Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Mitsubishi Outlander

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Mitsubishi	Outlander	CWB	e1 * 2001 / 116 * 0482 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.0 MIVEC	Petrol	SG	108	1998	4B11
2.2 DID	Diesel	SG	103	2268	4N14
2.2 DID	Diesel	SG	115	2179	4HN
2.2 DID	Diesel	SG	130	2268	4N14

SG = Manual transmission

2.0 petrol from Model Year 2010
2.2 diesel from Model Year 2007
Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning
Front fog light
Alarm system / passenger compartment monitoring
Headlight washer system
Tempomat

Not verified: Manual air-conditioning

Total installation time: about 10 hours

Mitsubishi Outlander

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit for Mitsubishi Outlander 2010 Petrol and diesel: **1317382C**
- 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

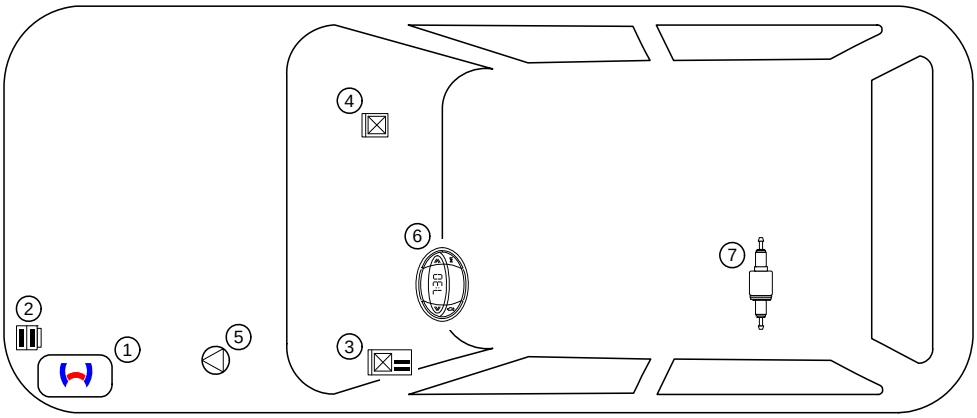
Notes on installation:

- Arrange for the vehicle to be delivered with the tank only about ¼ full!
- The installation location of the push button in the 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.

Installation Overview

Legend:

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



Notes on Total Installation Time

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

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 must audibly snap into place during assembly.

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 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.

Mitsubishi Outlander

Notes on Validity

This installation documentation applies to the Mitsubishi Outlander 2.0 petrol vehicles starting with model year 2010 and later as well as 2.2 diesel starting with model year 2007 and later - for validity, see page 1 -, 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 self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

Dimensions
- All dimensions are in mm

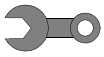
Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque of bolt on retaining plate of 5x15 water connection piece = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

Explanatory Notes on Document

You will find an identification mark on the outside top right corner of the page in question to provide you with a quick overview of the individual working steps.

Special features are highlighted using the following symbols:

Mechanical system



Electrical system

Coolant circuit

Combustion air

Fuel

Exhaust gas

Software

Specific risk of injury or fatal accidents.

Specific risk due to electrical voltage

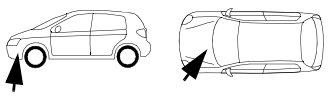
Specific risk of damage to components.

Specific risk of fire or explosion.

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

Reference to a special technical feature.

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



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

Mitsubishi Outlander

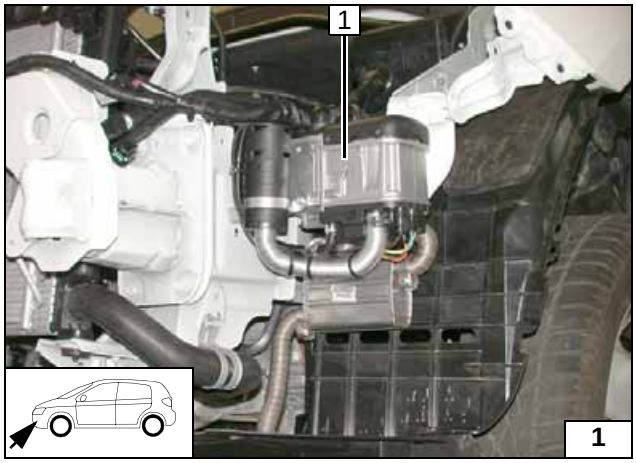
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and remove the battery.
- Remove the air filter together with the intake hose.
- Remove the engine control unit.
- Drain off the coolant.
- Loosen the right and left-hand wheel well trim.
- Remove the bumper.
- Remove the underbody left fuel tank cover.
- Remove the third seat row (if present).
- Fold back the floor covering.
- Open the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the footwell trim on the driver's and front passenger's side.
- Remove the instrument panel trim on the driver's side (only with Telestart).

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.

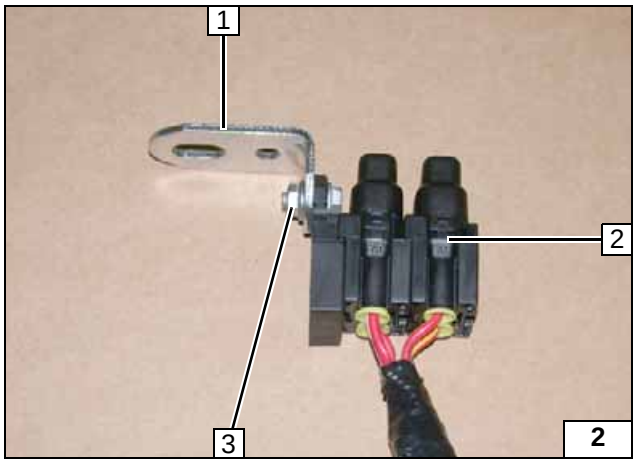


Heater Installation Location

1 Heater

Installation location

Preparing Electrical System



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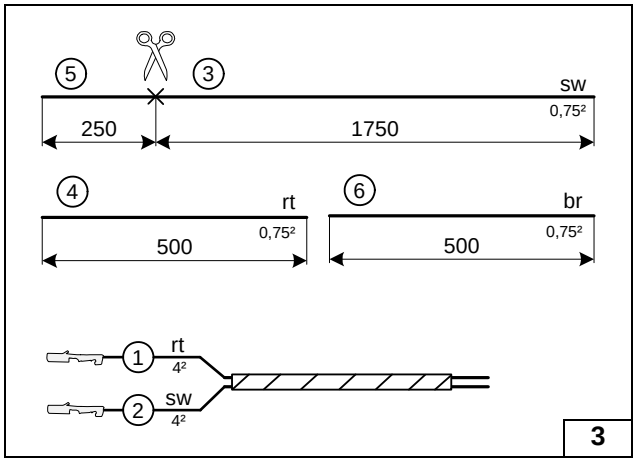
1 Angle bracket
2 F1-F2 fuses mounted
3 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut

Preparing engine compartment fuse holder



3

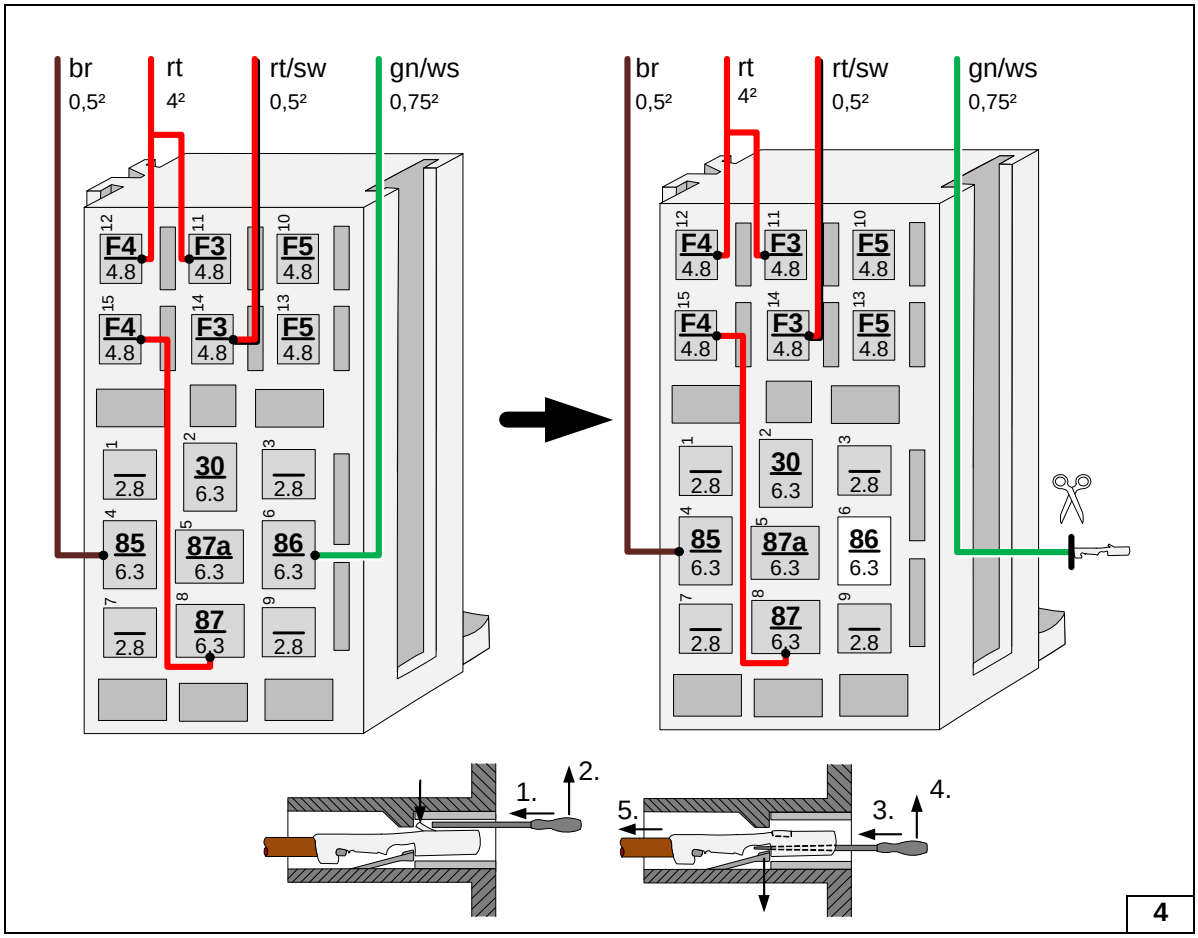
Wire sections retain their numbering in the entire document.

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

Pull wire ③ into the provided protective sleeving.

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

Cutting wires to length/ assigning wires



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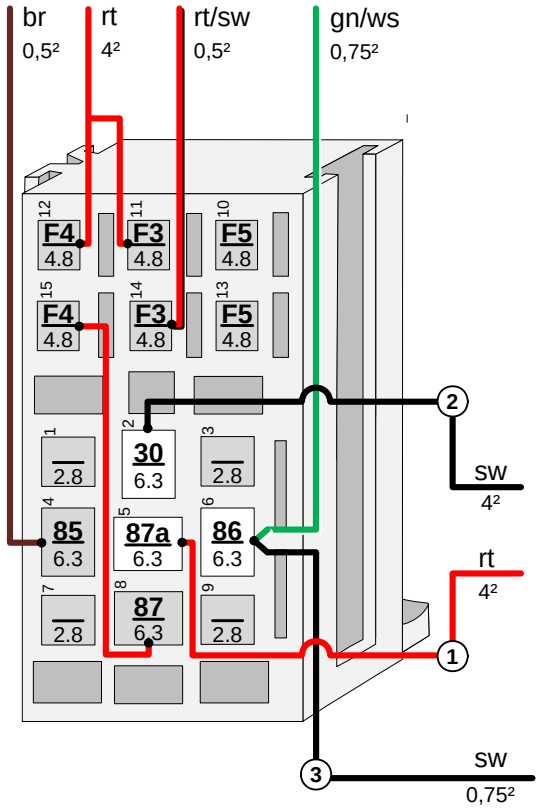
Preparing passenger compartment relay and fuse holder



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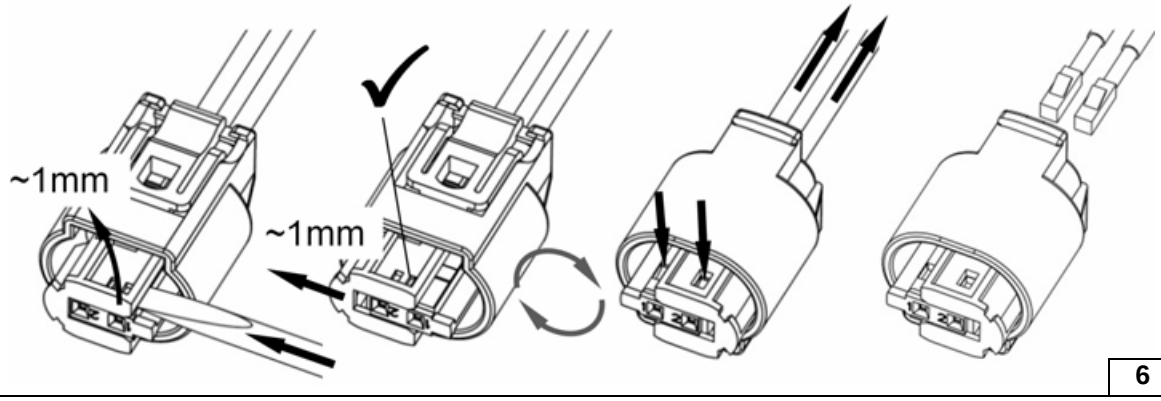
Connecting wires to passenger compartment relay and fuse holder

Connector X7



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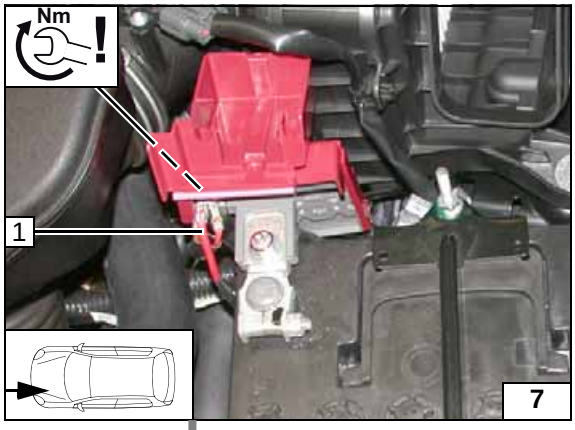
Dismantling connector of metering pump

Electrical System

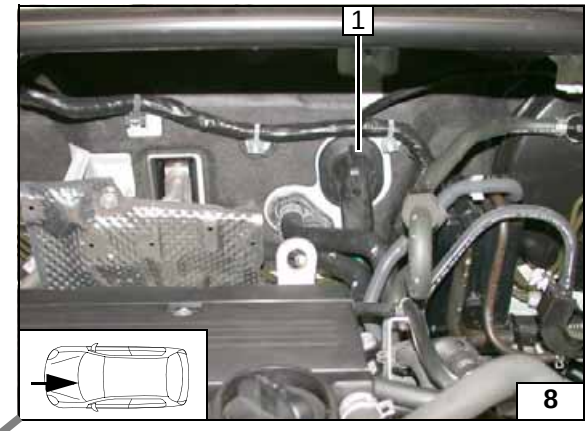
Positive wire

1 Positive wire to positive battery terminal

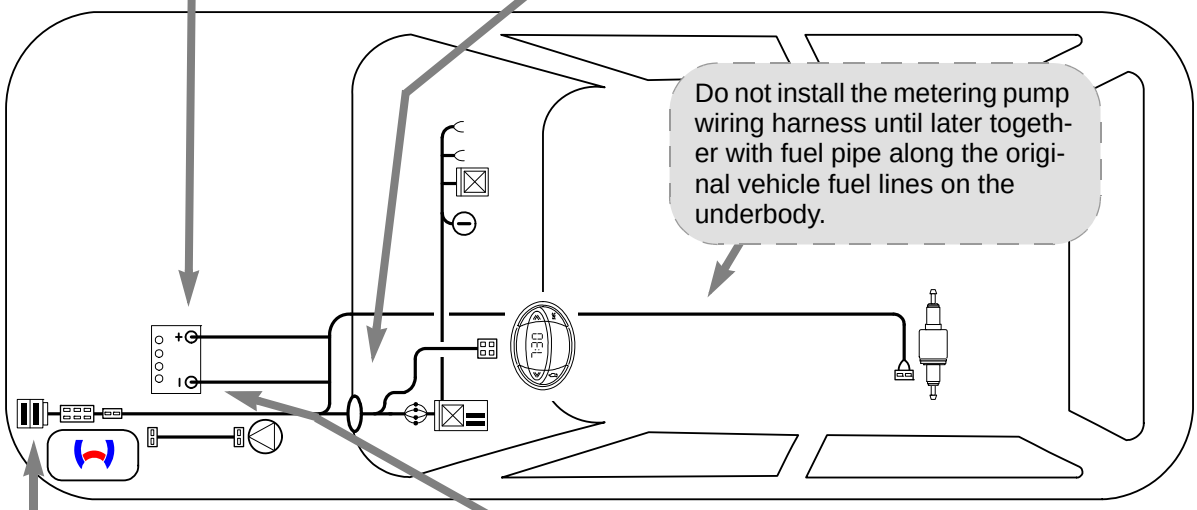


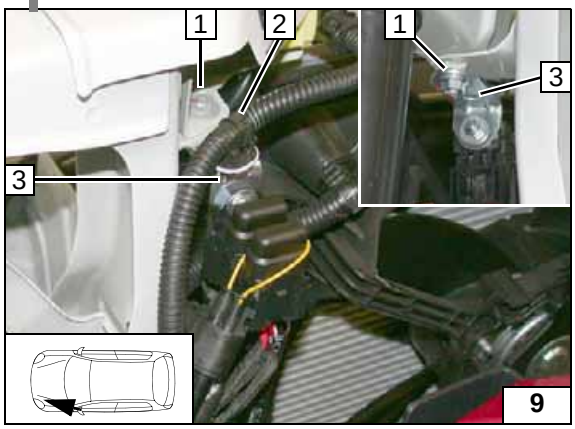
Wiring harness pass through

1 Protective rubber plug



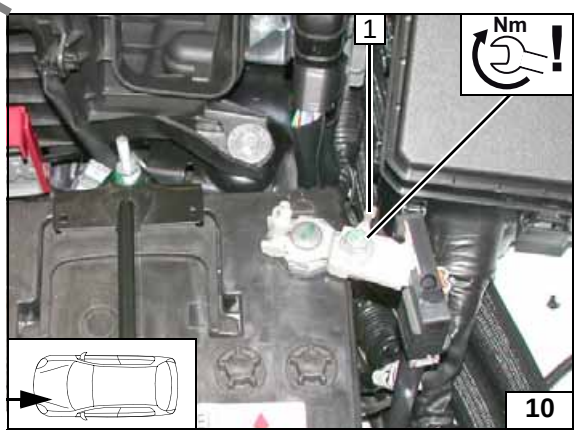
Wiring harness routing diagram





Engine compartment fuse holder

1 Original vehicle bolt, M6 flanged nut
2 Retaining clip of original vehicle wiring harness in hole of angle bracket
3 Angle bracket

