Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Kia Picanto

Validity

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

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.2	Petrol	SG	63	1248	G4LA

SG = manual transmission

From model year 2015
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
Front fog lights
ISG Start-Stop system

Not verified: Automatic air-conditioning
Passenger compartment monitoring

Exclusion: FuelFix alteration

Total installation time: approx. 6.5 hours

Kia Picanto

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo in accordance with price list
- Installation kit for Kia Picanto 2015 Petrol: **1317553C**
- 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

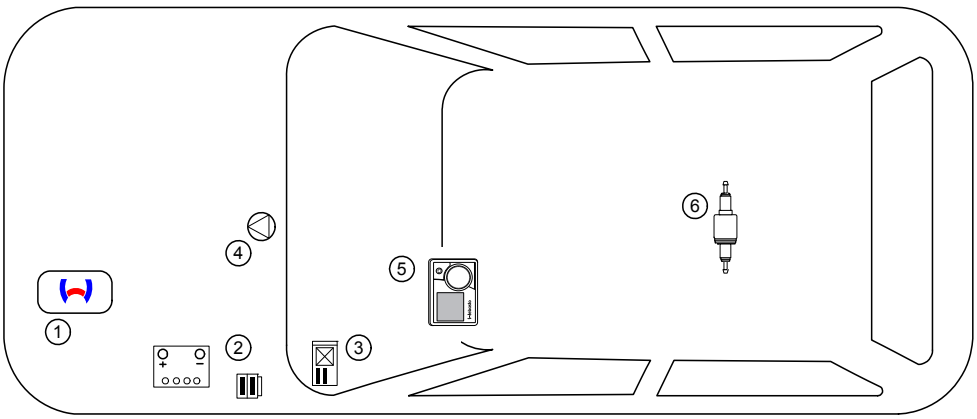
Installation instructions:

- 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 ThermoCall 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. Circulating pump
5. MultiControl CAR
6. 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 2015 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this ‘installation documentation’.

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

Technical Information

Special Tools
- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 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
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

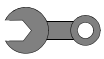
Dimensions
- All dimensions are in mm.

Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 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.

Mechanical System



Electrical System

Coolant Circuit

Combustion Air

Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

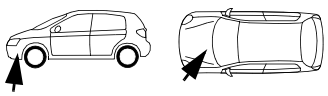
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

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

Reference to a special technical feature.

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



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

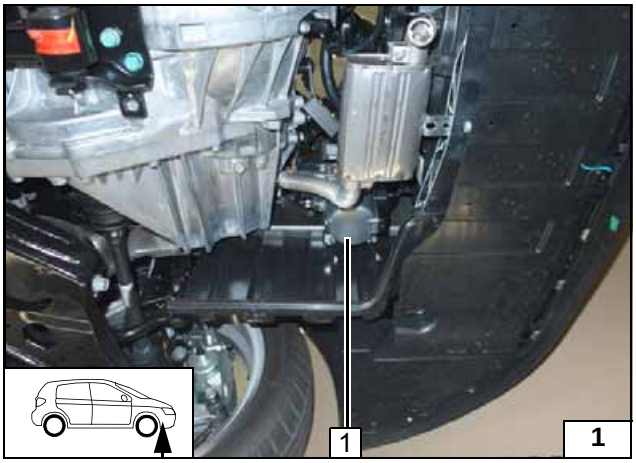
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and completely remove the battery.
- Drain the coolant according to the manufacturer's instructions.
- Remove the upper coolant hose of the radiator motor.
- Remove the air filter completely, together with the intake hose.
- Remove the windscreen wipers.
- Remove the coolant reservoir cap.
- Remove the windscreen wiper motor.
- Remove the coolant reservoir.
- Remove the heat exchanger outlet hose on the heat exchanger.
- Remove the engine control unit.
- Loosen the right wheel well trim.
- Remove the lower bumper trim.
- Remove the left underride protection.
- 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 appropriate place in the engine compartment.



Heater Installation Location

1 Heater

Installation location

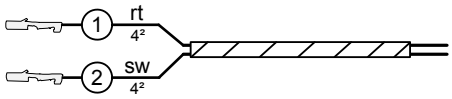
Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

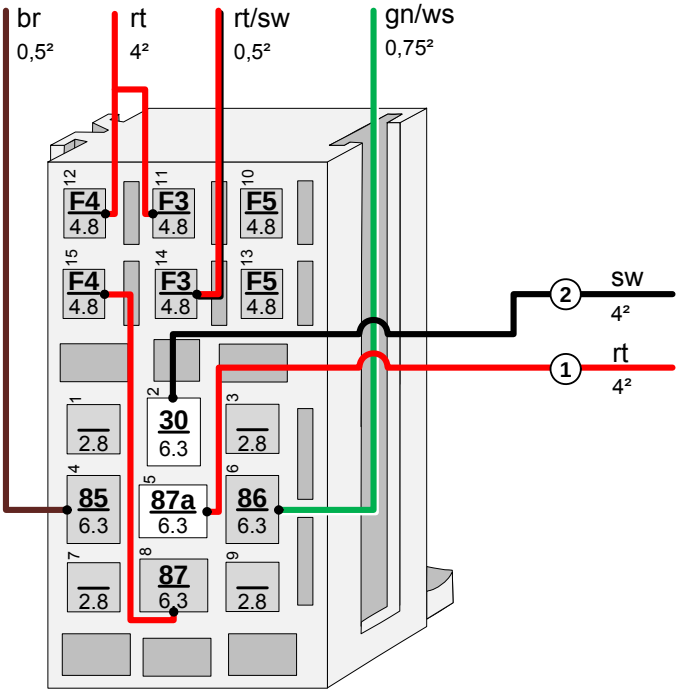
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness

Preparing wires



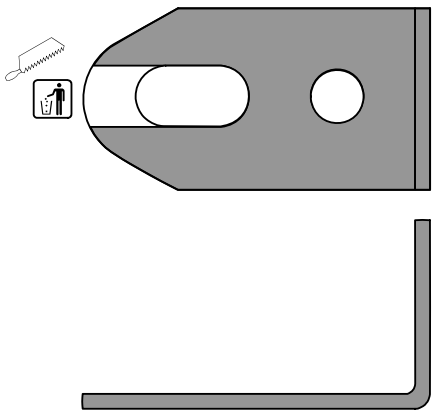
2

Connecting wires to passenger compartment relay and fuse holder



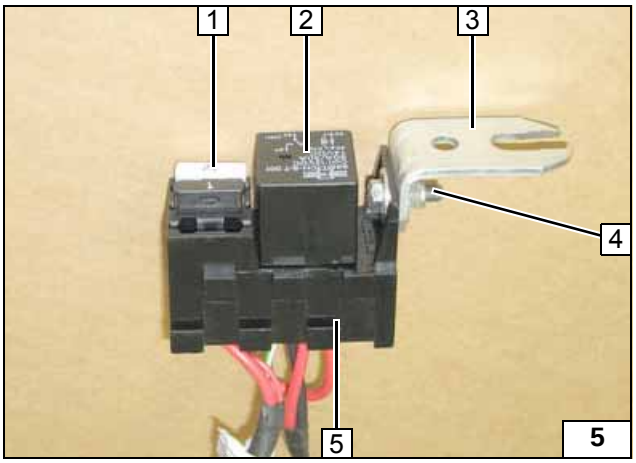
3

Cutting off angle bracket



4

Premounting passenger compartment relay and fuse holder

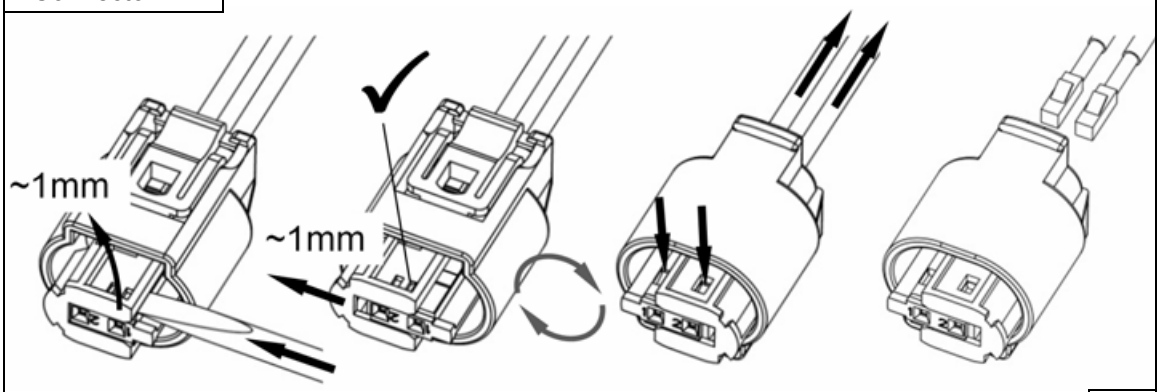


5

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

Dismantling metering pump connector

Connector X7



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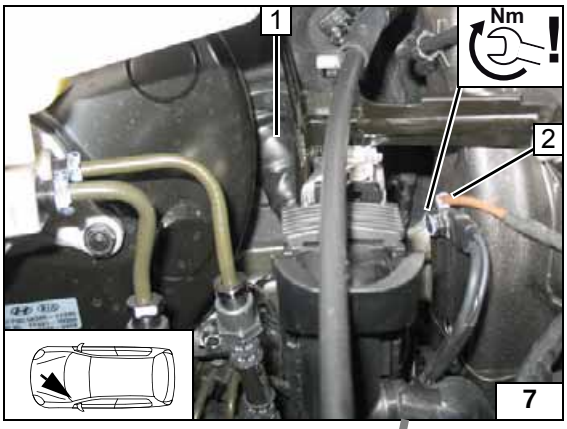
Electrical System

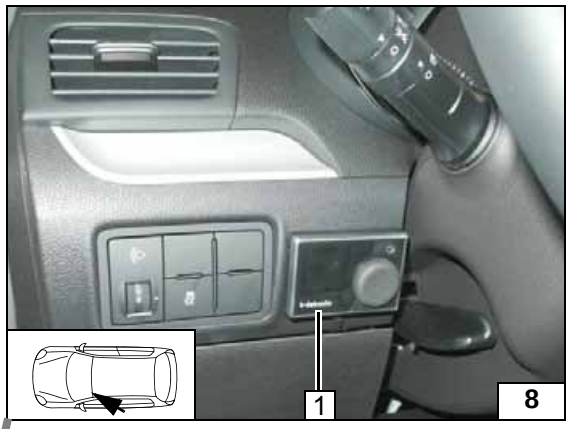
Wiring harness pass through, earth wire

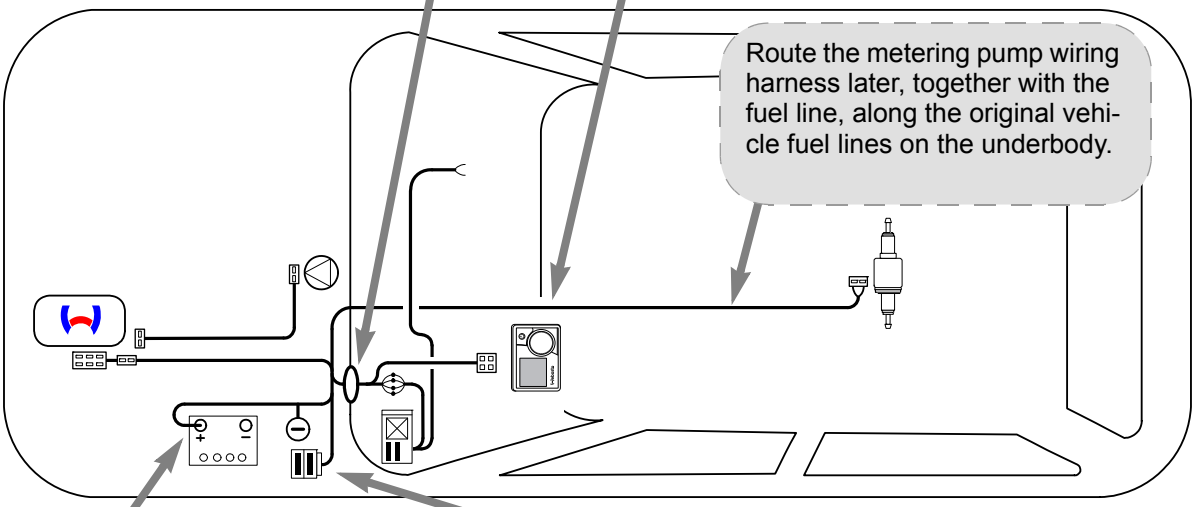
1 Protective rubber plug
2 Earth wire on original vehicle earth support point



