Water Heater

Webasto
Feel the Drive

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
VW Beetle

Validity

Manufacturer	Model	Type	EG BE No. / ABE
VW	Beetle	16	e1 * 2007 / 46 * 0539 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.2	Petrol	SG	77	1197	CBZB
2.0	Petrol	DSG	147	1984	CCZA

SG = 6-speed manual transmission
DSG = 6-speed direct gear transmission

From Model Year 2011
Left-hand drive vehicle

Verified equipment variants:	Climatic / Climatronic
	Front fog light
Not verified:	Passenger compartment monitoring
	Headlight washer system
	Xenon
Total installation time:	approx. 8 hours

VW Beetle

Table of Contents

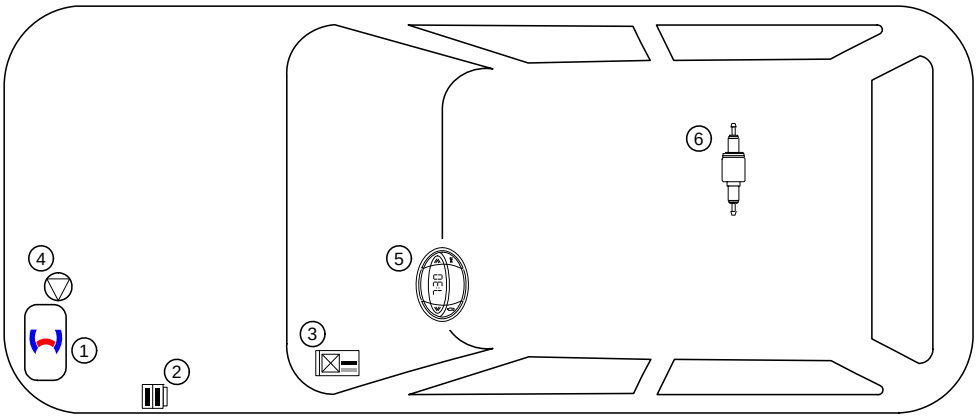
Necessary Components

- Basic delivery scope of *Thermo Top Evo* in accordance with price list
- Installation kit for VW Beetle 2011 1.2 and 2.0 TSI : **1318063A**
- Also required with automatic air-conditioning:
  Automatic air-conditioning 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 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. Connectors on electronic components must audibly snap into place during assembly.

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

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

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

When installing 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 03 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.

VW Beetle

Information on Validity

This installation documentation applies to VW Beetle 1.2 and 2.0 TSI 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
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

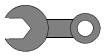
Dimensions
- All dimensions are in mm

Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque 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

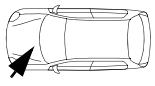
Specific risk of damage to components

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



VW Beetle

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.
- Remove the battery carrier.
- Remove the air filter completely.
- Remove the underride protection.
- Remove the wheel-well inner panel.
- Fold up 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.
- Remove the side trim of A-pillar on the driver's side.
- Remove the driver/front passenger's side footwell trim.
- Remove the instrument panel trim at the left.
- Detach the central electrical box and put it aside.

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

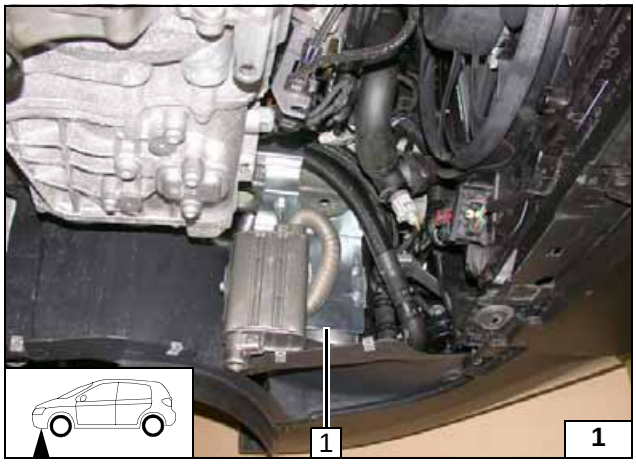


Image shows 1.2 TS

1 Heater

Installation location

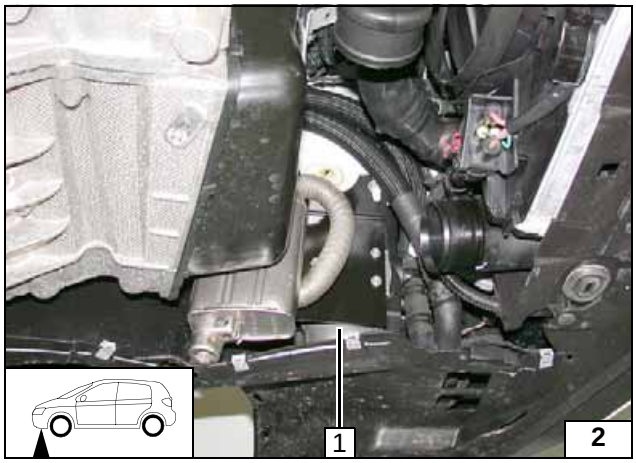


Image shows 2.0 TSI

1 Heater

Installation location

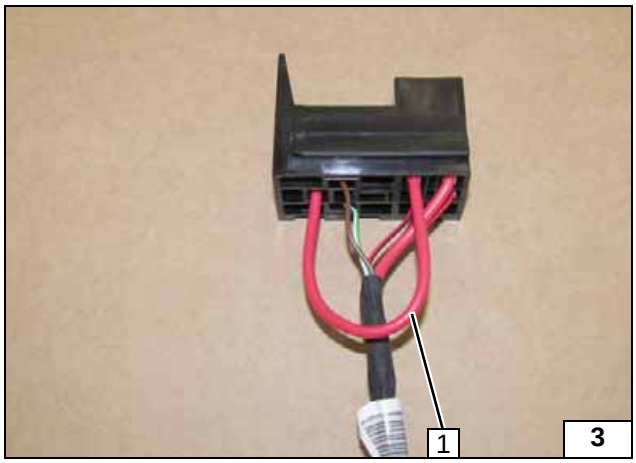
Preparing Electrical System

Climatronic

Line sections retain their numbering in the entire document.

Removing wire

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

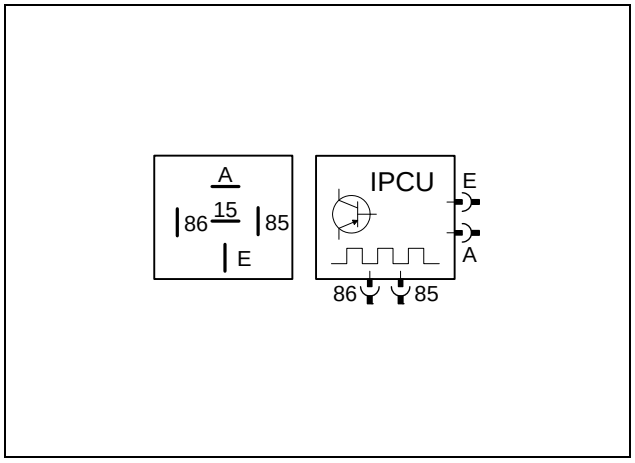


Preparing IPCU

IPCU view on contact side.
The IPCU provided in the kit is pre-programmed with the following settings.

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

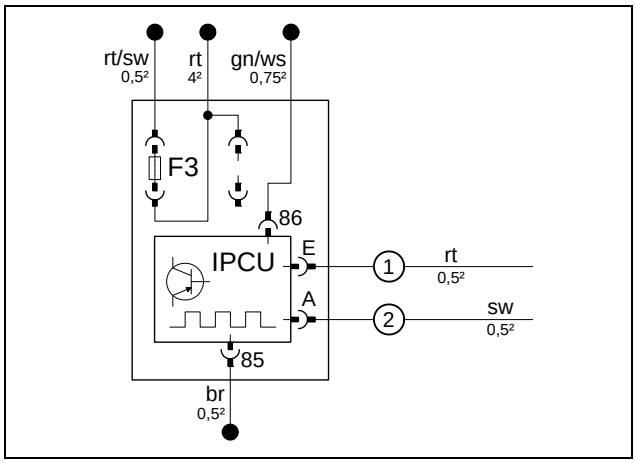
The adjustment values should be checked and, if necessary, adjusted during the vehicle function check.



Preparing IPCU

IPCU will be mounted later. Connect wires to socket IPCU. Draw wire ① and ② into the protective sleeving.

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

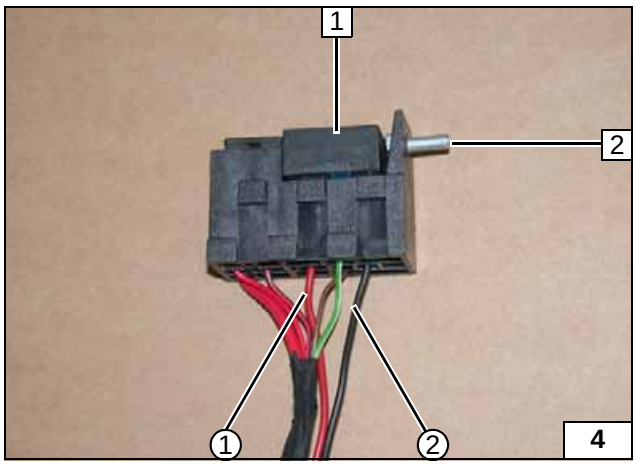


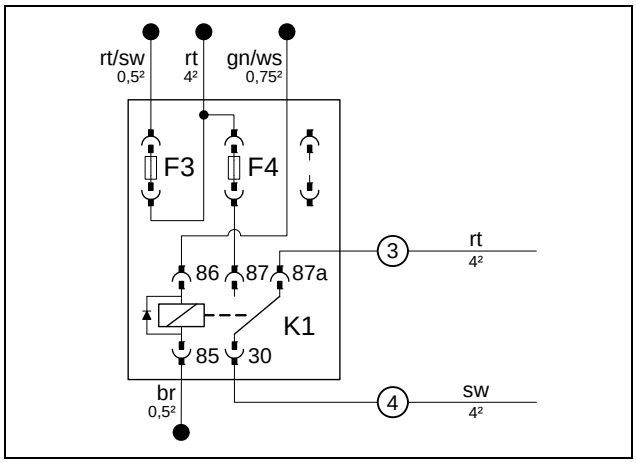
Premounting passenger compartment relay and fuse holder

IPCU **1** will only be attached after the installation of the passenger compartment relay and fuse holder.

2 M5x16 bolt, large diameter washer, relay and fuse holder

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

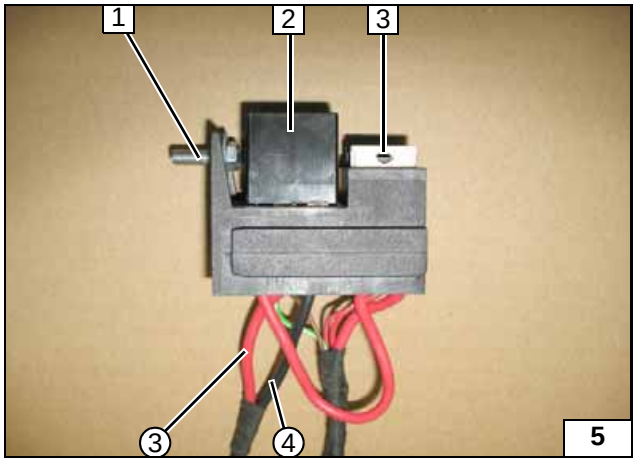




Climatic

Wire sections retain their numbering in the entire document.

Premounting passenger compartment relay and fuse holder



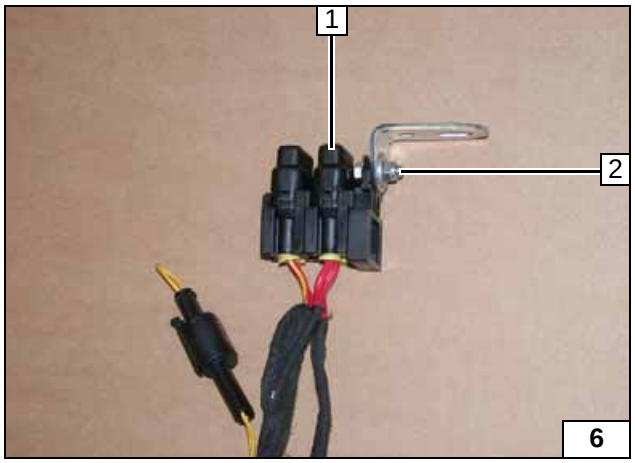
K1 relay **2** will only be attached after the installation of the passenger compartment relay and fuse holder.

1 M5x16 bolt, large diameter washer, fuse holder
3 Fuse F4 25A

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

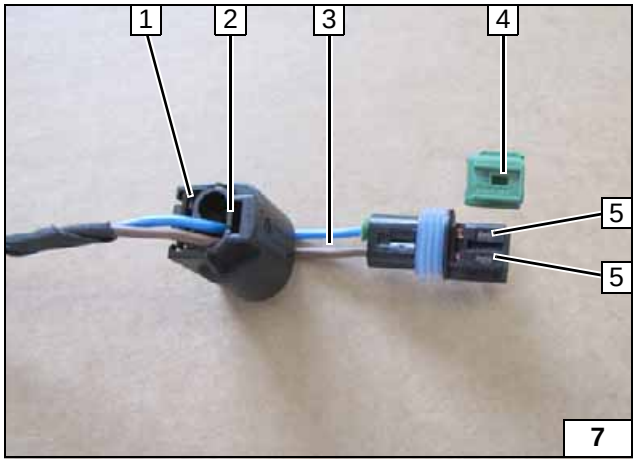
Premounting passenger compartment relay and fuse holder

All vehicles



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

Premounting the fuse holder of the engine compartment



Complete connector of metering pump again after routing. Pin assignment is not relevant.

