Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation Subaru Levorg

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Subaru	Levorg	V1	e1 * 2007 / 46 * 1203

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6	Petrol	CVT	125	1600	FB16

CVT = Lineartronic transmission

From model year 2016
Left-hand drive vehicle

Verified equipment variants: 2 zone automatic air-conditioning
Front fog lights
Automatic Start-Stop system
LED with headlight washer system
Keyless access
Euro 6 emission standard
4WD

Total installation time: about 6.7 hours

Subaru Levorg

Table of Contents

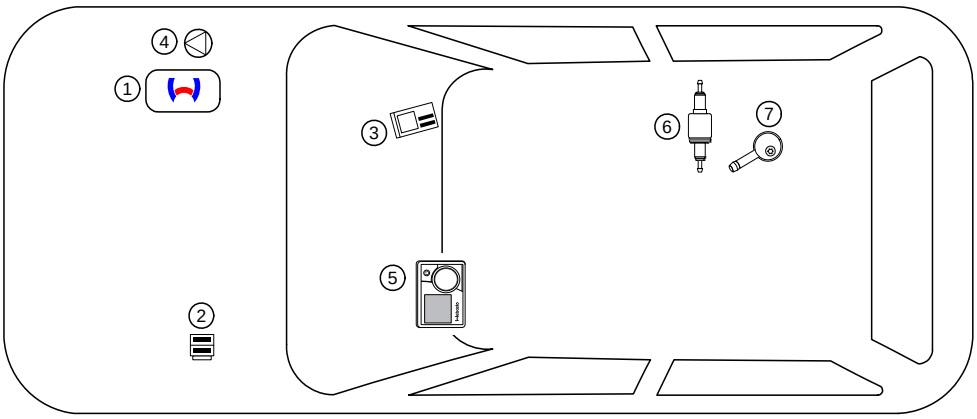
Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
  Subaru part number: **1165**
- Installation kit with FuelFix for Subaru Levorg 2016 Petrol: **1324550A**
  Subaru part number: **1165-07**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer
- In case of MultiControl CAR installation: MultiControl installation frame: **9030077_**
  Subaru part number: **9965-27**

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 space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

Installation Overview



Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. Circulating pump
5. MultiControl CAR
6. Metering pump
7. FuelFix

Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

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

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Subaru Levorg

Information on Validity

This installation documentation applies to Subaru Levorg Petrol vehicles - for validity, see page 1 - from model year 2016 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 auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

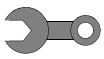
Dimensions
- All dimensions are in mm.

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

Explanatory Notes on Document

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

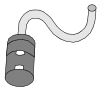
Mechanical System



Electrical System

Coolant Circuit

Combustion Air



Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

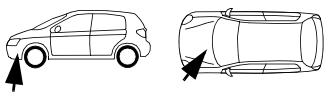
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion

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

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.

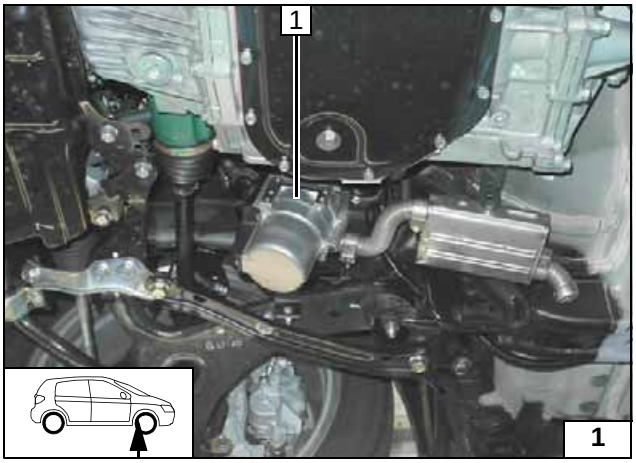
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Remove the engine cover.
- Remove the intercooler above the engine.
- Remove the left underride protection.
- Remove the underride protection of the transmission (if present).
- Remove the rear bench seat.
- Open the right-hand tank-fitting service lid.
- Remove the fuel tank sending unit on the right in accordance with manufacturer's instructions.
- Remove the lateral instrument panel trim on the left.
- Remove the lateral instrument panel trim on the right (only with Telestart option).
- Remove the lower instrument panel trim on the driver's side on the left.
- Remove the lower instrument panel trim on the driver's side on the right.
- Remove the knee airbag on the driver's side.
- Remove the A/C control panel.

Heater

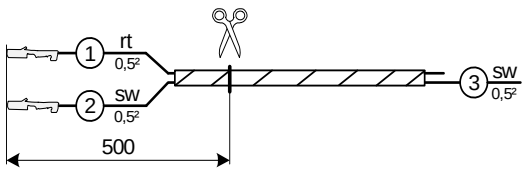
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

Installation location



2

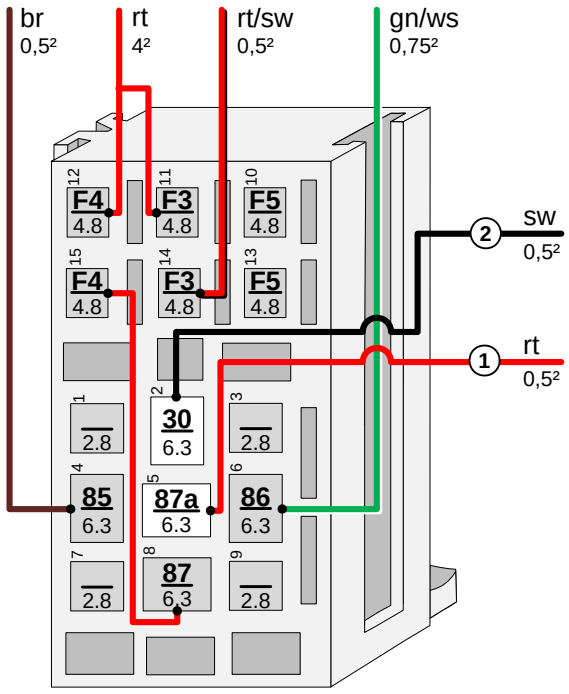
Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

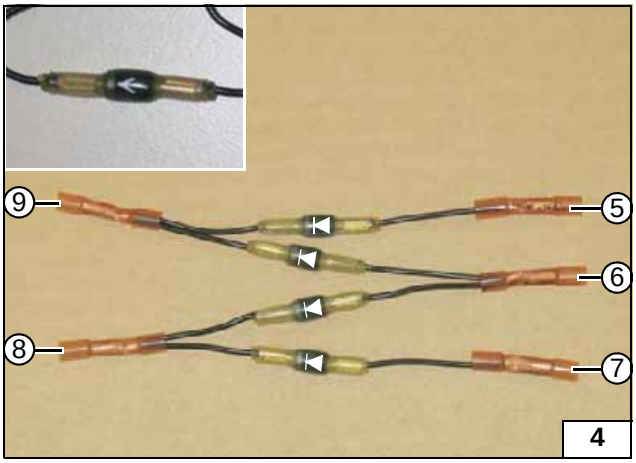
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness

Cutting to length / assigning wires



3

Connecting wires to passenger compartment relay and fuse holder



4

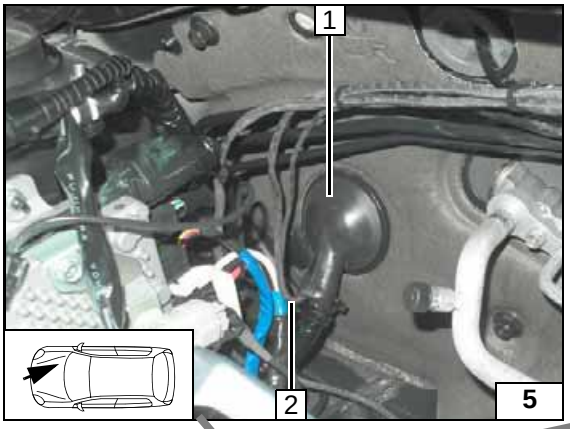
Premount four diodes with connectors to diode group D1 as shown. Watch direction of flow of diodes.

