

# Water Heater Unit



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

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

**Thermo Top P Additional Heater** e1 00 0104

## Installation Instructions

### Kia Carens

Diesel  
from Model Year 2007  
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
Kia	Carens	FG	e4 * 2001 / 116 * 0114

Engine type	Engine model	Output in kW	Displacement in cm <sup>3</sup>
D4EA	Diesel	83	1991

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 Kia Carens Diesel	1312146A

**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 Kia Carens Diesel vehicles - for validity, see page 2 - from model year 2007 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).

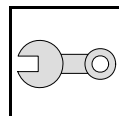
**Special Tools**

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

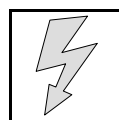
## Explanatory Notes on Document

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.

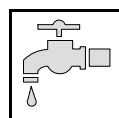
### Mechanical system



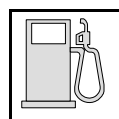
### Electrical system



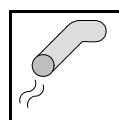
### Coolant connection



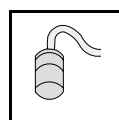
### Fuel connection



### 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.



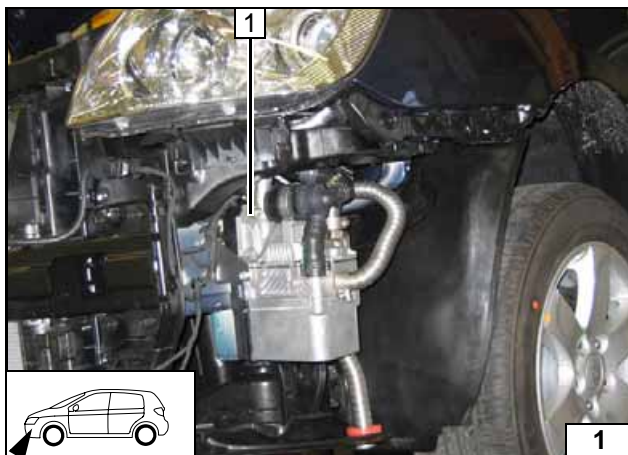
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

## Preliminary Work

### WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Depressurize the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Completely remove the battery
- Remove the air filter together with the intake hose.
- Remove the cover of the wiring harness pass through and the vacuum valves on the right in the engine compartment behind the strut tower
- Remove the bumper.
- Open the tank-fitting service lid
- Remove the fuel-tank sending unit in accordance with the manufacturers specifications.
- Remove the glove compartment (only with Telestart)
- Remove the A/C control panel (only with automatic air-conditioning)

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



### Heater unit installation location

- 1 Heater unit

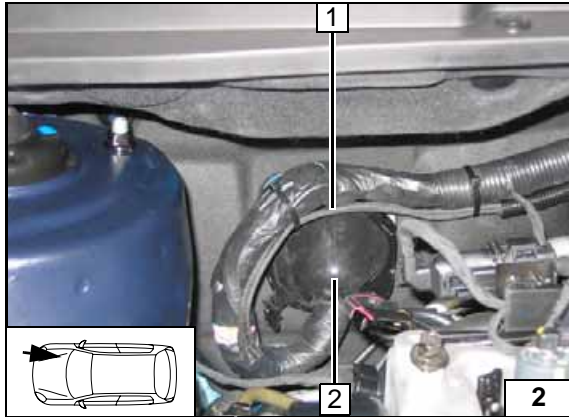
Installation  
location



## Electrical Connections

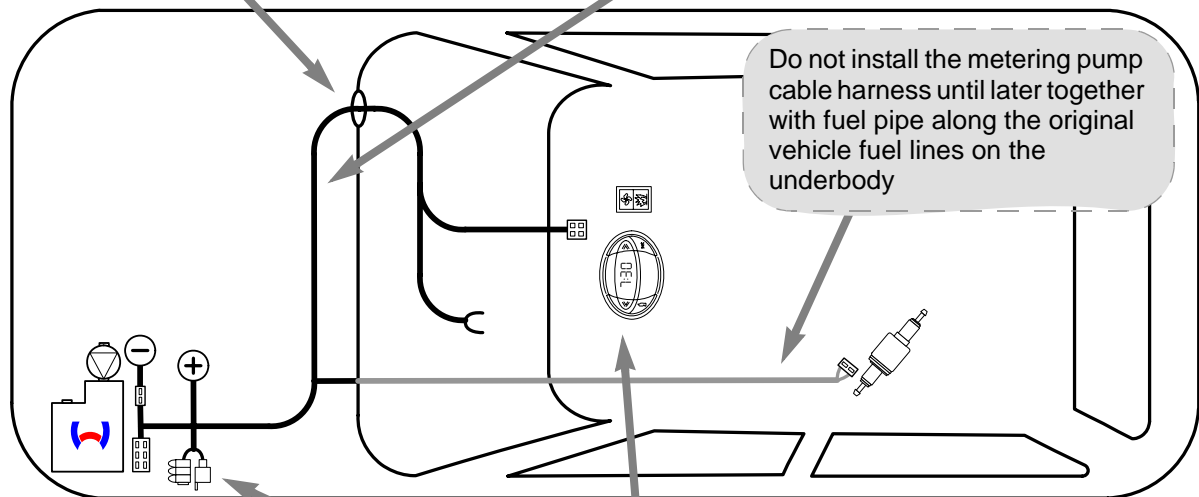
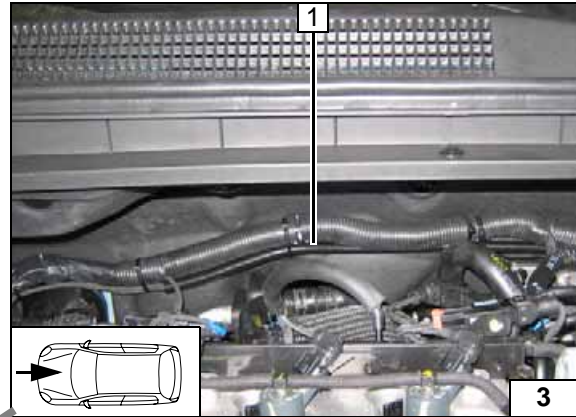
### Wiring harness pass through

- 1 Wiring harness of fan controller and digital timer
- 2 Protective rubber plug

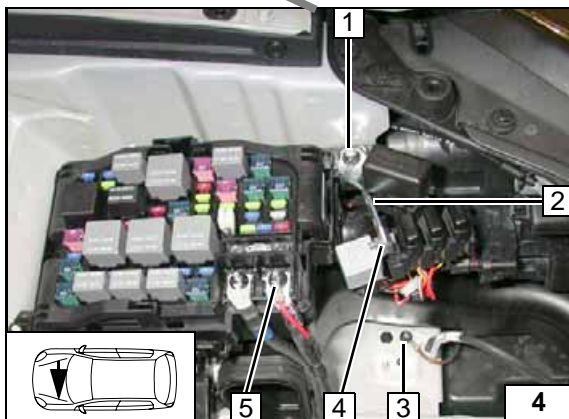


### Routing wiring harness

- 1 Corrugated tube with wiring harnesses of digital timer, fan controller and digital timer

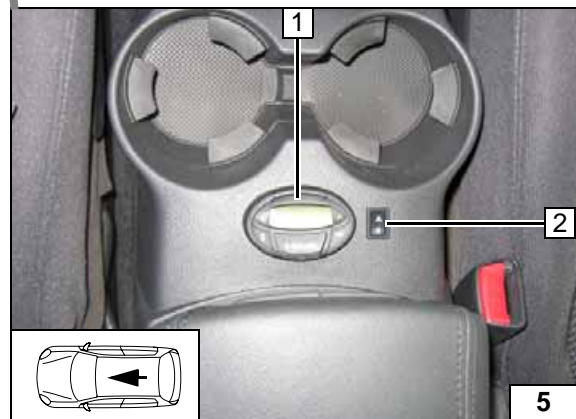


Wiring harness installation diagram



### Fuse holder, relay K3

- 1 Original vehicle bolt
- 2 Perforated bracket, turned by 90° in lengthwise axis
- 3 Ground wire on original vehicle ground support point
- 4 M5x16 bolt, retaining plate for fuse holder, K3 relay, washer, M5 flanged nut
- 5 Positive wire on original vehicle positive support point



### Digital timer and summer/winter switch option

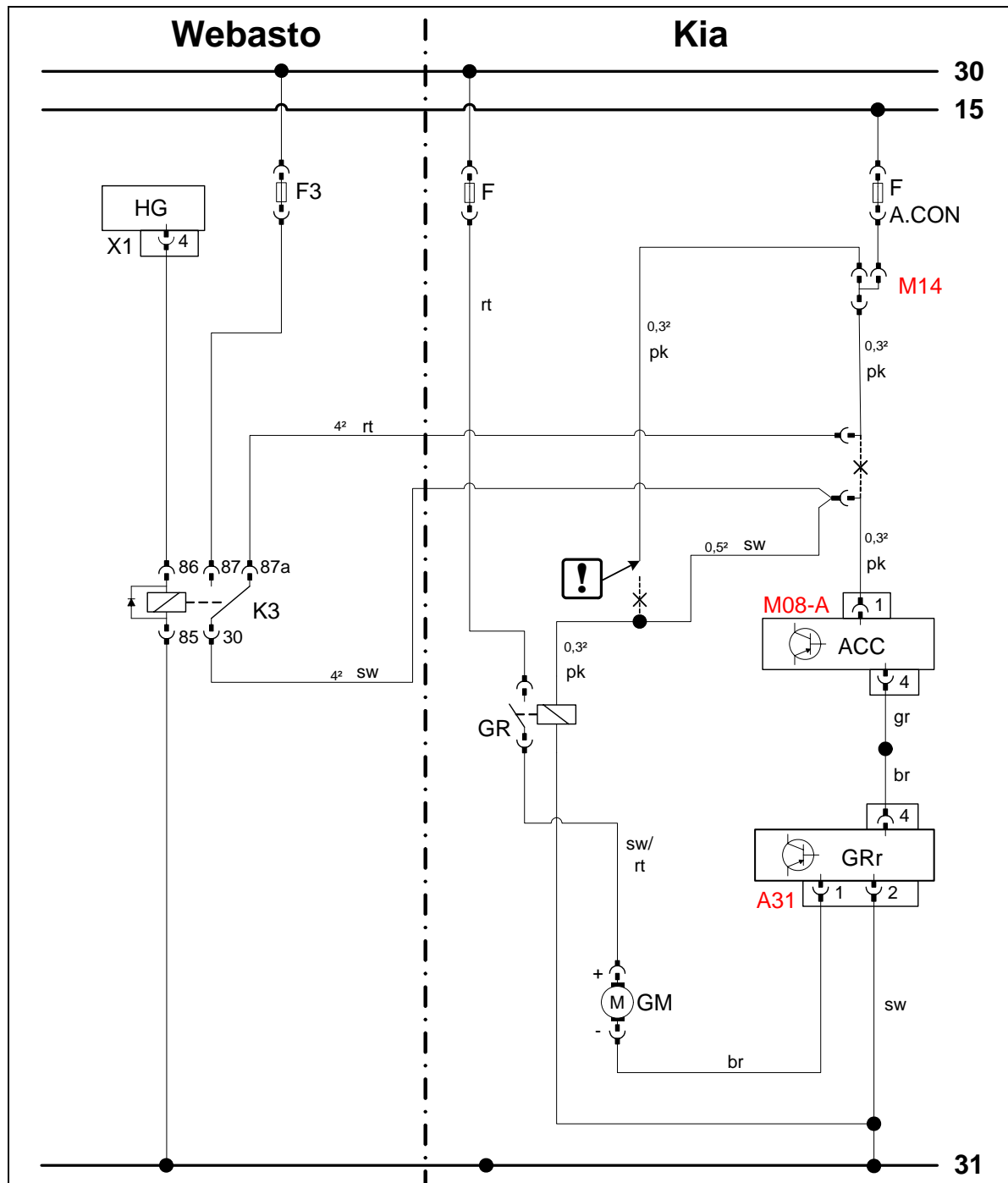
- 1 Digital timer
- 2 Summer/winter switch, drilled hole 12 mm dia.



Fan controller for manual air conditioning

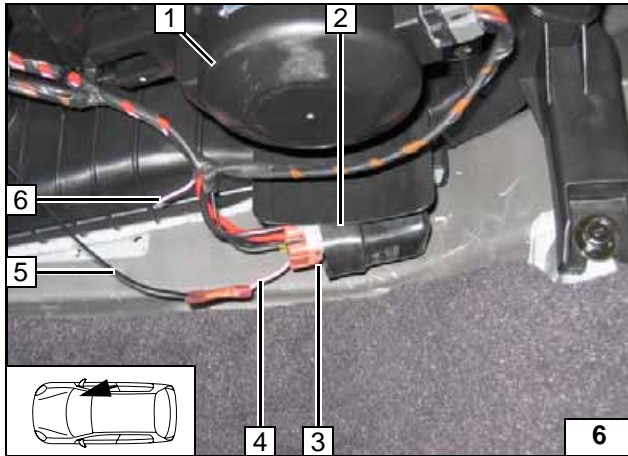


Wiring diagram



Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater unit connector	GR	Fan relay	sw	black
F3	25 A fuse replaced with 10 A fuse.	GRr	Fan controller	br	brown
K3	Fan relay	ACC	Air-conditioning control panel	gr	gray
		F A.CON	Air-conditioning fuse, 10 A	pk	pink
		A31	6-pin connector, GRr	!	Insulate wire ends and tie back
		M08-A	26-pin ACC connector	X	Cutting point
		M 14	Plug-in distribution, +15		
		F	Fuse 40A		Wiring colors may vary.

Legend

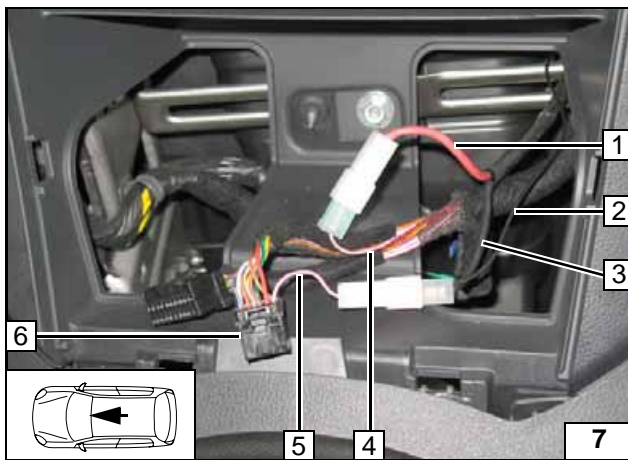


Connection to 4-pin connector **3** from fan relay **2**.  
Produce connections as shown in wiring diagram.

- 1 Fan motor
- 4 Pink (pk) wire to fan relay
- 5 Black (sw) wire to A/C control panel
- 6 Insulate pink (pk) wire and tie back



**Con-necting fan relay**



Connection to 12-pin connector **6** from A/C control element.  
Produce connections as shown in wiring diagram.

- 1 Red (rt) wire from K3/87a
- 2 Black (sw) wire from fan relay
- 3 Black (sw) wire from K3/30
- 4 Pink (pk) wire from +15
- 5 Pink (pk) wire to 12-pin connector pin 1



**Con-necting A/C control panel**

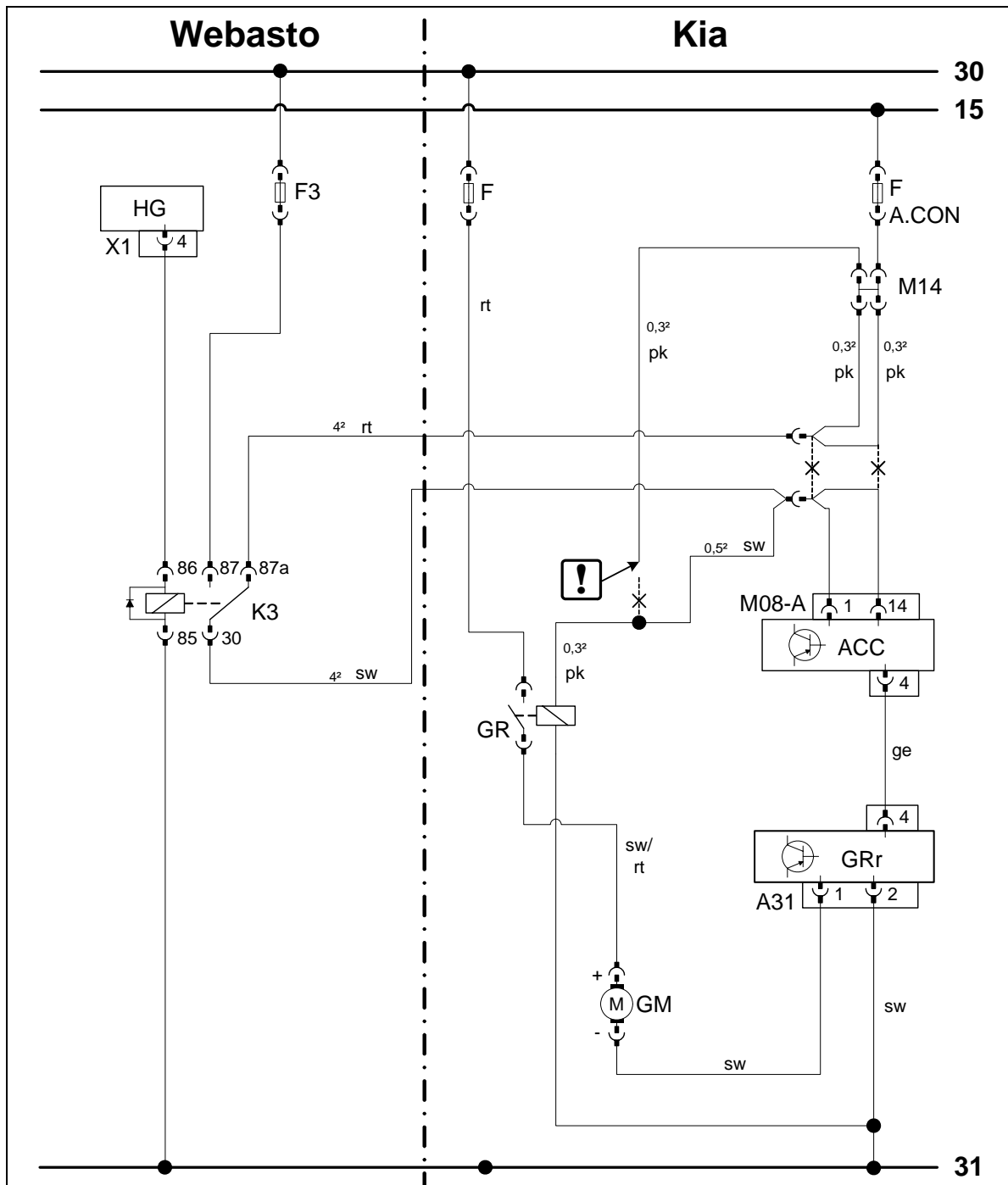




Automatic air-conditioning fan controller

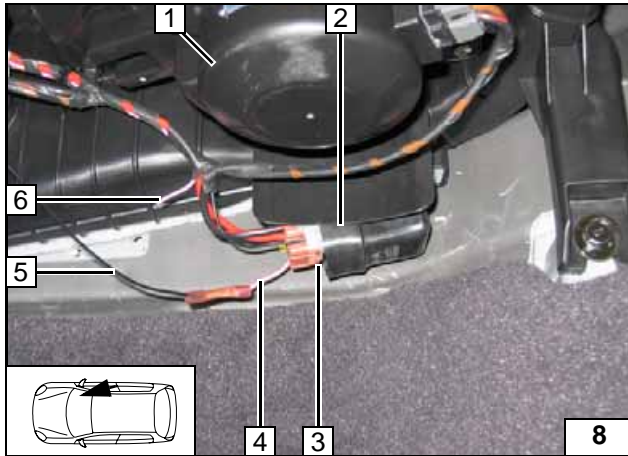
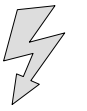


Wiring diagram



Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater unit connector	GR	Fan relay	sw	black
F3	25 A fuse replaced with 10 A fuse.	GRr	Fan controller	br	brown
K3	Fan relay	ACC	Air-conditioning control panel	ge	yellow
		F A.CON	Air-conditioning fuse, 10 A	pk	pink
		A31	6-pin connector, GRr	!	Insulate wire ends and tie back
		M08-A	26-pin ACC connector	X	Cutting point
		M 14	Plug-in distribution, +15		Wiring colors may vary.
		F	Fuse 40A		

Legend

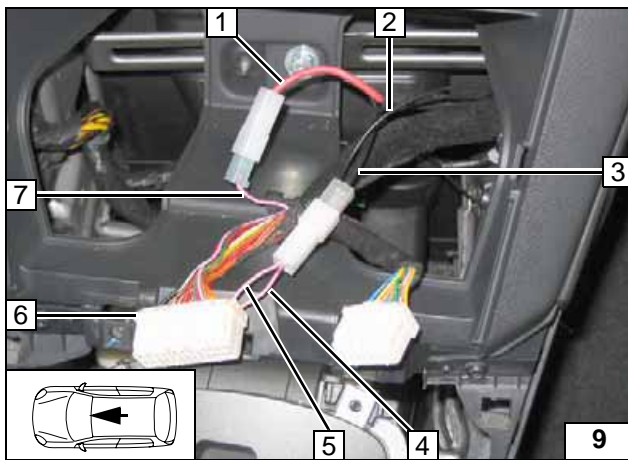


Connection to 4-pin connector **3** from fan relay **2**.  
Produce connections as shown in wiring diagram.

- 1 Fan motor
- 4 Pink (pk) wire to fan relay
- 5 Black (sw) wire to A/C control panel
- 6 Insulate pink (pk) wire and tie back



**Con-  
necting fan  
relay**

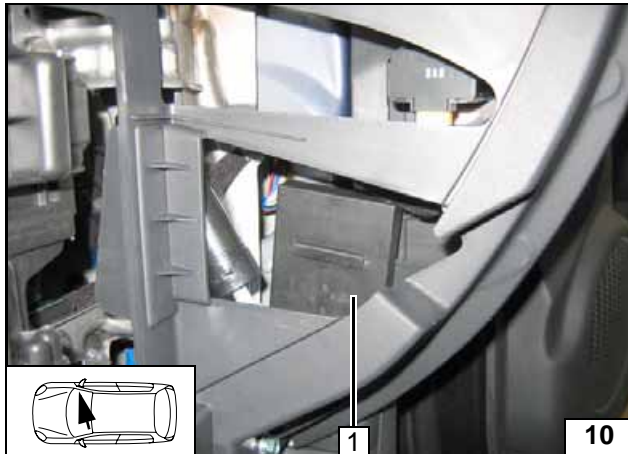


Connection to 26-pin connector **6** from A/C control element.  
Produce connections as shown in wiring diagram.

- 1 Red (rt) wire from K3/87a
- 2 Black (sw) wire from fan relay
- 3 Black (sw) wire from K3/30
- 4 Pink (pk) wire to 26-pin connector pin 1
- 5 Pink (pk) wire to 26-pin connector pin 14
- 7 Pink (pk) wire from +15 [2x]



**Con-  
necting  
A/C control  
panel**

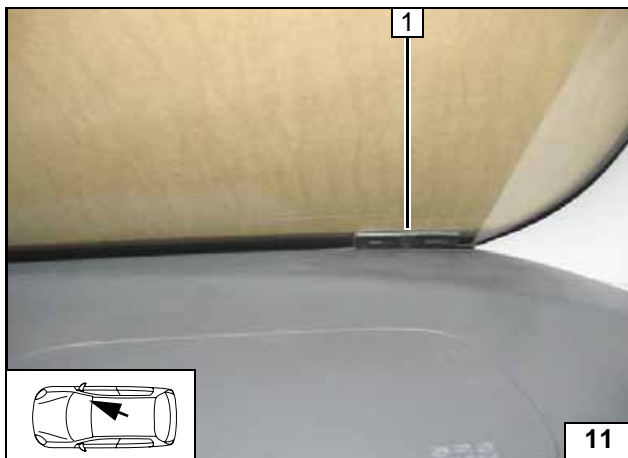


**Remote option (Telestart)**

- 1 Fasten receiver on right-hand A-pillar with self-adhesive Velcro strip

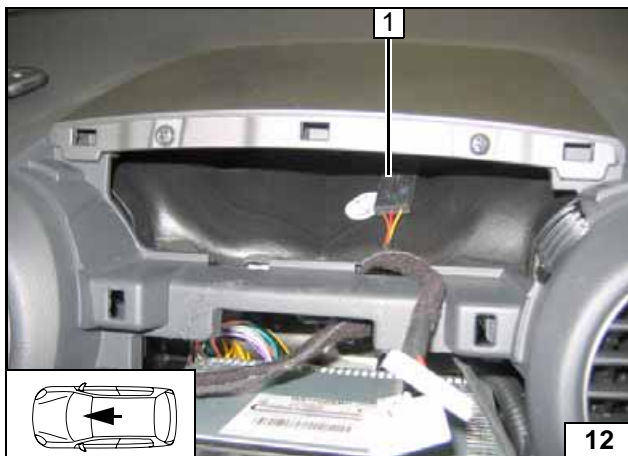


**Installing receiver**



- 1 Antenna

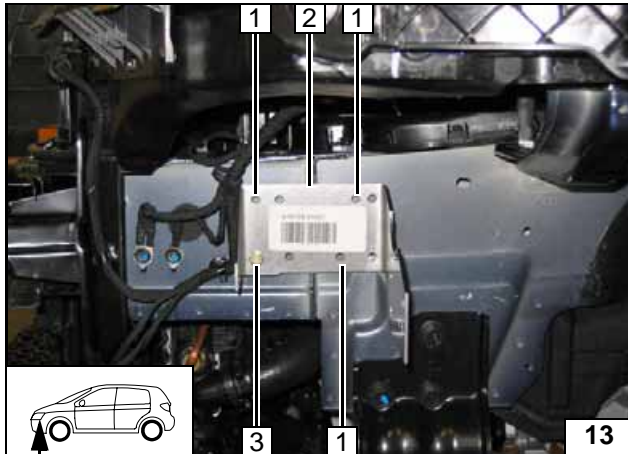
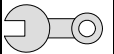
**Installing antenna**



**Temperature sensor for HTM100 only**

- 1 Fasten temperature sensor on ventilation duct with self-adhesive Velcro strip

**Installing temperature sensor**



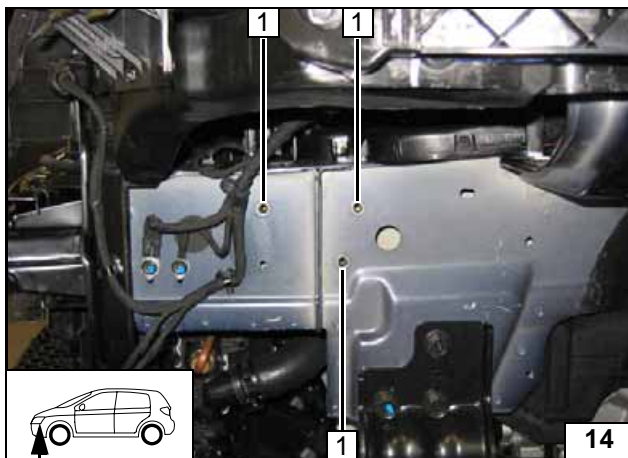
**Preparing installation location**

When installing, position a 20 mm spacer between bracket **2** and vehicle at position **3**.

- 1 Copy hole pattern, 9.1 mm dia. hole [3x]
- 3 M6x35 bolt

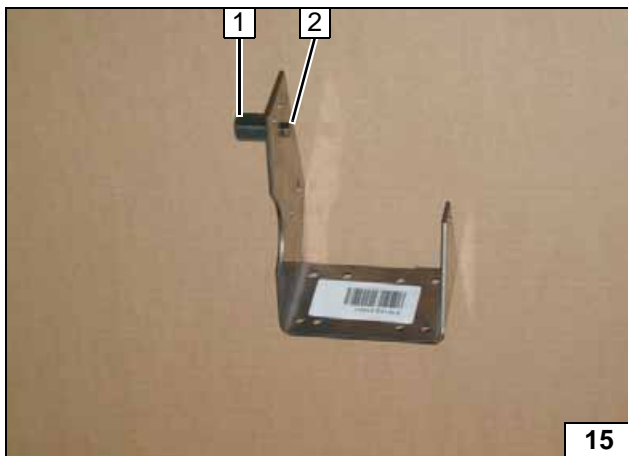


**Installing bracket and copying hole pattern**



- 1 M6 rivet nut [3x]

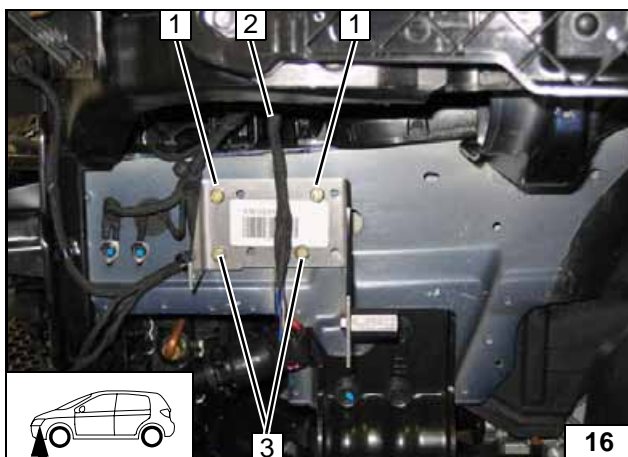
**Installing rivet nut**



**Preparing and installing bracket**

- 1 M6x30 spacer nut
- 2 M6x12 bolt

**Preparing bracket**

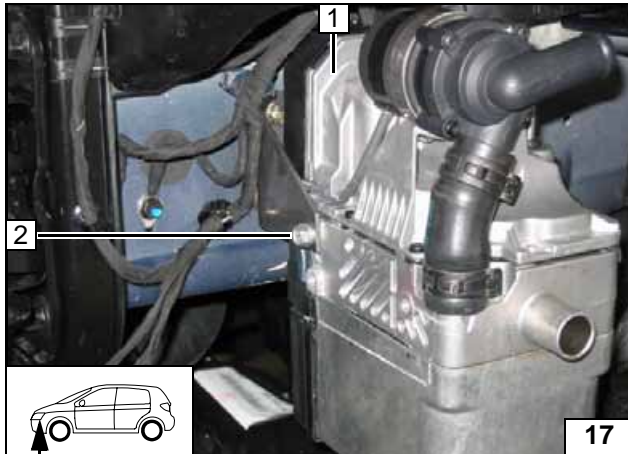
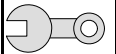


One 20 mm spacer each must be installed between bracket and vehicle at positions **1** and **3**.

- 1 M6x35 bolt, spring lockwasher [2x each]
- 2 Heater wiring harness
- 3 M6x35 bolt, spring lockwasher [2x each]



**Installing bracket**



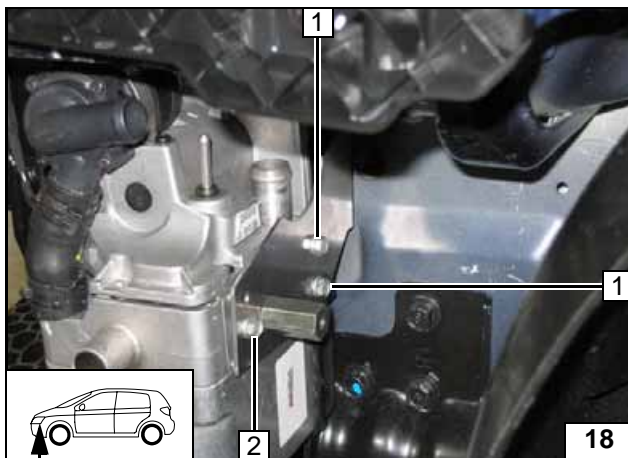
**Installing heater unit**

Before installing heater unit 1, heater wiring harness must be connected.  
Tighten E-JOT screws to 10 Nm!

2 E-jot screw



**Installing heater unit**

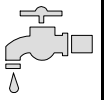


Insert two washers between heater unit and bracket at position 2.

1 E-jot screw [2x]  
2 E-jot screw



**Installing bracket**



### Coolant connection

**WARNING!**

Tighten all hose clamps to 2.0 + 0.5 Nm.

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

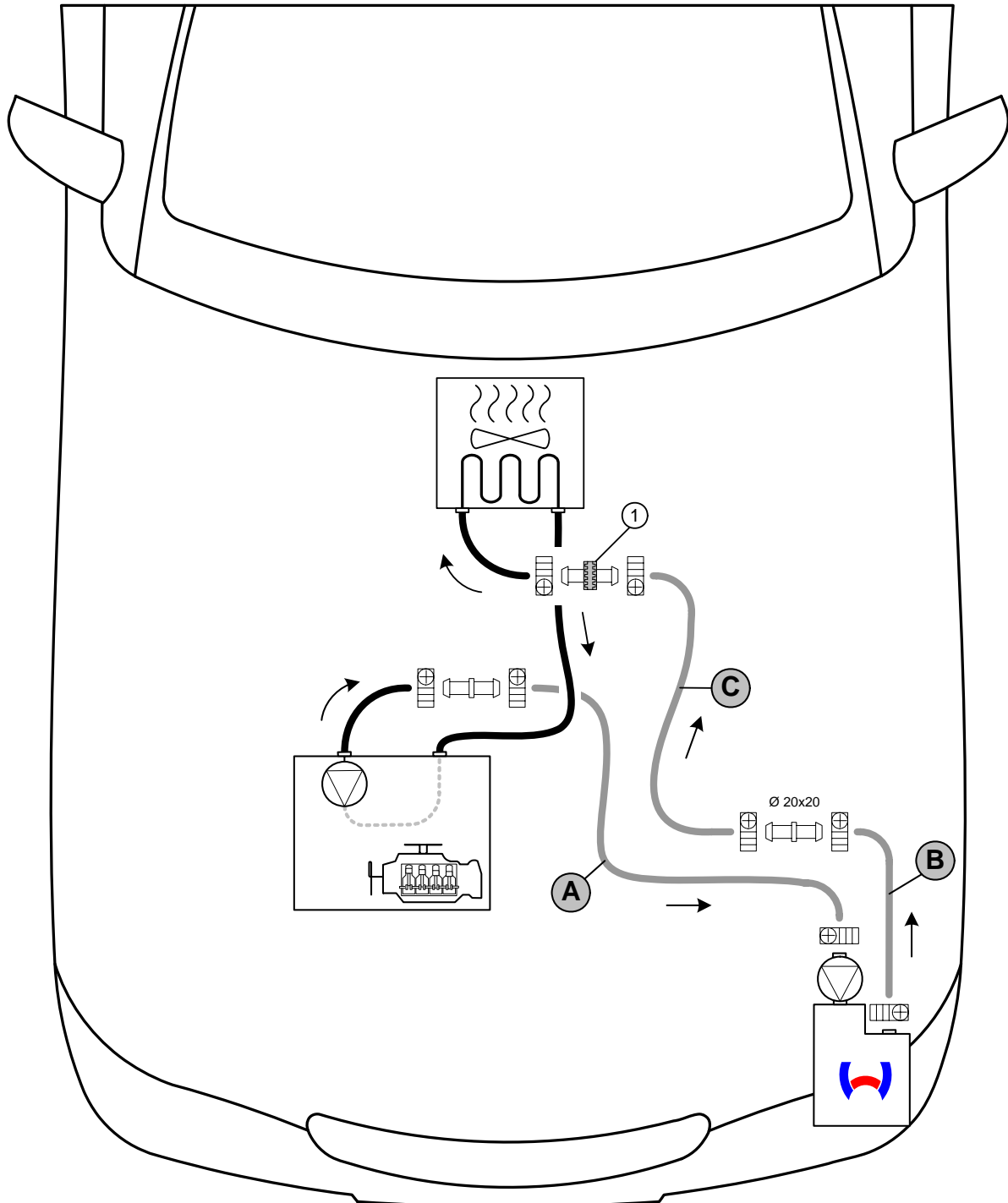
Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties.



Position hose clamps and spring band clamps so that no other hose can be damaged.

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

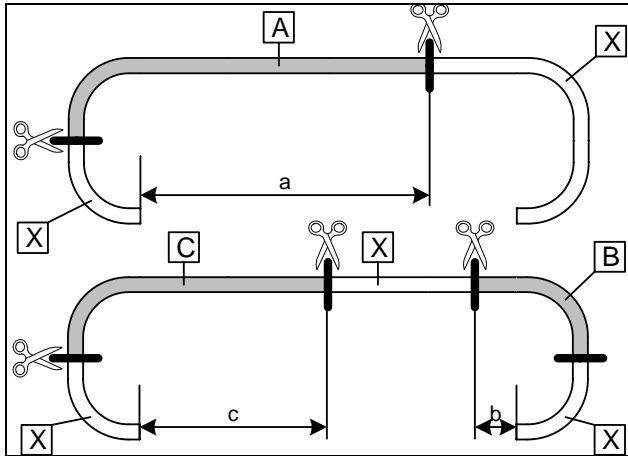


Coolant routing diagram



All connecting pipes without a specific designation = dia. 18x20. All hose clamps without a specific designation  = 16-27 mm dia **1** = Black (sw) rubber isolator 

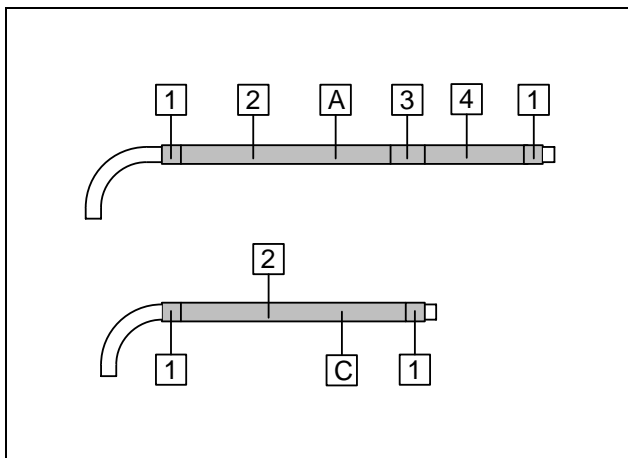




a = 1,450 mm  
b = 30 mm  
c = 1,040 mm

Discard section X

**Cutting coolant hoses to length**

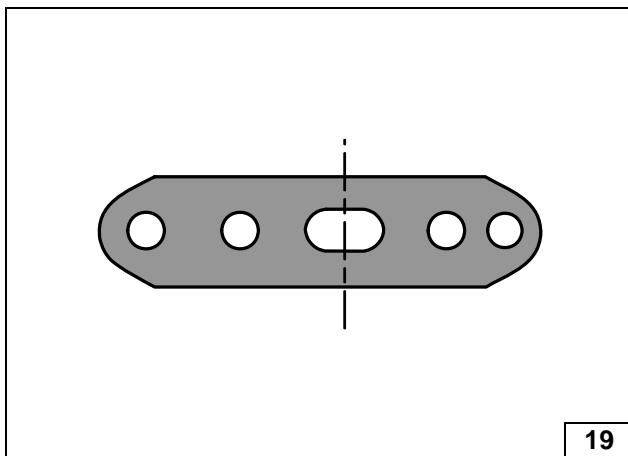


Cut 100 mm heat shrink plastic tubing into 4x25 mm.

- 1 25 mm heat shrink plastic tubing [4x]
- 2 Braided protection hose, 1,500 mm long [2x]
- 3 Shrinkdown plastic tubing, 50 mm
- 4 Braided protection hose, 950 mm long, shortened



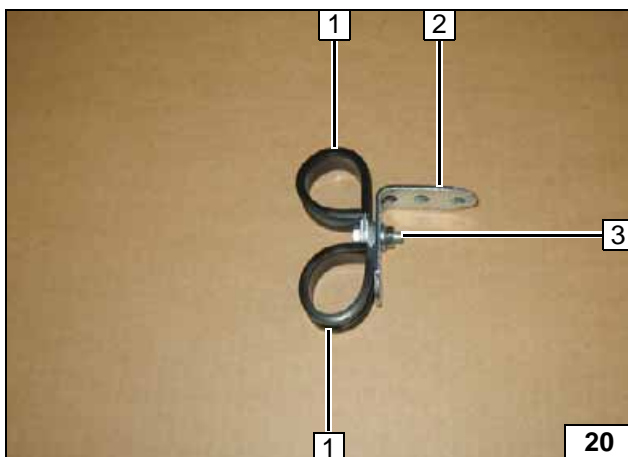
**Pushing on braided protection hose**



Angle down perforated bracket 90°.

**Bending perforated bracket**

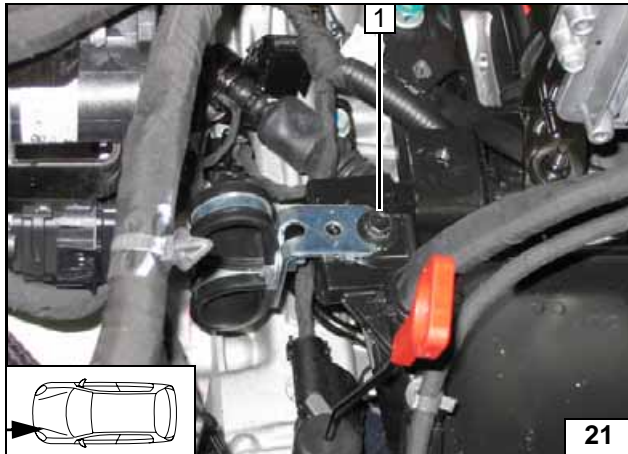
19



- 1 29 mm dia. rubber-coated p-clamp [2x]
- 2 Angled-down perforated bracket
- 3 M6x20 bolt, M6 flanged nut

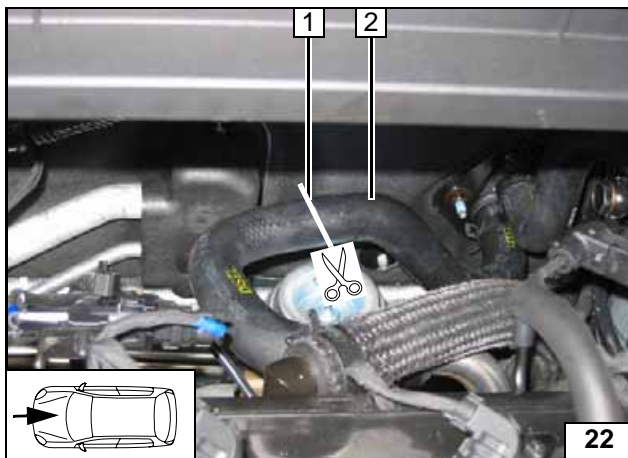
**Pre-mounting perforated bracket**

20



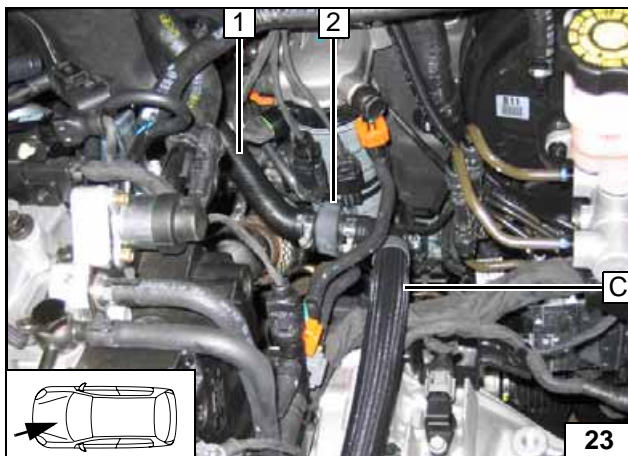
1 Original vehicle bolt

Installing perforated bracket



1 Cutting point  
2 Hose between engine outlet and heat exchanger inlet

Cutting point



1 Hose for heat exchanger inlet turned approx. 120°  
2 Black (sw) rubber profile

Con-  
nection of  
hose C on  
heat  
exchanger  
inlet

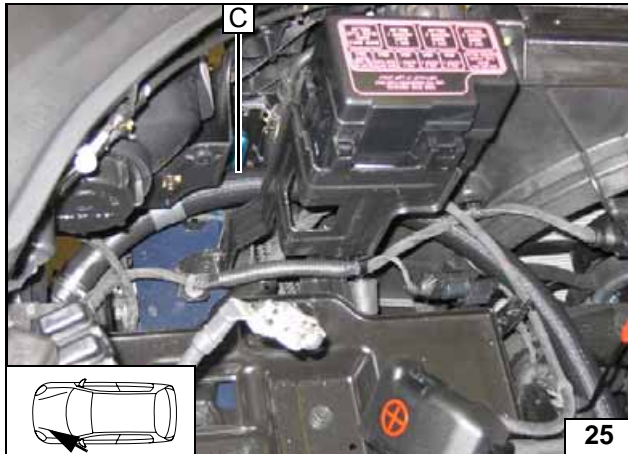


Route hose C through lower rubber-coated p-clamp 1.

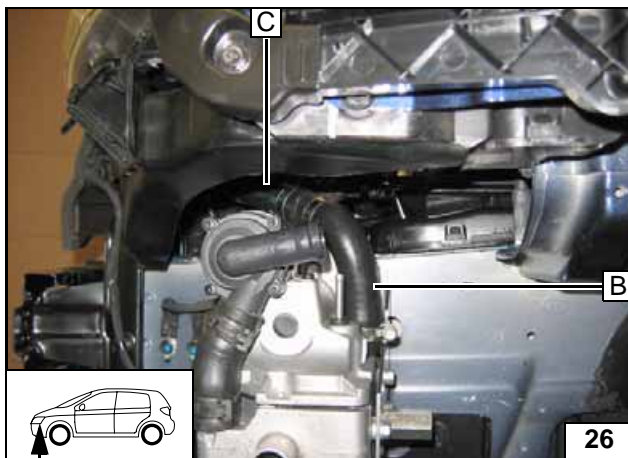


Installing  
hose C in  
engine  
compartment



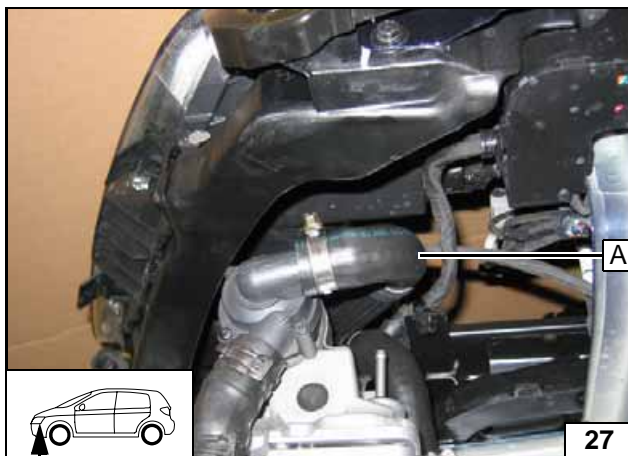


Installing hose C in engine compartment

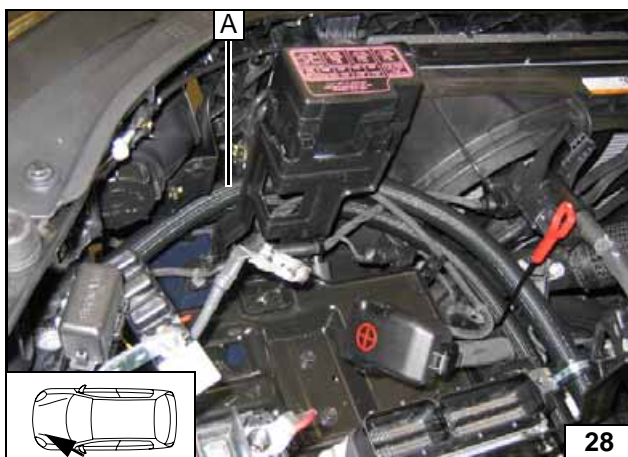


Connection of hose C and D on heater unit

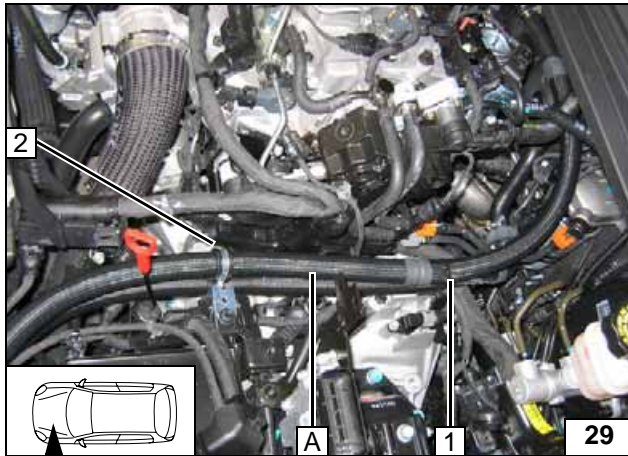
Install hose A with 90° elbow on heater unit inlet.



Connection of hose A on heater unit



Installing hose A in engine compartment

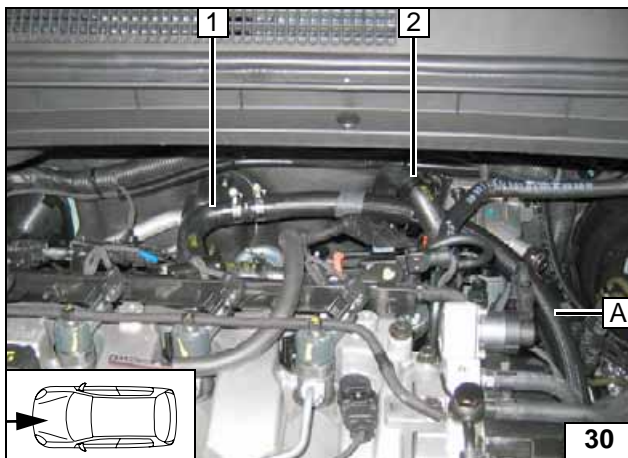


Route hose **C** through upper rubber-coated p-clamp **2**.

- 1 Cable tie



**Installing hose A in engine compartment**

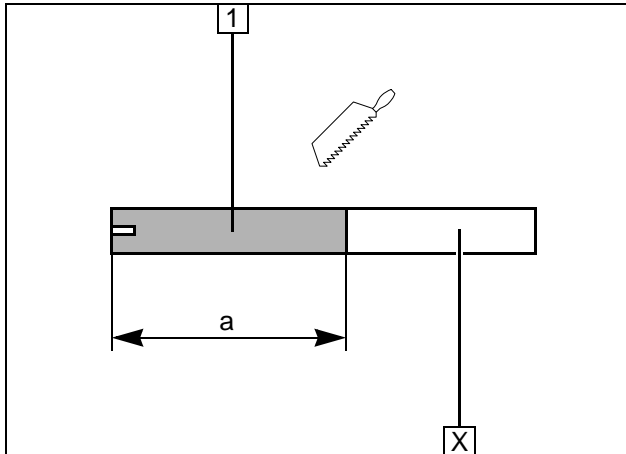


Before connecting, fill the coolant hoses with coolant.

- 1 Hose of engine outlet
- 2 Hose bracket



**Con-nection of hose A on engine outlet**

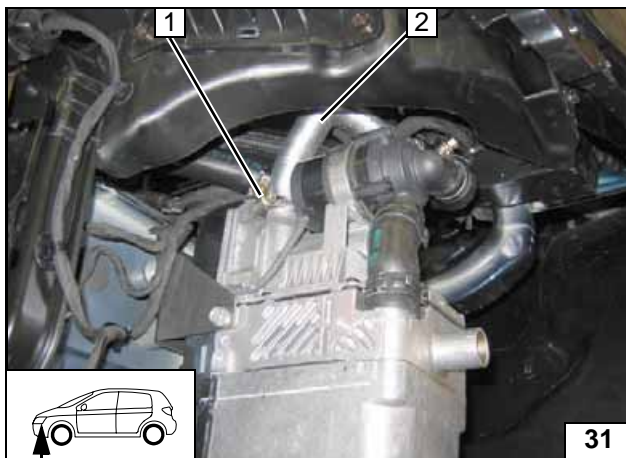


**Combustion air**

- 1 Combustion air pipe  
a = 260 mm

Discard section X

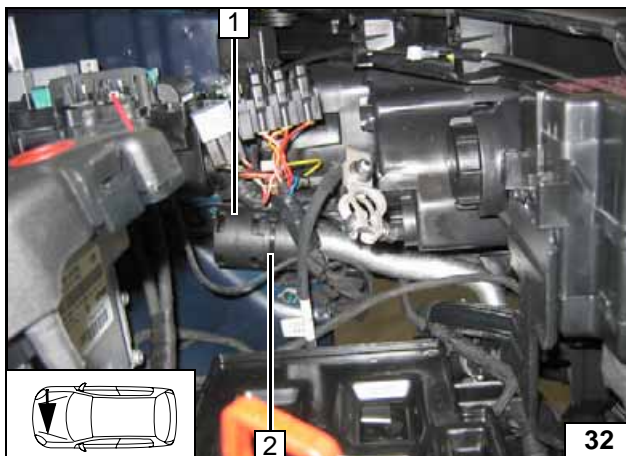
**Cutting combustion air pipe to length**



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



**Installing intake pipe**



- 1 Combustion-air intake muffler fastened on wiring harness
- 2 Cable tie

**Installing muffler**



## Fuel Connection

### CAUTION!

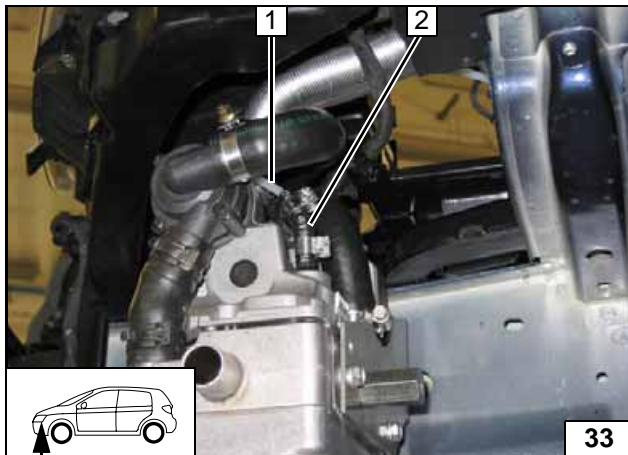
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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.

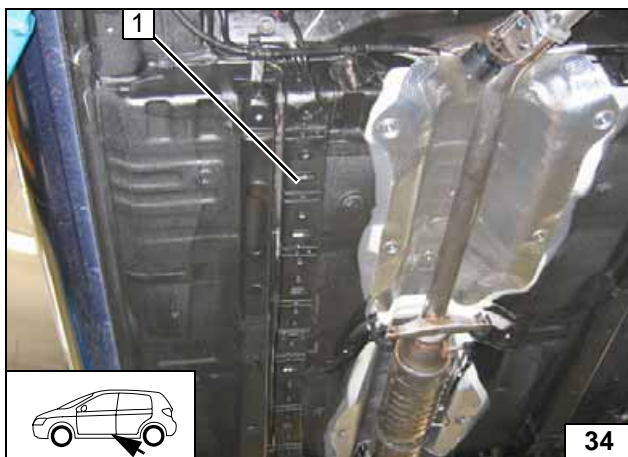


Pull fuel line 1 with wiring harness of metering pump into corrugated tube and route to firewall.

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



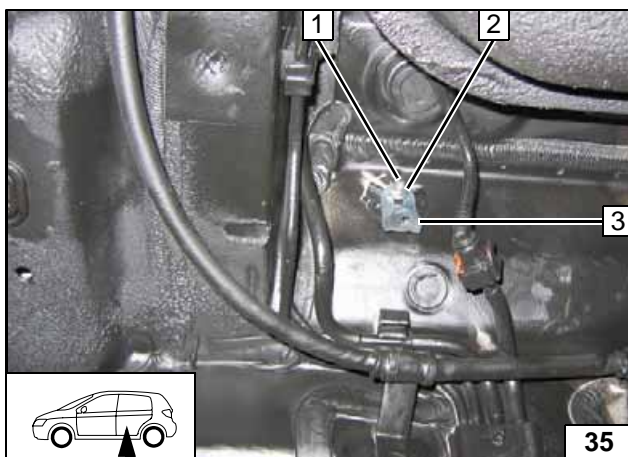
Con-  
nection to  
heater unit



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



Installing  
lines



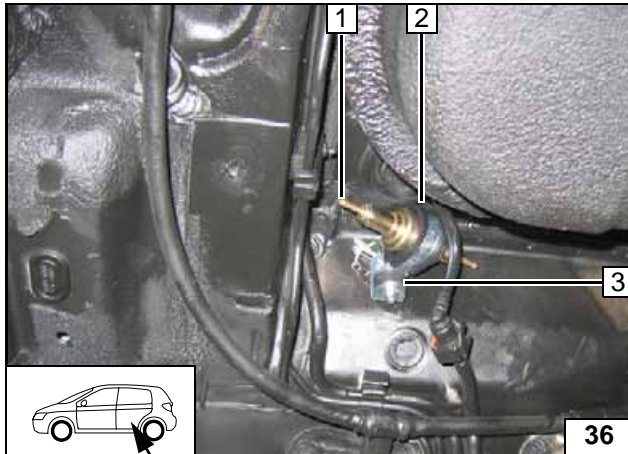
Ensure proper installation position of metering pump, see "Installation Instructions".

Installation location on left in front of vehicle fuel tank!

- 1 Original vehicle stud bolt
- 2 M6 flanged nut
- 3 Angle bracket

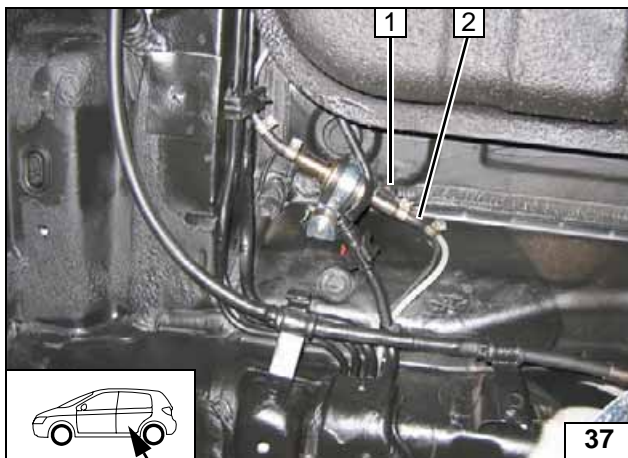


Installation  
location of  
metering  
pump



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

**Installing metering pump**

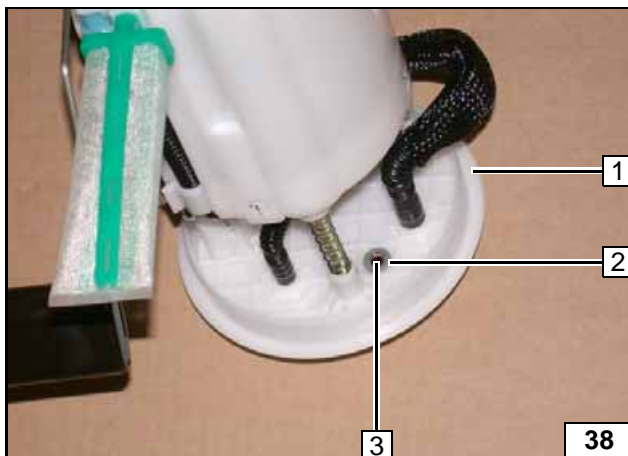


Fuel line from heater unit on pressure side of metering pump [side with connector].

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



**Removing fuel**



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

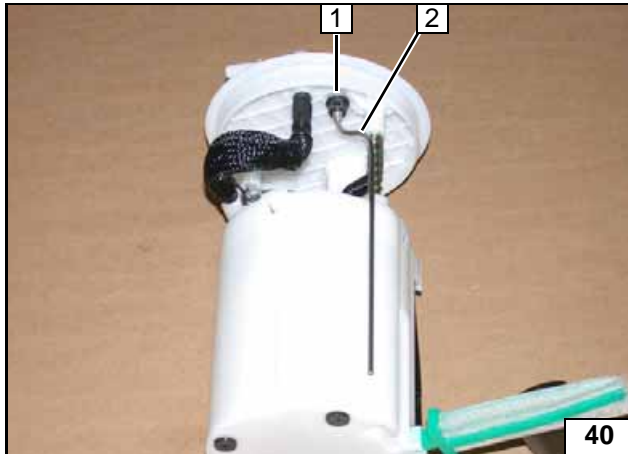
- 2 Washer
- 3 Copy hole pattern, 6 mm dia. hole

**Removing fuel**



Copy hole pattern 1 to upper side.

**Copying hole pattern**



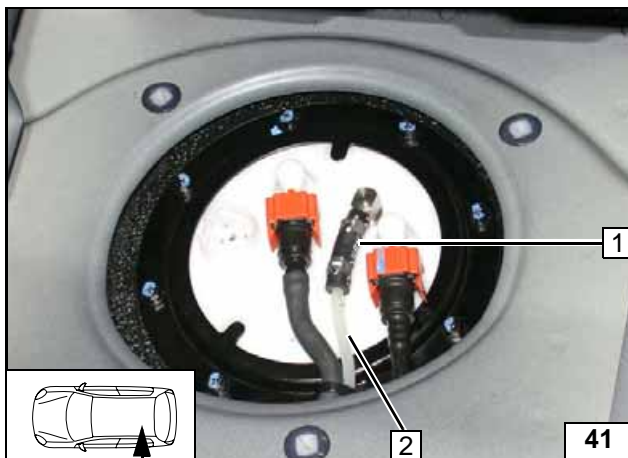
40

Shape fuel standpipe **2** according to template, cut to length and install, see "installation instructions".

- 1** Washer [2x] between flanged nut and cover of fuel-tank sending unit



**Installing fuel standpipe**



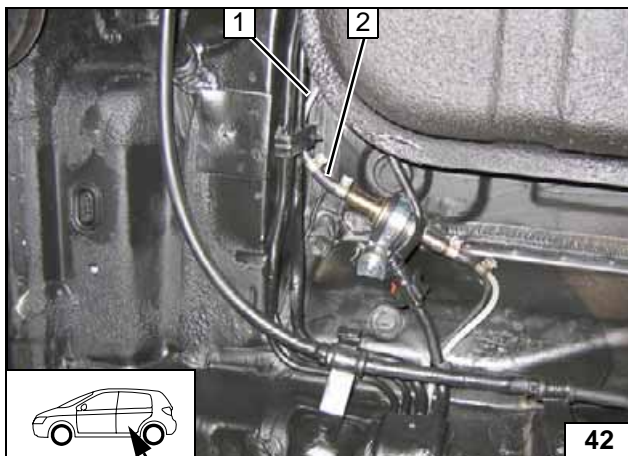
41

Install fuel-tank sending unit according to manufacturer's specifications.

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



**Connecting fuel line**



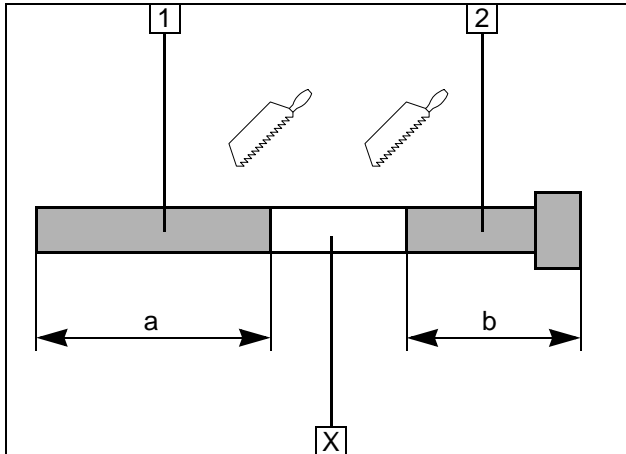
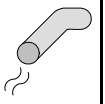
42

Fuel line from fuel standpipe on intake side of metering pump [side without connector]. Check the position of the components; adjust if necessary. Check that they have free clearance.

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



**Connecting to metering pump**

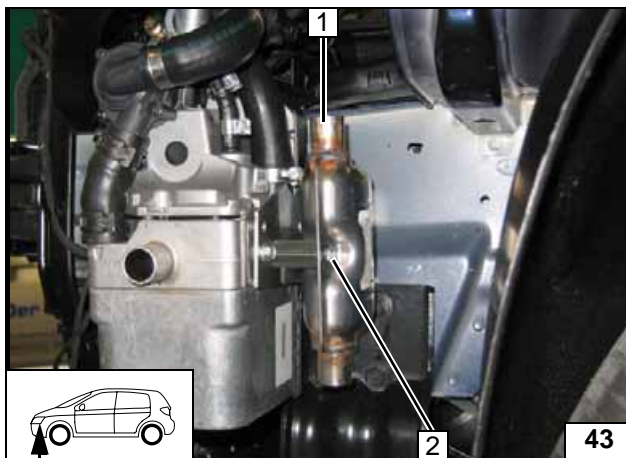


**Exhaust system**

- 1 Exhaust pipe  
a = 330 mm
- 2 Exhaust end section  
b = 190 mm

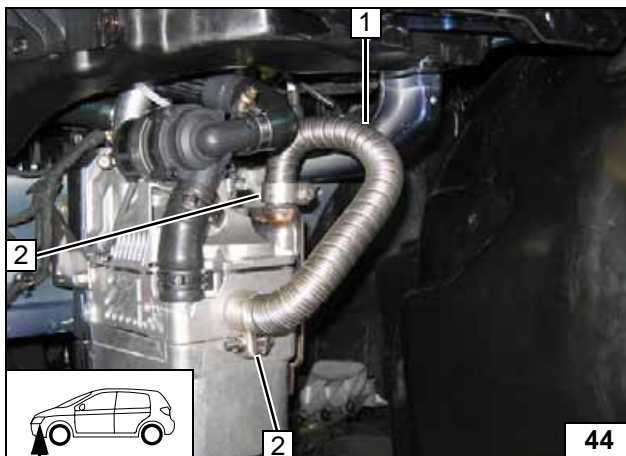
Discard section X

**Preparing exhaust pipe**



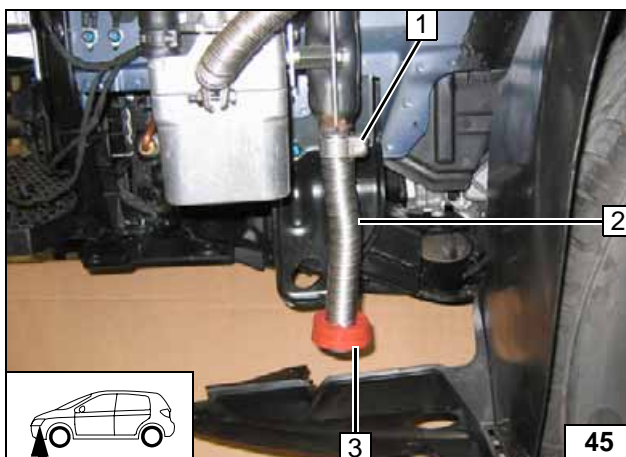
- 1 Muffler
- 2 M6x20 bolt, spring lockwasher

**Installing muffler**



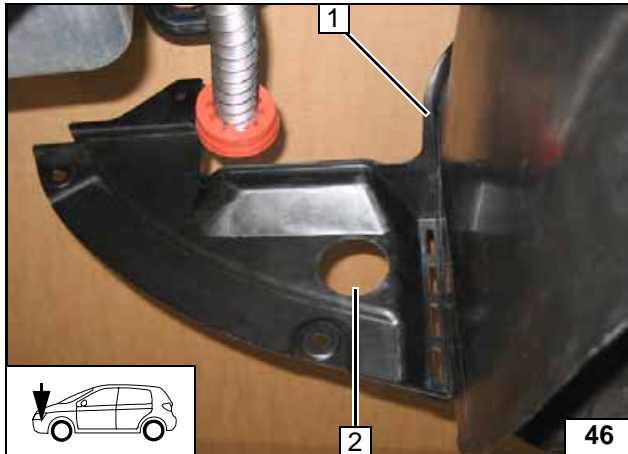
- 1 Exhaust pipe
- 2 Hose clamp [2x]

**Installing exhaust pipe**



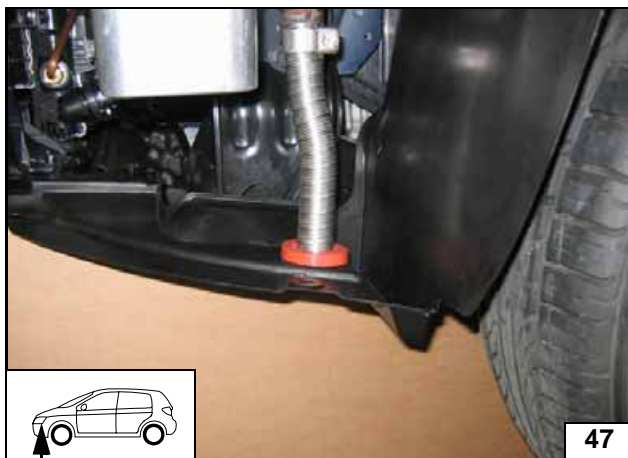
- 1 Hose clamp
- 2 Exhaust end section
- 3 Red (rt) rubber isolator with groove

**Installing end section**



- 1 Left-hand wheel-well inner panel
- 2 42 mm dia. hole

**Drilling  
underride  
protection**

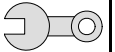


Ensure sufficient distance to neighboring components.



**Mounting  
rubber  
isolator  
and  
exhaust  
end  
section**





## Final Work

### WARNING!

Reassemble the disassembled components in reverse order.

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

Secure all loose cables using cable ties.

Only use manufacturer-approved coolant.

Spray the heater 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.
- Set the manual air conditioning or automatic air conditioning according to the "operating instructions for the 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.



Webasto AG  
Postfach 80 - 82132 Stockdorf  
Hotline 01805 / 932278 - Hotfax 0395 / 5592-353  
<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.

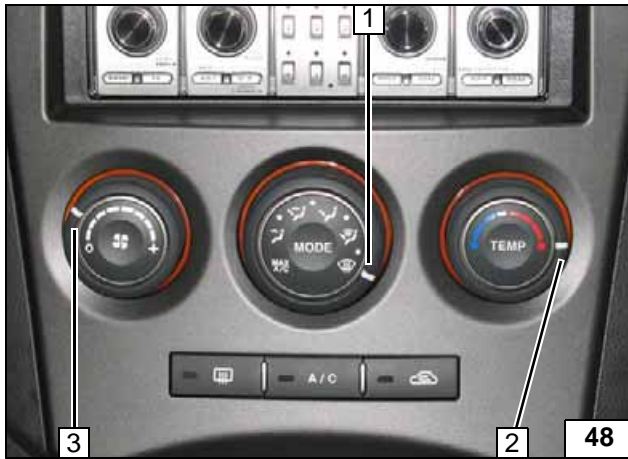
Heating time = driving time

**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:



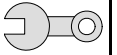
- 1 Air outlet to windshield
- 2 Set temperature to "max."
- 3 Set fan to level "1", or possibly "2"

**Manual air conditioning**



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

**Automatic air-conditioning**



### Template for Fuel Standpipe

