

# Water Heater

*Thermo Top C* Parking Heater



## Installation Documentation

### Renault Espace / Grand Espace international

Diesel  
from model year 2003  
Left-hand drive vehicle  
Automatic air-conditioning

**Warning:** Please observe restricted ground clearance because of installation conditions.



#### **WARNING!**

Hazard warning:

The improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide, leading to serious injury or death.

Specialist company training, technical documentation, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.



Only use genuine Webasto parts. See the Webasto air and water heaters accessories catalogue for this purpose.

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

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

**The initial startup is to be executed with the Webasto Thermo Test Diagnosis.**

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

## Table of Contents

Validity	2	Preparing Heater	13
Heater/Installation Kit	3	Preparing Installation Location	14
Foreword	3	Installing Heater	15
General Instructions	3	Exhaust Gas	16
Special Tools	3	Coolant Circuit	18
Explanatory Notes on Document	4	Fuel	21
Preliminary Work	5	Final Work	25
Heater Installation Location	5	Template for Fuel Standpipe	26
Preparing Electrical System	6	Operating Instructions for End Customer	27
Electrical System	9		
Fan Controller	10		
Remote Option (Telestart)	12		

## Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Renault	Espace	JK	e2 * 98 / 14 * 0265 * ...
Renault	Grand Espace	JK	e2 * 98 / 14 * 0265 * ...

Engine type	Engine model	Output in kW	Displacement in cm <sup>3</sup>
F9Q	Diesel	85	1870
F9Q	Diesel	88	1870
M9R	Diesel	96	1995
M9R	Diesel	110	1995
M9R	Diesel	127	1995
G9T	Diesel	110	2188
G9T	Diesel	110	2188
P9X	Diesel	120	2958
P9X	Diesel	130	2958

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

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

## Renault Espace / Grand Espace

### Heater/Installation Kit

Quantity	Description	Order No.:
1	Basic delivery scope <i>Thermo Top C</i>	See Price list
1	Installation Kit for International Renault Espace 2003 Diesel	9008864D
1	Heater control	See Price list

### Additionally required Renault genuine parts:

Quantity	Description	Order No.:
2	Metal sleeve	7700861225

### Foreword

This installation documentation applies to Renault Espace / Grand Espace Diesel vehicles - for validity, see page 2 - from model year 2003 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 this installation documentation.

However, the stipulations in this "installation documentation", "operating instructions" and the "installation instructions" for the *Thermo Top C* must always be observed.

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

### General Instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wires and tie back. Connectors on electronic components must be heard to click into place during installation.

Sharp edges should be fitted with rub protection . Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

When installing an IPCU, check or adjust the corresponding settings before installation.

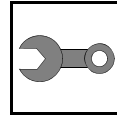
### Special Tools

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

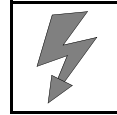
**Explanatory Notes on Document**

To provide you with a quick overview of the individual working steps, you will find an identification mark on the outside top right corner of the page in question.

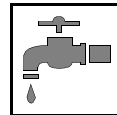
**Mechanical system**



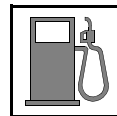
**Electrical system**



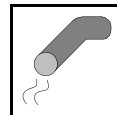
**Coolant circuit**



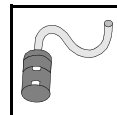
**Fuel**



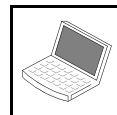
**Exhaust gas**



**Combustion air**



**Software**



**Special features are highlighted using the following symbols:**



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



Specific risk of fire or explosion.



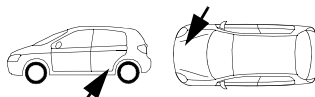
Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.



Reference to a special technical feature.



Tightening torque according to the manufacturer's vehicle-specific documents



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

**All dimensions are in mm!**

**Tightening torque of hose clamps = 2.0 + 0.5 Nm!**

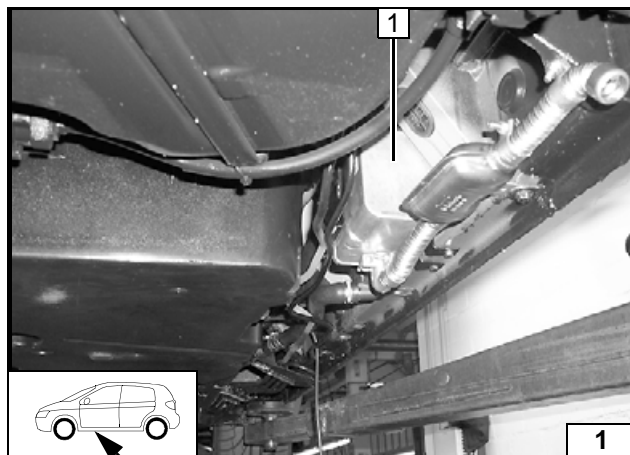
**Tightening torque of Ejet screws, Ejet studs = 10 Nm!**

## Preliminary Work

### WARNING!

- Open the fuel tank cap and vent the fuel tank.
- Close the fuel tank cap again.
- Disconnect the battery.
- Depressurise the cooling system.
- Drain off the coolant.
- 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.
- Detach the front passenger's seat and slide towards the rear.
- Remove the floor trim under the front passenger's seat.
- Remove the upper section of the centre console (clipped on).
- Remove the protective cover of the heater/air conditioner box.
- Remove the cover on the right-hand outer door sill.
- Remove the fuel tank according to the manufacturer's instructions (only on vehicles without a hand pump - see figure 2)

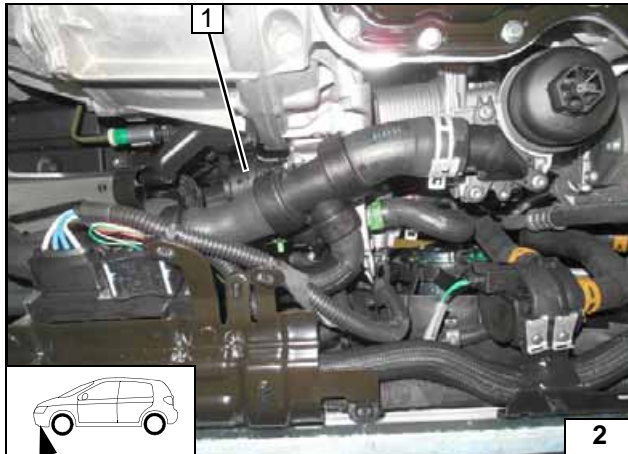
Remove page 27 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



### Heater Installation Location

- 1 Heater

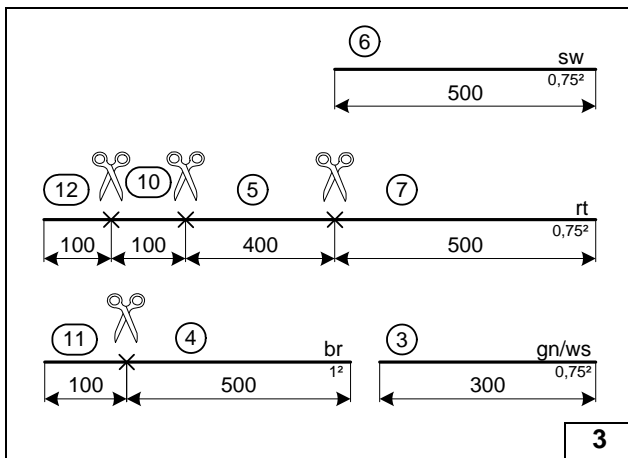
Installation location



### Preparing Electrical System

The electrical connections depend on the equipment version and will be distinguished after the installation of the blocking valve on the electric auxiliary heater.  
Figure shows vehicle with blocking valve 1.

**Cutting wires to length**

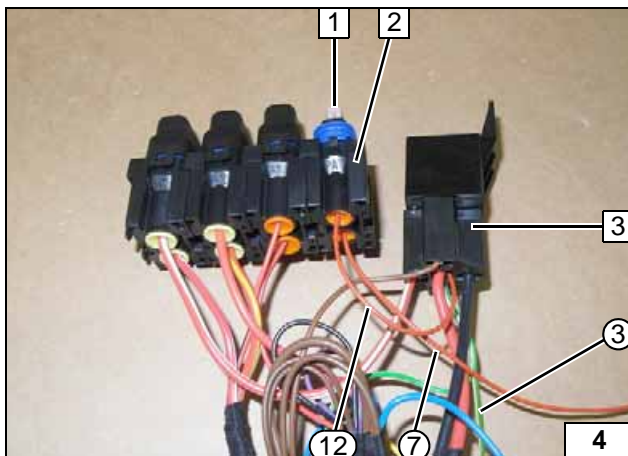


### All vehicles

Wire sections retain their numbering in the entire document.

Wires (10) and (11) are required only on vehicles with a blocking valve.

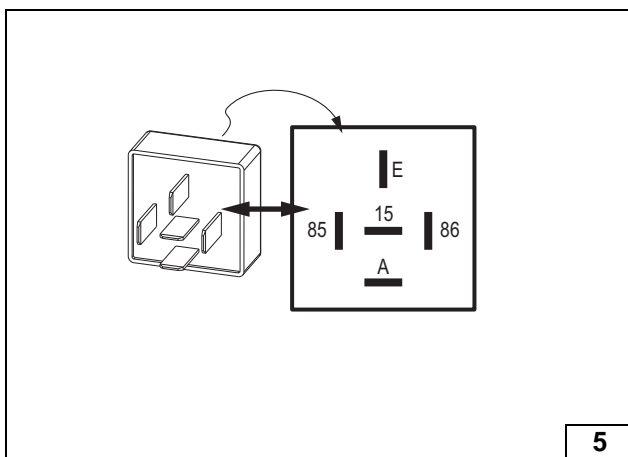
**Cutting wires to length**



Detach and remove contacts on socket for K3/86 and K3/87a. Connect wires according to connection diagram using provided contacts. Install fuse F4 2 on fuse holder. Insert 3A F4 1.

- 3 K3 relay socket
- ③ Green/white (gn/ws) wire of K3/86
- ⑦ Red (rt) wire of fuse F4
- ⑫ Red (rt) wire K3/87a and fuse F4

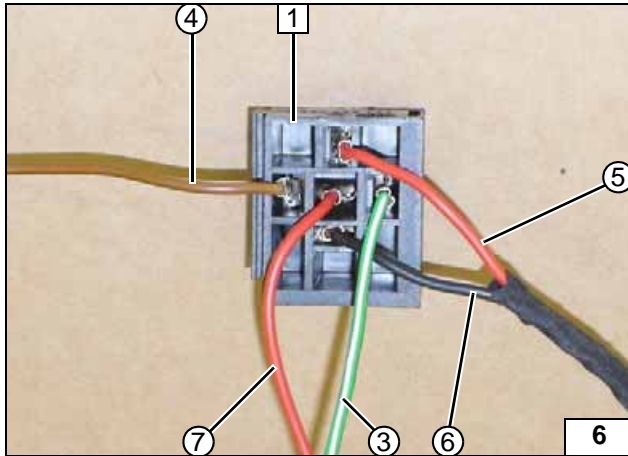
**K3 relay, preparing fuse holder**



Check the IPCU settings upon initial operation of the heater and adjust if necessary.

Duty cycle: 46%  
Frequency: 100Hz  
Voltage: not relevant  
Function: Low-side

**IPCU view**



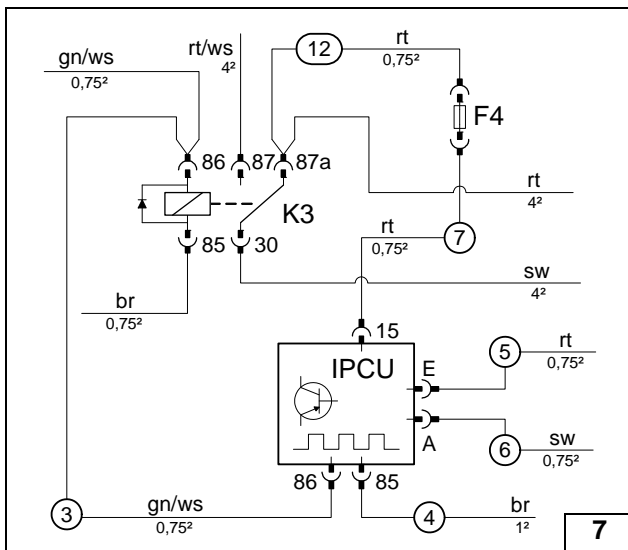
**Vehicles without a blocking valve**

Connect wires to IPCU socket 1 in accordance with the connection diagram.

- 1 IPCU socket
- ③ Green/white (gn/ws) wire of IPCU/86 from K3/86
- ④ Brown (br) wire of IPCU/85
- ⑤ Red (rt) wire of IPCU/E
- ⑥ Black (sw) wire of IPCU/A
- ⑦ Red (rt) wire of IPCU/15 from fuse F4



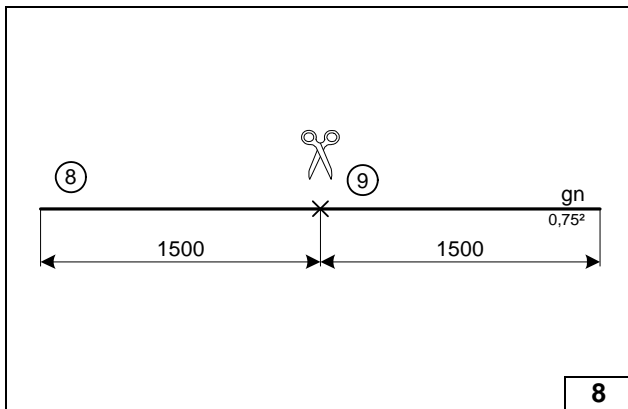
**Connect-  
ing wires**



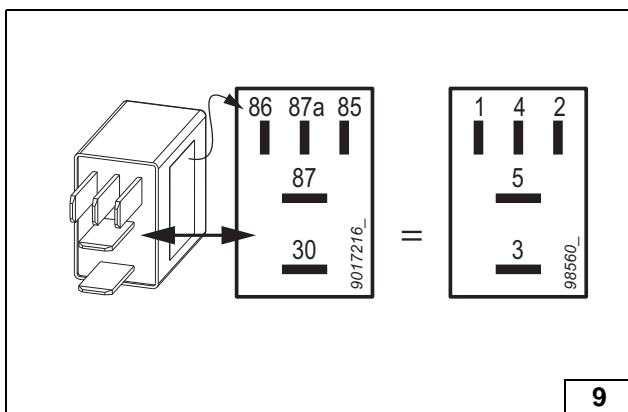
**Conne-  
tion dia-  
gram for  
IPCU, K3  
relay and  
F4**

**Also required on vehicles with blocking valve**

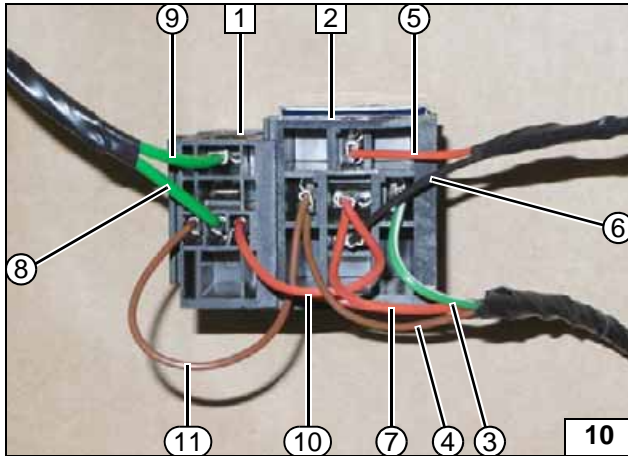
K3.1 relay serves to disable the heater upon ignition.



**Cutting  
green (gn)  
wire to  
length**



**View of re-  
lay K3.1**



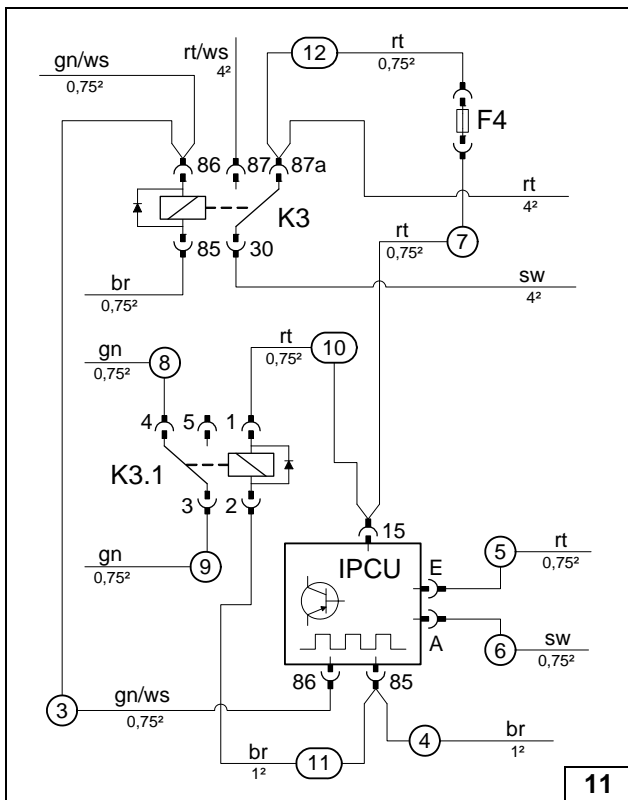
Connect wires to socket of IPCU 2 and socket of K3.1 relay 1 as shown in connection diagram. Interlock socket of K3.1 relay 2 and socket of IPCU 1.

- ③ Green/white (gn/ws) wire of IPCU/86 from K3/86
- ④ Brown (br) wire of IPCU/85
- ⑤ Red (rt) wire of IPCU/E
- ⑥ Black (sw) wire of IPCU/A
- ⑦ Red (rt) wire of IPCU/15 from fuse F4
- ⑧ Green (gn) wire of K3.1/4
- ⑨ Green (gn) wire of K3.1/3
- ⑩ Red (rt) wire of K3.1/1 and IPCU/15
- ⑪ Brown (br) wire of K3.1/2 and IPCU/85

**Connect-  
ing wires**



The IPCU and K3.1 relay are inserted only after assembly.



**Conne-  
ction dia-  
gram for  
IPCU, K3  
relay, K3.1  
relay and  
F4**





**Electrical System**

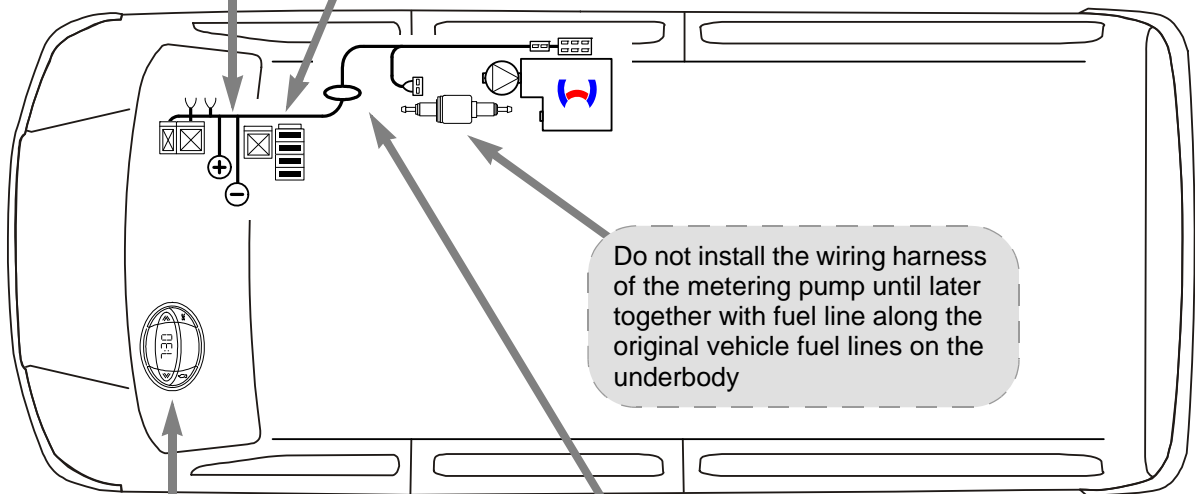
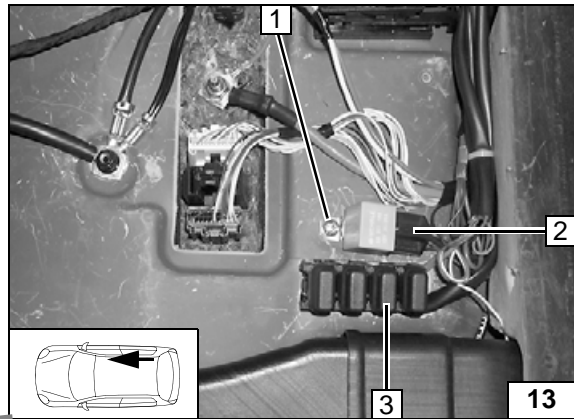
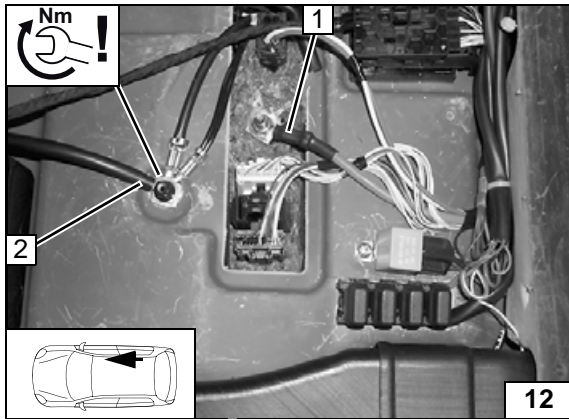
**Positive and earth wire**

- 1 Positive wire on positive support point
- 2 Earth wire on original vehicle earth support point

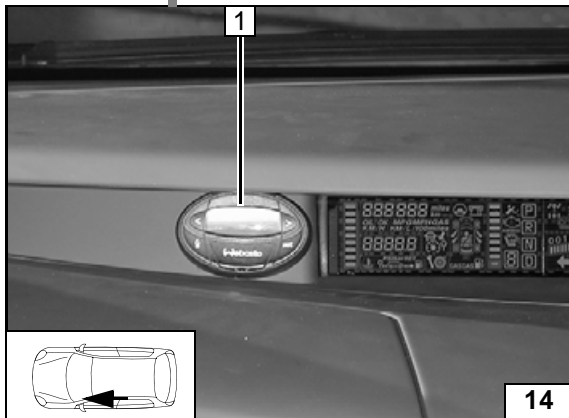
**Fuse holder, K3 relay**

Cut out insulation mat as shown in the figure. Insert the fuse holder **3** into the insulation mat in such a way that the fuse holder **3** is fixed by the foam.

- 1 5.5x9.5 self-tapping screw
- 2 K3 relay

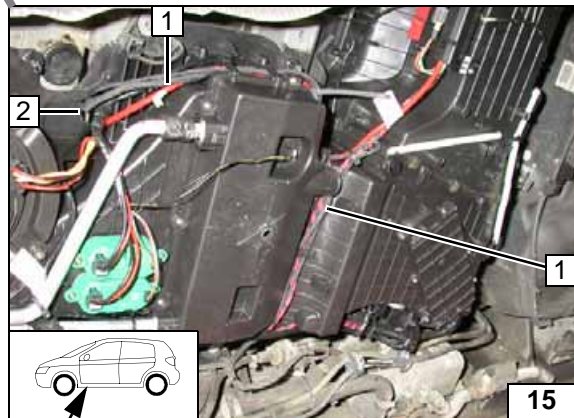


**Wiring harness routing diagram**



**Digital timer**

- 1 Digital timer



**Wiring harness pass through**

- 1 Wiring harnesses of heater and metering pump
- 2 Original vehicle passenger compartment pass through

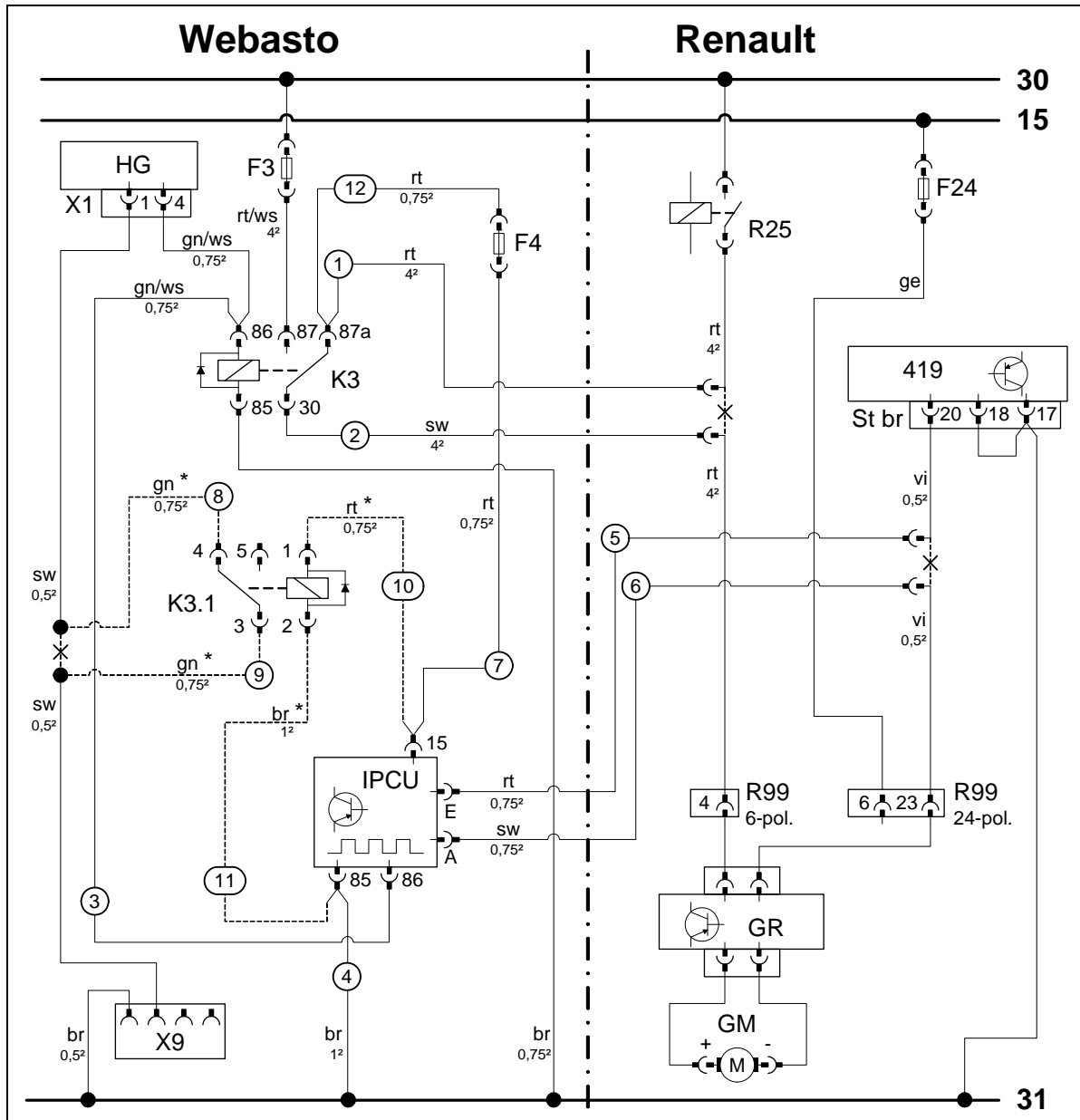




Fan Controller

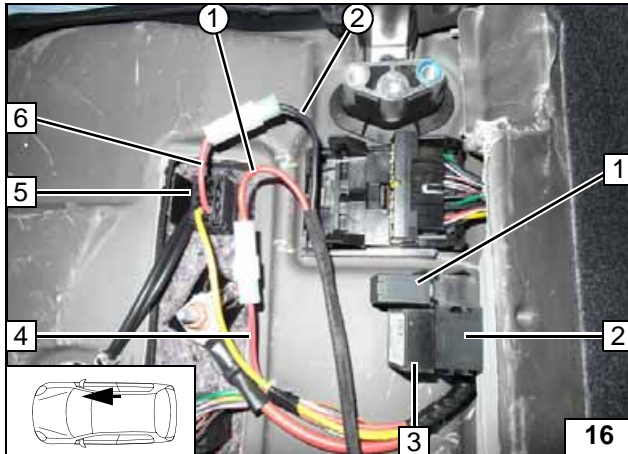


Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-C/E	F24	20A fuse	rt	red
X1	6-pin heater connector	R25	Fan relay	ws	white
F3	25A fuse	419	A/C control unit	sw	black
K3	Fan relay	St br	Brown connector	vi	violet
K3.1	Additional relay	R99	White 24-pin connector	gn	green
X9	4-pin connector of heater control	R99	Black 6-pin connector	br	brown
IPCU	Pulse width modulator			ge	yellow
<b>IPCU adjustment values:</b>		GR	Fan controller	gr	grey
Duty cycle: 46%		GM	Fan motor	*	Only with blocking valve (see figure 2)
Frequency: 100Hz				X	Cutting point
Voltage: 10V					Wiring colours may vary.
Function: Low-side					

Legend

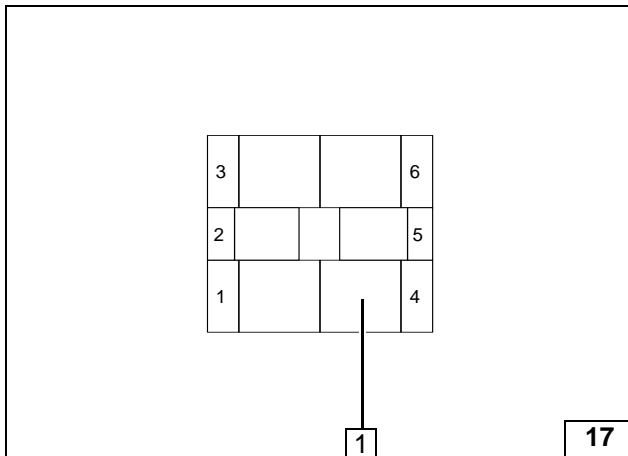


Fasten IPCU socket **2** with 5.5x9.5 self-tapping screw. Produce connections as shown in wiring diagram.

- 1 K3.1 relay mounted (only on vehicles with a blocking valve)
- 3 IPCU mounted
- 4 Red (rt) wire of fan relay
- 5 6-pin connector R99
- 6 Red (rt) wire of 6-pin connector R99, Pin 4
- ① Red (rt) wire of K3/87a
- ② Black (sw) wire of K3/30

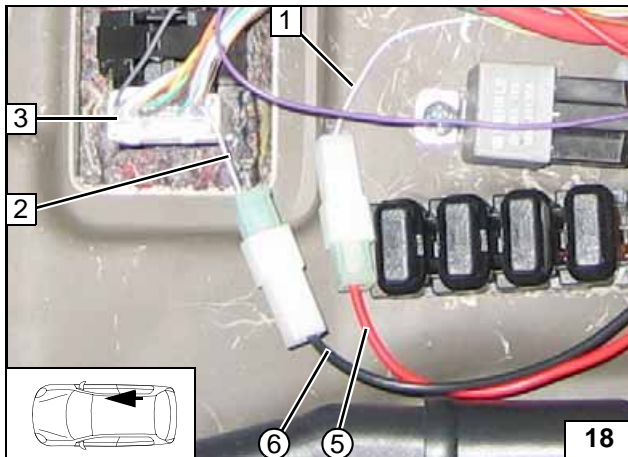


**Installing IPCU, K3.1 relay and connection of K3 relay**



- 1 Pin 4 socket

**6-pin connector R99**

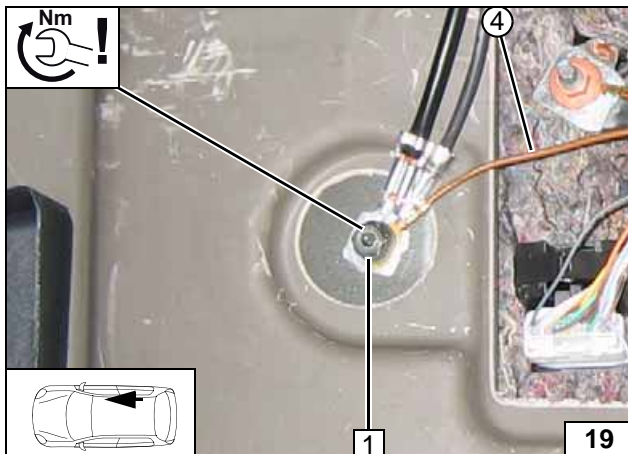


Depending on the equipment version, the fan can be deactivated when the vehicle is unlocked and re-activated with a delay after locking. Produce connections as shown in wiring diagram.

- 1 Violet (vi) wire from A/C control unit
- 2 Violet (vi) wire of 24-pin connector R99, Pin 23
- 3 24-pin connector R99
- ⑤ Red (rt) wire of IPCU/E
- ⑥ Black (sw) wire of IPCU/A



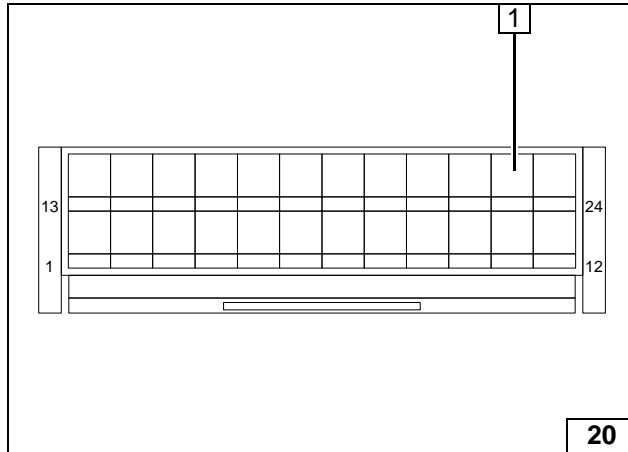
**Connecting IPCU**



- 1 Original vehicle earth support point
- ④ Brown (br) wire of IPCU/85



**Earth connection of IPCU**

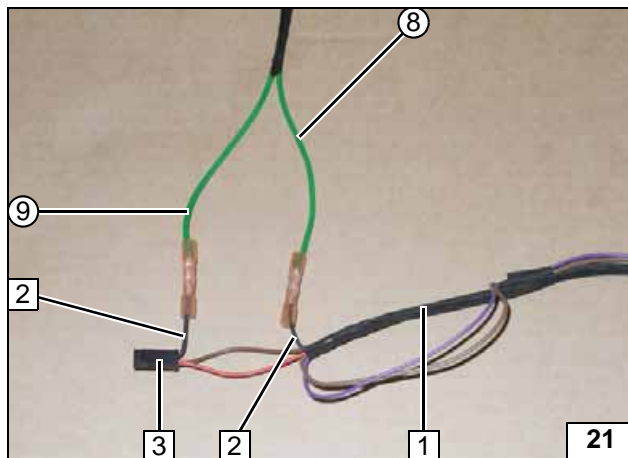


View of connector from wire side.

- 1 Pin 23 socket



24-pin connector R99



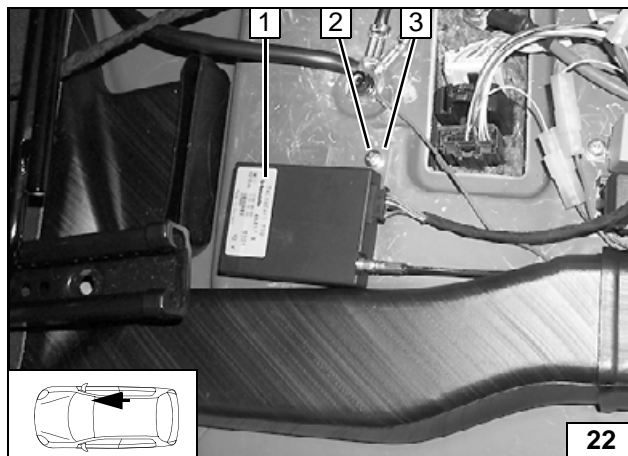
**Only on vehicles with blocking valve**

Separate black (sw) wire 2 from heater control connector 3.

- 1 Wiring harness of heater control
- 8 Green (gn) wire of K3.1/4
- 9 Green (gn) wire of K3.1/3



Connection of K3.1 relay



**Remote Option (Telestart)**

- 1 Receiver
- 2 5.5x9.5 self-tapping screw
- 3 Receiver bracket



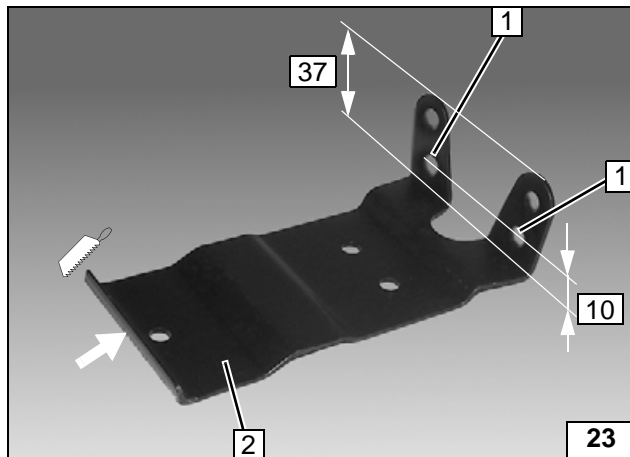
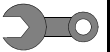
Installing receiver

When routing wires along the A-pillar, follow the corresponding manufacturer's instructions. In the case of a solar reflect windscreen, use the area allowed by the manufacturer.

Clean and degrease the bonding surface for the antenna before installing.



Installing antenna



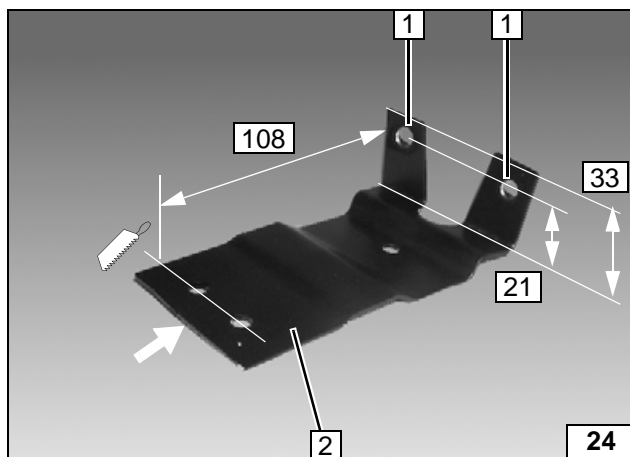
**Preparing Heater**

Saw off bracket A 2 as shown (arrow) so that the radius is left. Angle down remaining tabs by 90° as shown.

- 1 7 mm dia. hole [2x] in centre of tabs



**Preparing bracket A**

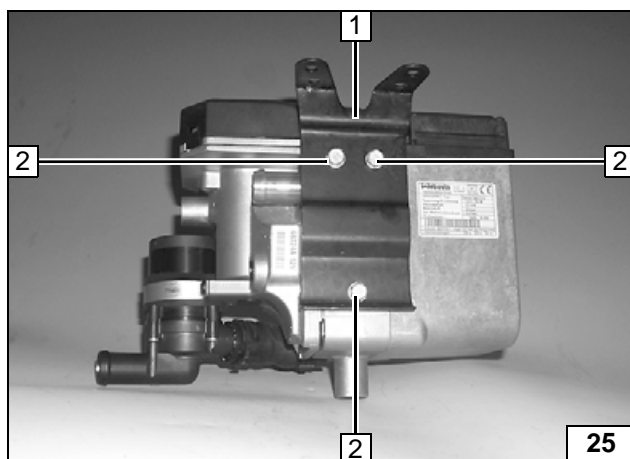


Saw off bracket B 2 as shown (arrow) so that the radius is cut away. Angle down remaining tabs by 90° and shorten as shown.

- 1 7 mm dia. hole [2x] in centre of tabs

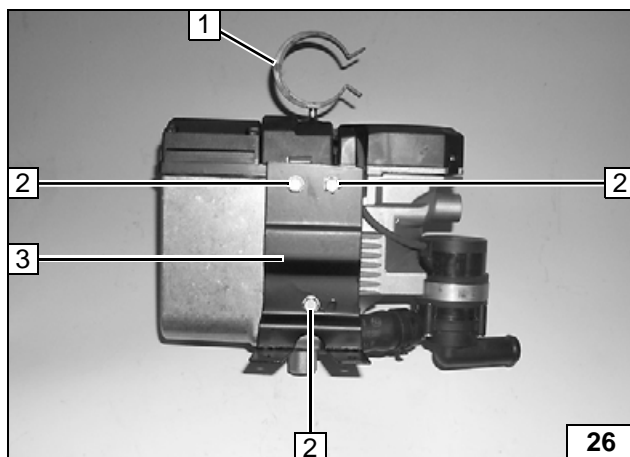


**Preparing bracket B**



- 1 Bracket A
- 2 E-jot screw [3x]

**Premounting heater**

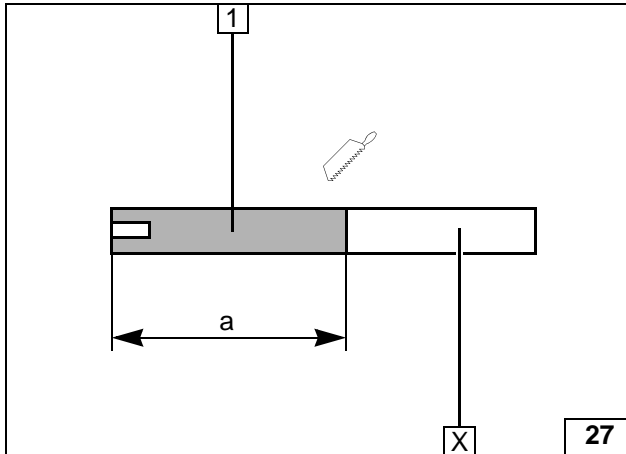
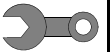


Break through perforation in heater cover and mount retaining clip 1

- 2 E-jot screw [3x]
- 3 Bracket B



**Premounting heater**

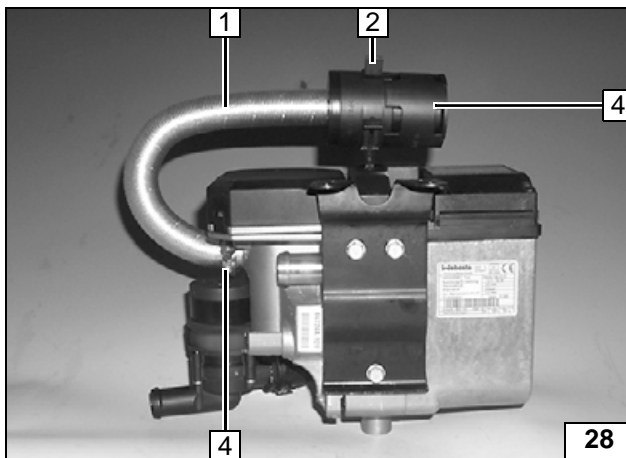


Discard section X.

- 1 Combustion air pipe  
a = 260

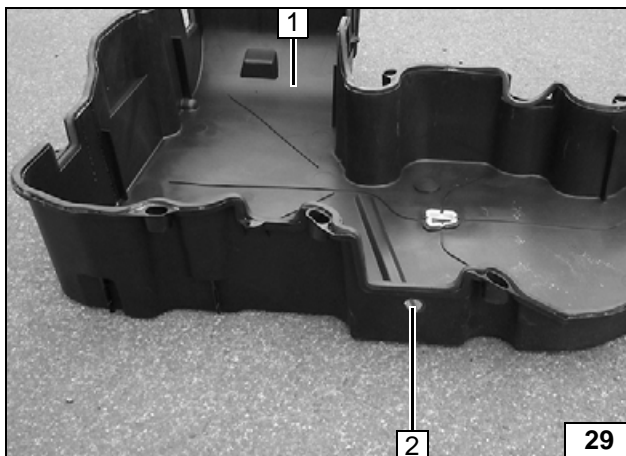


**Cutting combustion air pipe to length**



- 1 Combustion air pipe
- 2 Retaining clip
- 3 Silencer
- 4 Clamp

**Installing combustion air pipe and silencer**

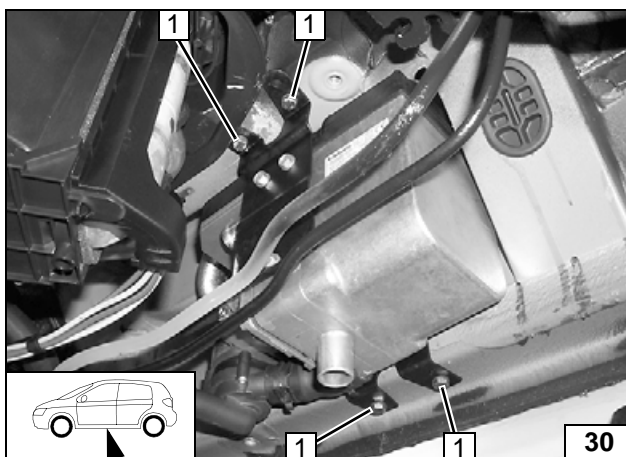


**Preparing Installation Location**

Install protective cover of heater/air-conditioning box 1, routing the wiring harness of the heater and the wiring harness of the metering pump through hole 2. Insert included rubber pass through in hole and seal off with sealing compound. Route wiring harness of heater to installation location of heater. Route wiring harness of metering pump to installation location of metering pump.



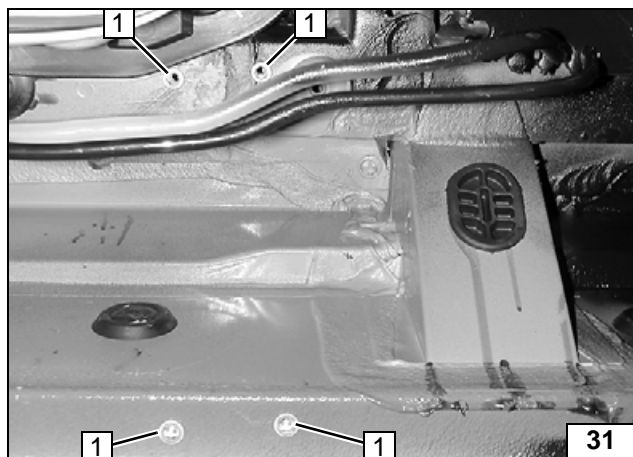
**Preparing protective cover**



Hold the heater against the frame side member and copy the hole pattern [4x].



**Copying hole pattern**

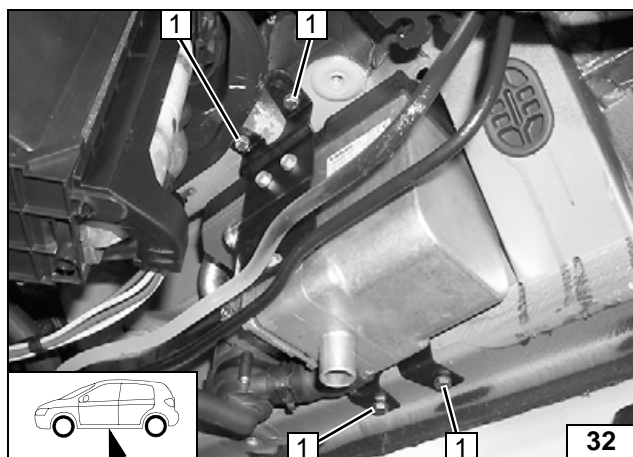


Remove heater.

- 1 9.1 mm dia. hole, rivet nut [4x each]



**Installing rivet nuts**



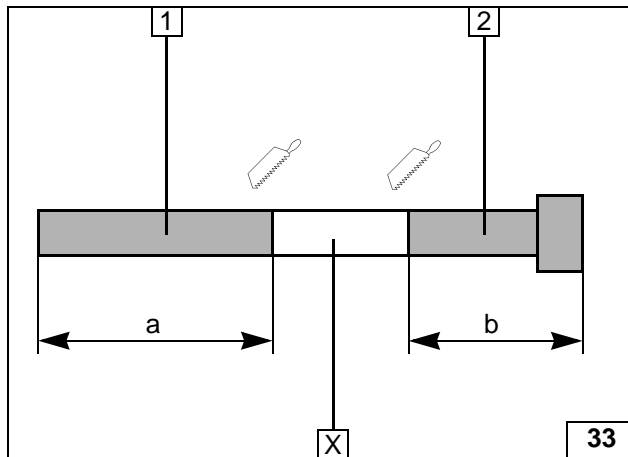
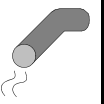
### Installing Heater

Mount connector on the heater before installation.

- 1 M6x20 bolt, spring lockwasher [4x each]



**Installing heater**



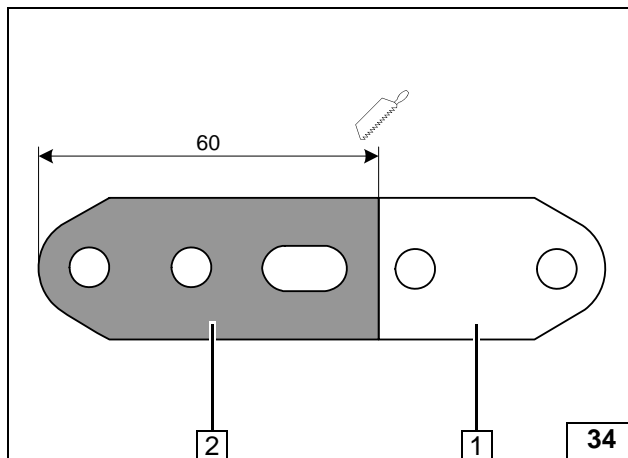
### Exhaust Gas

Discard section X.

- 1 Exhaust pipe  
a = 150
- 2 Exhaust end section  
b = 150



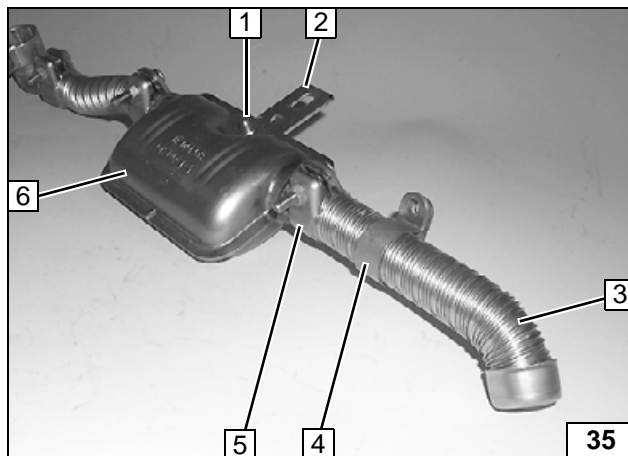
Preparing exhaust pipe



- 1 Discard section
- 2 Perforated bracket

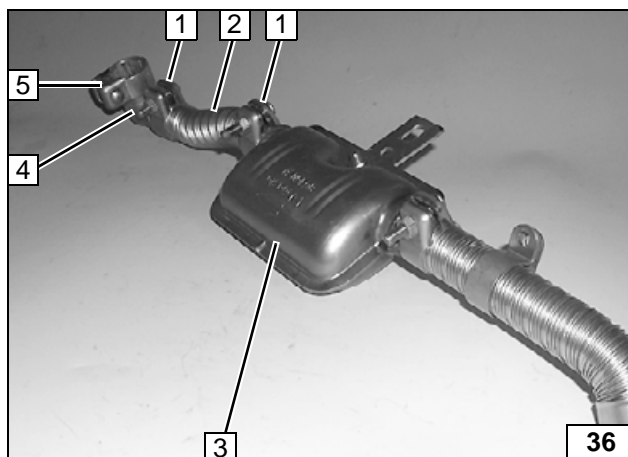


Cutting perforated bracket to length



- 1 M6x20 bolt, flanged nut
- 2 Perforated bracket
- 3 Exhaust end section
- 4 P-clamp mounted
- 5 Hose clamp
- 6 Silencer

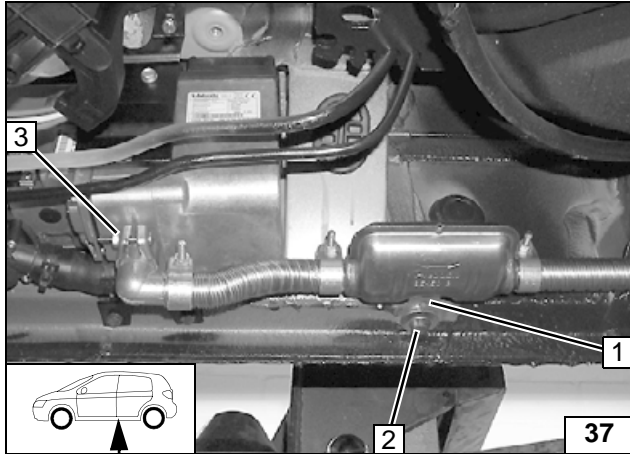
Premounting exhaust end section



- 1 Hose clamp [2x]
- 2 Exhaust pipe
- 3 Silencer
- 4 Exhaust manifold
- 5 Loosely mount hose clamp

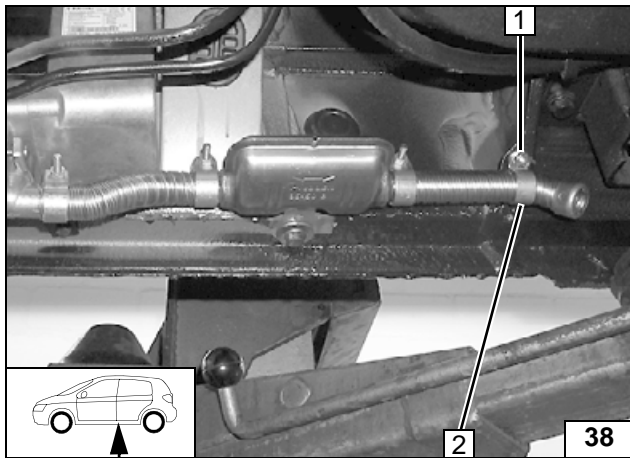
Premounting exhaust pipe





- 1 Perforated bracket
- 2 Original vehicle bolt
- 3 Tighten hose clamp

**Installing  
silencer**



Align P-clamp 2 on sheet metal tab. Copy the hole pattern from P-clamp and make 7mm dia. hole in sheet metal tab at position 1.

