Water Heater

Webasto
Feel the Drive

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Opel Astra

Validity

Manufacturer	Model	Type	EG-BE-No. / ABE
Opel	Astra	P-J	e1 * 2007 / 46 * 0141 * ...
Opel	Astra	P-J	e4 * 2007 / 46 * 0204 *...
Opel	Astra	P-J	e4 * 2007 / 46 * 0308 *...
Opel	Astra	P-J	e4 * 2007 / 46 * 0309 *...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6	Diesel	6-speed SG	81	1598	B16DTL (LVM)
1.6	Diesel	6-speed SG	100	1598	B16DTH (LVL)
1.7	Diesel	6-speed SG	81	1686	A17DTC (LUE)
1.7	Diesel	6-speed SG	81	1686	A17DTE (LKR)
1.7	Diesel	6-speed SG	92	1686	A17DTR (LPL)
1.7	Diesel	6-speed SG	96	1686	A17DTS (LUD)
1.7	Diesel	6-speed SG	96	1686	A17DTF (LKR)

SG = Manual transmission

From Model Year 2010
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
Front fog light
Xenon
Headlight washer system
Start / Stop

Not verified: Passenger compartment monitoring
Electric auxiliary heater "Quickheat"

Exclusion: Automatic air-conditioning

Total installation time: approx. 8 hours

Opel Astra

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Opel Astra 2010 Diesel: **1315903C**
- To be ordered aditionally for vehicles with a plastic coolant reservoir drain:
  Rubber coolant reservoir drain - Opel Part No.: 1451084
- 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 upon consultation with end customer

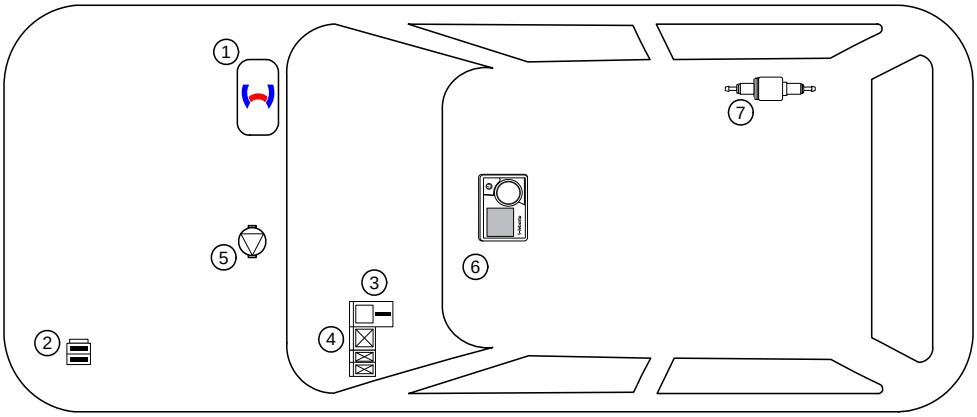
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full!
- The installation location of the push button in 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. Fuse holder of engine compartment
3. Passenger compartment fuse holder
4. PWM-GW
5. Circulating pump
6. MultiControl
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 227).

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

1.3 Please note

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

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

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

Important

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

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

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

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. 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.

Opel Astra

Notes on Validity

This installation documentation applies to the Opel Astra Diesel vehicles - for validity, see page 1 - from model year 2010 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

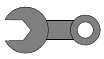
Special Tools
- Hose clamp pliers for self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Webasto 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 5x15 bolt of water connection piece retaining plate = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

Explanatory Notes on Document

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

Mechanical system 

Electrical system 

Coolant circuit 

Combustion air 

Fuel 

Exhaust gas 

Software 

Special features are highlighted using the following symbols:

Specific risk of injury or fatal accidents 

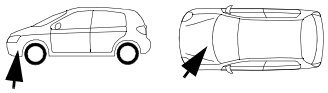
Specific risk due to electrical voltage 

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 

Opel Astra

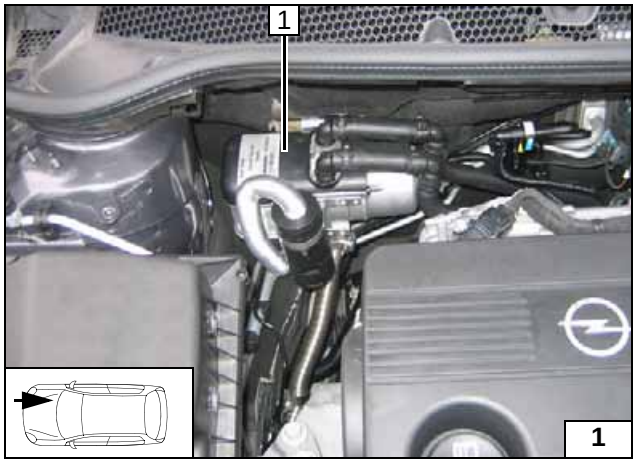
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Completely remove the battery.
- Remove the air filter box
- Remove the coolant reservoir cap.
- Remove the coolant reservoir.
- Disconnect the coolant expansion tank and lay it aside.
- Remove the front underride protection on the right.
- Remove the footwell trim on the driver's side.
- Remove the lower instrument panel trim on the driver's side.
- Remove the glove compartment.
- Remove the footwell trim on the front passenger's side.
- Remove the fan motor of the passenger compartment (see "Preparing installation location)
- Remove the A-pillar trim on the driver's side.
- Remove the control panel of the centre console.
- Remove monitor screen.
- Remove radio / CD-changer.
- Remove the A/C control unit in accordance with the manufacturer's instructions.
- Remove windscreen wiper motor (Only with 1.7D connection of heat exchanger inlet, variant 2)

Heater

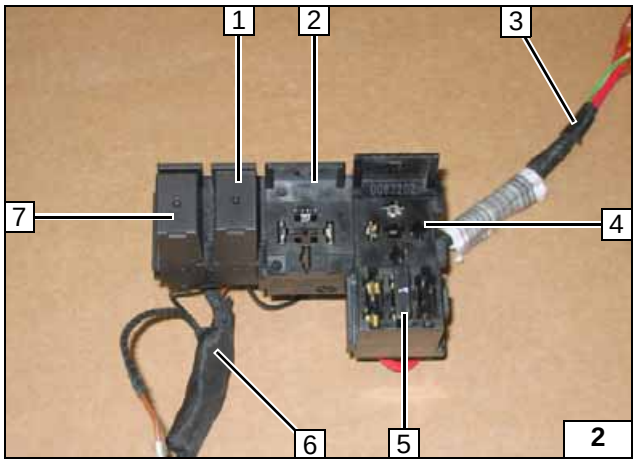
- Remove dates that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place inside the engine compartment



Heater Installation Location

1 Heater

Installation location



2

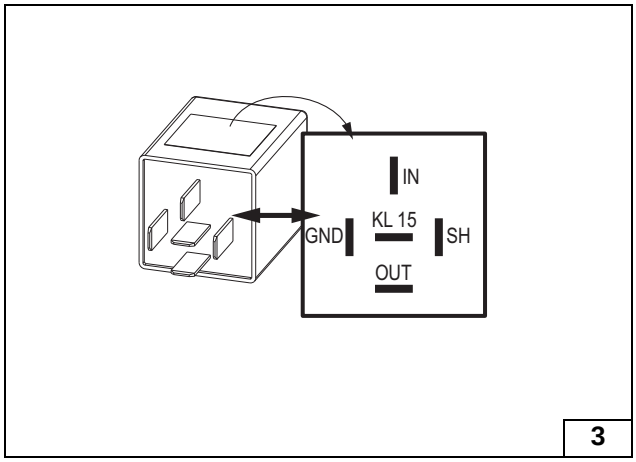
Preparing Electrical System

Wire sections retain their numbering in the entire document.

Interlock sockets.

1 K1 relay
2 Socket of PWM-GW
3 Wiring harness of fuse holder
4 Fuse holder
5 F3 1A fuse
6 Wiring harness of PWM-GW
7 K2 relay

Preparing fuse holder of passenger compartment



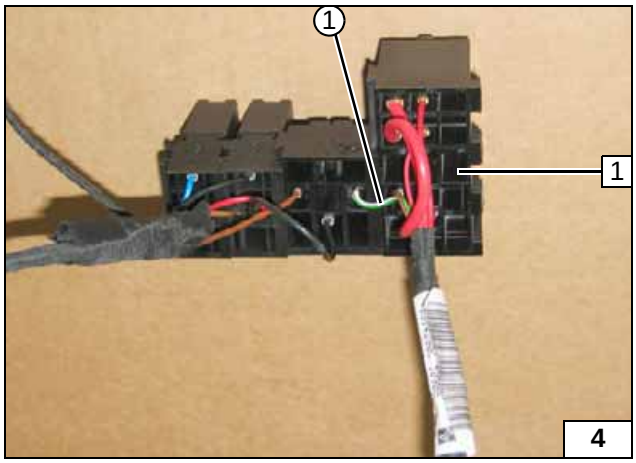
3

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

Settings:

Duty cycle: 70%
Frequency: 100Hz
Voltage: not relevant
Function: Low-side

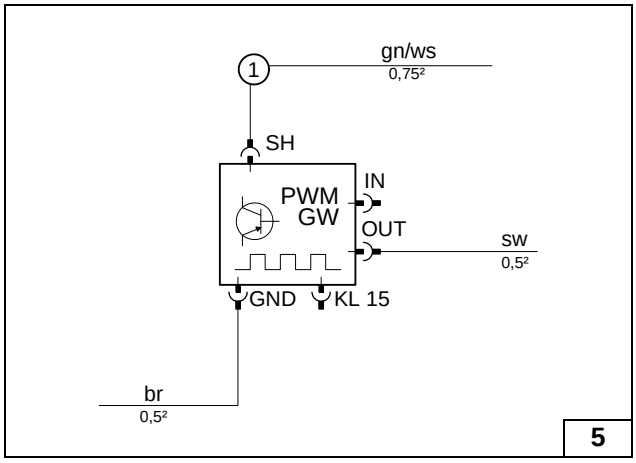
View of PWM-GW



4

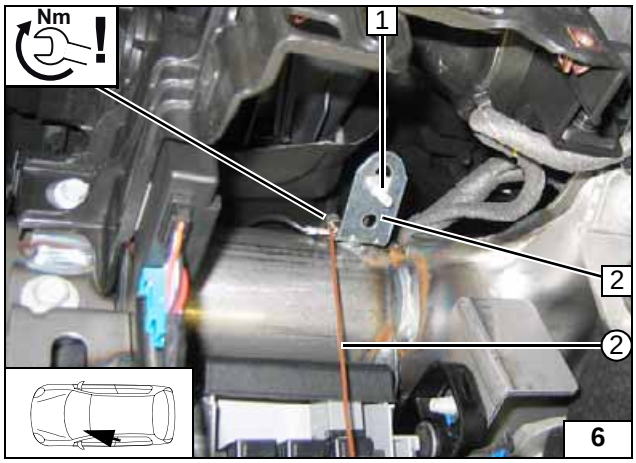
Detach green/white (gn/ws) wire ① from socket of passenger compartment fuse holder **1** and insert in socket of PWM-GW/SH (see connection diagram).

Preparing PWM-GW



5

Connection diagram of PWM-GW



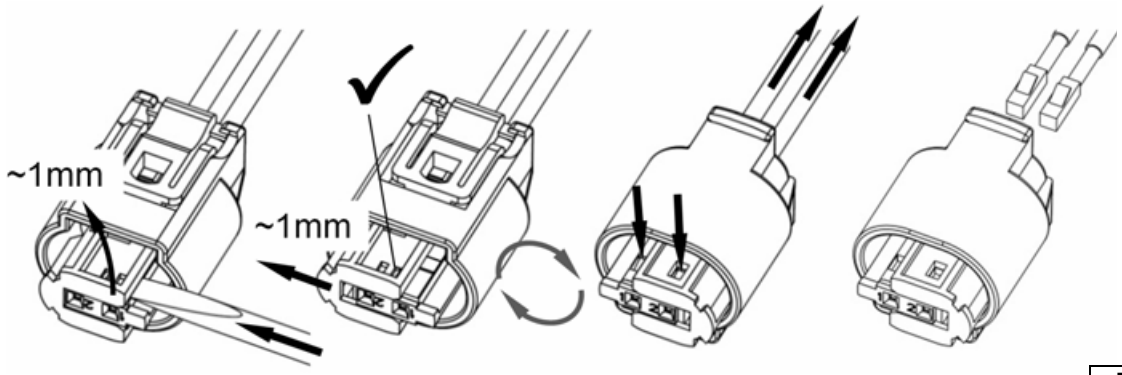
6

Fasten angle bracket **2** and brown (br) earth wire ② of K2/85 **3** with original vehicle nut to original vehicle earth point.

1 M5x16 bolt, large diameter washer

Installing angle bracket

Connector X7



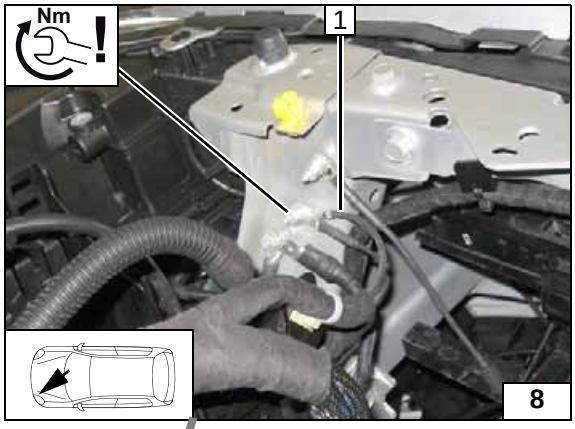
7

Dismantling connector of metering pump

Electrical System

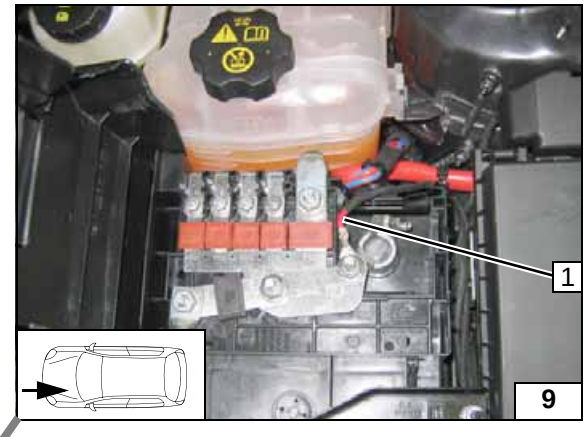
Earth wire

1 Earth wire at original vehicle earth support point

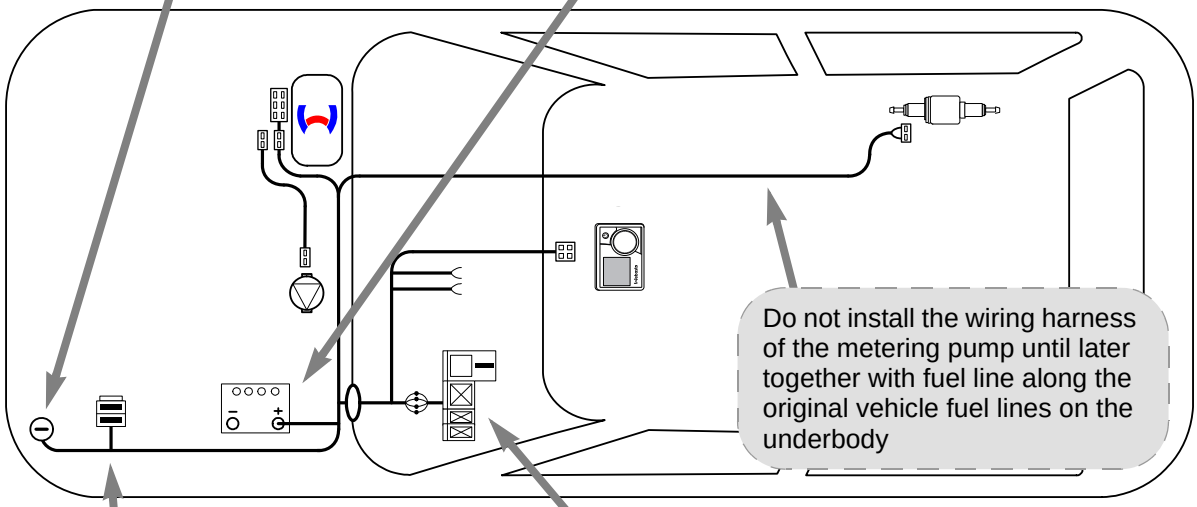


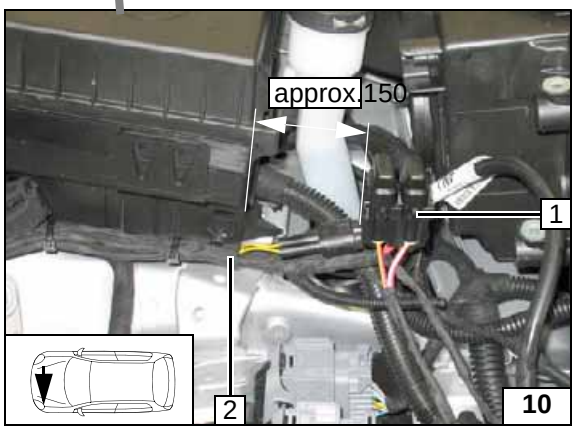
Positive wire

1 Positive wire



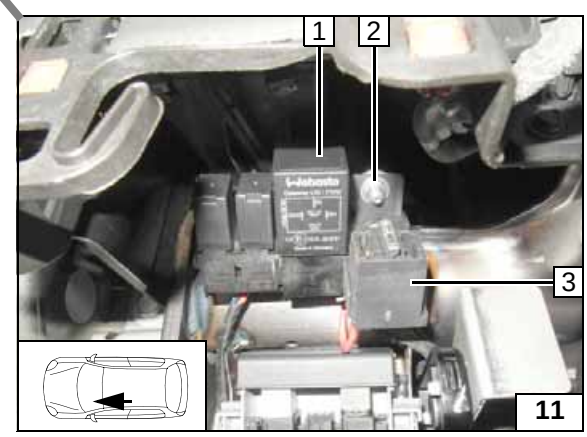
Wiring harness routing diagram





Engine compartment fuse holder

Fasten wiring harness of fuse holder **2** with cable tie. Ensure adequate distance from fuses F1 and F2 **1**, because the battery carrier is installed later. For routing, see next page!



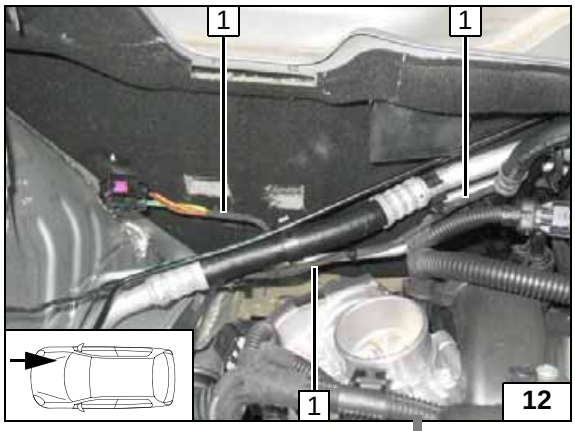
Passenger compartment fuse holder

1 PWM-GW
2 Large diameter washer, M5 flanged nut
3 Fuse holder

Follow sequence!

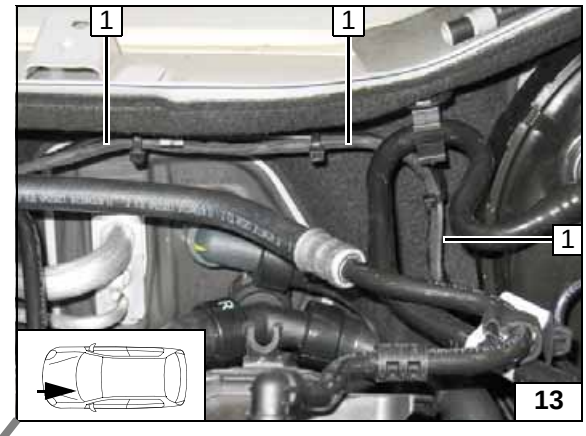
4. Routing wiring harness of heater

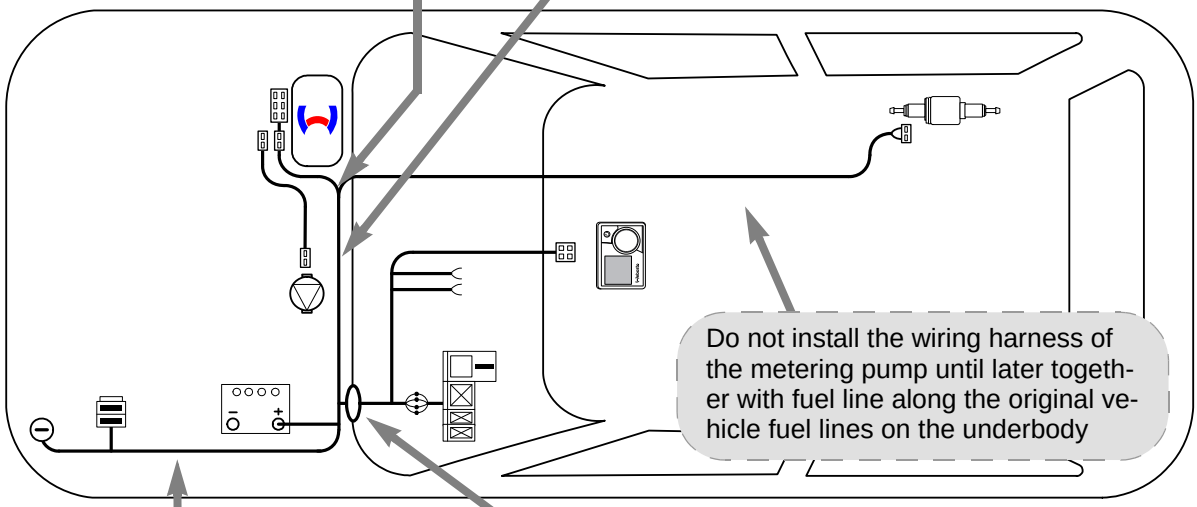
1 Wiring harness of heater to A/C line



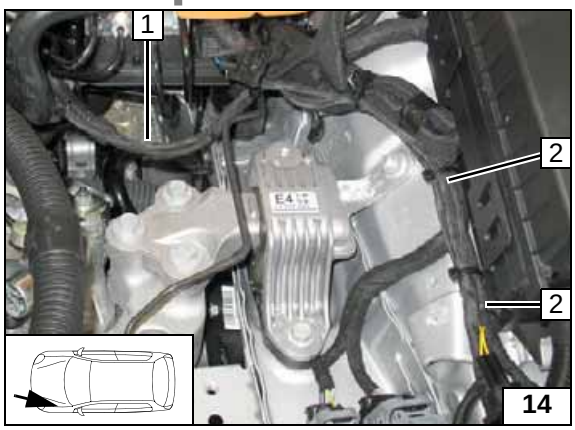
3. Routing wiring harness of heater

1 Wiring harness of heater to brake lines



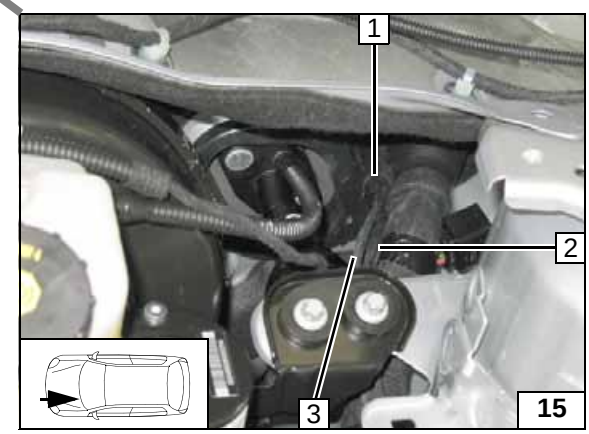


Wiring harness routing diagram



1. Routing wiring harness of fuse holder

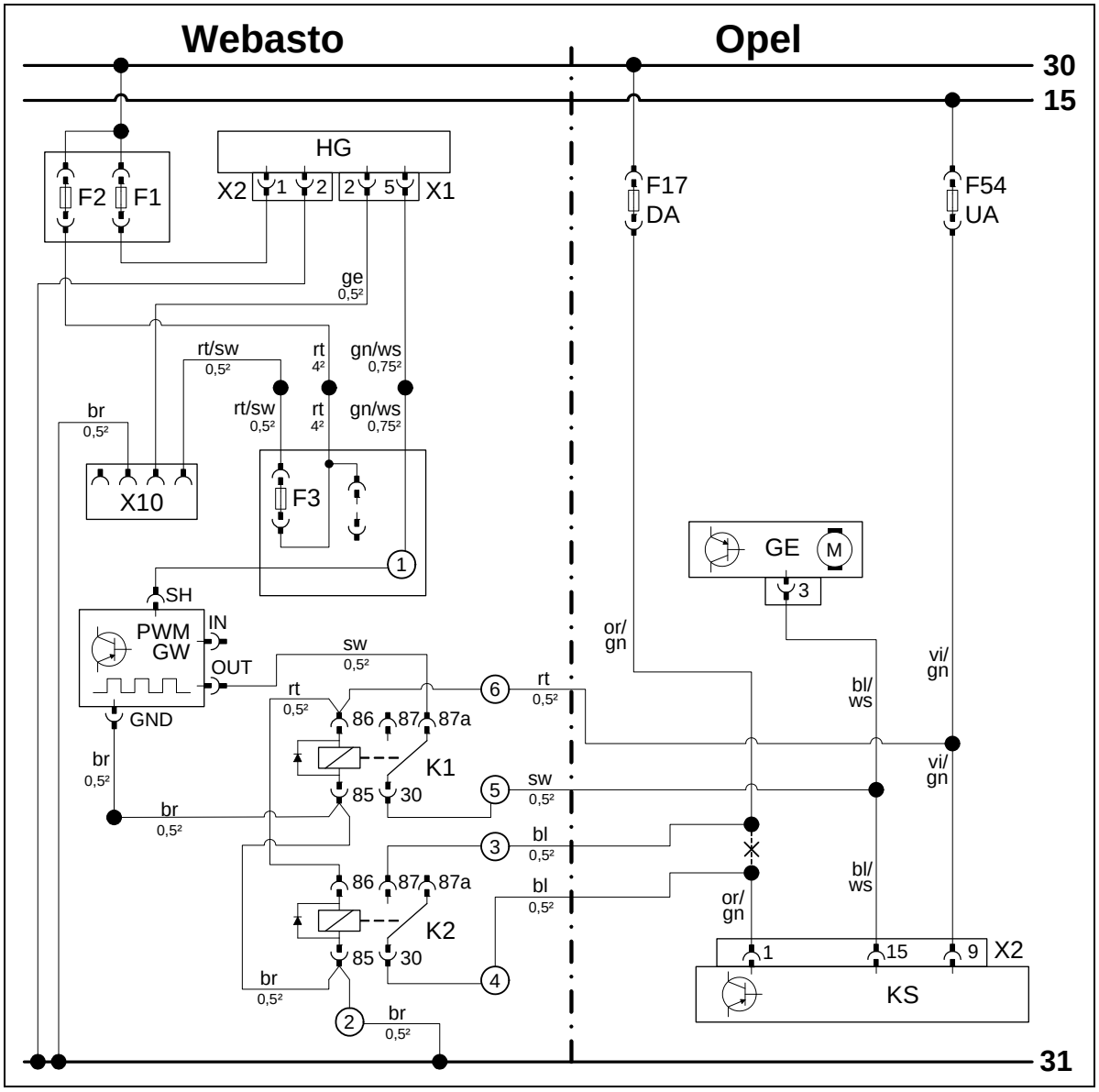
1 Wiring harness of heater on original vehicle wiring harness of electrical steering
2 Engine compartment fuse holder wiring harness



2. Wiring harness pass through

1 Protective rubber plug
2 Wiring harness of heater control
3 Passenger compartment fuse holder wiring harness

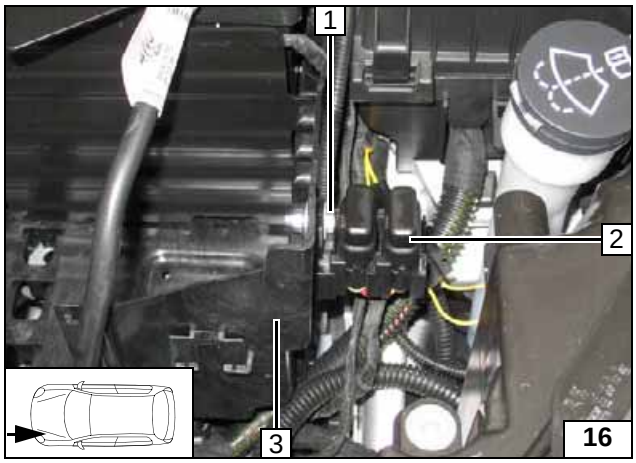
Fan Controller



Wiring diagram for manual air-conditioning system

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F17DA	Fuse 10A	rt	red
X2	2-pin heater connector	F54UA	Fuse 7.5A	ws	white
X1	6-pin heater connector	GE	Fan unit	sw	black
F2	Fuse 30A	KS	A/C control unit	br	brown
F1	Fuse 20A	X2	20-pin brown (br) connector	gn	green
X10	4-pin connector of heater control			bl	blue
				vi	violet
F3	Fuse 1A			bl	blue
PWM GW	Pulse width modulator gateway			or	orange
K1	Fan relay				
K2	Additional relay				
PWM Gateway settings:					
Duty cycle:	70%			**X**	Cutting point
Frequency:	100Hz				
Voltage:	not relevant			Wiring colours may vary.	
Function:	Low-side				

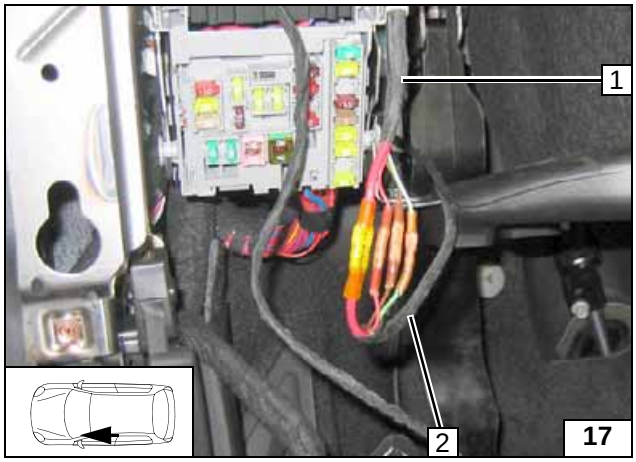
Legend



Install battery carrier **3**.

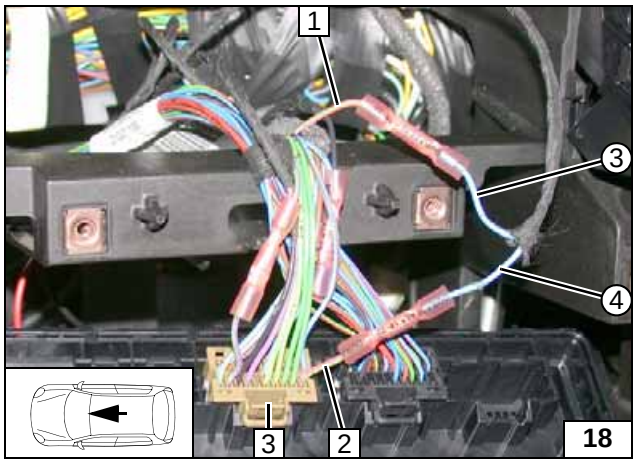
1 Mount M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, flanged nut, existing hole
2 F1, F2 fuses mounted

Mounting fuse holder



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

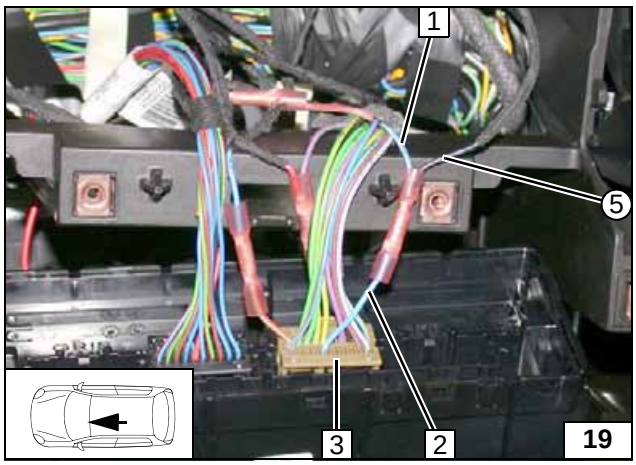
Connecting wiring harnesses using same colour wires



Connection to 20-pin, brown (br) X2 connector **3** from the air conditioning control unit. Produce connections as shown in wiring diagram.

1 Orange/green wire (or/gn) of Terminal 30
2 Orange/green (or/gn) wire of 20-pin brown (br) connector Pin 1
③ Blue (bl) wire K2/87
④ Blue (bl) wire K2/30

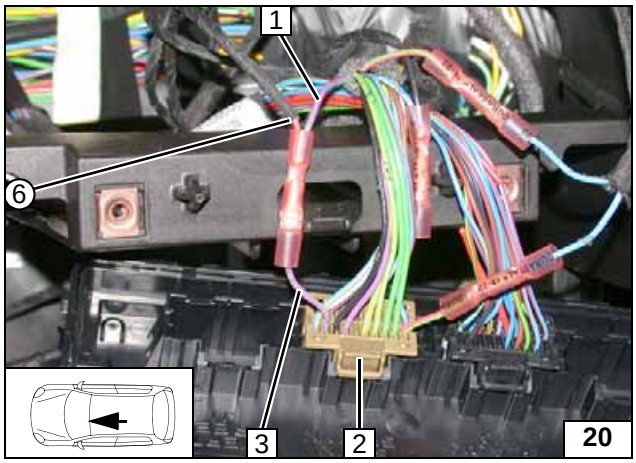
Connecting K2 relay



Connection to 20-pin, brown (br) X2 connector **3** from the air conditioning control unit. Remove connector from black (sw) wire ⑤ . Produce connections as shown in wiring diagram.

1 Blue/white (bl/ws) wire of 6-pin yellow (ge) connector, pin 3
2 Blue/white (bl/ws) wire of 20-pin brown (br) connector, pin 15
⑤ Black (sw) wire of K1/30

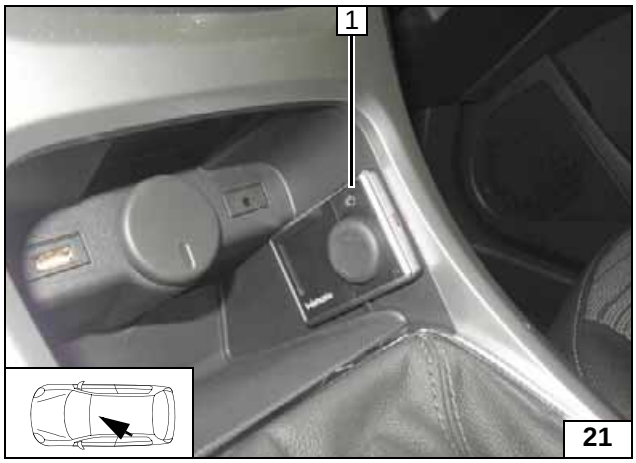
Connecting K1 relay



Connection to 20-pin, brown (br) X2 connector **2** from the air conditioning control unit. Produce connections as shown in wiring diagram.

1 Violet/green wire (vi/gn) wire of Terminal 15
3 Violet/green (vi/gn) wire of 20-pin brown (br) connector Pin 9
⑥ Red (rt) wire of K1/86

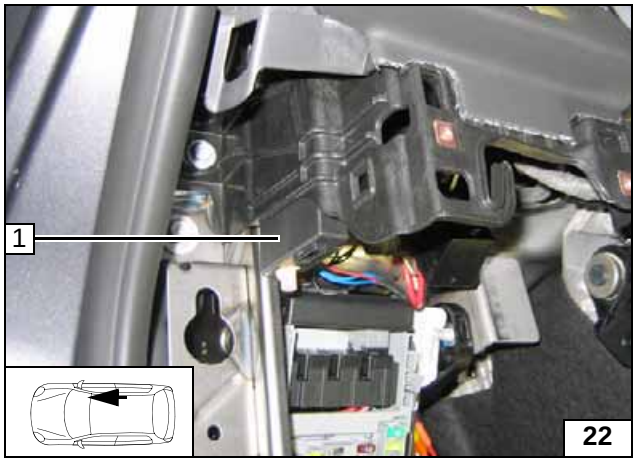
Connecting K1 relay



MultiControl Option

1 MultiControl

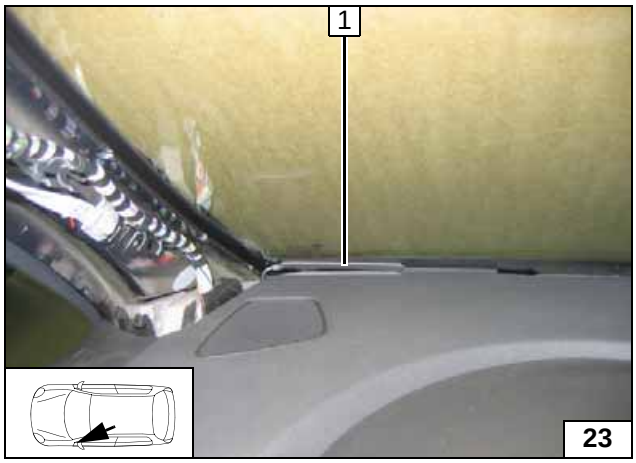
Installing MultiControl



Remote Option (Telestart)

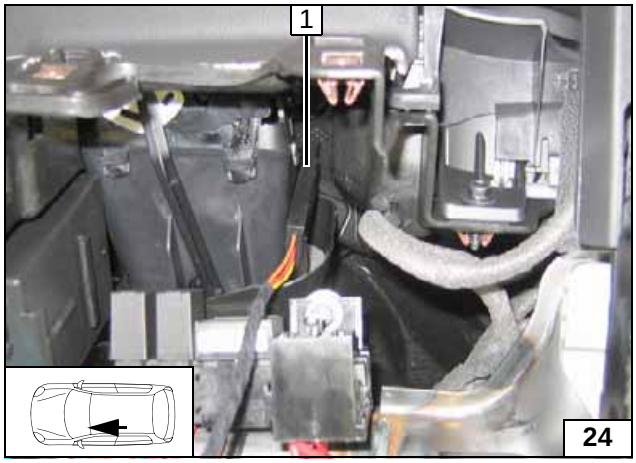
Fasten receiver **1** with adhesive tape.

Mounting receiver



1 Antenna

Mounting antenna

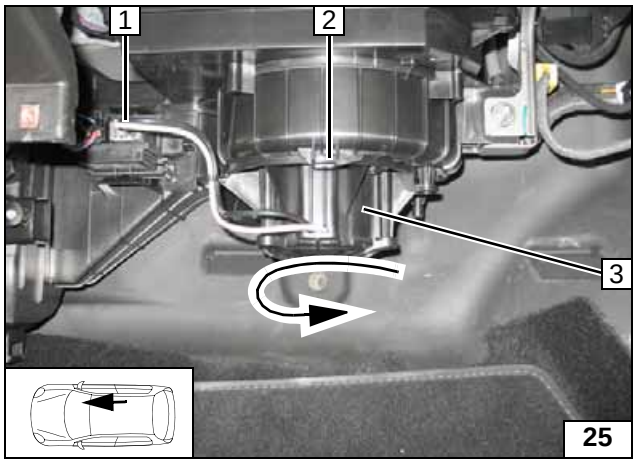


Installing T100 HTM temperature sensor

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

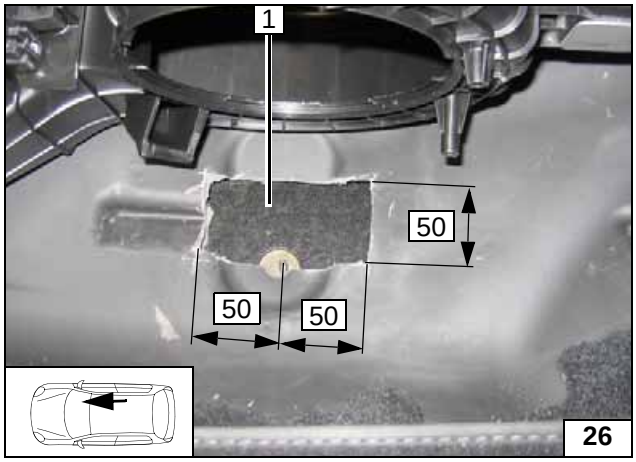
Installing temperature sensor

Preparing Installation Location



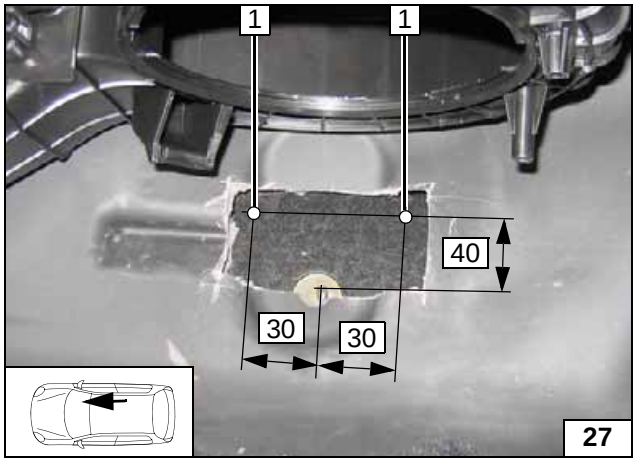
Pull out connector **1** from fan controller. Press tab **2** downwards, and turn fan motor **3** to the right.

Removing fan motor



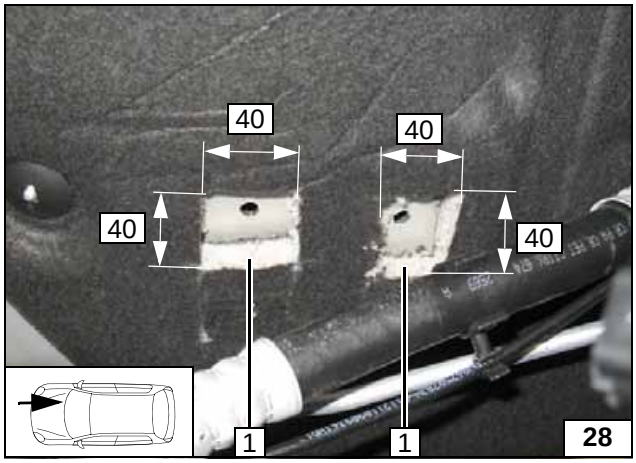
Cut out insulation **1** and discard!

Cutting out insulation in passenger compartment



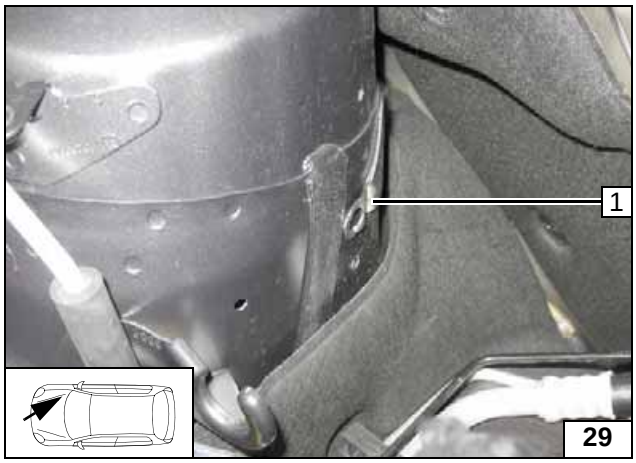
1 7 mm dia. hole [2x]

Hole in firewall



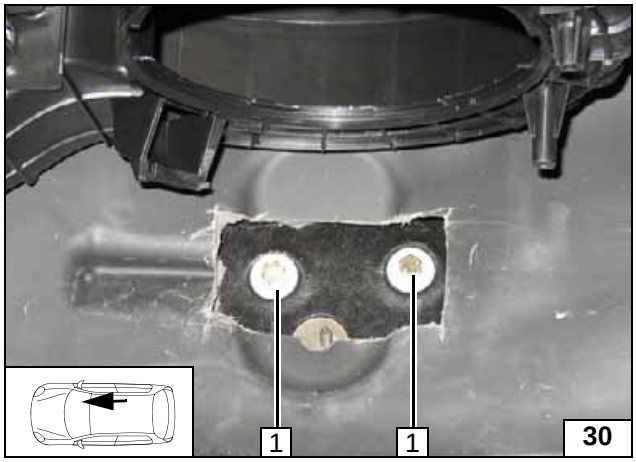
Cut out insulation in the area of the holes **1**. Provide holes with corrosion protection.

Cutting out insulation of engine compartment



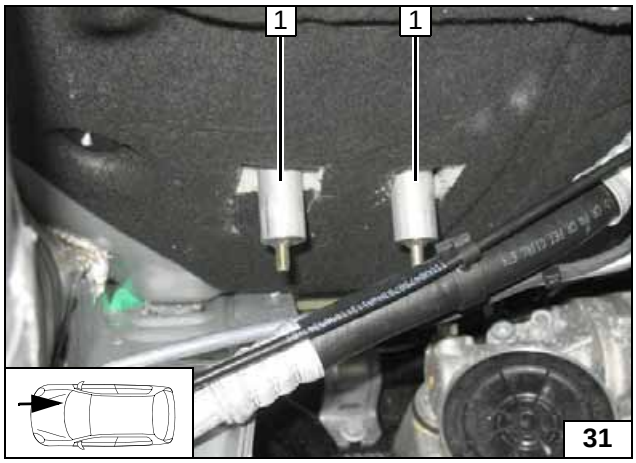
Angle down tab **1** by 90° on the strut tower.

Angling down tab



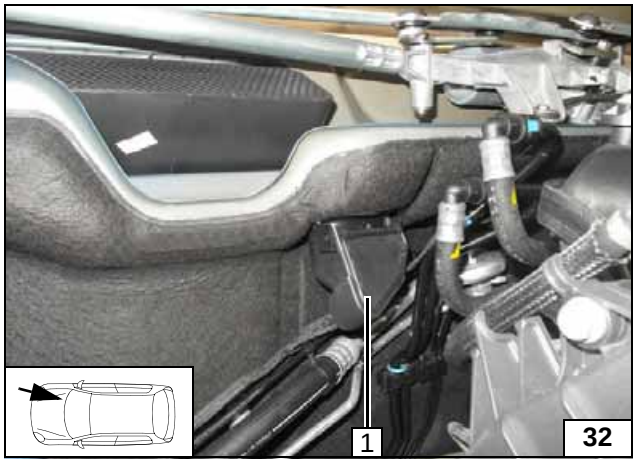
1 M6x55 bolt, large diameter washer [2x each]

Inserting bolts



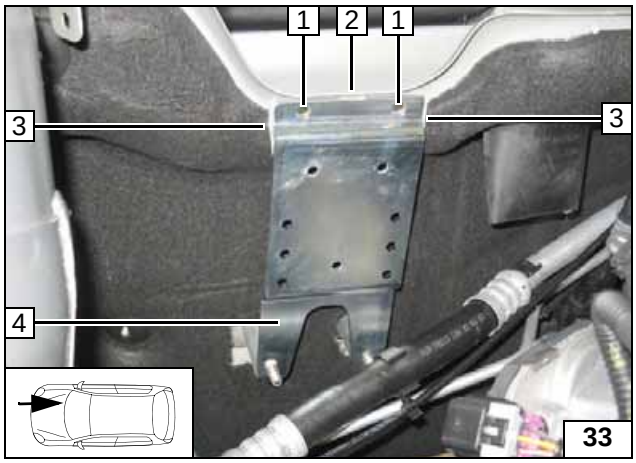
1 40mm spacer sleeve, pin lock [2x each]

Sliding shim on



Replace plastic coolant reservoir drain **1** with rubber (Opel Part No. 1451084).

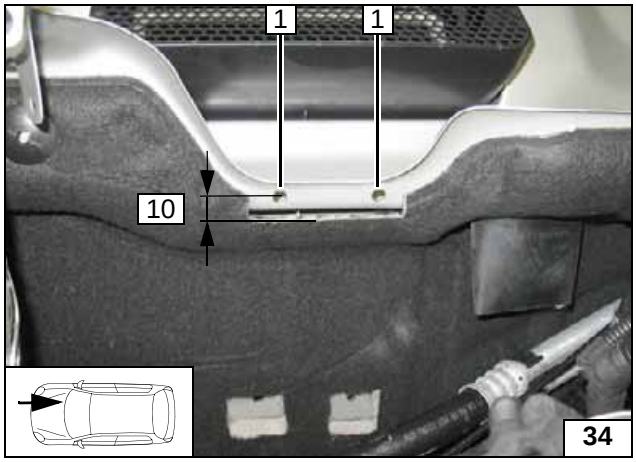
Replacing water drain



Prepare bracket according to template. Mount bracket **4** on bolts and place on upper edge **2**. Make markings **3** on the insulation at the left and right of the bracket!

1 Copy hole pattern [2x]

Copying hole pattern

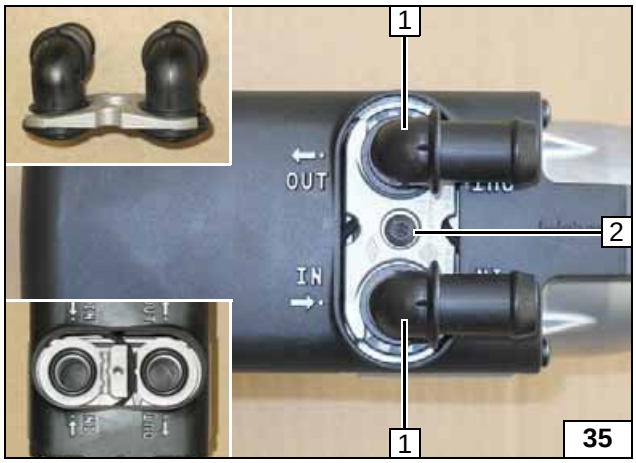


Cut out insulation in the area of the holes **1** up to the markings at the left and right. Provide holes with corrosion protection.

1 7 mm dia. hole [2x]

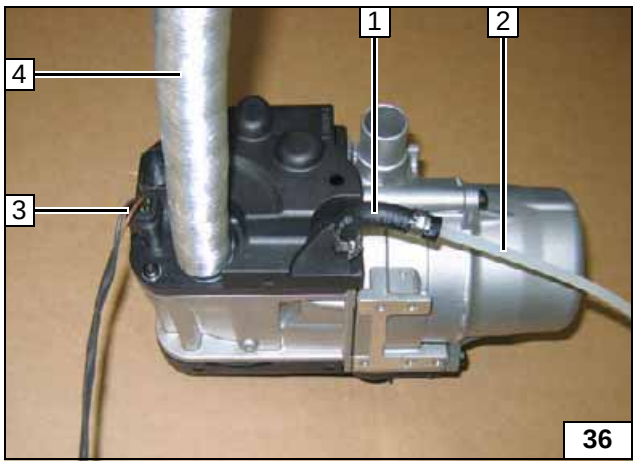
Hole in coolant reservoir

Preparing Heater



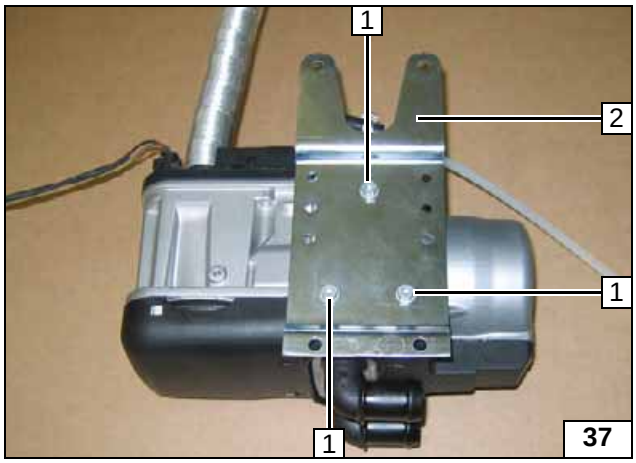
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection pieces

Installing water connection pieces



1 90° moulded hose, 10 mm dia. clamp [2x]
2 Fuel line
3 Insert connector of circulating pump wiring harness
4 Combustion air pipe

Preparing heater

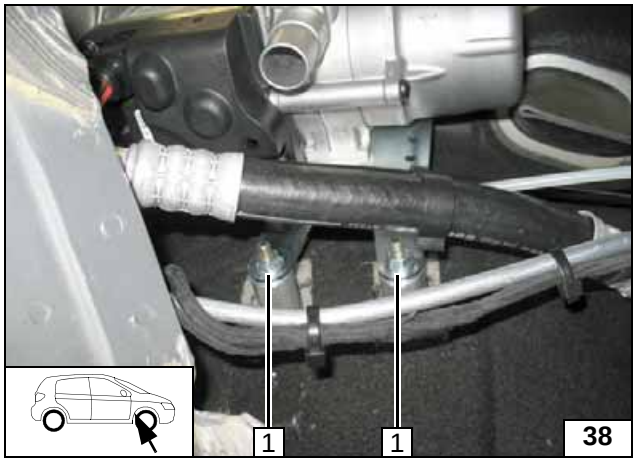


1 5x13 self-tapping bolt [3x]
2 Bracket

Mounting bracket

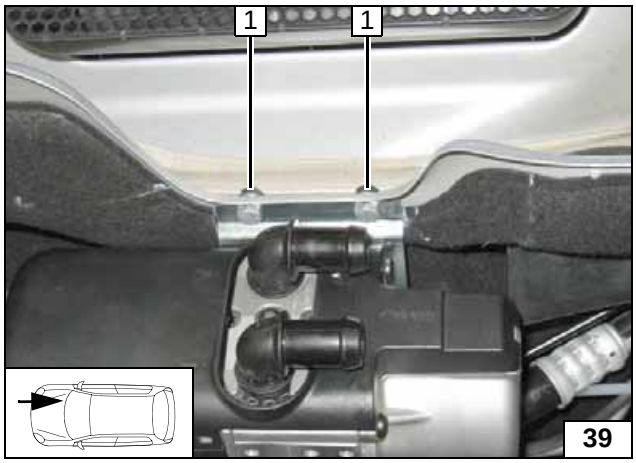
Installing Heater

Mount connector of heater wiring harness [2x] on heater.



1 Flanged nut [2x]

Mounting heater



1 M6x12 bolt, flanged nut [2x each]

Mounting heater

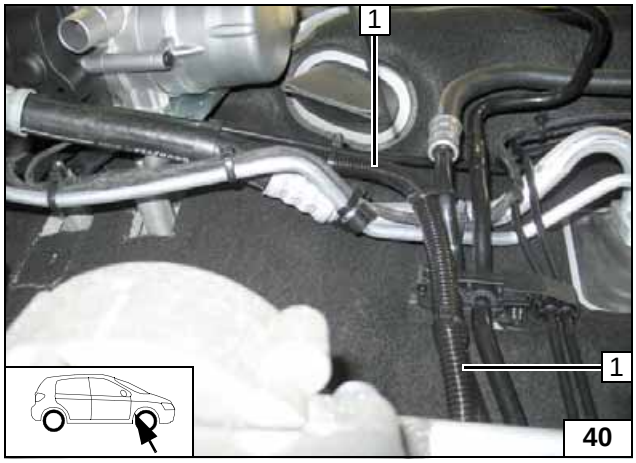
Fuel

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

Catch any fuel running off with an appropriate container.

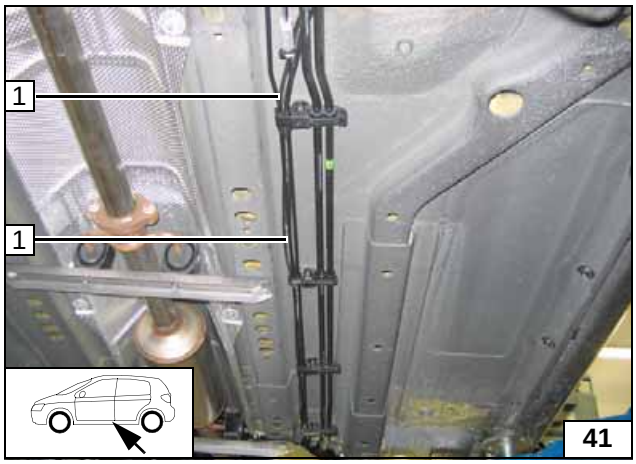
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



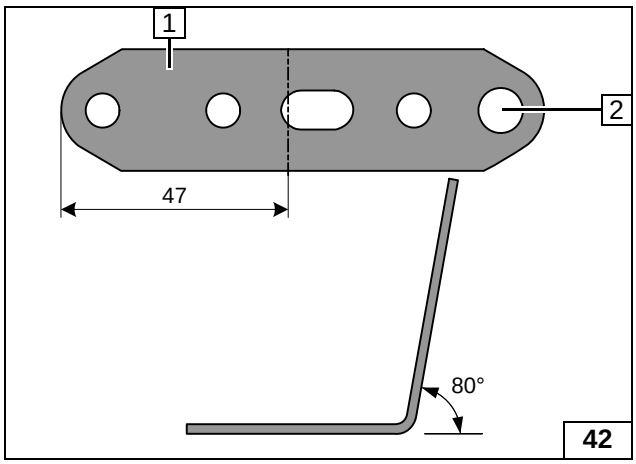
Slide corrugated tube **1** over the fuel line and wiring harness of the metering pump and route together to the original vehicle lines on the underbody.

Routing lines



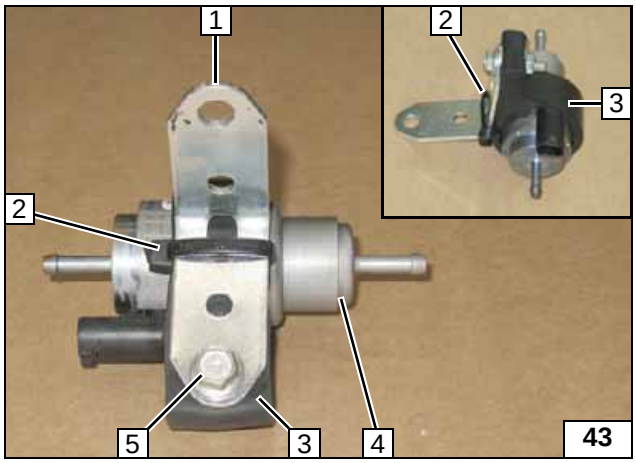
Route fuel line and wiring harness of metering pump in corrugated tube **1** along original vehicle lines to installation location of metering pump!

Routing lines



1 Perforated bracket
2 Drill out hole to 8.5 mm dia.

Preparing perforated bracket



1 Perforated bracket
2 Cable tie
3 Mounting of metering pump
4 Metering pump
5 M6x25 bolt, support angle bracket, flanged nut

Premounting metering pump

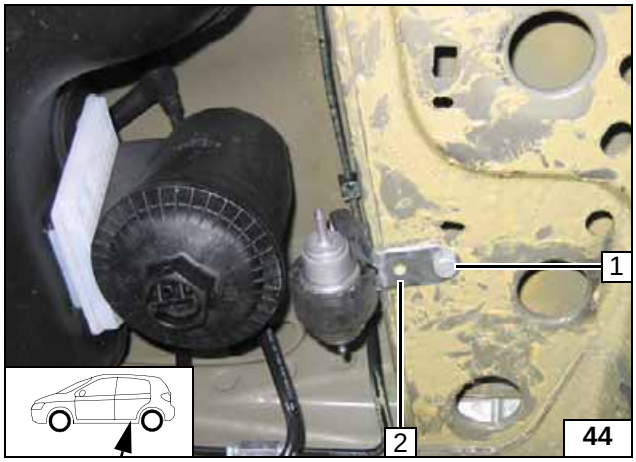
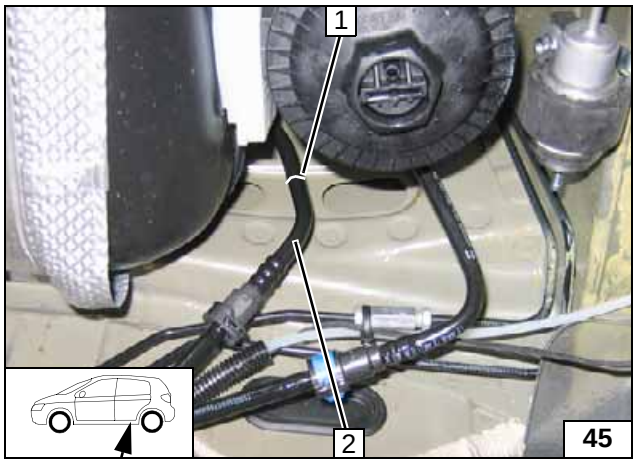


Figure shows vehicle with electric hand brake!

1 M8x20 bolt, spring lockwasher, existing threaded hole (in vehicles without electrical handbrakes, use the original vehicle bolt, bracket of the handbrake cable)
2 Perforated bracket

Mounting metering pump

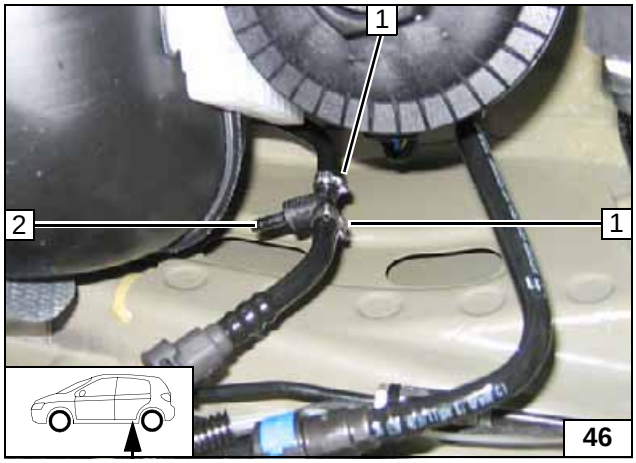


1.7D

Cut out the fuel return line **2** along the marking!

1 Cutting point

Fuel extraction



Diameter of the fuel return line depends on the equipment.

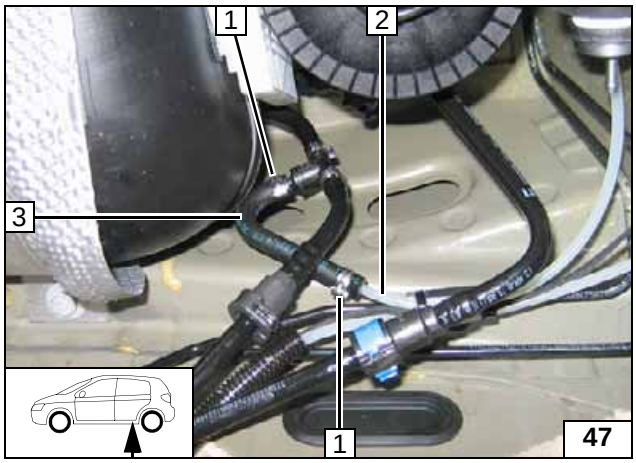
Variant 1 d_a = 8mm

1 9mm dia. Caillau clamp [2x]
2 6x5x6 fuel standpipe

Variant 2 d_a = 10mm

1 10mm dia. Caillau clamp [2x]
2 8x5x8 fuel standpipe

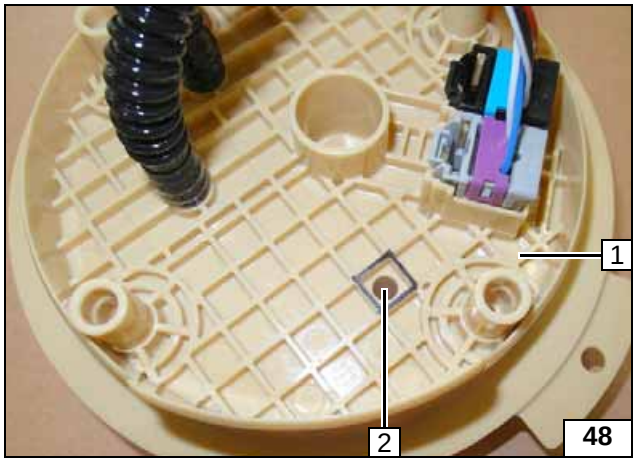
Inserting fuel standpipe



180° moulded hose **3** shortened by 15mm at short leg!

1 10mm dia. Caillau clamp [2x]
2 Fuel line

Connecting fuel line



1.6 D

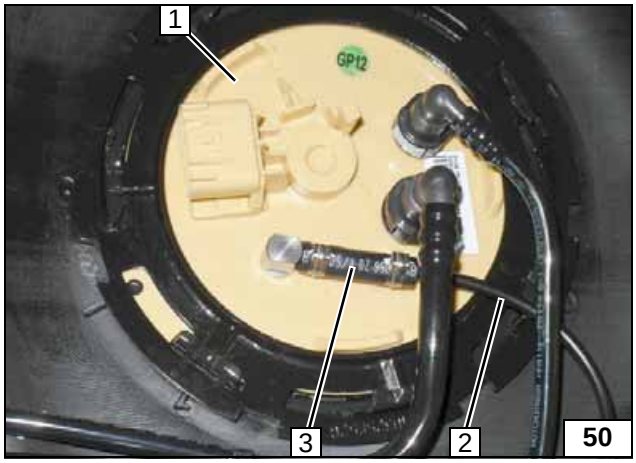
Remove fuel tank and fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 6 mm dia. hole

Preparing fuel-tank sending unit

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

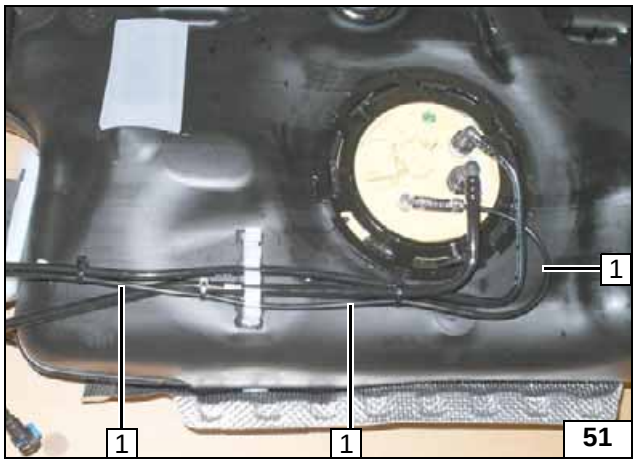
Installing fuel standpipe



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

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

Mounting fuel line



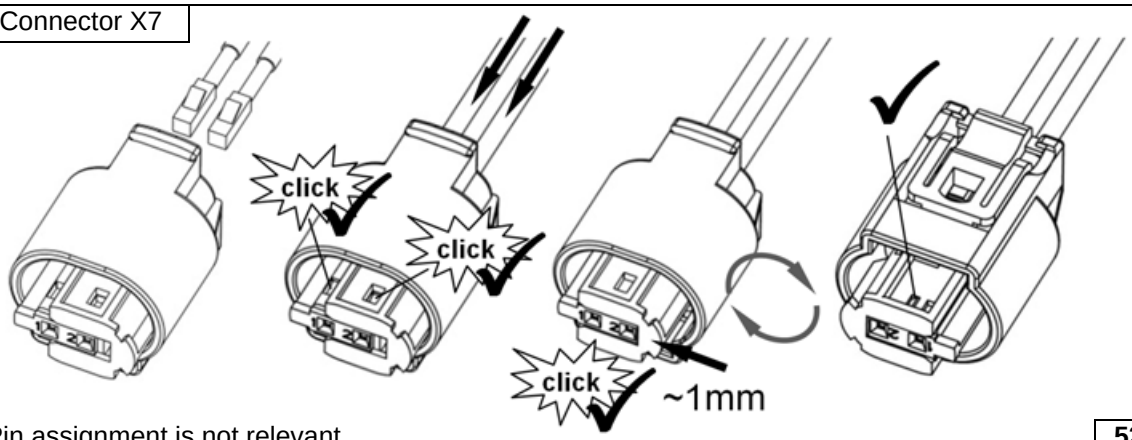
51

Fasten fuel line **1** to original vehicle fuel lines with cable tie.

Install fuel-tank according to manufacturer's instructions.

Routing fuel line

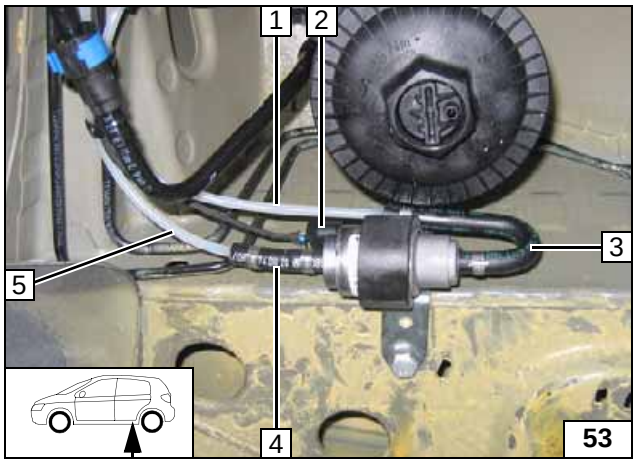
Connector X7



Pin assignment is not relevant.

52

Completing metering pump connector

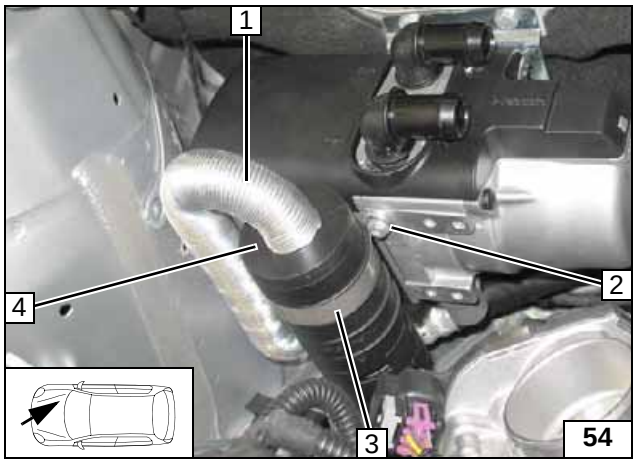


53

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

1 Fuel line fuel standpipe
2 Wiring harness of metering pump, connector X7 mounted
3 180° moulded hose, 10 mm dia. Caillau clamp [2x]
4 Hose section, 10 mm dia. Caillau clamp [2x]
5 Fuel line of heater

Connecting metering pump



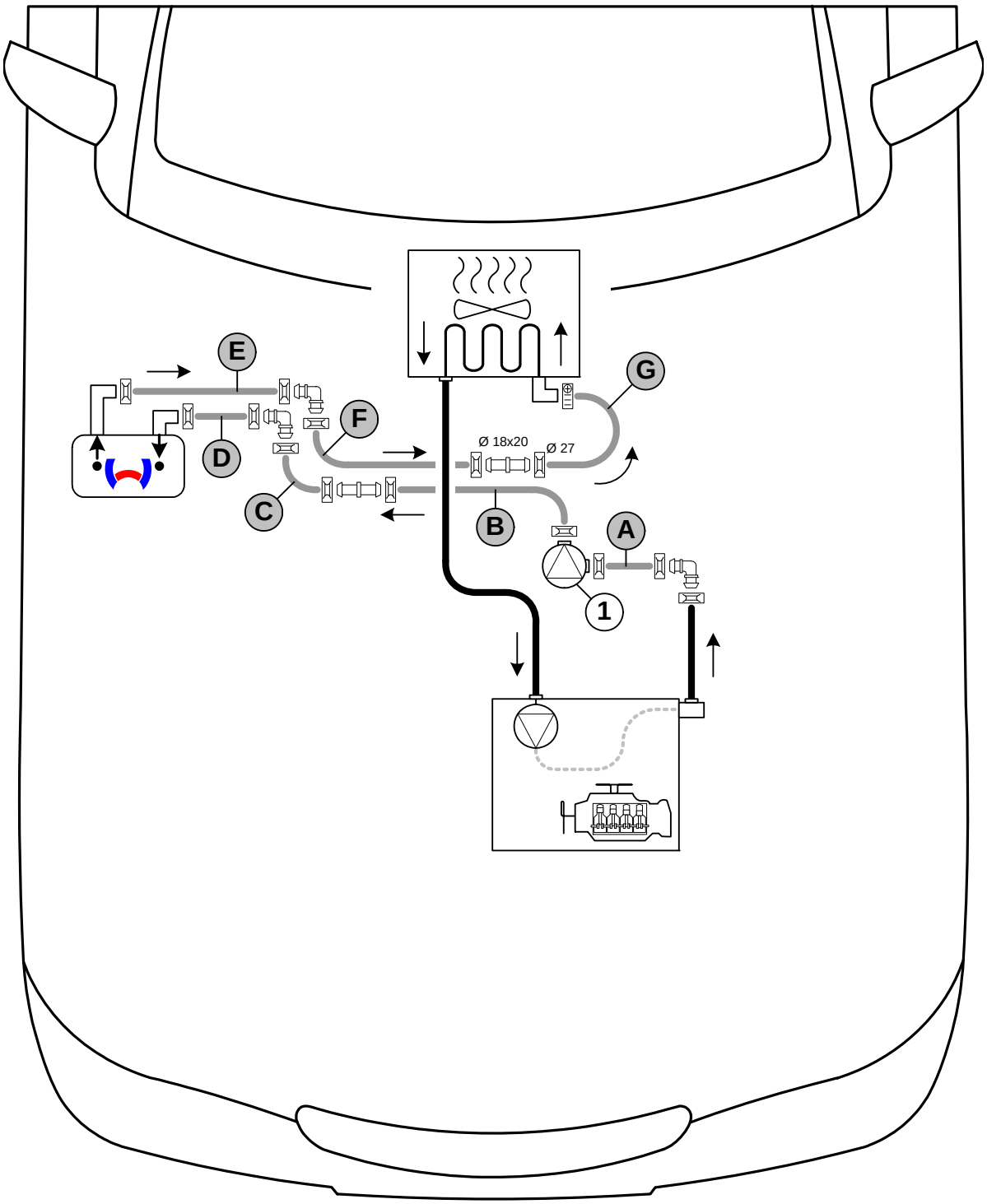
Combustion Air

1 Combustion air pipe
2 5x13 self-tapping bolt
3 51 mm dia. clamp
4 Silencer

Installing silencer

Coolant Circuit 1.7D

WARNING!
Any coolant running off should be collected using an appropriate container. Route coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can 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:



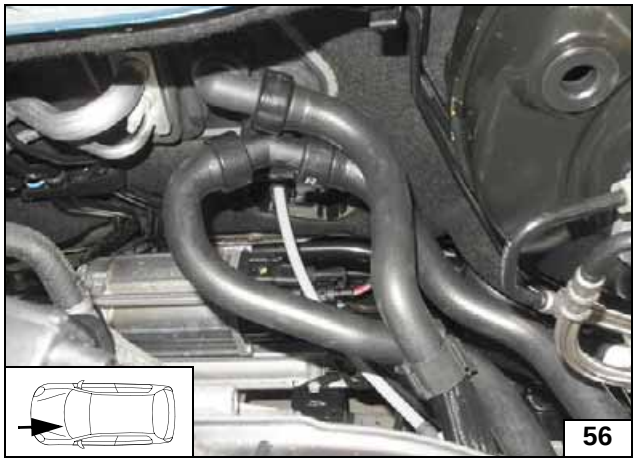
Hose installation diagram

All spring clips without a specific designation = 25 mm dia. Hose clamp = 20-27mm dia.
1 = circulating pump. All connecting pipes without a specific designation and = 18x18mm dia.

The connection on the heat exchanger is differentiated between 2 variants.

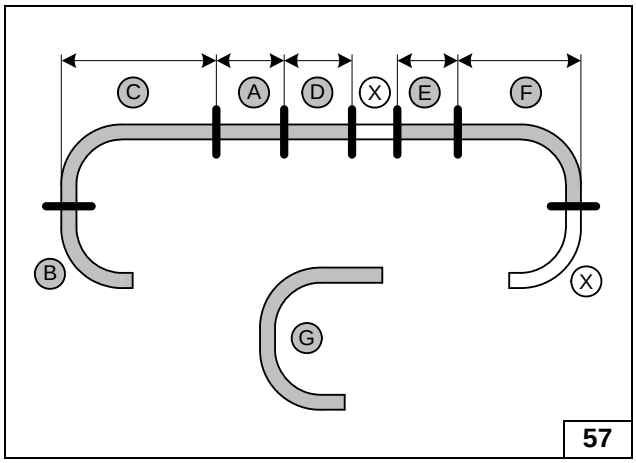
Variant 1

View of variant 1



Variant 2

View of variant 2

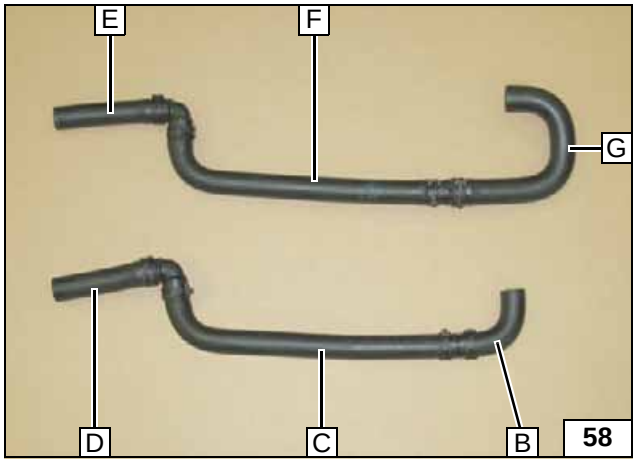


All vehicles

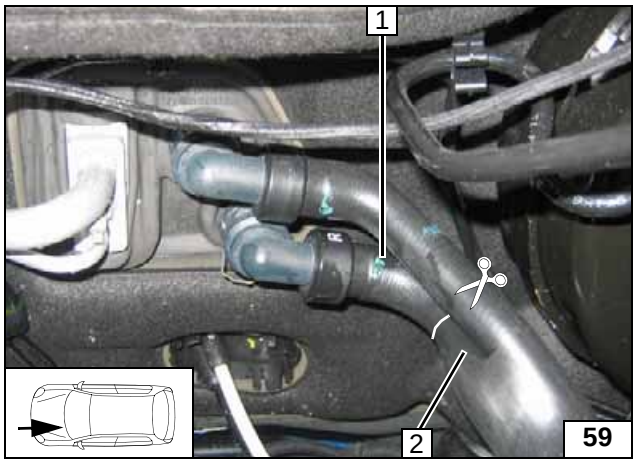
Discard section **X**.
Hose **G** = 180°, 20mm dia. moulded hose

	Variant 1	Variant 2
A =	60	60
C =	270	290
D =	110	110
E =	110	110
F =	290	290

Cutting hoses to length



Premounting hoses

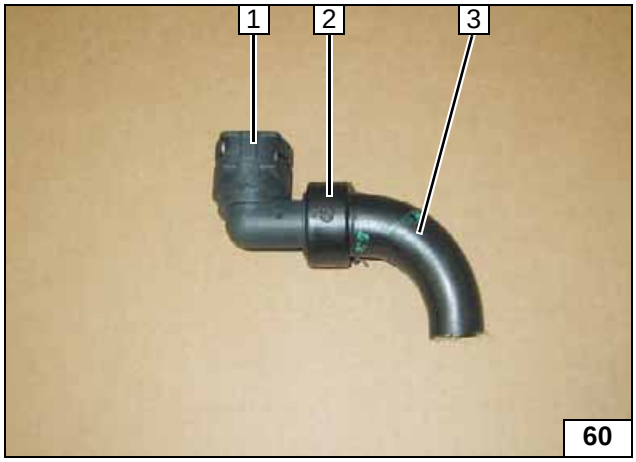


Variant 1

Remove hose section of heat exchanger inlet **1**.

2 Engine outlet hose section

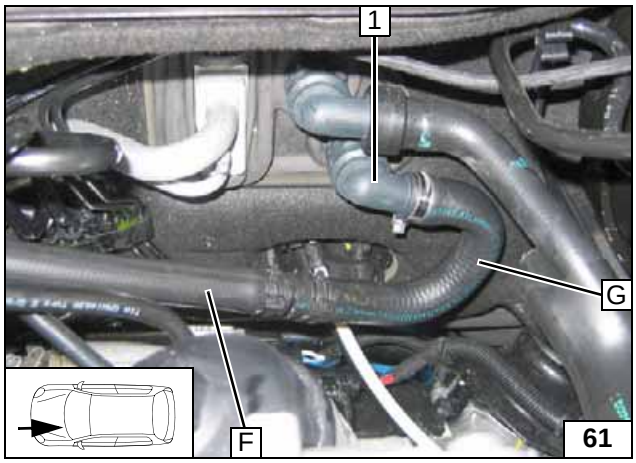
Cutting point



Remove hose section. Cut out ring **2** carefully. Do not damage the coupling, it will be reused. Discard ring **2** und 90° elbow **3** .

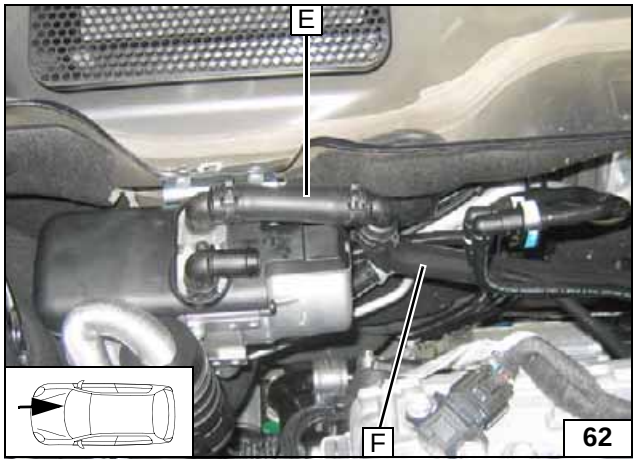
1 Coupling of heat exchanger inlet

Preparing connection of heat exchanger inlet

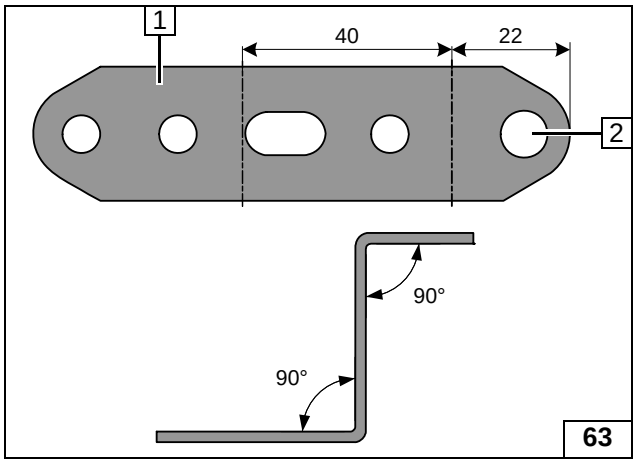


1 Coupling of heat exchanger inlet

Connecting heat exchanger inlet

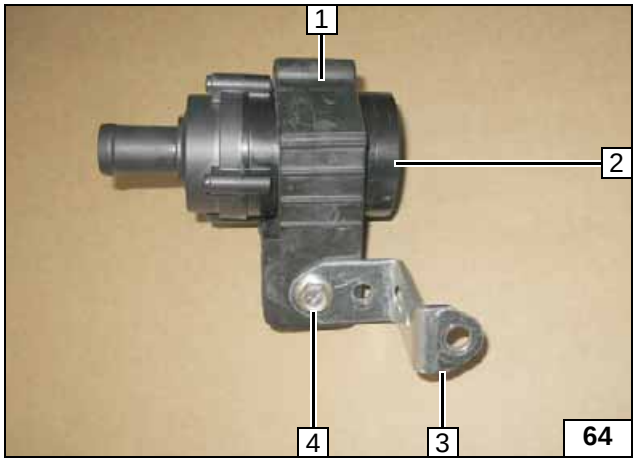


Connecting heater outlet



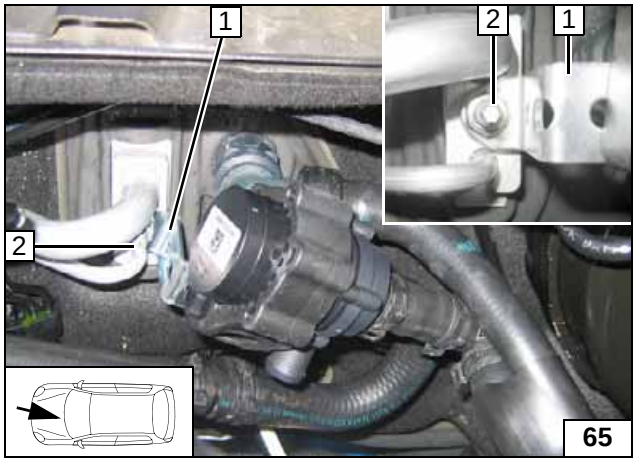
1 Perforated bracket
2 Drill out hole to 8.5 mm dia.

Preparing perforated bracket



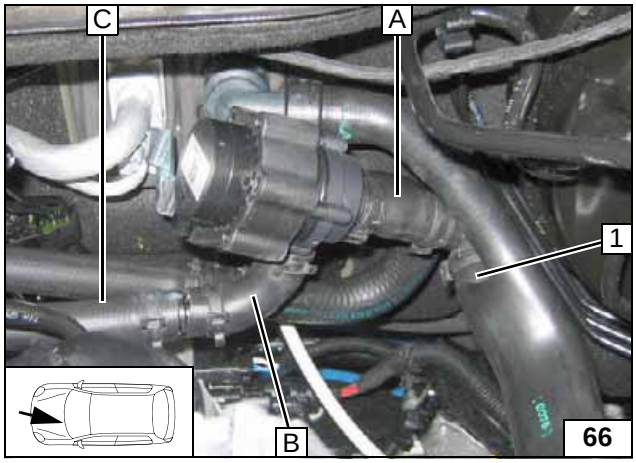
1 Mounting of circulating pump
2 Circulating pump
3 Perforated bracket
4 M6x25 bolt, flanged nut

Premounting circulating pump



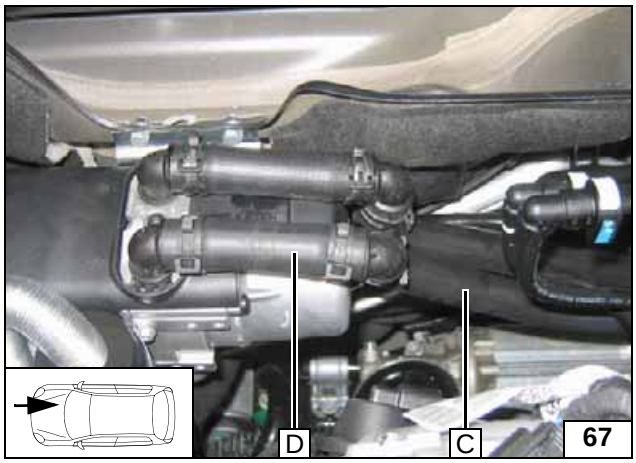
1 Perforated bracket
2 Original vehicle stud bolt, M8 flanged nut

Installing circulating pump

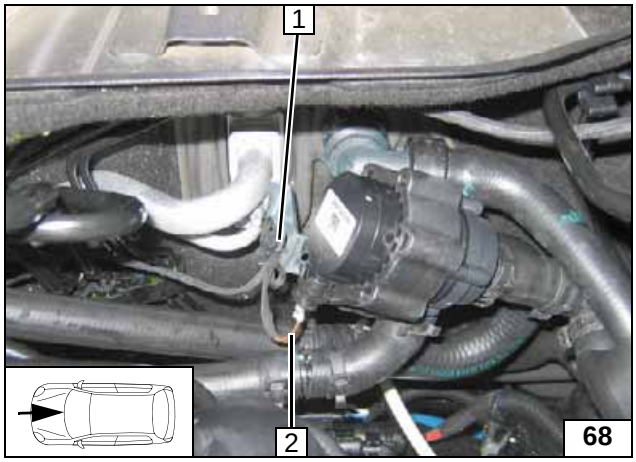


1 Hose of engine outlet

Connecting circulating pump



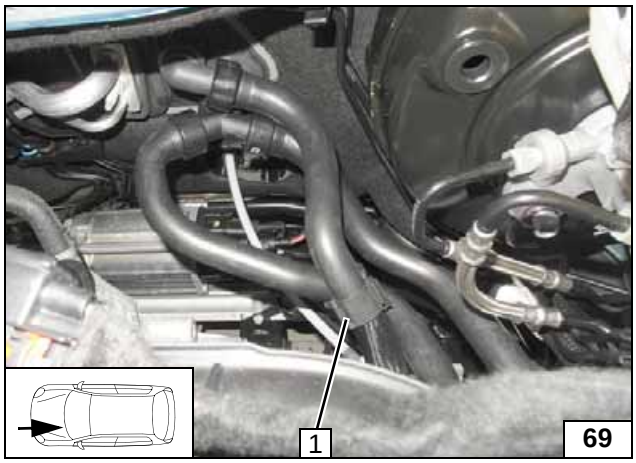
Connecting heater inlet



Mount connector of circulating pump wiring harness **2** on circulating pump. Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

1 Cable tie

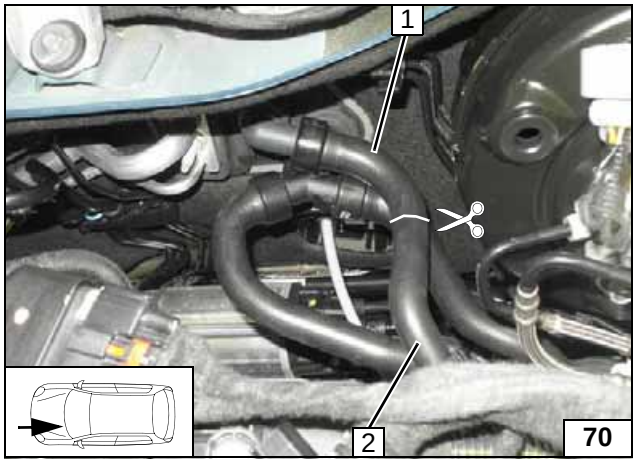
Routing wiring harness of circulating pump



Variant 2

Remove hose bracket **1**; will be reused.

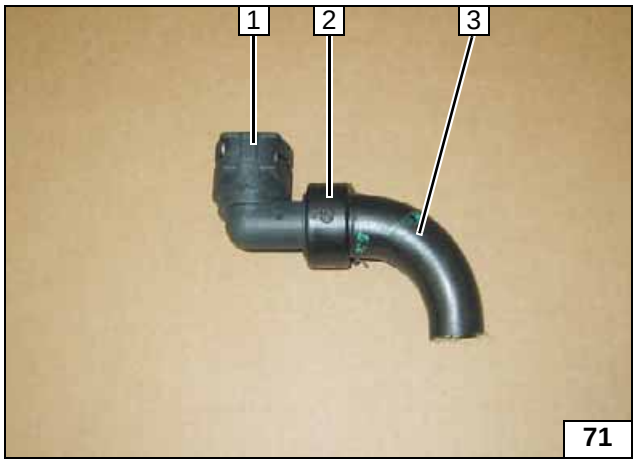
Removing hose bracket



Remove hose section of heat exchanger inlet **1**.

2 Engine outlet hose section

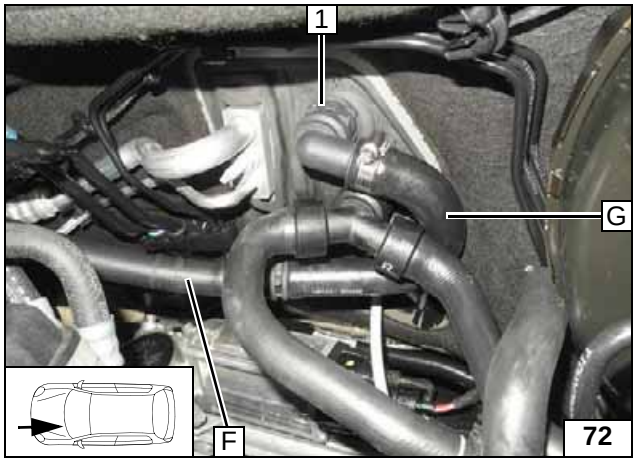
Cutting point



Remove hose section. Cut out ring **2** carefully. Do not damage the coupling, it will be reused. Discard ring **2** und 90° elbow **3** .

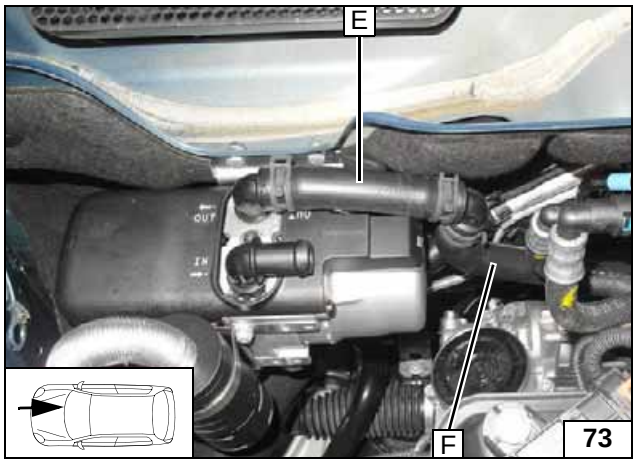
1 Coupling of heat exchanger inlet

Preparing connection of heat exchanger inlet

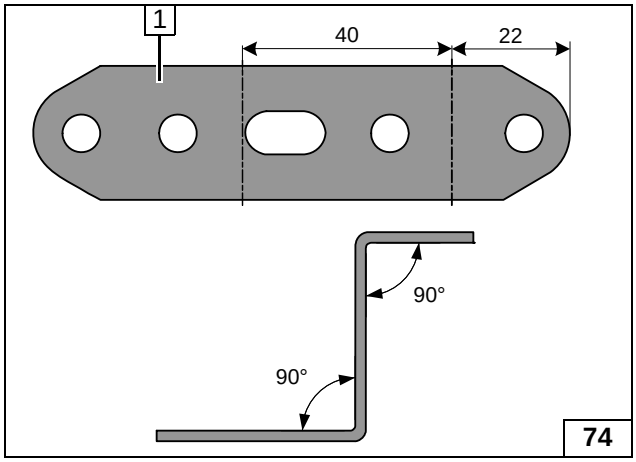


1 Coupling of heat exchanger inlet

Connecting heat exchanger inlet

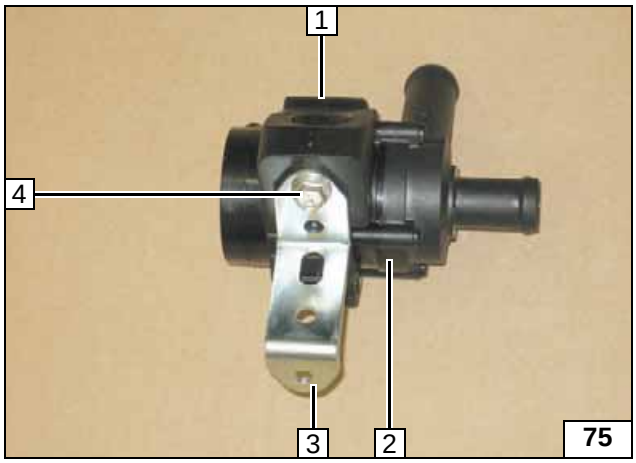


Connecting heater outlet



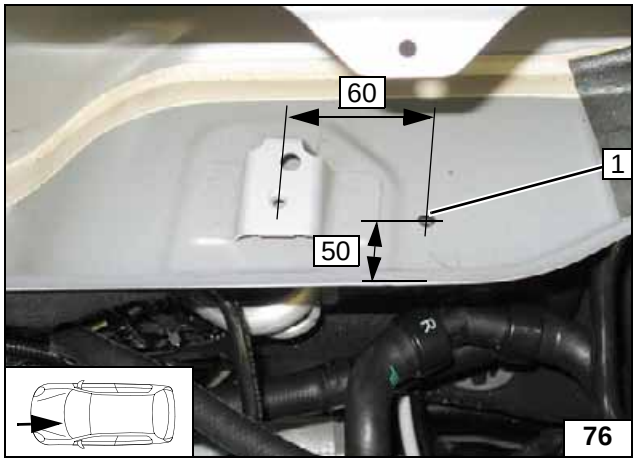
1 Perforated bracket

Preparing perforated bracket



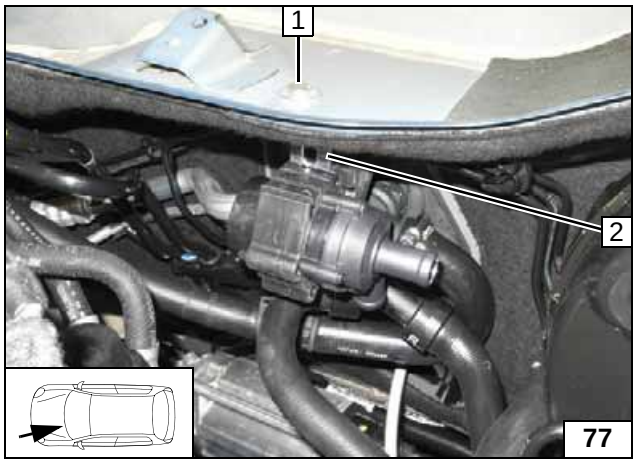
1 Mounting of circulating pump
2 Circulating pump
3 Perforated bracket
4 M6x25 bolt, flanged nut

Premounting circulating pump



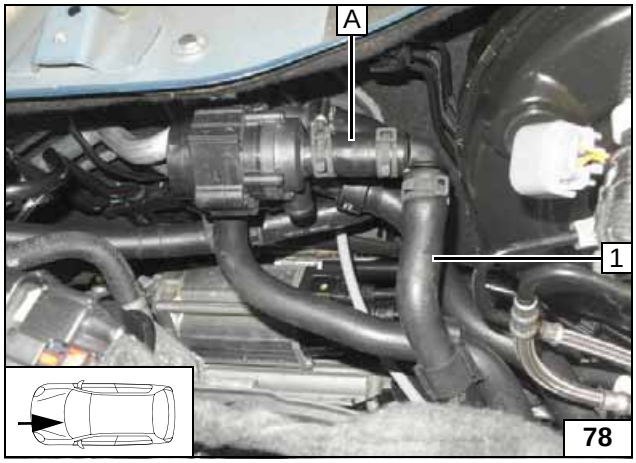
1 7 mm dia. hole

Hole in coolant reservoir



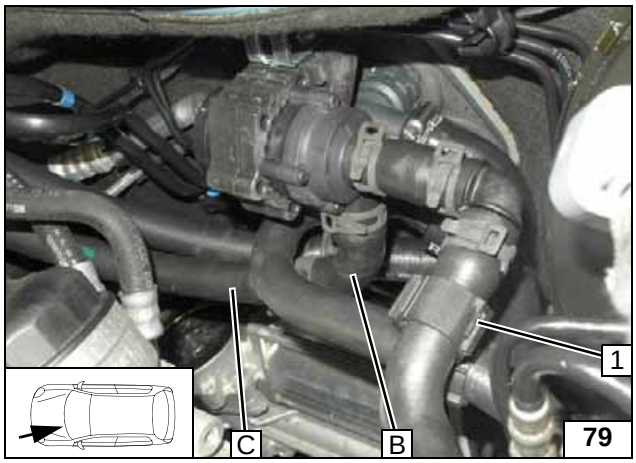
1 M6x20 bolt, bodywork bolt, flanged nut
2 Perforated bracket

Installing circulating pump



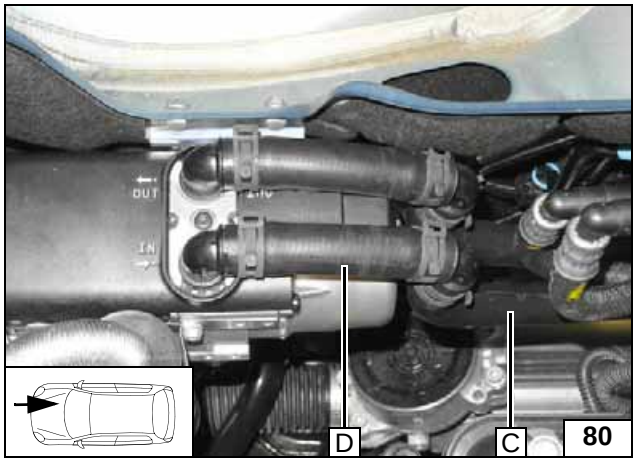
1 Hose of engine outlet

Connecting engine outlet



1 Mount original vehicle hose bracket

Connecting circulating pump



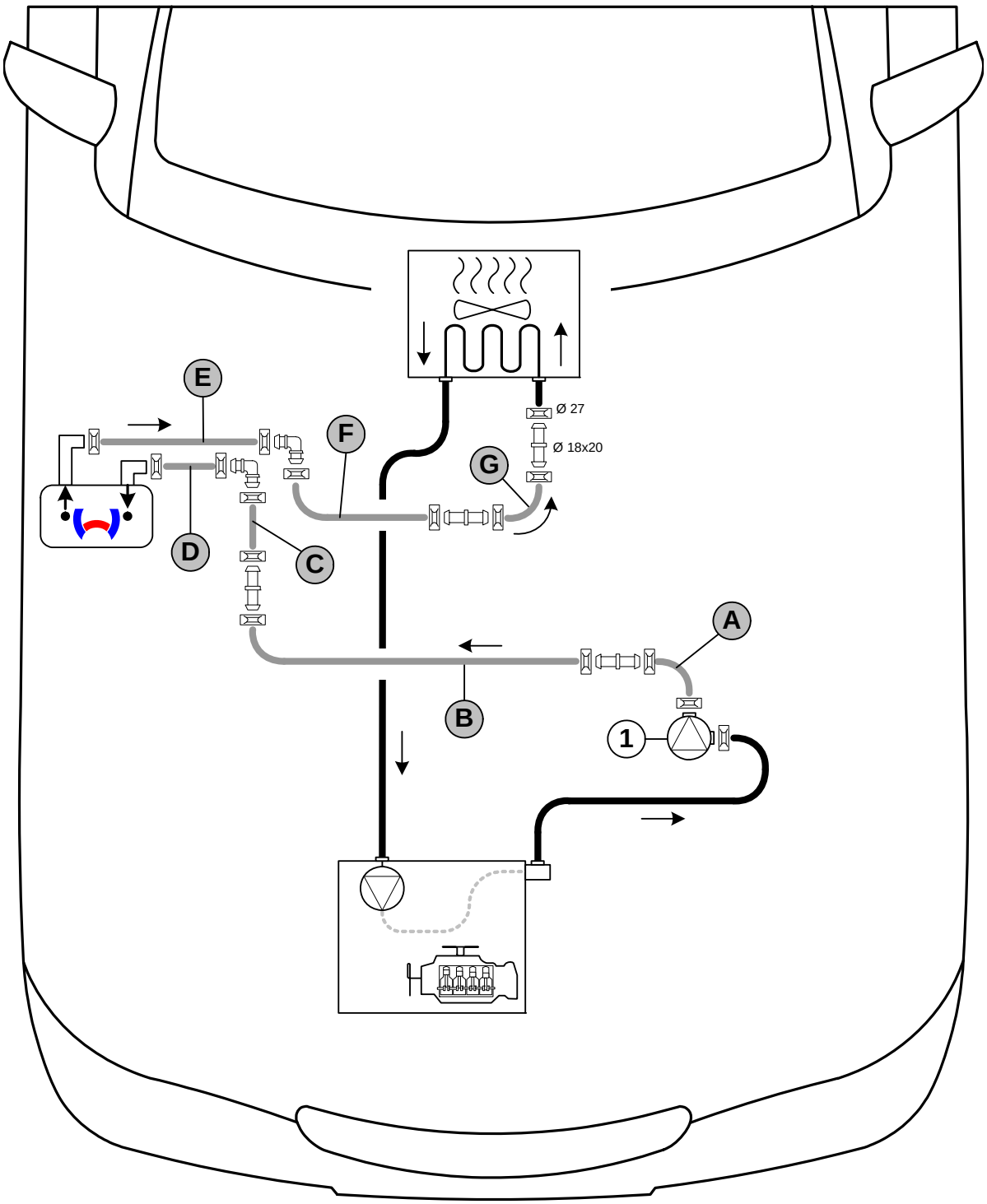
Connecting heater inlet

Mount connector of circulating pump wiring harness **1** on circulating pump. Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

Routing wiring harness of circulating pump

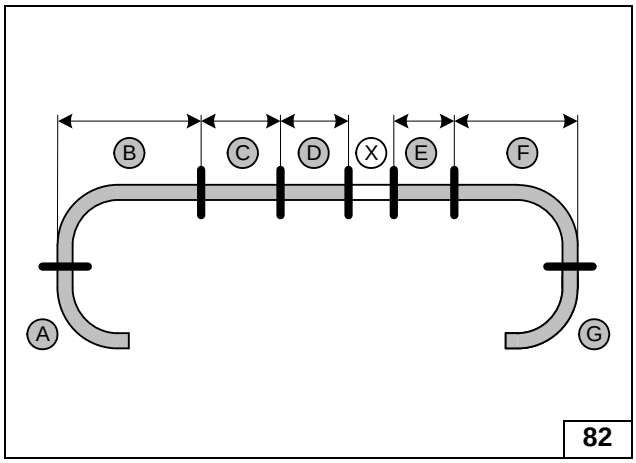
Coolant Circuit 1.6D

WARNING!
Any coolant running off should be collected using an appropriate container. Route coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can 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 installation diagram

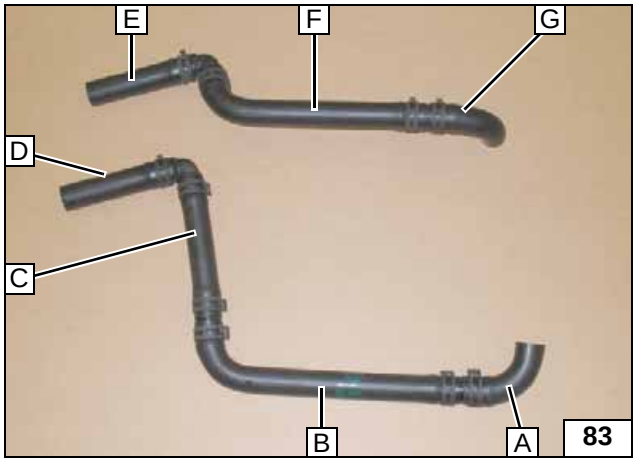
All spring clips without a specific designation = 25 mm dia. **1** = Circulating pump.
All connecting pipes without a specific designation and = 18x18mm dia.



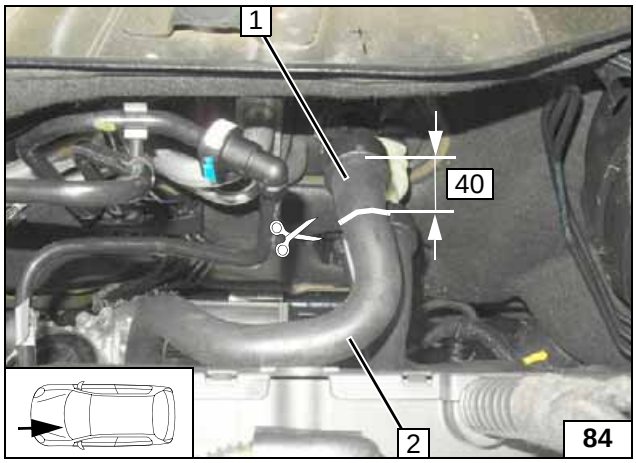
Discard section **X**.

B = 240
C = 130
D = 110
E = 110
F = 220

Cutting hoses to length

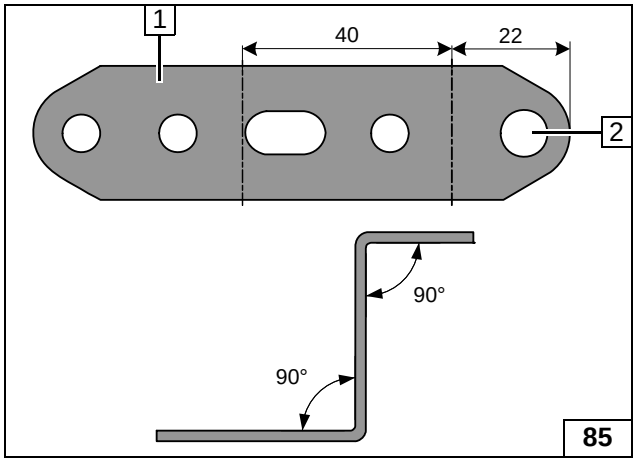


Premounting hoses



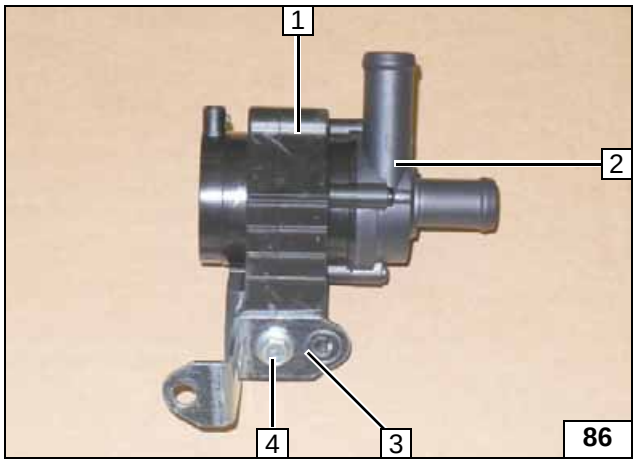
1 Hose section of heat exchanger inlet
2 Engine outlet hose section

Cutting point



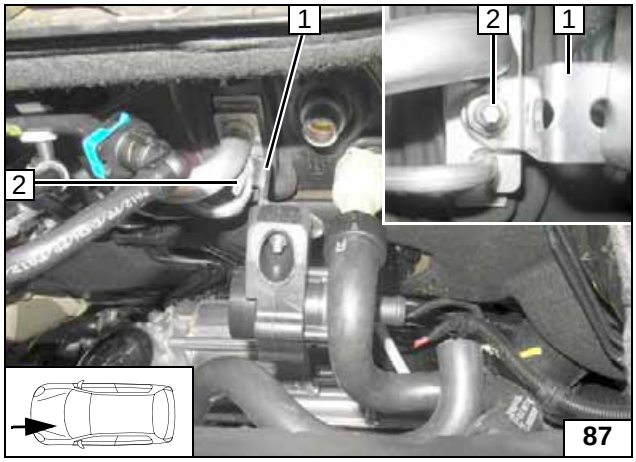
1 Perforated bracket
2 Drill out hole to 8.5 mm dia.

Preparing perforated bracket



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

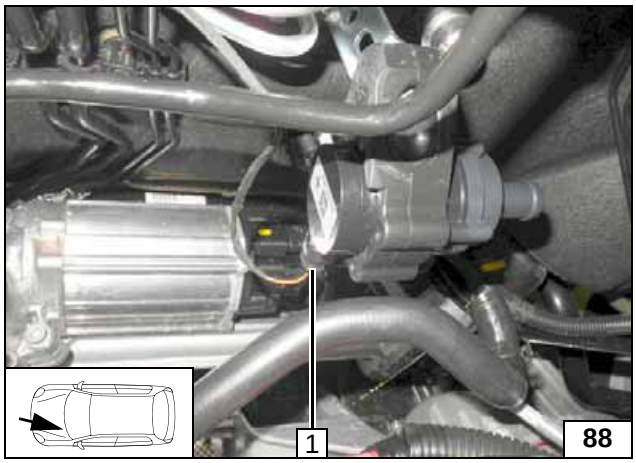
Premounting circulating pump



Connection piece of heat exchanger inlet removed for presentation purposes.

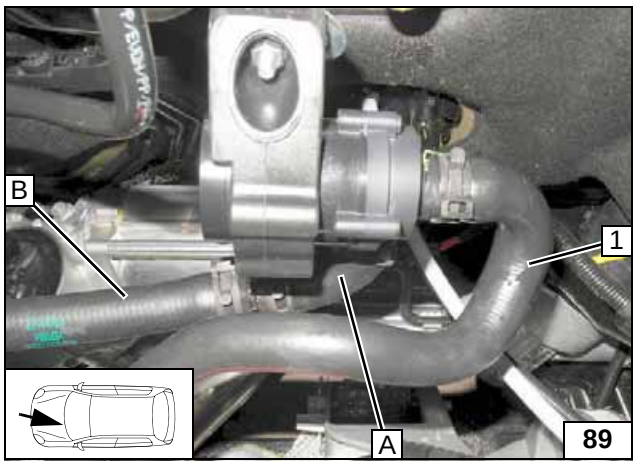
1 Perforated bracket
2 Original vehicle stud bolt, M8 flanged nut

Installing circulating pump



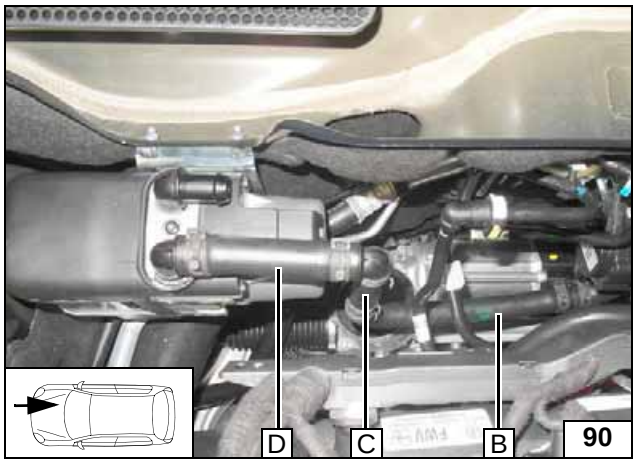
1 Connector for wiring harness of circulating pump

Mounting wiring harness of circulating pump

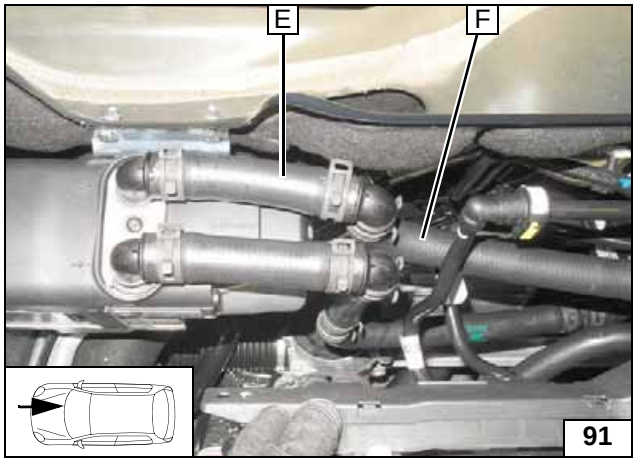


1 Hose of engine outlet

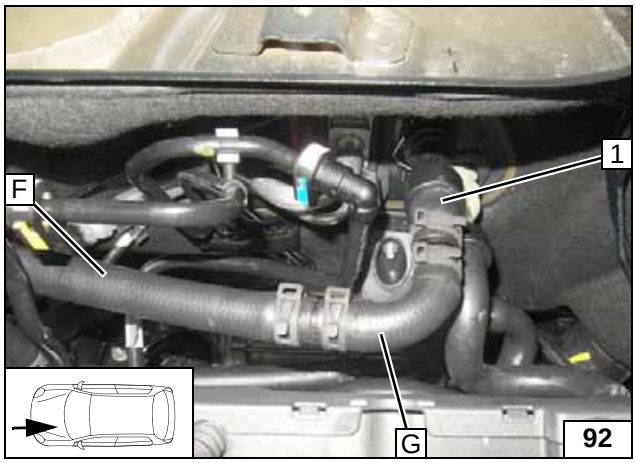
Connecting circulating pump



Connecting heater inlet



Connecting heater outlet



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

1 Hose section of heat exchanger inlet

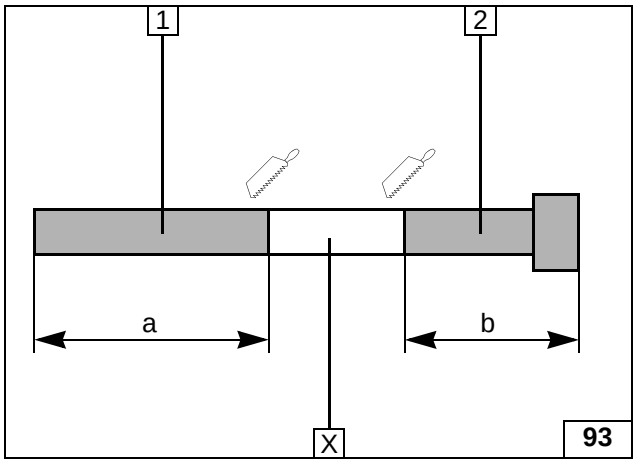
Connecting heat exchanger inlet

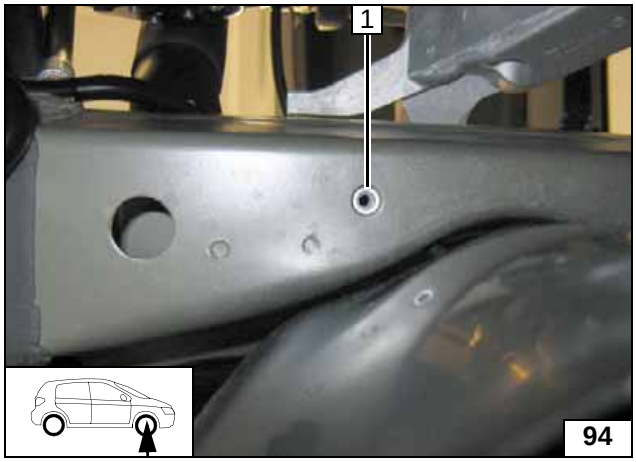
Exhaust Gas

Discard section **X**.

1 Exhaust pipe
a =550
2 Exhaust end section
b =280

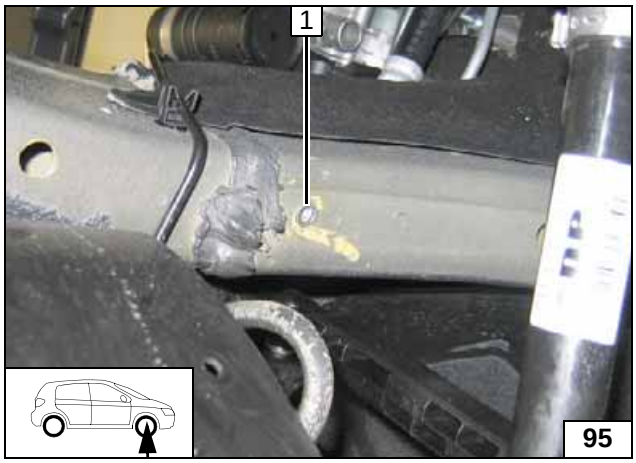
Preparing exhaust pipe





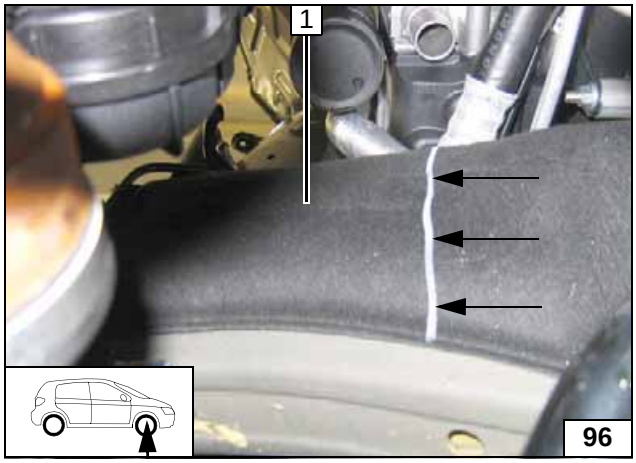
1 Rivet nut, existing hole

Installing rivet nut



1 Rivet nut, existing hole

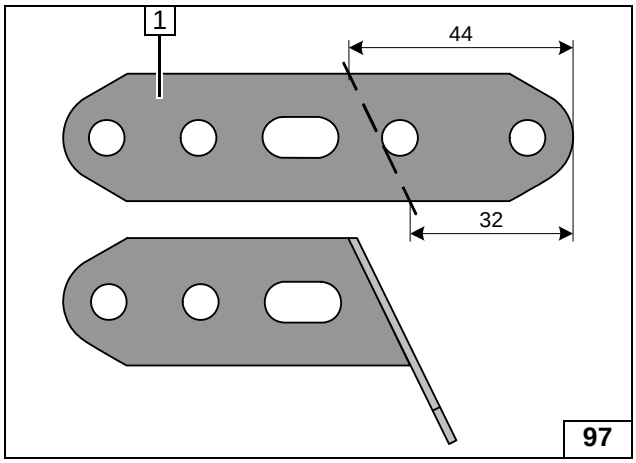
Installing rivet nut



Cut away insulation (if available) at the marking.

