

Water Heater Unit



Thermo Top E Additional Heater e1 00 0003

Thermo Top C Additional Heater e1 00 0002

Installation Instructions



Subaru Forester 2.0 Boxer Diesel

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, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.

NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills, or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.

ALWAYS follow all Webasto installation and repair instructions and observe all warnings.

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

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Validity

Manufacturer	Model	Type	EG-BE No./ABE
Subaru Forester	2.0 Boxer Diesel	SH	e13 * 2001/116 * 0982 * ...
Subaru Forester	2.0 Boxer Diesel	SHS	e1 * 2001/116 * 0485 * ...

Engine type	Engine model	Output in kW	Displacement in cm ³
EJ20	Diesel	108	1998

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

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

Heater Unit/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories with desired heater control	See price list
1	Installation Kit for Subaru Legacy / Outback / Forester 2.0 Boxer Diesel	1313756C

Heater unit recommended for the respective vehicle class:

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

The selection of the heater unit 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 Subaru Forester 2.0 Boxer Diesel Diesel 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 these installation instructions.

However, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* must always be observed.

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

General Instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties.

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

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

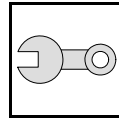
Special Tools

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

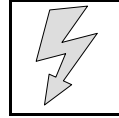
Explanatory Notes on Document

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.

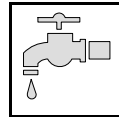
Mechanical system



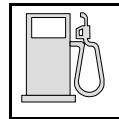
Electrical system



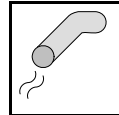
Coolant



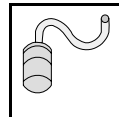
Fuel



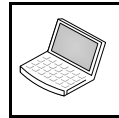
Exhaust gas



Combustion air



Software



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



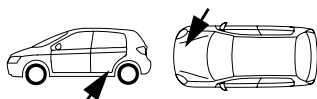
Specific risk of fire or explosion.



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!

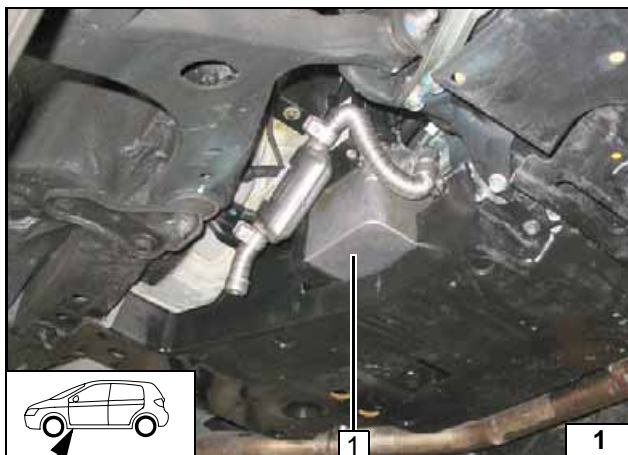
Tightening torque of Ejet screws, Ejet studs = 10 Nm!

Preliminary Work

WARNING!

- Open fuel tank cap, ventilate tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Remove the engine design cover.
- 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 intercooler.
- Detach the fuel filter.
- Remove the rear bench seat.
(if beverage holders are installed in the seat surface, 4 bolts below trim)
- Open the right-hand fuel sender service lid.
- Remove the footwell trim on the driver's and front passenger side.
- Remove the lower instrument panel trim on the driver's side.
- Remove the A-pillar trim in the footwell on the front passenger side.
- Remove the lower B-pillar trim on the front passenger side.
- Remove the door sill cover on the front passenger side.
- Remove the lower transmission cover.
- Remove the underbody trim.
- Remove the right-hand fuel tank trim.

Remove page 24 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



Heater unit installation location

1 Heater unit

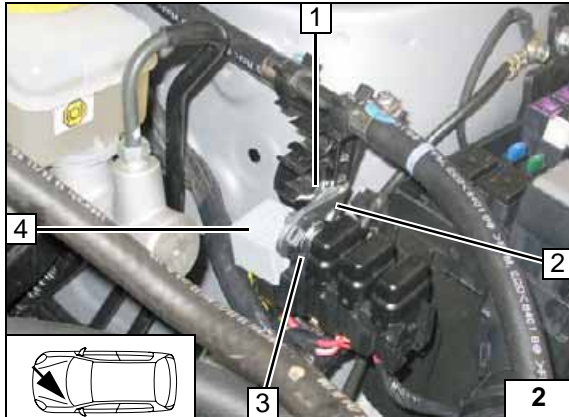
Installation location



Electrical system

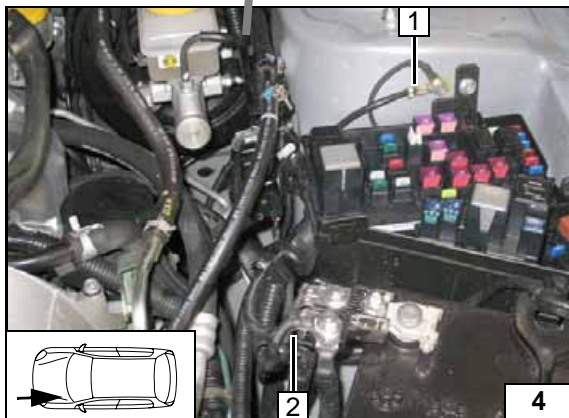
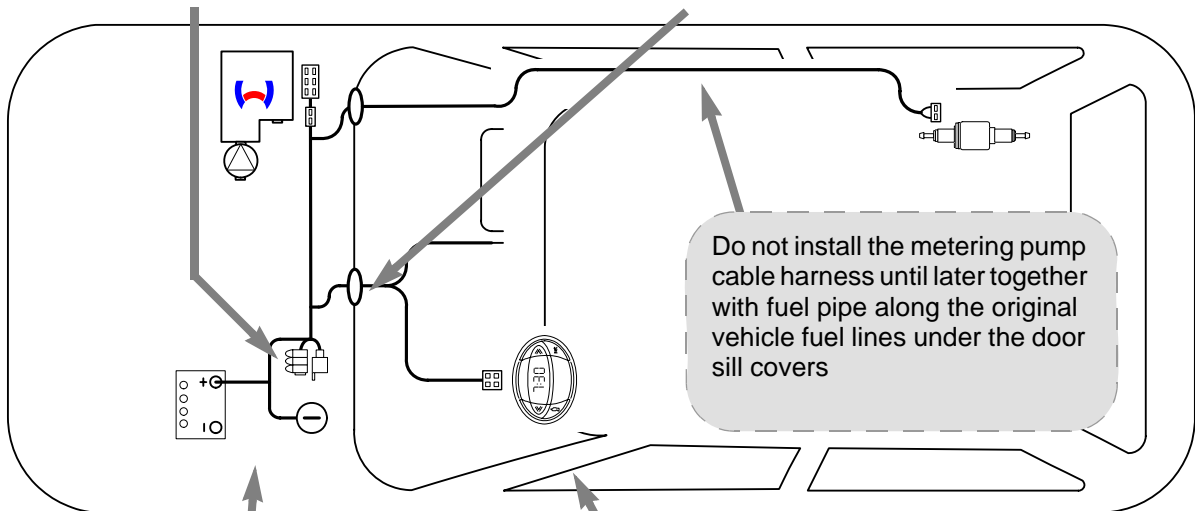
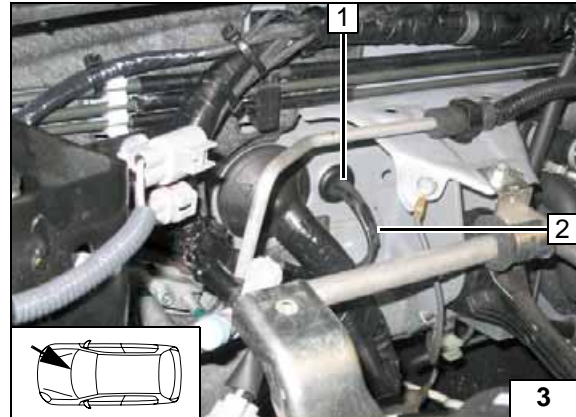
Fuse holder, K3 relay

- 1 Existing hole, M5x16 bolt, washer, flanged nut
- 2 Angle bracket
- 3 M5x16 bolt, washer, retaining plate for fuse holder, flanged nut
- 4 K3 relay



