Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Nissan Pulsar

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Nissan	Pulsar	C13	e9 * 2007 / 46 * 3086 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.2 B	Petrol	6-speed SG	85	1197	HRA
1.2 B	Petrol	Xtronic	85	1197	HRA

SG = Manual transmission
Xtronic = continuously variable automatic transmission

From Model Year 2015
Left-hand drive vehicle

Verified equipment variants:
Automatic air-conditioning
Front fog light
Halogen and LED headlights
Headlight washer system
Start / Stop
Intelligent key with start button
Emission standard Euro 5

Not verified:
Manual air-conditioning
Passenger compartment monitoring

Total installation time: approx. 8.5 hours

Nissan Pulsar

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Nissan Pulsar 2015 Petrol: **1323670B**
- 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

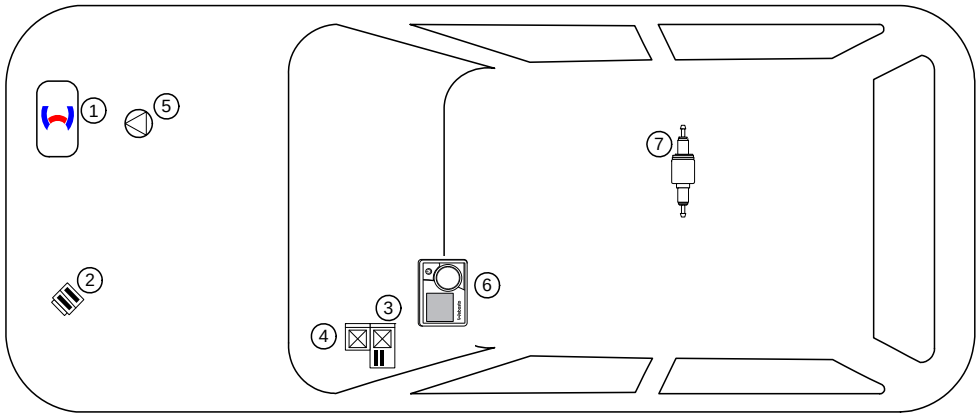
Installation instructions:

- 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. Relay and fuse holder of passenger compartment
4. PWM GW
5. Circulating pump
6. MultiControl CAR
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 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, 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.

Nissan Pulsar

Notes on Validity

This installation documentation applies to Nissan Pulsar Petrol vehicles - for validity, see page 1 - from model year 2015 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation.

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

Technical Instructions

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

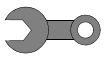
Dimensions
- All dimensions are in mm

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

Specific risk due to electrical voltage

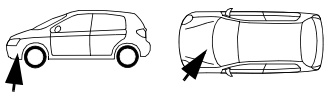
Specific risk of damage to components.

Specific risk of fire or 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

Preliminary Work

Vehicle

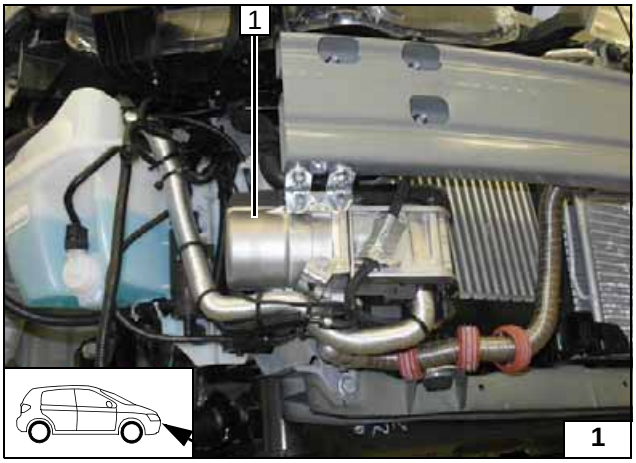
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the left and right front wheels.
- Remove the wheel well trim on the left and on the right.
- Remove the lower trim of the front bumper.
- Remove the radiator grille.
- Remove the bumper trim.
- Disconnect the battery and remove it completely along with the carrier and the engine control unit.
- Remove the entire air filter housing together with the intake hose.
- Drain off and collect the engine coolant.
- Remove the headlight on the right.
- Remove the centre console trim and radio / navigation system (see dismantling instructions).
- Remove the lateral instrument panel trim on the driver's side.
- Remove the instrument panel trim under the steering wheel.
- Detach the central electrical box on the driver's side (screwed 2x).

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

- Remove the seating surface of the rear bench seat.
- 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

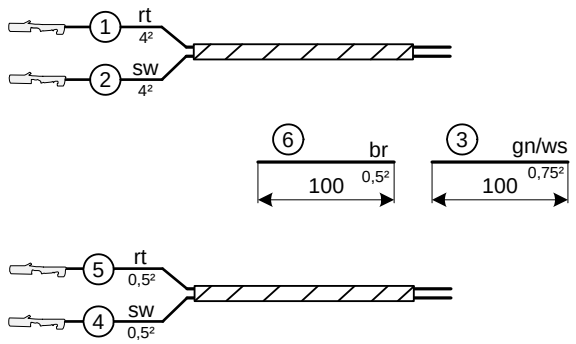
Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
⑤ Red (rt) wire from wiring harness of PWM control
④ Black (sw) wire from wiring harness of PWM control

Cutting to length/assigning wires



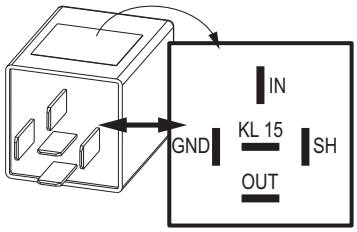
2

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

Settings:

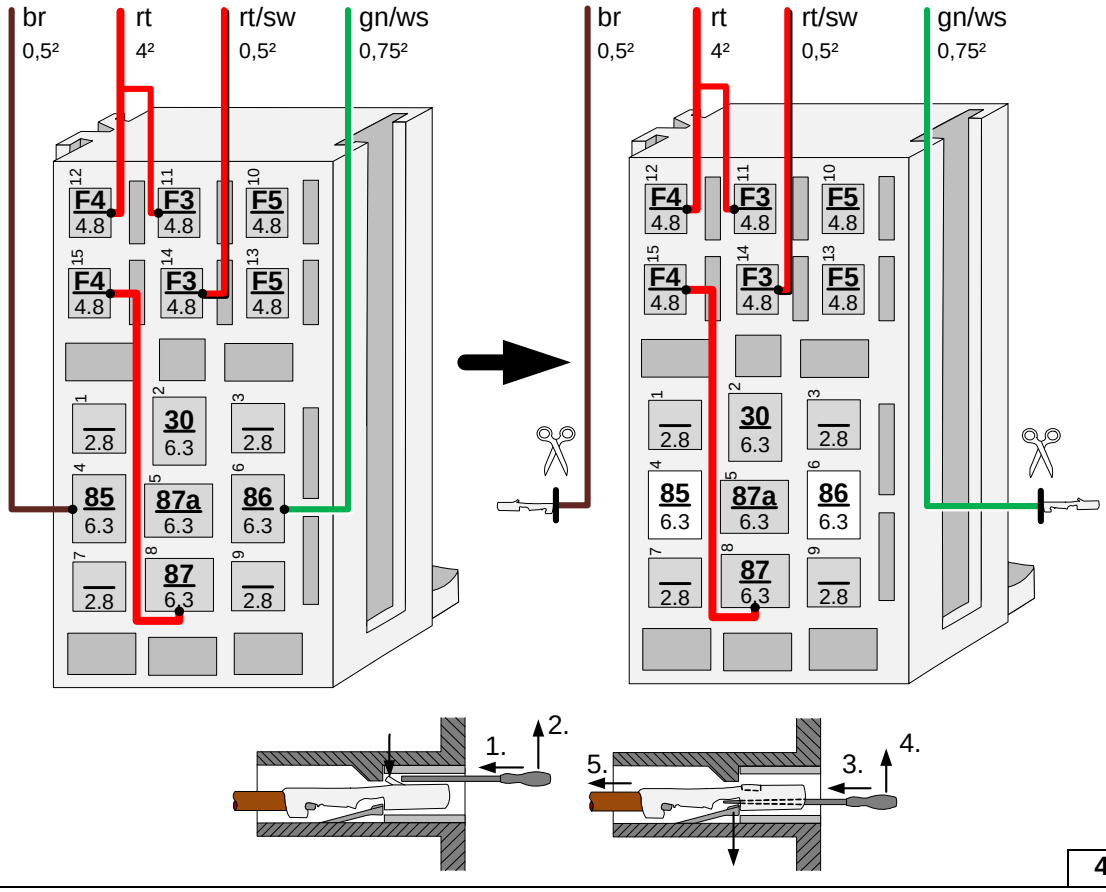
Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 2.7V
Function: High-side

View of PWM GW



3

Preparing relay and fuse holder of passenger compartment



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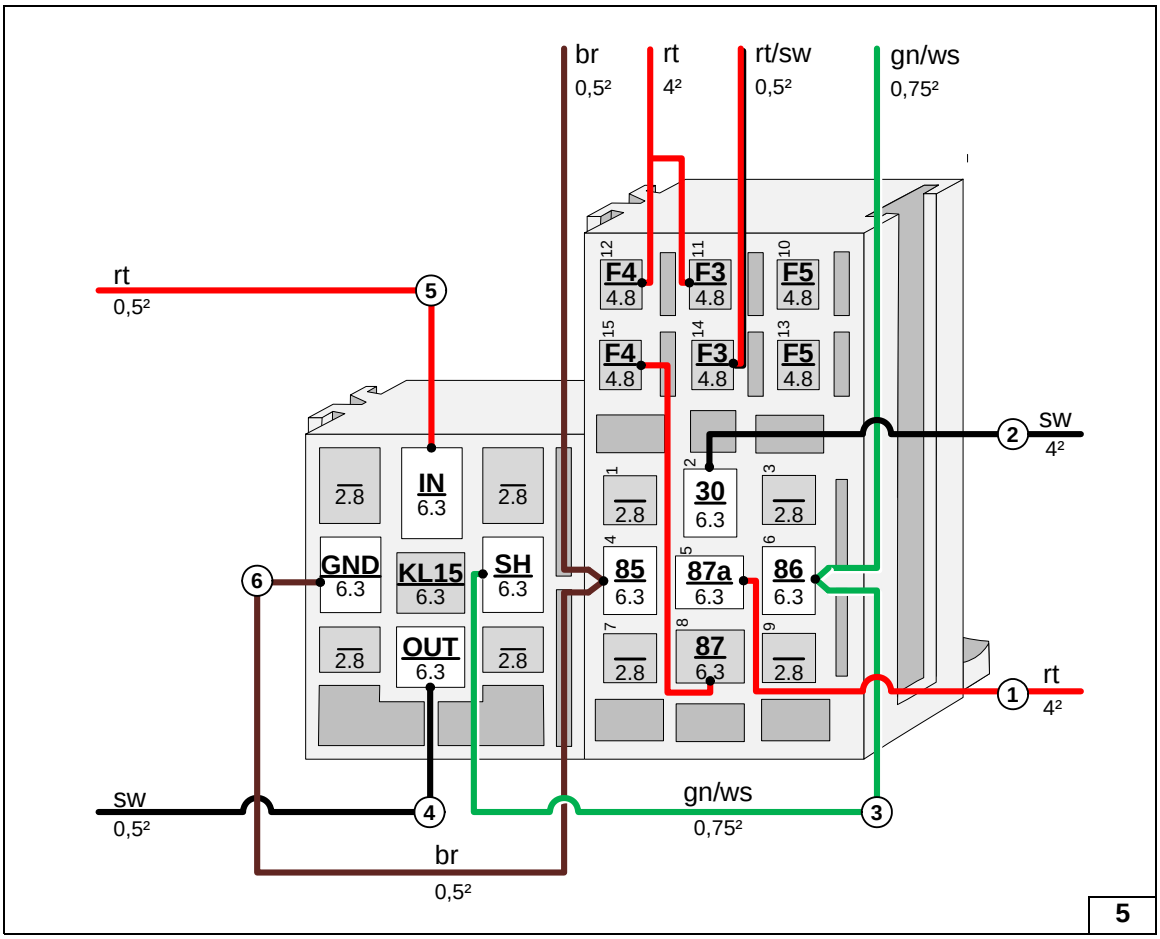
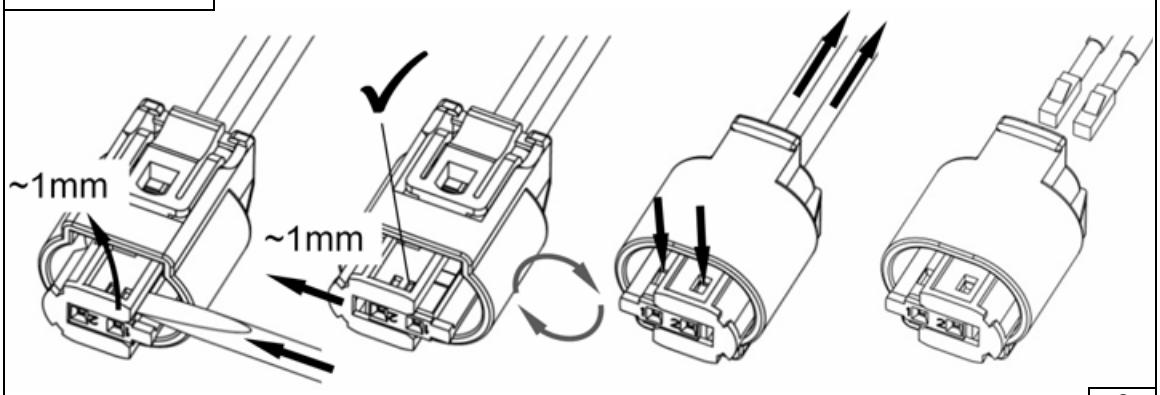


5

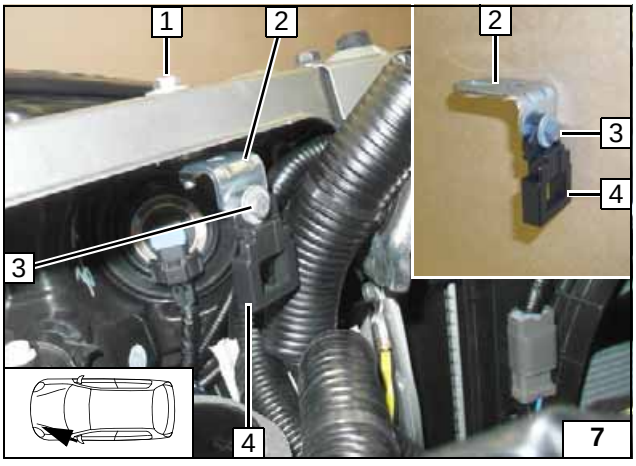
Connecting wire of PWM GW socket and passenger compartment relay and fuse holder, interlocking the sockets

Connector X7



6

Removing metering pump connector



7

Install a 20mm shim between the body and angle bracket **2**!

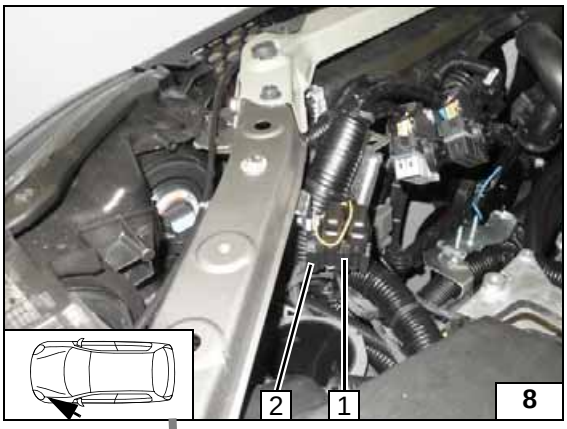
- **1** M6x40 bolt, large diameter washer, 20mm shim, flanged nut in original vehicle threaded hole
- **3** M5x16 bolt, large diameter washer [2x], nut
- **4** Retaining plate of fuse holder

Premounting engine compartment fuse holder

Electrical System

Fuse holder of engine compartment

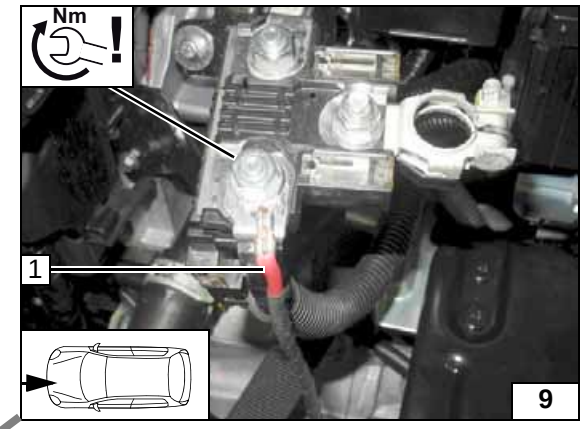
1 F1-2 fuses
2 Retaining plate of fuse holder

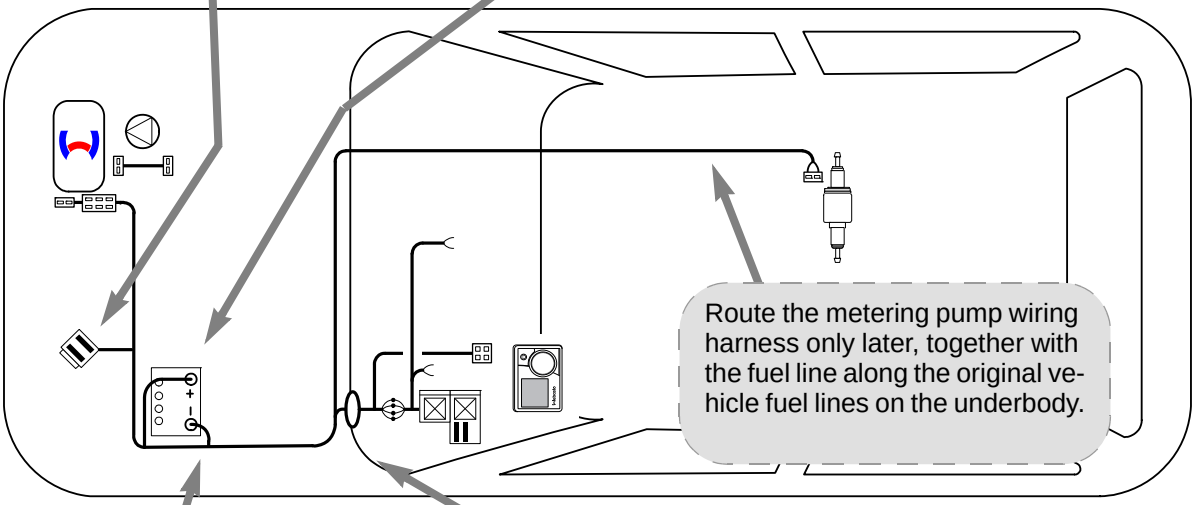


Positive wire

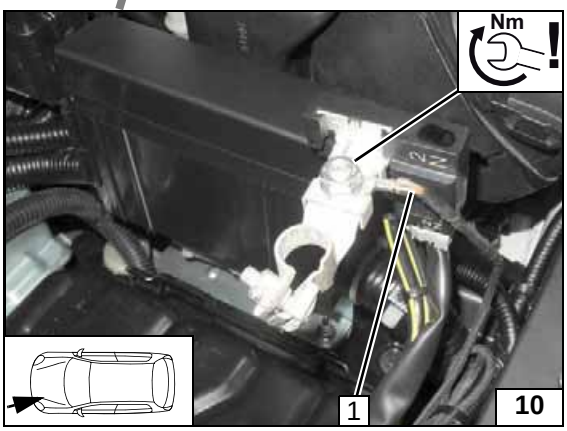
For the routing of the positive wire see the "Final Work" section

1 Positive wire on positive battery terminal



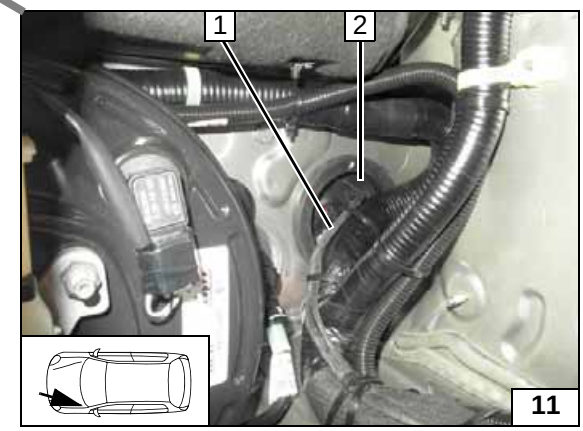


Wiring harness routing diagram



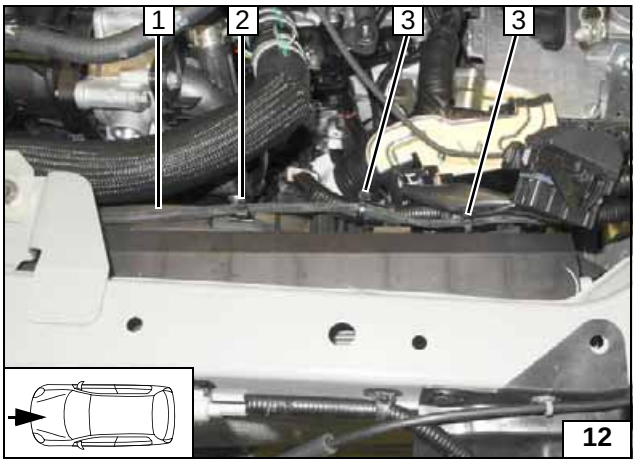
Earth wire

1 Earth wire on negative battery terminal



Wiring harness pass through

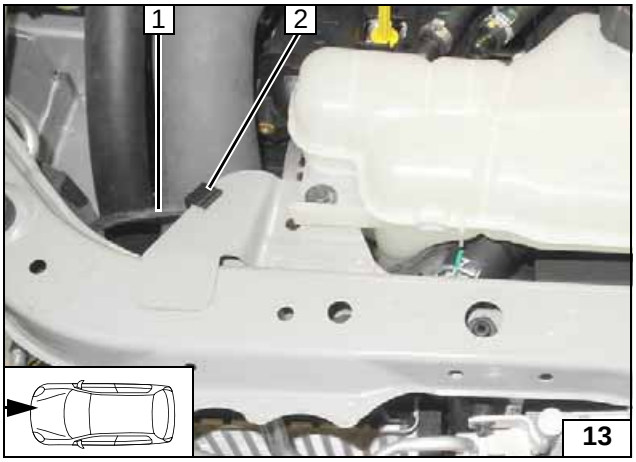
1 Wiring harnesses of heater, heater control
2 Protective rubber plug



Wiring harness routing

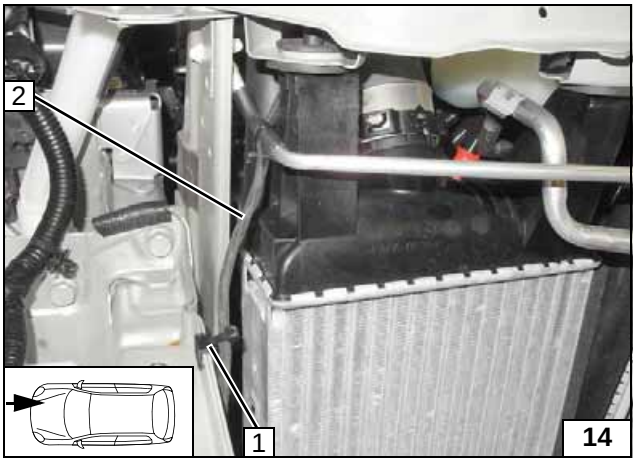
1 Wiring harness of heater
2 Clip-type cable tie
3 Cable tie [2x]

Routing heater wiring harness



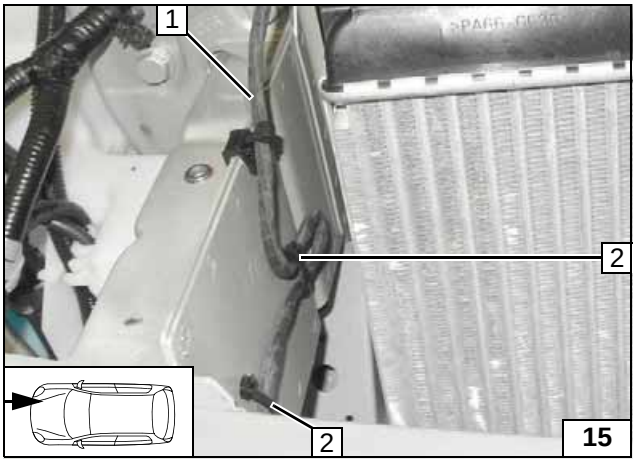
1 Wiring harness of heater
2 Clip-type cable tie

Routing heater wiring harness



1 Clip-type cable tie
2 Wiring harness of heater

Routing heater wiring harness

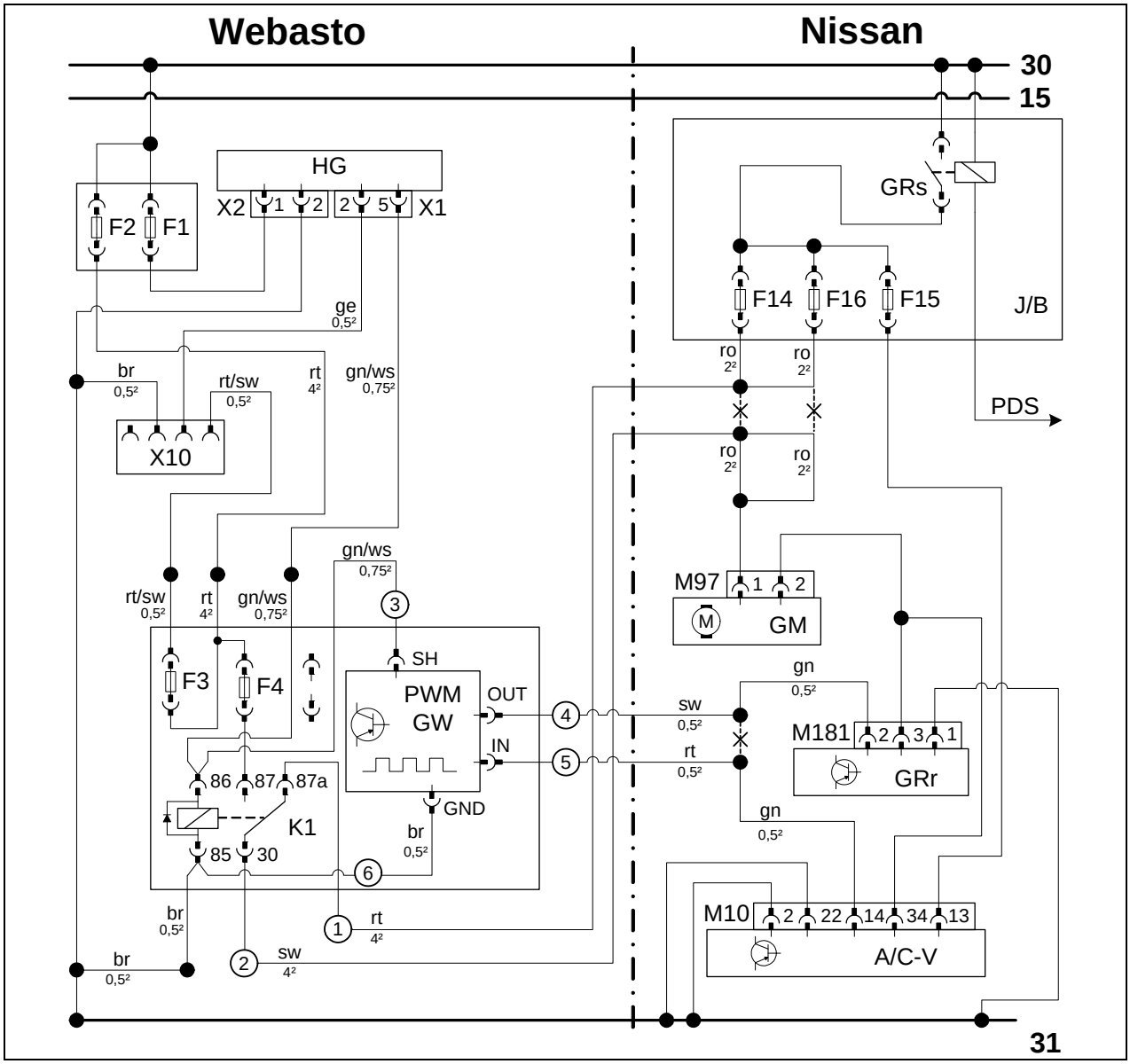


1 Wiring harness of heater
2 Cable tie [2x]

Routing heater wiring harness

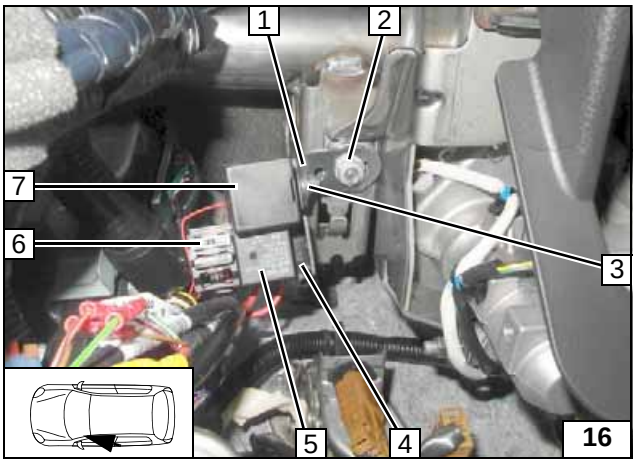
Fan Controller

Wiring diagram



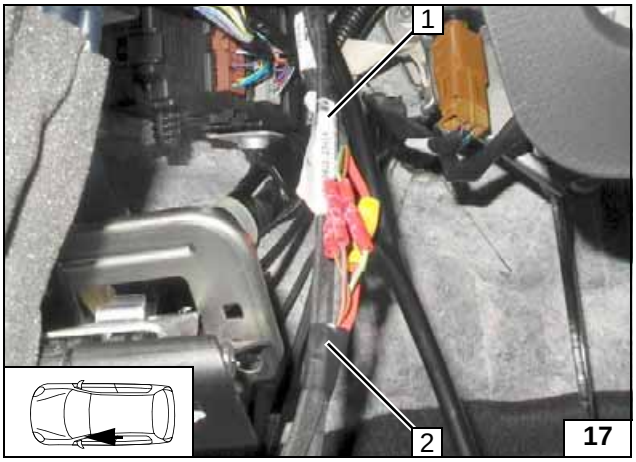
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	J/B	Fuse and relay box	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	GRs	Fan relay	ge	yellow
F1	20A fuse	F14	15A fuse	gn	green
F2	30A fuse	F16	15A fuse	ws	white
X10	4-pin connector of heater control	F15	10 A fuse	br	brown
		PDS	Electric power distribution system	ro	pink
F3	1A fuse	GM	Fan motor		
F4	25A fuse	M97	Connector GM		
PWM GW	Pulse width modulator	GRr	Fan controller		
		M181	Connector GRr		
K1	Fan relay	A/C-V	A/C booster		
PWM GW settings:		M10	40-pin AC-V connector		
Duty cycle:	100% (DC)				
Frequency:	not relevant				
Voltage:	2.7V			**X**	Cutting point
Function:	High-side			Wiring colours may vary.	

Legend



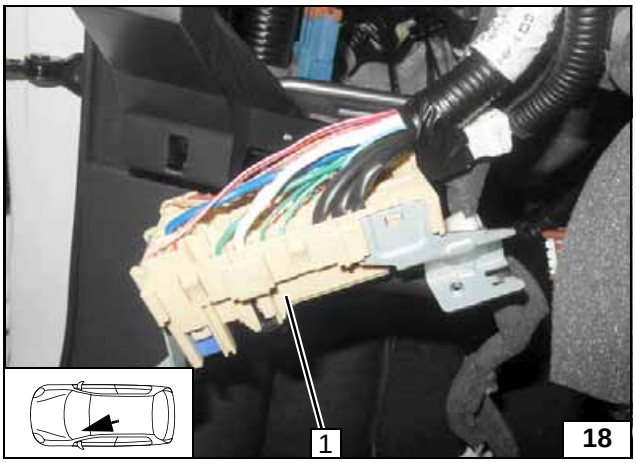
1 Angle bracket
2 M8 nut on existing screw fitting
3 M5x16 bolt, large diameter washer [2x], nut
4 Relay and fuse holder of passenger compartment
5 K1 relay
6 25A fuse F4
7 PWM GW

Installing relay and fuse holder of passenger compartment



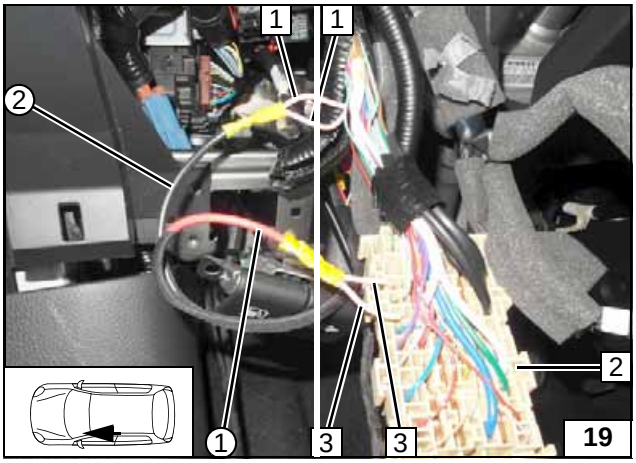
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting wiring harnesses using same colour wires



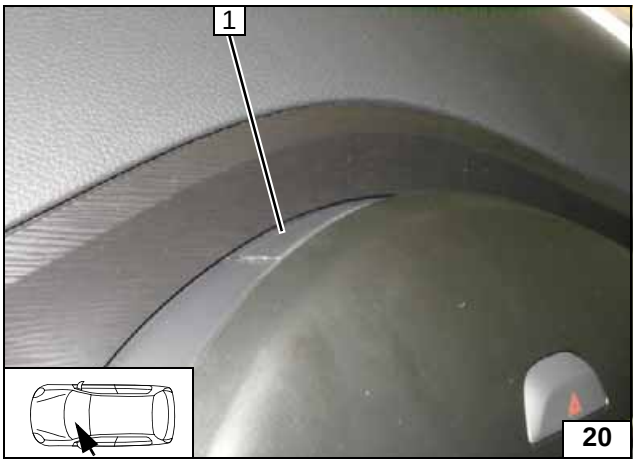
1 Fuse and relay box J/B

Detaching fuse and relay box



1 Pink (ro) wire [2x] of fan motor
2 Fuse and relay box J/B
3 Pink (ro) wire [2x] for fuses F14 and F16
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

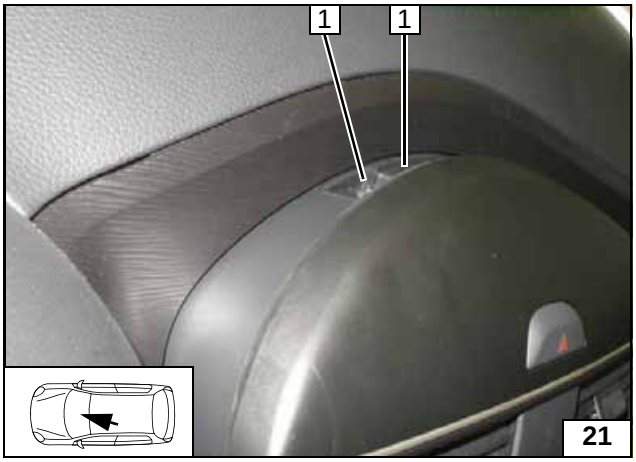
Connecting fan motor



Dismantling instructions for radio / navigation system

1 Cover

Removing cover

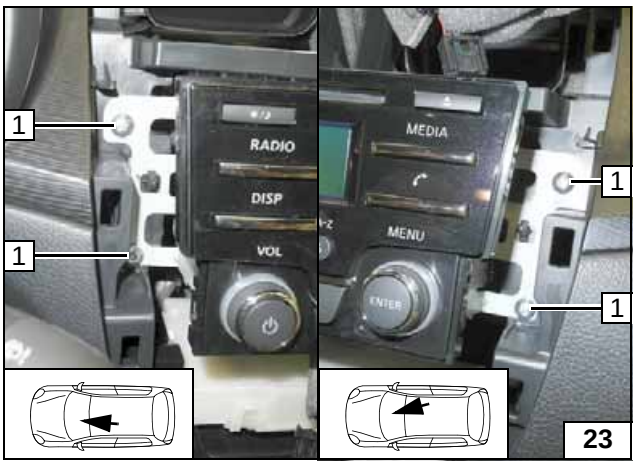


1 Bolt [2x]

Removing bolts

Disengage centre console trim **1** in the direction of the passenger compartment (radio / navigation system remain in place).

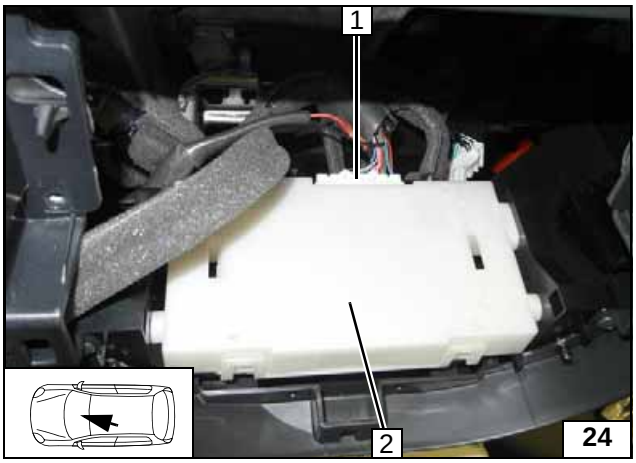
Removing trim



Remove bolts on the right [2x] and left [2x] **1**. Remove radio / navigation system!

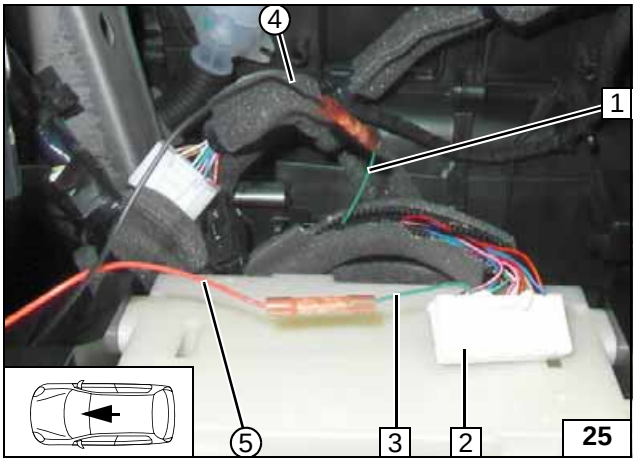
Removing radio / navigation system

Pulling out connector M10



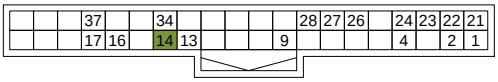
1 40-pin connector M10
2 A/C booster

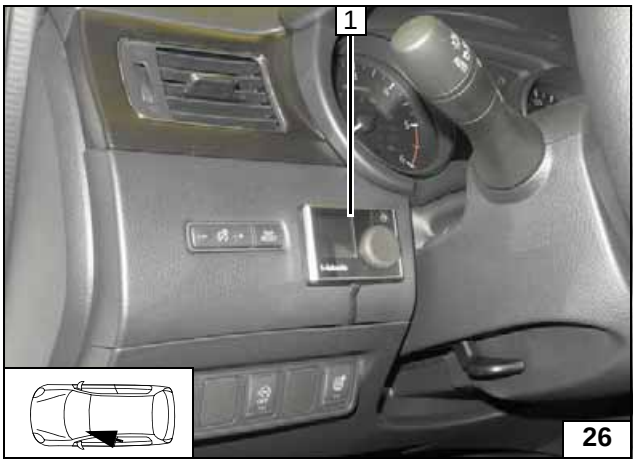
Connecting A/C booster



1 Green (gn) wire of fan controller M181, pin 2
2 40-pin connector M10
3 Green (gn) wire of 40-pin connector M10, pin 14
④ Black (sw) wire of PWM GW/A
⑤ Red (rt) wire of PWM GW/E

View of connector M10 on the wire side

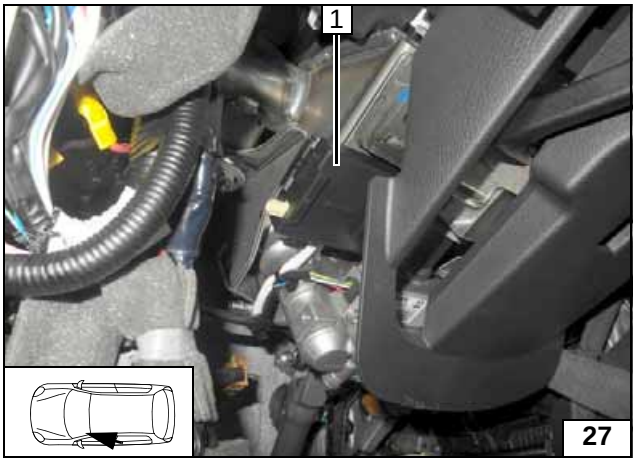




MultiControl CAR Option

1 MultiControl CAR

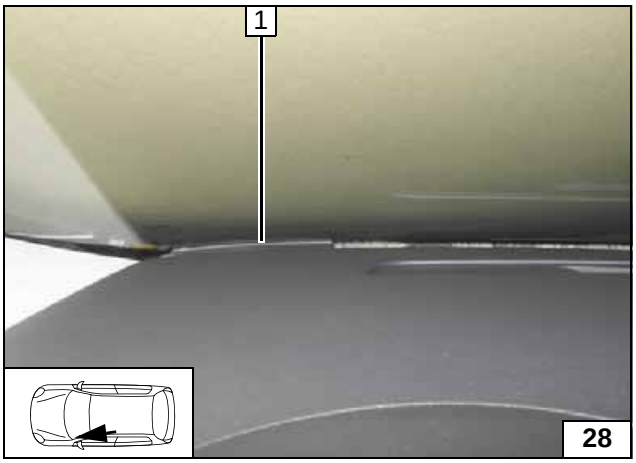
Installing MultiControl CAR



Remote Option (Telestart)

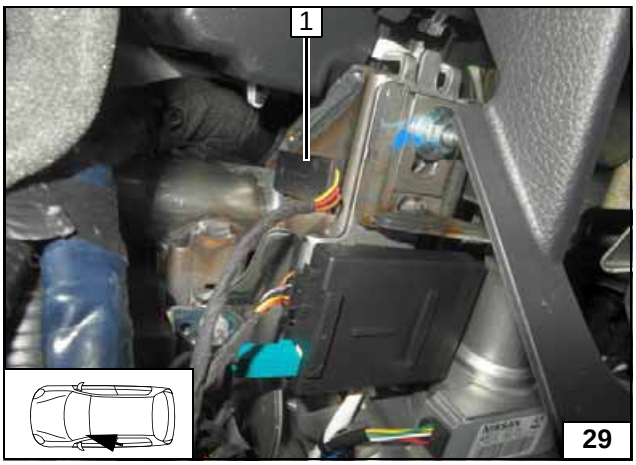
Fasten receiver **1** with adhesive tape.

Installing receiver



1 Antenna

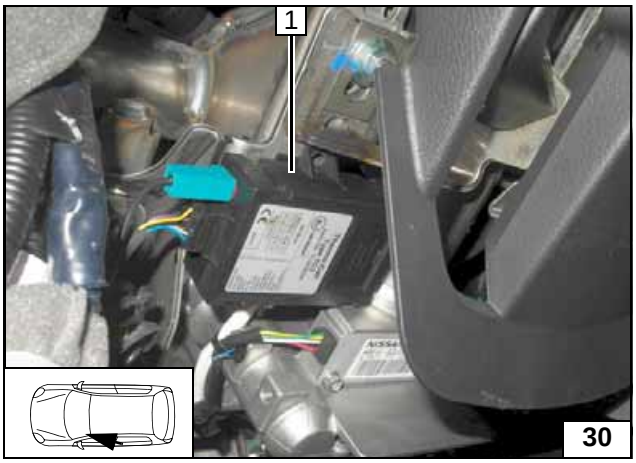
Mounting antenna

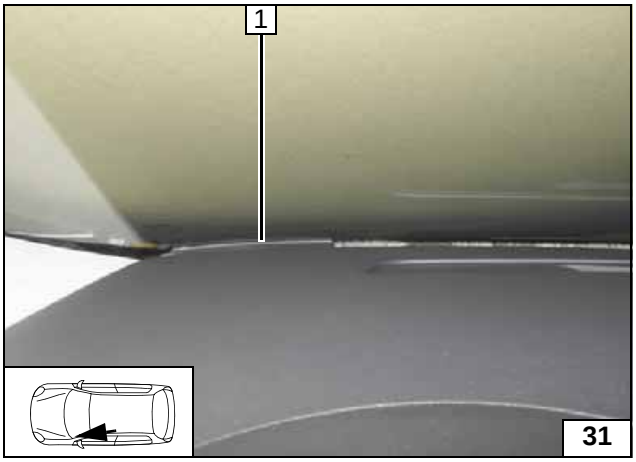


Temperature sensor T100 HTM

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

Mounting temperature sensor





Remote Option Thermo Call

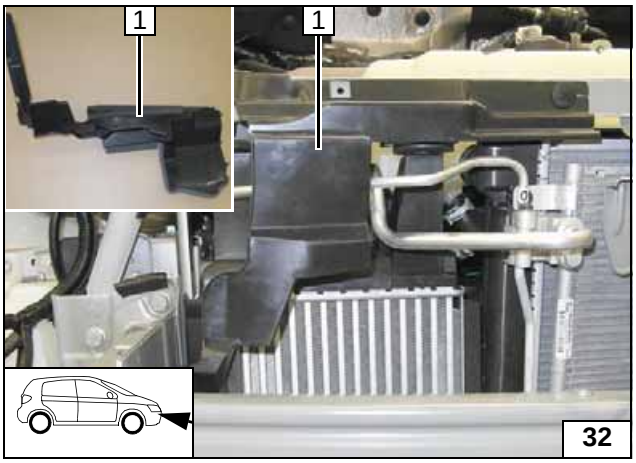
Fasten receiver **1** with adhesive tape.

1 Antenna

Installing receiver

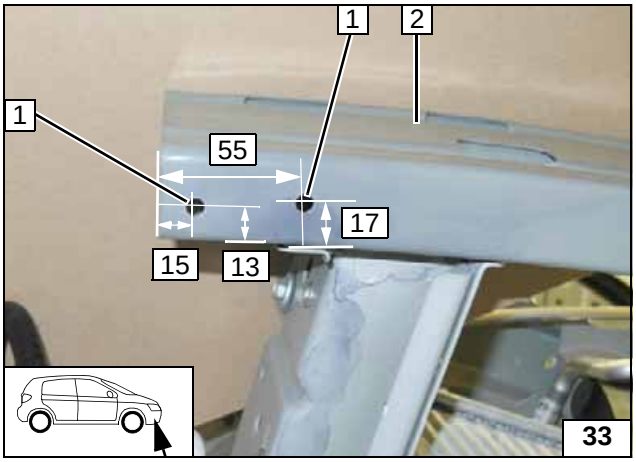
Mounting antenna

Preparing Installation Location



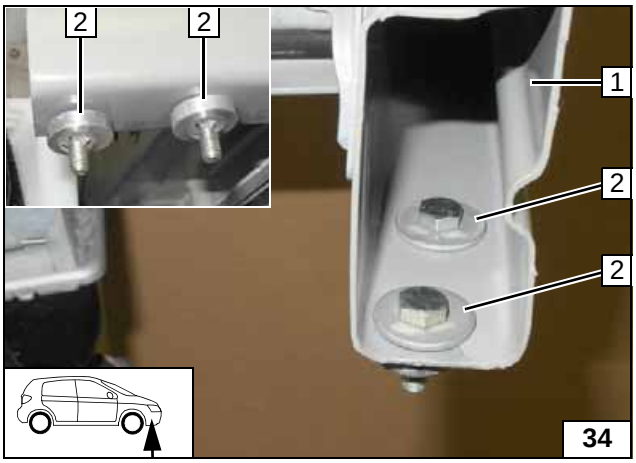
1 Air ducting

Removing and discarding air ducting



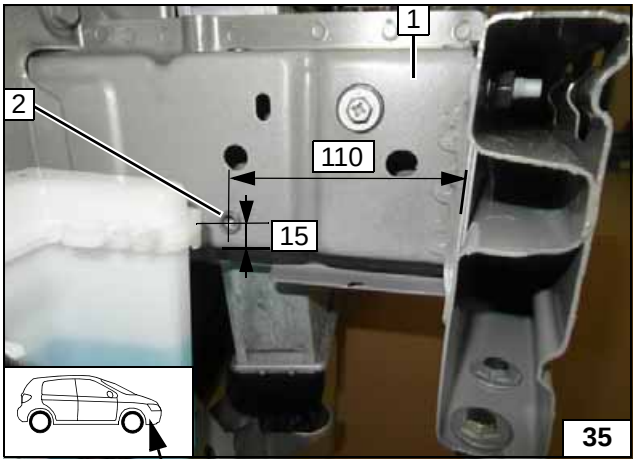
1 7mm dia. hole [2x]
2 Cross member

Hole for angle bracket of heater



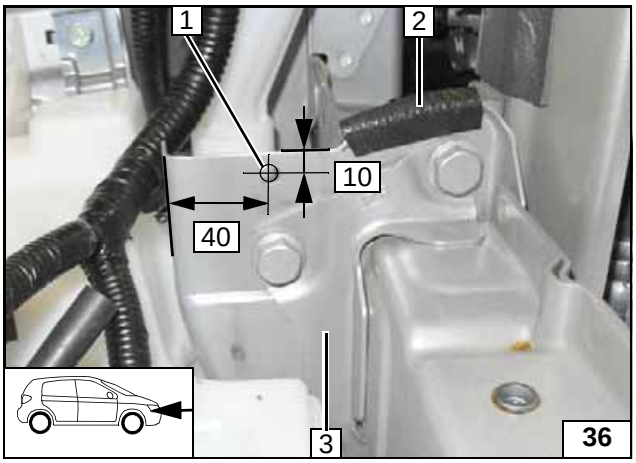
1 Cross member
2 M6x20 bolt, 5mm shim, large diameter washer, pin lock [2x each]

Premounting bolts for heater angle bracket



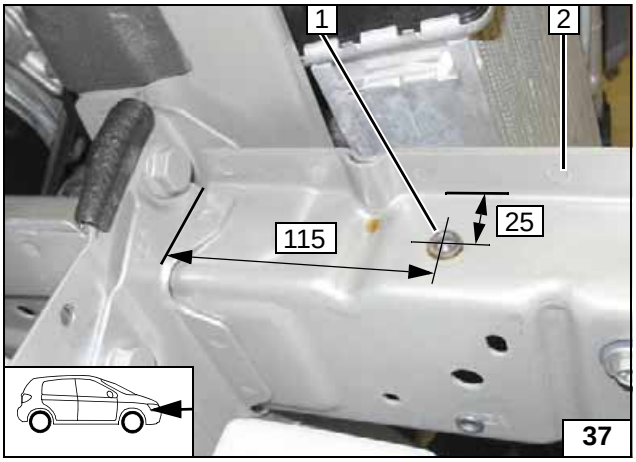
1 Frame side member
2 9.1mm dia hole; rivet nut

Hole for perforated bracket of heater



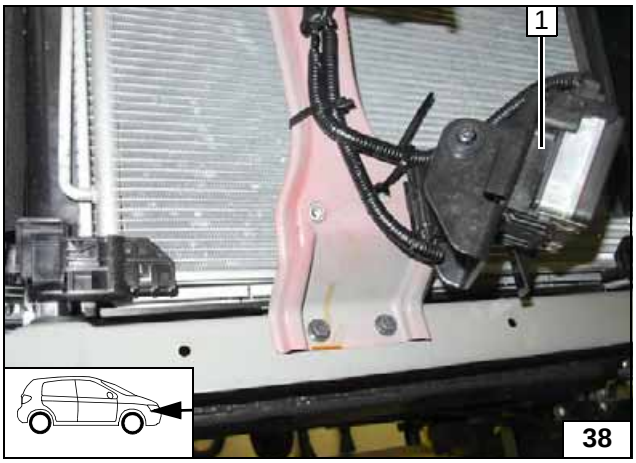
1 7 mm dia. hole
2 50mm edge protection
3 Stiffening plate

Hole for circulating pump



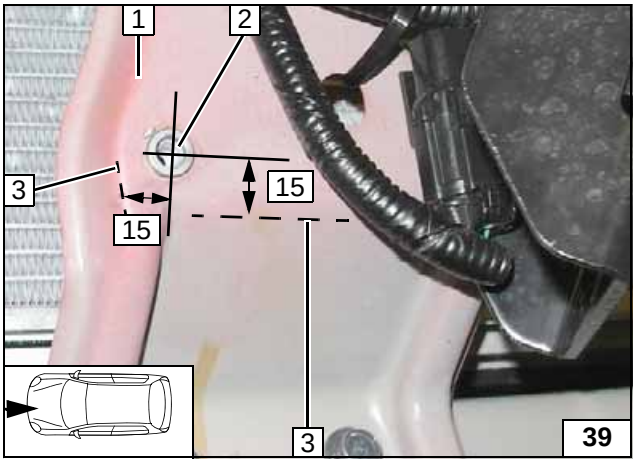
1 Drill 9.1 mm dia. hole; rivet nut
2 Cross member

Hole for perforated bracket of hose guide



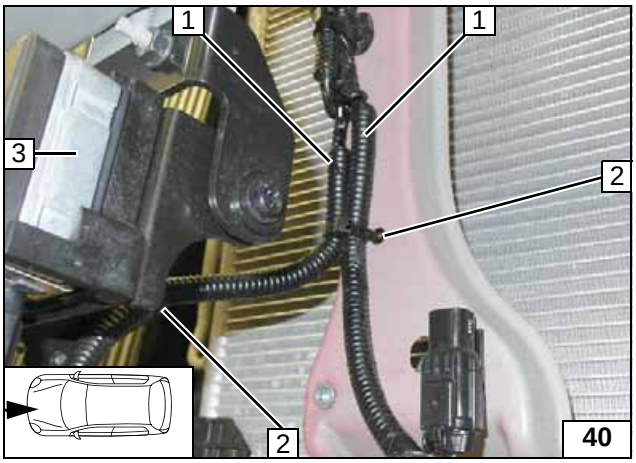
1 Original vehicle distance warning radar

Unscrewing distance warning radar from bracket and securing with cable tie



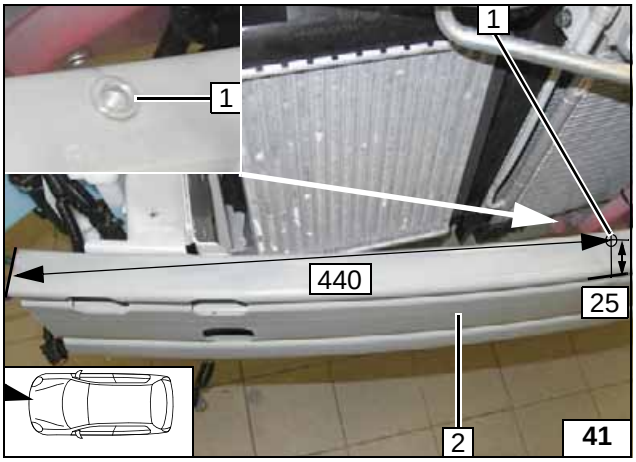
1 Stiffening plate
2 Drill 9.1 mm dia. hole; rivet nut
3 Beginning of bend [2x]

Hole for exhaust end section



Route original vehicle wiring harnesses **1** [2x] as shown and secure with cable tie **2** [2x]. Reinstall original vehicle distance warning radar **3** on the bracket.

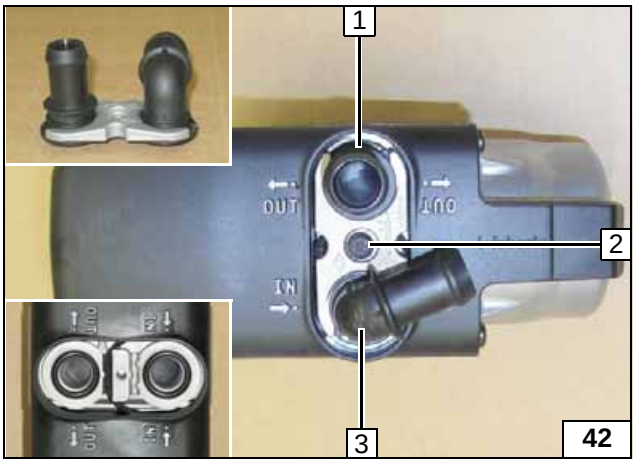
Securing original vehicle wiring harnesses



1 Drill 9.1 mm dia. hole; rivet nut
2 Cross member

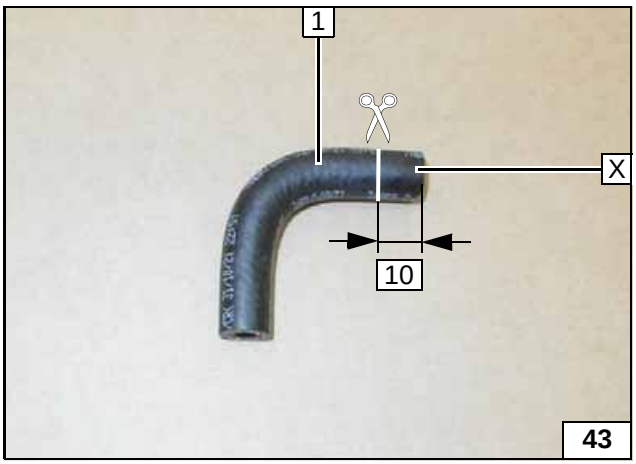
Hole for exhaust silencer

Preparing Heater



1 Axial water connection piece, sealing ring
2 5x15 self-tapping bolt, retaining plate of water connection piece
3 90º water connection piece, sealing ring

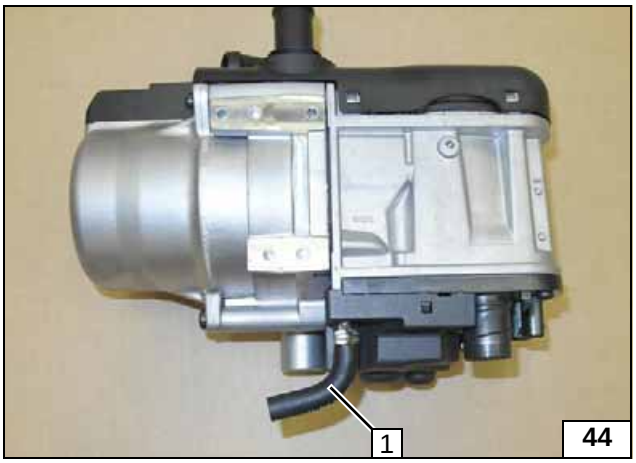
Installing water connection piece



Discard section **X**

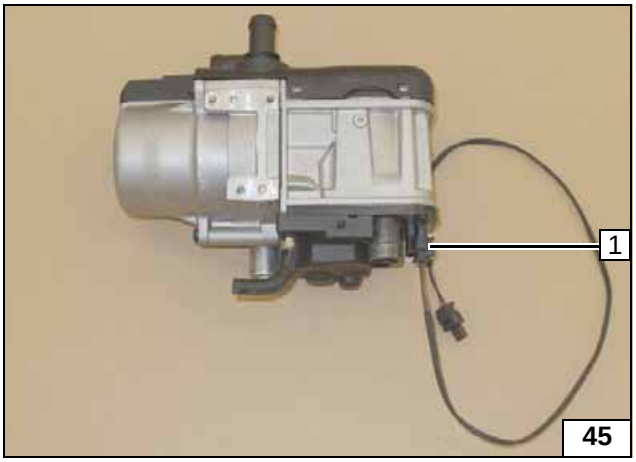
1 90° moulded hose

Cutting moulded hose to length



1 90° moulded hose (short side on connection piece), 10mm dia. clamp

Premounting moulded hose

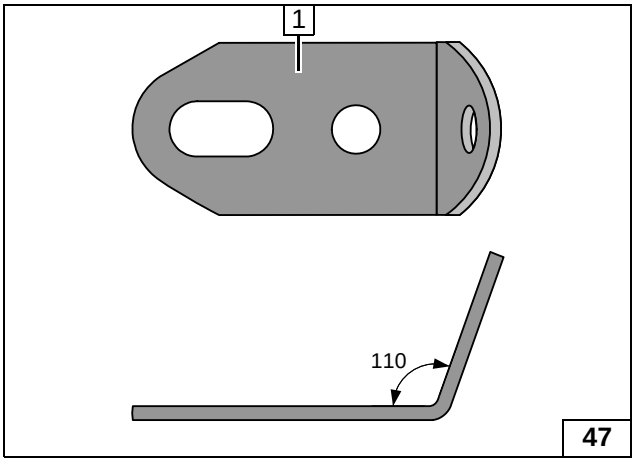


1 Connector of circulating pump wiring harness

Connecting wiring harness of circulating pump to heater

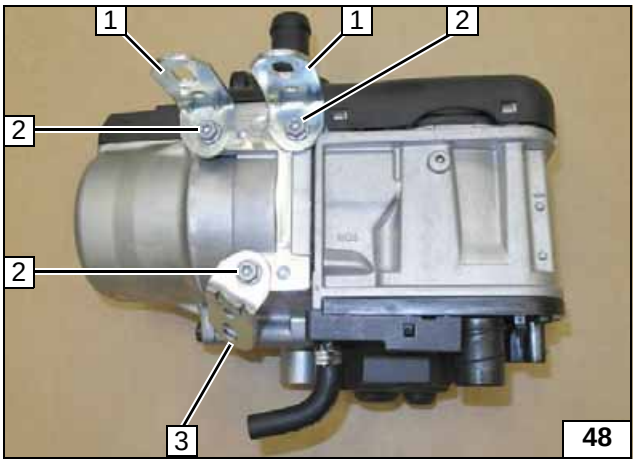
Screw self-tapping stud bolt M5GFx11 / M6x15.5 at position **1** into existing hole.

Premounting self-tapping stud bolt



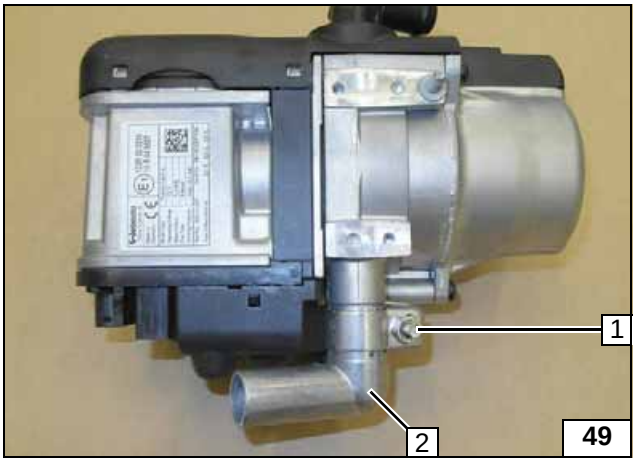
1 Angle bracket of combustion air pipe

Bending angle bracket upwards



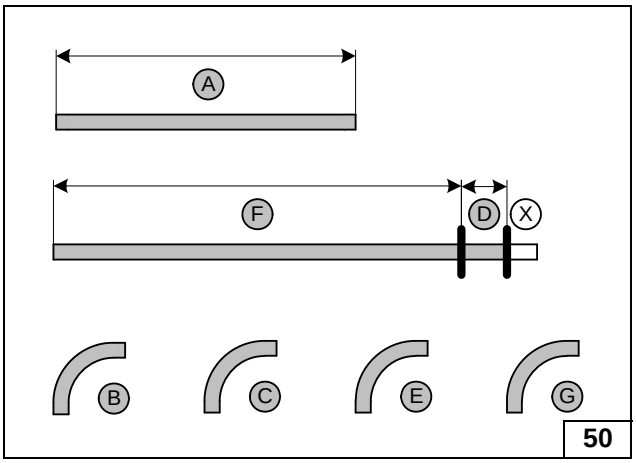
1 Angle bracket [2x]
2 5x13 self-tapping screw [3x]
3 Angle bracket of combustion air pipe

Premounting angle bracket hand-tight



1 Hose clamp
2 Exhaust elbow

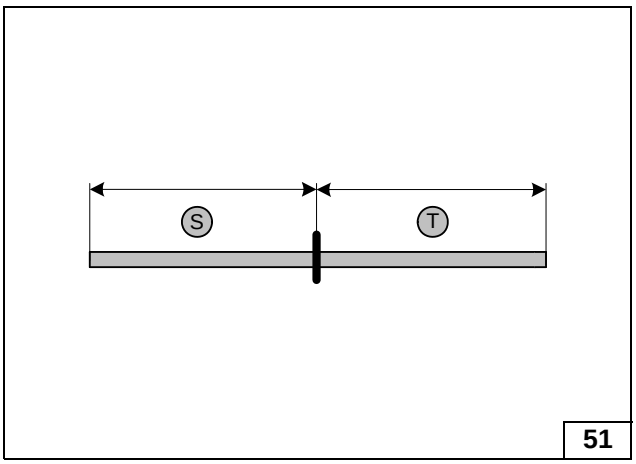
Installing exhaust elbow



Discard section **X**.
Hoses **B**, **C**, **E**, **G** = 90° moulded hoses 18mm dia.

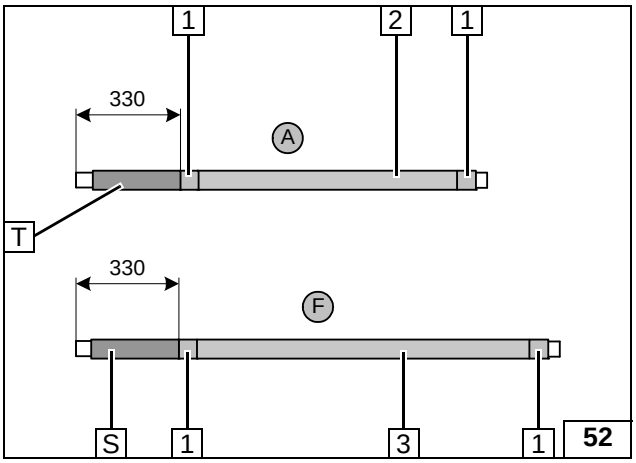
A = 1000
D = 110
F = 1400

Cutting hoses to length



S = 300
T = 300

Cutting heat protection hose in half

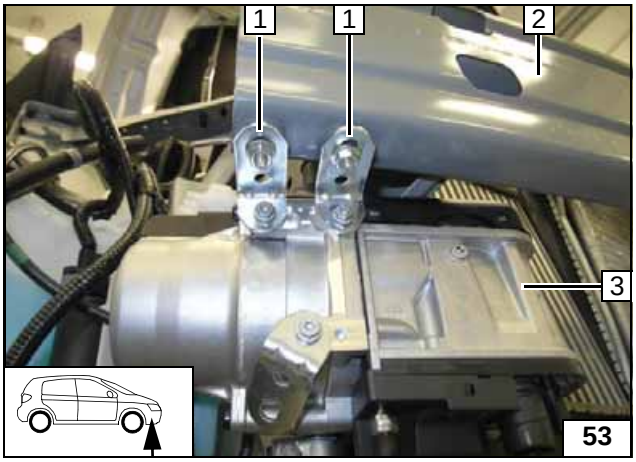


Push braided protection hoses onto hoses **A** and **F**.
Cut heat shrink plastic tubing to length.

Slide heat protection hoses onto hoses **A** and **F**.

1 60mm long heat shrink plastic tubing [4x]
2 950 mm braided protection hose
3 1500 mm braided protection hose
S Heat protection hose
T Heat protection hose

Preparing hoses

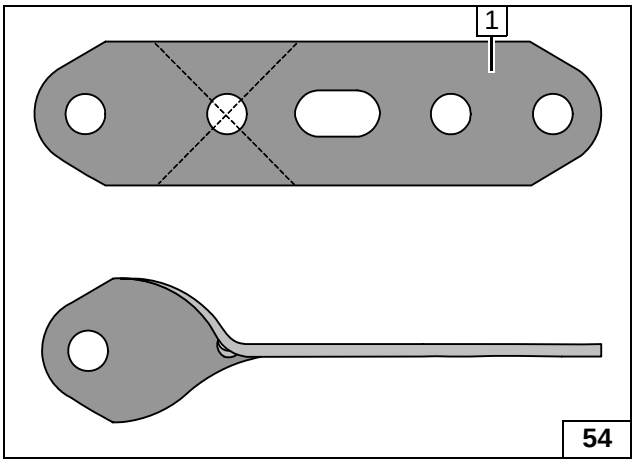


Installing Heater

Install angle bracket **1** [2x] hand-tight on cross member **2**.

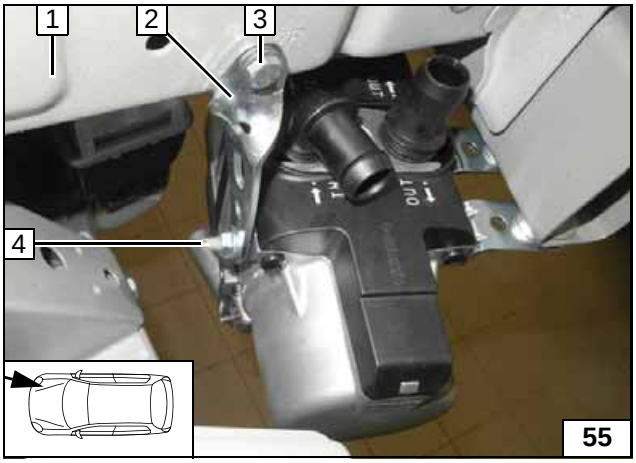
3 Heater

Installing heater



1 Perforated bracket

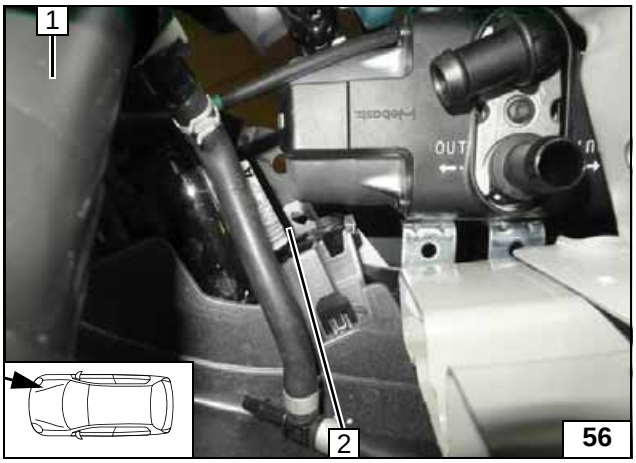
Twisting perforated bracket of heater by 90°



Install perforated bracket of heater **2** hand-tight on cross member **1**.

3 M6x20 bolt, rivet nut
4 Premounted stud bolt, flanged nut

Installing heater

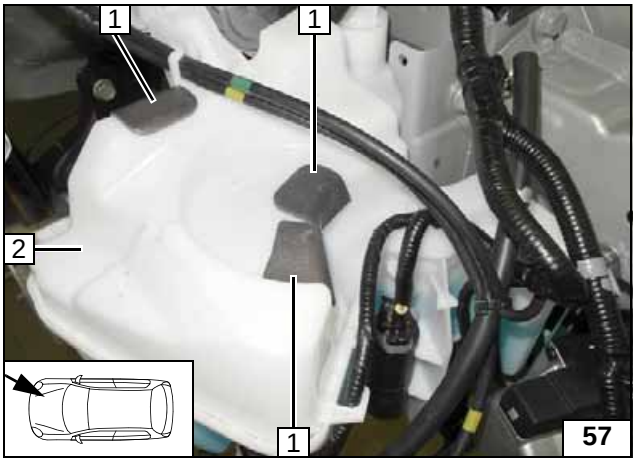


Install bumper **1** hand-tight.

Ensure sufficient distance from neighbouring components (front fog lights **2**), correct if necessary.
Tighten screw fittings on heater [4x].

Disassemble the bumper again.

Installing heater

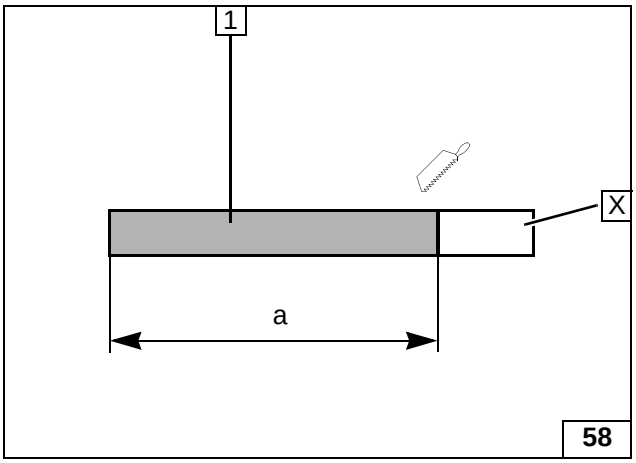


1 Insulation protection strips (cut in half) [3x]
2 Washer reservoir

Cutting to size and sticking on insulation protection strips

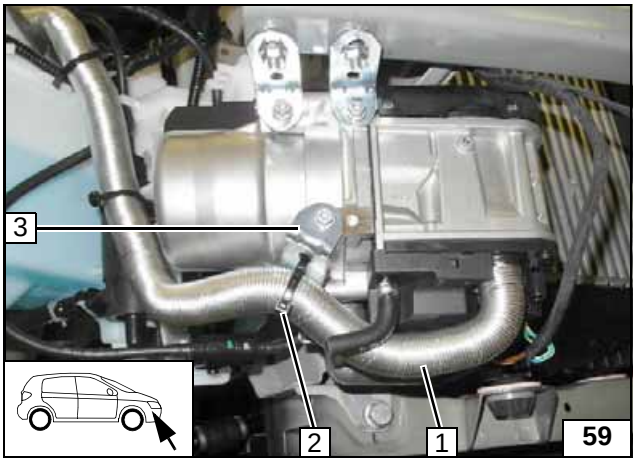
Combustion Air

Discard section **X**.



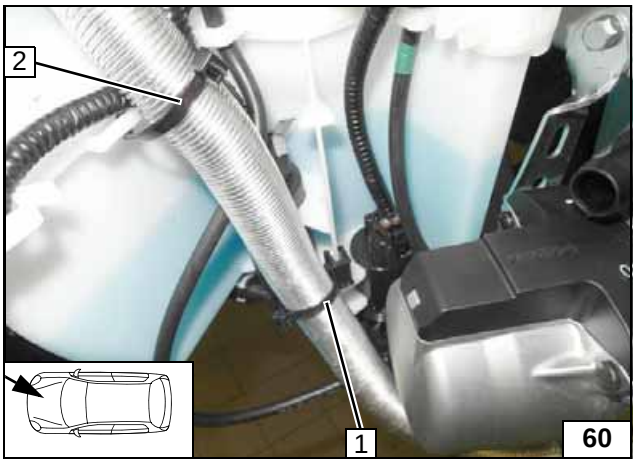
1 Combustion air pipe
a = 750

Cutting combustion air pipe to length



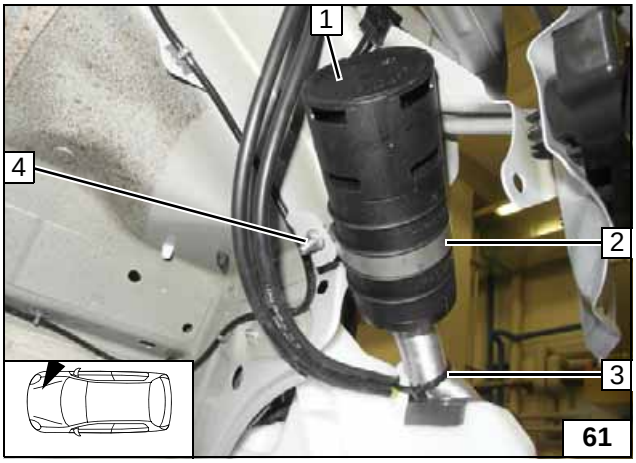
1 Combustion air pipe
2 Cable tie
3 Angle bracket

Installing combustion air pipe



1 Clip-type cable tie
2 Cable tie

Installing combustion air pipe



1 Combustion air silencer
2 51 mm dia. clamp
3 Cable tie
4 M5x16 bolt, large diameter washer, original vehicle hole, flanged nut

Installing combustion air silencer

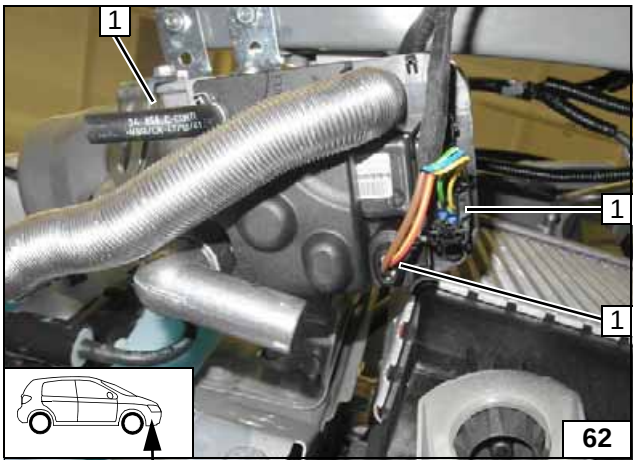
Fuel

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.

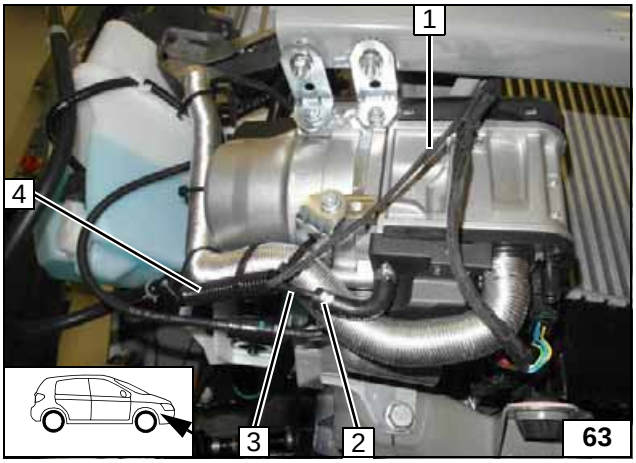
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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



1 Connector for wiring harness of heater [2x]

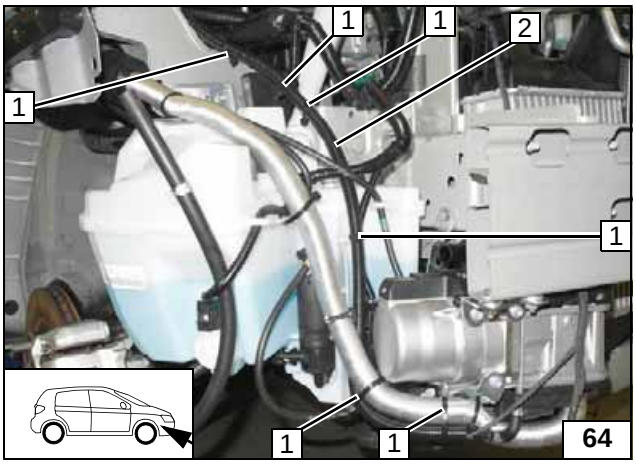
Installing heater wiring harness



Pull fuel line **3** and wiring harness of metering pump **1** into 10mm dia. corrugated tube **4**.

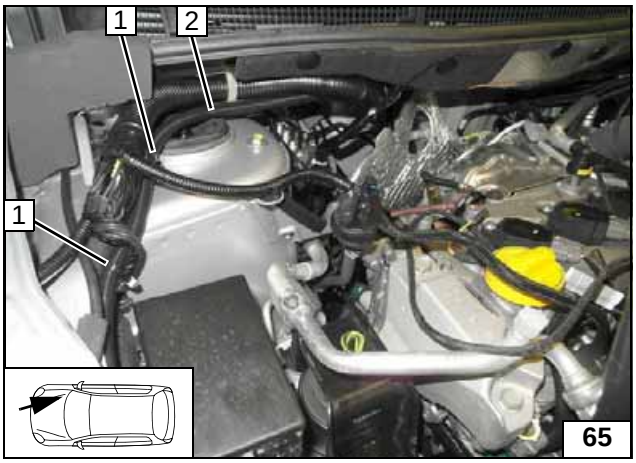
2 10mm clamp

Connecting heater



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **2** in the engine compartment and secure it using cable ties **1** [6x].

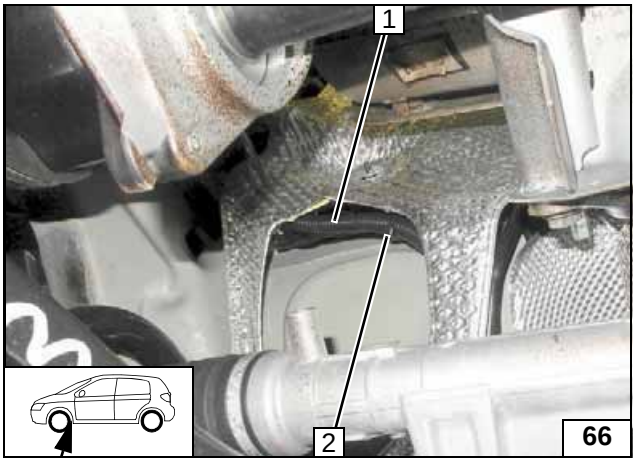
Routing lines



Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **2** along original vehicle brake lines to underbody.

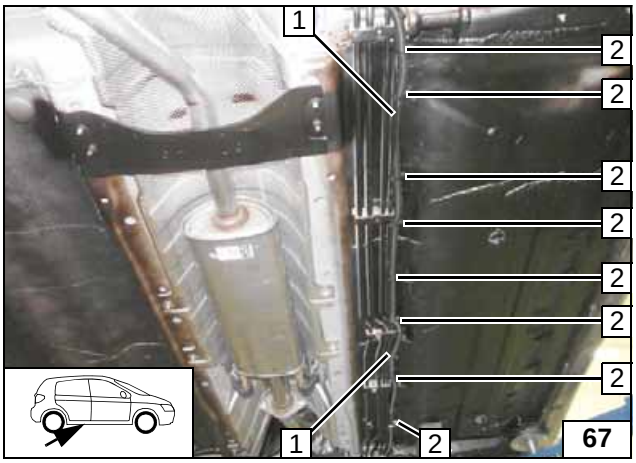
1 Cable tie [2x]

Routing lines



1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube
2 Cable tie

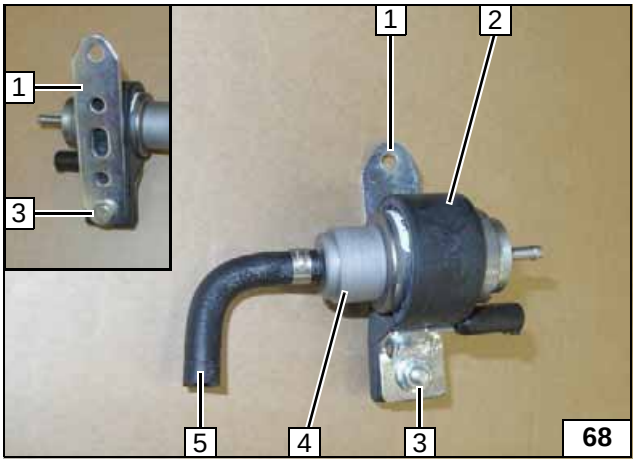
Routing lines



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.

2 Cable tie [8x]

Routing lines

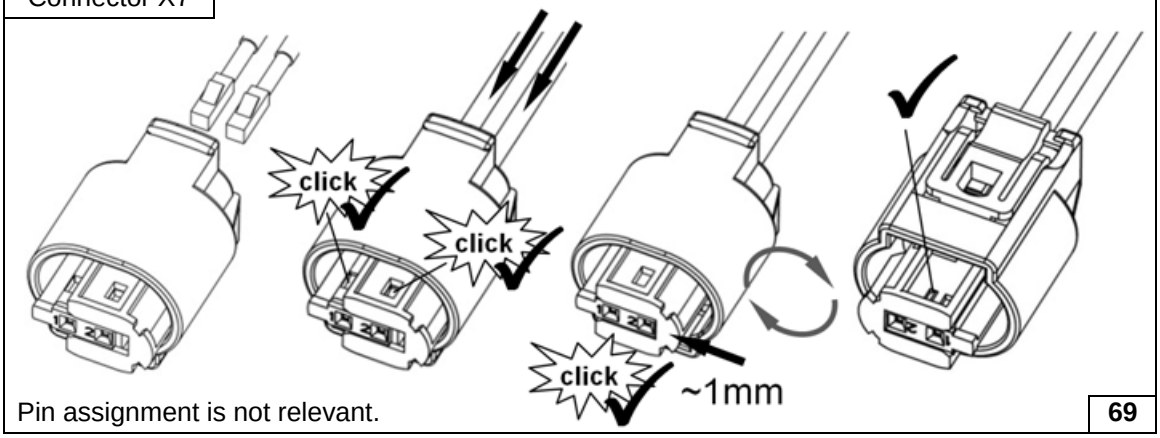


1 Perforated bracket
2 Metering pump mounting bracket
3 M6x25 bolt, support angle bracket, flanged nut
4 Metering pump
5 90° moulded hose, 10 mm dia. clamp

Premounting metering pump

Completing metering pump connector

Connector X7



Pin assignment is not relevant.

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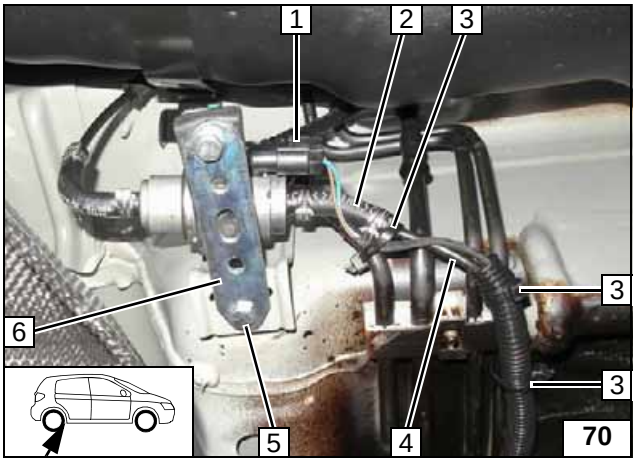
Installing and connecting metering pump



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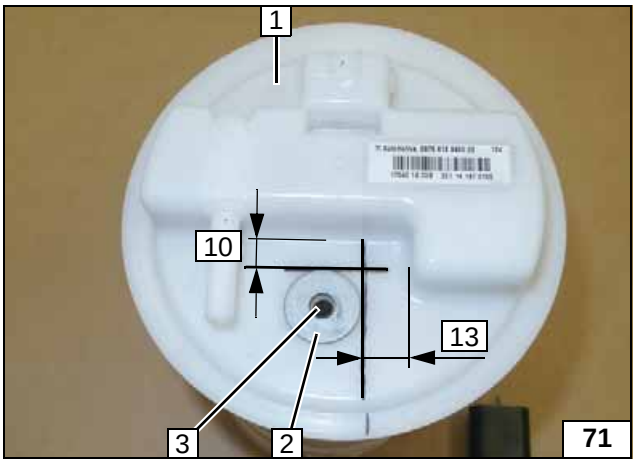
1 Wiring harness of metering pump, connector X7 mounted
2 Hose section, 10 mm dia. clamp [2x]
3 Cable tie [3x]
4 Fuel line of Heater
5 M6x20 bolt, flanged nut, existing hole
6 Perforated bracket

Fuel extraction



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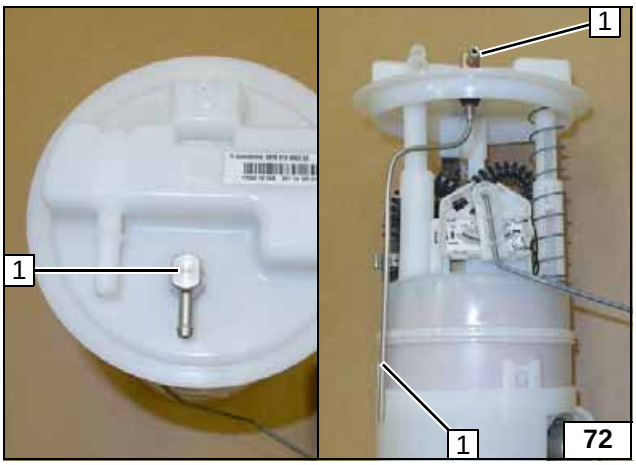
Remove fuel tank sending unit **1** in accordance with manufacturer's instructions. Position large diameter washer with outer dia. d_a = 21.6mm **2** at the markings.

3 Copy hole pattern, 6 mm dia. hole

Installing fuel standpipe



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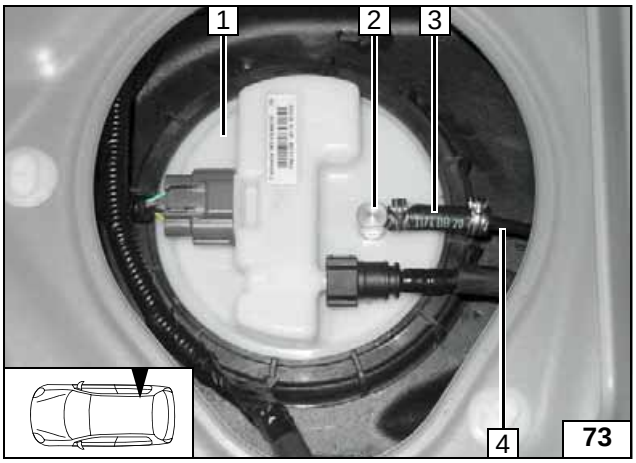
Bend fuel standpipe **1** according to template, cut to length and deburr.



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

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

Connecting fuel line

Ensure sufficient distance to neighbouring components, correct if necessary.

1 10mm dia. clamp
2 Fuel line of fuel standpipe

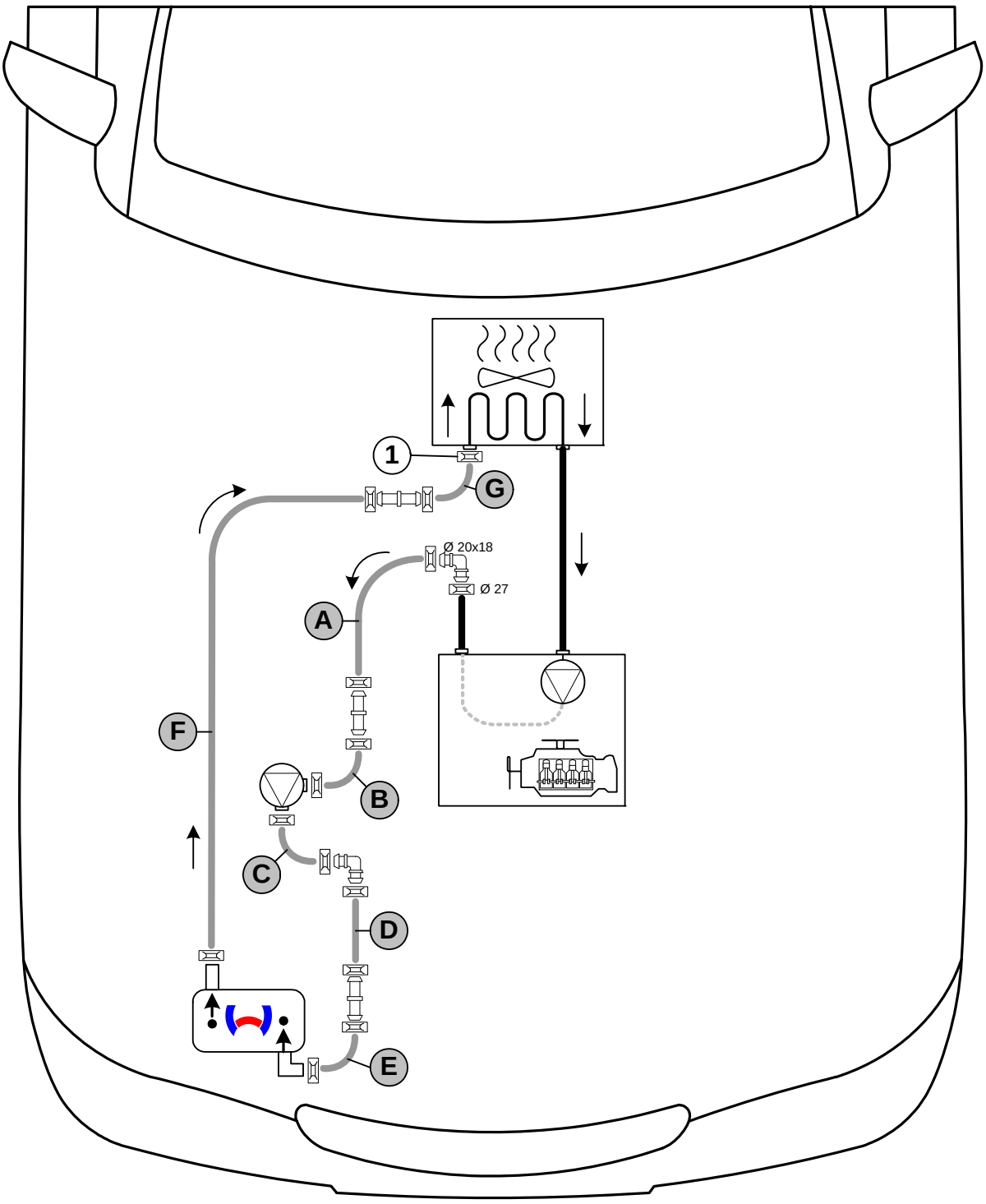
Connecting metering pump

Coolant Circuit

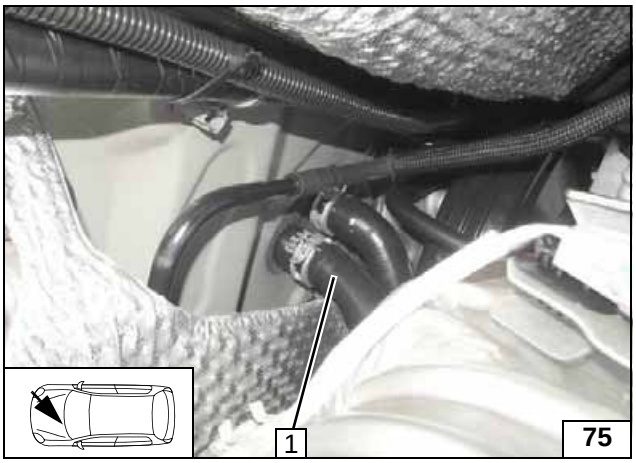
Any coolant running off should be collected in an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hoses can be damaged. When installing the hoses, the heater must be filled with coolant.

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

Hose routing diagram



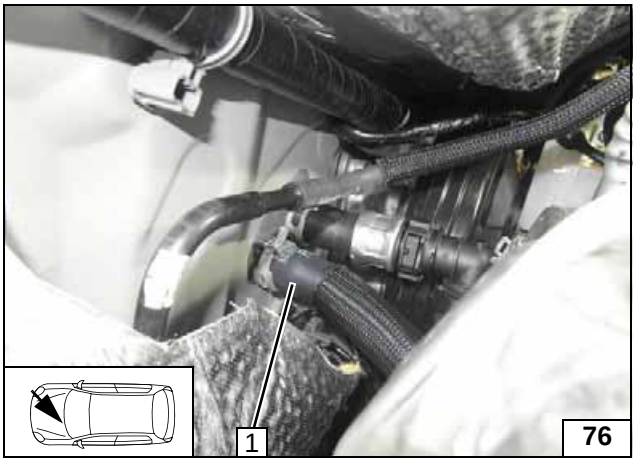
All spring clips without a specific designation = 25mm dia. **1** = Original vehicle spring clip .
All connecting pipes without a specific designation and = 18x18mm dia.



Manual transmission

Detach engine outlet/heat exchanger inlet hose **1** from connection piece of heat exchanger inlet.

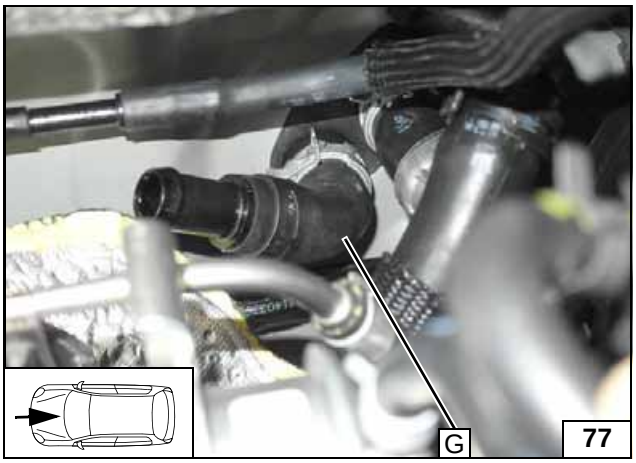
Cutting point



Automatic transmission

Detach engine outlet/heat exchanger inlet hose **1** from connection piece of heat exchanger inlet.

Cutting point

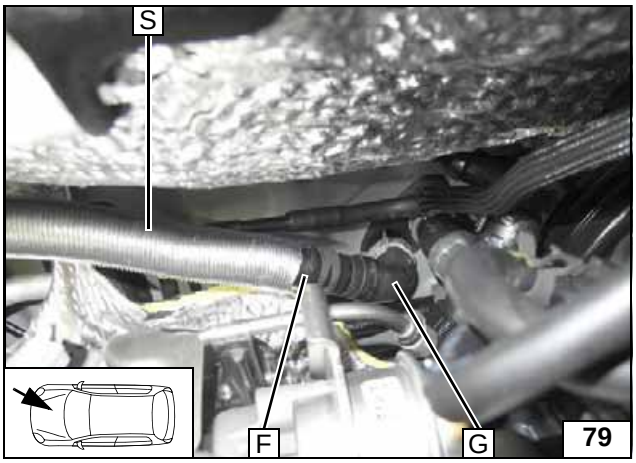


All vehicles

Connecting heat exchanger inlet

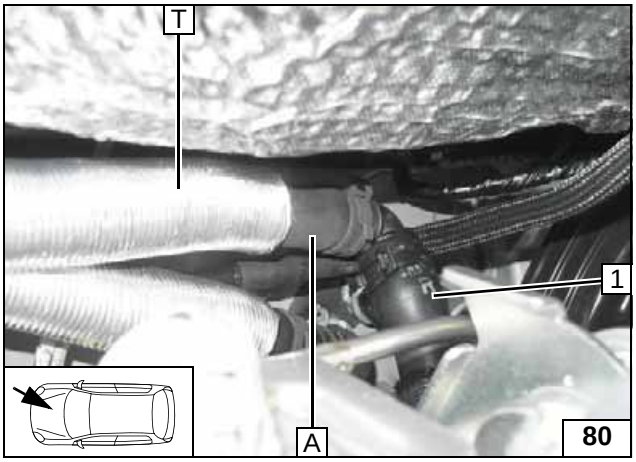
1 Engine outlet hose section

Connecting engine outlet



Connecting heat exchanger inlet

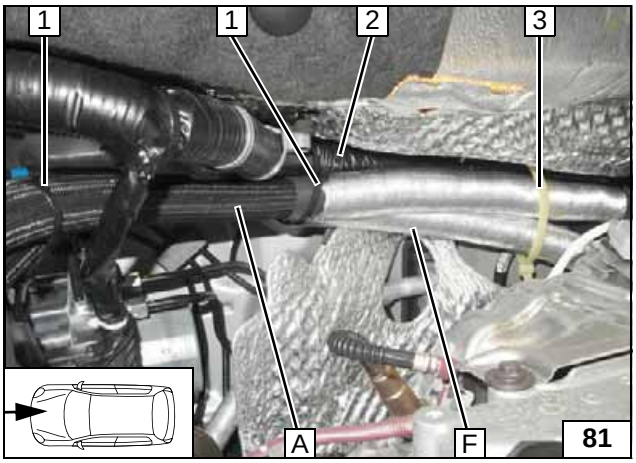
1 Engine outlet hose section



Connecting engine outlet

Align hoses and secure using cable ties **1** [2x].

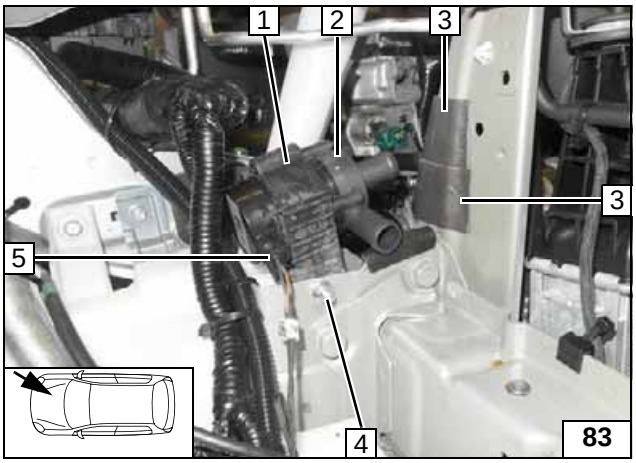
2 Original vehicle wiring harness
3 Yellow cable tie



Routing in engine compartment

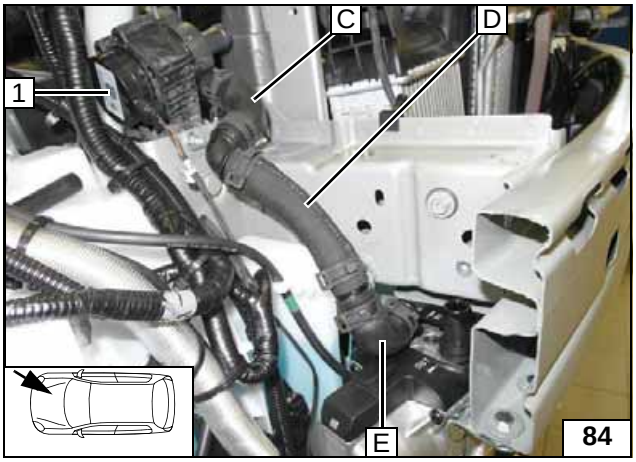
1 Cable tie
2 100mm edge protection

Routing in engine compartment



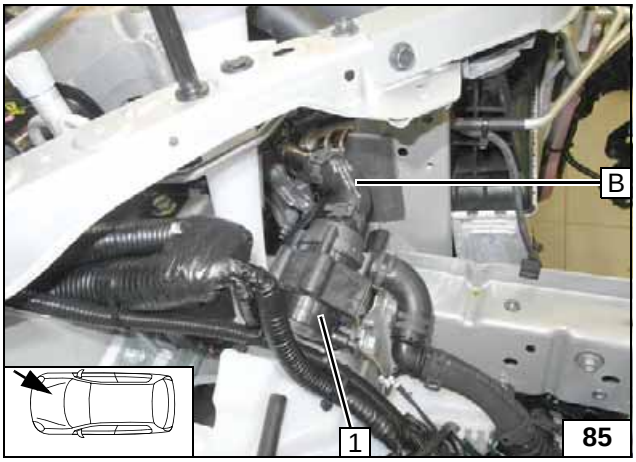
1 Circulating pump mounting bracket
2 Circulating pump
3 Insulation protection strips, cut in half [2x]
4 M6x25 bolt, large diameter washer, flanged nut
5 Connector of circulating pump wiring harness

Installing circulating pump



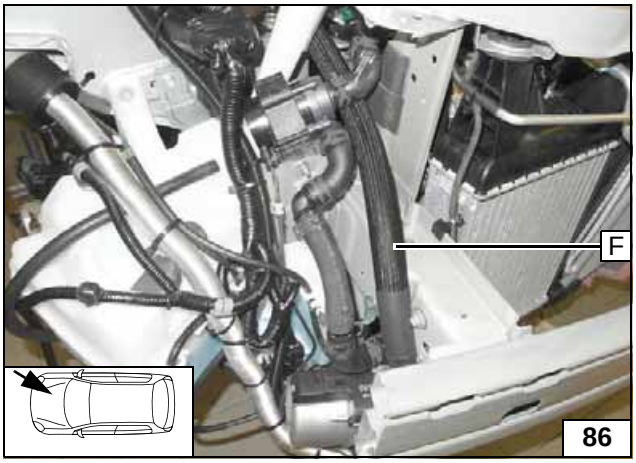
1 Circulating pump

Connecting heater inlet

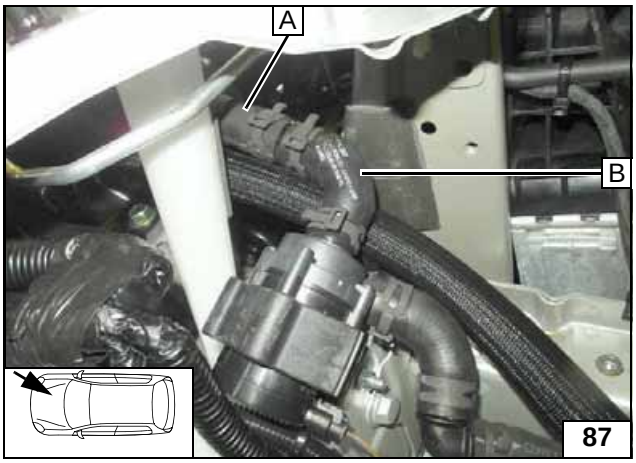


1 Circulating pump

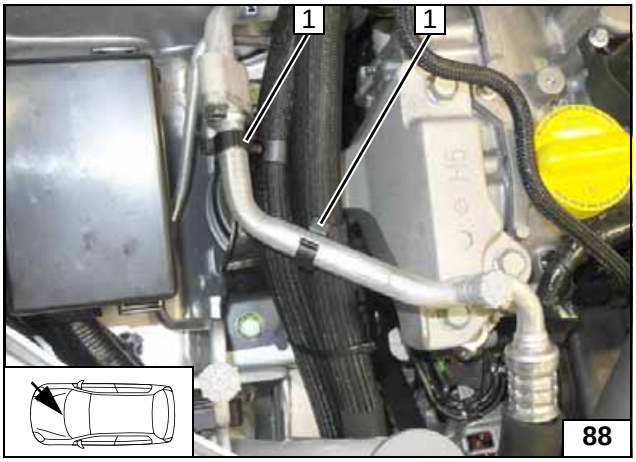
Connecting hose B to circulating pump



Connecting heater outlet



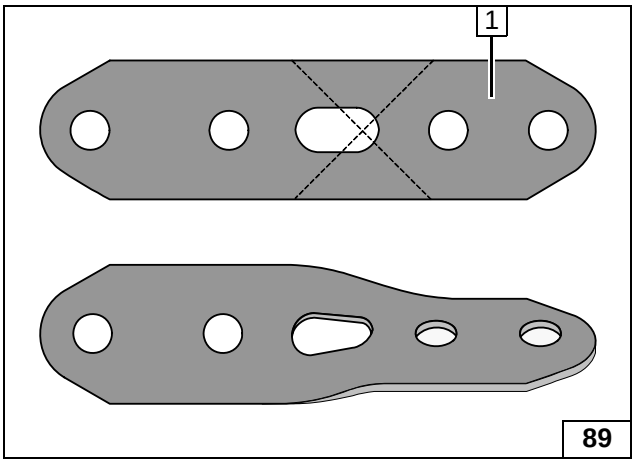
Connnecting hose A



Ensure sufficient distance to neighbouring components, correct if necessary.

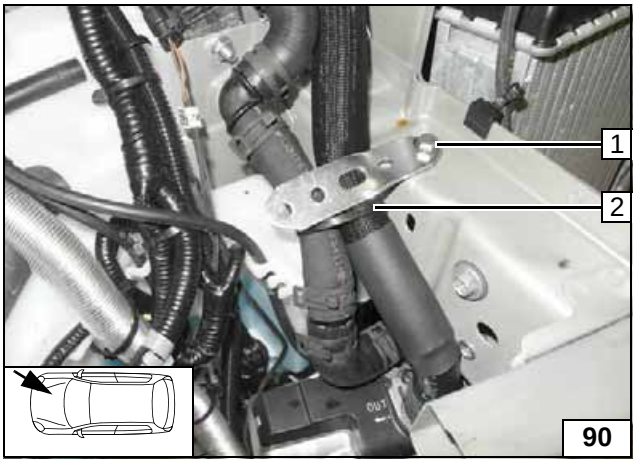
1 22/13 hose bracket [2x]

Aligning hoses



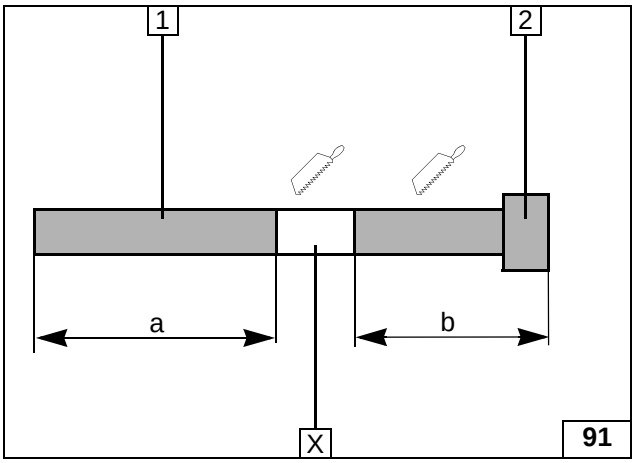
1 Perforated bracket

Twisting perforated bracket of hose bracket by 45°



1 M6x20 bolt, spring lockwasher, perforated bracket used as hose bracket
2 Cable tie

Installing perforated bracket

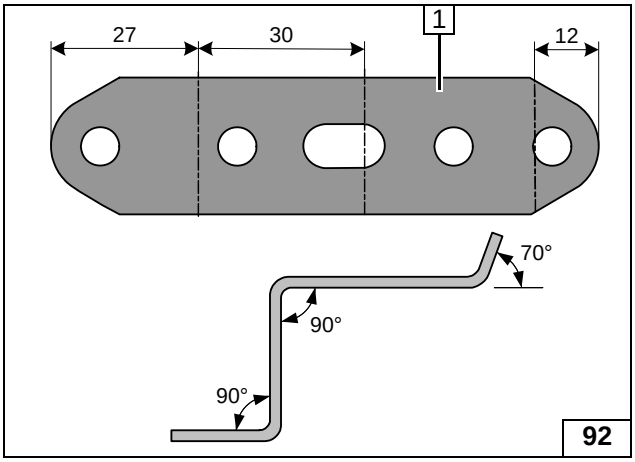


Exhaust Gas

Discard section **X**.

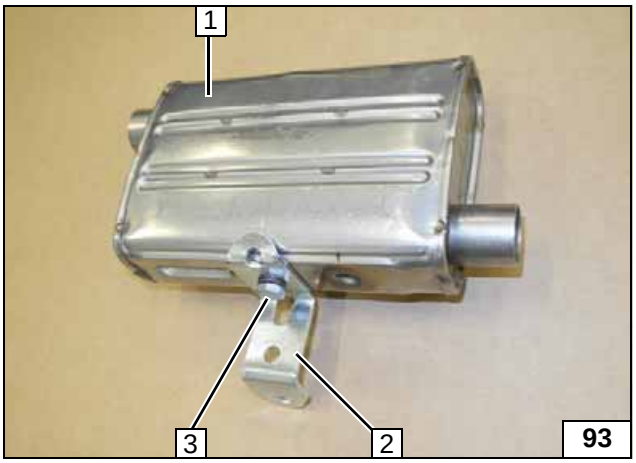
1 Exhaust pipe
a = 480
2 Exhaust end section
b = 350

Preparing exhaust pipe



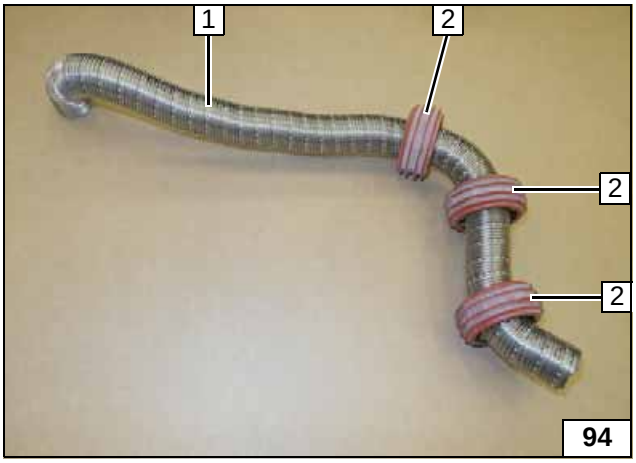
1 Perforated bracket

Preparing perforated bracket of exhaust silencer



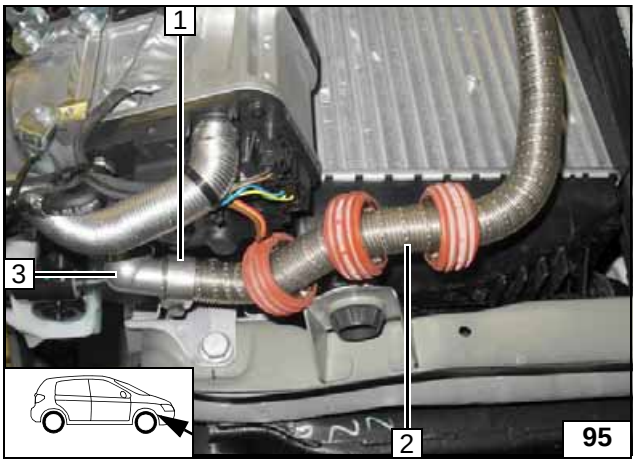
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Installing perforated bracket of exhaust silencer



Bend exhaust pipe **1** as shown and slide on spacer bracket **2** [3x] .

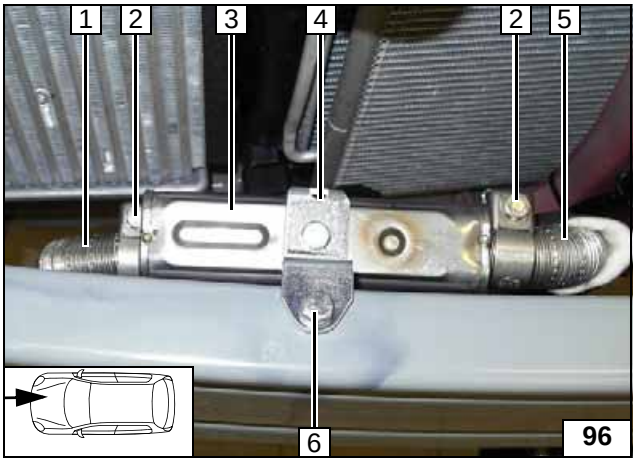
Bending exhaust pipe



Install exhaust pipe **2** on exhaust elbow **3** and align as shown. Ensure sufficient distance from neighbouring components, correct if necessary (at least 20mm from plastic parts and wiring harnesses)!

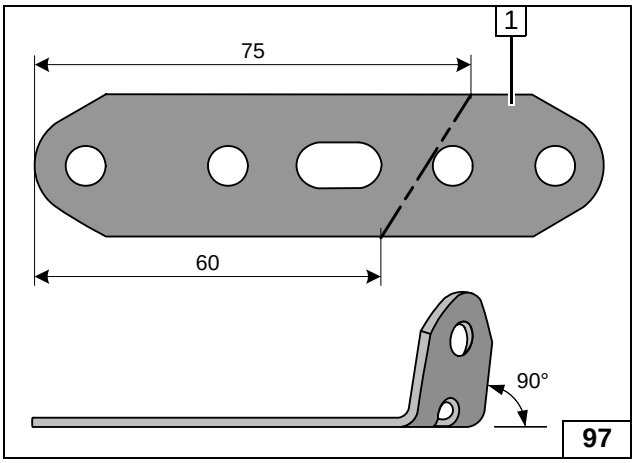
1 Hose clamp

Mounting exhaust pipe



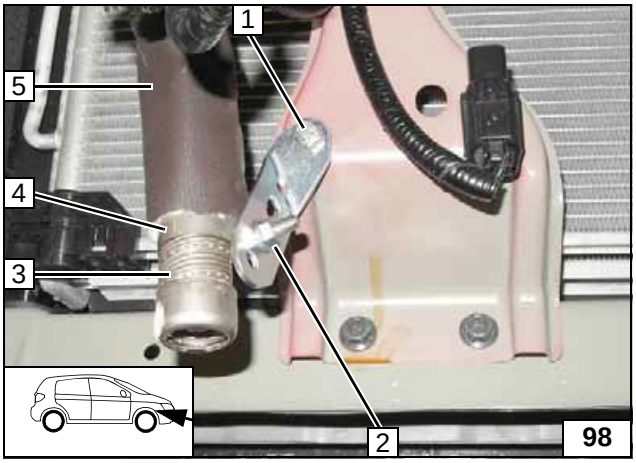
1 Exhaust pipe
2 Hose clamp [2x]
3 Silencer
4 Perforated bracket of exhaust silencer
5 Exhaust end section
6 M6x20 bolt, spring lockwasher

Mounting silencer



1 Perforated bracket

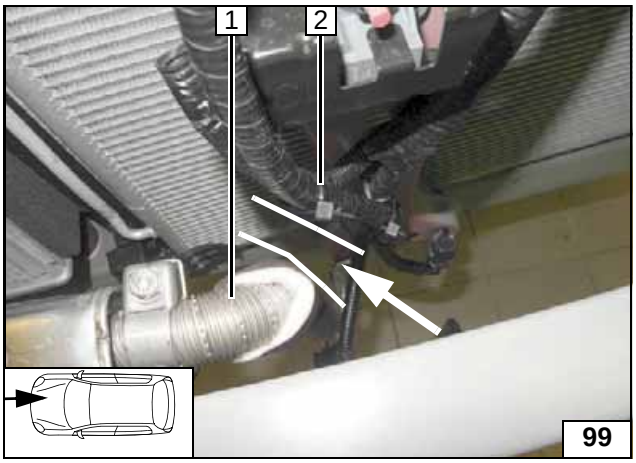
Preparing perforated bracket of exhaust end section



Slide insulation **5** onto exhaust end section **3**.

1 M6x20 bolt, spring lockwasher, perforated bracket of exhaust end section
2 M6x20 bolt, flanged nut
4 P-clamp

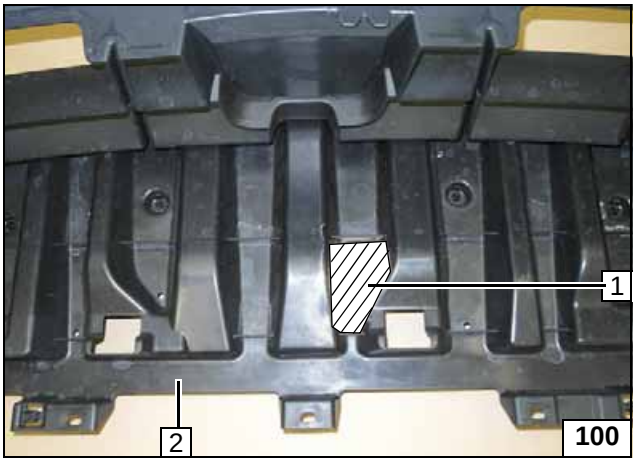
Mounting exhaust end section



Ensure sufficient distance (25-30mm) from original vehicle wiring harnesses at position **2**, correct if necessary!

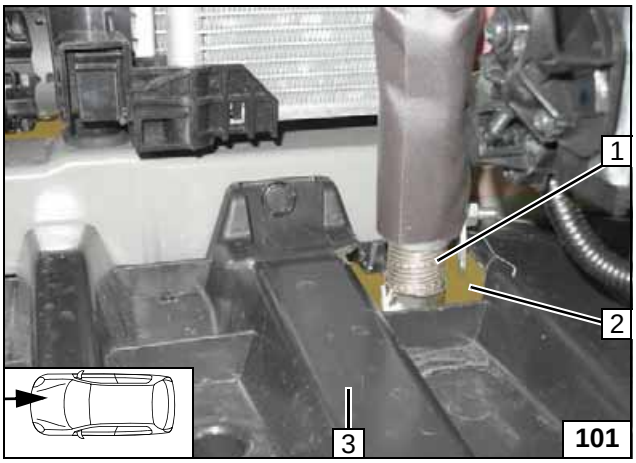
1 Exhaust end section

Aligning silencer and exhaust end section



Cut out hatched area **1** of underride protection **2** as shown.

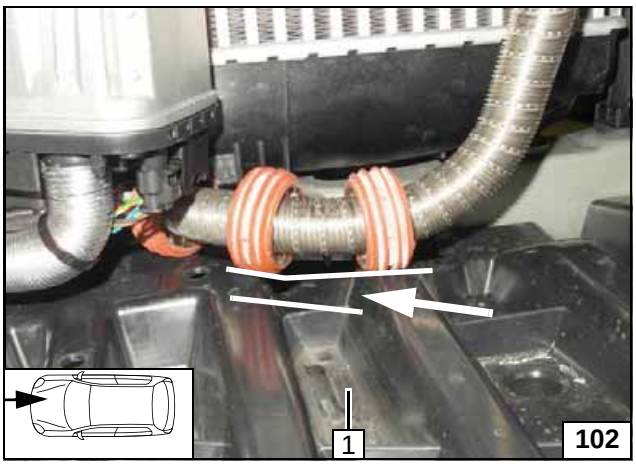
Cutting out underride protection



Align exhaust end section **1** with the centre of pass through **2**. Ensure sufficient distance to neighbouring components, correct if necessary.

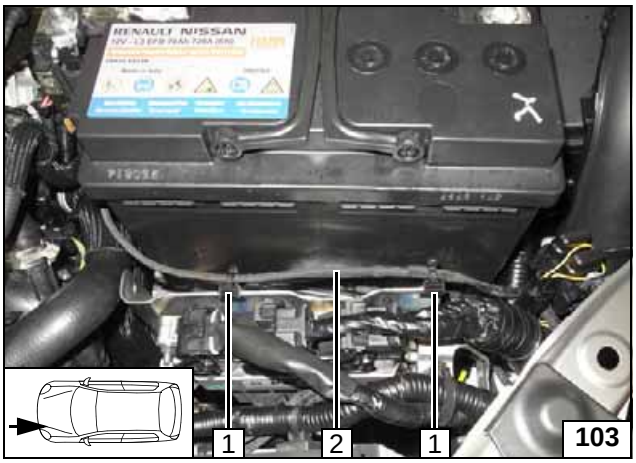
3 Underride protection

Mounting underride protection



Ensure sufficient distance from underride protection **1**, correct if necessary (at least 20mm).

Mounting underride protection

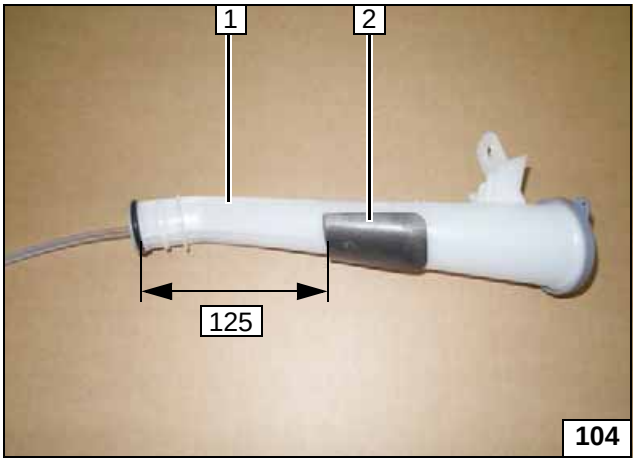


Final Work

Mount clip-type cable tie **1** [2x] on the side of the engine control unit bracket!

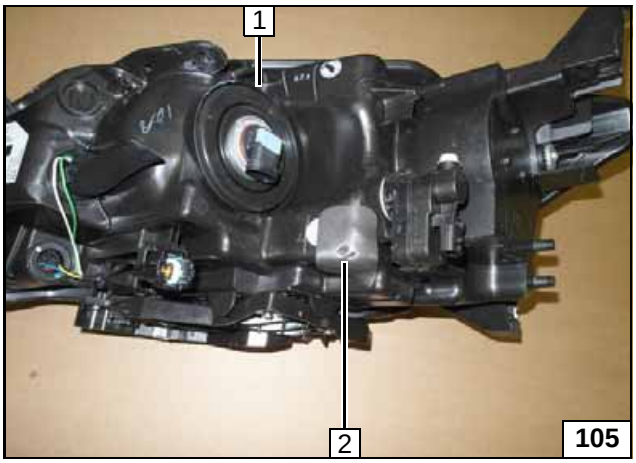
2 Positive wire

Securing positive wire



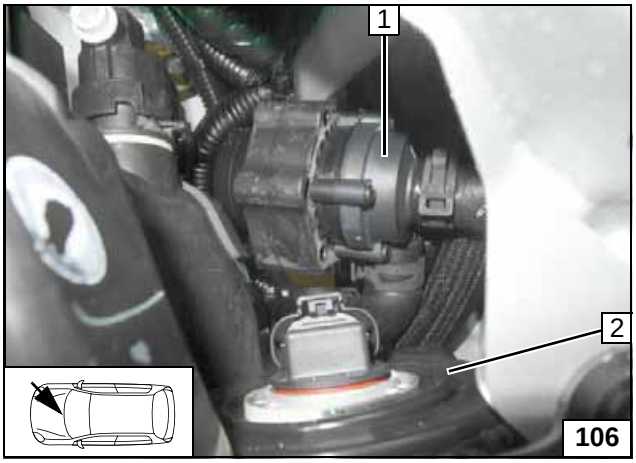
1 Filler neck for washing water
2 Insulation protection strips (cut in half)

Cutting insulation strips in half and sticking them on



1 Right-hand headlight
2 Insulation strip (cut in half)

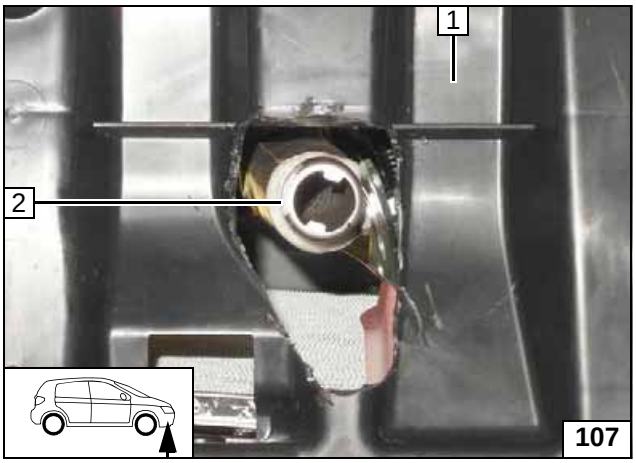
Sticking on insulation strip



Ensure sufficient distance to neighbouring components, correct if necessary.

1 Circulating pump
2 Headlight installed

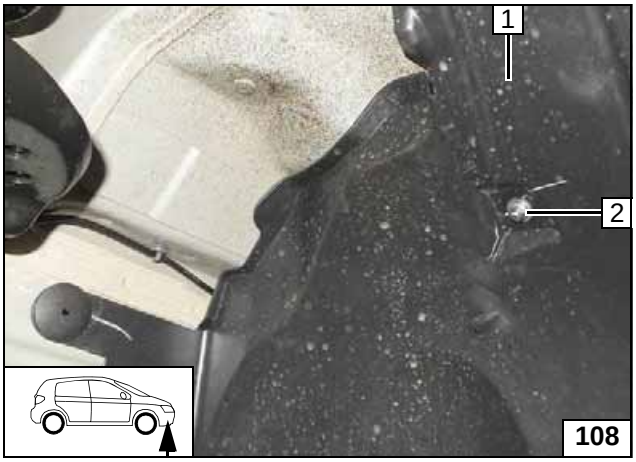
Aligning hoses



Align exhaust end section **2** with the centre of pass through.

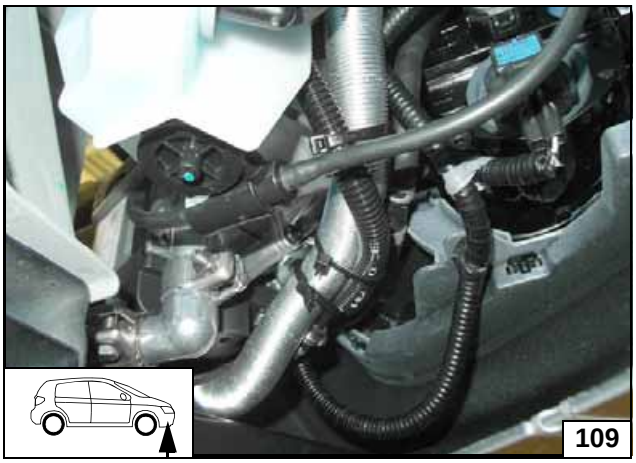
1 Underride protection installed

Aligning exhaust end section



1 Wheel well trim
2 M5 flanged nut, large diameter washer on bolt of combustion air silencer

Installing wheel well trim



Ensure sufficient distance from wiring harness of front fog lights and from the hoses of the window washer system, correct if necessary.

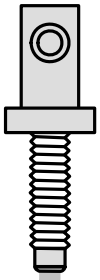
Final Work

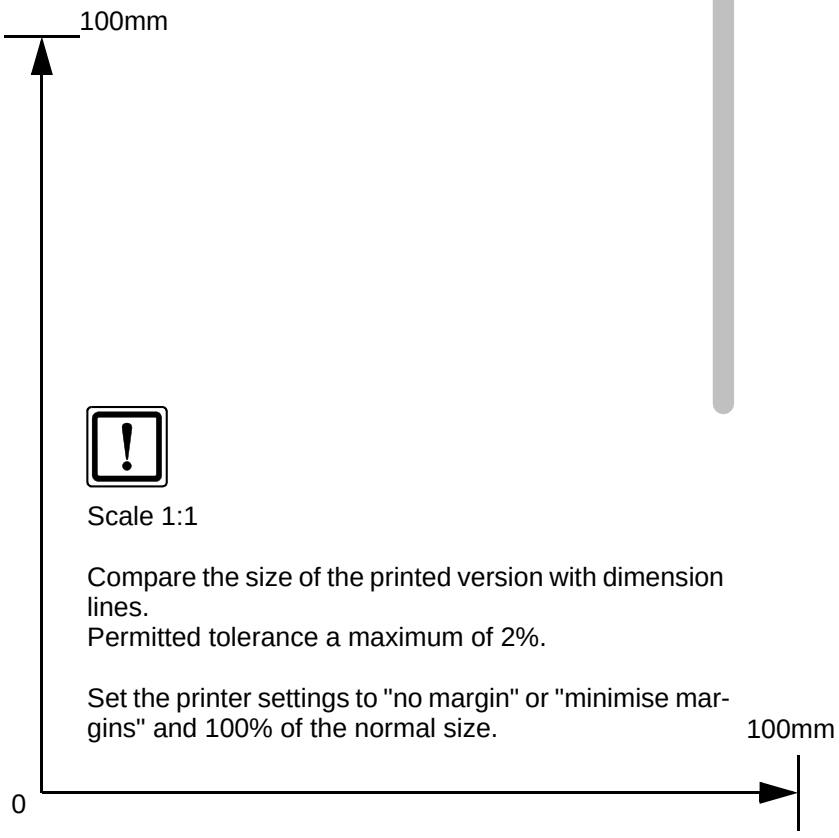
Reassemble the disassembled components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate all loose lines and tie back.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications**
- **Program MultiControl CAR, teach Telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Apply the caution label "Switch off parking heater before refuelling" in the area of the filler neck**
- **See installation instructions for initial start-up and function check**

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

Template for Fuel Standpipe





Scale 1:1

Compare 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.

Operating Instructions for End Customer

Please remove page and add to the vehicle operating instructions.

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

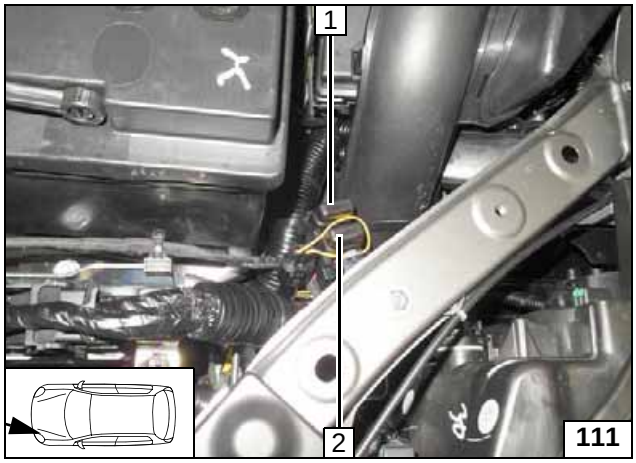
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating cycle.
Deactivation instructions can be found in the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

It is not necessary to set the fan speed, it will be automatically set to approx. 1/3.

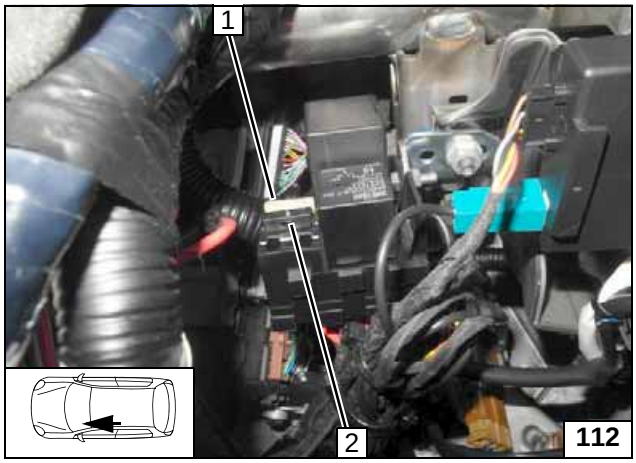
1 Set temperature on both sides to "HI"
2 Air outlet towards windscreen by means of "Mode" button

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses