

Water Heater



Thermo Top E Parking Heater

e1
00 0003

Thermo Top C Parking Heater

e1
00 0002

Installation instructions

Hyundai Santa Fe

2.2 CRDI

from Model Year 2010

Left-hand drive vehicle

Automatic air-conditioning

The use of Thermo Top P is not permitted for priority heating of the passenger compartment displayed in this coolant circuit in this EBA!



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.

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Validity

Manufacturer	Model	Type	EG-BE No./ABE
Hyundai	Santa Fe	CM	e11 * 2001/116 * 0270 * ...

Engine type	Engine model	Output in kW	Displacement in cm ³
D4HB	Diesel	145	2199

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 a digital timer and summer/winter switch should be confirmed with the end customer before installation.

Heater/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories <i>Thermo Top E / C</i>	See price list
1	Installation kit Hyundai Santa Fe 2.2 CRDI MY 2010	1315602A
1	Heater control	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

These installation instructions apply to Hyundai Santa Fe 2.2 CRDI vehicles - for validity, see page 2 - from model year 2010 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to these installation instructions.

However, where this is the case the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top E / C* should be observed.

The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

General Instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and 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).

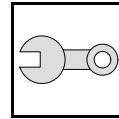
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit

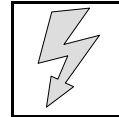
Explanatory Notes on Document

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.

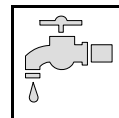
Mechanical system



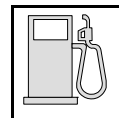
Electrical system



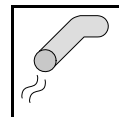
Coolant circuit



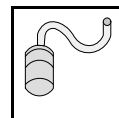
Fuel



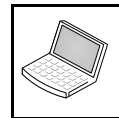
Exhaust gas



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 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 Ejet screws, Ejet 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 air filter together with the intake hose.
- Remove the cover cap from the cable pass through to the engine compartment.
- Disconnect the engine control unit and lay it aside.
- Remove the underride protection on the left
- Remove the bumper
- Remove the left-hand rear bench seat.
- Open the left tank mounting service lid.
- Remove the complete instrument panel trim on the driver's side.
- Remove the A/C control panel.

Remove page 26 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



Heater installation location

1 Heater

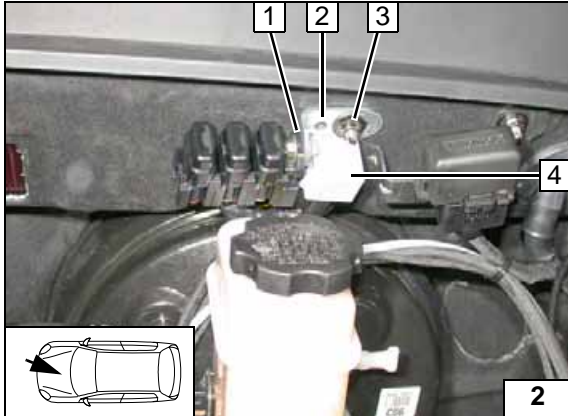
Installation location



Electrical system

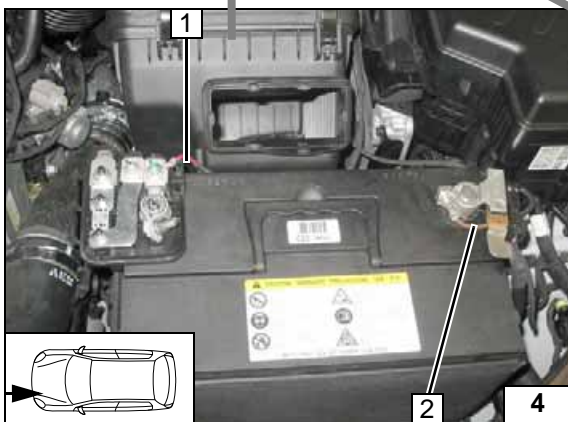
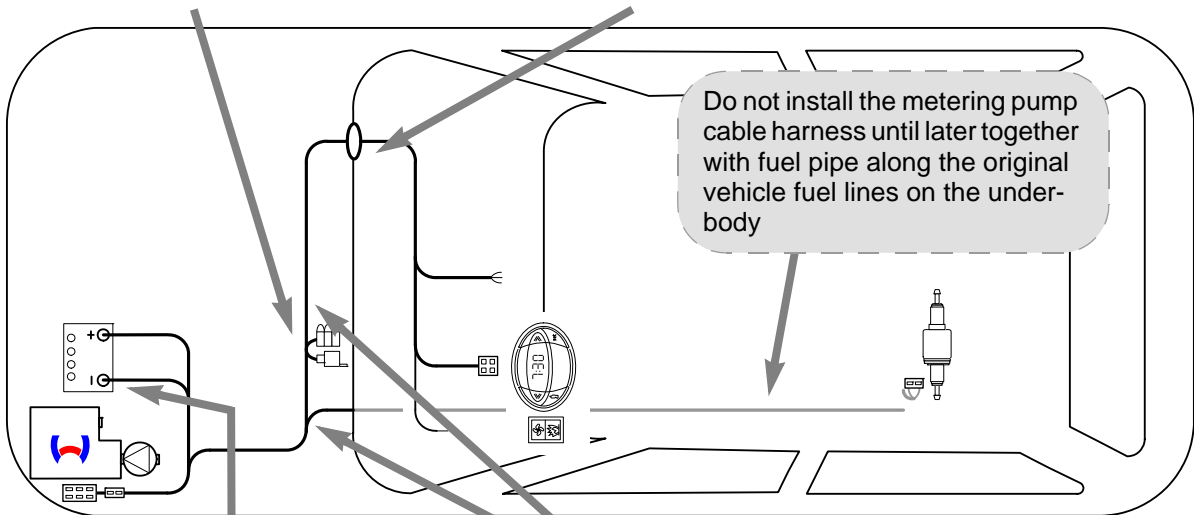
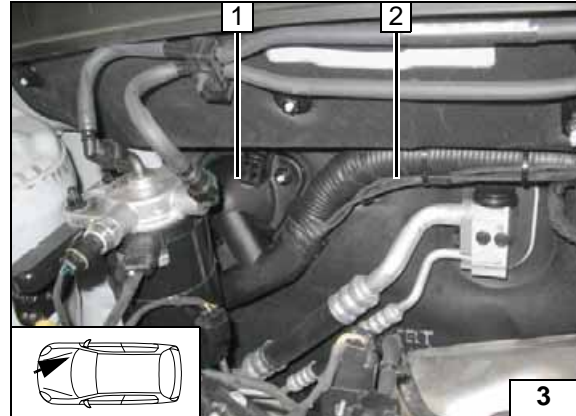
Fuse holder, relay K3

- 1 M5x16 bolt, washers, retaining plate, fuse holder, nut
- 2 Angle bracket
- 3 Original vehicle stud bolt, washer, flanged nut
- 4 K3 relay



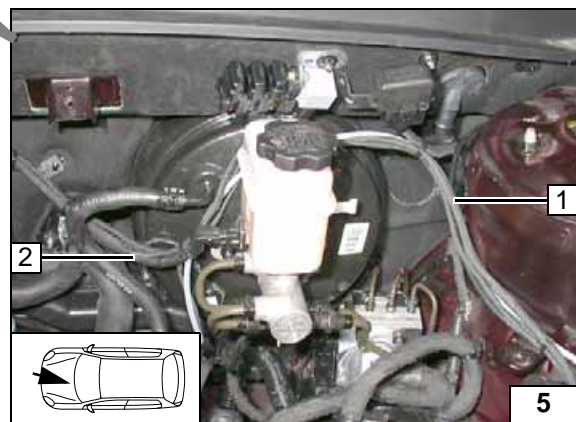
Wiring harness pass through

- 1 Grommet
- 2 Wiring harnesses of fan controller, heater control



Positive and earth wire

- 1 Positive wire on positive battery terminal
- 2 Earth wire on negative battery terminal



Wiring harness routing

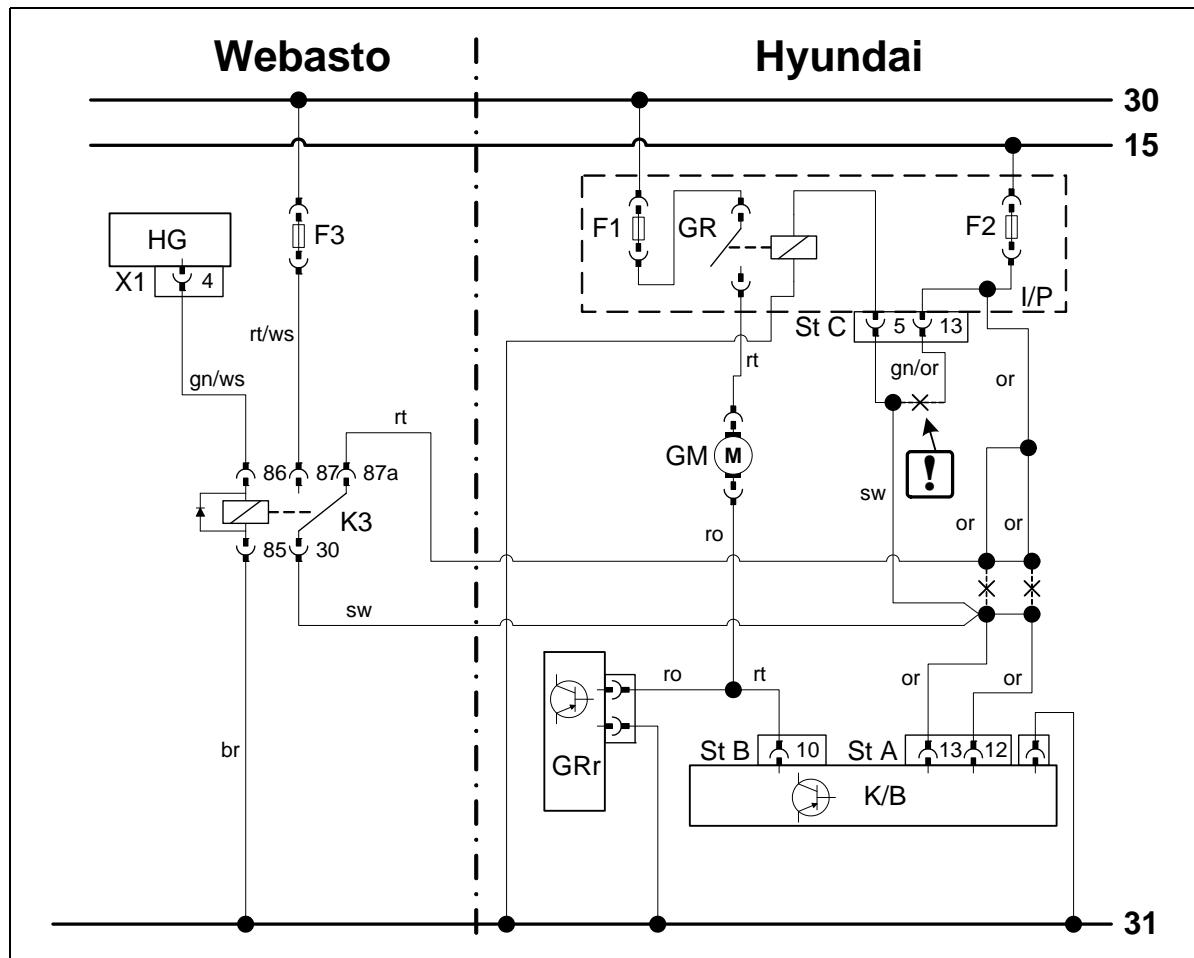
- 1 Wiring harness of heater
- 2 Wiring harness of fan controller and digital timer



Wiring harness installation diagram



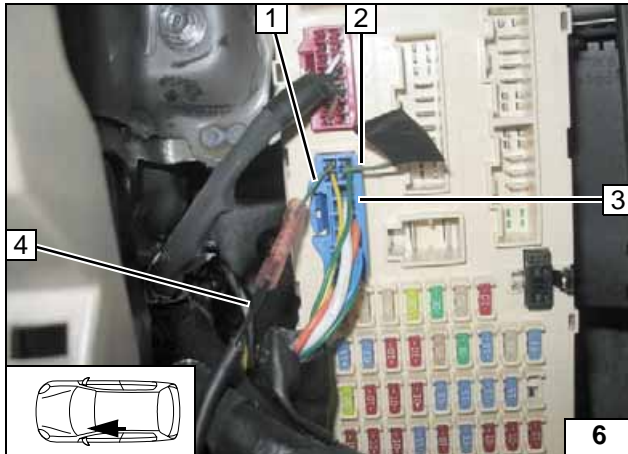
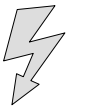
Fan controller



Wiring diagram

Webasto components		Components Hyundai Santa Fe		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin connector	GR	Fan relay	ws	white
F3	Replace 25 A with 10A fuse.	K/B	A/C control panel (A/C)	sw	black
K3	Fan relay	F1	30A fuse	br	brown
		F2	10 A fuse	gn	green
		I/P	Fuse box	or	orange
		St A	Connector, 26-pin M41-A	ro	pink
		St B	Connector, 22-pin M41-B		
		St C	Connector, 14-pin I/P-A	!	Insulate wire ends and tie back
		GRr	Fan controller		
				X	Cutting point
				Wiring colours may vary.	

Legend

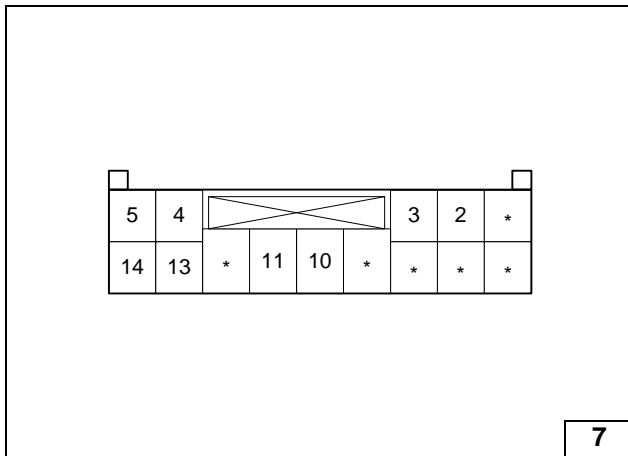


Connection to connector I/P-A 3 from central electrical box. Produce connections as shown in wiring diagram.

- 1 Green (gn) wire I/P-A/5
- 2 Insulate green (gn) wire from I/P-A/13 and tie back
- 4 Black (sw) wire for A/C control panel



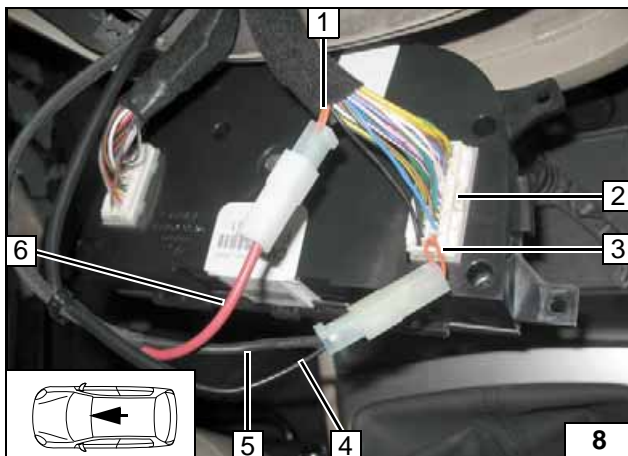
**Connec-
tion to cen-
tral
electrical
box**



View of contact side



**Connector
I/P-A**

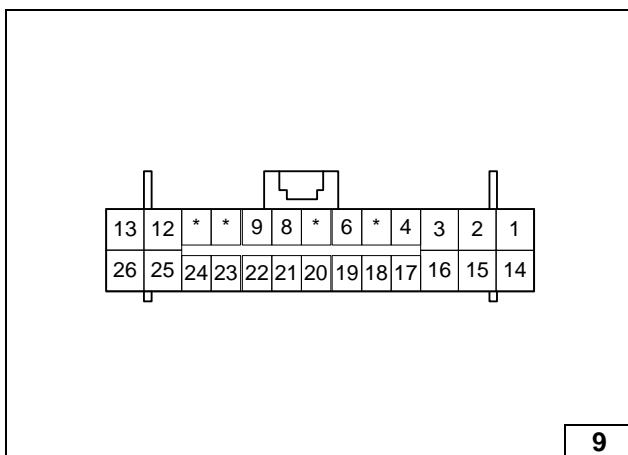


Connection on 26-pin connector M41-A 2 of A/C control panel. Produce connections as shown in wiring diagram.

- 1 Orange (or) wire (2x) of central electrical box
- 3 Orange (or) wire (2x) of connector M41-A
- 4 Black (sw) additional wire, of fan relay
- 5 Black (sw) wire from K3/30
- 6 Red (rt) wire from K3/87a



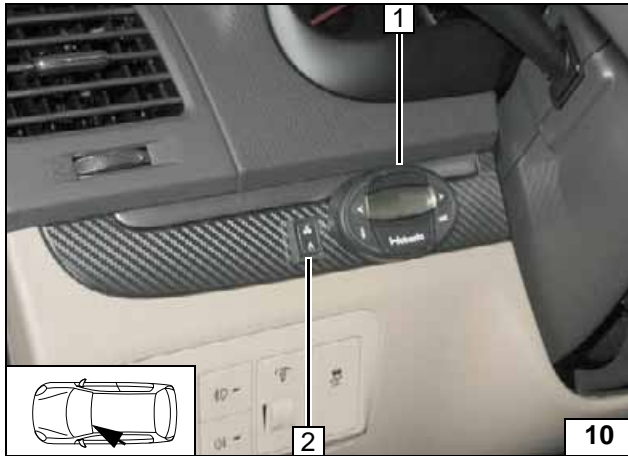
**Connec-
ing A/C
control
panel**



View of contact side



**Connector
M41-A**

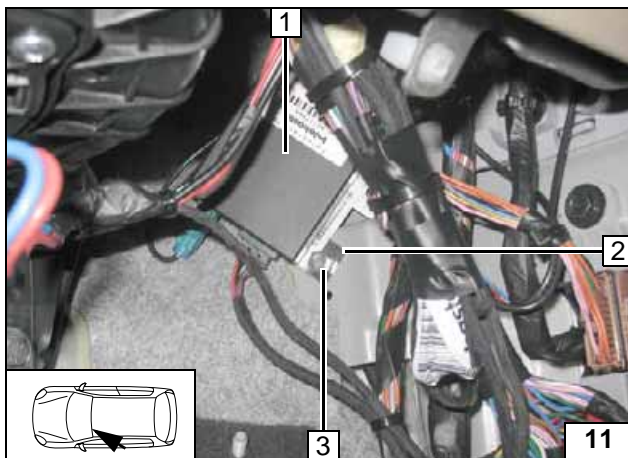


Digital timer, summer/winter switch option

- 1 Digital timer
- 2 Summer/winter switch, drilled hole 12 mm dia.



Mounting digital timer



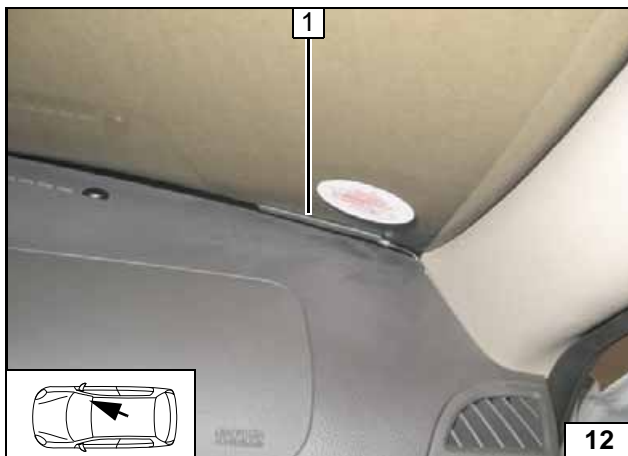
Remote option (Telestart)

Drill out bracket 2 to 6.5 mm dia. at position 1.

- 1 Receiver
- 3 M6x20 bolt, existing threaded hole

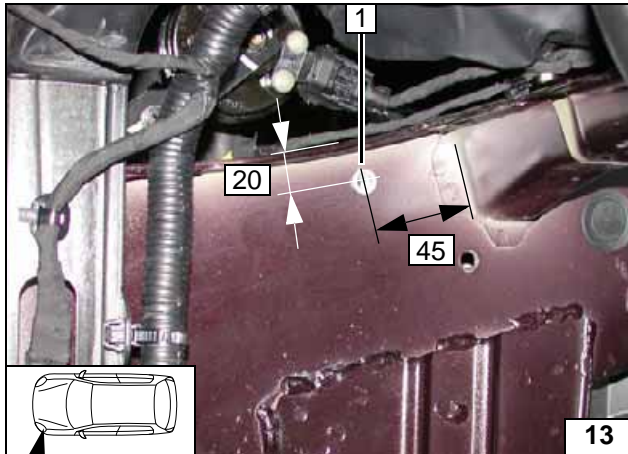
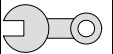


Installing receiver



- 1 Antenna

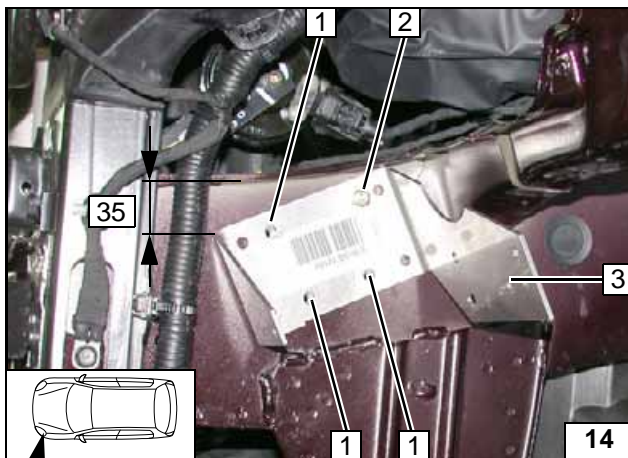
Installing antenna



Preparing installation location

1 9.1 mm dia. hole, rivet nut

Installing rivet nut

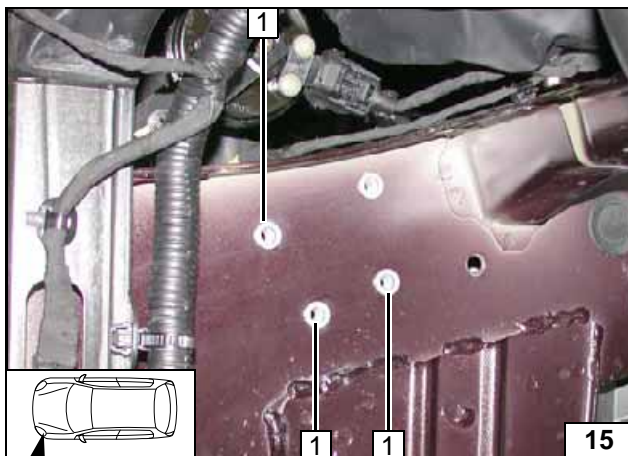


Loosely pre-assemble bracket 3, align and transfer the hole pattern to position 1 [3x].

2 M6x30 bolt



Copying hole pattern

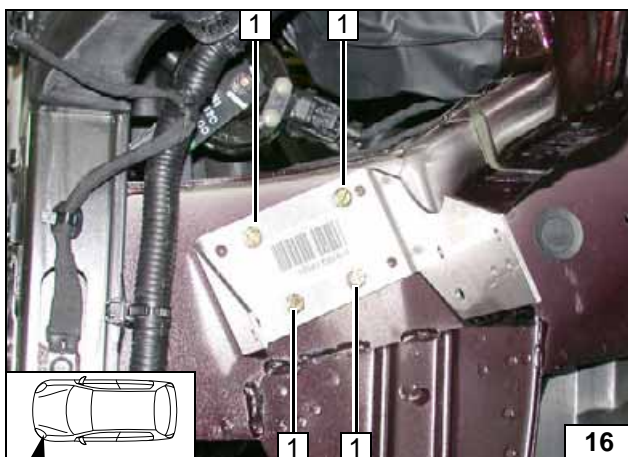


Remove bracket.

1 9.1 mm dia. hole; mount rivet nuts [3x each]



Installing rivet nuts

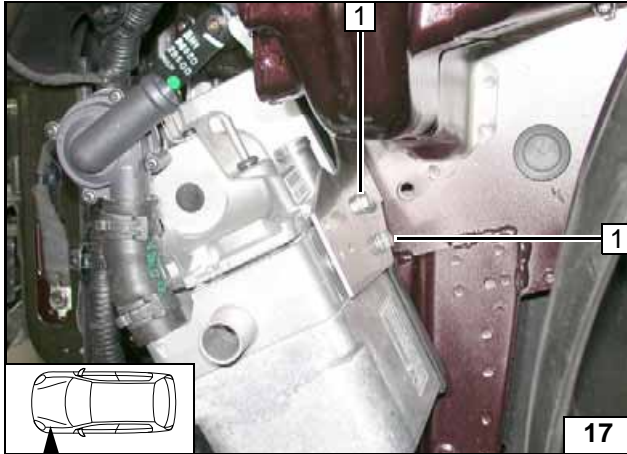
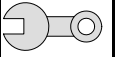


Insert one 5 mm shim each between bracket and frame side member.

1 M6x30 bolt, spring lockwasher, 5 mm shim [4x each]



Installing bracket



Installing heater

1 Ejet screw [2x]

Installing heater



1 Ejet screw

Installing heater



Fuel

CAUTION!

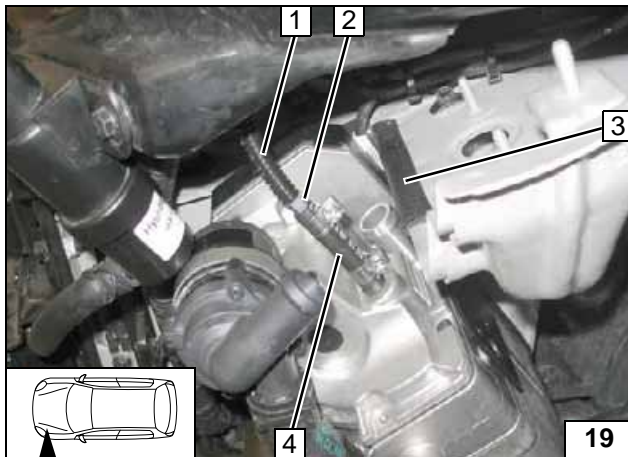
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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.

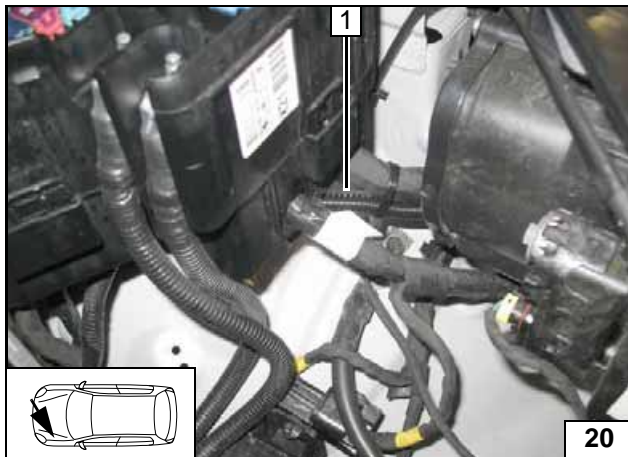
WARNING!

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

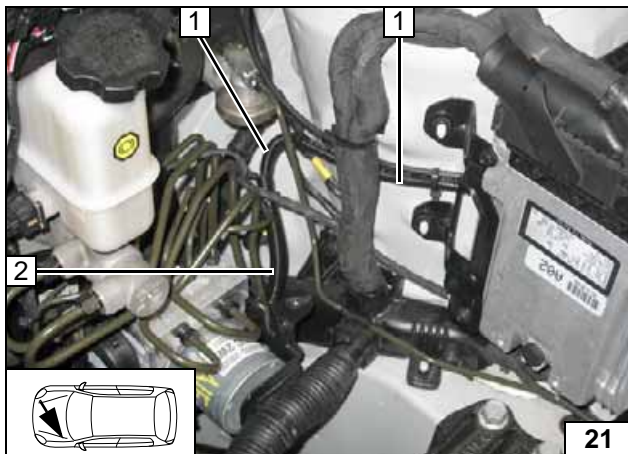


Cut 160 mm from one end of the edge protection and insert at position 3. Slide 1130 mm corrugated tube 1 onto fuel line 2.

4 Hose section, 10 mm dia. clamp [2x]



Route fuel line in 1130 mm corrugated pipe 1 toward the firewall.



Route fuel line in 1130 mm corrugated pipe 1 toward the firewall. Route wiring harness of metering pump and fuel line in 2010 mm corrugated pipe 2 toward the underbody.



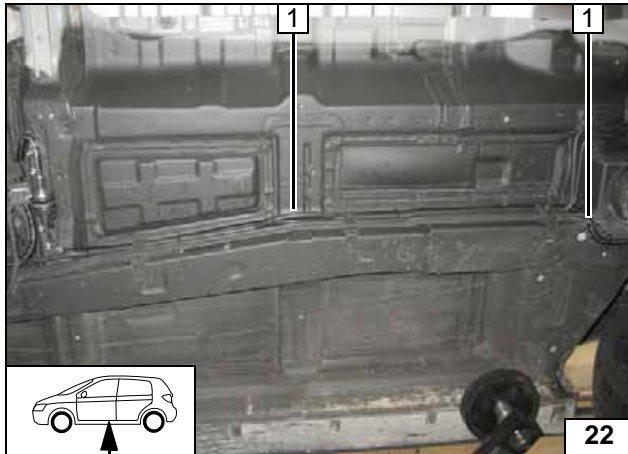
Connecting heater



Installing lines



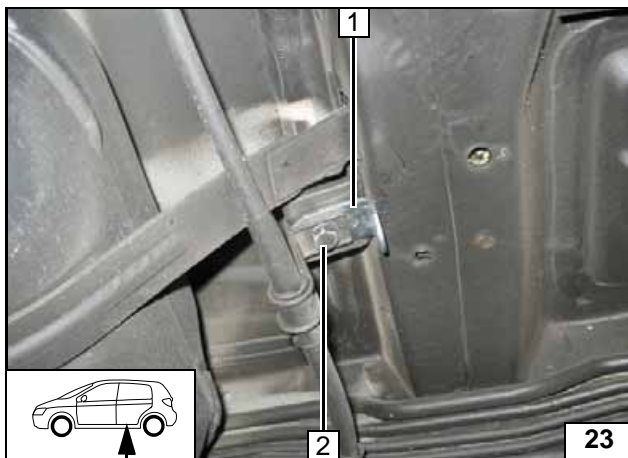
Installing lines



Route wiring harness of metering pump and fuel line in 2010 mm corrugated pipe 1 toward the installation location of the metering pump.

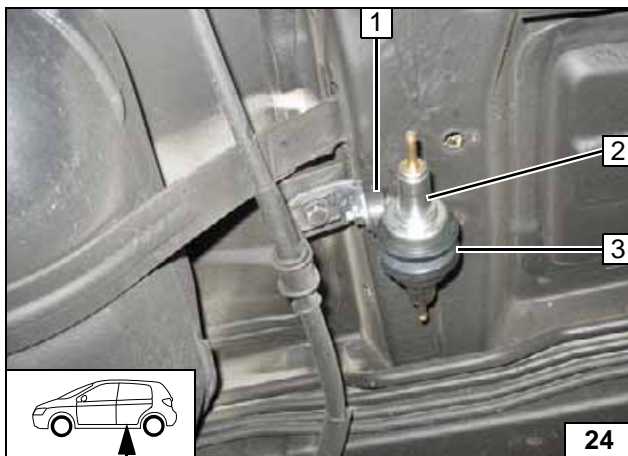


Installing lines



- 1 Angle bracket
- 2 Original vehicle bolt, bracket of handbrake cable

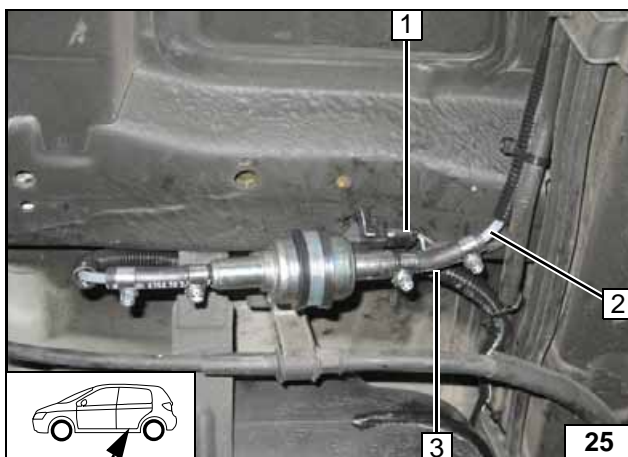
Installing angle bracket



- 1 Silent block, flanged nut [2x]
- 2 Metering pump
- 3 Rubber-coated pipe clamp



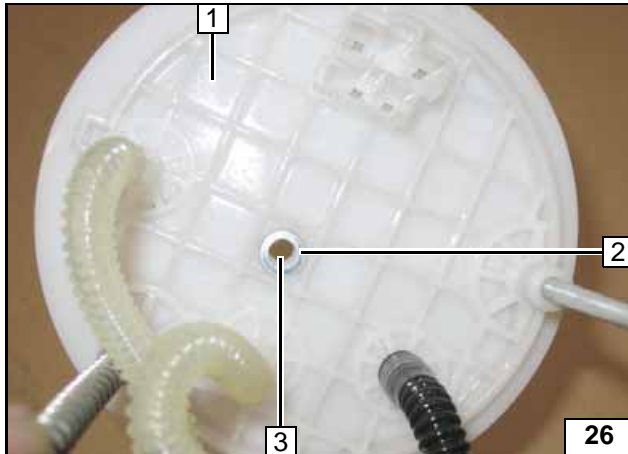
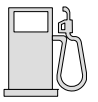
Installing metering pump



- 1 Wiring harness of metering pump, connector mounted
- 2 Hose section, 10 mm dia. clamp [2x]
- 3 Fuel line



Connecting metering pump

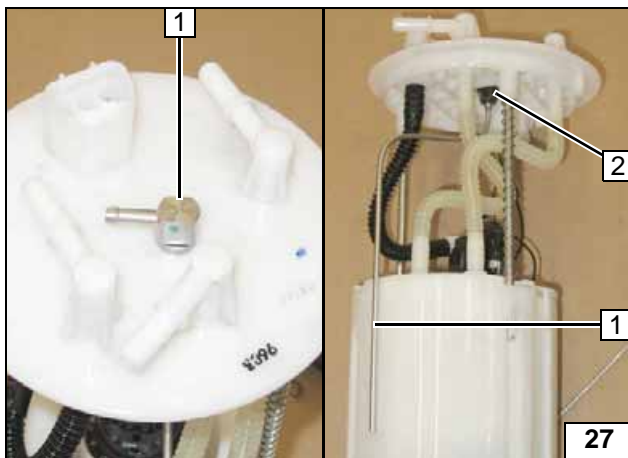


Remove and detach fuel-tank sending unit 1 according to manufacturer's instructions. Place 6 mm dia. washer in center of screen.

3 Copy hole pattern, 6 mm dia. hole



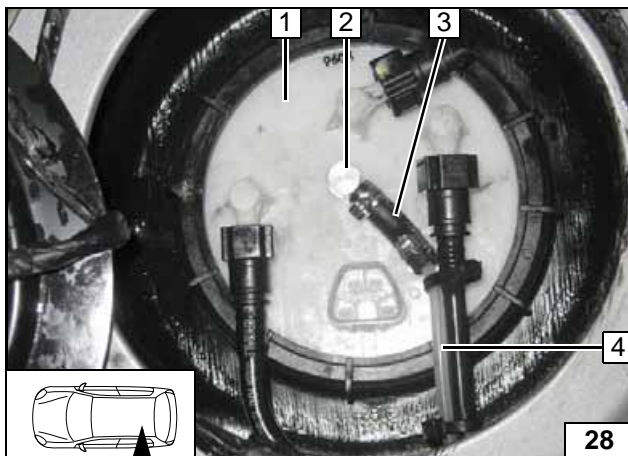
Removing fuel



Shape fuel standpipe 1 according to template, cut to length and install. Install three 6mm dia. shims between the fuel standpipe 1 and fuel-tank sending unit on position 2.



Installing fuel standpipe

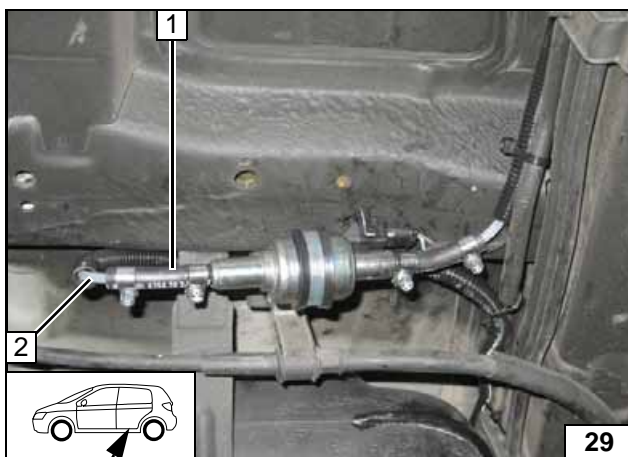


Install fuel-tank sending unit 1 in accordance with manufacturer's instructions. Push 1130 mm corrugated pipe onto fuel line 4 and route to the metering pump.

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



Connecting fuel line

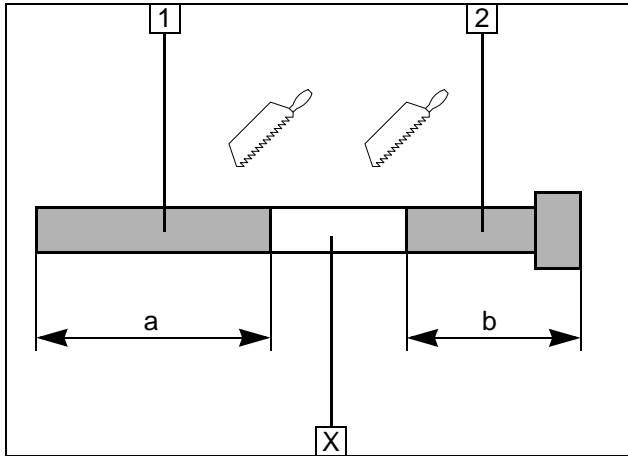
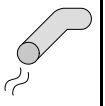


Check the position of the components; adjust if necessary. Check that they have free clearance.

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



Connecting metering pump

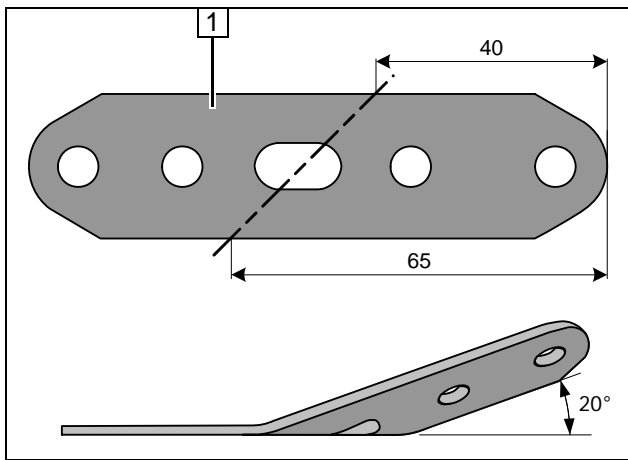


Exhaust gas

Discard section X.

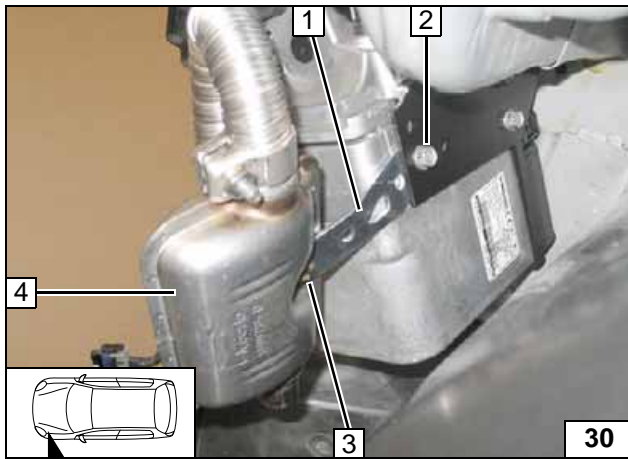
- 1 Exhaust pipe
a = 235
- 2 Exhaust end section
b = 390

Preparing exhaust pipe



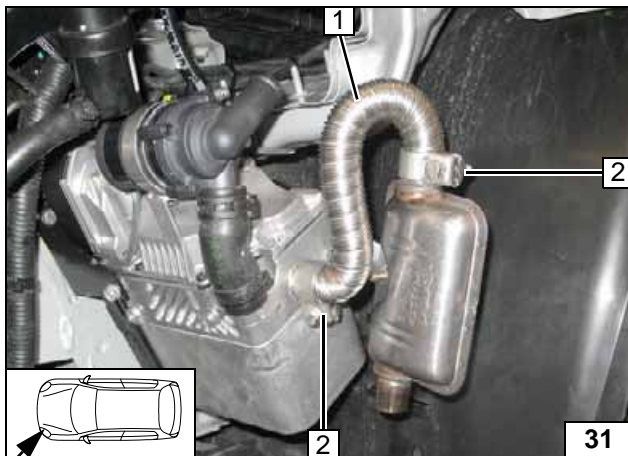
- 1 Perforated bracket

Bending perforated bracket



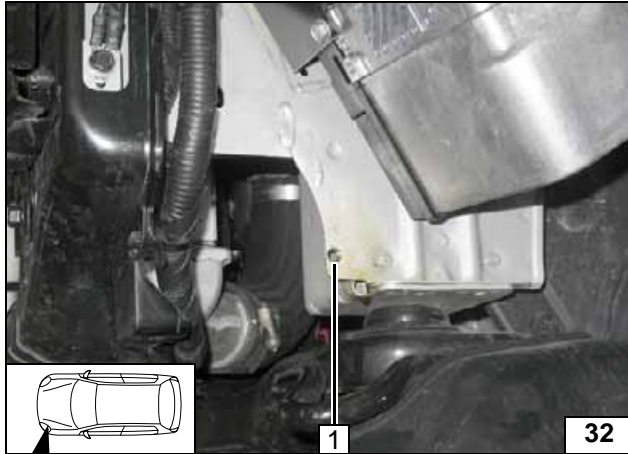
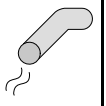
- 1 Perforated bracket
- 2 E-jot screw
- 3 M6x20 bolt, flanged nut
- 4 Silencer

Installing silencer



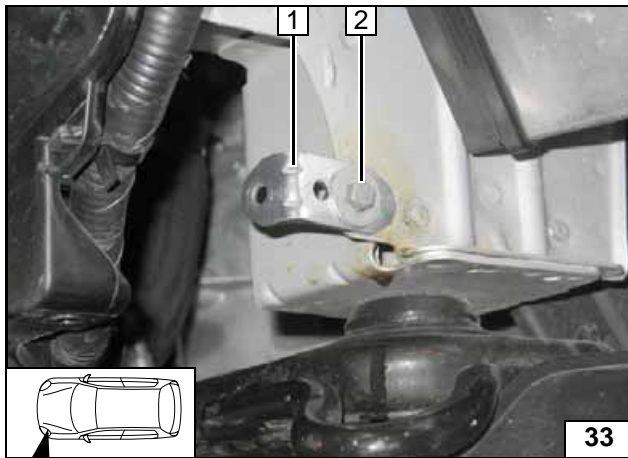
- 1 Exhaust pipe
- 2 Hose clamp [2x]

Installing exhaust pipe



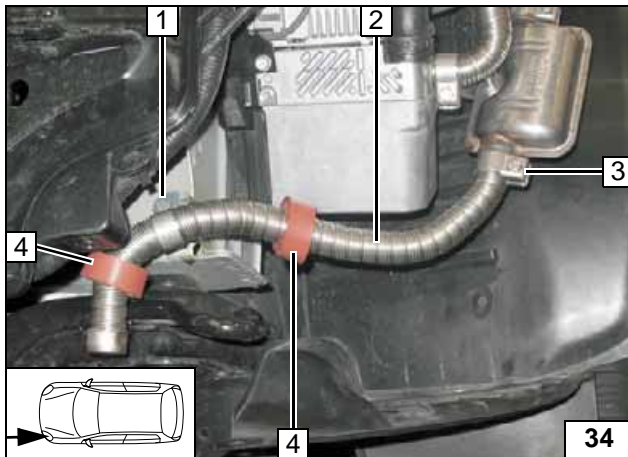
1 6.5 mm dia. hole

Hole in cross member



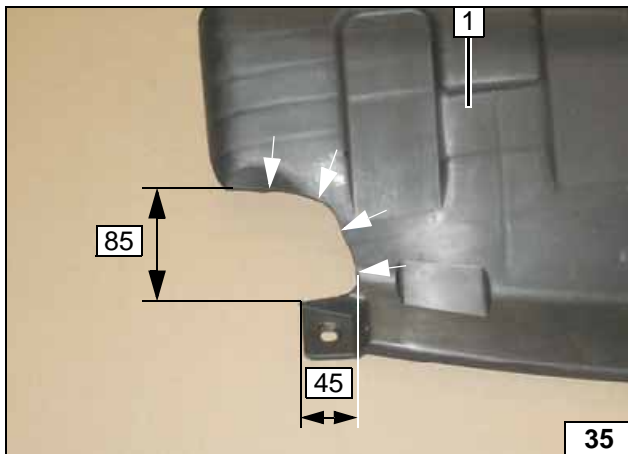
1 Angle bracket
2 M6x20 bolt, large diameter washer, flanged nut

Installing angle bracket



1 M6x20 bolt, flanged nut
2 Exhaust end section
3 Hose clamp
4 Push on red (rt) rubber isolator and align [2x]

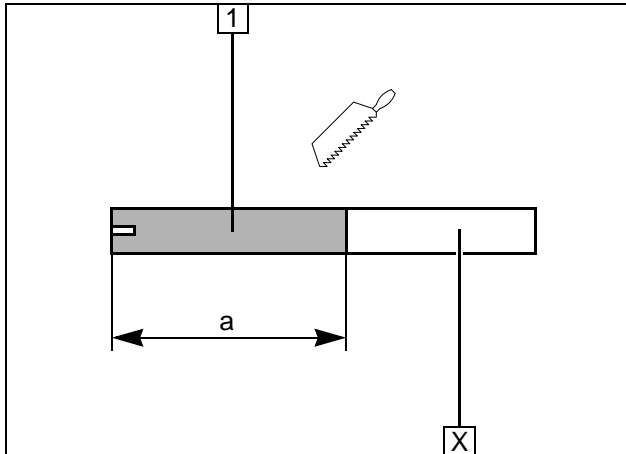
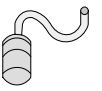
Installing exhaust end section



Cut out underide protection 1 on marking.



Cutting out underide protection



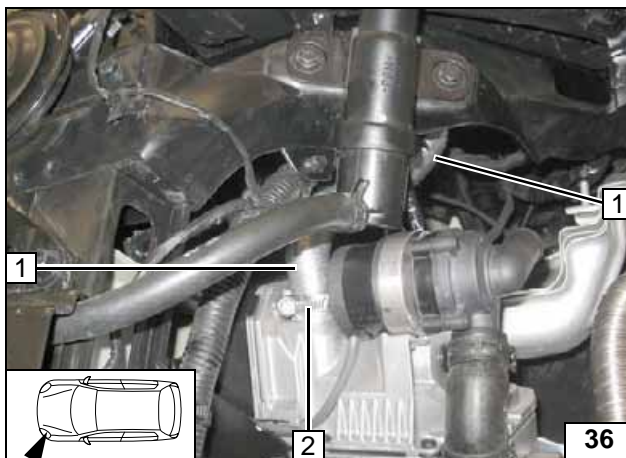
Combustion air

Discard section X.

- 1 Combustion air pipe
a = 300

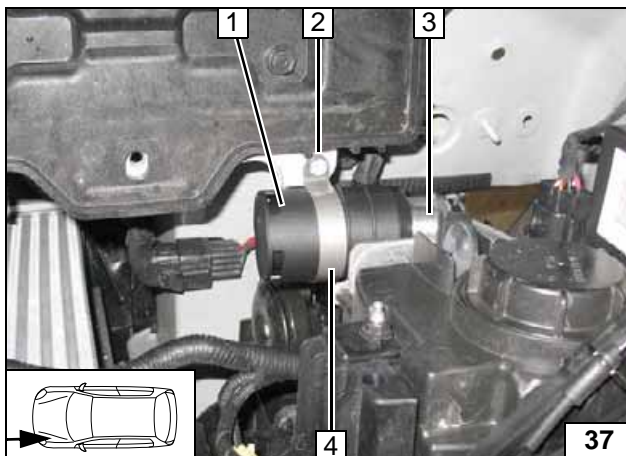


Cutting combustion air pipe to length



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

Installing combustion air pipe



- 1 Silencer
- 2 M6x20 bolt, flanged nut, existing hole
- 3 Combustion air pipe
- 4 48 mm dia. clamp, rubber coating removed



Installing silencer



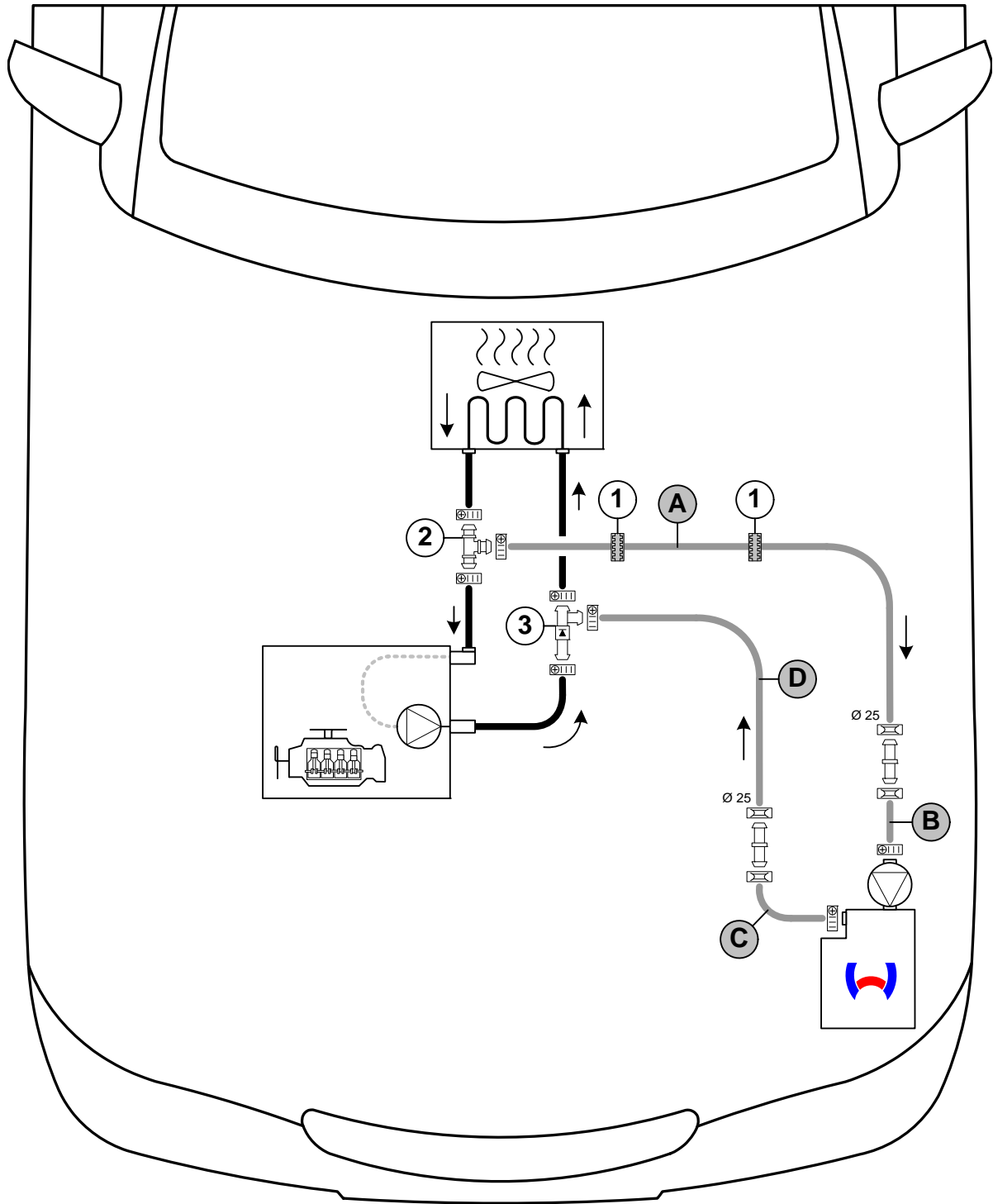
Coolant circuit

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 hoses, the heater must be filled with coolant. The connection should be based on the following diagram: The coolant circuit differs from the standard for routing-related reasons!

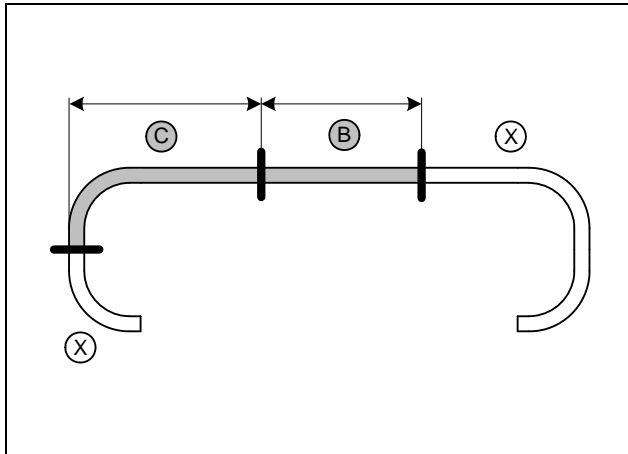
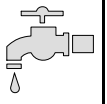


Hose installation diagram



All hose clamps = 20-27 mm dia. All spring clips without a specific designation = 27 mm dia.!
 1 = Black (sw) rubber isolator All connecting pipes = 18x20 dia.!
 2 = T-piece 18x18x18 mm . 3 = Check valve 18x18x18 .



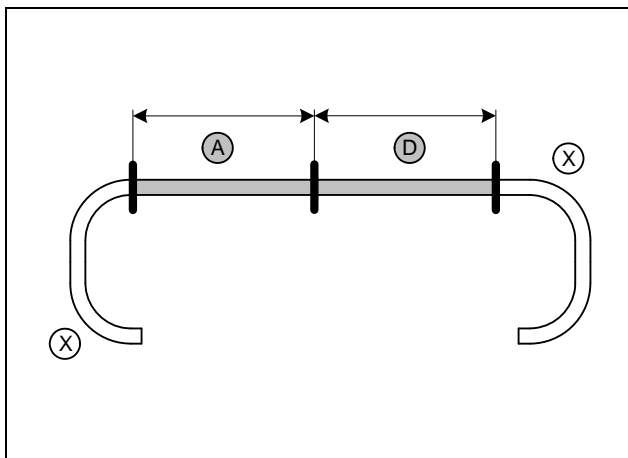


Discard section X.

B = 175
C = 110



Cutting coolant hose, 20 mm dia., to length

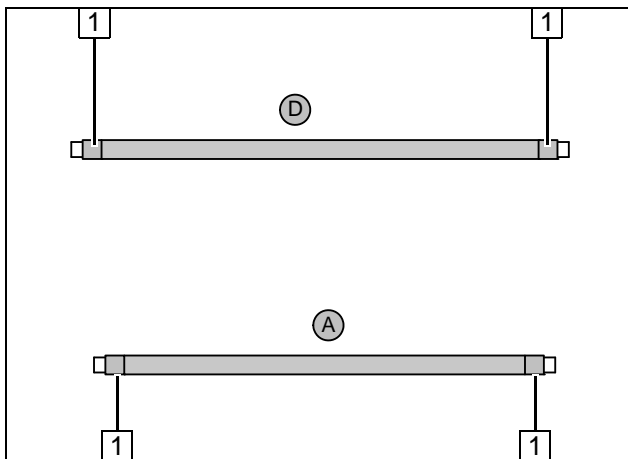


Discard section X.

A = 890
D = 1050



Cutting coolant hose, 18 mm dia., to length

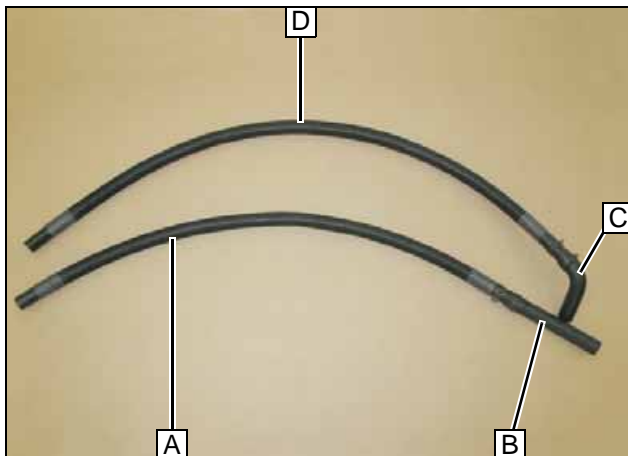


Push braided protection hoses onto hose A and D and cut to length.
Cut heat shrink plastic tubing to length.

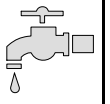
1 50 mm long heat shrink plastic tubing [4x]



Preparing coolant hoses



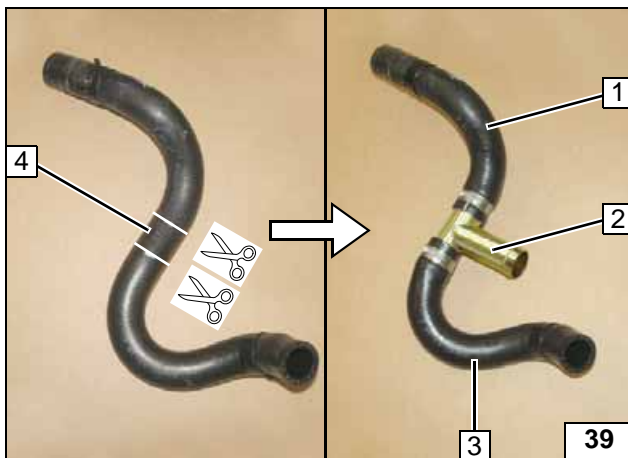
Pre-assembling coolant hoses



Remove hose, hose section of heat exchanger outlet / engine inlet **2**. Spring clips will be re-used!



Cutting point

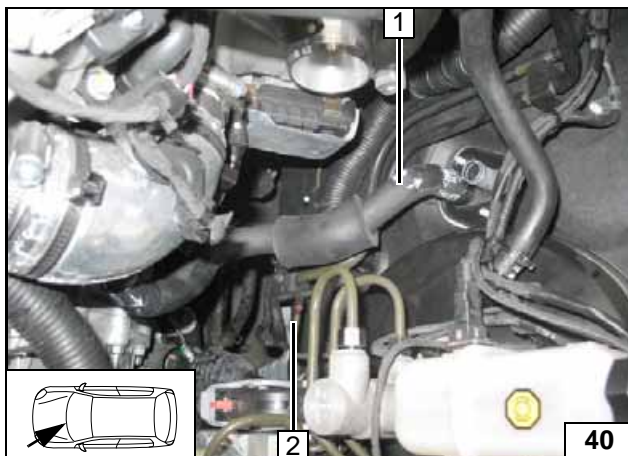


Remove protective hose, it will be re-used. Cut out a hose section of 30 mm **4**, discard and install T-piece **2**.



1 Hose section of heat exchanger outlet
3 Engine-outlet hose section

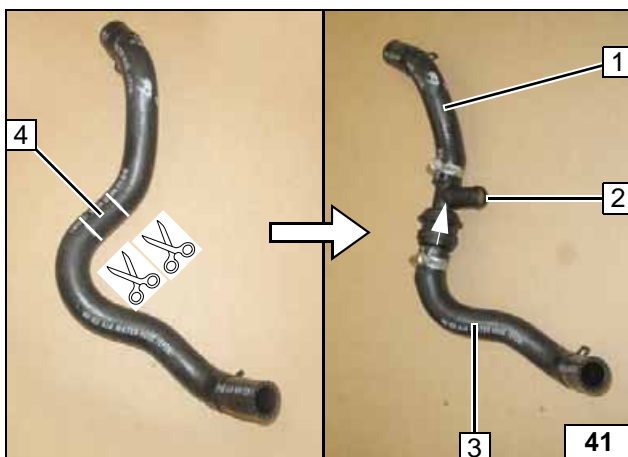
Preparing heat exchanger outlet hose



Remove hose on engine outlet/heat exchanger inlet **1**. Spring clips will be re-used!



Cutting point

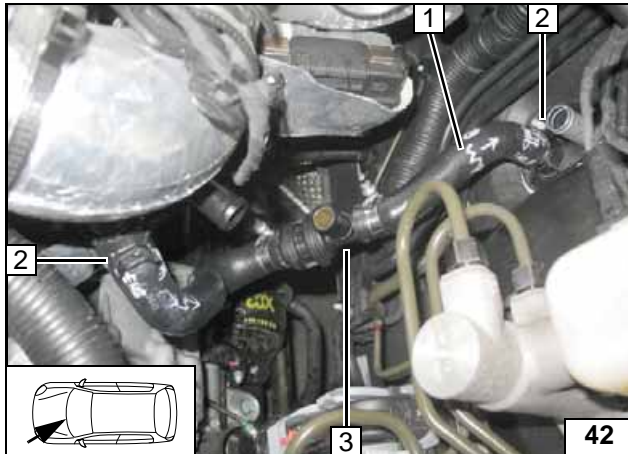
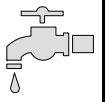


Remove protective hose, it will be re-used. Cut out a hose section of 30 mm **4**, discard and install check valve **2**.



1 Hose section of heat exchanger inlet
3 Engine-outlet hose section

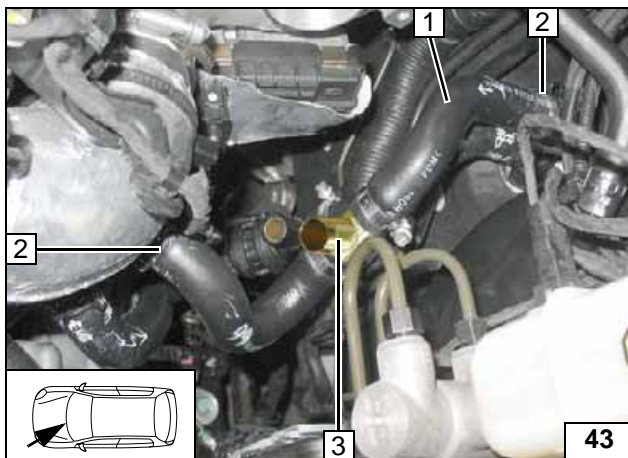
Preparing heat exchanger inlet hose



- 1 Hose on heat exchanger inlet
- 2 Original vehicle spring clip [2x]
- 3 Check valve



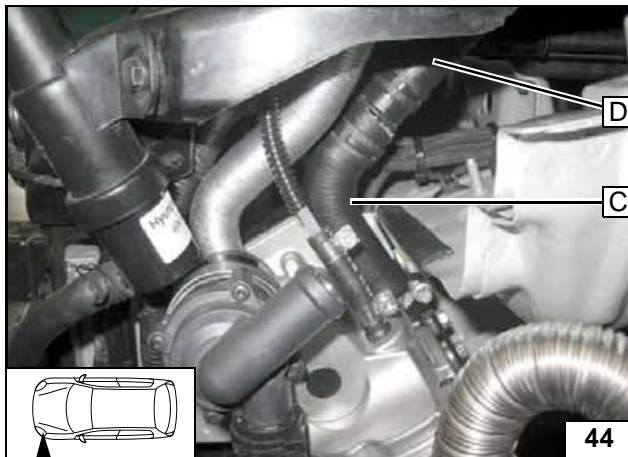
Installing heat exchanger inlet hose



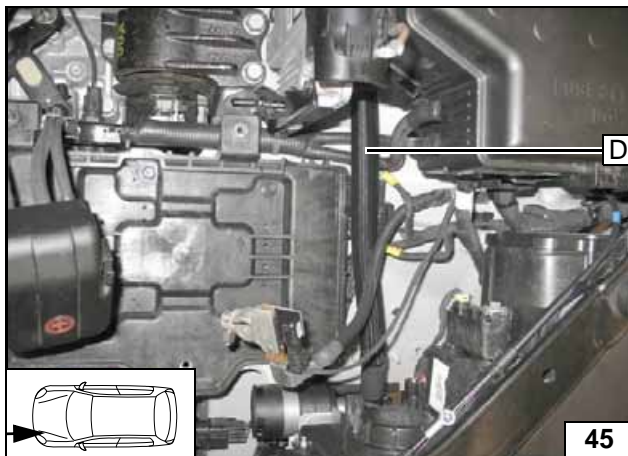
- 1 Hose of heat exchanger outlet
- 2 Original vehicle spring clip [2x]
- 3 T-piece



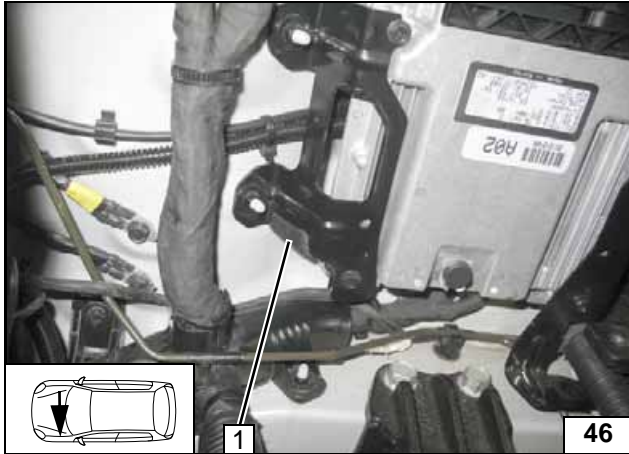
Installing heat exchanger outlet hose



Connecting heater outlet



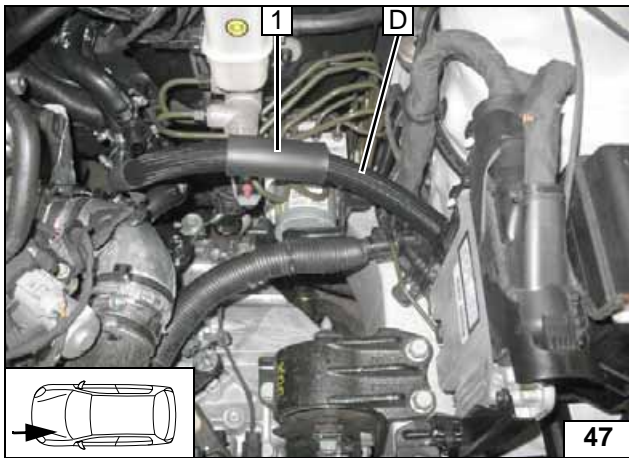
Routing in engine compartment



1 40 mm edge protection

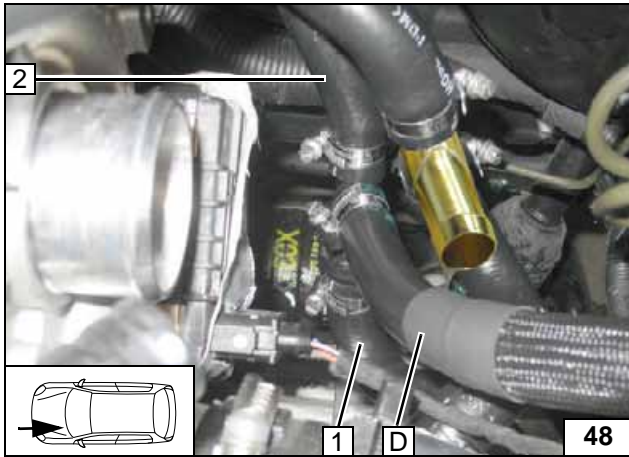


Installing edge protection



1 Push on protective hose

Routing in engine compartment



1 Hose of engine outlet
2 Hose on heat exchanger inlet



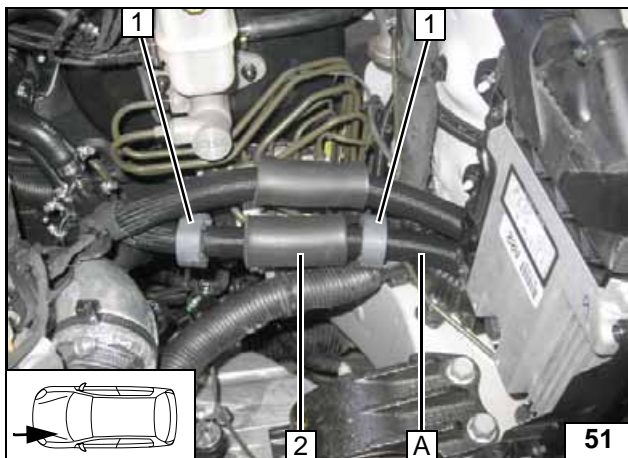
Checking valve connection



Connecting heater inlet

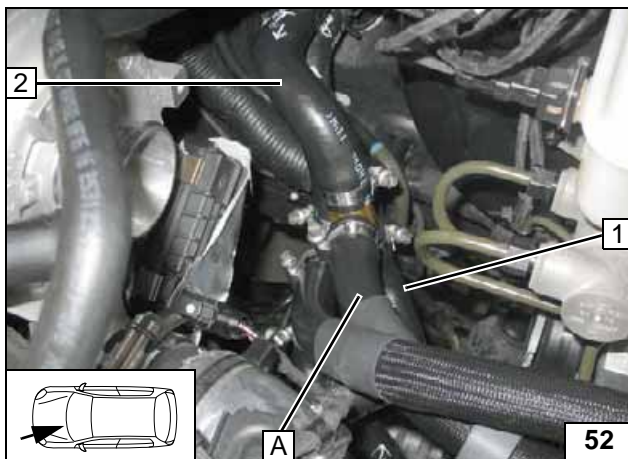


Routing in engine compartment



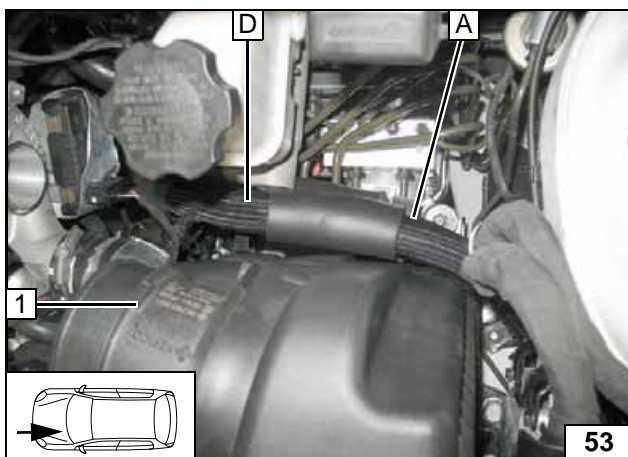
- 1 Push on black (sw) rubber isolator [2x]
- 2 Push on protective hose

Routing in engine compartment



- 1 Hose of engine inlet
- 2 Hose of heat exchanger outlet

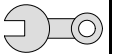
T-piece connection



Install air filter box 1. Align protective hoses on hose A and D on air filter box 1. Position black (sw) rubber isolator [2x] Ensure sufficient distance to neighboring components.



Aligning hoses

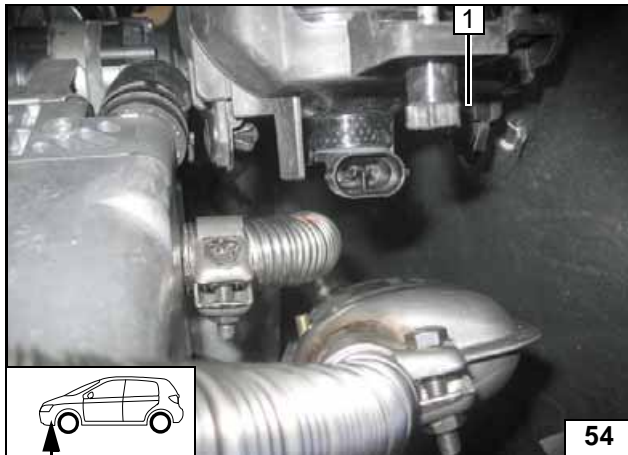


Final Work

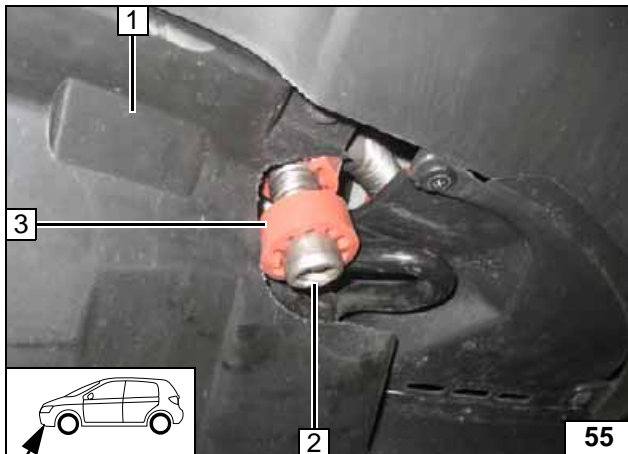
WARNING!

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 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 parking heater, see the operating instructions/installation instructions.
- Attaching information label "Switch off parking heater before refueling" in the area of the filler neck



Ensure sufficient distance to adjacent components, especially between exhaust pipe and front fog light. Adjust, if necessary!



Install underdrive protection 1. Push rubber isolator 3 onto exhaust end section 2 and align. Ensure sufficient distance to neighboring components, adjust, if necessary!



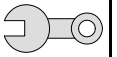
Checking
the dis-
tance



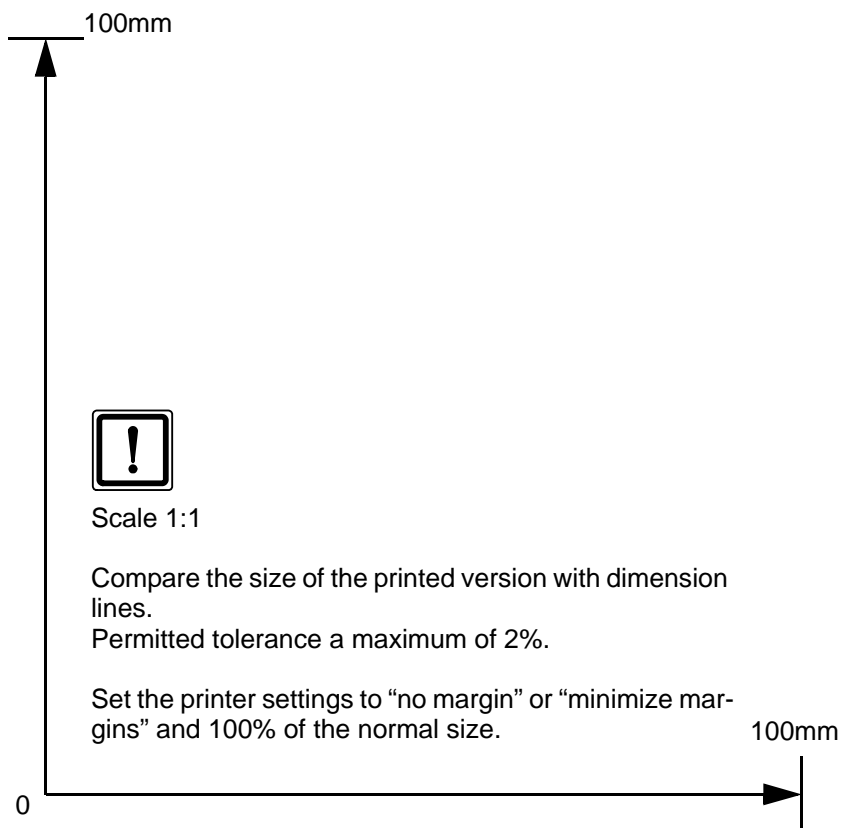
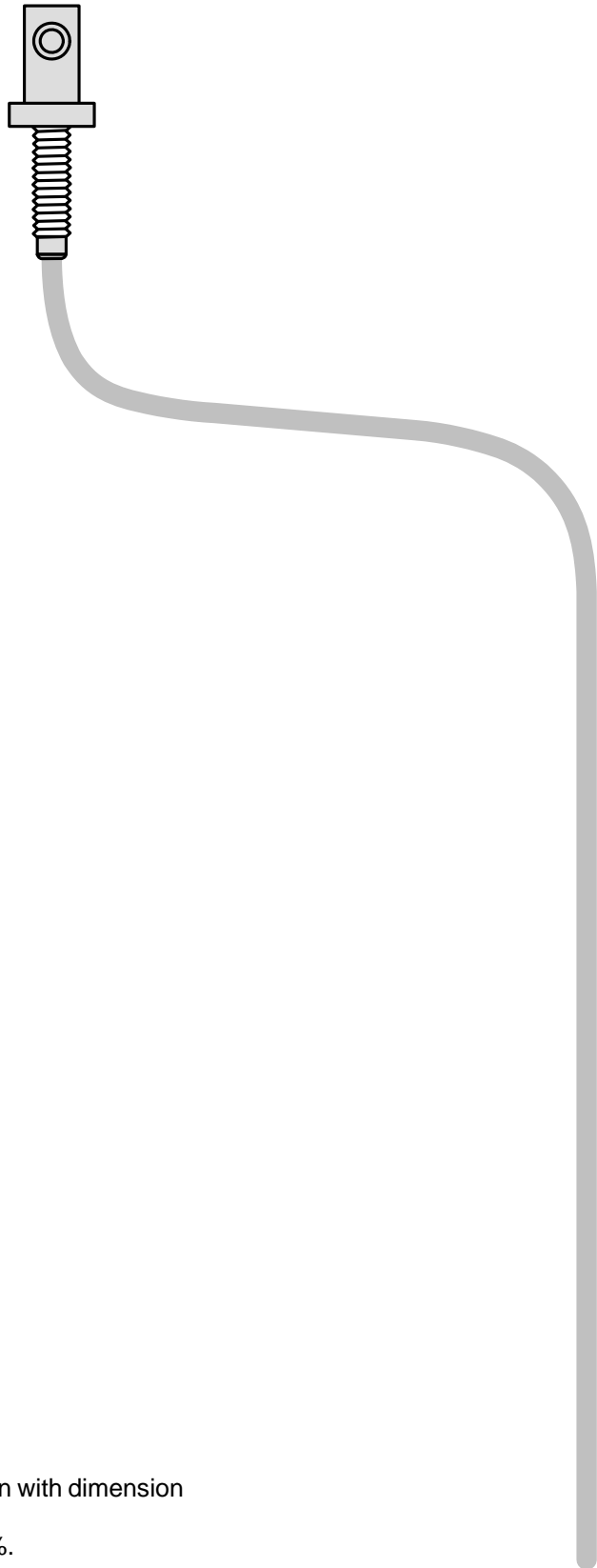
Mounting
rubber iso-
lator

Webasto
Feel the drive

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: hotline@webasto.de
 http://www.webasto.de



Template for Fuel Standpipe



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.

In vehicles with passenger compartment monitoring , this must also be de-activated for the vehicle settings for the heating process.

Instructions for de-activation may be obtained from the operating instructions of the vehicle.

In order to prevent interferences at the starting response of the vehicle, only the interior of the vehicle is heated.

If the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater will then only switch on the vehicle fan to ventilate the vehicle interior in the position Winter  heat and in the position Summer .

Before parking the vehicle, make the following settings:



- 1 Air outlet to windscreen
- 2 Set temperature to "HI"
- 3 Set fan to level "1", max. "2"

Automatic air-conditioning