Water Heater

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

Installation documentation

Suzuki Grand Vitara

2.4 and 3.2 l Petrol
from model year 2009
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.: 1315045C_EN Fee Euro 10.00

Table of Contents

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Suzuki	Grand Vitara	JT	e4 * 2001 / 116 * 0091 * ...

Engine type	Engine model	Output in kW	Displacement in cm³
J24B	Petrol	124	2393
N32A	Petrol	171	3195

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 should be confirmed with the end customer before installation.

Heater / delivery scope

Quantity	Description	Order No.:
1	Suzuki-specific heater delivery scope	See Suzuki price list
1	Installation set for Suzuki Grand Vitara 2.4 and 3.2 Petrol	1315044B
1	Heater control	See Suzuki price list

Foreword

This installation documentation applies to Suzuki Grand Vitara vehicles with a 2.4 and 3.2 l Petrolengine - 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 the installation documentation.

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

General Instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wires and tie back.
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, check or adjust the corresponding settings before installation.

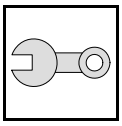
Special Tools

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

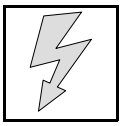
Explanatory Notes on Document

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.

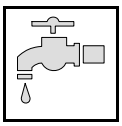
Mechanical system



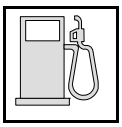
Electrical system



Coolant circuit

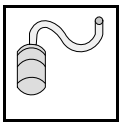


Fuel



Exhaust gas

Combustion air



Software

Special features are highlighted using the following symbols:

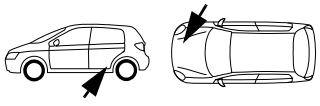
Specific risk of injury or fatal accidents.

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.

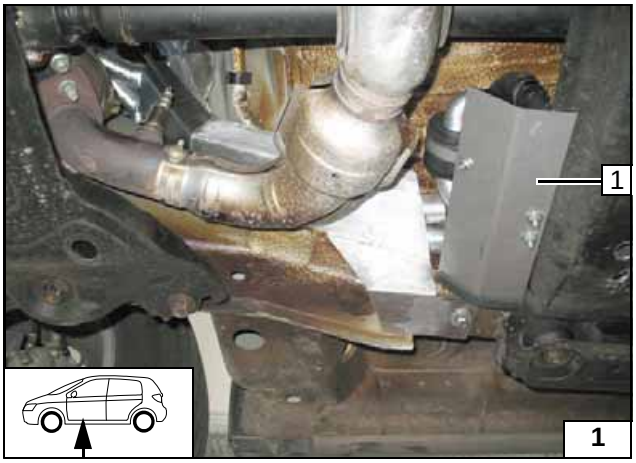
All dimensions are in mm!
Tightening torque of hose clamps = 2.0 + 0.5 Nm!
Tightening torque of Ejot screws, Ejot studs = 10 Nm!

Preliminary Work

WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Disconnect the battery earth 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.
- Completely remove the battery together with the carrier.
- Remove the air filter together with the intake hose.
- Remove the lower transmission cover behind the engine trim (2.4 only).
- Remove the exhaust system in the area of the Cardan shaft.
- Detach the Cardan shaft of the rear axis according to the manufacturer's instructions.
- Remove the fuel tank according to the manufacturer's instructions.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the A/C control panel in accordance with the manufacturer's instructions.
- Remove the lower cover of the right footwell.
- Remove the glove compartment.

Remove page 32 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



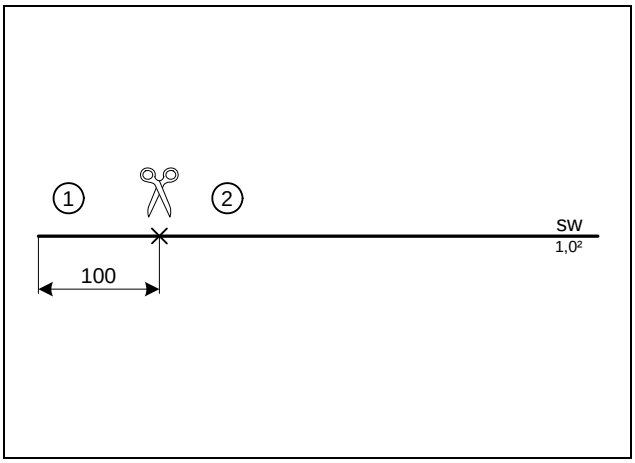
Heater installation location

Figure shows 3.2 ltr. engine

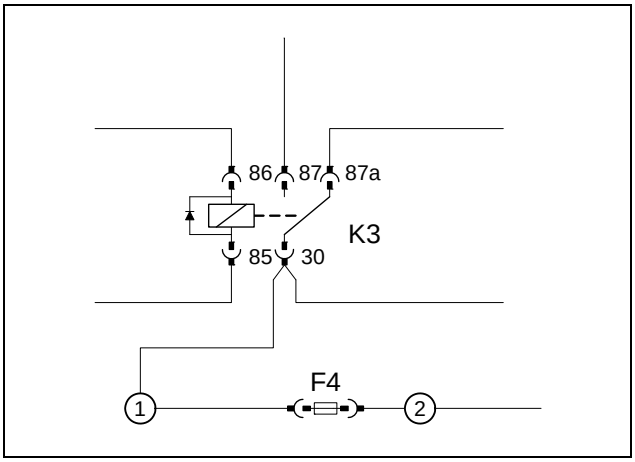
1 Heater

Installation location

Preparing electrical system

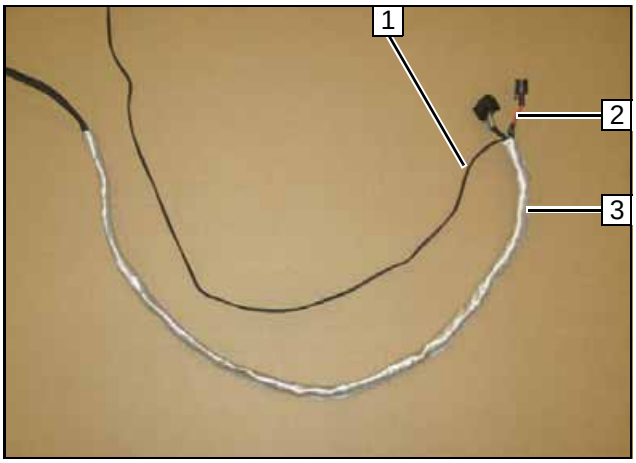


Cutting wires to length



Produce connections as shown in wiring diagram. Install wire section **2** in the protective sleeving provided.

Preparing fuse F4



Cut out heat protection hose **3** and slide onto wiring harness of heater **2** and wiring harness of metering pump **1**.

Preparing wiring harness

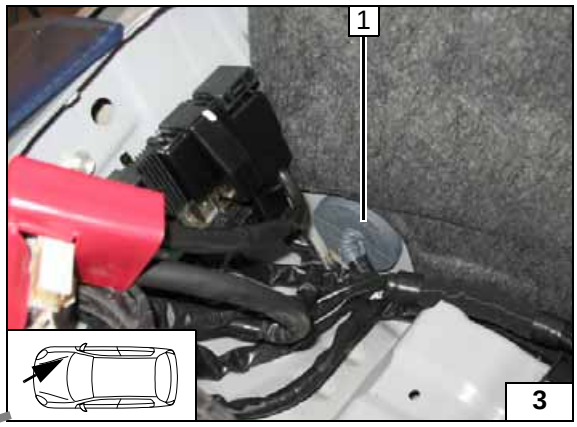
Electrical system

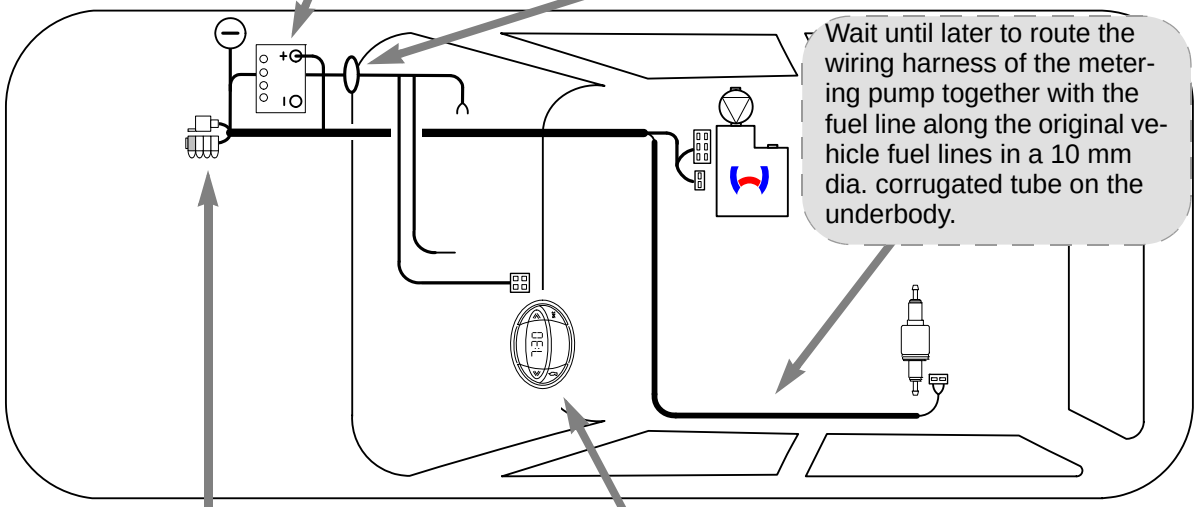
Positive and earth connection

1 Positive wire on positive battery terminal
2 Earth wire to earth support point

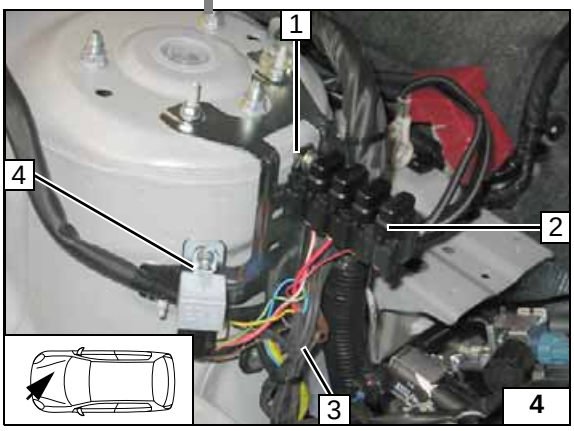
Wiring harness pass through

1 Protective rubber plug





Wiring harness routing diagram



Fuse holder, K3 relay

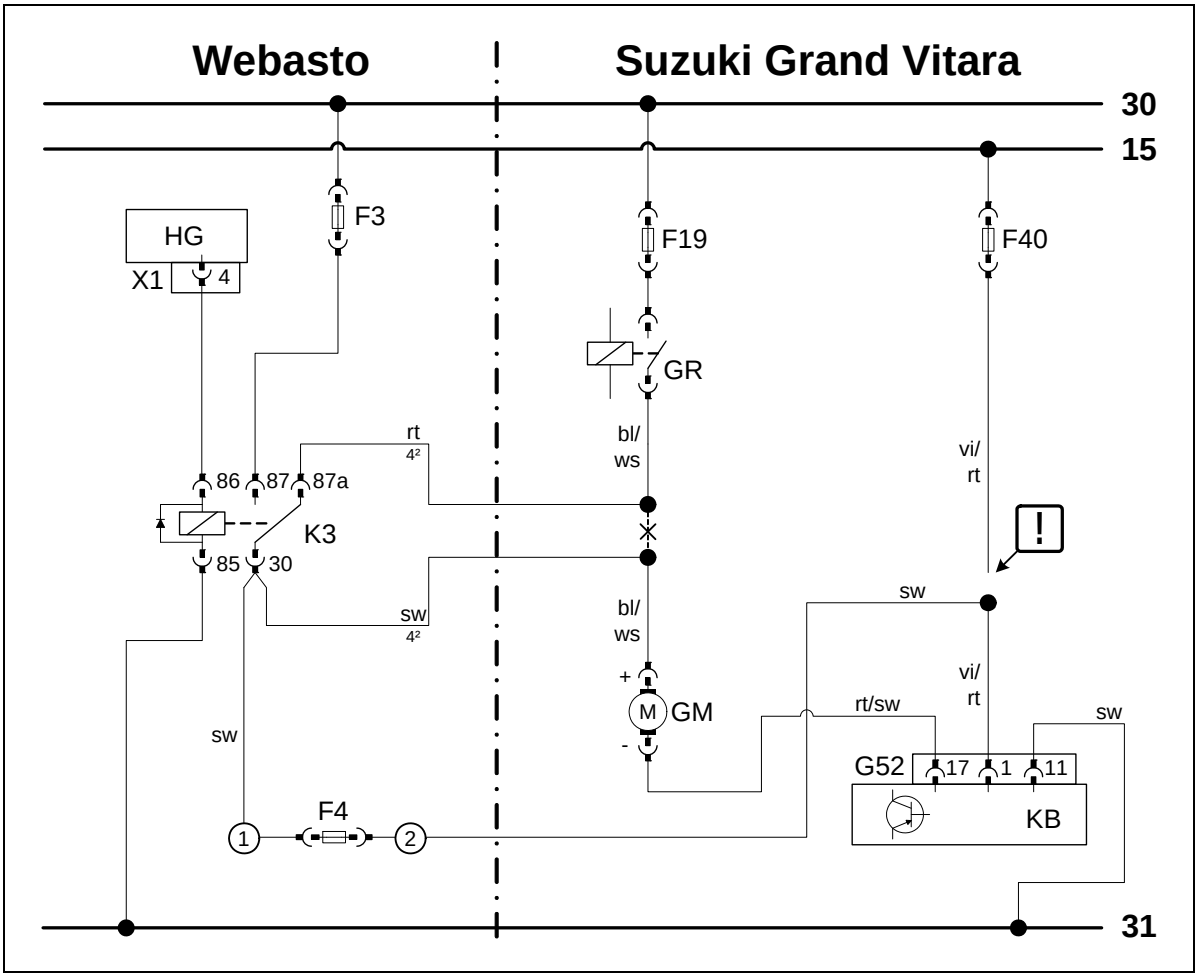
Route wiring harnesses of heater and metering pump **3** in 17 mm dia. corrugated tube to underbody. Bend up tab at position **1**.

