Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

"Island based circuit"

Installation Documentation
Jeep Renegade

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Jeep	Renegade	BU	e3 * 2007 / 46 * 0300 * ...

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

SG = manual transmission

From model year 2015
Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog lights
2WD
Bi-Xenon

Not verified: Passenger compartment monitoring
4WD

Total installation time: about 7.5 hours

Jeep Renegade

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit for Jeep Renegade 2015 Petrol: **1323987A**
- 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

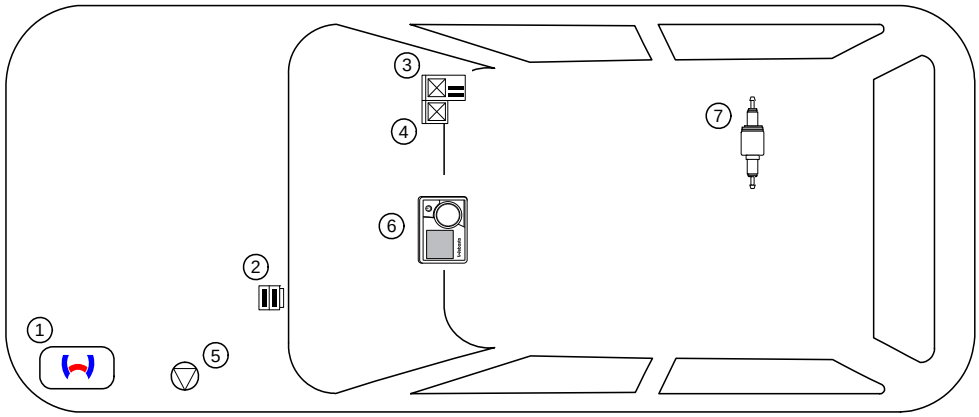
Installation instructions:

- 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 available space and manufacturer's instructions, we recommend the use of a vehicle battery with more electrical capacity.
- Integration in the coolant circuit is based on the island circuit model. In parking heating mode there will be **no** engine pre-heating!

Installation Overview

Legend:

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



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components 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, Order No. 111329).

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

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

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

2 Statutory regulations governing installation

Guidelines	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 the directive 122 (heater) section 5 for the installation of the heater.

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Jeep Renegade

Information on Validity

This installation documentation applies to Jeep Renegade 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 Instructions

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 and explosion.

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

Reference to a special technical feature.

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

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

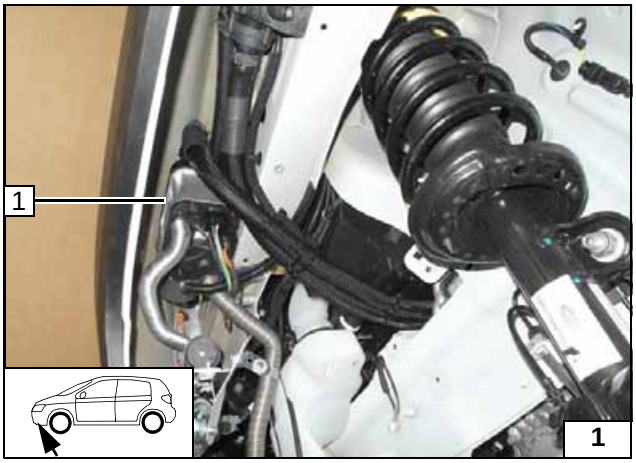
Preliminary Work

Vehicle

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

Heater

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



Heater Installation Location

1 Heater

Installation location

Preparing Electrical System

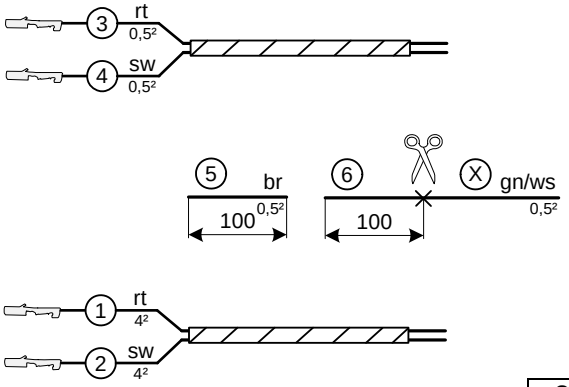
Wire sections retain their numbering throughout the entire document.

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

Discard section **X**.

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

Assigning wires



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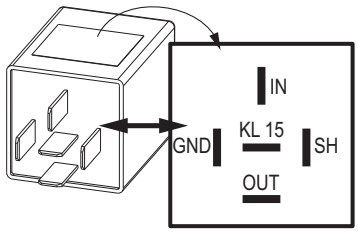
Check the PWM Gateway settings when starting up the heater, adjust if necessary!

Settings:

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

View of PWM-GW



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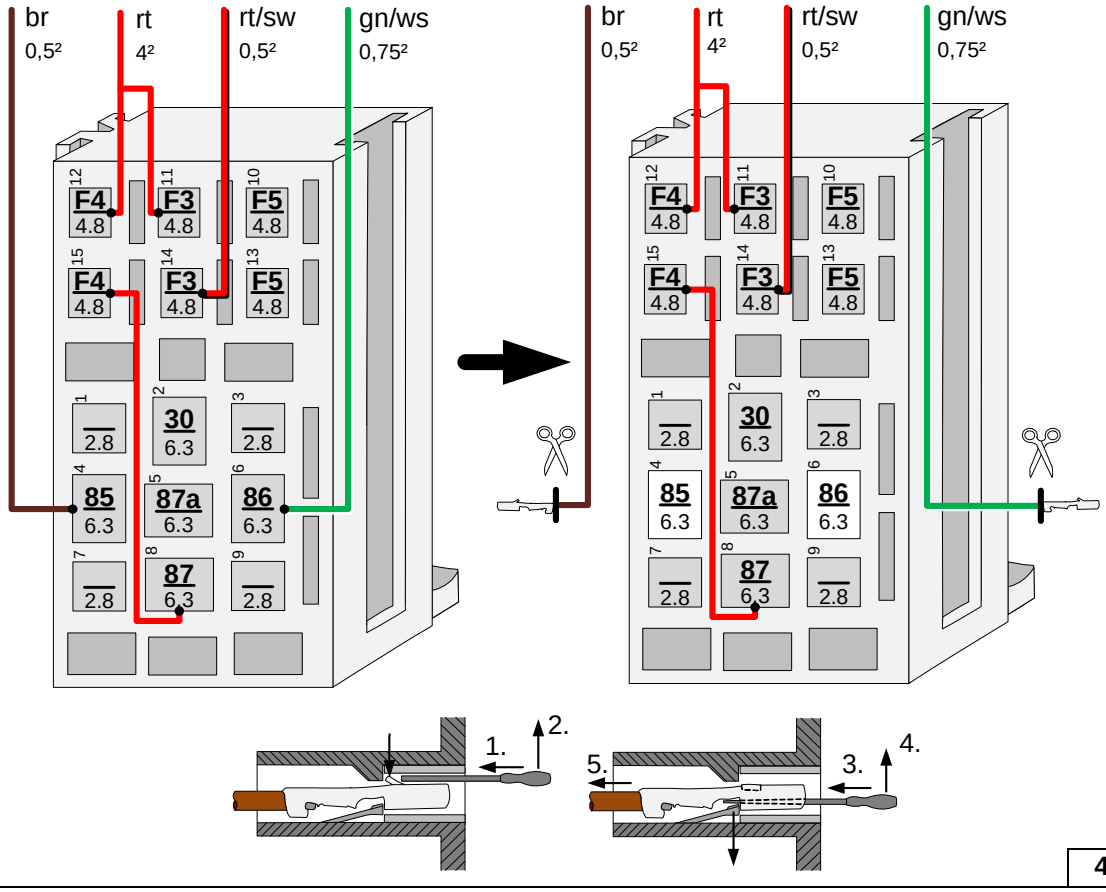
Preparing relay and fuse holder of passenger compartment



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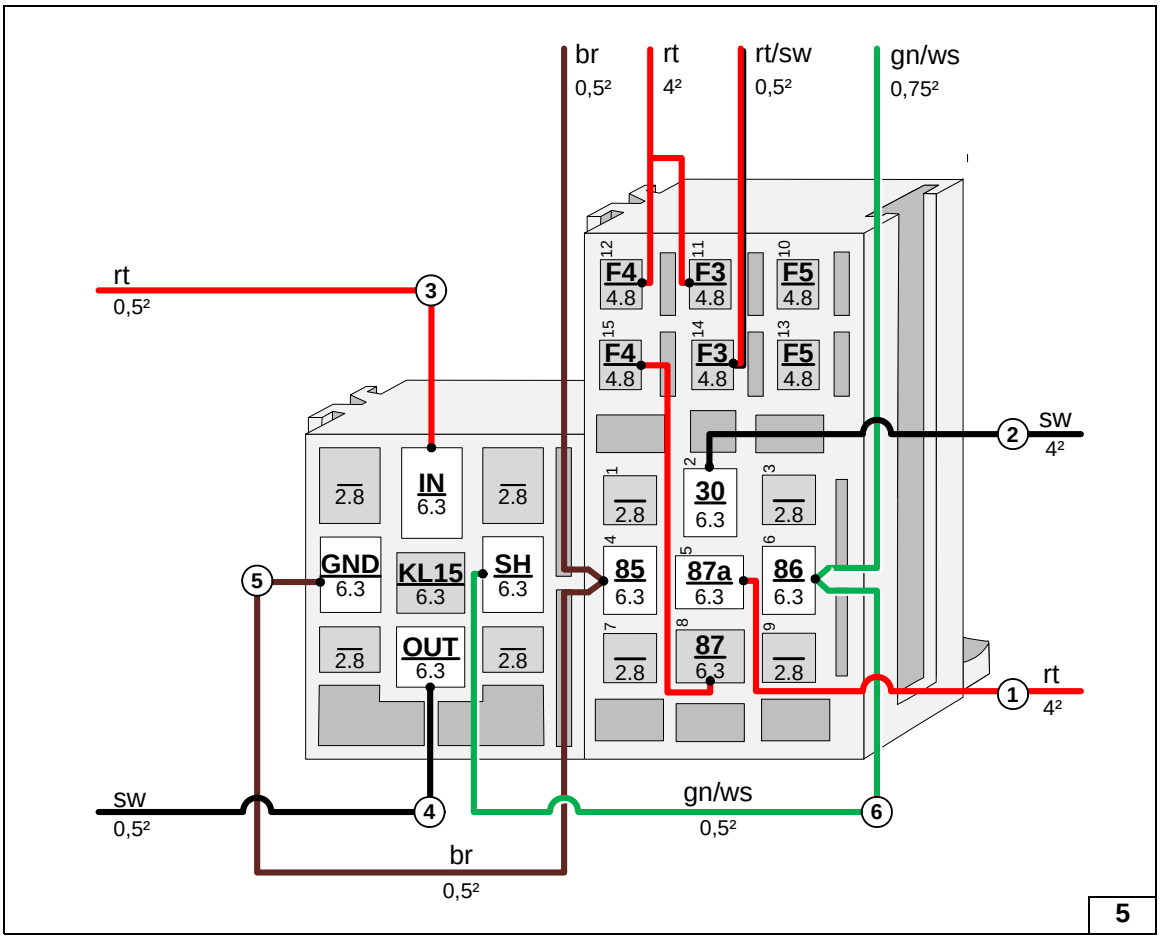
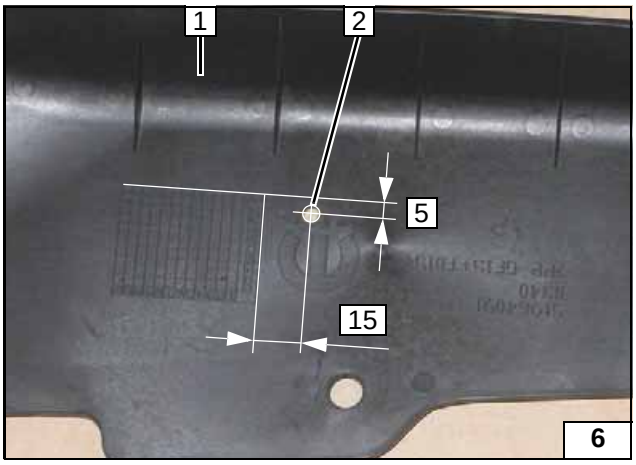
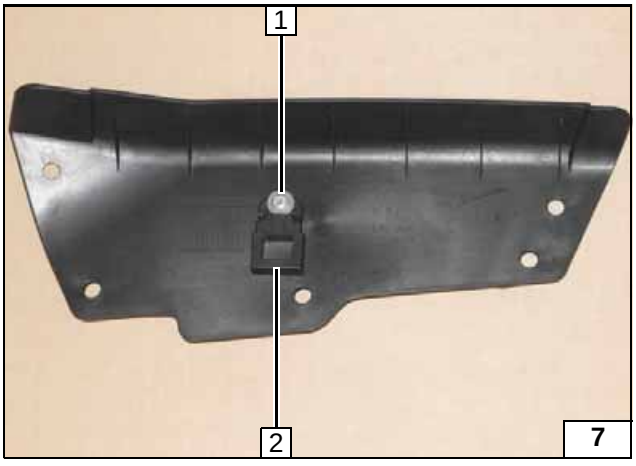


Connecting wire of PWM GW socket and passenger compartment relay and fuse holder, interlocking the sockets



