Water Heater

***Thermo Top E* Parking Heater** e1 00 0003

***Thermo Top C* Parking Heater** e1 00 0002

Installation documentation

Lexus RX 450h

Petrol

from Model Year 2009

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, 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.

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

Ident. No.: 1315136B_EN Fee Euro 10.00

Table of Contents

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Lexus	RX 450h	HAL1 (A)	e6 * 2001 / 116 * 0118 * ...

Engine type	Engine model	Output in kW	Displacement in cm³
2GR-FXE	Petrol	183 (220)	3456

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.

Heater/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories Thermo Top E / C	See price list
1	Installation kit Lexus RX 450h 2009 Petrol	1315134B
1	Heater control T100 HTM	See price list

Heater recommended for the respective vehicle class:

Vehicle	Heater
Compact car	Thermo Top E
Mid-size car, station wagon	Thermo Top C

The selection of the heater is based on the passenger compartment size of the vehicle and the level of comfort required by the customer!

Foreword

This installation documentation applies to the Lexus RX 450h Petrol vehicles - for validity, see page 2 - from model year 2009 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.

However, the stipulations in the "installation documentation" and "operating and maintenance instructions" for the *Thermo Top E / C* must always be observed.
The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

Warning!
Have vehicles with not much fuel tank content delivered. The fuel tank must be removed.

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 rub protection (split-open plastic 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 are to be checked or adjusted before the installation.

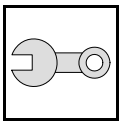
Special Tools

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

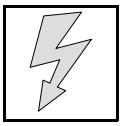
Explanatory Notes on Document

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

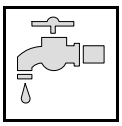
Mechanical system



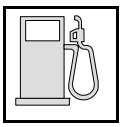
Electrical system



Coolant circuit

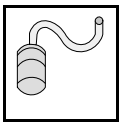


Fuel



Exhaust gas

Combustion air



Software

Special features are highlighted using the following symbols:

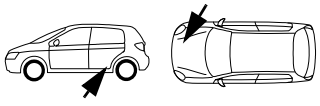
Specific risk of injury or fatal accidents.

Specific risk of damage to components.

Specific risk of fire or explosion.

Reference to general installation instructions of 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.

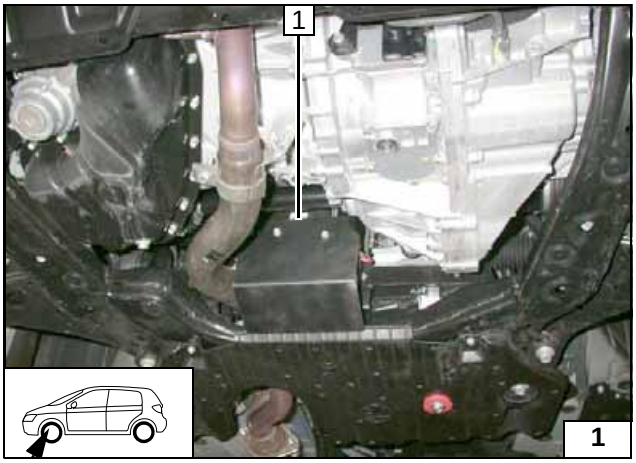
All dimensions are in mm!
Tightening torque of hose clamps = 2.0 + 0.5 Nm!
Tightening torque of Ejot screws, Ejot studs = 10 Nm!

Preliminary Work

WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Disconnect the battery "earth" or "ground" 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 engine cover.
- Remove the air filter box fully together with the intake hose.
- Remove the air resonator.
- Remove the windscreen wiper arms.
- Remove the coolant reservoir cap.
- Remove the windscreen wiper linkage with motor.
- Remove the coolant reservoir.
- Open the fuse and relay carrier in the engine compartment.
- Remove underride protection fully
- Remove the vibration damper.
- Remove cover of glove compartment
- Remove the A-pillar trim in the footwell on the front passenger side
- Remove the lower instrument panel trim on the driver's side.
- Remove the door sill trim on the front passenger side.
- Remove the driver's side air nozzle trim.
- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Remove the fuel tank.
- Remove fuel-tank sending unit.

Remove page 25 "Operating Instructions for End Customer" and insert with vehicle operating instructions.



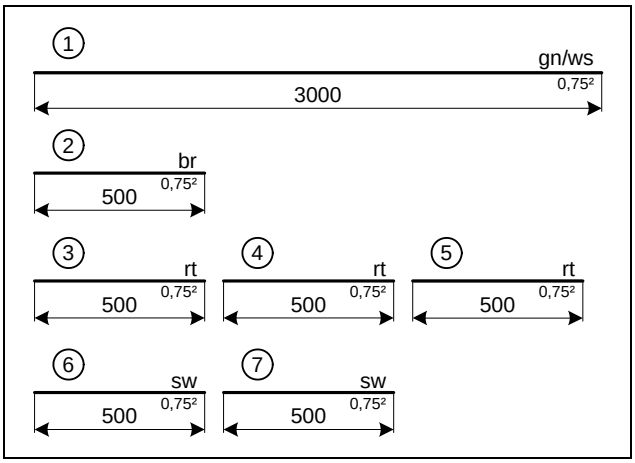
Heater installation location

1 Heater

Installation location

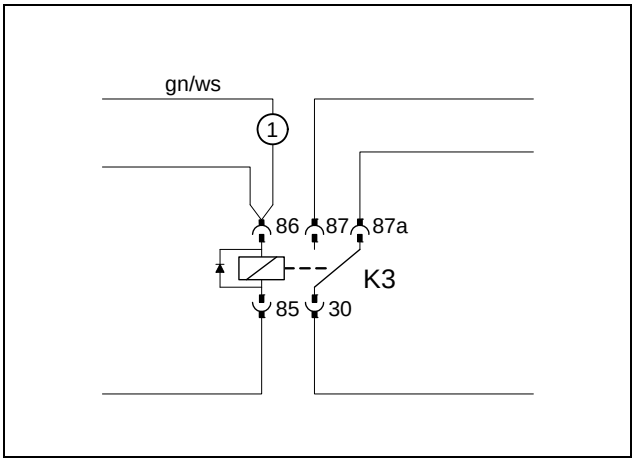
Preparing electrical system

Assigning wires



Produce connections as shown in wiring diagram. Install wire section **1** in protective sleeving provided.

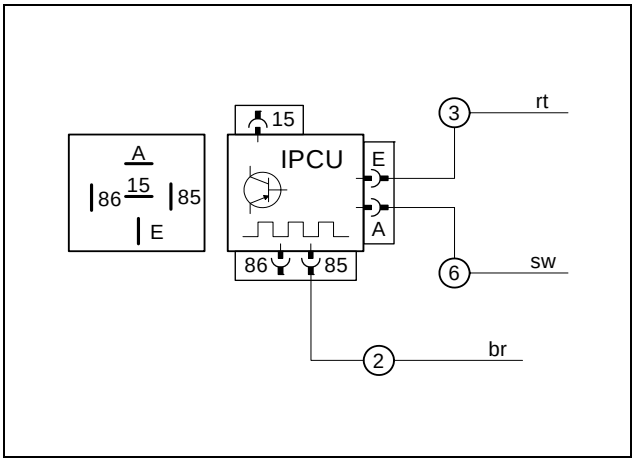
Preparing K3 relay



Connect wires to IPCU.
IPCU view on contact side.
The pre-programmed settings are to be checked during the function control on the vehicle, and adjusted if necessary.

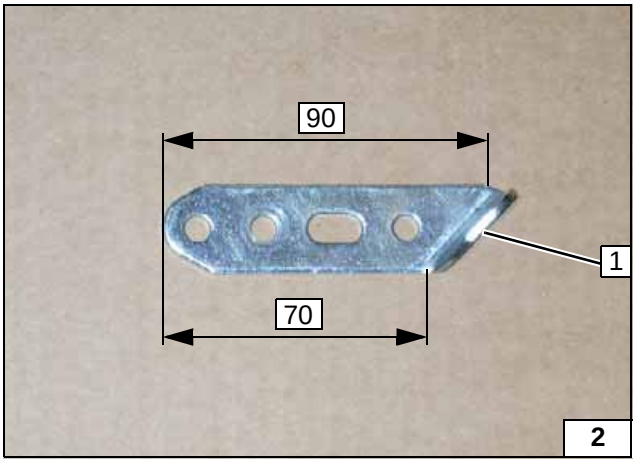
Duty cycle: 65%
Frequency: 400Hz
Voltage: 9V
Function: Low-side

Premounting IPCU



Angle down perforated bracket **1** by 90°.