1 M5x16 bolt, retaining plate of fuse holder, washers, M5 nut
2 Fuse holder
4 K3 relay, M5x16 bolt, washer, M5 nut

Digital timer

1 Digital timer

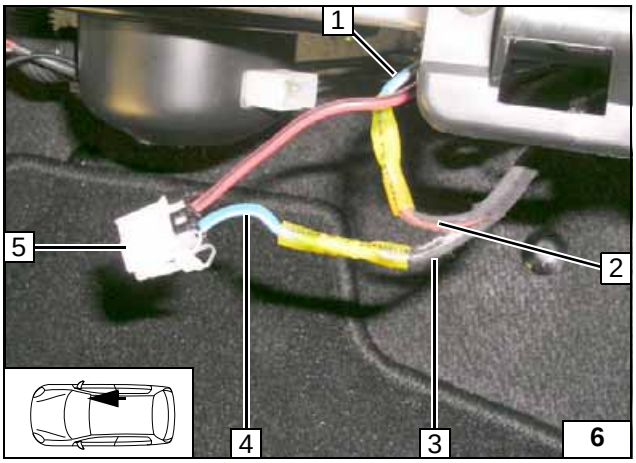
Fan control



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater connector	GR	Fan relay	ws	white
F3	25 A fuse	KB	A/C control panel	sw	black
F4	10A fuse	G52	28-pin connector KB	bl	blue
K3	Fan relay	F19	40A fuse	vi	violet
		F40	10A fuse		
				!	Insulate wire ends and tie back
				X	Cutting point
				Wiring colours may vary.	

Wiring diagram

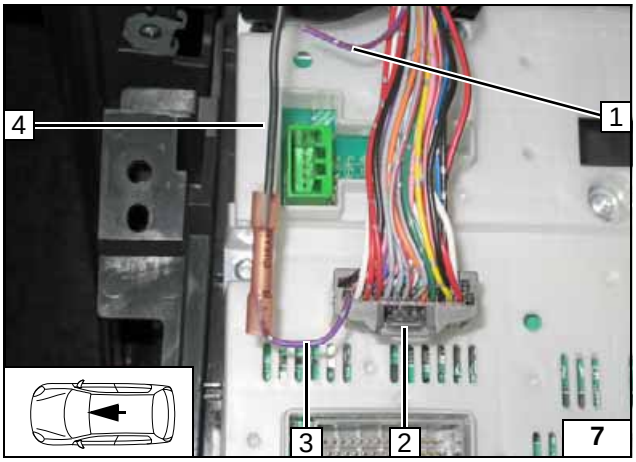
Legend



Connection to 2-pin connector **5** from the fan motor.
Produce connections as shown in wiring diagram.

1 Blue/white (bl/ws) wire of fan relay
2 Red (rt) wire from K3/87a
3 Black (sw) wire from K3/30
4 Blue/white (bl/ws) wire to connector of fan motor

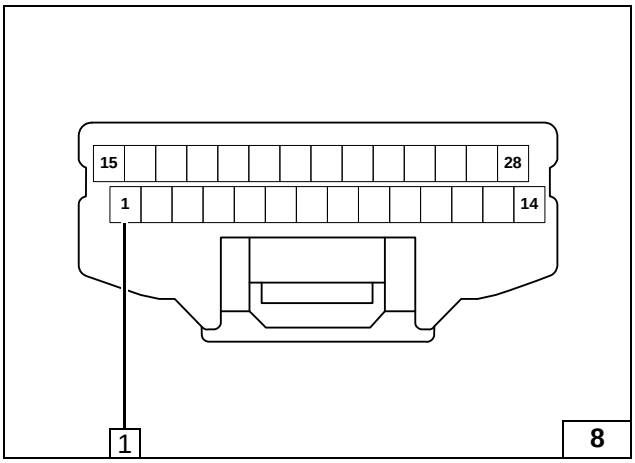
Connecting fan-motor



Connection to 28-pin connector **2** G52 from A/C control panel. Insulate violet/red (vi/rt) wire **1** of fuse F40 and tie back.
Produce connections as shown in wiring diagram.

3 Violet/red (vi/rt) wire from connector of G52 Pin 1
4 Black (sw) wire of fuse F4

Connecting A/C control panel

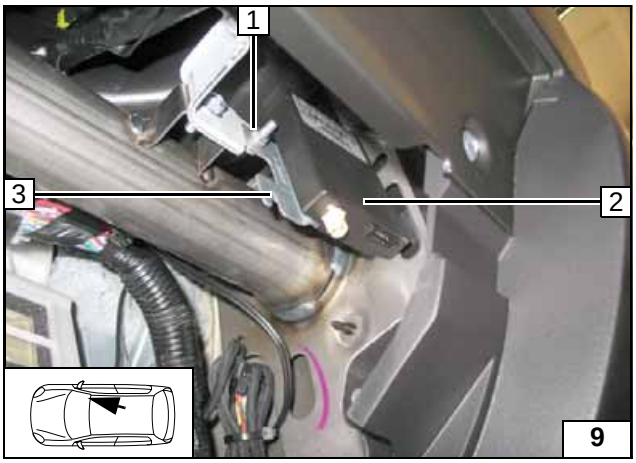


Connector G52 on **1** line side.

Connector G52

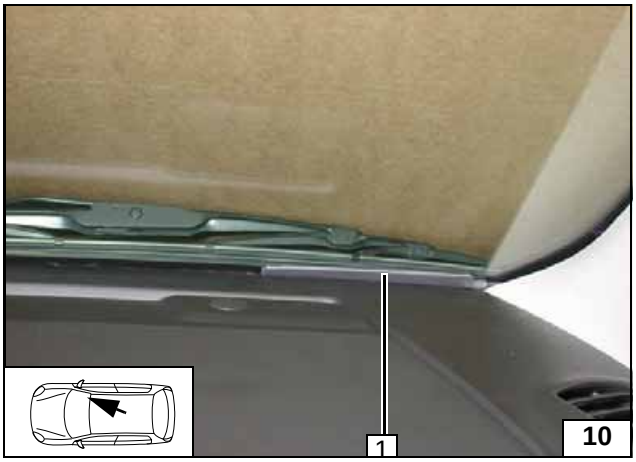
Remote option (Telestart)

Mounting receiver



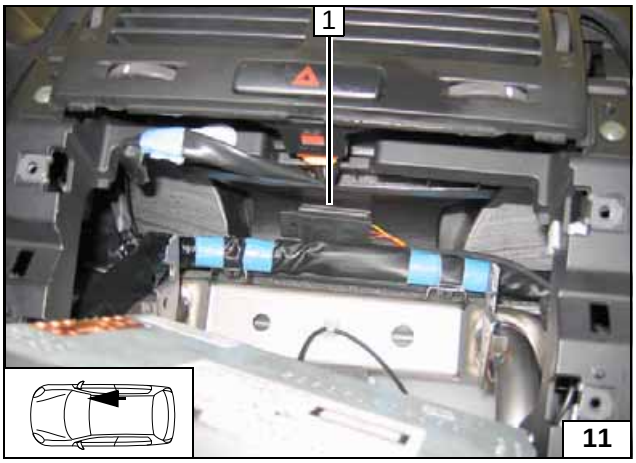
1 Existing hole, M5x16 bolt, washer, flanged nut
2 Receiver
3 Bracket

Mounting antenna



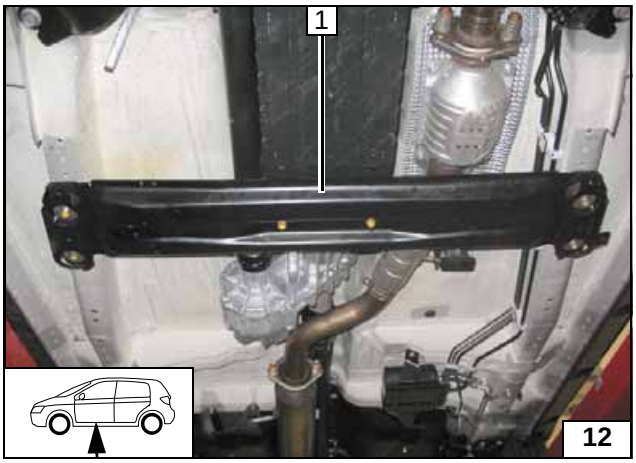
1 Antenna

Mounting temperature sensor



Temperature sensor only for T100 HTM

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



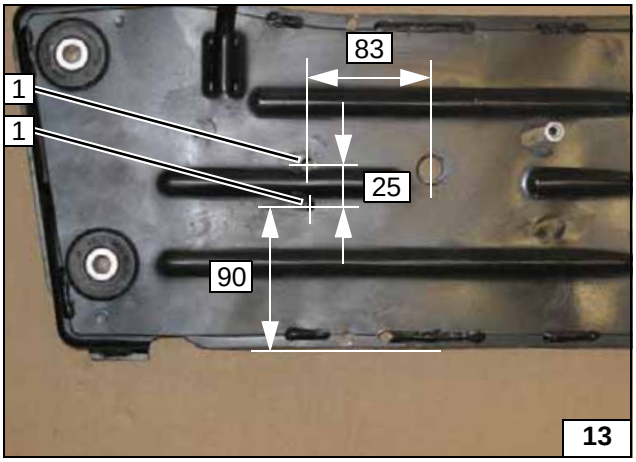
Preparing installation location

One chooses between version **A** and **B** depending on the vehicle equipment.

Version A

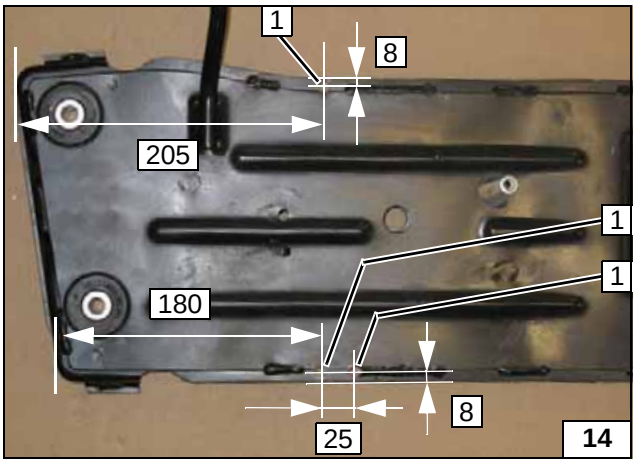
1 Cross member

Removing cross member



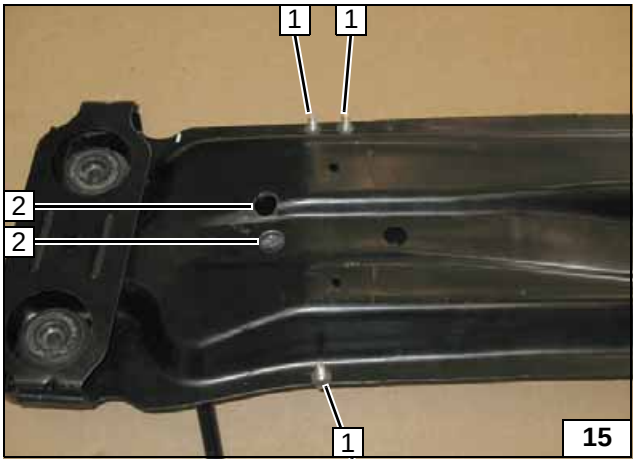
Drill 7 mm dia. hole vertically at position **1** [2x] through both levels.

