Water Heater

Webasto
Feel the Drive

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Opel Meriva

Validity

Manufacturer	Model	Type	EG-BE-No. / ABE
Opel	Meriva	S-D Monocab B	e4 * 2007 / 46 * 0165 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6	Diesel	6-speed SG	100	1598	B16DTH (LVL)
1.7	Diesel	6-speed AG	74	1686	A17DT

SG = Manual transmission
AG = Automatic transmission

From Model Year 2010
Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog light
Daytime running lights
Euro 5

Not verified: Passenger compartment monitoring

Total installation time: approx. 8 hours (74kW vehicle)
approx. 10 hours (100kW vehicle)

Opel Meriva

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Opel Meriva 2010 Diesel: **1316515C**
- 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

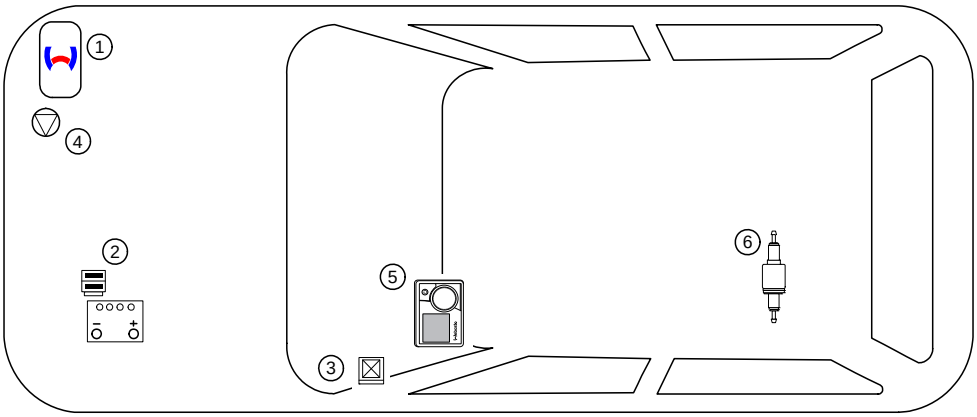
Installation instructions:

- 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. CAN module
4. Circulating pump
5. MultiControl CAR
6. 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.

Opel Meriva

Notes on Validity

This installation documentation applies to the Opel Meriva 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

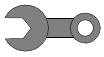
Dimensions
- All dimensions are in mm

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

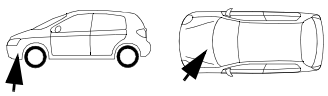
Specific risk of damage to components.

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



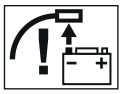
Tightening torque according to the manufacturer's vehicle-specific documents

Opel Meriva

Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
  Warning: Do not reconnect the battery, until all the operations required to integrate the heater and its components, especially the CAN module, are completed. Failure to do so may result in malfunctions of the CAN module.



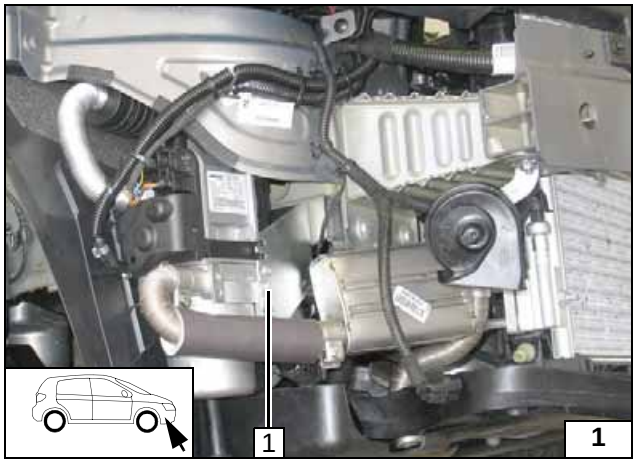
- Detach the wheel well trim on the left side, remove it on the right side.
- Remove the bumper.
- Remove the right underride protection under the engine.
- Remove the windscreen wiper.
- Remove the top coolant reservoir cap.
- Remove the coolant reservoir trim in the engine compartment.
- Remove the battery.
- Drain the coolant according to the manufacturer's instructions.
- Disconnect the coolant expansion tank and lay it aside.
- Remove the horn / horns.
- Remove the lower and lateral instrument panel trim on the driver's side.
- Remove the side trim of the centre console on the right (see dismantling instructions).

Carry out the following work only during the corresponding installation sequence and only for 100kW vehicles:

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

Heater

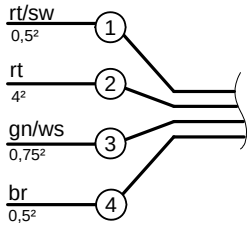
- Remove dates that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place inside the engine compartment



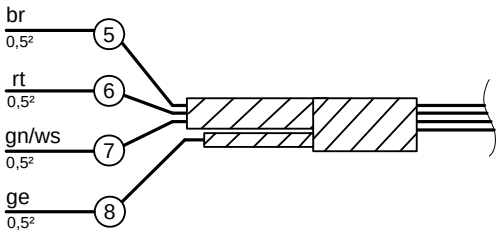
Heater Installation Location

1 Heater

Installation location



2



3

Preparing Electrical System

Wire sections retain their numbering in the entire document.

Assigning heater wiring harness

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

① Red/black (rt/sw) wire of heater wiring harness/ X10
② Red (rt) wire of heater wiring harness/ F2
③ Green/white (gn/ws) wire of heater wiring harness/ X1/5
④ Brown (br) wire of heater wiring harness/ earth 31

Assigning CAN wiring harness

⑤ Brown (br) wire from CAN wiring harness/ 31
⑥ Red (rt) wire from CAN wiring harness/ 30
⑦ Green/white (gn/ws) wire of CAN wiring harness/ 15
⑧ Yellow (ge) wire of CAN wiring harness/DO+

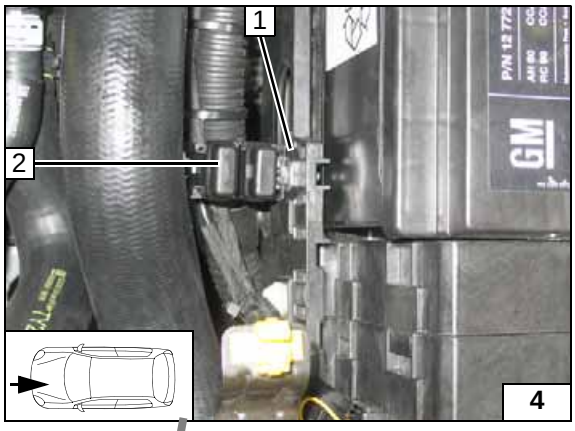
Electrical System (74kW only)

Engine compartment fuse holder

Replace 30A fuse F2 with 1A fuse!

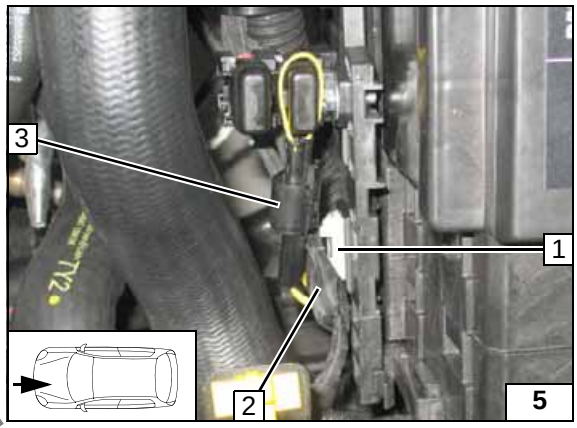
Drill 5.5 mm dia. hole in battery carrier at position **1**.

1 M5x16 bolt, large diameter washer [2x], fuse holder retaining plate, nut
2 F1-2 fuses

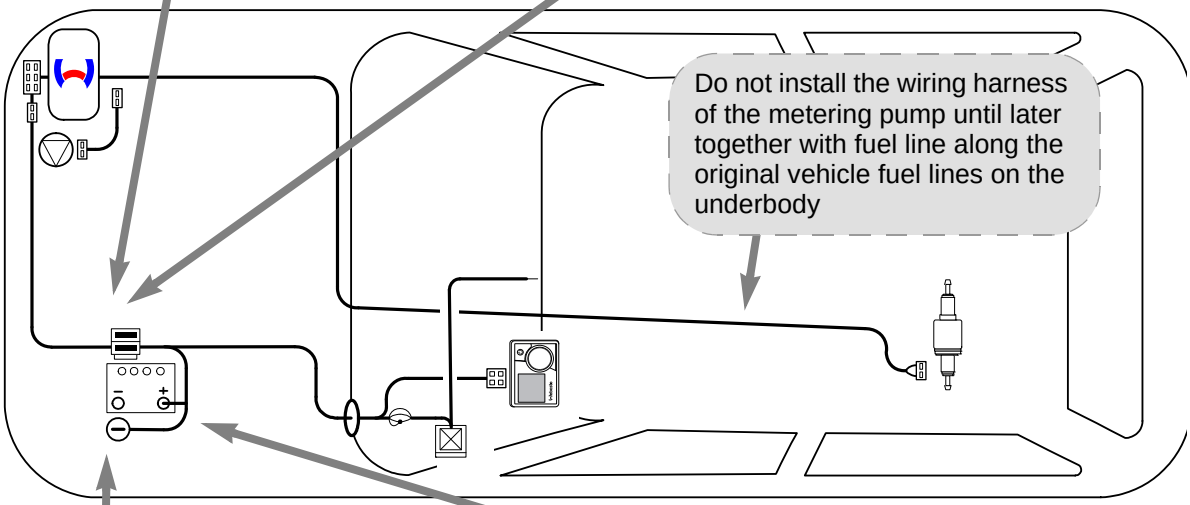


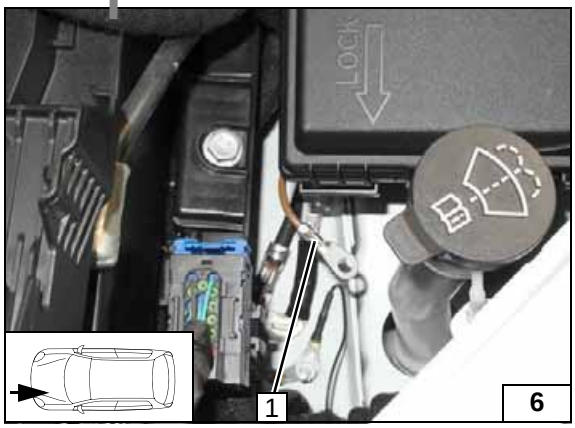
Engine compartment fuse holder

Paste adhesive base **1**. Fasten wiring harness **2** and diagnostic connector **3** with a cable tie.



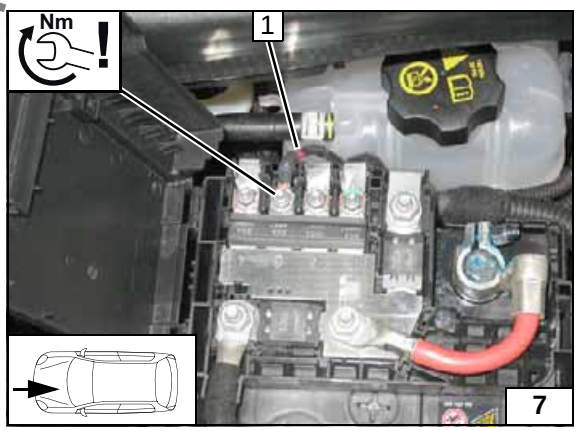
Wiring harness routing diagram





Earth wire

Route earth wire **1** to the earth support point. Connection is carried out in "Final Work".



Positive wire

1 Positive wire on positive battery distributor

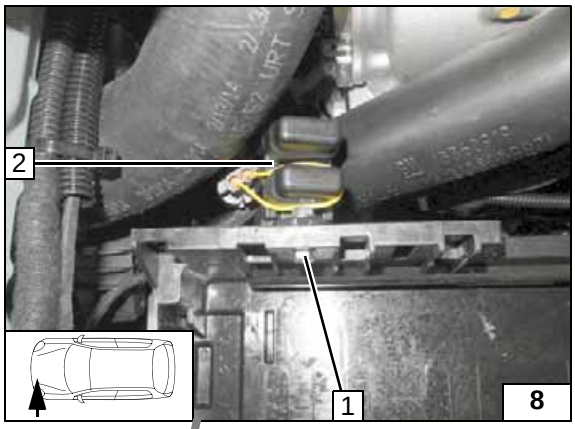
Electrical System (100kW only)

Engine compartment fuse holder

Replace 30A fuse F2 with 1A fuse!

Drill 5.5 mm dia. hole in battery carrier at position **1**.

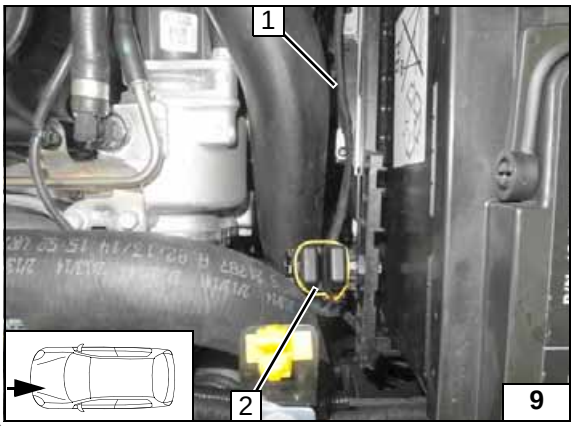
1 M5x16 bolt, large diameter washer [2x], fuse holder retaining plate, nut
2 F1-2 fuses



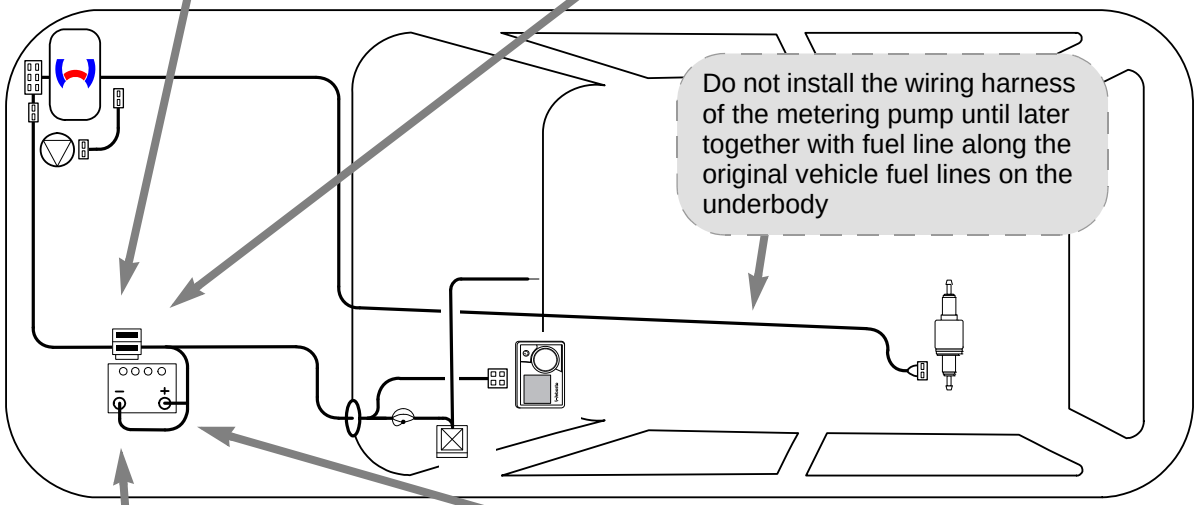
Positive wire

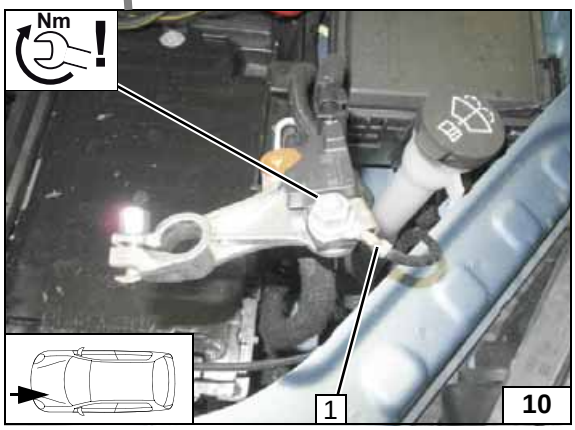
Route positive wire **1** to the positive battery terminal!

2 Diagnosis wire



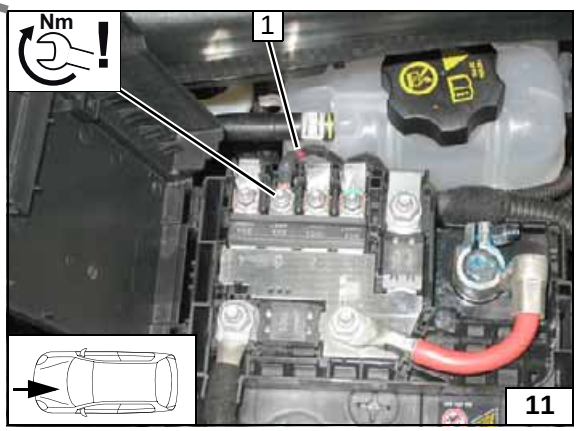
Wiring harness routing diagram





Earth wire

1 Earth wire on negative battery connection terminal.



Positive wire

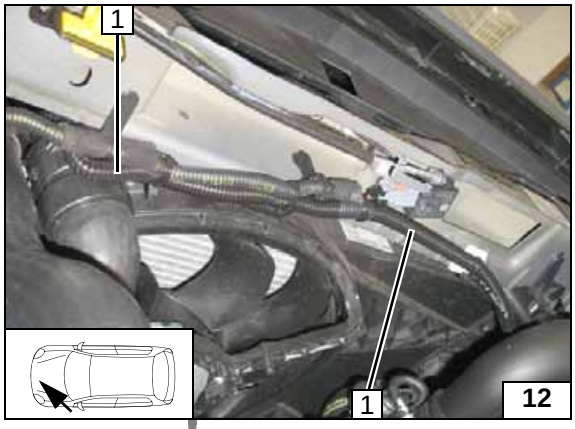
1 Positive wire on positive battery distributor

Wiring Harness Routing for All Vehicles

1. Routing wiring harness of heater

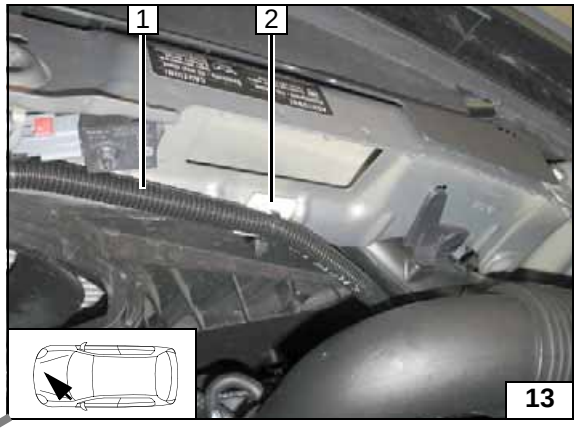
Slit 10mm dia. 1130mm long corrugated tube lengthwise.

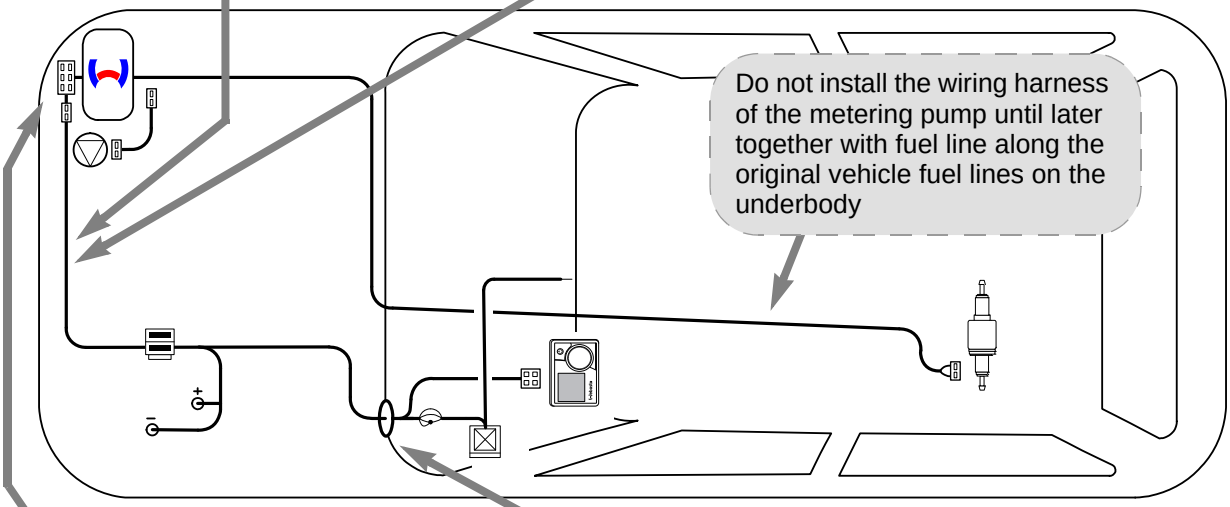
1 Insert heater wiring harness in slit 10mm dia. corrugated tube



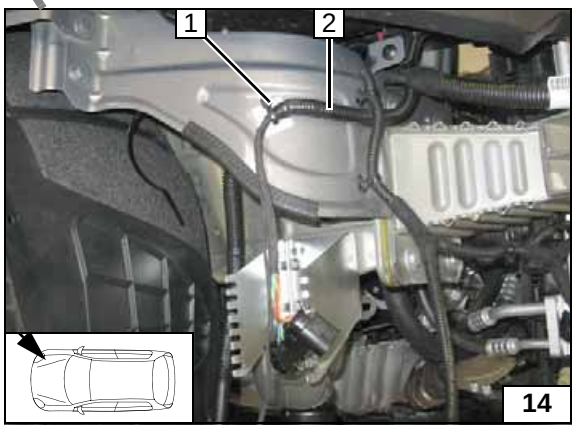
2. Routing wiring harness of heater

1 Insert wiring harness of heater in the slit 10mm dia. corrugated tube
2 Adhesive base, cable tie



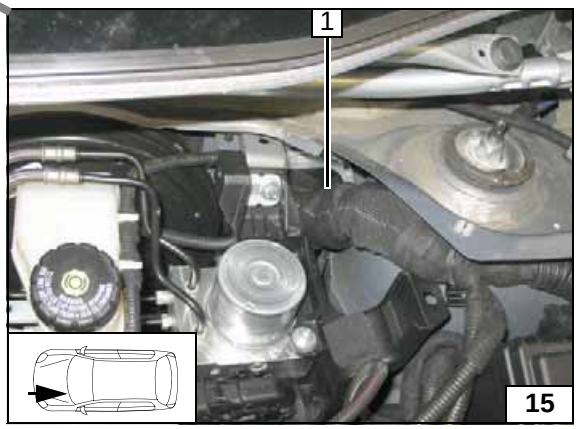


Wiring harness routing diagram



3. Routing wiring harness of heater

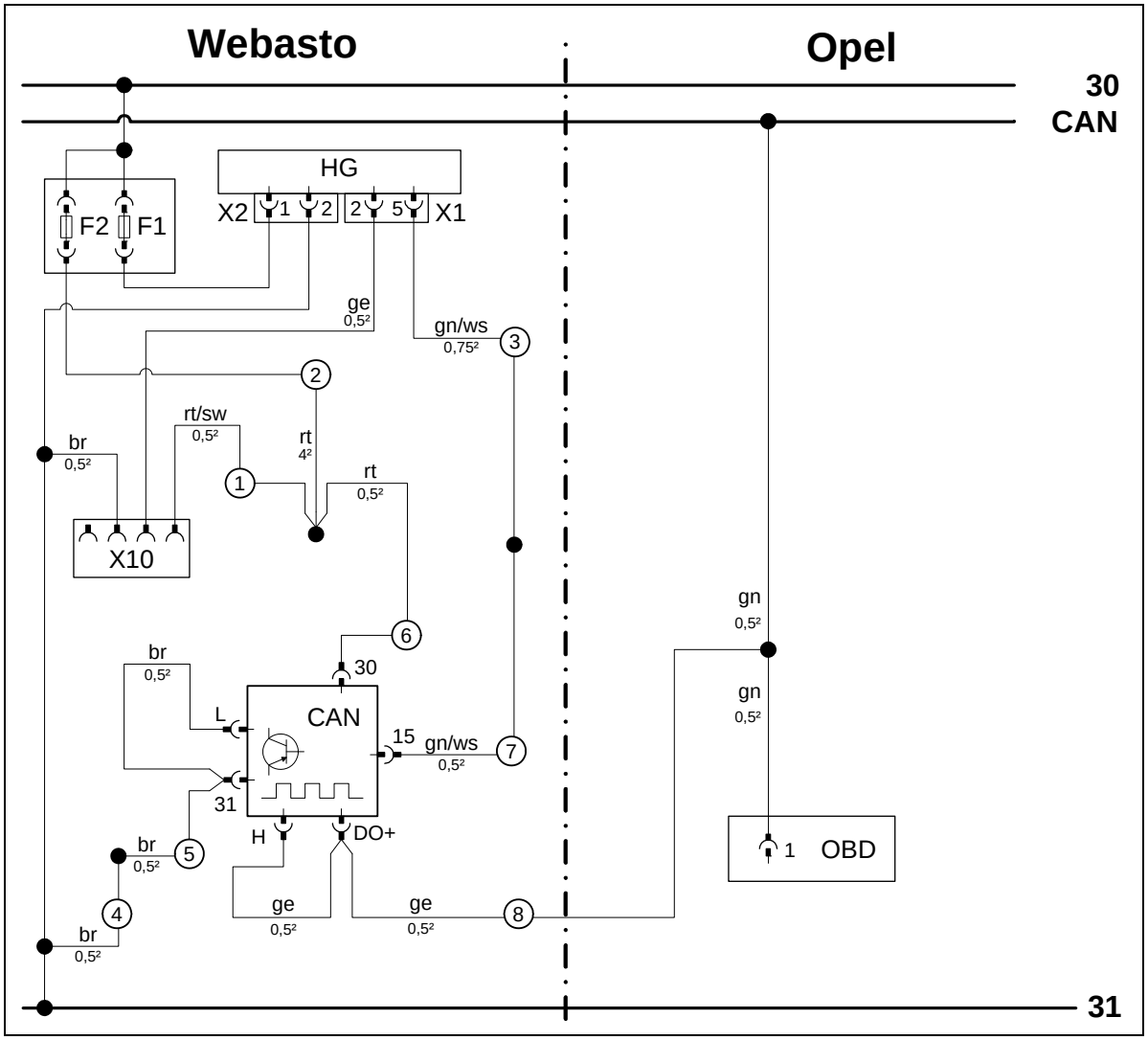
1 Adhesive base, cable tie
2 Insert wiring harness of heater in the slit 10mm dia. corrugated tube



4. Wiring harness pass through

1 Original vehicle passenger compartment pass through for wiring harness of heater control and passenger compartment fuse holder

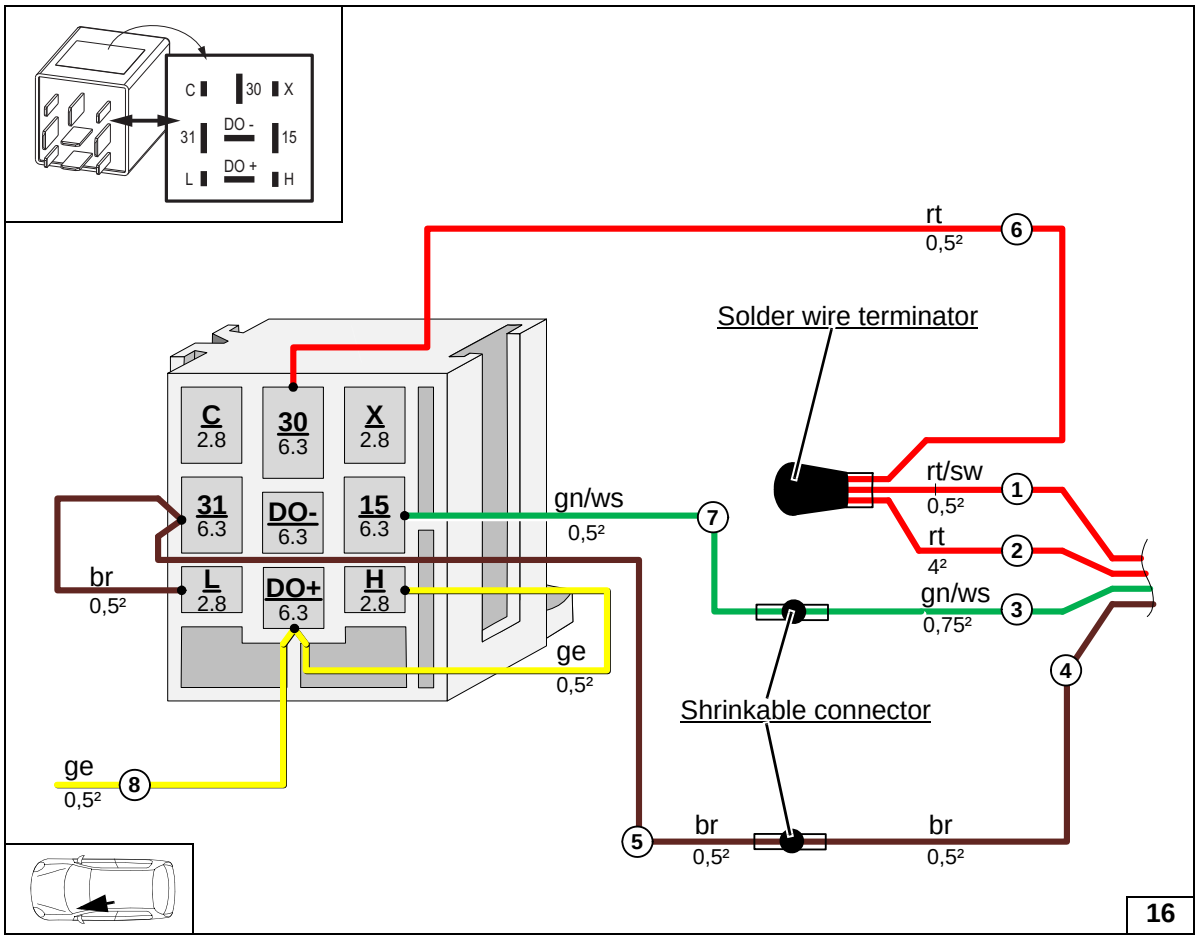
Fan Controller



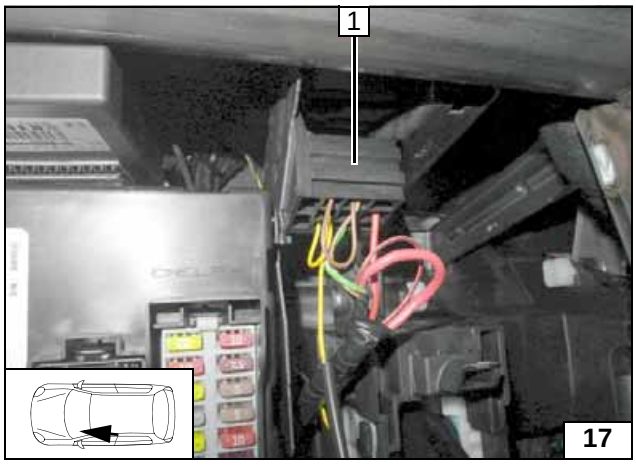
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	OBD	16-pin OBD connector	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector			ge	yellow
F1	Fuse 20A			gn	green
F2	Replace 30A with 1A fuse			br	brown
				ws	white
X10	4-pin connector of heater control				
CAN	CAN module			Wiring colours may vary.	

Wiring diagram

Legend

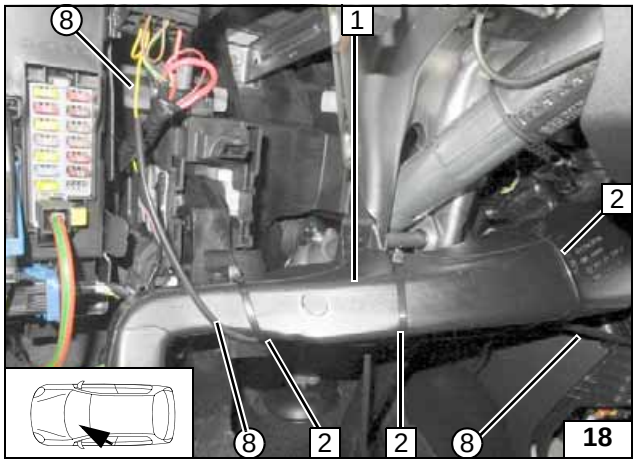


Connecting wires from heater wiring harness and CAN-module wiring harness in passenger compartment



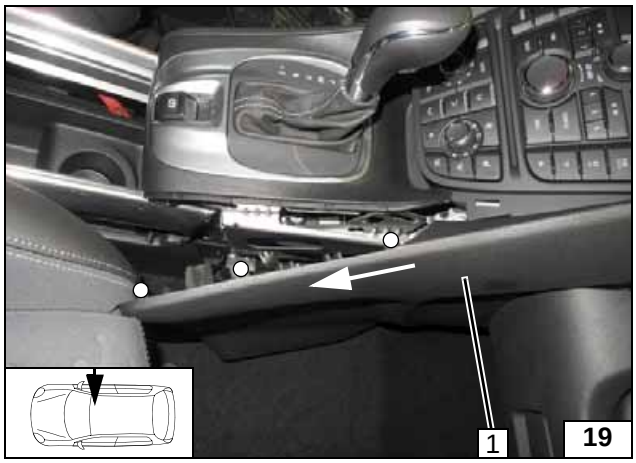
1 CAN module socket

Positioning CAN-module socket in installation location



1 Ventilation duct
2 Cable tie [3x]
⑧ Yellow (ge) wire of CAN module/DO+

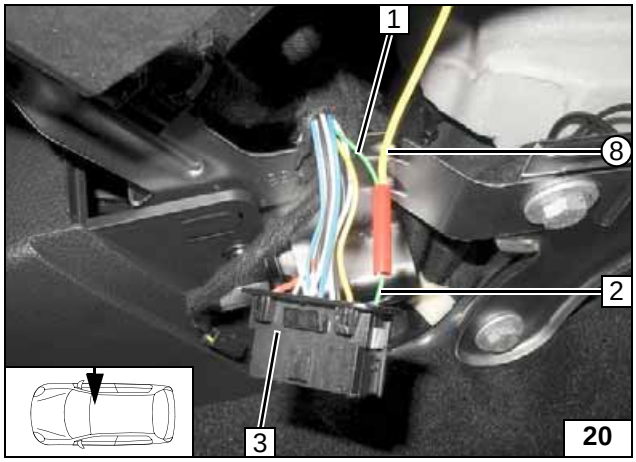
Routing yellow (ge) wire ⑧ to the OBD socket outlet



Dismantling Instructions for the Side Trim

Unclip side trim of centre console **1** ○ [3x] on the right and remove in the direction of the arrow!

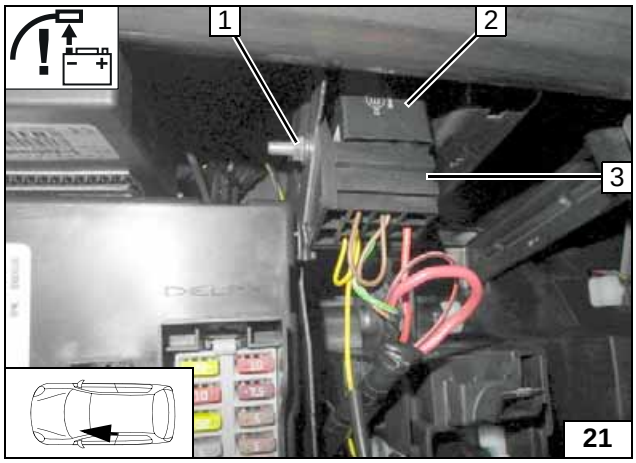
Dismantling instructions for OBD-connector



Remove insulation from OBD-connector wiring harness **3**.
Produce connections by crimping and shrinking.

1 Green (gn) wire of CAN bus
2 Green (gn) wire of OBD connector, pin 1
⑧ Yellow (ge) wire of CAN module/DO+

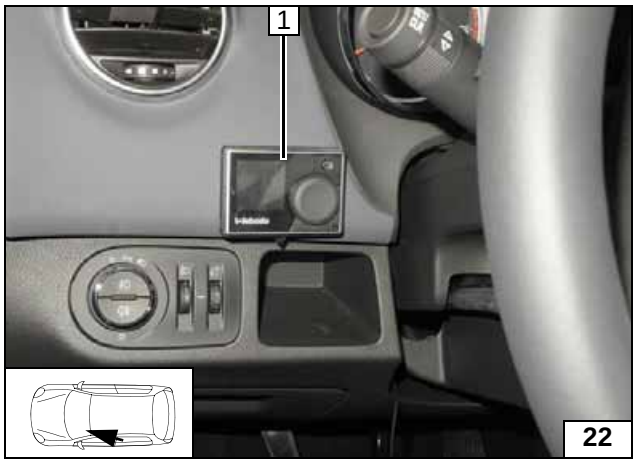
Connecting OBD connector



Before installation see info on battery in section "Preliminary Work"!
Insert M5x16 bolt **1** into CAN module socket **3**, install CAN module **2**!

1 M5x16 bolt, large diameter washer, 5mm shim, flanged nut at existing hole

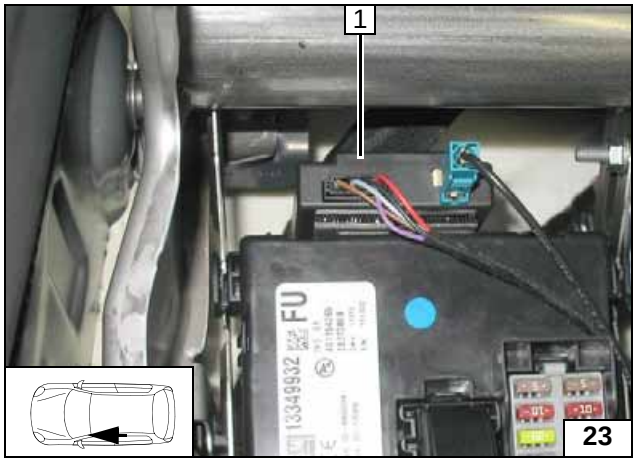
Installing CAN module socket



MultiControl CAR Option

1 MultiControl CAR

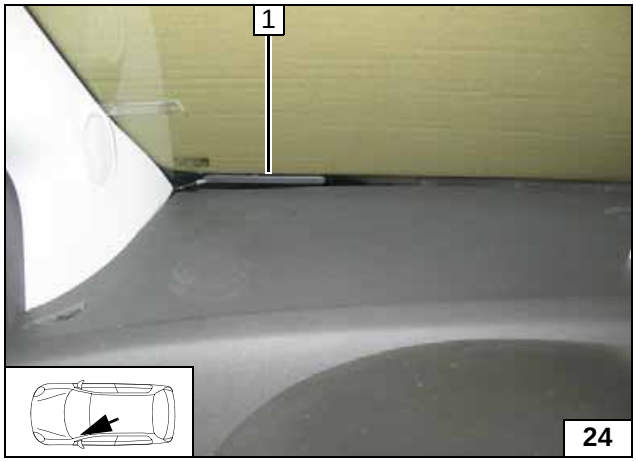
Mounting MultiControl CAR



Remote Option (Telestart)

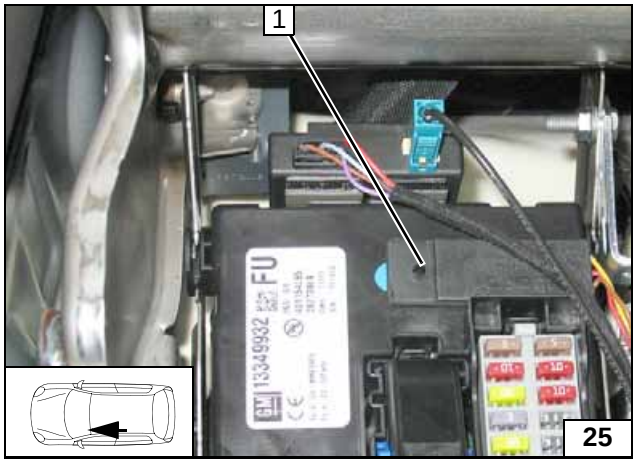
Fasten receiver **1** with adhesive tape.

Mounting receiver



1 Antenna

Mounting antenna



Installing T100 HTM temperature sensor

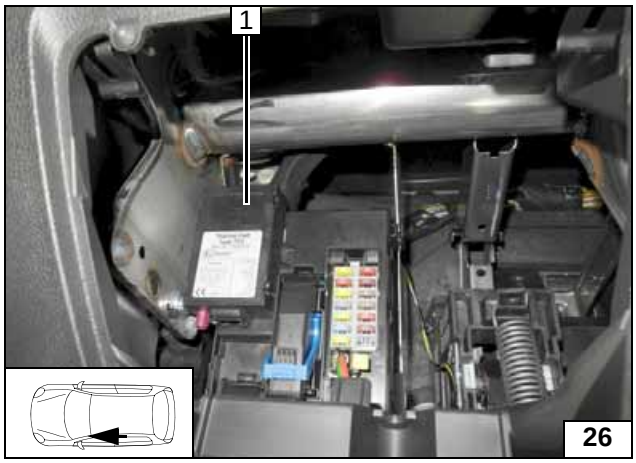
Fasten temperature sensor **1** with adhesive tape.

Installing temperature sensor

Remote Option (Thermo Call)

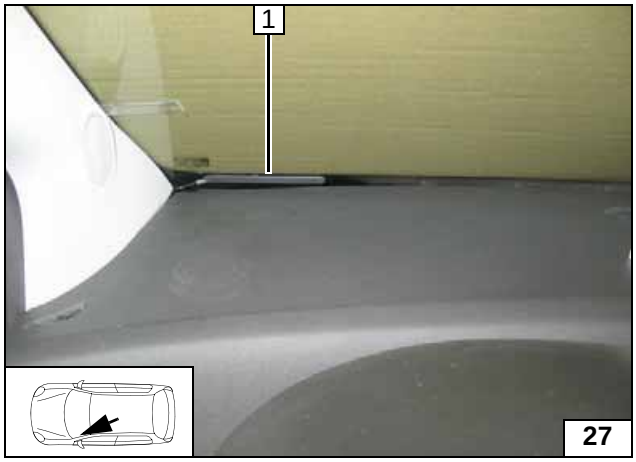
Mounting receiver

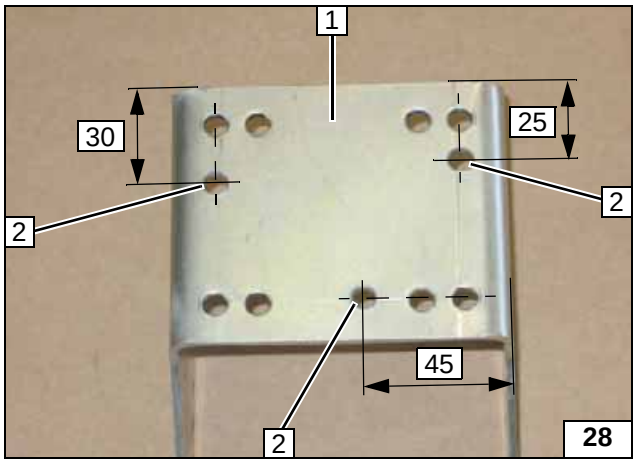
Fasten receiver **1** with adhesive tape.



Mounting antenna

1 Antenna

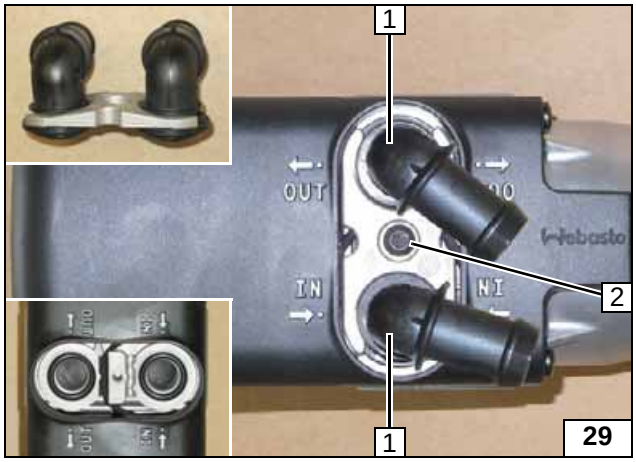




Preparing Bracket

1 Bracket
2 7 mm dia. hole [3x]

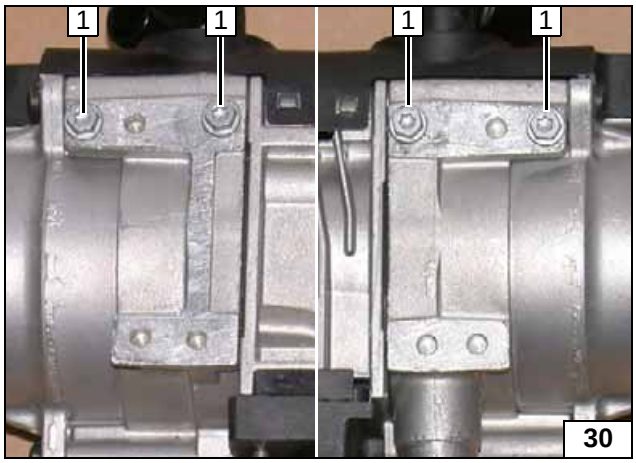
Holes in bracket



Preparing Heater

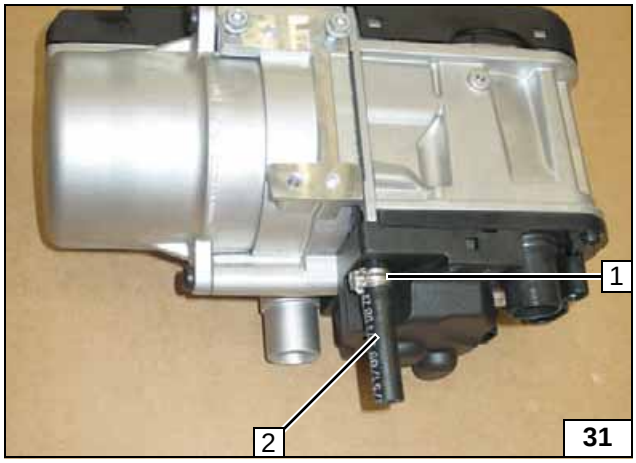
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection pieces

Installing water connection pieces



Screw 5x13 self tapping bolts **1** [4x] into existing holes by a maximum of 3 thread turns.

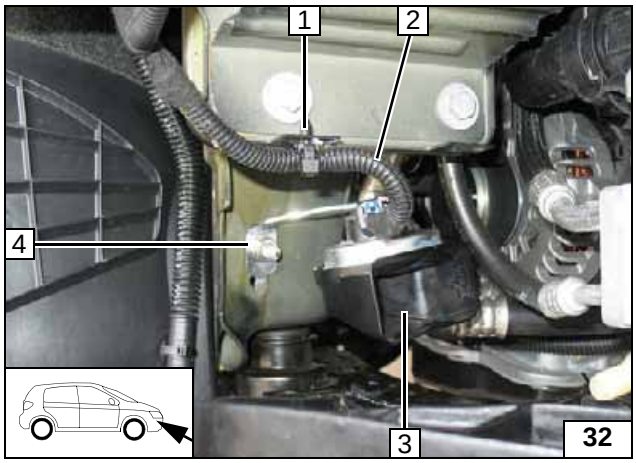
Premounting bolts loosely



1 10 mm dia. clamp
2 Hose section

Premounting hose section

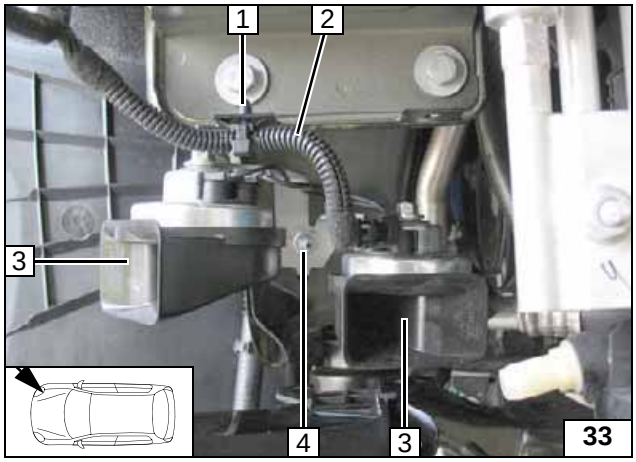
Preparing Installation Location



Vehicle with one horn

Detach original vehicle wiring harness **2** at position **1**. Remove horn **3** with bracket, discard nut **4**.

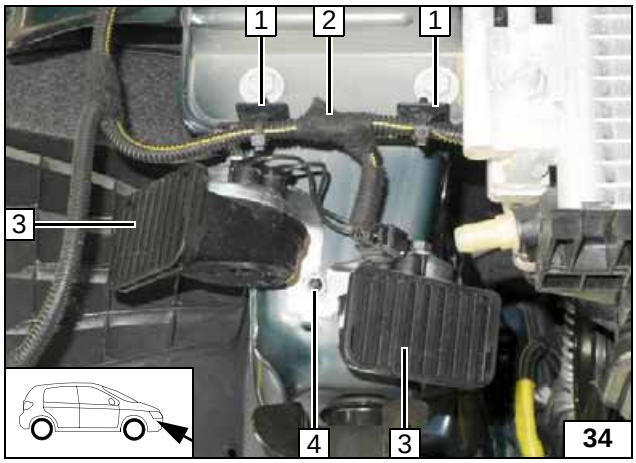
Removing horn



Vehicle with two horns (version 1)

Detach original vehicle wiring harness **2** at position **1**. Remove horns **3** [2x] with bracket, discard nut **4**.

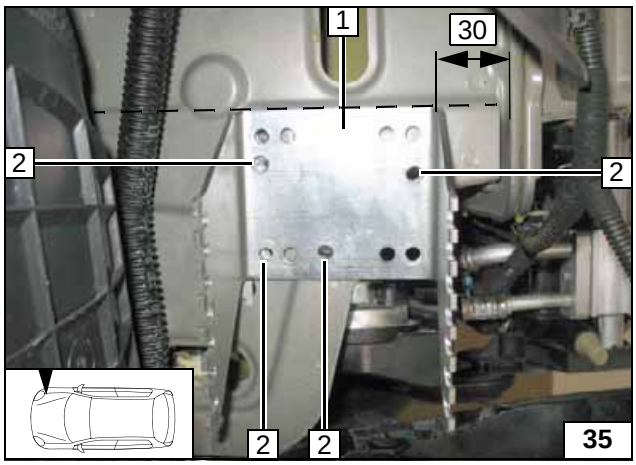
Removing horn



Vehicle with two horns (version 2)

Detach original vehicle wiring harness **2** at position **1** [2x]. Remove horn **3** [2x] with bracket, discard nut **4**.

Removing horns

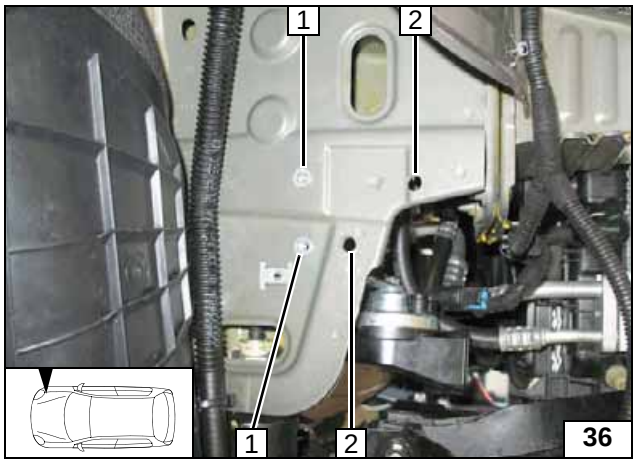


All vehicles

Hold bracket **1** and align.

2 Copy hole pattern [4x]

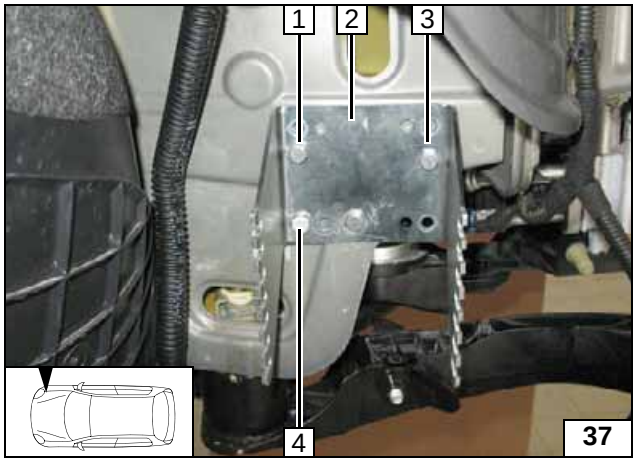
Copying hole pattern



Take off bracket.

1 9.1 mm dia. hole; rivet nut [2x each]
2 7 mm dia. hole [2x]

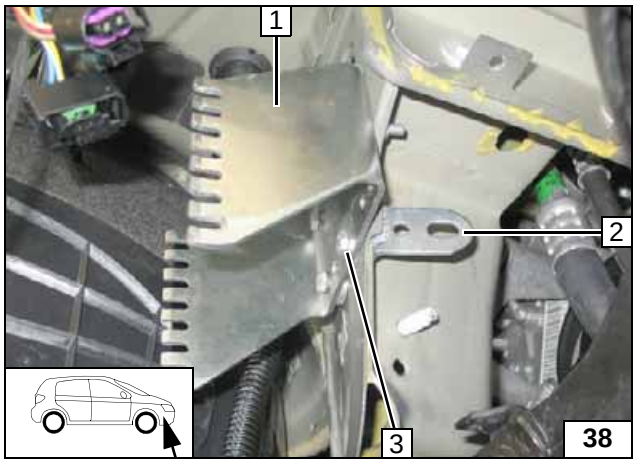
Holes, installing rivet nuts



Insert a 5mm shim between bracket **2** and frame side member at position **4**.

1 M6x20 bolt, spring lockwasher
3 M6x20 bolt, flanged nut
4 M6x25 bolt, spring lock washer, 5mm shim

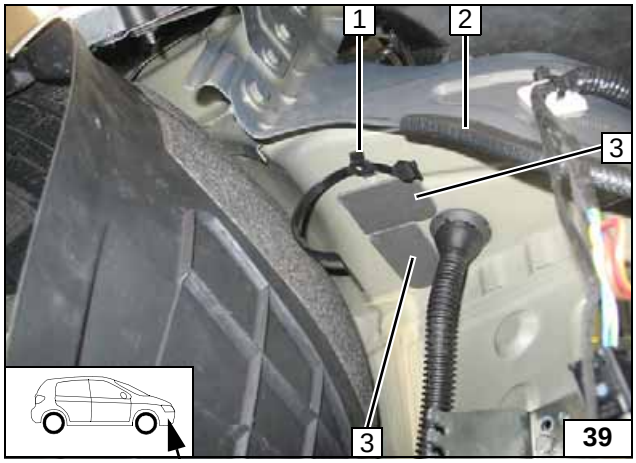
Mounting bracket



Insert a large diameter washer between bracket **1** and frame side member at position **3**. Bend angle bracket **2** by approx. 20° after installation

3 M6x20 bolt, large diameter washer, angle bracket, flanged nut

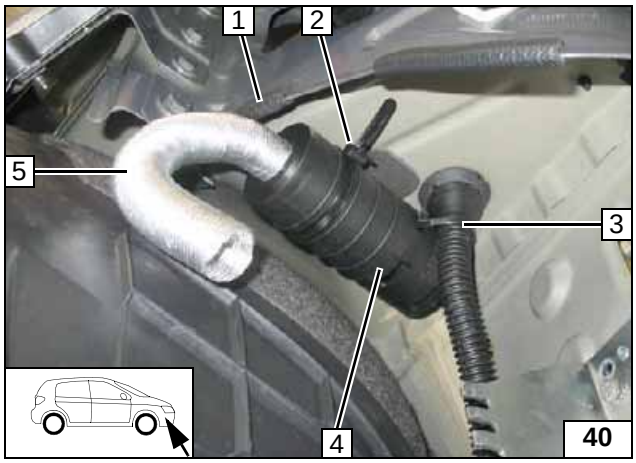
Mounting bracket



Divide insulation protection strips at the centre.

1 Clip-type cable tie in existing hole
2 100 mm edge protection
3 Insulation protection strips, one half each

Preparing installation location



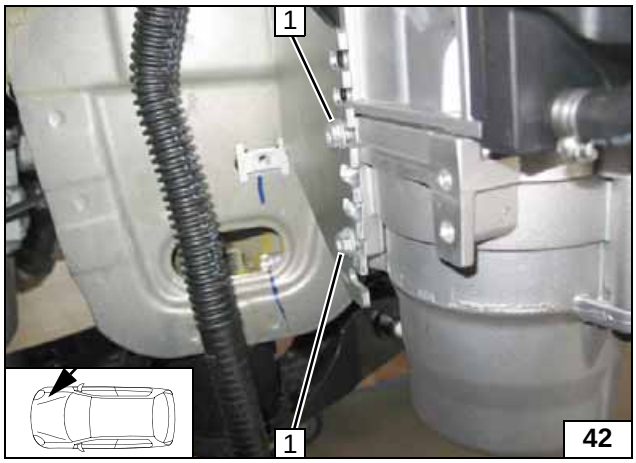
1 50 mm edge protection
2 Close clip-type cable tie
3 Cable tie
4 Silencer
5 Combustion air pipe

Installing silencer

Installing Heater

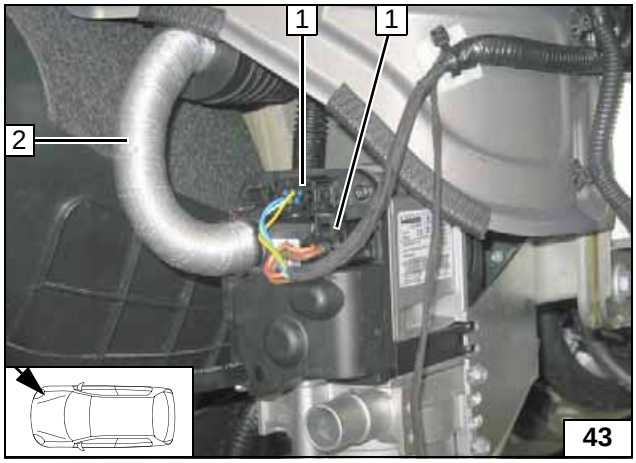
1 Tighten self-tapping bolts [2x]

Mounting heater



1 Tighten self-tapping bolts [2x]

Mounting heater



Check position of all components and adjust if necessary. Check that they have freedom of movement.

1 Connector for wiring harness of heater [2x]
2 Combustion air pipe

Installing combustion air pipe, wiring harness of heater

Fuel

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

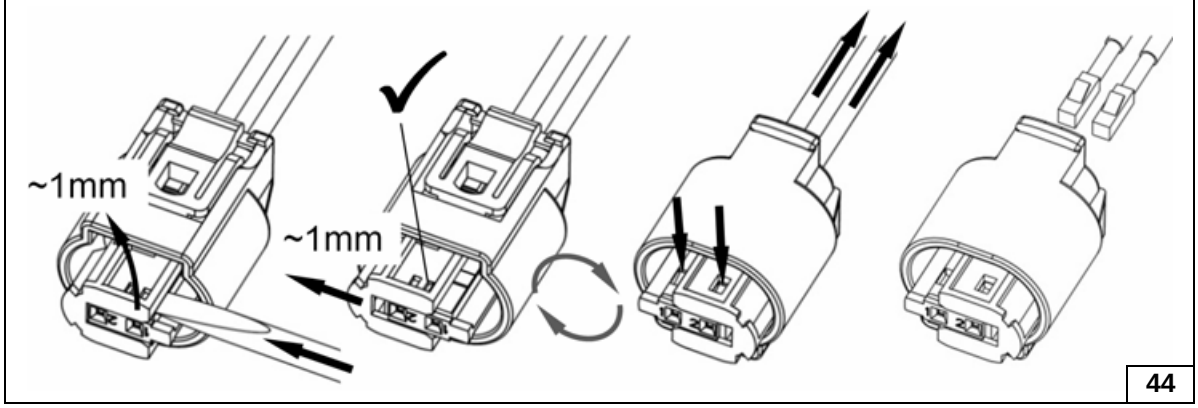
Catch any fuel running off with an appropriate container.

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.

Dismantling connector of metering pump

Connector X7



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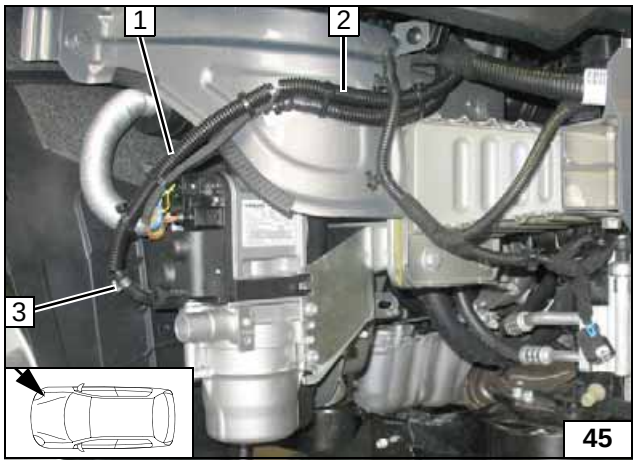
Connecting heater



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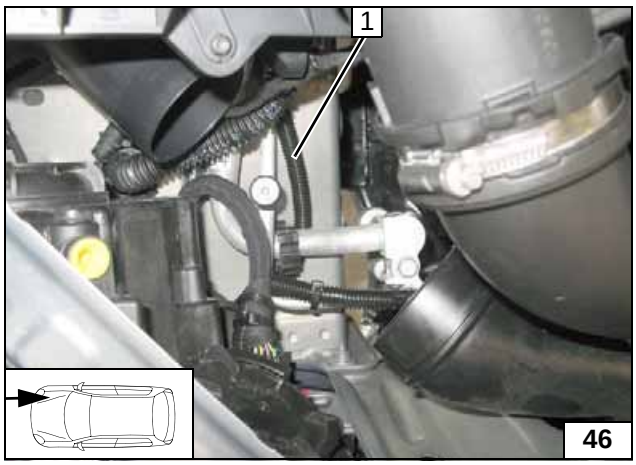
1 Fuel line in 190 mm long corrugated tube
2 Fuel line and wiring harness of metering pump in 2100 mm long corrugated tube
3 Fuel line, 10mm dia. clamp

Routing lines



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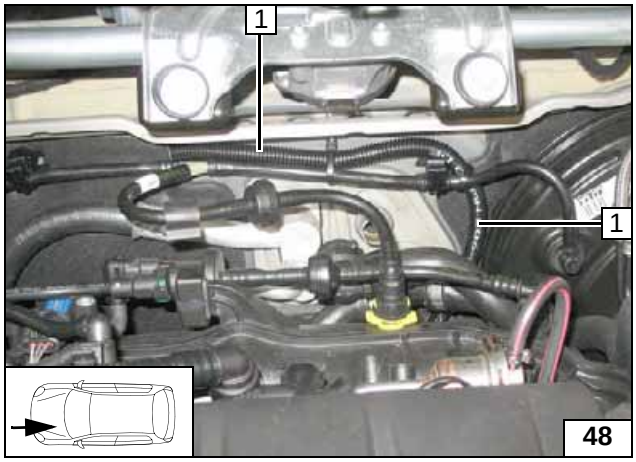
Route fuel line and wiring harness of metering pump in corrugated tube **1** on the frame side member to the firewall.

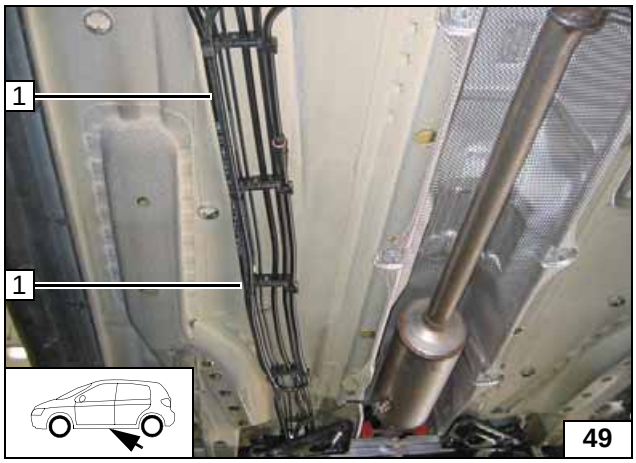
Route fuel line and wiring harness of metering pump in corrugated tube **1** on the firewall behind the insulation to the left side of the vehicle.

Routing lines



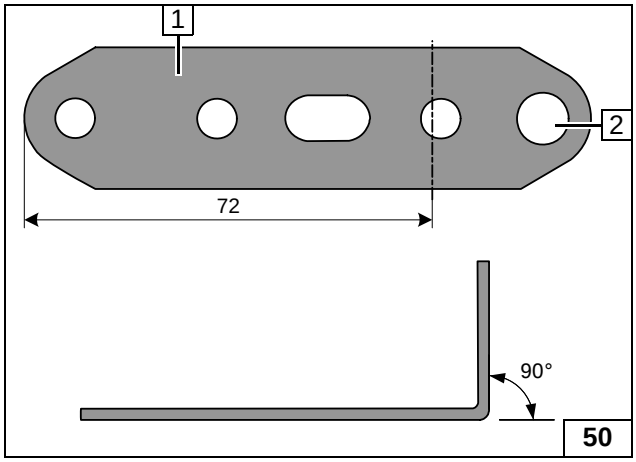
Route fuel line and wiring harness of metering pump in corrugated tube **1** to the underbody!

Routing lines



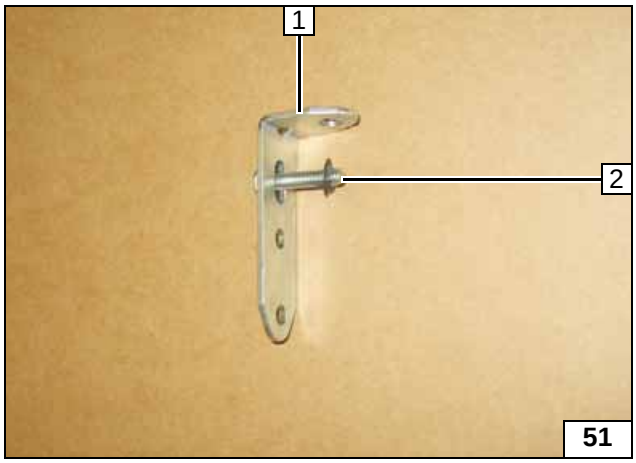
Route fuel line and wiring harness of metering pump in 2100mm corrugated tube **1** on the underbody to the installation location of the metering pump.

Routing lines



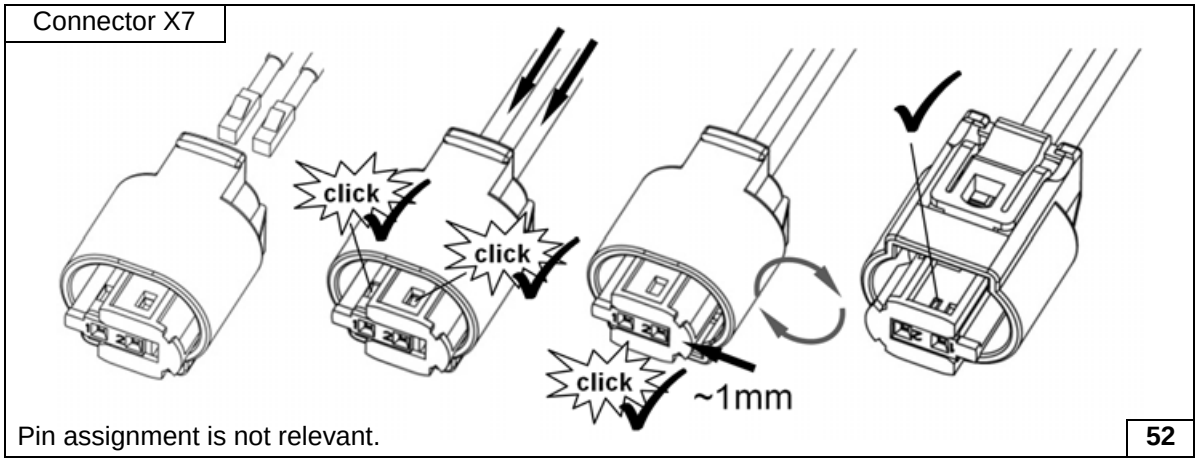
Angle down perforated bracket **1** and drill at position **2** to 8.5mm dia.

Angling down perforated bracket

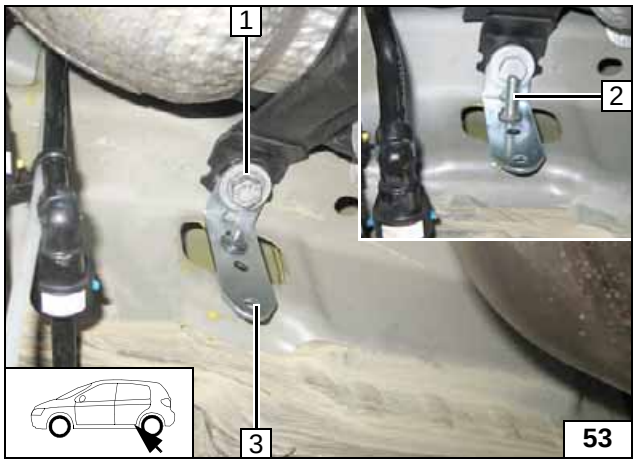


1 Perforated bracket
2 M6x25 bolt, slide on 4-5mm pin lock

Preparing perforated bracket



Completing metering pump connector

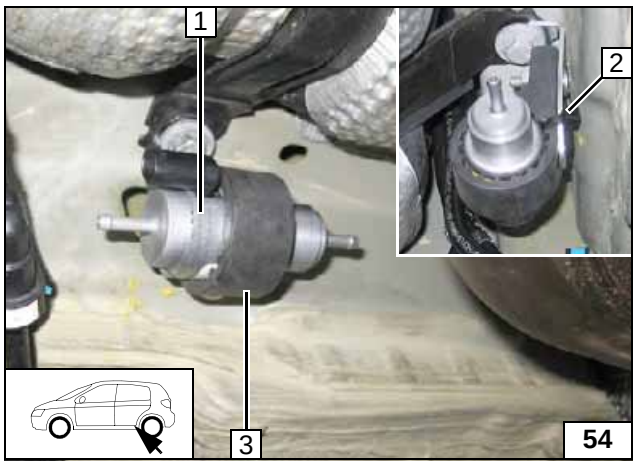


Only for 74kW

After installing perforated bracket **3**, slide pin lock **2** fully on M6x25 bolt

1 Original vehicle bolt for fuel tank fastening

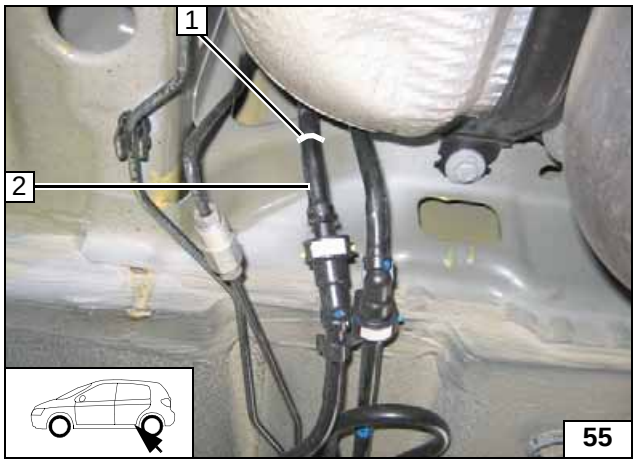
Mounting perforated bracket



Fasten mounting of metering pump **3** with large diameter washer and flanged nut on M6x25 bolt.

1 Metering pump
2 Cable tie

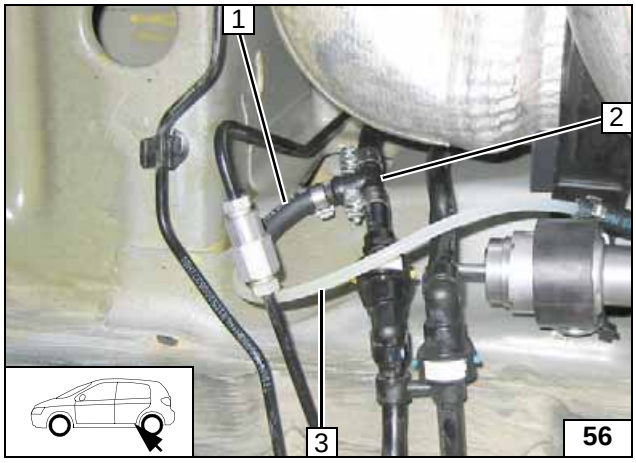
Mounting metering pump



Separate fuel return line **2** approx. 50mm behind coupling. Metering pump removed for demonstration purposes.

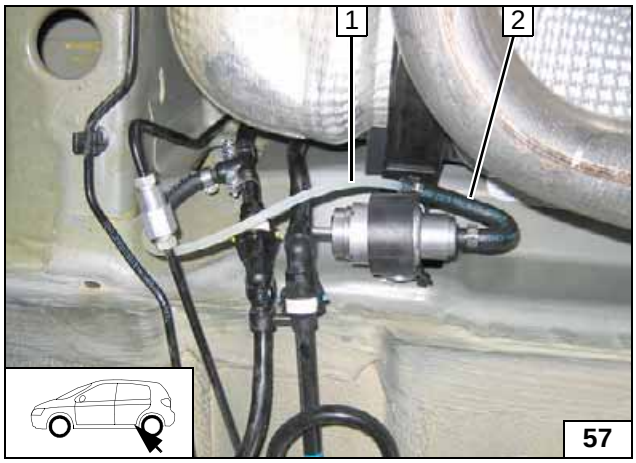
1 Cutting point

Fuel extraction



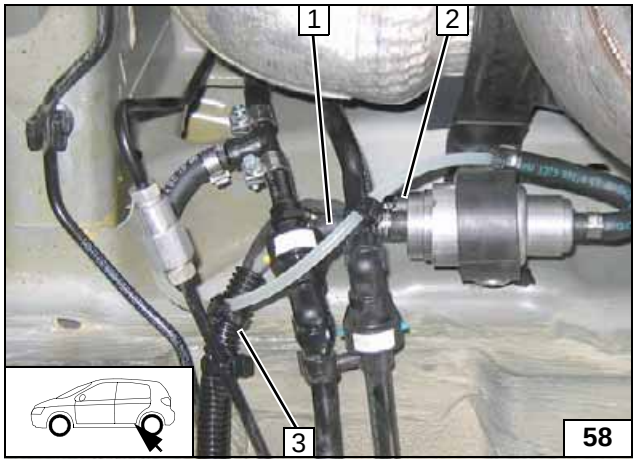
1 Hose section, 10 mm dia. clamp [2x]
2 8x5x8 fuel standpipe, 10 mm dia. screw clamps [2x]
3 Fuel line

Inserting fuel standpipe



1 Fuel line fuel standpipe
2 180° moulded hose, 10 mm dia. clamp [2x]

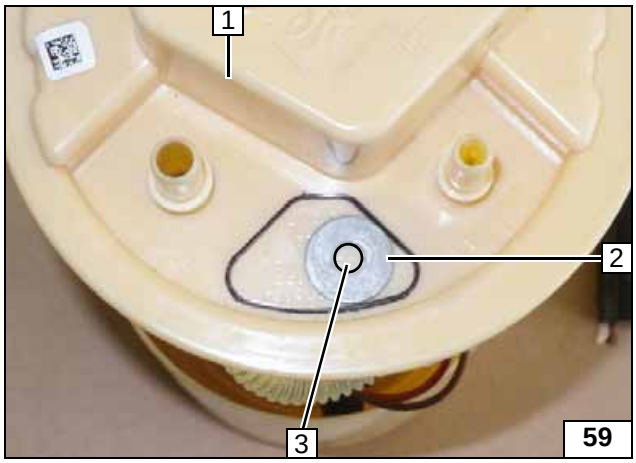
Connecting metering pump



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

1 Hose section, 10 mm dia. clamp [2x]
2 Wiring harness of metering pump, connector mounted
3 10mm dia. corrugated tube, wiring harness of metering pump, fuel line of heater

Connecting metering pump

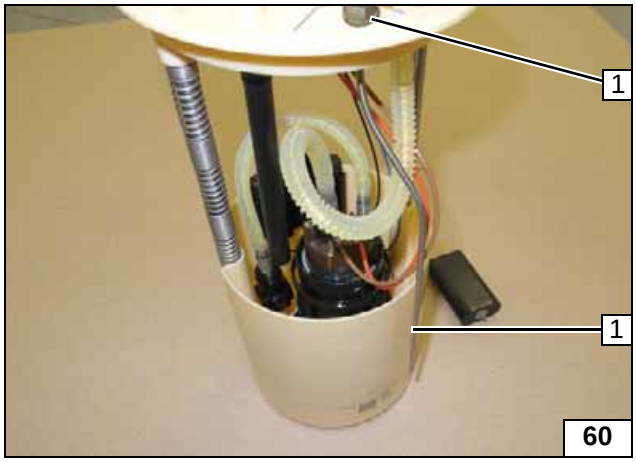


Only for 100kW

Remove fuel tank according to manufacturer's instructions. Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions.
Position large diameter washer with outer diameter d_a = 21.6 mm **2** as shown.

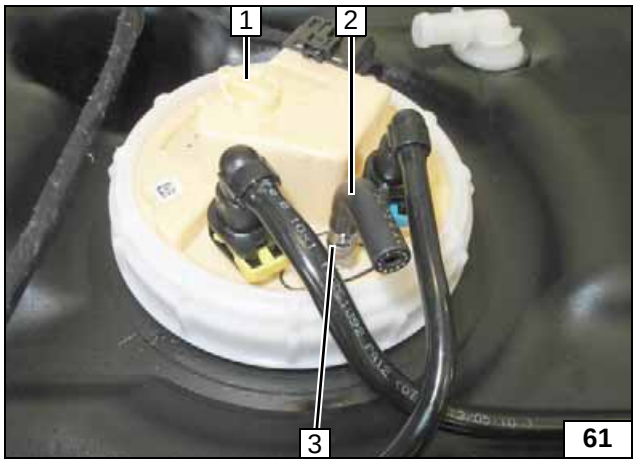
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

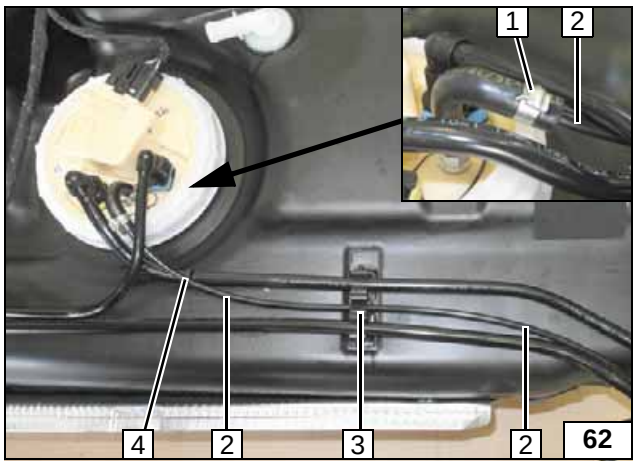
Installing fuel standpipe



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

2 Moulded hose with inner dia. d_i = 3.5 x 4.5mm, with 3.5mm dia. side on fuel standpipe
3 9 mm dia. clamp

Installing hose section

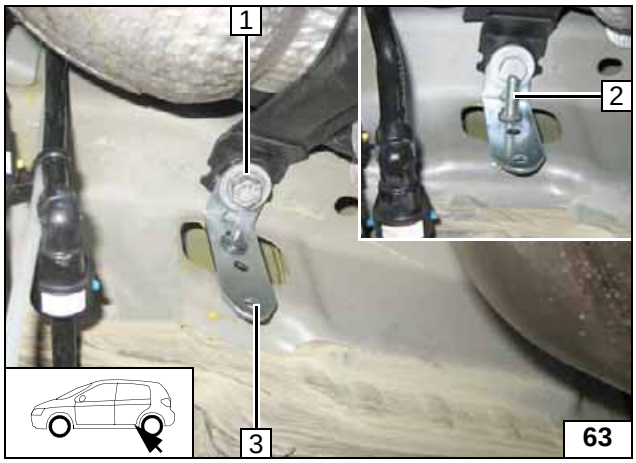


Cut off 1000mm from fuel line!

1 10mm dia. clamp
2 Fuel line of fuel standpipe
3 Original vehicle bracket
4 Cable tie

Re-install fuel-tank according to manufacturer's instructions.

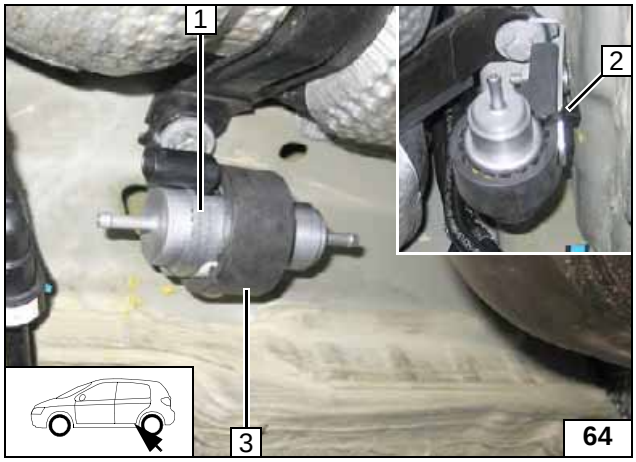
Installing and routing fuel line



After installing perforated bracket **3**, slide pin lock **2** fully on M6x25 bolt

1 Original vehicle bolt for fuel tank fastening

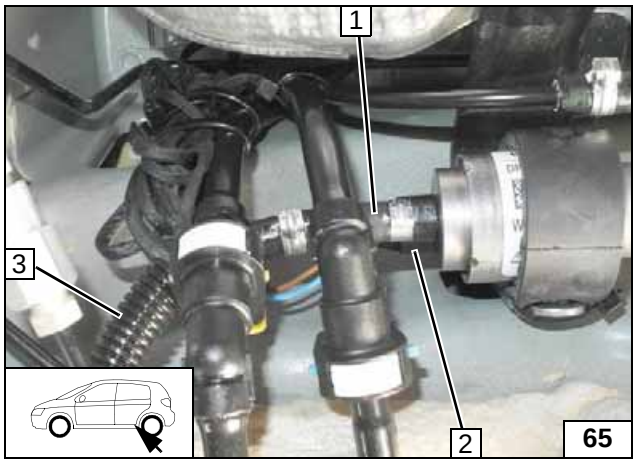
Mounting perforated bracket



Fasten mounting of metering pump **3** with large diameter washer and flanged nut on M6x25 bolt.

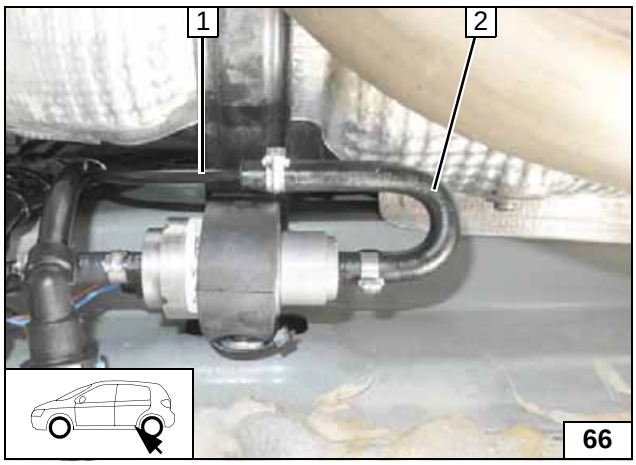
1 Metering pump
2 Cable tie

Mounting metering pump



1 Hose section, 10 mm dia. clamp [2x]
2 Connector of metering pump wiring harness
3 10mm dia. corrugated tube, wiring harness of metering pump, fuel line of heater

Connecting metering pump



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

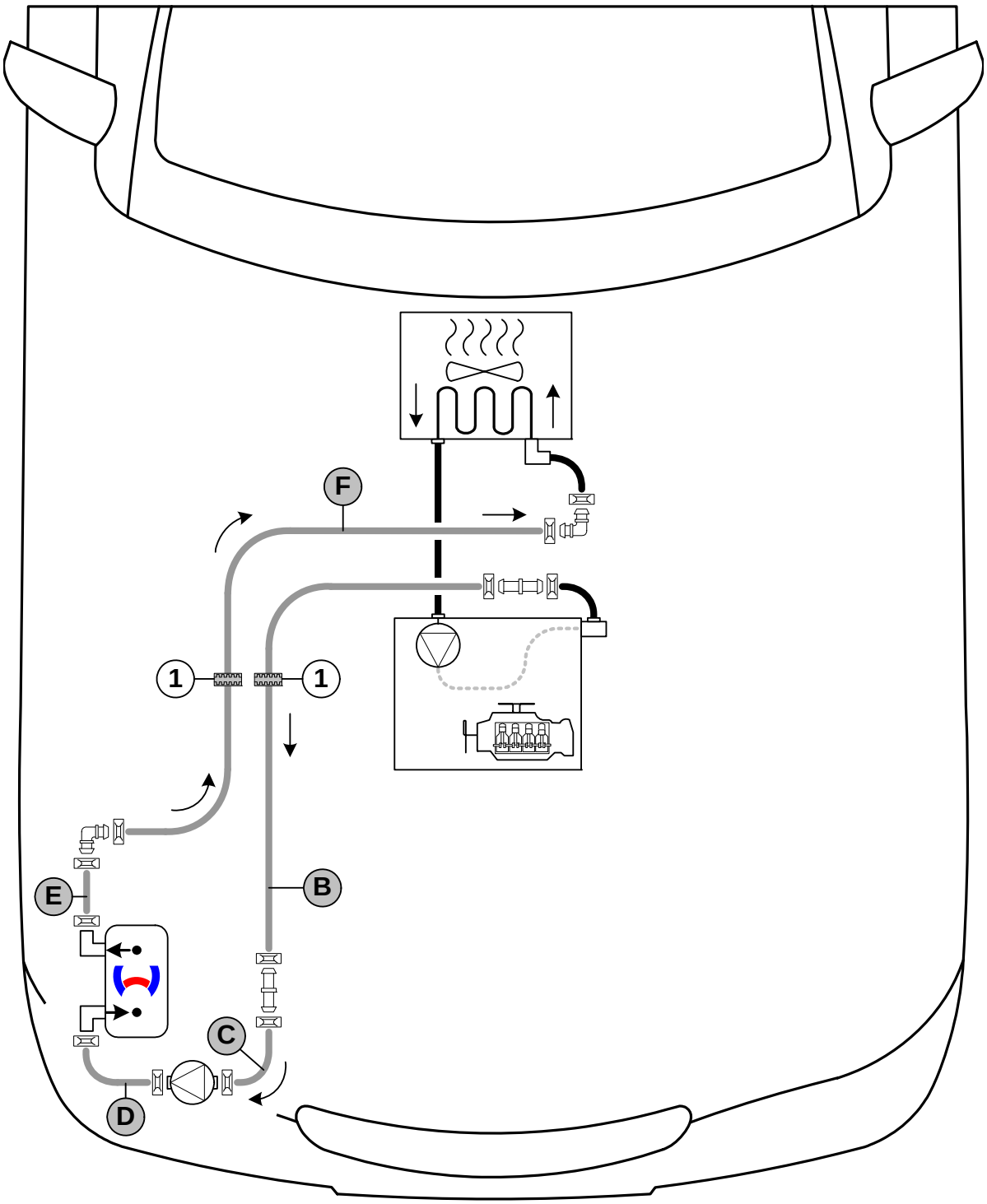
1 Fuel line of fuel standpipe
2 180° moulded hose, 10 mm dia. clamp [2x]

Connecting metering pump

Coolant Circuit (74kW only)

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

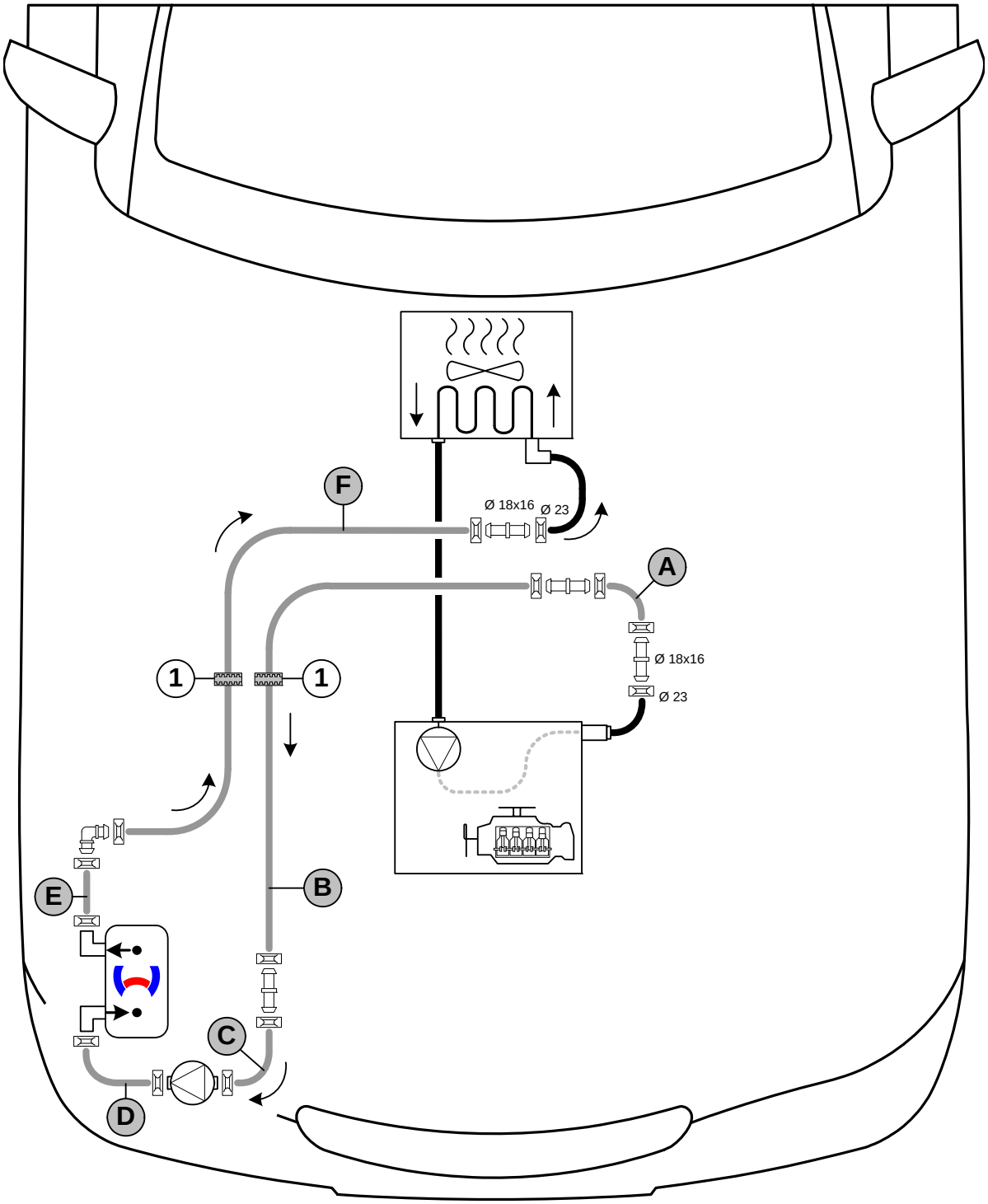


All spring clips = 25 mm dia.
1 = Black (sw) rubber isolator [2x].
All connecting pipes and = 18x18mm dia.

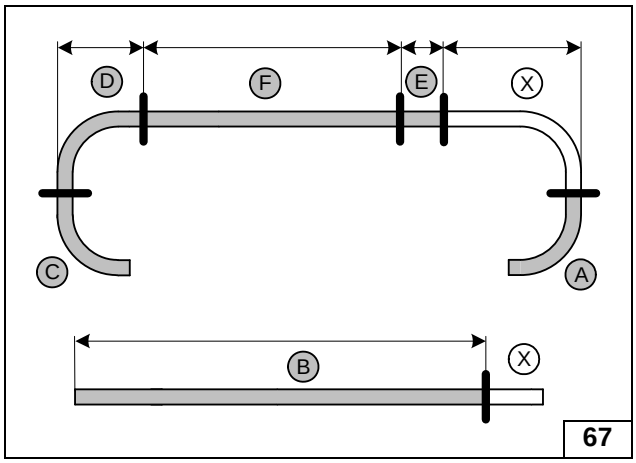
Coolant Circuit (100kW only)

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 = Black (sw) rubber isolator [2x].
All connecting pipes without a specific designation and = 18x18mm dia.



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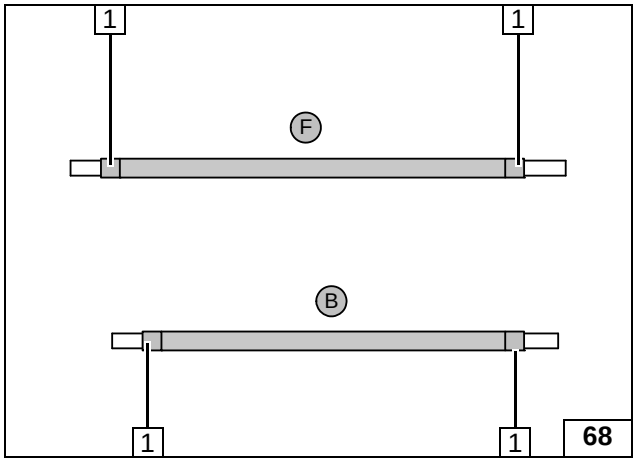
Discard section **X**.

Hose **A** only for 100kW!

	74kW	100kW
B =	1030	820
D =	100	100
E =	60	60
F =	1200	1010

Assigning / cutting to length hoses



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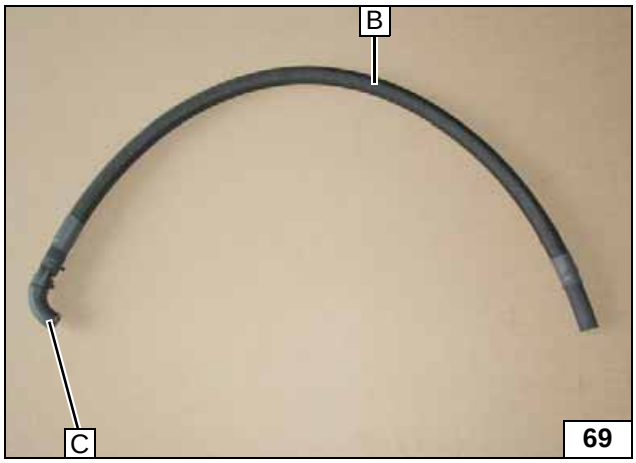
Push braided protection hoses onto hoses **B** and **F** and cut to length.
Cut heat shrink plastic tubing to length.

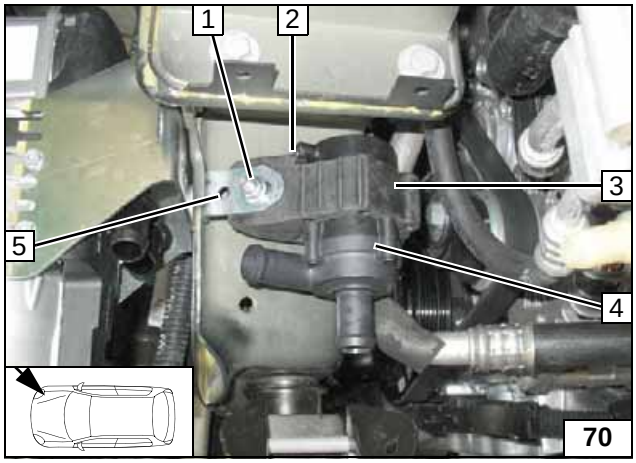
1 50 mm long heat shrink plastic tubing [4x]

Preparing hoses



69

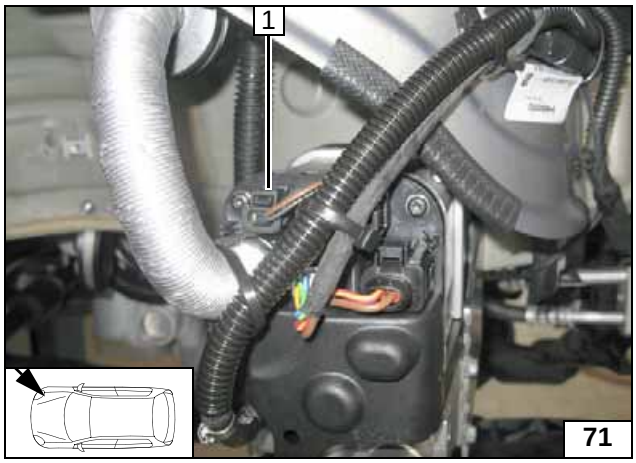
Connecting hoses B and C



70

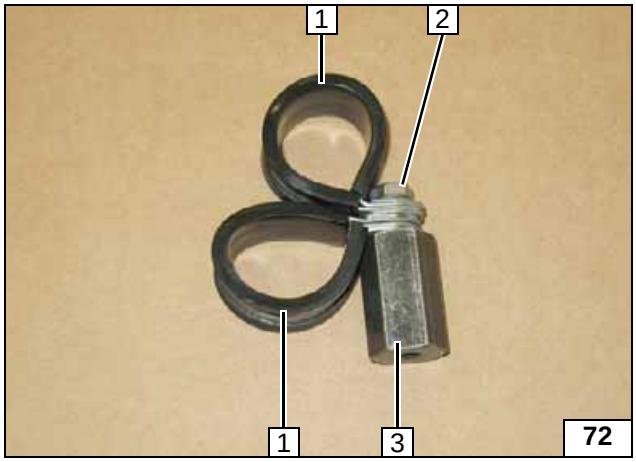
1 M6x25 bolt, flanged nut
2 Mount wiring harness of circulating pump
3 Mounting of circulating pump
4 Circulating pump
5 Angle bracket

Installing circulating pump



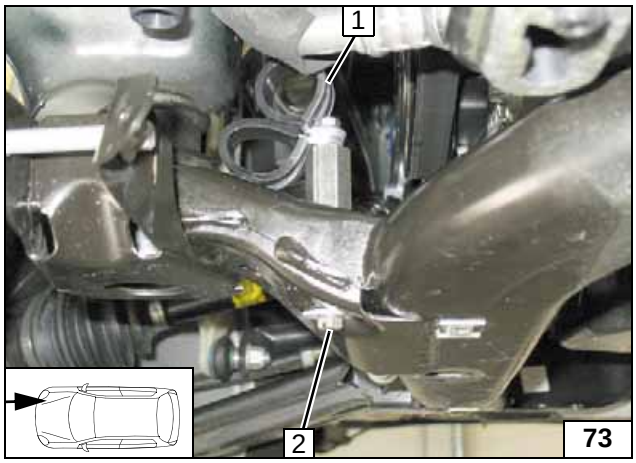
1 Connector for wiring harness of circulating pump

Mounting wiring harness of circulating pump



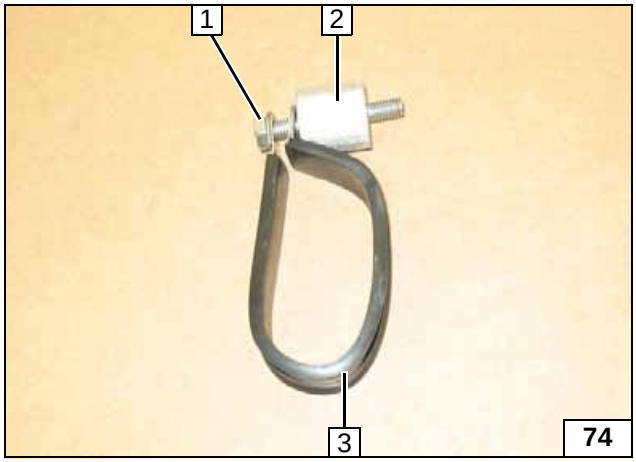
1 Rubber-coated pipe clamp, 29 mm dia. [2x]
2 Install loosely M6x20 bolt, spring lockwasher
3 M6x30 spacer nut

Preparing clamps



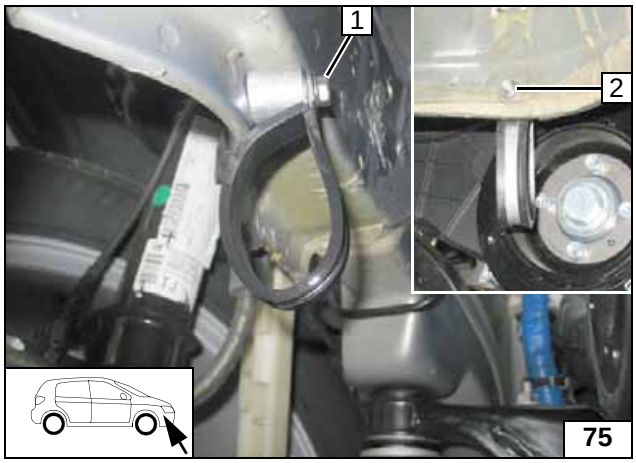
1 Preinstalled 29mm dia clamps
2 M6x50 bolt, spring lockwasher, large diameter washer, existing hole

Installing clamps



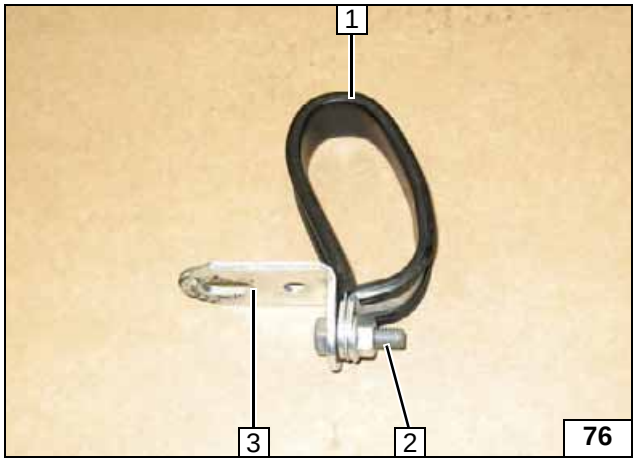
1 M6x50 bolt
2 20 mm shim
3 Rubber-coated pipe clamp, 48 mm dia.

Preparing clamp



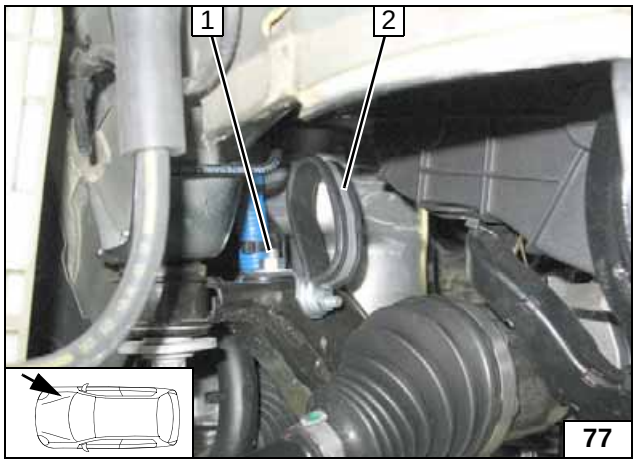
Insert M6x50 bolt **1** in existing hole and secure with pin lock **2**.

Installing clamp



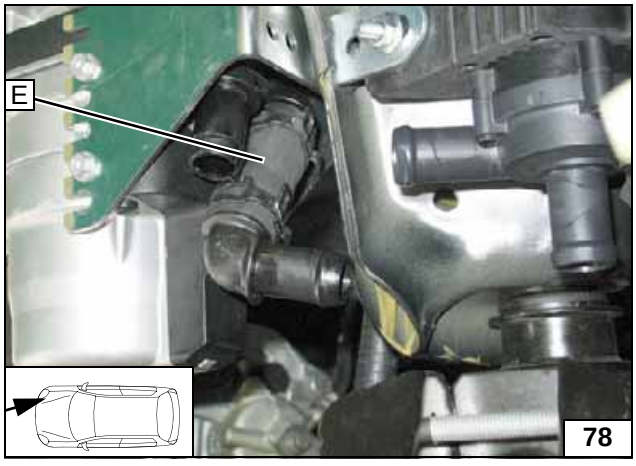
1 Rubber-coated pipe clamp, 48 mm dia.
2 M6x20 bolt, flanged nut
3 Angle bracket

Preparing clamp

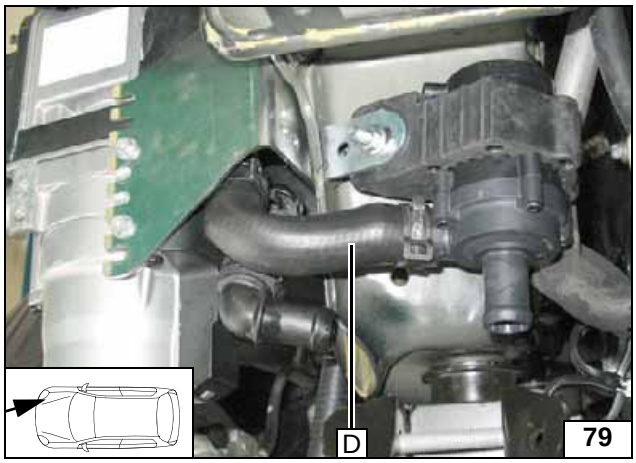


1 Original vehicle bolt, original vehicle nut
2 Preinstalled 48mm dia clamp

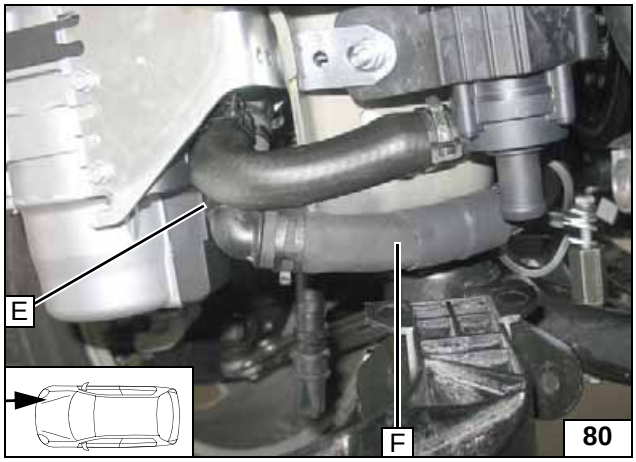
Installing clamp



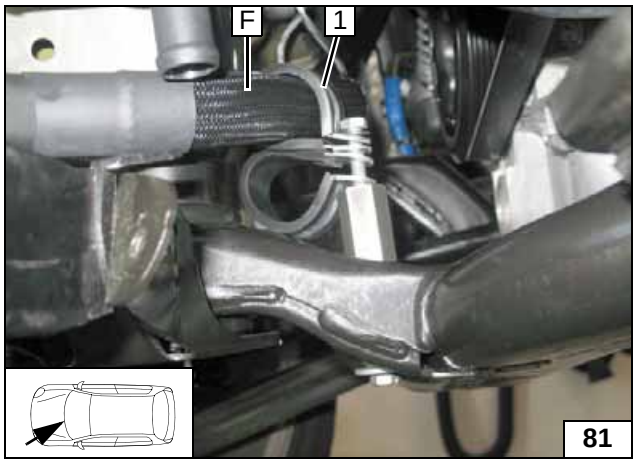
Connecting heater outlet



Connecting heater inlet

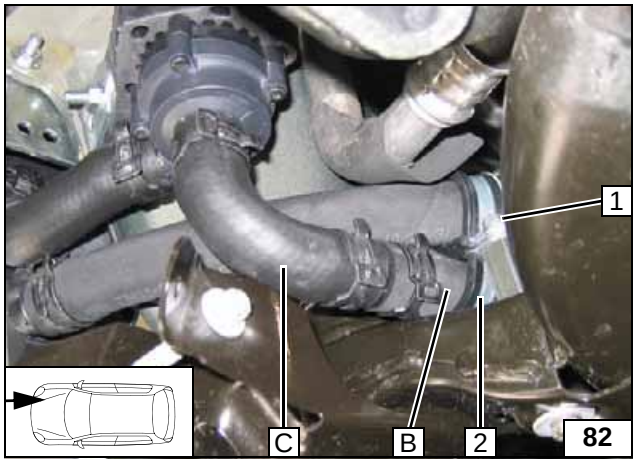


Connecting hoses E and F



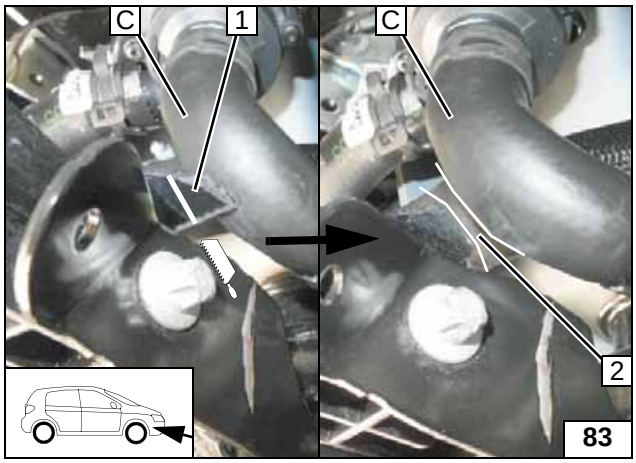
Route hose **F** through 29mm dia. upper pipe clamp **1**.

Routing in engine compartment



Route hose **B** through 29mm dia. lower pipe clamp **2**. Connect hose **C** to circulating pump. Tighten M6x20 bolt **1**.

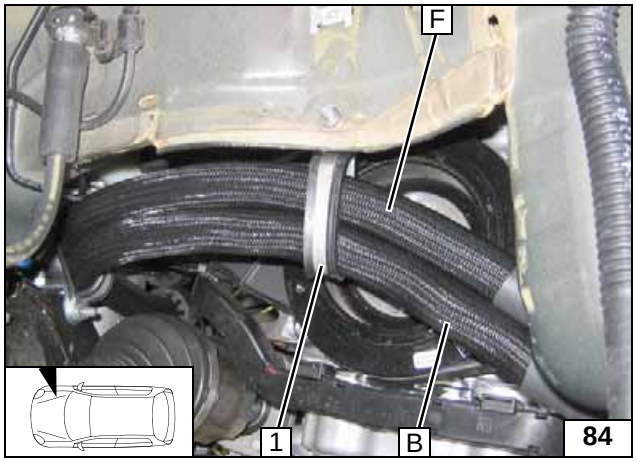
Routing in engine compartment



Only for 100kW

Cut off trim **1** at the cutting line and discard section!
Ensure sufficient distance (at least 5mm) in area **2**!

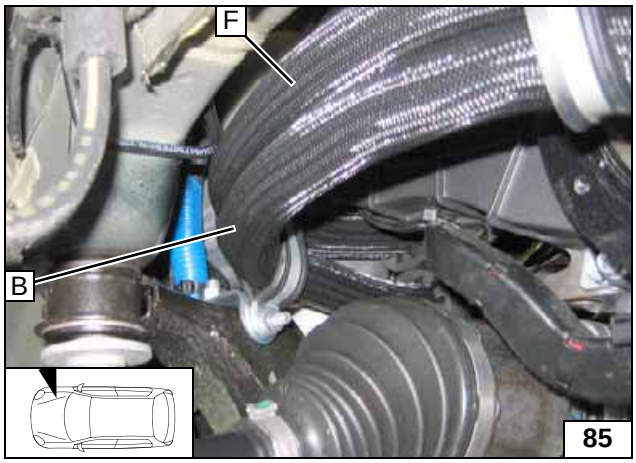
Routing in engine compart-ment



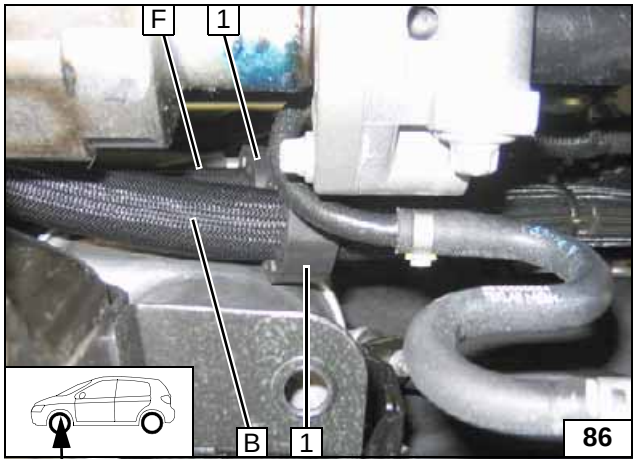
All vehicles

Route hoses **F** and **B** through 48mm dia. pipe clamp **1**.

Routing in engine compart-ment



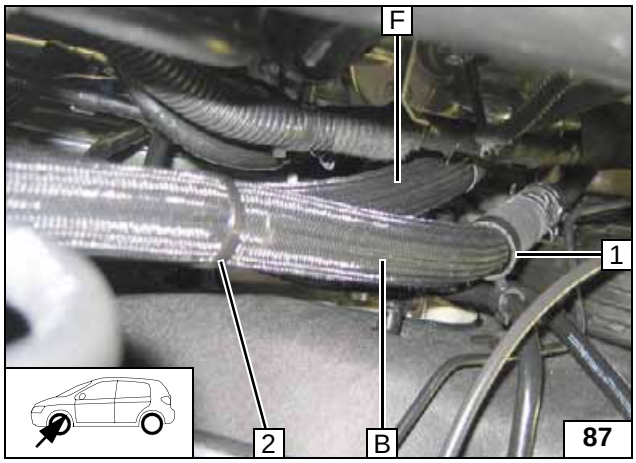
Routing in engine compart-ment



Only for 74kW

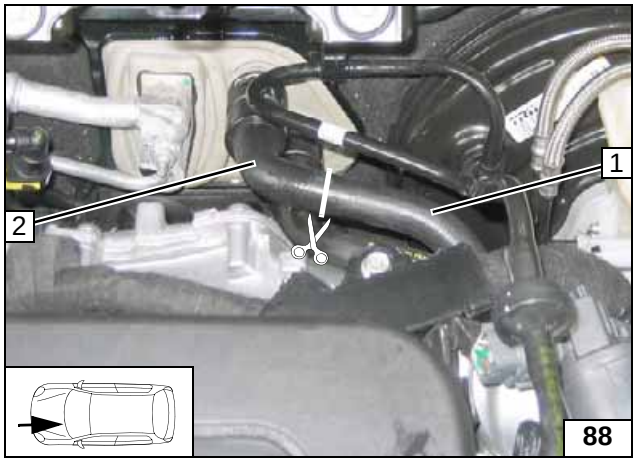
Slide black (sw) rubber isolator **1** onto hose **F** and hose **B** and align as shown.

Routing in engine compart-ment



1 Insert hose bracket
2 Cable tie

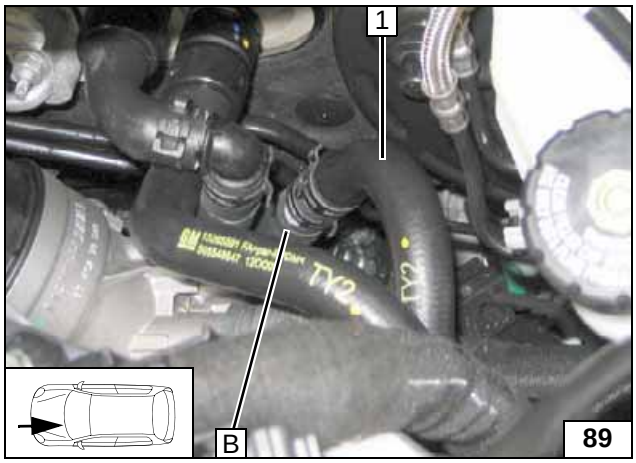
Routing in engine compartment



Cut off hose on engine outlet/heat exchanger inlet at marking.

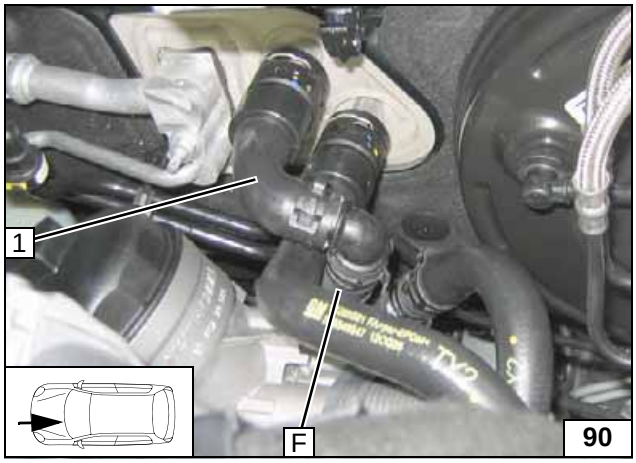
1 Engine outlet hose section
2 Hose section of heat exchanger inlet

Cutting point



1 Engine outlet hose section

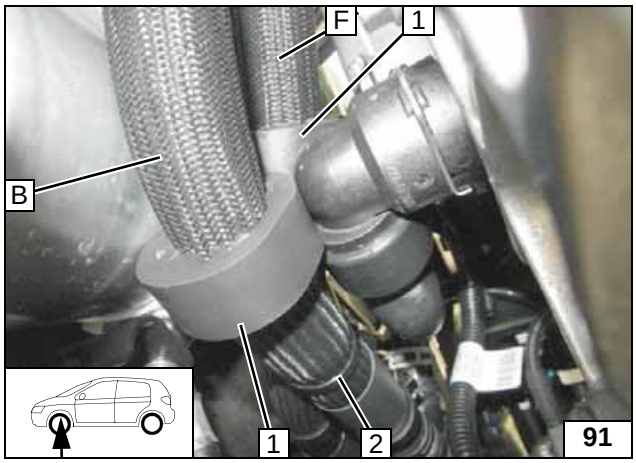
Connecting engine outlet



Ensure sufficient distance from neighbouring components.

1 Hose section of heat exchanger inlet

Connecting heat exchanger inlet

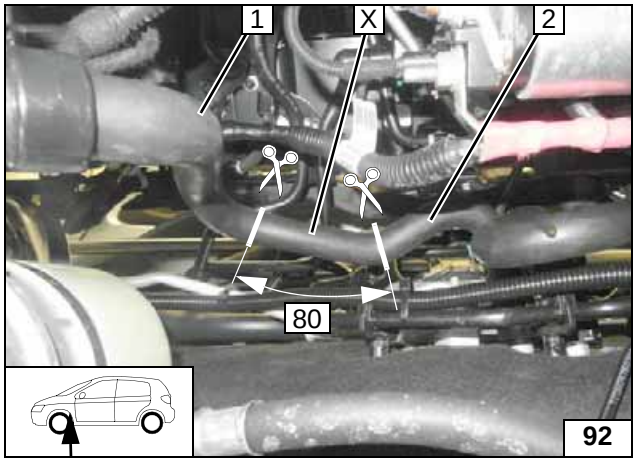


Only for 100kW

Slide black (sw) rubber isolator **1** onto hose **F** and hose **B** and align as shown.

2 Cable tie

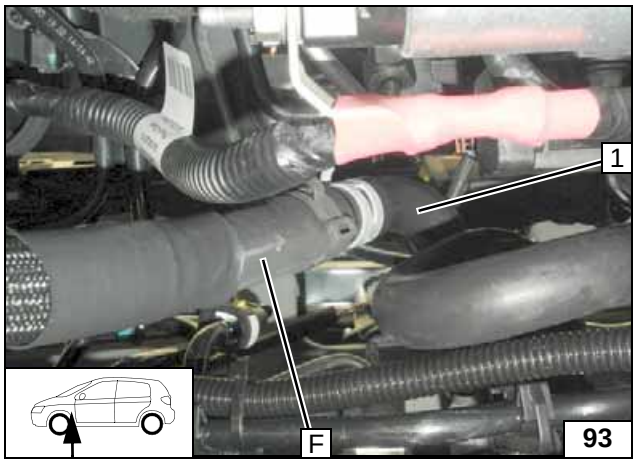
Routing in engine compartment



Cut the engine outlet hose / heat exchanger inlet at the markings.
Discard section **X**.

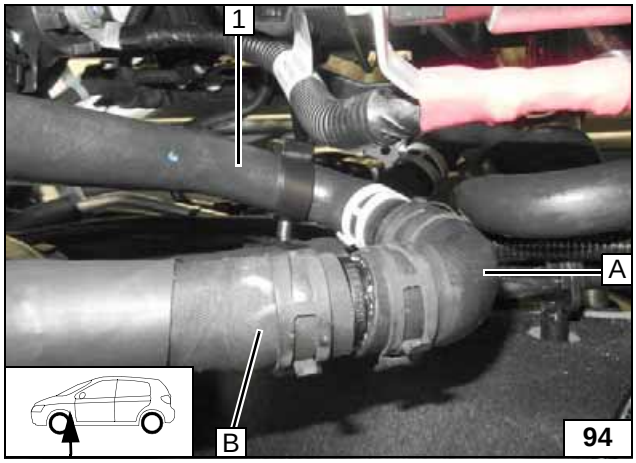
1 Engine outlet hose section
2 Hose section of heat exchanger inlet

Cutting point



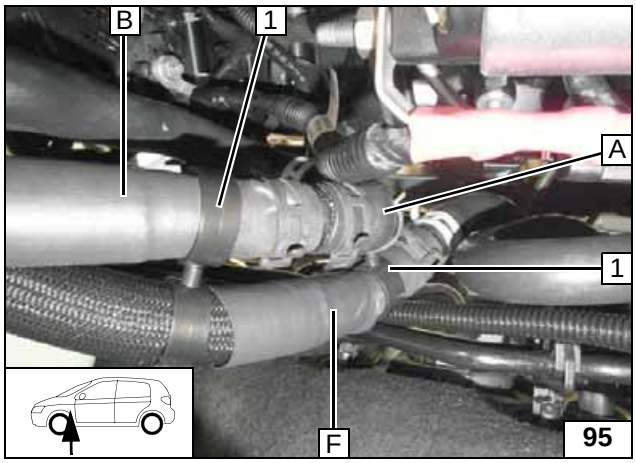
1 Hose section of heat exchanger inlet

Connecting heat exchanger inlet



1 Engine outlet hose section

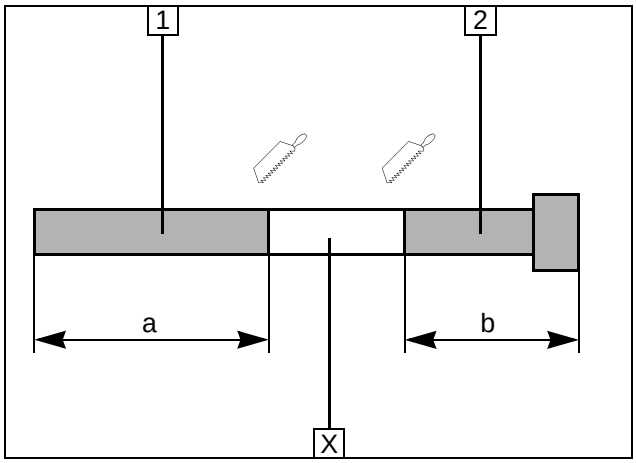
Connecting engine outlet



Ensure sufficient distance from neighbouring components.

1 Install hose bracket [2x]
2 Cable tie

Routing in engine compartment

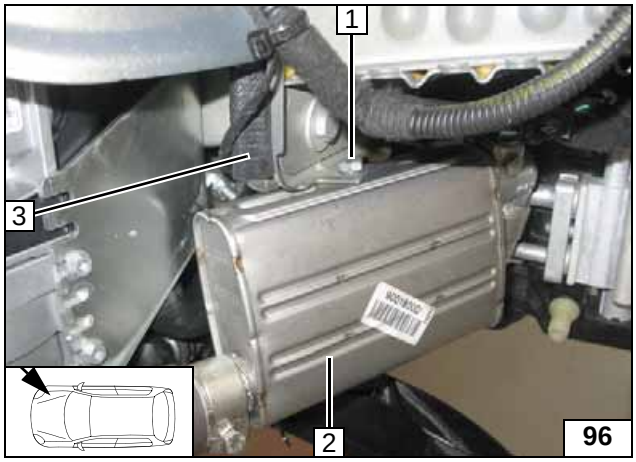


Exhaust Gas

Discard section **X**.

	74kW	100kW
Exhaust pipe a =	270	270
Exhaust end section b =	220	160

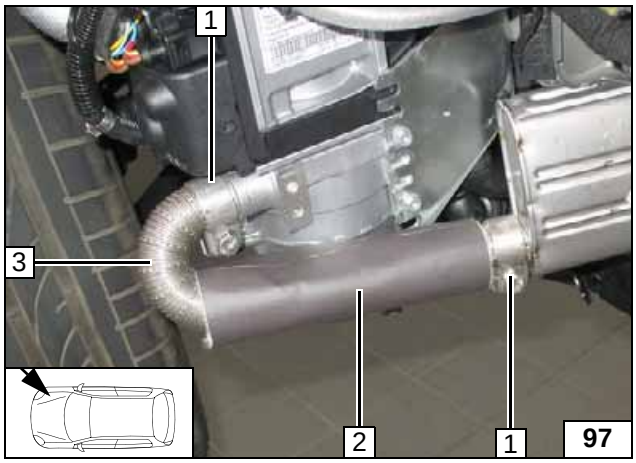
Preparing exhaust pipe



Only for 74kW

1 M6x16 bolt, spring lockwasher, existing hole
2 Silencer
3 50 mm edge protection

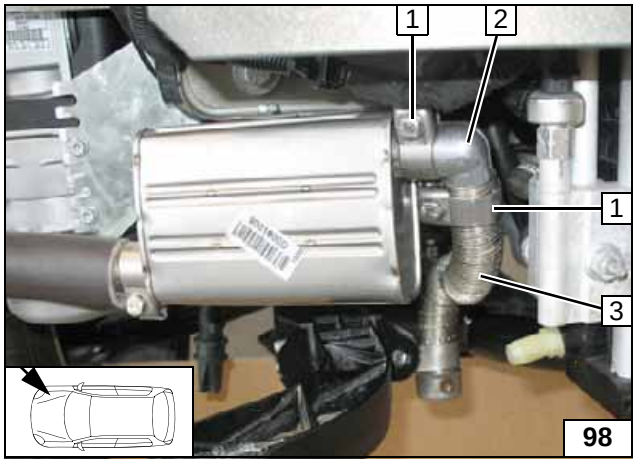
Installing silencer



Cut 140mm from exhaust-gas insulation **2** and slide onto exhaust pipe **3**.

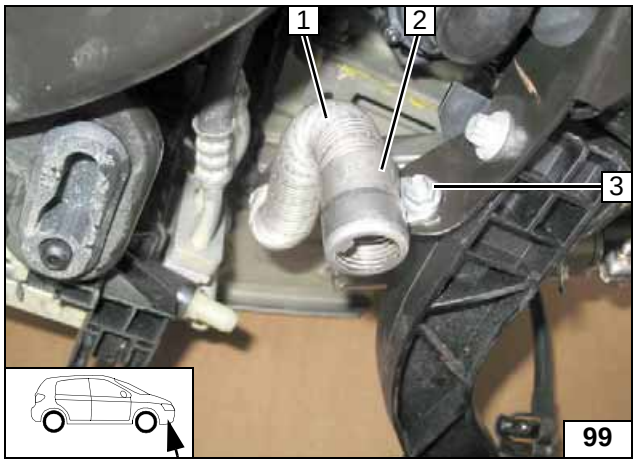
1 Hose clamp [2x]

Mounting exhaust pipe



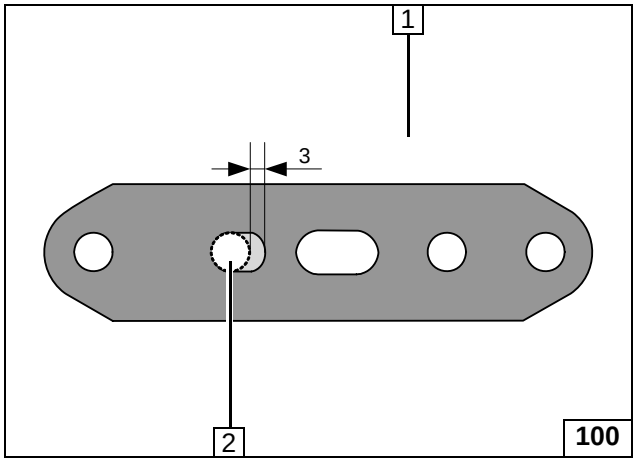
1 Hose clamp [2x]
2 Exhaust elbow
3 Exhaust end section

Mounting exhaust end section



1 Exhaust end section
2 P-clamp
3 M6x16 bolt, flanged nut, existing hole

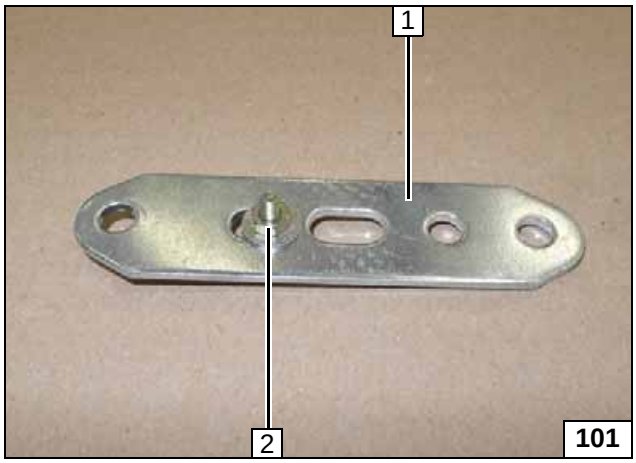
Fastening exhaust end section



Only for 100kW

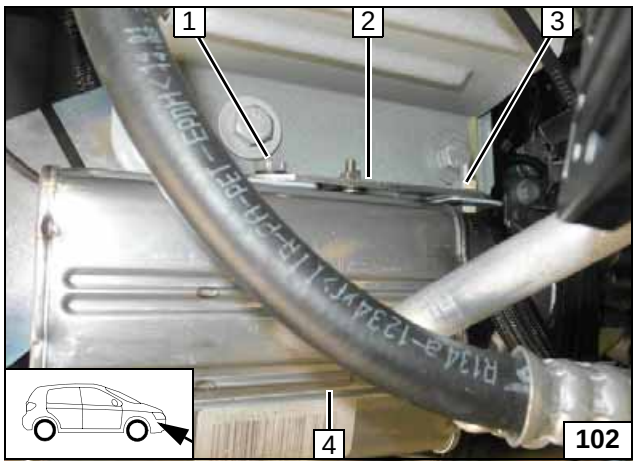
Enlarge hole **2** of perforated bracket **1** as shown!

Adapting perforated bracket



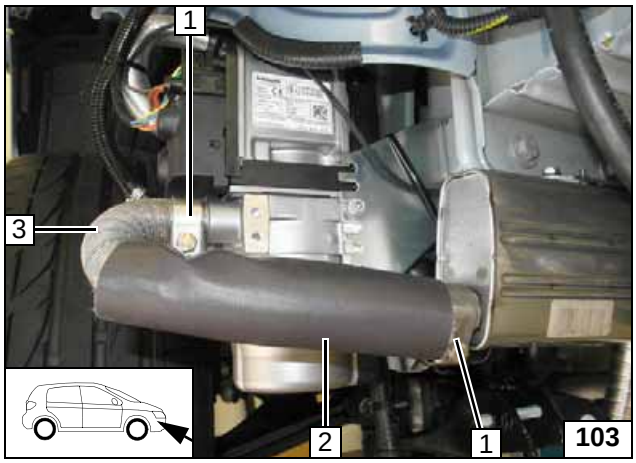
1 Perforated bracket
2 M4x12 bolt, large diameter washer [2x], nut

Preparing perforated bracket



1 M6x16 bolt, spring lockwasher, existing hole
2 Prepared perforated bracket (position bolt head in bead of exhaust silencer)
3 M6x16 bolt, flanged nut, existing hole
4 Silencer

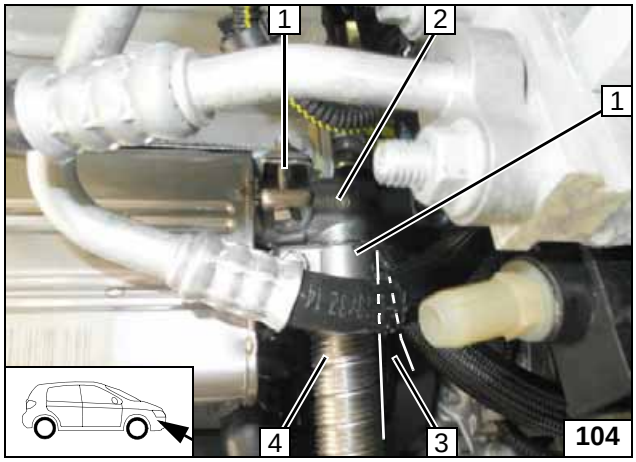
Installing silencer



Cut 140mm from exhaust insulation **2** and slide onto exhaust pipe **3**.

1 Hose clamp [2x]

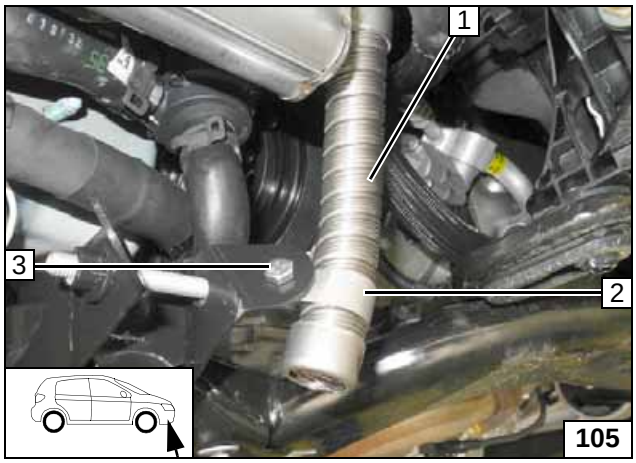
Mounting exhaust pipe



Ensure sufficient distance to adjacent components in position **3** (at least 20mm)! Reposition hose of air-conditioning if necessary!

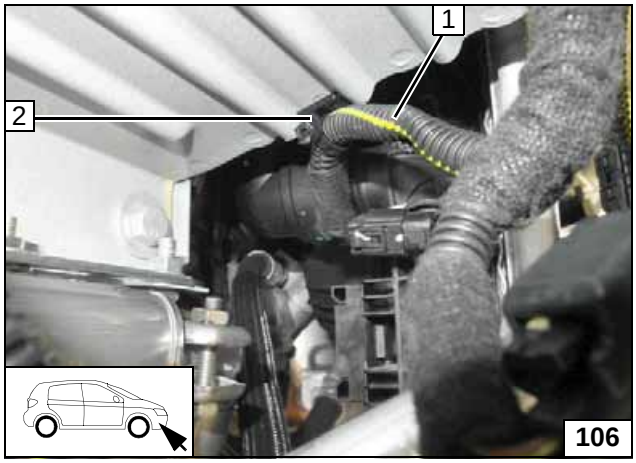
1 Hose clamp [2x]
2 Exhaust elbow
4 Exhaust end section

Installing exhaust elbow, exhaust end section



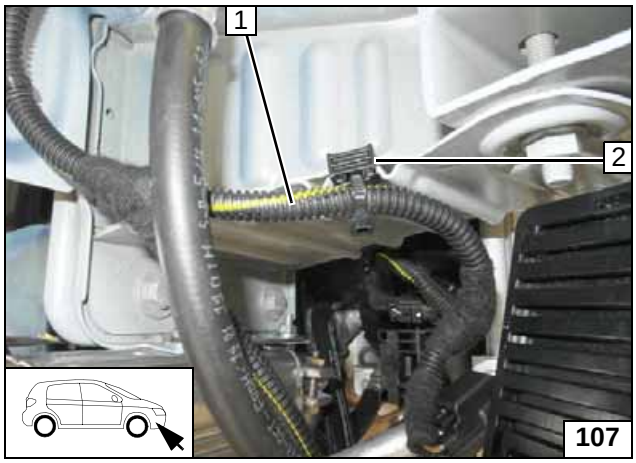
1 Exhaust end section
2 P-clamp
3 M6x16 bolt, flanged nut, existing hole

Fastening exhaust end section



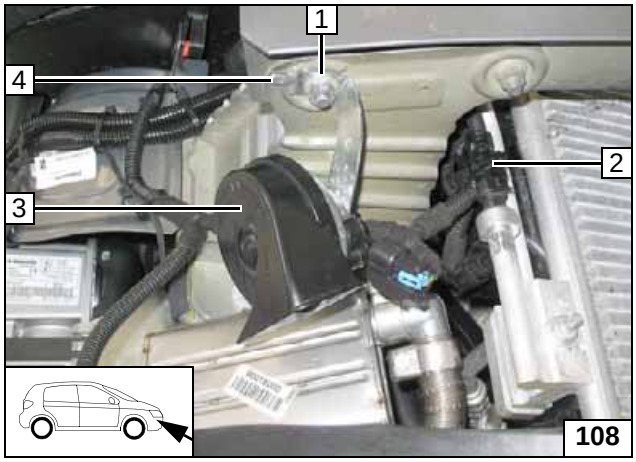
1 Original vehicle wiring harness
2 Clip-type cable tie

Fastening wiring harness



1 Original vehicle wiring harness
2 Clip-type cable tie

Fastening wiring harness

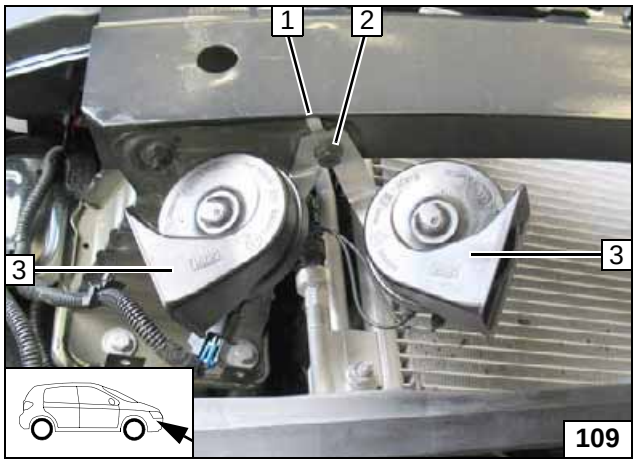


All vehicles

Vehicle with one horn

Angle down tab of horn bracket **4** straight. Install horn **3** with bracket on original vehicle bolt **1**. Lock wiring harness of horn with cable tie **2**.

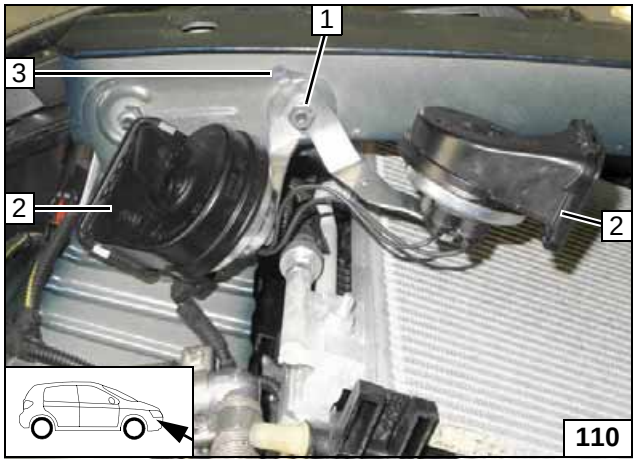
Installing horn



Vehicle with two horns (version 1)

Angle down tab of horn bracket **1** straight. Install horn **3** [2x] with bracket on original vehicle bolt **2**, align as shown.

Installing horn



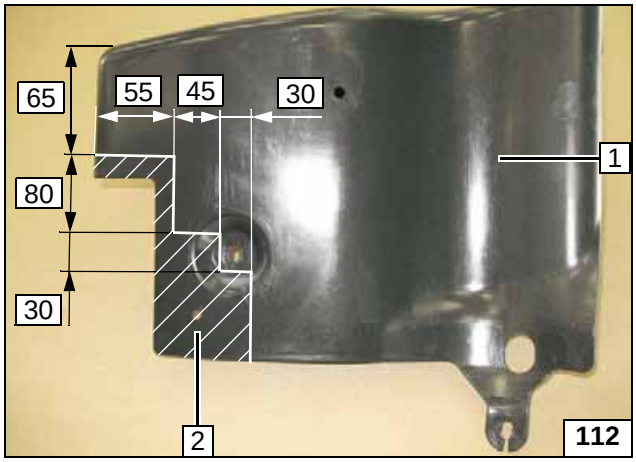
Vehicle with two horns (version 2)

Angle down tab of horn bracket **3** straight. Install horn **2** [2x] with bracket on original vehicle bolt **1**, twist as shown and align with bonnet lock support.

Mounting horns

Ensure sufficient distance from neighbouring components.
Secure all wiring harnesses with cable tie.

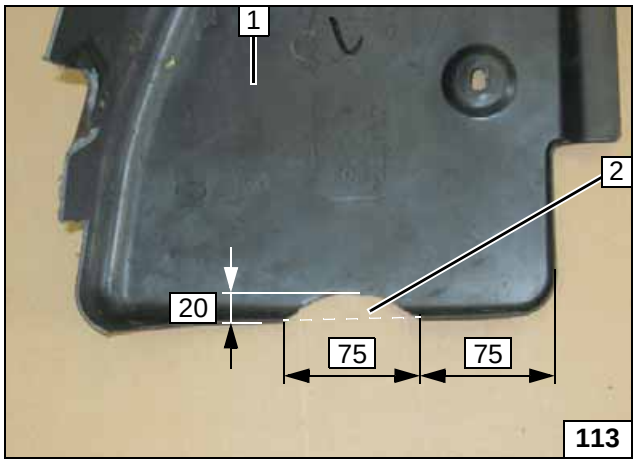
Securing wiring harnesses



Cut out underbody trim piece **1** in area of heater.

2 Discard section

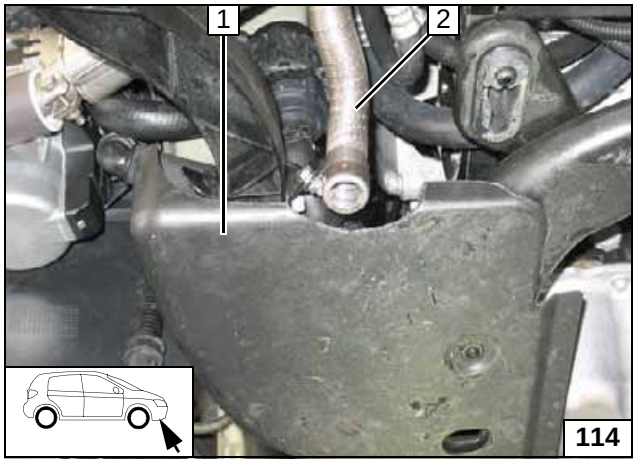
Cutting out underbody trim



Cut out underbody trim **1** in area of exhaust end section.

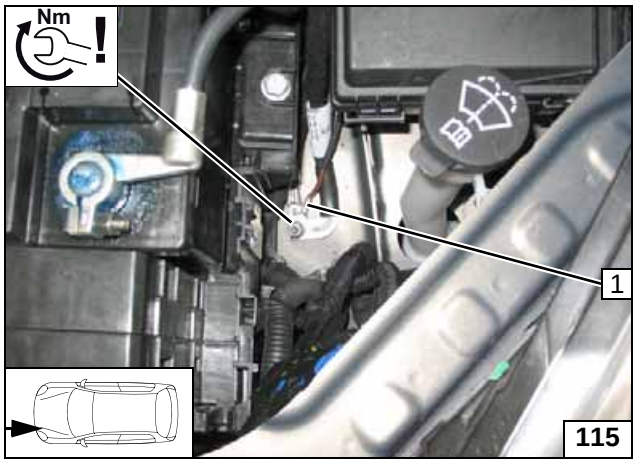
2 Discard section

Cutting out underbody trim



1 Install underbody trim
2 Exhaust end section

Aligning exhaust end section



Final Work

Only for 74kW

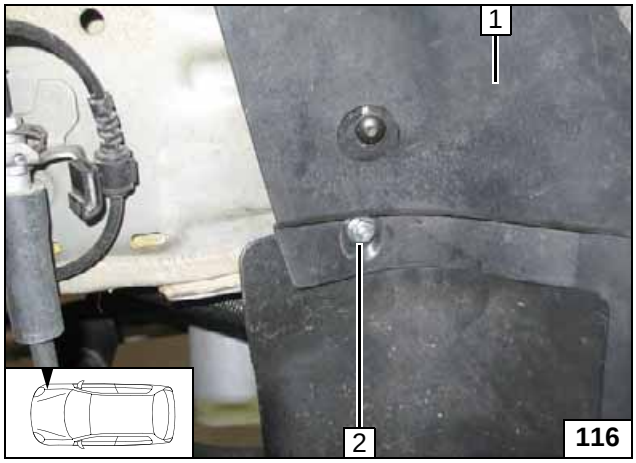
1 Earth wire at original vehicle earth support point

Connecting earth wire

All vehicles

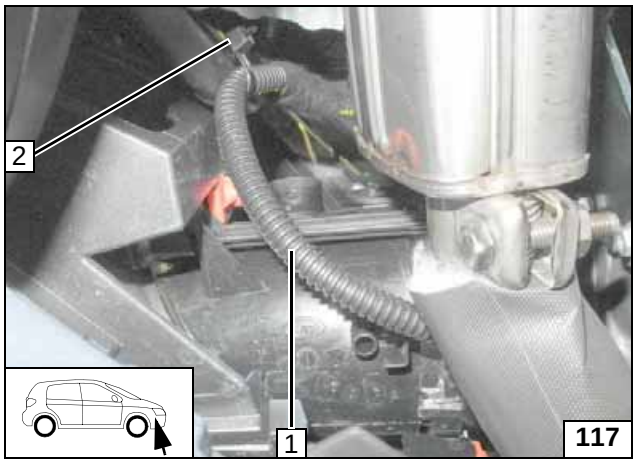
WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose wires.
Only use manufacturer-approved coolant. Spray heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach telestart transmitter.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label in the area of the filler neck.**
- **For initial start-up and function check, see installation instructions**



1 Wheel well trim
2 Flanged nut

Fastening wheel well trim

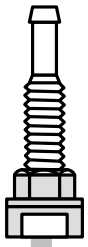


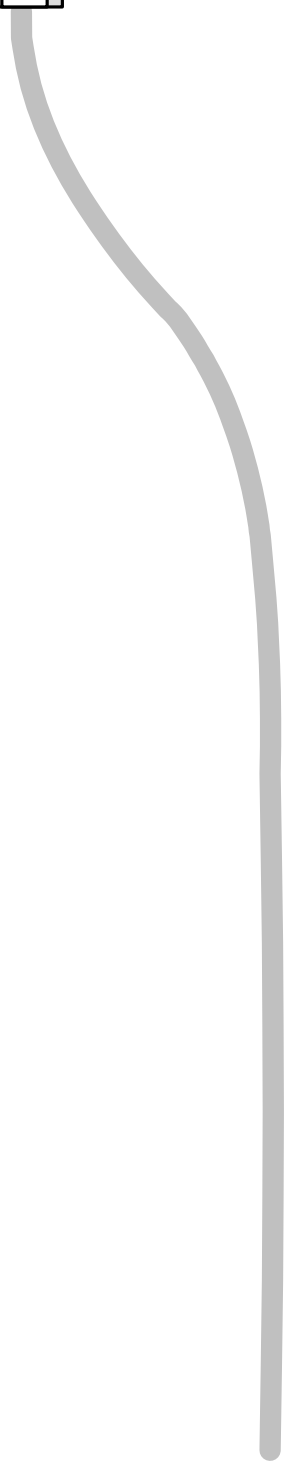
Secure wiring harness of front fog lights **1** (if present) using cable tie **2** ! Ensure sufficient distance from heater and exhaust system (at least 20mm), correct if necessary.

Fastening wiring harness

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

Fuel Standpipe Template (100kW only)





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

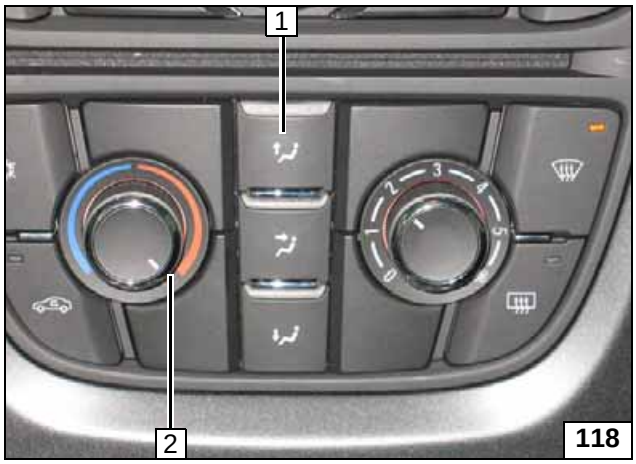
Operating Instructions for Manual Air-Conditioning

Please remove page and add to the vehicle operating instructions.

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

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

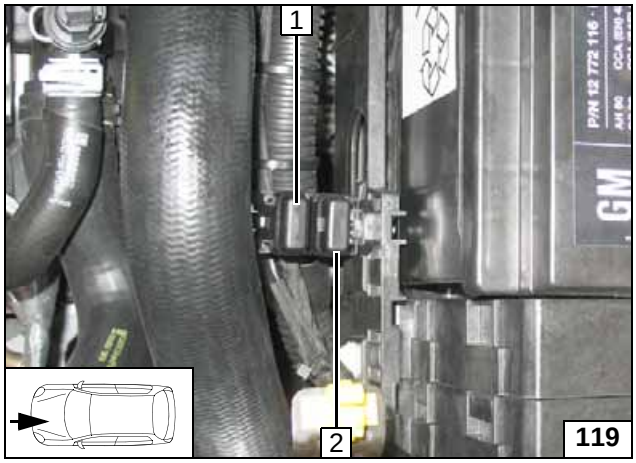
Before parking the vehicle, make the following settings:



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

A/C control panel

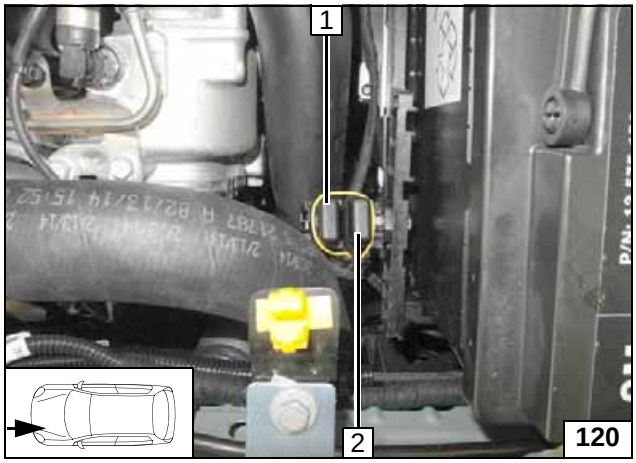
74kW vehicle



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

Engine compartment fuses

100kW vehicle



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

Engine compartment fuses

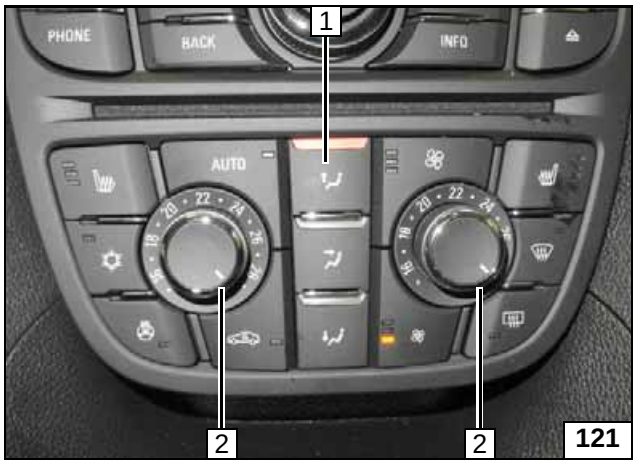
Operating Instructions for Automatic Air-Conditioning

Please remove page and add to the vehicle operating instructions.

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

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

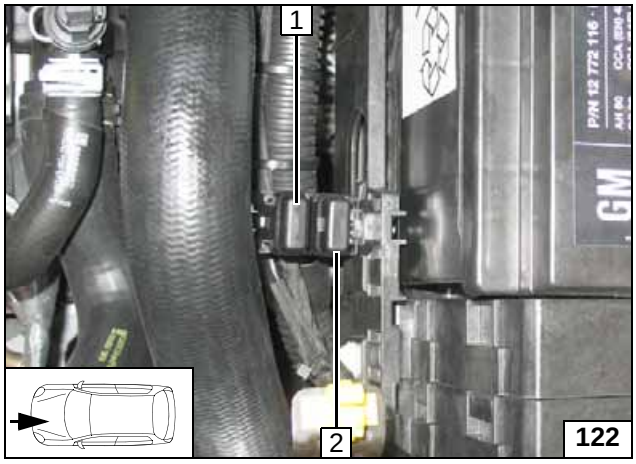
Before parking the vehicle, make the following settings:



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

A/C control panel

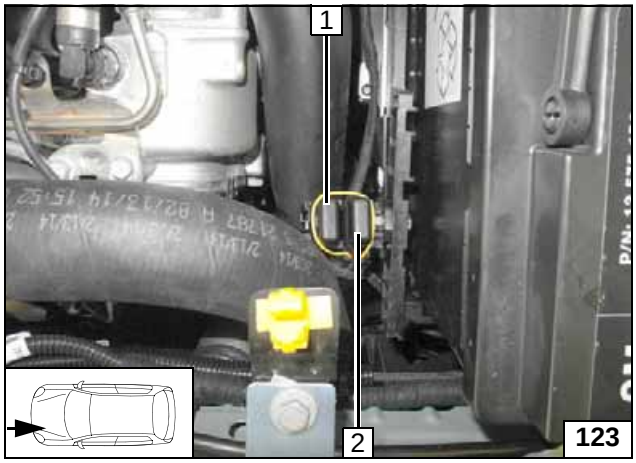
74kW vehicle



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

Engine compartment fuses

100kW vehicle



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

Engine compartment fuses