

# Water Heater

## Thermo Top Evo Parking Heater



# Installation Documentation

## Kia Picanto

### Validity

Manufacturer	Model	Type	EG BE No. / ABE
Kia	Picanto	IM	e4 * 2007 / 46 * 0256 * ...
Kia	Picanto	Ta	e4 * 2007 / 46 * 0256 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm <sup>3</sup>	Engine code
1.0	Petrol	SG	51	998	G3LA
1.0	Petrol	SG	49	998	G3LA

SG = manual transmission

From model year 2011

Left-hand drive vehicle

**Verified equipment variants:** Manual air-conditioning  
 Automatic air-conditioning (Picanto type IM only)  
 Start-Stop  
 Front fog lights

**Not verified:** Automatic air-conditioning, Picanto Type Ta  
 Passenger compartment monitoring

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

# Kia Picanto

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## Necessary Components

- Basic delivery scope of *Thermo Top Evo* in accordance with price list
- Installation kit Kia Picanto 2011 Petrol: **1317553C**
- Additionally required in case of automatic air-conditioning: Automatic air-conditioning kit: **1318964\_**
- 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

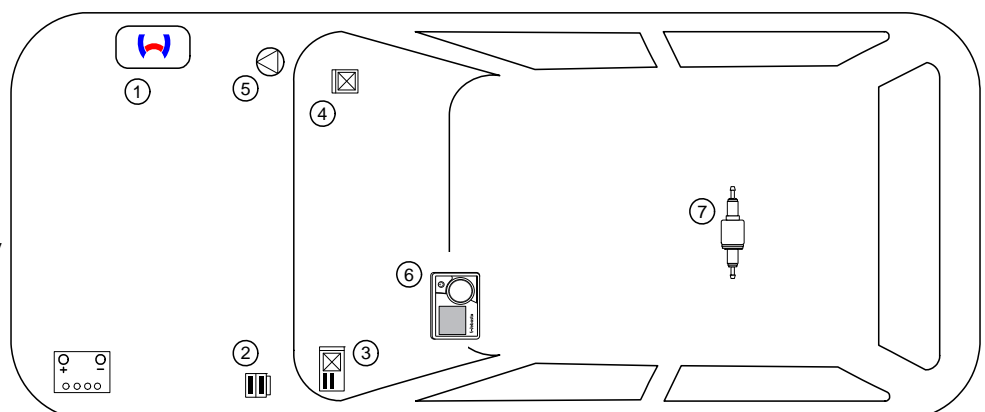
## Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ 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 space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

## 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 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 have to audibly click into place during installation.**

**Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).**

**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	Thermo Top 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 ECE regulation 122 (heating system) paragraph 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 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.

# Kia Picanto

## Information on Validity

This installation documentation applies to Kia Picanto Petrol vehicles - for validity, see page 1 - from model year 2011 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.














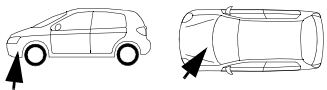

### Tightening torque values

- Tightening torque values of 5x13 heater bolts = 8Nm.
- 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:

<b>Mechanical System</b>		<b>Specific risk of injury or fatal accidents.</b>	
<b>Electrical System</b>		<b>Specific risk due to electrical voltage.</b>	
<b>Coolant Circuit</b>		<b>Specific risk of damage to components.</b>	
<b>Combustion Air</b>		<b>Specific risk of fire and explosion.</b>	
<b>Fuel</b>		<b>Reference to general installation instructions of the Webasto components or to the manufacturer's vehicle-specific documents.</b>	
<b>Exhaust Gas</b>		<b>Reference to a special technical feature.</b>	
<b>Software</b>		<b>The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.</b>	
		<b>Tightening torque according to the manufacturer's vehicle-specific documents.</b>	

# Kia Picanto

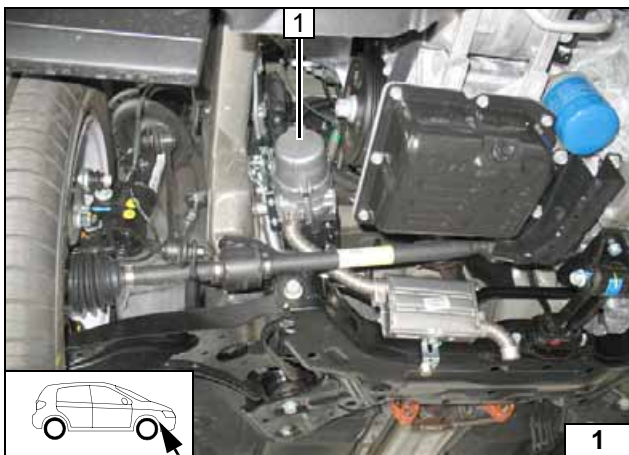
## Preliminary Work

### Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Completely remove the battery.
- Remove the air filter completely, together with the intake hose.
- Loosen the right wheel well trim.
- Remove the left underide protection.
- Remove the glove box (only in case of automatic air-conditioning).
- Remove the A-pillar trim in the front passenger's side footwell (only in case of automatic air-conditioning).
- Remove the lower instrument panel trim on the driver's side.
- Remove the lateral instrument panel trim on the left.

### Heater

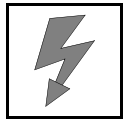
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the engine compartment.



### Heater Installation Location

1 Heater

Installation  
location



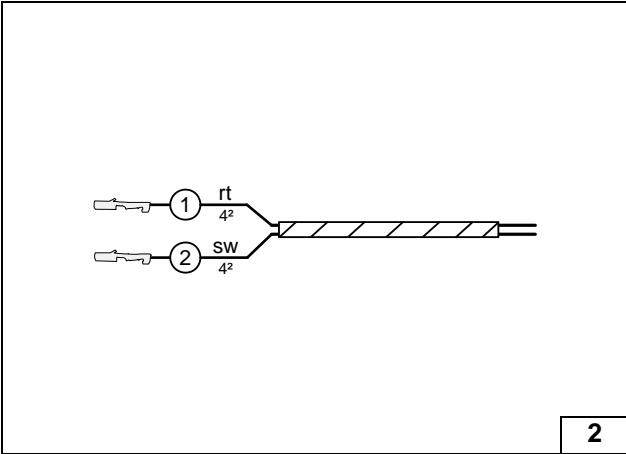
### Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

- ① Red (rt) wire of fan wiring harness
- ② Black (sw) wire of fan wiring harness

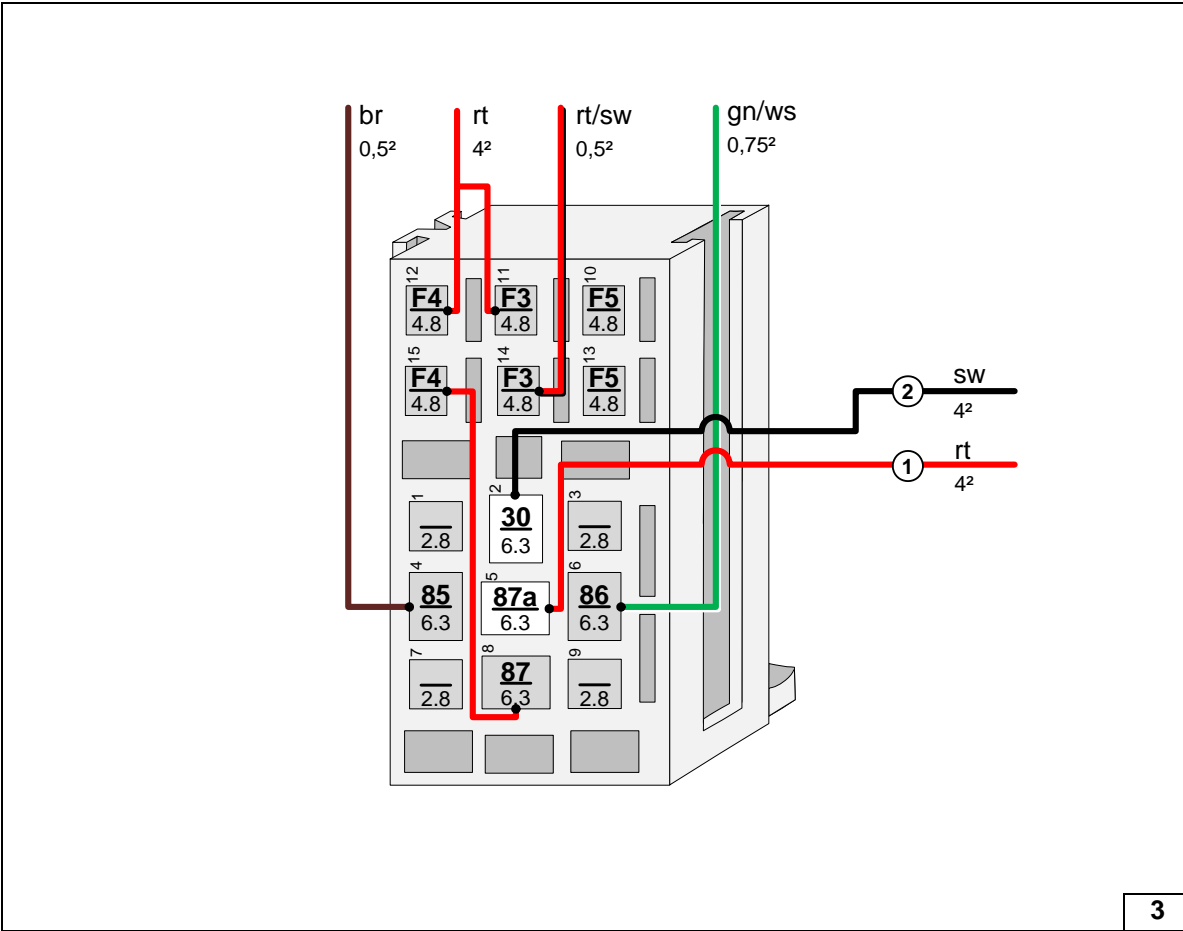
### Preparing wires



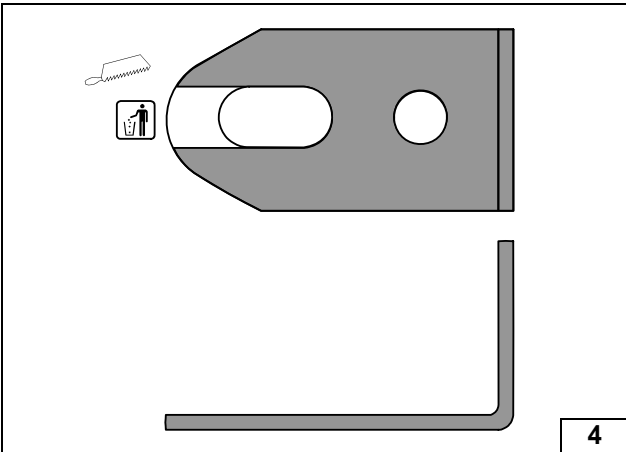
2



### Connecting wires to passenger compartment relay and fuse holder

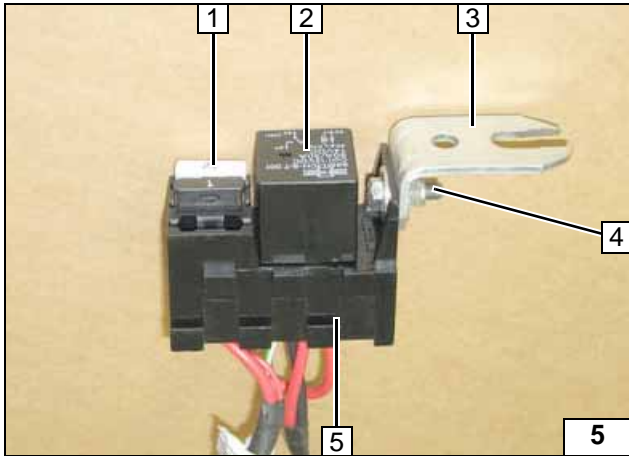
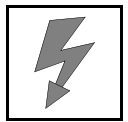


3



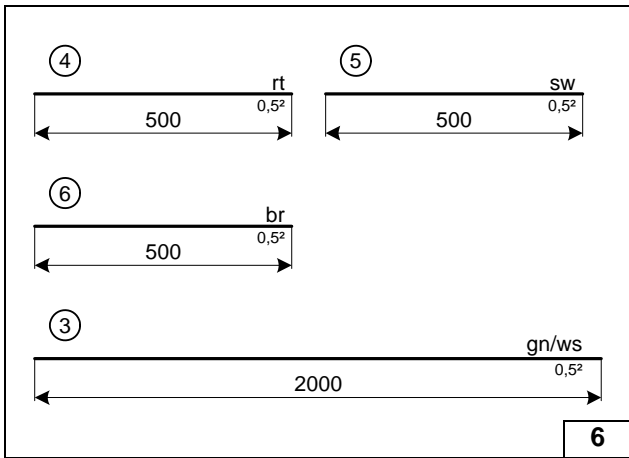
4

### Cutting off angle bracket



- 1 25A fuse F4
- 2 Relay K1
- 3 Angle bracket
- 4 M5x16 bolt, large diameter washer [2x], nut
- 5 Passenger compartment relay and fuse holder

**Premounting passenger compartment relay and fuse holder**

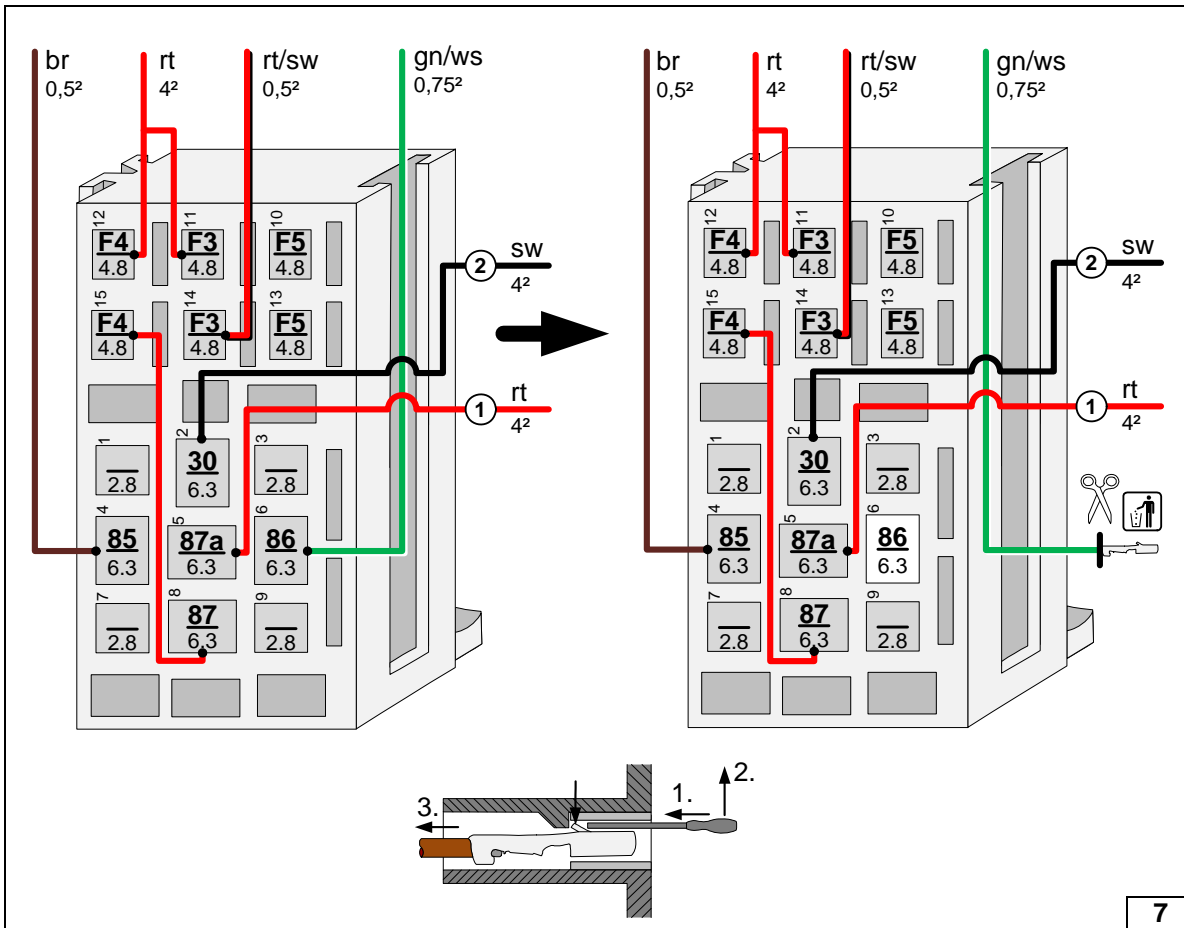


**Only in case of automatic air-conditioning**

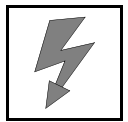
Pull wire ③ into provided protective sleeving.



