

# Water Heater

**Thermo Top Evo Parking Heater**  
**“Island based circuit“**



## Installation Documentation

### Fiat 500X

#### Validity

| Manufacturer | Model | Type  | EG-BE No. / ABE     |
|--------------|-------|-------|---------------------|
| Fiat         | 500X  | AXC1B | e3 * 2007/46 * 0318 |

| Motorisation | Fuel   | Transmission type | Output in kW | Displacement in cm³ | Engine code |
|--------------|--------|-------------------|--------------|---------------------|-------------|
| 1.4 P        | Petrol | SG                | 103          | 1368                |             |

SG = manual transmission

**From Model Year 2015**  
**Left-hand drive vehicle**

**Verified equipment variants:** Automatic air-conditioning  
 Front fog lights  
 Start Stop Function  
 Euro 6  
 2WD

**Not verified:** Manual air-conditioning  
 Passenger compartment monitoring  
 4WD

**Total installation time:** approx. 8 hours

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## Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Fiat 500X 2015 Petrol: **1324020A**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

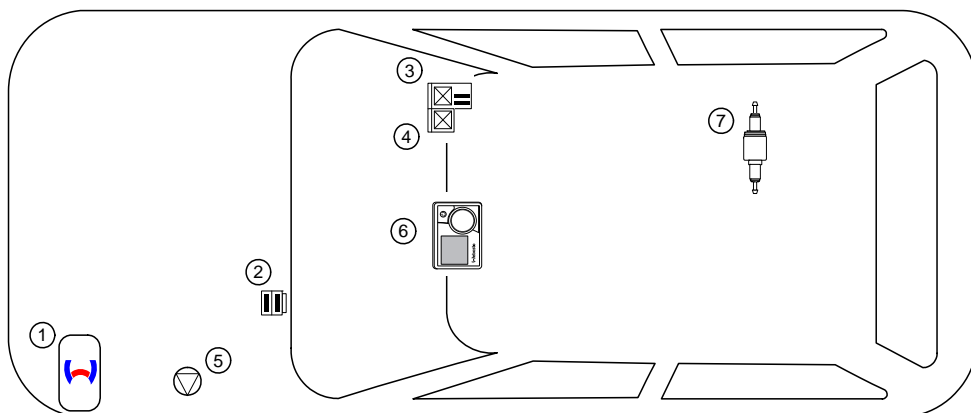
## Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about  $\frac{1}{4}$  full.
- The installation location of the push button in case of Telestart or Thermo Call should be confirmed with the end customer.
- Depending on the available space and manufacturer's instructions, we recommend the use of a vehicle battery with more electrical capacity.
- Integration in the coolant circuit is based on the island circuit model. In parking heating mode there will be **no** engine pre-heating.

## Installation Overview

### Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. PWM GW
5. Circulating pump
6. MultiControl CAR
7. Metering pump



## Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting of the vehicle-specific components, the heater specific installation time and all other times required for the system integration and initial start-up of the heater. The total installation time may vary for vehicle equipment other than provided.

## Information on Operating and Installation Instructions

### 1 Important information (not complete)

#### 1.1 Installation and repair



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.



To install and repair Webasto heating and cooling systems you need to have completed a special company training course and have the appropriate technical documentation, special tools and special equipment.



Installation and repair may ONLY be carried out by persons trained and certified in a Webasto training course. NEVER try to install or repair Webasto heating or cooling systems if you have not completed a Webasto training course, you do not have the necessary technical skills and you do not have the technical documentation, tools and equipment available to ensure that you can complete the installation and repair work properly.

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

#### 1.2 Operation

To ensure safe operation, we recommend having the heater checked every two years by an authorised Webasto dealer, especially when used over a long period and/or under extreme environmental conditions.

Do not operate the heater in closed rooms due to the danger of poisoning and suffocation.

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel diesel (DIN EN 590) or petrol (DIN EN 228).

The heater may not be cleaned with a high-pressure cleaner.

#### 1.3 Please note

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

To become familiar with and understand all functions and properties of the heater, the operating instructions must be read carefully and observed at all times.

For proper, safe installation and repair work, the installation instructions with all warnings and safety information must be carefully read and observed at all times. Please always contact a workshop authorised by Webasto for all installation and repair work.

#### Important

**Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.**

**This liability exclusion particularly applies to improper installations and repairs, installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.**

**The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.**

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 wire ends and tie back. Connectors on electronic components must audibly snap into place during assembly.

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).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components!

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

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

### 2 Statutory regulations governing installation

| Guidelines                 | TT-Evo     |
|----------------------------|------------|
| Heating Directive ECE R122 | E1 00 0258 |
| EMC Directive ECE R10      | E1 04 5627 |

#### Note

The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

#### Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

#### Note

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

### 2.1 Excerpt from the directive 122 (heater) section 5 for the installation of the heater.

Beginning of excerpt.

#### ANNEX VII

#### REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

##### 1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

##### 2. VEHICLE INSTALLATION REQUIREMENTS

###### 2.1. Scope

2.1.1. Subject to paragraph 2.1.2, combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

###### 2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

###### 2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

###### 2.4. Exhaust system

2.4.1. The exhaust gas outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

###### 2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

###### 2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

###### 2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

## Information on Validity

This installation documentation applies to Fiat 500X Petrol vehicles - for validity, see page 1 - from model year 2015 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.

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

## Technical Information

### Special Tools

- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm<sup>2</sup>
- Crimping pliers for cable lug / tab connector 0.5 - 6mm<sup>2</sup>
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

### Dimensions

- All dimensions are in mm.

### Tightening torque values

- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8 Nm.
- Tightening torque value of 5x15 water connection piece retaining plate bolt = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art technology.

## Explanatory Notes on Document

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

Special features are highlighted using the following symbols:

### Mechanical System



### Electrical System



### Coolant Circuit



### Combustion Air



### Fuel



### Exhaust Gas



### Software



Specific risk of injury or fatal accidents.



Specific risk due to electrical voltage.



Specific risk of damage to components.



Specific risk of fire and explosion.



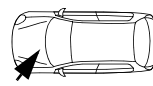
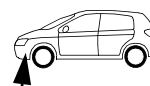
Reference to general installation instructions of the Webasto components or to the manufacturer's vehicle-specific documents.



Reference to a special technical feature.



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



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



## Preliminary Work

### Vehicle

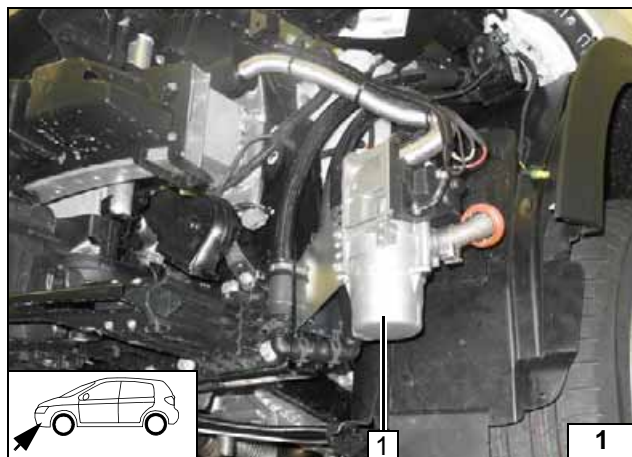


- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery and remove completely, including the carrier.
- Remove the windscreen wiper.
- Remove the windscreen wiper system.
- Remove the coolant reservoir cap.
- Remove the wiring harness pass through trim for the firewall on the left (5x clipped on).
- Remove the engine cover.
- Remove the bumper.
- Remove the left-hand headlight.
- Remove the right-hand underbody trim.
- Remove the side trim of the instrument panel on the left and on the right.
- Remove the footwell trim on the driver's and front passenger's side.
- Remove the glove box.
- Remove the rear bench seat.
- Open the right-hand tank-fitting service lid.



### Heater

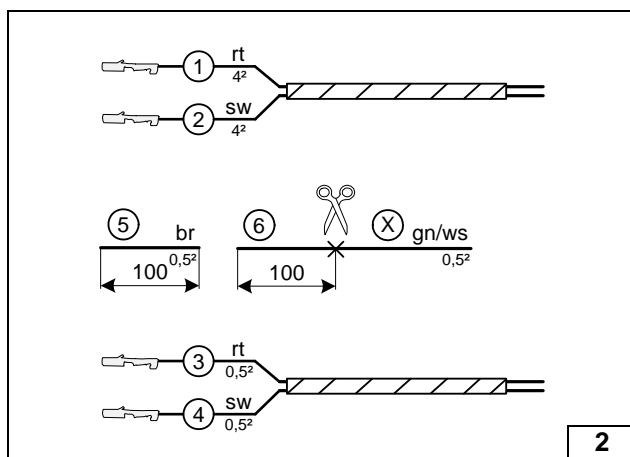
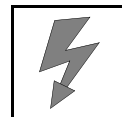
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



### Heater Installation Location

1 Heater

Installation  
location



## Preparing Electrical System

Wire sections retain their numbering throughout the whole document.

Produce all following electrical connections as shown in the wiring diagram.

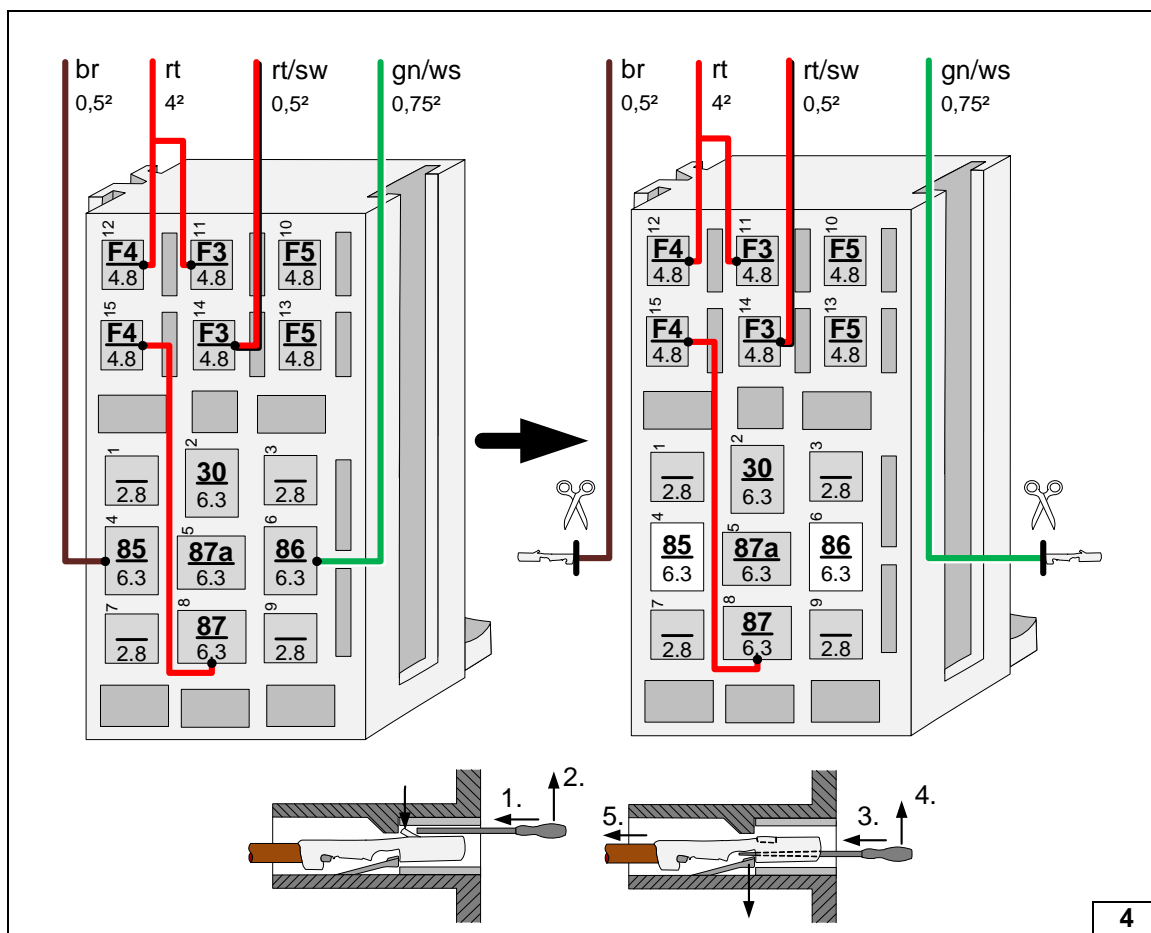
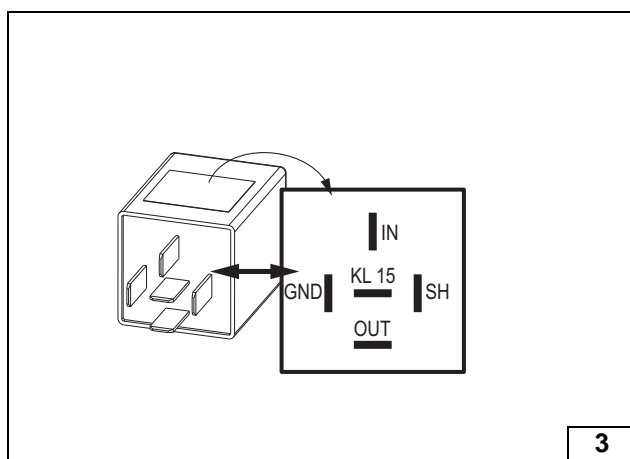
Discard section **X**.

- ① Red (rt) wire of fan wiring harness
- ② Black (sw) wire of fan wiring harness
- ③ Red (rt) wire from wiring harness of PWM control
- ④ Black (sw) wire from wiring harness of PWM control

The settings of the PWM Gateway are to be checked before the heater start-up, and adjusted if necessary.