Holes in cross member



1 7 mm dia. hole [3x]

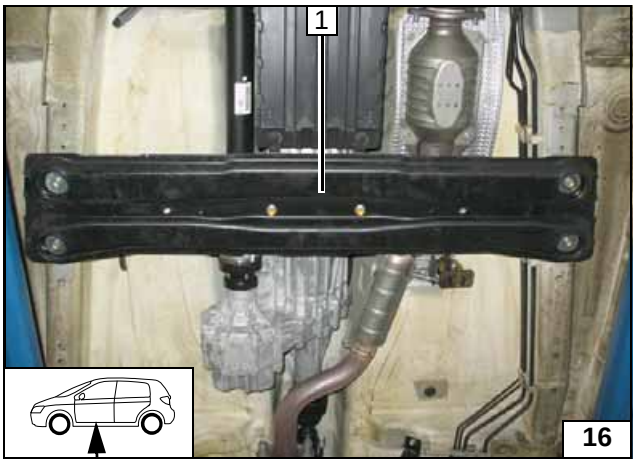
Holes in cross member



Drill 16 mm dia. hole at position **2** [2x].

1 M6x20 bolt, pin lock [3x]

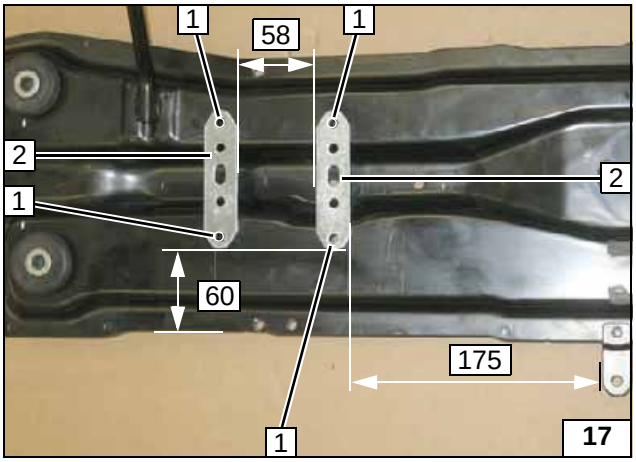
Preparing cross member



Version B

1 Cross member

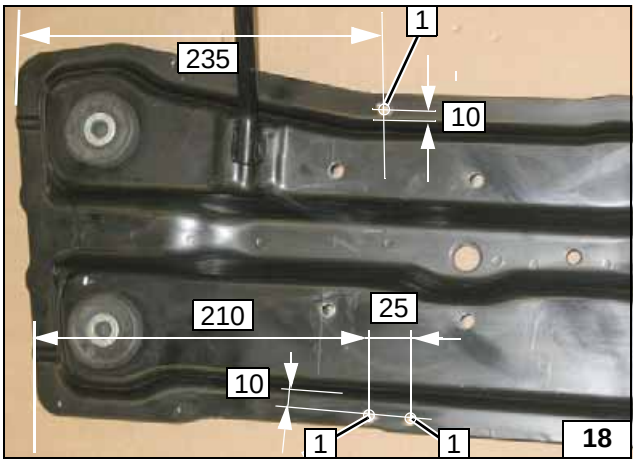
Removing cross member



Align perforated brackets **2** to cross member. Vertical hole at position **1** through both levels.

1 Copy hole pattern, 7 mm dia. hole [4x]

Holes in cross member



1 7 mm dia. hole [3x]

Holes in cross member

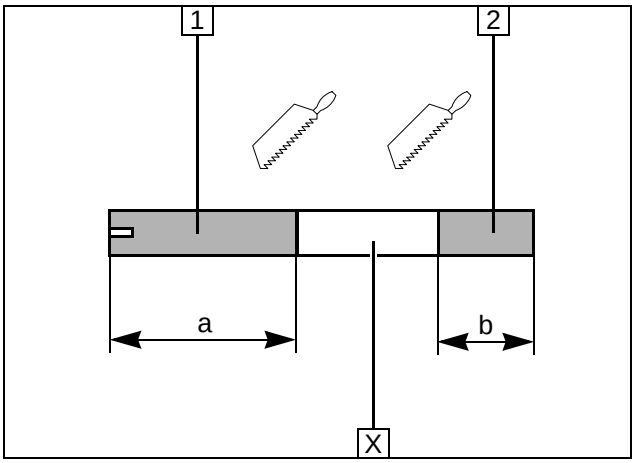
Drill out 7 mm dia. hole at position **2** [4x] to 16 mm dia (lower level only).

1 M6x20 bolt, pin lock [3x]

Preparing cross member

Preparing heater

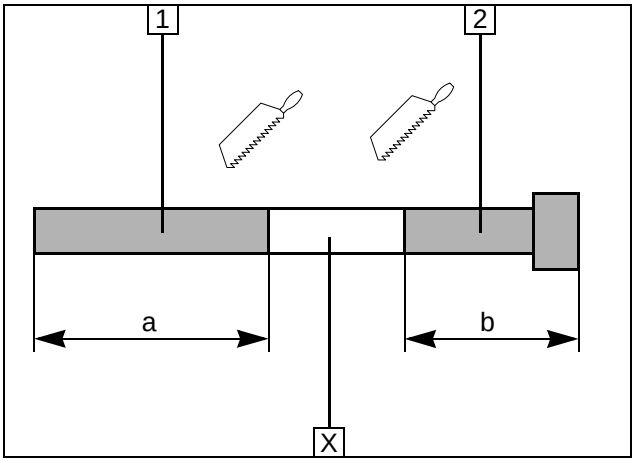
Versions A and B



1 Combustion air pipe
a = 125
2 Combustion air pipe
b = 75

Discard section **X**

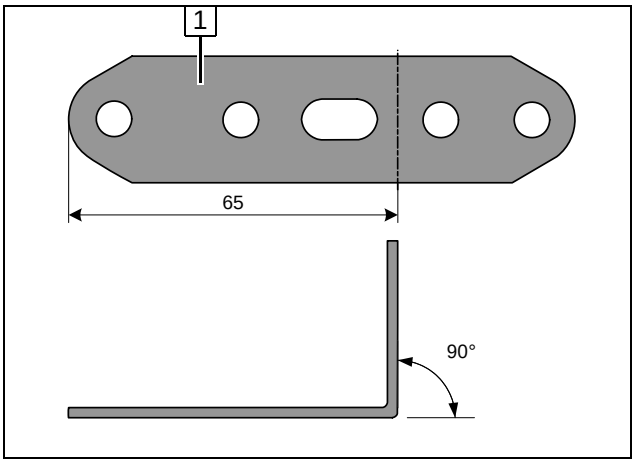
Preparing combustion air pipe



1 Exhaust pipe
a = 230
2 Exhaust end section
b = 80

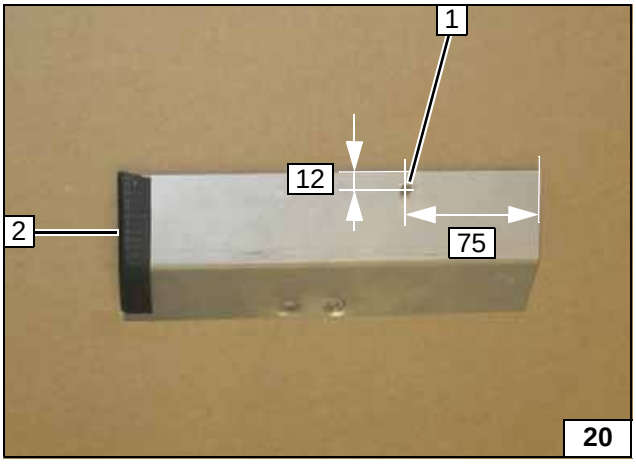
Discard section **X**

Preparing exhaust pipe



1 Perforated bracket

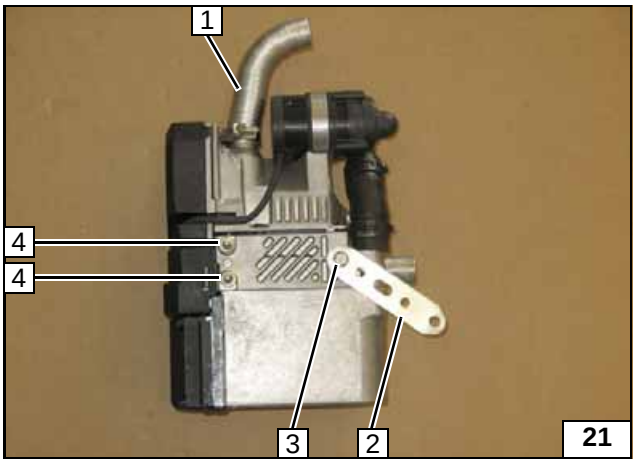
Angling down perforated bracket



Cut edge protection **2** to length and install.

1 5.5 mm dia. hole

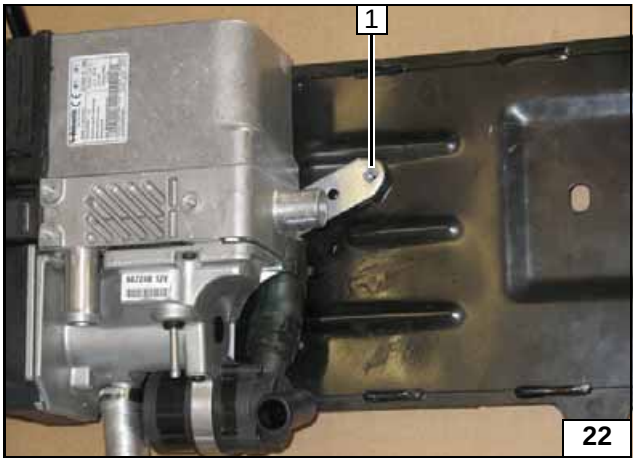
Preparing guard plate



Version A

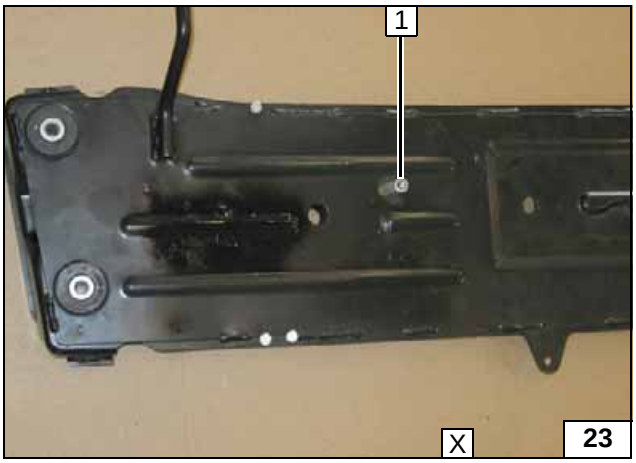
1 Combustion air pipe**a** , 27 mm dia. clamp
2 Perforated bracket
3 Ejot screw
4 Ejot stud bolt, washer [2x each]

Preparing heater



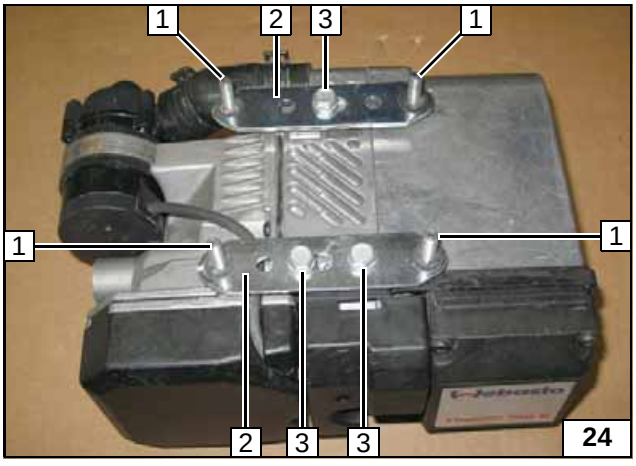
1 Copy hole pattern

Copying hole pattern



1 Drill 9.1 mm dia. hole; install rivet nuts

Installing rivet nut



Version B

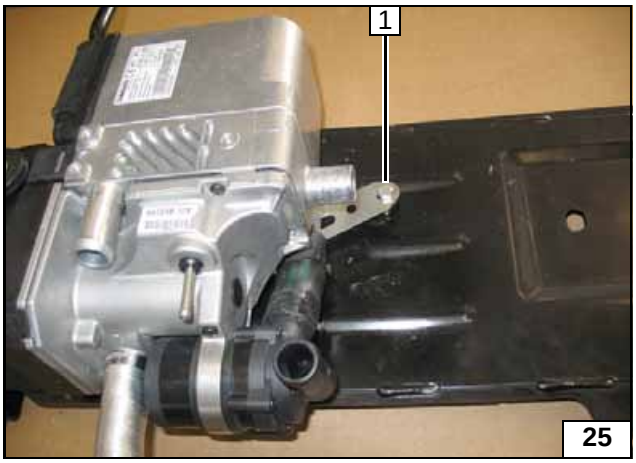
Observe alignment of perforated brackets as shown.

