Water Heater

Webasto
Feel the Drive

***Thermo Top Evo* Parking Heater**

E1
00 0258

Installation Documentation
Toyota Verso

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Toyota	Verso	AR2	e11 * 2001 / 116 * 0350 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6 D	Diesel	6-speed SG	82	1598	1WW

SG = Manual transmission

From Model Year 2014
Left-hand drive vehicle

Verified equipment variants: 2 zone automatic air-conditioning
Front fog light
Start-Stop
Bi-Xenon with headlight washer system
Daytime running lights in main headlights
Euro 5

Not verified: Passenger compartment monitoring
Manual air-conditioning
Smart key

Total installation time: about 8 hours

Toyota Verso

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* in accordance with price list
- Installation kit for Toyota Verso 2014 Diesel: **1323089A**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

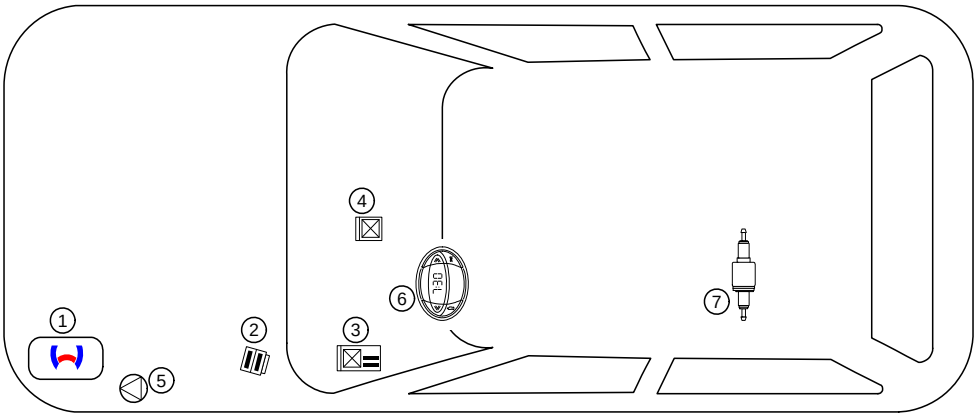
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button in the 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 of engine compartment
3. Relay and fuse holder of passenger compartment
4. PWM Gateway
5. Circulating pump
6. Digital timer
7. Metering pump



Notes on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important Information (not complete)

1.1 Installation and Repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel Diesel (DIN EN 590) or petrol (DIN EN 227).

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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

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

When installing 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.

Toyota Verso

Information on Validity

This installation documentation applies to Toyota Verso Diesel vehicles - for validity, see page 1 - from model year 2014 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

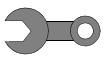
Dimensions
- All dimensions are in mm

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

Mechanical system

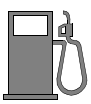


Electrical system

Coolant circuit

Combustion air

Fuel



Exhaust gas

Software

Special features are highlighted using the following symbols:

Specific risk of injury or fatal accidents.

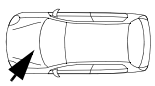
Specific risk of damage to components.

Specific risk of fire and explosion

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

Reference to a special technical feature

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



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

Toyota Verso

Preliminary Work

Vehicle

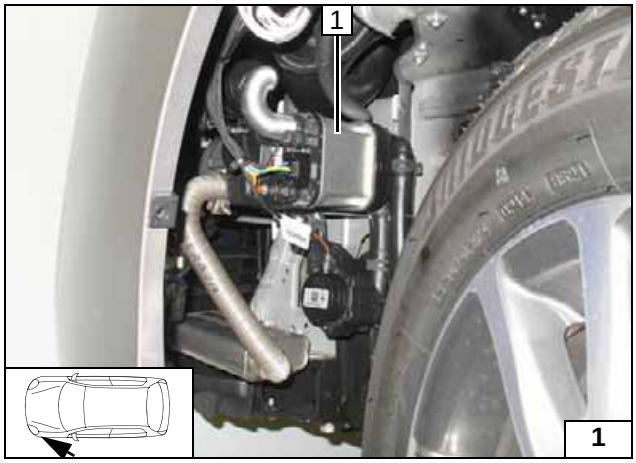
- Open the fuel tank cap.
- Ventilate the tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery and remove it completely, including the carrier.
- Remove the air filter together with the intake hose.
- Remove the engine control unit.
- Remove the lateral engine compartment trim on the left.
- Detach the fuel filter bracket.
- Remove the middle seat of the second row.
- Open the tank-fitting service lid.
- Detach the wheel well trim on the left and right.
- Remove the bumper.
- Remove the lower engine cover.
- Remove the underride protection of the fuel line on the underbody in front of the tank.
- Remove the footwell trim on the driver's side.
- Remove the side trim of the centre console in the driver's side footwell.
- Remove the lower instrument panel trim on the driver's side.

The following work should only be performed during the corresponding installation sequence:

- Remove the fuel-tank sending unit according to manufacturer's instructions.

Heater

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



Heater Installation Location

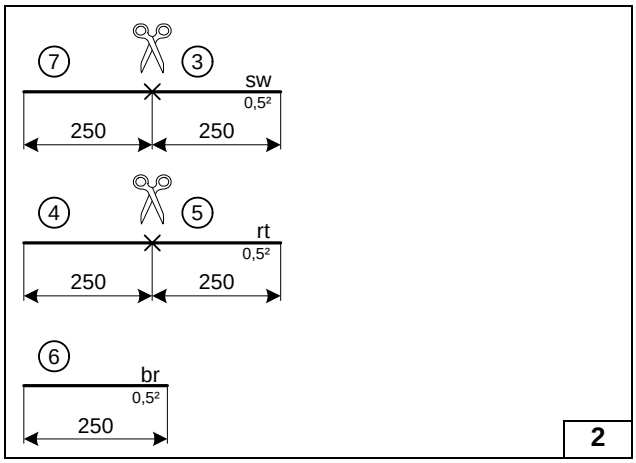
1 Heater

Installation location

Preparing Electrical System

Wire sections retain their numbering in the entire document.

Cutting wires to length



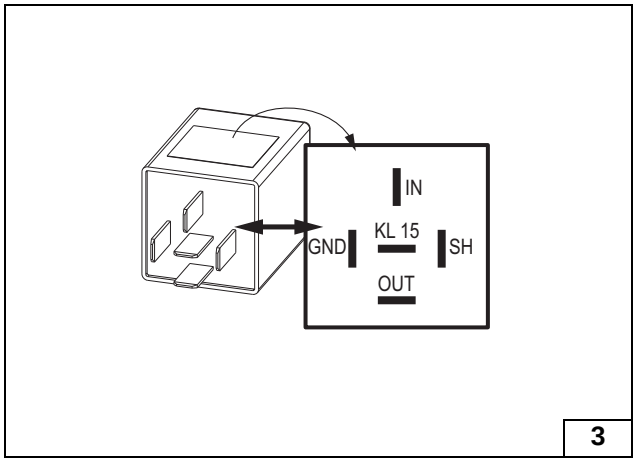
2

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

Settings:

Duty-Cycle: 60%
Frequency: 400 Hz
Voltage: not relevant
Function: Low-side

View of PWM GW

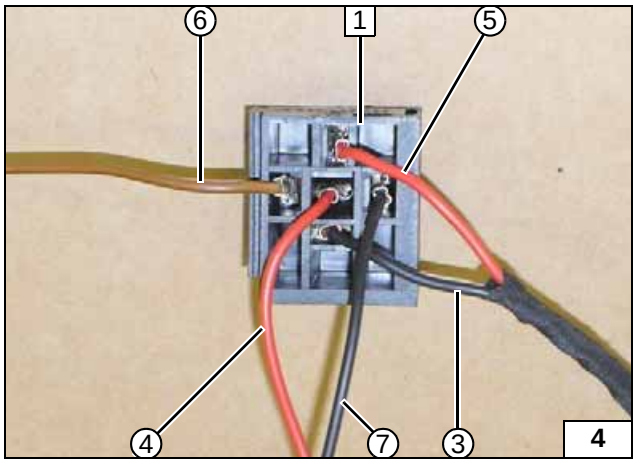


3

Connect wires to PWM GW socket **1** in accordance with the following connection diagram. Pull wires ③ and ⑤ into the provided protective sleeving.

③ Black (sw) wire of PWM GW/OUT
④ Red (rt) wire of PWM GW/KL15
⑤ Red (rt) wire of PWM GW/IN
⑥ Brown (br) wire of PWM GW/GND
⑦ Black (sw) wire of PWM GW/SH

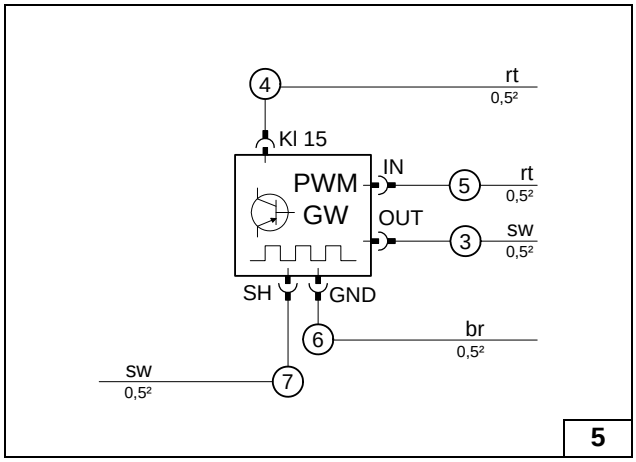
Premounting PWM GW socket



4

③ Black (sw) wire of PWM GW/OUT
④ Red (rt) wire of PWM GW/KL15
⑤ Red (rt) wire of PWM GW/IN
⑥ Brown (br) wire of PWM GW/GND
⑦ Black (sw) wire of PWM GW/SH

Connection diagram of PWM GW



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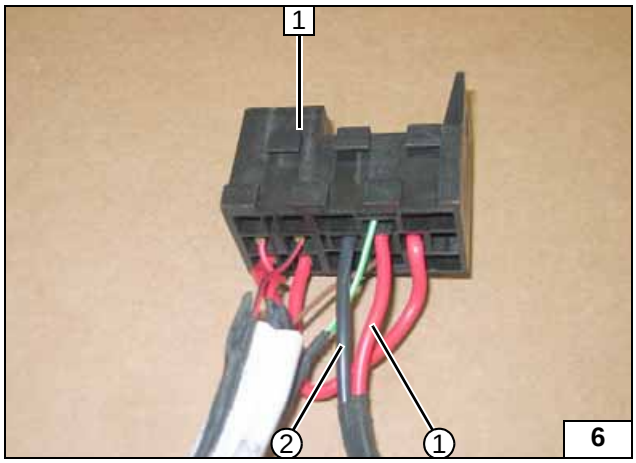
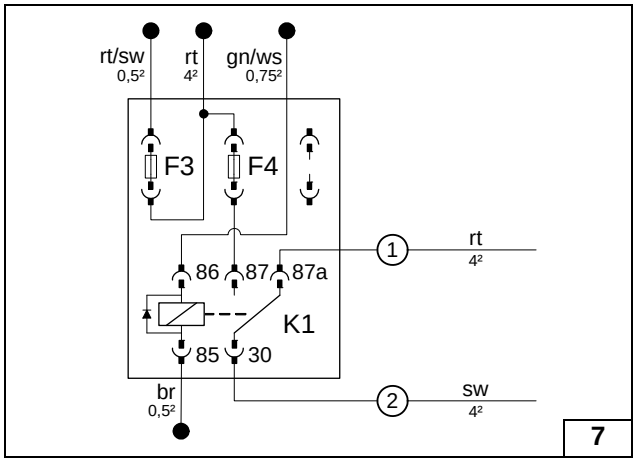


Connect wires to passenger compartment relay and fuse holder **1** in accordance with the following connection diagram.

① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

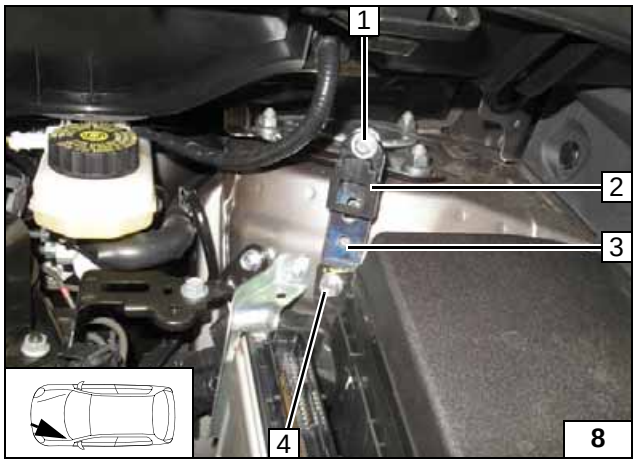
Installing relay and fuse holder of passenger compartment



10A fuse F4 and K1 relay will be inserted after the installation.

① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

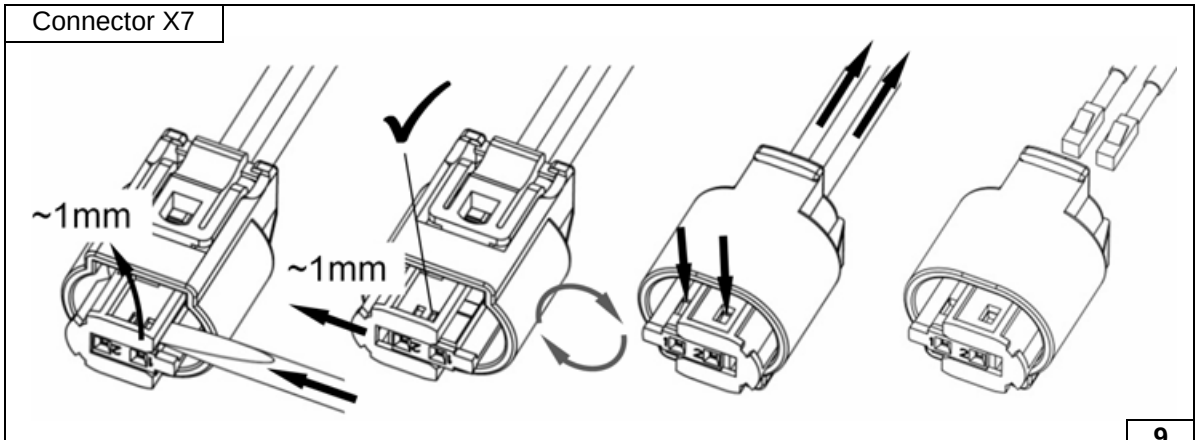
Connection diagram of passenger compartment relay and fuse holder



1 M5x16 bolt, large diameter washer [2x], nut
2 Retaining plate for fuse holder
3 Perforated bracket
4 Original vehicle bolt of relay and fuse holder

Installing engine compartment fuse holder

Connector X7

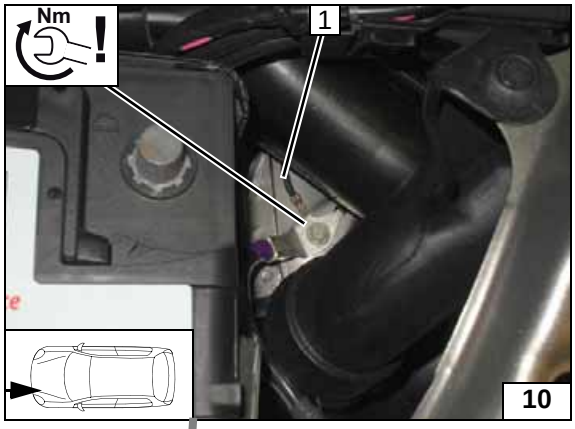


Removing connector of metering pump

Electrical System

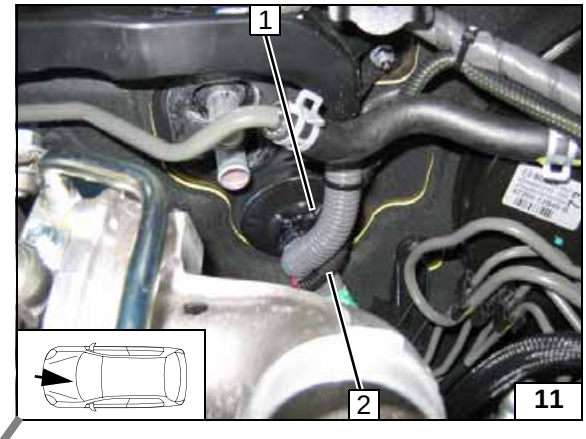
Earth wire

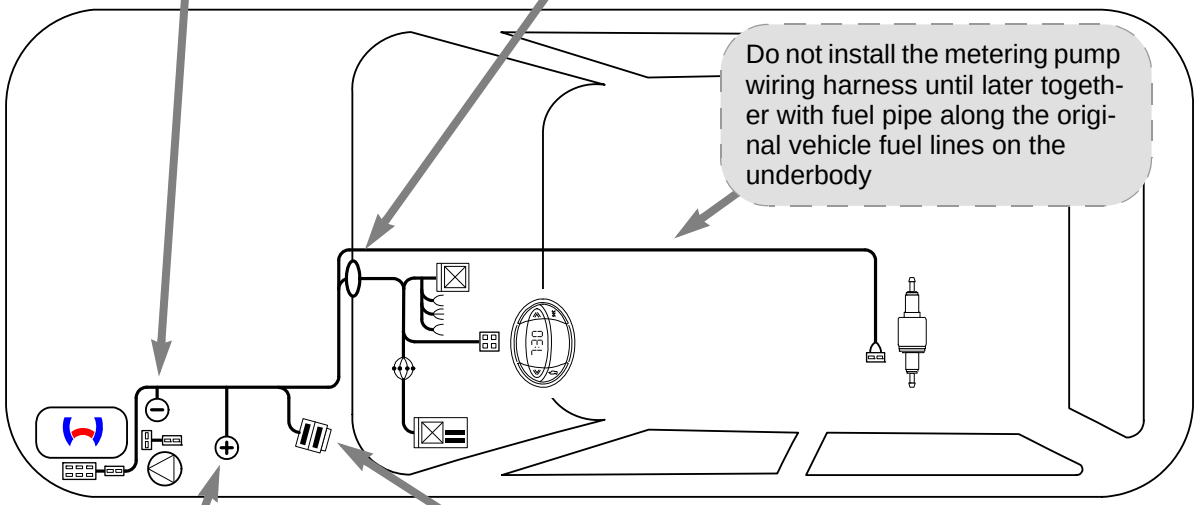
1 Earth wire on original vehicle earth support point



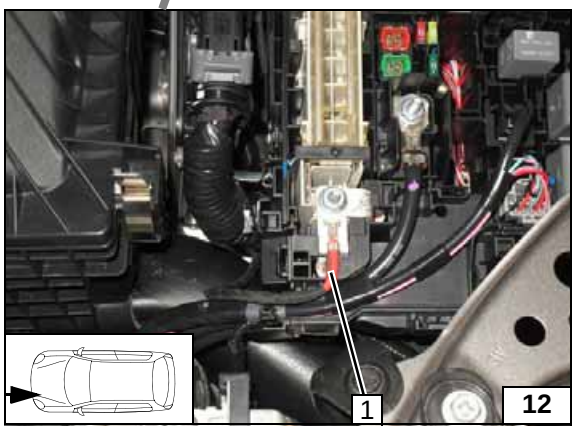
Wiring harness pass through

1 Protective rubber plug
2 Heater wiring harnesses, heater control





Wiring harness routing diagram



Positive wire

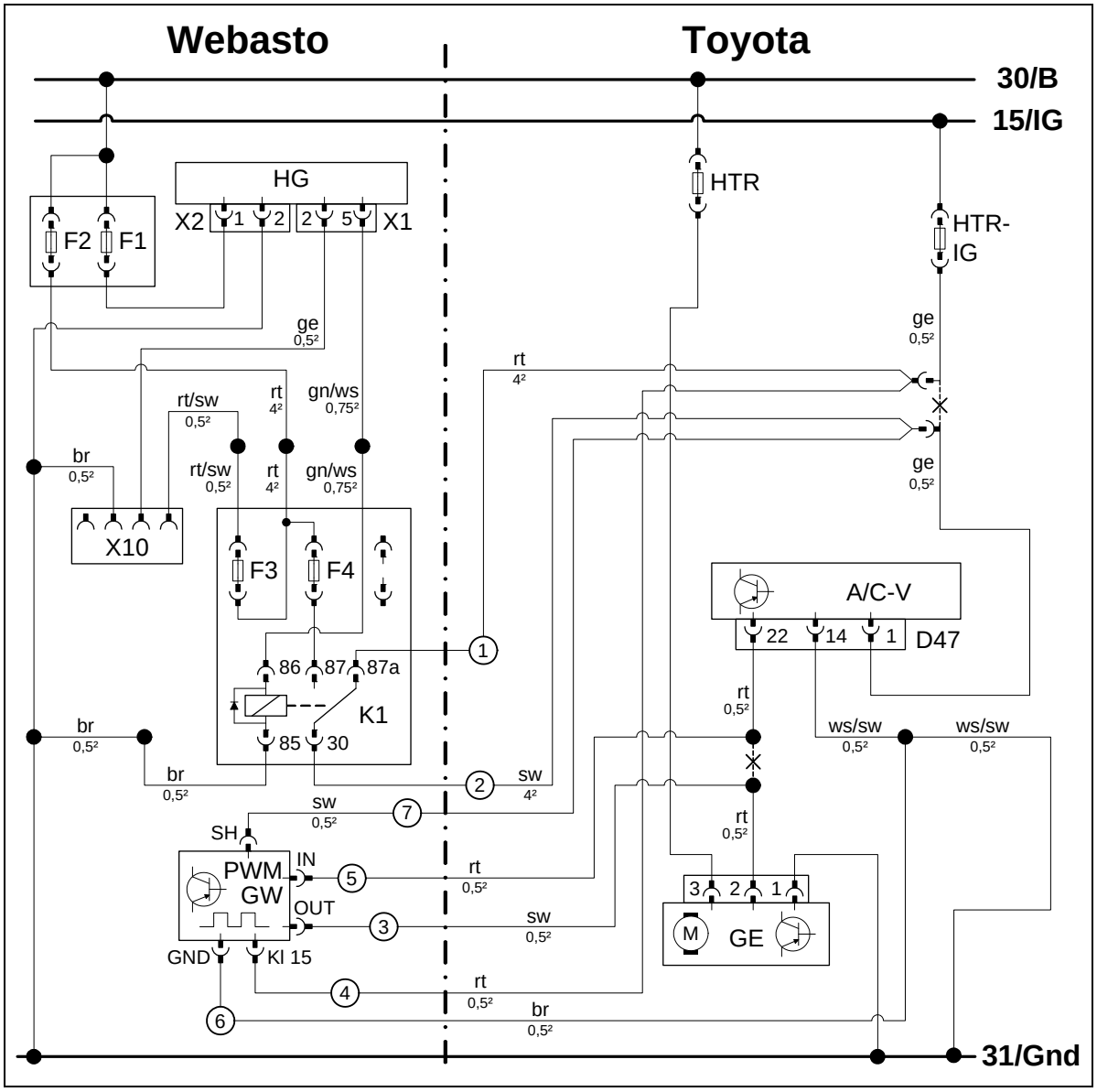
1 Positive wire on original vehicle positive distributor

Complete engine compartment fuse holder

1 Fuses F1-2 mounted

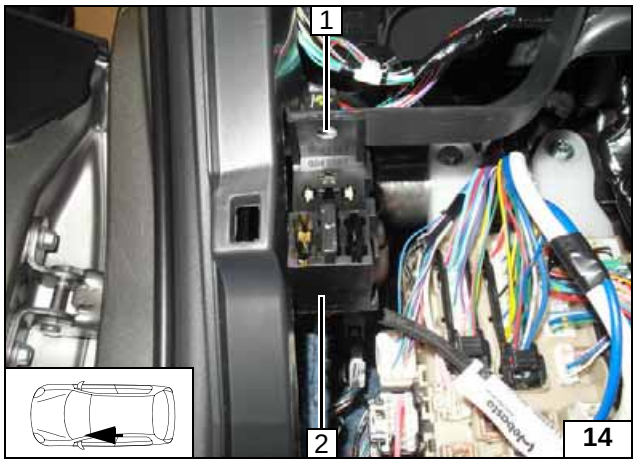
Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	HTR	50A fuse	rt	red
X1	6-pin heater connector	HTR-IG	10A fuse	sw	black
X2	2-pin heater connector	A/C-V	A/C booster	ge	yellow
X10	4-pin connector of heater control	D47	40-pin connector A/C V	gn	green
		GE	Fan unit	bl	blue
K1	Fan relay			ws	white
F1	20A fuse			br	brown
F2	30A fuse				
F3	1A fuse				
F4	10A fuse				
PWM GW	Pulse width modulator				
PWM GW settings:					
Duty-Cycle: 60%					
Frequency: 400 Hz				**X**	Cutting point
Voltage: not relevant				Cable colours and pin designations may vary	
Function: Low-side					

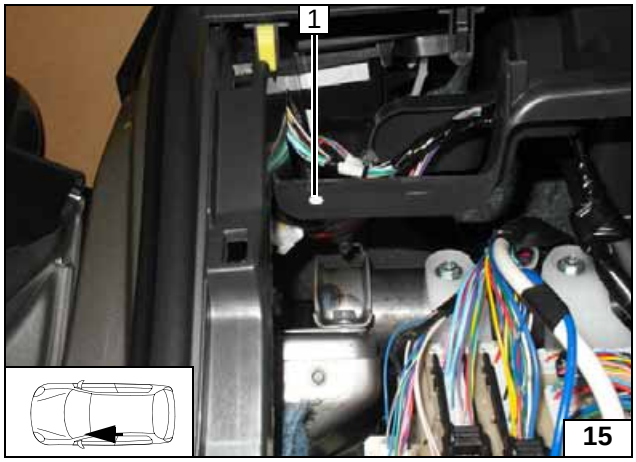
Legend



Hold passenger compartment relay and fuse holder **2** in place!

1 Copy hole pattern

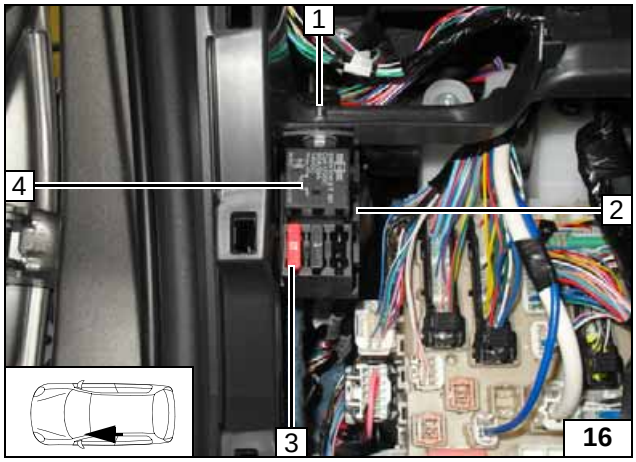
Copying hole pattern



When drilling, be careful of components located behind.

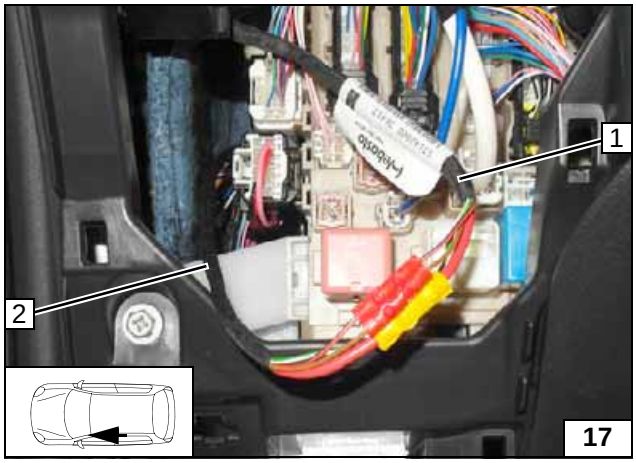
1 6mm dia. hole

Hole in strut



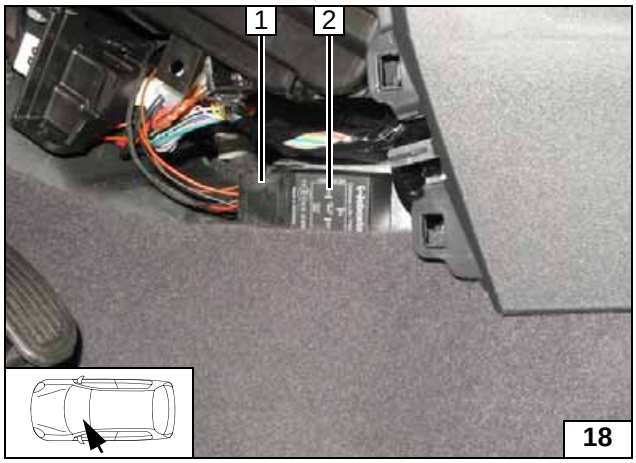
1 M5x16 bolt, large diameter washer [2x], nut
2 Relay and fuse holder of passenger compartment
3 Insert 10A fuse F4
4 Insert K1 relay

Installing relay and fuse holder of passenger compartment



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

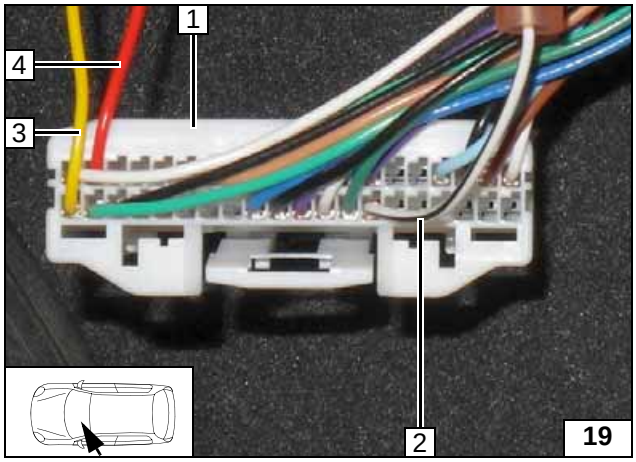
Connecting same colour wires of wiring harnesses



Fasten PWM Gateway socket **1** on control unit with adhesive tape.

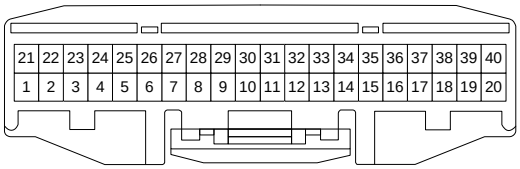
2 PWM GW, inserted

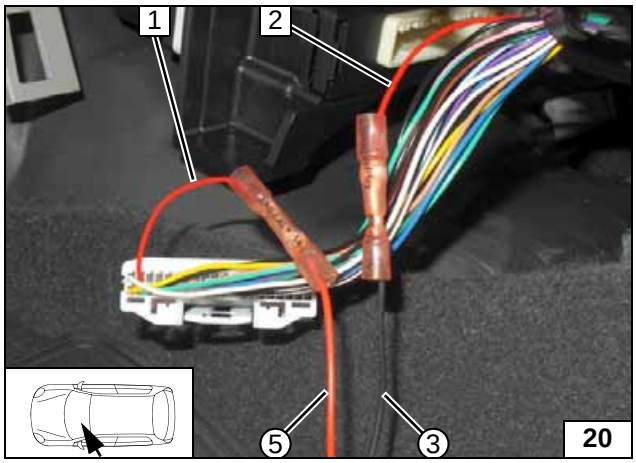
Inserting PWM GW



1 A/C booster connector D47, view on wire side (from front)
2 White/black (ws/sw) wire of pin 14
3 Yellow (ge) wire of pin 1
4 Red (rt) wire of pin 22

Connector D47 of A/C booster

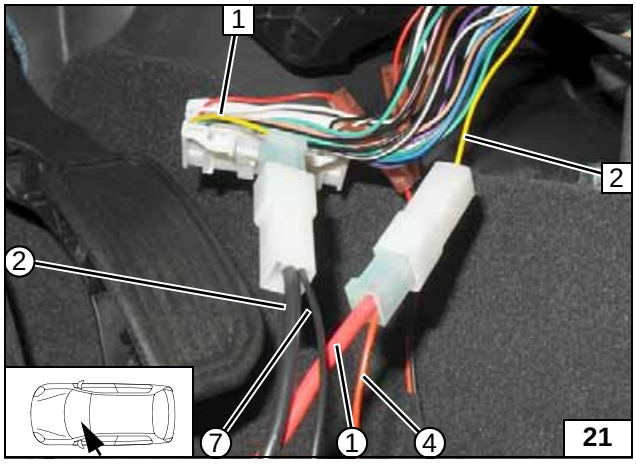




Produce connections as shown in wiring diagram. Crimp and shrink connector [2x].

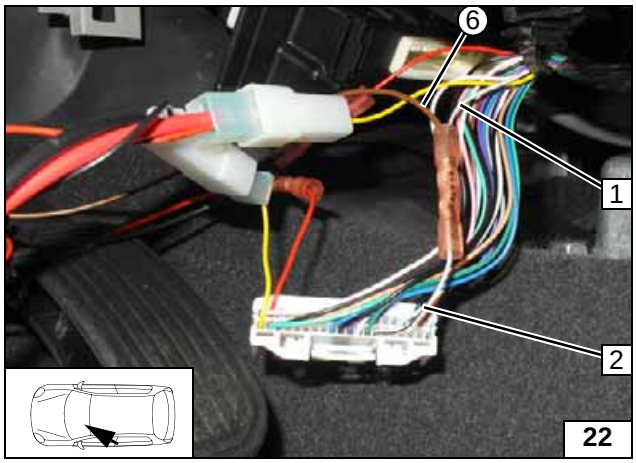
1 Red (rt) wire of A/C booster connector D47, pin 22
2 Red (rt) wire of fan controller
③ Black (sw) wire of PWM GW/OUT
⑤ Red (rt) wire of PWM GW/IN

Connecting A/C booster



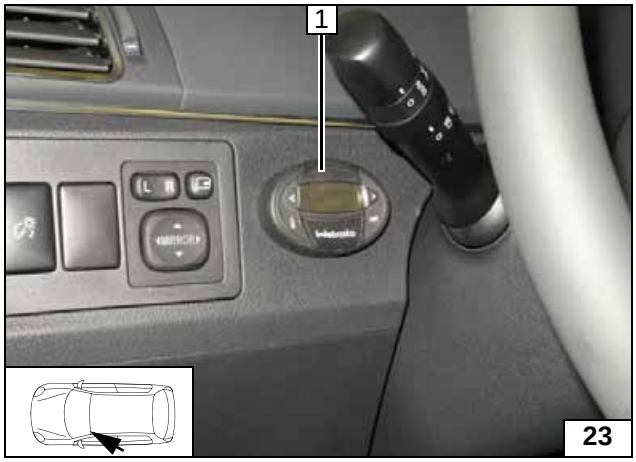
1 Yellow (ge) wire of A/C booster connector D47, pin 1
2 Yellow (ge) wire from fuse
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness
④ Red (rt) wire of PWM Gateway/KL15
⑦ Black (sw) wire of PWM Gateway/SH

Connecting A/C booster



1 Earth connection
2 White/black (ws/sw) wire of A/C booster connector D47, pin 14
⑥ Brown (br) wire of PWM GW/GND

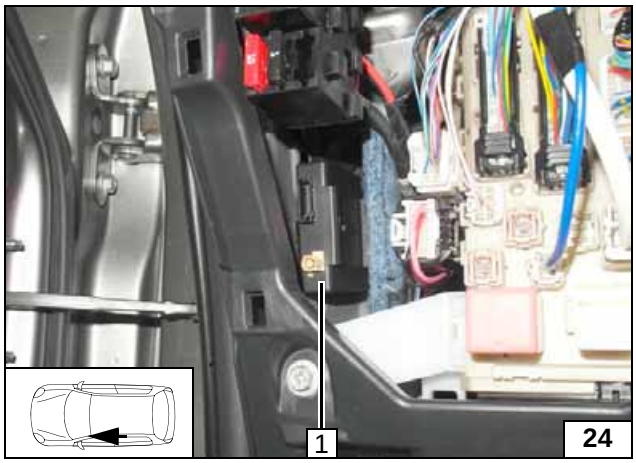
Connecting A/C booster



Digital Timer

1 Digital timer

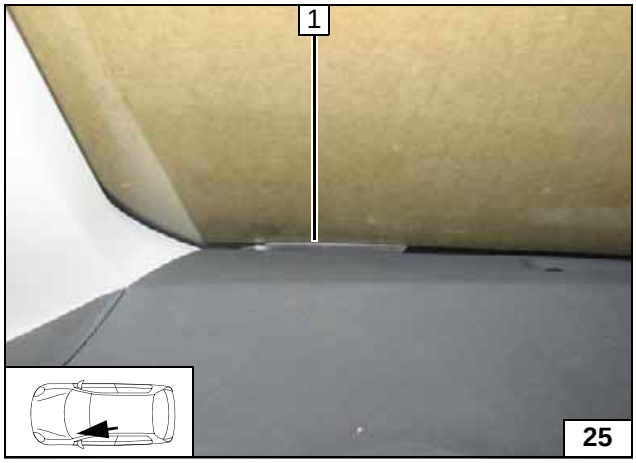
Mounting digital timer



Remote Option (Telestart)

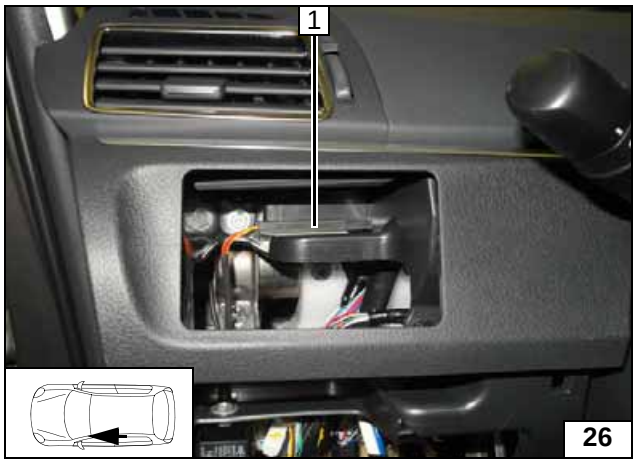
Fasten receiver **1** with adhesive tape.

Installing receiver



1 Antenna

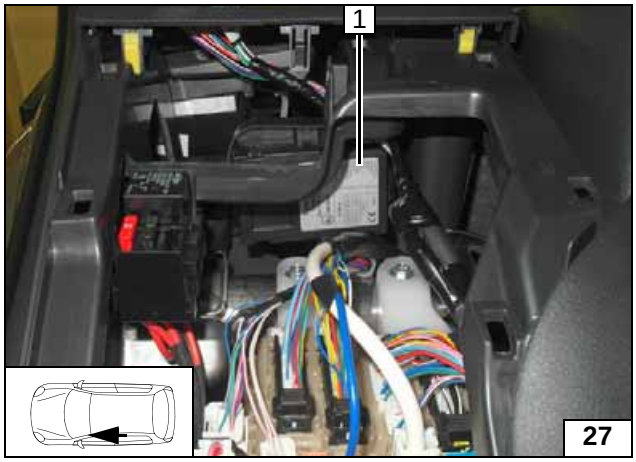
Installing antenna



Temperature sensor T100 HTM

Fasten temperature sensor **1** with adhesive tape.

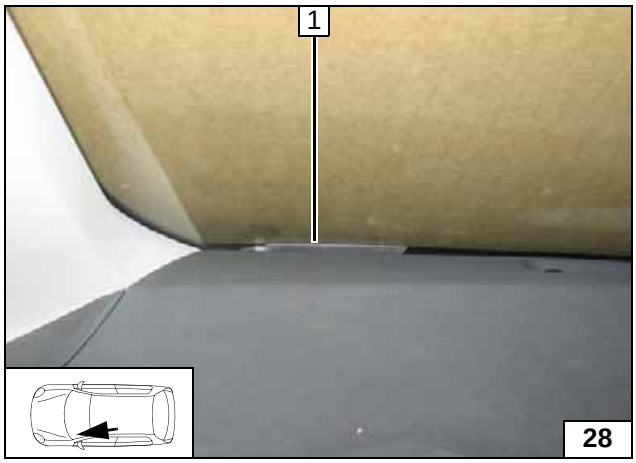
Mounting temperature sensor



Remote option Thermo Call

Fasten receiver **1** with adhesive tape.

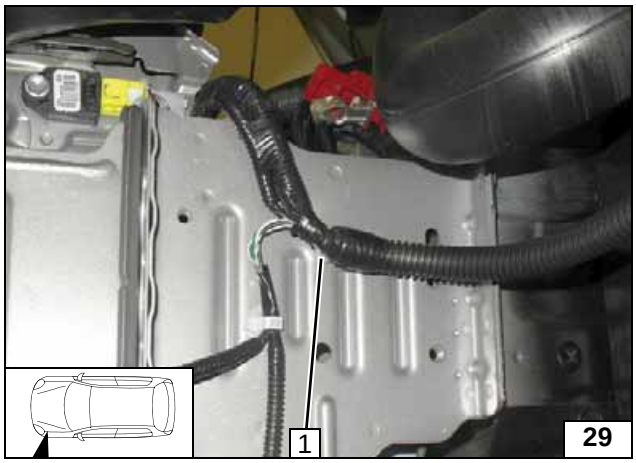
Installing receiver



1 Antenna

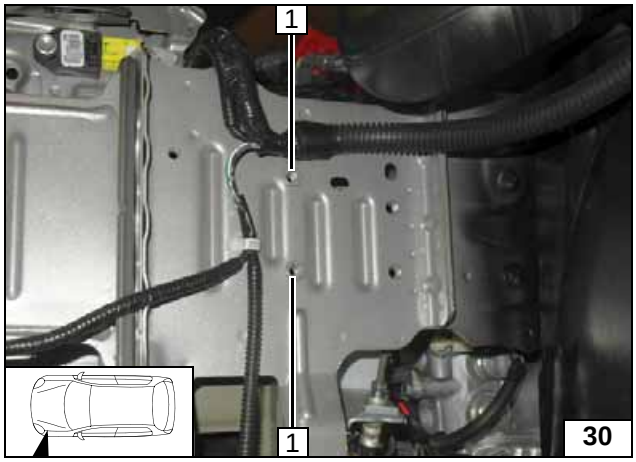
Installing antenna

Preparing Installation Location



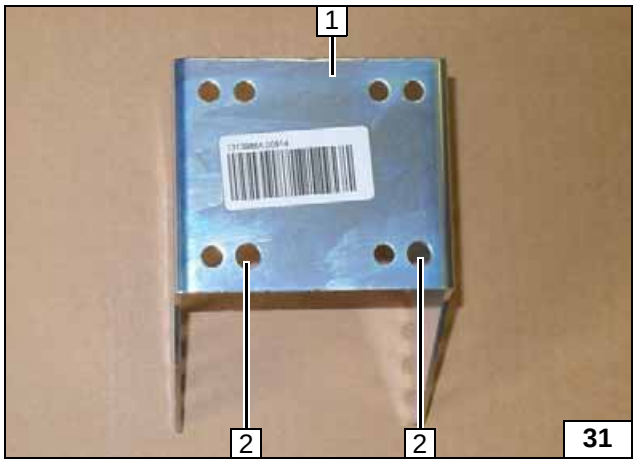
1 Remove original vehicle clip-type cable tie

Detaching wiring harness



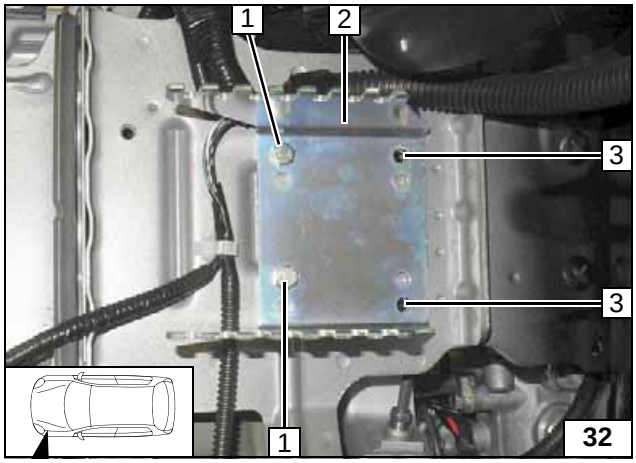
1 Rivet nut [2x], original vehicle holes

Installing rivet nuts



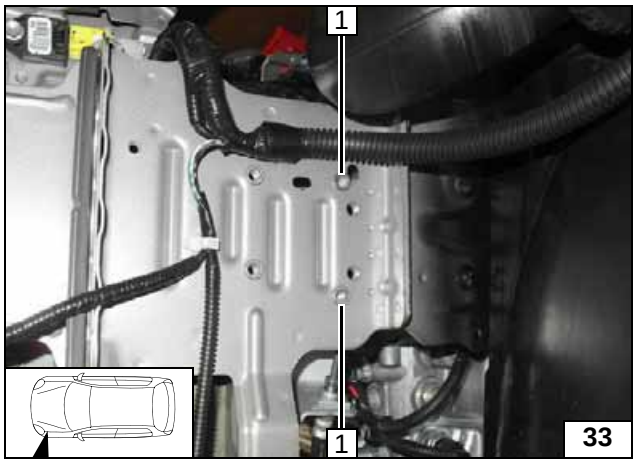
1 Bracket
2 Drill out holes [2x] to 8mm dia.

Preparing bracket



1 M6x20 bolt [2x]
2 Loosely mount bracket
3 Copy hole pattern [2x]

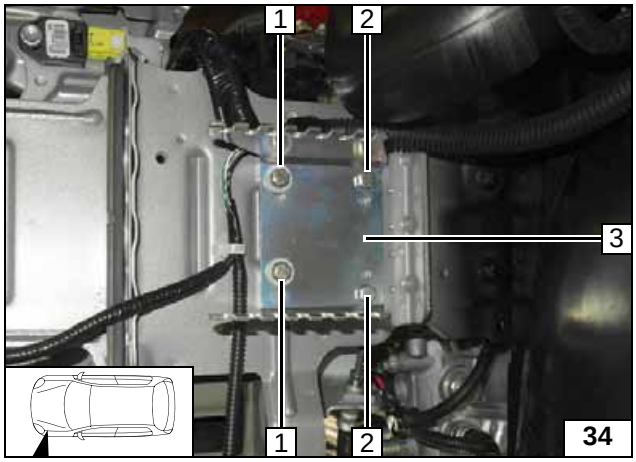
Copying hole pattern



Take off the bracket!

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

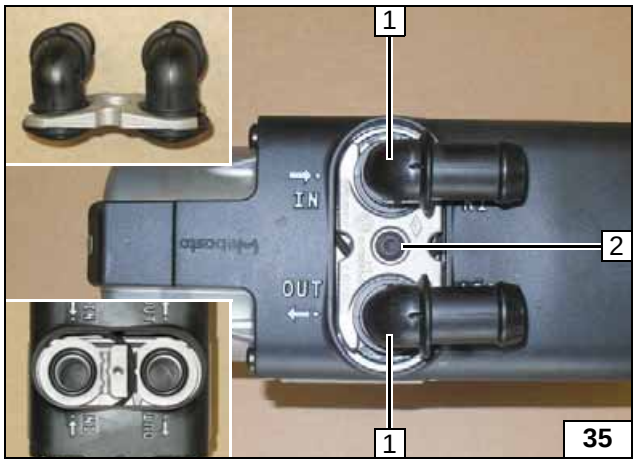
Installing rivet nuts



1 M6x20 bolt, spring lockwasher, large diameter washer [2x each]
2 M6x20 bolt, spring lockwasher [2x each]
3 Bracket

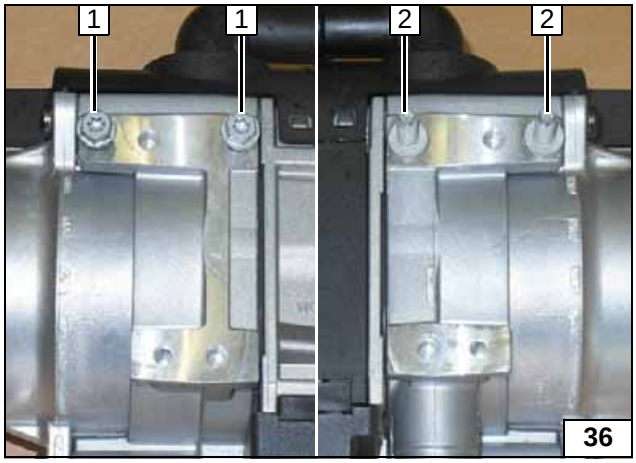
Mounting bracket

Preparing Heater



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

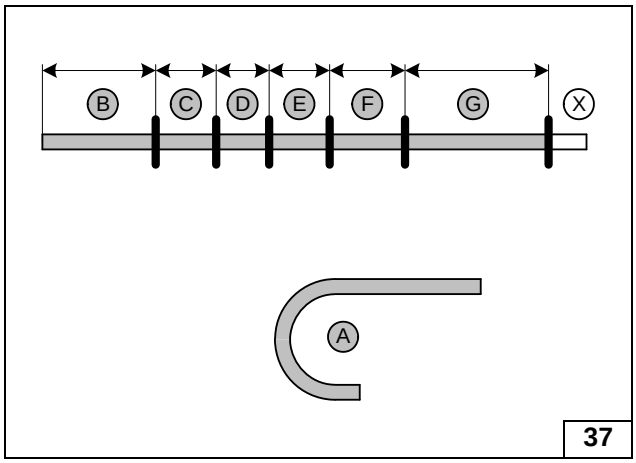
Installing water connection piece



Screw 5x13 self-tapping bolts **1** [2x] into existing holes by a maximum of 3 thread turns.

2 5x15/6x30 stud bolts [2x]

Premounting bolts loosely, installing stud bolts

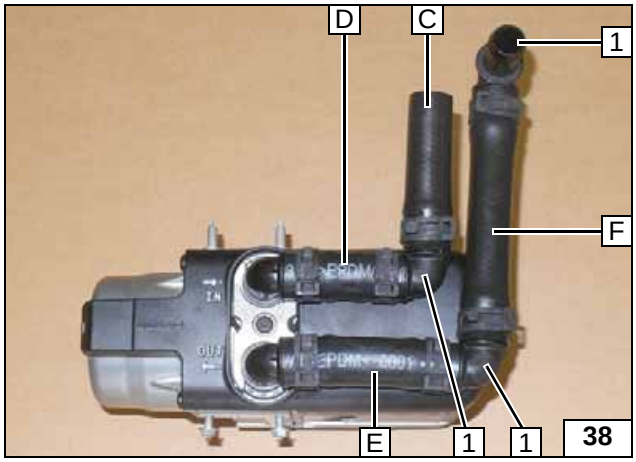


37

Discard section **X**.
Hose **A** = 180°, 20mm dia. moulded hose

B = 310
C = 90
D = 60
E = 90
F = 140
G = 340

Cutting hoses to length



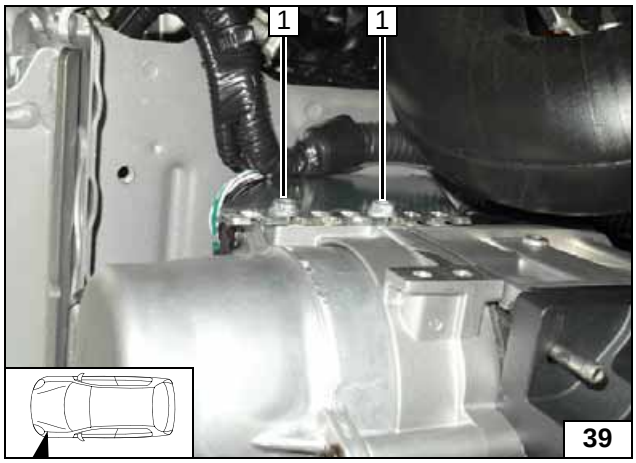
38

All spring clips = 25 mm dia.

1 90° connecting pipe [3x]

Premounting hoses

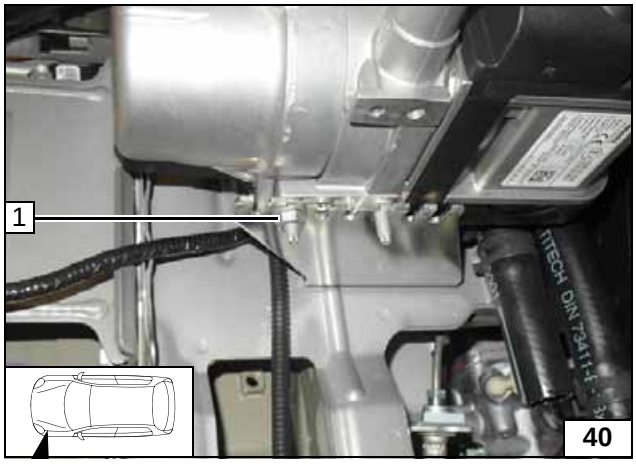
Installing Heater



39

1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



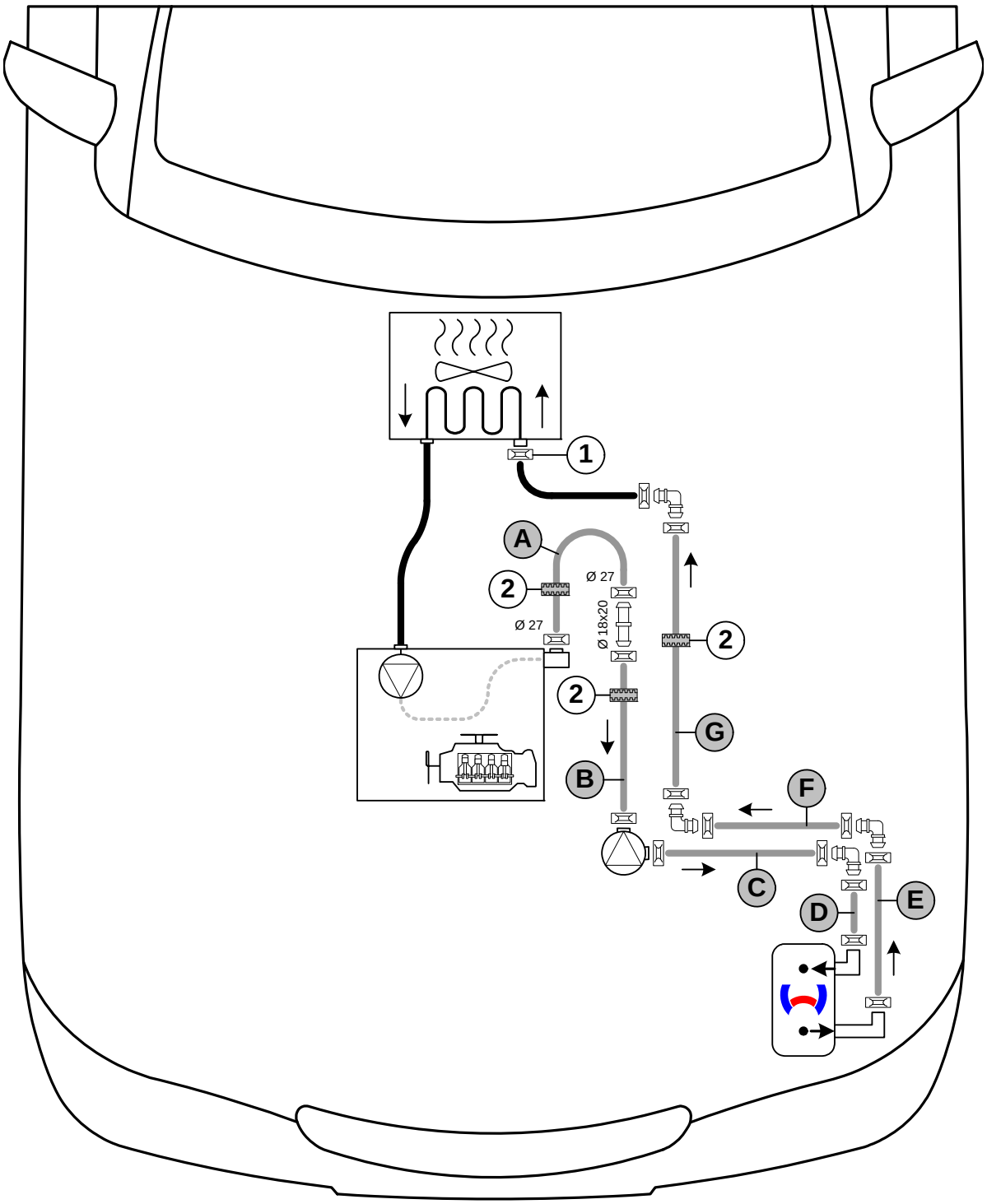
40

1 M6 flanged nut on stud bolt

Installing heater

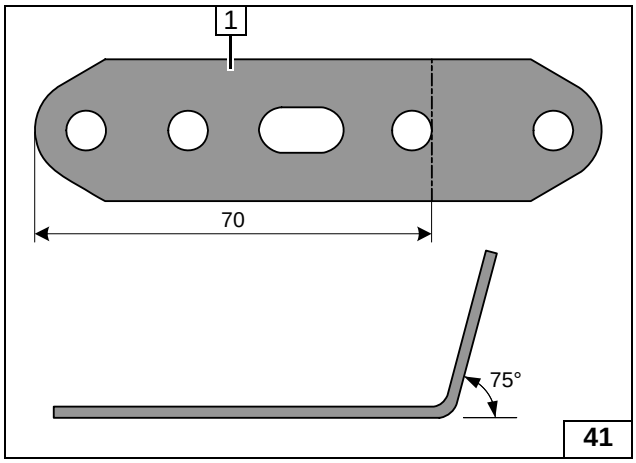
Coolant Circuit

WARNING!
Any coolant running off should be collected in a suitable container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can be damaged. When installing the hoses, the heater must be filled with coolant.
The connection should be modelled on an "inline" circuit and based on the following diagram:



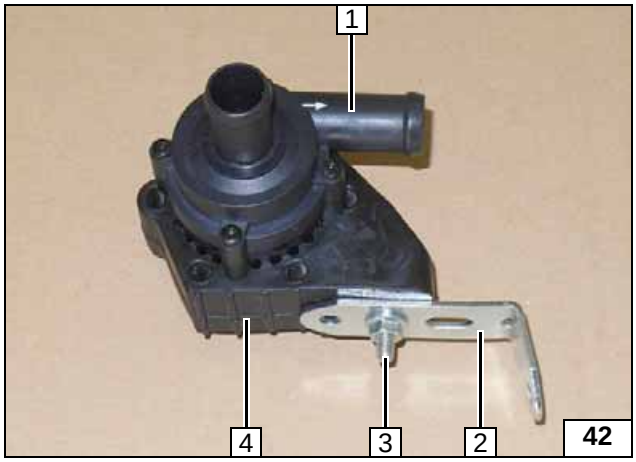
Hose routing diagram

All spring clips without a specific designation = 25 mm dia. **1** = Original vehicle spring clip !
2 = black rubber isolator ! All connecting pipes = 18x18 mm dia.



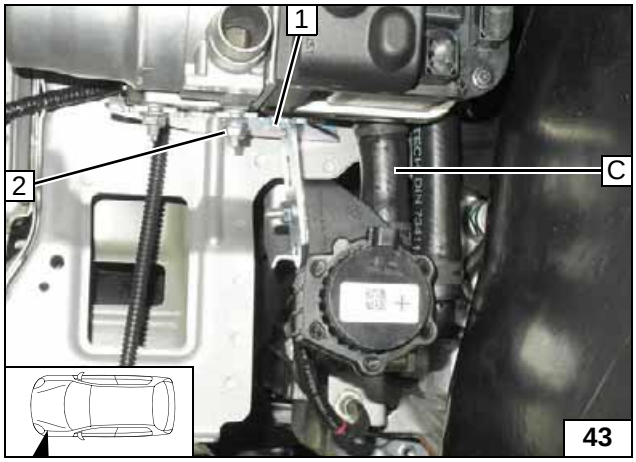
1 Perforated bracket

Angling down perforated bracket



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

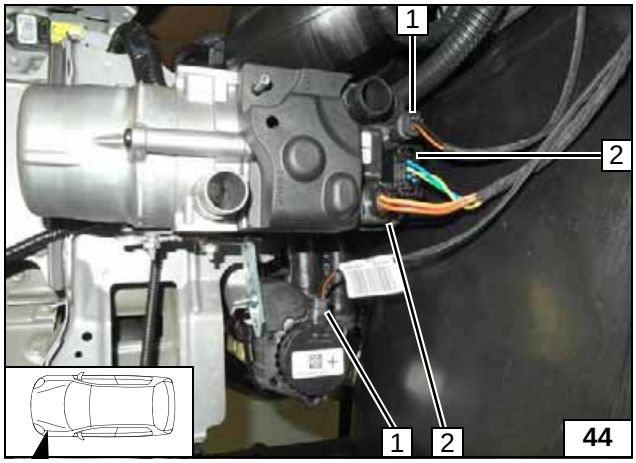
Premounting circulating pump



Install hose **C** on circulating pump inlet!

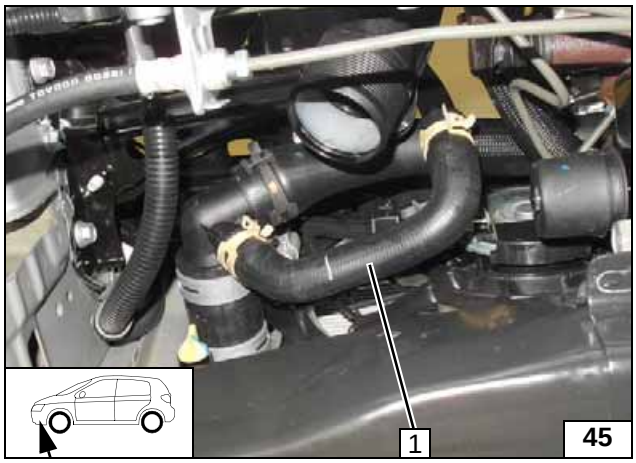
1 Perforated bracket
2 M6 flanged nut on stud bolt

Installing circulating pump



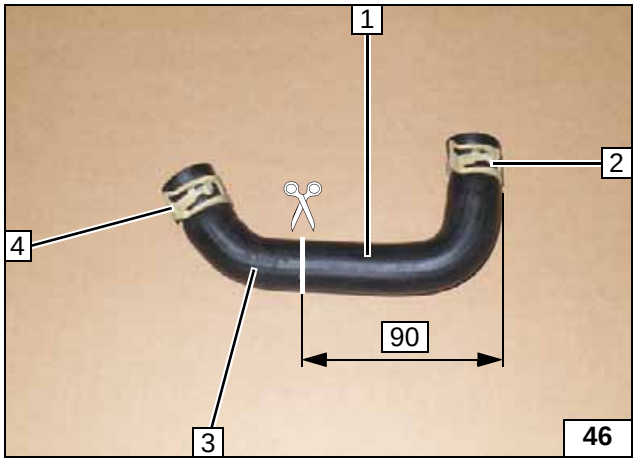
1 Wiring harness of circulating pump [2x]
2 Wiring harness of heater [2x]

Mounting wiring harnesses



Remove original vehicle hose of turbocharger to facilitate installation. Remove hose on engine outlet / heat exchanger inlet **1**.

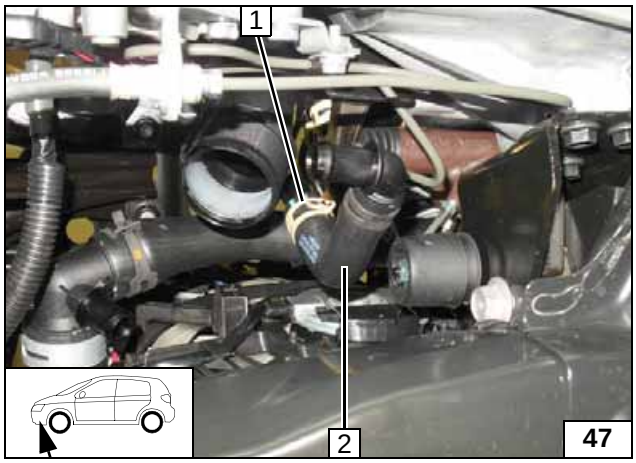
Cutting point



Spring clip **2** will be reused.

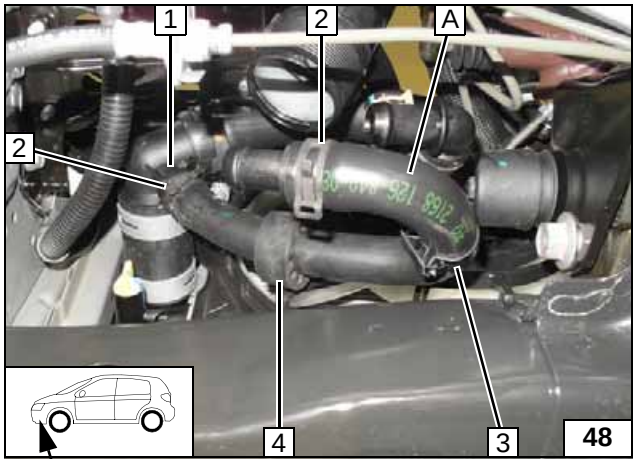
1 Hose section of heat exchanger inlet
3 Discard section
4 Discard spring clip

Cutting point



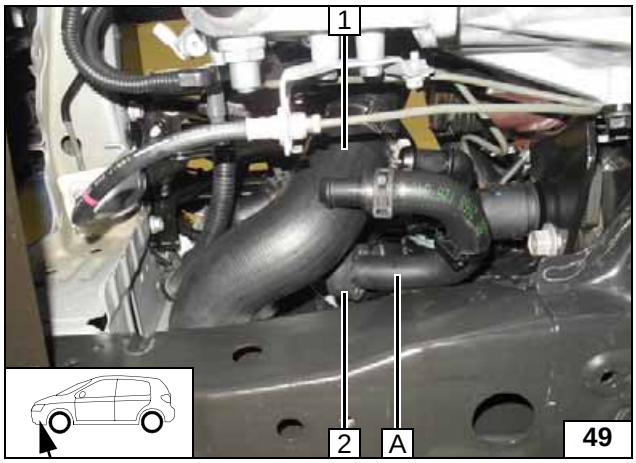
1 Original vehicle spring clip
2 Hose on heat exchanger inlet

Connecting heat exchanger inlet



1 Connection piece for engine outlet
2 27mm dia. spring clip [2x]
3 Lockable 25x25 hose bracket between hose of heat exchanger inlet and hose **A**
4 Black (sw) rubber isolator

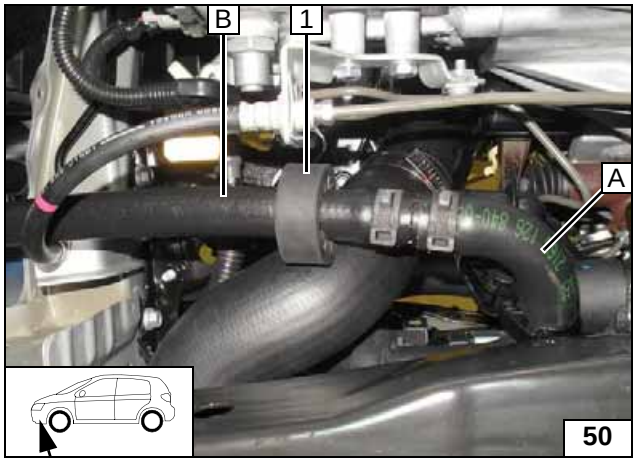
Connecting engine outlet



Reinstall hose of turbocharger **1**!

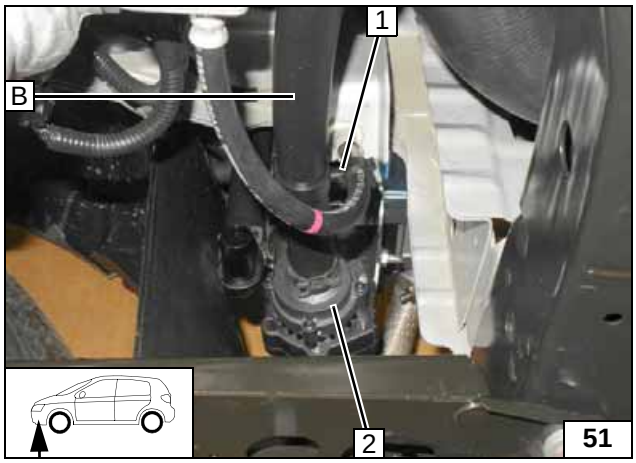
2 Align black (sw) rubber isolator

Routing in engine compartment



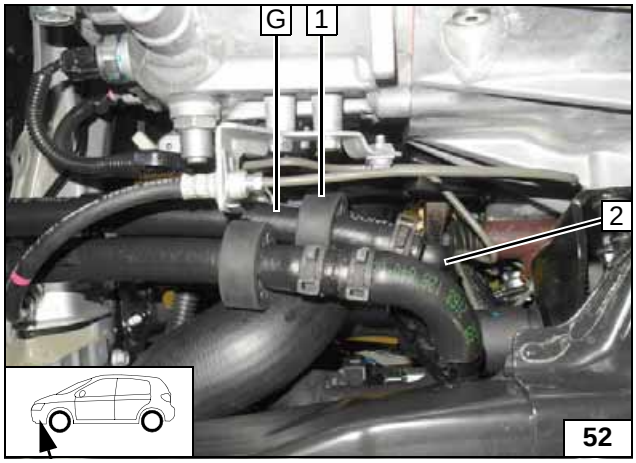
1 Slide on black (sw) rubber isolator and align.

Installing hose B



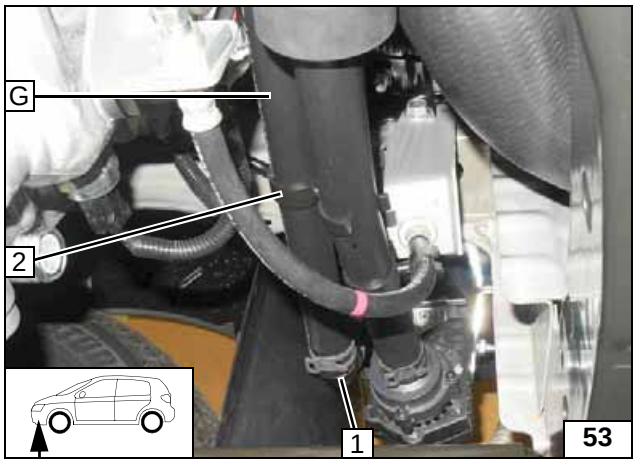
1 10x24.5 hose bracket between coupling line and hose **B**
2 Circulating pump

Connecting circulating pump



1 Slide on black (sw) rubber isolator and align.
2 Hose on heat exchanger inlet

Installing hose G



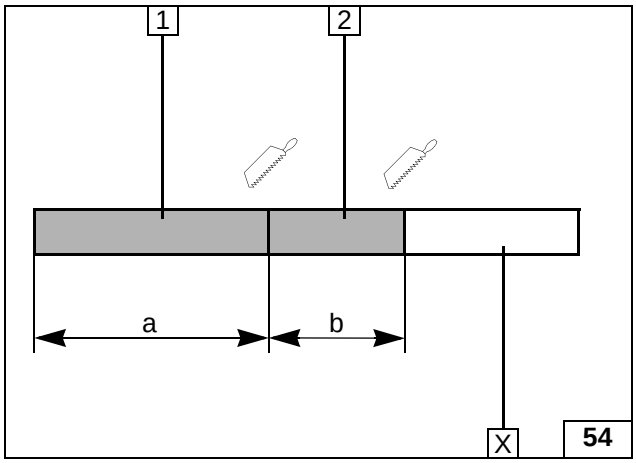
Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

1 90° connecting pipe of hose **F**
2 23x23mm hose bracket between hose **B** and hose **G**

Connecting heater

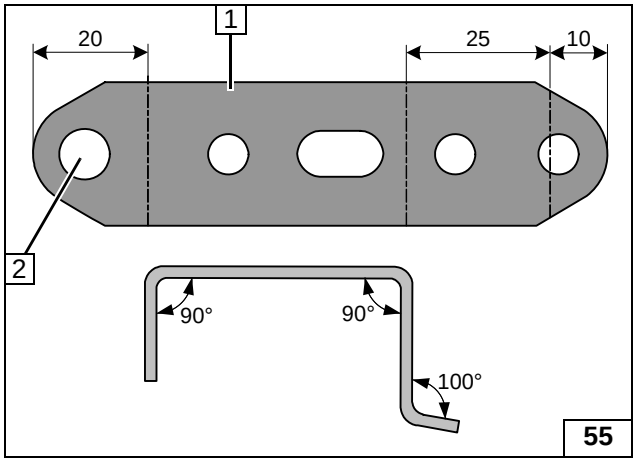
Exhaust Gas

Discard section **X**.



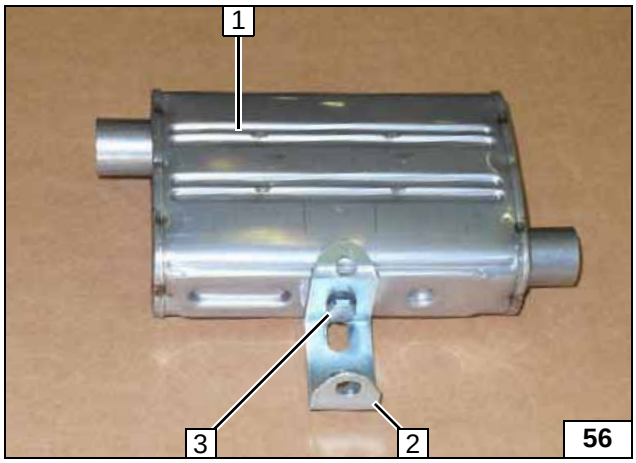
1 Exhaust pipe
a = 300
2 Exhaust end section
b = 250

Preparing exhaust pipe



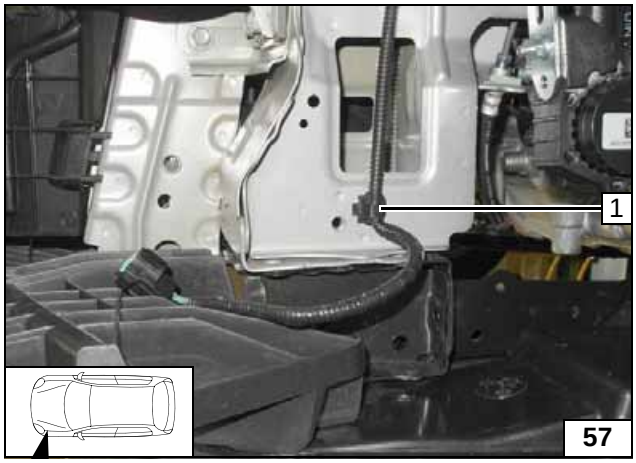
1 Perforated bracket
2 Drill out hole to 8mm dia.

Angling down perforated bracket



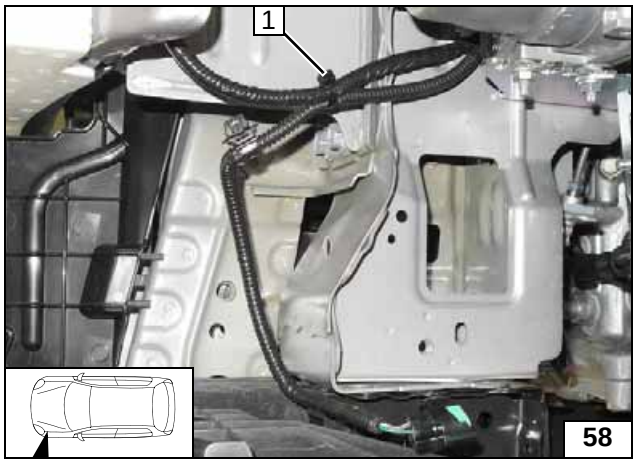
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premounting silencer



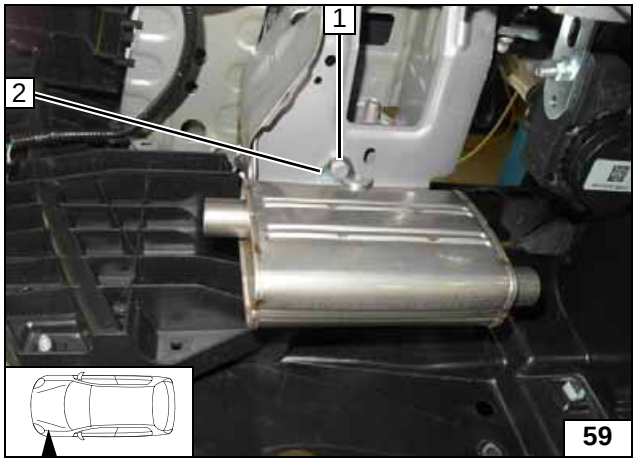
1 Remove original vehicle clip-type cable tie

Detaching wiring harness



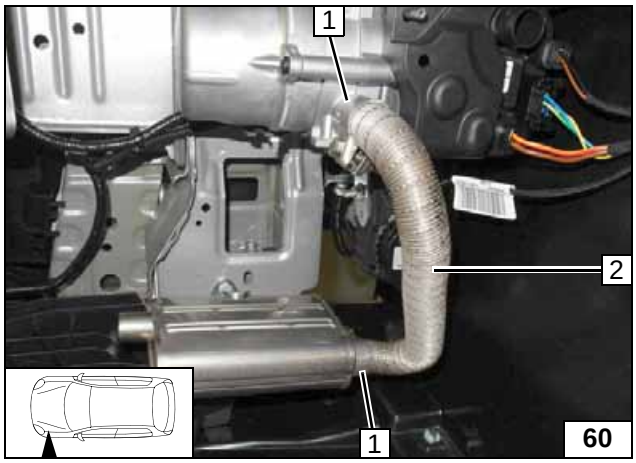
1 Cable tie

Fastening wiring harness



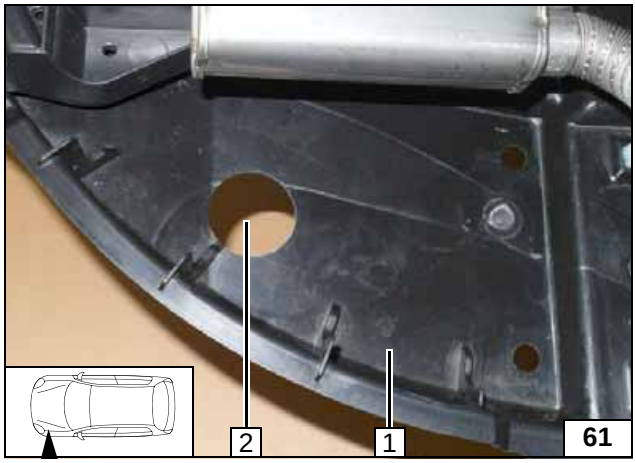
1 M8x20 bolt, spring lockwasher, original vehicle threaded hole
2 Perforated bracket

Mounting silencer



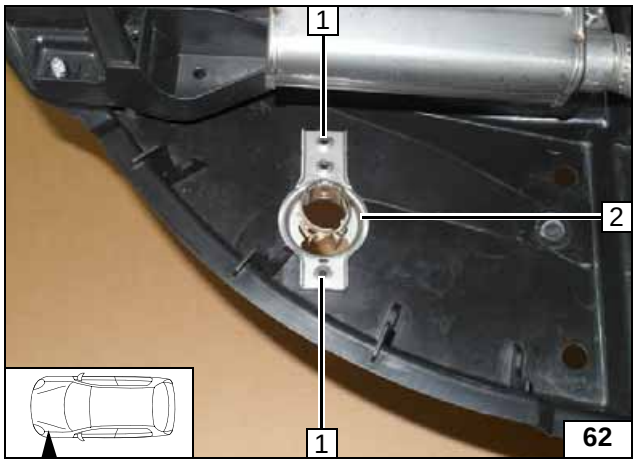
1 Hose clamp [2x]
2 Exhaust pipe

Installing exhaust pipe



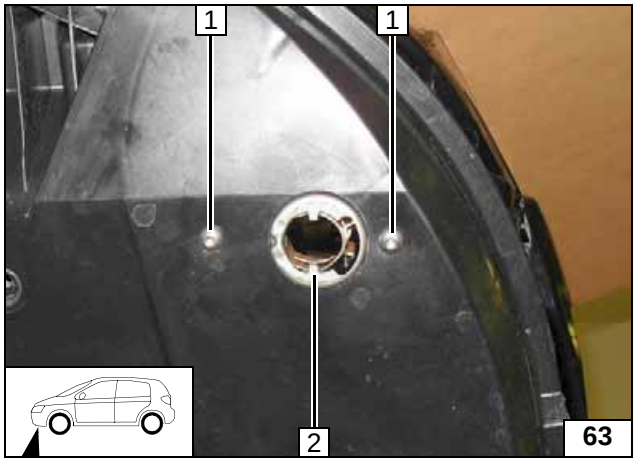
1 Wheel well trim
2 Drill out existing hole (as per work step 1 of the installation instructions)

Hole in wheel well trim



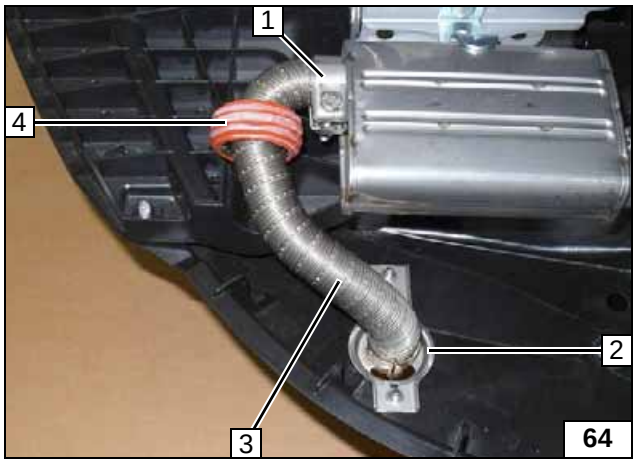
Position exhaust end fastener **2** as per work step 3 of the installation instructions and copy hole pattern **1** [2x]. Remove exhaust end fastener **2**. Hole [2x] as per work step 4 of the installation instructions.

Holes in wheel well trim



1 5x13 self-tapping screw [2x] as per work step 5 of the installation instructions
2 Exhaust end fastener

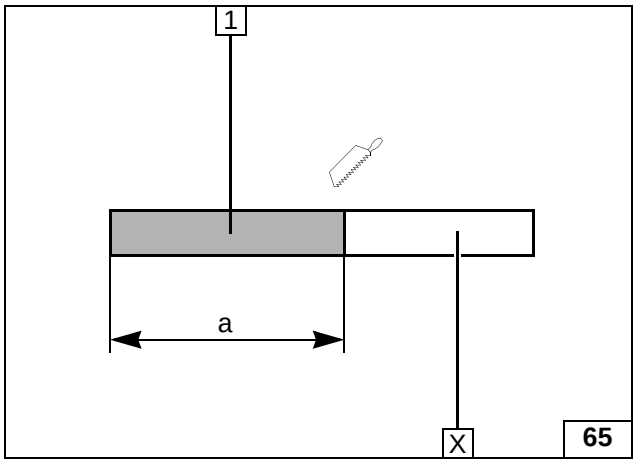
Installing exhaust end fastener



Shape and align exhaust end section **3**. Exhaust end section **3** will be firmly installed on exhaust end fastener **2** during the "Final Work" phase!

1 Hose clamp
2 Exhaust end fastener
4 Slide on spacer bracket and align

Mounting exhaust end section

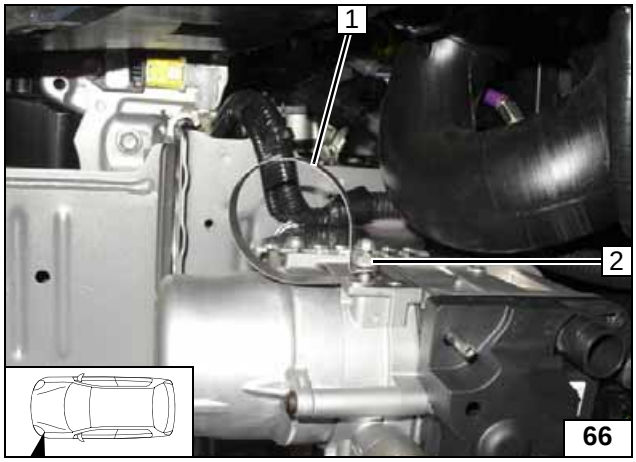


Combustion Air

Discard section **X**.

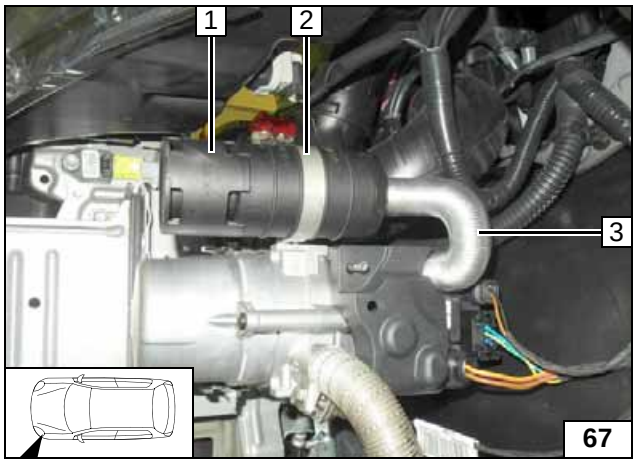
1 Combustion air pipe
a = 140

Cutting combustion air pipe to length



1 51 mm dia. clamp
2 Install 5x13 self-tapping bolt

Installing clamp loosely



1 Silencer
2 51 mm dia. clamp
3 Combustion air pipe

Installing silencer / combustion air pipe

1 Tighten 5x13 self-tapping bolt

Installing clamp

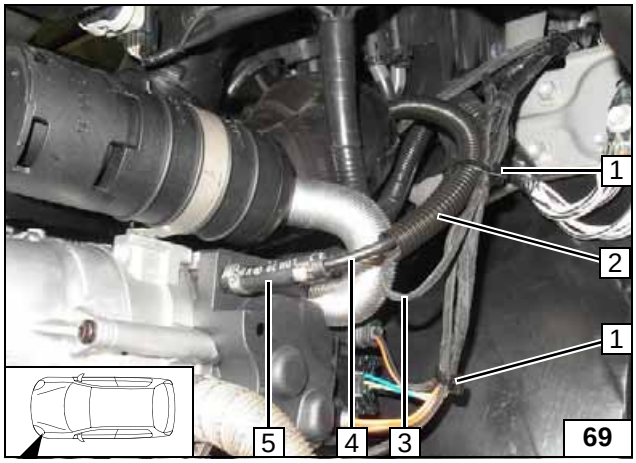
Fuel

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

Catch any fuel running off with an appropriate container.

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

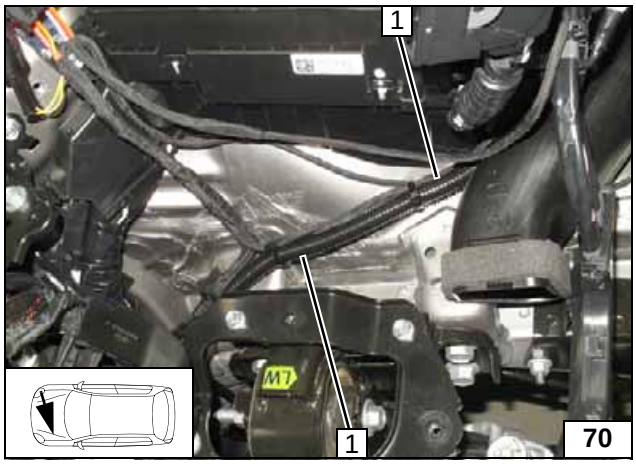
WARNING!
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.



Pull fuel line **4** and wiring harness of metering pump **3** into 10mm dia. corrugated tube **2** and route in the engine compartment.

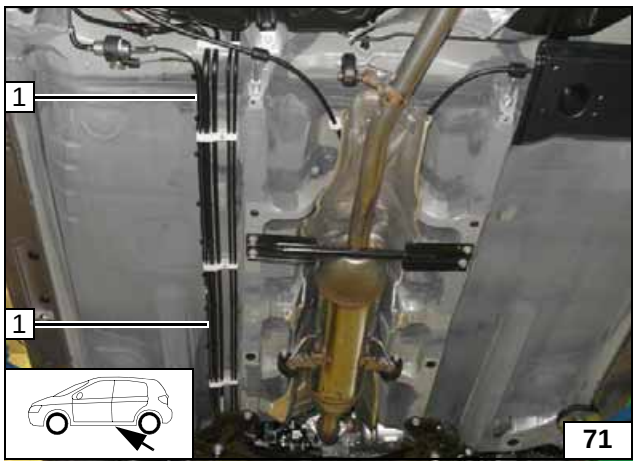
1 Cable tie [2x]
5 Hose section, 10 mm dia. clamp [2x]

Connecting heater



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** to firewall and further along original vehicle fuel lines to underbody.

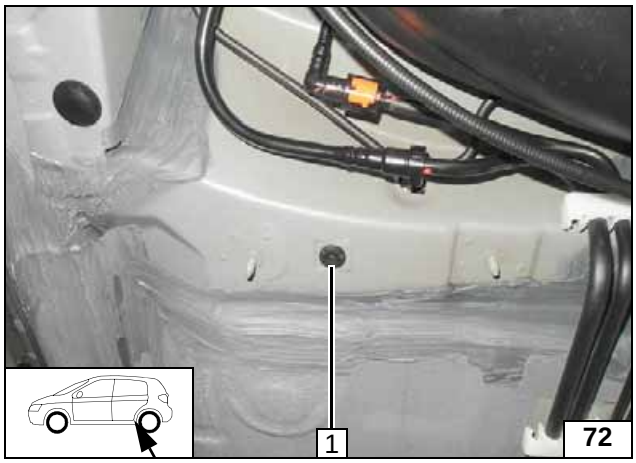
Routing lines



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

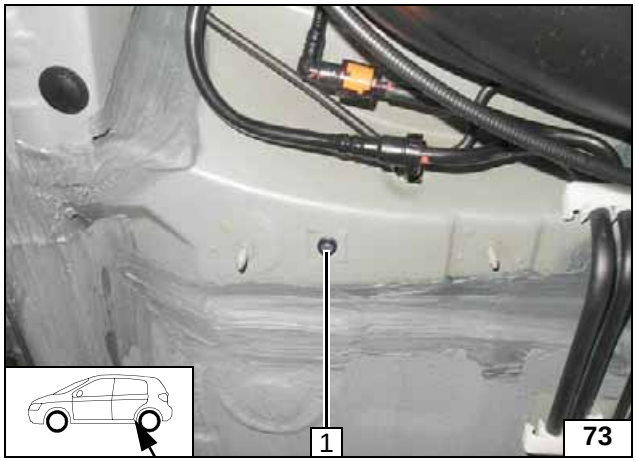
Routing lines

Removing rubber plug



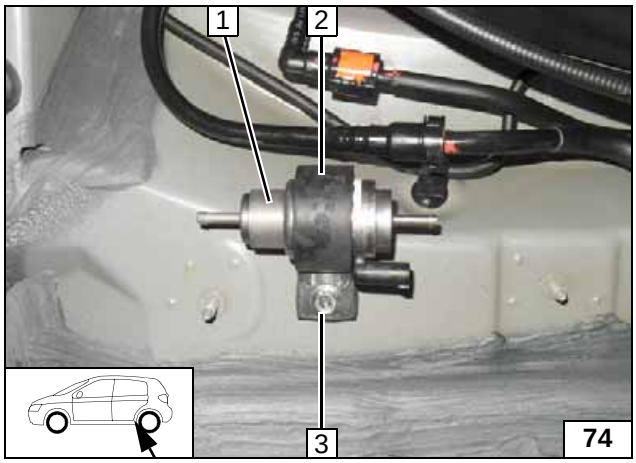
1 Remove and discard rubber plug

Installing rivet nut



1 Existing hole, rivet nut

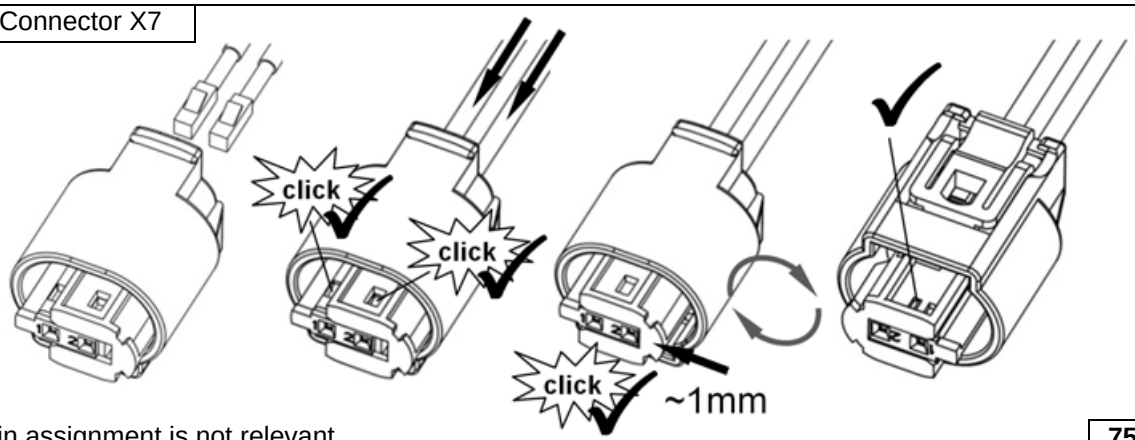
Installing metering pump



1 Metering pump
2 Metering pump mounting
3 M6x25 bolt, support angle bracket, on rivet nut

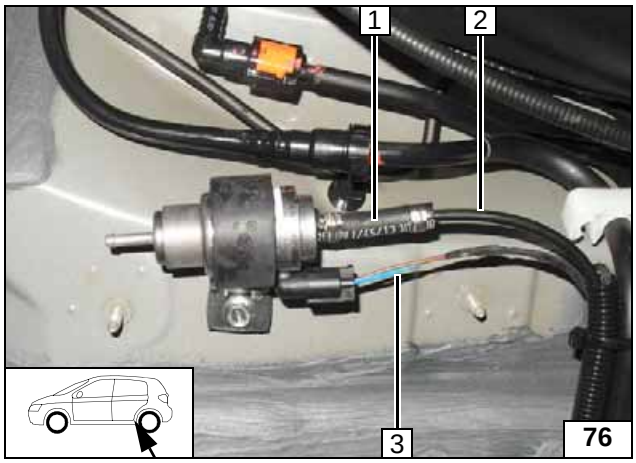
Completing connector of metering pump

Connector X7



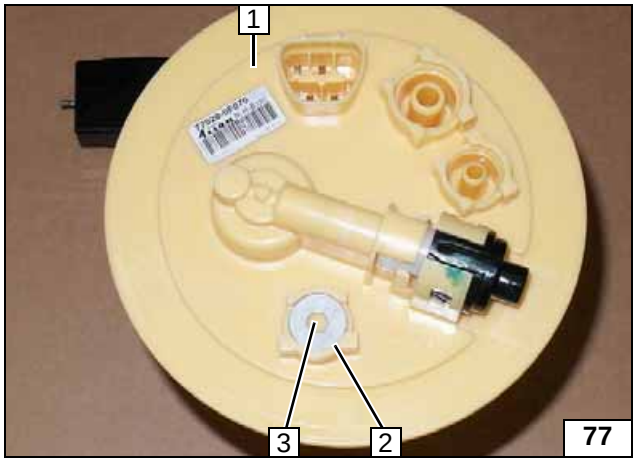
Pin assignment is not relevant.

75



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

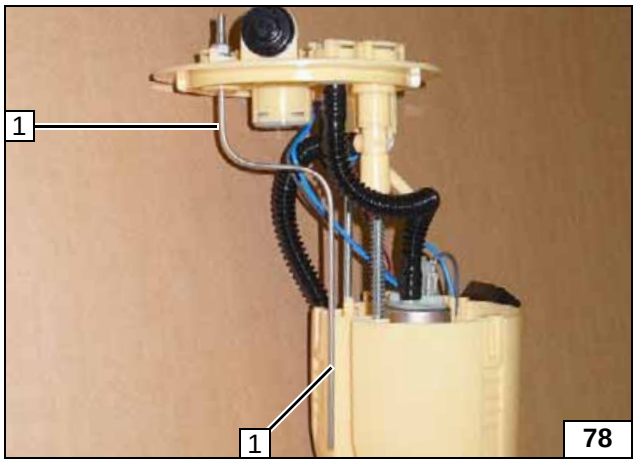
Connection of metering pump



Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Position large diameter washer with outer dia. d_a = 17.6mm **2** in the centre of the embossing.

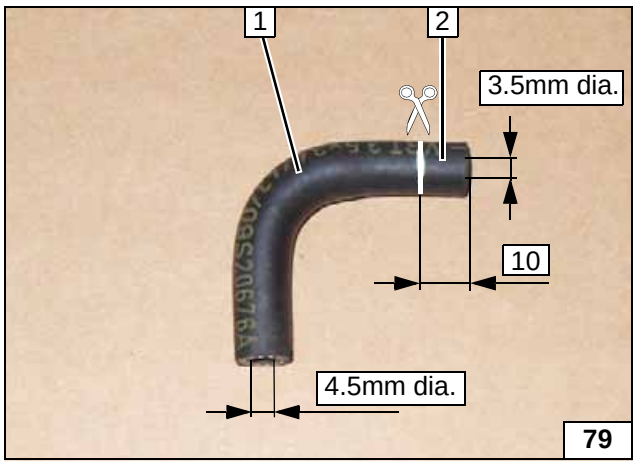
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Form fuel standpipe **1** in accordance with the template and cut it to length.

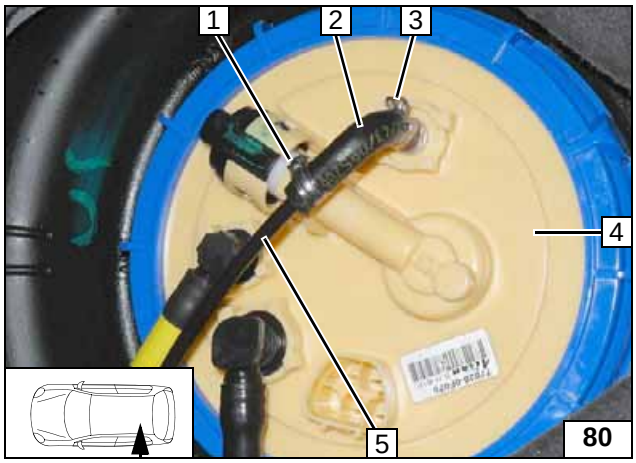
Installing fuel standpipe



Cut moulded hose to length!

1 90° moulded hose with inner dia. d_i = 3.5x4.5mm
2 Discard section

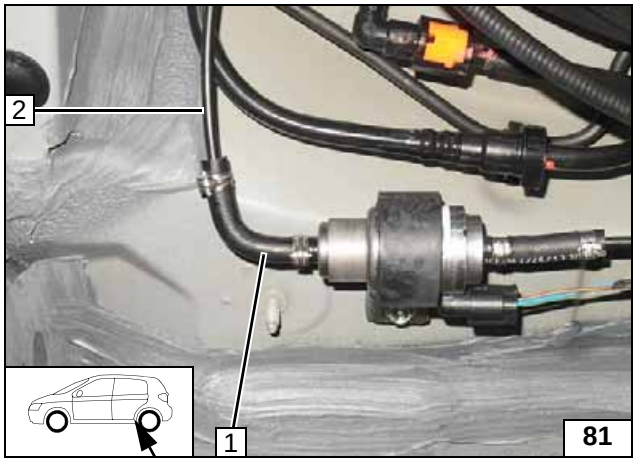
Cutting moulded hose to length



Install fuel-tank sending unit **4** in accordance with manufacturer's instructions. Moulded hose with shortened end on fuel standpipe!

1 10mm dia. clamp
2 90° moulded hose with inner dia. d_i = 3.5x4.5mm
3 9 mm dia. clamp
5 Fuel line

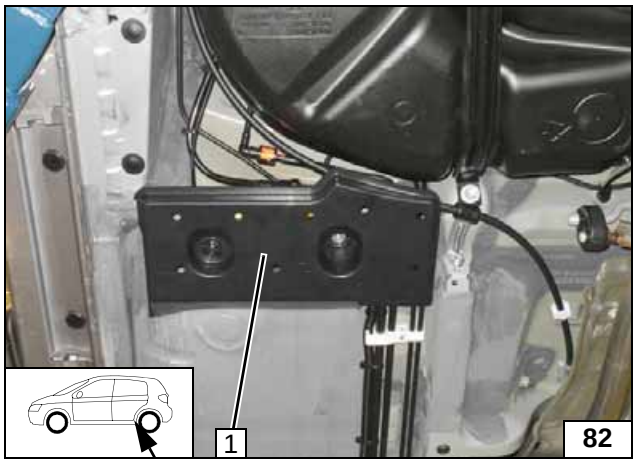
Connecting fuel line



Ensure sufficient distance from neighbouring components, correct if necessary.

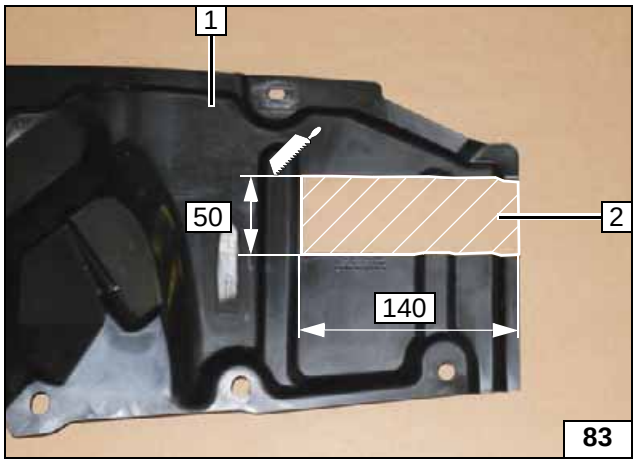
1 90° moulded hose, 10 mm dia. clamp [2x]
2 Fuel line of fuel standpipe

Connection of metering pump



Check ease of movement between metering pump and underride protection **1**, correct if necessary!

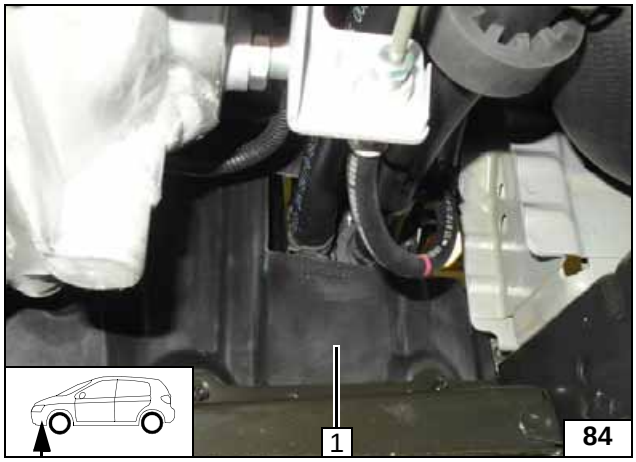
Installing underride protection



Final Work

1 Lateral engine compartment trim
2 Discard section

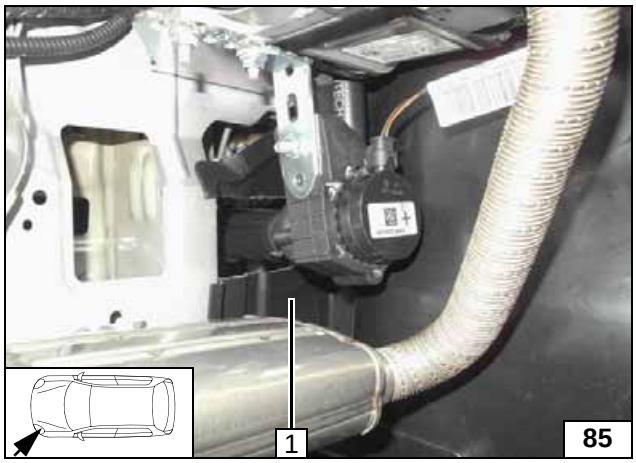
Cutting out engine compartment trim



Check the water hoses for ease of movement, correct if necessary.

1 Lateral engine compartment trim

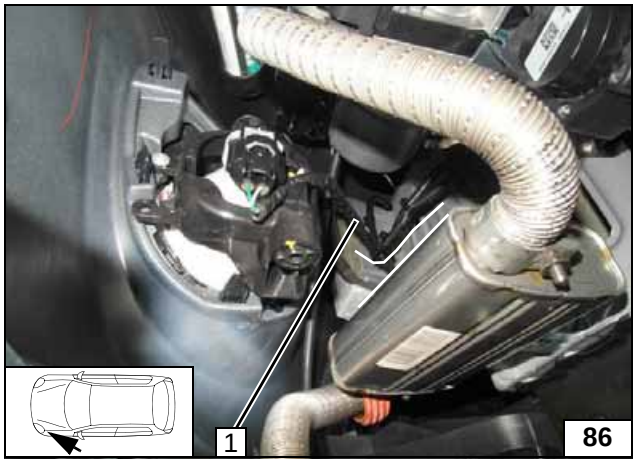
Installing engine compartment trim



Check the circulating pump for ease of movement, correct if necessary.

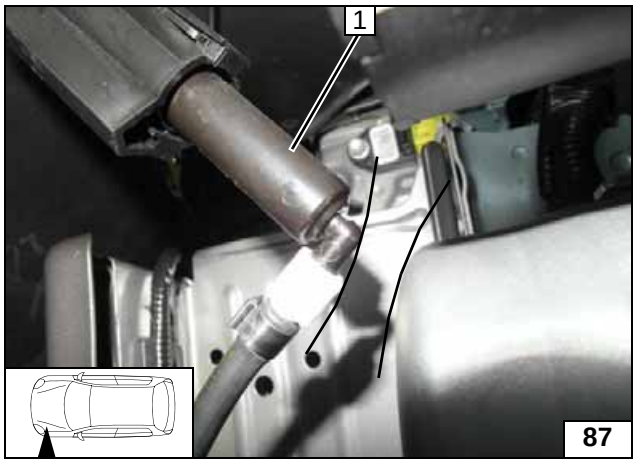
1 Lateral engine compartment trim

Installing engine compartment trim



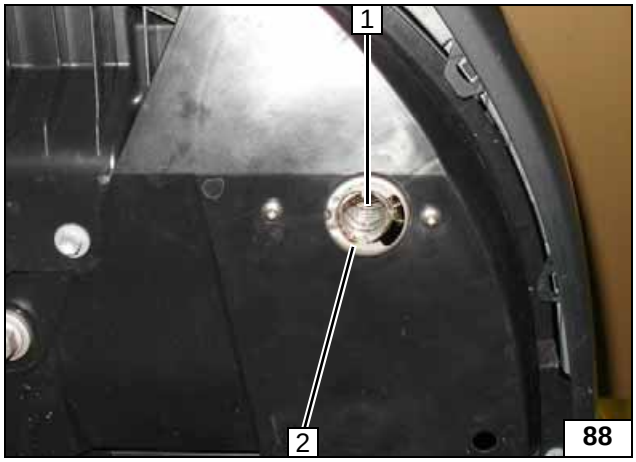
Install bumper. Ensure sufficient distance between silencer and wiring harness of front fog light **1** (at least 20mm), correct if necessary.

Aligning wiring harness



Ensure sufficient between headlight washer system **1** and heater (at least 20mm), correct if necessary.

Checking distance



Install exhaust end section **1** as per work steps 6 - 8 of the installation instructions.

2 Exhaust end fastener

Fastening exhaust end section

WARNING!
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose wires.
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 the digital timer.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Checking the fan function (PWM Gateway):**
  Adjust fan output to maximum. Then switch off ignition and switch on parking heater.
  On reaching the activation temperature of 50°C the fan speed must correspond to the value of approx. 1/3 of the maximum speed specified by the PWM Gateway.
- **Check the proper function of the parking heater, see the operating instructions/installation instructions.**
- **Place caution label "Switch off parking heater before refuelling" in the area of the filler neck.**

During initial start up, proceed as follows with the Webasto Thermo Test Diagnosis:

- **Control coolant pump under Menu Component test, check coolant level**
- **Pump fuel for the heater under the menu pipe filling**
- **Check CO_2 settings; take setting values from the general installation instructions**
- **During the trial run, all water and fuel connections must be checked for leakage and firm seating**
- **An error search is to be conducted in case of fault**

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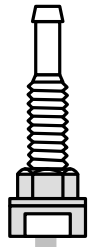
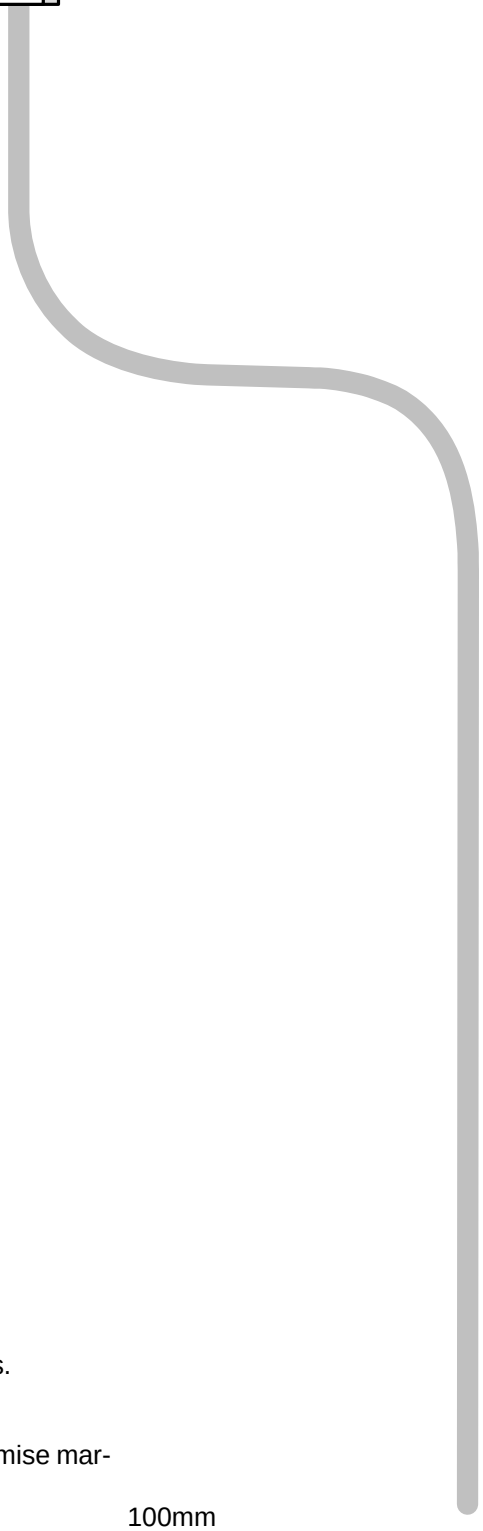
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

Template for Fuel Standpipe





100mm

1:1 scale

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

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

100mm

0

Operating Instructions for 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.

If vehicles have passenger compartment monitoring, this must be deactivated in addition to the vehicle settings for the heating operation.
Deactivation instructions can be found in the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

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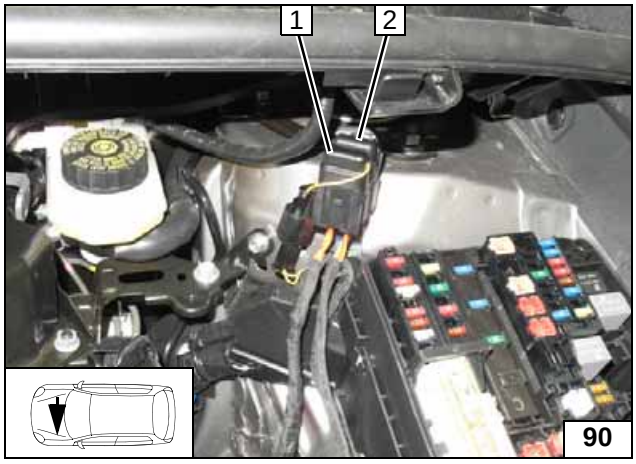
The fan speed need not be preset.

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

A/C control panel



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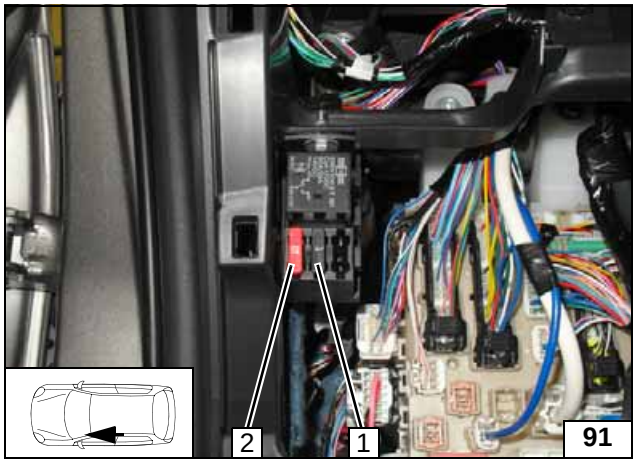
1 20A heater fuse F1
2 30A main fuse F2 of passenger compartment

Engine compartment fuses



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1 1A fuse F3 of heater control
2 10A fan fuse F4

Passenger compartment fuses