Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
VW Passat / CC

Validity

Passat

Manufacturer	Model	Type	EG BE No. / ABE
VW	Passat	3C	e1 * 2001/116 * 0307 * ...
VW	Passat	3C	e1 * 2007 / 46 * 0547 *

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.4 TSI	Petrol	SG	90	1390	CAXA
1.8 TSI	Petrol	SG / 7-speed DSG	118	1798	CDAA
2.0 TSI	Petrol	SG / 6-speed DSG	155	1984	CCZB
2.0 TDI	Diesel	SG / DSG	103	1968	CFFB
2.0 TDI	Diesel	DSG	125	1968	CFGB

CC

Manufacturer	Model	Type	EG BE No. / ABE
VW	CC	3CC	e1 * 2001 / 116 * 0468 *

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.8 TSI	Petrol	SG / 7-speed DSG	118	1798	CDAA
2.0 TSI	Petrol	SG / DSG	155	1984	CCZB
2.0 TDI	Diesel	SG / DSG	103	1968	CFFB
2.0 TDI	Diesel	DSG	125	1968	CFGB

SG = manual transmission
DSG = direct gear transmission

From Model Year 2011
Left-hand drive vehicle

Verified equipment variants: Climatic / Climatronic
Front fog light
Passenger compartment monitoring
Xenon with headlight washer system
Suspension control and levelling system

Total installation time: approx. 7 hours

VW Passat / CC

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* in accordance with price list
- Installation kit for VW Passat / CC 2011 Petrol and diesel: **1317225B**
- Also required with Climatronic: installation kit: **1317273A**
- 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

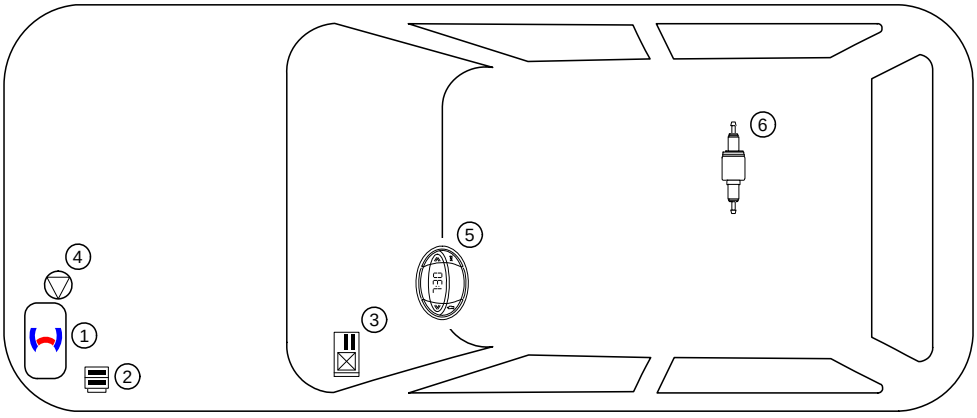
Installation instructions:

- 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 available space and manufacturer's instructions, we recommend the use of a vehicle battery with more electrical capacity.

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. Circulating pump
5. Digital timer
6. Metering pump



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important Information (not complete)

1.1 Installation and Repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel Diesel (DIN EN 590) or petrol (DIN EN 227).

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.

Sharp edges should be fitted with rub protection (split-open fuel hose)! Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components!

The initial startup is to be executed with the Webasto Thermo Test Diagnosis.

When installing an IPCU, the corresponding settings must be checked or adjusted before the installation.

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

For vehicles with an EU permit, no entry in accordance with § 19 Sub-Section 4 of Annex VIII b to the Road Traffic Act is required.

2.1 Excerpt from the directive 2001/56/EC Appendix VII for the installation of the heater

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

2.1.1. Subject to paragraph 2.1.2. combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

2.4. Exhaust system

2.4.1. The exhaust outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

Information on Validity

This installation documentation applies to VW Passat / CC Petrol and diesel vehicles - for validity, see page 1 - from model year 2011 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 self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Webasto Thermo Test Diagnosis with current software

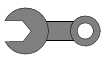
Dimensions
- All dimensions are in mm

Tightening torque values
- Tightening torque values of 5x13 heater bolts = 8Nm
- Tightening torque values of 5x15 retaining plate of water connection piece bolts = 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

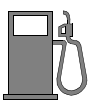


Electrical system

Coolant circuit

Combustion air

Fuel



Exhaust gas

Software

Special features are highlighted using the following symbols:

Specific risk of injury or fatal accidents.

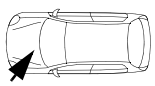
Specific risk of damage to components.

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

VW Passat / CC

Preliminary Work

Vehicle

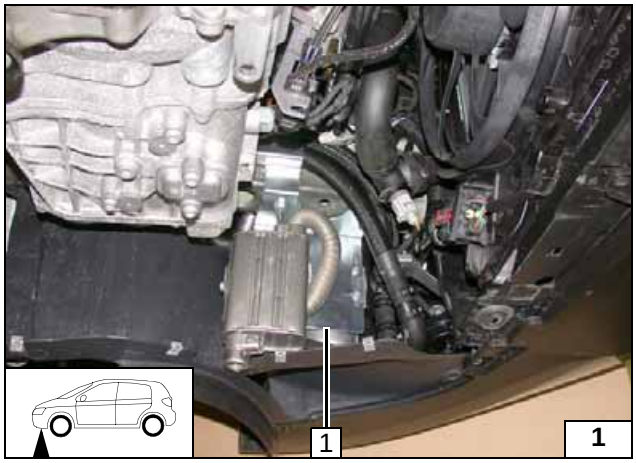
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and remove the battery completely together with the carrier.
- Remove the air filter together with the intake hose.
- Remove the coolant reservoir cap.
- Remove the underride protection.
- Remove the wheel-well inner panel on the left.
- Remove the footwell trim on the front passenger's side.
- Remove the fuse holder trim in the passenger compartment on the driver's side.
- Remove the instrument panel trim on the driver's side.

Only carry out the following steps during the corresponding installation sequence:

- Remove the rear bench seat.
- Open the right-hand tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.

Heater

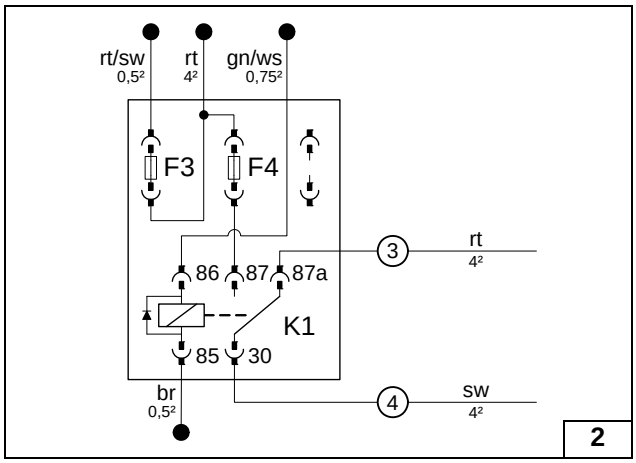
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) in the appropriate place inside the engine compartment.



Heater Installation Location

1 Heater

Installation location



2

Preparing Electrical System

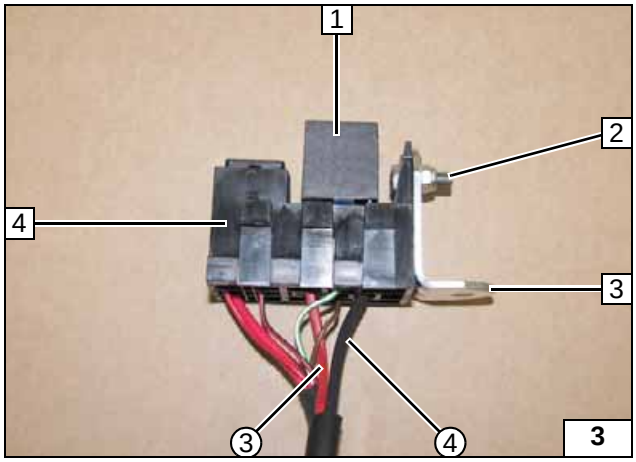
Wire sections retain their numbering in the entire document.

Climatic

Connect wires to socket of K1 relay. Install 25A fuse F4.

③ Red (rt) wire of K1/87a fan wiring harness
④ Black (sw) wire of K1/30 fan wiring harness

Wiring diagram of passenger compartment relay and fuse holder



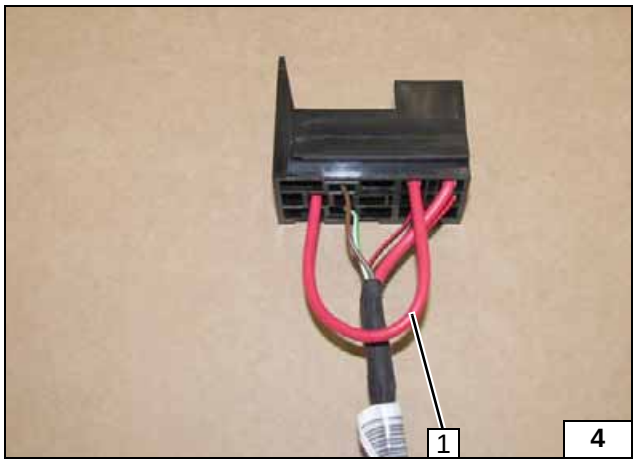
3

1 K1 relay
2 M5x16 bolt, large diameter washer [2x], self-locking nut
3 Angle bracket
4 Passenger compartment relay and fuse holder
③ Red (rt) wire of K1/87a fan wiring harness
④ Black (sw) wire of K1/30 fan wiring harness

Premounting passenger compartment relay and fuse holder

Climatronic

Detach red (rt) wire **1** from fuse F4 and discard.



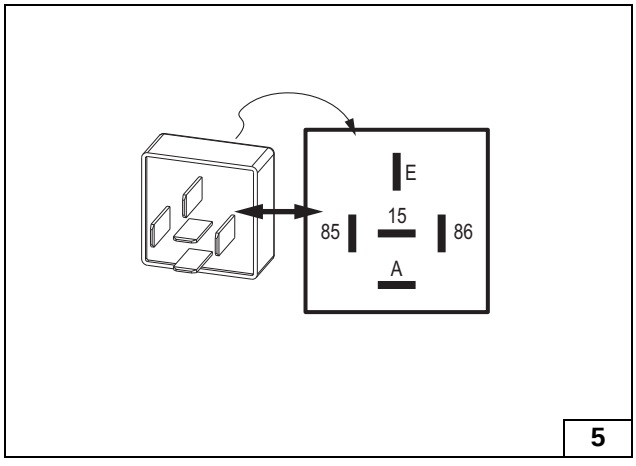
4

Removing wire

The settings of the IPCU must be checked during start-up of heater, adjust them if necessary.

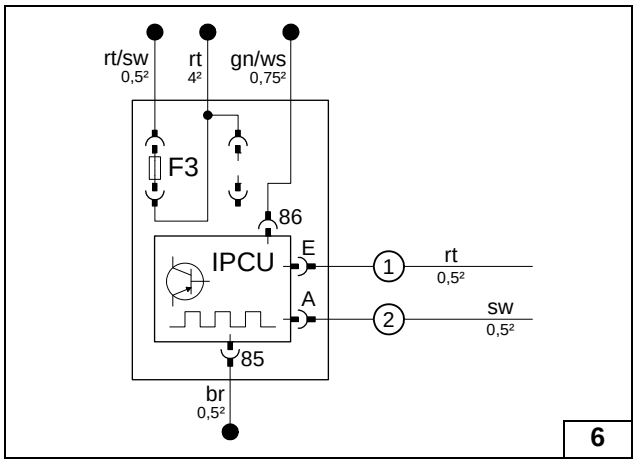
Adjustment values:

Duty cycle: 30%
Frequency: 400 Hz
Voltage: 8V
Function: High side



5

IPCU view

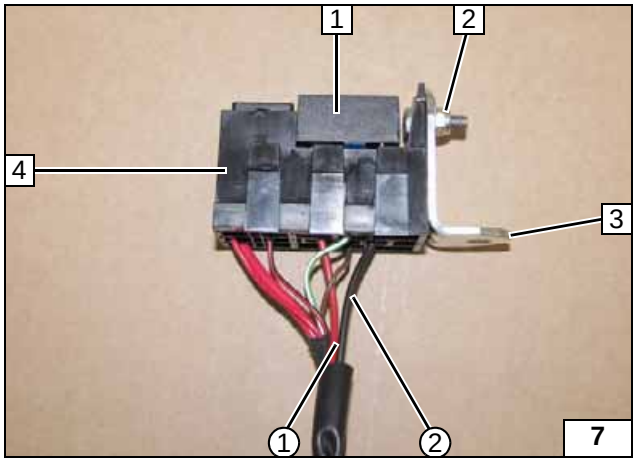


6

IPCU is to be inserted only after fuse holder has been premounted. Connect wires to socket of IPCU. Pull wires ① and ② into protective sleeving.

① Red (rt) wire of IPCU/E
② Black (sw) wire of IPCU/A

Wiring diagram of passenger compartment relay and fuse holder

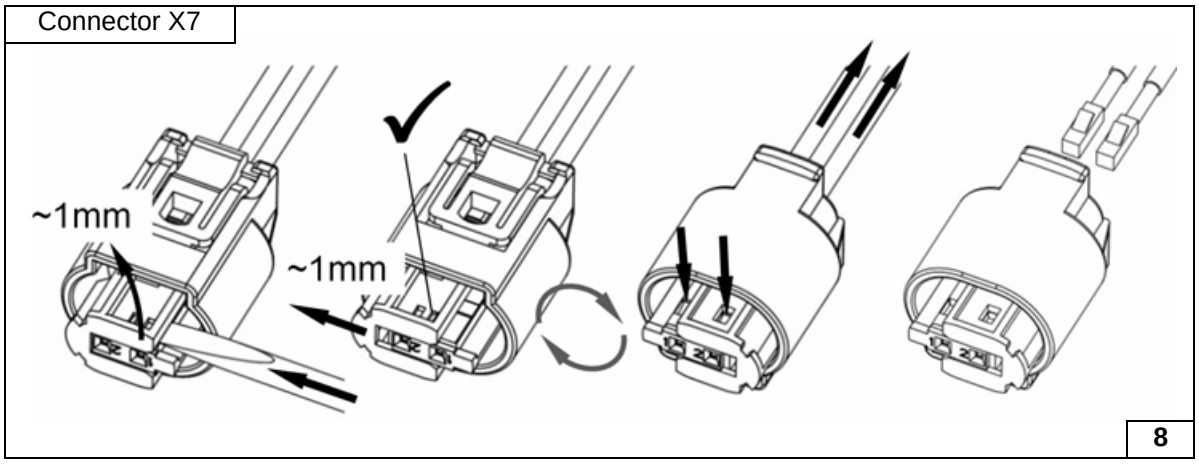


7

1 IPCU
2 M5x16 bolt, large diameter washer [2x], self-locking nut
3 Angle bracket
4 Passenger compartment relay and fuse holder
① Red (rt) wire of IPCU/E
② Black (sw) wire of IPCU/A

Premounting passenger compartment relay and fuse holder

All vehicles



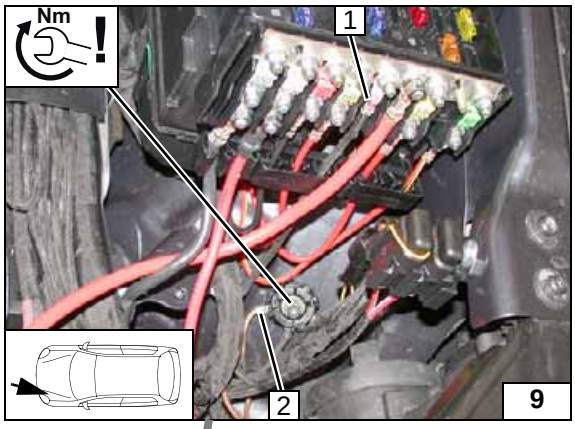
8

Removing metering pump connector

Electrical System

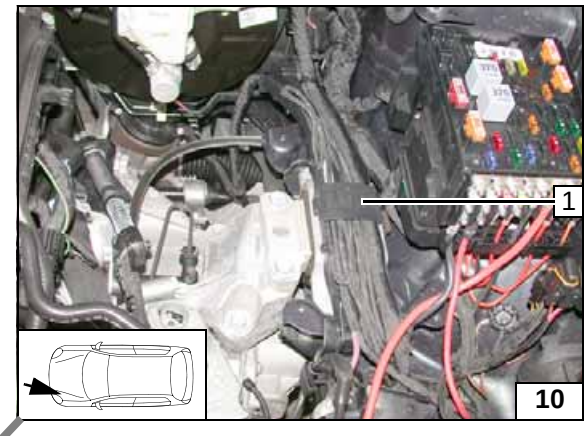
Positive and earth wire

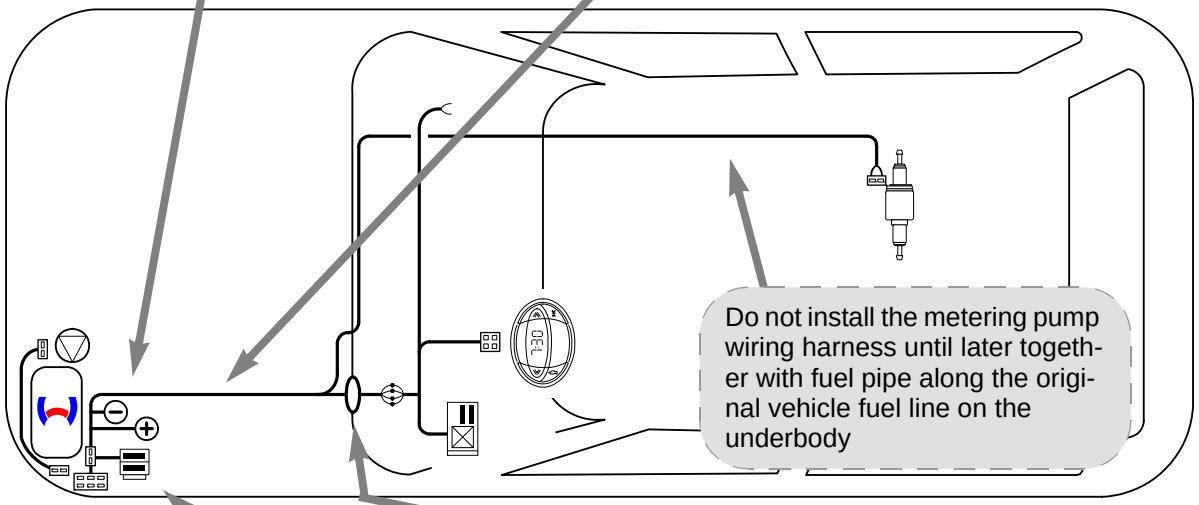
1 Positive wire to positive battery distributor
2 Earth wire on original vehicle earth support point



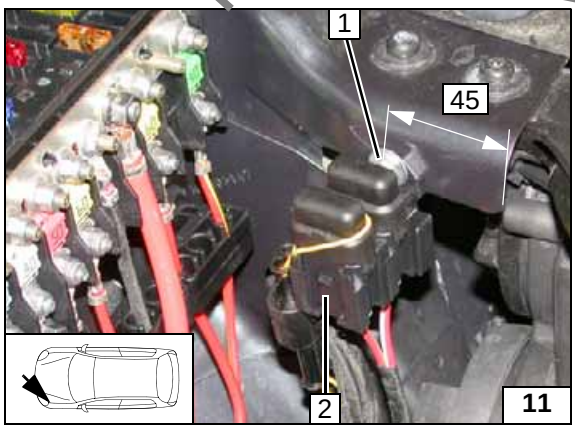
Wiring harness routing

Route wiring harnesses in original vehicle cable duct **1**





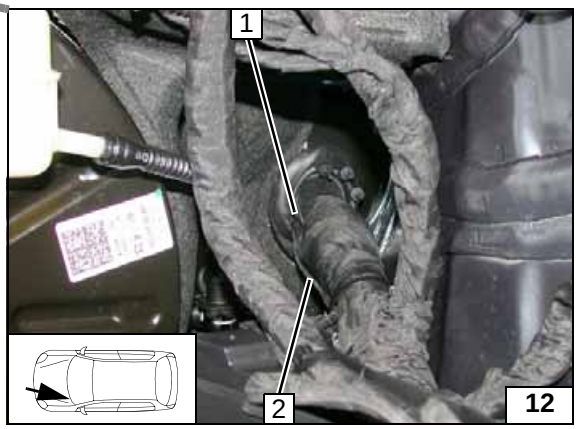
Wiring harness routing diagram



Fuse holder of engine compartment

5.5mm hole at position **1**. When drilling, watch for components located behind.

1 M5x16 bolt, washer [2x], retaining plate of fuse holder, self-locking M5 flanged nut
2 Fuses F1-2

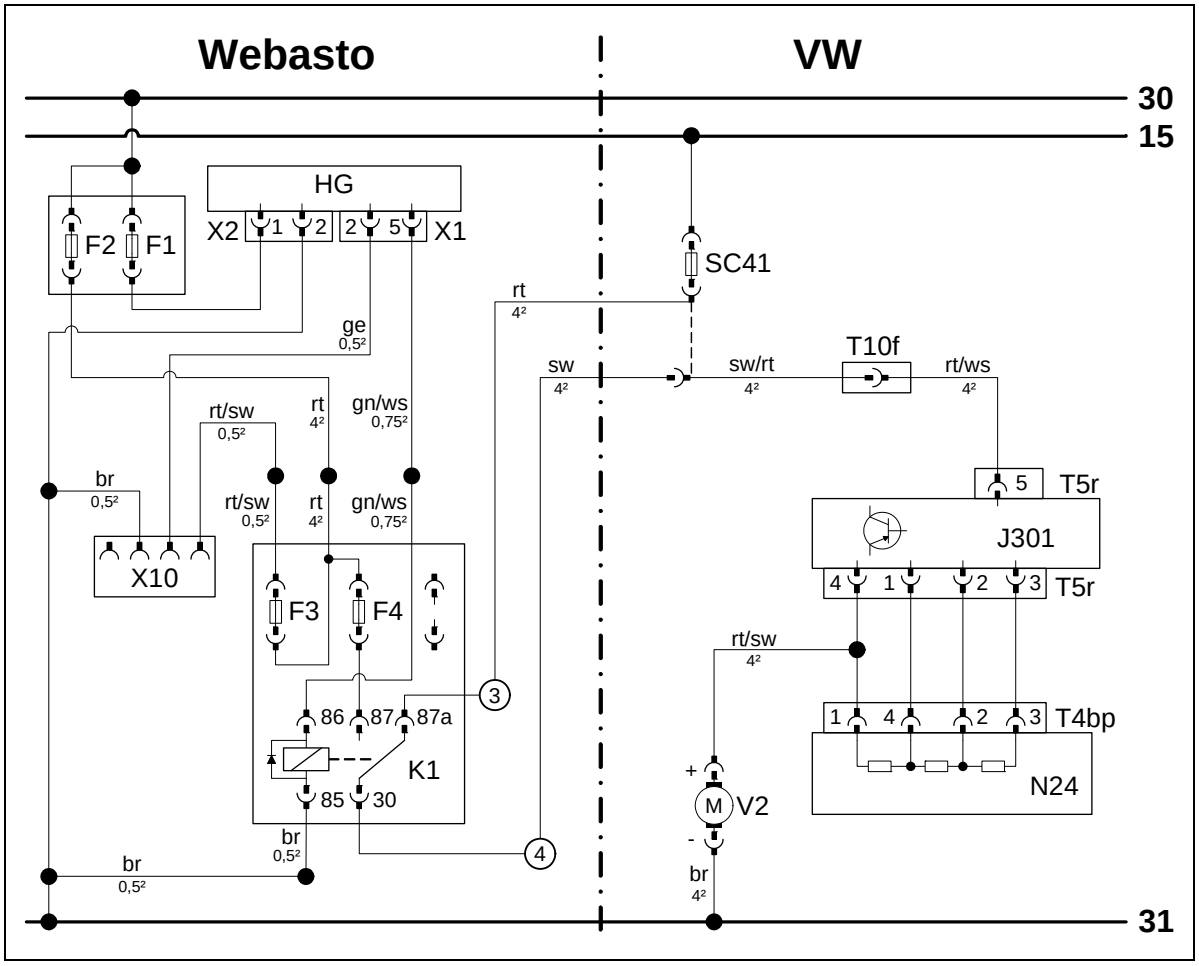


Wiring harness pass through

1 Use free protective rubber plug
2 Wiring harnesses of heater, heater control

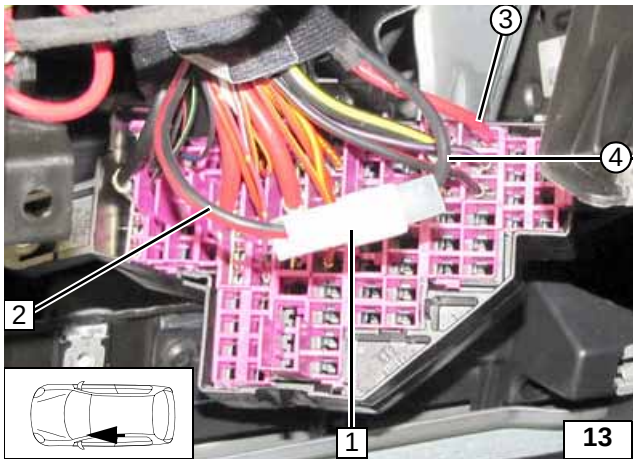
Climatic Fan Controller

Wiring diagram



Legend

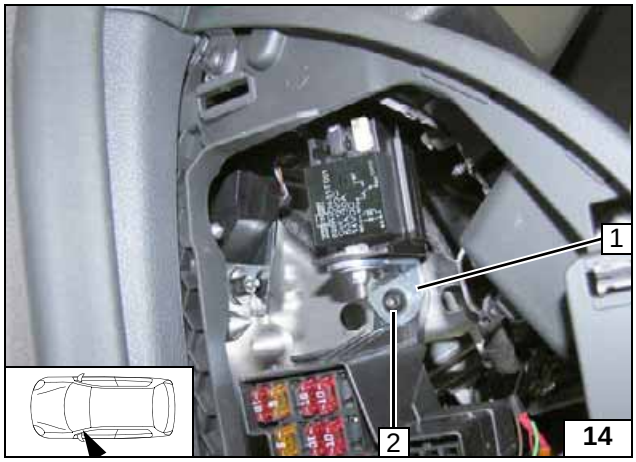
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	SC41	40 A fan fuse	rt	red
X1	6-pin heater connector	T10f	10-pin connector	sw	black
X2	2-pin heater connector			ge	yellow
X10	4-pin connector of heater control	T5r	5-pin connector J301	gn	green
		J301	A/C control unit	bl	blue
F1	20A fuse	T4bp	4-pin connector N24	ws	white
F2	30A fuse	N24	Resistor group	br	brown
F3	1A fuse	V2	Fan motor		
F4	25 A fuse				
K1	Fan relay				
				X	Cutting point
				Wiring colours may vary.	



Fuse socket depends on vehicle equipment. Uncrimp black/red (sw/rt) wire **2** from socket of fan fuse. Engage red (rt) wire from K1/87a fan wiring harness ③ into socket of fan fuse with crimped on Standard-Power-Timer. Produce connections as shown in wiring diagram.

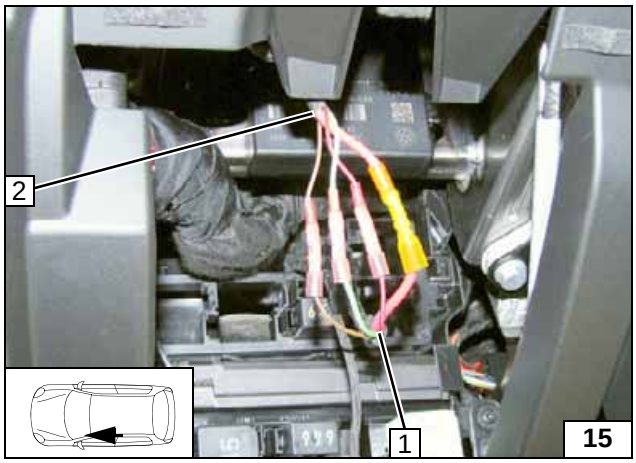
1 Connector
④ Black (sw) wire of K1/30 fan wiring harness

Connecting wires



1 Angle bracket
2 Original vehicle bolt

Mounting passenger compartment relay and fuse holder

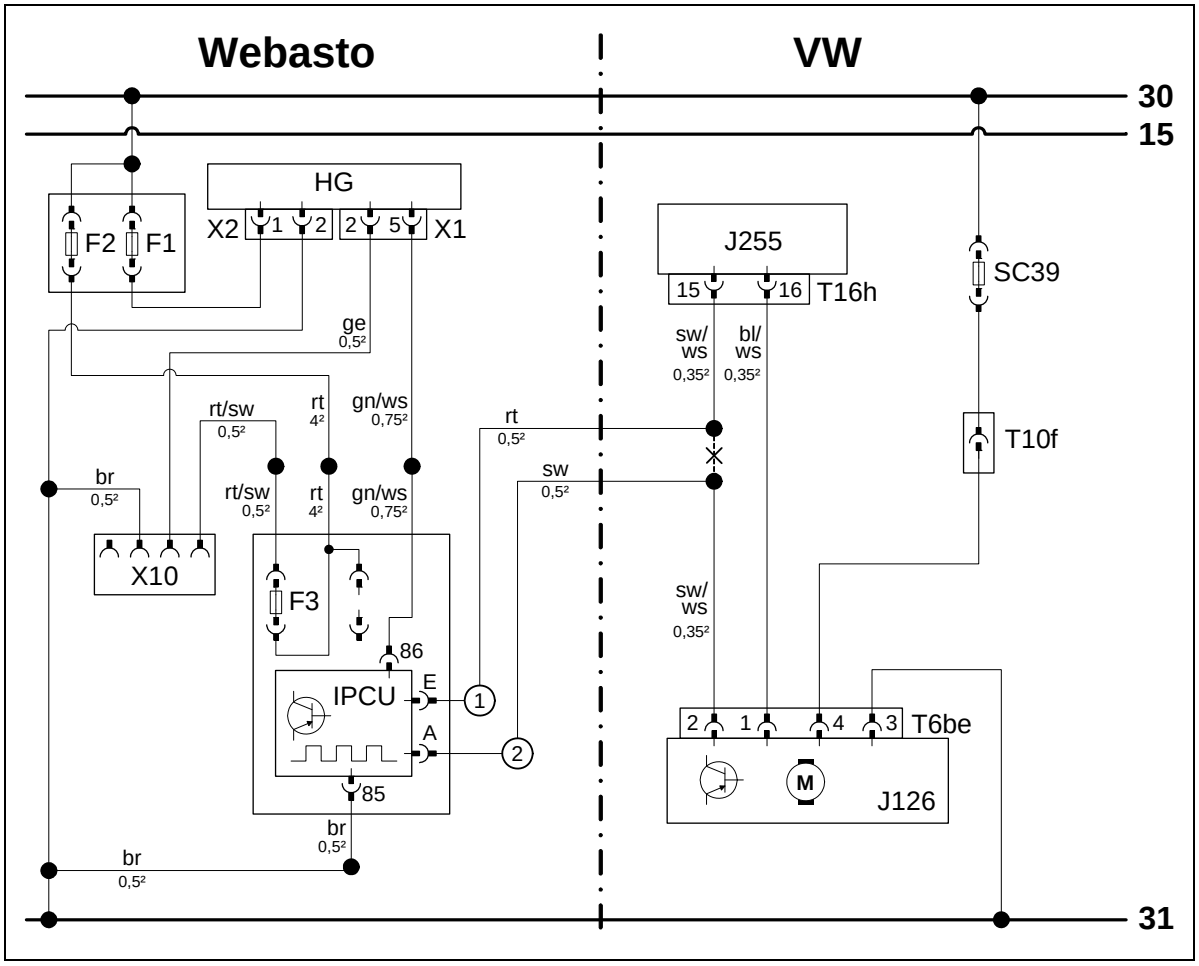


1 Wiring harness of heater
2 Wiring harness of passenger compartment relay and fuse holder

Connecting wiring harnesses with same colour wires connected to each other

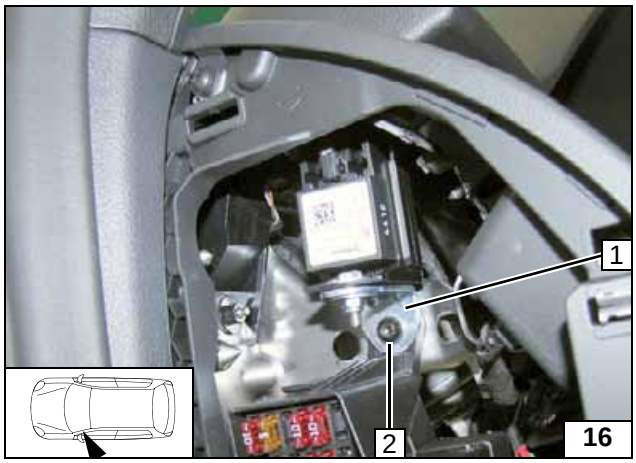
Climatronic Fan Controller

Wiring diagram



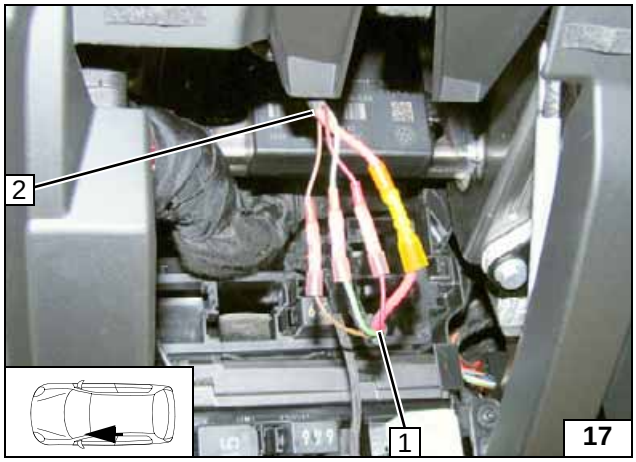
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	J255	A/C control unit	rt	red
X1	6-pin heater connector	T16h	16-pin connector J255	sw	black
X2	2-pin heater connector	SC39	40A fuse	ge	yellow
X10	4-pin connector of heater control	T10f	10-pin connector	gn	green
				bl	blue
F1	20A fuse	T6be	6-pin connector J126	ws	white
F2	30A fuse	J126	Fan unit	br	brown
F3	1A fuse				
IPCU	Pulse width modulator				
IPCU adjustment values:					
Duty cycle:	30%				
Frequency:	400Hz				
Voltage:	8V			**X**	Cutting point
Function:	High side			Wiring colours may vary.	



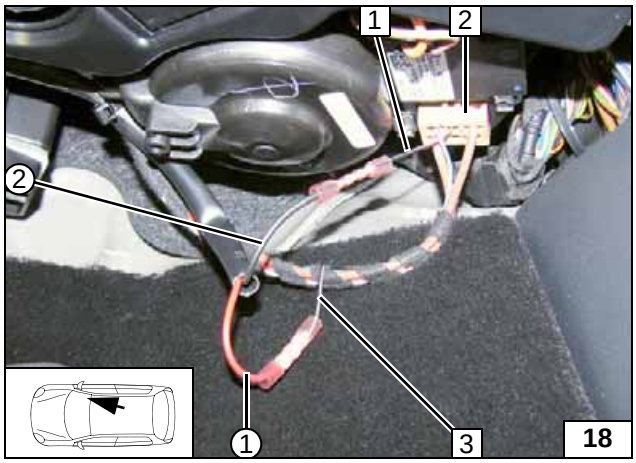
1 Angle bracket
2 Original vehicle bolt

Mounting passenger compartment relay and fuse holder



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

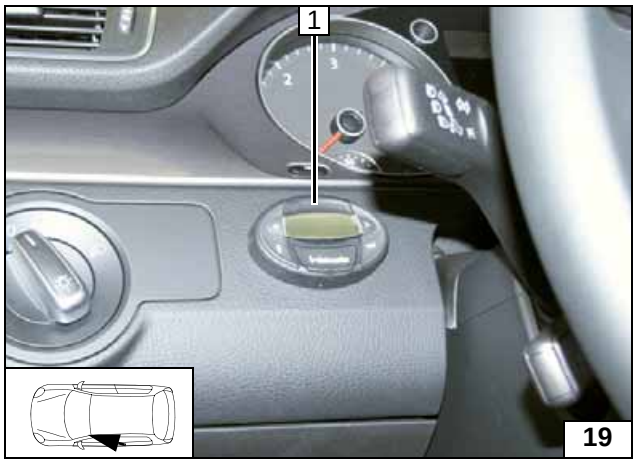
Connecting wiring harnesses with same colour wires connected to each other



Connection to 6-pin connector T6be **2** from the fan unit. Produce connections as shown in wiring diagram.

1 Black/white (sw/ws) wire from 6-pin connector T6be pin 2
3 Black/white (sw/ws) wire from A/C control unit
① Red (rt) wire of IPCU/E
② Black (sw) wire of IPCU/A

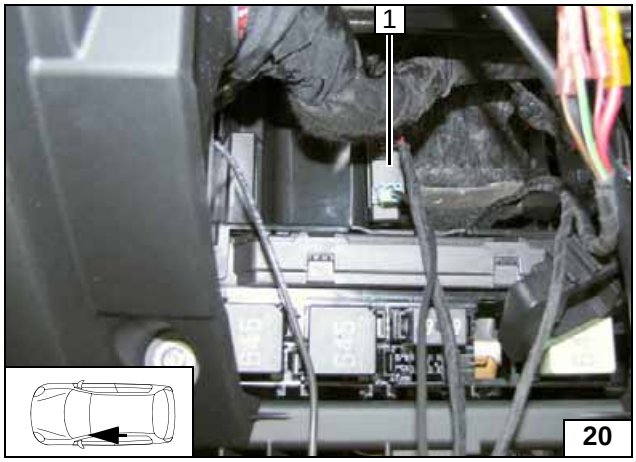
Connecting fan unit



Digital Timer

1 Digital timer

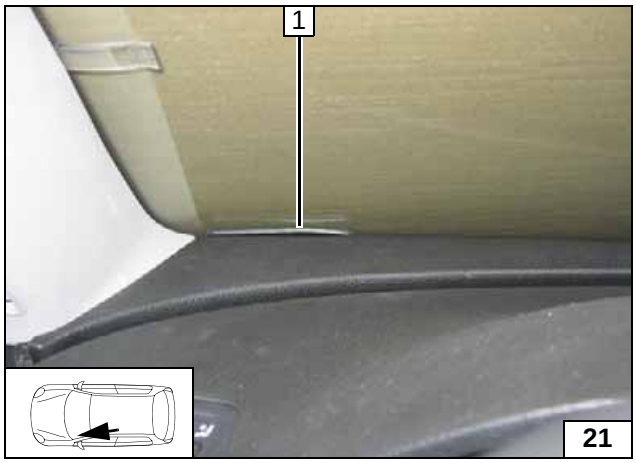
Mounting digital timer



Remote Option (Telestart)

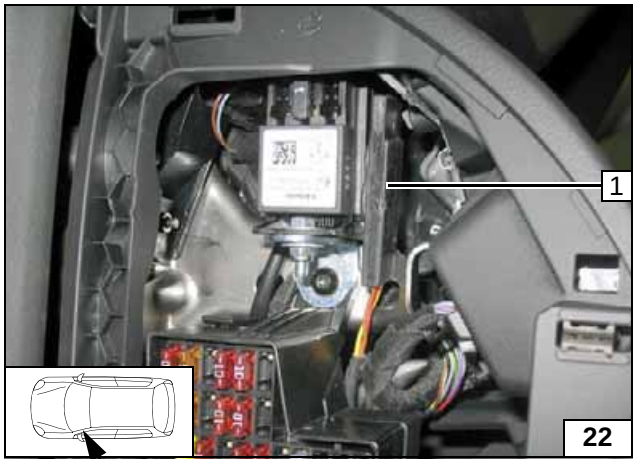
Degrease adhesive area. Fasten receiver **1** with adhesive tape.

Mounting receiver



1 Antenna

Mounting antenna



Temperature sensor T100 HTM

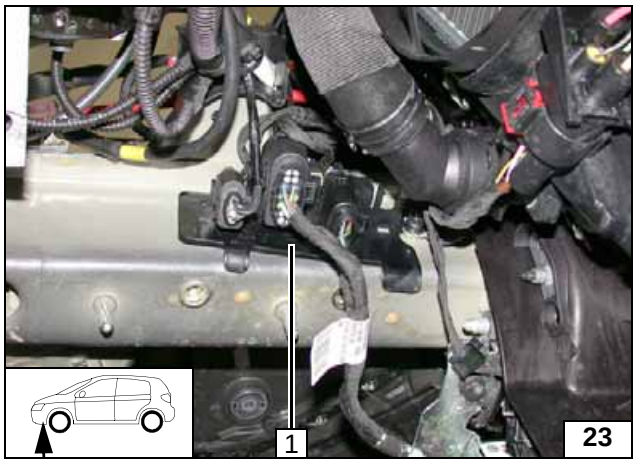
Fasten temperature sensor **1** with adhesive tape.

Mounting temperature sensor

Preparing Installation Location

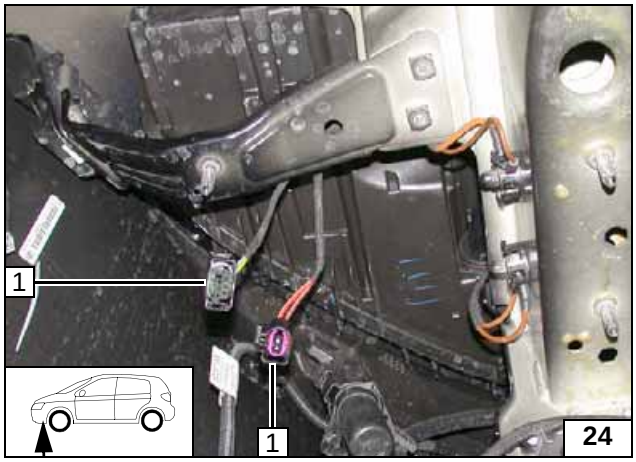
Pull out connector and put it aside. Remove retaining plate **1**, will be remounted later.

Removing retaining plate



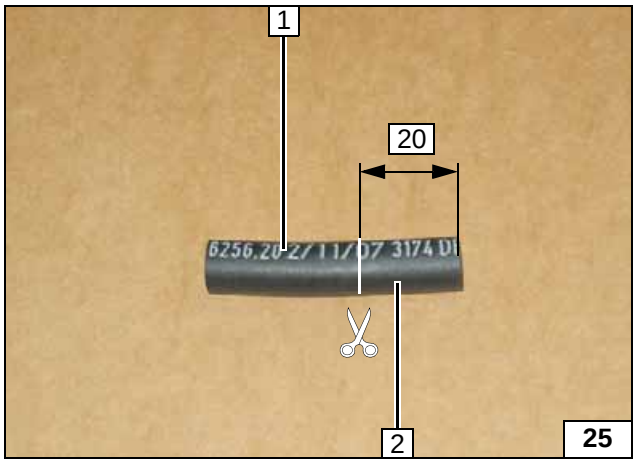
1 Wiring harness of heater

Routing wiring harness



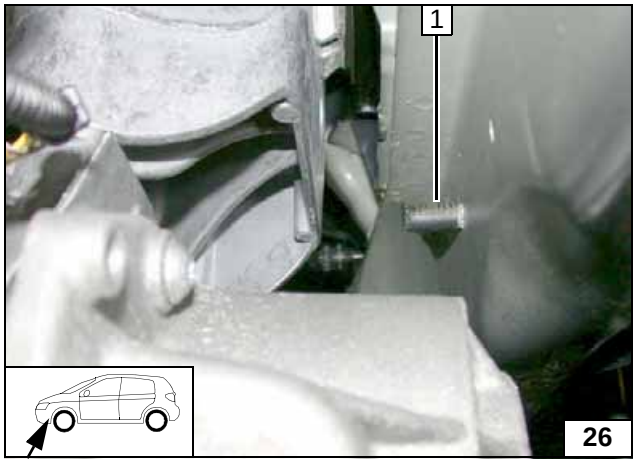
1 Discard section
2 Hose section

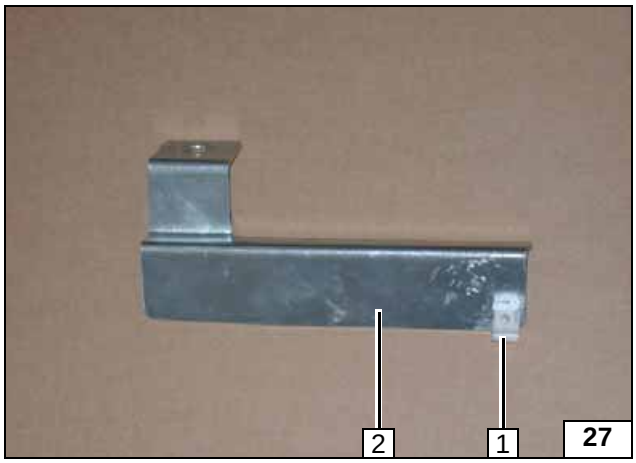
Shortening hose section



Remove clip for coupling line, will be reused later (petrol and diesel manual transmission only). Hose section 20mm **1** on original vehicle stud bolt (on frame side member over the transmission).

Mounting hose section



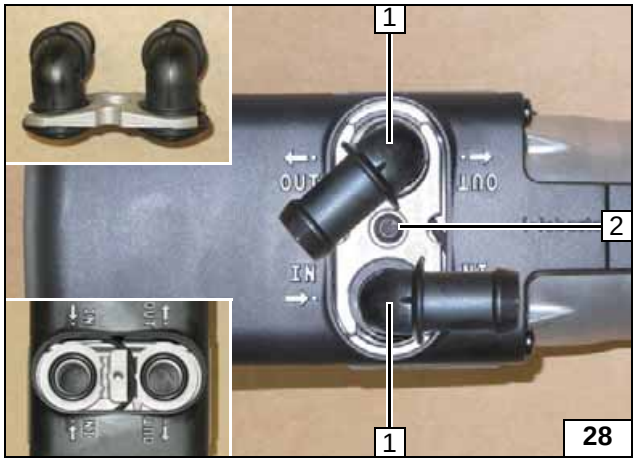


2.0 TSI and 2.0 D Manual transmission

Premount clip of coupling line **1** on hose bracket **2** - only with petrol and diesel manual transmission.

1 M6x12 countersunk head screw

Preparing hose bracket

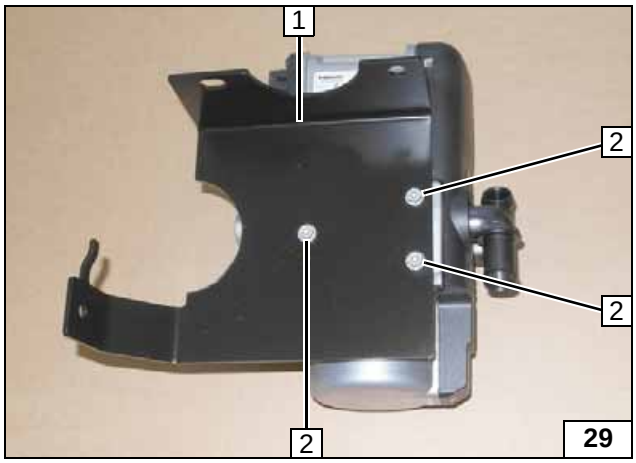


Preparing Heater

All vehicles

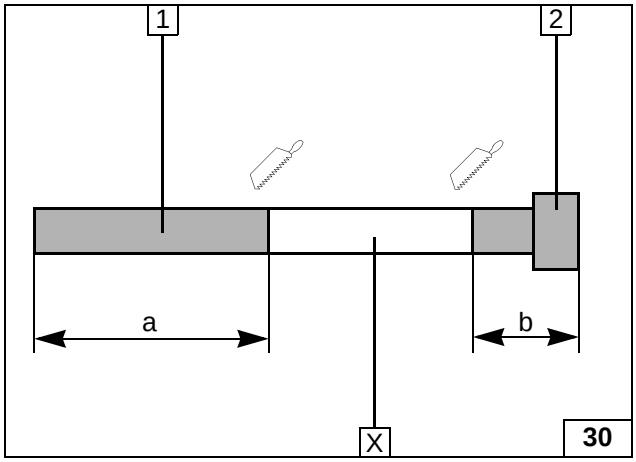
1 Water connection piece, sealing ring [2x each]
2 5x15mm self-tapping bolt, retaining plate of water connection piece

Mounting water connection pieces



1 Bracket section A
2 5x13 self-tapping bolts [3x]

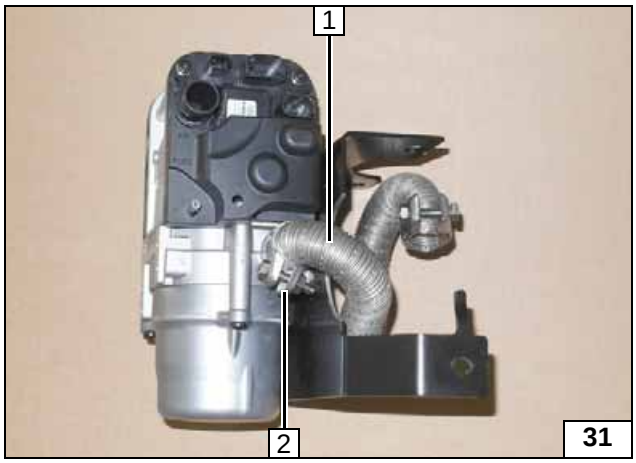
Installing bracket



Discard section **X**.

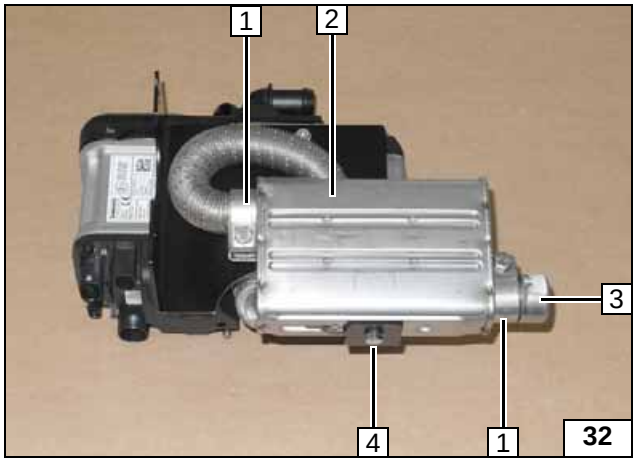
1 Exhaust pipe
a = 330
2 Exhaust end section
b = 45

Preparing exhaust pipe



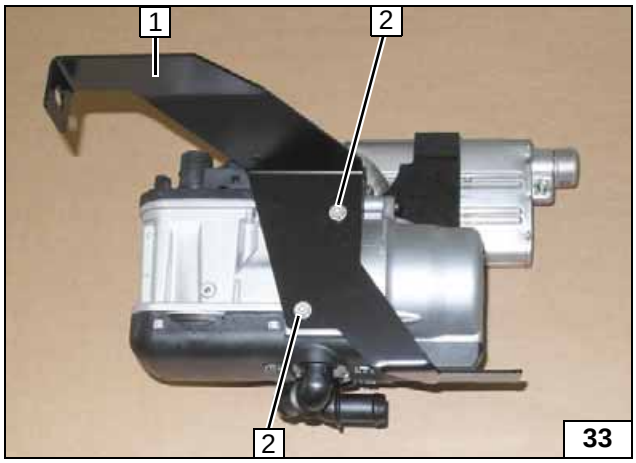
1 Exhaust pipe
2 Hose clamp

Mounting exhaust pipe



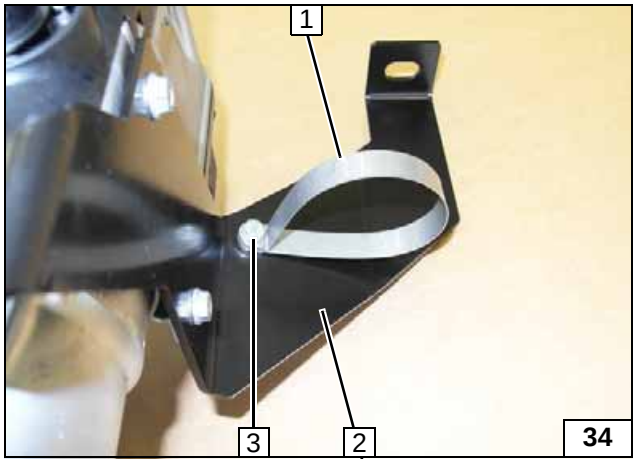
1 Hose clamp [2x]
2 Silencer
3 Exhaust end section
4 M6x16 bolt, spring lockwasher

Installing silencer and exhaust end section



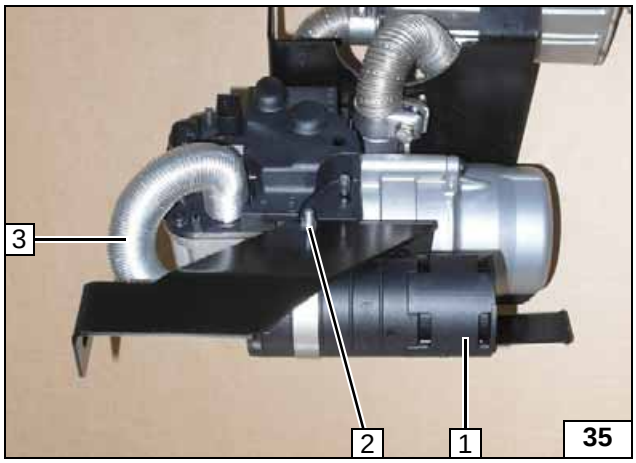
1 Bracket section **B**
2 5x13 self-tapping bolt [2x]

Mounting bracket section B



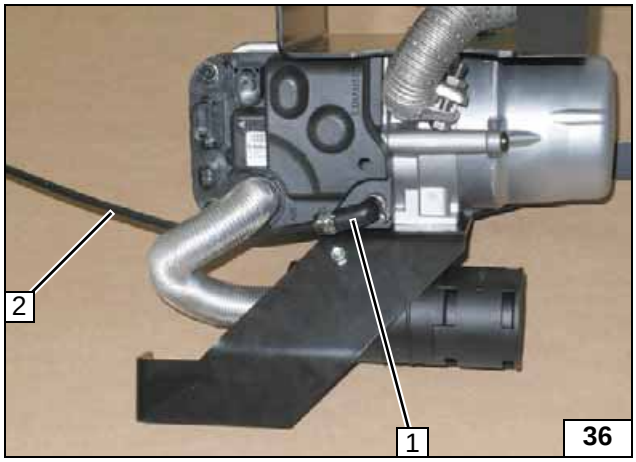
1 51mm dia. clamp
2 Bracket section B
3 Mount M5x16 bolt, flanged nut loosely

Installing clamp



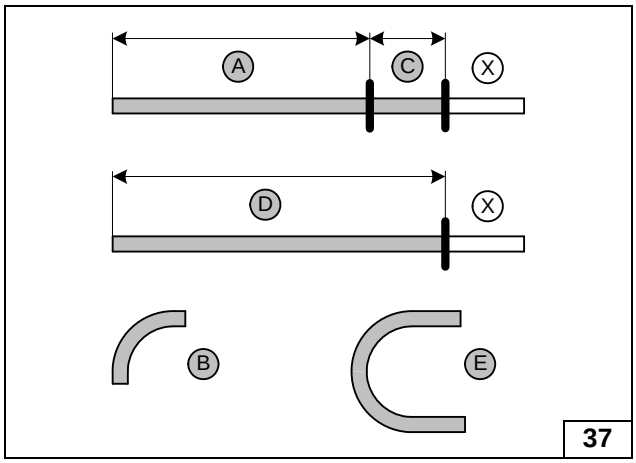
1 Silencer
2 Tighten M5x16 bolt, flanged nut
3 Combustion air pipe

Installing silencer and combustion air pipe



1 90° moulded hose, 10mm dia. clamp [2x]
2 Fuel line

Premounting fuel line

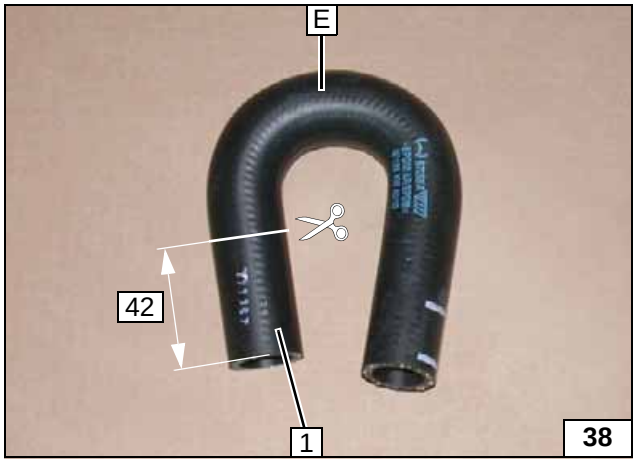


1.4 TSI and 2.0 D

Discard section **X**.
Hose **B** = 18mm dia. 90° moulded hose
Hose **E** = 20 mm dia. moulded hose 180° is used only for 1.4 TSI.

A = 1050
C = 65
D = 1130

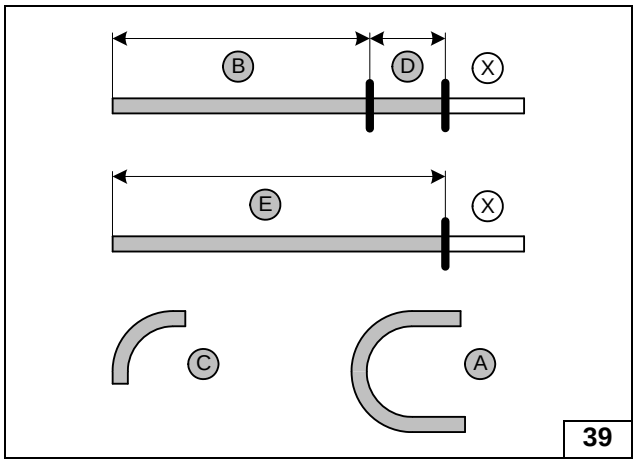
Cutting hoses to length



1.4 TSI

1 Discard section

Cutting hose E to length

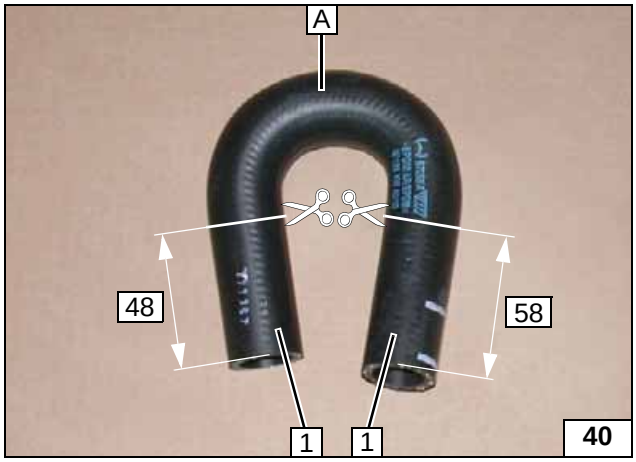


1.8 and 2.0 TSI

Discard section **X**.
Hose **A** = 20mm dia. 180° moulded hose
Hose **C** = 18mm dia. 90° moulded hose

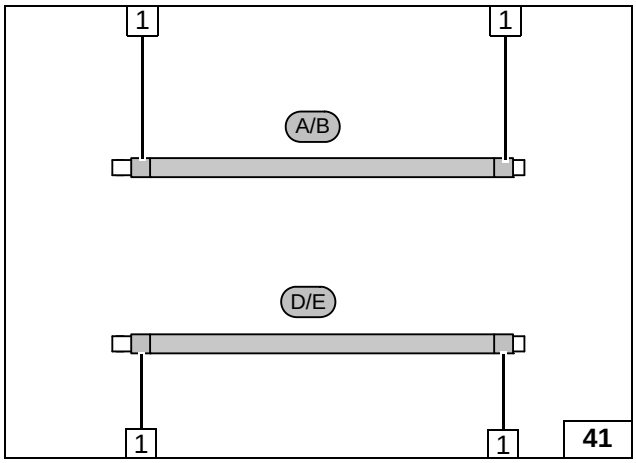
B = 960
D = 65
E = 1050

Cutting hoses to length



1 Discard section [2x]

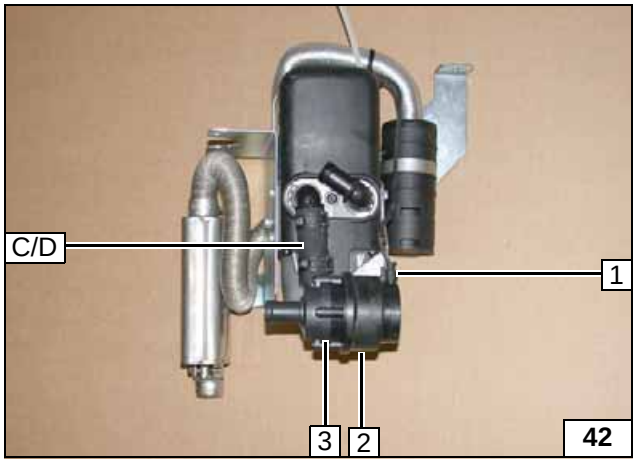
Cutting hose A to length



1.4 TSI / 2.0 D = hoses **A** and **D**
1.8 / 2.0 TSI = hoses **B** and **E**
Slide on braided protection hoses and cut to length. Cut heat shrink plastic tubing to length.

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

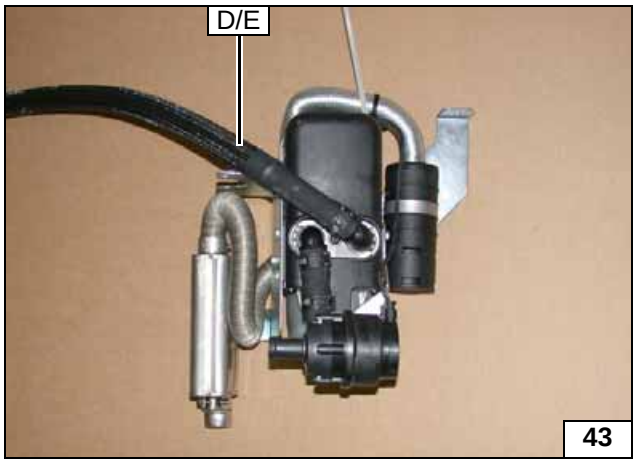
Preparing hoses A and D



1.4 TSI / 2.0 D = hose **C**
1.8 / 2.0 TSI = hose **D**
All spring clips = 25mm dia.

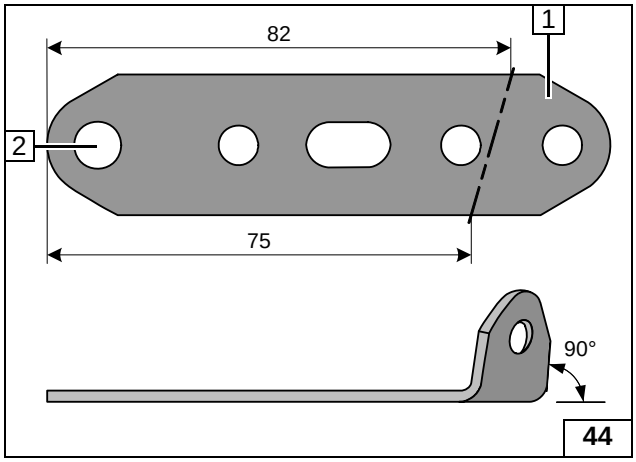
1 Mount wiring harness of circulating pump
2 Mounting of circulating pump
3 Circulating pump

Installing circulating pump



1.4 TSI / 2.0 D = hose **D**
1.8 / 2.0 TSI = hose **E**
All spring clips = 25mm dia.

Mounting hose of heater outlet



Installing Heater

1 Angle down perforated bracket
2 Drill 8.5mm dia. hole

Preparing perforated bracket

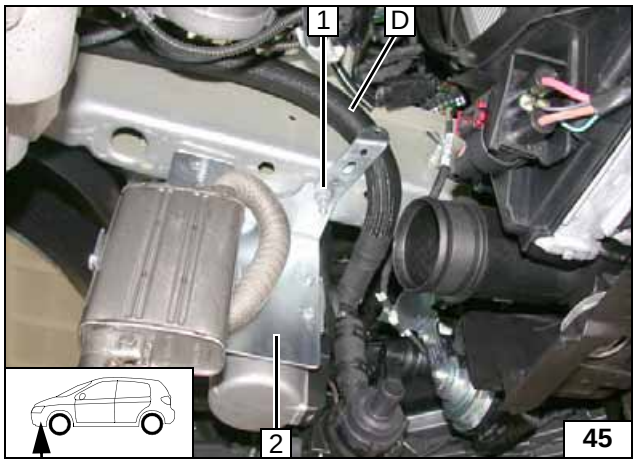
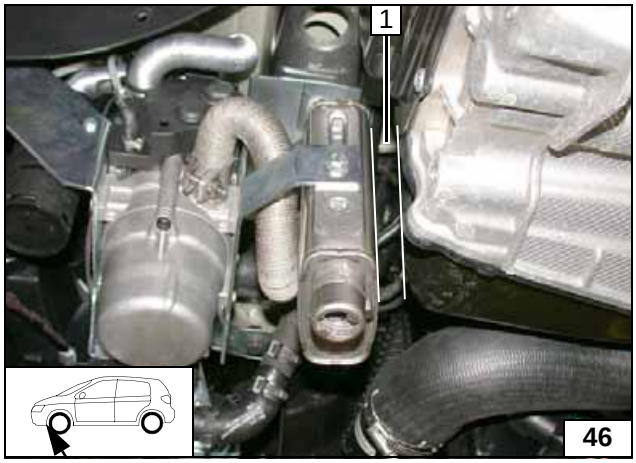


Figure shows diesel with manual transmission (SG).
Route hose **D** to brake booster

1 Original vehicle stud bolt, angled down perforated bracket, M8 flanged nut
2 Bracket section **A**

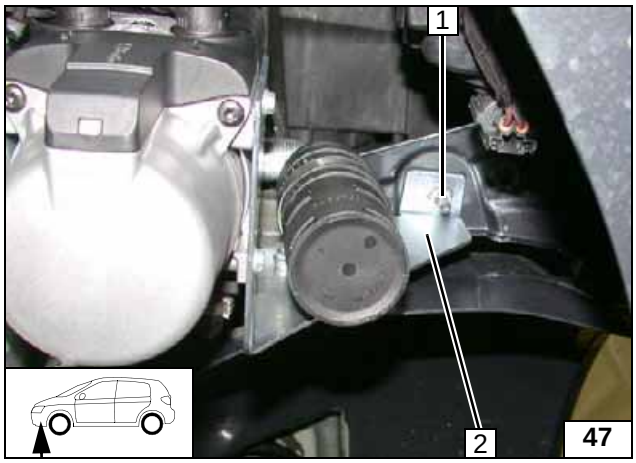
Mounting heater

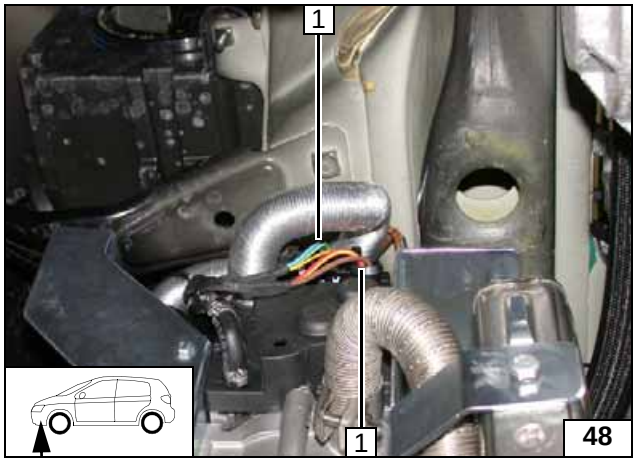


Diesel with direct gear transmission (DSG)

Ensure sufficient distance from neighbouring components, especially between exhaust silencer and direct gear transmission (DSG) at position **1** (25mm), correct if necessary.

Mounting heater





All vehicles

If stud bolt is not present at position **1**, copy hole pattern from bracket, drill 8.5mm dia. hole in cross member and fasten bracket with M8x20 bolt and flanged nut.

Mounting heater

1 Original vehicle stud bolt, M8 flanged nut
2 Bracket section **B**

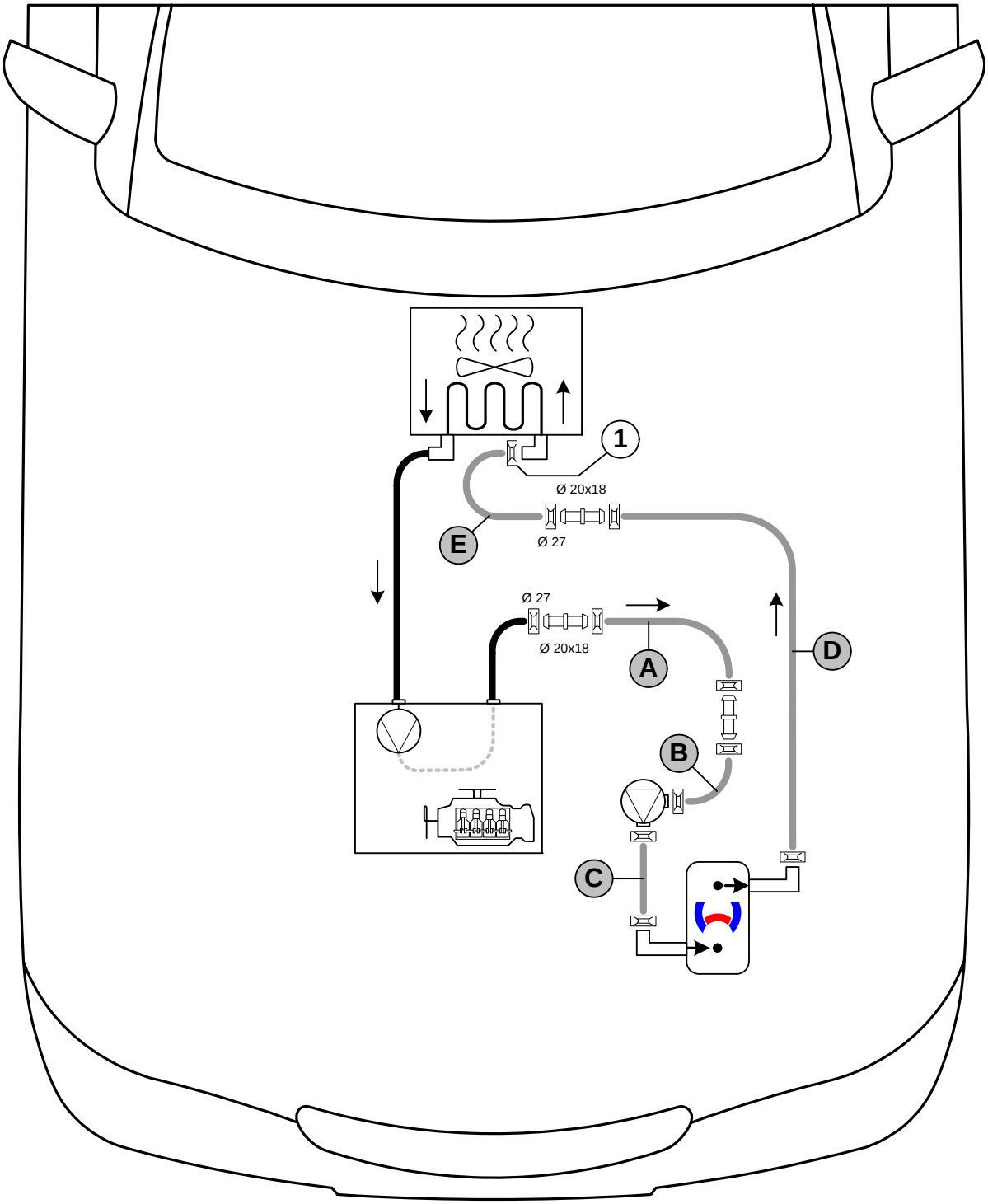
1 Wiring harness of heater [2x]

Connecting wiring harness

Coolant Circuit 1.4 TSI

WARNING!
Any coolant running off should be collected in an appropriate container. Install hoses so that they are 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 "inline" based on the following diagram:

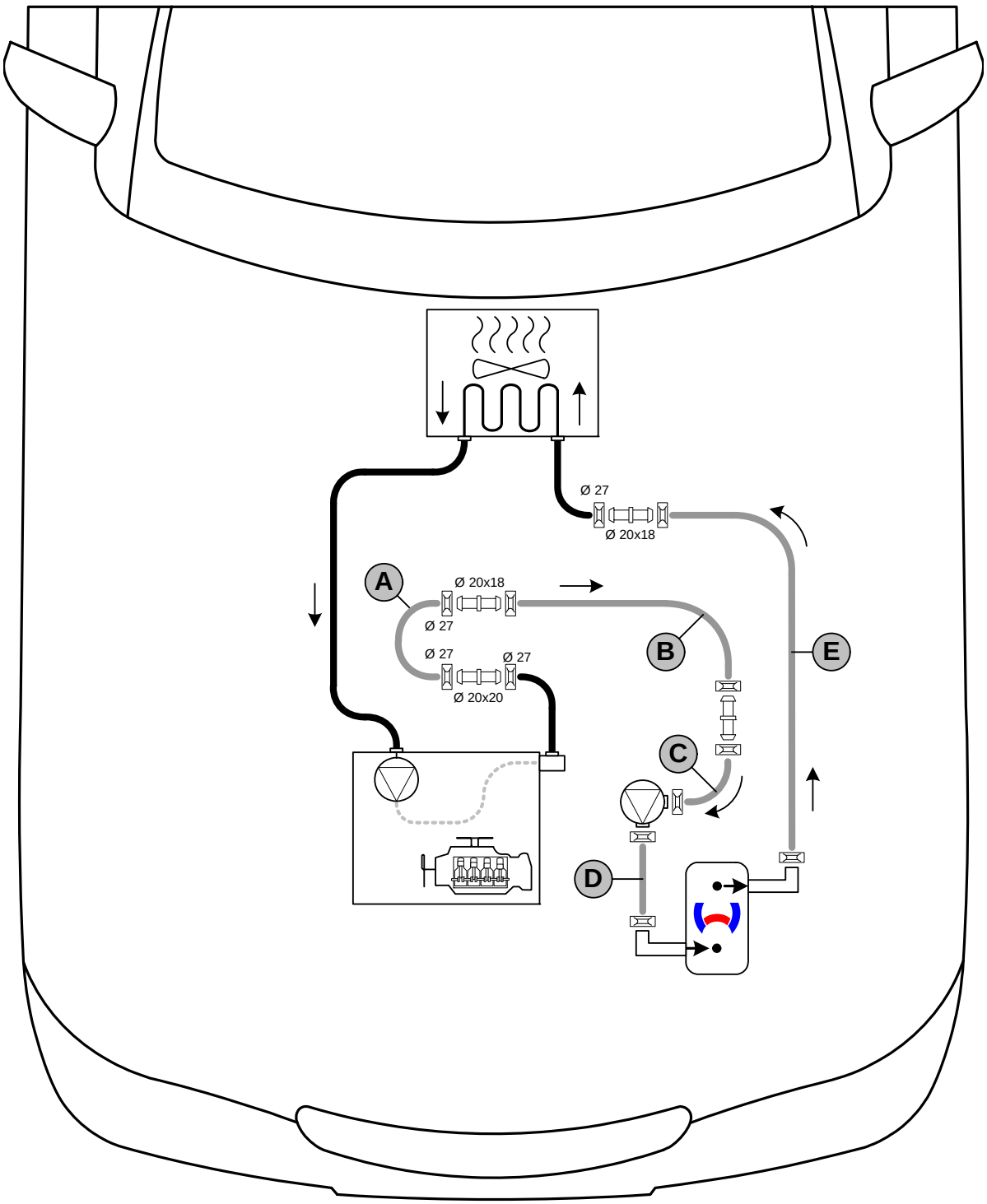
Hose installation diagram



All spring clips without a specific designation = 25mm dia.
1 = Original vehicle spring clip .
Connecting pipe without specific designation = 18x18mm dia.

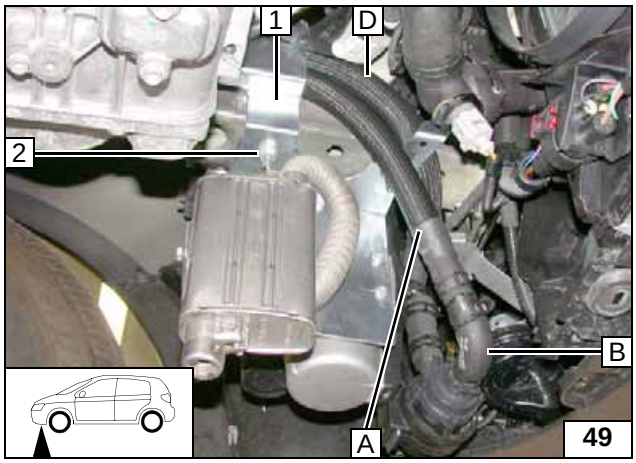
1.8 and 2.0 TSI Coolant Circuit

WARNING!
Any coolant running off should be collected in an appropriate container. Install hoses so that they are 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 "inline" based on the following diagram:



Hose installation diagram

All spring clips without a specific designation = 25mm dia.
Connecting pipe without specific designation = 18x18mm dia.



1.4 and 2.0 TSI

Route hose **A** to brake booster. Align hoses **A** and **D** behind hose bracket **1**. Ensure sufficient distance from neighbouring components.