1 M6x20 bolt, pin lock [4x each]
2 Perforated bracket [2x]
3 Ejot screw [3x]

Preparing heater

Installing heater

Version A

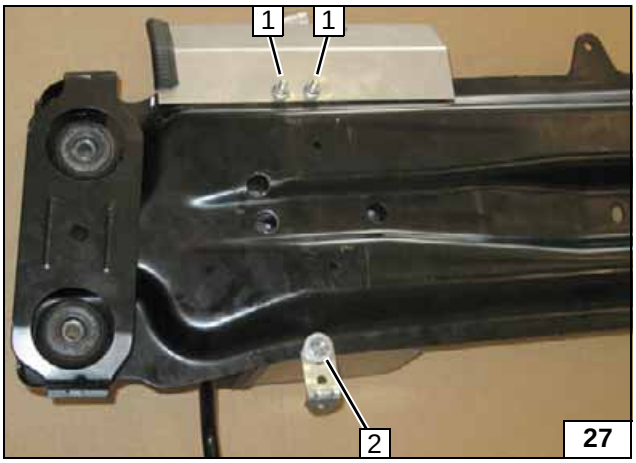


1 M6x30 bolt, spring lockwasher, 8 mm shim

Mounting heater

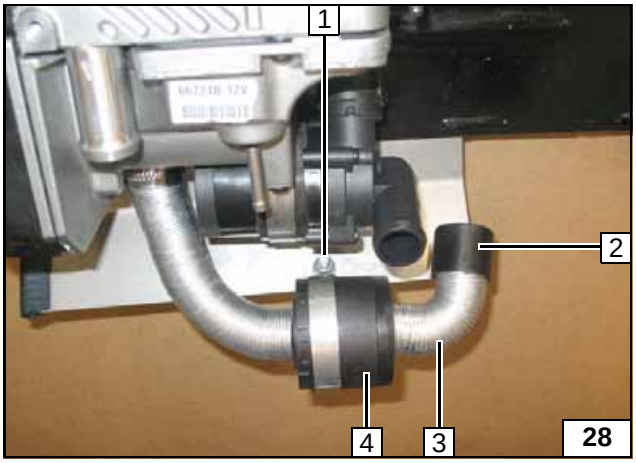
1 Flanged nut [2x]

Mounting heater



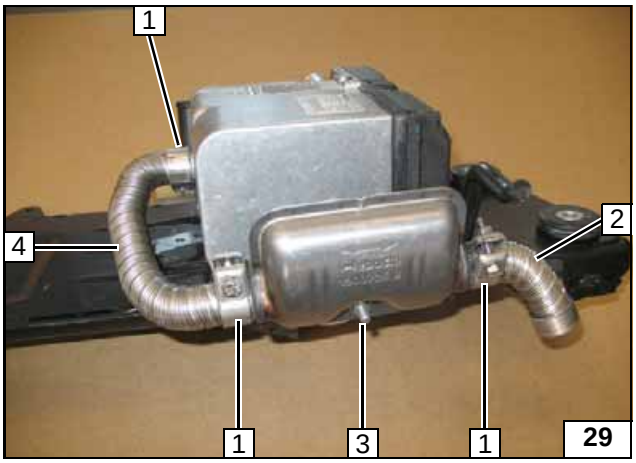
1 Flanged nut [2x]
2 Perforated bracket, large diameter washer, flanged nut

Mounting guard plate



1 M5x16 bolt, 51 mm dia. clamp, Flanged nut
2 Protective cap
3 Combustion air pipe **b**
4 Silencer

Mounting combustion air pipe

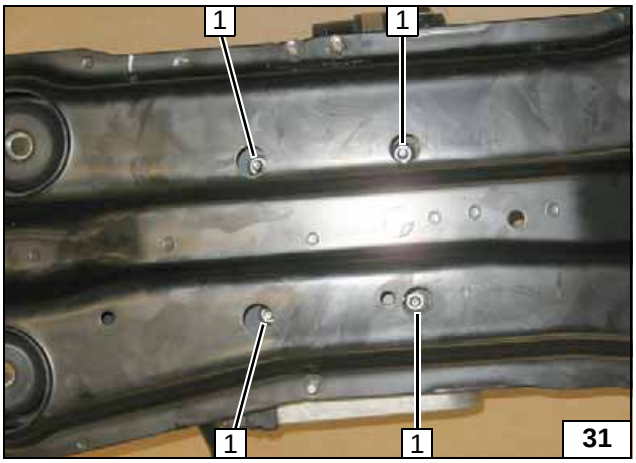


1 Hose clamp [3x]
2 Exhaust end section
3 M6x20 bolt, flanged nut
4 Exhaust pipe

Mounting exhaust pipe

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

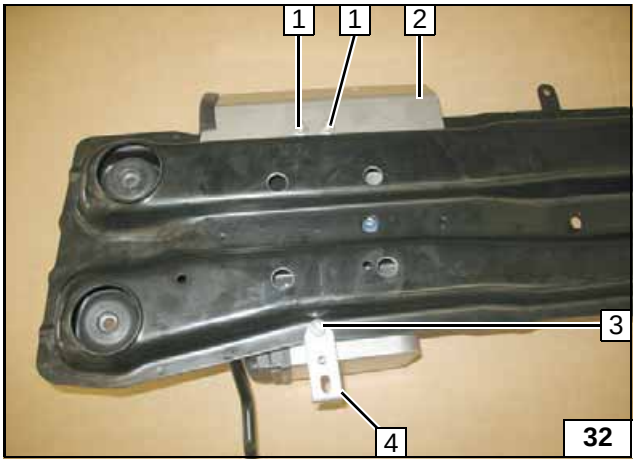
Premounting fuel line



Version B

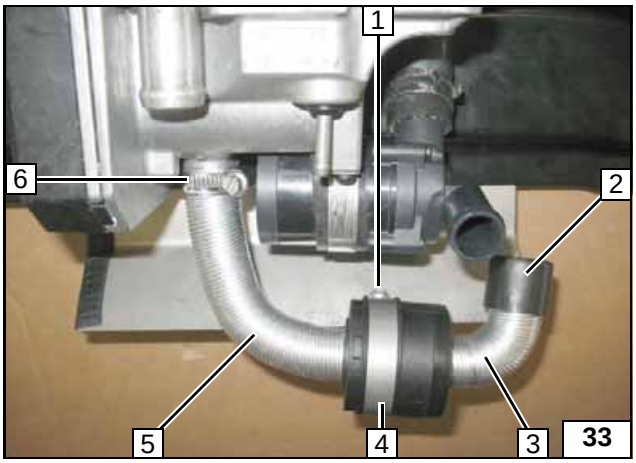
1 Flanged nut [4x]

Mounting heater



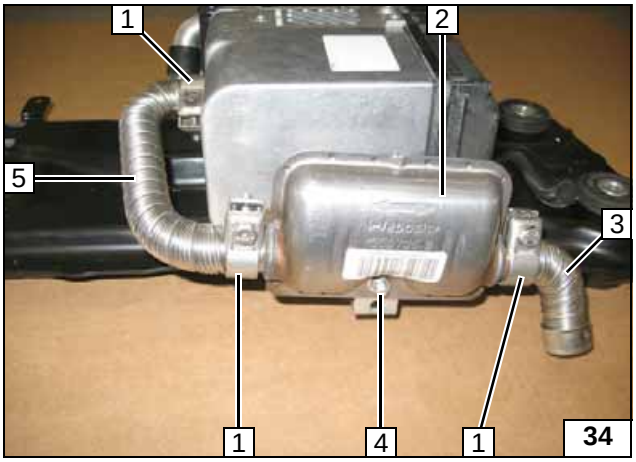
1 Flanged nut [2x]
2 Guard plate
3 Flanged nut
4 Perforated bracket

Mounting guard plate and perforated bracket



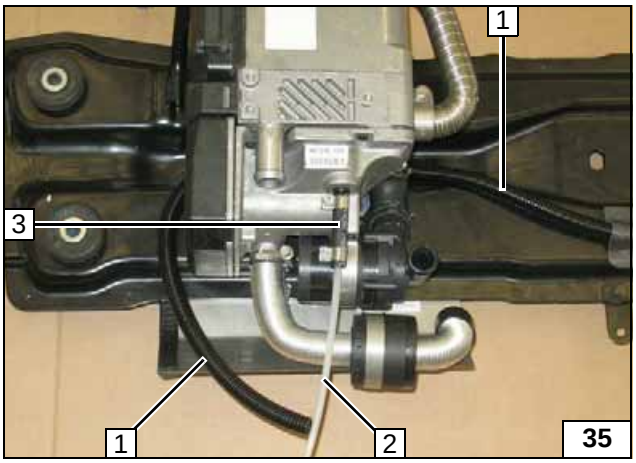
1 M5x16 bolt, flanged nut
2 Protective cap
3 Combustion air pipe **b**
4 51 mm dia. clamp, silencer
5 Combustion air pipe **a**
6 27 mm dia. clamp

Mounting combustion air pipe



1 Hose clamp [3x]
2 Silencer
3 Exhaust end section
4 M6x20 bolt, flanged nut
5 Exhaust pipe

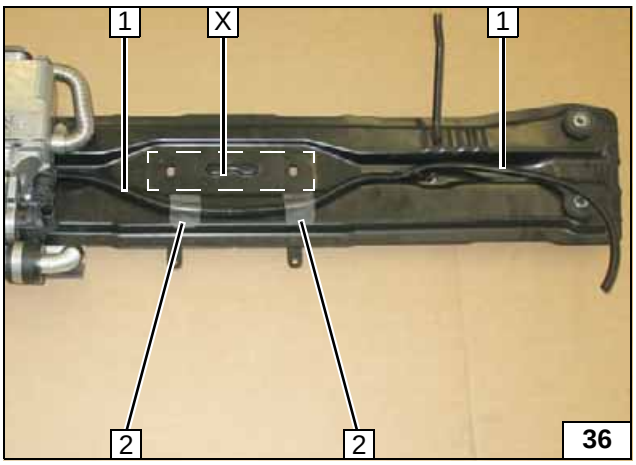
Mounting exhaust pipe



Cut approx. 1800mm from 10 mm dia. corrugated tube **1** and install below heater as shown.

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

Premounting fuel line



Cut adhesive strips at the middle.
Ensure space **X** between transmission support.