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

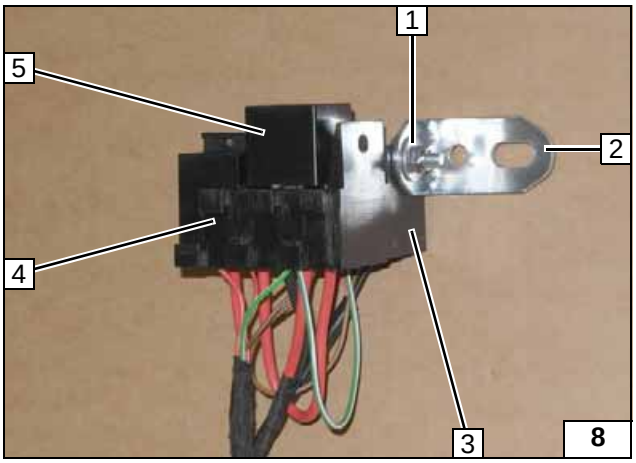
Hole for engine compartment fuse holder



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

Installing retaining plate of fuse holder

Installing angle bracket

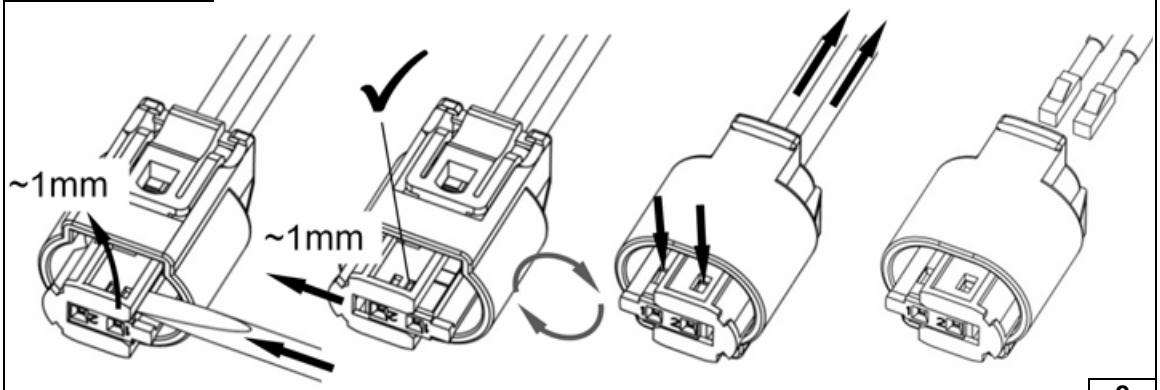


8

1 M5x16 bolt, large diameter washer [2x], nut
2 Angle bracket
3 PWM GW socket
4 Relay and fuse holder of passenger compartment
5 K1 relay mounted

Dismantling metering pump connector

Connector X7



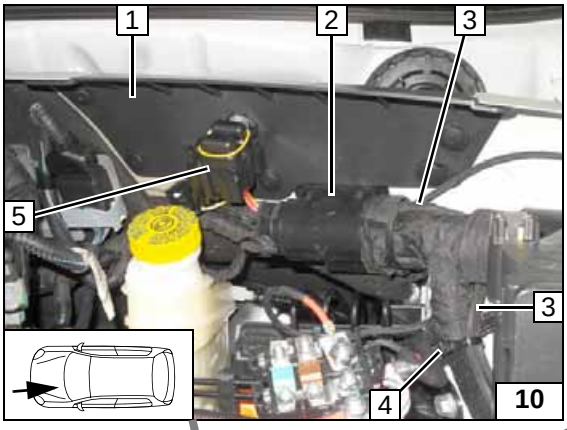
9

Electrical System

Engine compartment fuse holder

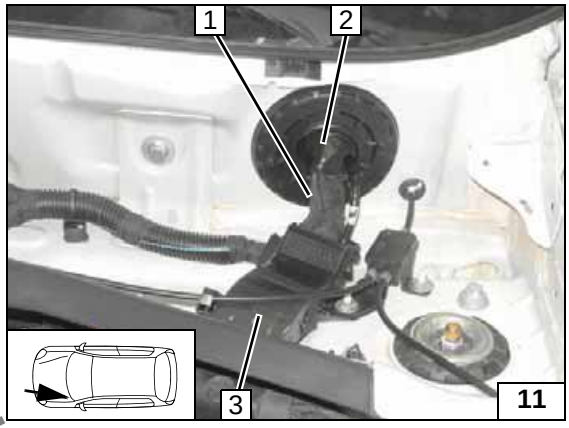
Route wiring harnesses of heater and heater control **3** through original vehicle wiring duct **2** to the coolant reservoir.

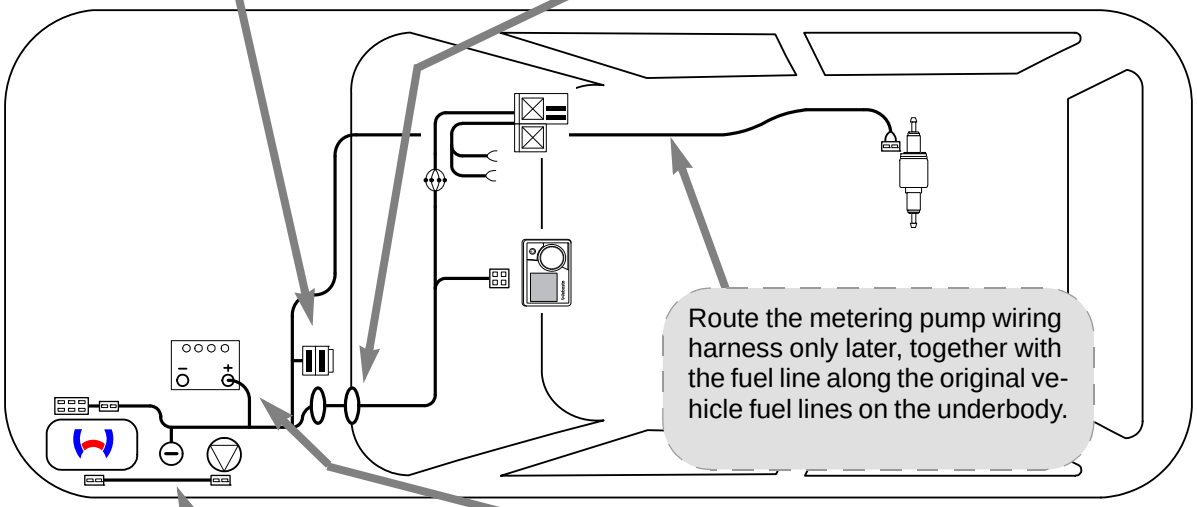
1 Trim of wiring harness pass through for the firewall, mounted
4 Cable tie
5 Fuses F1-2



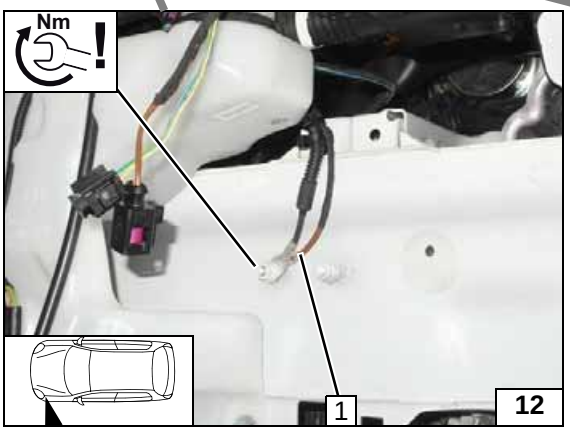
Wiring harness pass through

1 Wiring harnesses of heater and heater control
2 Protective rubber plug
3 Original vehicle wiring duct



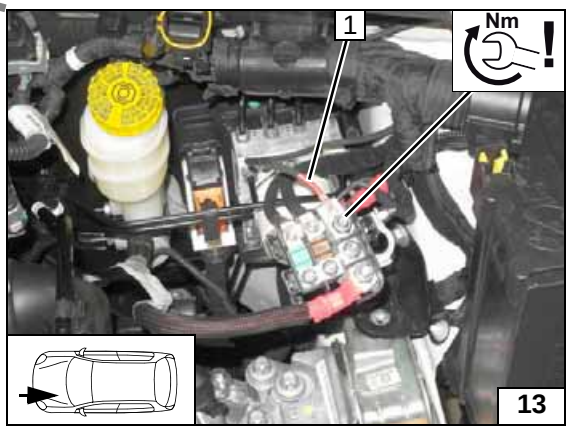


Wiring harness routing diagram



Earth wire

1 Earth wire on original vehicle earth support point

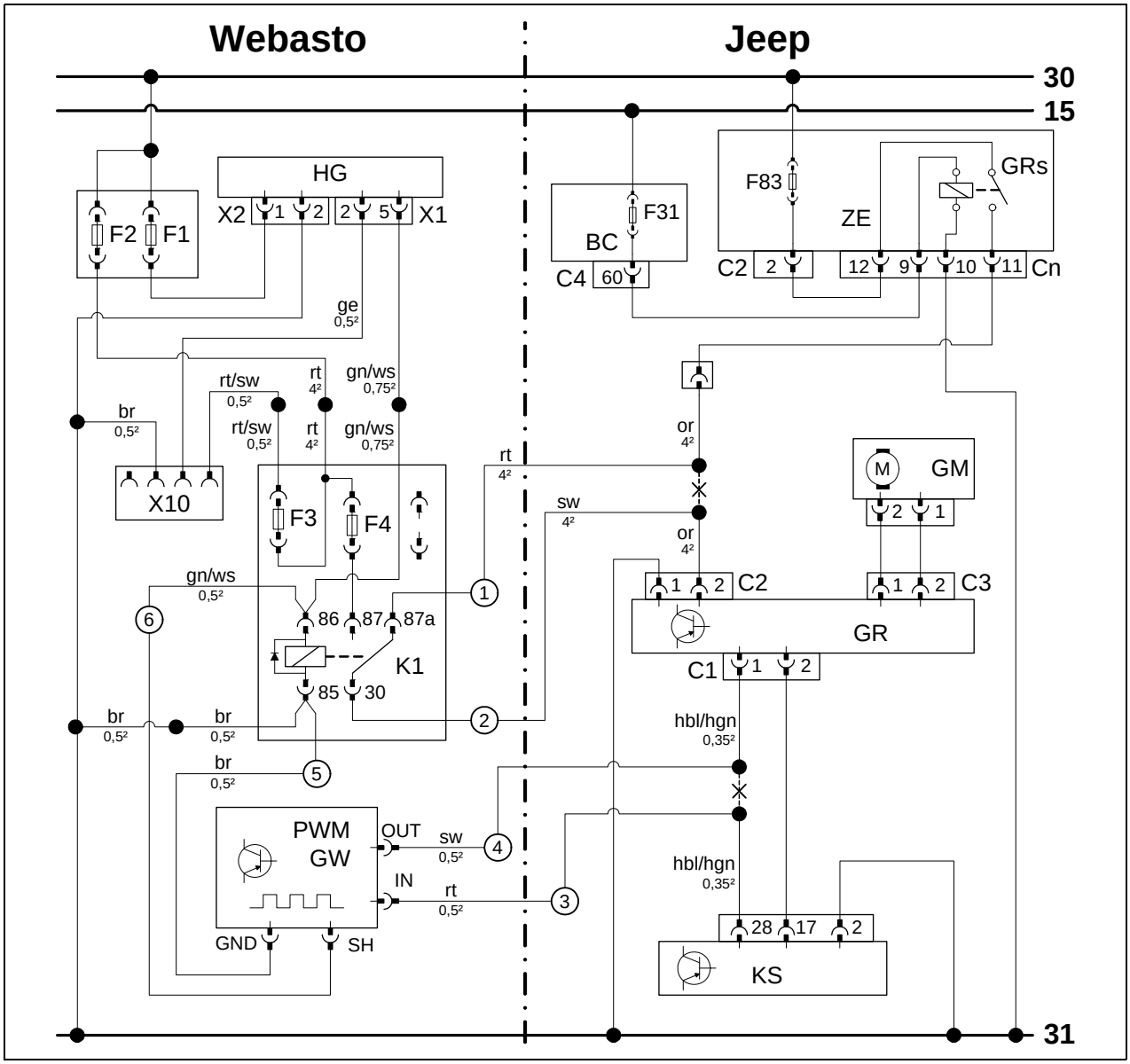


Positive wire

1 Positive wire on positive battery distributor

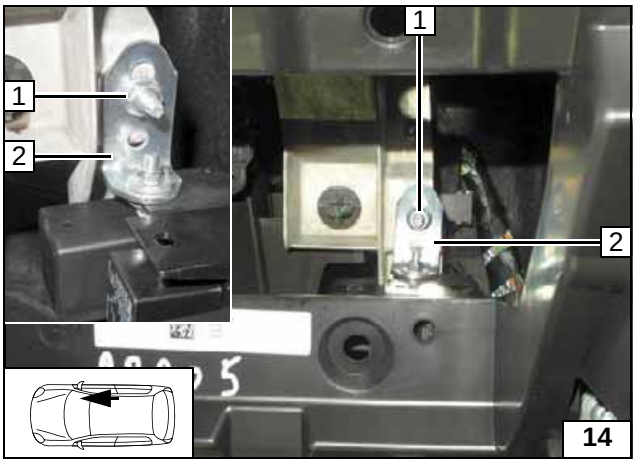
Fan Controller

Wiring diagram



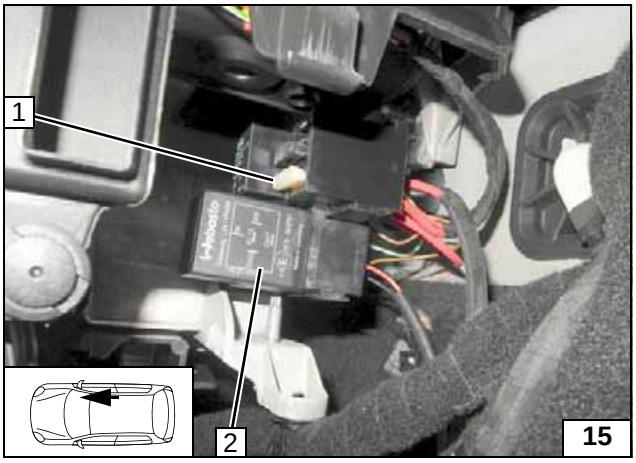
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Central electrical box	rt	red
X1	6-pin heater connector	GRs	Fan relay	sw	black
X2	2-pin heater connector	F83	40A fuse	ge	yellow
F1	20A fuse	C2	Connector of ZE	gn	green
F2	30A fuse	Cn	Connector of ZE	or	orange
X10	4-pin connector of heater control	BC	Body Computer	ws	white
		F31	7.5A fuse	br	brown
F3	1A fuse	C4	Connector of BC	hbl	light blue
F4	25A fuse	GM	Fan motor	hgn	pale green
K1	Fan relay	GR	Fan controller		
PWM GW	Pulse width modulator	C1	2-pin connector of GR		
		C2	2-pin connector of GR		
PWM GW settings:		C3	2-pin connector of GR		
Duty cycle:	35%	KS	A/C control unit		
Frequency:	1200Hz				
Voltage:	4.2V			**X**	Cutting point
Function:	High side			Wiring colours may vary.	

Legend



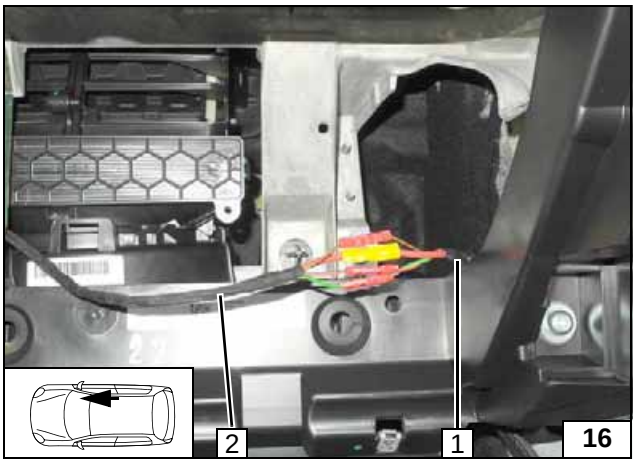
1 M6 flanged nut on original vehicle stud bolt
2 Angle bracket

Installing passenger compartment relay and fuse holder



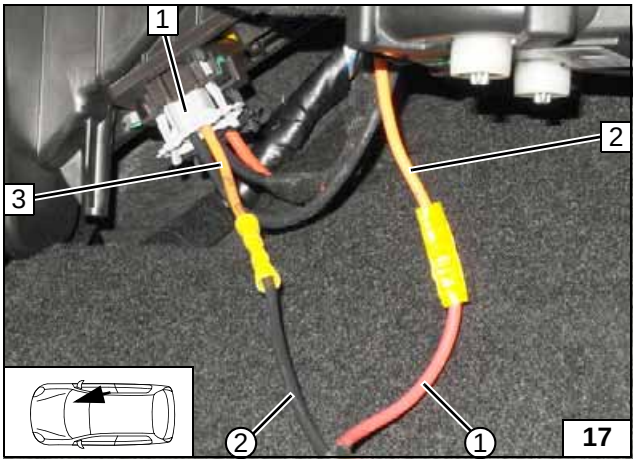
1 25A fuse F4
2 PWM GW

Installing fuse F4 and PWM GW



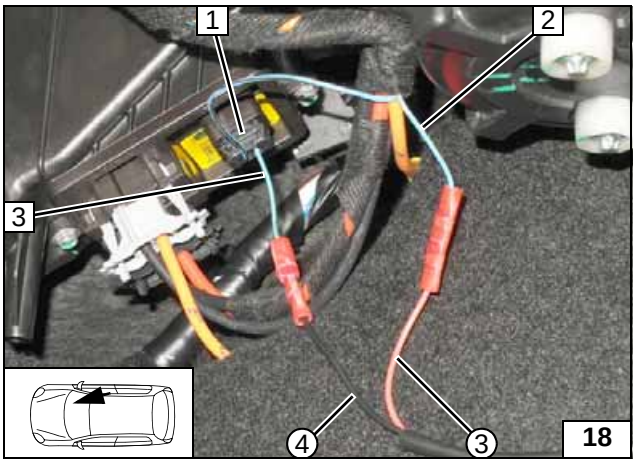
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



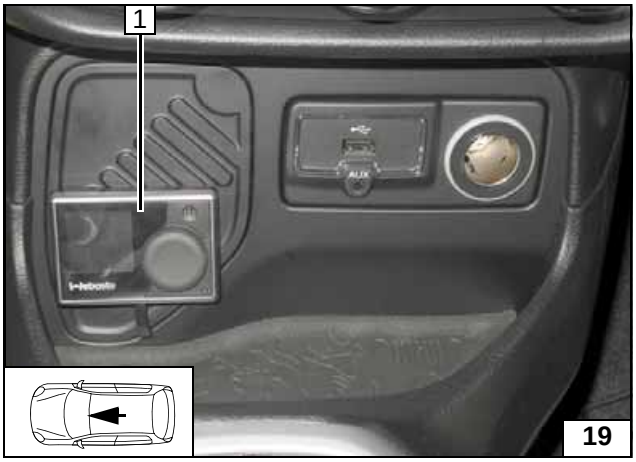
1 2-pin grey connector C2 from fan controller
2 Orange (or) wire of connector Cn / Pin 11 from central electrical box
3 Orange (or) wire of 2-pin connector C2, pin 2
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30, fan wiring harness

Connecting fan controller



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

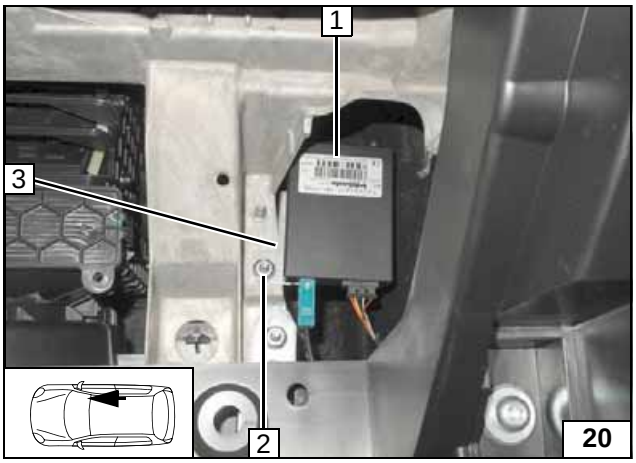
Connecting fan controller



MultiControl CAR Option

1 MultiControl CAR

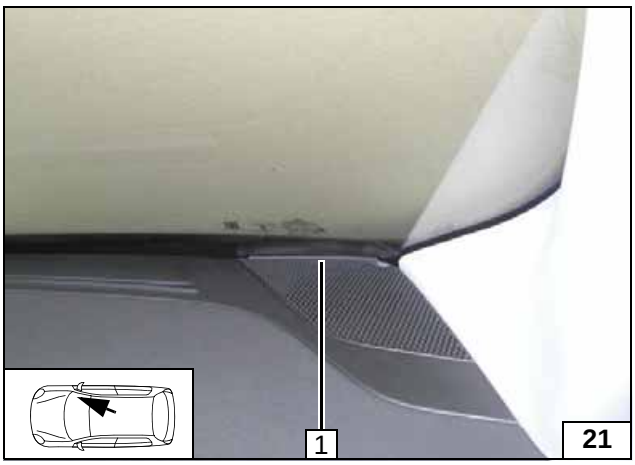
Installing MultiControl CAR



Remote Option (Telestart)

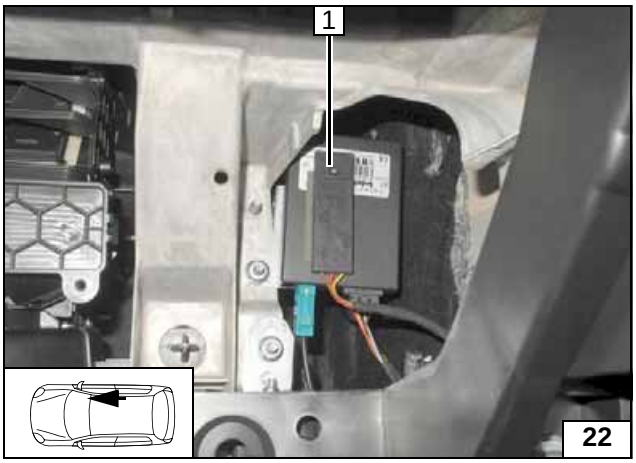
1 Receiver
2 M6 flanged nut on original vehicle stud bolt
3 Bracket of receiver

Installing receiver



1 Antenna

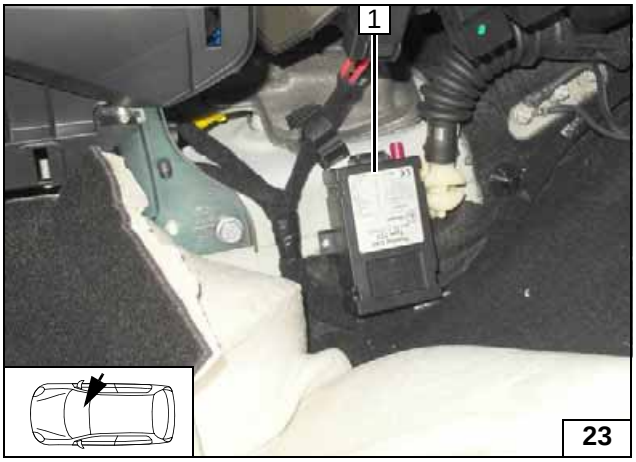
Installing antenna



Temperature sensor T100 HTM

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

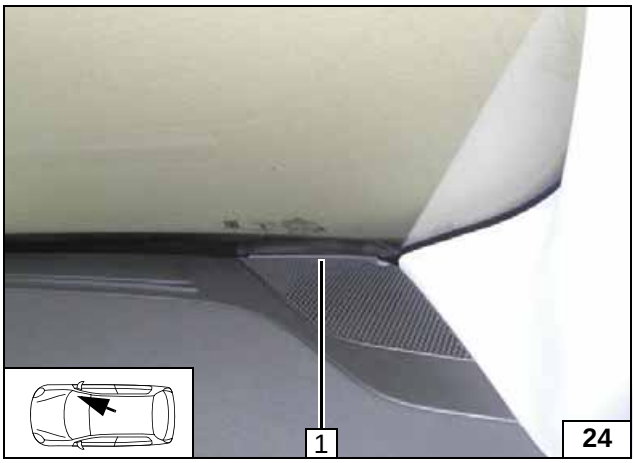
Installing temperature sensor



Remote Option (Thermo Call)

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

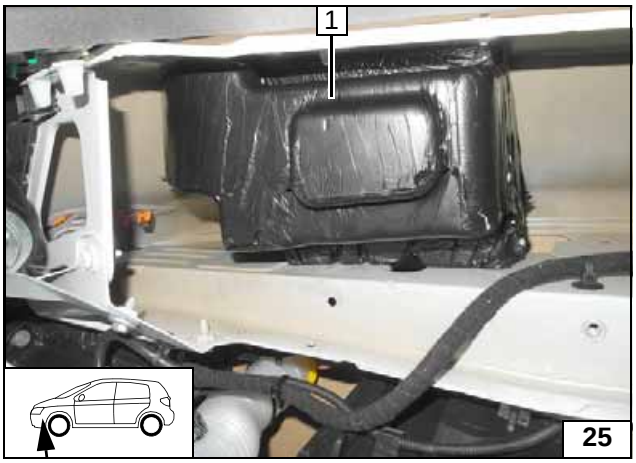
Installing receiver



1 Antenna

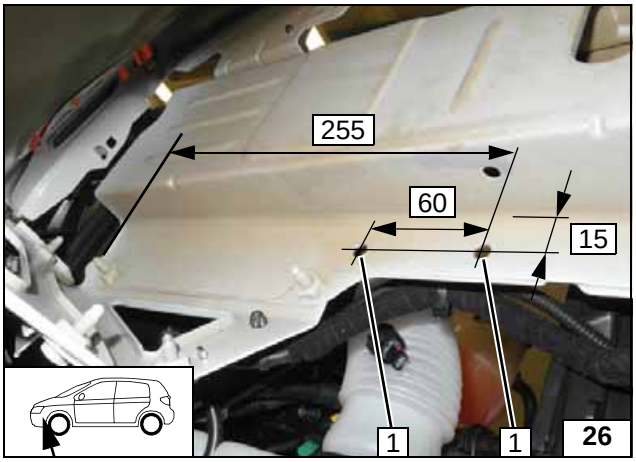
Installing antenna

Preparing Installation Location



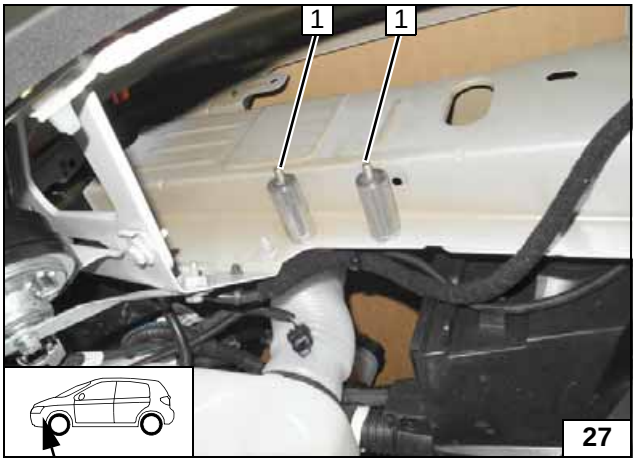
1 Remove and discard rigid foam moulded part (if present)

Removing rigid foam moulded part



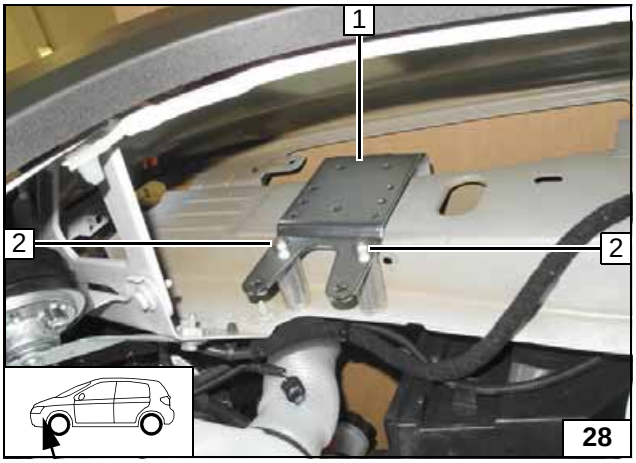
1 7mm dia. hole [2x]

Holes in body



1 M6x60 bolt, spring lockwasher, 5mm shim, 40mm shim, pin lock [2x each]

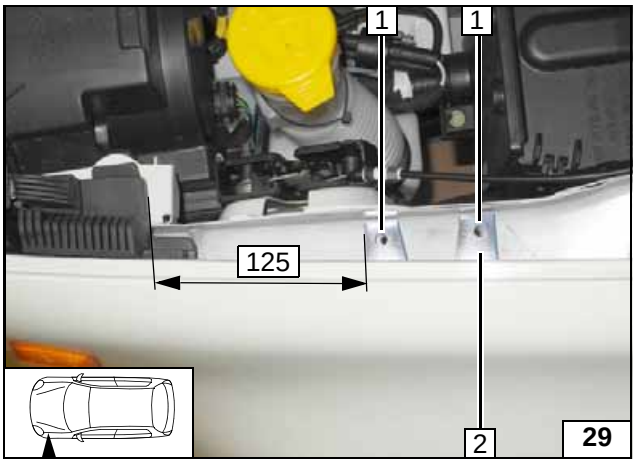
Inserting bolts



Prepare bracket **1** according to template and install loosely.

2 M6 flanged nut [2x]

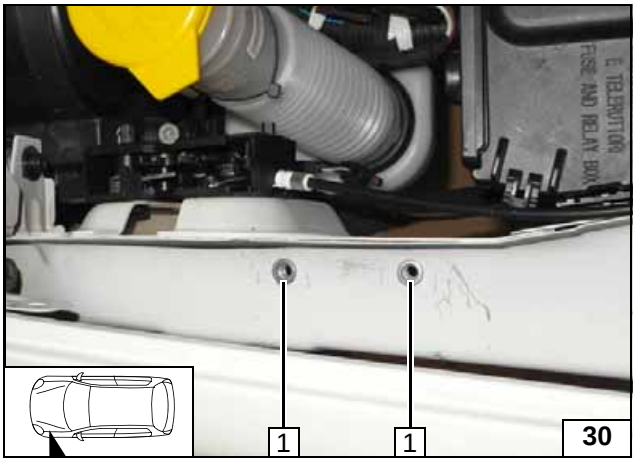
Installing bracket



Align bracket **2** as shown.

1 Copy hole pattern [2x]

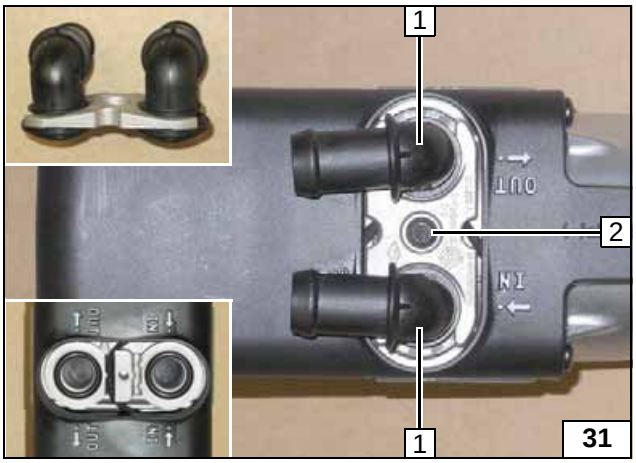
Copying hole pattern



Remove bracket

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

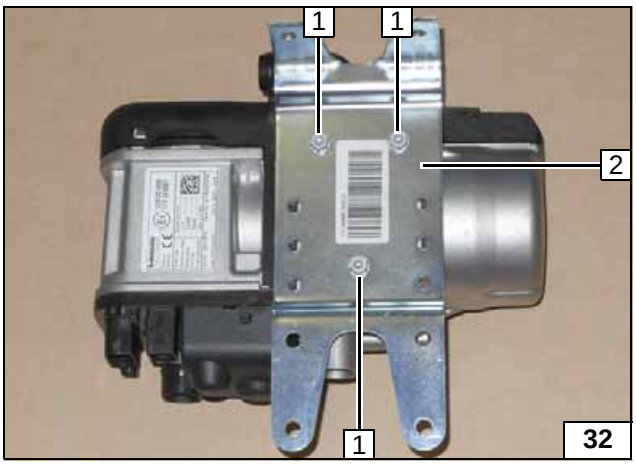
Installing rivet nuts



Preparing Heater

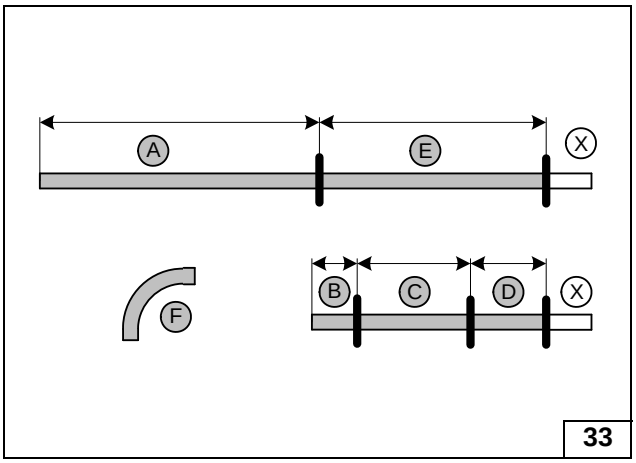
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



1 5x13 self-tapping bolt [3x]
2 Bracket

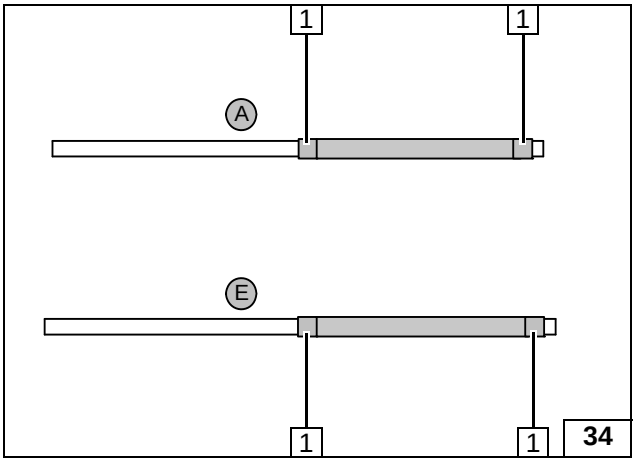
Installing bracket



Discard section **X**.
Hose **F** = 90°, 18x18 mm dia. moulded hose

A = 930
B = 60
C = 300
D = 120
E = 960

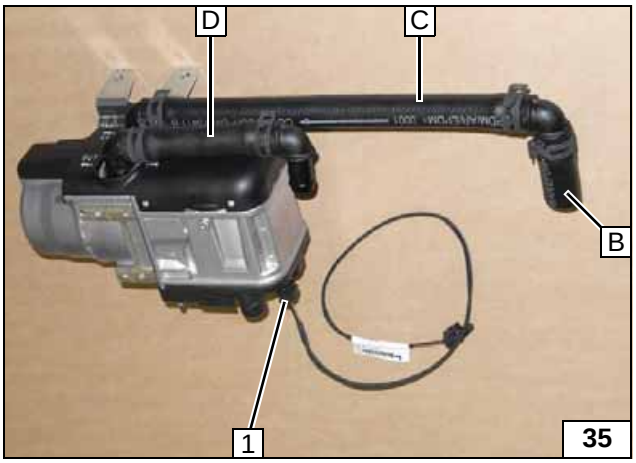
Cutting hoses to length



Slide braided protection hoses over hoses **A** and **E** and cut to length. Cut heat shrink plastic tubing to size.

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

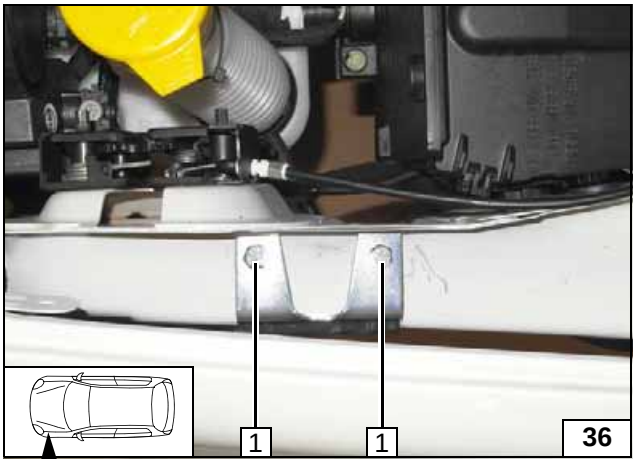
Preparing hoses



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

1 Connector of circulating pump wiring harness

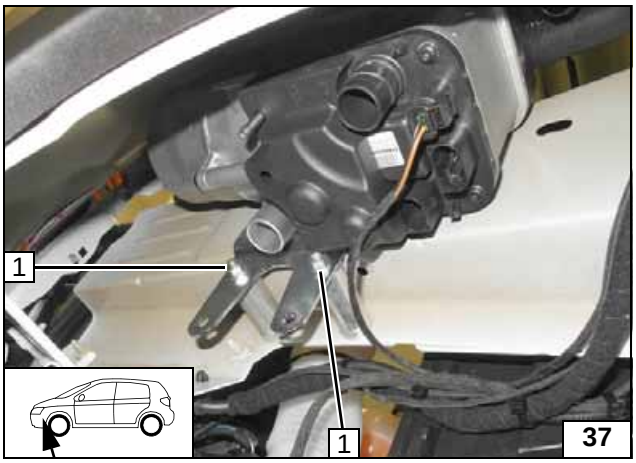
Premounting hoses



Installing Heater

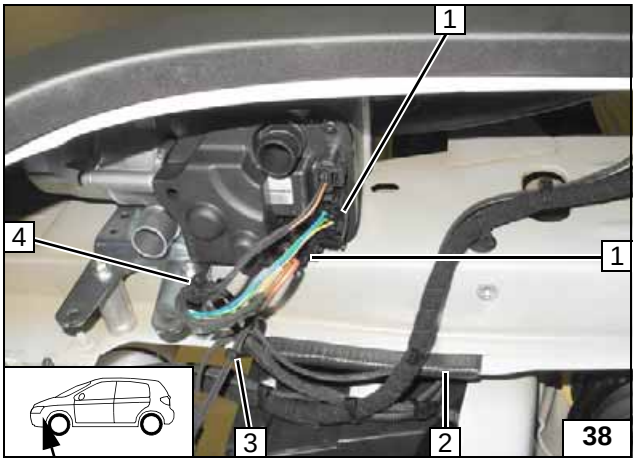
1 M6x20 bolt, spring lockwasher, bracket, 5mm shim [2x each]

Mounting heater



1 M6 flanged nut [2x]

Mounting heater

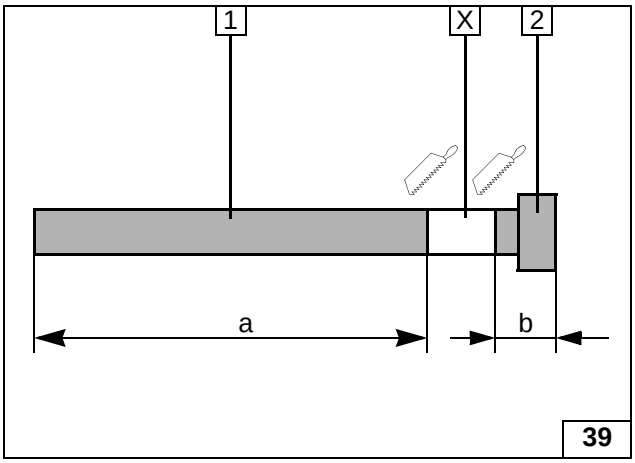


1 Heater wiring harness connector [2x]
2 100 mm edge protection
3 Cable tie (will be tightened later during the Fuel phase)
4 Cable tie

Mounting heater

Exhaust Gas

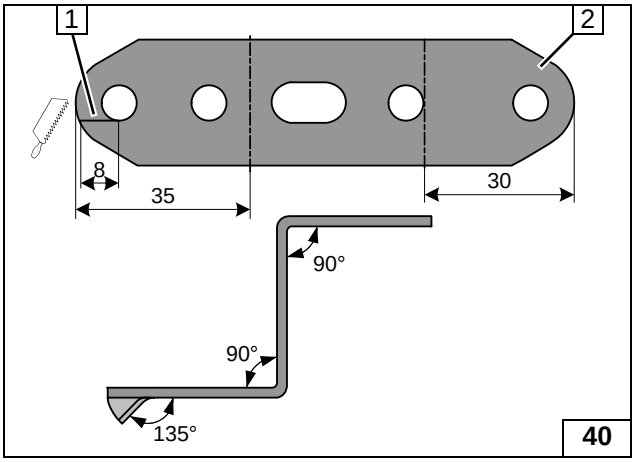
Discard section **X**.



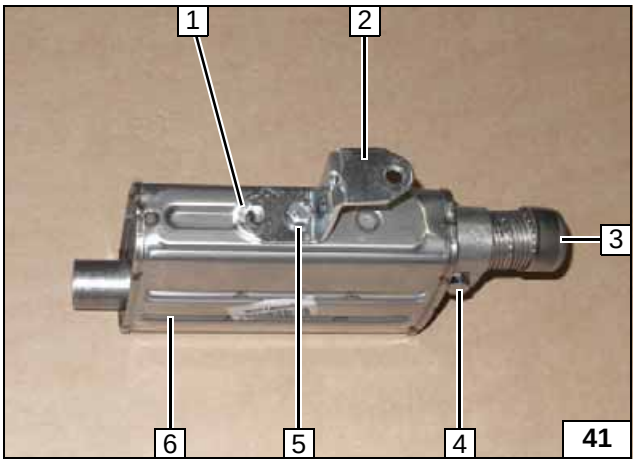
1 Exhaust pipe
a = 520
2 Exhaust end section
b = 40

Preparing exhaust pipe

Cut perforated bracket **2** at position **1** and angle down by 45° to form a twist protection.

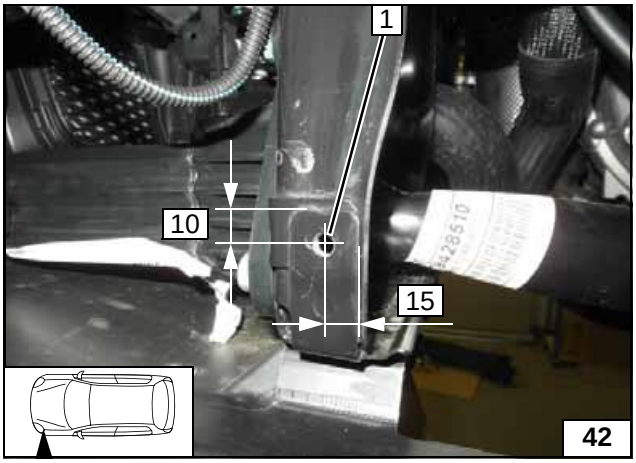


Preparing perforated bracket



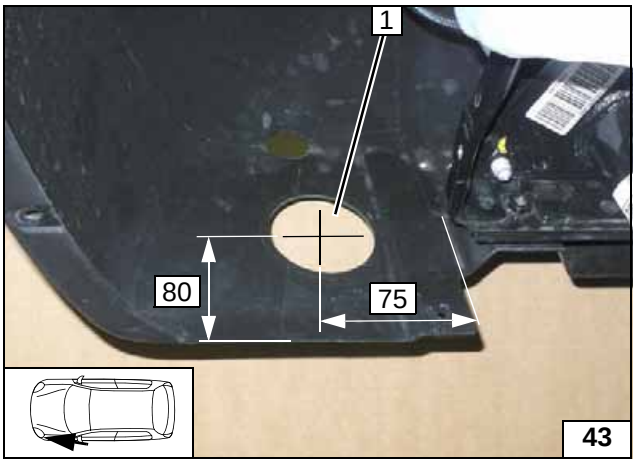
1 Twist protection in bead
2 Perforated bracket
3 Exhaust end section
4 Hose clamp
5 M6x16 bolt, spring lockwasher
6 Silencer

Premounting silencer and exhaust end section



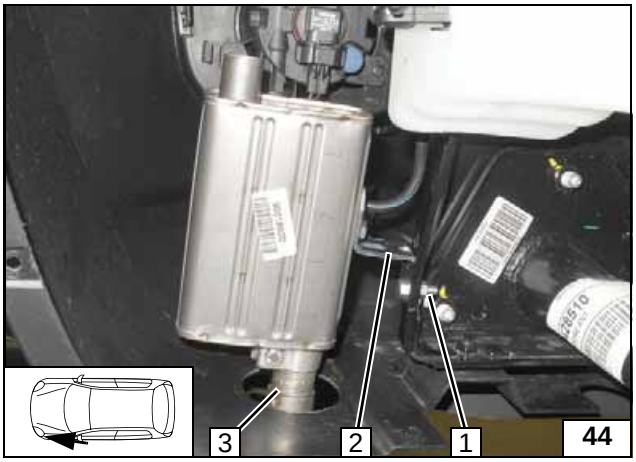
1 7 mm dia. hole

Hole in cross member



1 60 mm dia. hole

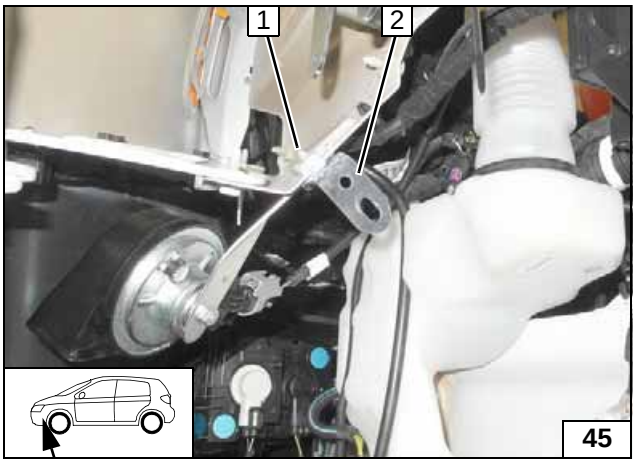
Hole in bumper trim



Centrally align exhaust end section **3** in hole.

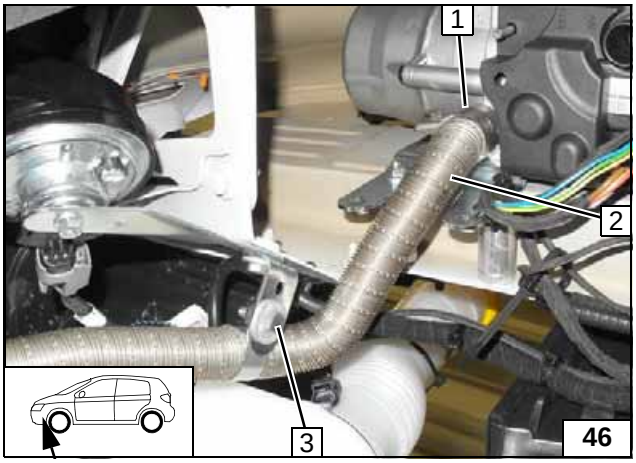
1 M6x20 bolt, flanged nut
2 Perforated bracket

Installing silencer



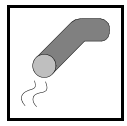
1 Original vehicle bolt
2 Angle bracket

Installing angle bracket



1 Hose clamp
2 Exhaust pipe
3 M6x20 bolt, large diameter washer, angle bracket, p-clamp, flanged nut

Installing exhaust pipe



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Exhaust pipe
2 Hose clamp

Installing exhaust pipe

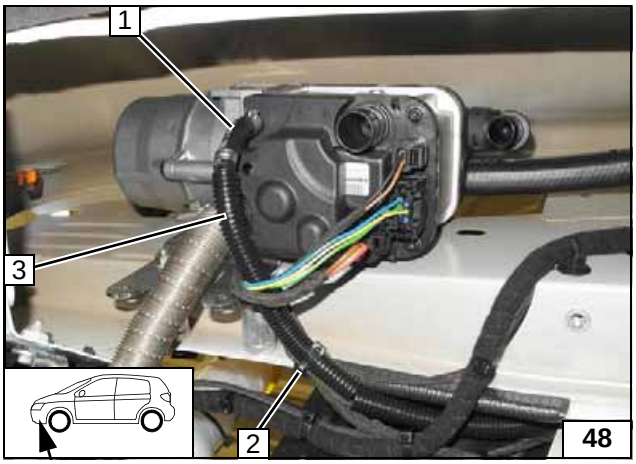
Fuel

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.



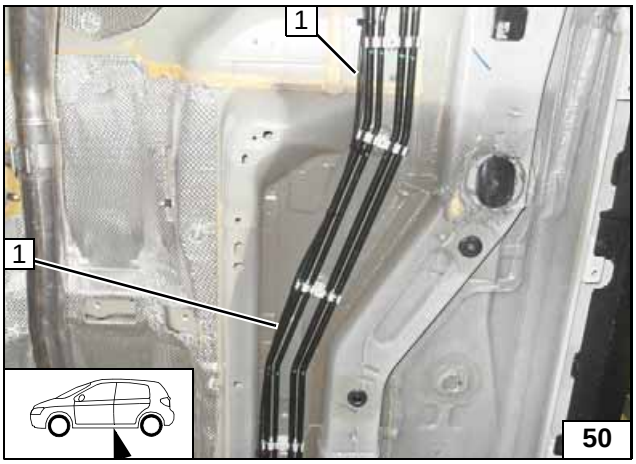
Pull fuel line and metering pump wiring harness into 10mm dia. corrugated tube **3** and route in the engine compartment.

1 Fuel line, hose section, 10 mm dia. clamp [2x]
2 Close clip-type cable tie

Connecting heater

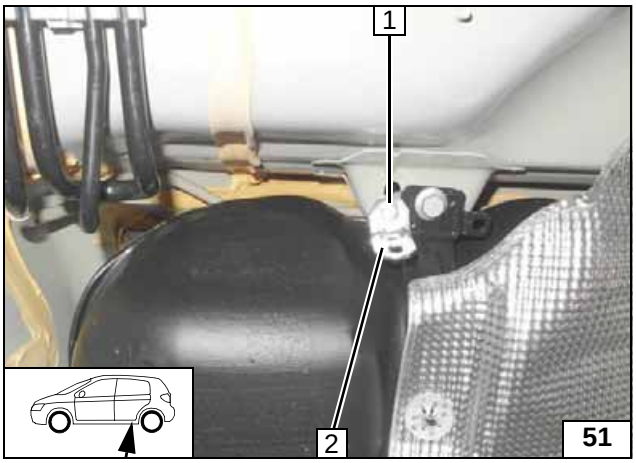
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** to the right side of the vehicle along the original vehicle wiring harness (see marking) and further along original vehicle lines to the underbody.

Routing lines



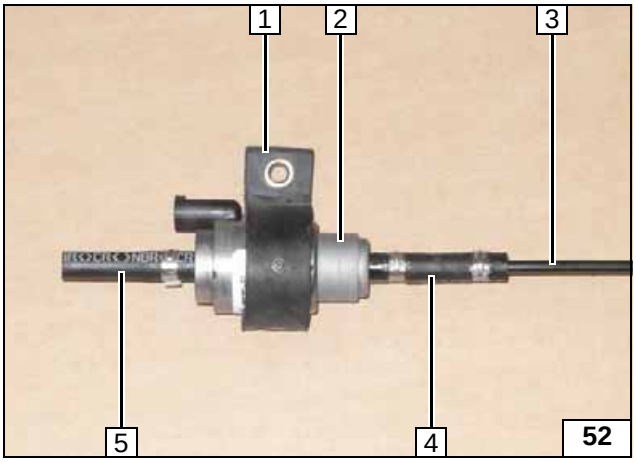
Route fuel line and wiring harness of metering pump **1** on original vehicle fuel lines for installation location of metering pump.

Routing lines



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

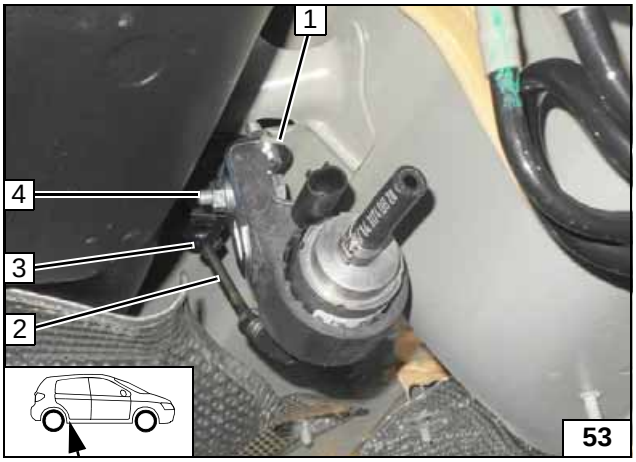
Installing angle bracket



Cut off 800mm from fuel line.

1 Metering pump mounting
2 Metering pump
3 Fuel line, 800 mm
4 Hose section,10mm dia.clamp [2x]
5 Hose section, 10 mm dia. clamp

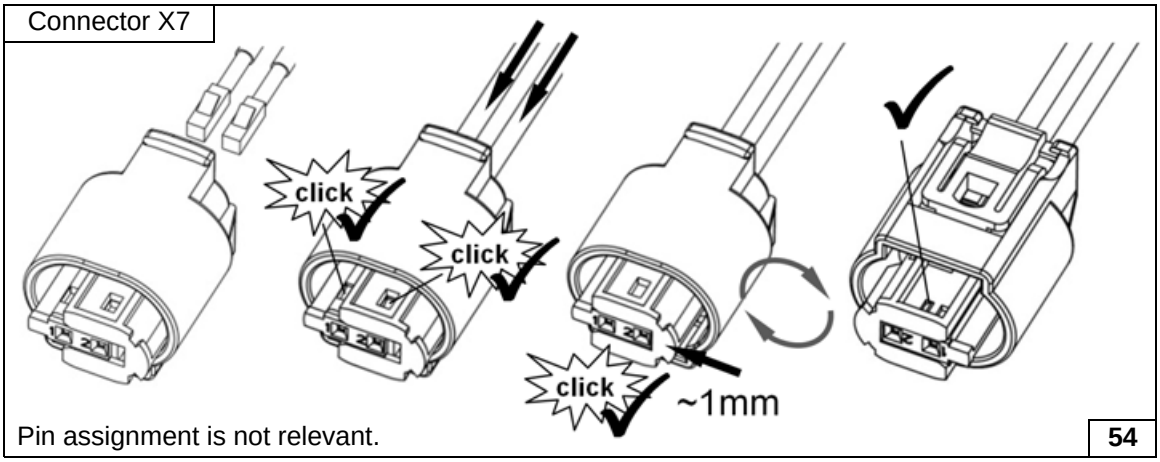
Premounting metering pump



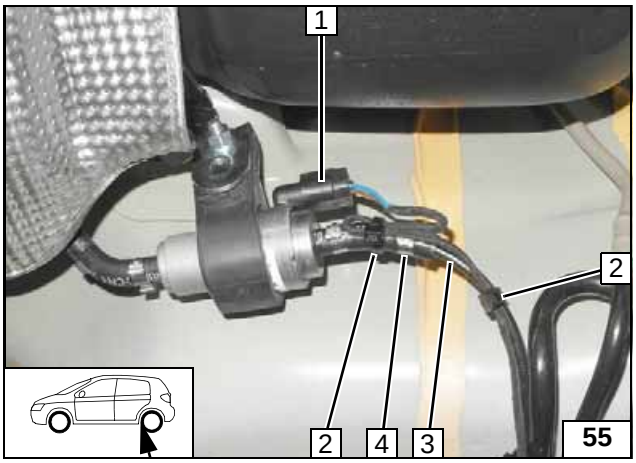
Route fuel line **2** upwards to the fuel tank sending unit and secure using cable tie **3** and existing hole.

1 Angle bracket
4 M6x25 bolt, flanged nut

Installing metering pump

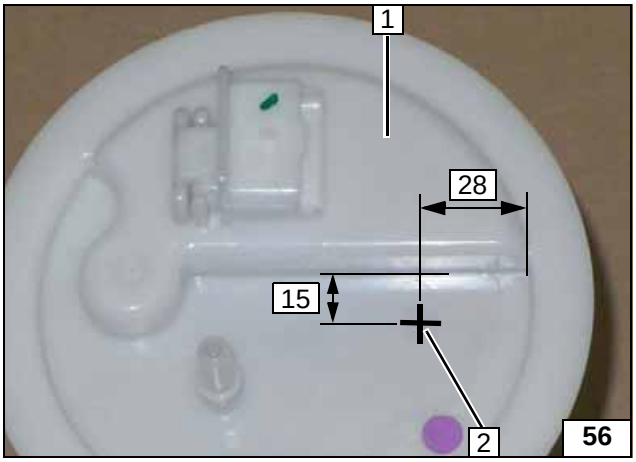


Completing metering pump connector



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

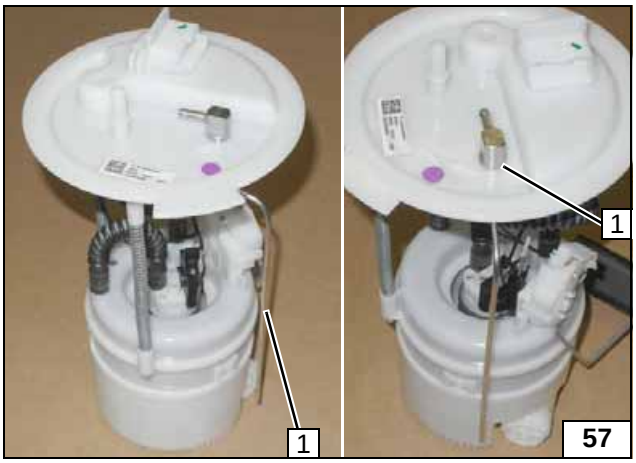
Installing metering pump



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

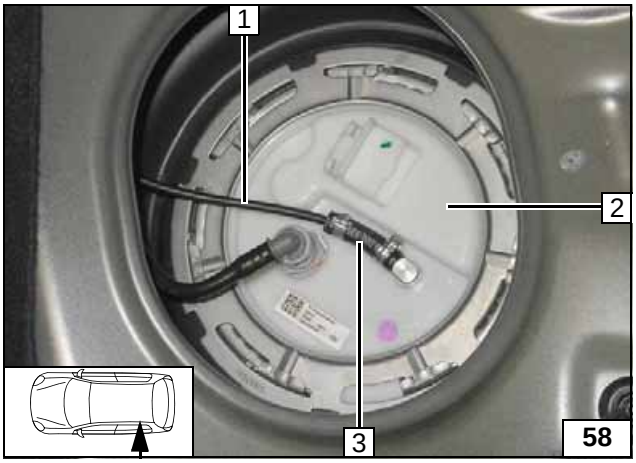
2 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

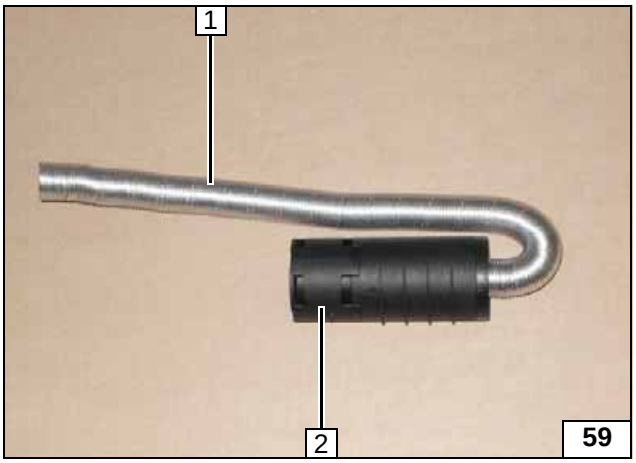
Installing fuel standpipe



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

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

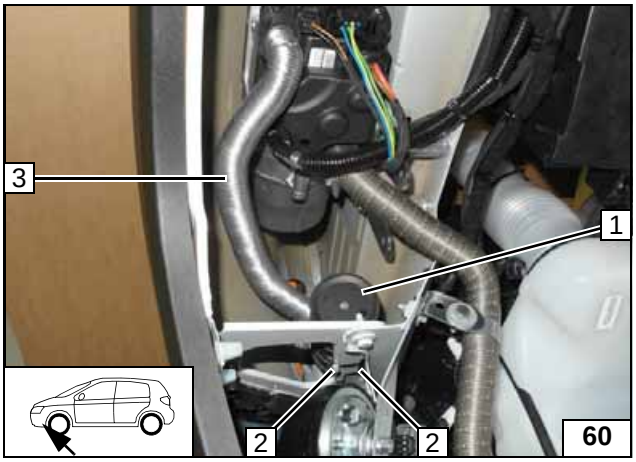
Completing fuel tank sending unit



Combustion Air

1 Combustion air pipe
2 Silencer

Premounting silencer and combustion air pipe



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

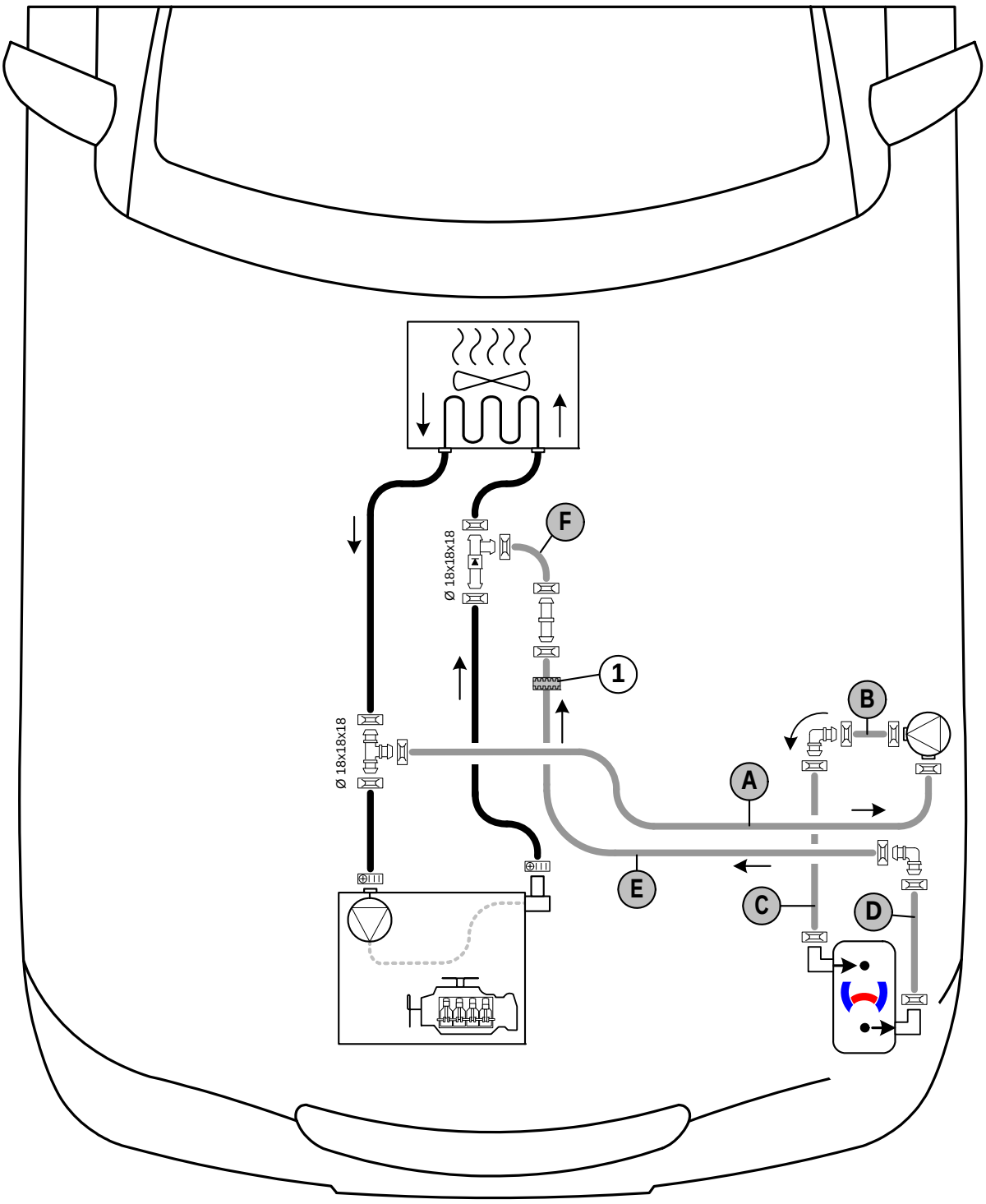
Mounting silencer and combustion air pipe

Coolant Circuit

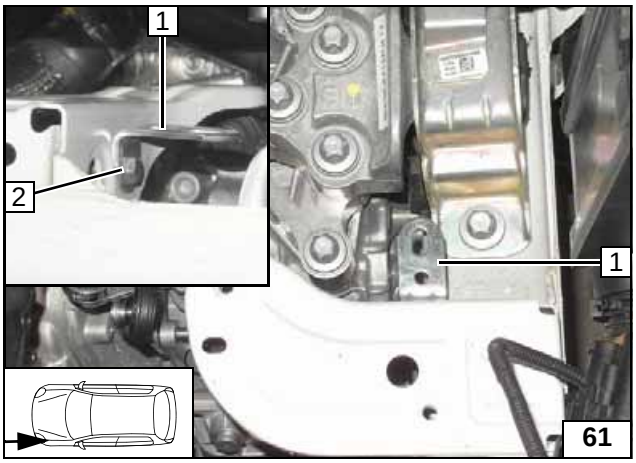
Any coolant running off should be collected using an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram

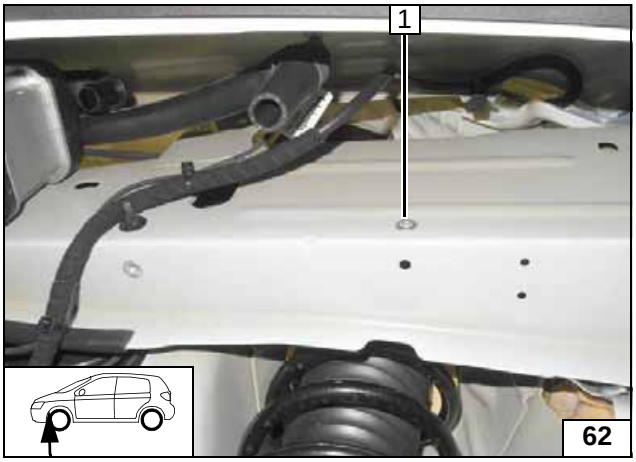


All spring clips without a specific designation = 25 mm dia. Hose clamps = 16-27 mm dia.
All connecting pipes without a specific designation and = 18x18mm dia.
1 = Black (sw) rubber isolator



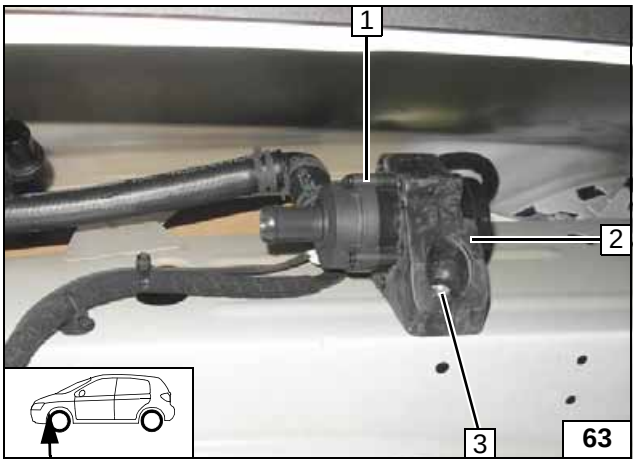
1 Angle bracket
2 M6x20 bolt, flanged nut, existing hole

Installing angle bracket



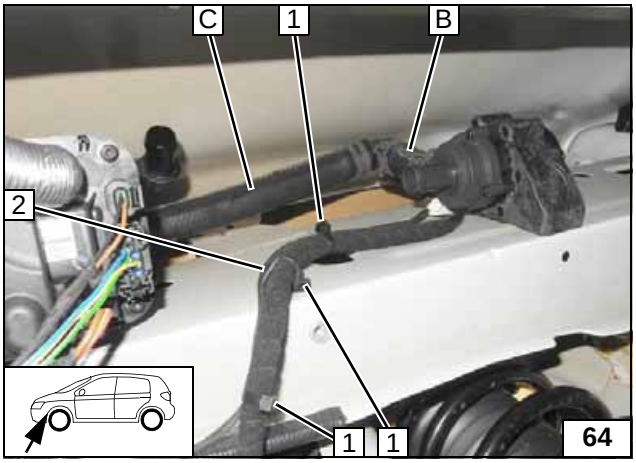
1 Drill out hole to 9.1mm dia.; rivet nut

Installing rivet nut



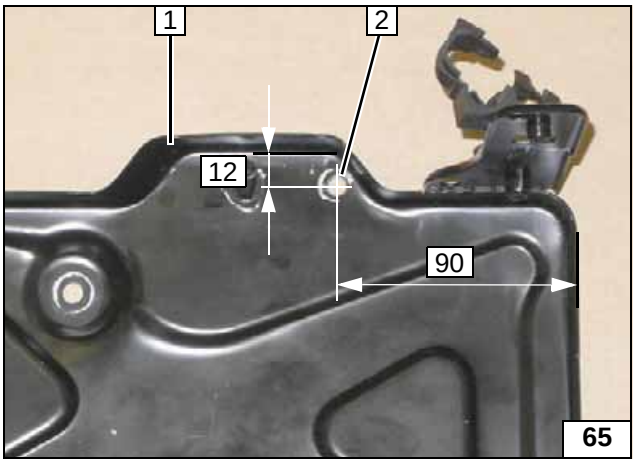
1 Circulating pump
2 Circulating pump mounting
3 M6x25 bolt

Installing circulating pump



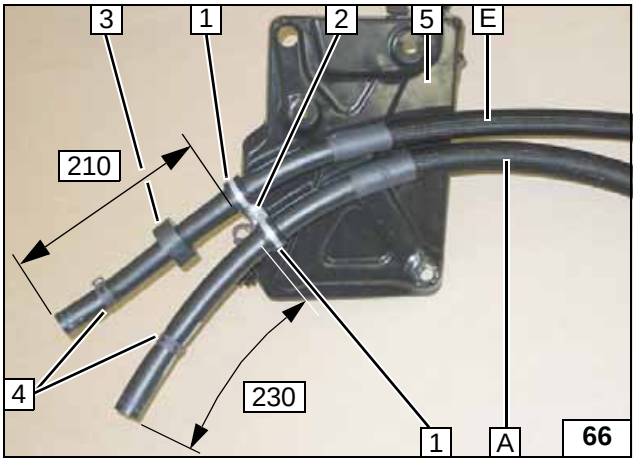
Route wiring harness of circulating pump **2** along original vehicle wiring harness, secure using cable tie **1** [3x] and connect to circulating pump.

Connecting circulating pump



1 Battery carrier
2 7 mm dia. hole

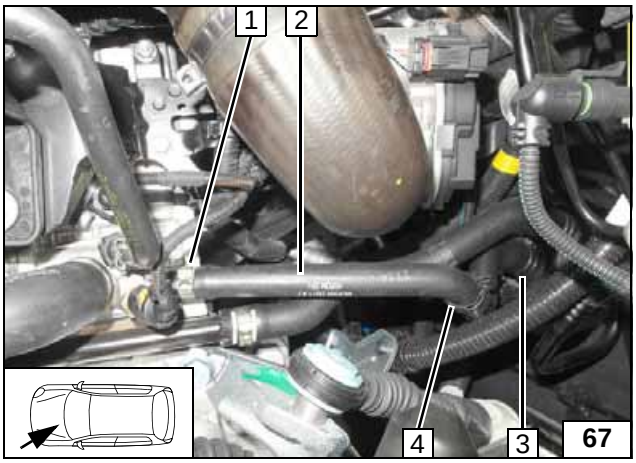
Hole in battery carrier



Align hoses **A** and **E** as shown and attach to battery carrier **5** .

1 25mm dia. rubber-coated p-clamp [2x]
2 M6x20 bolt, flanged nut
3 Slide on and pre-position black (sw) rubber isolator
4 Premount 25 mm dia. spring clip [2x]

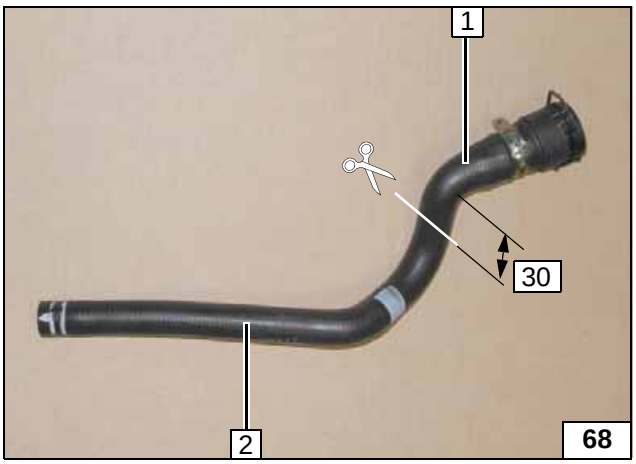
Premounting hoses A and E



Remove hose of engine outlet / heat exchanger inlet **2**!

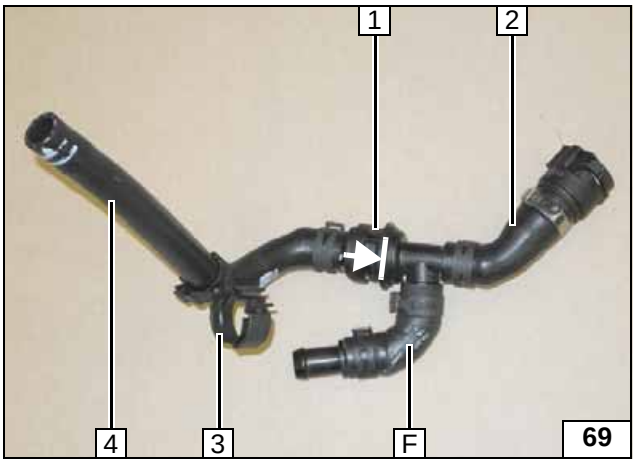
1 Remove and discard original vehicle clamp
3 Unlatch quick-release coupling
4 Remove hose bracket, will be reused

Removing hose



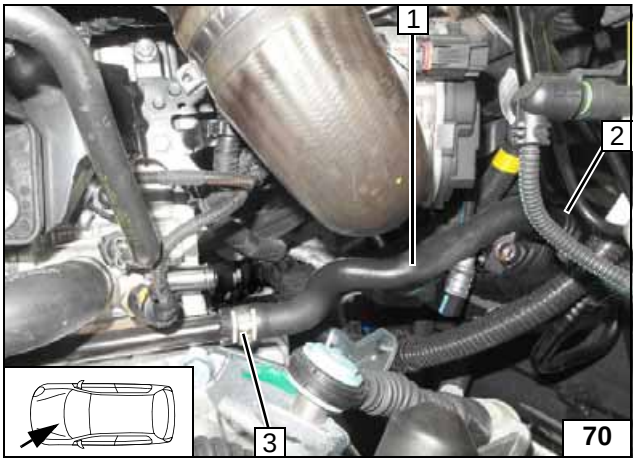
1 Hose section of heat exchanger inlet
2 Hose section of engine outlet

Cutting point



1 Check valve
2 Hose section of heat exchanger inlet
3 Position original vehicle hose bracket
4 Hose section of engine outlet

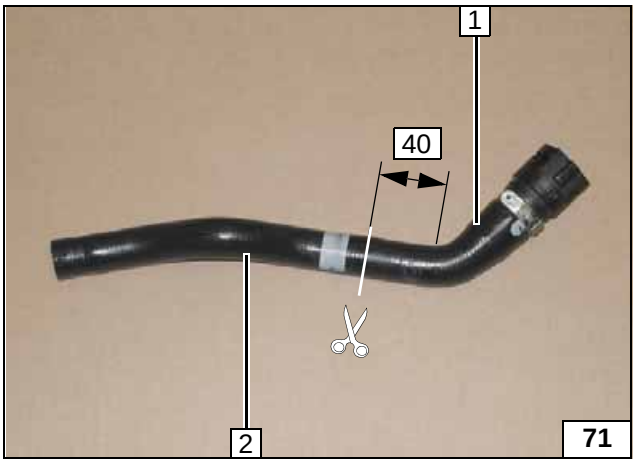
Assembling hose group



Remove hose of engine inlet / heat exchanger outlet **1**!

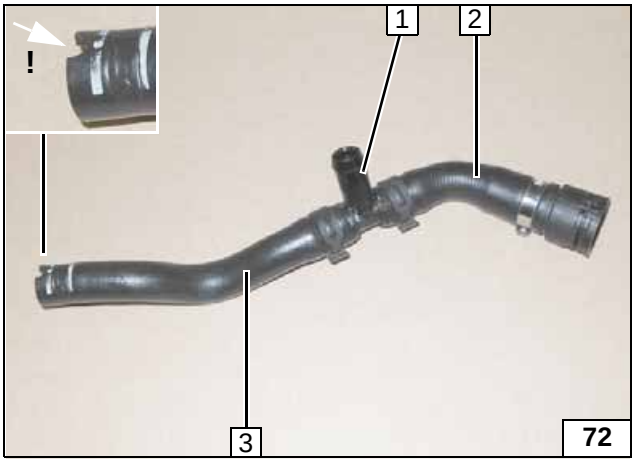
2 Unlatch quick-release coupling
3 Remove and discard original vehicle clamp

Removing hose



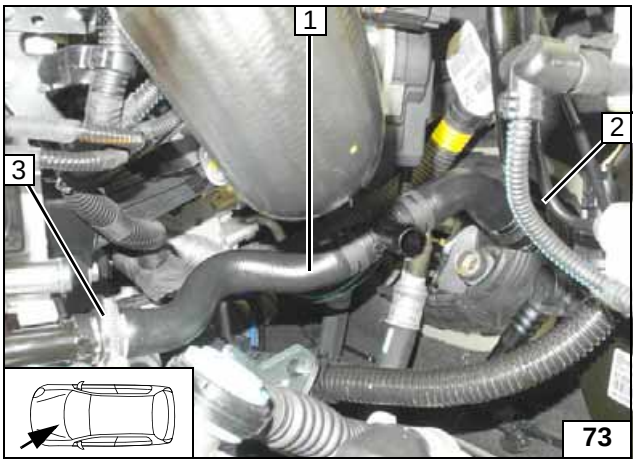
1 Hose section of heat exchanger outlet
2 Hose section of engine inlet

Cutting point



1 18x18x18mm dia. T-piece
2 Hose section of heat exchanger outlet
3 Hose section of engine inlet

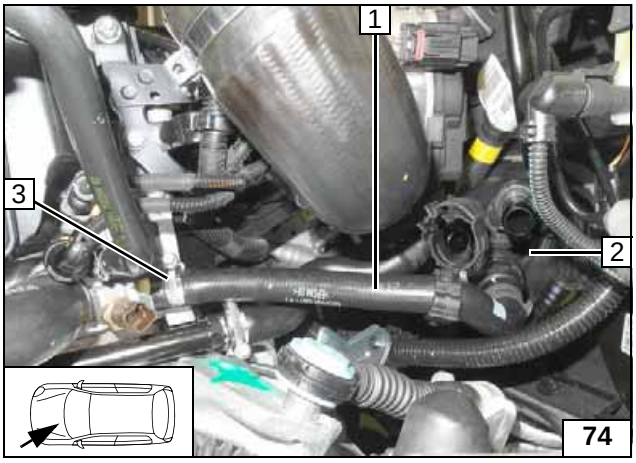
Assembling hose group



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

2 Connection piece of heat exchanger outlet
3 16-27mm dia. hose clamp

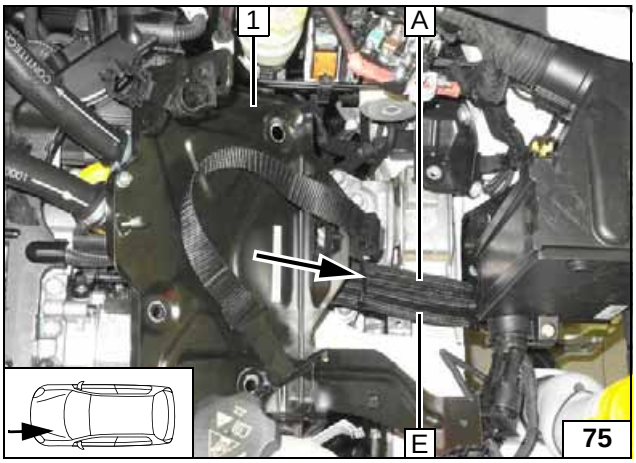
Installing hose group with T-piece



Install hose group of engine outlet / heat exchanger inlet **3**.

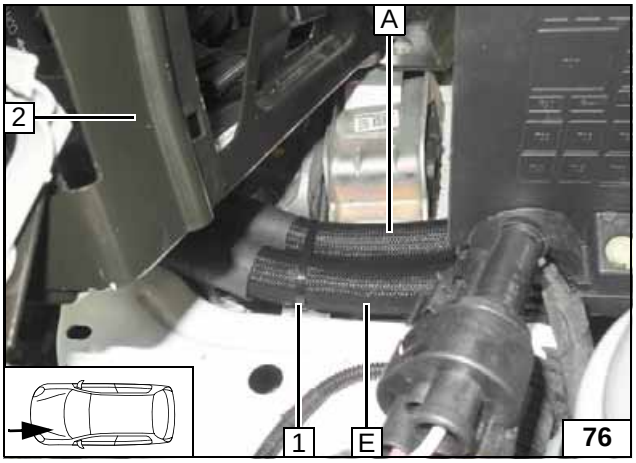
2 Connection piece of heat exchanger inlet
3 16-27mm dia. hose clamp

Installing hose group with check valve



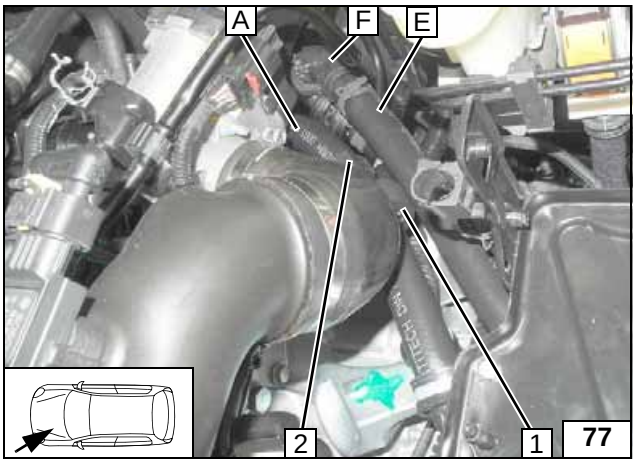
Position battery carrier **1** in engine compartment. Route hoses **A** and **E** under the cross member to the heater.

Routing in engine compartment



1 Cable tie on angle bracket
2 Install battery carrier

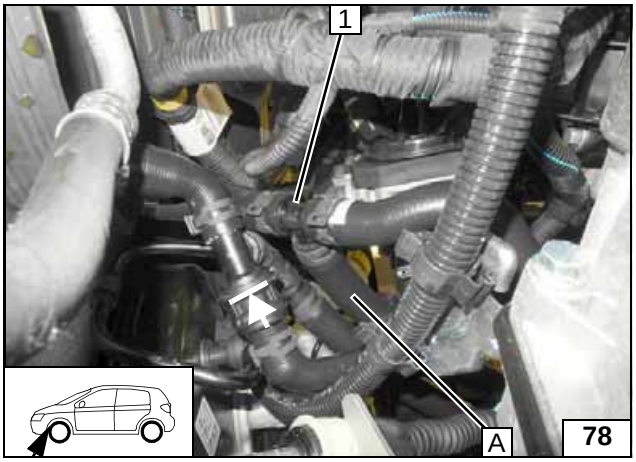
Routing in engine compartment



Hose **A** on T-piece (see next figure).

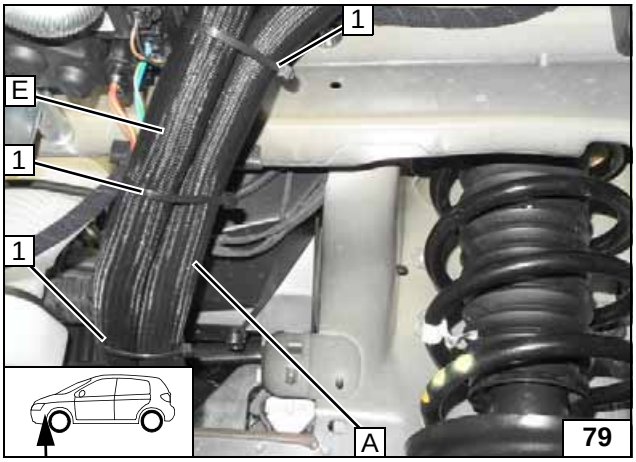
1 Position black (sw) rubber isolator
2 Connect original vehicle hose bracket with hose **A**

Connecting hoses A and E



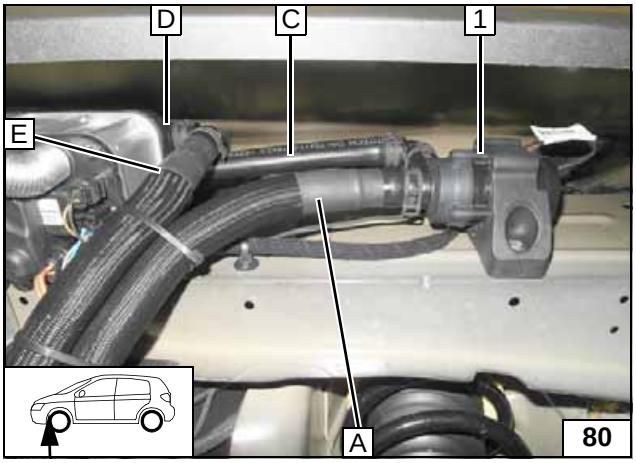
1 T-piece

Connecting hose A



1 Cable tie [3x]

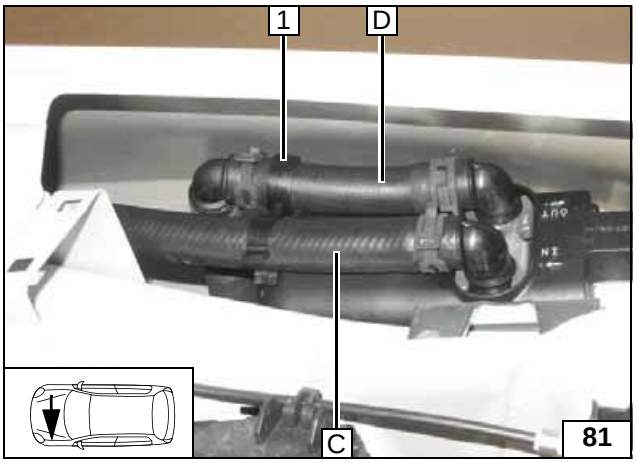
Routing in engine compartment



Fill hoses **A** and **E** with coolant before installation.

1 Circulating pump

Connecting heater / circulating pump



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

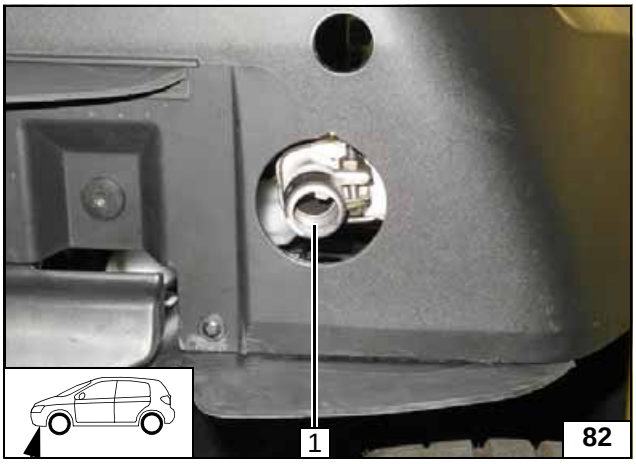
1 Hose bracket

Installing hose bracket

Final Work

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

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **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.**
- **See installation instructions for initial start-up and function check.**

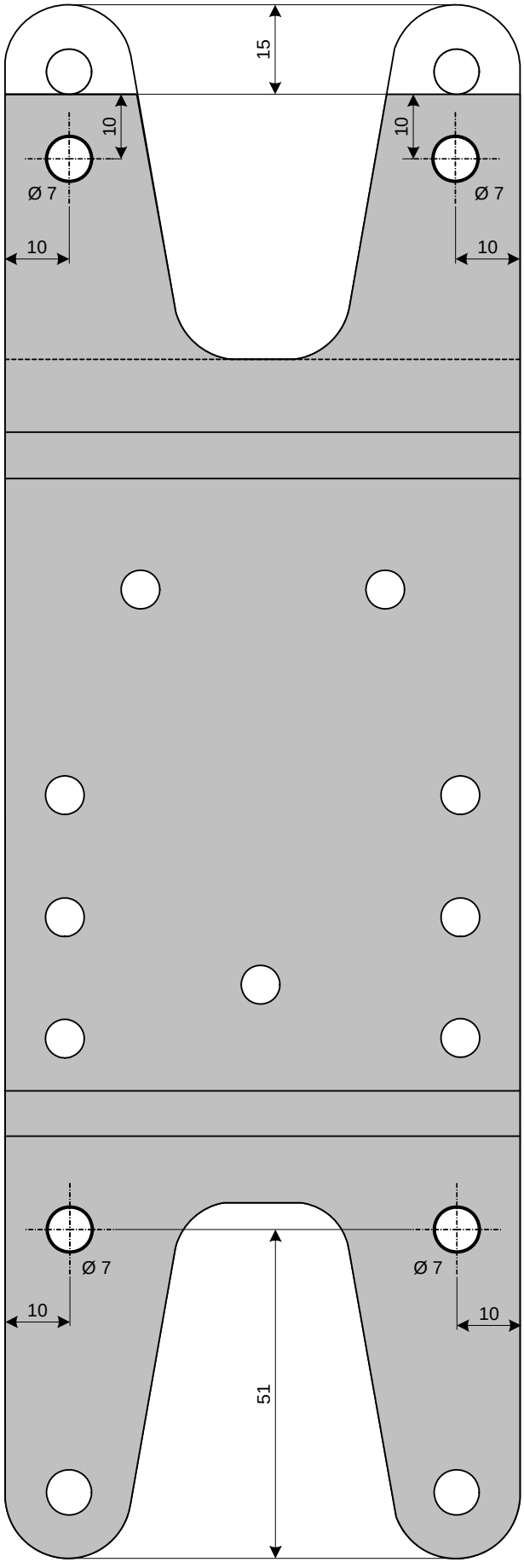


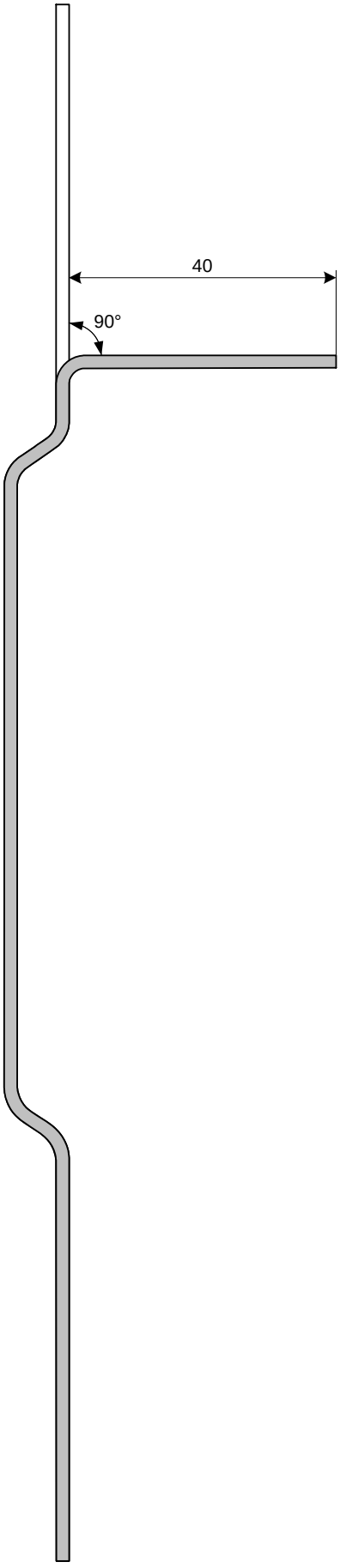
Align exhaust end section **1** with the centre of the hole and flush with the bumper trim. Ensure sufficient distance from neighbouring components, correct if necessary.

Aligning exhaust end section

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

Template for Bracket





100mm

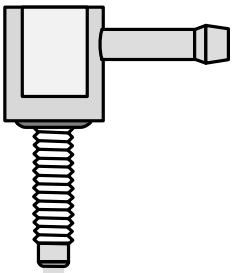
Scale 1:1

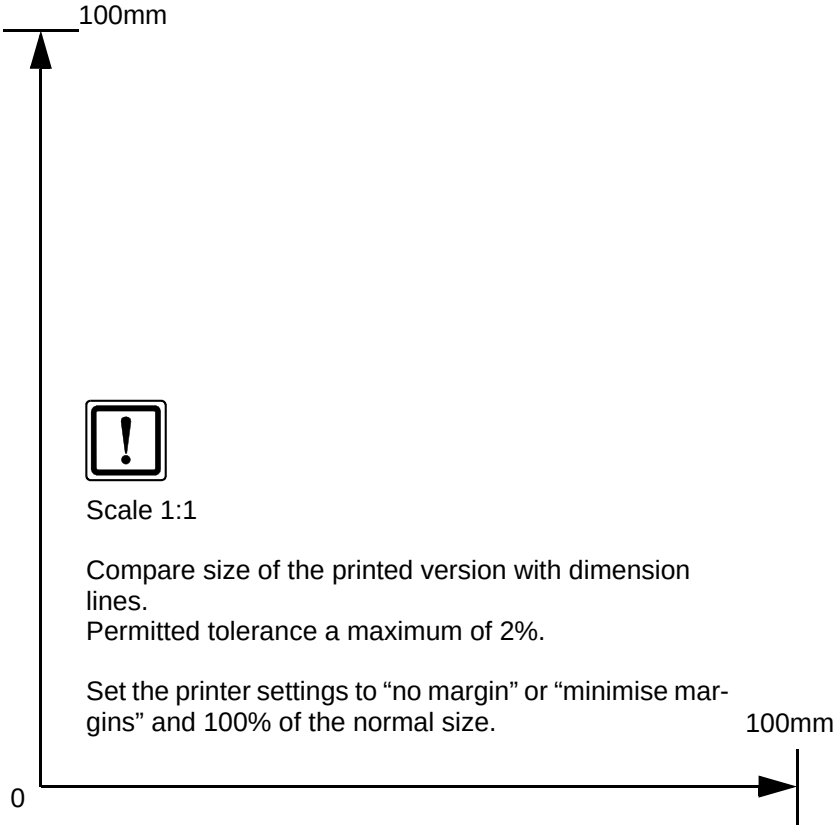
Compare size of the printed version with dimension lines. Permitted tolerance a maximum of 2%.

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

100mm

Template for Fuel Standpipe





Scale 1:1

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

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

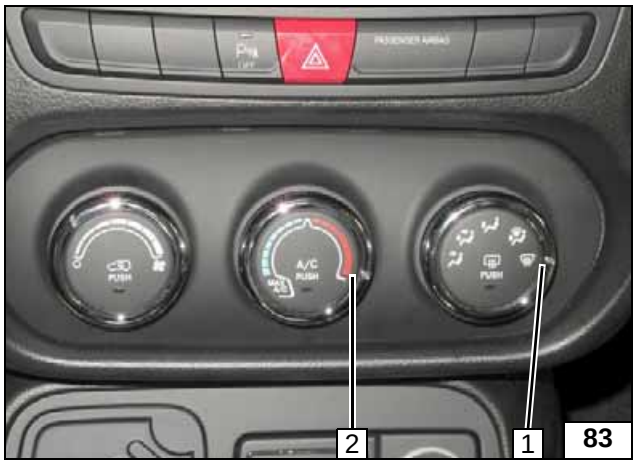
Operating Instructions for Manual A/C

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.

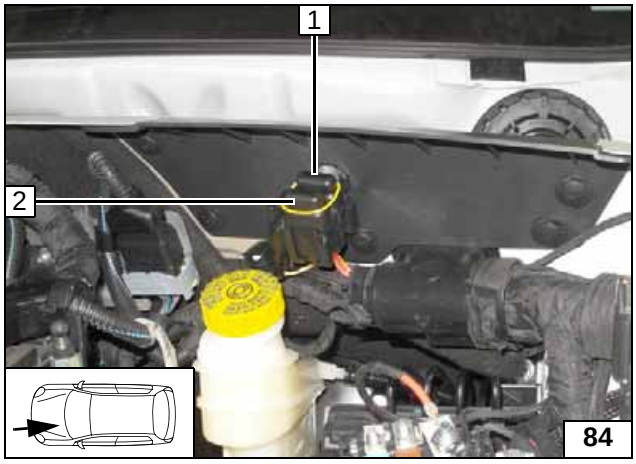
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



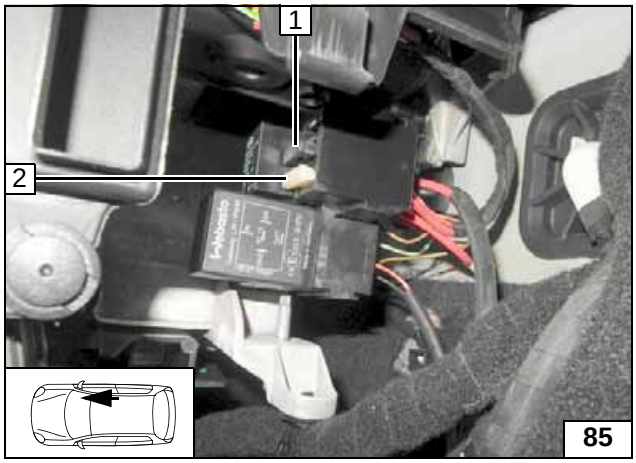
1 Air outlet to windscreen
2 Set temperature to "max."

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses

Operating Instructions for Automatic A/C

Please remove page and add to the vehicle operating instructions.

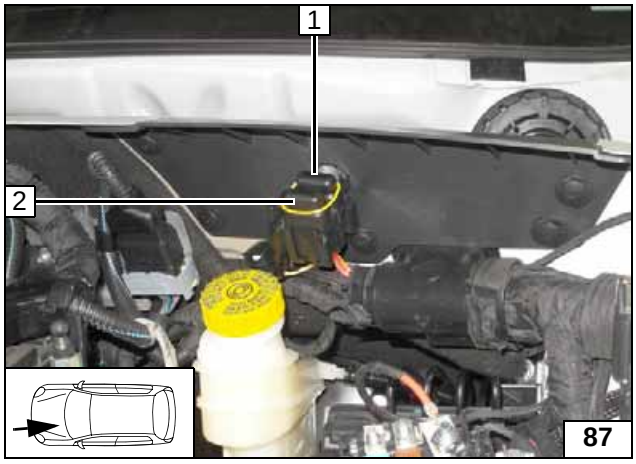
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

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

Before parking the vehicle, make the following settings:

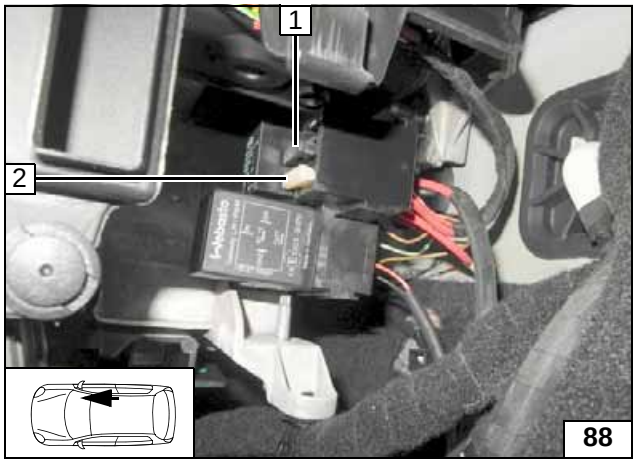
1 Set temperature on both sides to "HI"
2 Air outlet to windscreen

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses