Water Heater

Webasto
Feel the Drive

***Thermo Top Evo* Parking Heater**

E1
00 0258

Installation documentation
Lancia Voyager

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Lancia (USA)	Voyager	RT	e11 * 2001 / 116 * 0144 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.8 CRD Multijet	Diesel	AG	120 / 130	2776	ENS

AG = Automatic transmission

from Model Year 2011
Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning
Front fog lights

Not verified: Passenger compartment monitoring
Headlight washer system
Start-Stop

Total installation time: about 10 hours

Lancia Voyager

Table of Contents

Necessary Components

- *Thermo Top Evo* basic delivery scope according to price list
- Installation kit for Lancia Voyager 2011 2.8 CRD Multijet: **1318150B**
- Heater control in accordance with price list and upon consultation with final customer
- In case of Telestart, Indicator lamp in accordance with price list and upon consultation with final customer

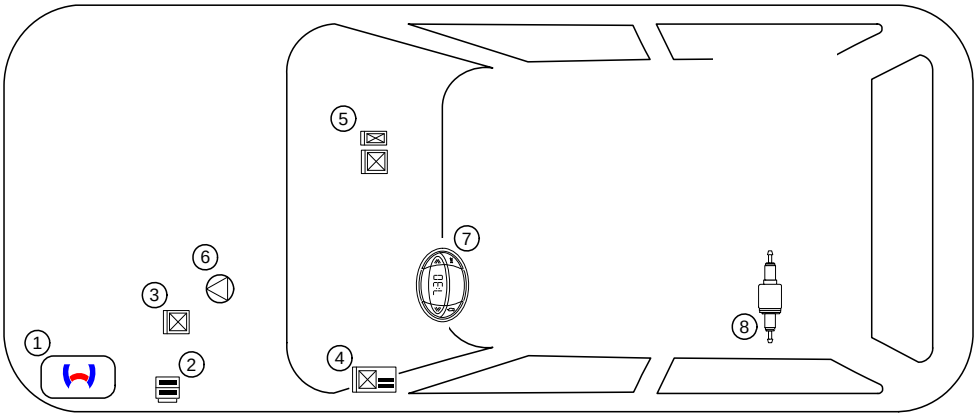
Installation instructions:

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

Installation Overview

Legend:

1. Heater
2. Fuse holder engine compartment
3. Time-delay relay
4. Relay and fuse holder of passenger compartment
5. PWM GW, K2 relay
6. Circulating pump
7. Digital timer
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 notes (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 have to audibly click into place during installation.

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

Lancia Voyager

Information on Validity

This installation documentation applies to Lancia Voyager 2.8 CRD Multijet vehicles - for validity, see page 1 - from model year 2011 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation.

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

Technical Instructions

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

Dimensions
- All dimensions are in mm.

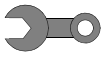
Tightening torque values
- Tightening torque values of 5x13 heater bolts = 8Nm.
- Tightening torque of 5x15 bolt of water connection piece retaining plate = 7Nm.
- Tighten other screw connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

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.

Special features are highlighted using the following symbols:

Mechanical System



Electrical System

Coolant Circuit

Combustion Air

Fuel

Exhaust Gas

Software

Specific risk of injury or fatal accidents.

Specific risk due to electrical voltage

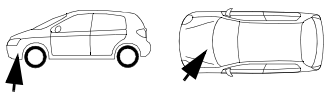
Specific risk of damage to components.

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.

Lancia Voyager

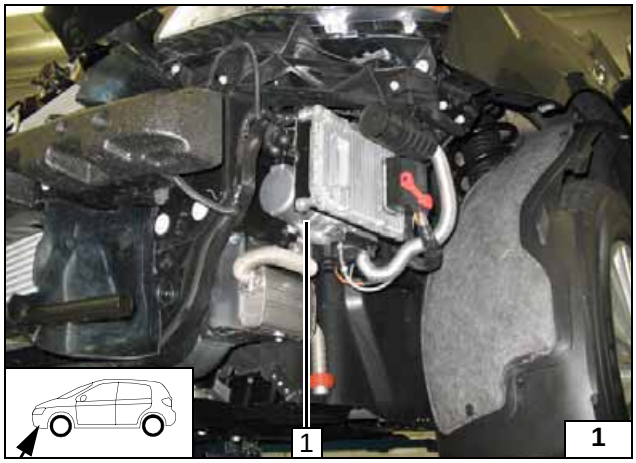
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the engine cover.
- Disconnect and completely remove the battery with the carrier.
- Loosen the wheel well trim on the right and left sides.
- Remove the front underride protection.
- Remove the bumper.
- Remove the fuel tank in accordance with the manufacturer's instructions.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the lower instrument panel trim on the driver's side.
- Remove the footwell trim on the front passenger's side.
- Remove the A/C control panel in accordance with the manufacturer's instructions.
- Remove the A-pillar trim on the left (only in case of Telestart).

Heater

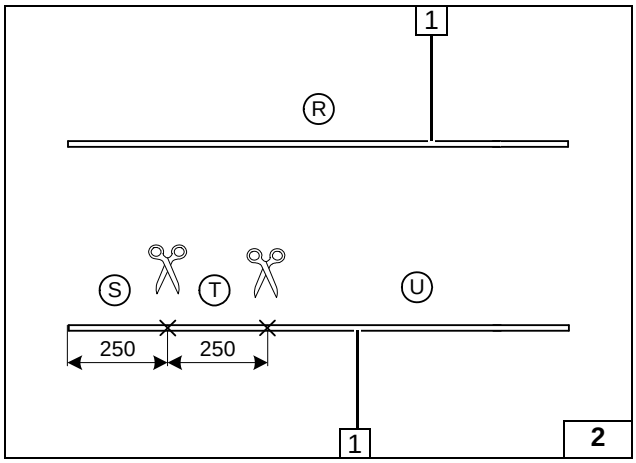
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

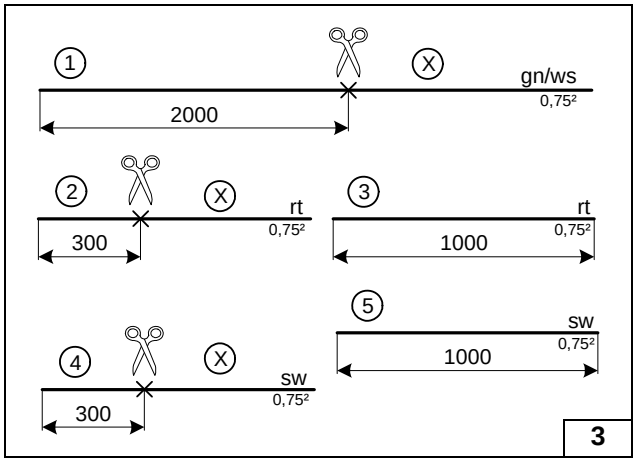
Installation Location



Preparing Electrical System

1 Protective sleeving [2x]

Cutting to length / assigning protective sleeving



Wire sections retain their numbering throughout the whole document.

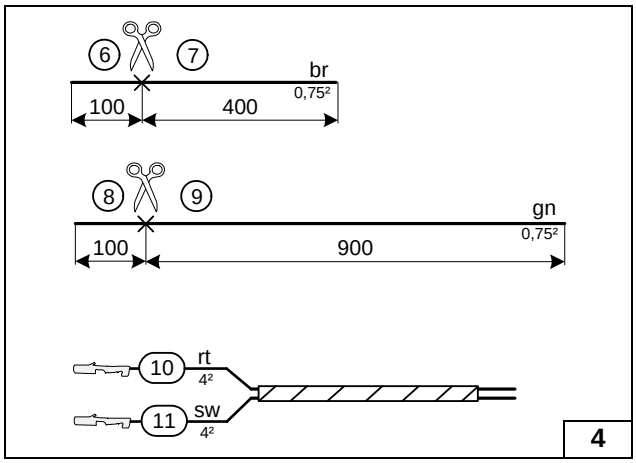
Produce all following electrical connections as shown in wiring diagram.

Discard sections **X**.

Cutting to length / assigning wires

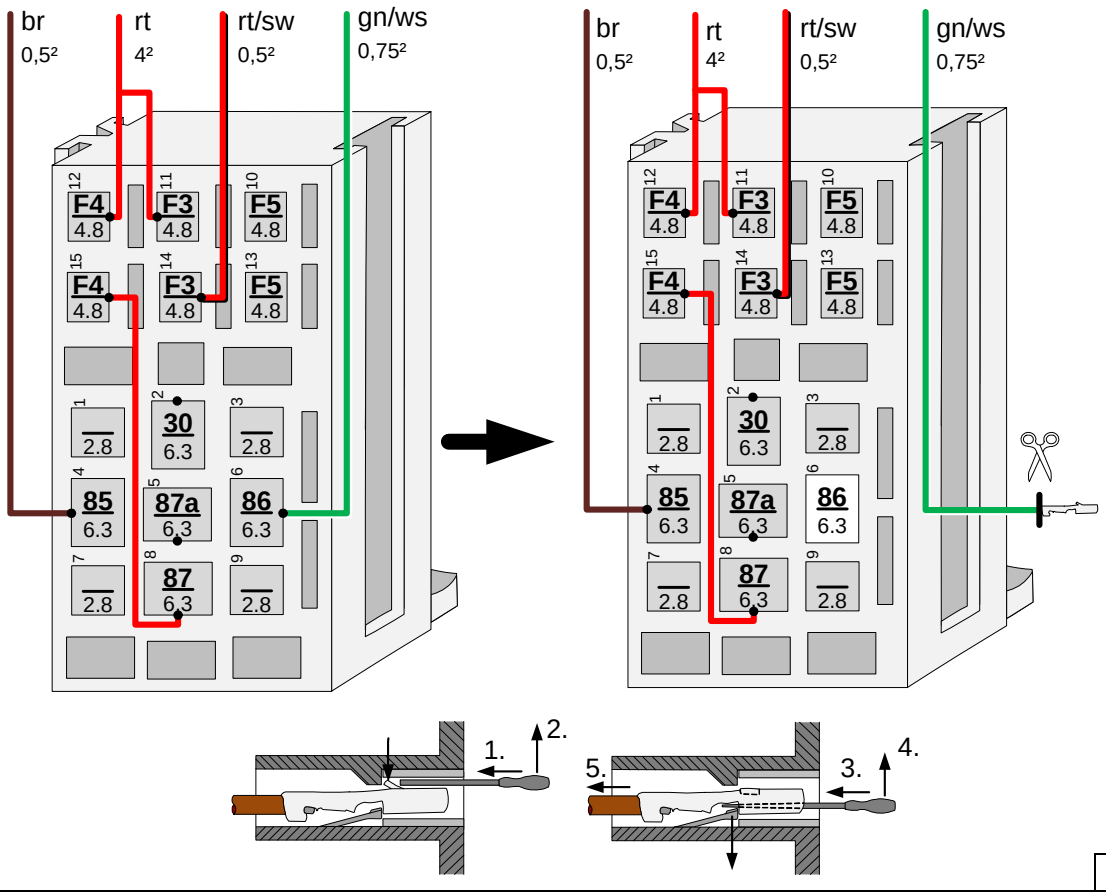
Pull wire sections into protective sleeving:

① Green/white (gn/ws) wire in Ⓡ and Ⓤ
② Red (rt) wire in Ⓢ
④ Black (sw) wire in Ⓣ



⑩ Red (rt) wire of fan wiring harness
⑪ Black (sw) wire of fan wiring harness

Assigning wires



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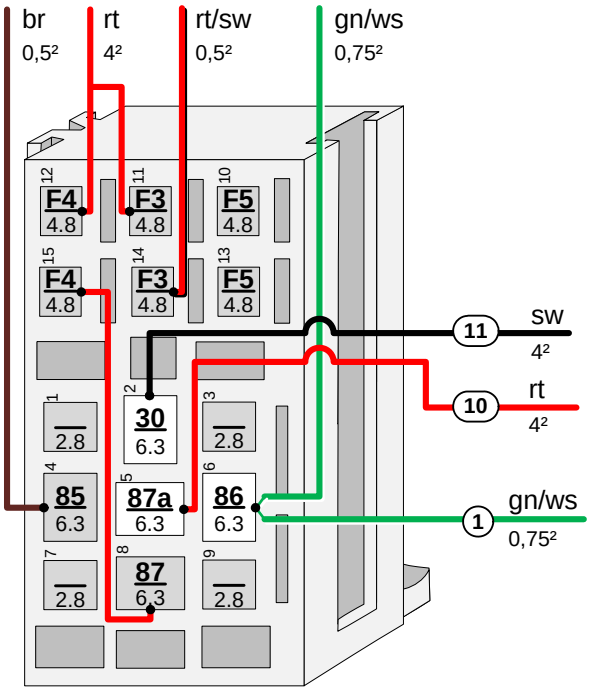
Preparing relay and fuse holder of passenger compartment



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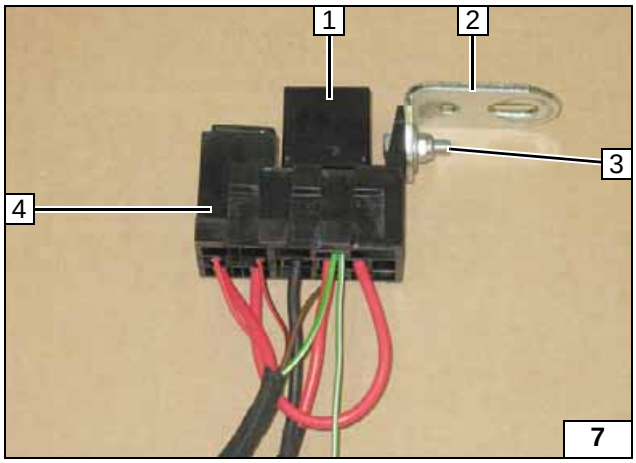
Connecting wires to passenger compartment relay and fuse holder



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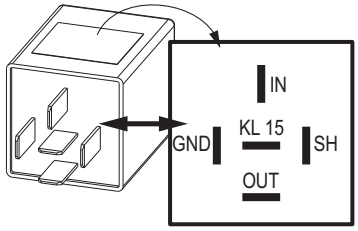
1 K1 relay
2 Angle bracket
3 M5x16 bolt, washer [2x], nut
4 Relay and fuse holder of passenger compartment

Premounting relay and fuse holder of passenger compartment



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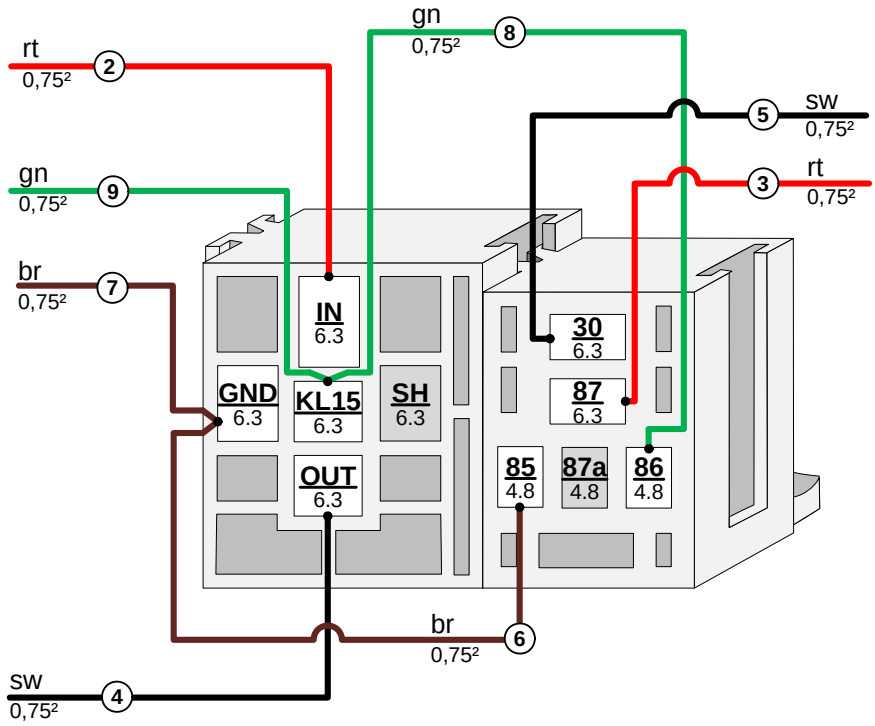
Check the PWM Gateway settings when starting up the heater and adjust if necessary.