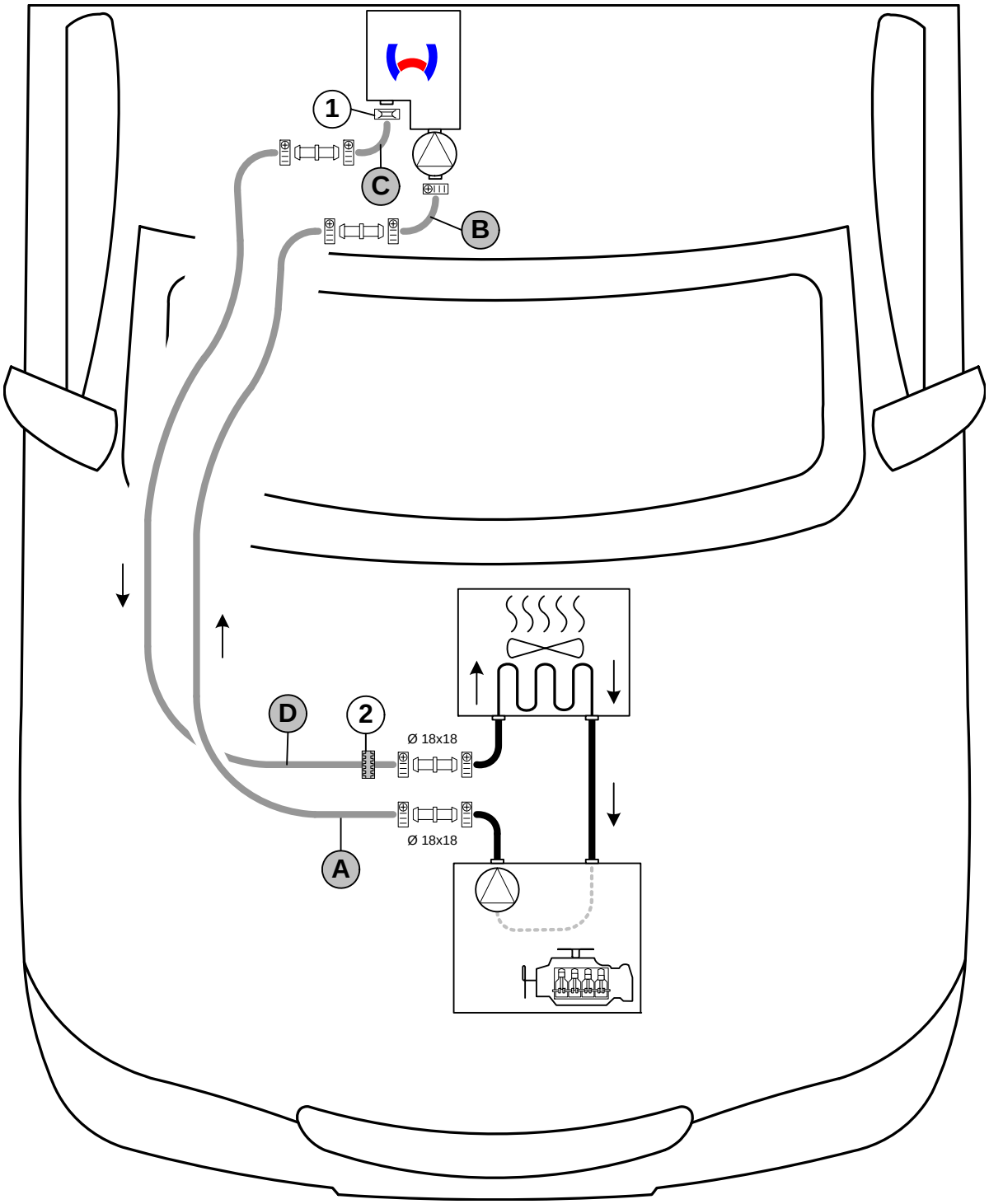
1 10 mm dia. corrugated tube
2 Adhesive strip cut in the middle [2x]

Premounting fuel line

Coolant circuit 2.4 for petrol

WARNING!
Any coolant running off should be collected using an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when mounting the hoses.
The connection should be "inline" based on the following diagram:

Hose routing diagram

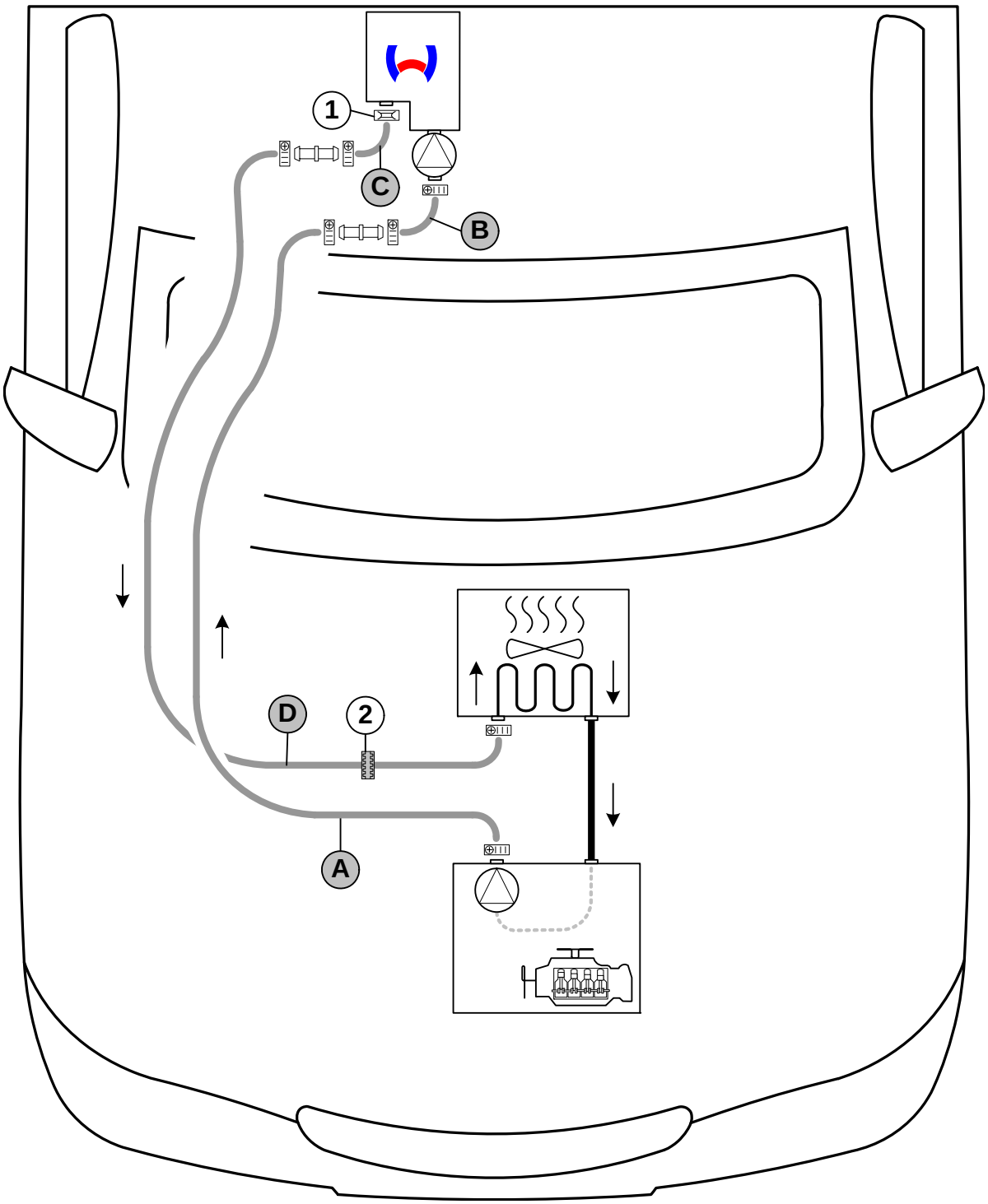


All connecting pipes not designated = 18x20 mm dia. All hose clamps = 16-27 mm dia.
1= 27 mm dia. spring clip **2** = Black (sw) rubber isolator .

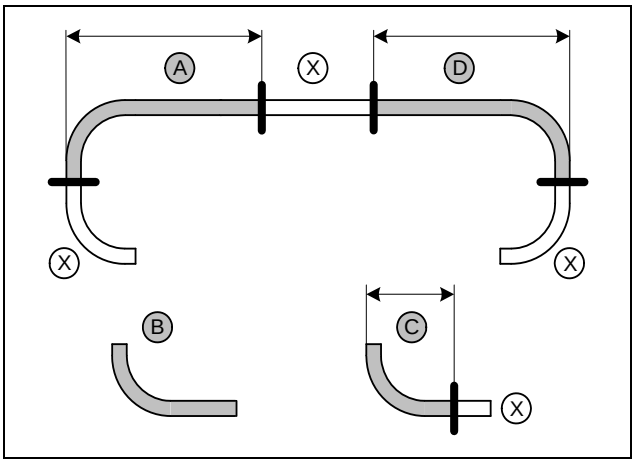
Coolant circuit 3.2 for petrol

WARNING!
Any coolant running off should be collected using an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when mounting the hoses.
The connection should be "inline" based on the following diagram:

Hose routing diagram



All connecting pipes = 18x20 mm dia. All hose clamps = 16-27 mm dia.
1= 27 mm dia. spring clip **2** = Black (sw) rubber isolator .



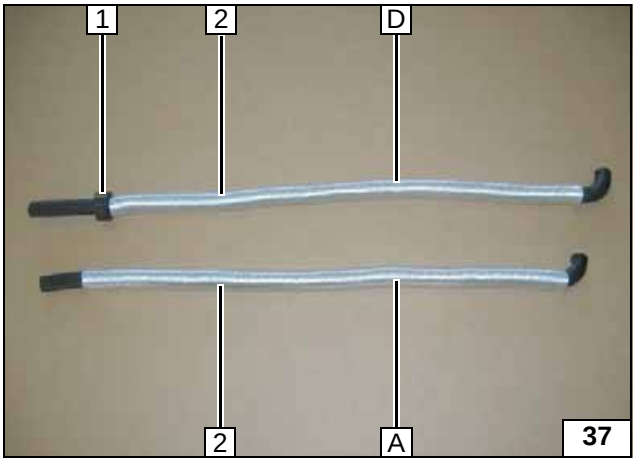
Discard section **X**

B = 90°, 20 mm dia. moulded hose
C = 90°, 20 mm dia. moulded hose

2.4 Petrol:
A = 700
D = 820
C = 100

3.2 Petrol:
A = 800
D = 880
C = 100

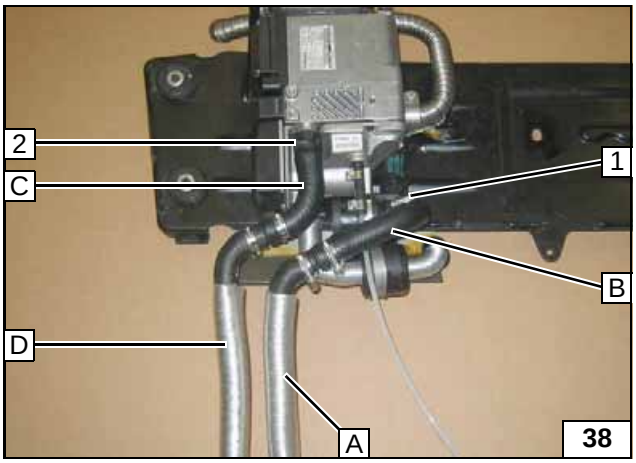
Cutting hoses to length



Slide heat protection hose **2** [2x] onto hoses **A** and **D** .

1 Black (sw) rubber isolator

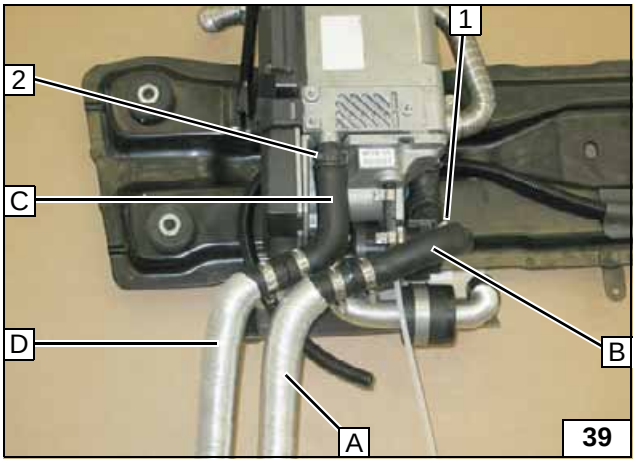
Preparing hoses



Version A

1 27 mm dia. clamp
2 27 mm dia. spring clip

Premounting hoses



Version B

1 27 mm dia. clamp
2 27 mm dia. spring clip

Premounting hoses

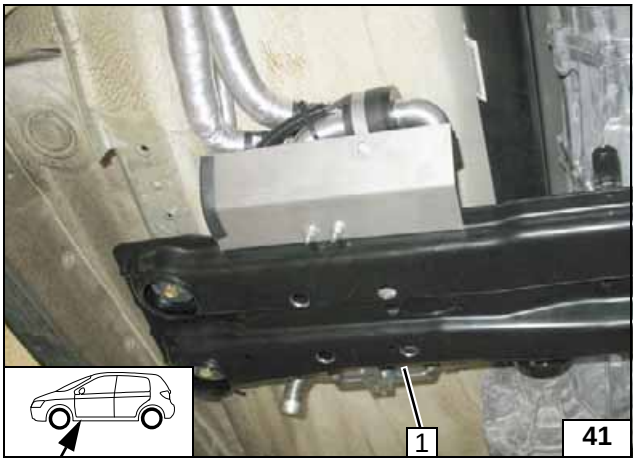
Mounting cross member with heater

Version A

Mount wiring harness of heater before the installation.

