Water Heater

***Thermo Top Evo* Parking Heater** E1 00 0258

Installation Documentation
Ford Kuga

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Ford	Kuga	DM2	e13 * 2001 / 116 * 0109 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.5 EcoBoost	Petrol	6-speed ASG	110	1498	M8MA
1.6 EcoBoost	Petrol	6-speed SG	110	1596	JQMA

ASG = Semi-automatic transmission
SG = manual transmission

from model year 2013 up to model year 2016
Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog lights
Start-Stop
2 WD (1.6 EcoBoost)
4 WD (1.5 EcoBoost)
Bi-Xenon with headlight washer system
Euro 5 (1.6 EcoBoost)
Euro 6 (1.5 EcoBoost)

Not verified: Passenger compartment monitoring

Total installation time: approx. 11.5 hours

Ford Kuga

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Ford Kuga 2013 Petrol: **1320819B**
- Additionally required in case of automatic air-conditioning:
  Kit for Automatic A/C Ford Kuga 2013: **1321140**_
- 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
- In case of MultiControl CAR installation: MultiControl installation frame: **9030077**_

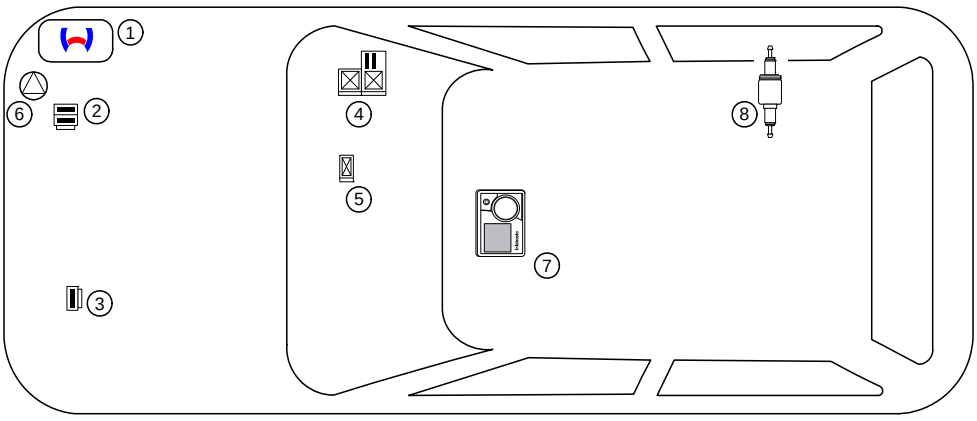
Installation instructions:

- 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 ThermoCall should be confirmed with the end customer.
- Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Engine compartment fuse holder
4. Passenger compartment relay and fuse holder
5. Relay K2 (only in case of automatic A/C)
6. Circulating pump
7. MultiControl CAR
8. Metering pump



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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

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

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 04 5627

Note

The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

Note

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

2.1 Excerpt from ECE regulation 122 (heating system) paragraph 5 for the installation of the heater

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Ford Kuga

Information on Validity

This installation documentation applies to Ford Kuga Petrol vehicles - for validity, see page 1 - from model year 2013 to model year 2016, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this ‘installation documentation’.

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

Technical Information

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

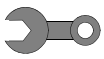
Dimensions
- All dimensions are in mm.

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

Explanatory Notes on Document

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

Mechanical System

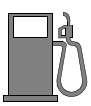


Electrical System

Coolant Circuit

Combustion Air

Fuel



Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of injury or fatal accidents.

Specific risk due to electrical voltage.

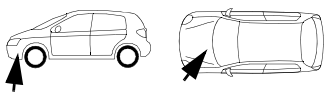
Specific risk of damage to components.

Specific risk of fire and explosion.

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

Reference to a special technical feature.

The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.



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

Ford Kuga

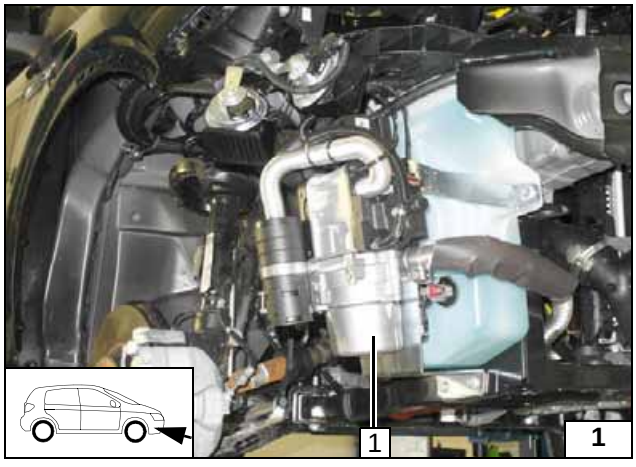
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Completely remove the cowl cover.
- Remove the right front wheel.
- Remove the wheel well strip on the right, loosen in the front left part.
- Remove the wheel well trim on the right.
- Remove the engine underride protection.
- Remove the bumper trim.
- Detach the headlight on the right.
- Remove the rear underride protection on the right and the left.
- Detach the rear exhaust system.
- Remove the fuel tank according to the manufacturer's instructions.
- Remove the fuel tank sending unit in accordance with the manufacturer's instructions.
- Remove the glove box.
- Remove the A/C control panel in accordance with the manufacturer's instructions.

Heater

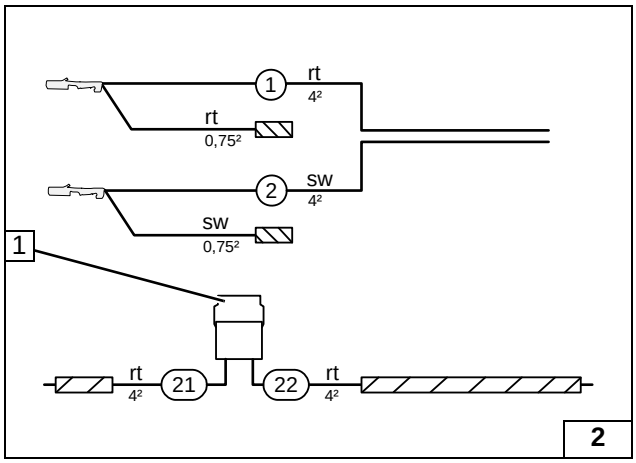
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

Installation location



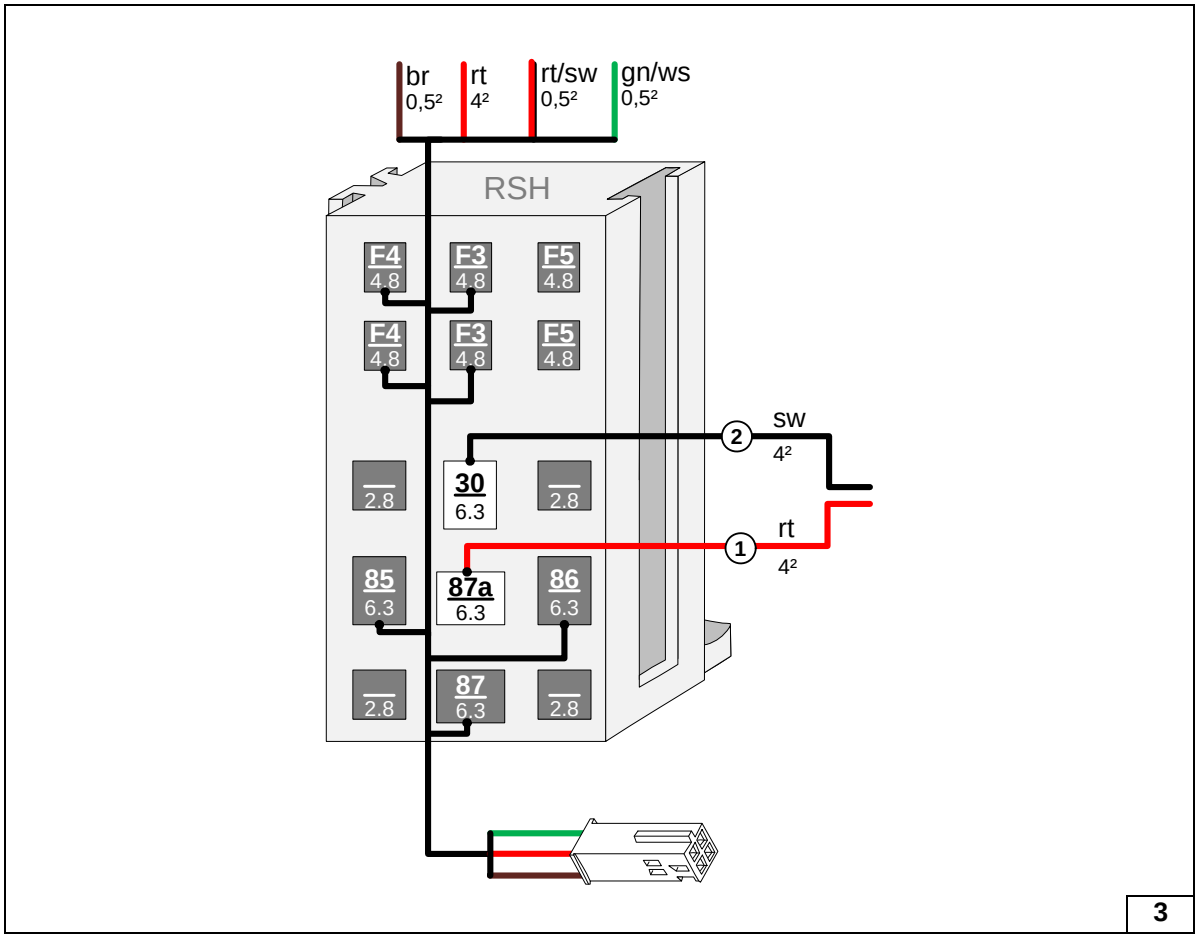
Preparing Electrical System

Wire sections retain their numbering in the entire document.

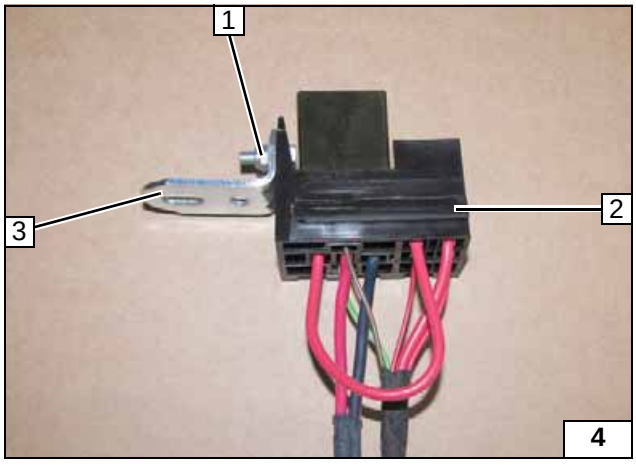
Produce all following electrical connections as shown in the wiring diagram.

1 30A fuse F0
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
㉑ Red (rt) wire of positive extension wiring harness
㉒ Red (rt) wire of positive extension wiring harness

Assigning wires



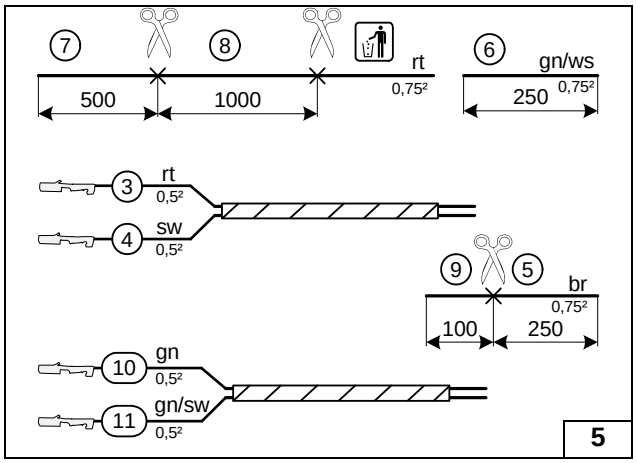
Preparing passenger compartment relay and fuse holder



Manual air-conditioning

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

Preparing passenger compartment relay and fuse holder



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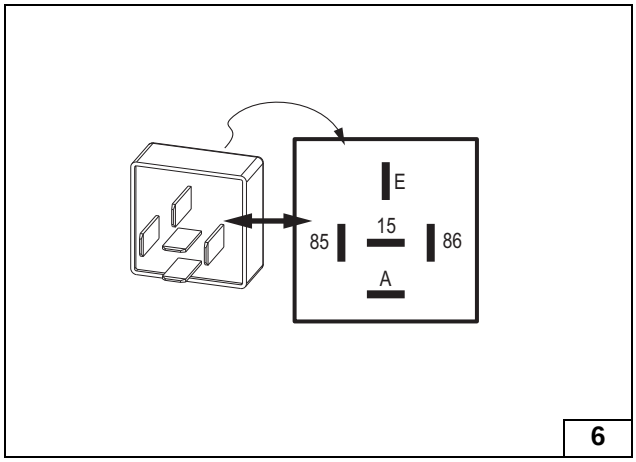
Automatic air-conditioning

Pull wire section ⑧ into protective sleeving.

③ Red (rt) wire from wiring harness of PWM control
④ Black (sw) wire from wiring harness of PWM control
⑩ Green (gn) wire of A/C control wiring harness
⑪ Green/black (gn/sw) wire of A/C control wiring harness

Cutting wires to length

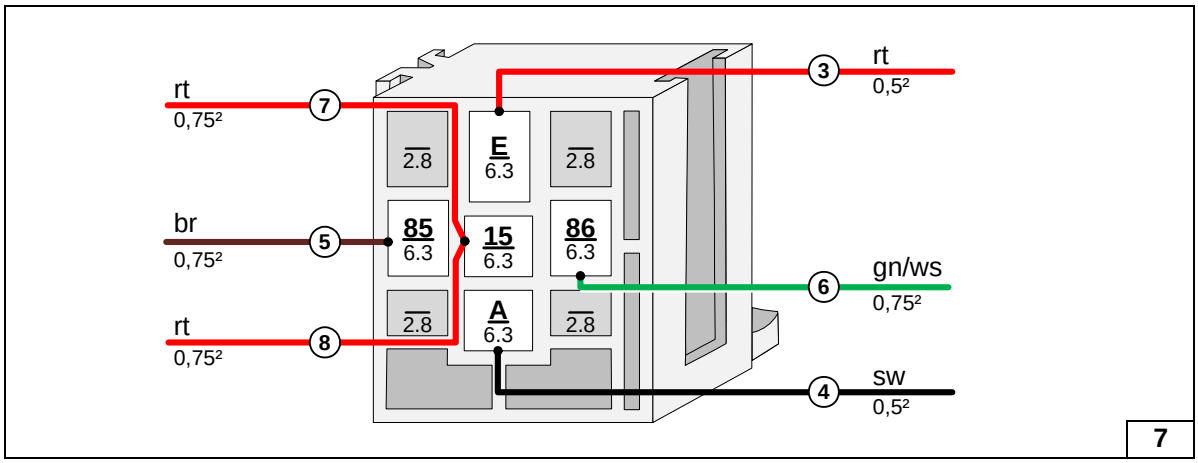


6

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

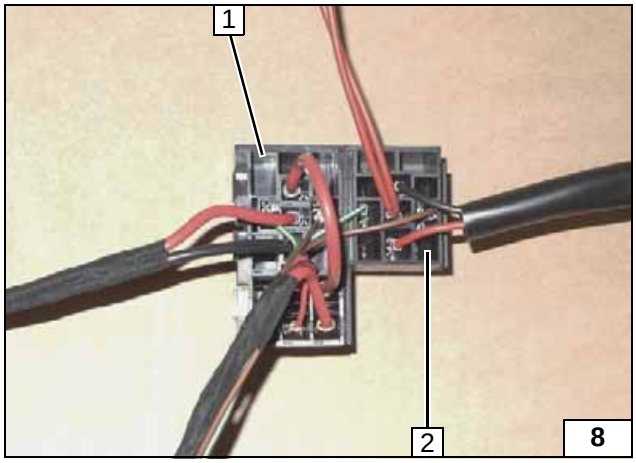
Duty cycle: 37%
Frequency: 400Hz
Voltage: not relevant
Function: Low side

