Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation
Audi A1

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Audi	A1	8X	e1 * 2007 / 46 * 0414

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.0 TSFI	Petrol	SG	70	999	CHZB
1.4 TSFI	Petrol	SG	92	1422	CZCA
1.4 TSFI	Petrol	AG	92	1422	CZCA
1.4 TDi ultra	Diesel	SG	66	1422	CUSB
1.6 TDi	Diesel	SG	85	1598	CXMA

SG = manual transmission
AG = 7-gear S tronic

From model year 2015
Left-hand drive vehicle

Verified equipment variants:
Automatic air-conditioning
Front fog lights
Xenon headlights
LED daytime running lights
Start - Stop system

Not verified:
Manual air-conditioning
Passenger compartment monitoring
Alarm system
Keyless start button

Total installation time: approx. 9 hours

Audi A1

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit with FuelFix for Audi A1 2015 Petrol and diesel: **1324051C**
- To be ordered additionally in case of automatic air-conditioning, automatic air-conditioning kit: **1324211_**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

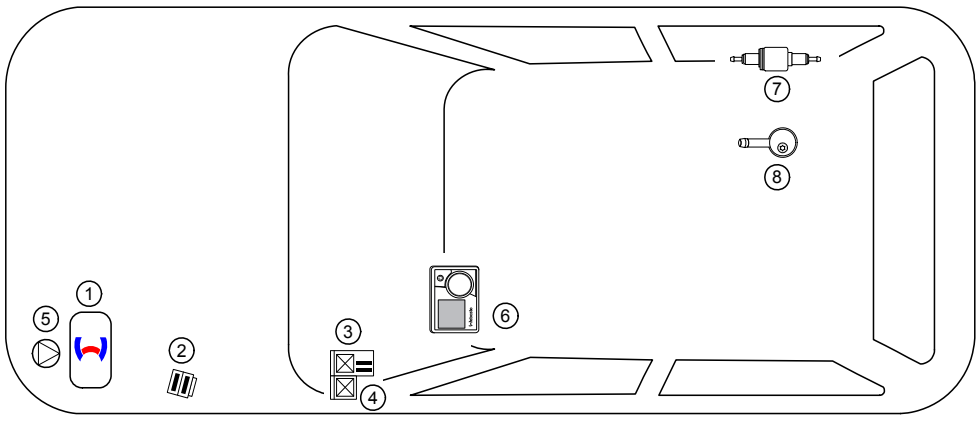
Installation instructions:

- 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. Passenger compartment relay and fuse holder
4. PWM Gateway
5. Circulating pump
6. MultiControl CAR
7. Metering pump
8. 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 must 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.

Audi A1

Information on Validity

This installation documentation applies to Audi A1 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

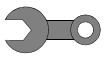
Dimensions
- All dimensions are in mm.

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.

Mechanical System

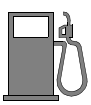


Electrical System

Coolant Circuit

Combustion Air

Fuel



Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

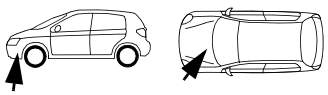
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

Reference to the manufacturer's vehicle-specific documents or to the general installation instructions of Webasto components.

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.

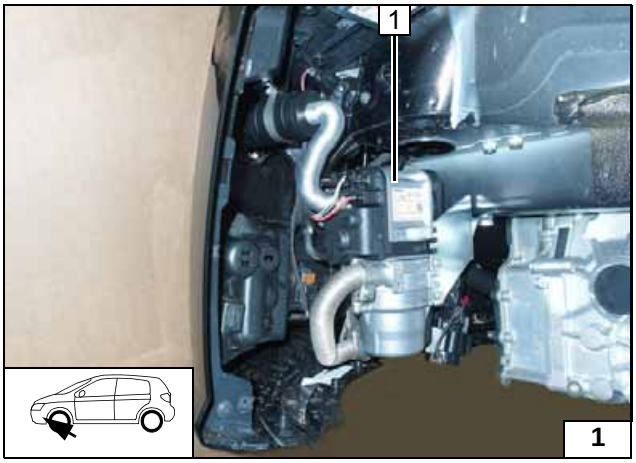
Preliminary Work

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 windscreen wipers.
- Remove the coolant reservoir cap.
- Remove the drain pipe of the air filter box.
- Remove the air filter (not in case of 1.4TDI).
- Remove the air filter intake hose (not in case of 1.4TDI).
- Remove the engine control unit.
- Remove the coolant reservoir partition wall.
- Remove the windscreen wiper motor.
- Remove the left front wheel.
- Remove the left wheel-well inner panel.
- Remove the horn(s) (there can be one or two) together with the bracket.
- Remove the underride protection.
- Remove the right vehicle underbody trim.
- Remove the left and right lateral instrument panel trim.
- Remove the lower instrument panel trim on the left.
- Remove the glove box completely.
- Fold up the seating area of the rear bench seat or remove it (depends on the equipment).
- Open the 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

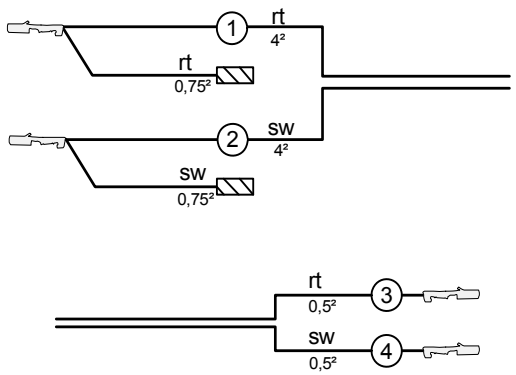
Preparing Electrical System

Wire sections retain their numbering in the entire document.

Assigning wires

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

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
③ Red (rt) wire of PWM control system wiring harness
④ Black (sw) wire of PWM control system wiring harness



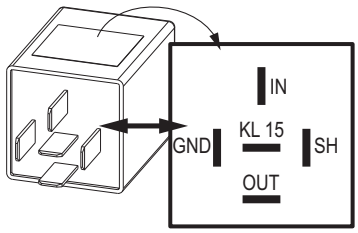
2

View of PWM GW

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

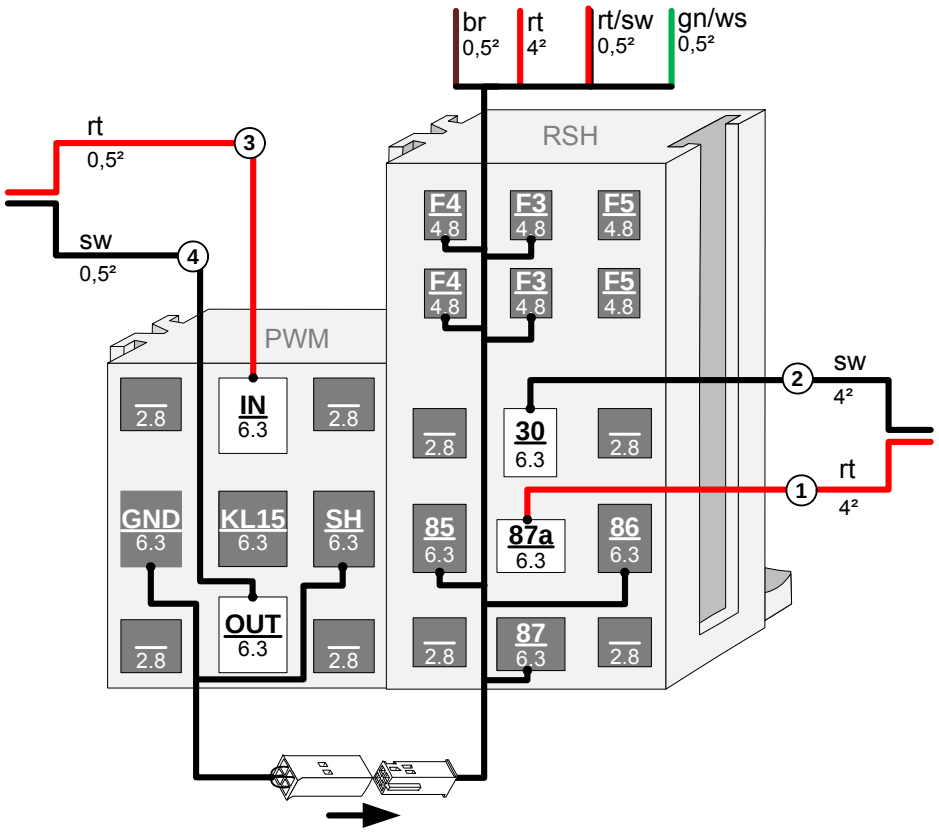
Settings:

Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 3.6V
Function: High side



3

Interlocking PWM GW and passenger compartment relay and fuse holder sockets, inserting connector into bushing and connecting wires



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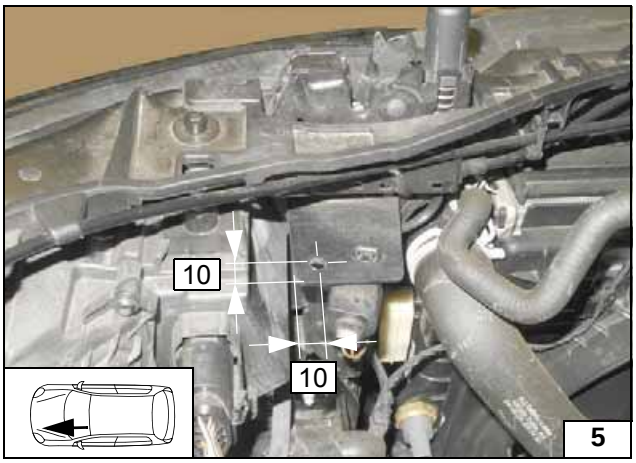
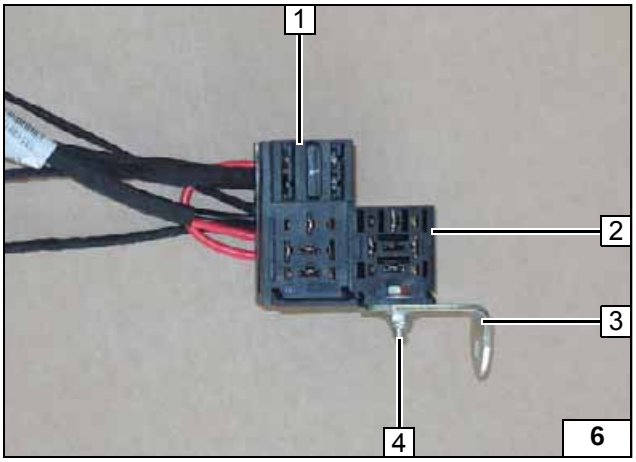


Diesel only

1 Copy hole pattern, 7mm dia. hole

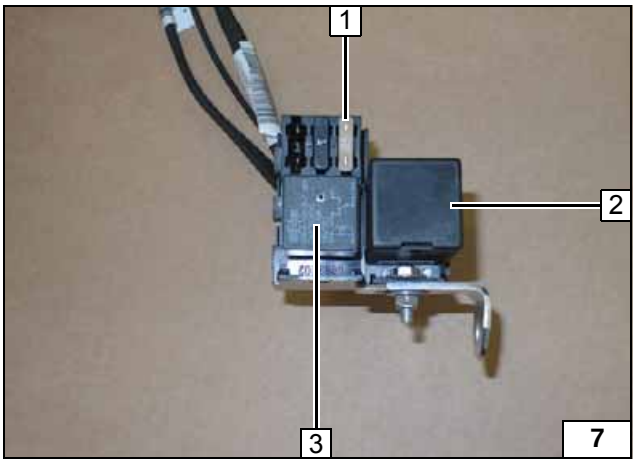
Hole for fuse holder



All vehicles

1 Passenger compartment relay and fuse holder
2 PWM GW socket
3 Angle bracket
4 M5x16 bolt, large diameter washer [2x], nut

Premounting passenger compartment relay and fuse holder



1 25A fuse F4
2 PWM GW
3 Relay K1

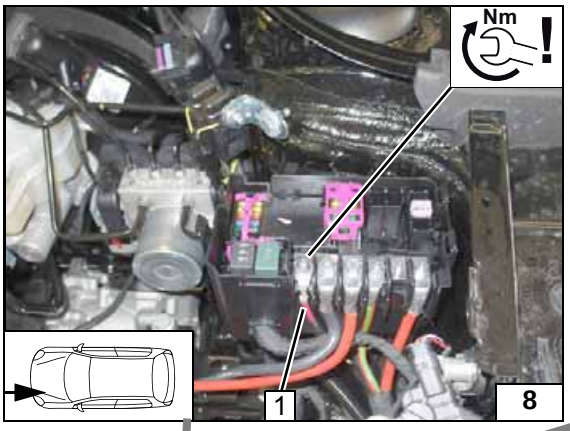
Installing passenger compartment relay and fuse holder

Electrical System for Petrol Vehicles

Engine compartment fuse holder

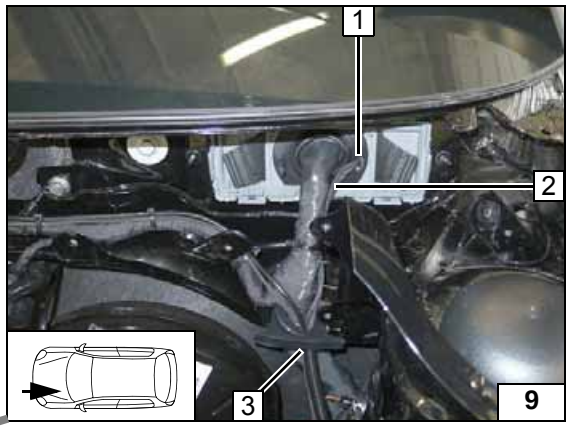
Positive wire

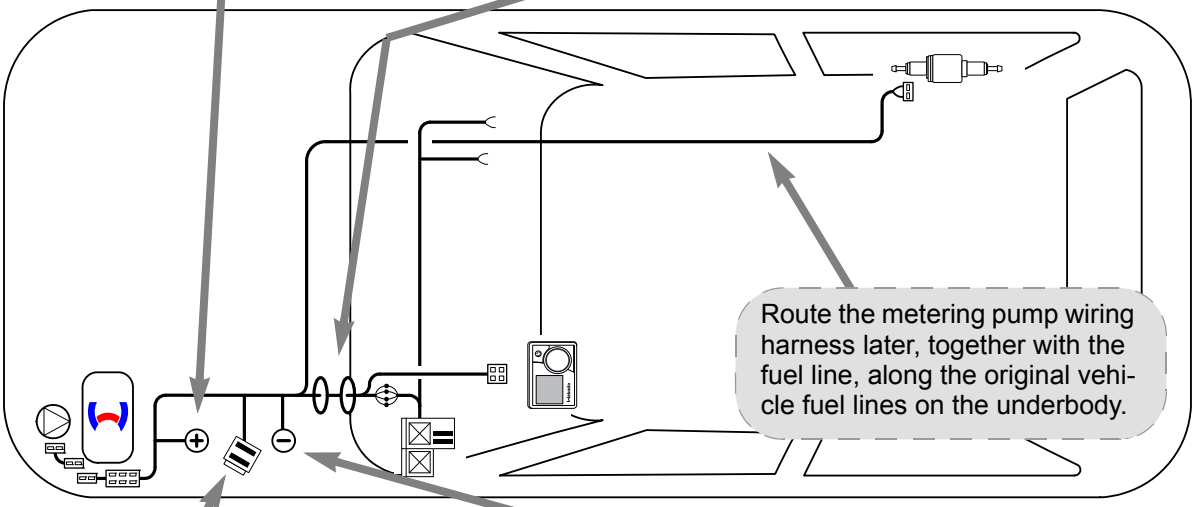
1 Positive wire on positive distributor



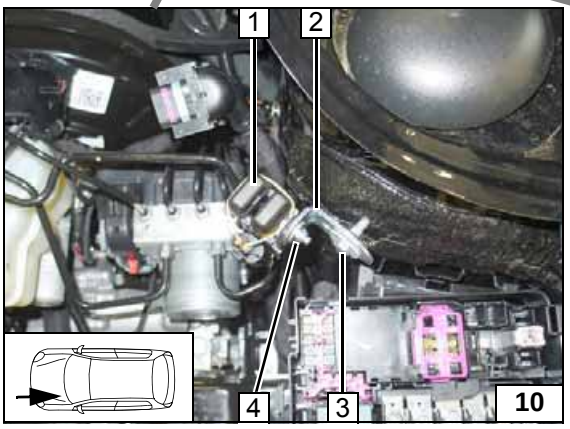
Passenger compartment wiring harness pass through

1 Passenger compartment rubber plug pass through
2 Wiring harnesses of heater, heater control
3 Rubber plug pass through, coolant reservoir



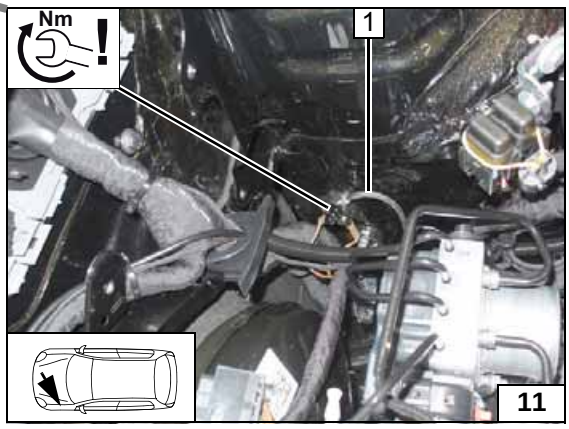


Wiring harness routing diagram



Engine compartment fuse holder

1 Fuses F1-2
2 Angle bracket
3 M6x20 bolt, large diameter washer, existing hole, flanged nut
4 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut



Earth wire

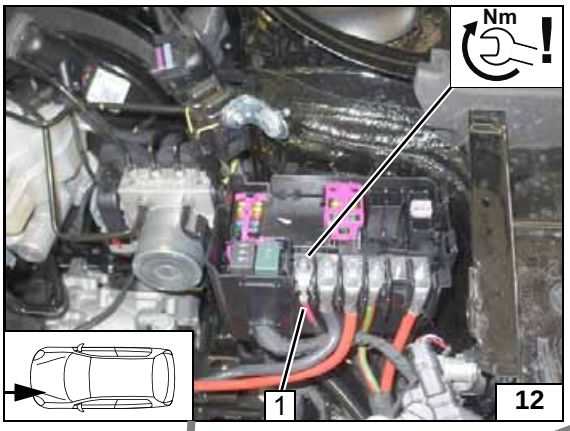
1 Earth wire on original vehicle earth support point

Electrical System for Diesel Vehicles

Engine compartment fuse holder

Positive wire

1 Positive wire on positive distributor



Passenger compartment wiring harness pass through

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2 Wiring harnesses of heater, heater control
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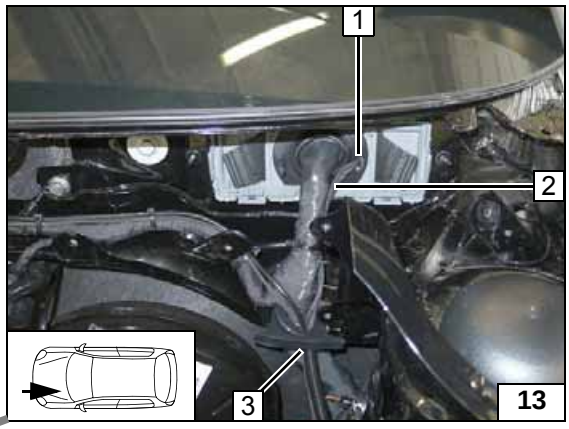
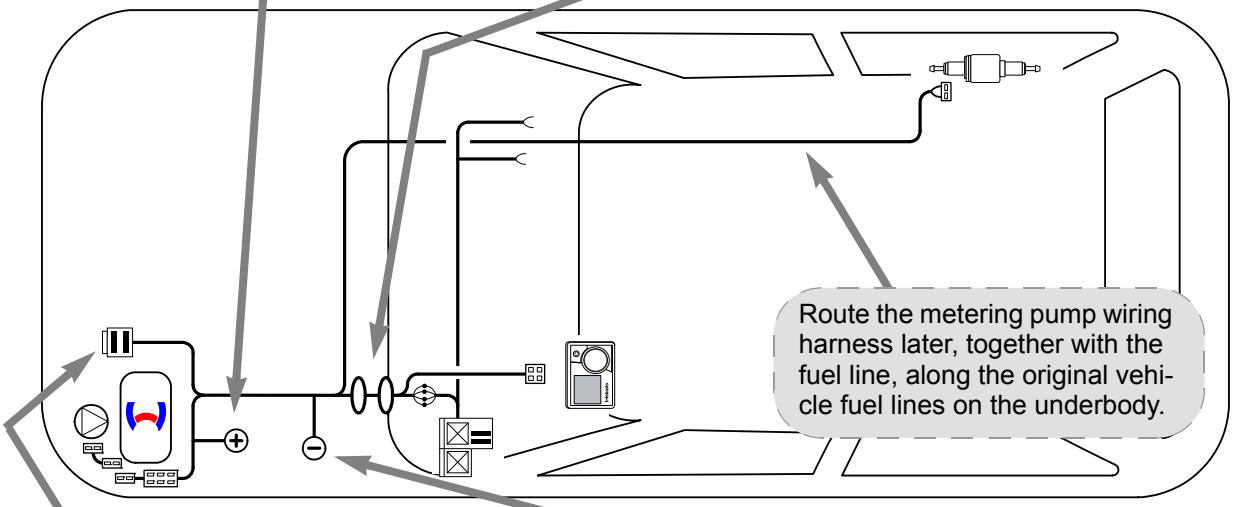
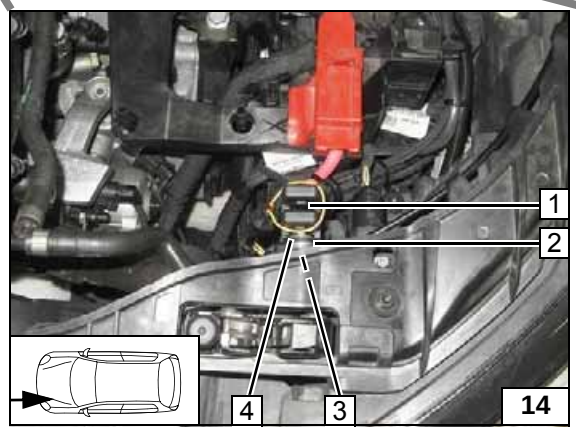


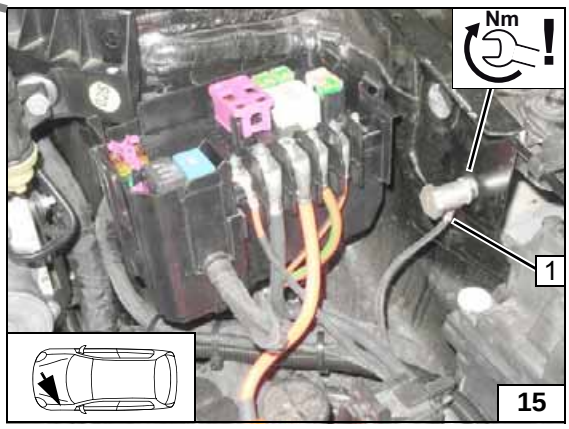
Wiring harness routing diagram





Engine compartment fuse holder

1 Fuses F1-2
2 Angle bracket
3 M6x20 bolt, large diameter washer, drilled hole, flanged nut
4 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut

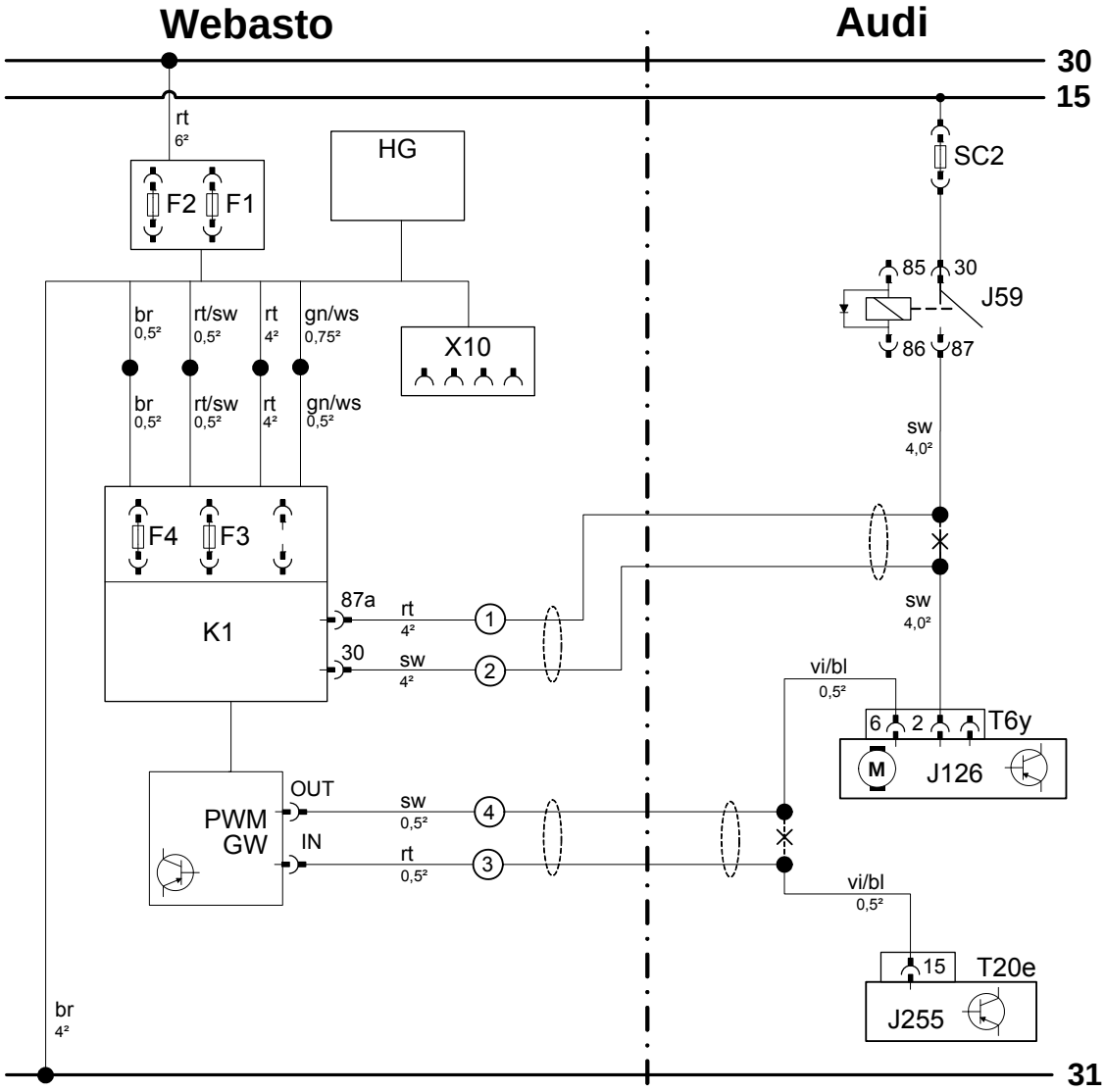


Earth wire

1 Earth wire on original vehicle earth support point

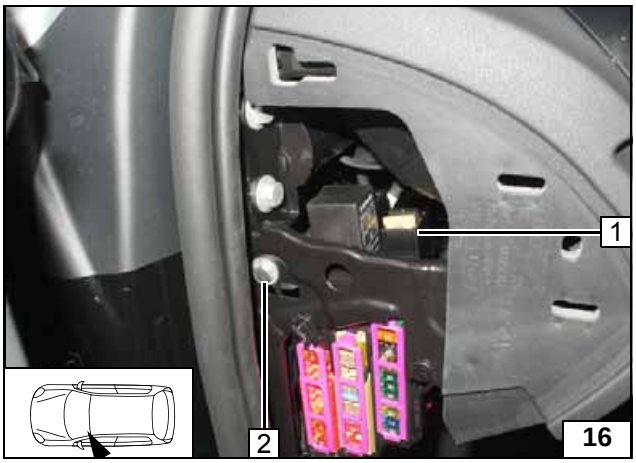
Automatic Air-Conditioning Fan Controller

System wiring diagram



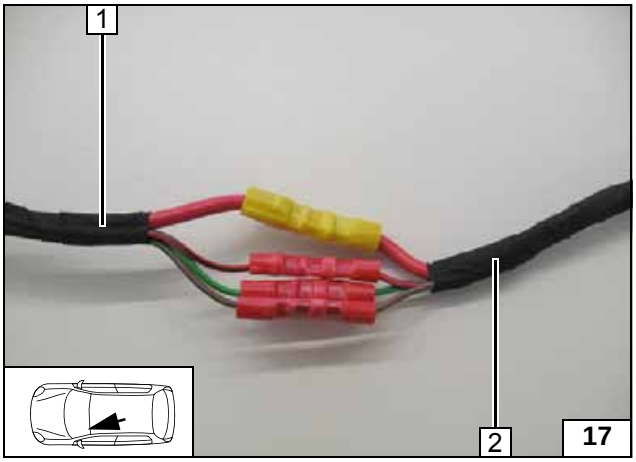
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	SC2	40A fuse	rt	red
F1	20A fuse	J59	Relay X- contact	ws	white
F2	30A fuse	J126	Fan unit	sw	black
X10	4-pin connector of heater control	J255	A/C control panel	br	brown
		T...	Connector	bl	blue
F3	1A fuse			gn	green
F4	25A fuse			vi	violet
K1	Fan relay				
PWM GW	Pulse width modulator				
Settings of PWM GW:					
Duty cycle:	100% (DC)				
Frequency:	not relevant				
Voltage:	3.6V				
Function:	High side			Wiring colours may vary.	



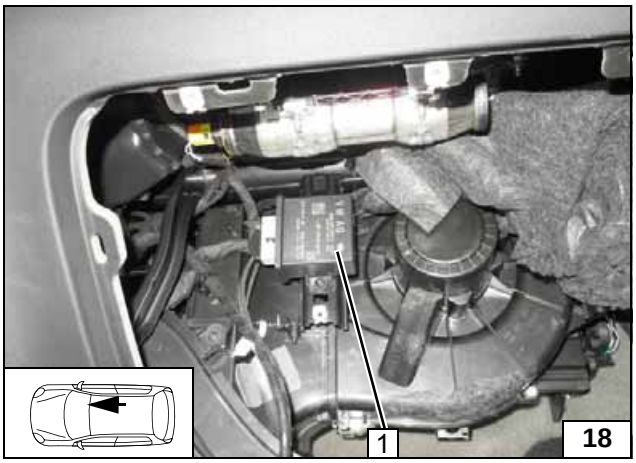
1 Passenger compartment relay and fuse holder
2 M6x30 bolt, large diameter washer, original vehicle hole, 10mm spacer, flanged nut

Installing passenger compartment relay and fuse holder



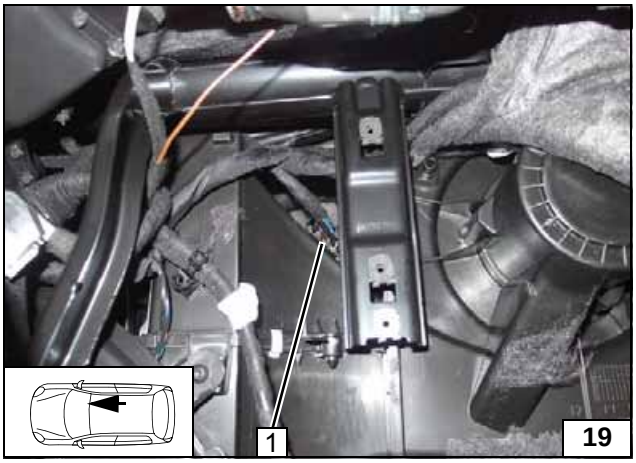
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



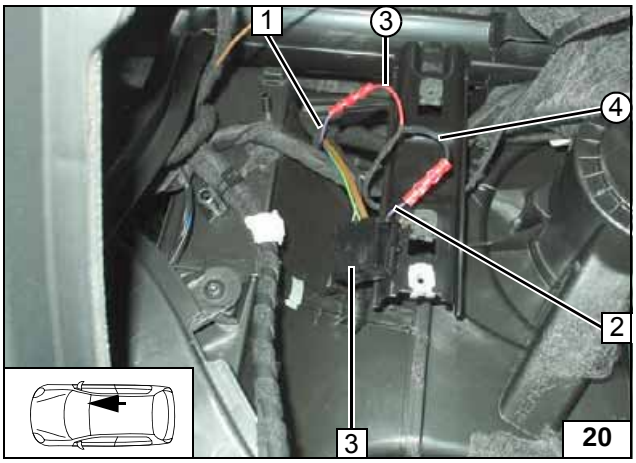
1 Remove LWR control unit

Removing control unit



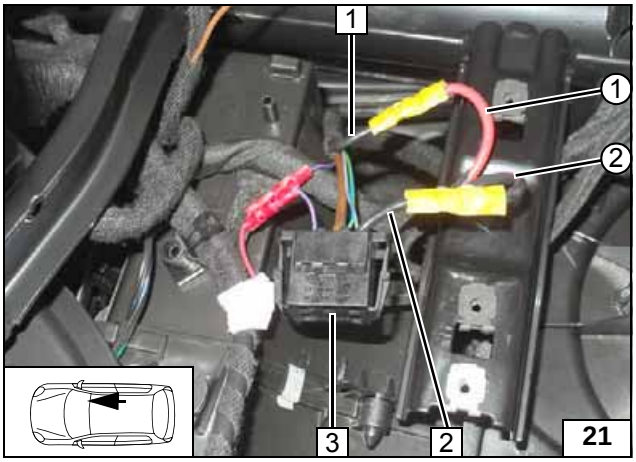
1 6-pin connector T6y

Removing fan unit connector



1 Violet/blue (vi/bl) wire from J255
2 Violet/blue (vi/bl) wire of connector T6y, pin 6
3 6-pin connector T6y
③ Red (rt) wire of PWM control system wiring harness
④ Black (sw) wire of PWM control system wiring harness

Connecting fan unit / PWM control

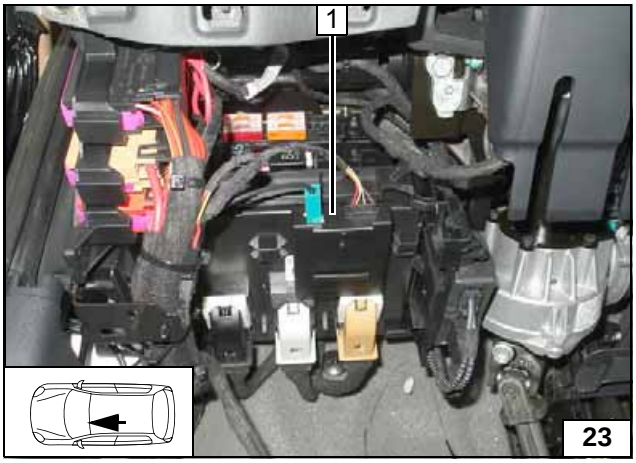


1 Black (sw) wire of fan relay
2 Black (sw) wire of connector T6y, pin 2
3 6-pin connector T6y
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

Connecting fan unit/ fan wiring harness

MultiControl CAR Option

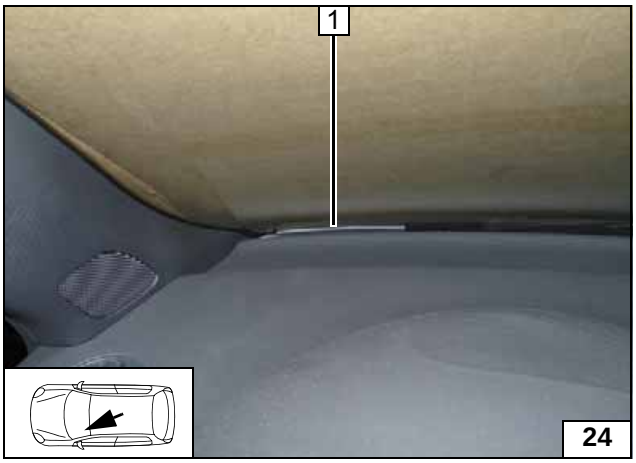
Installing MultiControl CAR



Remote Option (Telestart)

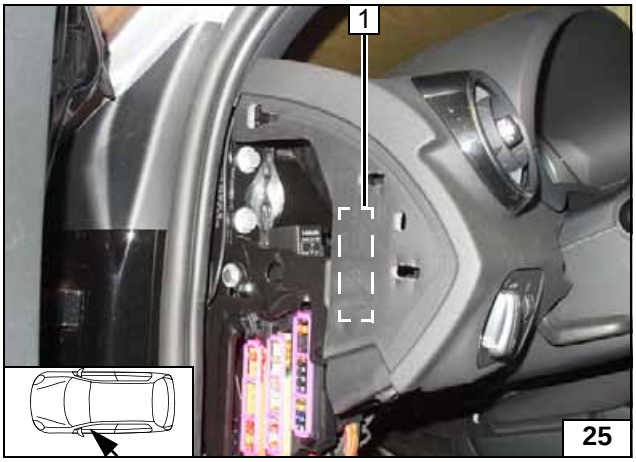
Fasten receiver **1** with double-sided adhesive tape.

Installing receiver



1 Aerial

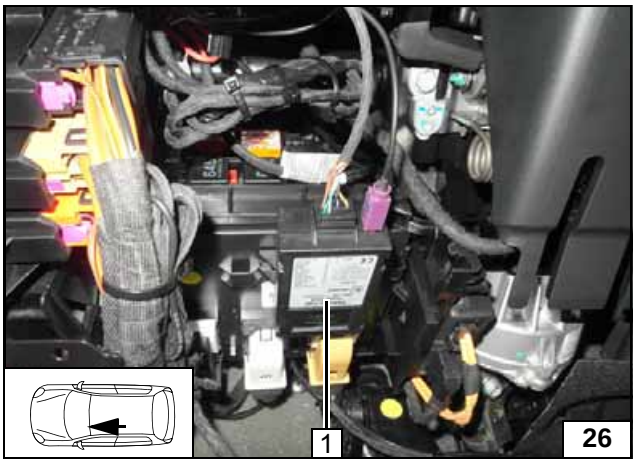
Installing aerial



Temperature sensor T100 HTM

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

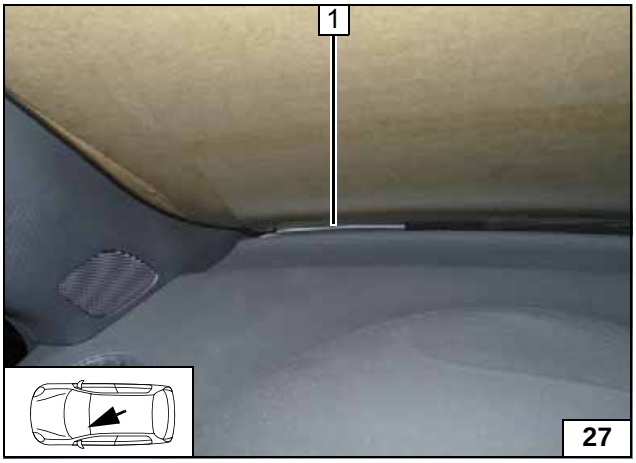
Installing temperature sensor



ThermoCall Option

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

Installing receiver

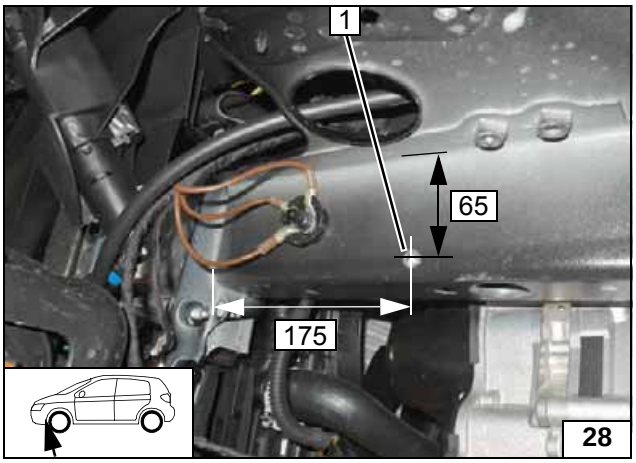


1 Aerial (optional)

Installing aerial

Preparing Installation Location

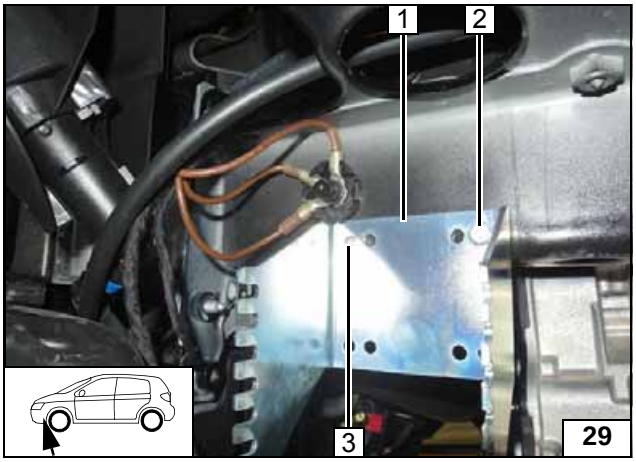
1 Copy hole pattern, 9.1mm dia. hole; rivet nut



Installing rivet nut

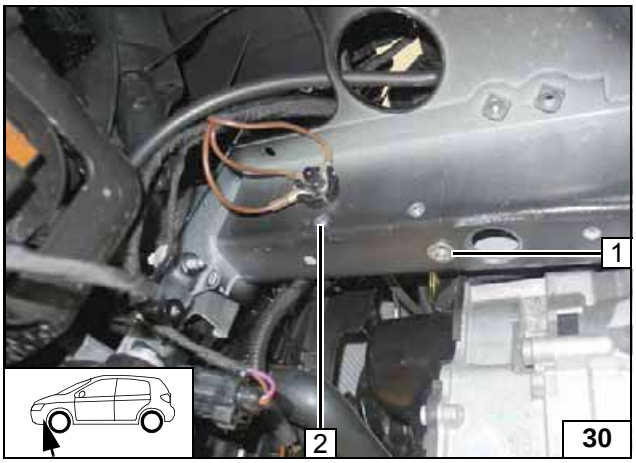
Install bracket **1**.

2 M6x20 bolt
3 Copy hole pattern, hole



Copying hole pattern

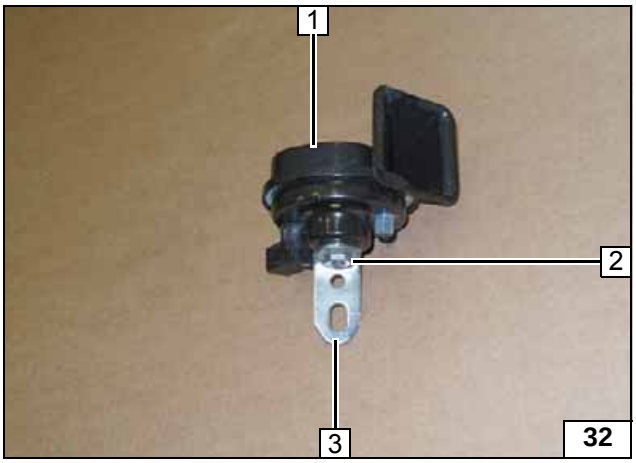
1 M10 rivet nut, original vehicle hole
2 9.1mm dia. hole; M6 rivet nut



Installing rivet nuts

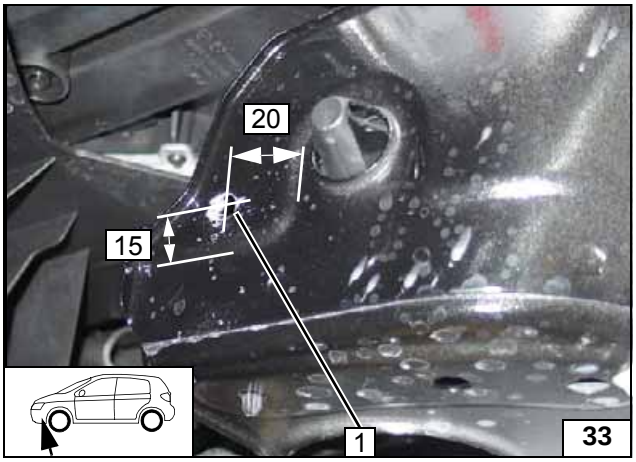
1 Drill out hole to 8.5 mm dia.

Drilling angle bracket



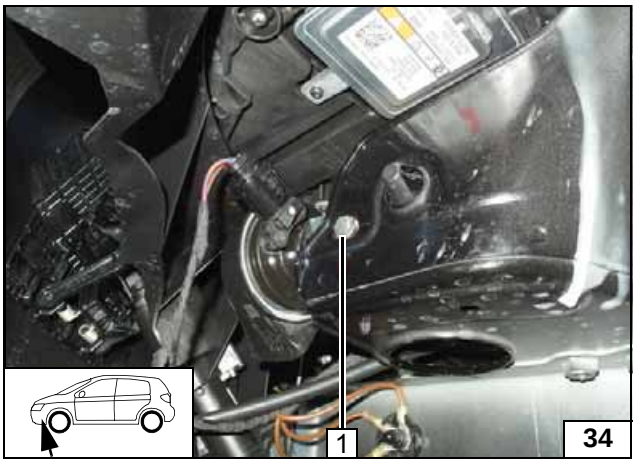
1 Horn
2 Original vehicle nut
3 Angle bracket

Installing angle bracket



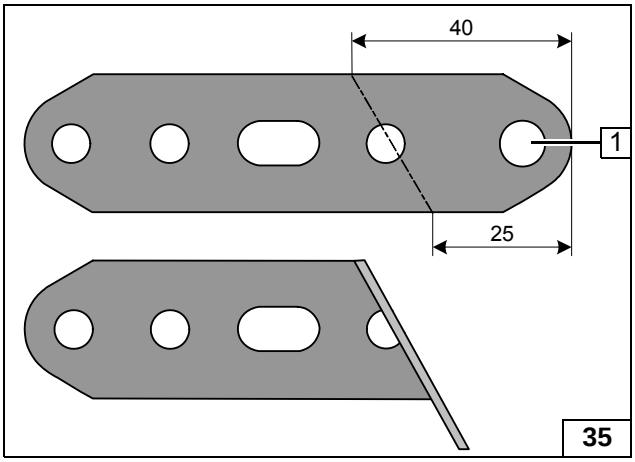
1 Copy hole pattern, 7mm dia. hole

Drilling hole



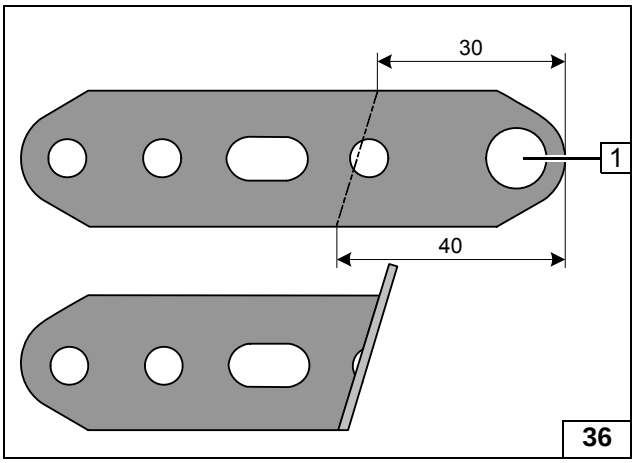
1 M6x20 bolt, flanged nut

Installing horn



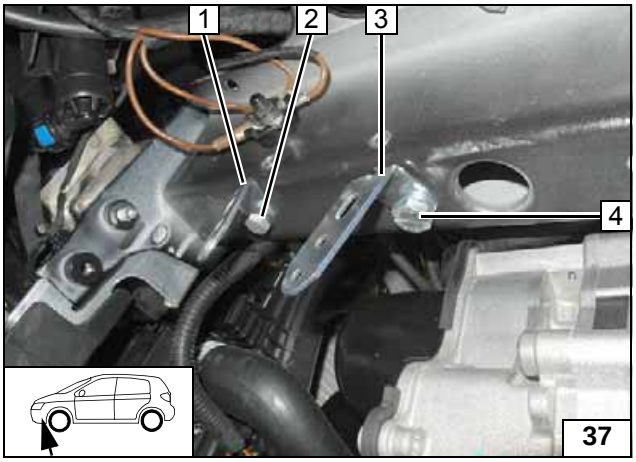
1 Drill out hole to 8.5 mm dia.

Preparing perforated bracket A



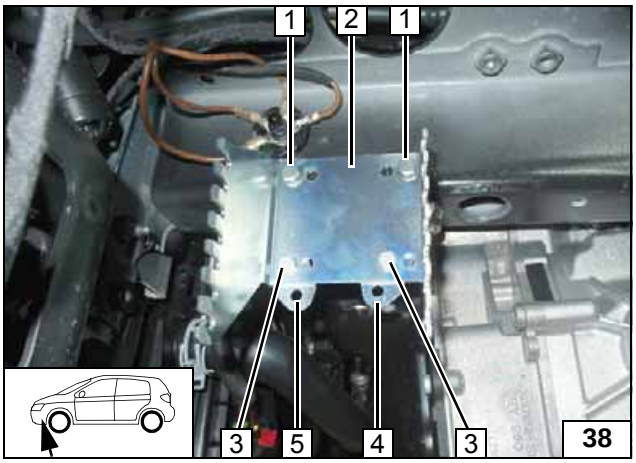
1 Drill out hole to 10.5 mm dia.

Preparing perforated bracket B



1 Perforated bracket **A**
2 M8x20 bolt, spring lockwasher, existing threaded hole
3 Perforated bracket **B**
4 M10x16 bolt, spring lockwasher

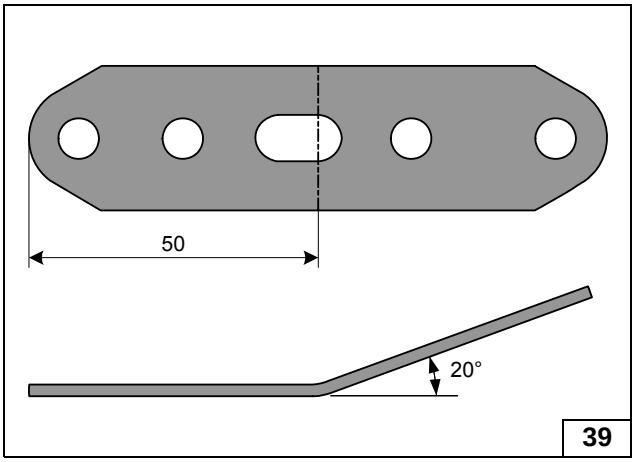
Installing perforated brackets loosely



Tighten loose screw connections.

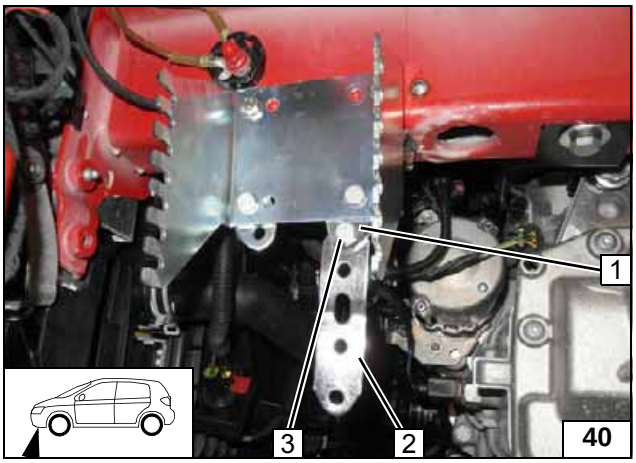
1 M6x20 bolt, spring lockwasher [2x each]
2 Bracket
3 M6x12 bolt, flanged nut [2x each]
4 Perforated bracket **B**
5 Perforated bracket **A**

Installing bracket



1.6 TDI

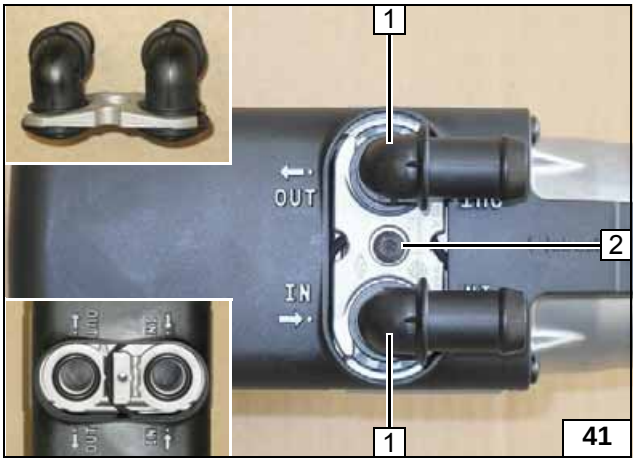
Preparing perforated bracket C



1 Perforated bracket B
2 Perforated bracket C
3 M6x12 bolt, flanged nut

Installing perforated bracket C

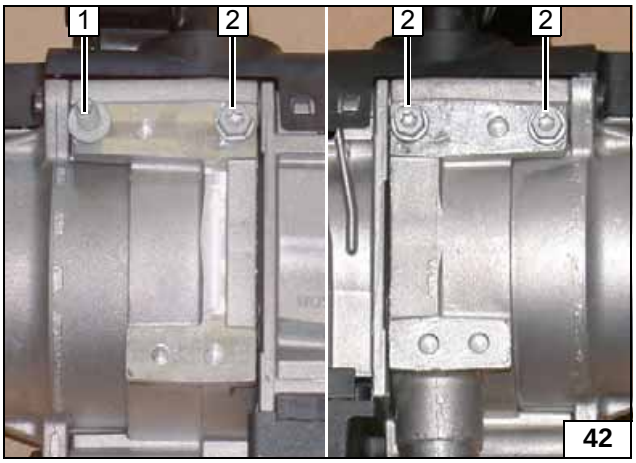
Preparing Heater



All vehicles

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

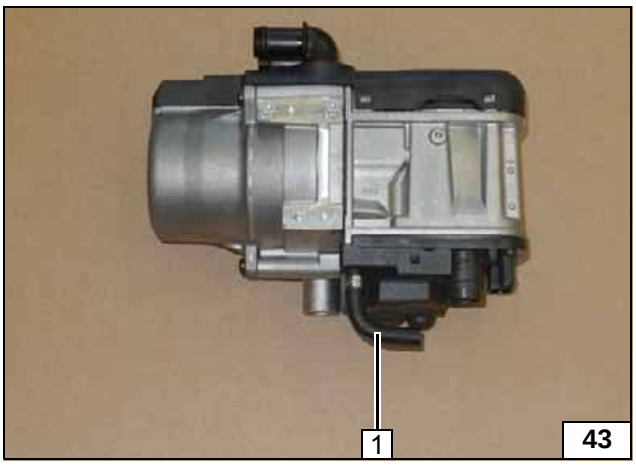
Installing water connection piece



Petrol and 1.4 TDI

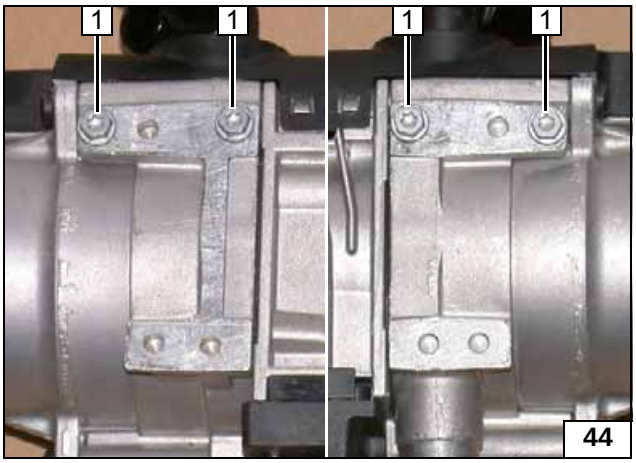
Screw self-tapping stud bolt M5 / M6 x 15.5 **1** and 5x13 self-tapping bolts **2** [3x] in existing holes by a maximum of 3 thread turns.

Premounting bolts loosely



1 90° moulded hose, 10mm dia. clamp

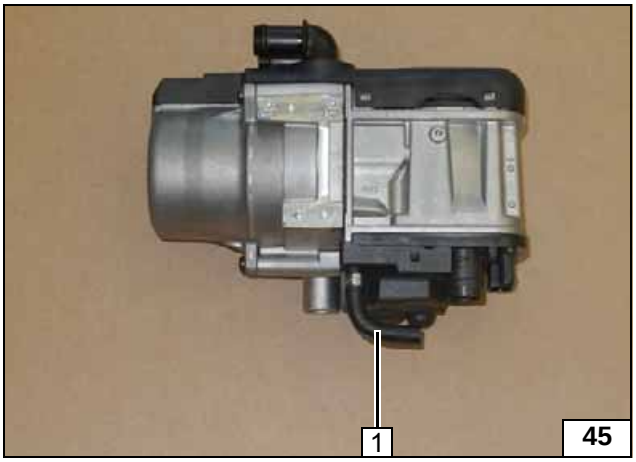
Premounting moulded hose



1.6 TDI

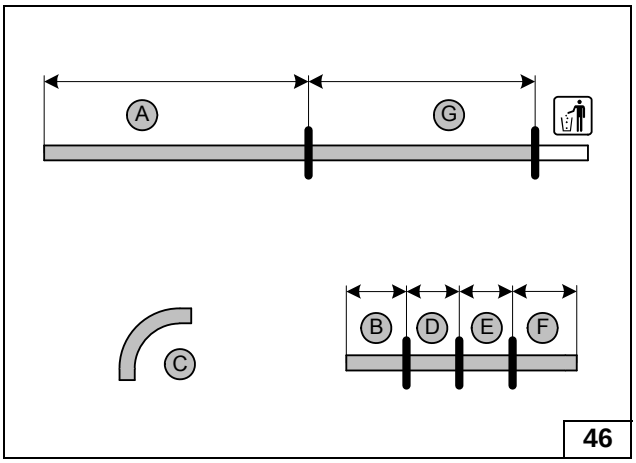
Screw 5x13 self-tapping bolts **2** [4x] into existing holes by a maximum of 3 thread turns.

Premounting bolts loosely



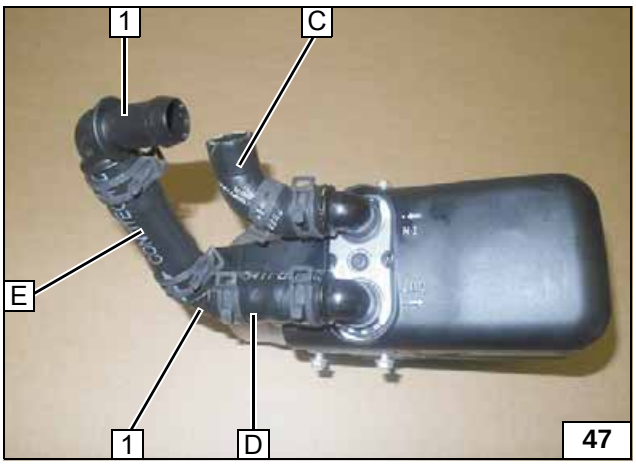
1 90° moulded hose, 10mm dia. clamp

Premounting moulded hose



A = 800
B = 60
C = 90°, 18mm dia.
D = 60
E = 60
F = 90
G = 840

Cutting hoses to length



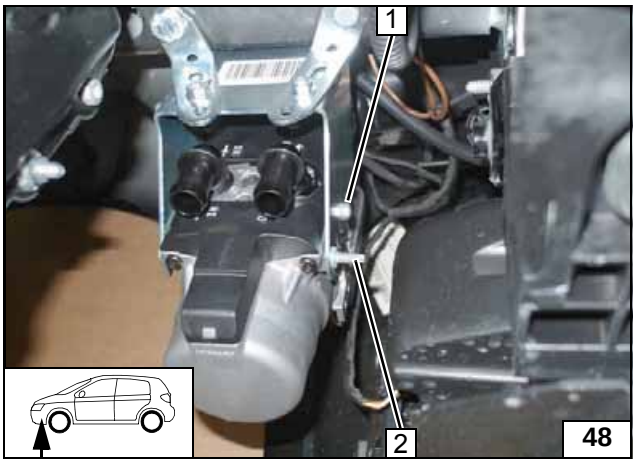
All spring clips = 25mm dia.

1 90°, 18x18mm dia. connecting pipe [2x]

Premounting hoses

Installing Heater

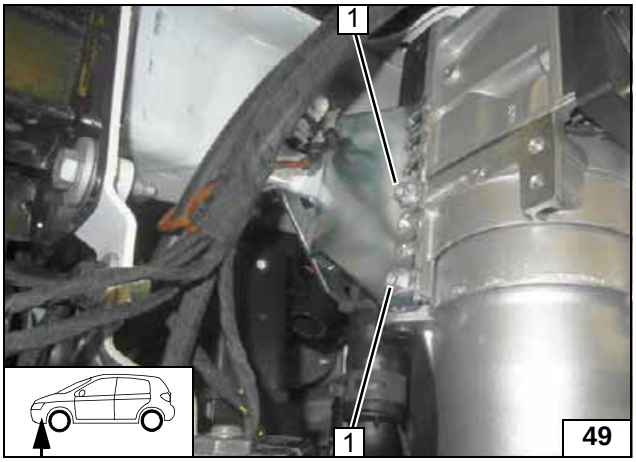
Petrol and 1.4 TDI



1 Tighten 5x13 self-tapping bolt
2 Tighten M5/M6x15 self-tapping stud bolts

Installing heater

1.6 TDI



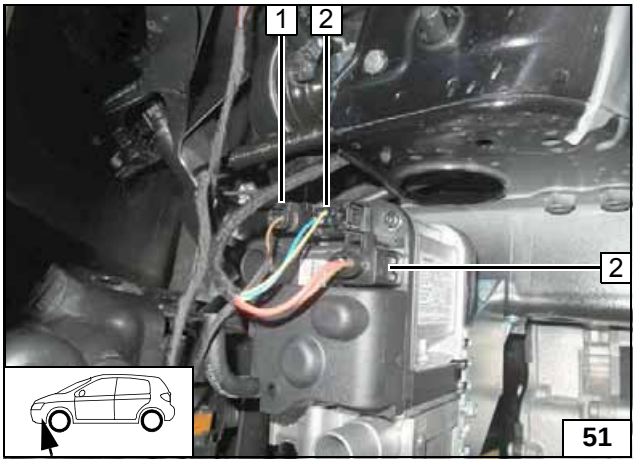
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater

All vehicles

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

Installing heater



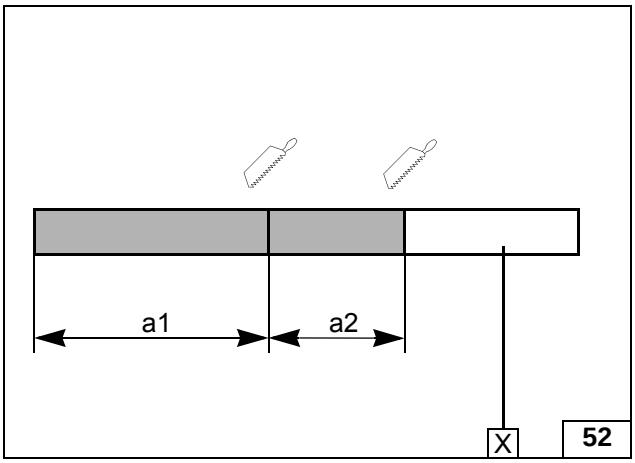
1 Circulating pump wiring harness connector
2 Heater wiring harness connector [2x]

Connecting wiring harness

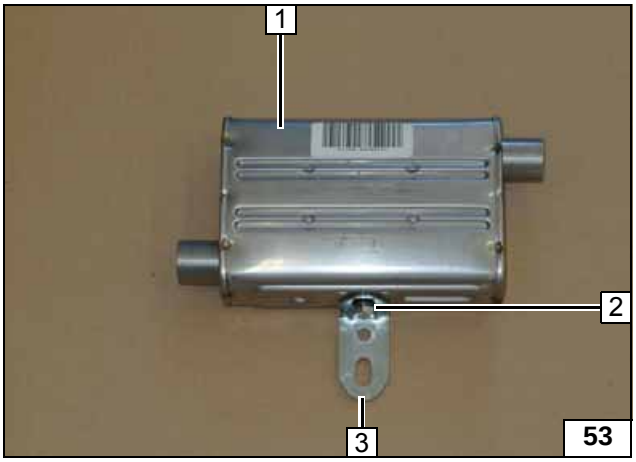
Exhaust Part 1

a1 = 270
a2 = 180

X =

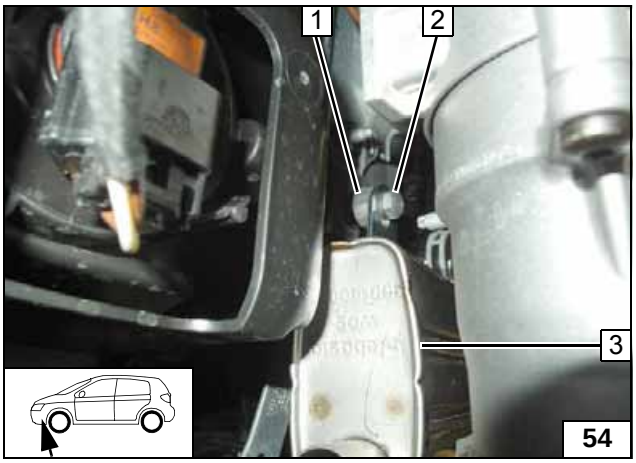


Preparing exhaust pipe



1 Silencer
2 M6x16 bolt, spring lockwasher
3 Angle bracket

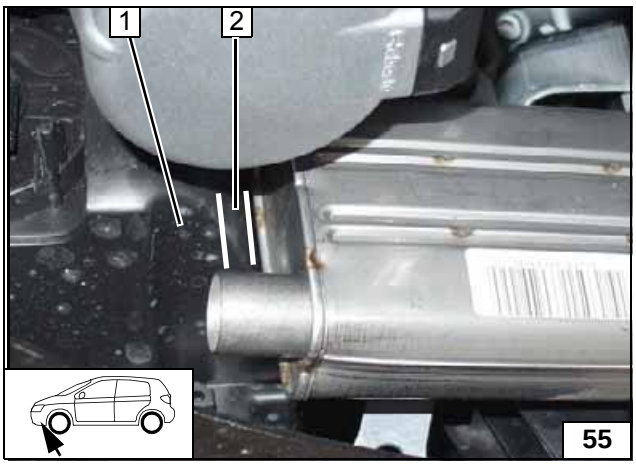
Premounting exhaust silencer



1 10mm shim
2 M8x20 bolt, spring lockwasher, washer
3 Premounted silencer

Installing silencer

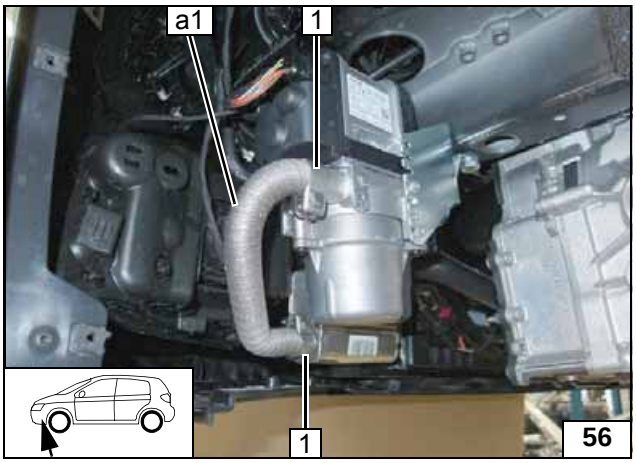
Ensure sufficient distance from neighbouring components, correct if necessary.



1 Housing of front fog light

2 ≥ 5 mm

Aligning silencer



1 Hose clamp [2x]

Installing exhaust pipe a1

Fuel

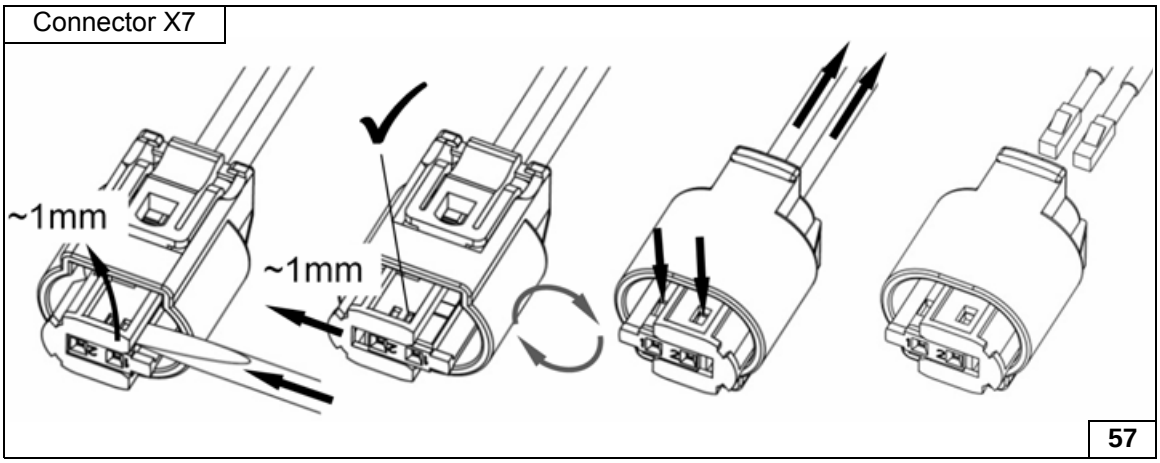
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off in an appropriate container.

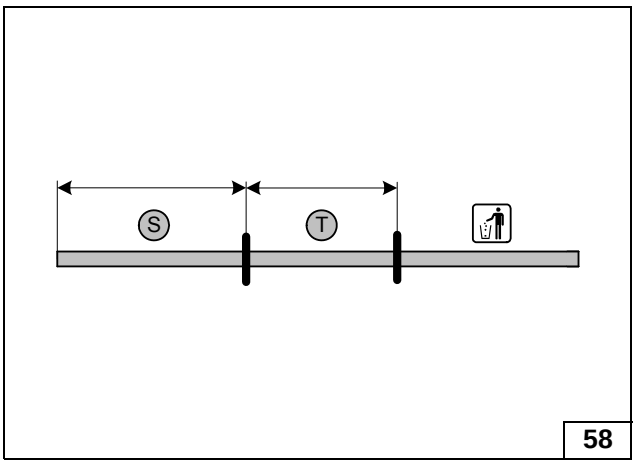
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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

Dismantling metering pump connector

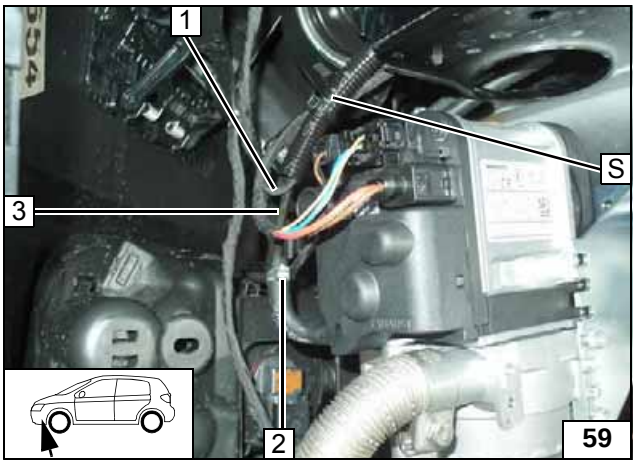


Cutting corrugated tube to length



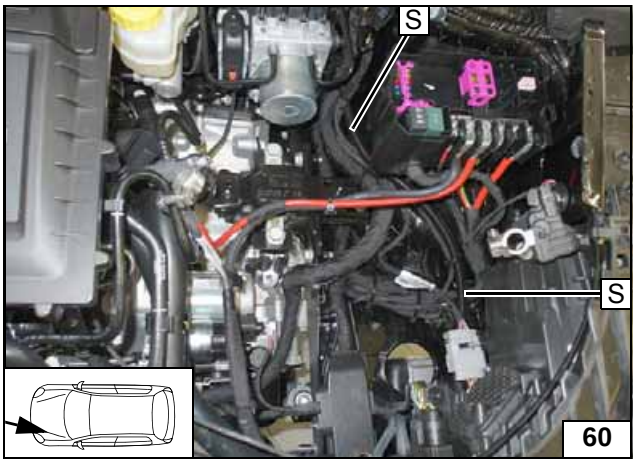
S = 800
T = 600

Connecting heater



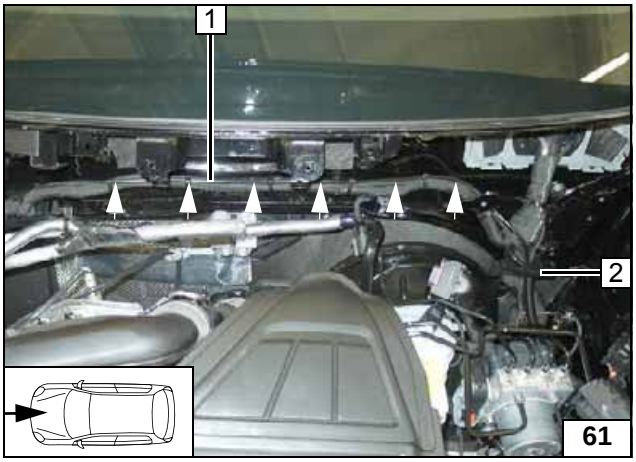
Pull wiring harness of metering pump **1** and fuel line **3** into corrugated tube **S** and route in the engine compartment.

2 10 mm dia. clamp



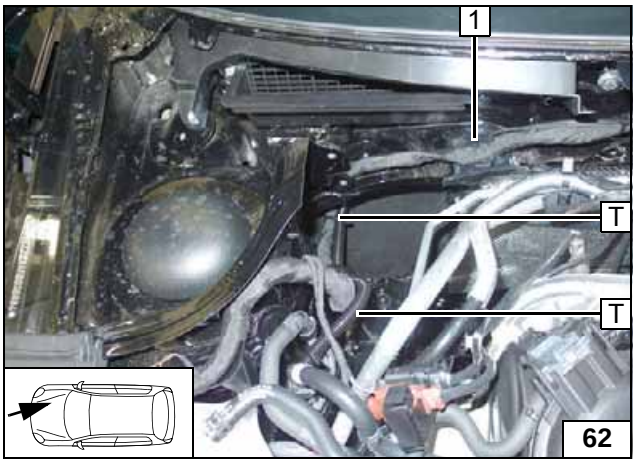
Route corrugated tube **S** to the firewall.

Routing lines



1 Fuel line and wiring harness of metering pump attached to the original vehicle wiring harness
2 Coolant reservoir pass through

Routing lines



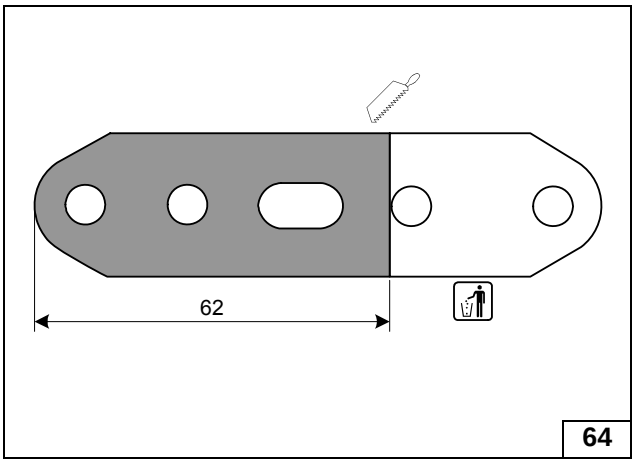
Pull wiring harness of metering pump and fuel line into corrugated tube **T**, route in the engine compartment and along the original vehicle fuel line to the underbody.

1 Coolant reservoir pass through

Routing lines

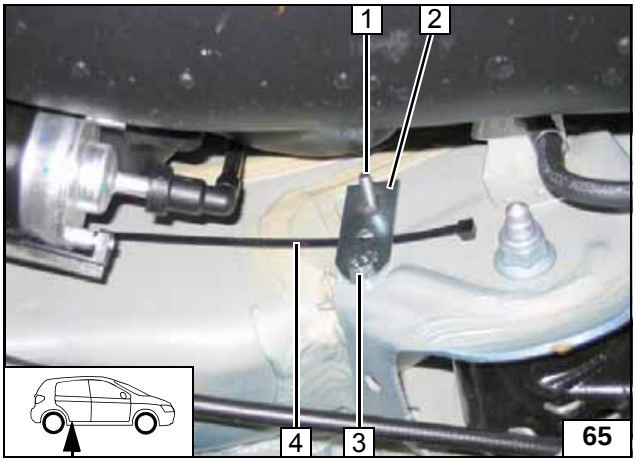
1 Fuel line and wiring harness of metering pump

Routing lines



64

Cutting perforated bracket to length



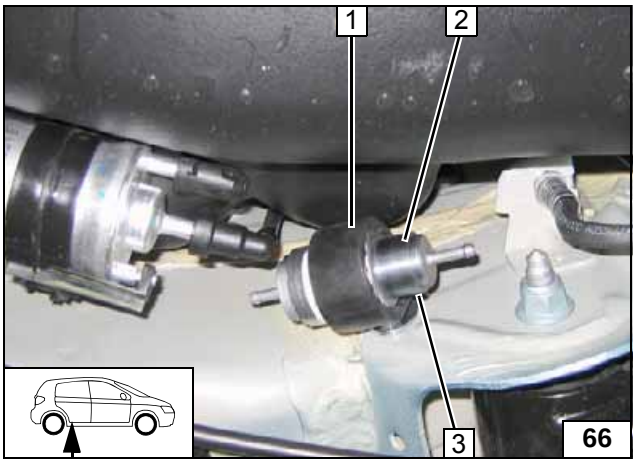
65

Petrol and 1.4 TDI

Insert cable tie **4** between perforated bracket **2** and body.

1 Premount M6x25 bolt, pin lock
3 M6x20 bolt, flanged nut, original vehicle hole

Installing perforated bracket



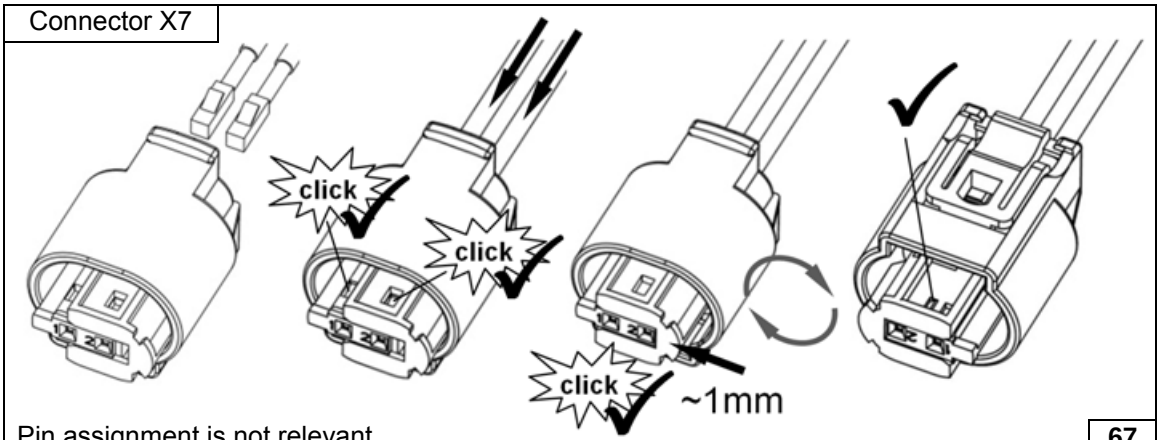
66

Attach metering pump mount **1** with a support angle bracket and a flanged nut to the M6x25 bolt. Close cable tie **3** around metering pump mount **1** .

2 Metering pump

Installing metering pump

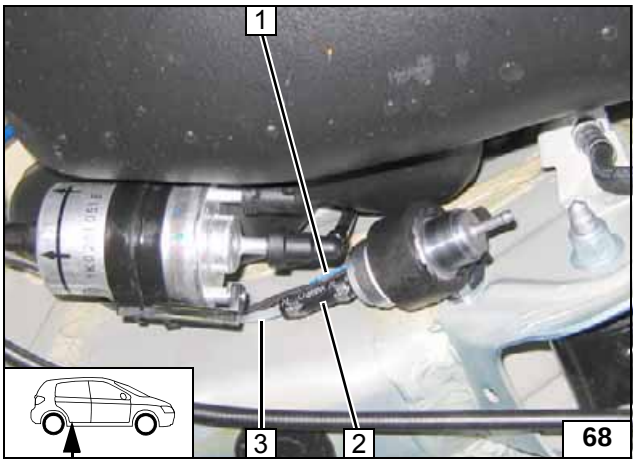
Connector X7



Pin assignment is not relevant.

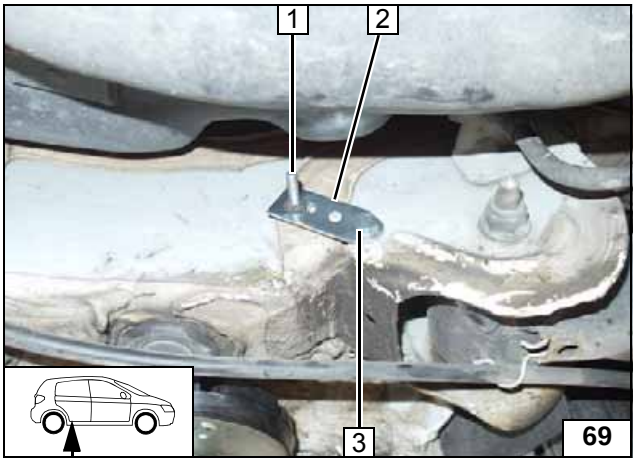
67

Completing metering pump connector



1 Metering pump wiring harness, connector X7 mounted
2 Hose section, 10mm dia. clamp [2x]
3 Fuel line of heater

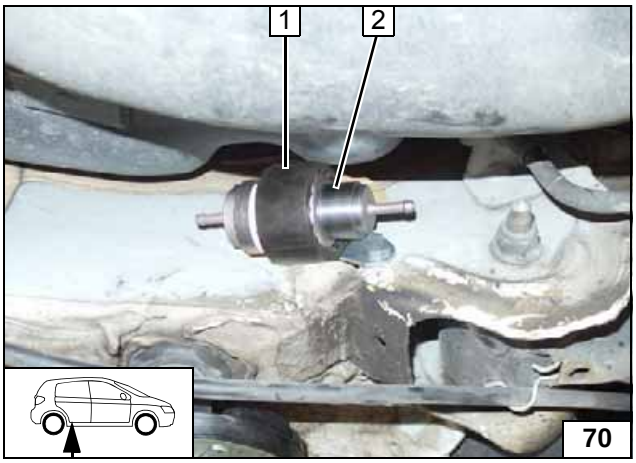
Connecting metering pump



1.6 TDI

1 Premount M6x25 bolt, pin lock
2 Perforated bracket
3 M6x20 bolt, flanged nut, original vehicle hole

Installing perforated bracket

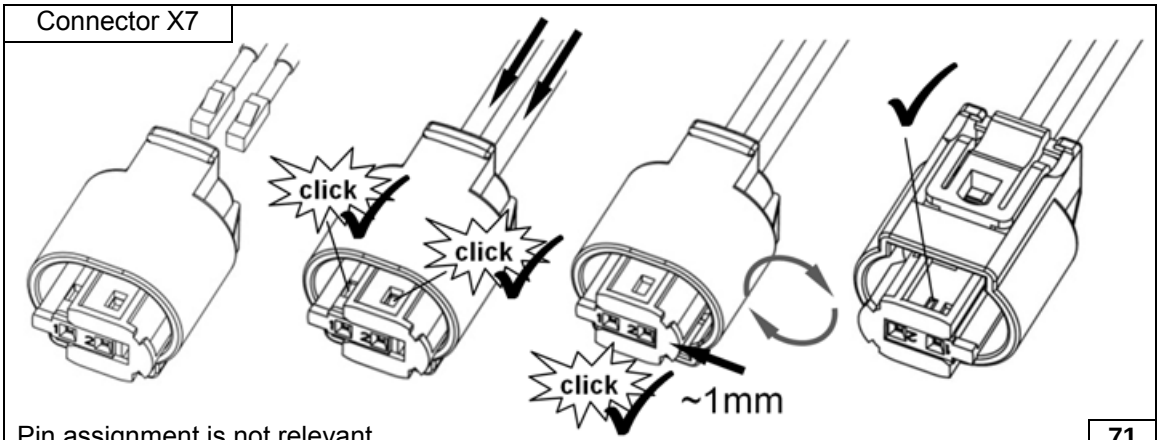


Attach metering pump mount **1** with a support angle bracket and a flanged nut to the M6x25 bolt.

2 Metering pump

Installing metering pump

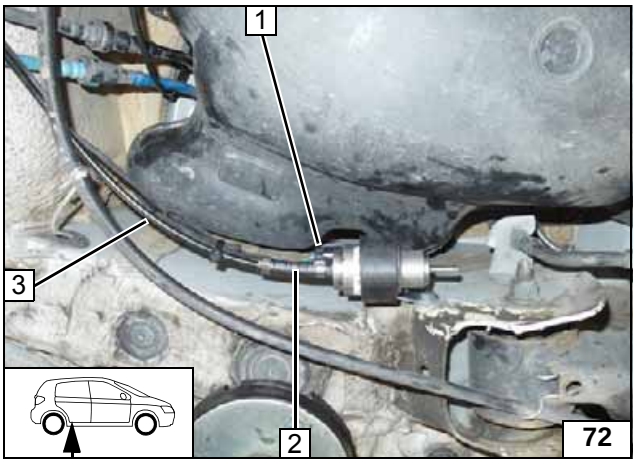
Connector X7



Pin assignment is not relevant.

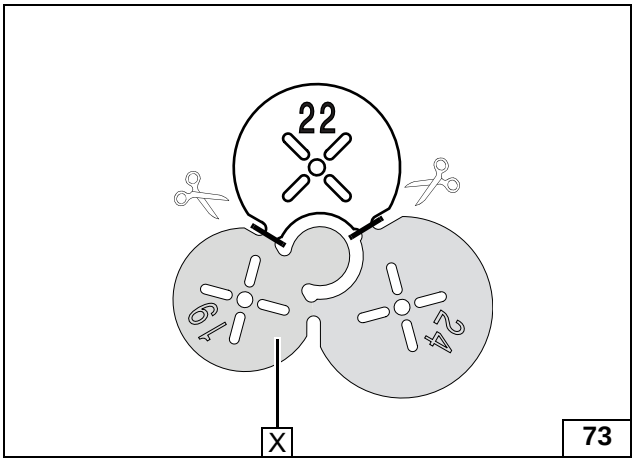
71

Completing metering pump connector



1 Metering pump wiring harness, connector X7 mounted
2 Hose section, 10mm dia. clamp [2x]
3 Fuel line of heater

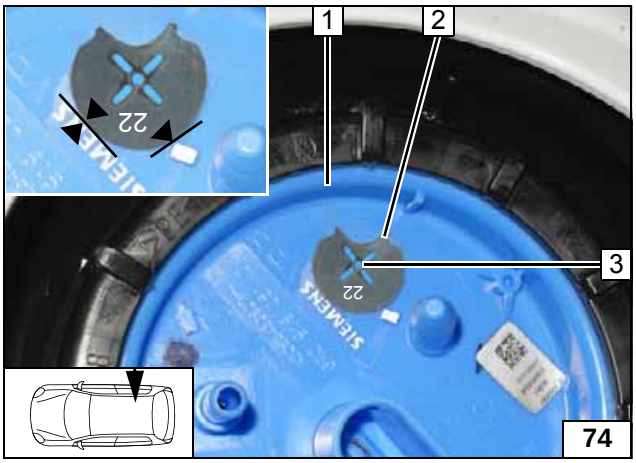
Connecting metering pump



Installing FuelFix for Petrol Vehicles

X =

Drilling template



Version 1

Work steps F1 and F2.

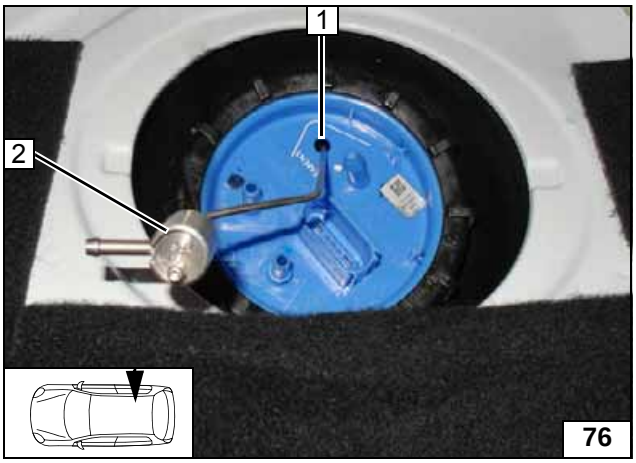
1 Fuel tank sending unit
2 Position 22mm template at raised part and lettering
3 Hole pattern

Copying hole pattern

Work step F3.

1 Hole made with provided drill

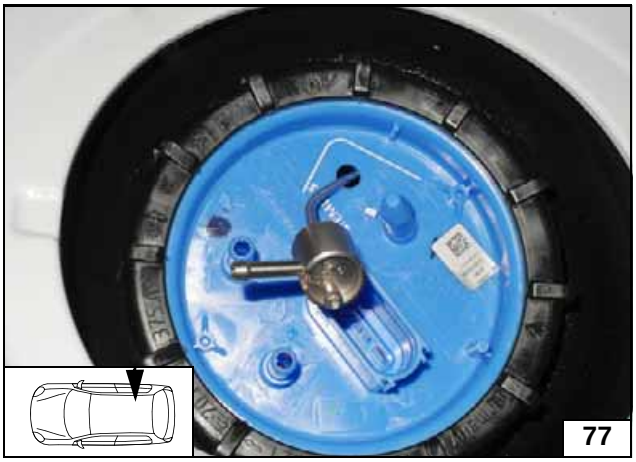
Hole for FuelFix



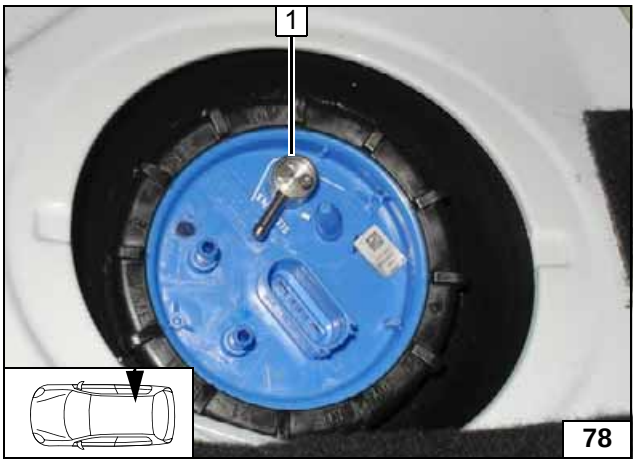
Work steps F4 and F5.

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

Inserting FuelFix



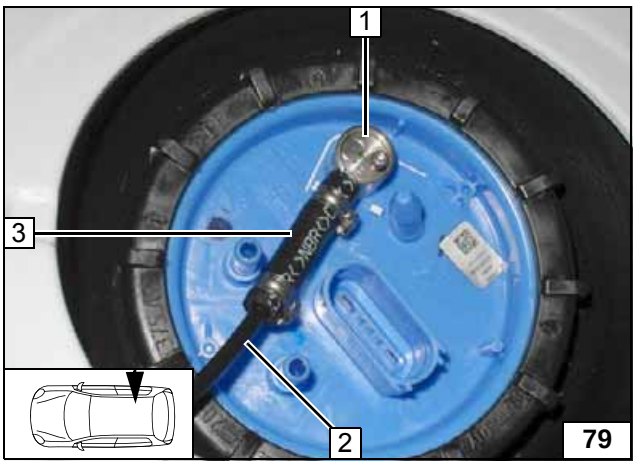
Inserting FuelFix



Work steps F5.3 and F5.4.

Turn FuelFix **1** as shown to align it.

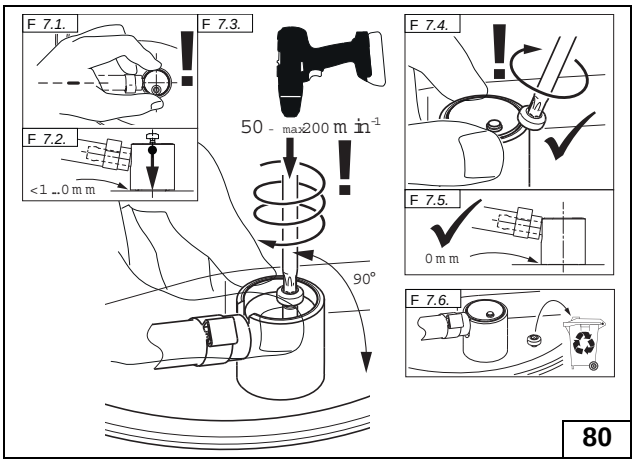
Aligning FuelFix



Work step F6.

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

Connecting fuel line

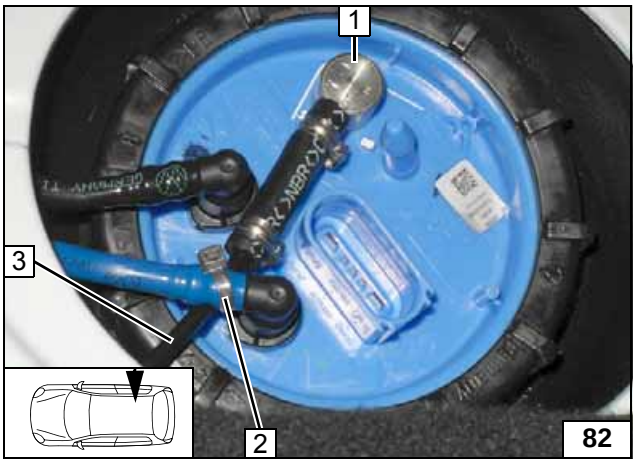


Work step F7.

Installing FuelFix

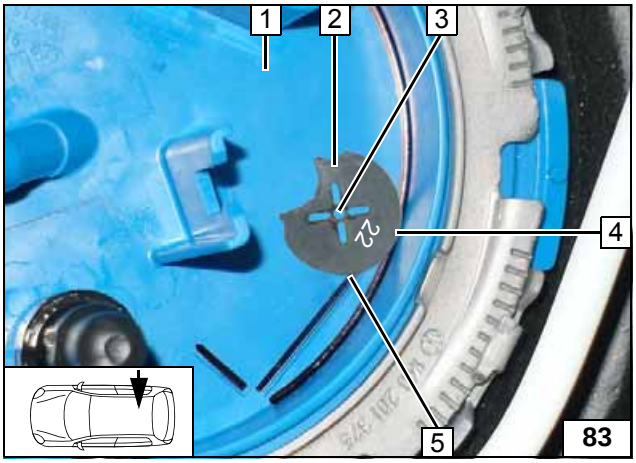
Work step F8.

Checking firm seating of FuelFix



1 FuelFix installed
2 Cable tie as tension relief
3 Fuel line of FuelFix

Securing fuel line

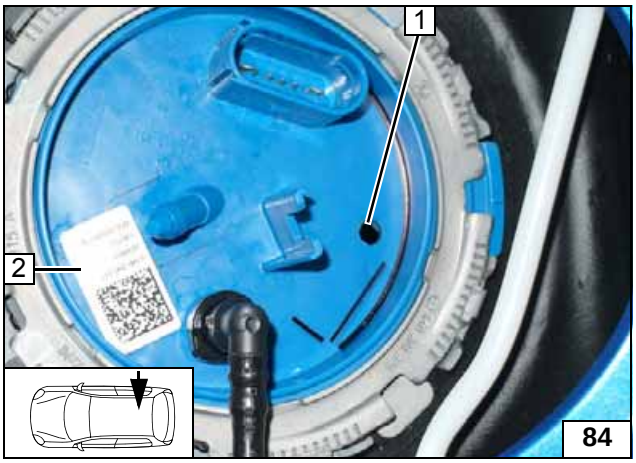


Version 2

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position 22mm dia. template, copy hole pattern
3 Copy hole pattern
4 Contact point, rim of fuel tank sending unit
5 Contact point, edge of raised part

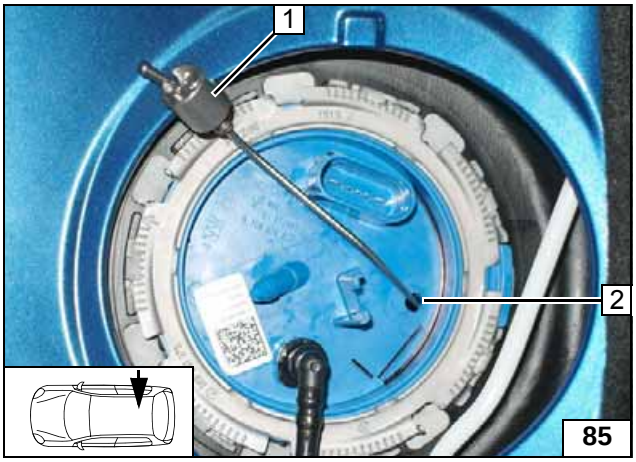
Hole for FuelFix



Work step F3.

1 Hole made with provided drill
2 Move label

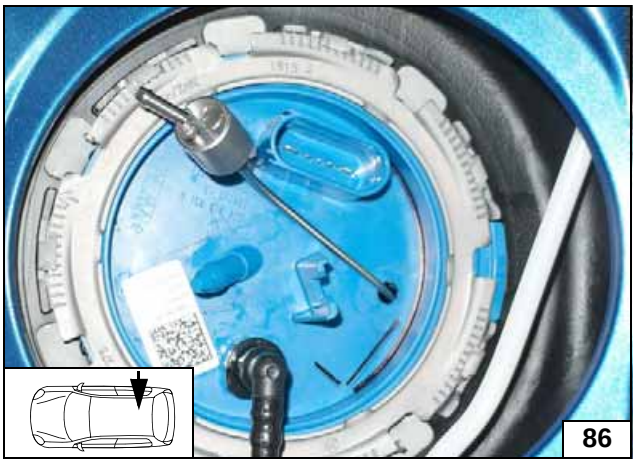
Hole for FuelFix



Work steps F4 and F5.

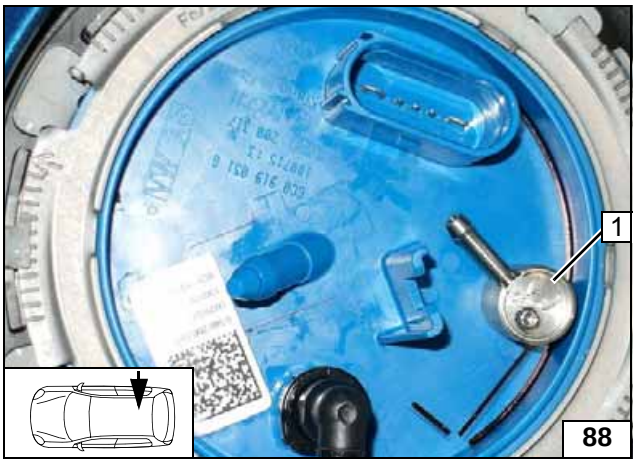
Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

Preparing and inserting FuelFix



Inserting FuelFix

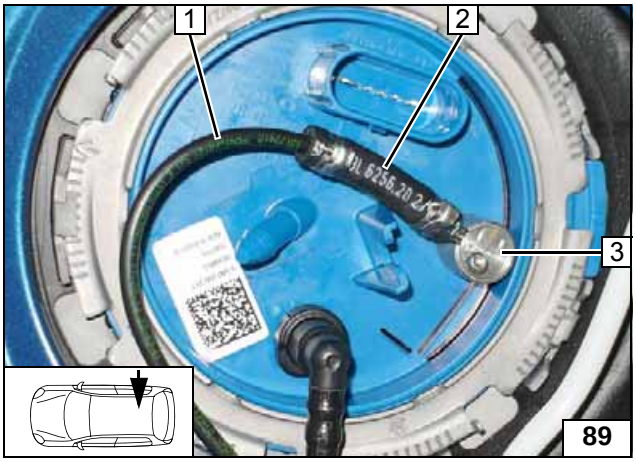
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

Aligning FuelFix



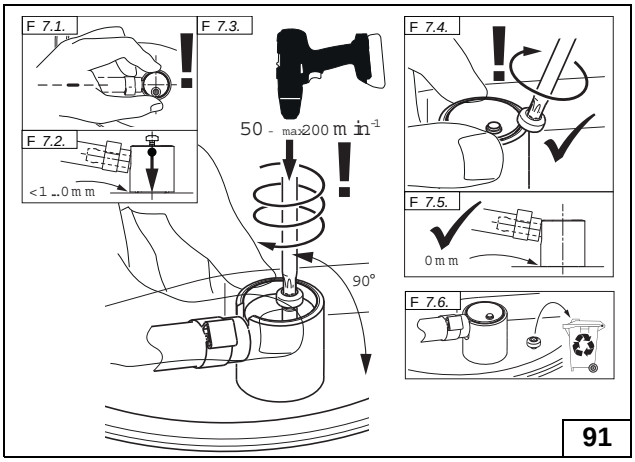
Work step F6.

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

Connecting fuel line

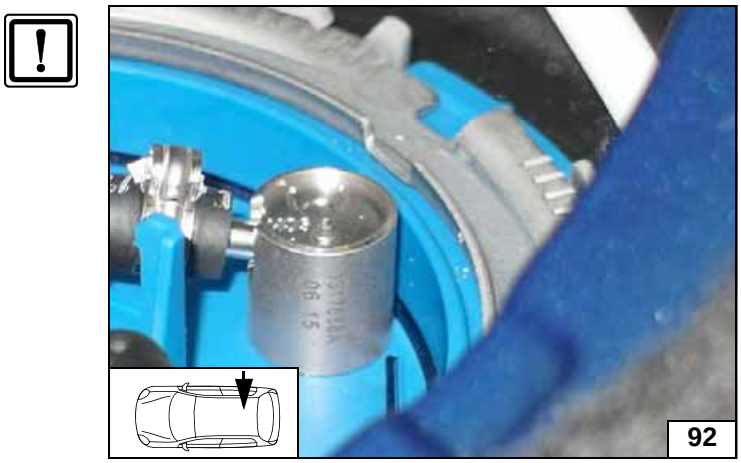
Install original vehicle connector.
Align and install FuelFix **1** as shown in next figure.

Installing FuelFix



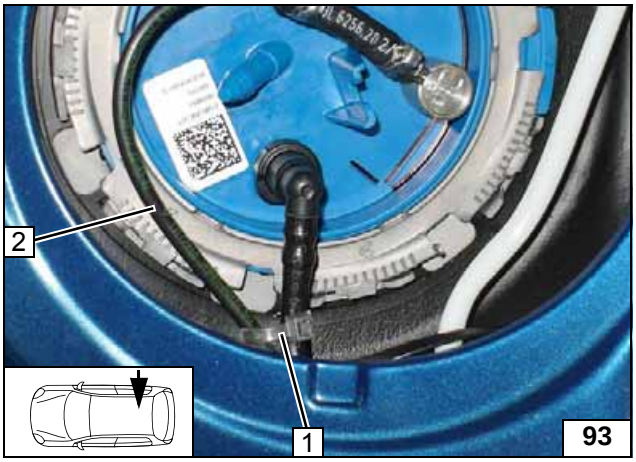
Work step F7.

Installing FuelFix



Work step F8.

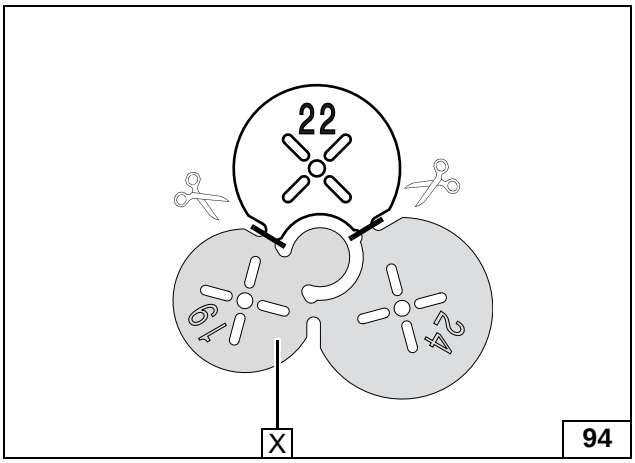
Checking firm seating of FuelFix



1 Cable tie as tension relief
2 Fuel line of FuelFix

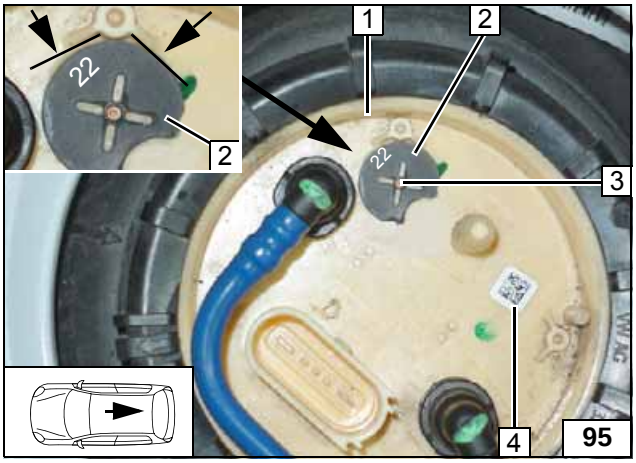
Securing fuel line

Installing FuelFix for Diesel Vehicles



X =

Drilling template

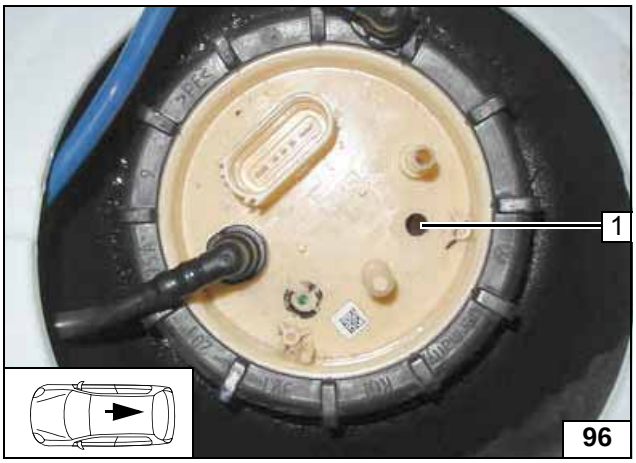


Work steps F1 and F2.

Move label **4** as shown.

1 Fuel tank sending unit
2 Position 22mm template at raised parts
3 Hole pattern

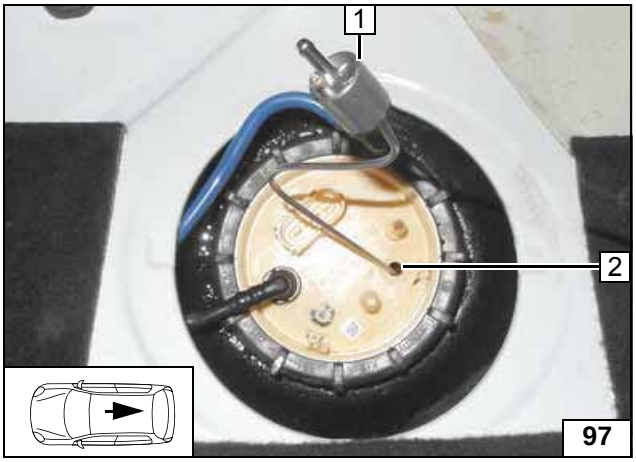
Fuel extraction



Work step F3.

1 Hole made with provided drill

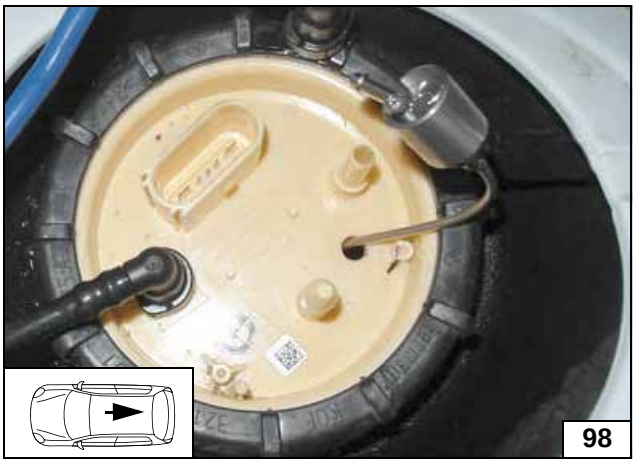
Hole for FuelFix



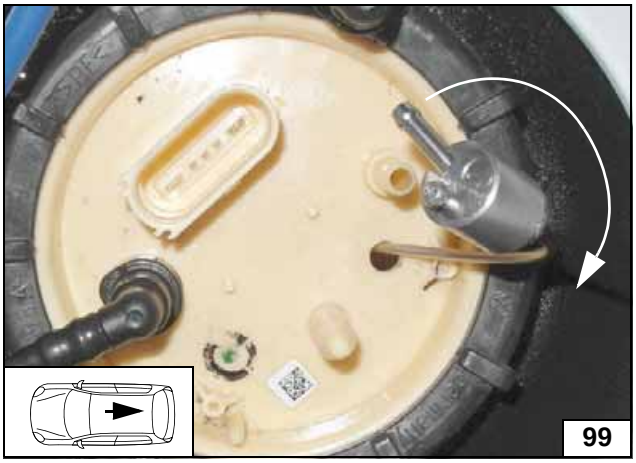
Work steps F4 and F5.

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

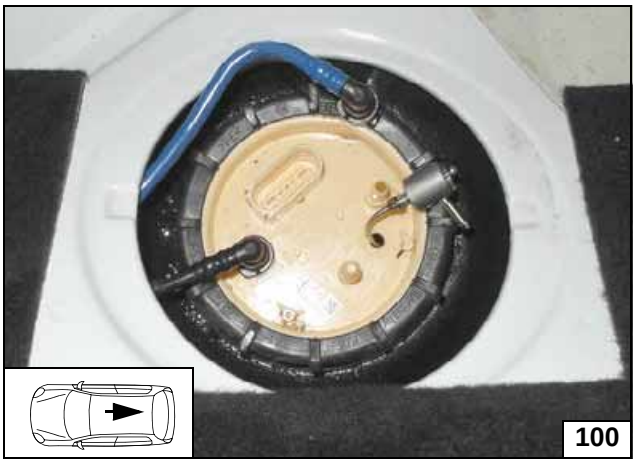
Inserting FuelFix



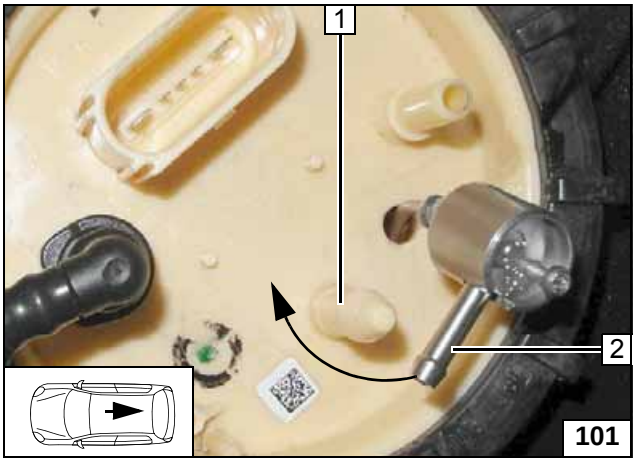
Inserting FuelFix



Inserting FuelFix



Inserting FuelFix



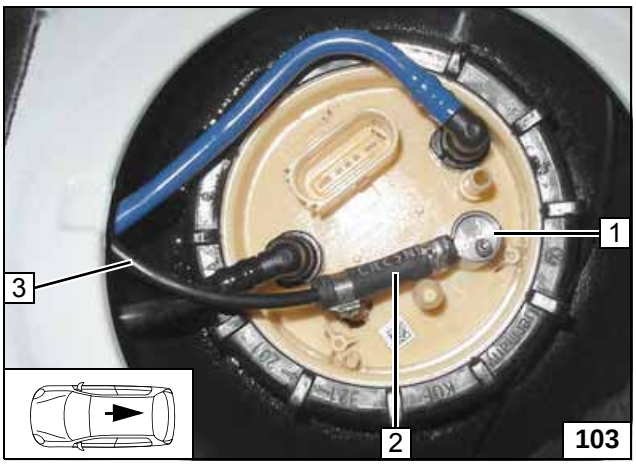
Move FuelFix connection piece **2** over closed stub **1**.

Inserting FuelFix

Work steps F5.3 and F5.4.

Turn FuelFix **1** in position as shown.

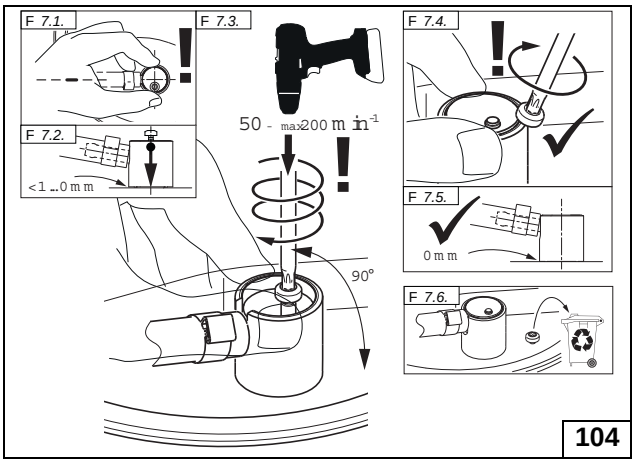
Positioning FuelFix



Work step F6.

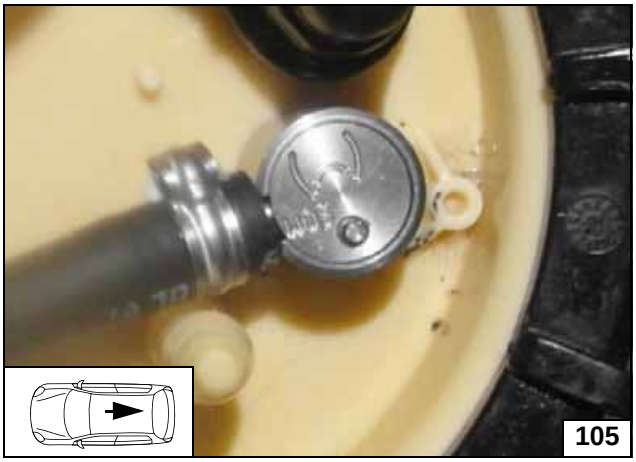
1 FuelFix
2 Hose section, 10mm dia. clamp [2x]
3 Fuel line

Connecting fuel line



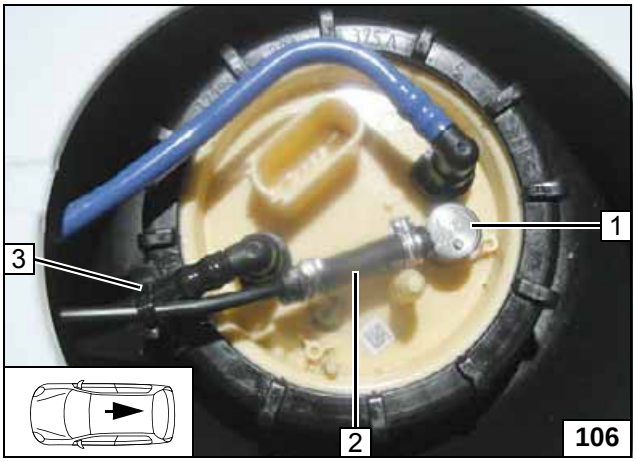
Work step F7.

Installing FuelFix



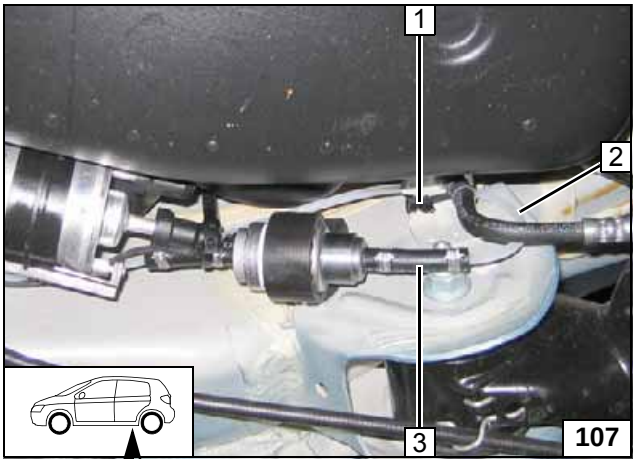
Work step F8.

Checking firm seating of FuelFix



1 FuelFix installed
2 Fuel line of FuelFix
3 Cable tie as tension relief

Securing fuel line

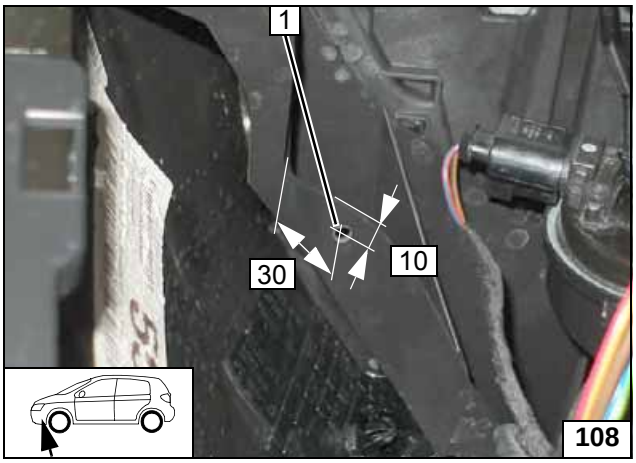


All vehicles.

Ensure sufficient distance from neighbouring components, correct if necessary.

1 Cable tie
2 Fuel line of FuelFix
3 Hose section, 10mm dia. clamp [2x]

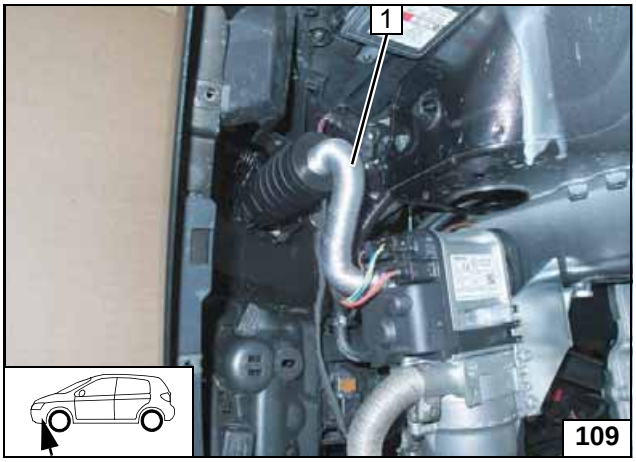
Connecting metering pump



Combustion Air

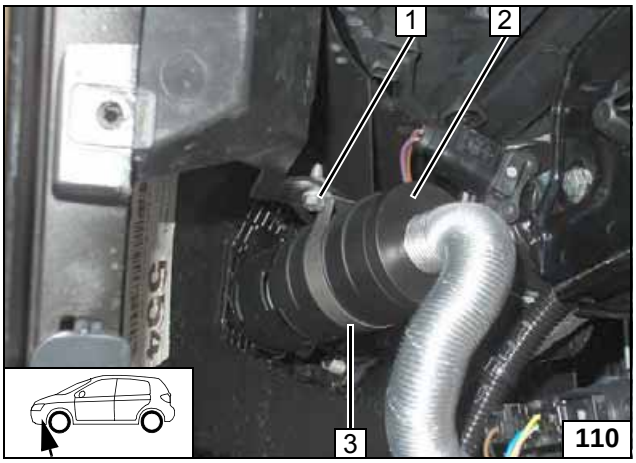
1 Copy hole pattern, drill 7mm dia. hole

Copying hole pattern



1 Combustion air pipe

Installing combus-tion air pipe



1 M5x16 bolt, flanged nut
2 Silencer
3 51mm dia. clamp

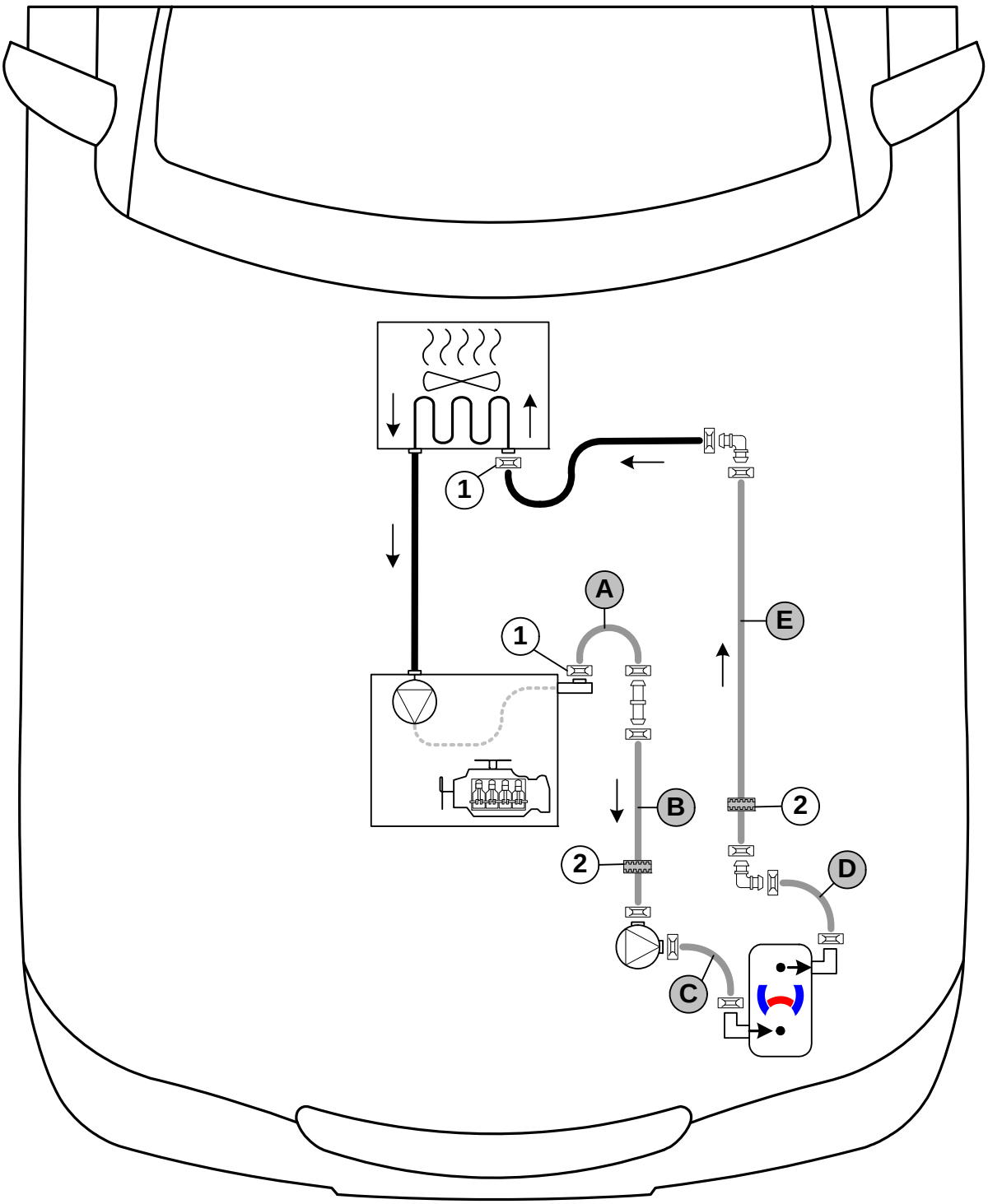
Installing silencer

Petrol Coolant Circuit

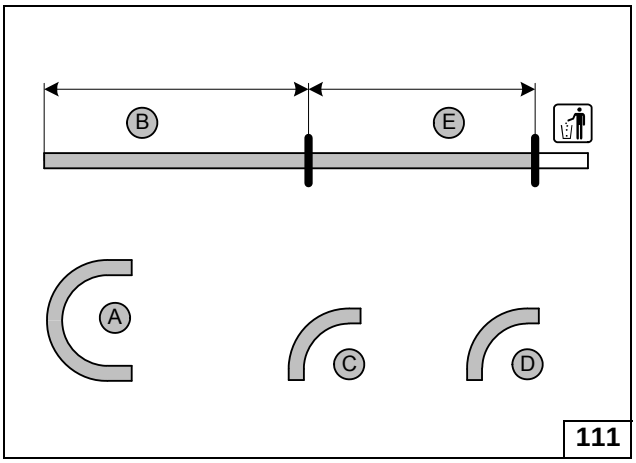
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram

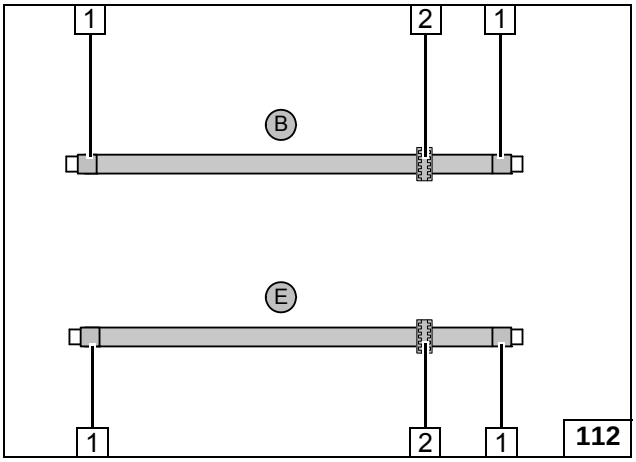


All spring clips without a specific designation = 25 mm dia. All connecting pipes and = 18x18mm dia.
1 = Original vehicle spring clip .
2 = Black (sw) rubber isolator .



A = 180°, 18mm dia.
B = 800
C = 90°, 18mm dia.
D = 90°, 18mm dia.
E = 960

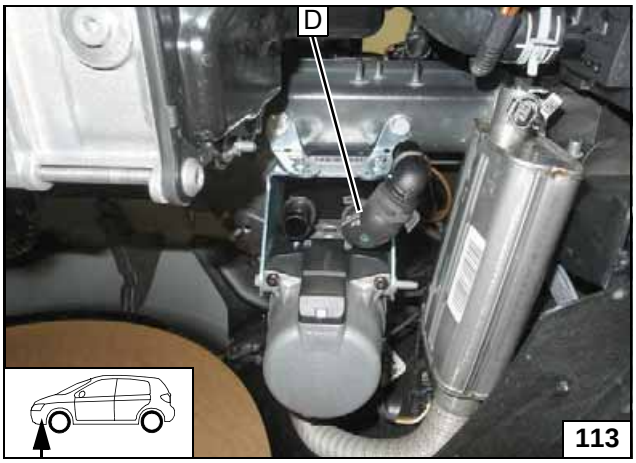
Cutting hoses to length



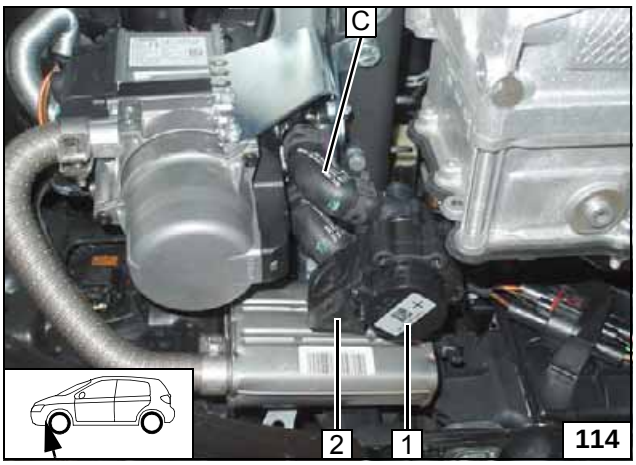
Slide on braided protection hoses and cut to length.

1 Cut heat shrink plastic tubing to size, 50mm long [4x]
2 Black (sw) rubber isolator [2x]

Installing braided protection hoses

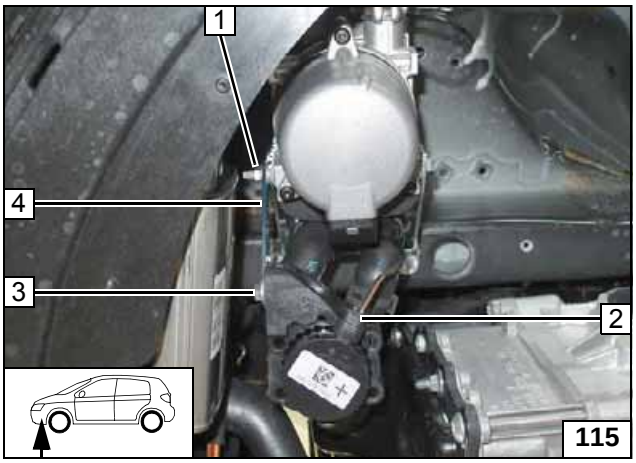


Connecting hose D



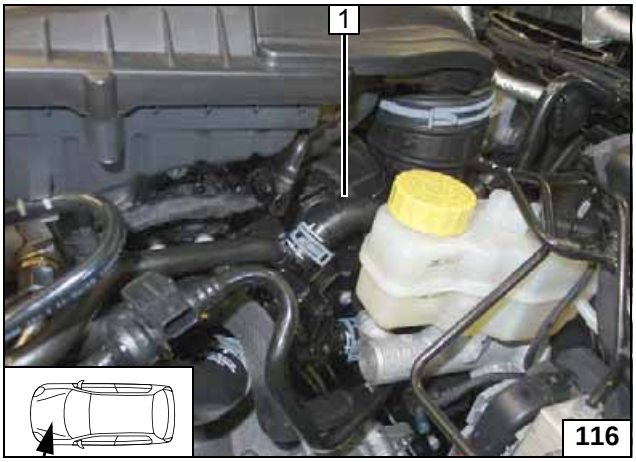
1 Circulating pump
2 Circulating pump mount

Connecting circulating pump



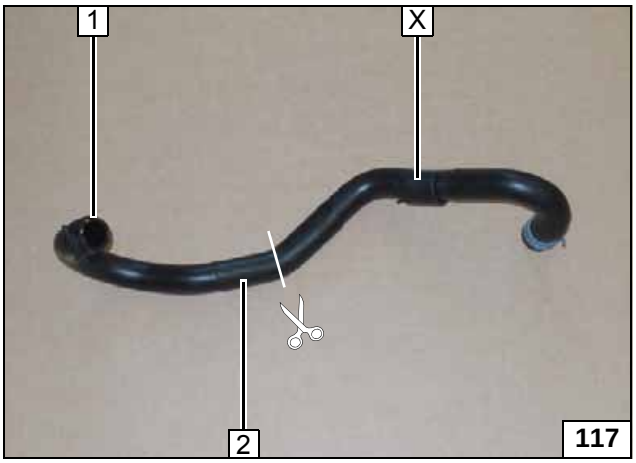
1 Flanged nut on stud bolt of heater
2 Wiring harness of circulating pump
3 M6x25 bolt, flanged nut
4 Perforated bracket C

Installing circulating pump



Remove hose **1** from engine outlet/heat exchanger inlet. Spring clips will be re-used.

Removing hose

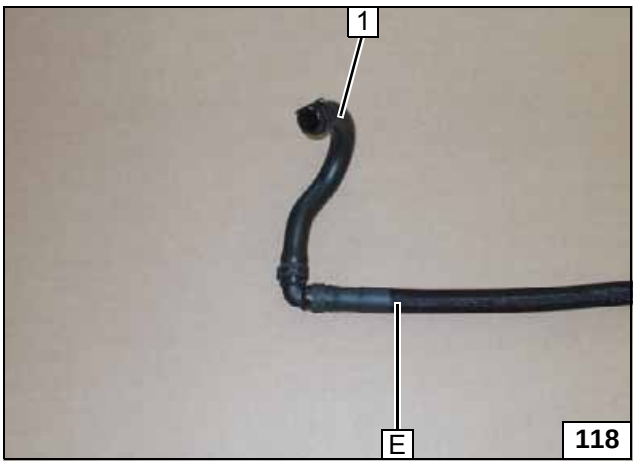


Cut off hose of engine outlet/heat exchanger inlet **1** at the marking.

1 Heat exchanger inlet hose section
2 Remove heat shrink plastic tubing and discard

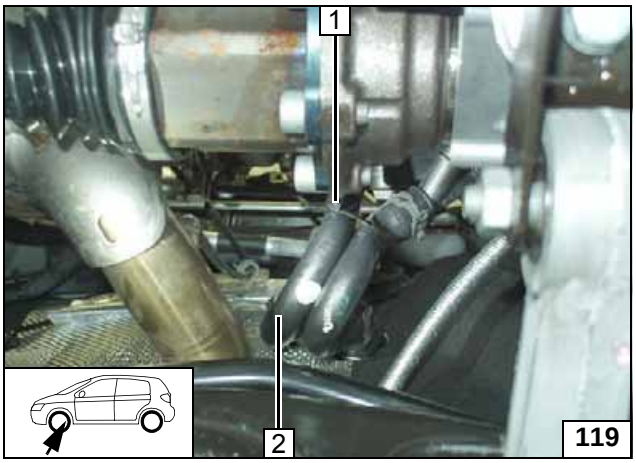
X =

Cutting point



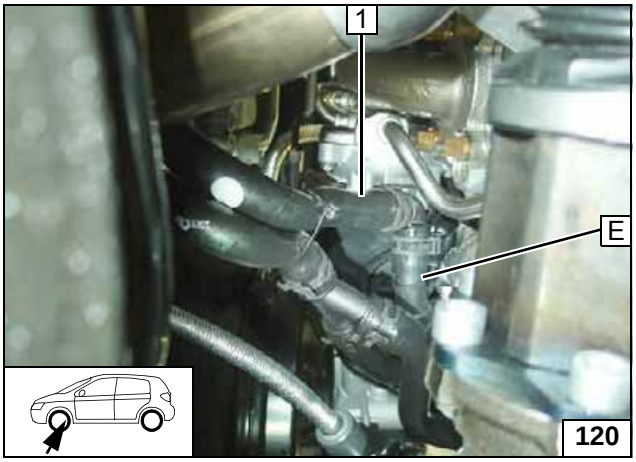
1 Heat exchanger inlet hose section

Premounting hose E



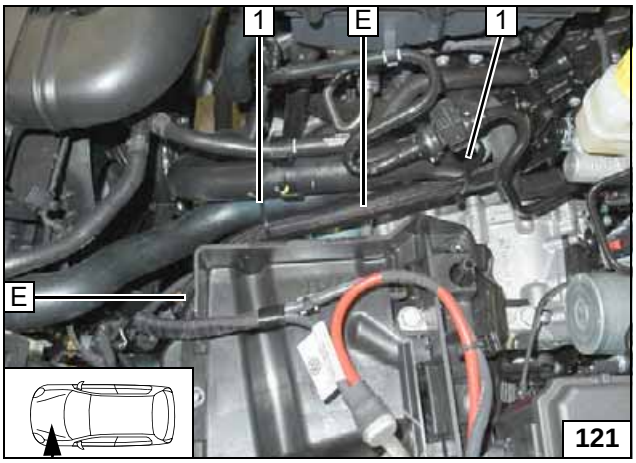
1 Cable tie
2 Heat exchanger inlet hose section

Connecting heat exchanger inlet



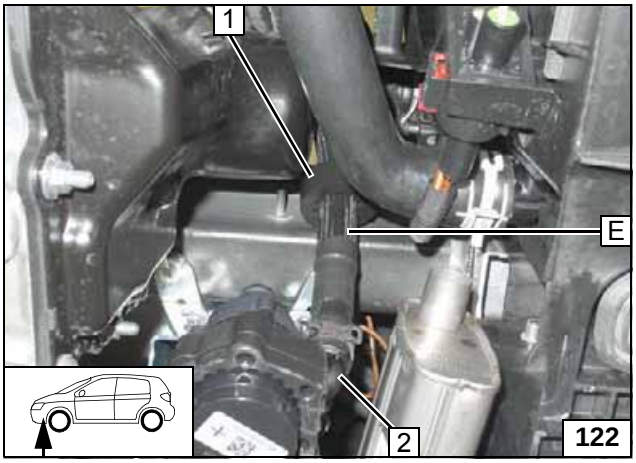
1 Heat exchanger inlet hose section

Routing in engine compartment



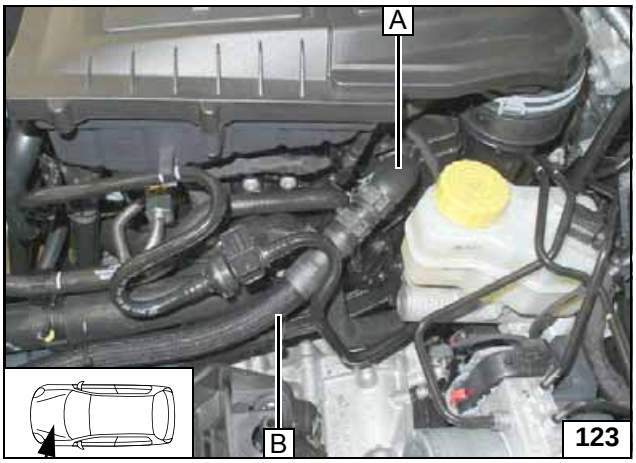
1 Cable tie [2x]

Routing in engine compartment

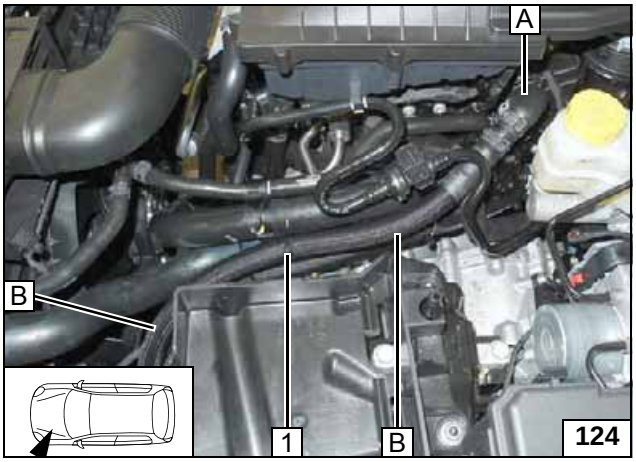


1 Black (sw) rubber isolator
2 90° connecting pipe of hose **D**

Connecting engine outlet

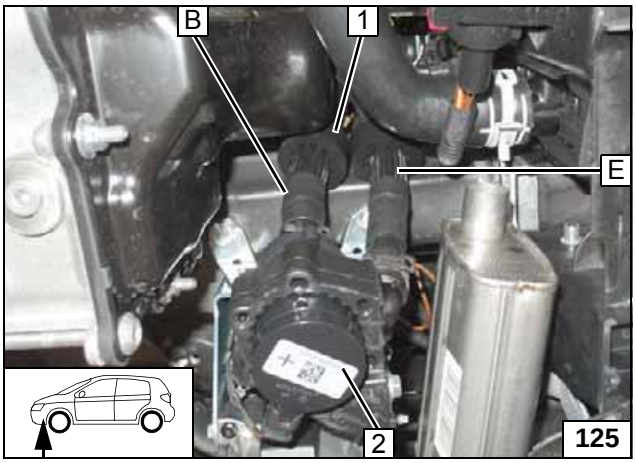


Connecting engine outlet



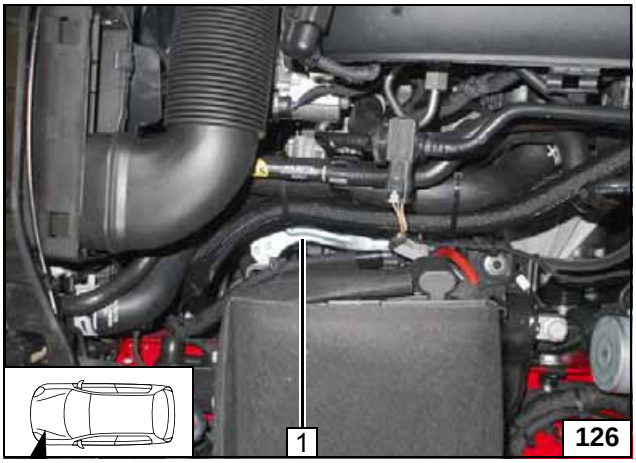
1 Cable tie

Routing in engine compartment



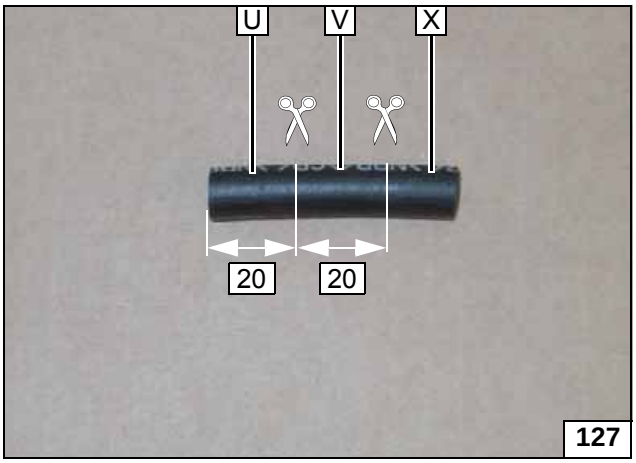
1 Black (sw) rubber isolator
2 Circulating pump

Connecting circulating pump



Ensure freedom of movement of shift system **1** in case of manual transmission. Shift gears to check this.

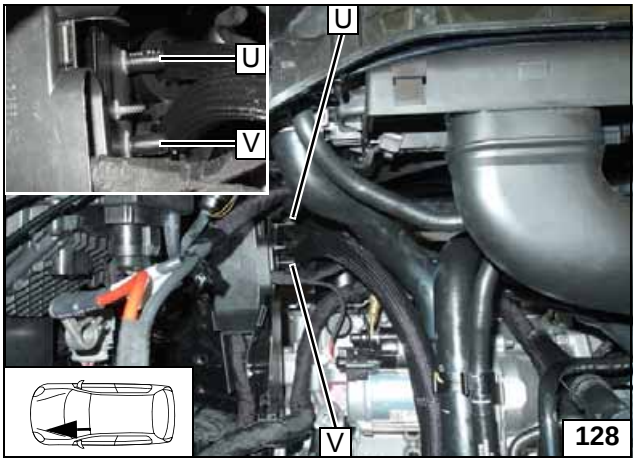
Routing in engine compartment



U = 20
V = 20

X =

Cutting hose section to length



Push hose sections **U** and **V** onto original vehicle stud bolts

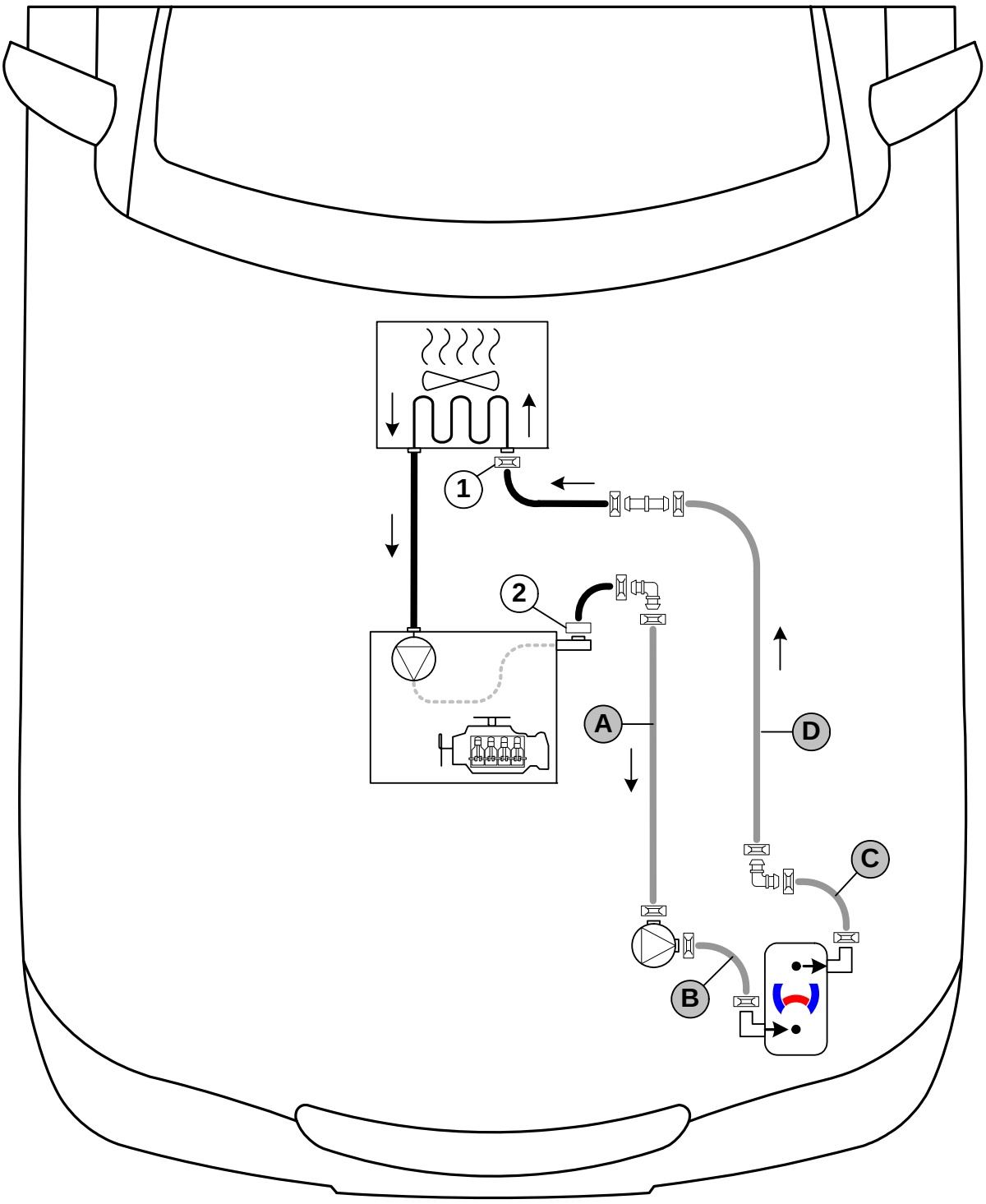
Installing hose sections U and V

Coolant Circuit 1.4 TDI

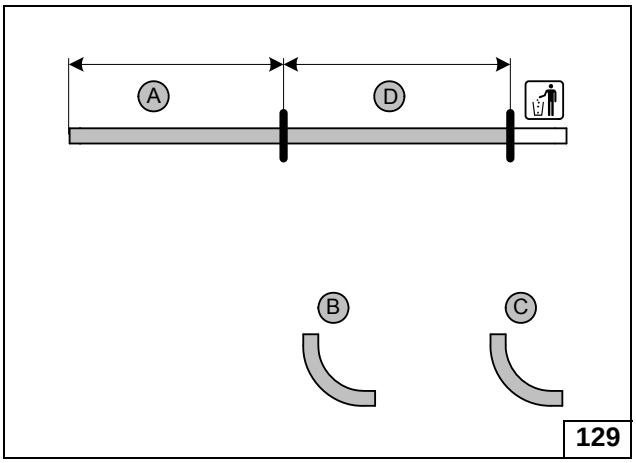
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram

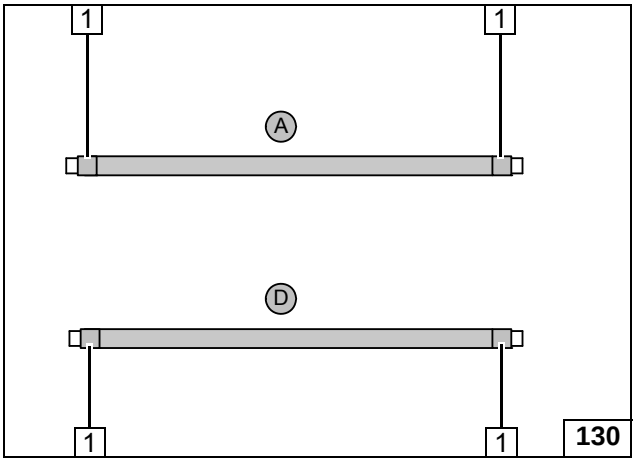


All spring clips without a specific designation = 25 mm dia. All connecting pipes and = 18x18mm dia.
1 = Original vehicle spring clip .
2 = Coupling piece on engine outlet.



A = 800
B = 90°, 18mm dia.
C = 90°, 18mm dia.
D = 960

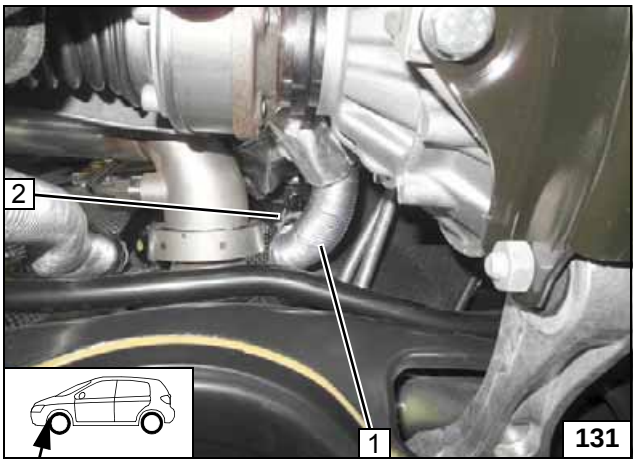
Cutting hoses to length



Slide on braided protection hoses and cut to length.

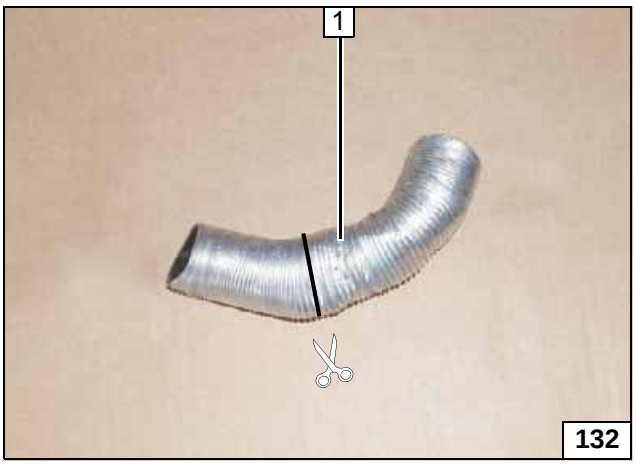
1 Cut heat shrink plastic tubing to size, 50mm long [4x]

Installing braided protection hoses



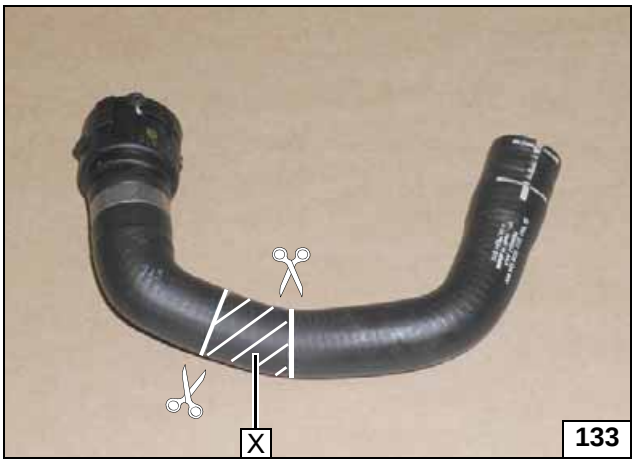
Remove hose of engine outlet / heat exchanger inlet **1** with engine outlet coupling piece. Spring clip **2** will be reused.

Cutting point



Pull off heat protection hose **1** and cut at the marking.

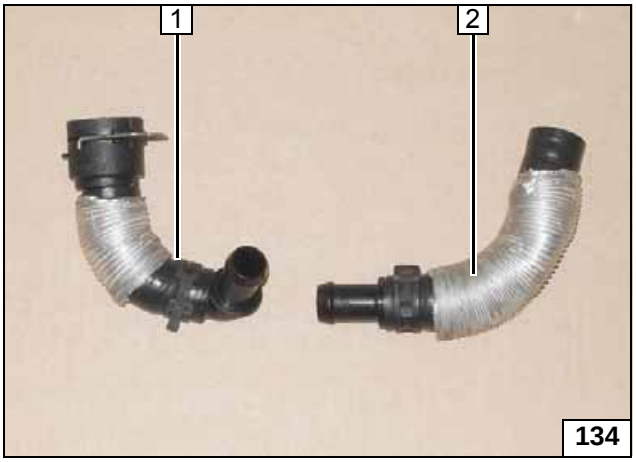
Cutting point



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

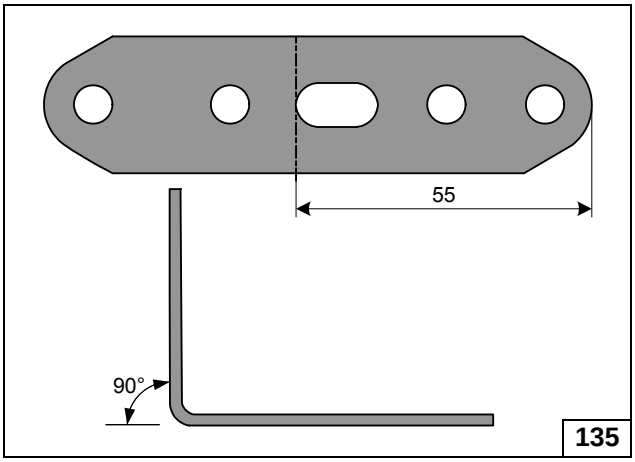
X =

Cutting point

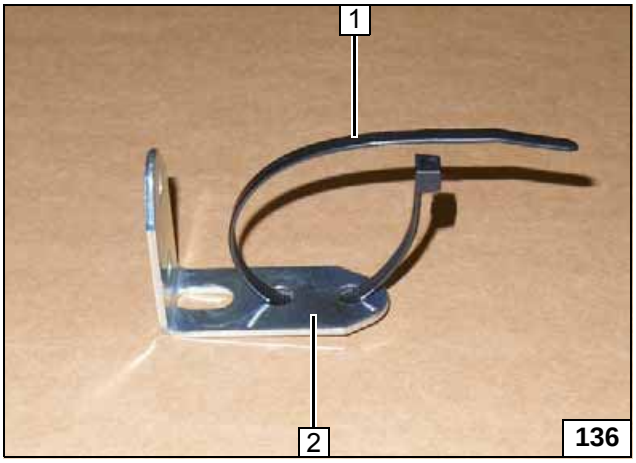


1 Engine outlet hose section
2 Heat exchanger inlet hose section

Preparing hoses

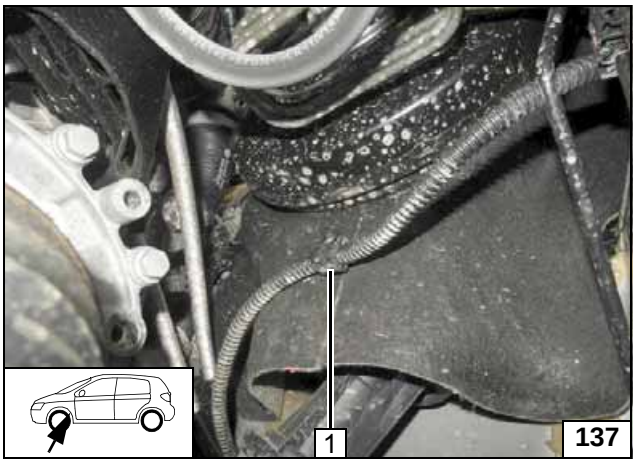


Preparing perforated bracket D



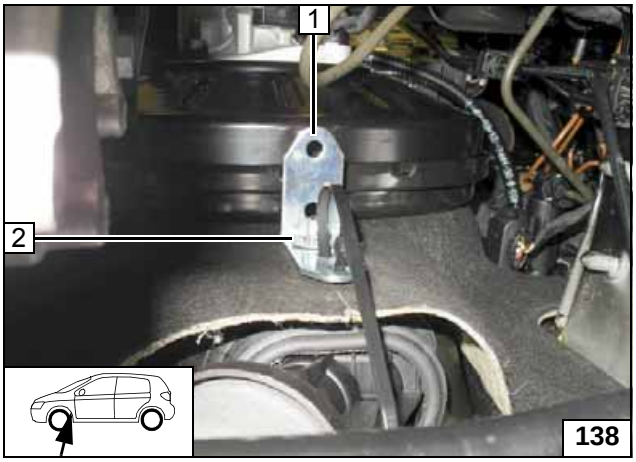
1 Cable tie through both holes, do not tighten
2 Perforated bracket D

Preparing perforated bracket D



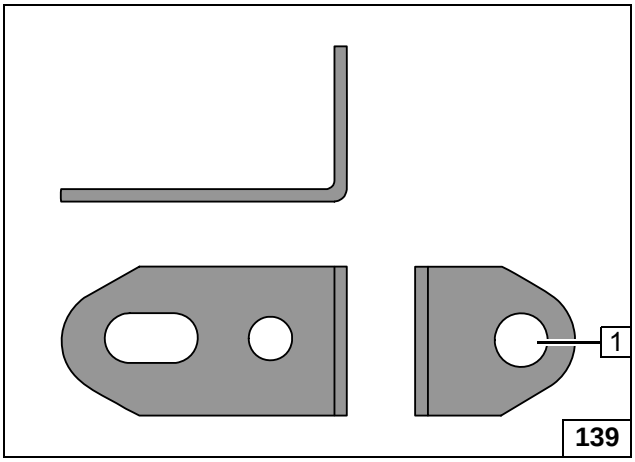
1 Wiring harness bracket

Removing wiring harness bracket



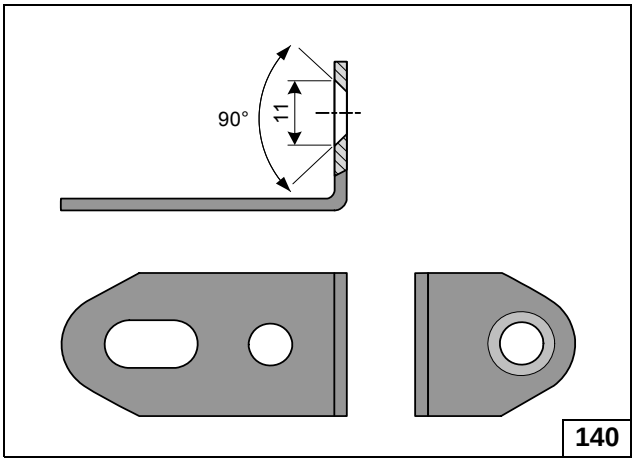
1 Plate nut on original vehicle stud bolt
2 Perforated bracket D

Installing perforated bracket

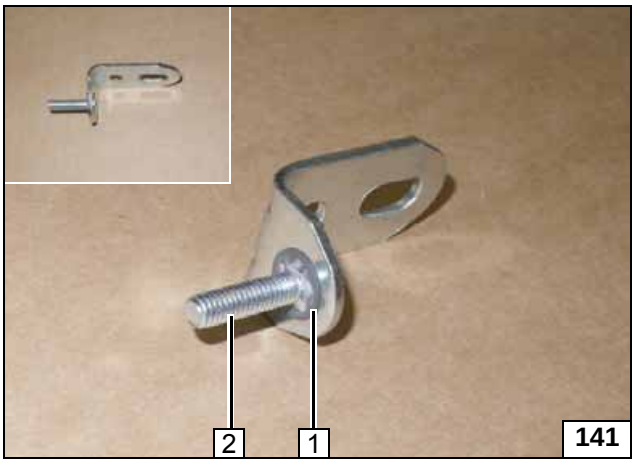


1 Drill out hole to 8.5 mm dia.

Drilling out hole in angle bracket 1

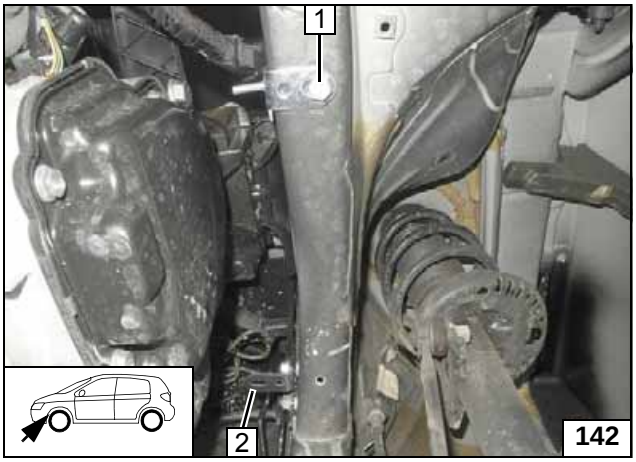


Countersinking hole in angle bracket 2



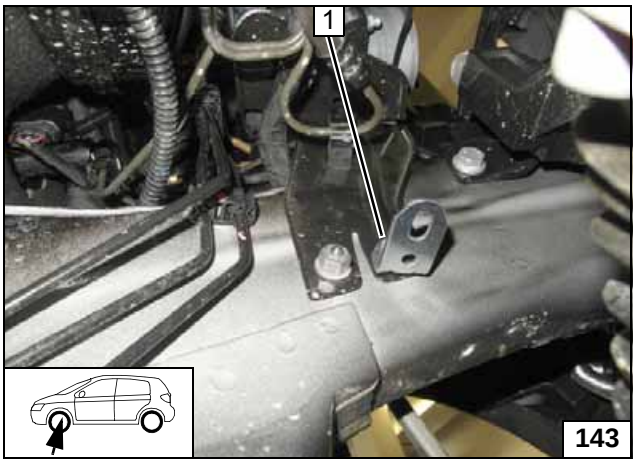
1 Pin lock
2 M6x25 countersunk head screw

Preparing angle bracket 2



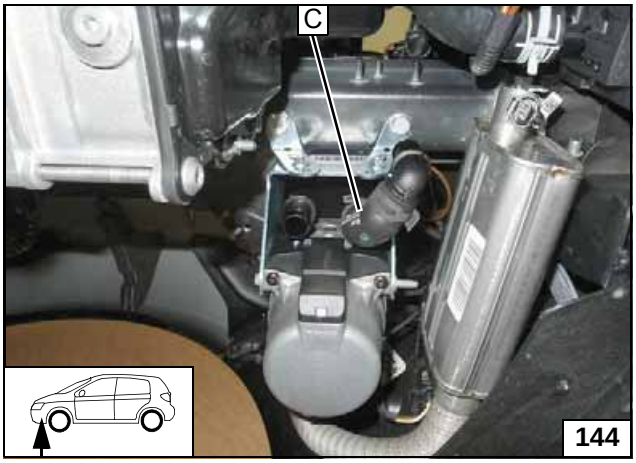
1 M8x20 bolt, spring lockwasher, in original vehicle thread
2 Position angle bracket 1 (see next figure)

Installing angle bracket 2

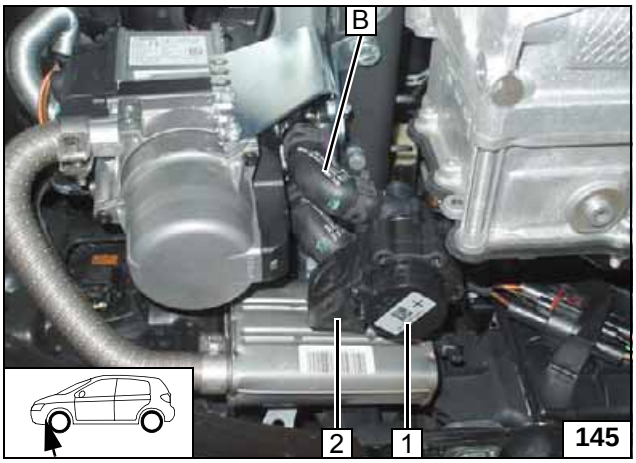


1 Original vehicle nut

Installing angle bracket 1

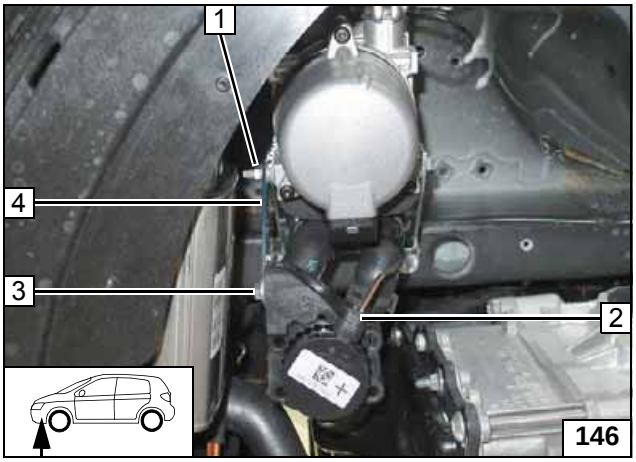


Connecting hose C



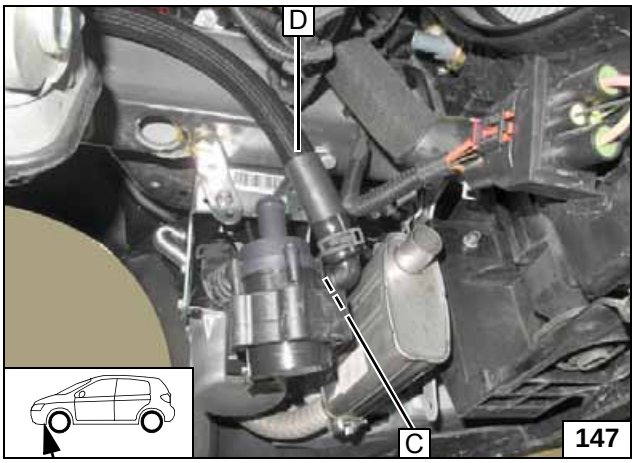
1 Circulating pump
2 Circulating pump mount

Connecting circulating pump

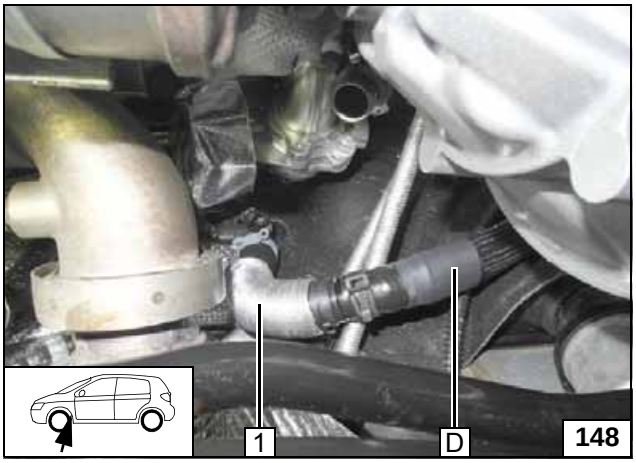


1 Flanged nut on stud bolt of heater
2 Wiring harness of circulating pump
3 M6x25 bolt, flanged nut
4 Perforated bracket C

Installing circulating pump

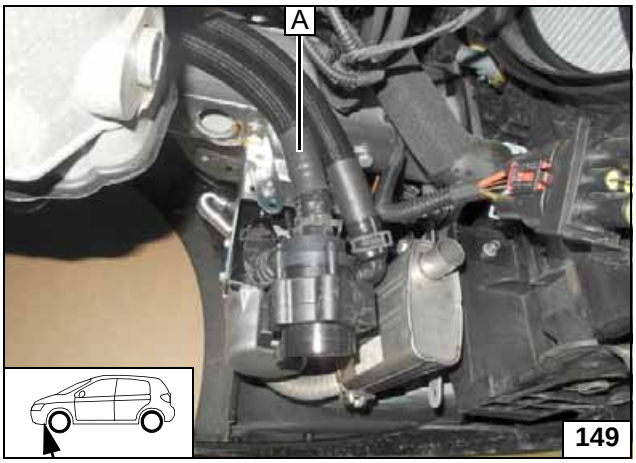


Routing hose D and installing on C



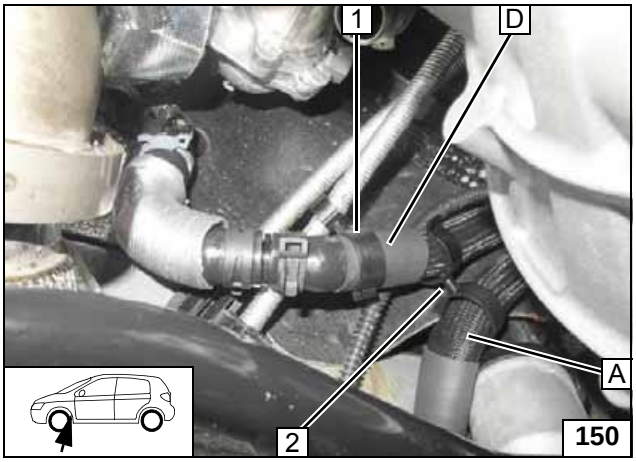
1 Heat exchanger inlet hose section

Connecting heat exchanger inlet



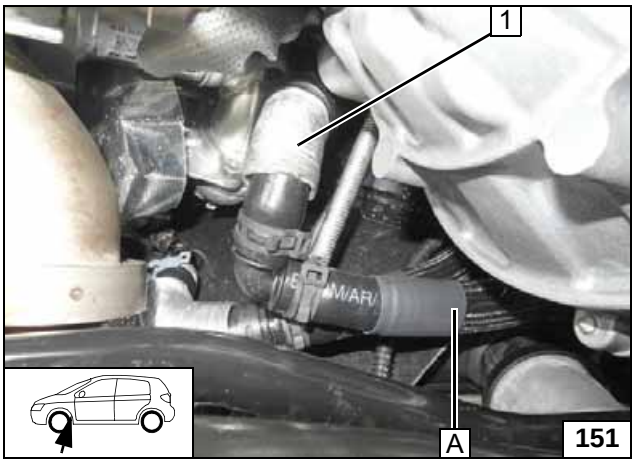
Route hose section **A** and connect to circulating pump

Connecting circulating pump



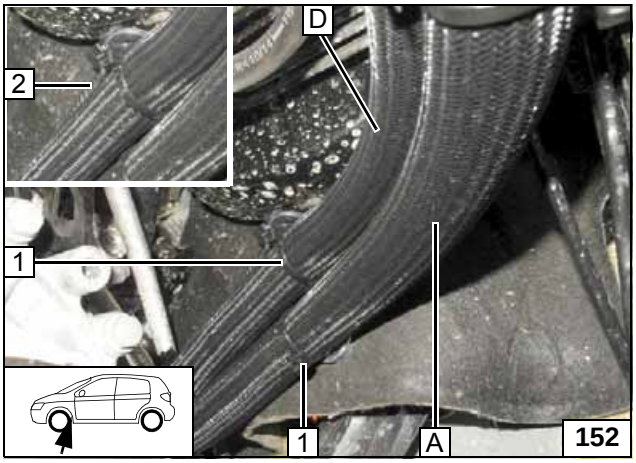
1 10x25 hose bracket
2 25x28 hose bracket

Inserting hose bracket



1 Engine outlet hose section

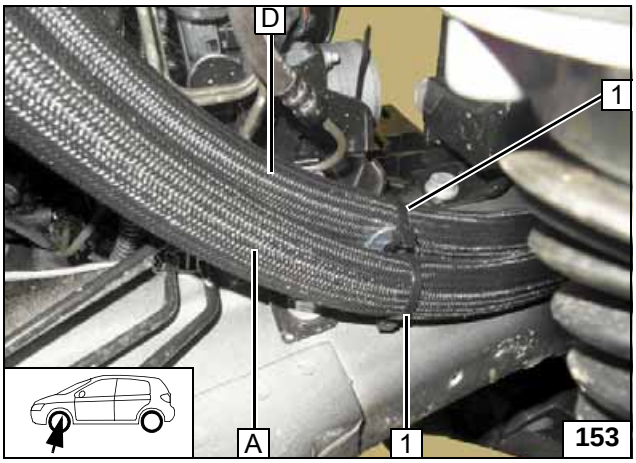
Connecting engine outlet



Attach original vehicle wiring harness **2** if necessary with cable ties.

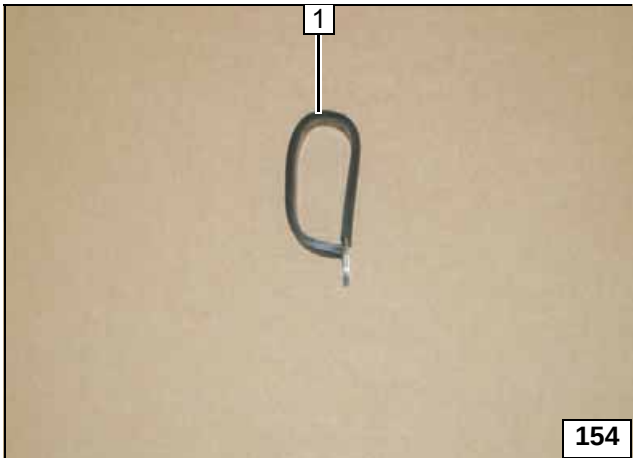
1 Cable ties

Routing in engine compartment



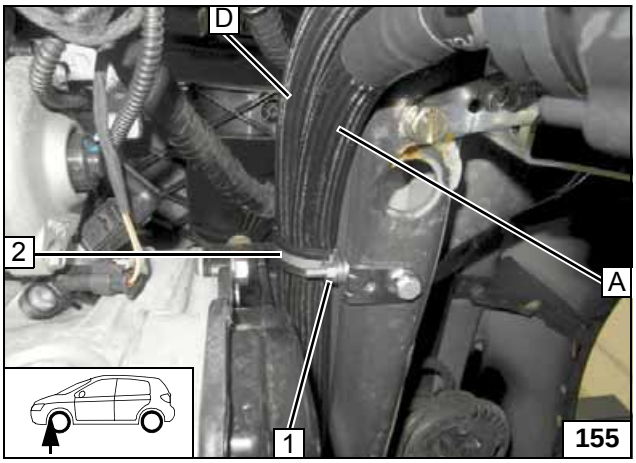
1 Cable ties

Routing in engine compartment on angle bracket 1



1 Shape 48 mm dia. rubber-coated p-clamp

Preparing hose bracket



1 Flanged nut
2 Rubber-coated p-clamp

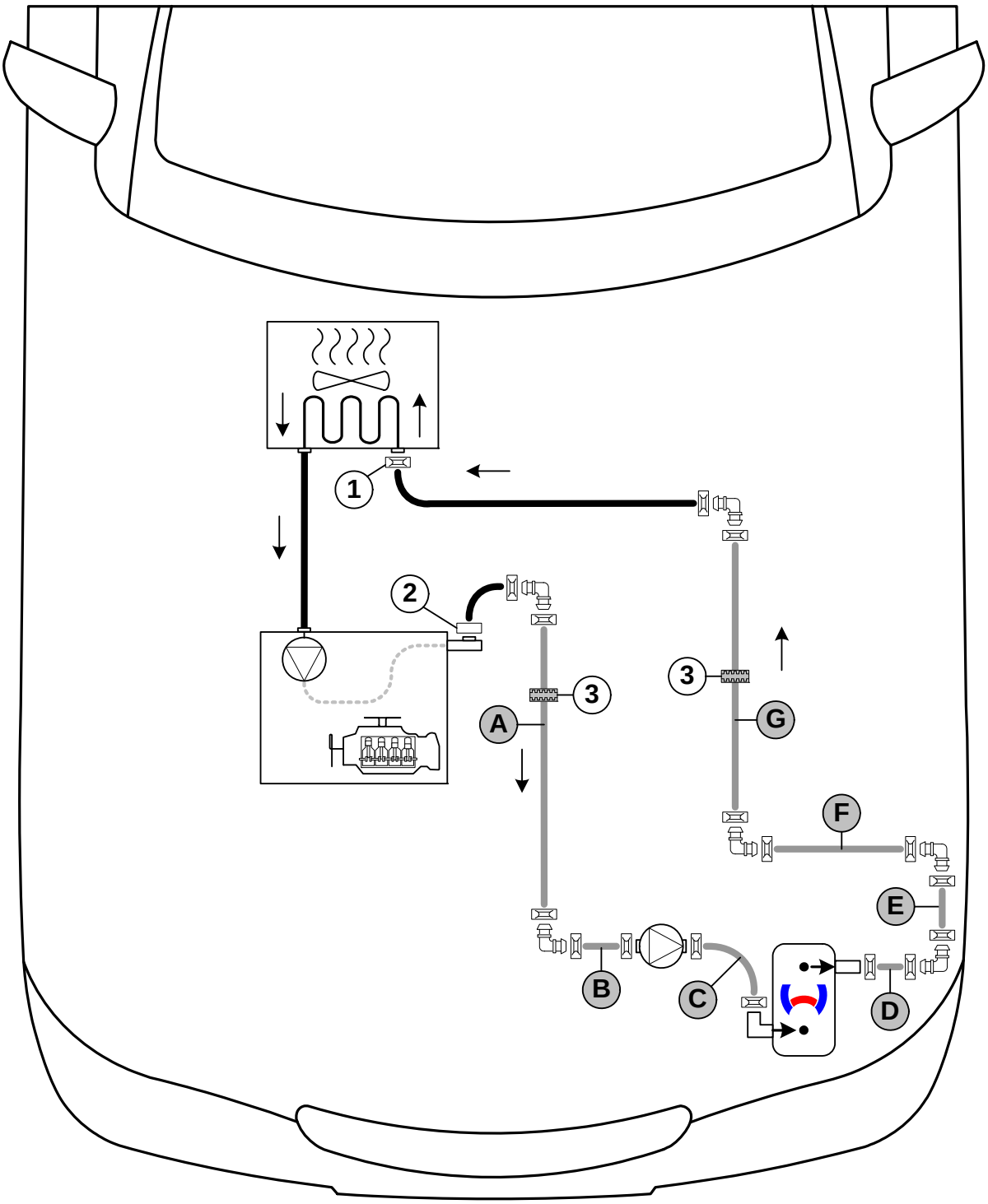
Routing in engine compartment

Coolant Circuit 1.6 TDI

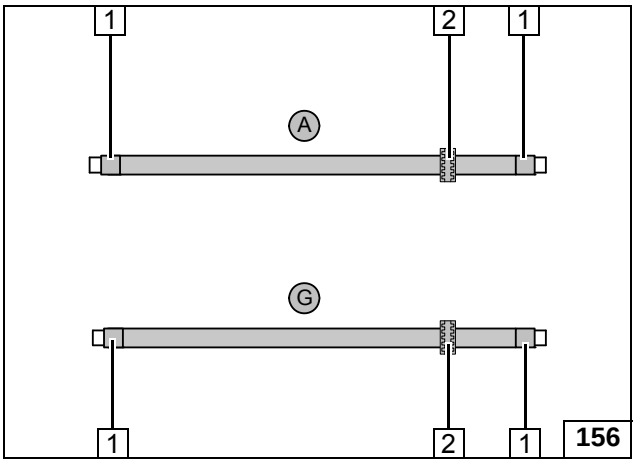
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram



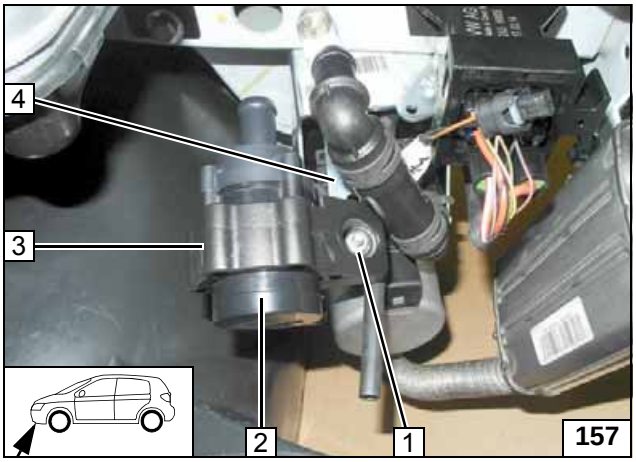
All spring clips without a specific designation = 25 mm dia. All connecting pipes = 18x18 mm dia.
1 = Original vehicle spring clip . **2** = Coupling piece on engine outlet.



Slide on braided protection hoses and cut to length.

1 Cut heat shrink plastic tubing to size, 50mm long [4x]
2 Black (sw) rubber isolator [2x]

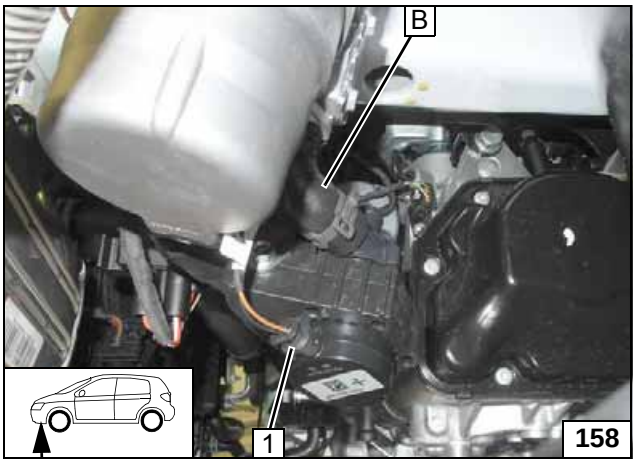
Installing braided protection hoses



Use lower hole of perforated bracket C **4** !

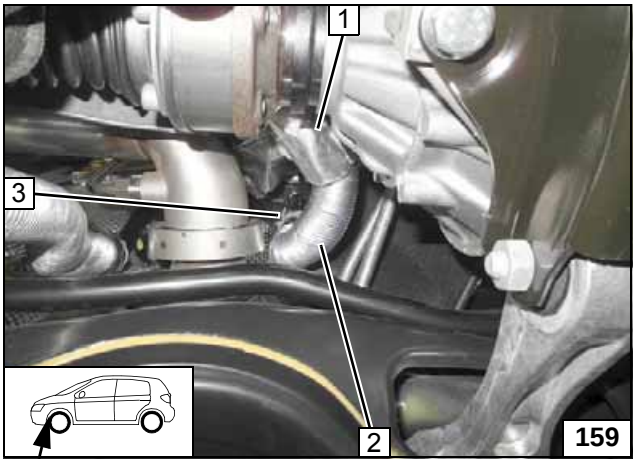
1 M6x25 bolt, flanged nut
2 Circulating pump
3 Circulating pump mount

Installing circulating pump



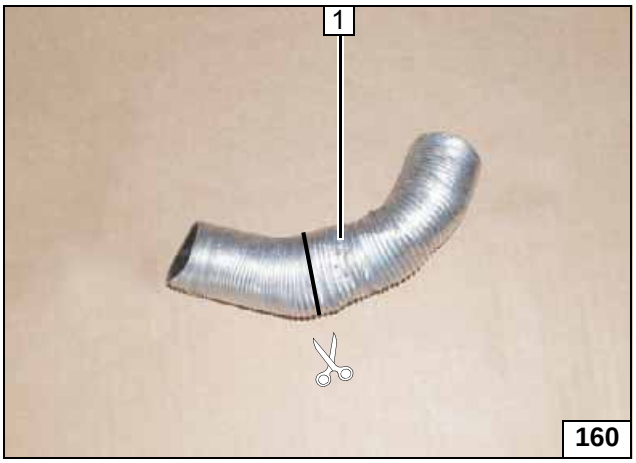
1 Circulating pump wiring harness connector

Connecting circulating pump



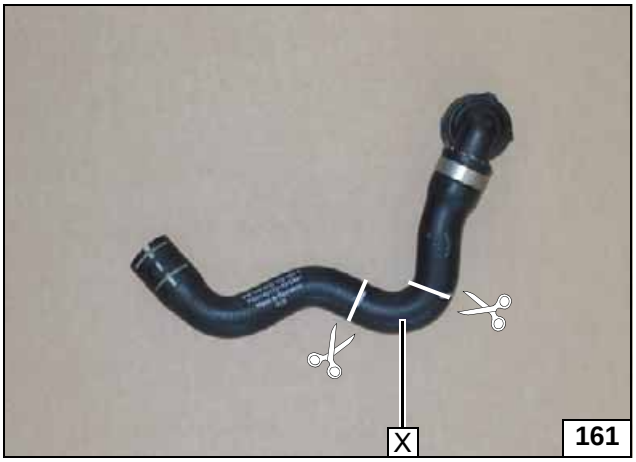
Remove hose of engine outlet / heat exchanger inlet **2** with engine outlet coupling piece. Heat protection **1** and spring clip **3** will be reused.

Cutting point



Pull off heat protection hose **1** and cut at the marking.

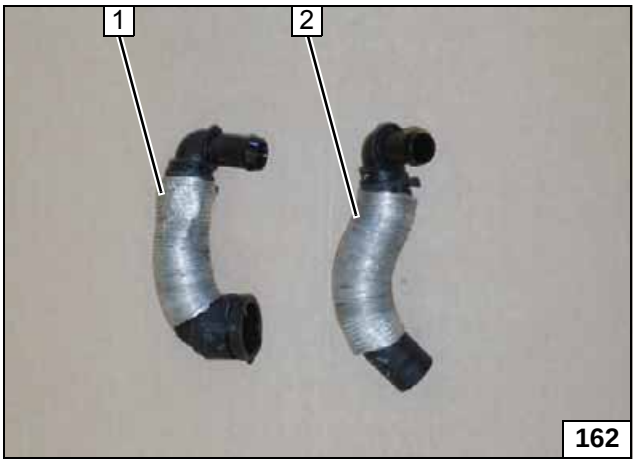
Cutting point



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

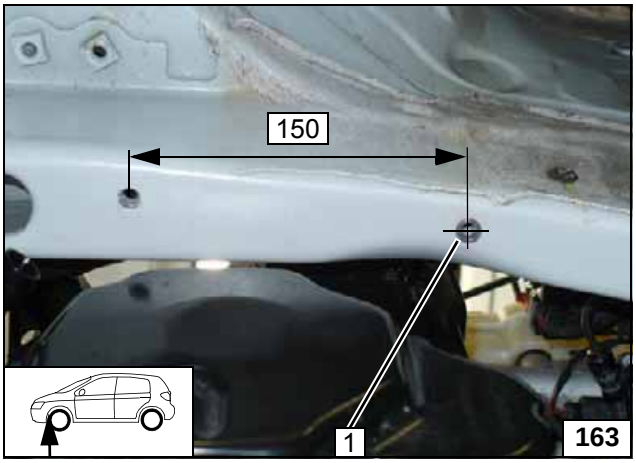
X =

Cutting point



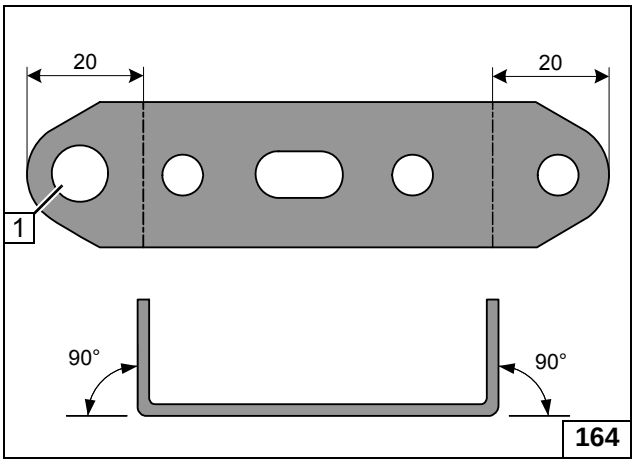
1 Engine outlet hose section
2 Heat exchanger inlet hose section

Preparing hoses



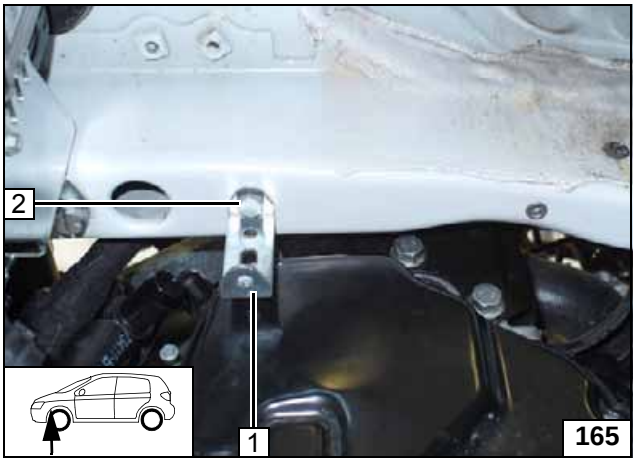
1 Copy hole pattern, 9mm dia. hole; rivet nut

Installing rivet nut



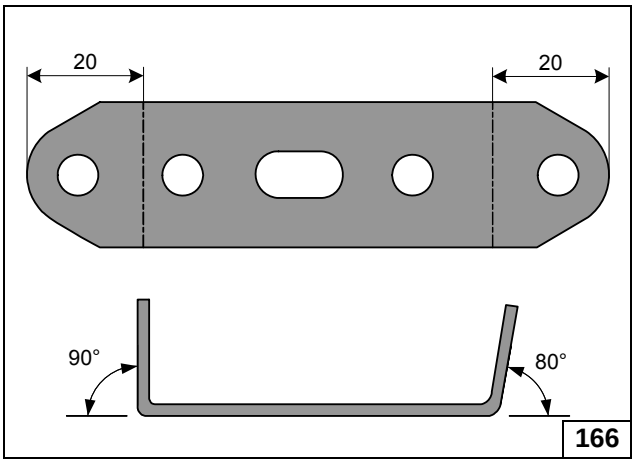
1 Drill out hole to 8.5 mm dia.

Preparing perforated bracket D

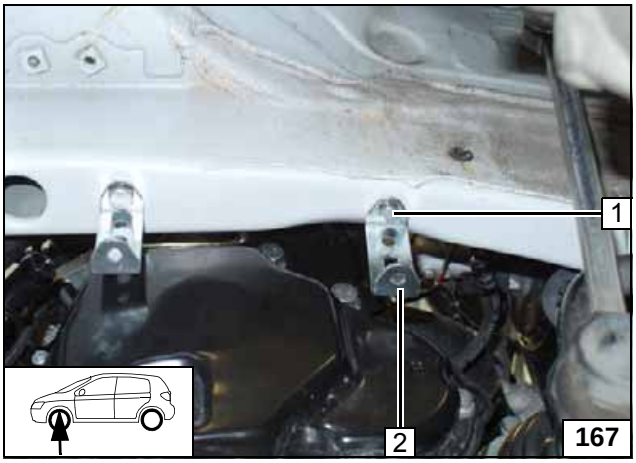


1 Perforated bracket D
2 M8x20 bolt, spring lockwasher

Installing perforated bracket D



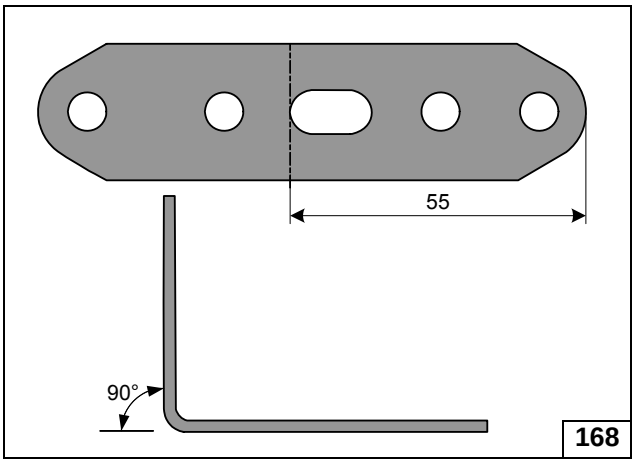
Preparing perforated bracket E



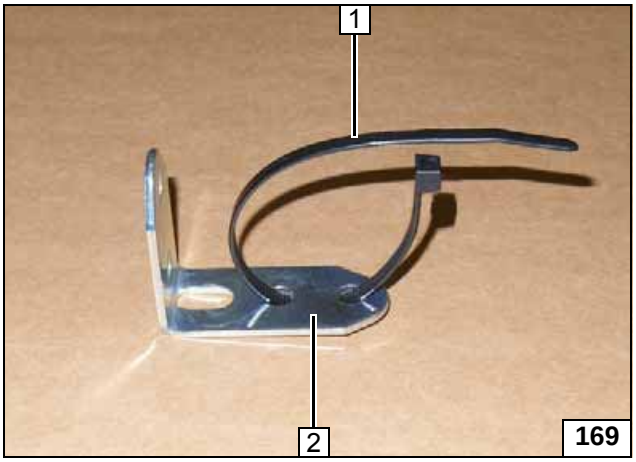
Install perforated bracket E **2** with 80° angle bracket on frame side member.

1 M6x20 bolt, spring lockwasher

Installing perforated bracket E

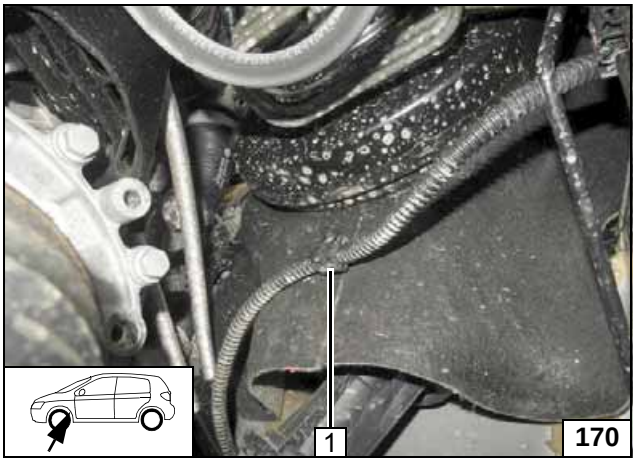


Preparing perforated bracket F



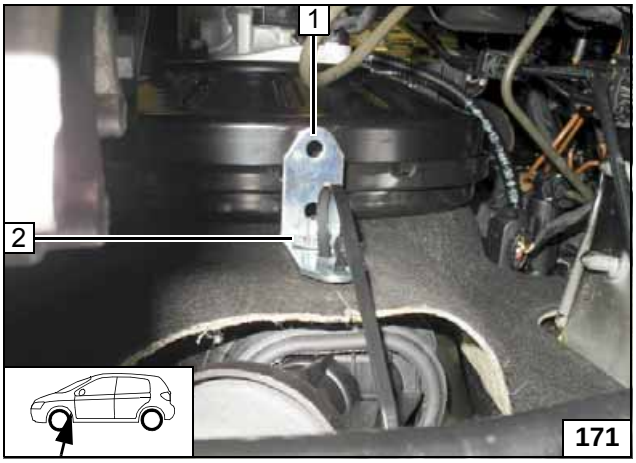
1 Cable tie through both holes, do not tighten
2 Perforated bracket

Preparing perforated bracket F



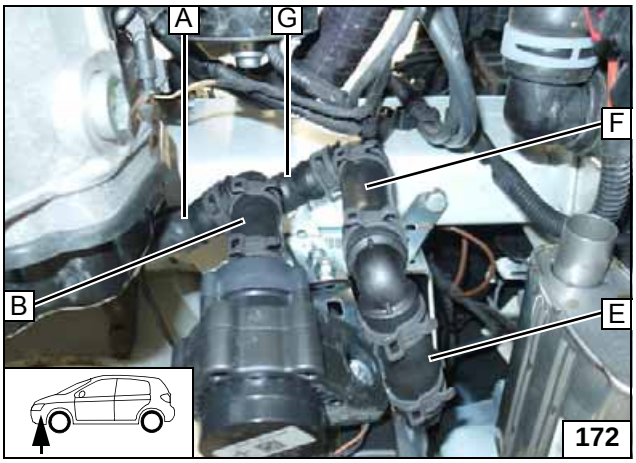
1 Wiring harness bracket

Removing wiring harness bracket



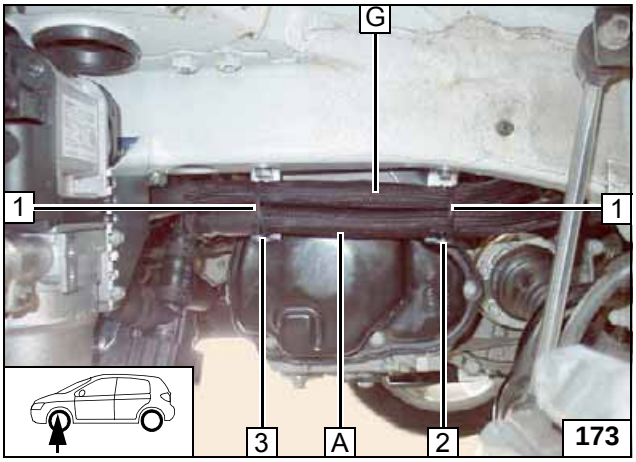
1 Plate nut on original vehicle stud bolt
2 Perforated bracket F

Installing perforated bracket F



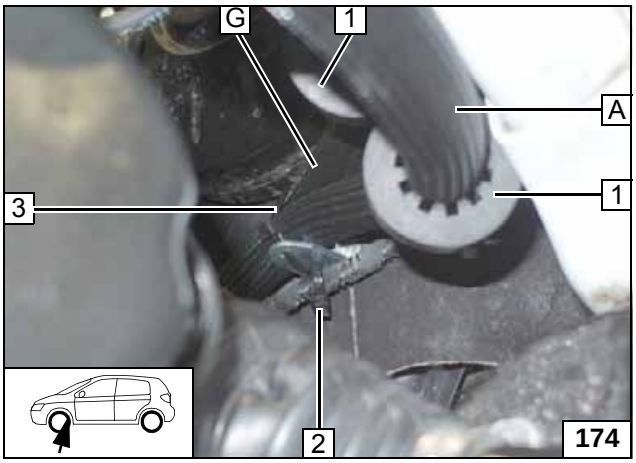
1 Cable ties

Connecting heater



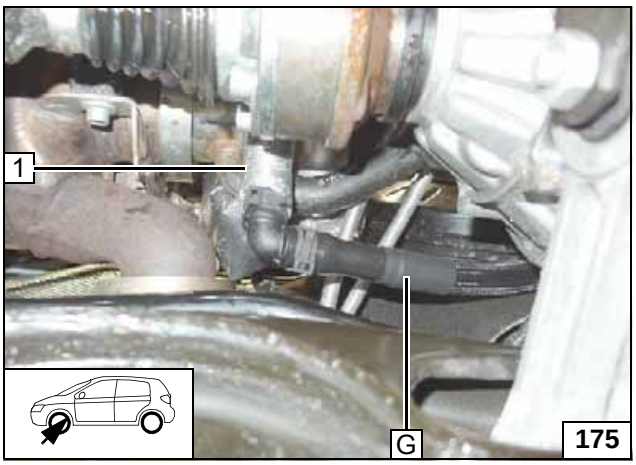
1 Cable tie [2x]
2 Perforated bracket E
3 Perforated bracket D

Routing



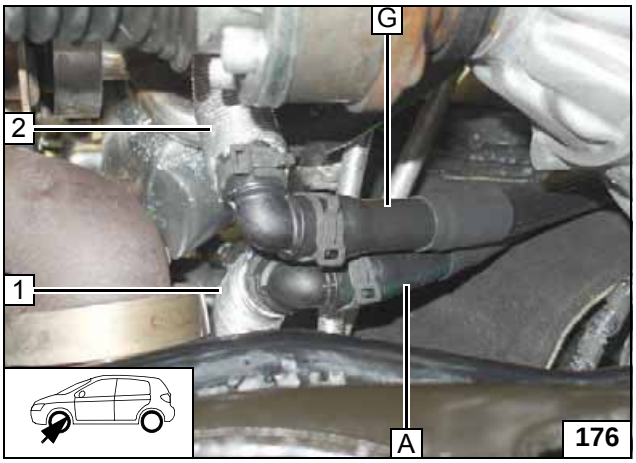
1 Position black (sw) rubber isolator
2 Attach original vehicle wiring harness using a cable tie
3 Tighten cable tie

Routing



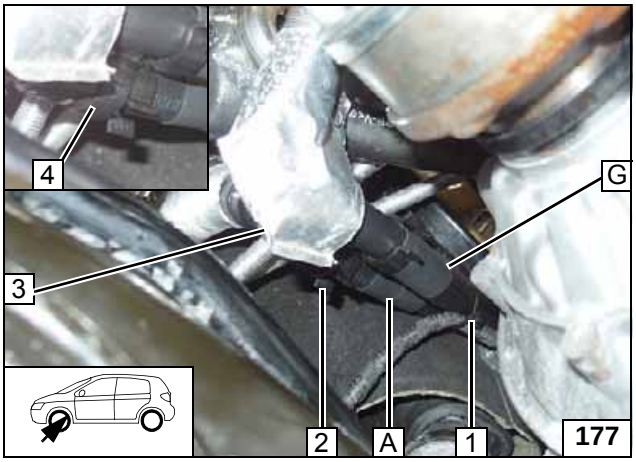
1 Heat exchanger inlet hose section

Connecting heat exchanger inlet



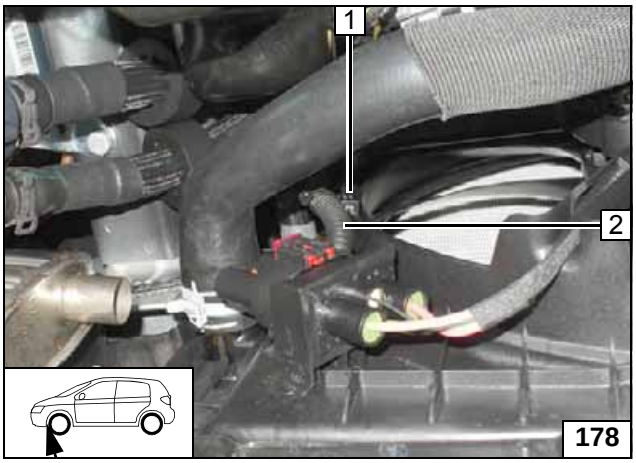
Connecting engine outlet

1 Engine outlet hose section
2 Heat exchanger inlet hose section



Fastening hoses A and G

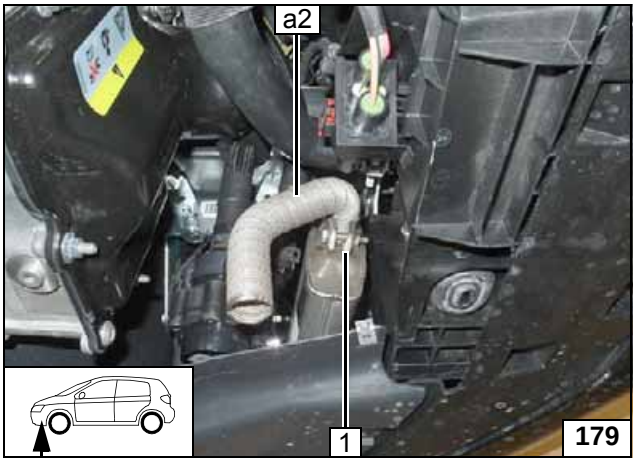
1 Attach original vehicle wiring harness using a cable tie
2 25x25 hose bracket between hose **A** and hose **G**
3 Install original vehicle heat protection
4 13x25 hose bracket between gear-shift cable and hose **A**



Exhaust Part 2

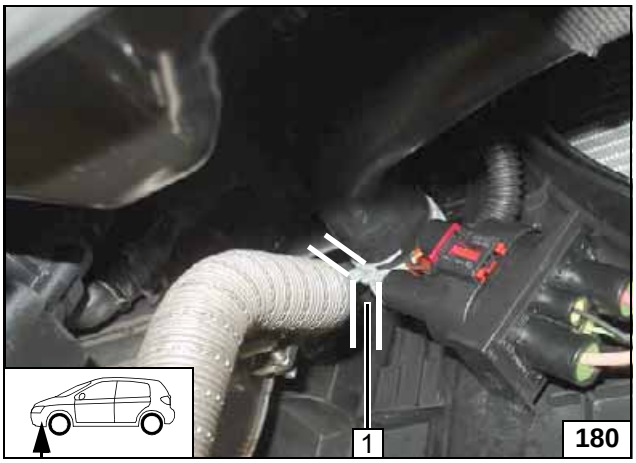
Route original vehicle wiring harness **2** as shown and secure using clip-type cable tie **1**.

Routing wiring harness



1 Hose clamp

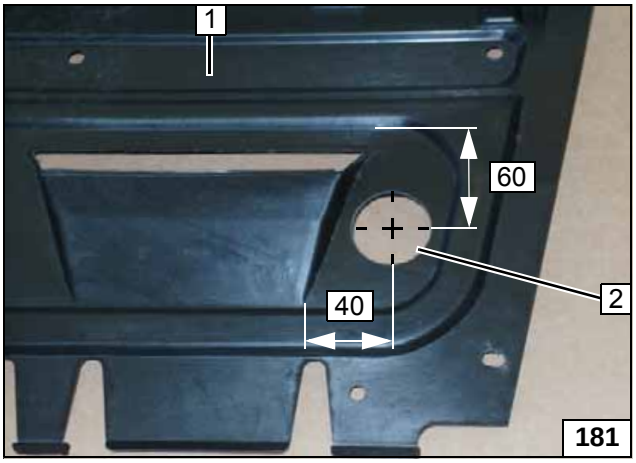
Installing exhaust pipe a2



Ensure sufficient distance from neighbouring components, correct if necessary.

1 ≥ 15 mm

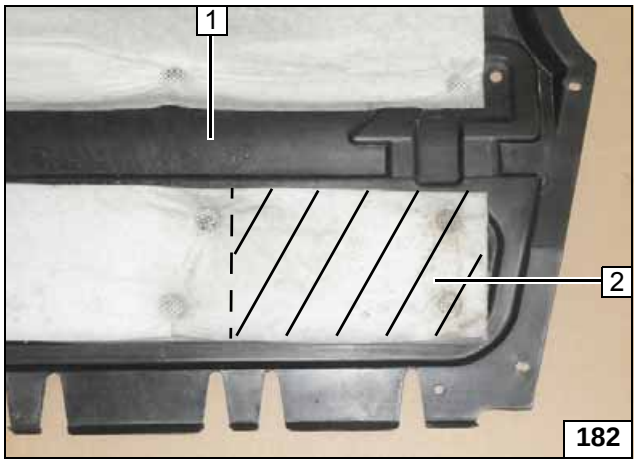
Aligning exhaust pipe a2



Petrol

1 Underride protection
2 Hole (as per work step 1 of the installation instructions)

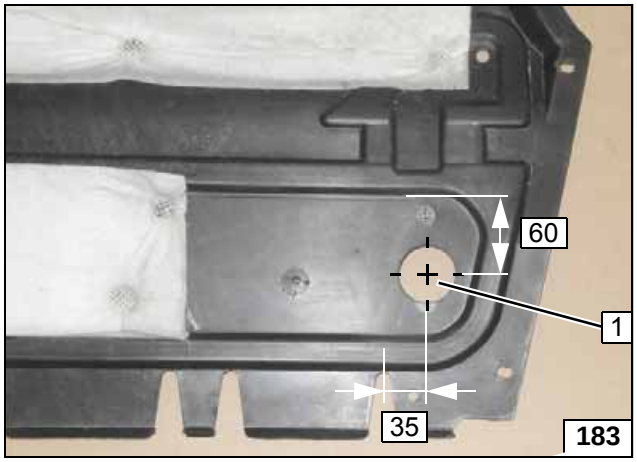
Hole in underride protection



Diesel

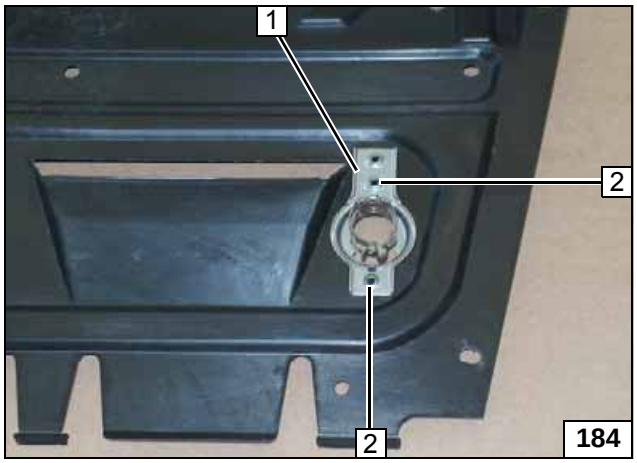
1 Underride protection
2 Remove insulation

Hole in underride protection



1 Hole (as per work step 1 of the installation instructions)

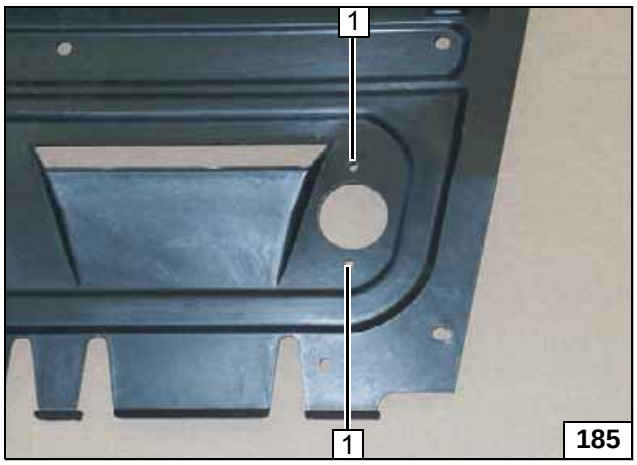
Hole in underride protection



Petrol and diesel

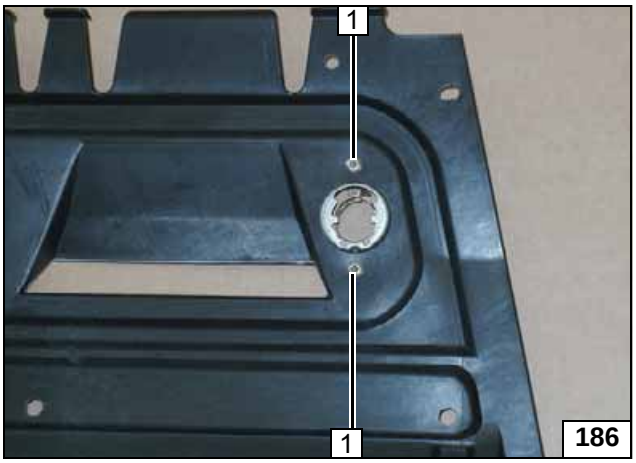
Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2** [2x].

Copying hole pattern



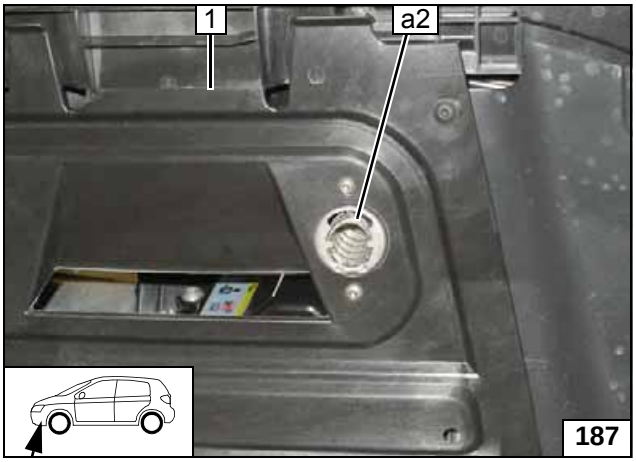
Hole **1** [2x] as per work step 4 of the installation instructions.

Holes in underride protection



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

Installing exhaust end fastener



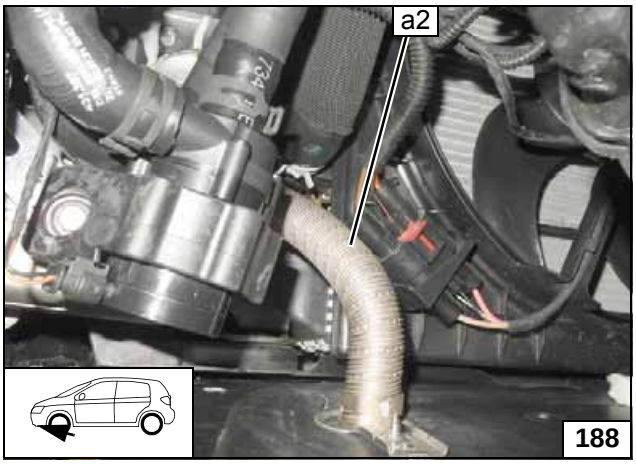
Install underride protection **1**. Install exhaust pipe **a2** as per work steps 6 - 8 of the installation instructions.

Installing exhaust pipe a2

Final Work

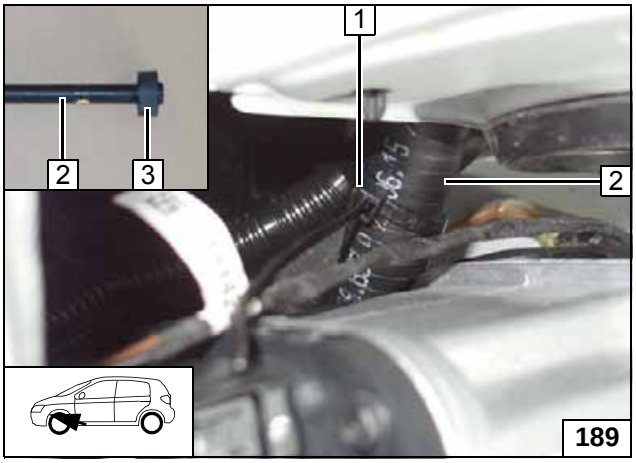
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

- **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 the 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.

Aligning exhaust pipe a2



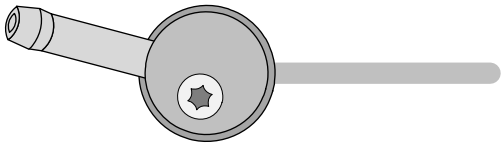
Install rubber isolator **3**, route air filter box drain pipe **2** as shown and attach using cable tie **1**.

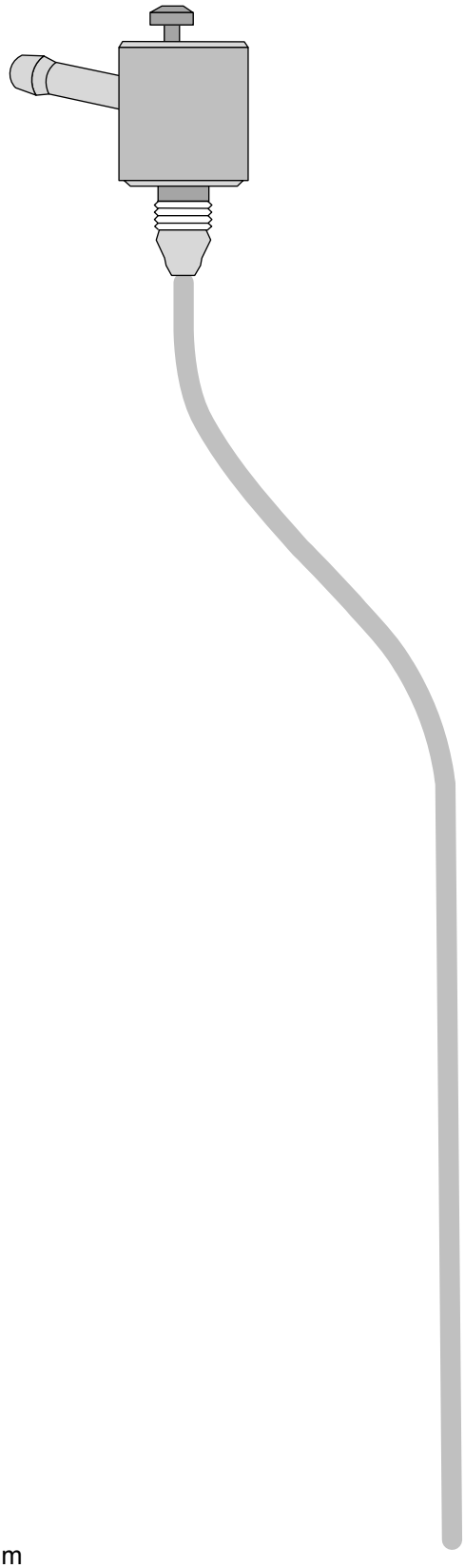
Installing drain pipe of air filter box

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

FuelFix Template for Petrol Vehicles

Top view





100mm

Scale 1:1

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

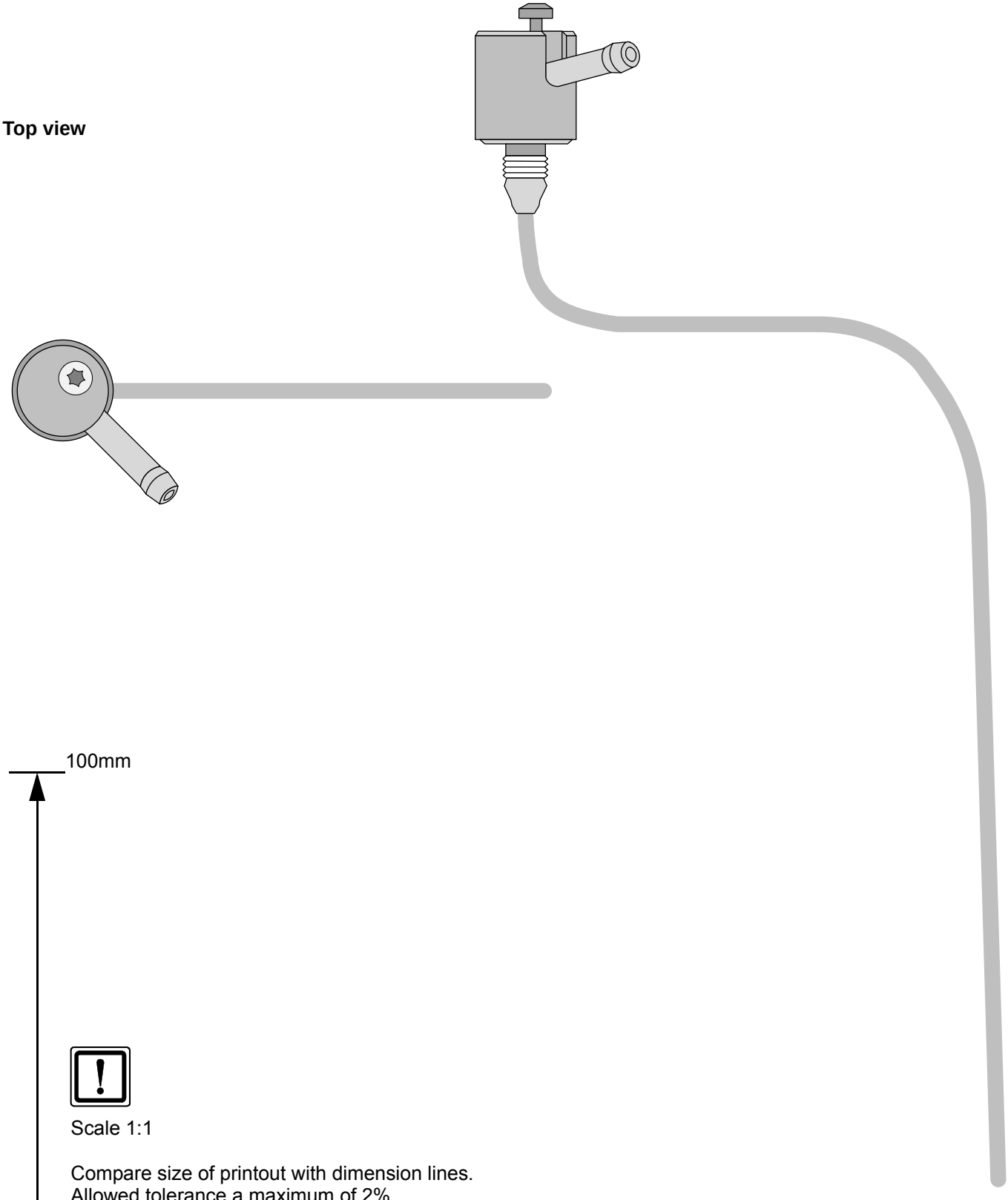
Set the printer settings to ‘no margin’ or ‘minimise margins’ and 100% of the normal size.

100mm

0

FuelFix Template for Diesel Vehicles

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

Webasto
Feel the Drive

Automatic A/C Operating Instructions for Petrol Vehicles

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.

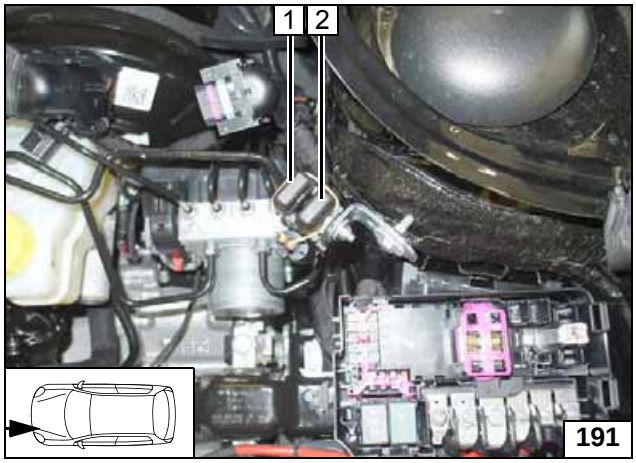
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

The fan speed does not have to be set!

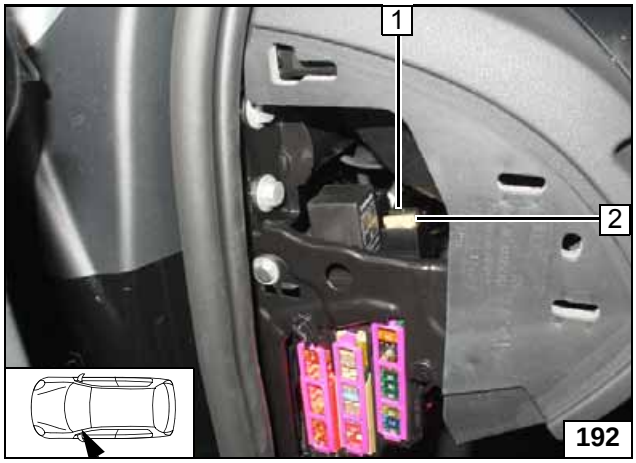
1 Set temperature to ‘max.’
2 Air outlet to windscreen

A/C control panel



1 20A heater fuse F1
2 30A main fuse F2 of passenger compartment

Engine compartment fuses



1 1A fuse F3 of heater control
2 25A fan fuse F4

Passenger compartment fuses

Webasto
Feel the Drive

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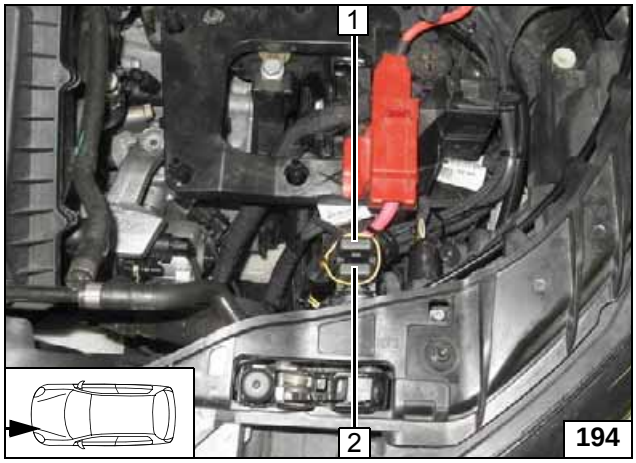
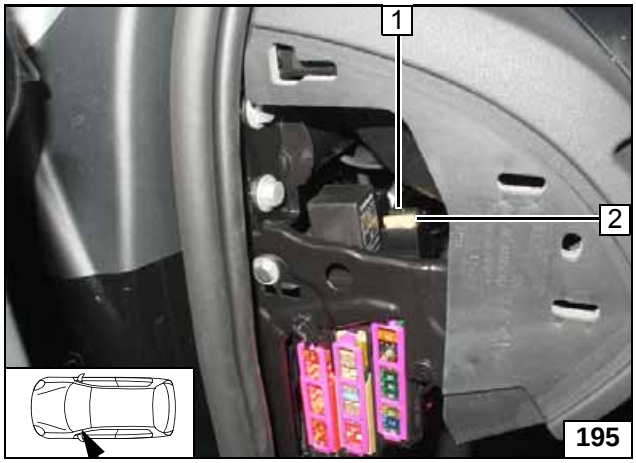


1 20A heater fuse F1
2 30A main fuse F2 of passenger compartment

Engine compartment fuses



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2 25A fan fuse F4

Passenger compartment fuses