Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation
Lexus RX 200t

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Lexus	RX 200t	AL2	e6 * 2007 / 46 * 0163 * 00

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.0 P	Petrol	AG	175	1998	8AR

AG = Automatic transmission

Model 2016
Left-hand drive vehicle

Verified equipment variants: 2 zone automatic air-conditioning
Front fog lights
LED headlights
LED daytime running lights
Headlight washer system
Start button with keycard
Euro 6
Passenger compartment monitoring

Total installation time: about 9 hours

Lexus RX 200t

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Lexus RX 200t 2016 Petrol: **1324889A**
- Additional kit ‘Webasto Standard’ automatic A/C control for Toyota / Lexus: **1324414**_
- In case of Telestart, heater control, as well as indicator lamp in accordance with price list and in consultation with end customer

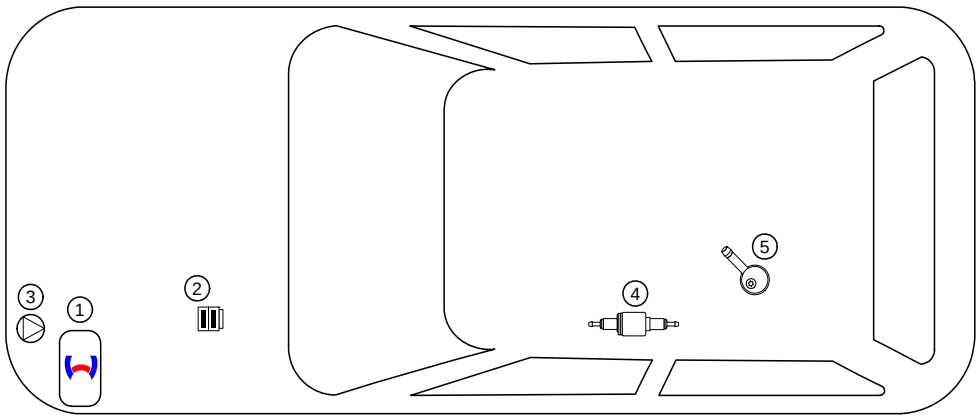
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full!
- The installation location of the push button in case of Telestart or ThermoCall 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. Engine compartment fuse holder
3. Circulating pump
4. Metering pump
5. 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 tools and special equipment.

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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 the ECE directive 122 (heater) section 5 for the installation of the heater.

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Lexus RX 200t

Information on Validity

This installation documentation applies to Lexus RX 200t 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

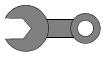
Dimensions
- All dimensions are in mm.

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.

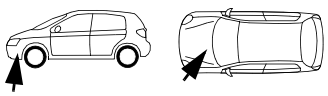
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

Reference to 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.

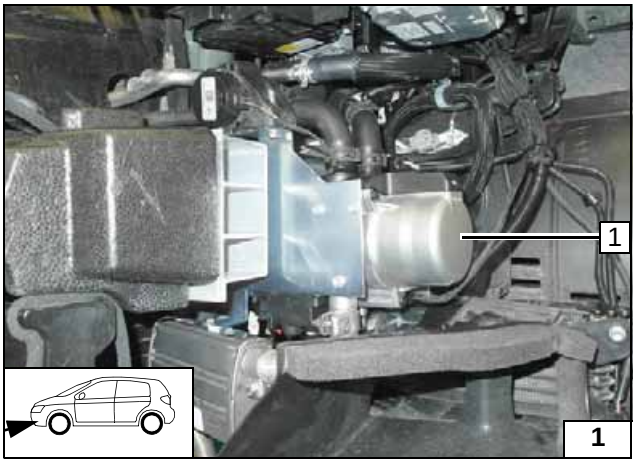
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and remove the battery.
- Remove the air filter together with the intake hose.
- Remove the engine compartment trim on the right and left.
- Remove the windscreen wiper.
- Remove the coolant reservoir cap.
- Remove the windscreen wiper motor.
- Remove the coolant reservoir.
- Detach the wheel well trim on the bumper trim on the right and the left.
- Remove the upper bumper trim.
- Remove the bumper trim.
- Remove the underride protection of the engine.
- Remove the underbody underride protection on the left.
- Remove the rear bench seat.
- Remove the lower A-pillar trim on the left (only in case of Telestart and/or ThermoCall).
- Remove the upper footwell trim on the driver's side (only in case of Telestart and/or ThermoCall).
- Remove the lateral instrument panel trim on the left (only in case of Telestart and/or ThermoCall).

Heater

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



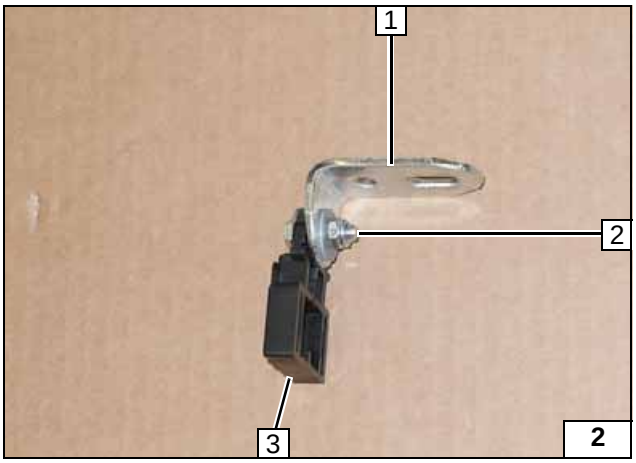
Heater Installation Location

1 Heater

Installation location

Preparing Electrical System

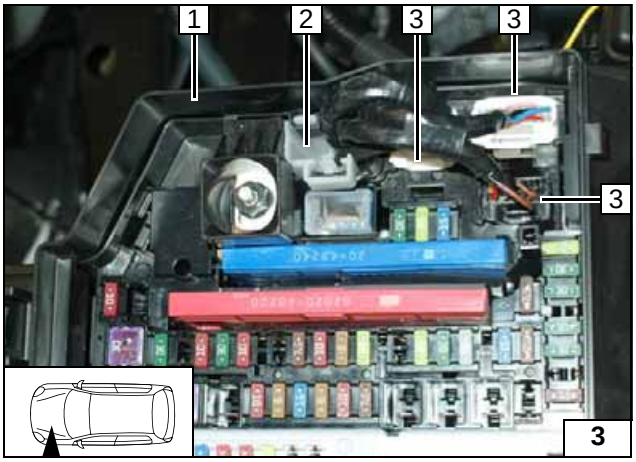
Premounting fuse holder retaining plate



2

1 Angle bracket
2 M5x16 bolt, large diameter washer [2x], nut
3 Retaining plate of engine compartment fuse holder

Removing wiring harness pass through

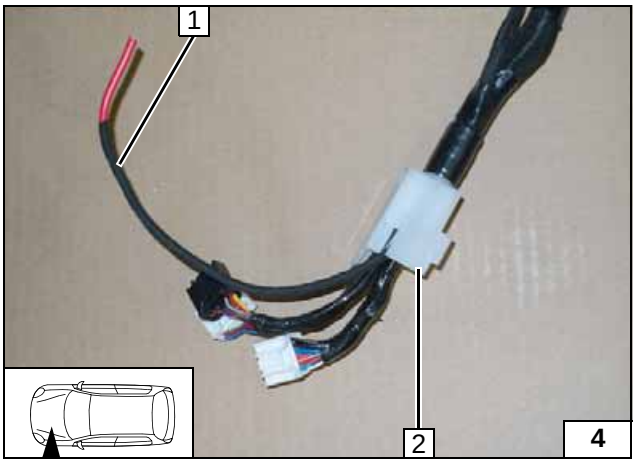


3

Remove the cover and top half of fuse and relay box housing **1**.

2 Remove cable pass through
3 Detach the connector of the original vehicle wiring harness [3x]

Preparing positive connection

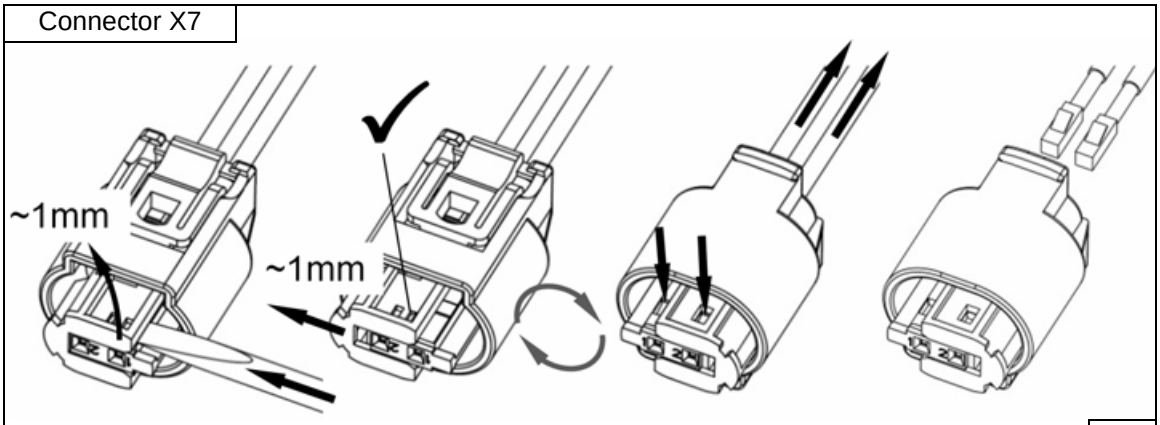


4

Insert positive wire **1**. Then install wiring harness pass through **2**.

Dismantling metering pump connector

Connector X7

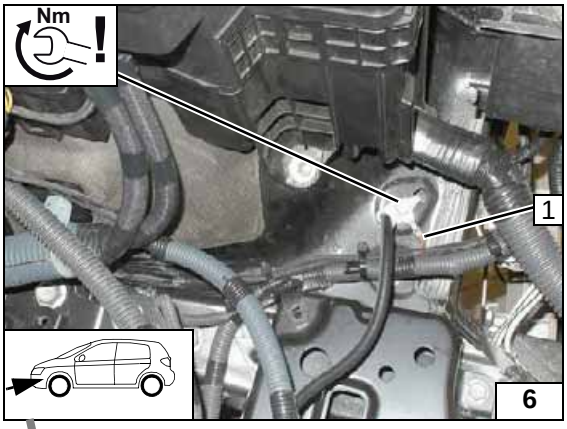


5

Electrical System

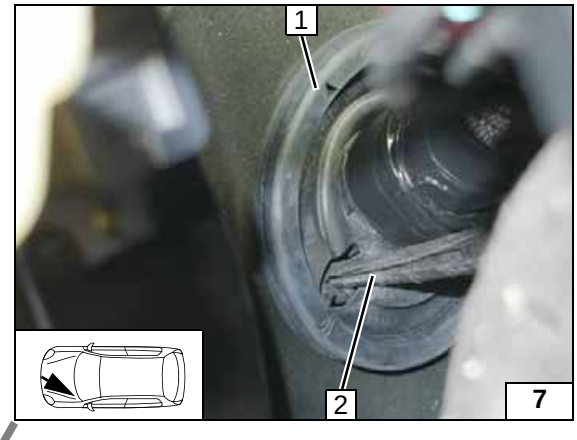
Earth wire

1 Earth wire on original vehicle earth support point

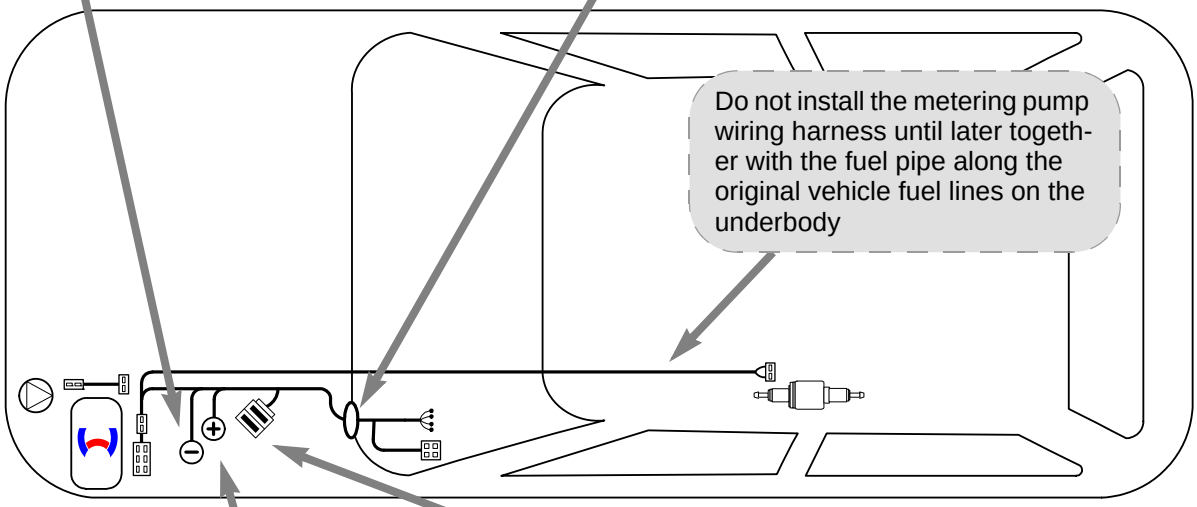


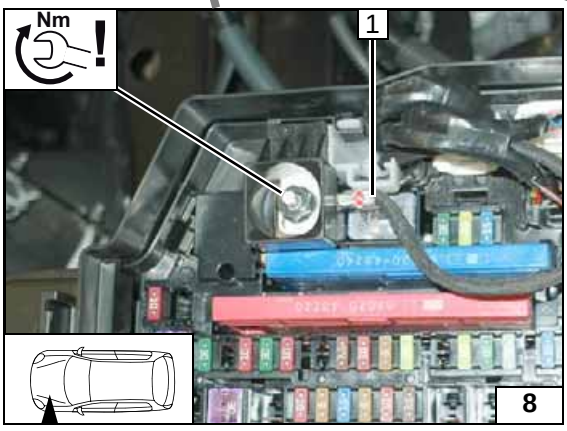
Wiring harness pass through

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



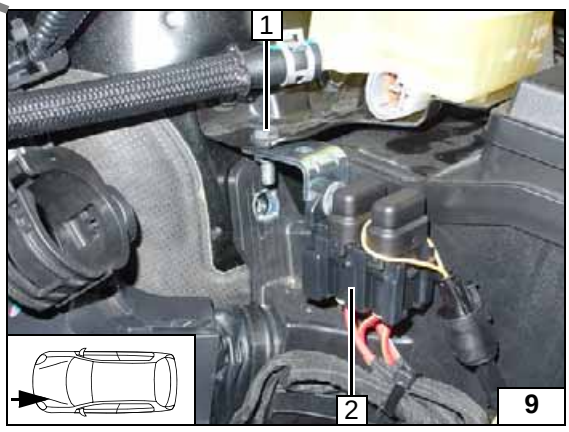
Wiring harness routing diagram





Positive wire

1 Positive wire on positive support point



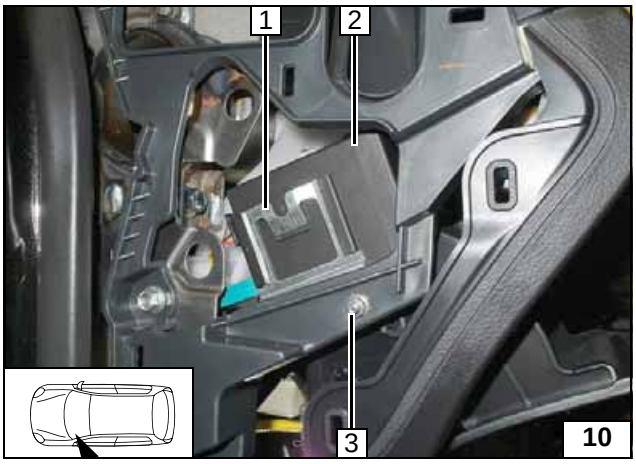
Engine compartment fuse holder

1 M6x20 bolt, original vehicle hole, flanged nut
2 Fuses F1-2

Air-Conditioning Control

! Connect the A/C control in accordance with the separate installation documentation:

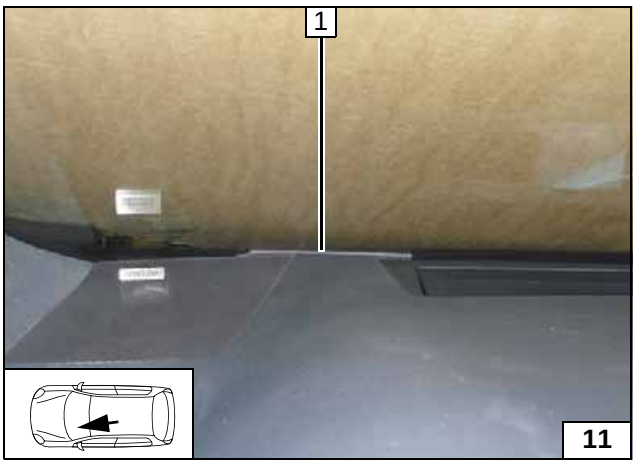
Installation documentation **'Webasto Standard'** automatic A/C control: **1324888_**



Remote Option (Telestart)

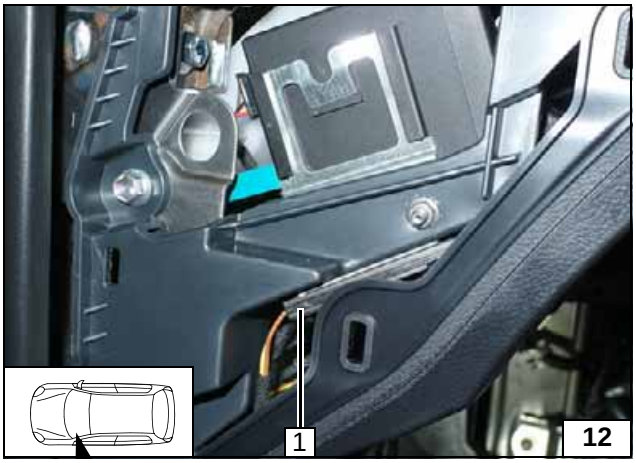
1 Receiver bracket
2 Receiver
3 5.5mm dia. hole; M5x16 bolt, flanged nut

Installing receiver



1 Aerial

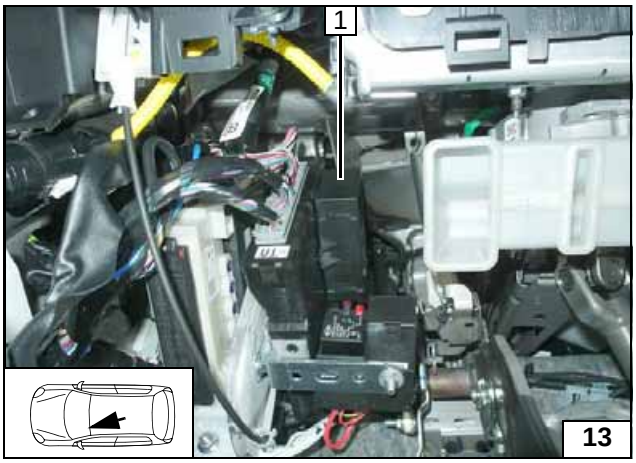
Installing aerial



Temperature sensor T100 HTM

Fasten temperature sensor **1** with double-sided adhesive tape.

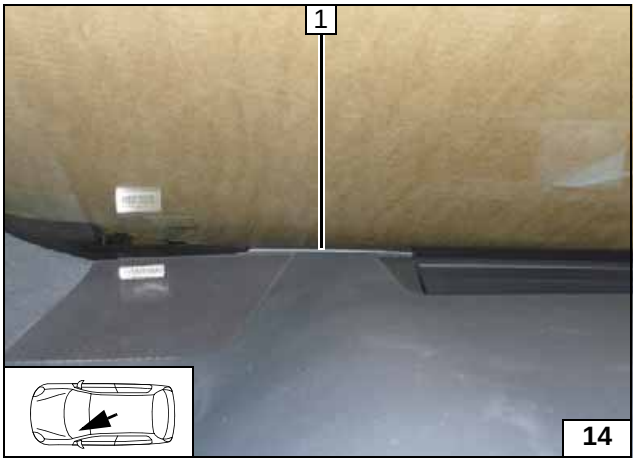
Installing temperature sensor



ThermoCall Option

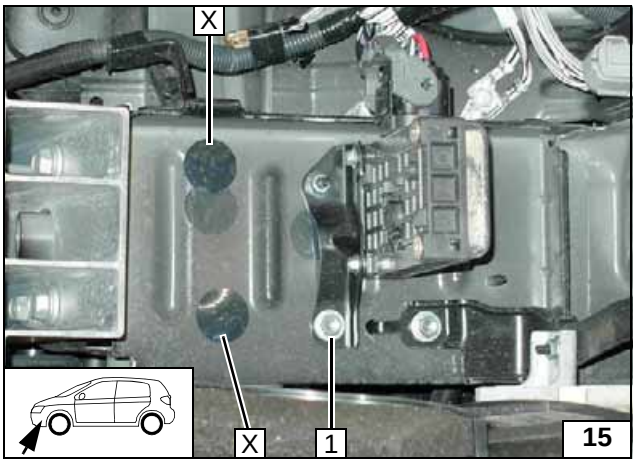
Fasten receiver **1** with double-sided adhesive tape.

Installing receiver



1 Aerial (optional)

Installing aerial

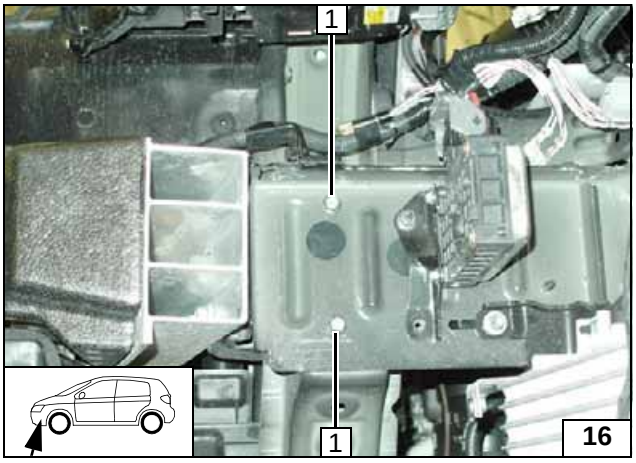


Preparing Installation Location

1 Dismantle original vehicle bolt (will be reused later)

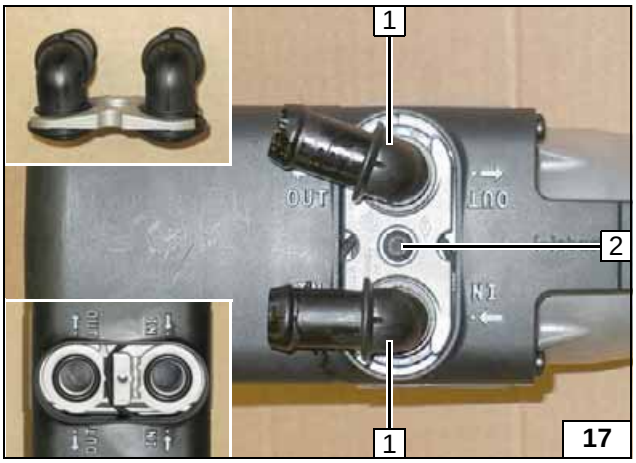
X = >5 [2x]

Removing original vehicle bolt and self-adhesive film



Screw M6x16 bolt with serrated flange **1** [2x] half way in the original vehicle thread.

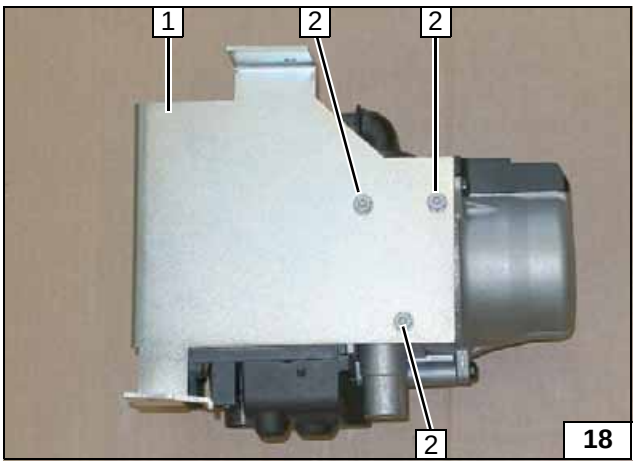
Premounting bolts



Preparing Heater

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

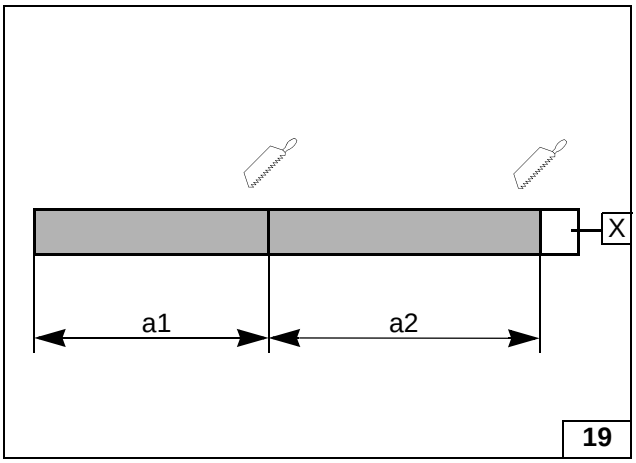
Installing water connection piece



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

Installing bracket 1

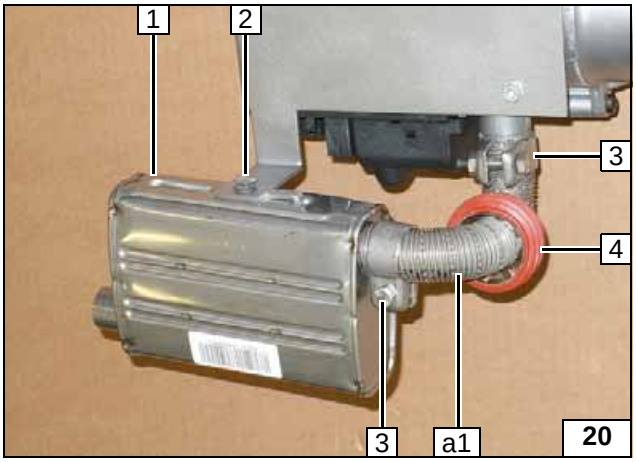
Preparing exhaust pipe



a1 = 140
a2 = 180

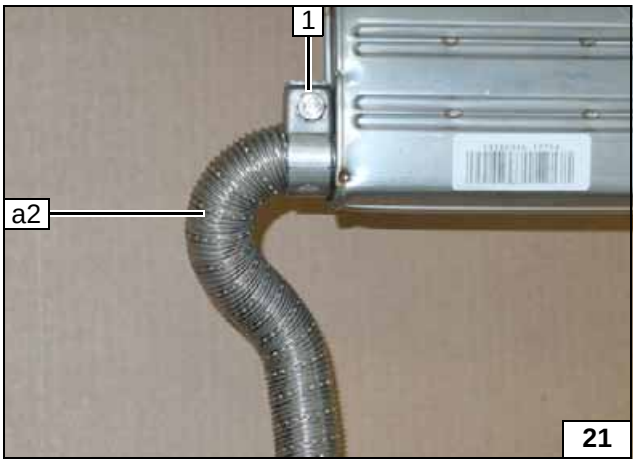
X = ≥5

Installing silencer and exhaust pipe a1



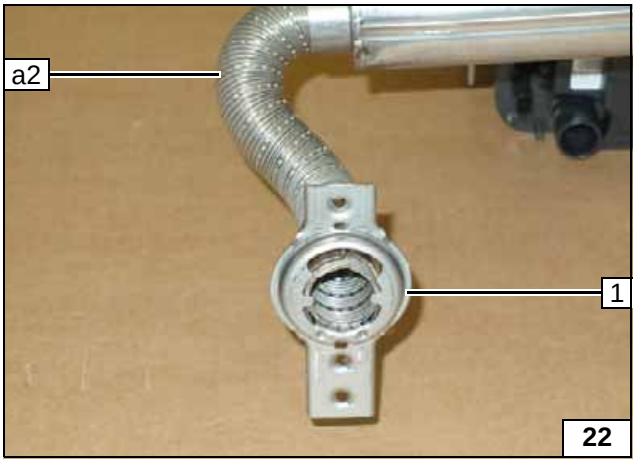
1 Silencer
2 M6x16 bolt, spring lockwasher
3 Hose clamp [2x]
4 Spacer bracket

Installing exhaust pipe a2



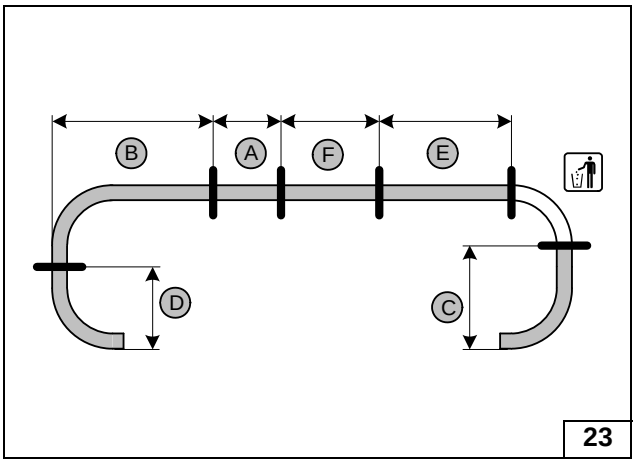
1 Hose clamp

Installing exhaust end fastener



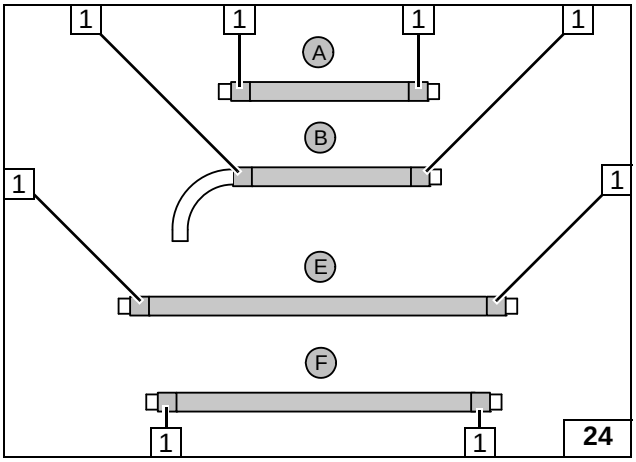
Work steps E6 - E8.

1 Exhaust end fastener



A = 290
B = 540
C = 75
D = 60
E = 510
F = 400

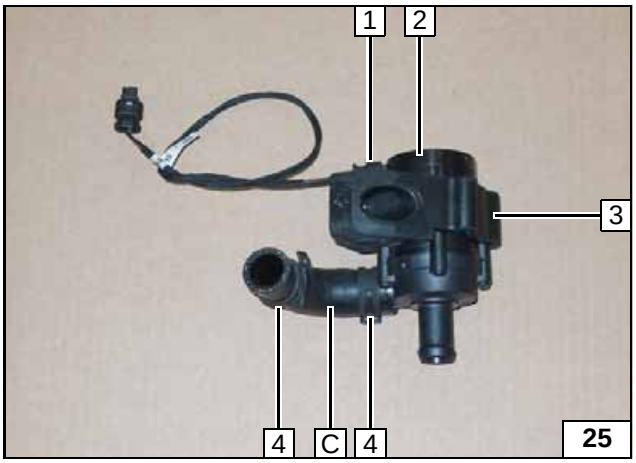
Cutting hoses to length



Push braided protection hoses onto hoses **A, B, E** and **F** and cut to length. Cut heat shrink plastic tubing to size.

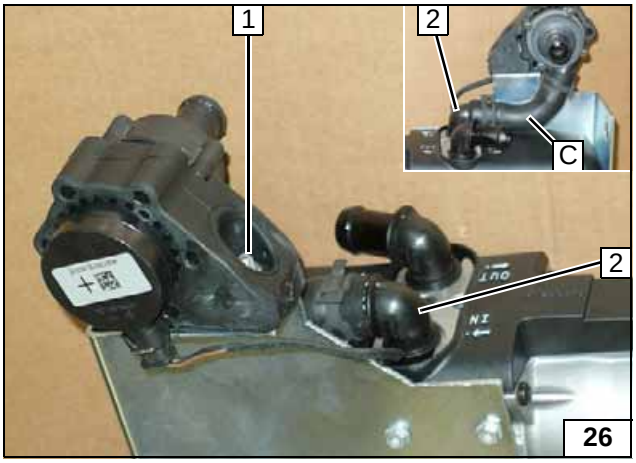
1 Heat shrink plastic tubing, 50 mm length [8x]

Preparing hoses



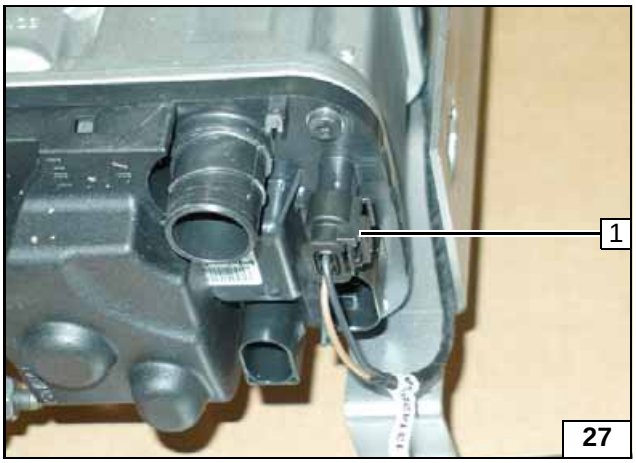
1 Connector of circulating pump wiring harness
2 Circulating pump
3 Circulating pump mounting
4 25mm dia. spring clip [2x]

Premounting circulating pump



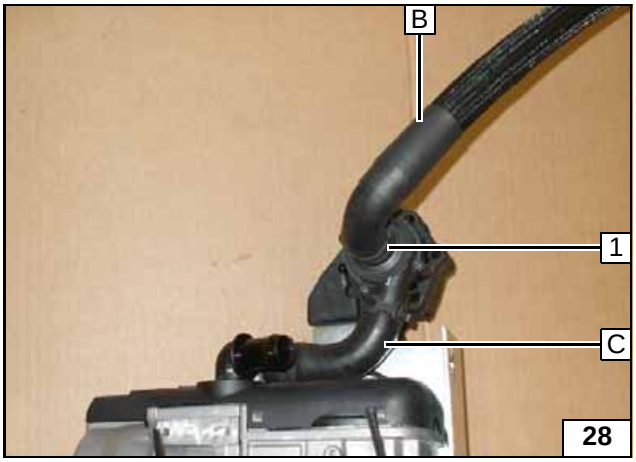
1 M6x25 bolt, flanged nut
2 Connection piece of heater inlet

Installing circulating pump



1 Connector of circulating pump wiring harness

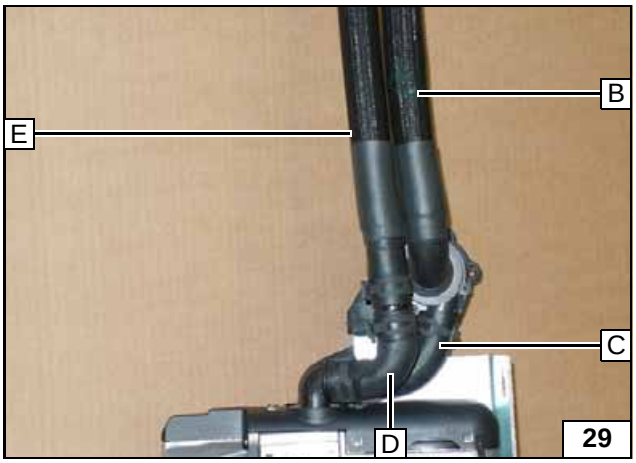
Mounting circulating pump wiring harness



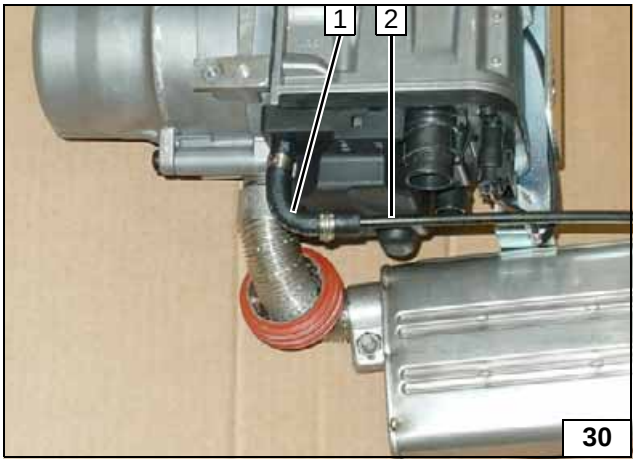
1 25mm dia. spring clip

Premounting hose B

All spring clips 25 mm dia.

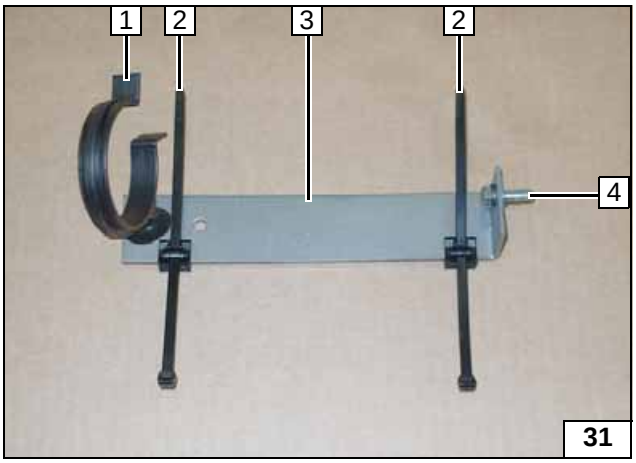


Premounting hoses D and E



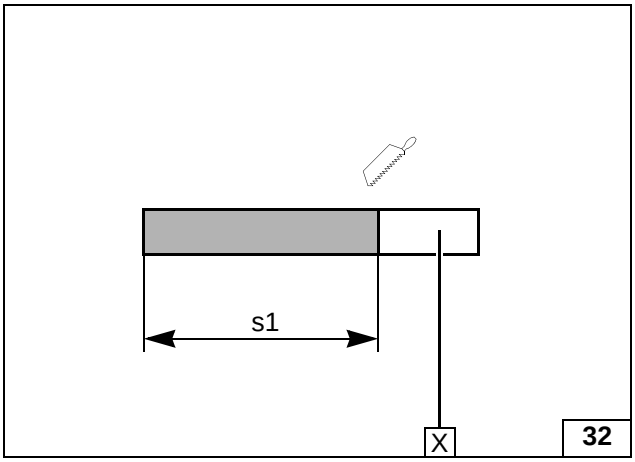
1 90° moulded hose, 10mm dia. clamp [2x]
2 Fuel line

Premounting fuel line



1 Retaining clip in hole
2 Edge clip cable tie [2x]
3 Bracket 2
4 Original vehicle bolt, spring lockwasher, pin lock

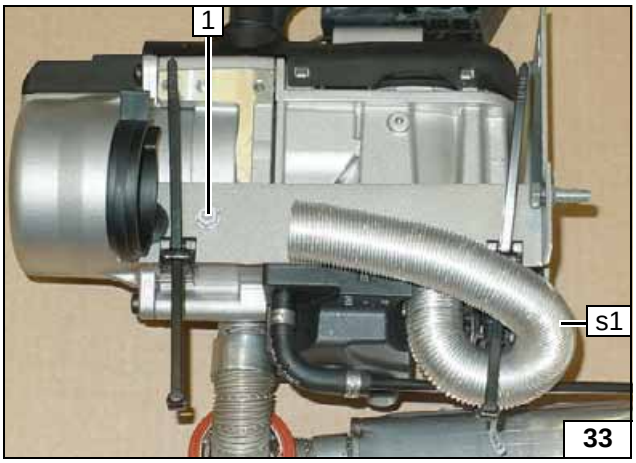
Premounting bracket 2



s1 = 230

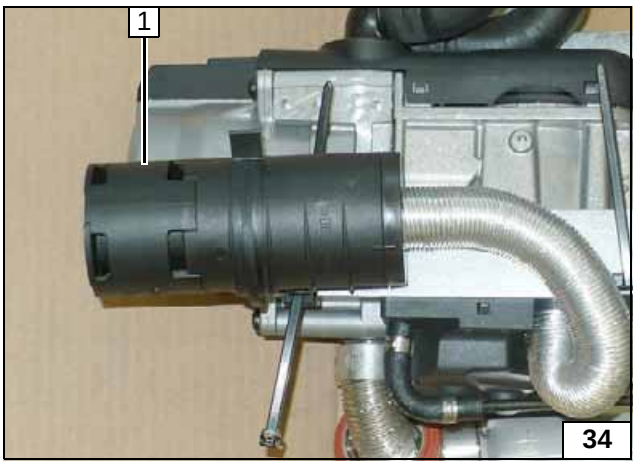
X = >5

Cutting combustion air pipe to length



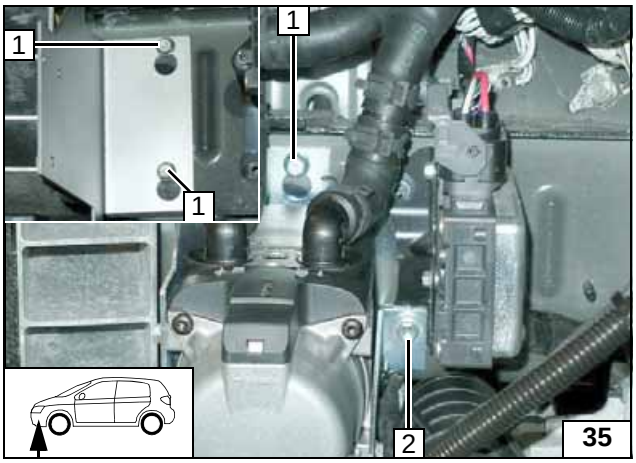
1 Tighten 5x13 self-tapping bolt hand-tight
2 Combustion air pipe

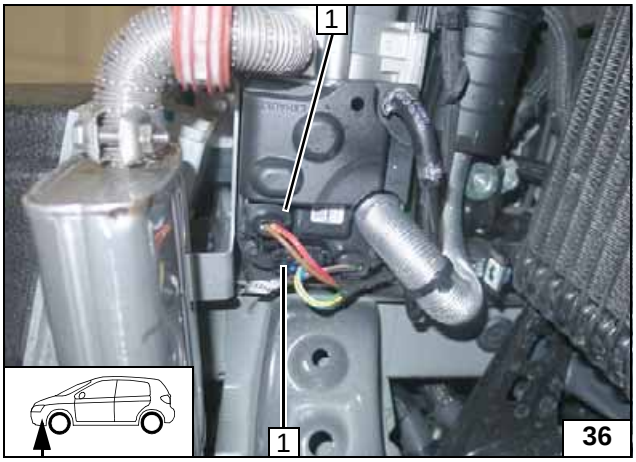
Installing bracket 2 and combustion air pipe s1



1 Combustion air silencer

Premounting combustion air silencer





Installing Heater

Suspend bracket 1 on M6x16 bolt with serrated flange **1** [2x].
Install bracket 2 using original vehicle bolt **2**.
Tighten all loose screw connections.

Mounting heater

1 Heater wiring harness connector [2x]

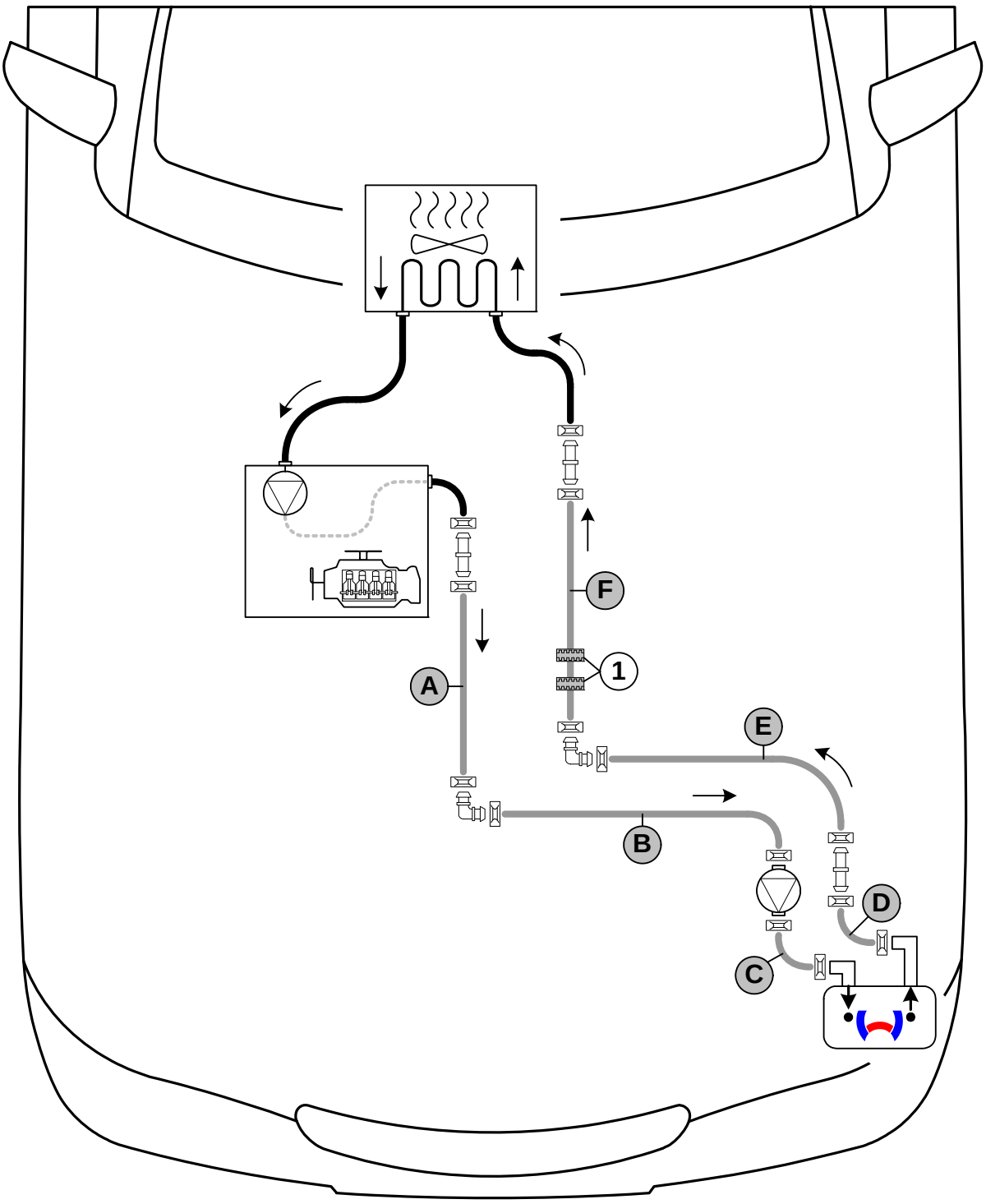
Installing heater wiring harness

Coolant Circuit

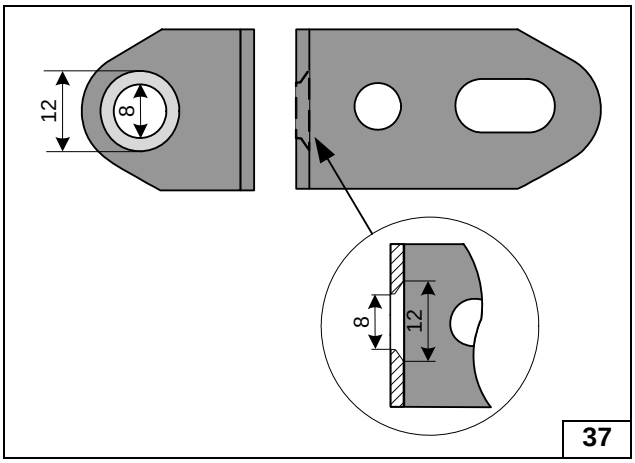
Any coolant running off should be collected in a suitable container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram

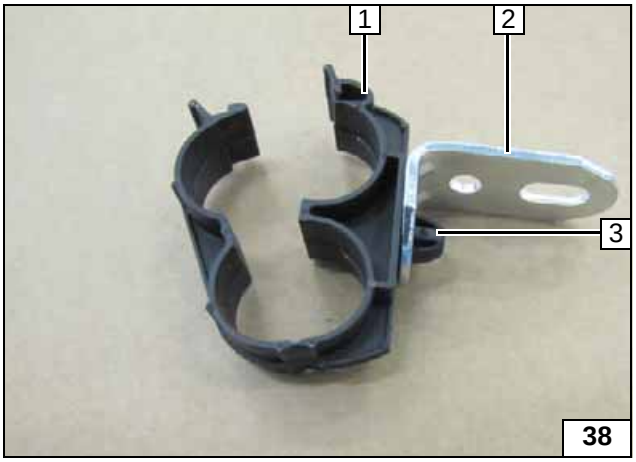


1 = Black (sw) rubber isolator .
All spring clips = 25 mm dia.
All connecting pipes without a specific designation and = 18x18mm dia.



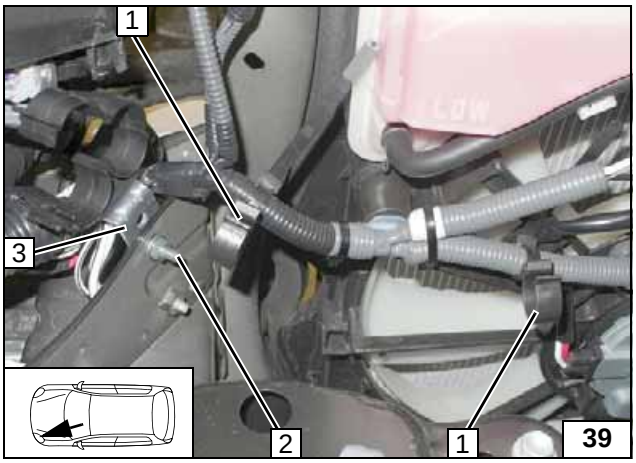
Drill out angle bracket to 8mm as shown, then countersink hole with 12mm dia. drill.

Countersinking angle bracket



1 Hose bracket, lockable
2 Angle bracket
3 Interlock locking tabs

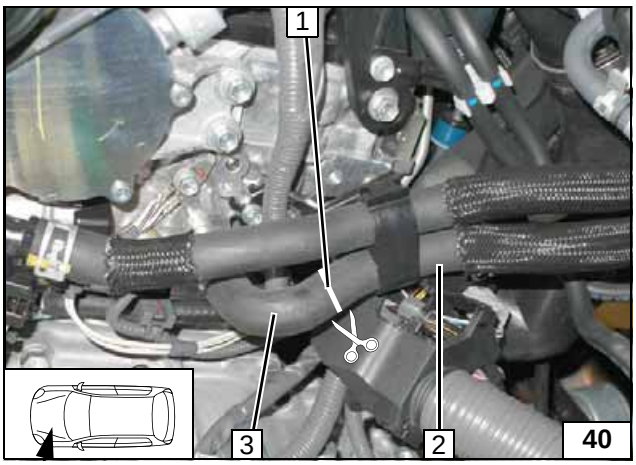
Premounting hose bracket



Remove original vehicle bracket at position **2** and attach wiring harness using cable tie.

1 Cable tie-hose bracket on original vehicle wiring harness [2x]
2 M6x20 bolt, large diameter washer, original vehicle hole, flanged nut
3 Premounted angle bracket

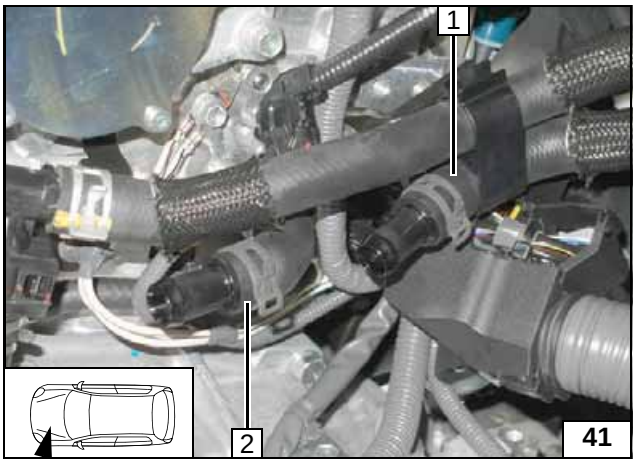
Installing hose bracket



1 Cutting point
2 Hose of heat exchanger inlet
3 Hose of engine outlet

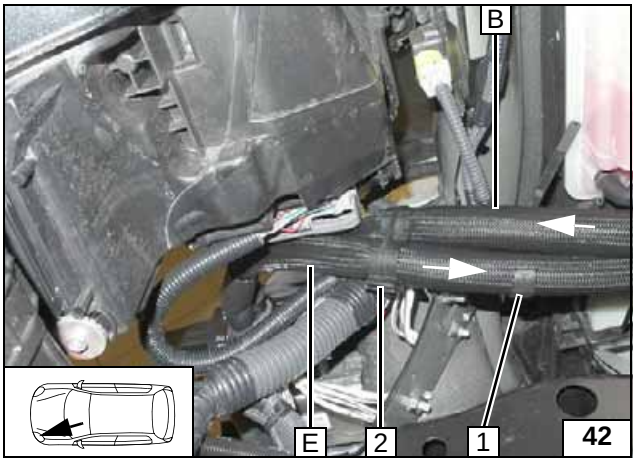
X = >5

Cutting point



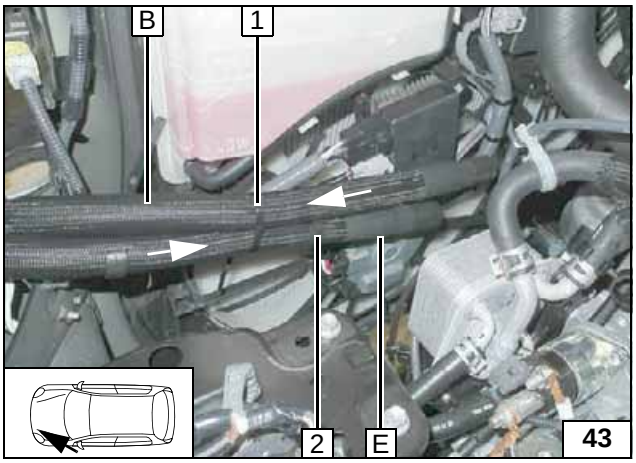
1 Hose section of heat exchanger inlet
2 Hose section of engine outlet, turned

Preparing hoses



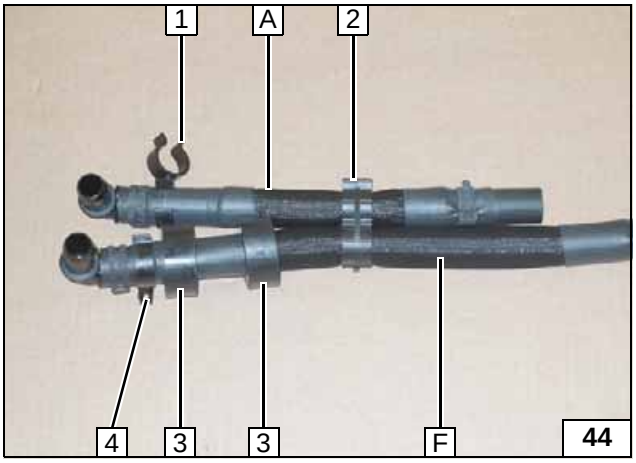
1 Cable tie-hose bracket
2 Lock hose bracket

Routing hose B and E



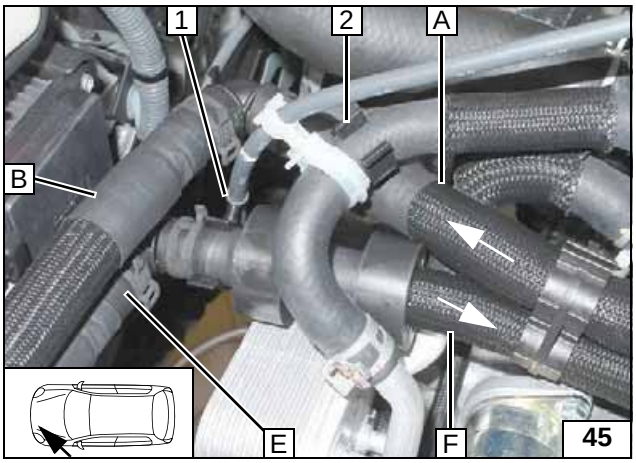
1 Cable tie
2 Cable tie-hose bracket

Routing hose B and E



1 25x25 hose bracket
2 Lock hose bracket
3 Black (sw) rubber isolator [2x]
4 10x24 hose bracket

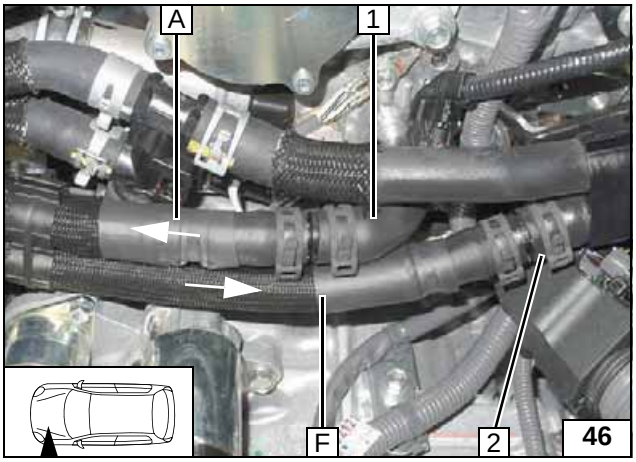
Premount-ing hoses A and F



Position black (sw) rubber isolator as shown.

1 24x10 hose bracket
2 25x25 hose bracket

Connecting hoses A and F



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

1 Engine outlet hose section
2 Hose section of heat exchanger inlet

Connecting engine outlet / heat exchanger inlet

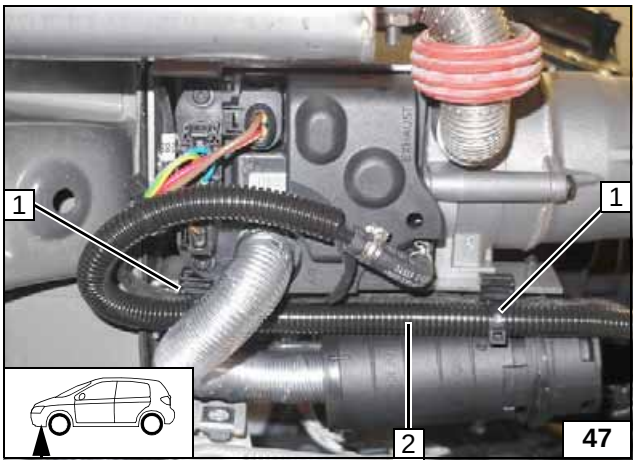
Fuel

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.

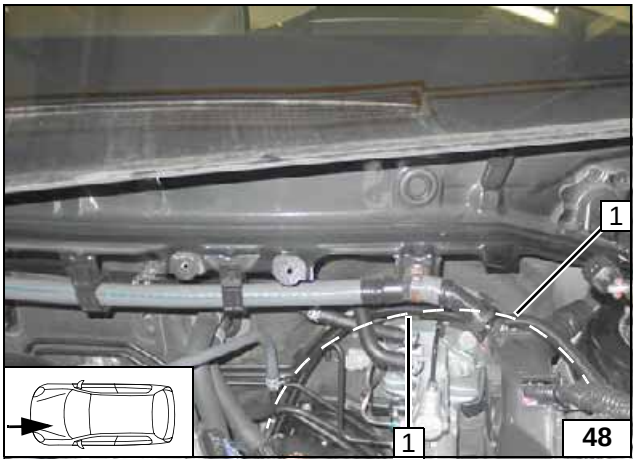
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



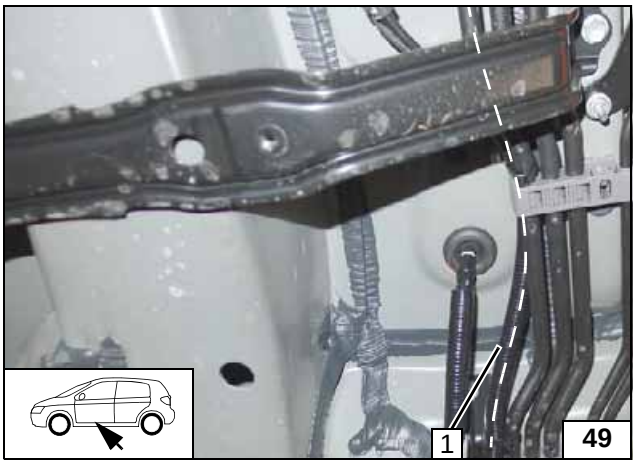
Route fuel line and metering pump wiring harness in 10mm dia. corrugated tube **2** in the engine compartment.
Secure corrugated tube and heater wiring harness with edge clip cable tie **1** [2x].

Routing lines



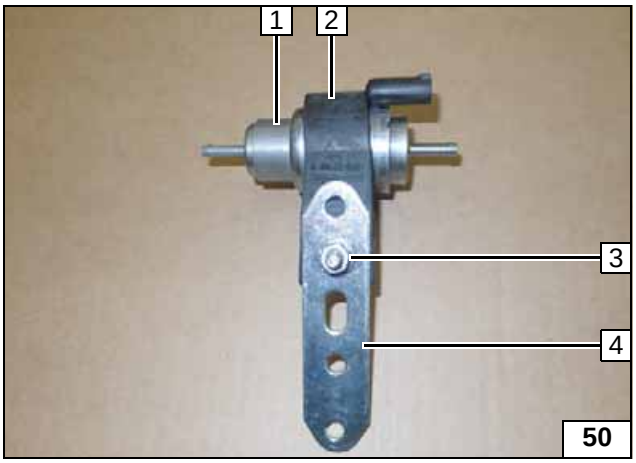
Route fuel line and metering pump wiring harness in 10mm dia. corrugated tube **1** to the underbody.

Routing lines



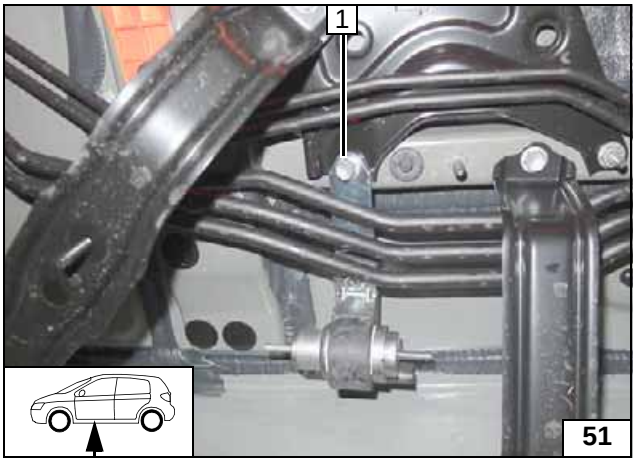
Route fuel line and metering pump wiring harness in 10mm dia. corrugated tube **1** to the metering pump installation location.

Routing lines



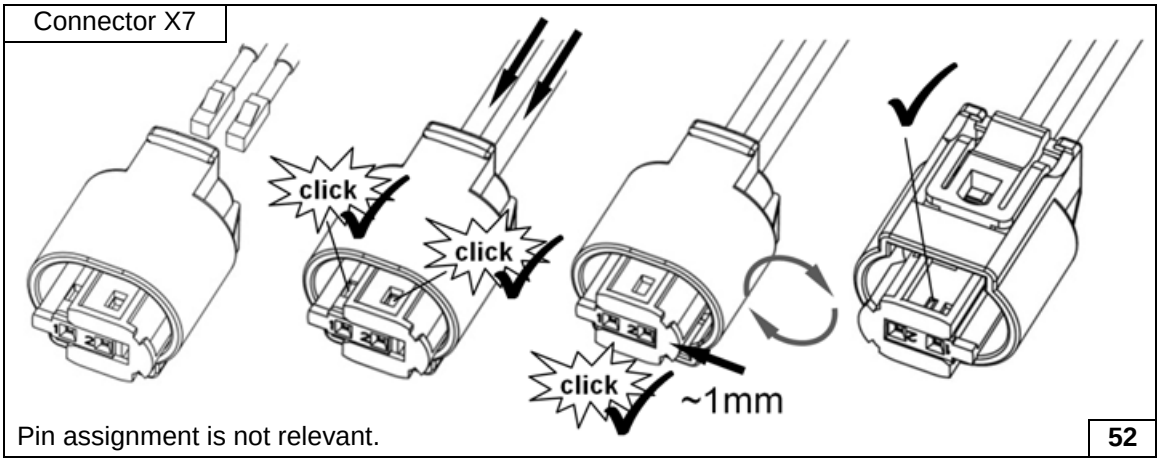
1 Metering pump
2 Mounting of metering pump
3 M6x25 bolt, support angle bracket, flanged nut
4 Perforated bracket

Premounting metering pump

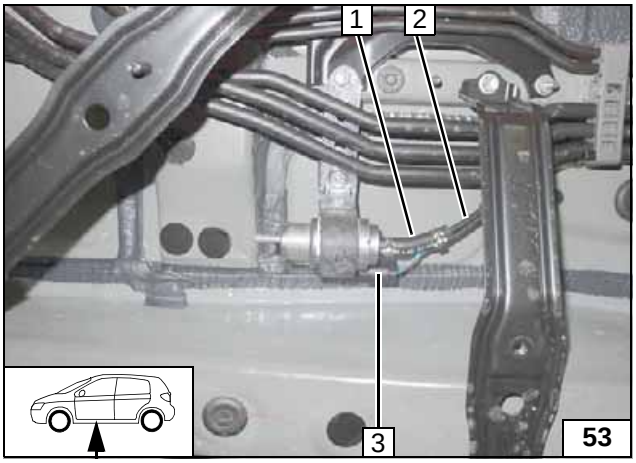


1 Original vehicle bolt

Installing metering pump



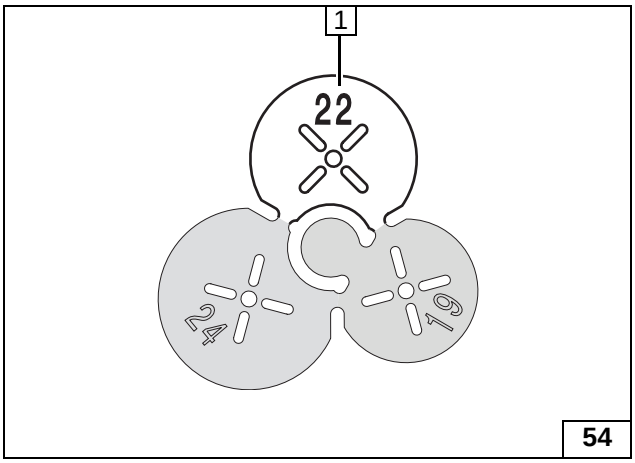
Completing metering pump connector



Ensure sufficient distance from neighbouring components; correct if necessary.

1 Hose section, 10mm dia. clamp [2x]
2 Fuel line
3 Connector of metering pump wiring harness

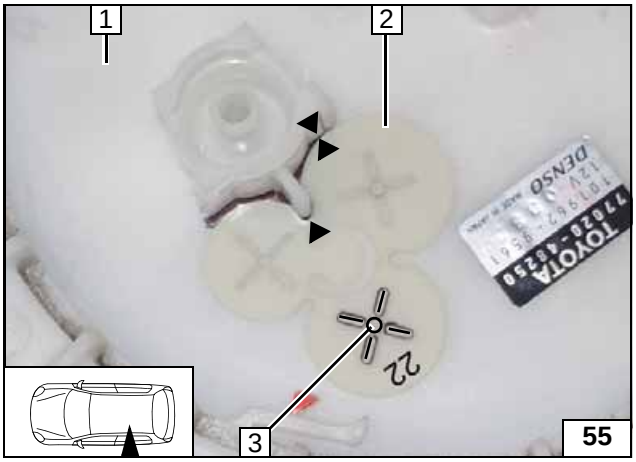
Connecting metering pump



Install FuelFix

1 22mm dia. drilling template

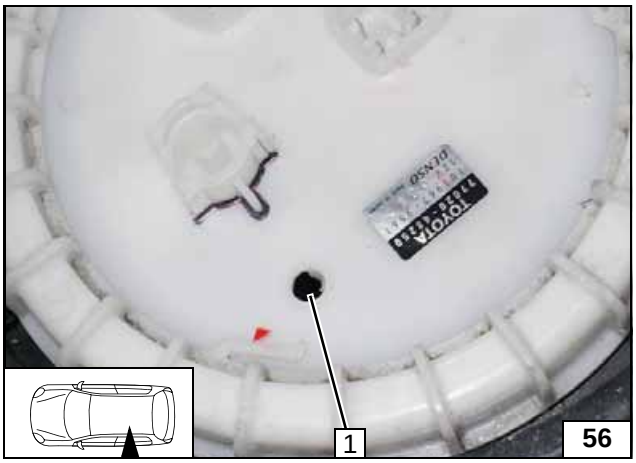
View of drilling template



Work steps F1 and F2.

1 Fuel tank sending unit
2 Position drilling template
3 Copy hole pattern

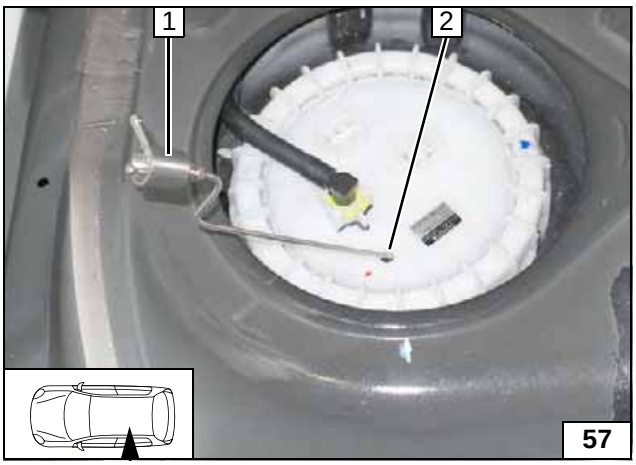
Copying hole pattern



Work step F3.

1 Hole made with provided drill

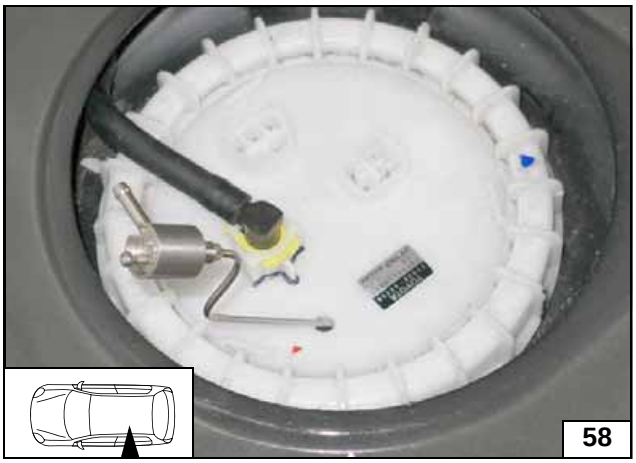
Hole for FuelFix



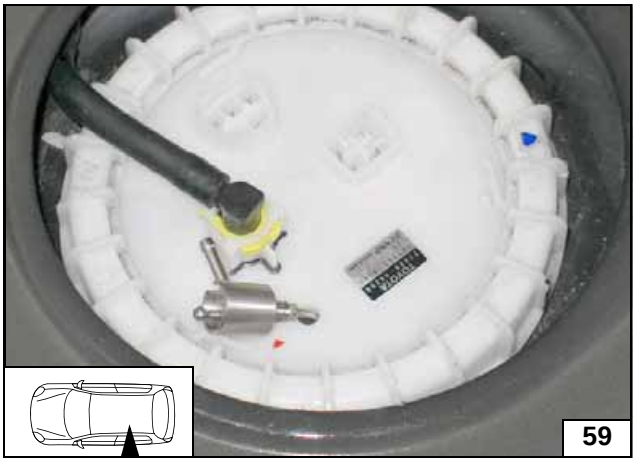
Work steps F4 and F5.

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

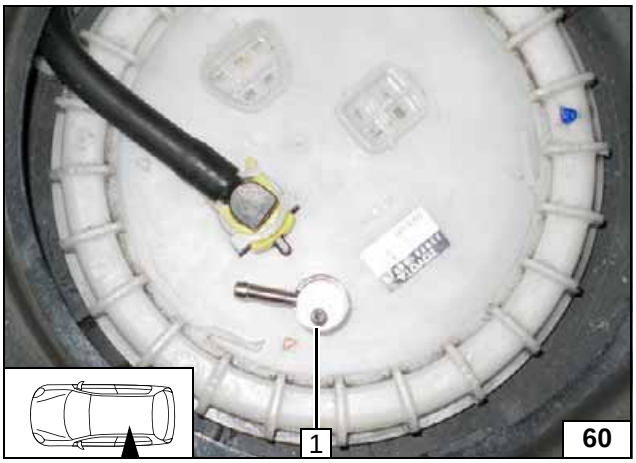
Inserting FuelFix



Inserting FuelFix



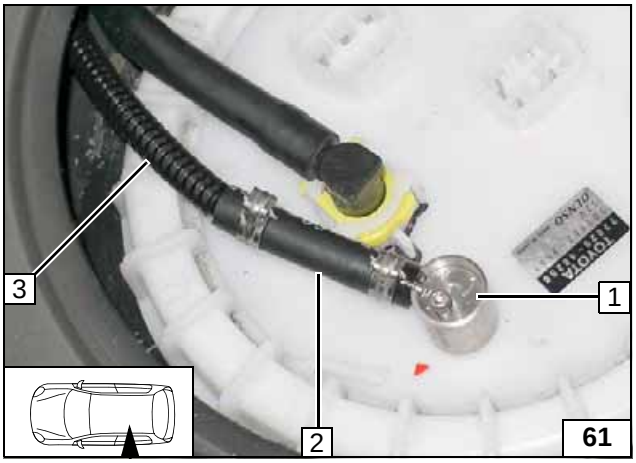
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

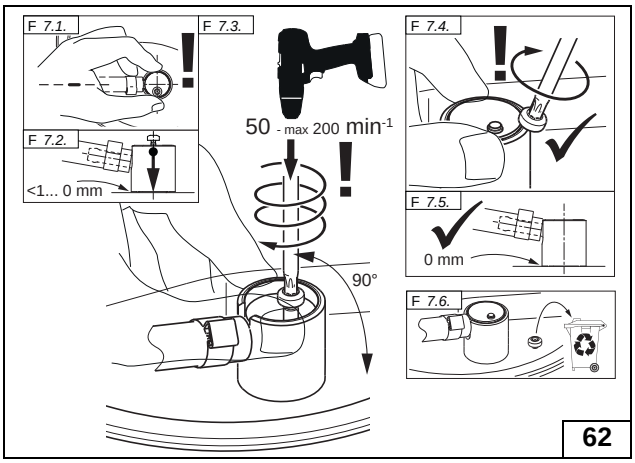
Aligning FuelFix



Work step F6.

1 FuelFix
2 Hose section, 10mm dia. clamp [2x]
3 Fuel line in 6mm dia. corrugated tube

Connecting fuel line



62

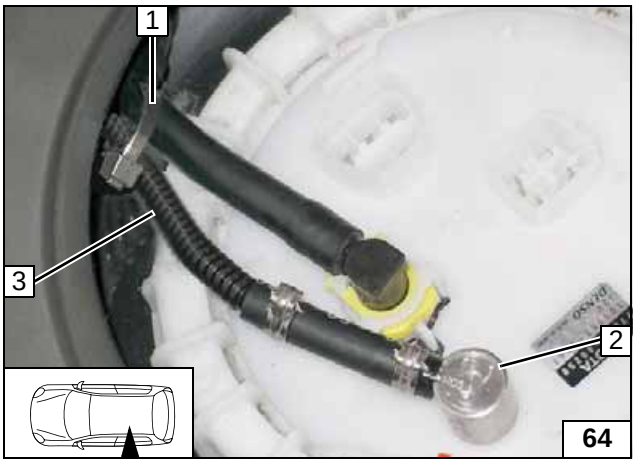
Work step F7.

Mounting FuelFix

63

Work step F8.

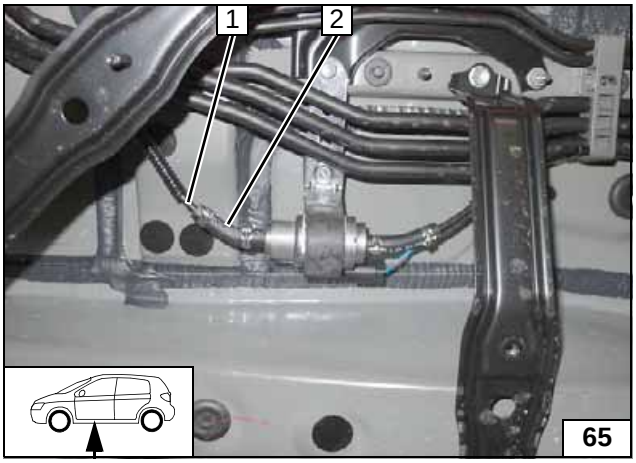
Ensuring firm seating of FuelFix



64

1 Cable tie used as tension relief
2 FuelFix
3 Fuel line in corrugated tube

Securing fuel line

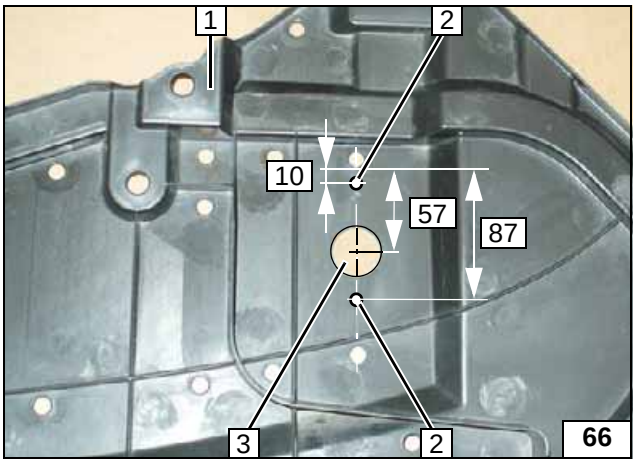


65

Ensure sufficient distance from neighbouring components; correct if necessary.

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

Connecting metering pump



Exhaust End Fastener Installation

Work steps E1 and E4.

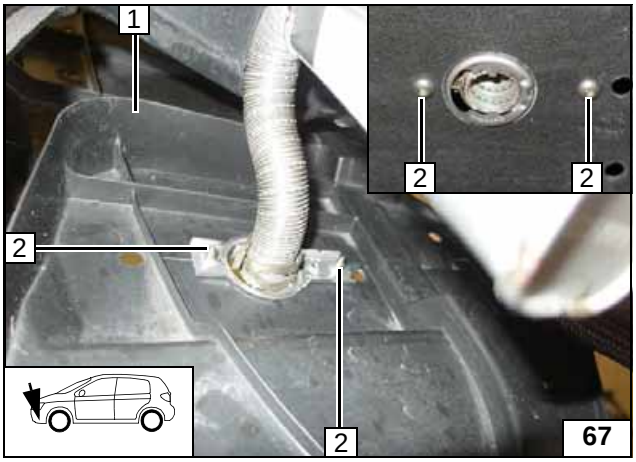
1 Underride protection
2 Hole [2x]
3 Hole

Holes in underride protection

Mount underride protection **1**.

Work step E5.

2 Self-tapping screw 5x13 [2x]

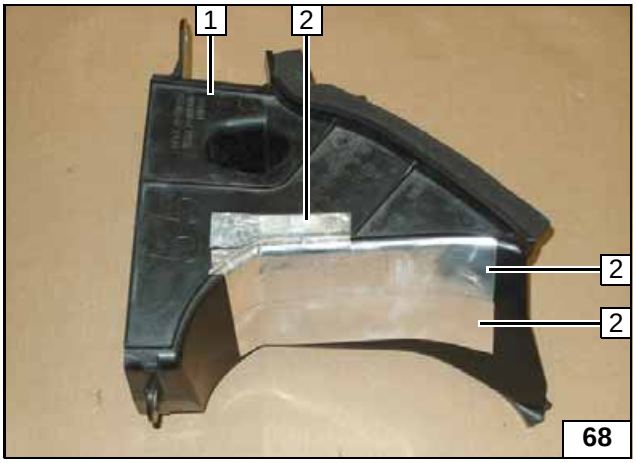


Installing exhaust end fastener

Final Work

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

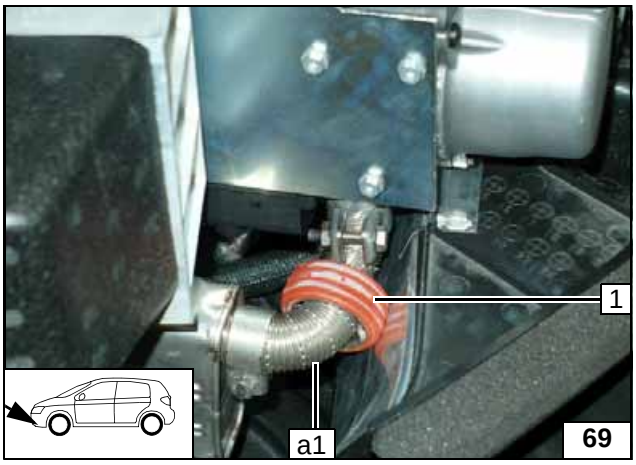
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Teach Telestart transmitter**
- **For initial startup and function test, see installation instructions**
- **If the fan function or A/C control panel settings need to be checked, see the installation documentation in the additional kit 'Webasto Standard' automatic A/C control for Toyota / Lexus.**
- **Place the "Switch off parking heater before refuelling" caution label near the filler neck**



Stick on heat protection film **2** as shown.

1 Ventilation channel

Sticking on heat protection film

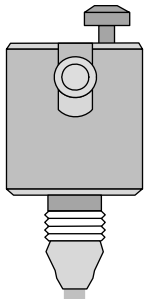


Position spacer bracket **1**.

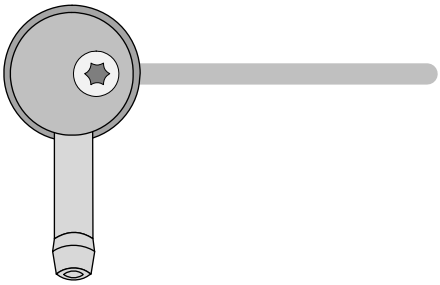
Installing ventilation channel

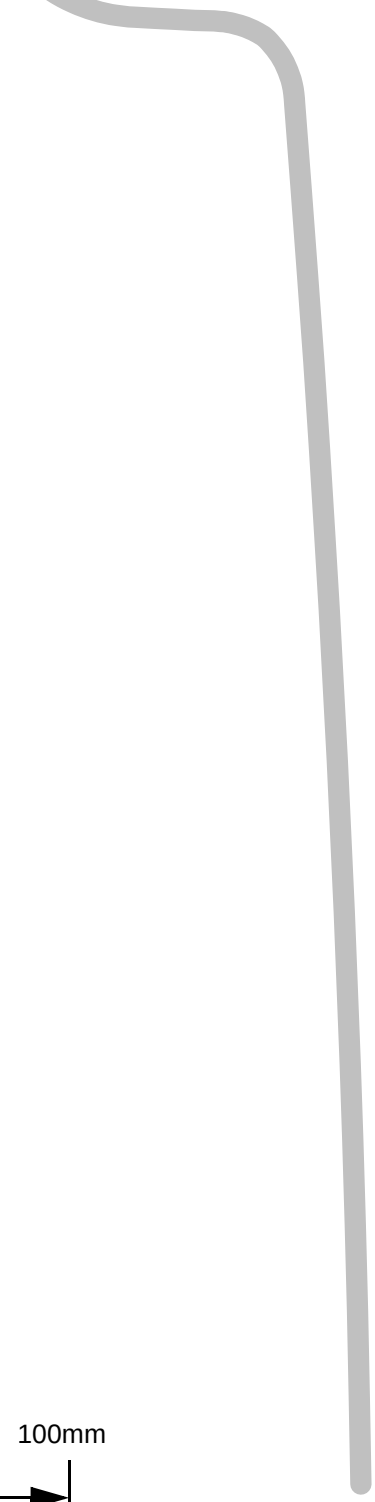
Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

FuelFix Template



Top view





100mm

Scale 1:1

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

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

100mm

0