Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Nissan X-Trail

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Nissan	X-Trail	T32	e13 * 2007 / 46 * 1456 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6 D	Diesel	6-speed SG	96	1598	R9M
1.6 D	Diesel	Xtronic	96	1598	R9M

SG = Manual transmission
Xtronic = continuously variable automatic transmission

From Model Year 2014
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
2 zone automatic air-conditioning
2WD / 4WD
Intelligent key (start button)
LED daytime running lights
Full LED headlight
Start / Stop
Euro 5b+

Not verified: Passenger compartment monitoring

Total installation time: approx. 6.5 hours without A/C control
approx. 7.5 hours with A/C control ‘Standard’ or ‘Comfort’

Nissan X-Trail

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Nissan X-Trail 2014 Diesel: **1324084A**
- Additional kit Nissan A/C control ‘Standard’ for manual and automatic air-conditioning: **1324070**_ or additional kit Nissan / Renault A/C control ‘Comfort’ for automatic air-conditioning: **1324068**_
- 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 upon consultation with end customer

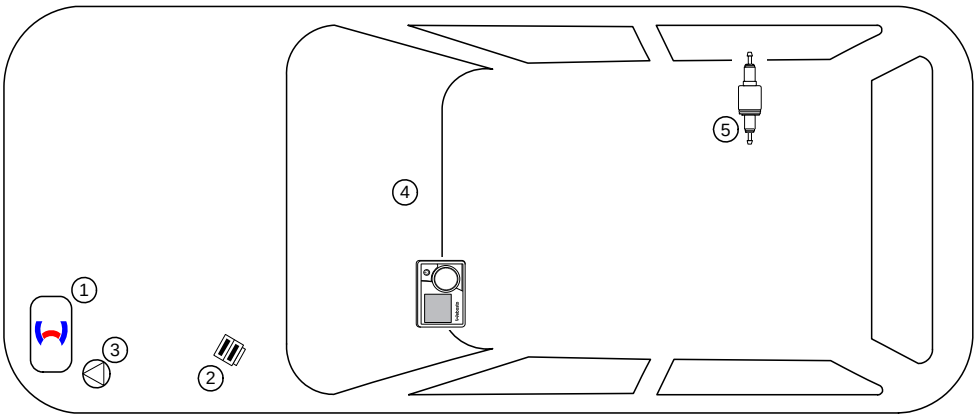
Installation instructions:

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

Installation Overview

Legend:

1. Heater
2. Fuse holder of engine compartment
3. Circulating pump
4. MultiControl CAR
5. Metering pump



Notes 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 must audibly snap into place during assembly.

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

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

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

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Notes on Validity

This installation documentation applies to Nissan X-Trail 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
- Deep-hole marker
- Webasto Thermo Test diagnosis with current software

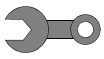
Dimensions
- All dimensions are in mm

Tightening torque values
- Tightening torque values for 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque of 5x15 retaining plate of water connection piece bolt = 7Nm.

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

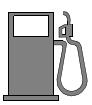


Electrical system

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

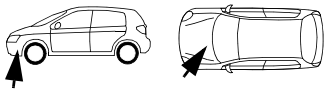
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion

Reference to manufacturer's vehicle-specific documents or to the 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

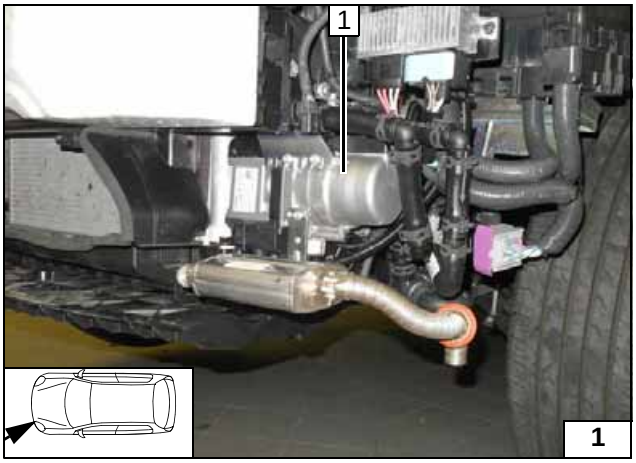
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and completely remove the battery together with the carrier (only in case of ‘Comfort’ additional kit, in case of ‘Standard’ additional kit the battery information can be found in the provided installation documentation).
- Remove the air filter.
- Remove the left-hand wheel well trim and detach the right-hand wheel well trim.
- Remove the bumper.

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

- Remove the rear bench seat on the right (see dismantling instructions).
- Open the tank-fitting service lid.
- Remove the fuel tank sending unit in accordance with the manufacturer's instructions.

Heater

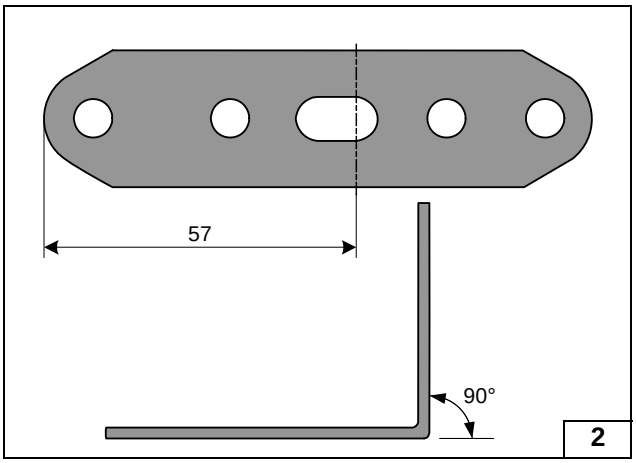
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) in the appropriate place inside the engine compartment.



Heater Installation Location

1 Heater

Installation location



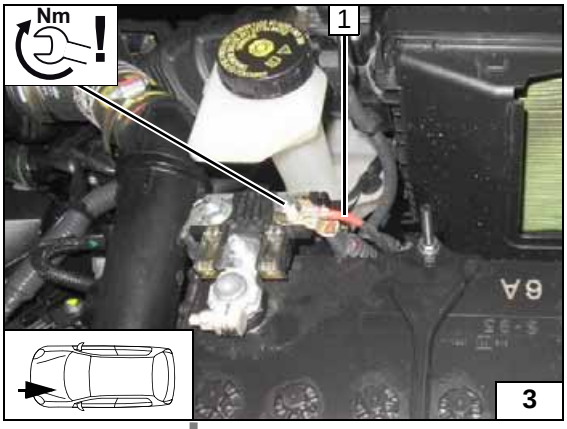
Preparing Electrical System

Preparing perforated bracket for engine compartment fuse holder

Electrical System

Positive wire

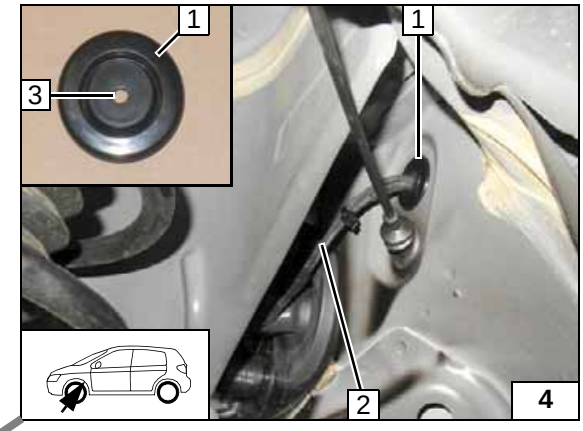
1 Positive wire on positive battery terminal



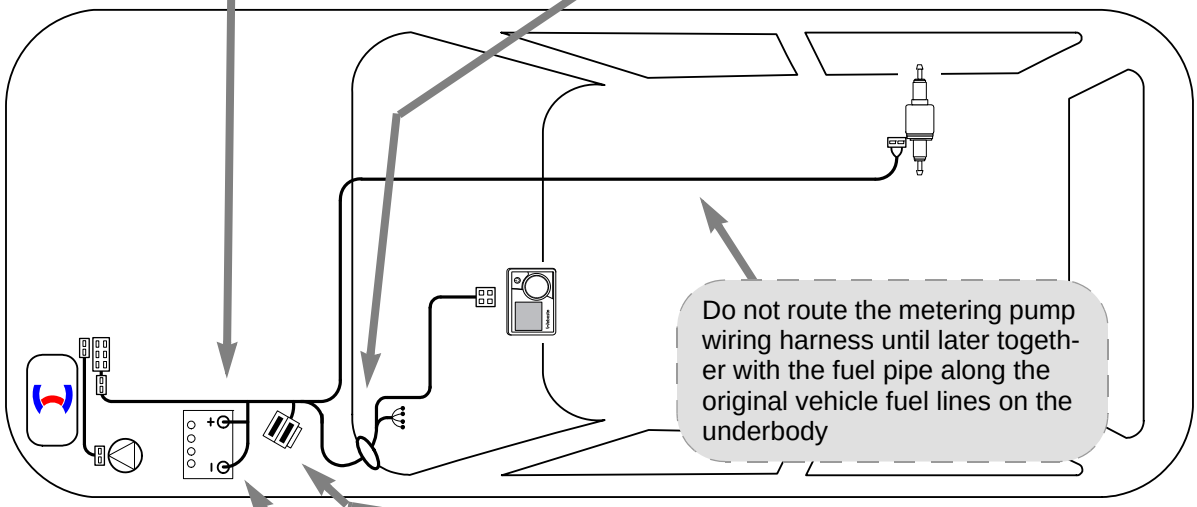
Wiring harness pass through

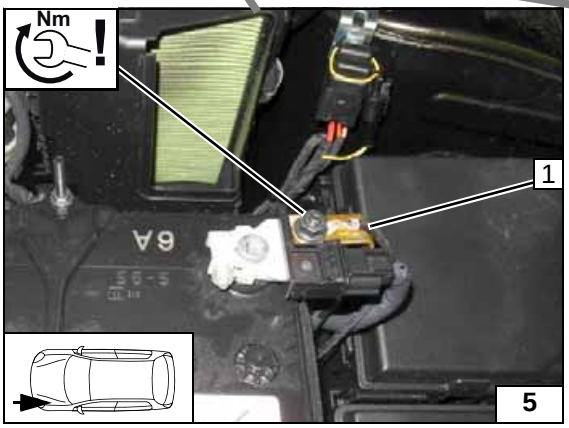
Take out protective rubber plug **1**, punch 5mm dia. hole **3** in the middle and install again.

2 Wiring harnesses of heater, heater control



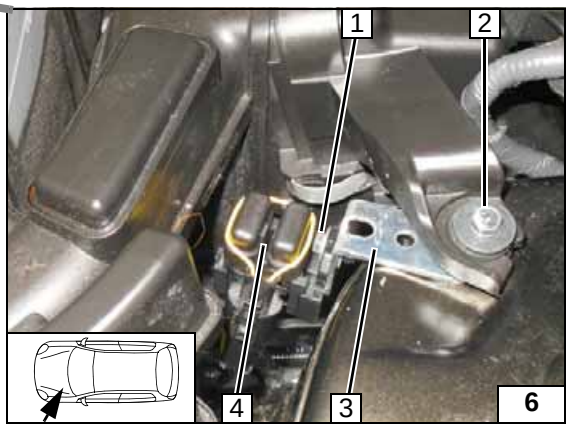
Wiring harness routing diagram





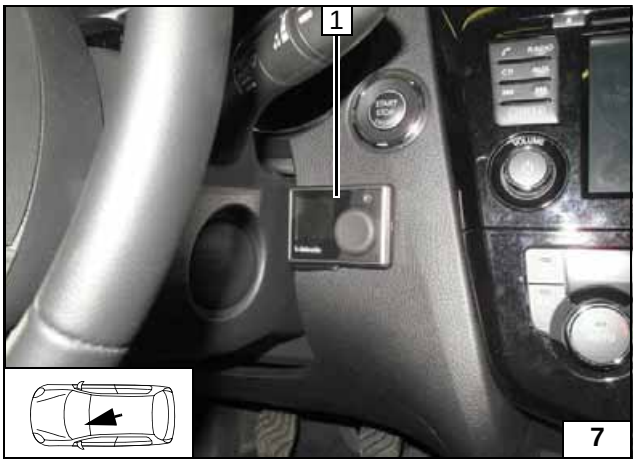
Earth wire

1 Earth wire on negative battery terminal



Fuse holder of engine compartment

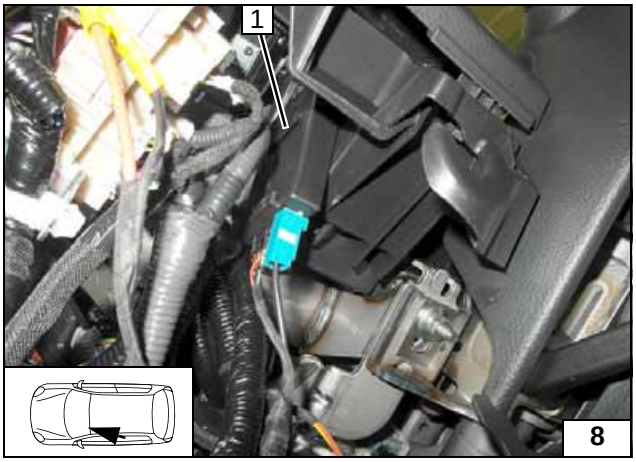
1 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut
2 Original vehicle bolt
3 Prepared perforated bracket
4 F1-2 fuses



MultiControl CAR Option

1 MultiControl CAR

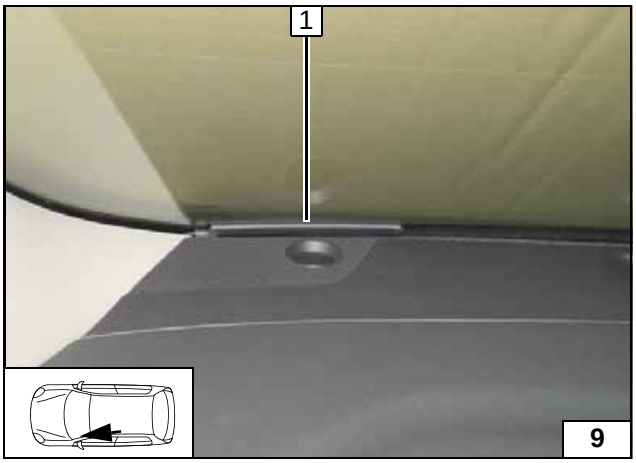
Installing MultiControl CAR



Remote Option (Telestart)

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

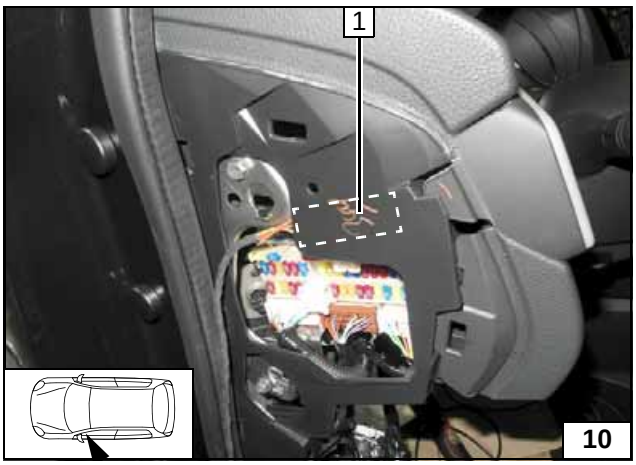
Installing receiver



For windscreens with a special coating or heater, use only the area recommended by the manufacturer to assemble aerial.

1 Aerial

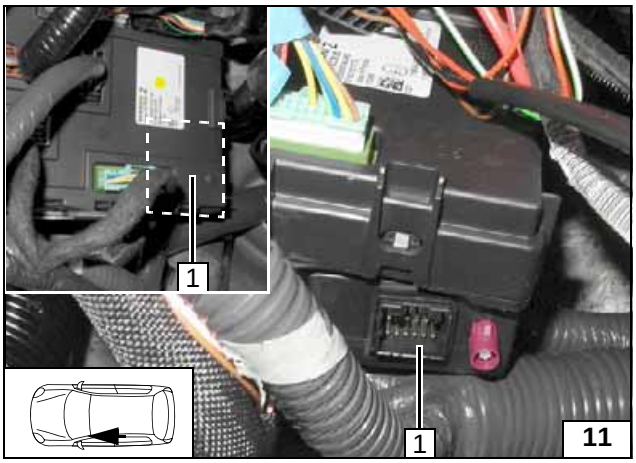
Mounting aerial



Temperature sensor T100 HTM

Secure temperature sensor **1** behind trim at the marking using adhesive tape.

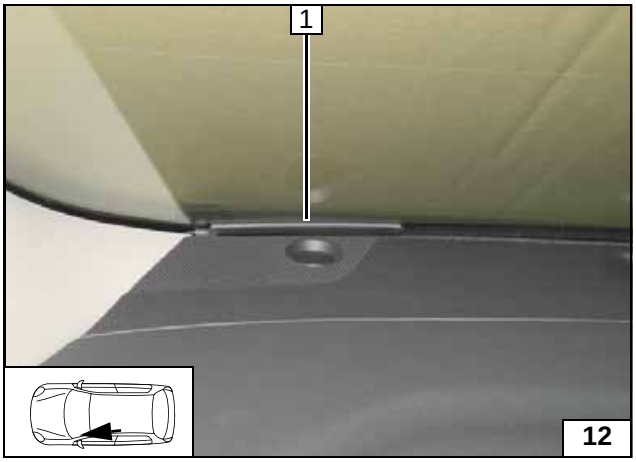
Mounting temperature sensor



Remote Option Thermo Call

Secure receiver **1** behind the control unit at the marking using adhesive tape.

Installing receiver



For windscreens with a special coating or heater, use only the area recommended by the manufacturer to assemble aerial.

1 Aerial

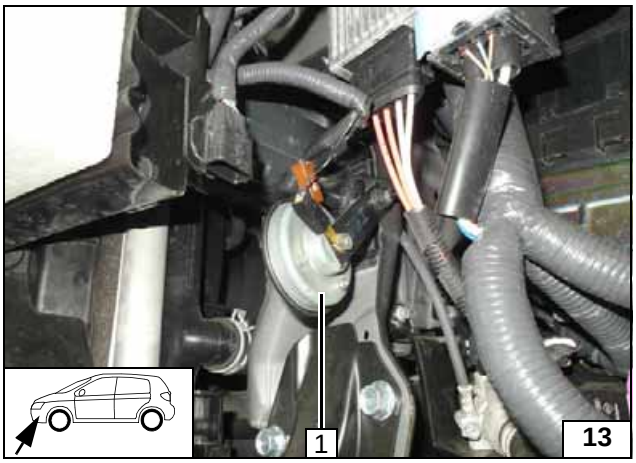
Mounting aerial

Preparing Installation Location

All vehicles except for Xtronic

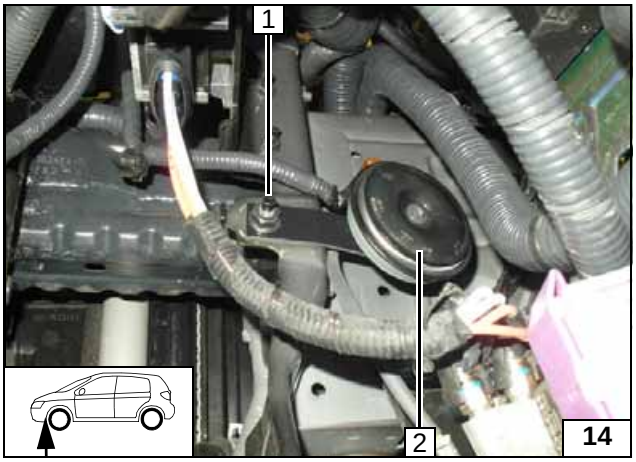
1 Remove horn with bracket

Removing horn



1 Original vehicle bolt, original vehicle flanged nut
2 Horn with bracket

Installing horn

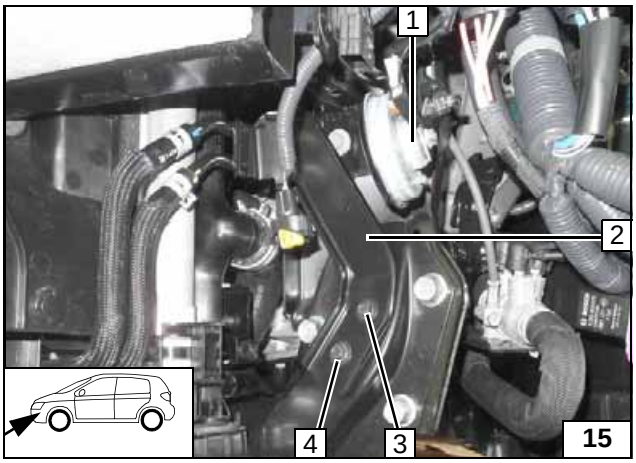


Only in case of Xtronic

Detach the original vehicle bracket for the oil cooler lines **2**!

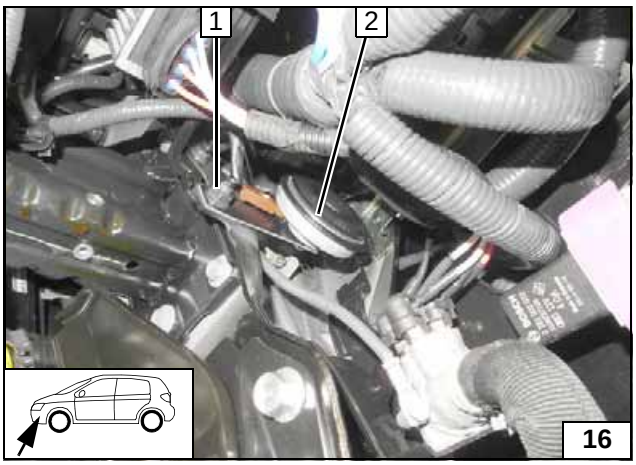
1 Remove horn with bracket
3 Remove original vehicle bolt, will be re-used
4 Remove and discard original vehicle bolt

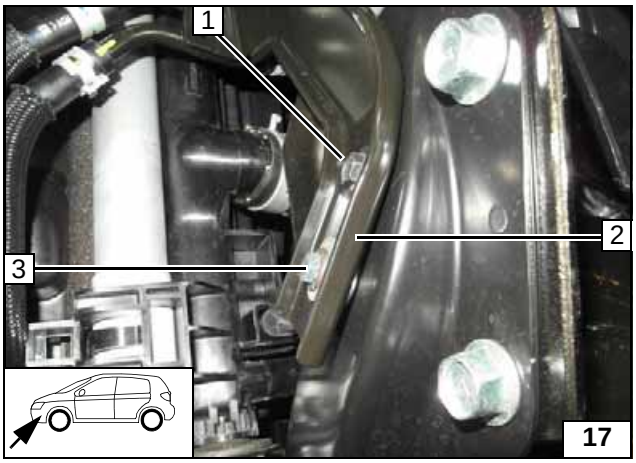
Removing horn and original vehicle bracket



1 Original vehicle bolt, original vehicle flanged nut
2 Horn with bracket

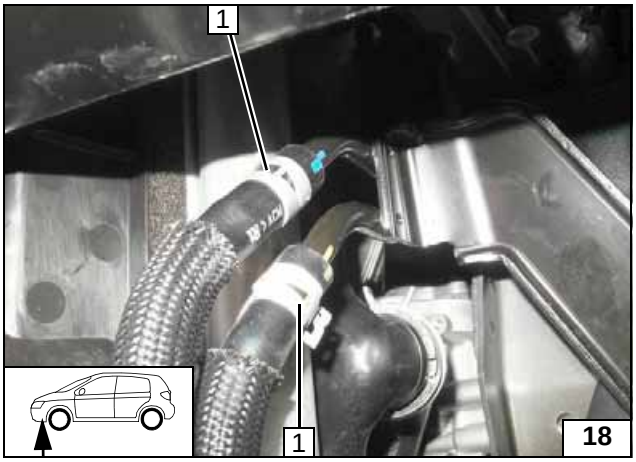
Installing horn





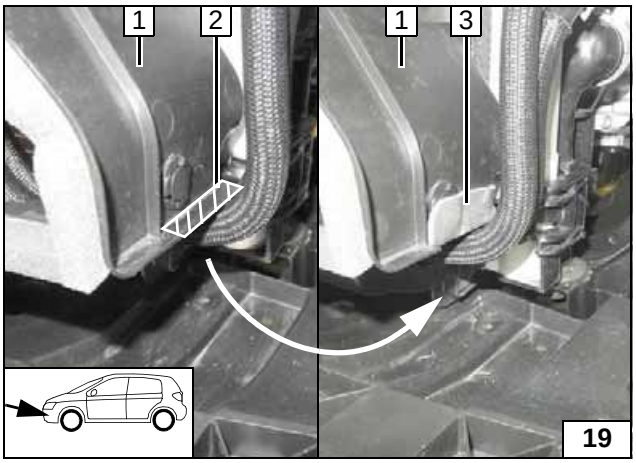
1 Original vehicle bolt
2 Original vehicle bracket for oil cooler lines
3 M6x30 bolt, spring lockwasher, large diameter washer, original vehicle bracket, 5mm shim

Installing original vehicle bracket



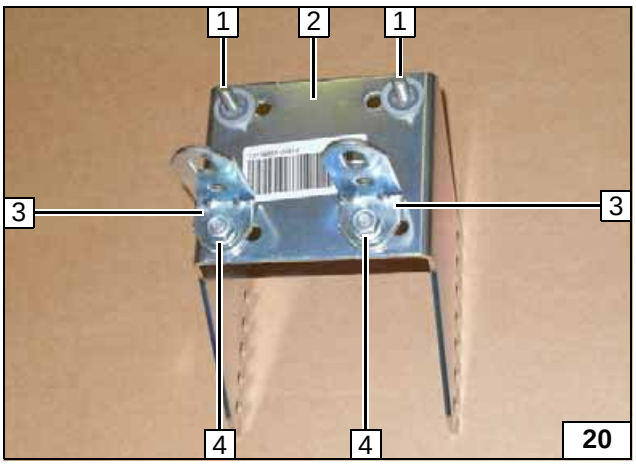
Align original vehicle clamps **1** [2x] of oil cooler lines as shown!

Aligning clips



Remove marked section **2** of air ducting **1** and stick on foam **3**!

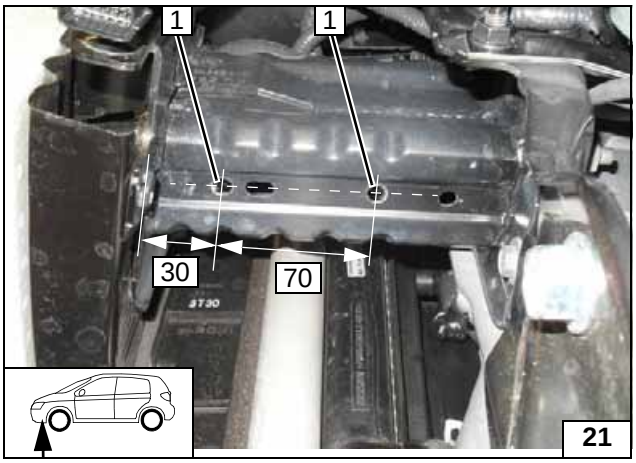
Installing rub protection



All vehicles

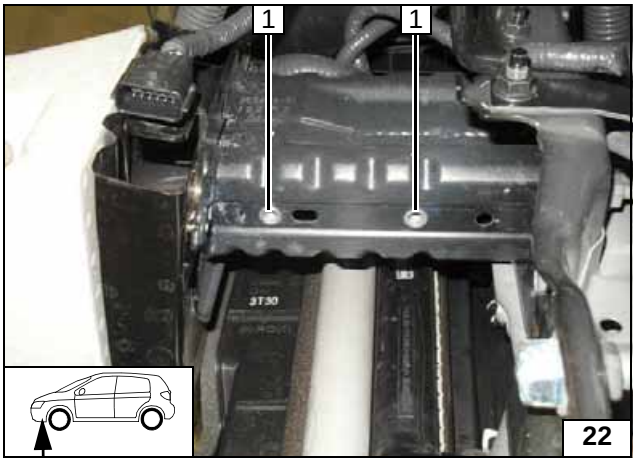
1 M6x20 bolt, spring lockwasher, large diameter washer with outer dia. d_a = 17.6mm; pin lock [2x each]
2 Bracket
3 Angle bracket [2x]
4 M6x12 bolt, flanged nut [2x each]

Preparing bracket



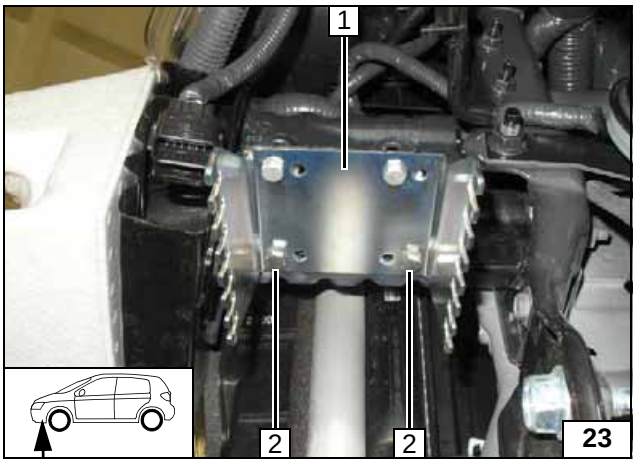
1 9.1mm dia. hole [2x]

Holes in frame side member



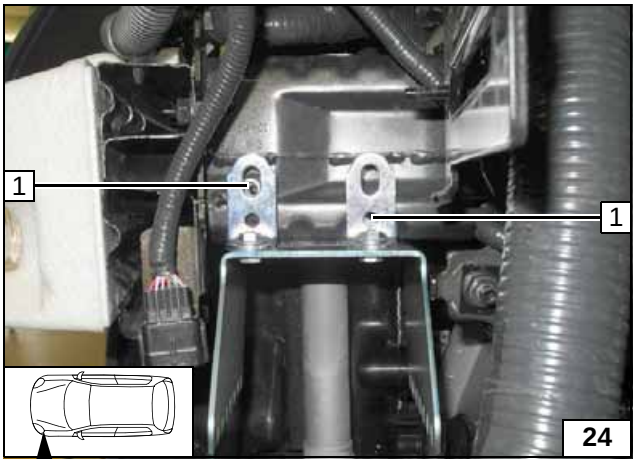
1 Rivet nut [2x]

Installing rivet nut



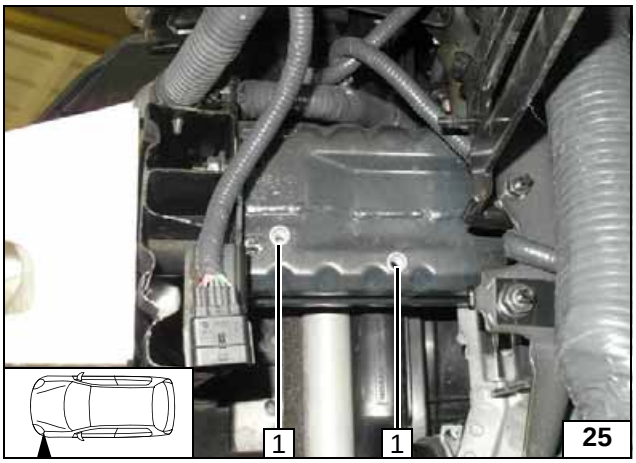
1 Bracket
2 Premounted M6x20 bolts

Mounting bracket loosely



1 Copy hole pattern [2x]

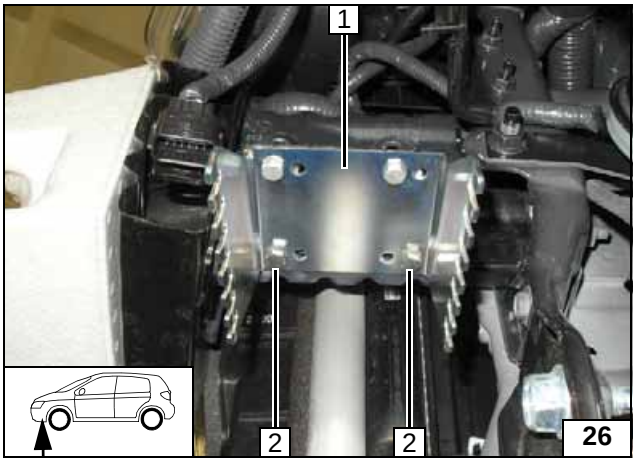
Copying hole pattern



Remove bracket!

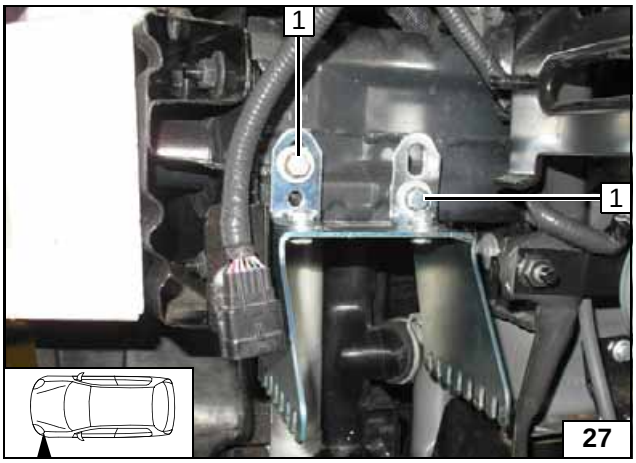
1 9.1mm dia. hole; rivet nut [2x each]

Installing rivet nut



1 Bracket
2 Tighten premounted M6x20 bolts

Installing bracket

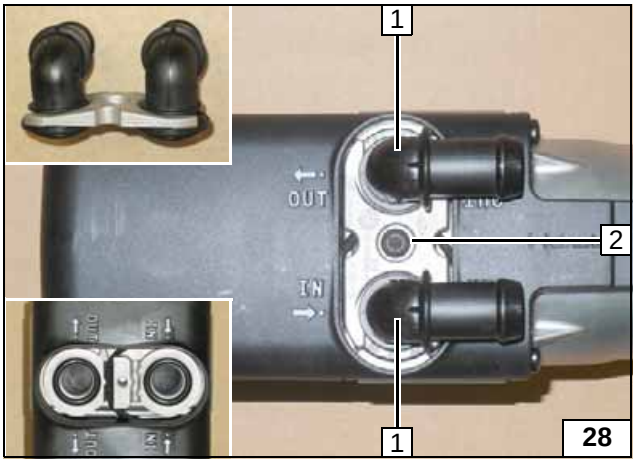


Add for each position a 8mm shim between the angle bracket and the frame side member!

1 M6x30 bolt, spring lockwasher, large diameter washer with outer dia. d_a = 17.6mm; 8mm shim [2x each]

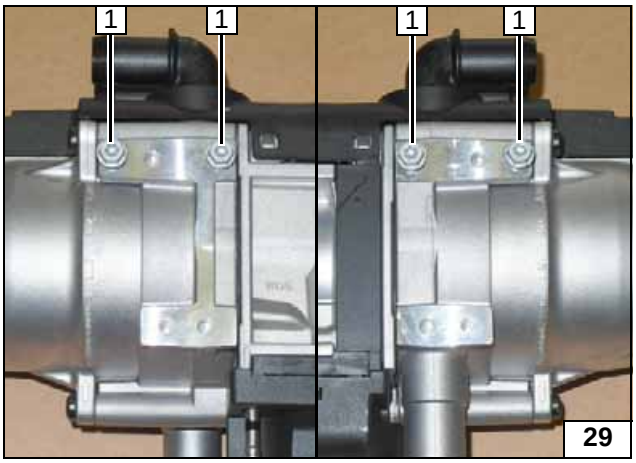
Installing bracket

Preparing Heater



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

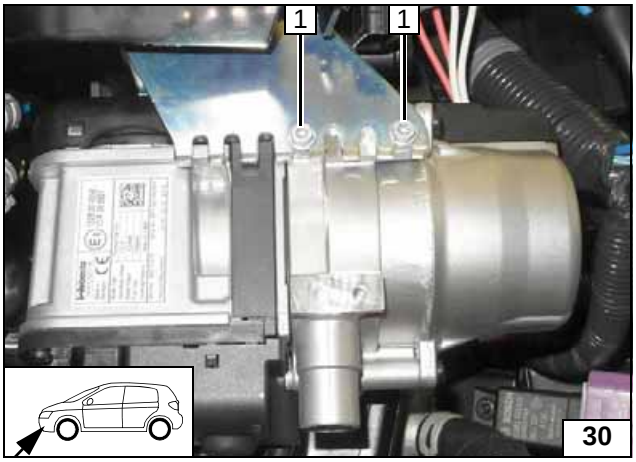
Installing water connection piece



Screw 5x13 self-tapping bolts **1** [4x] into existing holes by a maximum of 3 thread turns.

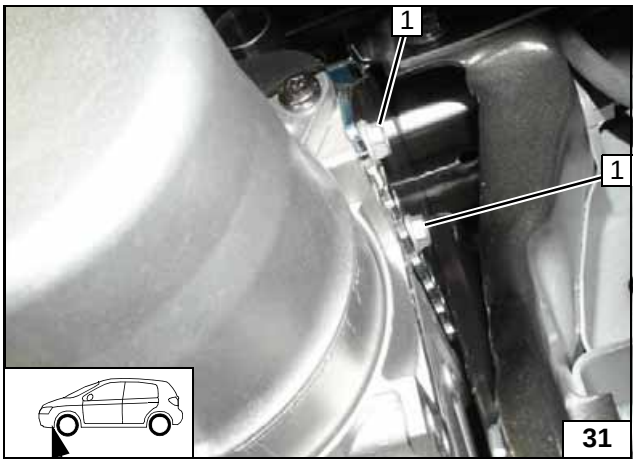
Loosely premounting bolts

Installing Heater



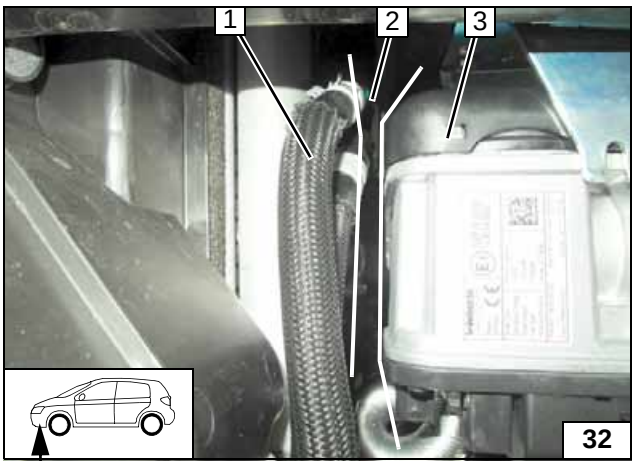
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



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

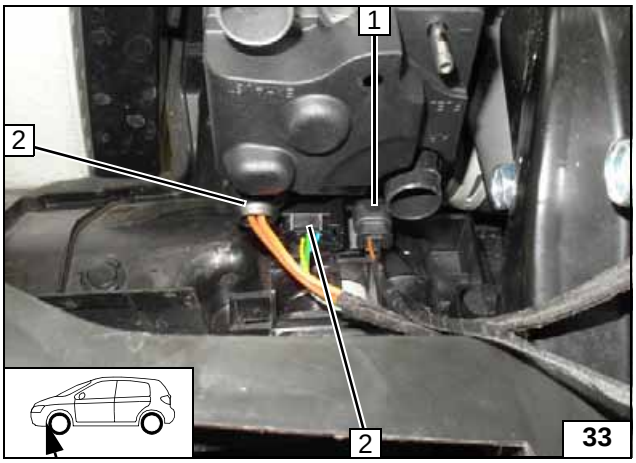
Installing heater



Ensure sufficient distance (at least 5mm) from neighbouring components in position **2**, correct if necessary!

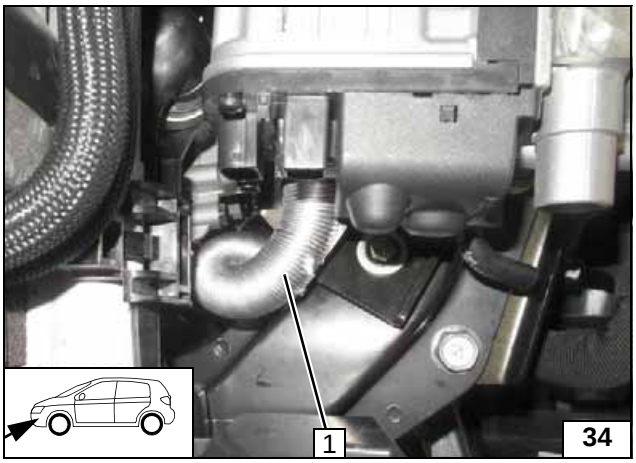
1 Oil cooler lines (if present)
3 Heater

Checking / correcting distance



1 Connector of circulating pump wiring harness
2 Connector for wiring harness of heater [2x]

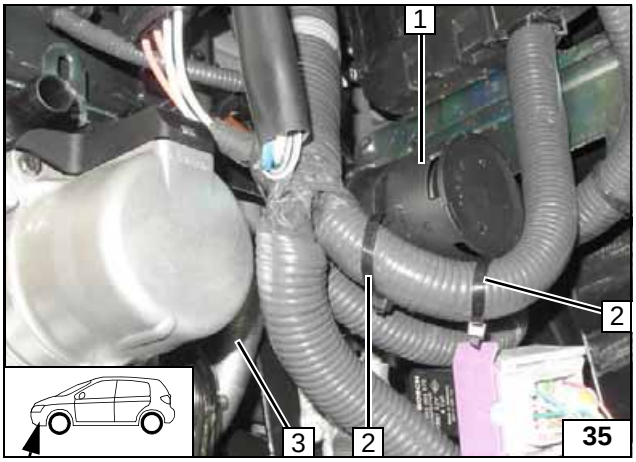
Installing heater wiring harness



Combustion Air

Route combustion air pipe **1** to the installation location of the silencer (see next figure)!

Installing combustion air pipe



1 Silencer
2 Cable tie [2x]
3 Combustion air pipe

Mounting silencer

Fuel

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

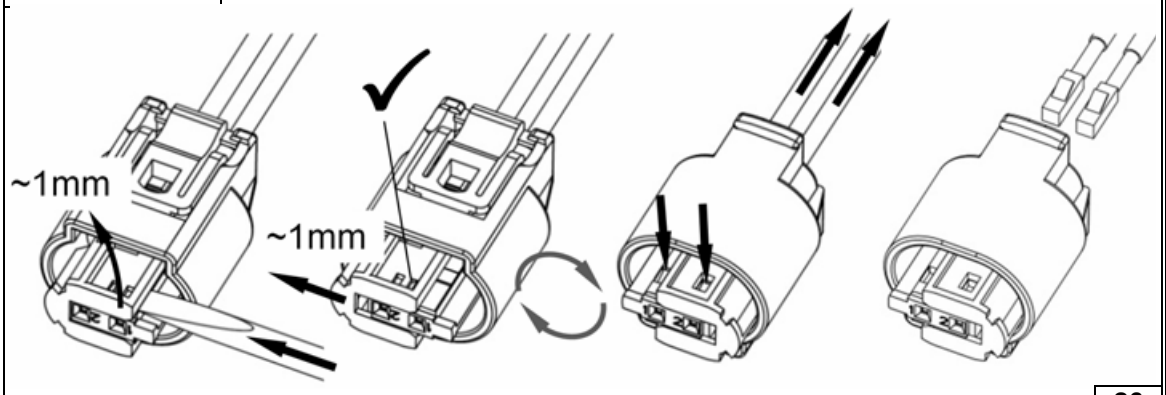
Catch any fuel running off in an appropriate container.

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.

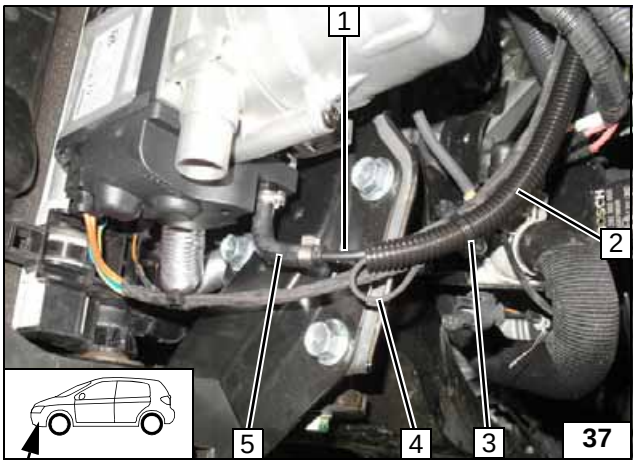
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.

Removing metering pump connector

Connector X7



36

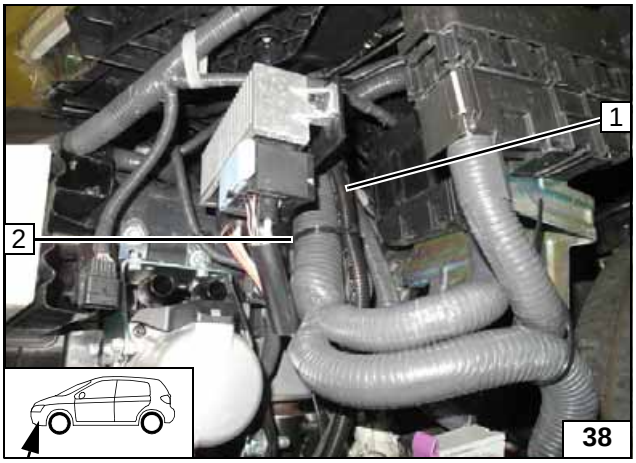


37

Pull fuel line **1** and wiring harness of metering pump **4** into 10mm dia. corrugated tube **2**.

3 Cable tie
5 90° moulded hose, 10mm dia. clamp [2x]

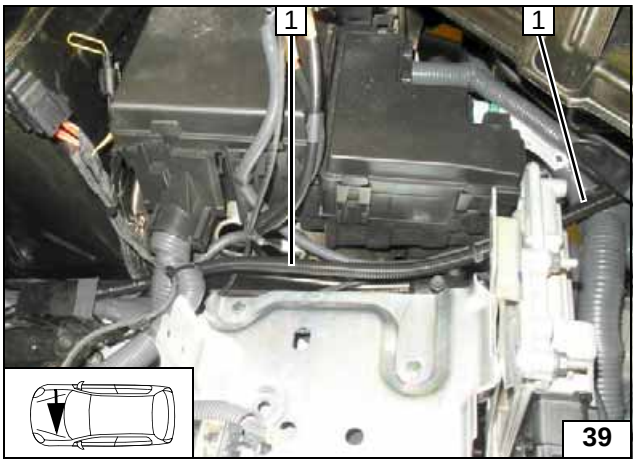
Connecting heater



38

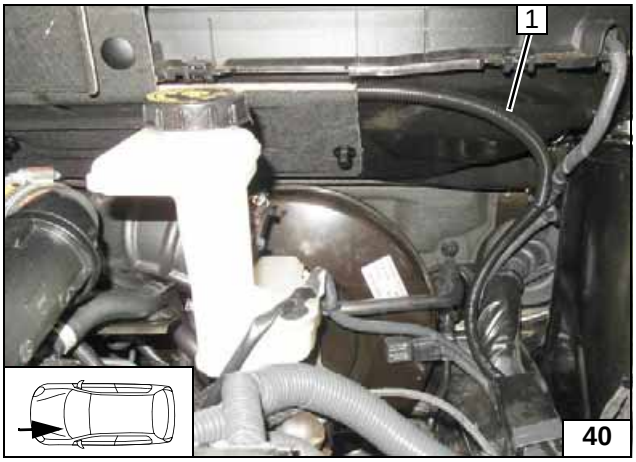
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** in the engine compartment and secure it using cable tie **2** to the original vehicle wiring harness!

Routing lines



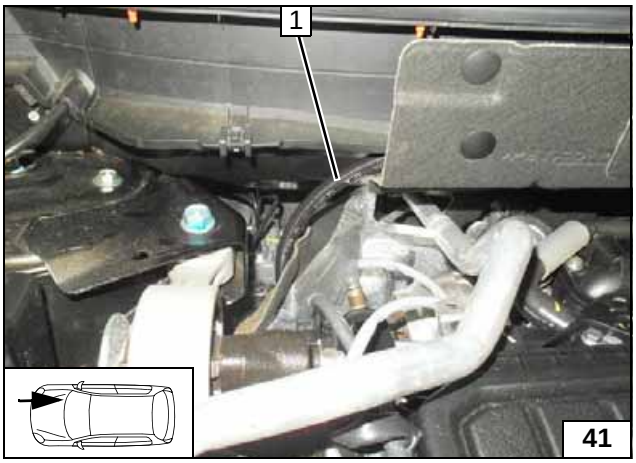
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** along original vehicle lines to the firewall and secure them using cable ties!

Routing lines



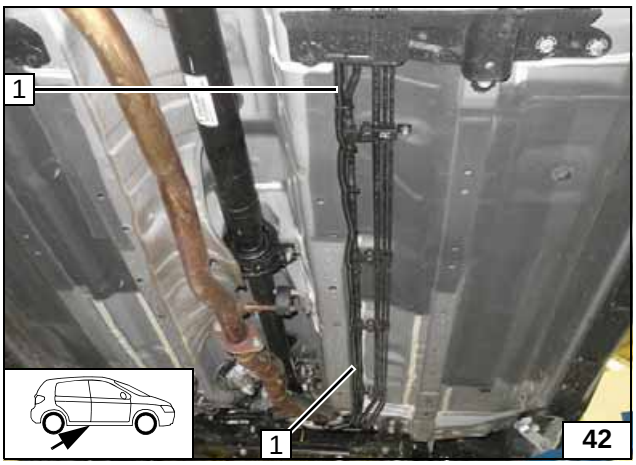
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** behind the insulation to the right vehicle side.

Routing lines



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

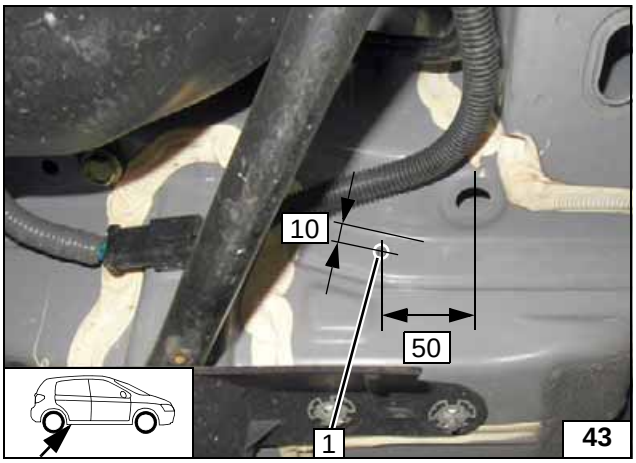
Routing lines



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

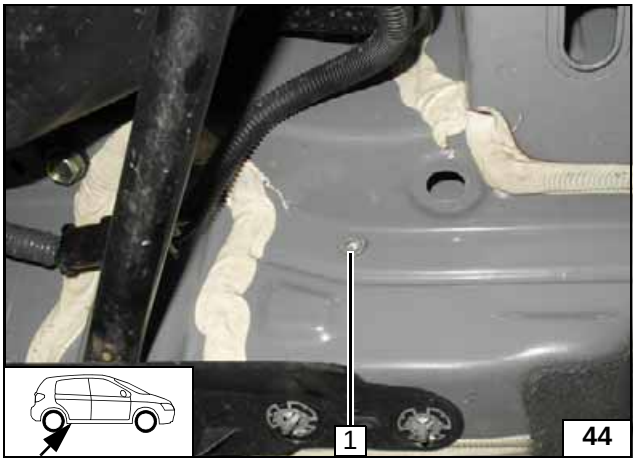
Routing lines

Hole for metering pump



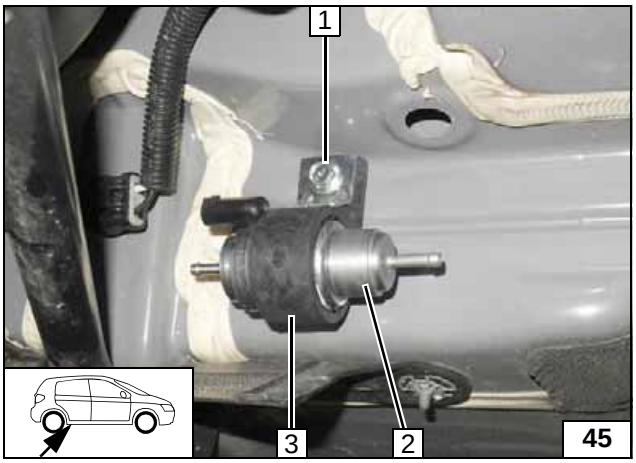
1 9.1mm dia. hole

Installing rivet nut



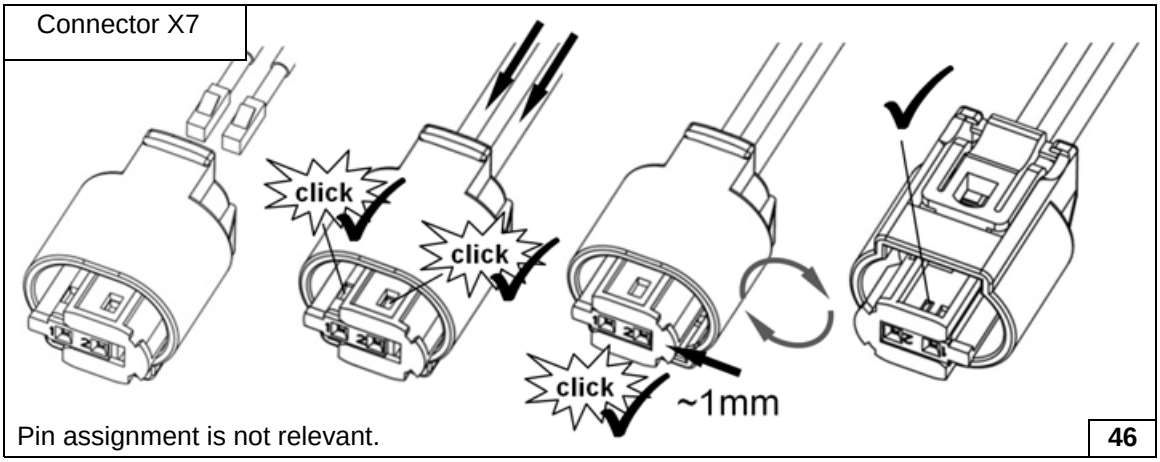
1 Rivet nut

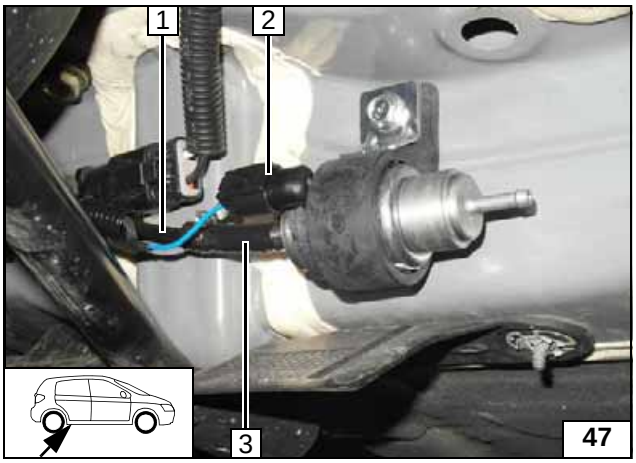
Installing metering pump



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

Completing metering pump connector





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

Connecting metering pump

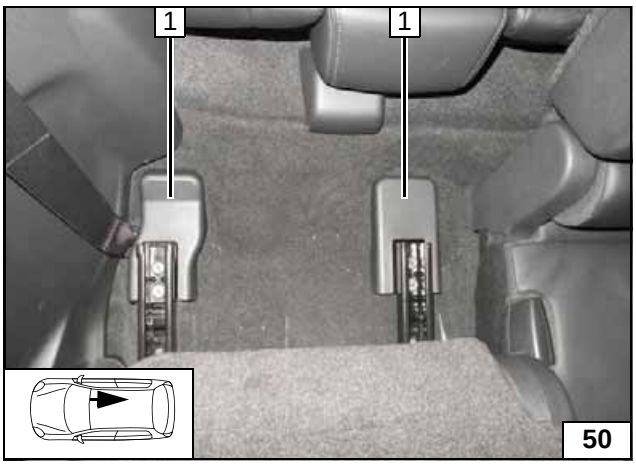
Right-Hand Rear Bench Seat Installation Aid

1 Cover [2x]

Removing cover

1 Remove bolts [2x]

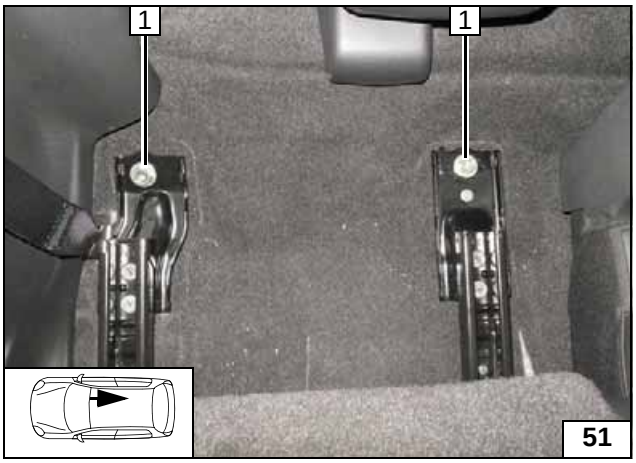
Detaching front screw fitting



Slide the rear bench seat forward.
Fold the backrest forward.

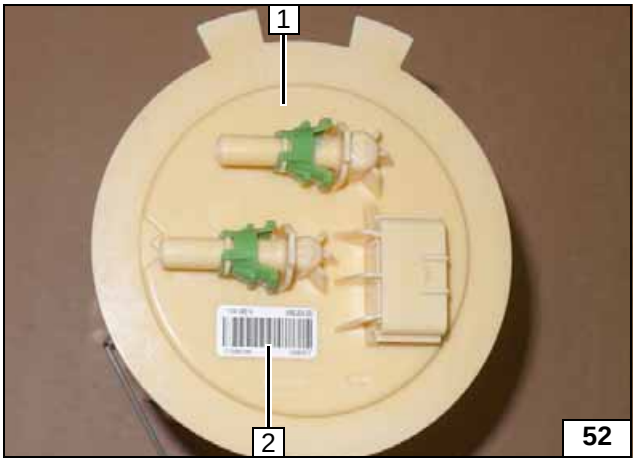
1 Cover [2x]

Removing cover



1 Remove bolts [2x]

Detaching back screw fitting

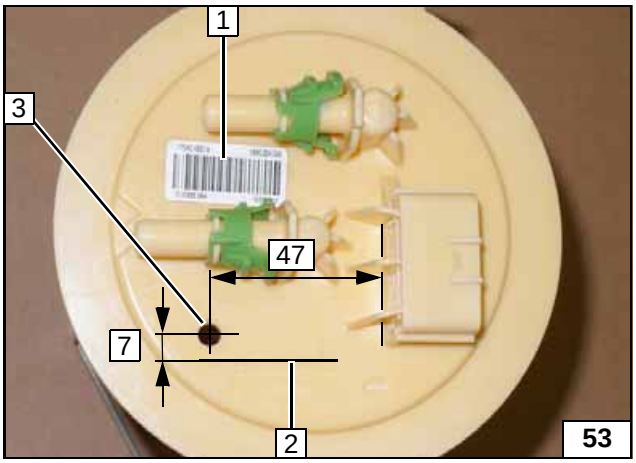


Fuel connection

Remove fuel tank sending unit **1** according to manufacturer's instructions.

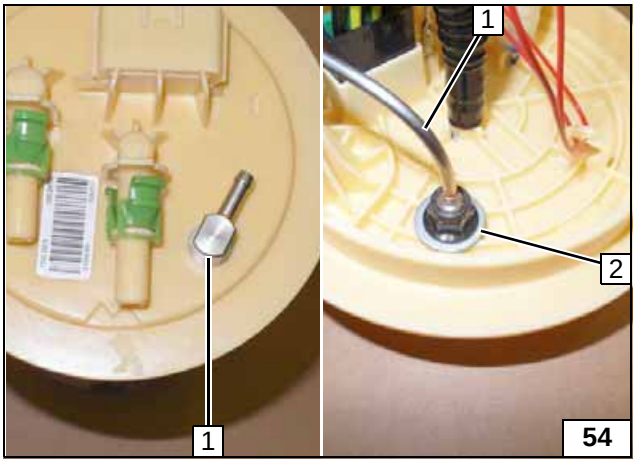
2 Remove sticker, will be reapplied later

Fuel extraction



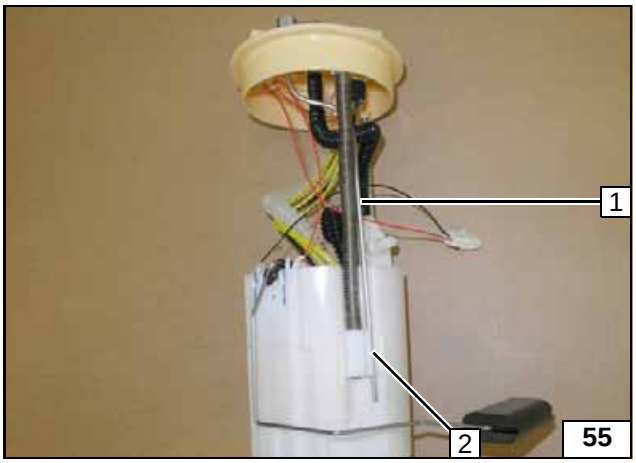
1 Affix the sticker
2 Existing formed ridge
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



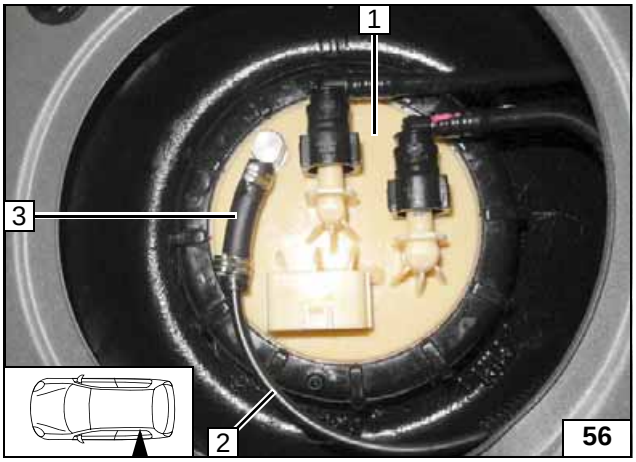
Bend fuel standpipe **1** according to template and cut to length. Insert large diameter washer with outer dia. d_a = 17.6mm **2** between fuel tank sending unit and fuel standpipe **1**. For the alignment of the fuel standpipe, see the next figure!

Installing fuel standpipe



Engage fuel standpipe **1** in existing groove at position **2**!

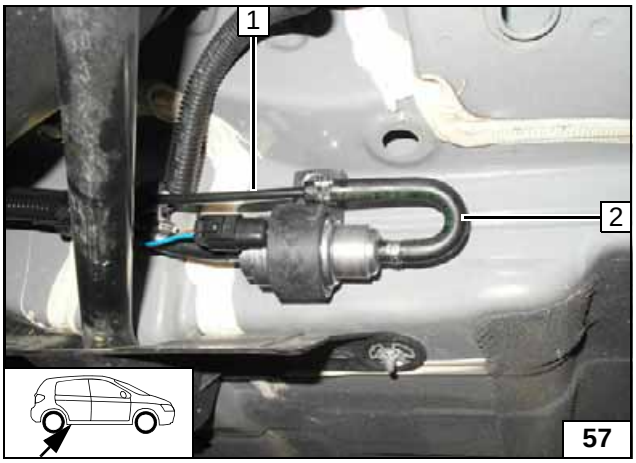
Installing fuel standpipe



Install fuel tank sending unit **1** and connect in accordance with manufacturer's instructions.

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

Connecting fuel line



1 Fuel line of fuel standpipe
2 180° moulded hose, 10mm dia. clamp [2x]

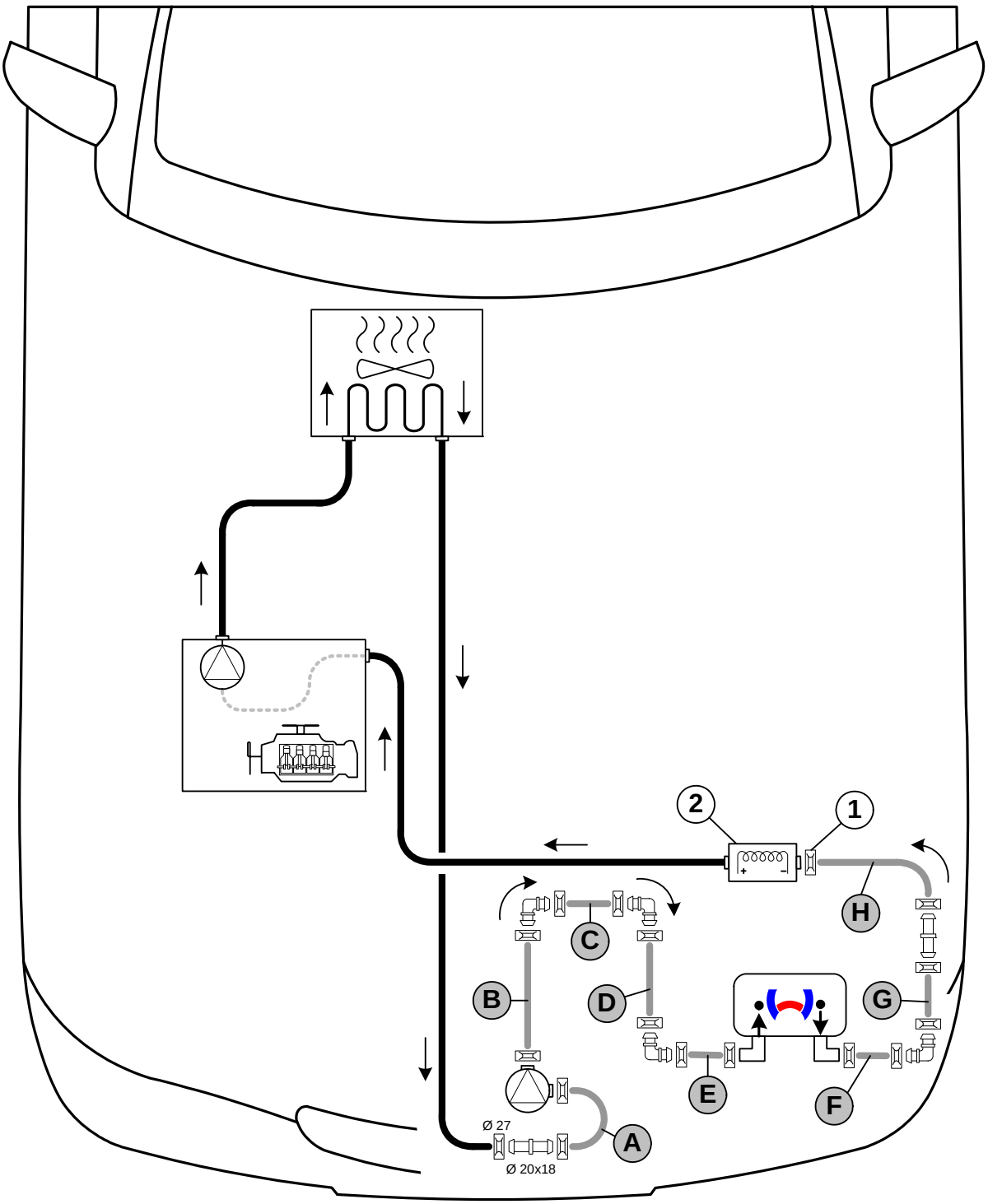
Connecting metering pump

Coolant Circuit

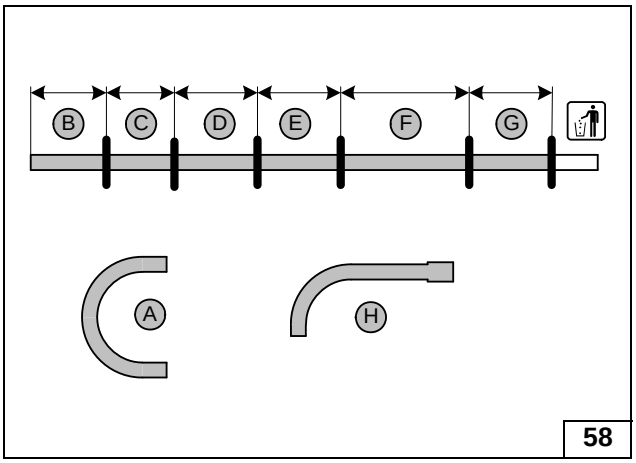
Any coolant running off should be collected in an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hoses can be damaged. When installing the hoses, the heater must be filled with coolant.

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

Hose routing diagram



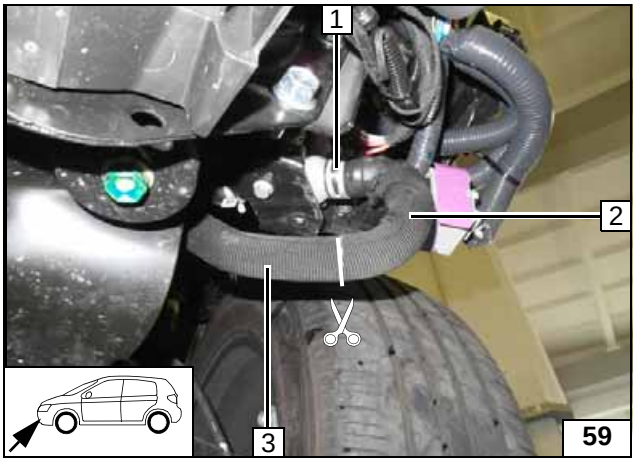
All spring clips without a specific designation = 25mm dia. **1** = Original vehicle spring clip .
All connecting pipes without a specific designation = 18x18mm dia. **2** = Electric auxiliary heater



Hose **A** = 180°, 18x18mm dia. moulded hose
Hose **H** = 90°, 18x20mm dia. moulded hose

B = 60
C = 80
D = 120
E = 110
F = 150
G = 90

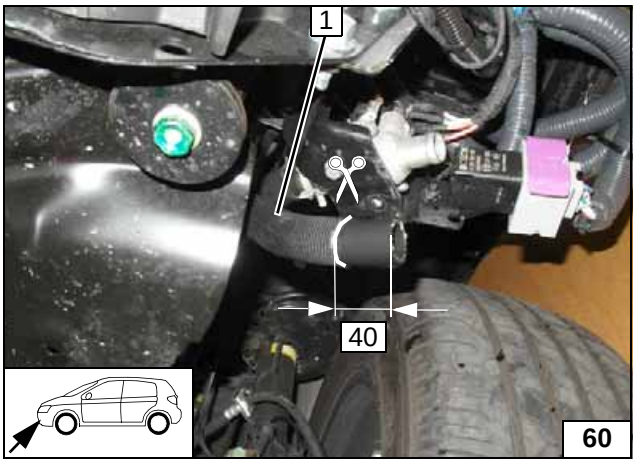
Cutting hoses to length



Cut heat exchanger outlet / electric auxiliary heater inlet hose at the marking. Remove and discard hose on electric auxiliary heater inlet **2**. Spring clip **1** will be reused.

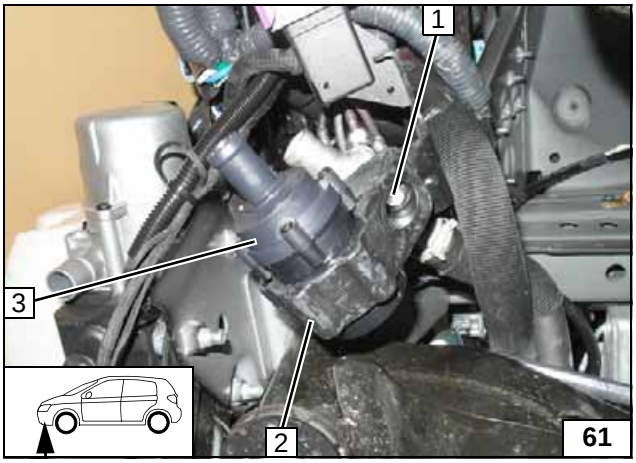
3 Hose section on heat exchanger outlet

Cutting point



Remove protective hose of heat exchanger outlet hose section **1**!

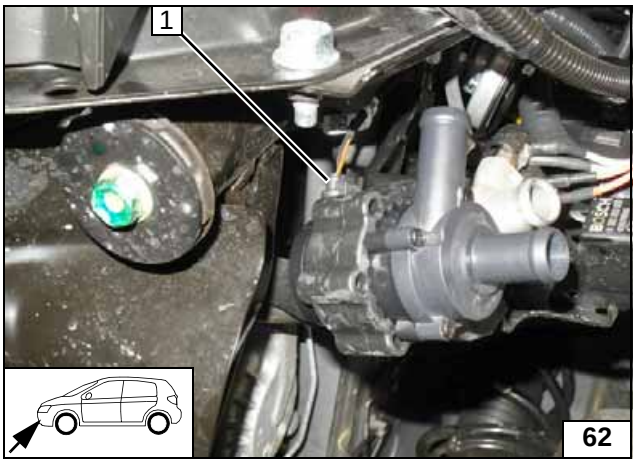
Removing protective hose



Remove and discard original vehicle bolt of electric auxiliary heater bracket at position **1**!

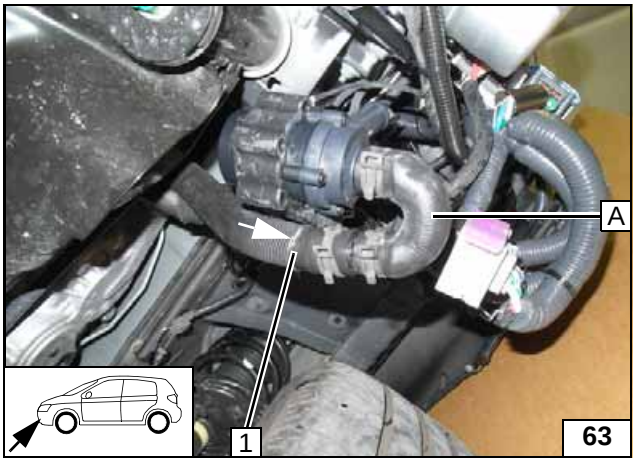
1 M6x25 bolt, original vehicle threaded hole
2 Circulating pump mounting bracket
3 Circulating pump

Installing circulating pump



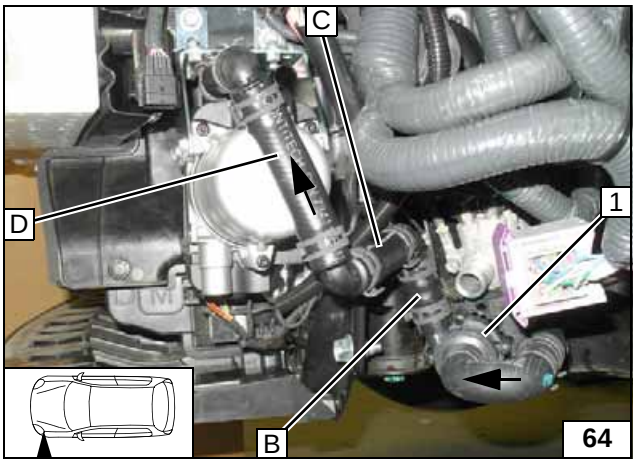
1 Connector of circulating pump wiring harness

Installing wiring harness



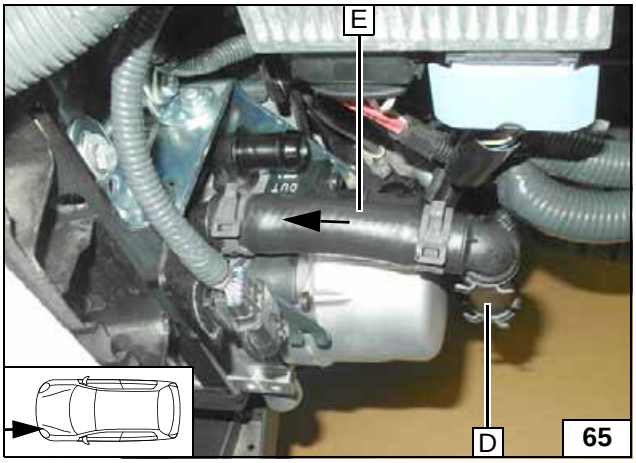
1 Hose section on heat exchanger outlet

Connecting circulating pump

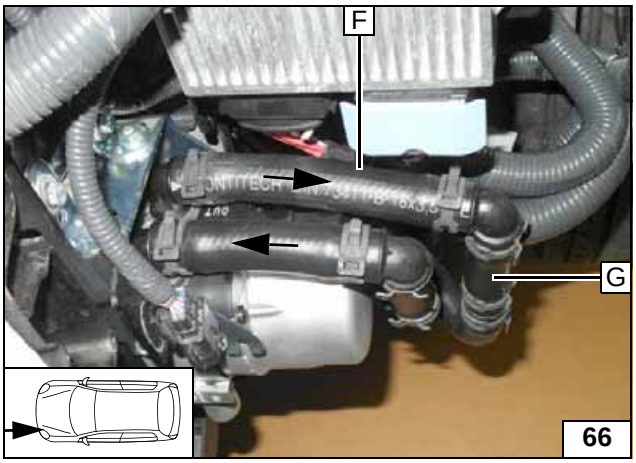


1 Circulating pump

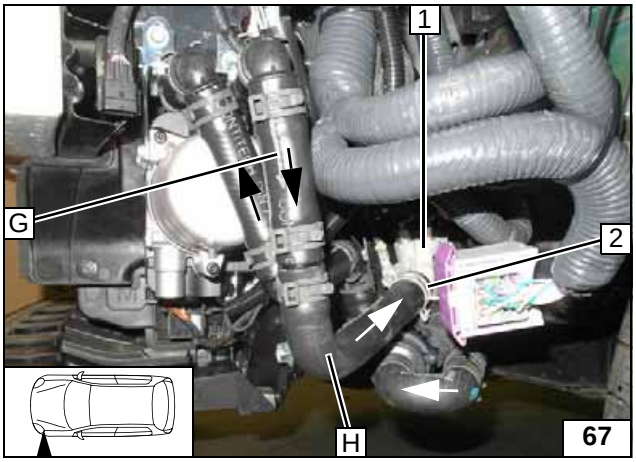
Connecting circulating pump



Connecting heater inlet



Connecting heater outlet



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

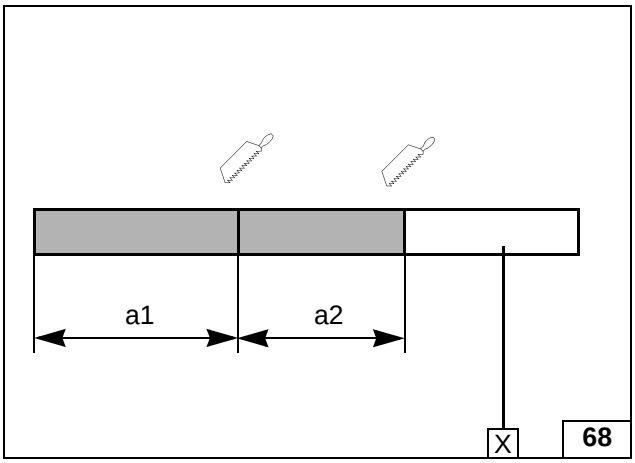
1 Electric auxiliary heater
2 Original vehicle spring clip

Electric auxiliary heater connection

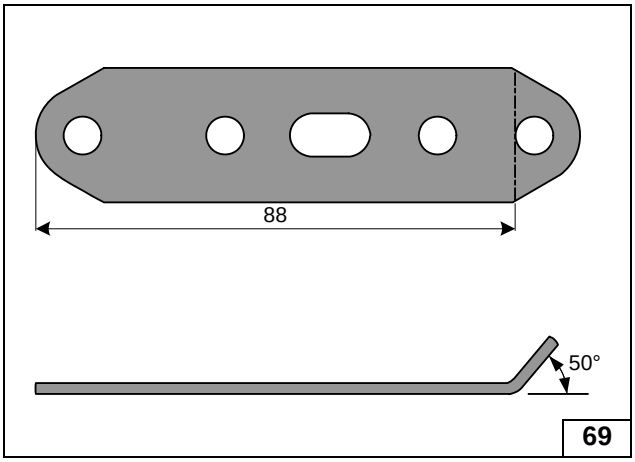
Exhaust Gas

a1 = 280
a2 = 250

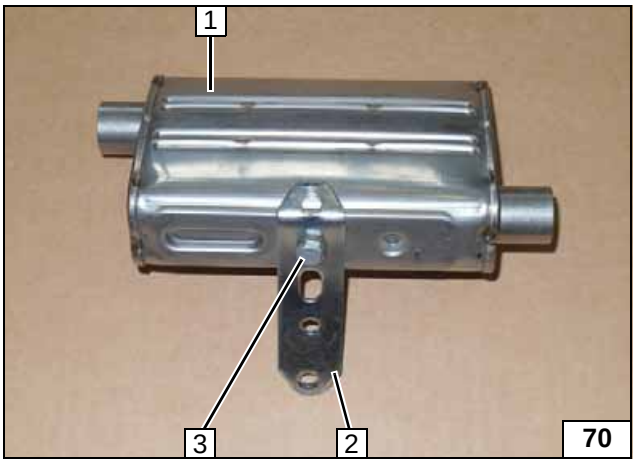
X =



Preparing exhaust pipe

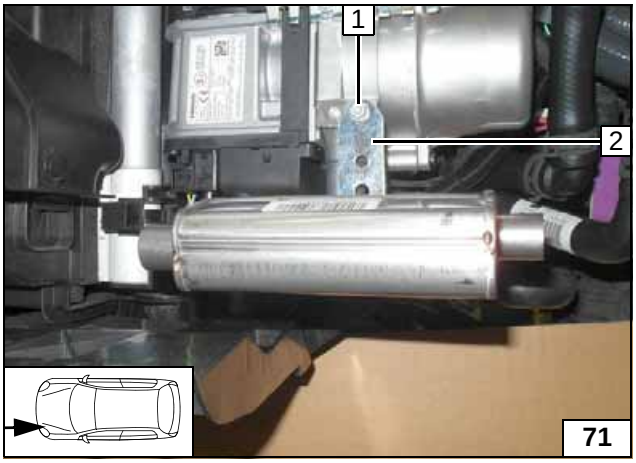


Preparing perforated bracket



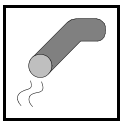
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

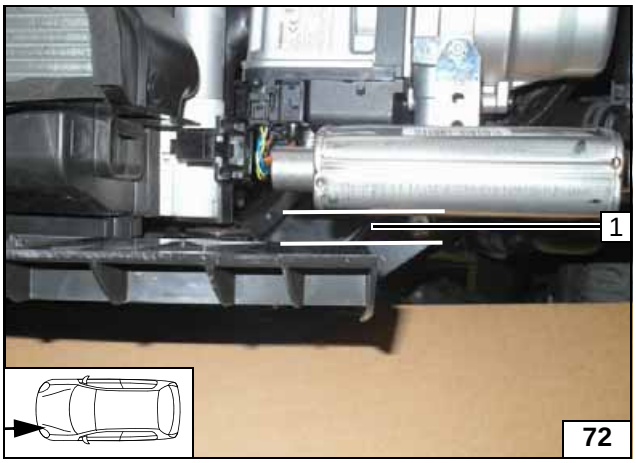
Premount-ing silencer



1 5x13 self-tapping bolt
2 Perforated bracket

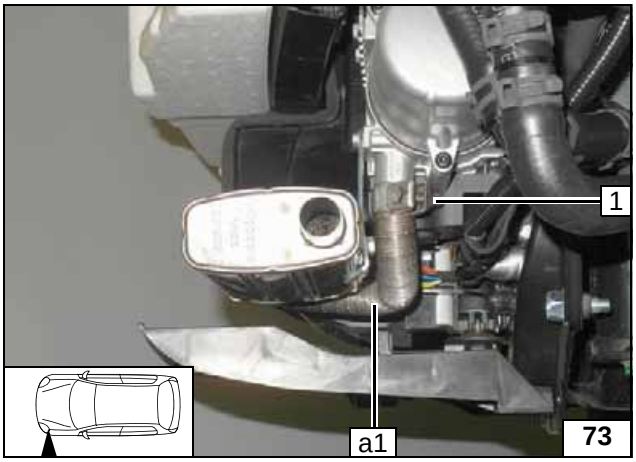
Mounting silencer





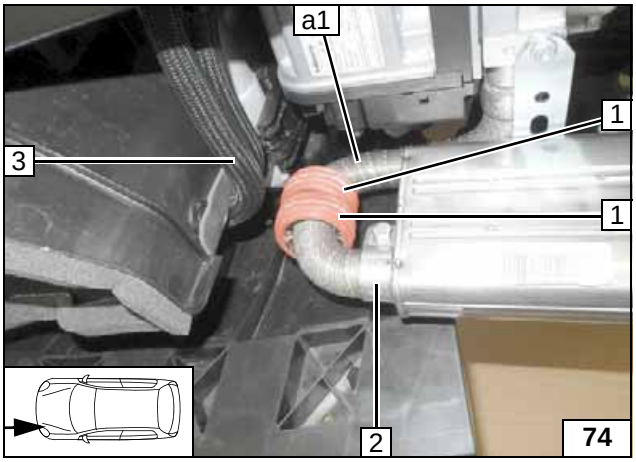
Ensure sufficient distance (at least 20mm) at position **1** between exhaust silencer and underride protection, adjust silencer if necessary!

Aligning silencer



1 Hose clamp

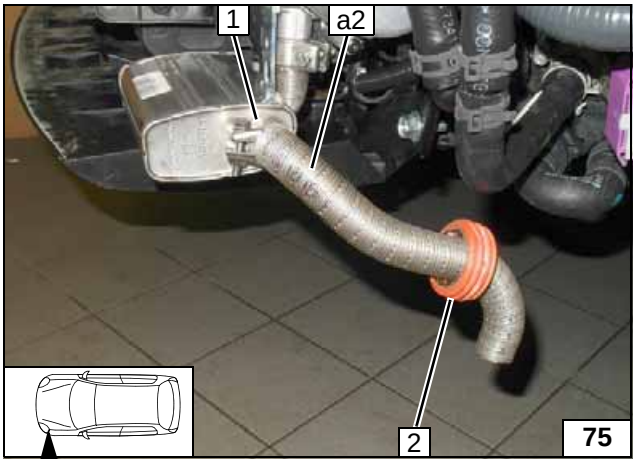
Installing exhaust pipe a1



Align spacer bracket **2** with original vehicle oil cooler lines **3** (if present)!

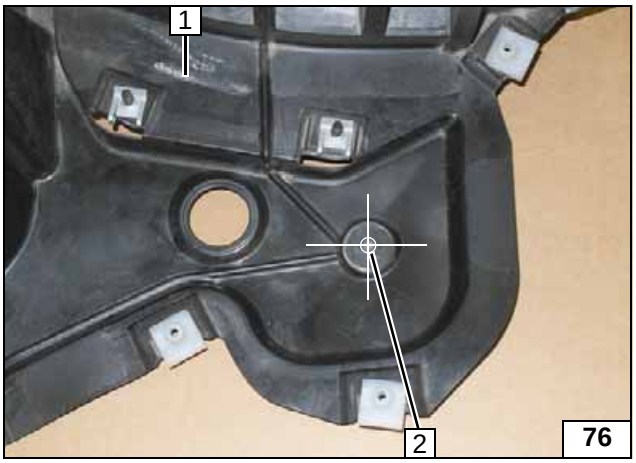
1 Spacer bracket [2x]
2 Hose clamp

Installing / aligning exhaust pipe a1



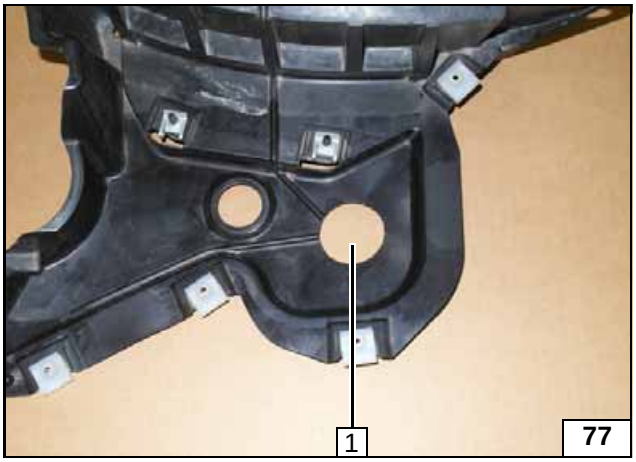
1 Hose clamp
2 Slide on spacer bracket

Installing exhaust pipe a2



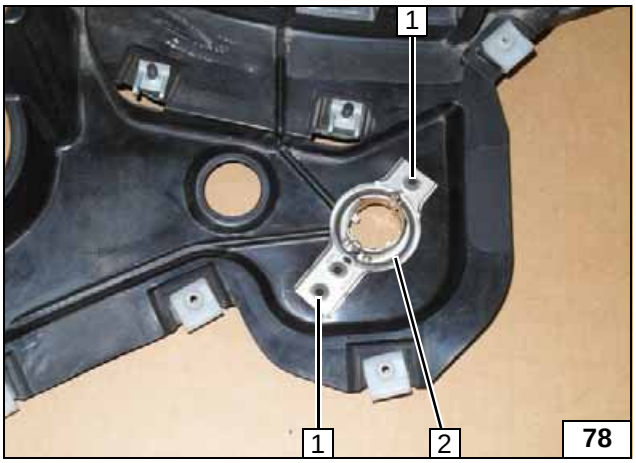
1 Wheel well trim
2 Copy hole pattern in the middle of the embossing

Copying hole pattern



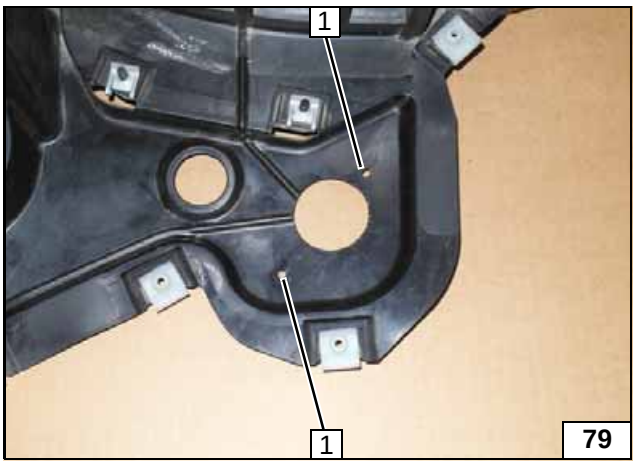
1 Hole (as per work step 1 of the installation instructions)

Hole in wheel well trim



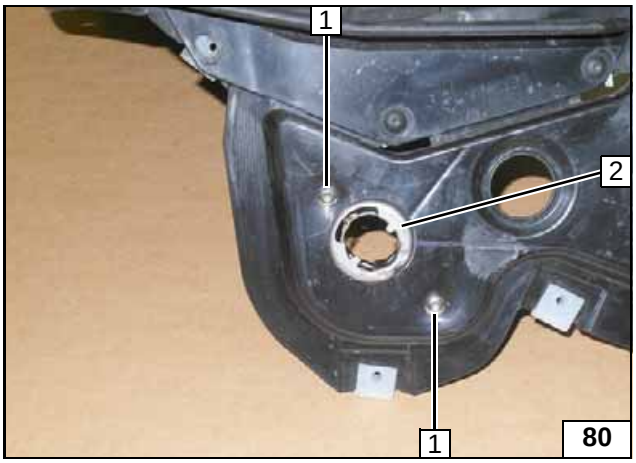
Position exhaust end fastener **2** as per work step 3 of the installation instructions and copy hole pattern **1** [2x].

Copying hole pattern



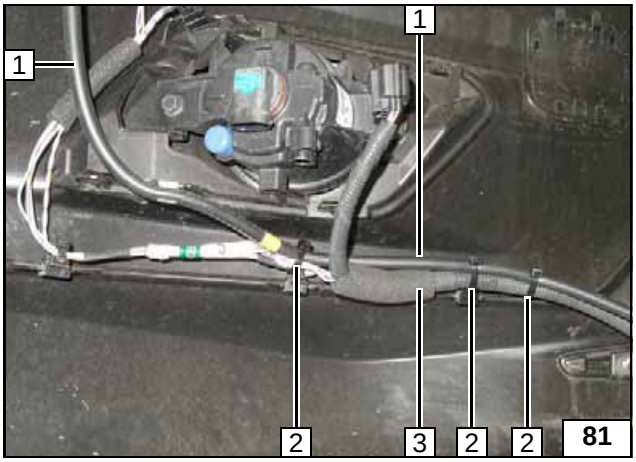
Hole **1** [2x] as per work step 4 of the installation instructions!

Holes in wheel well trim



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

Mounting exhaust end fastener



Inside view of bumper, left side!

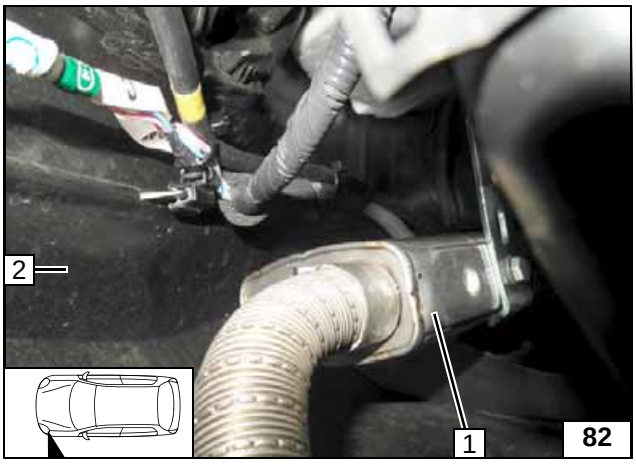
Secure hose of headlight washer system **1** onto original vehicle wiring harness **3** using cable tie **2** [3x]!

Preparing bumper

Final Work

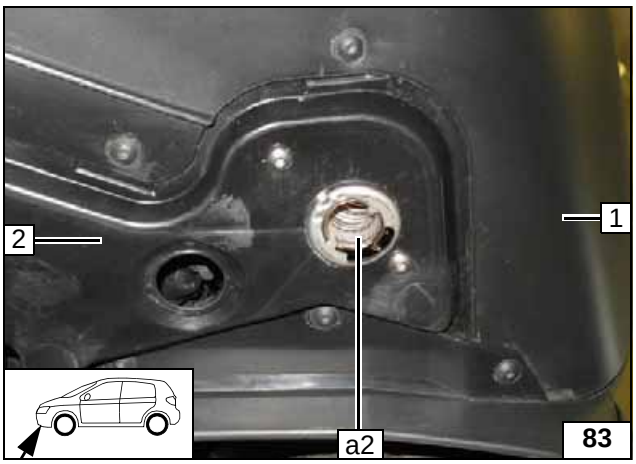
Reassemble the disassembled components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate all loose lines and tie back.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications**
- **Program MultiControl CAR, teach Telestart transmitter**
- **See installation instructions for initial start-up and function check**
- **If the fan function or A/C control panel settings need to be checked, see the installation documentation in the additional kit A/C control 'Standard' or 'Comfort', section 'Final Work'**
- **Apply the caution label 'Switch off parking heater before refuelling' in the area of the filler neck**



Install bumper **2**. Ensure sufficient distance (at least 20mm) between exhaust system and original vehicle hoses, lines and plastic parts, correct if necessary!

Distance check



Install wheel well trim **2**.
Install exhaust pipe **a2** as per work steps 6 - 8 of the installation instructions. Align spacer bracket with wheel well trim!

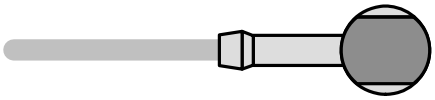
1 Bumper

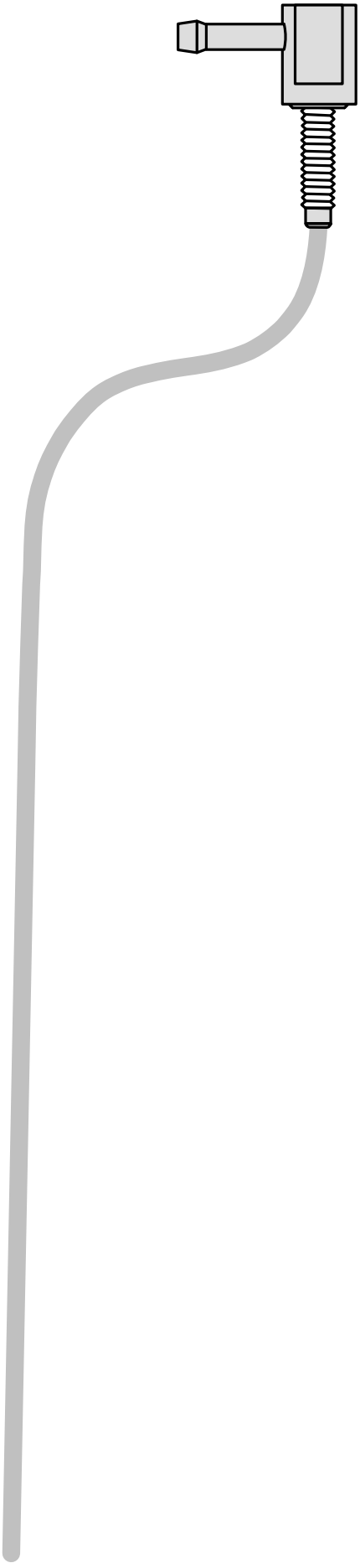
Installing exhaust pipe a2

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

Template for Fuel Standpipe

Top view





100mm

Scale 1:1

Compare the 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

