Water Heater

Webasto
Feel the Drive

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Fiat 500L

Validity

Manufacturer	Model	Type	EG-BE No./ ABE
Fiat	500L	312	e1 * 2001 / 116 * 0217 *...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.3 JTD	Diesel	SG	62	1248	199B4000

SG = manual transmission

From Model Year 2013
Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog light / daytime running lights
Start / Stop

Not verified: Passenger compartment monitoring
Headlight washer system

Total installation time: approx. 7 hours

Fiat 500L

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit for Fiat 500L 2013 Diesel: **1320781A**
- Required additionally for automatic air-conditioning: Automatic A/C kit: **1320864B**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

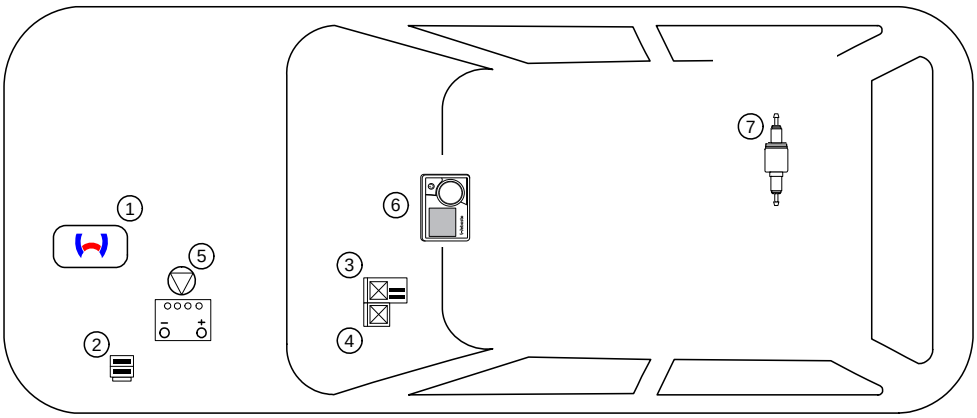
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button for Telestart or Thermo Call must be agreed with the end customer.
- Depending on the available space and manufacturer's instructions, we recommend the use of a vehicle battery with more electrical capacity.

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. PWM GW (only in case of automatic air-conditioning)
5. Circulating pump
6. MultiControl CAR
7. 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 notes (not complete)

1.1 Installation and Repair

The improper installation or repairing 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, 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 a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

2 Statutory regulations governing installation

Guidelines	TT-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 the directive 122 (heater) section 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 gas outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Information on Validity

This installation documentation applies to Fiat 500L Diesel vehicles - for validity, see page 1 - from model year 2013 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation.

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

Technical Information

Special tools
- Hose clamp pliers for 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
- 8.5mm spot-weld drill
- Webasto Thermo Test Diagnosis with current software

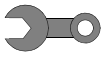
Dimensions
- All dimensions are in mm

Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8 Nm.
- Tightening torque values of 5x15 bolts for retaining plate of water connection piece = 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.

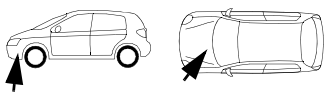
Specific risk of damage to components.

Specific risk of fire or 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

Fiat 500L

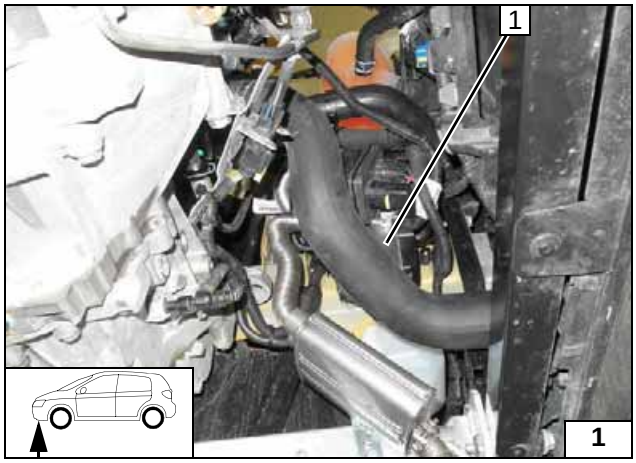
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the upper engine cover.
- Disconnect and remove the battery.
- Remove the glow-time control unit from the battery carrier, remove the battery carrier.
- Remove the windscreen wiper arms on the left and right.
- Remove the cowl trim.
- Remove the wiper motor with linkage.
- Fold back the backrest of the rear bench seat, completely fold back the bench seat.
- Remove the trim below the bench seat (4x plastic clip).
- Remove the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the lower engine cover/underride protection.
- Remove the trim of the fuel lines on the underbody.
- Remove the footwell trim below the glove compartment.
- Remove the lateral cover of the centre console.
- Remove the cover of the fan controller in the footwell on the front passenger's side (only in case of automatic air-conditioning).
- Remove the cover/access to the driver's side fuse box.
- Remove the lower cover of the instrument panel trim on the left (bolted 2x).

Heater

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



Heater Installation Location

1 Heater

Installation location

Preparing Electrical System

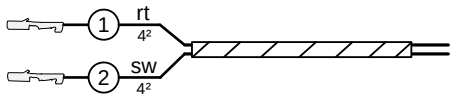
Wire sections retain their numbering throughout the whole document.

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

Assigning wires

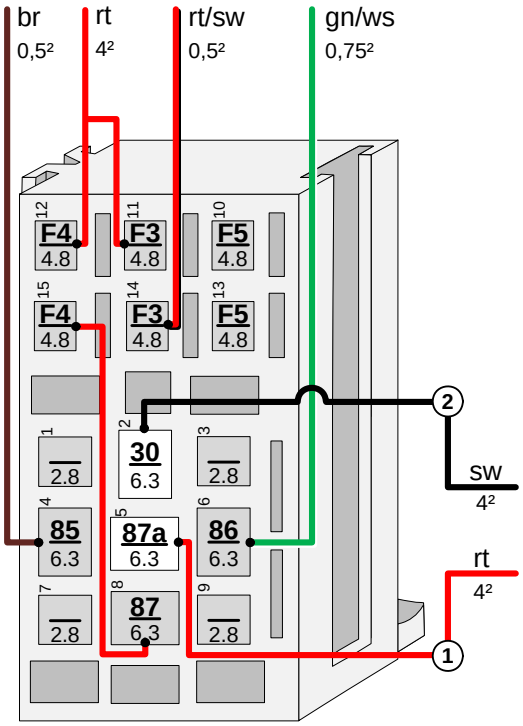
Manual air-conditioning

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness



2

Connecting wires to socket of passenger compartment relay and fuse holder



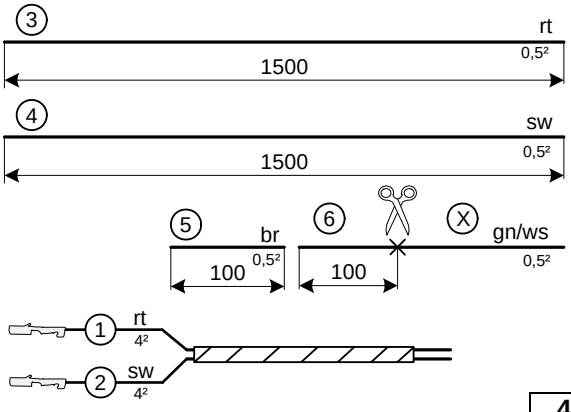
3

Cutting to length / assigning wires

Automatic air-conditioning

Discard section **X**.
Pull wires ③ and ④ into a protective sleeving.

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness



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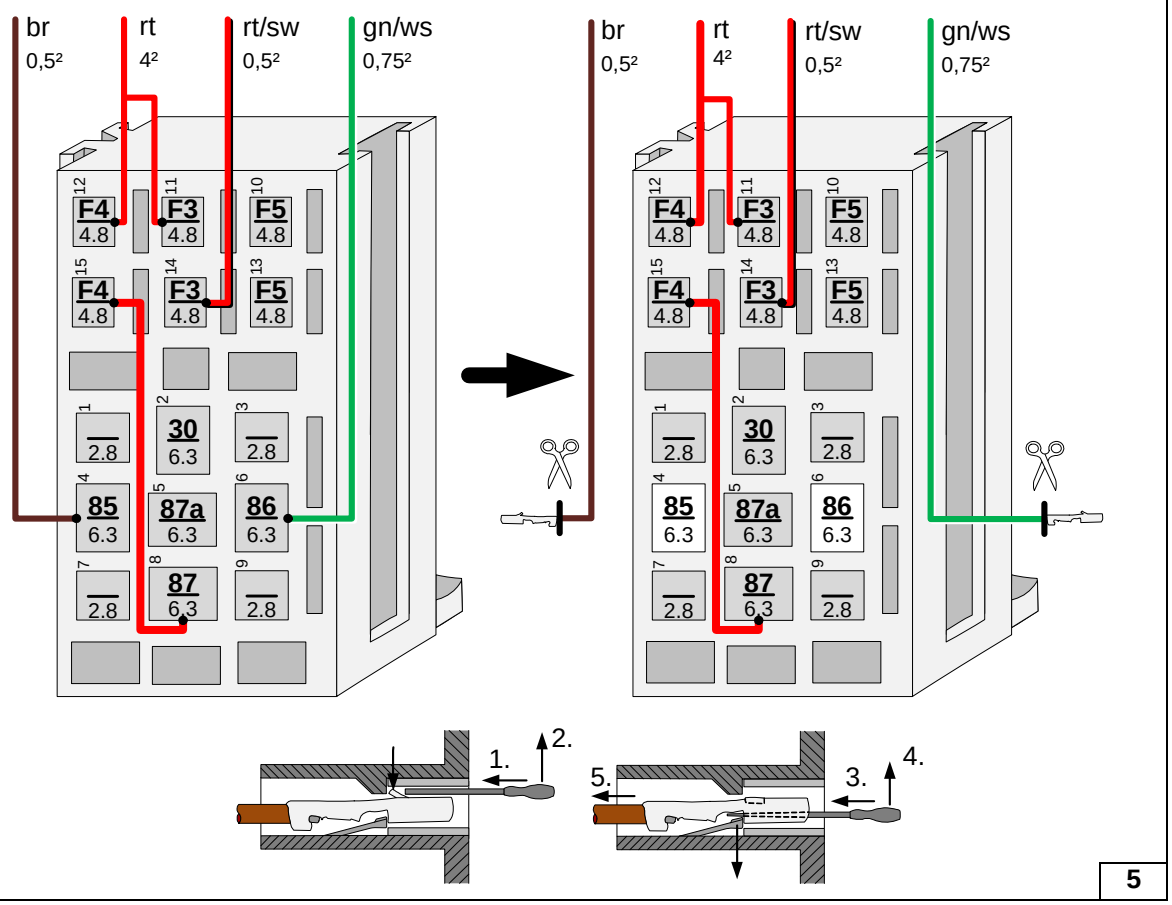
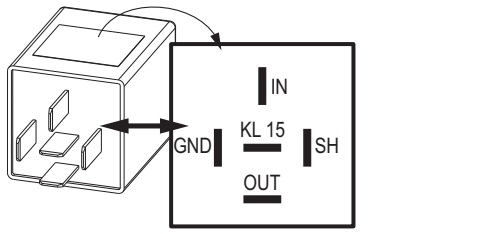


5

Preparing relay and fuse holder of passenger compartment



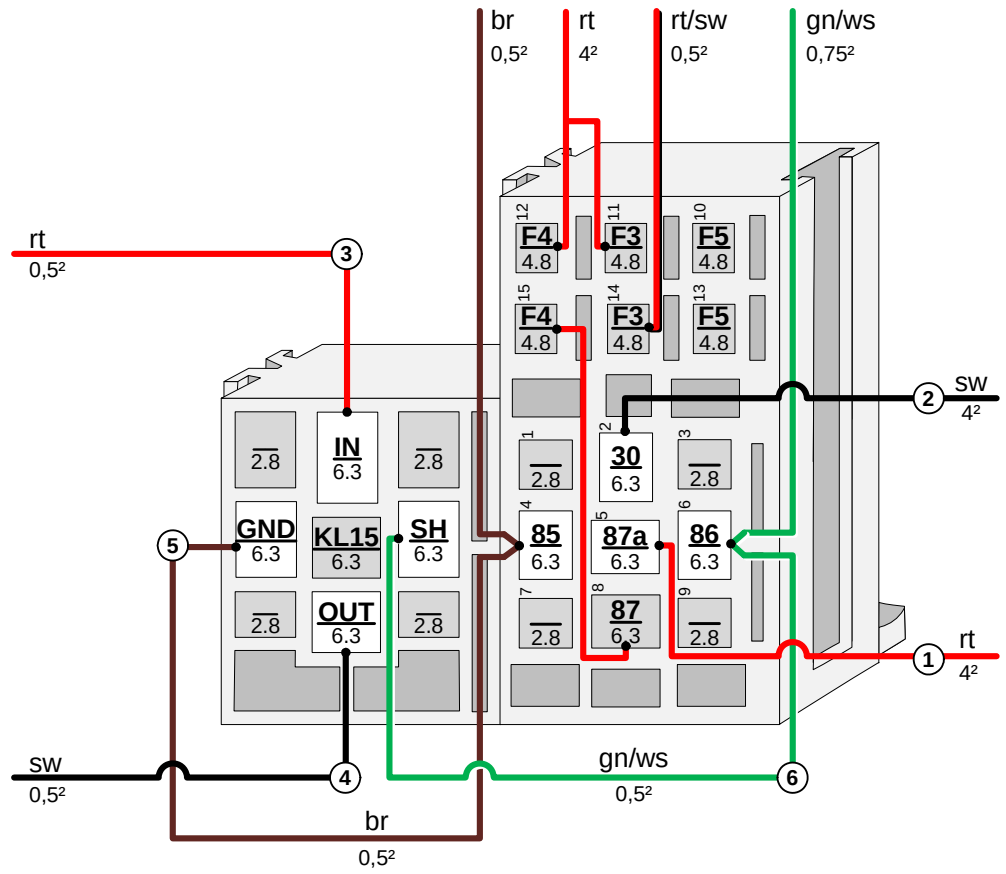
6

The settings of the PWM Gateway are to be checked before the heater start-up, and adjusted if necessary.

Settings:

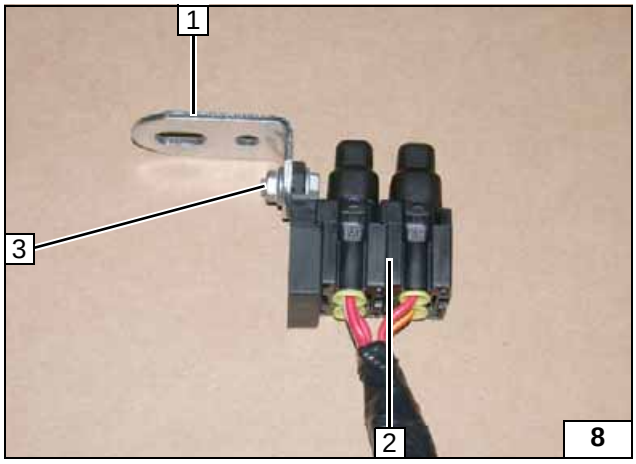
Duty cycle: 25%
Frequency: 1000Hz
Voltage: 4.8V
Function: High side

View of PWM-GW



7

Connecting wires to sockets of PWM GW and passenger compartment relay and fuse holder, interconnecting sockets



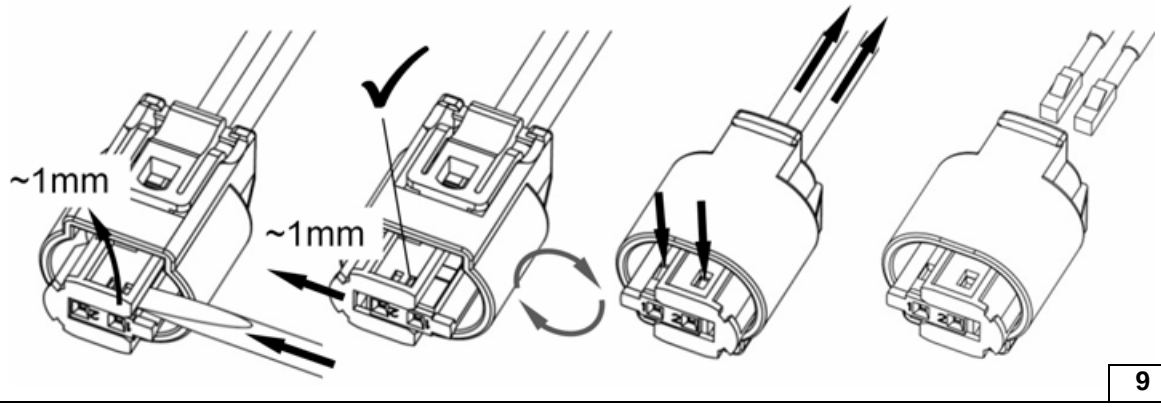
8

All vehicles

1 Angle bracket
2 Fuse F1-2
3 M5x16 bolt, large diameter washer [2x], nut

Preparing engine compartment fuse holder

Connector X7



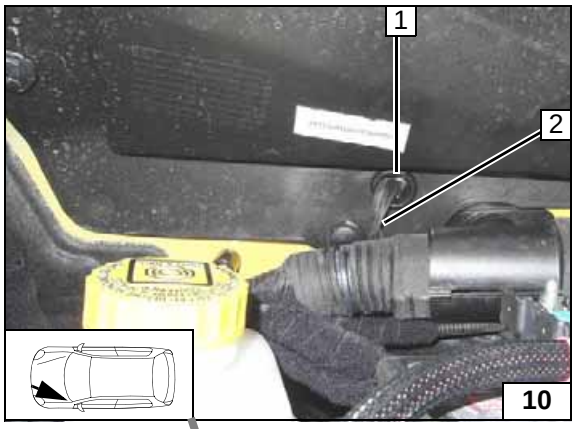
9

Removing metering pump connector

Electrical System

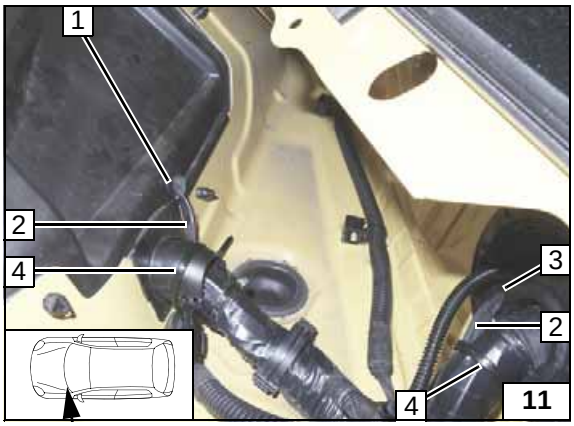
Wiring harness pass through of the engine compartment

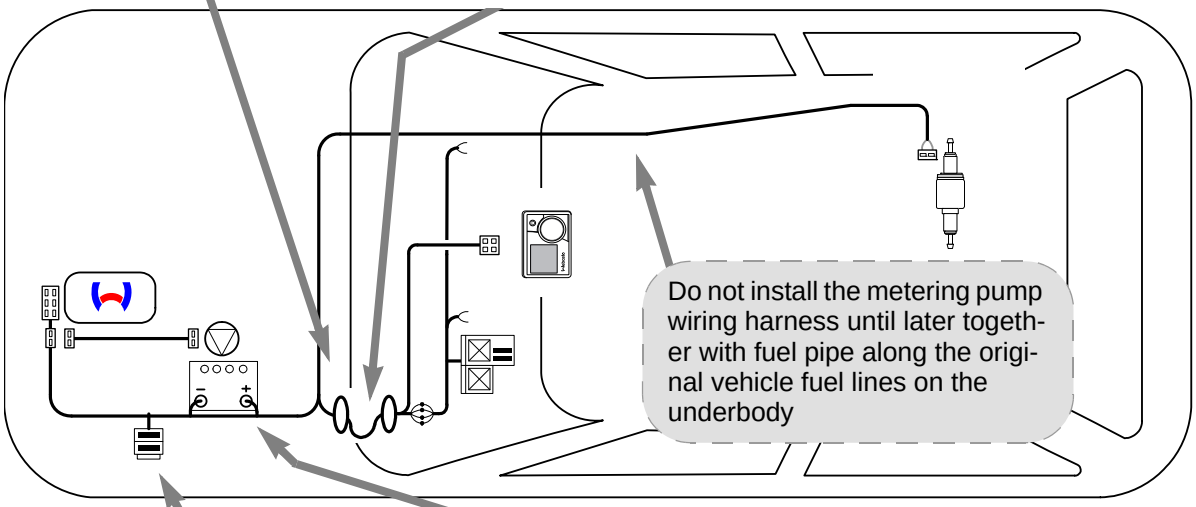
1 17mm dia. hole, insert protective rubber plug
2 Wiring harness of heater, heater control



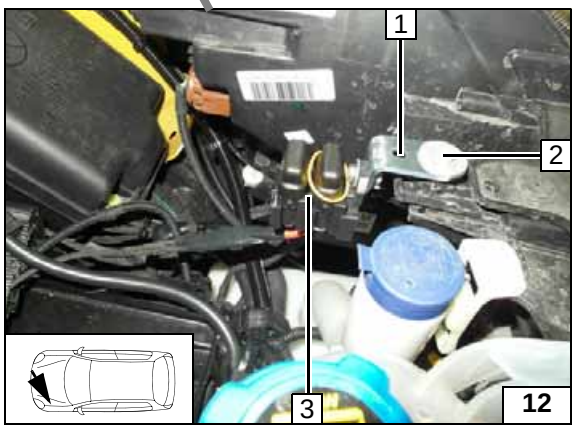
Wiring harness pass through of coolant reservoir

1 Protective rubber plug inserted (see image on left)
2 Wiring harness of heater, heater control
3 Original vehicle protective rubber plug
4 Cable tie [2x]



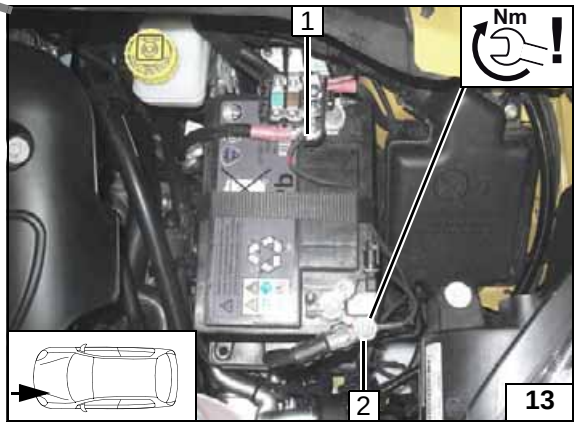


Wiring harness routing diagram



Engine compartment fuse holder

1 Angle bracket
2 Original vehicle bolt
3 Fuse F1-2

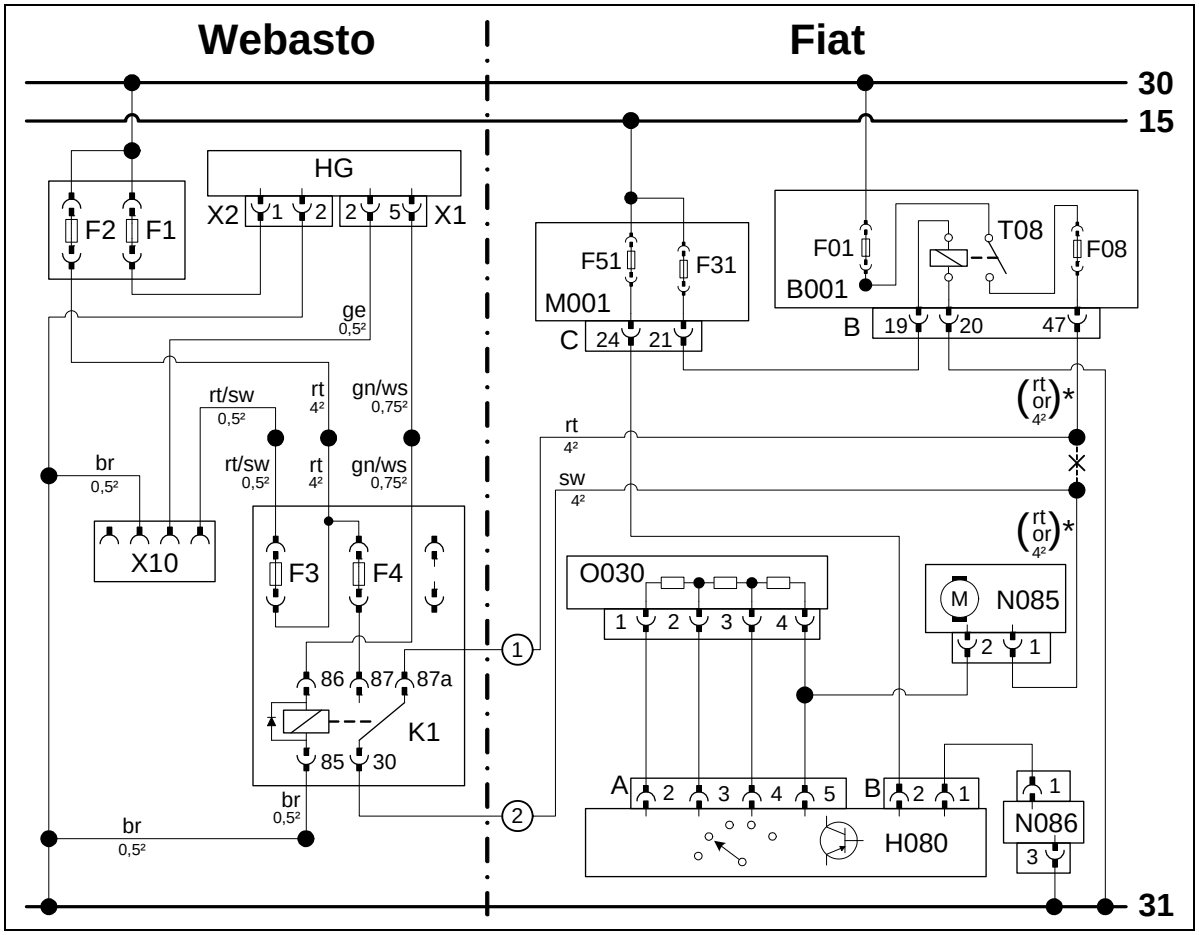


Positive and earth wire

1 Positive wire on positive battery terminal
2 Earth wire on negative terminal of battery

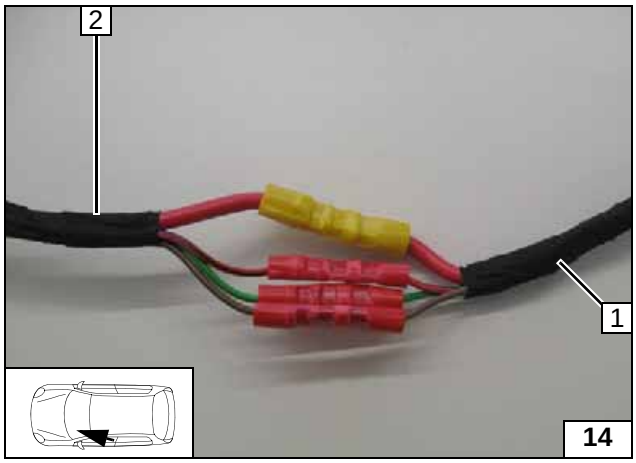
Fan Controller for Manual Air-Conditioning

Wiring diagram



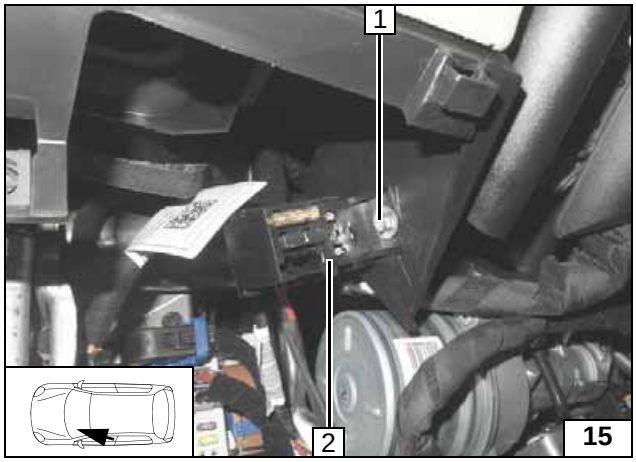
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo Heater	B001	Central electrical box in engine compartment	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	T08	Fan relay	ge	yellow
F1	20A fuse	F01	70A fuse	gn	green
F2	30A fuse	F08	40A fuse	ws	white
X10	4-pin connector of heater control	B	Connector B001	br	brown
		M001	Body computer	or	orange
F3	1A fuse	F51	5A fuse		
F4	25A fuse	F31	5A fuse		
K1	Fan relay	C	Connector M001		
		O030	Resistor group		
		N085	Fan motor		
		N086	Electr. thermostat		
		H080	Switch of A/C control panel	**X**	Cutting point
		A	Connector H080	✱	Wiring colours may vary.
		B	Connector H080		



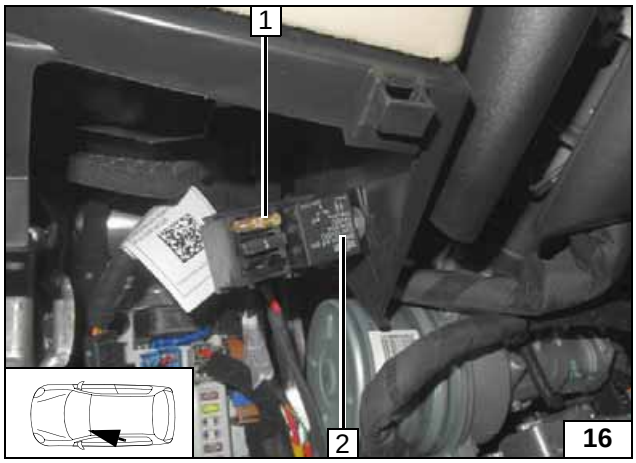
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



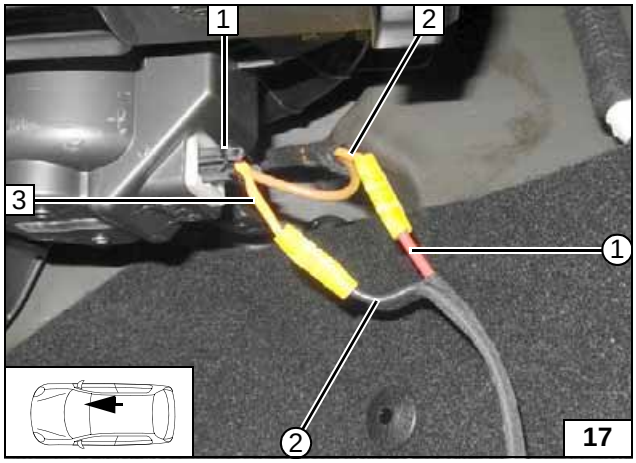
1 5.5 mm dia. hole, M5x16 bolt, large diameter washer [2x], nut
2 Passenger compartment relay and fuse holder

Installing relay and fuse holder of passenger compartment



1 25A fuse F4
2 K1 relay

Installing K1 relay and F4 fuse

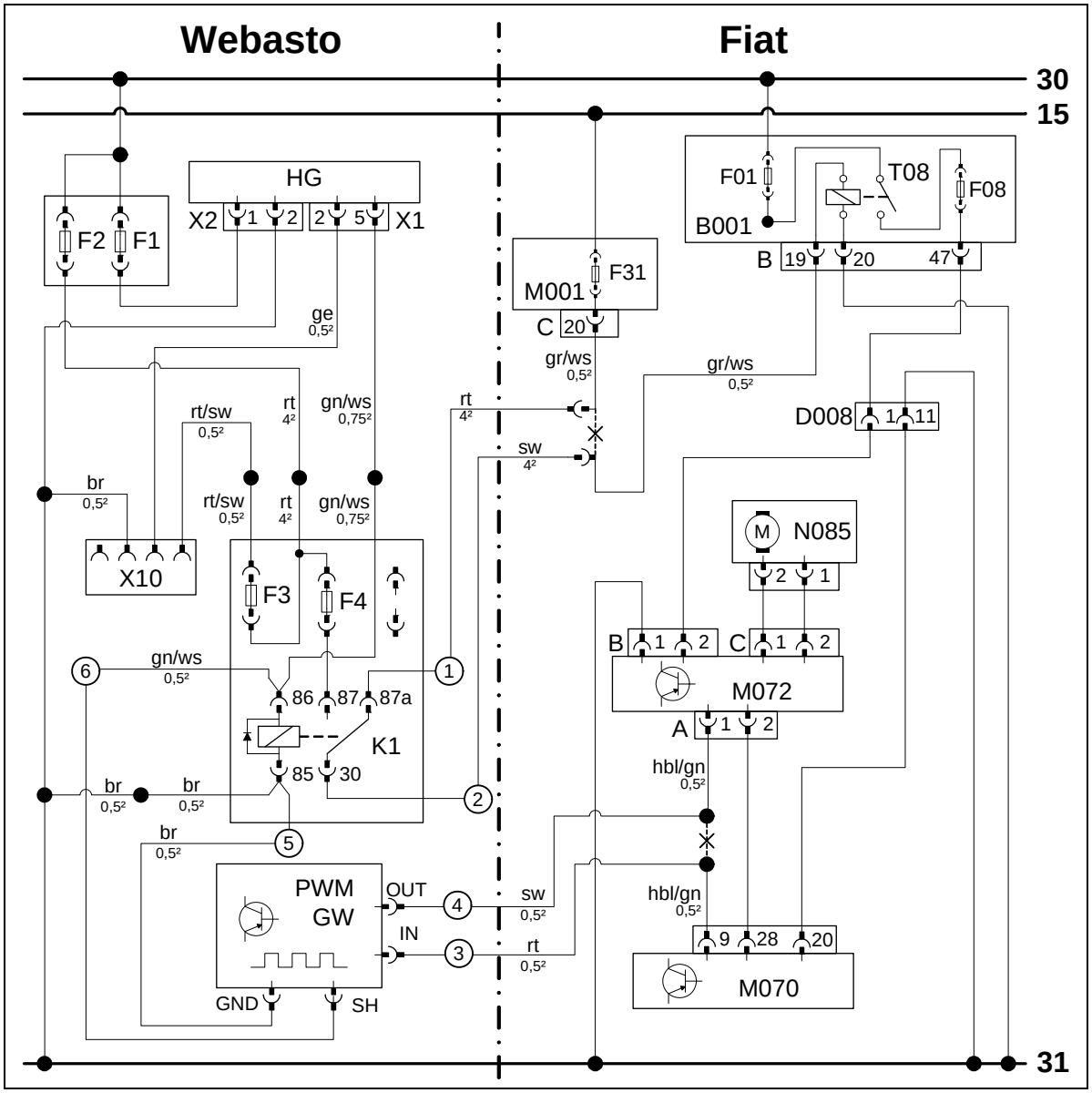


1 2-pin connector of fan motor N085
2 Red (rt) or orange (or) wire of fuse F08
3 Red (rt) or orange (or) wire of 2-pin connector N085/1
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30, fan wiring harness

Connection of fan motor

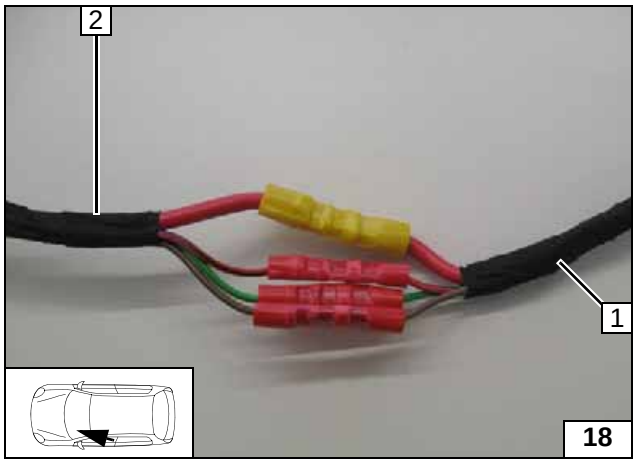
Fan Controller for Automatic Air-Conditioning

Wiring diagram



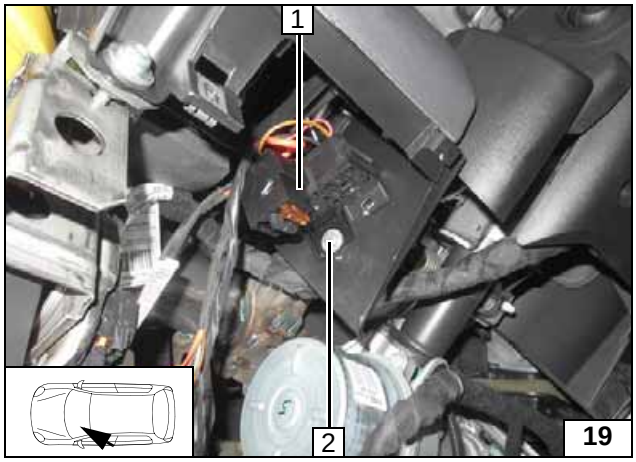
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo Heater	B001	Central electrical box in engine compartment	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	T08	Fan relay	ge	yellow
F1	20A fuse	F01	70A fuse	gn	green
F2	30A fuse	F08	40A fuse	br	brown
X10	4-pin connector of heater control	B	Connector B001	gr	grey
		M001	Body computer	ws	white
F3	1A fuse	F31	5A fuse	hbl	light blue
F4	5A fuse	C	20-pin connector M001		
K1	Fan relay	D008	Plug connection		
PWM GW	Pulse width modulator	N085	Fan motor		
		M072	Fan controller		
Settings of PWM GW:		A	M072 connector		
Duty cycle: 25%		B	M072 connector		
Frequency: 1000Hz		C	M072 connector		
Voltage: 4.8V		M070	A/C control unit	**X**	Cutting point
Function: High side				Wiring colours may vary.	

Legend



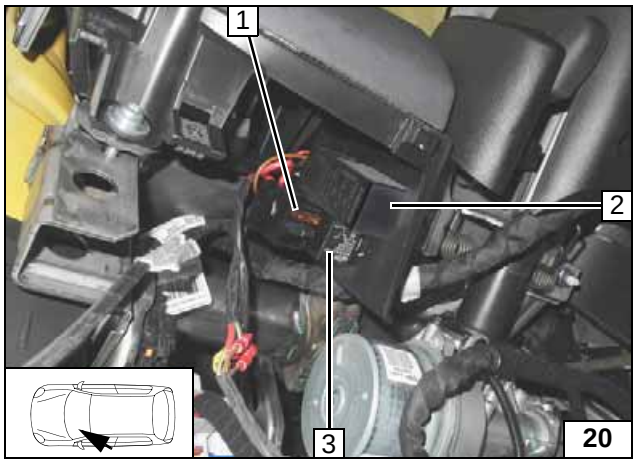
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



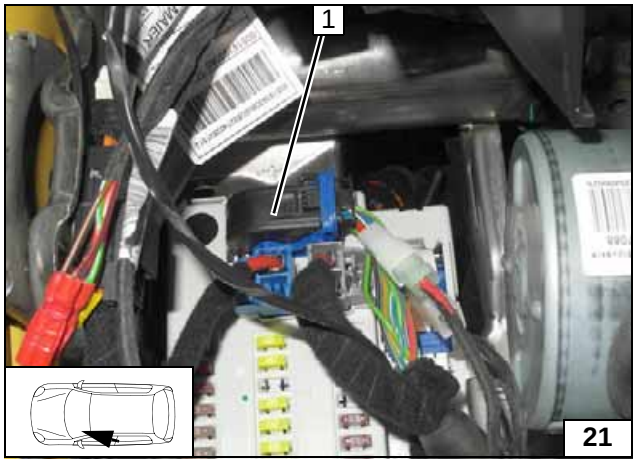
1 Passenger compartment relay and fuse holder
2 5.5 mm dia. hole, M5x16 bolt, large diameter washer [2x], nut

Installing relay and fuse holder of passenger compartment



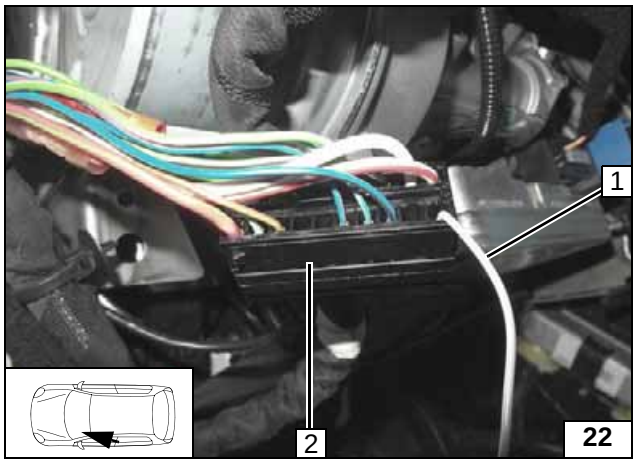
1 5A fuse F4
2 PWM GW
3 K1 relay

Installing K1 relay, PWM GW and fuse F4



Detach 20-pin connector C **1** from Body Computer (M001) and dismantle.

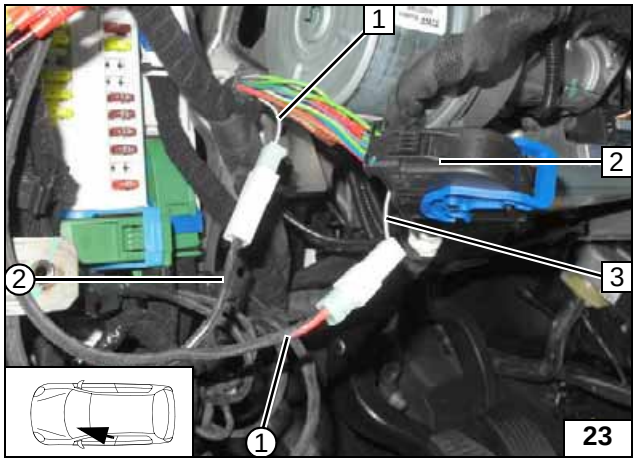
Connection of Body Computer



Separate grey/white (gr/ws) wire **1** 100mm behind the plug connection.
Reassemble the connector housing.

