# Water Heater

Webasto
Feel the Drive

## *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 |
|---|---|---|---|---|---|
| 1.6 D | Diesel | 6-speed AG | 100 | 1598 | B16DTH (LVL) |
| 1.7 D | Diesel | 6-speed SG | 96 | 1686 | A17DTS (LUD) |
| 1.7 D | Diesel | 6-speed AG | 96 | 1686 | A17DTS (LUD) |

SG = manual transmission
AG = automatic transmission

**From model year 2013**
**Left-hand drive vehicle**

**Verified equipment variants:** Manual air-conditioning / 2 zone automatic air-conditioning
Front fog lights
Daytime running lights
Bi-Xenon with headlight washer system
Start-Stop
2 WD / 4 WD
Euro 6 (1.6 D)

**Not verified:** Passenger compartment monitoring

**Total installation time:** approx. 7 hours

## Opel Mokka

## Table of Contents



## Necessary Components

- Basic delivery scope of *Thermo Top Evo* according to price list
- Installation kit for Opel Mokka 2013 Diesel: **1321411C**
- Heater control in accordance with price list and upon consultation with end customer
- When installing MultiControl CAR: MultiControl installation frame: **9030077**_
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

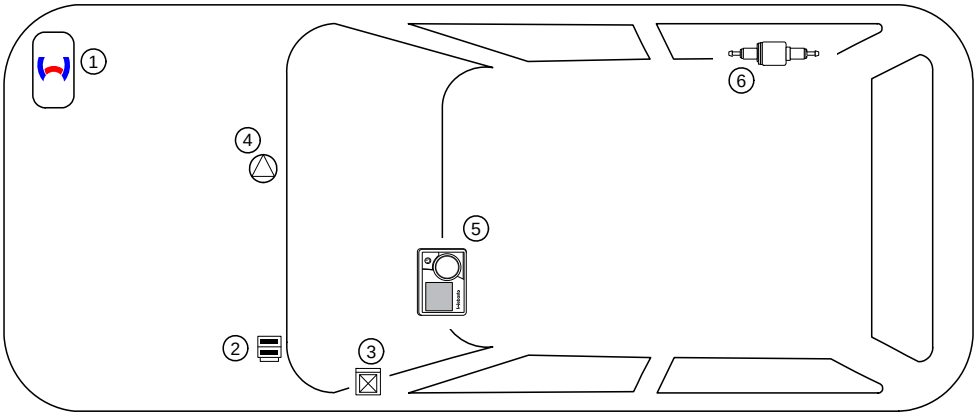
## Installation instructions:

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

## Installation Overview

**Legend:**

**1**. Heater
**2**. Engine compartment fuse holder
**3**. CAN module
**4**. Circulating pump
**5**. MultiControl CAR
**6**. Metering pump




## 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 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).**

**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

## Information on Validity

This installation documentation applies to Opel Mokka Diesel 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 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

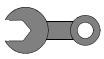
**Dimensions**
- All dimensions are in mm.

**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.

**Mechanical System**

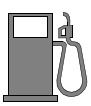


**Electrical System**

**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.**

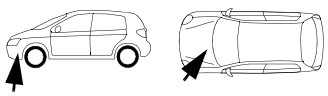
**Specific risk of damage to components.**

**Specific risk of fire and 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.**



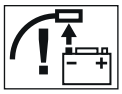
**Tightening torque according to the manufacturer's vehicle-specific documents.**

## Opel Mokka

## Preliminary Work

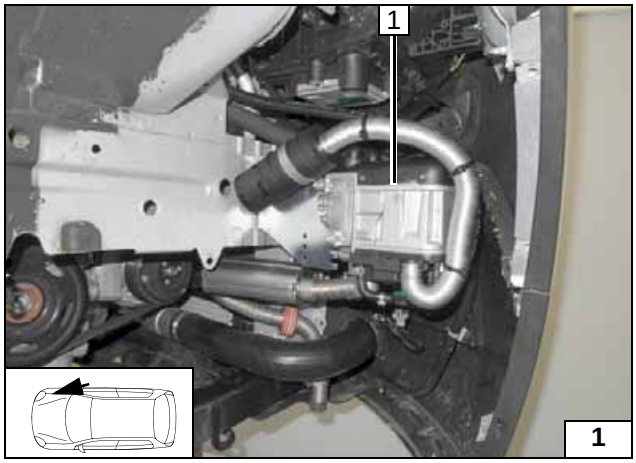
### Vehicle

- 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 together with the intake hose.
- 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.



### Heater

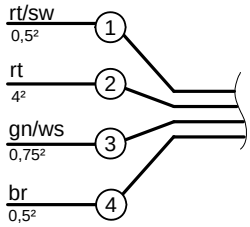
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



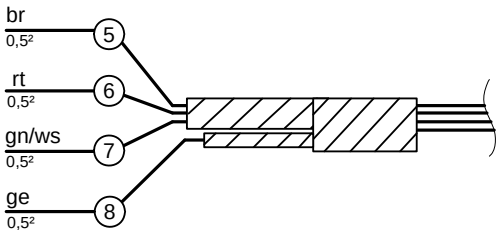

## Heater Installation Location

**1** Heater

**Installation location**




2




3

## Preparing Electrical System

Wire sections retain their numbering in the entire document.

**Assigning heater wiring harness**

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

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

**Assigning CAN wiring harness**

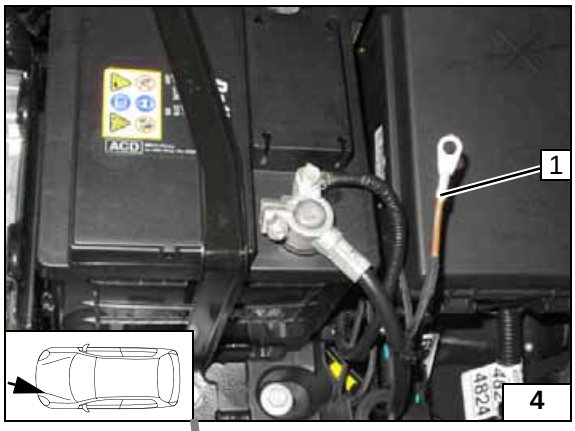
⑤ Brown (br) wire from CAN wiring harness/ 31
⑥ Red (rt) wire from CAN wiring harness/ 30
⑦ Green/white (gn/ws) wire of CAN wiring harness/ 15
⑧ Yellow (ge) wire of CAN wiring harness/DO+

## Electrical System

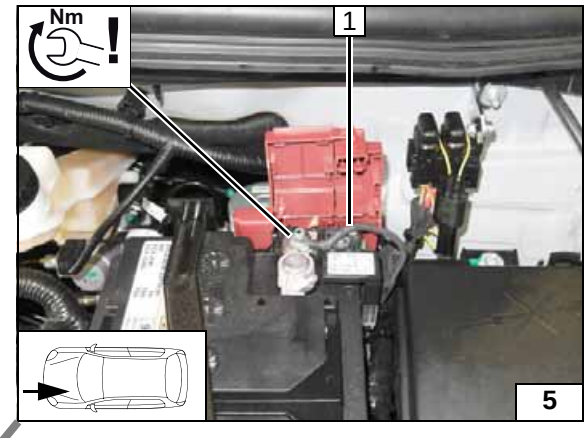
### Earth wire

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

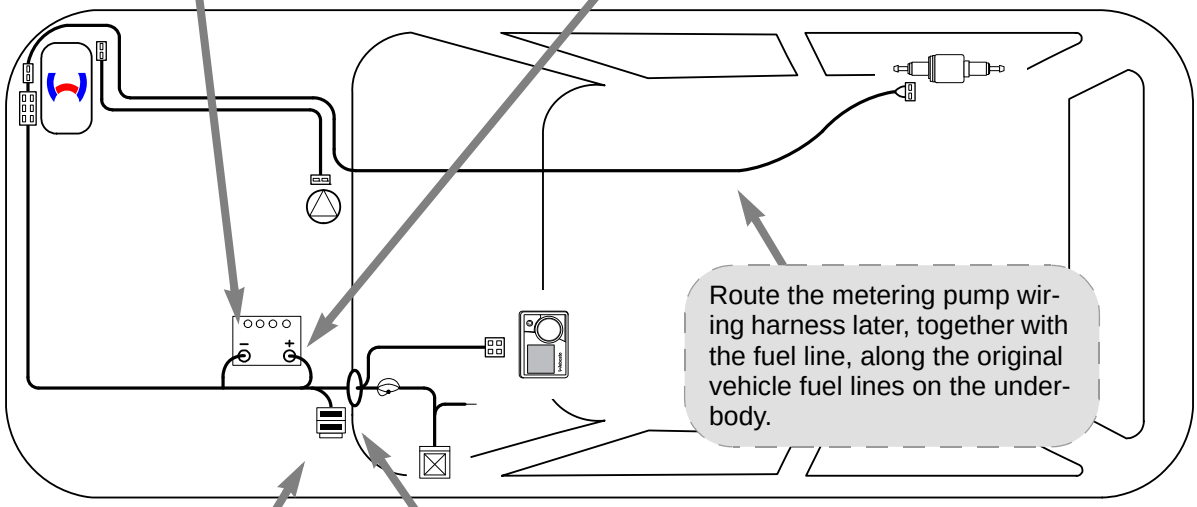


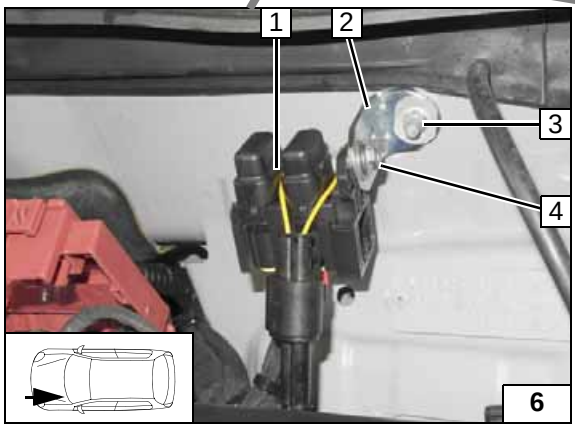

### Positive wire

**1** Positive wire on positive battery terminal




**Wiring harness routing diagram**

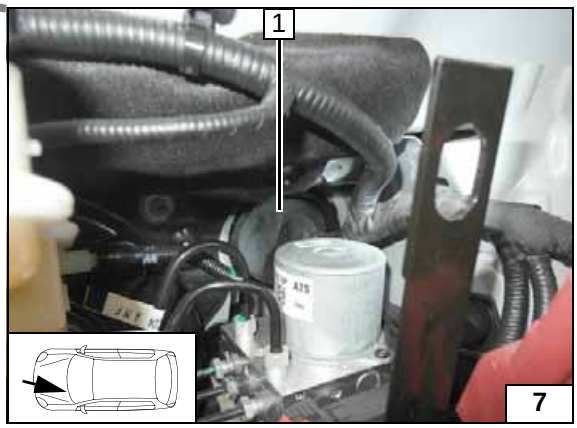



### Engine compartment fuse holder

**Replace 30A fuse F2 with 1A fuse!**

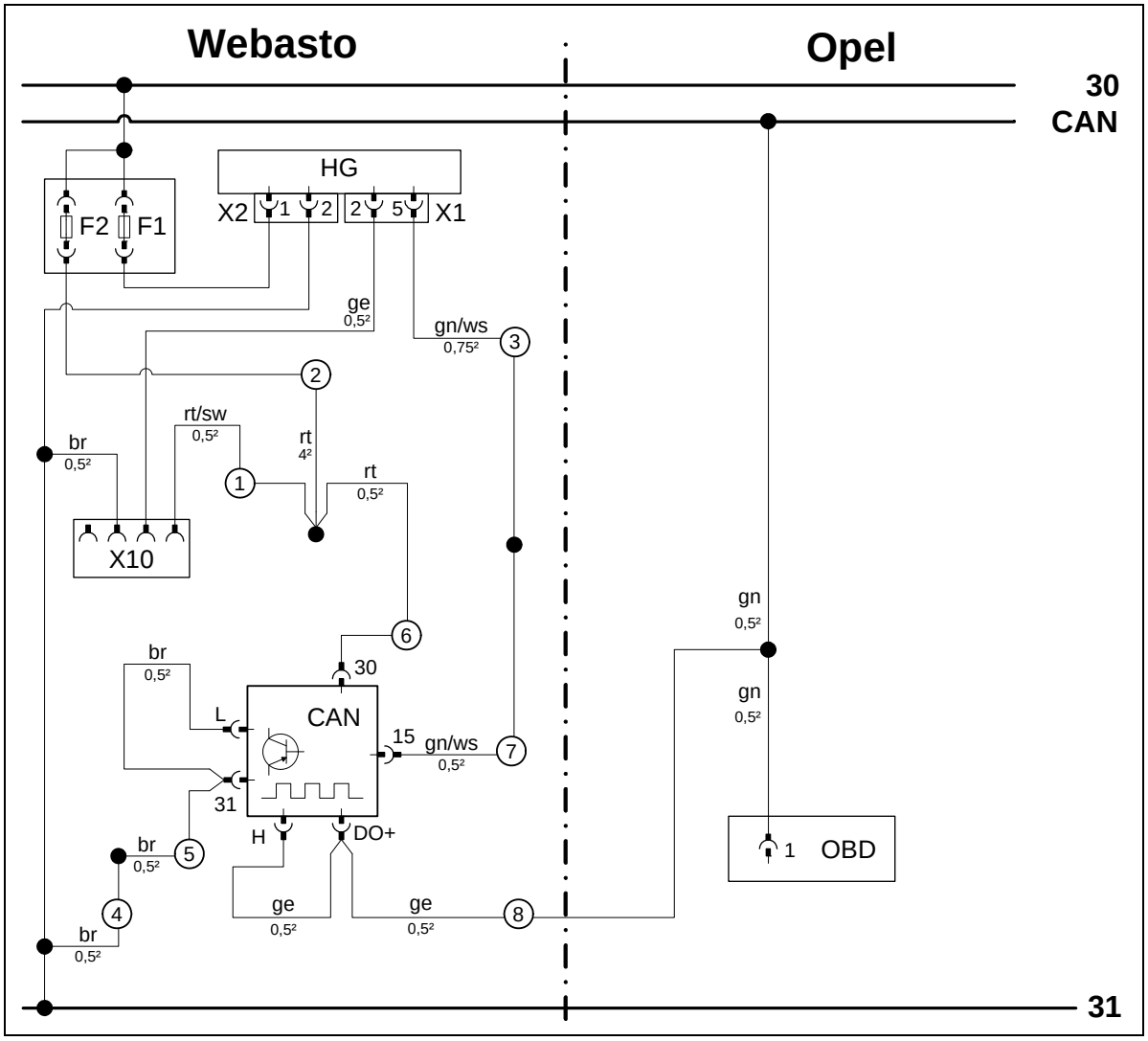
**1** Fuses F1-2
**2** Angle bracket
**3** Original vehicle stud bolt, plate nut
**4** M5x16 bolt, large diameter washer [2x], fuse holder retaining plate, nut




### Wiring harness pass through

**1** Protective rubber plug

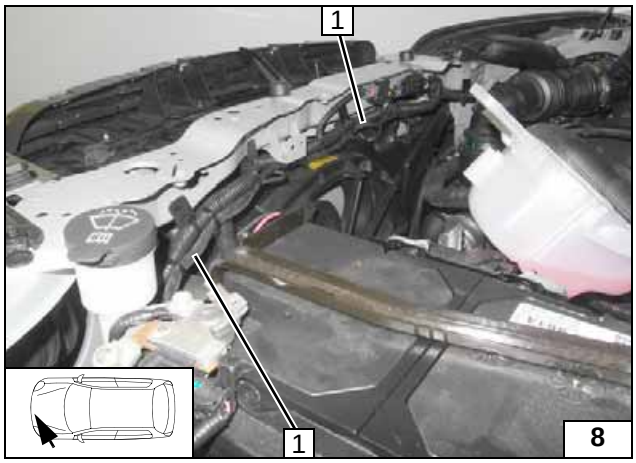
## Fan Controller




| 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 | 20A fuse | | | 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. | |

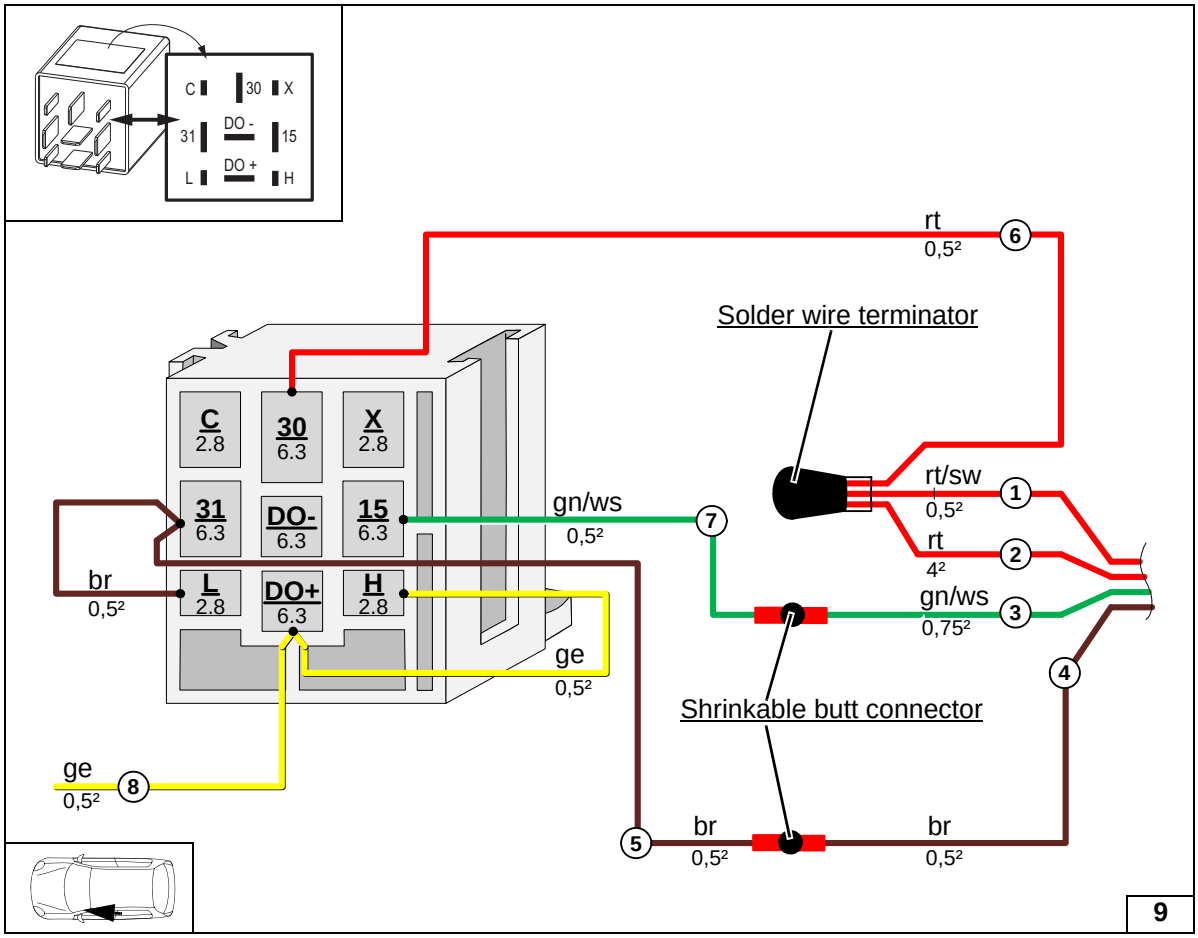
**Wiring diagram**

**Legend**

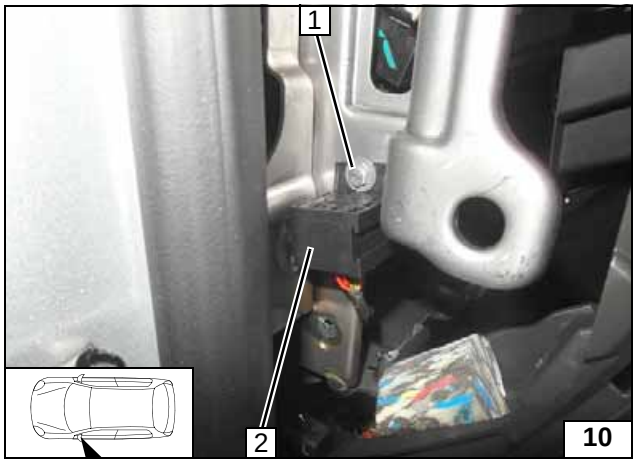



Route wiring harness of heater **1** along the original vehicle wiring harness to the installation location of the heater.