Settings:

Duty cycle: 55%
Frequency: 100Hz
Voltage: not relevant
Function: Low side

PWM-GW view



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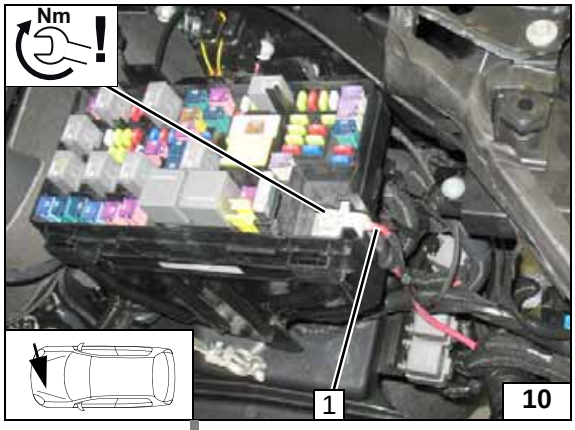
Interlocking PWM GW and K2 relay sockets, connecting wires

Electrical System

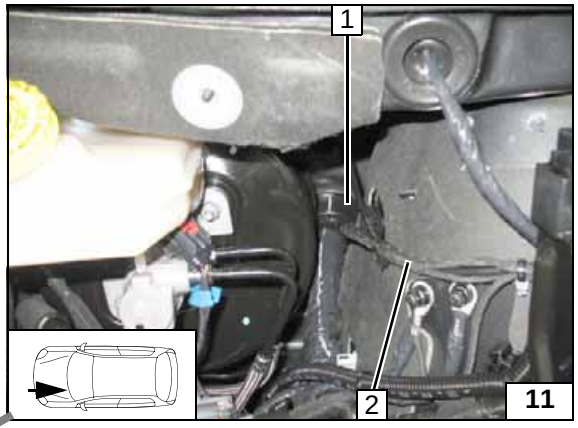
Positive wire

1 Positive wire on positive distributor

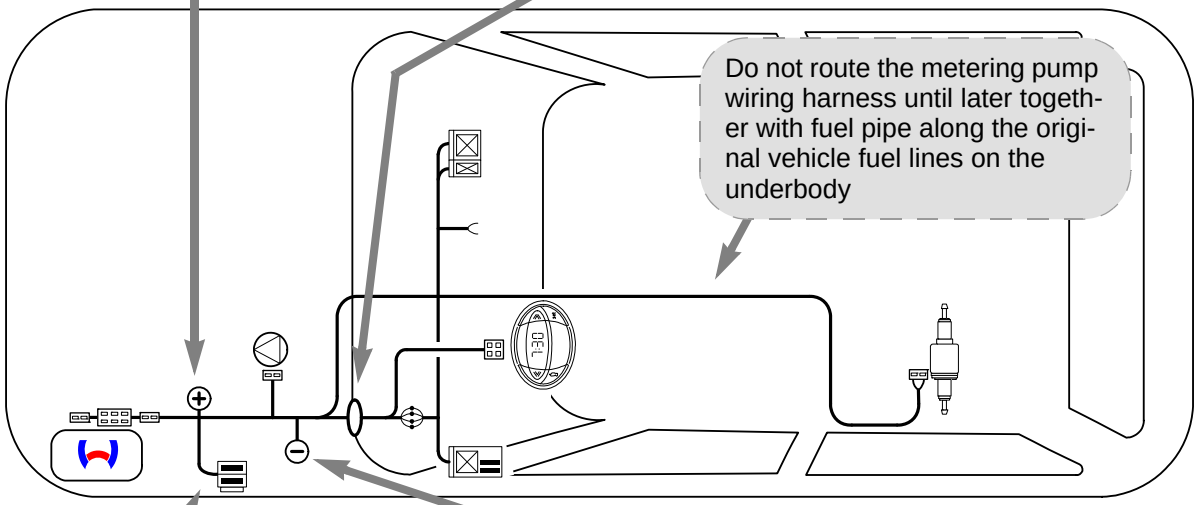


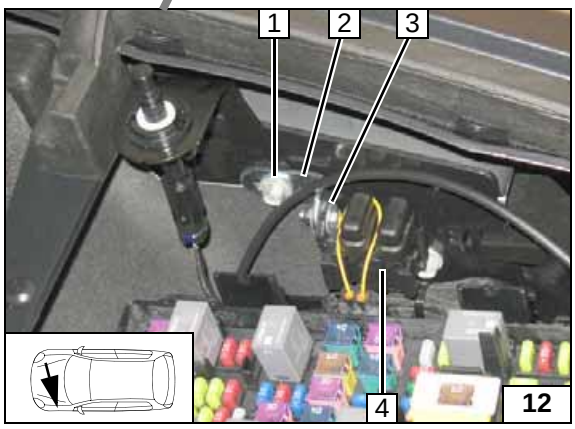
Wiring harness pass through

1 Protective rubber plug
2 Wiring harnesses of digital timer, fan controller



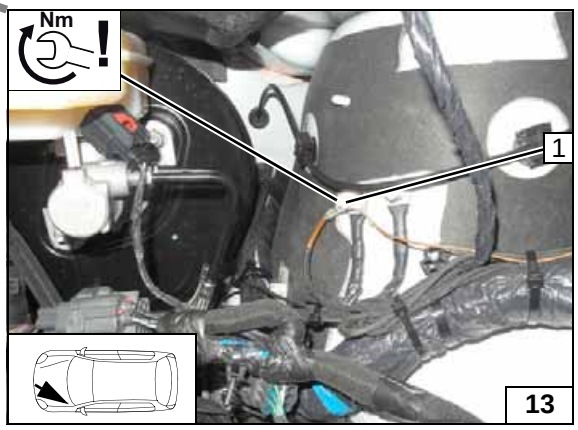
Wiring harness routing diagram





Fuse holder engine compartment

1 Original vehicle bolt
2 Angle bracket
3 M5x16 bolt, washer [2x], retaining plate for fuse holder, nut
4 Fuses F1-2

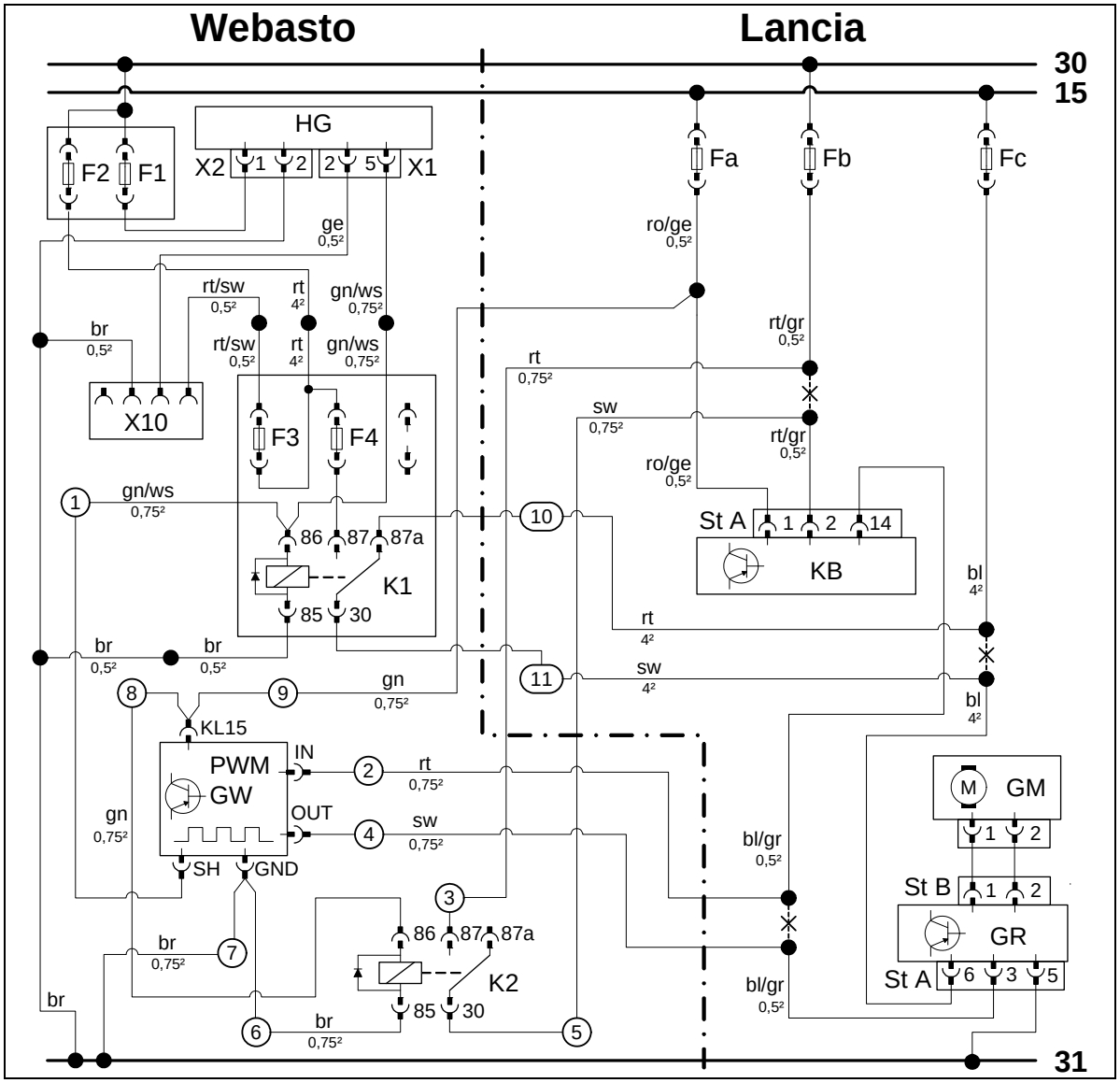


Earth wire

1 Earth wire on original vehicle earth support point

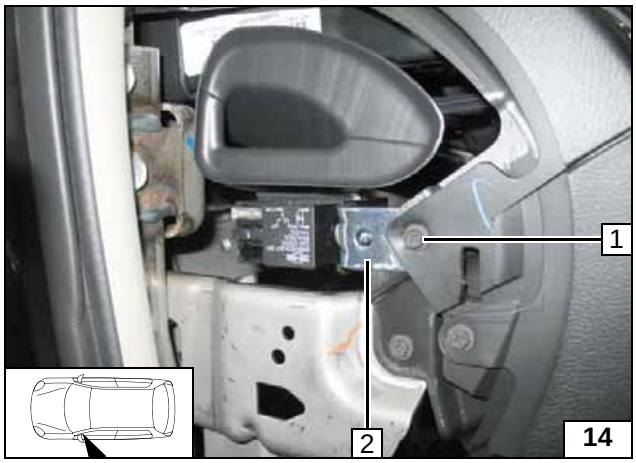
Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	Fa	Fuse	rt	red
X1	6-pin heater connector	Fb	Fuse	ws	white
X2	2-pin heater connector	Fc	Fuse	sw	black
F1	20A fuse	KB	M070 A/C control unit	br	brown
F2	30A fuse	St A	26-pin connector of KB	gn	green
X10	4-pin connector of heater control	GM	N085 fan motor	bl	blue
		GR	M072 fan controller	gr	grey
F3	1A fuse	St B	2-pin connector of GR	ro	pink
F4	25A fuse	St A	6-pin connector of GR	ge	yellow
K1	Fan relay				
PWM GW	Pulse width modulator				
K2	Additional relay				
PWM GW settings					
Duty cycle:	55%				
Frequency:	100Hz				
Voltage:	not relevant			**X**	Cutting point
Function:	Low side			Wiring colours may vary.	

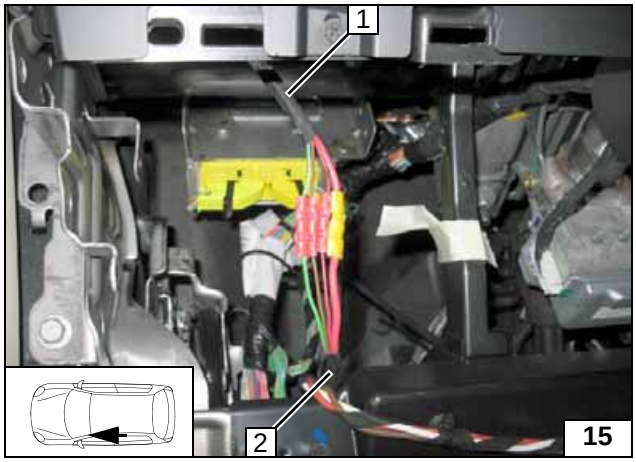
Legend



1 Original vehicle bolt
2 Angle bracket

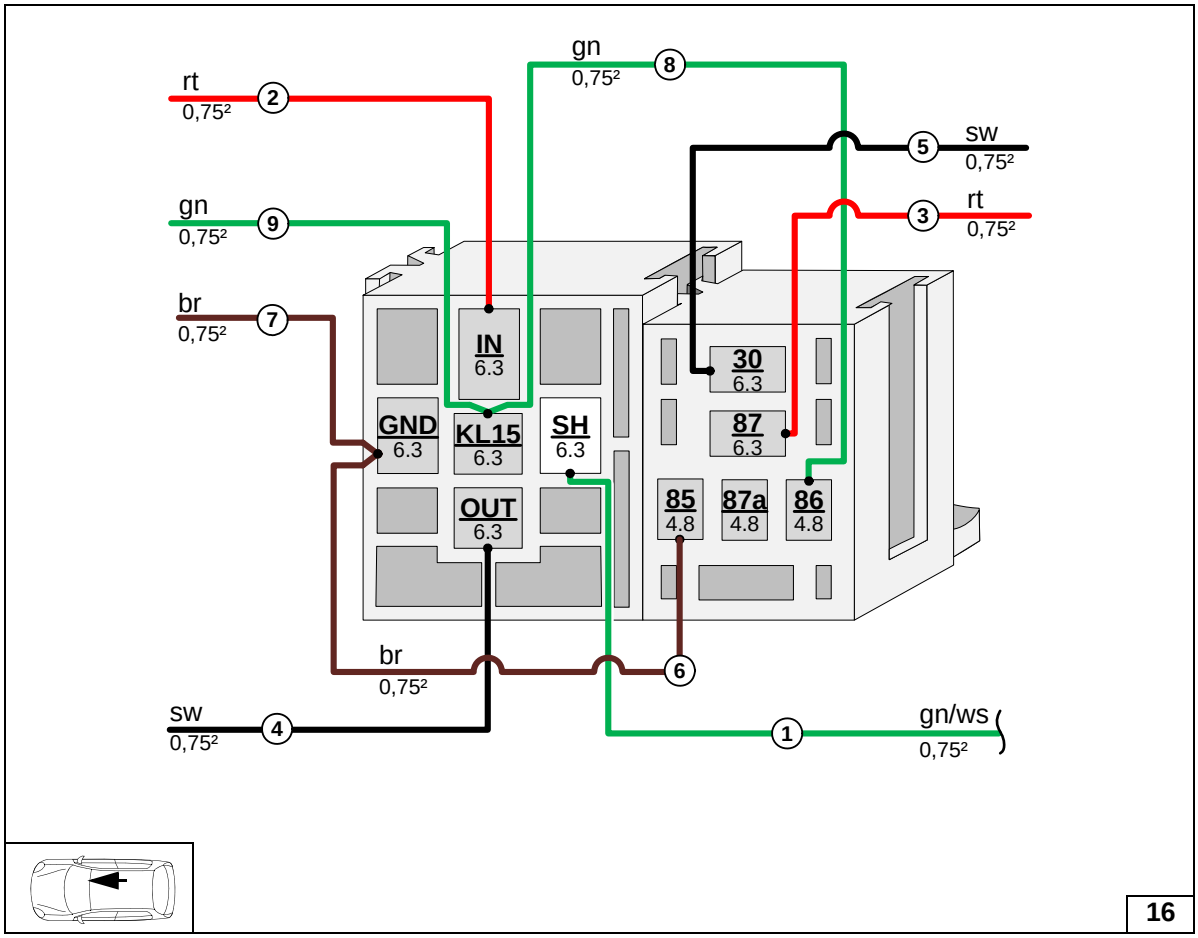
Route green/white (gn/ws) wire ① to the front passenger's side.

Installing passenger compartment relay and fuse holder

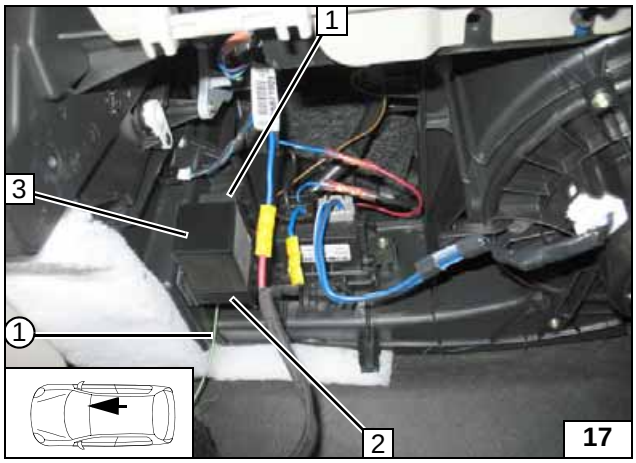


1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



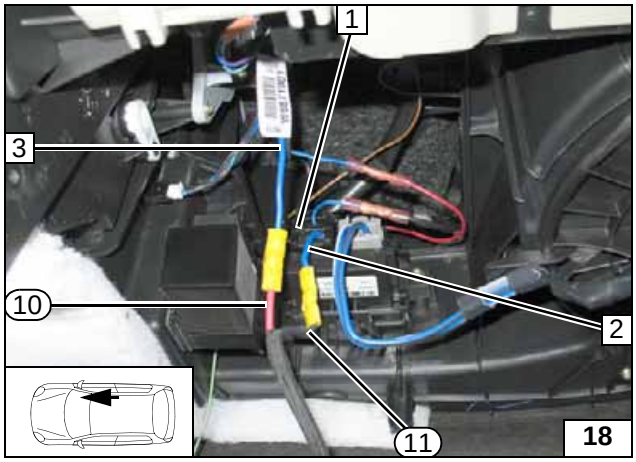
Connecting green/white (gn/ws) wire ① to PWM GW socket in passenger compartment



Install socket of PWM GW and socket of K2 relay **2** using double-sided adhesive tape.

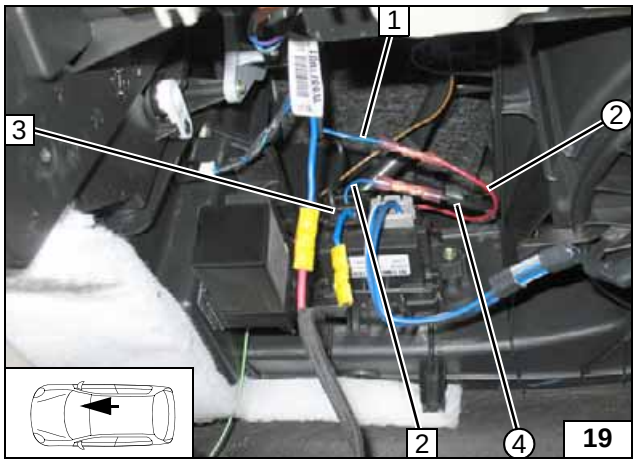
1 K2 relay
3 PWM GW
① Green/white (gn/ws) wire of K1/86

Installing PWM GW and K2 relay



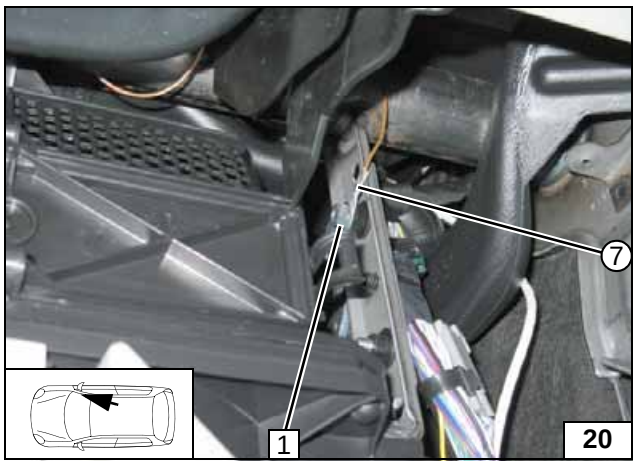
1 6-pin connector A of fan controller
2 Blue (bl) wire of connector A, pin 6
3 Blue (bl) wire of fuse Fc
⑩ Red (rt) wire from K1/87a, fan wiring harness
⑪ Black (sw) wire from K1/30, fan wiring harness

Fan controller connection



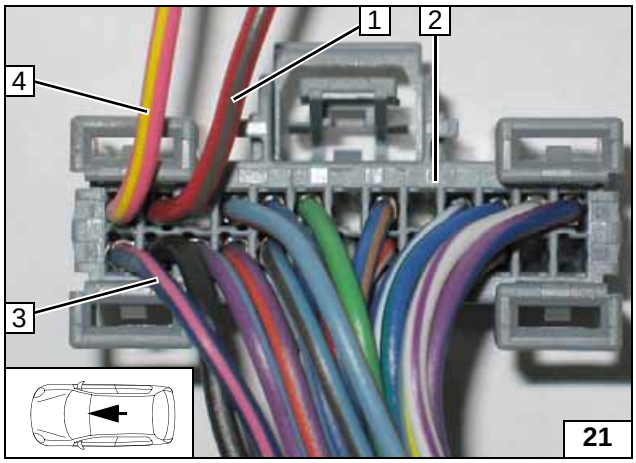
1 Blue/grey (bl/gr) wire of connector A from A/C control unit, pin 14
2 Blue/grey (bl/gr) wire of connector A, pin 3
3 6-pin connector A of fan controller
② Red (rt) wire of PWM GW/ IN
④ Black (sw) wire of PWM GW/ OUT

Fan controller connection



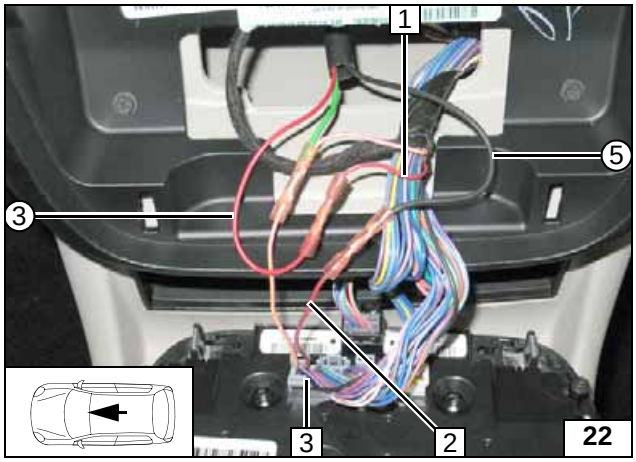
1 Original vehicle bolt, flanged nut M6
⑦ Brown (br) wire of PWM GW/ GND

Earth connection for PWM GW



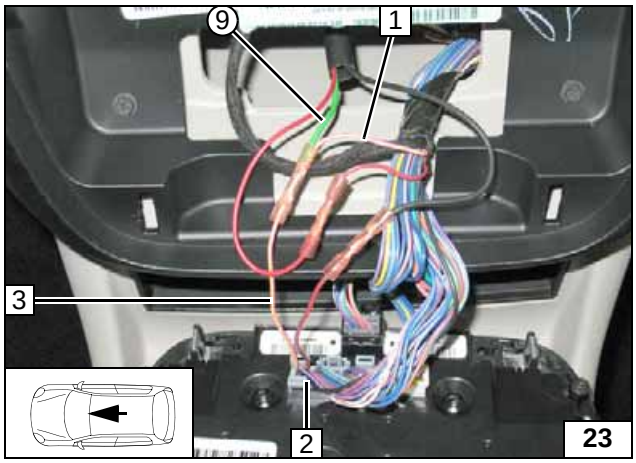
1 Red/grey (rt/gr) wire, pin 2
2 Connector A from A/C control unit
3 Blue/grey (bl/gr) wire, pin 14
4 Pink/grey (ro/gr) wire, pin 1

View of connector A of A/C control unit



1 Red/grey (rt/gr) wire of fuse Fb
2 Red/grey (rt/gr) wire of connector A from A/C control unit, pin 2
3 26-pin connector A of A/C control unit
③ Red (rt) wire of K2/87
⑤ Black (sw) wire from K2/30

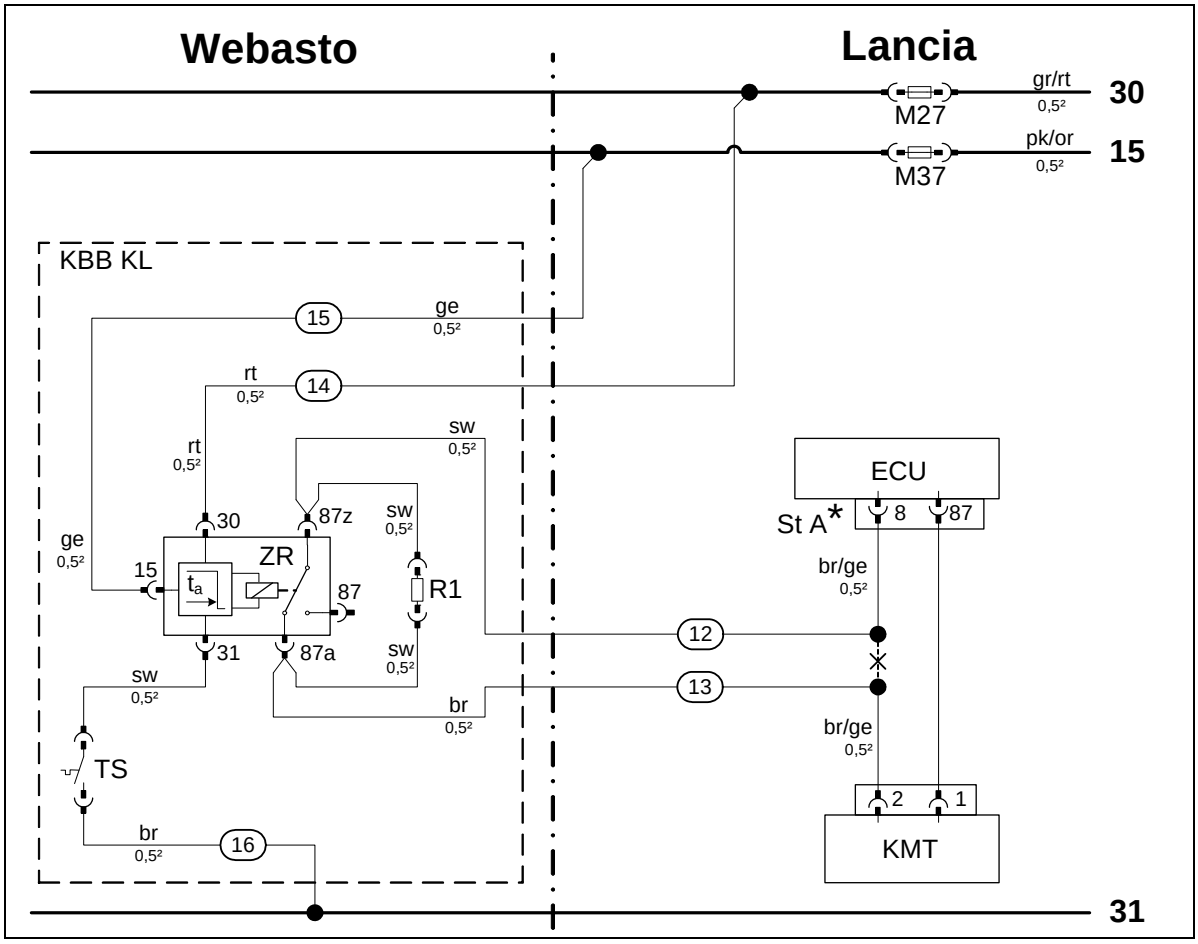
Connection of A/C control unit



1 Pink/yellow (ro/ge) wire of fuse Fa
2 26-pin connector A of A/C control unit
3 Pink/yellow (ro/ge) wire of connector A from A/C control unit, pin 1
⑨ Green (gn) wire of PWM GW/ KL15

Connection of A/C control unit

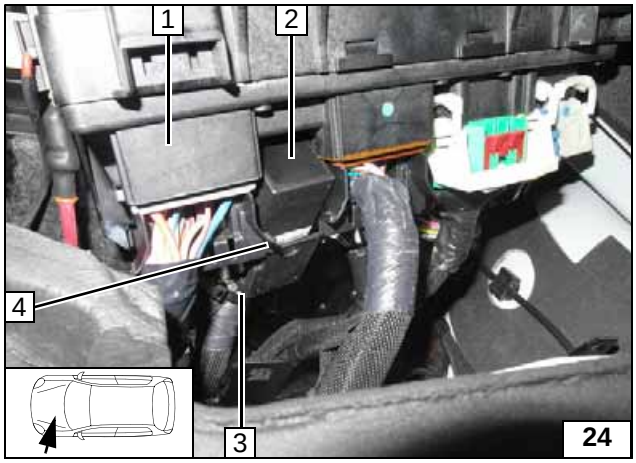
Cold Fast Idle



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
KBB KL	Cold fast idle wiring harness	M27	10A fuse	rt	red
		M37	10A fuse	sw	black
ZR	Time-delay relay	ECU	Engine Control Unit	ge	yellow
R1	12 kiloohm resistance	St A*	Up to MY 2014 92-pin ECU connector From MY 2015 96-pin ECU connector	br	brown
TS	Temperature Switch			gr	grey
				pk	pink
				or	orange
		KMT	Coolant temperature sensor	**X**	Cutting point
				Wiring colours may vary.	

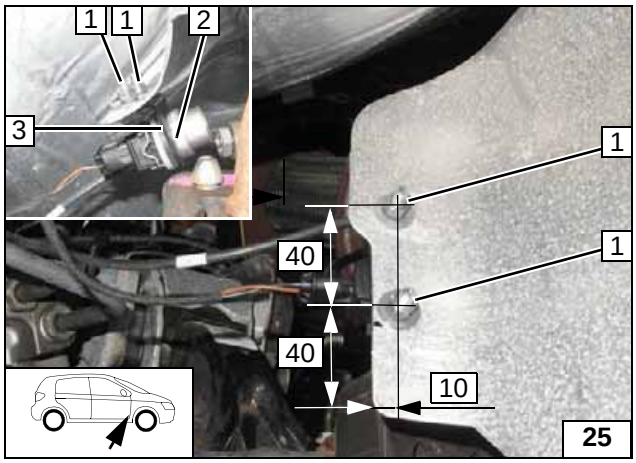
Legend



Insulate wiring harness of cold fast idle with socket of time-delay relay **4** and secure using cable tie **3** as shown.

1 Connector of central electrical box
2 Time-delay relay attached

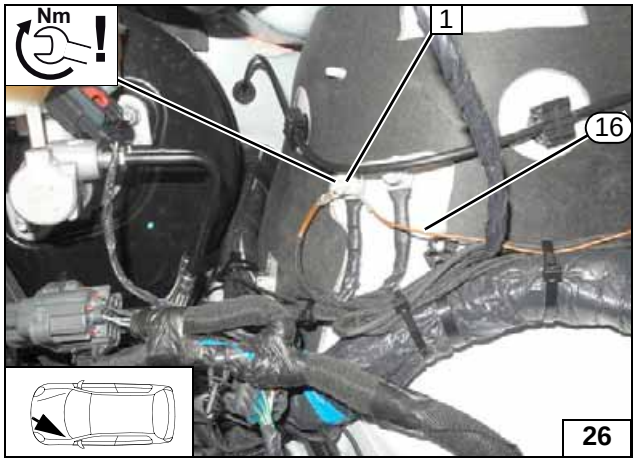
Fastening wiring harness and time-delay relay



Drill 5.5 dia. hole at position **1**.
Insert temperature switch **2** into bracket **3**. Complete connector and attach it.

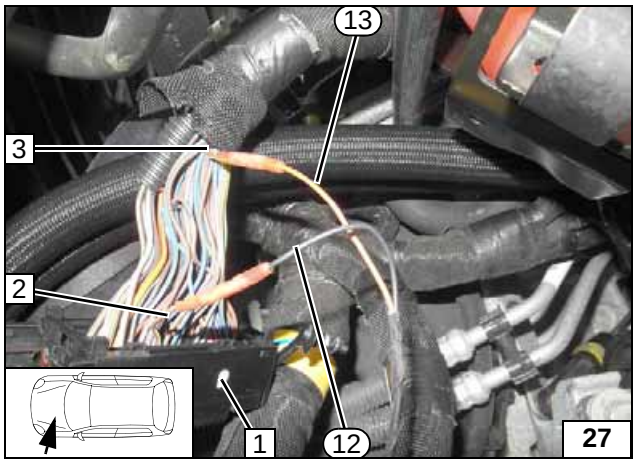
1 M5x16 bolt [2x], bracket, heat shield plate, large diameter washer [2x], spring lockwasher [2x], nut [2x]
3 Bracket, shims, connector

Installing temperature switch



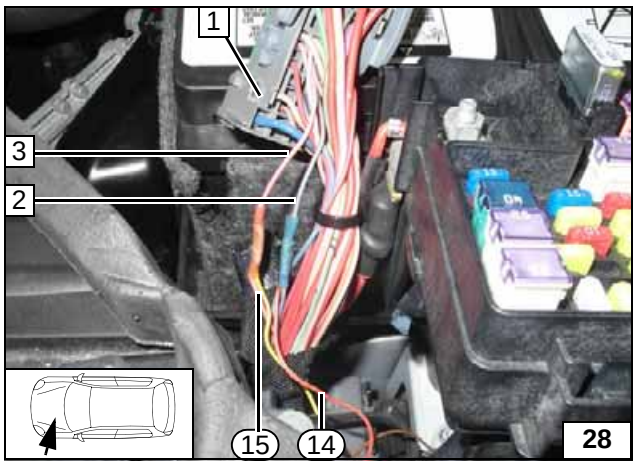
Mount earth wire of temperature switch (16) to the original vehicle earth support point **1** together with earth wire of heater.

Earth connection of temperature switch



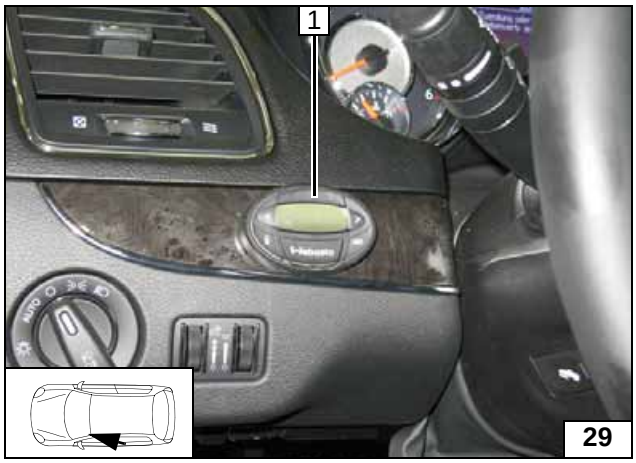
1 Connector A (up to MY 2014 92-pin, from MY 2015 96-pin) engine control unit/ pin 8
2 Brown/yellow (br/ge) wire from connector A of engine control unit/ pin 8
3 Brown/yellow (br/ge) wire of temperature sensor
(12) Black (sw) wire from ZR/87z of cold fast idle wiring harness
(13) Brown (br) wire from ZR/87a of cold fast idle wiring harness

Connection of temperature sensor



1 Connector of central electrical box (see above for installation position)
2 Grey/red (gr/rt) wire of fuse M27, connector of central electrical box, pin 21 (terminal 30)
3 Pink/orange (pk/or) wire of fuse M37, connector of central electrical box, pin 8 (terminal 15)
(14) Red (rt) wire from ZR/30 of cold fast idle wiring harness
(15) Yellow (ge) wire from ZR/15 of cold fast idle wiring harness

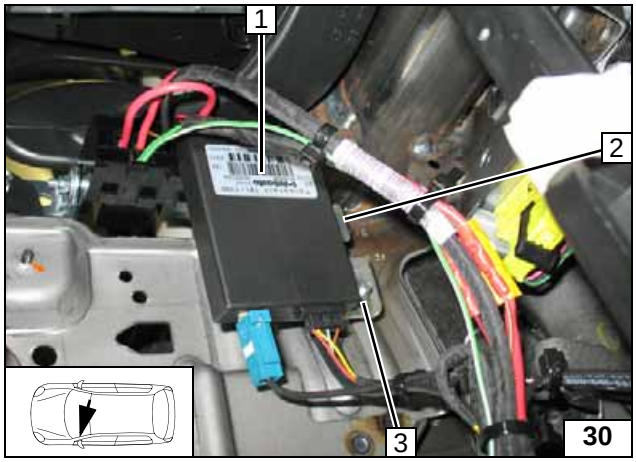
Connection of power supply



Digital Timer

1 Digital timer

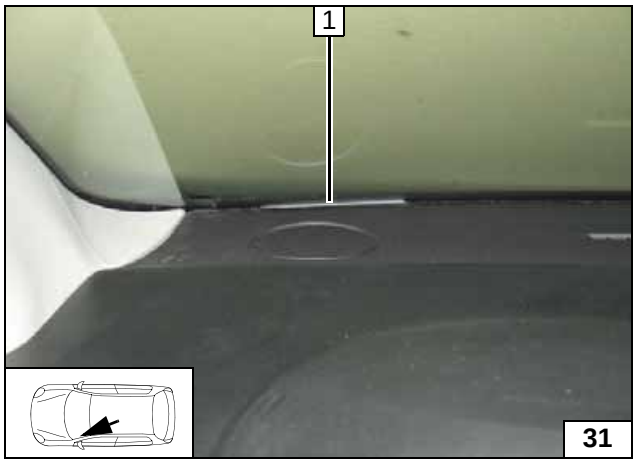
Installing digital timer



Remote Option (Telestart)

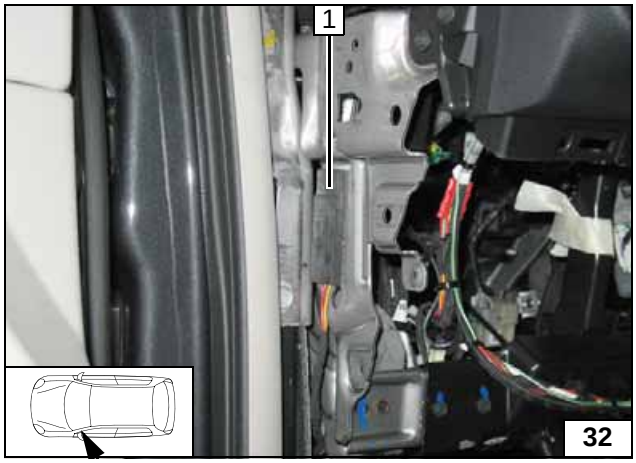
1 Receiver
2 Bracket
3 M5x16 bolt, washer [2x], nut, existing hole

Installing receiver



1 Antenna

Installing antenna

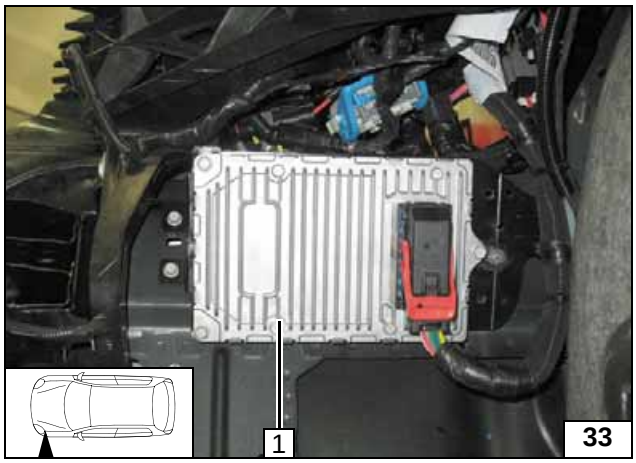


Temperature sensor T100 HTM

Fasten temperature sensor **1** with adhesive tape

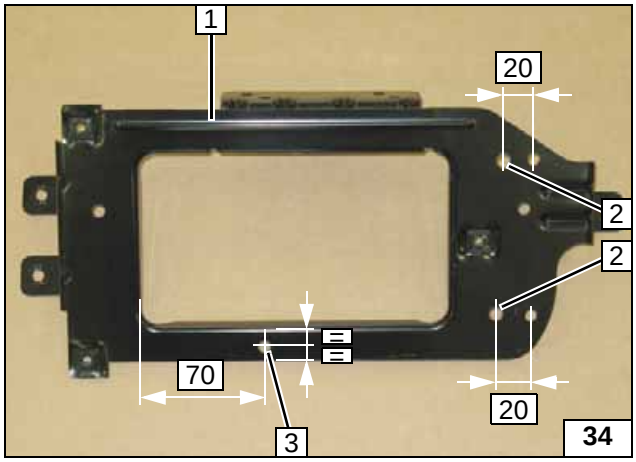
Installing temperature sensor

Preparing Installation Location



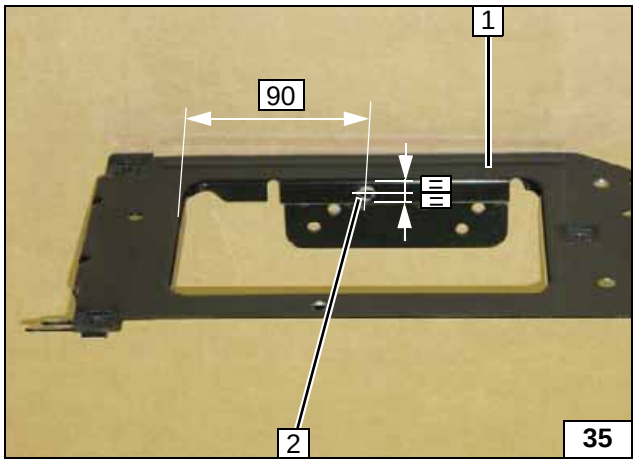
1 Remove control unit with bracket

Removing control unit



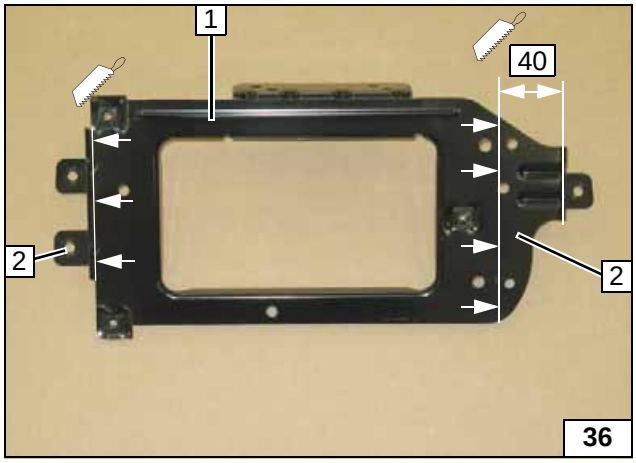
1 Bracket of control unit
2 7 mm dia. hole [2x]
3 6mm dia. hole

Preparing bracket of control unit



1 Bracket of control unit
2 6mm dia. hole

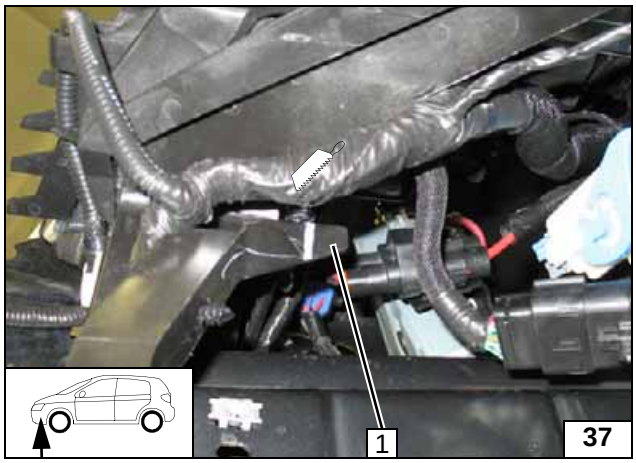
Preparing bracket of control unit



Separate bracket of control unit **1** at the markings.

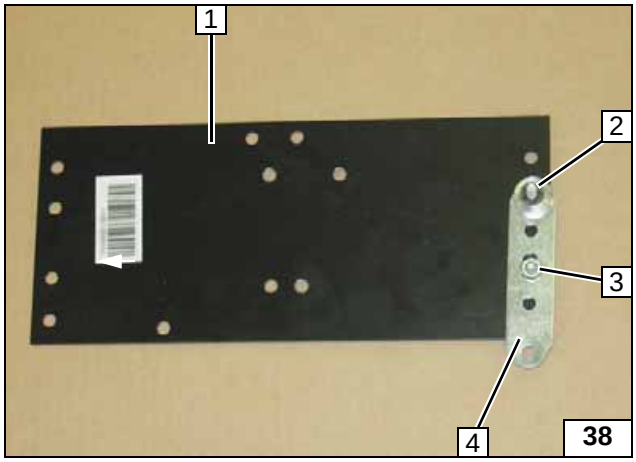
2 Discard section [2x]

Preparing bracket of control unit



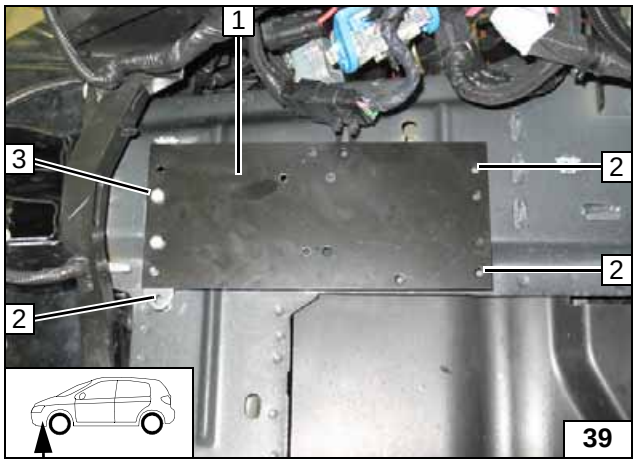
1 Cut off and discard edge

Cutting off edge



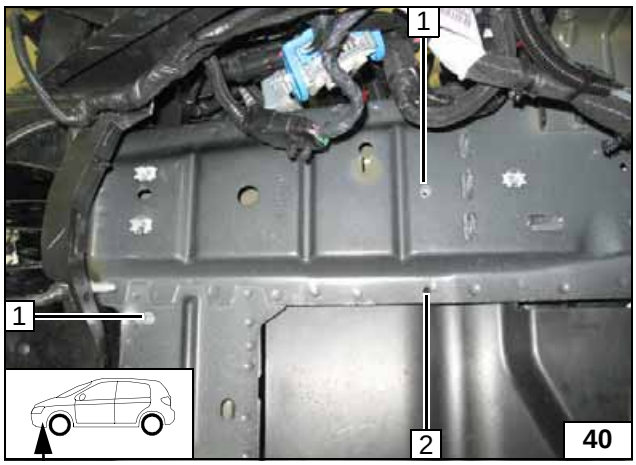
1 Bracket of heater
2 M6x30 bolt, spring lockwasher, 5mm shim, pin lock, existing hole
3 M6x12 bolt, flanged nut, existing hole
4 Perforated bracket

Premounting bracket of heater



1 Bracket
2 Copy hole pattern [3x]
3 Loosely install M6x30 bolt, existing threaded hole

Copying hole pattern

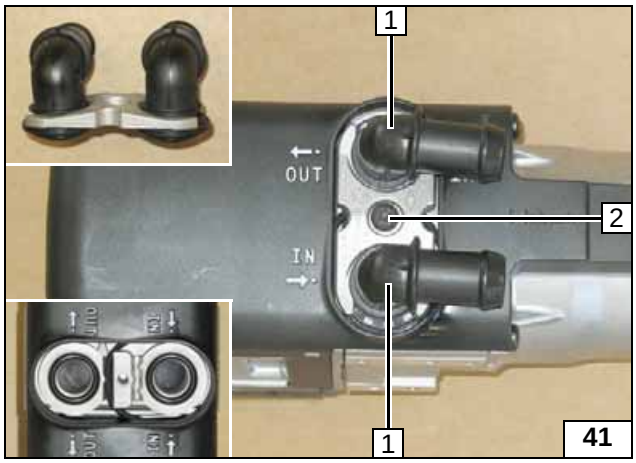


Remove bracket.

1 9.1 mm dia. hole; rivet nut [2x each]
2 7mm dia. hole

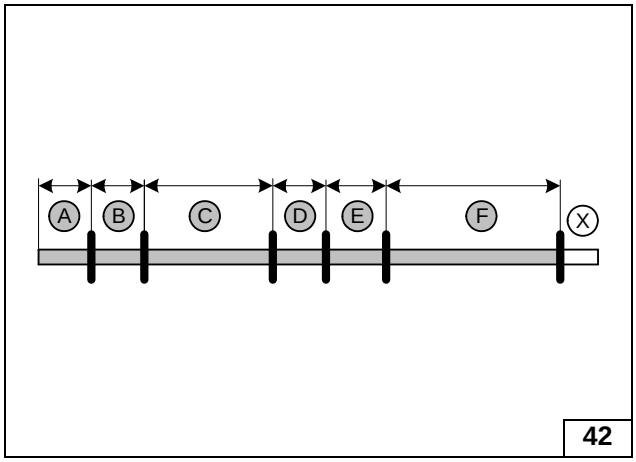
Installing rivet nut

Preparing Heater



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

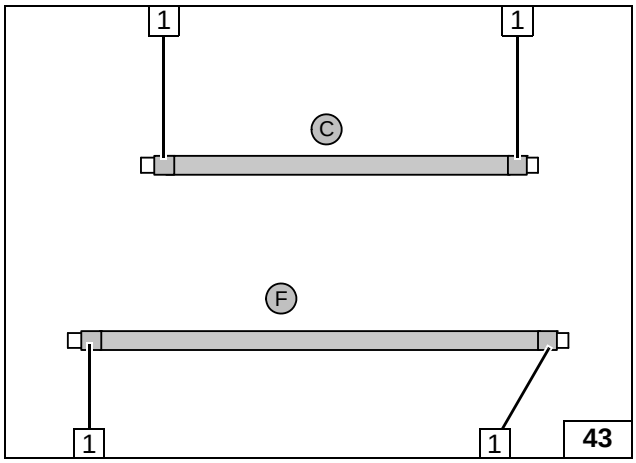
Assembling water connection piece



Discard section **X**.

A = 60
B = 60
C = 880
D = 60
E = 80
F = 1030

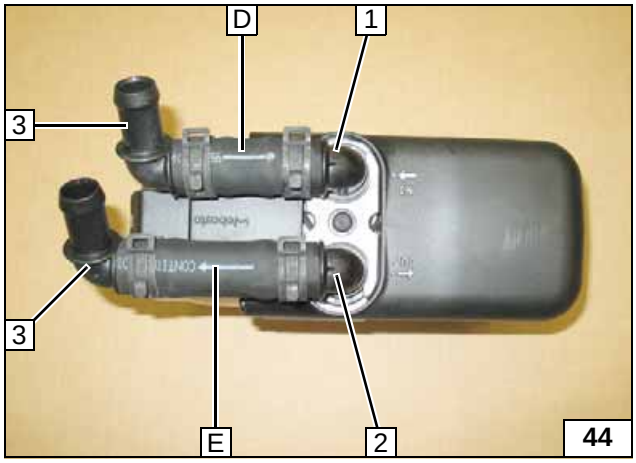
Cutting hoses to length



Push braided protection hoses onto hoses **C** and **F** and cut to length.
Cut heat shrink plastic tubing to length.

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

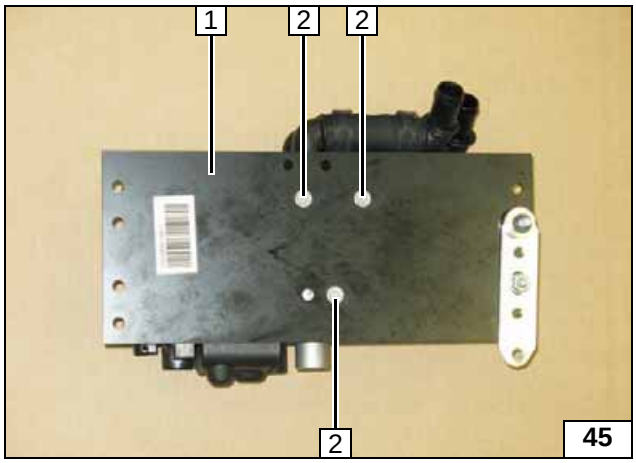
Preparing the hoses



All spring clips = 25 mm dia. [4x].

1 Connection piece of heater inlet
2 Connection piece of heater outlet
3 90°, 18x18mm dia. connecting pipe [2x]

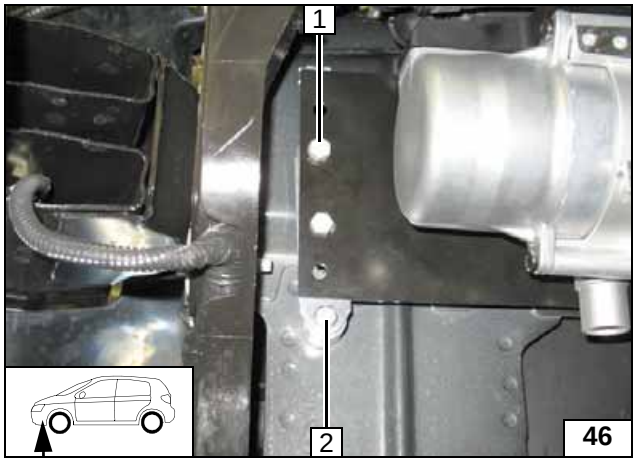
Premounting hoses



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

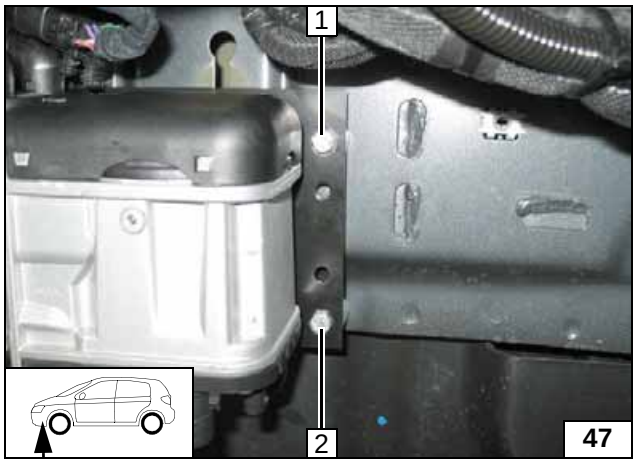
Installing bracket

Installing Heater



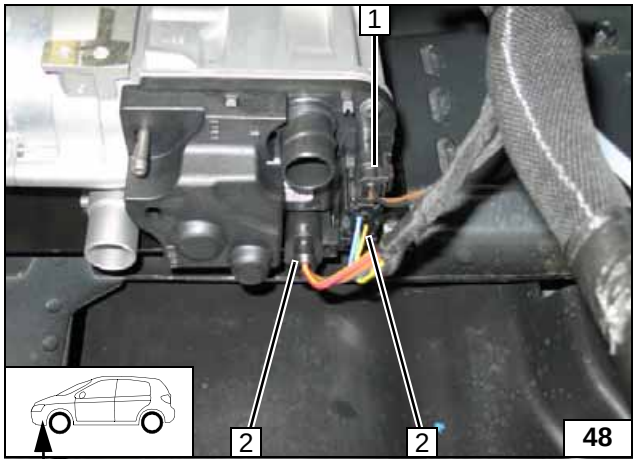
1 Tighten M6x30 bolt
2 M6x40 bolt, spring lockwasher, 20mm shim

Mounting heater



1 M6x30 bolt, spring lockwasher, 10mm shim
2 M6x40 bolt, spring lockwasher, 20mm shim, 5mm shim, flanged nut

Mounting heater



1 Connector of circulating pump wiring harness
2 Heater wiring harness connector [2x]

Mounting wiring harnesses

Fuel

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

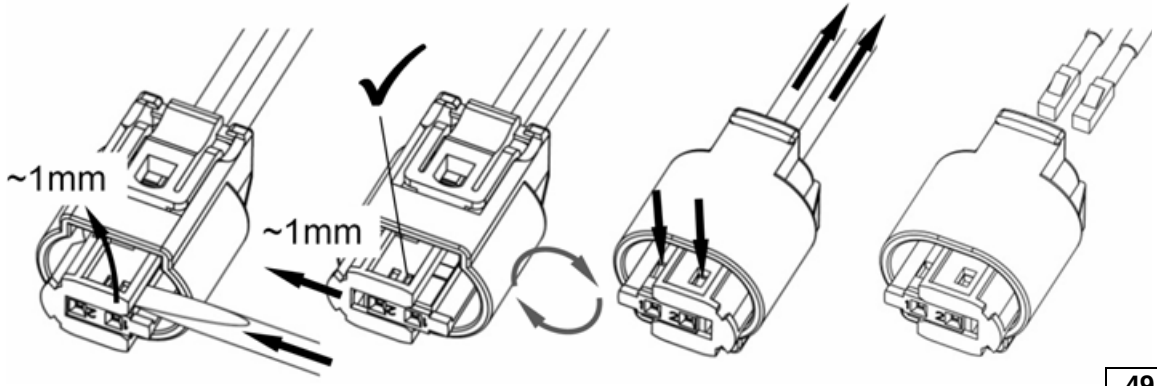
Catch any fuel running off in an appropriate container.

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.

Dismantling metering pump connector

Connector X7



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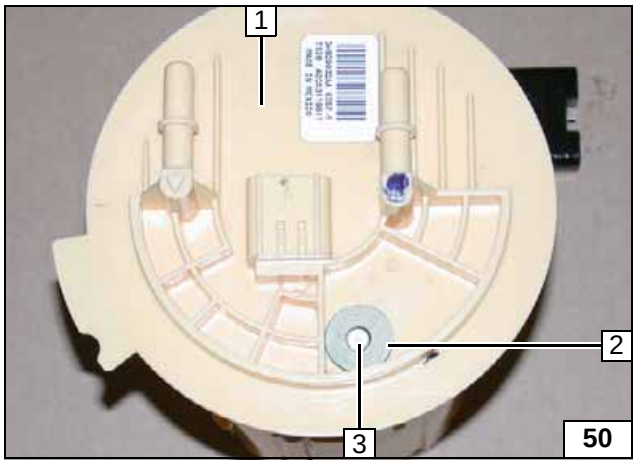
Fuel extraction



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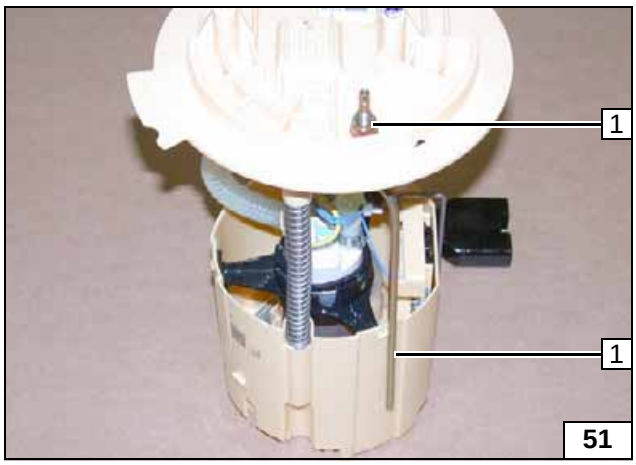
Remove fuel tank and fuel-tank sending unit **1** in accordance with manufacturer's instructions.
Place large diameter washer **2** with outer dia. d_a = 21.6mm against the ribs.

3 Copy hole pattern, 6mm dia. hole

Installing fuel standpipe



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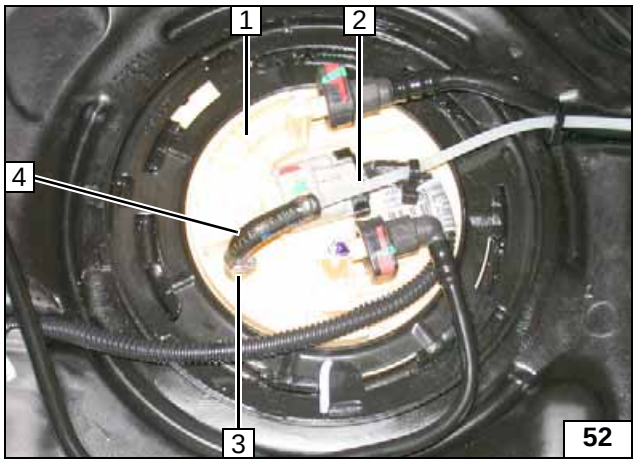
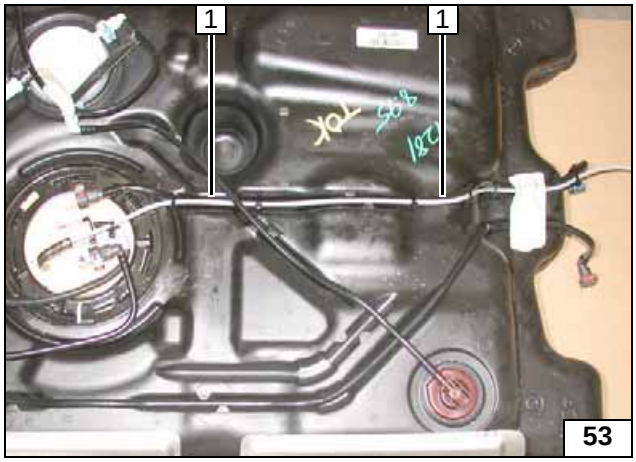
Bend fuel standpipe **1** according to template and cut to length.



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions. Cut fuel line to length by 1000mm.

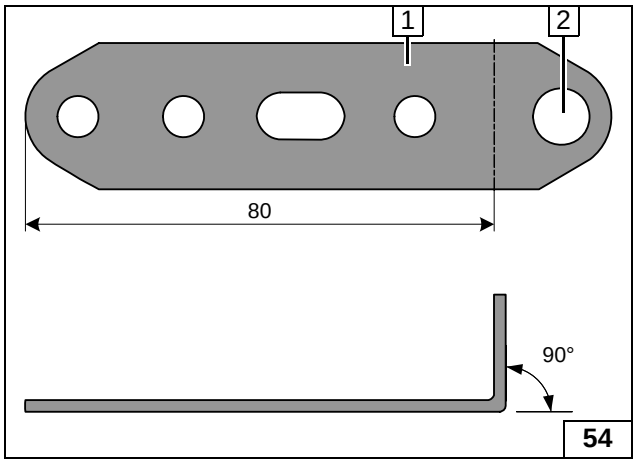
2 Fuel line of fuel standpipe
3 Fuel standpipe
4 90°, 3.5 x 4.5mm dia. hose section; 8mm dia. clamp, 10mm dia. clamp

Connecting fuel line



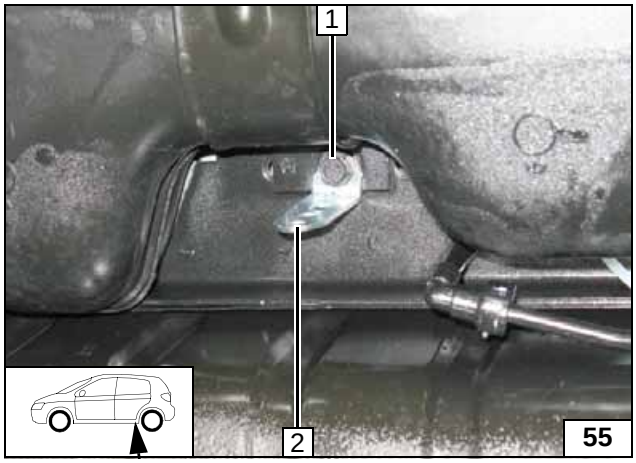
Fasten fuel line **1** to original vehicle fuel line using cable tie.

Routing fuel line



1 Perforated bracket
2 10.5mm dia. hole

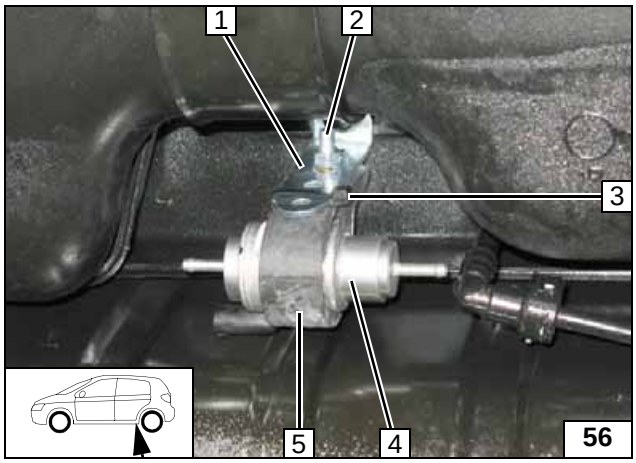
Preparing perforated bracket



Install fuel tank according to manufacturer's instructions.

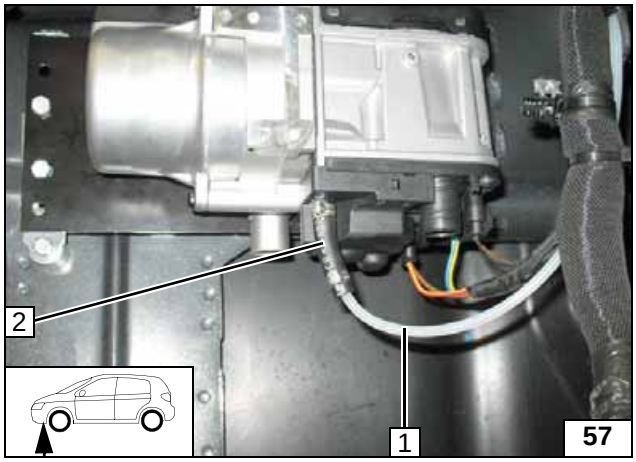
1 Original vehicle bolt
2 Perforated bracket

Mounting perforated bracket



1 Perforated bracket
2 M6x25 bolt, flanged nut
3 Cable tie
4 Metering pump
5 Mounting of metering pump

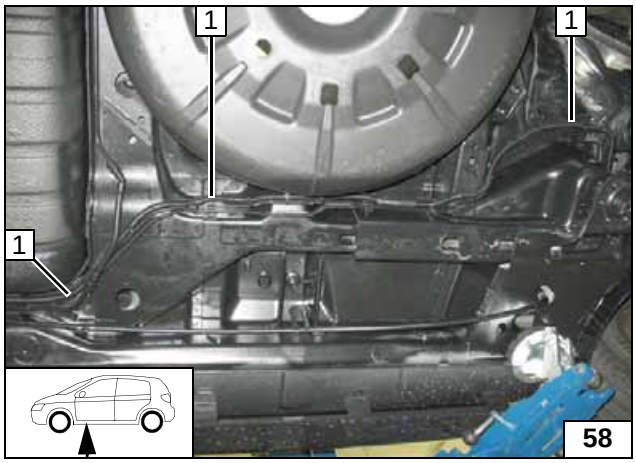
Installing metering pump



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube to the underbody.

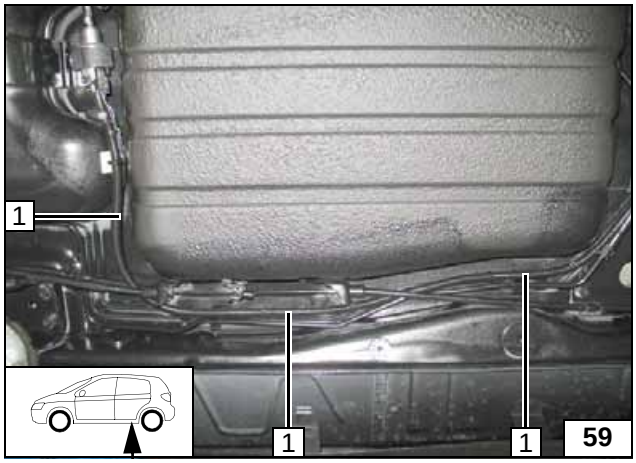
1 Fuel line
2 Hose section, 10mm dia. clamp [2x]

Connecting heater



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** to the installation location of the metering pump.

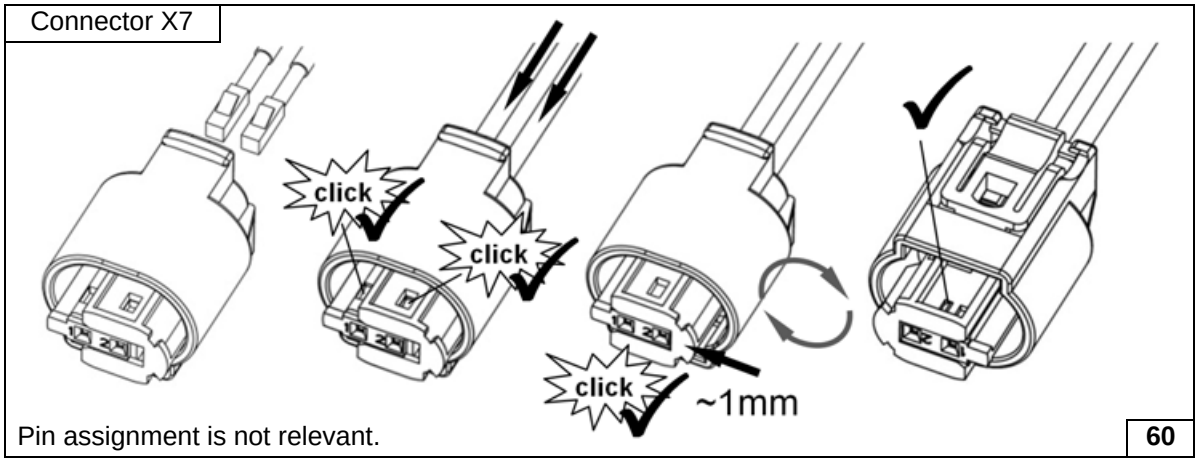
Routing lines



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** to the installation location of the metering pump.

Routing lines

Connector X7



Pin assignment is not relevant.

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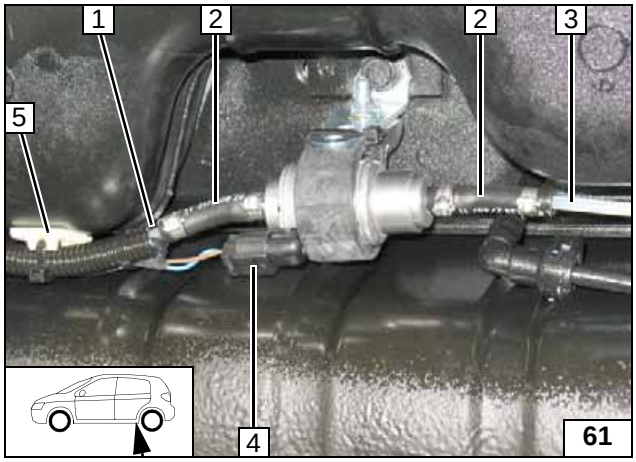
Completing metering pump connector



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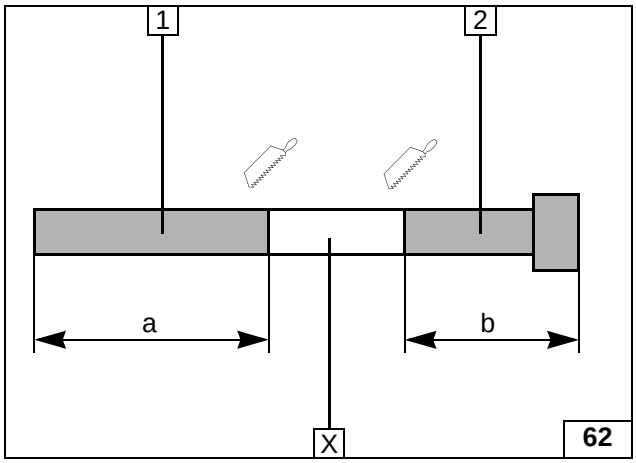
Check the position of the components; adjust if necessary. Check that they have freedom of movement.

Connection of metering pump

1. Fuel line of heater
2. Hose section, 10mm dia. clamp [2x each]
3. Fuel line of fuel standpipe
4. Wiring harness of metering pump, connector mounted
5. Adhesive base, cable tie

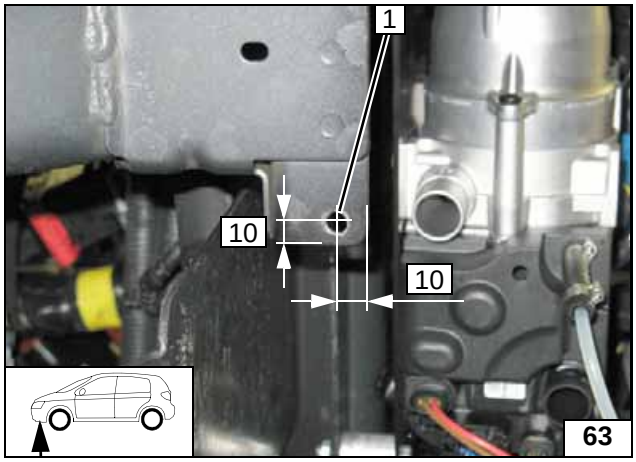


Exhaust Gas

Discard section **X**.

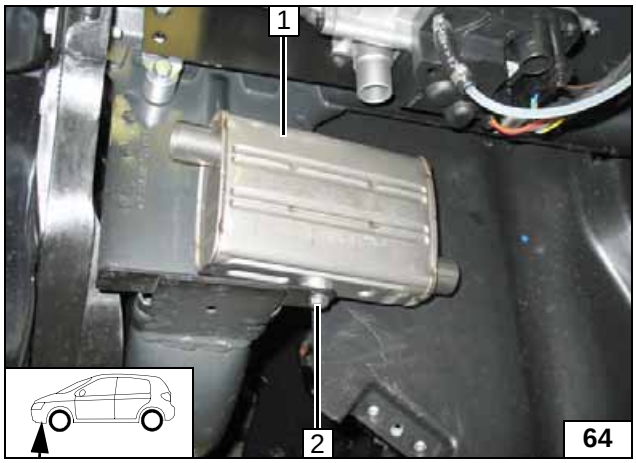
1 Exhaust pipe
a = 260
2 Exhaust end section
b = 140

Preparing exhaust pipe



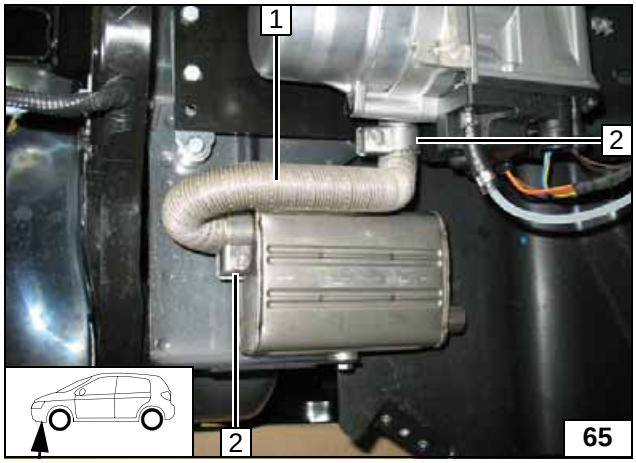
1 7mm dia. hole

Hole for silencer



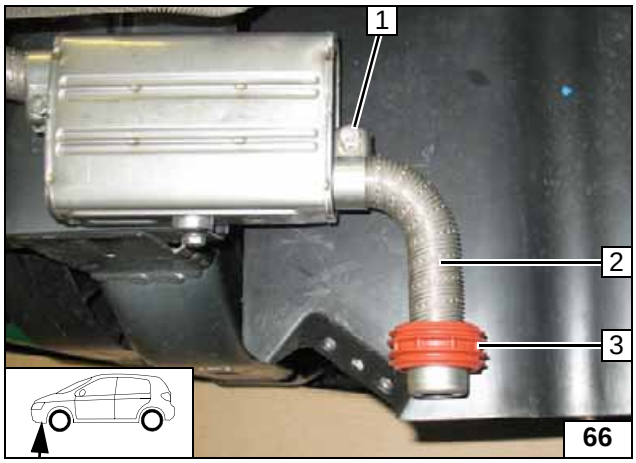
1 Silencer
2 M6x20 bolt, spring lockwasher, 5mm shim

Installing silencer



1 Exhaust pipe
2 Hose clamp [2x]

Installing exhaust pipe



Ensure sufficient distance from neighbouring components.

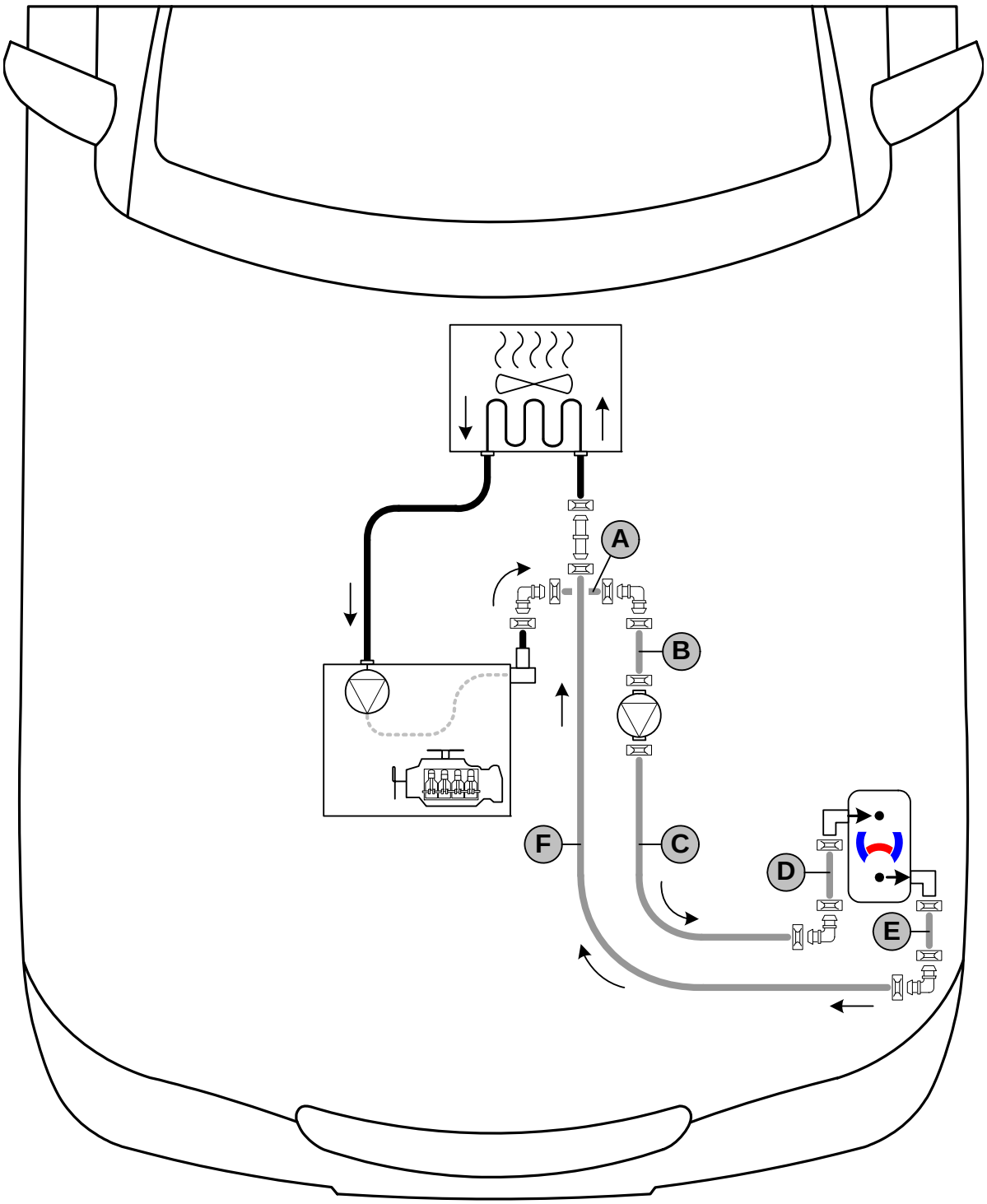
1 Hose clamp
2 Exhaust end section
3 Spacer bracket

Installing exhaust end section

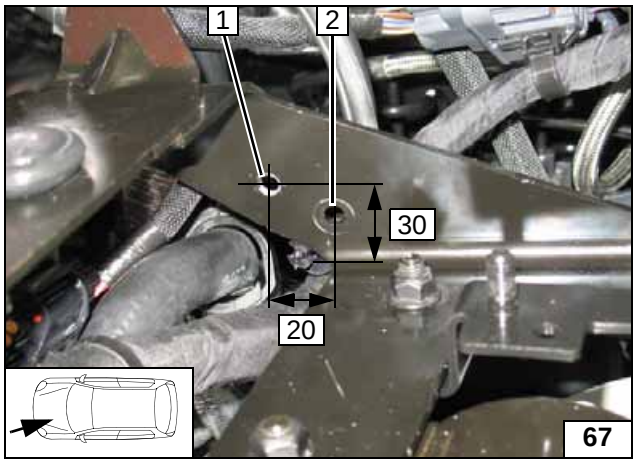
Coolant Circuit

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

Hose routing diagram



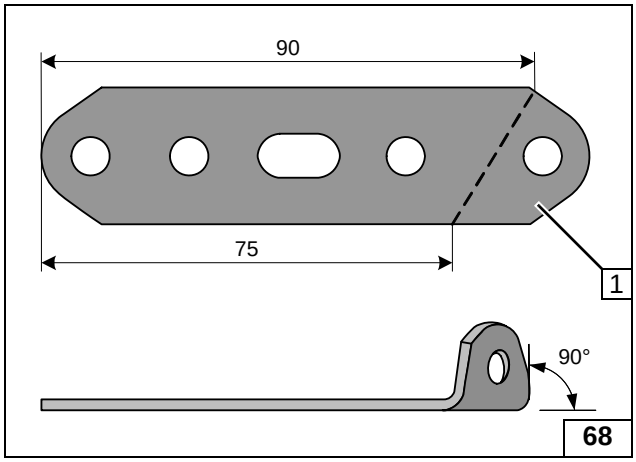
All spring clips = 25 mm dia.
All connecting pipes and = 18x18 mm dia.



Detach retaining clip of original vehicle wiring harness at position **2**.

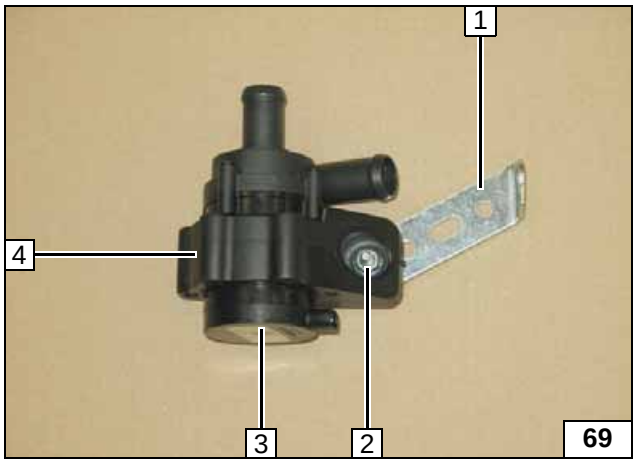
1 6.5 mm dia. hole

Hole for fastening of wiring harness



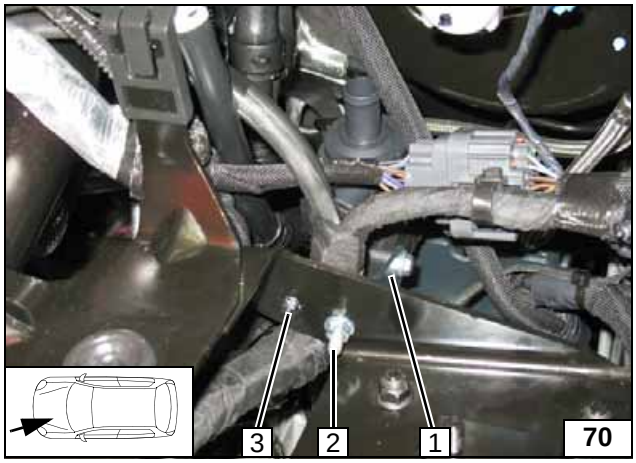
1 Perforated bracket

Angling down perforated bracket



1 Perforated bracket
2 M6x25 bolt, large diameter washer, flanged nut
3 Circulating pump
4 Circulating pump mounting

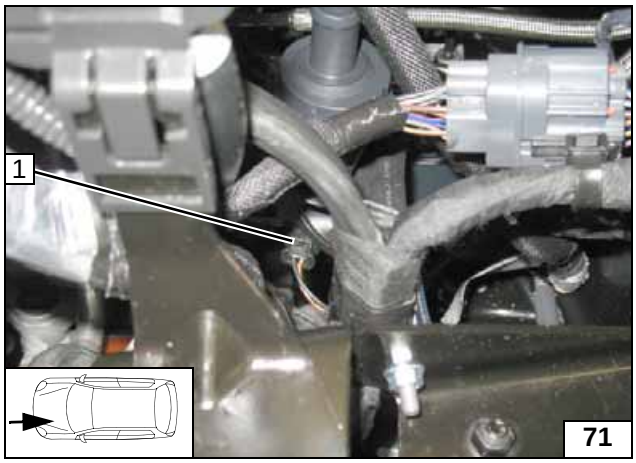
Premounting circulating pump



Insert retaining clip of original vehicle wiring harness at position **3**.

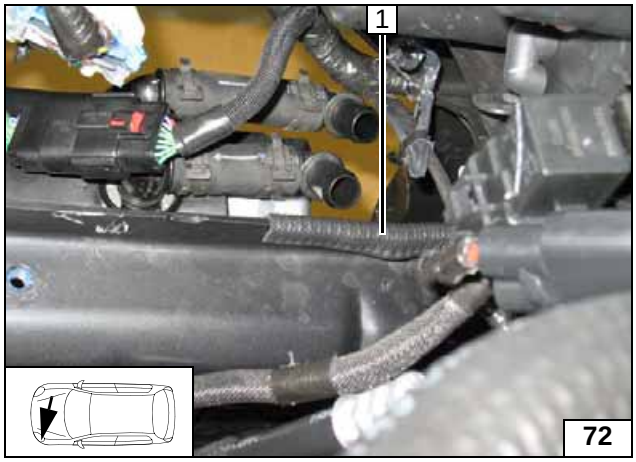
1 Perforated bracket
2 M6x20 bolt, flanged nut, existing hole

Mounting circulating pump



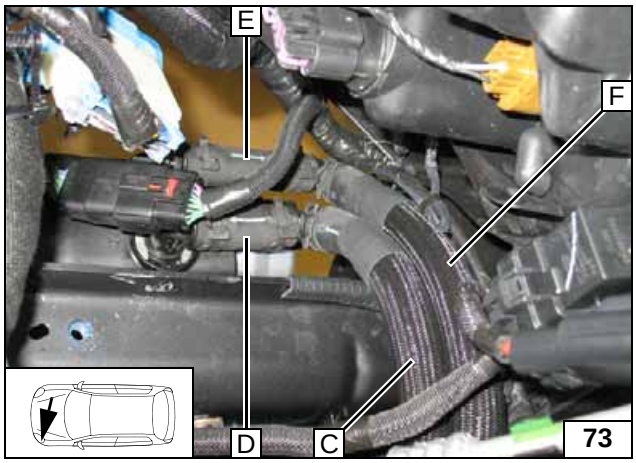
1 Connector of circulating pump wiring harness

Installing wiring harness of circulating pump

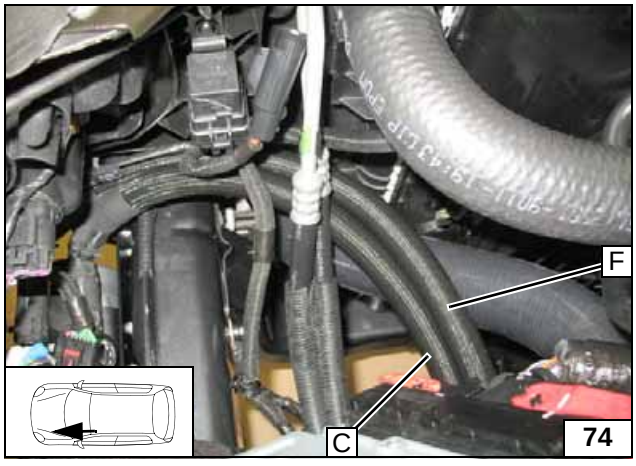


1 100 mm edge protection

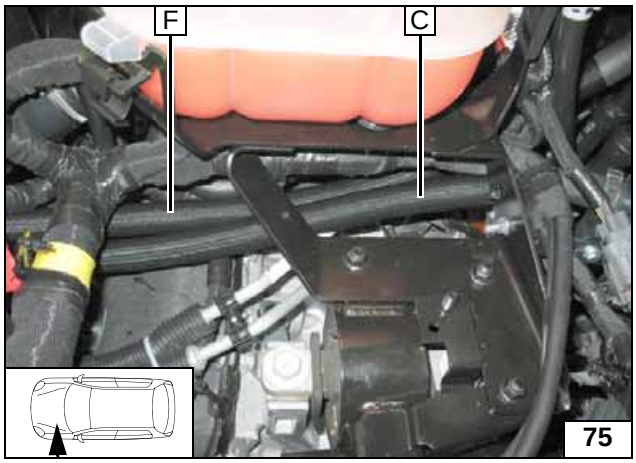
Installing edge protection



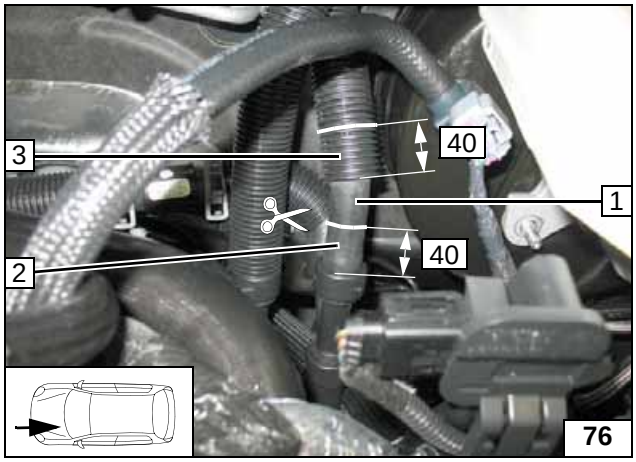
Connecting heater



Routing in engine compartment



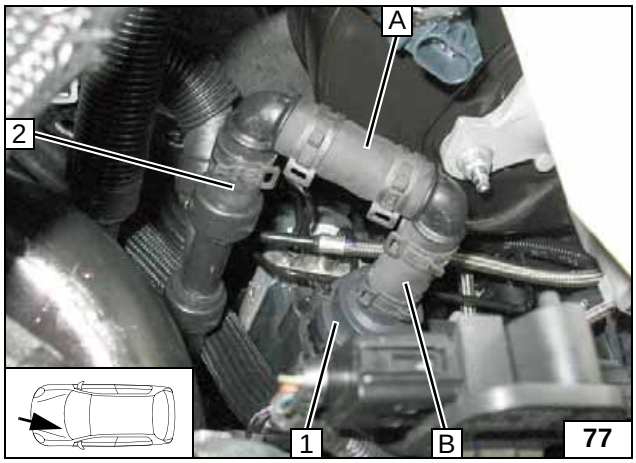
Routing in engine compartment



Cut off hose on engine outlet/heat exchanger inlet at marking. Cut protective hose **3** to length by 40mm and discard.

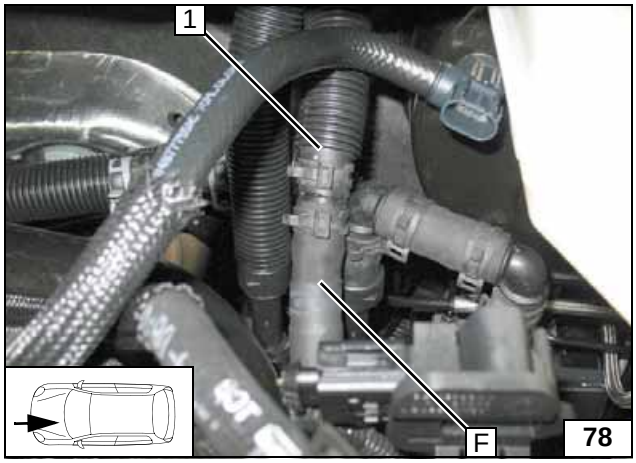
1 Hose section of heat exchanger inlet
2 Hose section of engine outlet

Cutting point



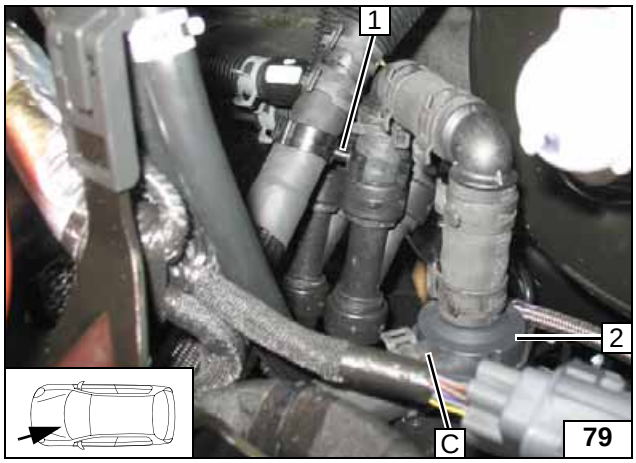
1 Circulating pump
2 Hose of engine outlet

Connecting engine outlet



1 Hose on heat exchanger inlet

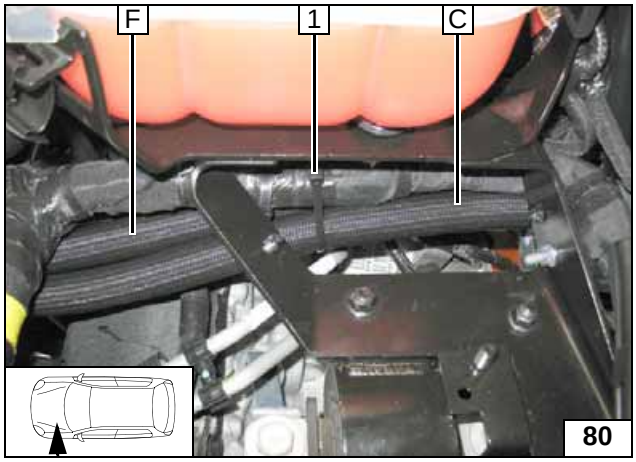
Connecting heat exchanger inlet



Ensure sufficient distance from neighbouring components.

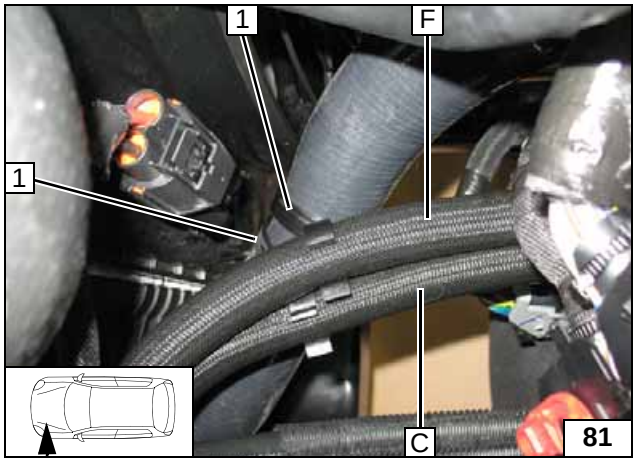
1 Spacer bracket
2 Circulating pump

Connection of circulating pump



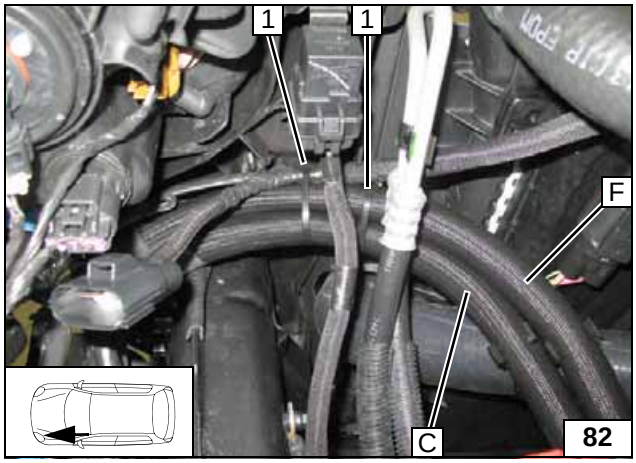
1 Cable tie

Fastening hoses



1 Spacer bracket [2x]

Fastening hoses

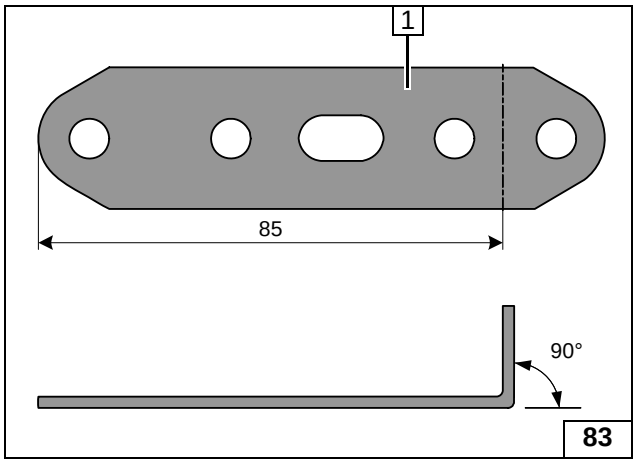


Align hoses. Ensure sufficient distance to neighbouring components, especially to the A/C lines. Correct if necessary.

1 Cable tie [2x]

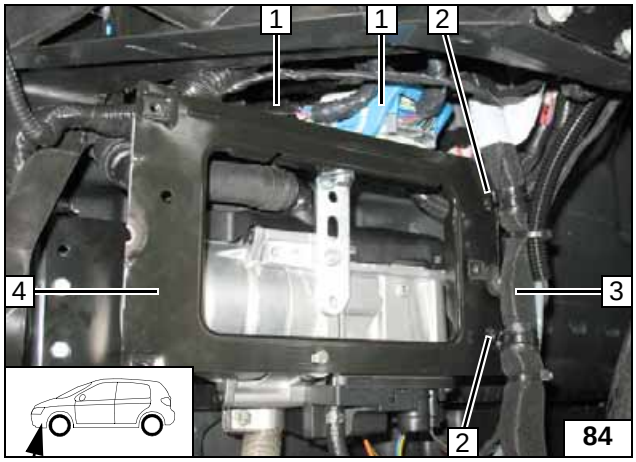
Fastening hoses

Installing control unit



1 Perforated bracket

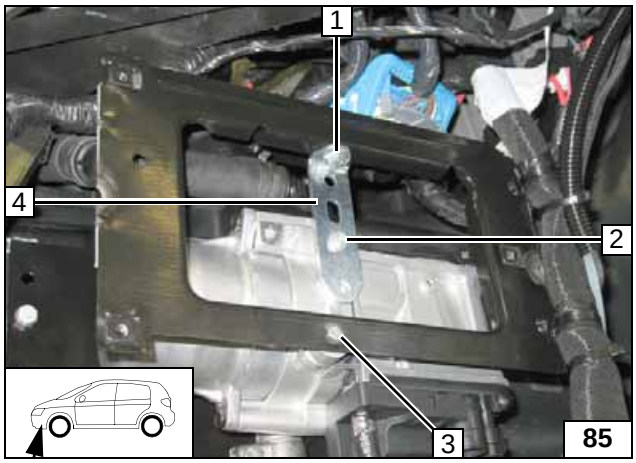
Angling down perforated bracket



Insert retaining clip **2** [2x] of original vehicle wiring harness **3** into prepared holes.

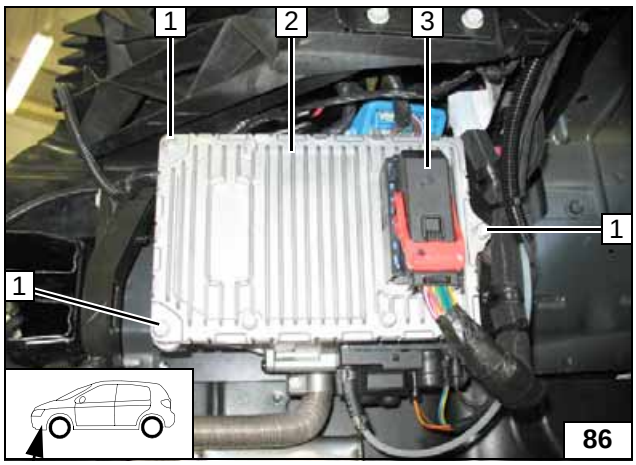
1 Attach original vehicle connectors [2x]
4 Bracket of control unit

Installing bracket of control unit



1 M5x16 bolt, large diameter washer, flanged nut, existing hole
2 5x13 self-tapping bolt
3 M5x25 bolt, 10mm shim, 5mm shim, hole for heater
4 Perforated bracket

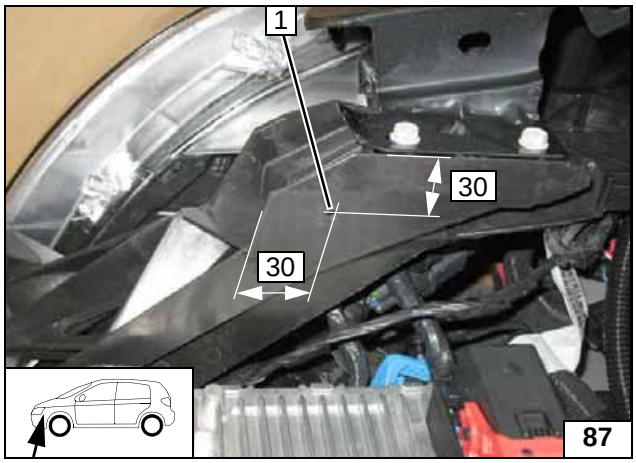
Installing bracket of control unit



1 M6x40 bolt, washer, 10mm shim [3x]
2 Control unit
3 Connector attached

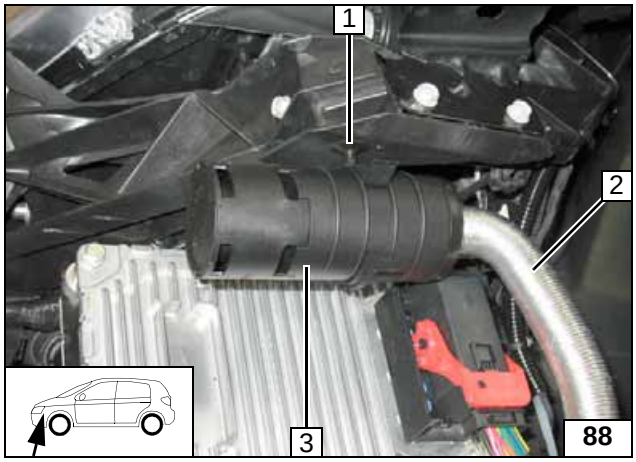
Installing control unit

Combustion Air



1 6mm dia. hole

Hole for silencer



1 Retaining clip in hole
2 Combustion air pipe
3 Silencer

Installing silencer

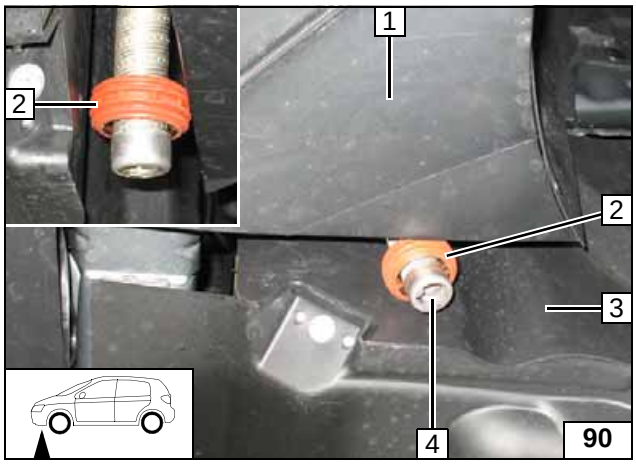
1 Cable tie
2 Combustion air pipe

Installing combustion air pipe

Final Work

WARNING!
Reassemble the disassembled components 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.**
- **Set digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label near the filler neck**
- **For initial start-up and function check, see installation instructions**



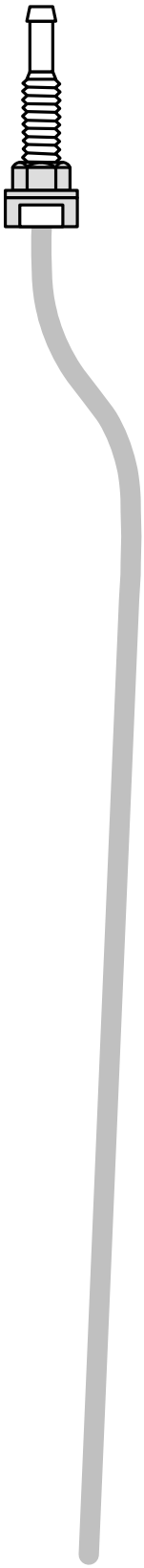
Align exhaust end section **4** between underride protection **1** and wheel-well inner panel **3**.

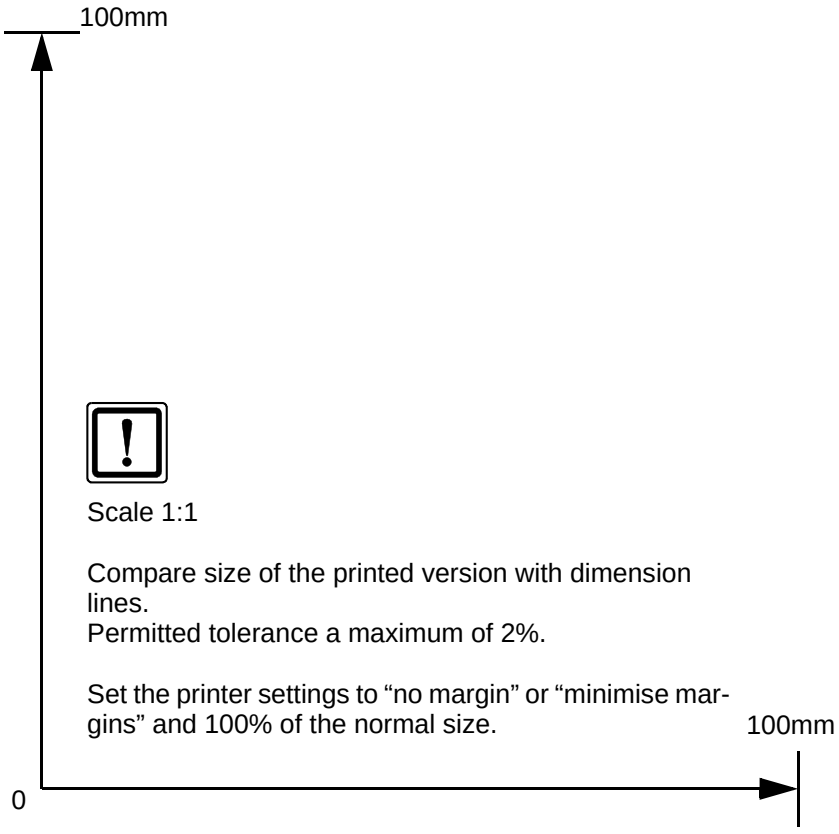
2 Spacer bracket

Aligning exhaust end section

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

Template for Fuel Standpipe





Scale 1:1

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

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

Operating Instructions for End Customer

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.

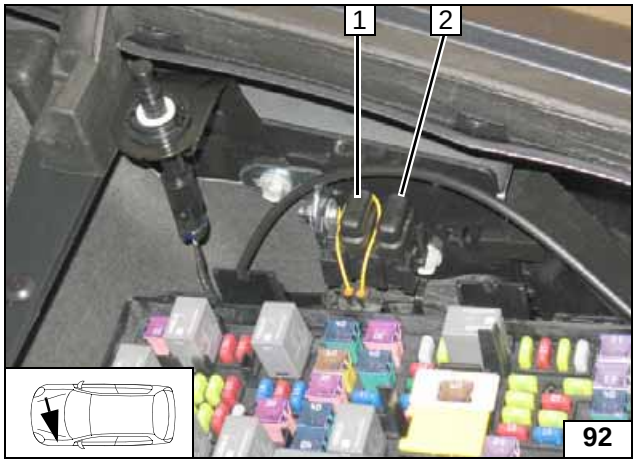
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation .
Please refer to the Operating Manual of the vehicle for instructions concerning the deactivation.

Before parking the vehicle, make the following settings:

A/C control panel

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

Engine compartment fuses



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

Passenger compartment fuses

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