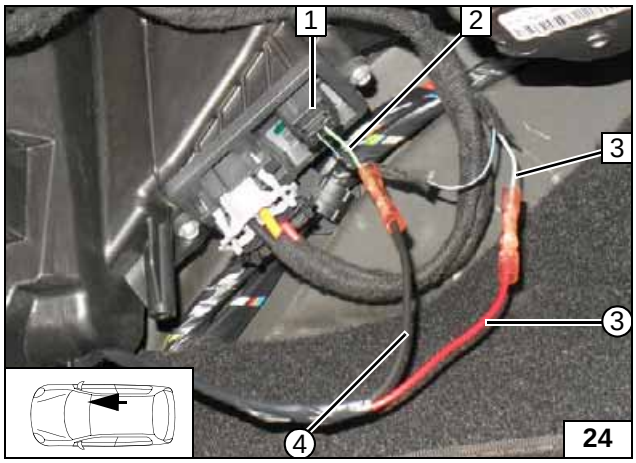
1 Grey/white (gr/ws) wire of connector C, pin 20
2 20-pin connector C (M001)

Connection of Body Computer



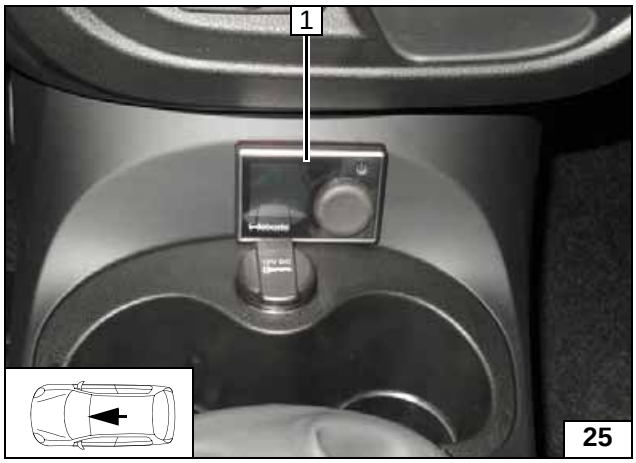
1 Grey/white (gr/ws) wire of connector B (B001), pin 19
2 20-pin connector C (M001)
3 Grey/white (gr/ws) wire of connector C (M001), pin 20
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30, fan wiring harness

Connection of Body Computer



1 2-pin connector A (M072)
2 Light blue/green (hbl/gn) wire of connector A (M072), pin 1
3 Light blue/green (hbl/gn) wire of connector (M070), pin 9
③ Red (rt) wire of PWM GW/IN
④ Black (sw) wire of PWM GW/OUT

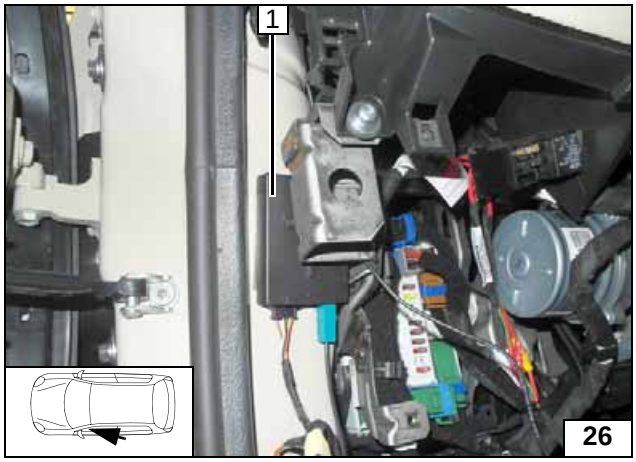
Connecting fan controller



MultiControl CAR Option

1 MultiControl CAR

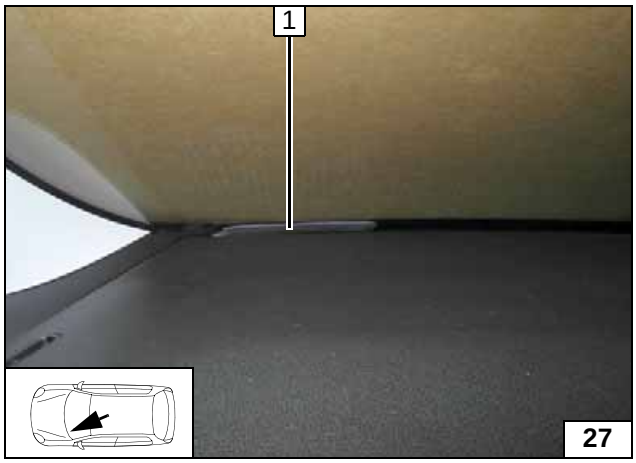
Installing MultiControl CAR



Remote Option (Telestart)

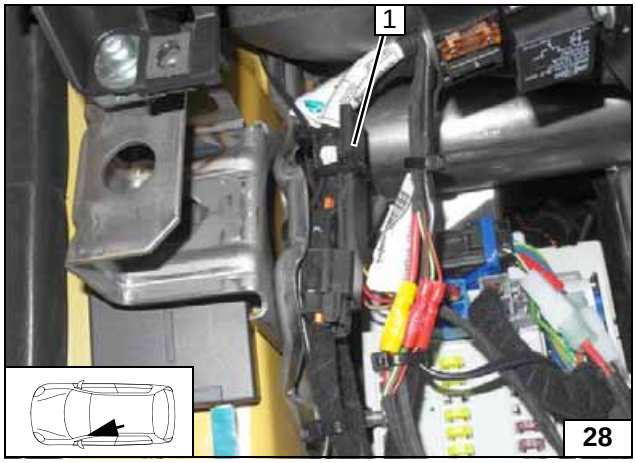
Degrease adhesive base. Fasten receiver **1** with adhesive tape.

Installing receiver



1 Antenna

Installing antenna



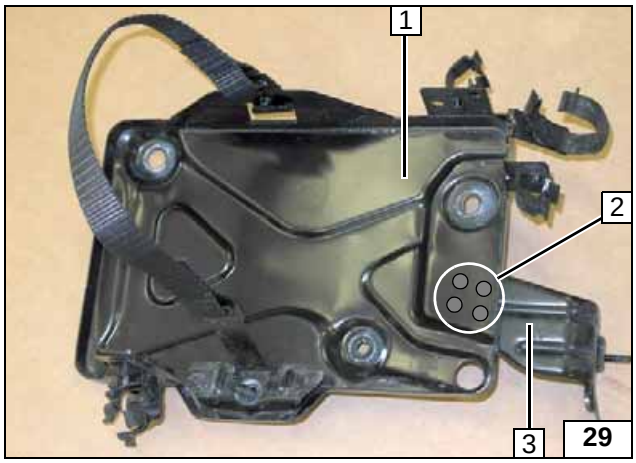
Temperature sensor T100 HTM

Fasten temperature sensor **1** with cable tie.

Installing tempera-ture sensor

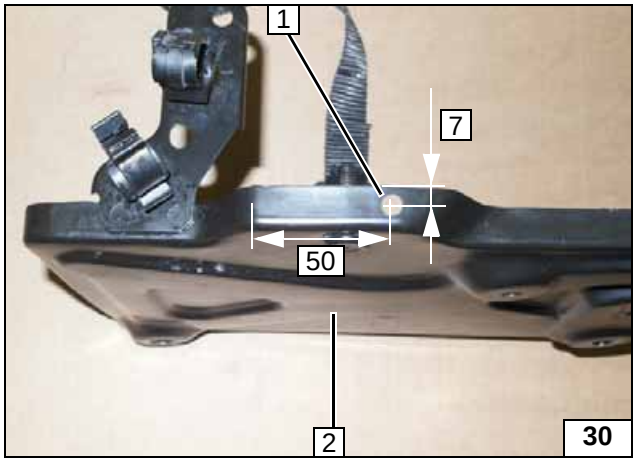
Preparing Installation Location

Drill out spot weld **2** [4x] with spot-weld drill to 8.5 m dia. Remove bracket **3** and discard.



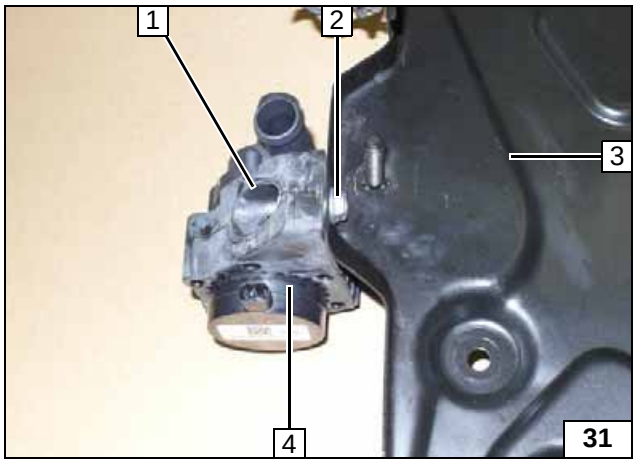
1 Battery carrier

Preparing battery carrier



1 6 mm dia. hole
2 Battery carrier

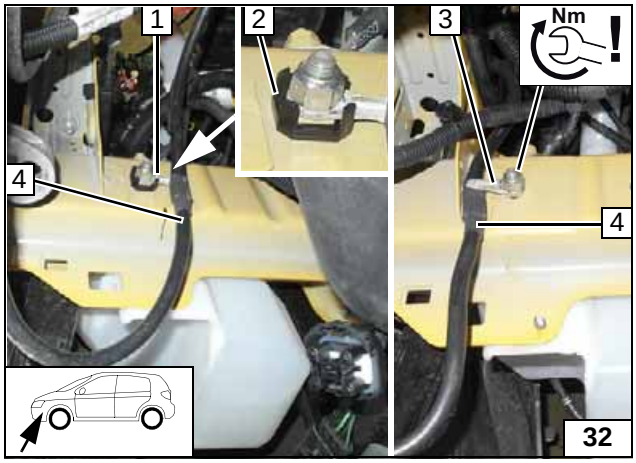
Preparing battery carrier



1 Bracket of circulating pump
2 M6x25 bolt, flanged nut
3 Battery carrier
4 Circulating pump

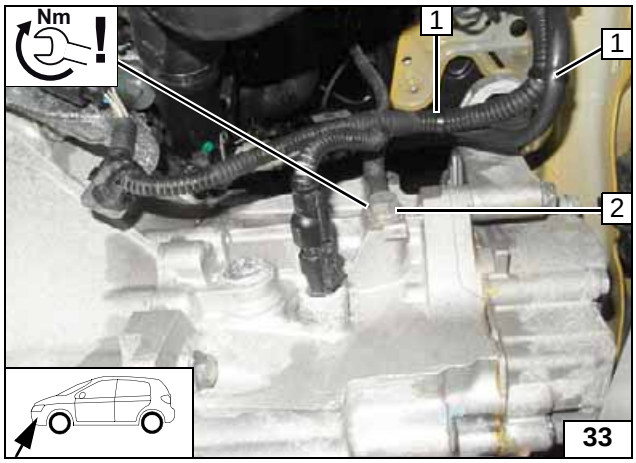
Installing rivet nut

Align earth cable **4** position. Discard twist protection **2**.



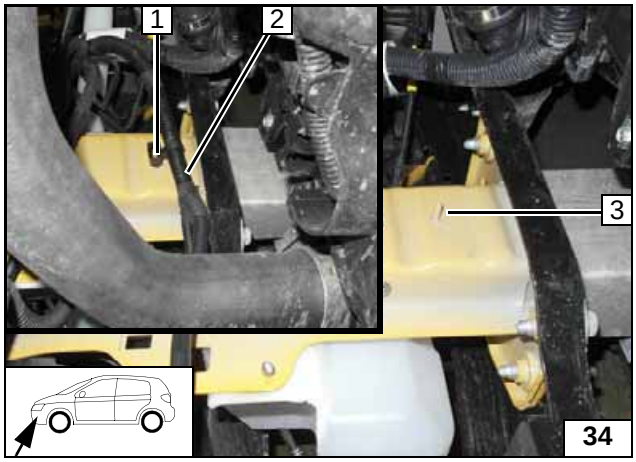
1 Position before
3 Position after

Aligning earth cable



Detach original vehicle earth wire **2** and align as shown. Fasten original vehicle lines at position **1** using cable ties.

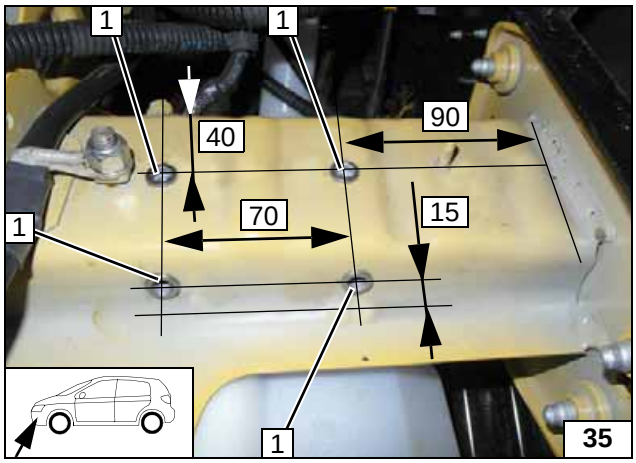
Aligning earth wires



Remove original vehicle line **2** from locking pin **1**.