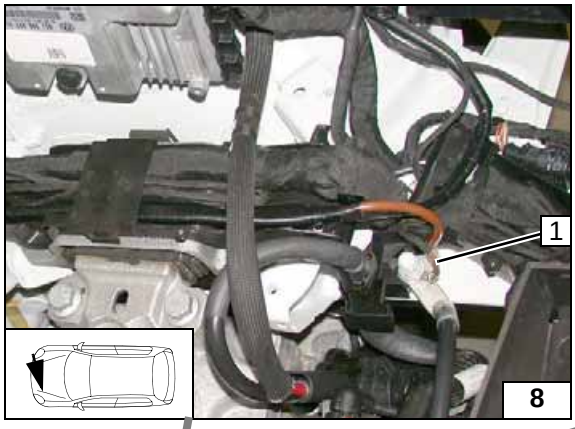
1 Connector housing
2 Lock
3 Blue / brown (bl / br) wires
4 Coding
5 Timer lock

Dismantling connector

Electrical System

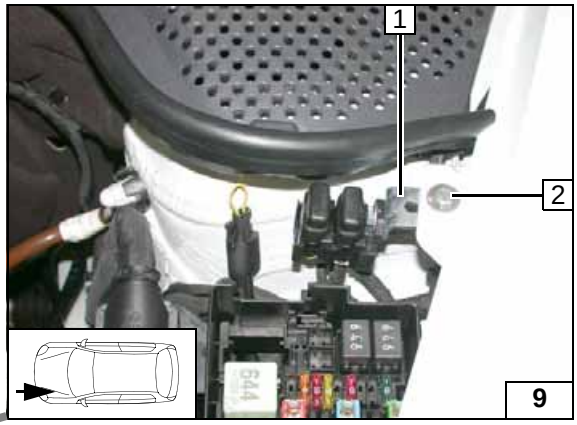
Earth wire

1 Earth wire on original vehicle earth support point

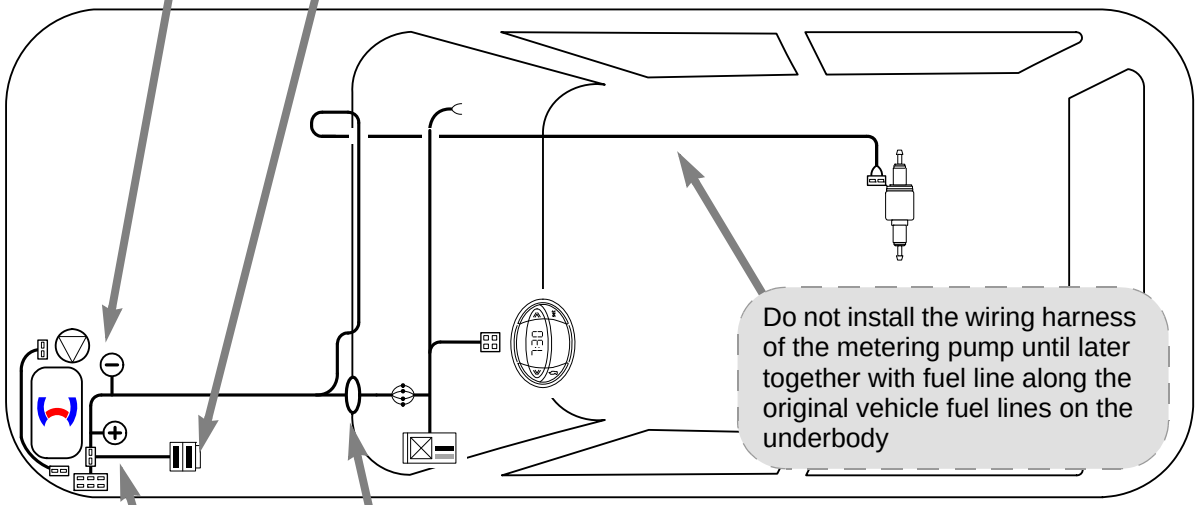


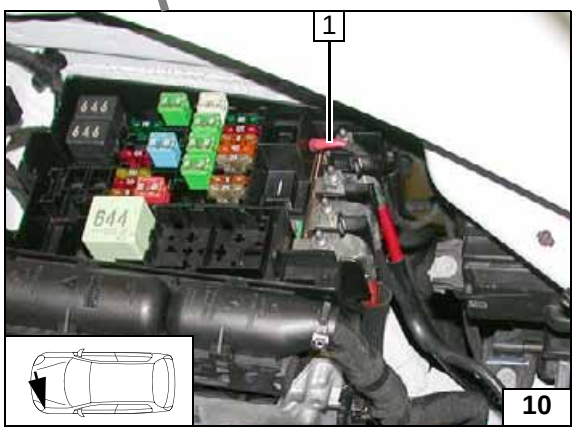
Fuse holder of engine compartment

1 Angle bracket
2 M6x20 bolt, large diameter washer, flanged nut, existing hole



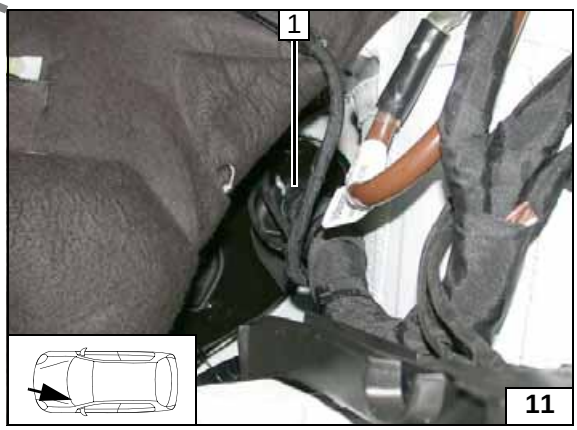
Wiring harness routing diagram





Positive wire

1 Positive wire to positive battery distributor

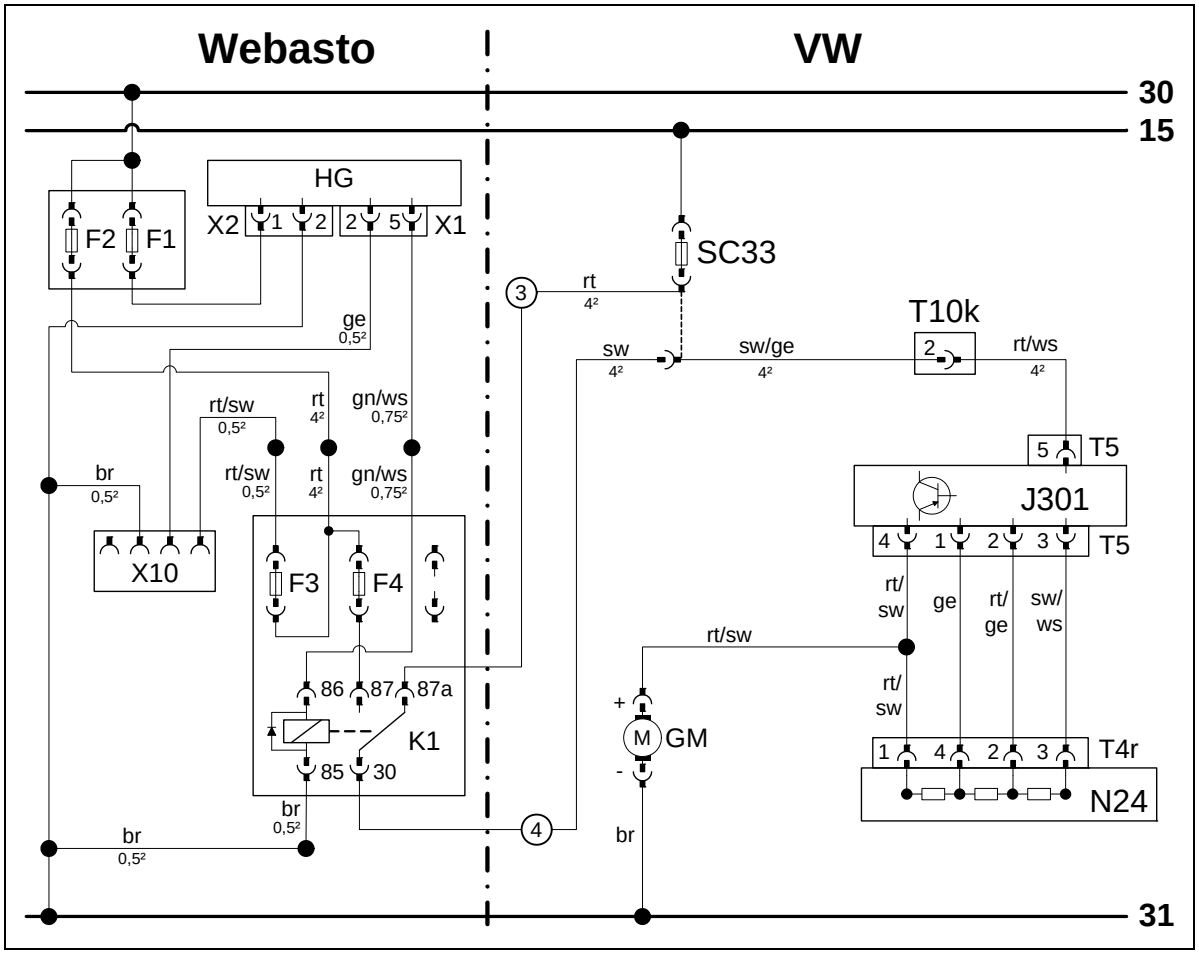


Wiring harness pass through

1 Protective rubber plug

Climatic Fan Controller

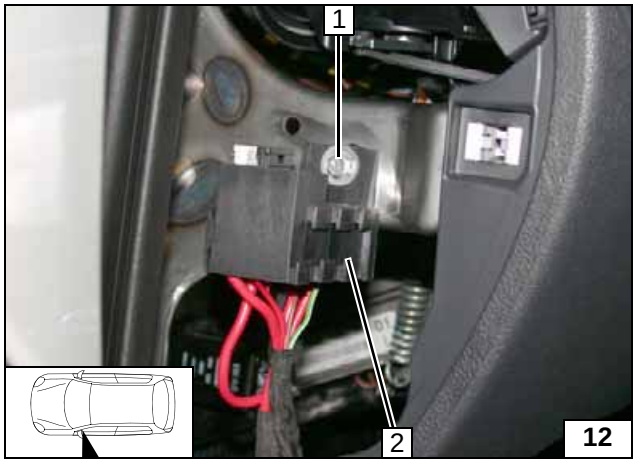
Wiring diagram



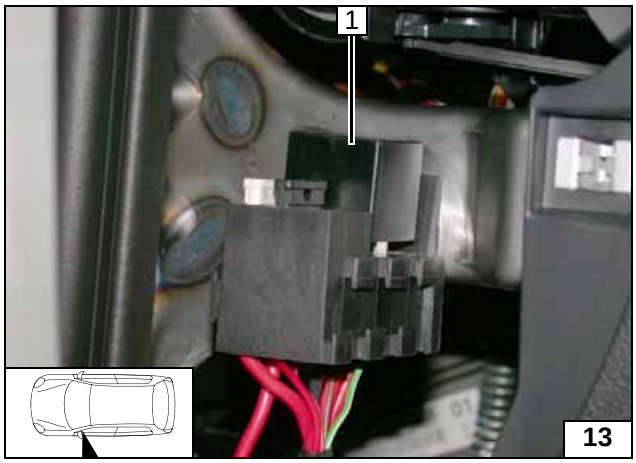
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	SC33	Fuse, 40A fan fuse (assignment depends on vehicle and vehicle equipment variant)	rt	red
X1	6-pin heater connector			ge	yellow
X2	2-pin heater connector			sw	black
X10	4-pin connector of Heater control			br	brown
		T10k	Connector	gn	green
K1	Fan relay	T5	5-pin connector J301	ws	white
F1	20A fuse	J301	Control unit of air-conditioning		
F2	30A fuse	GM	Fan motor		
F3	1A fuse	T4r	4-pin connector N24	Wiring colours may vary.	
F4	25 A fuse	N24	Resistor group		

Mounting passenger compartment relay and fuse holder

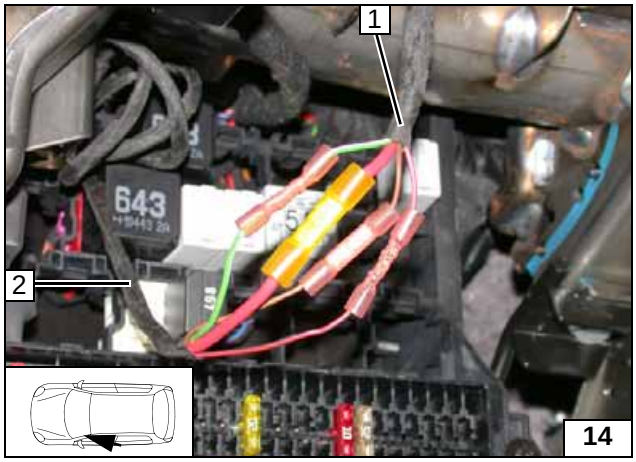


1 M5x16 bolt, large diameter washer, self-retaining nut, existing hole
2 Passenger compartment relay and fuse holder



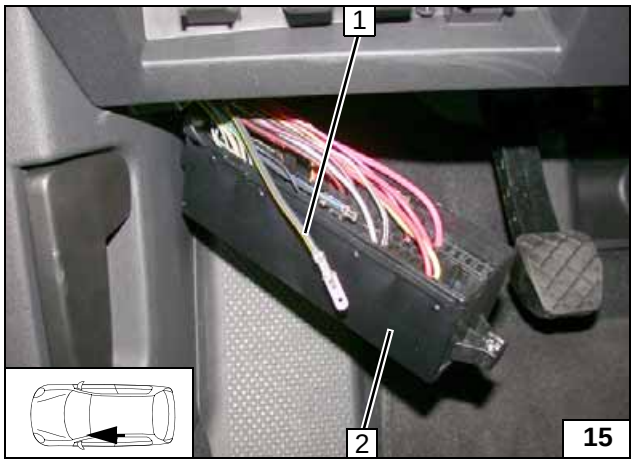
1 K1 relay

Mounting K1 relay



Connect wiring harness of passenger compartment relay and fuse holder **1** to wiring harness of heater **2** according to wiring diagram, with same colour wires connected to each other.

