Water Heater

***Thermo Top Evo* Parking Heater** E1 00 0258

Installation Documentation
Opel Mokka

Validity

Manufacturer	Model	Type	EG-BE-No. / ABE
Opel	Mokka	AWY	e4 * 2007 / 46 * 0537 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.4 P	Petrol	6-speed SG	103	1364	A14NET(LUJ)

SG = Manual transmission

From Model Year 2013
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning / 2 zone automatic air-conditioning
Front fog light
Daytime running lights
Start-Stop
Bi-Xenon with headlight washer system
2 WD / 4 WD

Not verified: Passenger compartment monitoring

Total installation time: approx. 10 hours

Opel Mokka

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Opel Mokka 2013 Petrol: **1321384B**
- 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

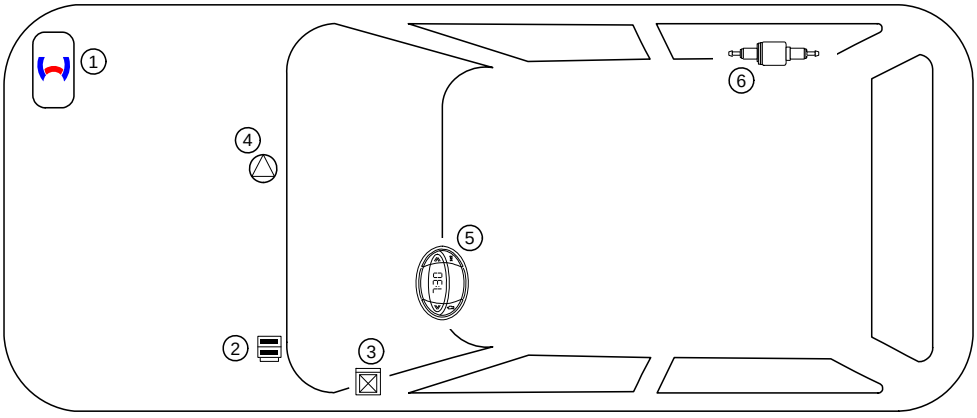
Installation instructions:

- 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. Digital timer
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 Mokka

Notes on Validity

This installation documentation applies to the Opel Mokka Petrol vehicles - for validity, see page 1 - from model year 2013 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

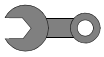
Dimensions
- All dimensions are in mm

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

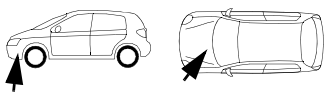
Specific risk of damage to components.

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



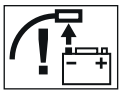
Tightening torque according to the manufacturer's vehicle-specific documents

Opel Mokka

Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and remove the battery.
  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.
- Remove the air filter housing with intake plenum.
- Disconnect the coolant expansion tank.
- Remove the right front wheel.
- Remove the front wheel well trim on the right.
- Remove the engine underride protection.
- Remove the lower instrument panel trim on the driver's side.
- Remove the lateral instrument panel trim on the driver's side.

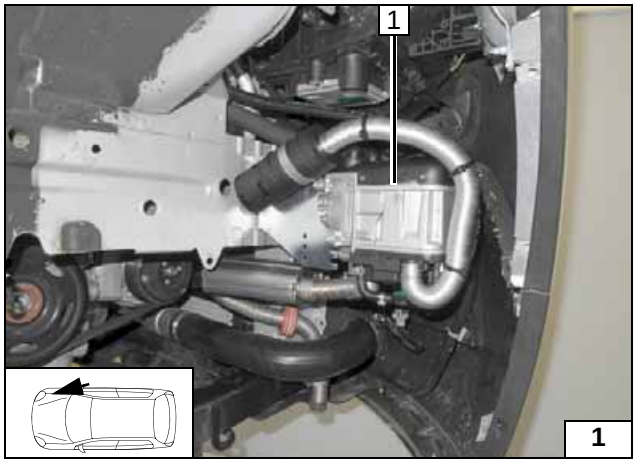


Carry out the following work only during the corresponding installation sequence:

- Remove the exhaust system from the flexible tube according to the manufacturer's instructions.
- Detach the cardan shaft at the transfer box (only for 4 WD).
- Remove the fuel tank in accordance with the manufacturer's instructions.
- Remove the fuel-tank sending unit on the right and left (for 4 WD), or only on the left (for 2 WD) according to manufacturer's instructions.

Heater

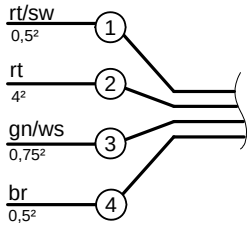
- Remove dates that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place inside the engine compartment



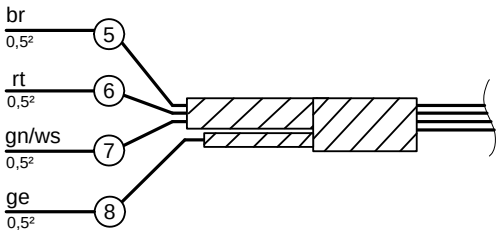
Heater Installation Location

1 Heater

Installation location



2



3

Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

Assigning heater wiring harness

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

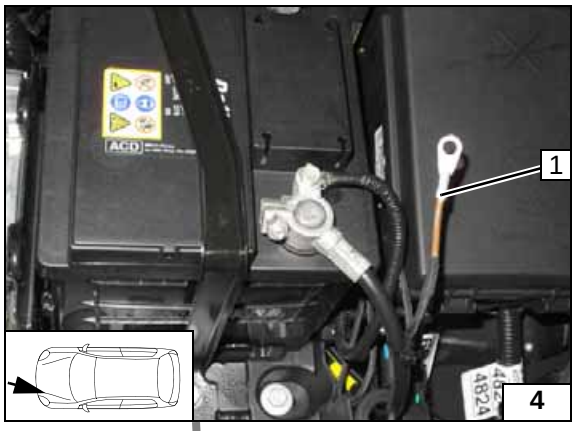
Assigning CAN wiring harness

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

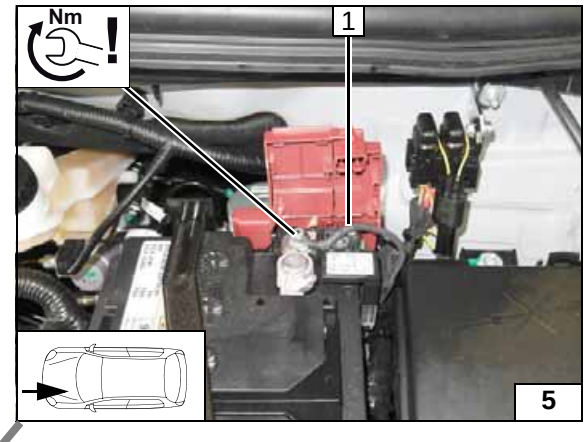
Earth wire

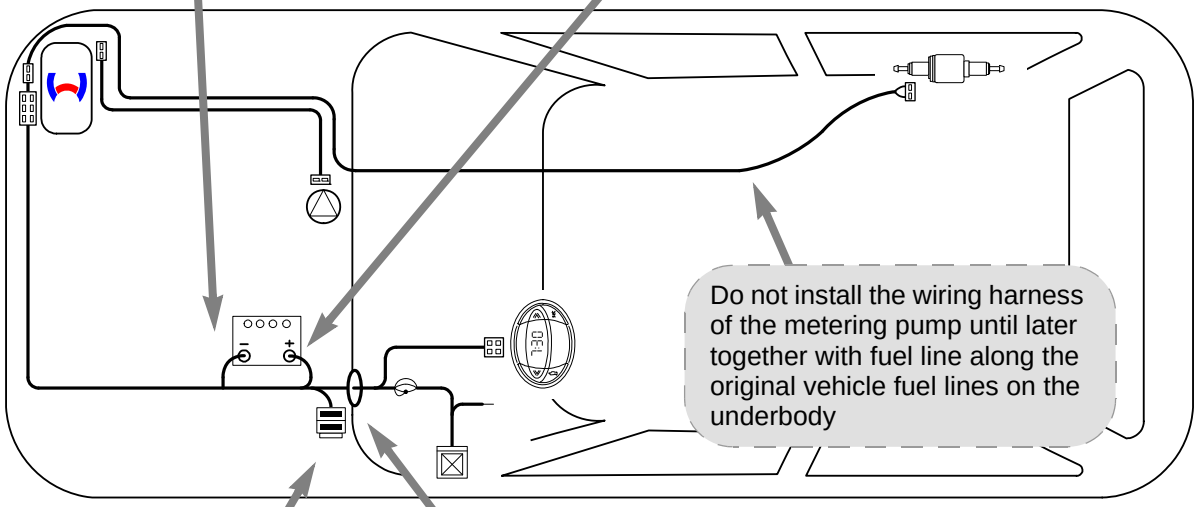
Route earth wire **1** to the negative battery terminal. Connection is carried out in "Final Work".



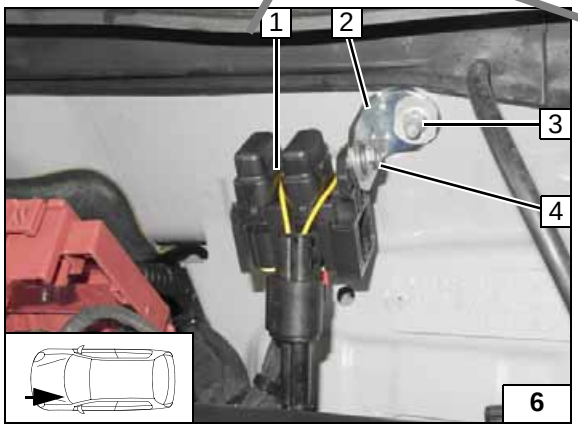
Positive wire

1 Positive wire on positive battery terminal





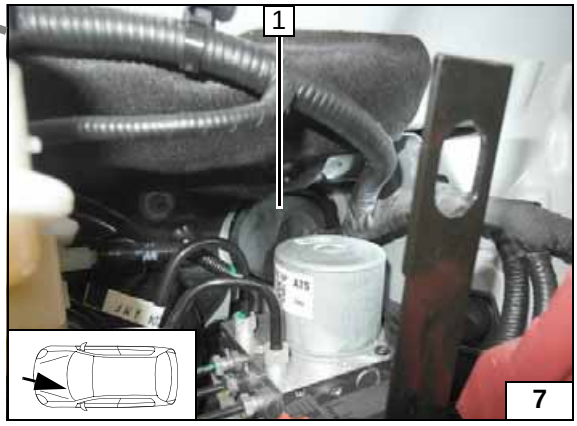
Wiring harness routing diagram



Engine compartment fuse holder

Replace 30A fuse F2 with 1A fuse!

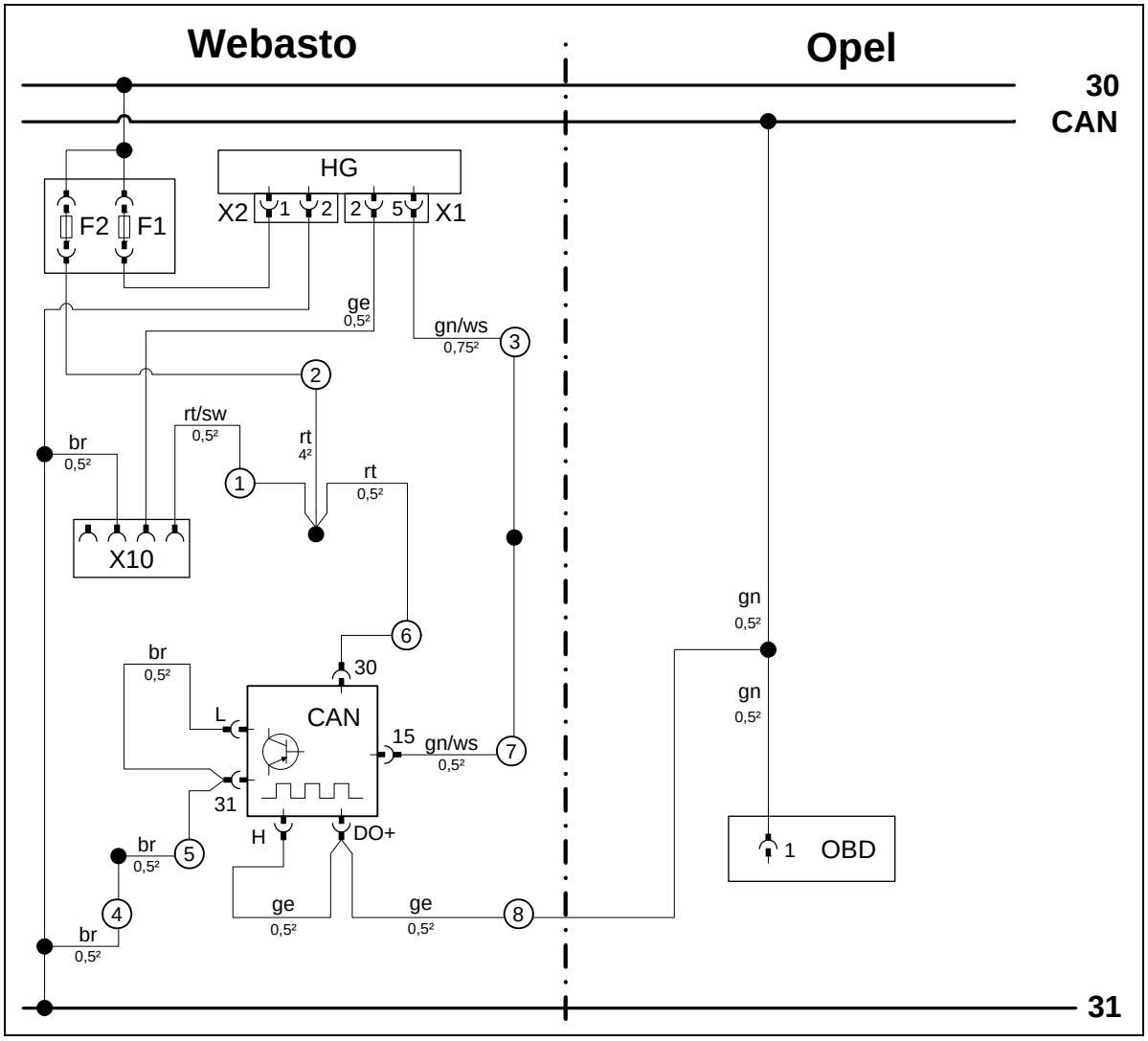
1 F1-2 fuses
2 Angle bracket
3 Original vehicle stud bolt, plate nut
4 M5x16 bolt, large diameter washer [2x], fuse holder retaining plate, nut



Wiring harness pass through

1 Protective rubber plug

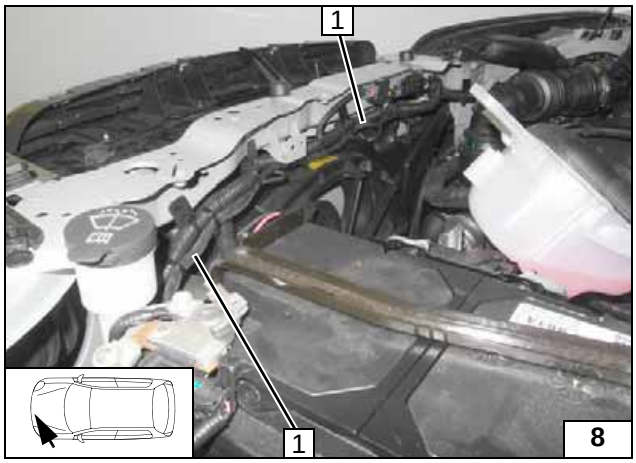
Fan Controller



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.	

