Water Heater

Webasto
Feel the Drive

***Thermo Top Evo* Parking Heater**

E1
00 0258

Installation Documentation
Hyundai i10

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Hyundai	i10	PA	e4 * 2001 / 116 * 0131 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.1	Petrol	SG	49	1086	G4HG
1.1	Petrol	SG	51	1086	G4HG

SG = Manual transmission

from Model Year 2011
Left-hand drive vehicle

verified equipment variants: Without air-conditioning / Manual air-conditioning

not verified:
Passenger compartment monitoring
Front fog lights
Tempomat
Headlight washer system

Total installation time: approx. 8 hours

Hyundai i10

Table of Contents

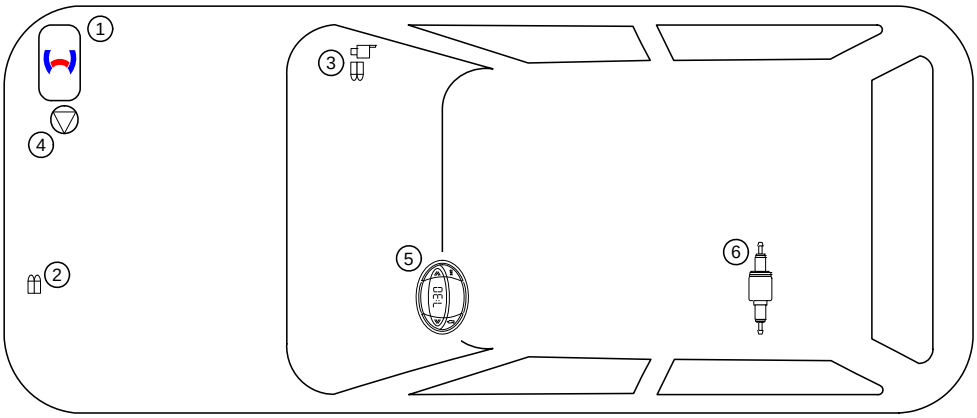
Necessary Components

- Basic delivery scope *Thermo Top Evo* in accordance with price list
- Installation kit for Hyundai i10 2011 1.1 Petrol: **1316714A**
- 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 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



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important Information (not complete)

1.1 Installation and Repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel Diesel (DIN EN 590) or petrol (DIN EN 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 wire ends and tie back.

Sharp edges should be fitted with rub protection (split-open fuel hose)! 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 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.

Information on Validity

This installation documentation applies to Hyundai i10 1.1 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 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

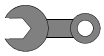
Dimensions
- All dimensions are in mm.

Tightening torque values
- Tightening torque values of 5x13 heater bolts = 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

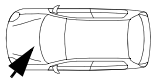
Specific risk of damage to components

Specific risk of fire and explosion

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

Reference to a special technical feature

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



Hyundai i10

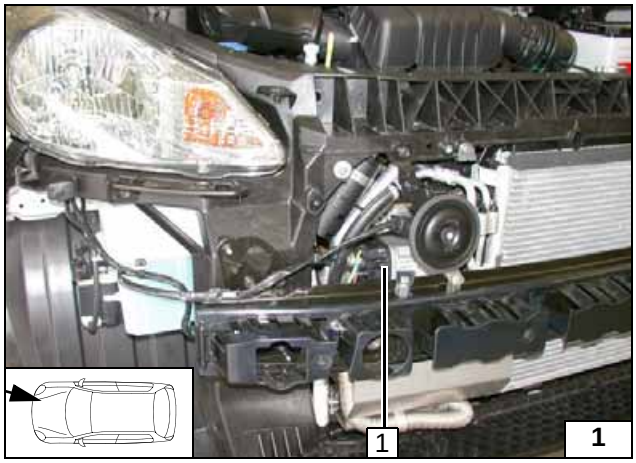
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and remove the battery.
- Remove the air filter together with the intake hose.
- Detach the wheel well trim on the right and left.
- Remove the bumper.
- Remove and discard the plastic trim to the right side of the radiator.
- Remove the right underride protection.
- Remove the horn.
- Open the left tank-fitting service lid.
- 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.

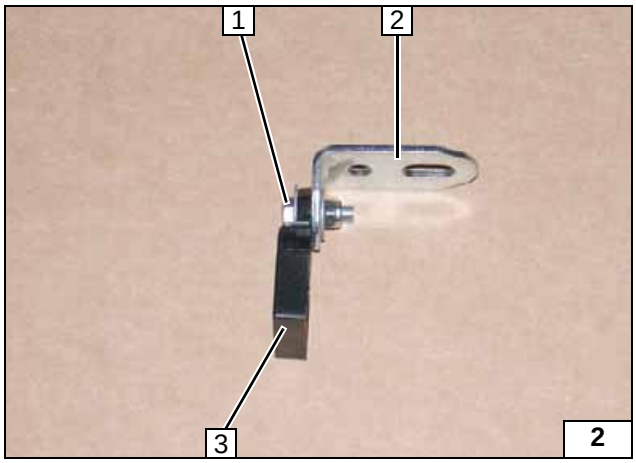


Heater Installation Location

Note:
Figure shows vehicle with air-conditioning.

1 Heater

Installation location

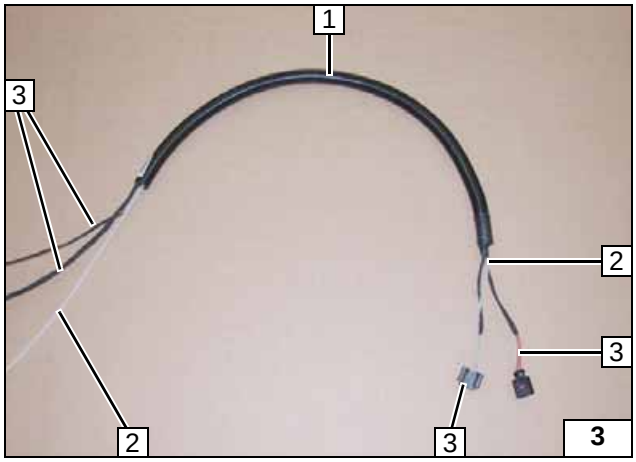


Preparing Electrical System

Fuse holder for engine compartment

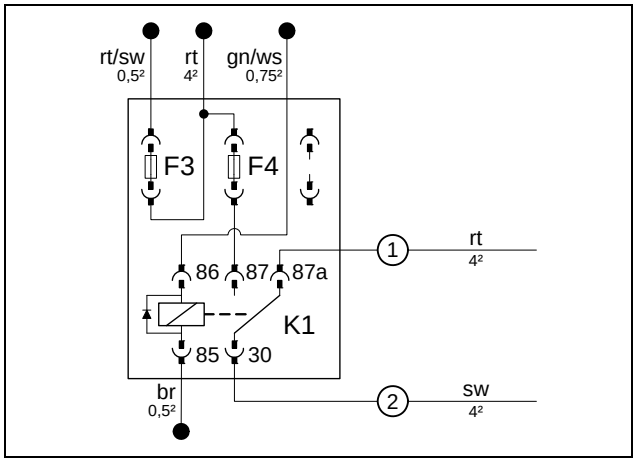
1 M5x16 bolt, large diameter washer [2x], nut
2 Angle bracket
3 Retaining plate for fuse holder

Preparing fuse holder for engine compartment



Heater wiring harness [2x] **3** and fuel line **2** into 17 mm dia. corrugated tube **1**.

Pulling wires into corrugated tube



Fuse holder, passenger compartment

Insert 25A fuse F4. Insert wires into socket of K1 relay. K1 relay will be attached later.

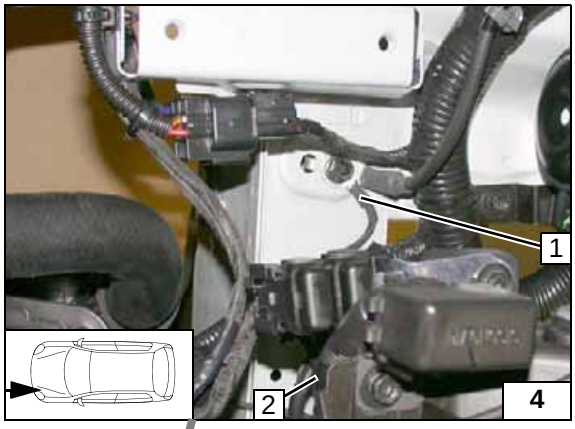
① Red (rt) wire of K1/87a
② Black (sw) wire of K1/30

Installing F4, preparing K1 relay

Electrical System

Earth wire

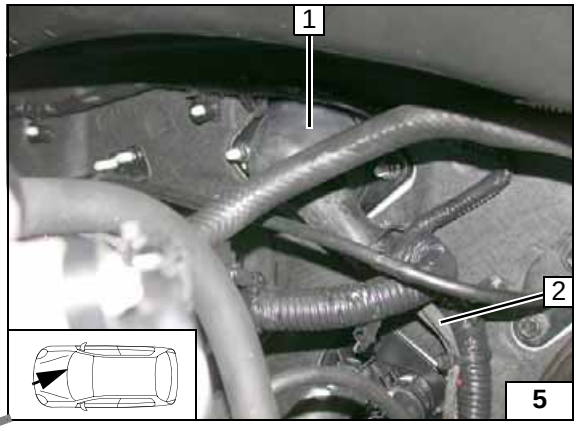
1 Earth wire on original vehicle earth point

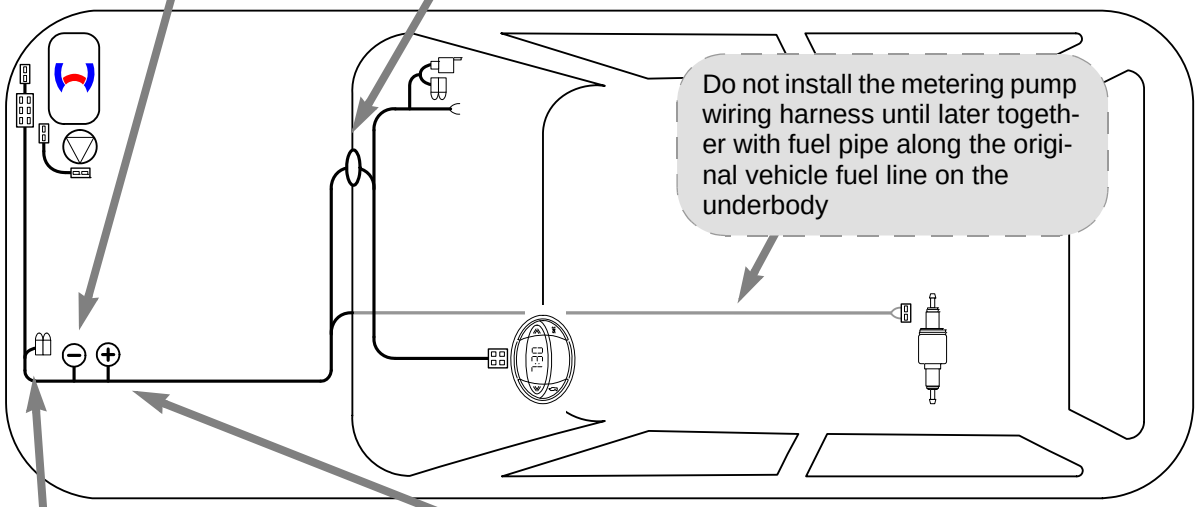


Wiring harness pass through

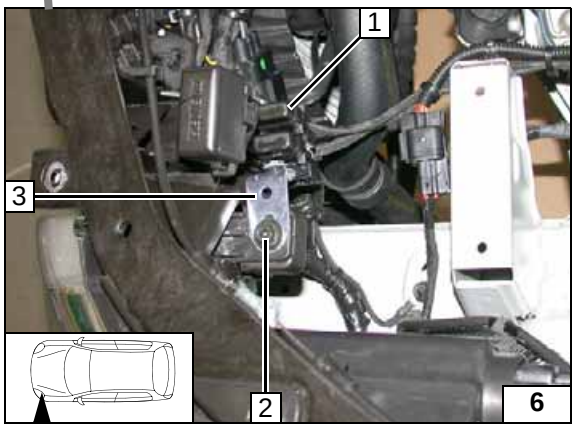
See the following page for wiring harness routing.

1 Protective rubber plug
2 Wiring harnesses of heater, heater control



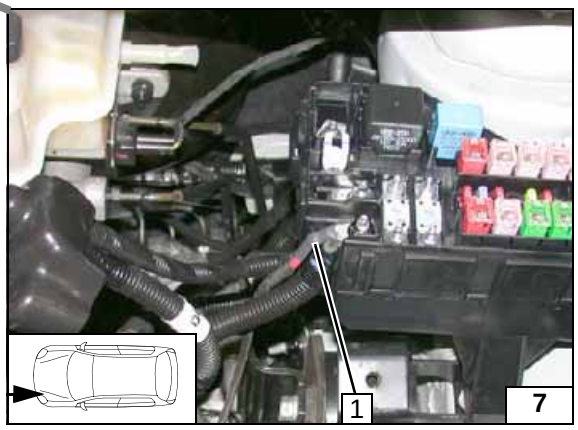


Wiring harness routing diagram



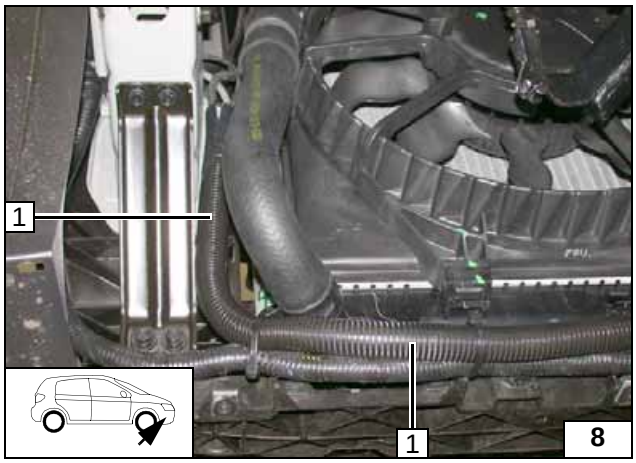
Fuse holder for engine compartment

1 Fuses F1-2 connected
2 Original vehicle bolt
3 Angle bracket



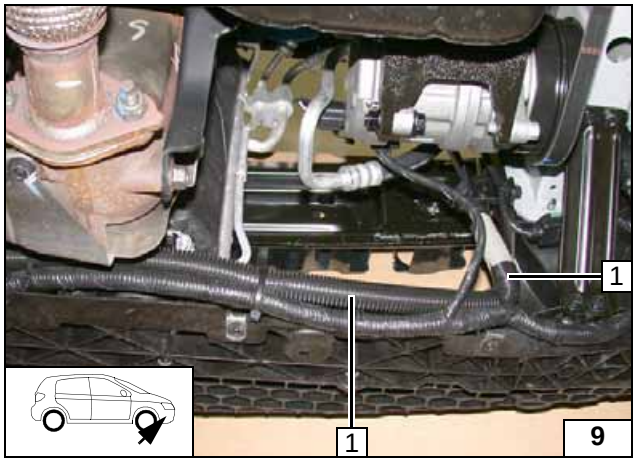
Positive wire

1 Positive wire on positive distributor



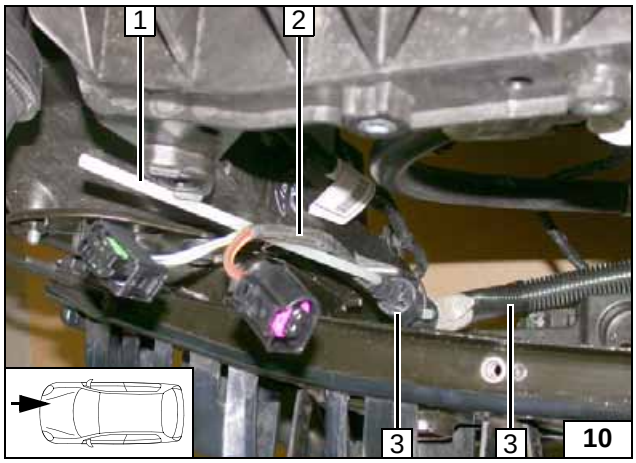
Route 17 mm dia. corrugated tube **1** with wiring harness of heater and fuel line towards the underbody and further towards the right side of the vehicle.

Routing lines



Route 17 mm dia. corrugated tube **1** with wiring harness of heater and fuel line on the right side of the vehicle towards the top and attach it with cable ties on the original vehicle wiring harness.

Routing lines



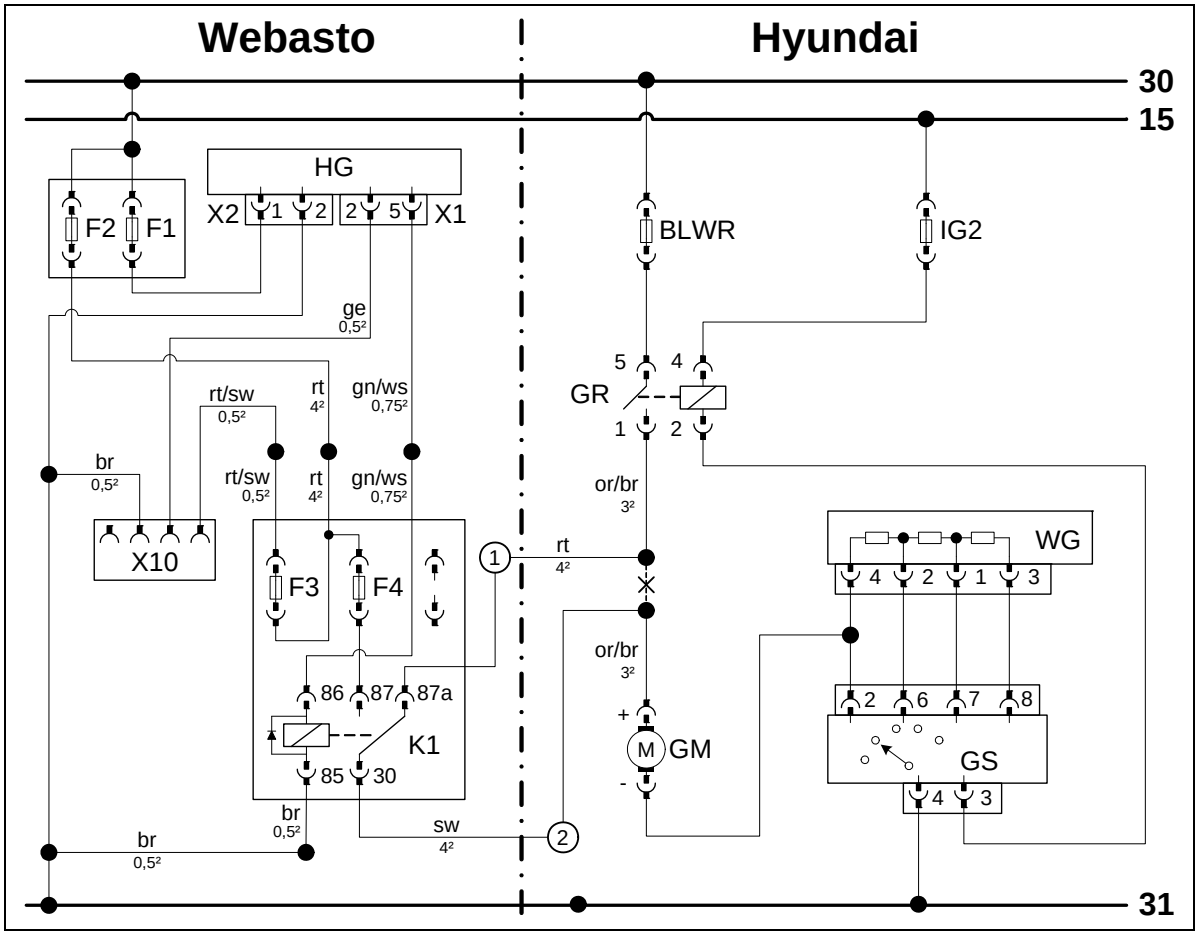
Seal the end of corrugated tube **3** with insulating tape.

1 Fuel line
2 Wiring harness of heater

Routing lines

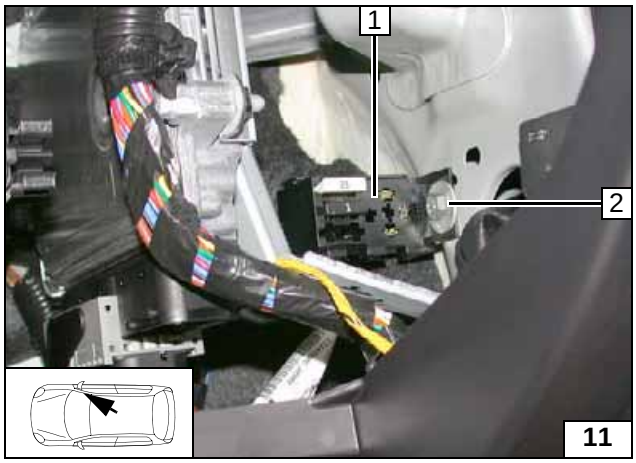
Fan Controller

Wiring diagram



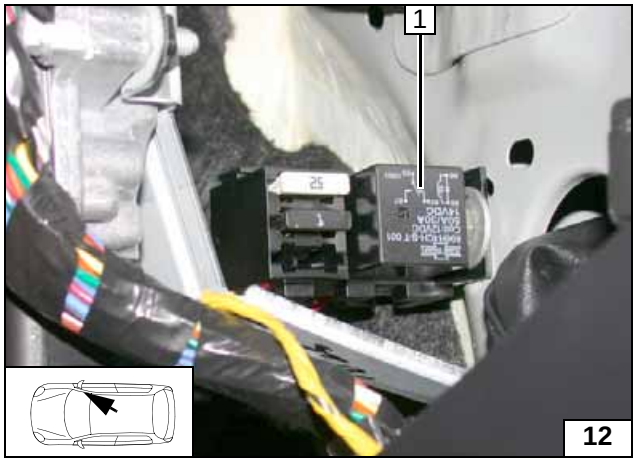
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	GM	Fan motor	rt	red
X1	6-pin heater connector	GR	Fan relay	sw	black
X2	2-pin heater connector	WG	Resistor group	ge	yellow
X10	4-pin connector Heater control	GS	Fan switch	gn	green
		IG2	10A fuse	or	orange
K1	Fan relay	BLWR	30A fuse	ws	white
F1	20A fuse			br	brown
F2	30A fuse				
F3	1A fuse				
F4	25A fuse				
				X	Cutting point
				Wiring colours may vary.	



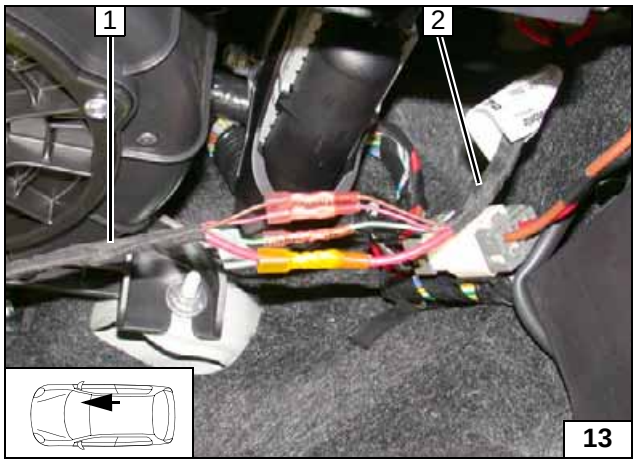
1 Fuse holder for passenger compartment
2 M6x16 bolt, large diameter washer, existing threaded hole

Installing fuse holder of passenger compartment



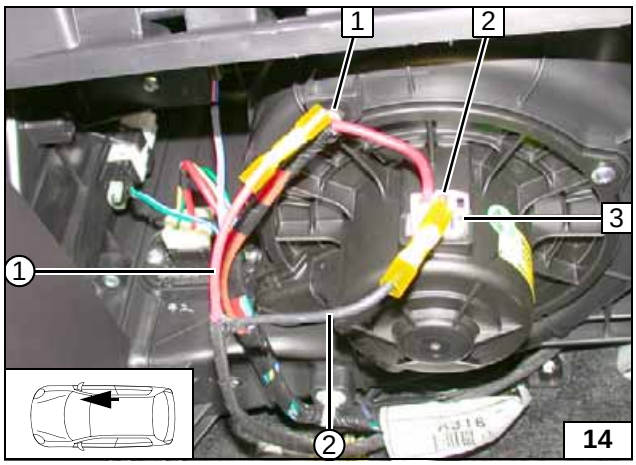
1 K1 relay

Attaching K1 relay



Connect wiring harness of passenger compartment fuse holder **2** to wiring harness of heater **1** according to wiring diagram, in such a way that wires of the same colour are connected to each other.

Connecting wiring harnesses



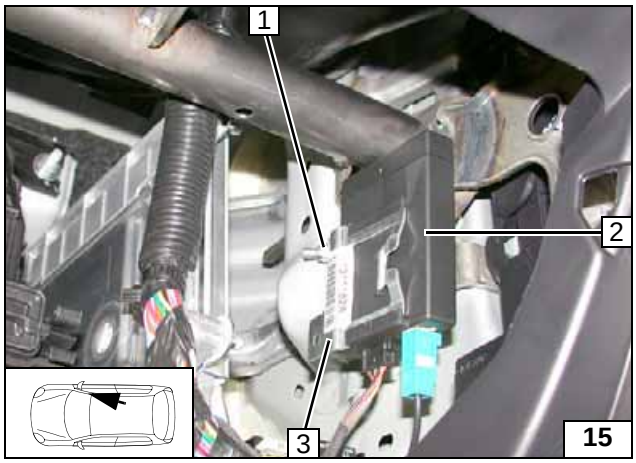
Connection to 2-pin connector **3** from the blower motor.
Produce connections as shown in wiring diagram.

1 Orange/brown (or/br) wire of fan relay
2 Orange/brown (or/br) wire of fan motor connector
① Red (rt) wire of K1/87a
② Black (sw) wire of K1/30

Connecting fan motor

Remote Option (Telestart)

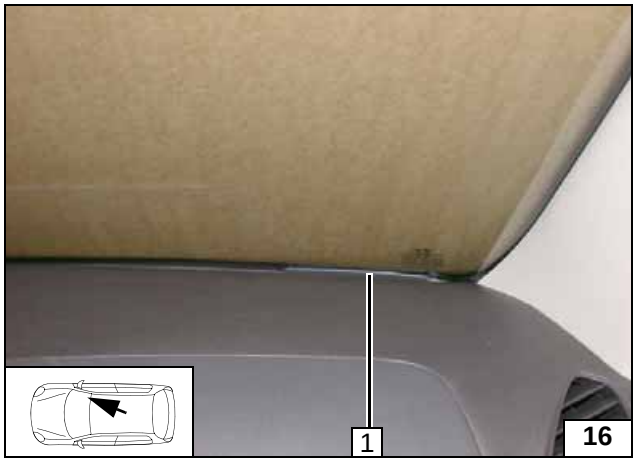
Installing receiver



Align bracket **3** as shown after the installation.