**Routing heater wiring harness**



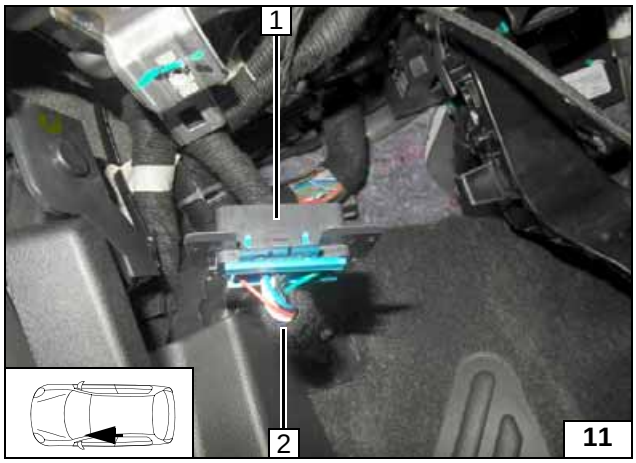

**Connecting wires from heater wiring harness and CAN-module wiring harness in passenger compartment**




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

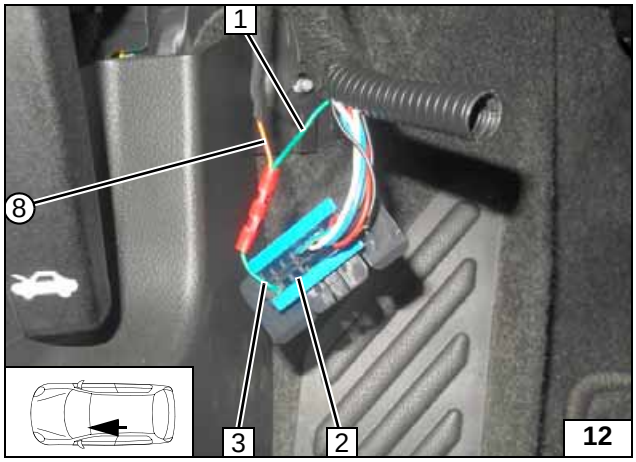
**Installing CAN module socket**




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

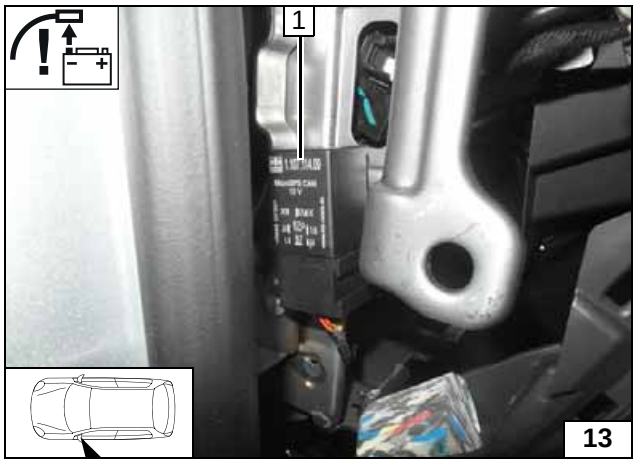
**Disconnecting OBD connector**




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+

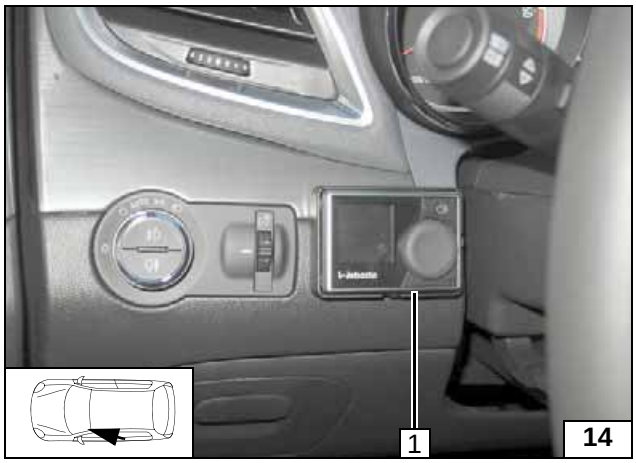
**Connecting OBD connector**




Before installation see info on battery in section ‘Preliminary Work’!

**1** CAN module

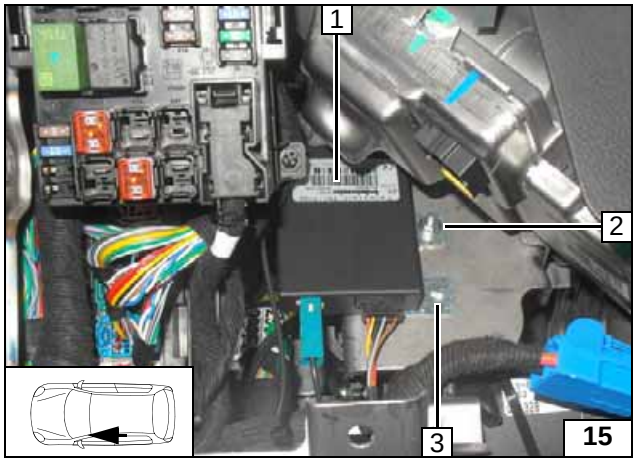
**Mounting CAN module**




## MultiControl CAR

**1** Installation frame

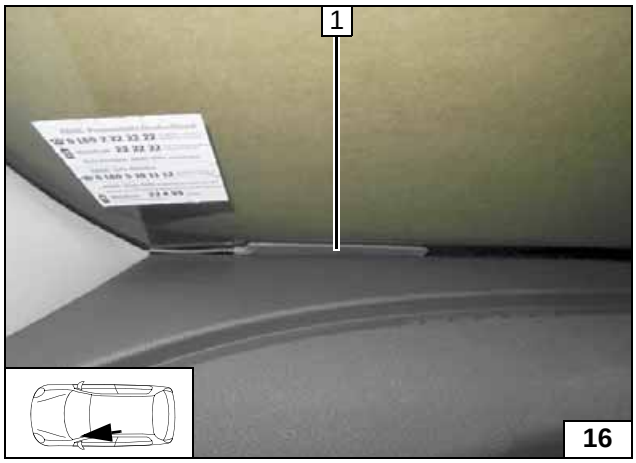
**Installing MultiControl CAR**




## Remote Option (Telestart)

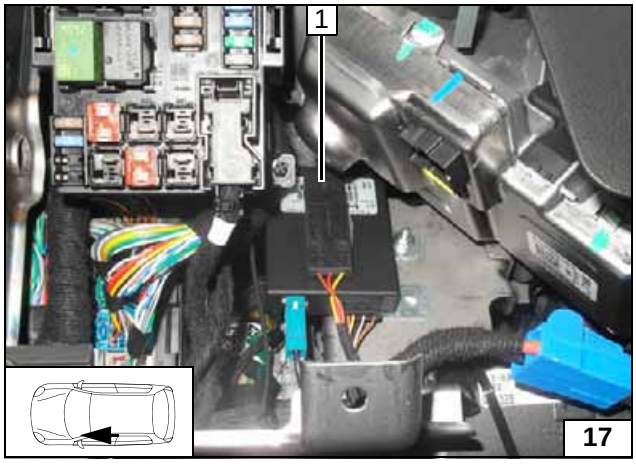
**1** Receiver
**2** M5x16 bolt, flanged nut, existing hole
**3** Bracket

**Installing receiver**




**1** Aerial

**Installing aerial**




**Temperature sensor T100 HTM**

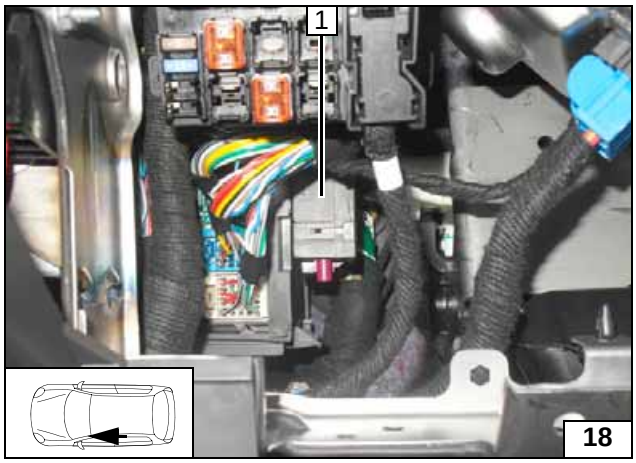
Fasten temperature sensor **1** with double-sided adhesive tape.

**Installing temperature sensor**

## ThermoCall Option

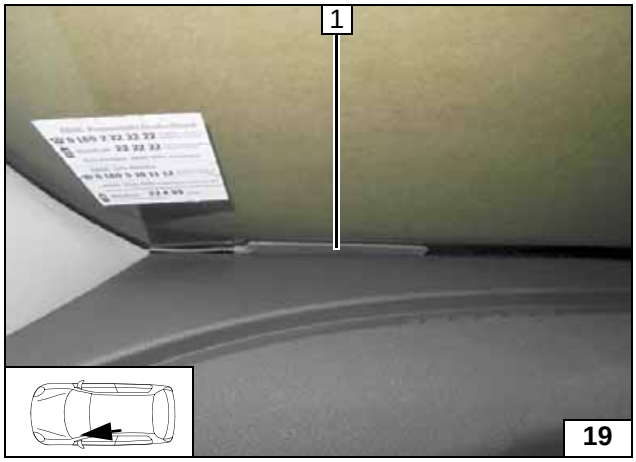
Installing receiver

Fasten receiver **1** with double-sided adhesive tape.

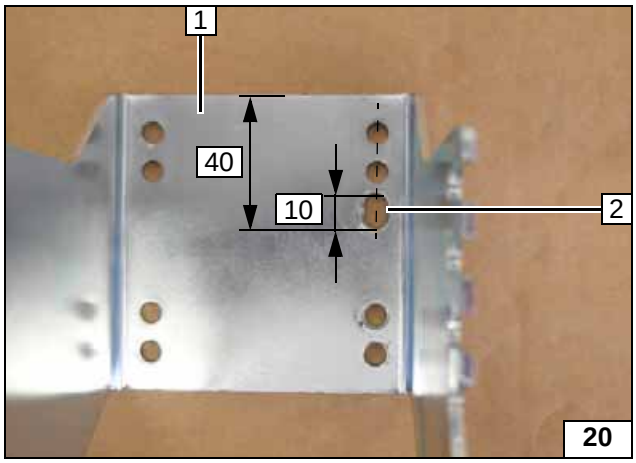



Installing aerial

**1** Aerial (optional)

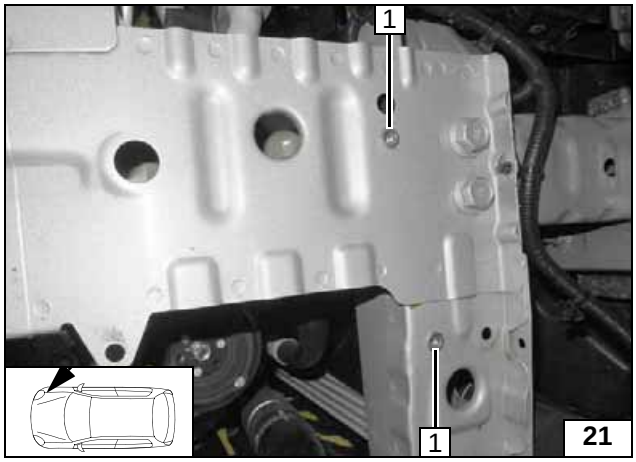


## Preparing Installation Location



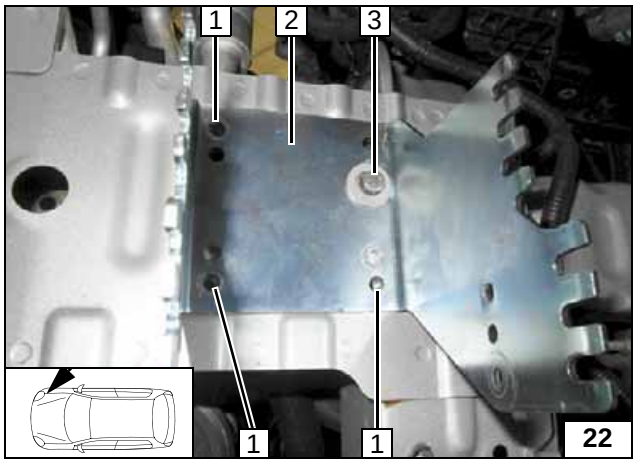

**1** Bracket
**2** Enlarge 7mm dia. hole to 7x10mm dia. oblong hole

**Oblong hole in bracket**




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

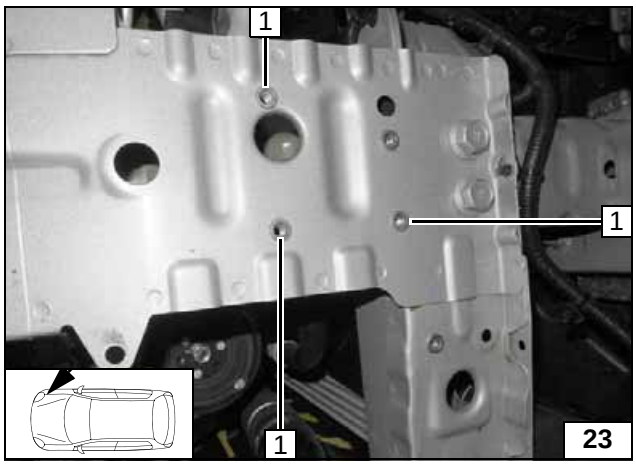
**Installing rivet nuts**




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

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

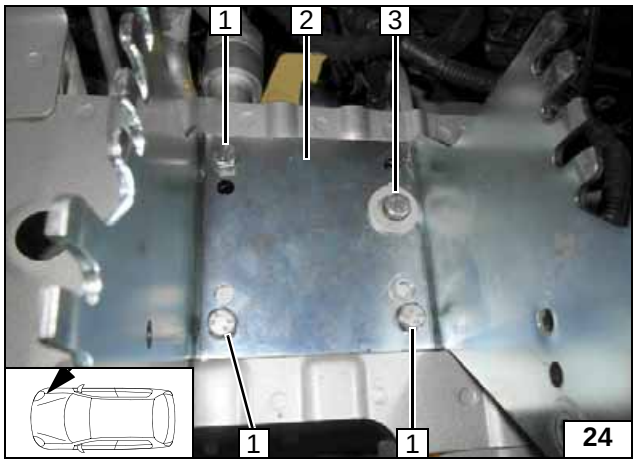
**Installing bracket**




Remove bracket.

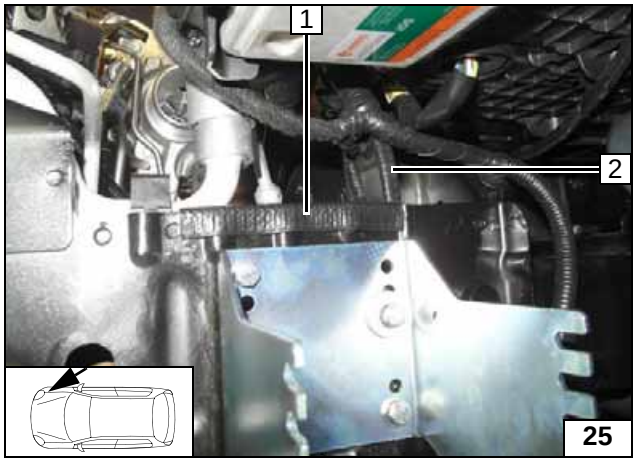
**1** 9.1 mm dia. holes, rivet nut [3x]

**Installing rivet nuts**




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

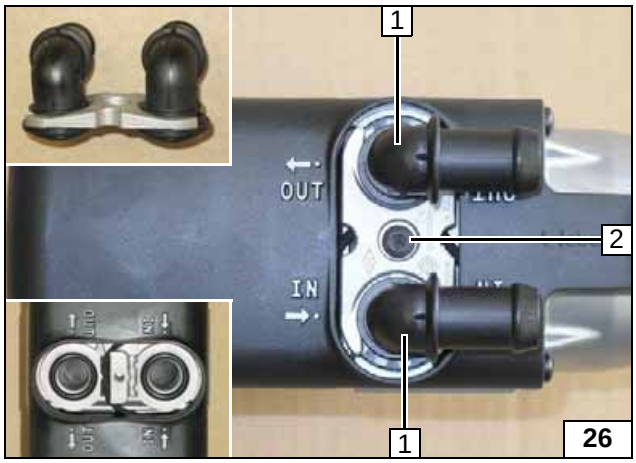
**Installing bracket**




**1** 100 mm wide edge protection
**2** 50 mm narrow edge protection

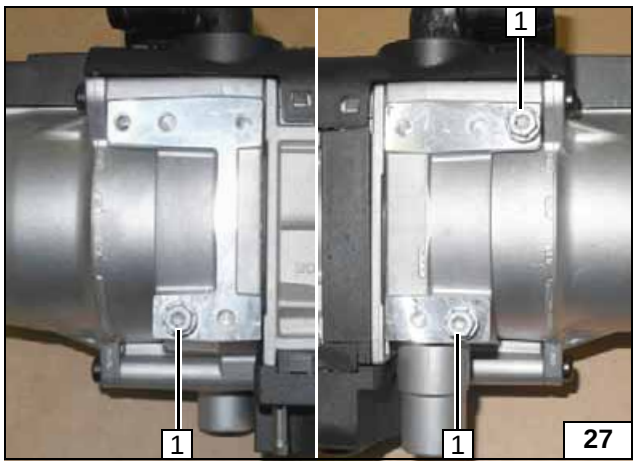
**Installing edge protection**

## Preparing Heater



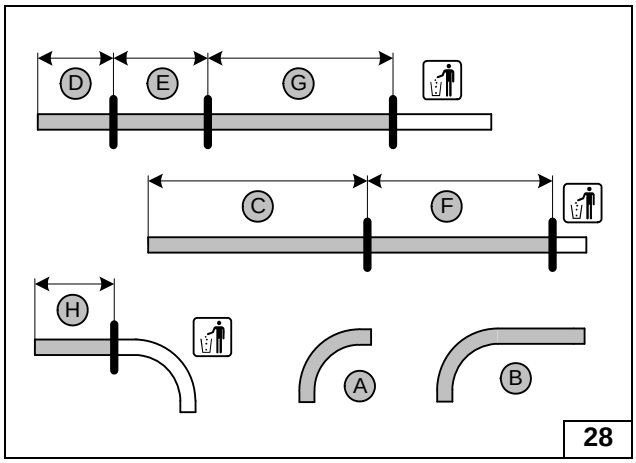

**1** Water connection piece, sealing ring [2x each]
**2** 5x15 self-tapping bolt, retaining plate of water connection piece

**Installing water connection piece**




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

**Premounting bolts loosely**



28

**1.6 D**

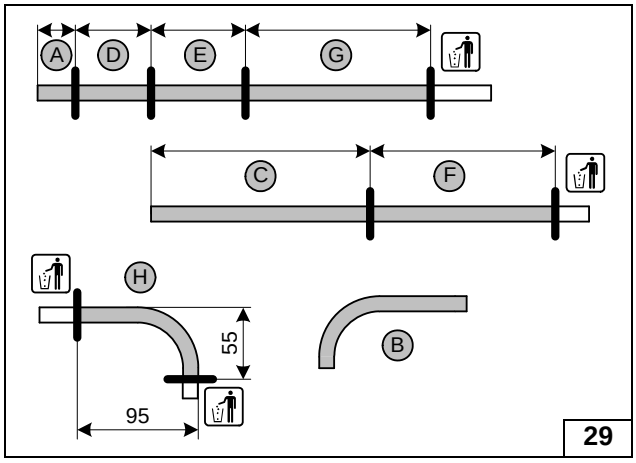
Hose **A**, **B** = 90°, 18mm dia. moulded hose

Hose **H** = 90°, 20mm dia. moulded hose:
**H** = 60

Hose **D, E** and **G** = 18mm dia.:
**D** = 195
**E** = 250
**G** = 480

Hose **C** and **F** = 15mm dia.:
**C** = 580
**F** = 500

**Cutting hoses to length**



29

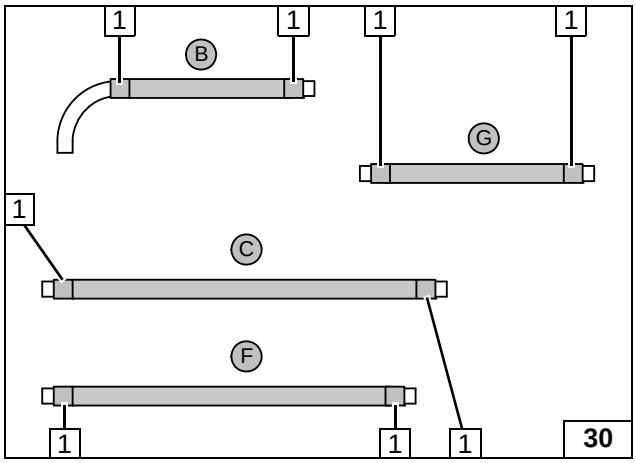
**1.7 D**

Hose **B** = 90°, 18mm dia. moulded hose
Hose **H** = 90°, 20mm dia. moulded hose, cut to length

Hose **A, D, E** and **G** = 18mm dia.:
**A** = 90
**D** = 190
**E** = 225
**G** = 360

Hose **C** and **F** = 15mm dia.:
**C** = 570
**F** = 460

**Cutting hoses to length**



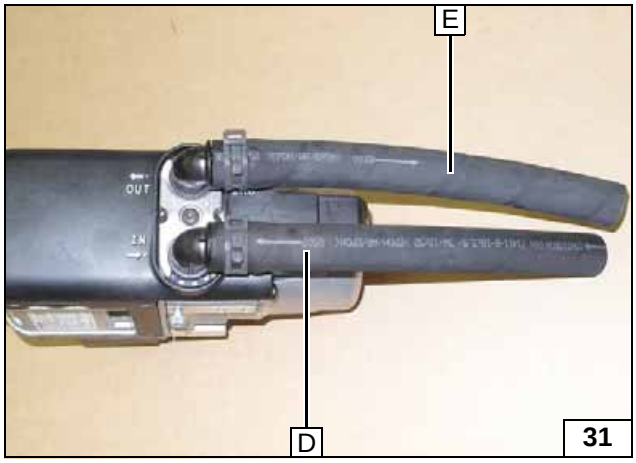
30

**All vehicles**

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

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

**Preparing hoses**



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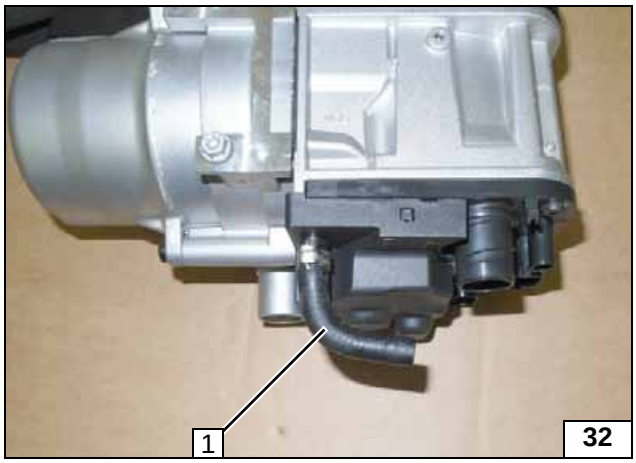
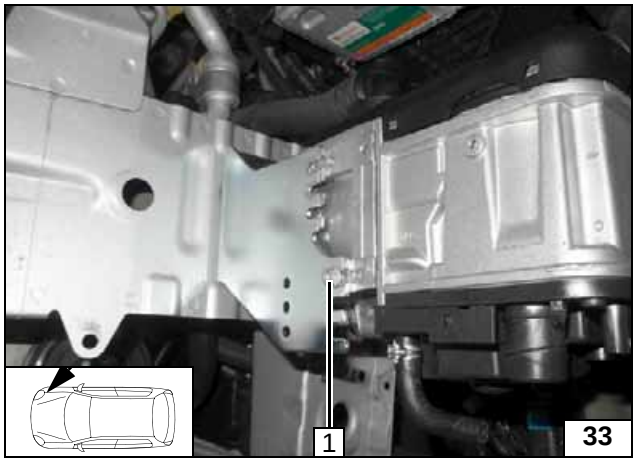
**Premounting hoses**




**1** 90° moulded hose, 10 mm dia. clamp

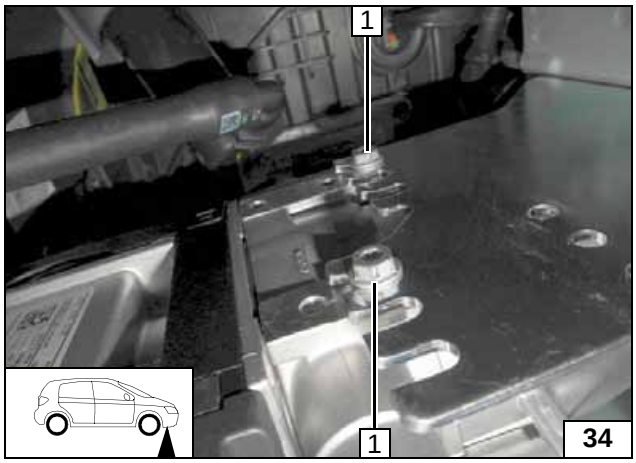
**Premounting moulded hose**

## Installing Heater



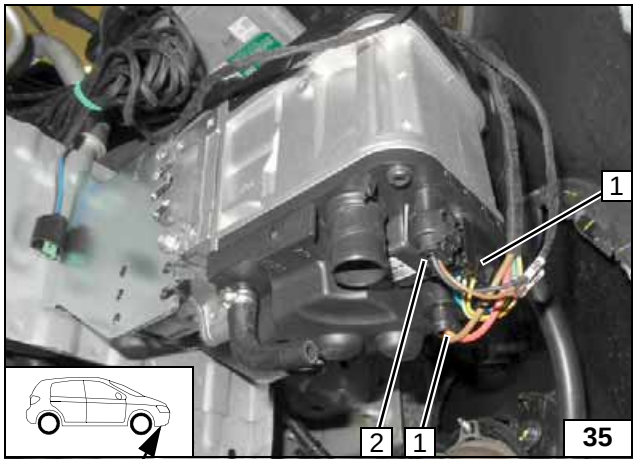

**1** Tighten 5x13 self-tapping bolts

**Installing heater**




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

**Installing heater**




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

**Installing wiring harnesses**

## Fuel

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

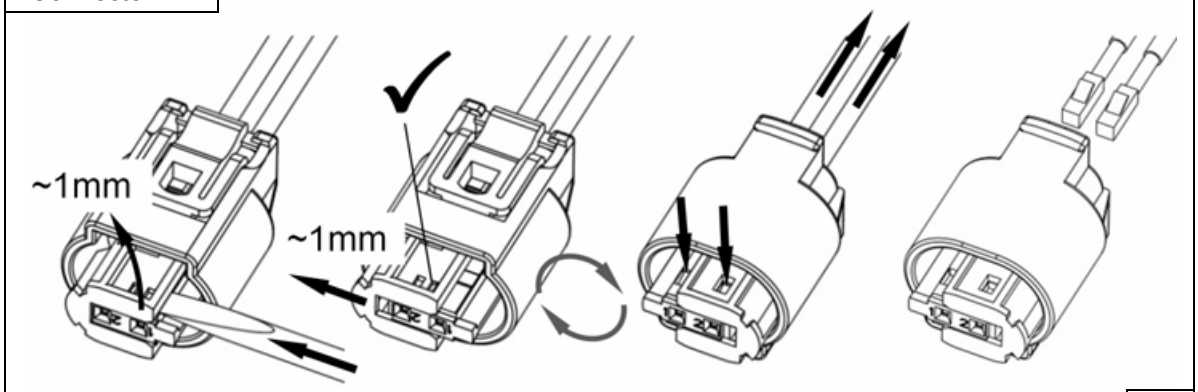
Catch any fuel running off in an appropriate container.

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.

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

**Dismantling metering pump connector**

Connector X7

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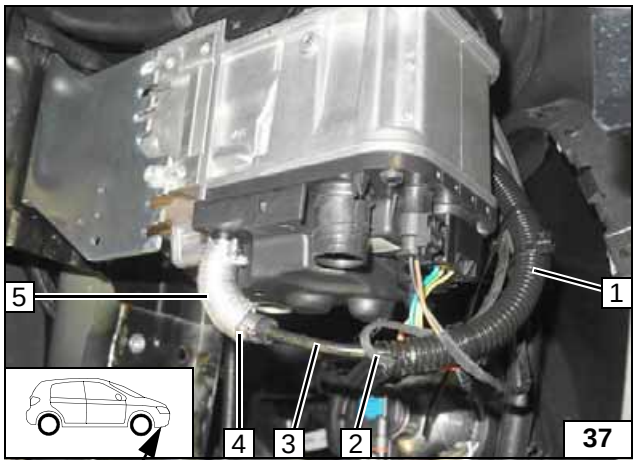


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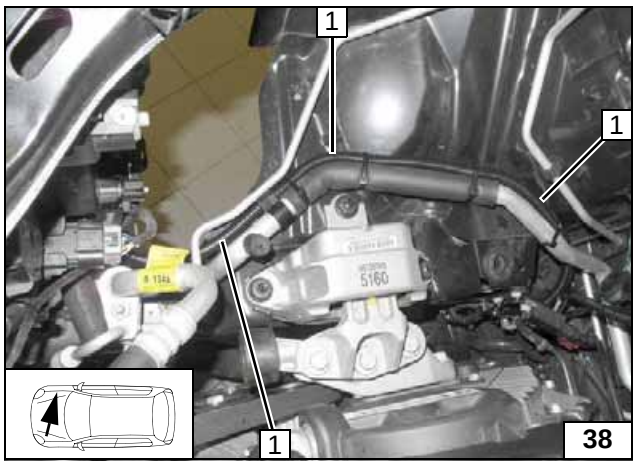
**Connecting heater**

Pull 50mm long flexible tube **5** over 90° moulded hose to provide heat protection. Pull fuel line **3** and wiring harness of metering pump **2** into 2100mm long, 10mm dia. corrugated tube **1** and route it in the engine compartment.

**4** 10 mm dia. clamp

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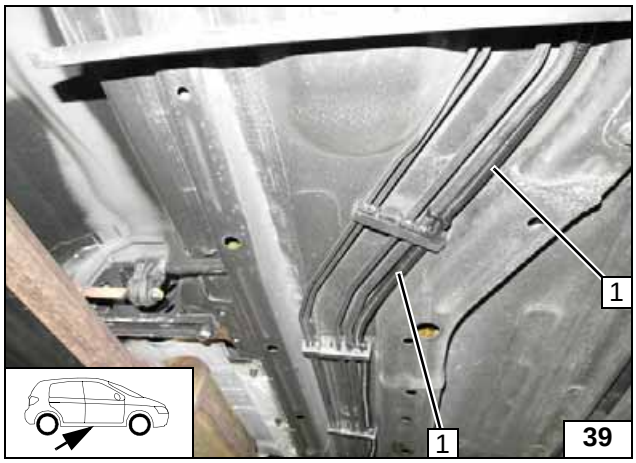
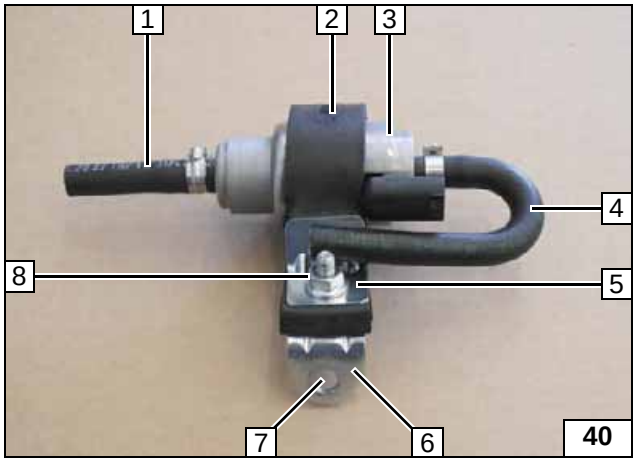
**Routing lines**

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

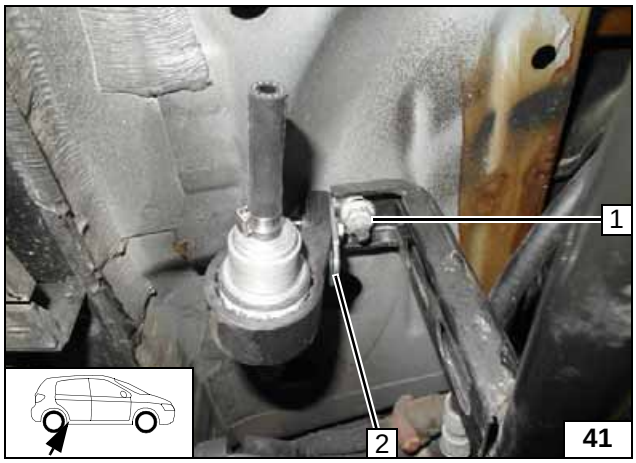
**Routing lines**




Drill out hole of angle bracket **6** at position **7** to 8.5mm dia.

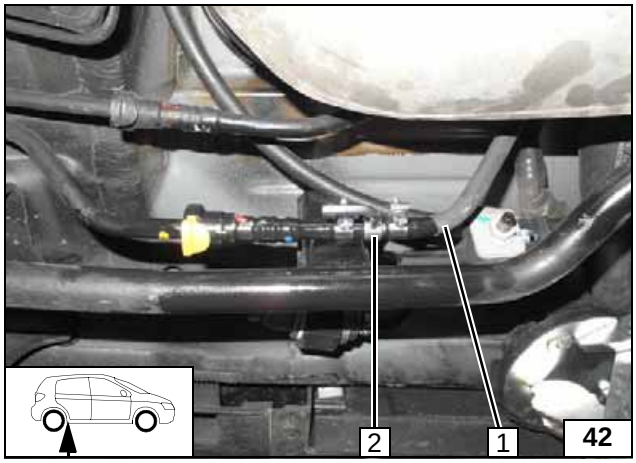
**1** Hose section, 10 mm dia. clamp
**2** Metering pump mount
**3** Metering pump
**4** 180° moulded hose, 10 mm dia. clamp
**5** Support angle bracket
**8** M6x25 bolt, flanged nut

**Premounting metering pump**




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

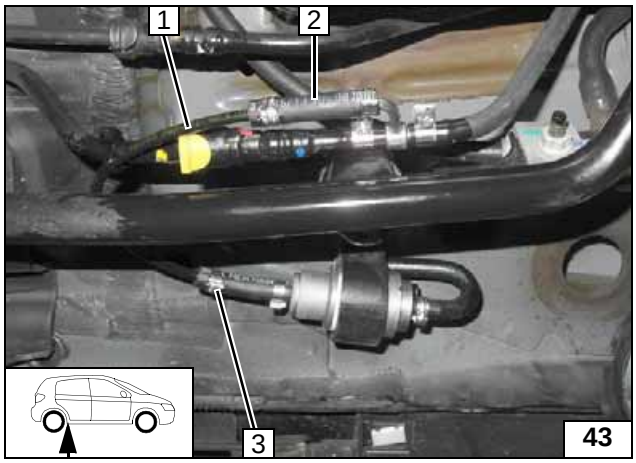
**Installing metering pump**




Separate fuel return line **1** at position **2**.

**2** 8x5x8, 90° fuel standpipe, 10mm dia. hose clamp [2x] in fuel return line

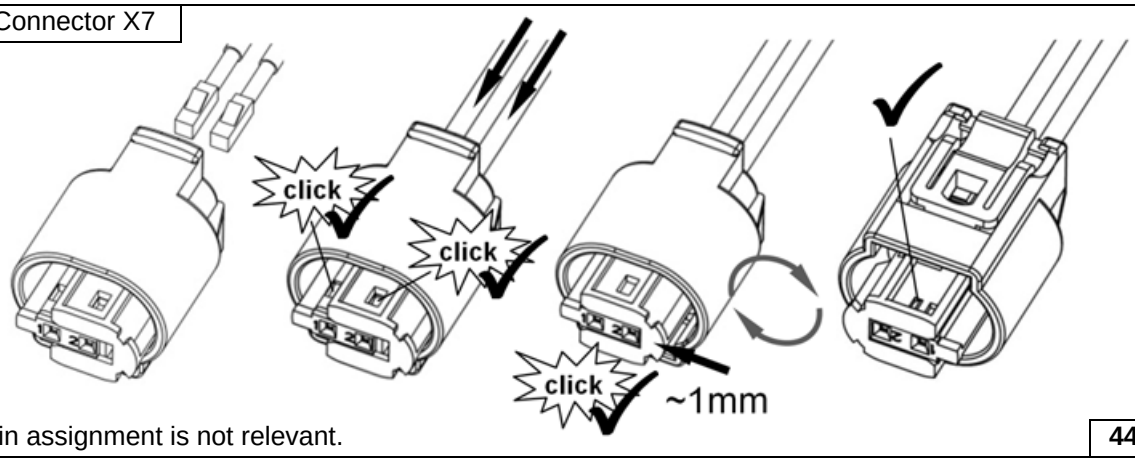
**Fuel extraction**




**1** Fuel line of fuel standpipe
**2** Hose section, 10 mm dia. clamp [2x]
**3** 10 mm dia. clamp

**Connecting metering pump**

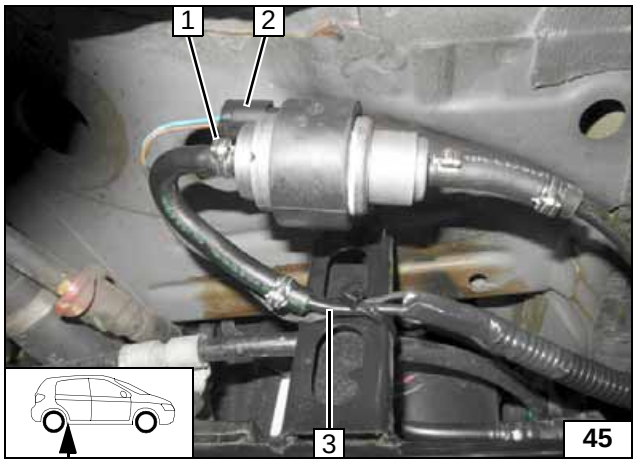
Connector X7




Pin assignment is not relevant.

44

**Completing metering pump connector**

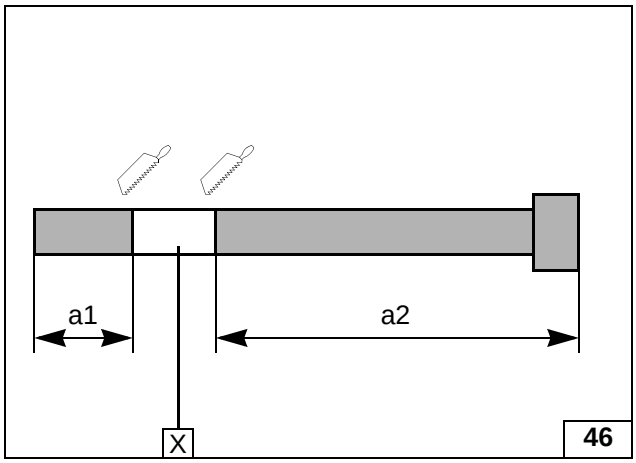



Ensure sufficient distance from adjacent components and freedom of movement; correct if necessary.

**1** 10 mm dia. clamp
**2** Metering pump wiring harness, connector X7 mounted
**3** Fuel line of heater

**Connecting metering pump**

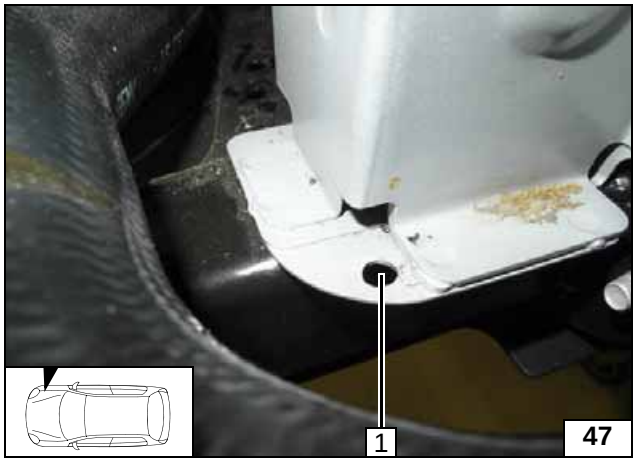
## Exhaust Gas




| | 1.6 D | 1.7 D |
|---|---|---|
| **a1**= | 125 | 85 |
| **a2**= | 360 | 400 |

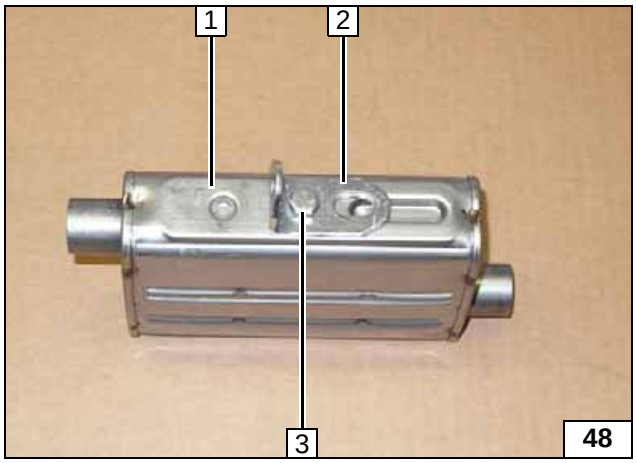
**X** =

**Preparing exhaust pipe**




**1** 7 mm dia. hole as shown

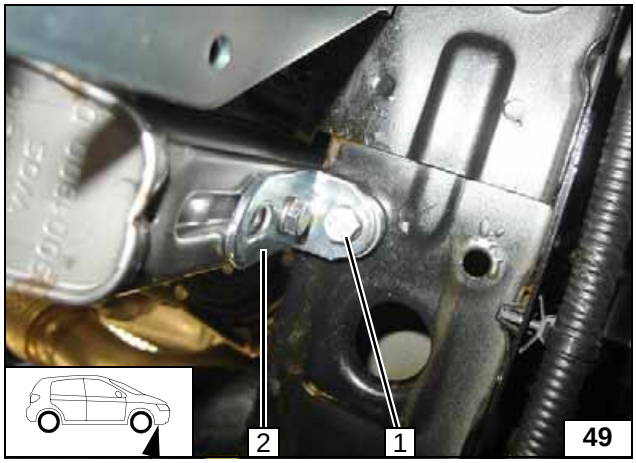
**Hole in cross member**




**1.6 D**

**1** Silencer
**2** Angle bracket
**3** M6x16 bolt, spring lockwasher

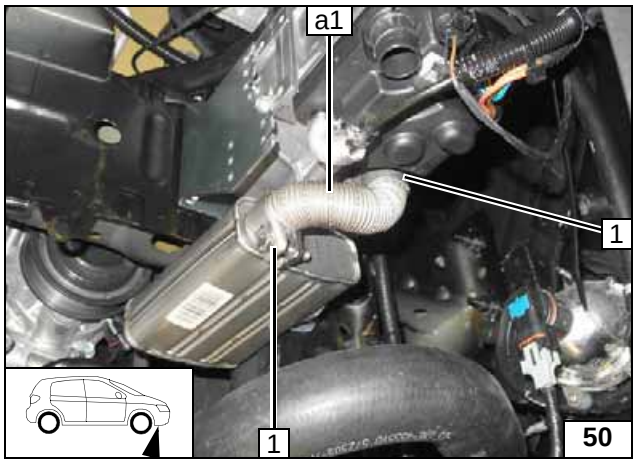
**Premounting silencer**




**1** M6x25 bolt, spring lockwasher, shim, on rivet nut
**2** Angle bracket

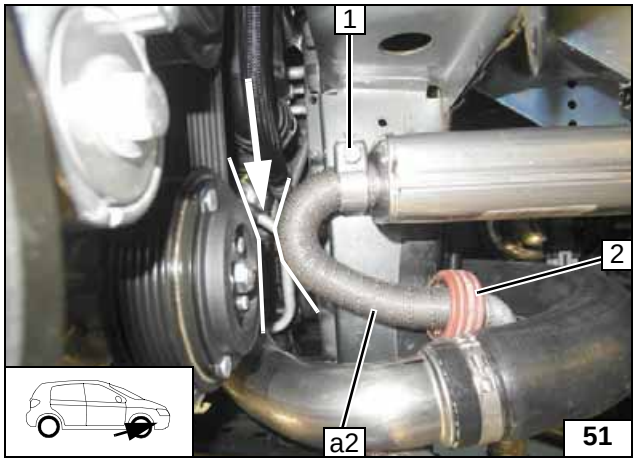
**Installing silencer**

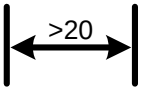



**1** Hose clamp [2x]

**Installing exhaust pipe a1**

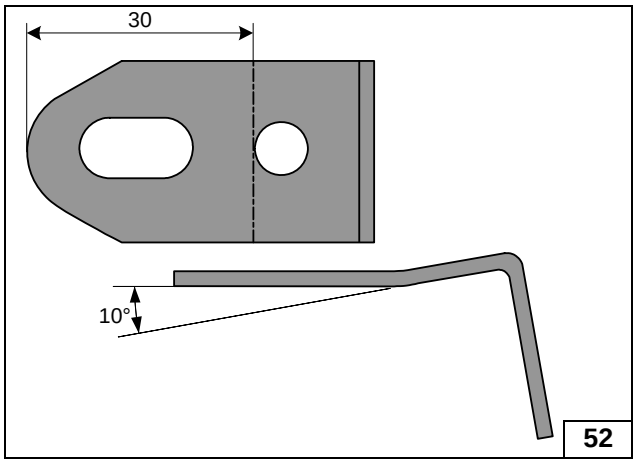



**1** Hose clamp
**2** Slide on spacer bracket, align with original vehicle hose

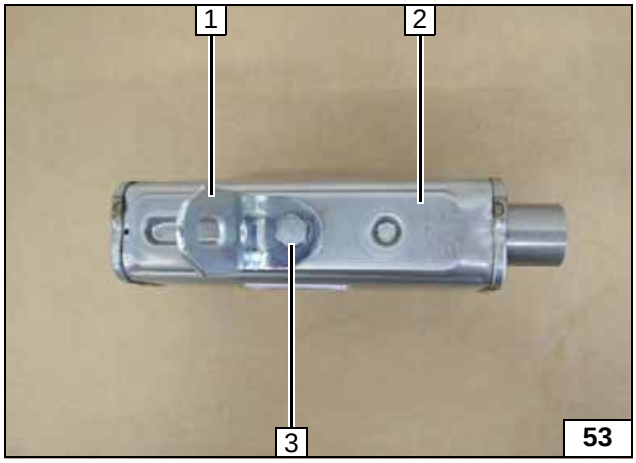



**Installing exhaust pipe a2 / checking distance**

**1.7 D**

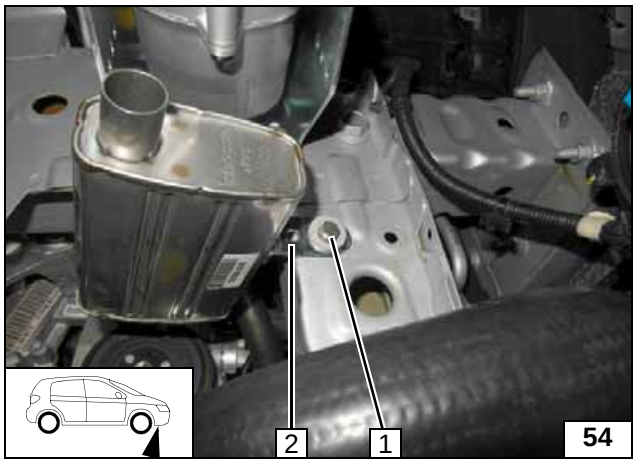



**Preparing angle bracket**



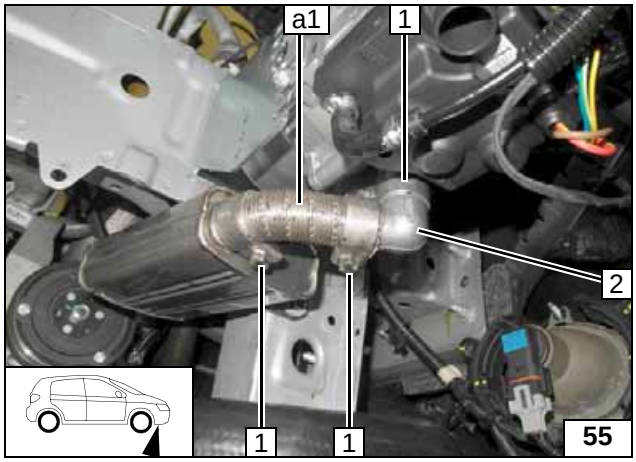

**1** Angle bracket
**2** Silencer
**3** M6x16 bolt, spring lockwasher

**Premounting silencer**



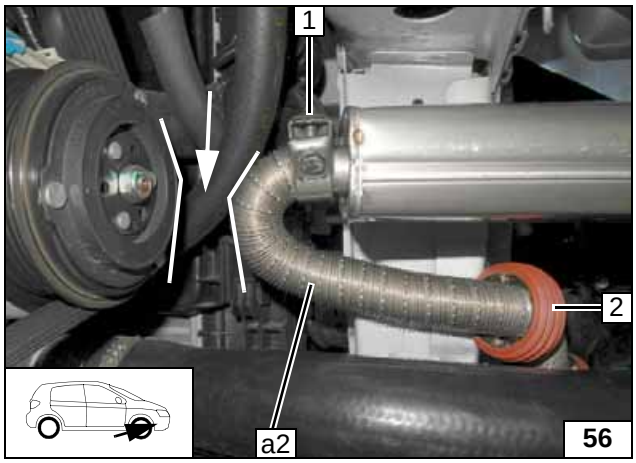

**1** M6x20 bolt, spring lockwasher, large diameter washer on rivet nut
**2** Angle bracket

**Installing silencer**

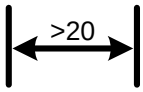



**1** Hose clamp [3x]
**2** Exhaust elbow

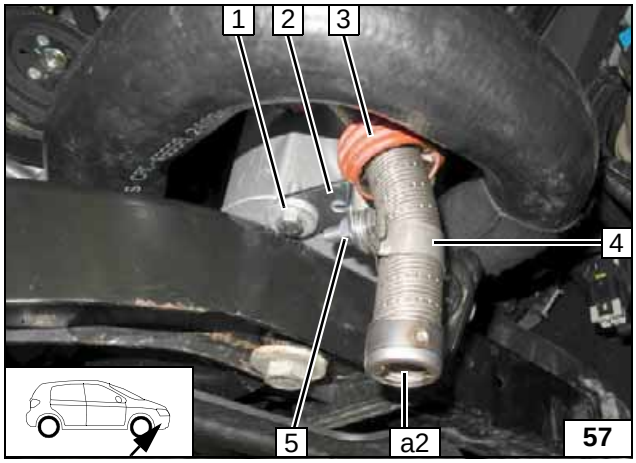
**Installing exhaust pipe a1**




**1** Hose clamp
**2** Slide on spacer bracket, align with original vehicle hose




**Installing exhaust pipe a2**

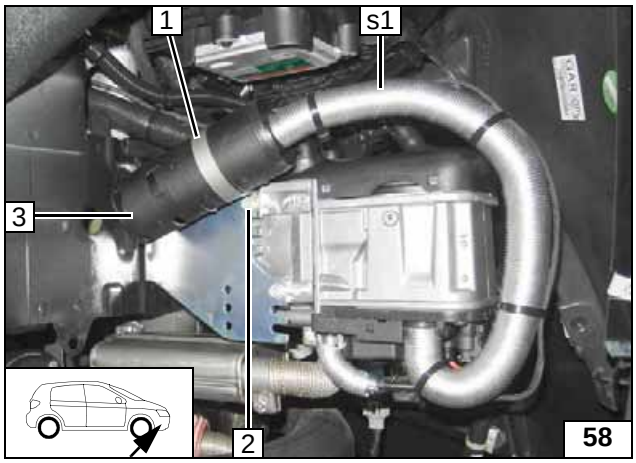



**All vehicles**

Ensure sufficient distance 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 with original vehicle hose
**4** P-clamp
**5** M6x20 bolt, flanged nut

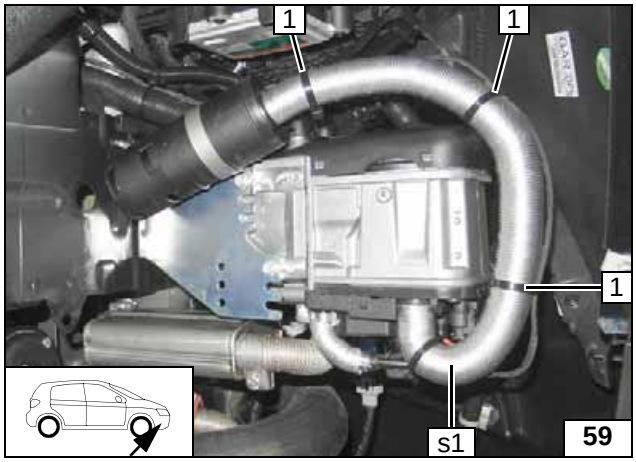
**Fastening exhaust pipe a2**




## Combustion Air

**1** 51 mm dia. clamp
**2** 5x13 self-tapping bolt
**3** Silencer

**Installing combustion air pipe s1**



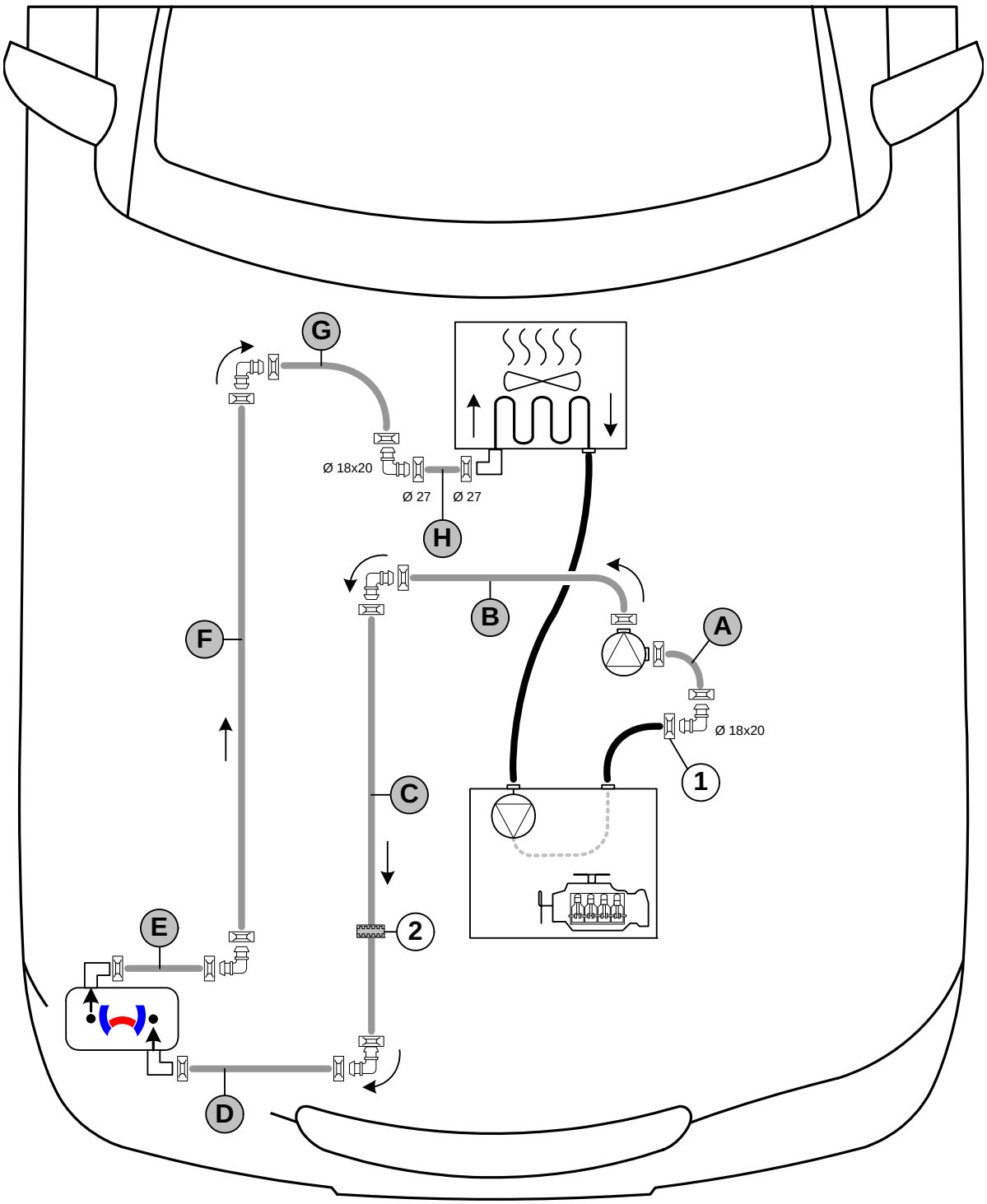

Fasten wiring harnesses using cable tie **1** to combustion air pipe **s1**.

**Installing combustion air pipe s1**

## Coolant Circuit for 1.6 D

**WARNING!**
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 'inline' circuit and based on the following diagram:

**Hose routing diagram**

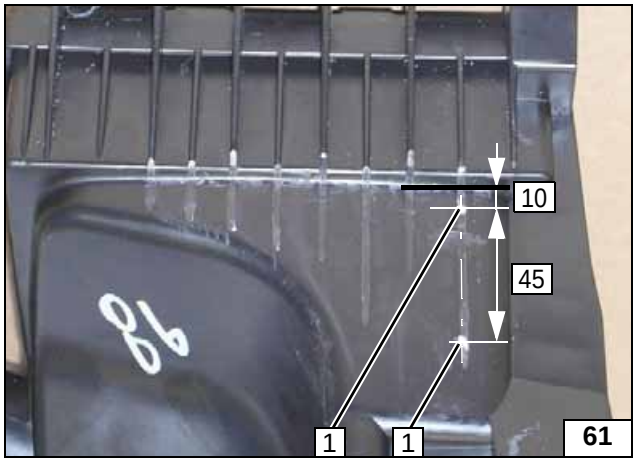



All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation = 18x18mm dia. **1** = Original vehicle spring clip. **2** = Black (sw) rubber isolator


Remove marked sections of ribs [8x] up to the marked air filter box edge (see next figure)!

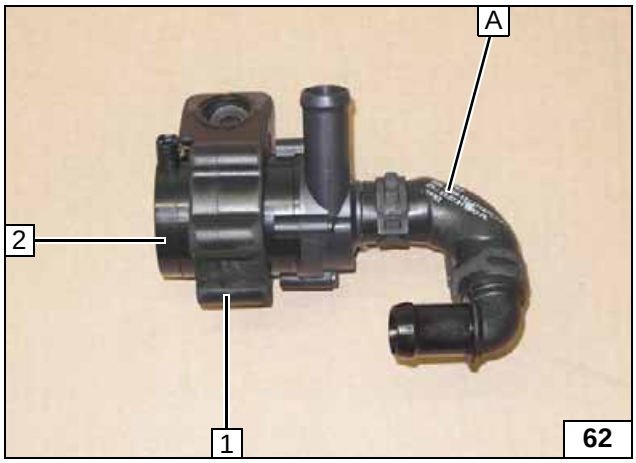
**1** Air filter box

**Adapting air filter box**



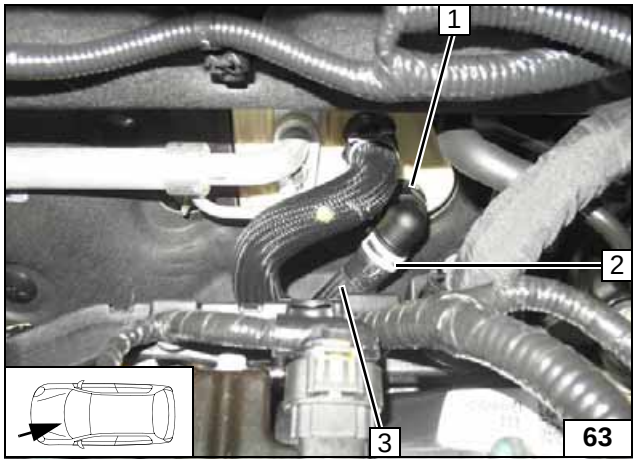

**1** 5mm dia. hole [2x]

**Adapting air filter box**



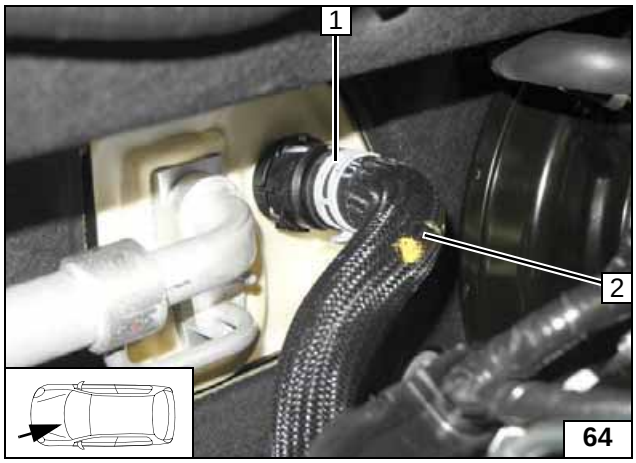

**1** Circulating pump mount
**2** Circulating pump

**Premounting circulating pump**



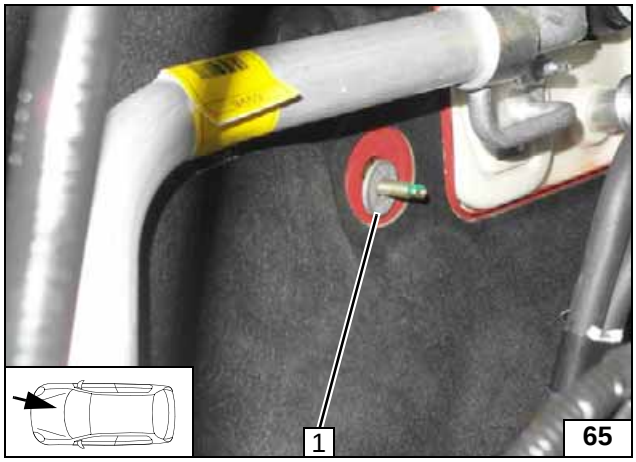

Detach quick-release coupling **1** from connection piece on the heat exchanger inlet. Remove hose on heat exchanger inlet **3** from quick-release coupling. Spring clip **2** will be reused.

**Cutting point**




**1** Turn original vehicle spring clip as shown
**2** Hose of heat exchanger outlet

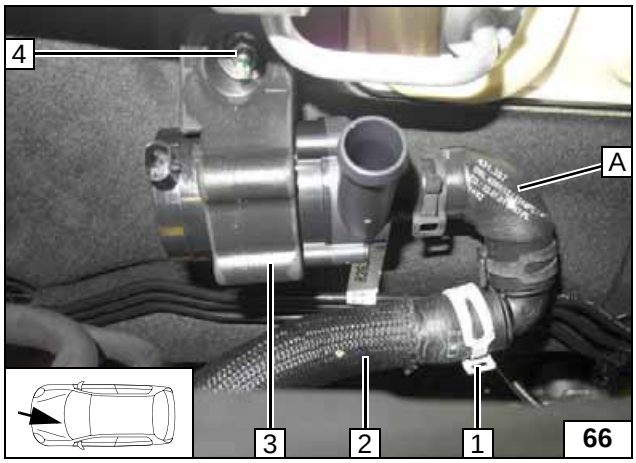
**Turning clamp**




Remove original vehicle nut from stud bolt and discard.

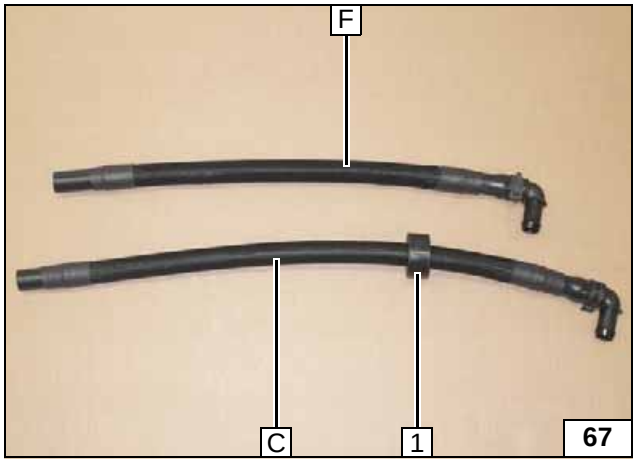
**1** Install large diameter washer with dia. $d_a$ = 21.6mm onto stud bolt

**Preparing installation location of circulating pump**



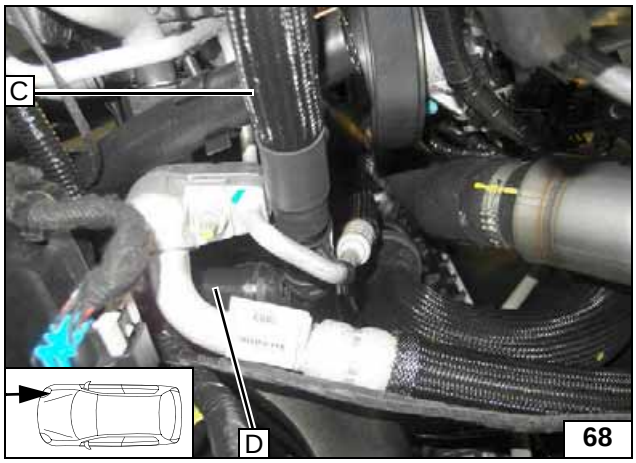

**1** Original vehicle spring clip
**2** Hose of engine outlet
**3** Circulating pump mount
**4** Flanged nut on original vehicle stud bolt

**Installing circulating pump / connecting engine outlet**

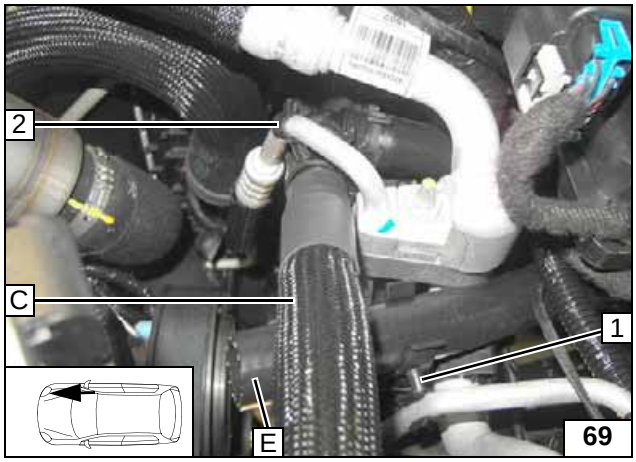



**1** Black (sw) rubber isolator

**Preparing hoses**

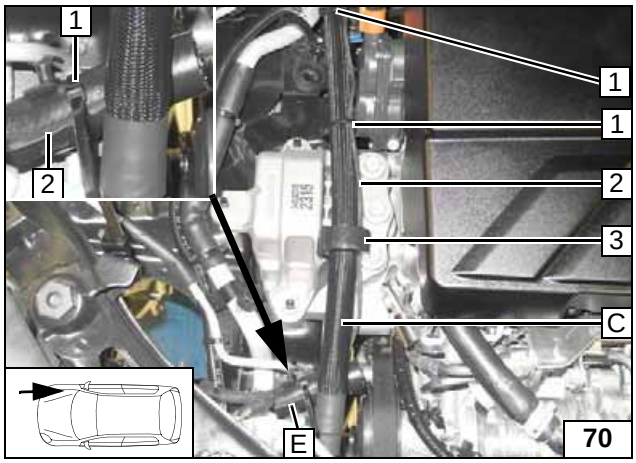



Routing in engine compartment



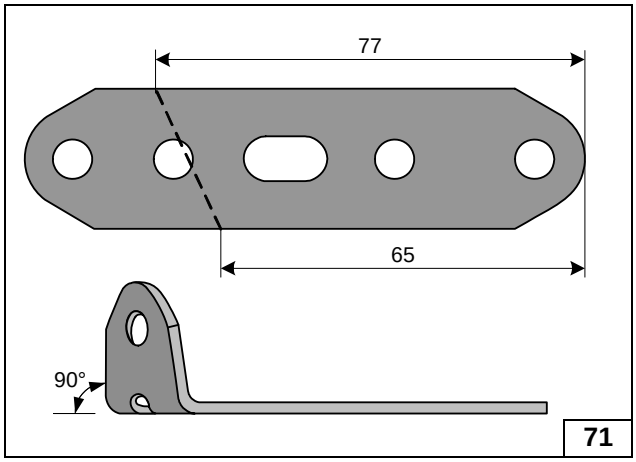

**1** 13x23 hose bracket between A/C line and hose **E**
**2** 13x23 hose bracket between A/C line and hose **C**

Routing in engine compartment

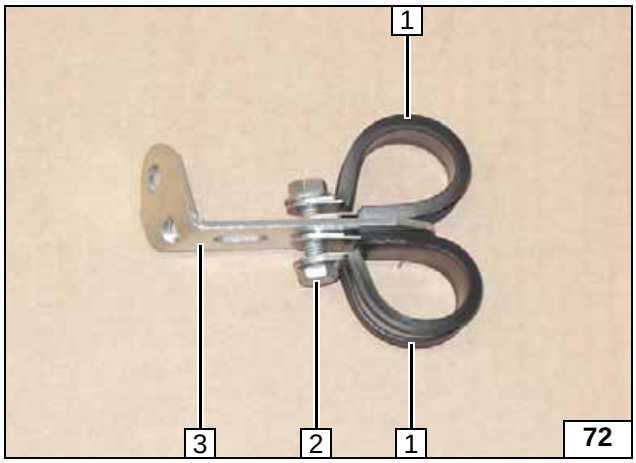



**1** Cable tie [3x]
**2** Circulating pump wiring harness
**3** Align black (sw) rubber isolator

Routing in engine compartment

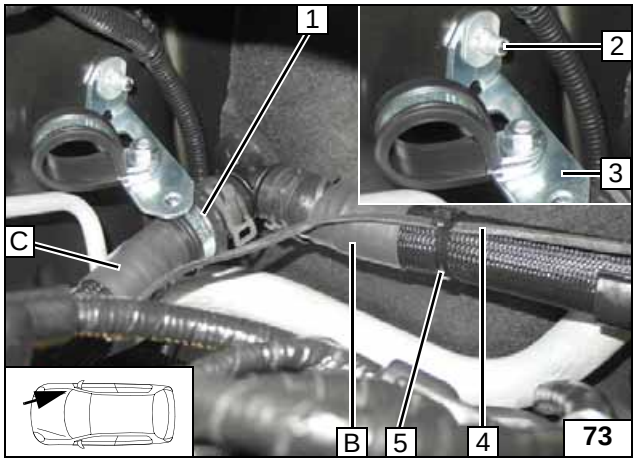



Preparing perforated bracket




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

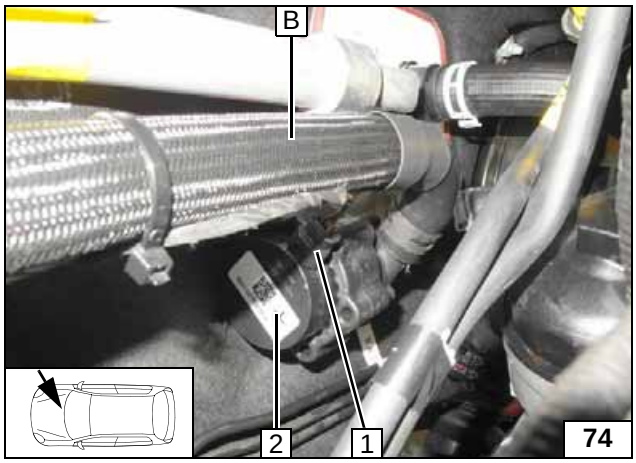
**Premounting perforated bracket**




Install perforated bracket **3** as shown.
Route hose **C** through lower rubber-coated p-clamp **1**.

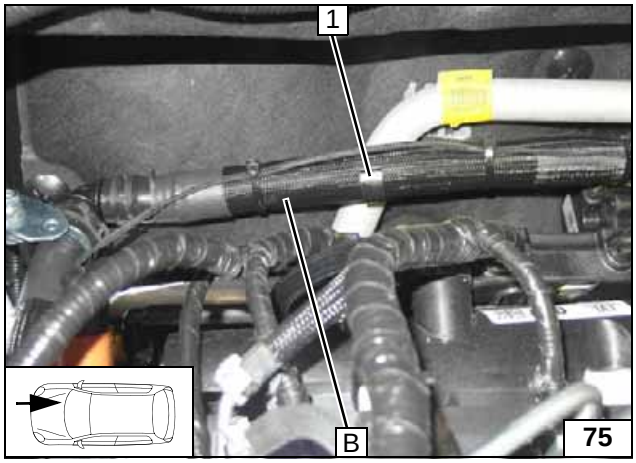
**2** Original vehicle stud bolt, cap nut
**4** Circulating pump wiring harness
**5** Cable tie

**Routing in engine compartment**




**1** Connector of circulating pump wiring harness
**2** Circulating pump

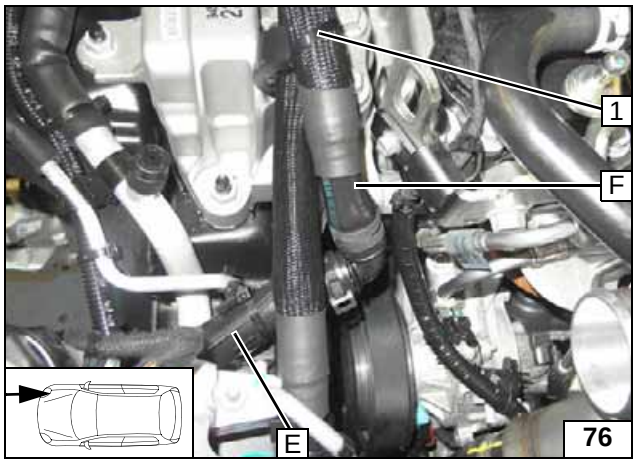
**Connecting circulating pump**




**1** 25x25 hose bracket between A/C line and hose **B**

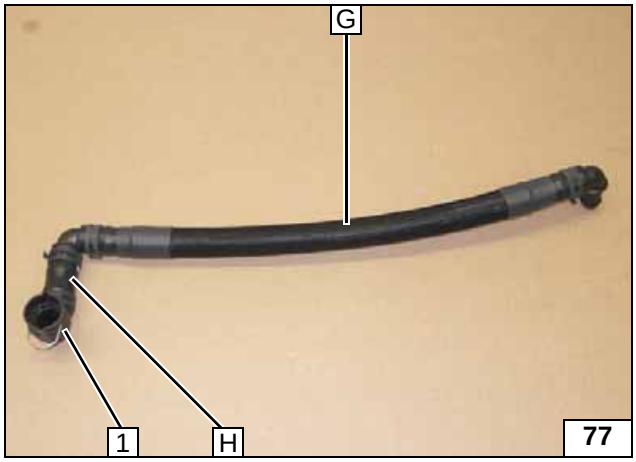
**Installing hose bracket**



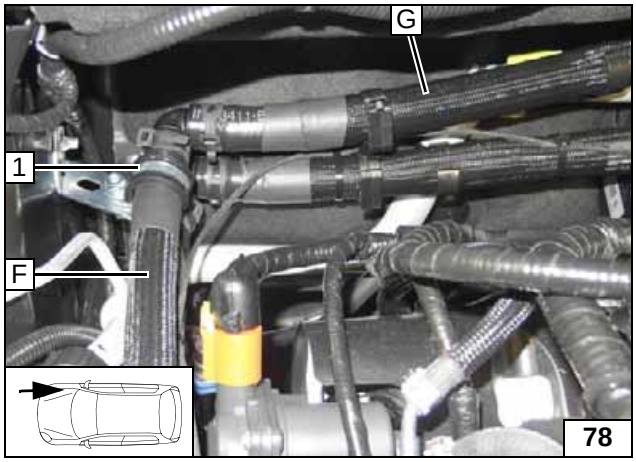

**1** Cable tie

**Routing in engine compartment**



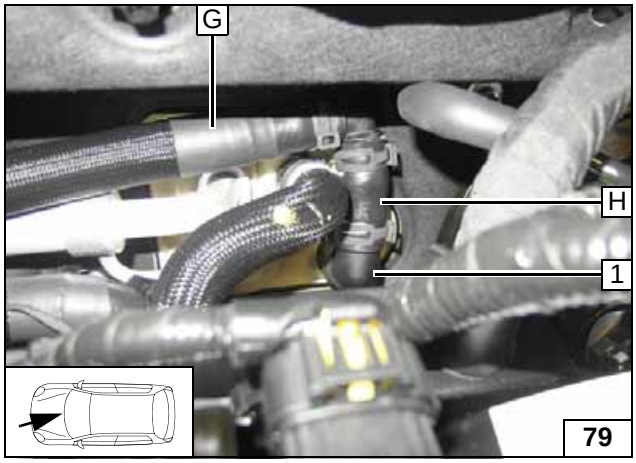

**1** Original vehicle quick-release coupling of heat exchanger inlet

**Premounting hoses**



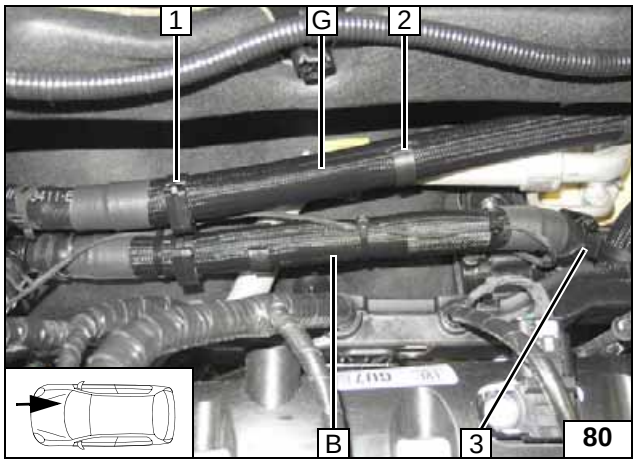

Route hose **F** through upper rubber-coated p-clamp **1**.

**Routing in engine compartment**



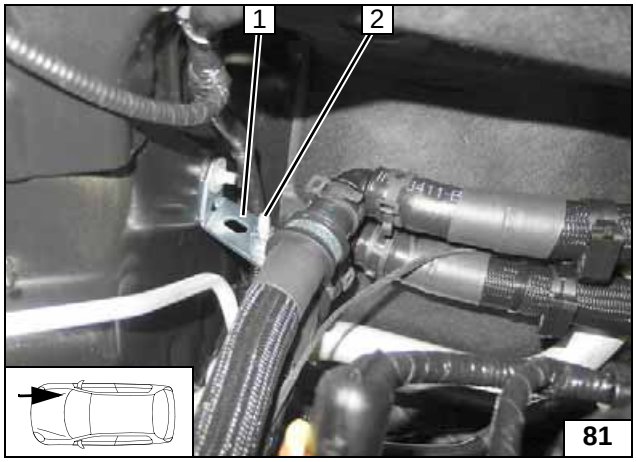

**1** Original vehicle quick-release coupling of heat exchanger inlet

**Routing in engine compartment**




**1** 25x25mm dia. hose bracket between hose **B** and hose **G**
**2** 25x25 hose bracket between A/C line and hose **G**
**3** 25x25mm hose bracket between hose **B** and hose of heat exchanger outlet

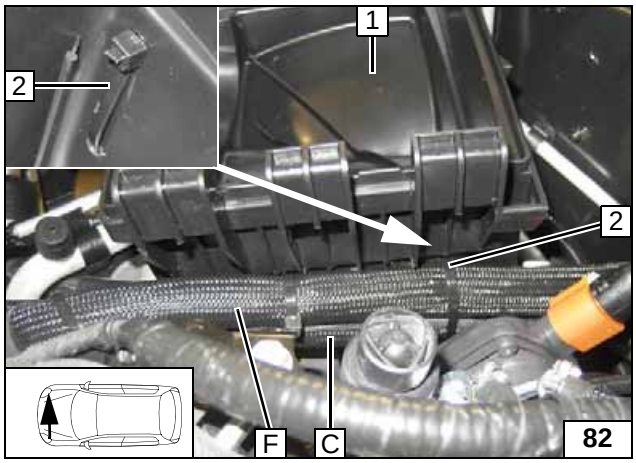
**Installing hose bracket**




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

**1** Perforated bracket
**2** M6x25 bolt, flanged nut

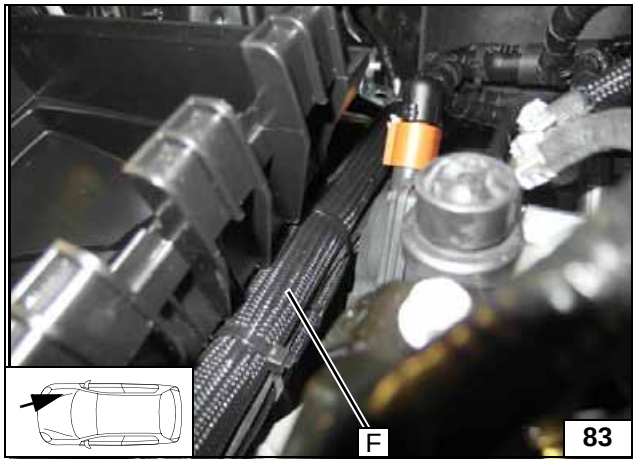
**Tightening bolt connections**




Installing air filter box
To secure hoses **C** and **F**, guide cable tie **2** through the prepared holes in the air filter box.

**1** Air filter box

**Aligning hoses**



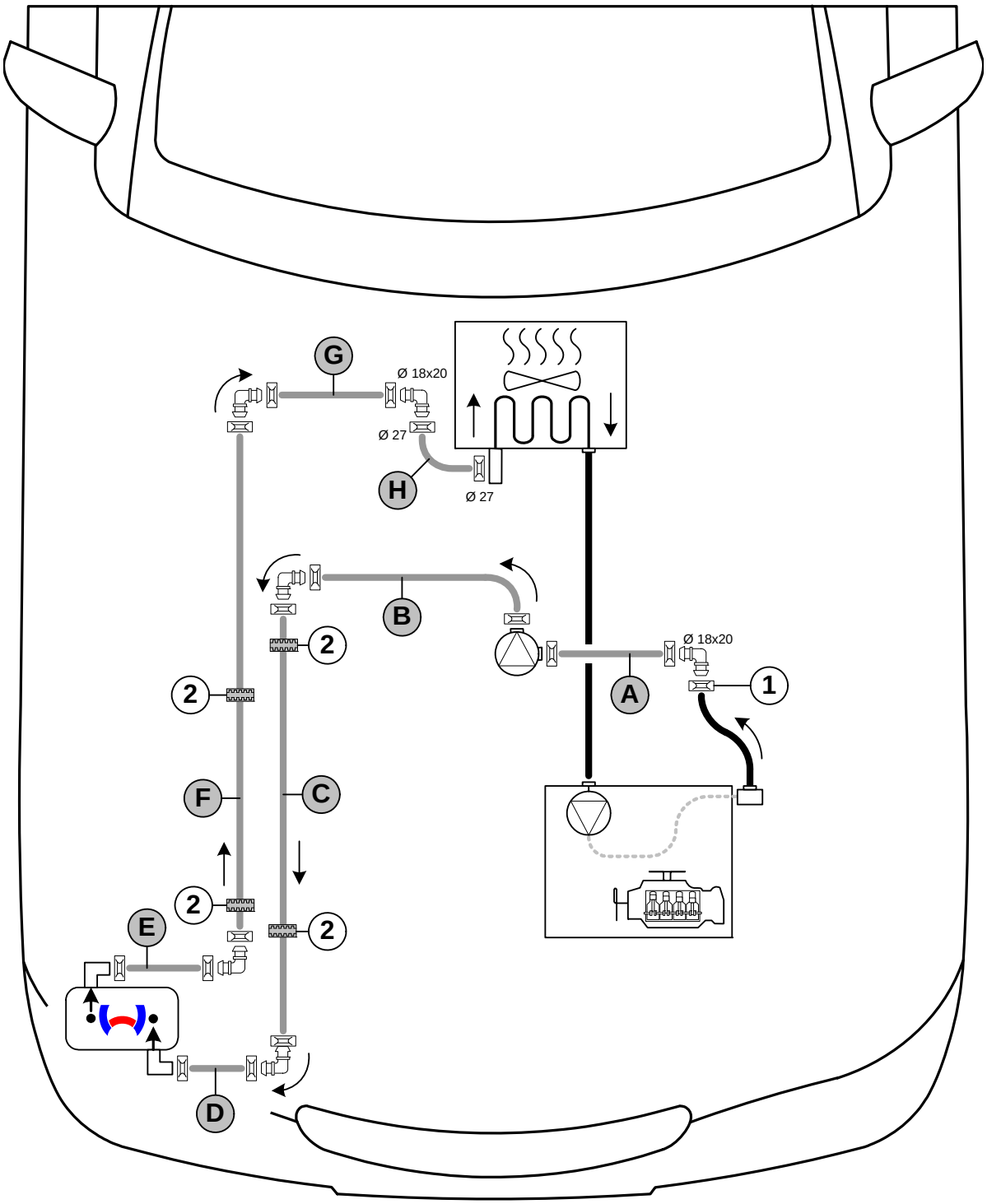

Ensure sufficient distance from neighbouring components, correct if necessary.

**Aligning hoses**

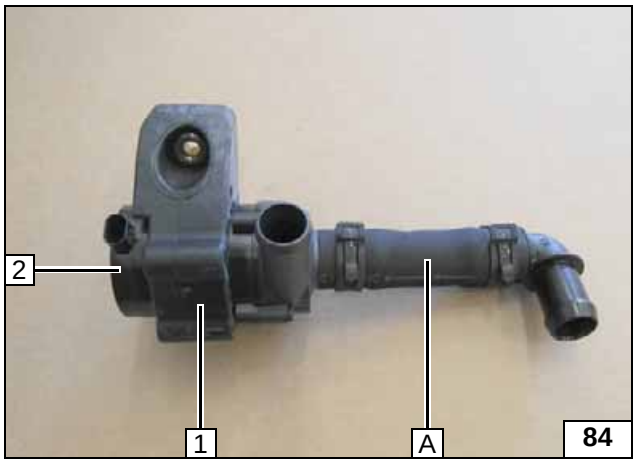
## Coolant Circuit for 1.7 D

**WARNING!**
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 'inline' circuit and based on the following diagram:

**Hose routing diagram**

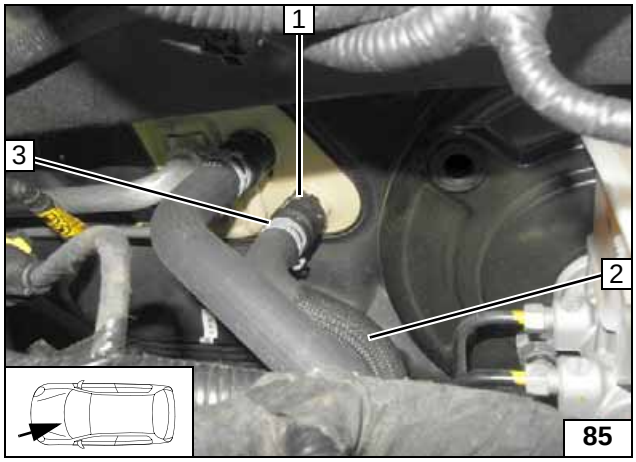



All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation = 18x18mm dia. **1** = Original vehicle spring clip.
**2** = Black (sw) rubber isolator



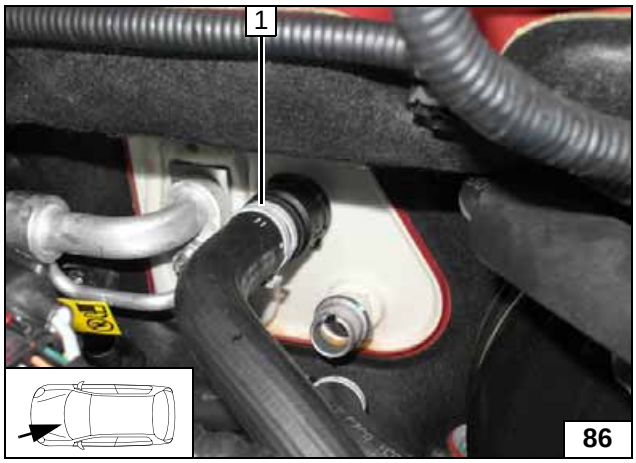

**1** Circulating pump mount
**2** Circulating pump

**Premounting circulating pump**



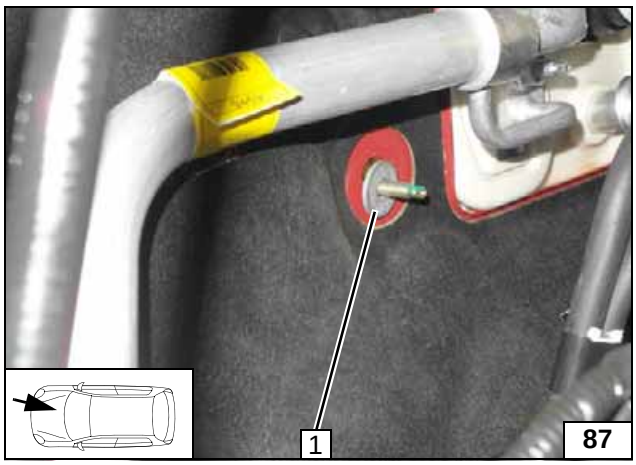

Detach quick-release coupling **1** from connection piece on the heat exchanger inlet. Remove hose on heat exchanger inlet **2** from quick-release coupling. Spring clip **3** will be reused.

**Cutting point**




**1** Turn original vehicle spring clip as shown

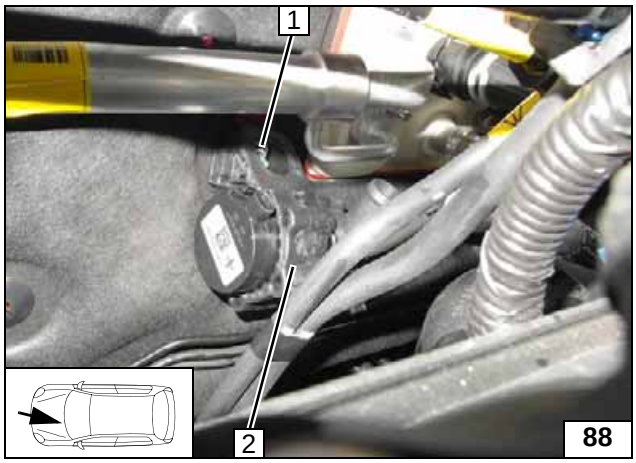
**Turning clamp**




Remove original vehicle nut from stud bolt and discard.

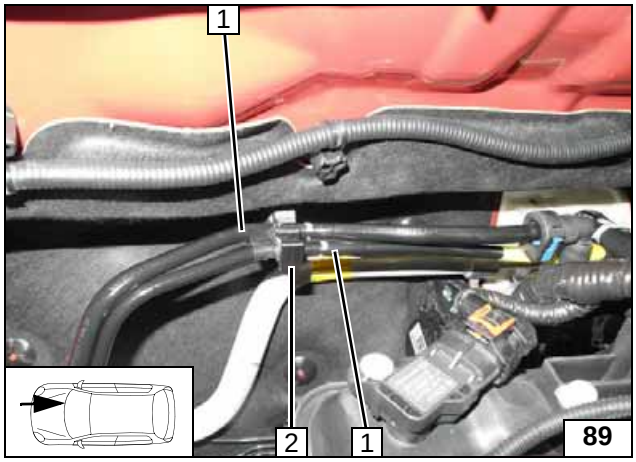
**1** Install large diameter washer with dia. $d_a$ = 21.6mm onto stud bolt

**Preparing installation location of circulating pump**



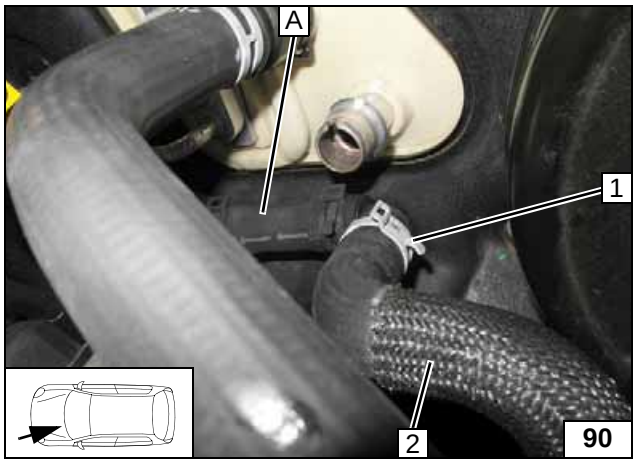

**1** Flanged nut on original vehicle stud bolt
**2** Circulating pump mount

**Installing circulating pump**



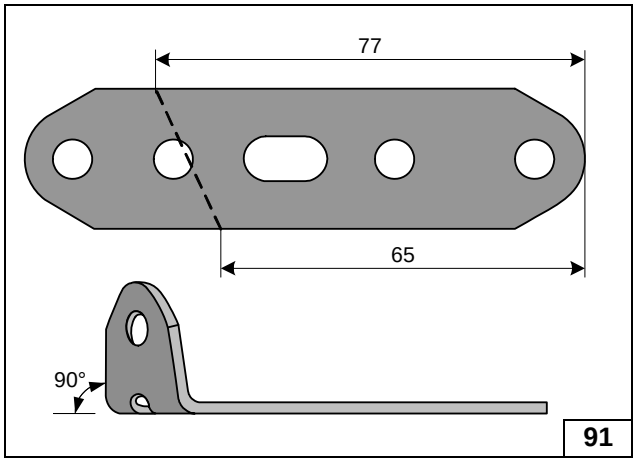

Detach original vehicle fuel lines **1** from original vehicle bracket **2** and reinstall as shown.

**Repositioning fuel lines**

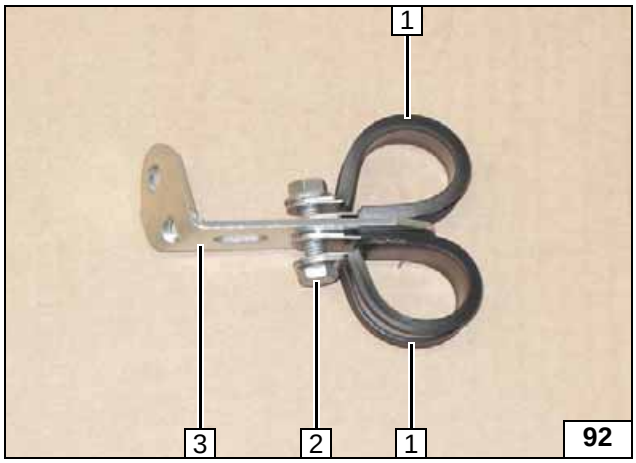



**1** Original vehicle spring clip
**2** Hose of engine outlet

**Connecting engine outlet**

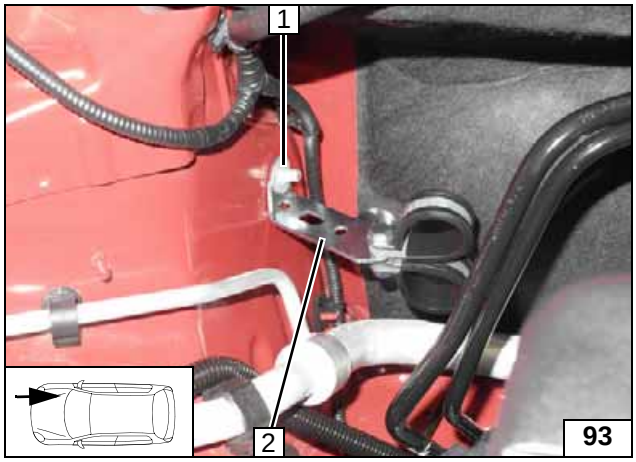



**Preparing perforated bracket**



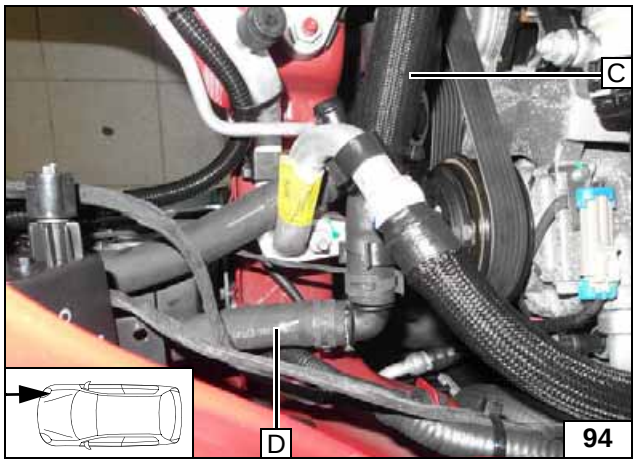

**1** 25mm dia. rubber-coated pipe clamp [2x]
**2** Install loosely M6x25 bolt, flanged nut
**3** Perforated bracket

**Premounting perforated bracket**

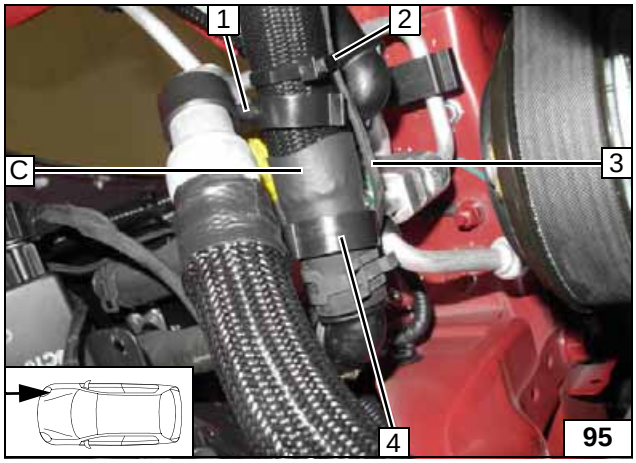



**1** Original vehicle stud bolt, cap nut
**2** Perforated bracket

**Installing perforated bracket**

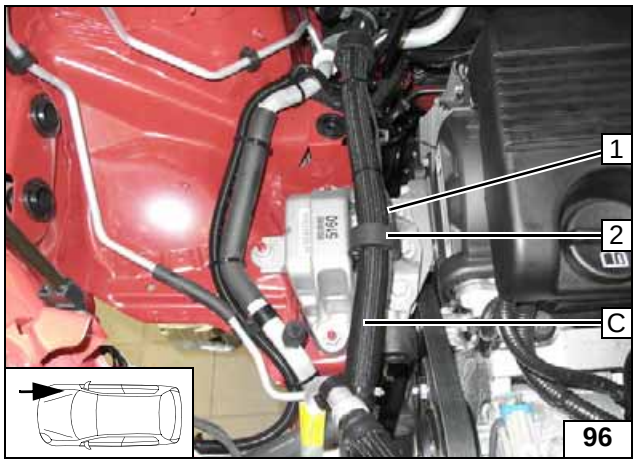



**Routing in engine compartment**



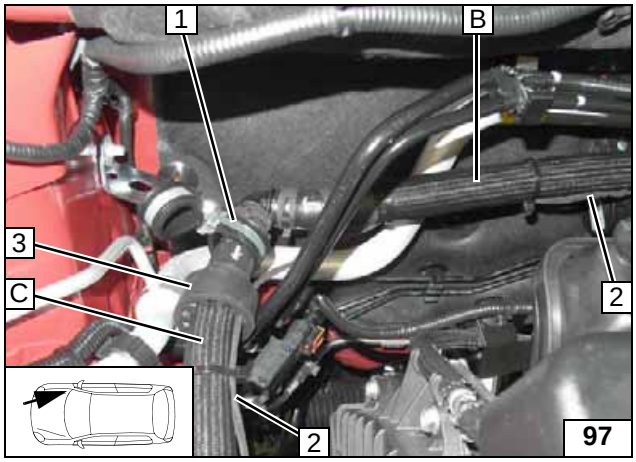

**1** 25x25 hose bracket between A/C line and hose **C**
**2** Cable tie
**3** Circulating pump wiring harness
**4** 13x23 hose bracket between A/C line and hose **C**

**Routing in engine compartment**




**1** Circulating pump wiring harness
**2** Slide on black (sw) rubber isolator and align

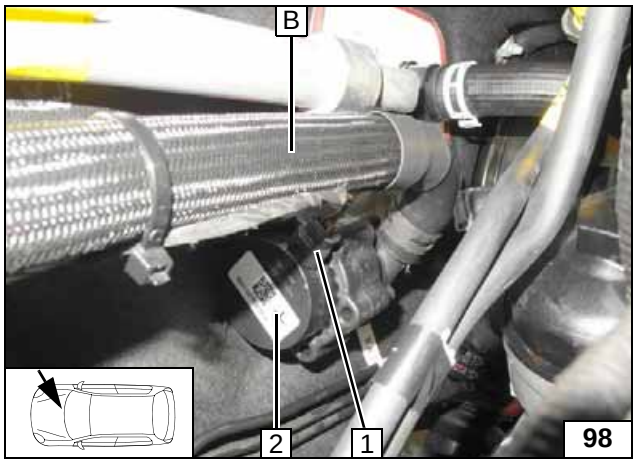
**Routing in engine compartment**




Route hose **C** through lower rubber-coated p-clamp **1**.

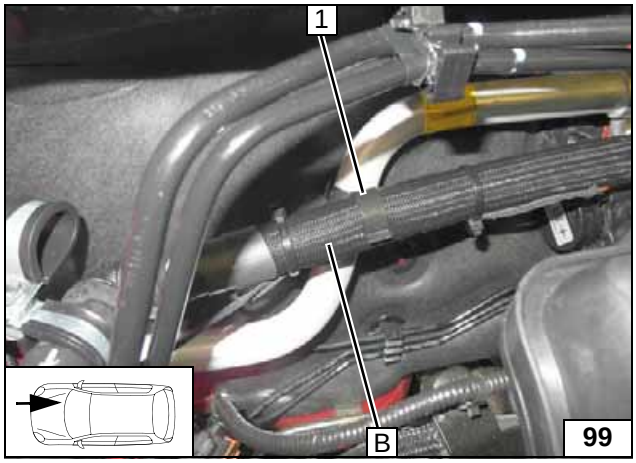
**2** Circulating pump wiring harness
**3** Slide on black (sw) rubber isolator and align

**Routing in engine compartment**



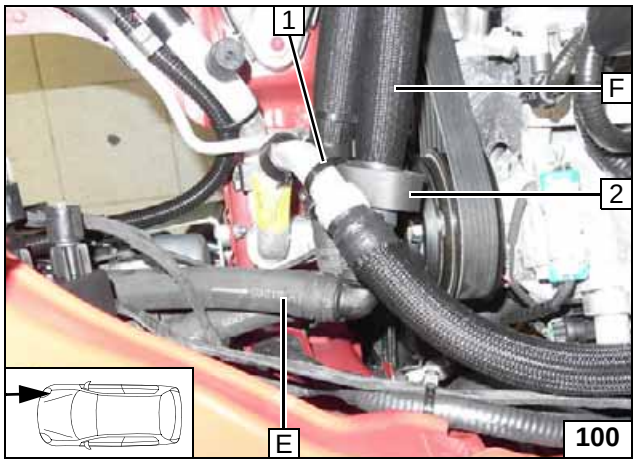

**1** Connector of circulating pump wiring harness
**2** Circulating pump

**Connecting circulating pump**



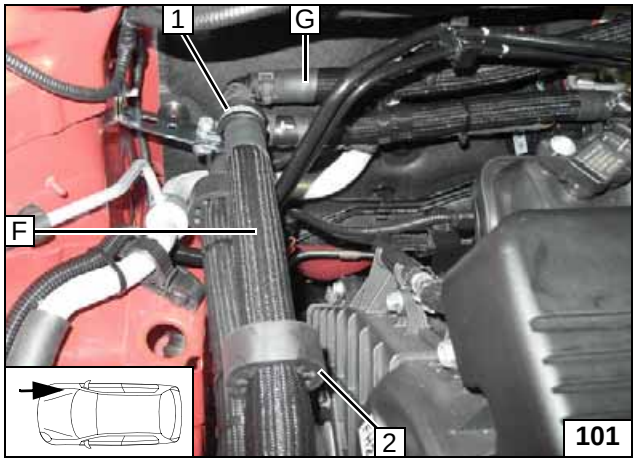

**1** 25x25 hose bracket between A/C line and hose **B**

**Installing hose bracket**




Slide black (sw) rubber isolator **2** onto hose **F** and fasten to A/C line using cable tie **1**.

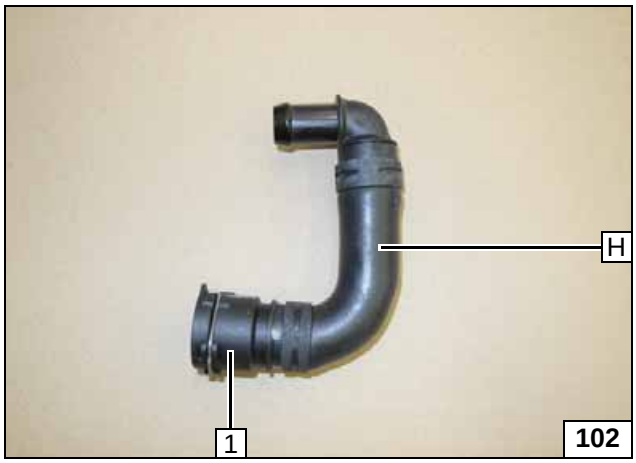
**Routing in engine compartment**




Route hose **F** through upper rubber-coated p-clamp **1**.

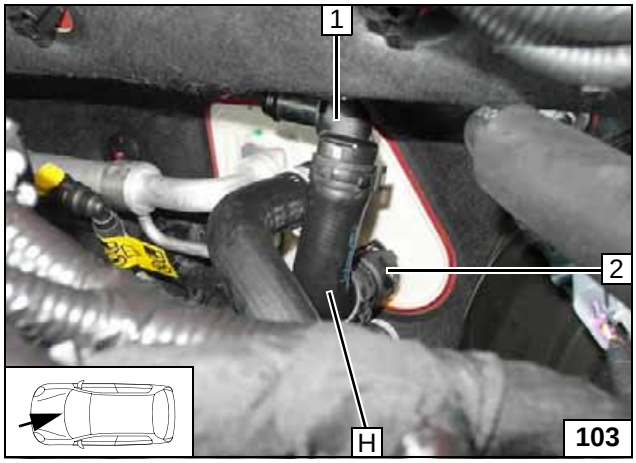
**2** Slide on black (sw) rubber isolator and align

**Routing in engine compartment**



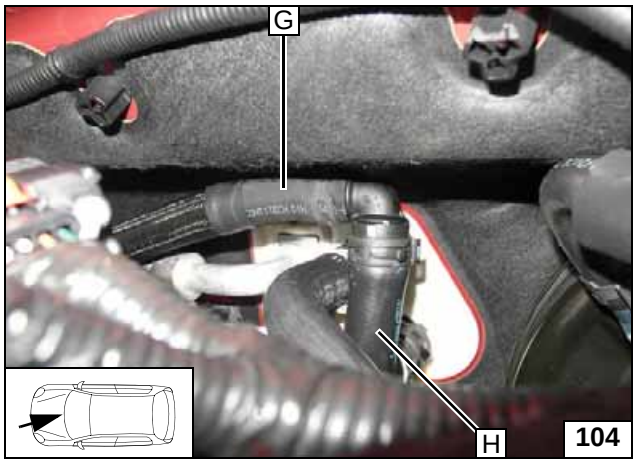

**1** Original vehicle coupling piece of heat exchanger inlet

**Premounting hose H**

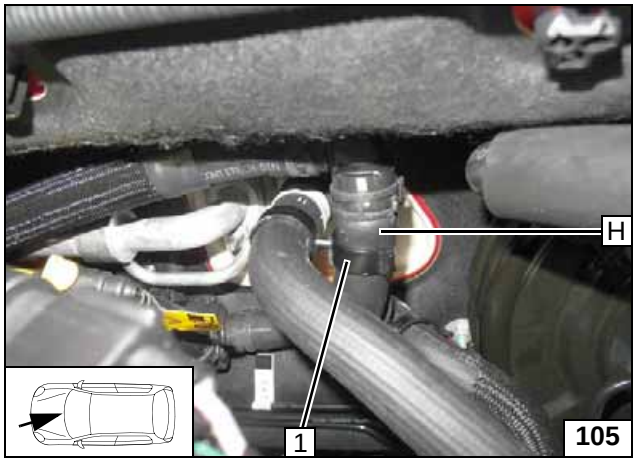



**1** Align 90° connecting pipe
**2** Original vehicle coupling piece of heat exchanger inlet

**Connecting heat exchanger inlet**

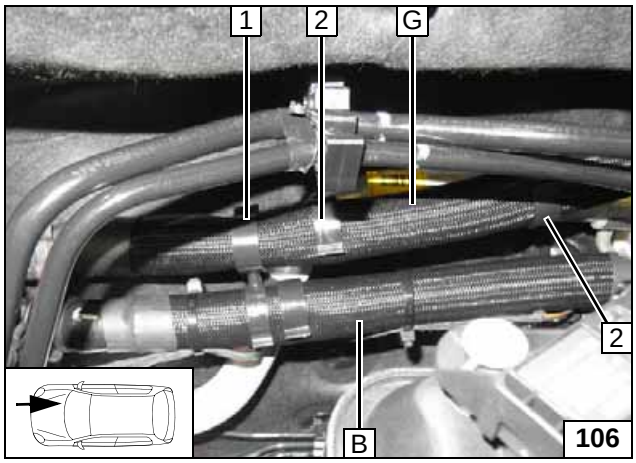



**Routing in engine compartment**



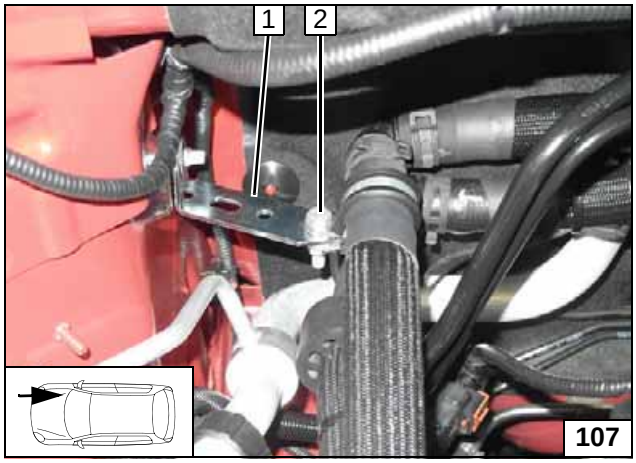

**1** 25x25mm hose bracket between hose of heat exchanger outlet and hose **B**.

**Installing hose bracket**




**1** 25x25mm dia. hose bracket between hose **B** and hose **G**
**2** 25x25 hose bracket between A/C line and hose **G** [2x]

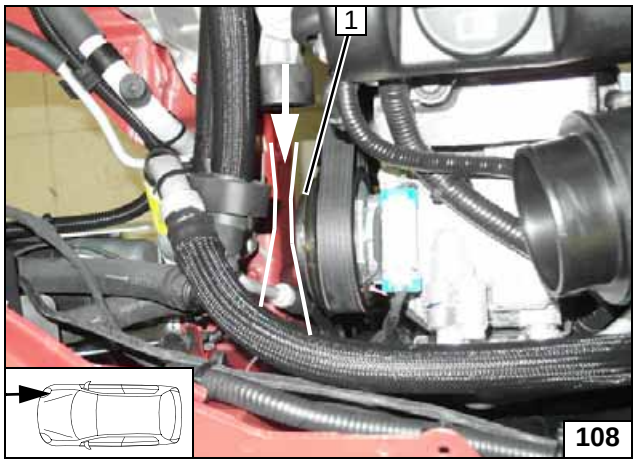
**Installing hose bracket**



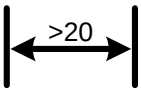

Align hoses. Ensure sufficient distance from adjacent components and freedom of movement; correct if necessary.

**1** Perforated bracket
**2** M6x25 bolt, flanged nut

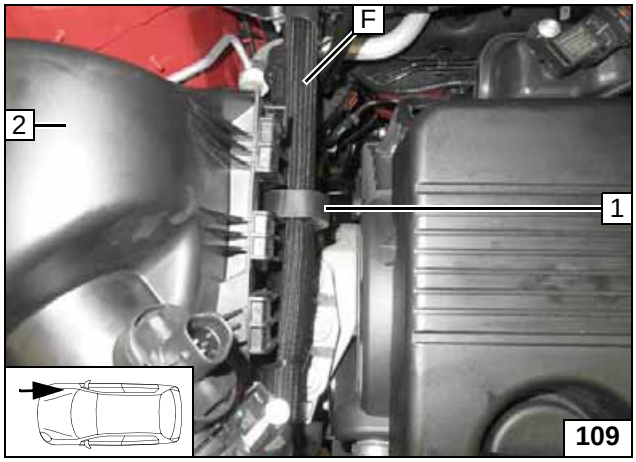
**Tightening bolt connections**




**1** Pulley




**Checking distance**

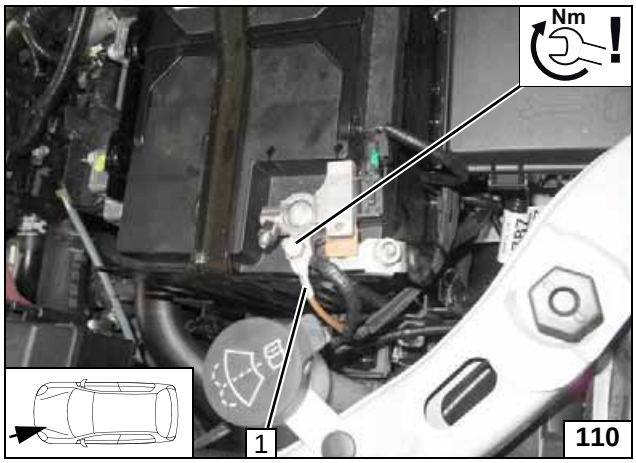



Align rubber isolator **1**. Ensure sufficient distance from neighbouring components, correct if necessary.

**2** Air filter box installed

**Aligning hoses**



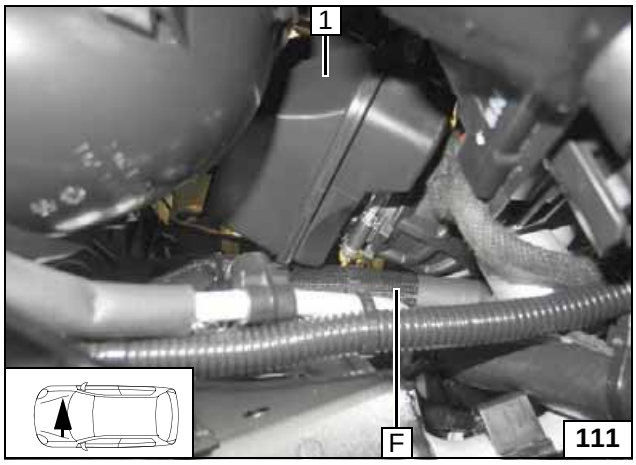

## Final Work

**1** Earth wire on original vehicle bolt of negative battery terminal

**Connecting earth wire**

**WARNING!**
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

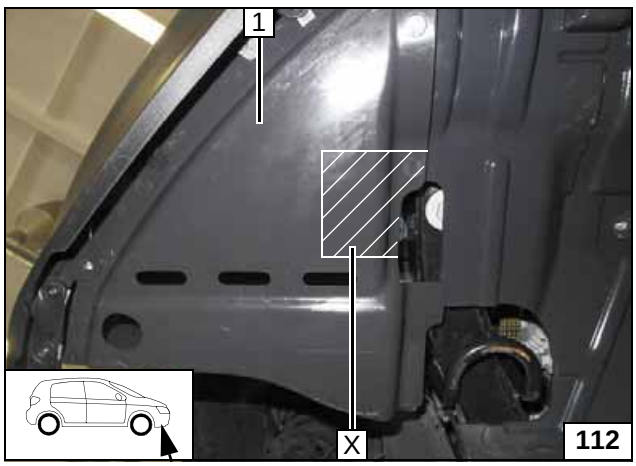
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the 'Operating Instructions'.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**
- **For initial startup and function check, please see installation instructions.**




Ensure sufficient distance from neighbouring components, correct if necessary.

**1** Resonance chamber (if present)

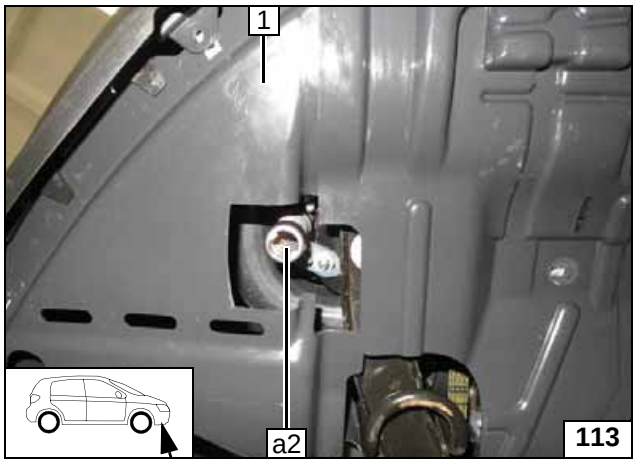
**Checking distance**




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

**X** =

**Cutting out wheel well trim**




Align exhaust pipe **a2** flush with wheel well trim **1**.

**Aligning exhaust pipe a2**

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

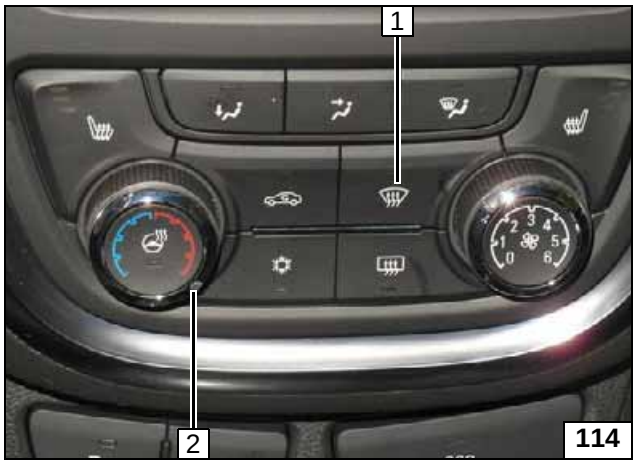
## Operating Instructions for Manual Air-Conditioning

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.

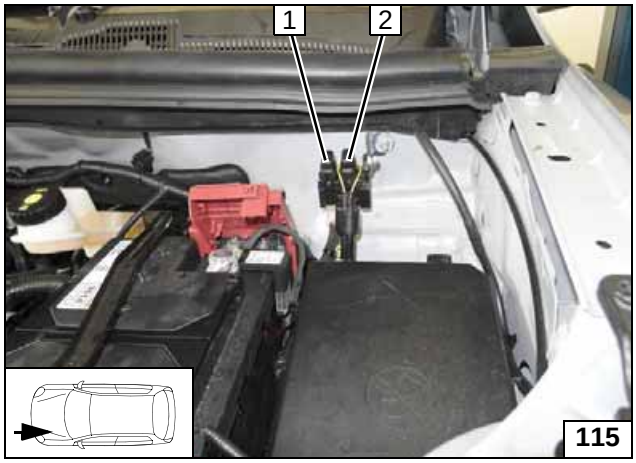
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

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 passenger compartment main fuse F2

**Engine compartment fuses**

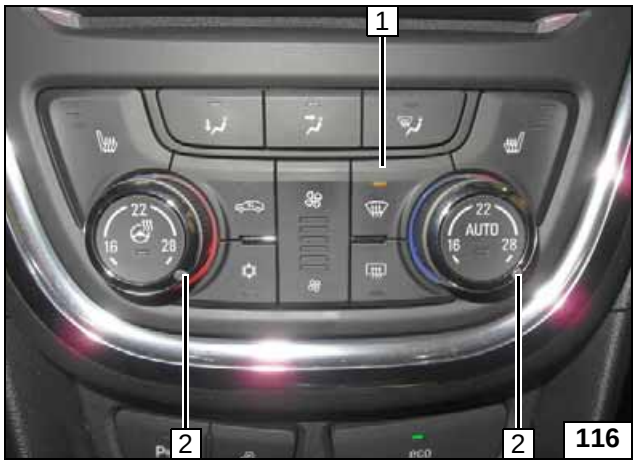
## Operating Instructions for Automatic Air-Conditioning

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.

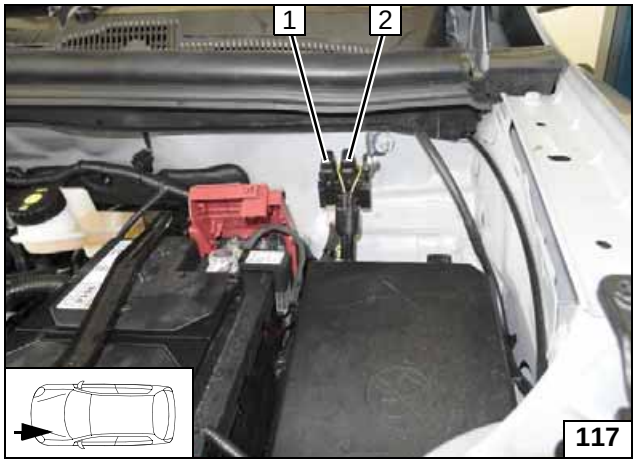
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

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 passenger compartment main fuse F2

**Engine compartment fuses**