View of IPCU



7

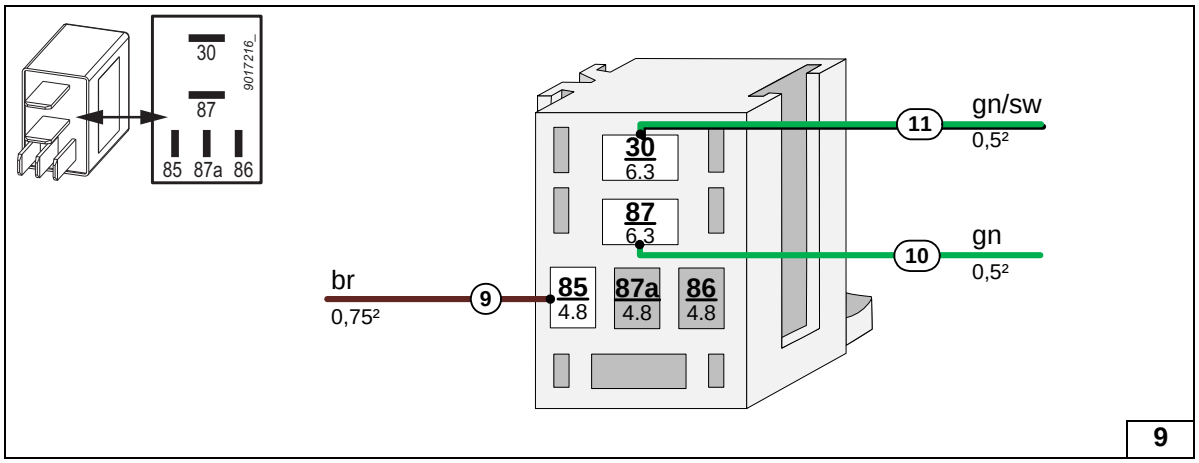
Connecting wires to IPCU socket



8

1 Passenger compartment relay and fuse holder
2 IPCU socket

Interlocking socket of IPCU and relay and fuse holder of passenger compartment



9

Premounting relay K2

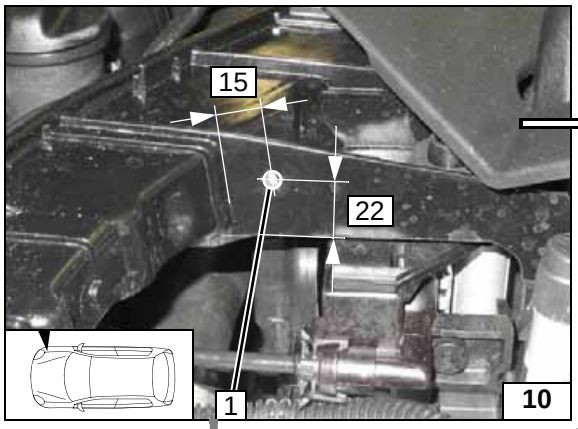
Fuse Holder Installation

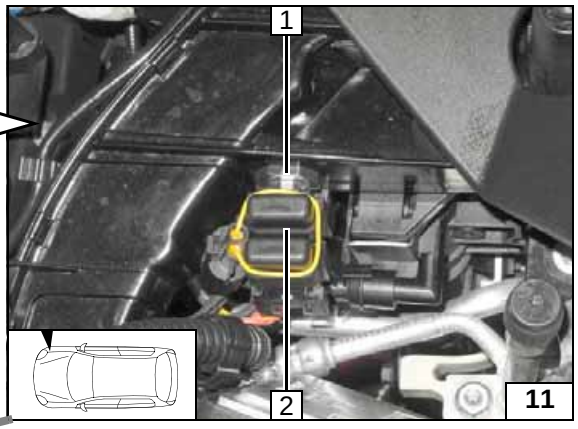
Hole for engine compartment fuse holder

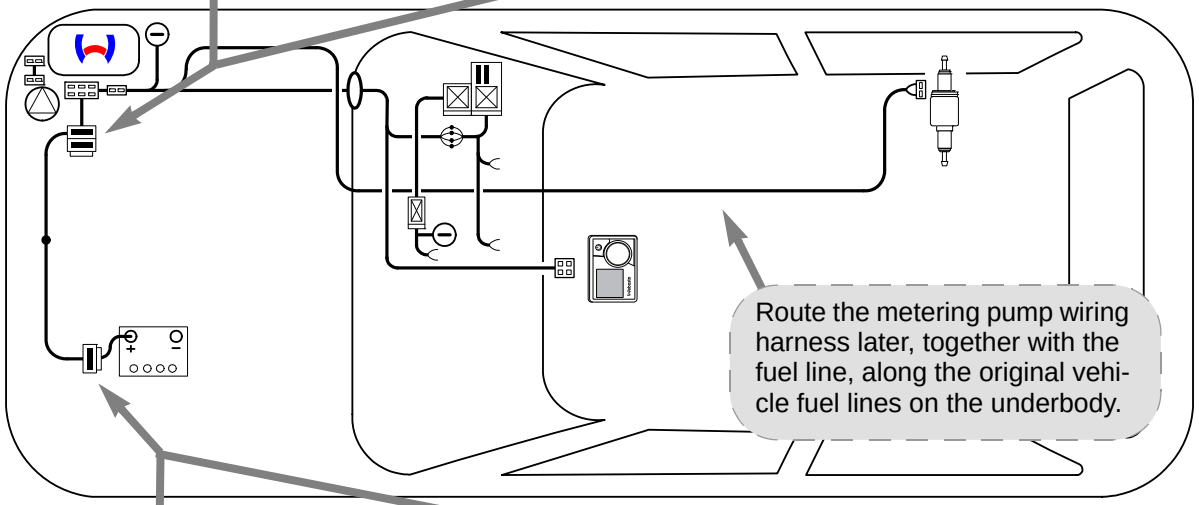
1 5.5 mm dia. hole

Installing engine compartment fuse holder

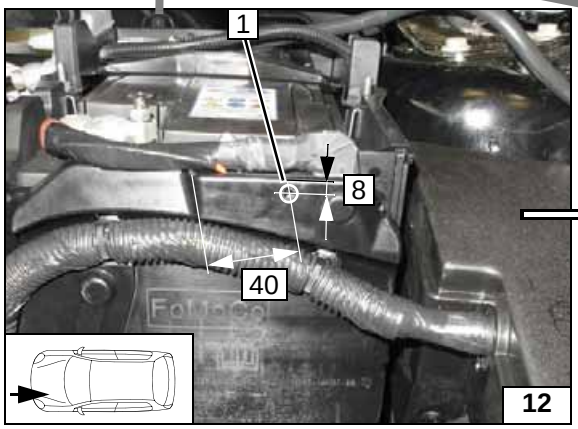
1 M5x16 bolt, washer [2x], retaining plate of fuse holder, nut
2 Fuses F1-2

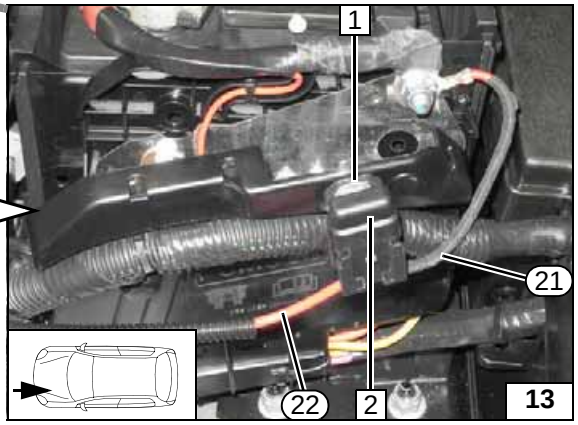






Wiring harness routing diagram





Hole for fuse holder F0

1 5.5 mm dia. hole

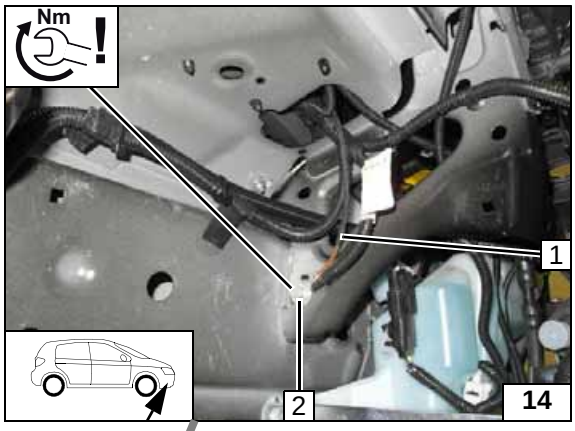
Fuse holder F0

1 M5x16 bolt, washer [2x], retaining plate of fuse F0 holder, nut
2 Fuse F0
(21) Red (rt) wire of positive extension wiring harness
(22) Red (rt) wire of positive extension wiring harness

Electrical System

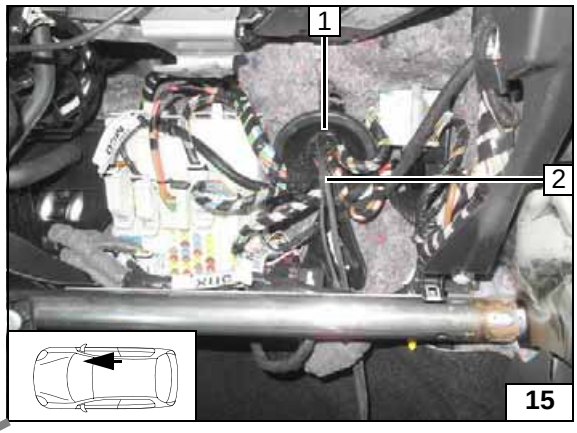
Earth wire

1 Earth wire on original vehicle earth point
2 Original vehicle bolt

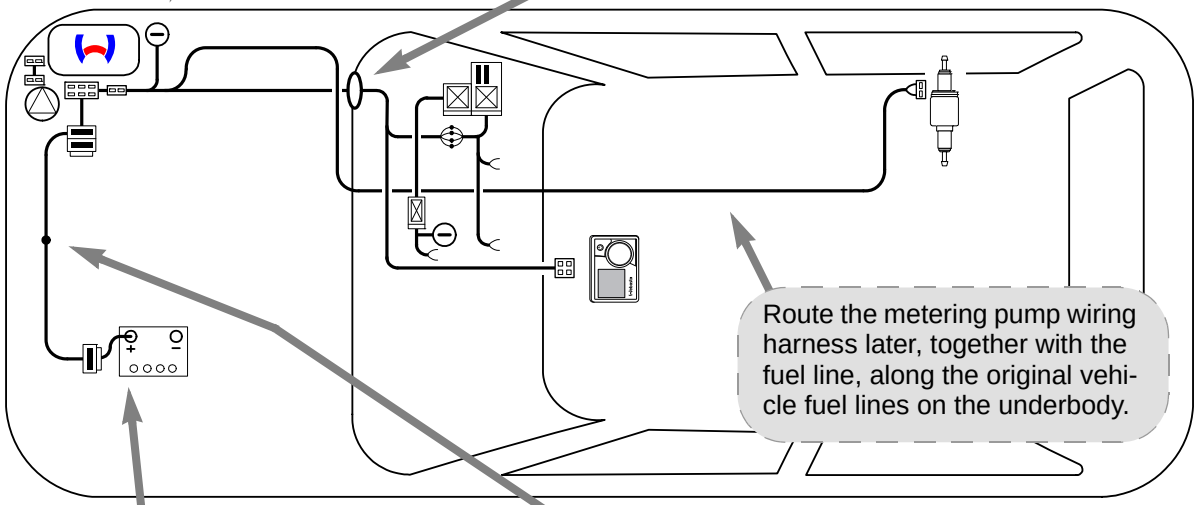


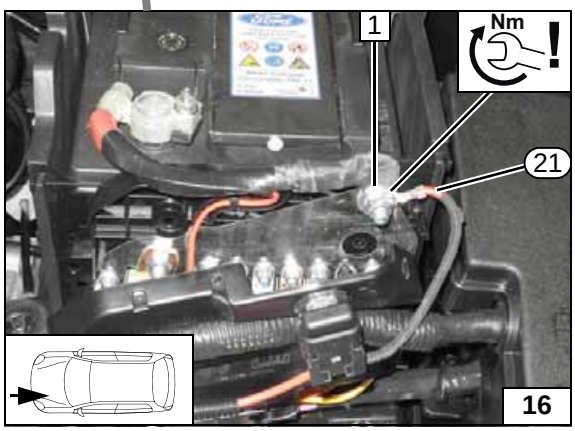
Wiring harness pass through

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



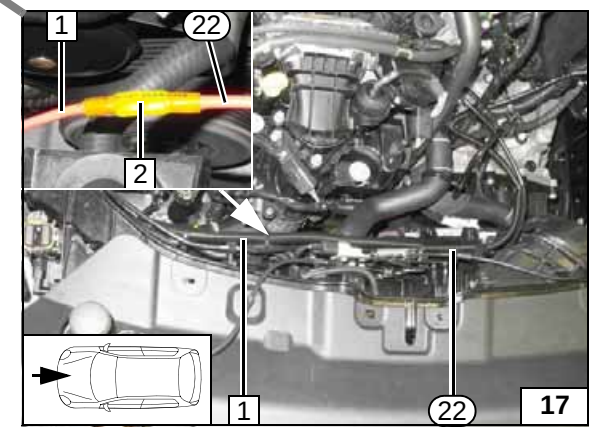
Wiring harness routing diagram





Positive wire

1 Original vehicle bolt
(21) Red (rt) wire of positive extension wiring harness, 6mm dia. cable lug on original vehicle positive distributor