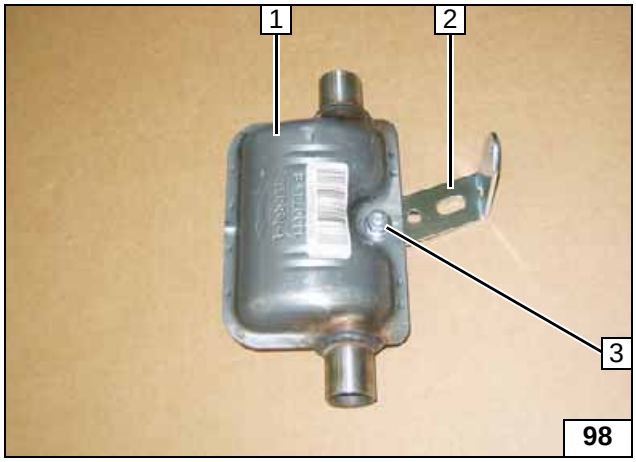
1 Remove and discard section

Cutting out insulation



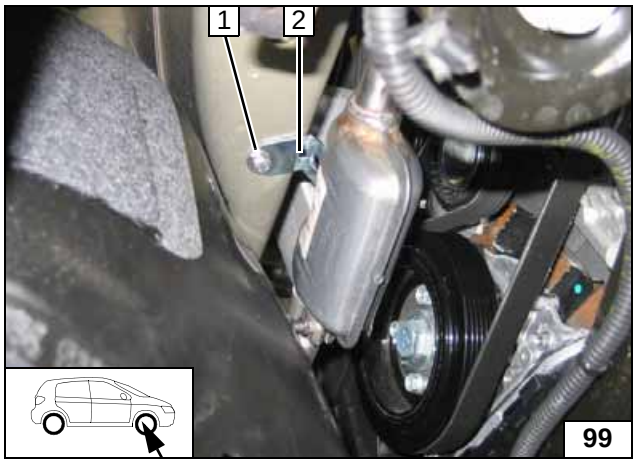
Angle down perforated bracket **1** by 90°

Preparing perforated bracket



1 Silencer
2 Perforated bracket
3 M6x12 bolt, flanged nut

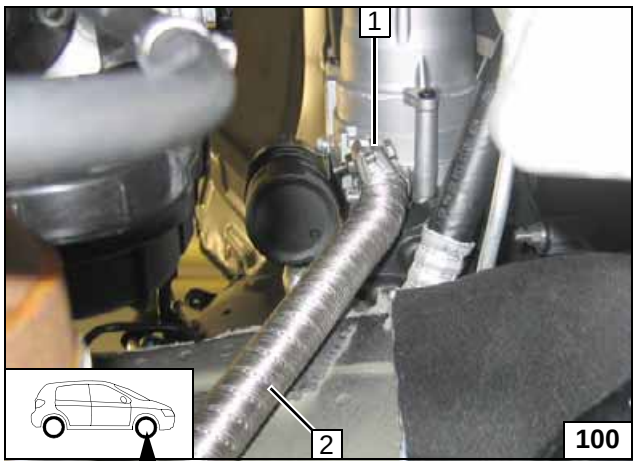
Premounting silencer



Insert two plain washers between perforated bracket **2** and frame side member.

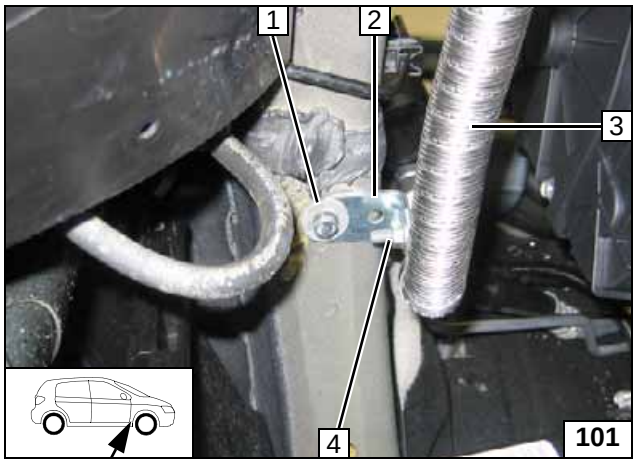
1 M6x20 bolt, spring lockwasher, plain washer [2x]

Installing silencer



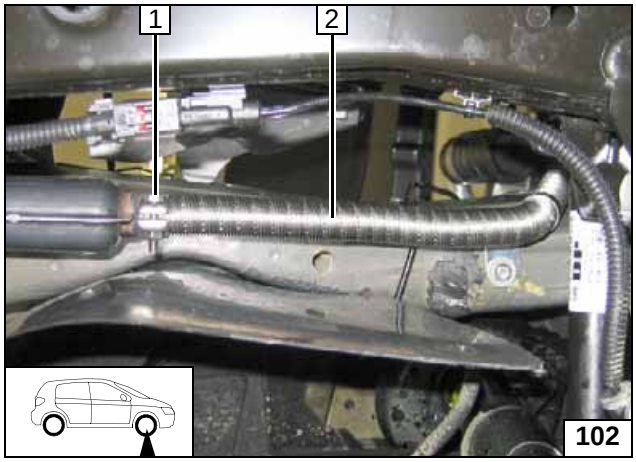
1 Hose clamp
2 Exhaust pipe

Mounting exhaust pipe



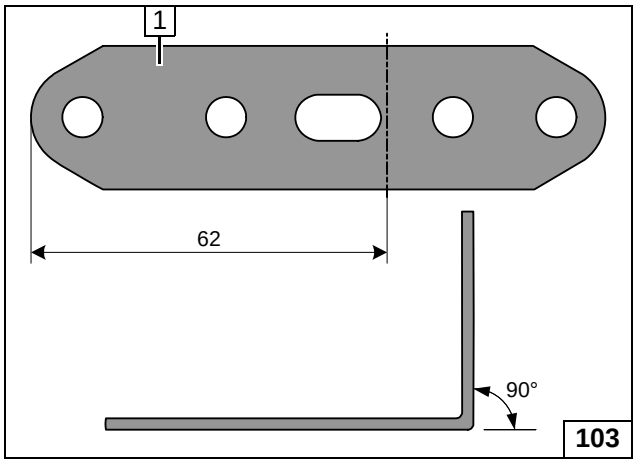
1 M6x20 bolt, spring lockwasher, large diameter washer
2 Angle bracket
3 Exhaust pipe
4 M6x20 bolt, p-clamp, flanged nut

Mounting exhaust pipe



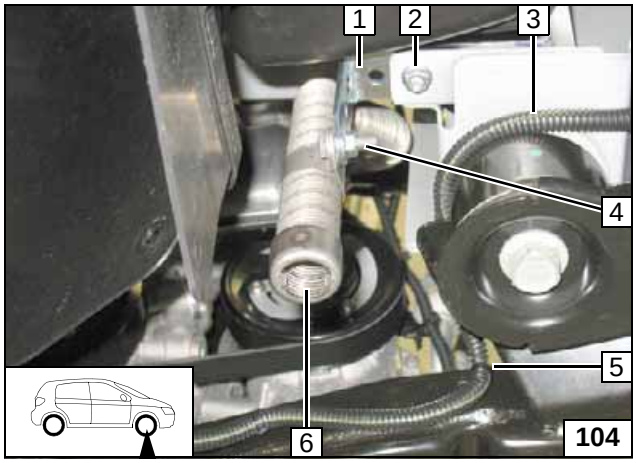
1 Hose clamp
2 Exhaust pipe

Mounting exhaust pipe



1 Perforated bracket

Preparing perforated bracket



Remove retaining clip from original vehicle wiring harness **3** at Position **2** and install at Position **5** in the existing hole!

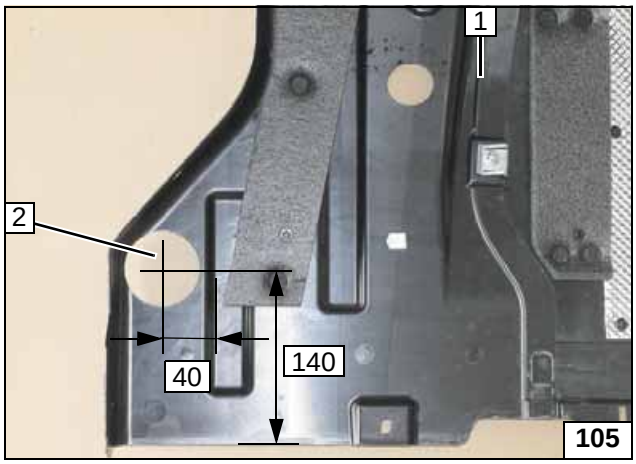
1 Perforated bracket
2 M6x12 bolt, flanged nut
4 M6x20 bolt, p-clamp, flanged nut
6 Exhaust end section

Mounting exhaust end section

Final Work

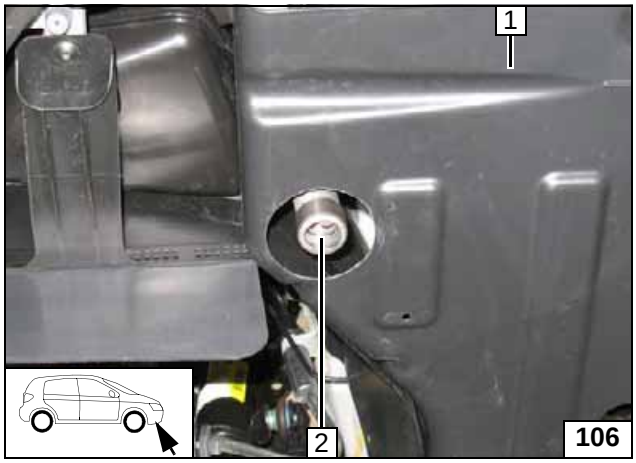
WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose wires.
Only use manufacturer-approved coolant. Spray heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Set the MultiControl, 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 in the area of the filler neck.**
- **For initial start-up and function check, see installation instructions**



1 Underride protection
2 60 mm dia. hole

Cutting out underride protection

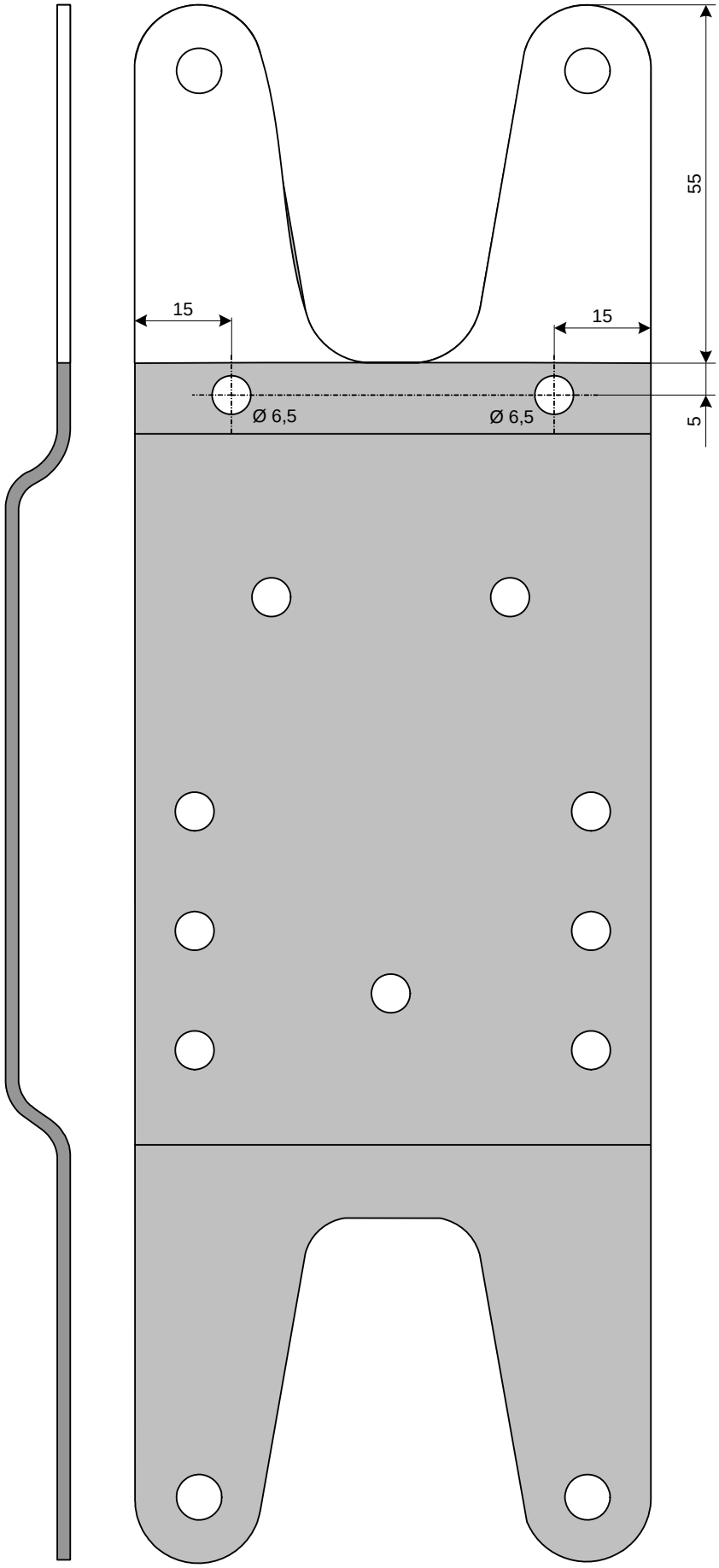


Align exhaust end section **2** in the middle of the hole and flush with underride protection **1**. Ensure sufficient distance from adjacent components; correct if necessary.

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

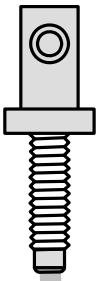
Set the printer settings to “no margin” or “minimise margins” and 100% of the normal size.

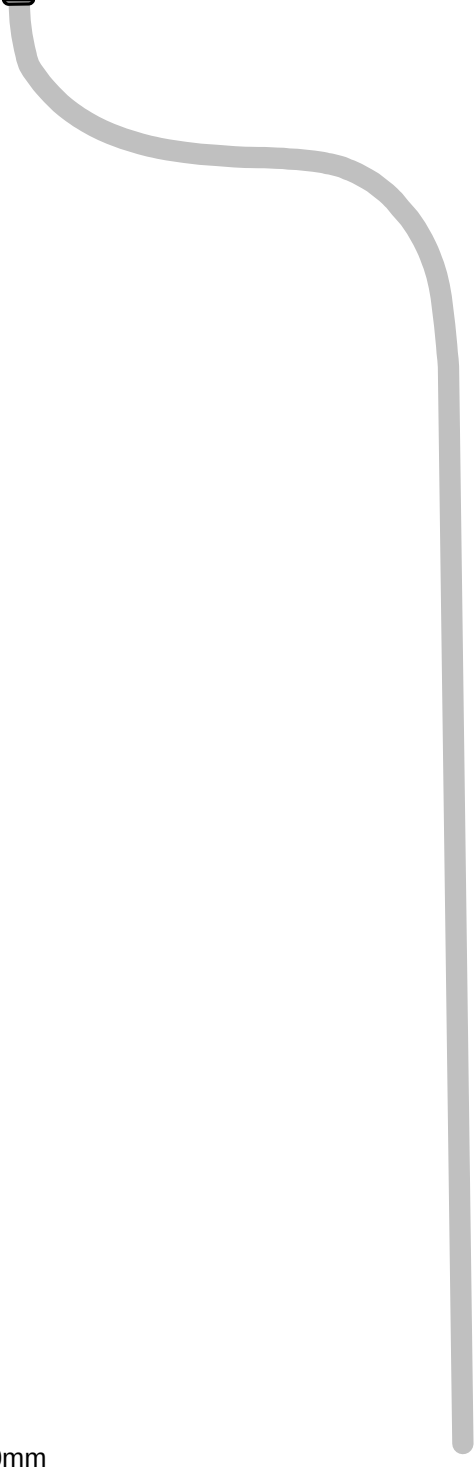
100mm

0

Template for Fuel Standpipe

Top view





100mm

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.

100mm

0

Webasto
Feel the Drive

Operating Instructions for End Customer

Please remove page and add to the vehicle operating instructions.

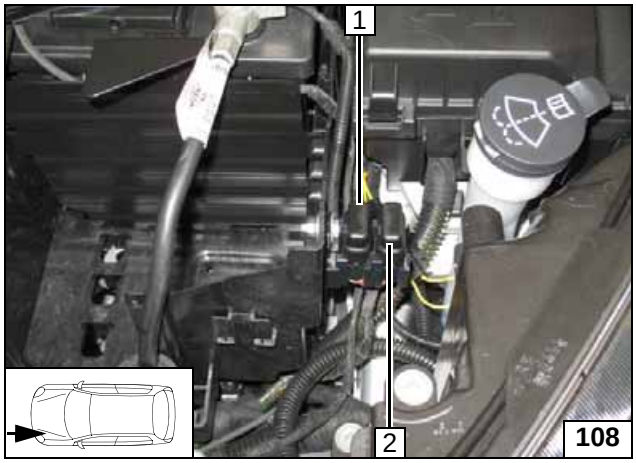
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, 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:

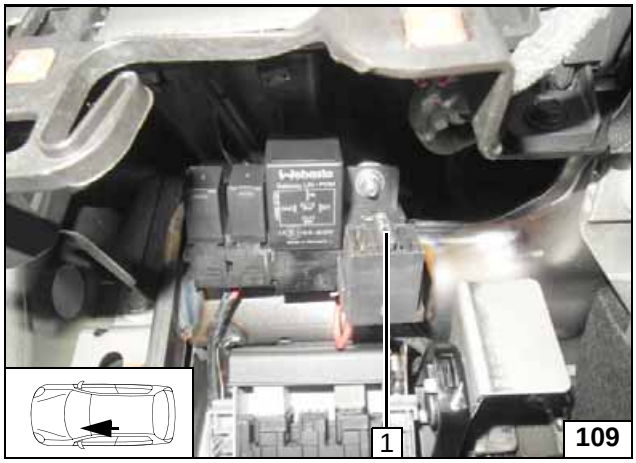
1 Air outlet to windscreen
2 Set temperature to "max."

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

Passenger compartment fuses