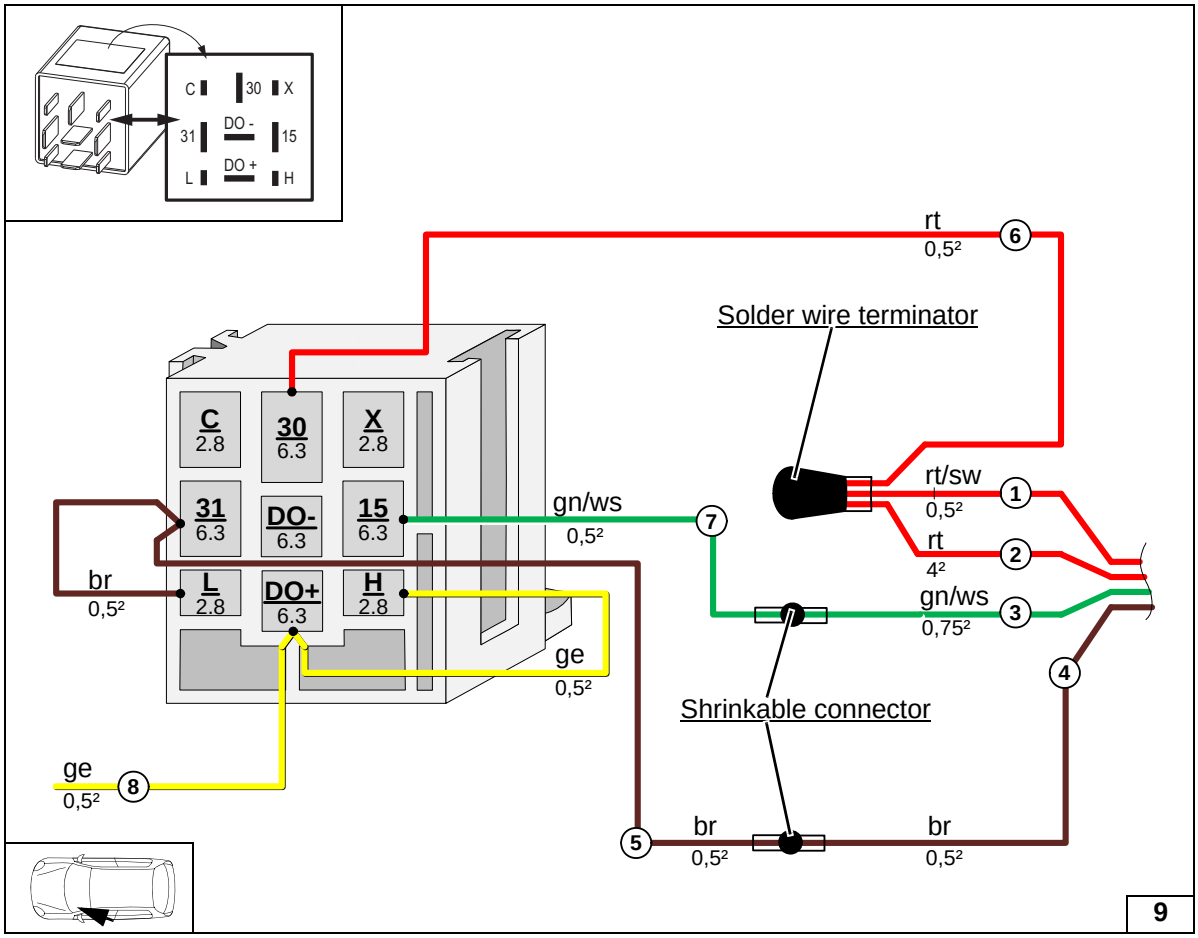
Wiring diagram

Legend

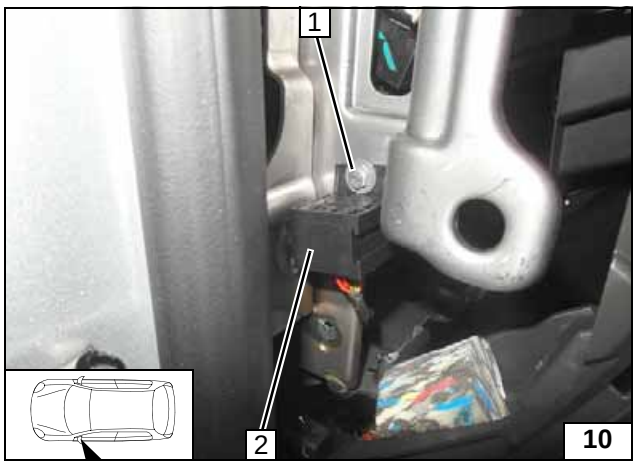


Route wiring harness of heater **1** on original vehicle wiring harness to the installation location of the heater.

Routing heater wiring harness

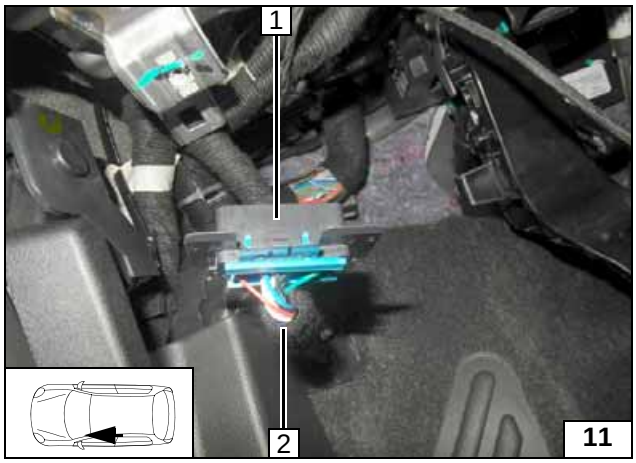


Connecting wires from heater wiring harness and CAN-module wiring harness in passenger compartment



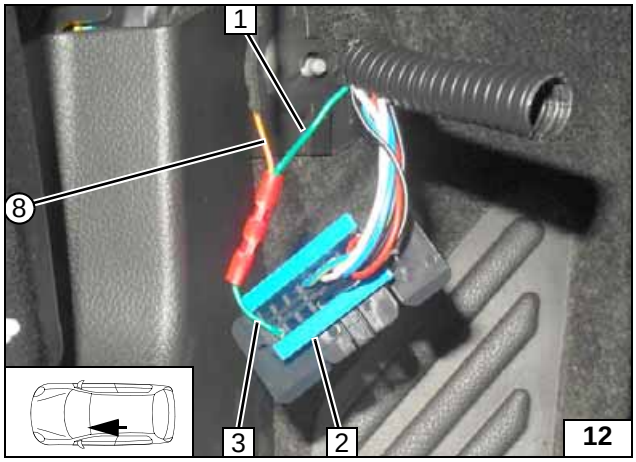
1 M5x16 bolt, large diameter washer [2x], nut, existing hole
2 CAN module socket

Installing CAN module socket



Remove insulation **2** from OBD connector **1**.

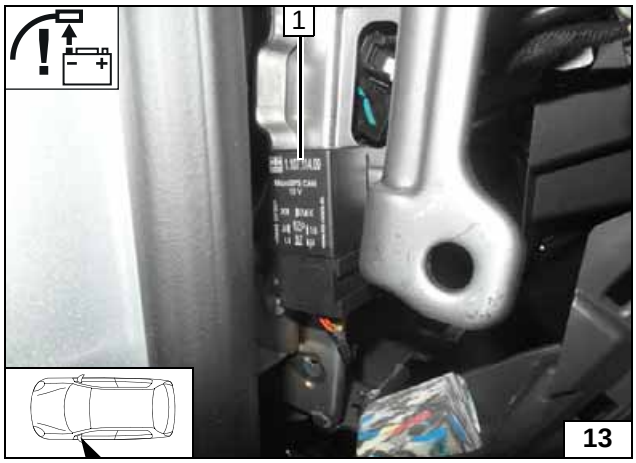
Disconnecting OBD connector



Produce connections by crimping and shrinking.

1 Green (gn) wire of CAN bus
2 16-pin OBD connector
3 Green (gn) wire of OBD/1
⑧ Yellow (ge) wire of CAN module/DO+

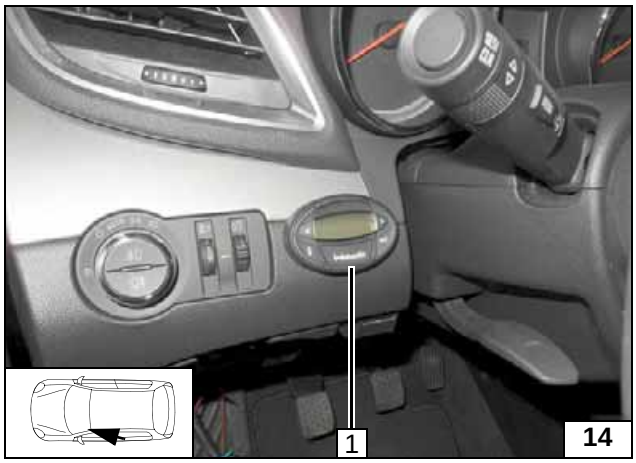
Connecting OBD connector



Before installation see info on battery in section "Preliminary Work"!

1 CAN module

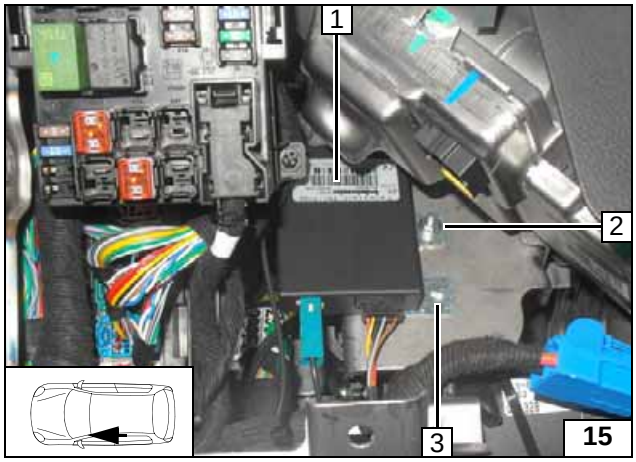
Mounting CAN module



Digital Timer

1 Digital timer

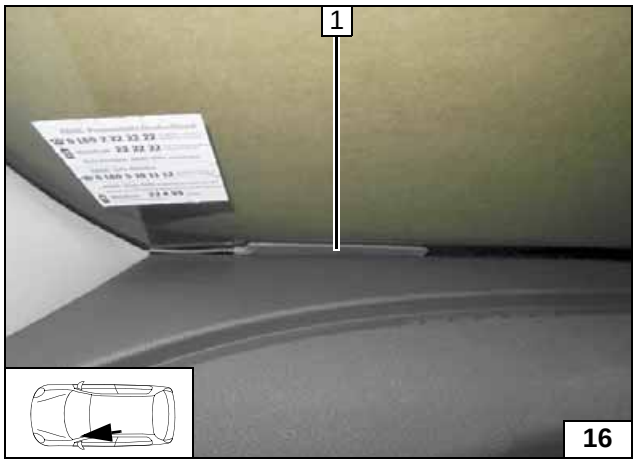
Installing digital timer



Remote Option (Telestart)

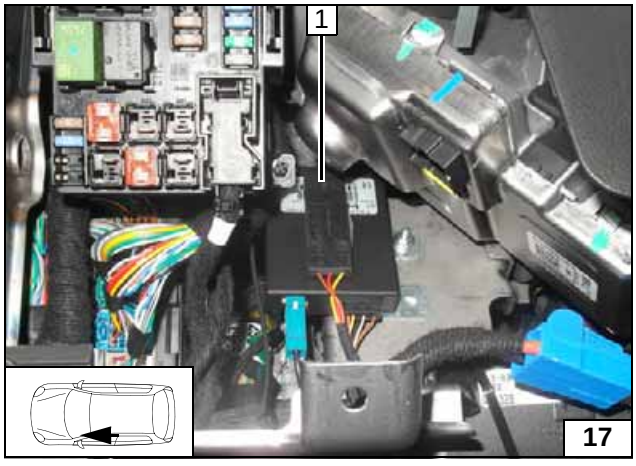
1 Receiver
2 M5x16 bolt, flanged nut, existing hole
3 Bracket

Mounting receiver



1 Antenna

Mounting antenna



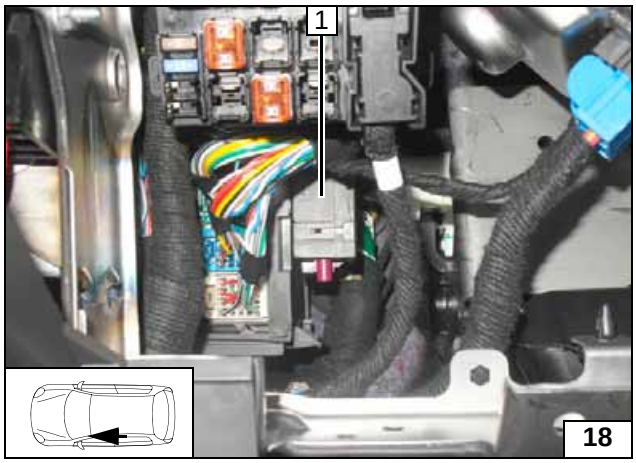
Installing T100 HTM temperature sensor

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

Installing temperature sensor

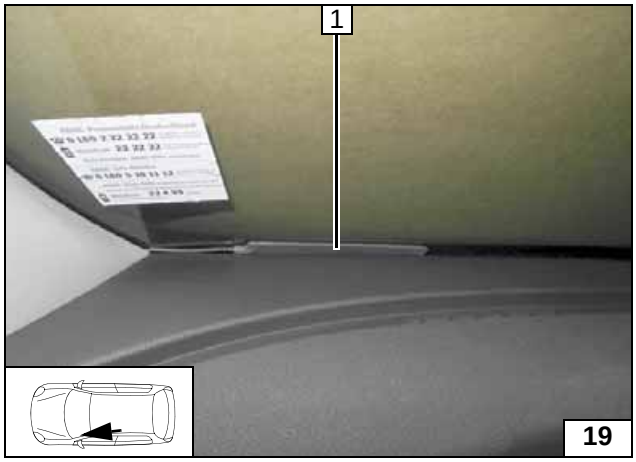
Remote Option (Thermo Call)

Mounting receiver

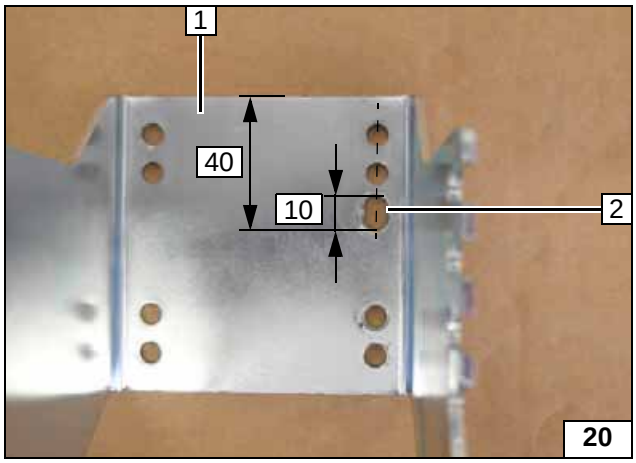


Fasten receiver **1** with adhesive tape.

Mounting antenna



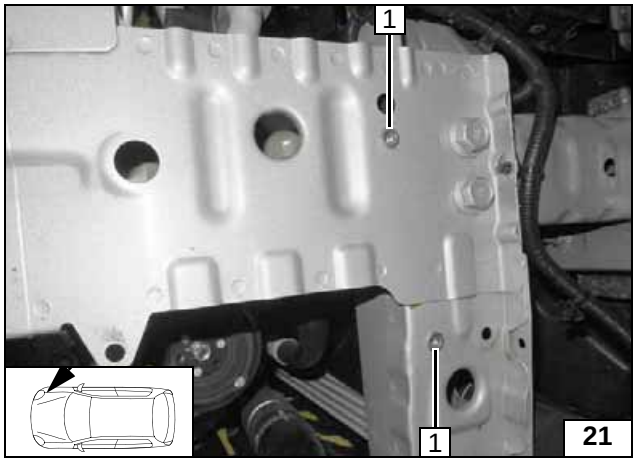
1 Antenna



Preparing Installation Location

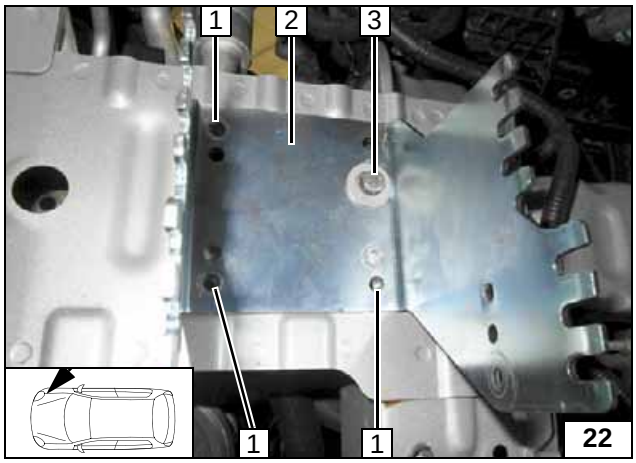
1 Bracket
2 Enlarge 7mm dia. hole to 7x10mm dia. oblong hole

Oblong hole in bracket



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

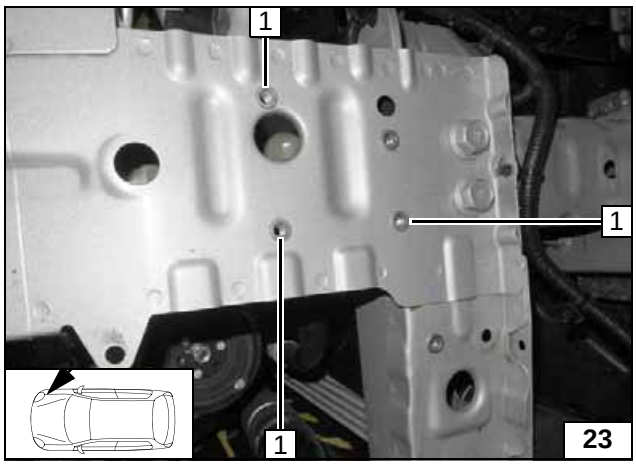
Installing rivet nuts



Install the bracket **2** loosely and align centrally between the beads.

1 Copy hole pattern [3x]
3 M6x20 bolt, spring lockwasher, large diameter washer

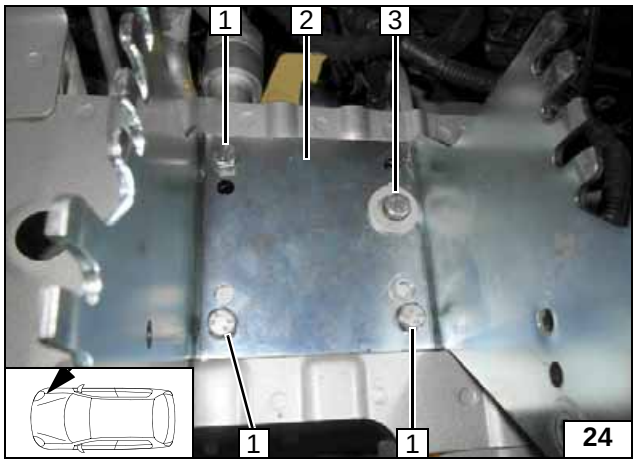
Mounting bracket



Remove bracket.

1 9.1 mm dia. hole; rivet nut [3x]

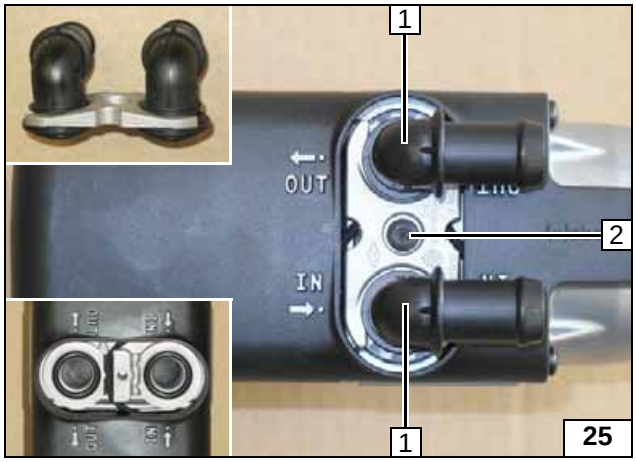
Installing rivet nuts



1 M6x20 bolt, spring lockwasher [3x each]
2 Bracket
3 M6x20 bolt, spring lockwasher, large diameter washer

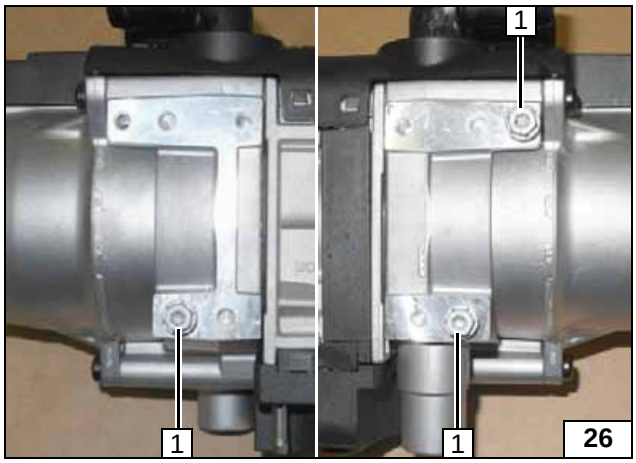
Mounting bracket

Preparing Heater



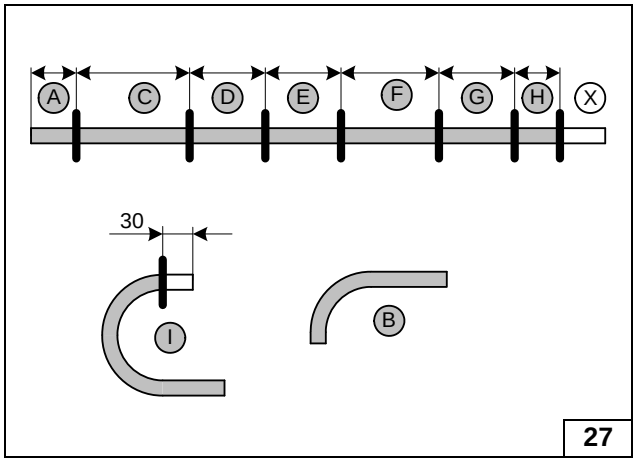
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection pieces

Installing water connection pieces



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

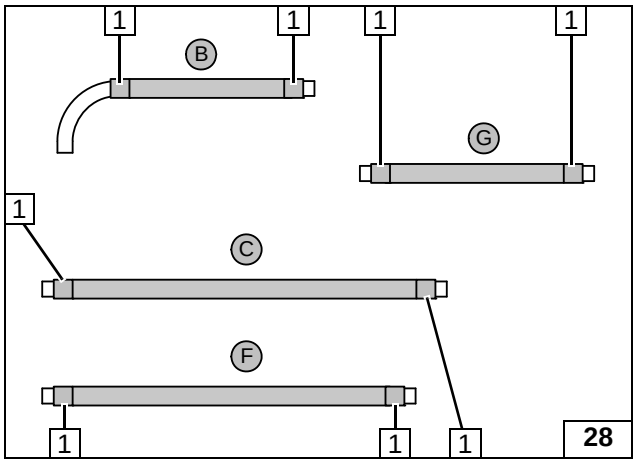
Premounting bolts loosely



Discard section **X**
Hose **B** = 90°, 18mm dia. moulded hose
Hose **I** = 180°, 20mm dia. moulded hose; cut the short leg to length

A = 70
C = 550
D = 250
E = 290
F = 510
G = 460
H = 60

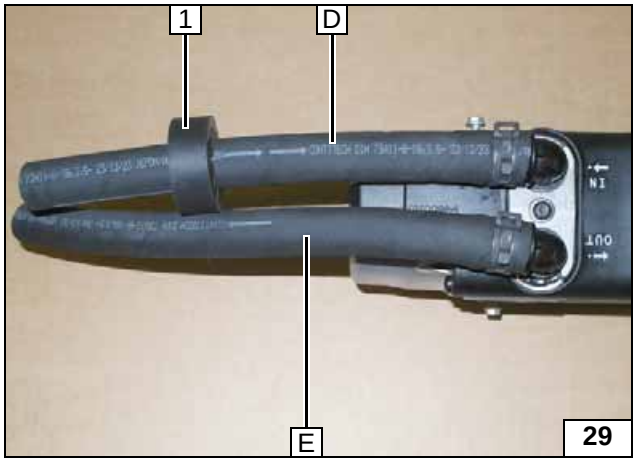
Cutting hoses to length



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

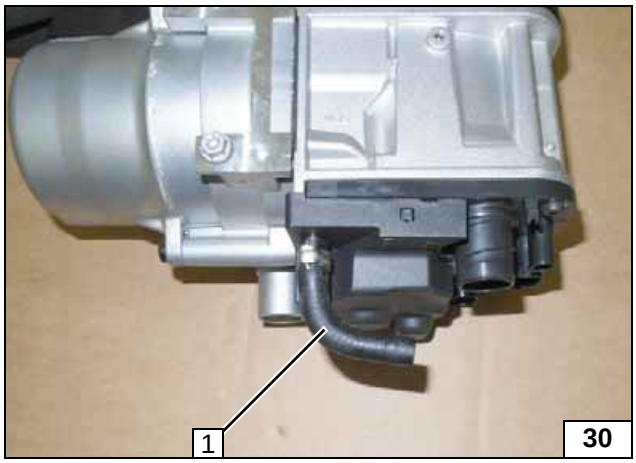
1 30 mm long heat shrink plastic tubing [8x]

