# WaterHeater

***Thermo Top Evo* Parking Heater** E1 00 0258

# Installation Documentation
# Chevrolet Aveo

## Validity

| Manufacturer | Model | Type | EG-BE No. / ABE |
|---|---|---|---|
| Chevrolet | Aveo | KL1T | e4 * 2007 / 46 * 0270 * ... |

| Motorisation | Fuel | Transmission type | Output in kW | Displacement in cm³ | Engine code |
|---|---|---|---|---|---|
| 1.4 B | Petrol | SG | 74 | 1398 | A14XER |
| 1.6 B | Petrol | SG | 85 | 1598 | F16D4 |

SG = Manual Transmission

**starting with model year 2011**

**Left-hand drive vehicle**

**verified equipment variants:** Manual air-conditioning

Front fog light

**Total installation time:** approx. 7 hours

## Chevrolet Aveo

## Table of Contents



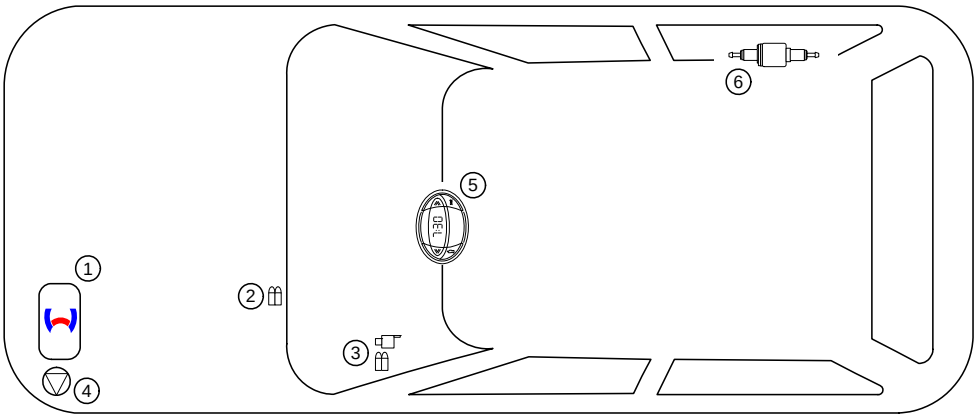
## Necessary Components

- Basic delivery scope for *Thermo Top Evo* based on price list
- Installation kit for Chevrolet Aveo 2011 Petrol: **1317991A**
- Heater control based on price list and in consultation with end customer
- In case of Telestart, control light in accordance with price list and upon consultation with end customer

## Installation Overview

**Legend:**

**1**. Heater
**2**. Fuse holder of engine compartment
**3**. Fuse holder of passenger compartment
**4**. Circulating pump
**5**. Digital timer
**6**. Metering pump




## Notes 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.

# Notes on Operating and Installation Instructions

## 1 Important Infomation (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 227).

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 wires and tie back. Connectors of electronic components have to audibly snap into place when inserting them 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).**

**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 an IPCU, the corresponding settings must be checked or adjusted before the installation.**

## 2 Statutory regulations governing installation

| Guidelines | Thermo Top Evo |
|---|---|
| Heating Directive ECE R122 | E1 00 0258 |
| EMC Directive ECE R10 | E1 03 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**

For vehicles with an EU permit, no entry in accordance with § 19 Sub-Section 4 of Annex VIII b to the Road Traffic Act is required.

### 2.1 Excerpt from the directive 2001/56/EC Appendix VII 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 the 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 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.

## Chevrolet Aveo

## Notes on Validity

This installation documentation applies to the vehicles Chevrolet Aveo Petrol - see page 1 for validity - starting with model year 2011 and later, if technical changes to the vehicle do not influence the installation, excluding any liability. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to these "installation instructions".

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

## Technical Instructions

**Special tools**
- Hose clamp pliers for self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

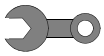
**Dimensions**
- All dimensions are in mm.

**Tightening torque values**
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque values of 5x15 retaining plate of water connection piece 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.

**Mechanical system**



**Electrical system**

**Coolant circuit**

**Combustion air**

**Fuel**

**Exhaust gas**

**Software**

Special features are highlighted using the following symbols:

**Specific risk of injury or fatal accidents**

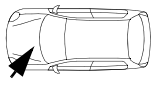
**Specific risk of damage to components**

**Specific risk of fire or explosion.**

**Reference to general installation instructions of 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**



## Chevrolet Aveo

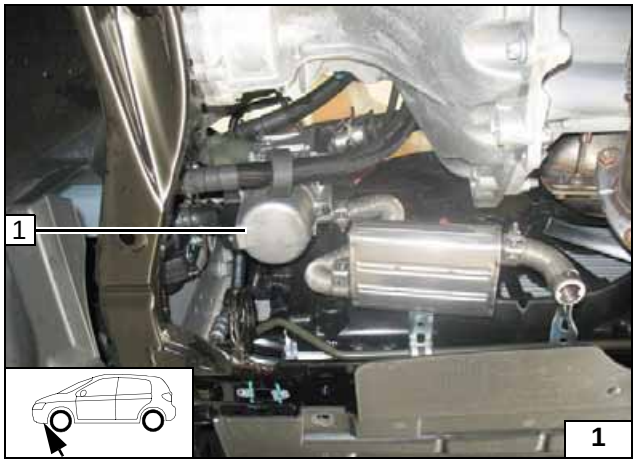
## Preliminary Work

### 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 it completely, including the carrier.
- Remove the lateral wheel well trim on the left side.
- Remove the fuel-tank in accordance with the manufacturer's instructions.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions
- Remove the glove compartment.

### Heater

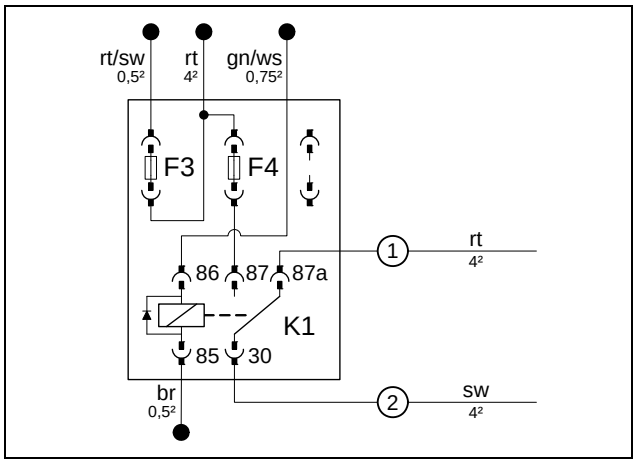
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) in the appropriate place in the engine compartment.




## Installation Location of Heater

**1** Heater

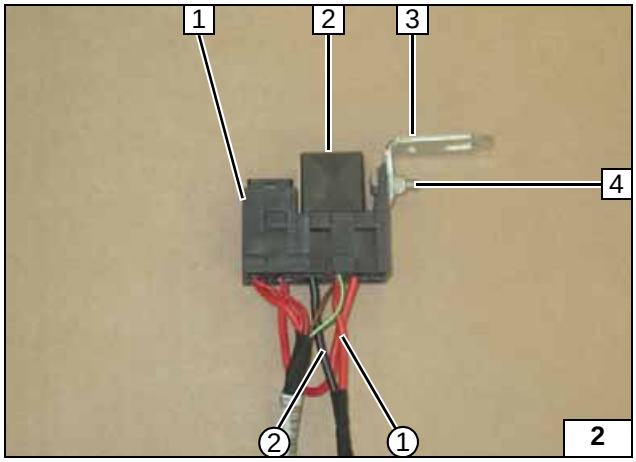
**Installation location**




## Preparing Electrical System

Wire sections retain their numbering throughout the entire document.

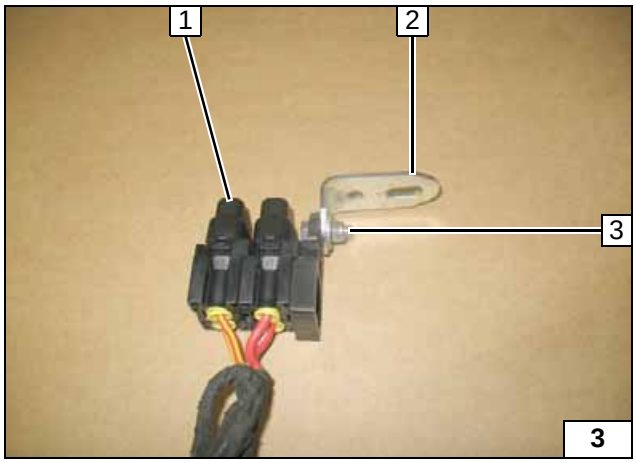
**Premounting fuse holder of passenger compartment**




Connect wires in accordance with wiring diagram. Insert 25A fuse F4.

**1** Fuse holder of passenger compartment
**2** K1 relay
**3** Angle bracket
**4** M5x16 bolt, large diameter washer [2x], nut