Premounting / assigning diode group

Electrical System

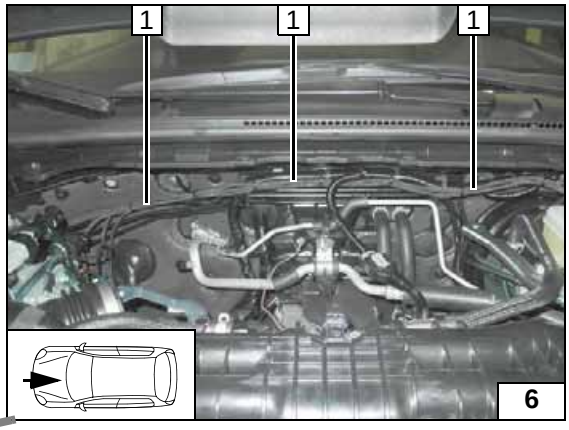
Wiring harness pass through

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

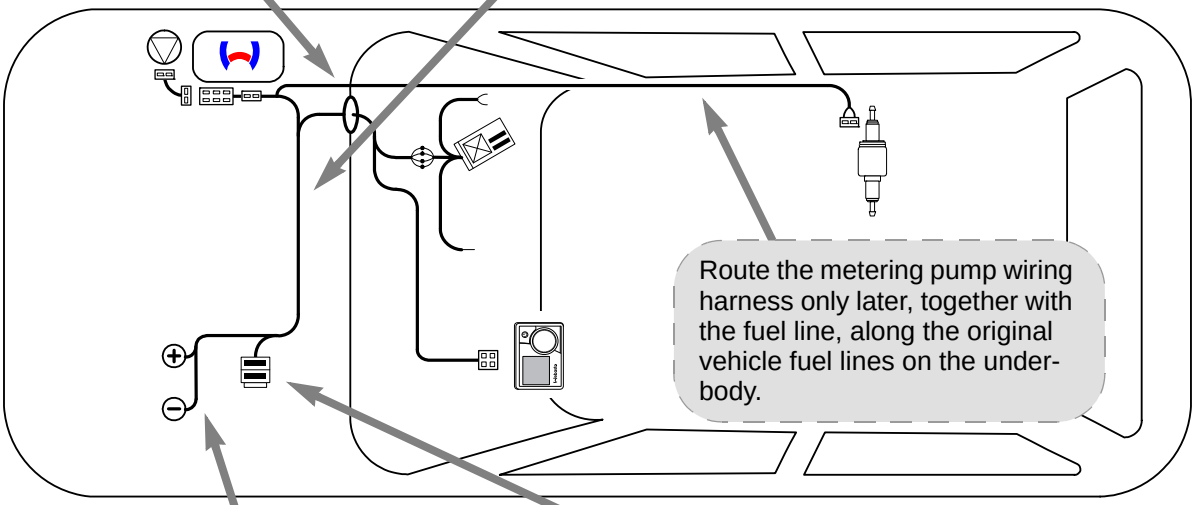


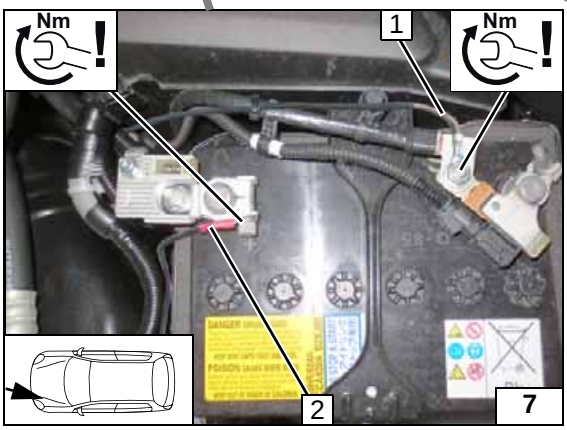
Wiring harness routing

1 Route wiring harnesses of heater, heater control along original vehicle lines



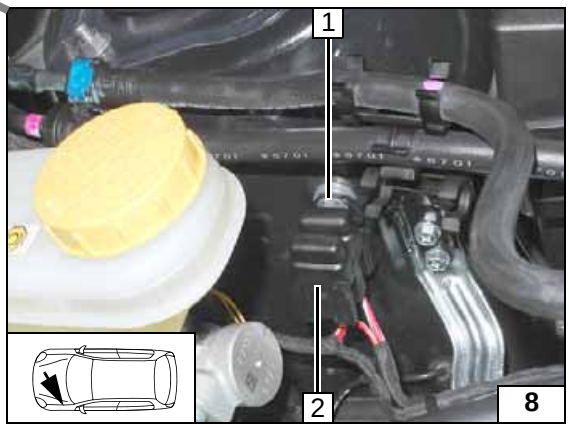
Wiring harness routing diagram





Positive and earth wire

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

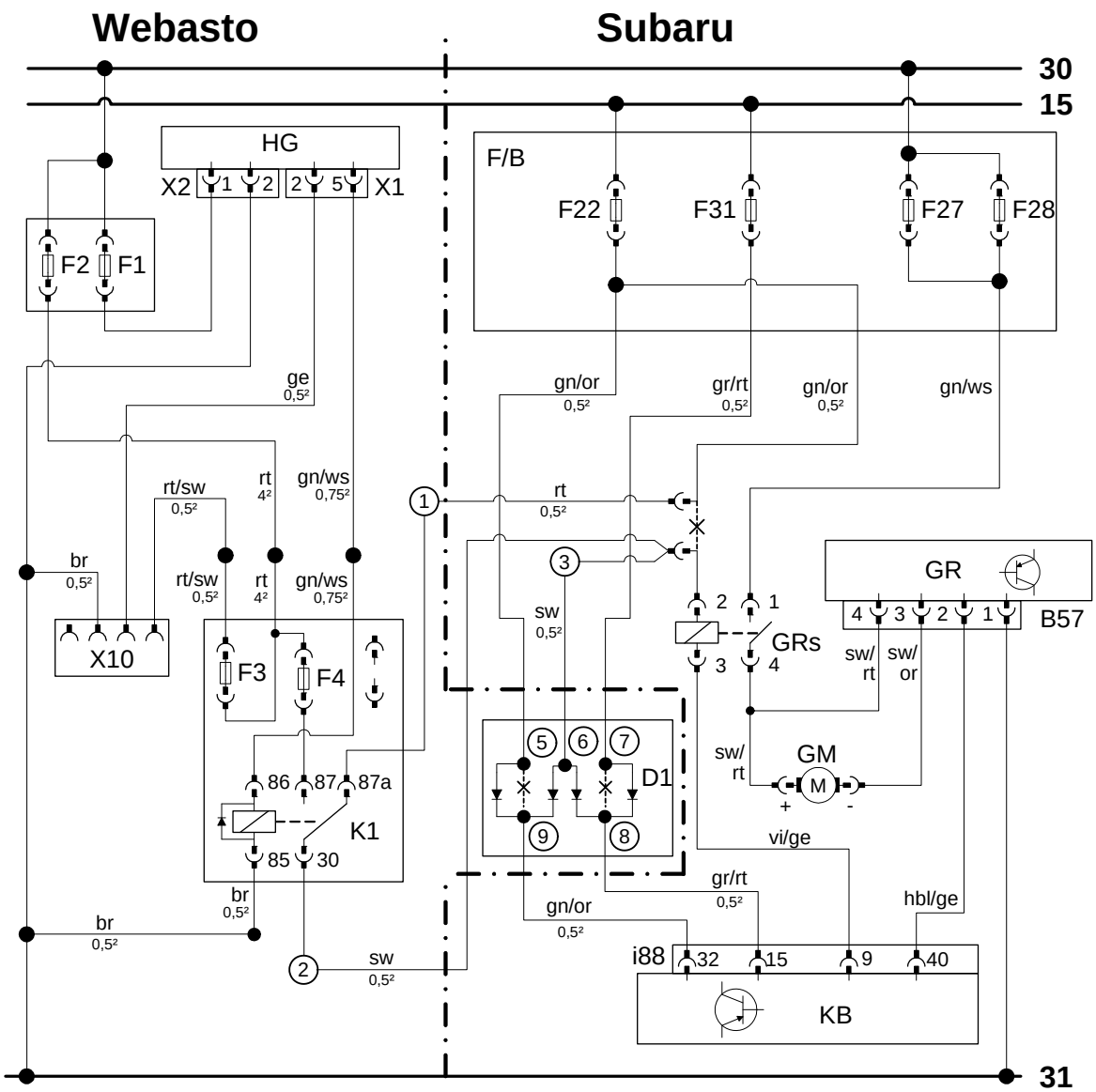


Engine compartment fuse holder

1 M5x16 bolt, large diameter washer, retaining plate of fuse holder, 5mm spacer, existing hole, large diameter washer, nut
2 Fuses F1-2

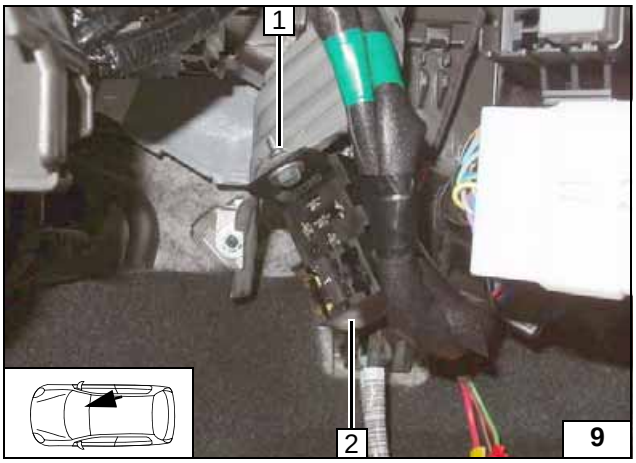
Fan Controller

Wiring diagram



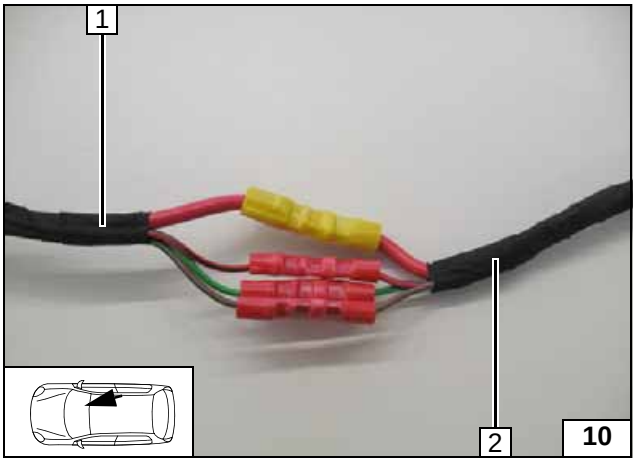
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F28	15A fuse	rt	red
X1	6-pin heater connector	F27	15A fuse	sw	black
X2	2-pin heater connector	F22	10A fuse	ge	yellow
F1	20A fuse	F31	7.5A fuse	gn	green
F2	30A fuse	F/B	Relay and fuse box	or	orange
X10	4-pin connector of heater control	GR	Fan controller	ws	white
		B57	4-pin connector of GR	br	brown
F3	1A fuse	GRs	Fan relay	gr	grey
F4	7.5A fuse	GM	Fan motor	vi	violet
K1	Fan relay	KB	A/C control panel	hbl	light blue
D1	Diode network	i88	40-pin connector of KB		
				X	Cutting point
				Wiring colours may vary.	

Legend



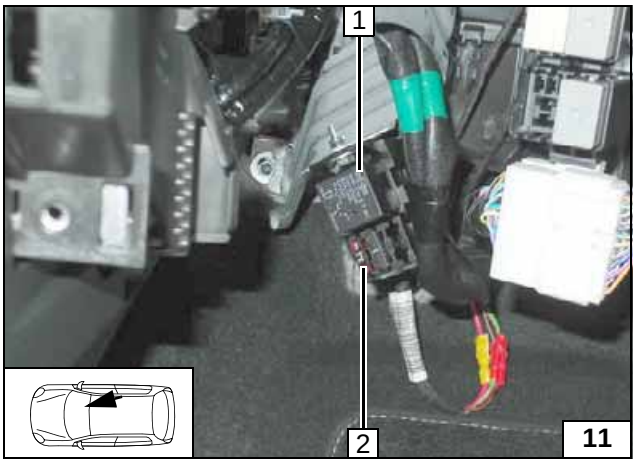
1 M5x16 bolt, large diameter washer [2x], existing hole, nut
2 Passenger compartment relay and fuse holder

Installing passenger compartment relay and fuse holder



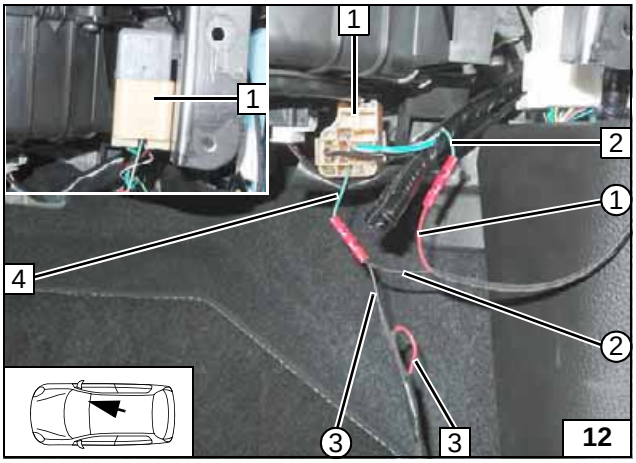
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



1 K1 relay
2 7.5A fuse F4

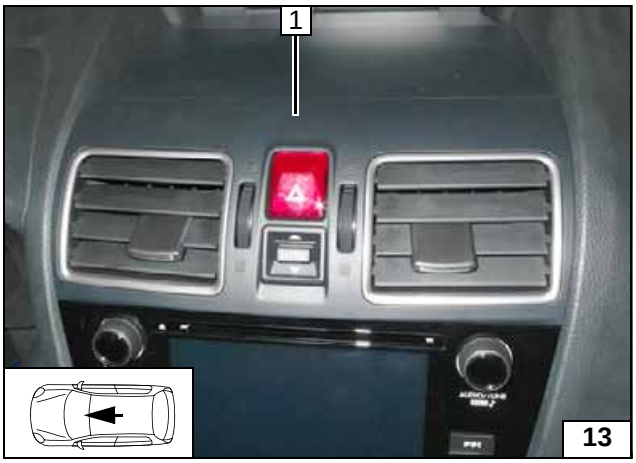
Installing K1 relay and fuse F4



Connection to 4-pin connector **1** from fan relay.

2 Green/orange (gn/or) wire of 10A fuse F22 from F/B
3 Insulate and tie back red (rt) wire
4 Green/orange (gn/or) wire of connector from GRs, pin 2
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness
③ Black (sw) wire to diode network D1

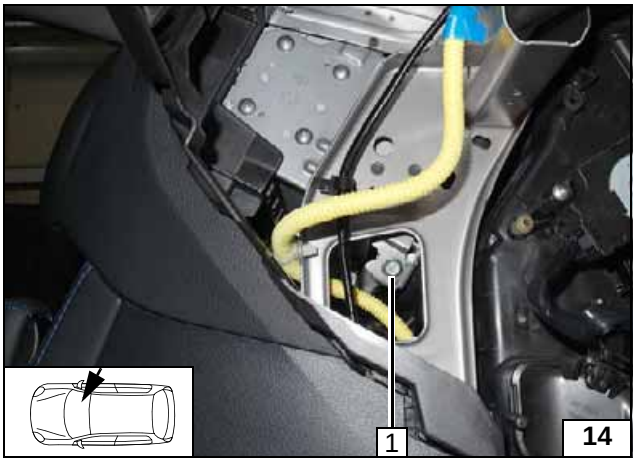
Connection to fan relay



Removing A/C Control Panel

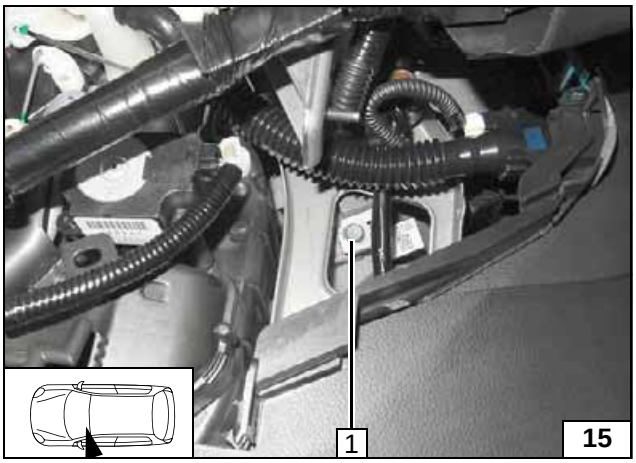
1 Remove air vent (clipped on)

Removing air vent



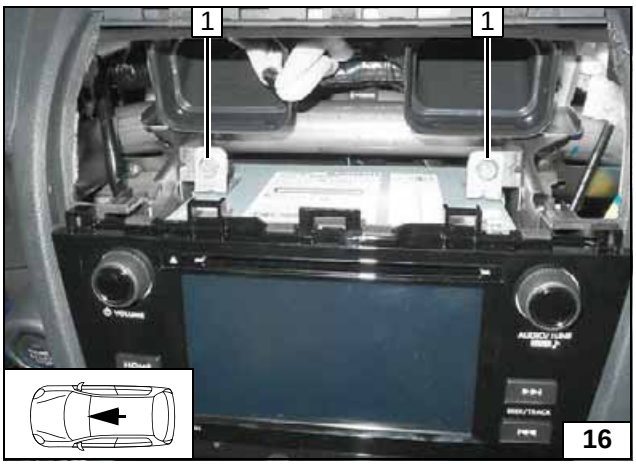
1 Remove original vehicle bolt on the right

Removing bolt



1 Remove original vehicle bolt on the left

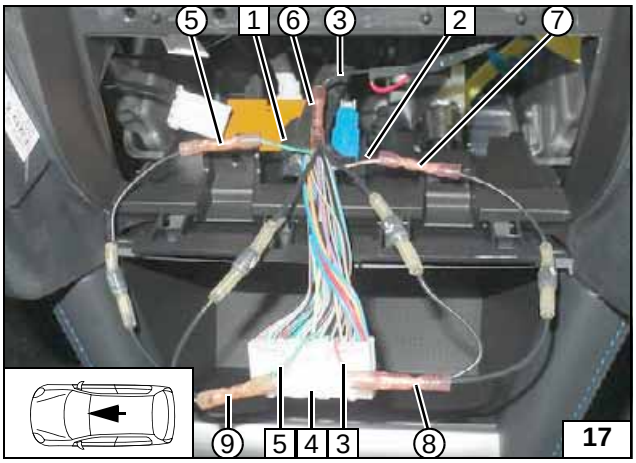
Removing bolt



1 Remove original vehicle bolt in the centre [2x]

Pull out radio and A/C control panel

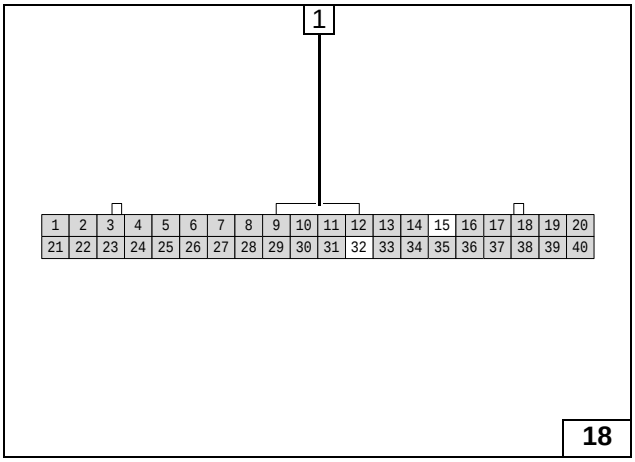
Connecting fan controller



Connection to 40-pin connector i88 **4** of A/C control panel.

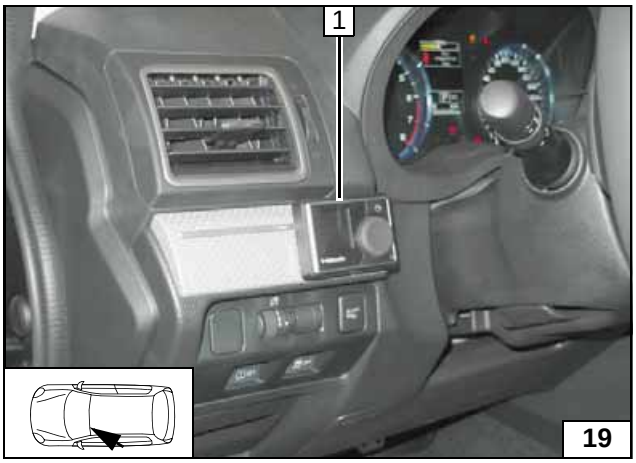
1 Green/orange (gn/or) wire of 10A fuse F22 from F/B
2 Grey/red (gr/rt) wire of 7.5A fuse F31
3 Grey/red (gr/rt) wire of connector i88, pin 15
5 Green/orange (gn/or) wire of connector i88, pin 32
③ Black (sw) wire of K1/30
⑤ Black (sw) wire of D1
⑥ Black (sw) wire of D1
⑦ Black (sw) wire of D1
⑧ Black (sw) wire of D1
⑨ Black (sw) wire of D1

Connecting A/C control panel



1 Connector i88 on contact side.

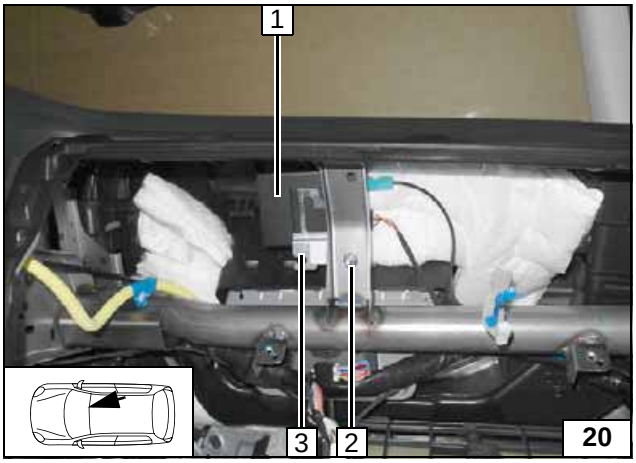
View of connector i88



MultiControl CAR Option

1 Installation frame

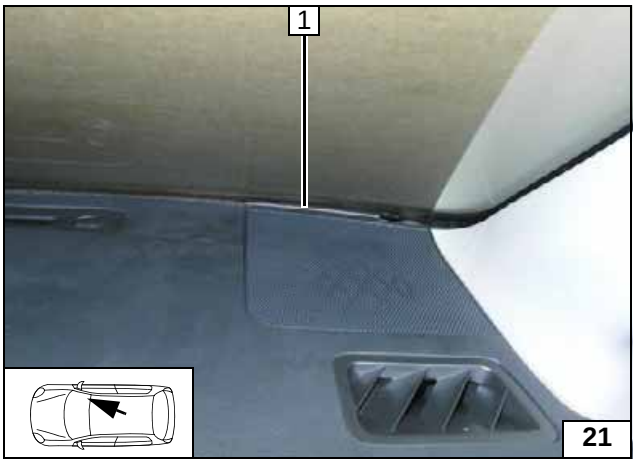
Installing MultiControl CAR



Remote Option (Telestart)

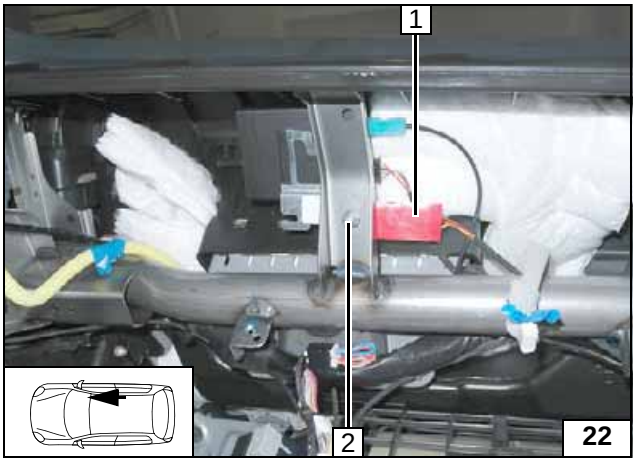
1 Receiver
2 Original vehicle hole, M5x16 bolt, flanged nut
3 Receiver bracket

Installing receiver



1 Aerial

Installing aerial

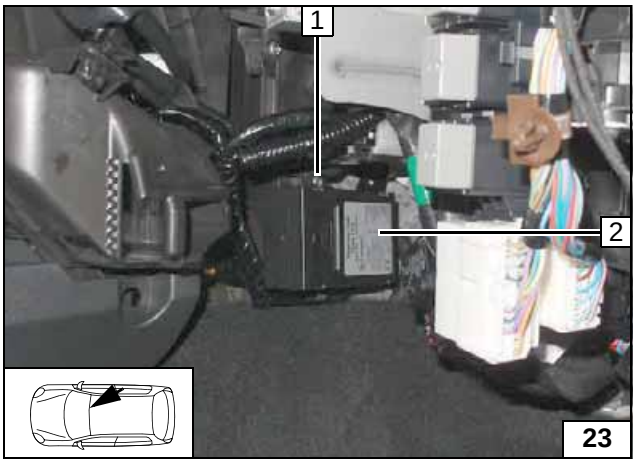


Temperature sensor T100 HTM

Fasten temperature sensor **1** on M5x16 bolt and flanged nut **2**.

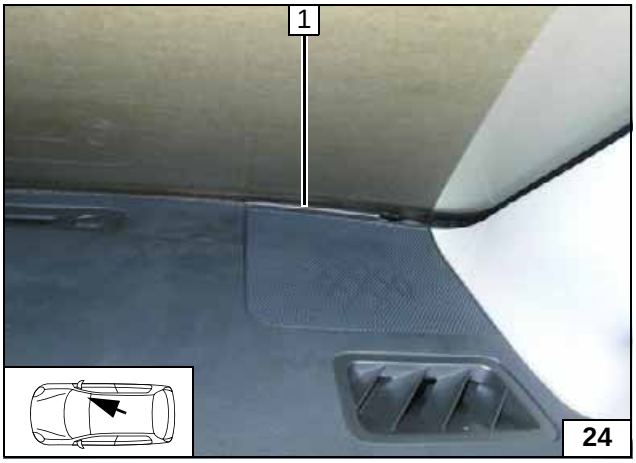
Installing temperature sensor

ThermoCall Option



1 Original vehicle bolt
2 Receiver

Installing receiver



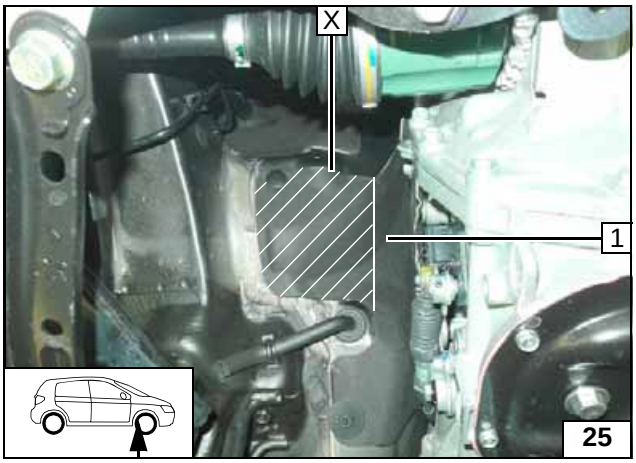
1 Aerial (optional)

Installing aerial

Preparing Installation Location

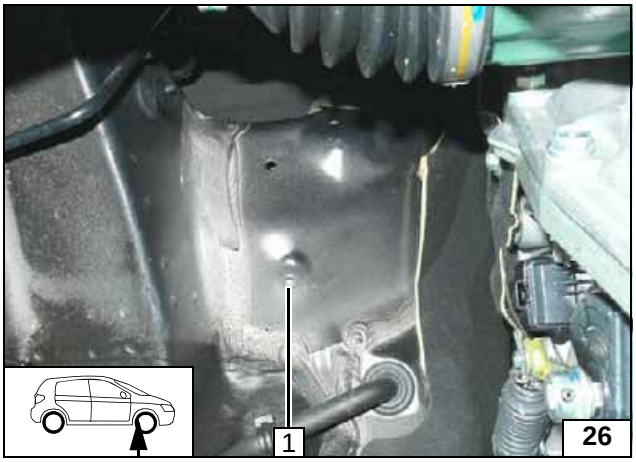
Cut out insulation mat **1** as shown.

X =



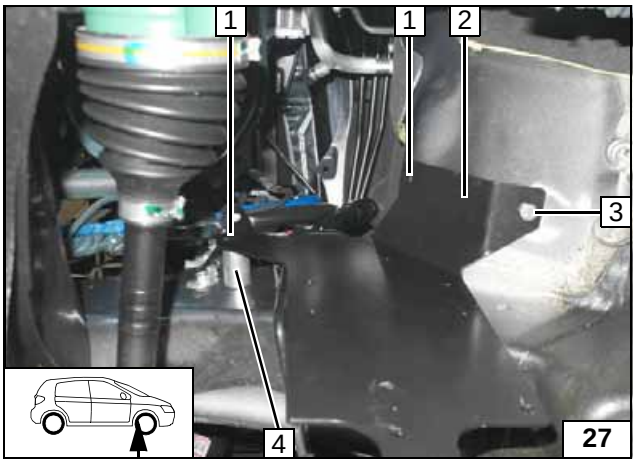
Cutting out insulation mat

1 Original vehicle hole, rivet nut



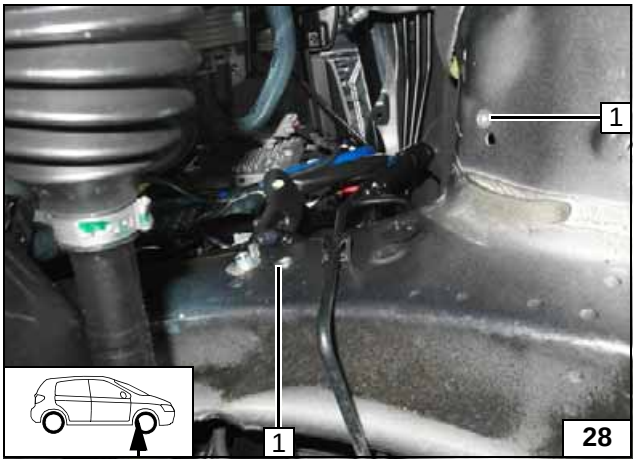
Installing rivet nut

1 Copy hole pattern, 9.1mm dia. hole [2x]
2 Bracket
3 M6x20 bolt
4 30mm spacer



Copying hole pattern

1 Rivet nut [2x]



Installing rivet nut

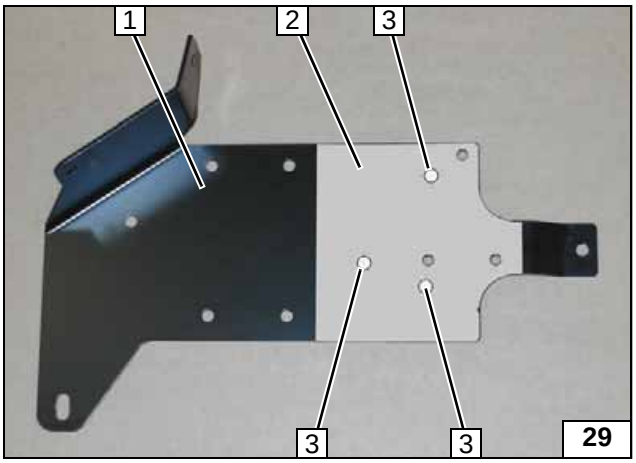
Preparing Bracket

Only required if there are no holes at pos. 3!

Cut out template **2** and position as shown.

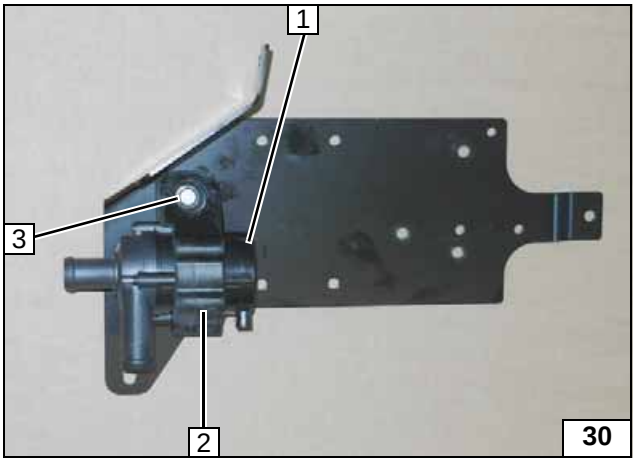
1 Bracket
3 Copy hole pattern, 7 mm dia. hole [3x each]

Holes in bracket



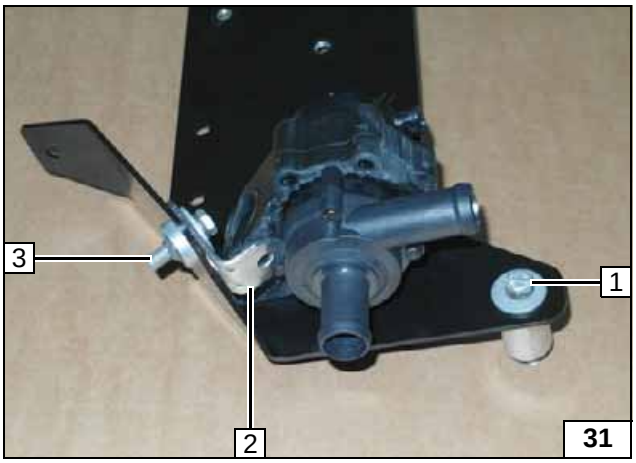
1 Circulating pump
2 Circulating pump mount
3 M6x25 bolt, flanged nut

Installing circulating pump

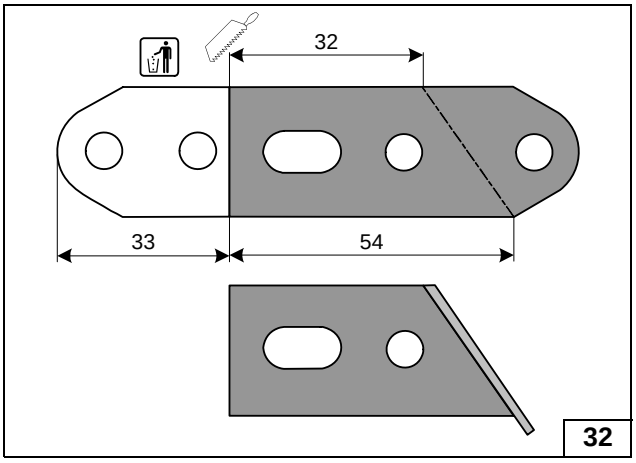


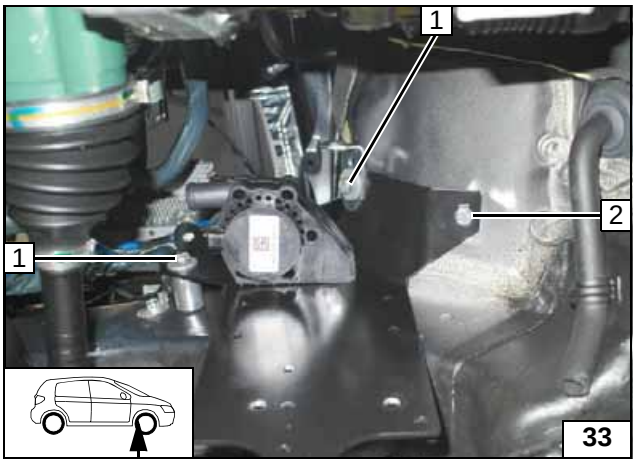
1 M6x50 bolt, spring lockwasher, large diameter washer, 30mm spacer, pin lock
2 Angle bracket
3 M6x25 bolt, spring lockwasher, large diameter washer, 5mm spacer, pin lock

Premounting bolts



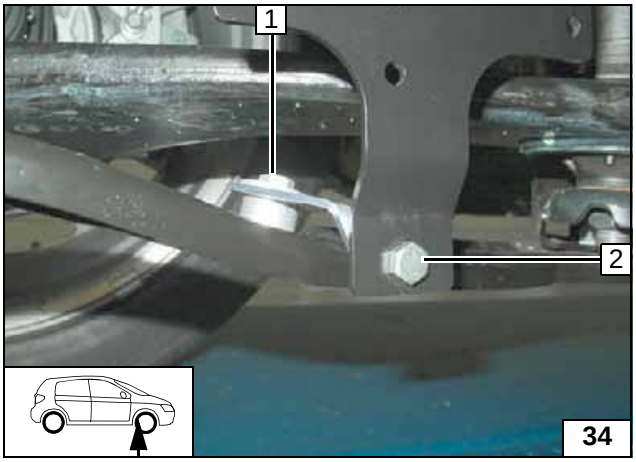
Cutting to length perforated bracket and bending by 90°





1 Premounted bolt [2x]
2 M6x20 bolt, spring lockwasher

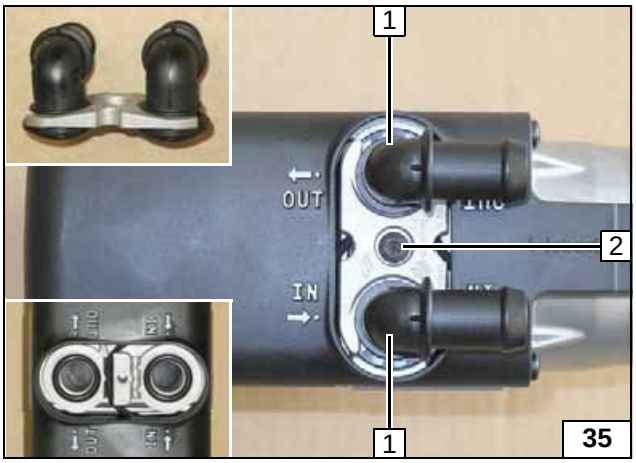
Installing bracket



1 M6x25 bolt, perforated bracket, 8mm spacer, original vehicle hole, flanged nut
2 M6x20 bolt, perforated bracket, flanged nut

Installing bracket

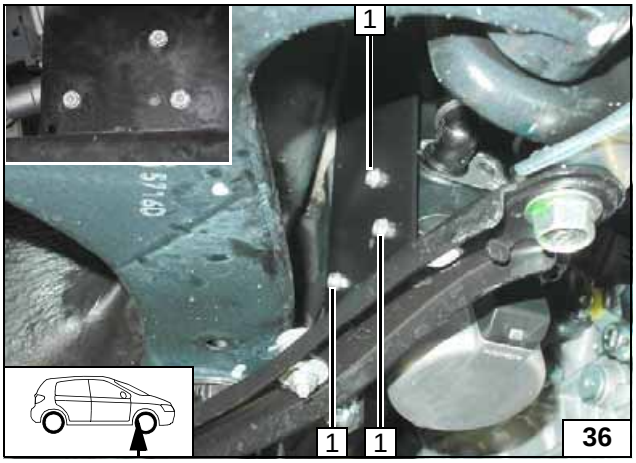
Preparing Heater



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

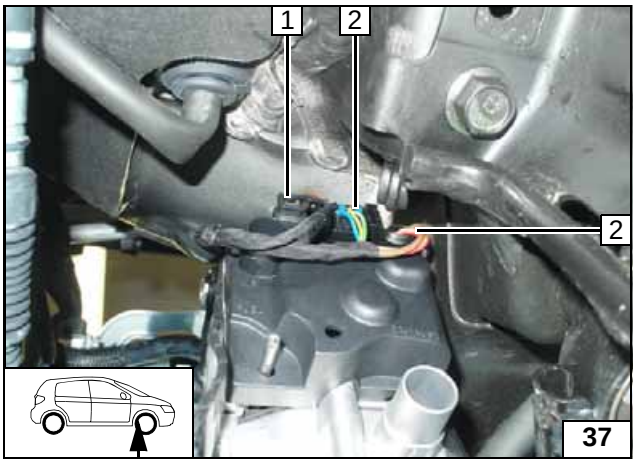
Installing water connection piece

Installing Heater



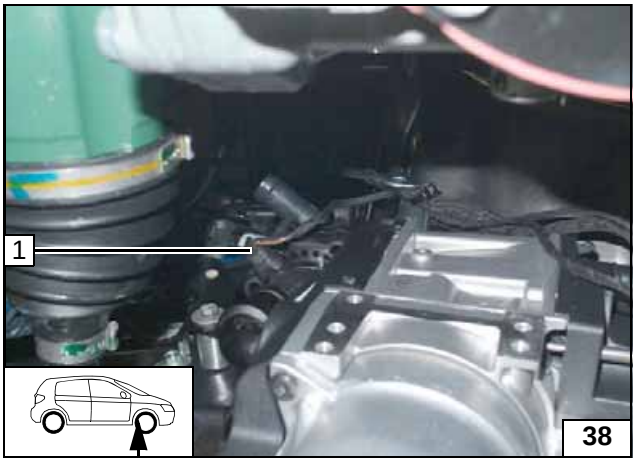
1 5x13 self-tapping bolt [3x]

Installing heater



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

Installing wiring harness of heater



1 Connector of circulating pump wiring harness

Mounting wiring harness of circulating pump

Fuel

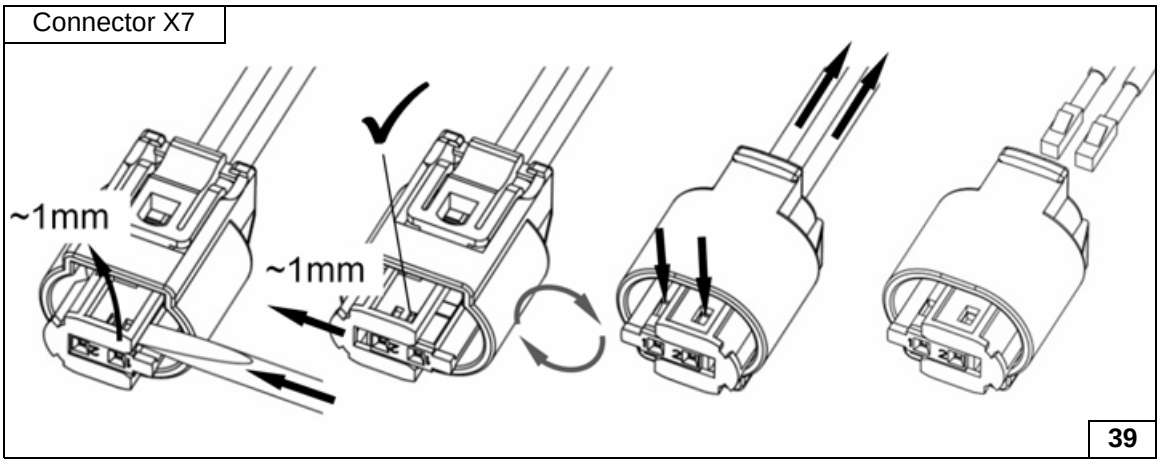
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off in an appropriate container.