Preparing hoses



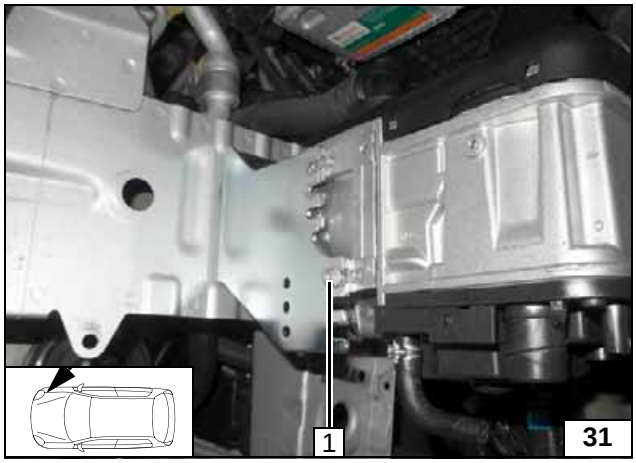
1 Black (sw) rubber isolator

Premounting hoses



1 90° moulded hose, 10 mm dia. clamp

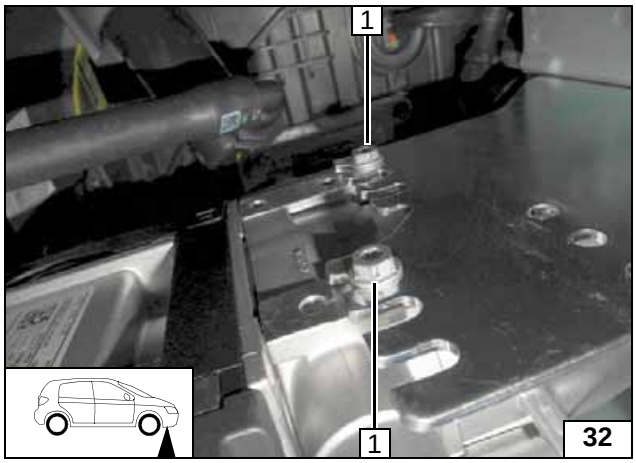
Premounting moulded hose



Installing Heater

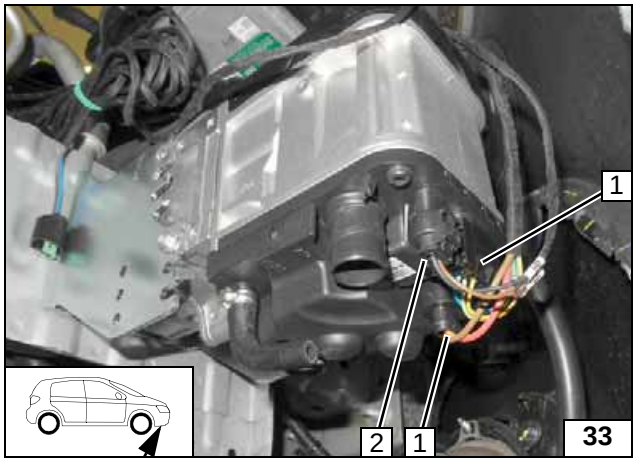
1 Tighten 5x13 self-tapping bolt

Mounting heater



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

Mounting heater



1 Connector for wiring harness of heater [2x]
2 Connector for wiring harness of circulating pump

Installing wiring harnesses

Fuel

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

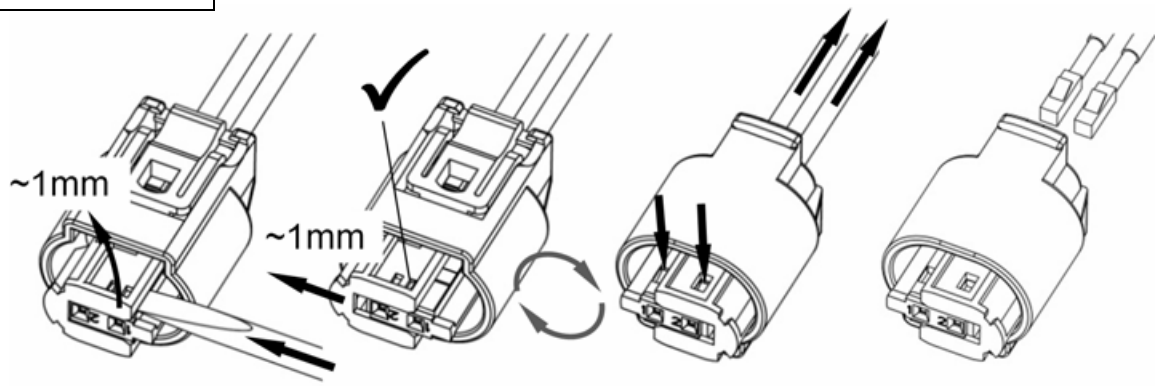
Catch any fuel running off with an appropriate container.

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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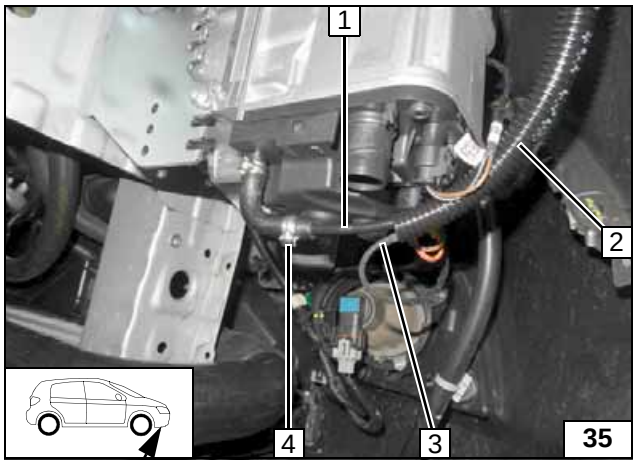

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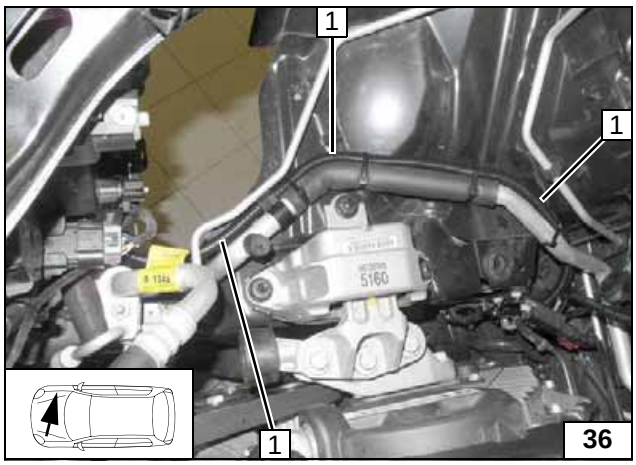
Connecting heater

Pull fuel line **1** and wiring harness of metering pump **3** into 2100mm long, 10mm dia. corrugated tube **2** and route it in the engine compartment.

4 10 mm dia. clamp



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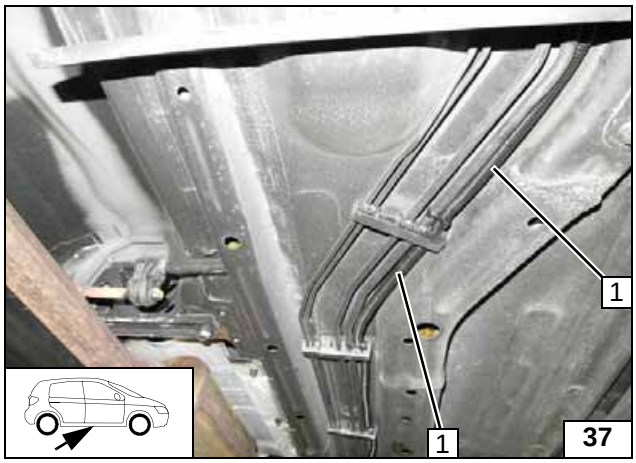
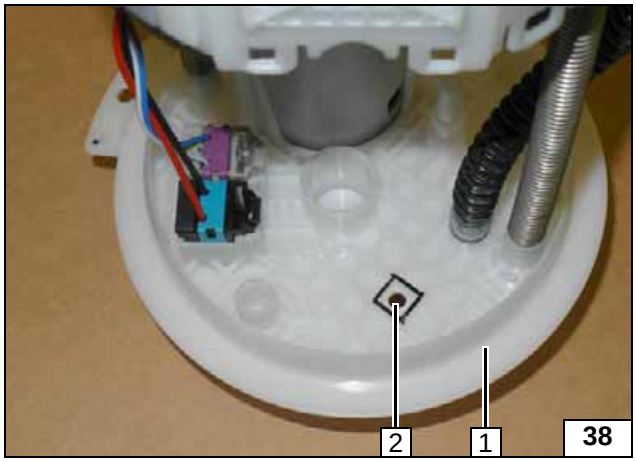
Routing lines

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



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

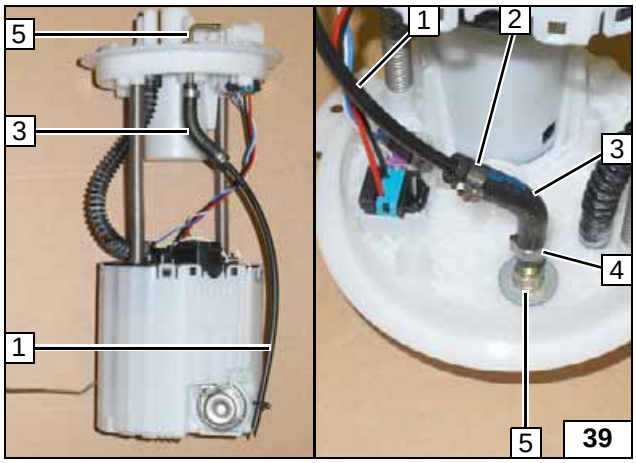


2 WD

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

2 6mm dia. hole centrally between the ribs

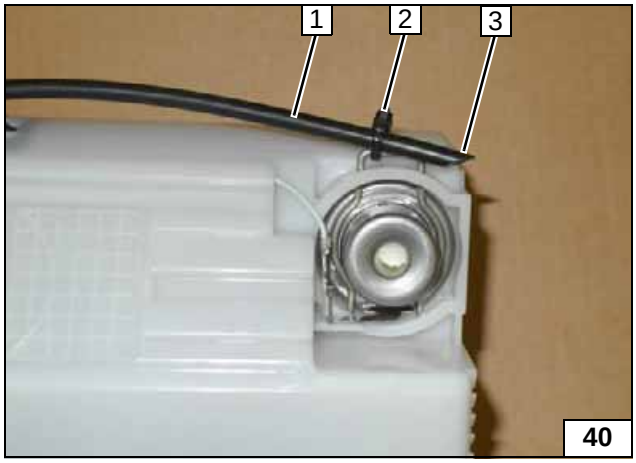
Fuel extraction



Insert a large diameter washer with outer dia. d_a = 21.6mm at position **5**.

1 Fuel line
2 10mm dia. clamp
3 90° moulded hose with inner dia. di = 3.5x4.5mm (side with inner dia. di = 3.5mm on fuel standpipe)
4 9 mm dia. clamp
5 Fuel standpipe, large diameter washer with outer dia. d_a = 21.6mm

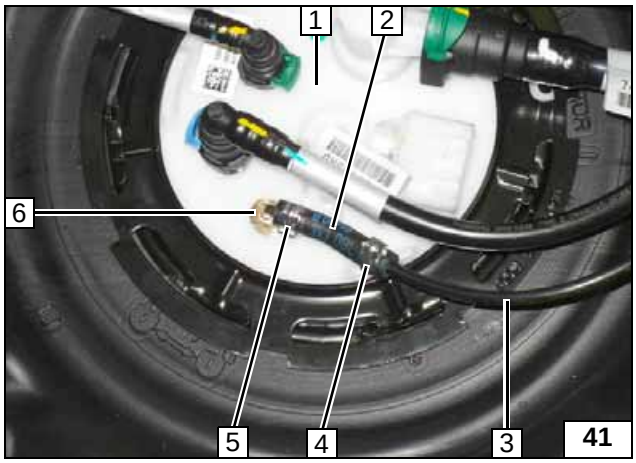
Installing fuel standpipe



Cut fuel line **1** obliquely to length at position **3** as shown.

2 Small cable tie on locking device

Fastening and cutting fuel line to length



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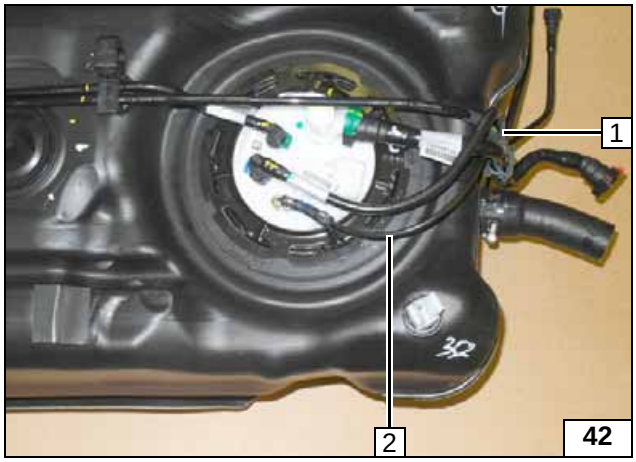
Install fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 Hose section with inner dia. di = 3.5x4.5mm (side with inner dia. di = 3.5mm on fuel standpipe)
3 Fuel line of fuel standpipe
4 10mm dia. clamp
5 9 mm dia. clamp

Connecting fuel line



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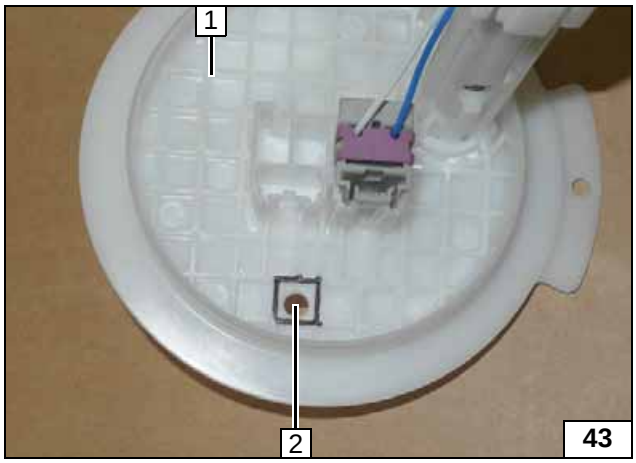
Route fuel line of fuel standpipe **2** through original vehicle bracket **1**. Re-install fuel-tank according to manufacturer's instructions.

Routing fuel line



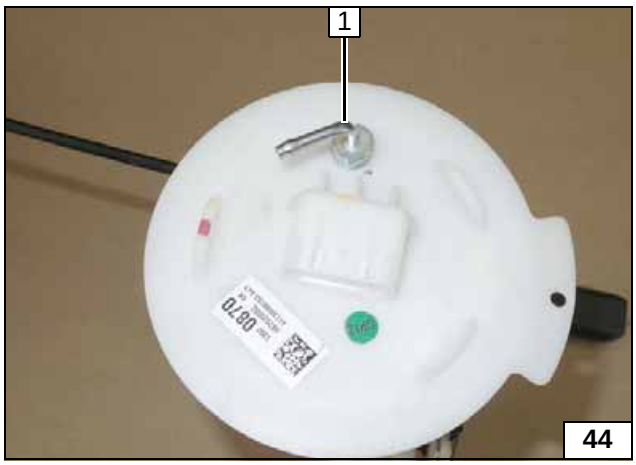
43

4 WD

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

2 6mm dia. hole centrally between the ribs

Fuel extraction

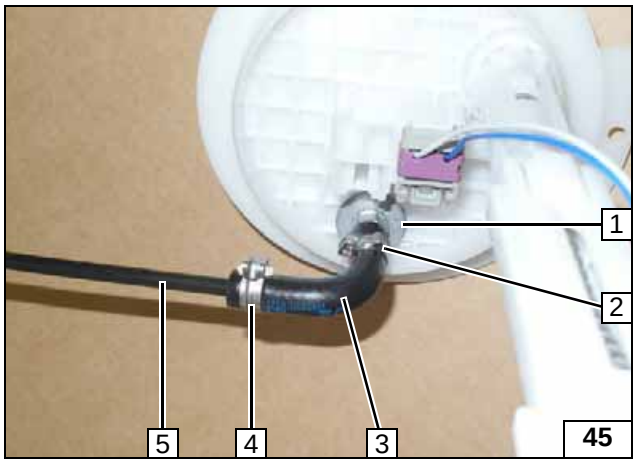


44

Insert large diameter washer, outer diameter d_a = 21.6mm, see image below.

1 Fuel standpipe

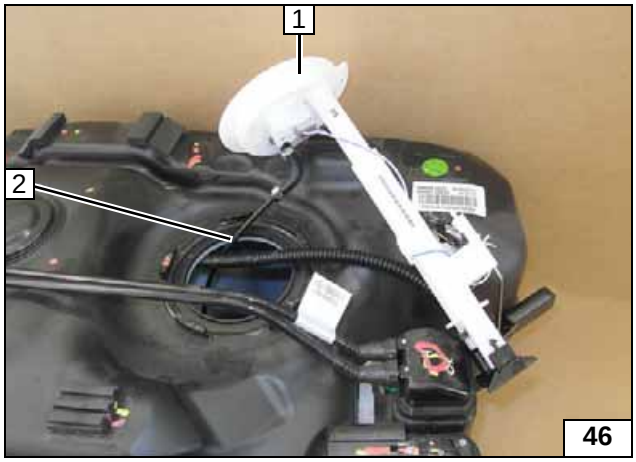
Installing fuel standpipe



Cut an end of approximately 1000mm from fuel line **5** and install.

1 Large diameter washer outer dia. d_a = 21.6mm
2 9 mm dia. clamp
3 90° moulded hose with inner dia. di = 3.5x4.5mm (side with inner dia. di = 3.5mm on fuel standpipe)
4 10mm dia. clamp

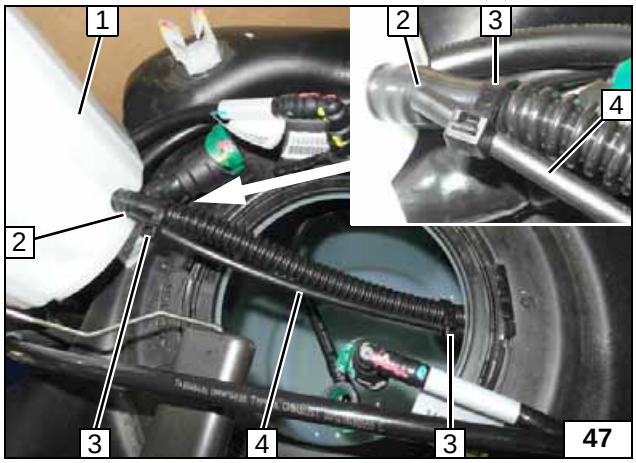
Installing fuel stand-pipe



Route fuel line **2** to the right-hand fuel-tank sending unit within the tank.

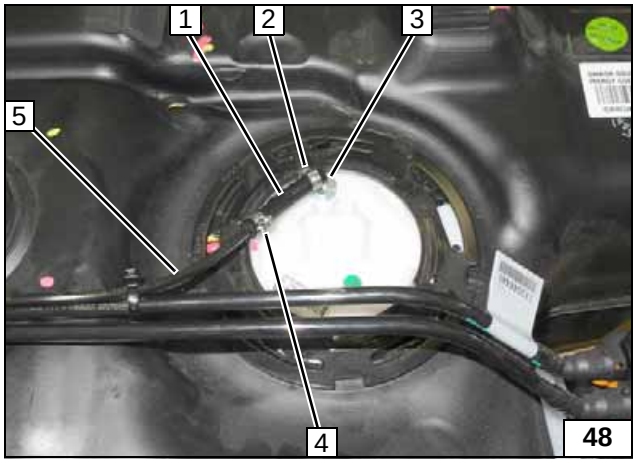
1 Install left-hand fuel-tank sending unit

Routing fuel line



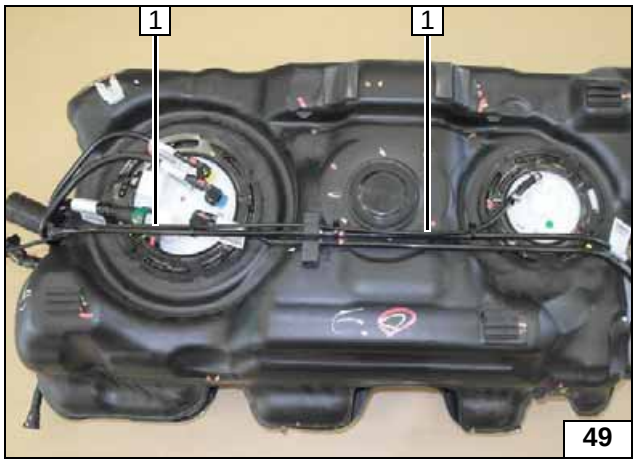
Remove right-hand fuel-tank sending unit **1** in accordance with manufacturer's instructions and put aside. Fasten fuel line **4** to original vehicle fuel line using cable tie **3** and cut to length at position **2**. After assembly, reinstall right-hand fuel-tank sending unit **1** in accordance with the manufacturer's instructions.

Routing fuel line



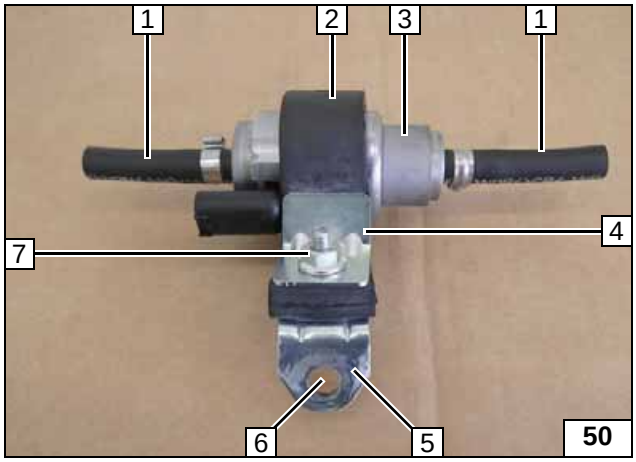
1 Hose section with inner dia. di = 3.5x4.5mm (side with inner dia. di = 3.5mm on fuel standpipe)
2 9 mm dia. clamp
3 Fuel standpipe
4 10mm dia. clamp
5 Fuel line of fuel standpipe

Connecting fuel line



Fasten fuel line of fuel standpipe **1** with cable tie to original vehicle fuel line. Re-install fuel-tank according to manufacturer's instructions.

Routing fuel line

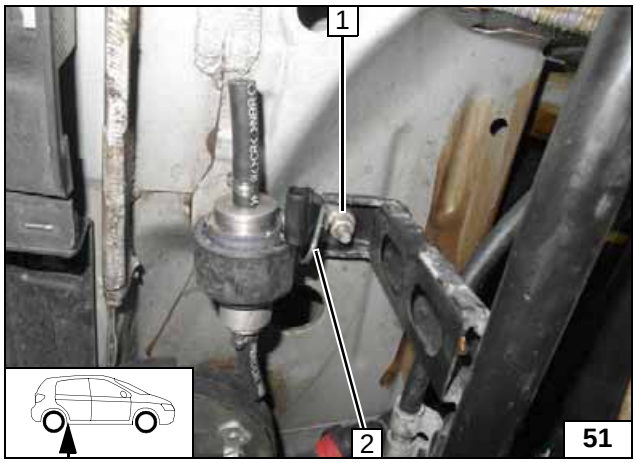


All vehicles

Drill out angle bracket **5** to 8.5 mm dia. at position **6** .

Premounting metering pump

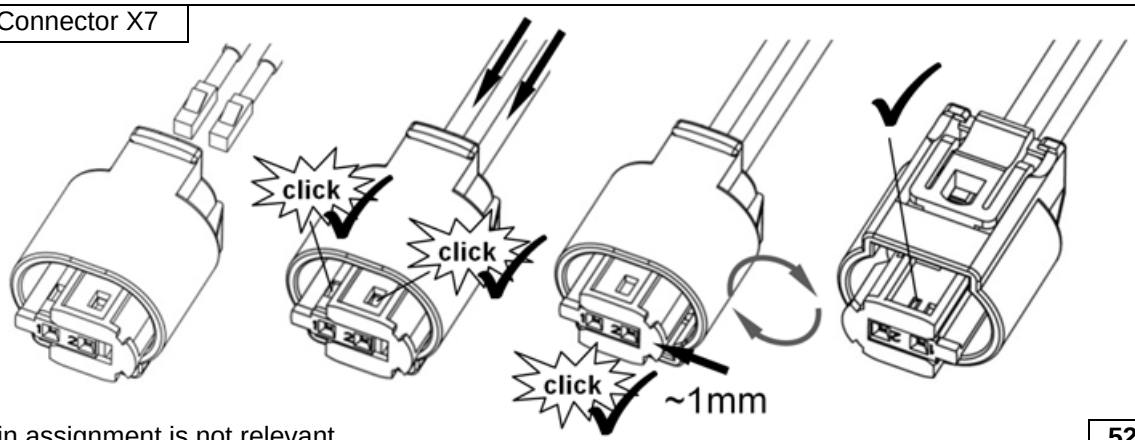
1 Hose section, 10 mm dia. clamp [2x each]
2 Mounting of metering pump
3 Metering pump
4 Support angle bracket
7 M6x25 bolt, flanged nut



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

Mounting metering pump

Connector X7



Pin assignment is not relevant.

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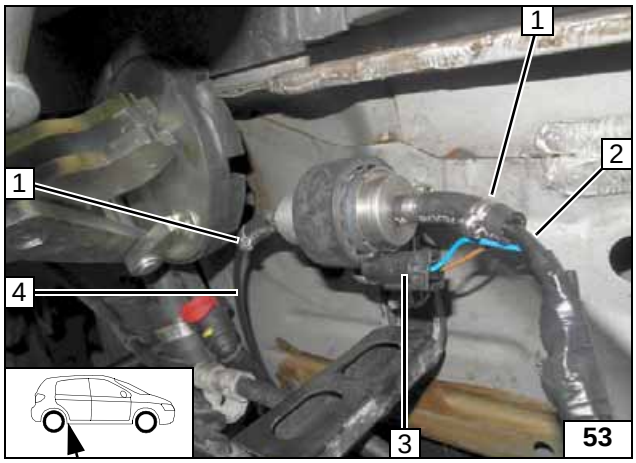
Completing metering pump connector



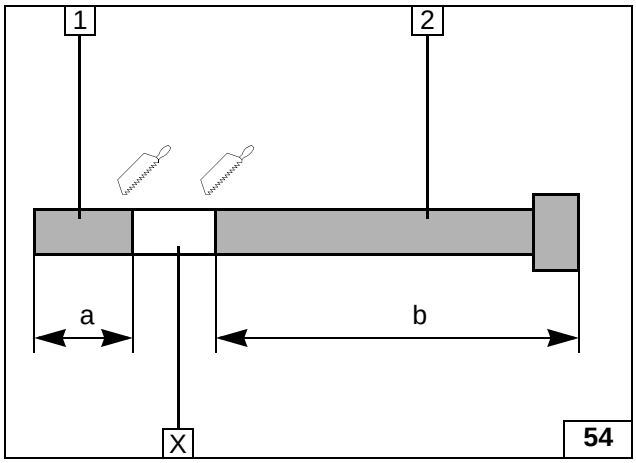
Ensure sufficient distance from adjacent components and freedom of movement; correct if necessary.

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

Connecting metering pump

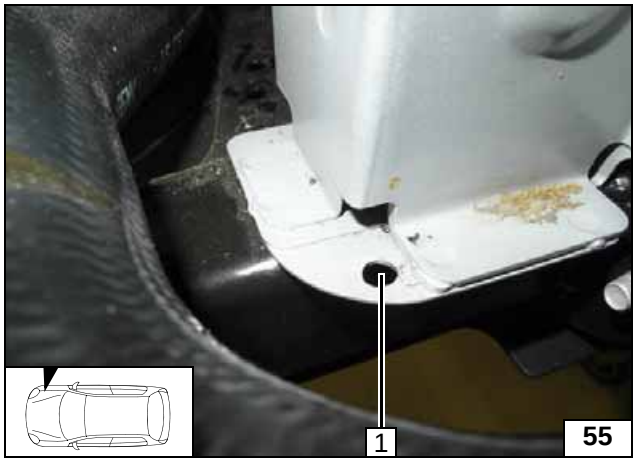
Exhaust Gas

Discard section **X**.



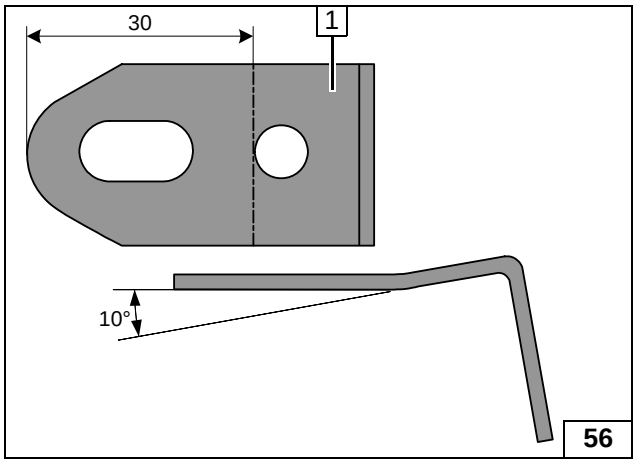
1 Exhaust pipe
a = 85
2 Exhaust end section
b = 400

Preparing exhaust pipe



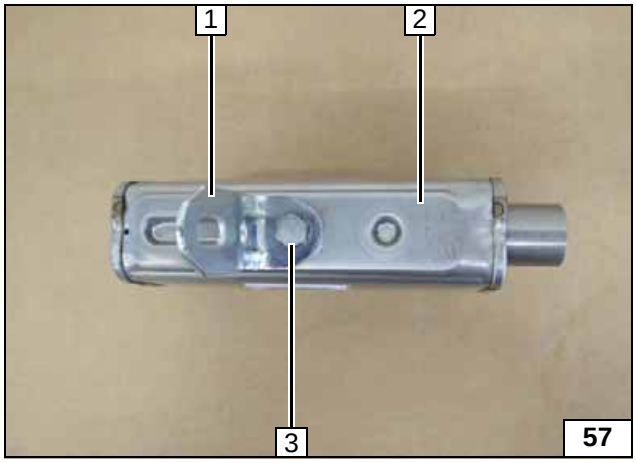
1 7 mm dia. hole as shown

Drilling hole in cross member



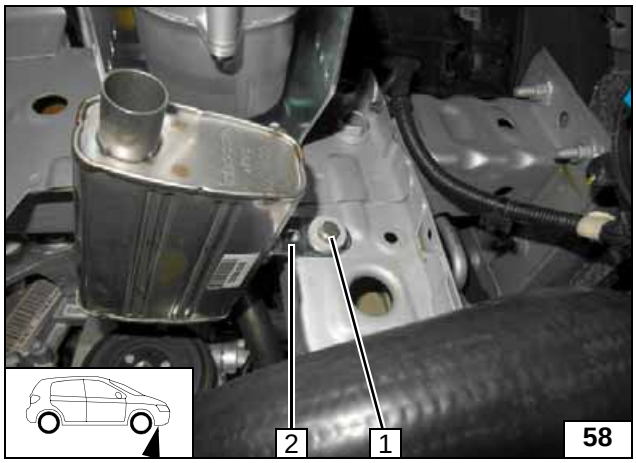
1 Angle bracket

Preparing angle bracket



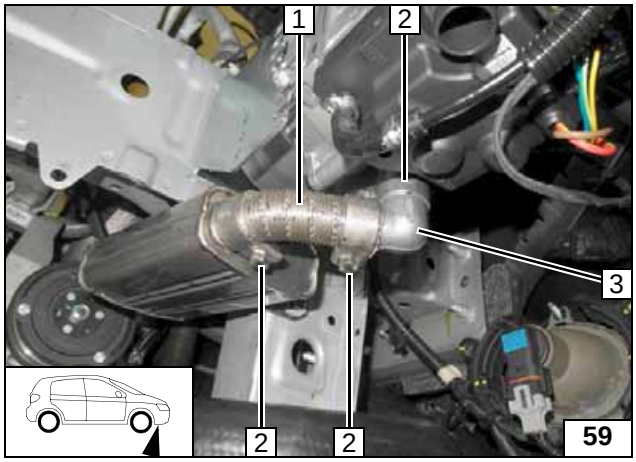
1 Angle bracket
2 Silencer
3 M6x16 bolt, spring lockwasher

Premounting silencer



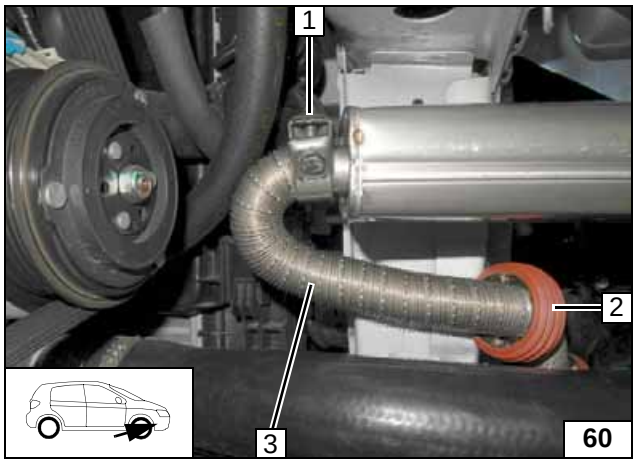
1 M6x20 bolt, spring lockwasher, large diameter washer, rivet nut
2 Angle bracket

Installing silencer



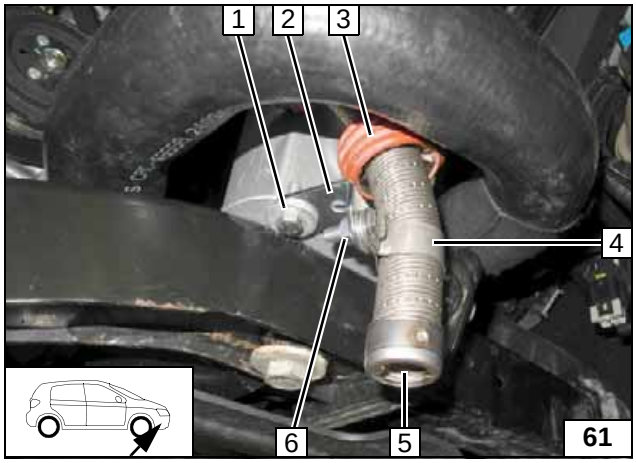
1 Exhaust pipe
2 Hose clamp [3x]
3 Exhaust elbow

Mounting exhaust pipe



1 Hose clamp
2 Slide on spacer bracket, align with original vehicle hose
3 Exhaust end section

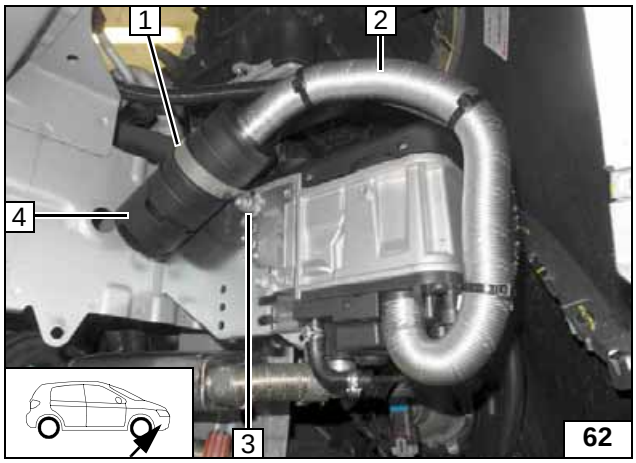
Mounting exhaust end section



Ensure sufficient distance (min. 20mm) from adjacent components and freedom of movement; correct if necessary.

1 M6x20 bolt, large diameter washer, flanged nut
2 Angle bracket
3 Align spacer bracket on original vehicle hose
4 P-clamp
5 Exhaust end section
6 M6x20 bolt, flanged nut

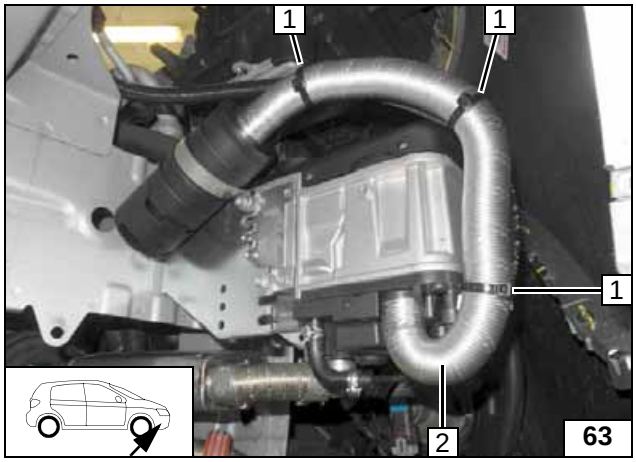
Fastening exhaust end section



Combustion Air

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

Mounting combustion air pipe



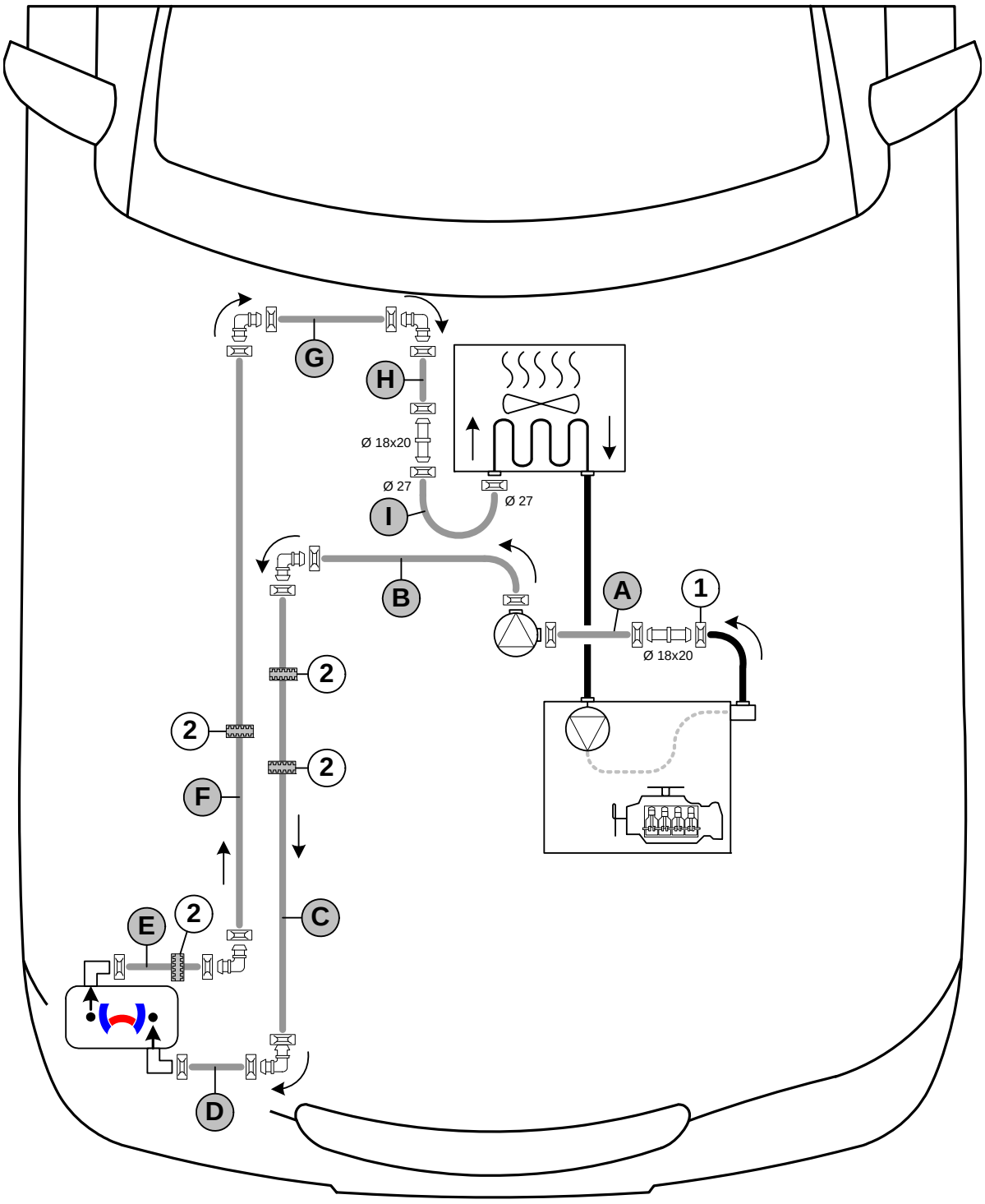
Fasten wiring harnesses to combustion air pipe **2** using cable ties **1**.

Mounting combustion air pipe

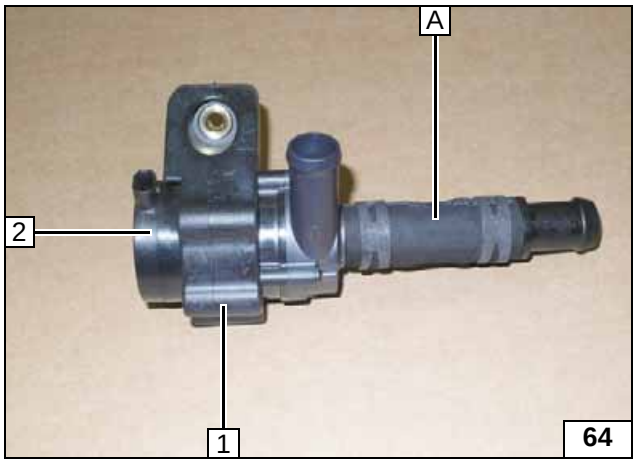
Coolant Circuit

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

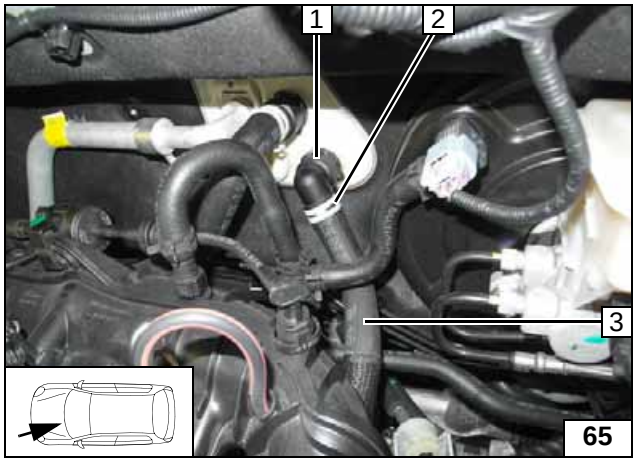


All spring clips without a specific designation = 25 mm dia.
1 = Original vehicle spring clip ! **2** = Black (sw) rubber isolator .
All connecting pipes = 18x18mm dia.



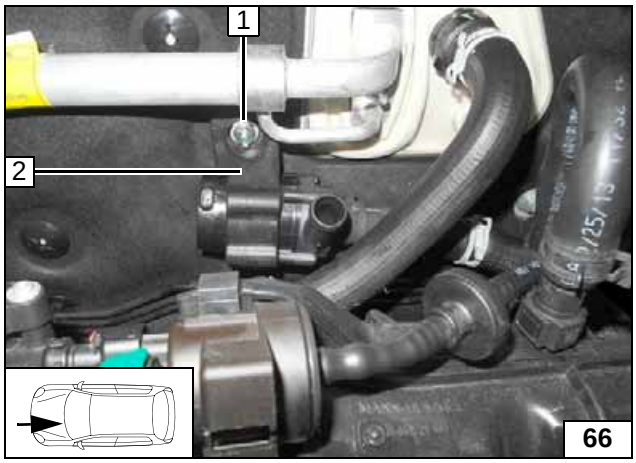
1 Mounting of circulating pump
2 Circulating pump

Premounting circulating pump



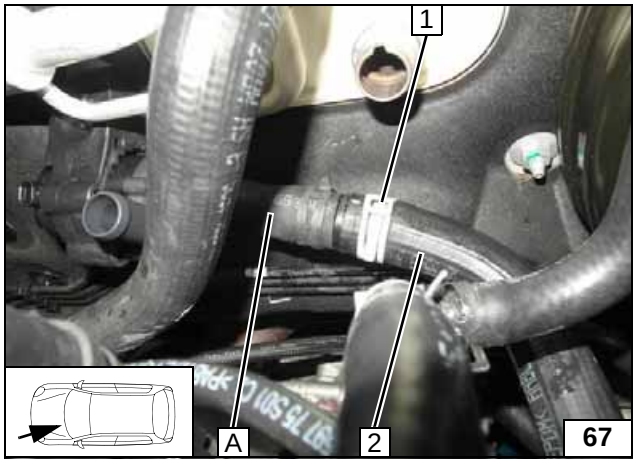
Undo quick-release coupling **1** from connection piece on the heat exchanger inlet. Remove hose on heat exchanger inlet **3** from quick-release coupling. Spring clip **2** will be reused.

Cutting point



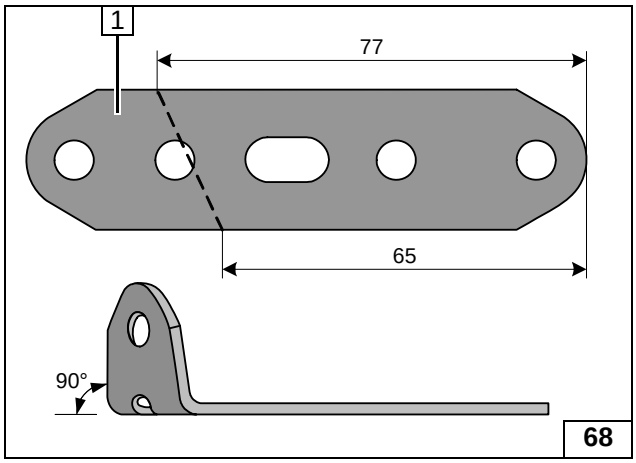
1 Original vehicle stud bolt, flanged nut
2 Mounting of circulating pump

Installing circulating pump



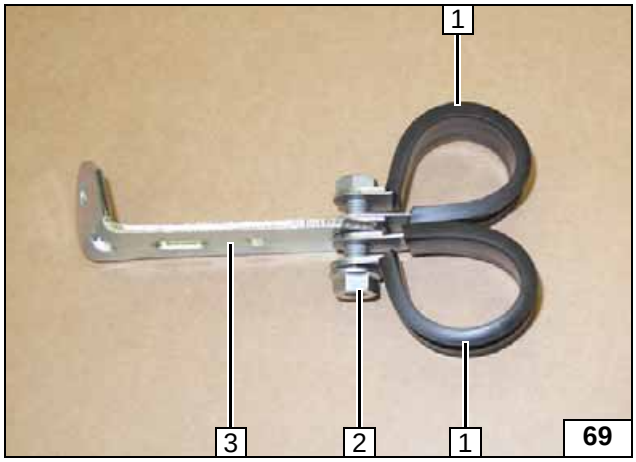
1 Original vehicle spring clip
2 Hose of engine outlet

Connecting engine outlet



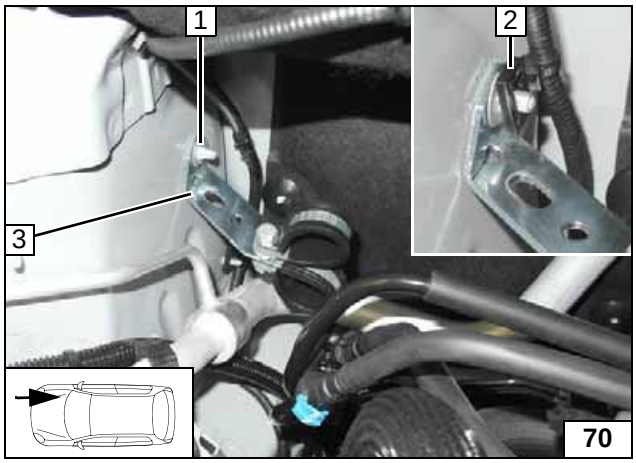
1 Perforated bracket

Preparing perforated bracket



1 Rubber-coated p-clamp, 25 mm dia. [2x]
2 Install loosely M6x25 bolt, flanged nut
3 Perforated bracket

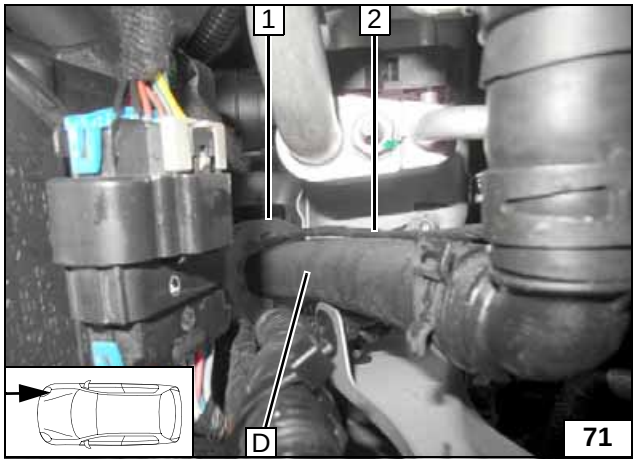
Premounting perforated bracket



Undo retaining clip **2** from original vehicle stud bolt, and reinstall after assembly.

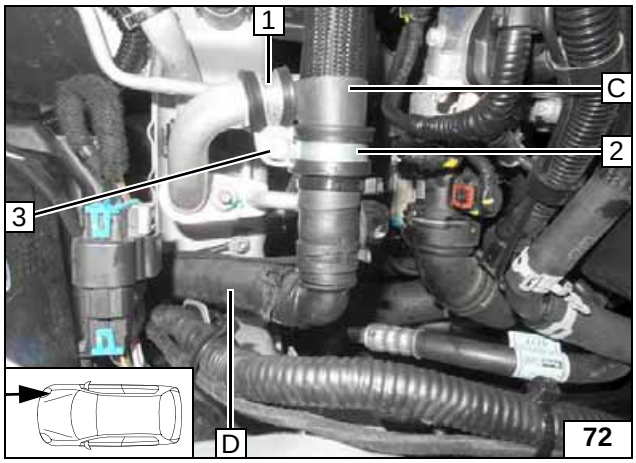
1 Original vehicle stud bolt, cap nut
3 Perforated bracket

Mounting perforated bracket



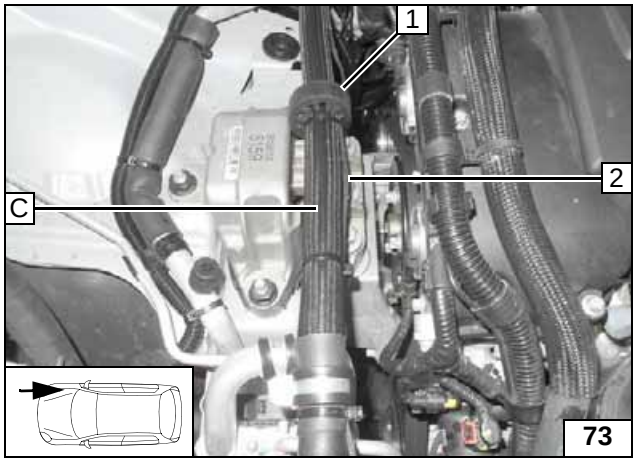
1 Position black (sw) rubber isolator
2 Wiring harness of circulating pump

Aligning rubber isolator



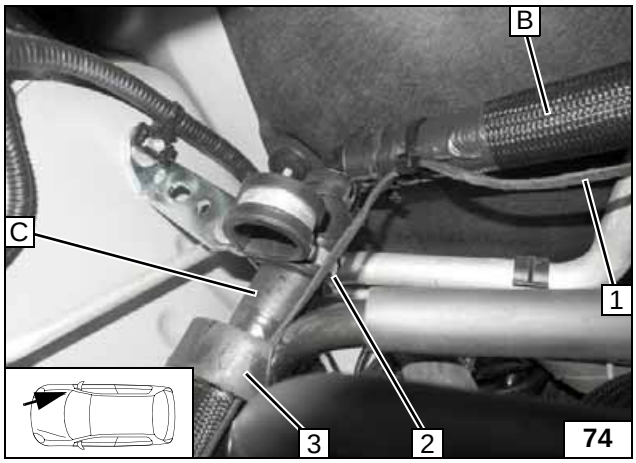
1 18 mm dia. rubber-coated p-clamp
2 25 mm dia. rubber-coated p-clamp
3 M6x25 bolt, flanged nut

Routing in engine compartment



1 Slide on and align black (sw) rubber isolator
2 Wiring harness of circulating pump

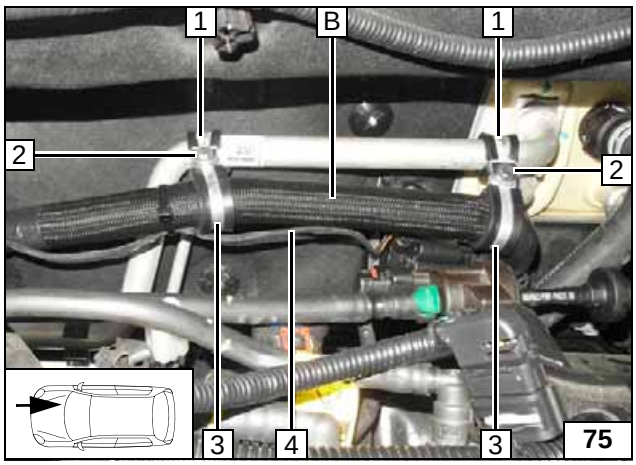
Routing in engine compartment



Route hose **C** through lower rubber coated p-clamp **2**.

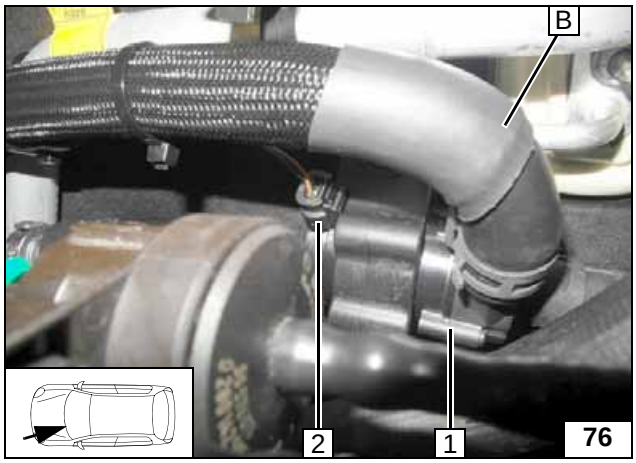
1 Wiring harness of circulating pump
3 Slide on and align black (sw) rubber isolator

Routing in engine compartment



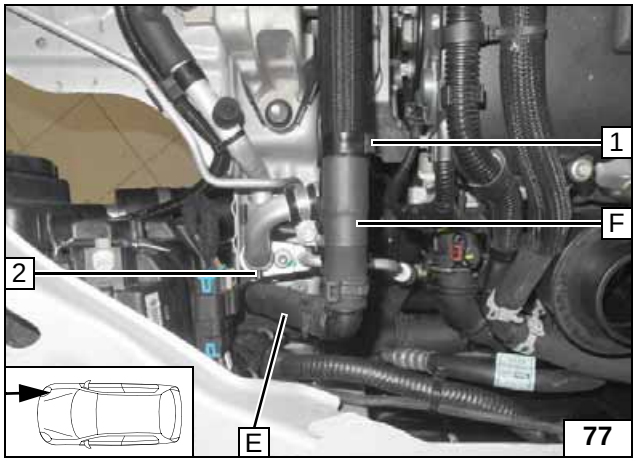
1 Rubber-coated p-clamp, 18mm dia. [2x]
2 M6x25 bolt, flanged nut [2x each]
3 Rubber-coated p-clamp, 25 mm dia. [2x]
4 Wiring harness of circulating pump

Routing in engine compartment



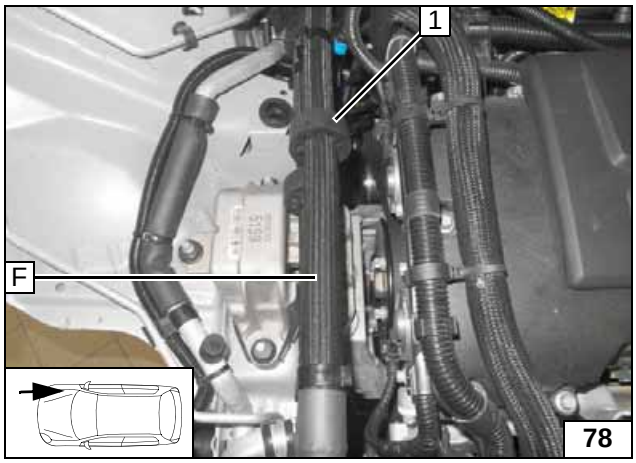
1 Circulating pump
2 Insert connector of circulating pump wiring harness

Connecting circulating pump



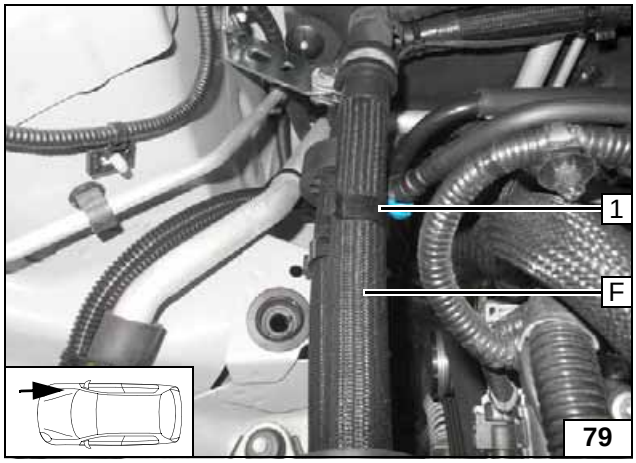
1 25x25mm hose bracket between hose **C** and hose **F**
2 Hose bracket 20x22 between A/C line and hose **E**

Routing in engine compartment



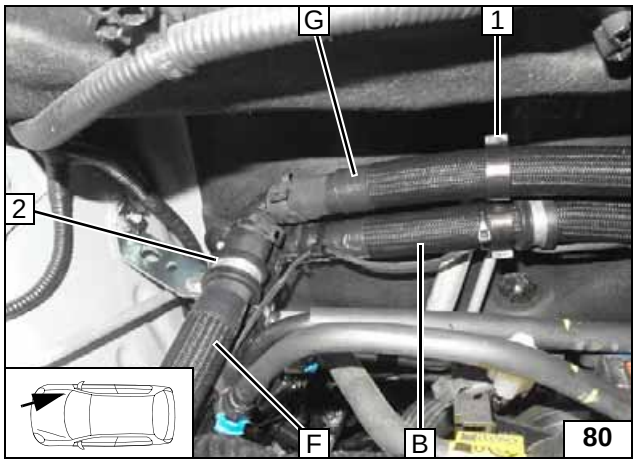
1 Slide on and align black (sw) rubber isolator

Routing in engine compartment



1 25x25mm hose bracket between hose **C** and hose **F**

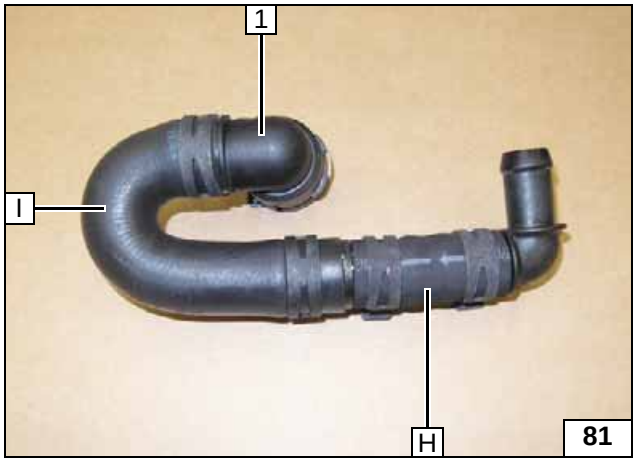
Routing in engine compartment



Route hose **F** through upper rubber coated p-clamp **2**.