**Premounting fuse holder of passenger compartment**



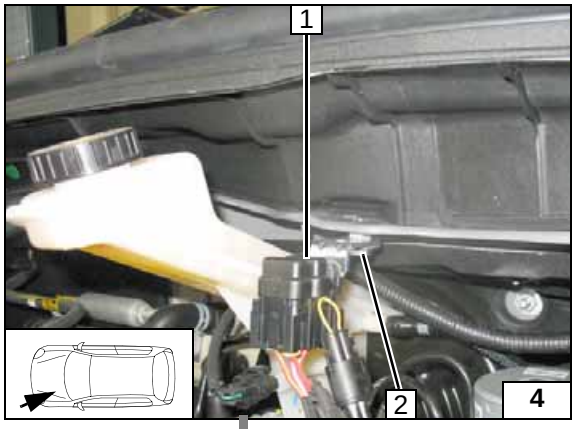

**1** Engine compartment fuse holder
**2** Angle bracket
**3** M5x16 bolt, large diameter washer [2x], nut

**Premounting fuse holder of engine compartment**

## Electrical System

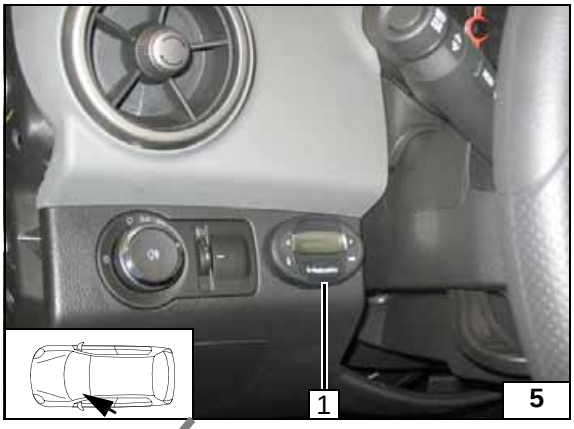
### Fuse holder of engine compartment

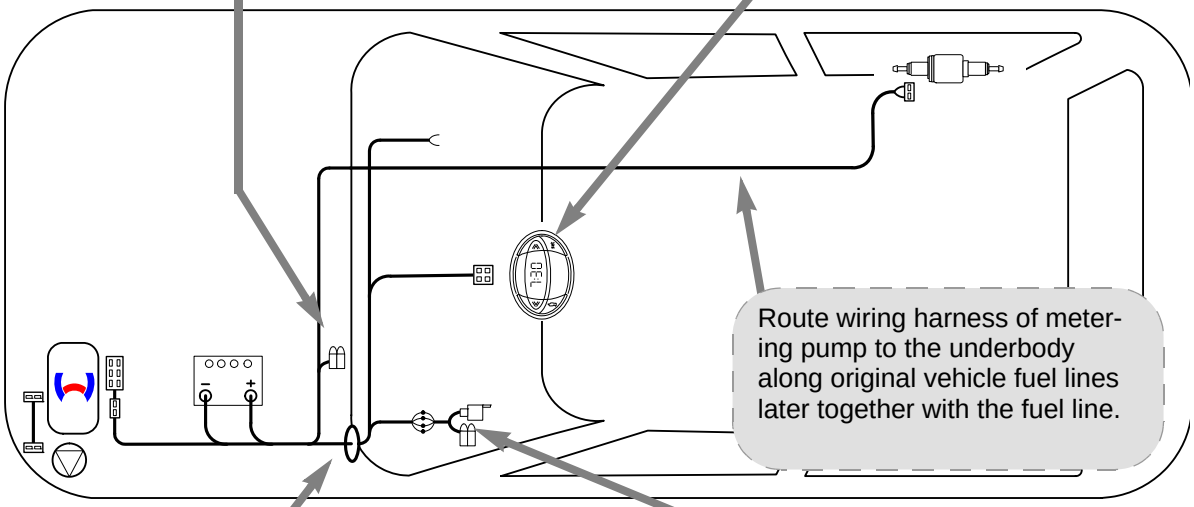
**1** Engine compartment fuse holder
**2** M8x20 bolt, large diameter washer, existing thread



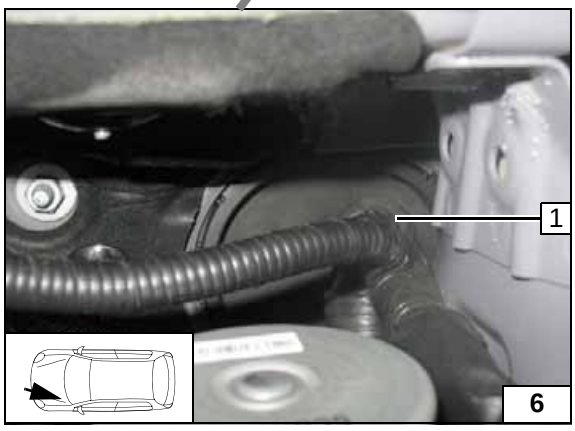

### Digital timer

**1** Digital timer



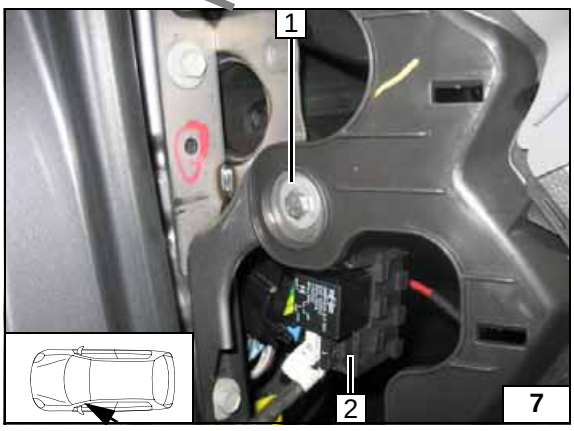




**Wiring harness routing diagram**




### Wiring harness pass through

**1** Protective rubber plug

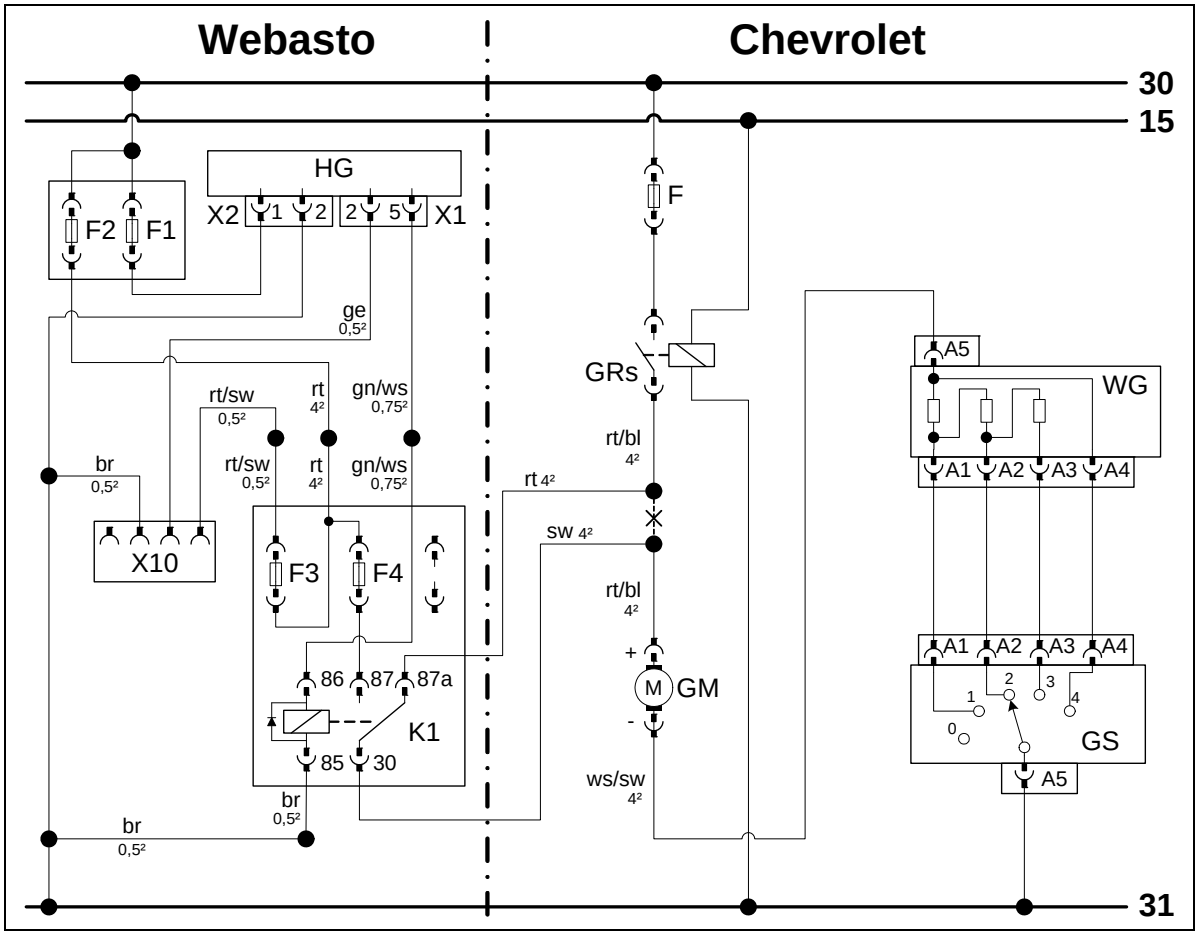



### Fuse holder of passenger compartment

**1** M6x20 bolt, large diameter washer, existing hole, flanged nut
**2** Fuse holder of passenger compartment

## Fan Controller

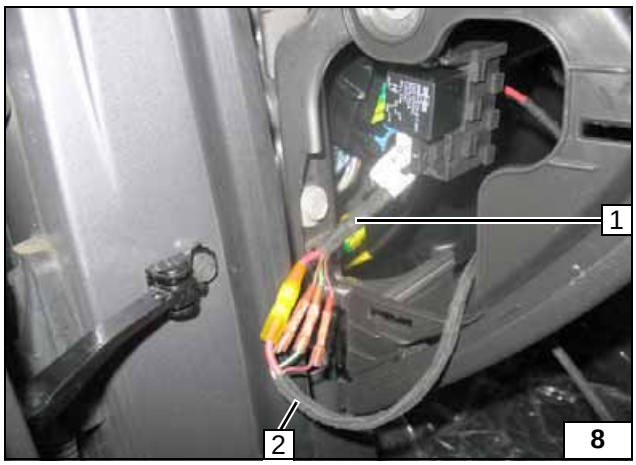
Wiring diagram



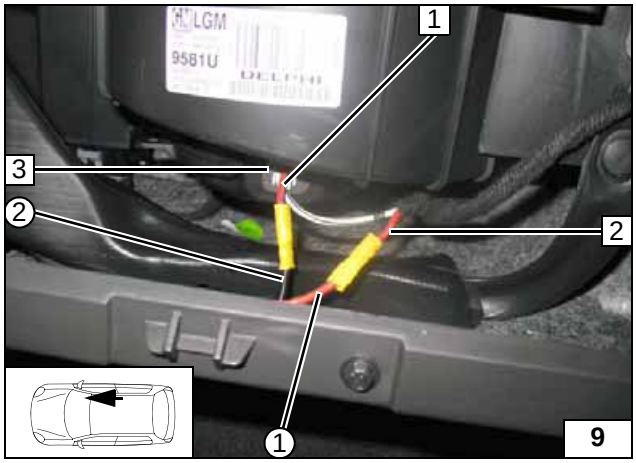

Legend

| Webasto components | | Vehicle components | | Colours and symbols | |
|---|---|---|---|---|---|
| HG | Heater TT-Evo | F | Fuse | rt | red |
| X1 | 6-pin heater connector | GRs | Fan relay | sw | black |
| X2 | 2-pin heater connector | WG | Resistor group | bl | blue |
| X10 | 4-pin connector of heater control | GM | Fan motor | gn | green |
| | | GS | Fan switch | br | brown |
| K1 | Fan relay | | | ws | white |
| F1 | 20A fuse | | | | |
| F2 | 30A fuse | | | | |
| F3 | 1A fuse | | | | |
| F4 | 25A fuse | | | | |

Connecting wiring harnesses



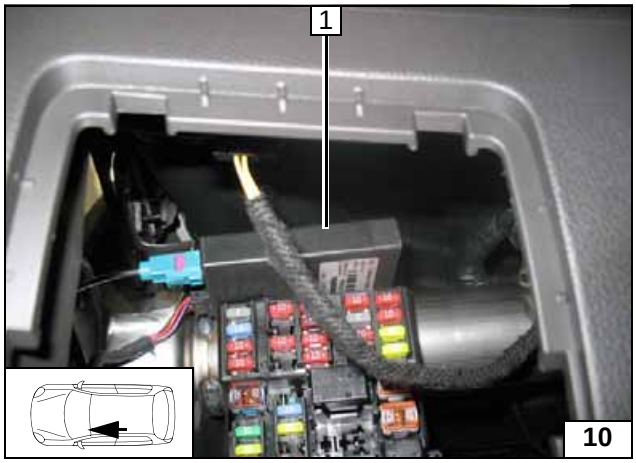

Connect wiring harness of passenger compartment fuse holder **1** with wiring harness of heater **2** according to the wiring diagram using same-colour wires.




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

**1** Red/blue (rt/bl) wire of fan motor
**2** Red/blue (rt/bl) wire of fan relay
① Red (rt) wire from K1/87a
② Black (sw) wire of K1/30

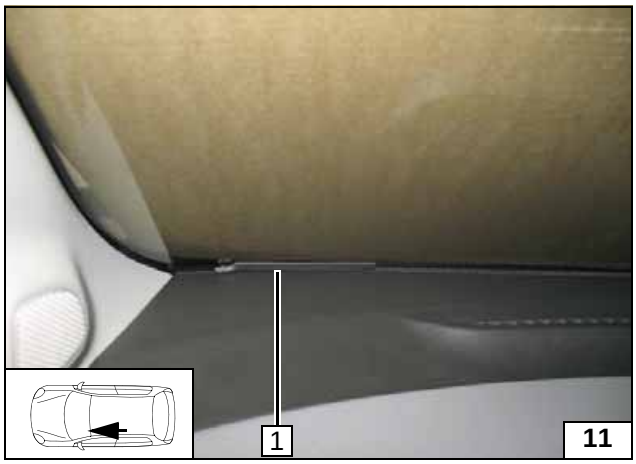
**Connection of fan motor**




## Remote Option (Telestart)

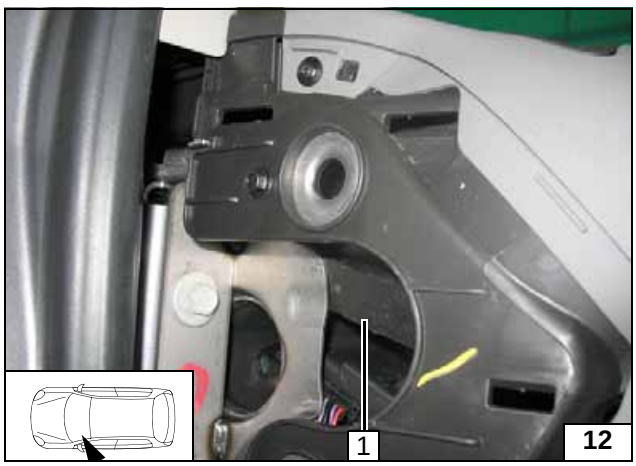
Fasten receiver **1** with adhesive tape.

**Installing receiver**




**1** Antenna

**Installing antenna**

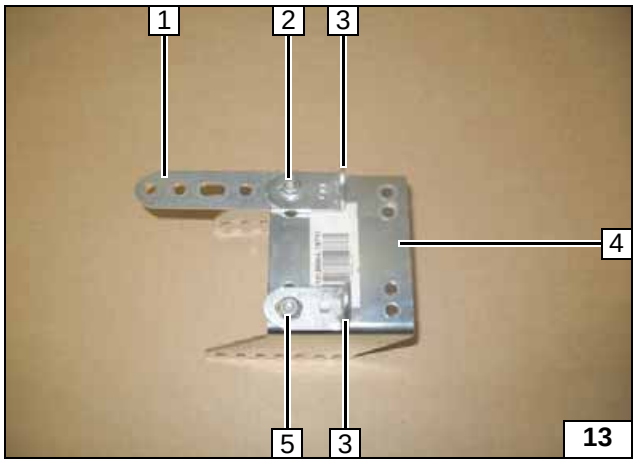



**Temperature sensor T100 HTM**

Fasten temperature sensor **1** with adhesive tape.

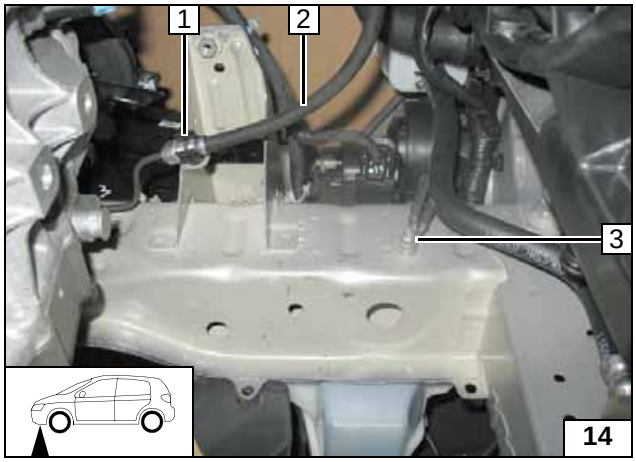
**Installing temperature sensor**

## Preparing Installation Location



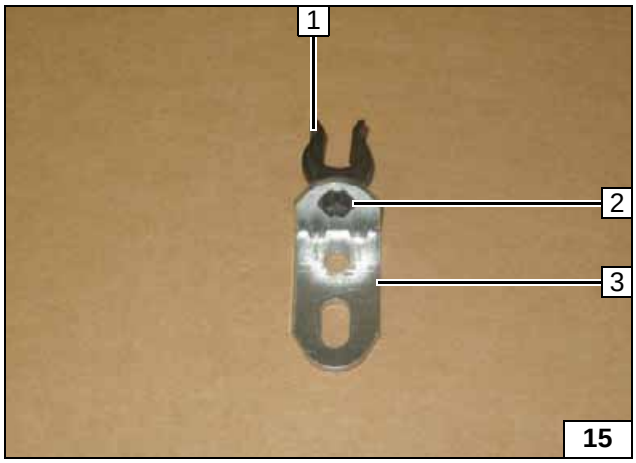

**1** Perforated bracket
**2** M6x16 bolt, flanged nut
**3** Angle bracket [2x]
**4** Bracket
**5** M6x12 bolt, flanged nut

**Premounting bracket**



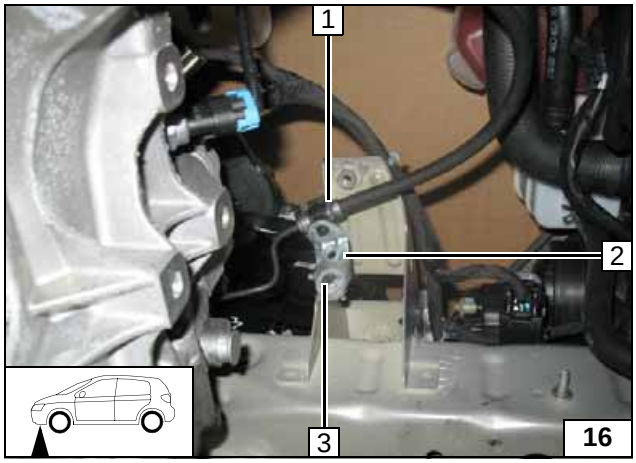

**1** Dismount bracket of coupling line, will be needed again
**2** Coupling line
**3** Remove original vehicle nut and earth wires, nut will be needed again

**Moving coupling line**




**1** Bracket of coupling line
**2** Drill out hole to 8 mm dia.
**3** Angle bracket

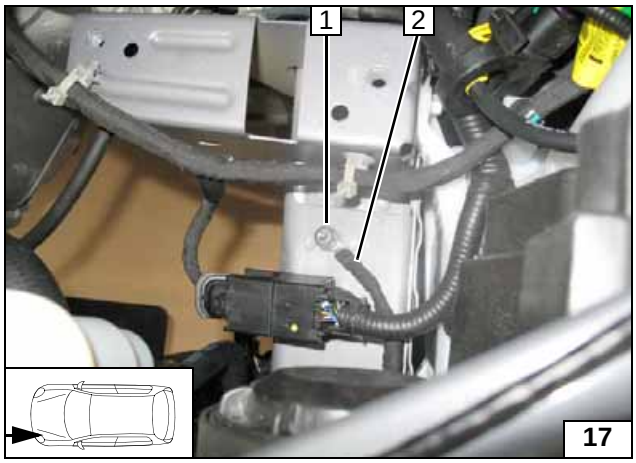
**Moving coupling line**




Insert coupling line into bracket.

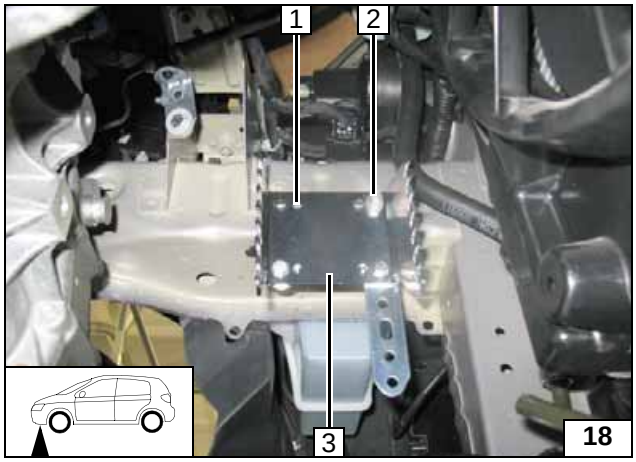
**2** Premounted bracket
**3** M6x20 bolt, large diameter washer, existing hole, flanged nut

**Moving coupling line**




**1** Original vehicle earth support point
**2** Earth wires

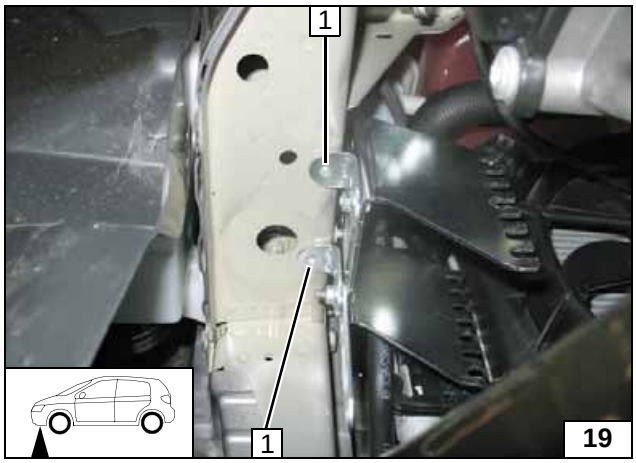
**Mounting earth wires**




Attach bracket **3** to original vehicle bolt, align it and fasten it using original vehicle nut **2**.

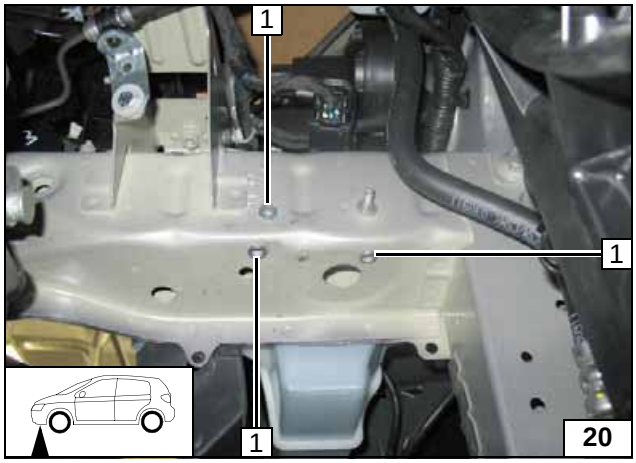
**1** Copy hole pattern

**Copying hole pattern**



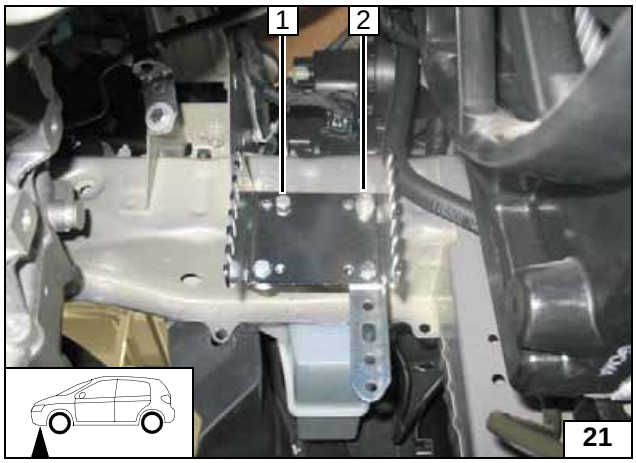

**1** Copy hole pattern [2x]

**Copying hole pattern**




**1** 9.1mm dia. hole; rivet nut [3x each]

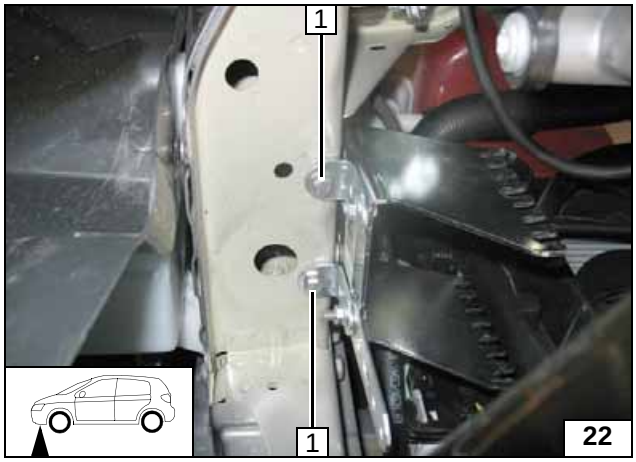
**Installing rivet nuts**




Align bracket and tighten it using original vehicle nut **2**. Install two 22 mm dia. large diameter washers between bracket and vehicle at position **1**.

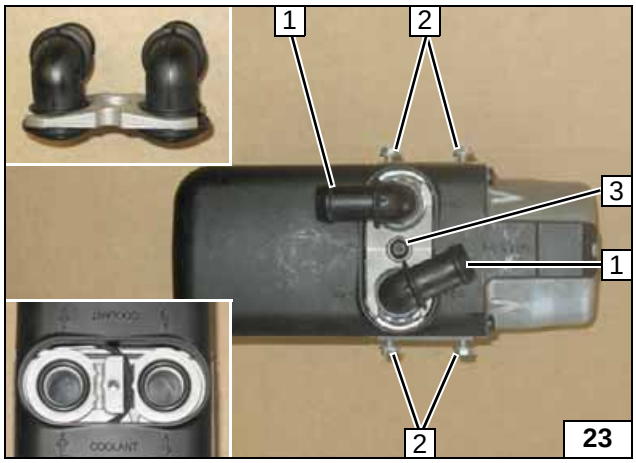
**1** M6x20 bolt, spring lockwasher

**Installing bracket**




**1** M6x20 bolt, spring lockwasher [2x each]

**Installing bracket**

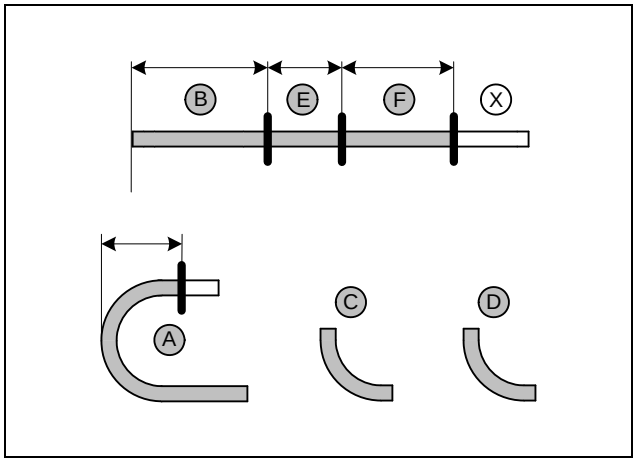



## Preparing Heater

Precut thread with 5x13 self-tapping bolts **2** [4x] and mount loosely (screw in a maximum of 3 thread pitches).

**1** Water connection piece, sealing ring [2x each]
**3** 5x15 self-tapping bolt, retaining plate of water connection piece

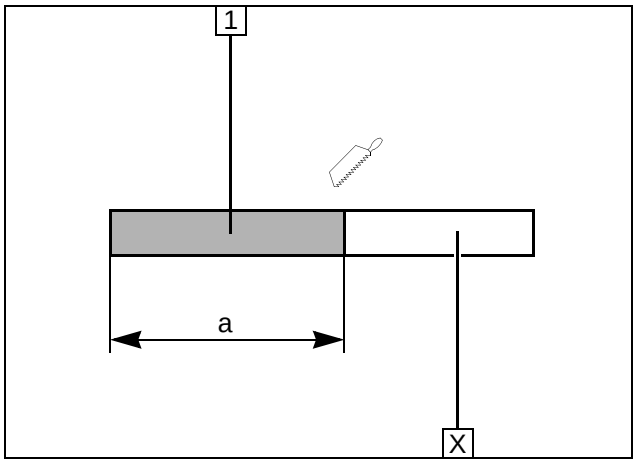
**Installing water connection pieces**




Discard section X.
Hose **A** = 180°, 20mm dia. moulded hose **C** and **D** = 90°, 18mm dia. moulded hose

**A** = 50
**B** = 460
**E** = 110
**F** = 360

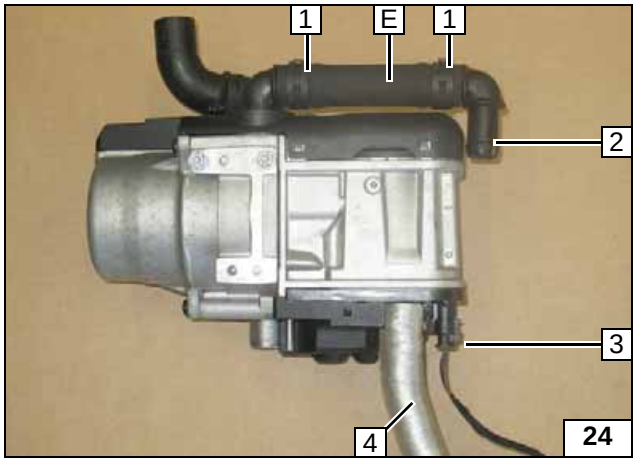
**Cutting hoses to length**




Discard section X.

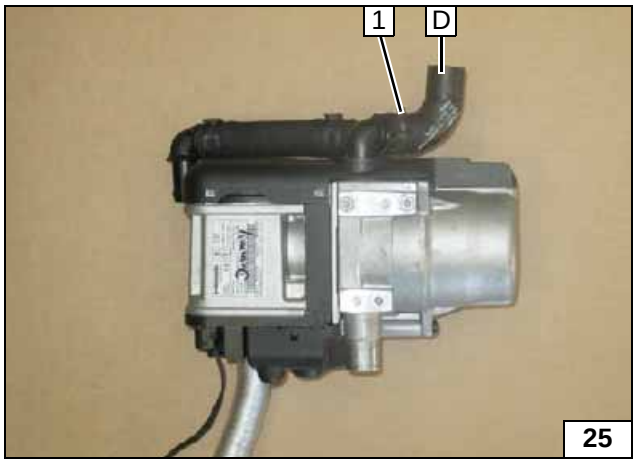
**1** Combustion air pipe
a = 250

**Cutting combustion air pipe to length**




**1** 25 mm dia. spring clip [2x]
**2** Connecting pipe 90° 18x18mm dia.
**3** Mount wiring harness of circulating pump
**4** Combustion air pipe

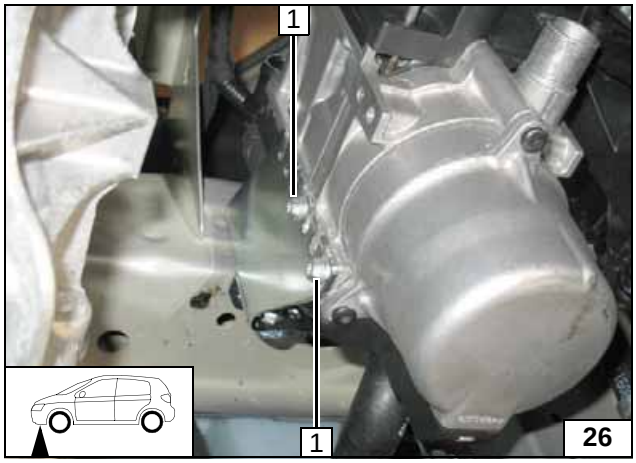
**Premounting hoses**




**1** 25 mm dia. spring clip

**Premounting hoses**

## Installing Heater

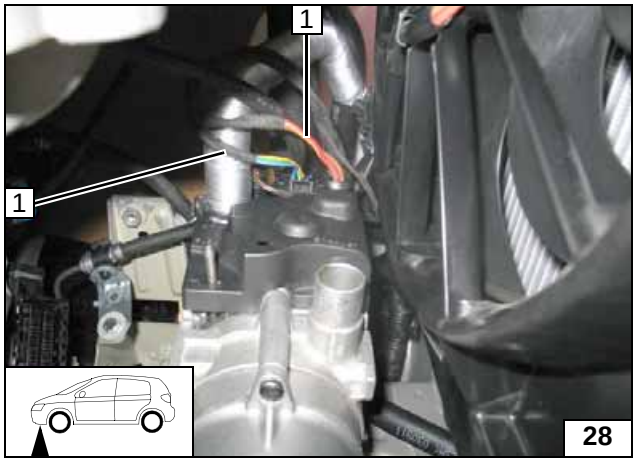



**1** Tighten self-tapping bolt 5x13 [2x]

**Installing heater**


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

**Installing heater**



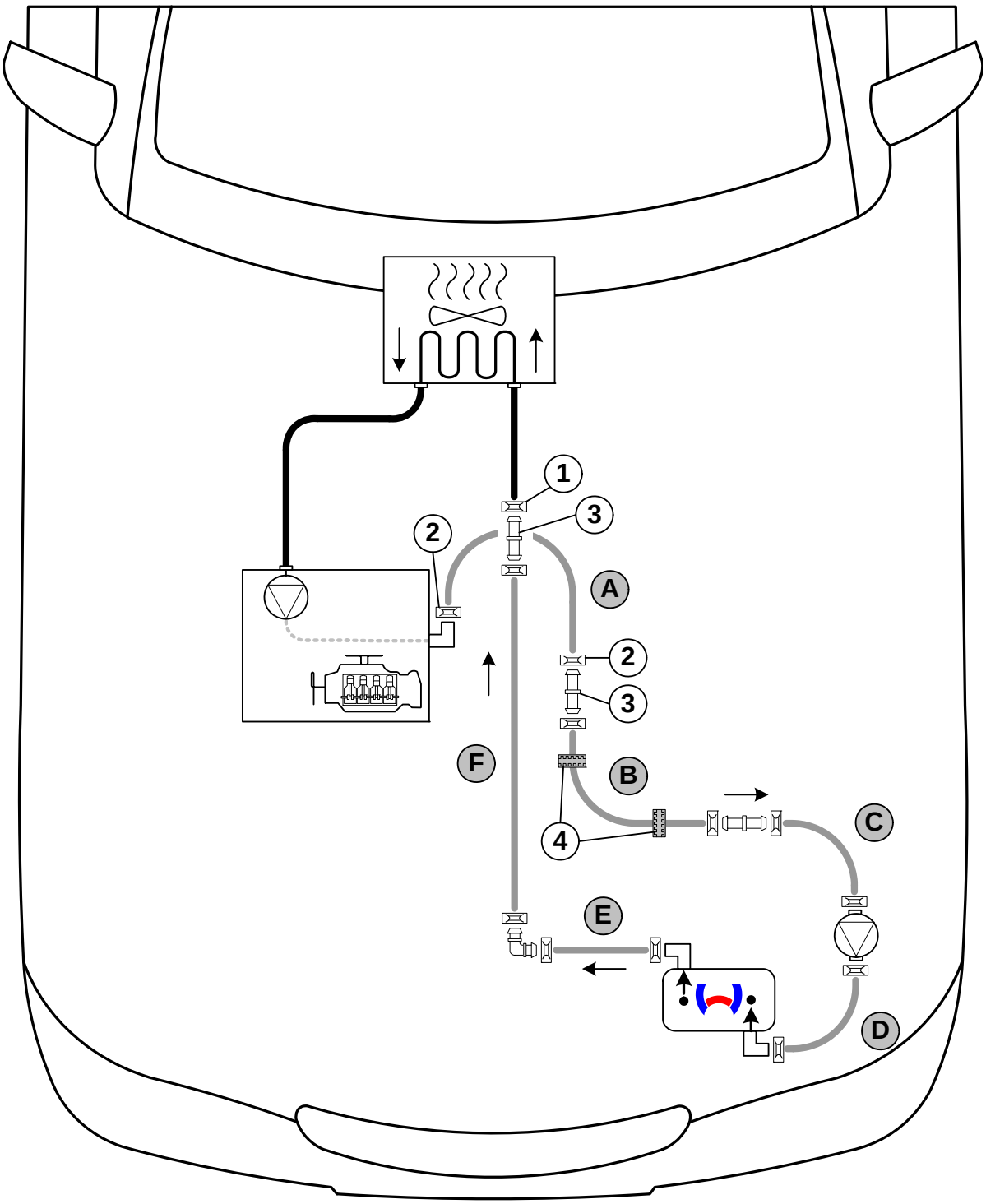

**1** Mount wiring harness of heater [2x]

**Installing wiring harness of heater**

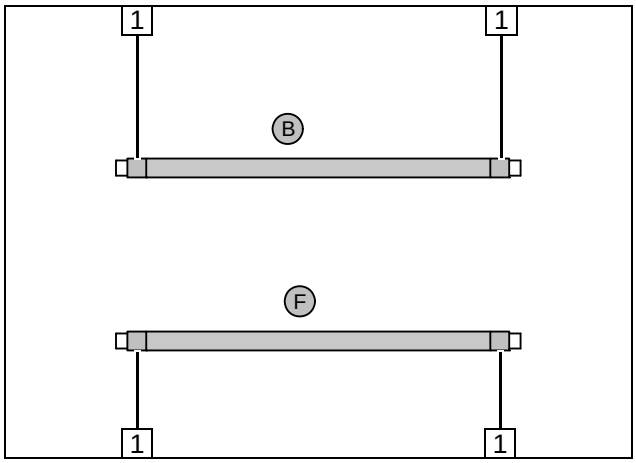
## Coolant Circuit

**WARNING!**
Any coolant running off should be collected in an appropriate container. Install coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot 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**



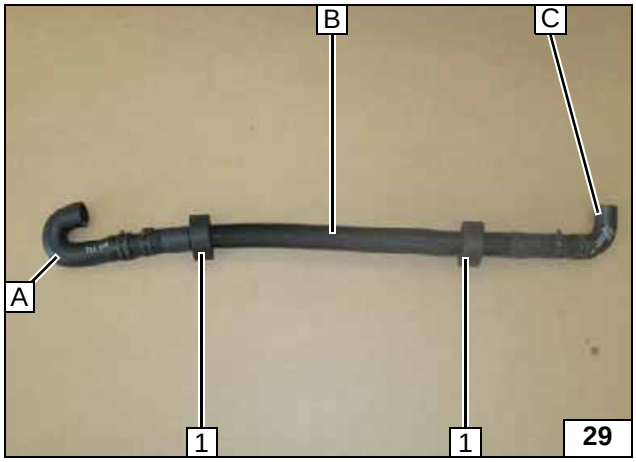

All non-designated spring clips = 25mm dia. **1** = Original vehicle spring clip .
**2** = 27 mm dia. spring clip . All connecting pipes without a specific designation and = 18x18 mm dia. **3** = 18x20 mm dia. connecting pipe **4** = black (sw) rubber isolator .




Push braided protection hoses onto hose **B** and **F** and cut to length.
Cut heat shrink plastic tubing to length.

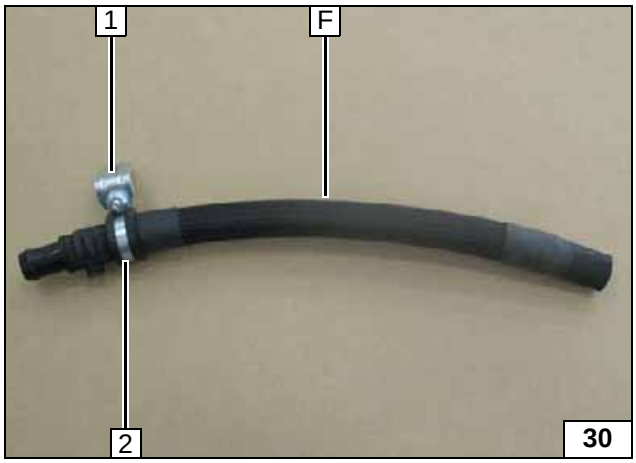
**1** 50 mm long heat shrink plastic tubing [4x]