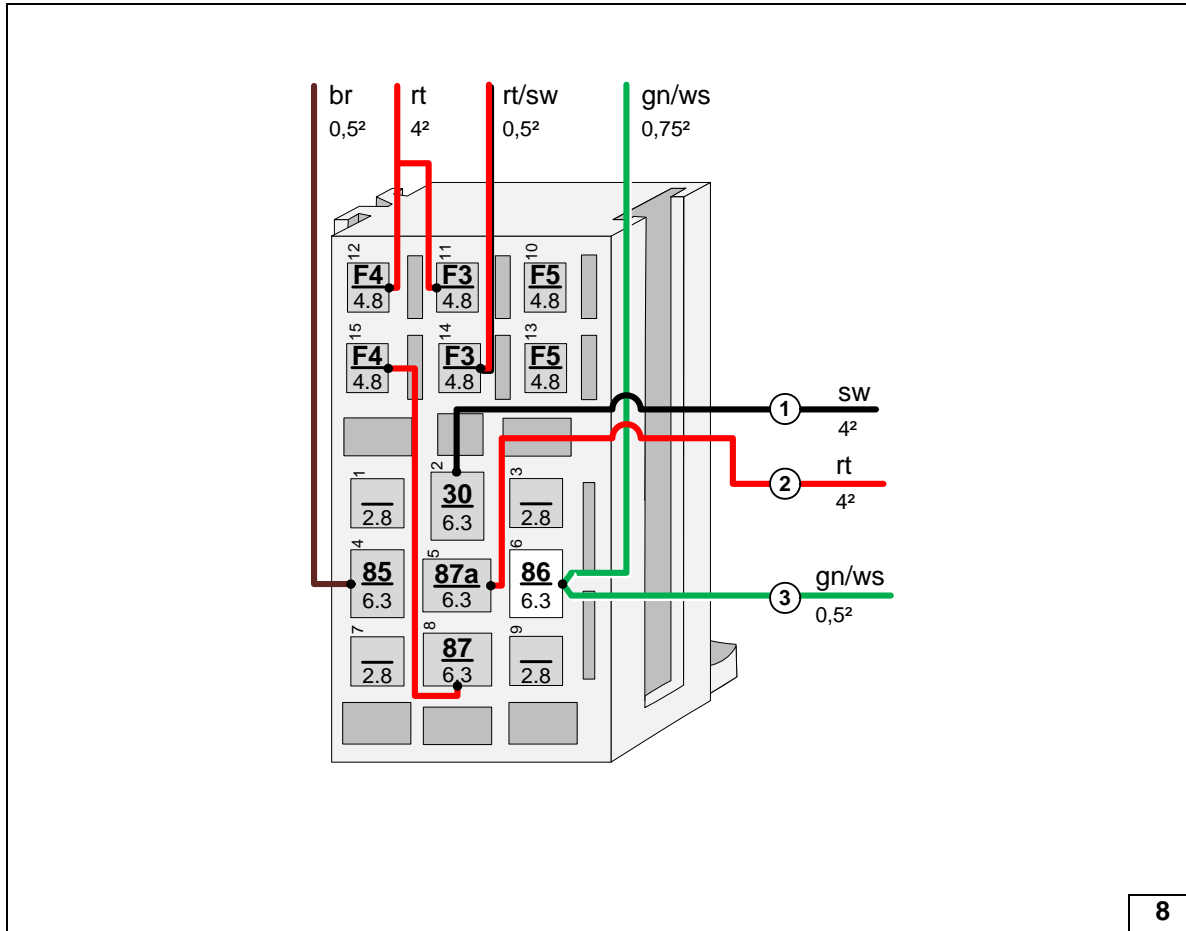
**Preparing wires**



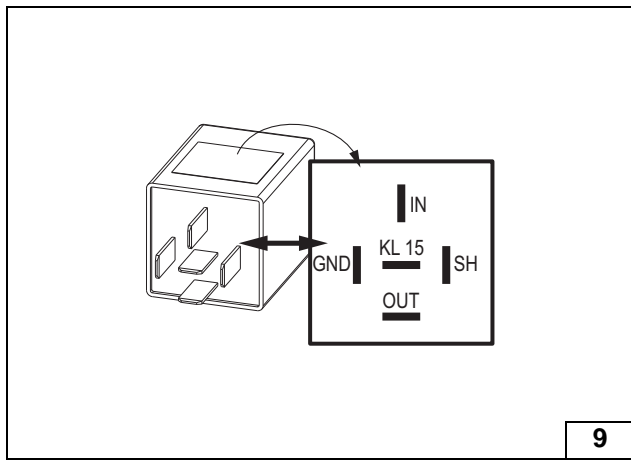
**Preparing passenger compartment relay and fuse holder**



Connecting wires to passenger compartment relay and fuse holder



8



9

**Up to model year 2014**

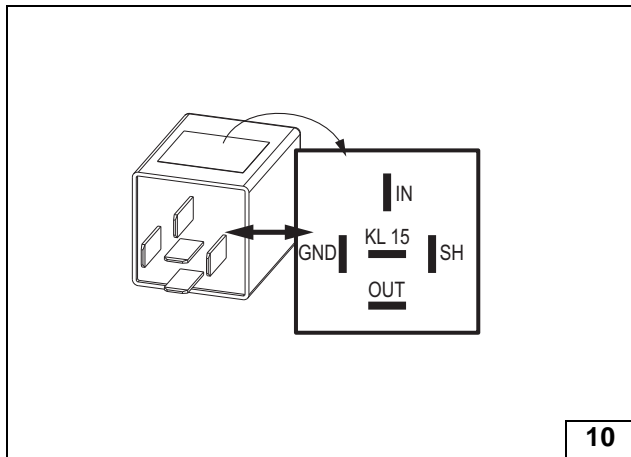
Check the PWM Gateway settings when starting up the heater and adjust if necessary.

Settings:

- Duty cycle: 100% (DC)
- Frequency: not relevant
- Voltage: 3.6V
- Function: High side



View of PWM GW



10

**From model year 2015**

The settings of the PWM GW must be modified with the Webasto Thermo Test Diagnosis (WTT), Software Version V3.1 or higher using the following values:

Settings:

- Duty cycle: 100% (DC)
- Frequency: not relevant
- Voltage: 4.0V
- Function: High side



Adapting PWM GW





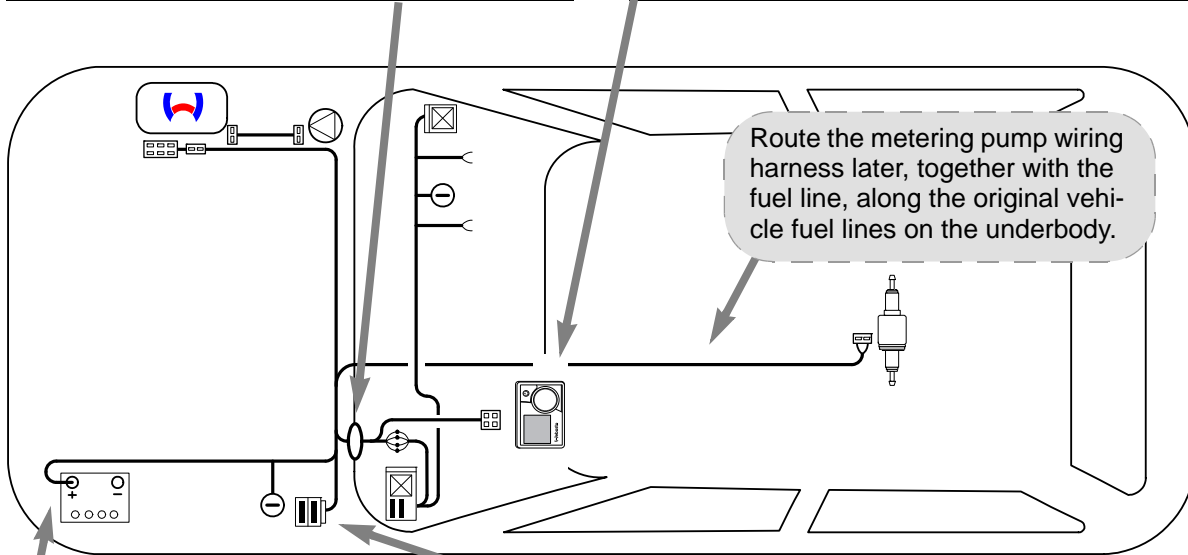
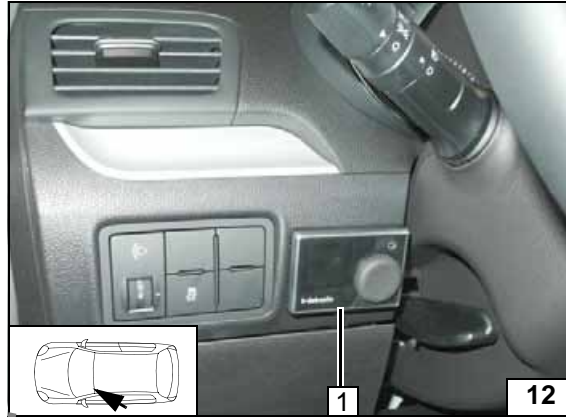
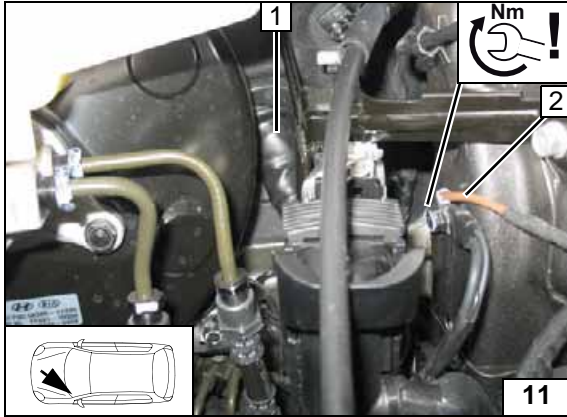
**Electrical System**

**Wiring harness pass through, earth wire**

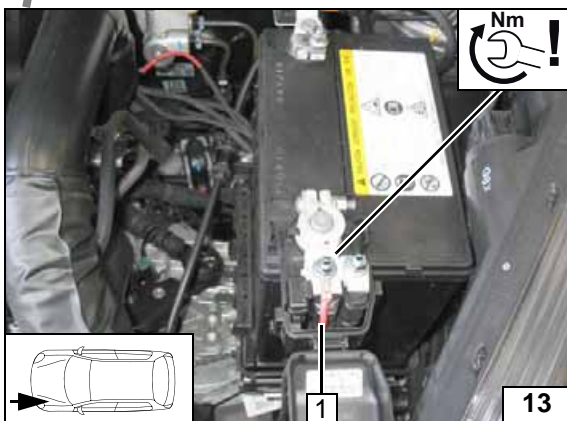
- 1 Protective rubber plug
- 2 Earth wire on original vehicle earth support point

**MultiControl CAR**

- 1 MultiControl CAR

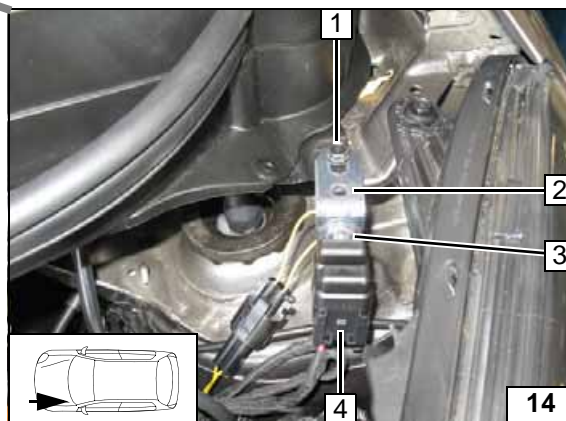


**Wiring harness routing diagram**



**Positive wire**

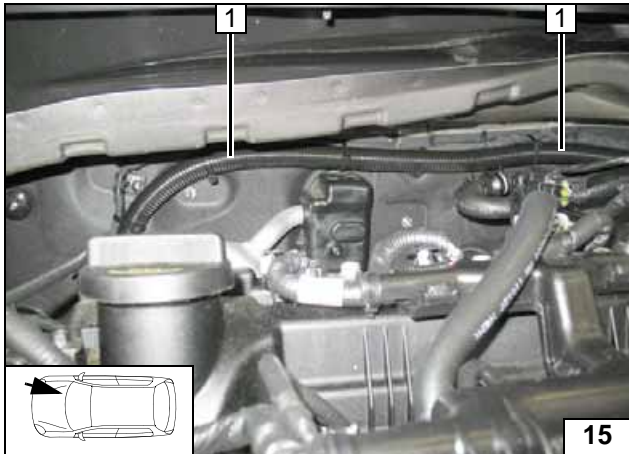
- 1 Positive wire on positive battery terminal



**Engine compartment fuse holder**

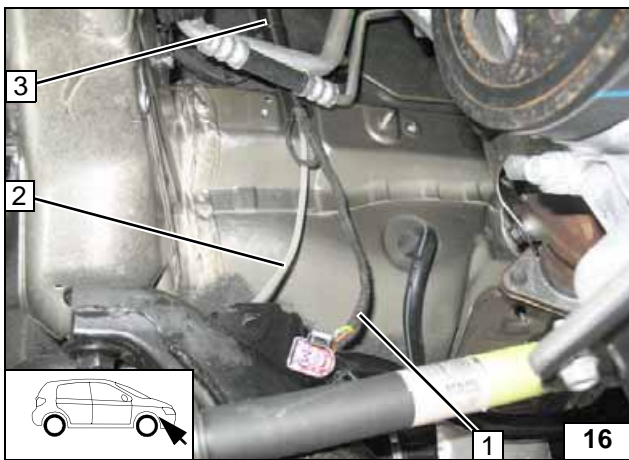
- 1 Original vehicle bolt
- 2 Angle bracket
- 3 M5x16 bolt, large diameter washer [2x], retaining plate for fuse holder, nut
- 4 Fuses F1-2





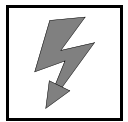
Route wiring harness of heater and fuel line in 17 mm dia. corrugated tube 1 to original vehicle wiring harness on the right hand side of vehicle.