2 Original vehicle stud bolt, M8 flanged nut

Routing frame side member

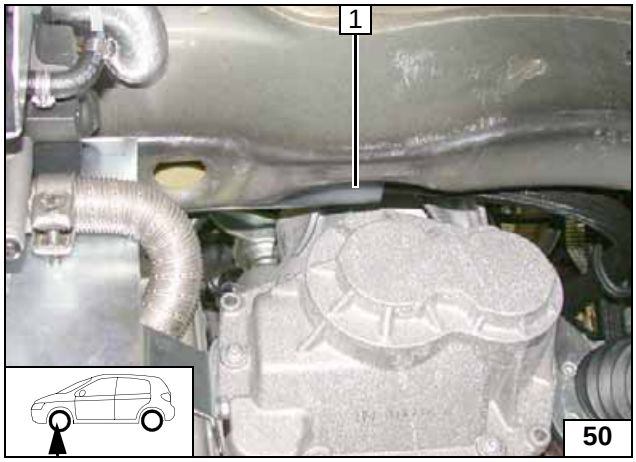
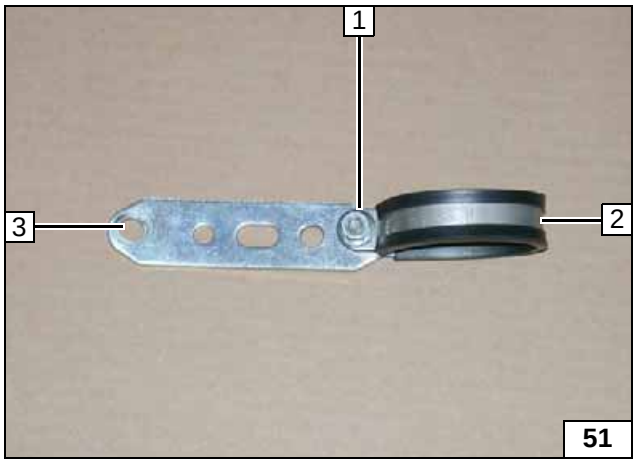


Figure shows manual transmission (SG). Ensure sufficient spacing between hose bracket **1** and transmission.

Routing frame side member



1 Install M6x20 bolt, M6 flanged nut loosely
2 38mm dia. rubber-coated p-clamp
3 8.5mm dia. hole

Preparing perforated bracket

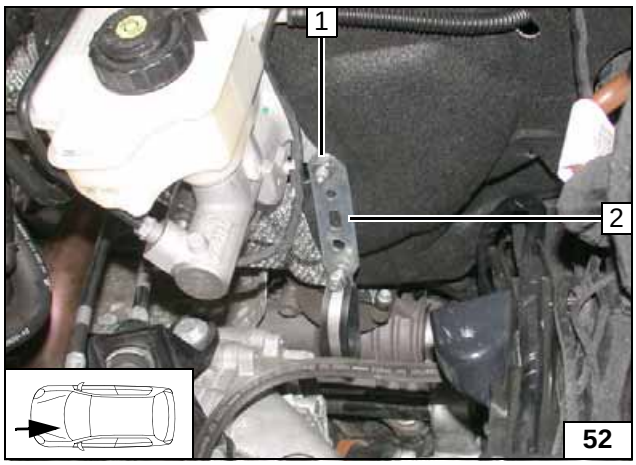
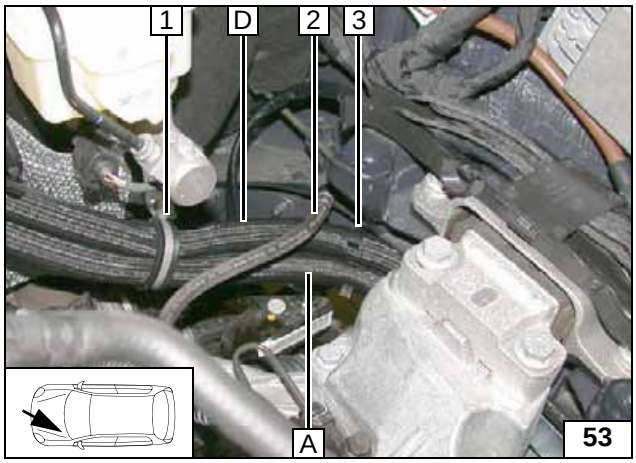


Figure shows manual transmission (SG).

1 Loosely mount original vehicle bolt, M8 nut
2 Premounted perforated bracket

Mounting perforated bracket

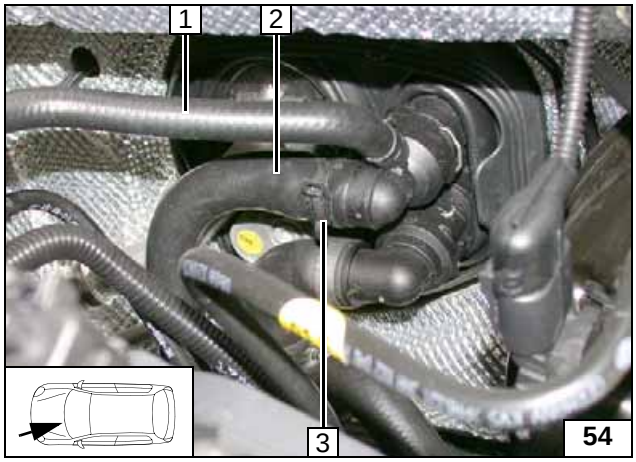


1.4 TSI / SG

Route hoses **A** and **D** through rubber-coated p-clamp **1**. Ensure sufficient distance from coupling hose **2**.

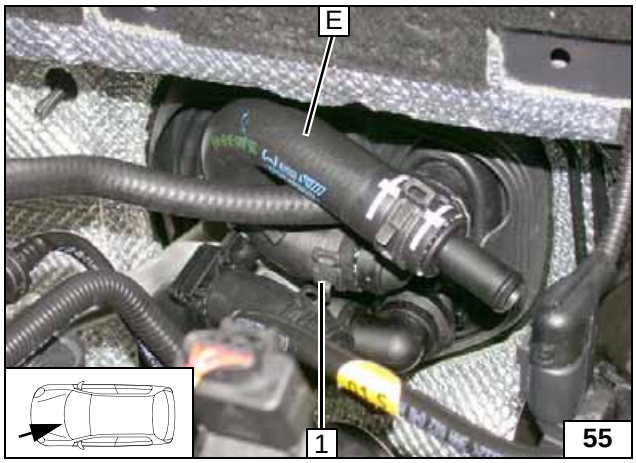
3 23x23mm hose bracket (retaining clip removed)

Routing in engine compartment



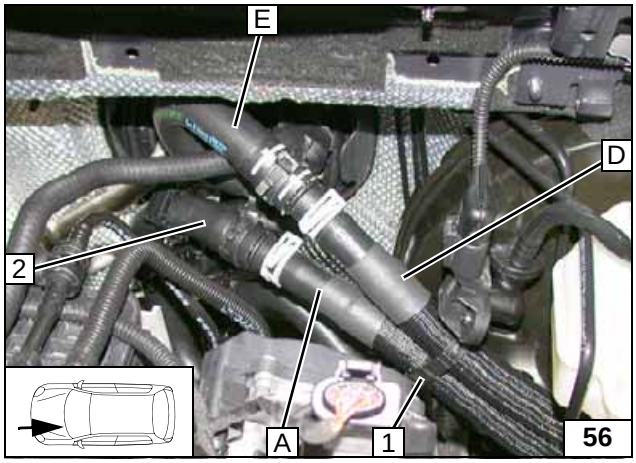
Pull out coolant hose of expansion tank **1** from connection piece, shorten by 10mm and remount. Pull off hose on engine outlet/heat exchanger inlet **2** from connection piece. Spring clip **3** will be reused.

Cutting point



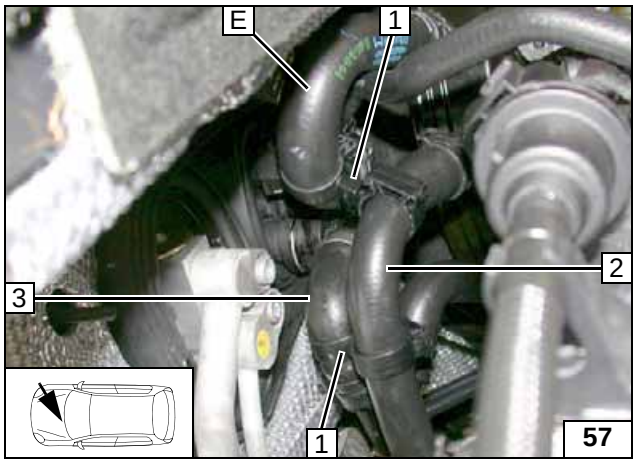
1 Original vehicle spring clip

Connecting heat exchanger inlet



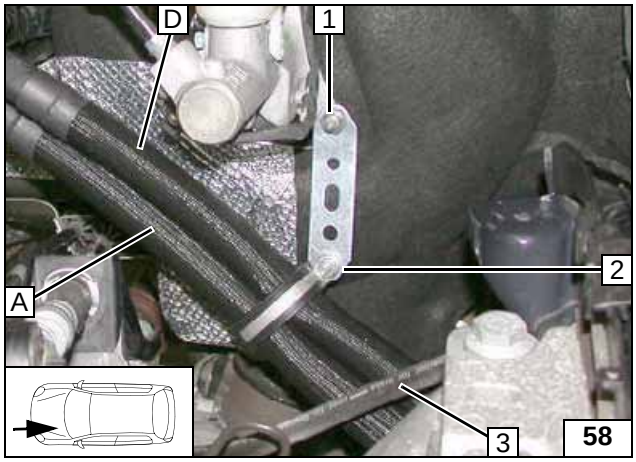
1 23x23mm hose bracket (retaining clip removed)
2 Hose of engine outlet

Connecting engine outlet and heat exchanger inlet



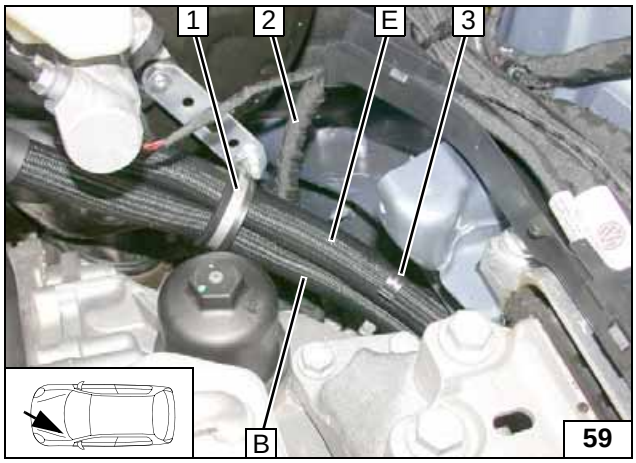
1 25x25mm lockable spacer bracket [2x]
2 Hose of engine outlet
3 Hose for heat exchanger outlet

Routing in engine compartment



Align hoses **A** and **D**. Tighten M8 nut **1** and M6 flanged nut **2**. Ensure sufficient distance from adjacent components, especially from original vehicle wire **3**, adjust if necessary.

Routing in engine compartment



1.8 and 2.0 TSI / SG (manual transmission) and DSG (direct gear transmission)

Image shows 6-speed DSG.
Route hoses **B** and **E** in front of original vehicle wiring harness **2** through rubber-coated p-clamp **1**. Ensure sufficient distance from neighbouring components.

3 23x23mm hose bracket (retaining clip removed)

Routing in engine compartment

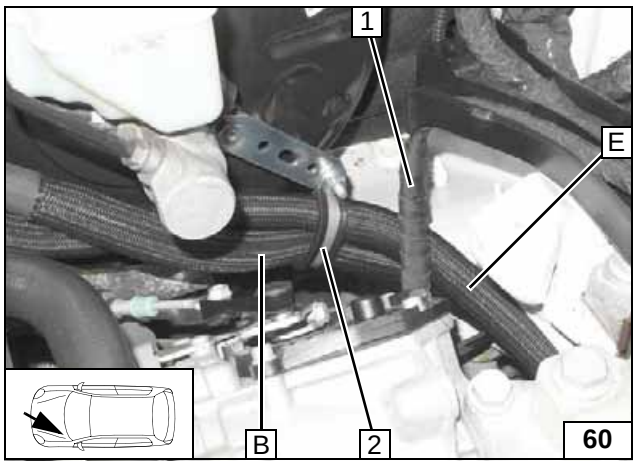
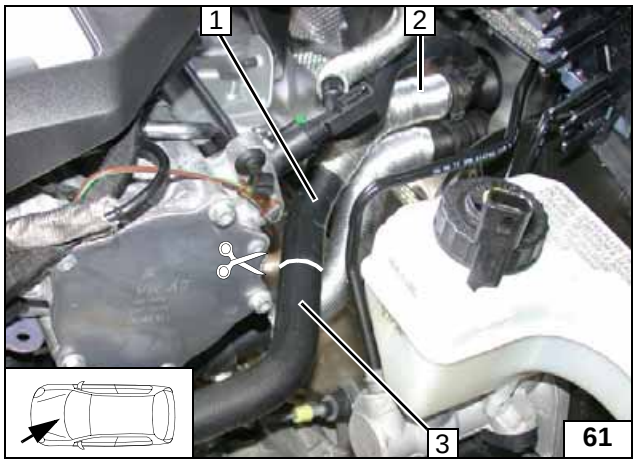


Image shows 7-speed DSG.
Route hoses **B** and **E** behind original vehicle wiring harness **1** through rubber-coated p-clamp **2**. Ensure sufficient distance from neighbouring components.

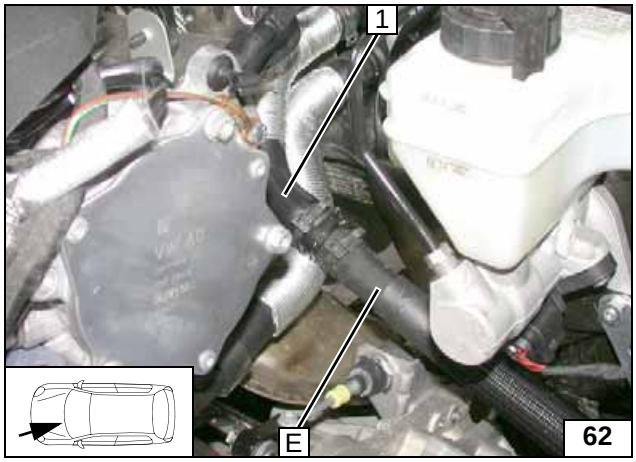
Routing in engine compartment



Push back heat protection hose **2**. Cut off hose on engine outlet/heat exchanger inlet at marking.

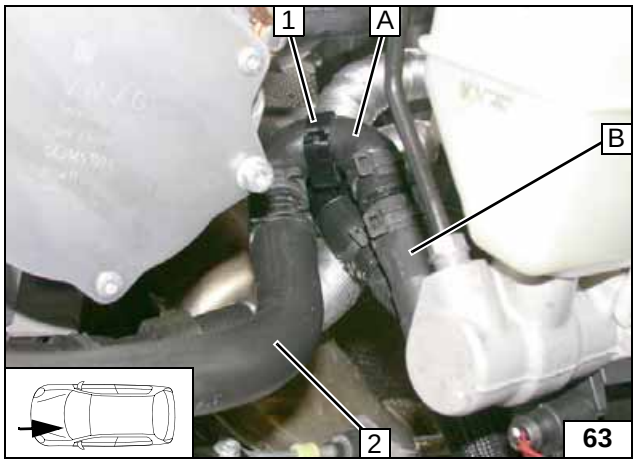
1 Hose section of heat exchanger inlet
3 Engine outlet hose section

Cutting point



1 Hose on heat exchanger inlet

Connecting heat exchanger inlet



1 25x25mm lockable spacer bracket
2 Hose of engine outlet

Connecting engine outlet

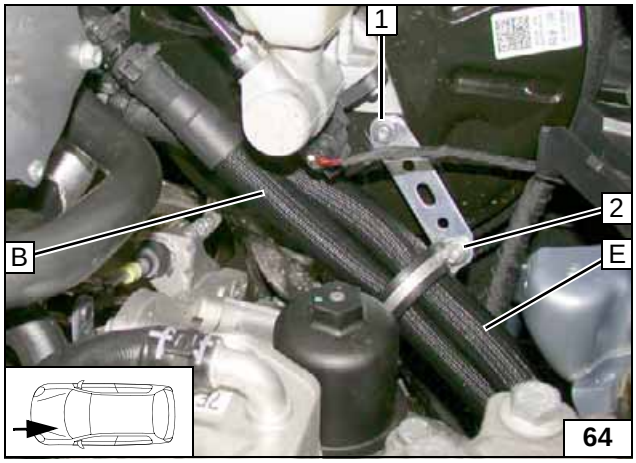


Image shows 6-speed DSG.
Align hose **B** and **E**. Tighten M8 nut **1** and M6 flanged nut **2**. Ensure sufficient distance from neighbouring components, correct if necessary.

Routing in engine compartment

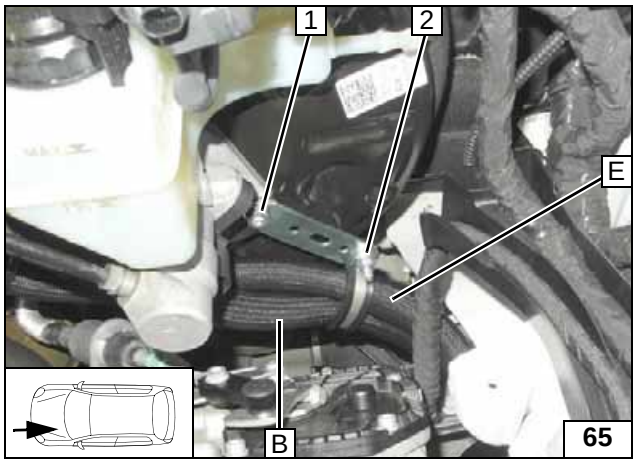
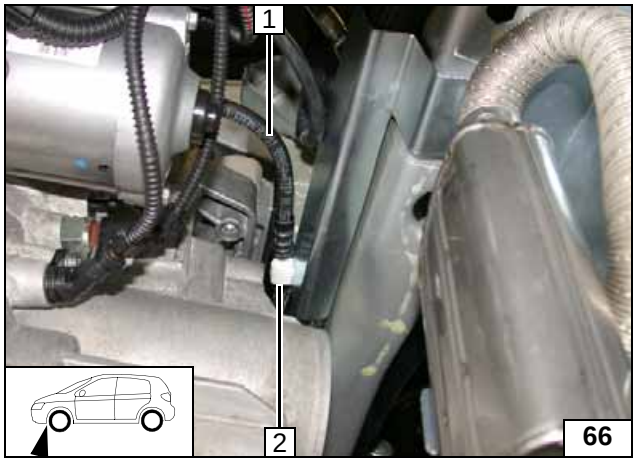


Image shows 7-speed DSG.
Align hose **B** and **E**. Tighten M8 nut **1** and M6 flanged nut **2**. Ensure sufficient distance from neighbouring components, correct if necessary.

Routing in engine compartment



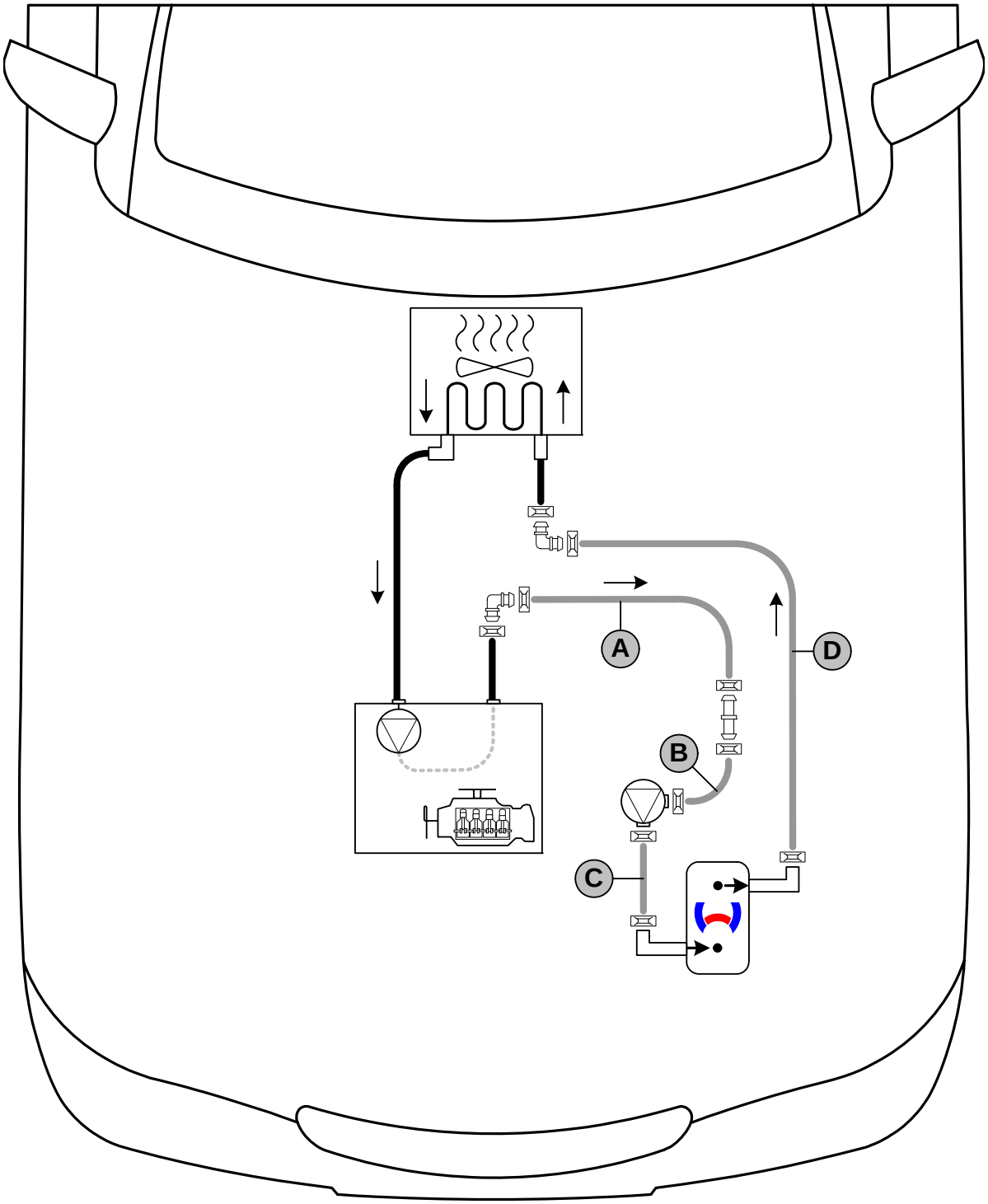
Manual transmission

Latch coupling line **1** in clip **2** and align. Ensure sufficient distance from neighbouring components.

Routing of coupling line

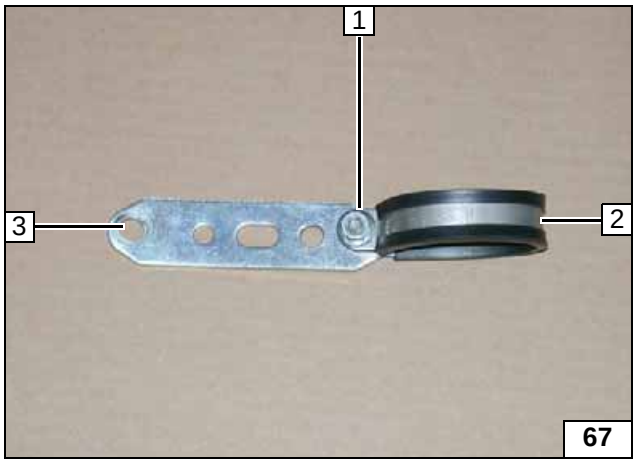
Coolant Circuit Diesel

WARNING!
Any coolant running off should be collected in an appropriate container. Install hoses so that they are 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 "inline" based on the following diagram:



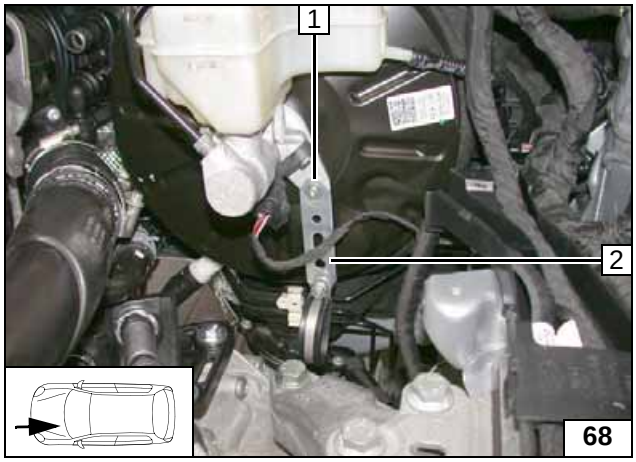
Hose installation diagram

All spring clips = 25 mm dia.
All connecting pipes and = 18x18mm dia.



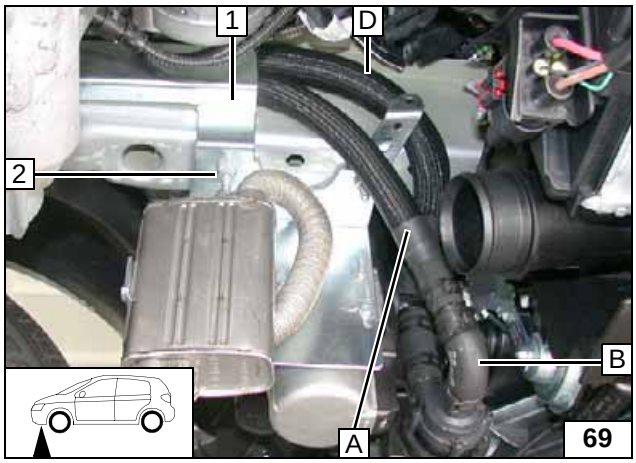
1 Install M6x20 bolt, M6 flanged nut loosely
2 38mm dia. rubber-coated p-clamp
3 8.5mm dia. hole

Preparing perforated bracket



1 Loosely mount original vehicle bolt, M8 nut
2 Premounted perforated bracket

Mounting perforated bracket

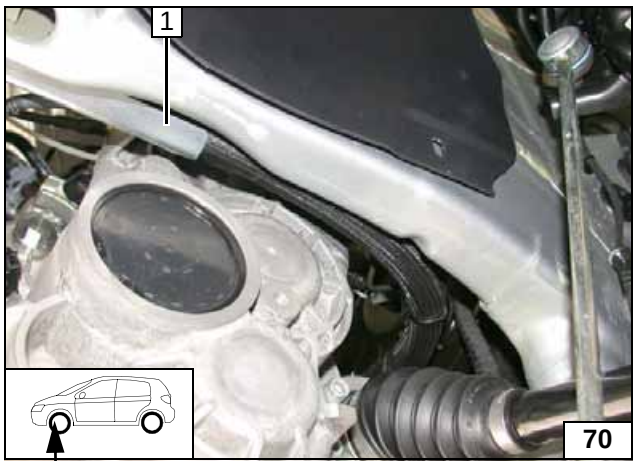


Manual transmission

Route hose **A** to brake booster. Align hoses **A** and **D** behind hose bracket **1**. Ensure sufficient distance from neighbouring components.

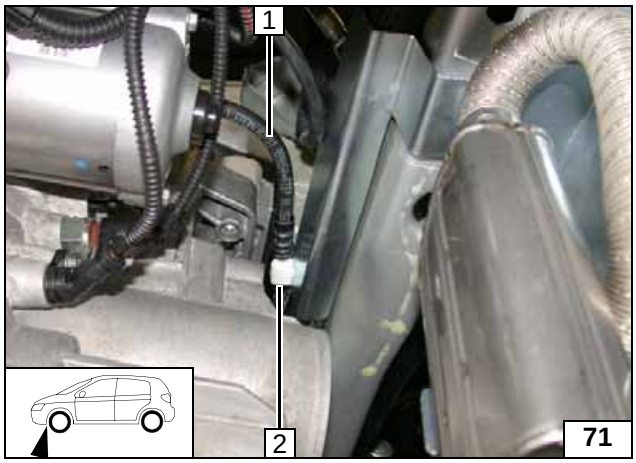
2 Original vehicle stud bolt, M8 flanged nut

Routing frame side member



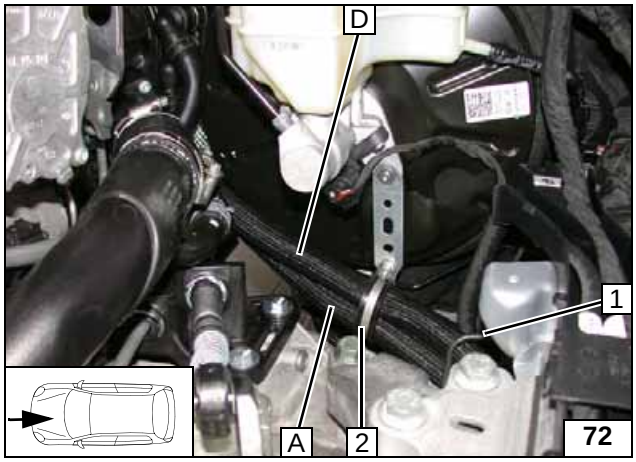
Ensure sufficient spacing between hose bracket **1** and transmission.

Routing frame side member



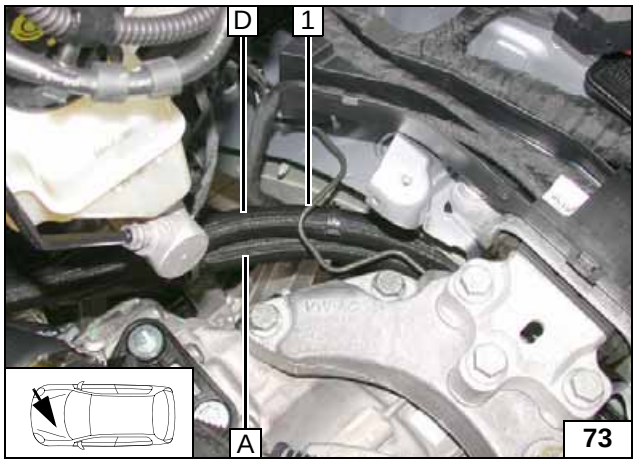
Latch coupling line **1** in clip **2** and align. Ensure sufficient distance from neighbouring components.

Routing of coupling line



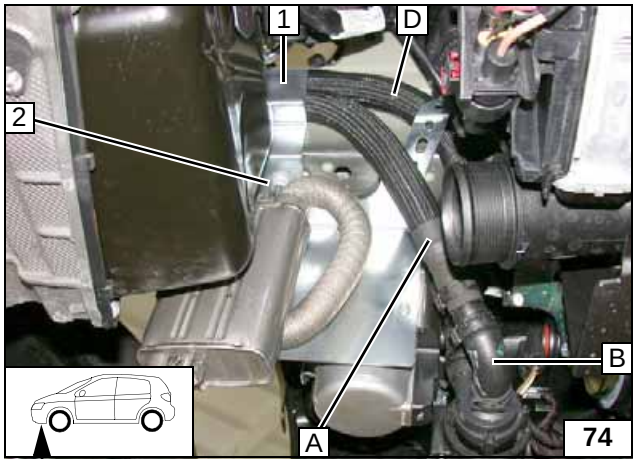
Route hoses **A** and **D** behind the coupling line **1** and through rubber-coated p-clamp **2**.

Routing in engine compartment



Ensure sufficient distance from coupling line **1**.

Routing in engine compartment

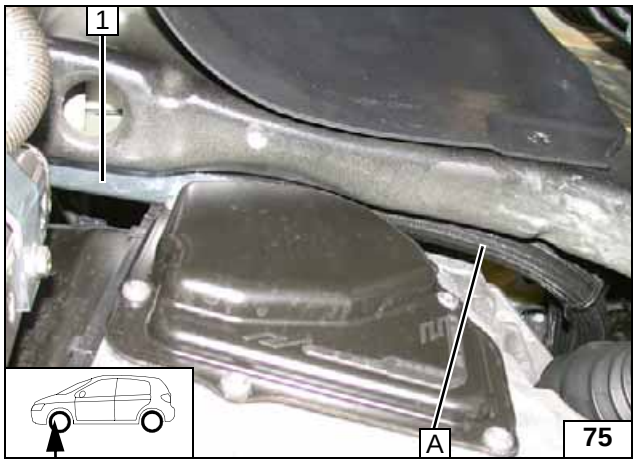


Direct gear transmission

Route hose **A** to brake booster. Align hoses **A** and **D** behind hose bracket **1**. Ensure sufficient distance from neighbouring components.

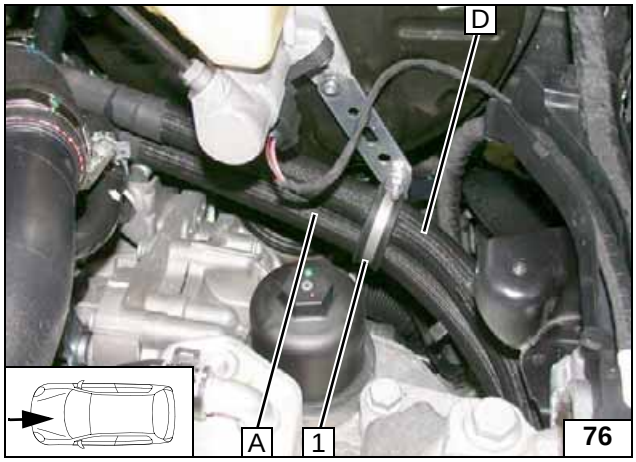
2 Original vehicle stud bolt, M8 flanged nut

Routing frame side member



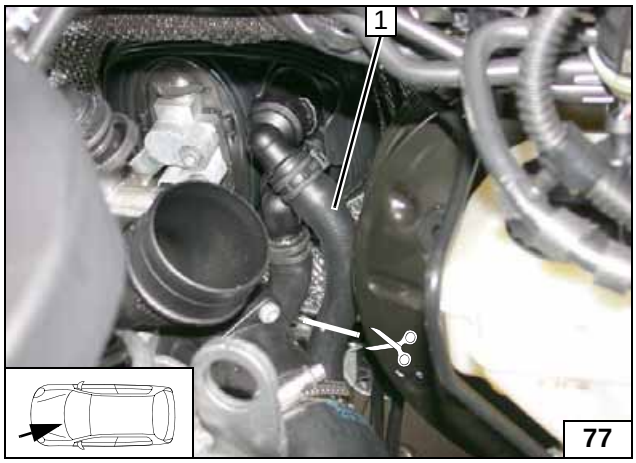
Ensure sufficient spacing between hose bracket **1** and transmission.

Routing frame side member



Route hoses **A** and **D** through rubber-coated p-clamp **1**.

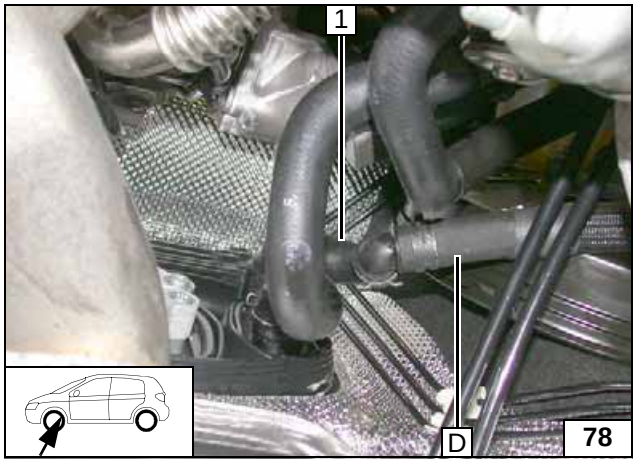
Routing in engine compart-ment



All vehicles

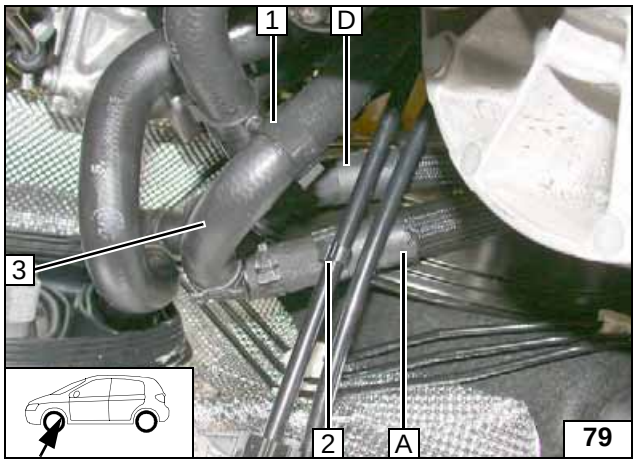
Cut off hose on engine outlet/heat exchanger inlet **1** at marking.

Cutting point



1 Hose on heat exchanger inlet

Connect-ing heat ex-changer inlet



1 Spacer bracket
2 22x8 spacer bracket
3 Hose of engine outlet

Connecting engine outlet

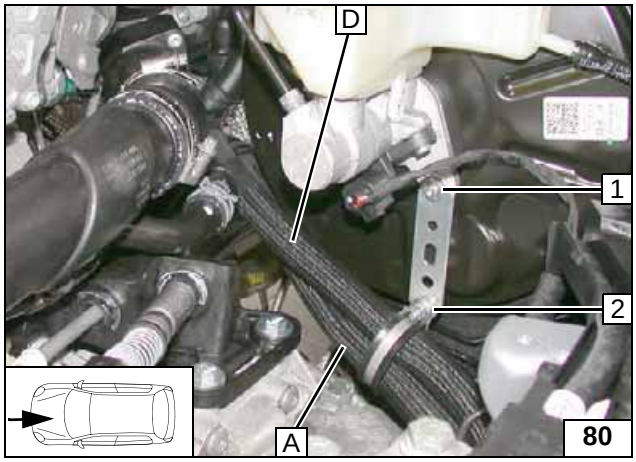


Figure shows manual transmission (SG). Align hoses **A** and **D**. Tighten M8 nut **1** and M6 flanged nut **2**.

Routing in engine compartment

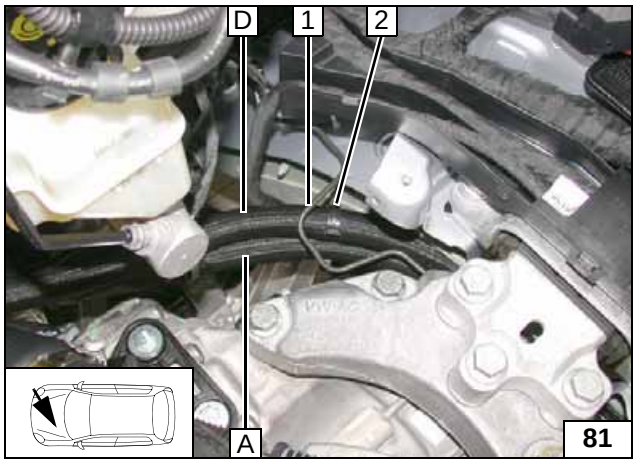


Figure shows manual transmission (SG). Ensure sufficient distance from coupling line **1**.

2 23x23mm hose bracket (retaining clip removed)

Routing in engine compartment

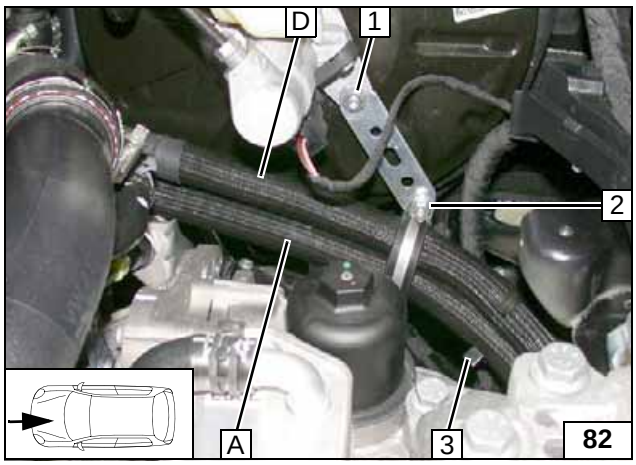


Figure shows direct gear transmission (DSG). Align hoses **A** and **D**. Tighten M8 nut **1** and M6 flanged nut **2**.

3 23x23mm hose bracket (retaining clip removed)

Routing in engine compartment

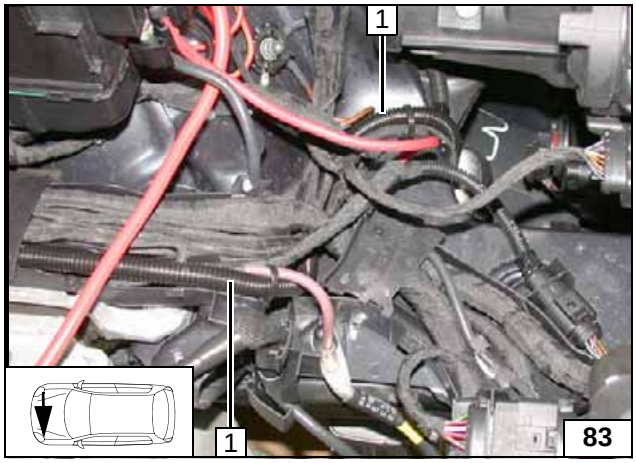
Fuel

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

Catch any fuel running off with an appropriate container.

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.



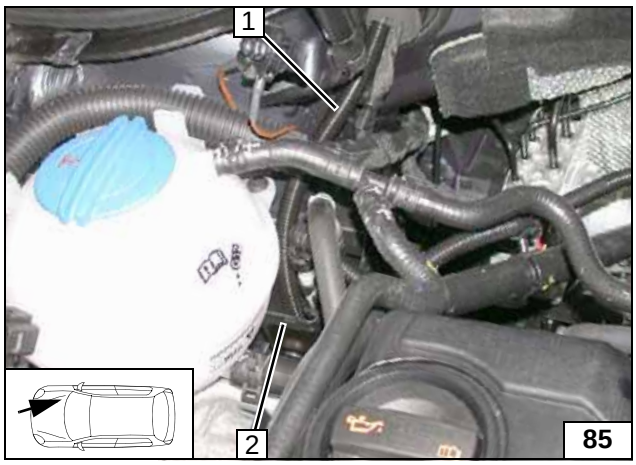
Route fuel line and wiring harness of metering pump in 1130mm corrugated tube **1** to firewall.

Routing lines

Route fuel line and wiring harness of metering pump in coolant reservoir on the right side of the vehicle. Pay particular attention to freedom of movement of wiper linkage. Route behind insulation mat, if available.

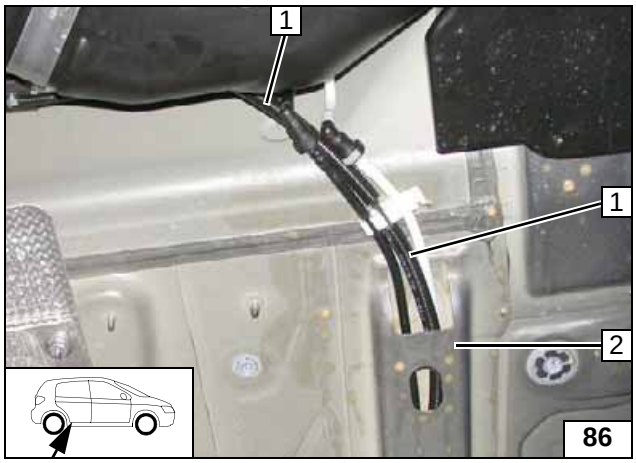
1 Original vehicle pass throughs

Routing lines



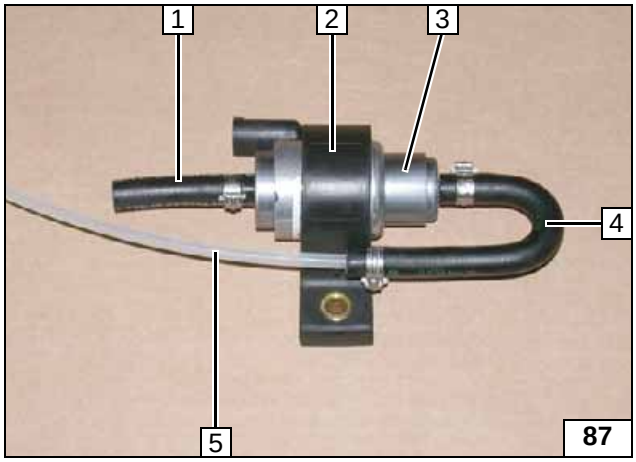
Cut off approx. 300mm from the 10mm dia. corrugated tube and slide on to fuel line and wiring harness of metering pump. Guide fuel line and wiring harness of metering pump **1** into original vehicle line duct **2**and route to underbody.

Routing lines



1 Fuel line and wiring harness of metering pump in corrugated tube
2 Original vehicle line duct

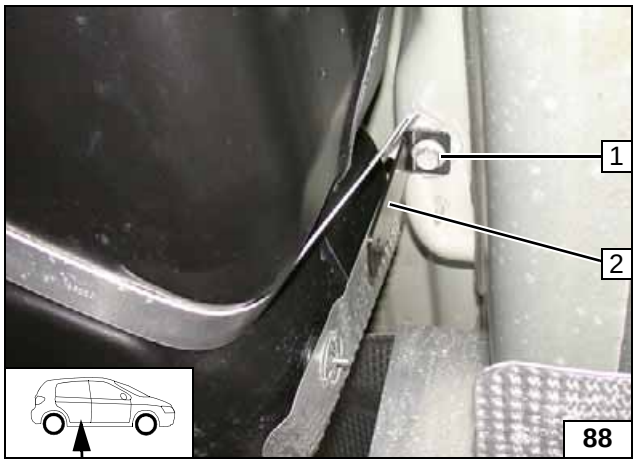
Routing lines



Cut off approx. 600mm from fuel line.

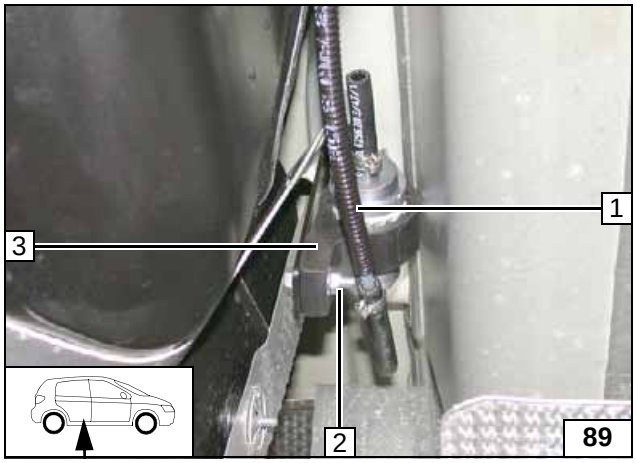
1 Hose section, 10mm dia. clamp
2 Mounting of metering pump
3 Metering pump
4 180° moulded hose, 10mm dia. clamp [2x]
5 600mm fuel line

Premounting metering pump



1 Original vehicle bolt
2 Bracket of metering pump

Mounting metering pump bracket

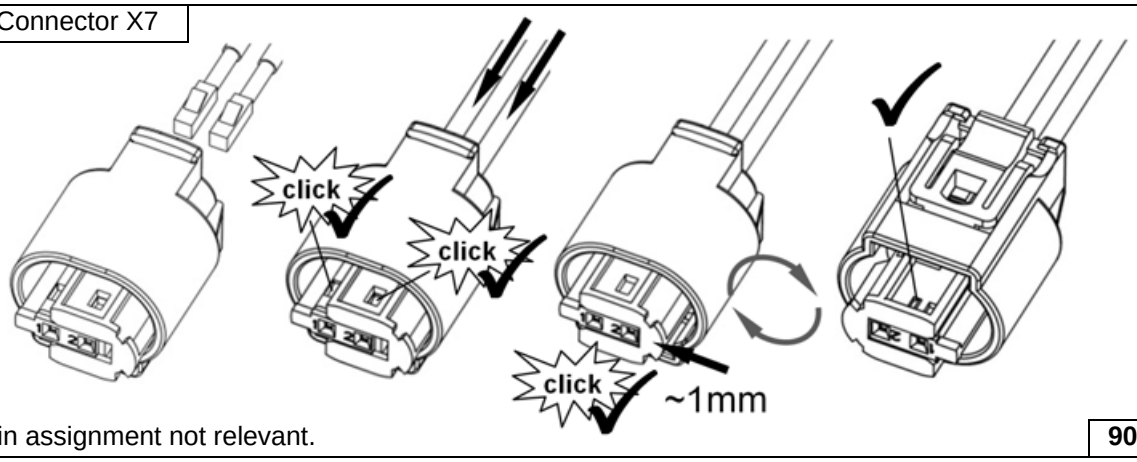


Slide approx 500mm of 10mm dia. corrugated tube **1** onto fuel line and route to the fuel-tank sending unit.

2 M6x25 bolt, flanged nut
3 Mounting of metering pump

Mounting metering pump

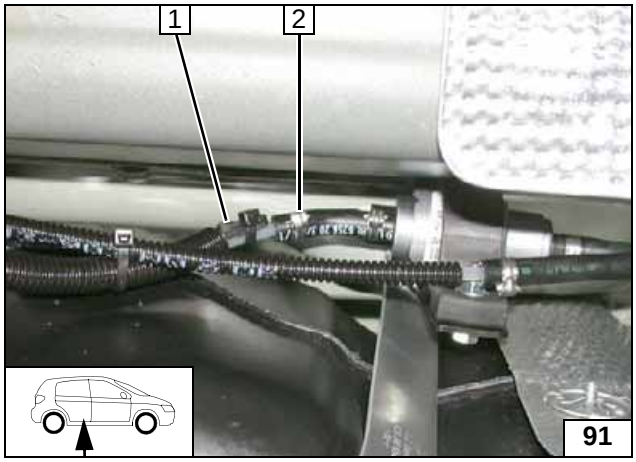
Connector X7



Pin assignment not relevant.

90

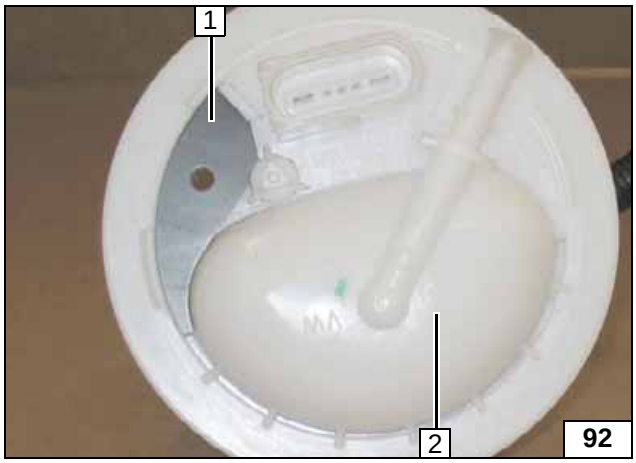
Completing metering pump connector



91

1 Wiring harness of metering pump, connector X7 mounted
2 Fuel line of heater, 10mm dia. clamp

Connecting metering pump

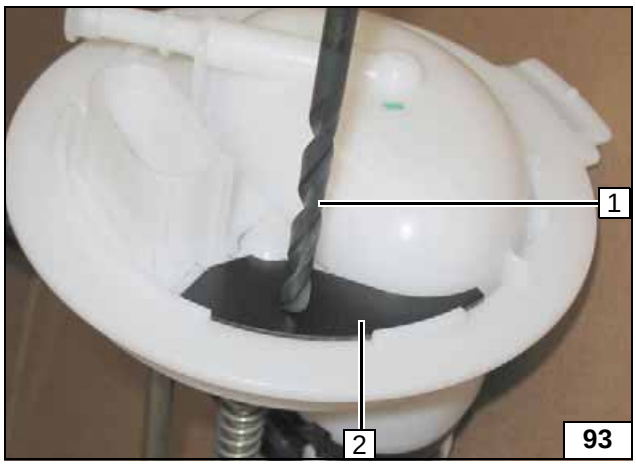


92

Petrol

Remove the fuel-tank sending unit **2** according to the manufacturer's instructions and discard.
Engage metal drilling template **1** play-free on fuel-tank sending unit as shown.

Fuel extraction

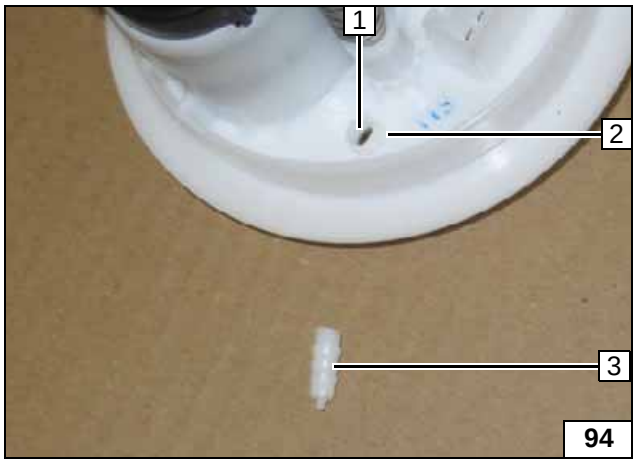


93

Ensure firm seating of template **2**. Guide drill bit **1** exactly perpendicular to surface of fuel-tank sending unit. Carefully drill at low speed and only with light pressure.

1 6 mm dia. drill bit
2 Metal drilling template

Hole in fuel-tank sending unit



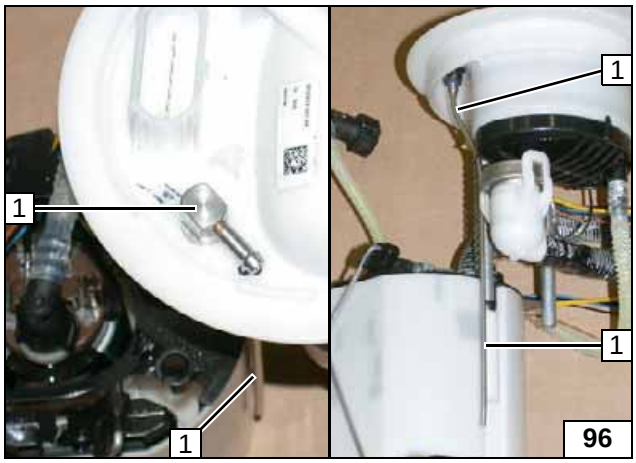
1 6 mm dia. hole
2 Overhanging, circumferential edge of approx. 1 mm
3 Drilled-out blind connection piece

View of underside of fuel-tank sending unit

Carefully remove overhanging edge with deburring tool.

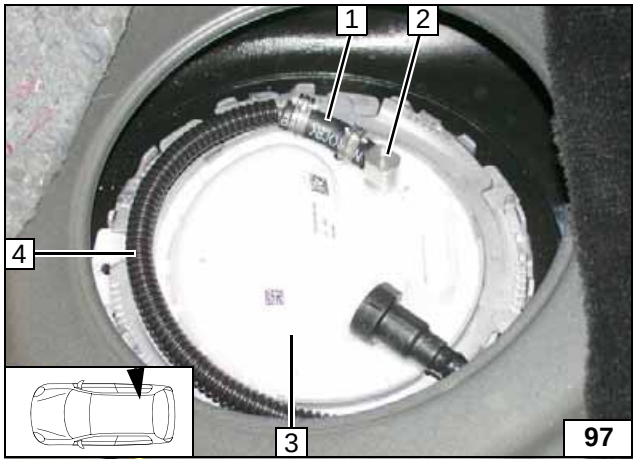
1 Deburring tool

Removing edge



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

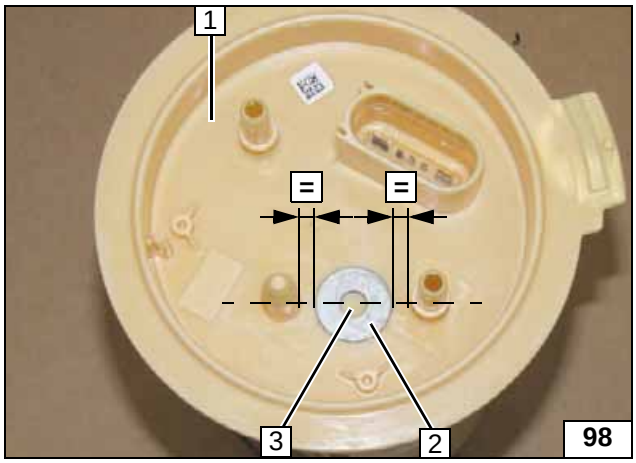
Installing fuel standpipe



Mount fuel-tank sending unit **3** in accordance with manufacturer's instructions. Ensure sufficient spacing between hose section **1** and edge of locking ring.

1 Hose section, 10 mm dia. clamp [2x]
2 Fuel standpipe
4 Fuel line in 10mm dia. corrugated tube

Connecting fuel line

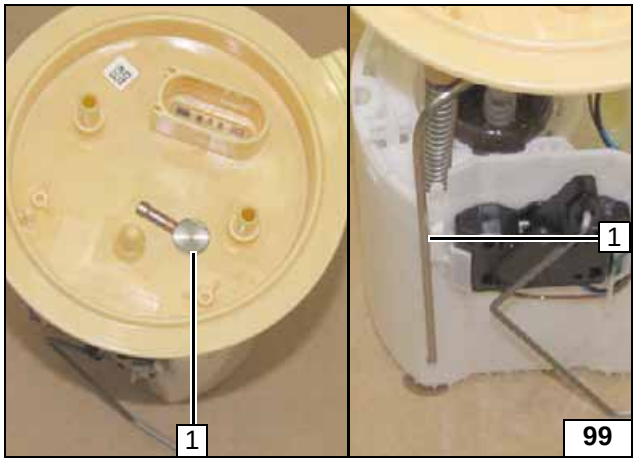


Diesel

Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Position large diameter washer **2** dia. d_a = 21.6mm midway between the connection pieces.

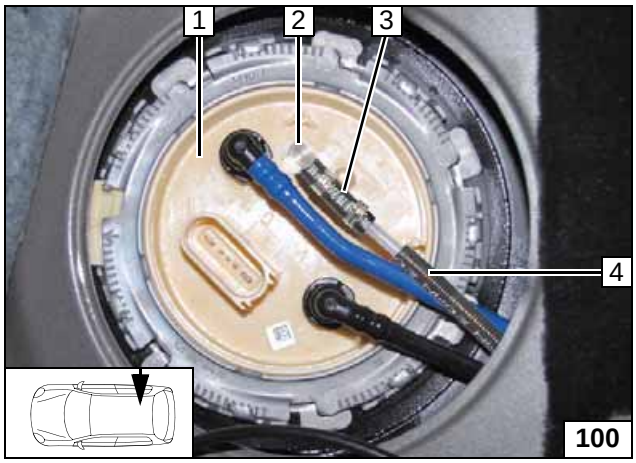
3 Copy hole pattern, 6.0mm dia. hole

Fuel extraction



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

Installing fuel standpipe



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

2 Fuel standpipe
3 Hose section, 10 mm dia. clamp [2x]
4 Fuel line in 10mm dia. corrugated tube

Connecting fuel line

Final Work

Mounting retaining plate / connector

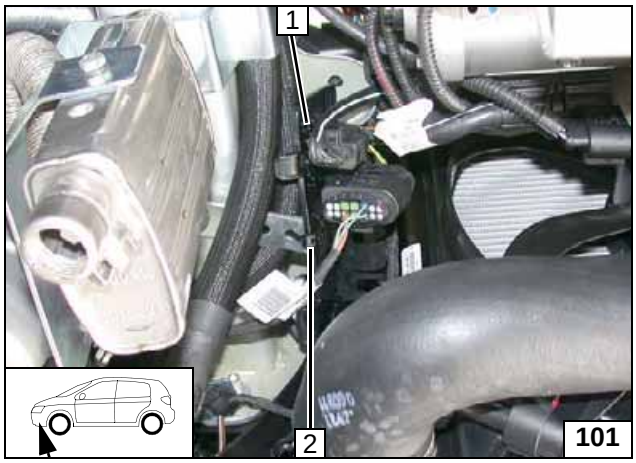
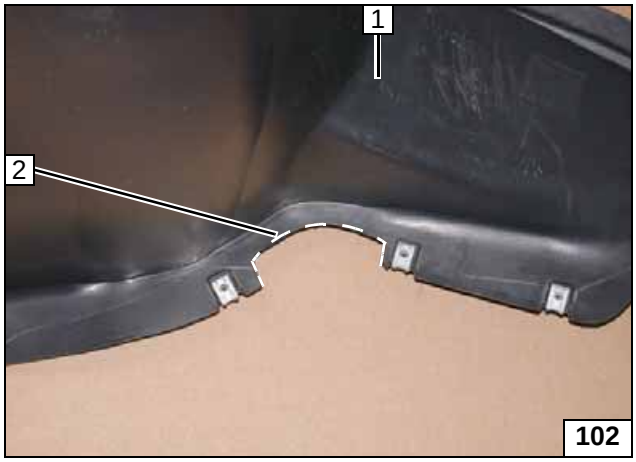


Figure shows Diesel.
Insert retaining plate **1** in hole of perforated bracket and fasten with cable tie **2**. Remount connector.

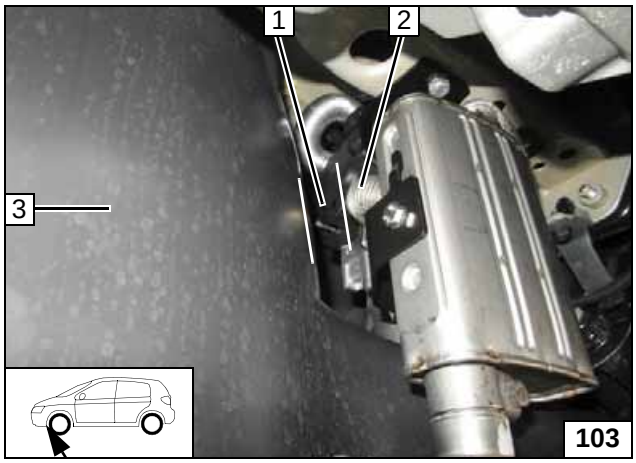
Mounting retaining plate

Wheel-well inner panel



Cut out wheel-well inner panel **1** at the marking **2**.

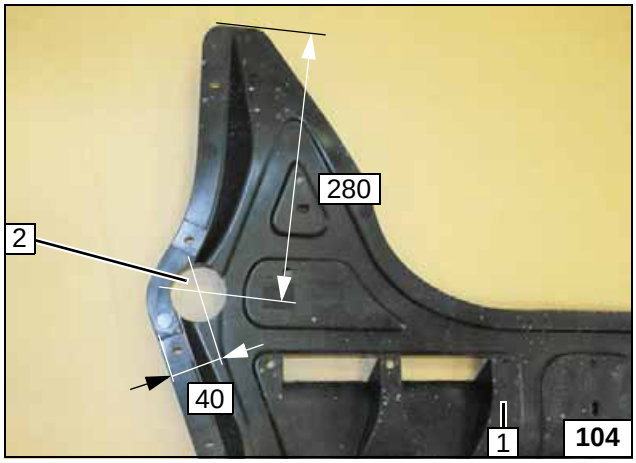
Cutting out wheel-well inner panel



Ensure sufficient distance between wheel-well inner panel **3** and exhaust pipe **2** at position **1** (at least 20mm).

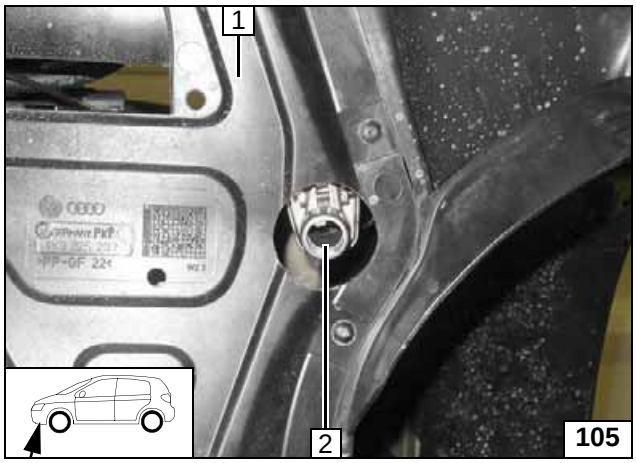
Mounting wheel-well inner panel

Underride protection



1 Underride protection
2 60mm dia. hole

Cutting out underride protection



Install underride protection **1**. Align exhaust end section **2** in centre of hole and flush with underride protection **1**.

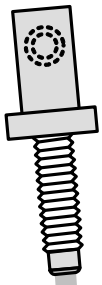
Aligning exhaust end section

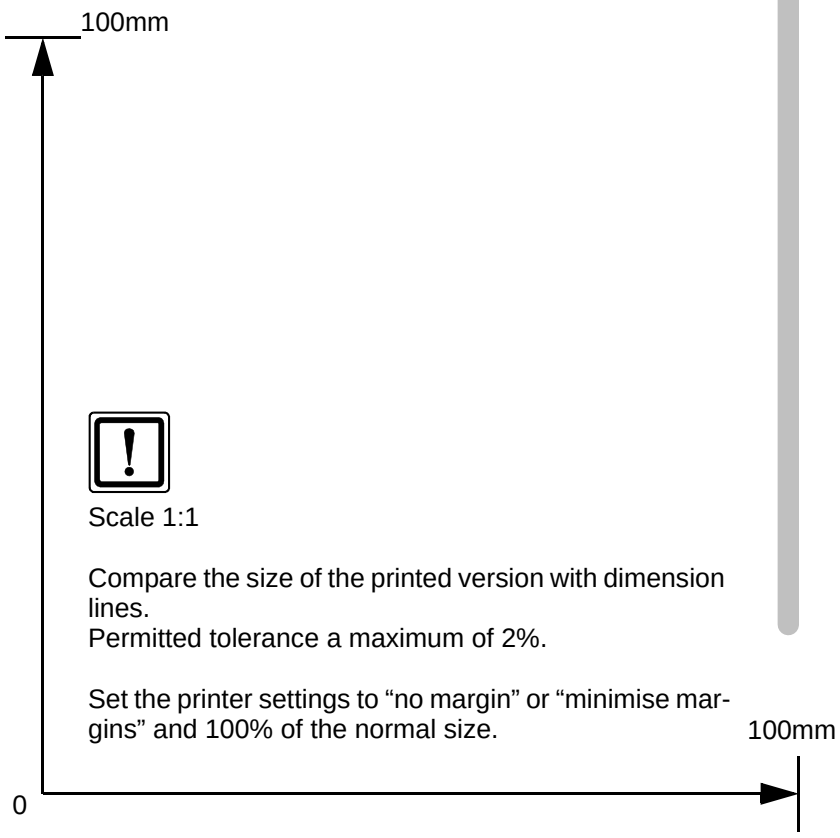
WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

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

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

Template for Fuel Standpipe Petrol



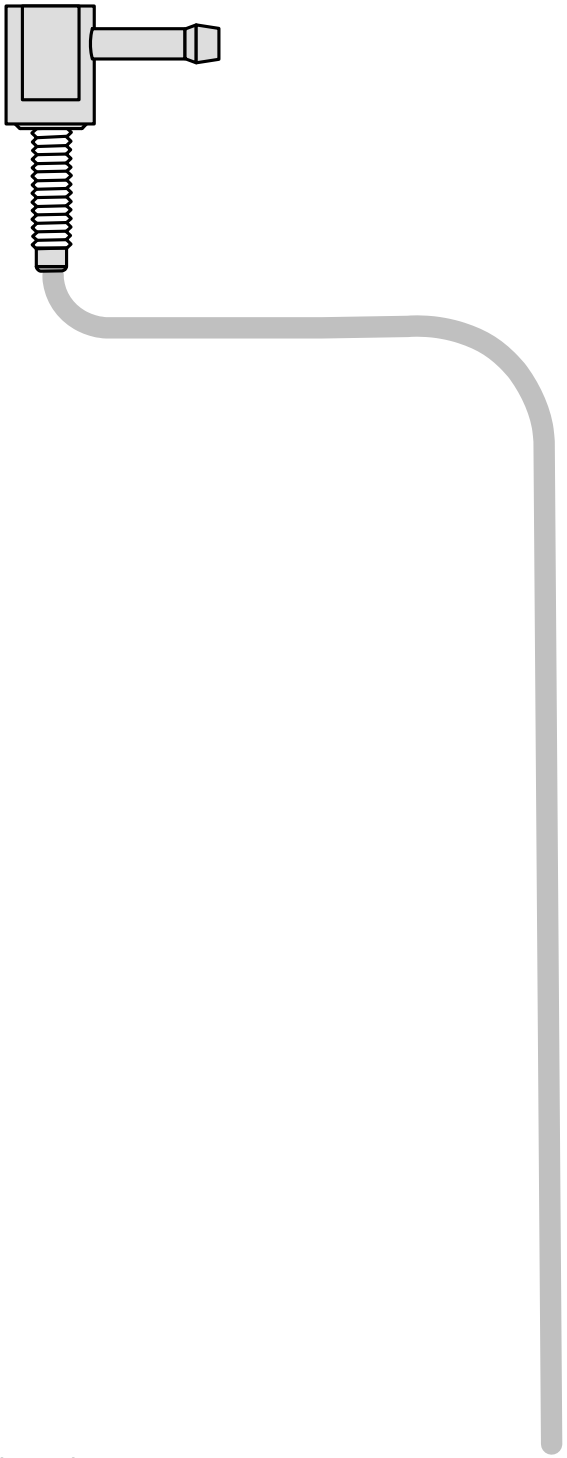


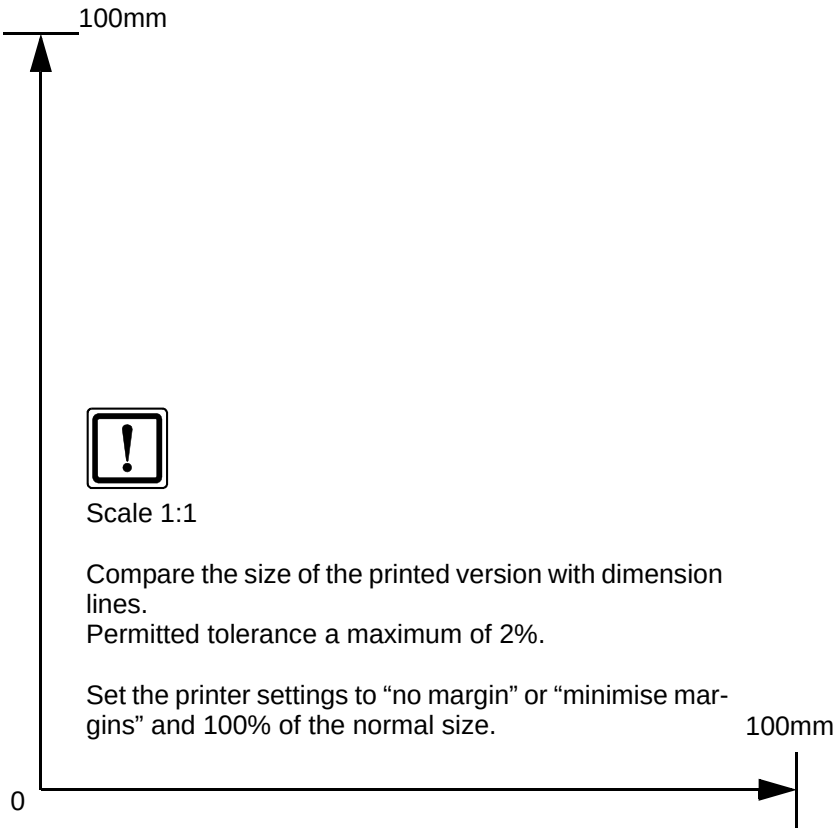
Scale 1:1

Compare the size of the printed version with dimension lines.
Permitted tolerance a maximum of 2%.

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

Template for Fuel Standpipe Diesel





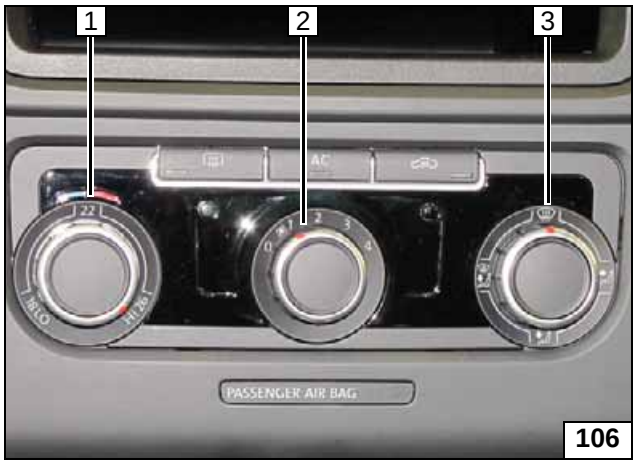
Operating Instructions for Climatic

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.

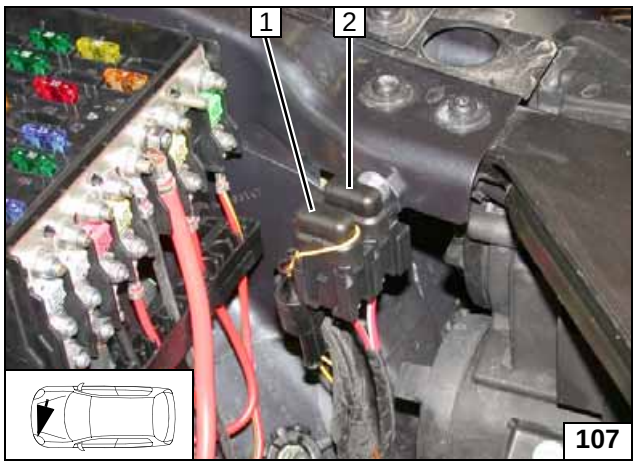
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



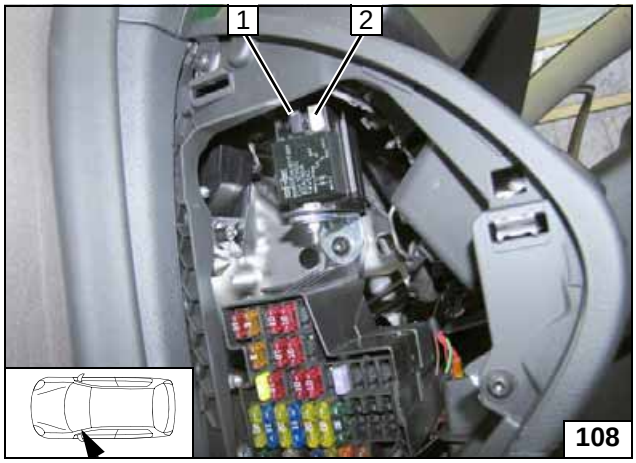
1 Set temperature to "max."
2 Fan level 1 or 2
3 Air outlet to windscreen

A/C control panel



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

Fuses of engine compartment



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

Fuses of passenger compartment

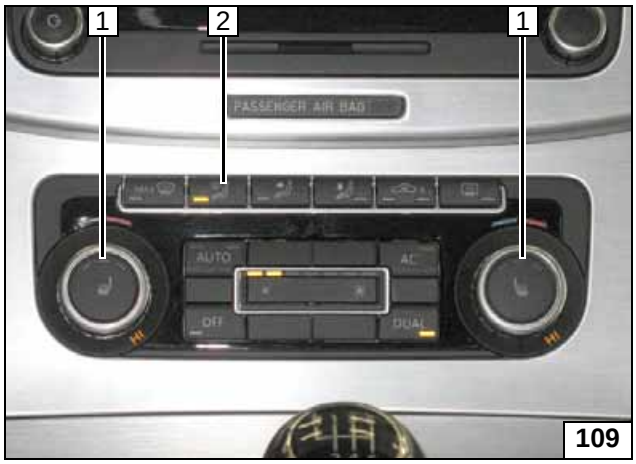
Operating Instructions for Climatronic

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.

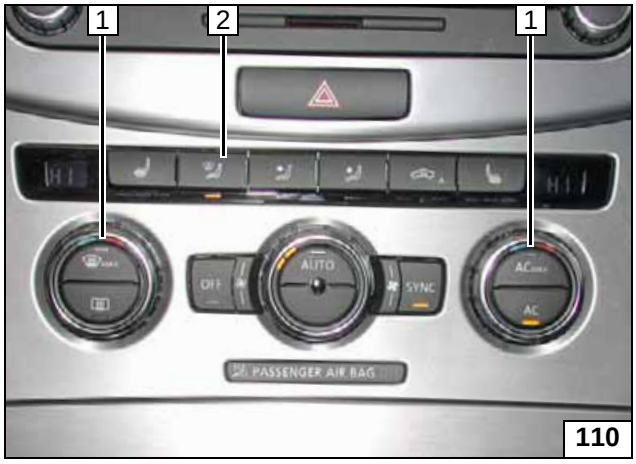
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



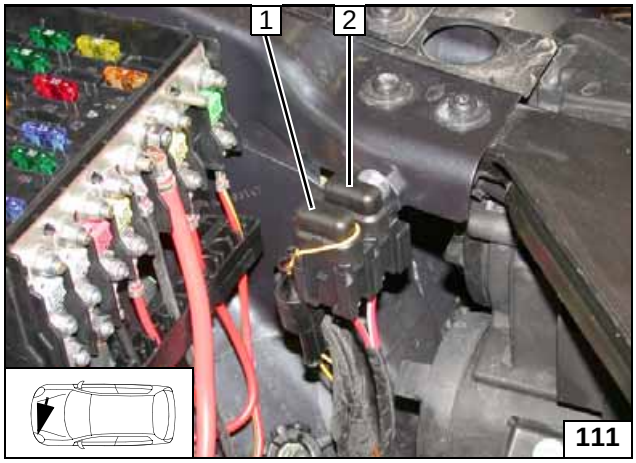
1 Set temperature to "HI"
2 Air outlet to windscreen

A/C control panel Version 1



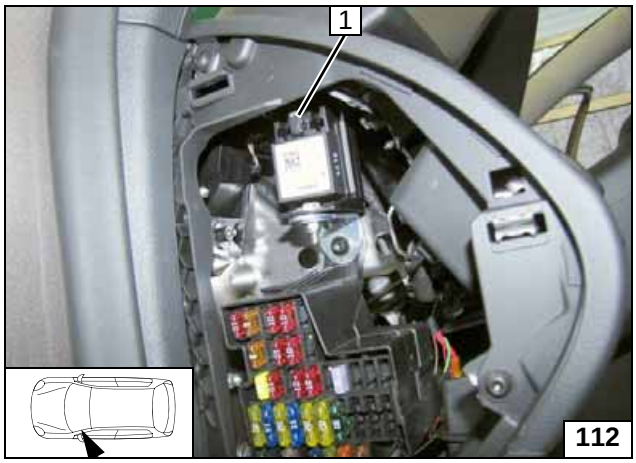
1 Set temperature to "HI"
2 Air outlet to windscreen

A/C control panel Version 2



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

Fuses of engine compartment



1 1A fuse F3 of heater control

Fuses of passenger compart-ment