- 1 M6x20 bolt, flanged nut



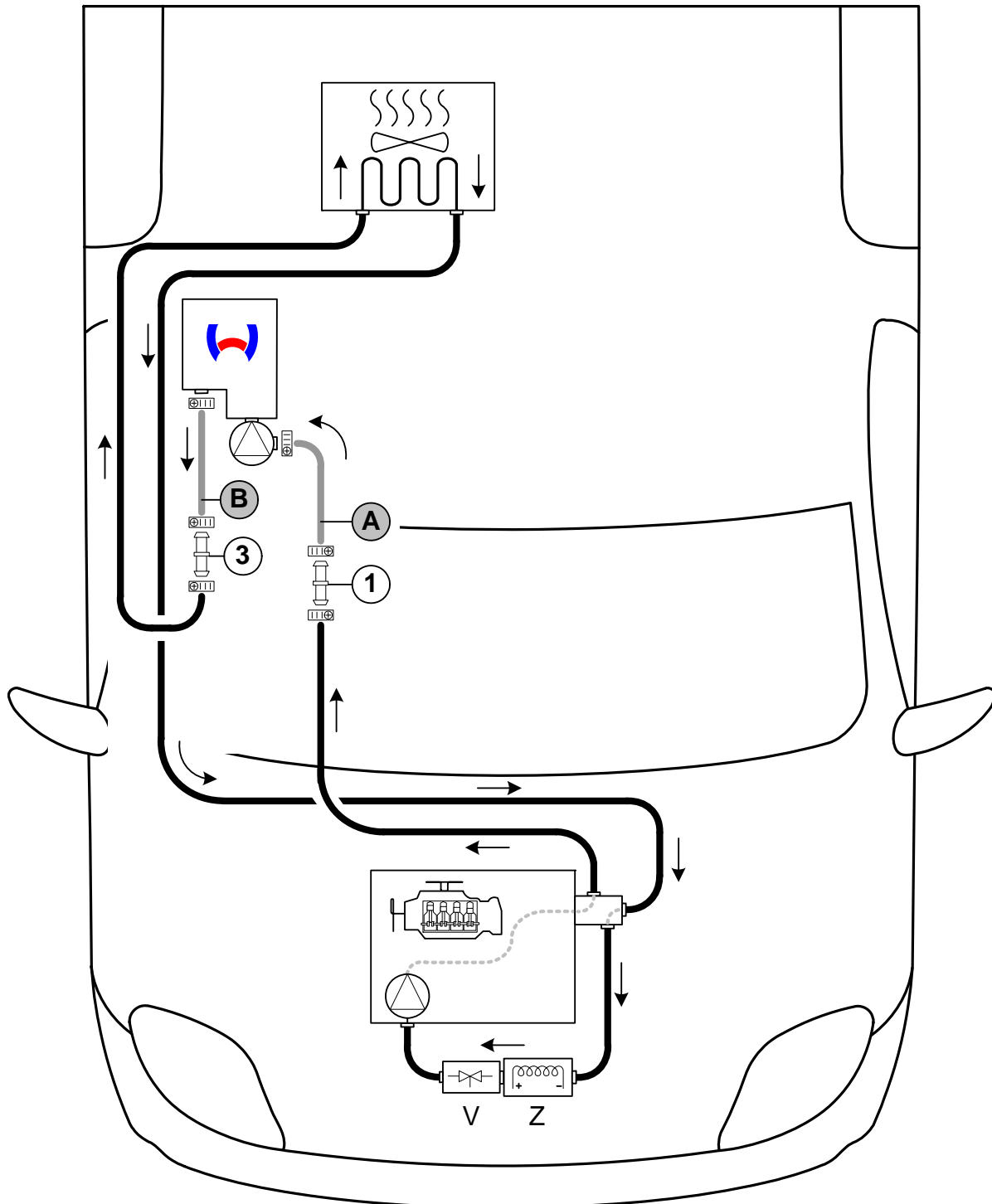
**Attaching  
exhaust  
end section**





**Coolant Circuit**

**WARNING!**

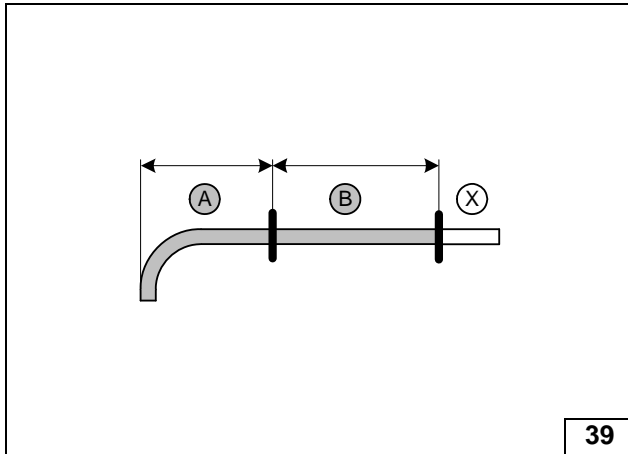
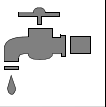
Any coolant running off should be collected using an appropriate container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can be damaged. When installing the hoses, the heater must be filled with coolant. The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



Hose routing diagram

All hose clamps  = 20-27 mm dia.! Z = Electrical auxiliary heater (if present). V = Valve (if present). 1 = metal sleeve  = Renault genuine part (7700861225).





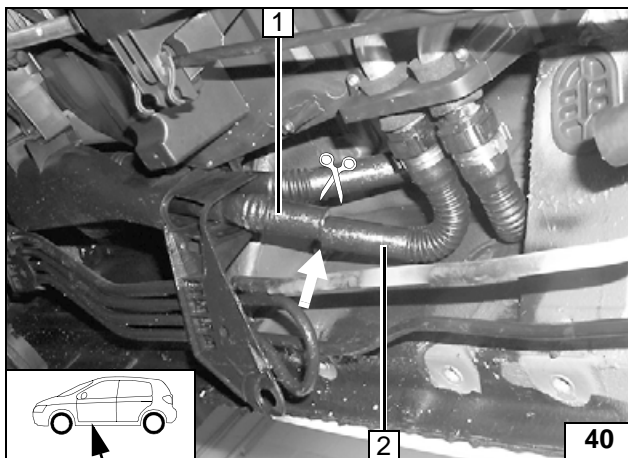
Discard section X.

A = 440

B = 360



**Cutting hoses to length**

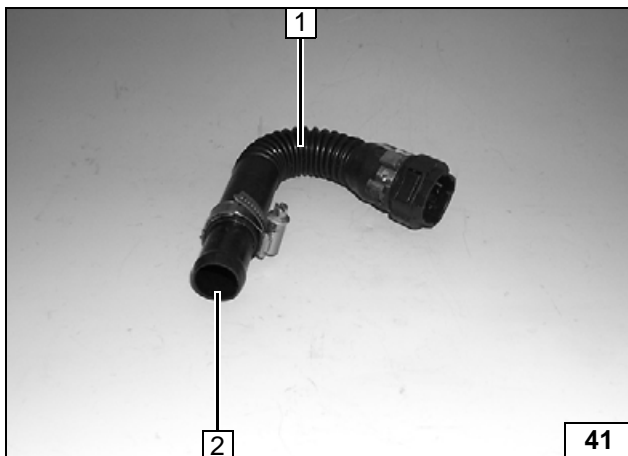


Cut hose of engine outlet / heat exchanger inlet at the marking.

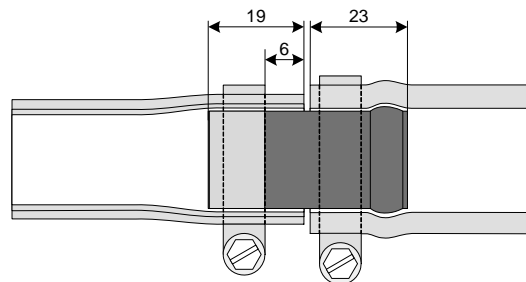
- 1 Engine outlet hose section
- 2 Remove hose section of heat exchanger inlet



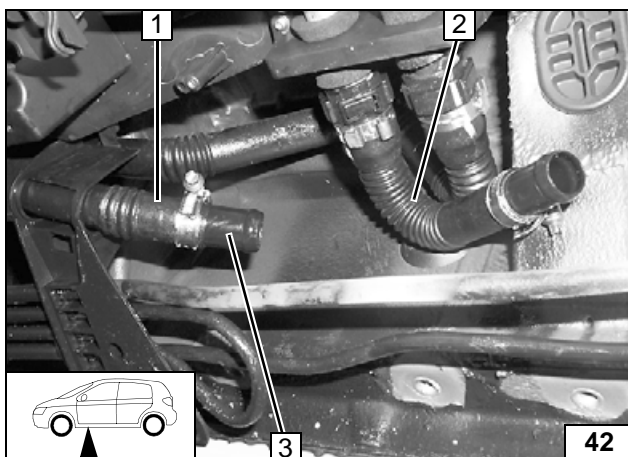
**Cutting point**



Carefully heat multi-layer plastic pipe section 1 before pressing in! When pressing in, inner layer must lie evenly around metal sleeve 2 (see diagram). Do not use lubricant!



**Installing metal sleeve**

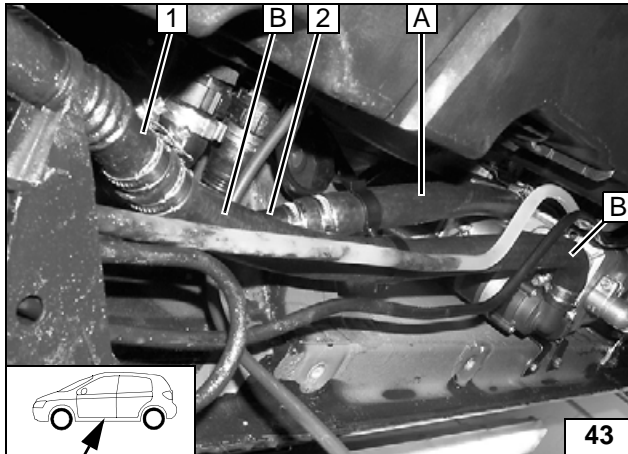


Install metal sleeve 3 in hose section at engine outlet 1 as shown.

- 2 Install hose section of heat exchanger inlet rotated through about 180°

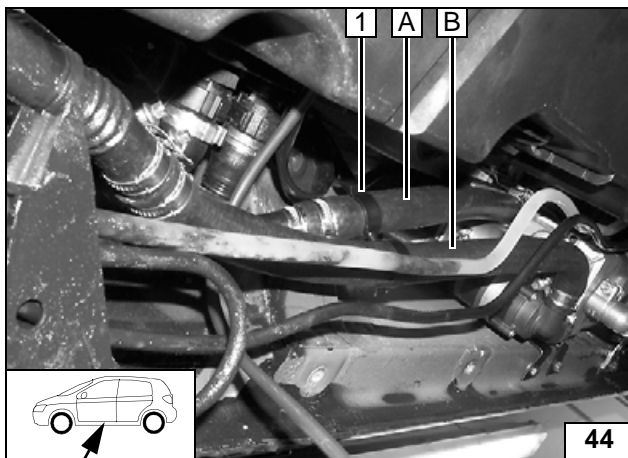


**Preparing hoses**



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

**Connect-  
ing engine  
outlet/ heat  
exchanger  
inlet**



Align hoses. Ensure sufficient distance from neighbouring components.

- 1 Hose bracket

**Installing  
hose  
bracket**

**Note:**

The solenoid valve V is located in the supply line of the heater and is thus able to stop the coolant circuit to the heater. In order to rule out heater overheating, the switch-on signal to the heater is isolated via the K3.1 relay upon activation of the ignition (see wiring diagram from MY 2011). Therefore auxiliary heating is not possible. Tick corresponding field at "Operating Instructions for End Customer".





**Fuel**

**CAUTION!**

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

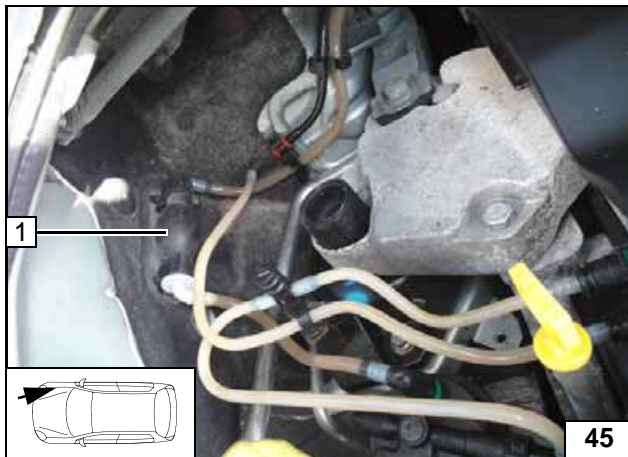
Catch any fuel running off with an appropriate container.

Route fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.

Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

**WARNING!**

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

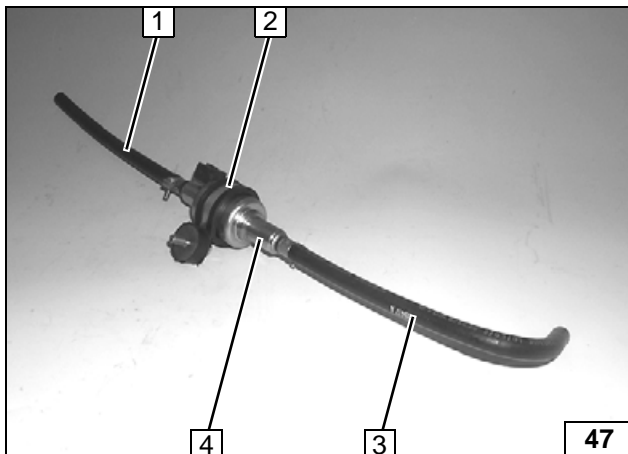


Fuel extraction is dependent on vehicle equipment.

In case of vehicles with hand pump **1** (without pre-feed pump in the tank), the fuel extraction is conducted using a T-piece in the return line - Version 1.



In case of vehicles without a hand pump (with pre-feed pump in the tank), the fuel extraction is conducted using the fuel standpipe in the fuel-tank sending unit - Version 2.



**Version 1**

Cut the fuel hose **1** to a length of 180mm.

- 1 Fuel hose, 10mm dia. clamp
- 2 Silent block, rubber-coated p-clamp, flanged nut
- 3 90° moulded hose, 10 mm dia. clamp
- 4 Metering pump



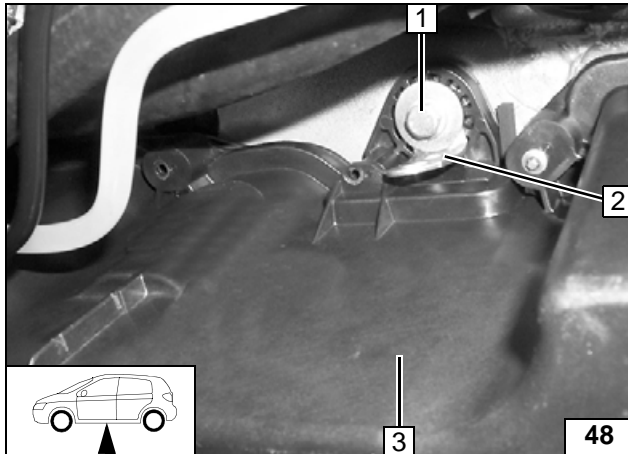
**Fuel extraction**



**Fuel extraction**



**Premounting metering pump**

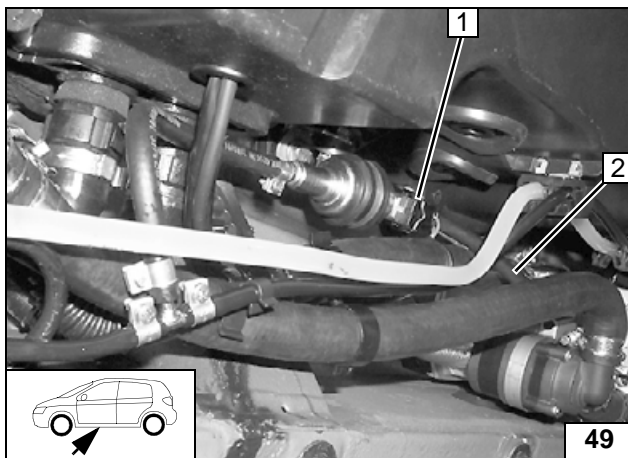


Drill out hole in short leg of 8.5mm dia. angle bracket **2**.

- 1** Original vehicle bolt
- 3** Protective cover of heater/air conditioner box



**Installing angle bracket**

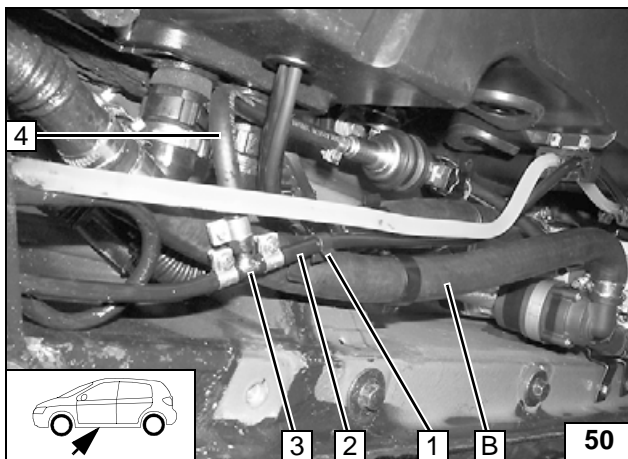


Mount silent block with flanged nut on angle bracket.

- 1** Wiring harness of metering pump, connector mounted
- 2** Fuel hose with 10mm dia. clamp on heater



**Installing and connecting metering pump**



Cut off fuel return line **2** at position **3**. Dependent on vehicle equipment:

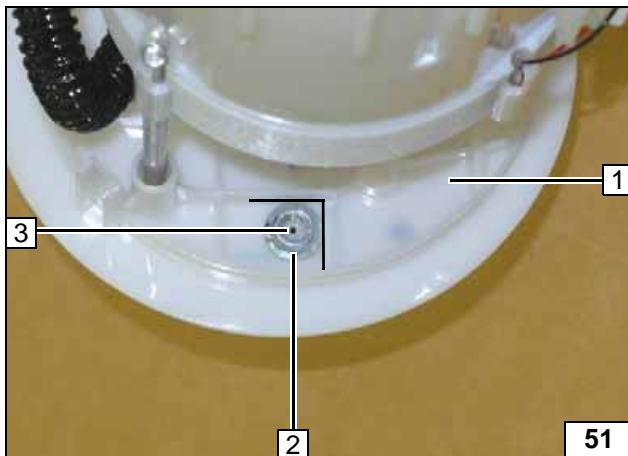
Fuel return line **2** with inside dia.  $d_i = 6\text{mm}$  or  $d_i = 8\text{mm}$ .

Ensure sufficient distance to neighbouring components, adjust if necessary.

- 1** Spacer bracket on return line and hose **B**
- 3** 6x5x6 fuel standpipe, 8mm dia. clamp [2x] or 8x5x8 fuel standpipe, 10mm dia. clamp [2x]
- 4** Cut 90° moulded hose to appropriate length, 10 mm dia. clamp



**Fuel extraction**



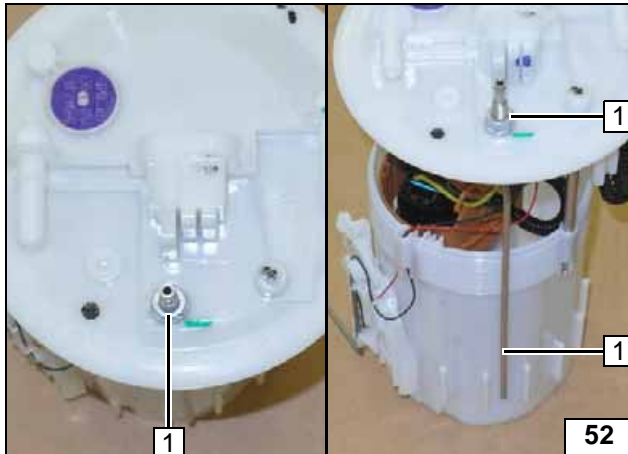
**Version 2**

Remove fuel tank according to manufacturer's instructions. Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Place flanged nut **2** against the edges (see marking).

- 3** Copy hole pattern, 6 mm dia. hole



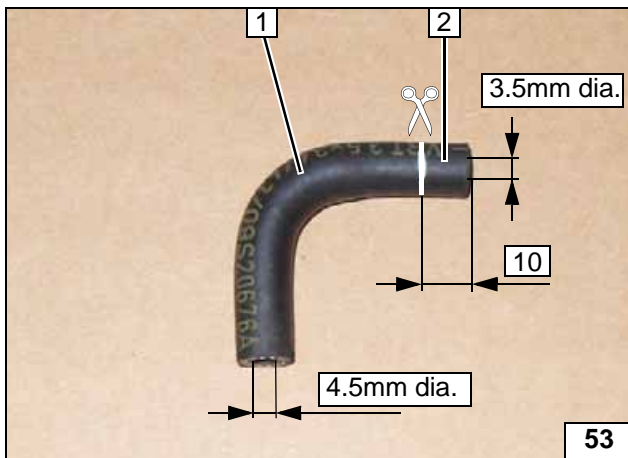
**Fuel extraction**



Shape fuel standpipe 1 according to template and cut to length.



**Installing fuel standpipe**

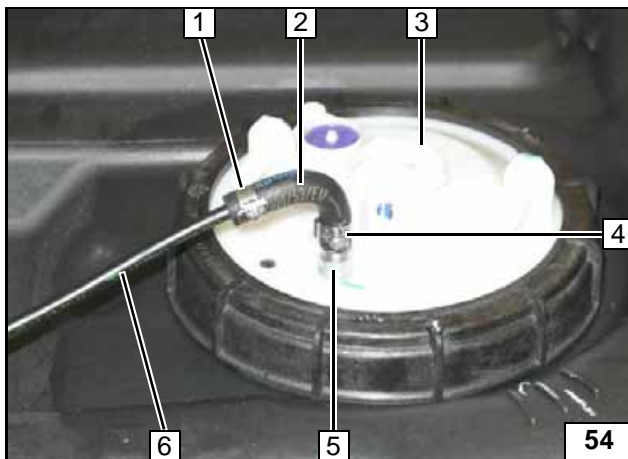


Cut moulded hose to length!



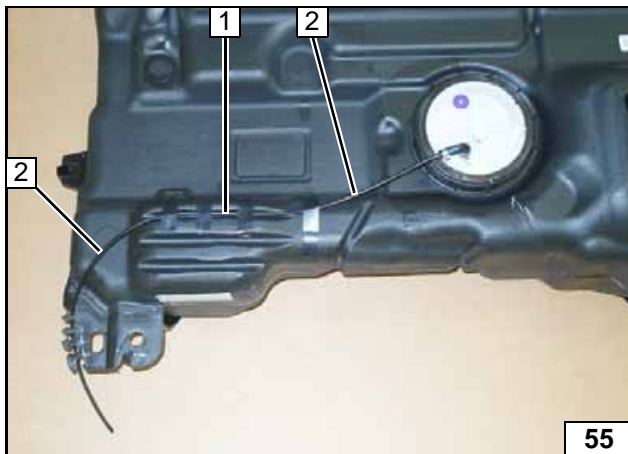
**Cutting moulded hose to length**

- 1 90° moulded hose with inner dia.  $d_i = 3.5 \times 4.5 \text{ mm}$
- 2 Discard section



- 1 10 mm dia. clamp
- 2 90° moulded hose
- 3 Fuel-tank sending unit
- 4 9 mm dia. clamp
- 5 Fuel standpipe
- 6 Fuel line

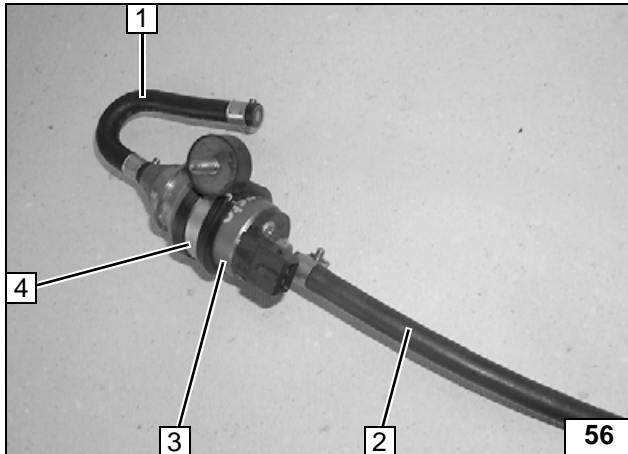
**Installing fuel-tank sending unit**



Fasten fuel line 2 in guide at position 1 with adhesive tape. Mount the tank in accordance with manufacturer's instructions after installation.



**Routing combustion fuel line**

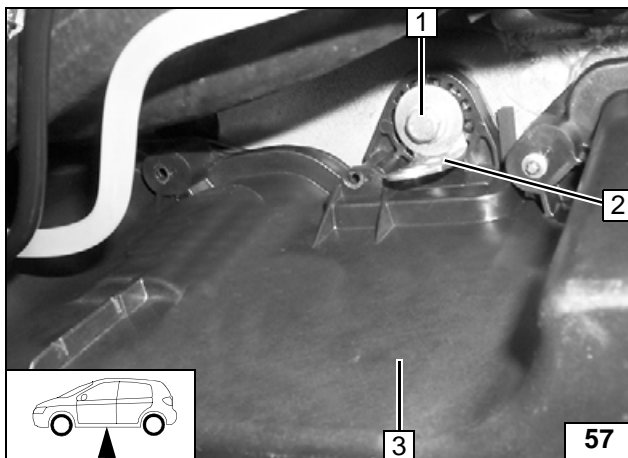


Cut the fuel hose 2 to a length of 180mm.

- 1 180° moulded hose, 10 mm dia. clamp
- 2 Fuel hose, 10mm dia. clamp
- 3 Metering pump
- 4 Silent block, rubber-coated p-clamp, flanged nut



**Premounting metering pump**

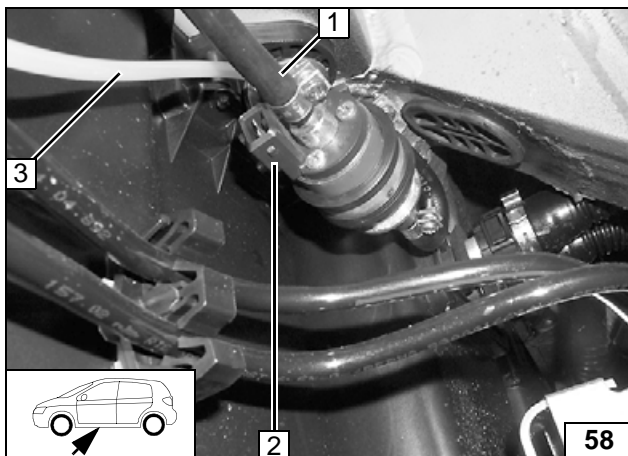


Drill out hole in short leg of 8.5mm dia. angle bracket 2.

- 1 Original vehicle bolt
- 3 Protective cover of heater/air conditioner box



**Installing angle bracket**



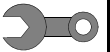
Mount silent block with flanged nut on angle bracket. Ensure sufficient distance to neighbouring components, adjust if necessary.

- 1 Fuel hose with 10mm dia. clamp on heater
- 2 Wiring harness of metering pump, mount connector
- 3 Fuel line, fuel standpipe with 10mm dia. clamp on 180° moulded hose



**Installing and connecting metering pump**





### Final Work

#### WARNING!

Reassemble the disassembled components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.

Only use manufacturer-approved coolant. Spray heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Set digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place caution label "Switch off parking heater before refuelling" in the area of the filler neck.**
- **For initial start-up and function check, see installation instructions**

#### Note:

Depending on the equipment version, the fan can be deactivated as soon as the vehicle is unlocked and only re-activated with a delay after locking.

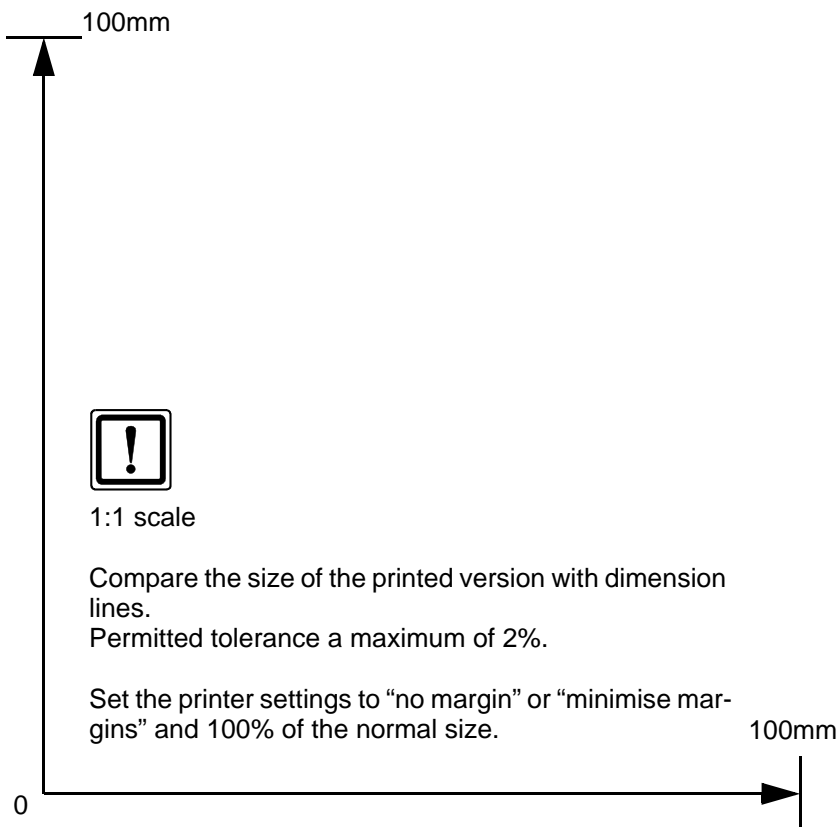
In the case of vehicles with a blocking valve on the electric auxiliary heater, the heater is deactivated when the ignition is switched on.

**Mark the relevant versions with a cross on the last page.**





Template for Fuel Standpipe



### Operating Instructions for End Customer

Please remove page and add to the vehicle operating instructions.

**Warning:** The installation of a parking heater results in a limited ground clearance in the area surrounding the silencer and exhaust outlet of the heater.

**Note:**

We recommend matching the heating time to the driving time.

Heating time = driving time

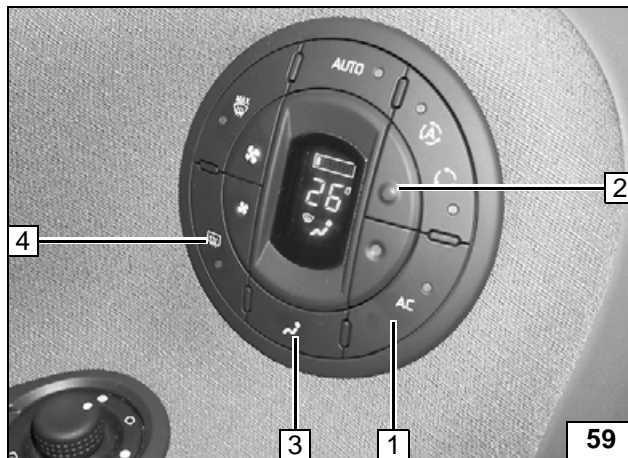
**Example:**

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

To be documented by the installation workshop (please tick where appropriate):

- Auxiliary heating while driving is not possible for your vehicle because of the coolant circuit's configuration!
- Auxiliary heating while driving is possible for your vehicle!
- On your vehicle, the fan is deactivated as soon as the vehicle is unlocked and only re-activated with a delay after locking.

Before parking the vehicle, make the following settings:



- 1 Deactivate air-conditioning
- 2 Set temperature to "26°C"
- 3 Air outlet to windscreen
- 4 Deactivate rear-window heater

**Automatic  
air-conditioning**