**Routing wiring harness**

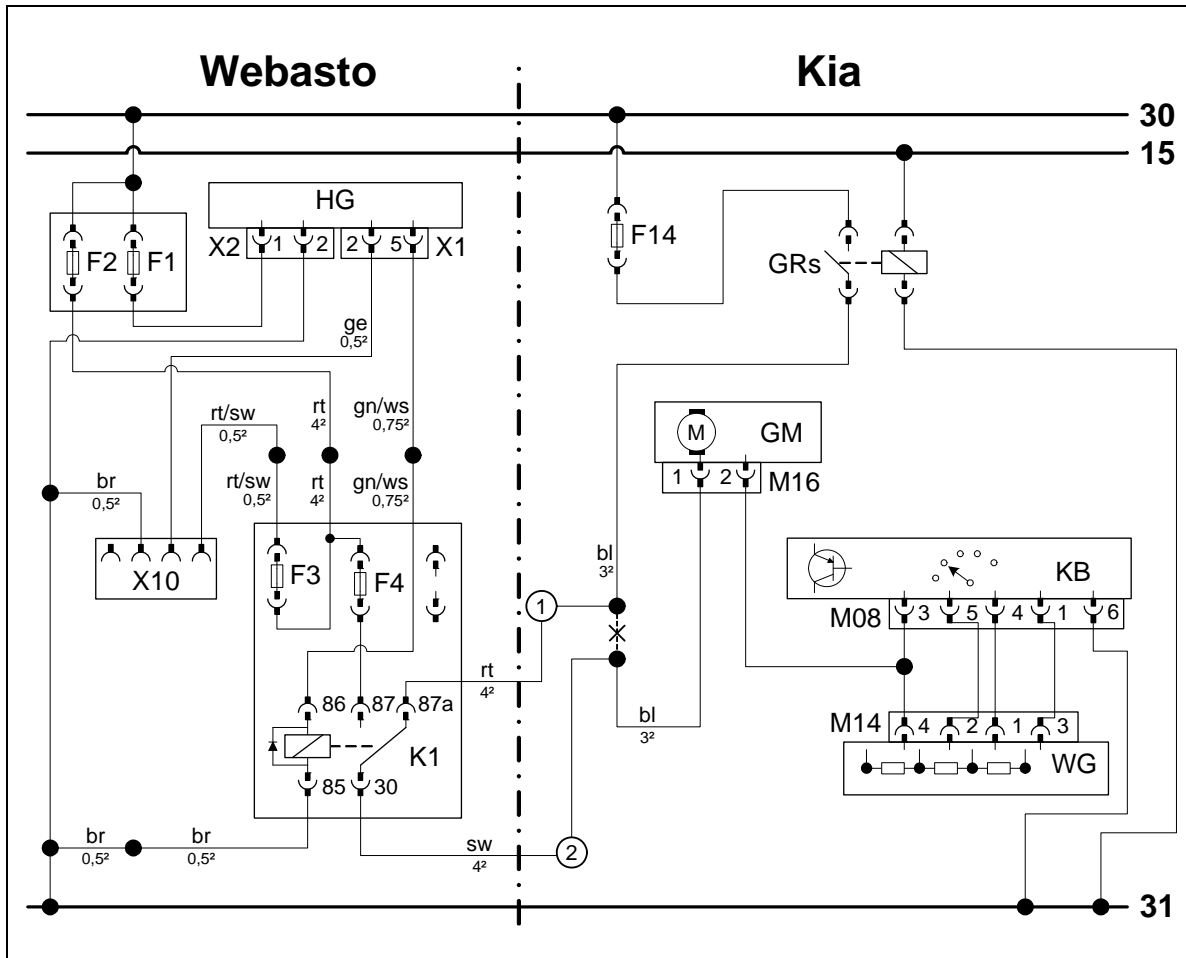


- 1 Heater wiring harness
- 2 Fuel line
- 3 17 mm dia. corrugated tube

**Routing wiring harness**



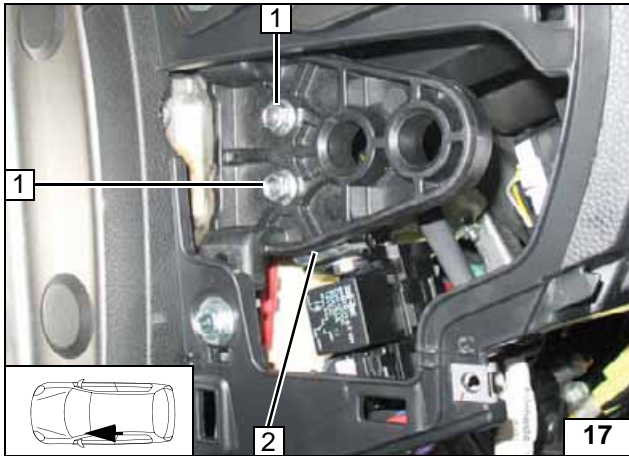
Manual Air-Conditioning Fan Controller



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F14	40A fuse	rt	red
X1	6-pin heater connector	GRs	Fan relay	sw	black
X2	2-pin heater connector	GM	Fan motor	ge	yellow
F1	20A fuse	M16	2-pin connector of GM	gn	green
X10	4-pin connector of heater control	KB	A/C control panel	bl	blue
F3	1A fuse	M08	Connector of KB	ws	white
F4	25A fuse	WG	Resistor group	br	brown
K1	Fan relay	M14	Connector of WG		
				X	Cutting point
				Wiring colours may vary.	

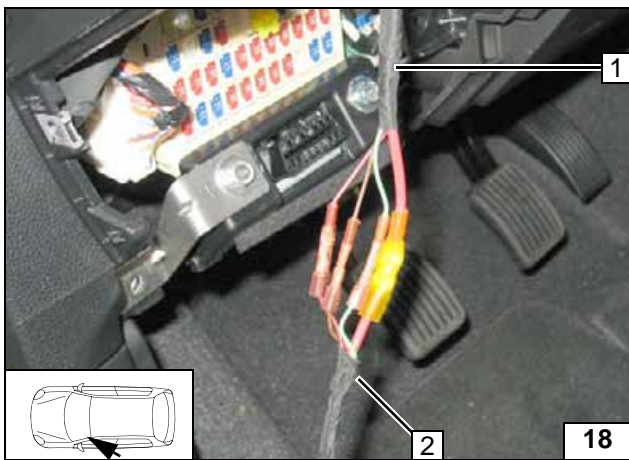
Legend



Detach original vehicle bolts **1**. Insert angle bracket **2** of passenger compartment relay and fuse holder between lower bolt **1** and instrument panel mount.  
Tighten original vehicle bolts **1** again.

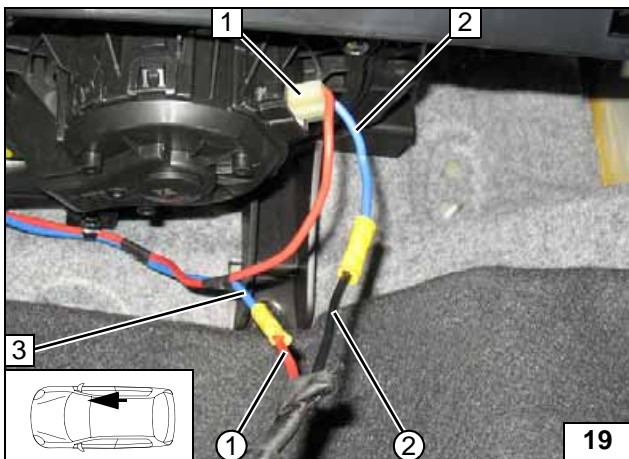


**Installing passenger compartment relay and fuse holder**



- 1** Passenger compartment relay and fuse holder wiring harness
- 2** Heater wiring harness

**Connecting same colour wires of wiring harnesses**



Connection to 2-pin connector **1** from the fan motor.

- 2** Blue (bl) wire from GM connector
- 3** Blue (bl) wire of fan relay
- ① Red (rt) wire of K1/87a, fan wiring harness
- ② Black (sw) wire of K1/30, fan wiring harness



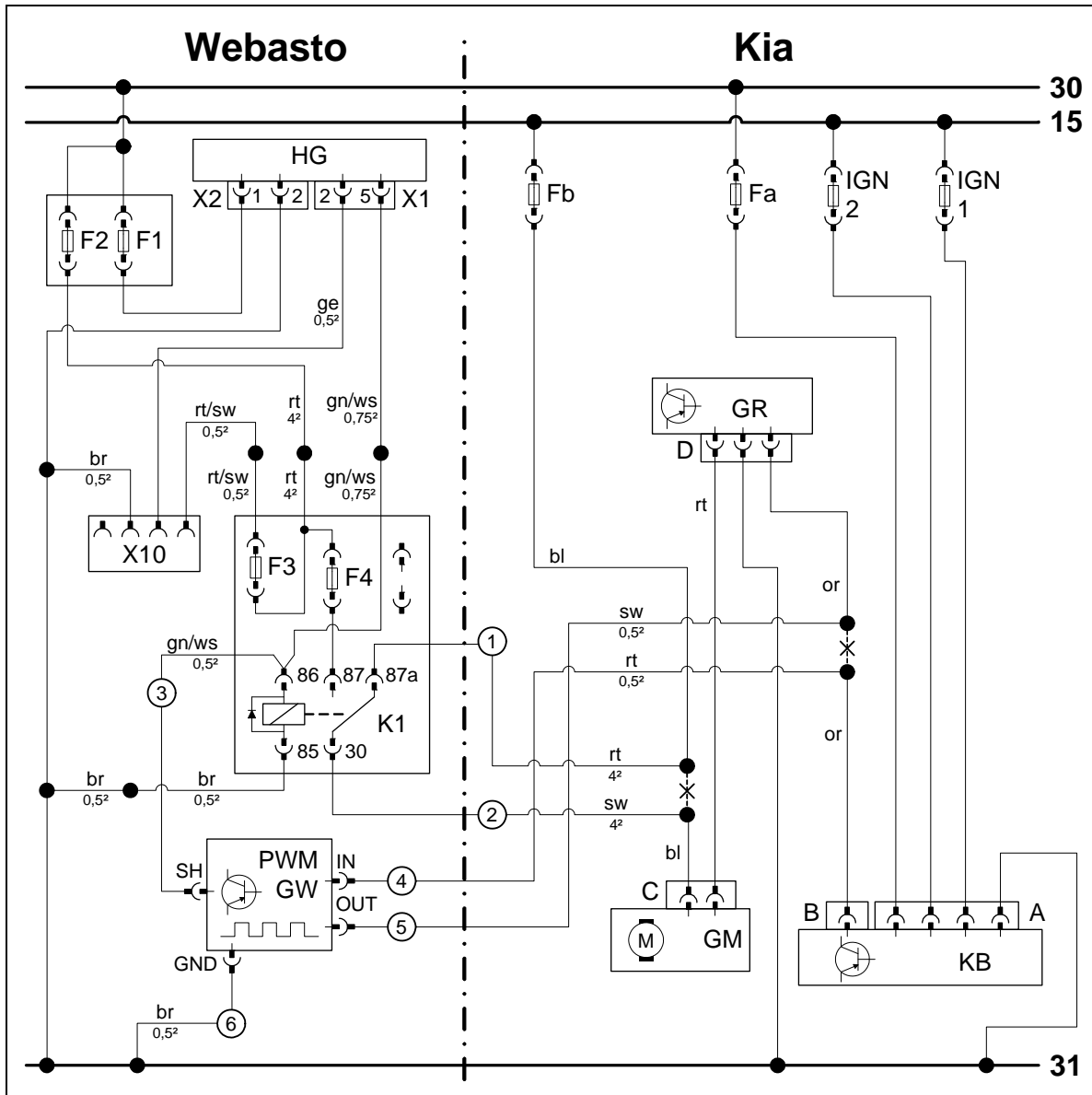
**Connecting fan motor**



Automatic Air-Conditioning Fan Controller

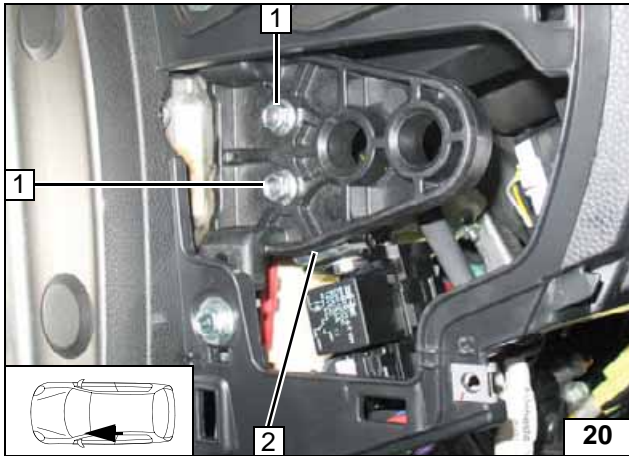
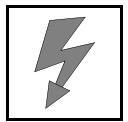


Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	Fb	Fuse	rt	red
X1	6-pin heater connector	Fa	Fuse	sw	black
X2	2-pin heater connector	IGN2	Fuse	ge	yellow
F1	20A fuse	IGN1	Fuse	gn	green
F2	30A fuse	GR	Fan controller	or	orange
X10	4-pin connector of heater control	D	4-pin connector of GR	ws	white
F3	1A fuse	GM	Fan motor	br	brown
F4	25A fuse	C	2-pin connector of GM	bl	blue
K1	Fan relay	KB	A/C control panel		
PWM GW	Pulse width modulator	B	22-pin connector of KB		
		A	26-pin connector of KB		
<b>PWM GW settings up to model year 2014</b>		<b>PWM GW settings from model year 2015</b>			
Duty cycle: 100% (DC)		Duty cycle: 100% (DC)			
Frequency: not relevant		Frequency: not relevant		X	Cutting point
Voltage: 3.6V		Voltage: 4.0V		Wiring colours may vary.	
Function: High side		Function: High side			

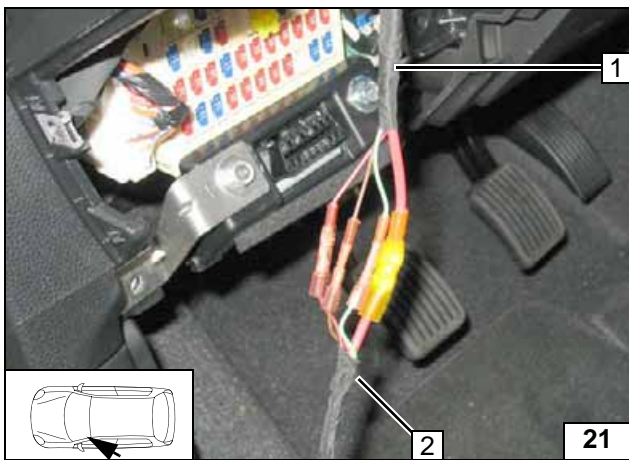
Legend



Detach original vehicle bolts **1**. Insert angle bracket **2** of passenger compartment relay and fuse holder between lower bolt **1** and instrument panel mount.  
Tighten original vehicle bolts **1** again.  
Route wire **3** (hidden) to front passenger's side.

