



Water Heater

Thermo Top Evo Parking Heater
'Island based circuit'



With FuelFix

Installation Documentation

BMW

2 Series Active Tourer / 2 Series Gran Tourer / X1

Validity

Manufacturer	Model	Type	EG BE No. / ABE
BMW	2 Series Active Tourer / Gran Tourer	UKL-L	e1 * 2007 / 46 * 0371 *...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm ³	Engine code
1.5 P	Petrol	6-speed SG	100	1499	B38B15
2.0 P	Petrol	AG	141	1998	B48B20
2.0 D	Diesel	AG	110	1995	B47D20

Manufacturer	Model	Type	EG BE No. / ABE
BMW	X1	UKL-L	e1 * 2007 / 46 * 0371 *...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm ³	Engine code
1.8 D	Diesel	SG	110	1995	
1.8 D	Diesel	AG	110	1995	
2.0 D	Diesel	SG	140	1995	
2.0 D	Diesel	AG	140	1995	

SG = manual transmission
AG = automatic transmission

From model year 2015
Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning
Multi-zone automatic air-conditioning (2 zones)
Front fog lights
LED main headlights
LED daytime running lights
2 WD
4 WD

Total installation time: approx. 6.5 hours without A/C control
approx. 8.0 hours with A/C control 'Standard'
approx. 8.5 hours with A/C control 'Comfort'

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Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit with FuelFix BMW 2 Series Active Tourer / 2 Series Gran Tourer / X1 2015 Petrol and diesel: **1324379B**
- Additional kit A/C control 'Standard': **1324389_**
or
Additional kit air-conditioning control 'Comfort': **1324388_**
- Heater control in accordance with price list and upon consultation with end customer
- The installation location should be confirmed with the end customer in case of MultiControl.
- In case of Telestart, indicator lamp in accordance with price list and installation location in consultation with end customer
- Only in case of BMW X1: 6x plastic rivets for wheel well trim, BMW No.: **07 14 7 293 278**

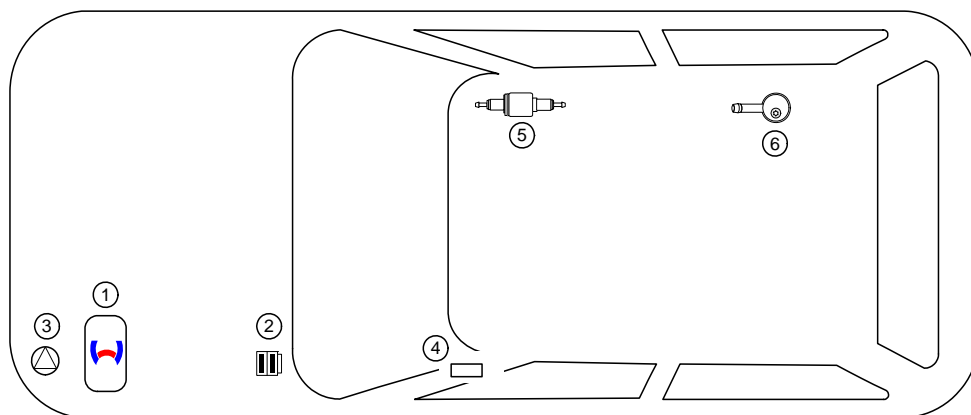
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button in case of Telestart or Thermo Call should be confirmed with the end customer.
- Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.
- We recommend to adapt a Thermo Top Evo 4.

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Circulating pump
4. Telestart or ThermoCall receiver
5. Metering pump
6. FuelFix



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair



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



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



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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components have to audibly click into place during installation.

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

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.

Information on Validity

This installation documentation applies to BMW 2 Series Active Tourer / 2 Series Gran Tourer / X1 Petrol and diesel vehicles - for validity, see page 1 - from model year 2015 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this 'installation documentation'.

Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

Technical Information

Special Tools

- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

Dimensions

- All dimensions are in mm.
















Tightening torque values

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

Explanatory Notes on Document

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

Special features are highlighted using the following symbols:

Mechanical System		Specific risk of damage to components.	
Electrical System		Specific risk due to electrical voltage.	
Coolant Circuit		Specific risk of injury or fatal accidents.	
Combustion Air		Specific risk of fire or explosion.	
Fuel		Reference to the manufacturer's vehicle-specific documents or to the general installation instructions of Webasto components.	
Exhaust Gas		Reference to a special technical feature.	
Software		The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.	
		Tightening torque according to the manufacturer's vehicle-specific documents.	

Preliminary Work

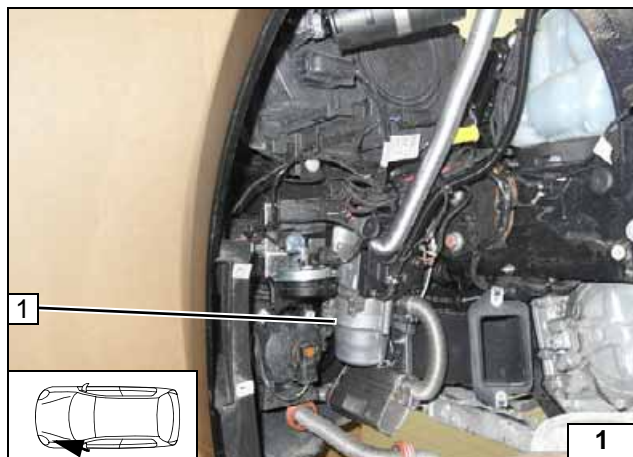
Vehicle



- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Remove the air filter completely, together with the intake hose.
- Remove the windscreen wiper.
- Remove the coolant reservoir cap.
- Remove the lower engine cover.
- Remove the left front wheel.
- Remove the wheel well trim on the left-hand side.
- Remove the underride protection on the right.
- Remove the rear bench seat on the right.
- Open the right-hand tank-fitting service lid.

Heater

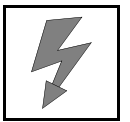
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

- 1 Heater

Installation location

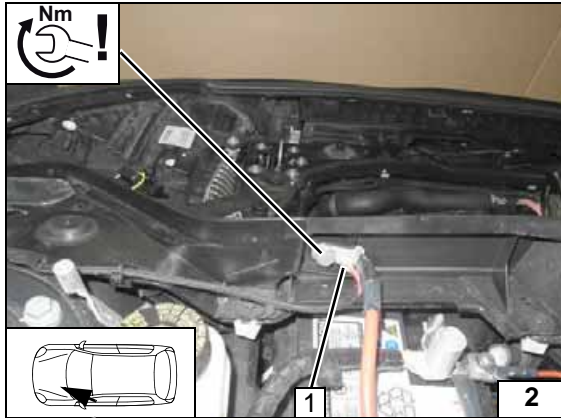


Electrical System of 2 Series Active Tourer / Gran Tourer



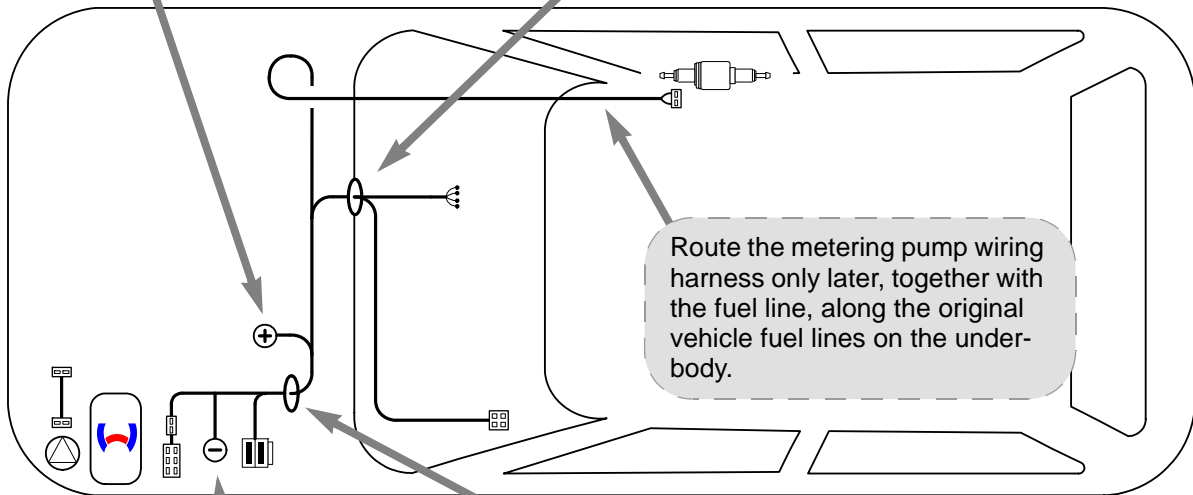
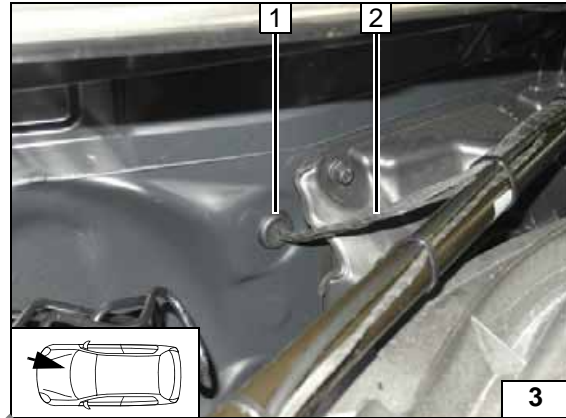
Positive wire

- 1 Positive wire on original vehicle positive support point

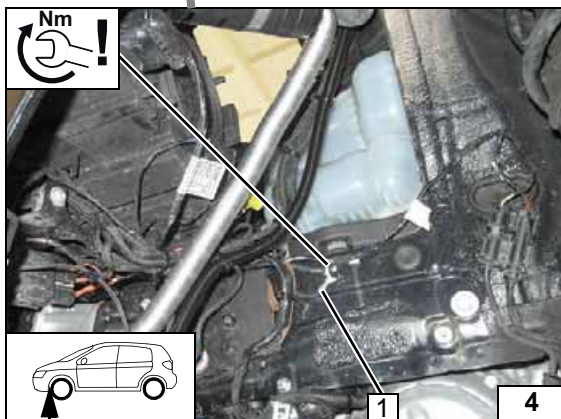


Wiring harness pass through of passenger compartment

- 1 Protective rubber plug
- 2 Wiring harnesses of heater, heater control

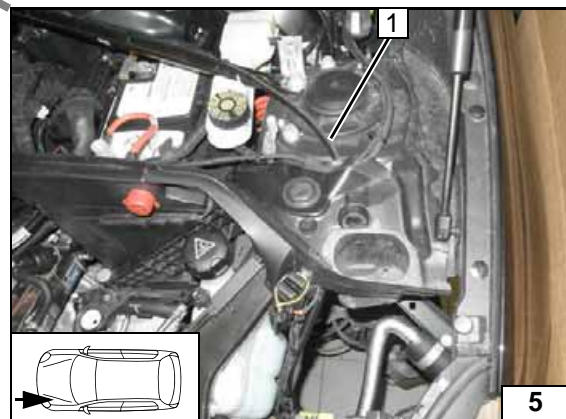


Wiring harness routing diagram



Earth wire

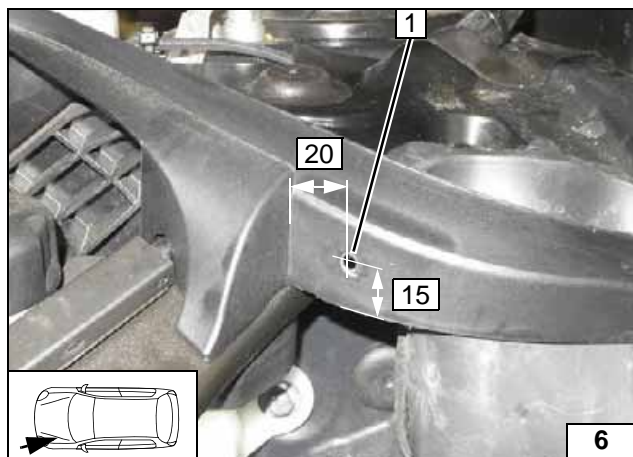
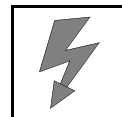
- 1 Earth wire on original vehicle earth support point



Coolant reservoir wiring harness pass through

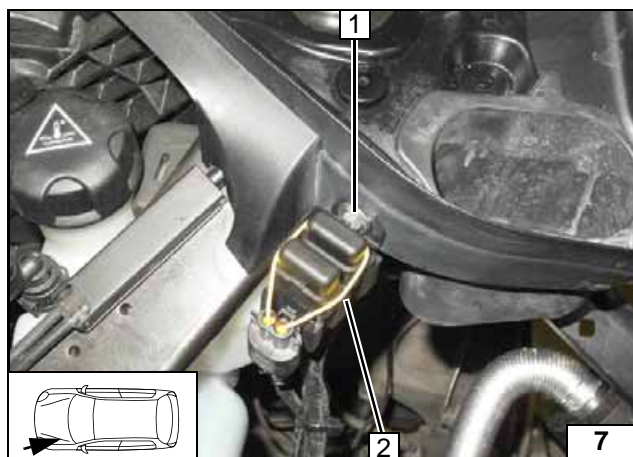
- 1 Route wiring harness of fan controller and heater control along original vehicle wiring harness in the coolant reservoir





1 6 mm dia. hole

Hole for engine compartment fuse holder



Replace 30A fuse F2 with 3A fuse.



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

Installing fuse holder of engine compartment

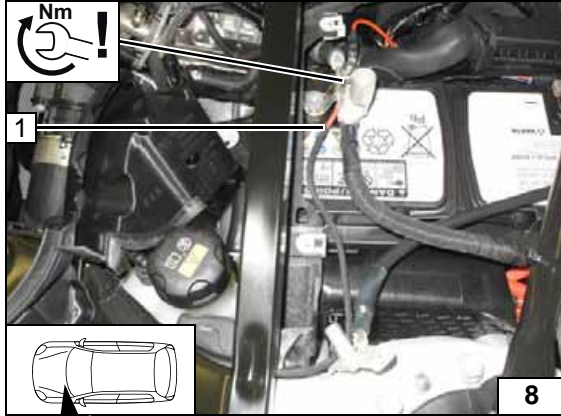


Electrical System of X1



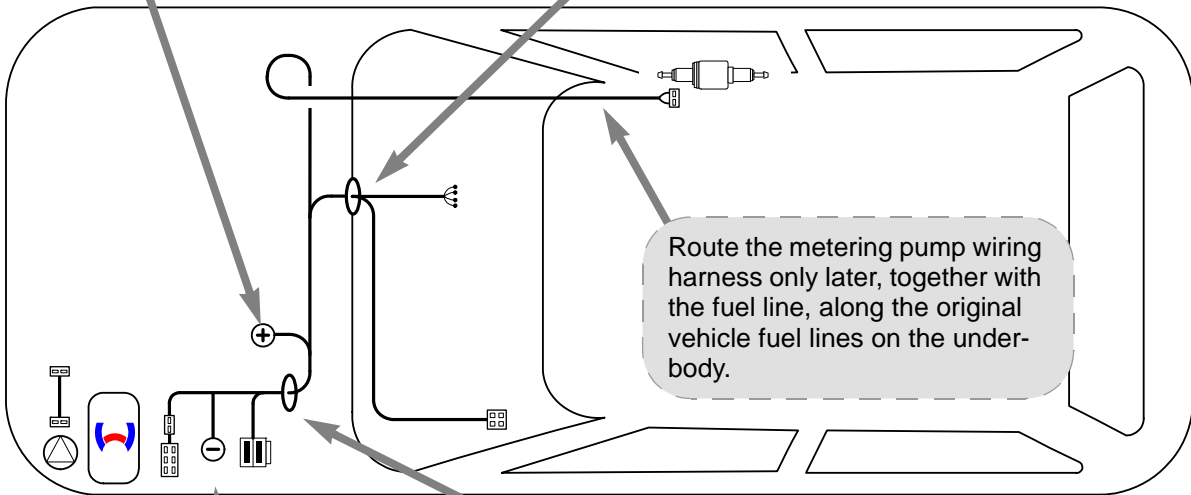
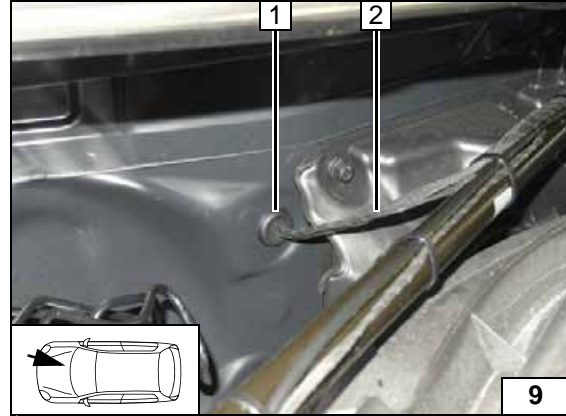
Positive wire

- 1 Positive wire on original vehicle positive support point

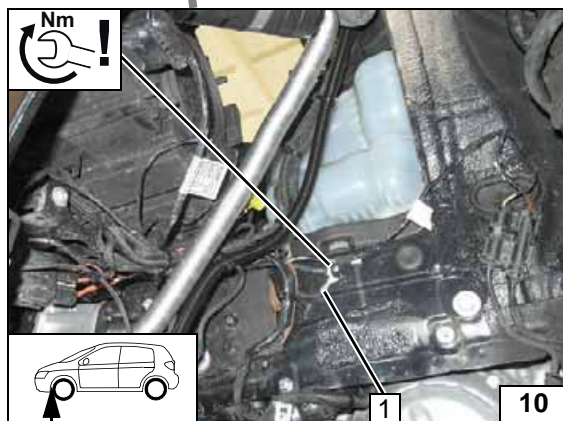


Wiring harness pass through of passenger compartment

- 1 Protective rubber plug
- 2 Wiring harnesses of heater, heater control

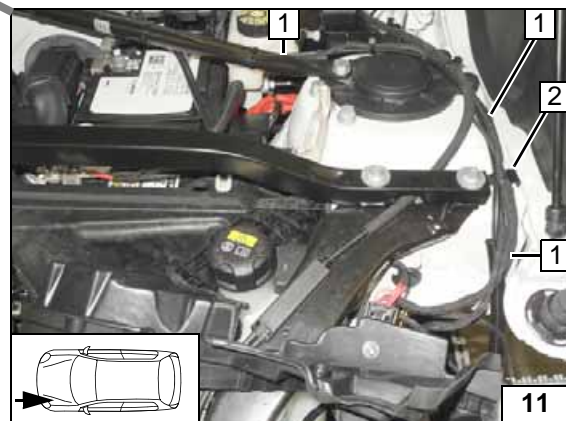


Wiring harness routing diagram



Earth wire

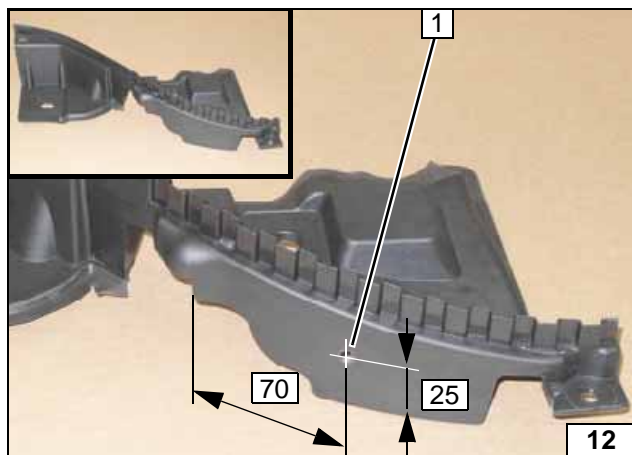
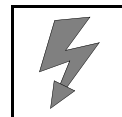
- 1 Earth wire on original vehicle earth support point



Coolant reservoir wiring harness pass through

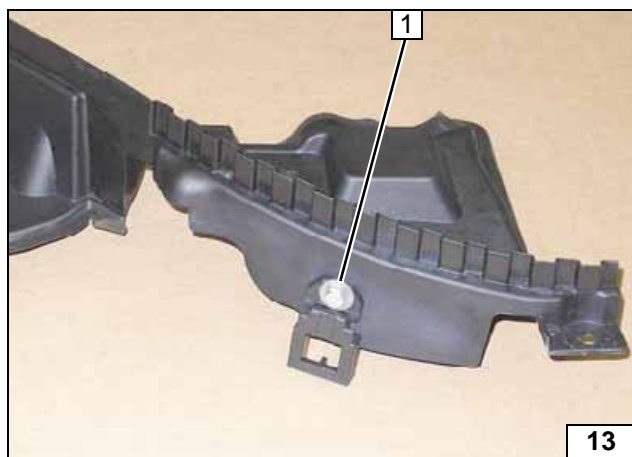
- 1 Route wiring harness of fan controller and heater control along original vehicle wiring harness in the coolant reservoir
- 2 Edge clip cable tie





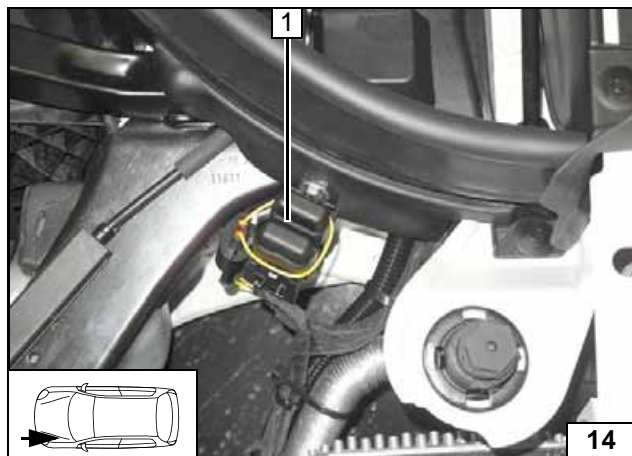
1 6 mm dia. hole

Hole in coolant reservoir cap for engine compartment fuse holder



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

Installing retaining plate of engine compartment fuse holder



Replace 30A fuse F2 with 3A fuse.

1 Fuses F1, F2 and assembled bracket



Installing fuse holder of engine compartment



Air-Conditioning Control for All Vehicles

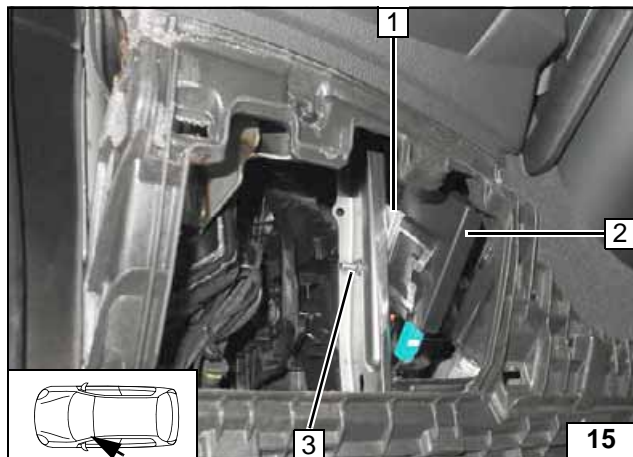


Connect the A/C control in accordance with the separate installation documentation:

Installation documentation of air-conditioning control AAC for BMW 2 Series Active/Gran Tourer / X1: **'Standard'**

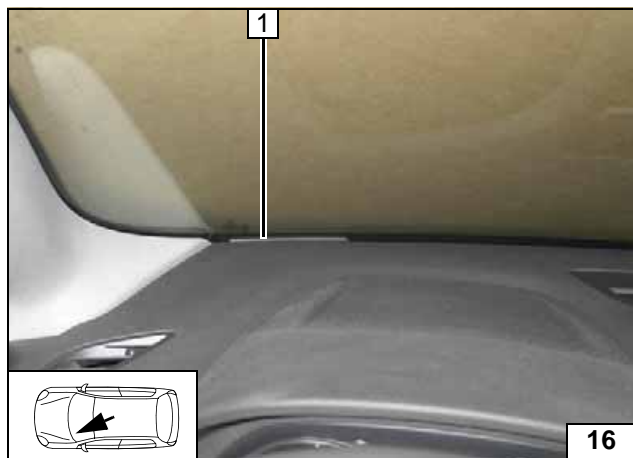
or

Installation documentation of air-conditioning control AAC for BMW 2 Series Active/Gran Tourer / X1: **'Comfort'**

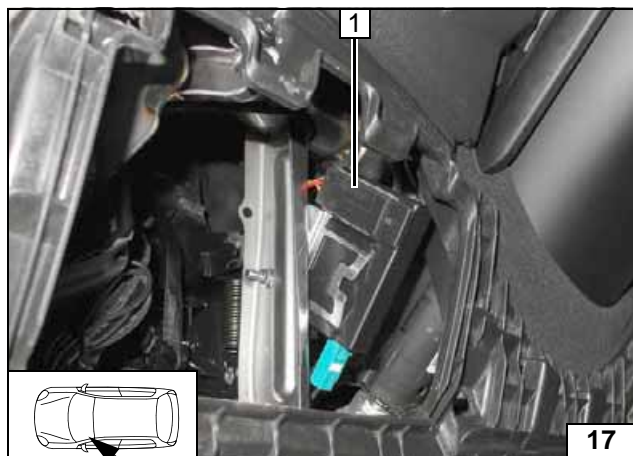


Remote Option (Telestart)

- 1 Receiver bracket
- 2 Receiver
- 3 M5x16 bolt, large diameter washer, original vehicle hole, flanged nut



- 1 Aerial



Temperature sensor T100 HTM

Fasten temperature sensor 1 with double-sided adhesive tape.

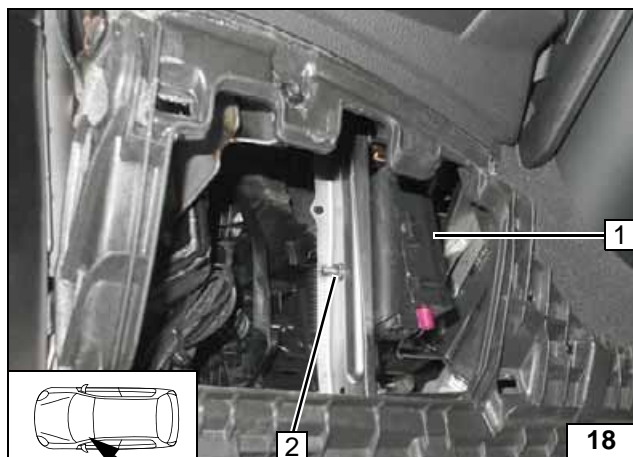
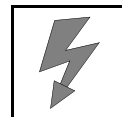


Installing receiver

Installing aerial



Installing temperature sensor

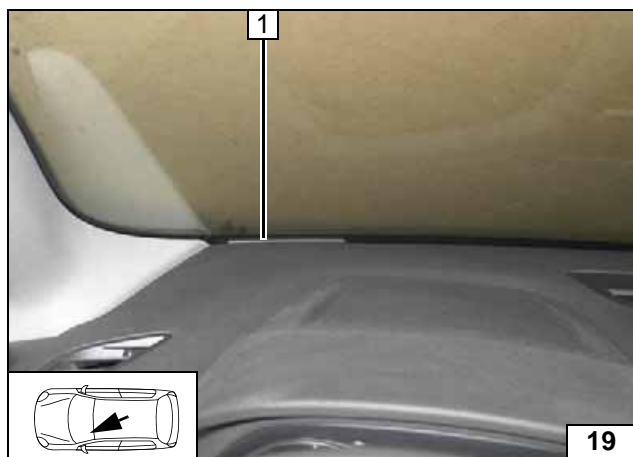


ThermoCall Option

- 1 Receiver
- 2 M5x16 bolt, large diameter washer, original vehicle hole, flanged nut

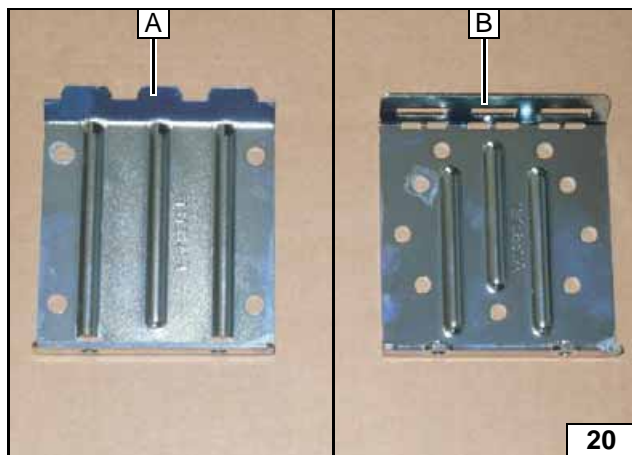


Installing receiver



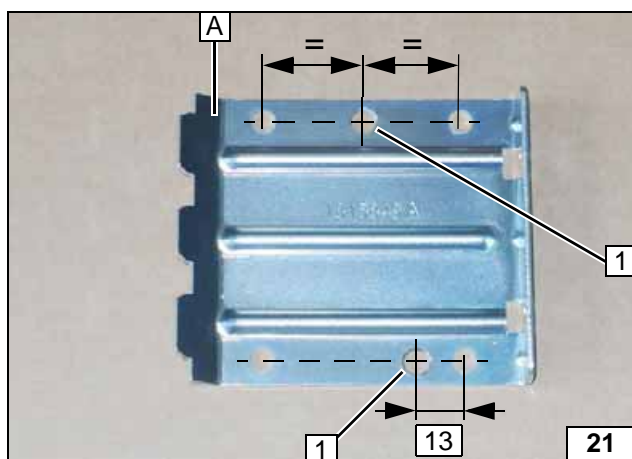
- 1 Aerial (optional)

Installing aerial



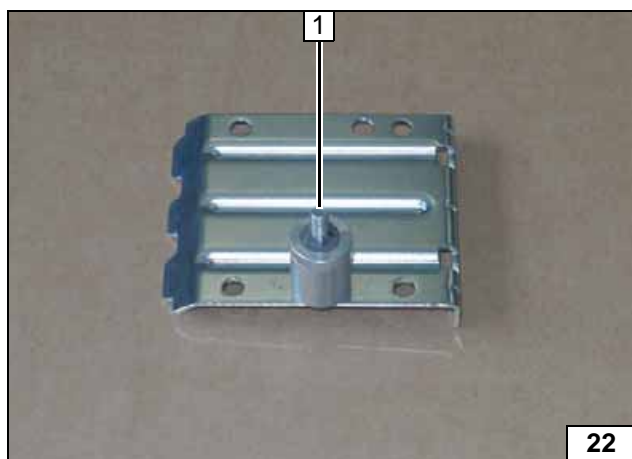
Preparing Bracket

Assignment of two-part bracket



- 1 Copy hole pattern, 7mm dia. Hole [2x]

Holes in bracket A



- 1 M6x40 bolt, 20mm shim, 5mm shim, pin lock

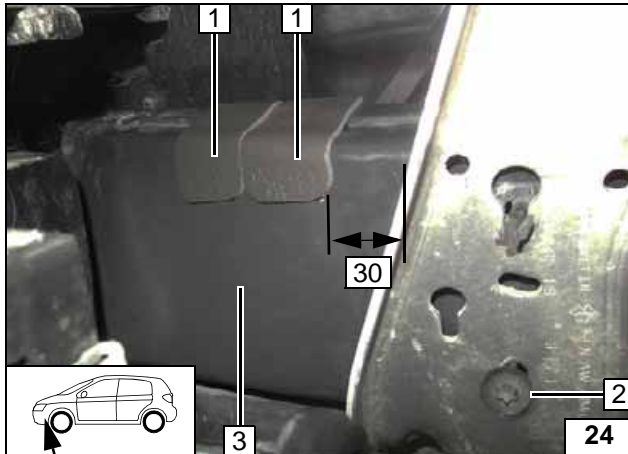
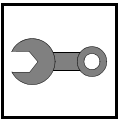
Premounting bracket A



Preparing Installation Location

- 1 Remove horn

Removing horn

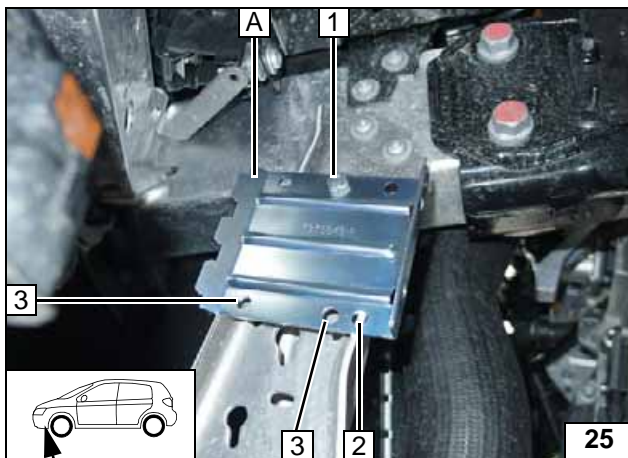


Detach brake air duct **3** (depends on the equipment) original vehicle bolt **2**.

- 1 Self-adhesive foam [2x]



Affixing foam

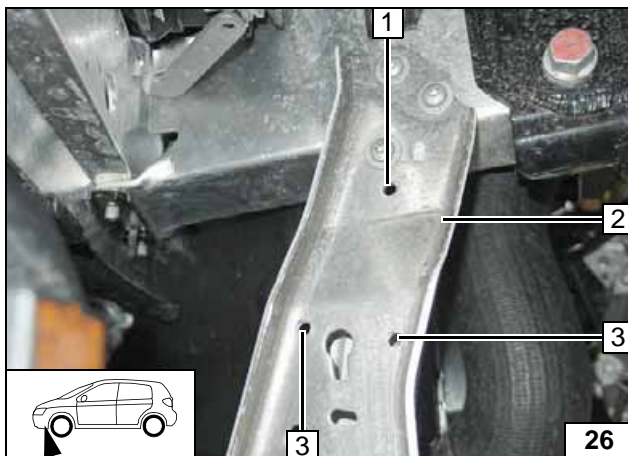


Position bracket **A**, so that the edge of the original vehicle strut is aligned with the centre of the hole at position **2**.

- 1 Pre-mounted M6x40 bolt, existing hole, flanged nut
- 3 Copy hole pattern [2x]

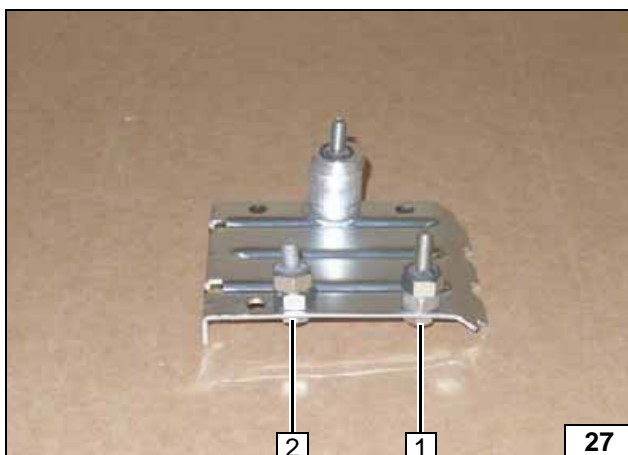


Installing bracket A



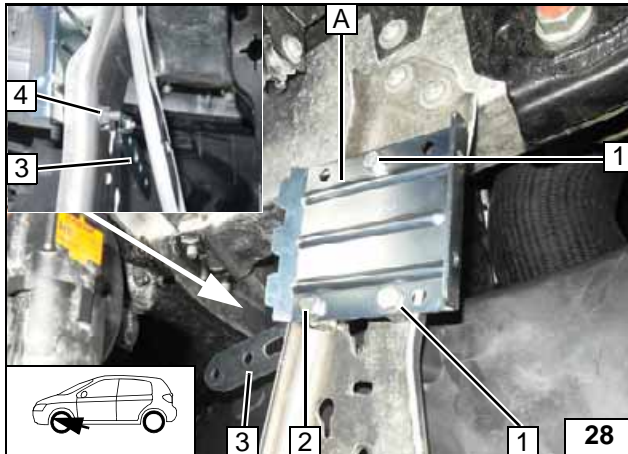
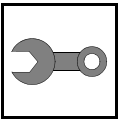
- 1 Original vehicle hole
- 2 Original vehicle strut
- 3 8mm dia. hole [2x]

Drilling hole



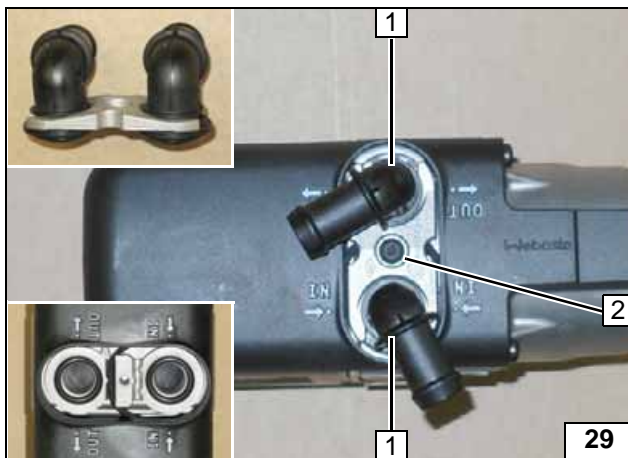
- 1 M6x30 bolt, M8 nut [2x], pin lock
- 2 M6x25 bolt, M8 nut [2x], pin lock

Premounting bracket A



- 1 Premounted bolt, flanged nut [2x each]
- 2 Premounted bolt, perforated bracket 3
- 4 Loosely install flanged nut on bolt 2

Installing bracket A and perforated bracket

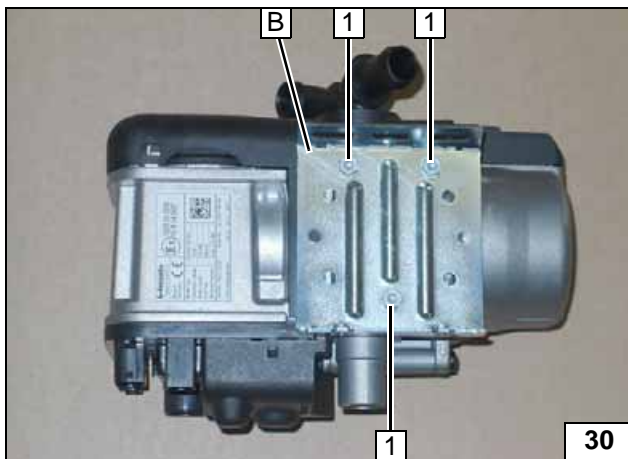


Preparing Heater

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

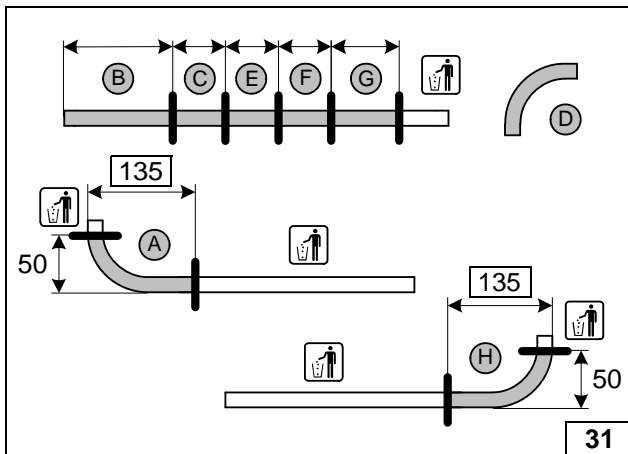


Installing water connection piece



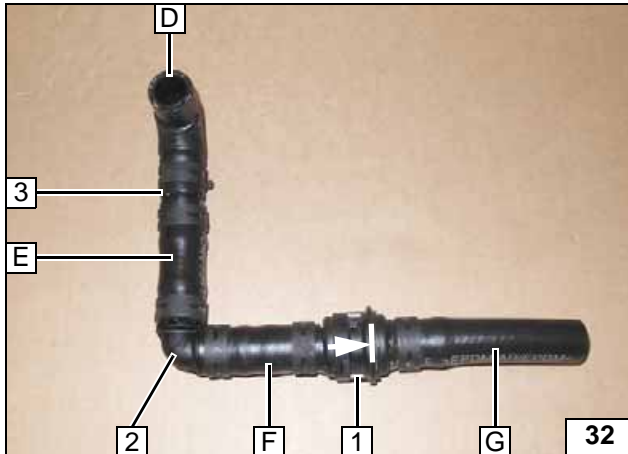
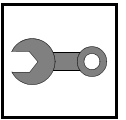
- 1 5x13 self-tapping bolts [3x]

Installing bracket B



	SG	AG
A	90°, 15mm dia.	90°, 15mm dia.
B	270	300
C	60	60
D	90°, 18mm dia.	90°, 18mm dia.
E	70	70
F	60	60
G	100	100
H	90°, 15mm dia.	90°, 15mm dia.

Cutting hoses to length

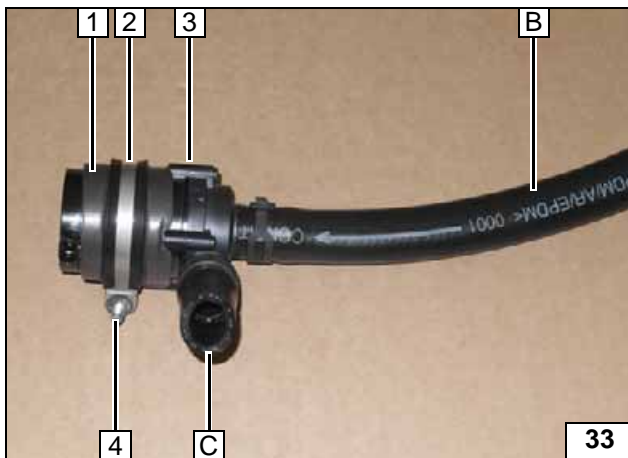


All spring clips = 25mm dia.

- 1 18x18mm check valve
- 2 90°, 18x18mm connecting pipe
- 3 180°, 18x18mm connecting pipe



Preparing hoses

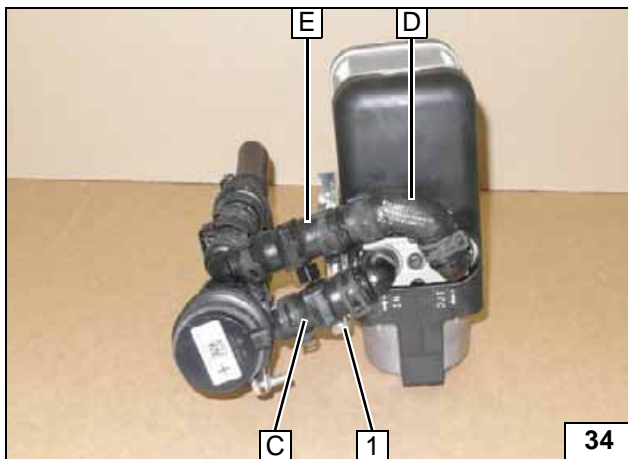


All spring clips = 25mm dia.

- 1 Self-adhesive foam
- 2 48mm dia. rubber-coated p-clamp
- 3 Circulating pump
- 4 M6x20 bolt, pin lock



Preparing hoses

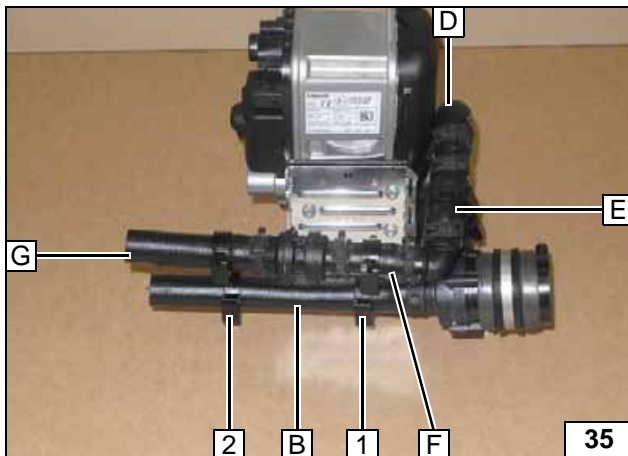


All spring clips = 25mm dia.

- 1 Hose bracket between hose C and hose E

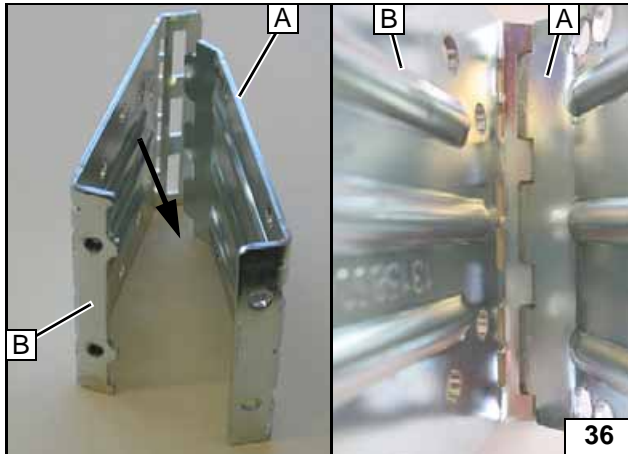
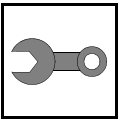


Installing hoses



- 1 Hose bracket between hose B and hose F
- 2 Hose bracket between hose B and hose G

Installing hoses

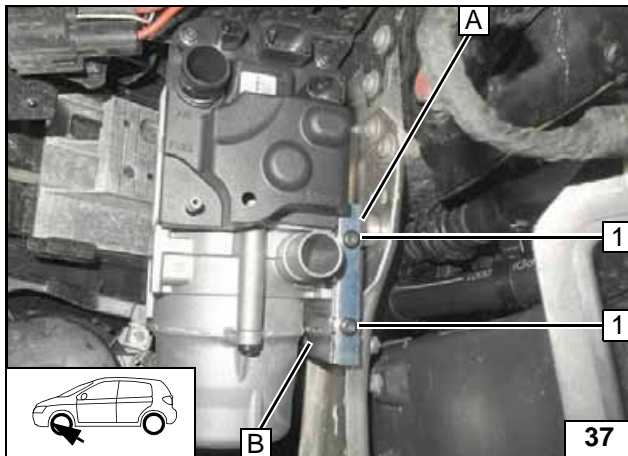


Installing Heater

The recesses of bracket **B** must be guided over the tabs of bracket **A**.



View/assembly of bracket **A** and **B**

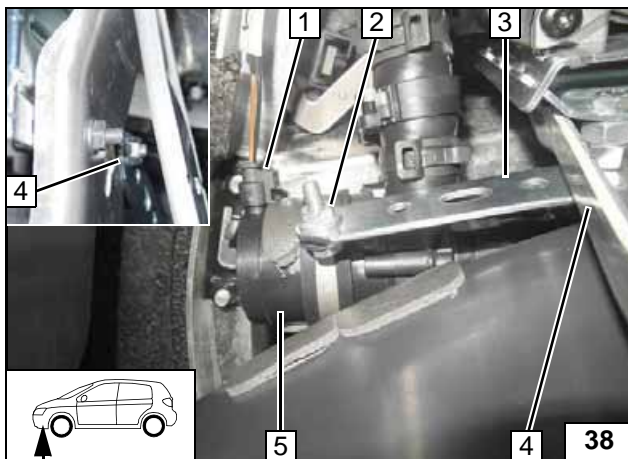


Check the assembly of bracket **B** and bracket **A**, then screw them together. Ensure sufficient distance from neighbouring vehicle components.



- 1 Torx screw M5x12 [2x]

Installing heater

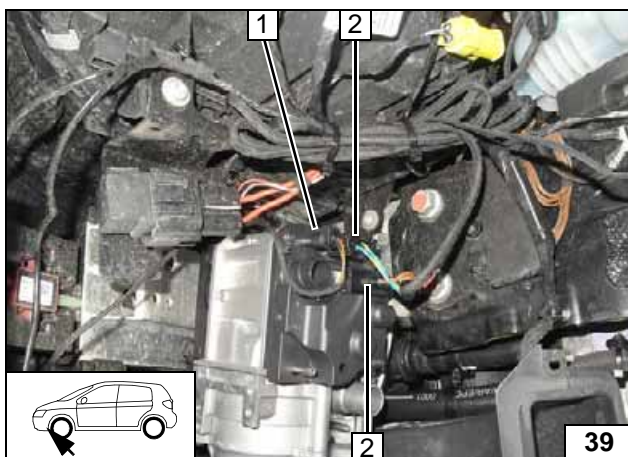


Tighten flanged nut (hidden) **4** on pre-mounted screw connection.



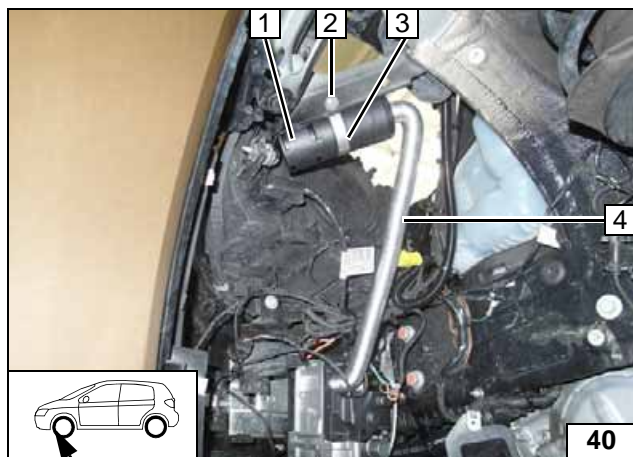
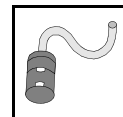
- 1 Connector of circulating pump wiring harness
- 2 Flanged nut
- 3 Perforated bracket (premounted)
- 5 Circulating pump

Fastening circulating pump



- 1 Connector of circulating pump wiring harness
- 2 Heater wiring harness connector [2x]

Installing wiring harness



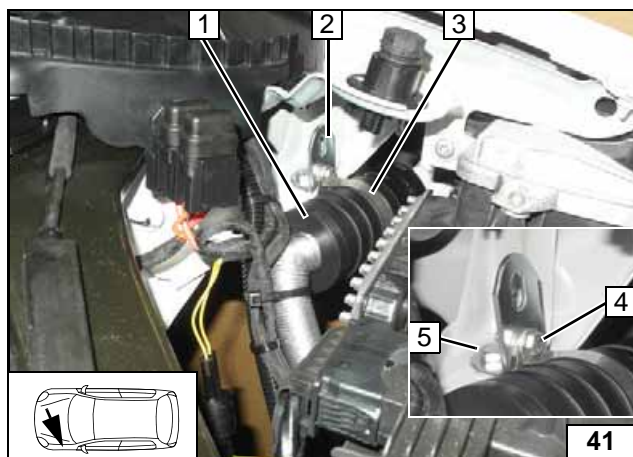
Combustion Air

2 Series Active Tourer / Gran Tourer

- 1 Silencer
- 2 M5x16 bolt, large diameter washer, original vehicle hole, flanged nut
- 3 51 mm dia. clamp
- 4 Combustion air pipe



Installing silencer

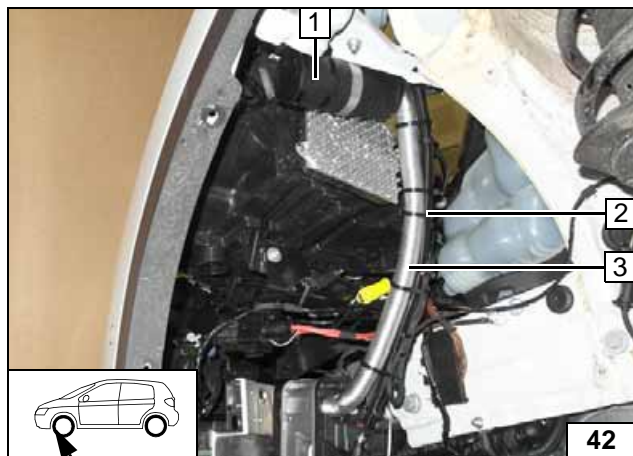


X1

- 1 Silencer
- 2 Angle bracket
- 3 51 mm dia. clamp
- 4 M5x16 bolt, flanged nut
- 5 M6x16 bolt, original vehicle hole, flanged nut



Installing silencer



Using cable tie **2** attach combustion air pipe, heater wiring harness and fuel line.

- 1 Silencer
- 3 Combustion air pipe



Installing silencer



Fuel



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

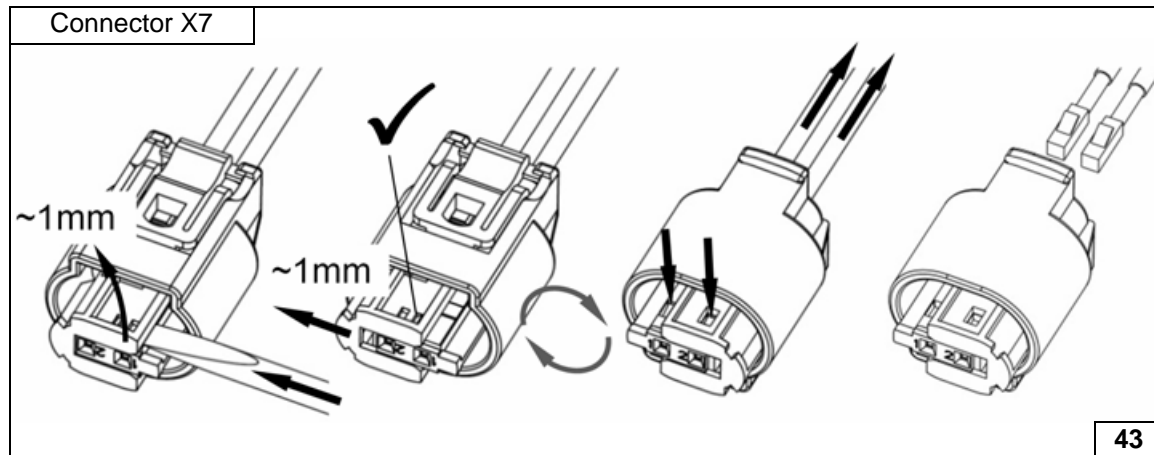
Catch any fuel running off in an appropriate container.

Route fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.

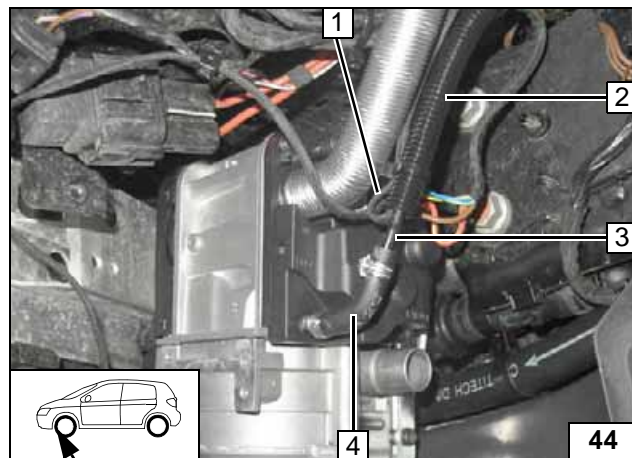


Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



Dismantling metering pump connector



Pull wiring harness of metering pump 1 and fuel line 3 together into 450mm corrugated tube 2, route in the engine compartment.

4 90° moulded hose, 10mm dia. clamp [2x]

Connecting heater

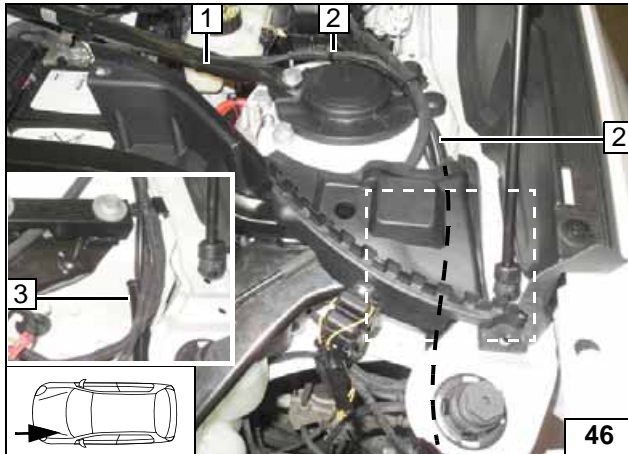


2 Series Active Tourer / Gran Tourer

Route fuel line and metering pump wiring harness 2 on strut brace 1 to the right side of the vehicle.

3 450mm corrugated tube

Routing lines



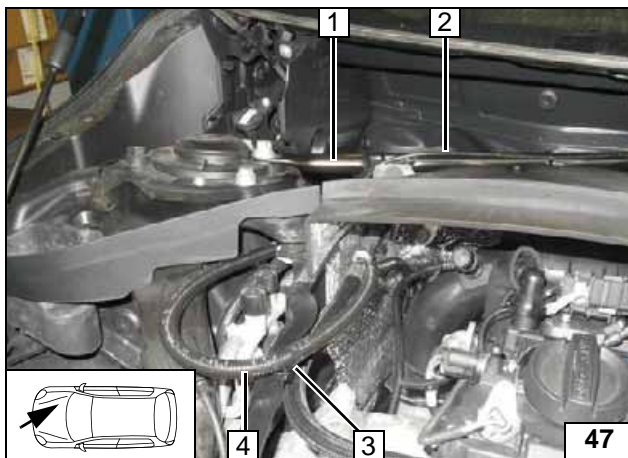
X1

Route fuel line and metering pump wiring harness **2** on strut brace **1** to the right side of the vehicle.

- 3** 450mm corrugated tube



Routing lines



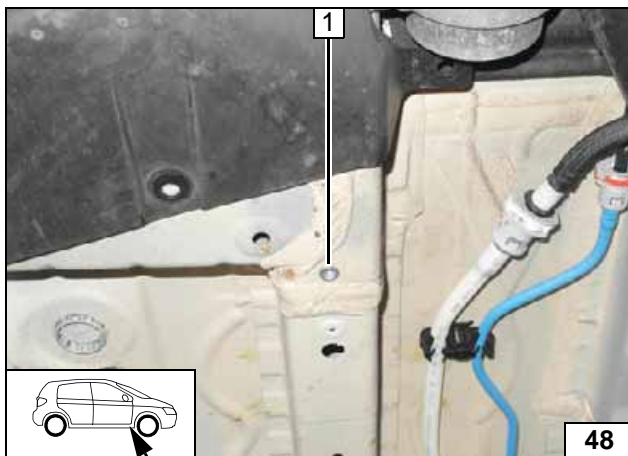
All vehicles

Route fuel line and wiring harness of metering pump **2** from strut brace **1** in the engine compartment, pull into (remaining part of) corrugated tube **4** and route along original vehicle fuel lines to the underbody.

- 3** Edge clip cable tie

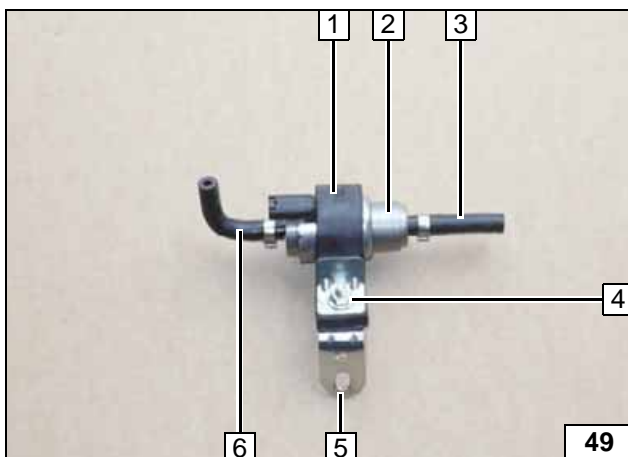


Routing lines



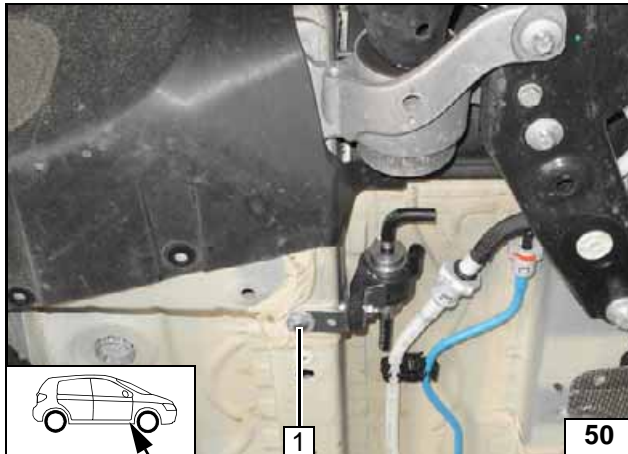
- 1** Original vehicle hole, rivet nut

Installing rivet nut



- 1** Metering pump mount
- 2** Metering pump
- 3** Hose section, 10mm dia. clamp
- 4** M6x25 bolt, support angle bracket, flanged nut
- 5** Angle bracket
- 6** 90° moulded hose, 10mm dia. clamp

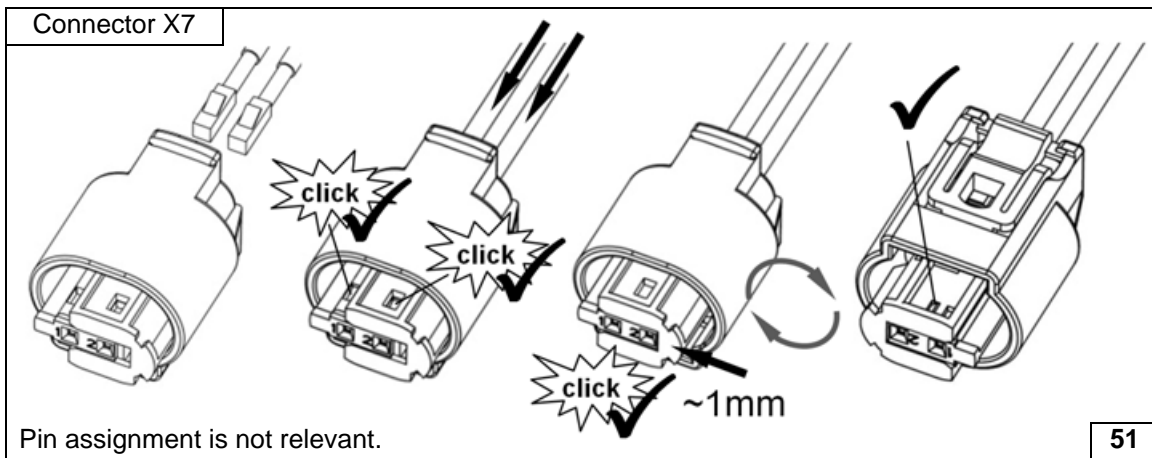
Premounting metering pump



- 1 M6x20 bolt, spring lockwasher, large diameter washer



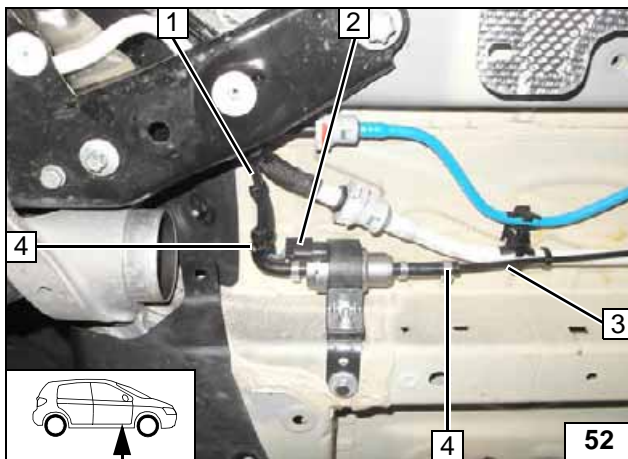
Installing metering pump



Pin assignment is not relevant.

51

Completing metering pump connector



Ensure sufficient distance from neighbouring components, correct if necessary.

- 1 Fuel line of heater
- 2 Connector X7 of metering pump wiring harness
- 3 Fuel line of FuelFix
- 4 10 mm dia. clamp [2x]



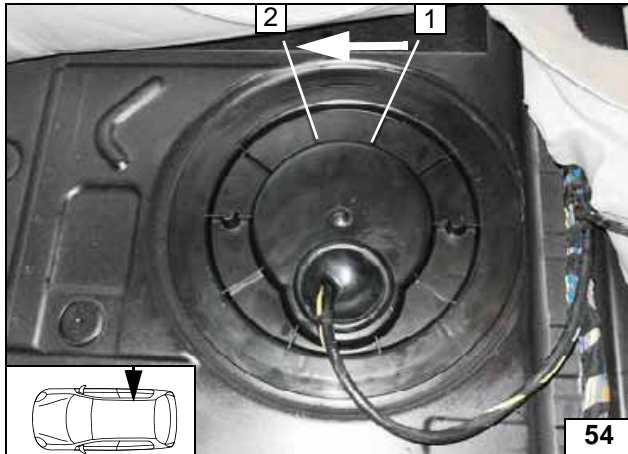
Connecting metering pump



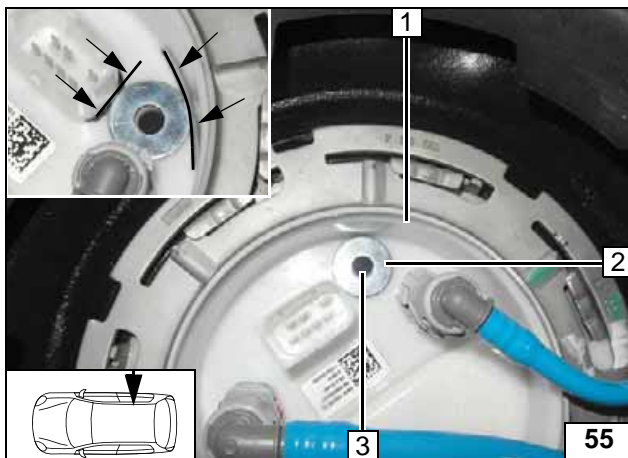
Route FuelFix fuel line 1 along original vehicle fuel lines to the fuel tank sending unit.



Routing lines



Detaching cover of fuel tank sending unit



Installing FuelFix

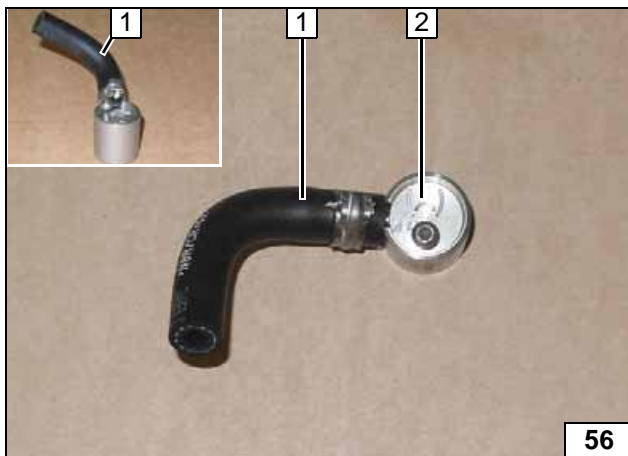
Work steps F1, F2 and F3.

Photo shows version for diesel vehicle.

- 1 Fuel tank sending unit
- 2 Position washer with outer dia. $d_a = 24\text{mm}$ as template against the raised parts.
- 3 Hole pattern, hole made with provided drill



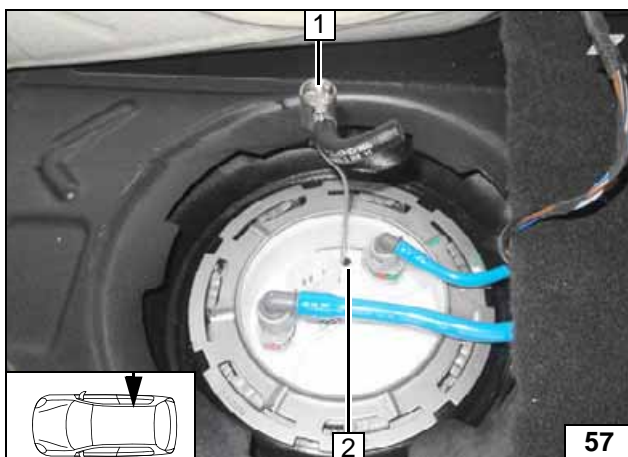
Copying hole pattern



- 1 90° moulded hose, 10mm dia. clamp
- 2 FuelFix



Premounting FuelFix



Work steps F4 and F5.

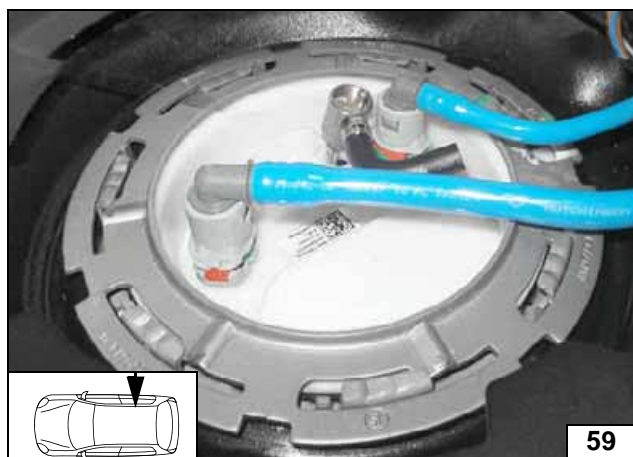
Bend FuelFix 1 according to template and cut to length. Insert into hole 2.



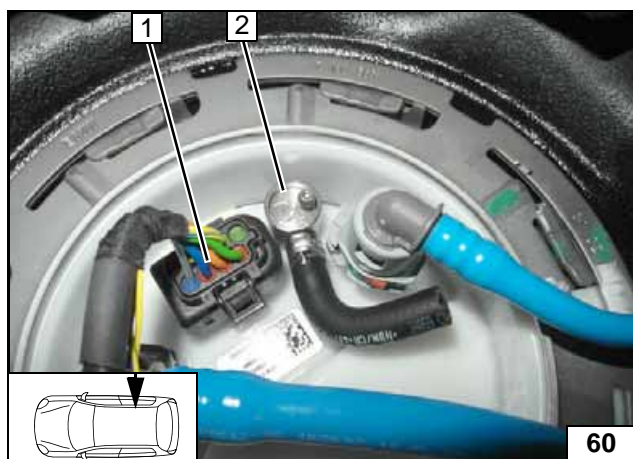
Hole for FuelFix



Inserting FuelFix



Inserting FuelFix

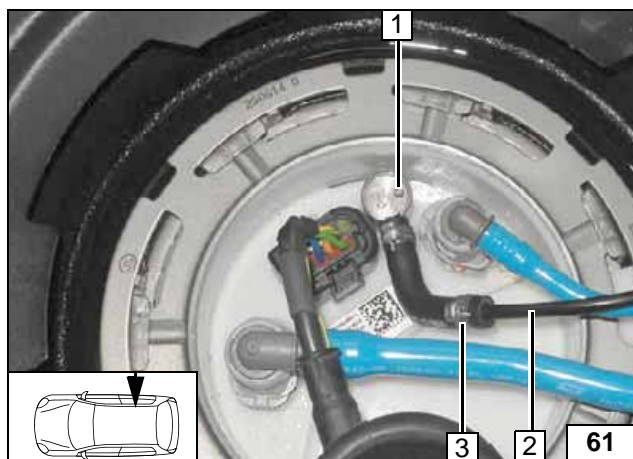


Work steps F5.3 and F5.4.

Installing connector 1.
Align FuelFix 2 between connector and original vehicle fuel lines.



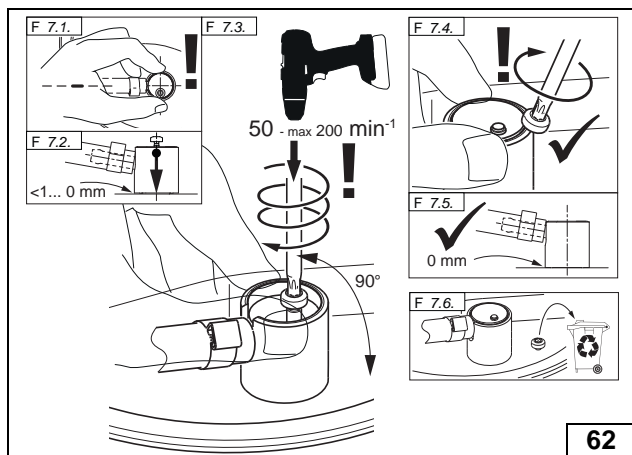
Aligning FuelFix



Work step F6.

- 1 FuelFix
- 2 Fuel line
- 3 10 mm dia. clamp

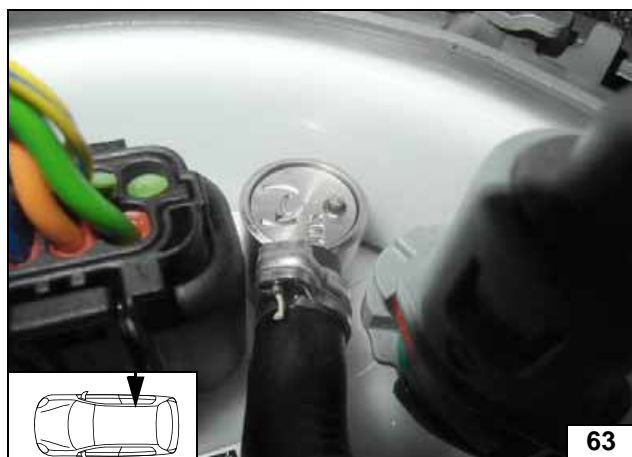
Connect-
ing fuel line



Work step F7.

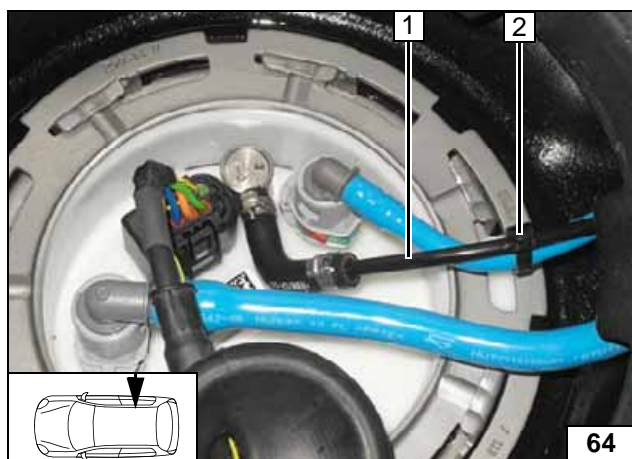


**Mounting
FuelFix**



Work step F8.

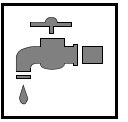
**Checking
firm seating
of FuelFix**



Work step F8.

- 1 Fuel line of FuelFix
- 2 Cable tie as tension relief

**Securing
fuel line**

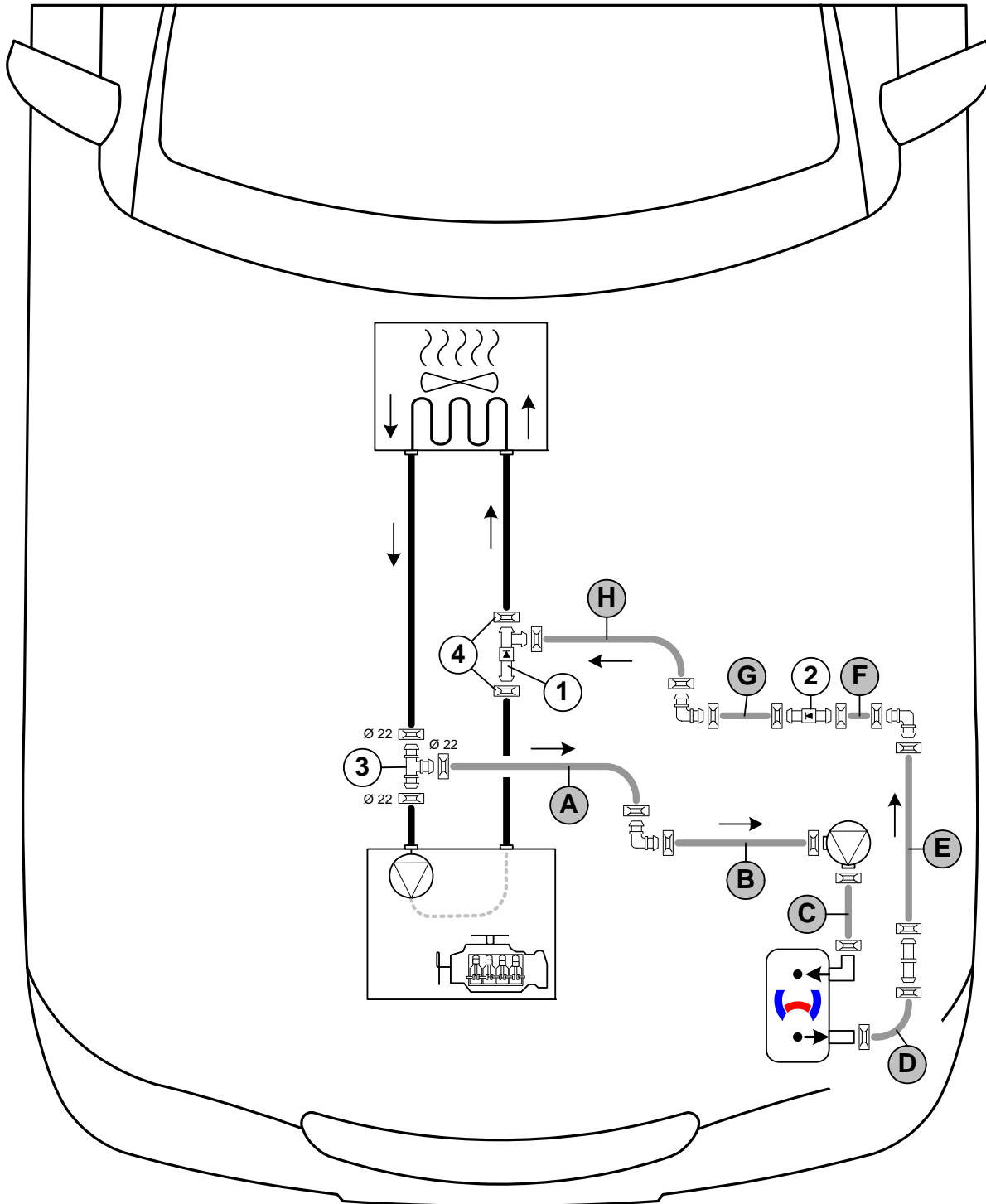


Coolant Circuit








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

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



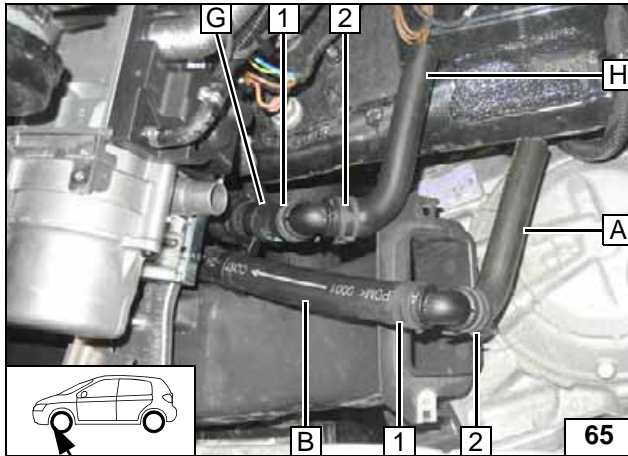
Hose routing diagram

All spring clips without a specific designation  = 25 mm dia. All connecting pipes  and  = 18x18 mm dia.

1 = check valve  . 2 = check valve  . 3 = T-piece  .

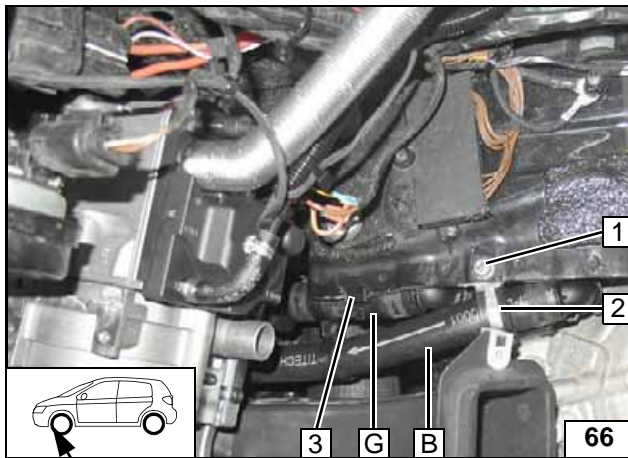
4 = X1, depending on the thickness of the hose wall, 25mm dia. or 27mm dia. spring clip





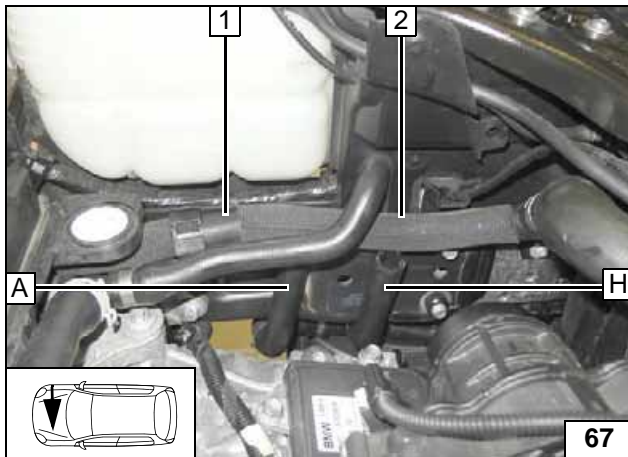
- 1 Spring clip lock in direction of engine compartment [2x]
- 2 Spring clip lock, downwards [2x]

Connect-
ing hoses A
and H



- 1 M6x20 bolt, original vehicle hole, flanged nut
- 2 25 mm dia. rubber-coated p-clamp
- 3 Edge clip cable tie on hose G

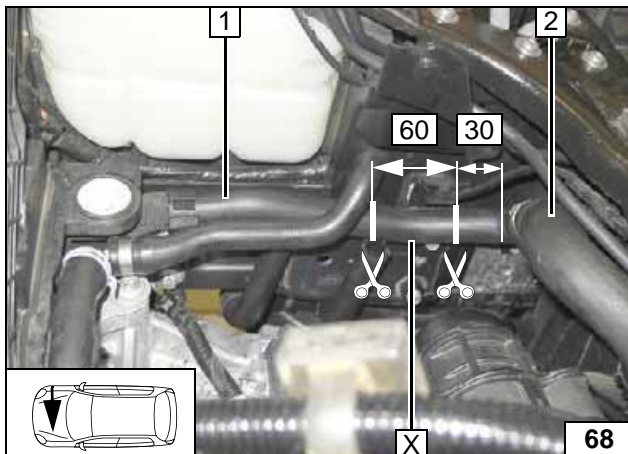
Fastening
hose B and
G



Remove braided protection **2** from hose of engine outlet / heat exchanger inlet **1** and discard.



Preparing
cutting
point



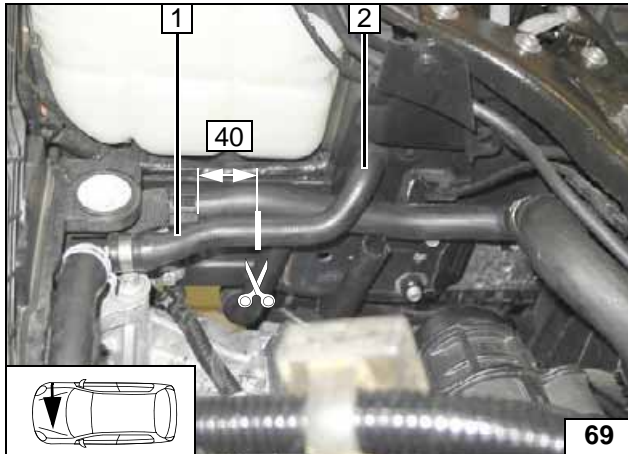
Cut hose of engine outlet / heat exchanger inlet **1** at the markings.



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

X =

Cutting
point 1

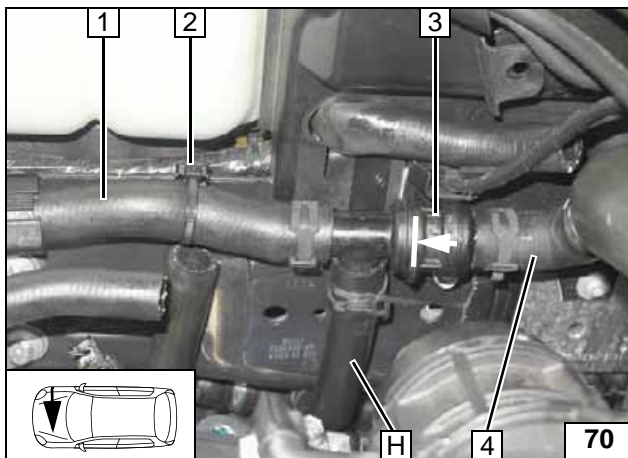


Cut hose of heat exchanger outlet / engine inlet 1 at the markings.

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

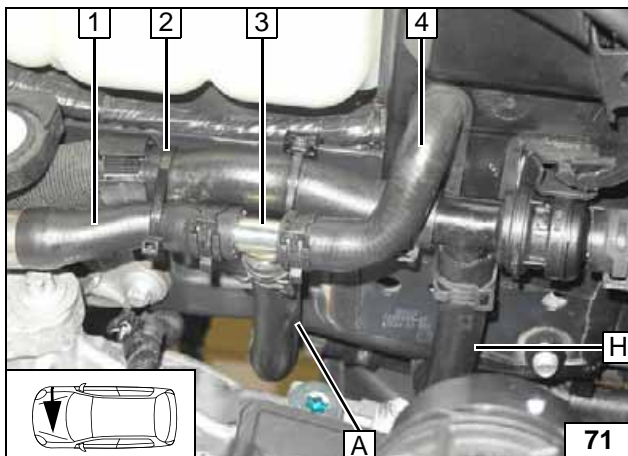


Cutting point 2



- 1 Hose section of heat exchanger inlet
- 2 Edge clip cable tie
- 3 Check valve
- 4 Hose section of engine outlet

**Connect-
ing engine
outlet**

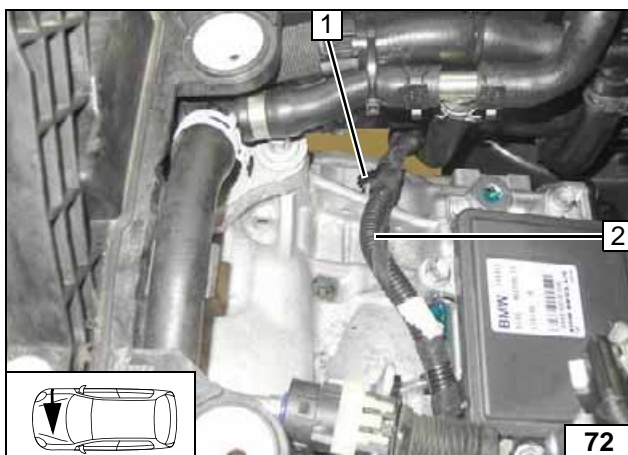


Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

- 1 Hose of heat exchanger outlet
- 2 Cable tie
- 3 15x15x15 T-piece, 22mm spring clip (3x)
- 4 Hose of engine inlet, turned



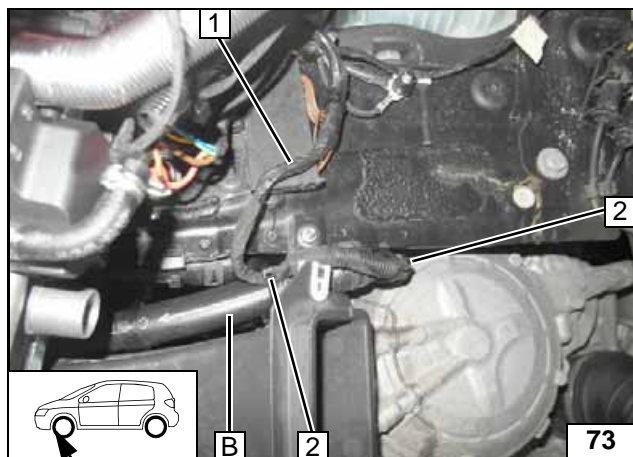
**Connect-
ing heat ex-
changer
outlet**



Check the tightness of edge clip cable tie 1 of original vehicle wiring harness 2!



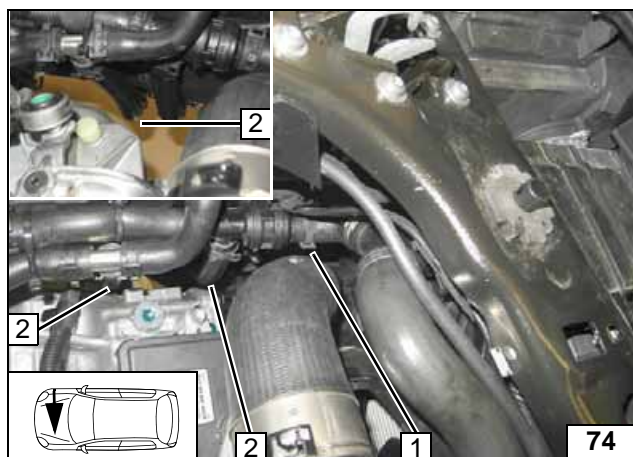
**Securing
original ve-
hicle wiring
harness**



Fasten original vehicle wiring harness 1 using cable ties 2 [2x] onto hoses A and B.



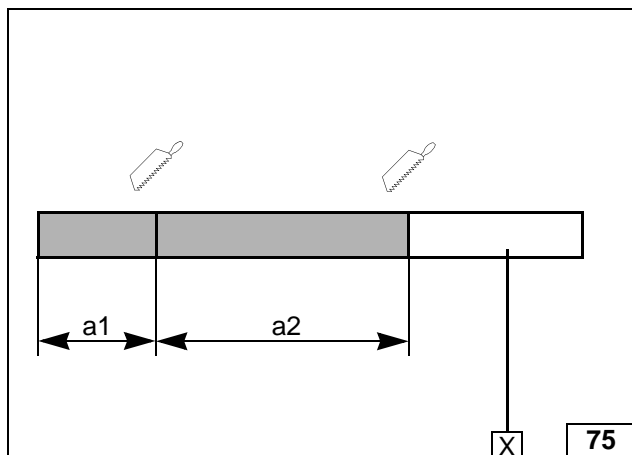
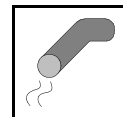
Securing original vehicle wiring harness



Check distance between spring clip and charge-air tube at position 1 and distance between water hoses and transmission at position 2, correct if necessary.