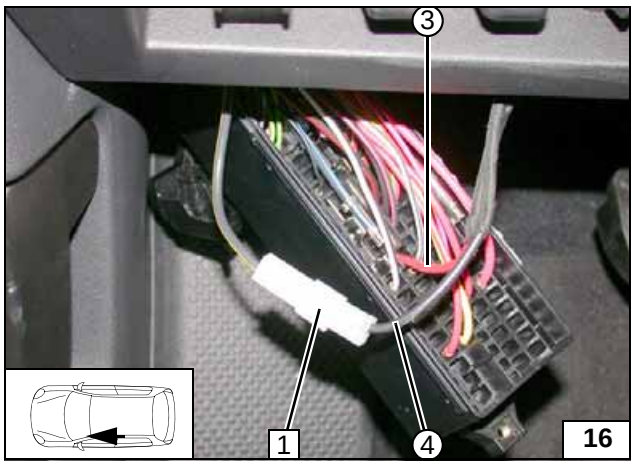
Connecting wiring harnesses



Fuse socket SC33 depends on vehicle equipment. Uncrimp black/yellow (sw/ge) wire **1** from socket of fan fuse. Cut off standard power timer and crimp on tab connector.

2 Fuse carrier

Removing wire



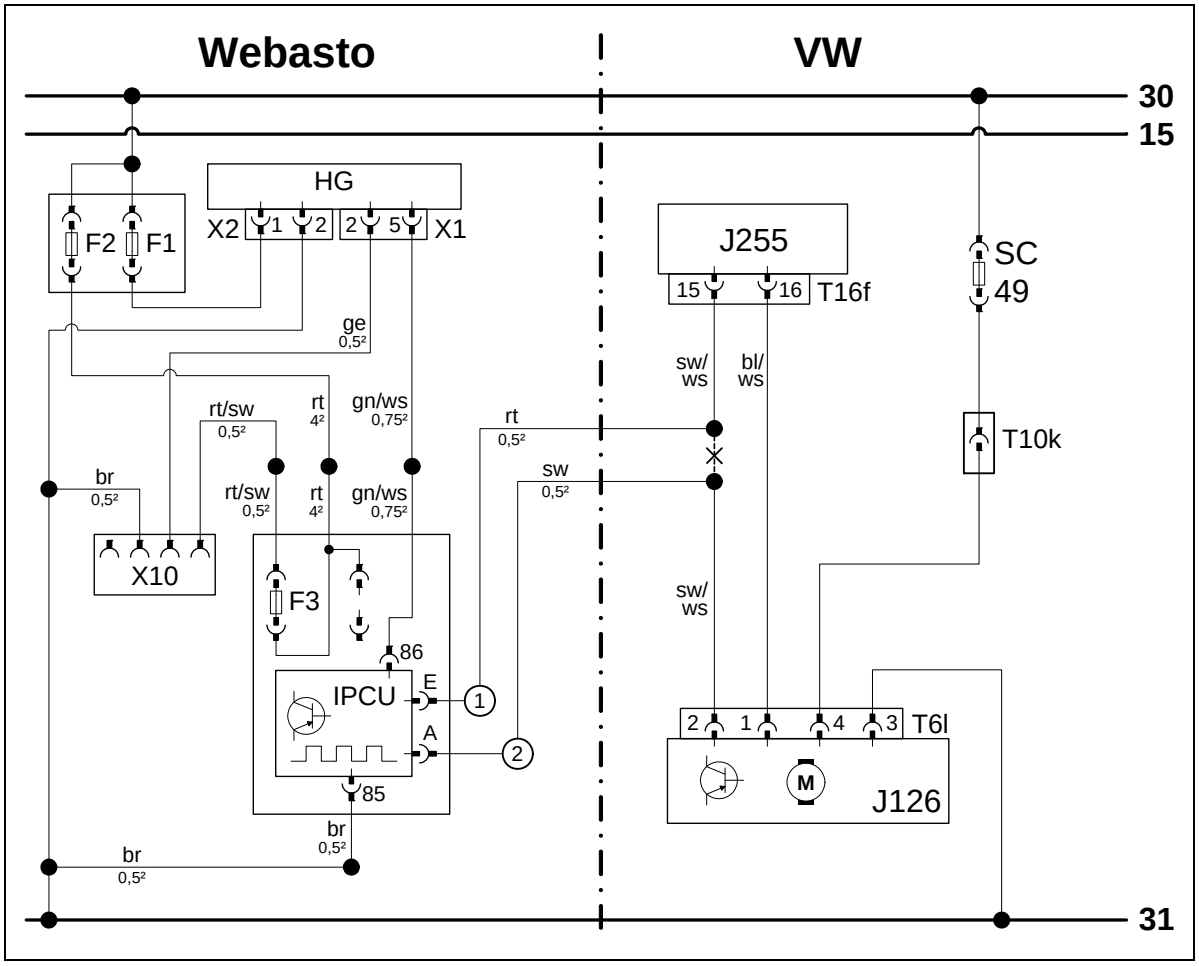
Engage red (rt) wire from K1/87a ③ with crimped standard power timer in the socket of fan fuse SC33. Produce connections as shown in wiring diagram.

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

Connecting wires

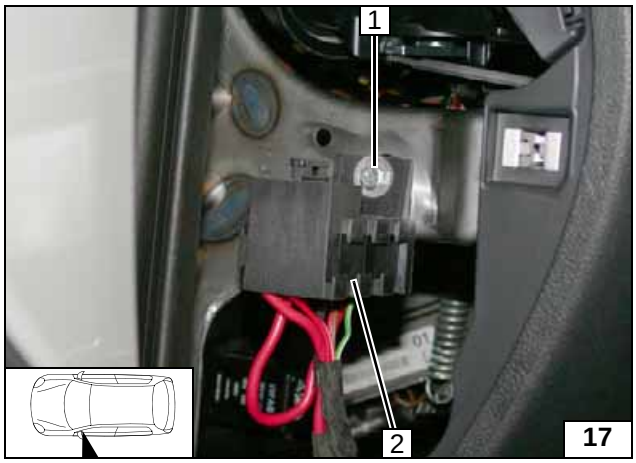
Climatronic Fan Controller

Wiring diagram



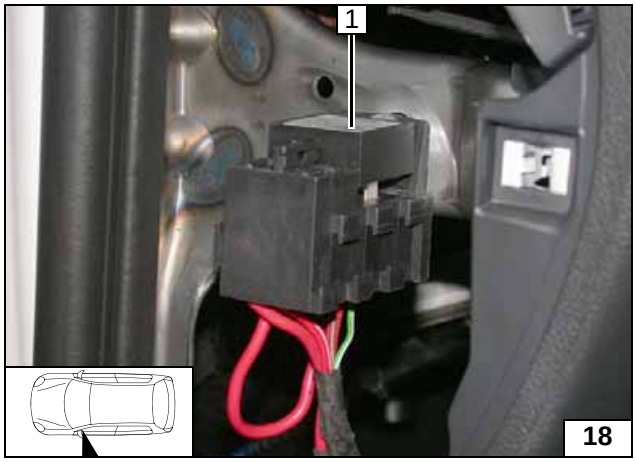
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	J255	A/C control unit	rt	red
X1	6-pin heater connector	T16f	16-pin connector J255	sw	black
X2	2-pin heater connector	SC49	40A fuse	ge	yellow
X10	4-pin connector of Heater control	T10k	10-pin connection	gn	green
				bl	blue
K1	Fan relay	T6l	6-pin connector J126	ws	white
F1	20A fuse	J126	Fan unit	br	brown
F2	30A fuse				
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.	



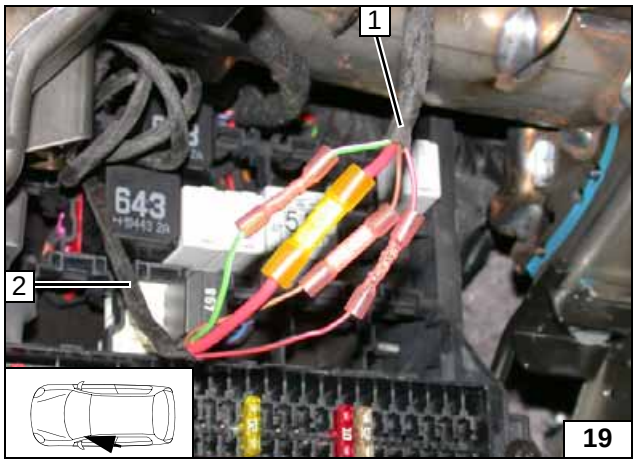
1 M5x16 bolt, large diameter washer, self-retaining nut, existing hole
2 Fuse holder

Mounting passenger compartment relay and fuse holder



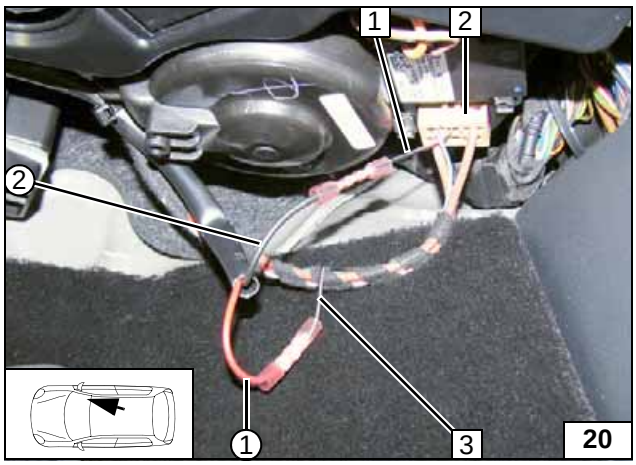
1 IPCU

Installing IPCU



Connect wiring harness of passenger compartment relay and fuse holder **1** to wiring harness of heater **2** according to wiring diagram, with same colour wires connected to each other.

Connecting wiring harnesses



Connection to 6-pin connector T6l **2** from the fan unit. Produce connections as shown in wiring diagram.

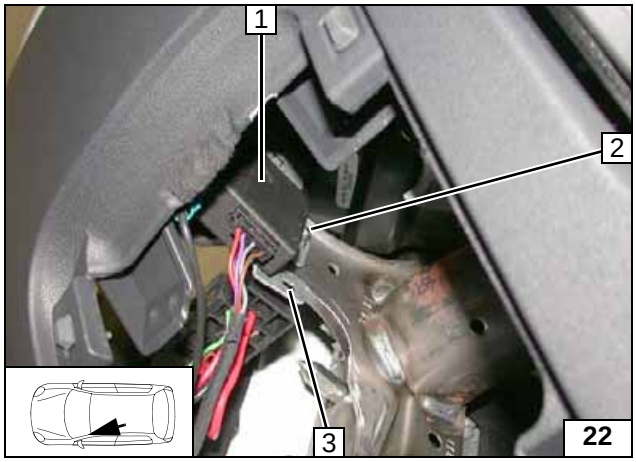
1 Black/white (sw/ws) wire from 6-pin connector T6l pin 2
3 Black/white (sw/ws) wire from A/C control unit
① Red (rt) wire of IPCU/E
② Black (sw) wire of IPCU/A

Connecting fan unit

Digital Timer

1 Digital timer

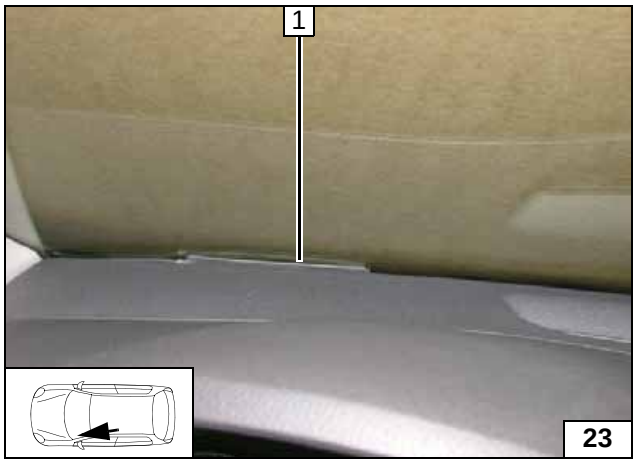
Installing digital timer



Remote Option (Telestart)

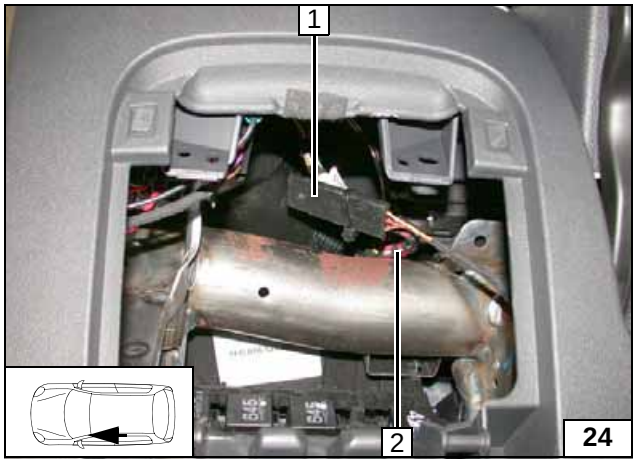
1 Receiver
2 M5x16 bolt from fuse holder, large diameter washer, self-retaining flanged nut, existing hole
3 Bracket

Mounting receiver



1 Antenna

Mounting antenna

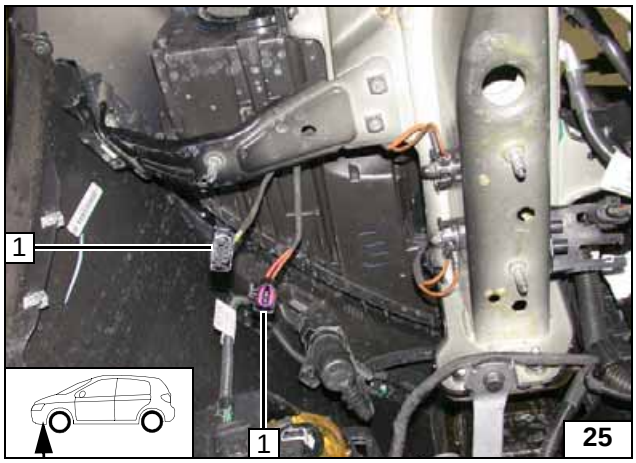


Temperature sensor T100 HTM

Fasten temperature sensor **1** with cable tie on original vehicle wiring harness **2**.

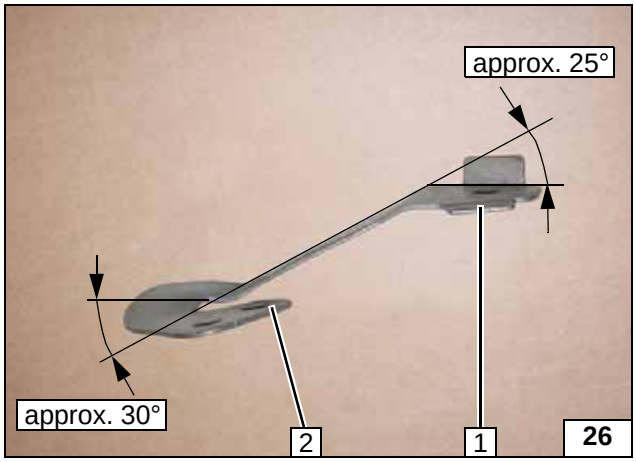
Installing temperature sensor

Preparing Installation Location



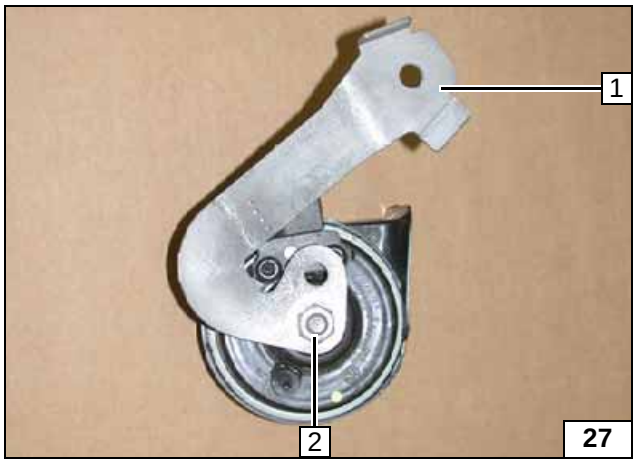
1 Wiring harness of heater

Routing wiring harness



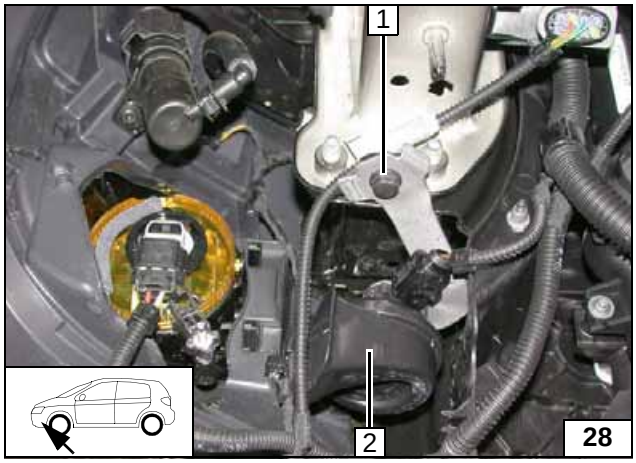
Remove bracket of horn **2** and bend as shown. Bend tab straight!

Processing bracket of horn



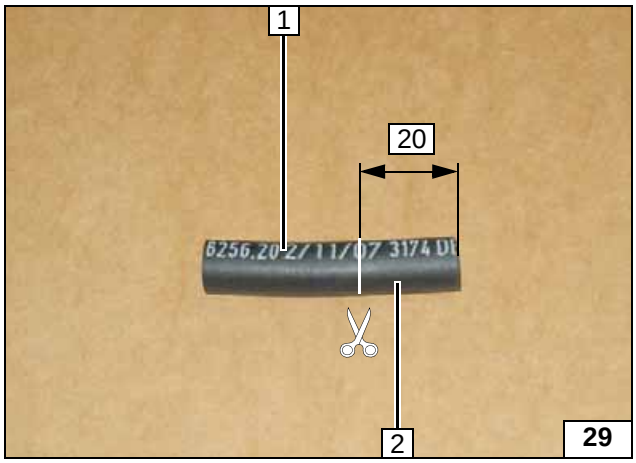
Install horn with original vehicle nut **2** on horn bracket **1**.

Premounting horn



1 Original vehicle bolt
2 Horn

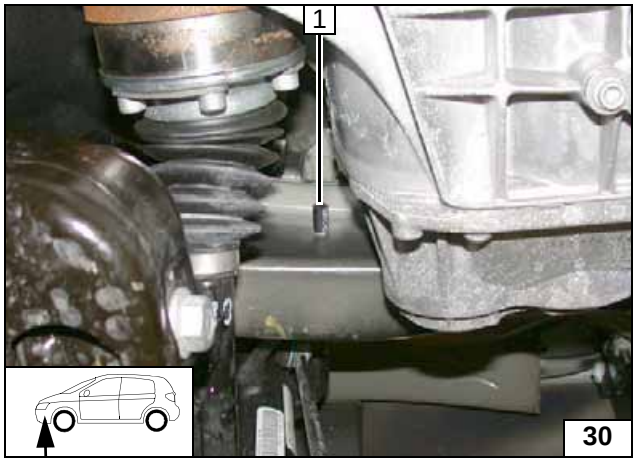
Installing horn



All vehicles

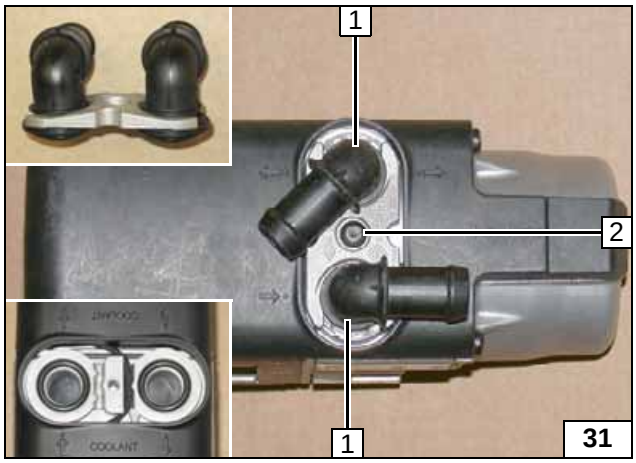
1 Discard section
2 Hose section

Shortening hose section



Slide on 20mm moulded hose **1** onto original vehicle stud bolt.

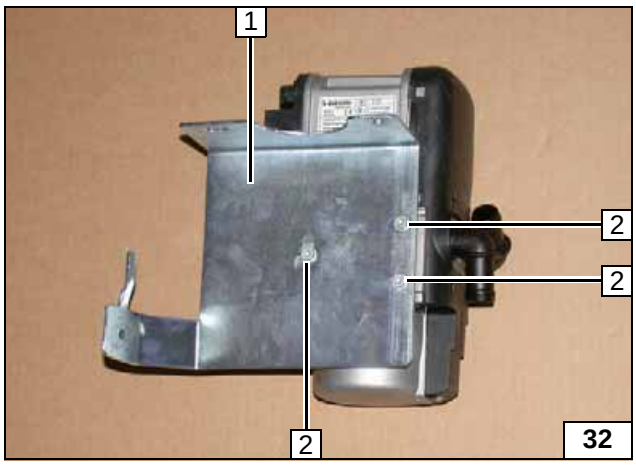
Mounting hose section



Preparing Heater

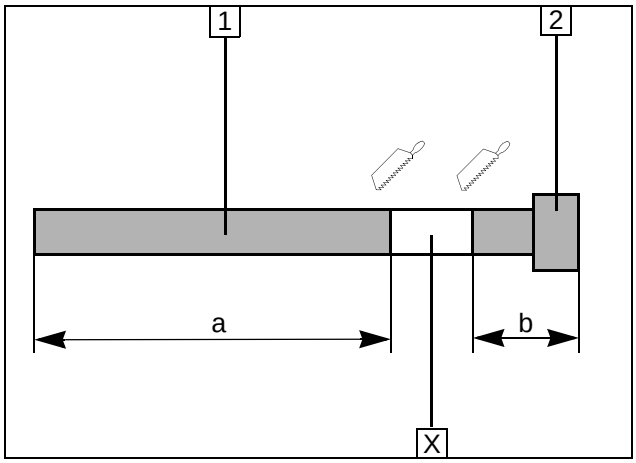
1 Water connection piece, sealing ring [2x each]
2 5x15mm self-tapping bolt, retaining plate of water connection piece

Mounting water connection pieces



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

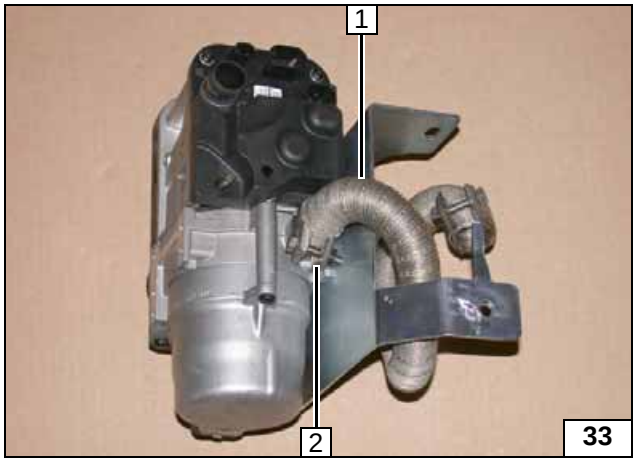
Mounting bracket section A



Discard section **X**.

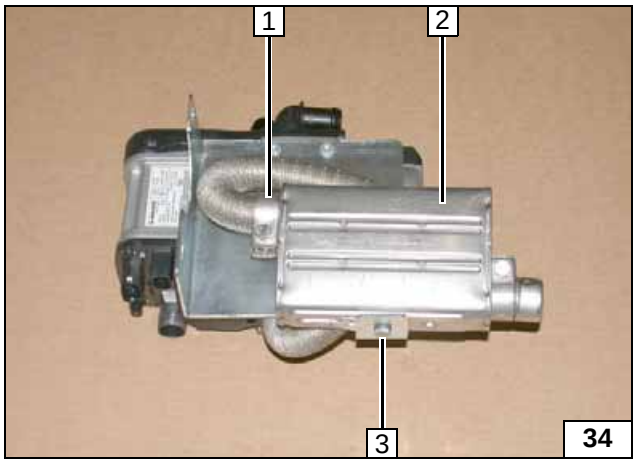
1 Exhaust pipe
a = 470
2 Exhaust end section
b = 35

Preparing exhaust pipe



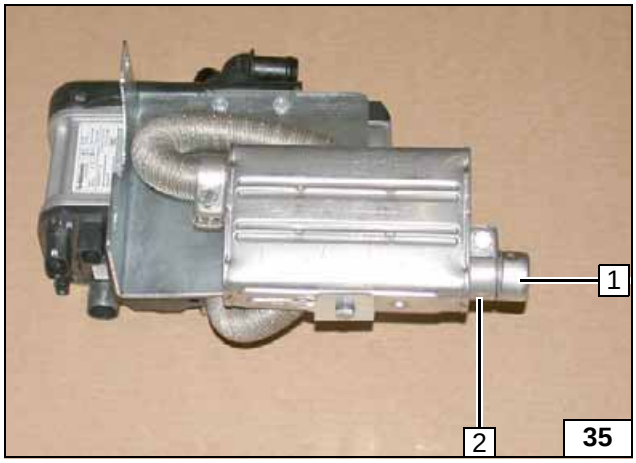
1 Exhaust pipe
2 Hose clamp

Mounting exhaust gas pipe



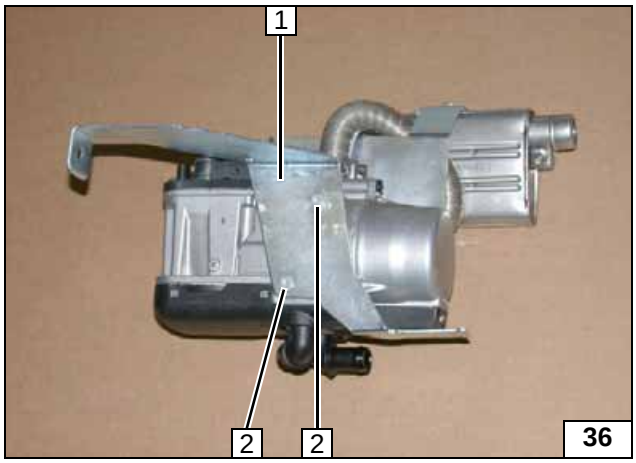
1 Hose clamp
2 Silencer
3 M6x16 bolt, spring lockwasher

Mounting silencer



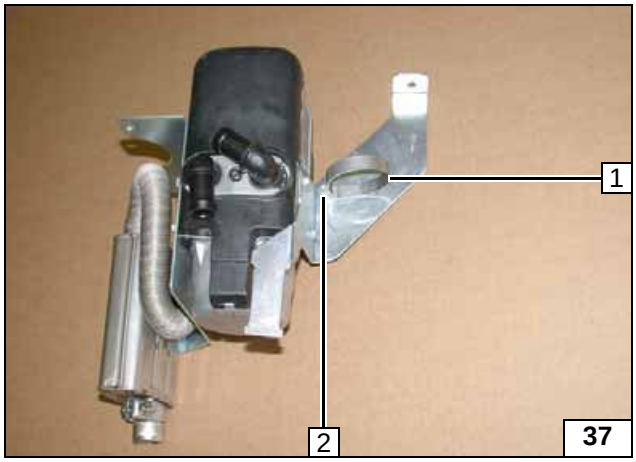
1 Exhaust end section
2 Hose clamp

Mounting exhaust end section



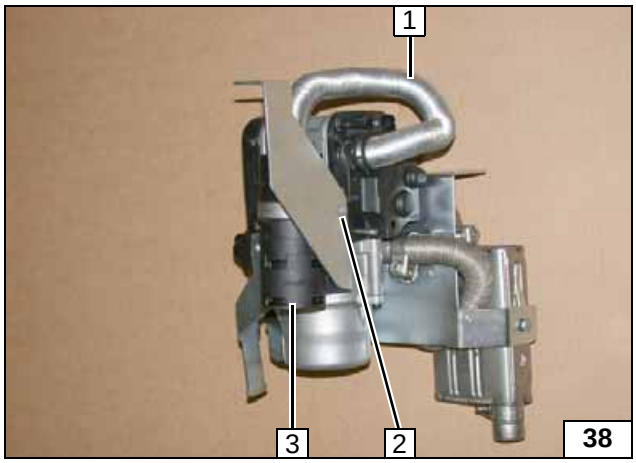
1 Bracket section **B**
2 5x13 self-tapping bolt [2x]