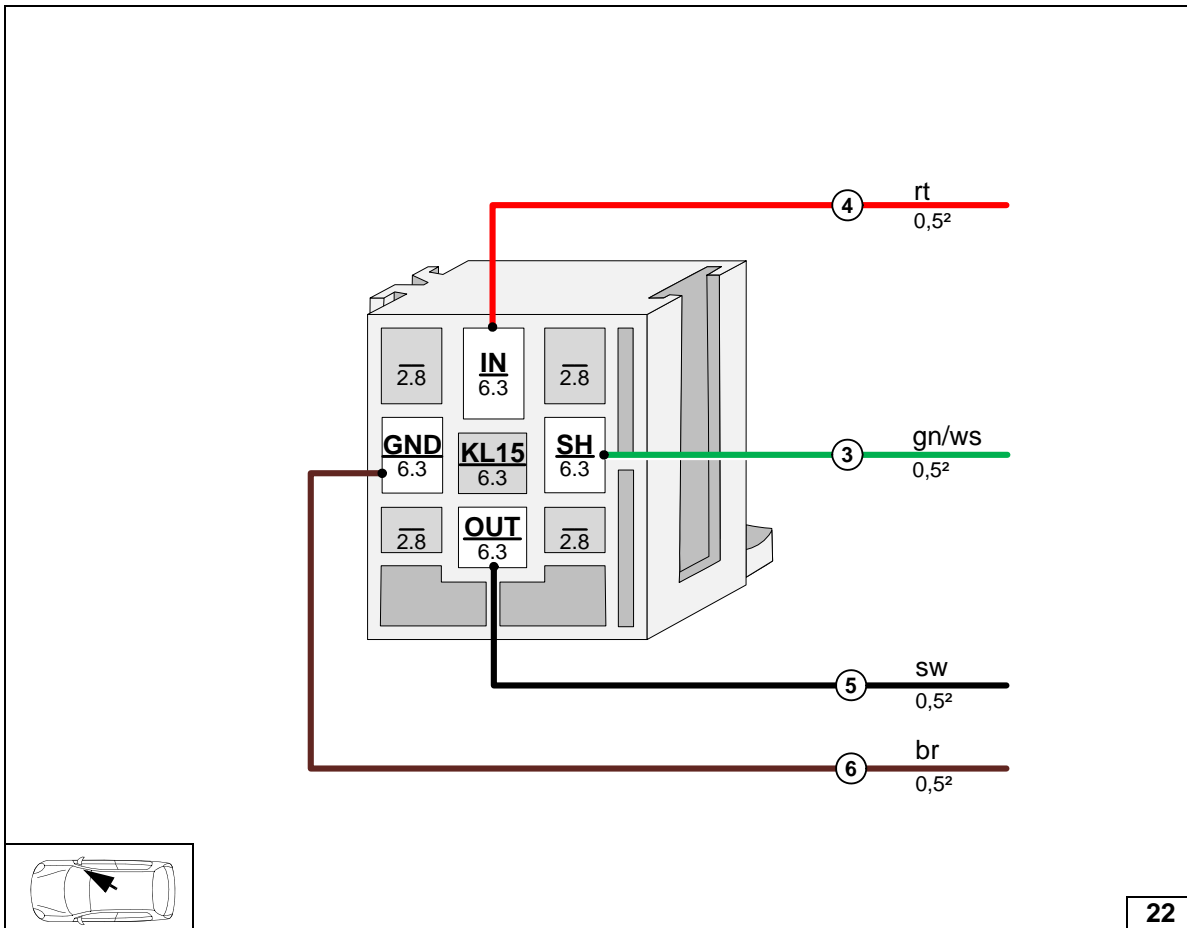


**Installing passenger compartment relay and fuse holder**



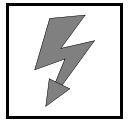
**1** Passenger compartment relay and fuse holder wiring harness  
**2** Heater wiring harness

**Connecting same colour wires of wiring harnesses**

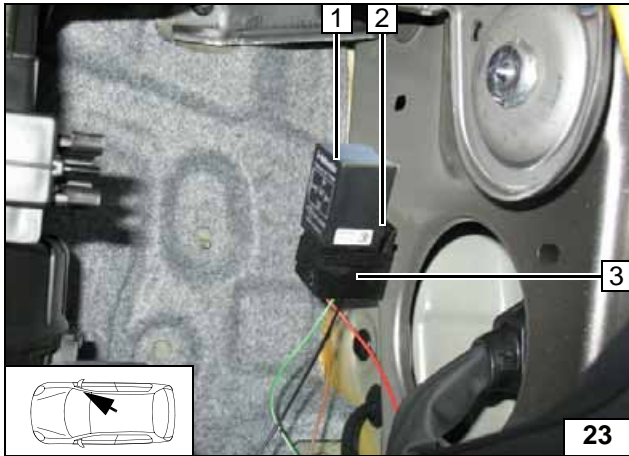


**Connecting wires to PWM-GW socket in passenger compartment**



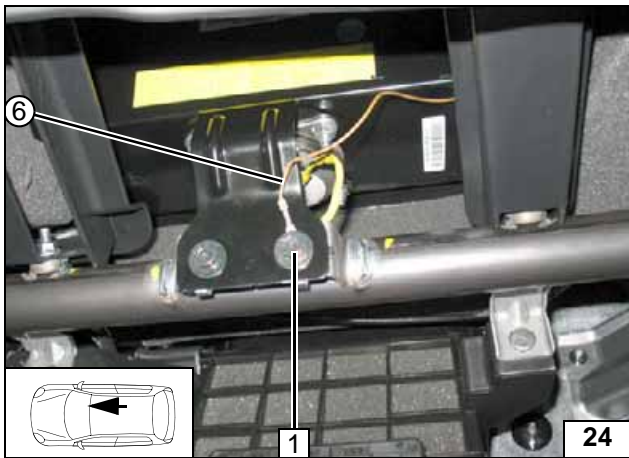


**Installing socket and PWM GW**



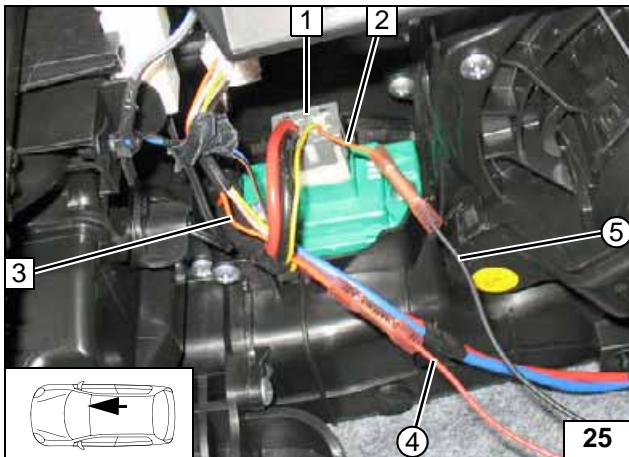
Drill out hole at position 2 (hidden) to 6.5 mm dia. Attach PWM-GW after installation of socket.

- 1 PWM GW
- 2 M6x12 bolt, flanged nut (hidden)
- 3 PWM GW socket



- 1 Original vehicle bolt
- ⑥ Brown (br) wire of PWM-GW/GND

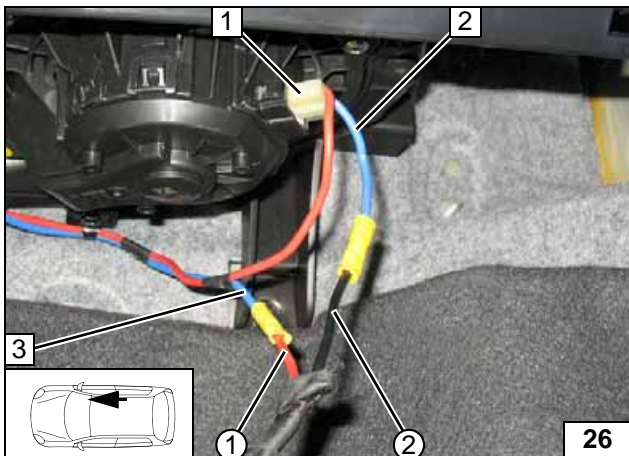
**Earth connection for PWM GW**



Connection to 4-pin connector 1 from fan controller (GR).

- 2 Orange (or) wire of GR connector
- 3 Orange (or) wire of A/C control unit
- ④ Red (rt) wire of PWM-GW/IN
- ⑤ Black (sw) wire of PWM-GW/OUT

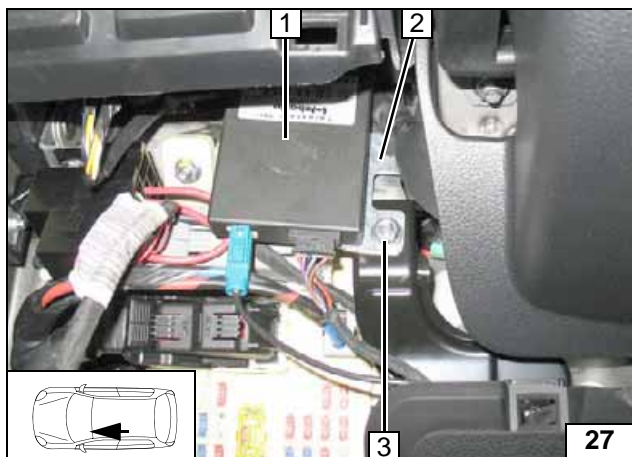
**Fan controller connection**



Connection to 2-pin connector 1 from the fan motor.

- 2 Blue (bl) wire from GM connector
- 3 Blue (bl) wire of fan relay
- ① Red (rt) wire of K1/87a, fan wiring harness
- ② Black (sw) wire of K1/30, fan wiring harness

**Connecting fan motor**



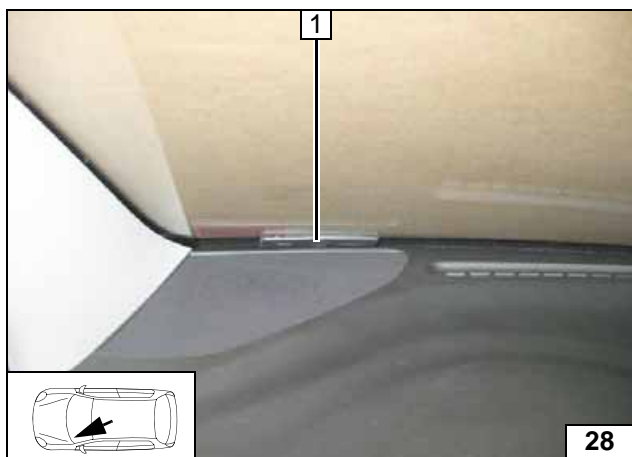
### Remote Option (Telestart)

Drill out bracket 2 at position 3 to 6.5mm dia.

- 1 Receiver
- 3 Original vehicle stud bolt, original vehicle flanged nut

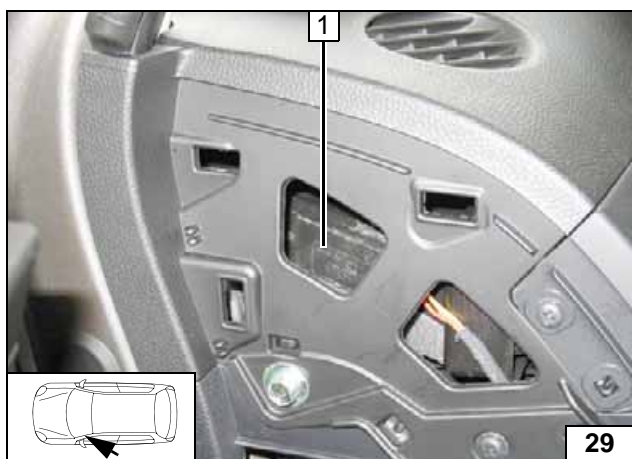


**Installing receiver**



- 1 Aerial

**Installing aerial**

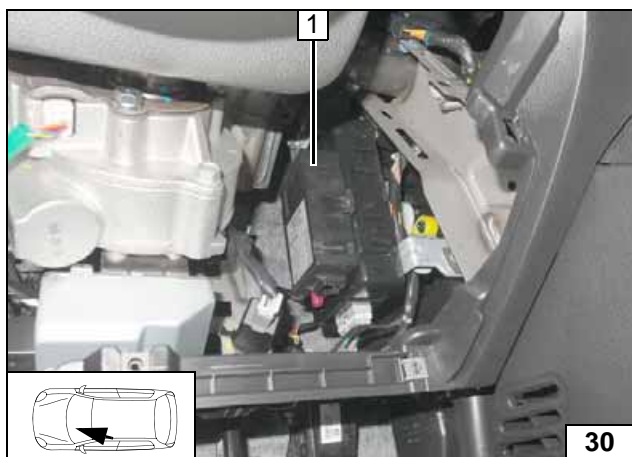


### Temperature sensor T100 HTM

Fasten temperature sensor 1 using double-sided adhesive tape.