1 Heater premounted

Mounting cross member with heater



Version B

Mount wiring harness of heater before the installation.

1 Heater premounted

Mounting cross member with heater

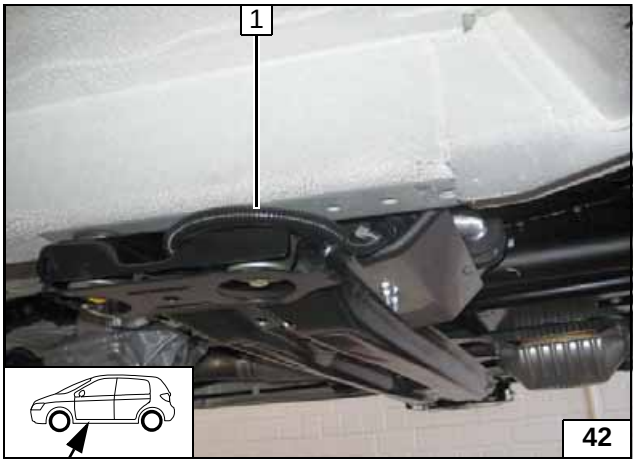
Fuel

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.

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.

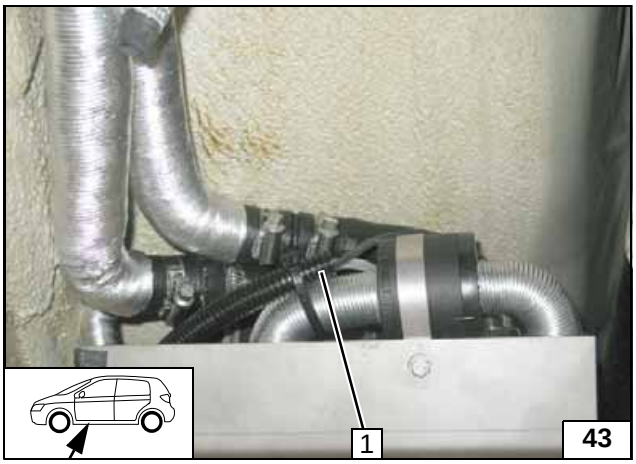
WARNING!
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.



Version A

Cut 1800mm of 10 mm dia. corrugated tube. Route fuel line and wiring harness of metering pump into 10 mm dia. corrugated tube **1** through cross member on the left hand side of vehicle.

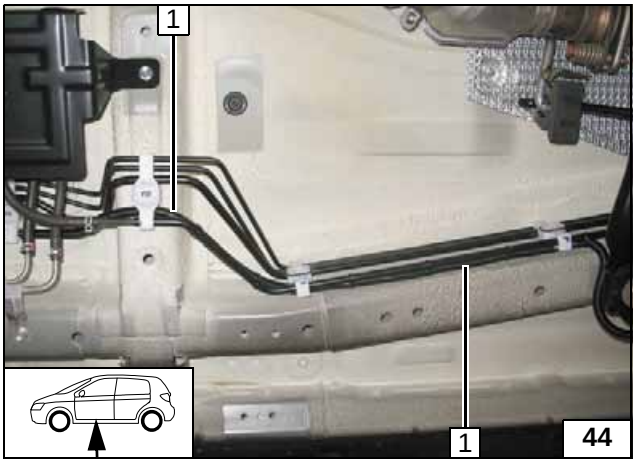
Routing lines



Version B

Route fuel line and wiring harness of metering pump into 1800 mm long, 10 mm dia. corrugated tube **1** on cross member on the left hand side of vehicle.

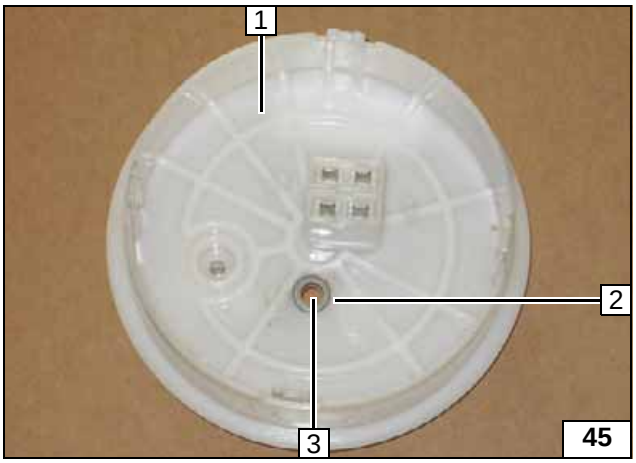
Routing lines



Versions A and B

Figure shows version **A**. Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **1** to the installation location of the metering pump.

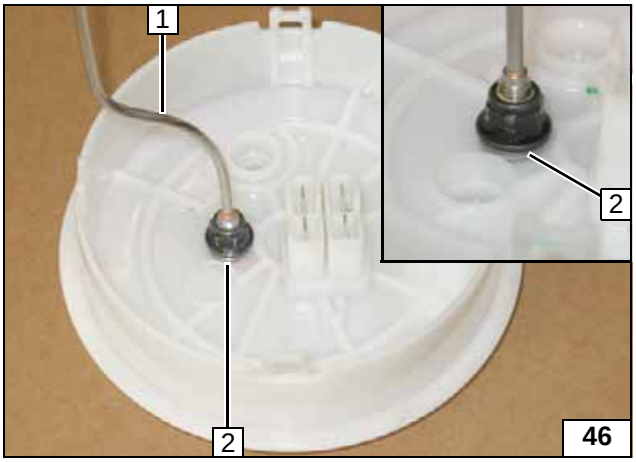
Routing lines



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

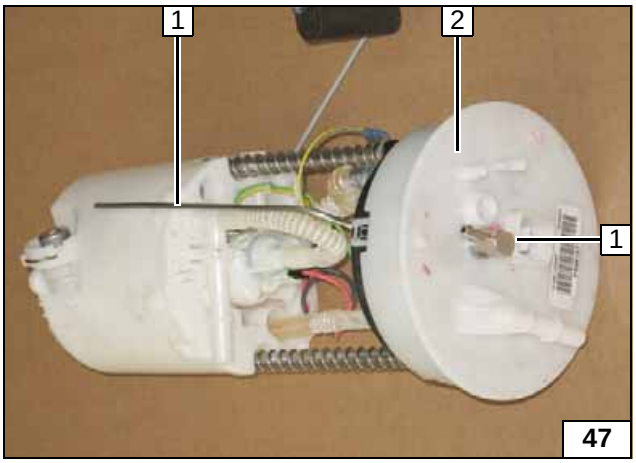
2 6 mm dia. washer
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Shape fuel standpipe **1** according to template, cut to length and install. Insert two 6 mm dia. washers at position **2** between fuel-tank sending unit and fuel standpipe (height compensation).

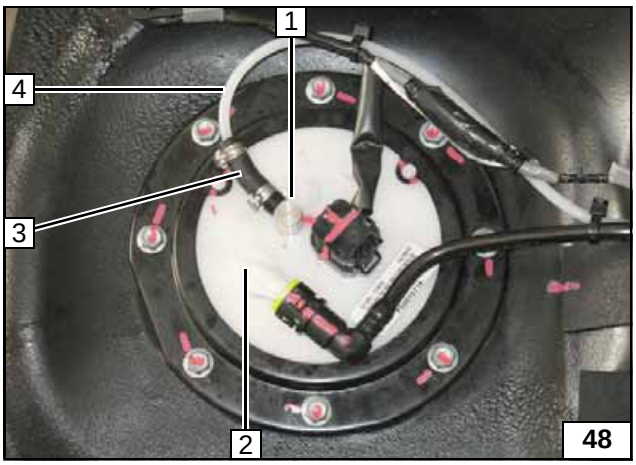
Installing fuel standpipe



Completing fuel-tank sending unit **2**.

1 Fuel standpipe

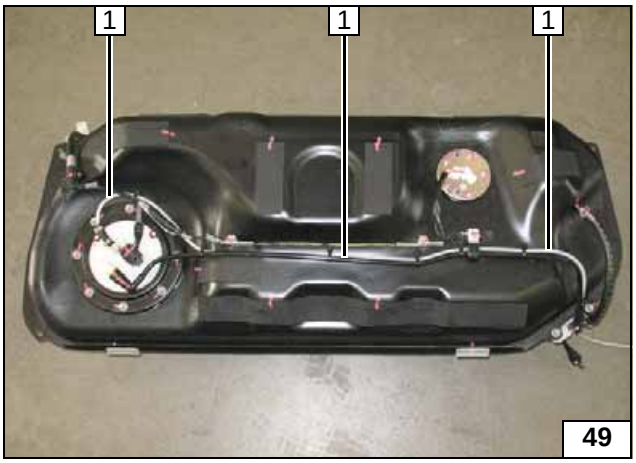
Installing fuel standpipe



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

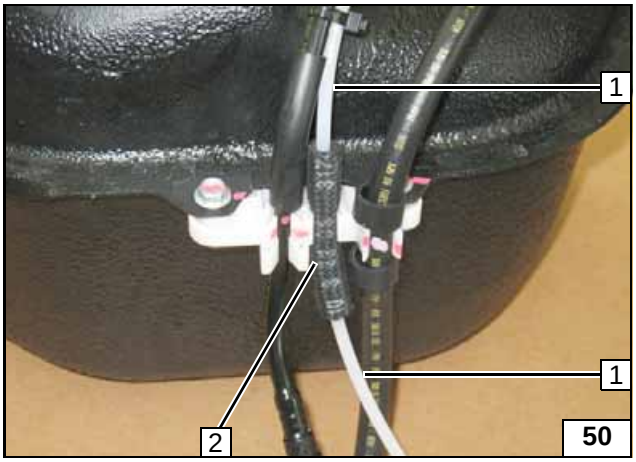
1 Fuel standpipe
3 Hose section, 10 mm dia. clamp [2x]
4 Fuel line

Connecting fuel line



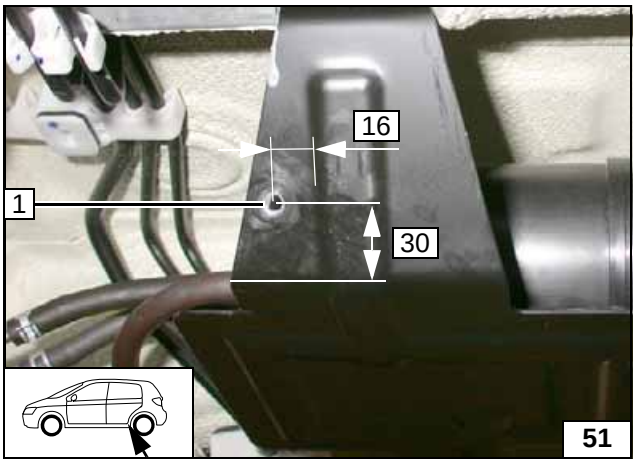
Fasten fuel line **1** on original vehicle fuel line with cable tie.

Fastening fuel line



Slide fuel hose **2** on to fuel line **1** and insert in bracket. Remount fuel tank.