Mounting bracket section B



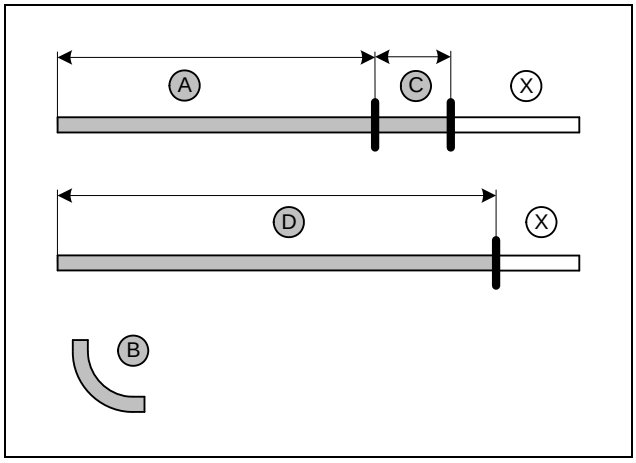
1 51mm dia. clamp
2 Mount M5x16 bolt, flanged nut loosely

Installing clamp



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

Mounting combus-tion air pipe

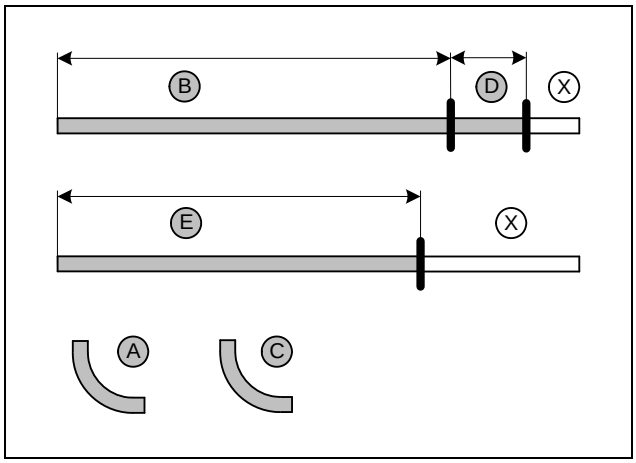


1.2 TSI

Discard section **X**.
Hose **B** = 18mm dia. 90° moulded hose

A = 1050
C = 65
D = 1130

Cutting hoses to length

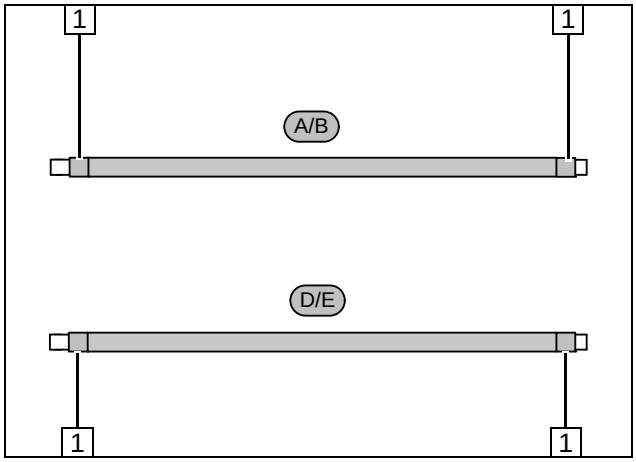


2.0 TSI

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

B = 960
D = 60
E = 890

Cutting hoses to length

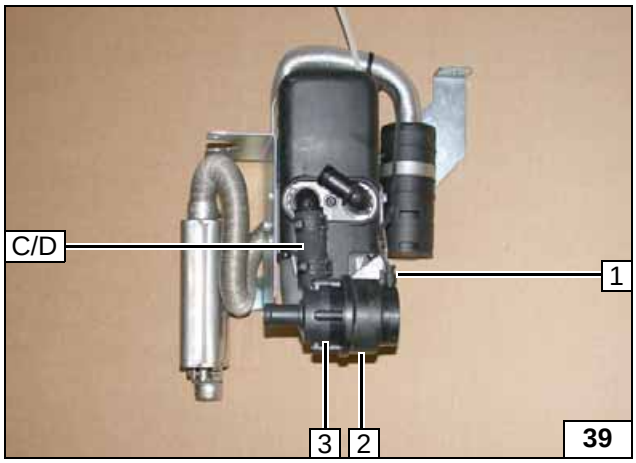


All vehicles

Hose **A** and **D** = 1.2 TSI
Hose **B** and **E** = 2.0 TSI
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]

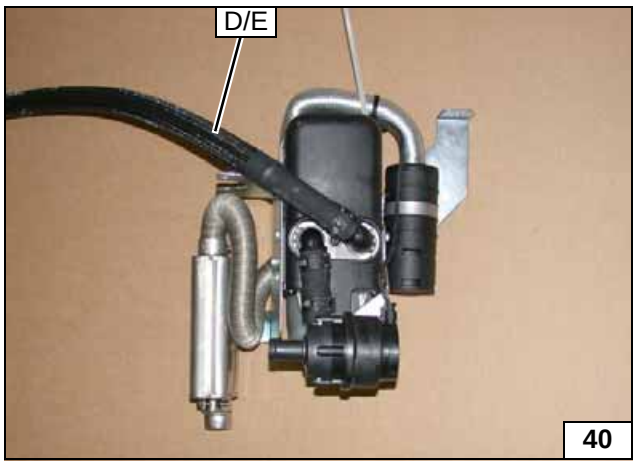
Preparing hoses



Hose **C** = 1.2 TSI
Hose **D** = 2.0 TSI
All spring clips = 25mm dia.

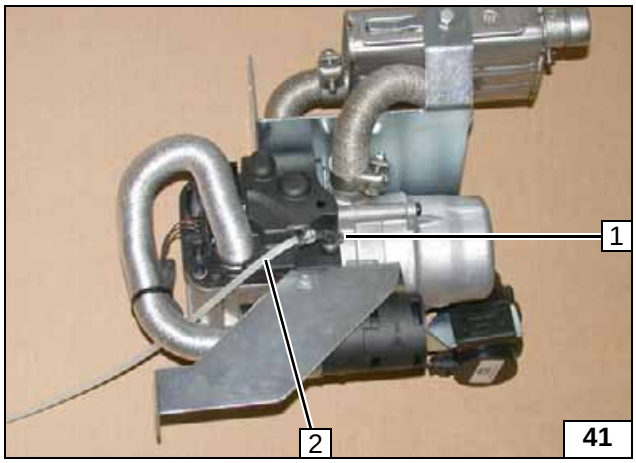
1 Connect wiring harness of circulating pump
2 Mounting of circulating pump
3 Circulating pump

Installing hose and circulating pump



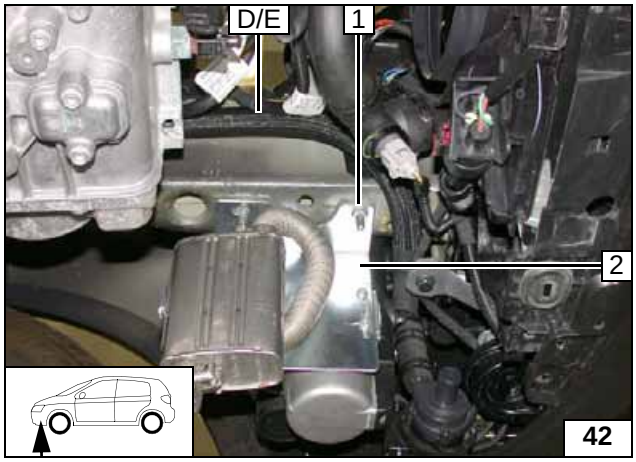
Hose **D** = 1.2 TSI
Hose **E** = 2.0 TSI
All spring clips = 25mm dia.

Installing hose of heater outlet



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

Premounting fuel line

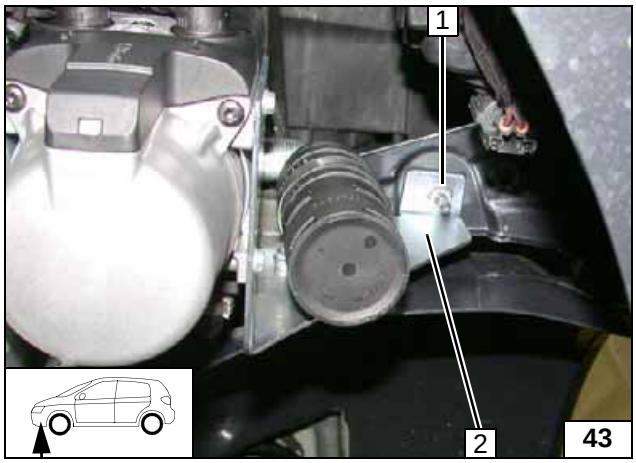


Installing Heater

Route hose **D**/**E** to brake booster.

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

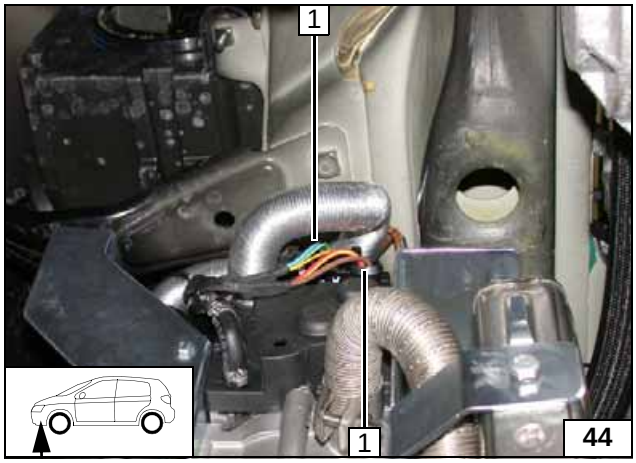
Mounting heater



In case of vehicles without stud bolt, produce 8.5mm dia. hole in cross member and fasten bracket with M8x20 bolt and flanged nut. When drilling, watch for components located behind.

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

Mounting heater



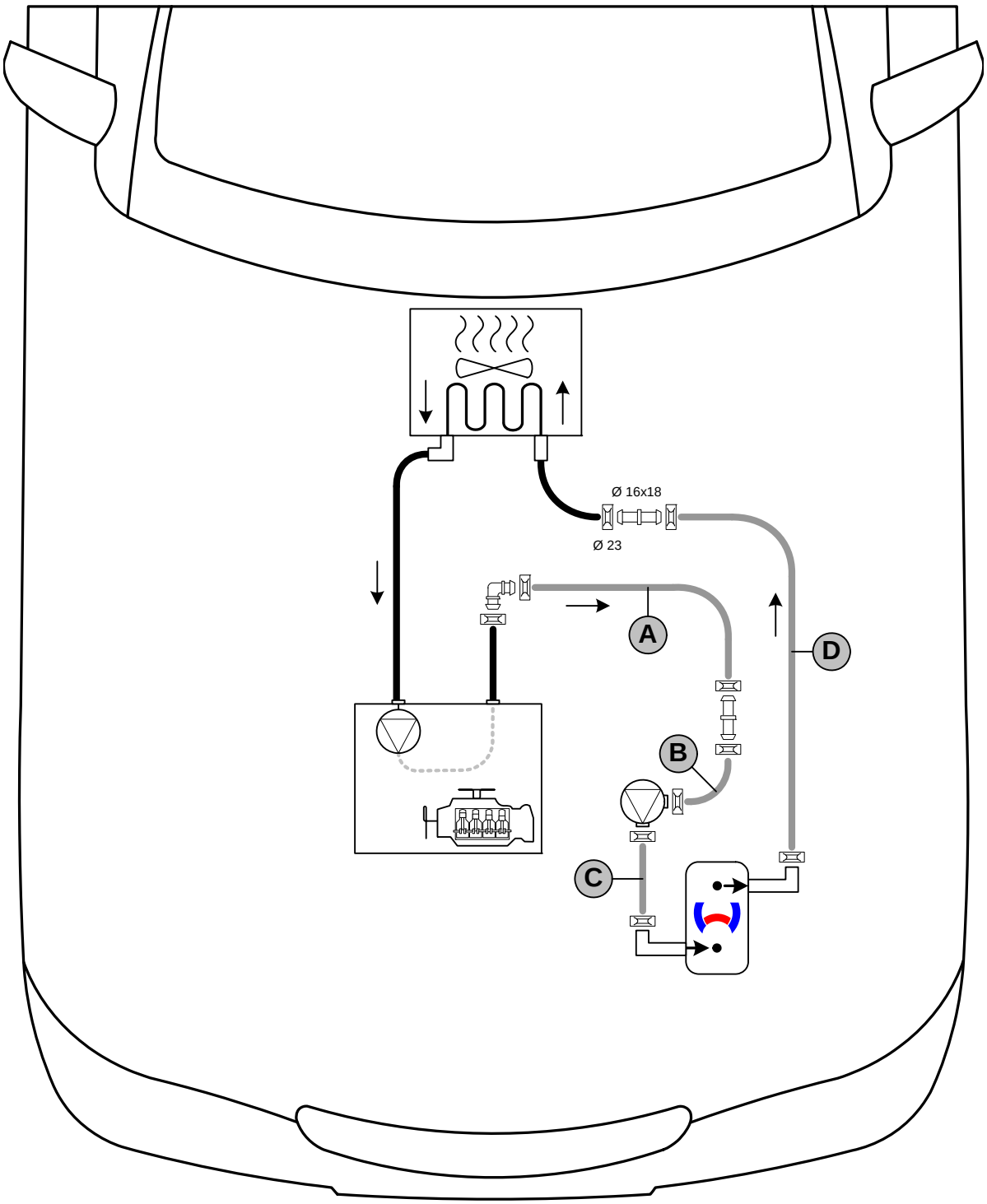
1 Wiring harness of heater [2x]

Mounting wiring harness

Coolant Circuit 1.2 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

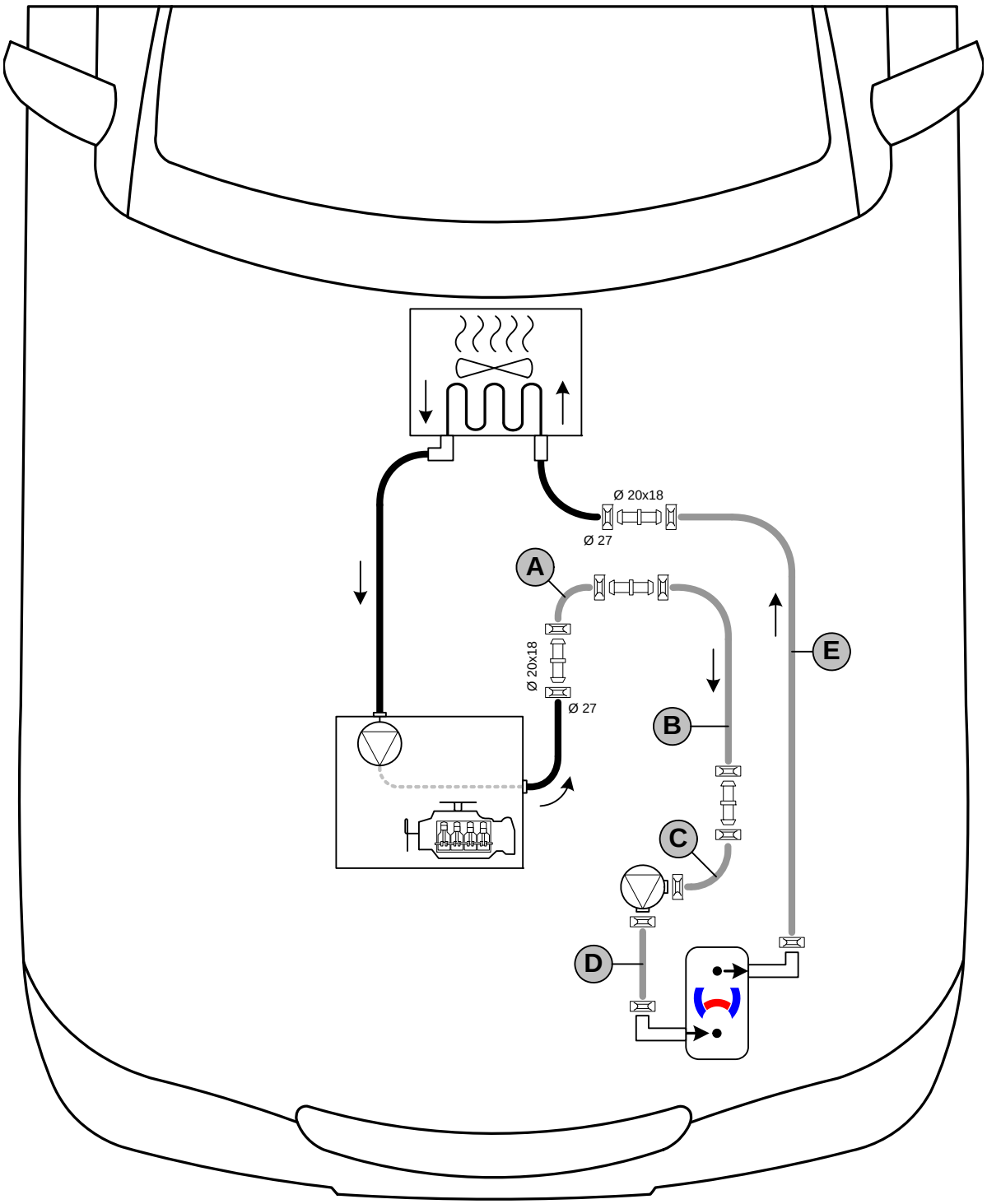


All spring clips without a specific designation = 25mm dia.
All connecting pipes without a specific designation and = 18x18mm dia.

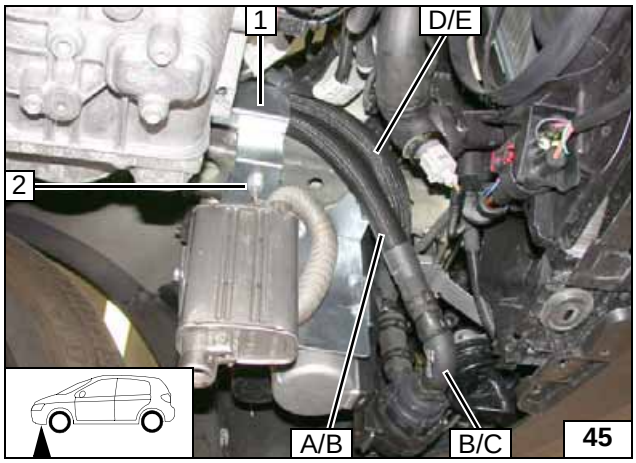
Coolant Circuit 2.0 TSI

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



All vehicles

Image shows 1.2 TSI.
Hose **A**, **B**, **D** = 1.2 TSI
Hose **B**, **C**, **E** = 2.0 TSI
Align hoses behind hose bracket **1** and route to the brake booster. Ensure sufficient distance from neighbouring components.

2 Original vehicle stud bolt, M8 flanged nut

Routing on frame side member

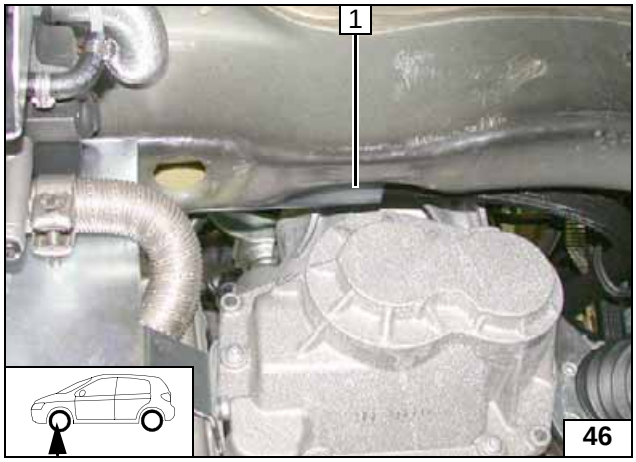
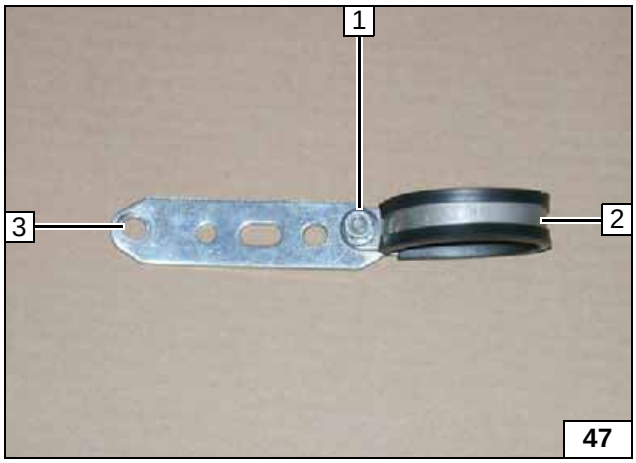


Image shows 1.2 TSI.
Ensure sufficient spacing between hose bracket **1** and transmission.

Routing on frame side member



1 Install M6x20 bolt, M6 flanged nut loosely
2 38mm dia. rubber-coated p-clamp
3 8.0mm dia. hole

Preparing perforated bracket

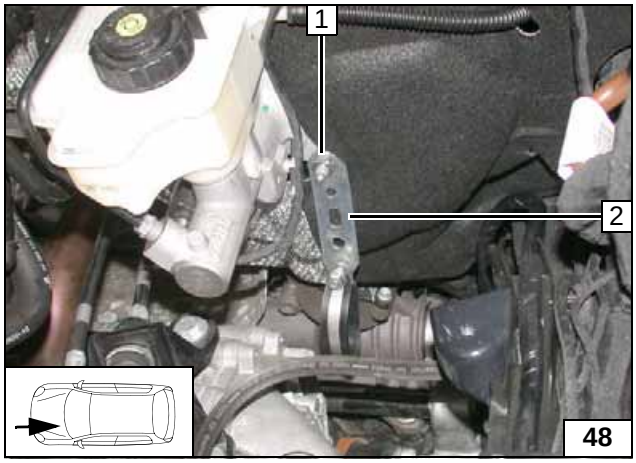
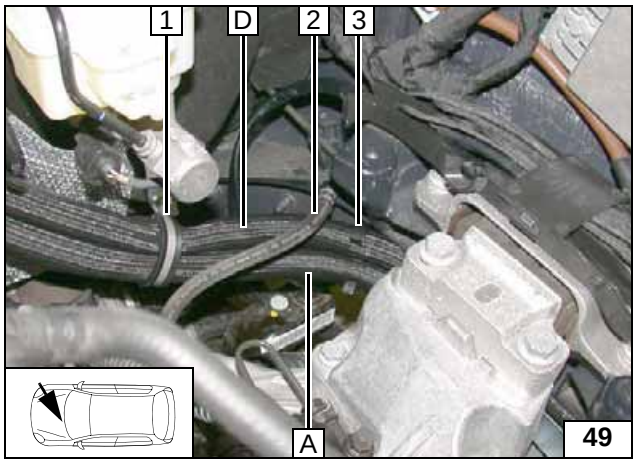


Image shows 1.2 TSI.

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

Mounting perforated bracket

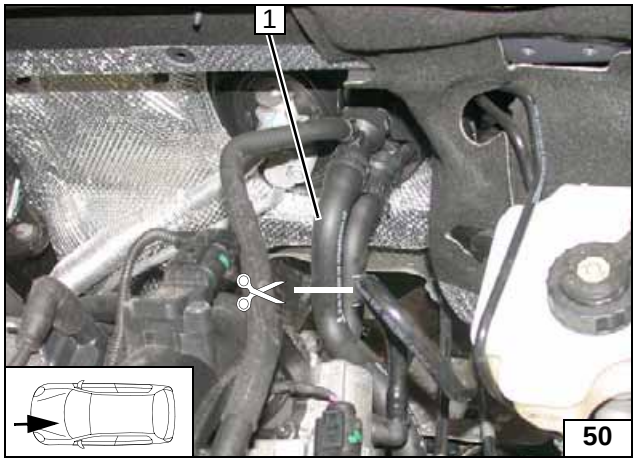


1.2 TSI

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

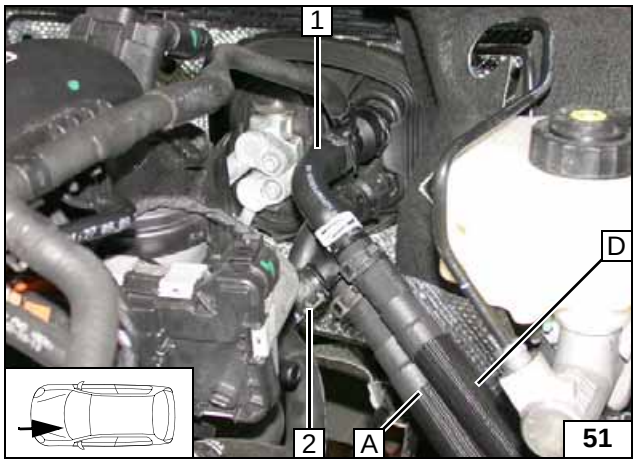
3 Spacer bracket

Routing in engine compartment



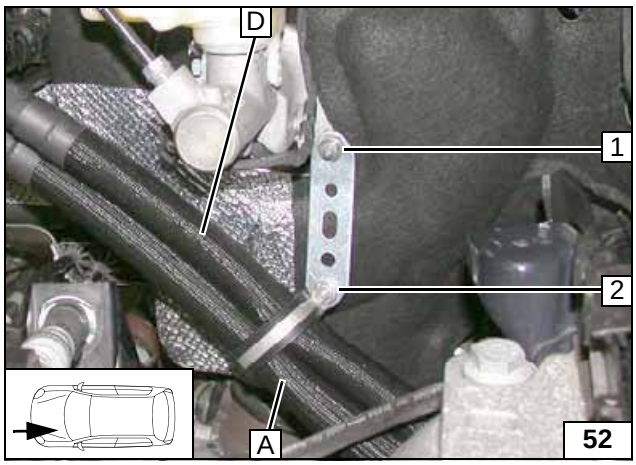
Cut off hose on engine outlet/heat exchanger inlet **1** at marking.

Cutting point



1 Hose on heat exchanger inlet, twisted
2 Hose of engine outlet

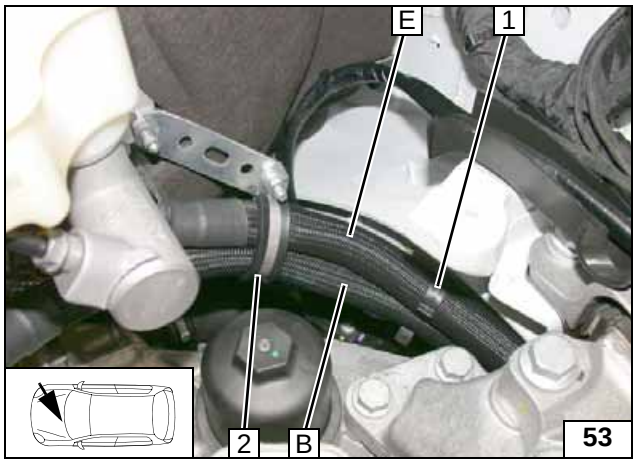
Connecting engine outlet and heat exchanger inlet



Align hoses. Ensure sufficient distance from neighbouring components.

Align hoses **A** and **D**. Tighten M8 nut **1** and M6 flanged nut **2**.

Routing in engine compartment

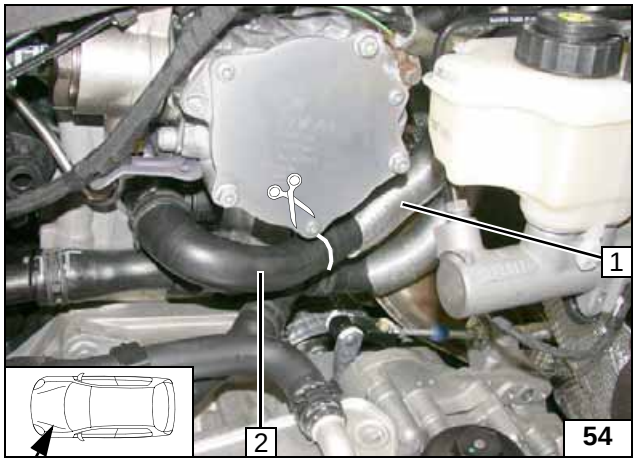


2.0 TSI

Route hoses **B** and **E** through rubber-coated p-clamp **2**.

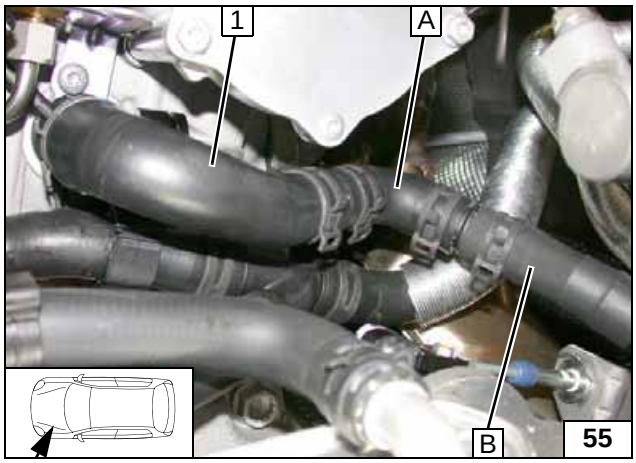
1 Spacer bracket

Routing in engine compartment



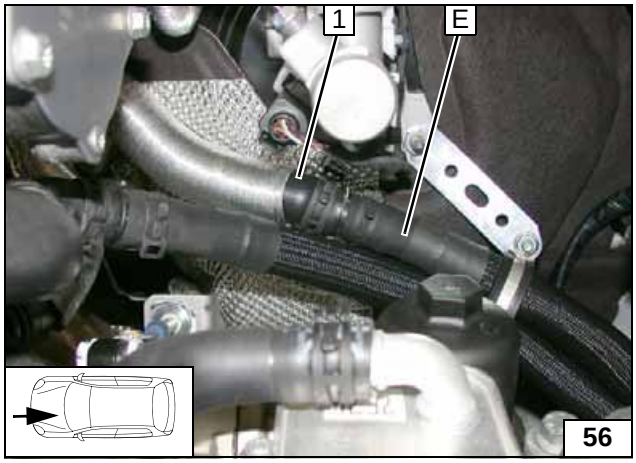
Push heat protection hose **1** together to rear. Cut off hose on engine outlet/heat exchanger inlet **2** at marking.

Cutting point



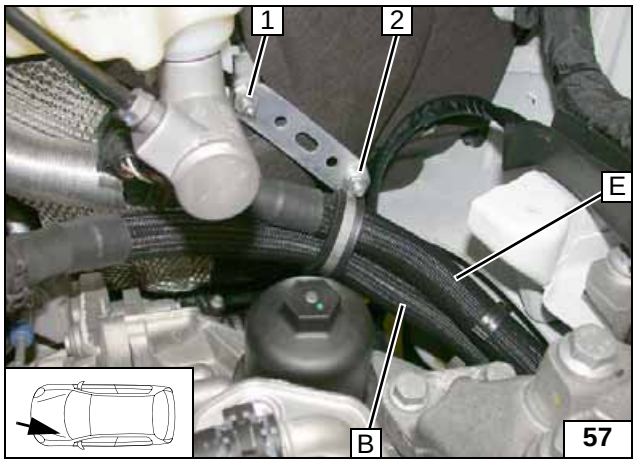
1 Hose of engine outlet

Connecting engine outlet



1 Hose on heat exchanger inlet

Connection of heat exchanger inlet



Align hose **B** and **E**. Tighten M8 nut **1** and M6 flanged nut **2**.
Align hoses. Ensure sufficient distance from neighbouring components.

Routing in engine compart-ment

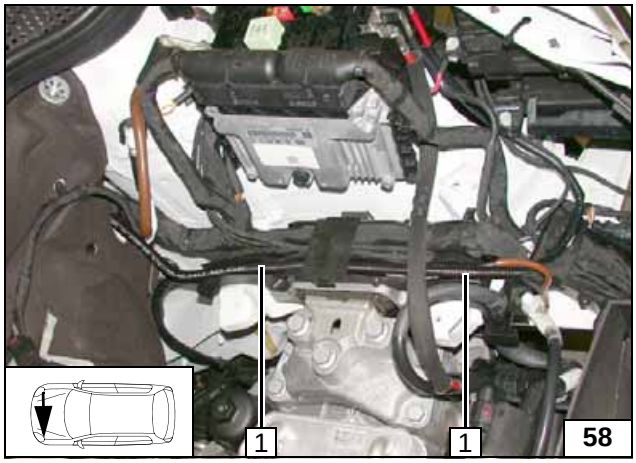
Fuel

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

Catch any fuel running off in an appropriate container.

Route fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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

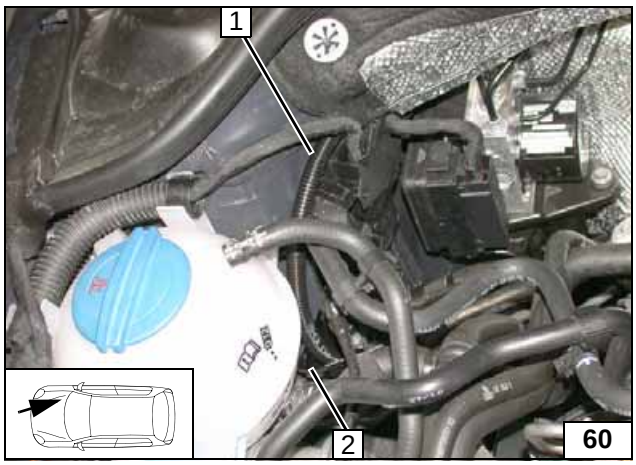


Route fuel line and wiring harness of metering pump in 1130mm corrugated tube **1** to firewall.

Routing lines

Route fuel line and wiring harness of metering pump **1** to the firewall behind the insulation mat on the right vehicle side.

Routing lines

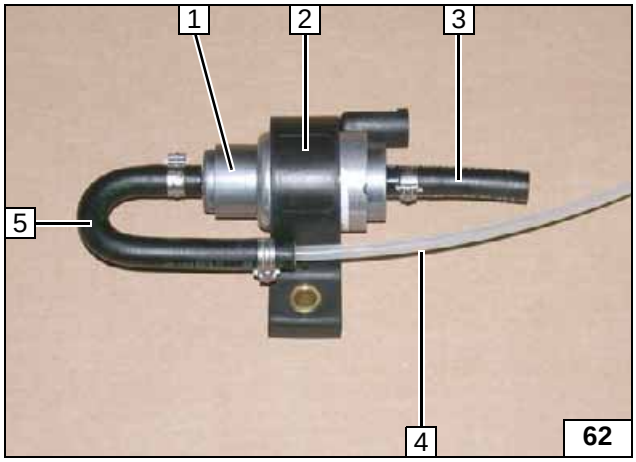


Cut off approx. 300mm from the 10mm dia. corrugated tube and slide on to fuel line and wiring harness of metering pump. Guide fuel line and wiring harness of metering pump **1** into original vehicle line duct **2**and route to underbody.

Routing lines

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

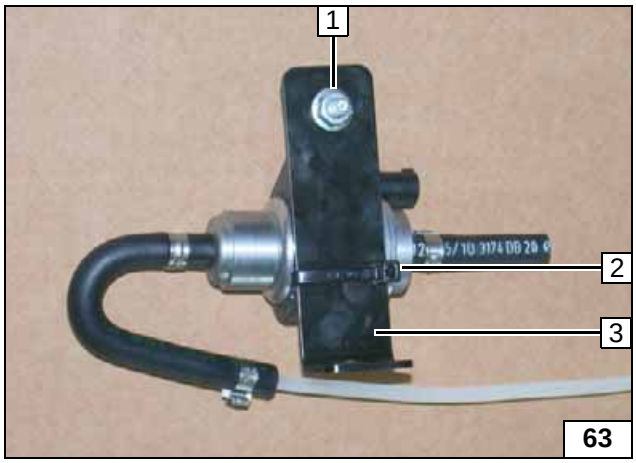
Routing lines



Cut off approx. 600mm from fuel line.

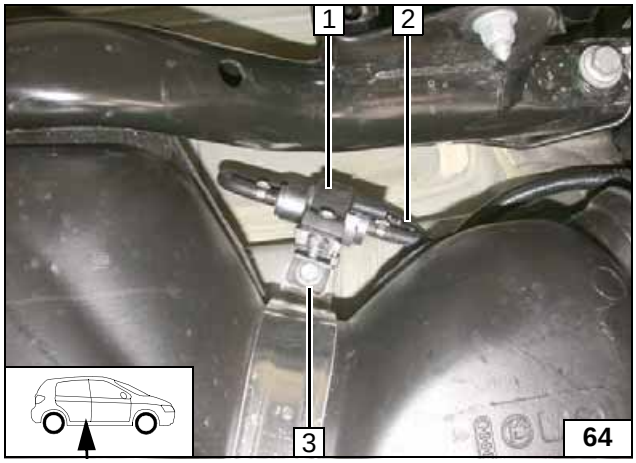
1 Metering pump
2 Mounting of metering pump
3 Hose section, 10mm dia. clamp
4 600mm fuel line
5 180° moulded hose, 10mm dia. clamp [2x]

Premounting metering pump



1 M6x25 bolt, flanged nut
2 Cable tie
3 Bracket of metering pump

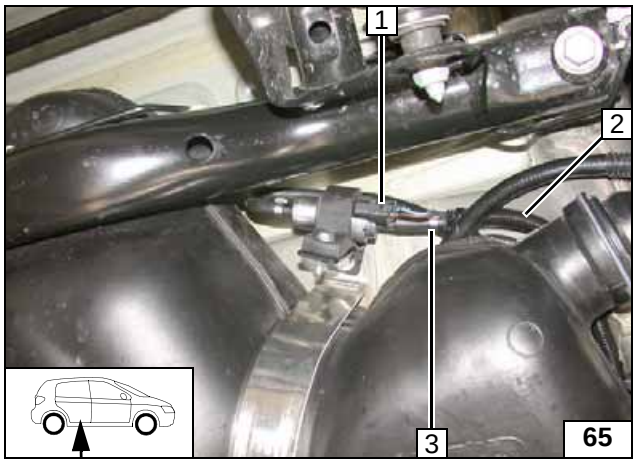
Premounting metering pump



Slide approx 500mm of 10mm dia. corrugated tube **2** onto fuel line of fuel standpipe and route to the fuel-tank sending unit.

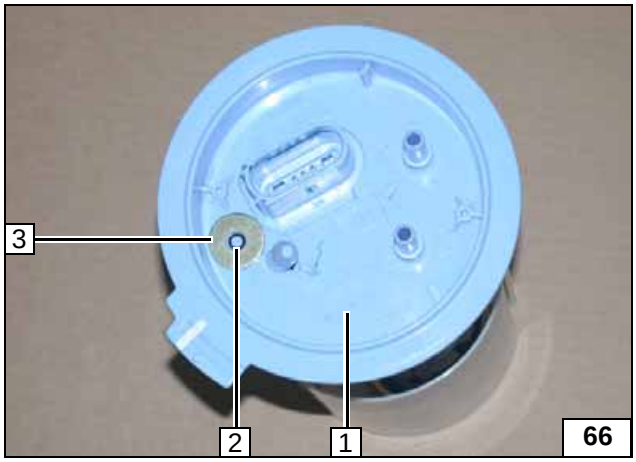
1 Preassembled metering pump
3 Original vehicle bolt

Mounting metering pump



1 Wiring harness of metering pump, connector mounted
2 Fuel line and wiring harness of metering pump in corrugated tube
3 10 mm dia. clamp

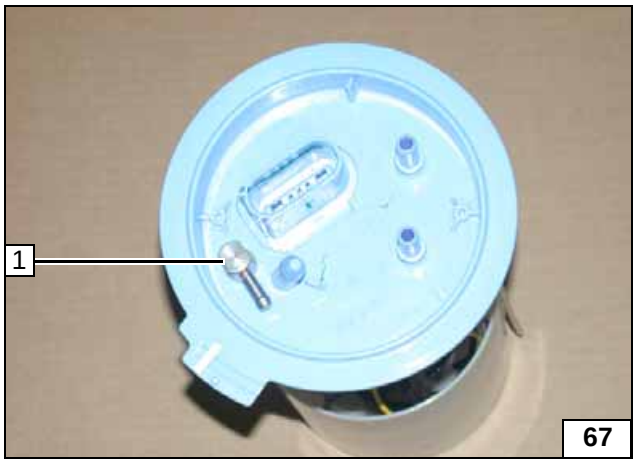
Connecting metering pump



Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Position large diameter washer **3** as shown.

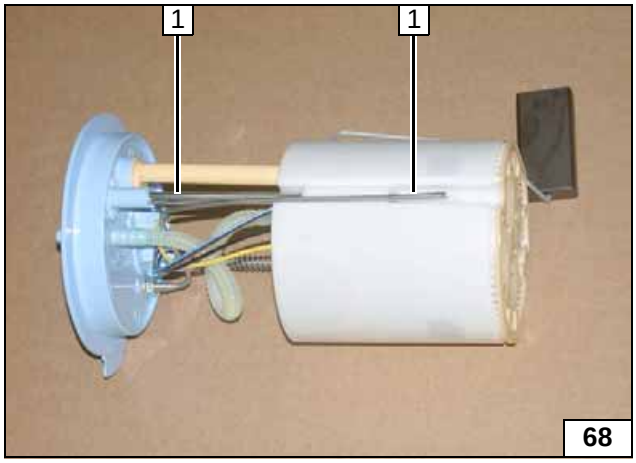
2 Copy hole pattern, 6 mm dia. hole

Fuel extraction



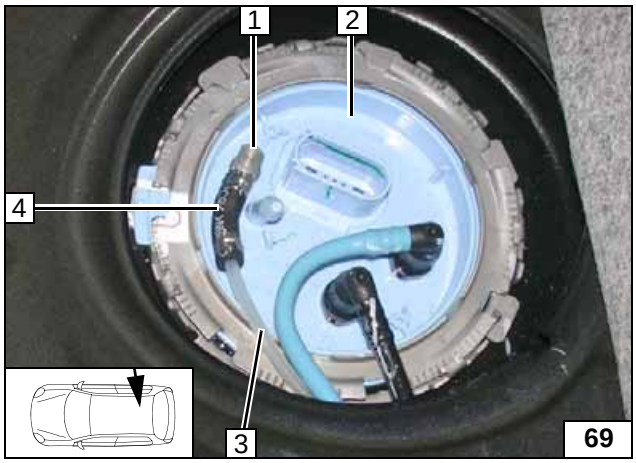
Shape fuel standpipe **1** according to template and cut to length.

Installing fuel standpipe



Align fuel standpipe **1** as shown.

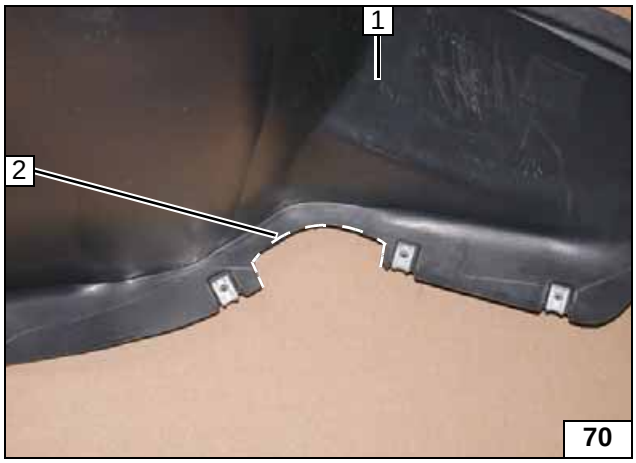
Installing fuel standpipe



Mount fuel-tank sending unit **2** in accordance with manufacturer's instructions. Ensure sufficient spacing between hose section **4** and edge of locking ring.

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

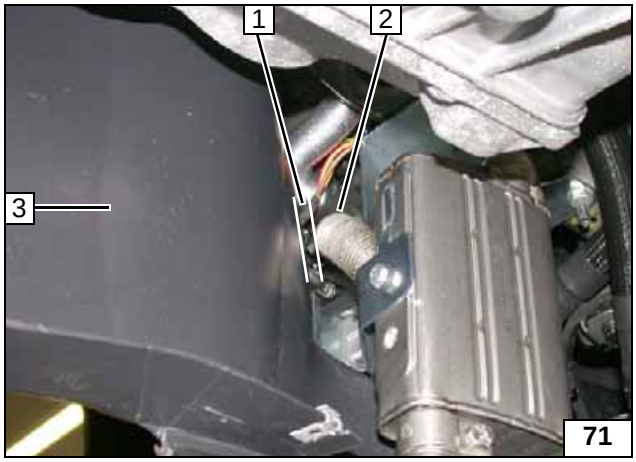
Installing fuel-tank sending unit



Wheel-Well Inner Panel / Underride Protection

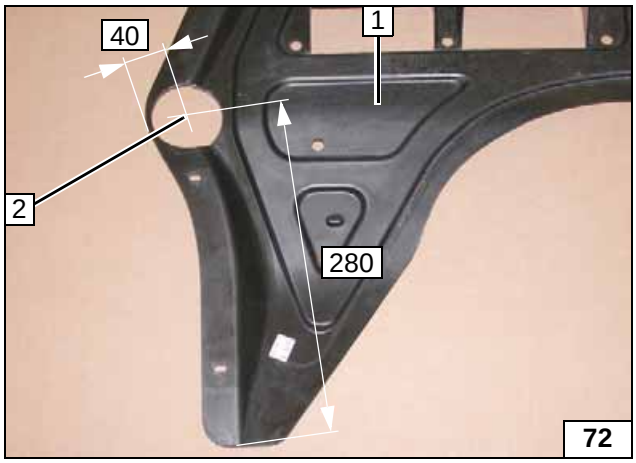
Cut out wheel-well inner panel **1** at the marking **2**.

Cutting out wheel-well inner panel



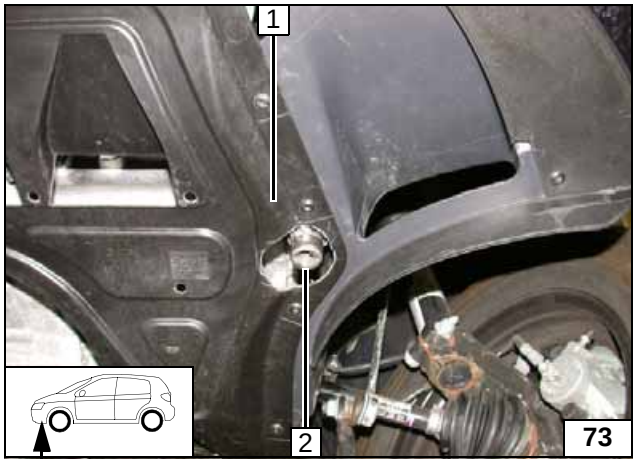
Ensure sufficient distance between wheel-well inner panel **3** and exhaust pipe **2** at position **1** (min. 10mm)!

Mounting wheel-well inner panel



1 Underride protection
2 60mm dia. hole

Cutting out underride protection



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

Aligning exhaust end section

Final Work

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" signboard near the filler neck.**
- **See installation instructions for initial start-up and function test.**

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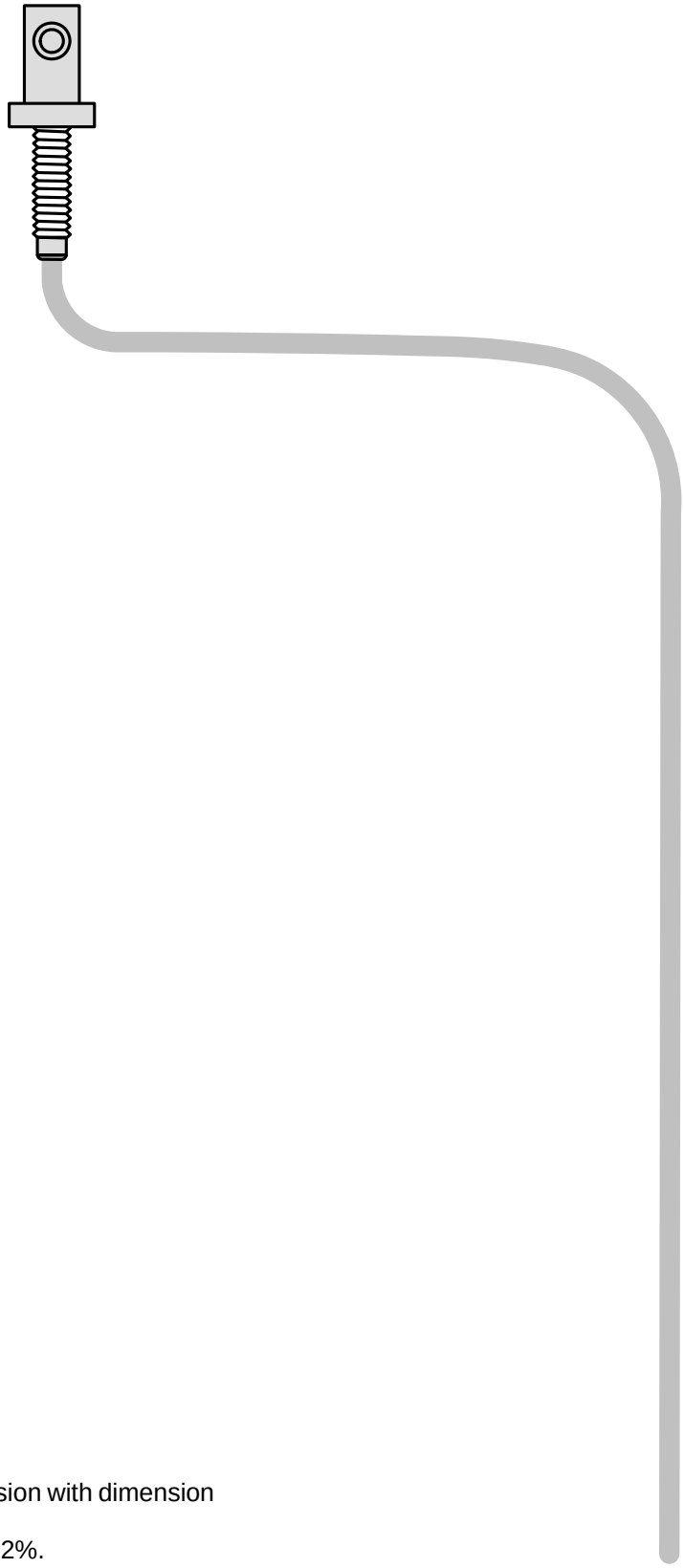
Template for Fuel Standpipe



100mm

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.

100mm

0

Operating Instructions for Climatic

Please remove this page in case of Climatic and add it to the vehicle operating instructions.

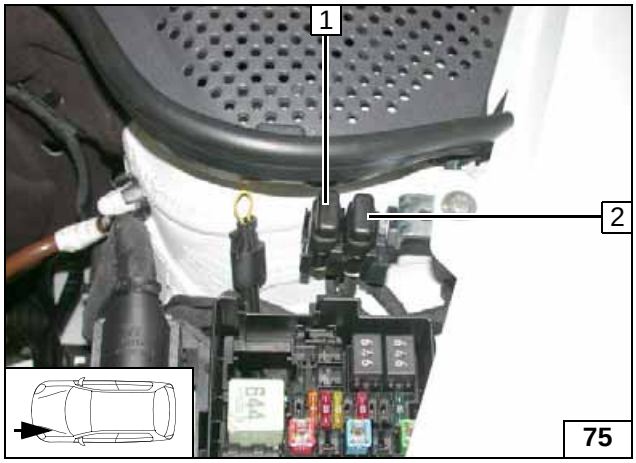
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring unit, 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:

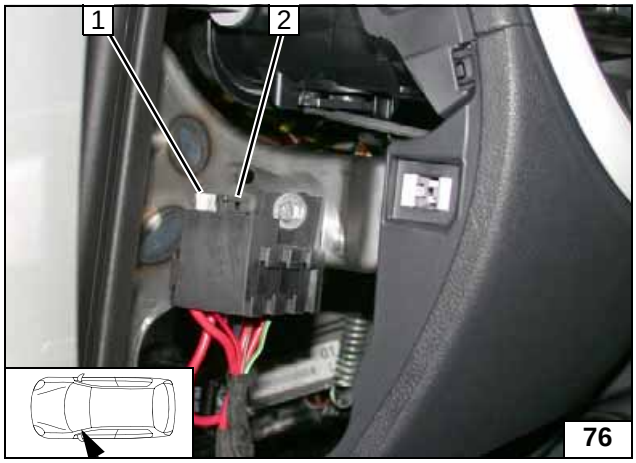
1 Set temperature to "max."
2 Fan level 1 or 2
3 Air outlet to windscreen

A/C control panel



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

Fuses of engine compartment



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

Fuses of passenger compartment

Operating Instructions for Climatronic

Please remove this page in case of Climatronic and add it to the vehicle operating instructions.

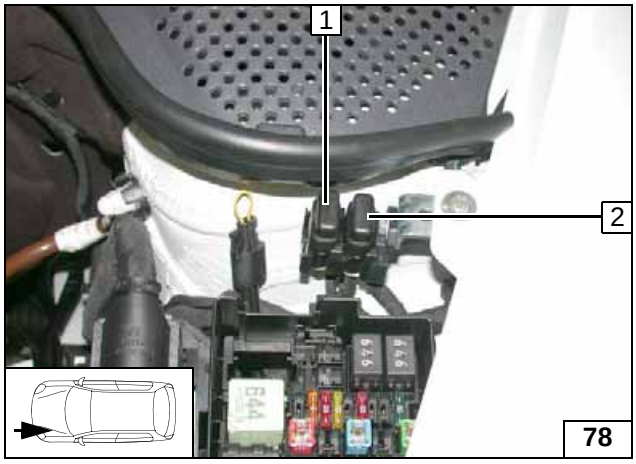
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring unit, 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:

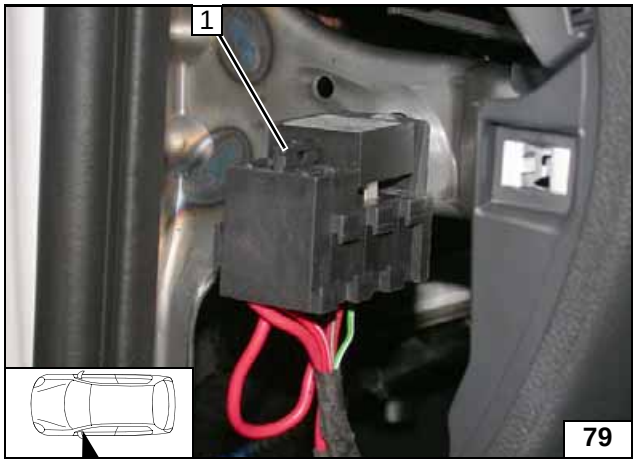
1 Air outlet to windscreen
2 Set temperature on both sides to "HI"

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

Fuses of passenger compartment