

# Water Heater Unit



**Thermo Top E Additional Heater** <sup>e1</sup> 00 0003

**Thermo Top C Additional Heater** <sup>e1</sup> 00 0002

**Thermo Top P Additional Heater** <sup>e1</sup> 00 0104

## Installation Instructions

### Toyota Avensis

Gasoline

from Model Year 2009

For left-hand drive vehicles only

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, 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
Toyota	Avensis	T27	e11 * 2001/116 * 0331*

Engine type	Engine model	Output in kW	Displacement in cm <sup>3</sup>
2ZR	Gasoline	108	1798
3ZR	Gasoline	112	1987

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 Unit/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories with desired heater control	See price list
1	Installation kit for Toyota Avensis Gasoline	1314631A

### Heater unit recommended for the respective vehicle class:

Vehicle	Heater Unit
Compact car	Thermo Top E
Mid-size car, station wagon	Thermo Top C
Full-size car, van, offroader	Thermo Top P

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 Toyota Avensis Gasoline 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 must be provided with rub protection (cut-open fuel hose)!

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

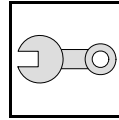
## Special Tools

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

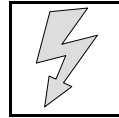
**Explanatory Notes on Document**

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.

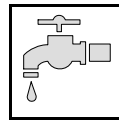
**Mechanical system**



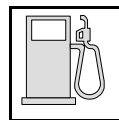
**Electrical system**



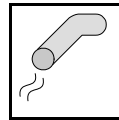
**Coolant connection**



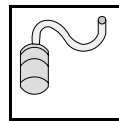
**Fuel connection**



**Exhaust system**



**Combustion air**



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



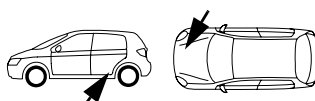
Specific risk of fire or explosion.



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!**

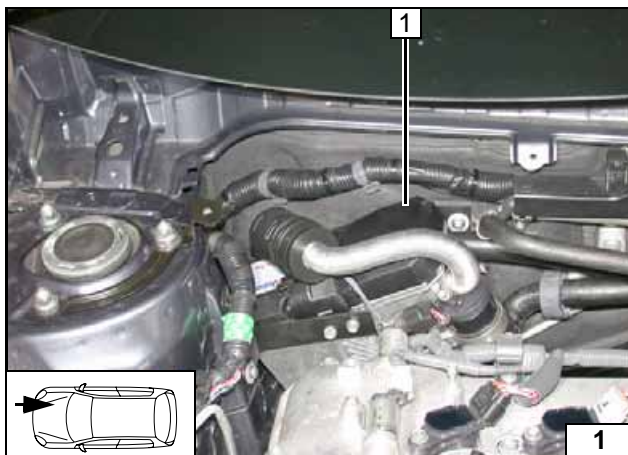
**Tightening torque of Ejet screws, Ejet studs = 10 Nm!**

**Preliminary Work**

**WARNING!**

- Remove the engine design cover.
- Remove the windshield wipers.
- Remove the coolant reservoir cap.
- Remove the coolant reservoir trim and windshield wiper linkage
- Remove the vacuum line of the brake booster.
- Open the fuel tank cap and vent the fuel tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Remove the battery 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 rear bench seat.
- Open the fuel sender service lid.
- Remove fuel-tank sending unit in accordance with manufacturer's instructions.
- Remove the footwell trim on the driver's side
- Remove the side trim of the center console in the driver's side footwell.
- Remove the AC booster.
- Remove the loudspeaker cover at the upper left on the instrument panel (only with Telestart).
- Remove the left-hand side cover from the instrument panel (only with Telestart)

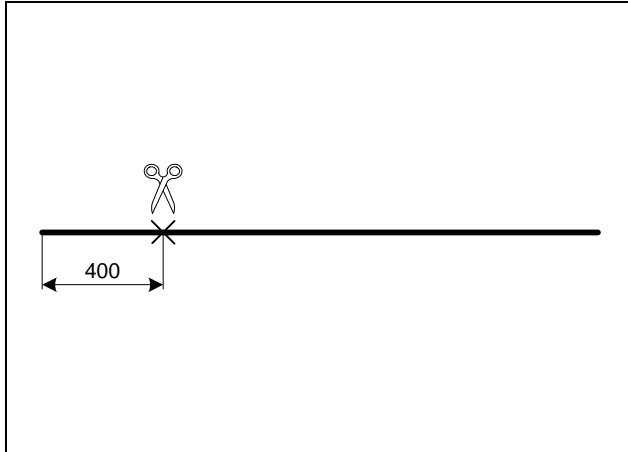
Remove page 23 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



**Heater unit installation location**

1 Heater unit

**Installation location**



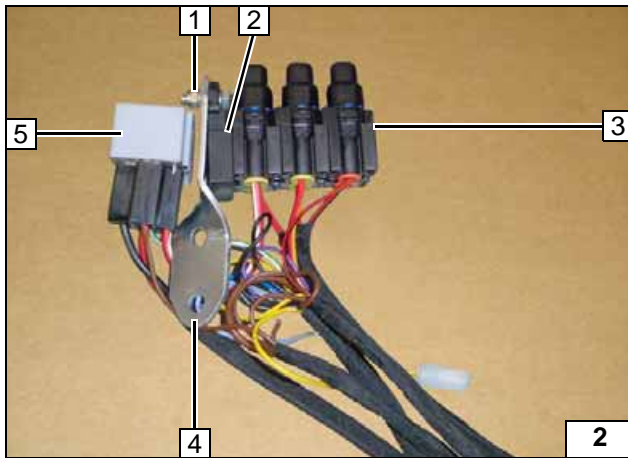
**Preparing electrical system**

**All vehicles**

Cut corrugated tube provided to length.



**Cutting corrugated tube to length**



Replace 25 A fuse F3 with 10 A fuse.

- 1 M5x20 bolt, washer, flanged nut
- 2 Retaining plate for fuse holder
- 3 Fuses pushed on
- 4 Perforated bracket twisted
- 5 K3 relay



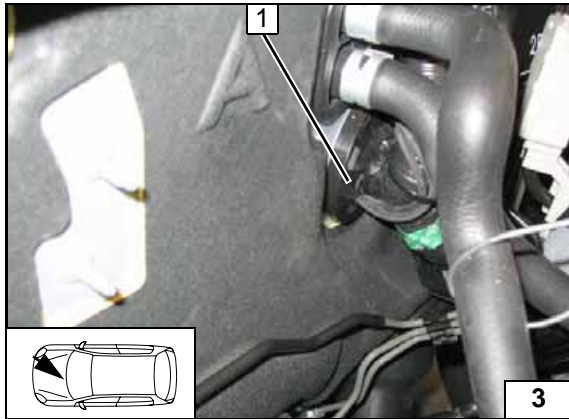
**Preparing wiring harness**



### Electrical Connections

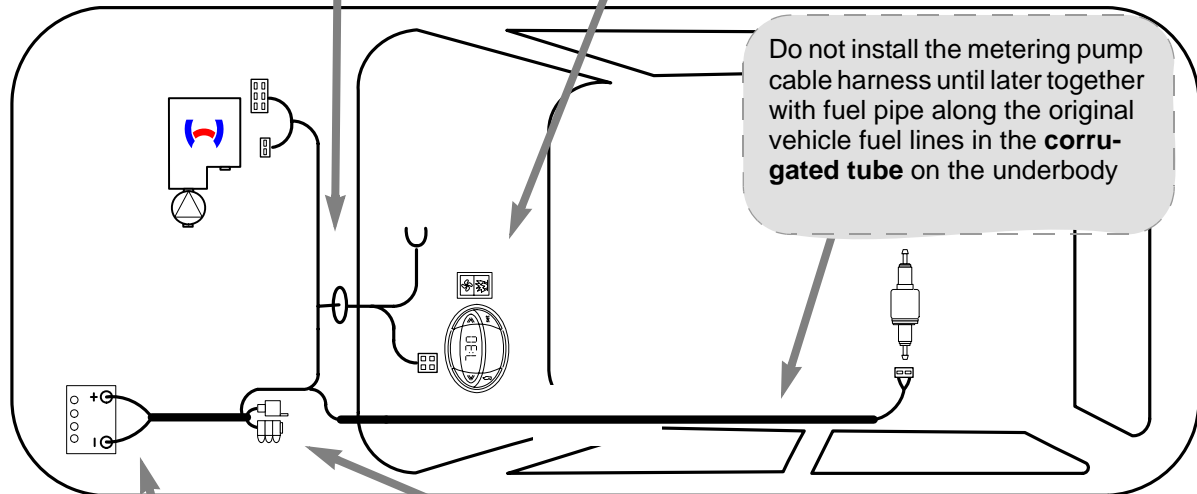
#### Wiring harness pass through

- 1 Protective rubber plug



#### Digital timer and summer/winter switch option

- 1 Digital timer
- 2 Summer/winter switch

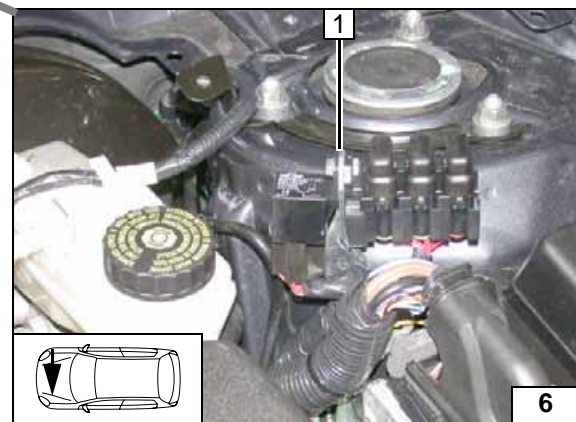


Wiring harness installation diagram



#### Connection to battery

- 1 400 mm long corrugated tube on line for power supply of heater-unit wiring harness
- 2 8 mm dia. claw cable lug, ground supply
- 3 8 mm dia. claw cable lug, positive supply

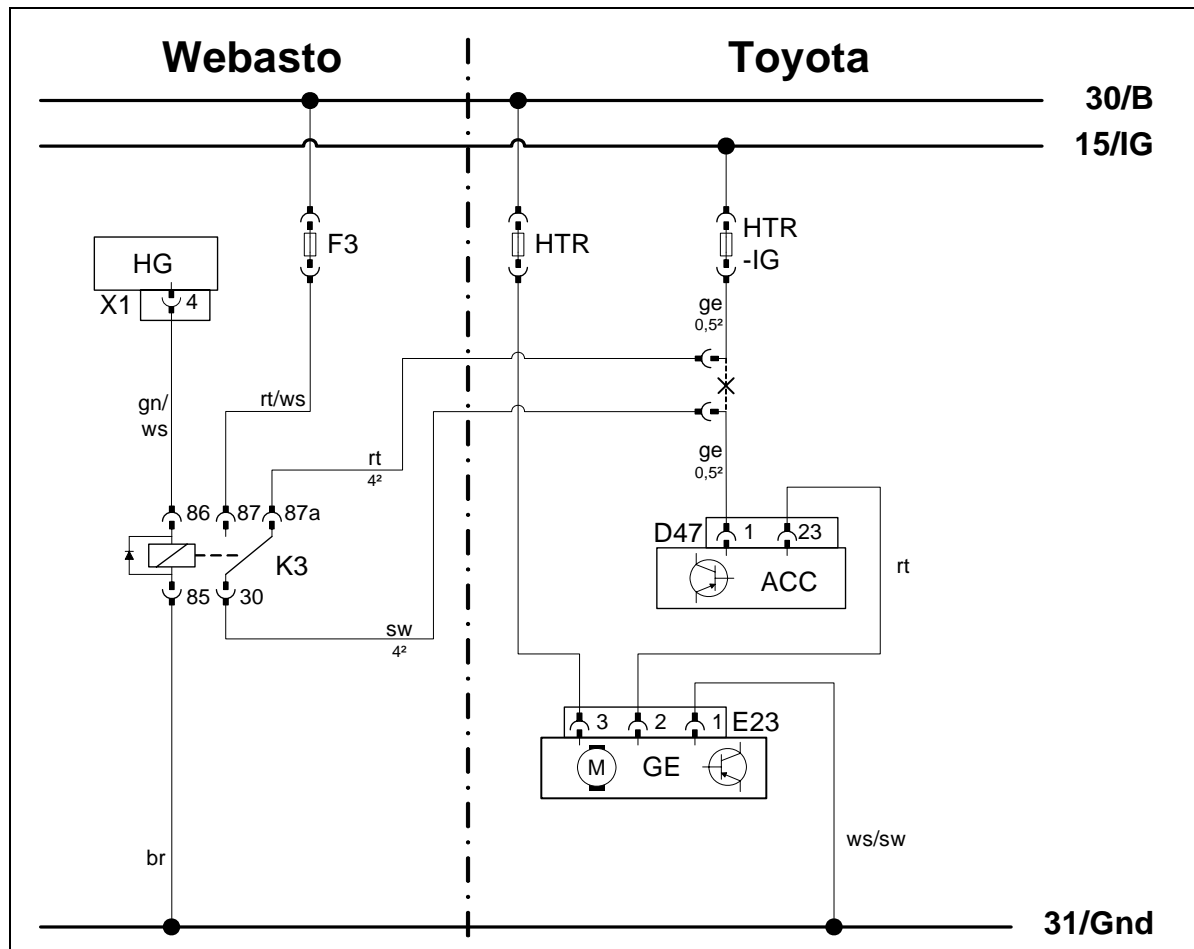


#### Fuse holder, relay K3

- See wiring diagram.
- 1 Perforated bracket, original vehicle bolt



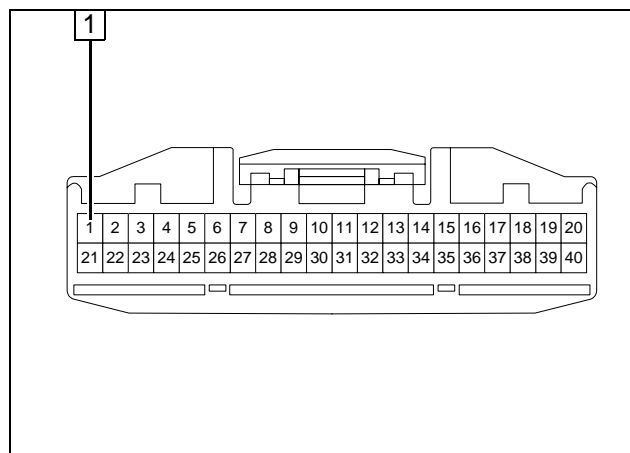
Fan controller



Wiring diagram

Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	ge	Fan unit	rt	red
X1	6-pin connector	E23	GE connector	ws	white
F3	Replace 25 A with 10 A fuse.	ACC	AC control	sw	black
K3	Fan relay	D47	40-pin ACC connector	br	brown
		HTR	Fuse 30A	gn	green
		HTR-IG	10 A fuse	ge	yellow
				X	Cutting point
				Wiring colors may vary.	

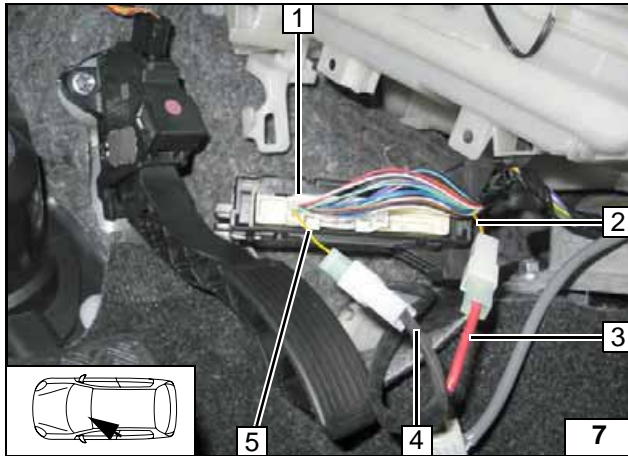
Legend



1 Connector D47 on contact side (PIN 1)

Connector D47



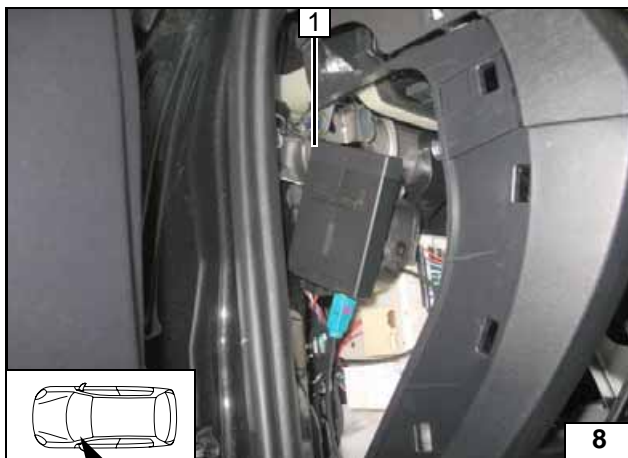


Connection to 40-pin connector **1** from ACC  
Produce connections as shown in wiring diagram.

- 2 Yellow (ge) wire HTR/IG
- 3 Red (rt) wire from K3/87a
- 4 Black (sw) wire from K3/30
- 5 Yellow (ge) wire of connector D47/1



**Connec-  
tion to ACC**

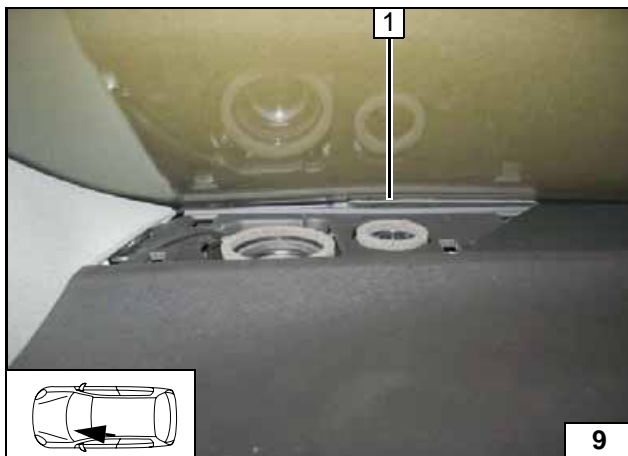


**Remote option (Telestart)**

Fasten receiver **1** with adhesive tape.



**Installing  
receiver**

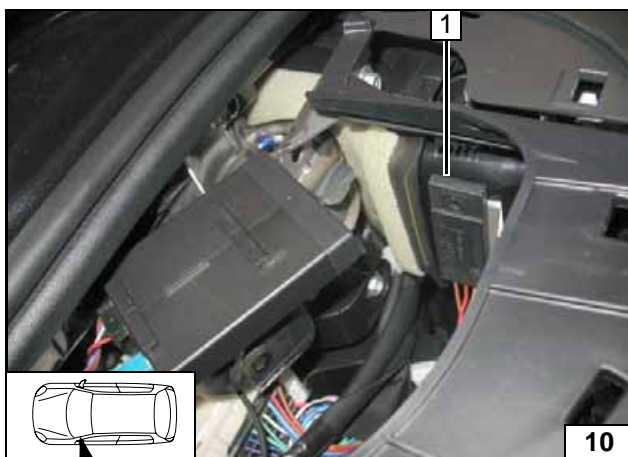


Remove loudspeaker cover.

- 1 Antenna



**Installing  
antenna**

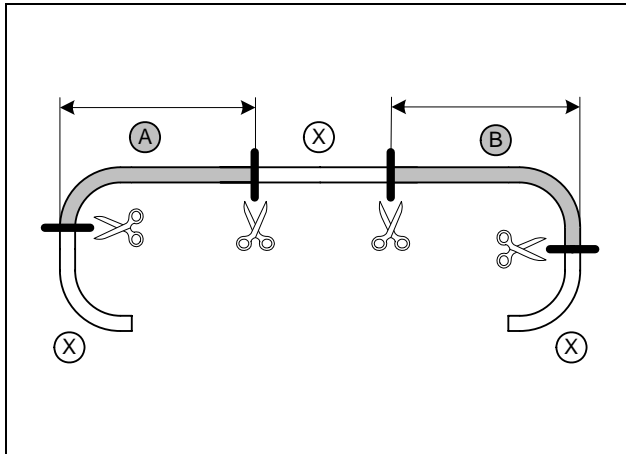
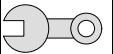


**Temperature sensor only with T100 HTM**

Fasten receiver **1** with adhesive tape.



**Installing  
tempera-  
ture sensor**

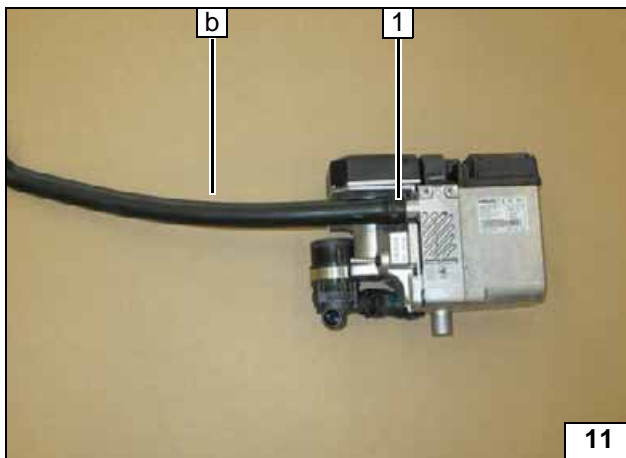


**Preparing heater unit**

a = 400  
b = 480

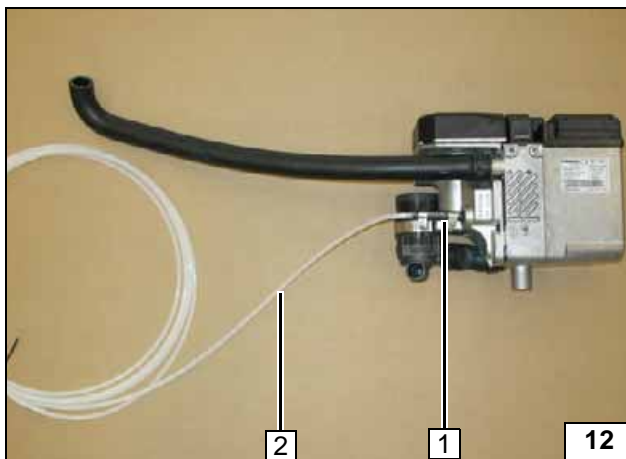
Discard section X

**Cutting coolant hoses to length**



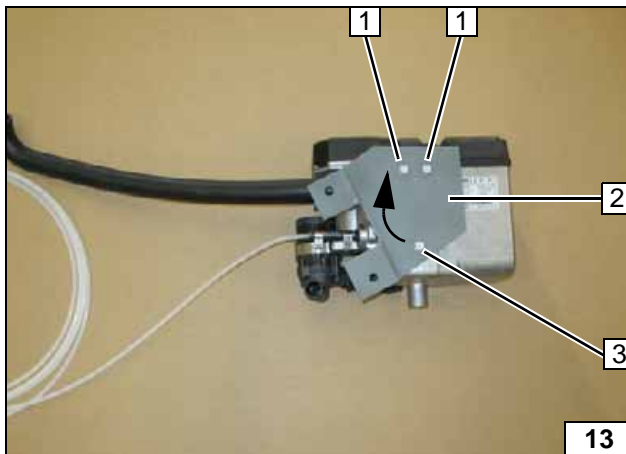
1 27 mm dia. spring clip

**Premounting coolant hose B**



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

**Premounting fuel line**

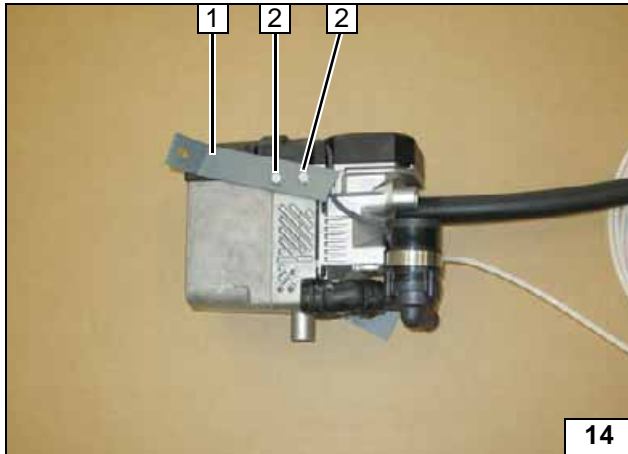
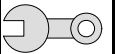


Align bracket 2 in direction of arrow. Insert two washers between heater unit and bracket 2 at position 3.

1 E-jot screw [2x]  
3 E-jot screw, washer [2x]



**Premounting bracket**

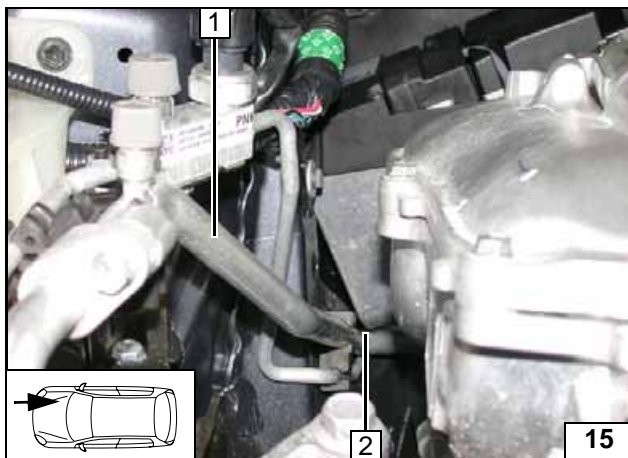


Loosely mount strut 1 .

2 E-jot screw [2x]



Preassembling strut

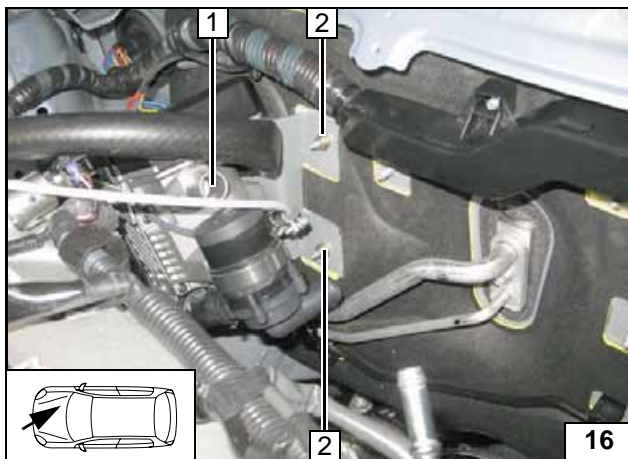


**Installing heater unit**

Ensure sufficient clearance at between heater unit and A(C line 1 at position 2.



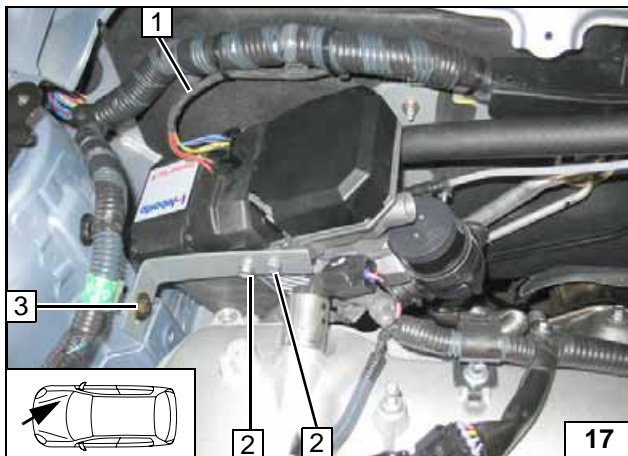
Installing heater unit



1 Premounted heater unit

2 Original vehicle stud bolt, M6 flanged nut

Installing heater unit



Align heater unit and tighten E-jot screws at position 2 [2x]. Connect wiring harness 1 on heater unit.

3 Original vehicle threaded hole, M6x20 bolt, spring lockwasher, large diameter washer



Installing heater unit



**Fuel**

**CAUTION!**

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

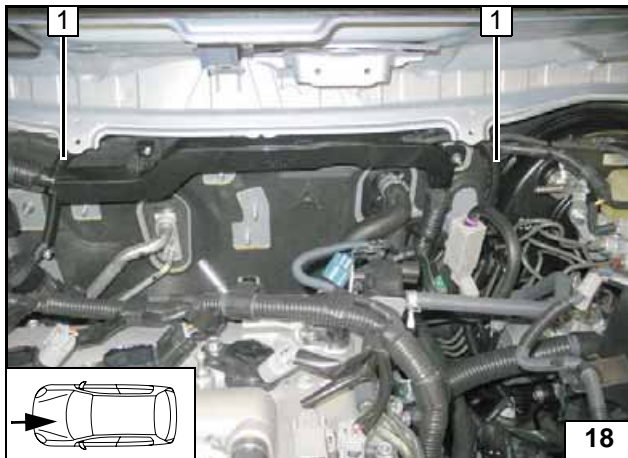
Catch any fuel running off with an appropriate container.

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.



Slide 730 mm corrugated tube **1** onto fuel line from heater unit and route to left-hand side of vehicle.

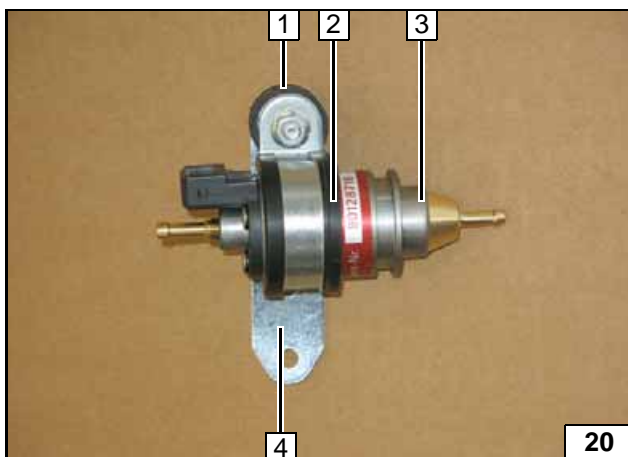
Installing fuel line



Route fuel line and wiring harness of metering pump in 1130 mm corrugated tube **1** [2x] along original vehicle lines and secure with cable ties.



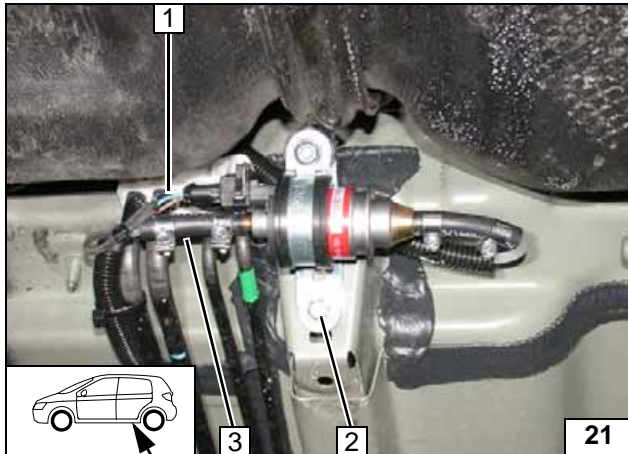
Installing lines



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

Premounting metering pump

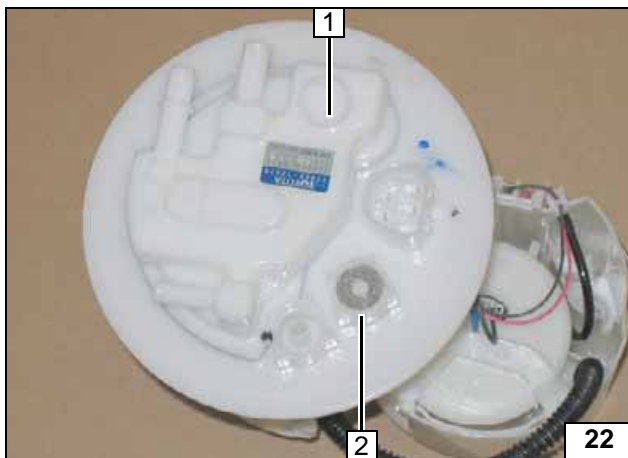




- 1 Wiring harness of metering pump, connector mounted
- 2 M6x20 bolt, spring lockwasher, original vehicle threaded hole
- 3 Fuel line, hose section, 10 mm dia. clamp [2x]



## Installing metering pump

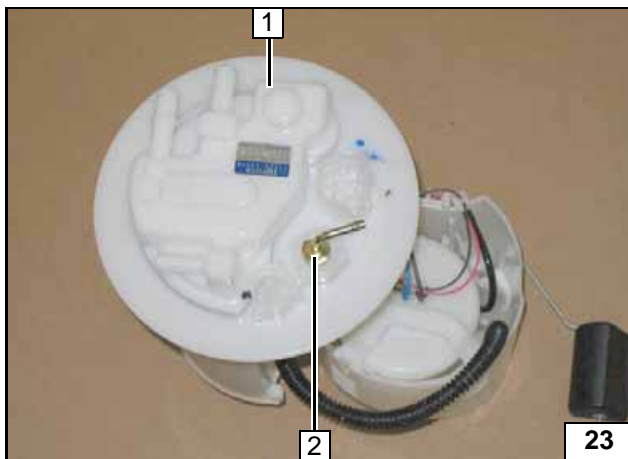


Remove fuel-tank sending unit 1 in accordance with manufacturer's specifications.

- 2 Washer, outside dia. = 17.6 mm; copy hole pattern, 6 mm dia. hole



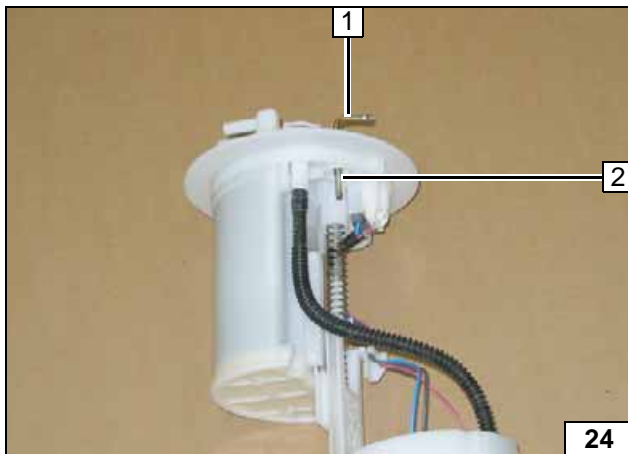
## Removing fuel



- 1 Fuel-tank sending unit
- 2 Fuel standpipe



## Installing fuel standpipe

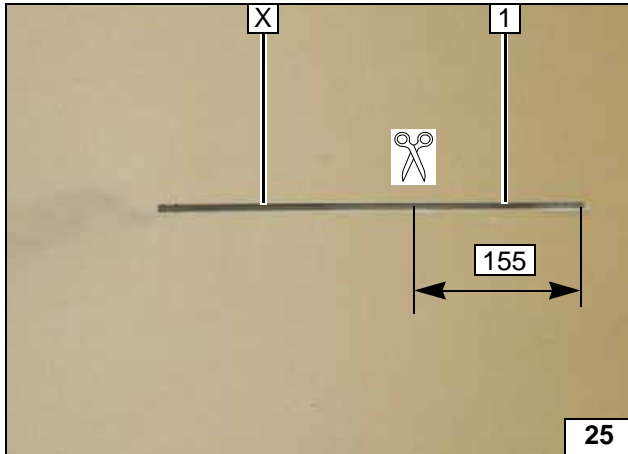


Tightening torque 5 Nm.

- 1 Fuel standpipe
- 2 M6 nut, self-locking



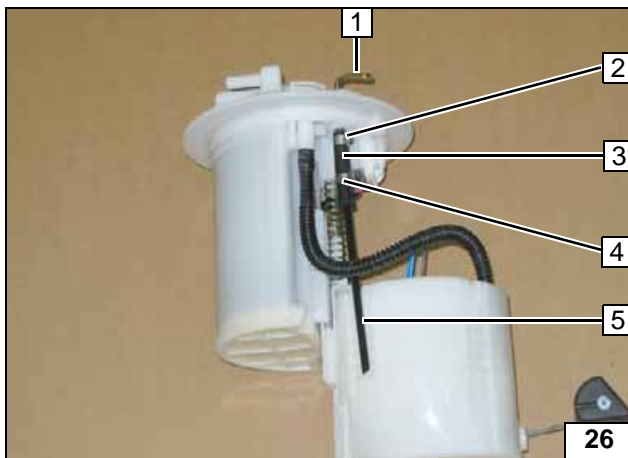
## Installing fuel standpipe



Cut standpipe **1** to length as shown and discard section **X**.



**Cutting standpipe to length**

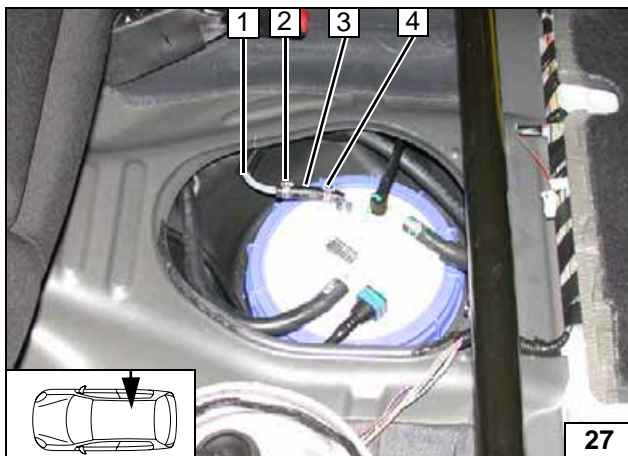


Molded hose **3** with 3.5 mm dia. on fuel standpipe **1**.

- 2** 8 mm dia. Caillau clamp
- 4** 10 mm dia. Caillau clamp
- 5** Standpipe



**Installing standpipe**

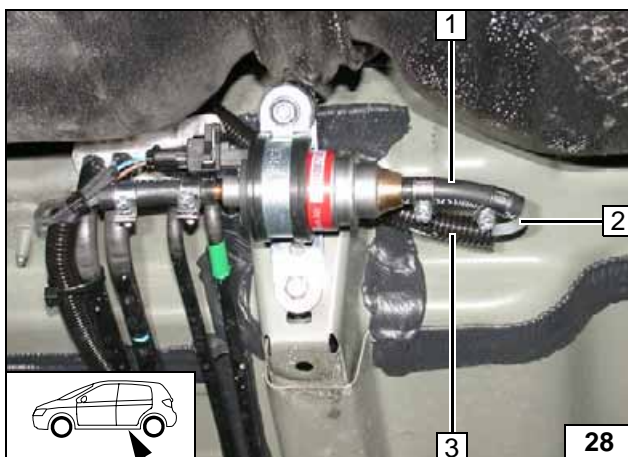


Install fuel-tank sending unit in accordance with manufacturer's instructions.  
Molded hose **3** with 3.5 mm dia. on fuel standpipe.

- 1** Fuel line
- 2** 10 mm dia. Caillau clamp
- 4** 8 mm dia. Caillau clamp



**Removing fuel**

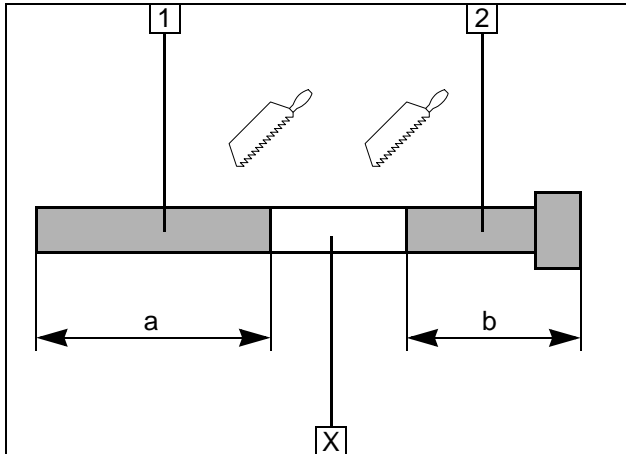
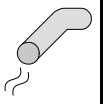


Slide 400 mm corrugated tube **3** onto fuel line **2**. Check the position of the components; adjust if necessary. Check that they have free clearance.

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



**Connecting metering pump**

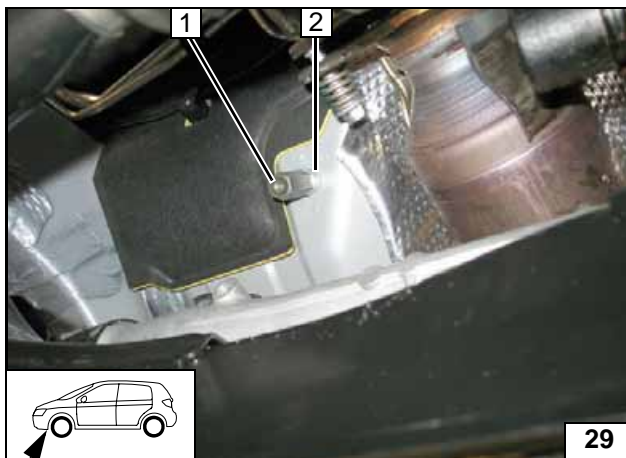


**Exhaust gas**

- 1 Exhaust pipe  
a = 250
- 2 Exhaust end section  
b = 440

Discard section X

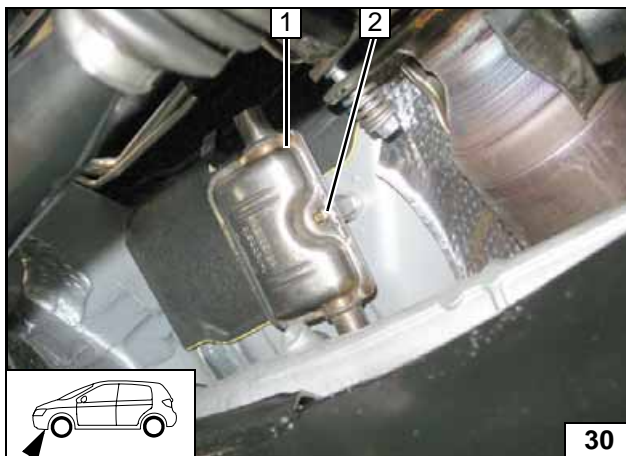
**Preparing exhaust pipe**



Install 10 mm shim 2 and M6x40 1 spacer nut on original vehicle stud bolt.

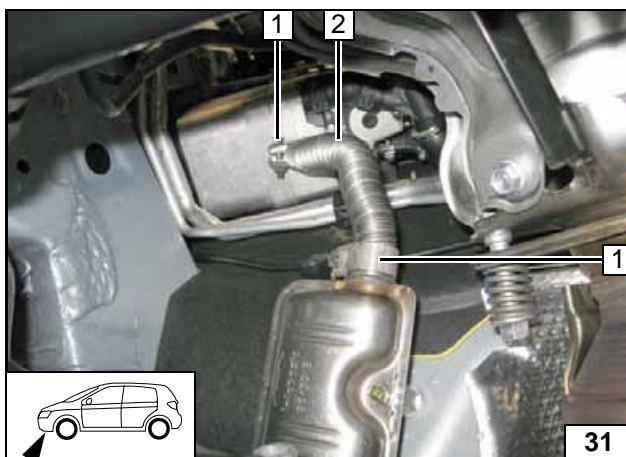


**Preparing muffler installation**



- 1 Exhaust muffler
- 2 Spring lockwasher, M6x20 bolt

**Installing muffler**

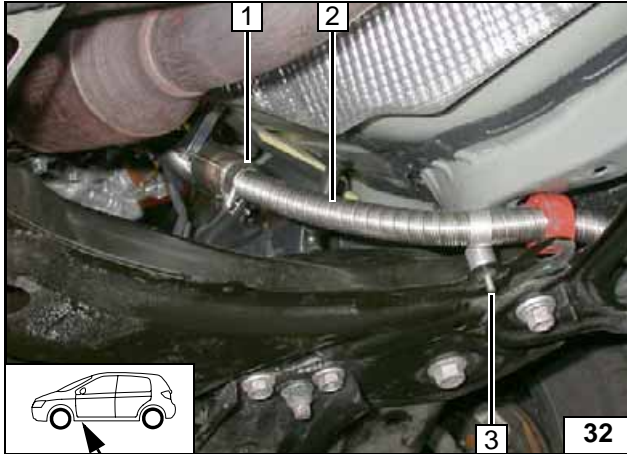
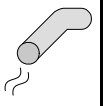


Check position of all components and adjust if necessary. Check that they have free clearance.

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

**Installing exhaust pipe**

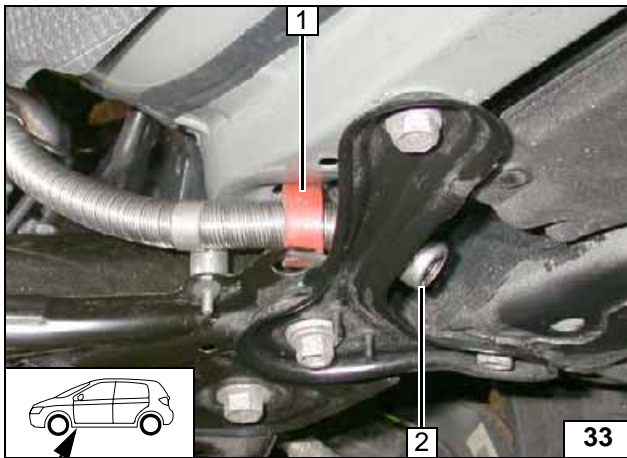




- 1 Hose clamp
- 2 Exhaust-pipe end section
- 4 M6x40 bolt, p-clamp, 20 mm shim, original vehicle hole, pin lock



**Installing exhaust-pipe end section**

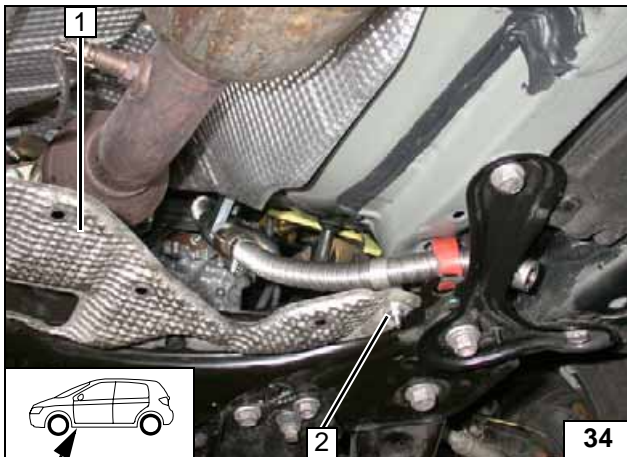


Check position of all components and adjust if necessary. Check that they have free clearance. Aligning red (rt) rubber isolator 1.

- 2 Align t-pipe end section



**Installing exhaust-pipe end section**



- 1 Heat guard plate
- 2 M6 flanged nut

**Installing heat guard plate**





**Coolant**

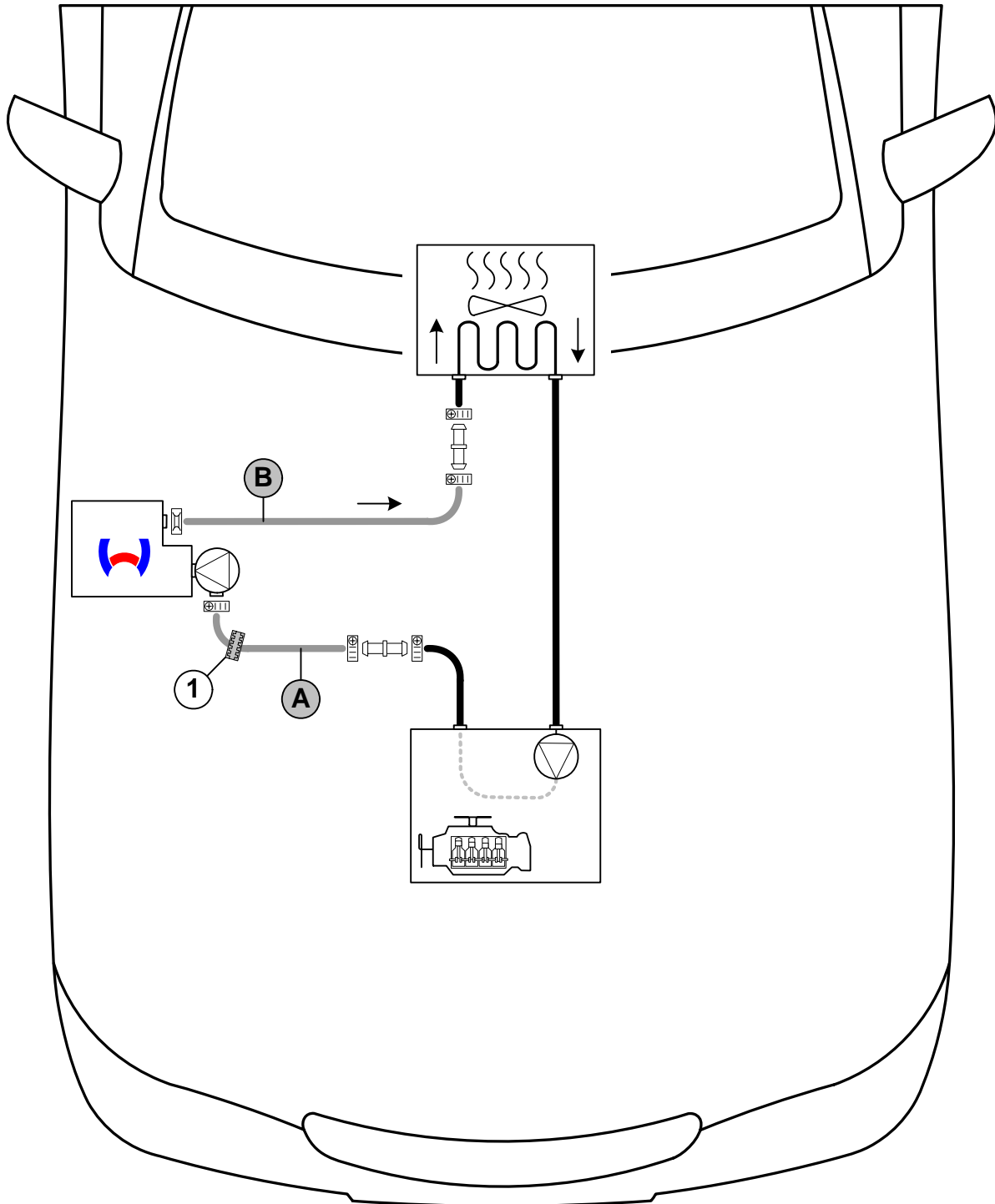
**WARNING!**

Tighten all hose clamps to 2.0 + 0.5 Nm.





Any coolant running off should be collected using an appropriate container!

Route coolant hoses kink-free! Unless specified otherwise, always fasten using cable ties. Position hose and spring clips so that no other hose can be damaged!

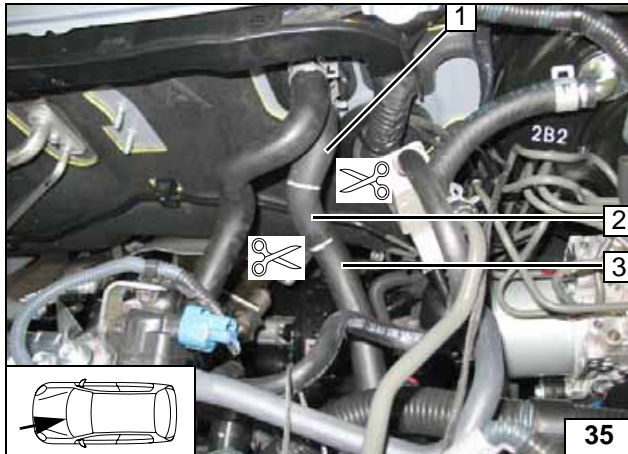
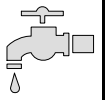
The connection should be "inline" based on the following diagram:



Coolant routing diagram

Spring clip  = 27 mm dia. All hose clamps  = 20-27 mm dia.!  
 All connecting pipes  = 17x20 dia. 1 = Black (sw) rubber isolator 



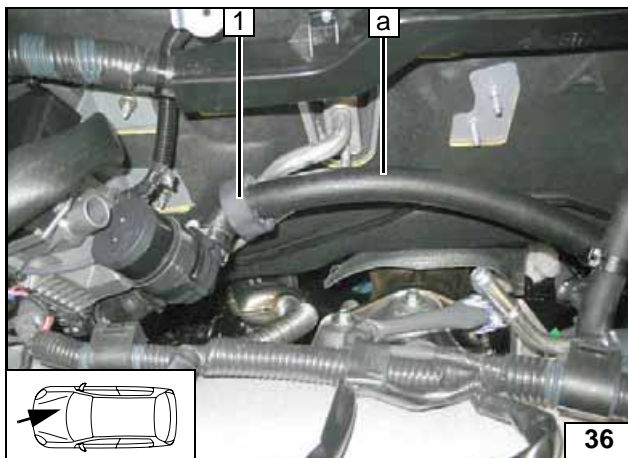


1.8 liter only

Discard section 2.

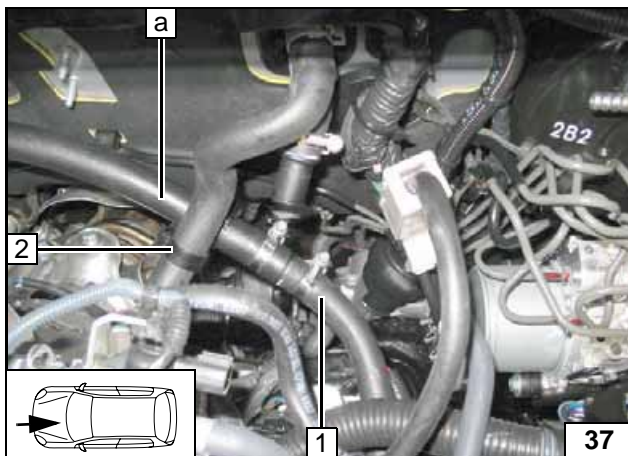
- 1 Hose on heat exchanger inlet
- 3 Hose of engine outlet

Cutting point



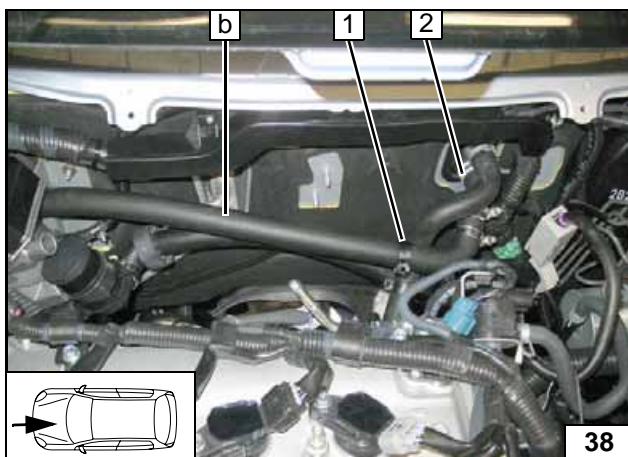
Slide on black (sw) rubber isolator 1 and align.

Connecting heater unit



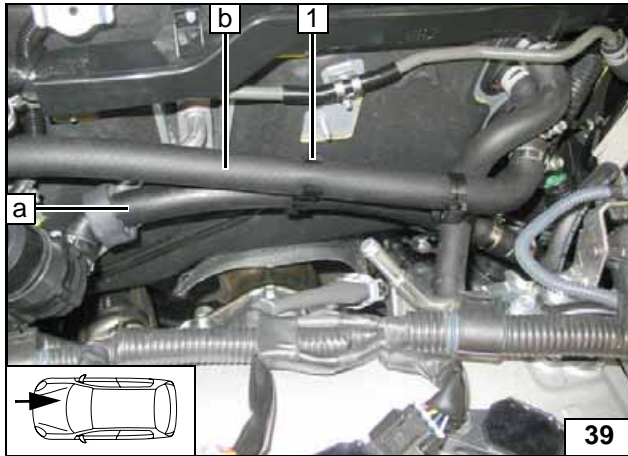
- 1 Hose section on engine outlet
- 2 Spacer bracket

Connection to engine outlet



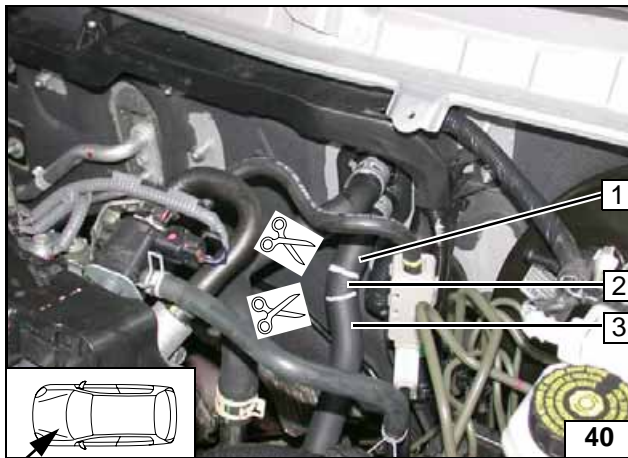
- 1 Spacer bracket
- 2 Hose section on heat exchanger inlet

Connection to heat exchanger inlet



1 Spacer bracket

Installing spacer bracket

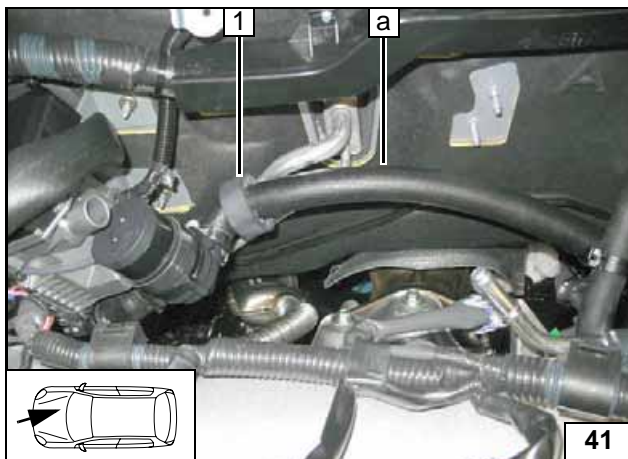


2.0 liter only

Discard section 2.

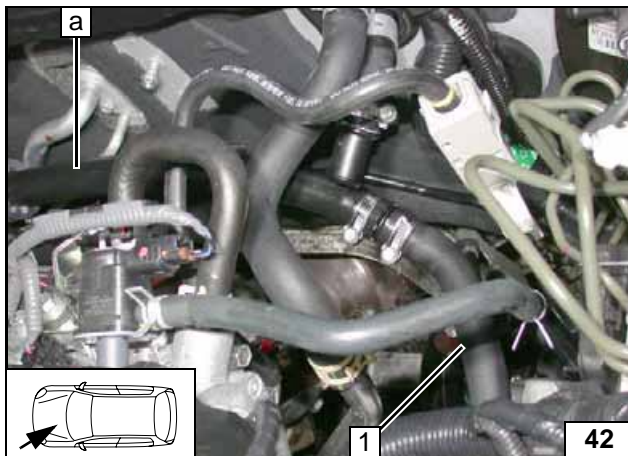
- 1 Hose on heat exchanger inlet
- 3 Hose of engine outlet

Cutting point



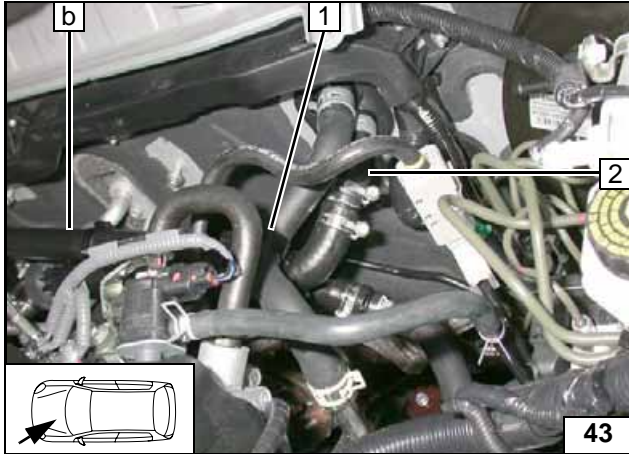
Slide on black (sw) rubber isolator 1 and align.

Connecting heater unit



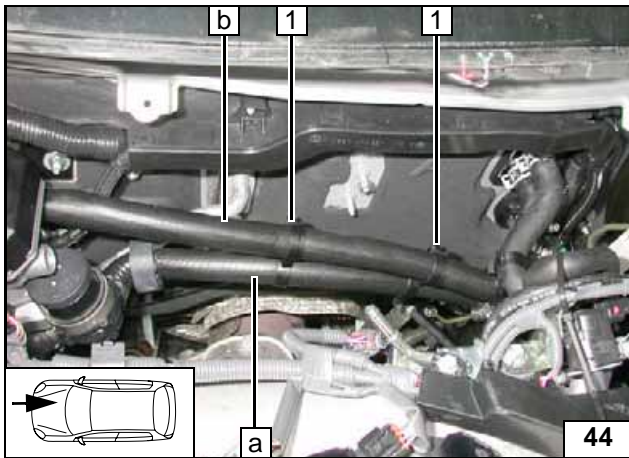
1 Hose section on engine outlet

Connection to engine outlet



- 1 Spacer bracket
- 2 Hose section on heat exchanger inlet

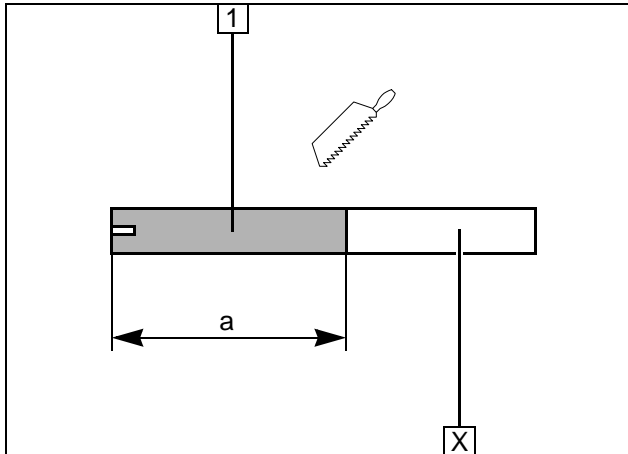
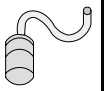
Connec-  
tion to heat  
exchanger  
inlet



- 1 Spacer bracket [2x]

Install-  
ing  
spacer  
bracket



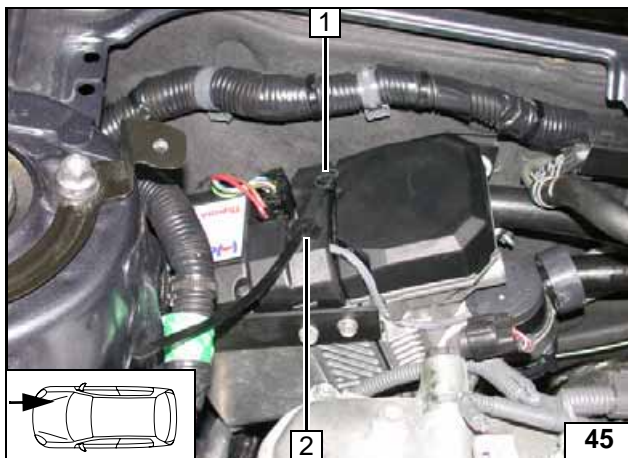


**Combustion air**

- 1 Combustion air pipe  
a = 250

Discard section X

**Cutting combustion air pipe to length**

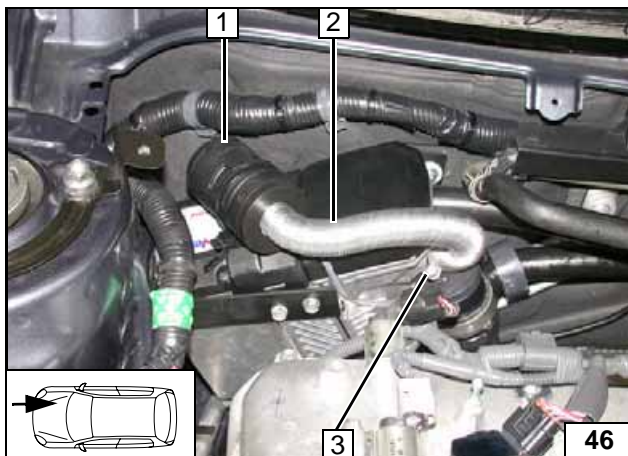


Punch through perforation at position 2.

- 1 Clip-type cable tie



**Preparing installation**

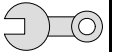


Muffler 1 installed on clip-type cable tie.

- 2 Combustion air pipe
- 3 27 mm dia. hose clamp



**Installing muffler**



## Final Work

### WARNING!

Mount removed parts in reverse order.

Check all hoses, clamps and all electrical connections for firm seating.

Secure all loose cables using cable ties.

Only use manufacturer-approved coolant.

Spray the heater 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 the settings for the automatic air-conditioning in accordance with "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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<http://www.webasto.de>

**Operating Instructions for End Customer**

Please remove page and add to the vehicle operating instructions.



**Note:**

We recommend matching the heating time to the driving time.

Heating time = driving time

**Example:**

For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

If the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater unit 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:



No display appears in A/C control panel during heating!

**Order of setting:**

1. Air outlet at windshield
2. Set temperature to "HI"
3. Set fan to level "2"

**Automatic air-conditioning**