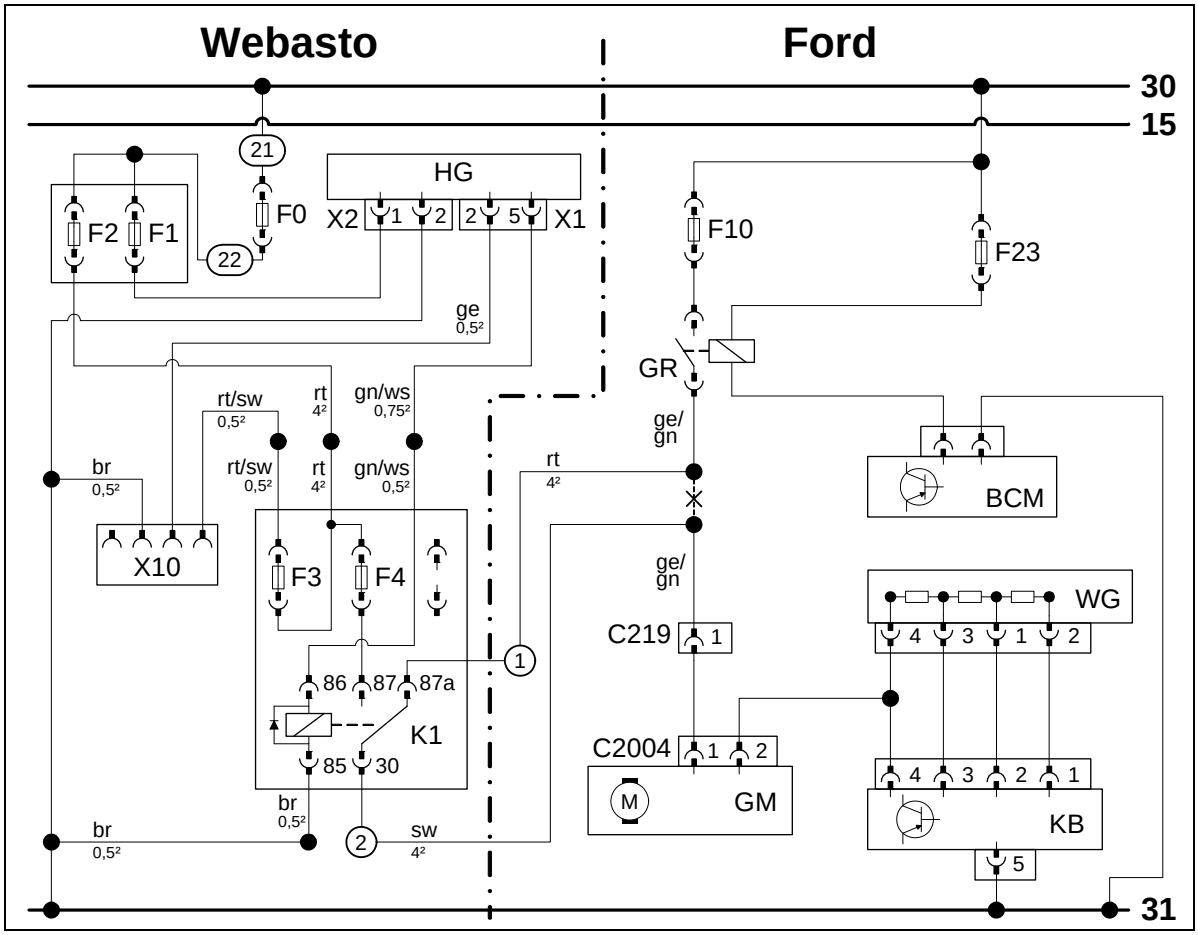
Positive wire routing

Route red (rt) wire of positive extension wiring harness **(22)** to the engine compartment fuse holder.

1 Positive wire of heater wiring harness
2 Shrink butt connector

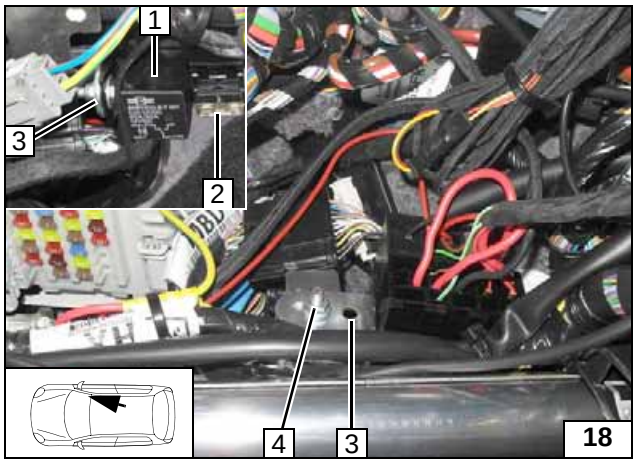
Manual Air-Conditioning Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F10	40A fuse	rt	red
X1	6-pin heater connector	F23	5A fuse	sw	black
X2	2-pin heater connector	GR	Fan relay	ge	yellow
F0	30A fuse	BCM	Body control unit	gn	green
F1	20A fuse	WG	Resistor group	ws	white
F2	30A fuse	C219	Connector	br	brown
X10	4-pin socket of heater control	GM	Fan motor		
		C2004	GM connector		
F3	1A fuse	KB	A/C control panel		
F4	25A fuse			**X**	Cutting point
K1	Fan relay			Wiring colours may vary.	

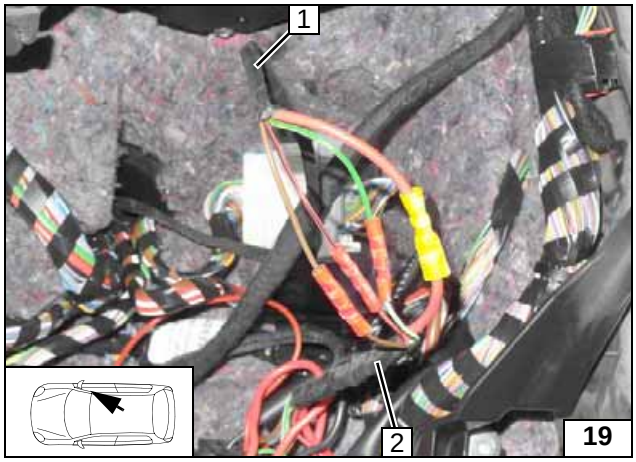
Legend



Insert 25A fuse F4 **2** and relay K1 **1**.

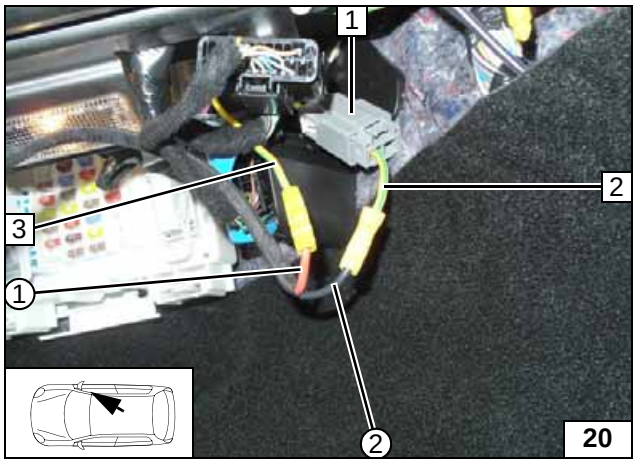
3 Angle bracket
4 M6x20 bolt, flanged nut, existing hole

Installing passenger compartment relay and fuse holder



1 Heater wiring harness
2 Passenger compartment relay and fuse holder wiring harness

Connecting same colour wires of wiring harnesses



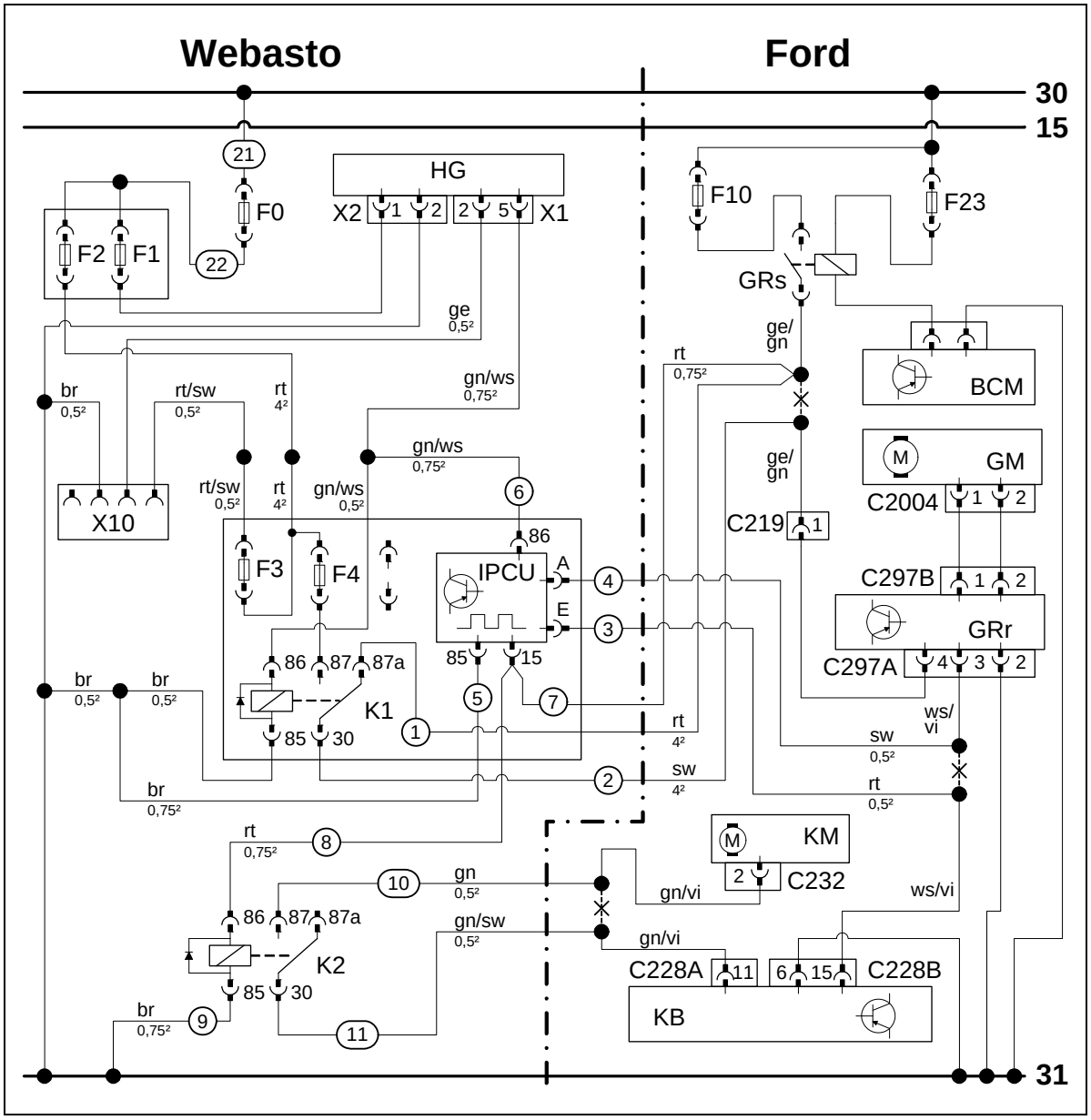
Connection to 2-pin connector C219 **1**.

2 Yellow/green (ge/gn) wire of C219 connector Pin 1
3 Yellow/green (ge/gn) wire of fan relay
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

Connecting fan motor

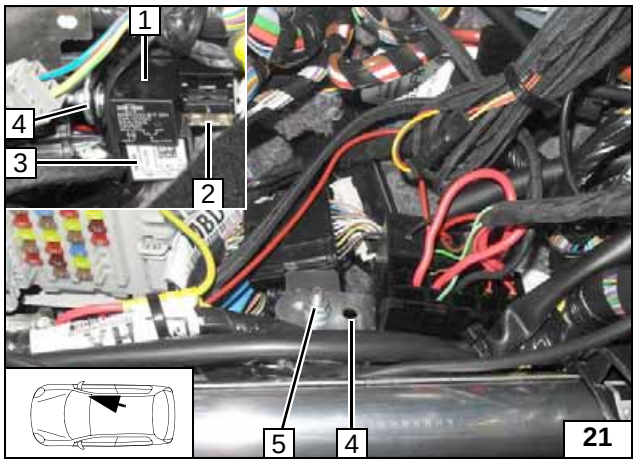
Automatic Air-Conditioning Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F10	40A fuse	rt	red
X1	6-pin heater connector	F23	5A fuse	sw	black
X2	2-pin heater connector	GRs	Fan relay	ge	yellow
F0	30A fuse	BCM	Body control unit	gn	green
F1	20A fuse	GM	Fan motor	vi	violet
F2	30A fuse	C2004	GM connector	ws	white
X10	4-pin socket of heater control	C219	Connector	br	brown
		GRr	Fan controller		
F3	1A fuse	C297B	Connector of GRr	**IPCU settings:**	
F4	25A fuse	C297A	Connector of GRr	Duty cycle:	37%
IPCU	Pulse width modulator	KM	Damper motor actuator	Frequency:	400Hz
K1	Fan relay	C232	KM connector	Voltage:	not relevant
K2	Additional relay	KB	A/C control panel	Function:	Low side
		C228A	Connector of KB		
		C228B	Connector of KB	**X**	Cutting point
				Wiring colours may vary.	

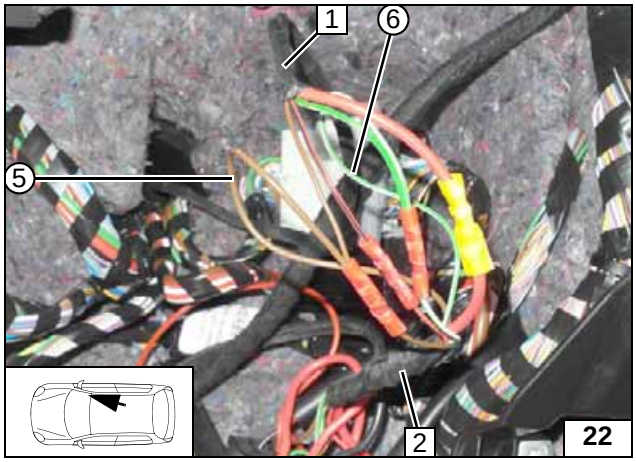
Legend



Insert 25A fuse F4 **2,** IPCU **3** and relay K1 **1** .

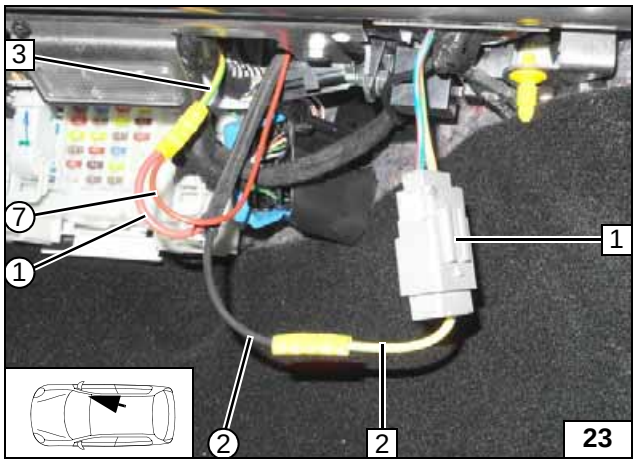
4 Angle bracket
5 M6x12 bolt, flanged nut, existing hole

Installing passenger compartment relay and fuse holder



1 Heater wiring harness
2 Passenger compartment relay and fuse holder wiring harness
⑤ Brown (br) wire of IPCU/85
⑥ Green/white (gn/ws) wire of IPCU/86

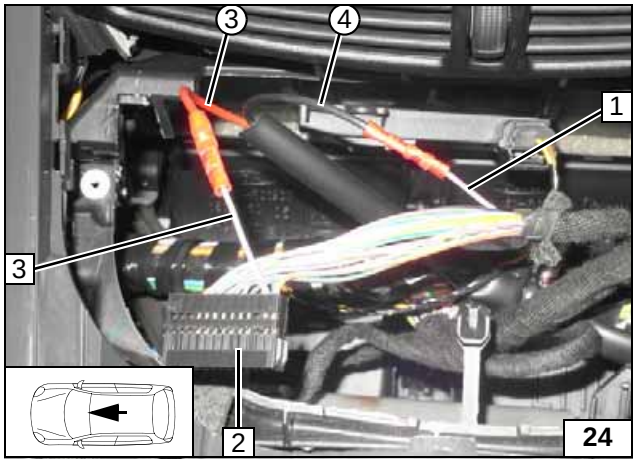
Connecting same colour wires of wiring harnesses



Connection to 2-pin connector C219 **1**.

2 Yellow/green (ge/gn) wire of C219 connector Pin 1
3 Yellow/green (ge/gn) wire of fan relay
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness
⑦ Red (rt) wire of IPCU/15

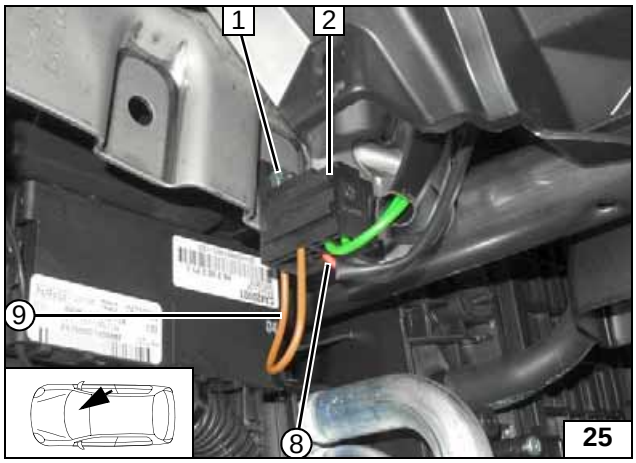
Connecting fan motor



Connection to 26-pin connector C228B **2** of A/C control panel.

1 White/violet (ws/vi) wire of GRr connector C297A, Pin 3
3 White/violet (ws/vi) wire of connector C228B, Pin 15
③ Red (rt) wire from IPCU/E of PWM control wiring harness
④ Black (sw) wire from IPCU/A of PWM control wiring harness

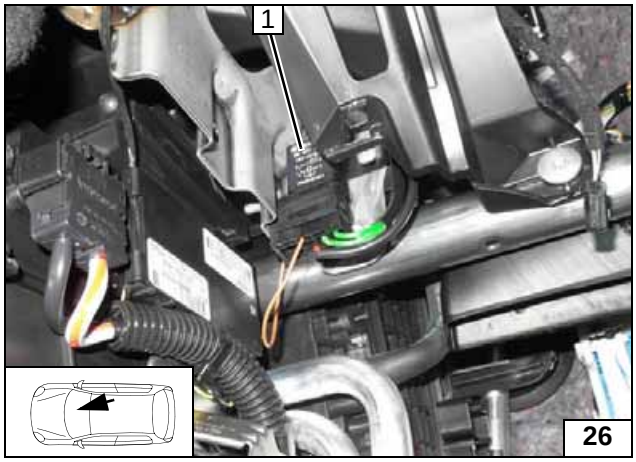
Connecting IPCU



Insert red (rt) wire ⑧ in socket of K2/86 **2**. Crimp 6 mm dia. cable lug on end of brown (br) wire ⑨ from K2/85.

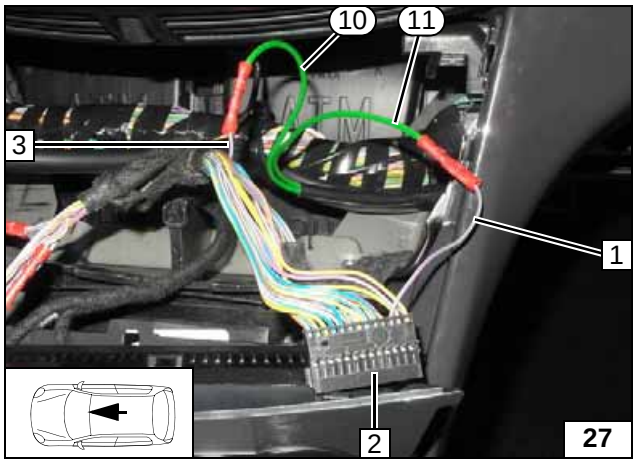
1 M5x16 bolt, cable lug from brown (br) wire ⑨ from K2/85

Installing relay K2



1 Relay K2

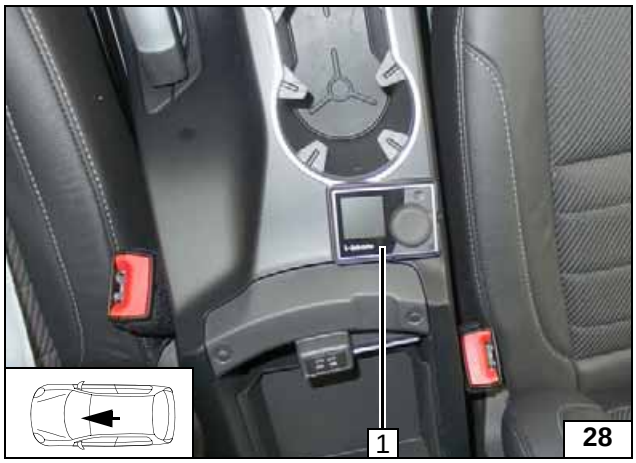
Inserting relay K2



Connection to 26-pin connector C228A **2** of A/C control panel.

1 Green/violet (gn/vi) wire of connector C228A, Pin 11
3 Green/violet (gn/vi) wire of damper motor connector C232, Pin 2
⑩ Green (gn) wire from K2/87 of A/C control wiring harness
⑪ Green/black (gn/sw) wire from K2/30 of A/C control wiring harness

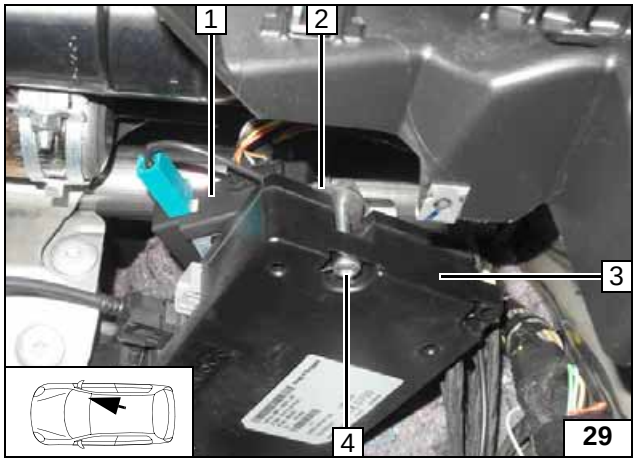
Connecting relay K2



MultiControl CAR Option

1 MultiControl CAR

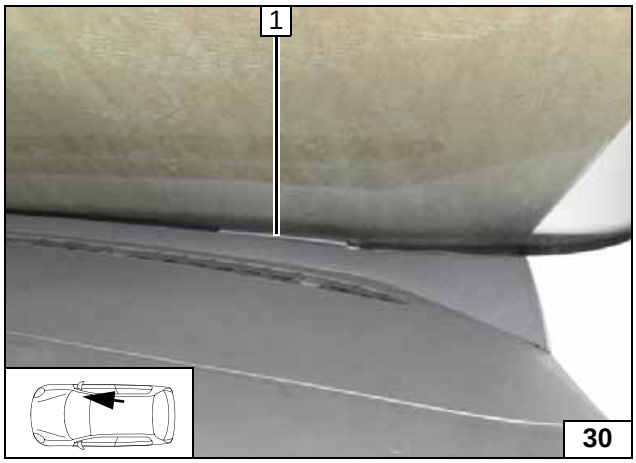
Installing MultiControl CAR



Remote Option (Telestart)

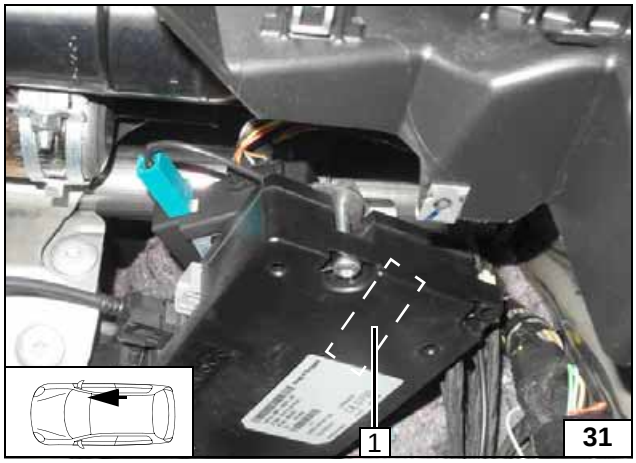
1 Receiver
2 Receiver bracket
3 Original vehicle control unit
4 Original vehicle bolt

Installing receiver



1 Aerial

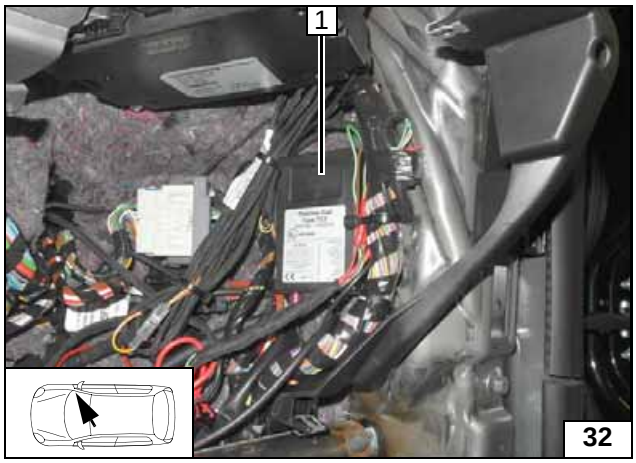
Installing aerial



Temperature sensor T100 HTM

Fasten temperature sensor **1** to original vehicle control unit from above using double-sided adhesive tape.

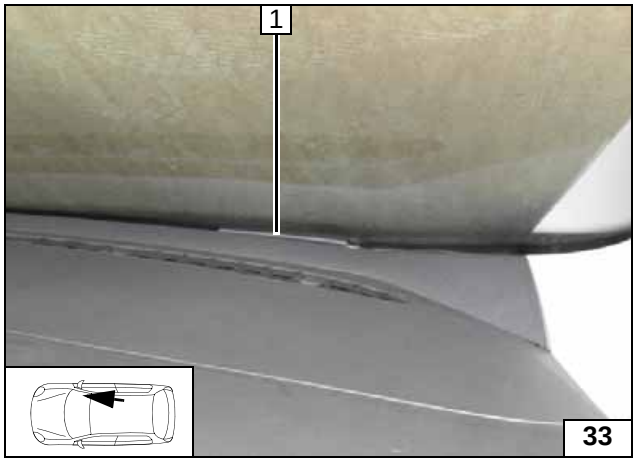
Installing temperature sensor



ThermoCall Option

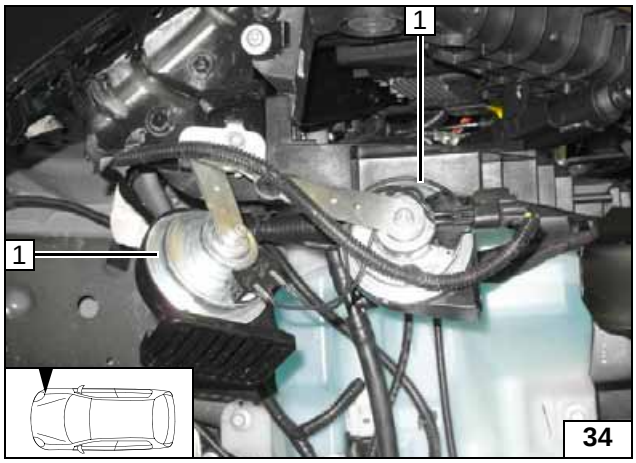
Fasten receiver **1** with cable tie to original vehicle wiring harness.

Installing receiver



1 Aerial (optional)

Installing aerial



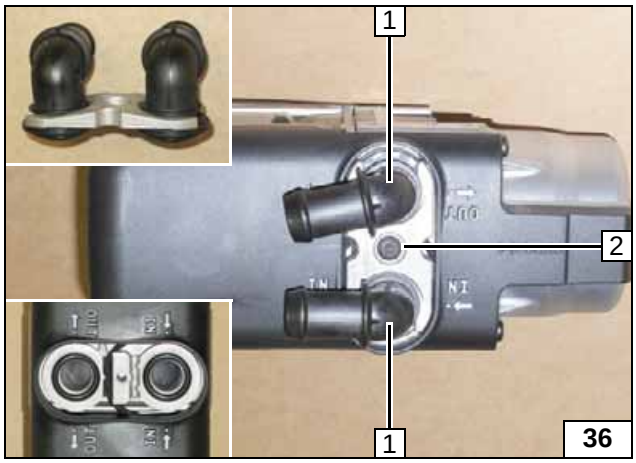
Preparing Installation Location

Align horns [2x] **1** as shown.

Aligning horns

1 Heater wiring harness

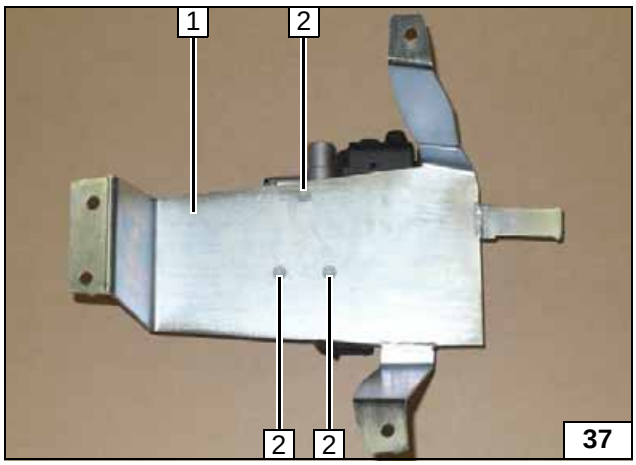
Routing heater wiring harness



Preparing Heater

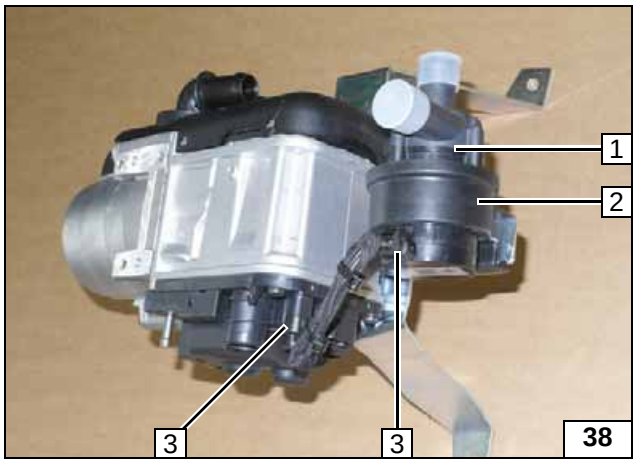
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



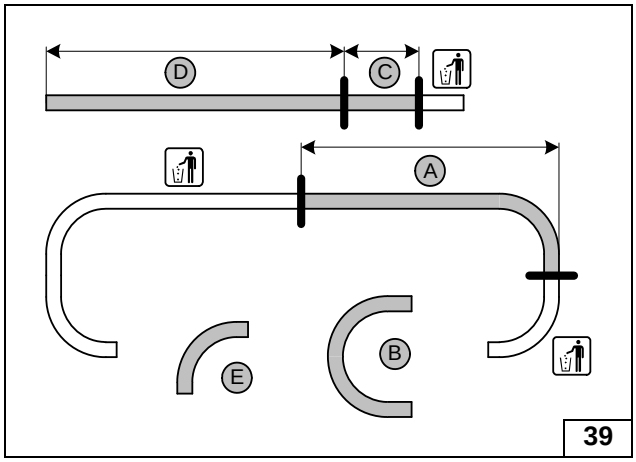
1 Bracket
2 5x13 self-tapping bolt [3x]

Installing bracket



1 Circulating pump
2 Circulating pump mount on bracket tab
3 Connect circulating pump wiring harness [2x] and tie back

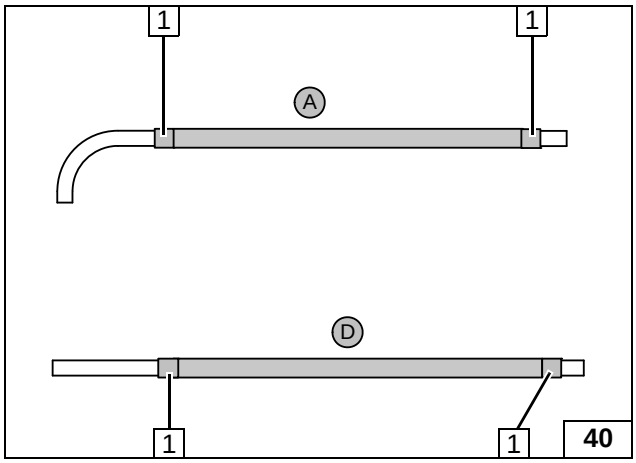
Installing circulating pump



Hose **E** = 90°, 20 mm dia. moulded hose
Hose **B** = 180°, 18 mm dia. moulded hose

A = 1340
C = 130
D = 1370

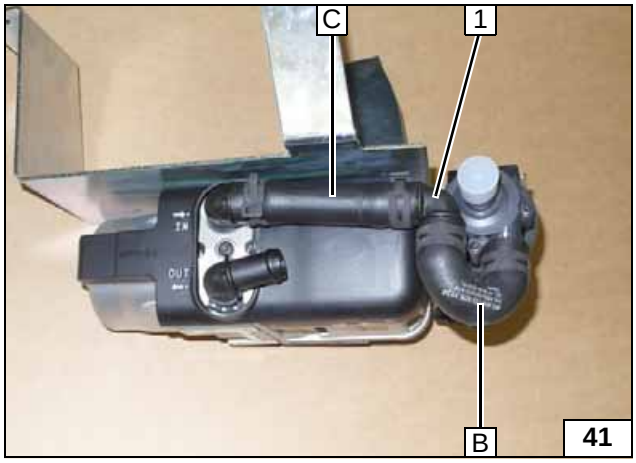
Cutting hoses to length



Push braided protection hoses onto hoses **A** and **D** and cut to length. Cut heat shrink plastic tubing to size.

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

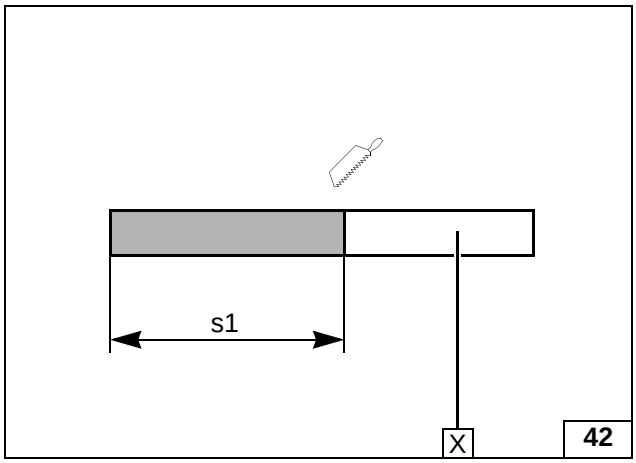
Preparing hoses



All spring clips = 25mm dia.

1 90°, 18x18mm dia. connecting pipe

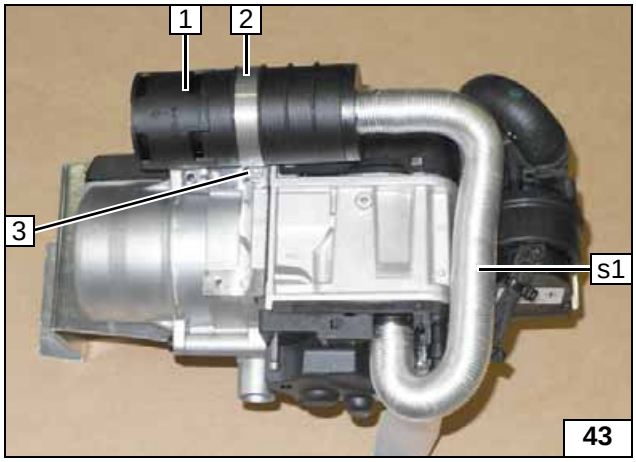
Premounting hoses



s1 = 320

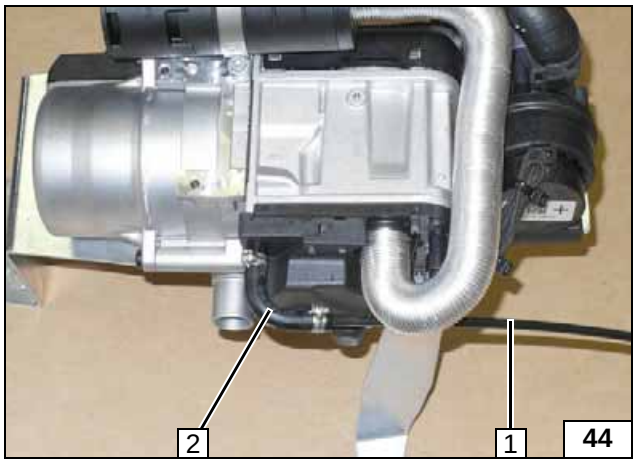
X =

Cutting combustion air pipe to length



1 Combustion air silencer
2 51 mm dia. clamp
3 5x13 self-tapping bolt

Installing combustion air silencer

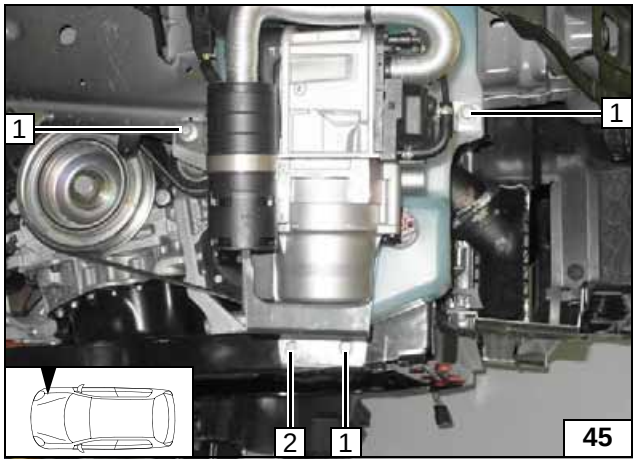


1 Fuel line
2 90° moulded hose, 10 mm dia. clamp [2x]

Premounting fuel line

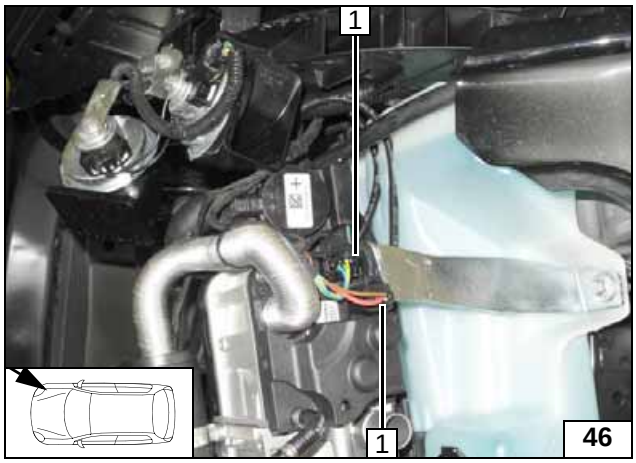
Installing Heater

Remove original vehicle bolt at position **2** and discard.



1 Original vehicle bolt [3x]
2 M8x75 bolt, spring lockwasher, existing threaded hole

Installing heater



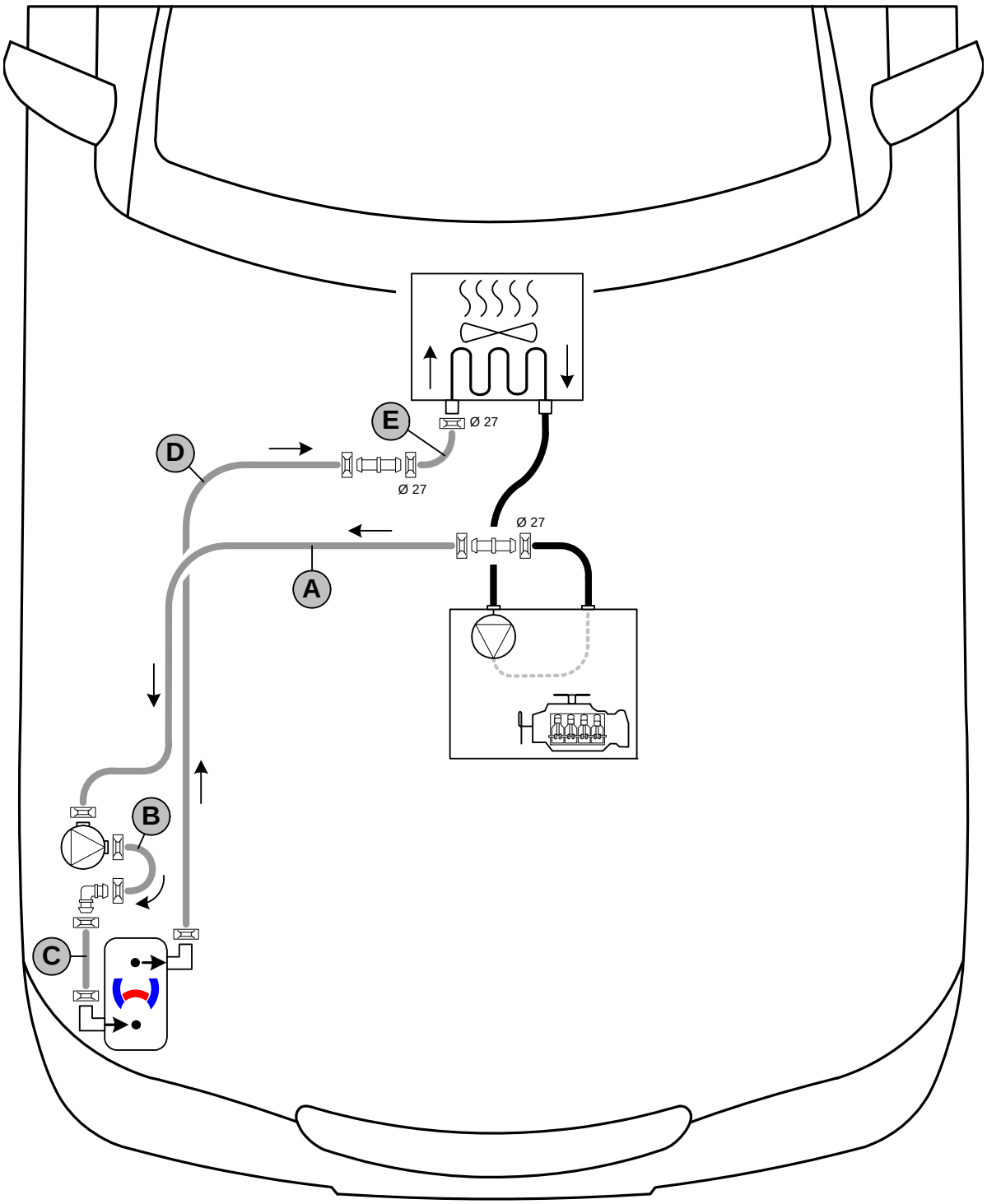
1 Heater wiring harness connector [2x]

Installing heater wiring harness

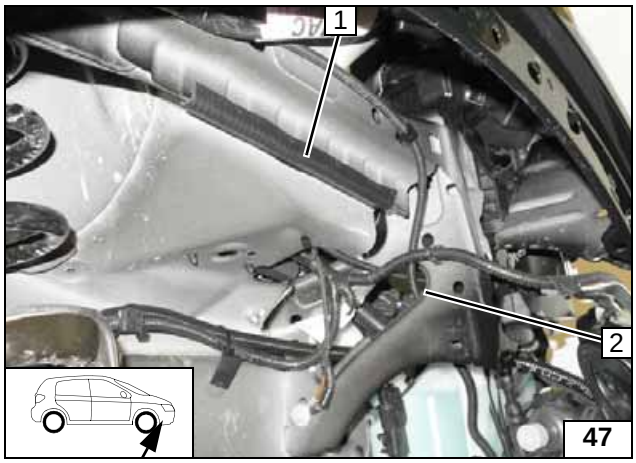
Coolant Circuit

WARNING!
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.
The connection should be modelled on an 'inline' circuit and based on the following diagram:

Hose routing diagram

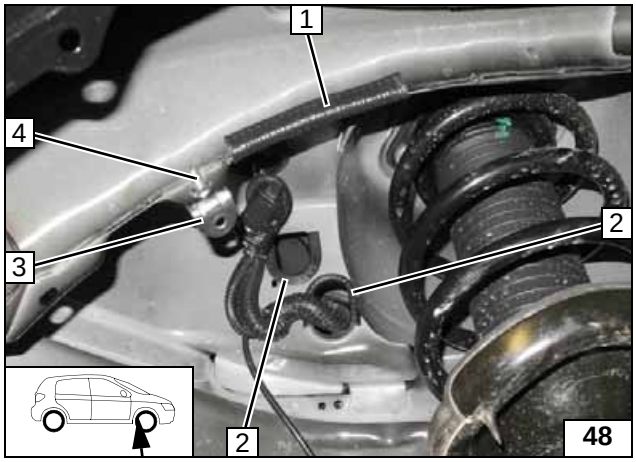


All spring clips without a specific designation = 25 mm dia. All connecting pipes = 18x20mm dia. Connecting pipe = 18x18mm dia.