**Installing temperature sensor**



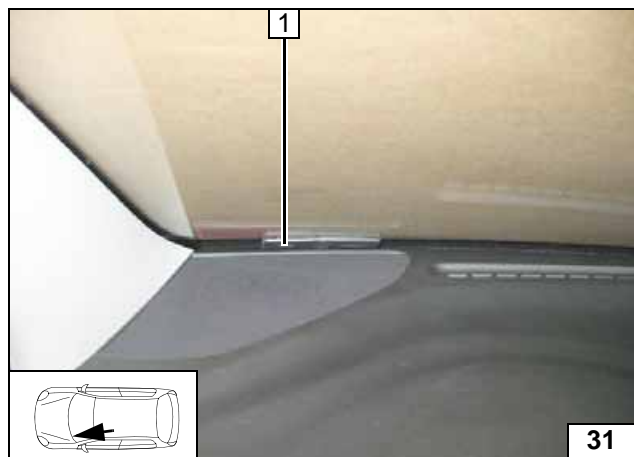
### ThermoCall Option

Fasten receiver 1 with double-sided adhesive tape.



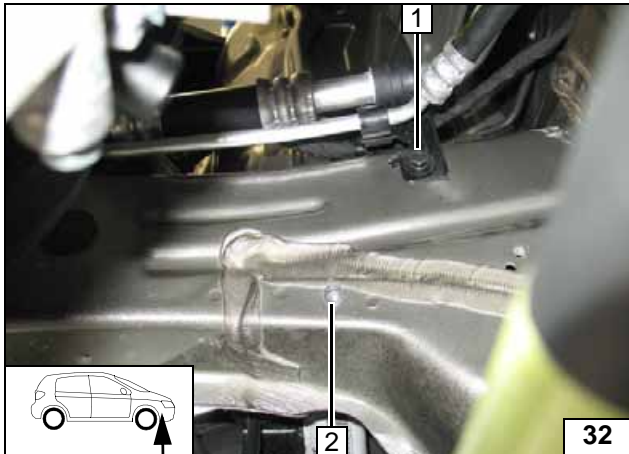
**Installing receiver**





1 Aerial (optional)

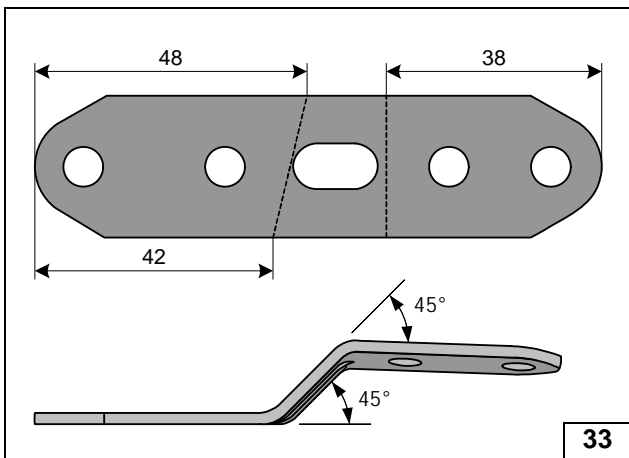
Installing  
aerial



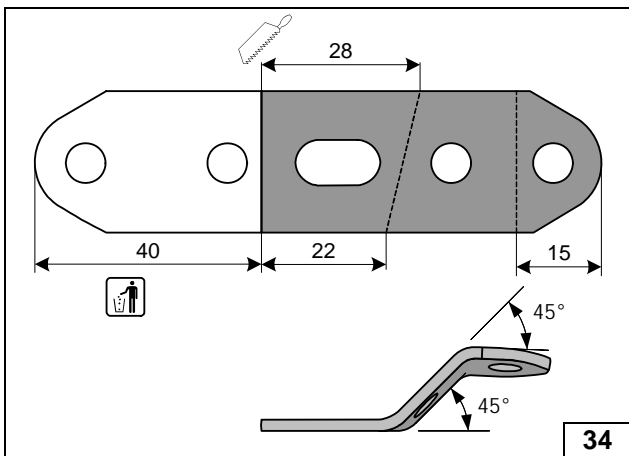
### Preparing Installation Location

- 1 Remove original vehicle bolt (will be re-used here)
- 2 Drill out hole to 9.1 mm dia.; rivet nut

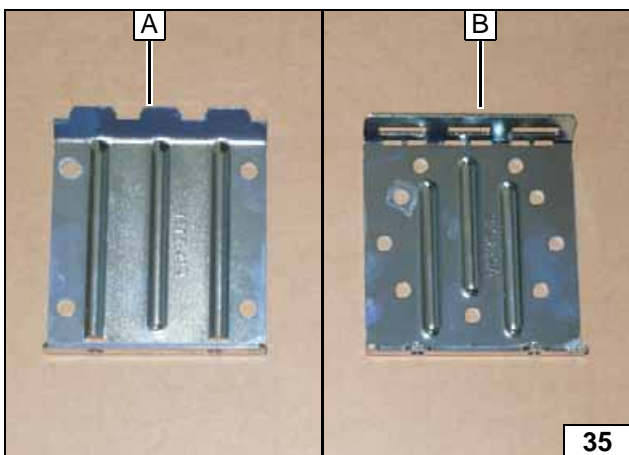
Installing rivet nut



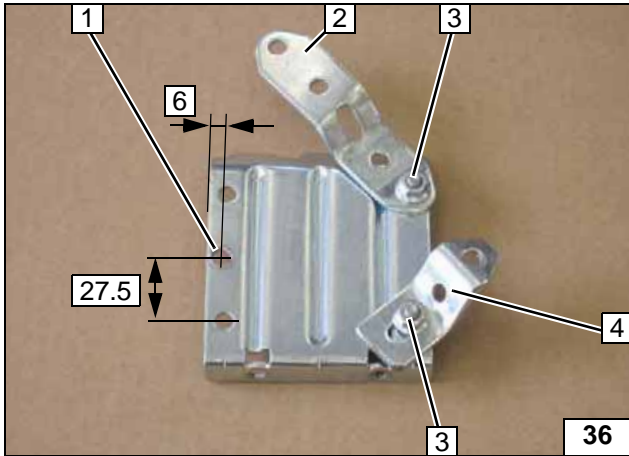
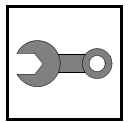
Angling down perforated bracket a



Preparing perforated bracket b

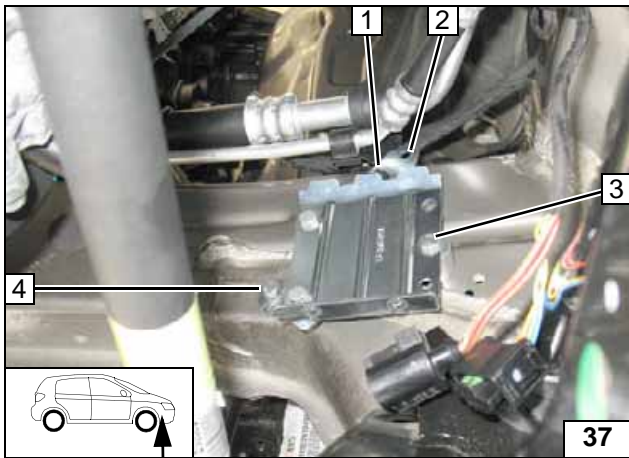


View of / assigning two-part bracket



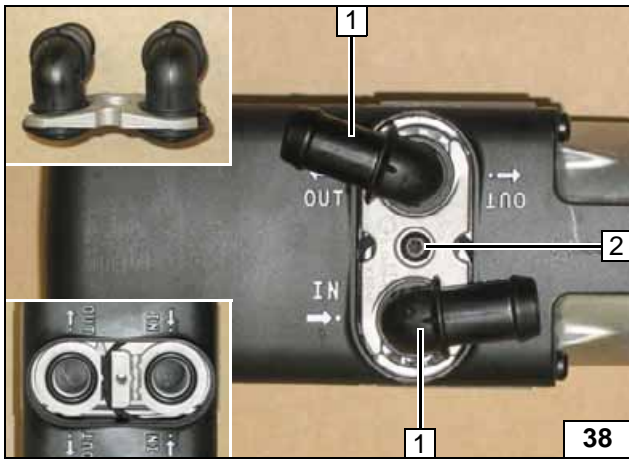
- 1 7mm dia. hole
- 2 Loosely mount perforated bracket a
- 3 M6x12 bolt, flanged nut [2x each]
- 4 Loosely mount perforated bracket b

Premounting bracket A



- 1 Original vehicle bolt
- 2 Perforated bracket a
- 3 M6x40 bolt, spring lockwasher, 20 mm shim, original vehicle threaded hole
- 4 M6x20 bolt, spring lockwasher, perforated bracket b

Installing bracket A

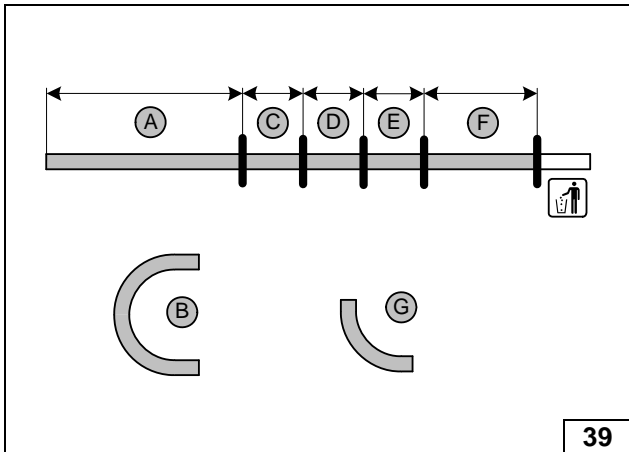


Preparing Heater

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

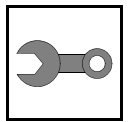


Installing water connection piece



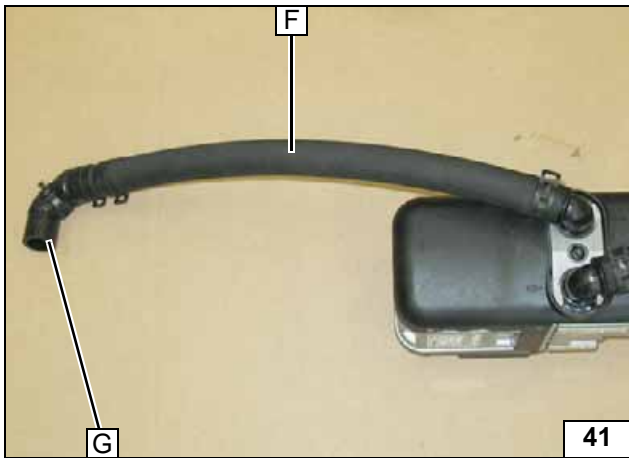
- A = 430
- B = 180°, 18mm dia.
- C = 75
- D = 85
- E = 60
- F = 360
- G = 90°, 18mm dia.

Cutting hoses to length



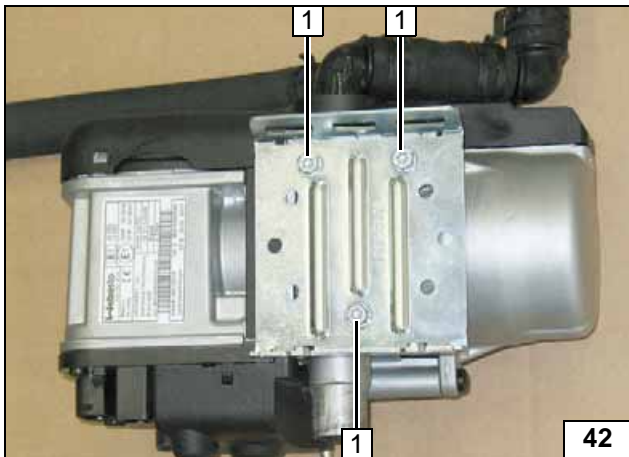
All spring clips = 25 mm dia.  
All connecting pipes = 90°, 18x18 mm dia.

Premounting hoses



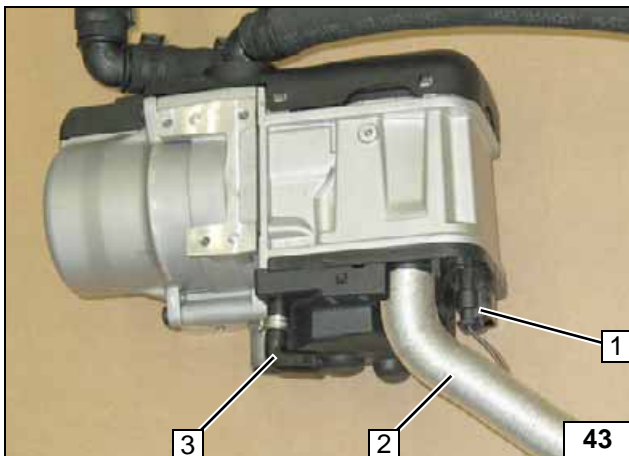
All spring clips = 25 mm dia.  
Connecting pipe = 90°, 18x18mm dia.

Premounting hoses



1 5x13 self-tapping bolt [3x]

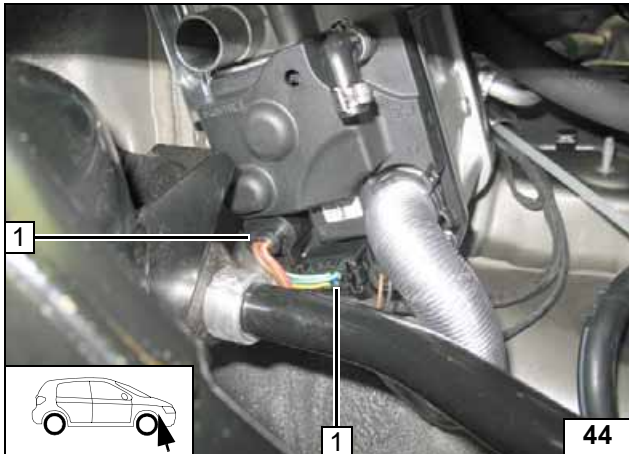
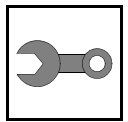
Installing bracket B



1 Connector of circulating pump wiring harness  
2 Combustion air pipe  
3 90° moulded hose, 10mm dia. clamp



Premounting heater

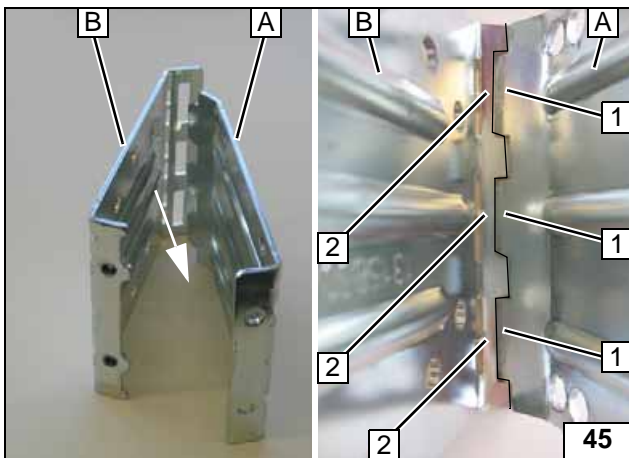


### Installing Heater

Position the heater at the installation location, attach the connector to the heater wiring harness [2x].