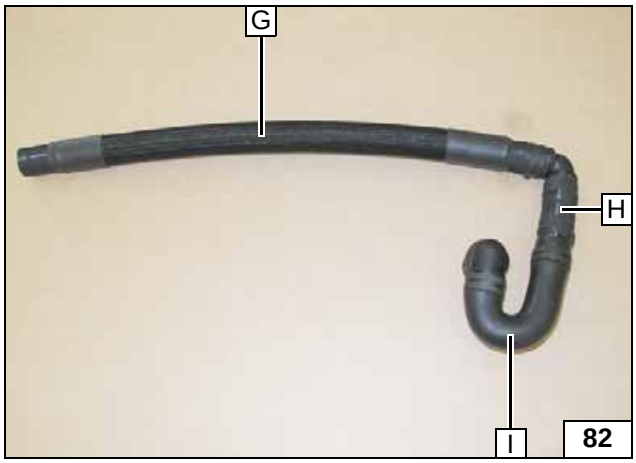
1 25x25mm hose bracket between hose **B** and hose **G**

Routing in engine compartment

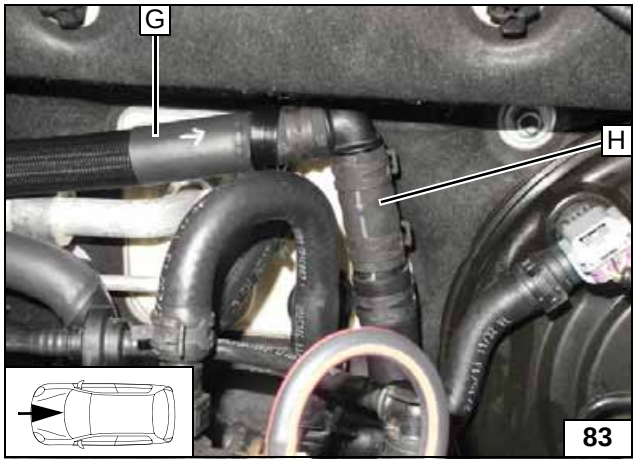


1 Coupling piece of heat exchanger inlet

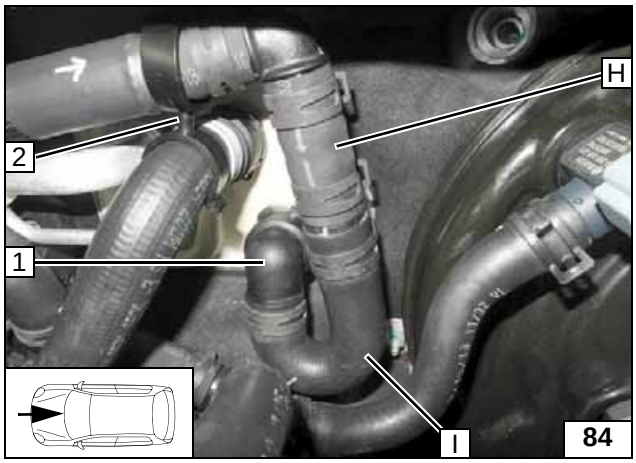
Premounting hoses



Premounting hoses

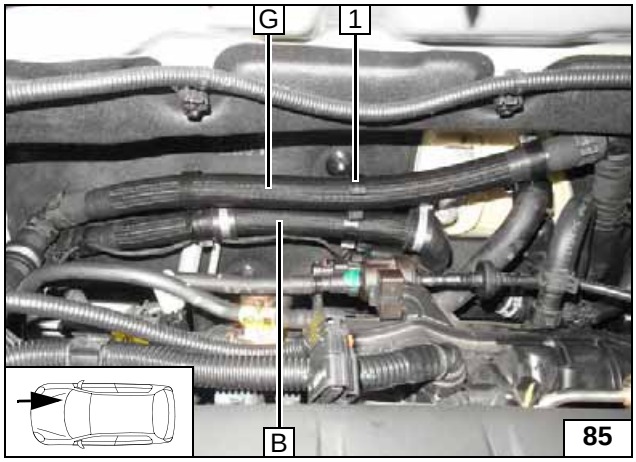


Routing in engine compartment



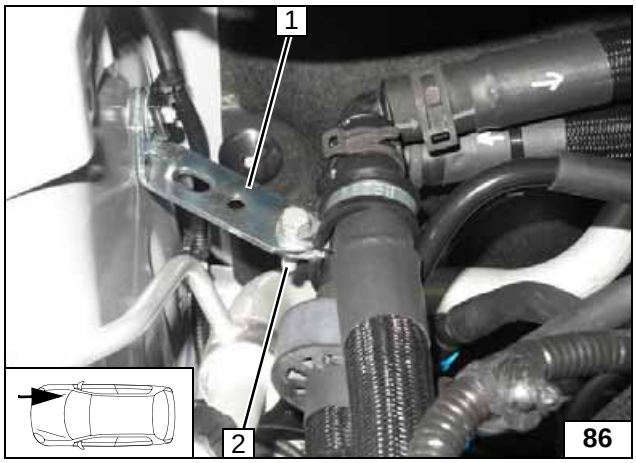
1 Coupling piece of heat exchanger inlet
2 25x25mm hose bracket between hose **G** and hose of heat exchanger outlet

Connecting heat exchanger inlet



1 25x25mm hose bracket between hose **B** and hose **G**

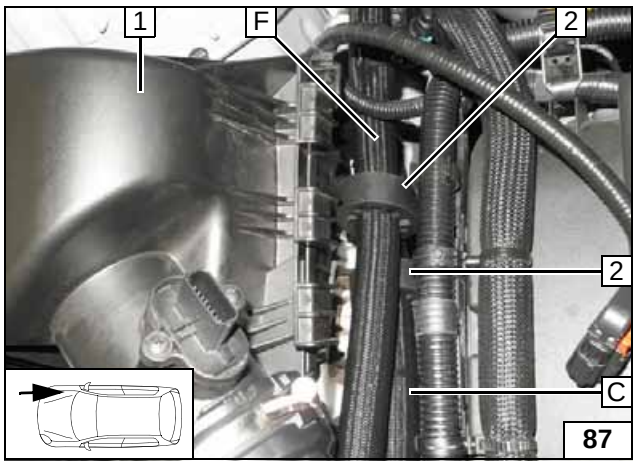
Installing hose bracket



Align hoses. Ensure sufficient distance from adjacent components and freedom of movement; correct if necessary.

1 Perforated bracket
2 M6x25 bolt, flanged nut

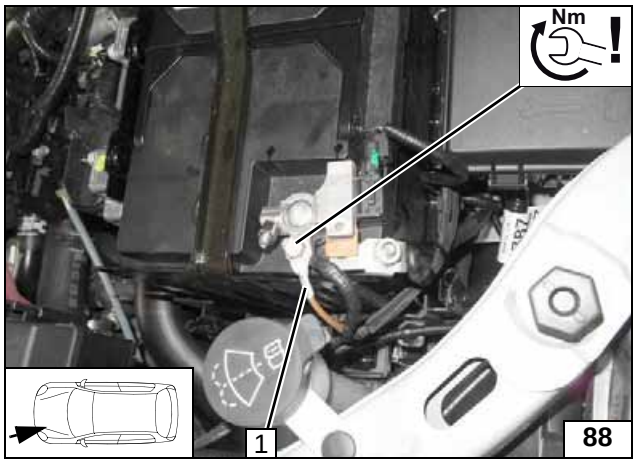
Tightening bolt connections



Align rubber isolator **2** [2x]. Ensure sufficient distance from adjacent components and freedom of movement; correct if necessary.

1 Air filter box installed

Aligning hoses



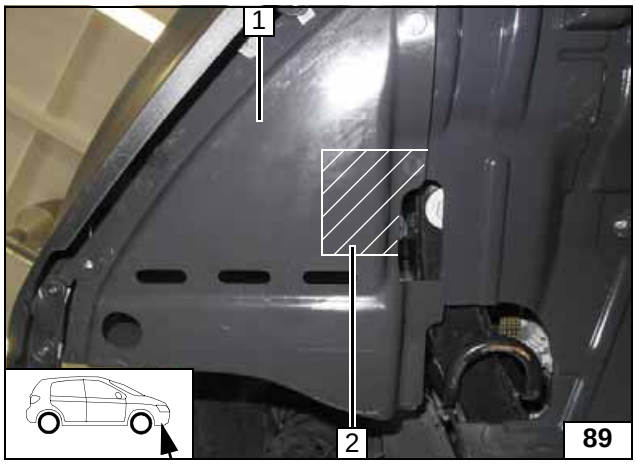
Final Work

1 Earth wire on original vehicle bolt of negative battery terminal

Connecting earth wire

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).

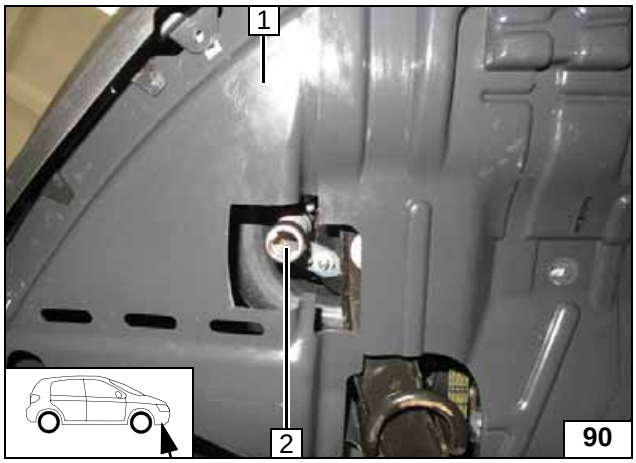
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Set the digital timer, teach Telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch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



Hold wheel well trim **1** in place, copy marking and cut out.

2 Discard section

Cutting out wheel well trim



Align exhaust end section **2** flush with wheel well trim **1**.

Aligning exhaust end section

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

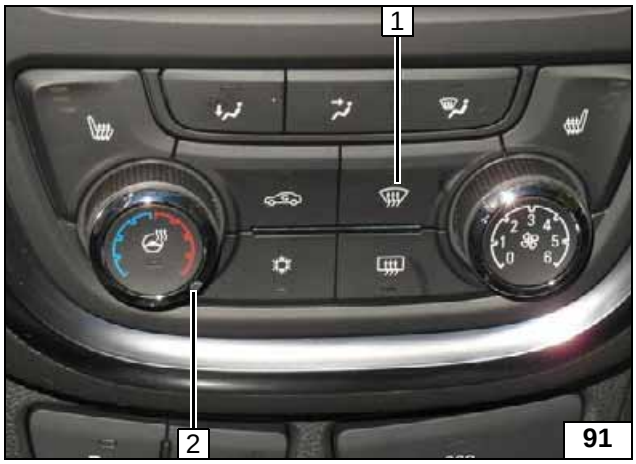
Operating Instructions for Manual Air-Conditioning

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.

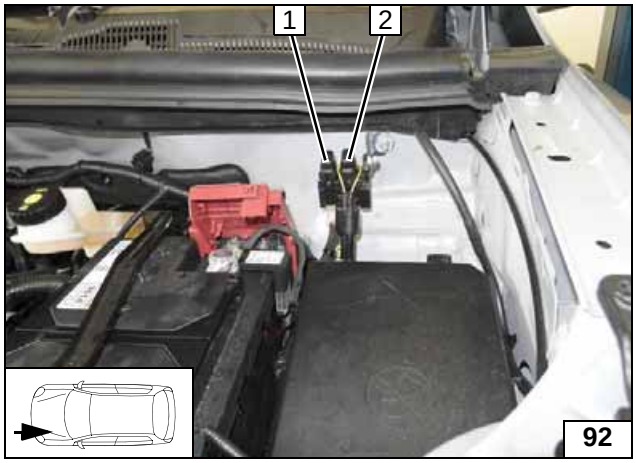
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

Before parking the vehicle, make the following settings:



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

A/C control panel



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

Engine compartment fuses

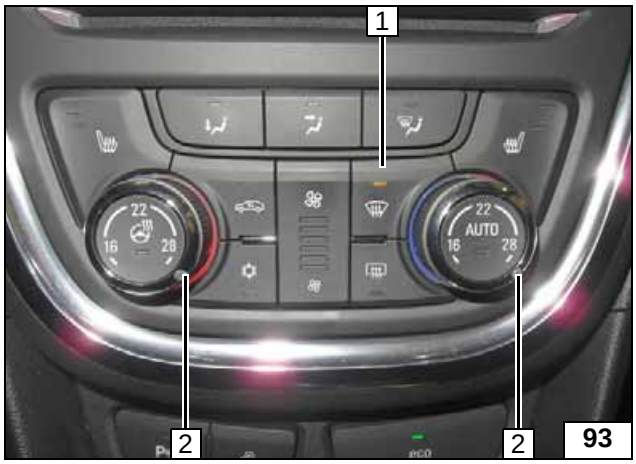
Operating Instructions for Automatic Air-Conditioning

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.

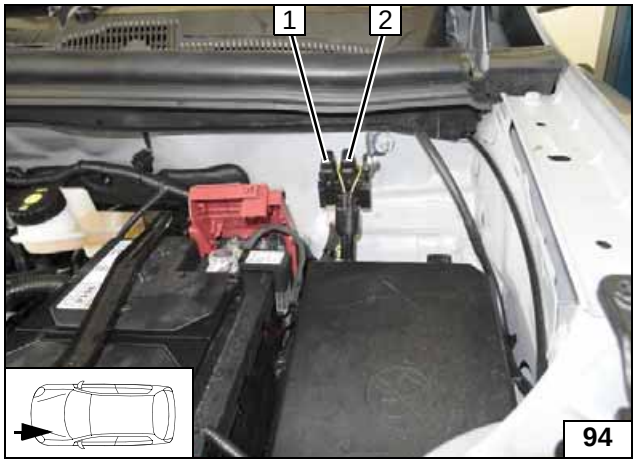
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

Before parking the vehicle, make the following settings:



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

A/C control panel



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

Engine compartment fuses