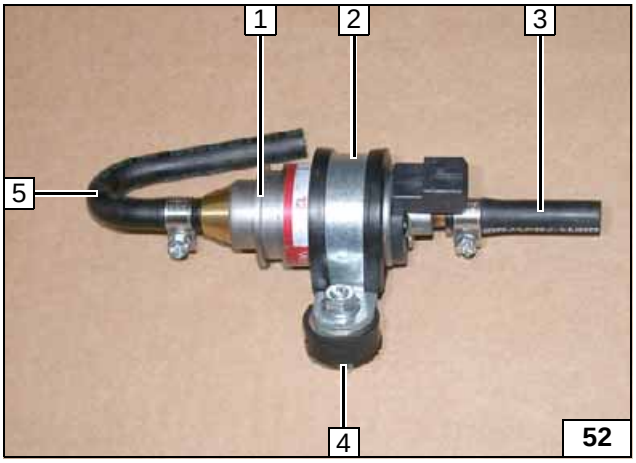
Fastening fuel line



When drilling hole watch the components at the rear

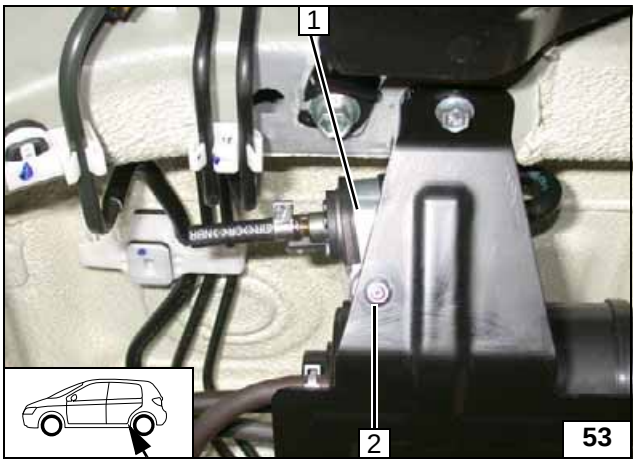
1 7 mm dia. hole

Hole for metering pump



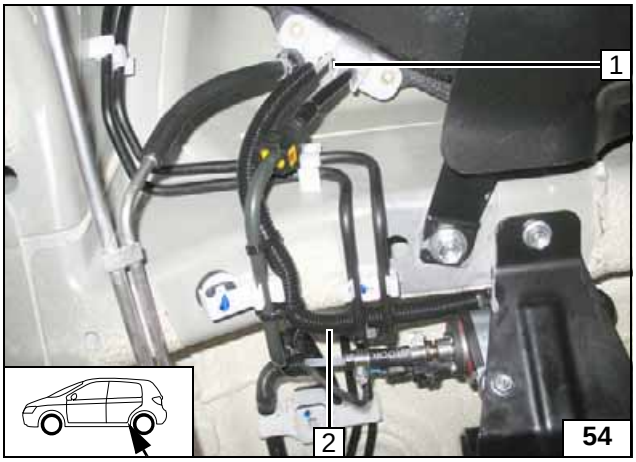
1 Metering pump
2 Rubber-coated p-clamp
3 Hose section, 10 mm dia. clamp
4 Silent block, flanged nut
5 180° moulded hose, 10 mm dia. clamp

Premounting metering pump



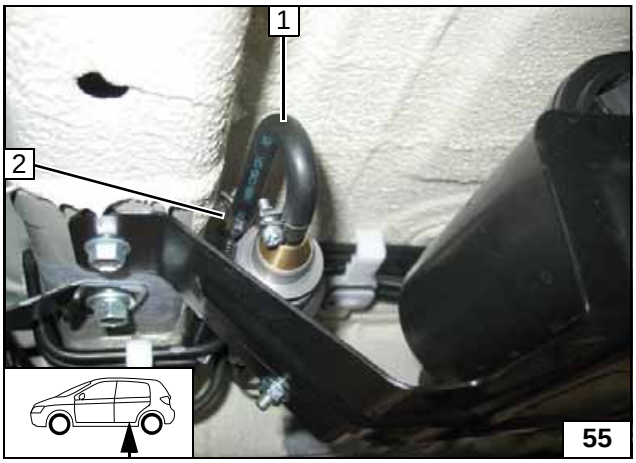
1 Premounted metering pump
2 Flanged nut on silent block

Mounting metering pump



Slide 10mm dia. corrugated tube **2** onto fuel line **1** of fuel standpipe.

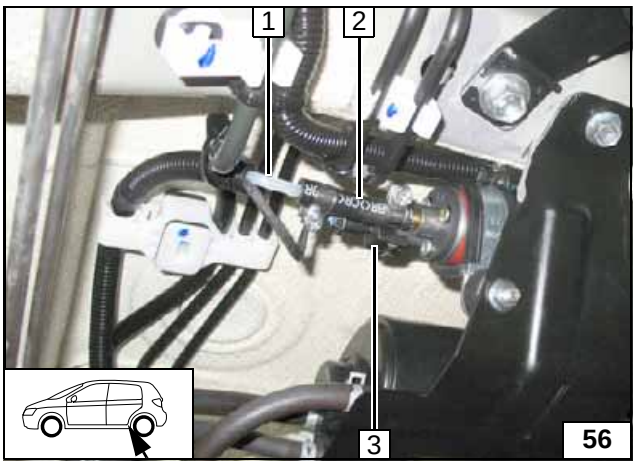
Routing fuel line



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

1 180° moulded hose
2 Fuel line of fuel standpipe, 10 mm dia. clamp

Connecting metering pump

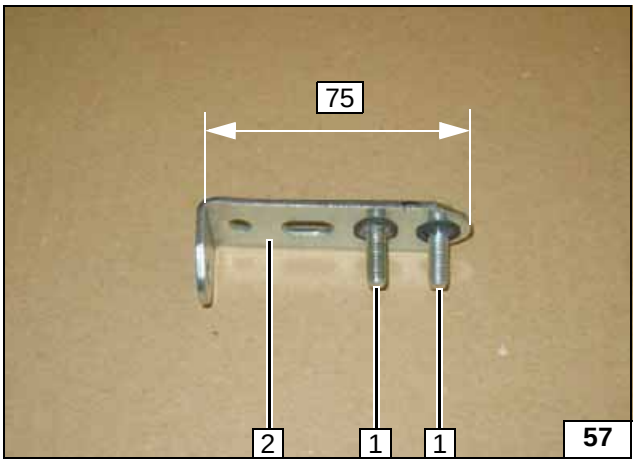


Check the position of the components; adjust if necessary. Check that they have freedom of movement.

1 Fuel line of heater
2 Hose section, 10 mm dia. clamp
3 Wiring harness of metering pump, connector installed

Connecting metering pump

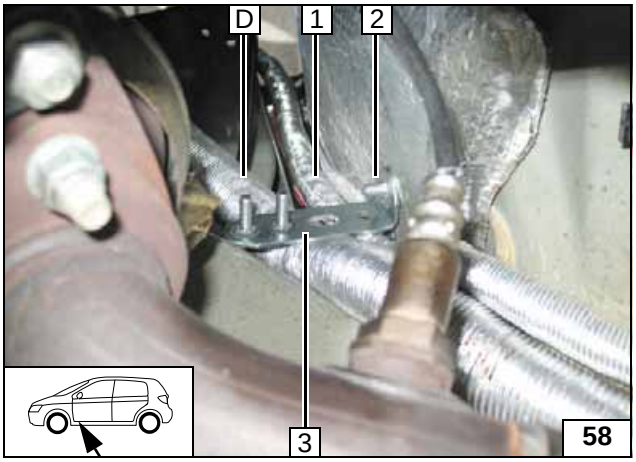
Coolant circuit



Angle down perforated bracket **2** by 90°

1 M6x20 bolt, pin lock

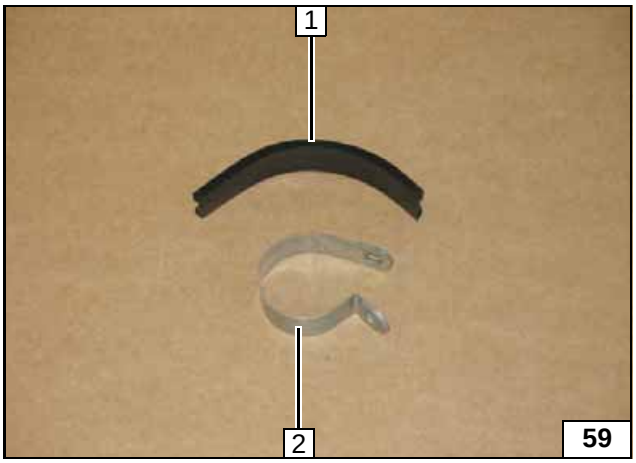
Preparing perforated bracket



Route wiring harness of heater, metering pump and hose **D** as shown. Remove plastic nut at position **2** and replace it with plate nut.

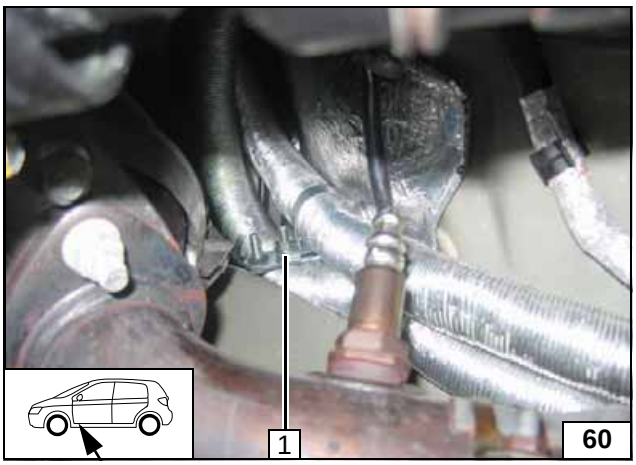
1 Wiring harnesses
2 Plate nut
3 Premounted perforated bracket

Mounting perforated bracket



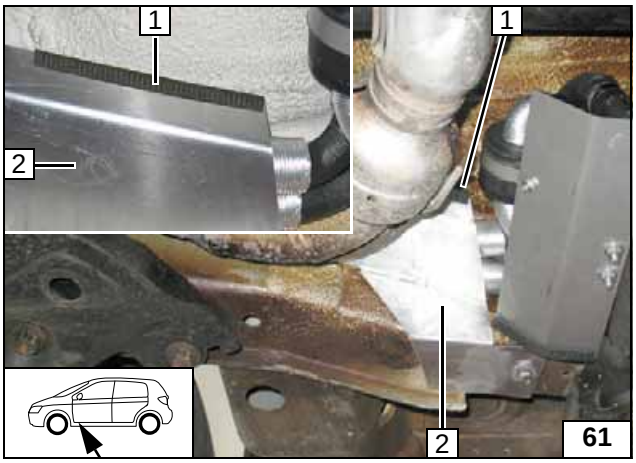
Remove rubber **1** from 29 mm dia. clamp **2**.

Preparing clamp



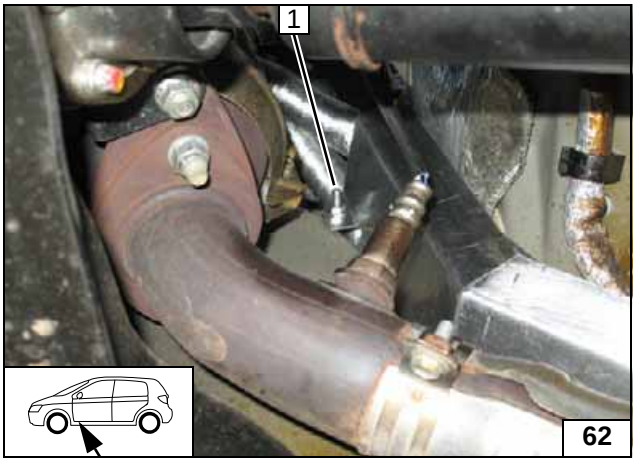
1 29 mm dia. clamp, flanged nut

Mounting clamp



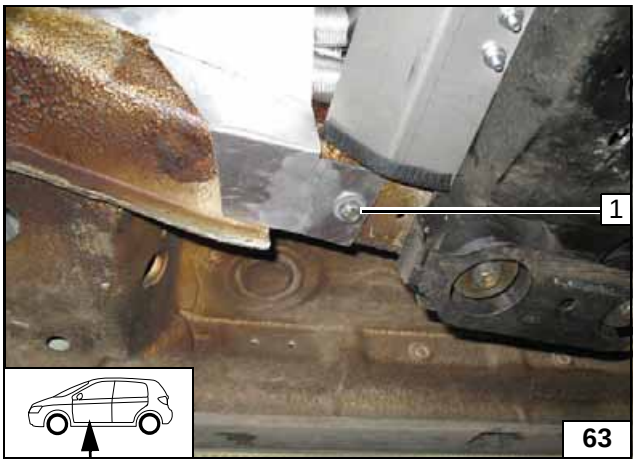
1 Insert edge protection
2 Heat guard plate

Mounting heat guard plate



1 Flanged nut

Mounting heat guard plate



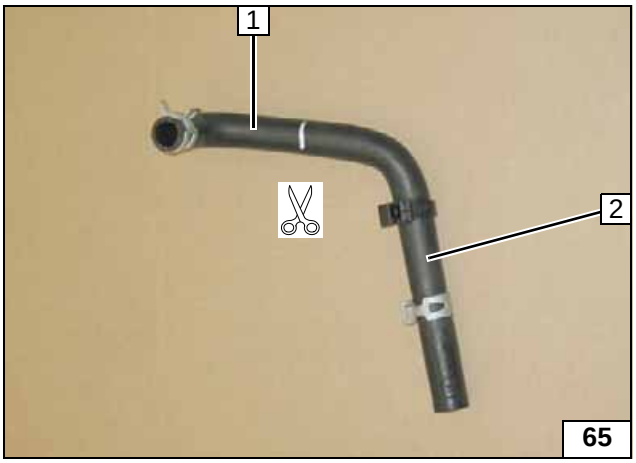
1 M8x20 bolt, spring lockwasher, large diameter washer

Mounting heat guard plate

2.4 Petrol

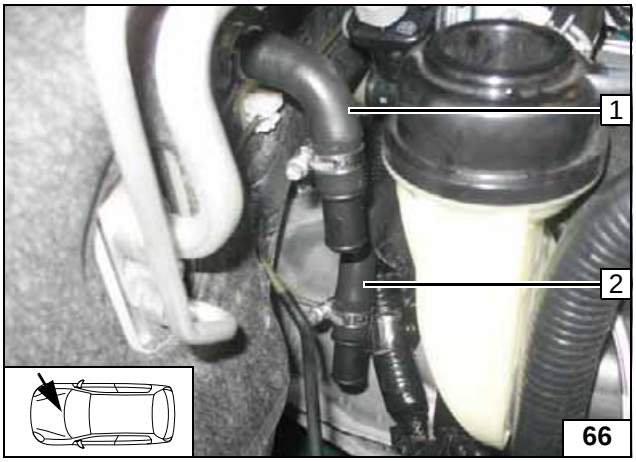
Remove hose of engine outlet / heat exchanger inlet **1**.

Cutting point



1 Hose section of heat exchanger inlet
2 Engine outlet hose section

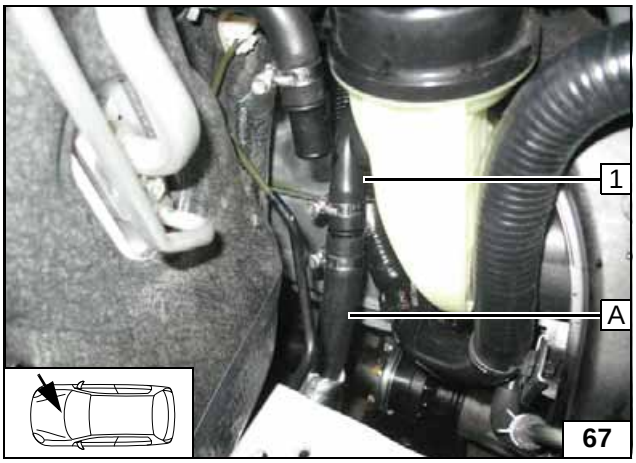
Cutting point



Mounting connecting pipes.

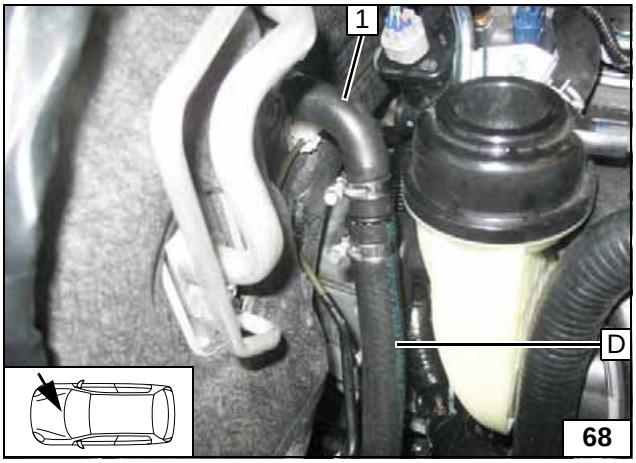
1 Hose section of heat exchanger inlet
2 Hose section of engine outlet rotated downwards

Connecting heat exchanger inlet and engine outlet



1 Hose of engine outlet

Connecting engine outlet

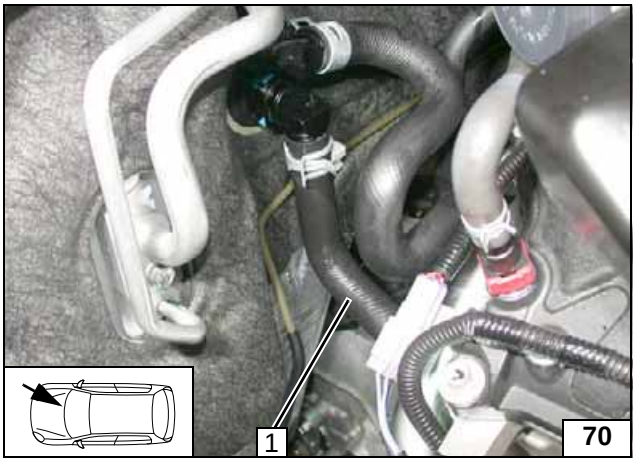


1 Hose on heat exchanger inlet

Connecting heat exchanger inlet

Align rubber isolator **1** with brake line.

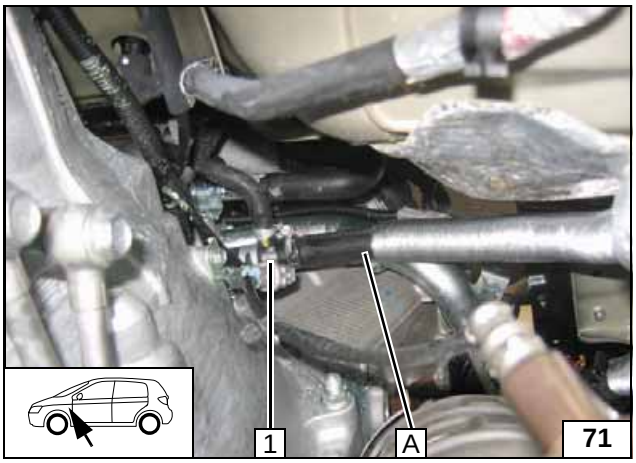
Aligning rubber isolator



3.2 Petrol

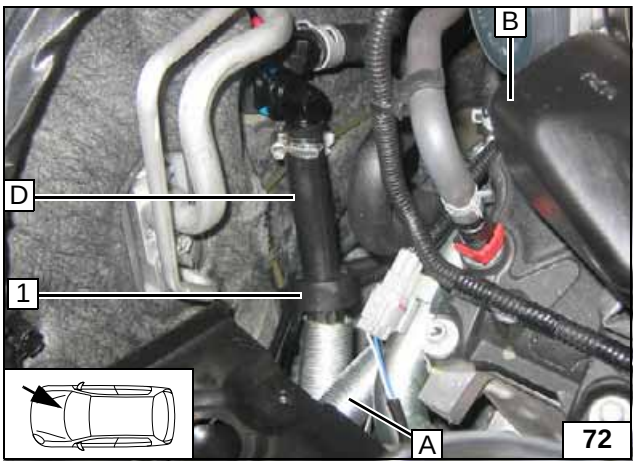
Remove hose of engine outlet / heat exchanger inlet **1**.

Cutting point



1 Connection piece for engine outlet

Connecting engine outlet



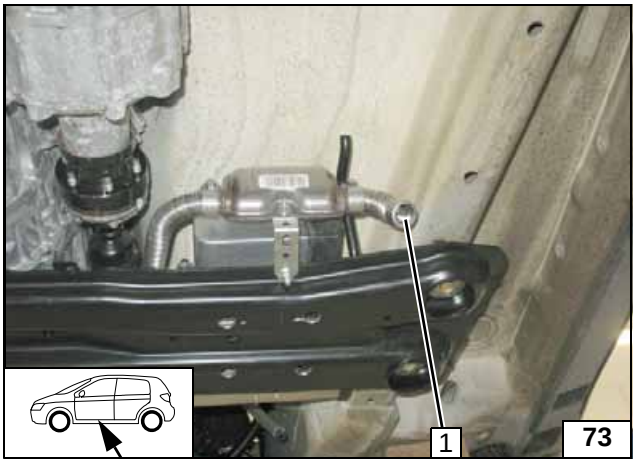
Align rubber isolator **1** with brake line.

Connecting heat exchanger inlet

Final Work

WARNING!
Reassemble the disassembled components in reverse order.
Check all hoses, clamps and all electrical connections for firm seating.
Secure all loose wires 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 transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place "Switch off parking heater before refilling" signboard in the area of the filler neck**
- **For initial start up and function check, see installation instructions**

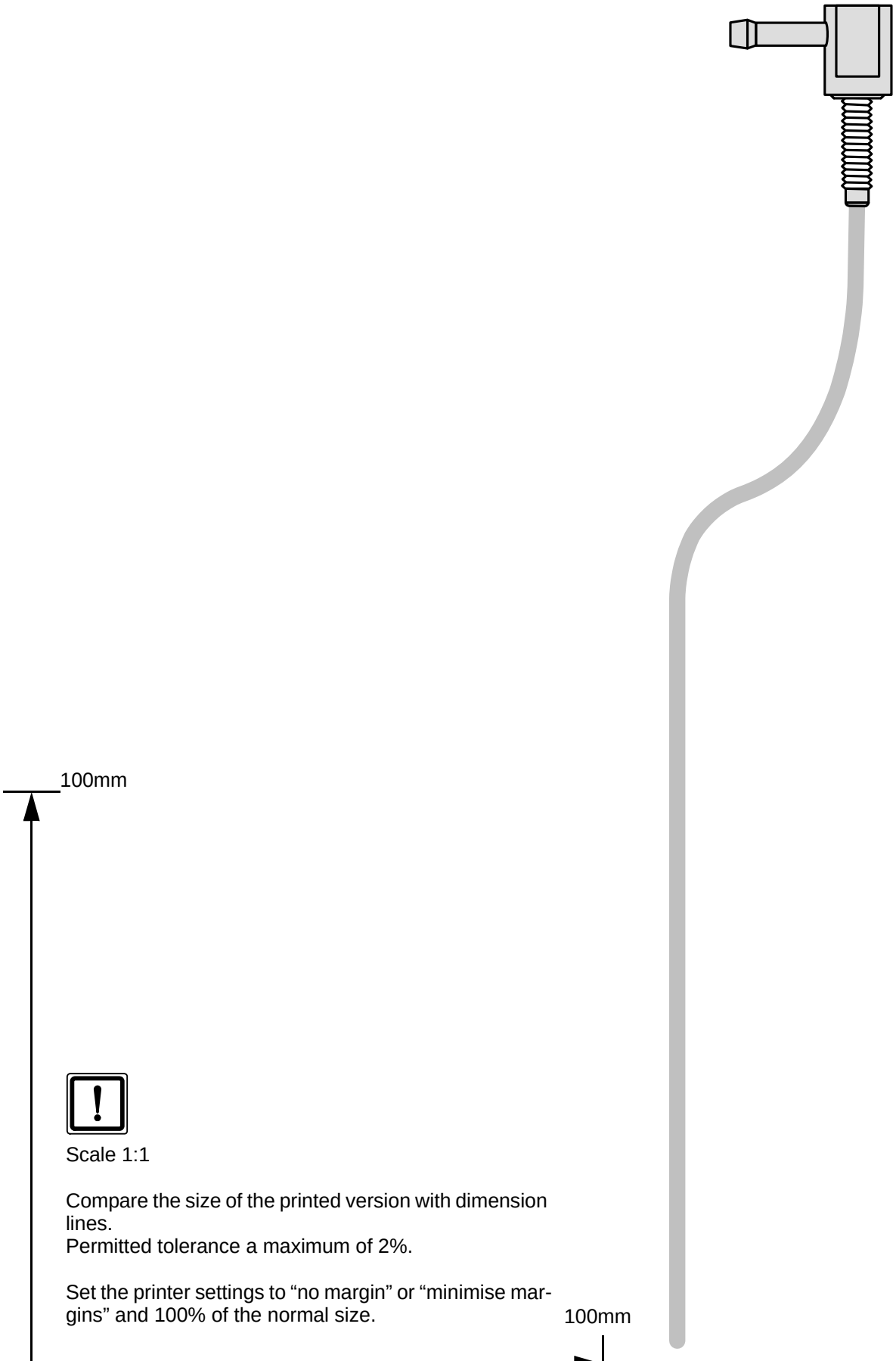


Ensure sufficient distance from neighbouring components.
Align exhaust end section **1**.

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: 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.

WARNING!
The fording capability and the off-road capability of the vehicle are limited due to the parking heater being installed on the underbody.
Massive mechanical effects on the underbody (e.g., through floor contacts) are to be avoided.
The vehicle may be immersed no further than the underside of the body. The heater should not be operated during water crossing
Non-observation of these instructions can lead to the heater being damaged.
Damages on account of such non-compliance are not covered by the warranty.

Before parking the vehicle, make the following settings:

Note:
The display field of the automatic air-conditioning is active during the additional heating mode and the display "AUTO" flashes.

1 Air outlet to windscreen
2 Set fan to level "1", or possibly "2"
3 Set temperature to "HI"

Automatic air-conditioning