**Preparing hoses**



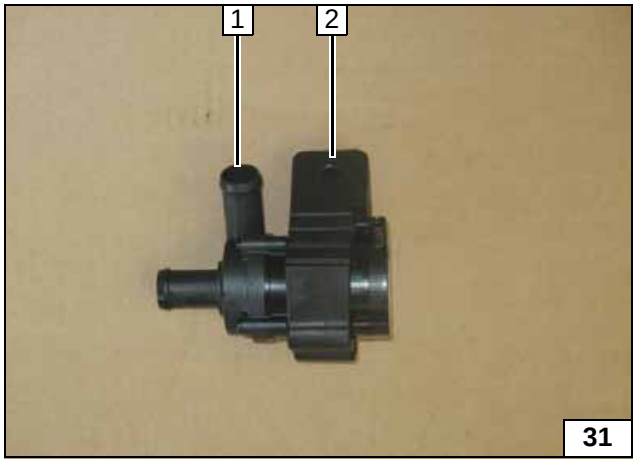

**1** Black (sw) rubber isolator [2x]

**Preparing hoses**



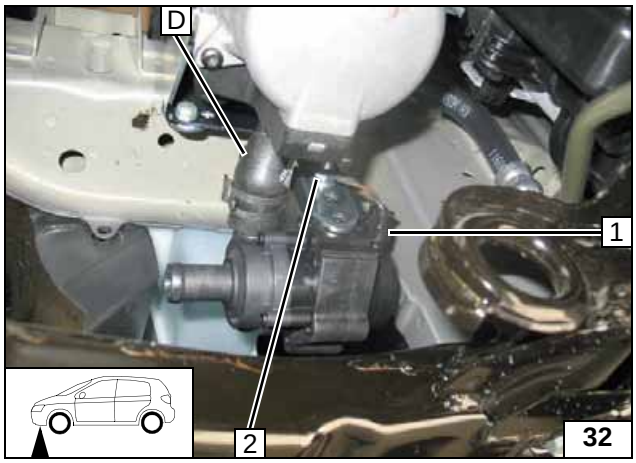

**1** Angle bracket, M6x16 bolt, flanged nut
**2** Rubber-coated pipe clamp

**Preparing hose**



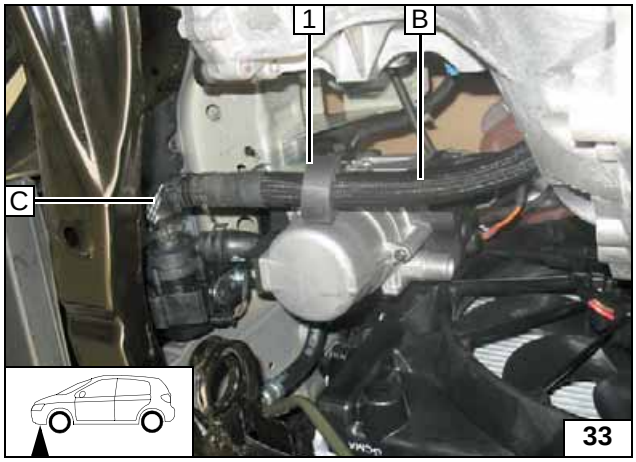

**1** Circulating pump
**2** Mounting of circulating pump

**Premounting circulating pump**




**1** Mount wiring harness of circulating pump
**2** M6x25 bolt, flanged nut

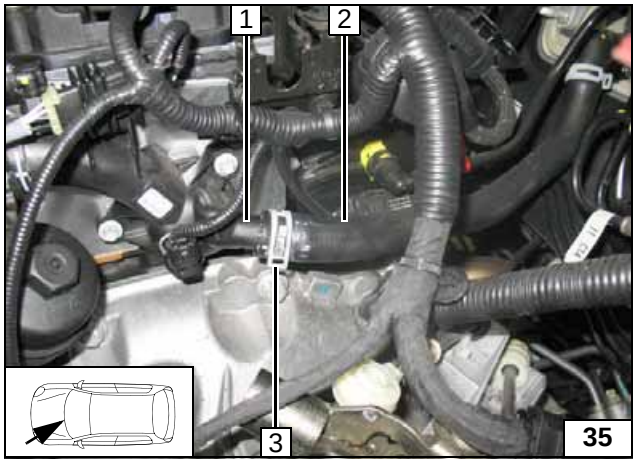
**Installing circulating pump**




**1** Position black (sw) rubber isolator

**Connection of hose C**

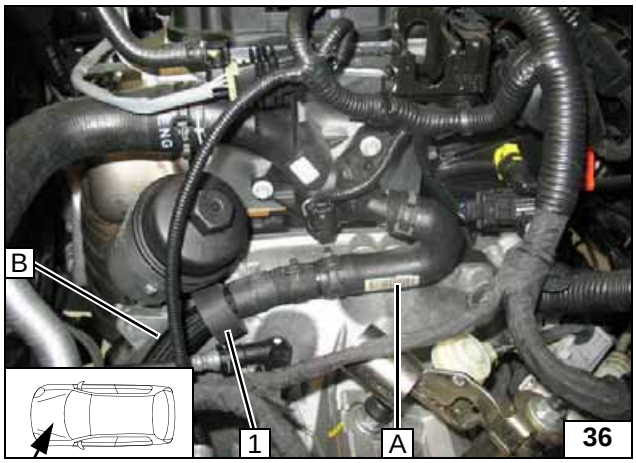

**Connection of hose F**




**1.4 B**

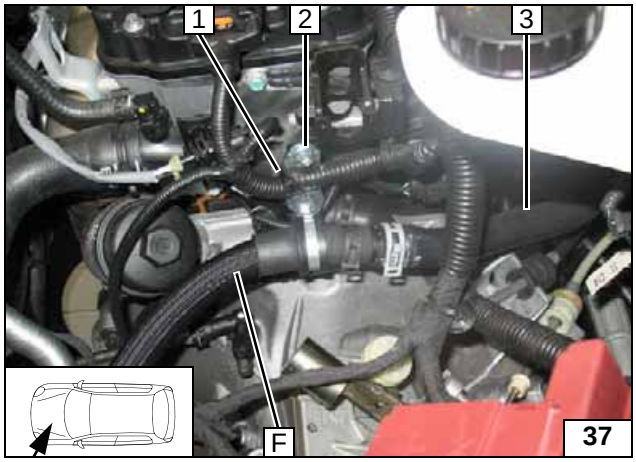
Pull hose of engine outlet / heat exchanger inlet **2** off connection piece of engine outlet **1**. Spring clip **3** will be reinserted.

**Cutting point**




**1** Position black (sw) rubber isolator

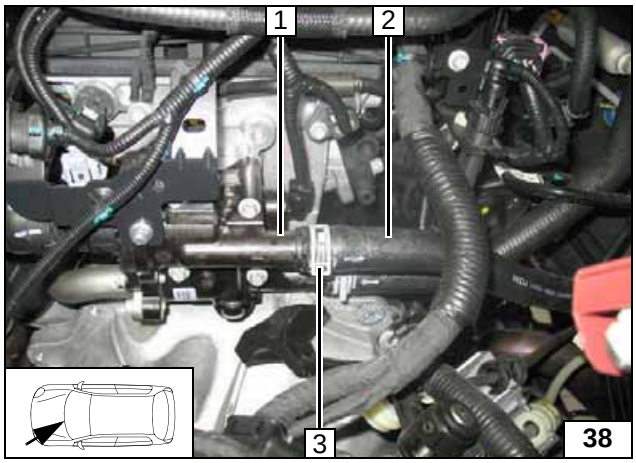
**Connecting engine outlet**




Ensure sufficient distance to neighbouring components. Remove and discard original vehicle clip with cable tie at position **2**.

**1** Fasten wiring harness with cable tie
**2** M6x12 bolt, original vehicle hole, angle bracket, large diameter washer, flanged nut
**3** Hose on heat exchanger inlet

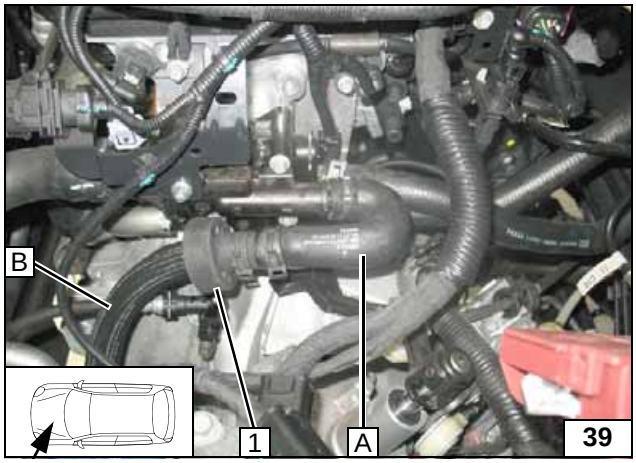
**Connection of heat exchanger inlet**




**1.6 B**

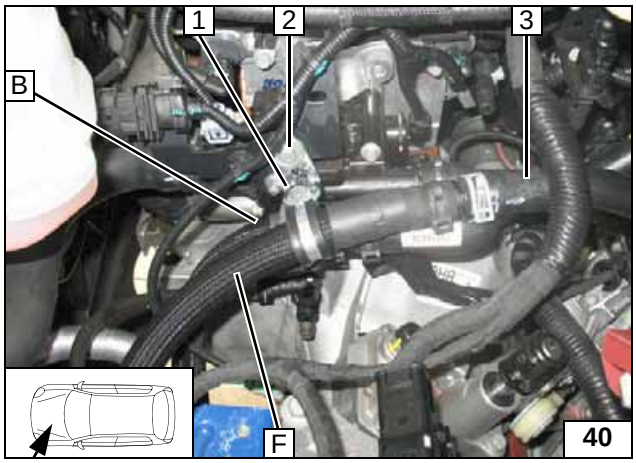
Pull hose of engine outlet / heat exchanger inlet **2** off connection piece of engine outlet **1**. Spring clip **3** will be reinserted.

**Cutting point**




**1** Position black (sw) rubber isolator

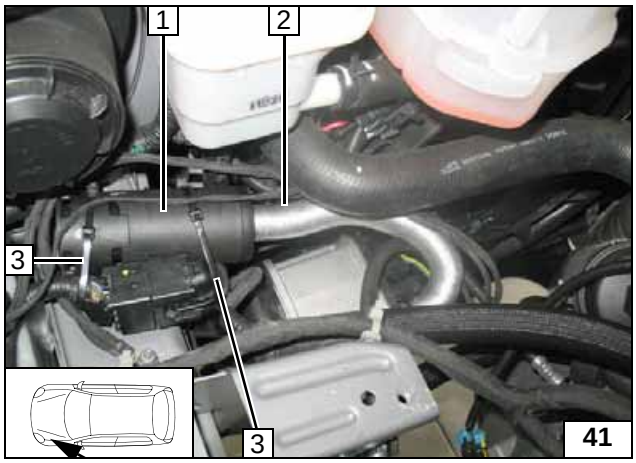
**Connecting engine outlet**




Ensure sufficient distance to neighbouring components. Attach black (sw) rubber isolator from hose **B** to angle bracket using cable tie **1**.

**2** M6x12 bolt, large diameter washer, original vehicle hole, angle bracket, flanged nut
**3** Hose on heat exchanger inlet

**Connection of heat exchanger inlet**




## Combustion Air

**1** Silencer
**2** Combustion air pipe
**3** Cable tie [2x each]

**Installing silencer**

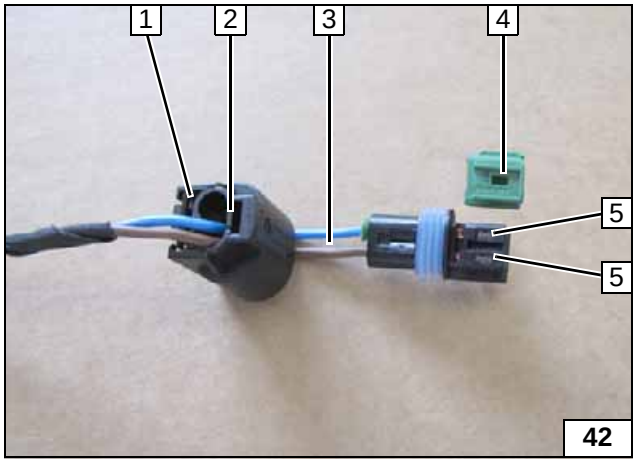
## Fuel

**CAUTION!**
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.
Mount the fuel line and wiring harness with rub protection on sharp edges.

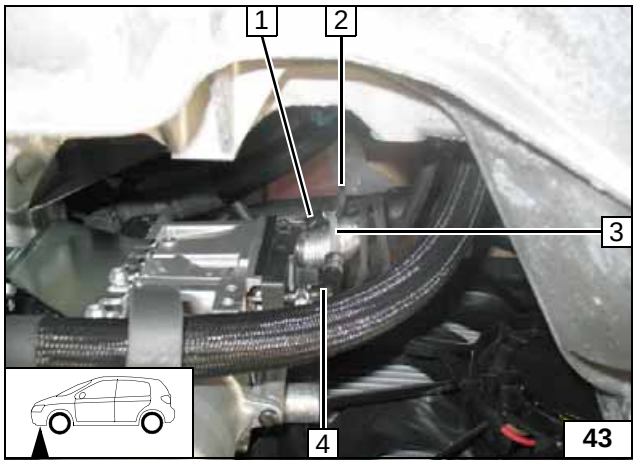
**WARNING!**
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.




**Dismantling connector**

Complete connector of metering pump again after routing. Pin assignment is not relevant.

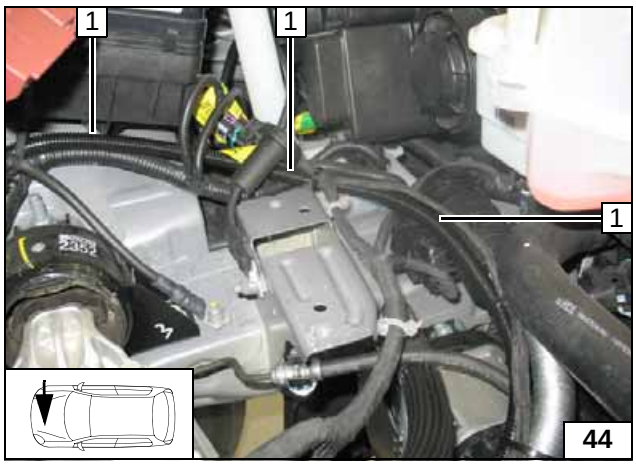
**1** Connector housing
**2** Lock
**3** Blue (bl) and brown (br) wires
**4** Coding
**5** Timer lock




**Connecting heater**

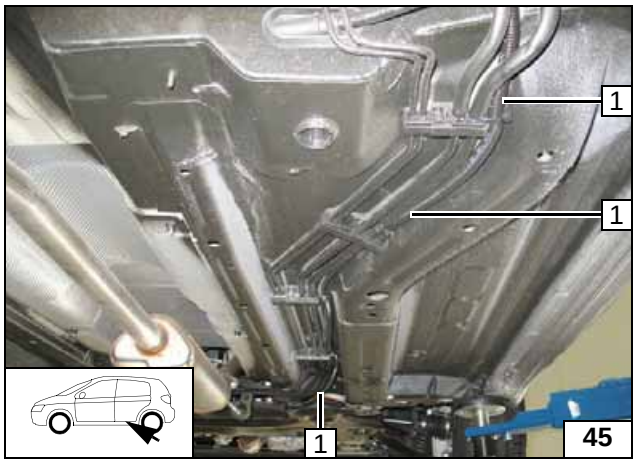
Pull wiring harness of metering pump **2** and fuel line **3** into corrugated tube **1**.

