Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation
Citroen DS5 / DS5 Hybrid

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Citroen	DS5	B81	e2 * 2007 / 46 * 0092 * ...
Citroen	DS5	K	e2 * 2007 / 46 * 0092 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.0 HDI	Diesel	AG	120	1997	RH02
2.0 Blue HDI	Diesel	AG	133	1997	AH02

DS5 Hybrid

Manufacturer	Model	Type	EG BE No. / ABE
Citroen	DS5 Hybrid	B81	e2 * 2007 / 46 * 0156 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.0 HDI Hybrid	Diesel	EGS6	147	1997	RHC

AG = automatic transmission
EGS6 = Electronically controlled 6-gear transmission

From model year 2012
Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog lights
Headlight washer system
Bi Xenon
Daytime running lights

Not verified: Passenger compartment monitoring

Total installation time: approx. 10.5 hours

Note:

Only experts in high-voltage systems for vehicles should be authorised to carry out independent work on hybrid vehicles!
The high-voltage system must be taken out of operation, secured and reactivated according to the manufacturer's instructions.

Citroen DS5 / DS5 Hybrid

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo according to price list
- Installation kit with FuelFix for Citroen DS5 / DS5 Hybrid 2012 Diesel: **1317685E**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

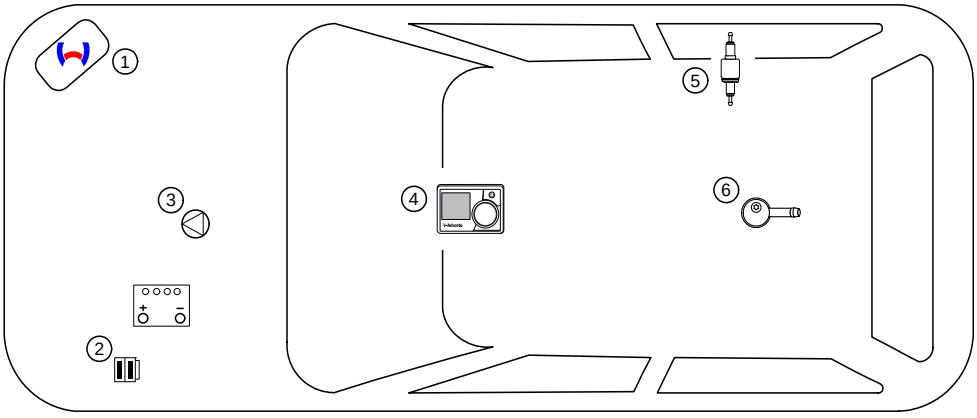
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button in case of Telestart or Thermo Call should be confirmed with the end customer.
- Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

Installation Overview

Legend:

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



Information on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

2.1 Excerpt from 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.

Citroen DS5 / DS5 Hybrid

Information on Validity

This installation documentation applies to Citroen DS5 / DS5 Hybrid Diesel vehicles - for validity, see page 1 - from model year 2012 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this ‘installation documentation’.

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

Technical Information

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

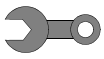
Dimensions
- All dimensions are in mm.

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

Explanatory Notes on Document

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

Mechanical System



Electrical System

Coolant Circuit

Combustion Air

Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

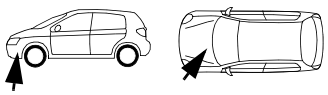
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

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

Reference to a special technical feature.

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



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

Preliminary Work

Vehicle

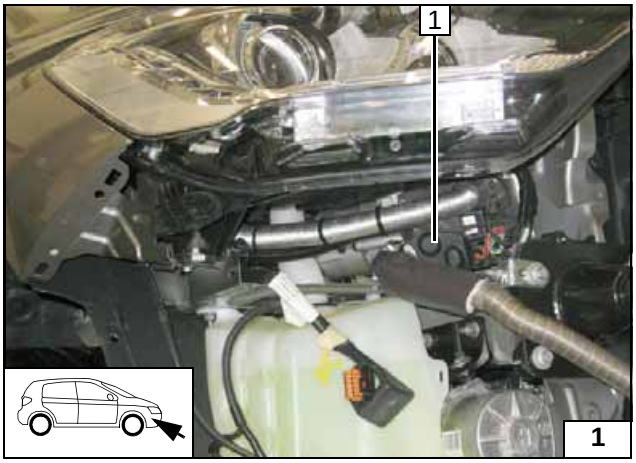
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and completely remove the battery together with the carrier.
- Deactivate the hybrid system according to the vehicle manufacturer's workshop manual.
- Disconnect the 12V vehicle battery.
- Remove the right front wheel.
- Remove the front wheel well trims on right and left hand sides.
- Remove the bumper trim (see bumper dismantling aid).
- Remove the headlights on the right and on the left.
- Remove the washer reservoir.
- Remove the air filter housing.
- Connect the 12V vehicle battery completely including carrier.
- Detach and remove the exhaust tube starting at the DPF (Warning! DPF may fall off).
- Use the cable grommet in the right-hand wheel well (passenger compartment pass through).
- Remove the underride protection (if present).
- Remove the lower instrument panel on the driver's side, expose the BSI (central switch unit).
- Remove the upper covers of the footwell trim on the driver's and front passenger's sides.

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

- Remove the left rear wheel.
- Remove the rear left wheel well trim.
- Loosen the lateral trims on the tank.
- Loosen the screw fitting on the tank filler neck.
- Detach the tank according to the manufacturer's instructions and lower it.

Heater

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



Heater Installation Location

1 Heater

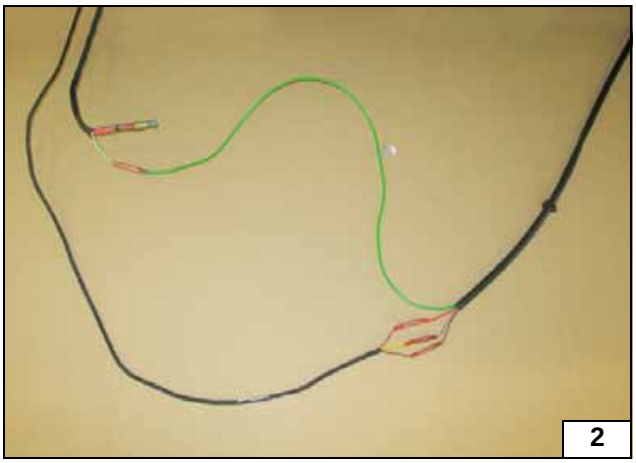
Installation location

Preparing Wiring Harnesses

Wire sections retain their numbering in the entire document.

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

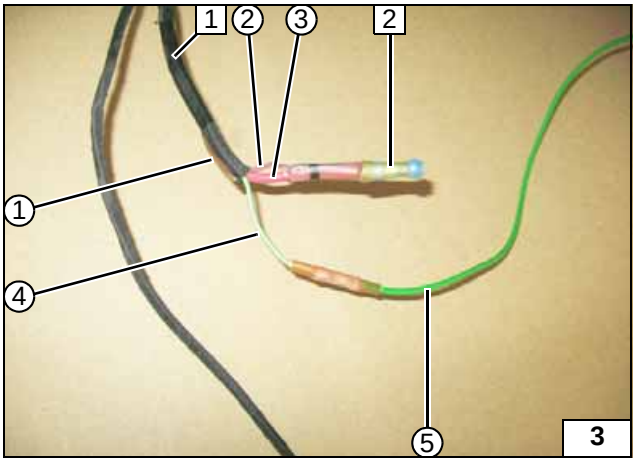
Overall view of wiring harness preparations



Insulate and tie back brown (br) wire ① from wiring harness of heater **1**.

2 Connect red/black (rt/sw) wire with red (rt) wire (solder wire terminator)
② Red/black (rt/sw) wire of heater control X10
③ Red (rt) wire of fuse F2
④ Green/white (gn/ws) wire of heater X1/5
⑤ Additional 3000 mm long green/white (gn/ws) wire

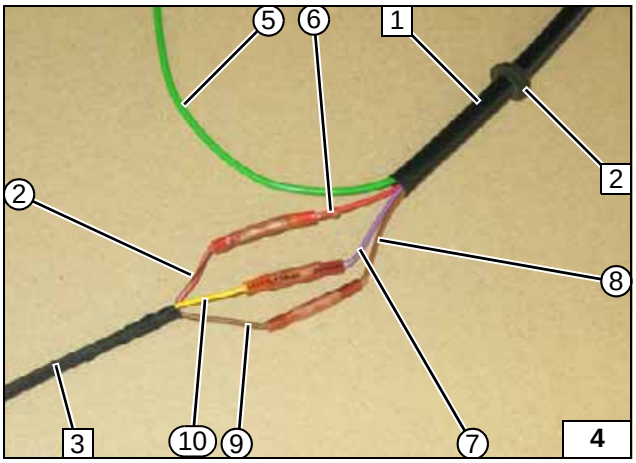
Preparing wiring harness of heater



Remove connector of heater controls from wiring harness of heater control **3** . Disconnect coupling from wiring harness extension **1**. Also pull additional green/white (gn/ws) wire ⑤ into protective sleeving of wiring harness extension **1**.

2 Slide on original vehicle protective rubber plug
② Red/black (rt/sw) wire of heater wiring harness
⑥ Red (rt) wire of wiring harness extension X10
⑦ Violet (vi) wire of wiring harness extension X10
⑧ Brown (br) wire of wiring harness extension X10
⑨ Brown (br) wire of heater wiring harness
⑩ Yellow (ge) wire of heater wiring harness

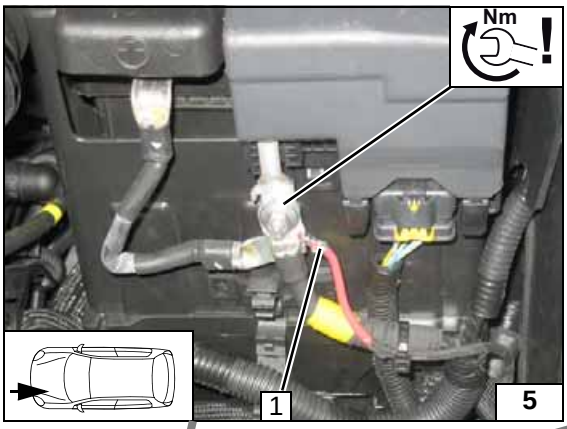
Connecting wires



Electrical System

Positive wire

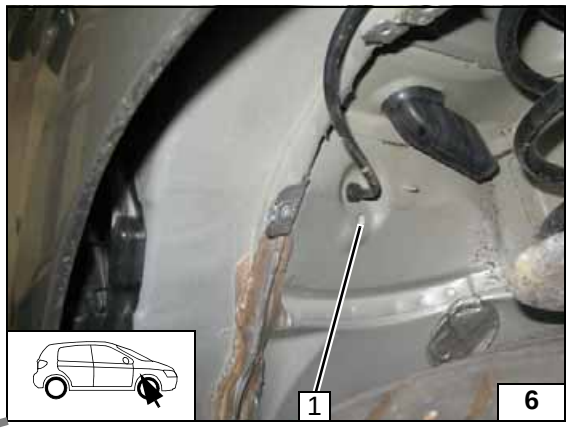
1 Positive wire on positive battery distributor



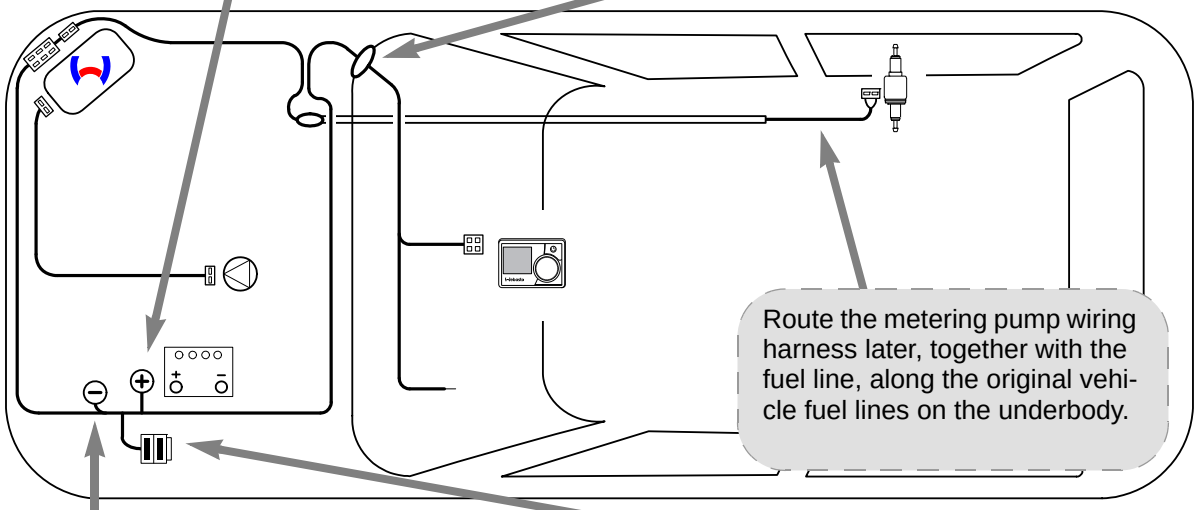
Wiring harness pass through

See following page for wiring harness routing!

1 Existing hole for wiring harness pass through in passenger compartment

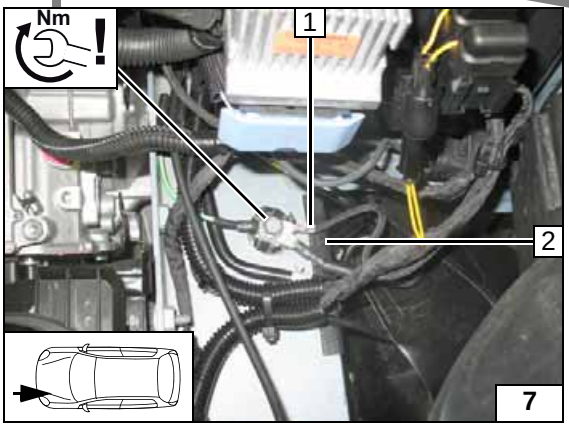


Wiring harness routing diagram



Earth wire

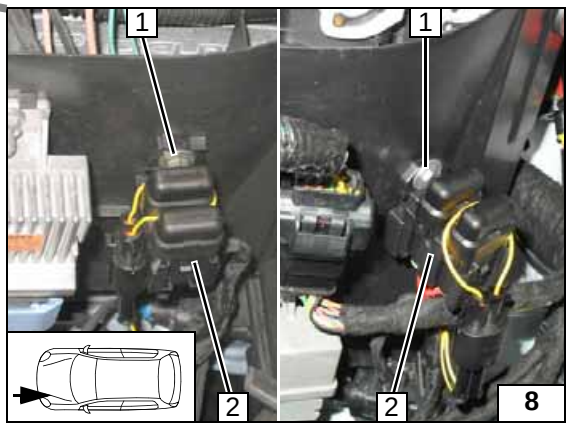
1 Earth wire on original vehicle earth support point
2 Insert 100 mm edge protection



Engine compartment fuse holder

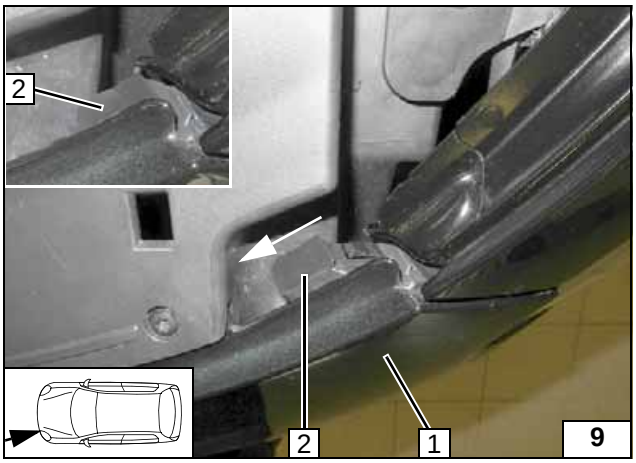
Remove cover from existing hole at position **1** in case of **DS5**, in case of **DS5 Hybrid** drill 6.5mm dia. hole at position **1**.

1 M5x20 bolt, washer [2x], retaining plate for fuse holder, flanged nut
2 Fuses F1-2



Bumper Dismantling Aid

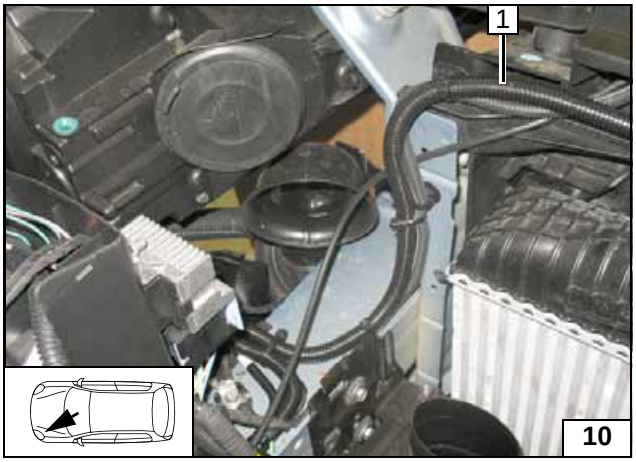
Detach locking device **2** [2x] from bumper trim **1** carefully on both sides.
Will be remounted during the 'Final Work' stage (see small image).



Detaching locking device

Wiring Harness Routing

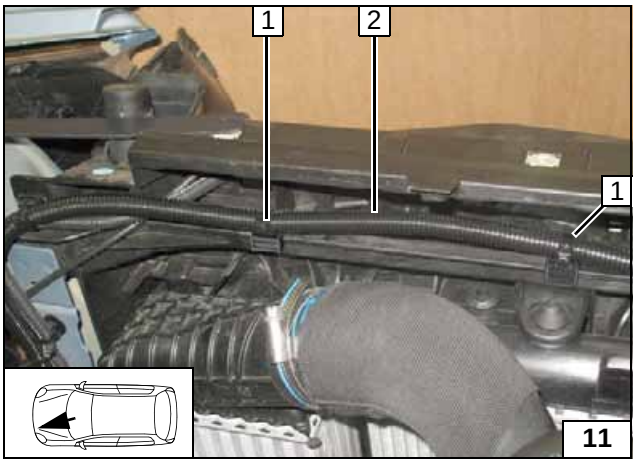
Pull heater wiring harness into 10mm dia. corrugated tube (1400mm long, cut lengthways) **1** and route to installation location of heater.



Routing wiring harness of heater

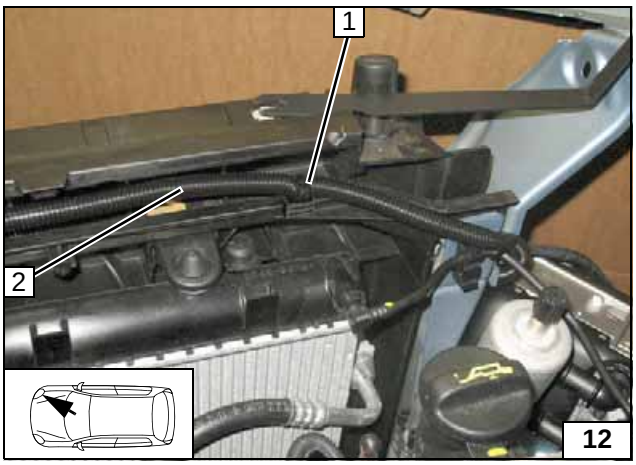
Insert fastening clip with cable tie **1** [2x] and fasten wiring harness.

2 Heater wiring harness in 10 mm dia. corrugated tube

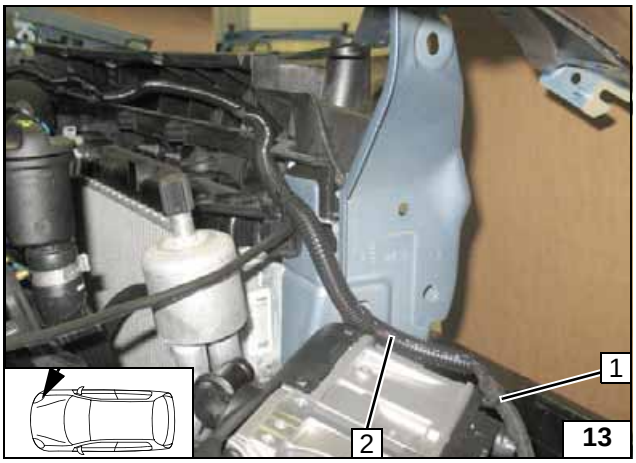


Routing wiring harness of heater

1 Fastening clip with cable tie
2 Heater wiring harness in 10 mm dia. corrugated tube

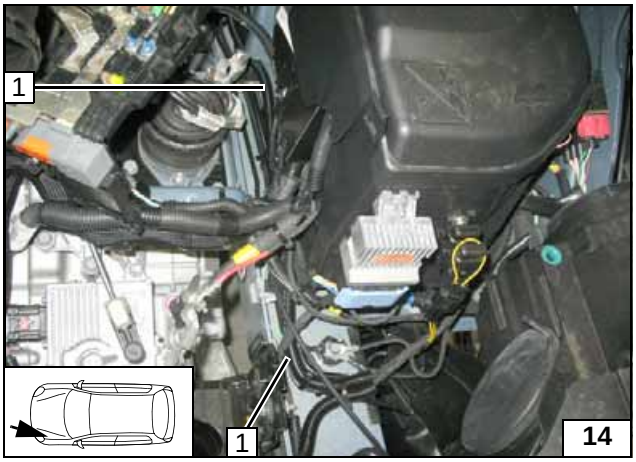


Routing wiring harness of heater



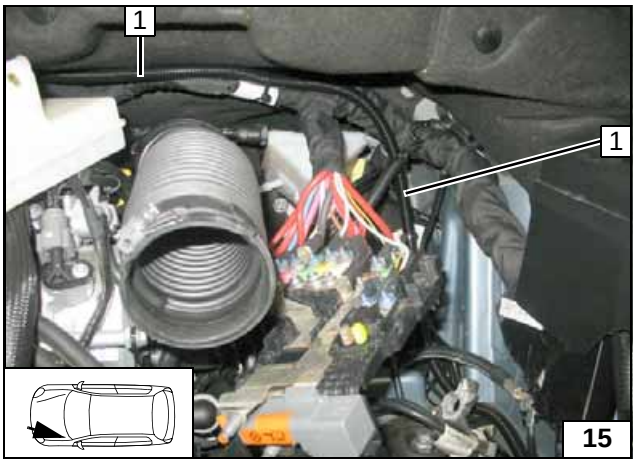
1 Heater wiring harness
2 Heater wiring harness in 10 mm dia. corrugated tube

Routing wiring harness of heater



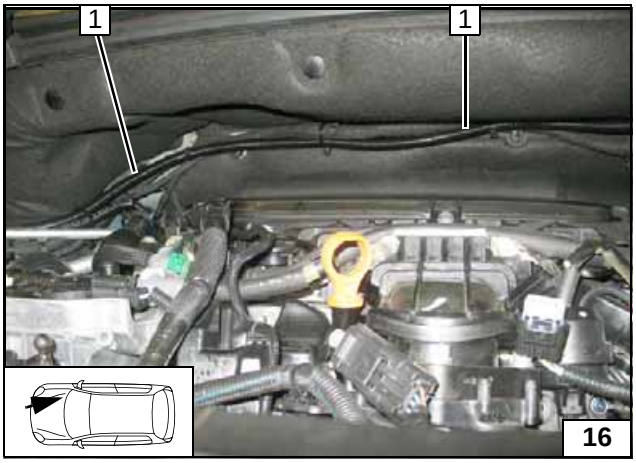
Pull wiring harness of heater control into 10mm dia. corrugated tube (2100mm long) **1** and route to the firewall along the frame side member.

Routing wiring harness of heater control



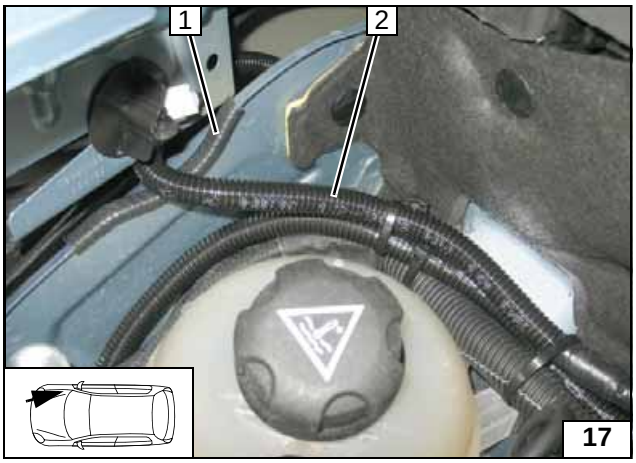
1 Wiring harness of heater control in 10mm dia. corrugated tube

Routing wiring harness of heater control



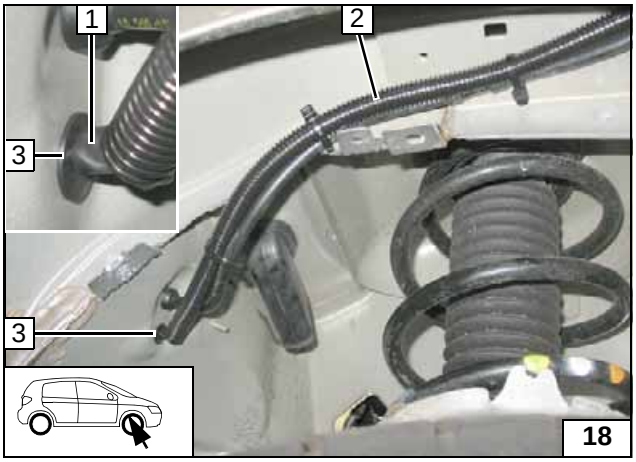
1 Wiring harness of heater control in 10mm dia. corrugated tube

Routing wiring harness of heater control



1 Insert 100 mm edge protection
2 Wiring harness of heater control in 10mm dia. corrugated tube

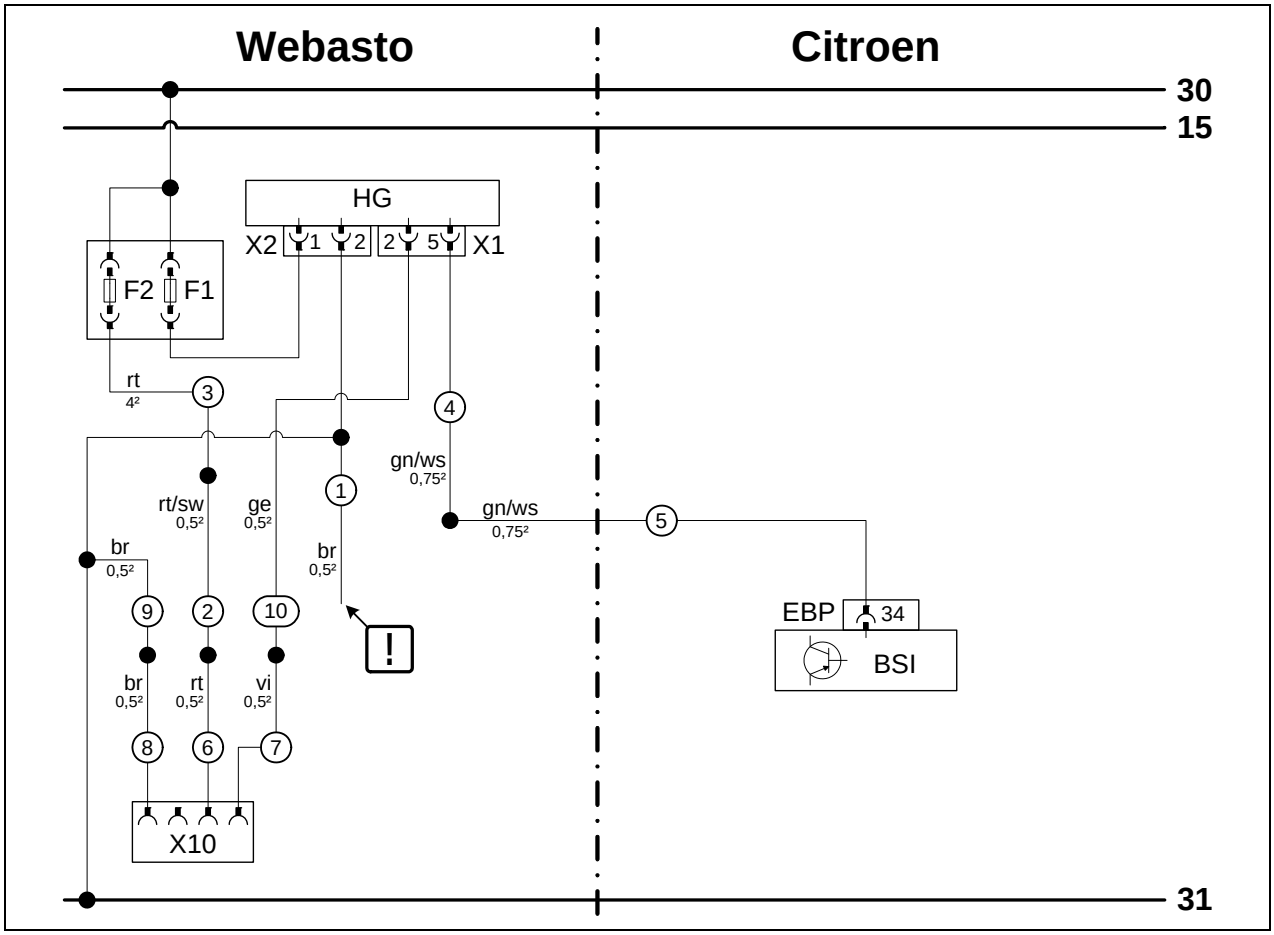
Routing wiring harness of heater control



1 Heater control wiring harness
2 Wiring harness of heater control in 10mm dia. corrugated tube
3 Insert original vehicle protective rubber plug in existing hole.

Wiring harness routing

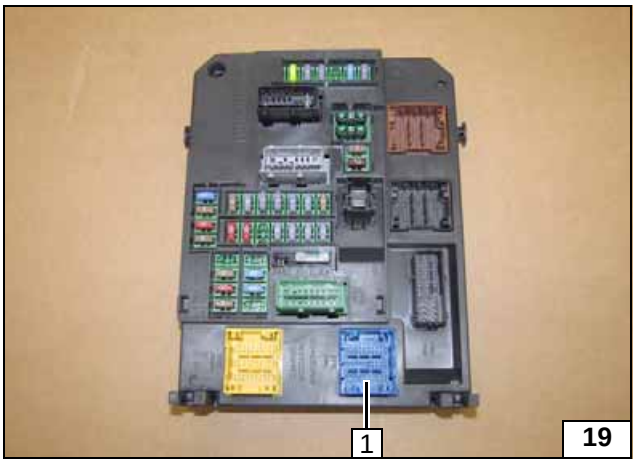
Fan Controller



Wiring diagram

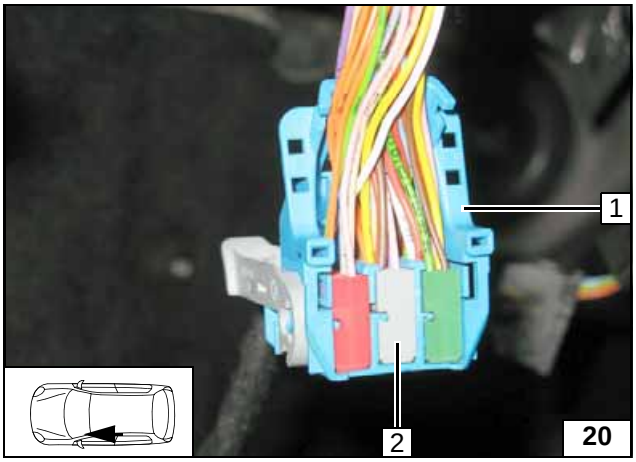
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	BSI	Central switching unit	rt	red
X1	6-pin heater connector	EBP	Blue (bl) 3-part connector (60-pin) of BSI	sw	black
X2	2-pin heater connector			ge	yellow
F1	20A fuse			gn	green
F2	**Replace 30A fuse with 1A fuse**			ws	white
				br	brown
X10	4-pin connector of heater control				
				!	Insulate wire end and tie back
				Wiring colours may vary.	

Legend



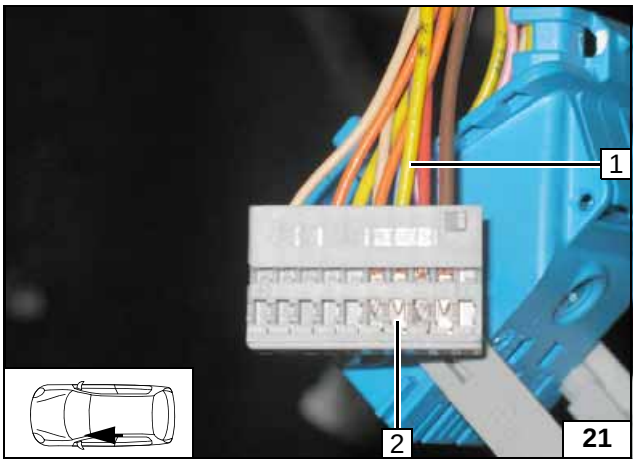
1 Socket for blue 3-part, 60-pin, connector EBP

View of BSI



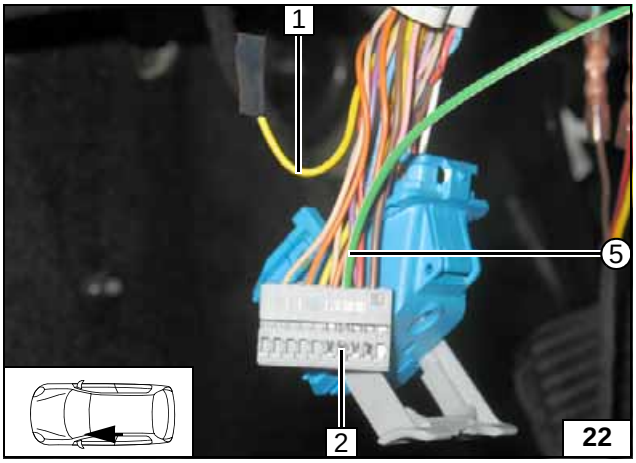
1 3-piece, 60-pin, blue EBP connector
2 Remove central 20-pin connector

Disconnecting and disassembling connector



Remove, insulate and tie back yellow (ge) wire **1** from socket of pin 34 **2** (if present).

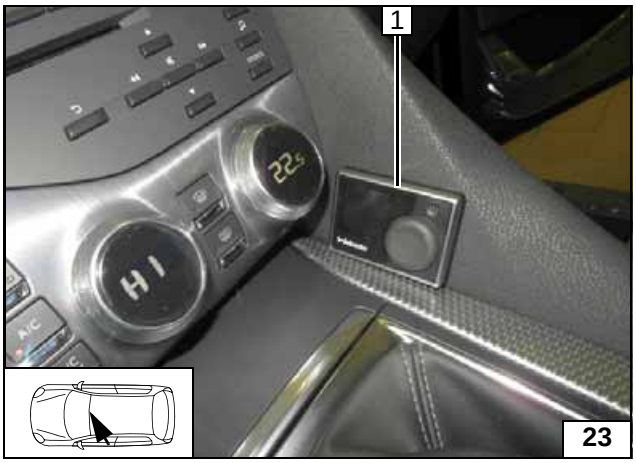
Connection of BSI connector



Crimp on microtimer on green/white (gn/ws) additional wire ⑤ and insert into free pin 34 socket.
Complete EBP connector after assembly and insert back!

1 Insulated yellow (ge) wire
2 20-pin connector Pin 34
⑤ Additional green/white (gn/ws) wire

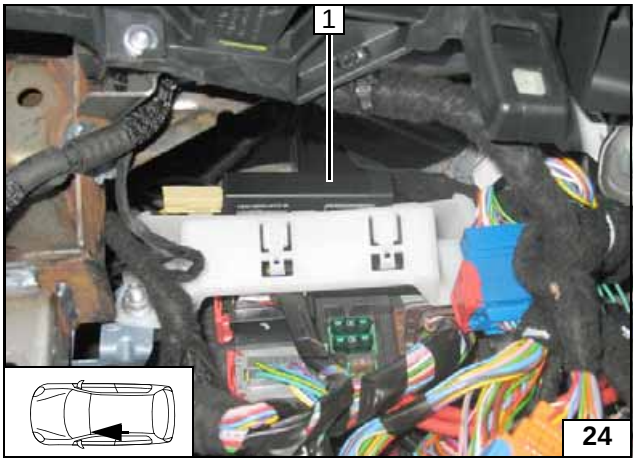
Connection of BSI connector



MultiControl CAR Option

1 MultiControl CAR

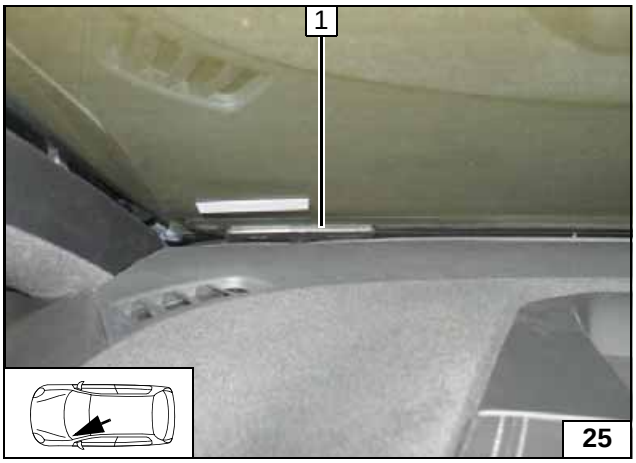
Installing MultiControl CAR



Remote Option (Telestart)

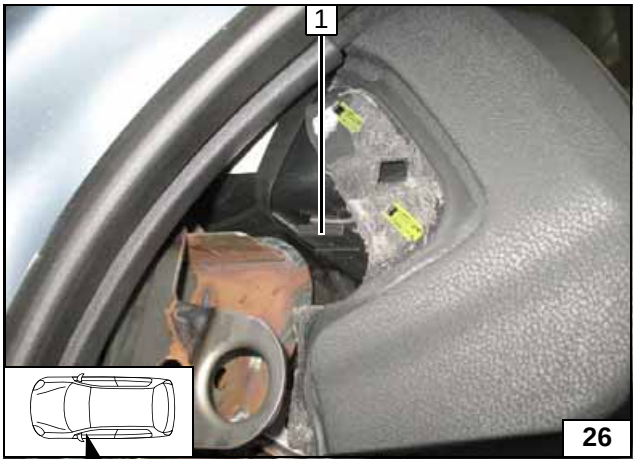
Fasten receiver **1** with double-sided adhesive tape.

Installing receiver



1 Aerial

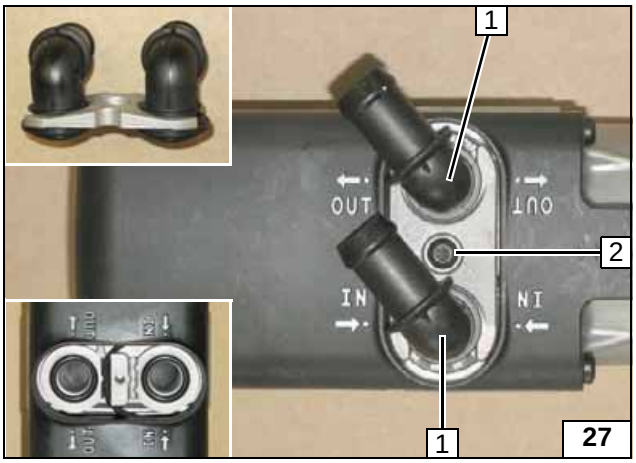
Installing aerial



Temperature sensor T100 HTM

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

Installing temperature sensor

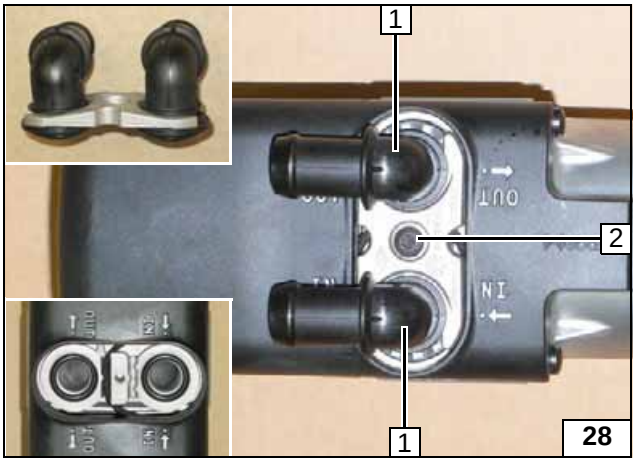


Preparing Heater

DS5

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

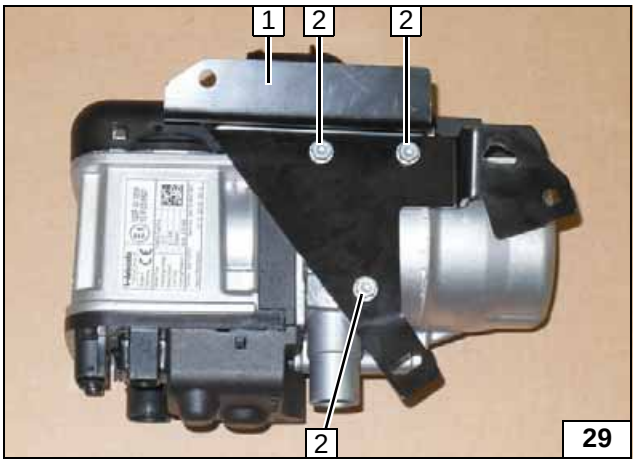
Installing water connection piece



DS5 Hybrid / 2.0 DS5 133kW

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

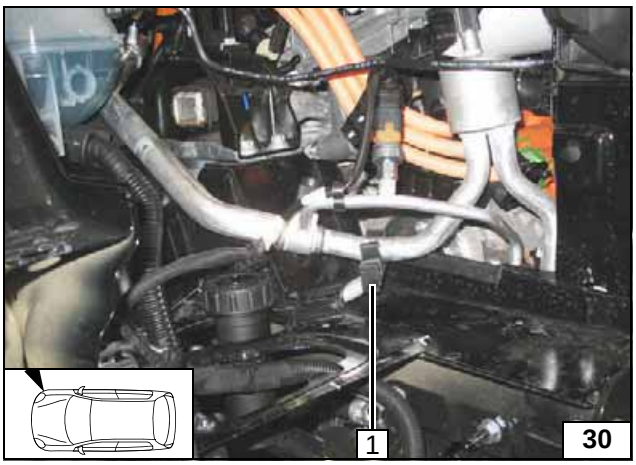
Installing water connection piece



All vehicles

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

Installing bracket

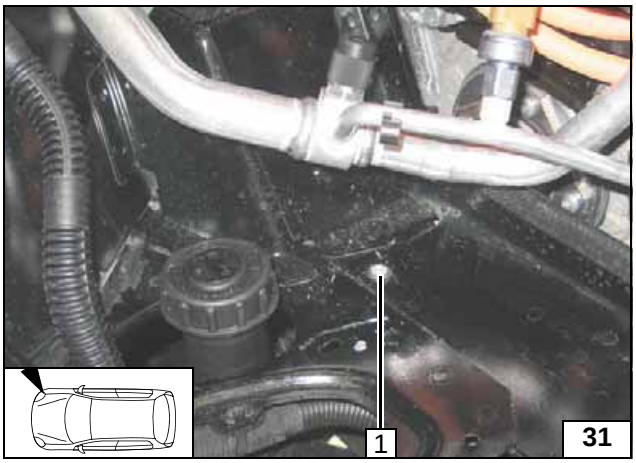


Preparing Installation Location

DS5 133 kW and DS5 Hybrid

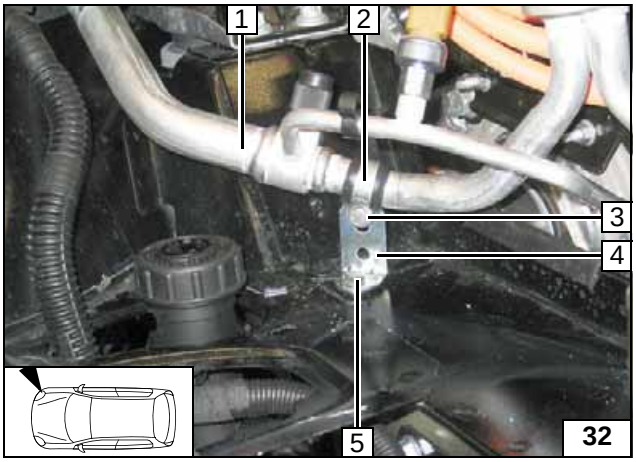
Completely remove and discard bracket **1**.

Preparing installation location



1 Drill out hole to 9.1mm dia.; M6 rivet nut

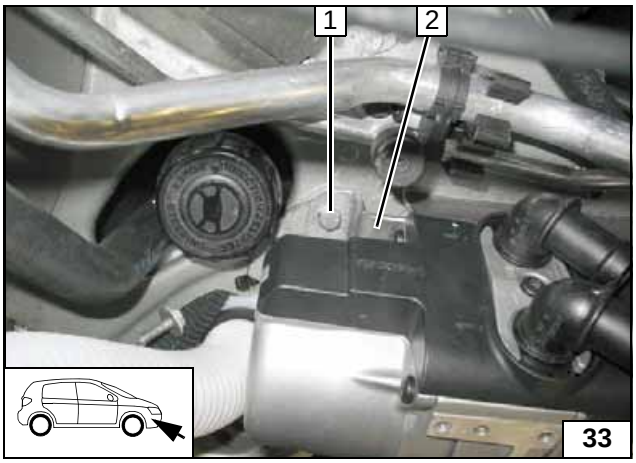
Installing rivet nut



Align original vehicle A/C line **1** and re-attach it using 18mm dia. rubber-coated clamp **2**.

3 M6x20 bolt, flanged nut
4 Angle bracket
5 M6x20 bolt, spring lockwasher

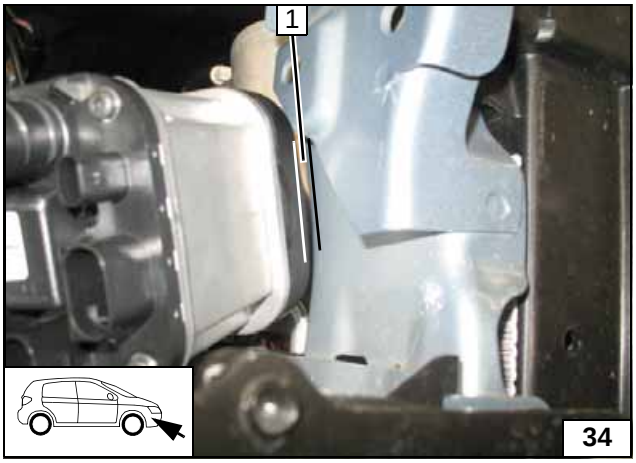
Attaching A/C line



DS5 120 kW

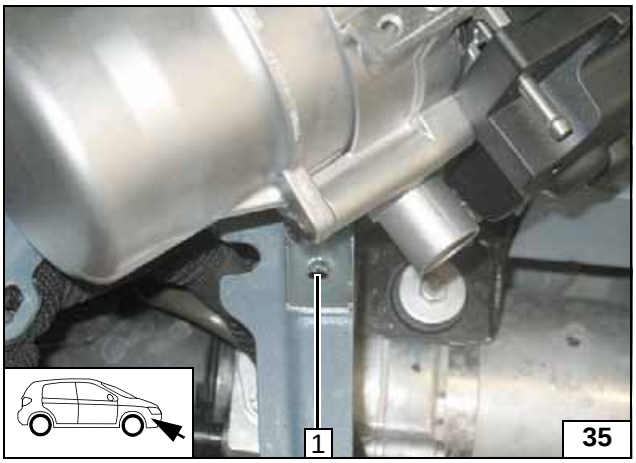
1 M6x20 bolt, flanged nut, existing hole
2 Heater bracket

Loosely installing heater



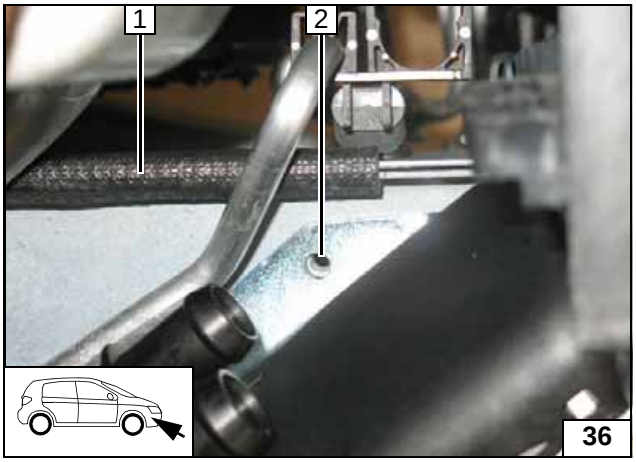
Distance of circa 3mm between heater and cross member at position **1**.

Aligning heater



1 Copy hole pattern, 7.0 mm dia. hole

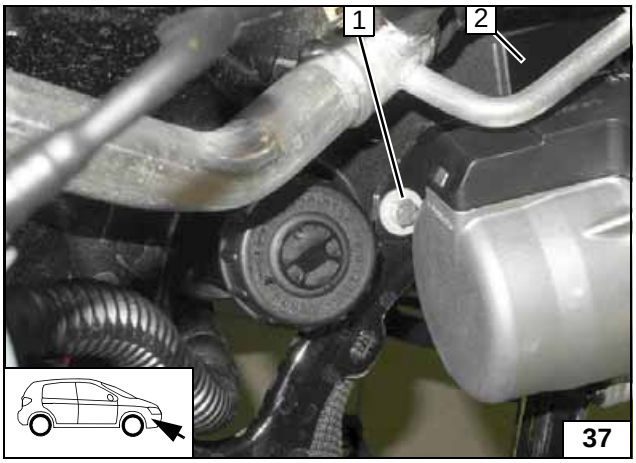
Hole in cross member



Copy hole pattern **2**, 9.1mm dia. hole; remove heater and insert rivet nut.

1 50 mm edge protection

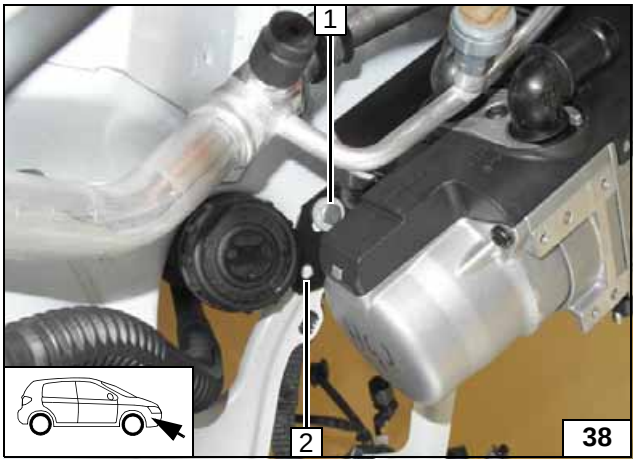
Installing rivet nut



DS5 133 kW

1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Heater bracket

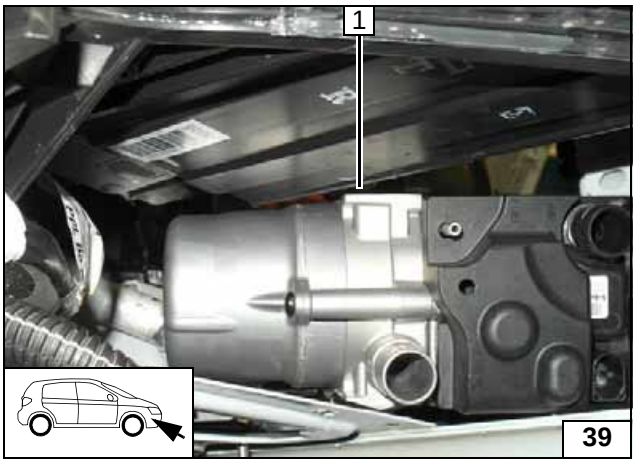
Loosely installing heater



DS5 Hybrid

1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Heater bracket

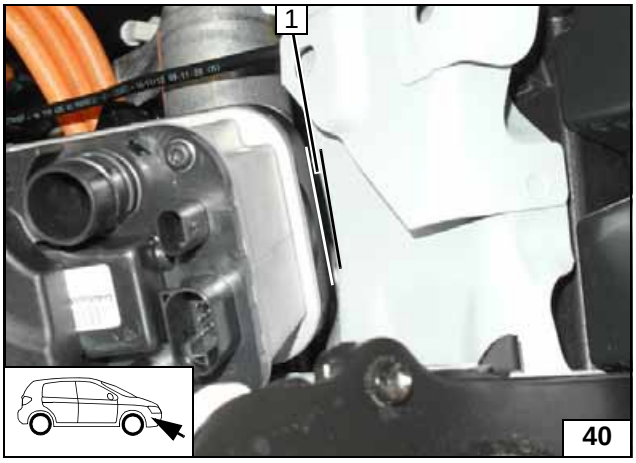
Loosely installing heater



DS5 133 kW and DS5 Hybrid

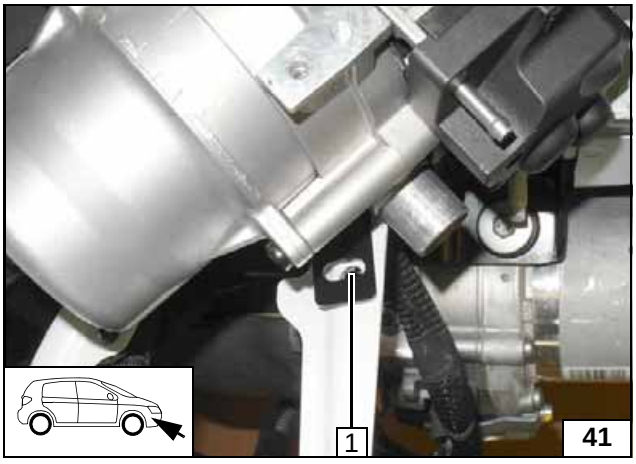
Distance of approx. 3mm between heater and headlight at position **1**.

Aligning heater



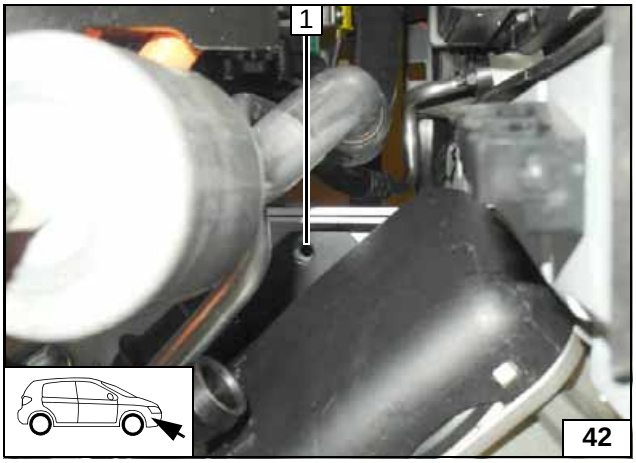
Distance of circa 3mm between heater and cross member at position **1**.

Aligning heater



1 Copy hole pattern, 7.0 mm dia. hole

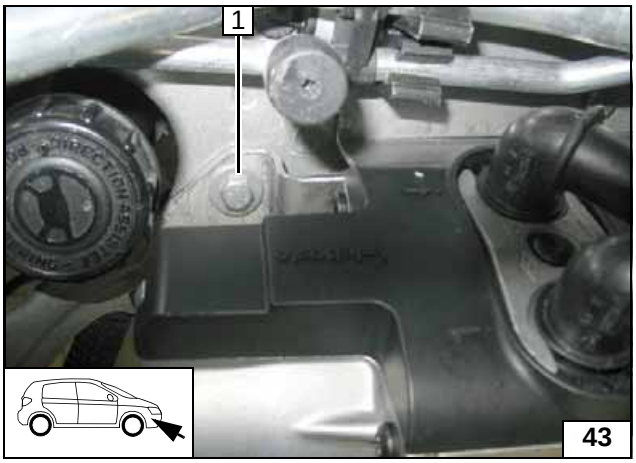
Hole in cross member



Copy hole pattern **1**, 9.1mm dia. hole; remove heater and insert rivet nut.

Installing rivet nut

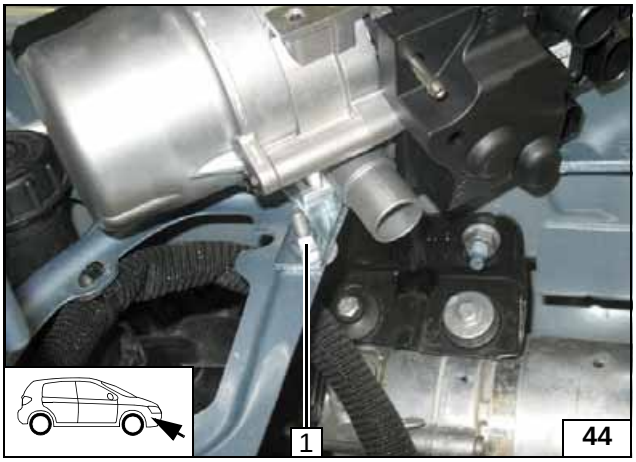
Installing Heater



DS5 120 kW

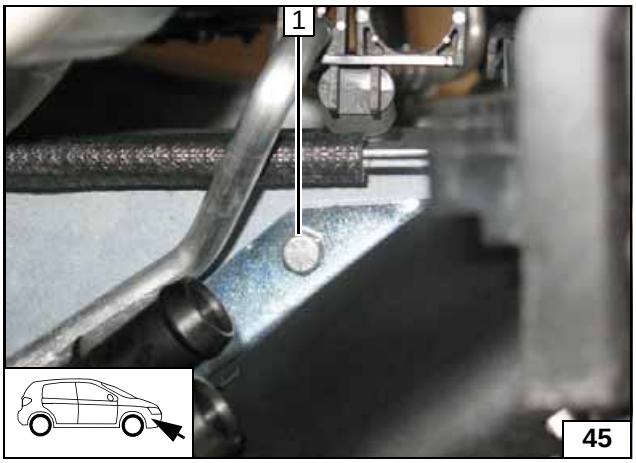
1 M6x20 bolt, large diameter washer, flanged nut

Loosely installing heater



1 M6x20 bolt, large diameter washer, flanged nut

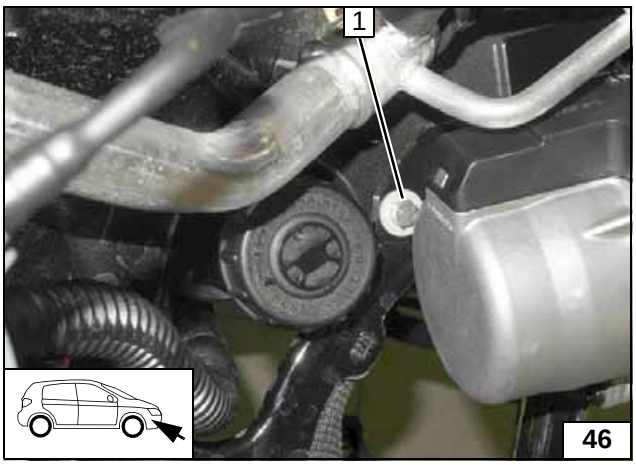
Loosely installing heater



Align heater in accordance with ‘Preparing installation location’ section. Tighten all loose screw connections.

1 M6x20 bolt, spring lockwasher

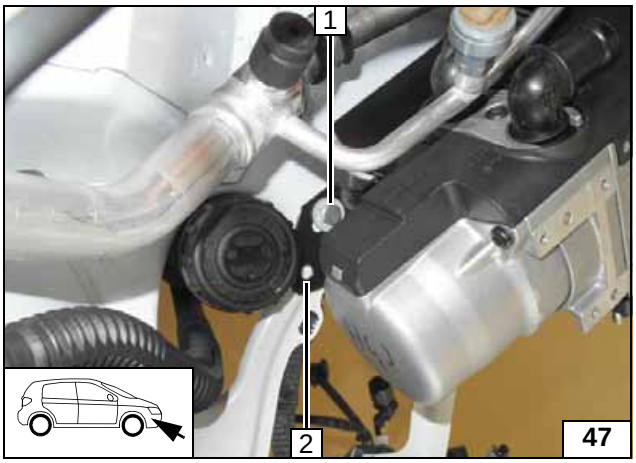
Installing heater



DS5 133 kW

1 M6x20 bolt, large diameter washer, flanged nut

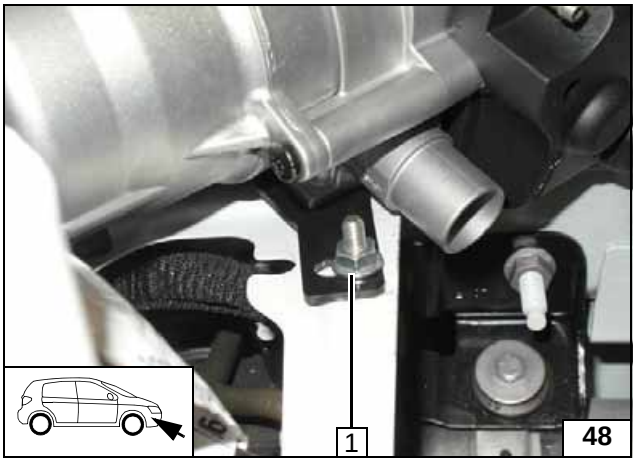
Loosely installing heater



DS5 Hybrid

1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Heater bracket

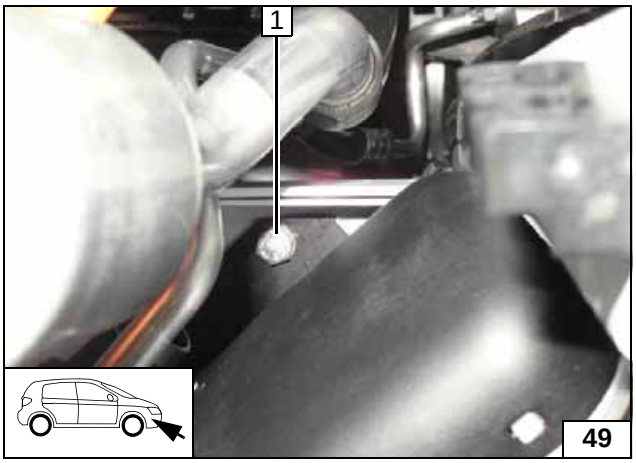
Loosely installing heater



DS5 133 kW and DS5 Hybrid

1 M6x20 bolt, large diameter washer, flanged nut

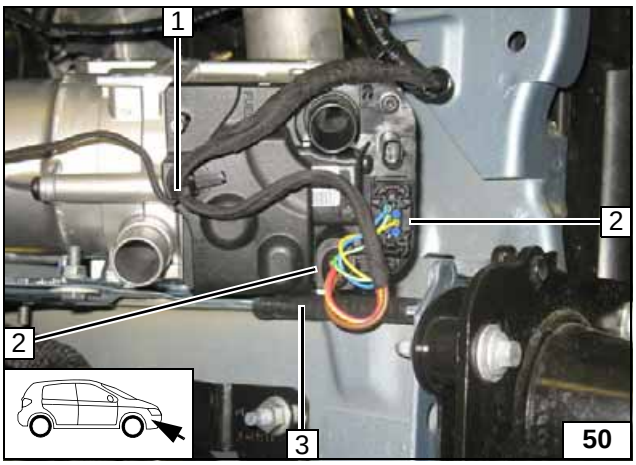
Loosely installing heater



Align heater in accordance with ‘Preparing installation location’ section. Tighten all loose screw connections.

1 M6x20 bolt, spring lockwasher

Installing heater



All vehicles

1 Clip-type cable tie in existing hole
2 Heater wiring harness connector [2x]
3 50 mm edge protection

Installing wiring harness

Fuel

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

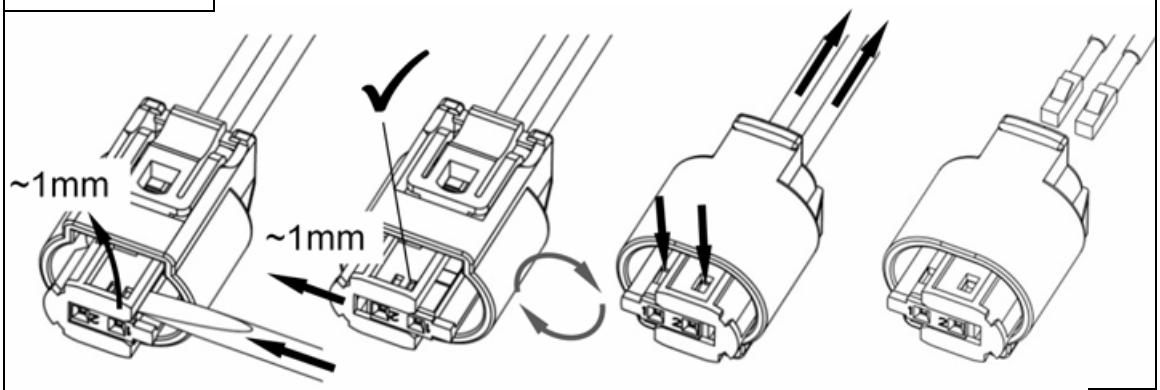
Catch any fuel running off in an appropriate container.

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

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

Dismantling metering pump connector

Connector X7



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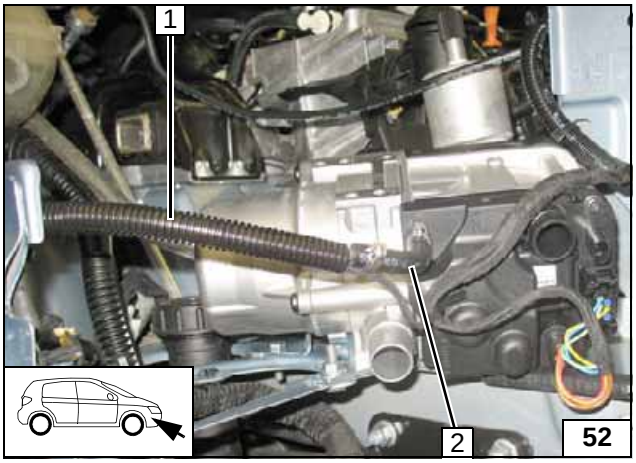
Connecting heater



52

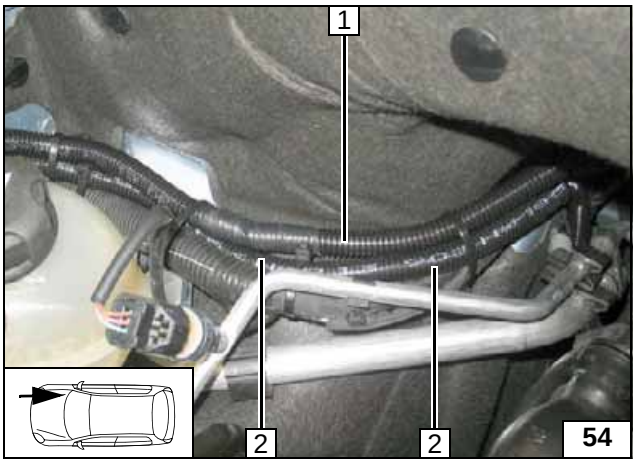
Route fuel line and wiring harness of metering pump in 10mm dia., 1200mm long corrugated tube **1** along the top of the wheel well to the firewall.

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

Routing lines

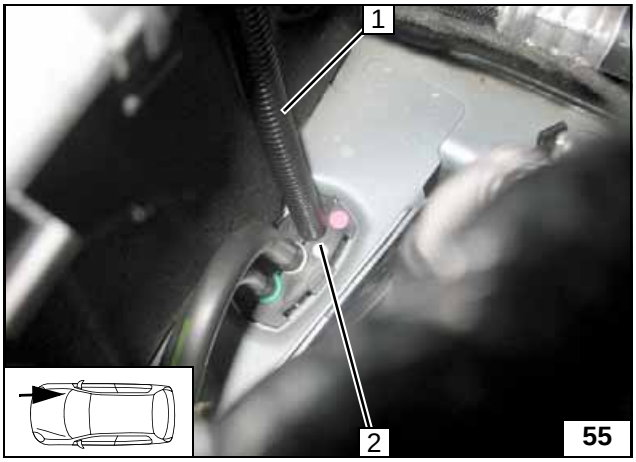
53

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



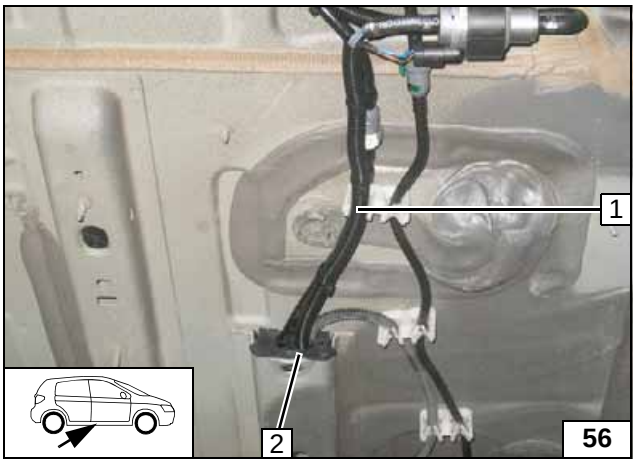
1 Wiring harness of heater control in 10mm dia. corrugated tube
2 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines



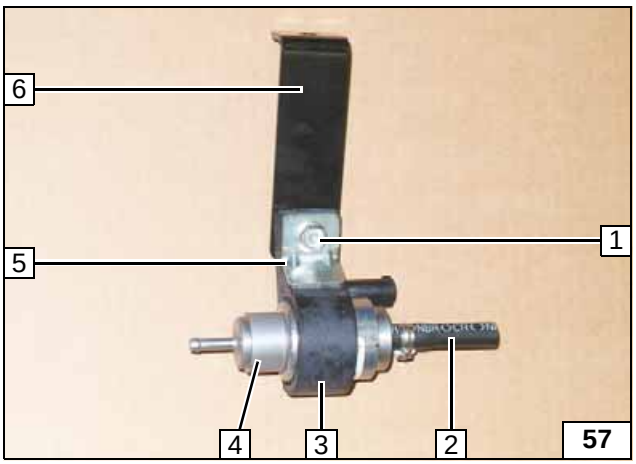
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube
2 Original vehicle line duct towards underbody

Routing lines



Lead wiring harness of metering pump and fuel line out of original vehicle line duct (existing pass through **2**) and slide on 10 mm dia., 350mm long corrugated tube **1**.

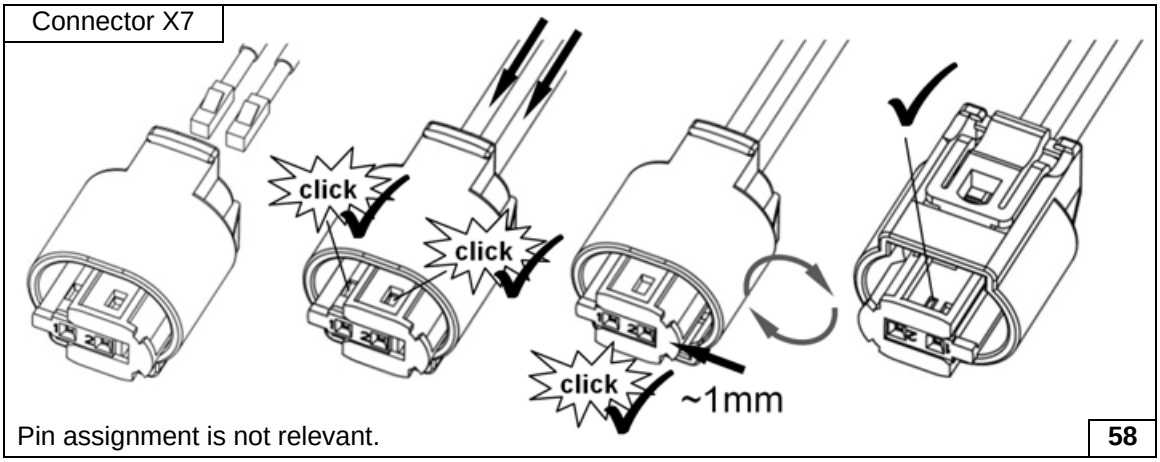
Routing lines



1 M6x25 bolt, flanged nut
2 Hose section, 10 mm dia. clamp
3 Metering pump mount
4 Metering pump
5 Support angle bracket
6 Metering pump bracket

Premounting metering pump

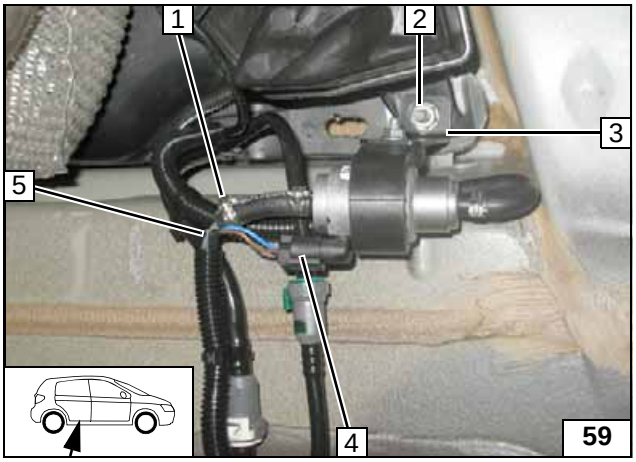
Connector X7



Pin assignment is not relevant.

58

Completing metering pump connector



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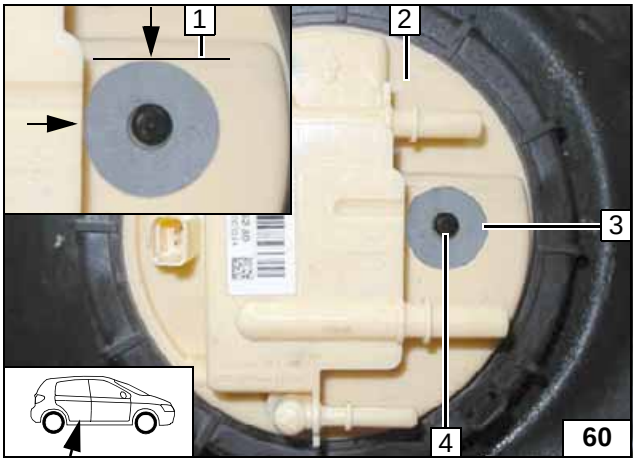
1 10 mm dia. clamp
2 Original vehicle stud bolt, M8 flanged nut
3 Metering pump bracket
4 Metering pump wiring harness, connector X7 mounted
5 Fuel line of heater

Installing metering pump



60

FuelFix Installation, Version 1

Lower the fuel tank in accordance with the manufacturer's instructions.

Work steps F1 and F2.

1 Guide line after the curve
2 Fuel tank sending unit
3 Position washer with outer dia. d_a = 21.6mm, will be used as a template
4 Hole pattern

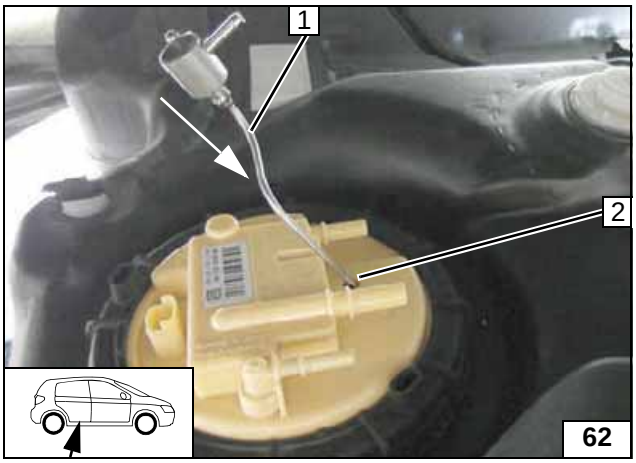
Fuel extraction

61

Work step F3.

1 Hole made with provided drill

Hole for FuelFix



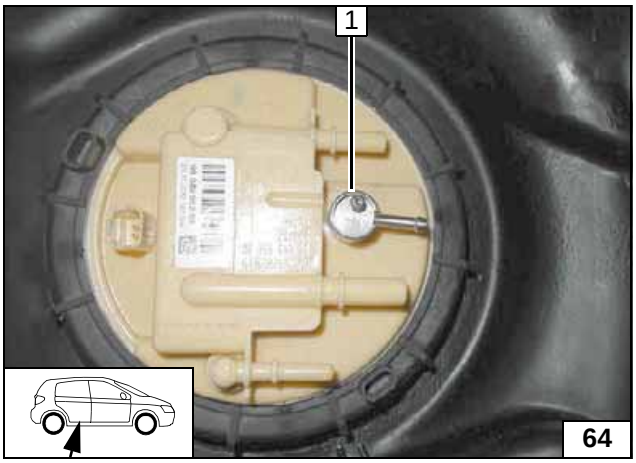
Work steps F4 and F5.

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

Inserting FuelFix

Work step F5.

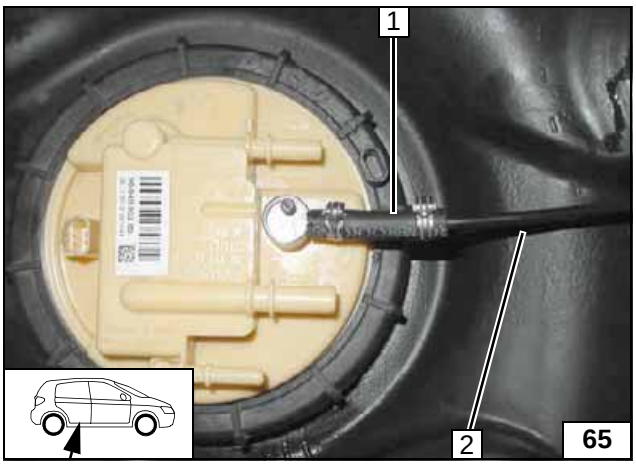
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

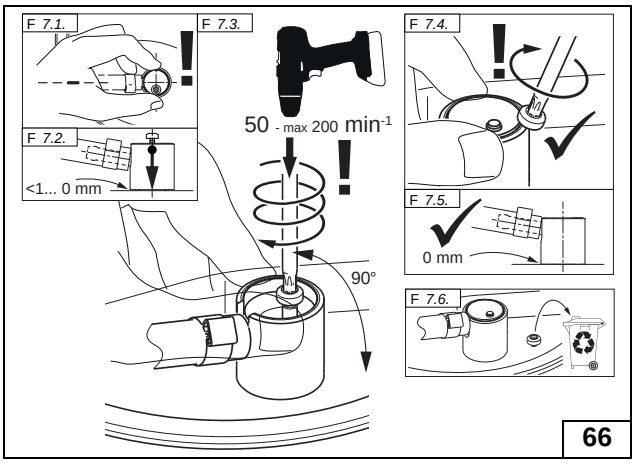
Aligning FuelFix



Work step F6.

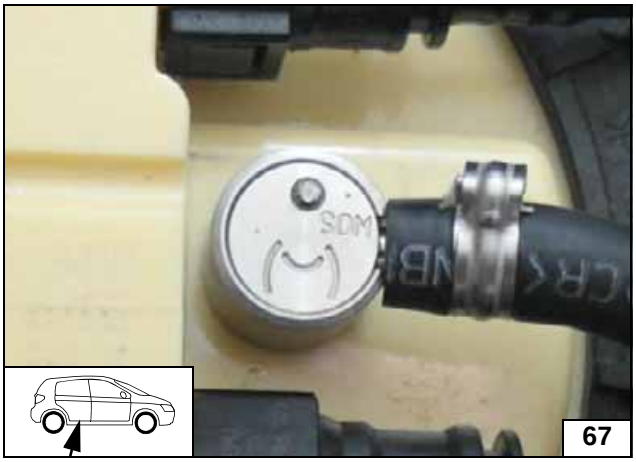
1 Hose section, 10mm dia. clamp [2x]
2 Fuel line

Connecting fuel line



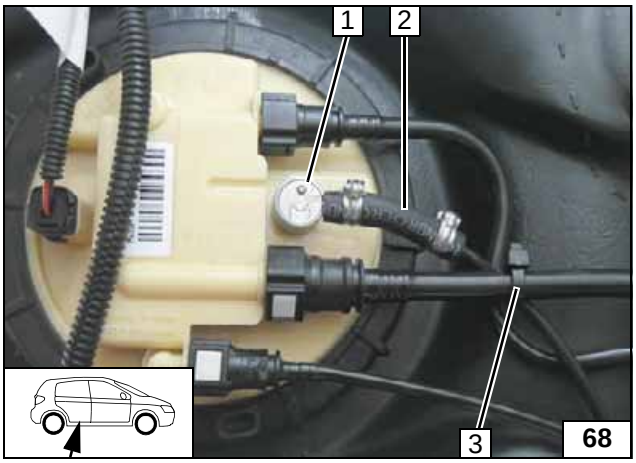
Work step F7.

Installing FuelFix



Work step F8.

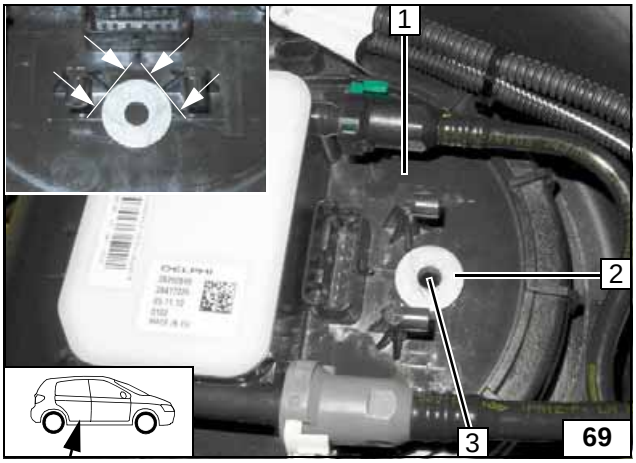
Ensuring firm seating of FuelFix



Work step F8.

1 FuelFix, installed
2 Fuel line of FuelFix
3 Cable tie for strain relief

Routing fuel line



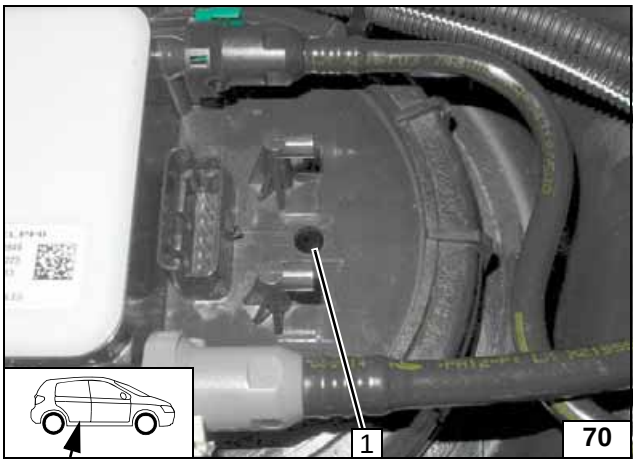
FuelFix Installation, Version 2

Lower the fuel tank in accordance with the manufacturer's instructions.

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position washer with outer dia. d_a = 21.6mm as template against the raised parts.
3 Hole pattern

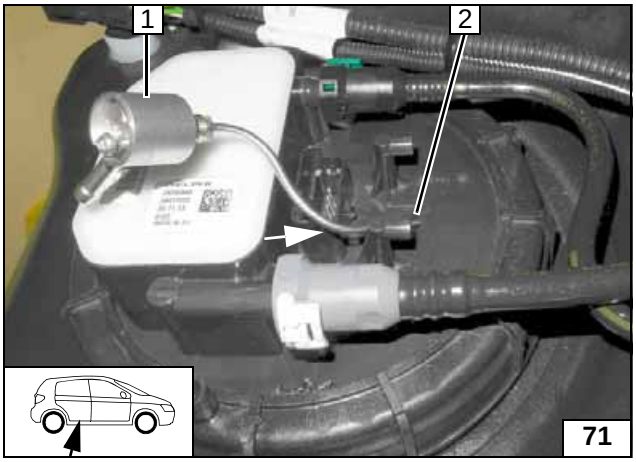
Fuel extraction



Work step F3.

1 Hole made with provided drill

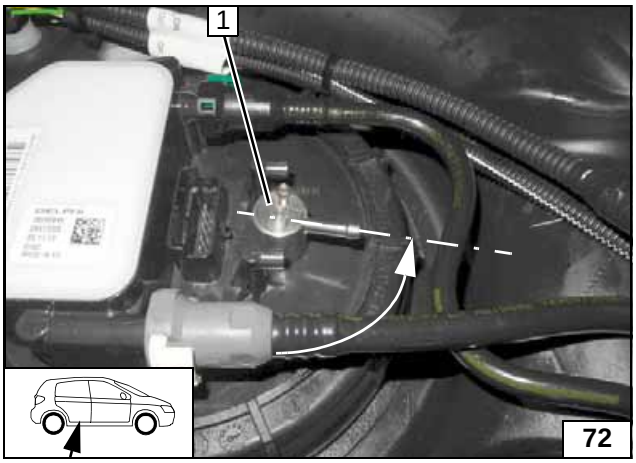
Hole for FuelFix



Work steps F4 and F5.

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

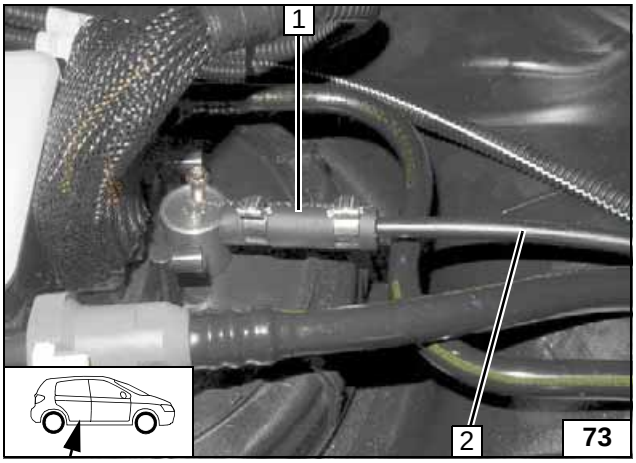
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

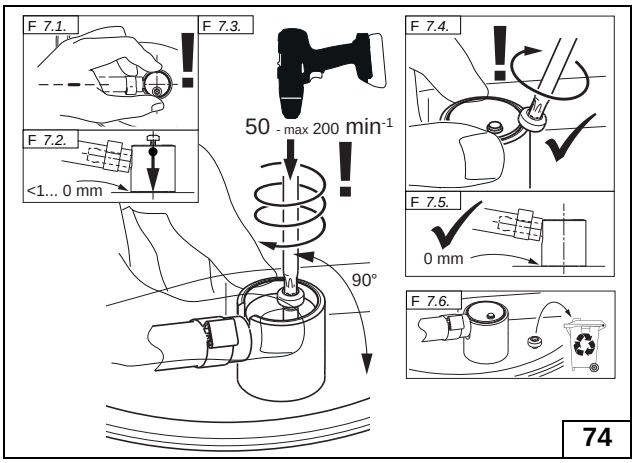
Aligning FuelFix



Work step F6.

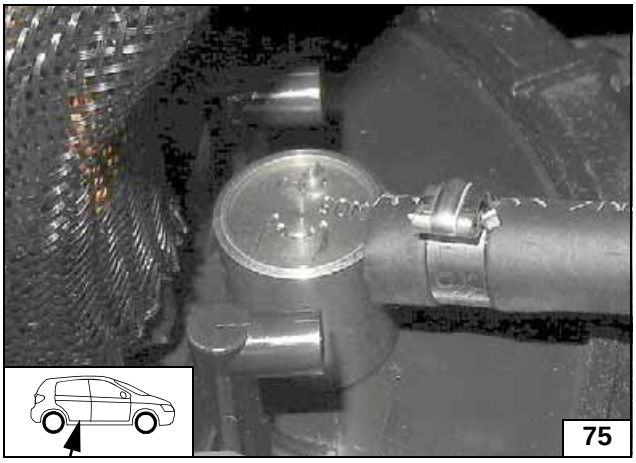
1 Hose section, 10mm dia. clamp [2x]
2 Fuel line

Connecting fuel line



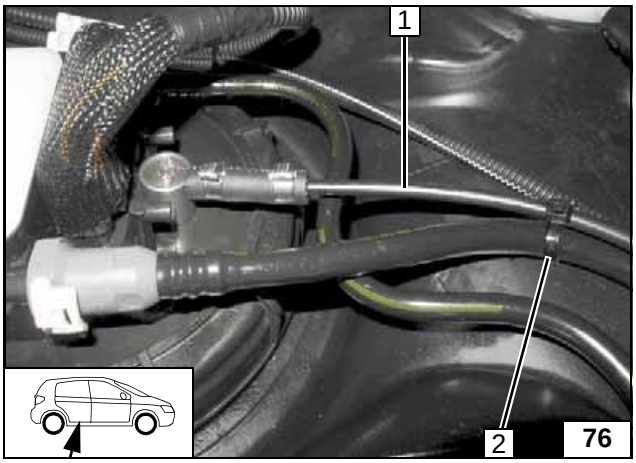
Work step F7.

Installing FuelFix



Work step F8.

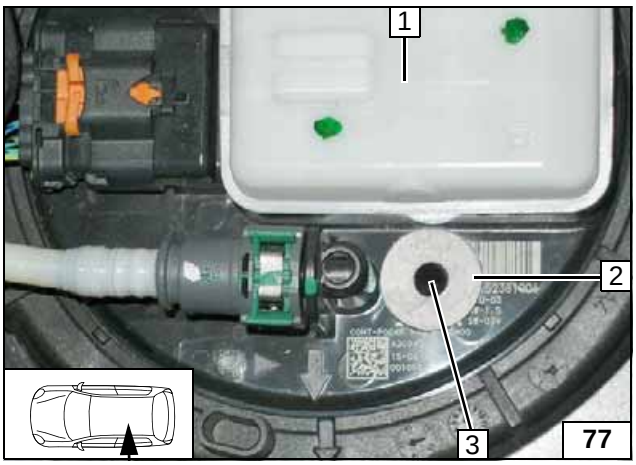
Ensuring firm seating of FuelFix



Work step F8.

1 Fuel line of FuelFix
2 Cable tie as tension relief

Routing fuel line

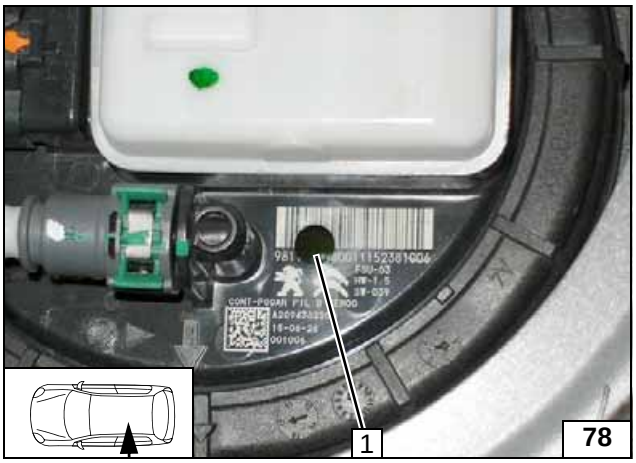


FuelFix Installation, Version 3

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position washer with outer dia. d_a = 21.6mm, will be used as a template
3 Hole pattern

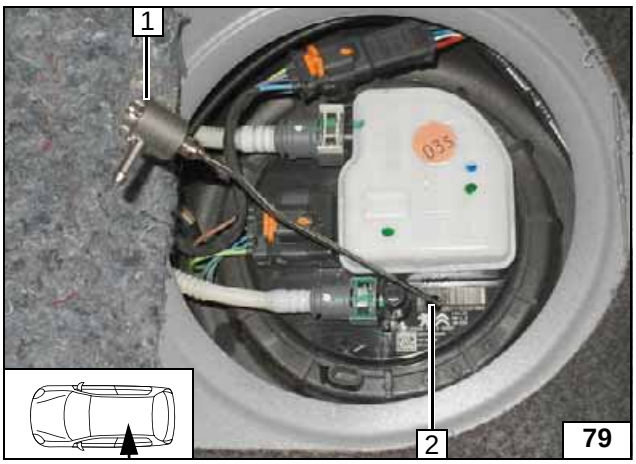
Copying hole pattern



Work step F3.

1 Hole made with provided drill

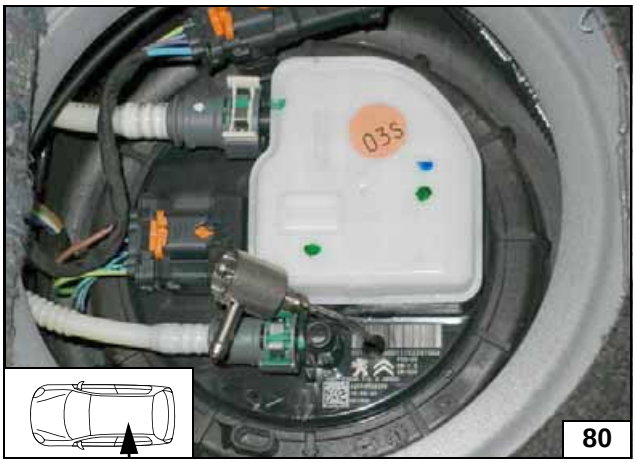
Hole for FuelFix



Work steps F4 and F5.

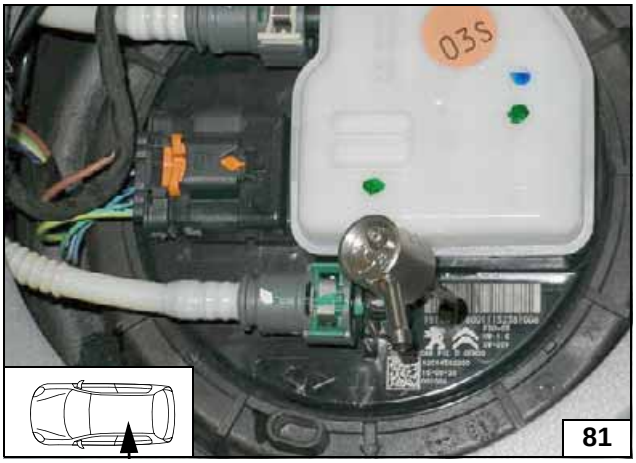
Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

Inserting FuelFix

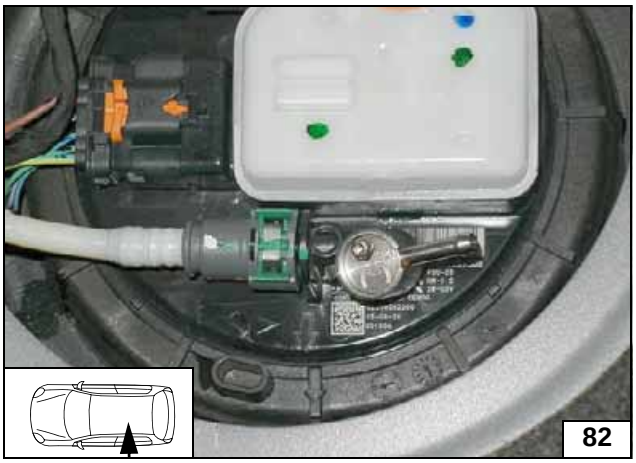


Work step F5.

Inserting FuelFix

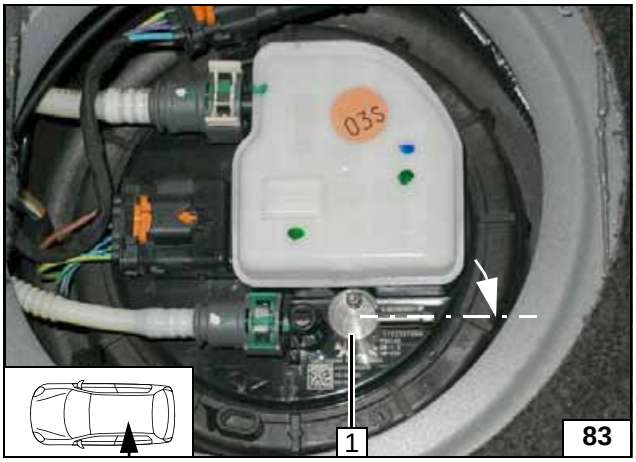


Inserting FuelFix



82

Inserting FuelFix

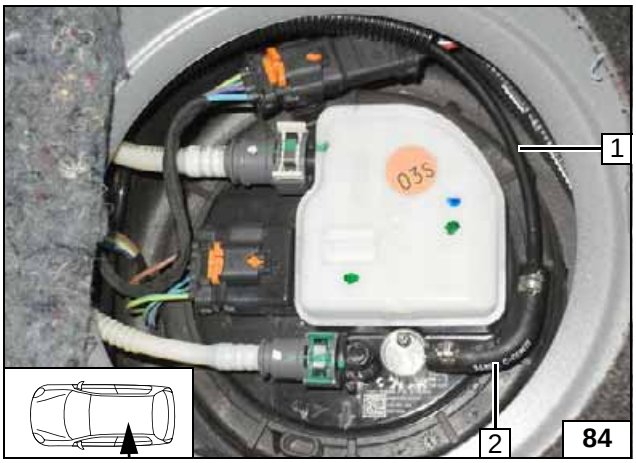


83

Work steps F5.3 and F5.4.

Turn FuelFix **1** and align as shown.

Aligning FuelFix

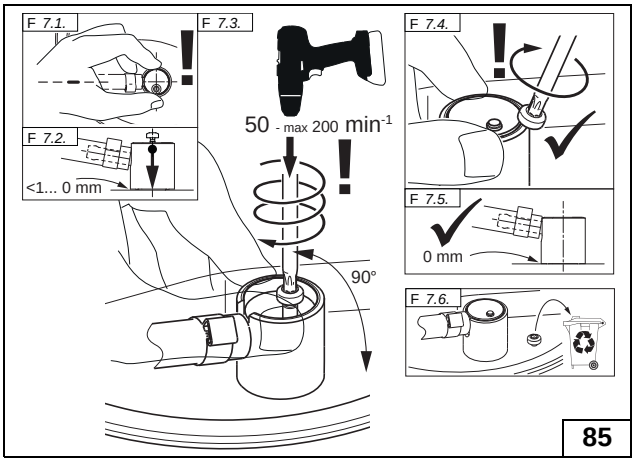


84

Work step F6.

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

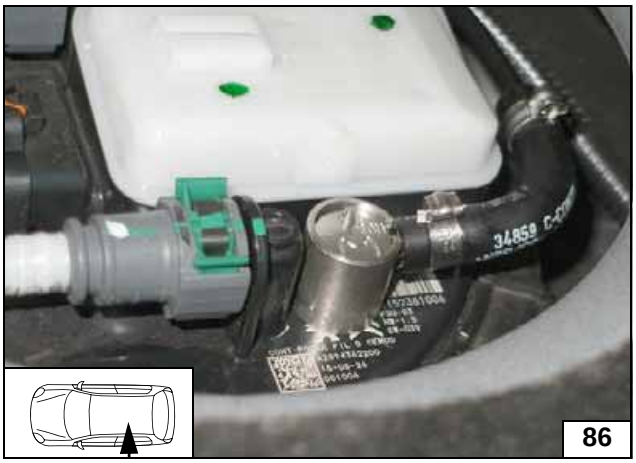
Connecting fuel line



85

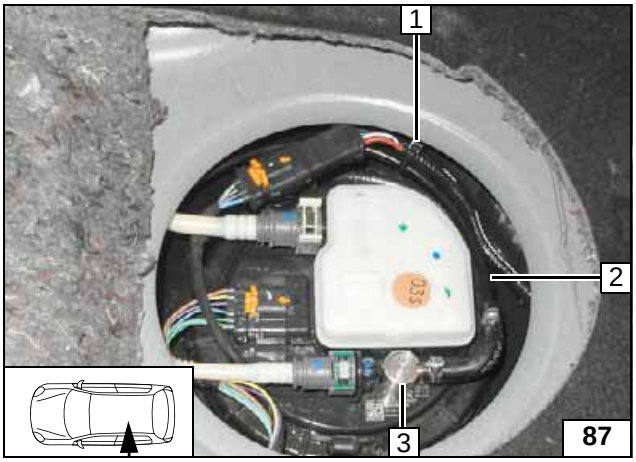
Work step F7.

Installing FuelFix



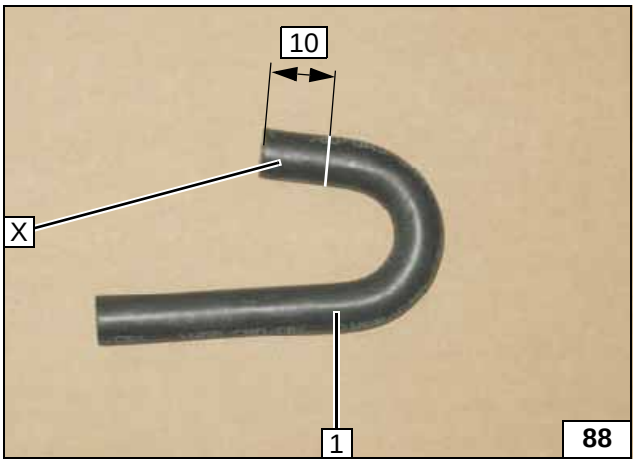
Work step F8.