Settings:

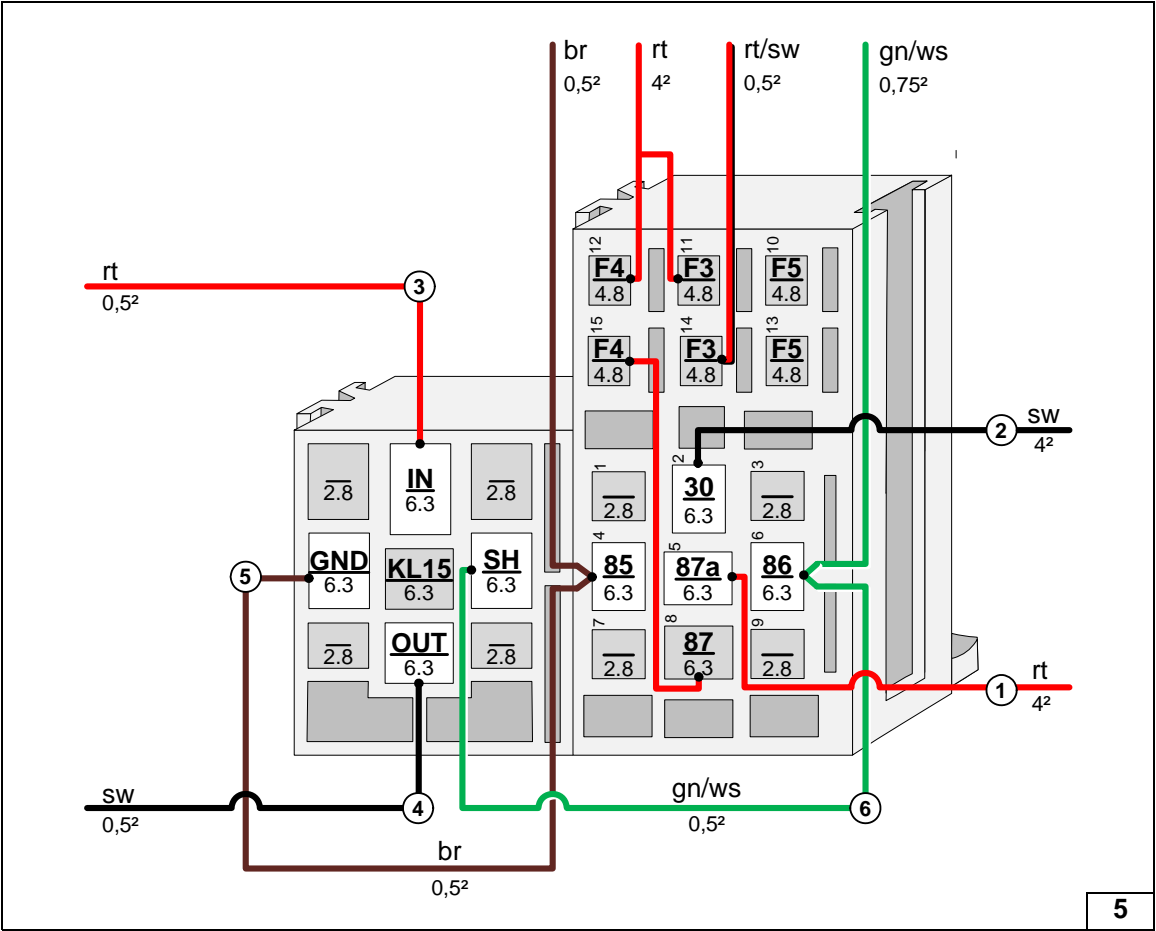
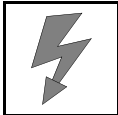
Duty cycle: 35%  
Frequency: 1200Hz  
Voltage: 4.2V  
Function: High side



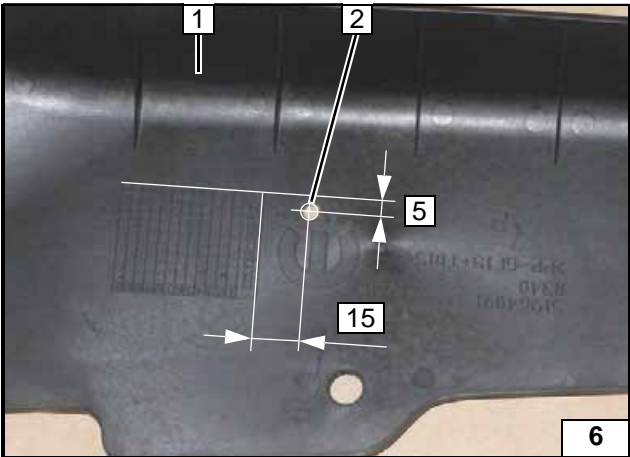
## Assigning wires

## View of PWM-GW

## Preparing relay and fuse holder of passenger compartment

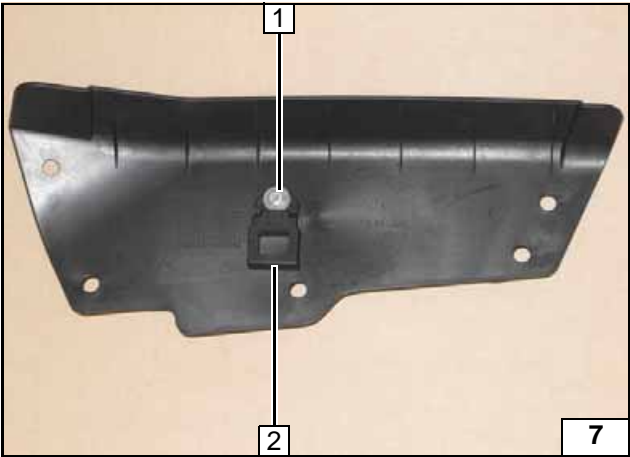


Connecting wires to sockets of PWM GW and passenger compartment relay and fuse holder, interconnecting sockets



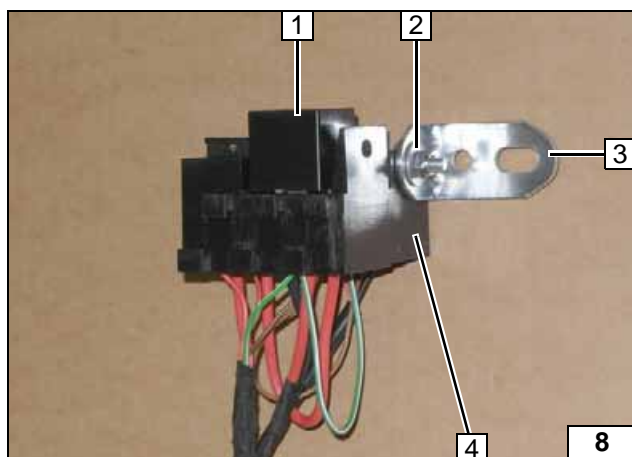
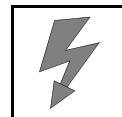
- 1 Trim of wiring harness pass through for the firewall
- 2 5mm dia. hole

Hole for engine compartment fuse holder



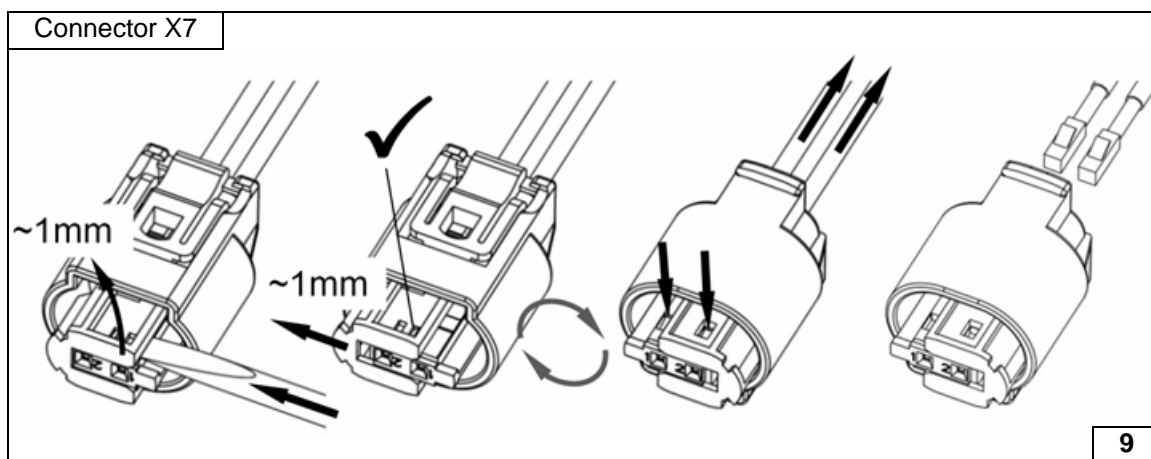
- 1 M5x16 bolt, large diameter washer [2x], nut
- 2 Retaining plate of fuse holder

Installing fuse holder retaining plate



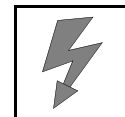
- 1 K1 relay inserted
- 2 M5x16 bolt, large diameter washer [2x], nut
- 3 Angle bracket
- 4 PWM GW socket

Installing  
angle  
bracket



Removing  
metering  
pump con-  
nector





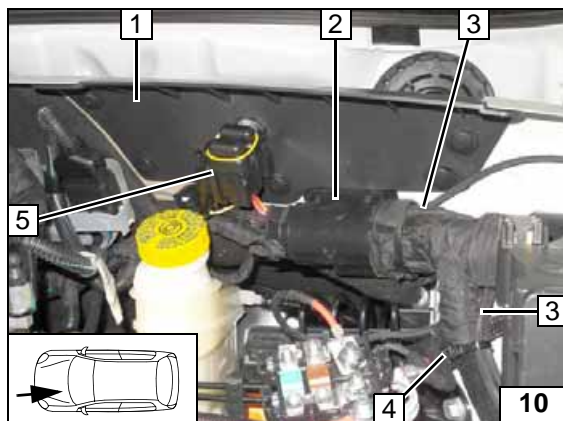
## Electrical System



### Engine compartment fuse holder

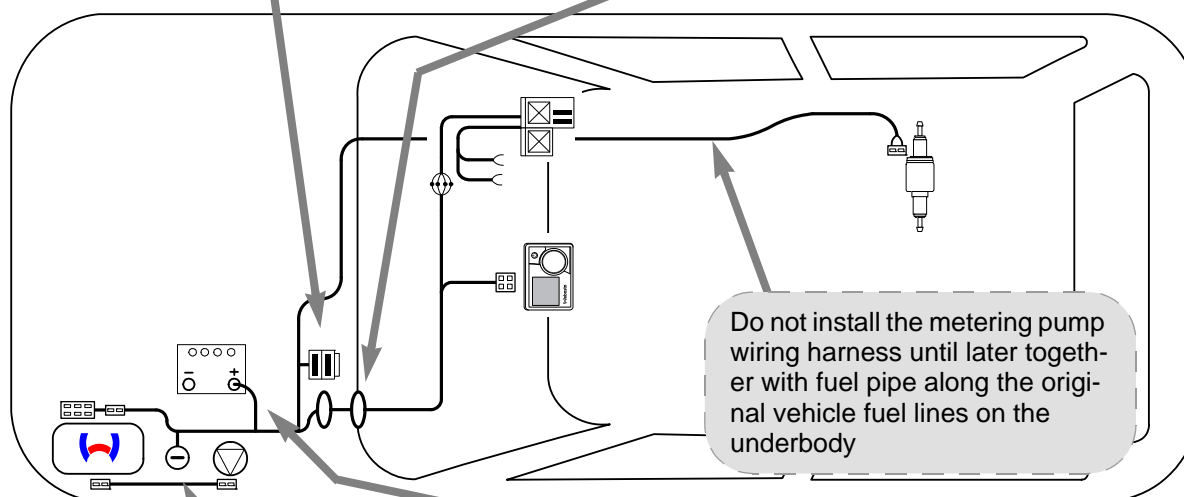
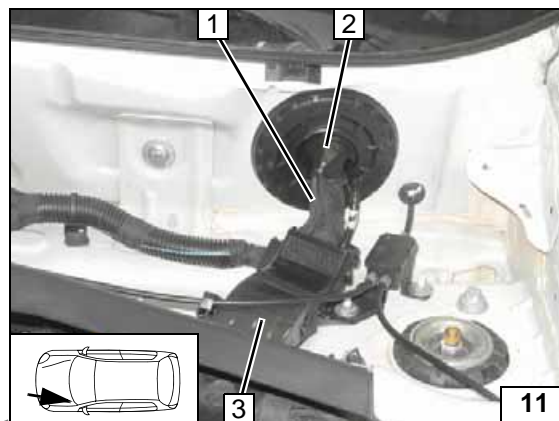
Route heater wiring harness **3** and heater control through original vehicle wiring duct **2** in the coolant reservoir.

- 1** Trim of wiring harness pass through for the firewall, mounted
- 4** Cable tie
- 5** Fuses F1-2

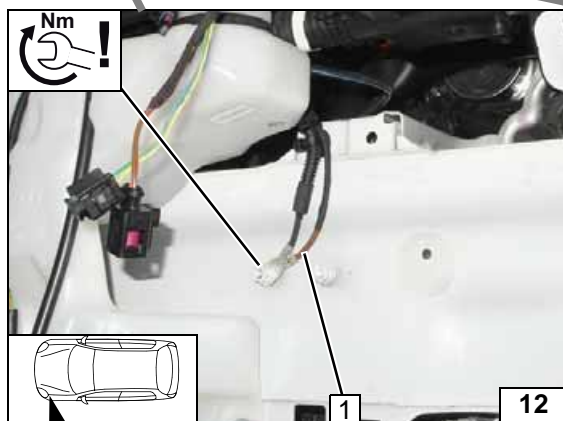


### Wiring harness pass through

- 1** Wiring harness of heater, heater control
- 2** Protective rubber plug
- 3** Original vehicle wiring duct

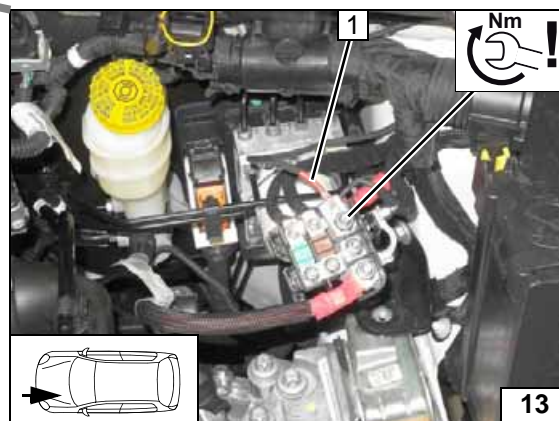


Wiring harness routing diagram



### Earth wire

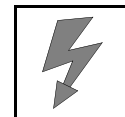
- 1** Earth wire on original vehicle earth support point



### Positive wire

- 1** Positive wire on positive battery distributor

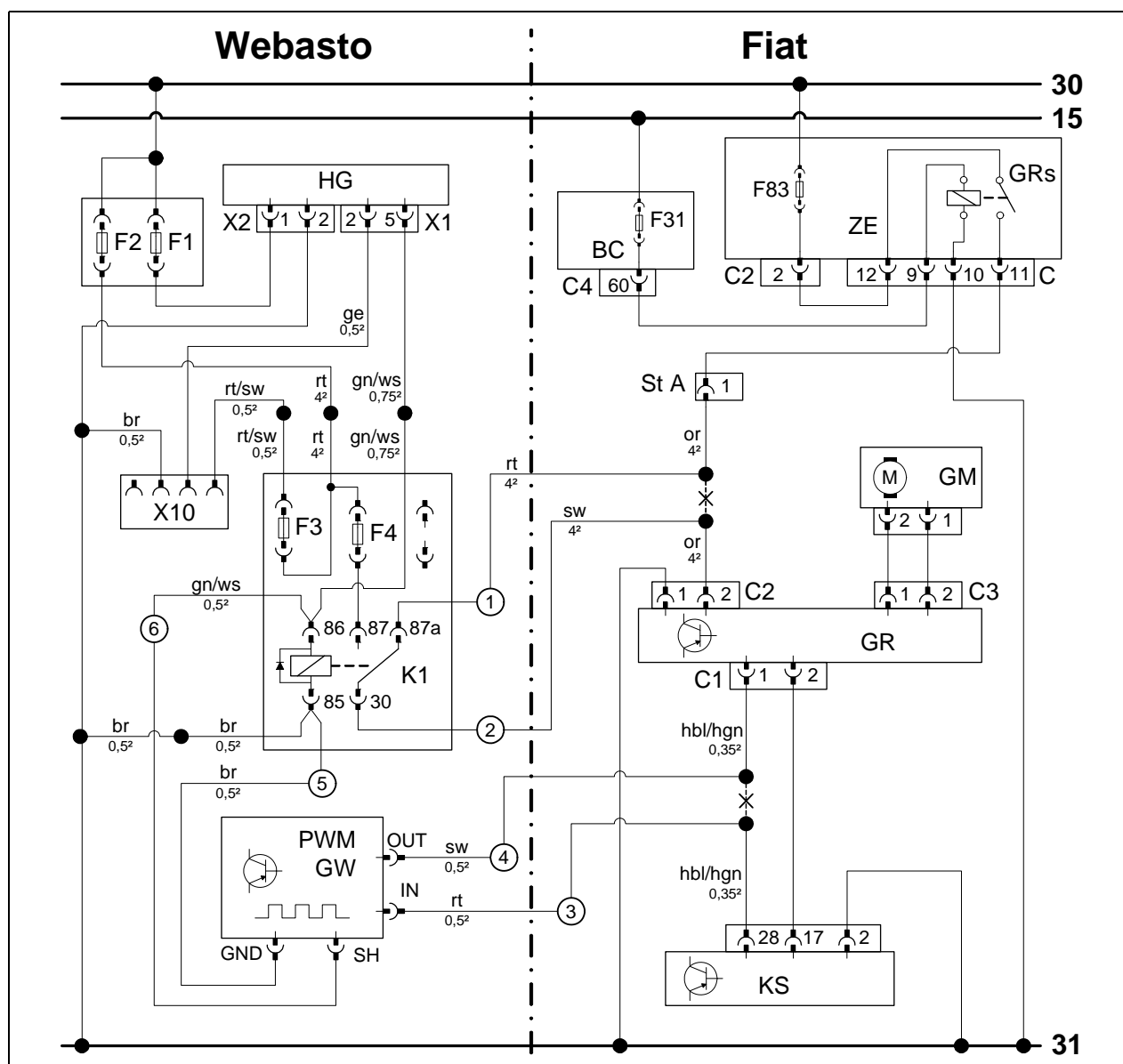




## Fan Controller

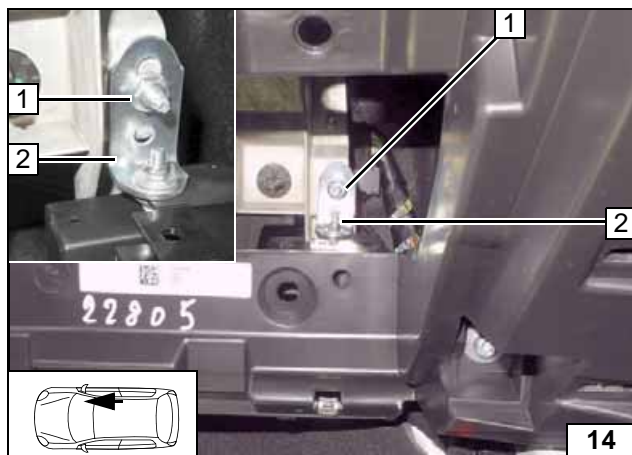
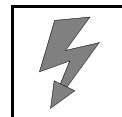


Wiring diagram



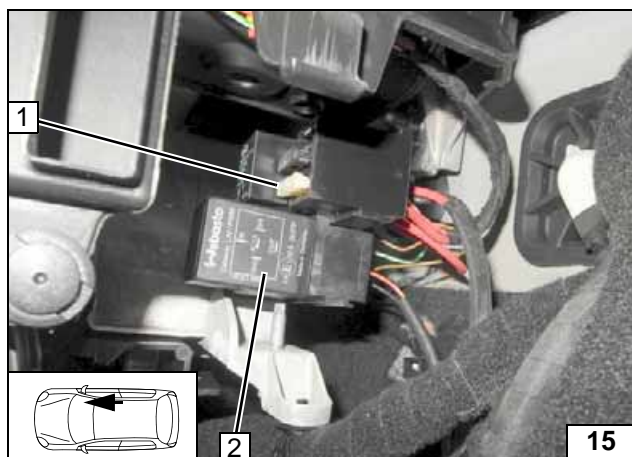
| Webasto components         |                                   | Vehicle components |                        | Colours and symbols      |               |
|----------------------------|-----------------------------------|--------------------|------------------------|--------------------------|---------------|
| HG                         | TT-Evo Heater                     | ZE                 | Central electrical box | rt                       | red           |
| X1                         | 6-pin heater connector            | GRs                | Fan relay              | sw                       | black         |
| X2                         | 2-pin heater connector            | F83                | 40A fuse               | ge                       | yellow        |
| F1                         | 20A fuse                          | B                  | Connector ZE           | gn                       | green         |
| F2                         | 30A fuse                          | C                  | Connector ZE           | or                       | orange        |
| X10                        | 4-pin connector of heater control | BC                 | Body computer          | ws                       | white         |
| F3                         | 1A fuse                           | F31                | 7.5A fuse              | br                       | brown         |
| F4                         | 25A fuse                          | D                  | Connector BC           | hbl                      | light blue    |
| K1                         | Fan relay                         | St A               | Connector              | hgn                      | light green   |
| PWM GW                     | Pulse width modulator             | GM                 | Fan motor              |                          |               |
| <b>Settings of PWM GW:</b> |                                   | GR                 | Fan controller         |                          |               |
| Duty cycle: 35%            |                                   | C1                 | 2-pin GR connector     |                          |               |
| Frequency: 1200Hz          |                                   | C2                 | 2-pin GR connector     |                          |               |
| Voltage: 4.2V              |                                   | C3                 | 2-pin GR connector     |                          |               |
| Function: High side        |                                   | KS                 | A/C control unit       |                          |               |
|                            |                                   |                    |                        | X                        | Cutting point |
|                            |                                   |                    |                        | Wiring colours may vary. |               |

Legend



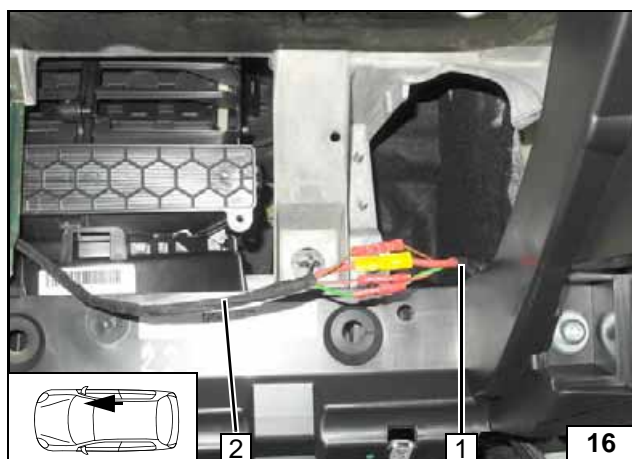
- 1 M6 flanged nut on original vehicle stud bolt
- 2 Angle bracket

Installing relay and fuse holder of passenger compartment



- 1 25A fuse F4
- 2 PWM GW

Installing fuse F4 and PWM GW



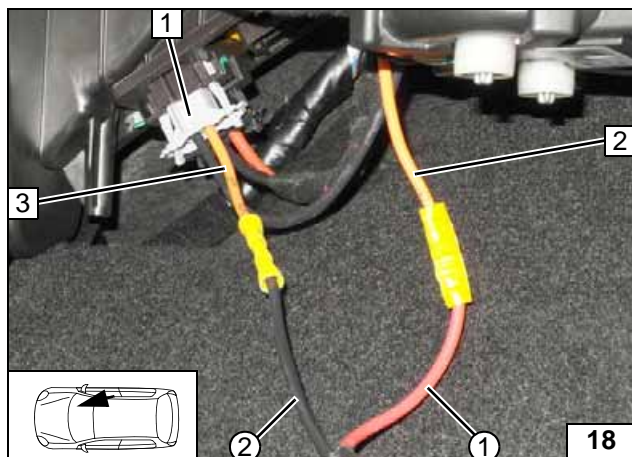
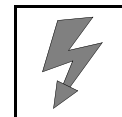
- 1 Wiring harness of the passenger compartment relay and fuse holder
- 2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



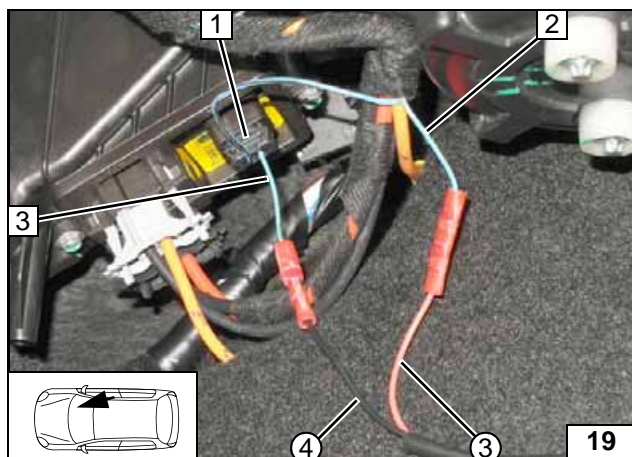
- 1 Remove cover of fan controller

Removing cover



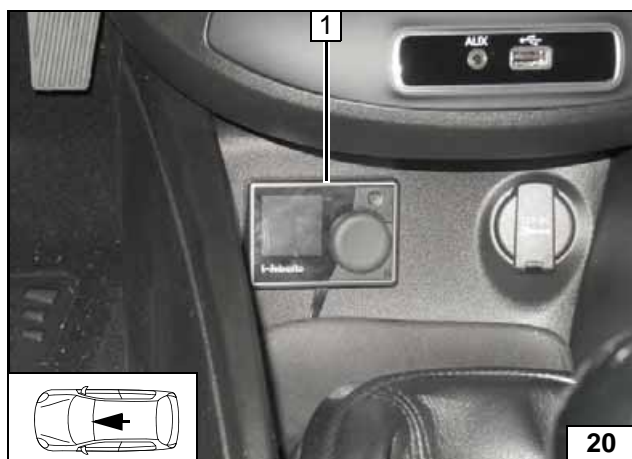
- 1 2-pin grey connector C2 of fan controller
- 2 Orange (or) wire of connector C from ZE, pin 11
- 3 Orange (or) wire of C2 connector, pin 2
- ① Red (rt) wire from K1/87a, fan wiring harness
- ② Black (sw) wire from K1/30, fan wiring harness

**Connect-  
ing fan con-  
troller**



- 1 2-pin black connector C1 of fan controller
- 2 Light blue/light green (hbl/hgn) wire of KS, pin 28
- 3 Light blue/light green (hbl/hgn) wire of connector C1, pin 1
- ③ Red (rt) wire of PWM GW/IN wiring harness PWM control
- ④ Black (sw) wire of PWM GW/OUT, PWM control wiring harness

**Connect-  
ing fan con-  
troller**

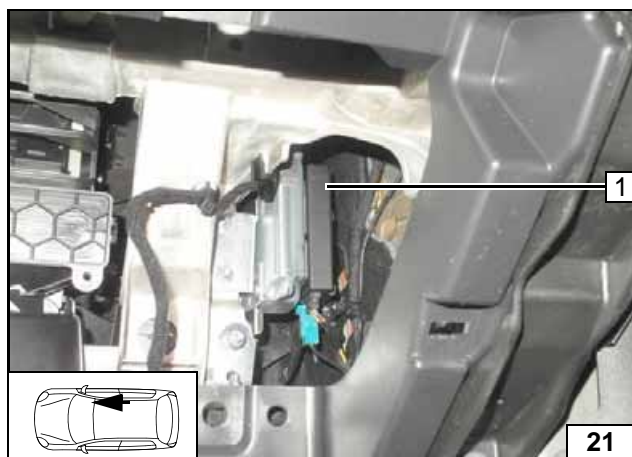


## MultiControl CAR Option

- 1 MultiControl CAR



**Installing  
MultiControl  
CAR**



## Remote Option (Telestart)

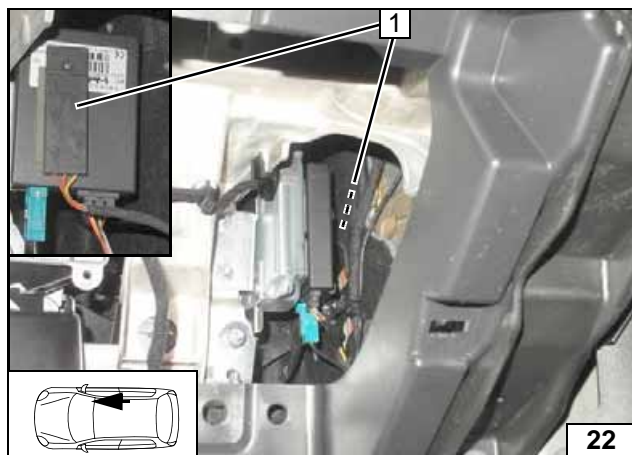
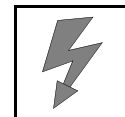
### Version 1

Fasten receiver 1 with double-sided adhesive tape.



**Installing  
receiver**



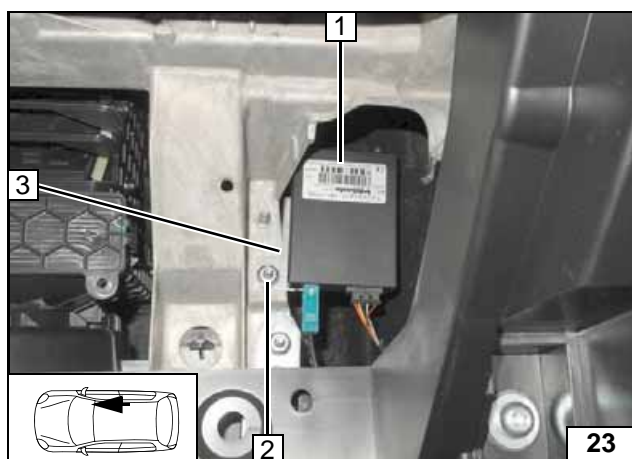


### Temperature sensor T100 HTM

Fasten temperature sensor 1 with double-sided adhesive tape.



**Installing temperature sensor**

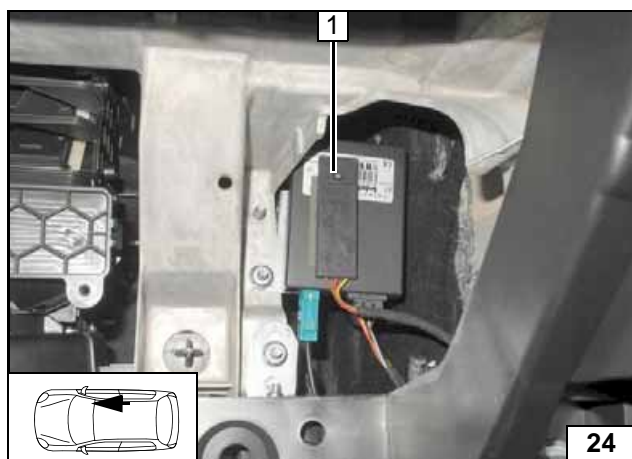


### Version 2

- 1 Receiver
- 2 M6 flanged nut on original vehicle stud bolt
- 3 Bracket of receiver



**Installing receiver**

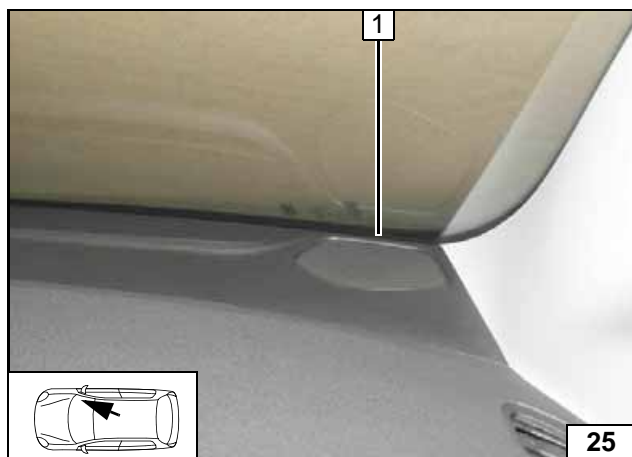


### Temperature sensor T100 HTM

Fasten temperature sensor 1 with double-sided adhesive tape.



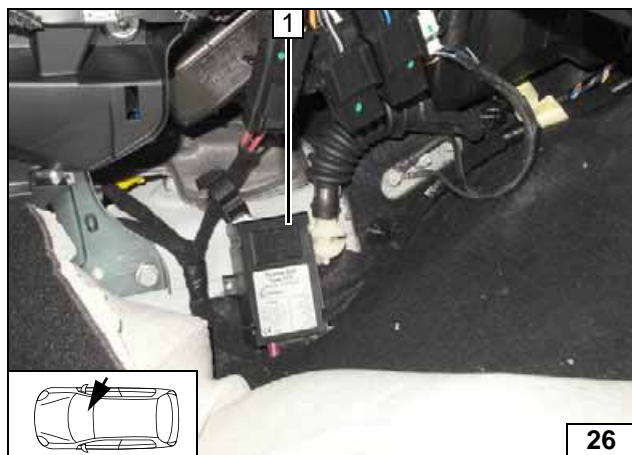
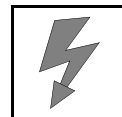
**Installing temperature sensor**



### All versions

- 1 Aerial

**Installing aerial**

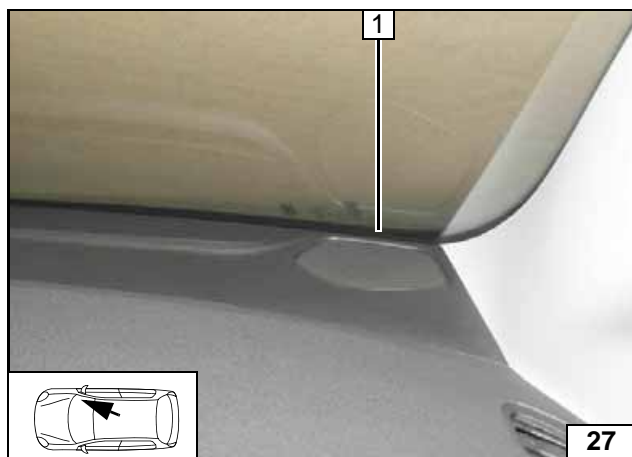


## Thermo Call Option

Fold back floor covering.  
Fasten receiver 1 with double-sided adhesive tape.

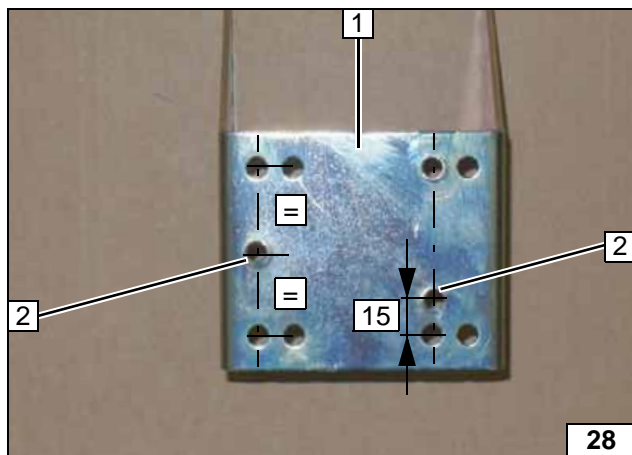
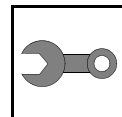


**Installing receiver**



1 Aerial

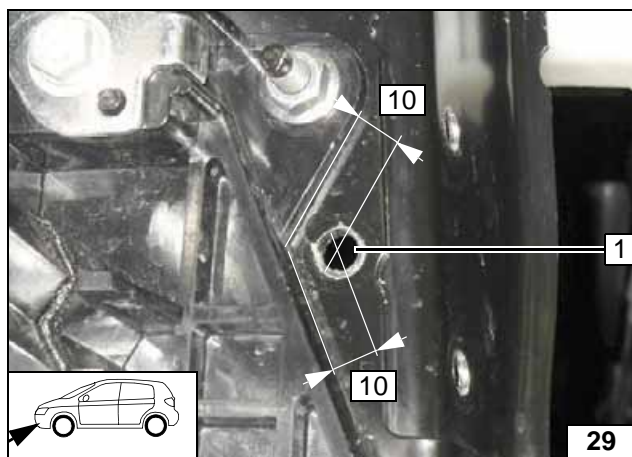
**Installing aerial**



## Preparing Bracket

- 1 Bracket
- 2 Copy hole pattern, drill 7 mm dia. hole [2x]

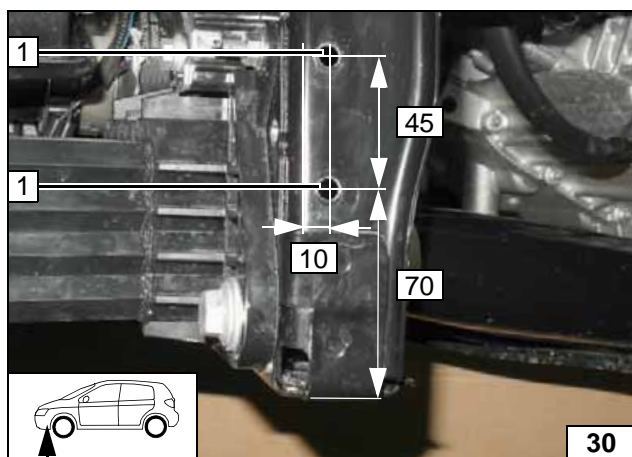
Copying  
hole pattern



## Preparing Installation Location

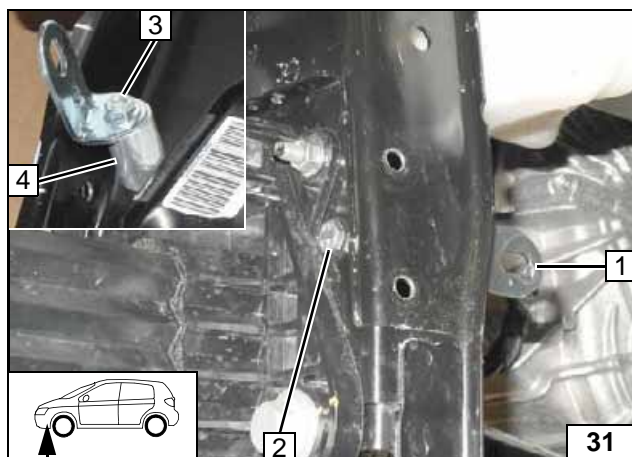
- 1 Copy hole pattern, 7 mm dia. hole

Copying  
hole pattern



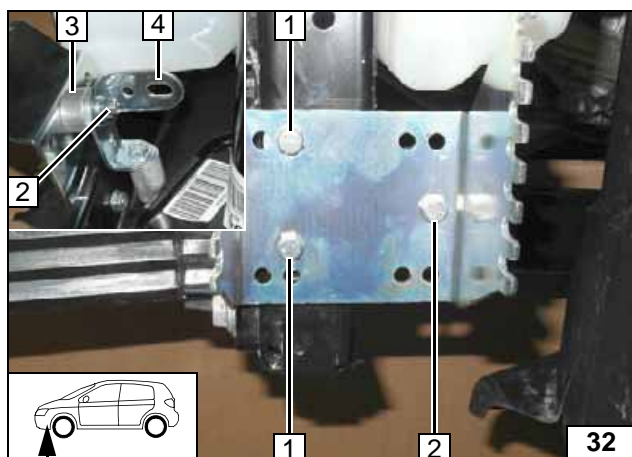
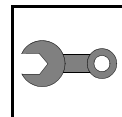
- 1 Copy hole pattern, drill 7 mm dia. hole [2x]

Copying  
hole pattern



- 1 Angle bracket
- 2 M6x50 bolt
- 3 Flanged nut
- 4 30 mm shim

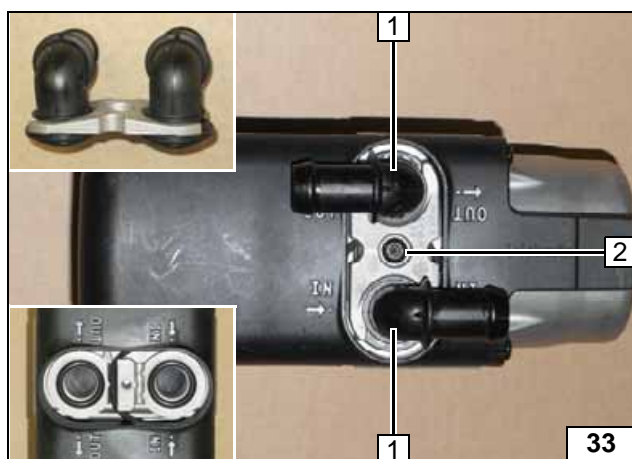
Installing  
angle  
bracket



Position one shim each [2x] between vehicle and bracket 1.

- 1 M6x20 bolt, 10 mm shim, flanged nut [2x each]
- 2 M6x30 bolt, 15 mm shim, flanged nut
- 3 15 mm shim
- 4 Angle bracket for exhaust gas

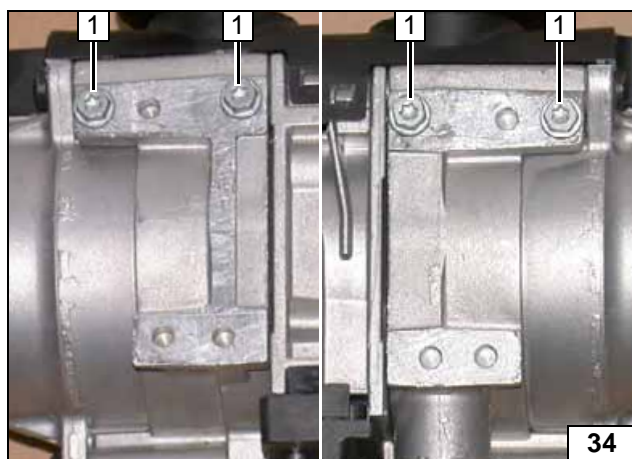
**Installing bracket**



### Preparing Heater

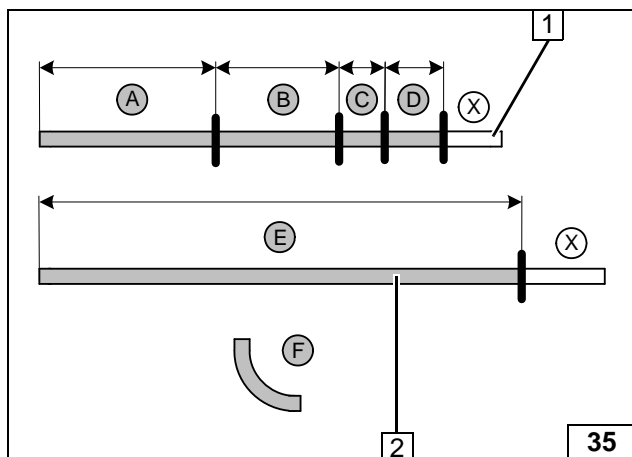
- 1 Water connection piece, sealing ring [2x each]
- 2 5x15 self-tapping bolt, retaining plate of water connection piece

**Installing water connection piece**



Screw 5x13 self-tapping bolts 1 [4x] into existing holes by a maximum of 3 thread turns.

**Premounting bolts loosely**



Discard section X.  
Hose F = 18x18mm dia. 90° moulded hose

- 1 18 mm dia. hose

A = 630  
B = 560  
C = 60  
D = 80

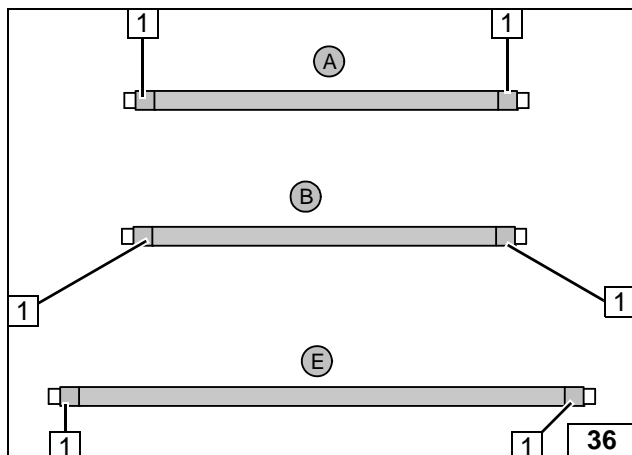
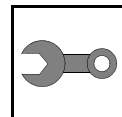
- 2 15 mm dia. hose

E = 1260

**Cutting hoses to length**



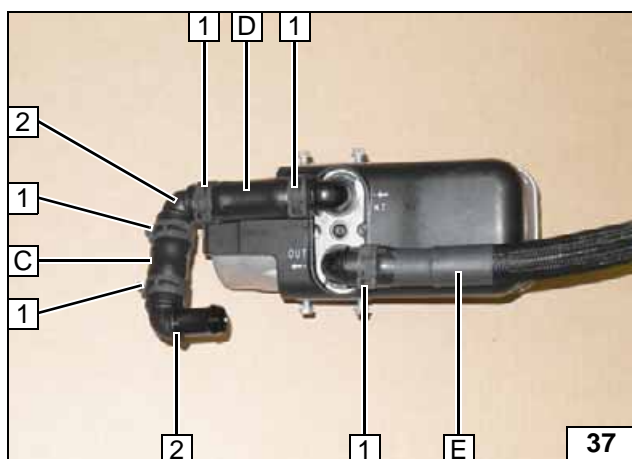




Push braided protection hoses onto hoses **A**, **B** and **E** and cut to length. Cut heat shrink plastic tubing to size.

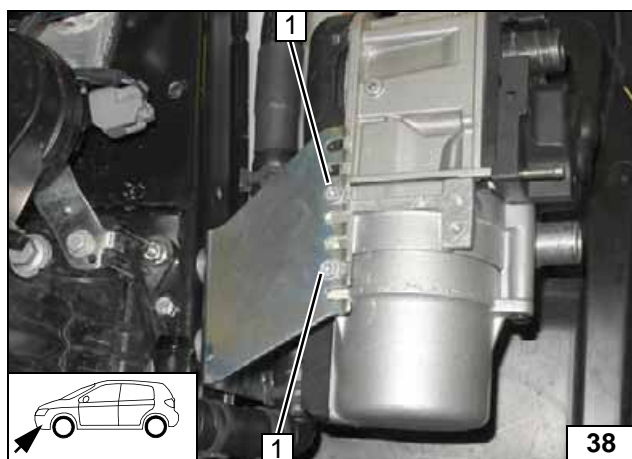
- 1 50 mm long heat shrink plastic tubing [6x]

## Preparing hoses



- 1 25mm dia. spring clip [5x]
- 2 90° connecting pipe [2x]

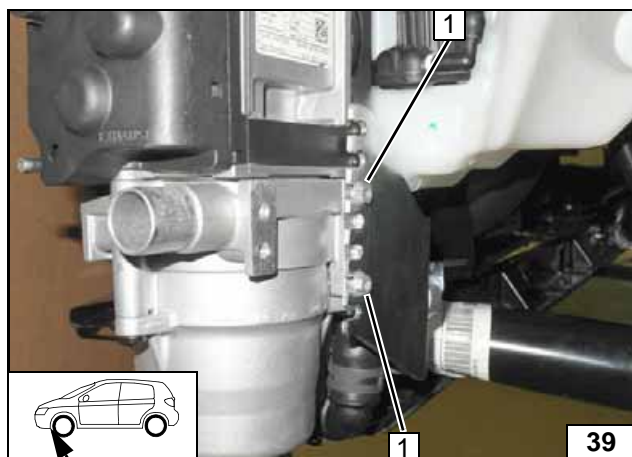
## Premounting hoses



## Installing Heater

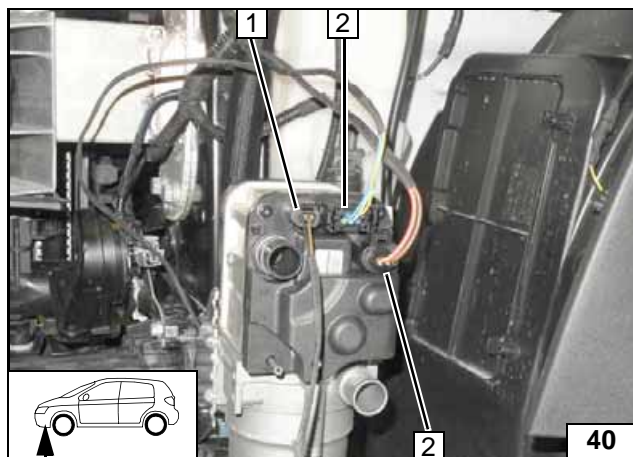
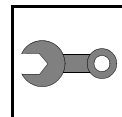
- 1 5x13 self-tapping bolt [2x]

## Installing heater



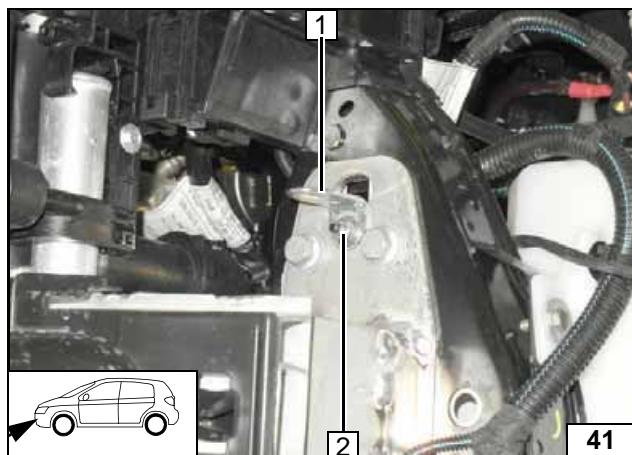
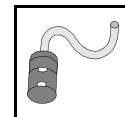
- 1 5x13 self-tapping bolt [2x]

## Installing heater



- 1 Connector of circulating pump wiring harness
- 2 Connector of heater wiring harness [2x]

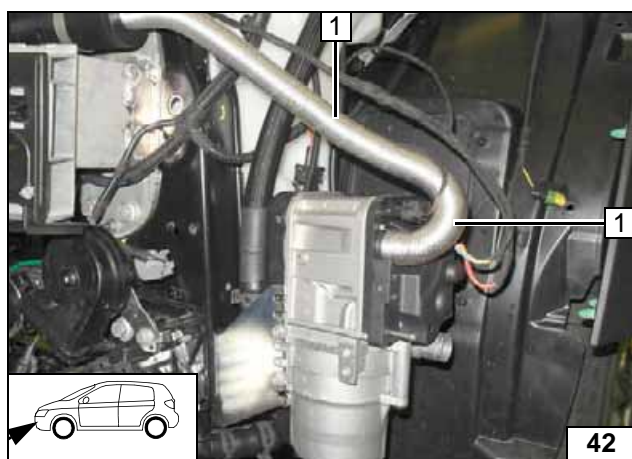
**Installing  
wiring har-  
nesses**



## Combustion Air

- 1 Angle bracket
- 2 Original vehicle stud bolt with nut

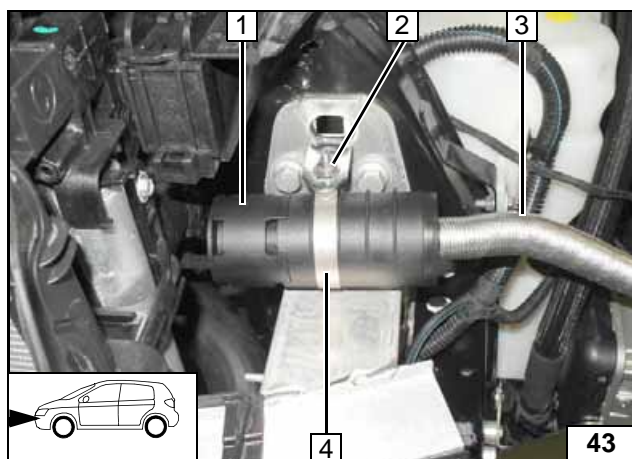
Installing  
angle  
bracket



- 1 Combustion air pipe



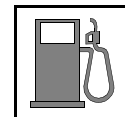
Installing  
combus-  
tion air pipe



- 1 Silencer
- 2 M5x16 bolt, large diameter washer, flanged nut
- 3 Combustion air pipe
- 4 51 mm dia. clamp



Installing  
silencer



## Fuel



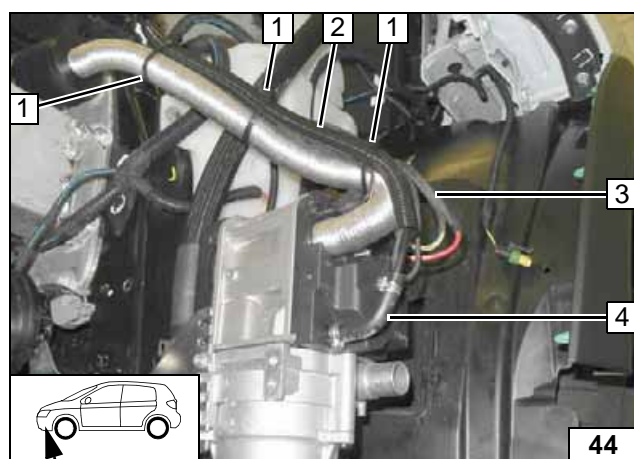
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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

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



Pull fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **2** and route in the engine compartment. Secure corrugated tube and heater wiring harness **3** to combustion air pipe with cable tie **1**.

**4** Fuel line, 90° moulded hose, 10mm dia. clamp [2x]



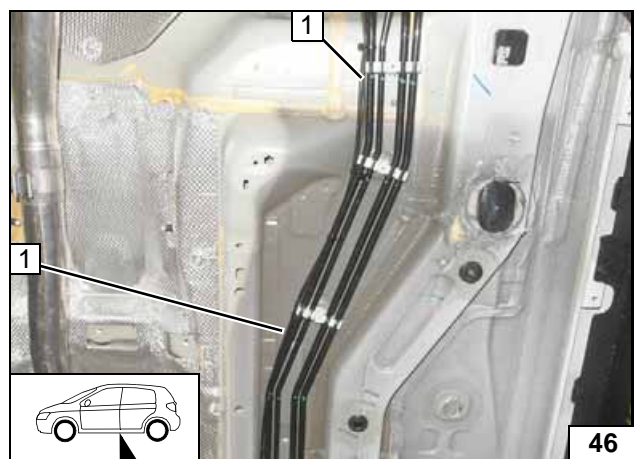
**Connect-  
ing heater**



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** on original vehicle wiring harness to the right vehicle side (see marking) and further along original vehicle lines to underbody.



**Routing  
lines**

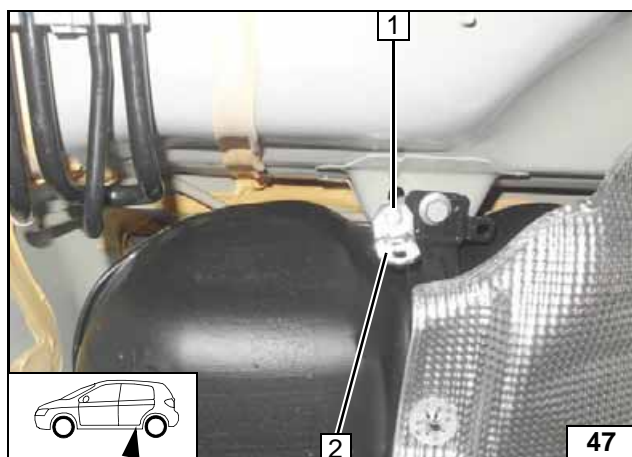
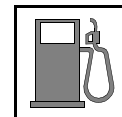


Route fuel line and wiring harness of metering pump **1** along original vehicle fuel lines to the installation location of the metering pump.



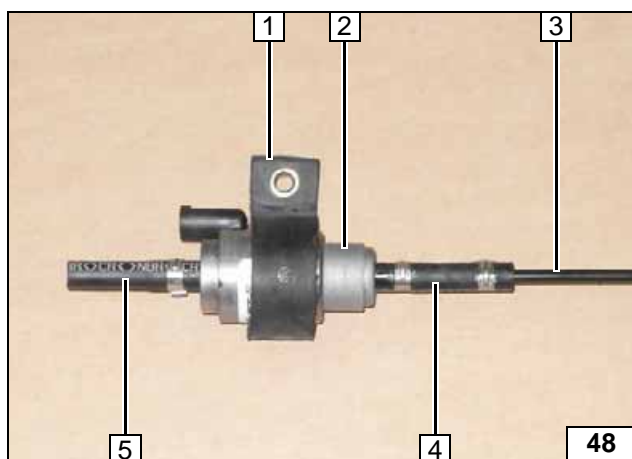
**Routing  
lines**





- 1 M6x16 bolt, flanged nut, existing hole
- 2 Angle bracket

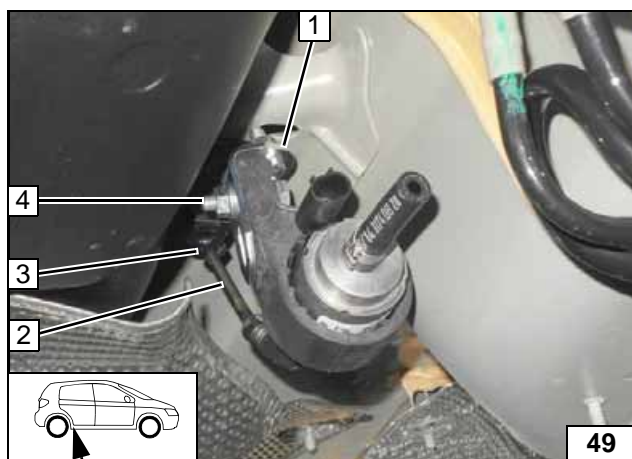
Installing  
angle  
bracket



Cut 800 mm from fuel line.

- 1 Mounting of metering pump
- 2 Metering pump
- 3 800 mm long fuel line
- 4 Hose section, 10mm dia. clamp [2x]
- 5 Hose section, 10 mm dia. clamp

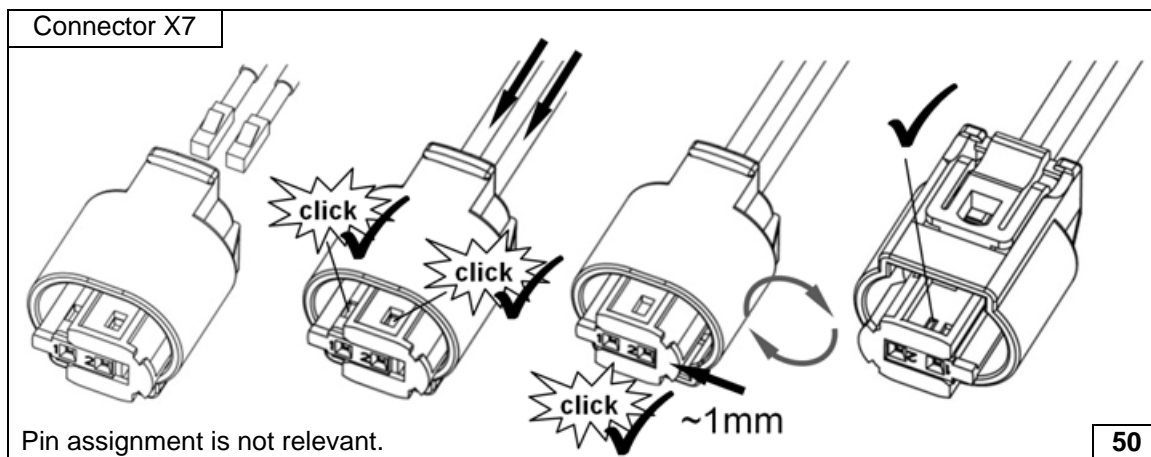
Premount-  
ing meter-  
ing pump



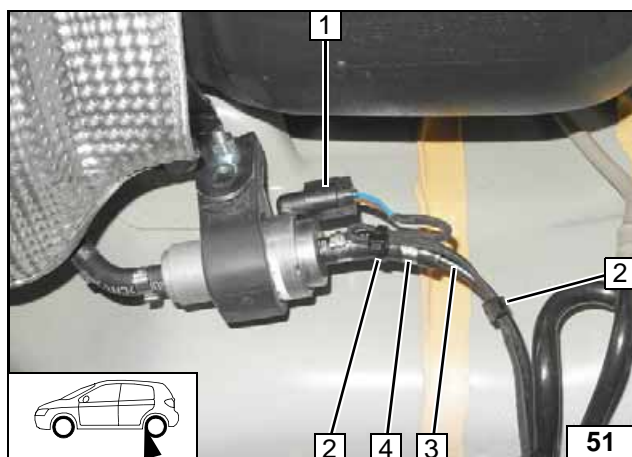
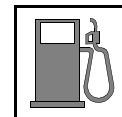
Route fuel line 2 upwards to the fuel tank sending unit and fasten on existing hole using cable tie 3.

- 1 Angle bracket
- 4 M6x25 bolt, flanged nut

Mounting  
metering  
pump



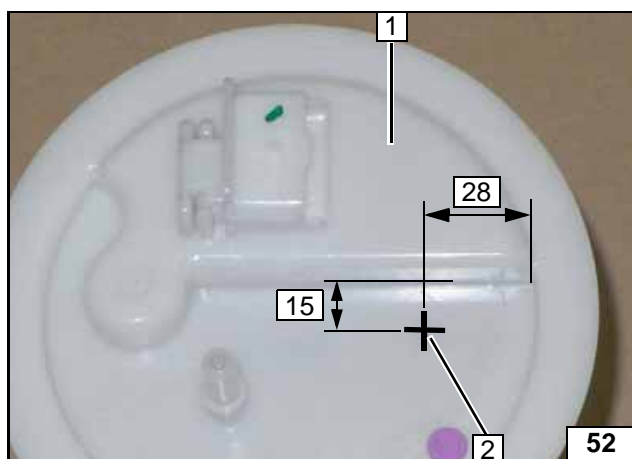
Completing  
connec-  
tor of  
metering  
pump



- 1 Wiring harness of metering pump, connector X7 mounted
- 2 Cable tie [2x]
- 3 Fuel line of heater
- 4 10mm dia. clamp



### Mounting metering pump

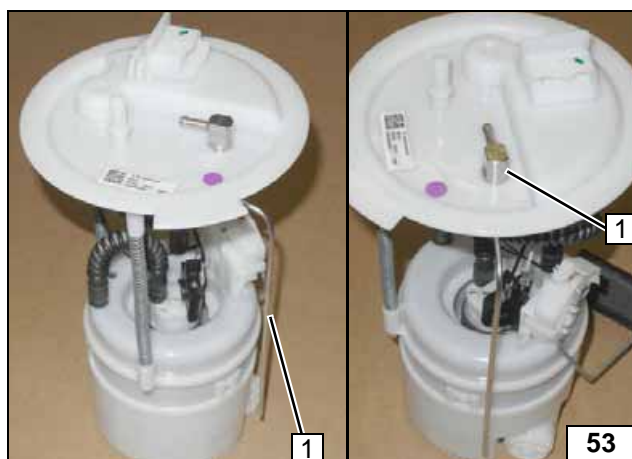


Remove fuel tank sending unit 1 in accordance with manufacturer's instructions.

- 2 Copy hole pattern, 6 mm dia. hole



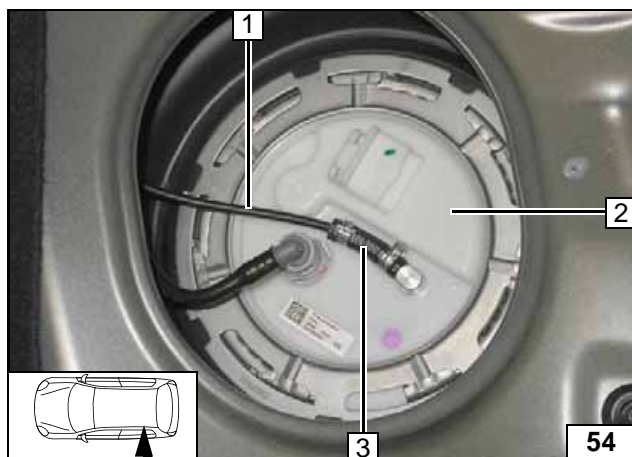
### Fuel extraction



Bend fuel standpipe 1 according to template and cut it to length.



### Installing fuel standpipe

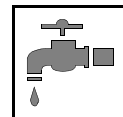


Install fuel tank sending unit 2 in accordance with manufacturer's instructions.

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



### Completing fuel tank sending unit

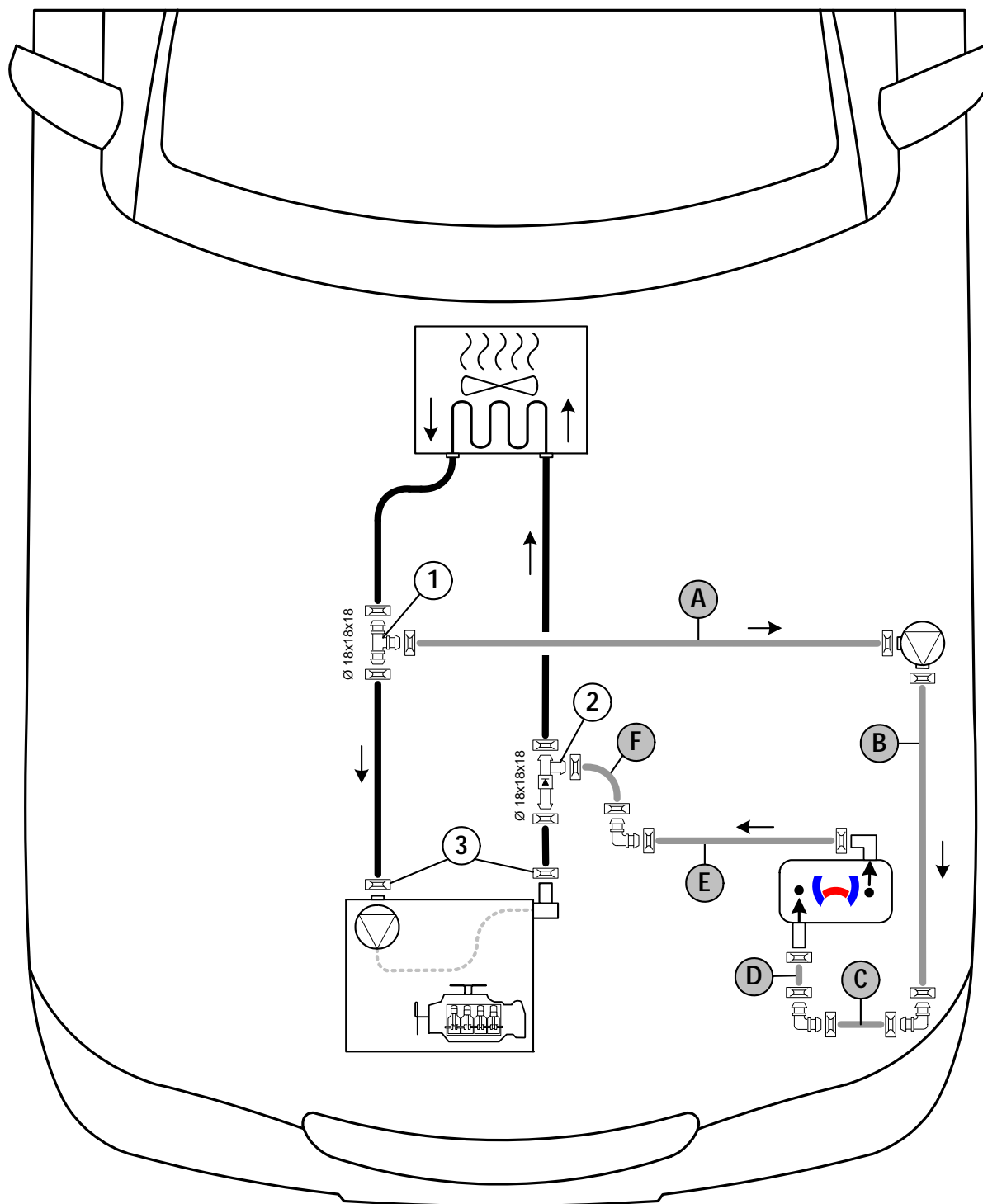


## Coolant Circuit








Any coolant running off should be collected in an appropriate container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

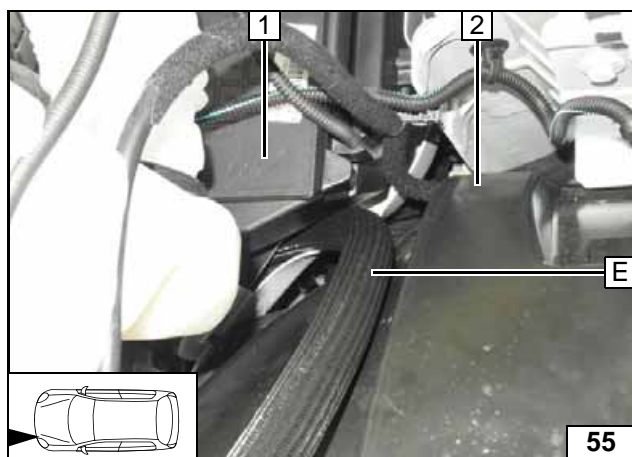
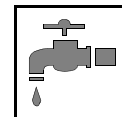
The connection should be modelled on an "island" circuit and based on the following diagram:



Hose routing diagram

All spring clips without specific designation  = 25mm dia. All connecting pipes  = 18x18 mm dia.  
 1 = T-piece  . 2 = Check valve  3 = Original vehicle clamp .

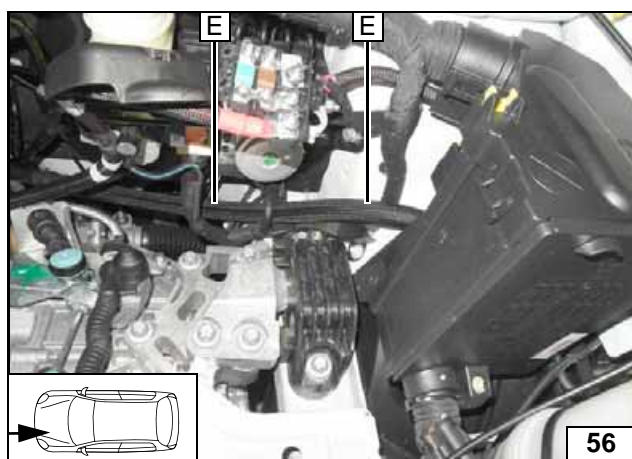




Route hose **E** between fuse and relay box **1** and wheel well trim **2** in the engine compartment.

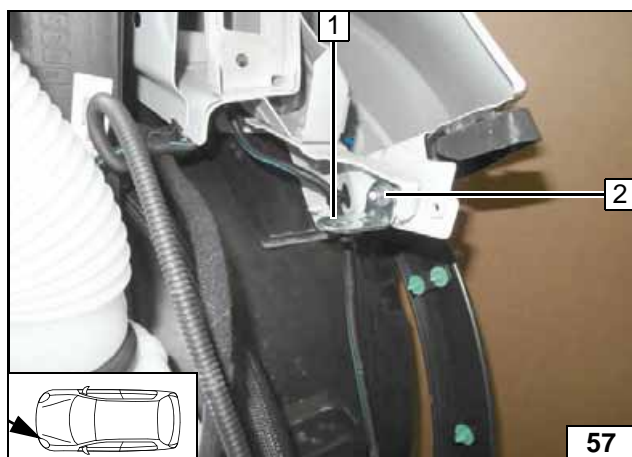


**Routing hose E**



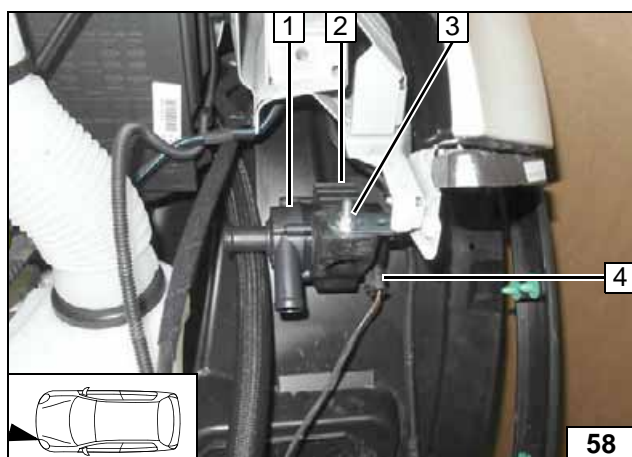
Route hose **E** to heat exchanger.

**Routing hose E**



- 1 Angle bracket
- 2 Original vehicle bolt, flanged nut

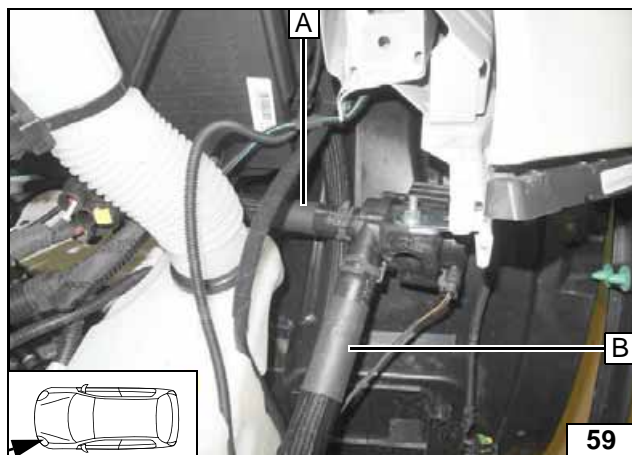
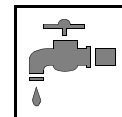
**Installing angle bracket**



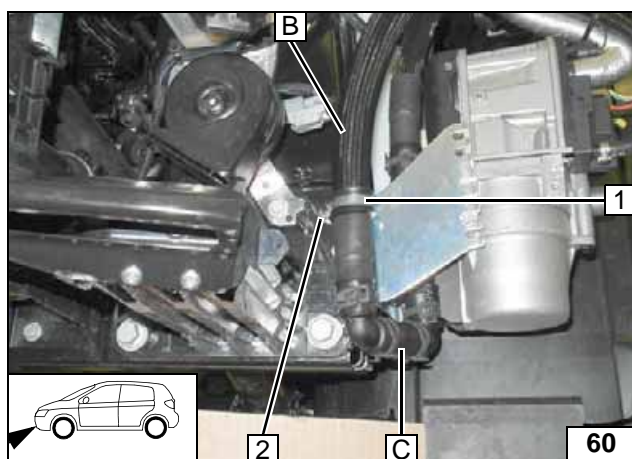
- 1 Circulating pump
- 2 Circulating pump mounting
- 3 M6x25 bolt, flanged nut
- 4 Circulating pump wiring harness, connector mounted

**Installing circulating pump**





Connect-  
ing circulat-  
ing pump

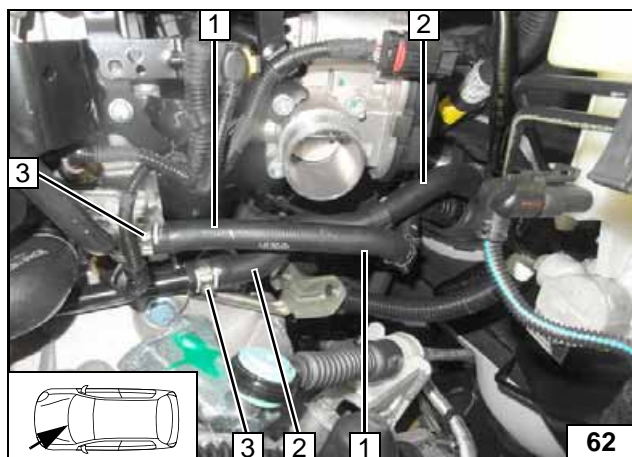


- 1 25 mm dia. rubber-coated p-clamp
- 2 Original vehicle stud bolt with nut

Connect-  
ing heater



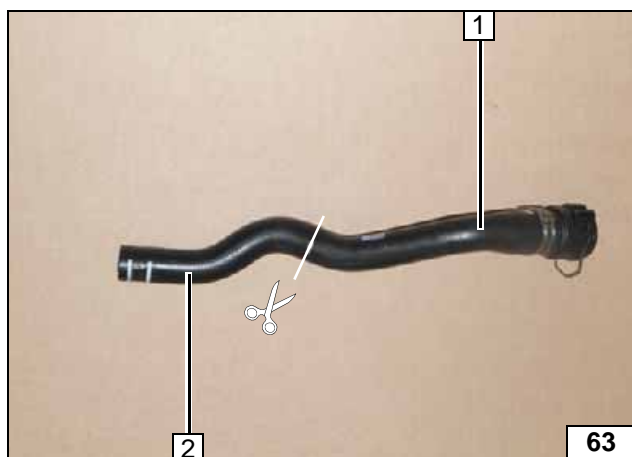
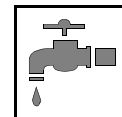
Routing  
hose A of  
engine  
compart-  
ment



Remove hose of engine outlet / heat ex-  
changer inlet 1 and hose of heat exchang-  
er outlet / engine inlet 2. Original vehicle  
hose clamps 3 [2x] will be reused.



Removing  
hoses



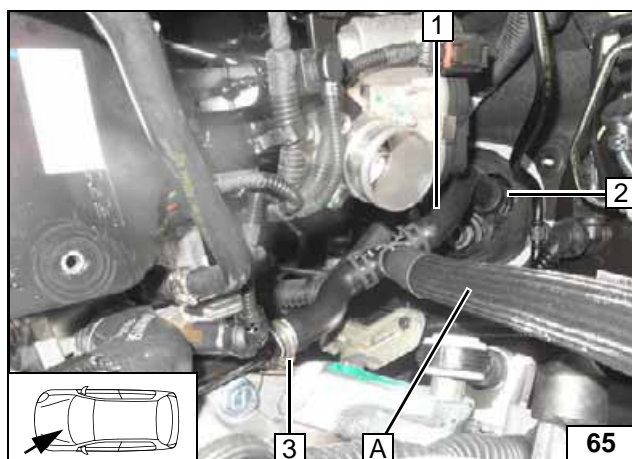
- 1 Hose section of heat exchanger outlet
- 2 Hose section of engine inlet

**Cutting point**



- 1 18x18x18 mm dia. T-piece
- 2 Hose section of heat exchanger outlet
- 3 Hose section of engine inlet

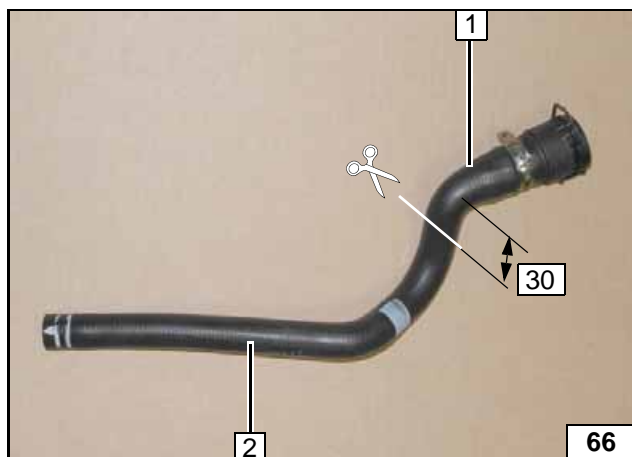
**Creating hose assembly**



Install hose group of heat exchanger outlet / engine inlet 1.

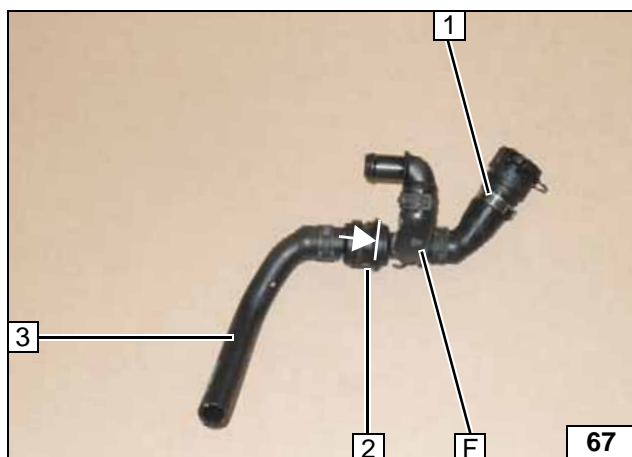
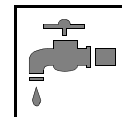
- 2 Connection piece of heat exchanger outlet
- 3 Original vehicle hose clamp

**Installing T-piece hose assembly**



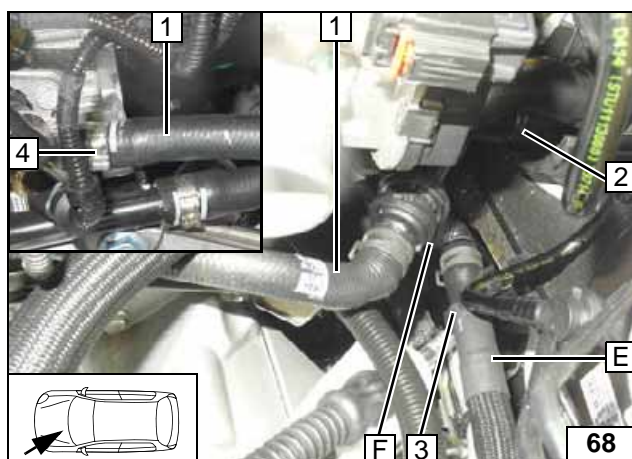
- 1 Hose section of heat exchanger inlet
- 2 Hose section of engine outlet

**Cutting point**



- 1 Hose section of heat exchanger inlet
- 2 Check valve
- 3 Hose section of engine outlet

**Creating  
hose group**

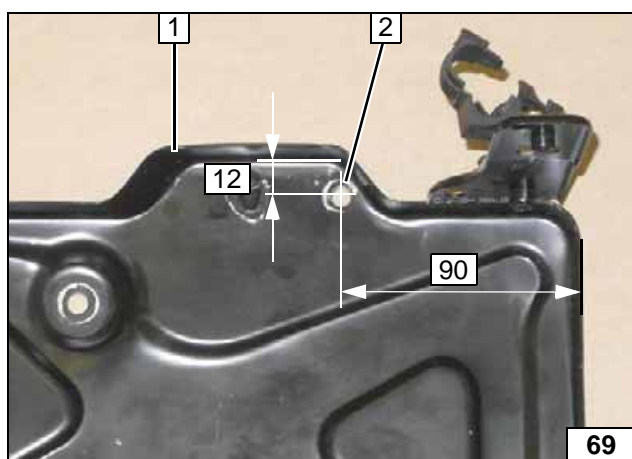


Install hose group of heat exchanger inlet / engine outlet 1 .



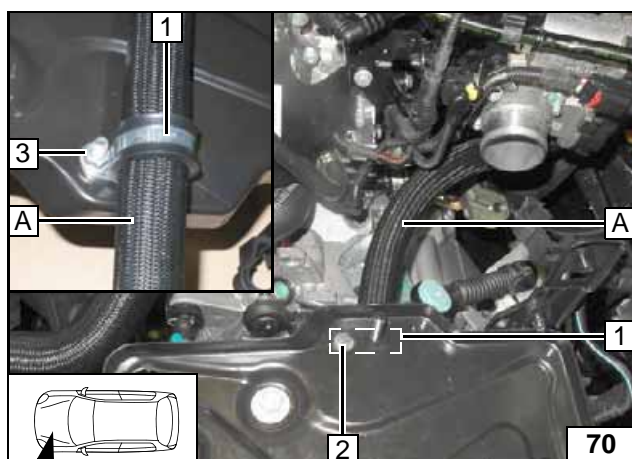
- 2 Connection piece of heat exchanger inlet
- 3 10x20 mm hose bracket between vacuum line and hose E
- 4 Original vehicle hose clamp

**Installing  
check valve  
hose assembly**



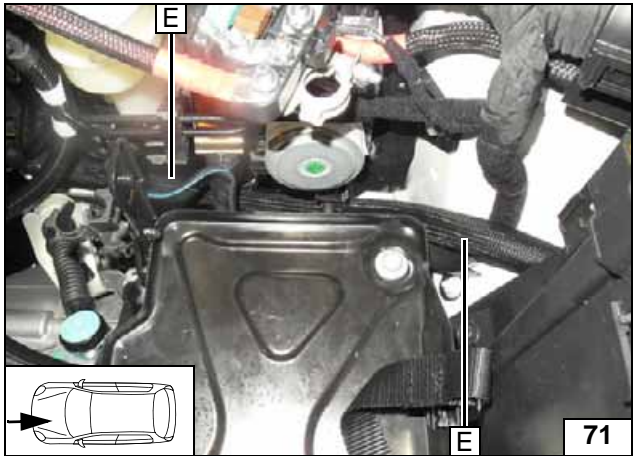
- 1 Battery carrier
- 2 7 mm dia. hole

**Hole in bat-  
tery carrier**



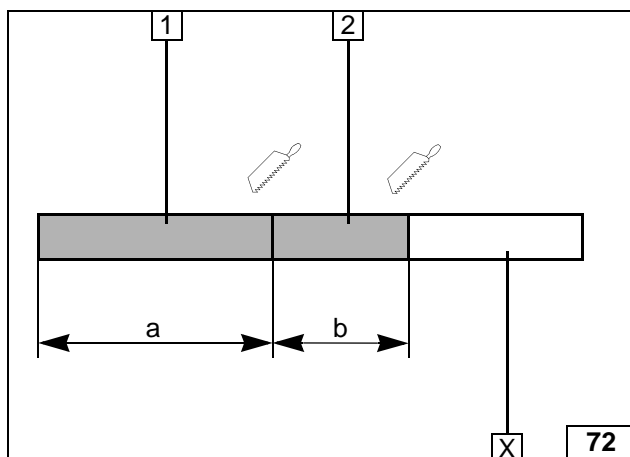
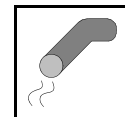
- 1 25 mm dia. rubber-coated p-clamp
- 2 M6x20 bolt
- 3 Flanged nut

**Installing  
battery car-  
rier**



Aligning  
hose E



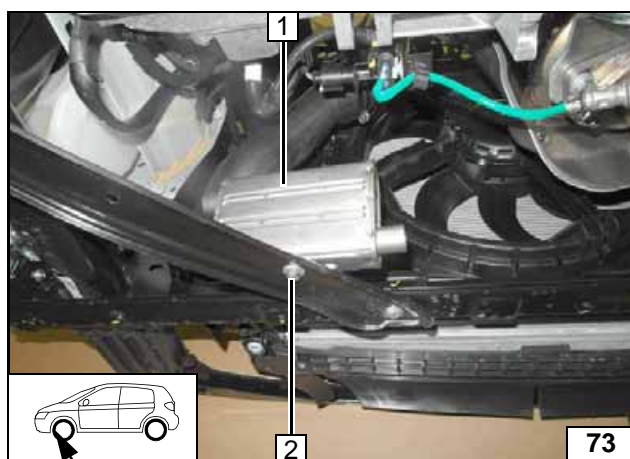


## Exhaust Gas

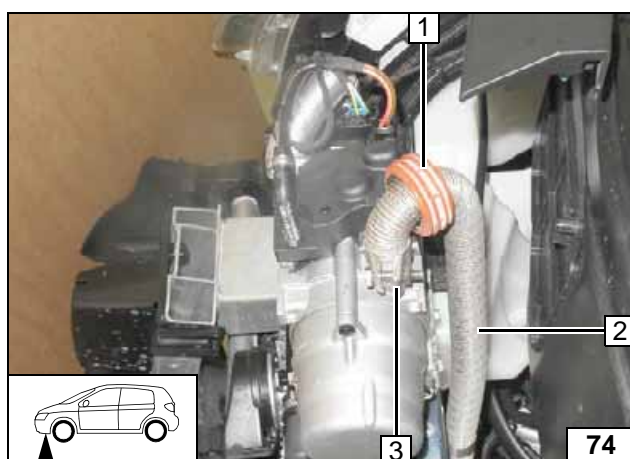
Discard section X.

- 1 Exhaust pipe  
a = 570
- 2 Exhaust end section  
b = 260

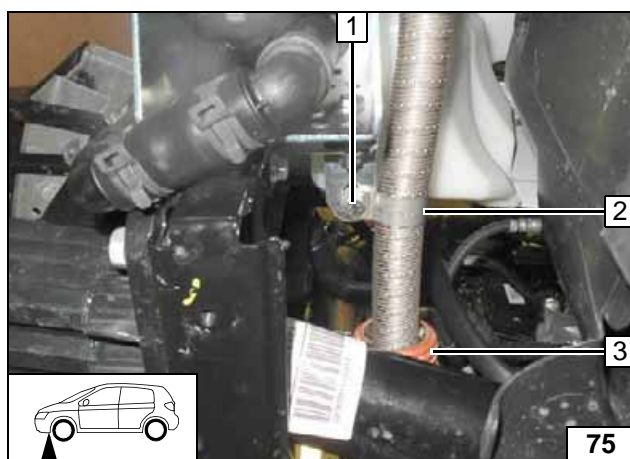
## Preparing exhaust pipe



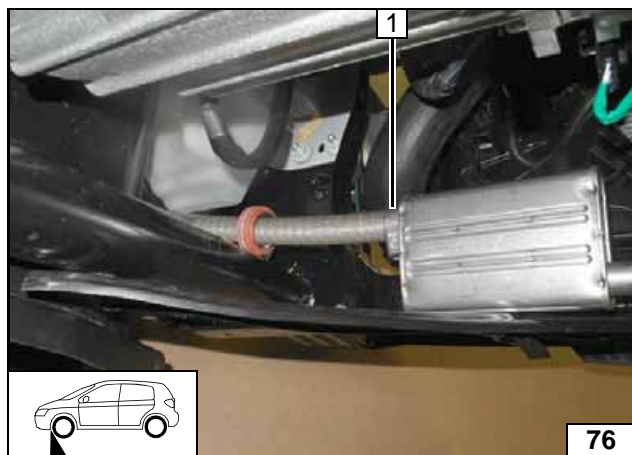
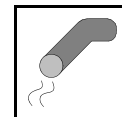
## Installing silencer



## Installing exhaust pipe

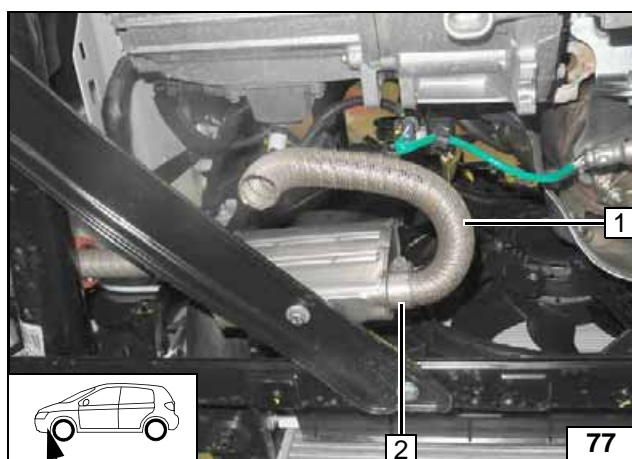


## Installing exhaust pipe



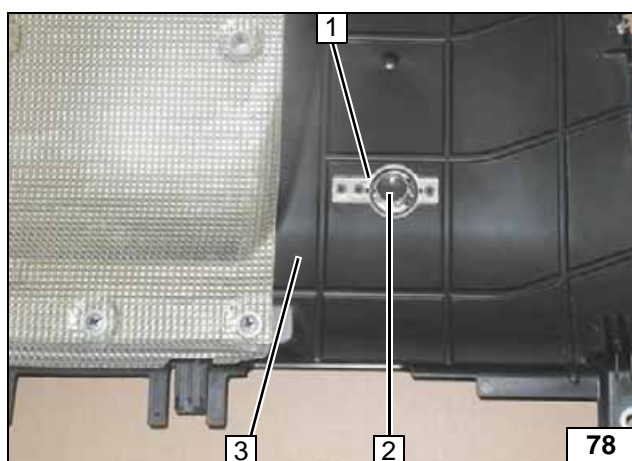
1 Hose clamp

Installing  
exhaust  
pipe



1 Exhaust end section  
2 Hose clamp

Installing  
exhaust  
end section

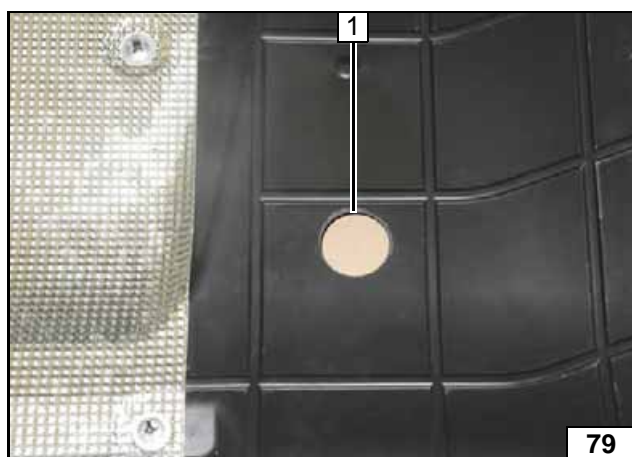


Place exhaust end fastener **1** according to work step 1 of the installation instructions, align as shown and centrally copy hole pattern **2**.



3 Underride protection

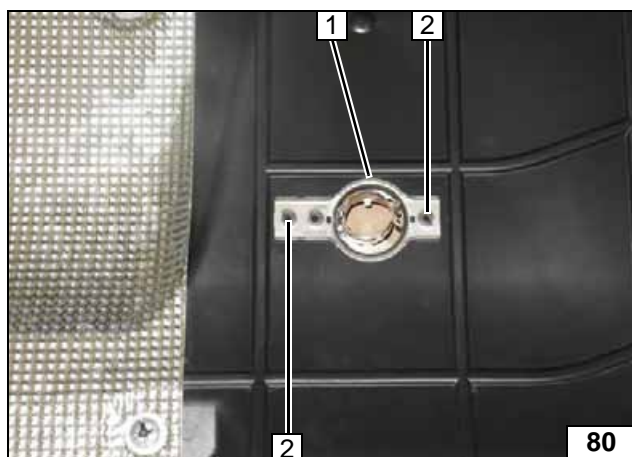
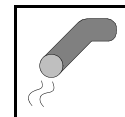
Copying  
hole pattern



Drill hole **1** according to work step 1 of the installation instructions.



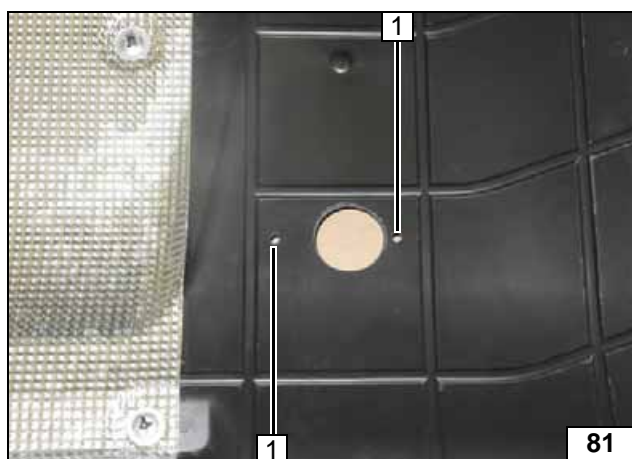
Holes in un-  
derride pro-  
tection



Place exhaust end fastener **1** according to work step 3 of the installation instructions, align and copy hole pattern **2** [2x].



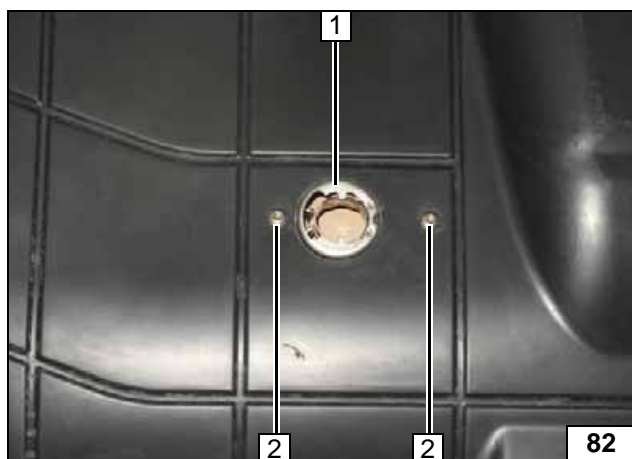
**Copying hole pattern**



Drill hole **1** [2x] according to work step 4 of the installation instructions.



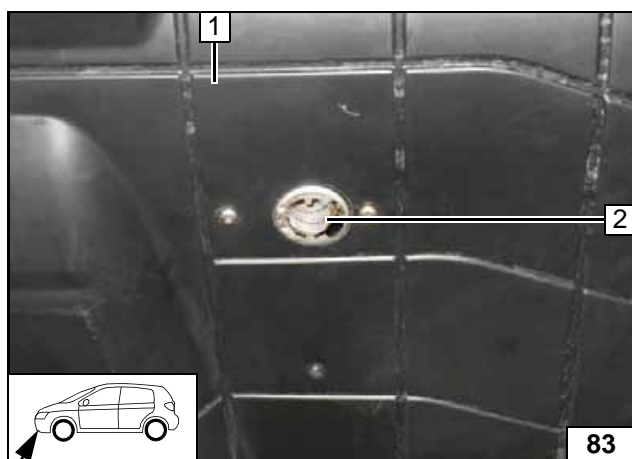
**Holes in under-  
ride protection**



- 1** Exhaust end fastener
- 2** 5x13 self-tapping screw [2x] according to work step 5 of the installation instructions



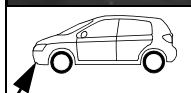
**Installing exhaust end fastener**

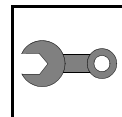


Install bumper. Install under-ride protection **1**. Install exhaust end section **2** according to work step 6 - 8 of the installation instructions.



**Installing exhaust end section**





## Final Work



Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating.

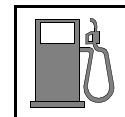
Insulate and tie back all loose wires.

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

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label near the filler neck.**
- **For initial startup and function check, please see installation instructions.**

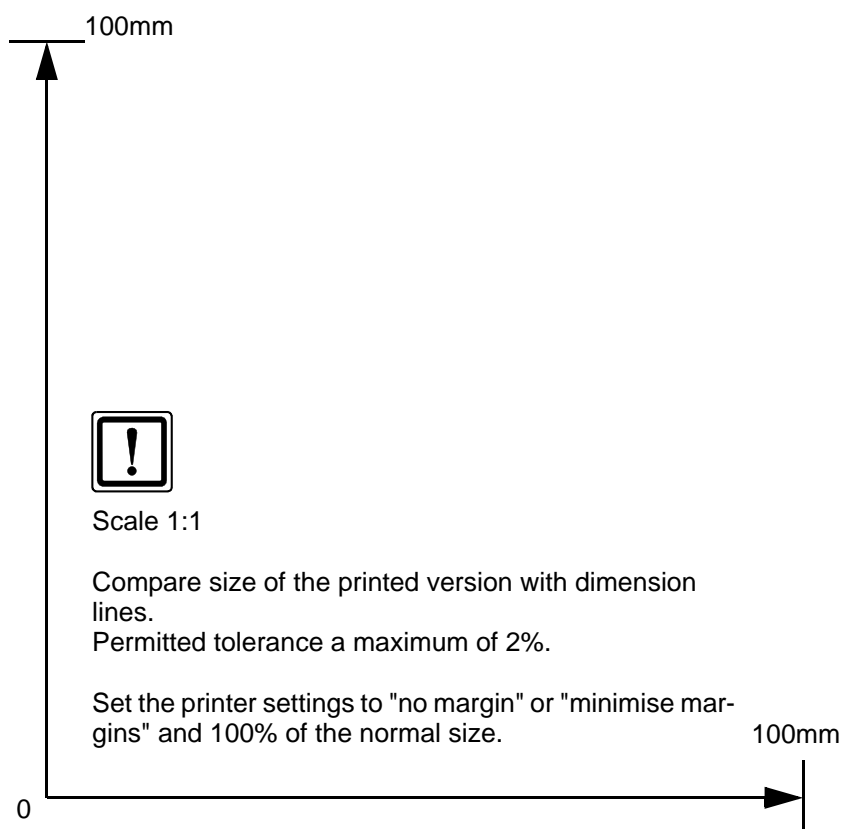
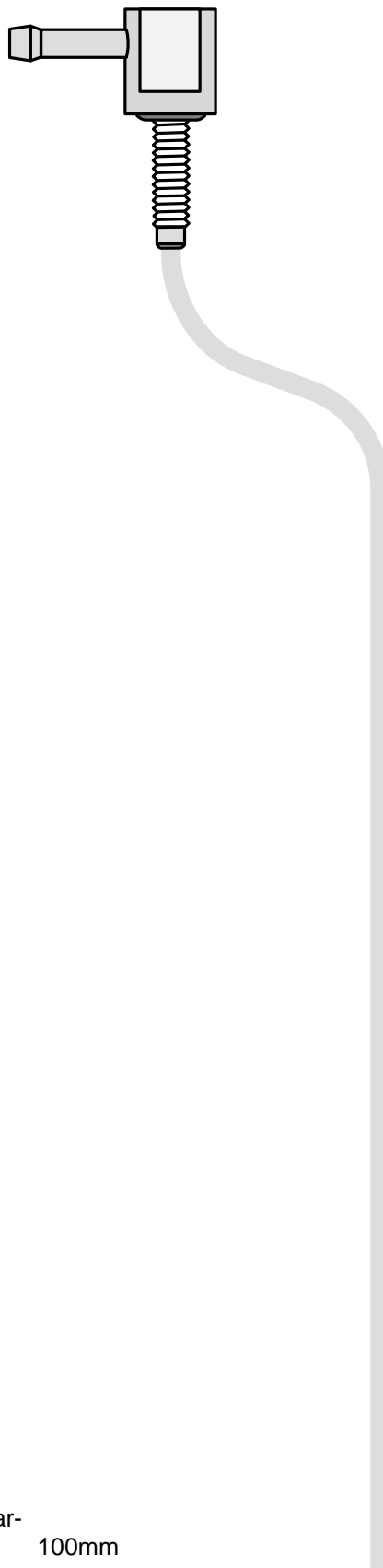
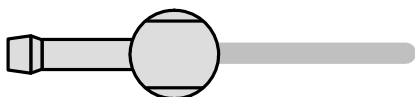






## Template for Fuel Standpipe

Top view



Operating Instructions for End Customer

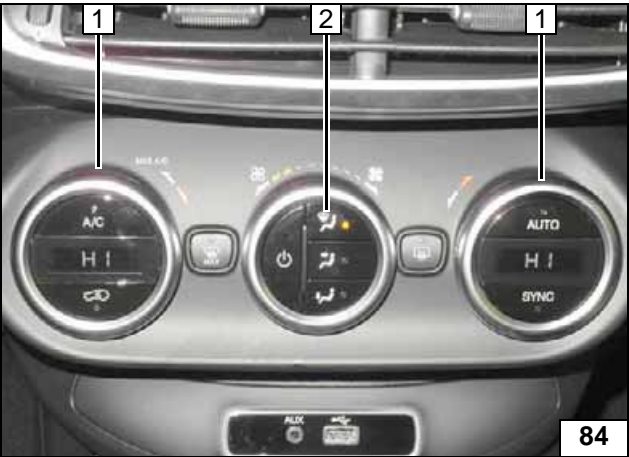
Please remove page and add to the vehicle operating instructions.

**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.

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.  
For instructions on deactivation, please refer to the operating instructions of the vehicle.

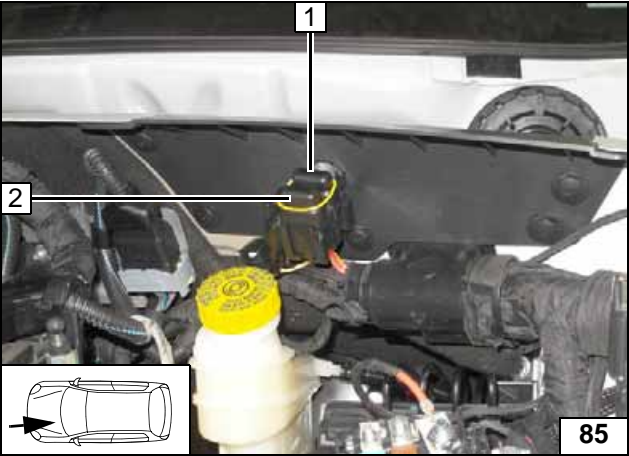
Before parking the vehicle, make the following settings:



- 1 Set temperature on both sides to "HI"
- 2 Air outlet onto windscreen

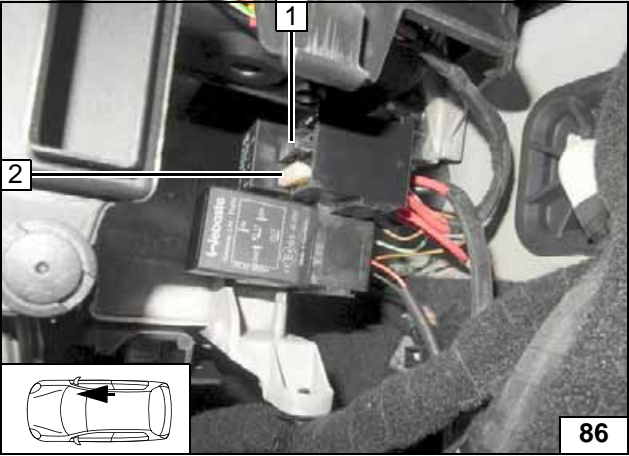


A/C control panel



- 1 30A main fuse F2 of passenger compartment
- 2 20A heater fuse F1

Engine compartment fuses



- 1 1A fuse F3 of heater control
- 2 25A fan fuse F4

Passenger compartment fuses