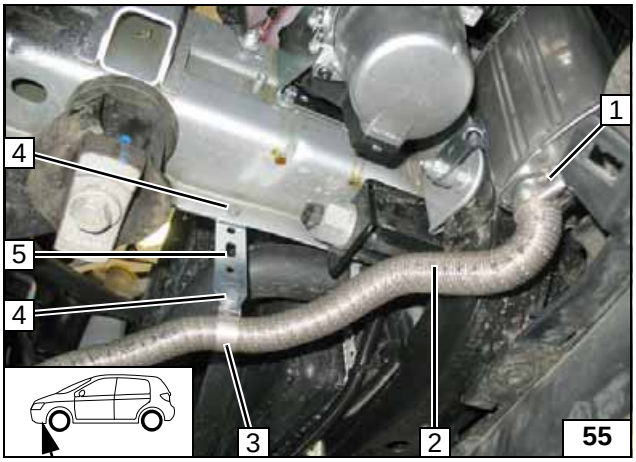
1 Original vehicle stud bolt, 10 mm shim, M8 flanged nut
2 Perforated bracket

Installing silencer



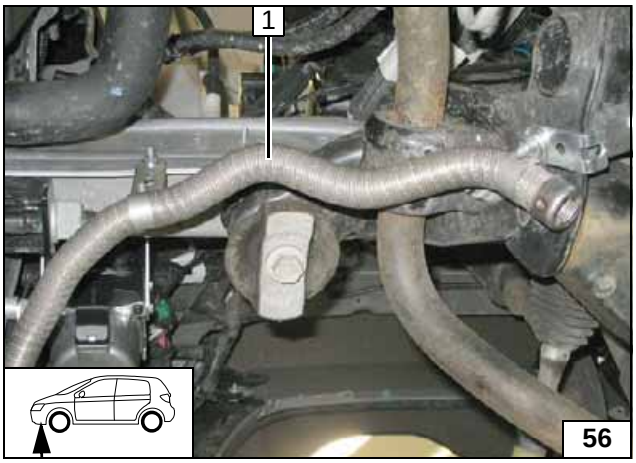
1 Hose clamp [2x]
2 Exhaust pipe

Installing exhaust pipe



1 Hose clamp
2 Exhaust end section
3 Pipe-clamp
4 M6x20 bolt, flanged nut [2x each]
5 Perforated bracket

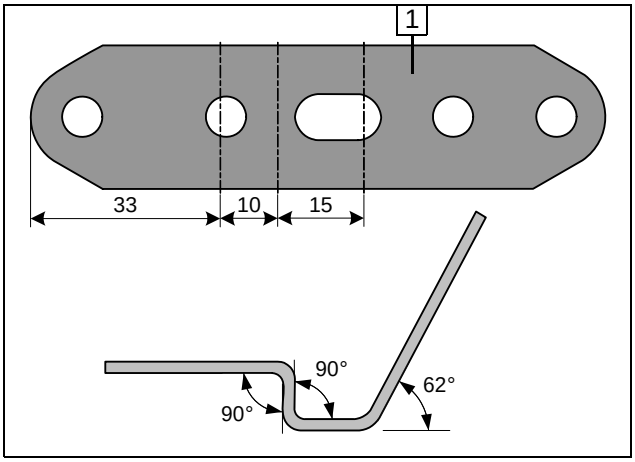
Installing exhaust end section



Ensure sufficient distance to neighbouring components.

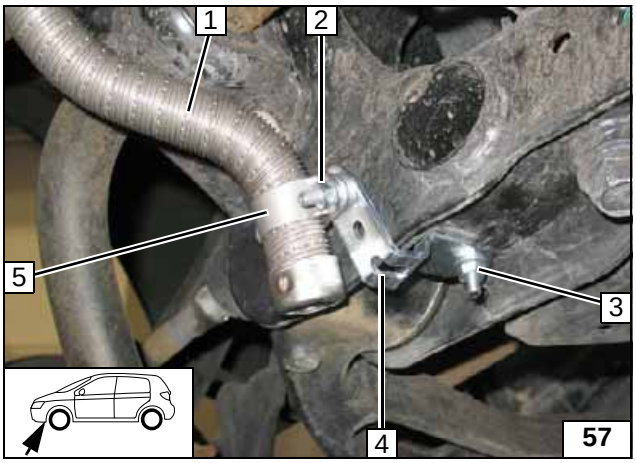
1 Exhaust end section

Routing exhaust end section



1 Perforated bracket

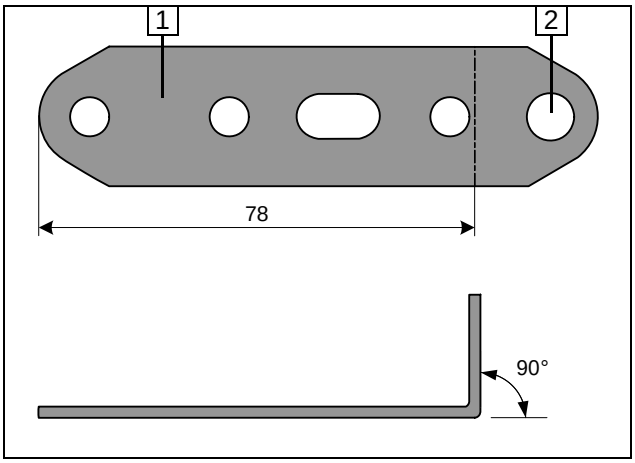
Preparing perforated bracket



Ensure sufficient distance to neighbouring components.

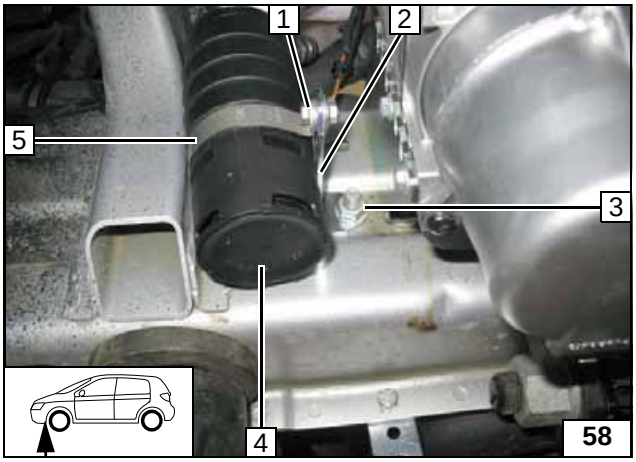
1 Exhaust end section
2 M6x20 bolt, flanged nut
3 M6x20 bolt, large diameter washer, flanged nut, existing hole
4 Perforated bracket
5 Pipe-clamp

Combustion air



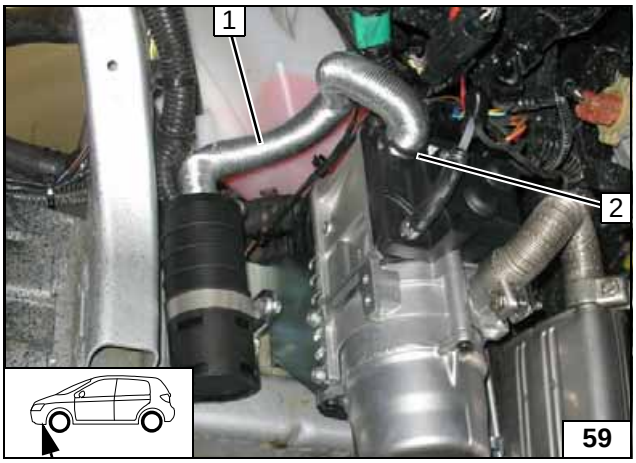
1 Perforated bracket
2 8.5 mm dia. hole

Preparing perforated bracket



1 M5x16 bolt, large diameter washer, flanged nut
2 Perforated bracket
3 Original vehicle stud bolt, M8 flanged nut
4 Silencer
5 51 mm dia. clamp

Installing silencer



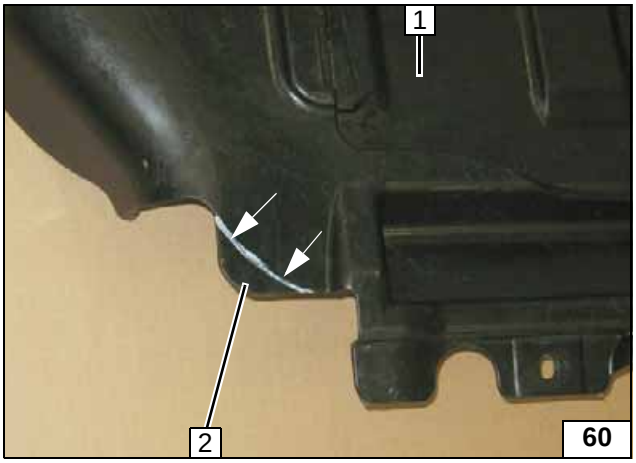
1 Combustion air pipe
2 25 mm dia. clamp

Installing combustion air pipe

Final Work

WARNING!
Reassemble the disassembled components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate all loose lines and tie back.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

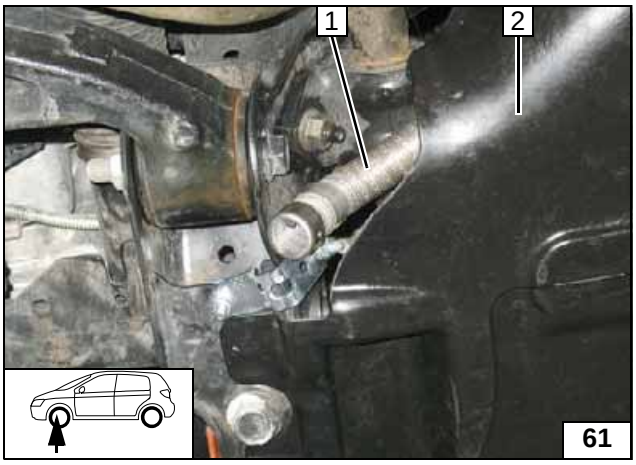
- **Connect the battery**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Set digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place signboard "Switch off parking heater before refilling" in the area of the filler neck**
- **For initial startup and function check, please see Installation Instructions**



Cut off lower engine trim **1** at markings.

2 Discard section

Cutting out lower engine trim



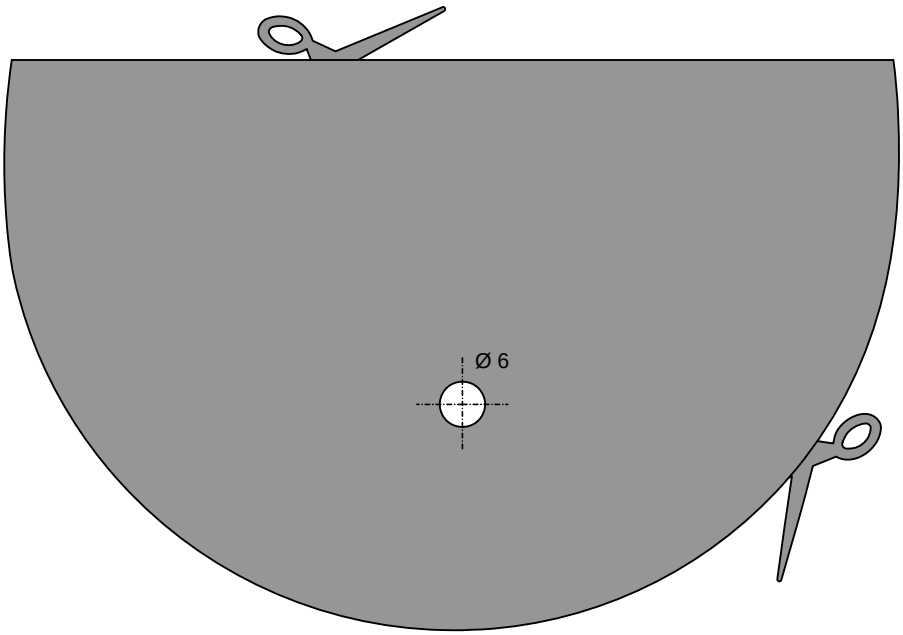
Ensure sufficient distance to neighbouring components.

1 Exhaust end section
2 Lower engine trim installed

Aligning exhaust end section

Webasto AG
Postfach 80
D-82132 Stockdorf / Germany
National Hotline: 01805 93 22 78
(14 Cent aus dem deutschen Festnetz)
Hotfax: 0395 5592 353
Hotmail: technikcenter@webasto.com
http://www.webasto.com

Template for fuel-tank sending unit



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 “minimise margins” and 100% of the normal size.

100 mm

0

Template for Petrol 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 “minimise margins” and 100% of the normal size.

100 mm

0

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.

If the vehicle has passenger compartment monitoring, this must be deactivated in addition to the vehicle settings for the heating operation.
Instructions for deactivation are given in the Operating Manual of the vehicle!

Before parking the vehicle, make the following settings:

The fan speed need not be pre-selected.

1 Set temperature to "HI"
2 Air outlet to windscreen

Automatic air-conditioning