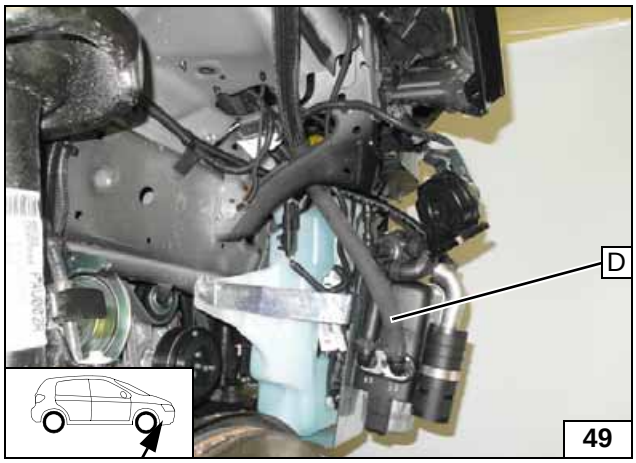
1 200mm / 14.5x10 edge protection
2 100mm / 8x6 clamping profile

Mounting edge protection

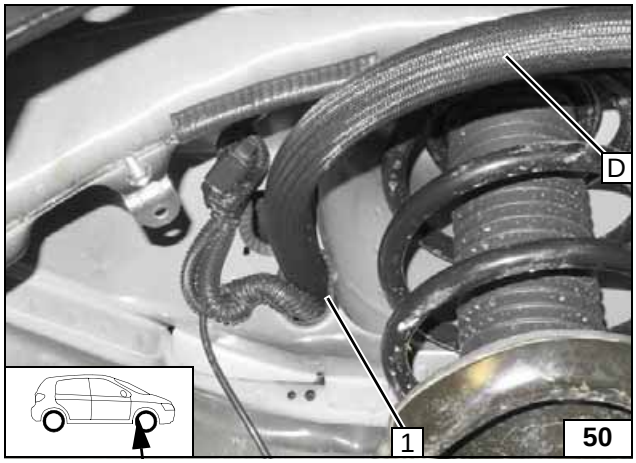


1 100mm / 14.5x10 edge protection
2 100mm / 8x6 clamping profile [2x]
3 Angle bracket
4 M6x20 bolt, flanged nut, existing hole

Installing angle bracket, edge protection

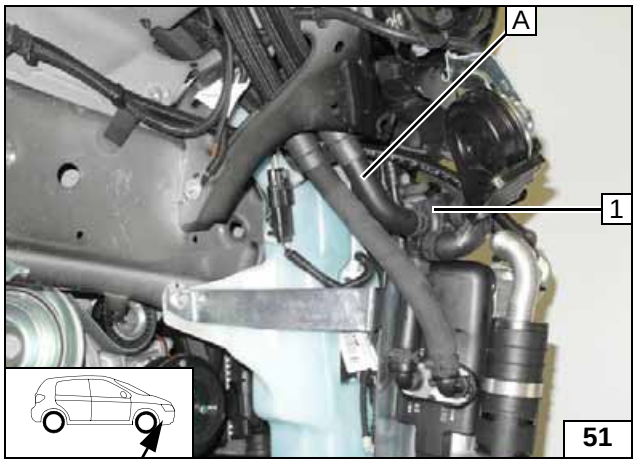


Connecting heater outlet



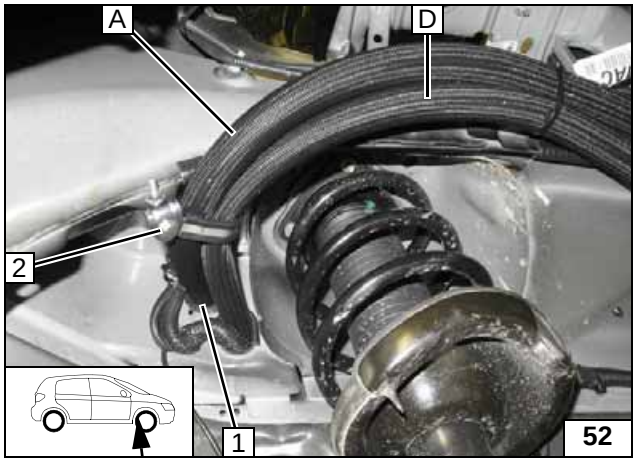
Route hose **D** through pass through **1** into engine compartment.

Routing in engine compartment



1 Circulating pump

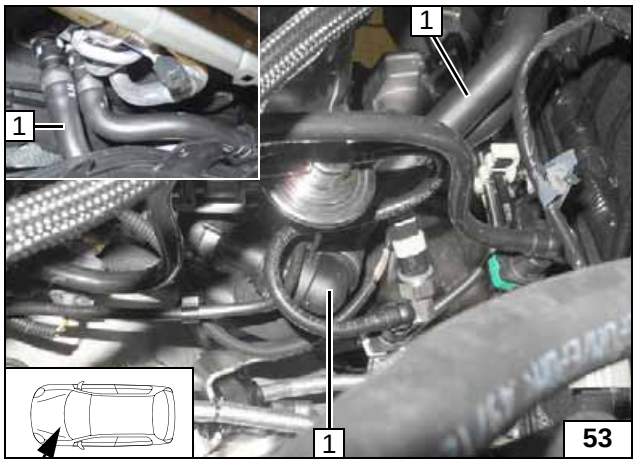
Connecting circulating pump



Route hose **A** through pass through **1** into engine compartment.

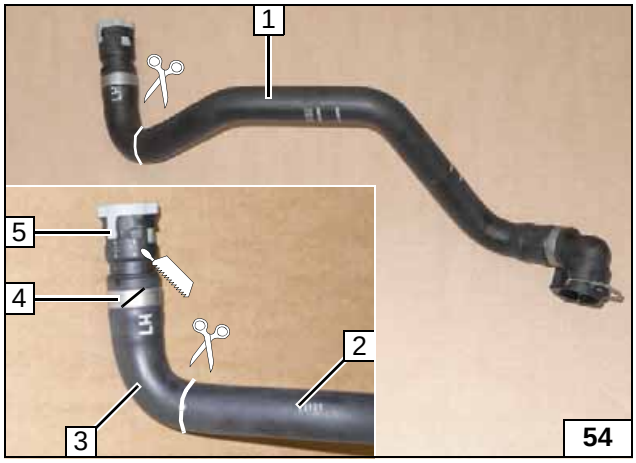
2 M6x20 bolt, 38 mm dia. rubber-coated p-clamp, flanged nut

Routing in engine compartment



Remove engine outlet / heat exchanger inlet hose **1**.

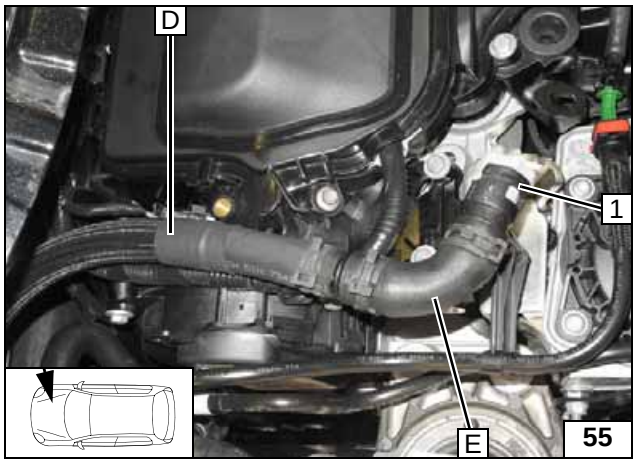
Cutting point



Saw clamp **4** carefully open. Do not damage coupling piece of heat exchanger inlet **5**, it will be reused.

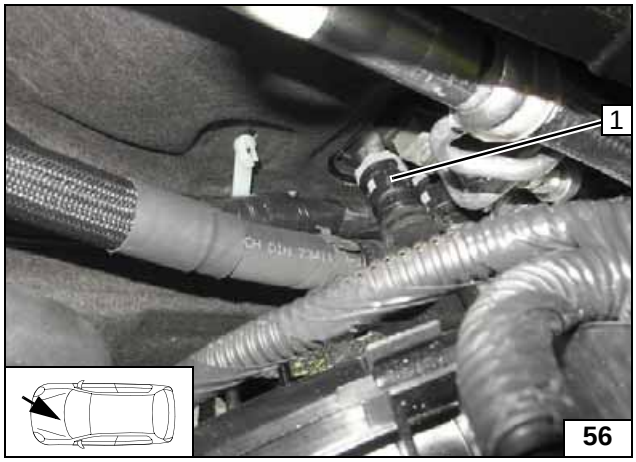
1 Engine outlet / heat exchanger inlet hose
2 Engine outlet hose section
3 Discard hose section

Cutting point



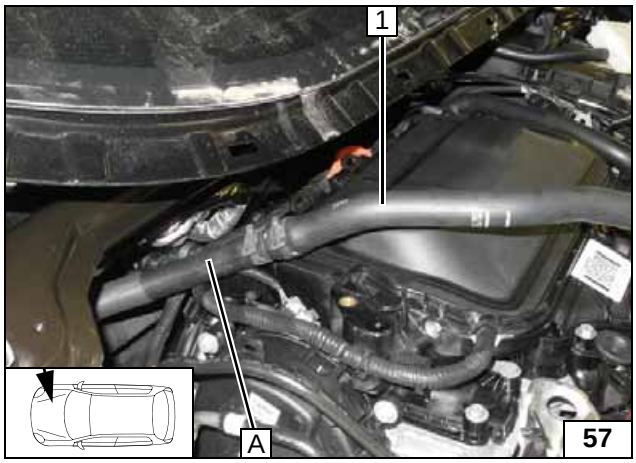
1 Coupling piece of heat exchanger inlet

Routing in engine compartment



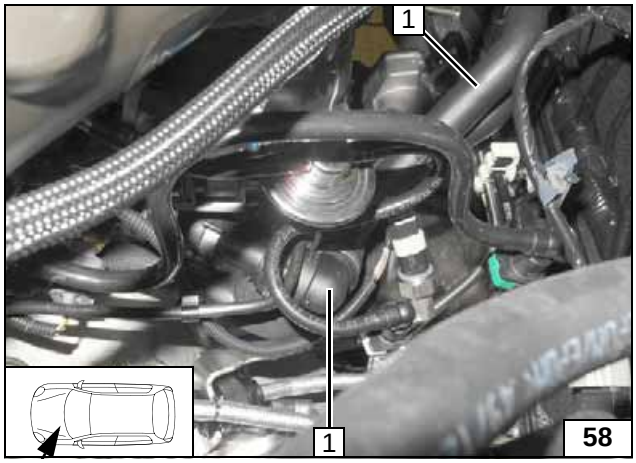
Mount coupling piece **1** on heat exchanger inlet connection piece, take coding into account.

Connecting heat exchanger inlet



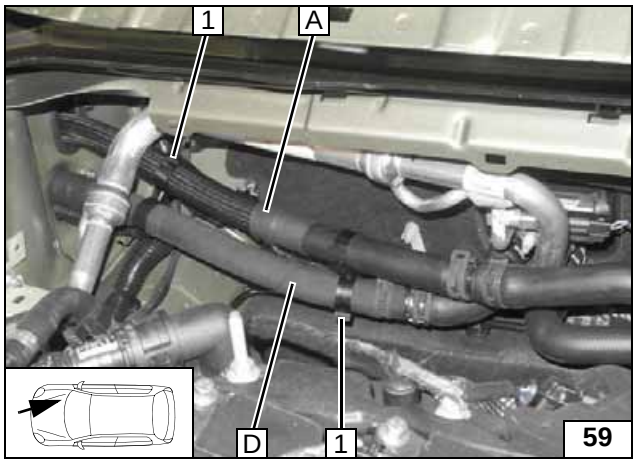
1 Engine outlet hose section

Routing in engine compartment



1 Engine outlet hose section

Connecting engine outlet



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

1 Hose bracket [2x]

Inserting hose bracket

Fuel

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

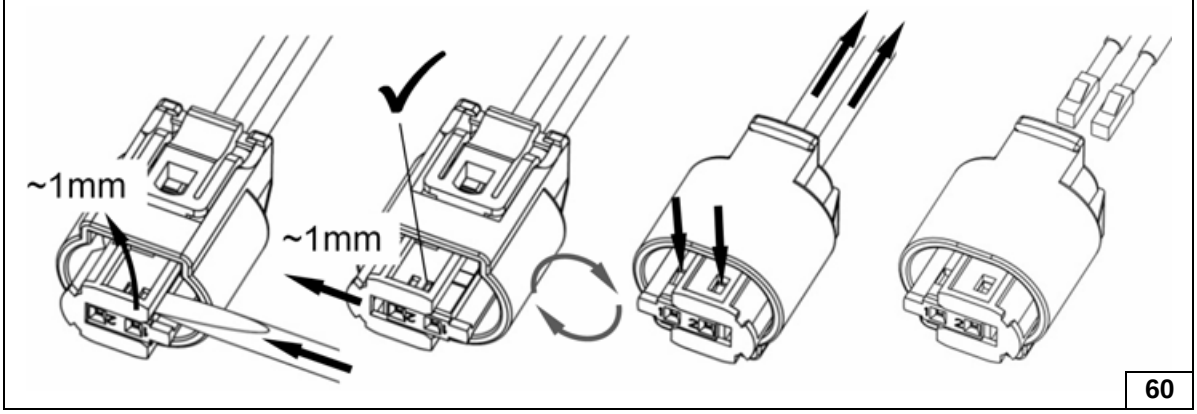
Catch any fuel running off in an appropriate container.

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

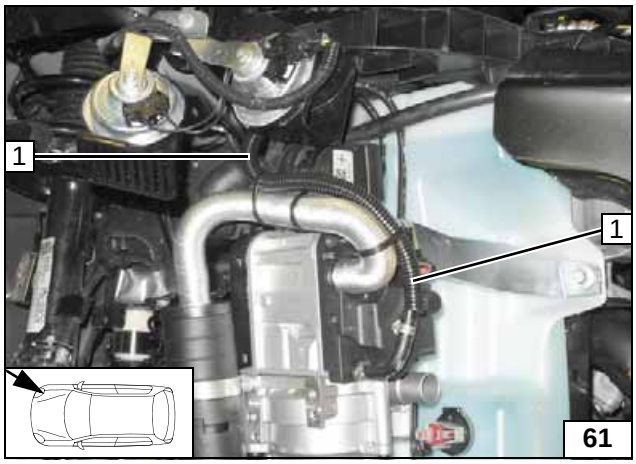
WARNING!
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.

Dismantling metering pump connector

Connector X7



60



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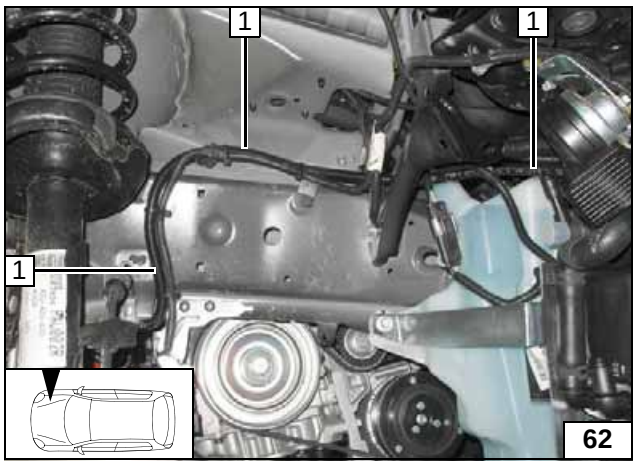
Pull fuel line and metering pump wiring harness **1** into 10mm dia. corrugated tube.

Routing lines



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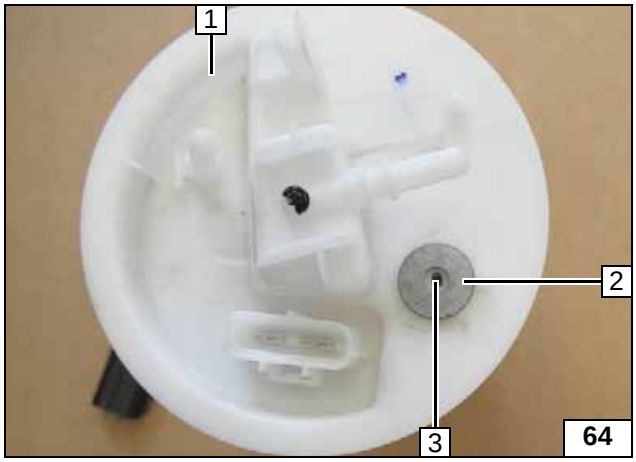
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines

1 Fuel line and metering pump wiring harness in corrugated tube

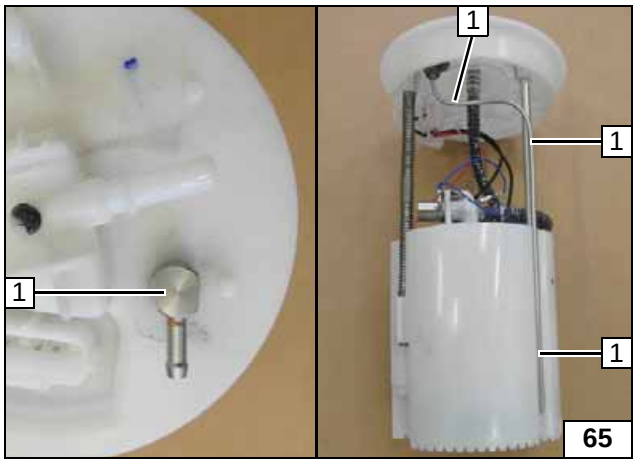
Routing lines



Remove the fuel tank according to the manufacturer's instructions. Remove fuel tank sending unit **1** in accordance with manufacturer's instructions.

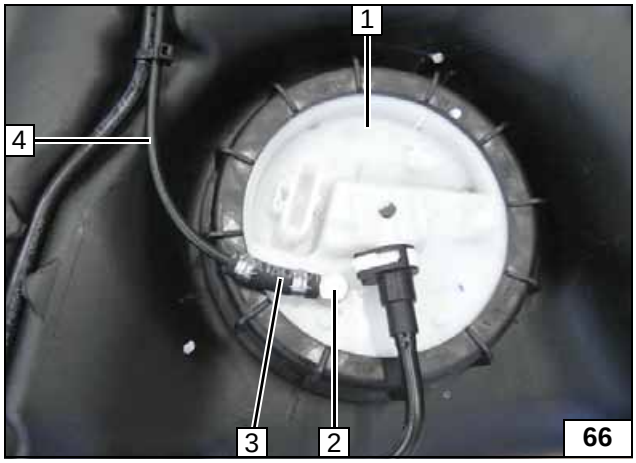
2 Washer with outer dia. d_a = 21.6mm
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



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

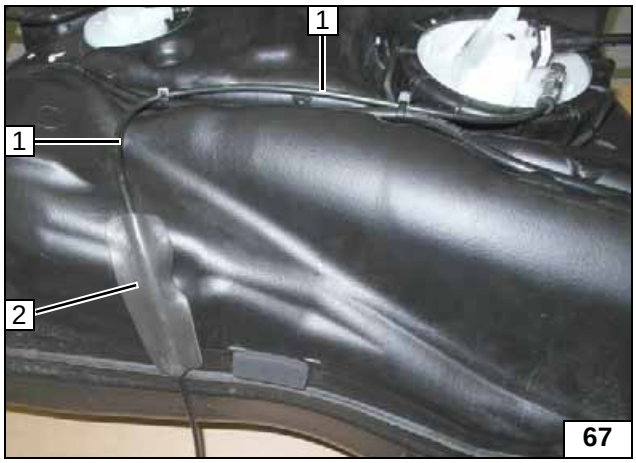
Installing fuel standpipe



Install fuel tank sending unit **1** according to manufacturer's instructions.

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

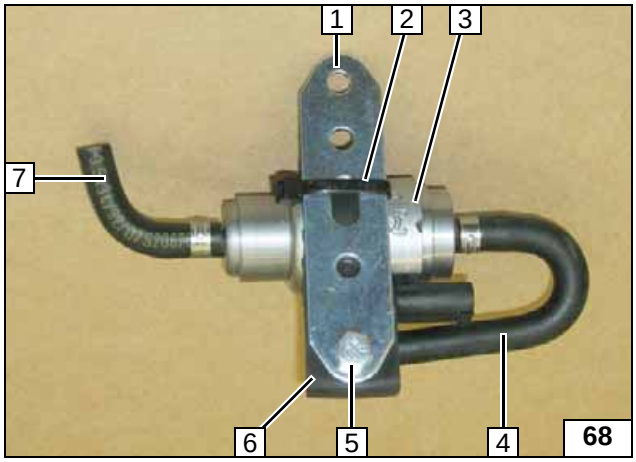
Connecting fuel line



Integrate fuel-tank according to manufacturer's instructions after installation.

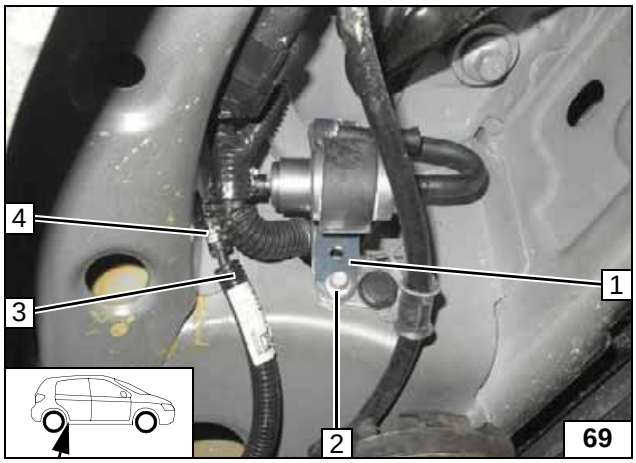
1 Fuel line of fuel standpipe
2 Glue on insulation strip

Routing fuel line



1 Perforated bracket
2 Cable tie
3 Metering pump
4 180° moulded hose, 10 mm dia. clamp
5 M6x25 bolt, support angle bracket, flanged nut
6 Metering pump mount
7 90° moulded hose, 10 mm dia. clamp

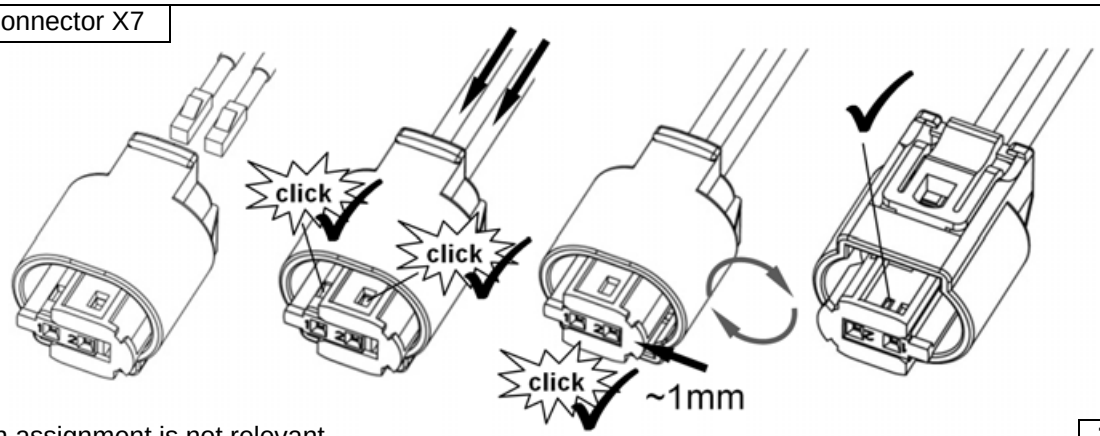
Premounting metering pump



1 Perforated bracket
2 Original vehicle bolt
3 Fuel line of fuel standpipe in 10mm dia. corrugated tube
4 10 mm dia. clamp

Installing metering pump

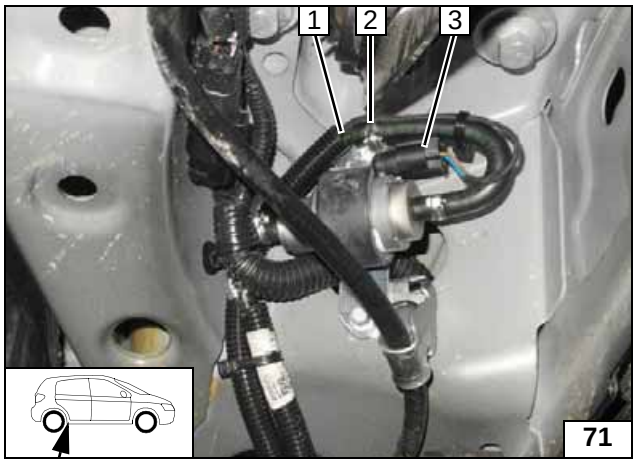
Connector X7



Pin assignment is not relevant.

70

Completing metering pump connector



Check the position of the components; adjust if necessary. Check that they have freedom of movement.

1 Heater fuel line
2 10 mm dia. clamp
3 Metering pump wiring harness, connector X7 mounted

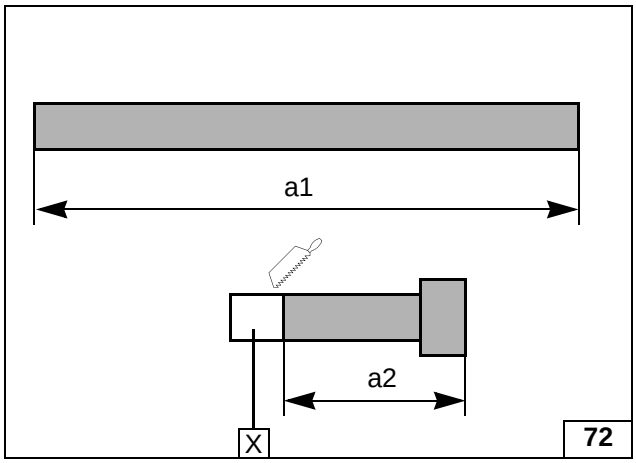
Connecting metering pump

Exhaust Gas

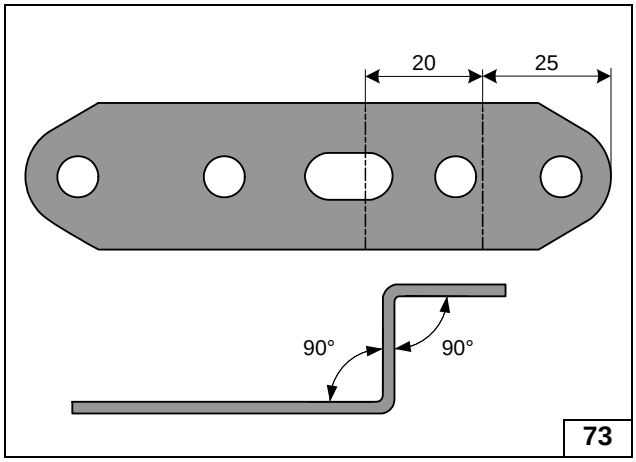
a1 = 1200
a2 = 200

X =

Preparing exhaust pipe

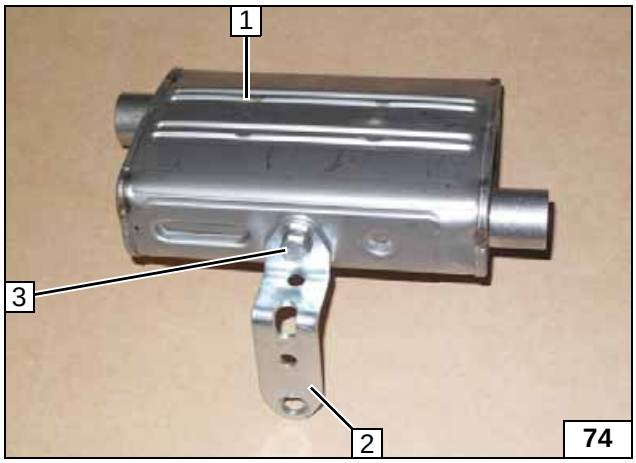


Preparing perforated bracket



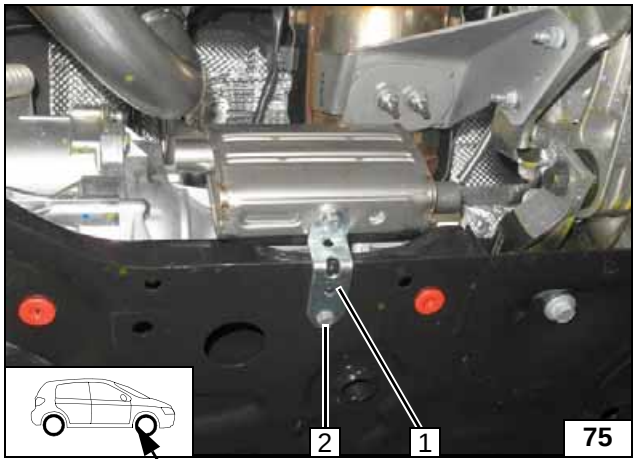
Premounting silencer

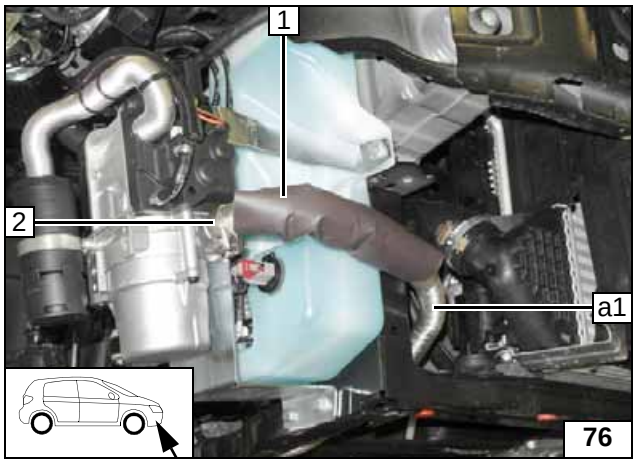
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher



Installing silencer

1 Perforated bracket
2 M6x20 bolt, flanged nut, existing hole

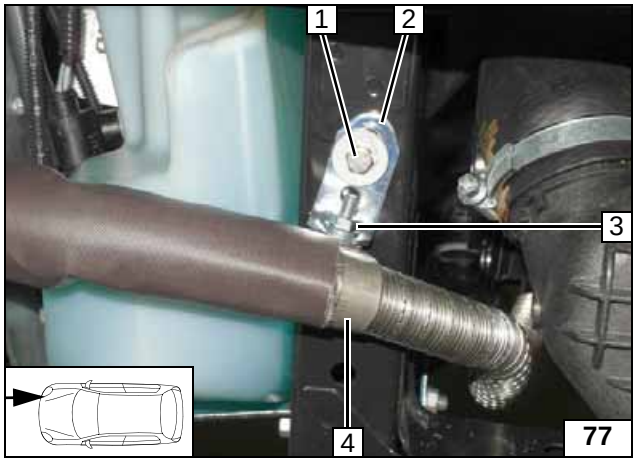




Cut 220mm from exhaust insulation **1** and slide onto exhaust pipe **a1**.

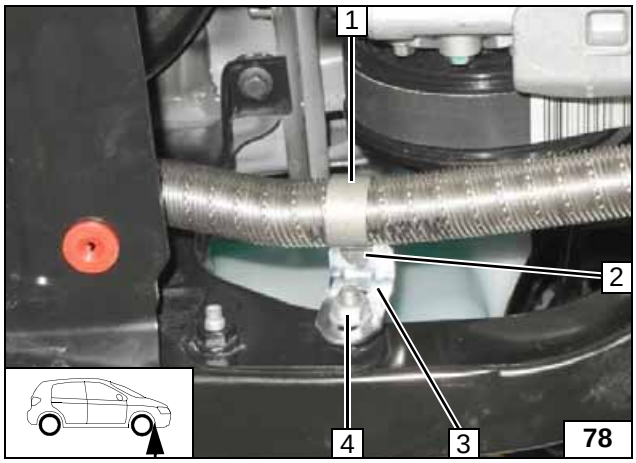
2 Hose clamp

Installing exhaust pipe a1



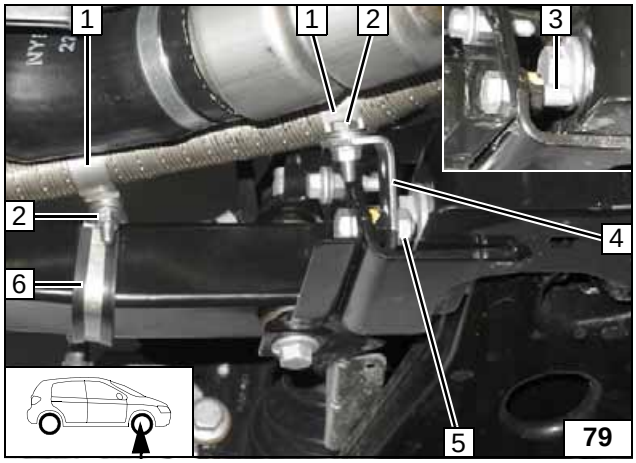
1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Angle bracket
3 M6x20 bolt, flanged nut
4 P-clamp

Installing exhaust pipe a1



1 P-clamp
2 M6x20 bolt, flanged nut
3 Angle bracket
4 M8 flanged nut on M8x70 bolt

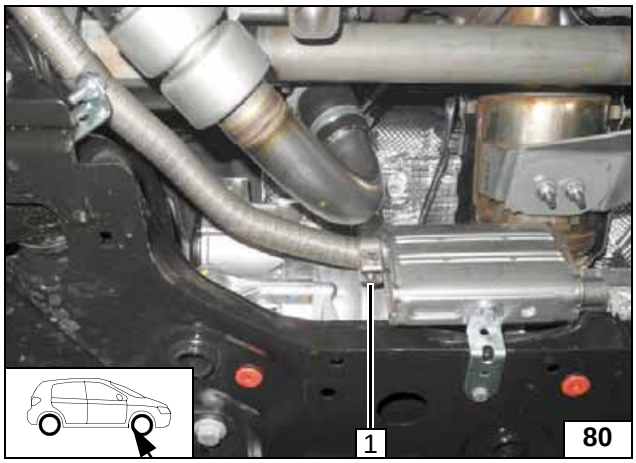
Installing exhaust pipe a1



Remove original vehicle bolt **3** and replace it with M8x30 bolt **5**.

1 P-clamp [2x]
2 M6x20 bolt, flanged nut [2x]
4 Angle bracket
5 M8x30 bolt, nut
6 48 mm dia. rubber-coated p-clamp

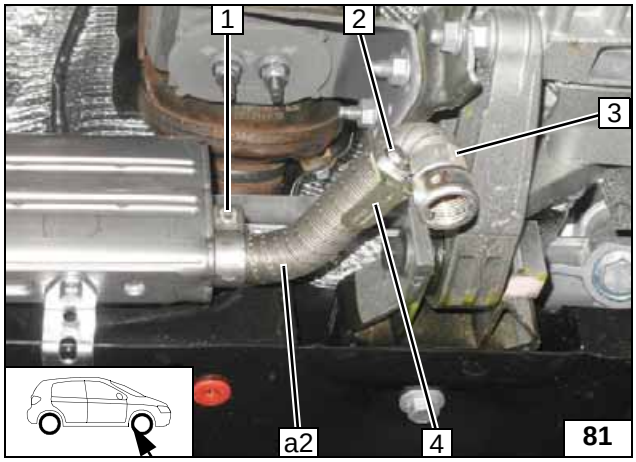
Installing exhaust pipe a1



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Hose clamp

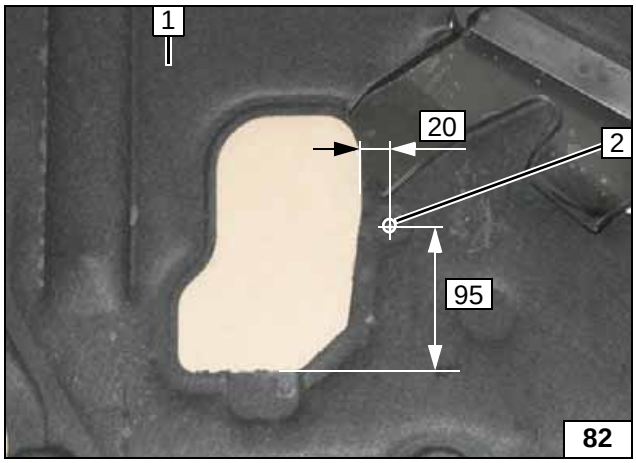
Installing exhaust pipe a1



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Hose clamp
2 M6x20 bolt, flanged nut
3 P-clamp
4 Angle bracket

Installing exhaust pipe a2



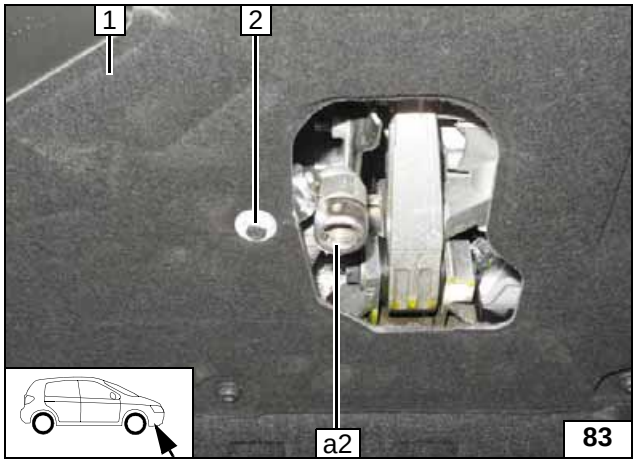
1 Engine underride protection
2 7 mm dia. hole

Hole in engine underride protection

Final Work

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

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



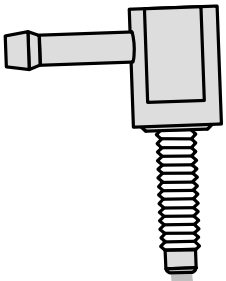
Align exhaust pipe **a2** with centre of hole and flush with engine underride protection.

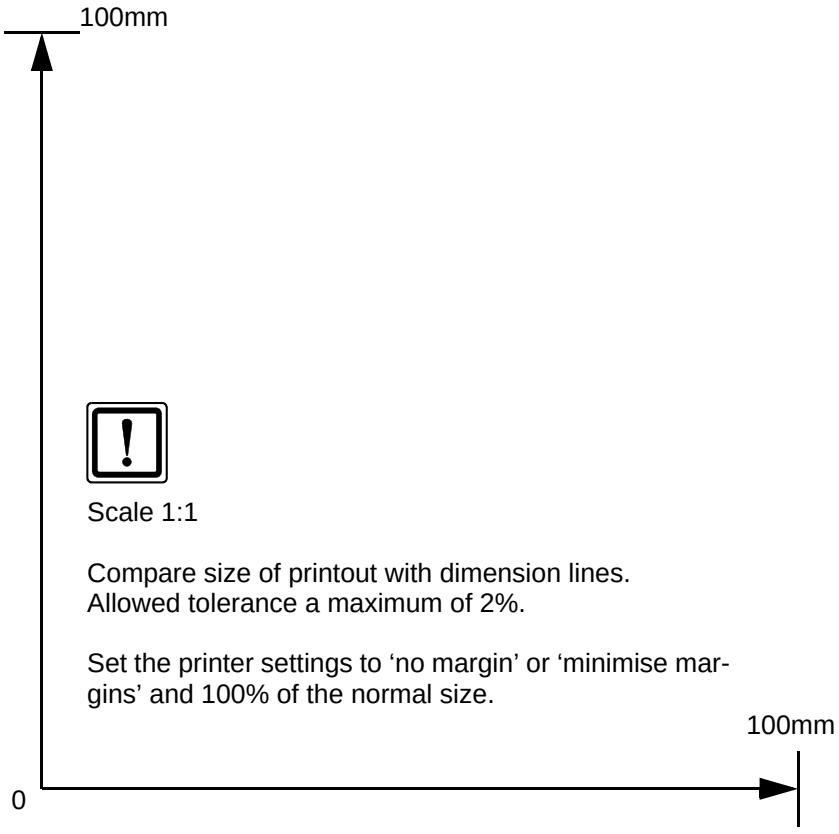
1 Mounted engine underride protection
2 M6x20 bolt, large diameter washer, flanged nut

Aligning exhaust pipe a2

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

Fuel Standpipe Template





Webasto
Feel the Drive

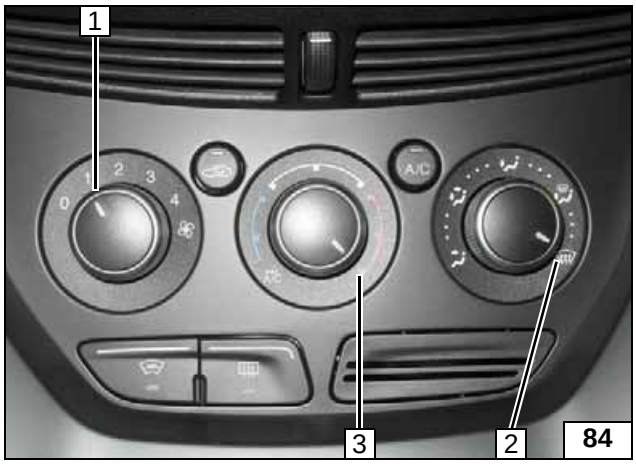
Operating Instructions for Manual A/C

Please remove page and add to the vehicle operating instructions.

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

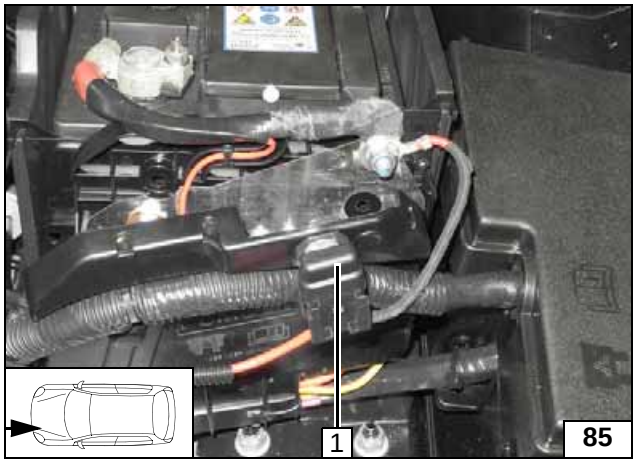
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



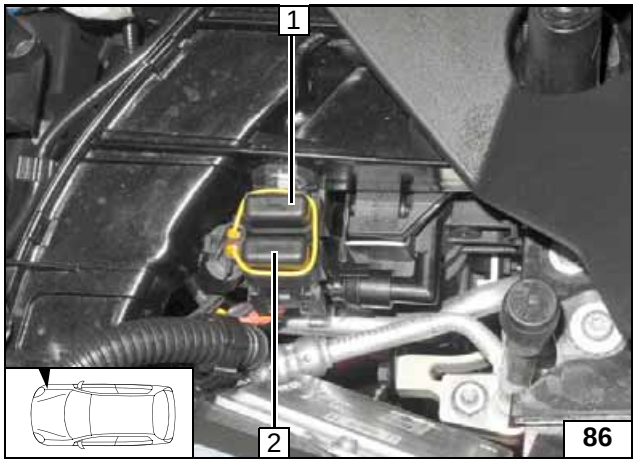
1 Set fan to level ‘1’, or max. ‘2’
2 Air outlet to windscreen
3 Set temperature to ‘max.’

A/C control panel



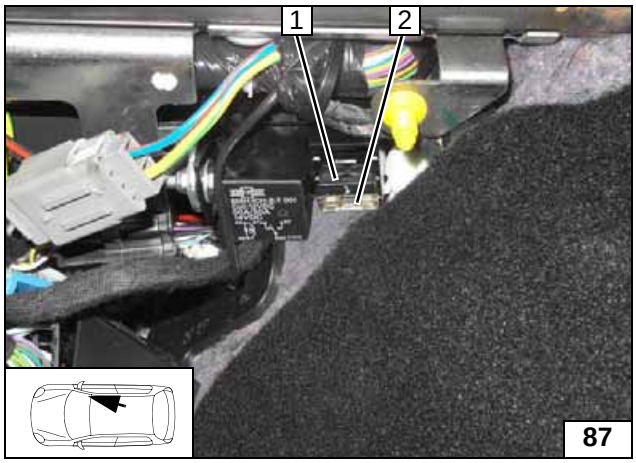
1 30A main fuse F0

Fuse F0 of engine compartment



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

Engine compartment fuses



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

Webasto
Feel the Drive

Operating Instructions for Automatic A/C

Please remove page and add to the vehicle operating instructions.

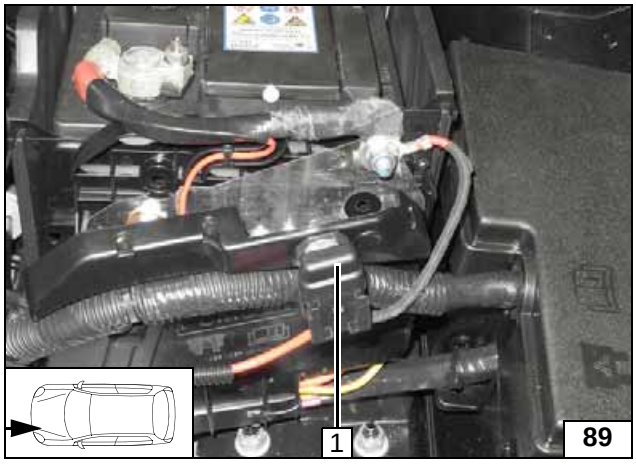
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

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

Before parking the vehicle, make the following settings:

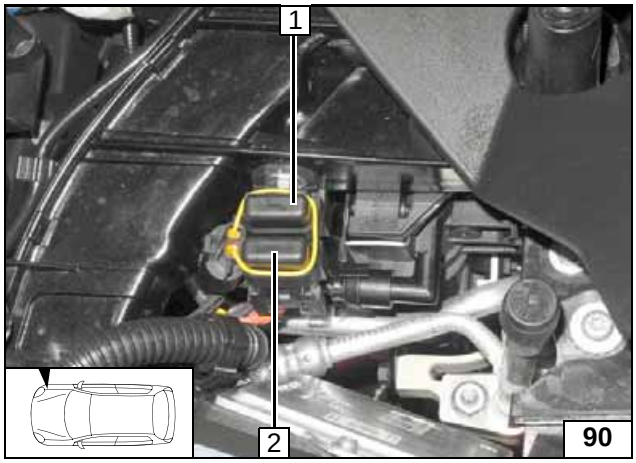
1 Set temperature on both sides to ‘HI’
2 Air outlet to windscreen

A/C control panel



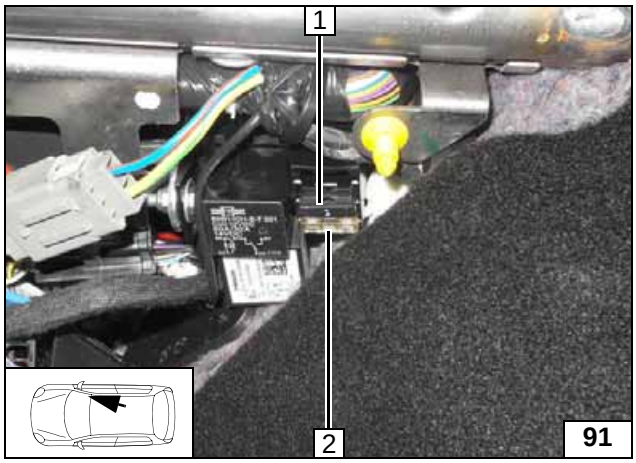
1 30A main fuse F0

Fuse F0 of engine compartment



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

Engine compartment fuses



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