Wiring harness pass through

- 1 Protective rubber plug
- 2 Wiring harnesses of fan controller, digital timer



Positive and ground connection

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



Digital timer

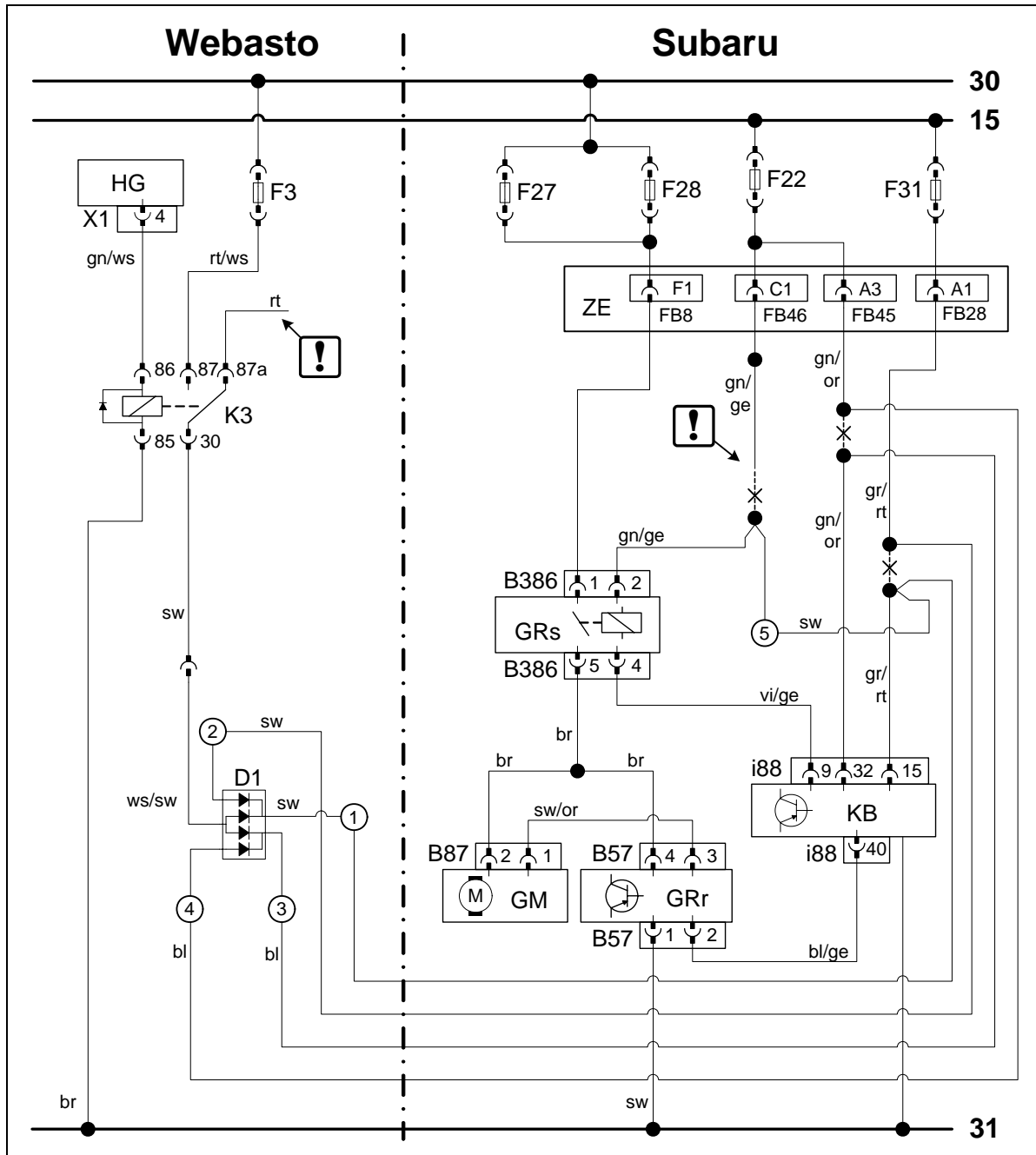
- 1 Digital timer



Wiring harness installation diagram



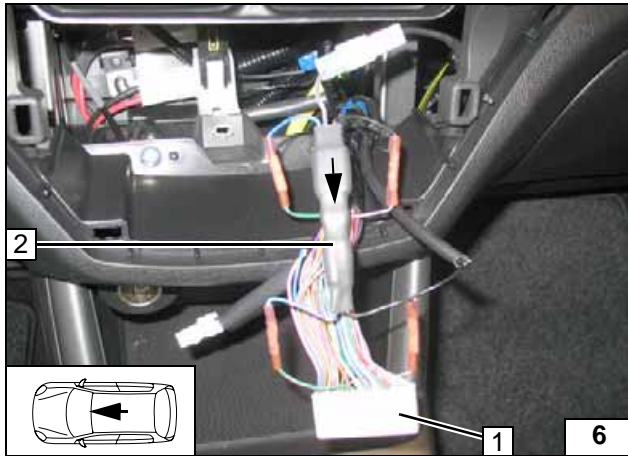
Fan controller



Wiring diagram

Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	F22	15 A fuse	rt	red
X1	6-pin heater unit connector	F27	15 A fuse	ws	white
F3	Replace 25 A with 15 A fuse.	F28	15 A fuse	sw	black
K3	Fan relay	F31	Fuse, 7.5 A	br	brown
D1	Diode group 1	ZE	Central electrical box	gn	green
		A3	20-pin connector A (i5) of central electrical box, PIN 3	bl	blue
		A1	20-pin connector A (i5) of central electrical box, PIN 1	ge	yellow
		GRs	Fan relay	or	orange
		B386	5-pin connector GRs	!	Insulate wire ends and tie back
		KB	Air-conditioning control panel	X	Cutting point
		i88	40-pin connector KB	Wiring colors may vary.	

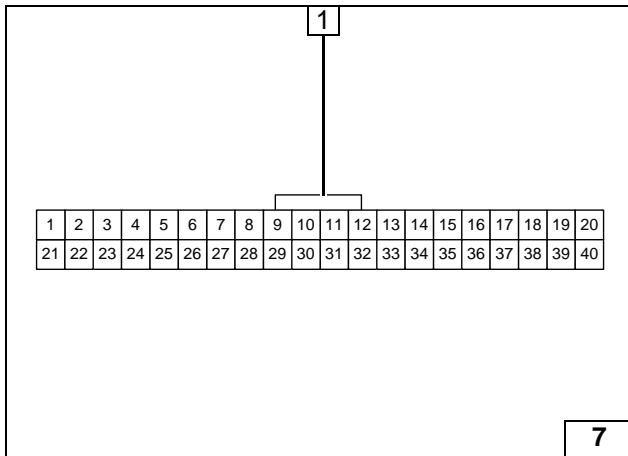
Legend



Connection on 40-pin connector i88 1, PIN 15 and 32 of A/C control panel. Watch direction of flow of diode group D1 2. Insulate red (rt) wire of K3/87a and tie back. Produce connections as shown in wiring diagram.

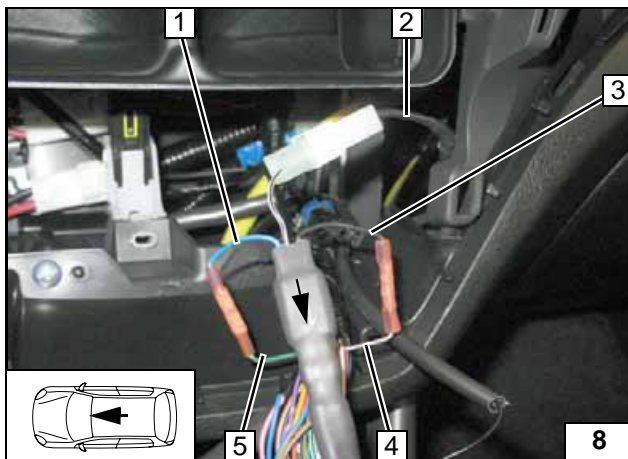


Connecting A/C control panel



1 40-pin connector i88, on contact side

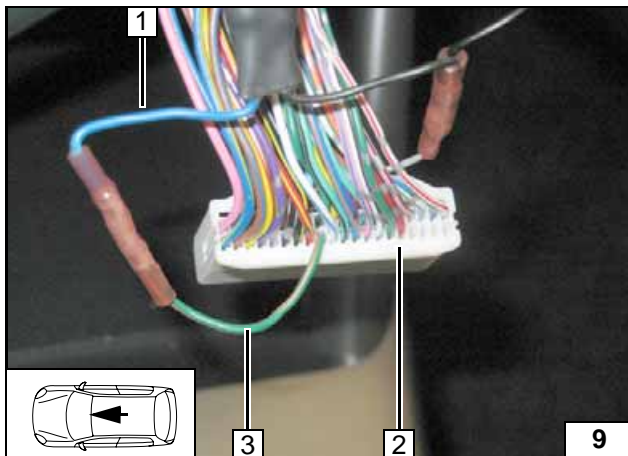
Connector i88 of A/C control panel



- 1 Blue (bl) wire ④ diode group D1
- 2 Black (sw) wire from K3/30
- 3 Black (sw) wire ② diode group D1
- 4 Gray/red (gr/rt) wire connector A, PIN 1 (FB28) ZE
- 5 Green/orange (gn/or) wire connector A, PIN 3 (FB45) ZE