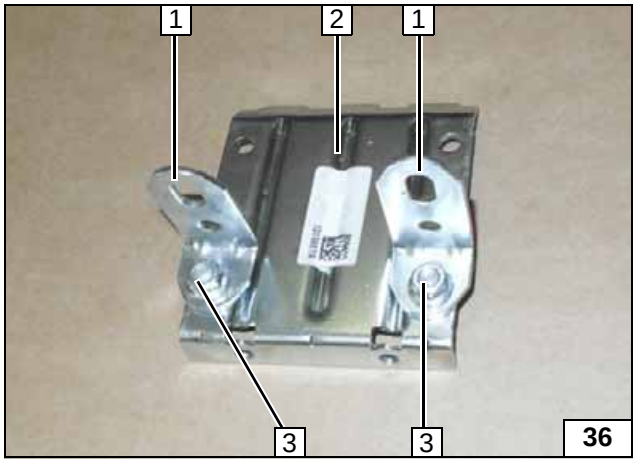
1 Locking pin before (wiring harness mounted)
3 Locking pin after (locking pin free)

Exposing locking pin



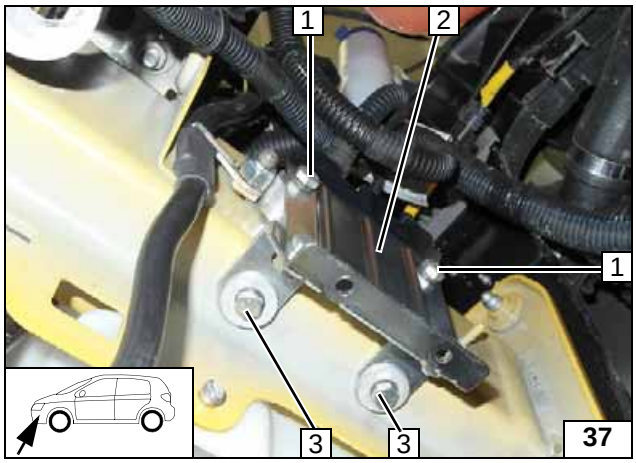
1 9.1 mm dia. hole, mount rivet nut [4x]

Installing rivet nuts



1 Angle bracket [2x]
2 Heater bracket part 1
3 M6x12 bolt, flanged nut [2x each]

Preparing bracket

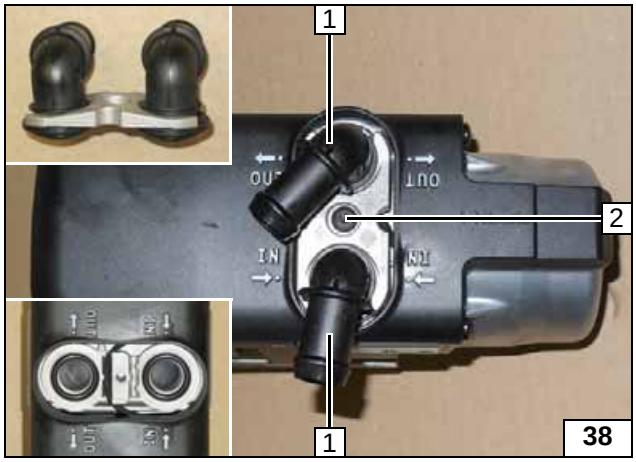


Insert 5 mm and 10 mm shims between heater bracket **2** and frame side member.

1 M6x30 bolt,spring lockwasher, 10 mm shim, 5 mm shim [2x each]
3 M6x20 bolt, spring lockwasher, large diameter washer [2x each]

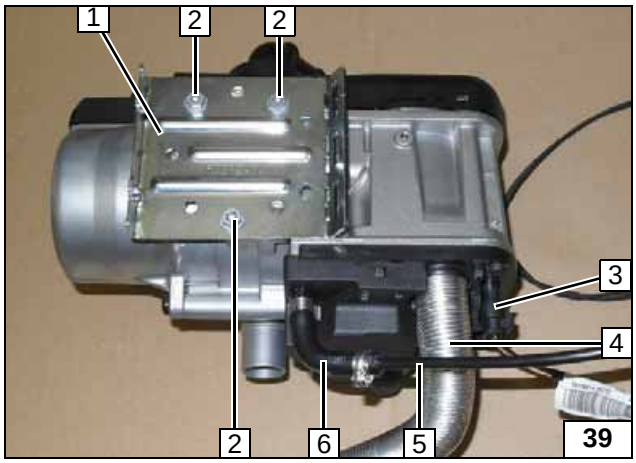
Installing bracket

Preparing Heater



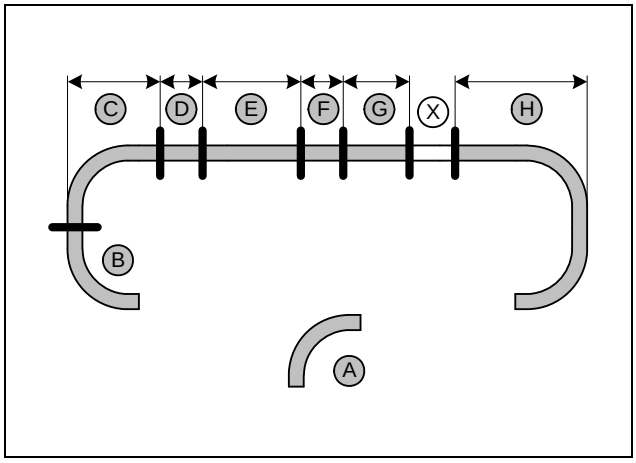
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection pieces

Installing water connection pieces



1 Heater bracket part 2
2 5x13 self-tapping bolt
3 Connector of circulating pump wiring harness
4 Intake manifold line
5 Fuel line
6 90° hose section, 10mm dia. clamp [2x]

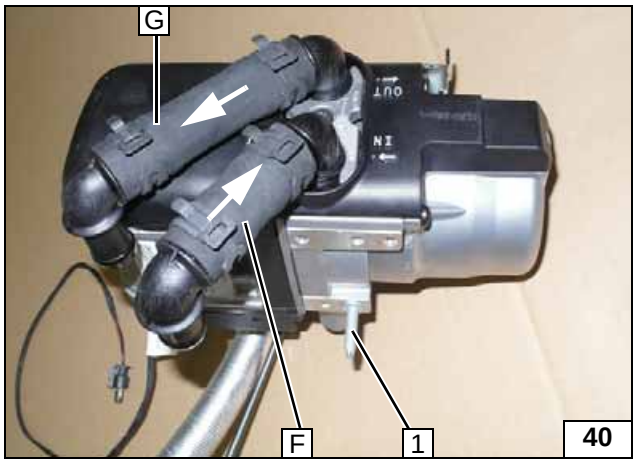
Premounting heater



Discard section **X**.
Hose **A** = 20mm dia., 90° moulded hose

C = 215
D = 60
E = 340
F = 60
G = 100
H = 585

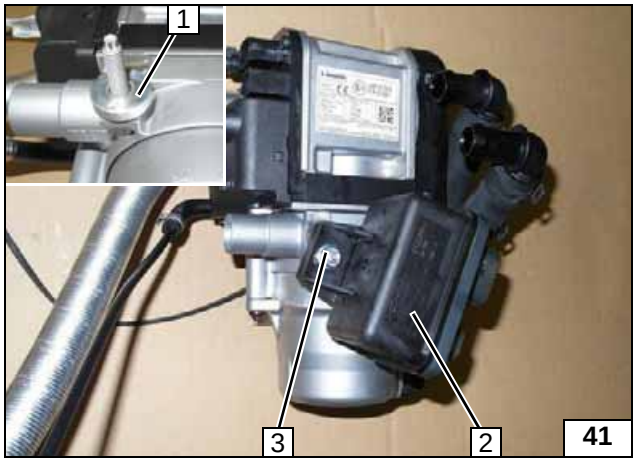
Cutting hoses to length



In order to facilitate the installation later, mark/label hoses according to their direction of flow.
All spring clips = 25mm dia.
All connecting pipes 18x18mm.

1 5x11 stud bolt

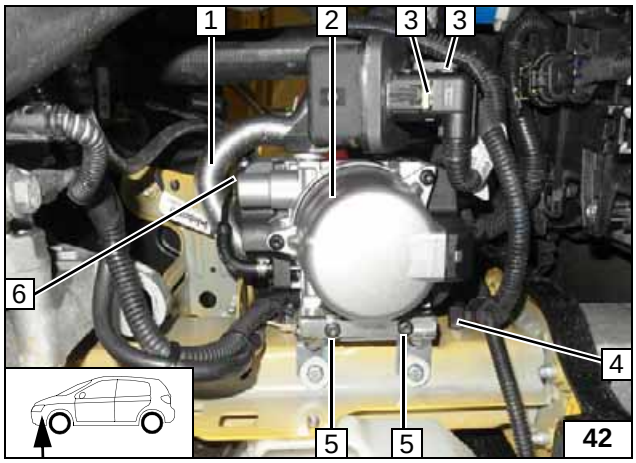
Premounting heater



Insert shim **1** between heater and glow-time control unit **2**.

3 Stud bolt (premounted), 5 mm shim, M6 flanged nut

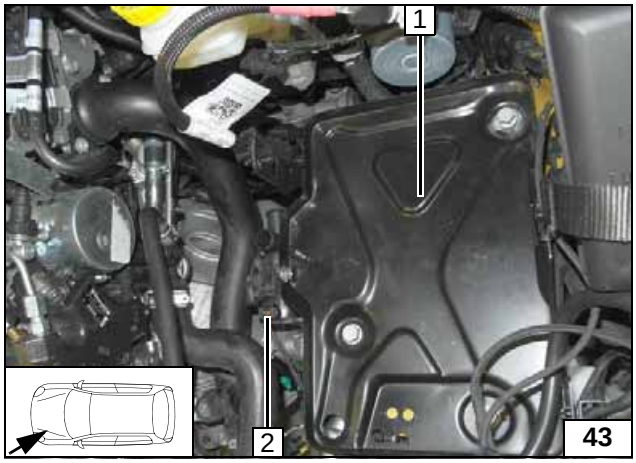
Installing glow-time control unit



Attach wiring harness of heater [2x] **6** (view covered) prior to installation of heater and route it into the engine compartment.

1 Route intake pipe up into the engine compartment
2 Premounted heater
3 Install connector of glow-time control unit [2x]
4 Install bracket of original vehicle line
5 5x12 self-tapping bolt

Installing heater



Installing Heater

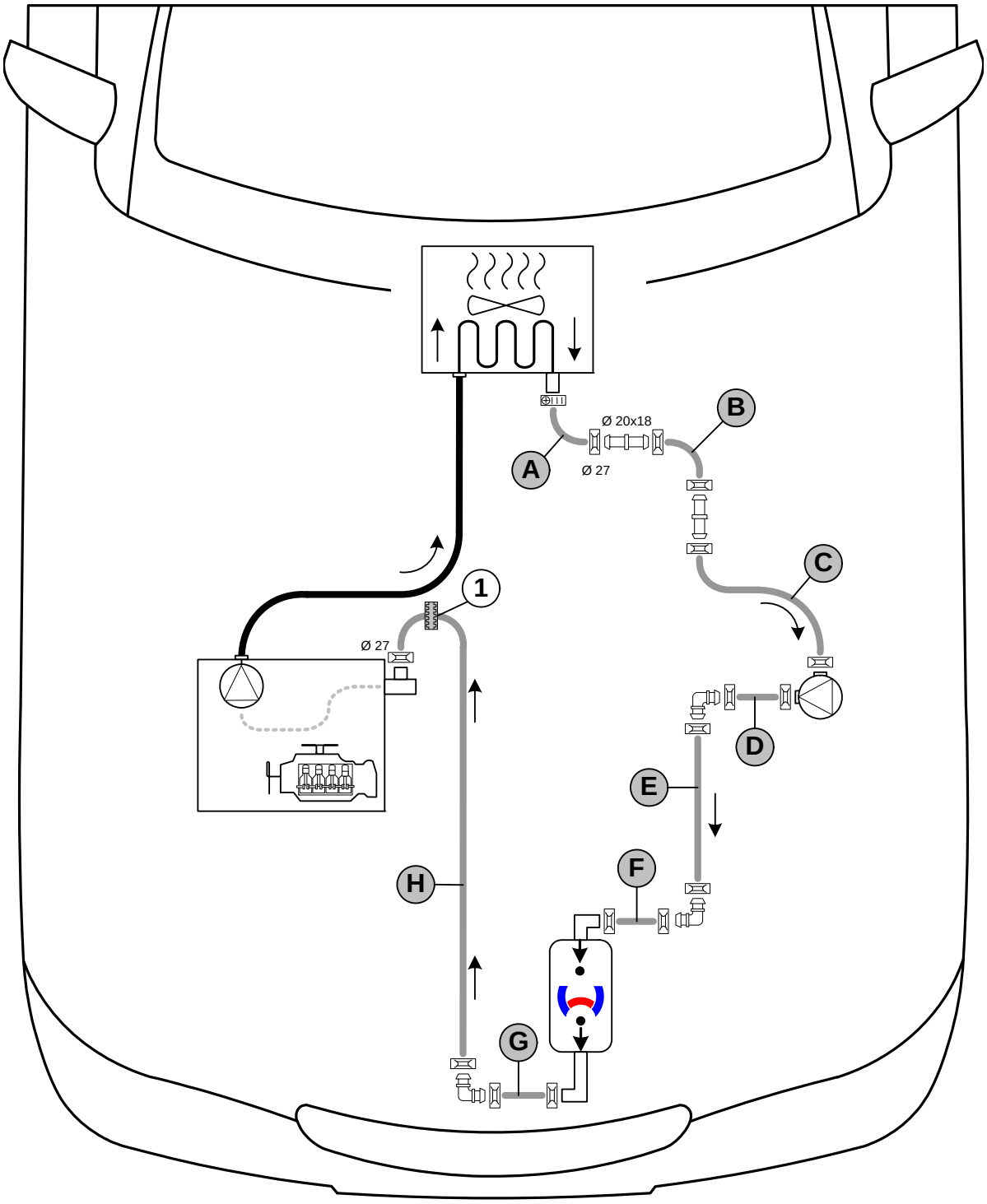
1 Prepared battery carrier
2 Install connector of circulating pump

Installing battery carrier

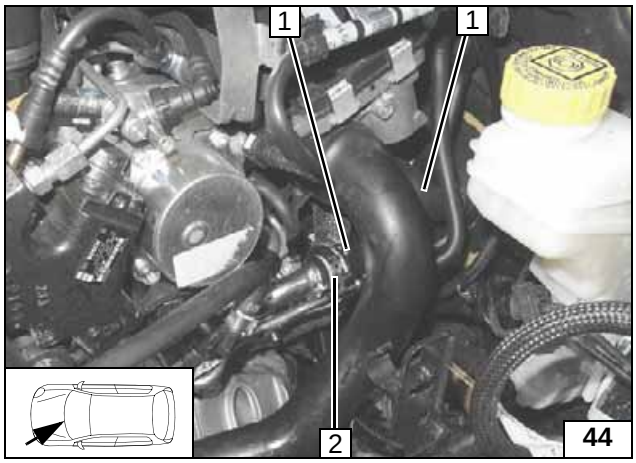
Coolant Circuit

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

Hose routing diagram

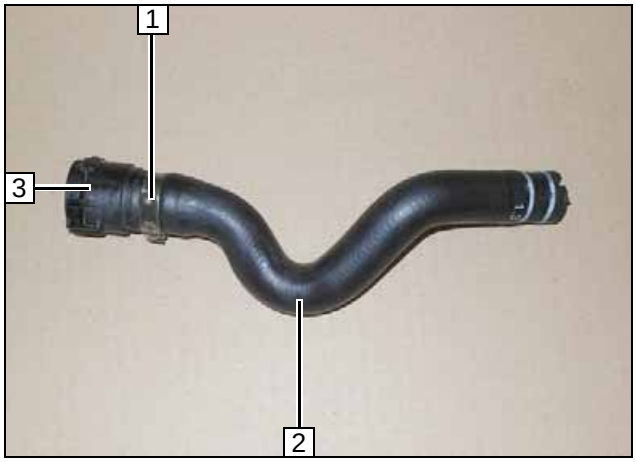


All spring clips without specific designation = 25mm dia. All hose clamps = 20-27 mm dia.
All connecting pipes without a specific designation and = 18x18mm dia. **1** = Black (sw) rubber isolator .



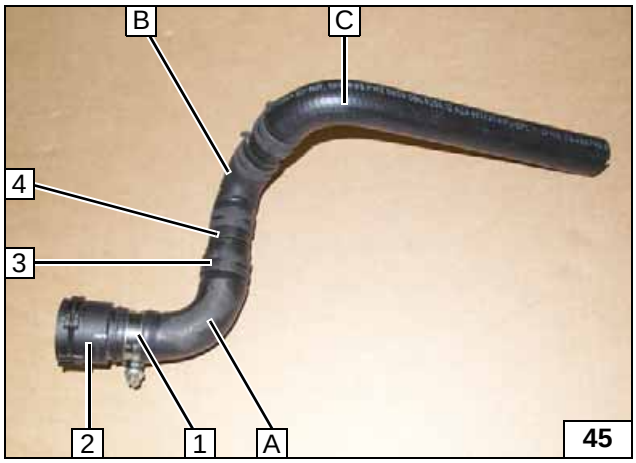
Remove original vehicle hose of engine inlet / heat exchanger outlet **1**. Discard original vehicle clamp **2**.

Cutting point



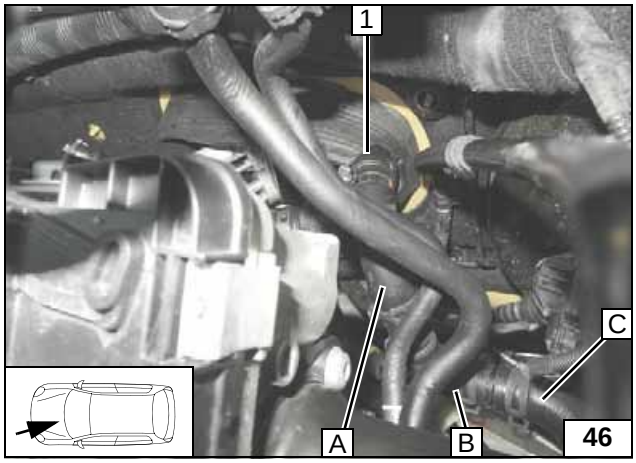
Remove original vehicle clamp **1** and hose **2** from quick-release coupling **3** and discard. Quick-release coupling will be reused.

Preparing quick-release coupling



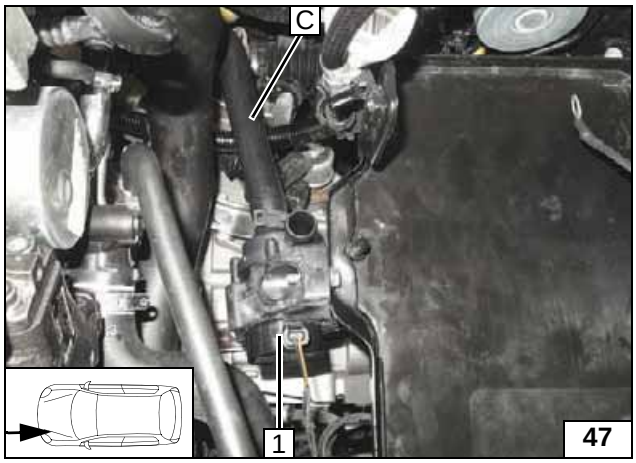
1 Screw clamp
2 Original vehicle quick-release coupling
3 27 mm dia. clamp
4 20 x18 connecting pipe

Premounting hose



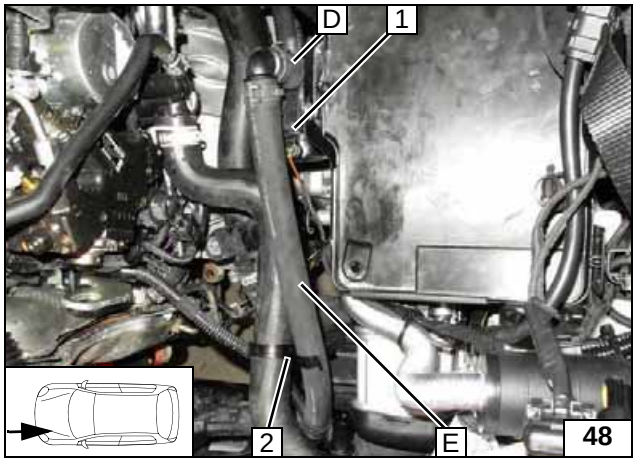
1 Original vehicle quick-release coupling

Connection on heat exchanger outlet



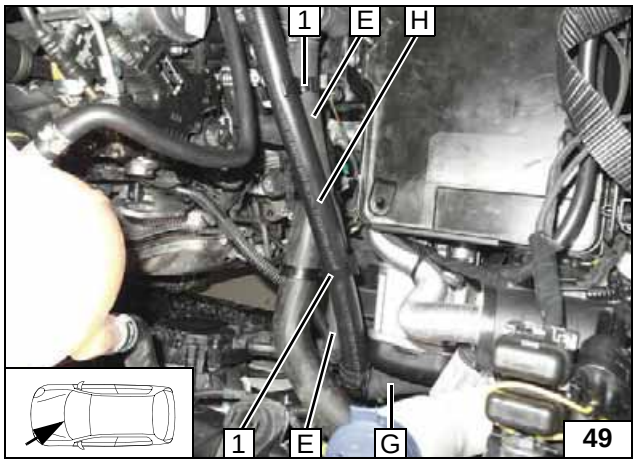
1 Circulating pump

Connection on circulating pump inlet



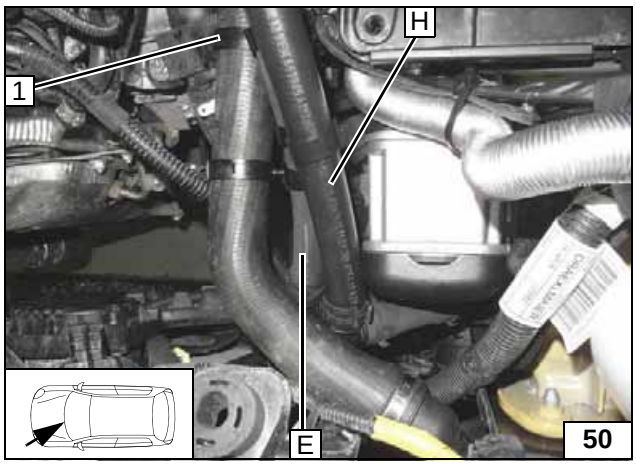
1 Circulating pump
2 37x25 mm dia. hose bracket

Connecting heater inlet



Install hose bracket **1** [2x] between hoses **E** and **H**. Ensure sufficient distance from neighbouring components, correct if necessary.

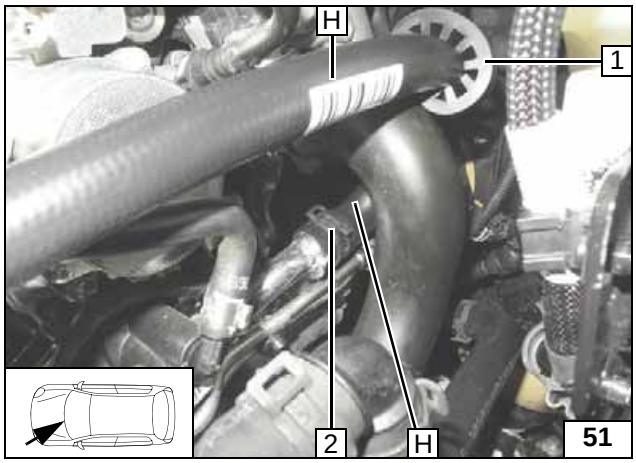
Connecting heater outlet



Hose bracket **1** between original vehicle hose and hose **E.** Ensure sufficient distance from neighbouring components, correct if necessary.

1 37x25 mm dia. hose bracket

Hose routing



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

1 Black (sw) rubber isolator
2 27 mm dia. clamp

Connection on engine inlet

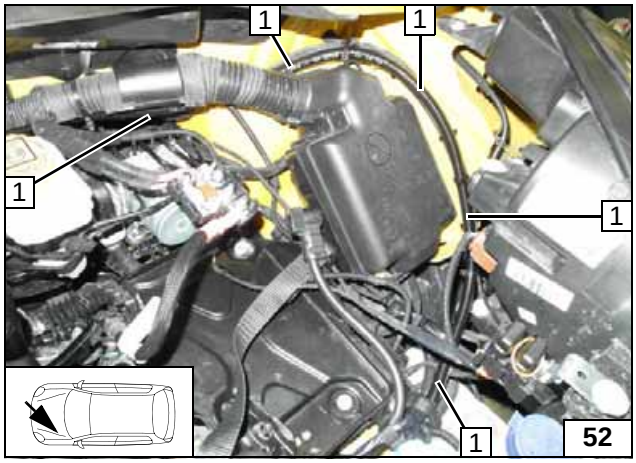
Fuel

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.

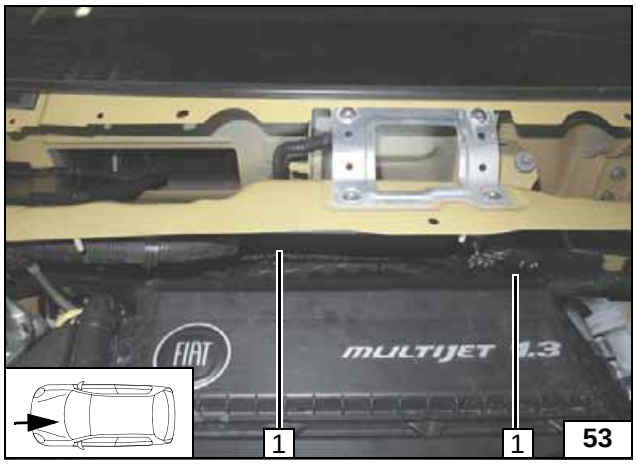
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



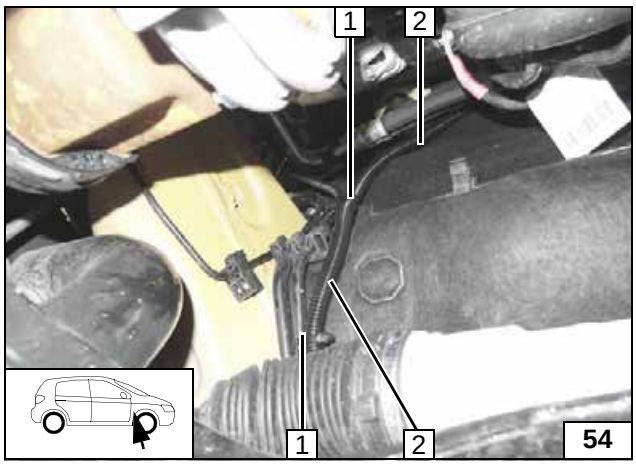
Route fuel line and wiring harness of metering pump into corrugated tube **1** to the firewall.

Installing lines



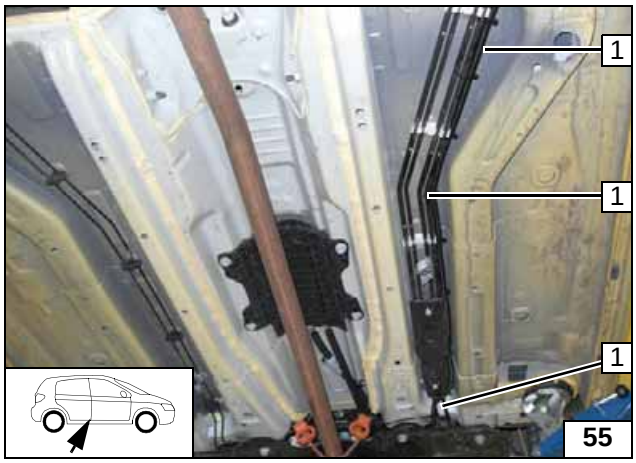
Route fuel line and wiring harness of metering pump in corrugated tube **1** to the right side along original vehicle wiring harness and fasten.

Installing lines



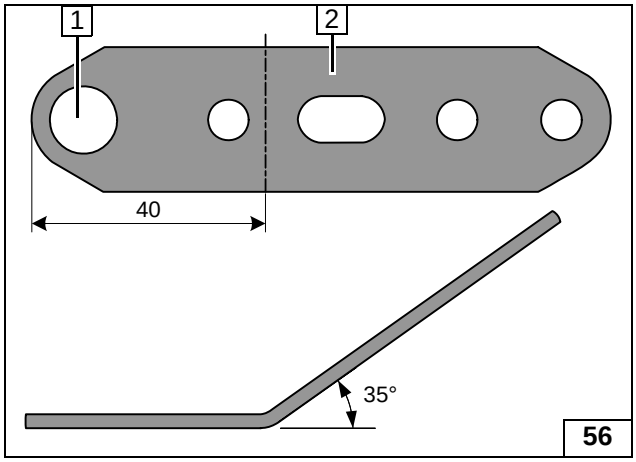
Route fuel line and wiring harness of metering pump in corrugated tube **2** to the underbody along original vehicle fuel line and fasten at position **1** [2x] using cable ties.

Installing lines



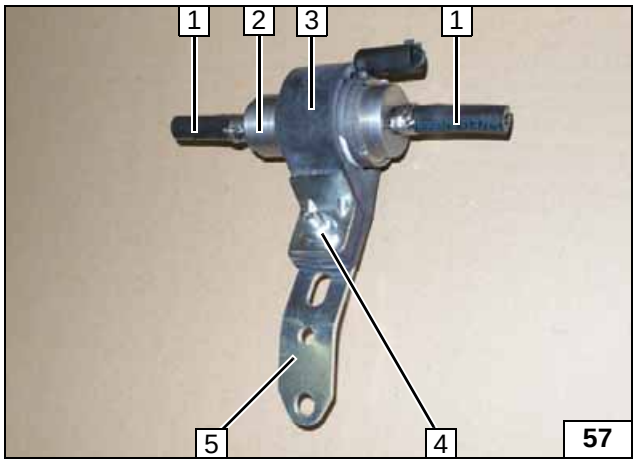
Route fuel line and wiring harness of metering pump in corrugated tube **2** to the installation location of the metering pump along original vehicle lines and fasten.

Installing lines



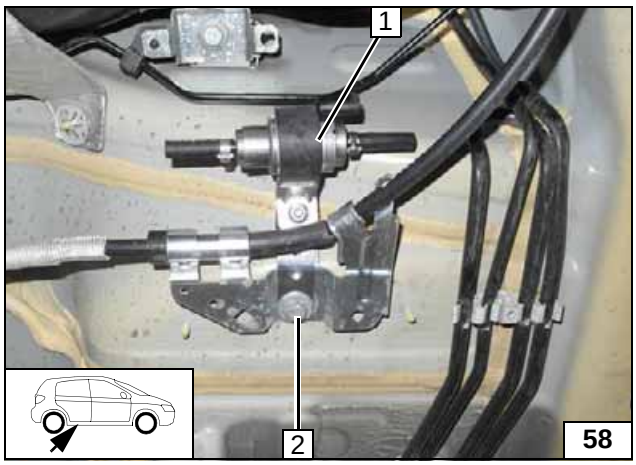
1 Drill out hole to 8.5 mm dia.
2 Hose section, 10mm dia. clamp [2x]

Drilling out and bending perforated bracket



1 Hose section, 10mm dia. clamp [2x each]
2 Metering pump
3 Mounting of metering pump
4 M6x25 bolt, support angle bracket and flanged nut
5 Perforated bracket

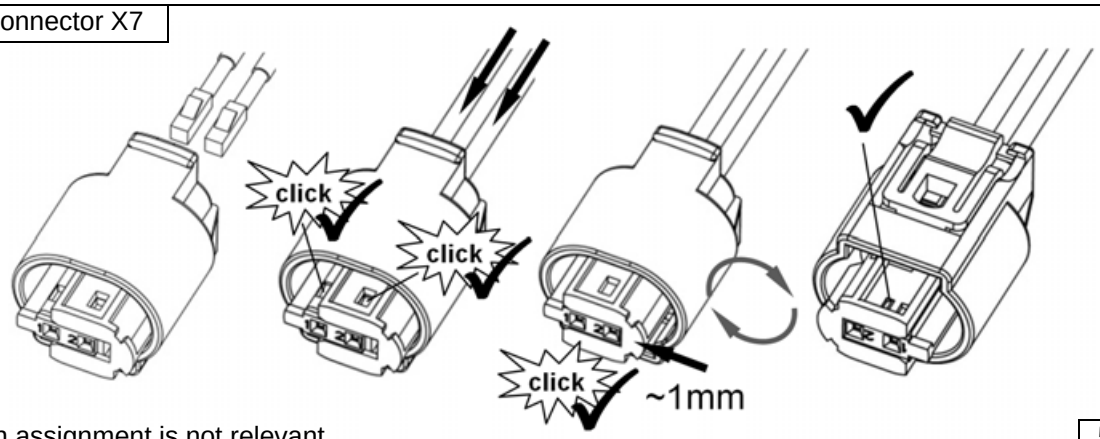
Premounting metering pump



1 Metering pump premounted
2 Original vehicle bolt

Installing metering pump

Connector X7



Pin assignment is not relevant.

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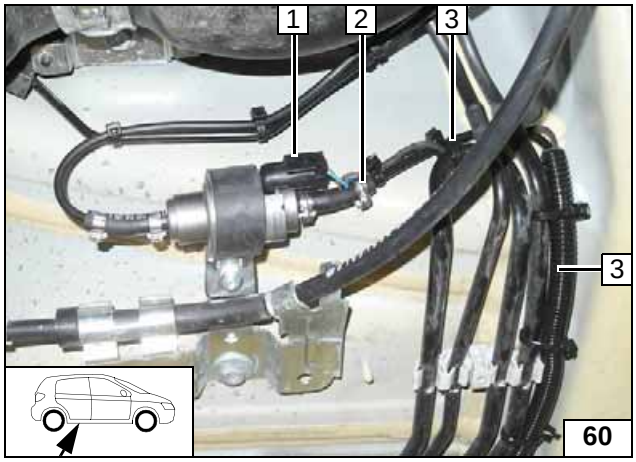
Completing metering pump connector



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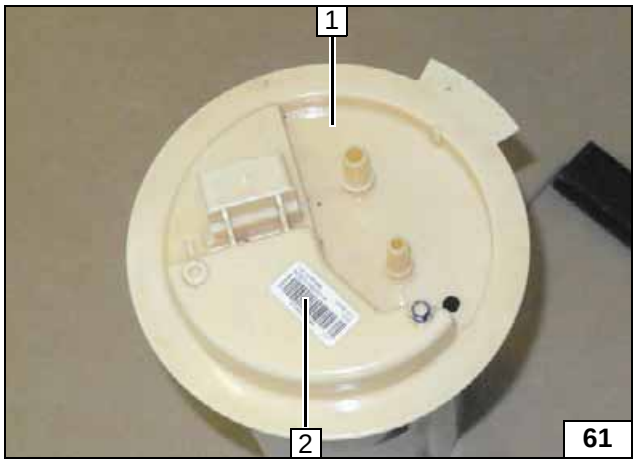
1 Wiring harness of metering pump, connector X7 mounted
2 10mm dia. clamp
3 Fuel line of heater

Connecting metering pump



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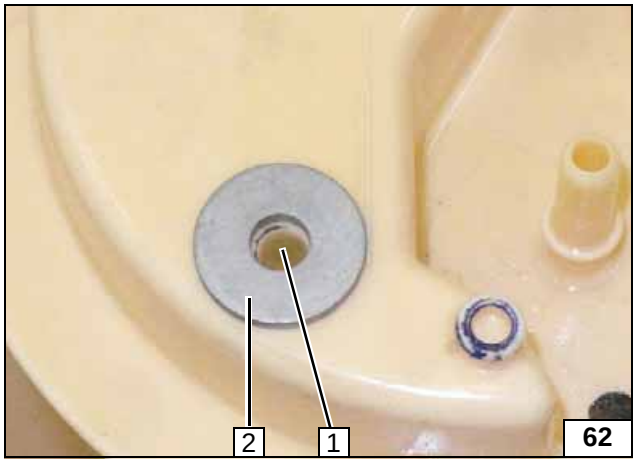
Remove and dismantle fuel-tank sending unit **1** according to manufacturer's instructions. Remove sticker **2**.

Fuel extraction



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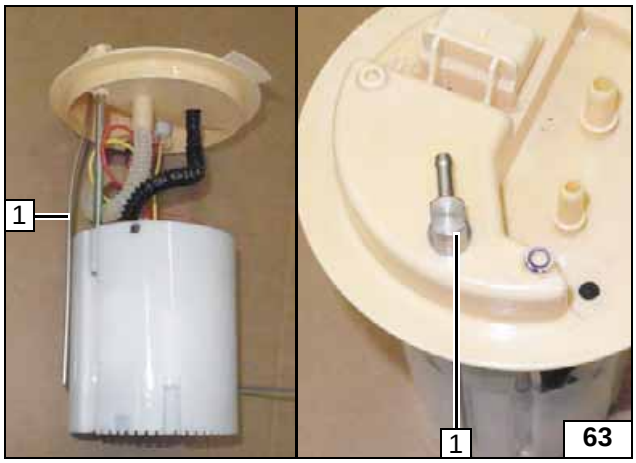
Place washer with outer dia. d_a = 21.6mm **2** as shown and copy the hole pattern.

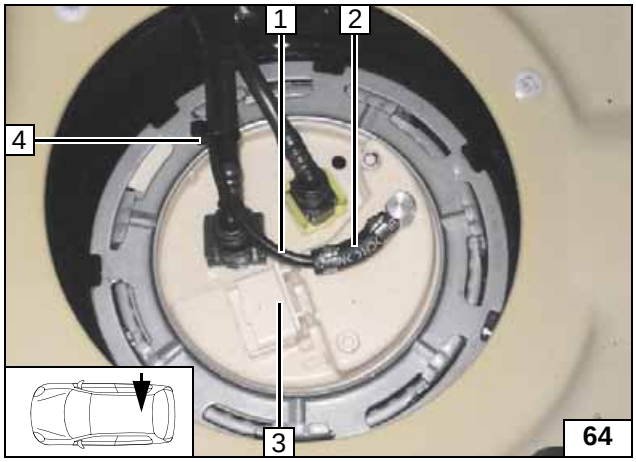
1 6 mm dia. hole

Copying hole pattern



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

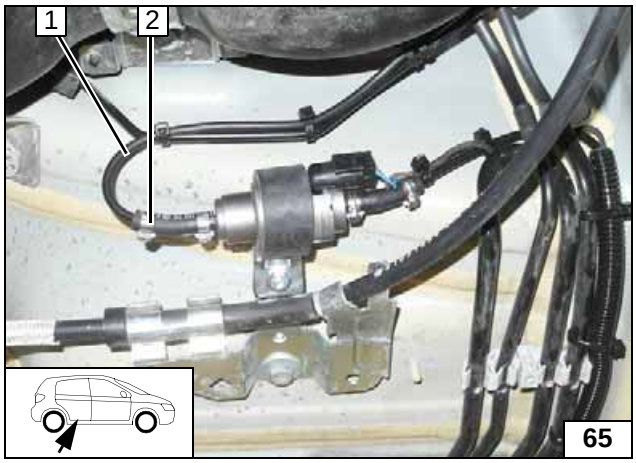
Installing fuel standpipe



Install fuel-tank sending unit **3** in accordance with manufacturer's instructions.

1 Fuel line of fuel standpipe
2 Moulded hose, 10 mm dia. clamp [2x]
4 Cable tie

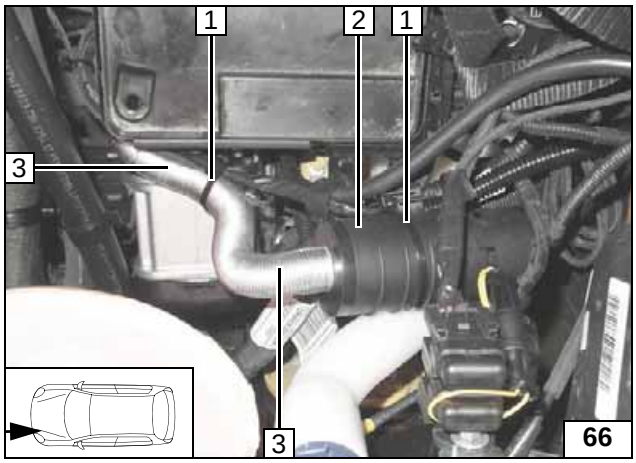
Connecting fuel line



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

1 Fuel line of fuel standpipe
2 10mm dia. clamp

Connecting metering pump



Combustion Air

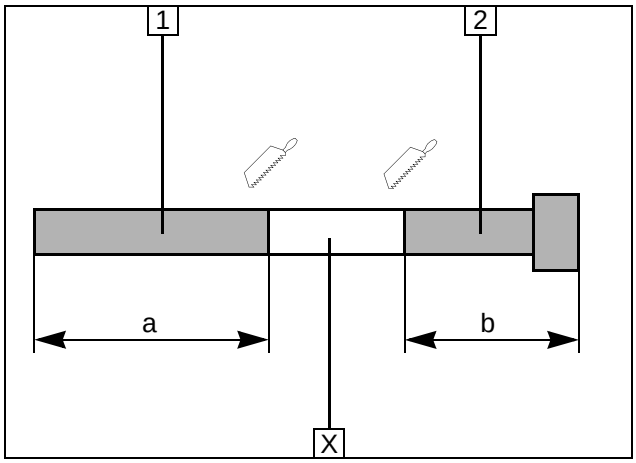
Fasten combustion air silencer **2** in position **1** [2x] to the heater wiring harness in a negatively inclined manner

2 Combustion air silencer
3 Combustion air pipe

Installing silencer

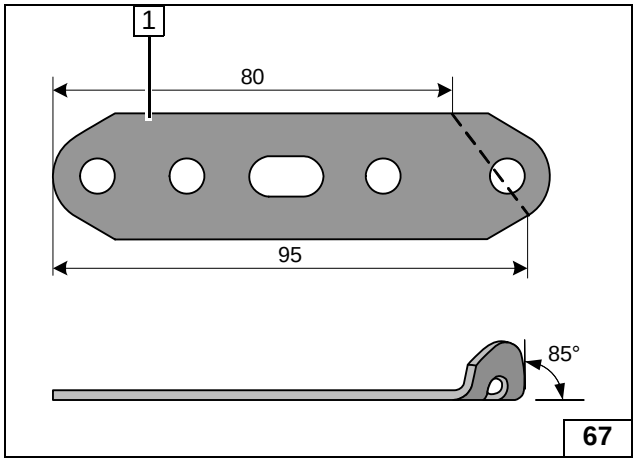
Exhaust Gas

Discard section **X**.



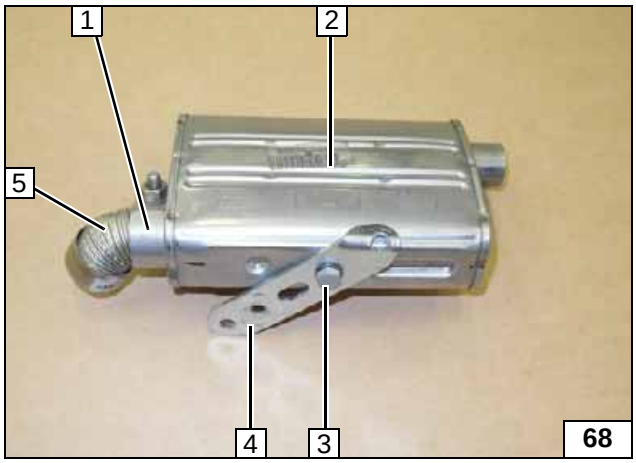
1 Exhaust pipe
a = 230
2 Exhaust end section
b = 60

Preparing exhaust pipe



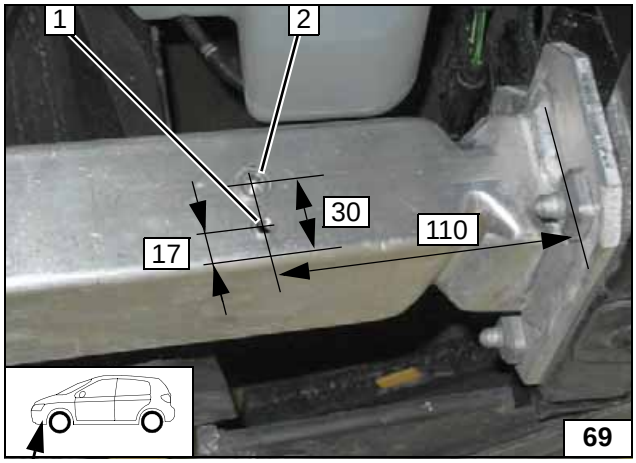
1 Perforated bracket

Bending perforated bracket



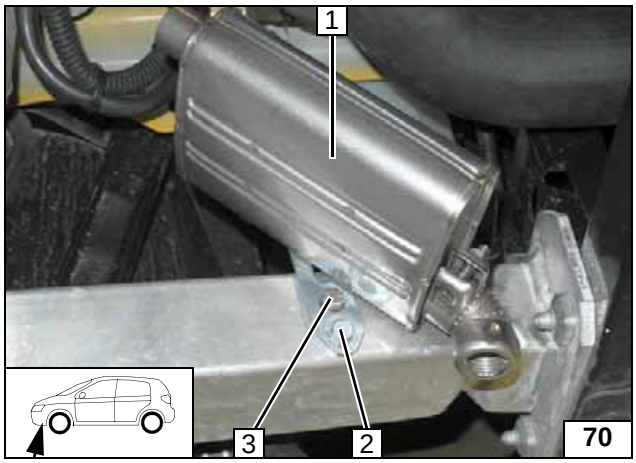
1 Hose clamp
2 Silencer
3 M6x16 bolt, spring lockwasher
4 Perforated bracket
5 Exhaust end section

Premounting silencer



1 4.5 mm dia. hole
2 9.1 mm dia. hole, install rivet nut

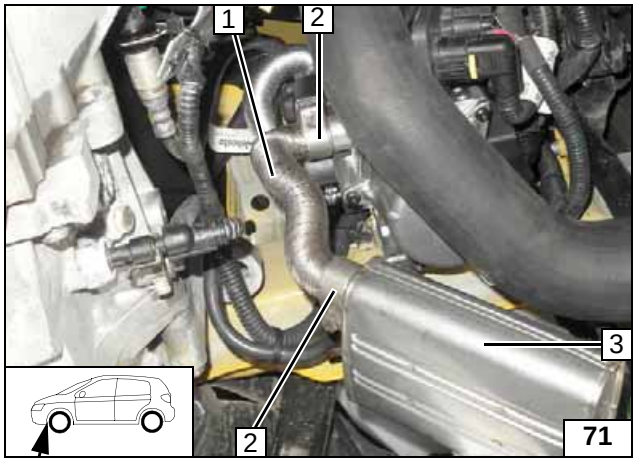
Preparing installation location



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

1 Exhaust silencer
2 4.8x13 self-tapping screw
3 M6x20 bolt, spring lockwasher

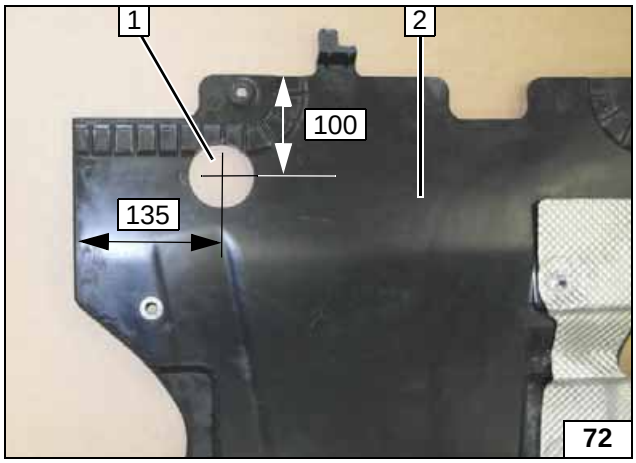
Installing exhaust silencer



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

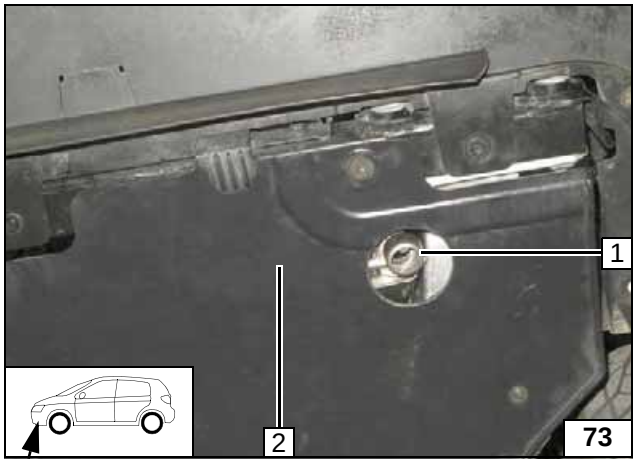
1 Exhaust pipe
2 Hose clamp [2x]
3 Exhaust silencer

Installing exhaust pipe



1 60 mm dia. hole
2 Underride protection

Cutting out underride protection



Align exhaust end section **1** flush with underride protection **2**.

Mounting underride protection

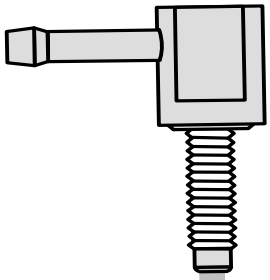
Final Work

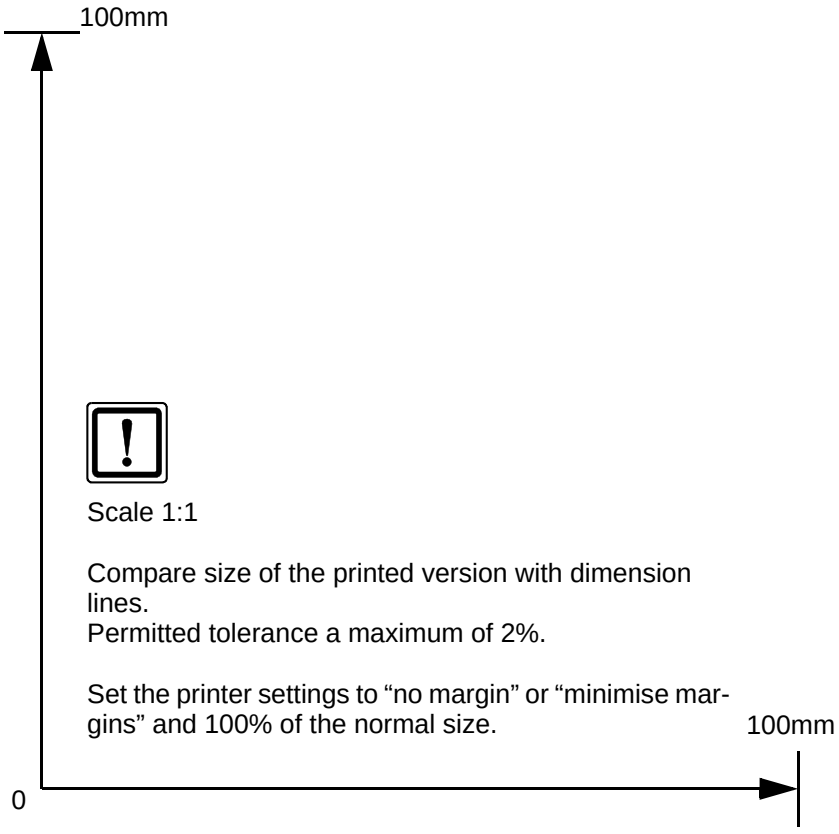
WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate all loose wires and tie back.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

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

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

Template for Fuel Standpipe





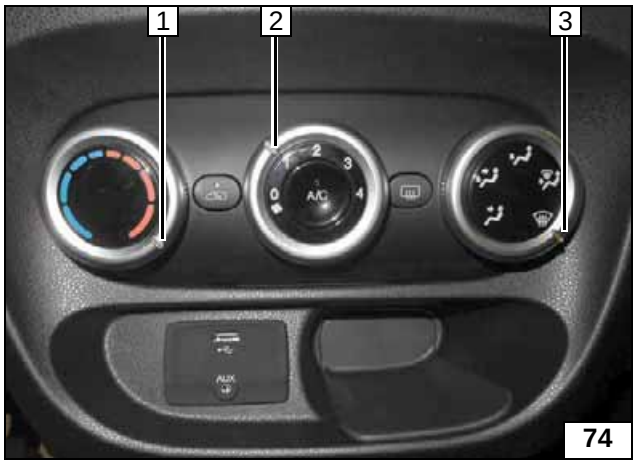
Operating Instructions for Manual Air-Conditioning

Please remove page and add to the vehicle operating instructions.

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

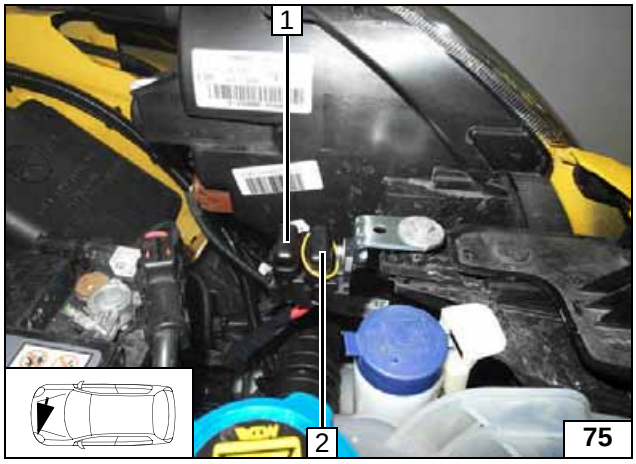
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



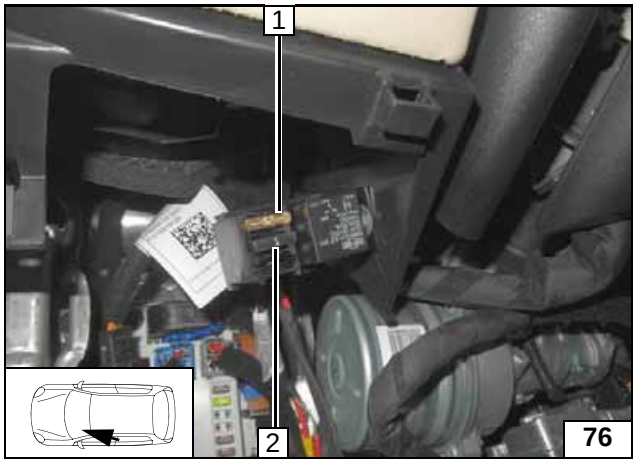
1 Set temperature to "max."
2 Set fan to level "1", or max. "2"
3 Air outlet onto windscreen

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses

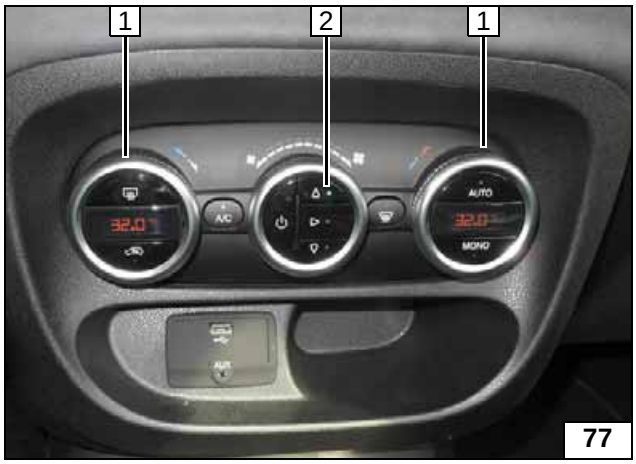
Operating Instructions for Automatic Air-Conditioning

Please remove page and add to the vehicle operating instructions.

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

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

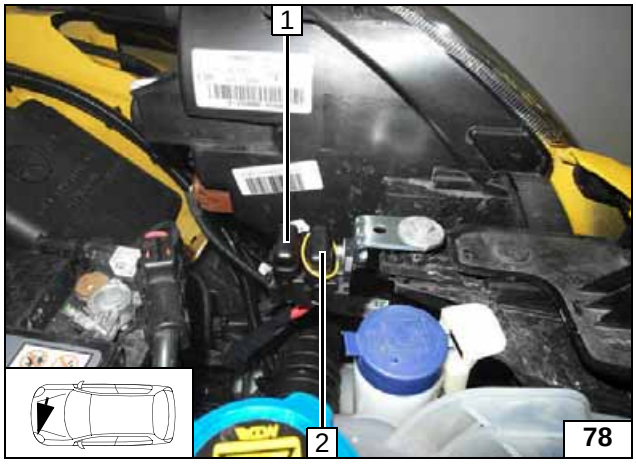
Before parking the vehicle, make the following settings:



Note:
The fan speed need not be preset!

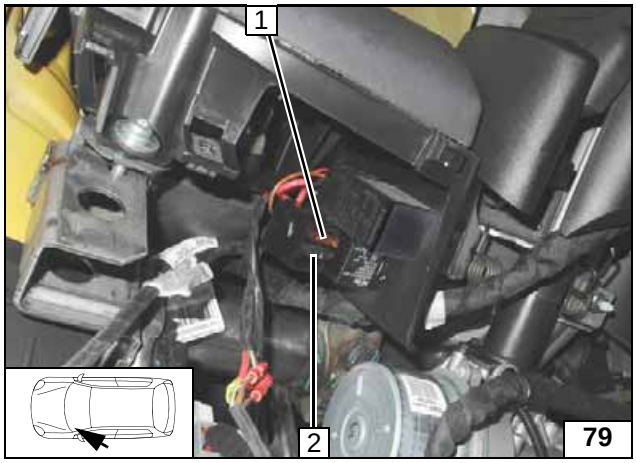
1 Set temperature to "32.0°C"
2 Air outlet faces "upward"

A/C control panel



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

Engine compartment fuses



1 5A fan fuse F4
2 1A fuse F3 of heater control

Passenger compartment fuses