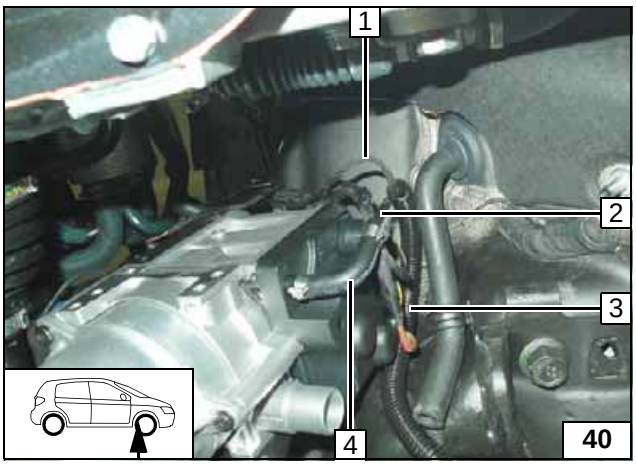
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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

Dismantling metering pump connector



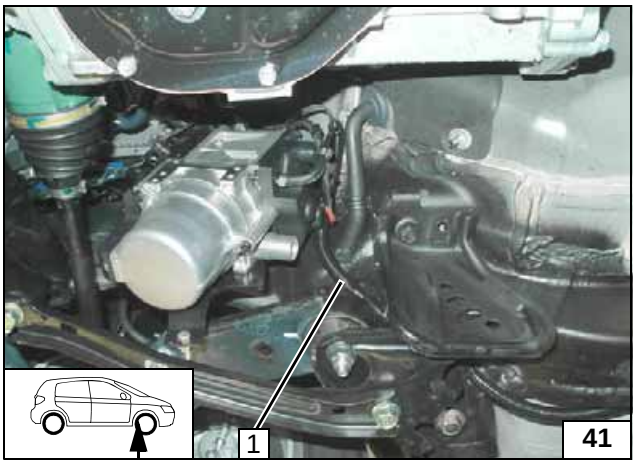
Connecting heater



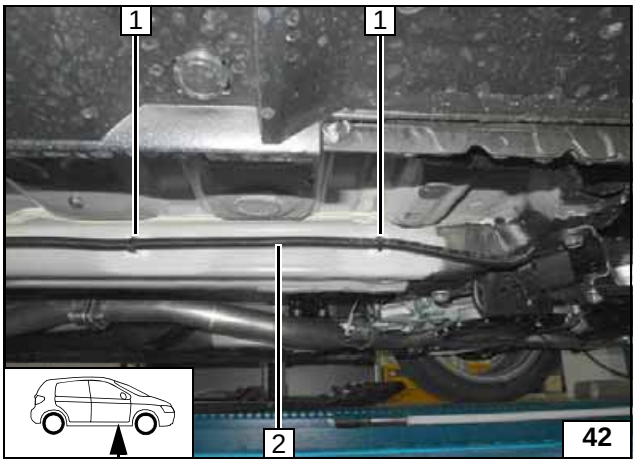
Pull metering pump wiring harness **1** and fuel line **2** into corrugated tube **3**.

4 90° moulded hose, 10 mm dia. clamp [2x]

Routing lines

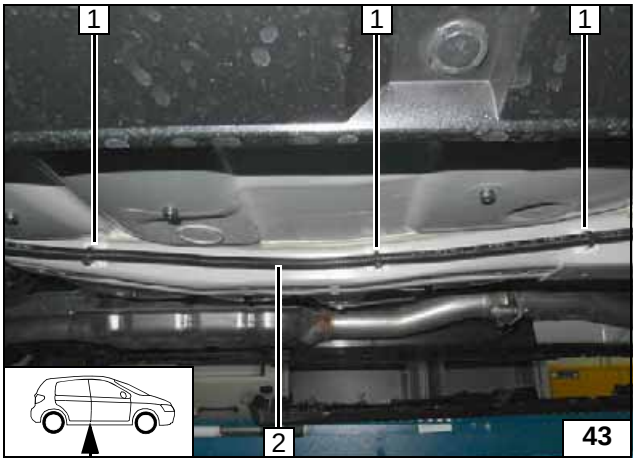


1 Metering pump wiring harness and fuel line in corrugated tube



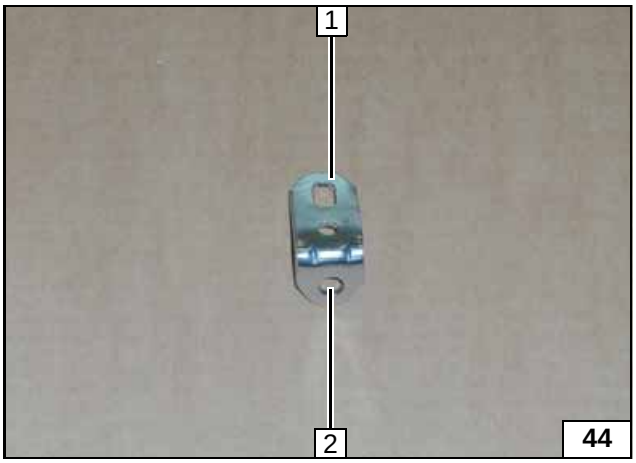
1 Self-adhesive socket with cable tie [2x]
2 Metering pump wiring harness and fuel line in corrugated tube

Routing lines



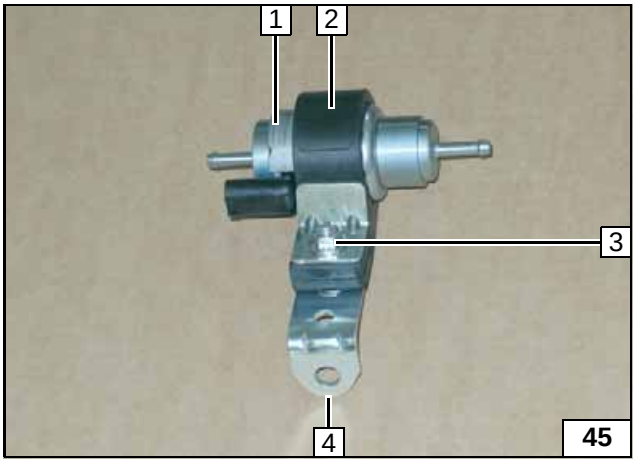
1 Self-adhesive socket with cable tie [3x]
2 Metering pump wiring harness and fuel line in corrugated tube

Routing lines



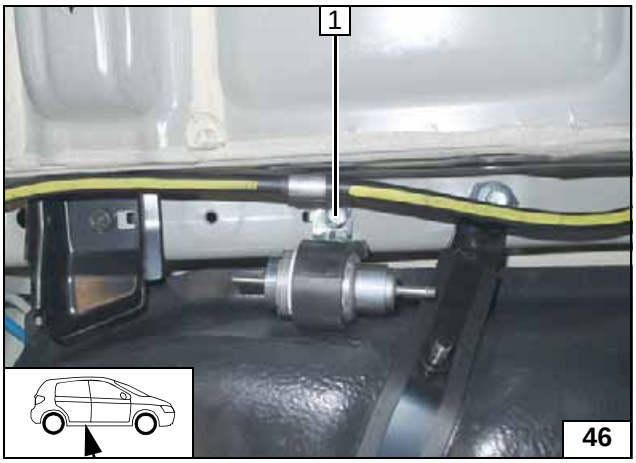
1 Angle bracket
2 8.5mm dia. hole

Drilling angle bracket



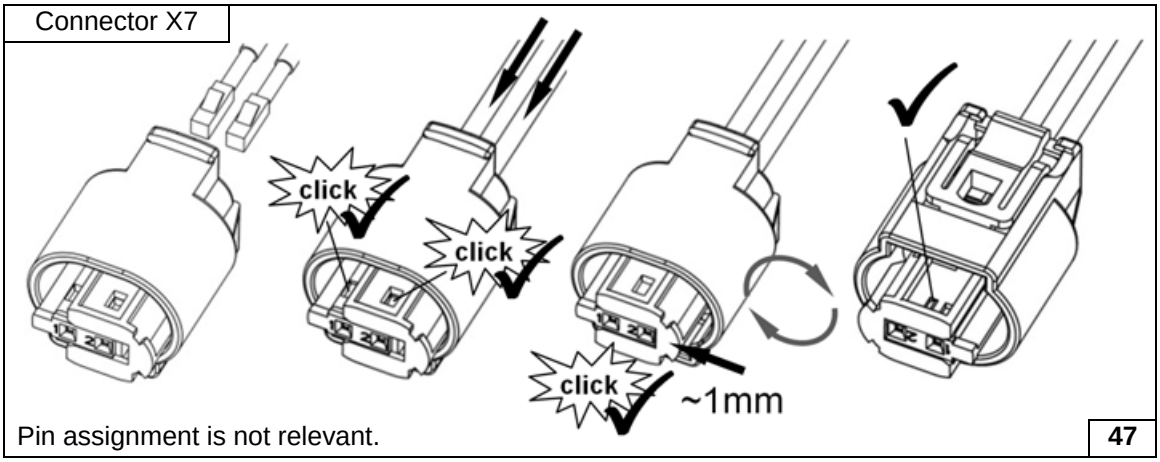
1 Metering pump
2 Metering pump mount
3 M6x25 bolt, support angle bracket, flanged nut
4 Angle bracket

Premounting metering pump

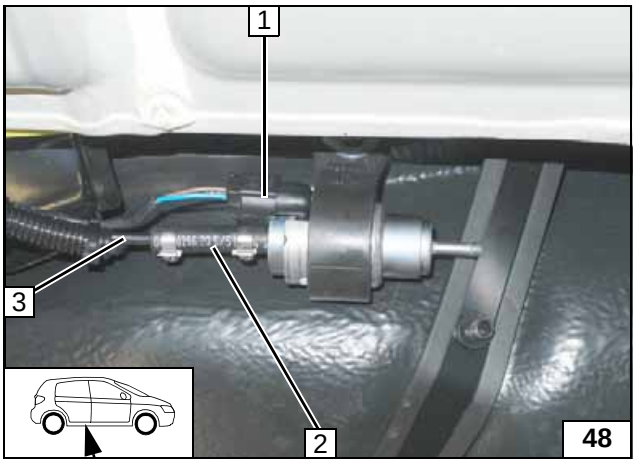


1 Original vehicle bolt

Installing metering pump



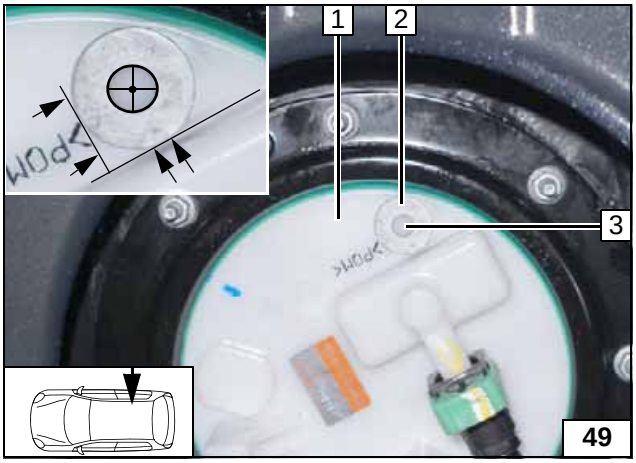
Completing metering pump connector



Ensure sufficient distance from adjacent components, correct if necessary.

1 Metering pump wiring harness, connector X7 mounted
2 Hose section, 10 mm dia. clamp [2x]
3 Fuel line

Connecting metering pump

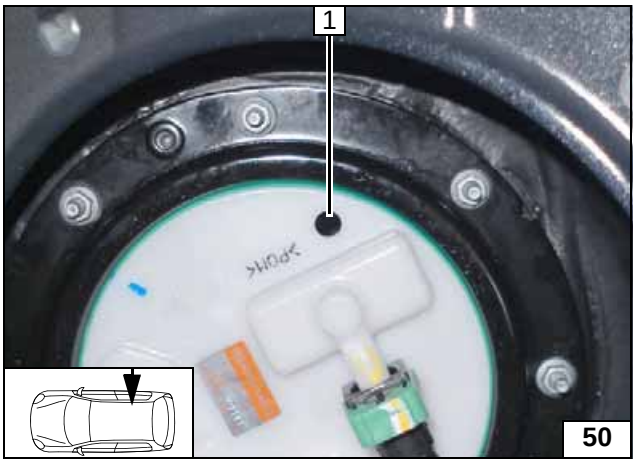


Installing FuelFix

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position washer with outer dia. d_a = 17.4mm as template as shown
3 Hole pattern

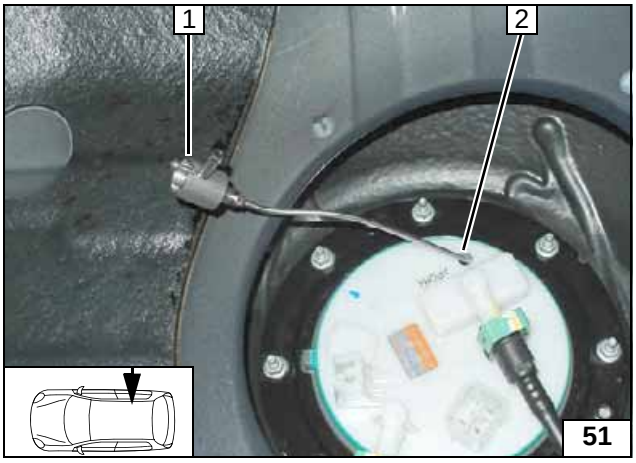
Copying hole pattern



Work step F3.

1 Hole made with provided drill

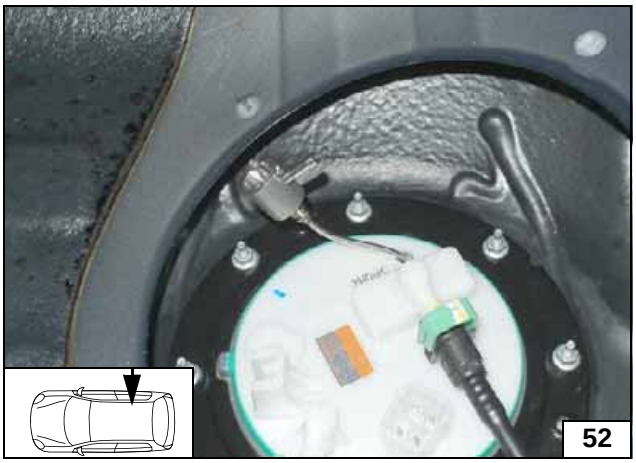
Hole for FuelFix



Work steps F4 and F5.

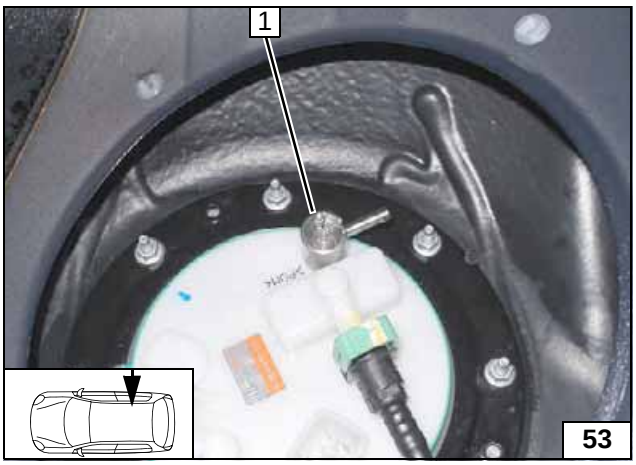
Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

Inserting FuelFix



Work step F5.

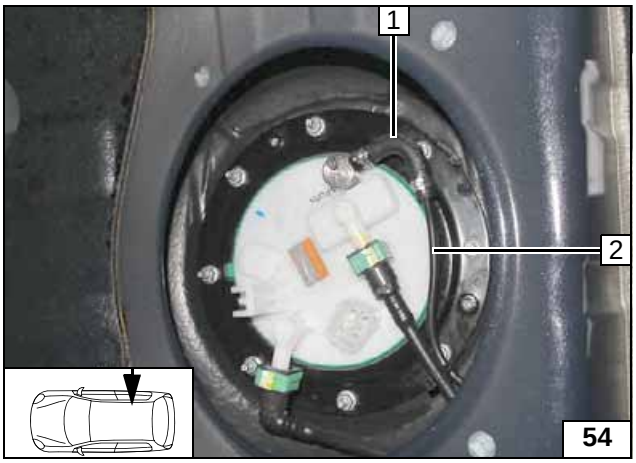
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

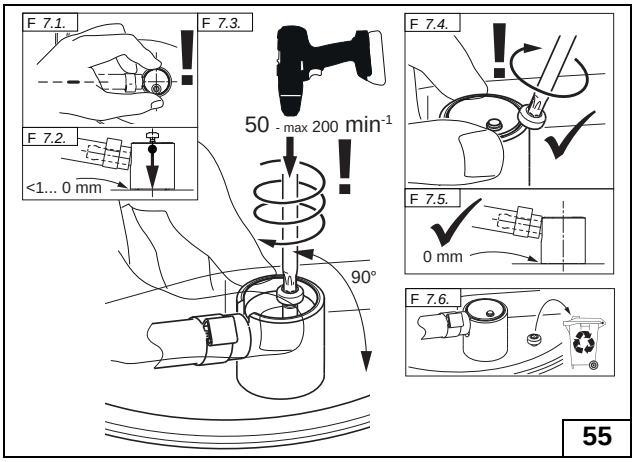
Aligning FuelFix



Work step F6.

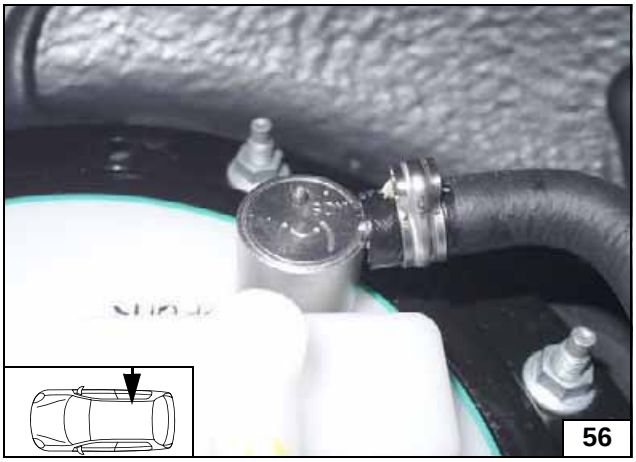
1 Hose section, 10 mm dia. clamp [2x]
2 Fuel line

Connecting fuel line



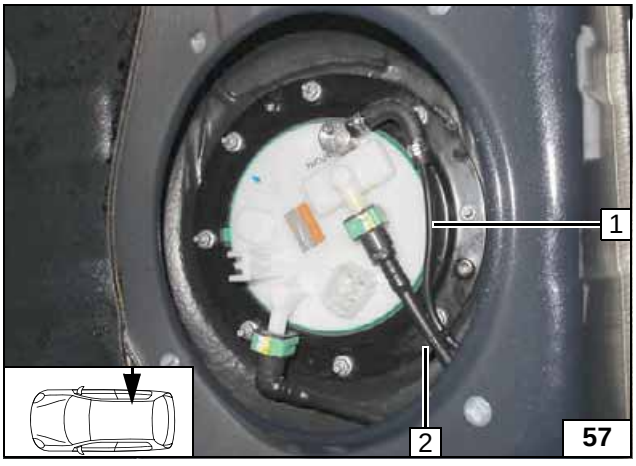
Work step F7.

Mounting FuelFix



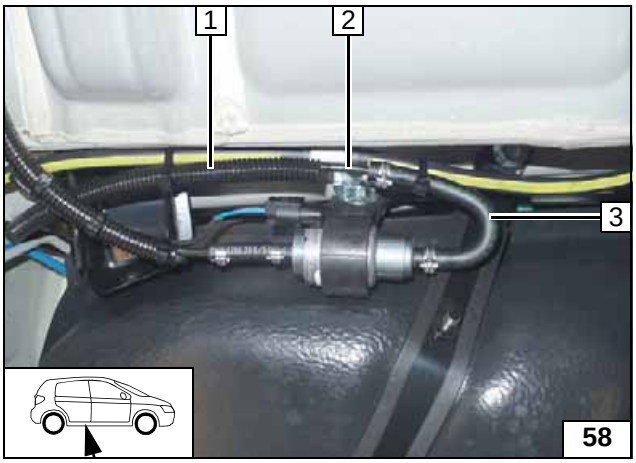
Work step F8.

Ensuring firm seating of FuelFix



1 Fuel line of FuelFix
2 Cable tie as tension relief

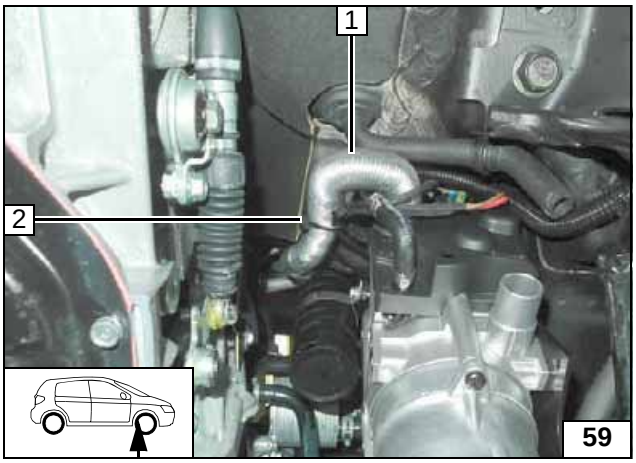
Securing fuel line



Ensure sufficient distance from adjacent components, correct if necessary.

1 10 mm dia. corrugated tube
2 Fuel line
3 180° moulded hose, 10 mm dia. clamp [2x]

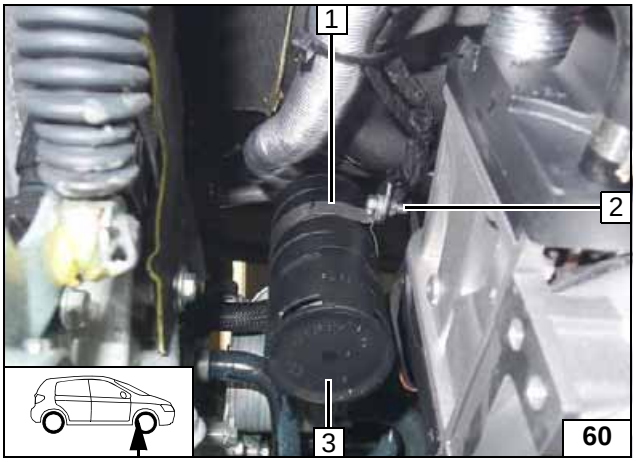
Connecting metering pump



Combustion Air

1 Combustion air pipe
2 Cable tie on wiring harness of heater

Installing combustion air pipe



1 51 mm dia. clamp
2 M5x16 bolt, premounted angle bracket, flanged nut
3 Silencer

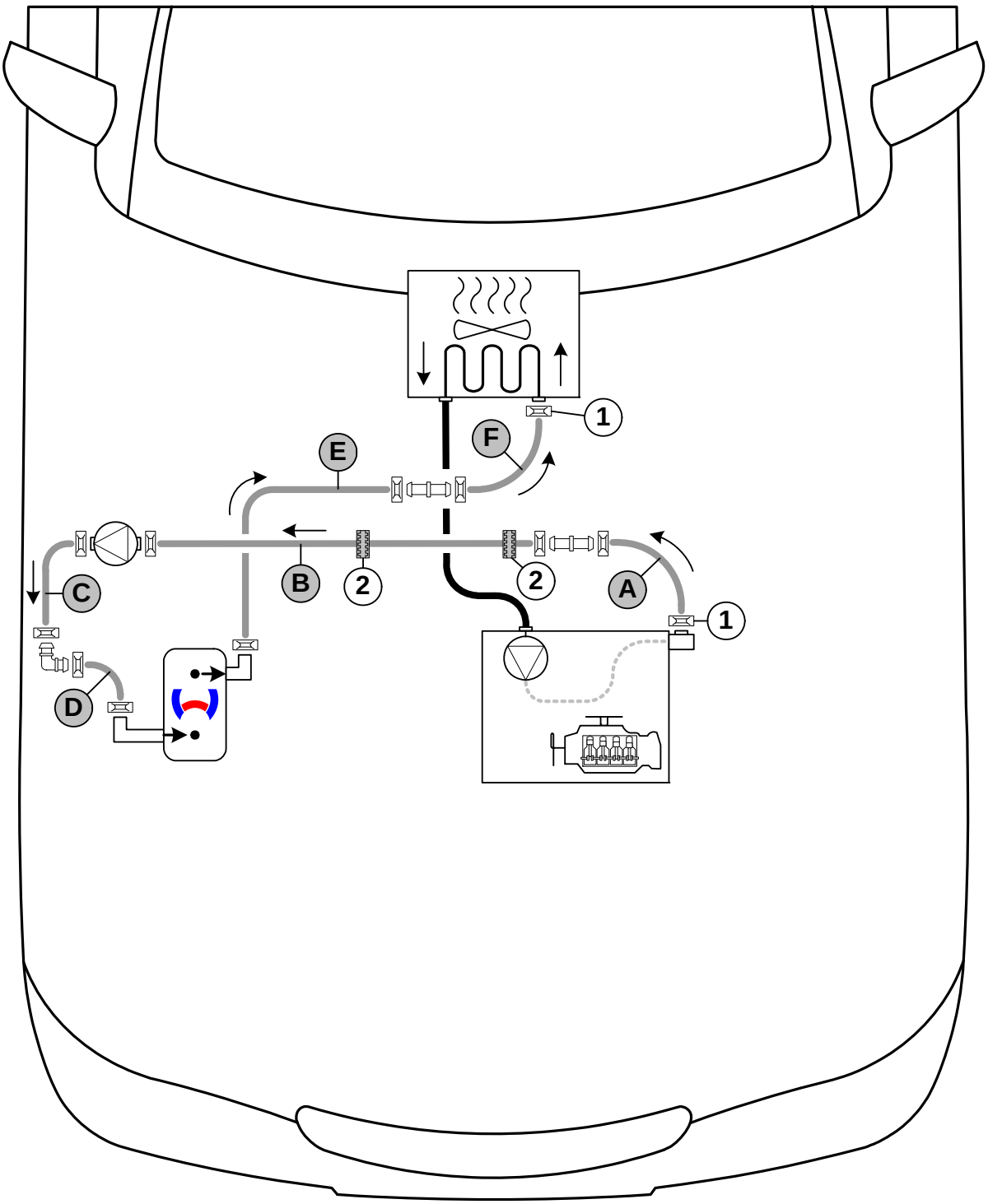
Installing silencer

Coolant Circuit

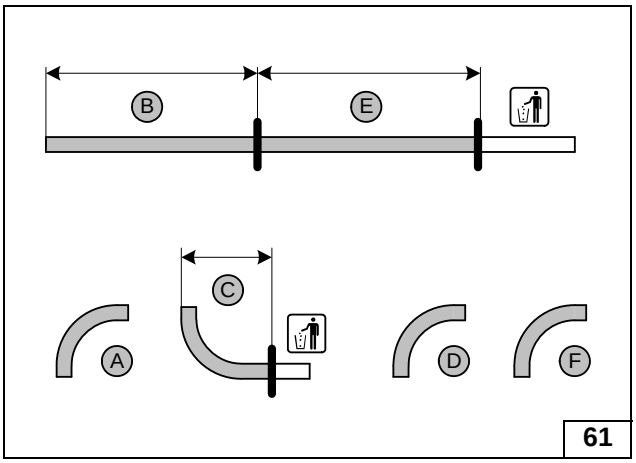
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram



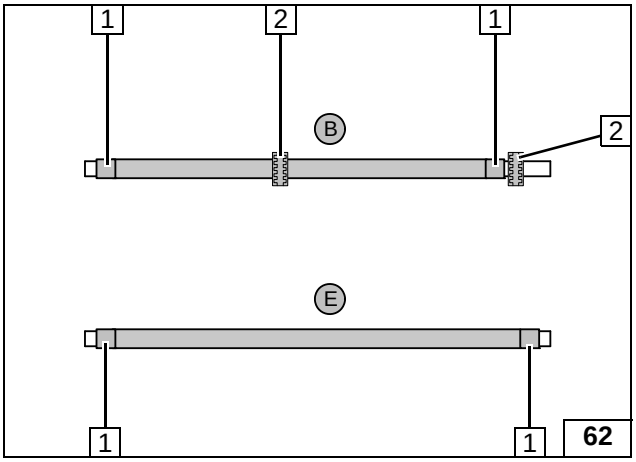
All spring clips without a specific designation = 25 mm dia. All connecting pipes and = 18x18 mm dia.
1 = Original vehicle spring clips .
2 = Black (sw) rubber isolator



A and **F** = 90°, 15x18mm dia. moulded hose
C and **D** = 90°, 18mm dia. moulded hose

B = 740
C = 130
E = 810

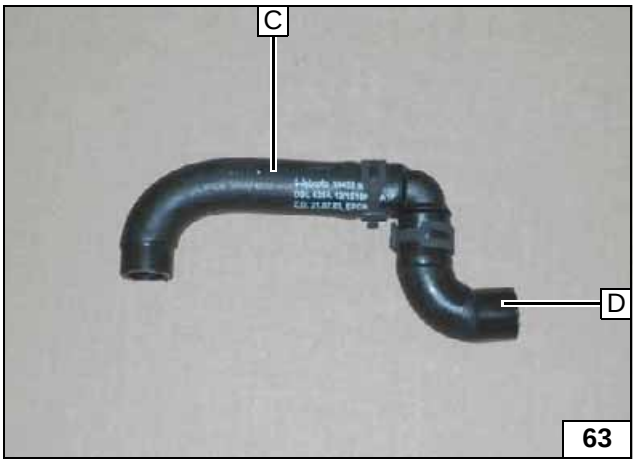
Cutting hoses to length



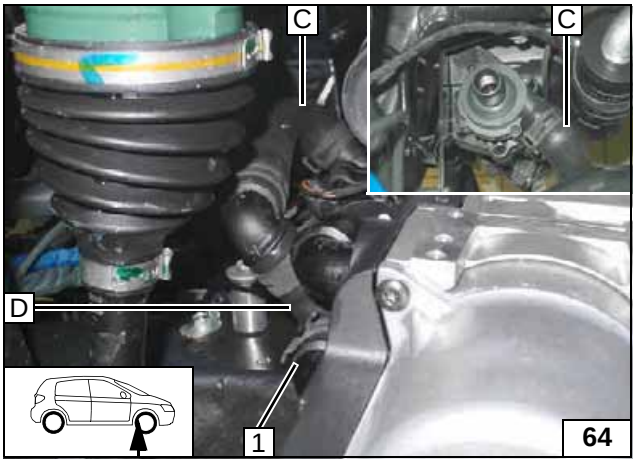
Slide on braided protection hoses and cut to length.

1 Cut heat shrink plastic tubing to size, 60mm long [4x]
2 Slide on black (sw) rubber isolator [2x]

Installing braided protection hoses



Premounting hoses C and D

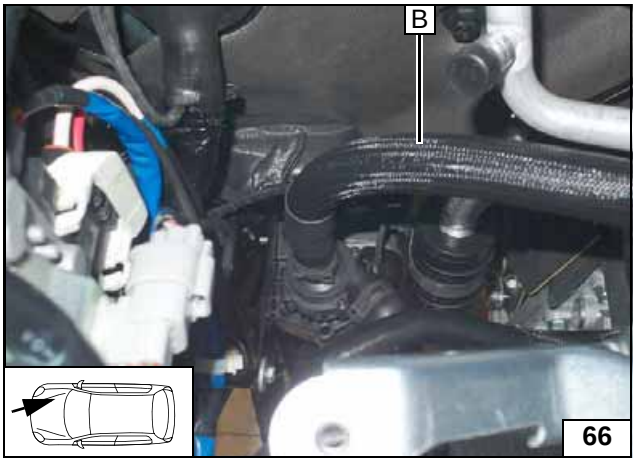


1 Connection piece of heater inlet

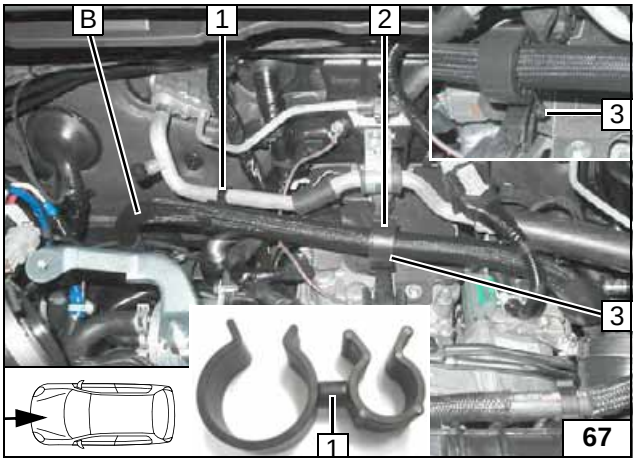
Connecting circulating pump

Remove and discard hose of engine outlet / heat exchanger inlet **1**. Spring clips will be re-used.

Cutting point

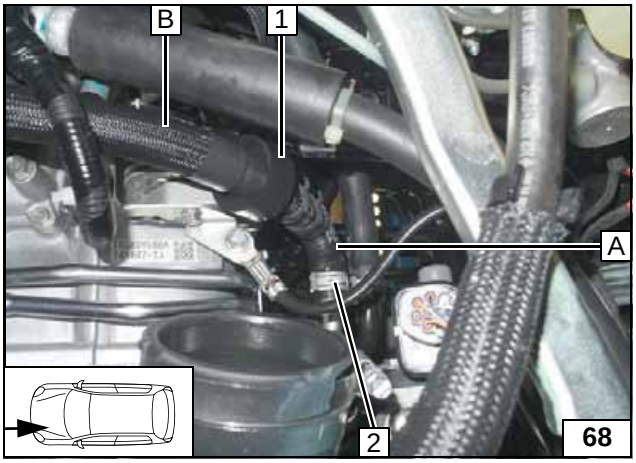


Connecting circulating pump hose B



1 13x22 hose bracket
2 Position black (sw) rubber isolator
3 Cable tie

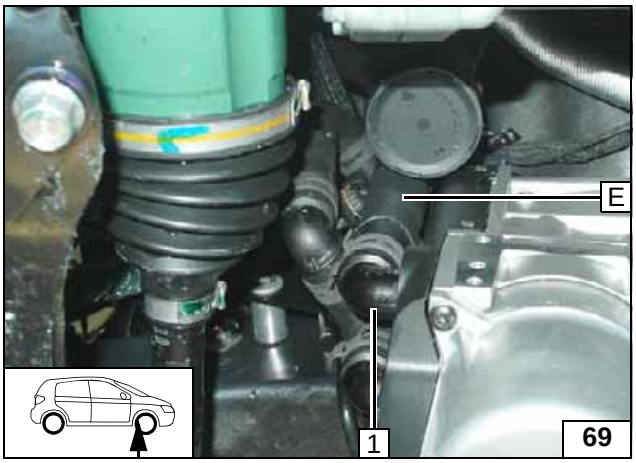
Routing in engine compartment



Install moulded hose **A** with 15mm dia. side on engine outlet.

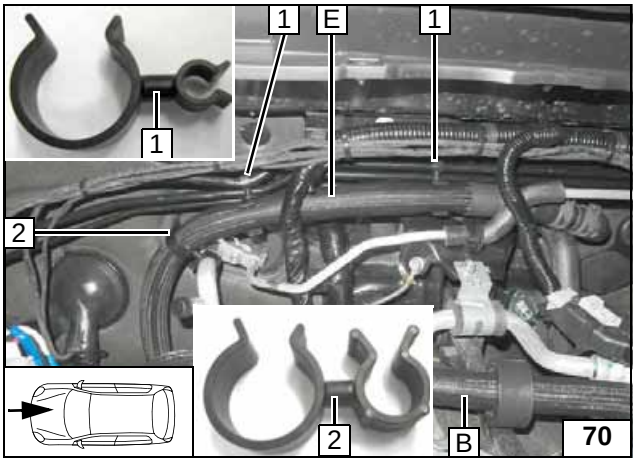
1 Position black (sw) rubber isolator
2 Original vehicle spring clip

Connecting engine outlet



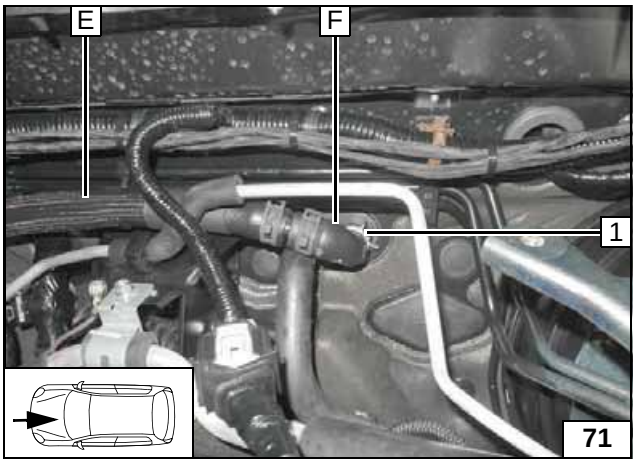
1 Connection piece of heater outlet

Connecting heater hose E



1 Hose bracket [2x]
2 13x22 hose bracket

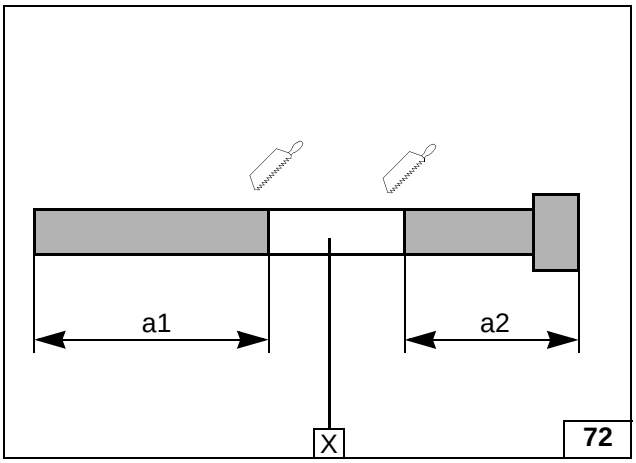
Routing in engine compartment



Align hoses. Ensure sufficient distance from adjacent components, correct if necessary.
Install moulded hose **F** with 15mm dia. side on heat exchanger inlet.

1 Original vehicle spring clip

Connecting heat exchanger inlet

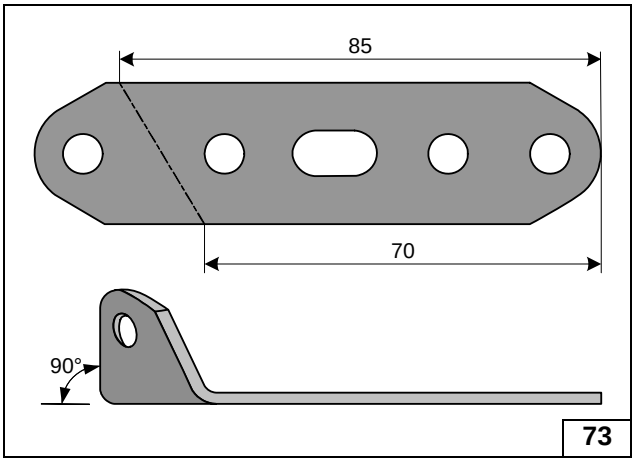


Exhaust Gas

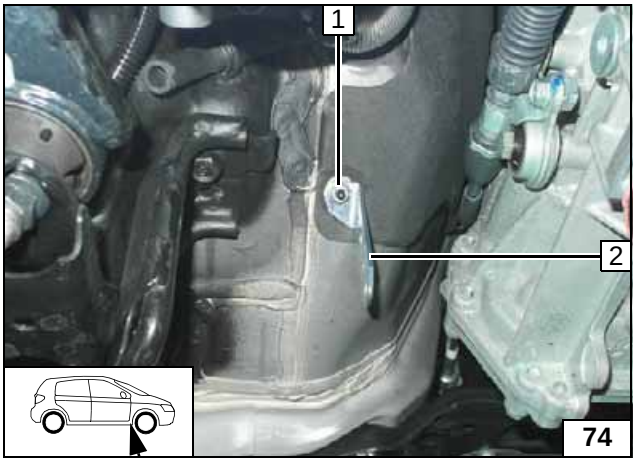
a1 = 150
a2 = 60

X=

Preparing exhaust pipe

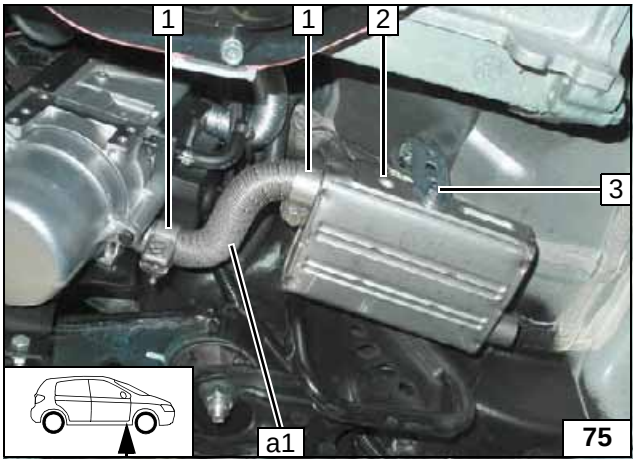


Bending perforated bracket



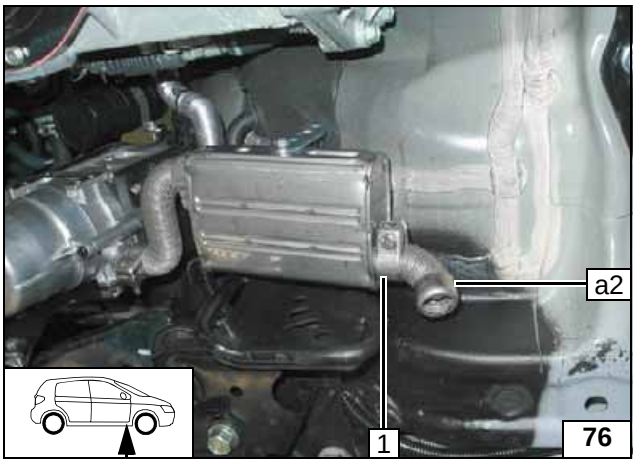
1 Original vehicle stud bolt, flanged nut
2 Perforated bracket

Installing perforated bracket



1 Hose clamp [2x]
2 Exhaust silencer
3 M6x16 bolt, spring lockwasher

Installing silencer



1 Hose clamp

Installing exhaust pipe a2

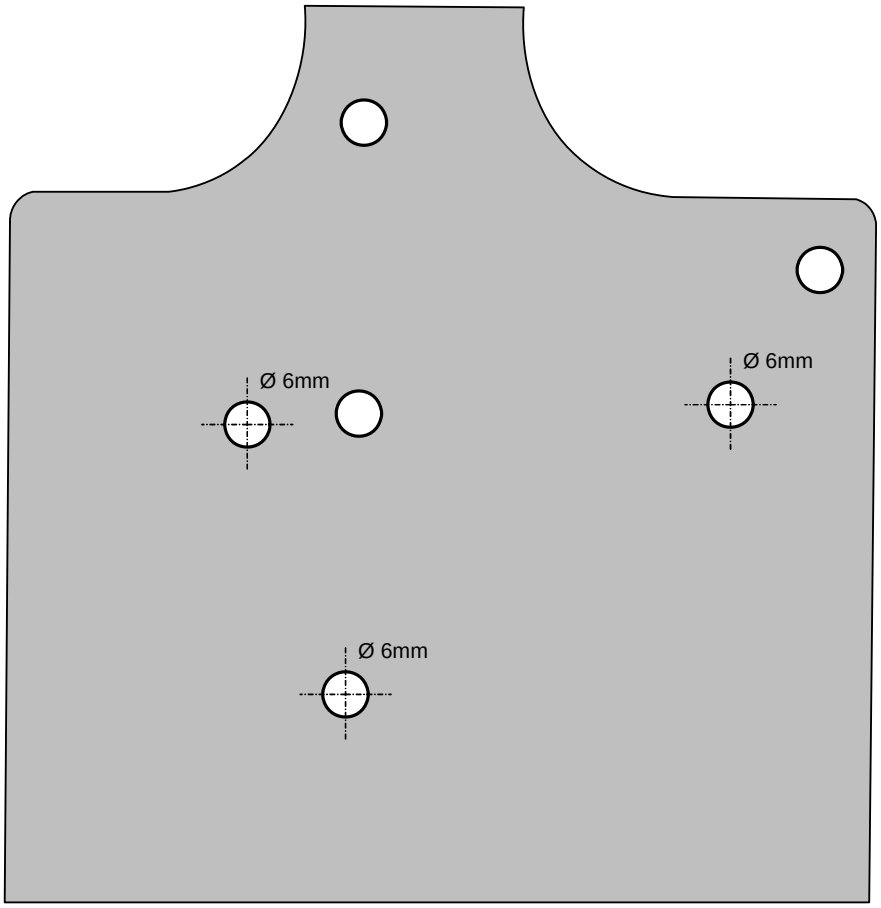
Final Work

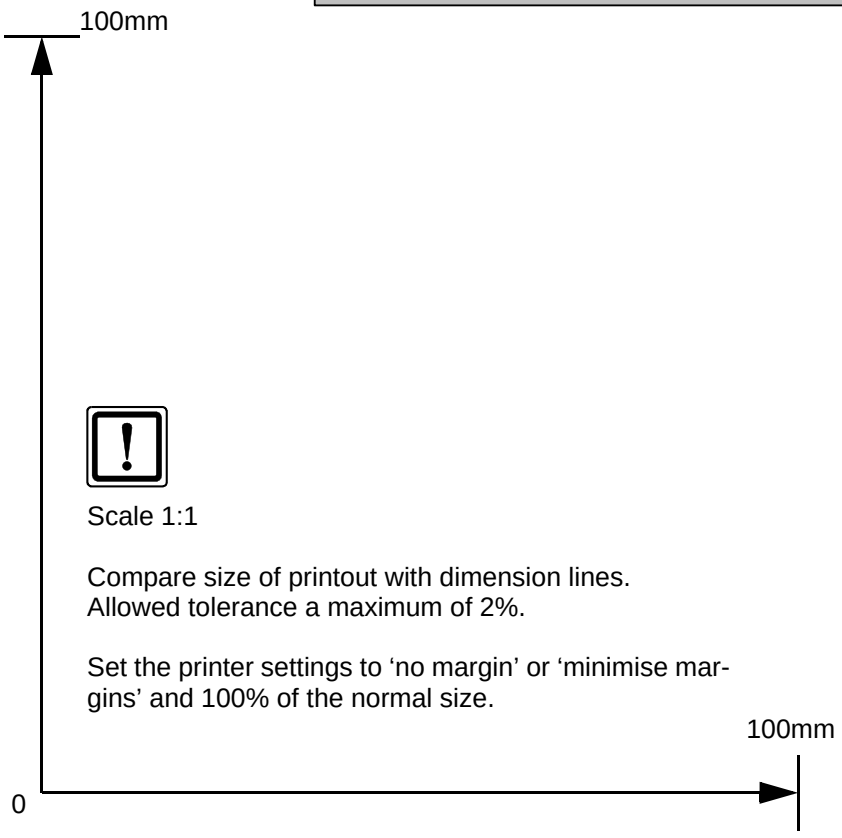
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

- **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 Automatic A/C'.**
- **Place the 'Switch off parking heater before refuelling' caution label near 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 Bracket





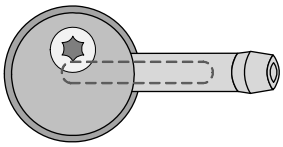
Scale 1:1

Compare size of printout with dimension lines.
Allowed tolerance a maximum of 2%.

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

FuelFix Template

Top view



100mm

Scale 1:1

Compare size of printout with dimension lines.
Allowed tolerance a maximum of 2%.

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

100mm

0

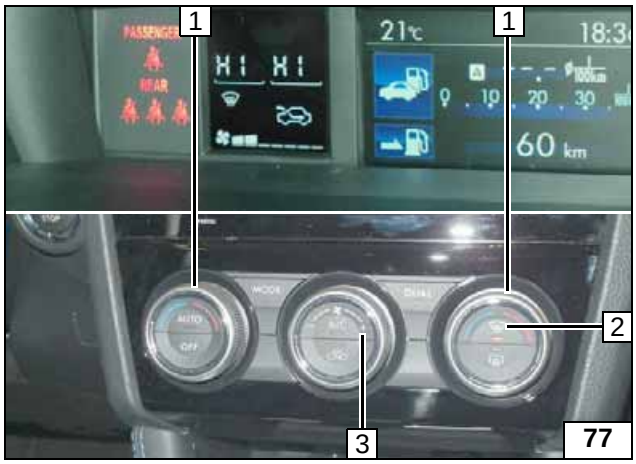
Operating Instructions for Automatic A/C

Please remove page and add to the vehicle operating instructions.

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

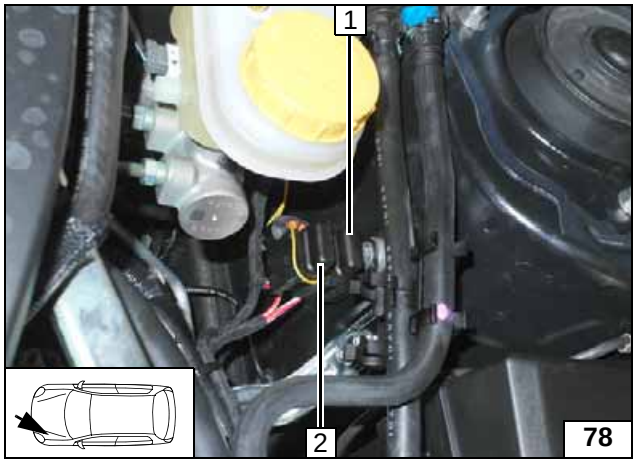
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



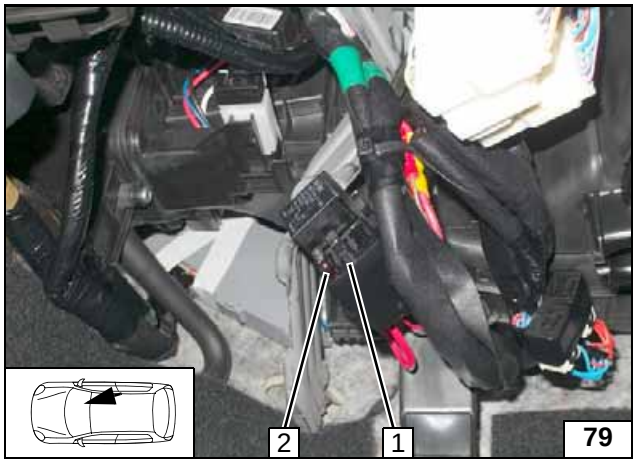
1 Set temperature on both sides to ‘HI’
2 Air outlet to windscreen
3 Set fan to level ‘2’, max. ‘3’

Engine compartment fuses



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

Engine compartment fuses



1 1A fuse F3 of heater control
2 7.5A fan fuse F4

Passenger compartment fuses