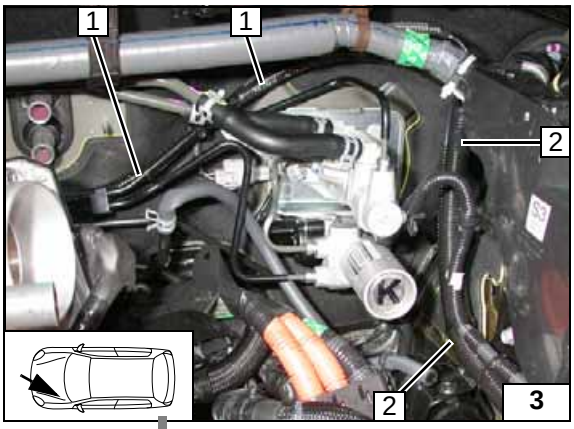
Angling down perforated bracket



Electrical system

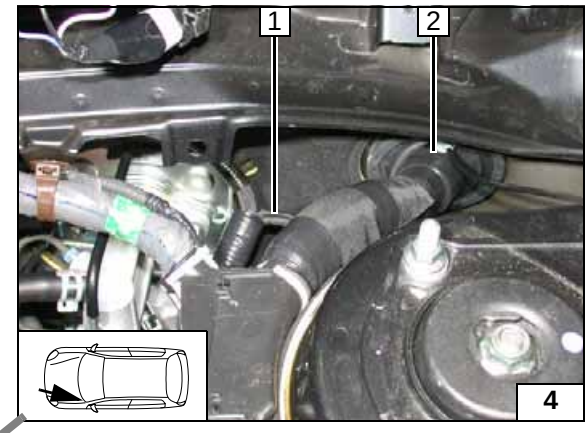
Wiring harness routing

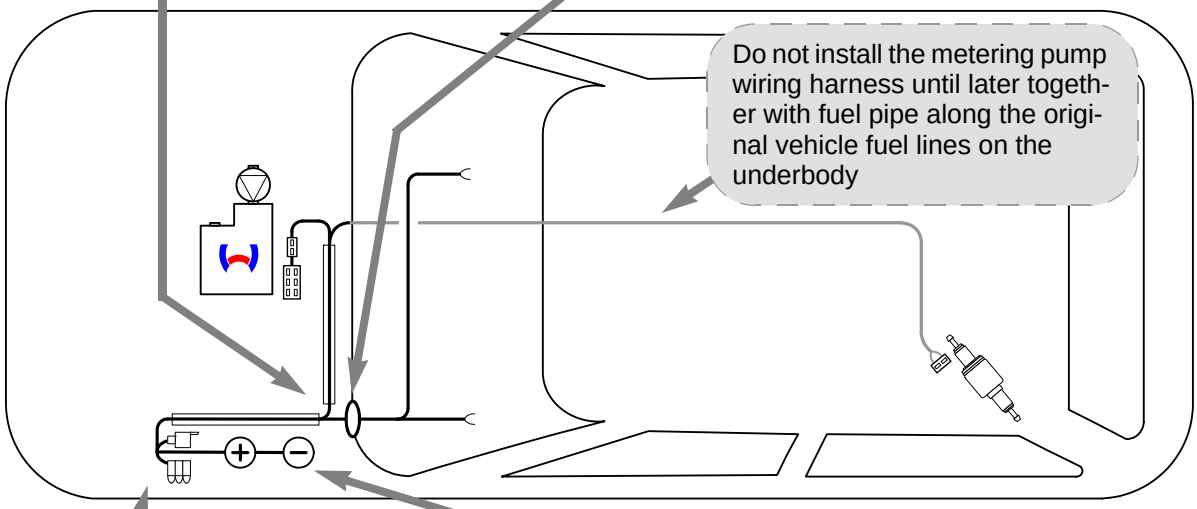
Wiring harnesses in 17 mm dia. corrugated tube **2** of fuse holder. Route wiring harnesses of heater and metering pump in 10 mm dia. corrugated tube **1** of the underbody.



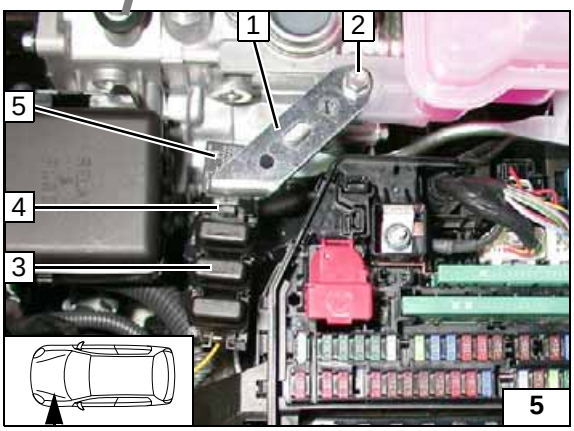
Wiring harness pass through

1 Wiring harnesses of fan control, heater control and green/white (gn/ws) wire in the protective sleeving
2 Protective rubber plug



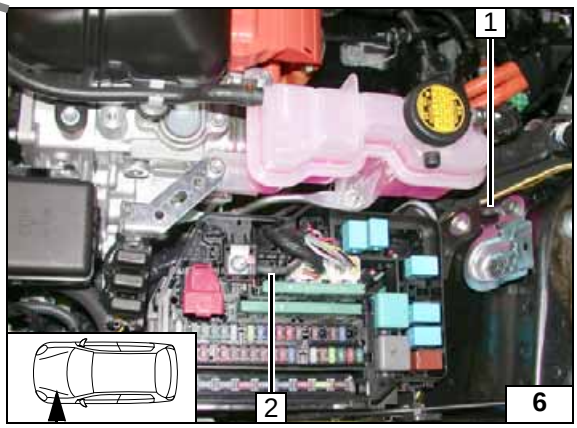


Wiring harness routing diagram



Fuse holder, K3 relay

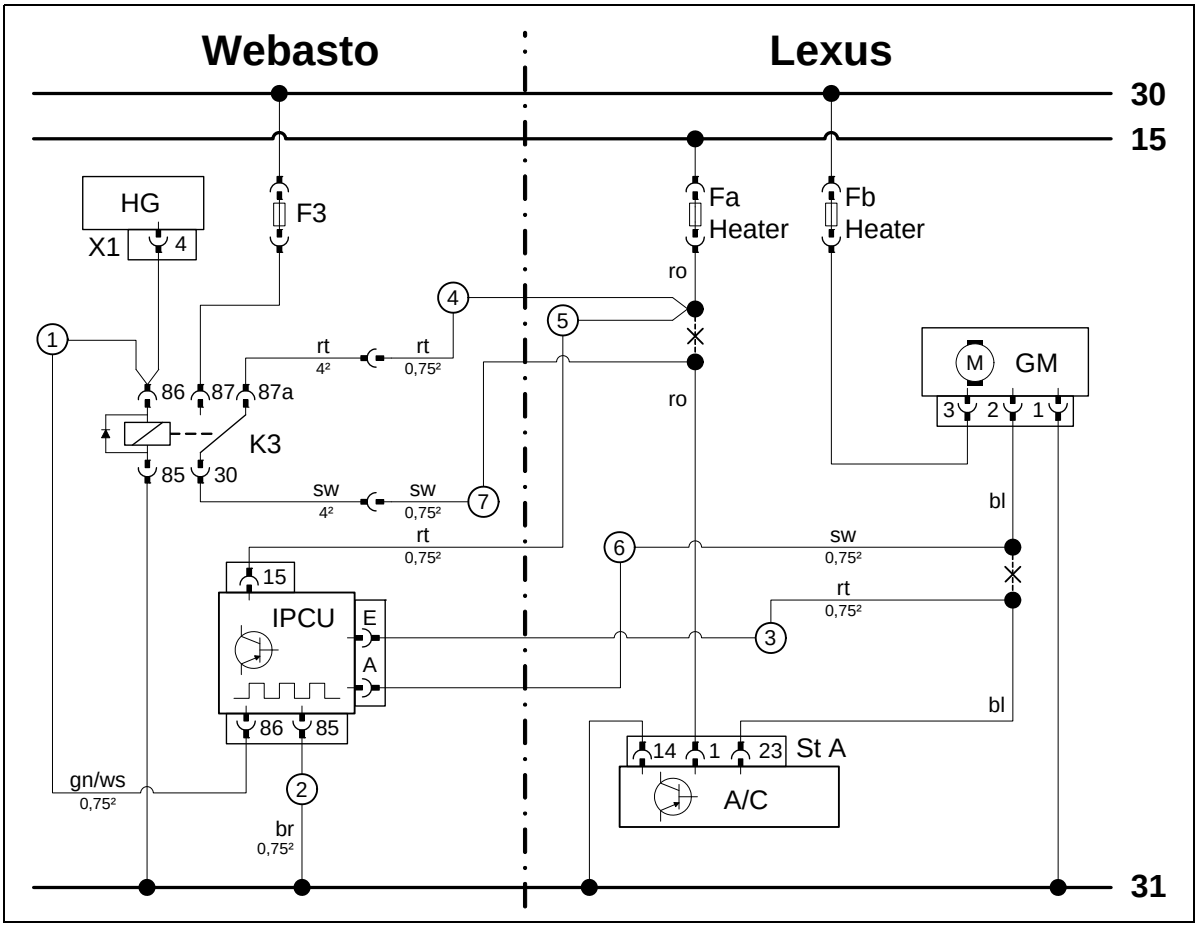
1 Perforated bracket
2 Original vehicle bolt
3 Fuses F1-3
4 M5x16 bolt, washers, nut
5 K3 relay



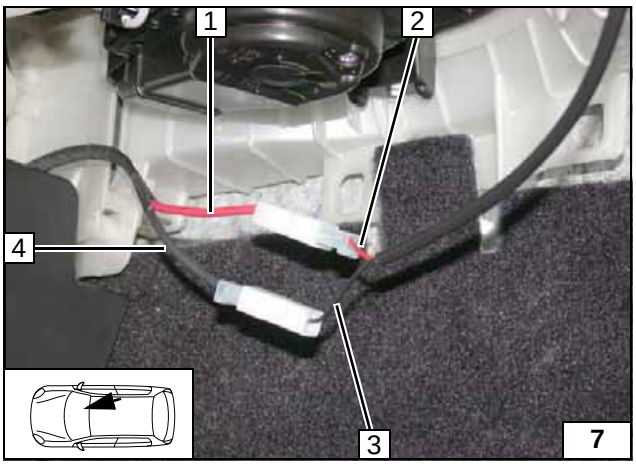
Positive- and earth connection

1 Earth wire on earth support point
2 Positive wire on positive support point in fuse box

Fan control



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-E / C	GM	Fan motor	rt	red
X1	6-pin heater connector	A/C	A/C booster	ws	white
F3	Fuse 25A	Fa	Fuse 10A	sw	black
K3	Fan relay	Fb	Fuse 50A	br	brown
IPCU	Pulse width modulator			gn	green
				bl	blue
IPCU adjustment values:				ro	pink
Duty cycle:	65%				
Frequency:	400Hz				
Voltage:	9V			**X**	Cutting point
Function:	Low-side			Wiring colours may vary.	



Produce connections as shown in wiring diagram.
Install wire sections **2** and **3** in protective sleeving provided.

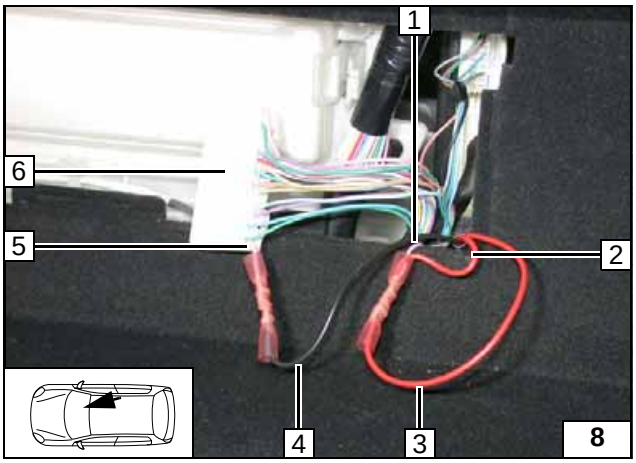
1 Red (rt) wire to K3/87a
2 Red (rt) wire④
3 Black (sw) wire⑦
4 Black (sw) wire from K3/30

Wiring diagram

Legend

Extend fan wiring harness

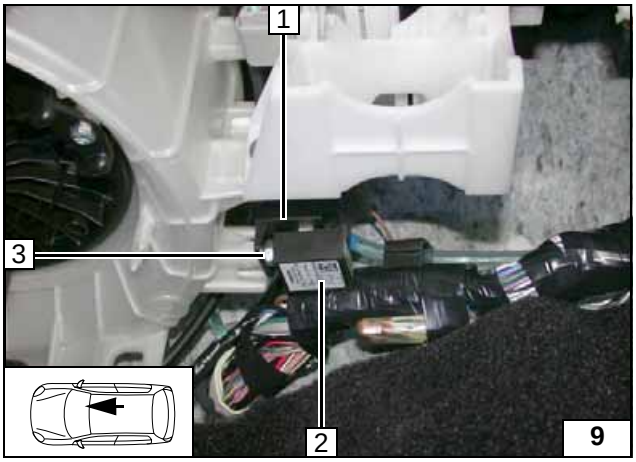
Connecting A/C booster



Connection to Connector A **6** from A/C booster Pin 1.
Produce connections as shown in wiring diagram.

1 Pink (ro) wire of heater fuse
2 Red (rt) wire⑤
3 Red (rt) wire④
4 Black (sw) wire⑦
5 Pink (ro) wire of connector A Pin 1

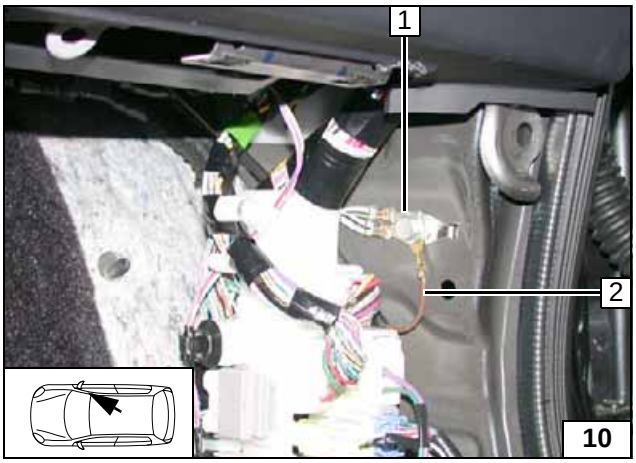
Installing IPCU



Connect green/white (gn/ws) wire ① to IPCU/86 and red (rt) wire ⑤ to IPCU/15

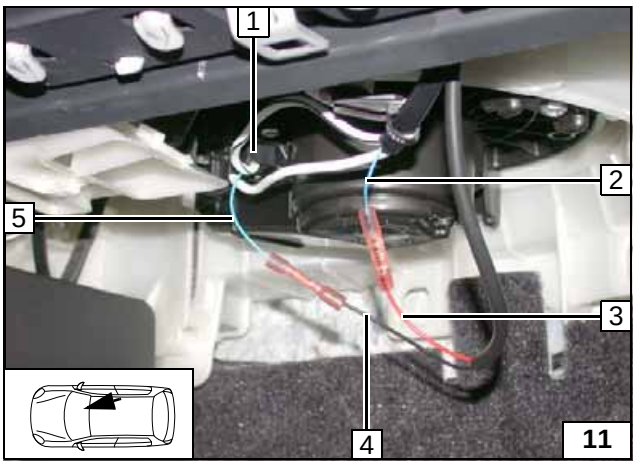
1 IPCU socket
2 IPCU mounted
3 5.5x13 self-tapping screw

IPCU earth connection



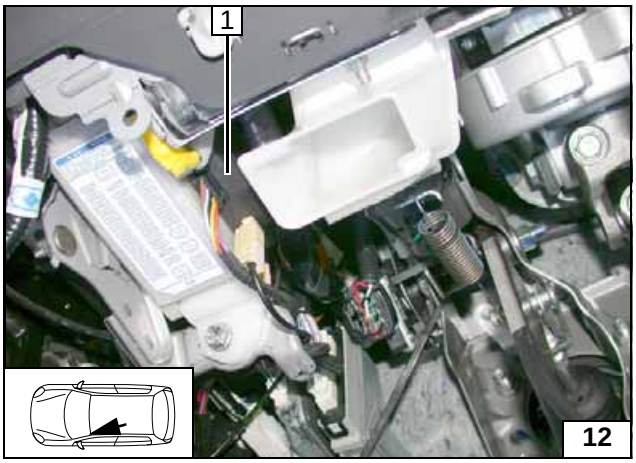
1 Original vehicle bolt
2 Brown (br) wire ② IPCU/85

Connection of fan motor



Connection to 3-pin connector **1** of fan motor.
Produce connections as shown in wiring diagram.

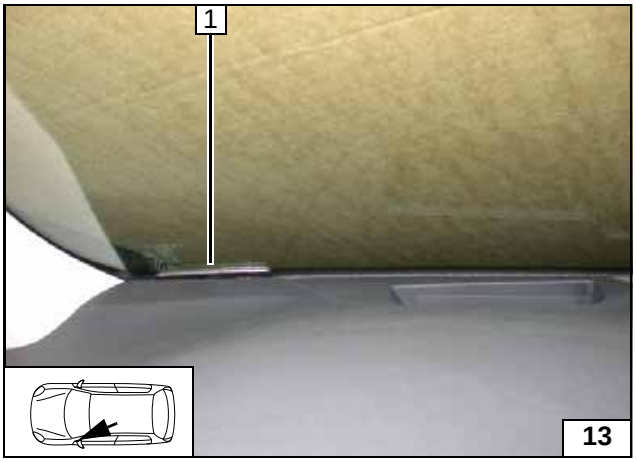
2 Blue (bl) wire of A/C booster Pin 23
3 Red (rt) wire ③ IPCU/E
4 Red (rt) wire ⑥ IPCU/A
5 Blue (bl) wire of fan motor connector Pin SI



Telestart

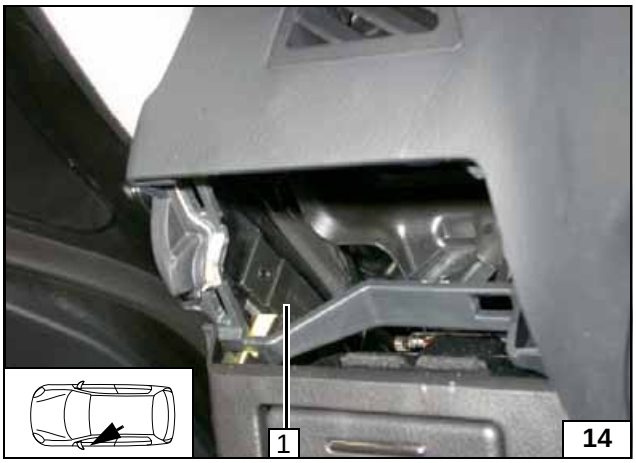
Receiver **1** with adhesive tape.

Installing receiver



1 Antenna

Installing antenna



Temperature sensor T100 HTM

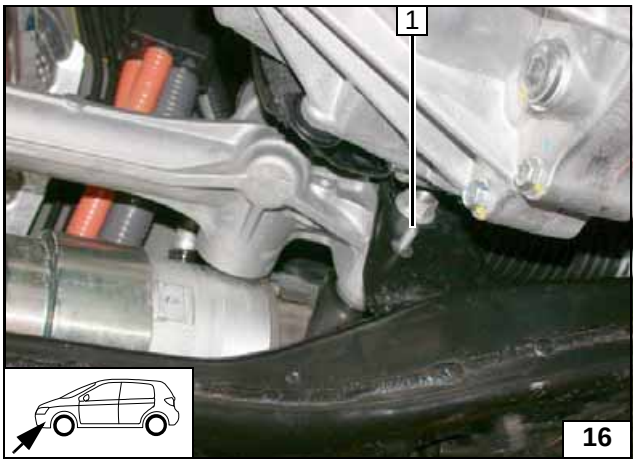
Fasten temperature sensor **1** with adhesive tape.

Installing temperature sensor

1 Wiring harness of temperature sensor

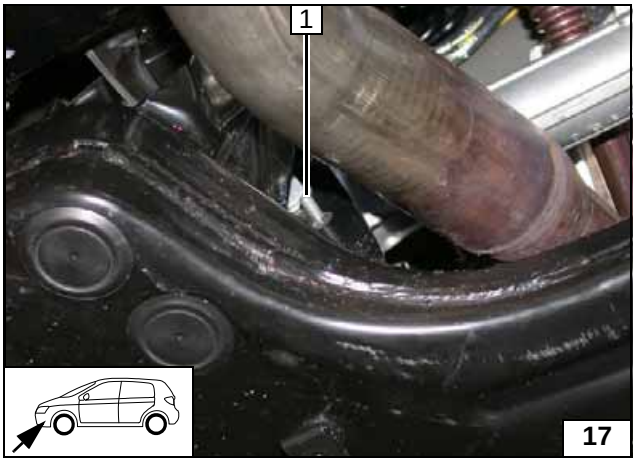
Routing wiring harness

Preparing installation location



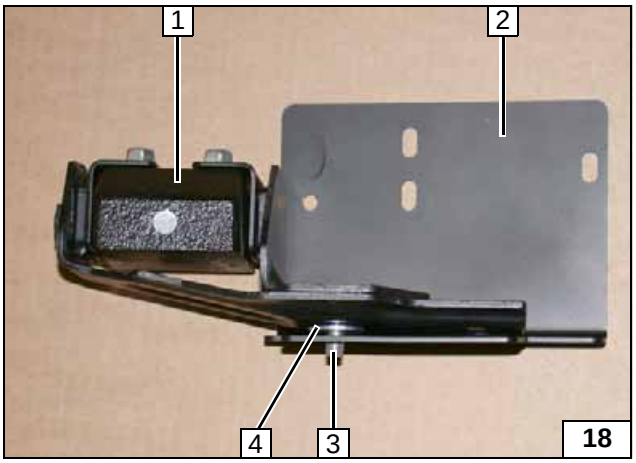
1 M6x20 bolt, pin lock, existing hole

Mounting bolt



1 M6x20 bolt, pin lock, existing hole

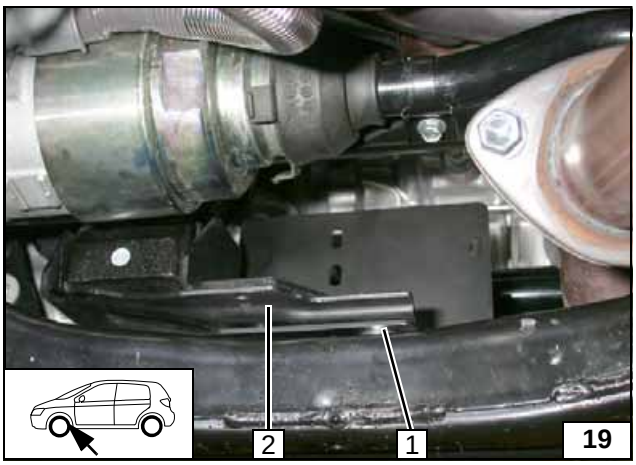
Mounting bolt



Remove absorber **1**. Original vehicle bolts will be reused. Insert an 8mm dia. large diameter washer between bracket **2** and absorber **1** at position **4**.

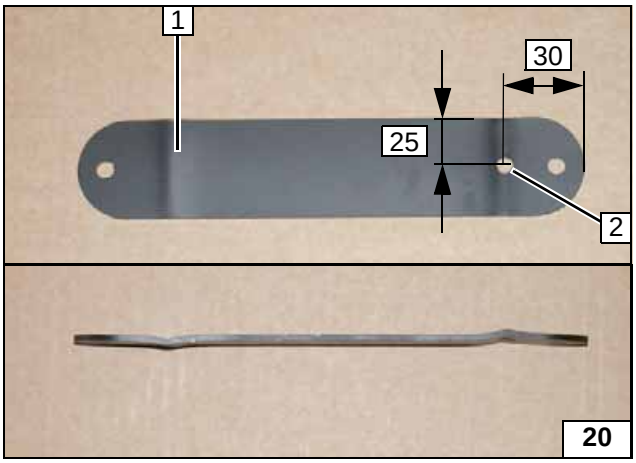
3 Original vehicle bolt

Preparing bracket and absorber



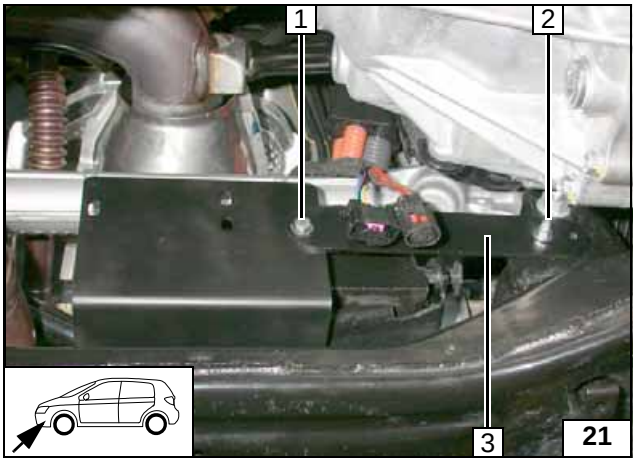
Reinstall bracket and absorber **2** with original vehicle bolts. Insert an 8mm dia. large diameter washer between axle support and bracket at position **1**.

Installing bracket and absorber



Straighten strut **1** out. 7mm dia. hole at position **2**.

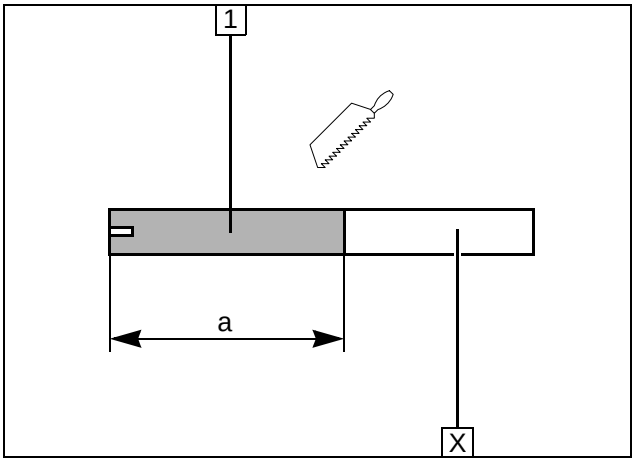
Preparing strut



1 M6x20 bolt, flanged nut
2 Flanged nut, premounted bolt
3 Strut

Installing strut

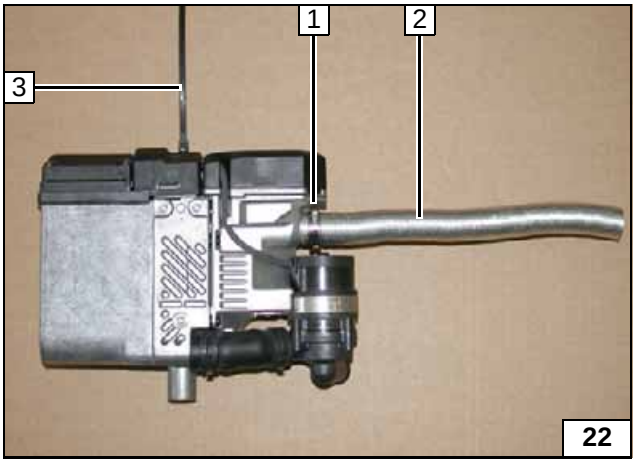
Preparing heater



Discard section **X**

1 Combustion air pipe
a = 250

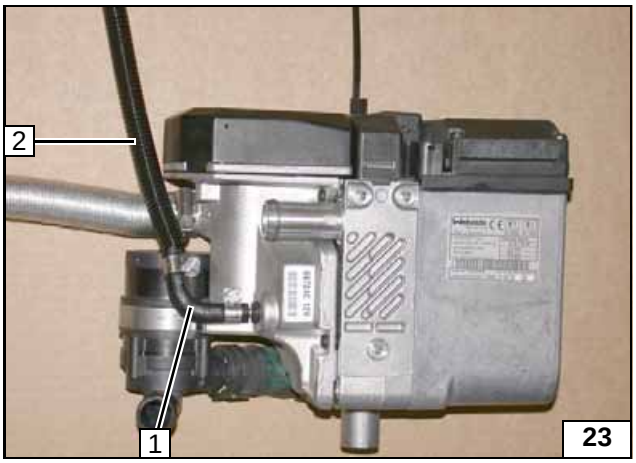
Cutting combustion air pipe to length



Punch through perforation in centre heater cover and mount clip-type cable tie **3**.

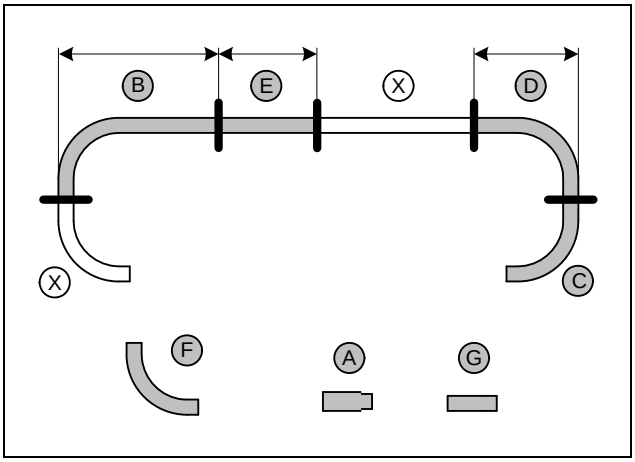
1 27mm dia. clamp
2 Combustion air pipe

Premounting combustion air pipe



1 90°-moulded hose, 10mm dia. clamp [2x]
2 Fuel line in corrugated tube

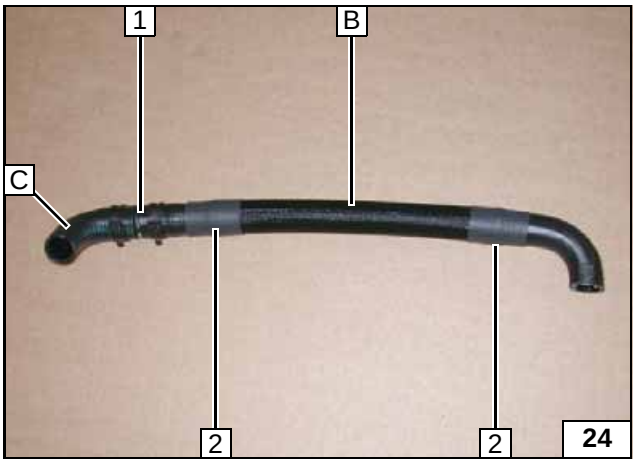
Premounting fuel hose on heater



Hose **A** = Straight moulded hose (18x20mm dia.)
Hose **F** = 90°moulded hose (18x18mm dia.)
Hose **G** = Straight moulded hose (18mm dia.)
Discard section **X**

B = 380
D = 130
E = 270

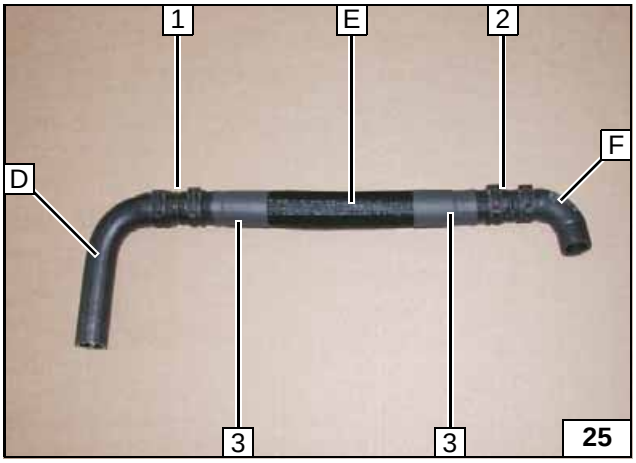
Cutting coolant hoses to length



Push braided protection hose onto hose **B** and cut to length.
Cut heat shrink plastic tubing to length.

1 20x20 connecting pipe, 27mm dia. spring clip [2x]
2 Heat shrink plastic tubing, 50 mm length [2x]

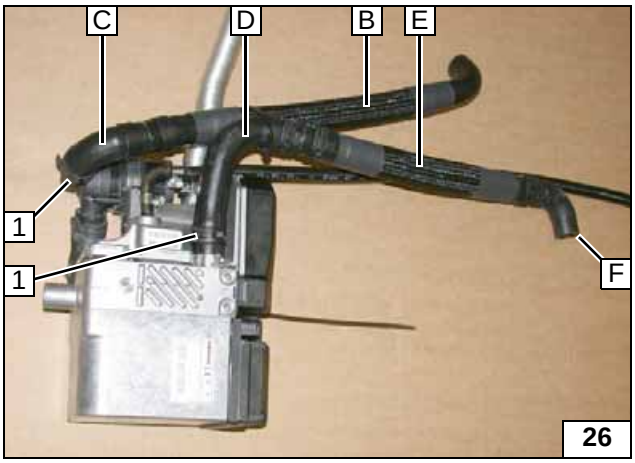
Preparing coolant hoses



Push braided protection hose onto hose **E** and cut to length.
Cut heat shrink plastic tubing to length.

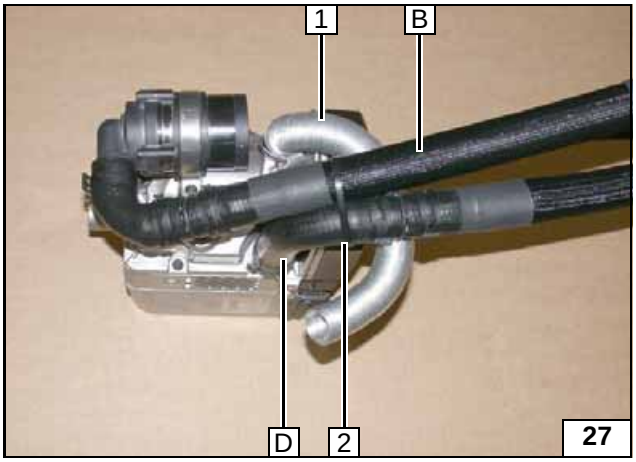
1 20x20 connecting pipe, 27mm dia. spring clip [2x]
2 18x20 connecting pipe, 25mm dia. spring clip, 27mm dia. spring clip
3 Heat shrink plastic tubing, 50 mm length [2x]

Preparing coolant hoses



1 27 mm dia. spring clip [2x]

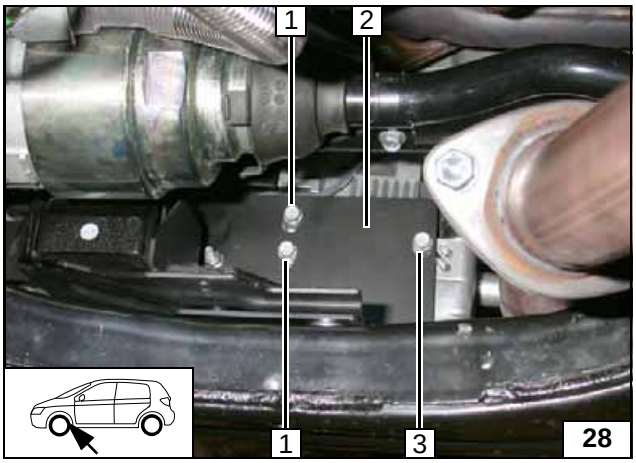
Premounting hoses on heater



Shaping combustion air pipe **1**.

2 Cable tie

Aligning hoses

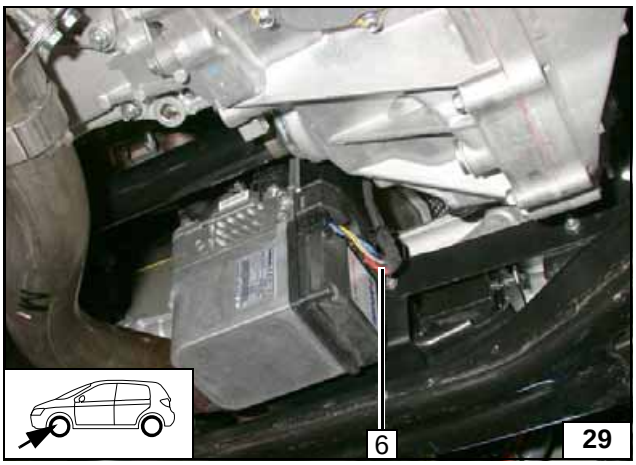


Installing heater

Insert two washers between heater and bracket **2** at position **3**.

1 Ejot screw [2x]
2 Ejot screw, washer [2x]

Installing heater



1 Wiring harness of heater

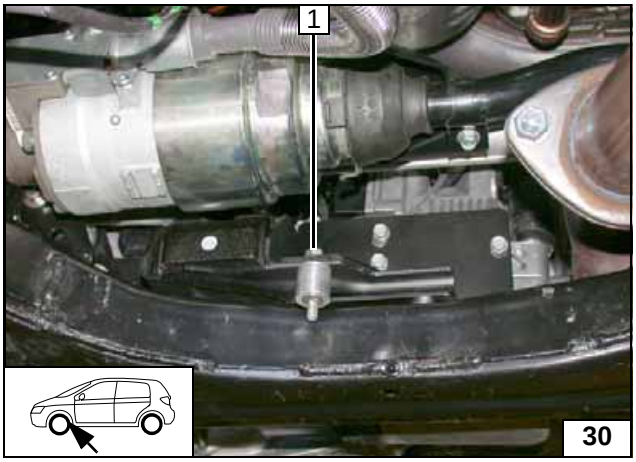
Mounting wiring harness

Exhaust

Discard section **X**

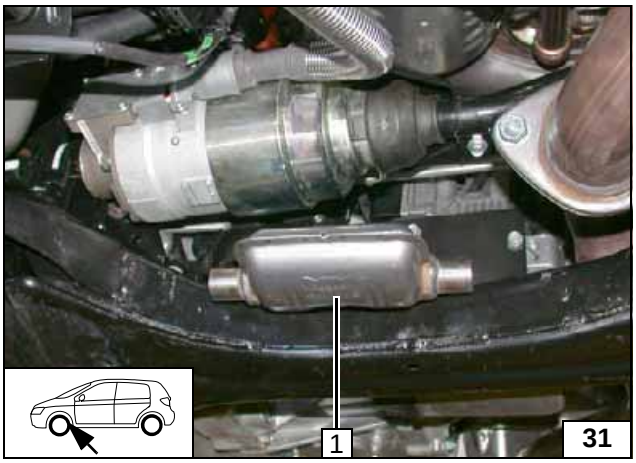
1 Exhaust pipe
a = 350
2 Exhaust end section
b = 380

Preparing exhaust pipe



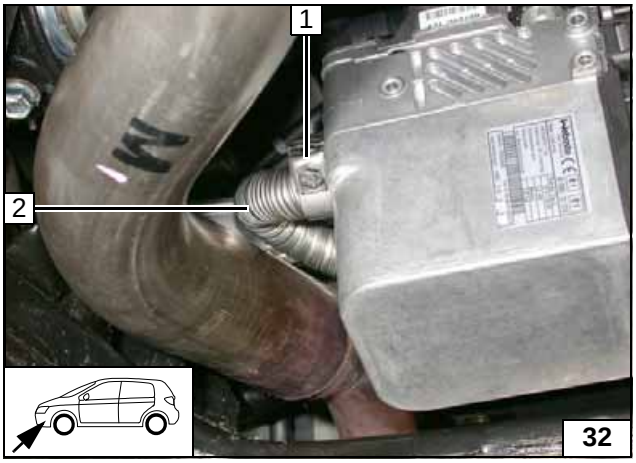
1 M6x40 bolt, 20mm shim, pin lock, existing hole

Mounting bolt



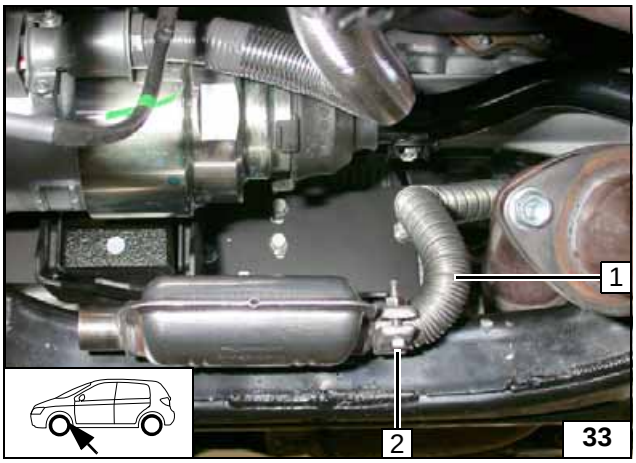
Fasten silencer **1** with flanged nut to M6x40 bolt

Installing silencer



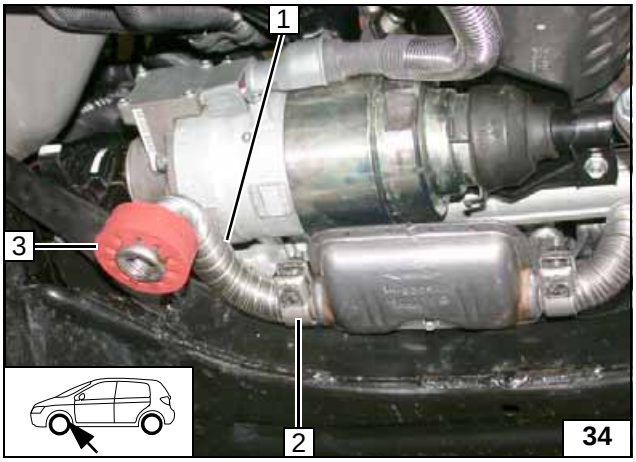
1 Hose clamp
2 Exhaust pipe

Installing exhaust pipe



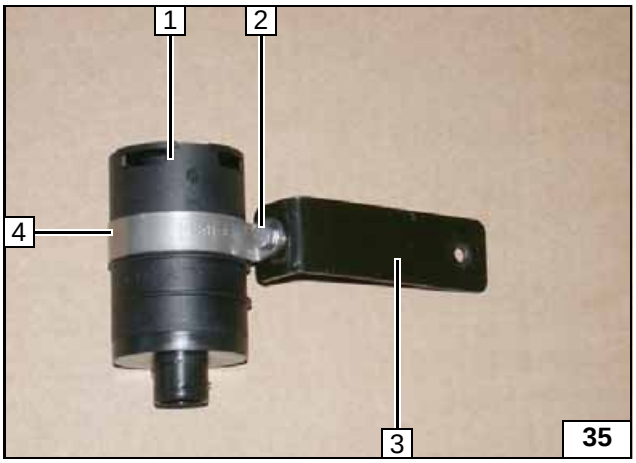
1 Exhaust pipe
2 Hose clamp

Installing exhaust pipe



1 Exhaust end section
2 Hose clamp
3 Slide on red (rt) rubber isolator with groove

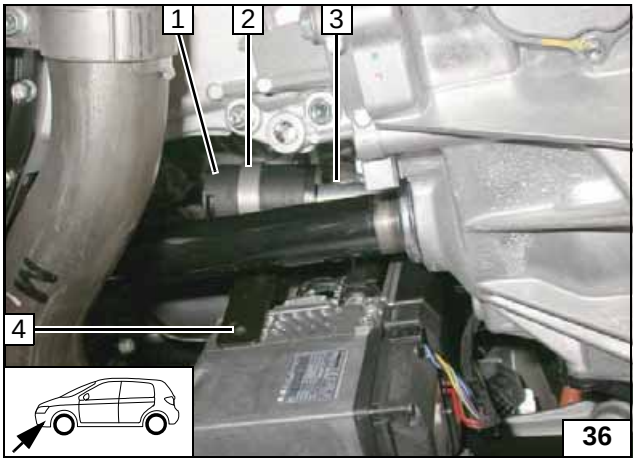
Installing exhaust end section



Combustion air

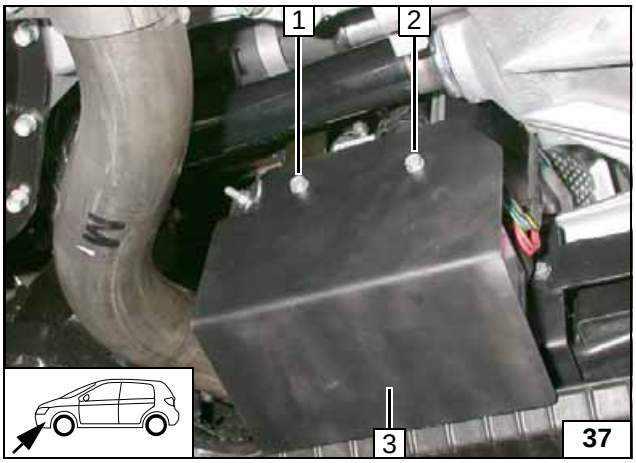
1 Silencer
2 Mount M6x20 bolt, flanged nut loosely
3 Bracket
4 48mm dia. clamp

Preparing silencer



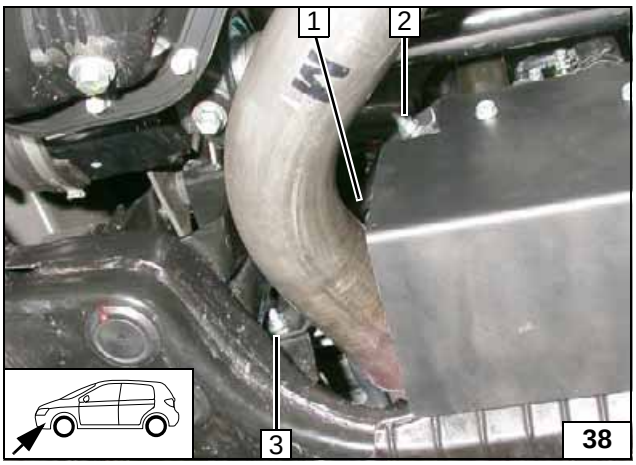
Screw silencer **1** on combustion air pipe **3**. Tighten bolt of 48mm dia. clamp **2**. Align hole of bracket at position**4** to threaded hole of heater.

Installing silencer



Fasten wind deflector plate **3** with Ejot screws **1** and **2** on heater. Install bracket of silencer between wind deflector plate **3** and heater at position **1**.

Installing wind deflector plate



Install strut **1** with flanged nut on premounted bolt **3** and on wind deflector plate.

2 M6x20 bolt, flanged nut

Installing strut

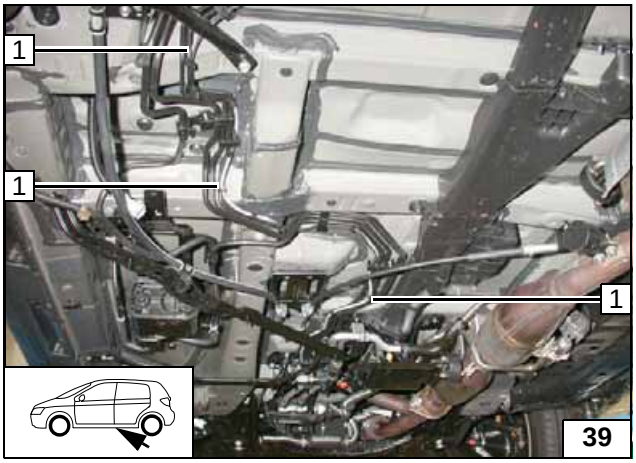
Fuel

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.

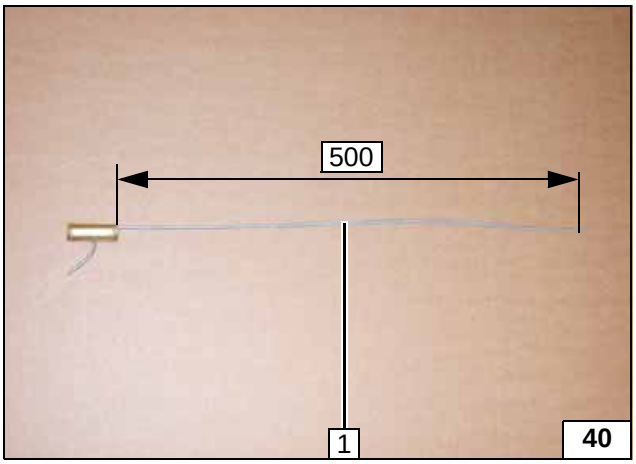
Install fuel line and metering-pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



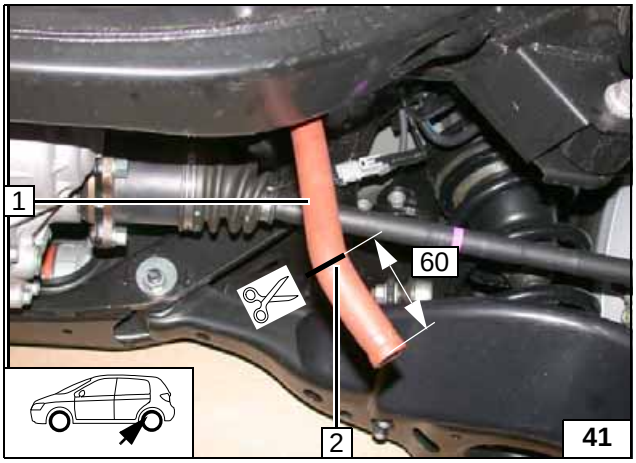
Route fuel line and wiring harness of metering pump **1** along original vehicle wires to installation location of metering pump.

Installing lines



1 Fuel standpipe

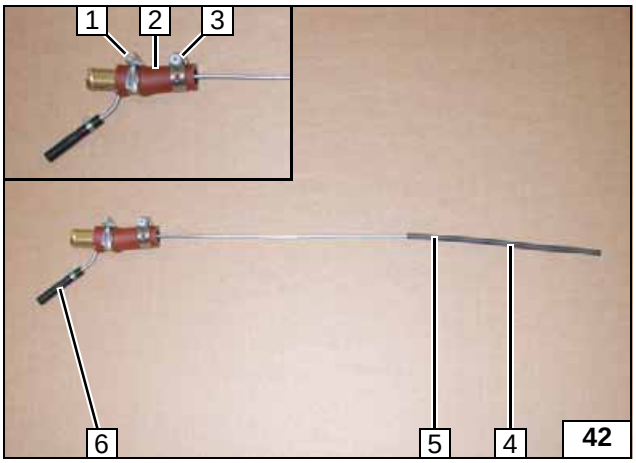
Cutting fuel standpipe to length



Pull out fuel-tank vent line from connection piece. Clamp will be reused. Cut off 60mm from fuel-tank vent line **1**. Remove the fuel tank.

1 Fuel-tank vent line
2 Cutting point

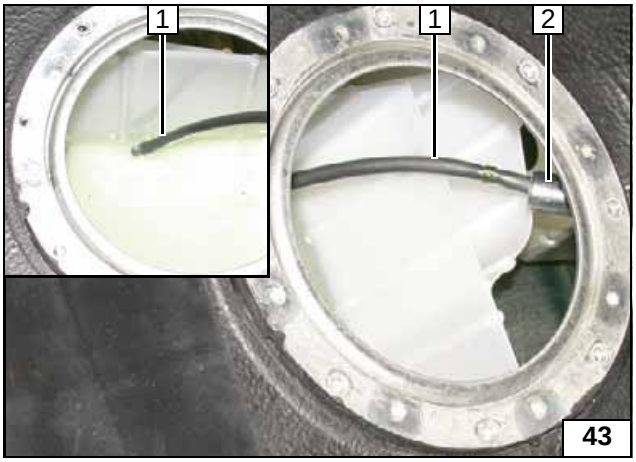
Removing fuel



Slide on 4x1 protective hose **4** onto fuel standpipe and fasten with 6.2mm dia. one-ear clamp **5**.

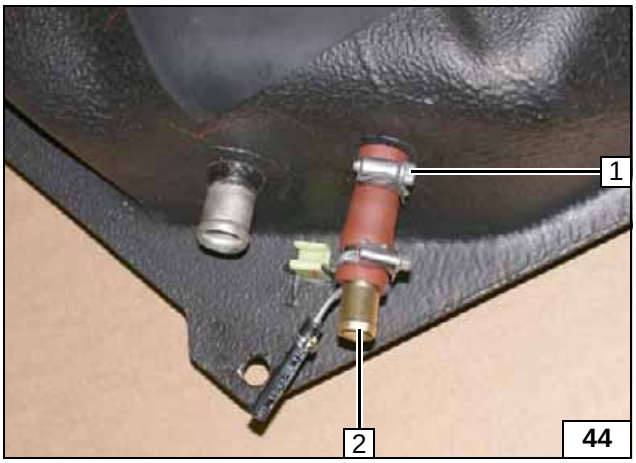
1 24 mm dia. clamp
2 Cut to length fuel-tank vent line
3 Mount original vehicle clamp loosely
6 Hose section, 10mm dia. clamp

Preparing fuel standpipe



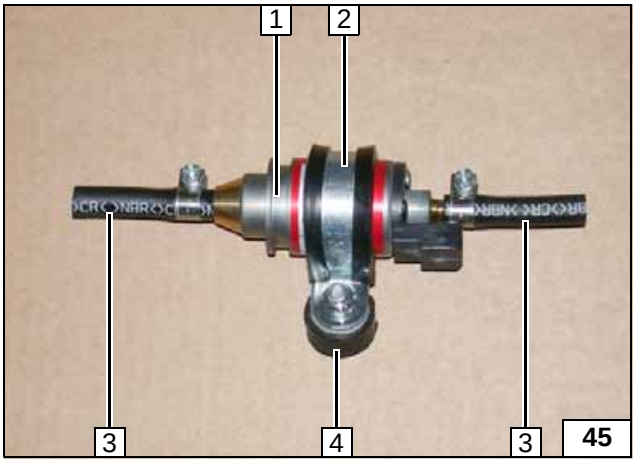
Insert fuel standpipe **1** in ventilation line **2** (see figure below). Orient standpipe of fuel standpipe with protective hose **1** towards fuel tank bottom.

Installing fuel standpipe



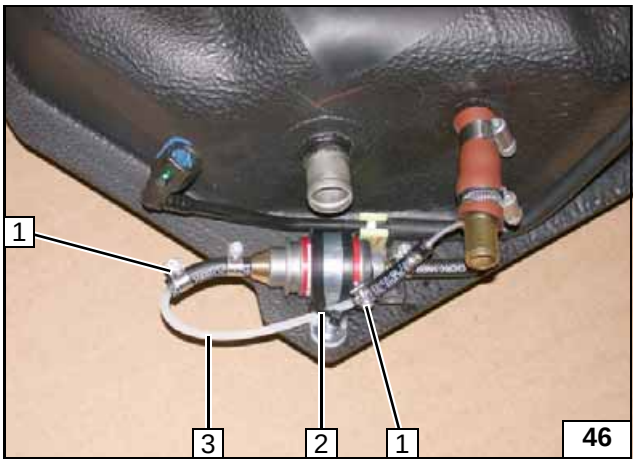
1 Tighten original vehicle clamp
2 Fuel standpipe

Installing fuel standpipe



1 Metering pump
2 Rubber-coated pipe clamp
3 Hose section, 10mm dia. clamp [2x each]
4 Silent block, flanged nut

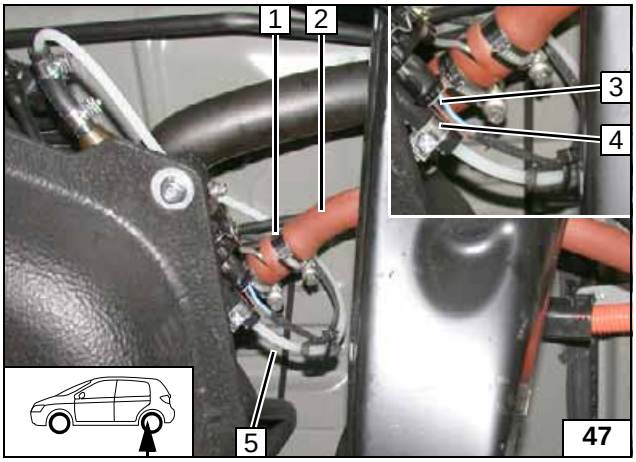
Premounting metering pump



Fasten silent block with flanged nut and large diameter washer on existing hole of fuel tank.

1 10mm dia. clamp [2x]
2 Cable tie
3 Fuel line

Installing and connecting metering pump



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

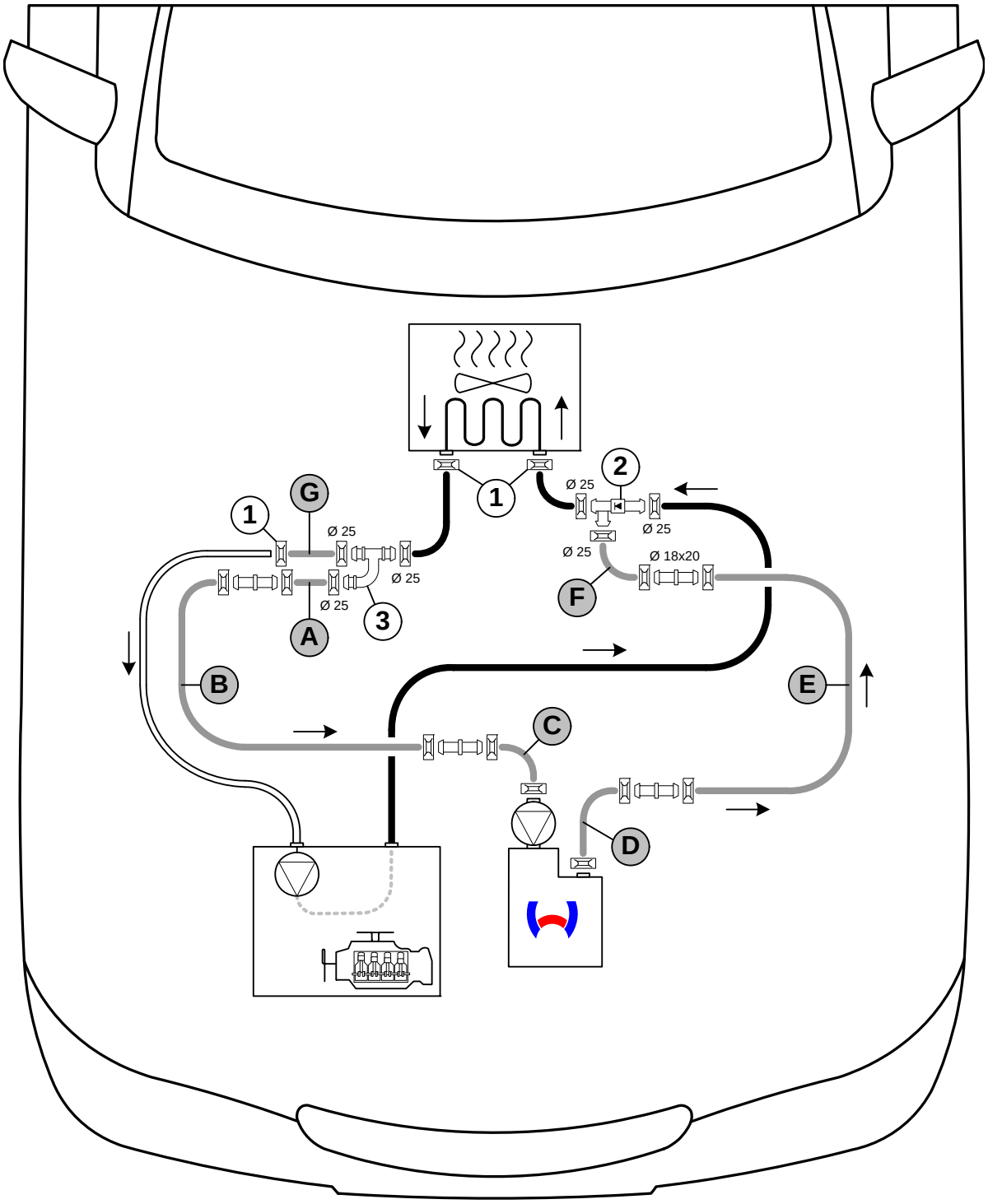
1 24 mm dia. clamp
2 Fuel-tank vent line
3 Wiring harness of metering pump, connector mounted
4 10mm dia. clamp
5 Fuel line of heater

Connecting fuel-tank vent line

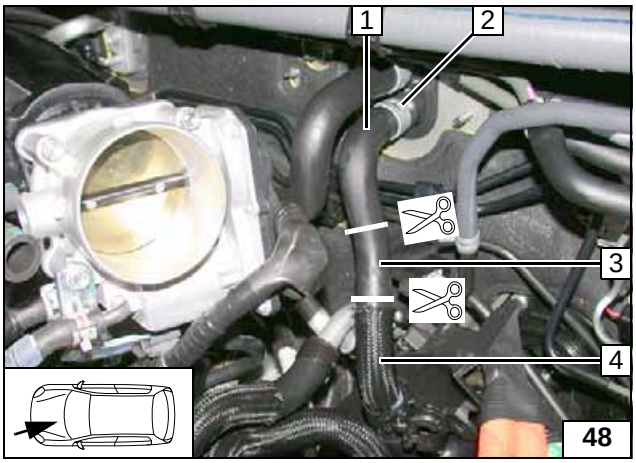
Coolant circuit

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 other hoses cannot be damaged. When installing the hoses, the heater must be filled with coolant.
The connection should be based on the following diagram:

Hose routing diagram



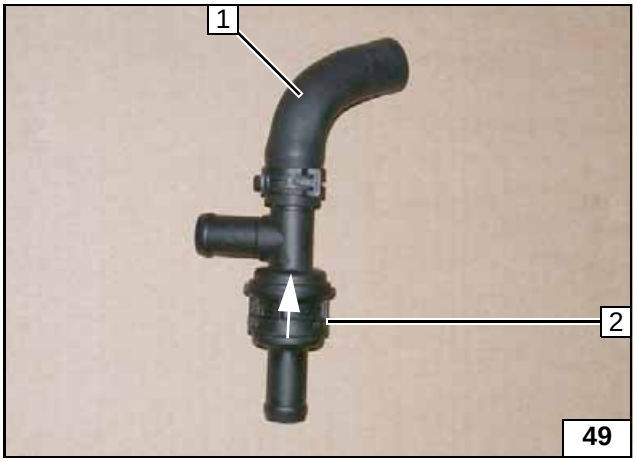
All spring clips without a specific designation = 27 mm dia. **1** = Original vehicle spring clip .
All connecting pipes without a specific designation = 20x20mm dia. **2** = Check valve .
3 = 90° T-piece .



Remove hose section from heat exchanger inlet **1**. Spring clip **2** will be reused. Remove protective hose from hose section of engine outlet **4**.

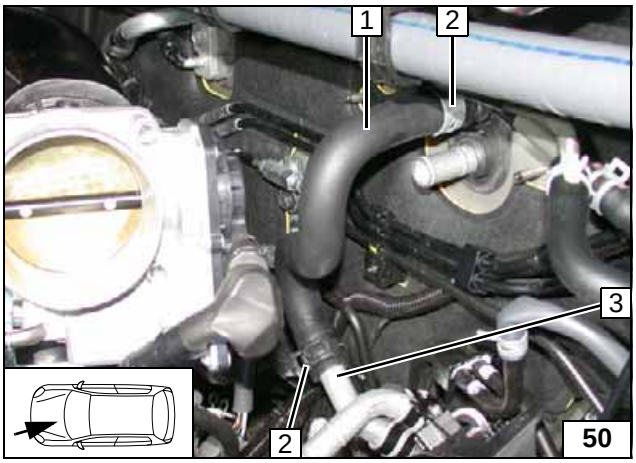
3 Discard hose section

Cutting point



1 Hose of heat exchanger inlet
2 Check valve (watch flow direction)

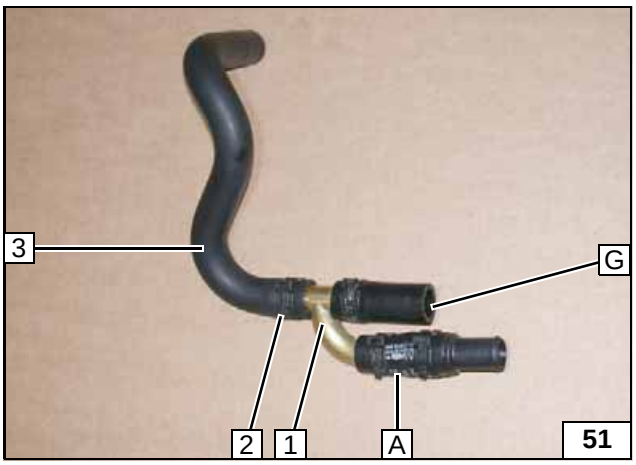
Preparing hose on heat exchanger inlet



Remove hose from heat exchanger outlet**1**. Spring clips **2** will be reused.

3 Engine inlet pipe group

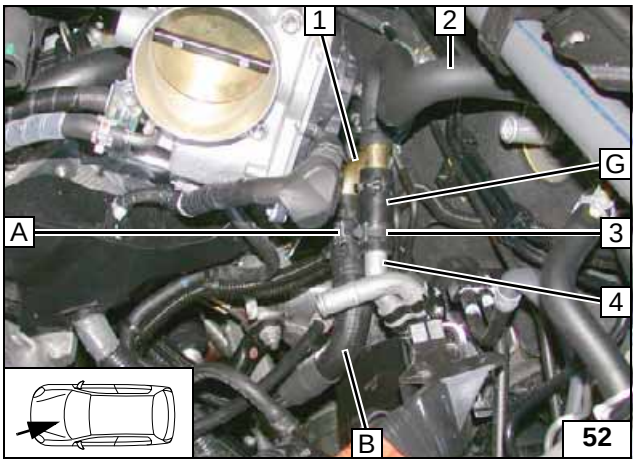
Cutting point



Premount pipe group fully.

1 90° T-piece
2 Original vehicle spring clip
3 Hose of heat exchanger outlet

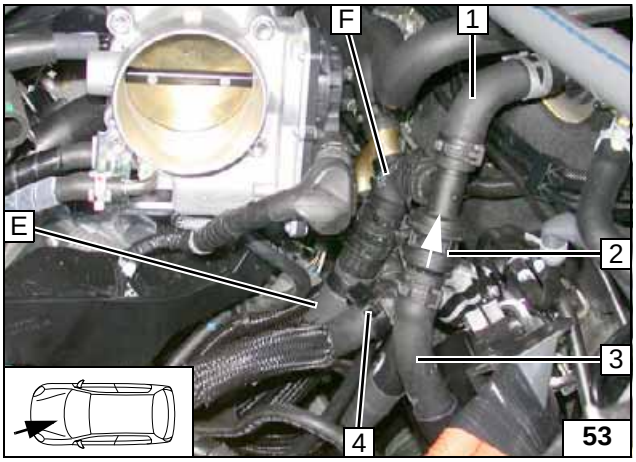
Preparing hose on heat exchanger outlet



Reinstall hose on heat exchanger outlet **2** with original vehicle spring clip. Connect hose **A** and **B**.

1 90° T-piece
3 Original vehicle spring clip
4 Engine inlet pipe group

Connecting heater inlet



Reinstall hose on heat exchanger inlet **1** with original vehicle spring clip. Connect hose **E** and **F**.
Ensure sufficient distance to neighbouring components.

2 Check valve
3 Engine outlet hose
4 Insert spacer bracket

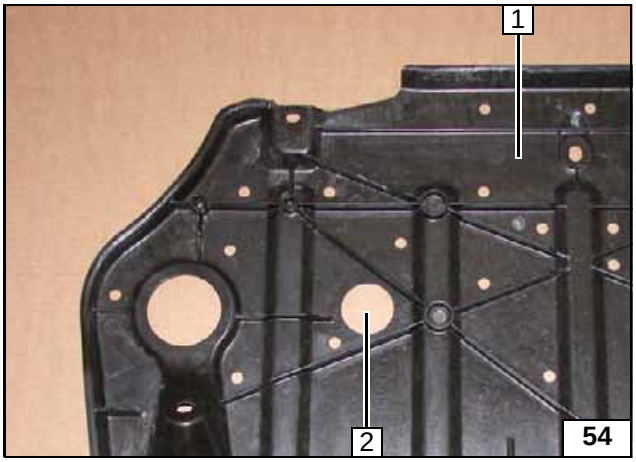
Connecting heater outlet

Final Work

WARNING!
Mount removed parts 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 components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

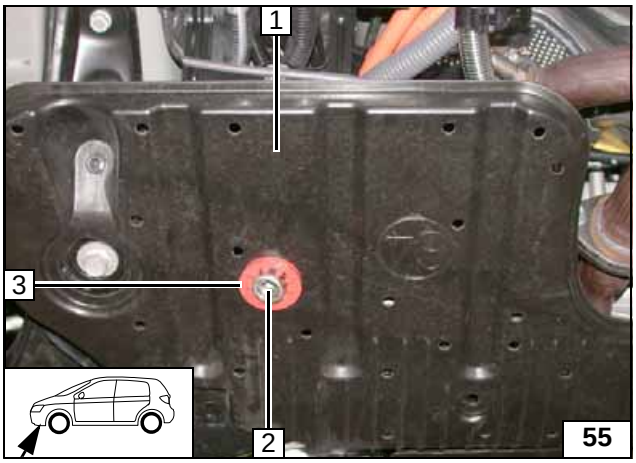
- Connect the battery
- Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.
- Adjust digital timer, teach Telestart option
- Make settings on A/C control panel according to the "Operating Instructions for End Customer".
- Apply the sticker "Switch off parking heater before refilling" in the area of the filler neck.
- Check the proper operation of the parking heater, see the operating instructions/installation instructions.

Cutting out underride protection



1 Underride protection
2 42 mm dia. hole

Inserting rubber isolator



Mount underride protection **1**. Align exhaust end section **2** flush on red (rt) rubber isolator **3**.

Webasto
Feel the drive

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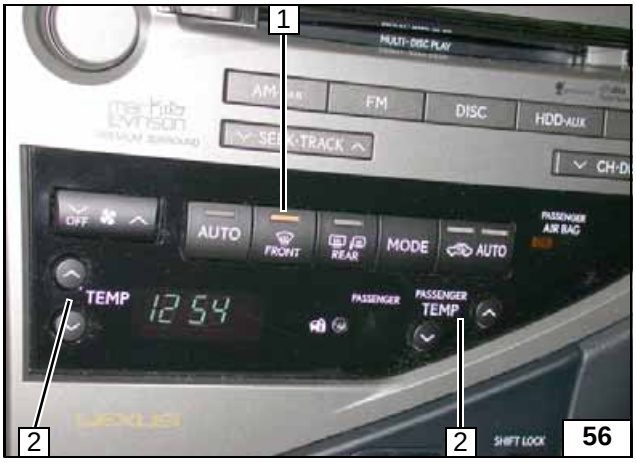
Operating Instructions for End Customer

Please remove page and add to the vehicle operating instructions.

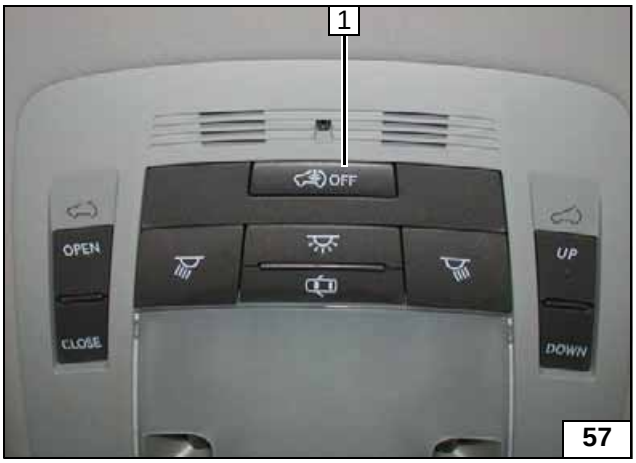
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Before parking the vehicle, make the following settings:



1 Air outlet to windscreen
2 Temperature set to "max." on both sides

Automatic air-conditioning



Deactivate passenger compartment monitoring in vehicles with anti-theft alarm.

1 Set passenger compartment monitoring to "OFF"

Switch-off function of passenger compartment monitoring