Ensuring firm seating of FuelFix



1 Cable tie as tension relief
2 Fuel line of FuelFix
3 FuelFix installed

Securing fuel line



All vehicles

1 180° moulded hose

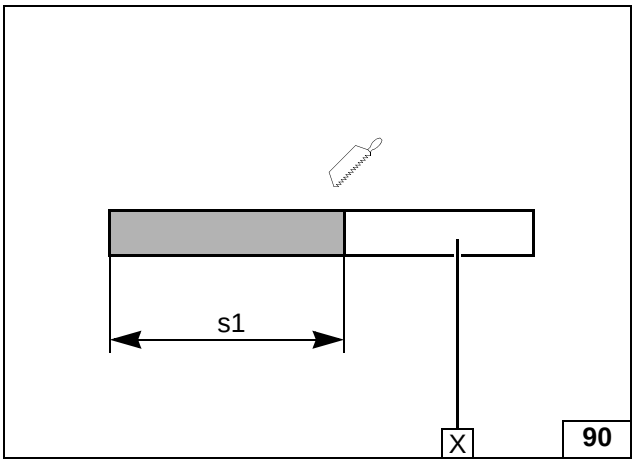
X = 

Shortening moulded hose

Ensure sufficient distance from neighbouring components, correct if necessary.

1 180° moulded hose, 10mm dia. clamp [2x]
2 Fuel line of fuel standpipe in 10mm dia., 250mm long corrugated tube

Connecting metering pump



Combustion Air

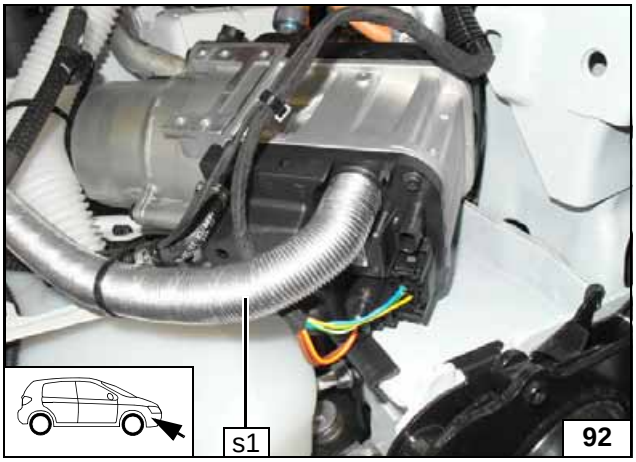
s1 = 620

X = 

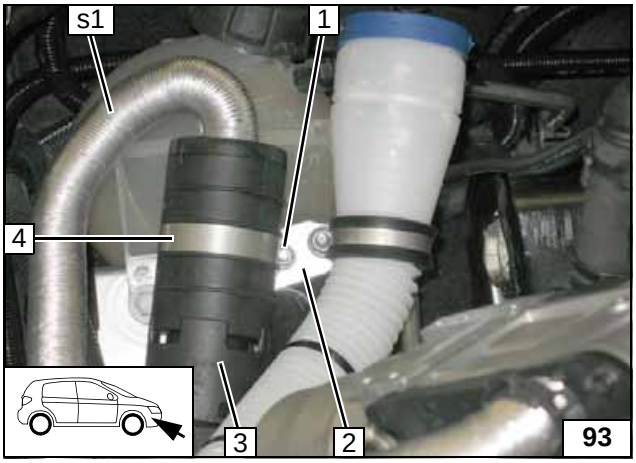
Cutting combustion air pipe to length

1 Washer reservoir

Installing washer reservoir

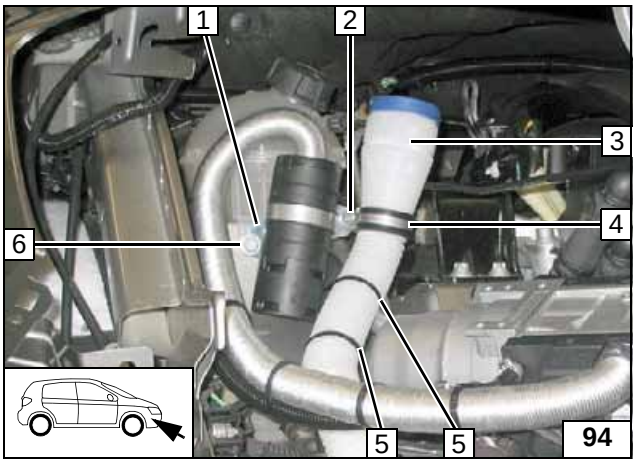


Installing combustion air pipe s1



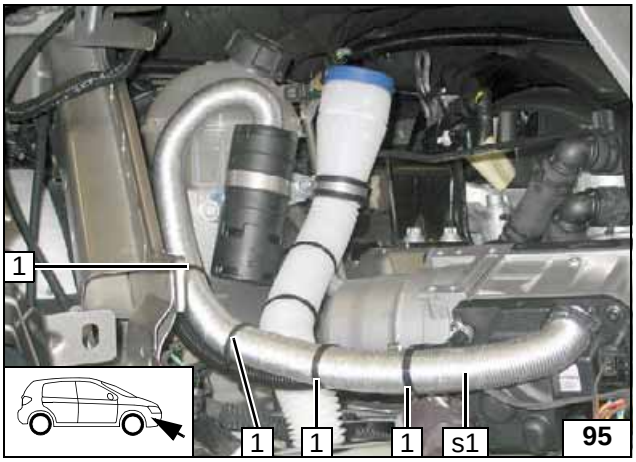
1 M5x16 bolt, flanged nut
2 Perforated bracket
3 Silencer
4 51 mm dia. p-clamp

Installing silencer



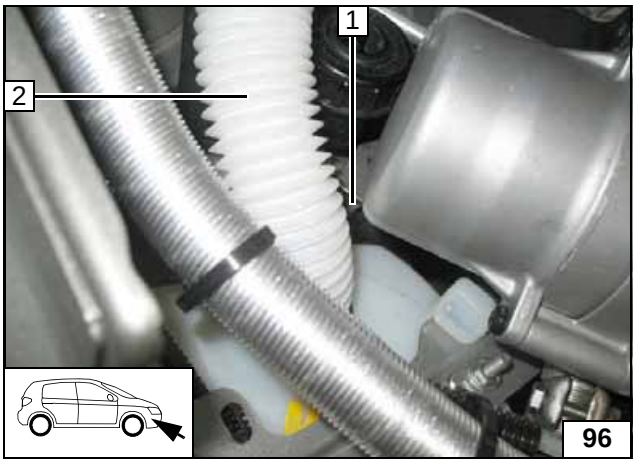
1 Perforated bracket
2 M6x20 bolt, flanged nut
3 Washer reservoir filler neck
4 38 mm dia. rubber-coated p-clamp
5 Cable tie [2x]
6 Original vehicle bolt

Installing perforated bracket



1 Cable tie

Routing combus-tion air pipe s1



Ensure sufficient distance between filler neck **2** and heater at position **1**, correct if necessary.

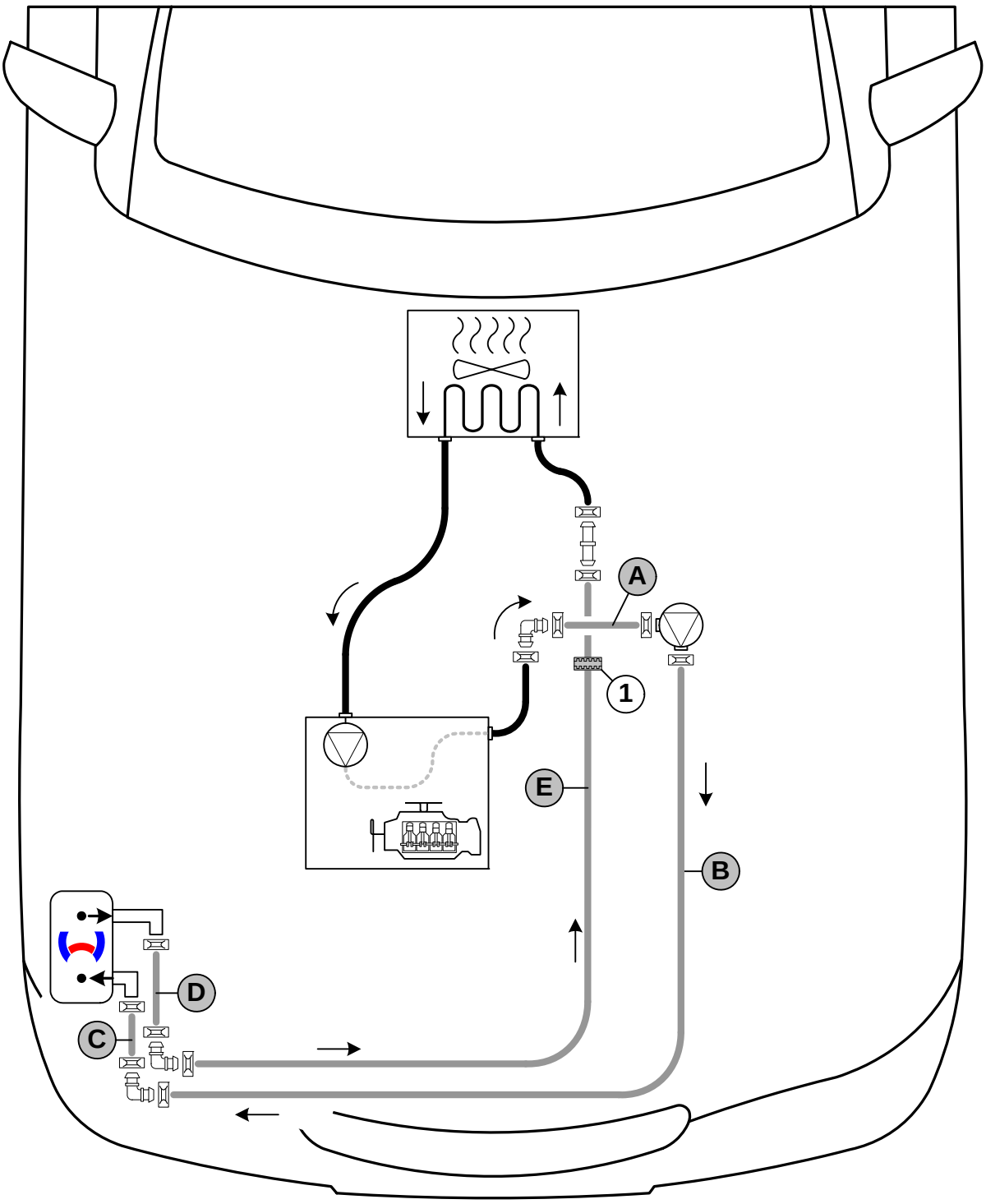
Aligning filler neck

Coolant Circuit of DS5

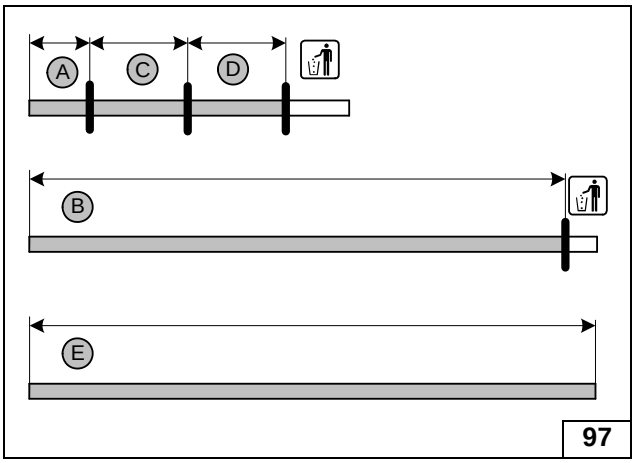
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram

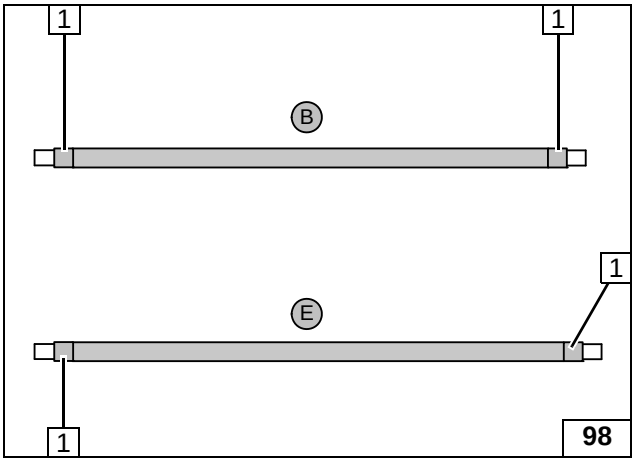


All spring clips = 25 mm dia. All connecting pipes and = 18x18 mm dia.
1 = Black (sw) rubber isolator (only in case of 120 kW).



	120 kW	133 kW
A =	60	60
B =	1160	1180
C =	95	60
D =	80	60
E =	1200	1150

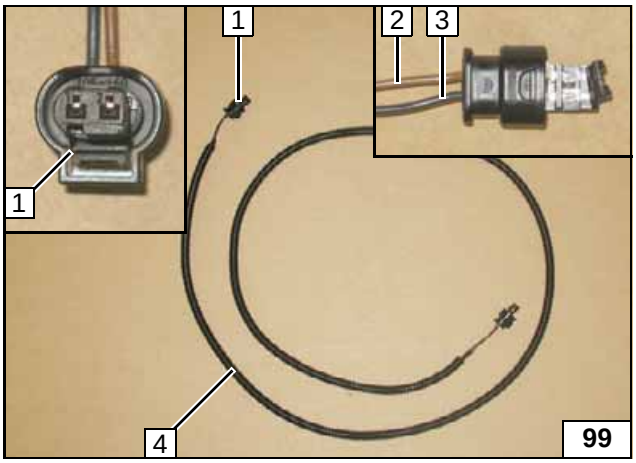
Cutting hoses to length



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

1 50 mm long heat shrink plastic tubing [4x]

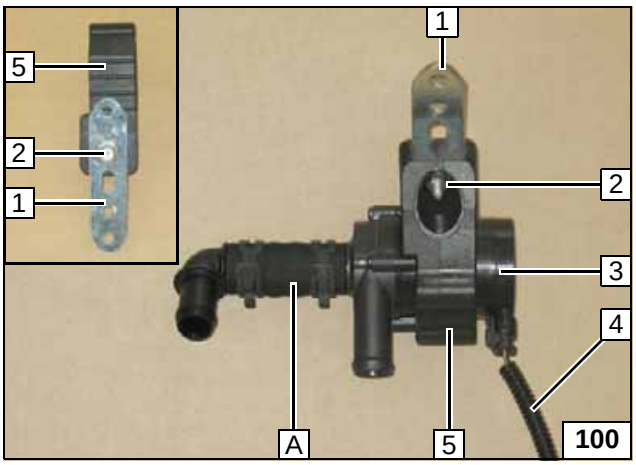
Preparing hoses



Disassemble circulating pump connector **1** and reassemble again after sliding on corrugated tube.
Warning:
Do not mix up the wire allocation!

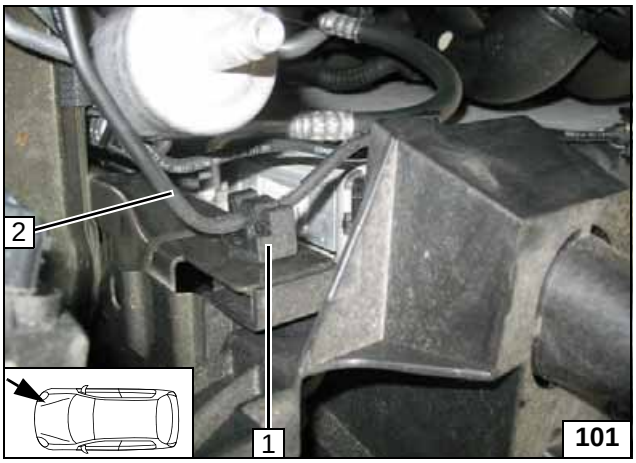
2 Brown (br) wire = pin 2
3 Black (sw) wire = pin 1
4 Circulating pump wiring harness in 6mm dia., 1450mm long corrugated tube

Sliding on corrugated tube



1 Perforated bracket
2 M6x25 bolt, flanged nut
3 Circulating pump
4 Circulating pump wiring harness in 6mm dia. corrugated tube
5 Circulating pump mount

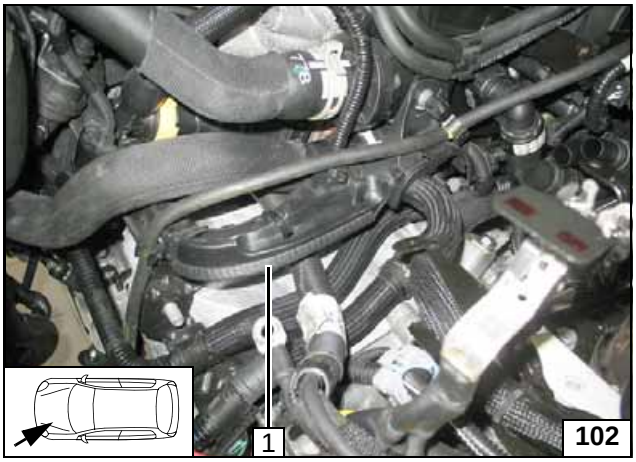
Premounting circulating pump



120 kW

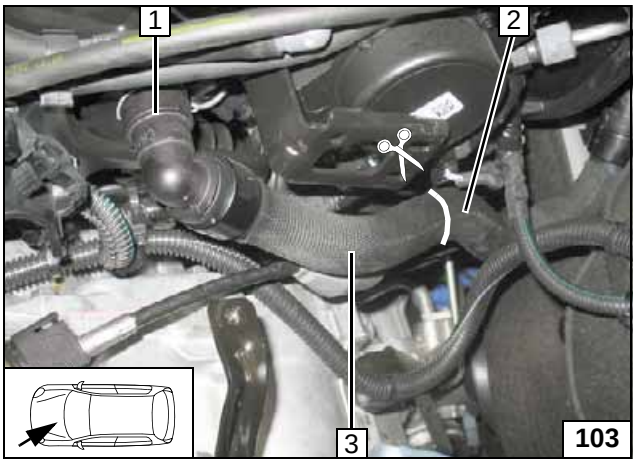
1 Remove retaining clip and discard
2 Original vehicle line

Removing retaining clip



1 150 mm edge protection

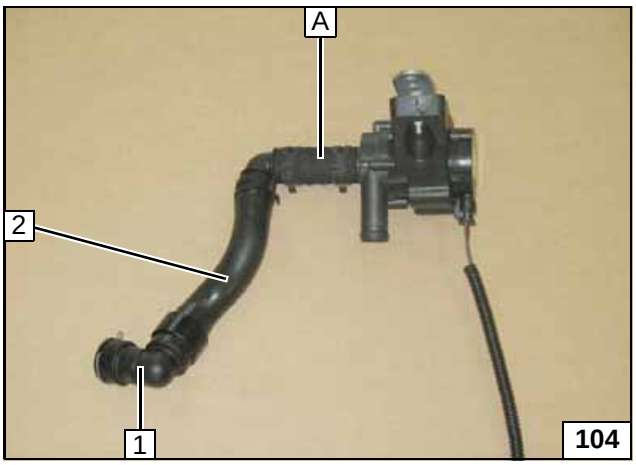
Installing edge protection



Cut off hose on engine outlet/heat exchanger inlet at marking. Remove engine outlet hose section **3** with hose coupling from engine outlet connection piece.

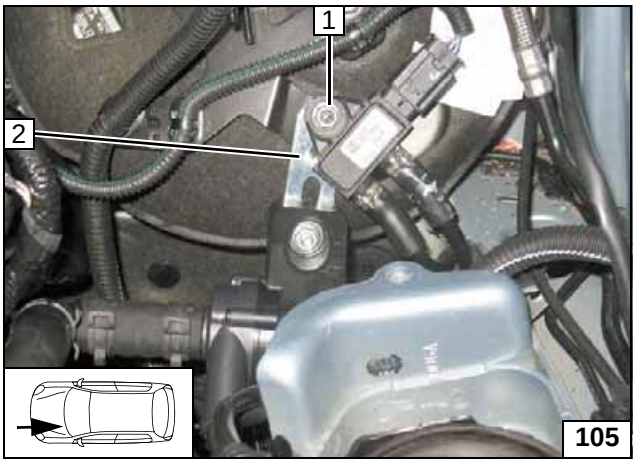
1 Engine outlet hose coupling
2 Heat exchanger inlet hose section

Cutting point



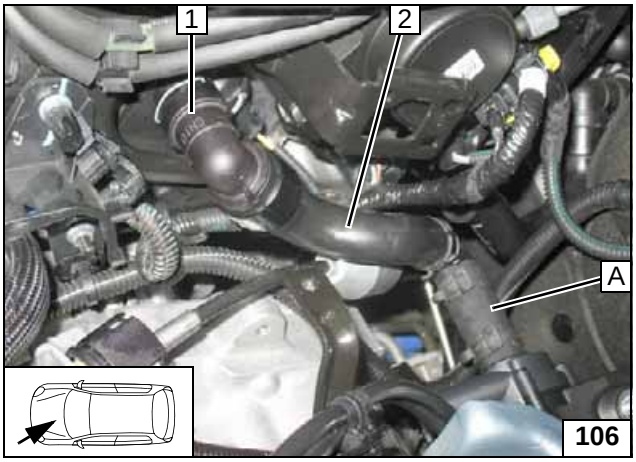
1 Engine outlet hose coupling
2 Hose of engine outlet

Premounting circulating pump



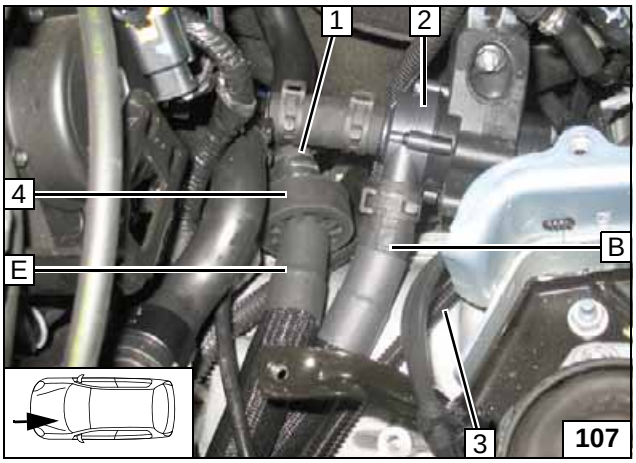
1 Original vehicle bolt, original vehicle flanged nut
2 Perforated bracket

Installing circulating pump



1 Engine outlet hose coupling
2 Hose of engine outlet

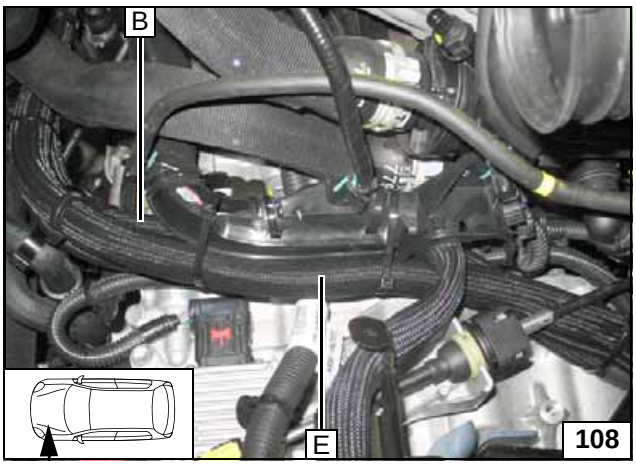
Connecting engine outlet



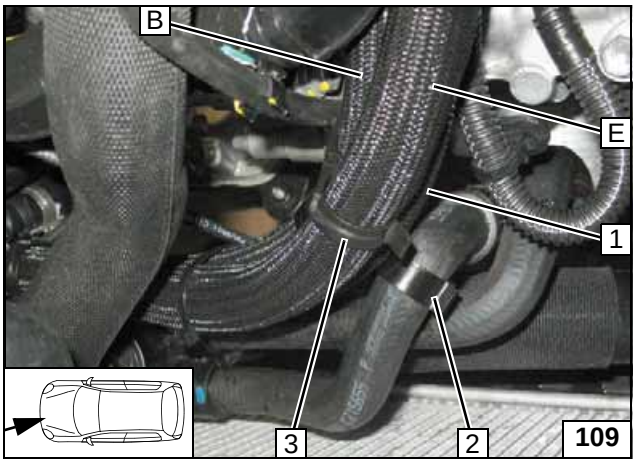
Push black (sw) rubber isolator **4** onto hose **E** and align. Route circulating pump wiring harness in 6mm dia. corrugated tube **3** together with hoses **B** and **E** to heater and fasten with cable tie.

1 Hose of heat exchanger inlet
2 Circulating pump

Connecting heat exchanger inlet / circulating pump

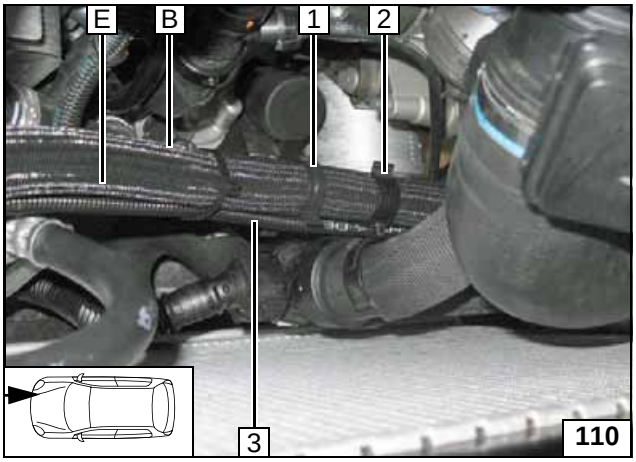


Routing in engine compartment



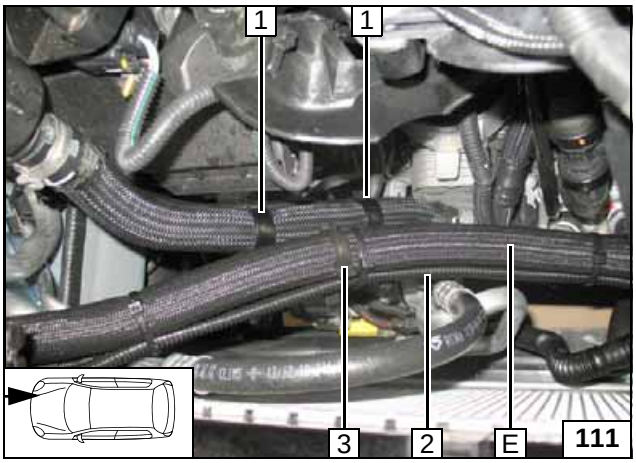
1 Circulating pump wiring harness in 6mm dia. corrugated tube
2 25x28 hose bracket between original vehicle hose and hose **B**
3 23x23 hose bracket between hose **B** and **E**

Routing in engine compartment



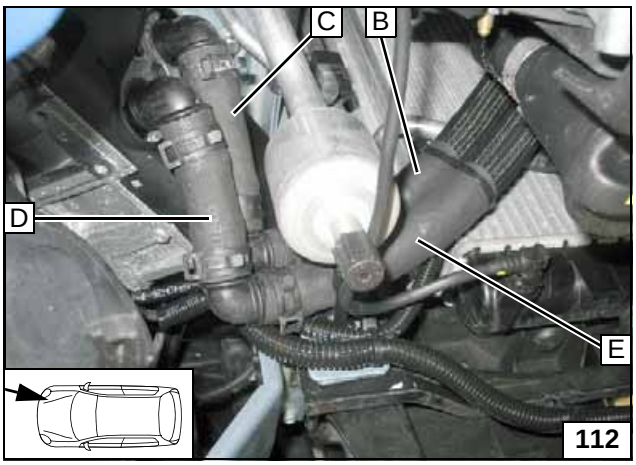
1 23x23 hose bracket between hose **B** and **E**
2 25x37 hose bracket between original vehicle hose and hose **E**
3 Circulating pump wiring harness in 6mm dia. corrugated tube

Routing in engine compartment

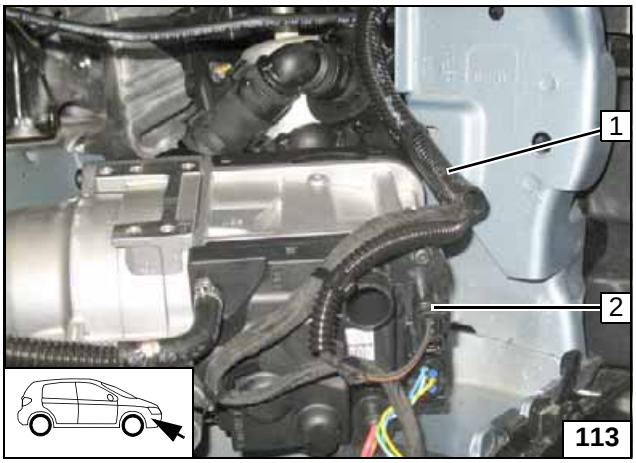


1 25x28 hose bracket between original vehicle hose and hose **B** (under hose **E**, hidden) [2x]
2 Circulating pump wiring harness in 6mm dia. corrugated tube
3 23x23 hose bracket between hose **B** and **E**

Routing in engine compartment

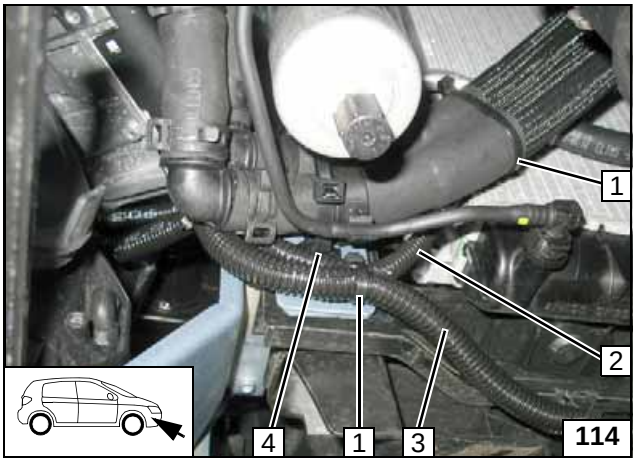


Connecting heater



1 Circulating pump wiring harness in 6mm dia. corrugated tube
2 Connector of circulating pump wiring harness

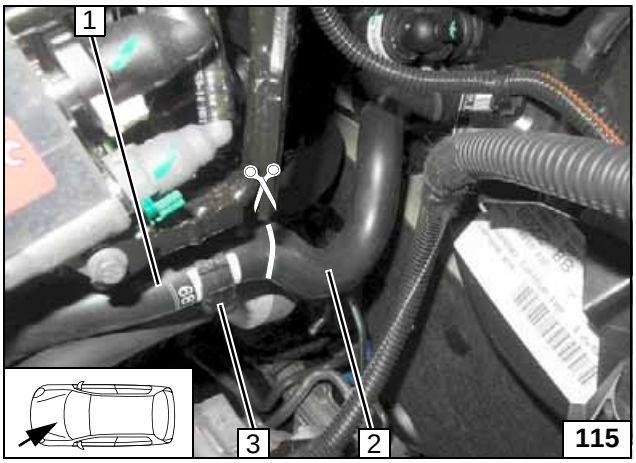
Installing connector



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

1 Cable tie
2 Circulating pump wiring harness in 6mm dia. corrugated tube
3 Heater wiring harness in 10 mm dia. corrugated tube
4 Clip-type cable tie, existing hole

Routing in engine compartment

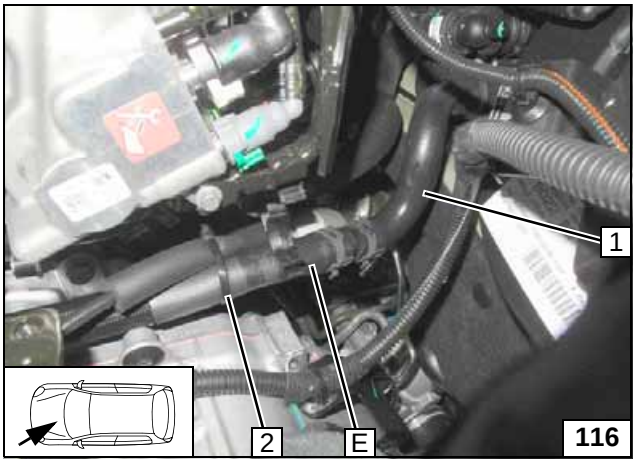


133 kW

Cut off hose on engine outlet/heat exchanger inlet at marking. Remove engine outlet hose section **1** with hose coupling from engine outlet connection piece.

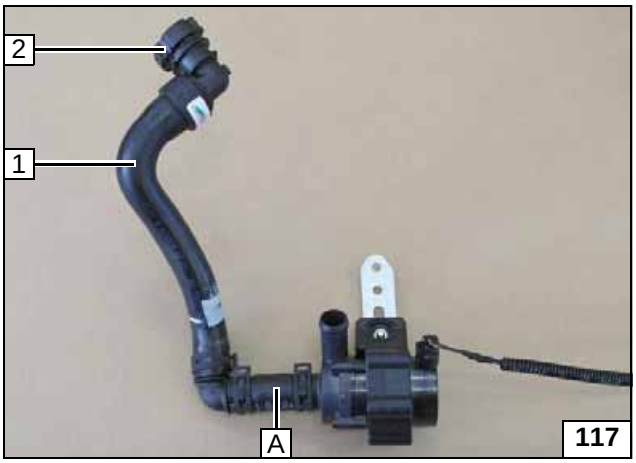
2 Heat exchanger inlet hose section
3 Open original vehicle hose bracket

Cutting point



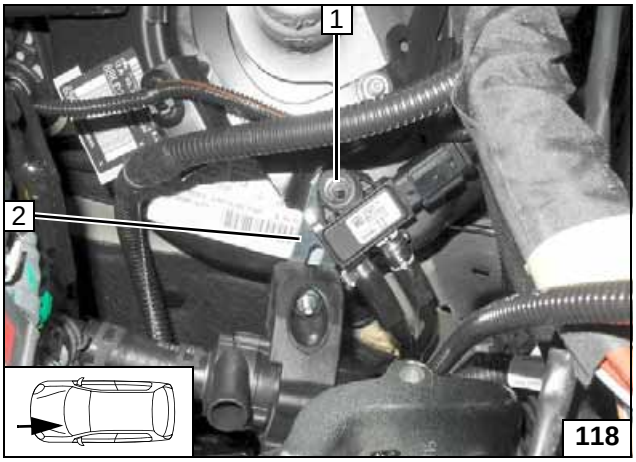
1 Hose of heat exchanger inlet
2 Cable tie

Connecting heat exchanger inlet



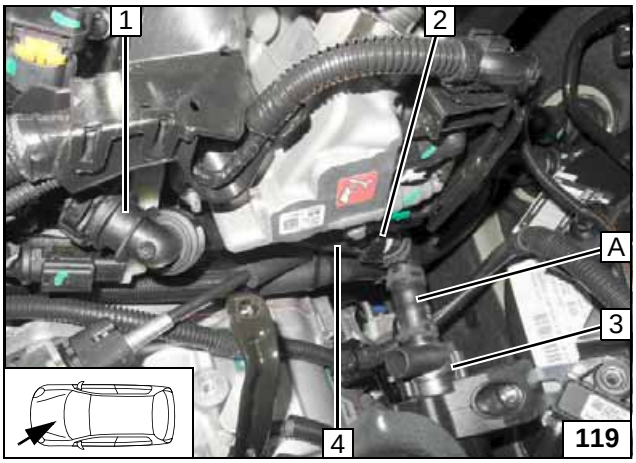
1 Hose of engine outlet
2 Engine outlet hose coupling

Premounting circulating pump



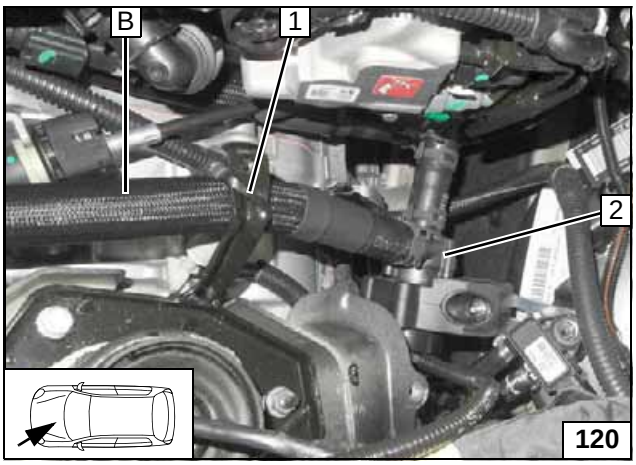
1 Original vehicle bolt, original vehicle flanged nut
2 Perforated bracket

Installing circulating pump



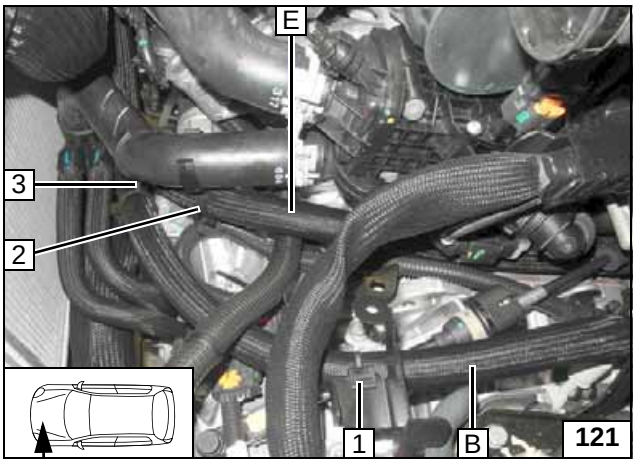
1 Engine outlet hose coupling
2 Close original vehicle hose bracket
3 Circulating pump
4 Hose of engine outlet

Connecting engine outlet / circulating pump



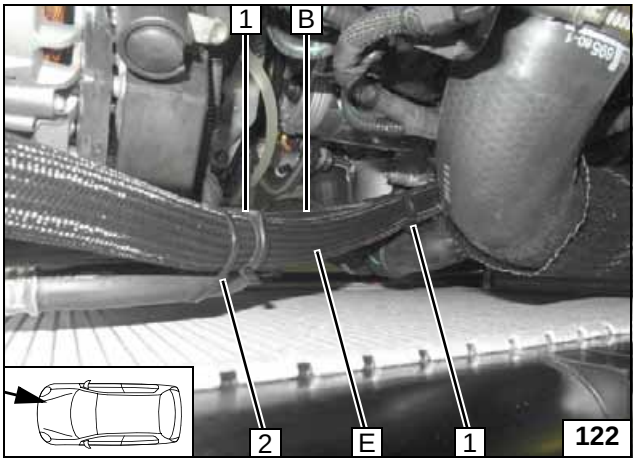
1 Cable tie
2 Circulating pump

Connecting circulating pump



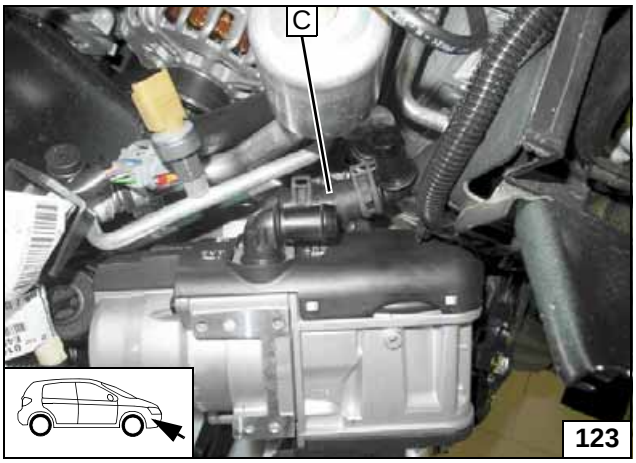
1 Clip-type cable tie mounted on original vehicle bracket (cable tie around hose **B**)
2 25x37 hose bracket between original vehicle hose and hose **E**
3 25x37 hose bracket between original vehicle hose and hose **B**

Routing in engine compartment

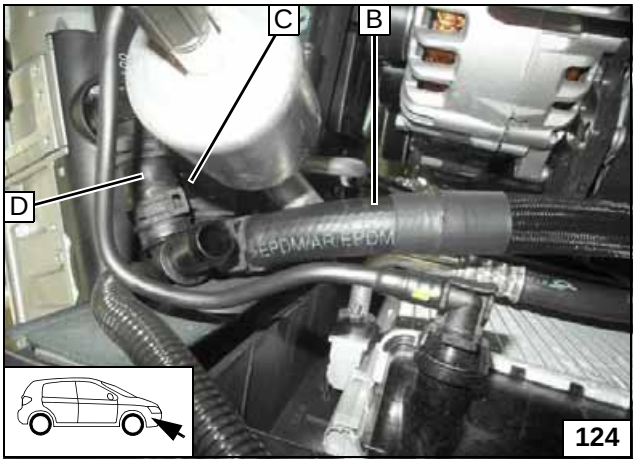


1 23x23 hose bracket [2x] between hose **B** and **E**
2 Cable tie

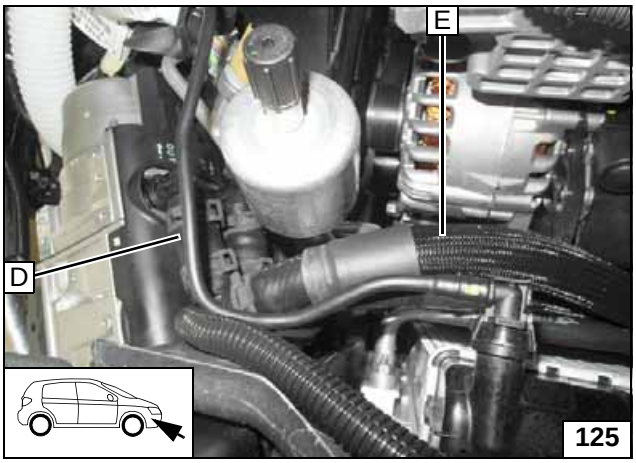
Routing in engine compartment



Installing hose C

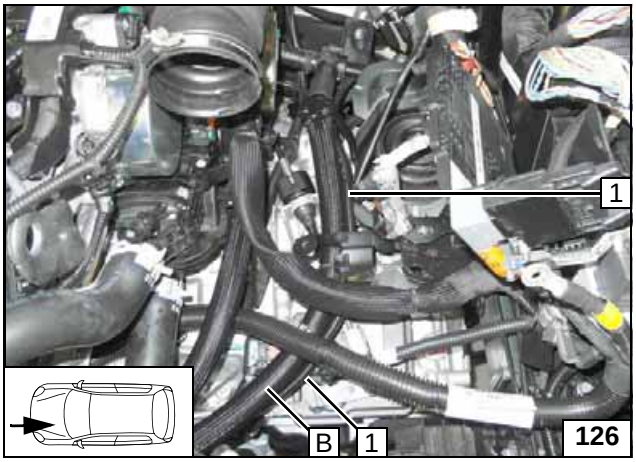


Connecting heater inlet / mounting hose D



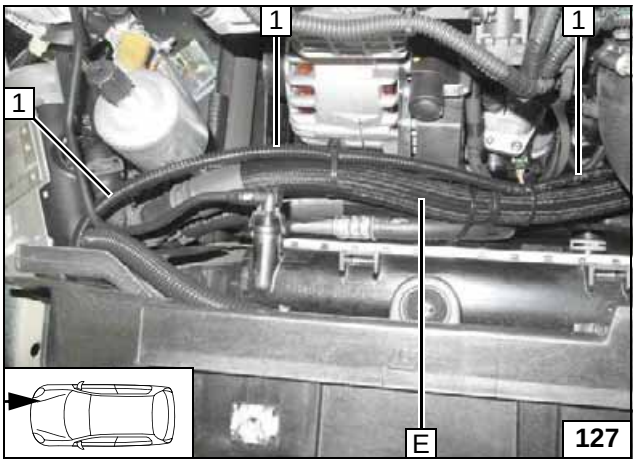
Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

Connecting heater outlet



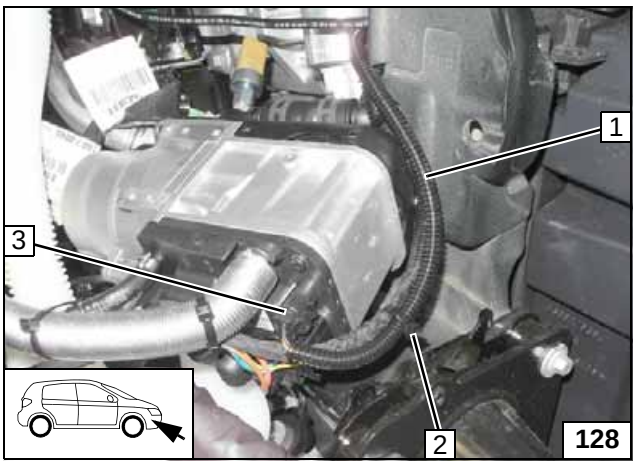
Align wiring harness of circulating pump in 6mm dia. corrugated tube **1** with hose **B** towards heater and fasten with cable tie.

Routing wiring harness of circulating pump



Align wiring harness of circulating pump in 6mm dia. corrugated tube **1** with hose **E** towards heater and fasten with cable tie.

Routing wiring harness of circulating pump



1 Circulating pump wiring harness in 6mm dia. corrugated tube
2 Cable tie
3 Connector of circulating pump wiring harness

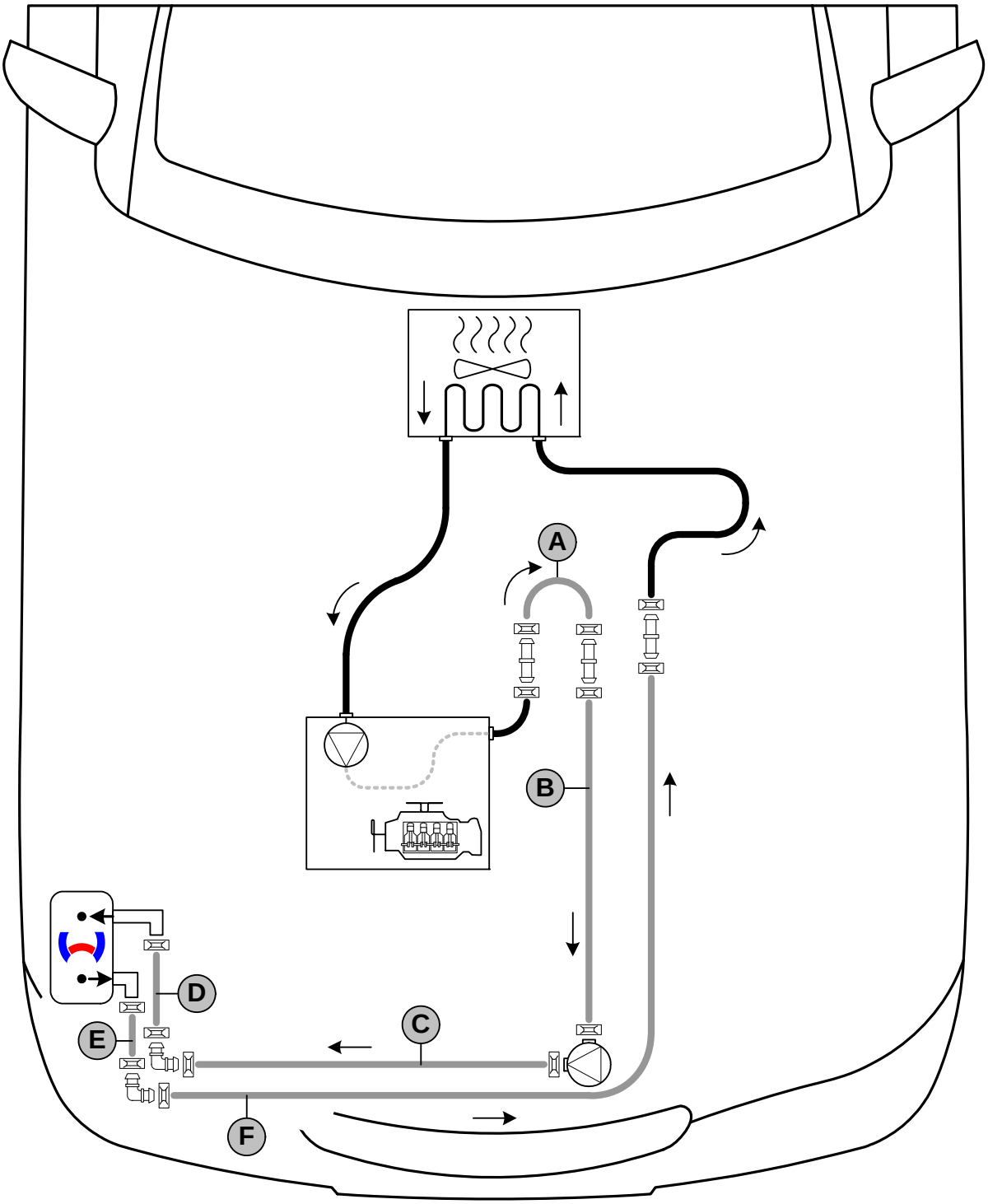
Installing connector

DS5 Hybrid Coolant Circuit

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

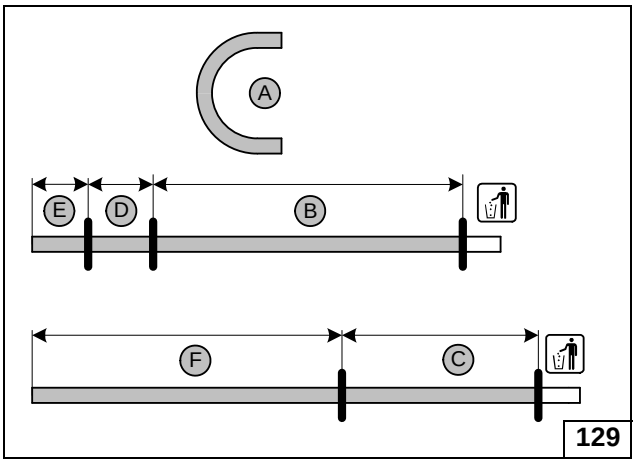
The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram



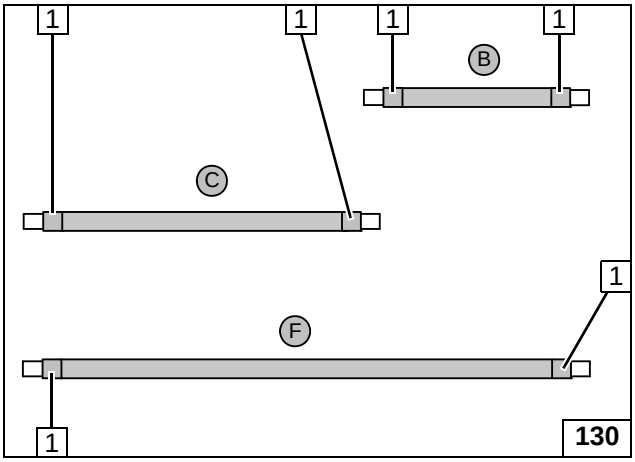
All spring clips = 25 mm dia.
All connecting pipes and = 18x18 mm dia.

Cutting hoses to length



A = 180°, 18mm dia.
B = 470
C = 690
D = 100
E = 90
F = 1120

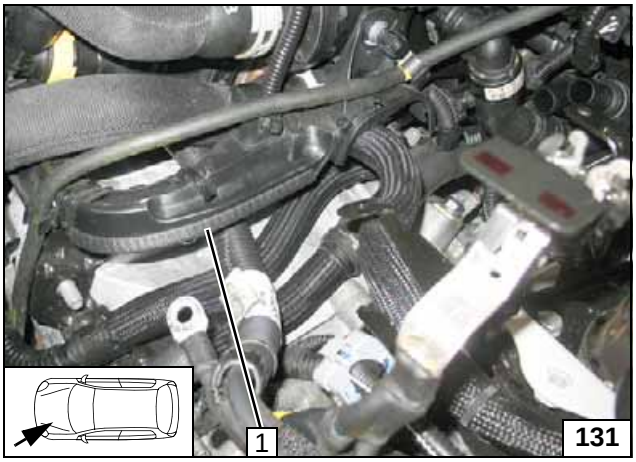
Preparing hoses



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

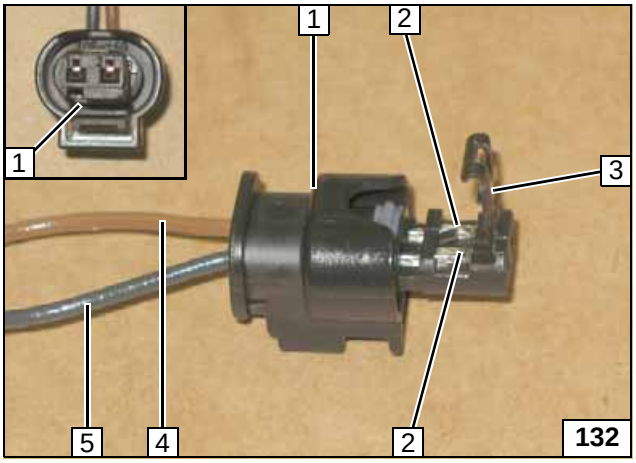
1 50 mm long heat shrink plastic tubing [6x]

Installing edge protection



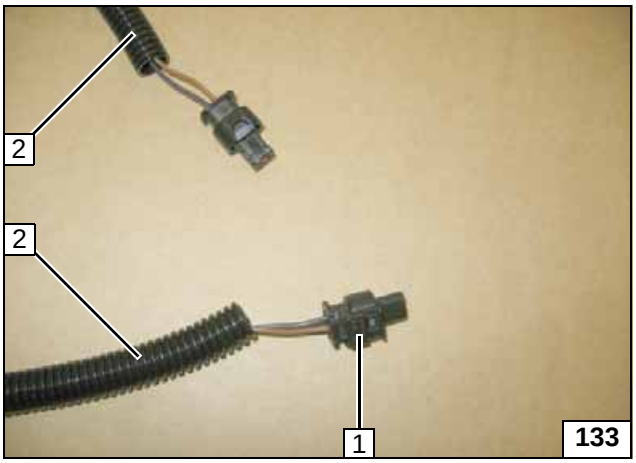
1 150mm long edge protection

Dismantling connector



Dismantle connector of circulating pump. Slide on 6mm dia. corrugated tube and then complete connector of circulating pump again. (See next figure)
Warning:
Do not mix up the wire allocation!

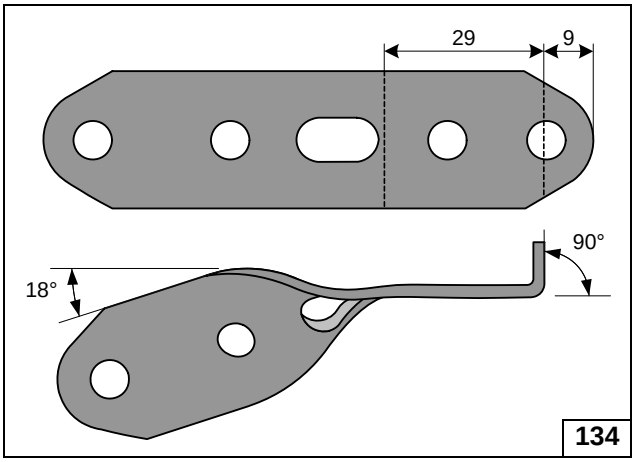
1. Fold up lock **3**.
2. Detach timer lock **2**.
3. Detach brown (br) wire **4** and black (sw) wire **5** from connector housing **1**



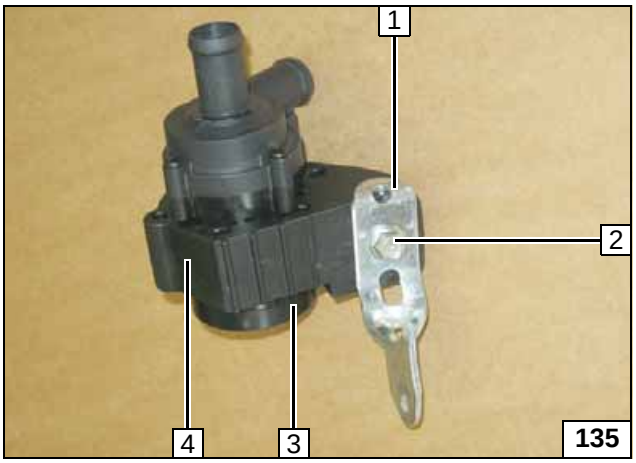
Push 6mm dia., 900mm long corrugated tube **2** onto wiring harness of circulating pump.
Route excess wiring harness into corrugated tube.

1 Connector of circulating pump completed

Sliding on corrugated tube

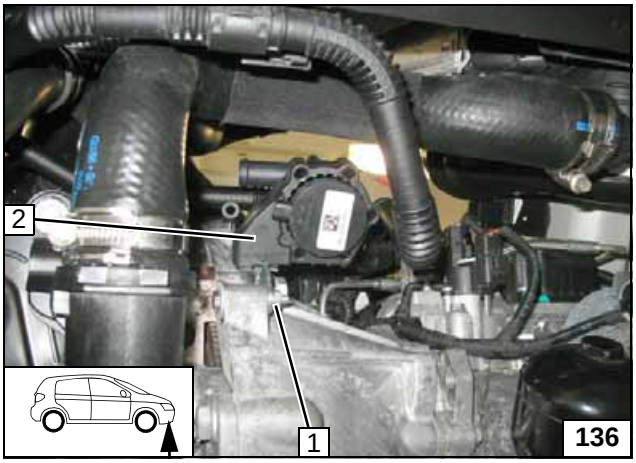


Preparing perforated bracket



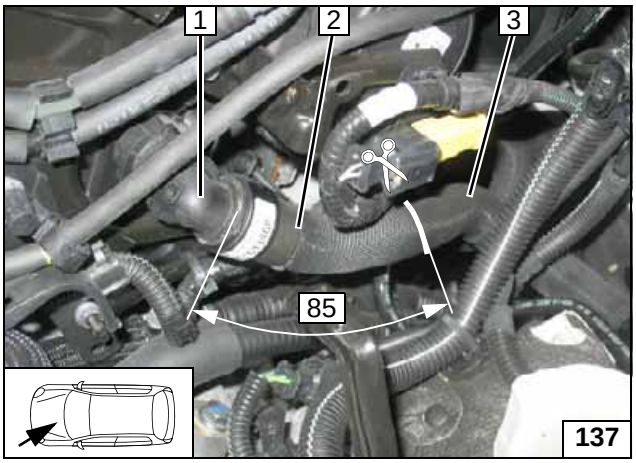
1 Perforated bracket
2 M6x25 bolt, flanged nut
3 Circulating pump
4 Circulating pump mount

Premounting circulating pump



1 M6x40 bolt, large diameter washer, perforated bracket, flanged nut
2 Circulating pump mount

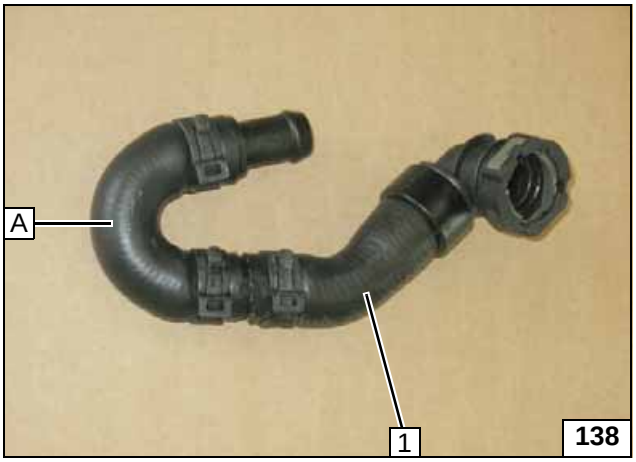
Installing circulating pump



Remove protective hose in the area of the cutting point. Cut off hose on engine outlet/heat exchanger inlet at marking. Remove engine outlet hose section **2** with hose coupling from engine outlet connection piece.

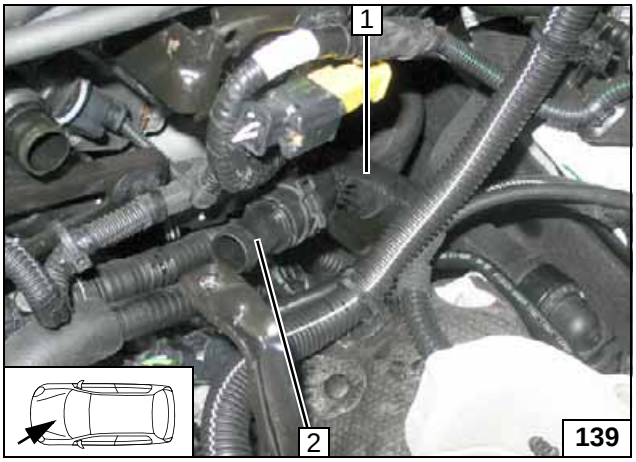
1 Engine outlet hose coupling
3 Heat exchanger inlet hose section

Cutting point



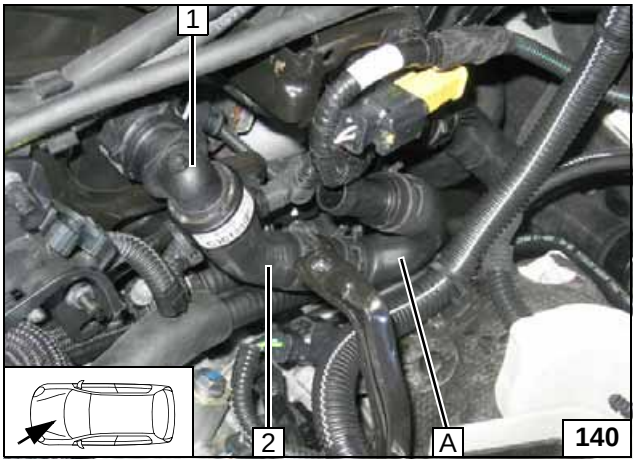
1 Hose of engine outlet

Premounting hose A



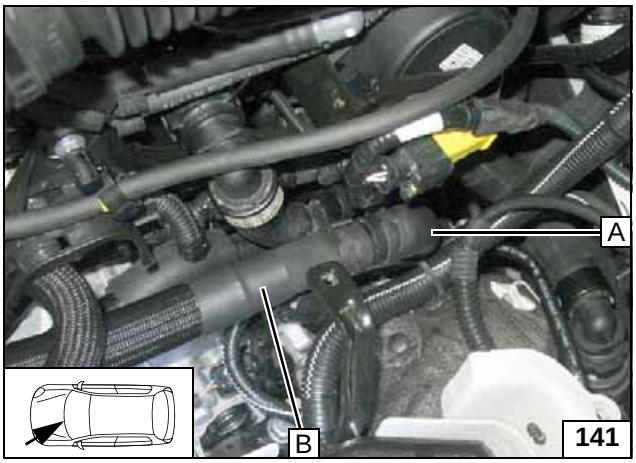
1 Hose of heat exchanger inlet
2 Connecting pipe, spring clip

Preparing hose of heat exchanger inlet

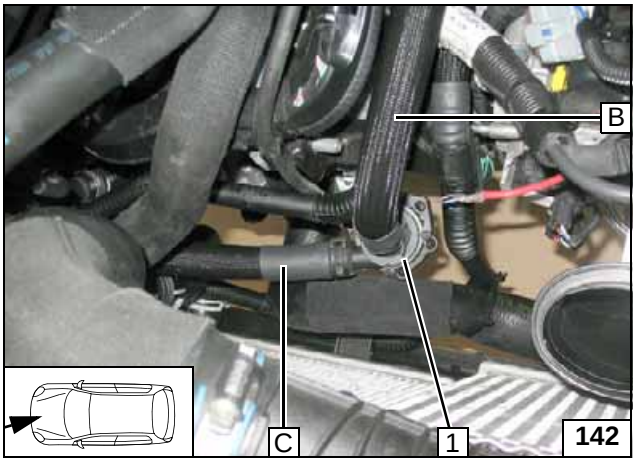


1 Engine outlet hose coupling
2 Hose of engine outlet

Connecting engine outlet

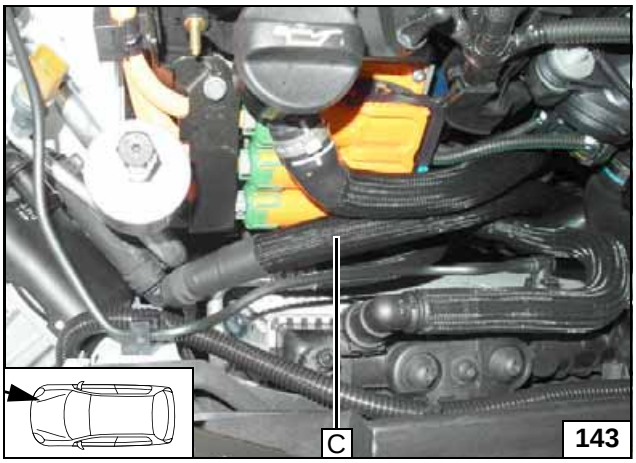


Installing hose B

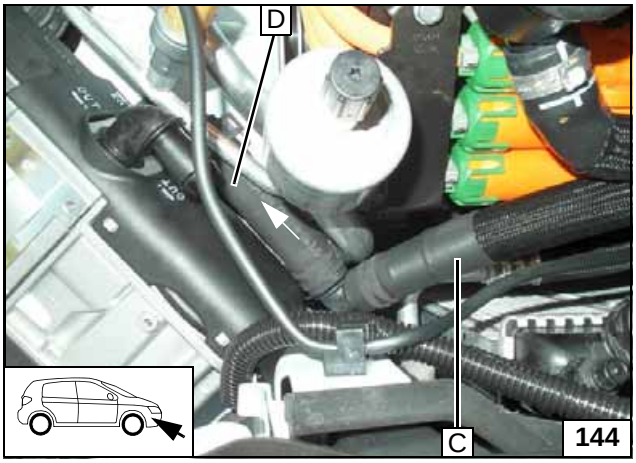


1 Circulating pump

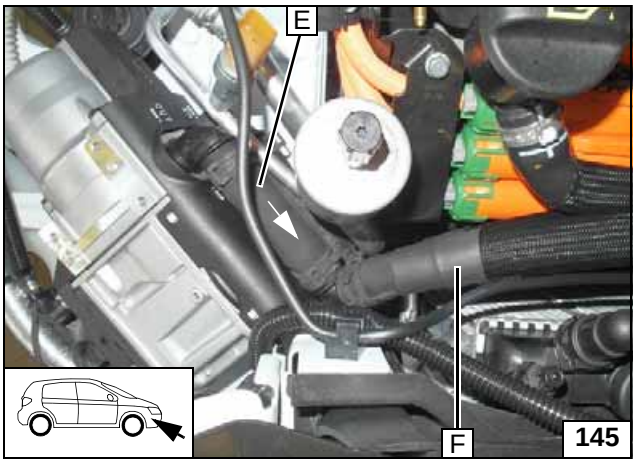
Connecting circulating pump



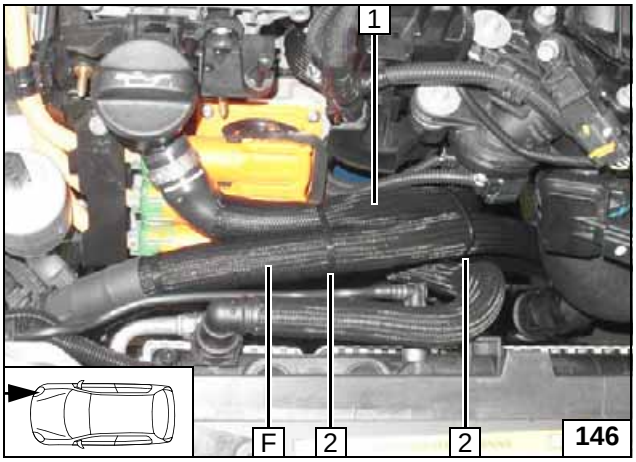
Routing in engine compartment



Connecting heater inlet



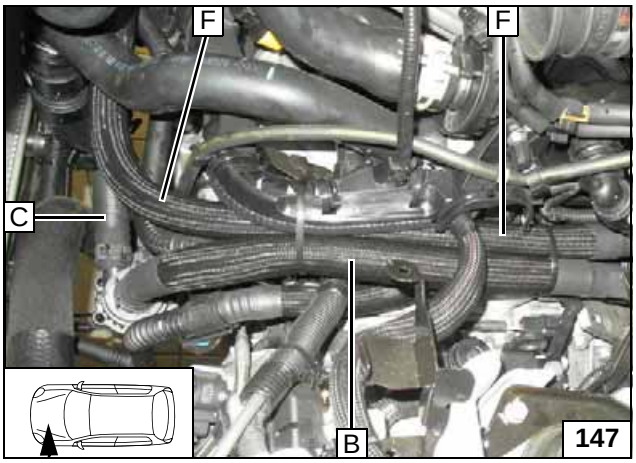
Connecting heater outlet



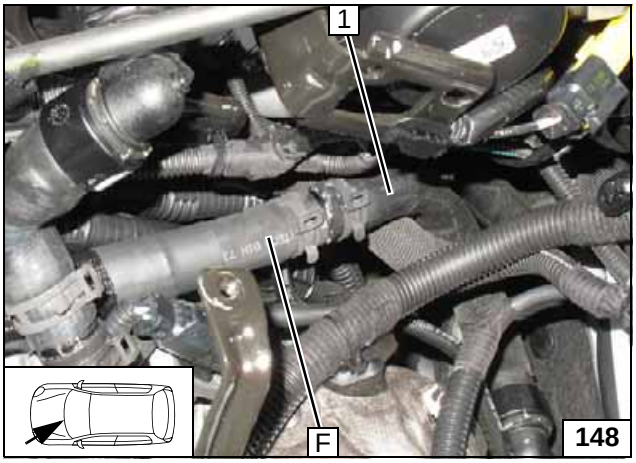
Route hose **F** along hose **C**.

1 Original vehicle hose
2 Cable tie

Routing in engine compartment

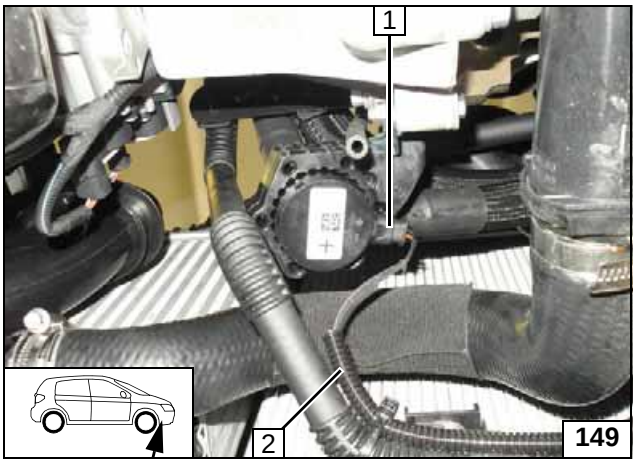


Routing in engine compartment



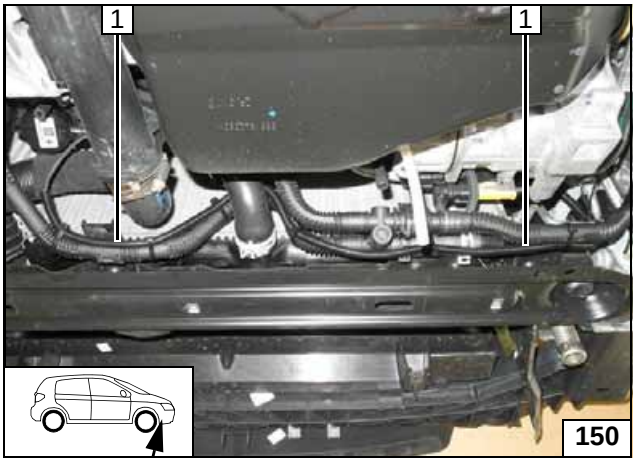
1 Hose of heat exchanger inlet

Connecting heat exchanger inlet



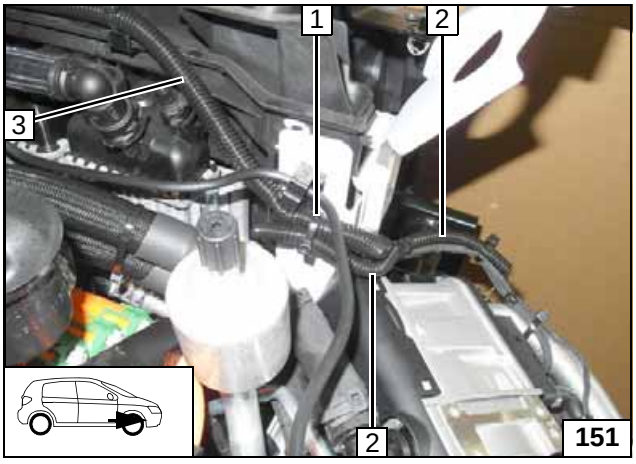
1 Connector of circulating pump wiring harness
2 Circulating pump wiring harness in 6mm dia. corrugated tube

Mounting wiring harness



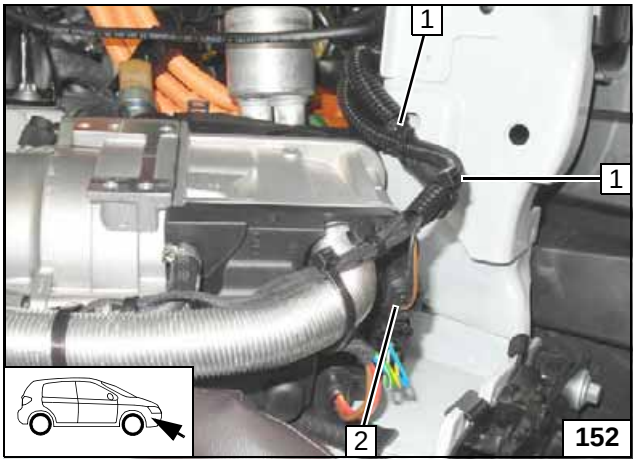
1 Circulating pump wiring harness in 6mm dia. corrugated tube

Routing wiring harness



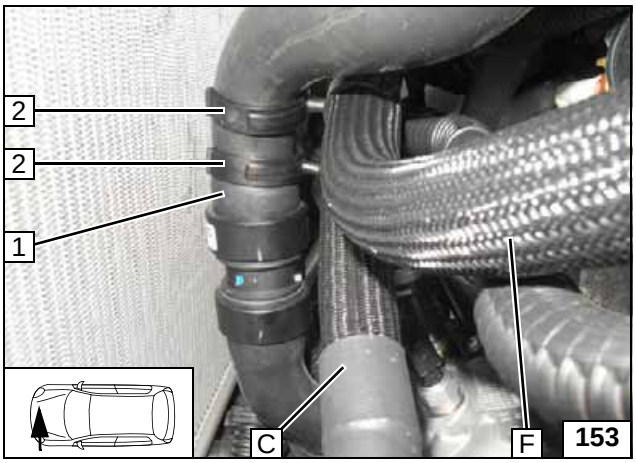
1 Cable tie
2 Circulating pump wiring harness in 6mm dia. corrugated tube
3 Heater wiring harness in 10 mm dia. corrugated tube

Routing wiring harnesses



1 Cable tie
2 Connector of circulating pump wiring harness

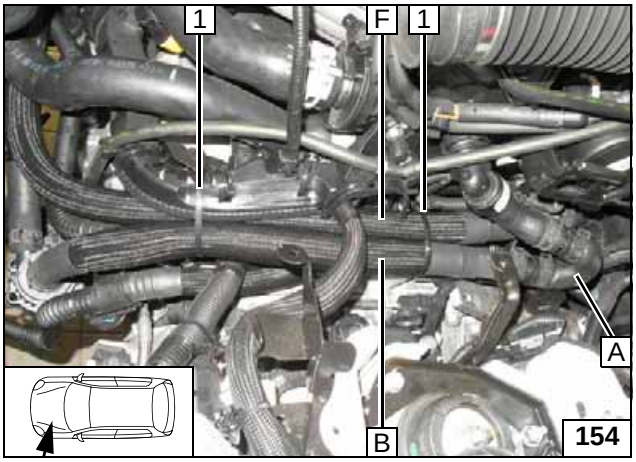
Mounting wiring harness



Align hoses. Ensure sufficient distance to adjacent components, ensure freedom of movement, correct if necessary.

1 Original vehicle hose
2 25x37 hose bracket [2x]

Installing hose bracket



Align hoses. Check the routing of hose **B** after installation of the air filter box, correct if necessary.
Check that they have freedom of movement.

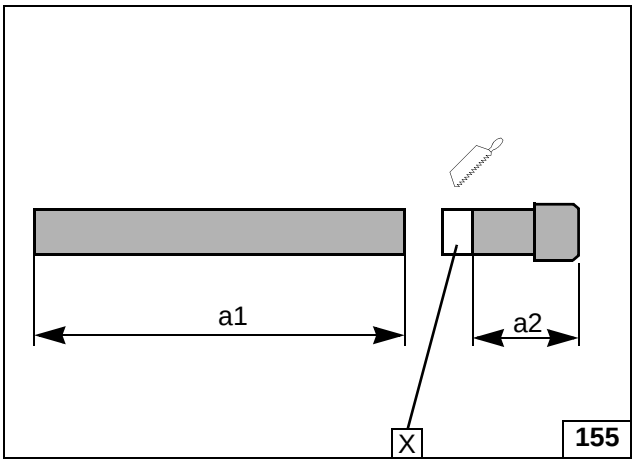
1 Cable tie

Routing in engine compartment

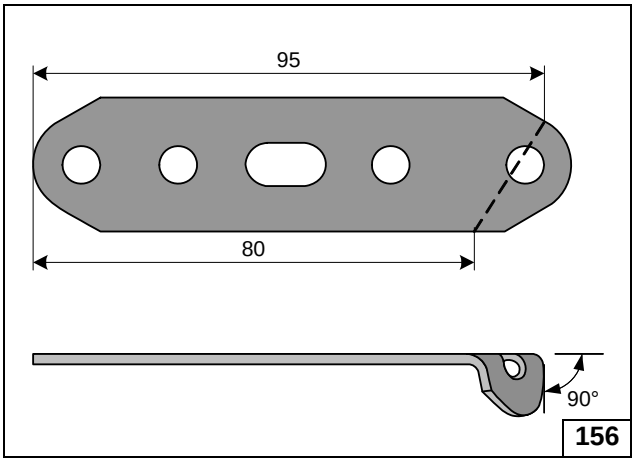
Exhaust Gas

a1 = 400
a2 = 95

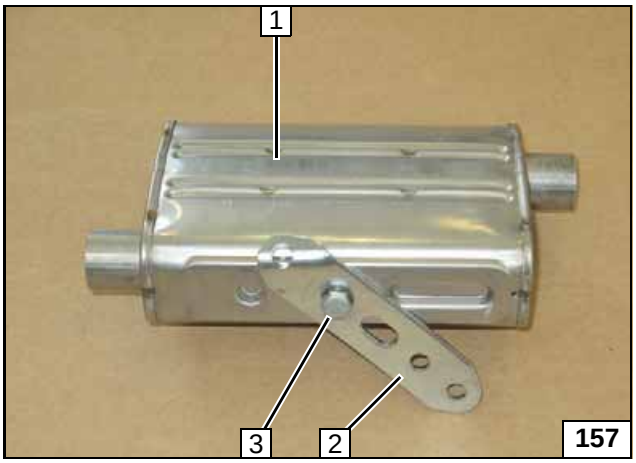
X =



Preparing exhaust pipe

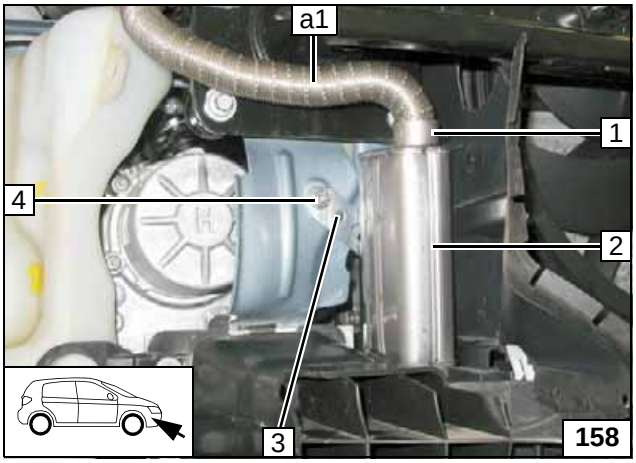


Preparing perforated bracket



1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

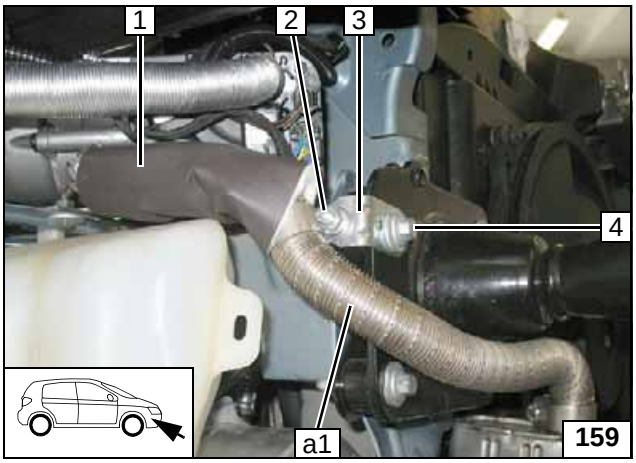
Premount-ing silencer



Align silencer **2** perpendicularly.

1 Hose clamp
3 Perforated bracket
4 M6x20 bolt, large diameter washer, flanged nut, existing hole

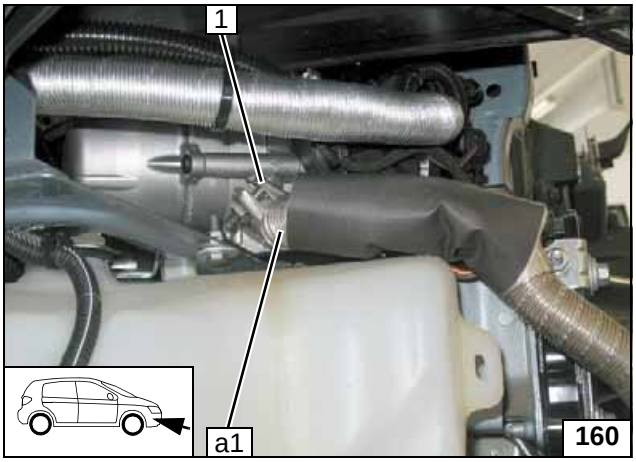
Installing silencer



Shorten exhaust insulation **1** to 140mm and push it onto exhaust pipe **a1**.

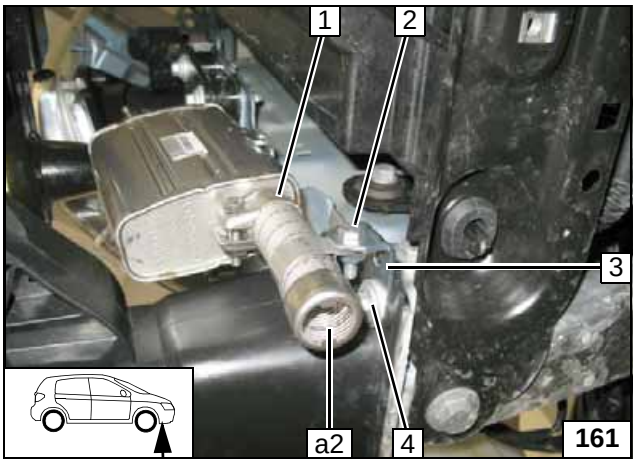
2 M6x20 bolt, p-clamp, flanged nut
3 Angle bracket
4 Original vehicle bolt

Installing exhaust pipe a1



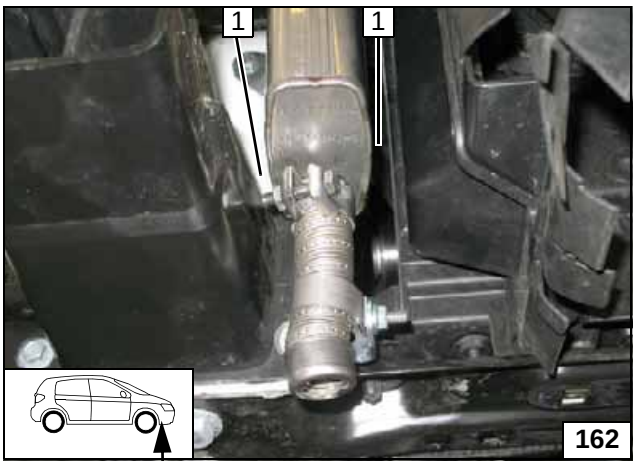
1 Hose clamp

Installing exhaust pipe a1



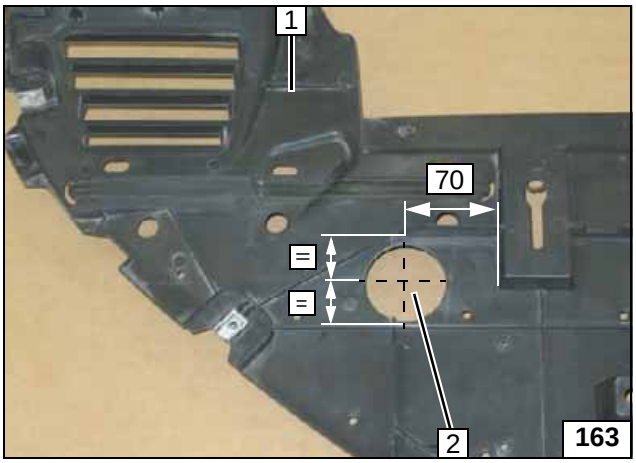
1 Hose clamp
2 M6x20 bolt, p-clamp, flanged nut
3 Angle bracket
4 Original vehicle bolt

Installing exhaust pipe a2



Ensure sufficient distance between exhaust silencer at position **1** and adjacent components, correct if necessary.

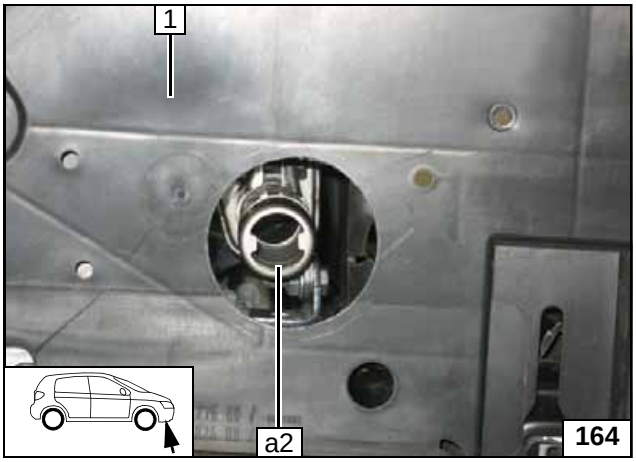
Installing silencer and exhaust pipe a2



Underride Protection

1 Underride protection
2 60 mm dia. hole

Cutting out underride protection



Align exhaust pipe a**2** with centre of hole and flush with underride protection **1**.

Aligning exhaust pipe a2

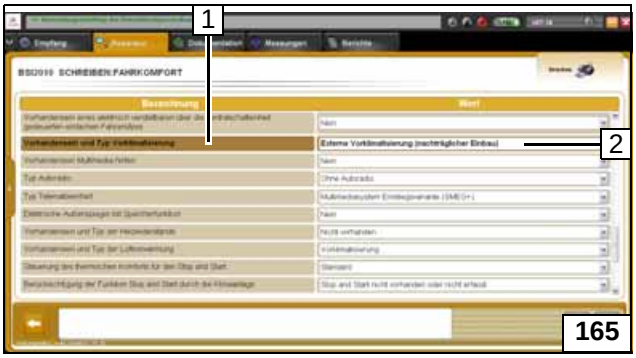
Final Work

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

Activation of hybrid system
The hybrid system should be re-activated prior to the connection of the 12V vehicle battery!

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the 'Operating Instructions'.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**
- **For initial startup and function check, please see installation instructions.**

Encode BSI to use the parking heater according to manufacturer's instructions using DiagBox or PP2000.



BSI Coding

Set the 'Availability and type of pre-air conditioning' **1** to 'External pre-air conditioning (retrofitting)' **2**.

BSI Coding

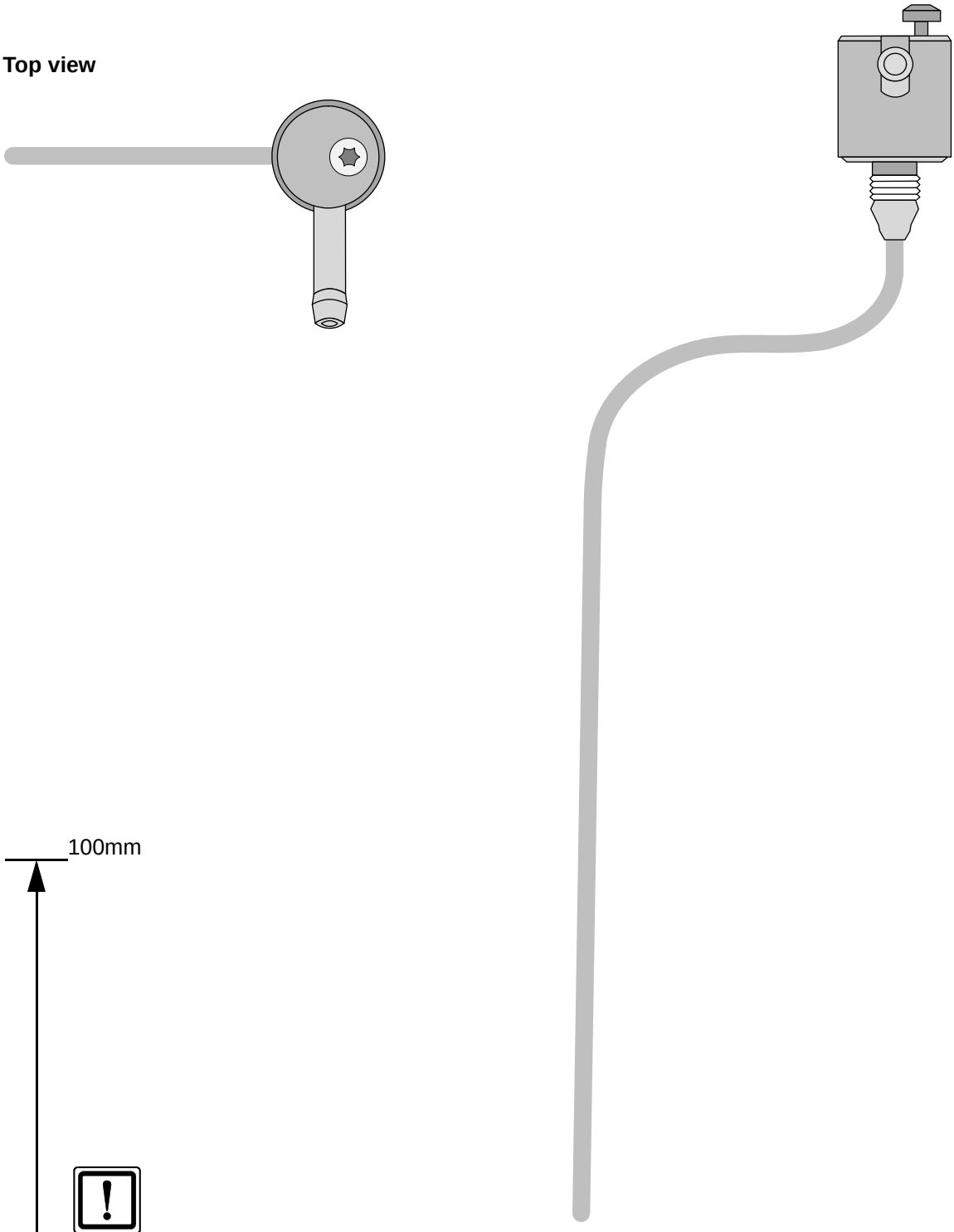
WARNING!
To check fan function, disconnect battery for 20 seconds, wait 30 seconds after connecting the battery and activate the heater control using the 'Vent' function.
Battery capacity >80% required.

- **For initial startup and function check, please see installation instructions.**

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

FuelFix Template Version 1

Top view



100mm

Scale 1:1

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

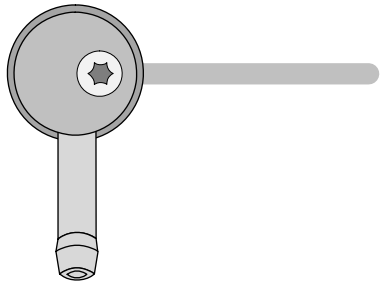
Set the printer settings to ‘no margin’ or ‘minimise margins’ and 100% of the normal size.

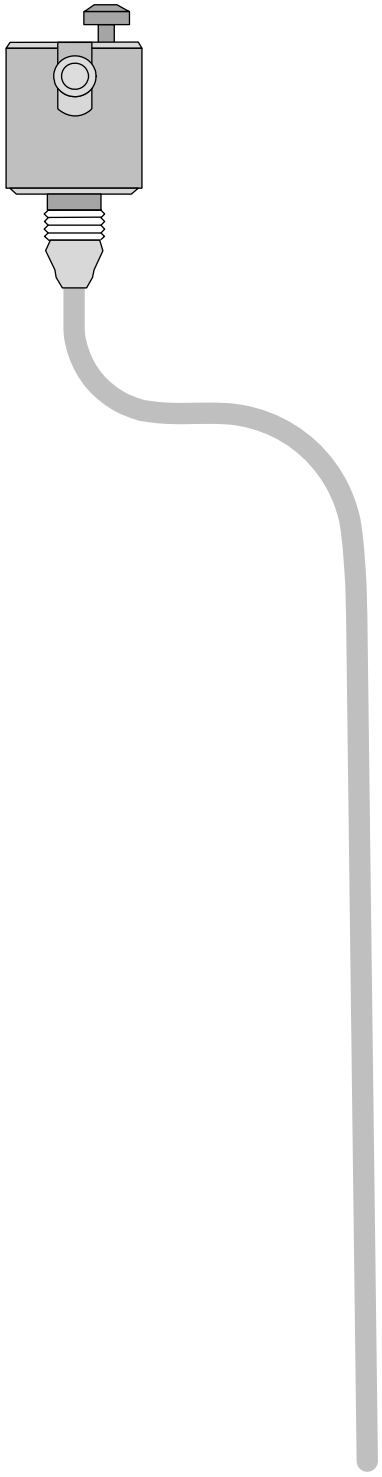
100mm

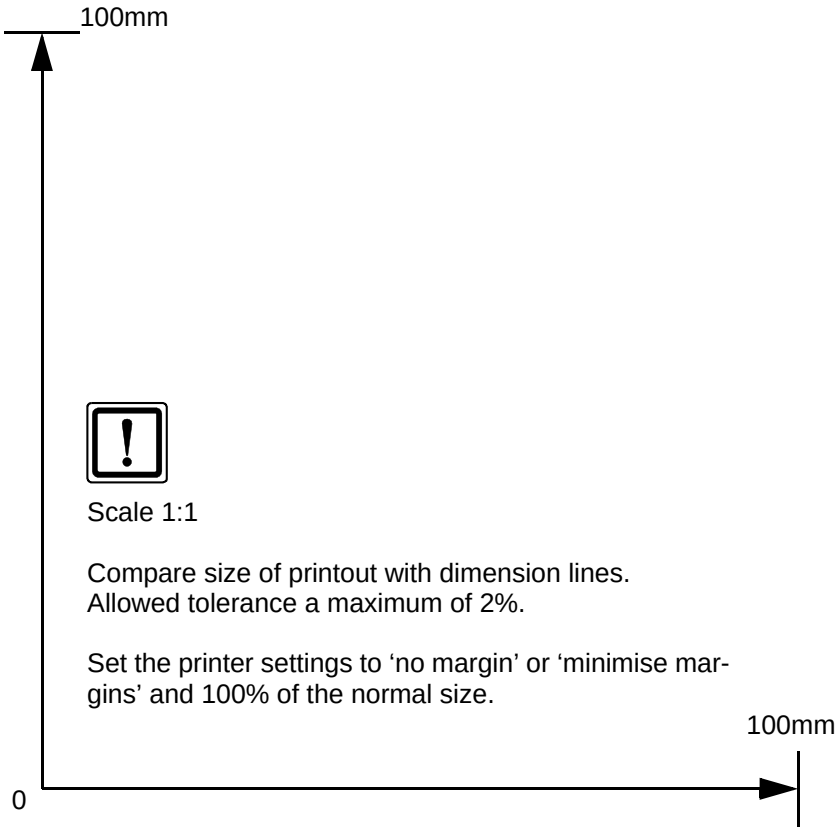
0

FuelFix Template Version 2

Top view

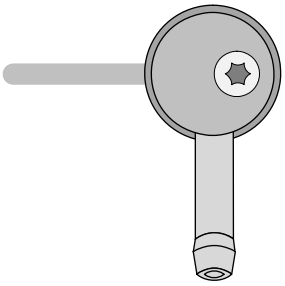


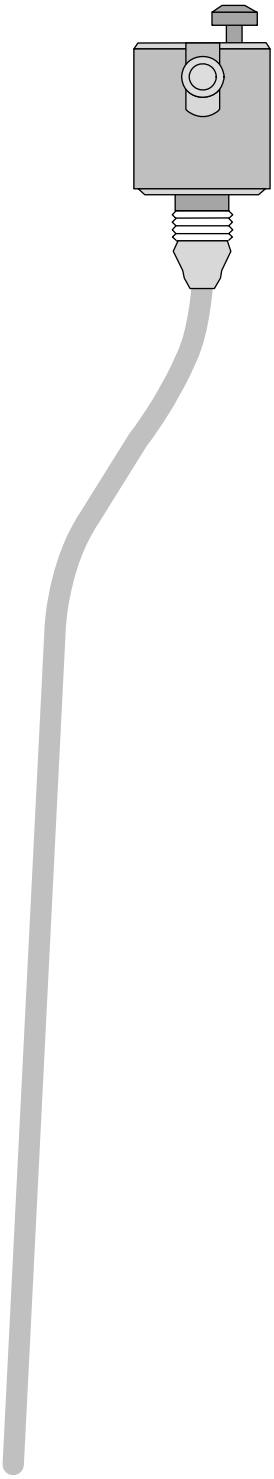




FuelFix Template Version 3

Top view





100mm

Scale 1:1

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

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

100mm

0

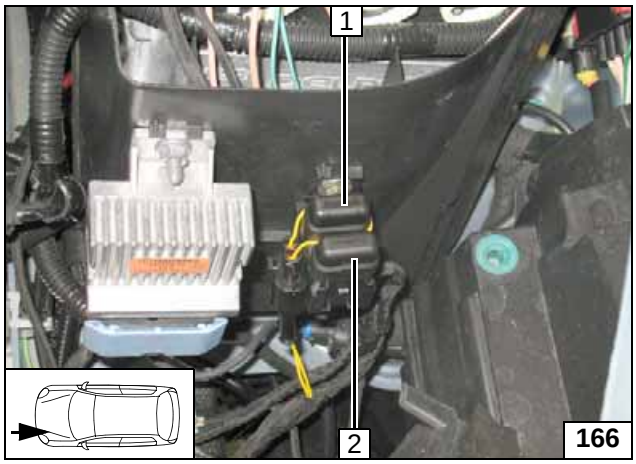
Operating Instructions

Please remove page and add to the vehicle operating instructions.

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

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

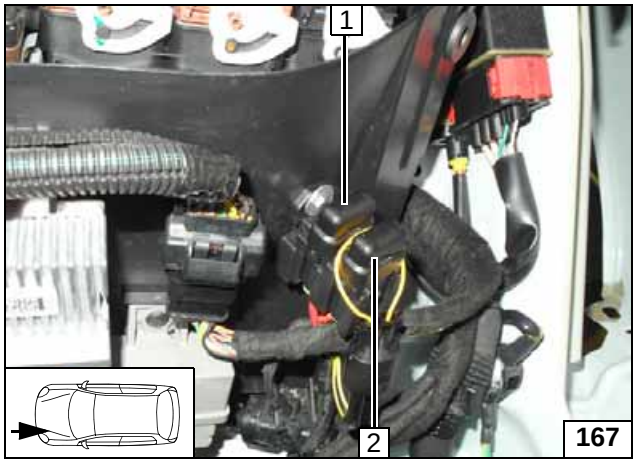
No further settings are required on the A/C control panel.



DS5

1 1A heater control fuse F2
2 20A heater fuse F1

Engine compartment fuses



DS5 Hybrid

1 1A heater control fuse F2
2 20A heater fuse F1

Engine compartment fuses