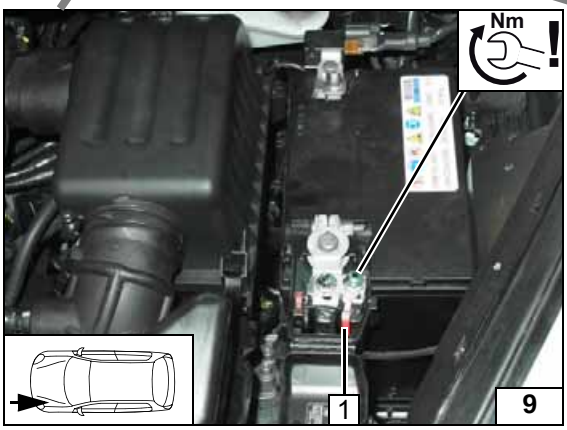
MultiControl CAR

1 MultiControl CAR



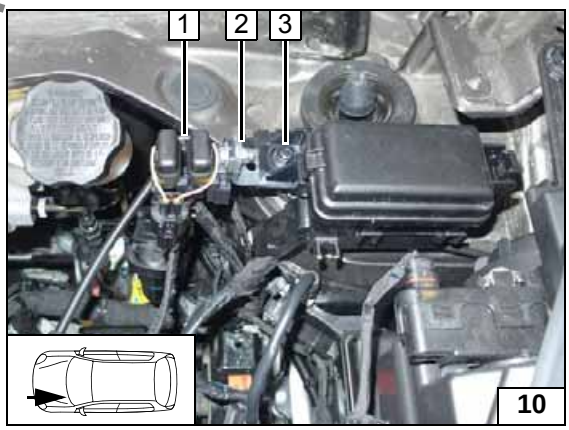


Wiring harness routing diagram



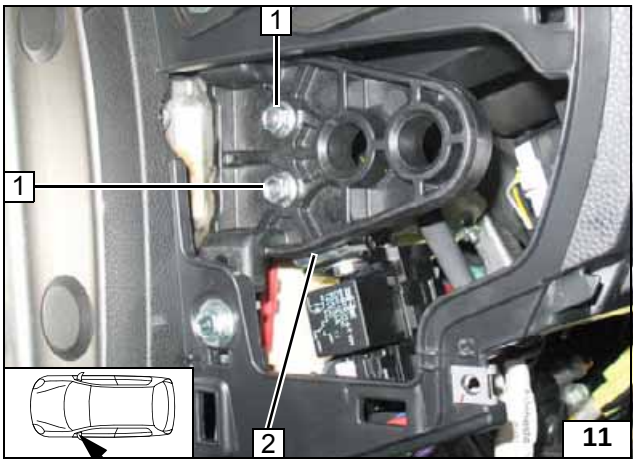
Positive wire

1 Positive wire on positive battery terminal



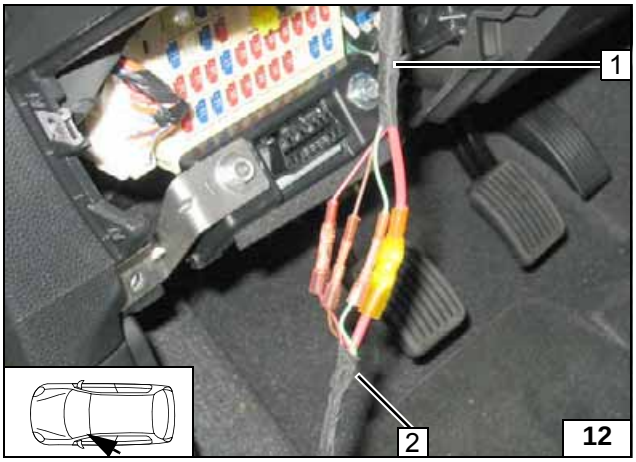
Engine compartment fuse holder

3 Original vehicle nut
2 Angle bracket, M5x16 bolt, washer [2x], retaining plate of fuse holder, nut
3 Fuses F1-2



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.

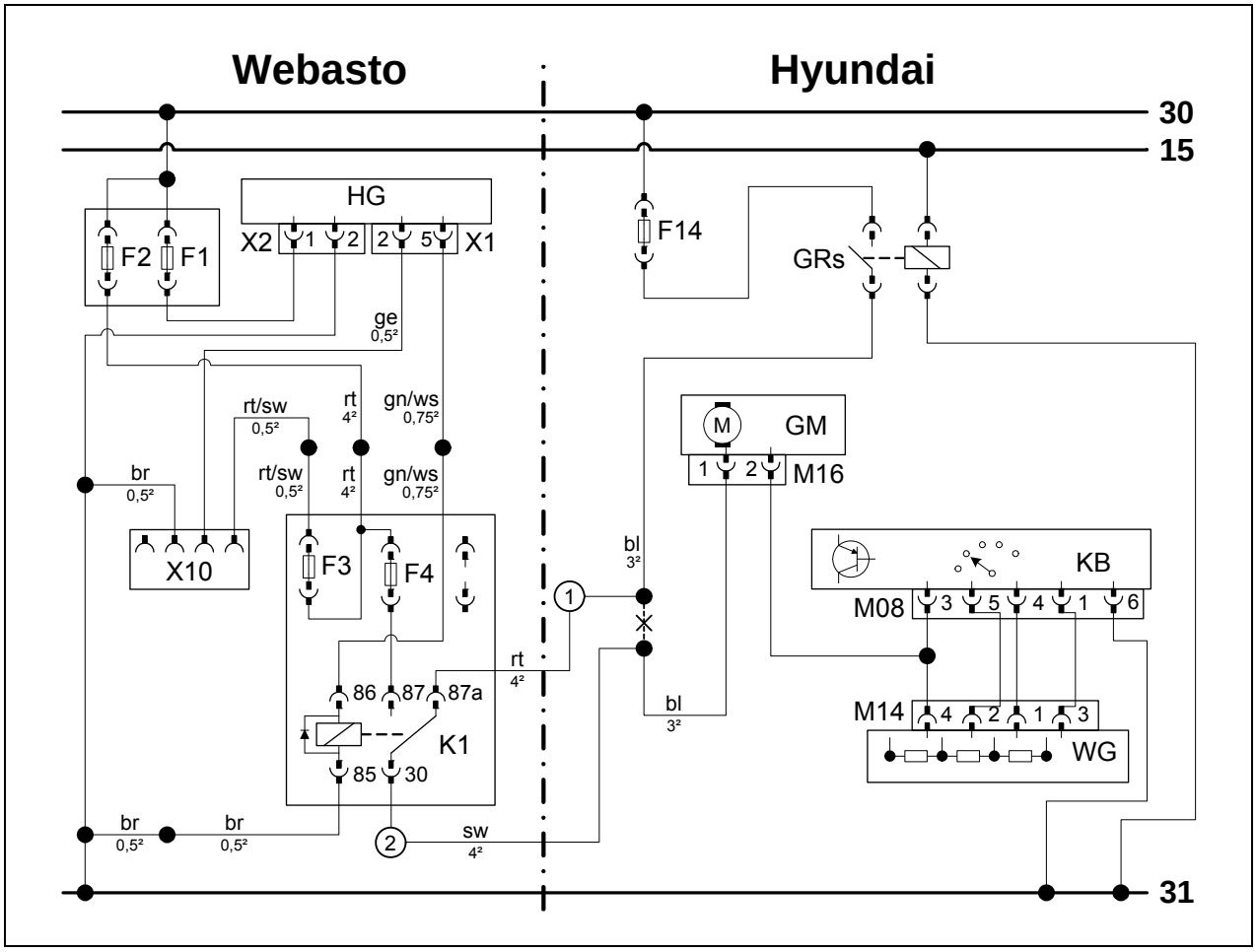
Installing passenger compartment relay and fuse holder



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

Connecting same colour wires of wiring harnesses

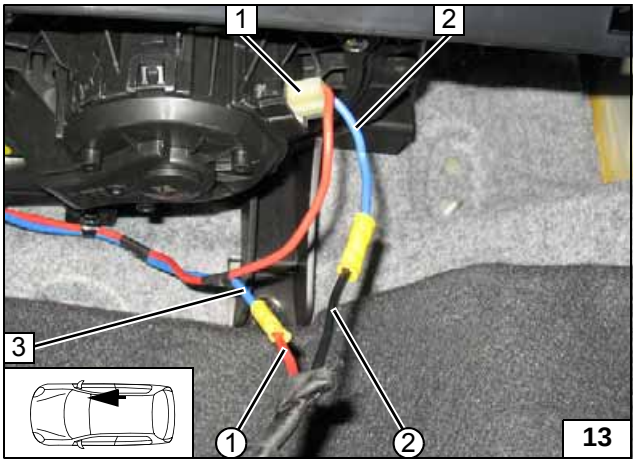
Manual Air-Conditioning Fan Controller



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
F2	30A fuse	KB	A/C control panel	bl	blue
X10	4-pin connector of heater control	M08	Connector of KB	ws	white
		WG	Resistor group	br	brown
F3	1A fuse	M14	Connector of WG		
F4	25A fuse			**X**	Cutting point
K1	Fan relay			Wiring colours may vary.	

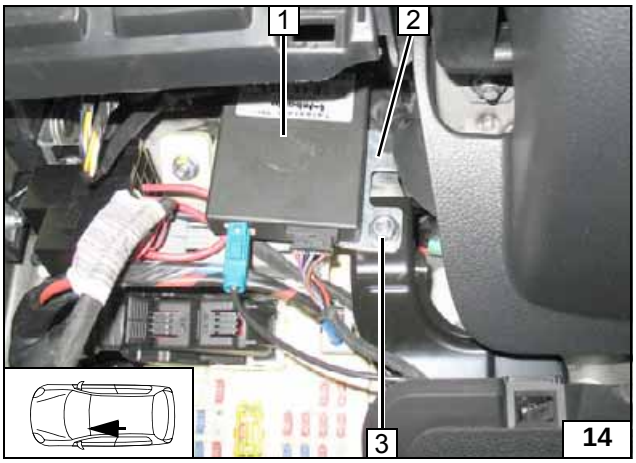
Legend



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

2 Blue (bl) wire from connector M16 from GM
3 Blue (bl) wire of GRs
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

Connecting fan motor

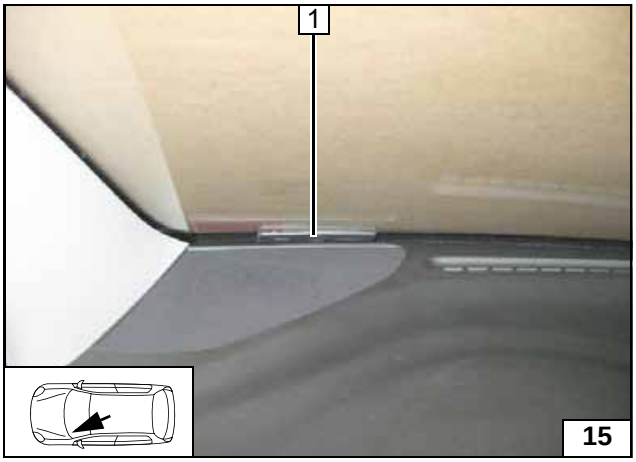


Remote Option (Telestart)

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

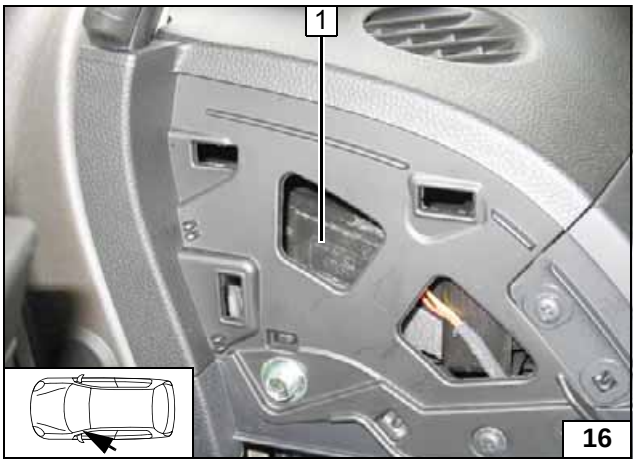
1 Receiver
3 Original vehicle stud bolt, original vehicle flanged nut

Installing receiver



1 Aerial

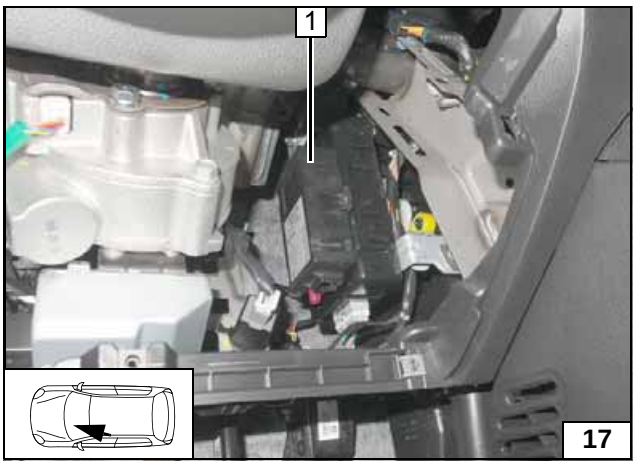
Installing aerial



Temperature sensor T100 HTM

Fasten temperature sensor **1** using double-sided adhesive tape.

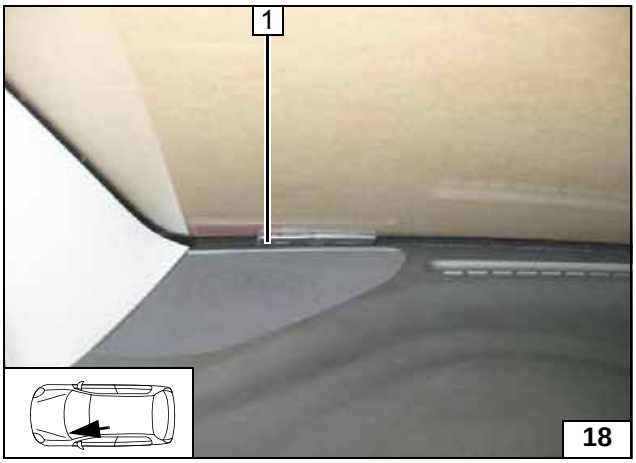
Installing temperature sensor



ThermoCall Option

Fasten receiver **1** with double-sided adhesive tape.

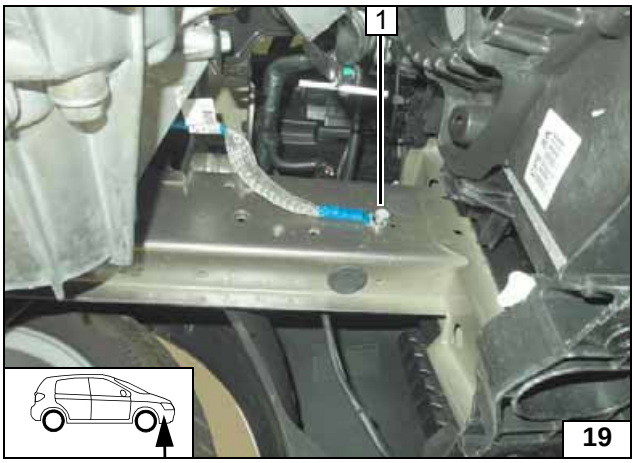
Installing receiver



1 Aerial (optional)

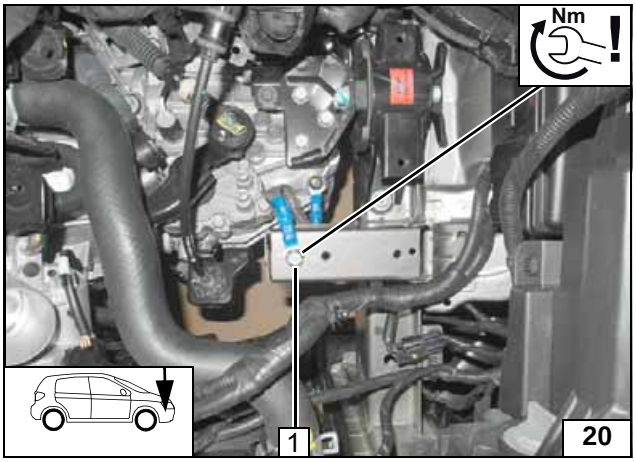
Installing aerial

Preparing Installation Location



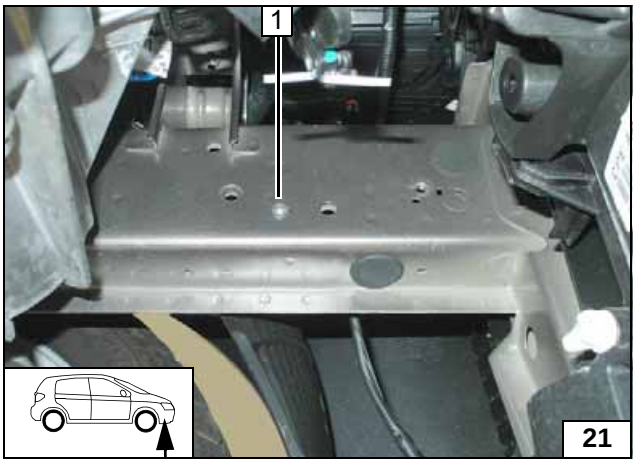
1 Remove original vehicle bolt (will be reused)

Moving earth wire



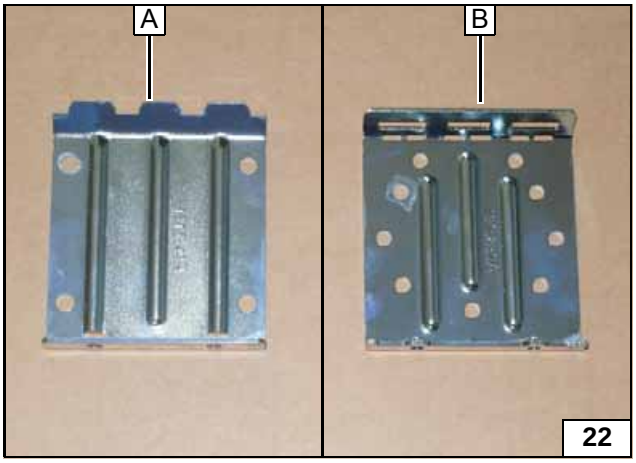
1 Original vehicle threaded hole, earth wire, original vehicle bolt (will be re-used).

Moving earth wire



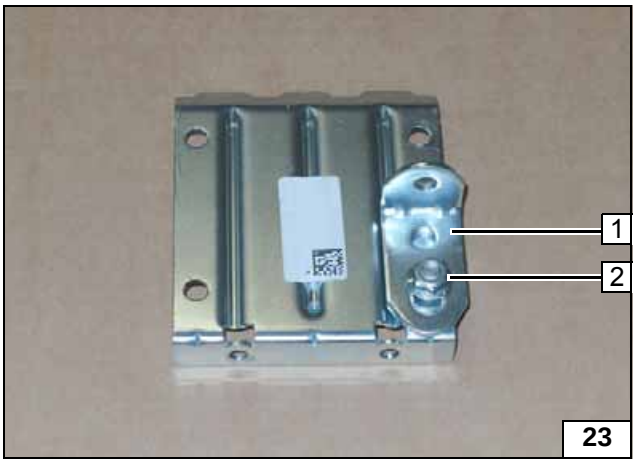
1 Drill out oblong hole to 9.1 mm dia.; rivet nut

Installing rivet nut



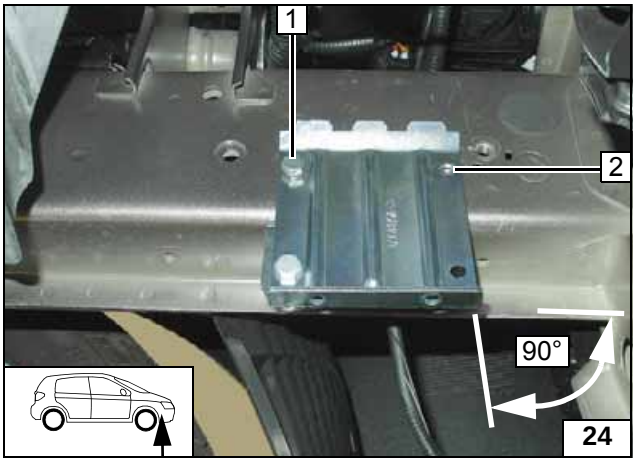
View of / assigning two-part bracket

Premounting bracket A



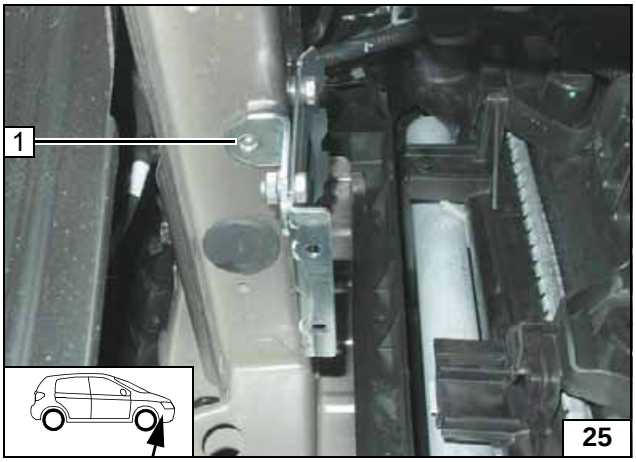
1 Angle bracket
2 Loosely mount M6x12 bolt, flanged nut

Installing bracket A loosely, copying hole pattern



1 M6x20 bolt
2 Hole pattern

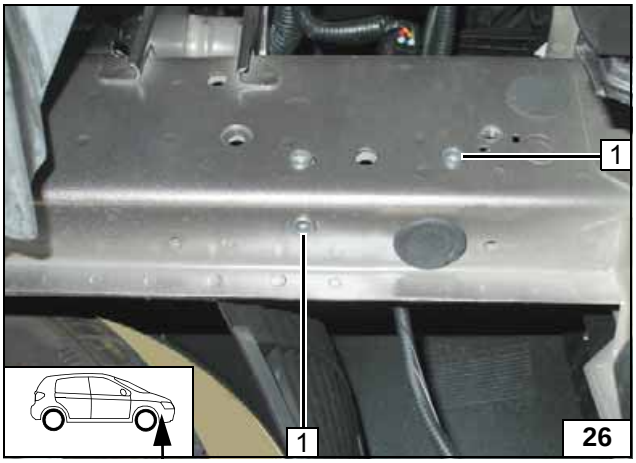
Copying hole pattern



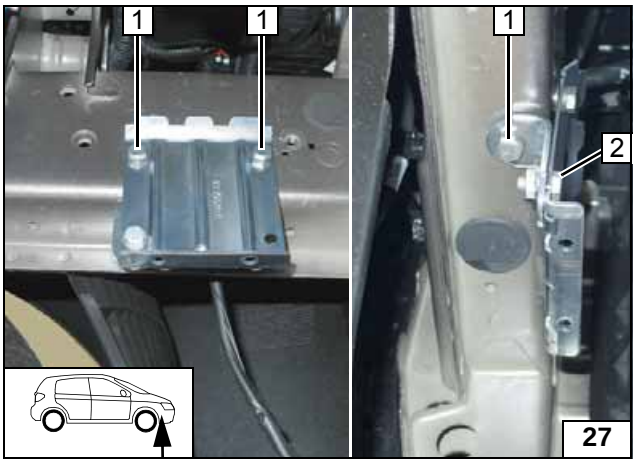
1 Hole pattern

Installing rivet nut

Remove bracket.