Checking distances



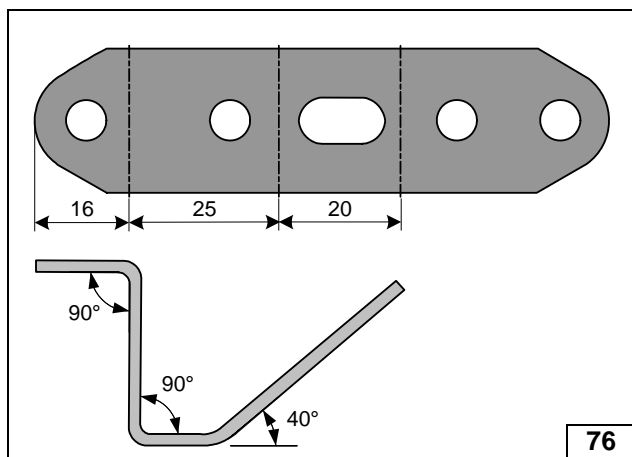
Exhaust Gas

a1 = 210

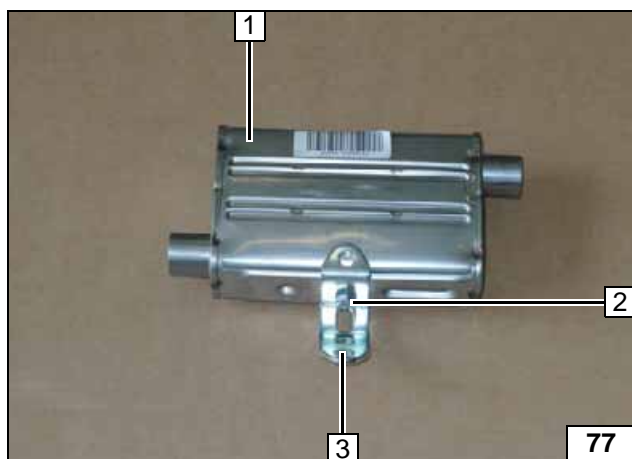
a2 = 440

X =

Preparing exhaust pipes



Bending perforated bracket



- 1 Silencer
- 2 M6x16 bolt, spring lockwasher
- 3 Perforated bracket

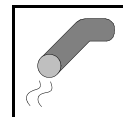
Premounting silencer



Fasten brake air duct **2** (depends on the equipment) using original vehicle bolt **3**.

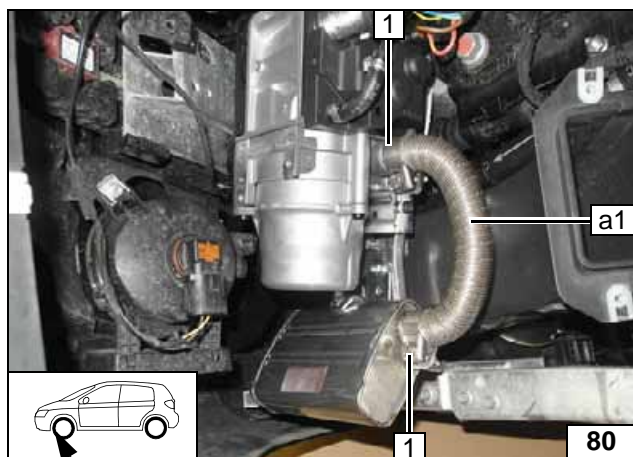
- 1 M6x20 bolt, large diameter washer, original vehicle hole, pin lock

Preparing silencer installation



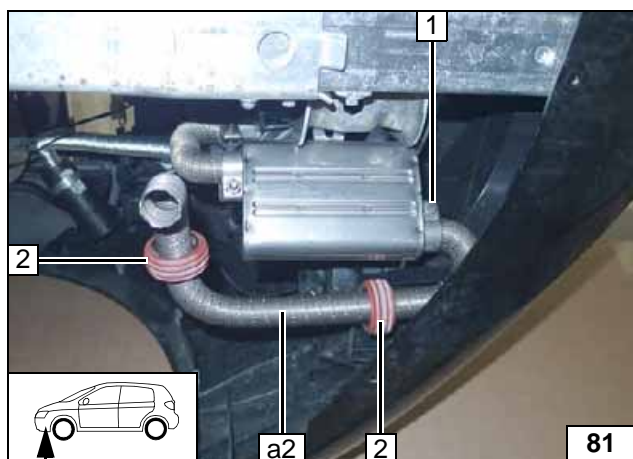
1 Flanged nut

Installing
silencer



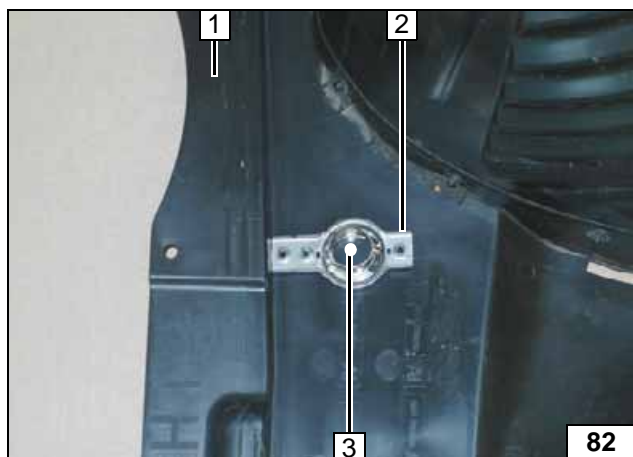
1 Hose clamp [2x]

Installing
exhaust
pipe a1



1 Hose clamp
2 Spacer bracket [2x]

Installing
exhaust
pipe a2



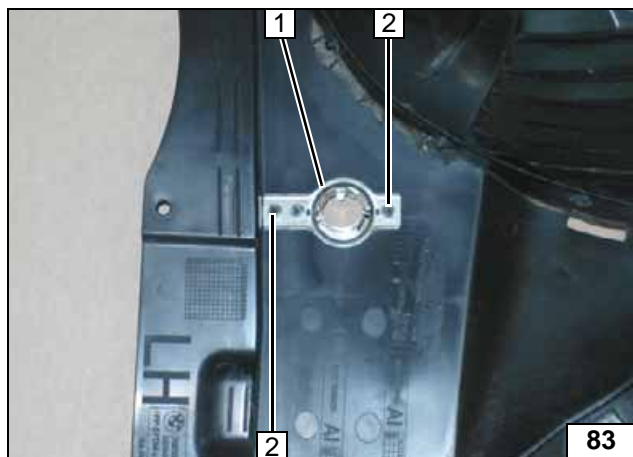
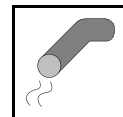
Installing Exhaust End Fastener

Align exhaust end fastener 2 with wheel-well inner panel 1 as shown.

3 Copy hole pattern and drill hole as per work step 1 of the installation instructions.



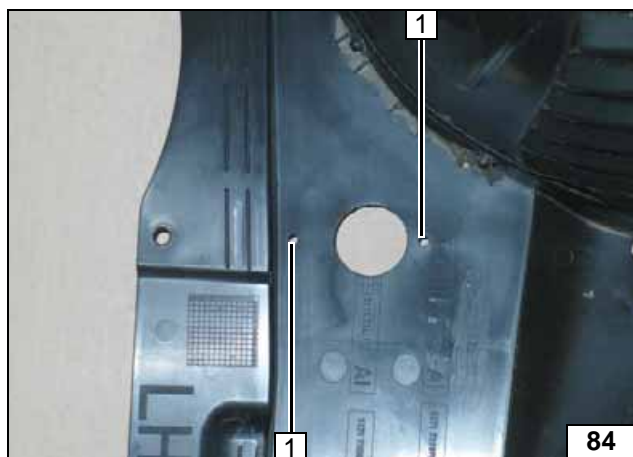
Hole in
wheel-well
inner panel



Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2** [2x].



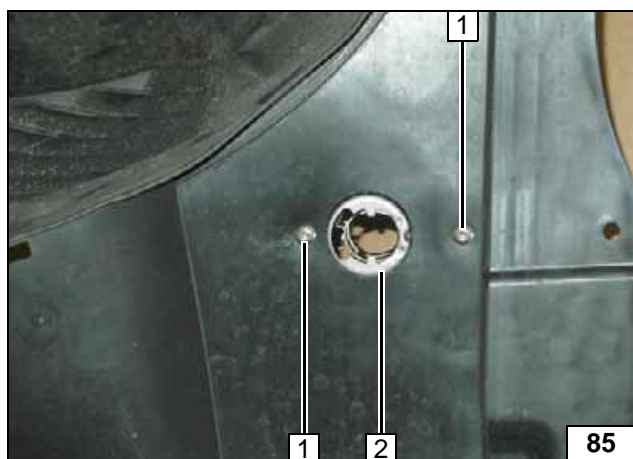
Copying hole pattern



Hole **1** [2x] as per work step 4 of the installation instructions.



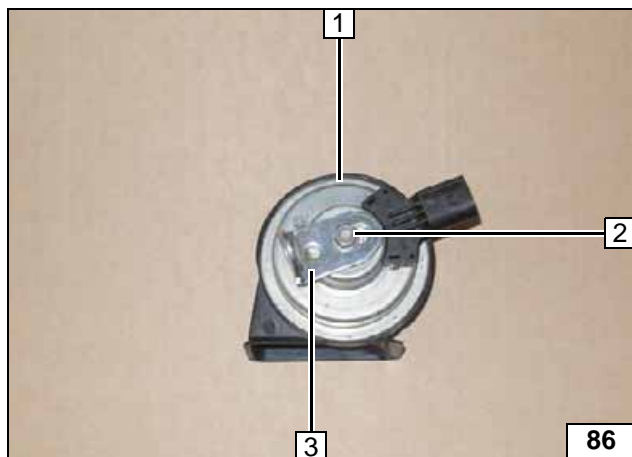
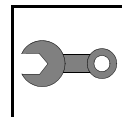
Holes in wheel-well inner panel



- 1** 5x13 self-tapping screw [2x] as per work step 5 of the installation instructions
- 2** Exhaust end fastener



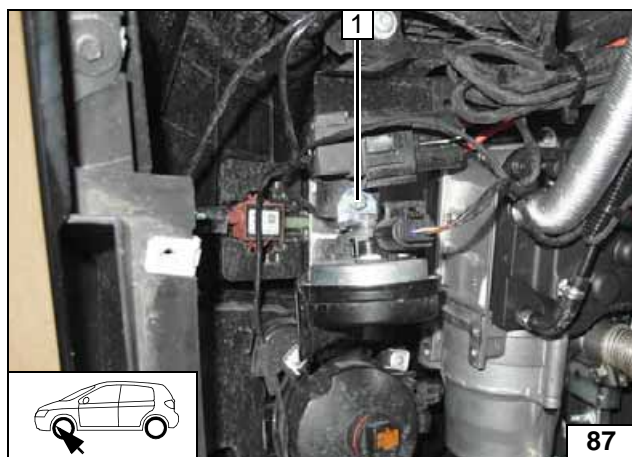
Installing exhaust end fastener



Final Work

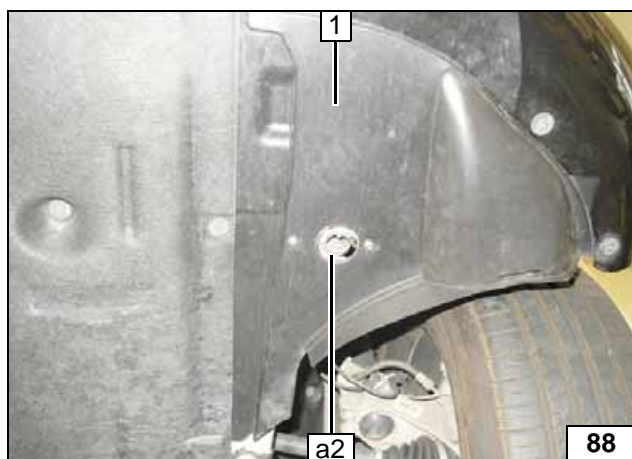
- 1 Horn
- 2 Original vehicle nut
- 3 Angle bracket

**Moving,
preparing
horn**



- 1 M6x20 bolt, spring lockwasher, original vehicle thread

**Installing
horn**



Install wheel-well inner panel **1**.
Install exhaust pipe **a2** as per work steps 6 - 8 of the installation instructions.



**Installing
exhaust
pipe a2**



Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.

Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

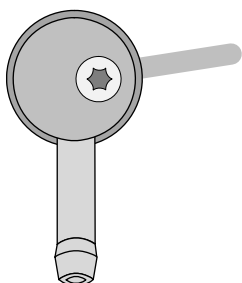
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Teach Telestart transmitter or activate ThermoCall.**
- **Make settings on A/C control panel according to the 'Operating Instructions for End Customer' (see the installation documentation of the respective A/C control).**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**
- **For initial startup and function check, please see installation instructions.**





FuelFix Template

Top view



100mm



Scale 1:1

Compare size of printout with dimension lines.
Allowed tolerance a maximum of 2%.

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

100mm

0