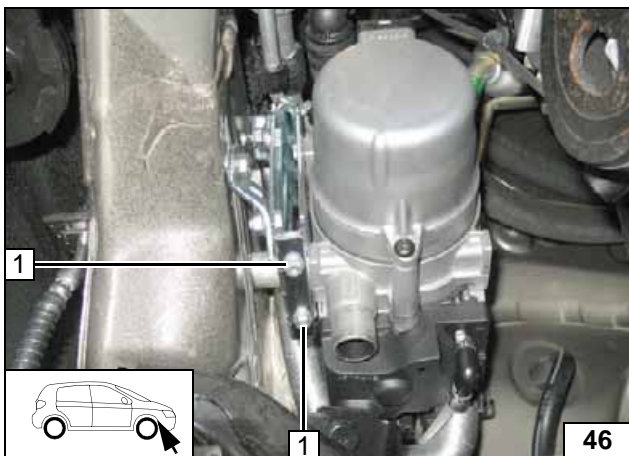
Installing wiring harness



The openings 2 of bracket B must be placed over the locking tabs 1 of bracket A.



View of bracket A and B latching



Check the assembly of bracket B and bracket A, then screw the brackets together.



- 1 5x12 Torx screw [2x]

Installing heater



- 1 10mm dia. clamp
- 2 Fuel line

Connecting fuel line

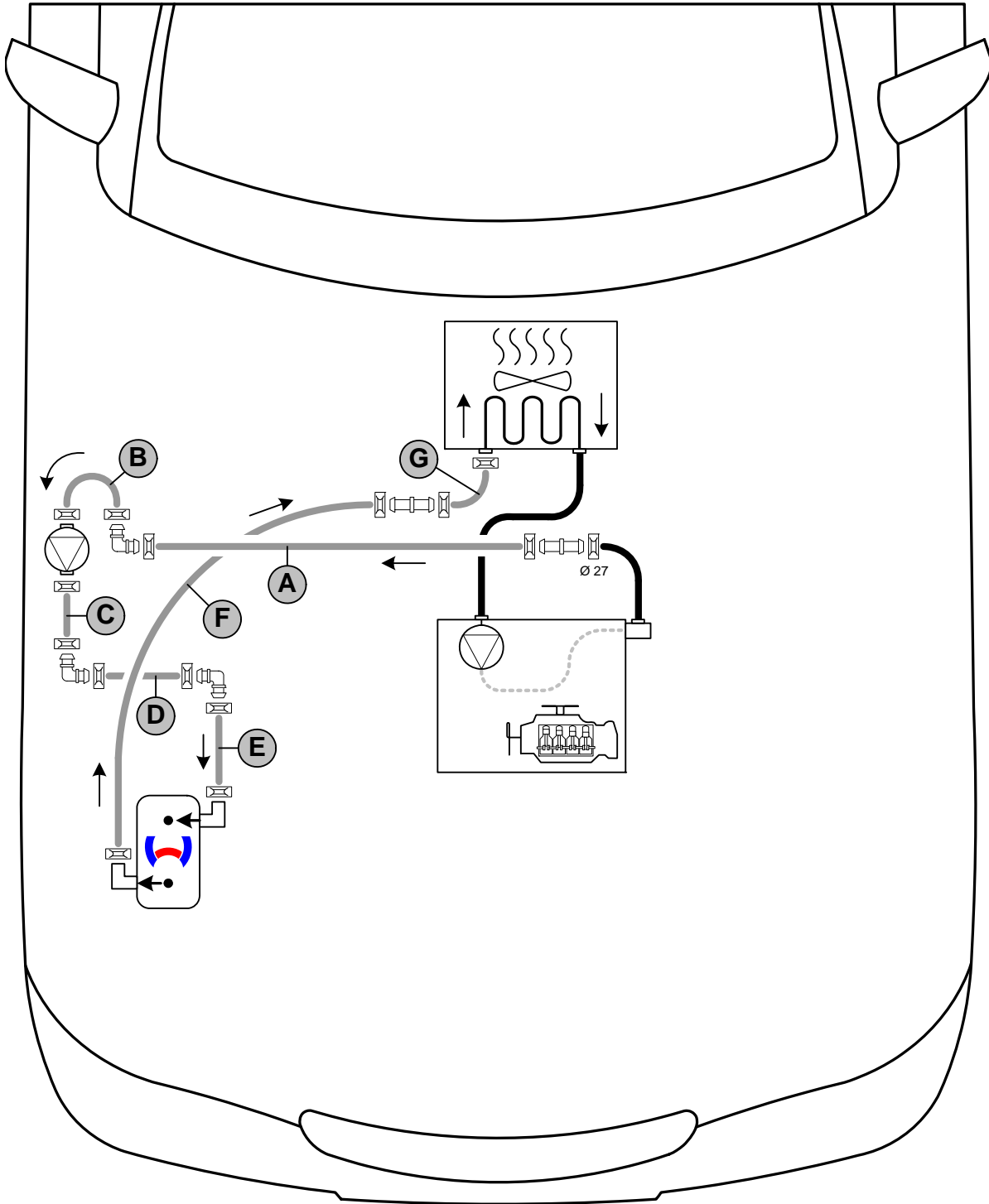


**Coolant Circuit**




**WARNING!**

Any coolant running off should be collected in an appropriate container. Route hoses 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 'inline' circuit and based on the following diagram:

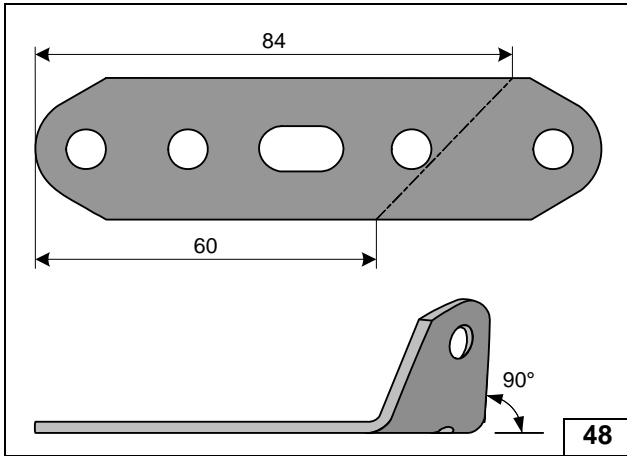


Hose routing diagram

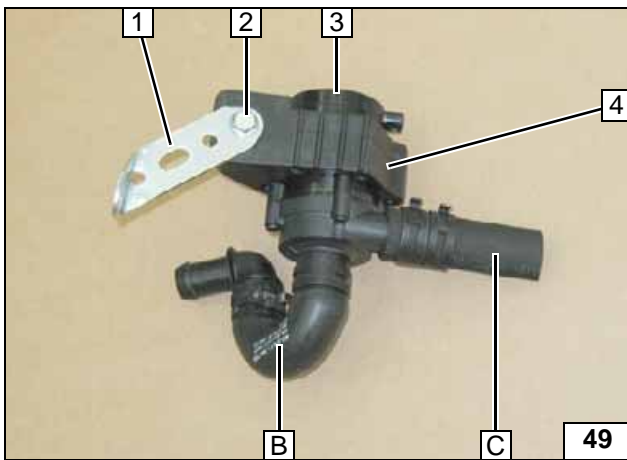
All spring clips without a specific designation  = 25 mm dia.  
 All connecting pipes  and  = 18x18mm dia.





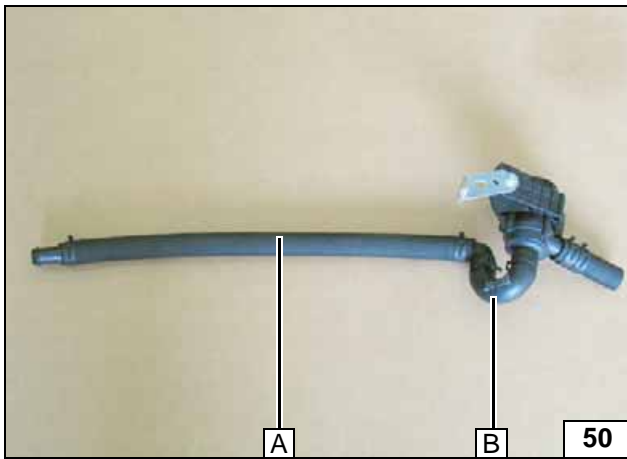


Angling down perforated bracket

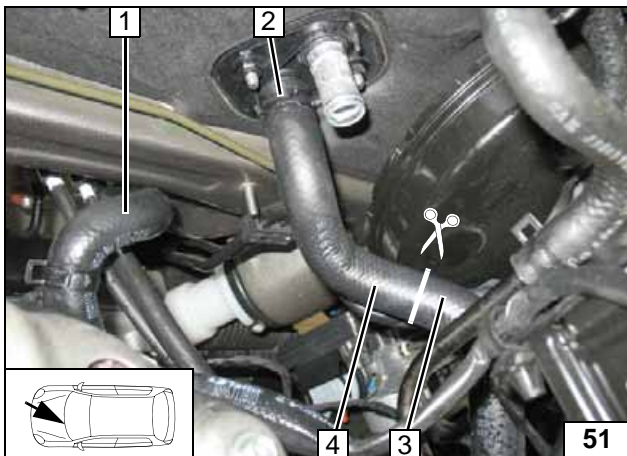


- 1 Perforated bracket
- 2 M6x25 bolt, flanged nut
- 3 Circulating pump
- 4 Circulating pump mount

Premounting circulating pump



Premounting hose A

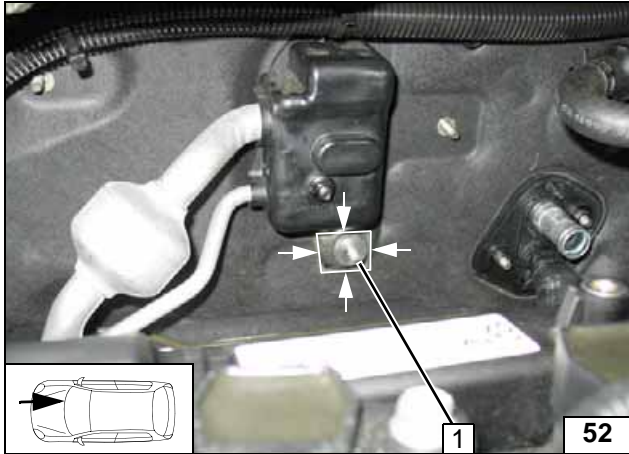


Cut hose of engine outlet / heat exchanger inlet at the marking. Remove and discard hose section of heat exchanger inlet 4 and spring clip 2.

- 1 Hose on heat exchanger outlet removed
- 3 Engine outlet hose section



Cutting point

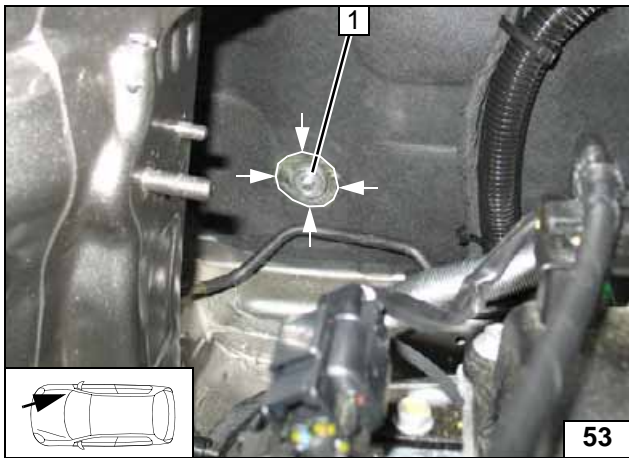


Cut out insulation mat at the marking.

- 1 Original vehicle stud bolt, 5mm shim



Mounting shim

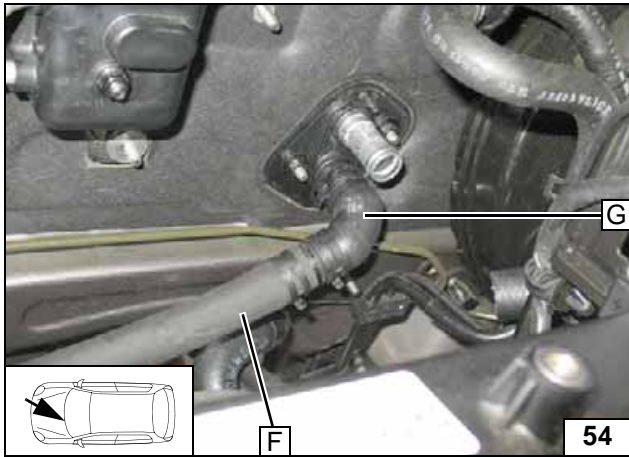


Cut out insulation mat at the marking.

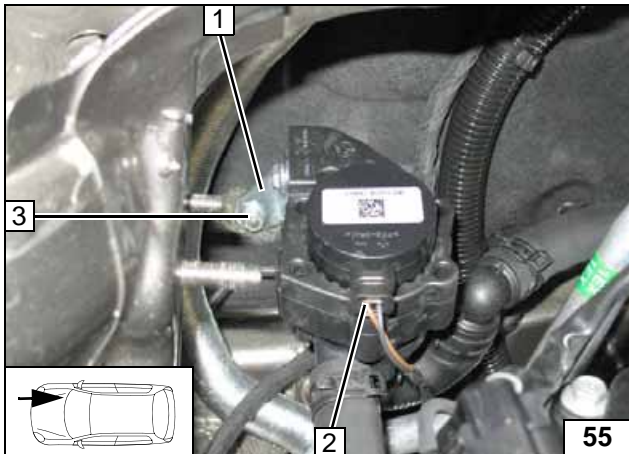
- 1 Original vehicle stud bolt, 5mm shim



Mounting shim



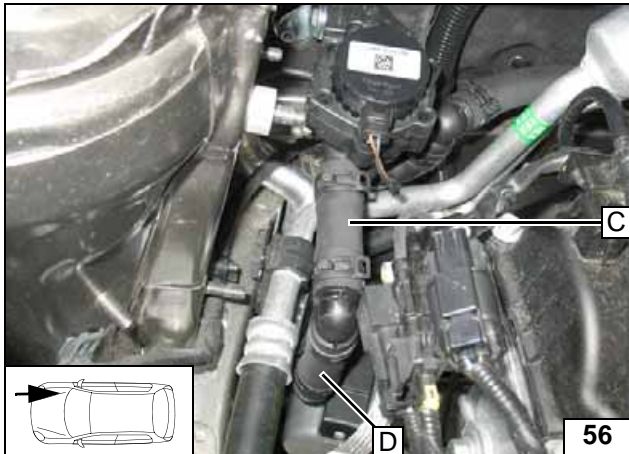
Connecting heat exchanger inlet



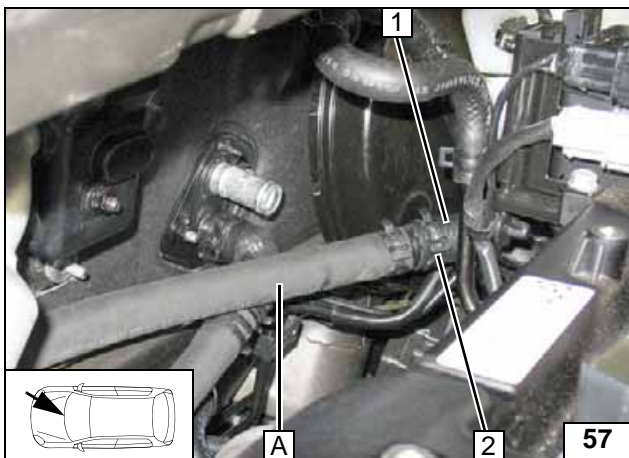
- 1 Perforated bracket
- 2 Connector of circulating pump wiring harness
- 3 Flanged nut, original vehicle stud bolt

Installing circulating pump



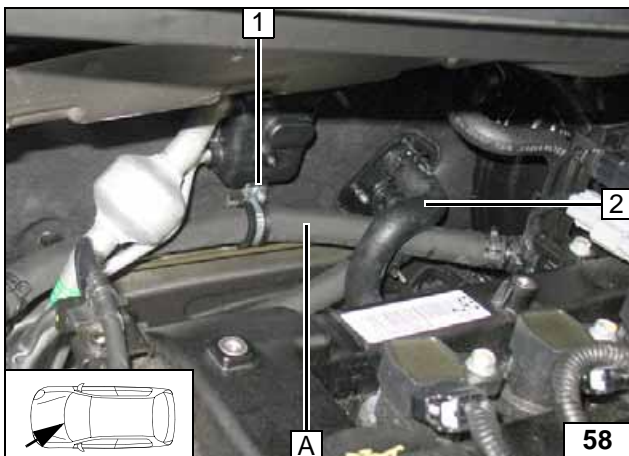


Connect-  
ing heater  
inlet



- 1 Engine outlet hose section
- 2 27mm dia. spring clip

Connect-  
ing engine  
outlet

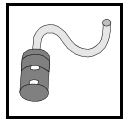


Ensure sufficient distance from neighbouring components.

- 1 25 mm dia. rubber-coated p-clamp, flanged nut of original vehicle stud bolt
- 2 Hose section of heat exchanger outlet, installed



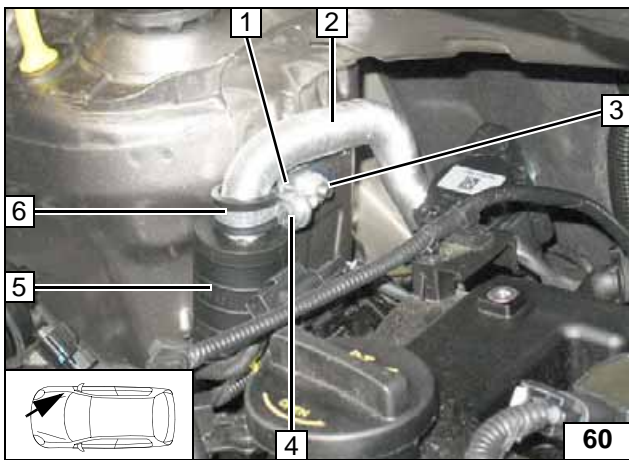
Aligning  
hoses



### Combustion Air

- 1 10 mm shim, original vehicle stud bolt

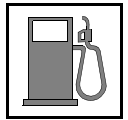
Mounting  
shim



- 1 Angle bracket
- 2 Combustion air pipe
- 3 Flanged nut
- 4 M6x20 bolt, flanged nut
- 5 Silencer
- 6 25 mm dia. rubber-coated p-clamp



Installing si-  
lencer



**Fuel**

**CAUTION!**

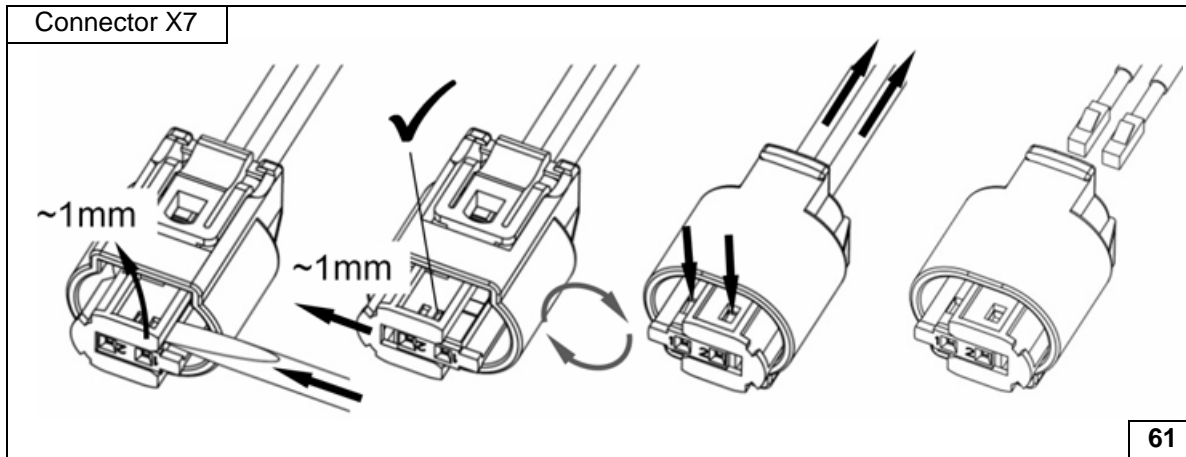
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off in an appropriate container.

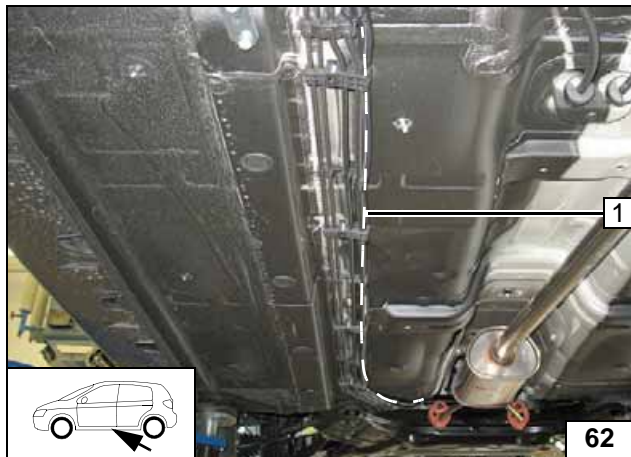
Route fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties. Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

**WARNING!**

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



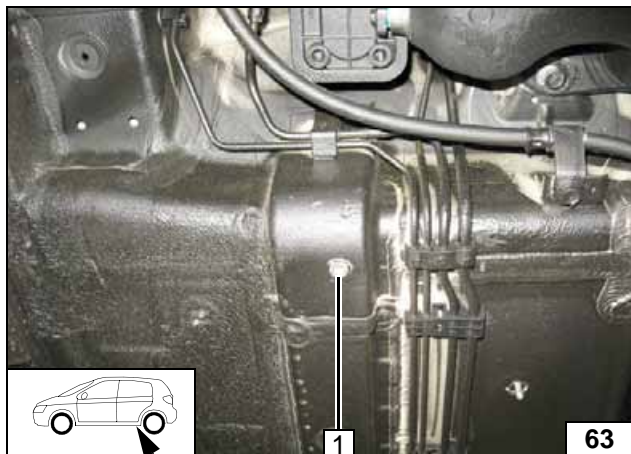
Dismantling metering pump connector



Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube 1 to the firewall of the underbody and further to the installation location of the metering pump.



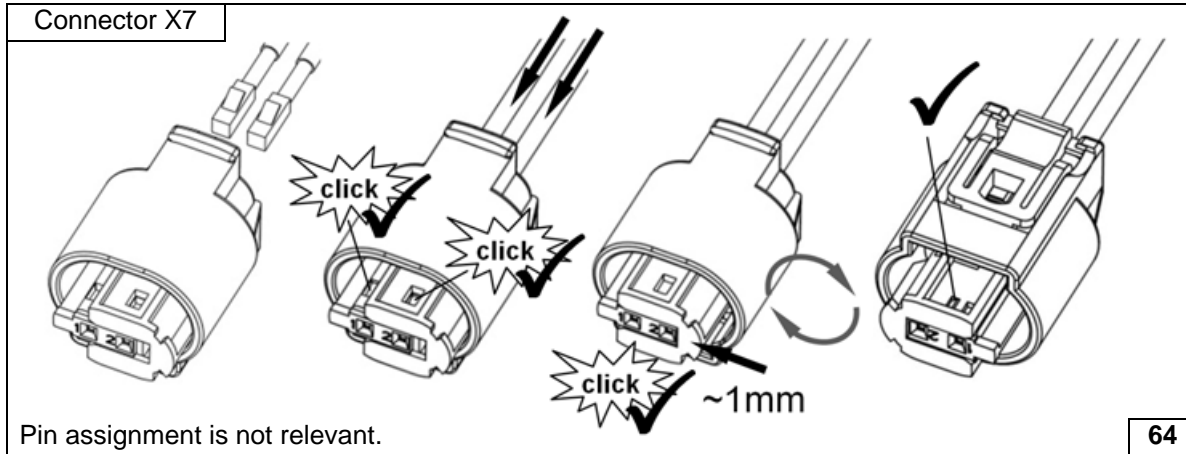
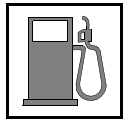
Routing lines



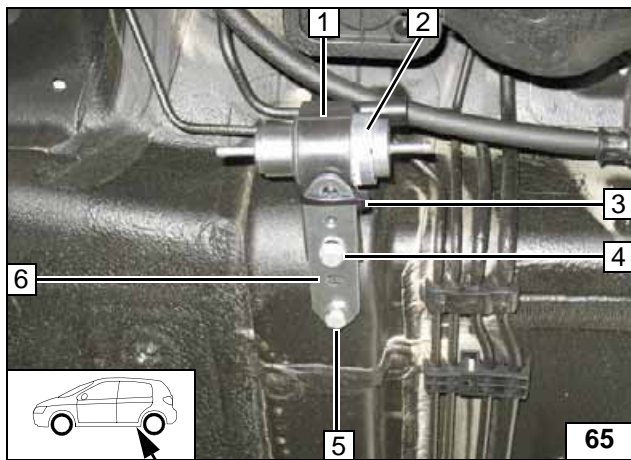
1 Drill out hole to 9.1 mm dia.; rivet nut

Installing rivet nut





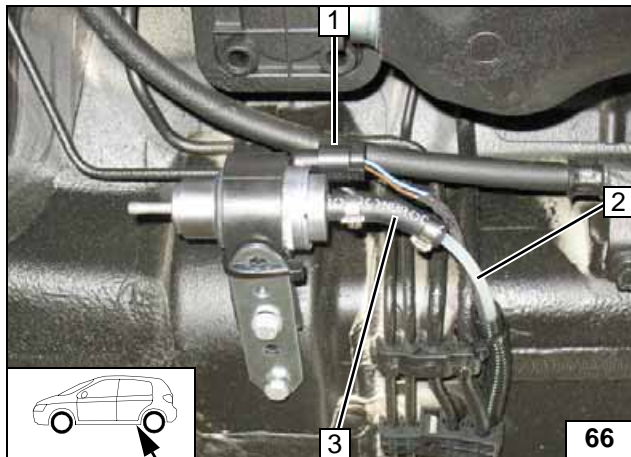
Completing metering pump connector



- 1 Metering pump mount
- 2 Metering pump
- 3 Cable tie
- 4 M6x25 bolt, flanged nut
- 5 M6x20 bolt, spring lockwasher
- 6 Perforated bracket



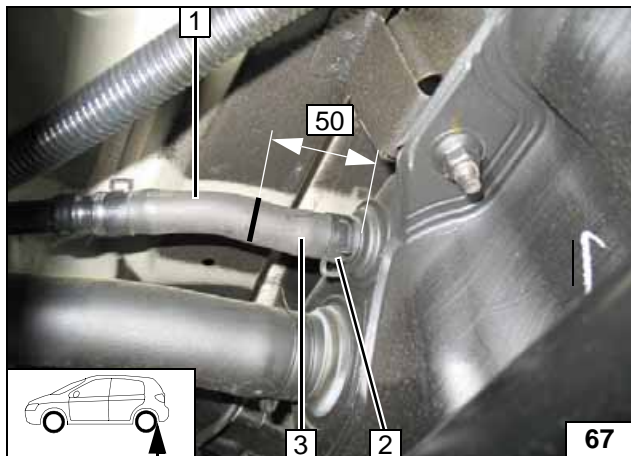
Installing metering pump



- 1 Metering pump wiring harness, connector X7 mounted
- 2 Fuel line of heater
- 3 Hose section, 10mm dia. clamp [2x]



Connecting metering pump



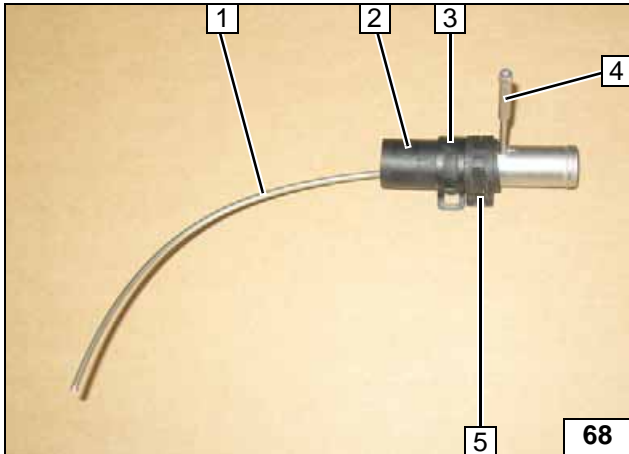
Separate fuel tank vent line 1 approx. 50mm before the fuel tank connection piece. Remove hose section 3. Spring clip 2 will be re-used.



Fuel extraction



**Fuel ex-  
traction**

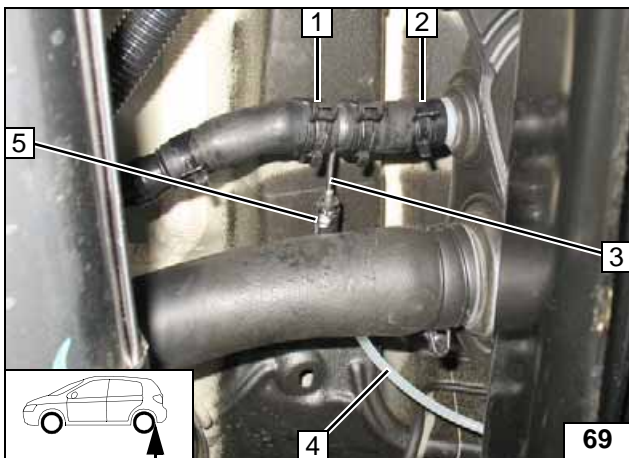


Shape fuel standpipe 1 according to template and cut to length. Check the position of standpipe 4.

- 2 Hose section
- 3 Slide on original vehicle spring clip
- 5 25mm dia. spring clip



**Installing  
fuel stand-  
pipe**

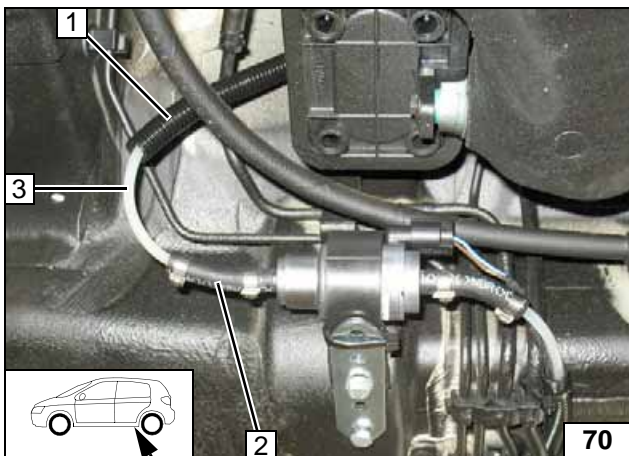


Align standpipe of fuel standpipe to the tank floor.

- 1 25mm dia. spring clip
- 2 Original vehicle spring clip
- 3 Fuel standpipe
- 4 Fuel line
- 5 Hose section, 10mm dia. clamp [2x]

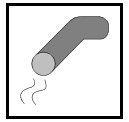


**Connect-  
ing meter-  
ing pump**



Slide 10 mm dia. corrugated tube 1 on to fuel line of fuel standpipe 3. Check the position of the components; adjust if necessary. Check that they have freedom of movement.

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

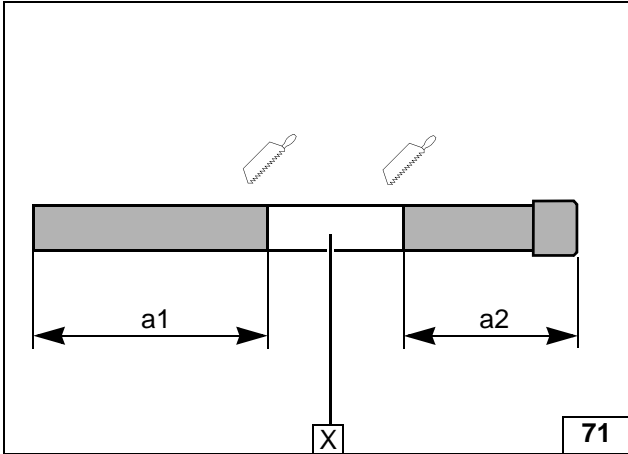


**Exhaust Gas**

a1 = 200  
a2 = 80

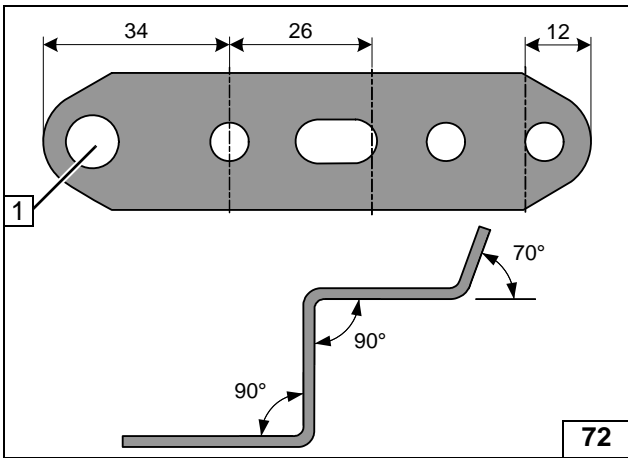
X =

**Preparing exhaust pipe**



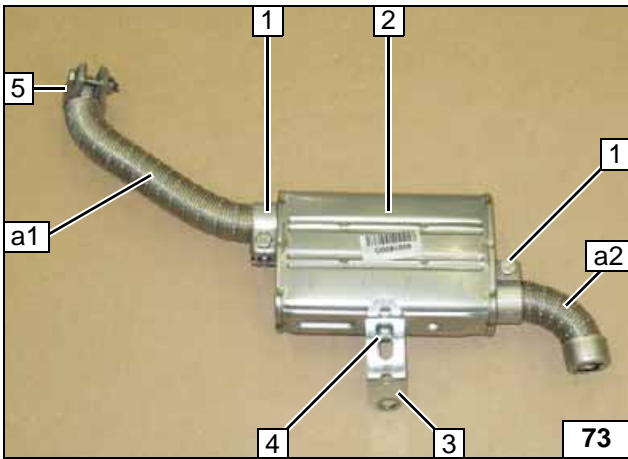
1 10.5 mm dia. hole

**Preparing perforated bracket**



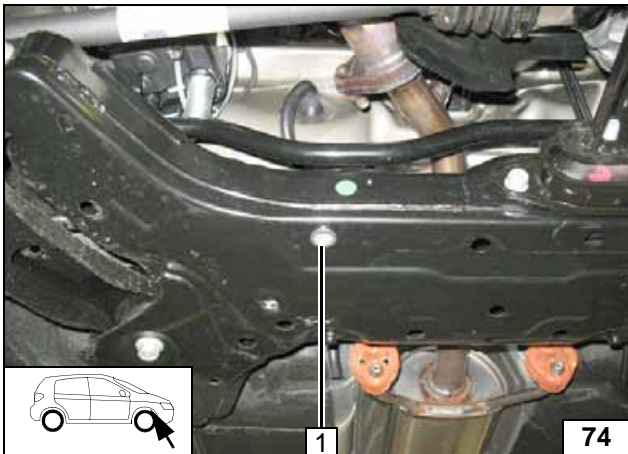
- 1 Hose clamp [2x]
- 2 Silencer
- 3 Perforated bracket
- 4 M6x16 bolt, spring lockwasher
- 5 Slide on hose clamp

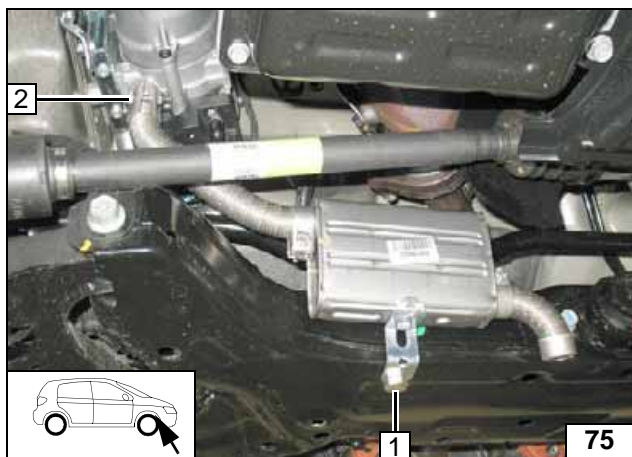
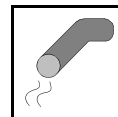
**Premounting silencer**



1 M10 rivet nut, existing hole

**Installing rivet nut**



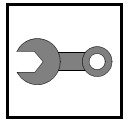


Align the silencer, ensure sufficient distance from neighbouring components.



- 1 M10x16 bolt, spring lockwasher
- 2 Hose clamp

**Installing silencer**



## Final Work

### WARNING!

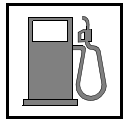
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.

Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

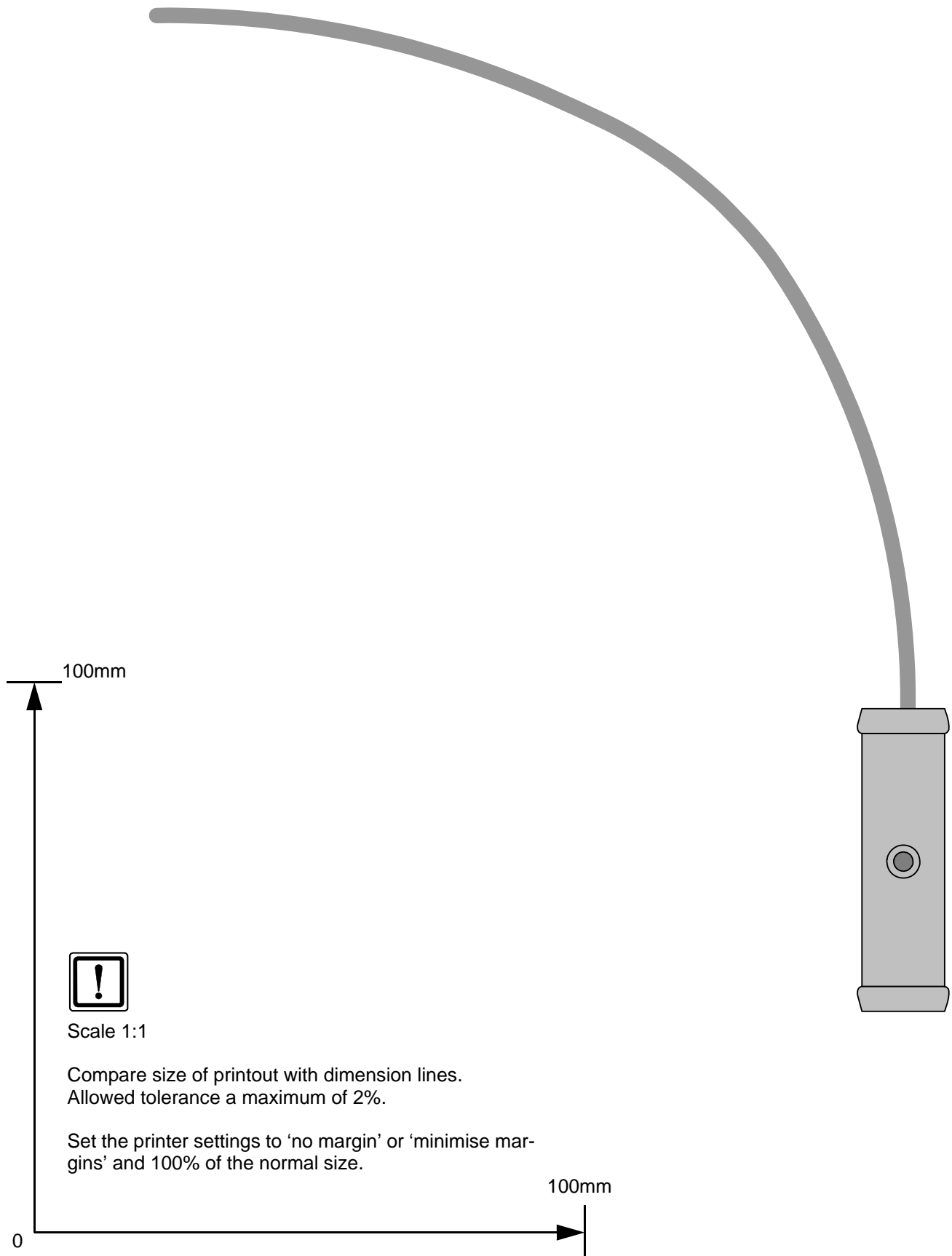


- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the 'Operating Instructions for End Customer'.**
- **Place the 'Switch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





## Fuel Standpipe Template



## Operating Instructions for Manual Air-Conditioning

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.

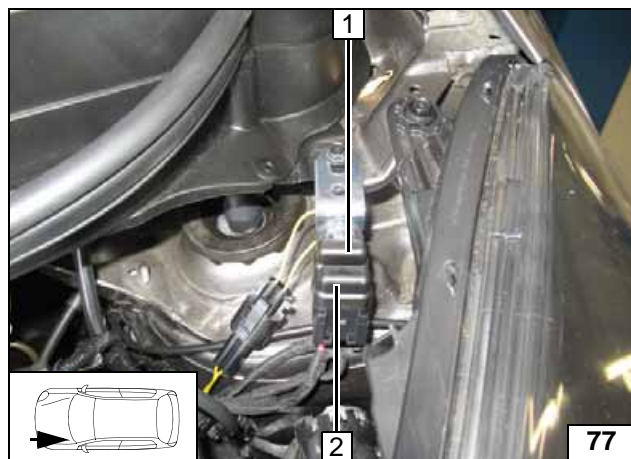
Before parking the vehicle, make the following settings:



- 1 Set fan to level '1', or max. '2'
- 2 Air outlet to windscreen
- 3 Set temperature to 'max.'



**A/C control panel**



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

**Engine compartment fuses**



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

**Passenger compartment fuses**



## Operating Instructions for Automatic Air-Conditioning

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.

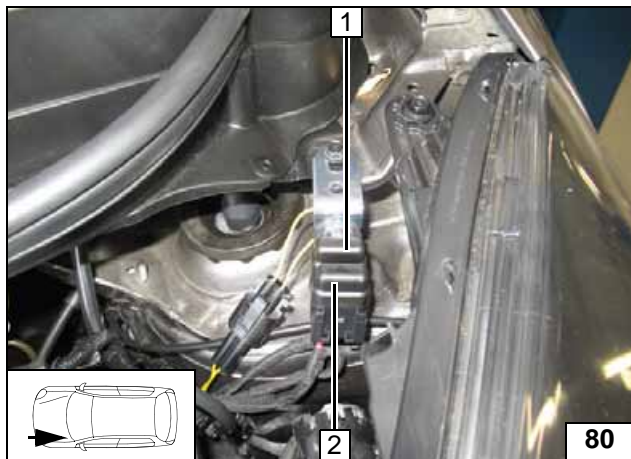
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



- 1 Set temperature to 'HI'
- 2 Air outlet to windscreen

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses