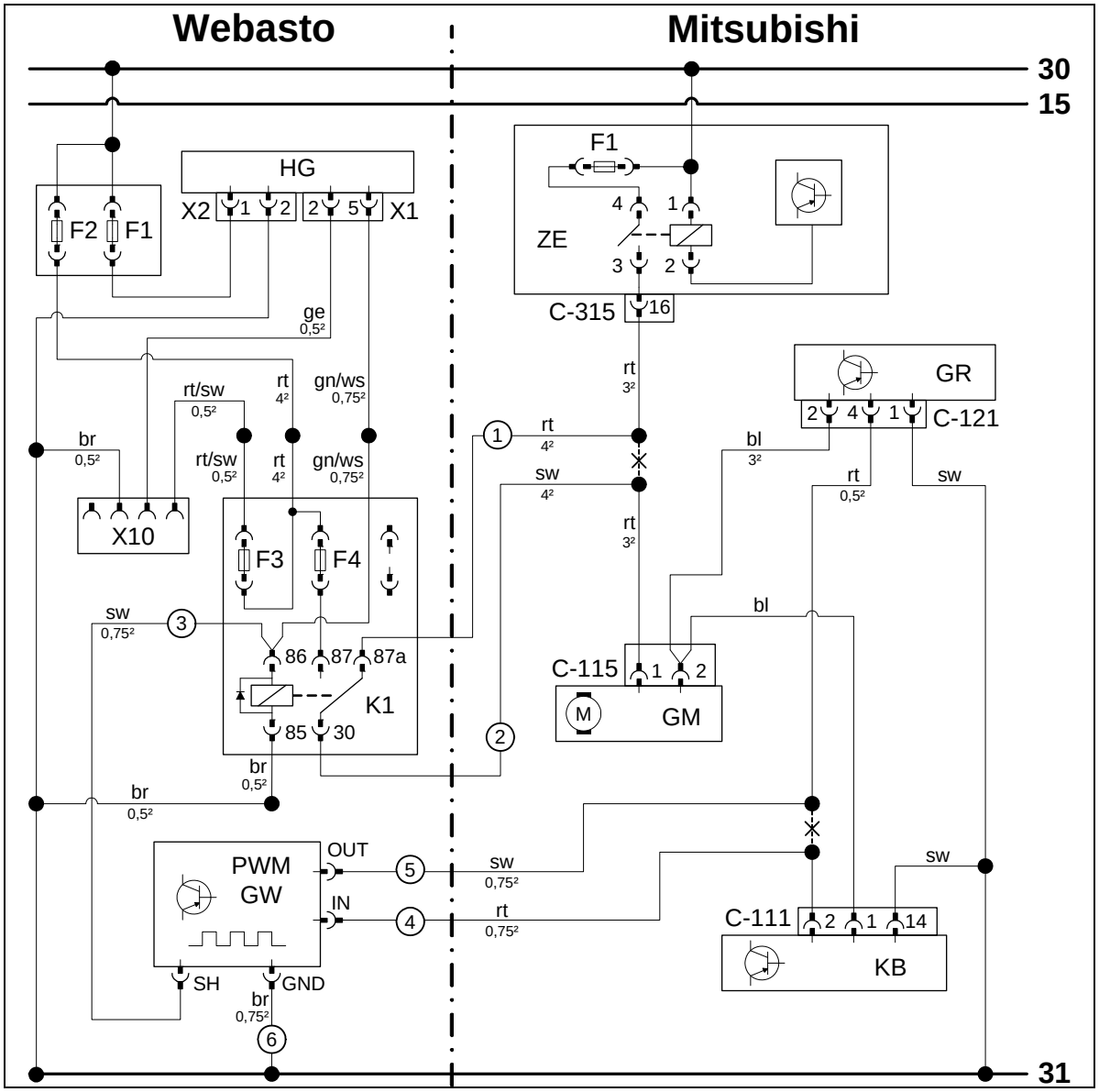


Earth wire

1 Earth wire on negative battery terminal

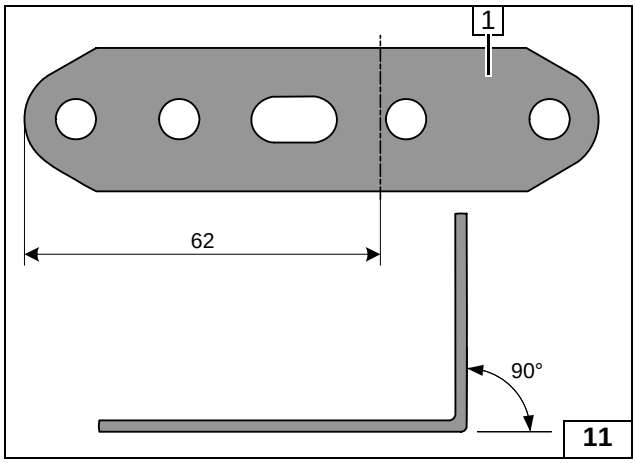
Fan Controller

Wiring diagram



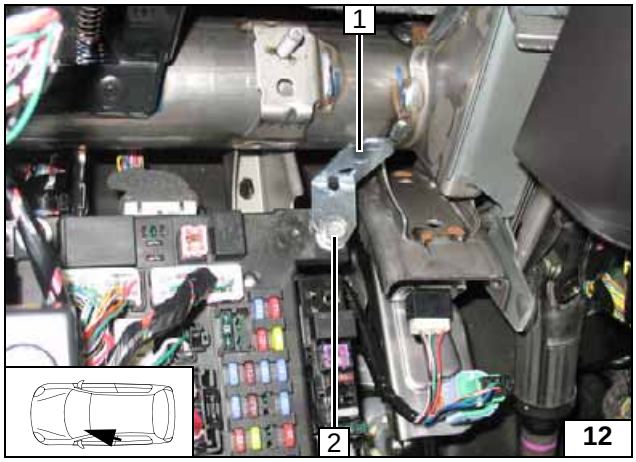
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Central electrical box	rt	red
X1	6-pin heater connector	F1	Fuse	ws	white
X2	2-pin heater connector	C-315	19-pin connector ZE	sw	black
F1	20A fuse	GR	Fan controller	br	brown
F2	30A fuse	C-121	4-pin connector GR	gn	green
X10	4-pin connector of heater control	GM	Fan motor	bl	blue
		C-115	2-pin connector GM	ge	yellow
F3	1A fuse	KB	A/C control panel		
F4	25 A fuse	C-111	20-pin connector KB		
K1	Fan relay				
PWM GW	Pulse width modulator				
Settings of PWM GW:					
Duty cycle:	100% (DC)				
Frequency:	not relevant				
Voltage:	4.7V			**X**	Cutting point
Function:	High-side			Wiring colours may vary.	

Legend



1 Perforated bracket

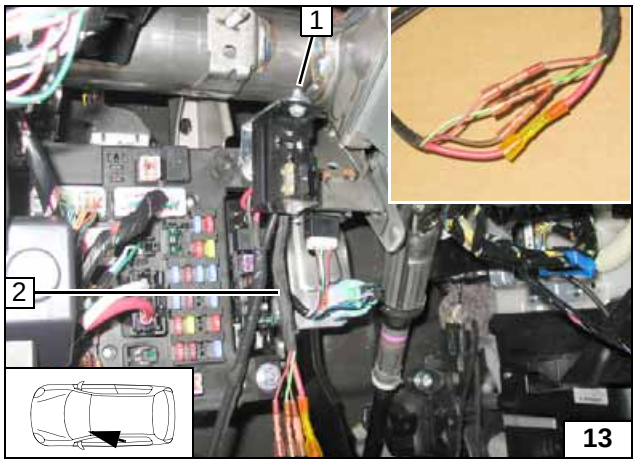
Angling down perforated bracket



Remove original vehicle bolt at position **2** and discard. Insert three washers between perforated bracket **1** and passenger compartment fuse box as height adjustment.

2 M6x35 bolt, perforated bracket **1**, washer [3x], existing threaded hole

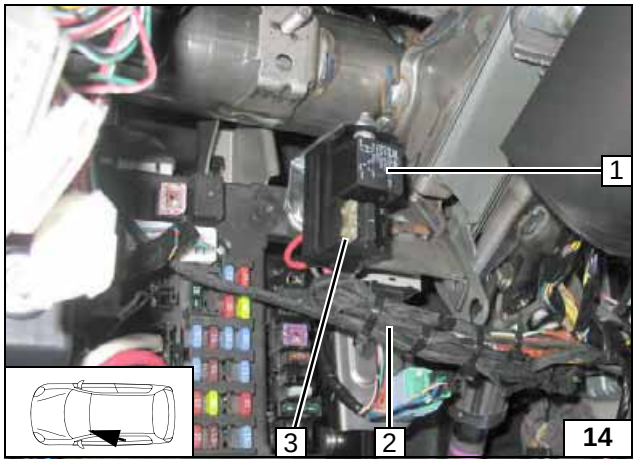
Mounting perforated bracket



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

1 M5x16 bolt, flanged nut

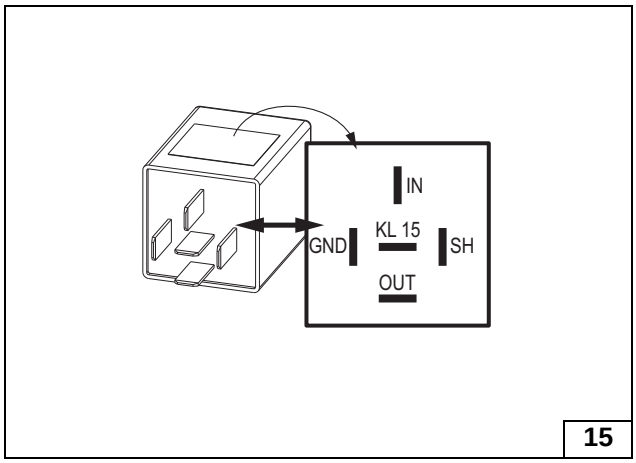
Installing relay and fuse holder of passenger compartment



Tie back wiring harnesses **2**. Route black (sw) additional wire ③ of K1/86 together with the wiring harness of the fan controller to the right side of the vehicle.

1 K1 relay
3 25A fuse F4

Installing relay and fuse holder of passenger compartment



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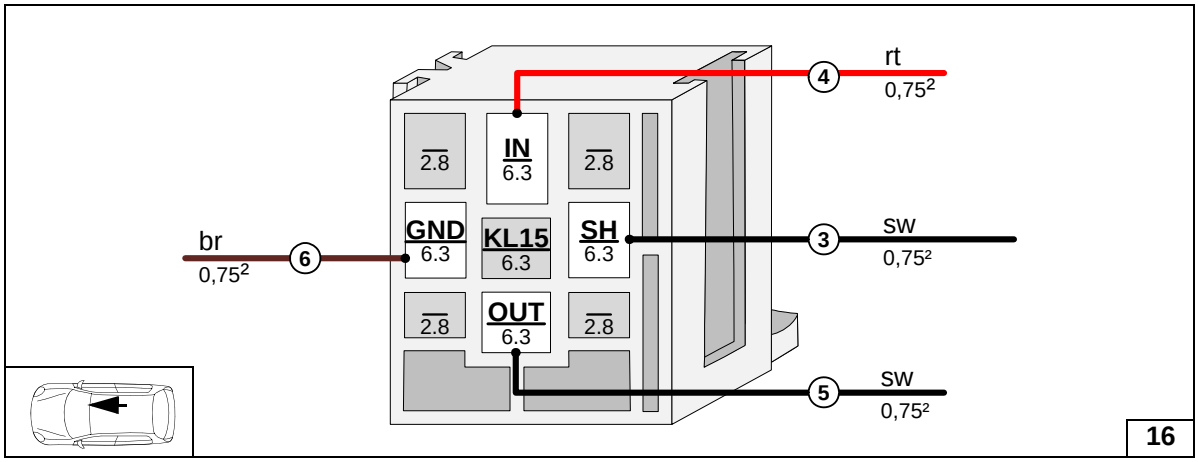
Check the PWM Gateway settings when starting up the heater and adjust if necessary.

Settings:

Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 4.7V
Function: High-side

View of PWM-GW



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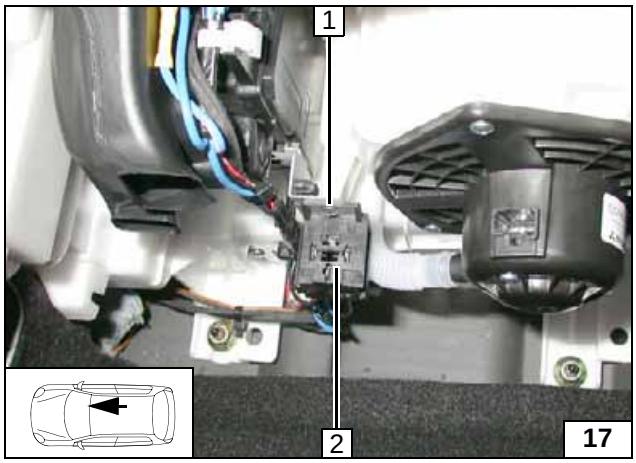
Connecting wires to socket of PWM GW in passenger compartment



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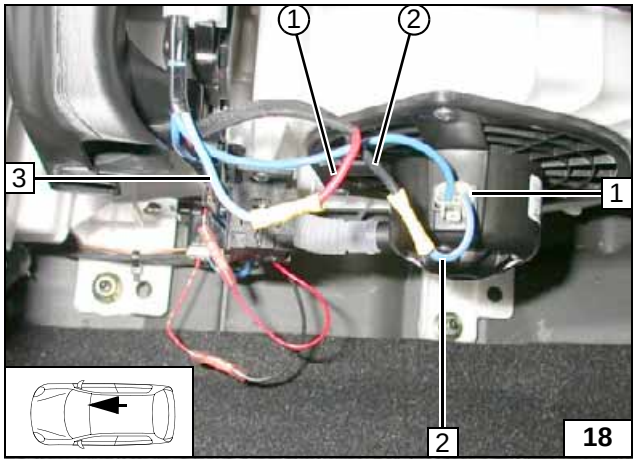
1 Original vehicle bolt
2 PWM GW socket

Installing PWM GW socket



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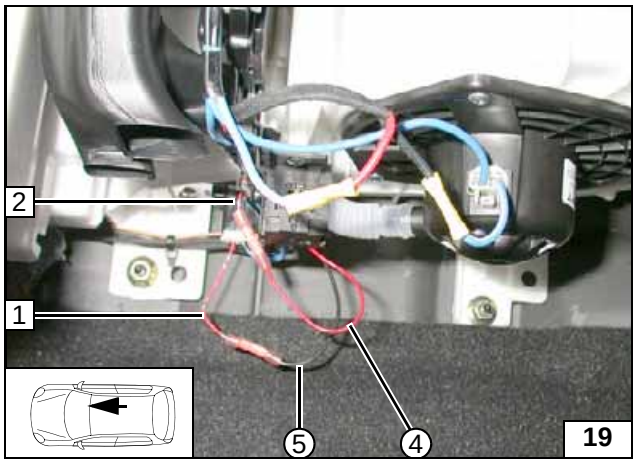
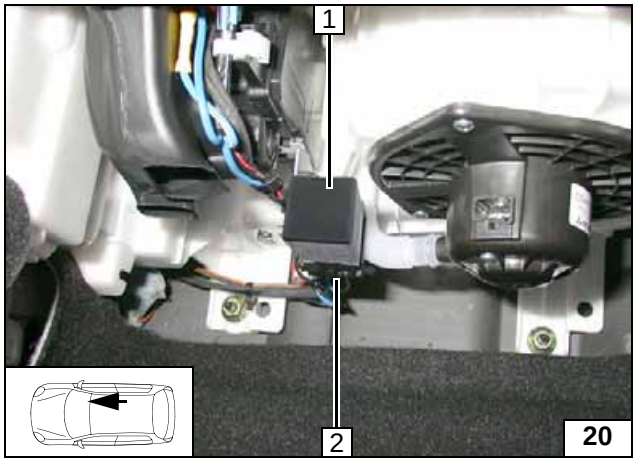
1 2-pin connector C-115 of fan motor
2 Blue/white (bl/ws) wire from connector C-115/Pin 1 of fan motor
3 Blue/white (bl/ws) wire from connector C-315/Pin 16 of central electrical box
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

Connecting fan motor



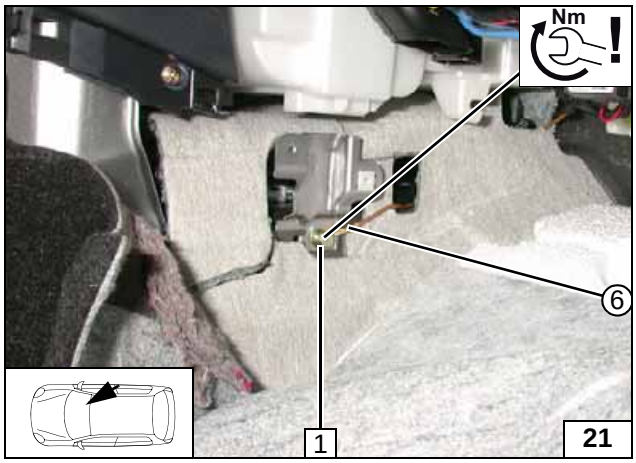
1 Red (rt) wire from connector C121/ pin 4 of fan controller
2 Red (rt) wire from connector C111/ pin 2 of A/C control panel
④ Red (rt) wire of PWM GW/IN
⑤ Black (sw) wire of PWM GW/OUT

Connecting PWM GW



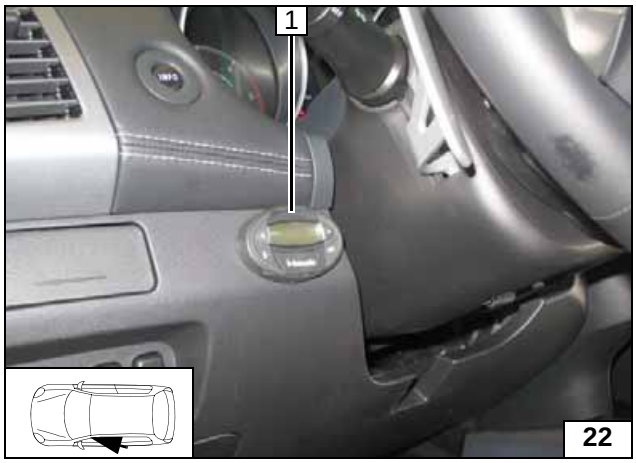
1 PWM GW
2 PWM GW socket

Installing PWM GW



1 Bolt of original vehicle earth point
⑥ Brown (br) wire of PWM GW/GND

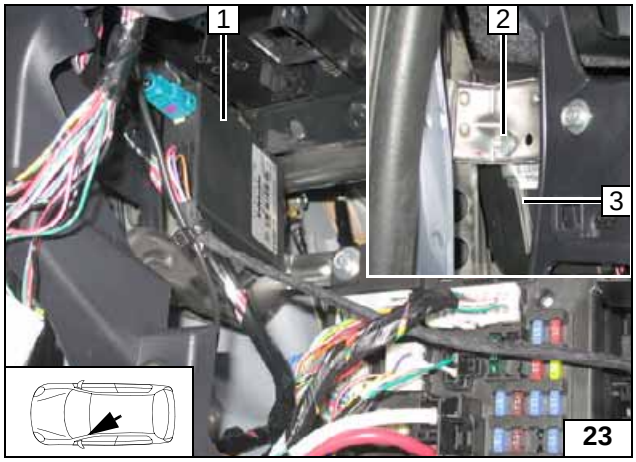
Connecting earth wire



Digital Timer

1 Digital timer

Mounting digital timer

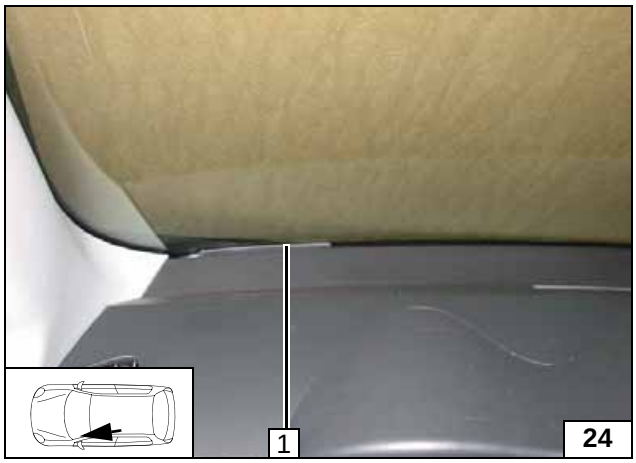


Remote Option (Telestart)

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

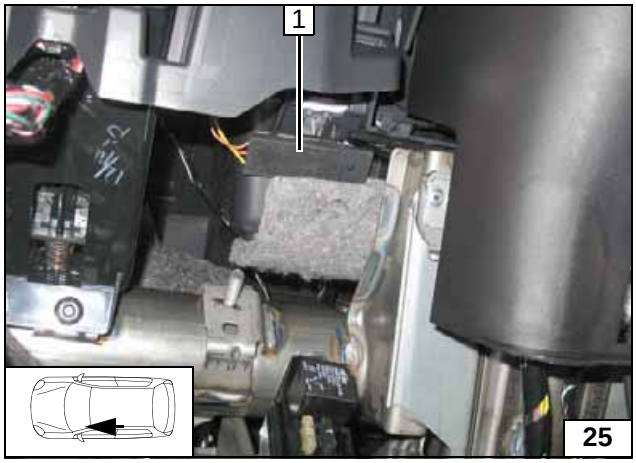
1 Receiver
2 Mount M6x16 bolt, bracket, flanged nut in existing hole

Mounting receiver



1 Antenna

Mounting antenna



Temperature sensor only for T100 HTM

1 Fasten temperature sensor with suitable means

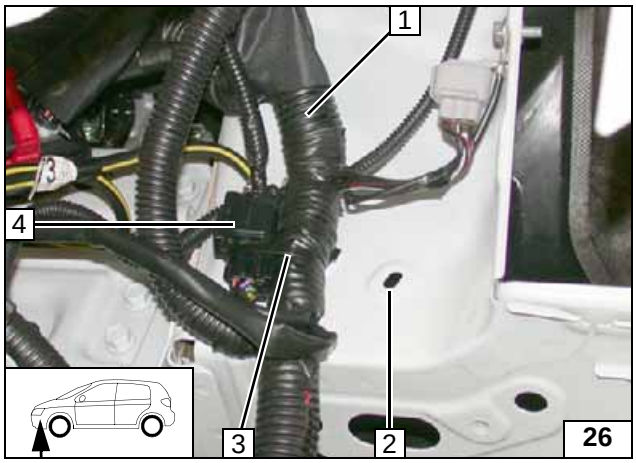
Mounting temperature sensor

Preparing Installation Location

Diesel only

Detach original vehicle relay **4** at position **2** and fasten with cable tie **3** to original vehicle wiring harness **1**.

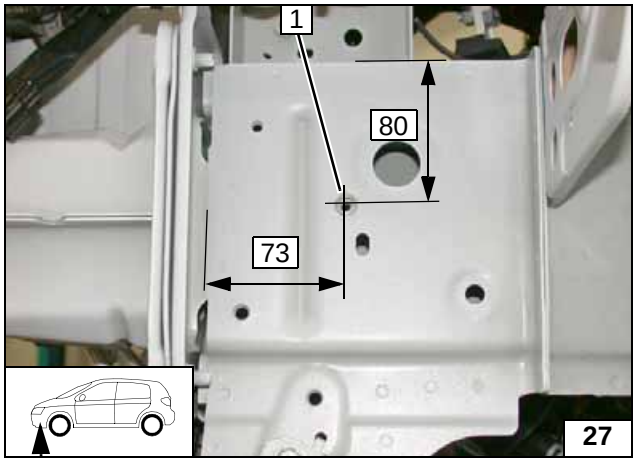
Displacing the relay



All vehicles

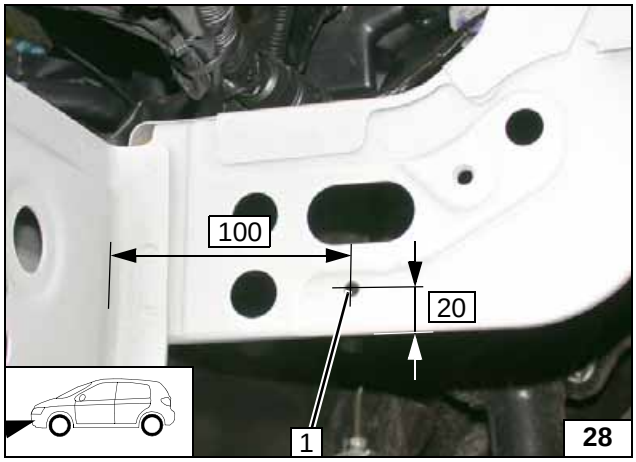
1 9.1mm dia. hole; rivet nut

Installing rivet nut



1 7 mm dia. hole

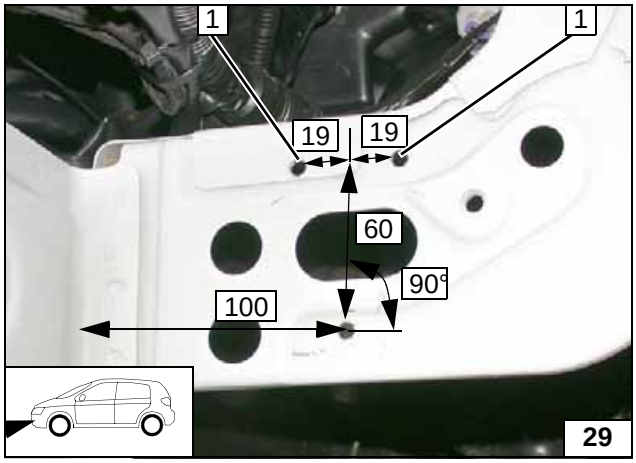
Drilling hole in cross member

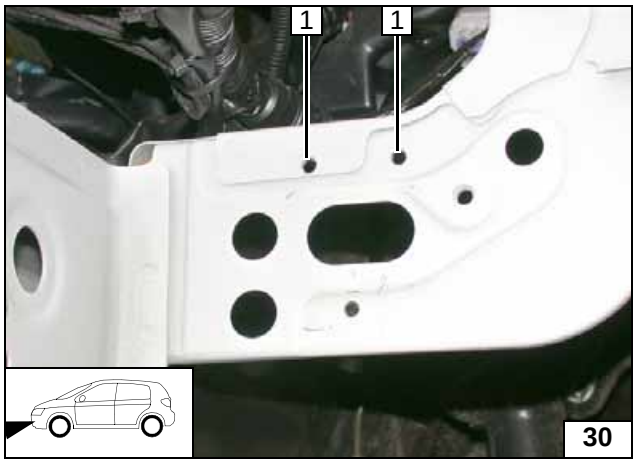


From dimension 60 above at 90° to dimension 19.

1 Copy hole pattern [2x]

Copying hole pattern

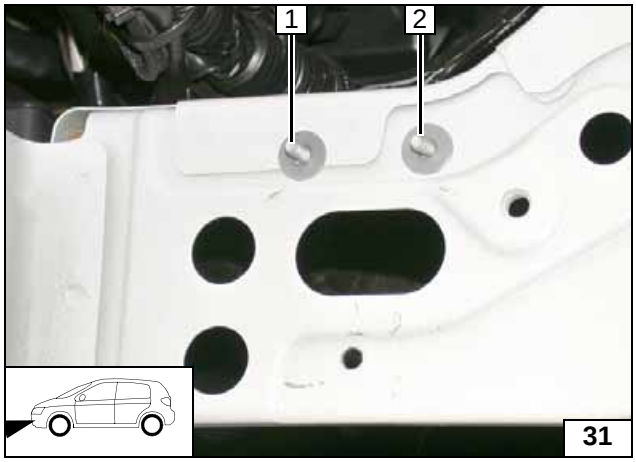




Apply corrosion protection.

1 7 mm dia. hole [2x]

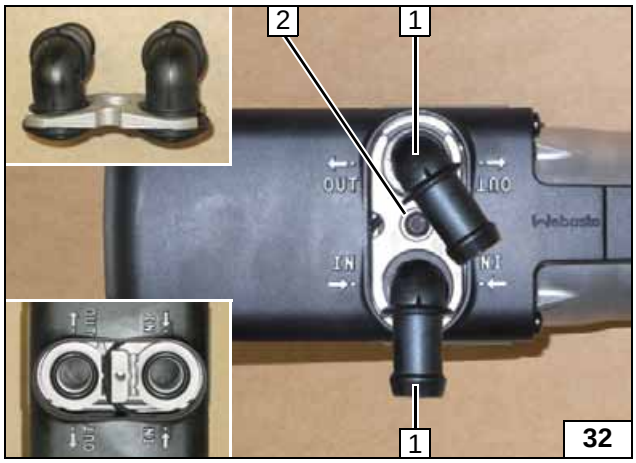
Holes in cross member



Inserting bolt. Mount large diameter washer and stop it from falling with body putty

1 5x15 self-tapping bolt, large diameter washer
2 5x15 self-tapping bolt, large diameter washer [2x]

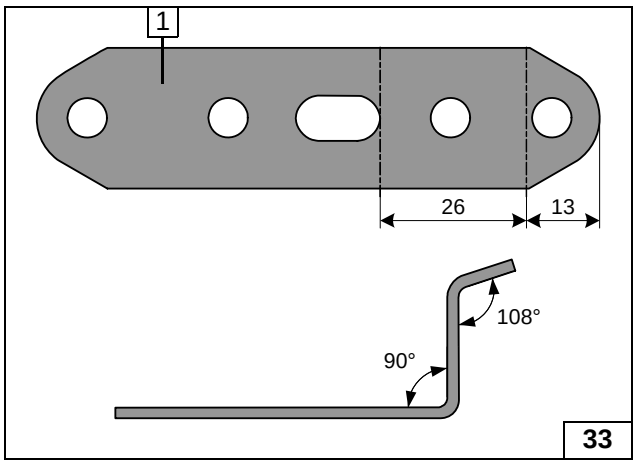
Mounting bolts



Preparing Heater

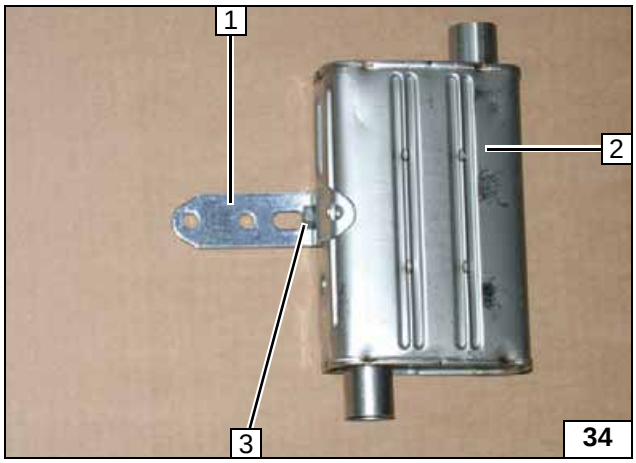
1 Water connection piece, sealing ring [2x each]
2 5x15mm self-tapping bolt, retaining plate of water connection piece

Mounting water connection pieces



1 Perforated bracket

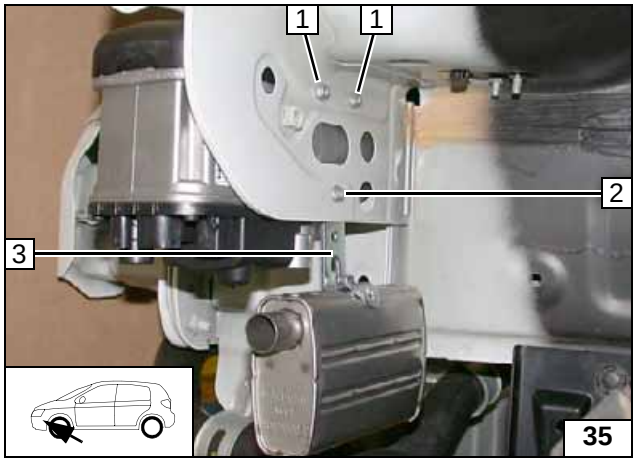
Angling down perforated bracket 2x



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

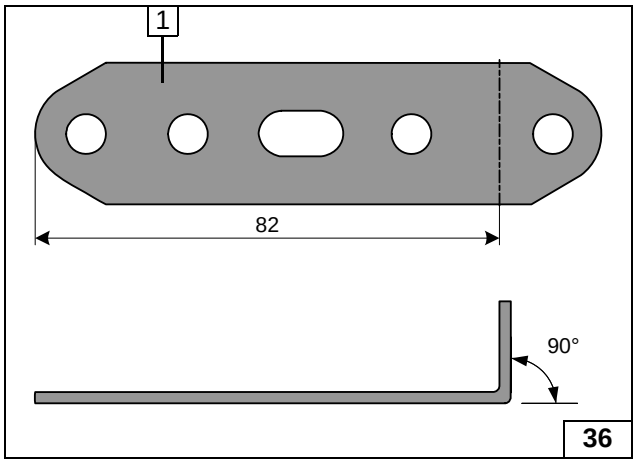
Premounting silencer

Installing Heater



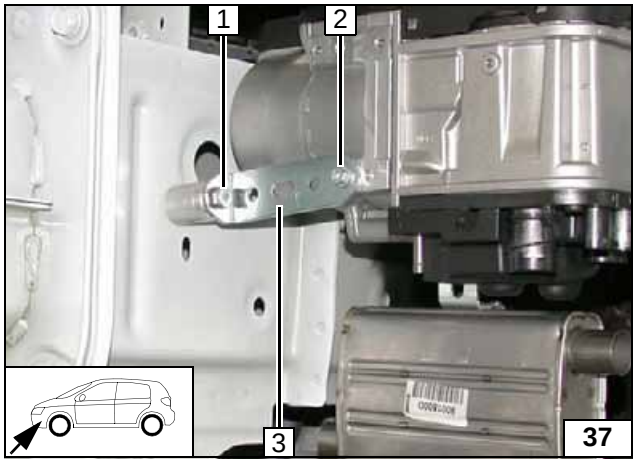
1 Tighten 5x13 self-tapping bolt [2x]
2 5x13 self-tapping bolt
3 Perforated bracket

Mounting heater



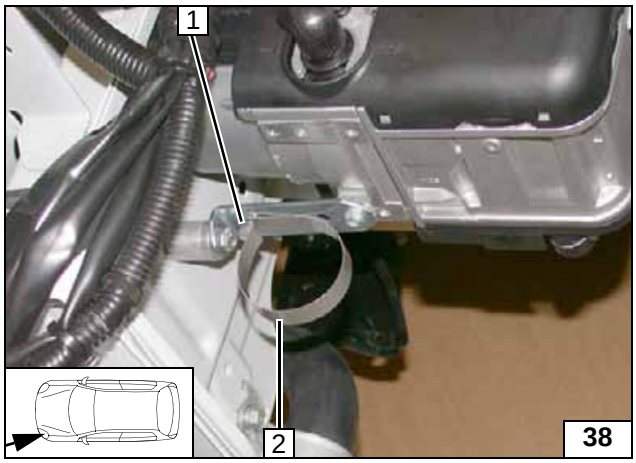
1 Perforated bracket

Angling down perforated bracket



1 M6x40 bolt, spring lockwasher, 5 mm shim, 20 mm shim
2 5x13 self-tapping bolt
3 Perforated bracket

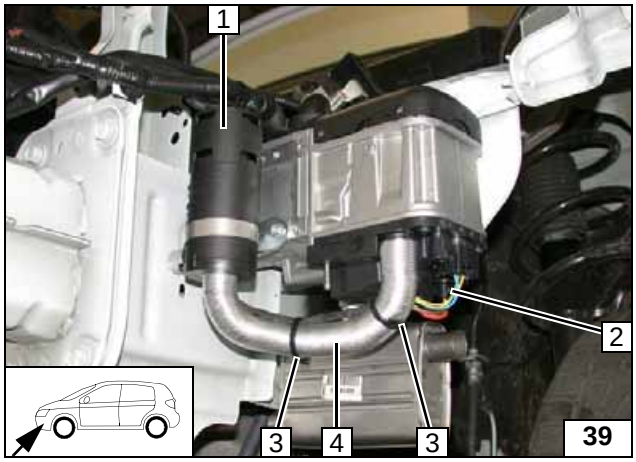
Mounting heater



Combustion Air

1 M5x16 bolt, flanged nut
2 51 mm dia. clamp

Mounting clamp



1 Silencer
2 Wiring harness connector of heater [2x]
3 Cable tie
4 Combustion air pipe

Mounting silencer

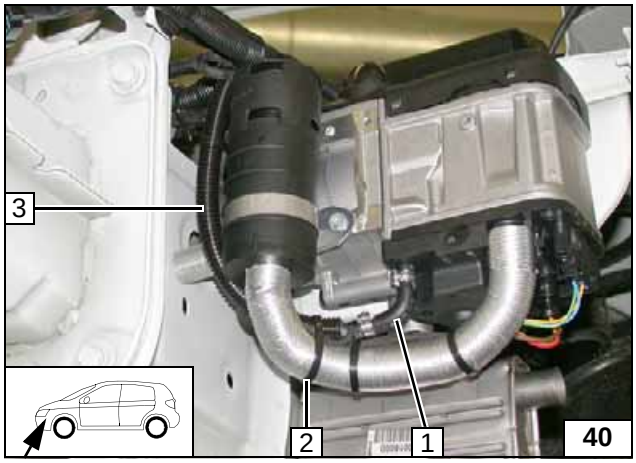
Fuel

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

Catch any fuel running off with an appropriate container.

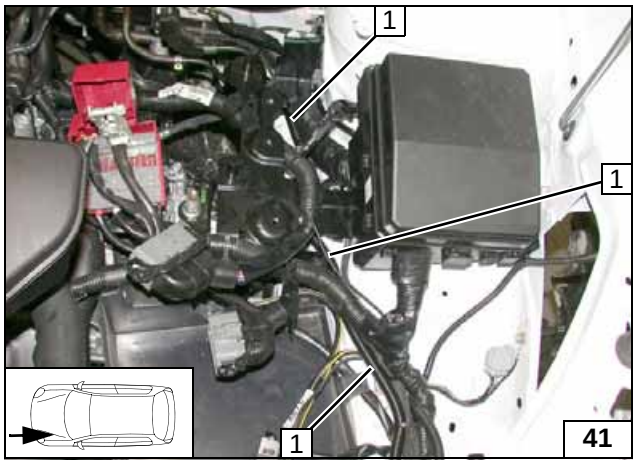
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



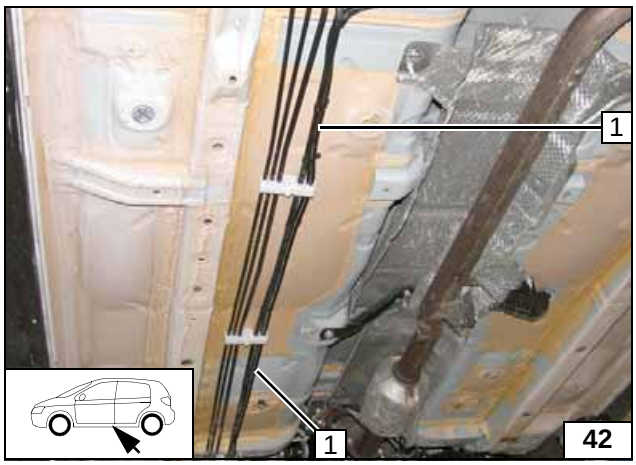
1 90° moulded hose, 10 mm dia. clamp [2x]
2 Cable tie
3 Fuel line and wiring harness of metering pump in corrugated tube

Connecting heater



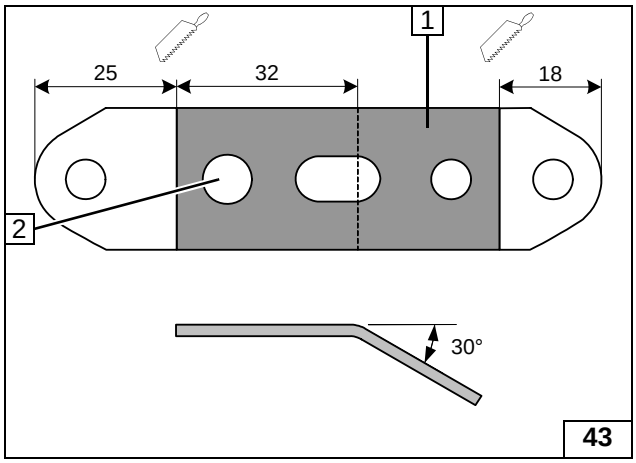
1 Fuel line and wiring harness of metering pump in corrugated tube

Routing lines



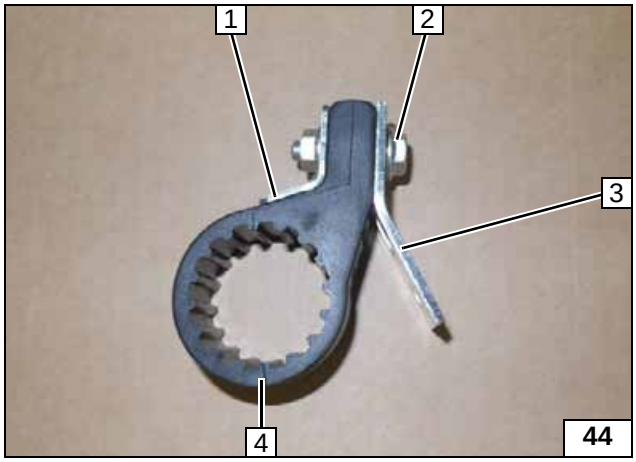
1 Fuel line and wiring harness of metering pump in corrugated tube

Routing lines



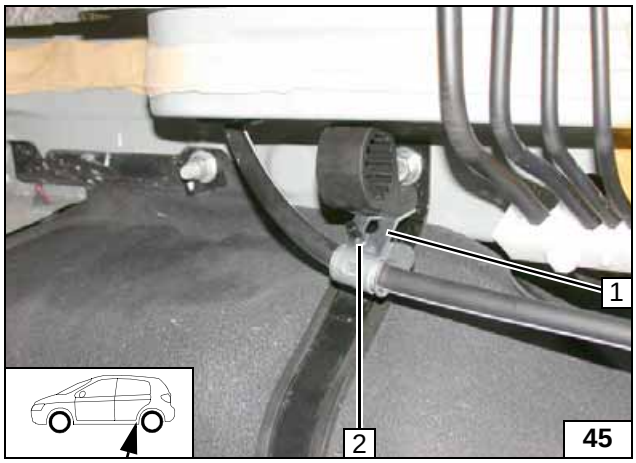
1 Perforated bracket
2 Drill out 8.5 mm dia. hole

Cutting to length, drilling and bending perforated bracket



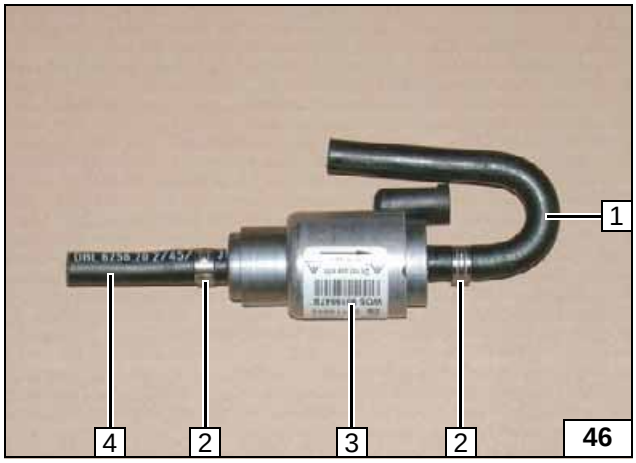
1 Support angle bracket
2 M6x25 bolt, flanged nut
3 Perforated bracket
4 Mounting of metering pump

Premounting metering pump mount



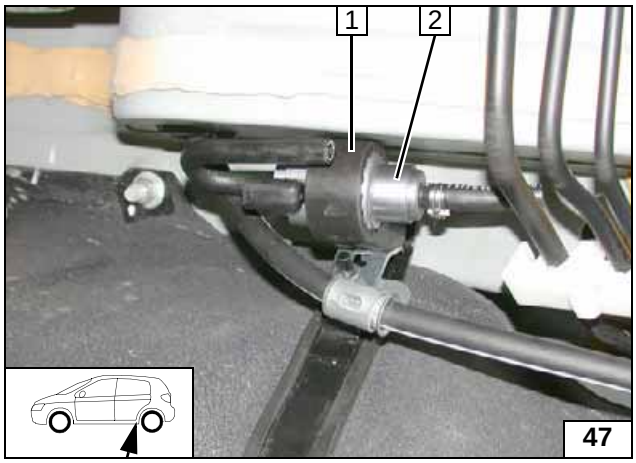
1 Perforated bracket
2 Original vehicle stud bolt, original vehicle nut

Mounting metering pump mount



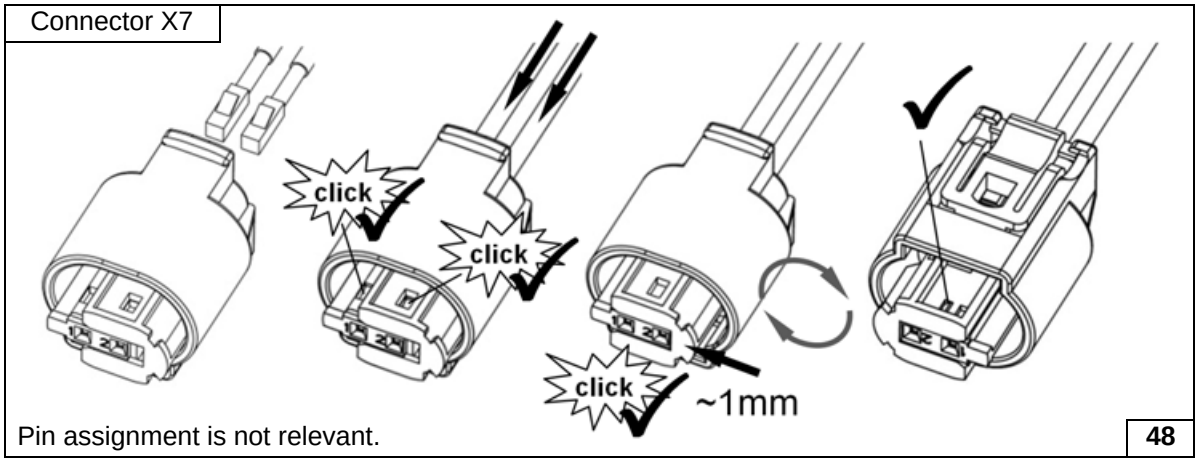
1 180° moulded hose
2 10 mm dia. clamp [2x]
3 Metering pump
4 Hose section

Premounting metering pump

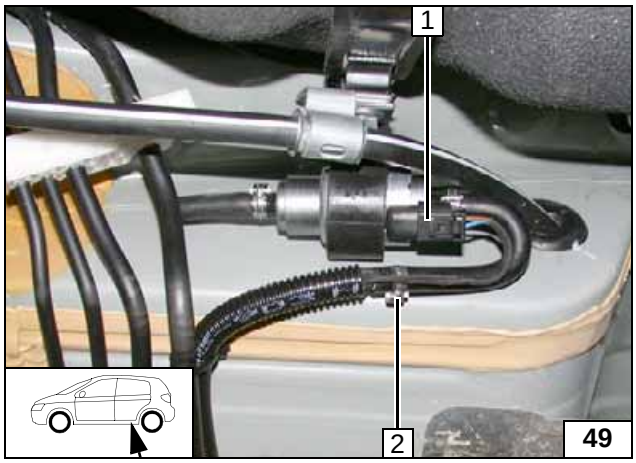


1 Mounting of metering pump
2 Metering pump

Mounting metering pump

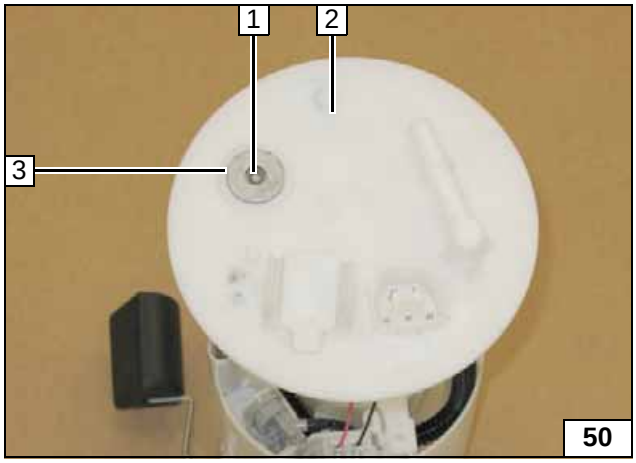


Completing connector of metering pump



1 Wiring harness of metering pump, connector X7 mounted
2 Fuel line of heater, 10 mm dia. clamp

Connecting metering pump

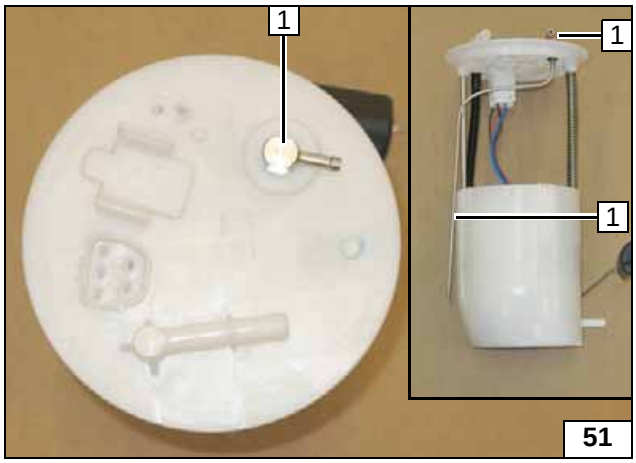


Petrol

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

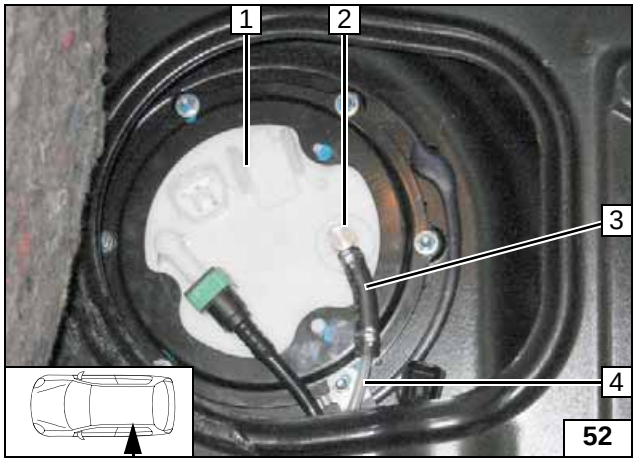
1 Copy hole pattern, 6 mm dia. hole
3 Large diameter washer centred in cut-out

Fuel extraction



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

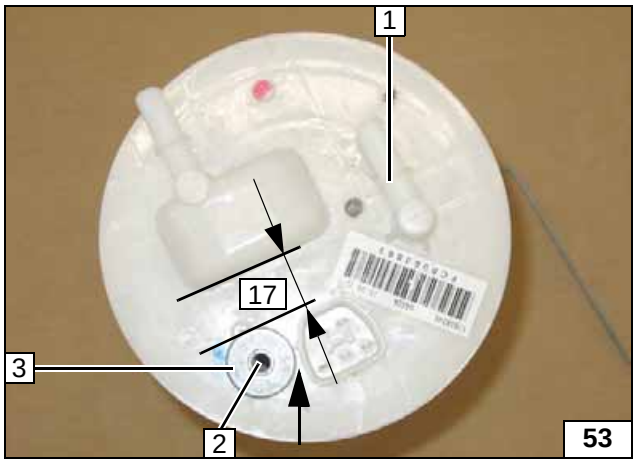
Installing fuel standpipe



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions. Push corrugated tube onto fuel line pipe **4**!

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

Installing fuel line

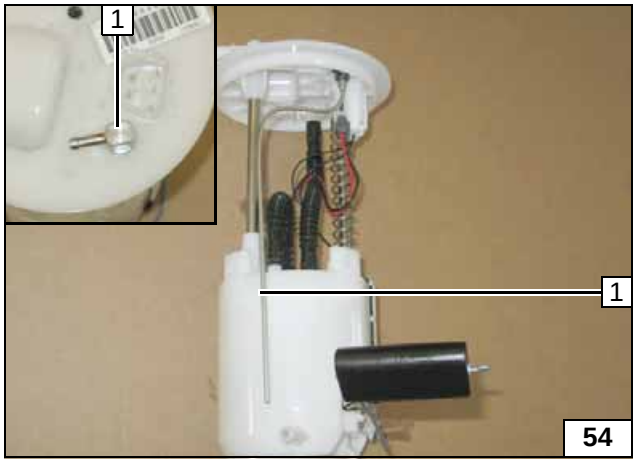


Diesel 103 / 130kW

Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Place washer with outer dia. d_a= 21.6mm **3** against the connector housing (see arrow).

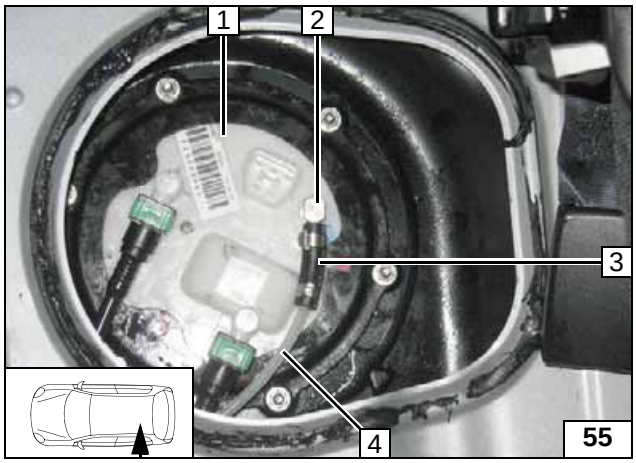
2 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

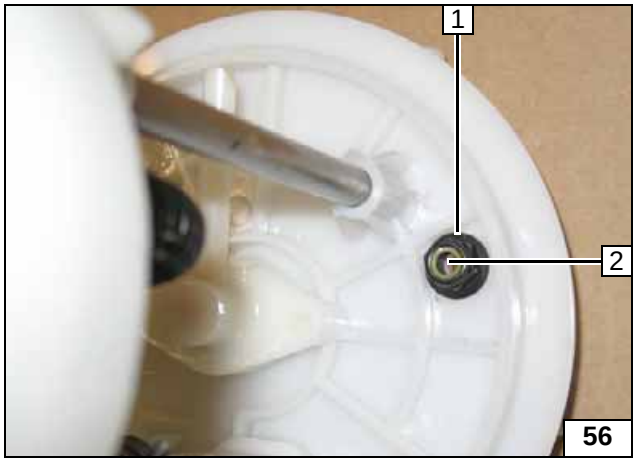
Installing fuel standpipe



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

2 Fuel standpipe
3 Hose section, 10 mm dia. Caillau clamp [2x]
4 Fuel line

Installing fuel line

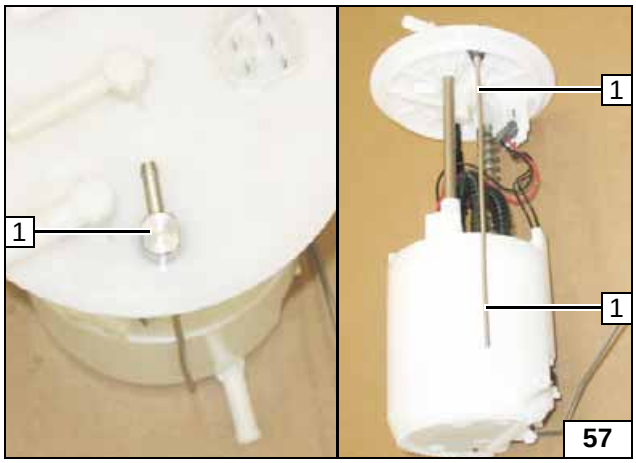


Diesel 115kW

Remove fuel-tank sending unit in accordance with manufacturer's instructions.
Ensure correct seating of flanged nut of fuel standpipe **1** between the ribs while drilling.

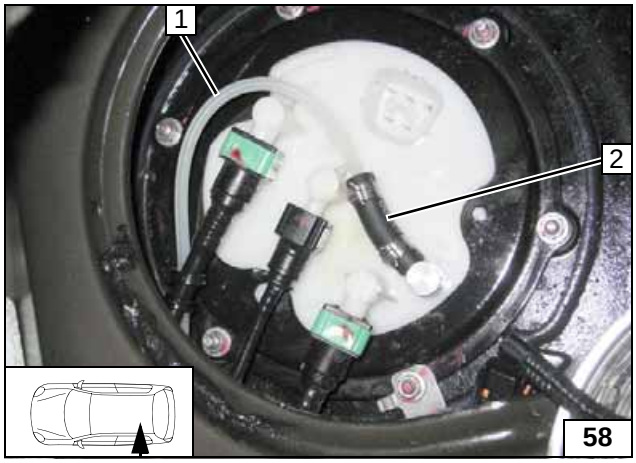
2 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

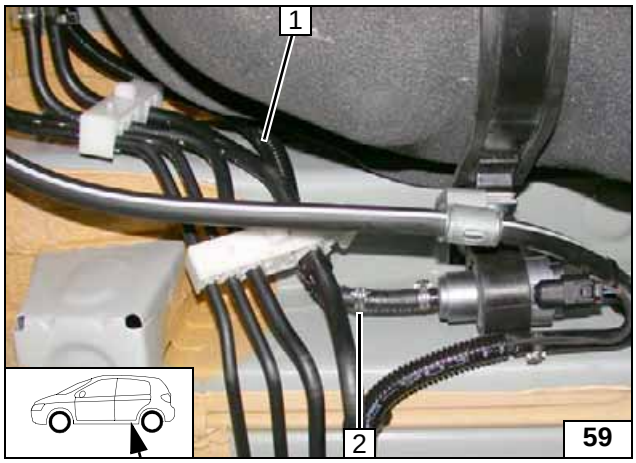
Installing fuel standpipe



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

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

Installing fuel line



All diesel vehicles

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

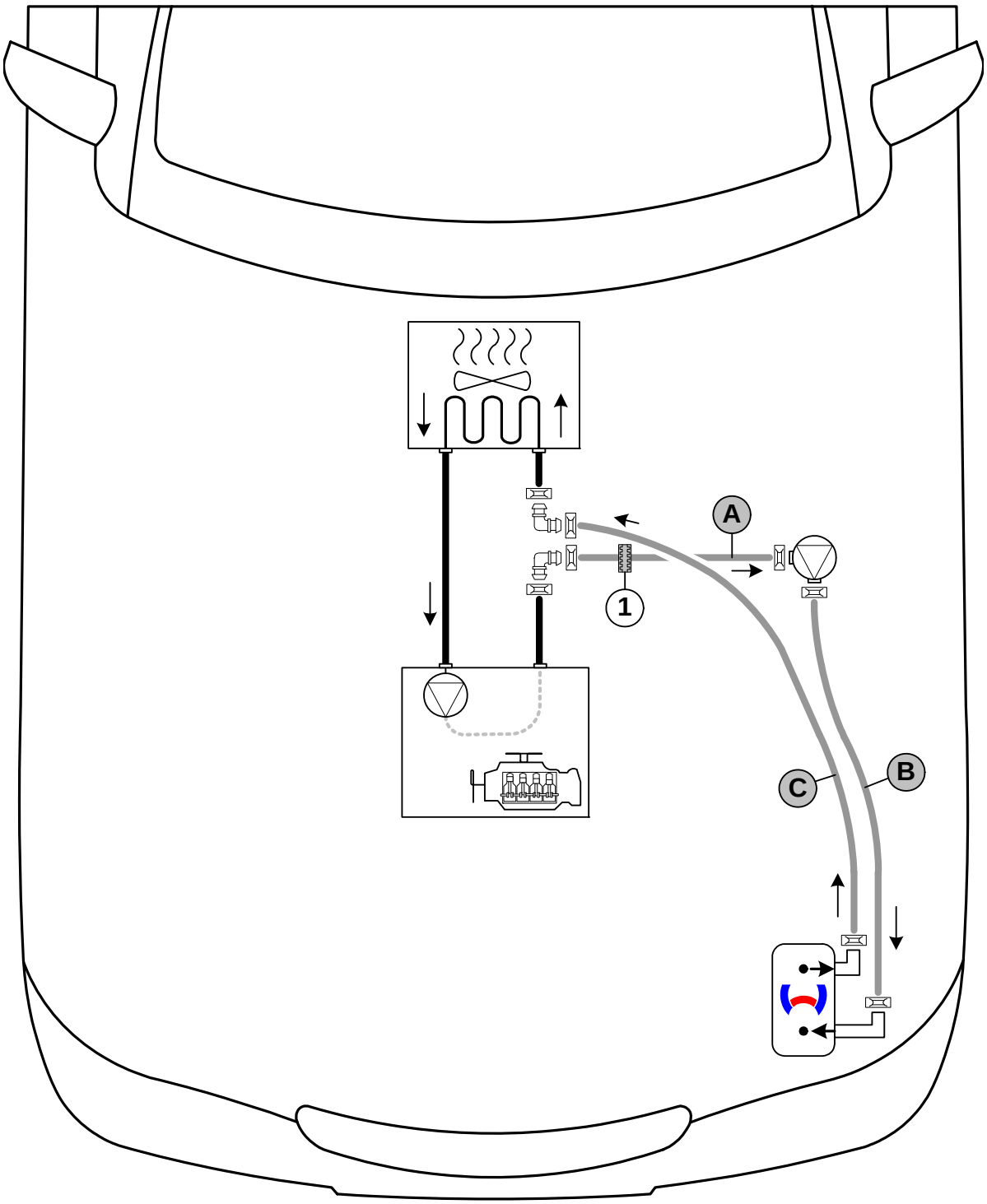
1 Fuel line of fuel standpipe in corrugated tube
2 10 mm dia. clamp [2x]

Connecting metering pump

Coolant Circuit for Petrol / Diesel 115kW

WARNING!
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 "inline" circuit and based on the following diagram:

Hose routing diagram

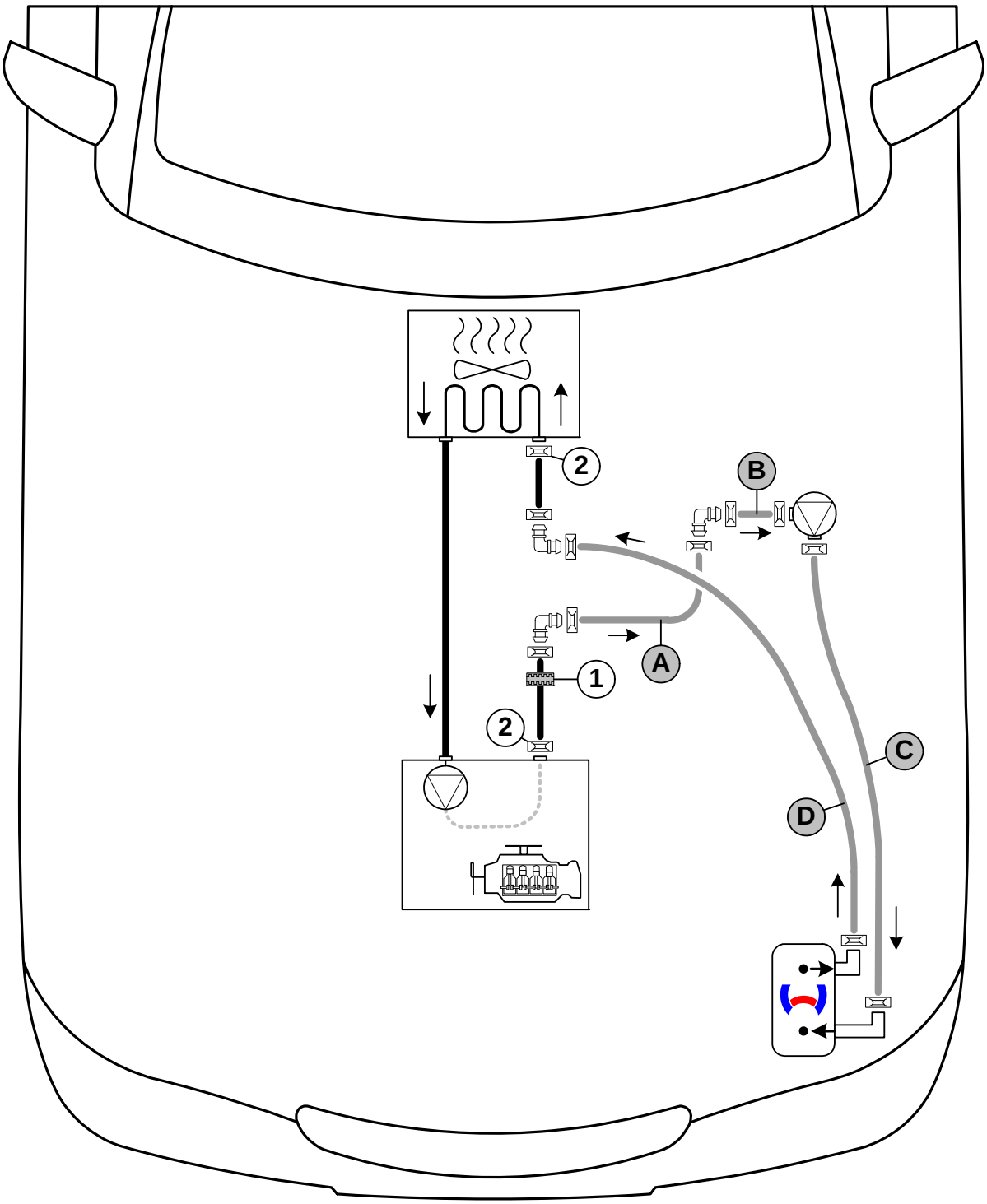


All spring clips without a specific designation = 25 mm dia.
1 = black (sw) rubber isolator !
All connecting pipes = 18x18mm dia.

Coolant Circuit for Diesel 103 / 130kW

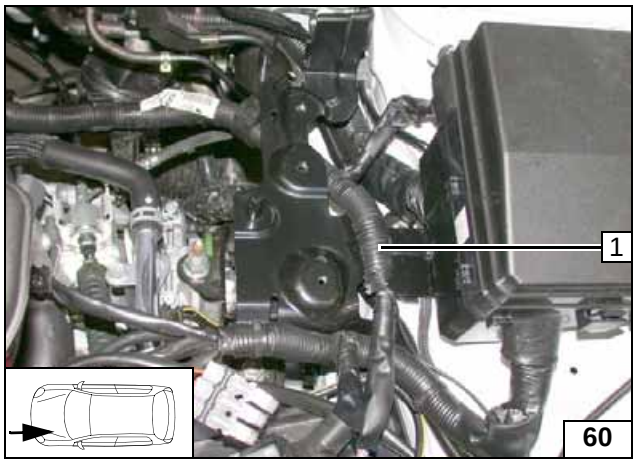
WARNING!
Any coolant running off should be collected using an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.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

Hose routing diagram



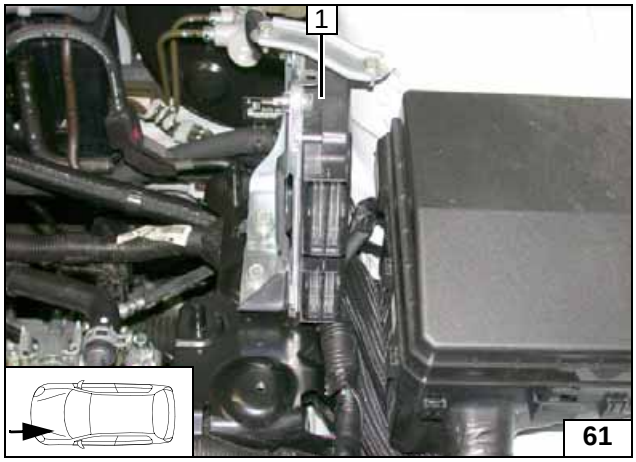
All spring clips without a specific designation = 25 mm dia. **2** = Original vehicle spring clip
1 = black (sw) rubber isolator !
All connecting pipes = 18x18mm dia.

All vehicles



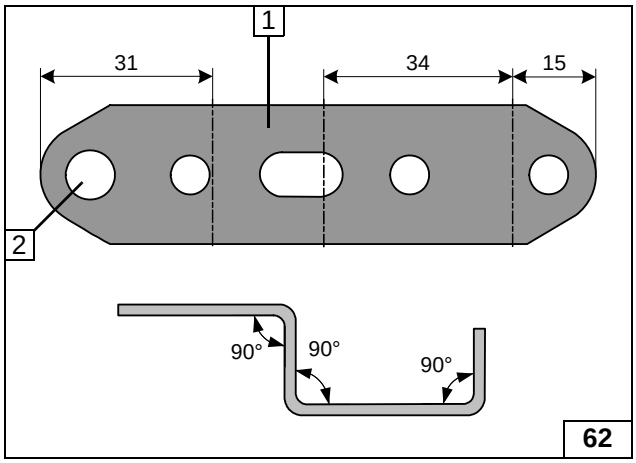
1 Original vehicle retaining clip removed

Removing clip



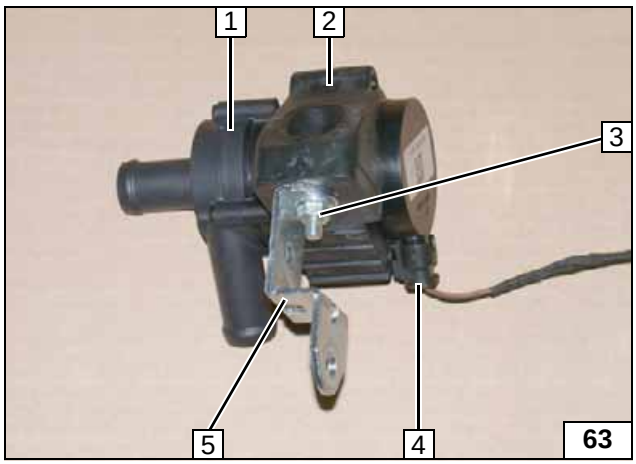
1 Control unit

Removing control unit



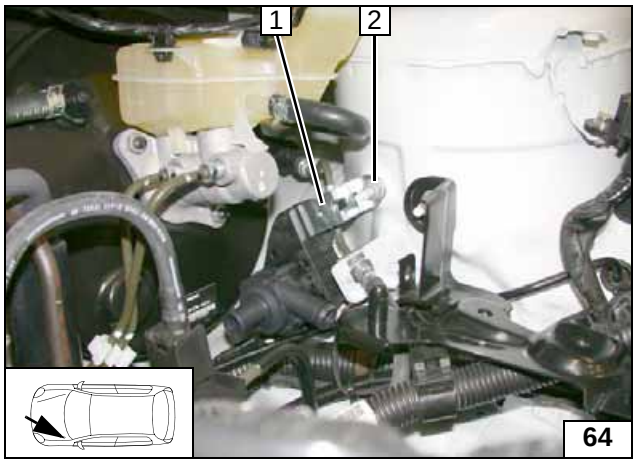
1 Perforated bracket
2 Drill out 8.5 mm dia. hole

Drilling and angling down perforated bracket



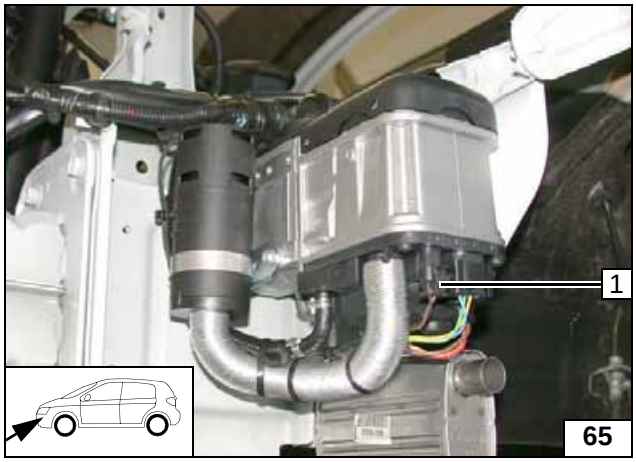
1 Circulating pump
2 Mounting of circulating pump
3 M6x25 bolt, flanged nut
4 Wiring harness of circulating pump
5 Perforated bracket

Premounting circulating pump



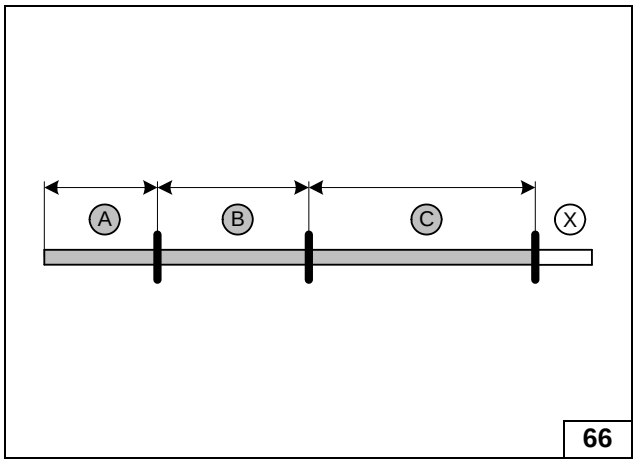
1 Perforated bracket
2 Original vehicle stud bolt, M8 flanged nut

Mounting circulating pump



1 Wiring harness connector of circulating pump

Mounting wiring harness

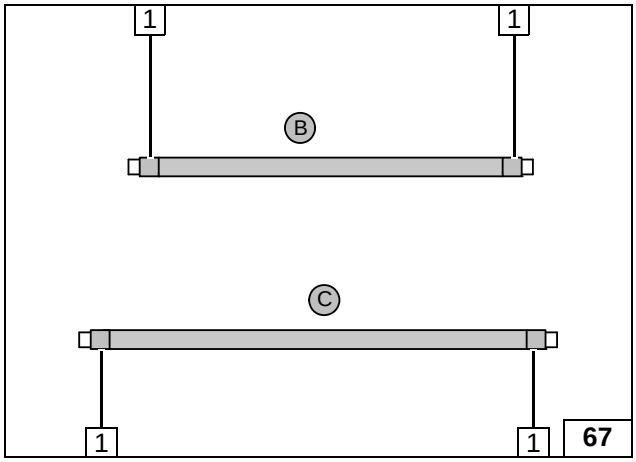


Petrol

Discard section **X**.

A = 345
B = 655
C = 980

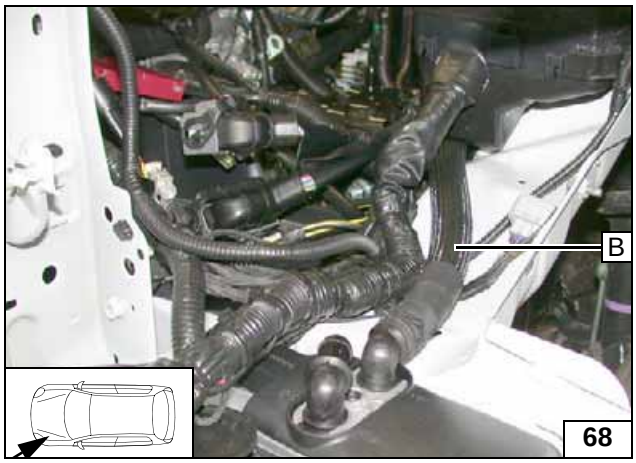
Cutting hoses to length



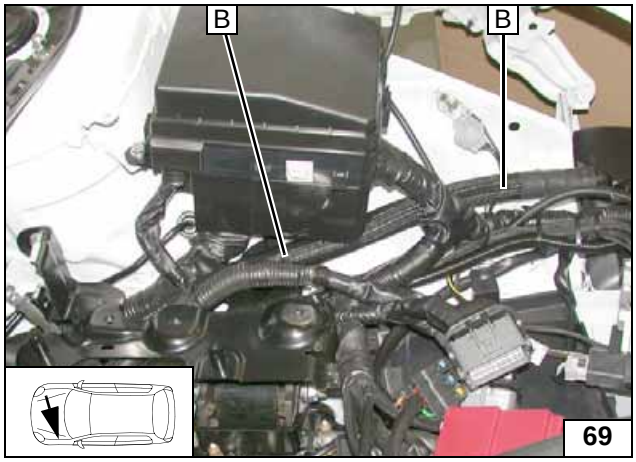
Push braided protection hoses onto hoses **B** and **C** and cut to length.
Cut heat shrink plastic tubing to length.

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

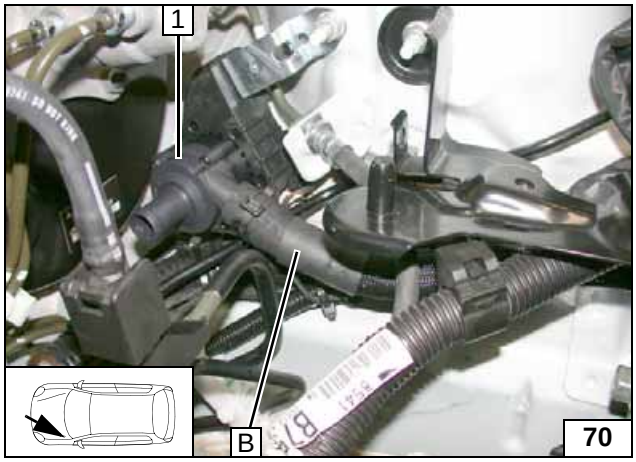
Preparing hoses



Connecting heater inlet

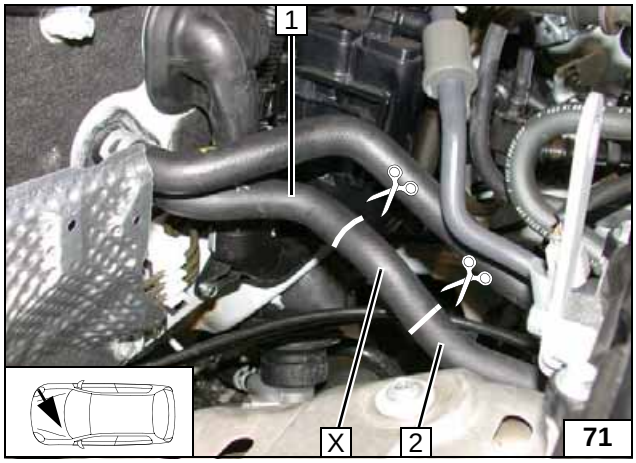


Routing in engine compartment



1 Circulating pump

Connecting circulating pump

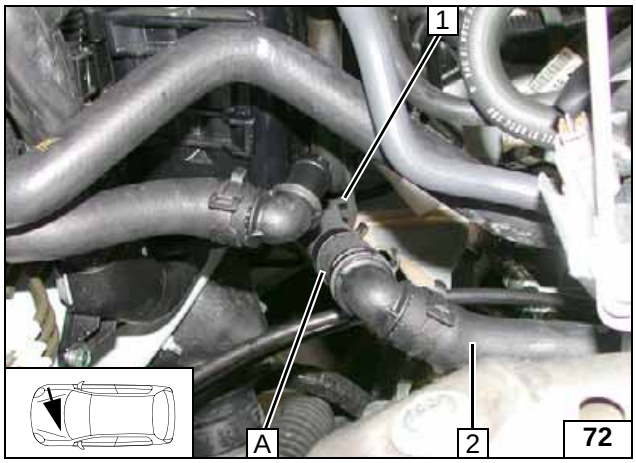


Cut hose of engine outlet / heat exchanger inlet at the markings.

Discard section **X**.

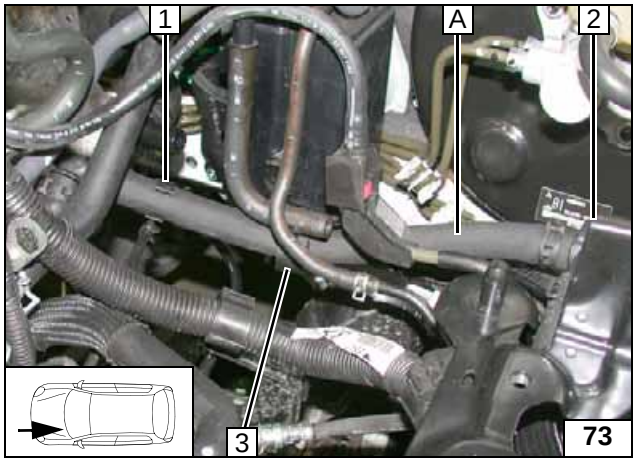
1 Hose section of heat exchanger inlet
2 Engine outlet hose section

Cutting point



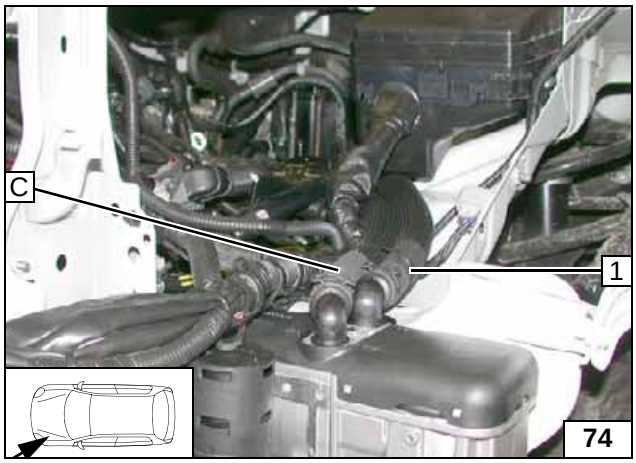
1 Push on black (sw) rubber isolator
2 Hose of engine outlet

Connecting engine outlet



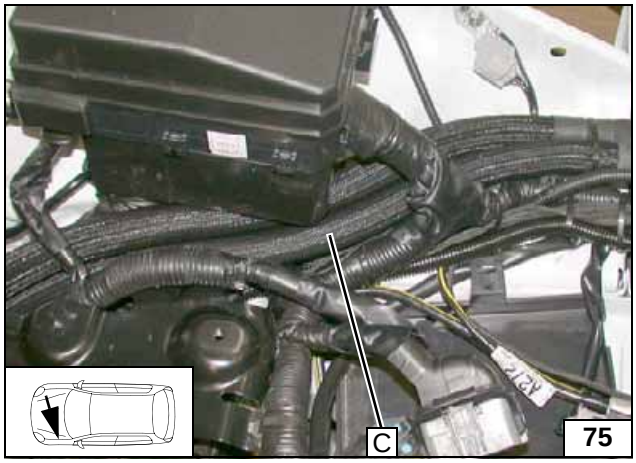
1 7.2x22-24 hose bracket on original vehicle line
2 Circulating pump
3 Position black (sw) rubber isolator

Connecting circulating pump

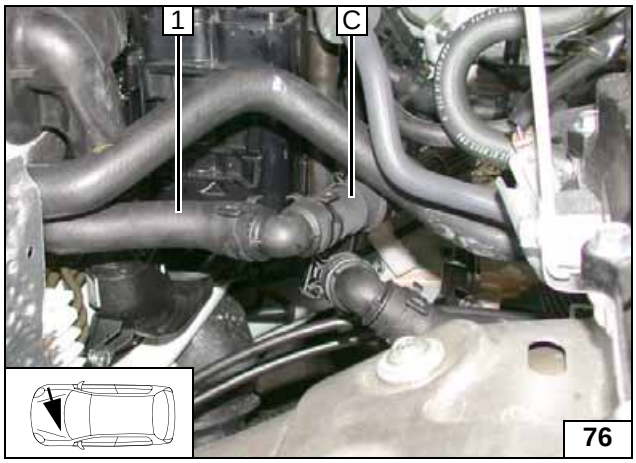


1 Cable tie

Connecting heater outlet

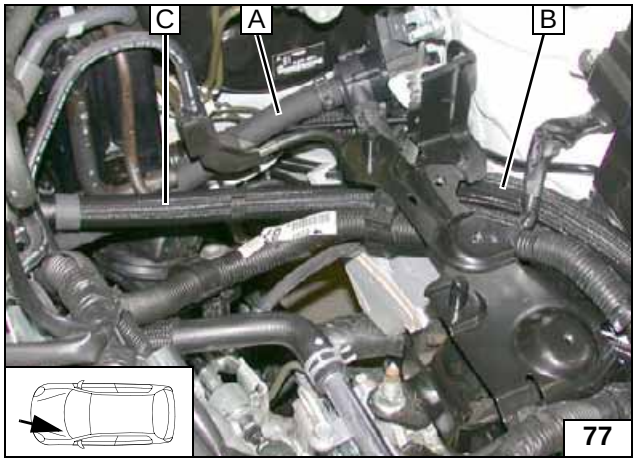


Routing in engine compartment

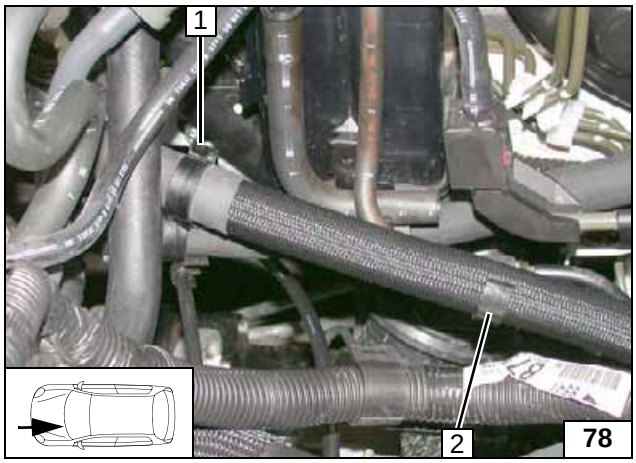


1 Hose on heat exchanger inlet

Connecting heat exchanger inlet

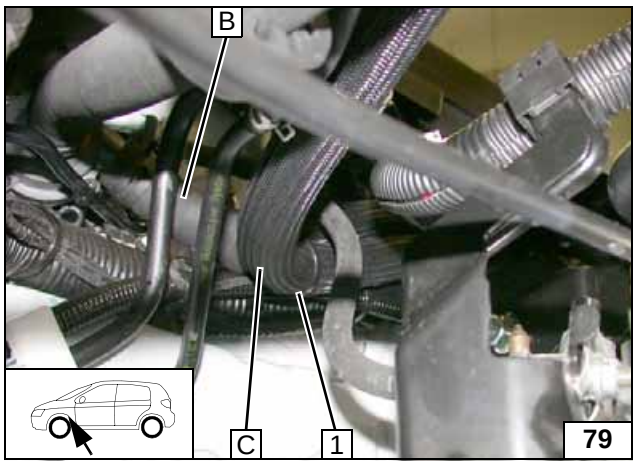


Routing in engine compartment



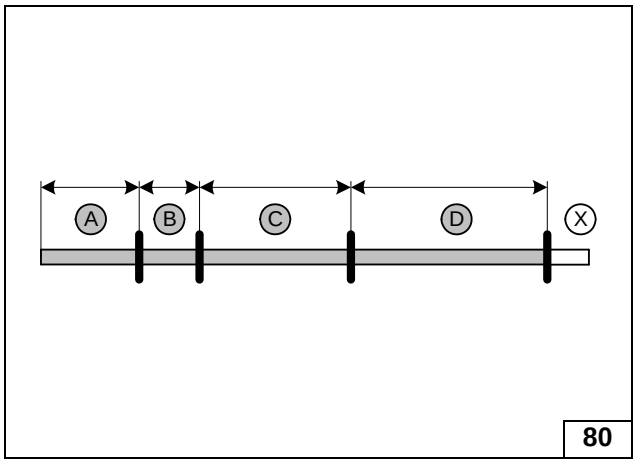
1 25/25 hose bracket on hose **A** and **C**
2 7.2/22-24 hose bracket on original vehicle fuel line

Routing in engine compartment



Align hoses **B** and **C** and fix with cable tie **1**. Ensure sufficient distance from adjacent components; correct if necessary.

Routing in engine compartment

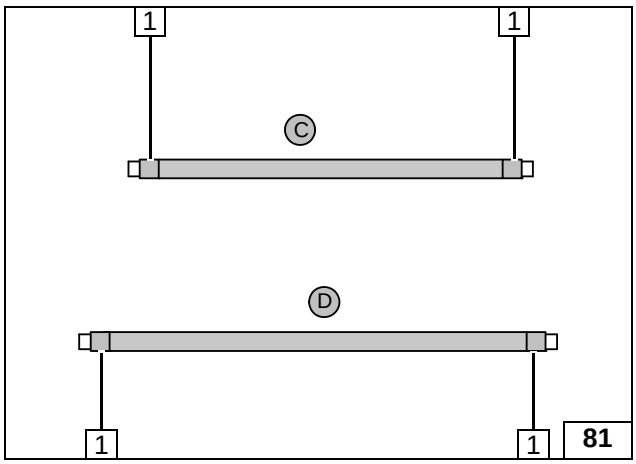


Diesel

Discard section **X**.

A = 270
B = 60
C = 655
D = 880

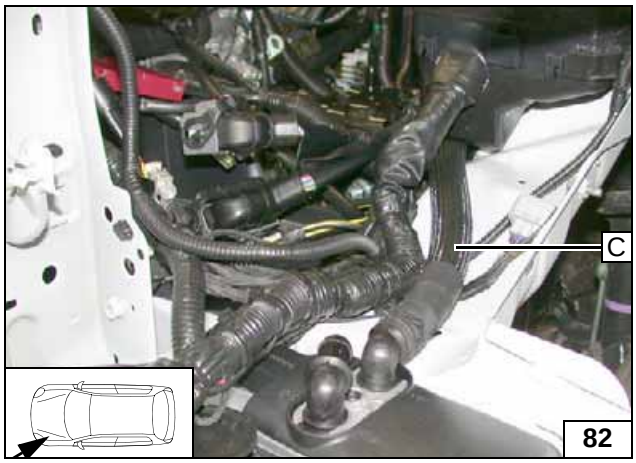
Cutting hoses to length



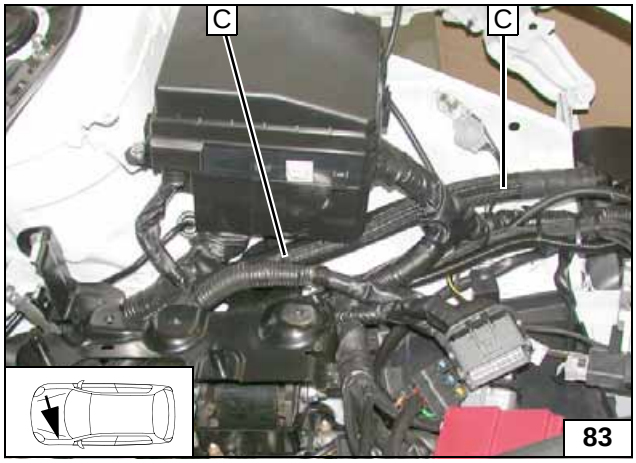
Push braided protection hoses onto hoses **C** and **D** and cut to length.
Cut heat shrink plastic tubing to length.

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

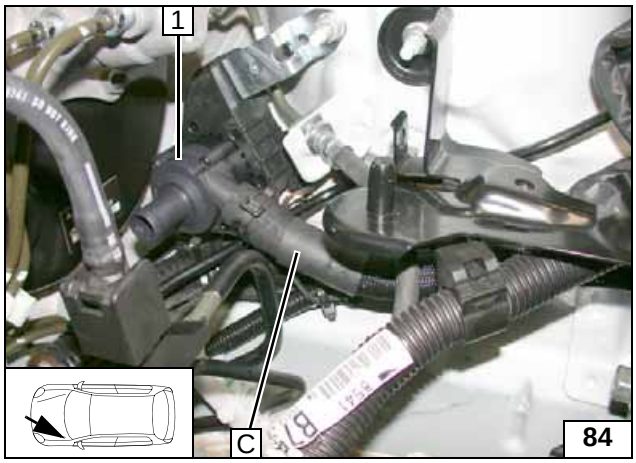
Preparing hoses



Connecting heater inlet

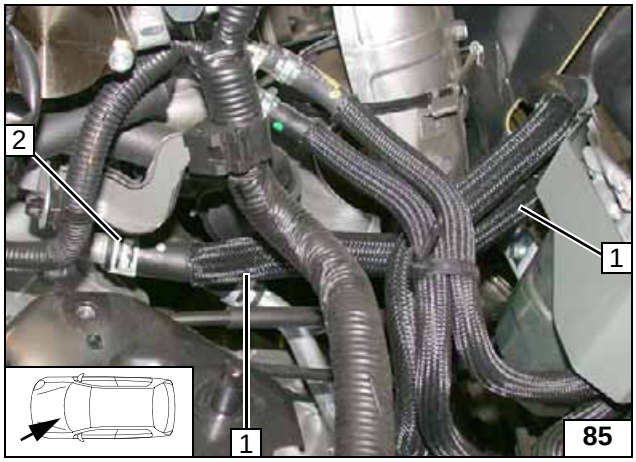


Routing in engine compartment



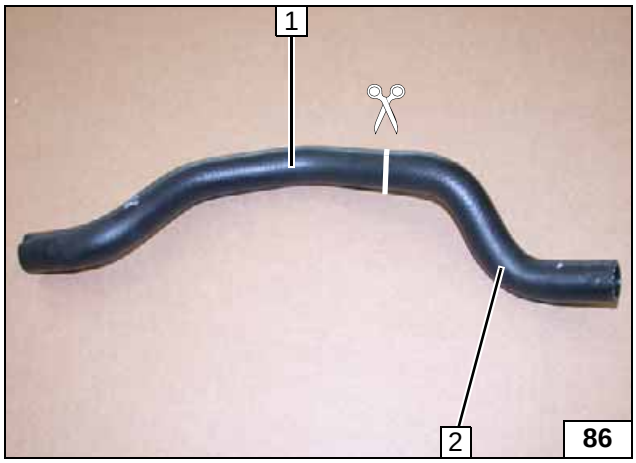
1 Circulating pump

Connecting circulating pump



Remove hose of engine outlet/heat exchanger inlet **1**. Spring clip on engine outlet **2** and heat exchanger inlet will be reused.

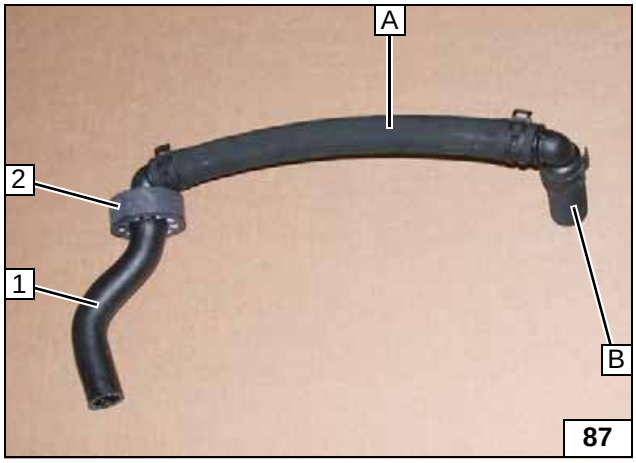
Cutting point



Remove braided protection hose.

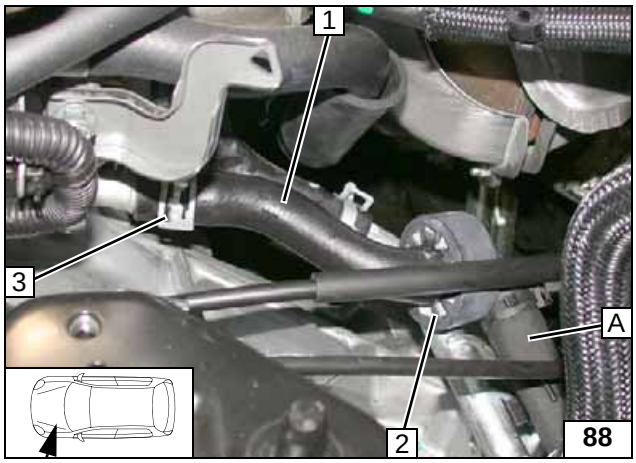
1 Hose section of heat exchanger inlet
2 Engine outlet hose section

Cutting point



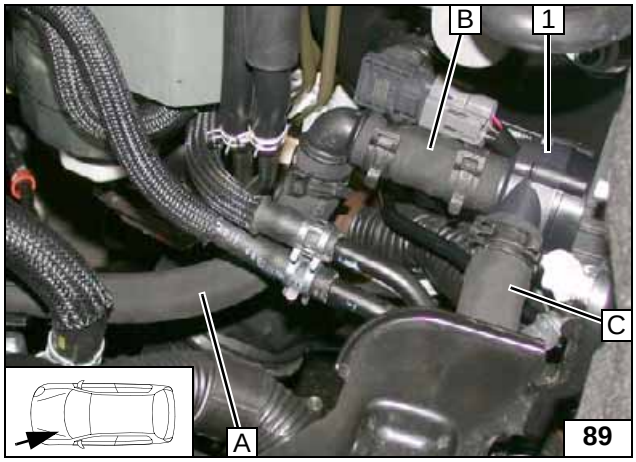
1 Hose of engine outlet
2 Push on black (sw) rubber isolator

Premounting hoses



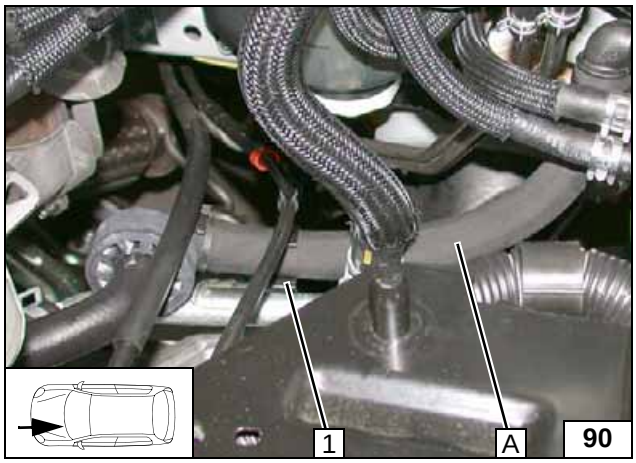
1 Hose of engine outlet
2 Position black (sw) rubber isolator
3 Original vehicle spring clip

Connecting engine outlet



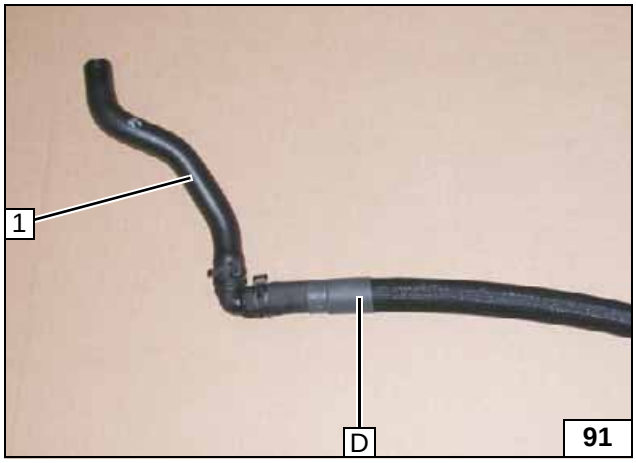
1 Circulating pump

Connecting circulating pump



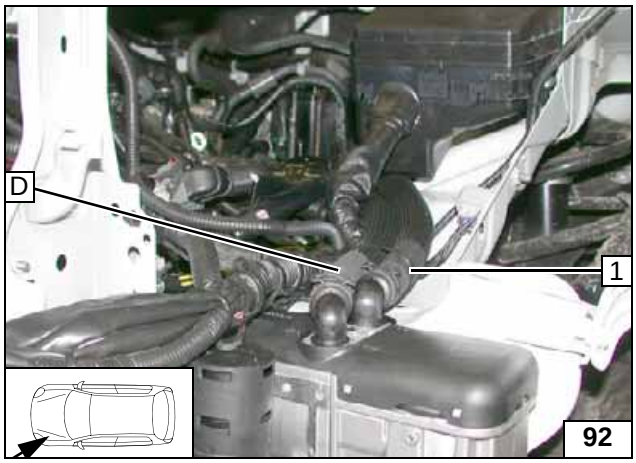
1 7.2/22-24 hose bracket on original vehicle line

Routing in engine compartment



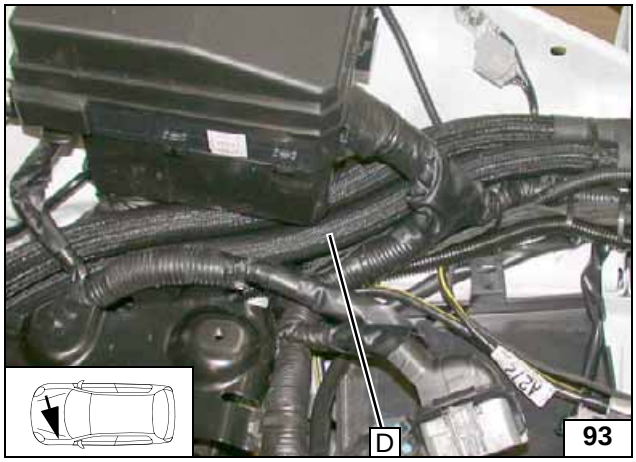
1 Hose on heat exchanger inlet

Premounting hoses

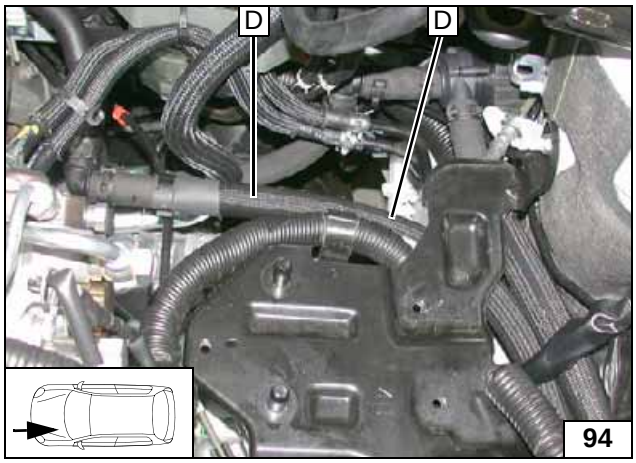


1 Cable tie

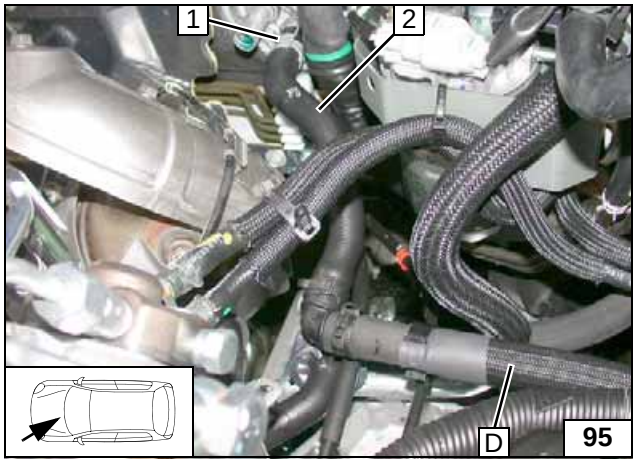
Connecting heater outlet



Routing in engine compartment

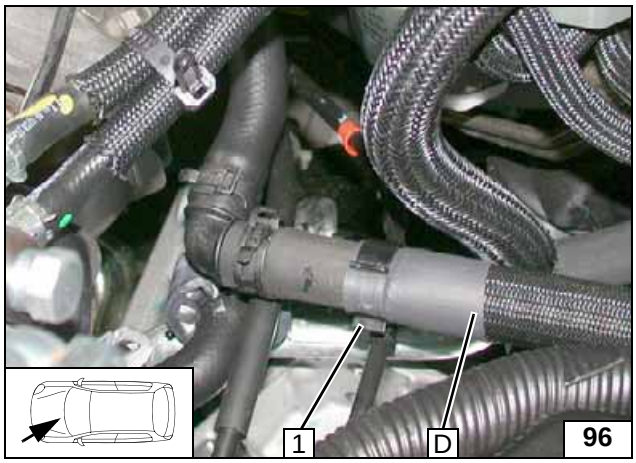


Routing in engine compartment



1 Original vehicle spring clip
2 Hose on heat exchanger inlet

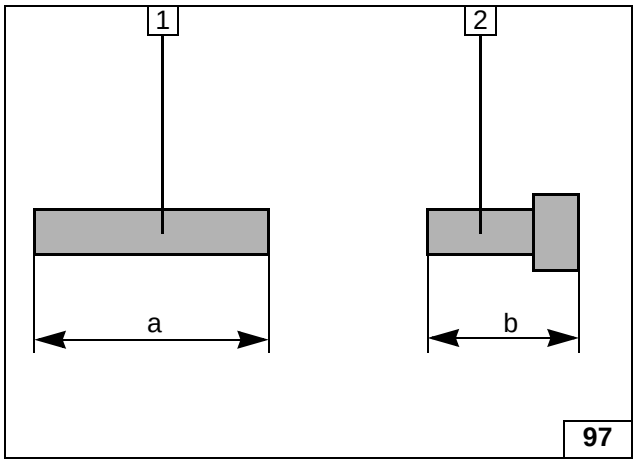
Connecting heat exchanger inlet



1 7.2/22-24 hose bracket on original vehicle line

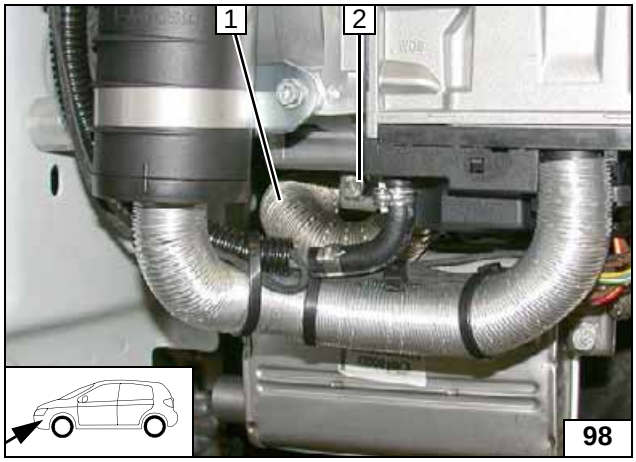
Routing in engine compartment

Exhaust Gas



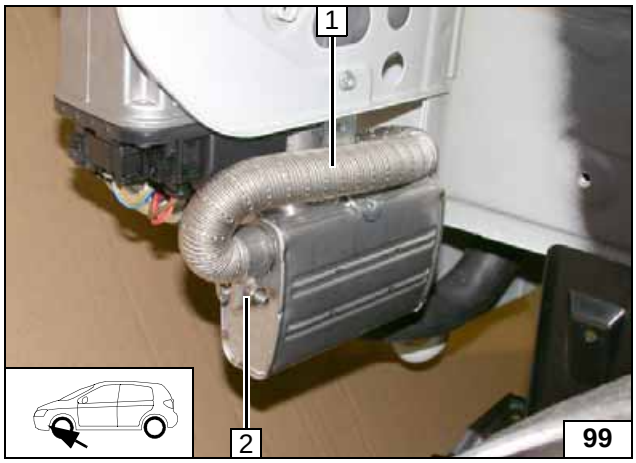
1 Exhaust pipe
a=350
2 Exhaust end section
b =250

Assigning exhaust pipe



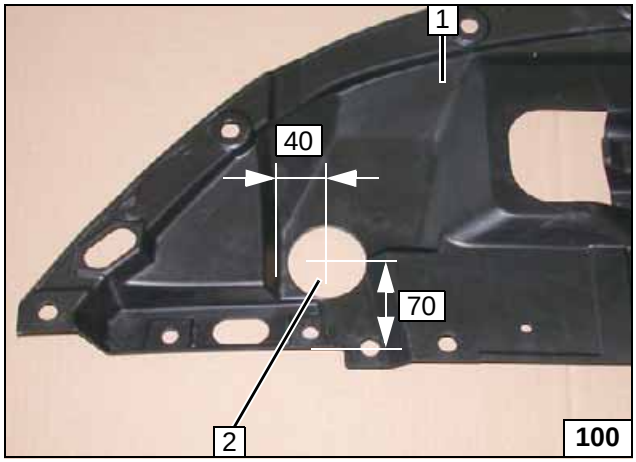
1 Exhaust pipe
2 Hose clamp

Mounting exhaust pipe



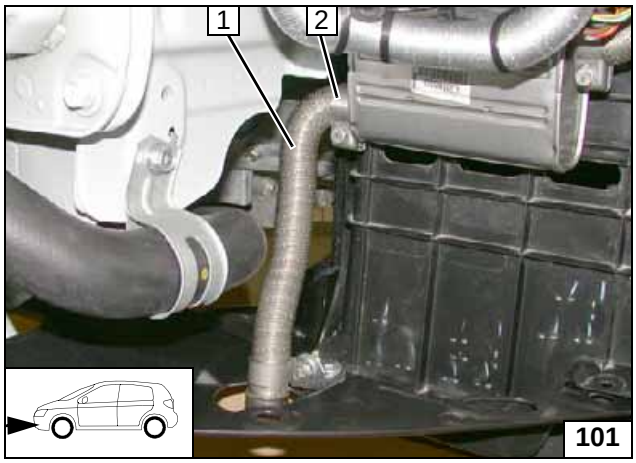
1 Exhaust pipe
2 Hose clamp

Mounting exhaust pipe



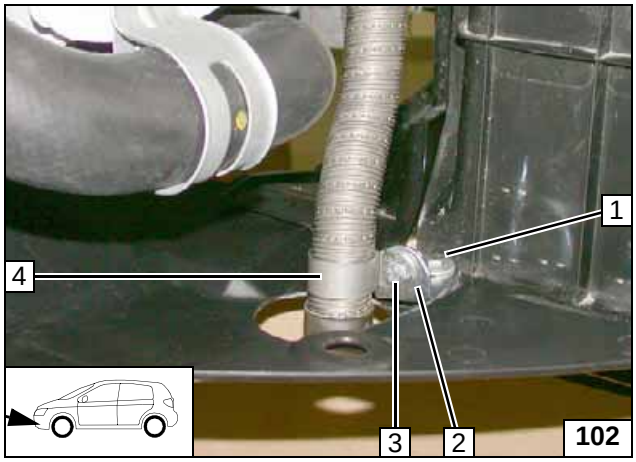
1 Underride protection
2 60 mm dia. hole

Cutting out underride protection



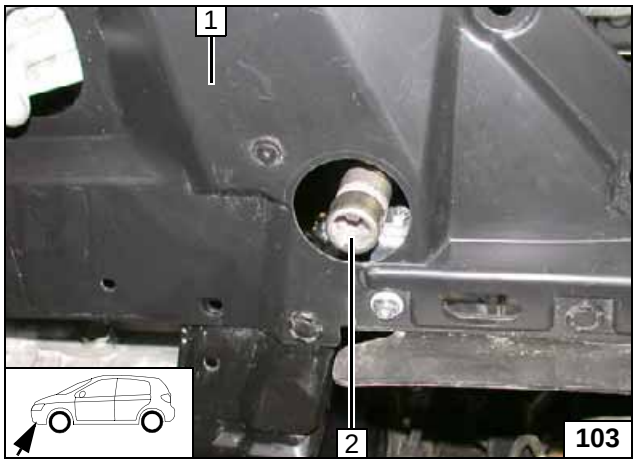
1 Exhaust end section
2 Hose clamp

Mounting end section



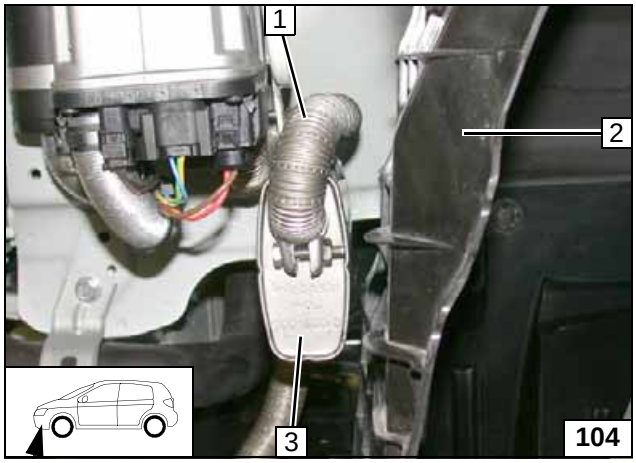
1 M6x20 bolt, large diameter washer, flanged nut
2 Angle bracket
3 M6x20 bolt, flanged nut
4 P-clamp

Fastening exhaust end section



Align exhaust end section **2** with the centre of the hole and flush with underride protection **1**. Ensure sufficient distance from adjacent components; correct if necessary.

Aligning exhaust end section.



Ensure sufficient distance (min. 20mm) from exhaust pipe **1** and exhaust silencer **3** to wheel-well inner panel **2**, correct if necessary.

Checking distance

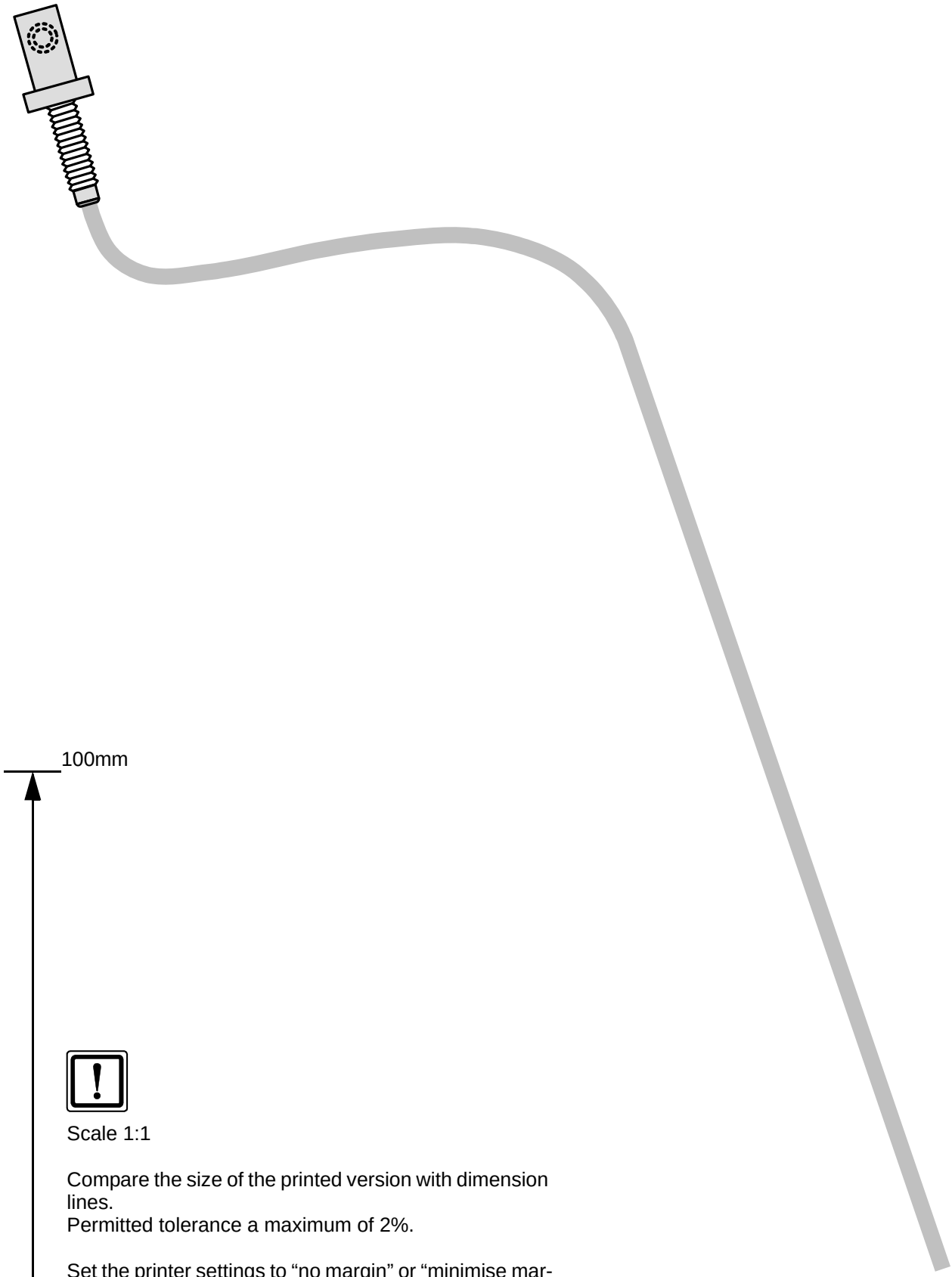
Final Work

WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose 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 specifications.**
- **Adjust the digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label near the filler neck.**
- **For initial start up and function check, see Installation Instructions**

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

Template for Petrol Fuel Standpipe

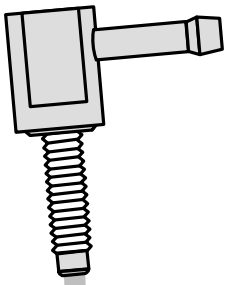


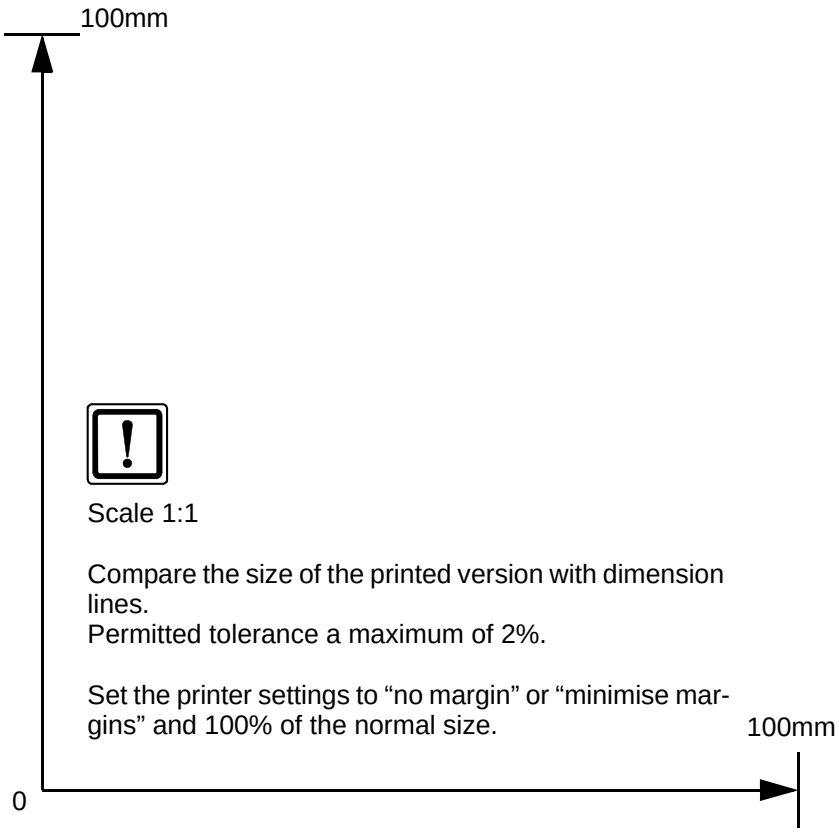
Scale 1:1

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

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

Template for Diesel Fuel Standpipe





Scale 1:1

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

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

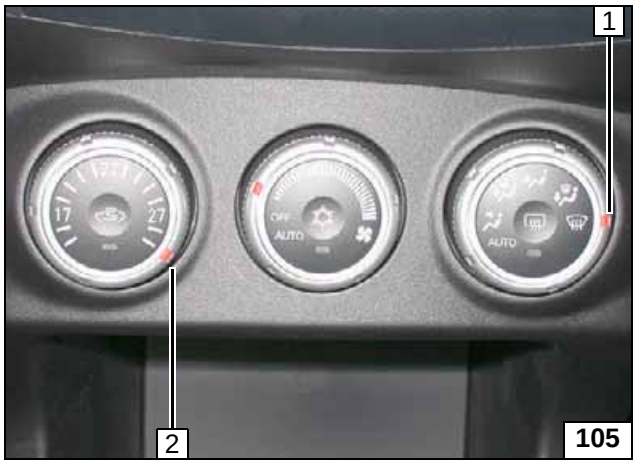
Operating Instructions for End Customer

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.

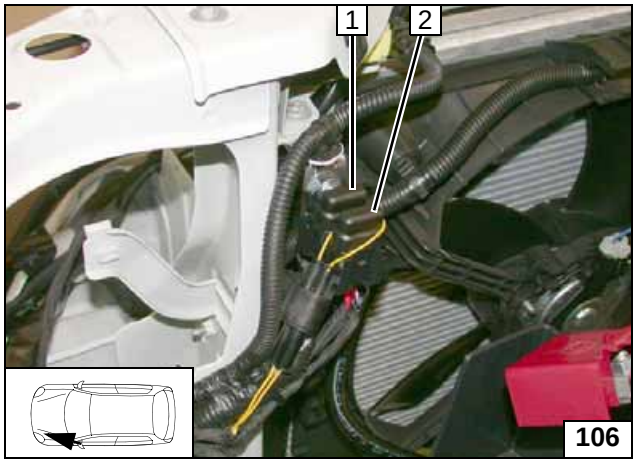
If vehicles have passenger compartment monitoring this must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

Before parking the vehicle, make the following settings:



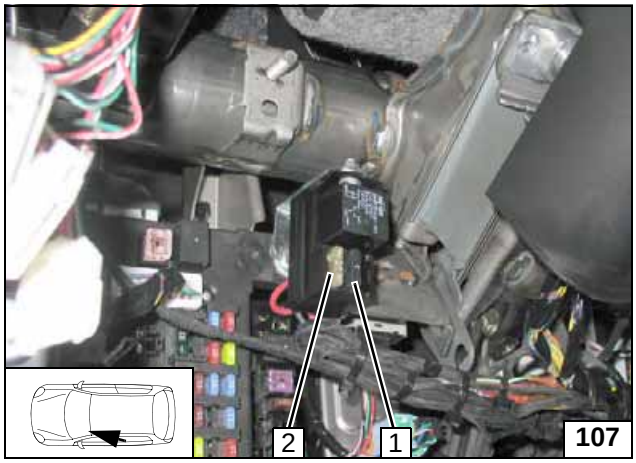
1 Air outlet to windscreen
2 Set temperature to "max."

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