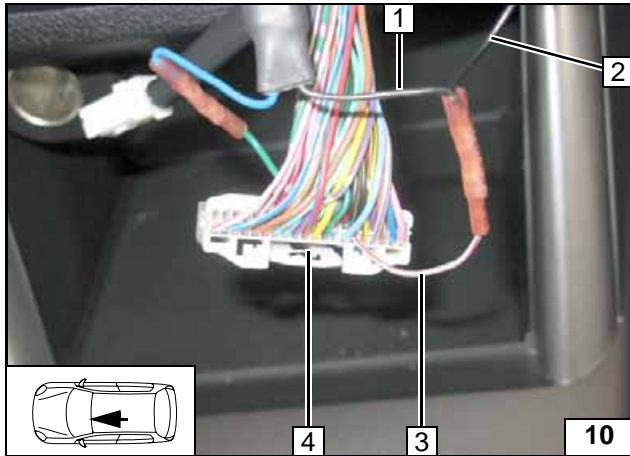


Connecting A/C control panel



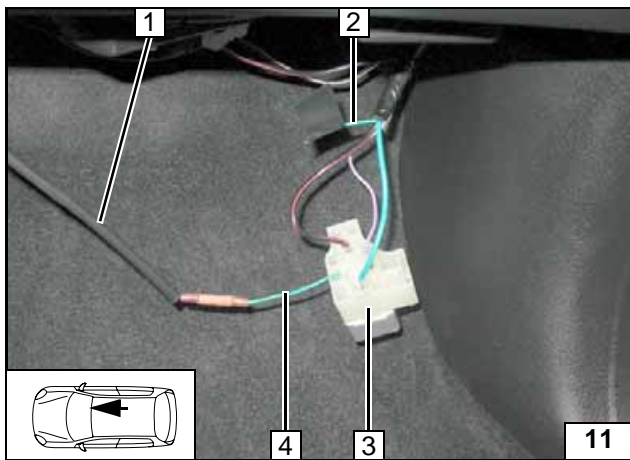
- 1 Blue (bl) wire ③ diode group D1
- 2 40-pin connector i88 KB
- 3 Green/orange (gn/or) wire of 40-pin connector i88, Pin 32

Connecting A/C control panel



- 1 Black (sw) wire ① diode group D1
- 2 Additional black (sw) wire ⑤ to fan relay
- 3 Gray/red (gr/rt) wire of 40-pin connector i88, Pin 15
- 4 40-pin connector i88 KB

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

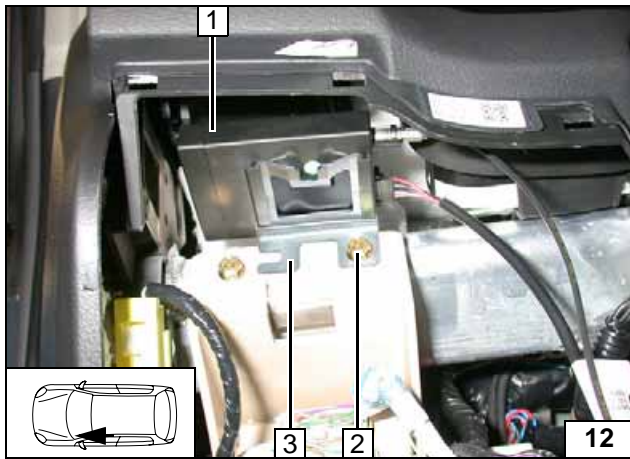


Insulate connection to 5-pin connector B386 3, PIN 2 of fan relay and tie back. Insulate green/yellow (gn/ge) 2 connector C, PIN 1 ZE and tie back. Produce connections as shown in wiring diagram.

- 1 Additional black (sw) wire of diode group D1
- 4 Green/yellow (gn/ge) wire of connector B386 of fan relay, PIN 2



**Connec-
tion to fan
relay**

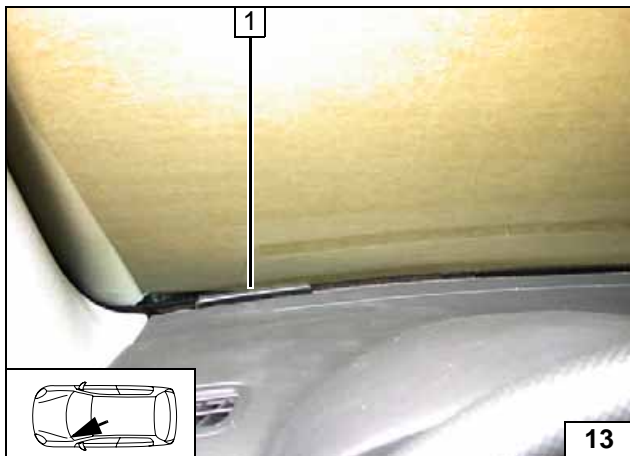


Remote option (Telestart)

- 1 Receiver
- 2 Original vehicle bolt
- 3 Bracket, angle down 90°

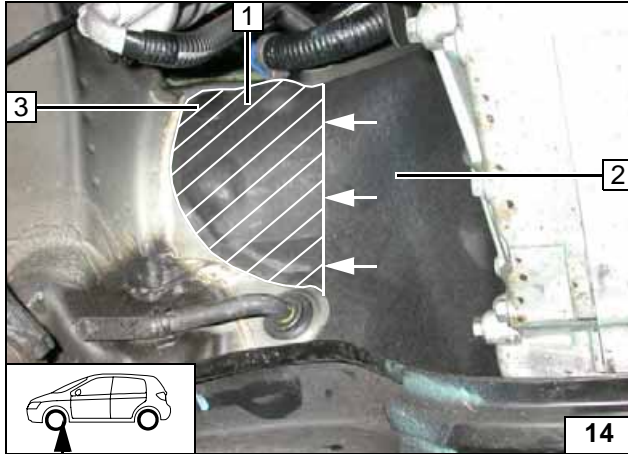
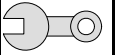


**Installing
receiver**



- 1 Antenna

**Installing
antenna**



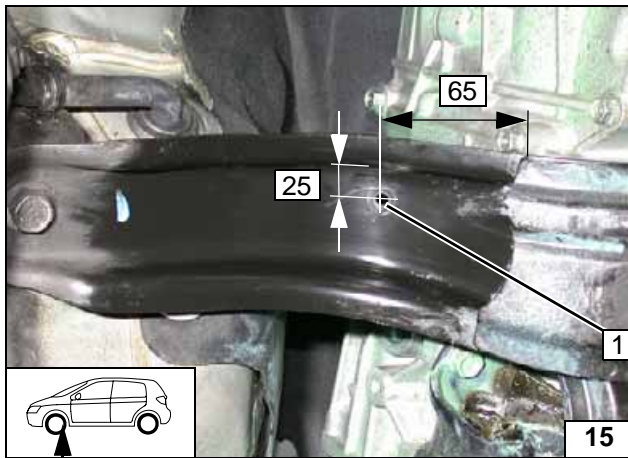
Preparing installation location

Cut insulation mat 2 at marking.

- 1 Discard section
- 3 Remove clip and discard

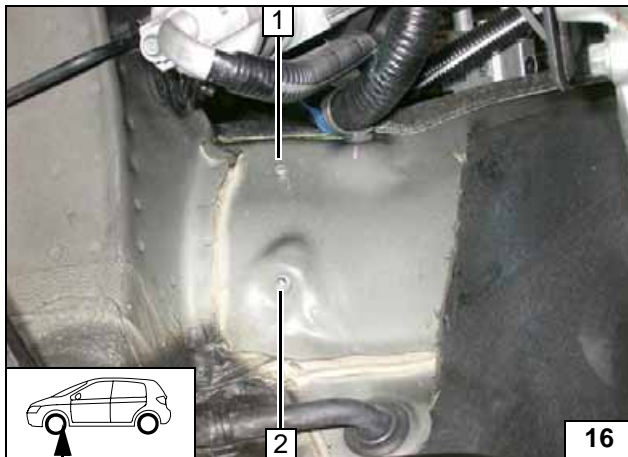


Cutting out insulating mat



- 1 7 mm dia. hole

Hole in transmission mounting

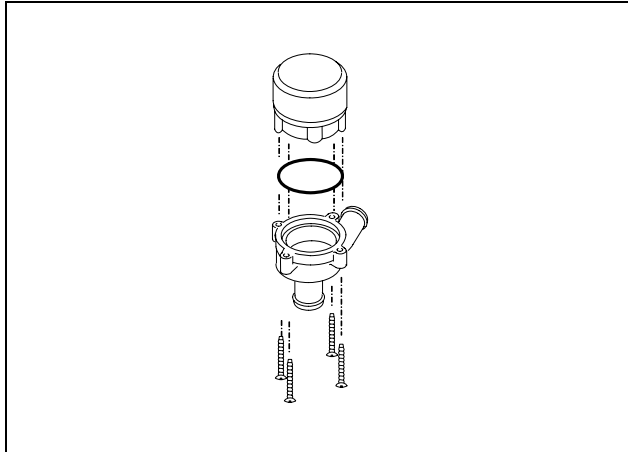
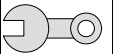


All bare metal body parts must be protected against corrosion!

- 1 Drill out 9.1 mm dia. hole; install rivet nut
- 2 Rivet nut in existing hole



Installing rivet nut

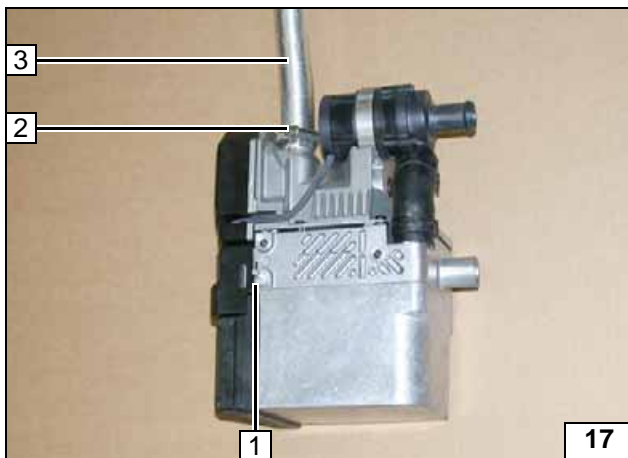


Preparing heater unit

Replace cover of circulating pump with axial cover.

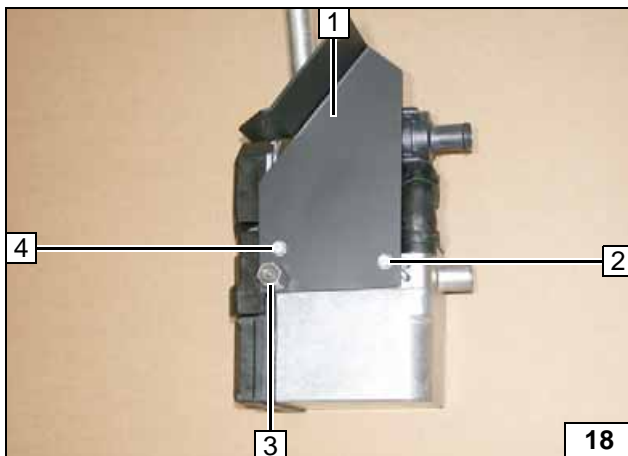


Replacing pump lid



- 1 Eجت stud
- 2 27 mm dia. clamp
- 3 Combustion air pipe

Preassembling heater unit

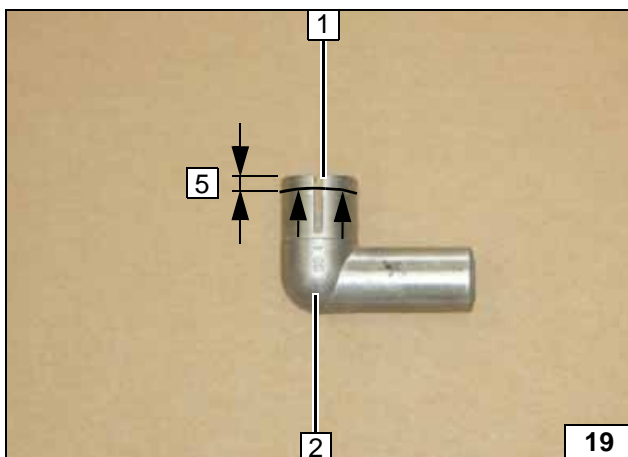


Insert three washers between heater unit and bracket 1 at Position 2 and one washer at Position 4.



- 1 Bracket
- 2 Eجت screw, washer [3x]
- 3 M6x30 spacer nut
- 4 Eجت screw, washer

Preassembling bracket on heater unit

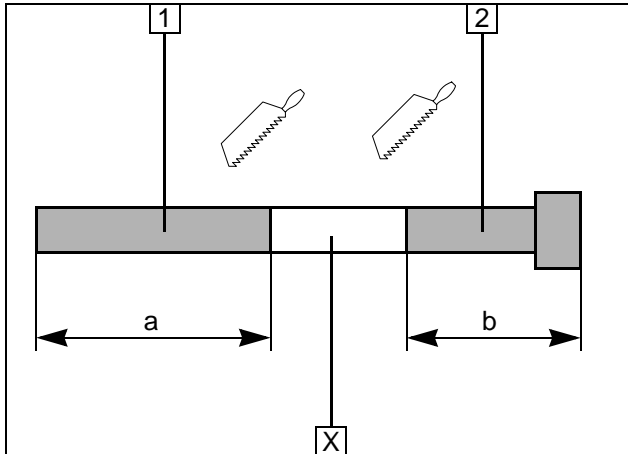
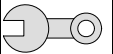


Shorten exhaust manifold 2 by 5 mm at marking.



- 1 Discard section

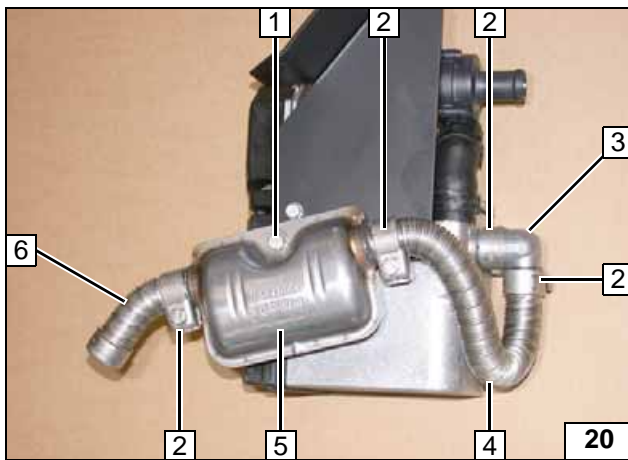
Shortening exhaust manifold



- 1 Exhaust pipe
a = 240
- 2 Exhaust end section
b = 80

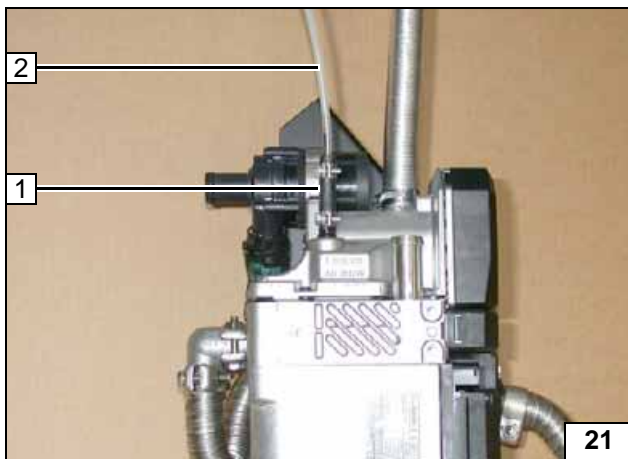
Discard section X

Preparing exhaust pipe



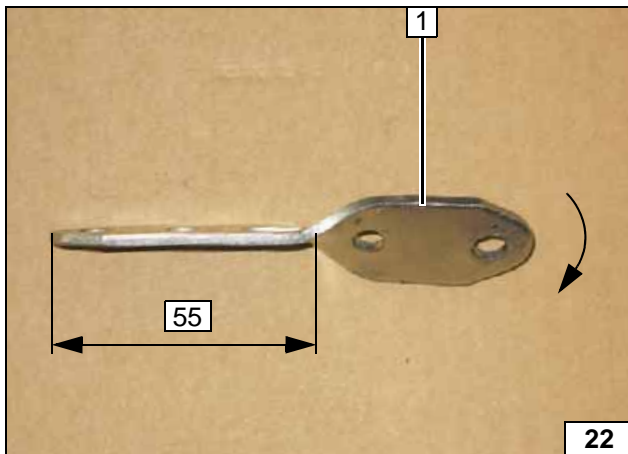
- 1 M6x16 bolt, spring lockwasher
- 2 Hose clamp [4x]
- 3 Exhaust manifold
- 4 Exhaust pipe
- 5 Exhaust muffler
- 6 Tail pipe

Preassembling exhaust system



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

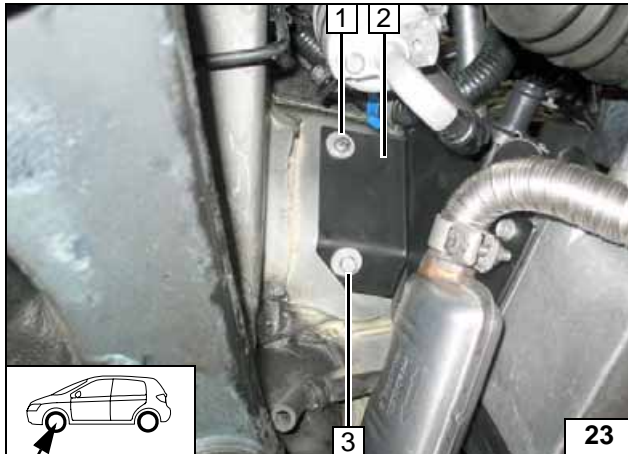
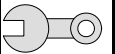
Premounting fuel line



Twist perforated bracket 1 by approx. 45°.



Preparing perforated bracket

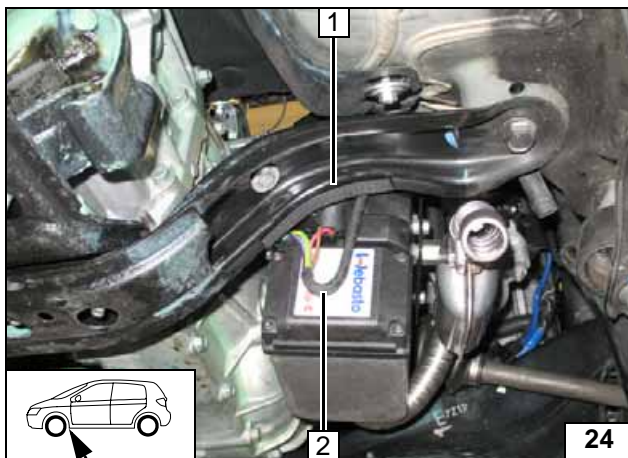


Installing heater unit

Insert 5 mm shim between bracket of heater unit 2 and body at Position 3.

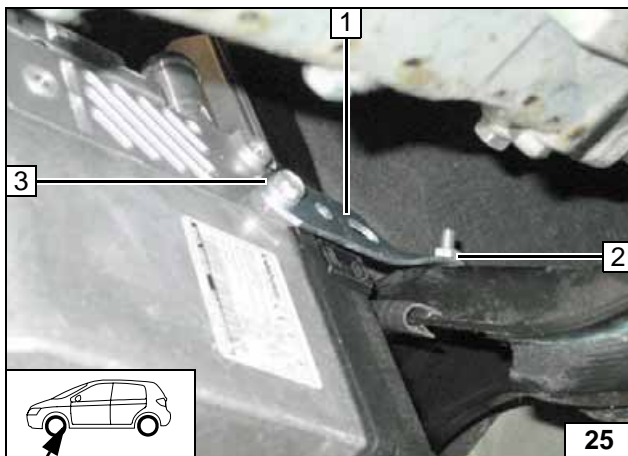
- 1 M6x20 bolt, spring lockwasher, large diameter washer
- 2 Bracket of heater unit
- 3 M6x25 bolt, spring lockwasher, large diameter washer, 5 mm shim

Installing heater unit



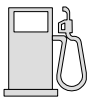
- 1 100 mm edge protection
- 2 Mount wiring harness of heater unit

Installing heater unit



- 1 Perforated bracket
- 2 M6x20 bolt, large diameter washer, flanged nut
- 3 E-jot screw

Installing heater unit



Fuel Connection

CAUTION!

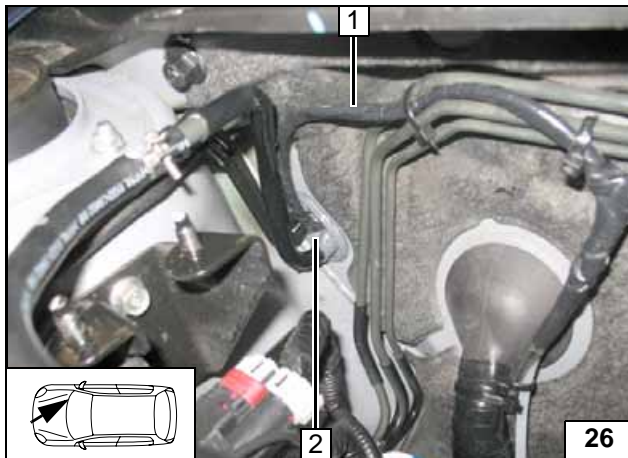
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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!

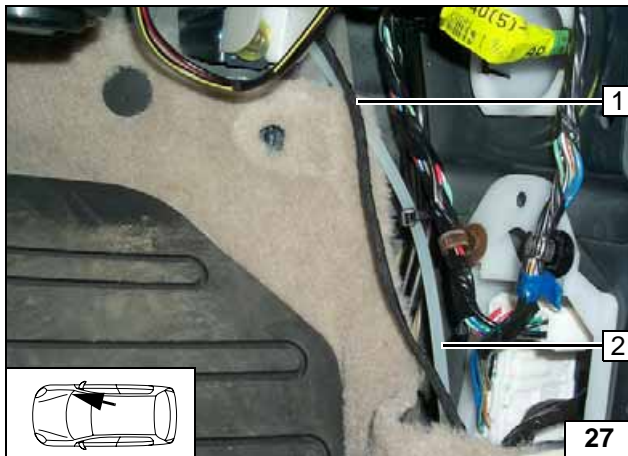
The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



Route fuel line and wiring harness of metering pump **1** along original vehicle lines in passenger compartment.

2 Original vehicle pass through

Routing lines in passenger compartment



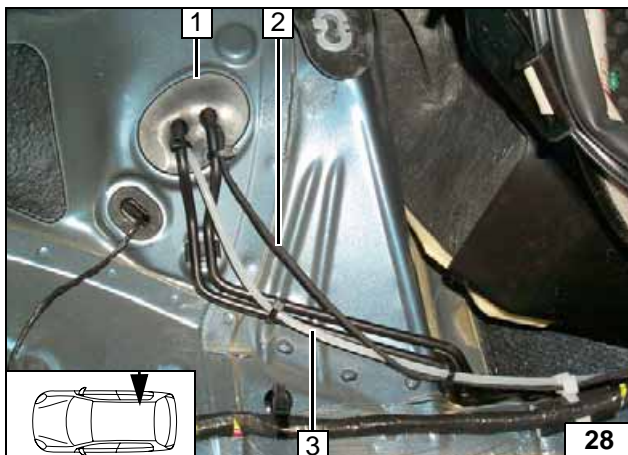
Route fuel line under door sill cover to rear.

1 Metering pump wiring harness

2 Fuel line



Routing lines in passenger compartment

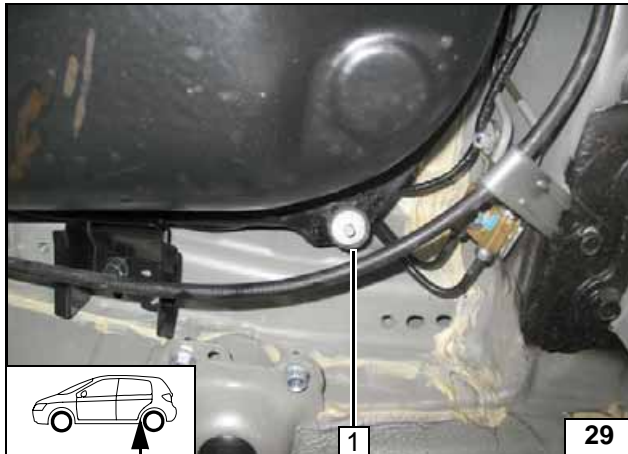
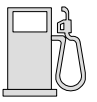


1 Protective rubber plug

2 Metering pump wiring harness

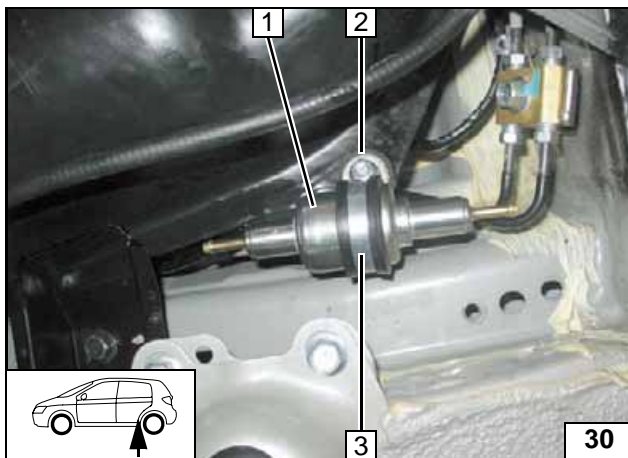
3 Fuel line

Installing lines to underbody



1 Existing hole, silent block, flanged nut

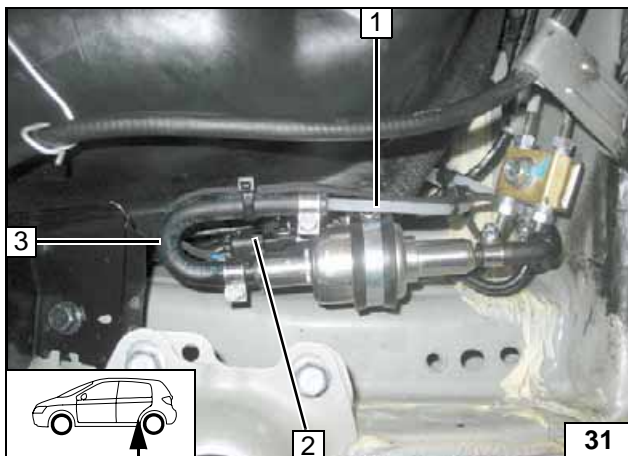
Installing silent block



1 Metering pump
2 Flanged nut
3 Rubber-coated pipe clamp

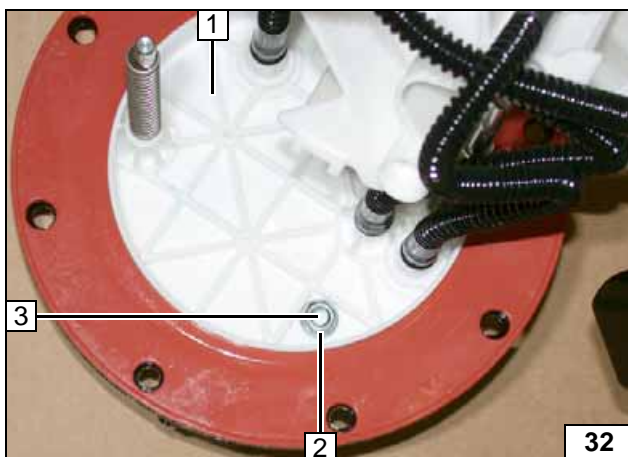


Installing metering pump



1 Fuel line
2 Wiring harness of metering pump, connector mounted
3 180° molded hose, 10 mm dia. hose clamp [2x]

Connecting metering pump

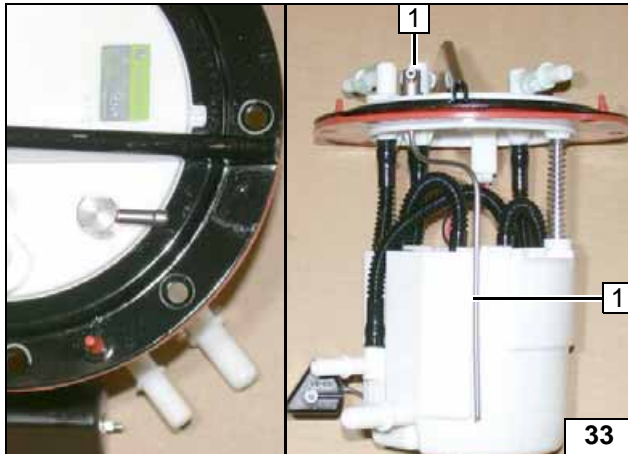


Remove and dismantle fuel-tank sending unit on right 1 according to manufacturer's instructions.

2 Flanged nut
3 Copy hole pattern, 6 mm dia. hole



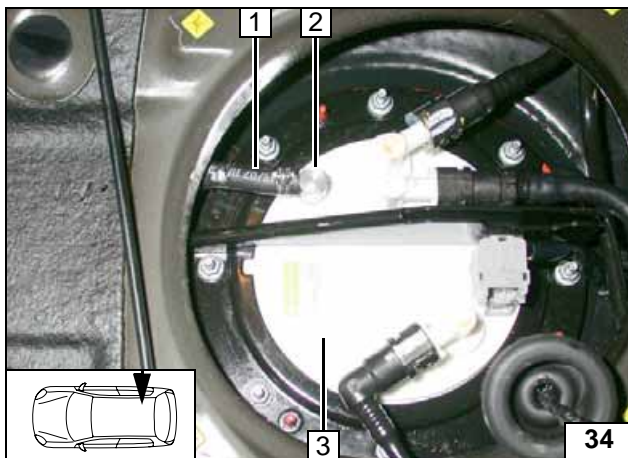
Preparing fuel removal



Shape fuel standpipe 1 according to template, cut to length and install. Complete fuel-tank sending unit.



Installing fuel standpipe

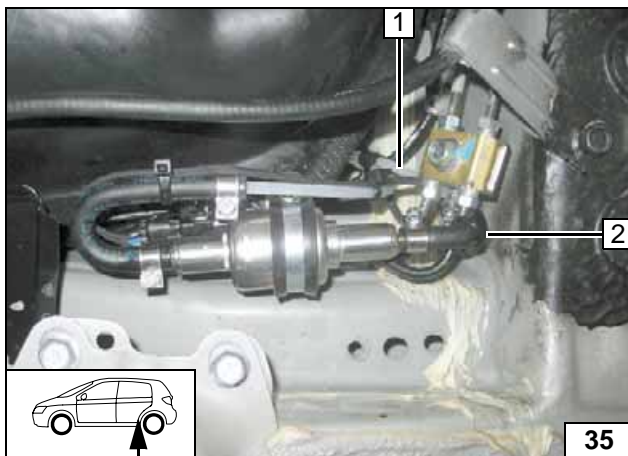


Install fuel-tank sending unit 3 in accordance with manufacturer's instructions.

- 1 Fuel line, hose section, 10 mm dia. clamp [2x]
- 2 Fuel standpipe



Connecting fuel line

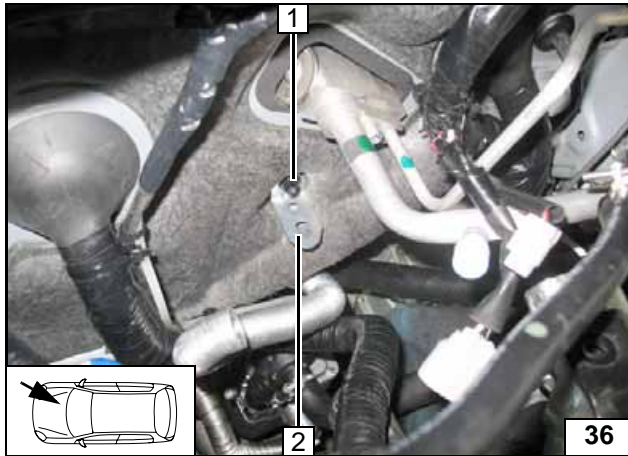
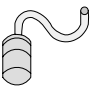


Check the position of the components; adjust if necessary. Check that they have free clearance.

- 1 Fuel line
- 2 90° molded hose, 10 mm dia. hose clamps [2x]