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



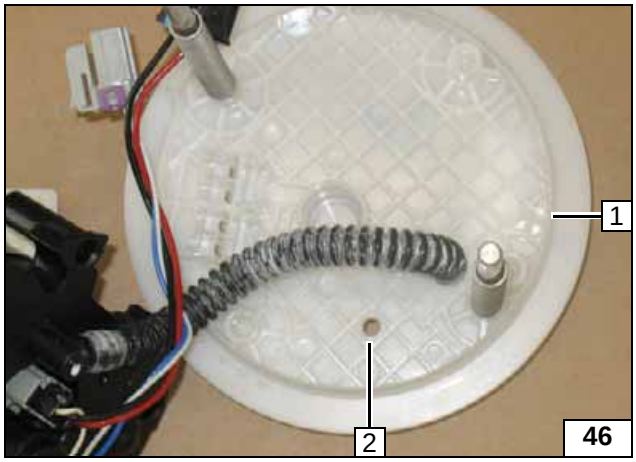

**Installing lines**

Route wiring harness of metering pump and fuel line in corrugated tube **1** to the firewall, the right side of the vehicle and to the underbody along original vehicle fuel lines.




**1** Wiring harness of metering pump and fuel line in corrugated tube

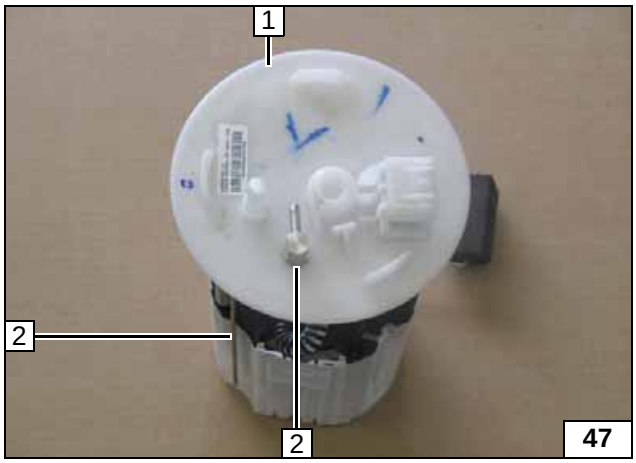
**Installing lines**




Remove the fuel tank in accordance with the manufacturer's instructions. Remove and dismount fuel-tank sending unit **1** according to manufacturer's instructions.

**2** 6mm dia. hole in the centre of the grid

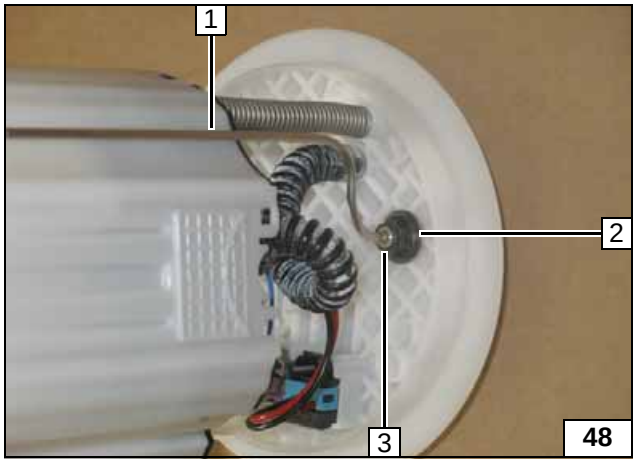
**Fuel extraction**




Shape fuel standpipe **2** according to template, and cut to length.

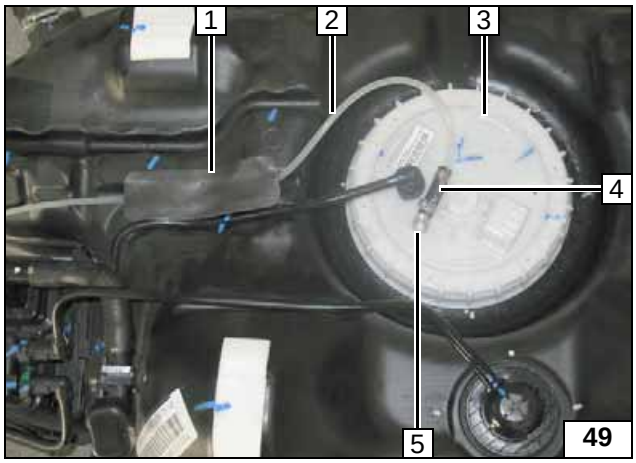
**1** Fuel-tank sending unit

**Installing fuel standpipe**




**1** Fuel standpipe
**2** 18mm dia. large diameter washer
**3** Self-locking flanged nut

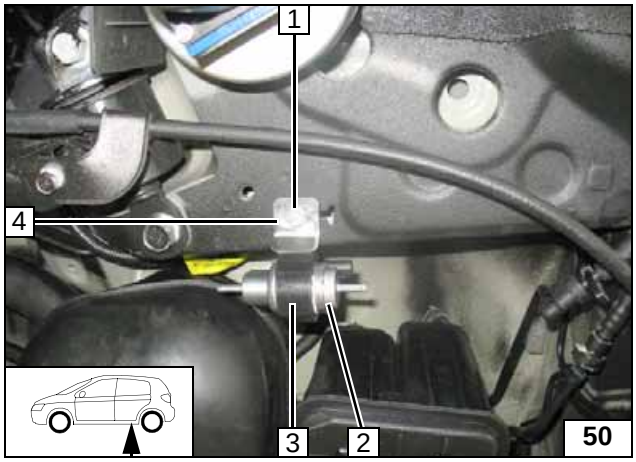
**Fastening fuel standpipe**




Install fuel-tank sending unit **3** into fuel tank in accordance with manufacturer's instructions, then install the fuel tank in accordance with manufacturer's instructions.

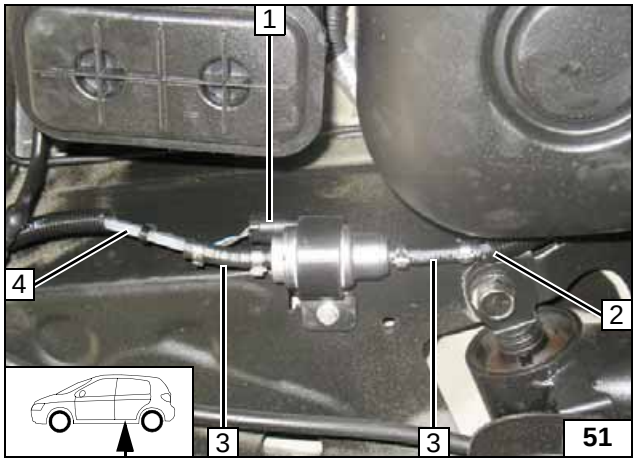
**Connecting fuel line**

**1** Rub protection
**2** Fuel line
**4** Hose section, 10mm dia. clamp [2x]
**5** Fuel standpipe




**Installation of metering pump**

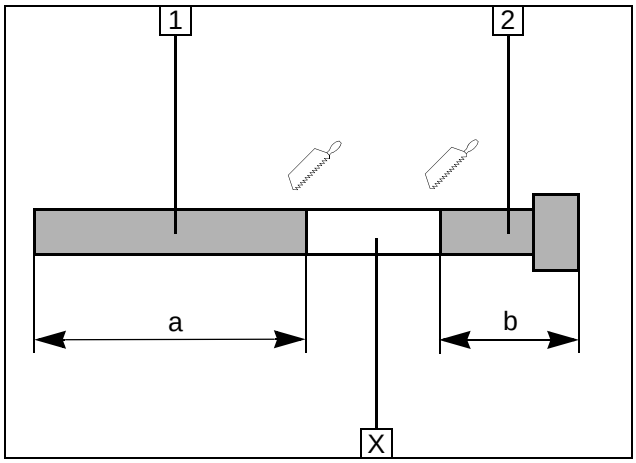
**1** M6x25 bolt, hollow rivet, original vehicle threaded hole
**2** Metering pump
**3** Mounting of metering pump
**4** Support bracket




Check the position of the components; adjust if necessary. Check that they have freedom of movement.

**Connecting metering pump**

**1** Wiring harness of metering pump, connector mounted
**2** Fuel line in corrugated tube of fuel standpipe
**3** Hose section, 10mm dia. clamp [2x]
**4** Fuel line of heater

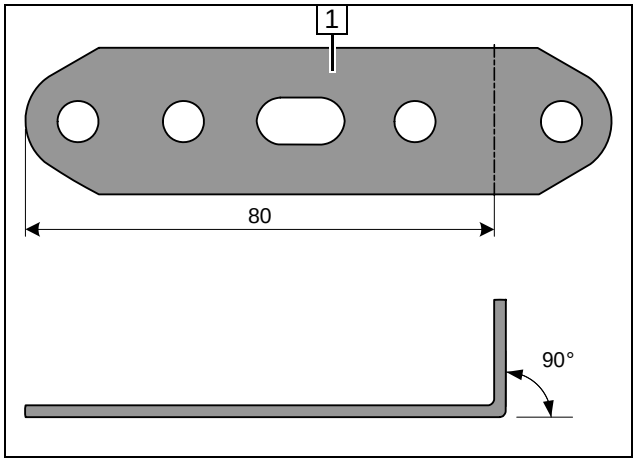



## Exhaust Gas

Discard section X.

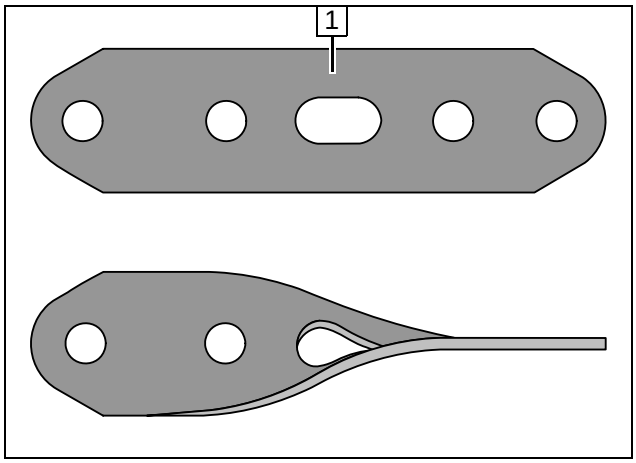
**1** Combustion air pipe
a = 280
**2** Exhaust end section
b = 90

**Preparing exhaust pipe**



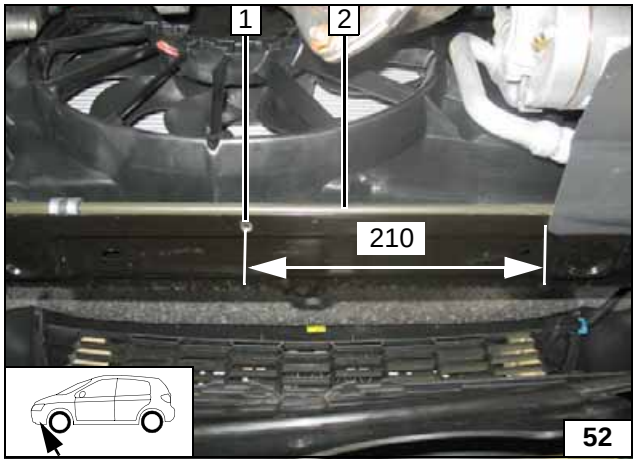

**1** Perforated bracket

**Preparing perforated bracket 1**




**1** Perforated bracket

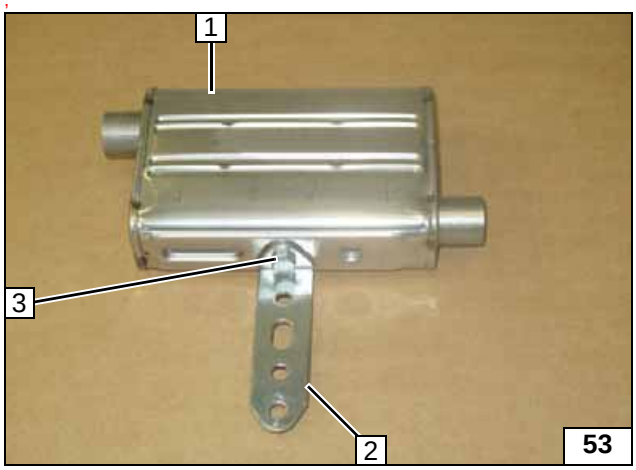
**Preparing perforated bracket 2**




Protect hydraulic line **2** when drilling

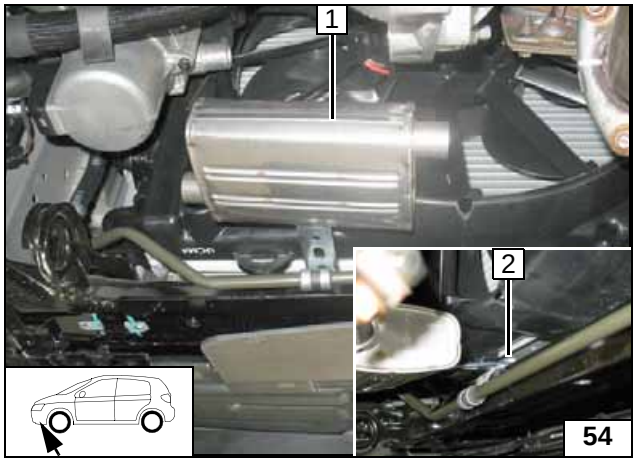
**1** 7mm dia. hole in the centre of the bar

**Preliminary Work**




**1** Exhaust silencer
**2** Perforated bracket 1
**3** M6x16 bolt, spring lockwasher

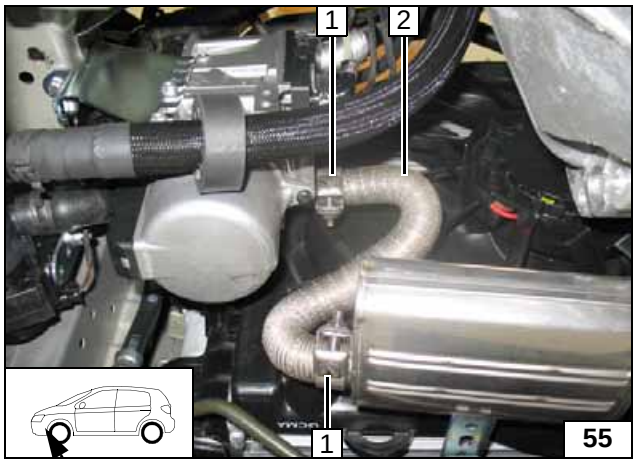
**Premounting silencer**




Ensure sufficient distance to neighbouring components.

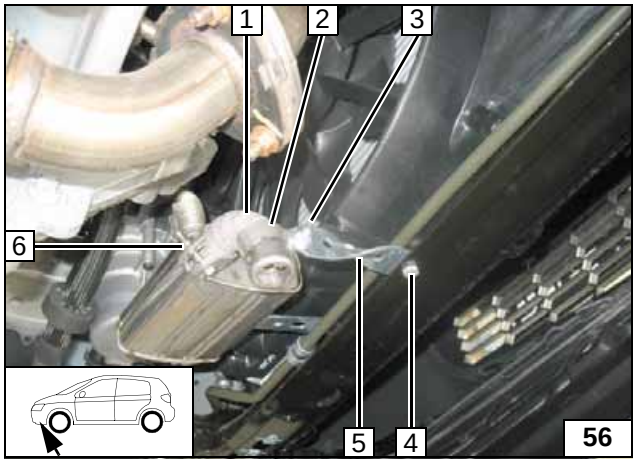
**1** Exhaust silencer
**2** Original vehicle bolt

**Premounting silencer**




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

**Installing exhaust pipe**




**1** Exhaust end section
**2** P-clamp
**3** M6x20 bolt, flanged nut
**4** M6x12 bolt, flanged nut
**5** Perforated bracket 2
**6** Hose clamp

**Mounting exhaust end section**

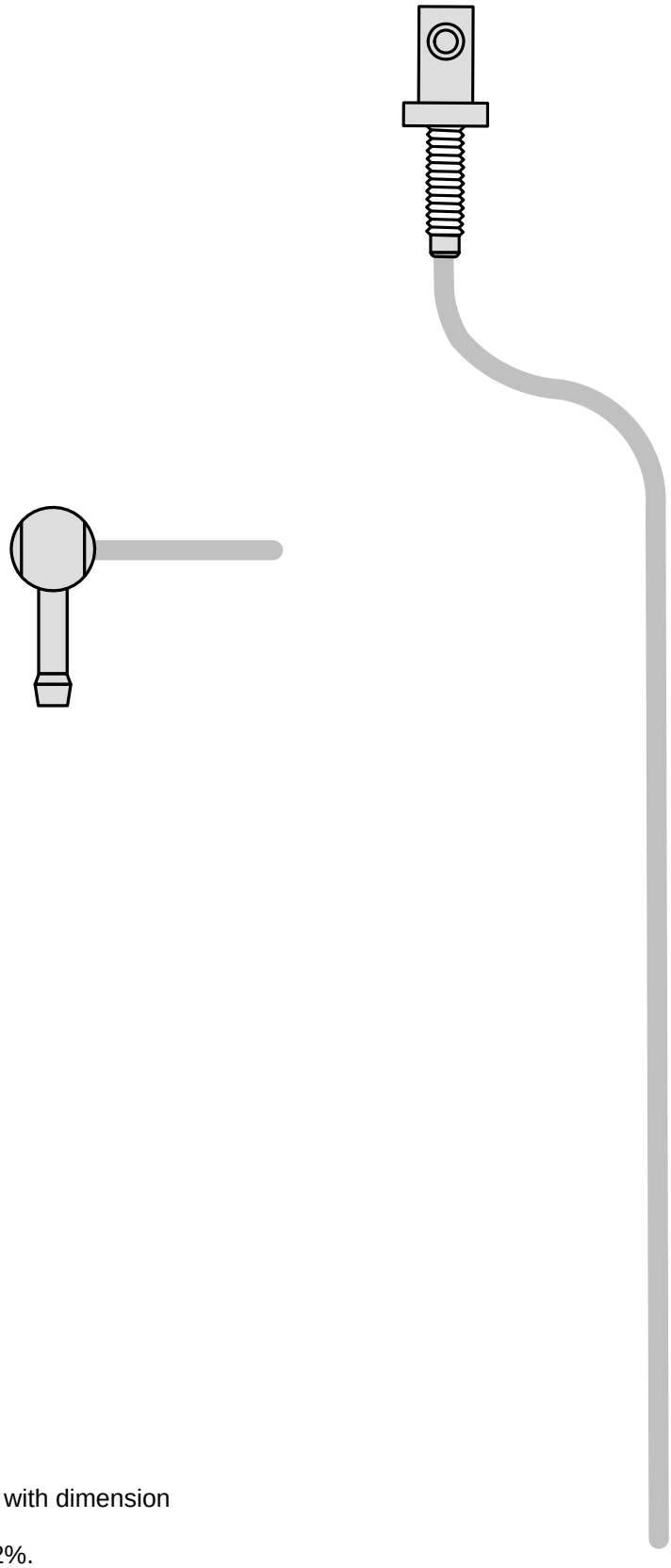
## Final Work

**WARNING!**
Mount removed parts 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 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.**
- **Adjust digital timer, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place signboard "Switch off parking heater before refuelling" in the area of the filler neck**
- **For initial startup and function check, see installation instructions**

Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

## Fuel Standpipe Template



100mm

Scale 1:1

Compare size of the printed version with dimension lines.
Permitted tolerance a maximum of 2%.

Set the printer settings to “no margin” or “minimise margins” and 100% of the normal size.

100mm

0

## Operating Instructions for End Customer

Please remove page in case of manual air-conditioning and add it 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.

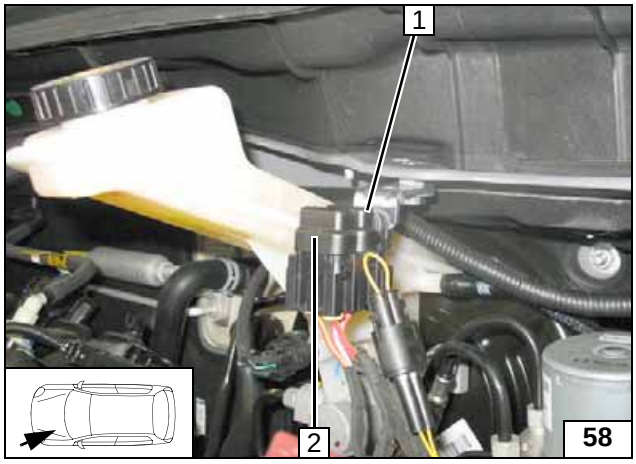
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating operation .
Instructions for the deactivation can be taken from the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

**A/C control panel**

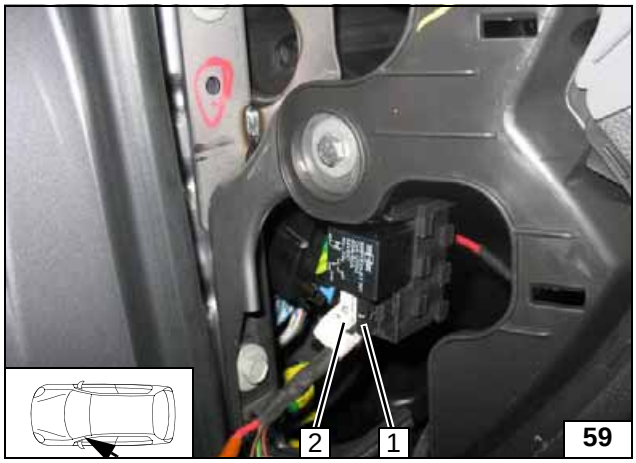

**1** Air outlet to windscreen
**2** Set fan to level "1", max. "2"
**3** Set temperature to "max."

**Fuses of engine compartment**




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

**Fuses of passenger compartment**




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