1 M5x16 bolt, large diameter washer, flanged nut, existing hole
2 Receiver

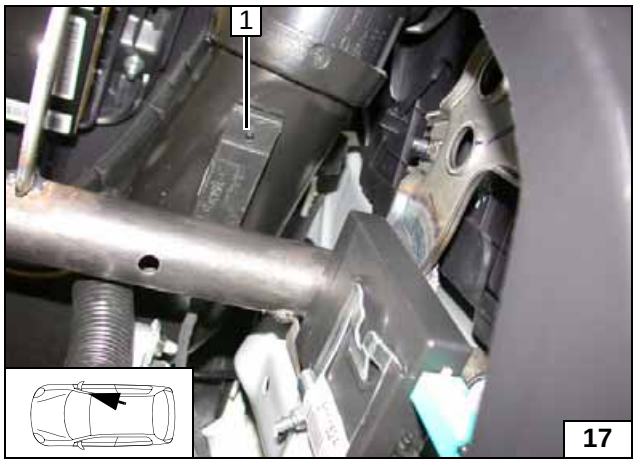
Installing antenna



1 Antenna

Temperature sensor T100 HTM

Installing temperature sensor

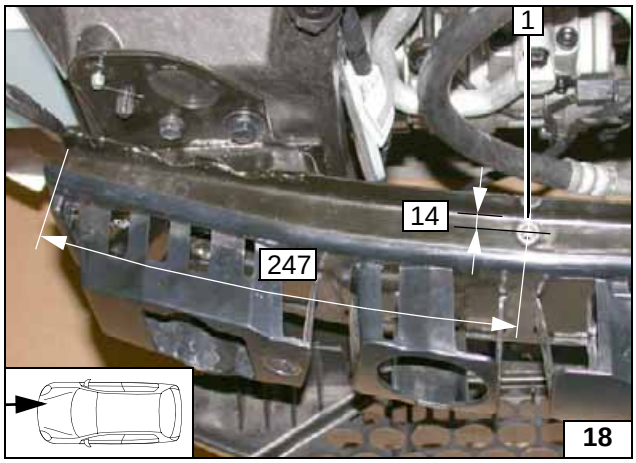


Fasten temperature sensor **1** with adhesive tape.

Preparing Installation Location

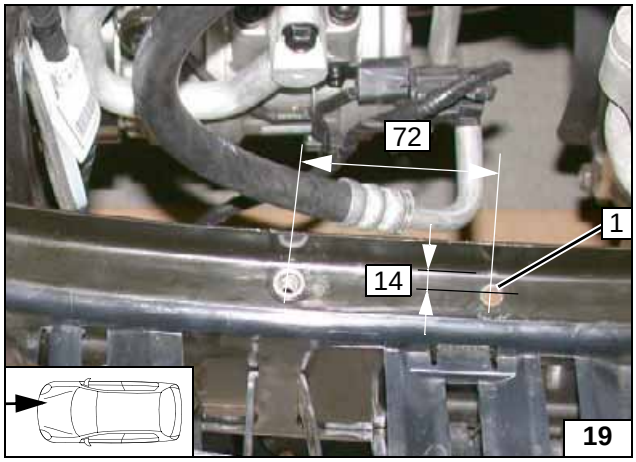
Note:
Figure shows vehicle with air-conditioning. The following description is valid for all vehicles.

Installing rivet nut



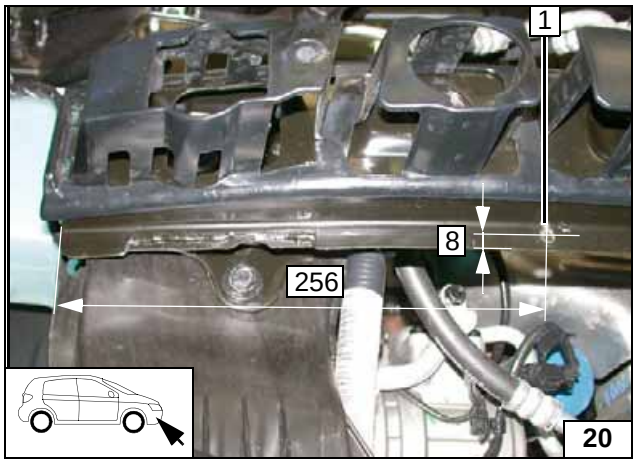
1 9.1 mm dia. hole, rivet nut

Hole in bumper



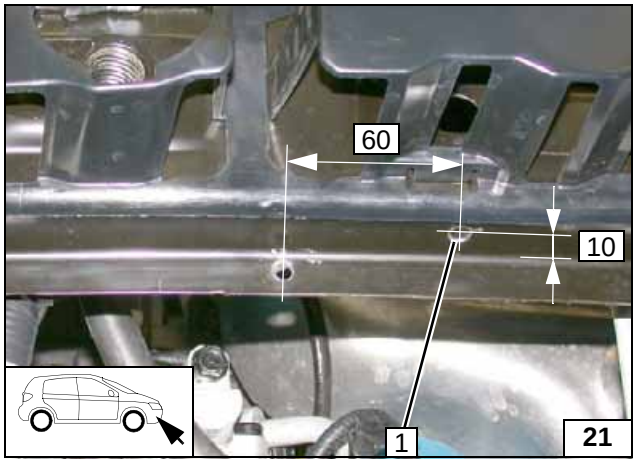
1 7 mm dia. hole

Hole in bumper



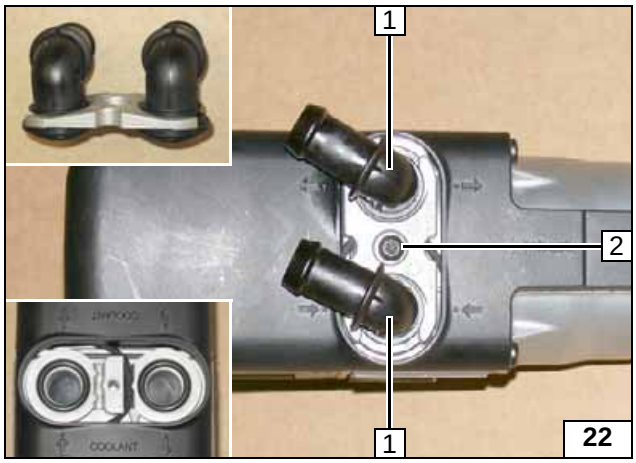
1 7 mm dia. hole

Hole in bumper



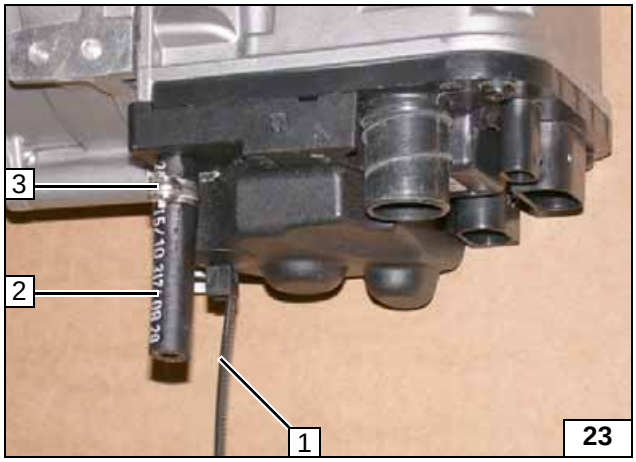
1 7 mm dia. hole

Preparing Heater



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

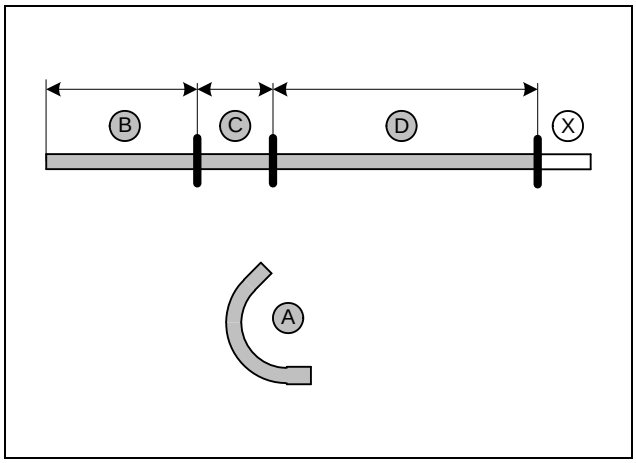
Mounting water connection piece



Insert clip-type cable tie **1** in existing hole of heater.

2 Hose section
3 10 mm dia. clamp

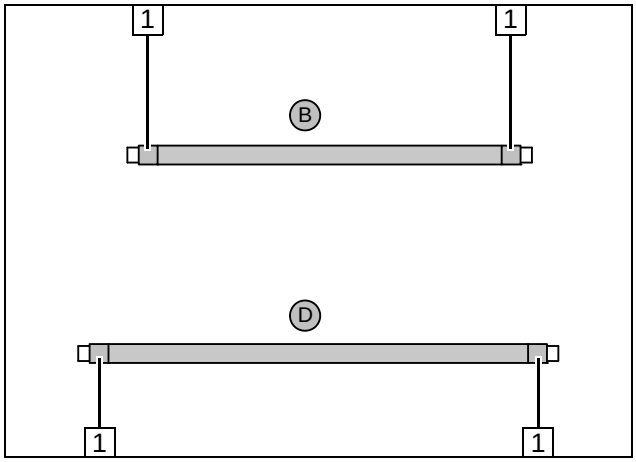
Premounting heater



Discard section **X**.
Hose **A** = 15x20 mm dia. moulded hose 135°

B = 585
C = 180
D = 800

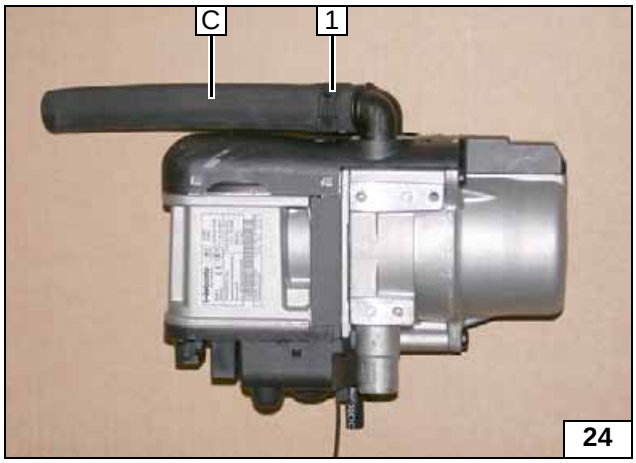
Cutting hoses to length



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

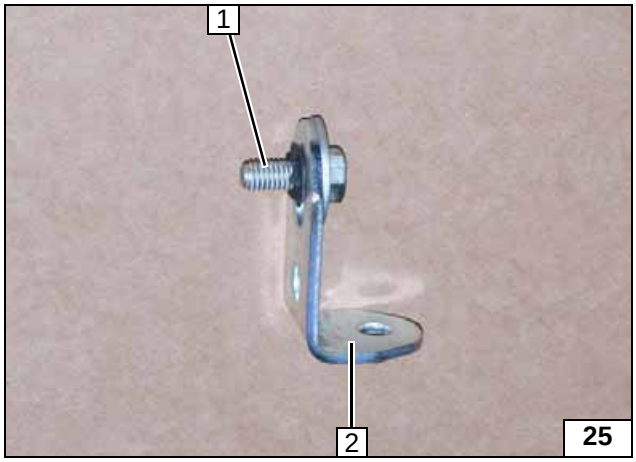
1 50 mm long heat shrink plastic tubing [4x]

Preparing hoses



1 25 mm dia. spring clip

Premounting hose C



Installing Heater

1 M6x20 bolt, large diameter washer, pin lock
2 Angle bracket

Premounting angle bracket

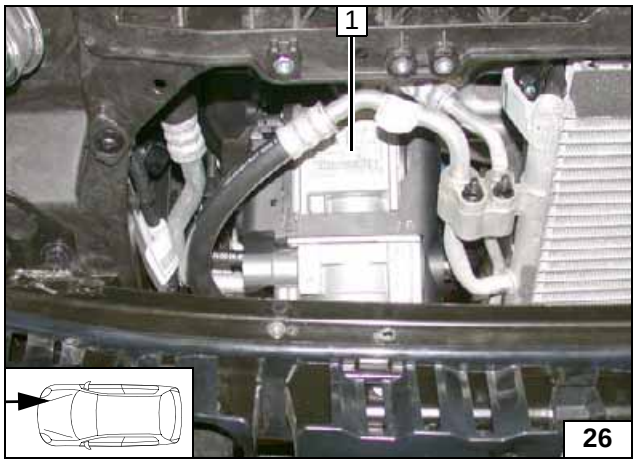
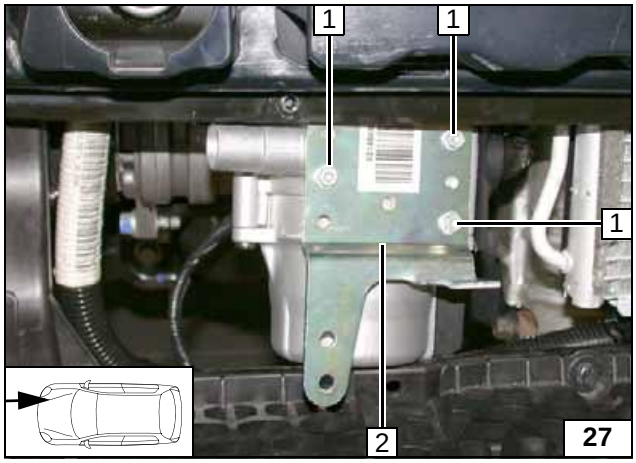


Figure shows vehicle with manual air-conditioning. Install heater **1** at the installation location.

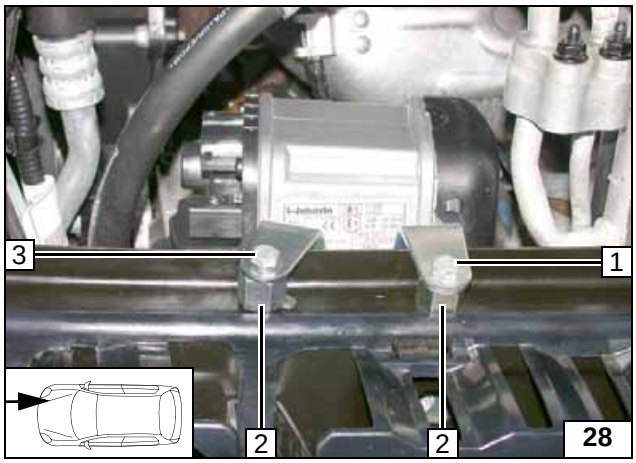
Inserting heater



Prepare bracket **2** according to template.

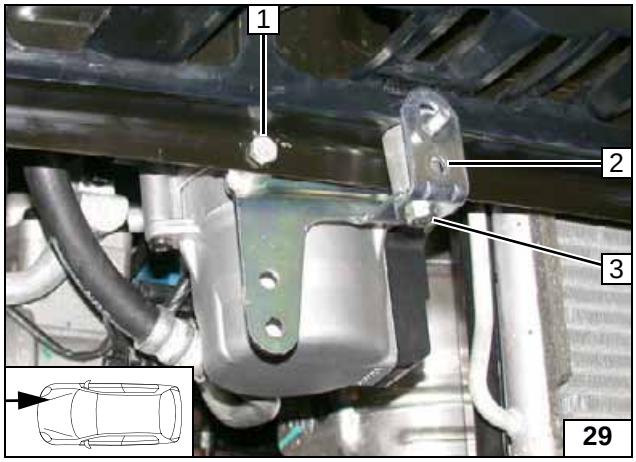
1 Self-tapping bolt 5x13mm [3x]

Installing bracket on heater



1 Loosely install M6x25 bolt, flanged nut
2 Spacer nut M8x15 [2x]
3 Loosely install M6x30 bolt, spring lock-washer

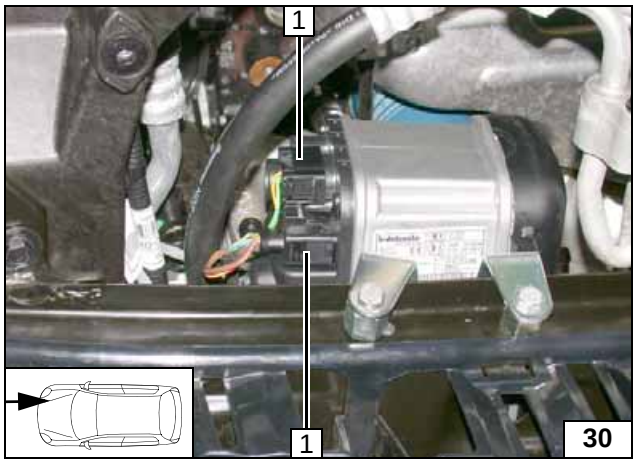
Loosely installing heater



Install a 20 mm shim at position **1** between the bracket and bumper and a 30 mm shim at position **3**.

1 Loosely install M6x30 bolt, 20 mm shim, flanged nut
2 Pre-assembled angle bracket
3 Loosely install M6x40 bolt, 30 mm shim, flanged nut

Loosely installing heater



Align heater with bracket. Tighten all loose screw connections.

1 Wiring harness of heater [2x]

Connecting wiring harness of heater

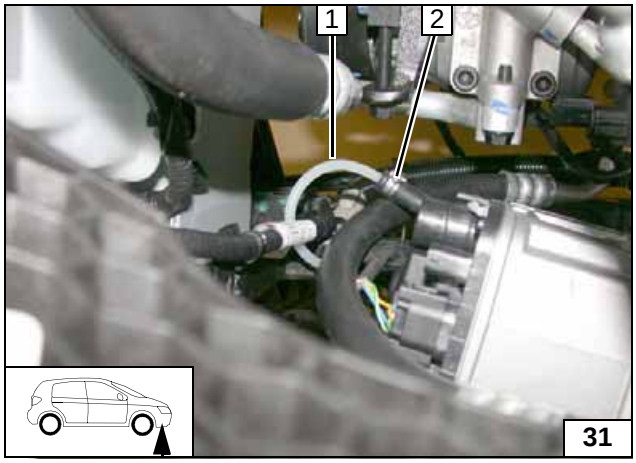
Fuel

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

Catch any fuel running off in a suitable container.

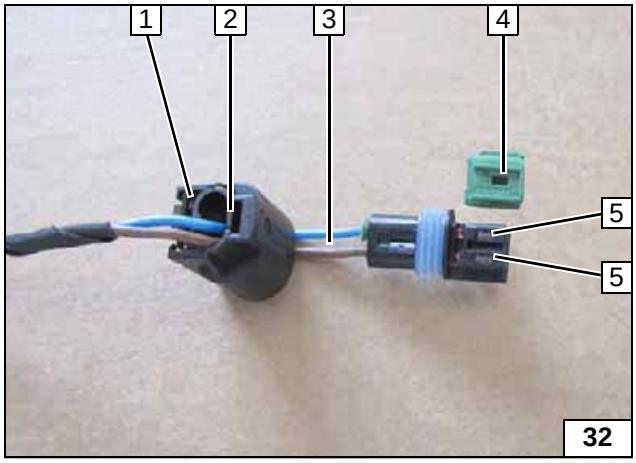
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



1 Fuel line
2 10 mm dia. clamp

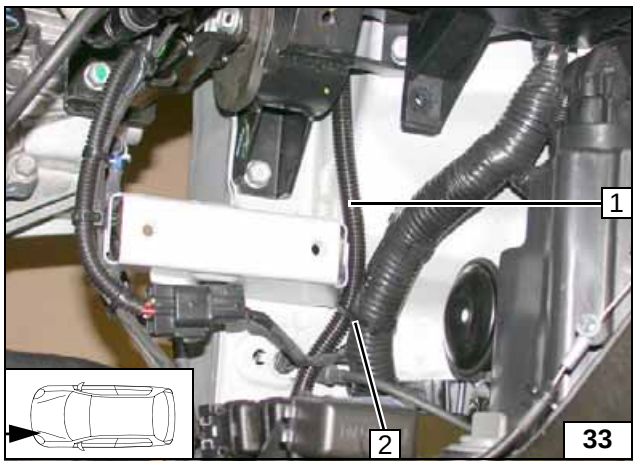
Connecting heater



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

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

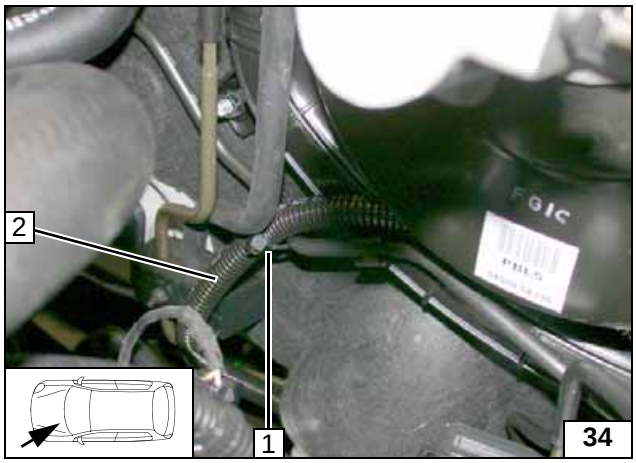
Dismantling connector



Route fuel line and wiring harness of the metering pump in 10 mm dia. corrugated tube **1** on the frame side member towards the firewall.

2 Cable tie

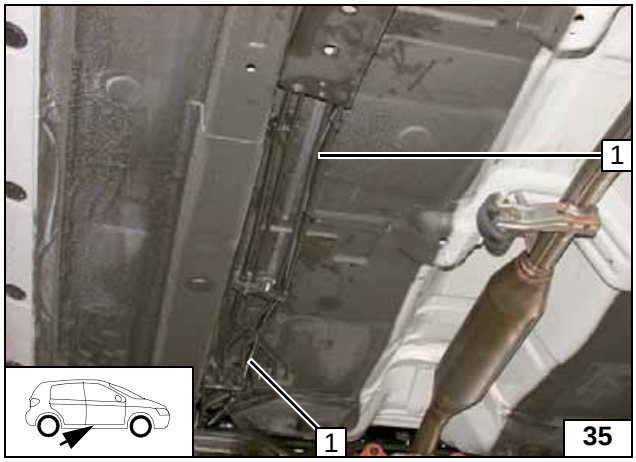
Routing lines



Route fuel line and wiring harness of the metering pump in 10 mm dia. corrugated tube **2** on the firewall towards the underbody.

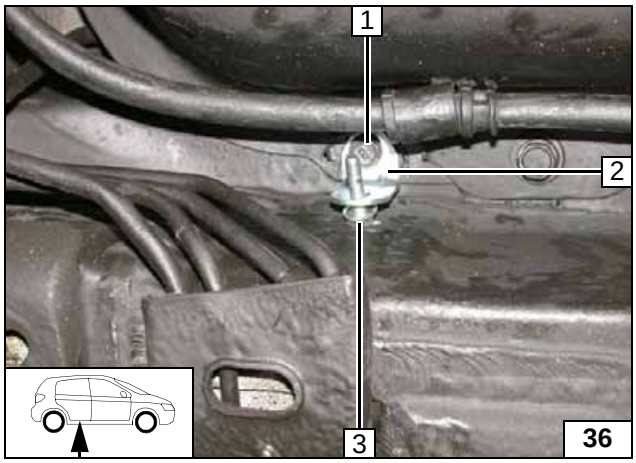
1 Cable tie

Routing lines



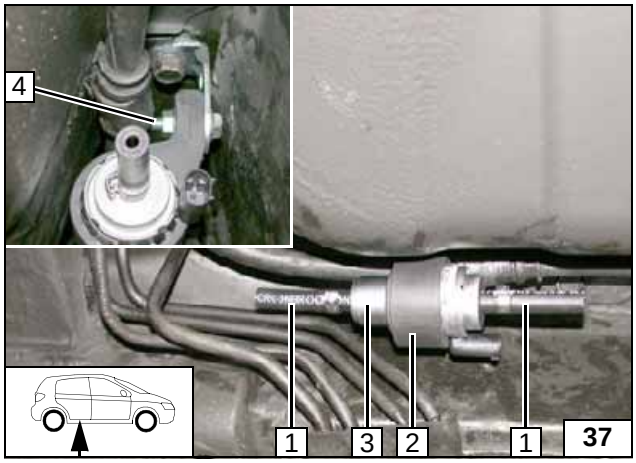
Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **1** on original vehicle lines towards the installation location of the metering pump.

Routing lines



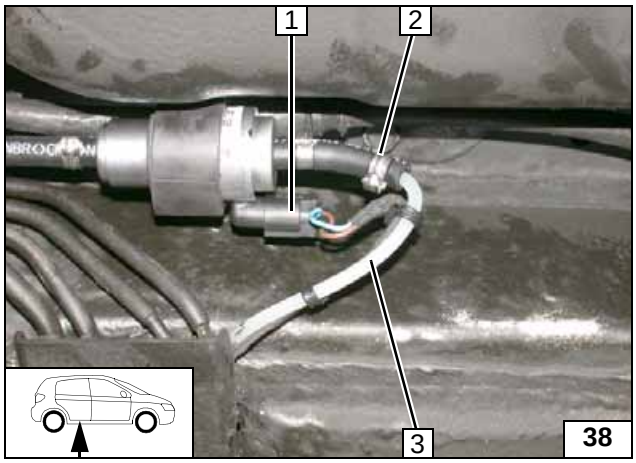
1 Original vehicle bolt
2 Angle bracket
3 Install M6x25 bolt

Mounting angle bracket



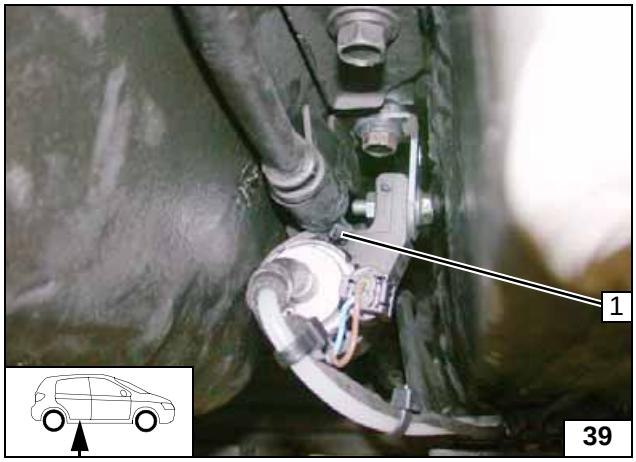
1 Hose section, 10 mm dia. clamp [2x each]
2 Mounting of metering pump
3 Metering pump
4 Flanged nut M6

Mounting metering pump



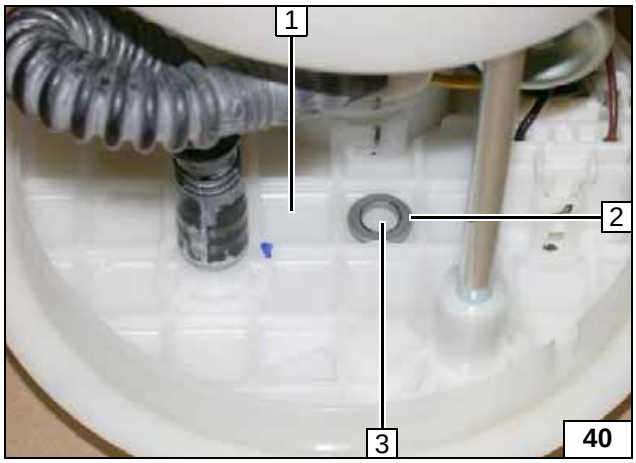
1 Wiring harness of metering pump, connector mounted
2 10 mm dia. clamp
3 Fuel line from heater

Connecting metering pump



Attach mounting of metering pump on handbrake cable bracket by using cable tie **1**.

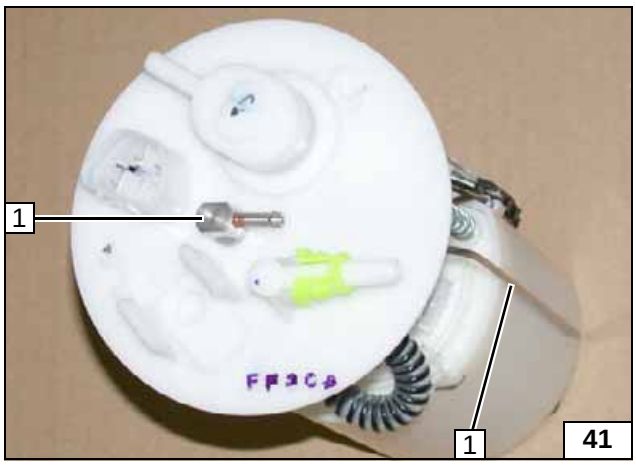
Attaching metering pump



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

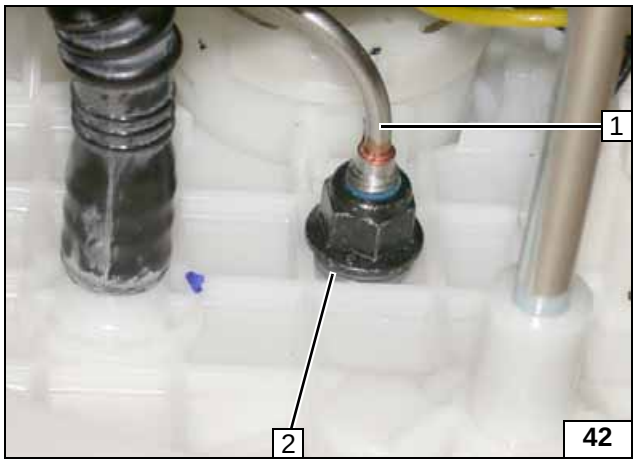
2 Washer outer dia. = 11.8 mm
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



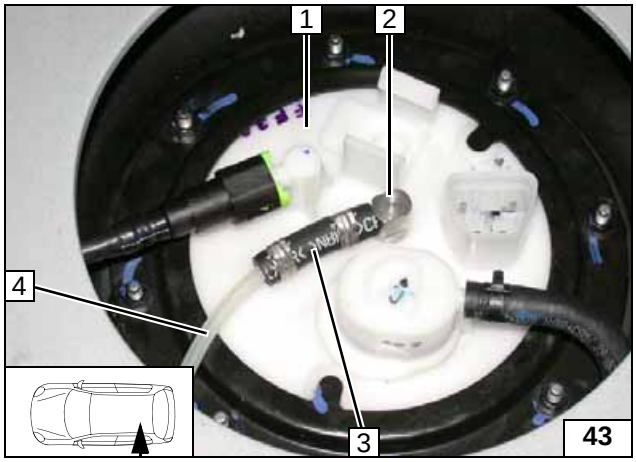
Shape fuel standpipe **1** according to template, cut to length and install. Install three washers according to the following figure during the assembly.

Inserting fuel standpipe



1 Fuel standpipe
2 Washer [3x]

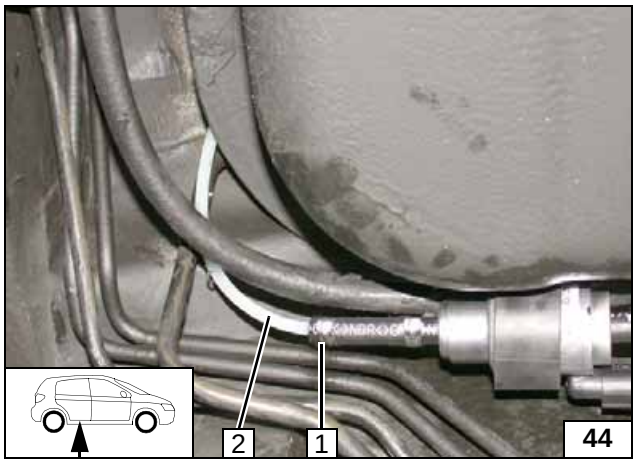
Inserting fuel standpipe



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 Fuel standpipe
3 Moulded hose, 10 mm dia. clamp [2x]
4 Fuel line

Connecting fuel line



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

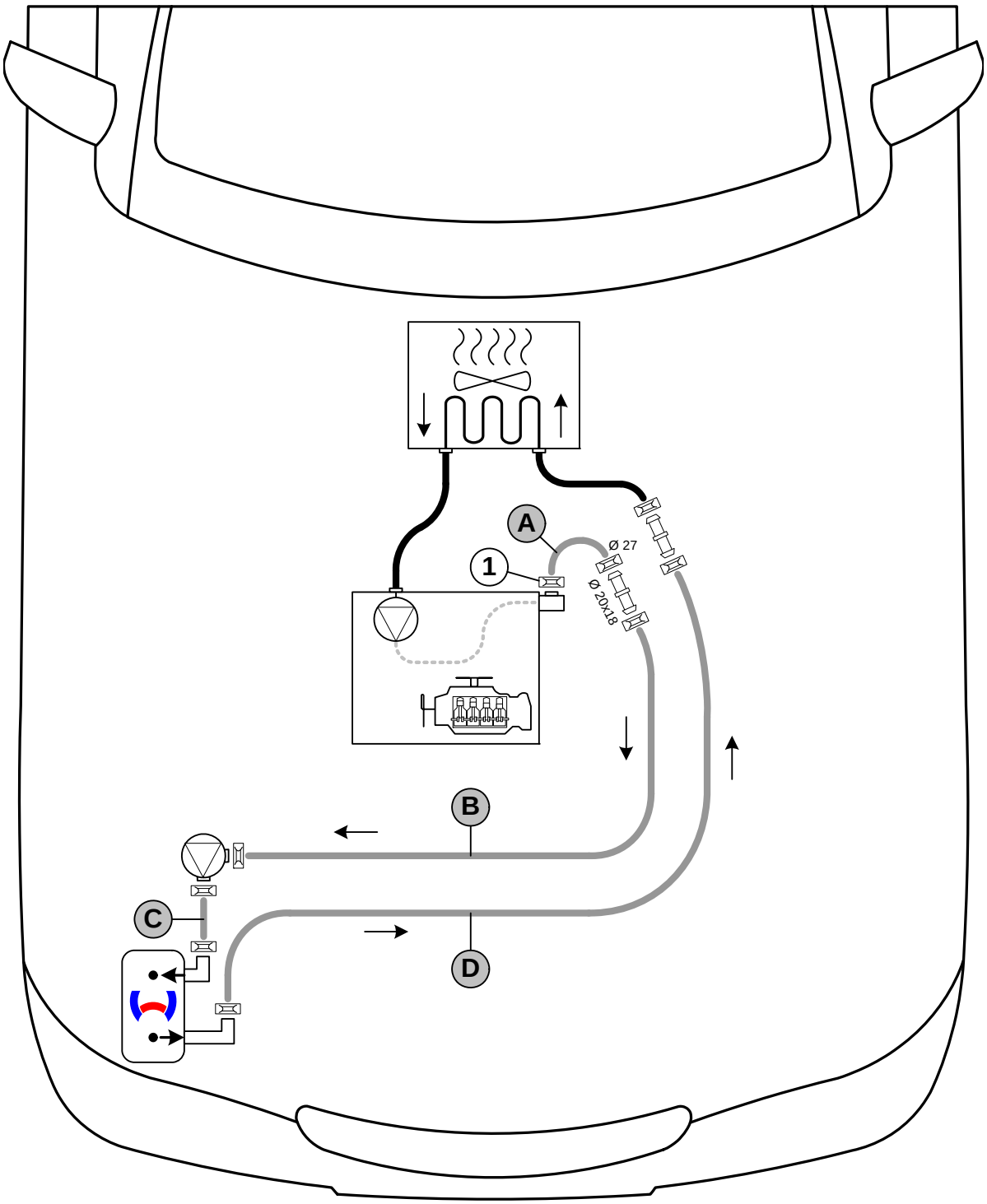
1 10 mm dia. clamp
2 Fuel line of fuel standpipe

Connecting metering pump

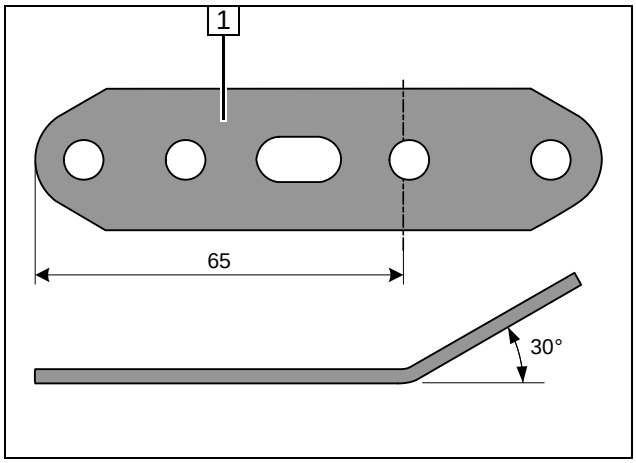
Coolant Circuit

WARNING!
Any coolant running off should be collected using a suitable container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.
The connection should be "inline" based on the following diagram:

Hose installation diagram

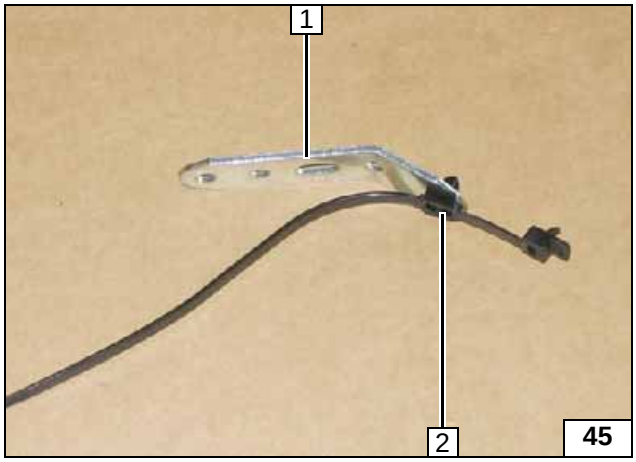


All spring clips without a specific designation = 25 mm dia. **1** = Original vehicle spring clip.
All connecting pipes without a specific designation = 18x18 mm dia.



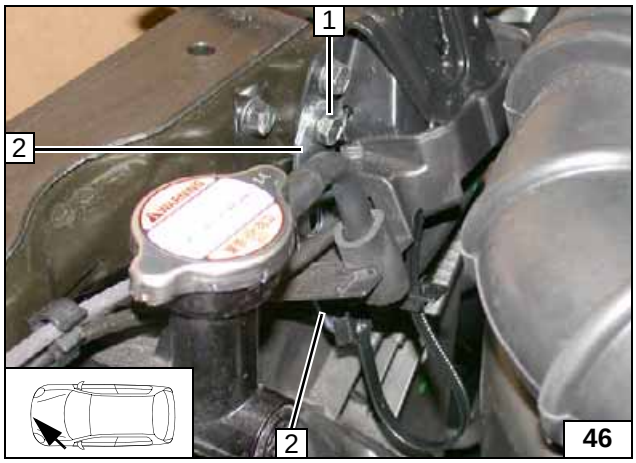
1 Perforated bracket

Bending perforated bracket



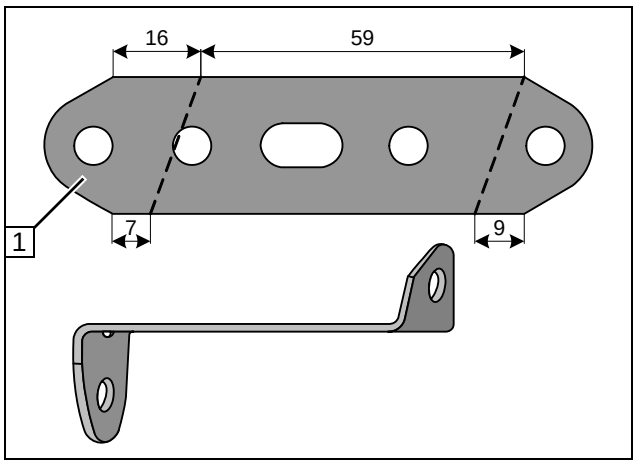
1 Perforated bracket
2 Clip-type cable tie in hole

Inserting clip-type cable-tie



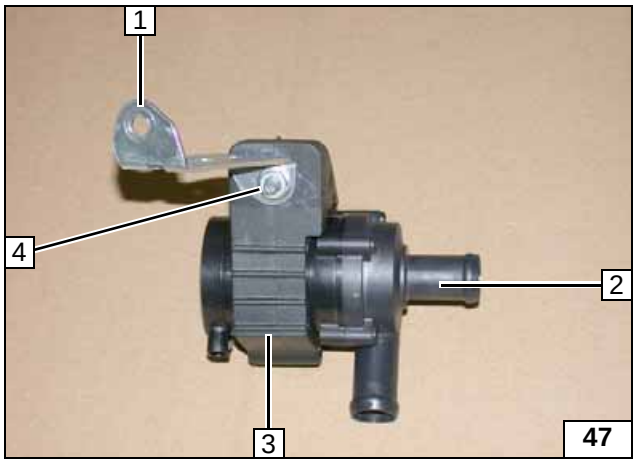
Insert perforated bracket **2** from below and attach with original vehicle bolt **1**.

Mounting perforated bracket



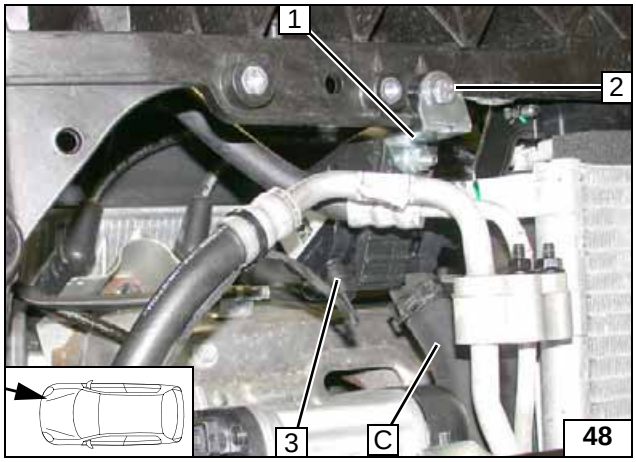
1 Perforated bracket

Angling down perforated bracket 2x



1 Perforated bracket
2 Circulating pump
3 Mounting for circulating pump
4 M6x25 bolt, flanged nut

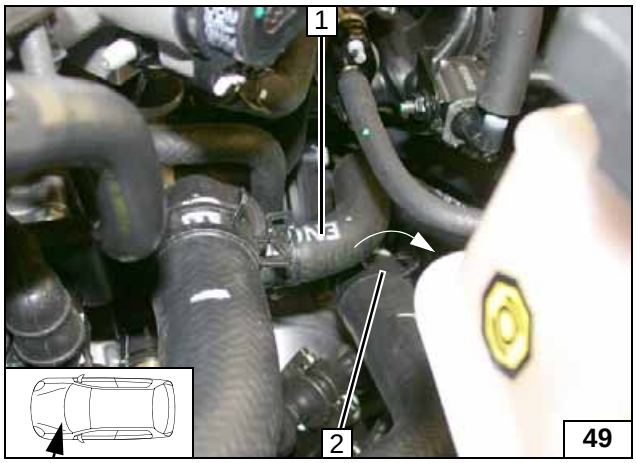
Premounting circulating pump



Connect wiring harness of circulating pump **3** to heater and circulating pump. Install hose **C** on circulating pump.

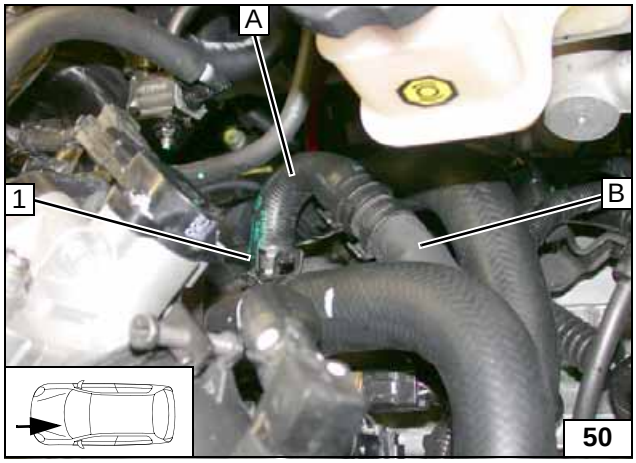
1 Perforated bracket
2 M6x20 bolt, spring lockwasher, existing threaded hole

Mounting circulating pump



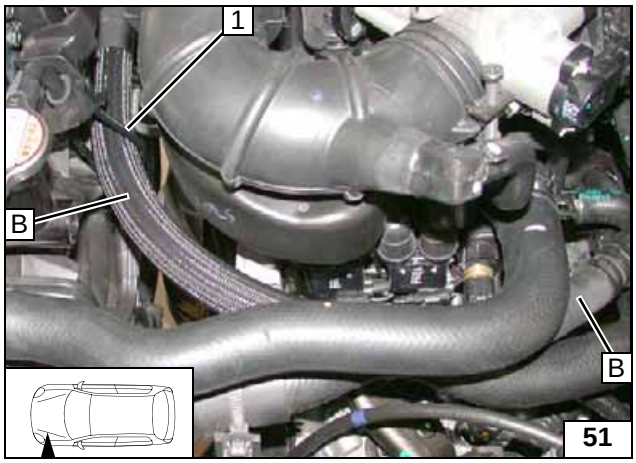
Twist lock of spring clip **2**. Detach hose on engine outlet / heat exchanger inlet **1** on the connection piece of the engine outlet. Spring clip will be reused.

Cutting point



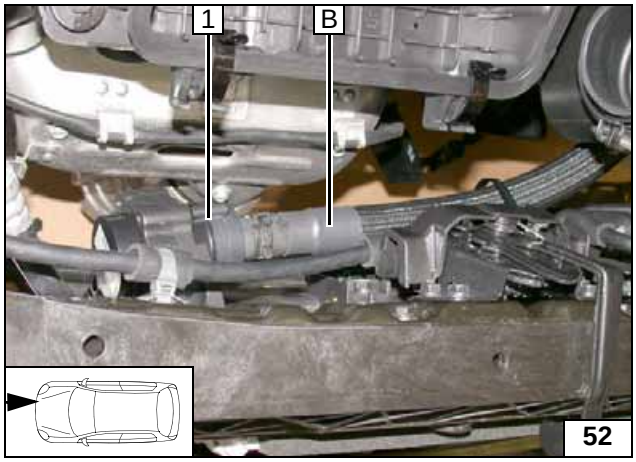
1 Original vehicle spring clip

Connecting engine outlet



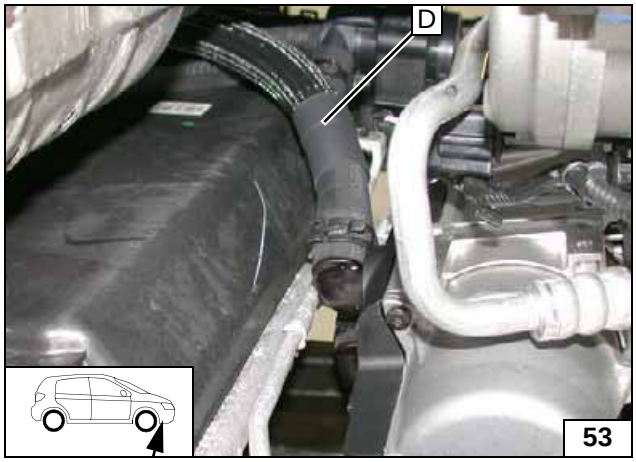
Route hose **B** through clip-type cable tie **1**.

Routing in engine compartment

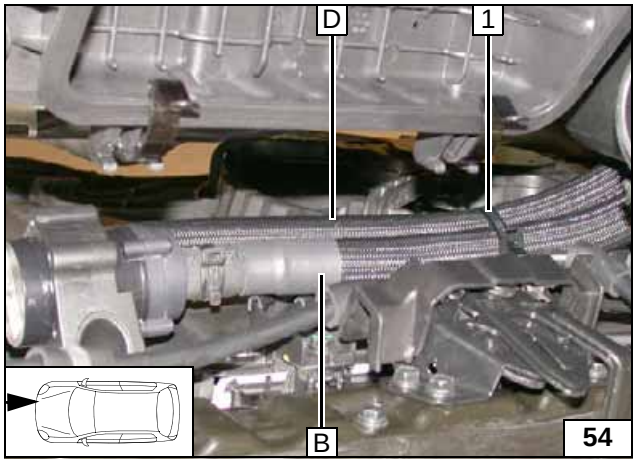


1 Circulating pump

Connecting circulating pump

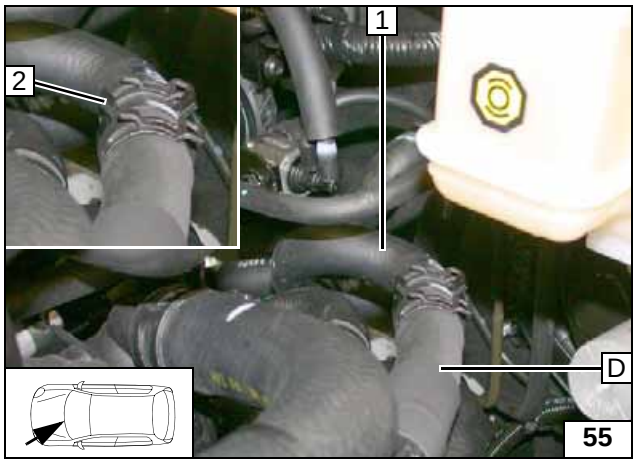


Connecting heater outlet



Install hose **D** through clip-type cable tie **1**. Close clip-type cable tie.

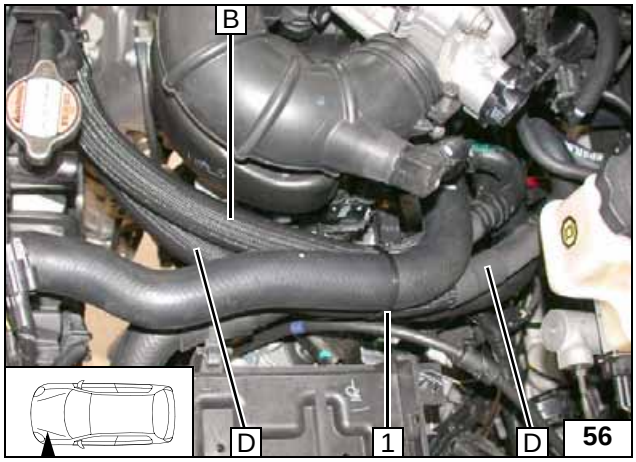
Routing in engine compartment



Install hose bracket 25x37 **2** between the connecting point and original vehicle hose.

1 Hose on heat exchanger inlet

Connecting heat exchanger inlet



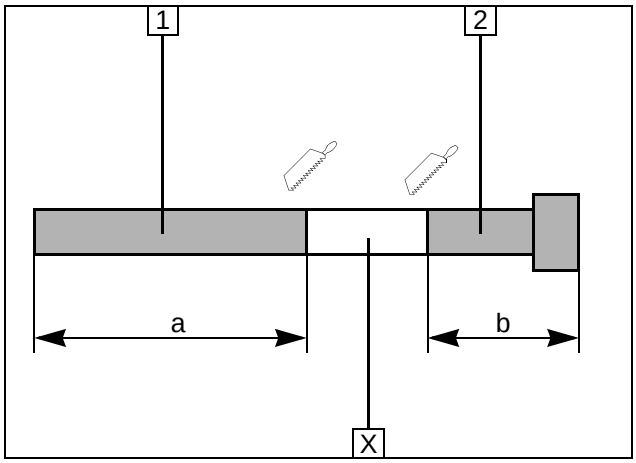
Align hoses. Ensure sufficient distance from neighbouring components, adjust if necessary.

1 Cable tie

Routing in engine compartment

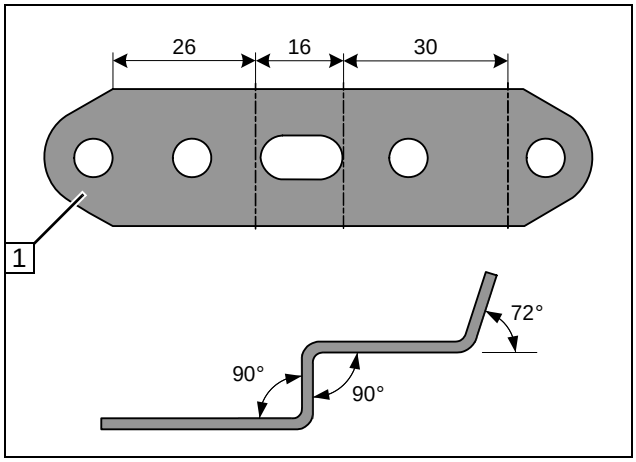
Exhaust Gas

Discard section **X**.



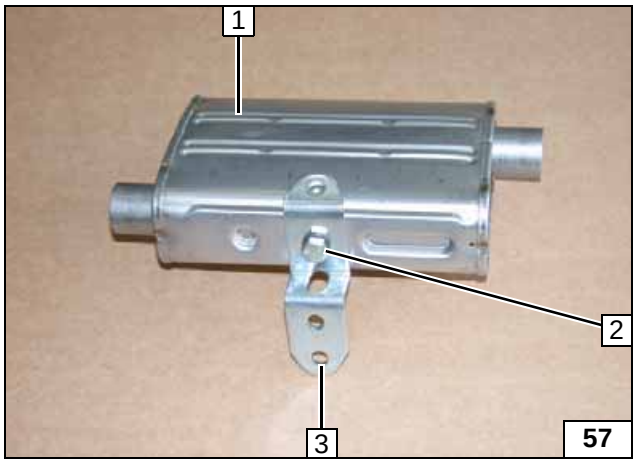
1 Exhaust pipe
a = 390
2 Exhaust end section
b = 230

Preparing exhaust pipe



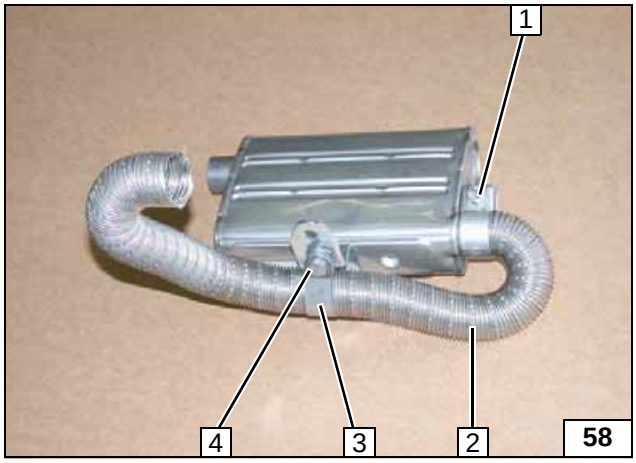
1 Perforated bracket

Bending perforated bracket



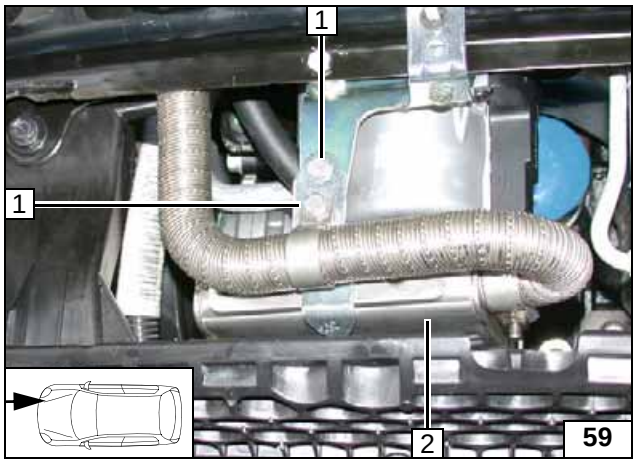
1 Silencer
2 M6x16 bolt, spring lockwasher
3 Perforated bracket

Premounting silencer



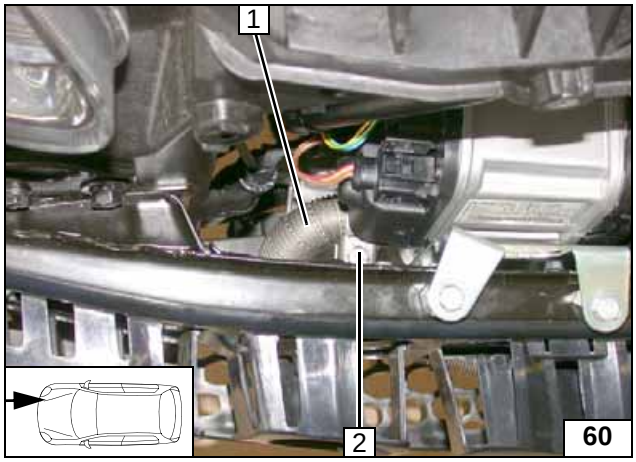
1 Hose clamp
2 Exhaust pipe
3 P-clamp
4 Insert M6x20 bolt in hole of perforated bracket

Premounting silencer



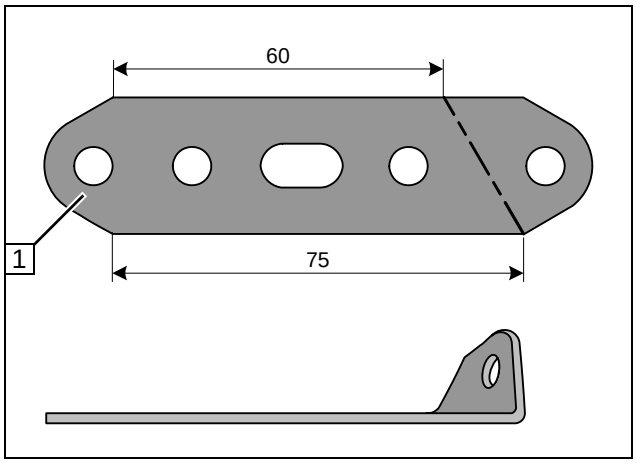
1 M6x20 bolt, flanged nut, hole of bracket [2x each]
2 Silencer

Mounting silencer



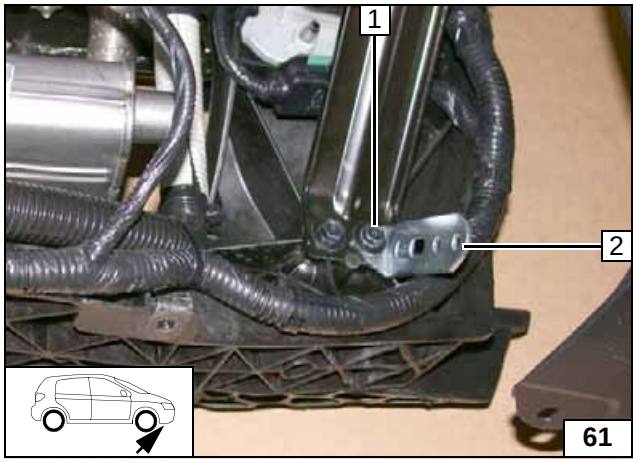
1 Exhaust pipe
2 Hose clamp

Mounting exhaust pipe



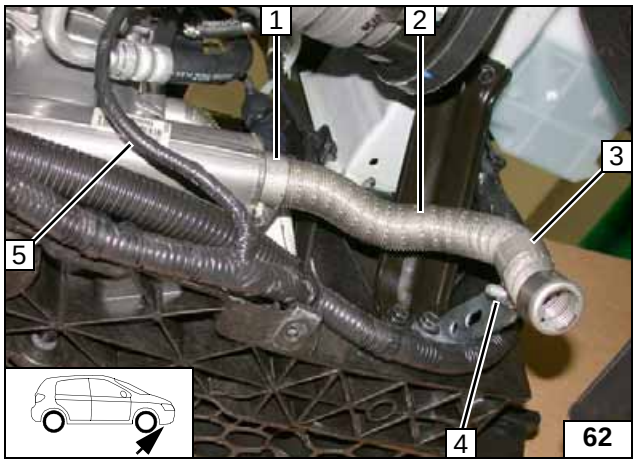
1 Perforated bracket

Bending perforated bracket



1 Original vehicle bolt
2 Perforated bracket

Mounting perforated bracket



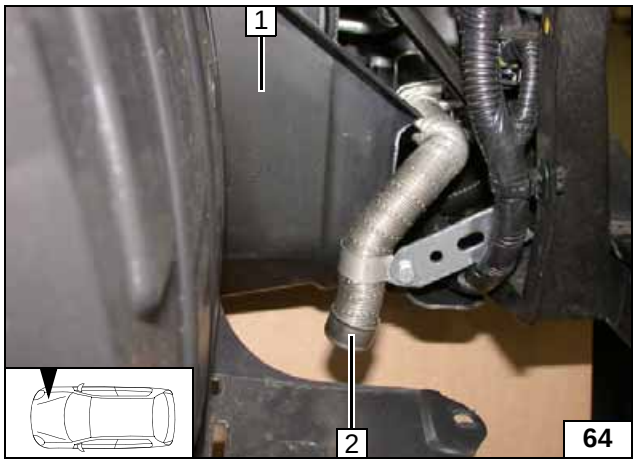
Install original vehicle wiring harness **5** as shown.

1 Hose clamp
2 Exhaust end section
3 P-clamp
4 M6x20 bolt, flanged nut

Mounting exhaust end section

Cut away underride protection **1** on marking.

Cutting out right underride protection



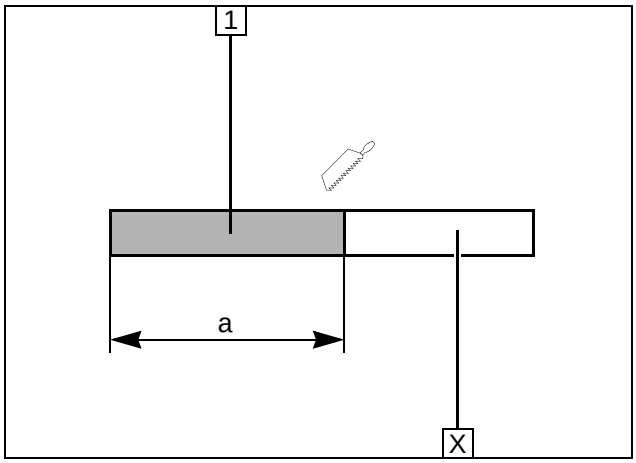
Install right underride protection **1**. Ensure sufficient distance from neighbouring components.

2 Exhaust end section

Aligning exhaust end section

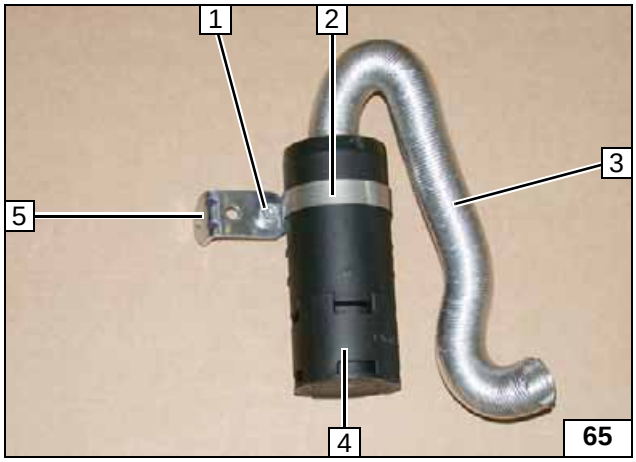
Combustion Air

Discard section **X**.



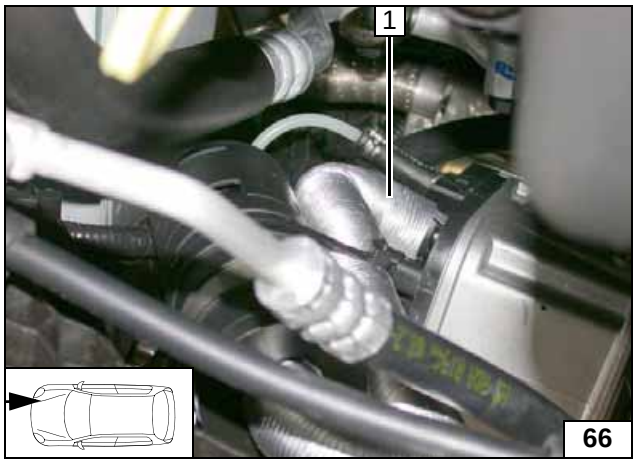
1 Combustion air pipe
a = 340

Cutting combustion air pipe to length



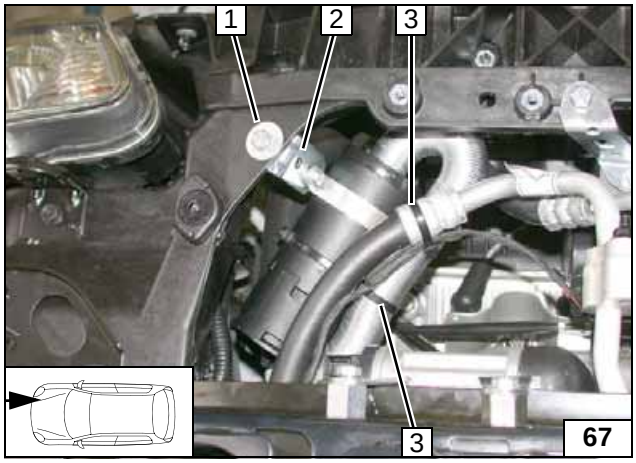
1 M5x16 bolt, flanged nut
2 51 mm dia. clamp
3 Combustion air pipe
4 Silencer
5 Angle bracket

Premounting silencer



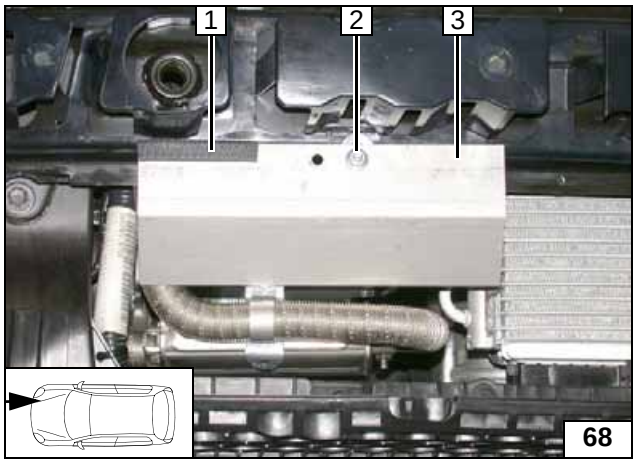
1 Combustion air pipe

Mounting combustion air pipe



1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Angle bracket
3 Cable tie [2x]

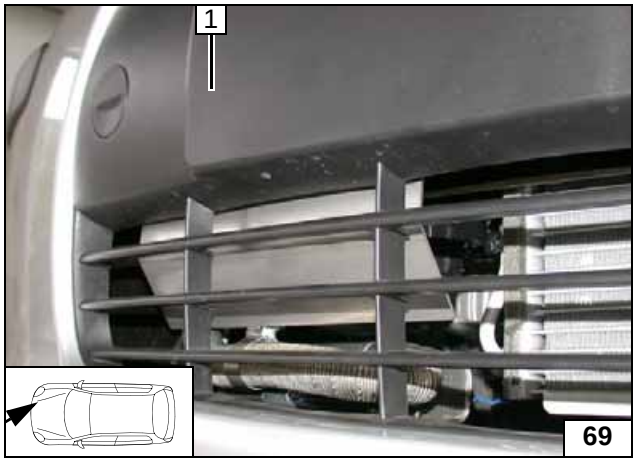
Mounting silencer



Final Work

1 100 mm edge protection
2 Flanged nut M6
3 Wind deflector plate

Installing wind deflector plate



Ensure sufficient distance from neighbouring components.

1 Bumper

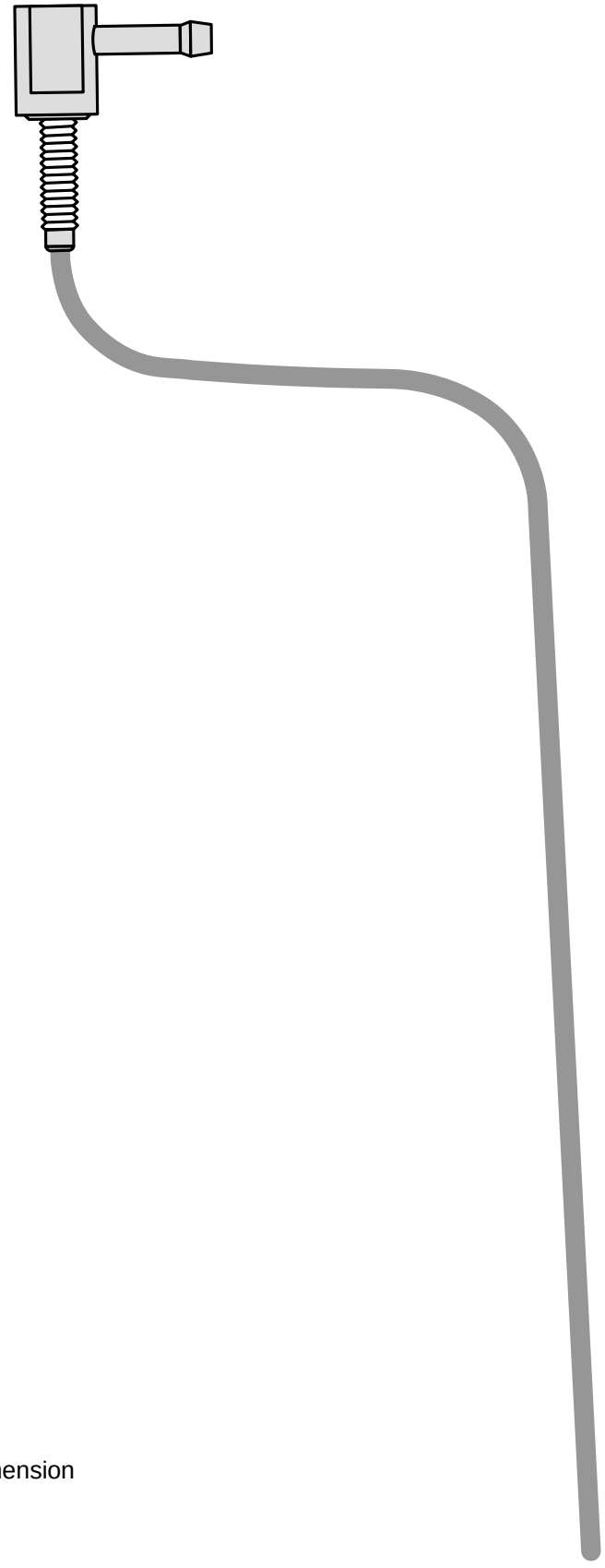
Installing bumper

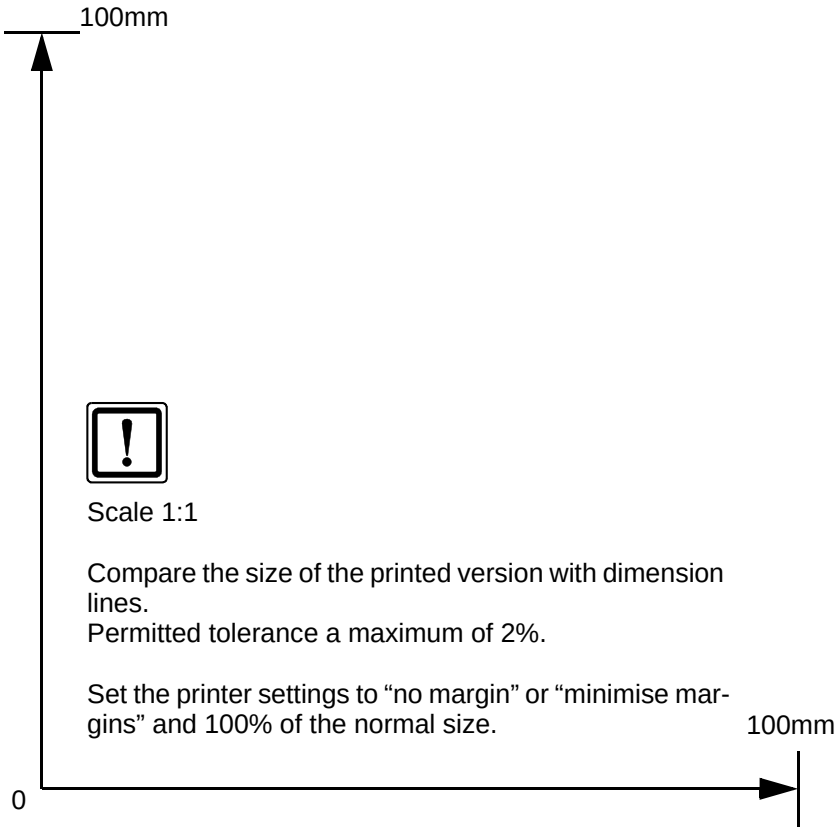
WARNING!
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Set digital timer, 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 refueling" signboard near the filler neck.**
- **See installation instructions for initial start-up and function check.**

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

Template for Fuel Standpipe



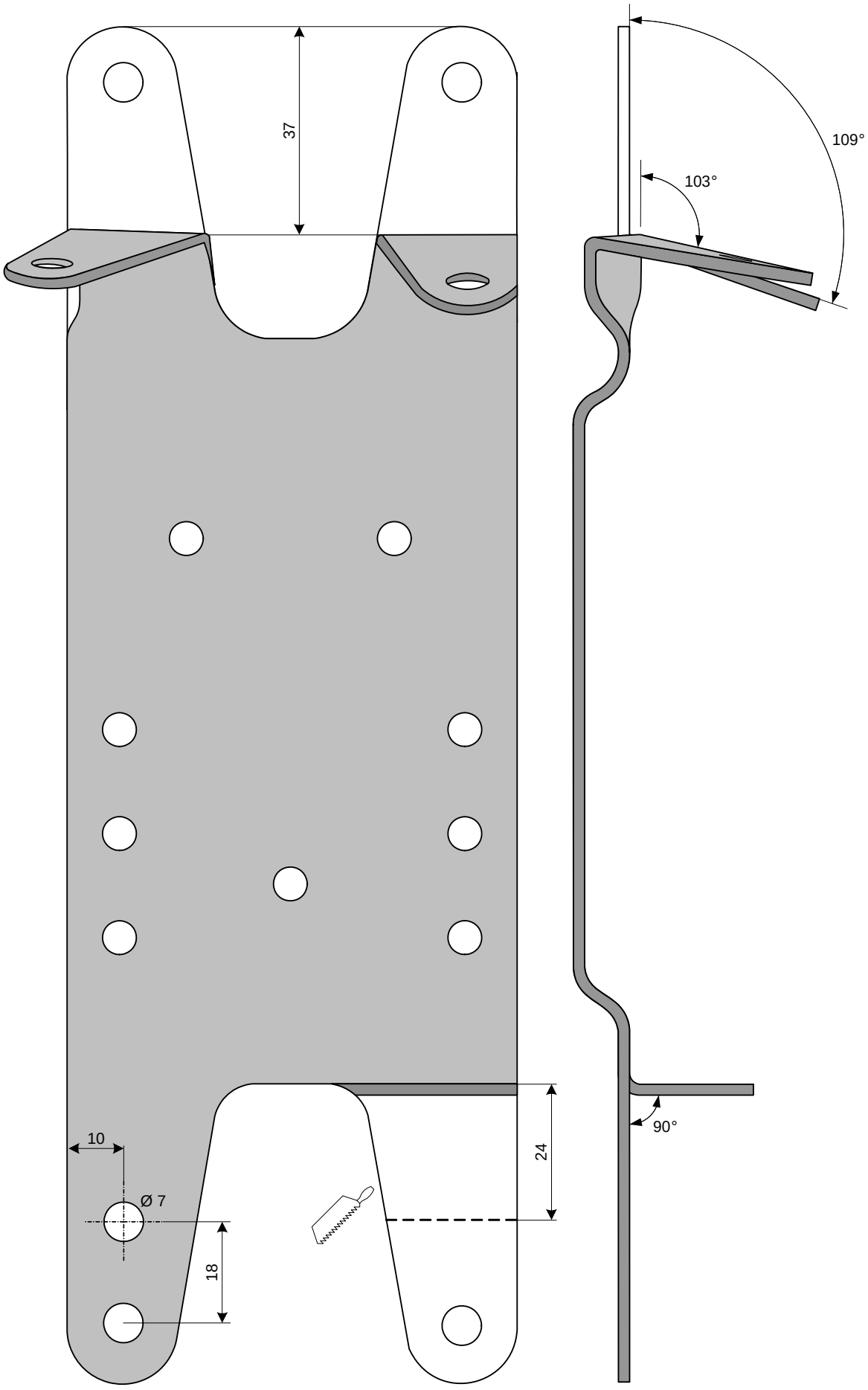


Scale 1:1

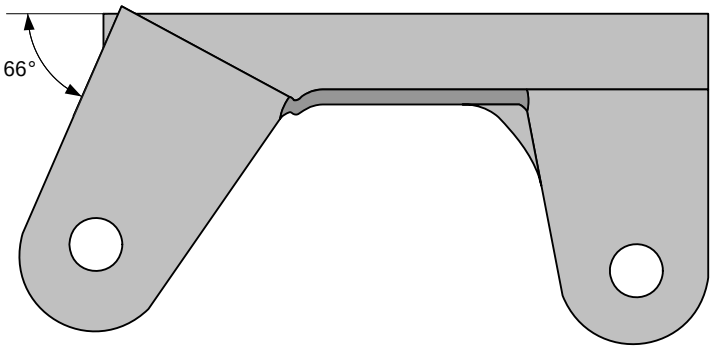
Compare the size of the printed version with dimension lines.
Permitted tolerance a maximum of 2%.

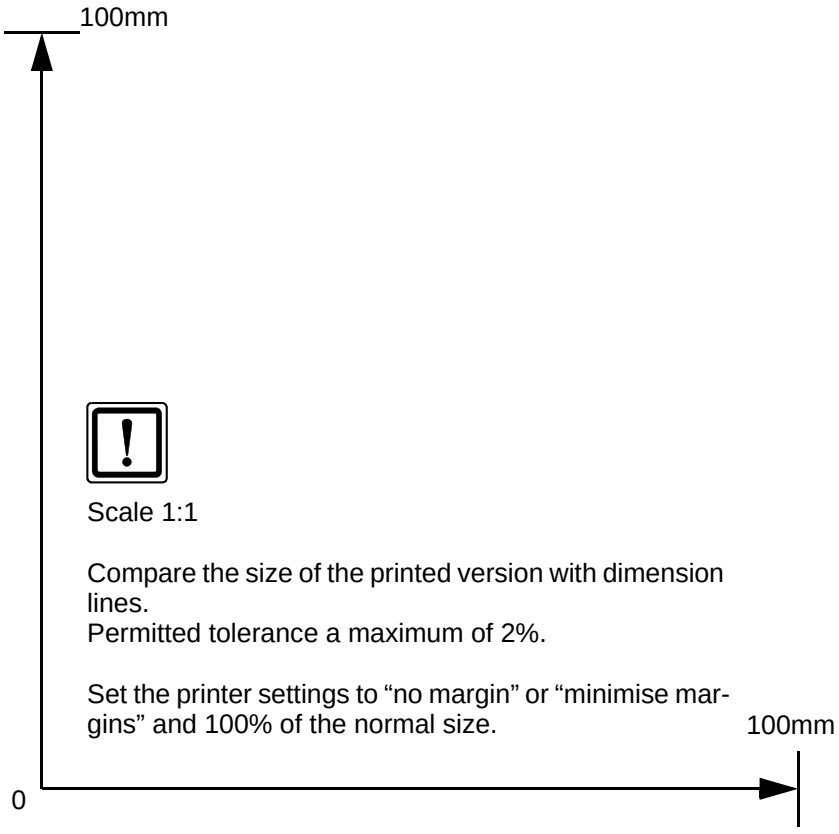
Set the printer settings to “no margin” or “minimise margins” and 100% of the normal size.

Front and Side View of Bracket Template



View of Bracket Template from Above





Operating Instructions for End Customer

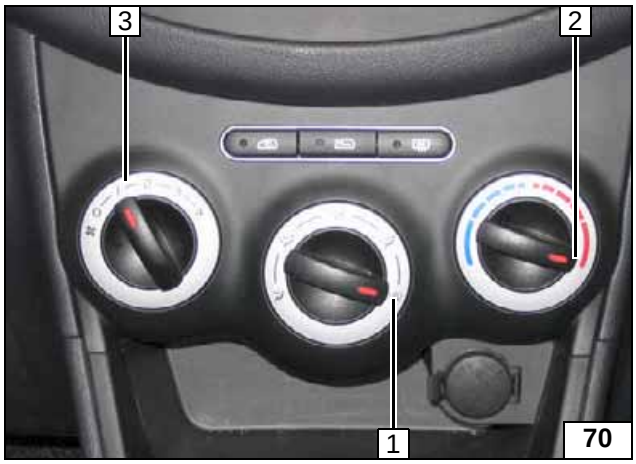
Please remove this page in case of manual air-conditioning and add it to the vehicle operating instructions.

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.

If the vehicle has passenger compartment monitoring this must be deactivated in addition to the vehicle settings for the heating operation.
Instructions for de-activation may be obtained from the operating instructions of the vehicle.

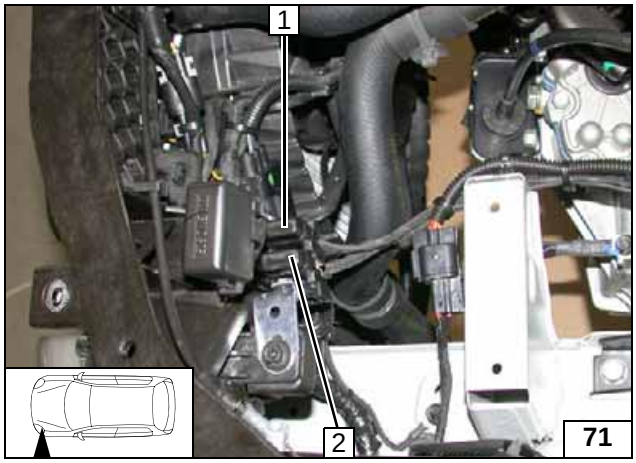
Before parking the vehicle, make the following settings:

A/C control panel



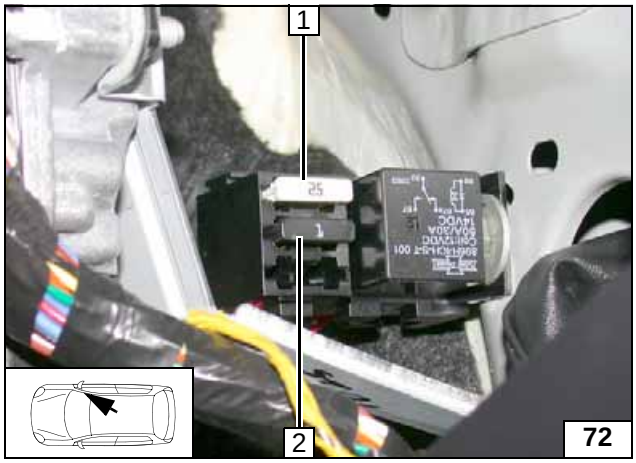
1 Air outlet to windscreen
2 Set temperature to "max."
3 Set fan to level "1", max. "2"

Fuses of engine compartment



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

Fuses of passenger compartment



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