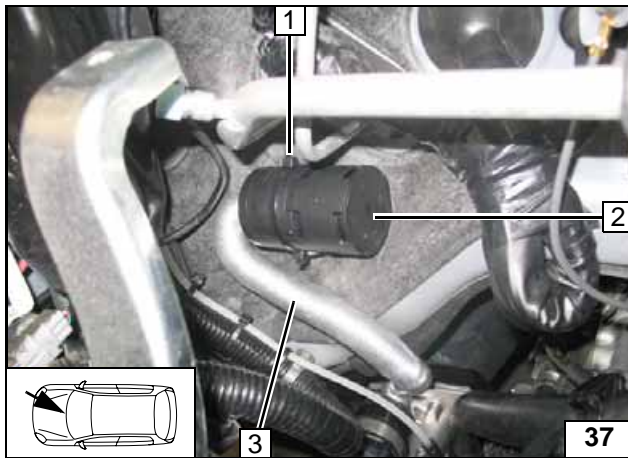
Connecting metering pump



Combustion air

- 1 Original vehicle stud bolt, plastic nut
- 2 Angle bracket

Installing angle bracket



- 1 Cable tie
- 2 Muffler
- 3 Combustion air pipe



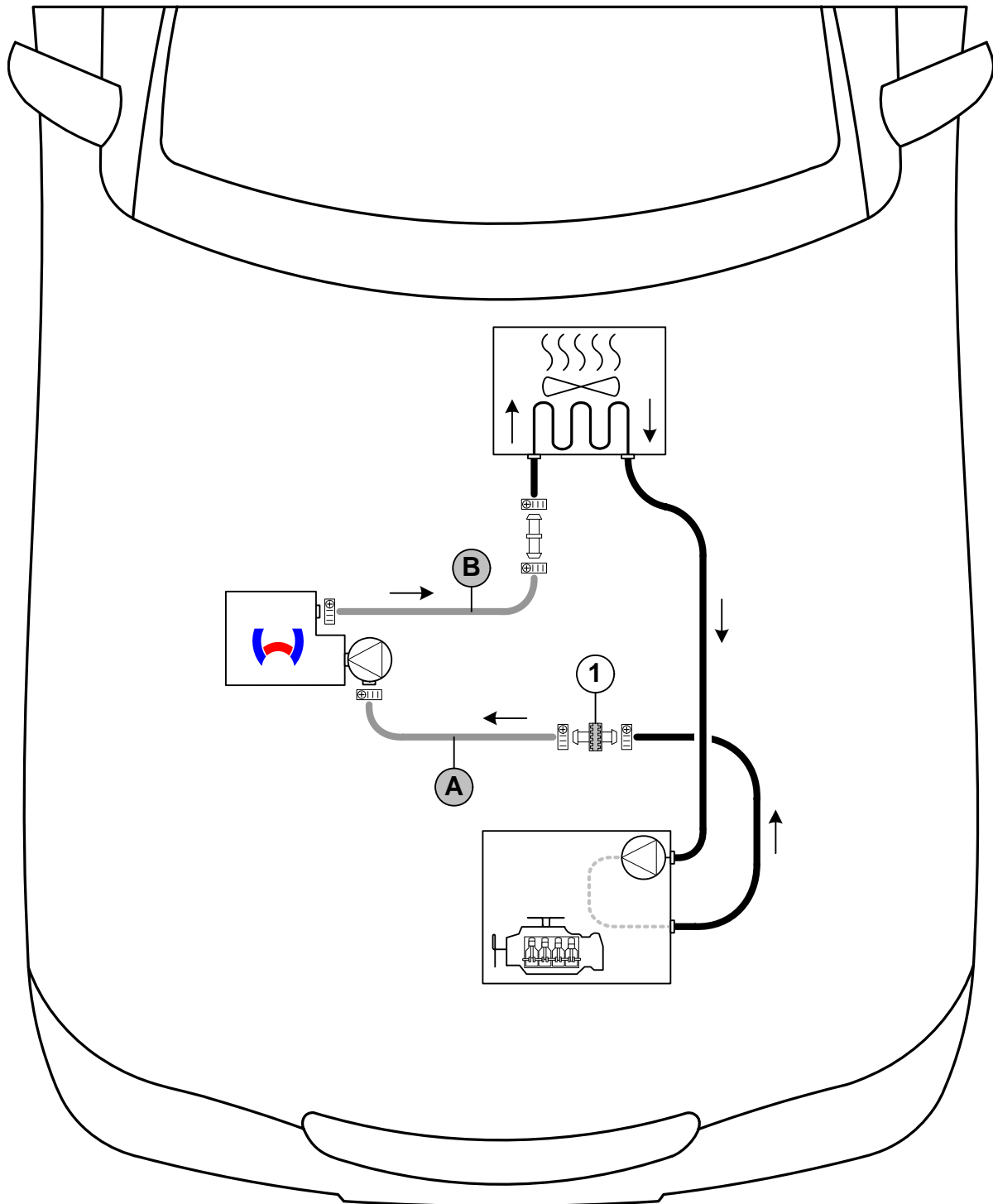
Installing muffler






Coolant

WARNING!

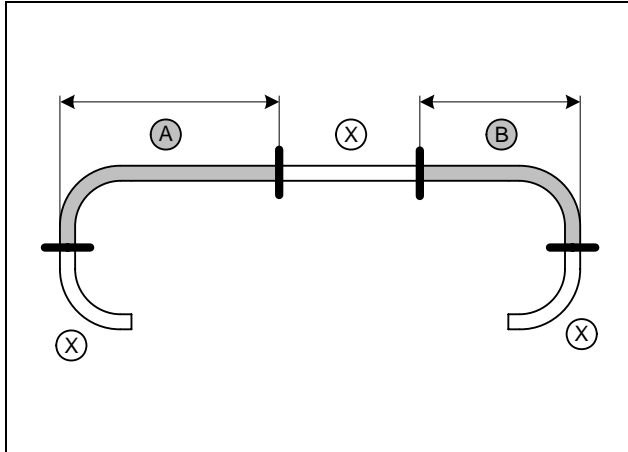
Any coolant running off should be collected using an appropriate container. Install coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can be damaged! When installing the coolant hose, the heater unit must be filled with coolant. The connection should be "inline" based on the following diagram:



Coolant routing diagram

All connecting pipes  = 15x20 dia. All hose clamps  = 20-27 mm dia.
1 = Black (sw) rubber isolator .

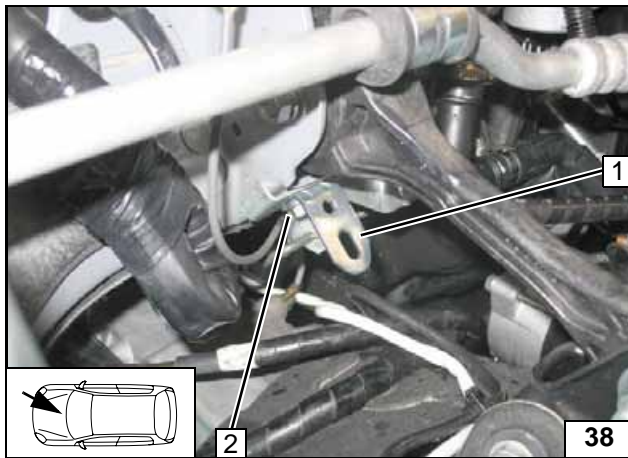




a = 430
b = 490

Discard section X

Cutting coolant hoses to length

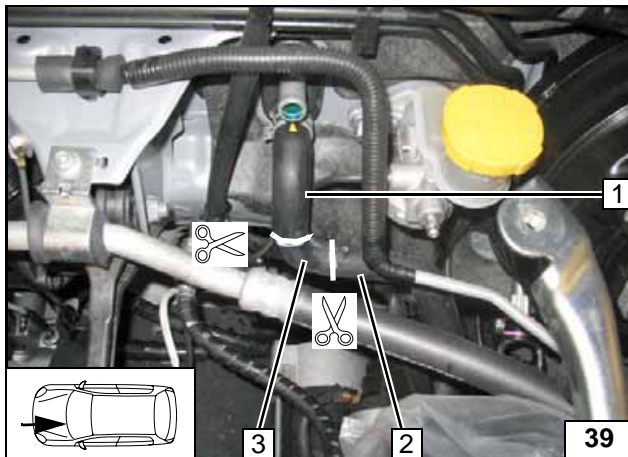


Drill out angle bracket 1 at position 2 to 8.5 mm dia.

2 Original vehicle bolt



Installing angle bracket

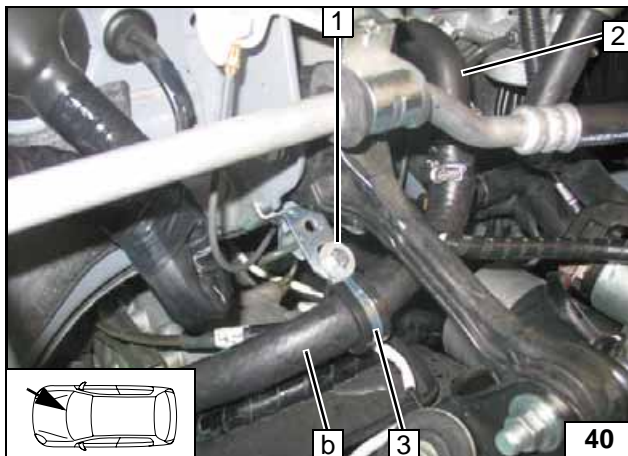


Hose on engine inlet/heat exchanger outlet removed for demonstration purposes.

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

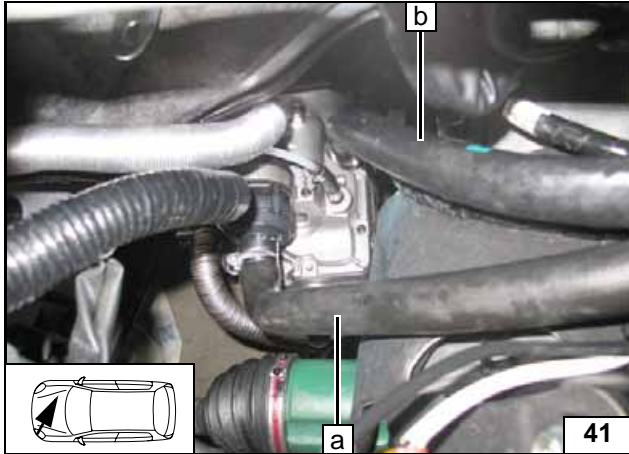


Cutting point

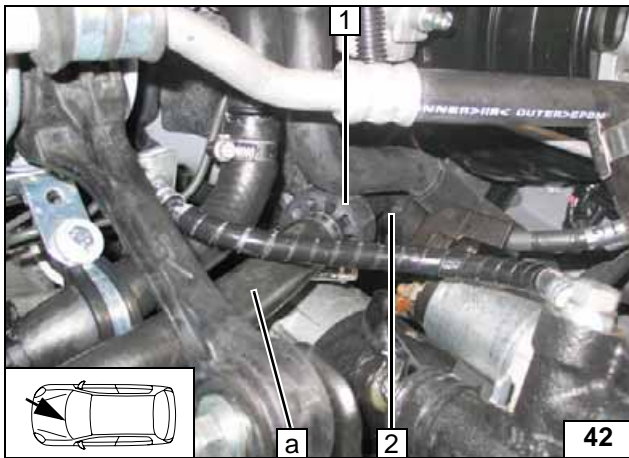


- 1 M6x20 bolt, large diameter washer, flanged nut
- 2 Hose on heat exchanger inlet
- 3 Rubber-coated pipe clamp

Connecting heat exchanger inlet

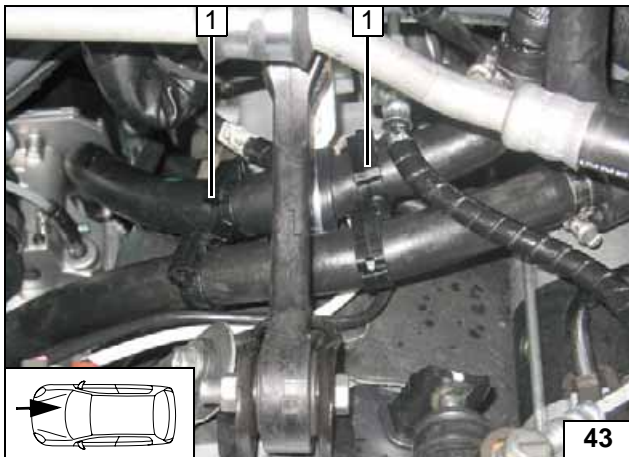


Connect-
ing heater
unit



- 1 Black (sw) rubber isolator
- 2 Hose of engine outlet

Connect-
ing engine
outlet

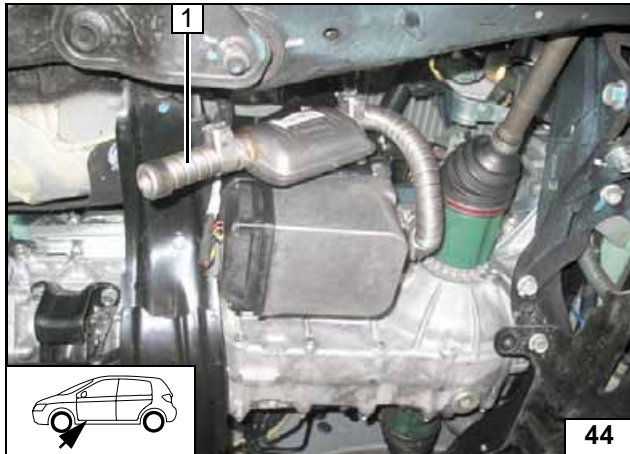
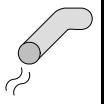


Ensure sufficient distance to neighboring components.

- 1 Lockable spacer bracket [2x]



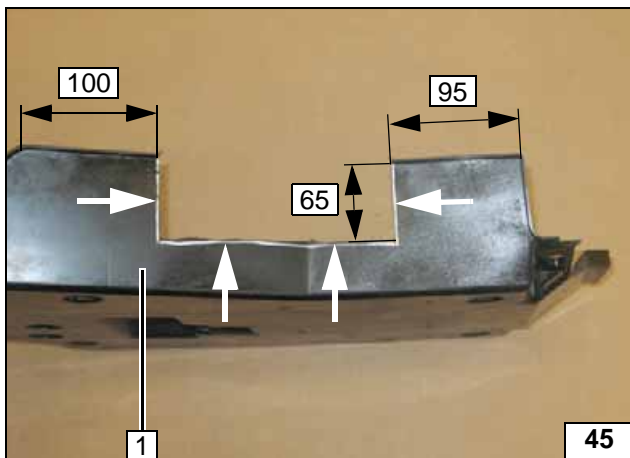
Aligning
hoses



Exhaust end section

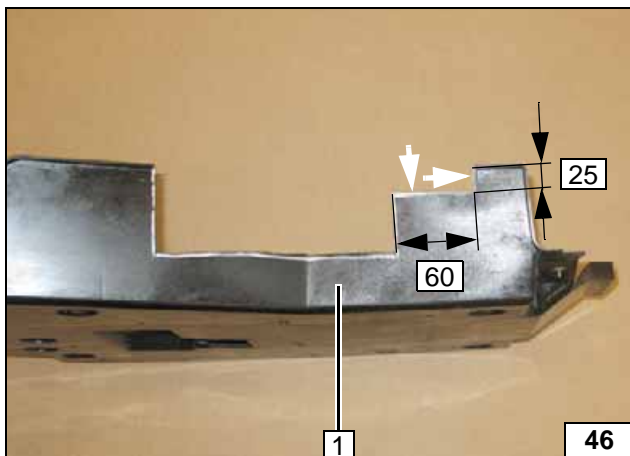
1 Exhaust end section

Aligning exhaust end section



1 Lower transmission cover

Cutting out transmission cover



1 Lower transmission cover



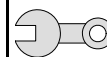
Cutting out transmission cover



Install lower transmission cover 1. Ensure sufficient distance to adjacent components (minimum distance to heater unit 10 mm and to exhaust pipe 20 mm).



Installing cover



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.

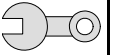
Only use manufacturer-approved coolant.

Spray heater unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

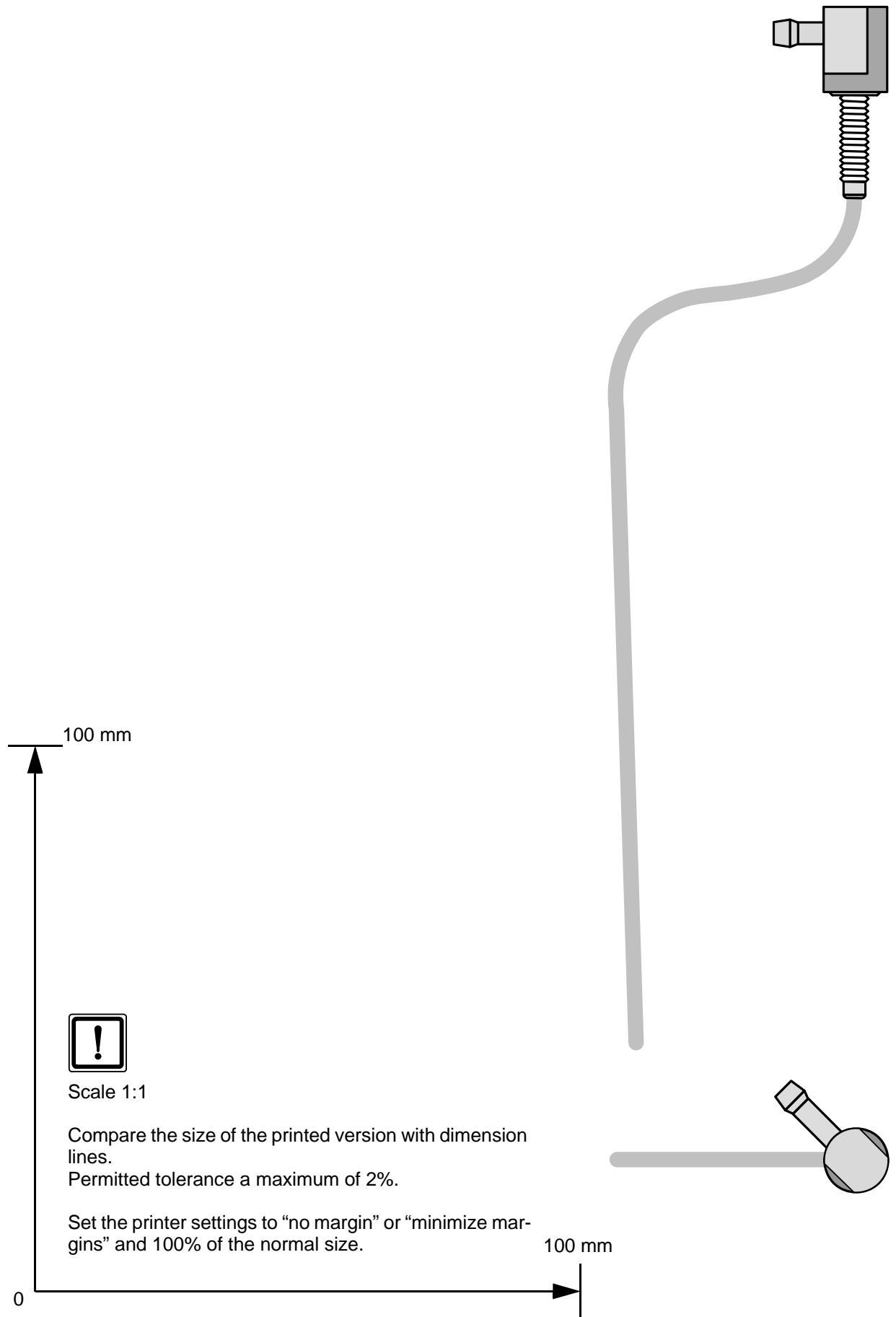
- Connect the battery.
- Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.
- Set the digital timer.
- Make settings on A/C control panel according to the "Operating Instructions for End Customer".
- Check the proper operation of the additional heater, see the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



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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.

On vehicles with passenger compartment monitoring, this must be deactivated during heating!



Before parking the vehicle, make the following settings:



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

**Automatic
air-condi-
tioning**