1 9.1mm dia. hole; rivet nut [2x]



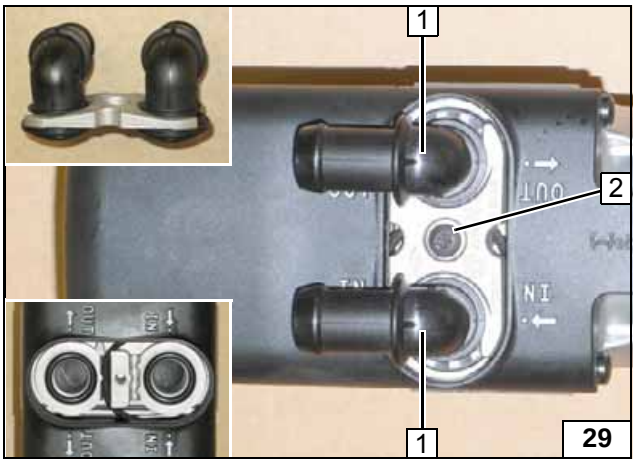
1 M6x20 bolt, spring lockwasher [3x]
2 Tighten screw connection

Installing bracket A

Pull fuel line, wiring harness of metering pump and wiring harness of heater in 17mm dia. corrugated tube and route to installation location of heater.

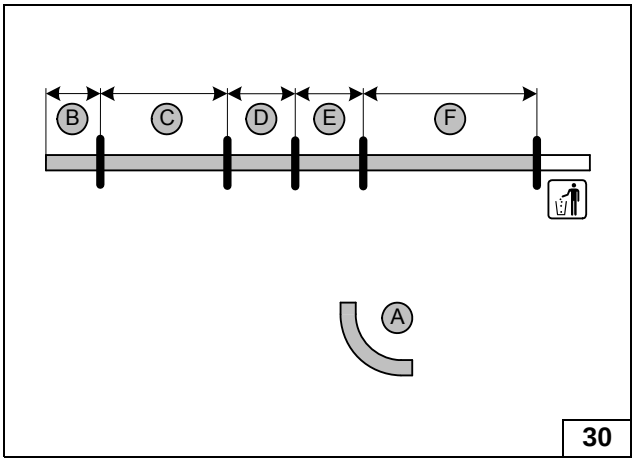
Routing in engine compartment

Preparing Heater



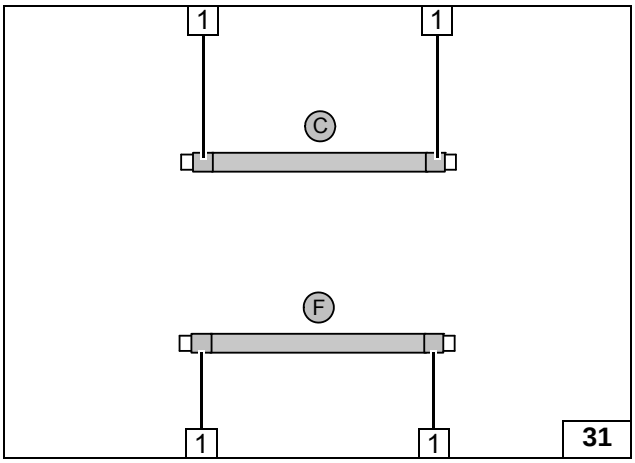
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



A = 90°, 18mm dia.
B = 60
C = 690
D = 160
E = 160
F = 740

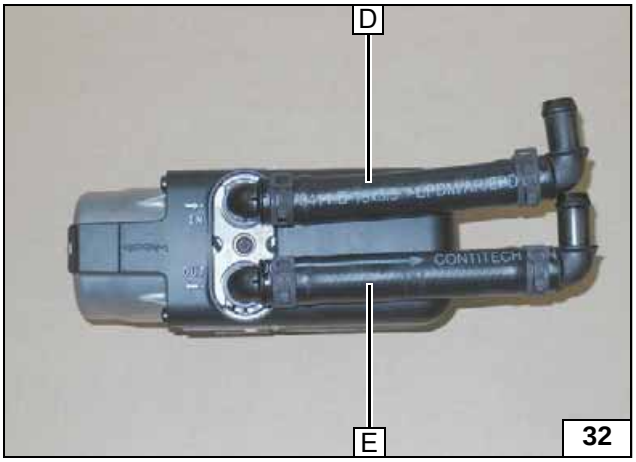
Cutting hoses to length



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

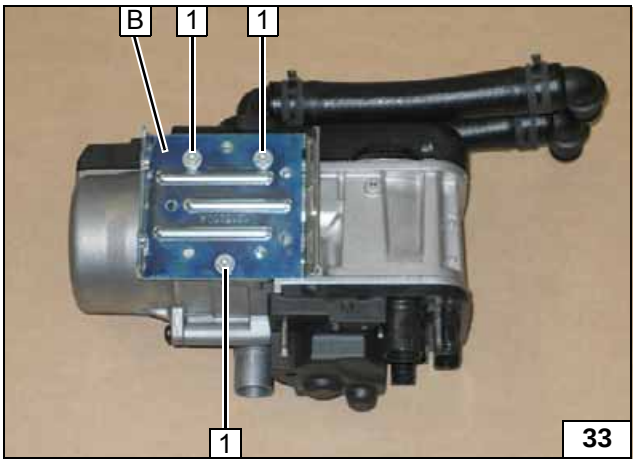
1 50 mm long heat shrink plastic tubing [4x]

Preparing hoses



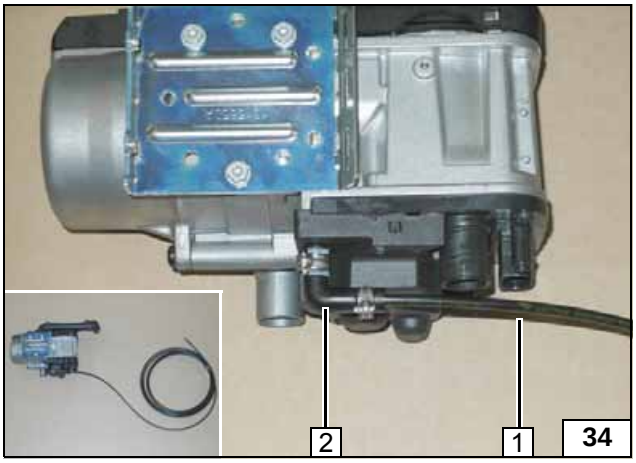
All spring clips = 25 mm dia.
All connecting pipes = 90°, 18x18 mm dia.

Premounting hoses



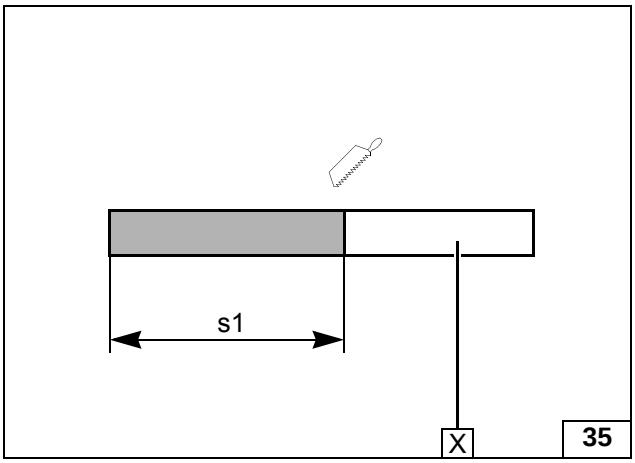
1 5x13 self-tapping bolt [3x]

Installing bracket B



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

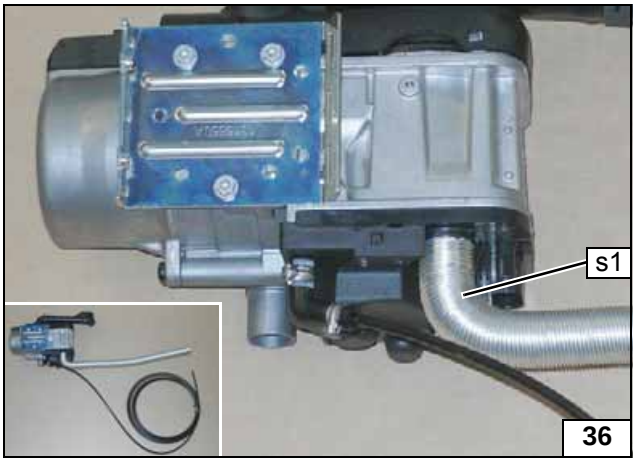
Premounting heater



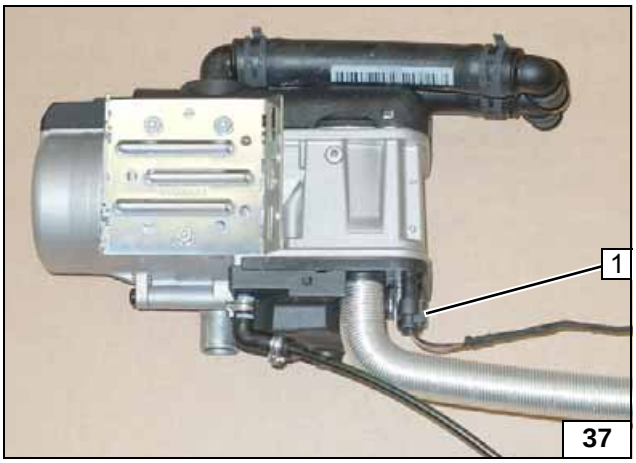
s1 = 440

X =

Cutting combustion air pipe to length

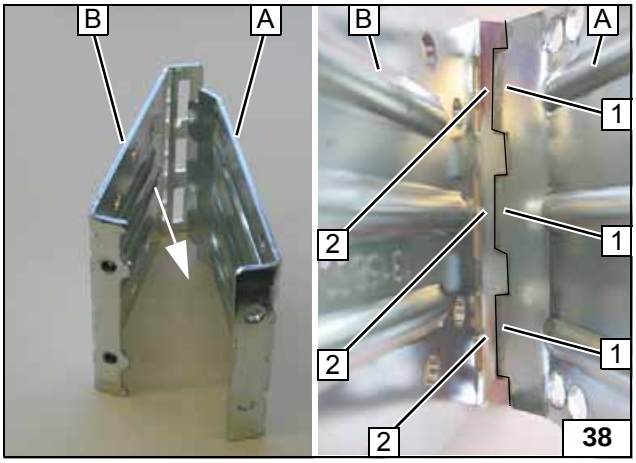


Premounting combustion air pipe s1



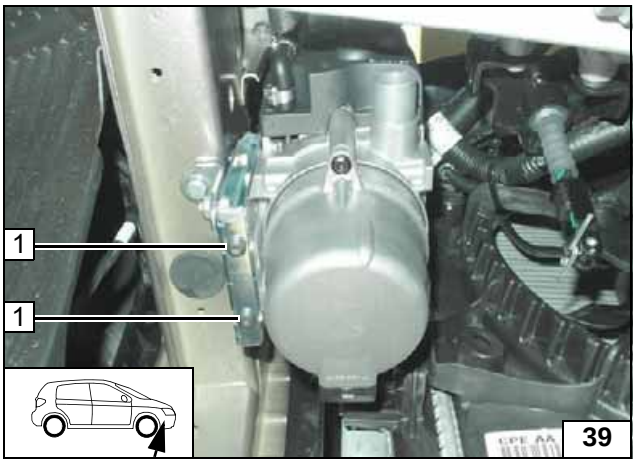
1 Connector of circulating pump wiring harness

Premounting heater



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

View of bracket A and B latching

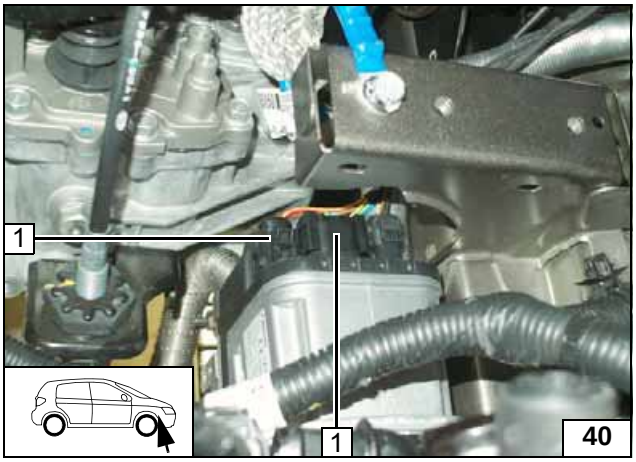


Installing Heater

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

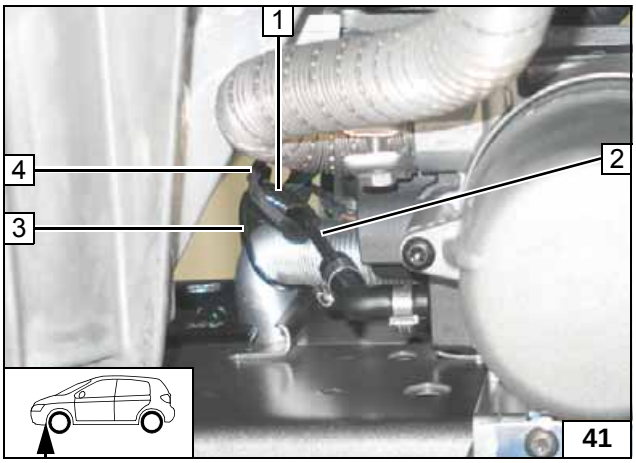
1 5x12 Torx screw [2x]

Installing heater



1 Heater wiring harness connector [2x]

Installing wiring harness



Fuel line **2** and wiring harness of circulating pump **4** in corrugated tube **1**.

3 Cable tie

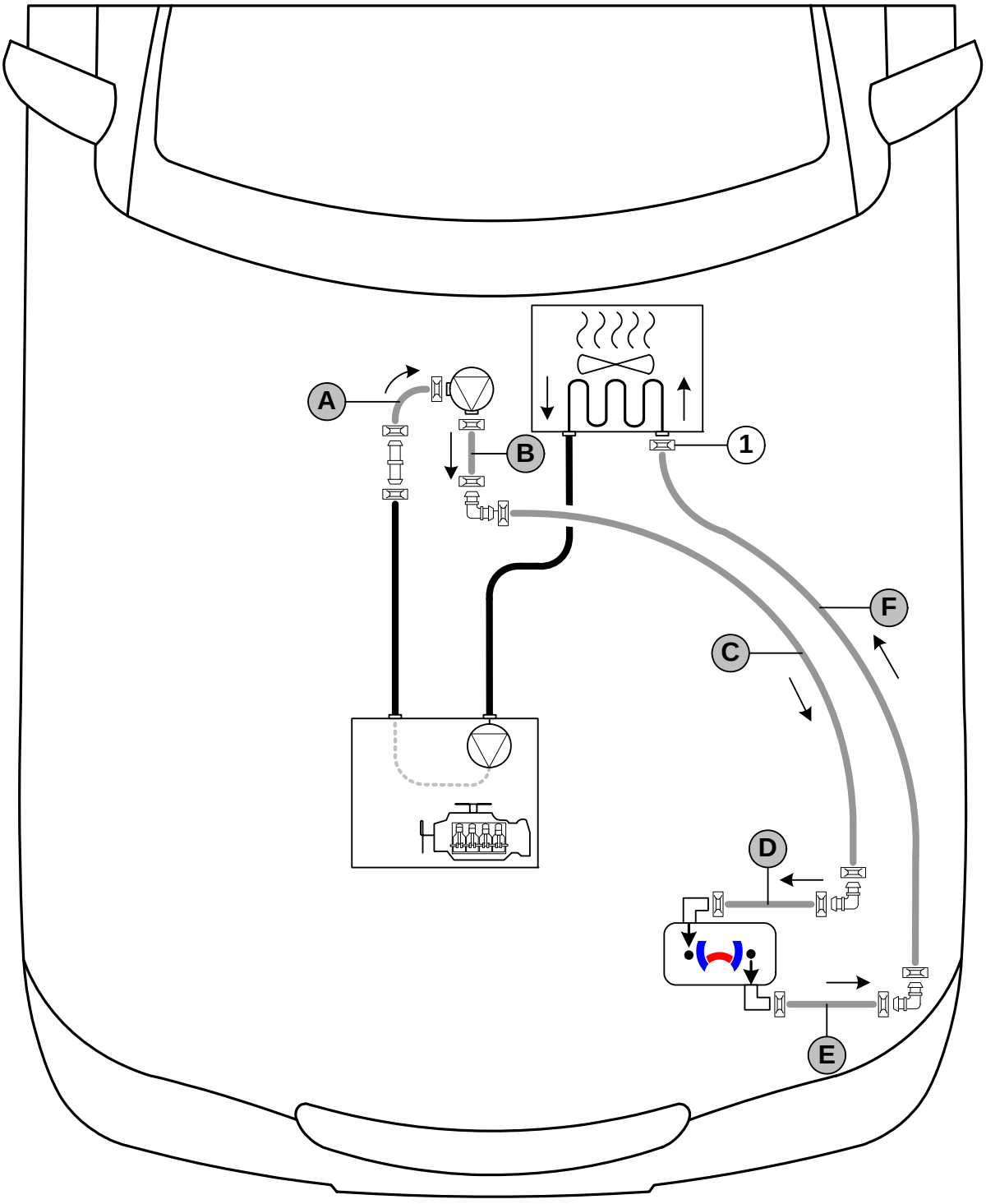
Connecting fuel line

Coolant Circuit

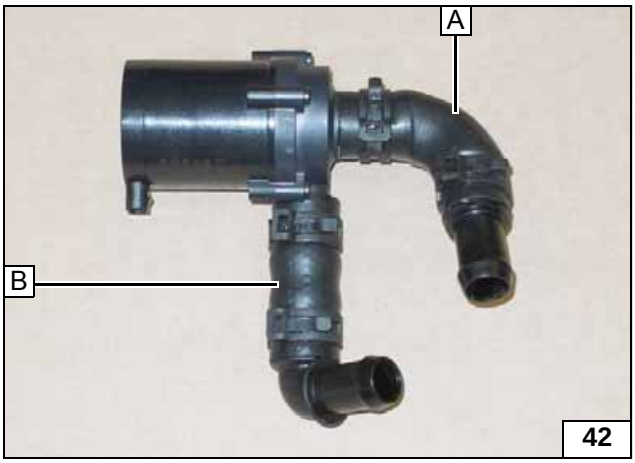
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

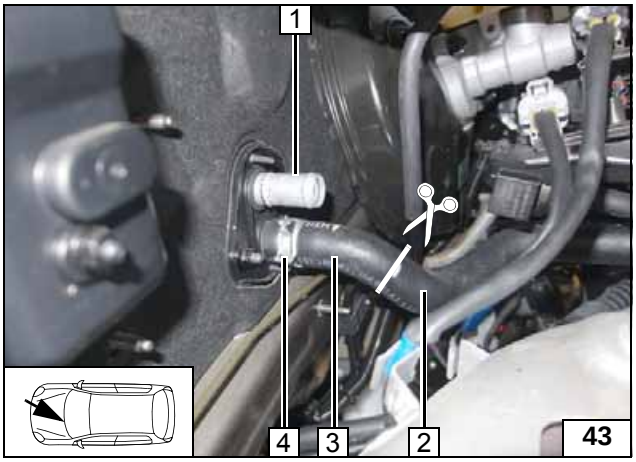
Hose routing diagram



All spring clips = 25mm dia. All connecting pipes and = 18x18mm dia.
1 = Original vehicle spring clip .



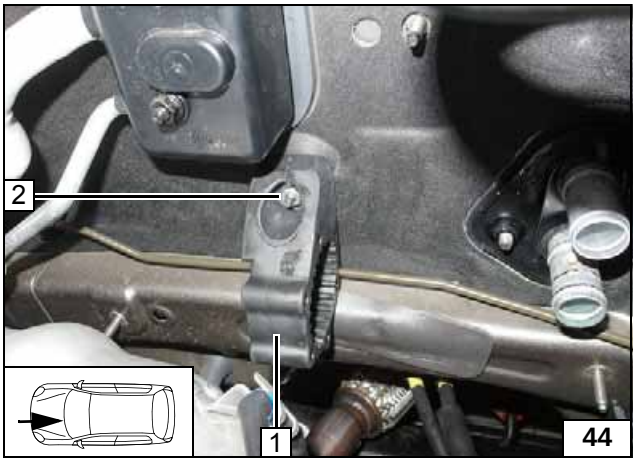
Premounting circulating pump



Cut hose of engine outlet / heat exchanger inlet at the marking. Remove and discard hose section of heat exchanger inlet **3**, spring clip **4** will be reused.

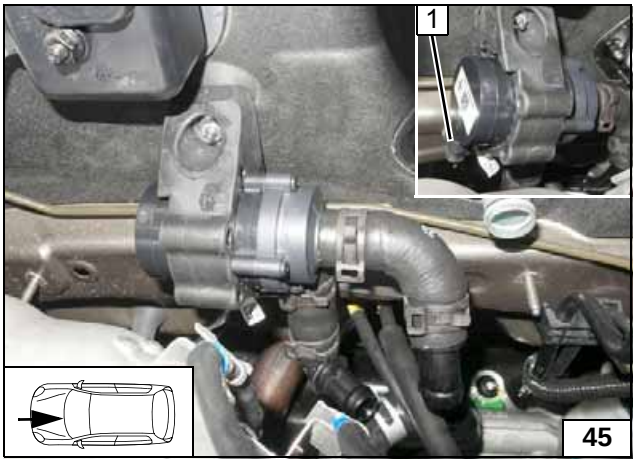
1 Hose on heat exchanger outlet removed
2 Engine outlet hose section

Cutting point



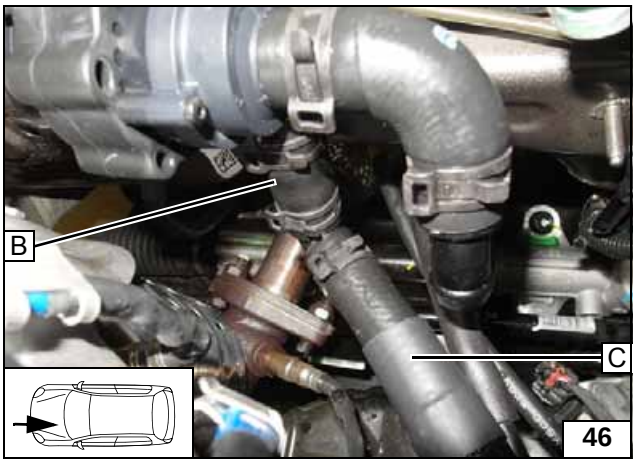
1 Circulating pump mount
2 M6 flanged nut, original vehicle stud bolt

Installing circulating pump mount

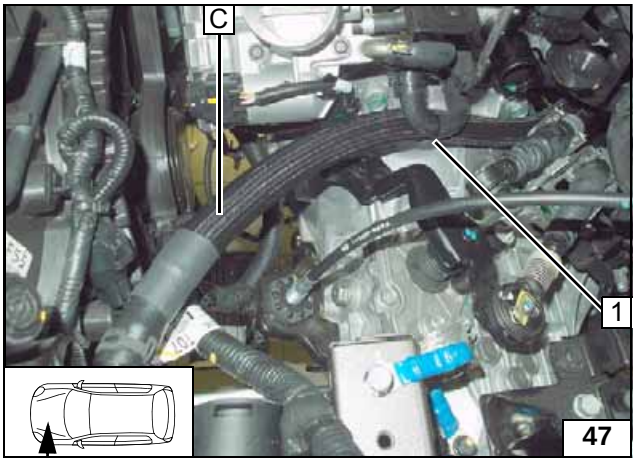


1 Connector of circulating pump wiring harness

Installing circulating pump

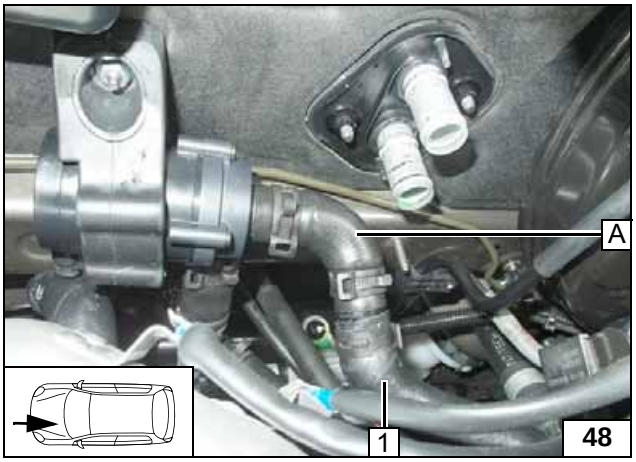


Connecting circulating pump



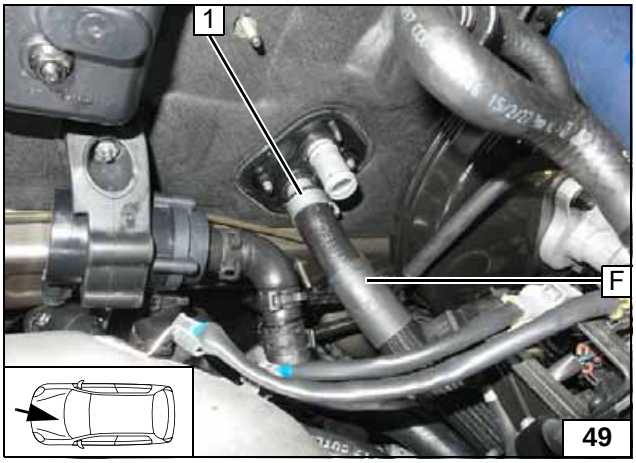
1 Cable tie

Routing in engine compartment



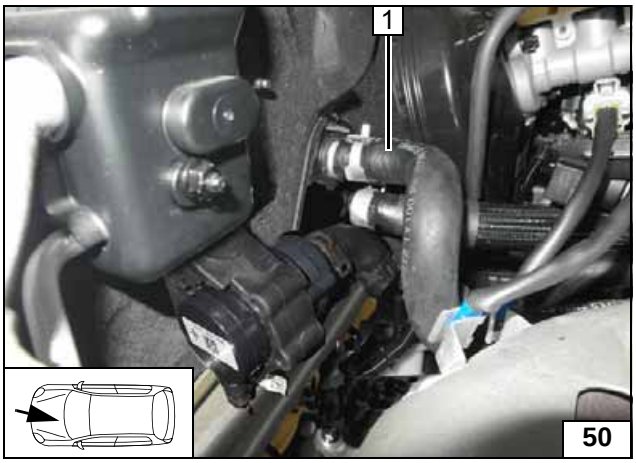
1 Engine outlet hose section

Connecting circulating pump



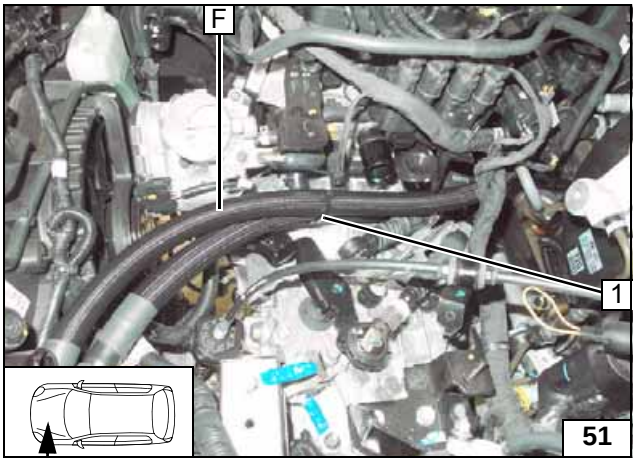
1 Original vehicle spring clip

Connecting heat exchanger inlet



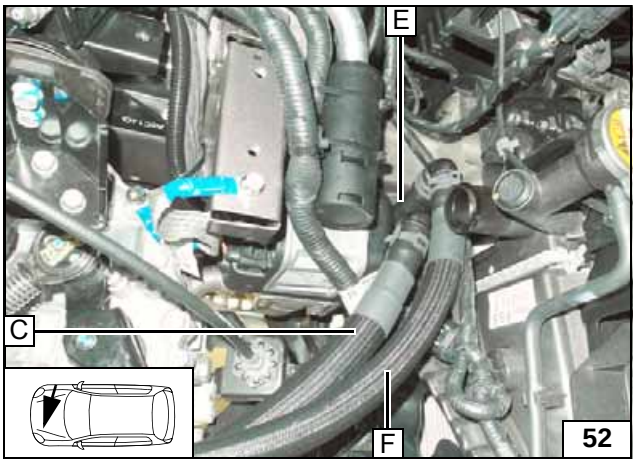
1 Reinstall original vehicle hose of heat exchanger outlet

Connecting heat exchanger outlet

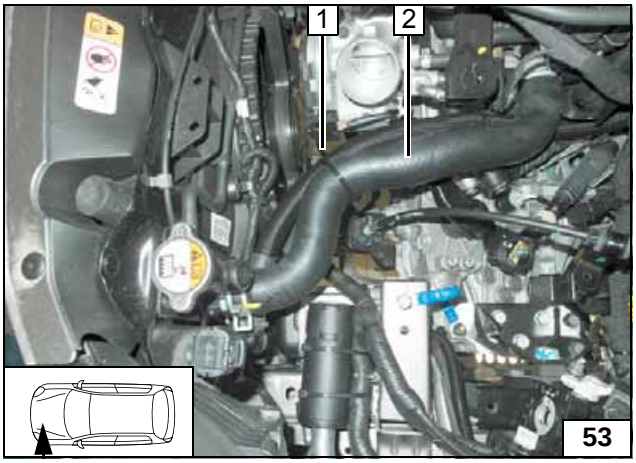


1 Cable tie

Routing in engine compartment

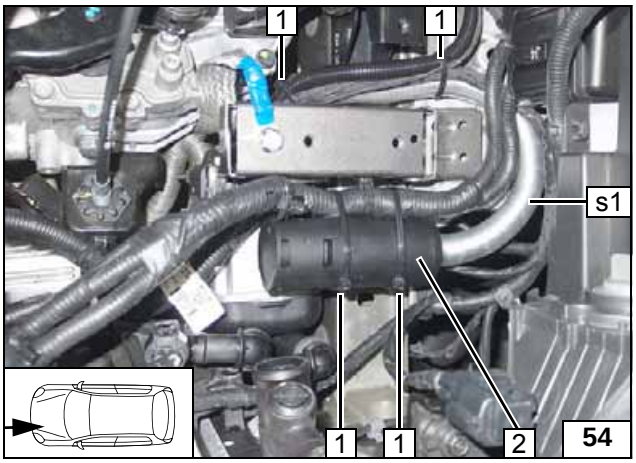


Connecting heater



1 Cable tie
2 Original vehicle coolant hose

Installing coolant hose



Combustion Air

1 Cable tie [4x]
2 Silencer

Installing silencer

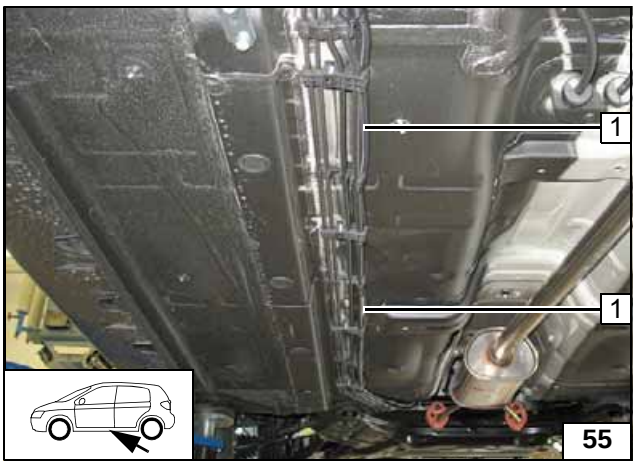
Fuel

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

Catch any fuel running off in an appropriate container.

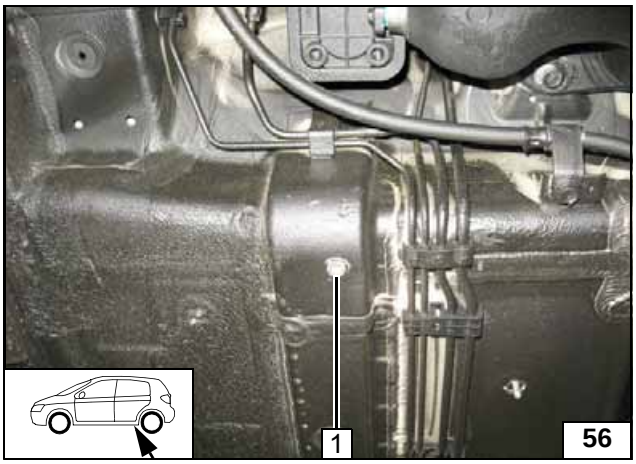
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



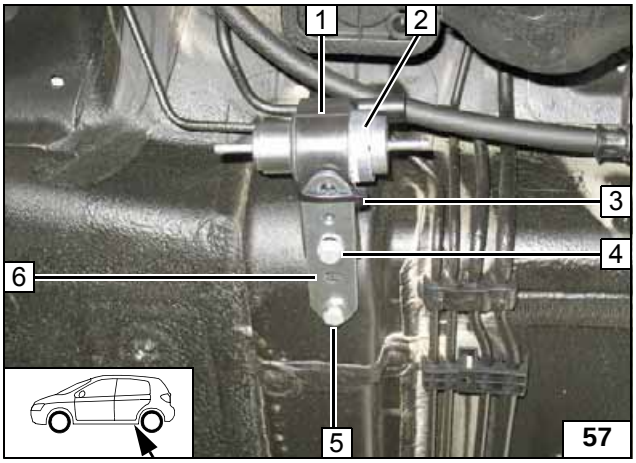
Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **1** to the firewall of the underbody and further to the installation location of the metering pump.

Routing lines



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

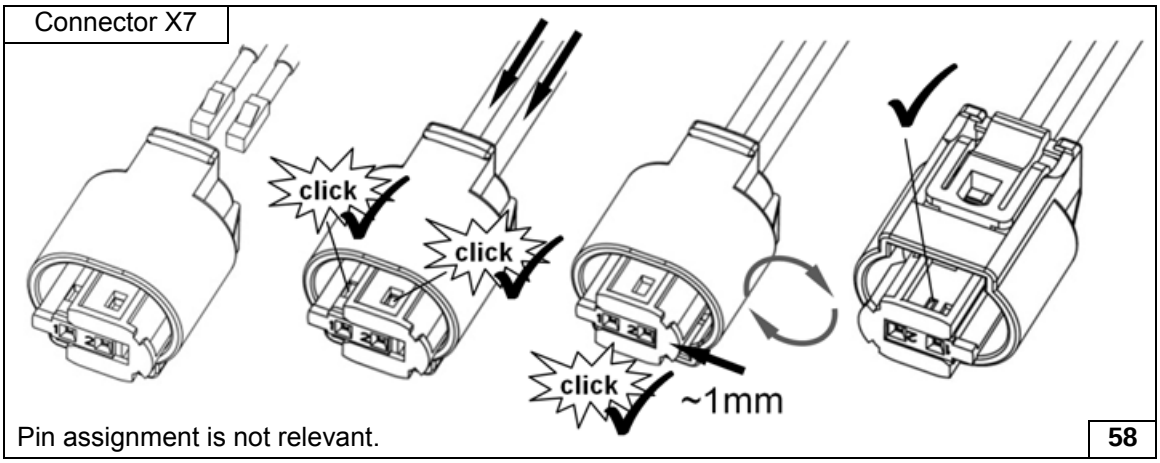
Installing rivet nut



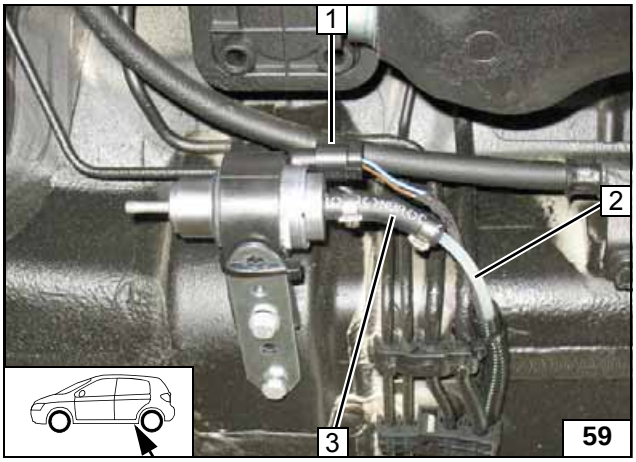
1 Metering pump mount
2 Metering pump
3 Cable tie
4 M6x25 bolt, flanged nut
5 M6x20 bolt, spring lockwasher
6 Perforated bracket

Installing metering pump

Completing metering pump connector

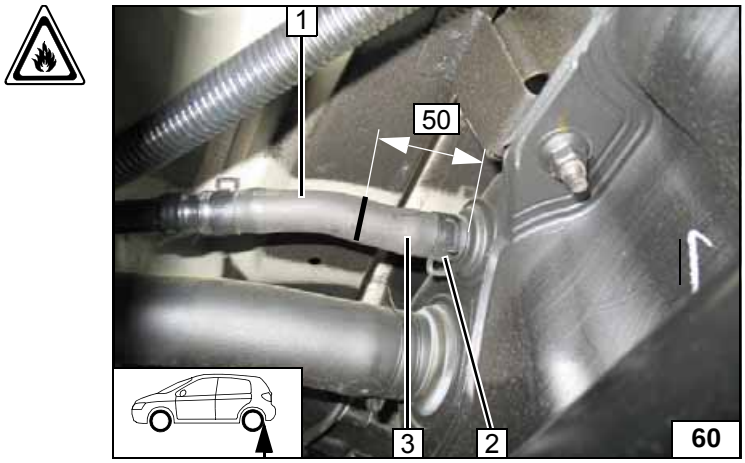


Connecting metering pump



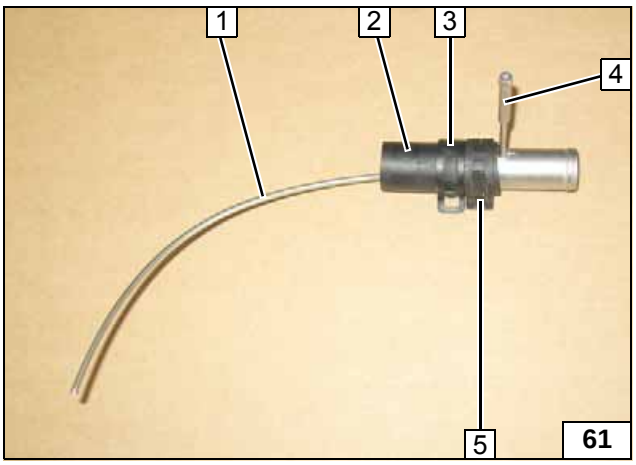
1 Metering pump wiring harness, connector X7 mounted
2 Fuel line of heater
3 Hose section, 10mm dia. clamp [2x]

Fuel extraction



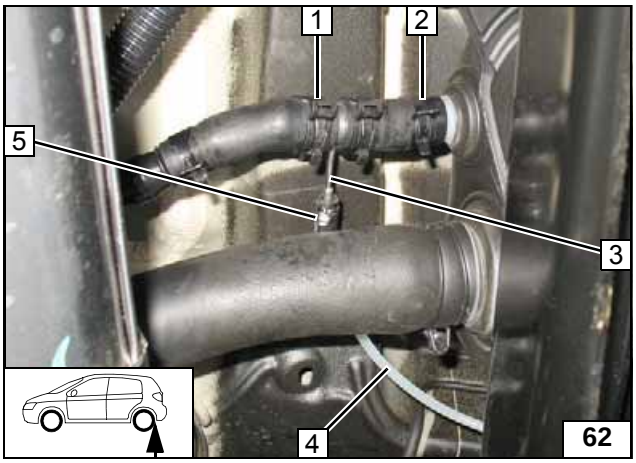
Separate fuel tank vent line **1** approx. 50mm before the fuel tank connection piece. Remove hose section **3**. Spring clip **2** will be reused.

Fuel extraction



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

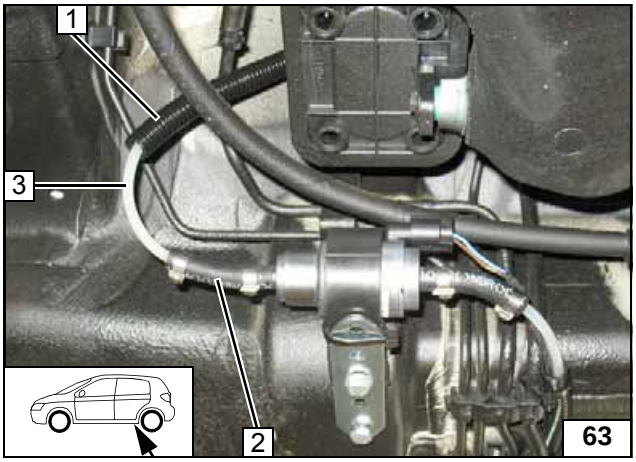
2 Hose section
3 Slide on original vehicle spring clip
5 25mm dia. spring clip



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]

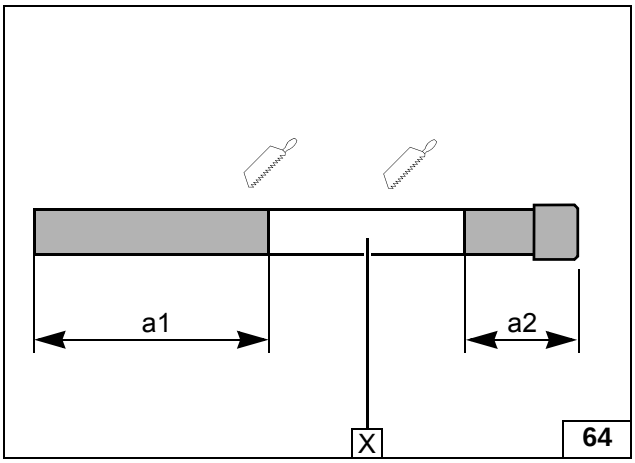
Installing fuel standpipe



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]

Connecting metering pump

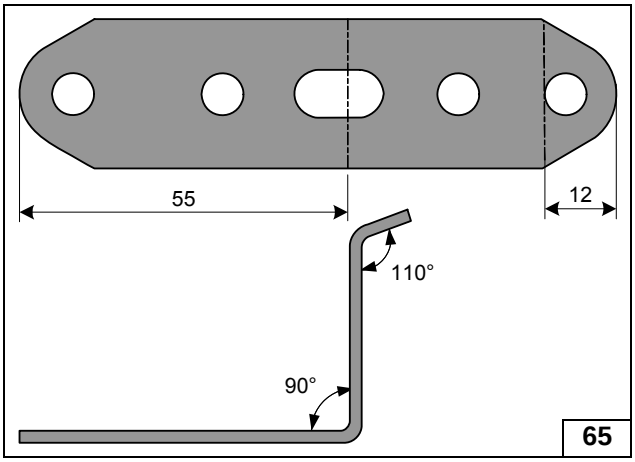


Exhaust Gas

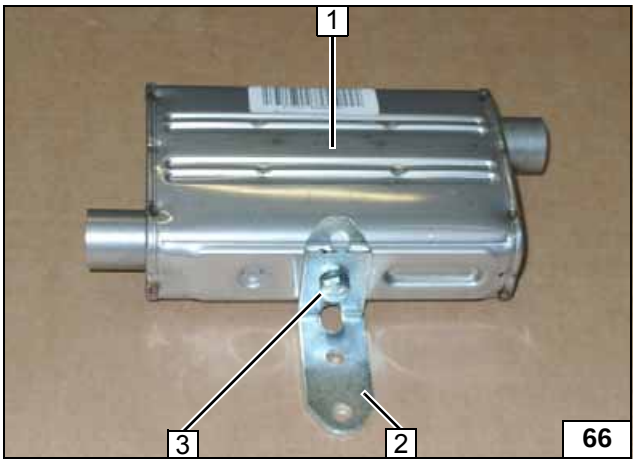
a1 = 300
a2 = 60

X =

Preparing exhaust pipe

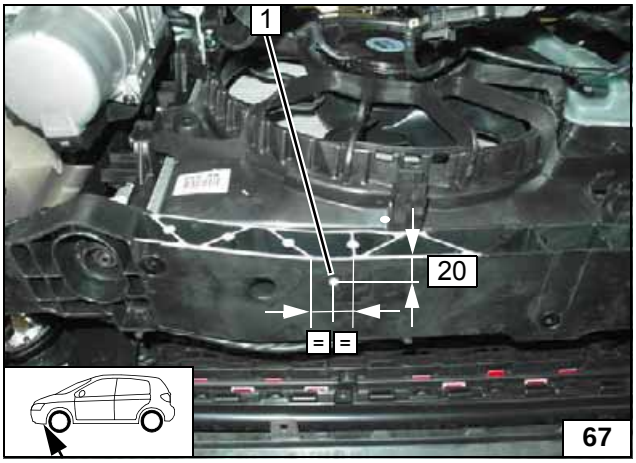


Preparing perforated bracket



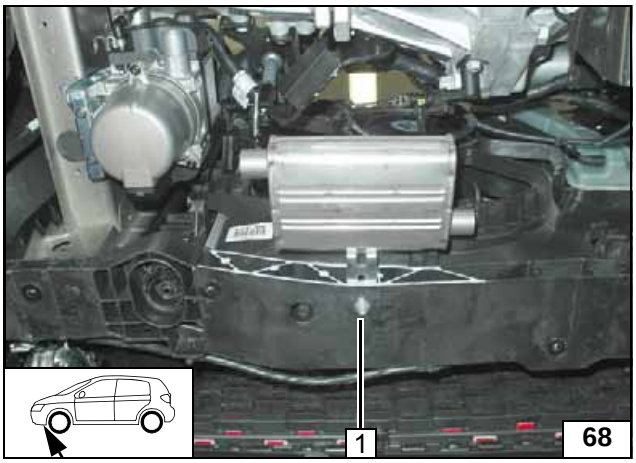
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premounting silencer



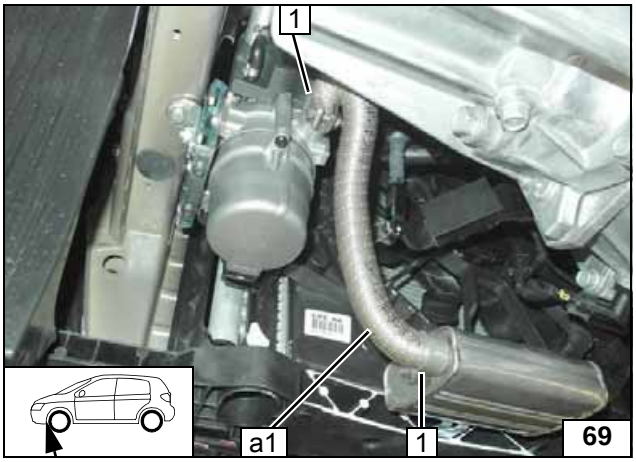
1 7mm dia. hole

Hole for silencer



1 M6x12 bolt, M6 flanged nut

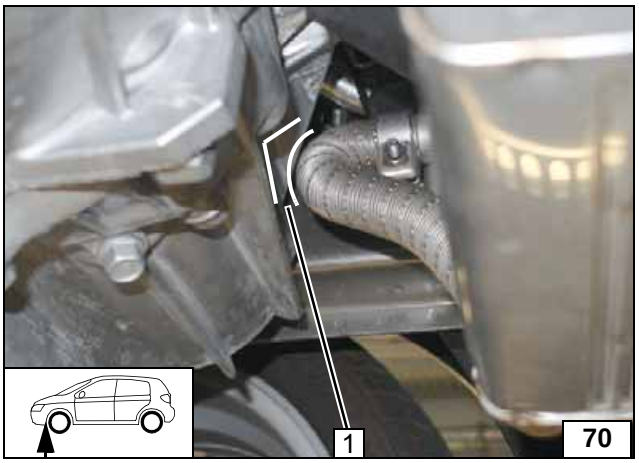
Installing silencer



Ensure sufficient distance from neighbouring components.

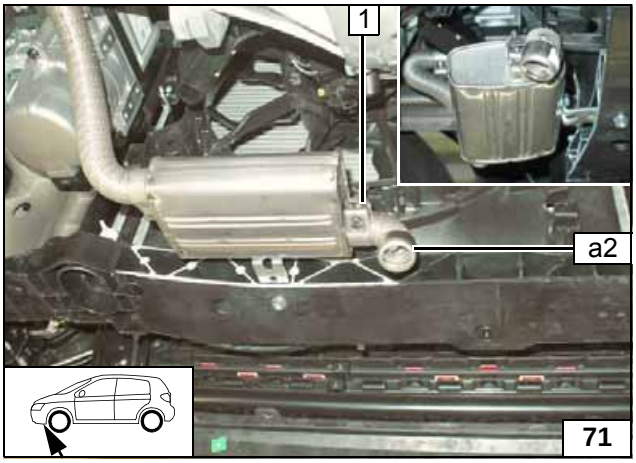
1 Hose clamp [2x]

Installing exhaust pipe a1



1 ≥ 20 mm

Checking distances



1 Hose clamp

Installing exhaust pipe a2

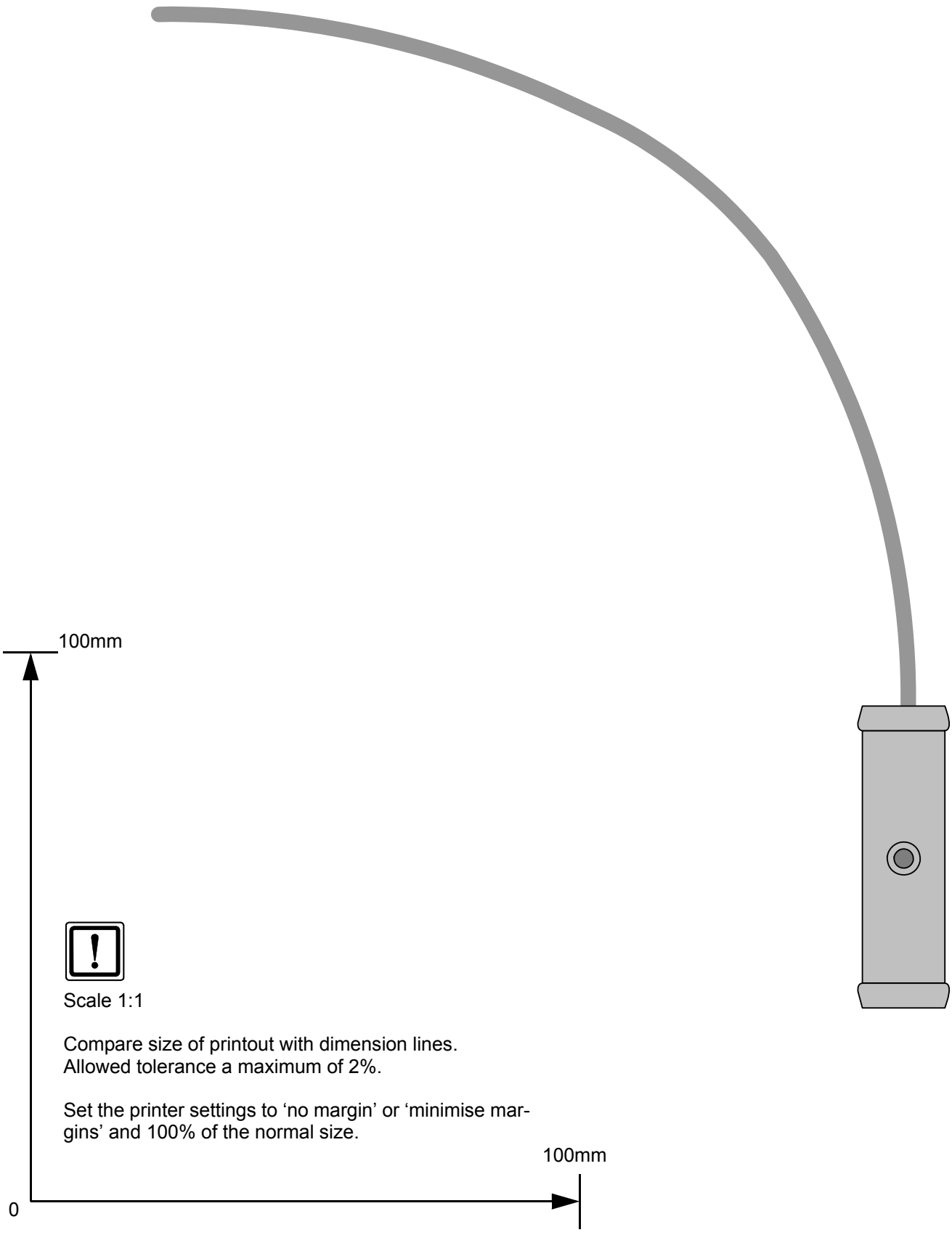
Final Work

Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose 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.**
- **For initial startup and function check, please see installation instructions.**
- **Make settings on A/C control panel according to the 'Operating Instructions'.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**

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

Fuel Standpipe Template



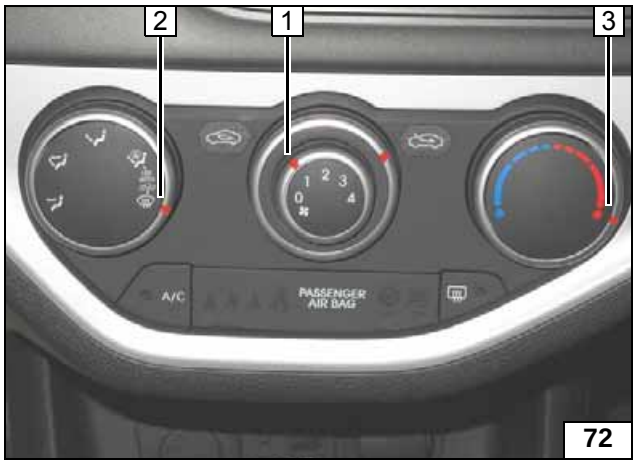
Operating Instructions for Manual Air-Conditioning

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.

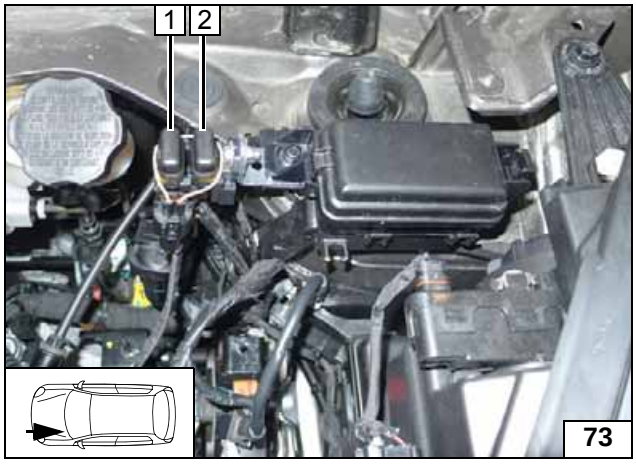
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



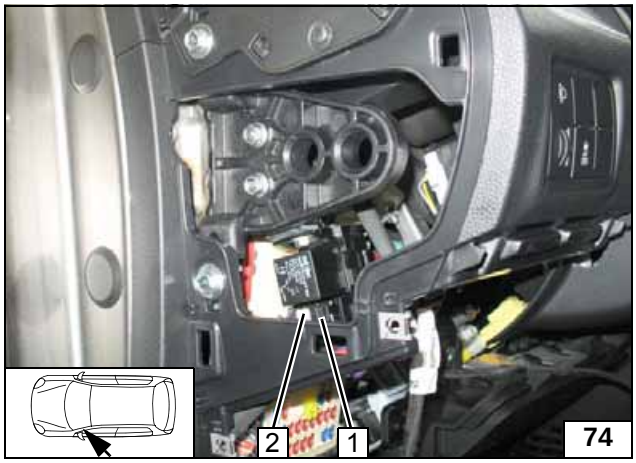
1 Set fan to level ‘1’, or max. ‘2’
2 Air outlet to windscreen
3 Set temperature to ‘max.’

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses