Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Hyundai Tucson

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Hyundai	Tucson	TLE	e11 * 2007 / 46 * 2744 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6 GDI	Petrol	6-speed SG	97	1591	G4FD
1.6 TGDi	Petrol	DCT	130	1591	G4FJ
1.7 CRDi	Diesel	6-speed SG	85	1685	D4FZ
2.0 CRDi	Diesel	6-speed SG	100	1995	D4HA
2.0 CRDi	Diesel	6-speed AG	136	1995	D4HA

SG = manual transmission
AG = automatic transmission
DCT = dual clutch transmission

From model year 2016
Left-hand drive vehicle

Verified equipment variants:
Automatic air-conditioning
Halogen front fog lights
Halogen front fog lightsStart button
Start-Stop
LED daytime running lights
LED main headlights
2WD / 4WD
Euro 6
Alarm system

Not verified:
Manual A/C system
Passenger compartment monitoring

Total installation time: approx. 7.5 hours

Hyundai Tucson

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Hyundai Tucson and Kia Sportage 2016 Petrol and diesel: **1324393C**
- 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
- In case of MultiControl CAR installation: MultiControl installation frame: **9030077**_

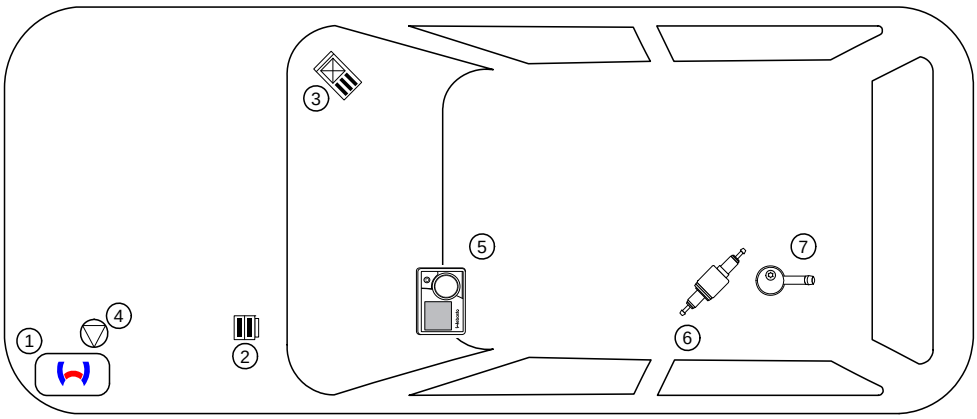
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button in case of Telestart or ThermoCall should be confirmed with the end customer.
- Depending on the 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. Passenger compartment relay and fuse holder
4. Circulating pump
5. MultiControl CAR
6. Metering pump
7. 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 must audibly snap into place during assembly.

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

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

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

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Hyundai Tucson

Information on Validity

This installation documentation applies to Hyundai Tucson Petrol and diesel vehicles - for validity, see page 1 - from model year 2016 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this 'installation documentation'.

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

Technical Information

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

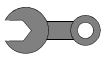
Dimensions
- All dimensions are in mm.

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

Explanatory Notes on Document

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

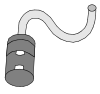
Mechanical System



Electrical System

Coolant Circuit

Combustion Air



Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

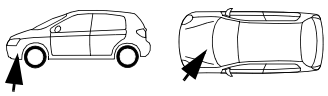
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

Reference to 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.

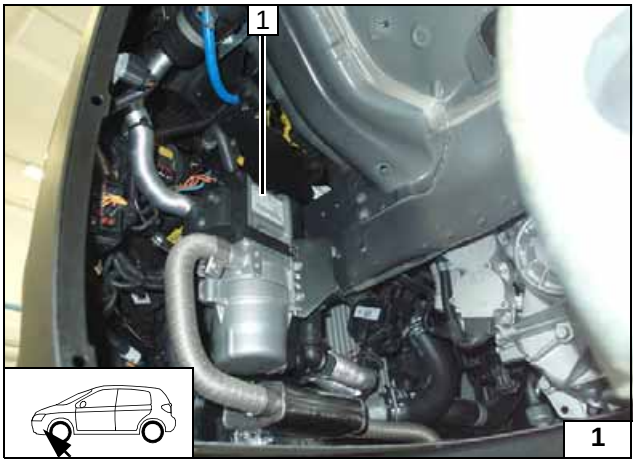
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the left front wheel.
- Remove the front wheel well trim on the left side.
- Remove the lower engine trim.
- Remove the underbody trim on the left side.
- Drain the engine coolant.
- Remove the plenum.
- Disconnect and remove the battery.
- Remove the engine control unit (TGDi only).
- Remove the entire air filter housing.
- Remove the intake hose (TGDi only).
- Remove the battery carrier.
- Remove the upper footwell trim at the front on the right side.
- Remove the entrance strip trim at the front on the right side.
- Remove the lower A-pillar trim on the right side.
- Remove the centre console trim in the footwell on the front passenger's side.
- Remove the A/C control panel (see dismantling instructions).
- Remove the rear bench seat (pay attention to the seat heating connectors).
- Open the tank-fitting service lid.

Heater

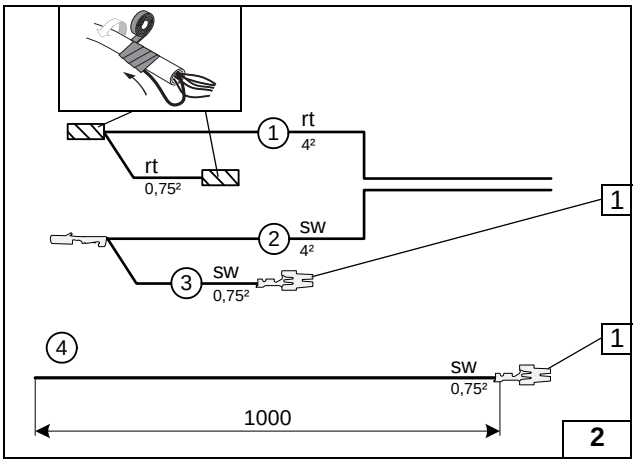
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

Installation location



Preparing Electrical System

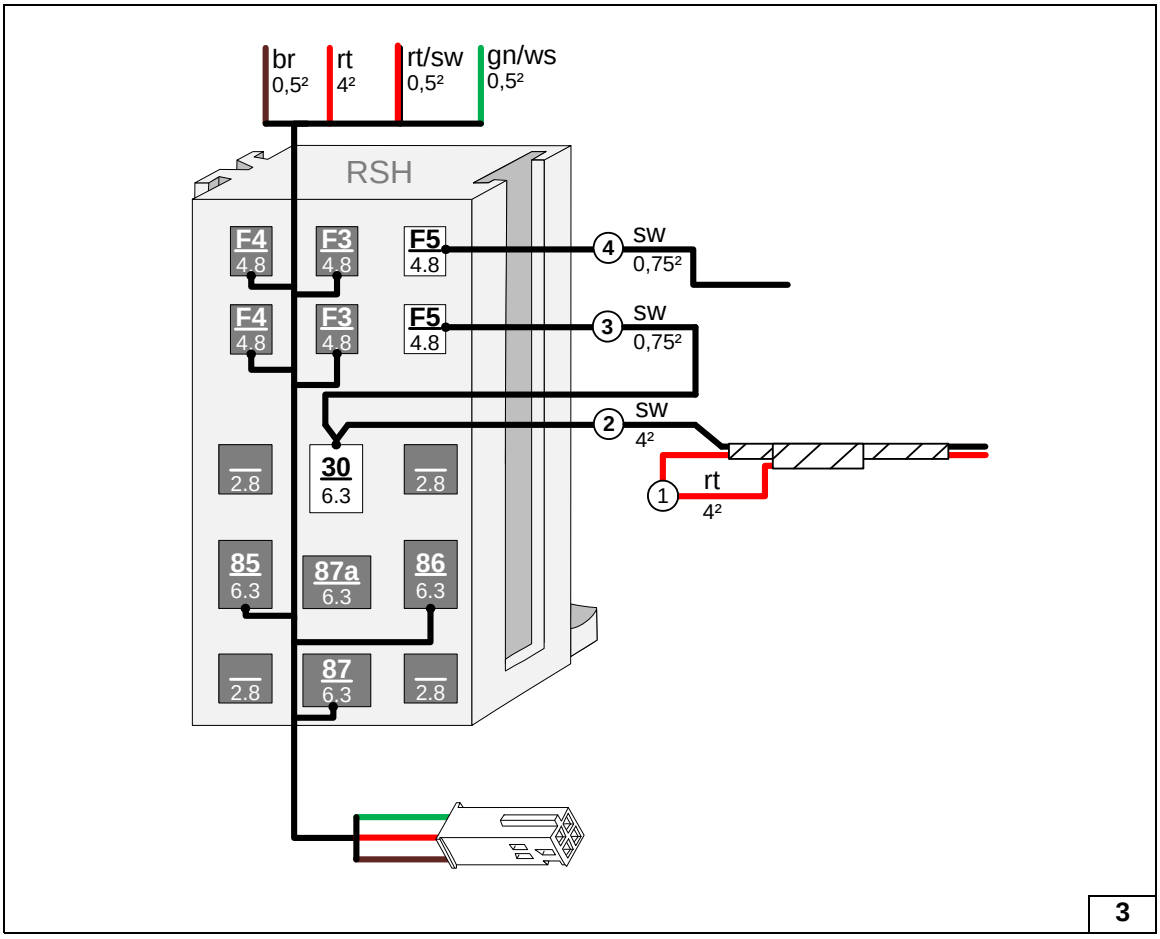
Wire sections retain their numbering in the entire document.

Pull black (sw) wire section ④ into provided protective sleeving.

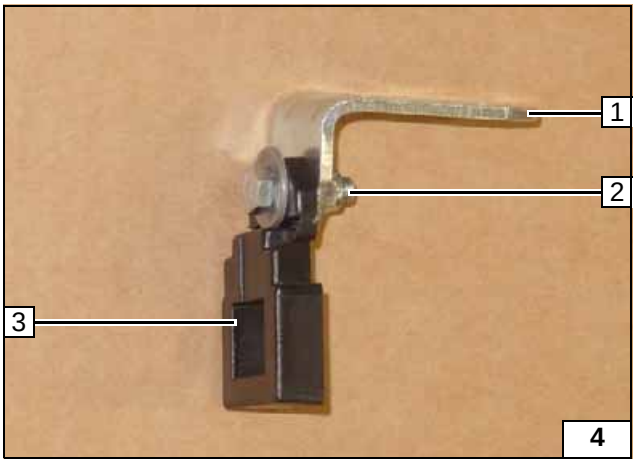
1 Power timer [2x]

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness

Assigning wires / installing power timer

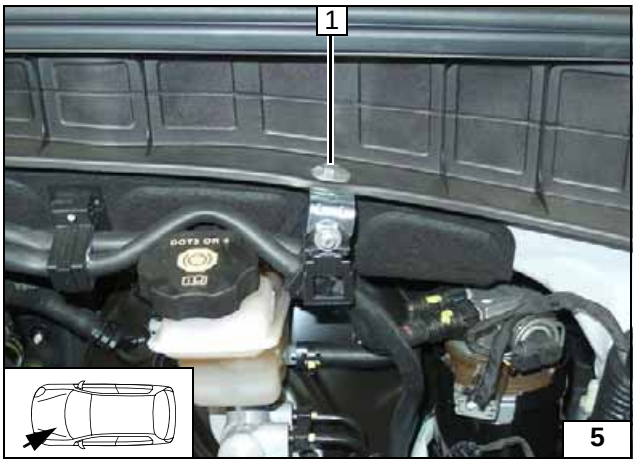


Preparing passenger compartment relay and fuse holder



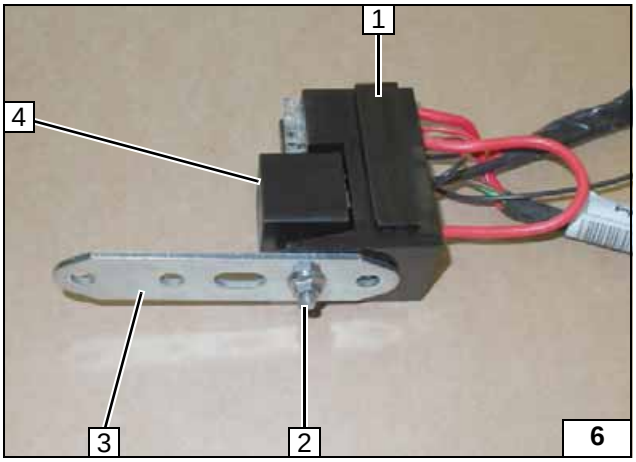
1 Angle bracket
2 M5x16 bolt, large diameter washer [2x], nut
3 Fuse holder retaining plate

Premounting angle bracket



1 Remove clip, M6x20 bolt, large diameter washer [2x], flanged nut

Installing fuse holder retaining plate



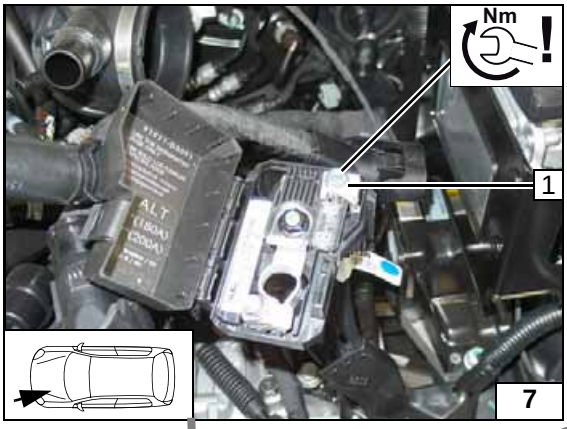
1 Passenger compartment relay and fuse holder
2 M5x16 bolt, large diameter washer [2x], nut
3 Perforated bracket
4 Relay K1

Preparing passenger compartment relay and fuse holder

Electrical System

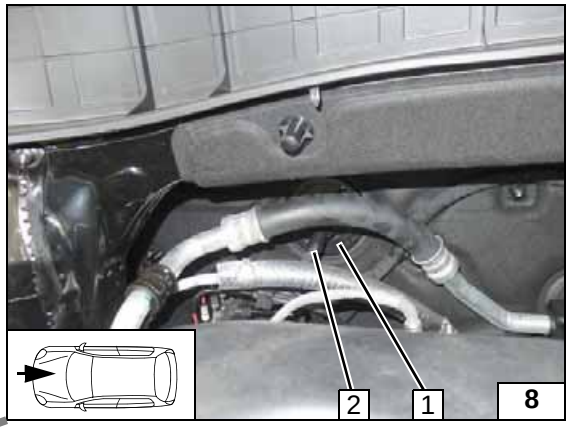
Positive wire

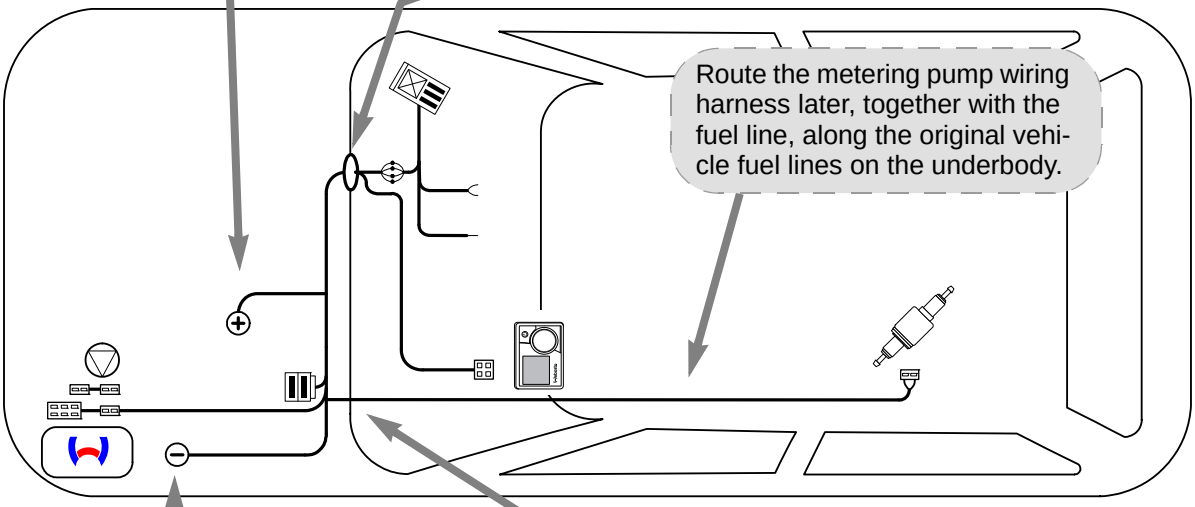
1 Positive wire on positive distributor



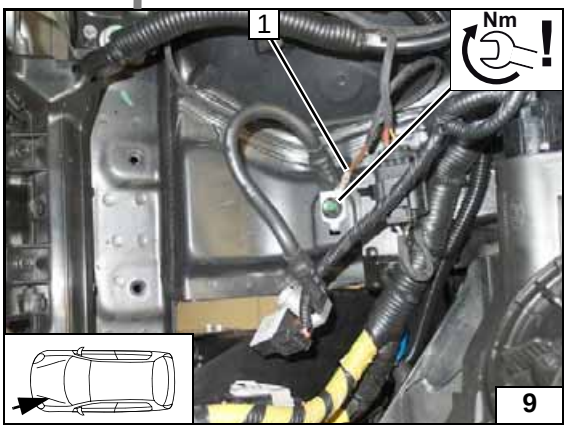
Wiring harness pass through

1 Protective rubber plug
2 Heater wiring harnesses, heater control



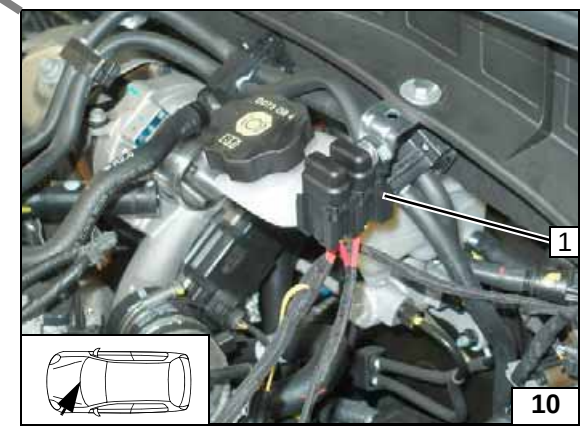


Wiring harness routing diagram



Earth wire

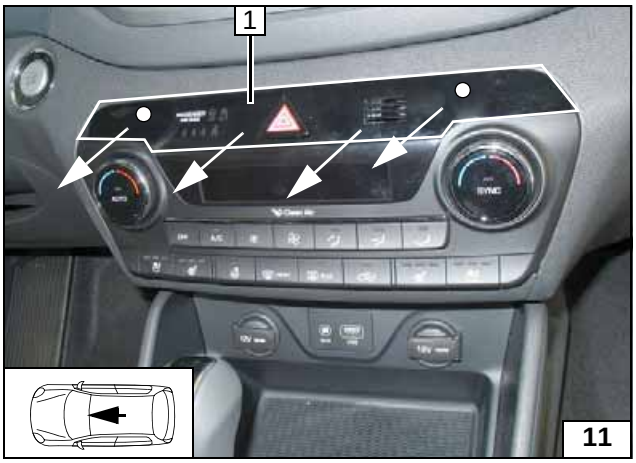
1 Earth wire on original vehicle earth support point



Engine compartment fuse holder

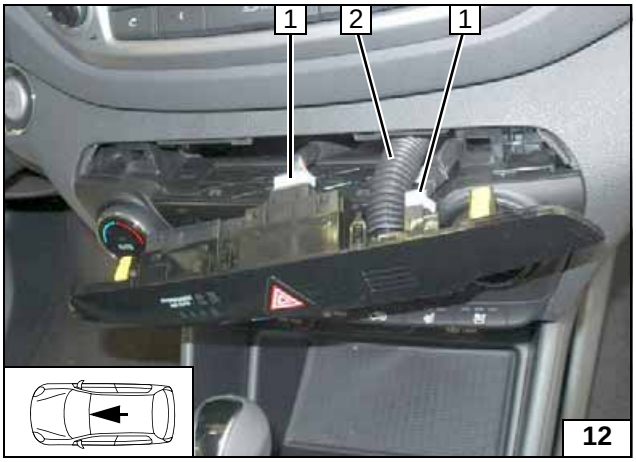
1 Fuses F1-2

A/C Control Panel Dismantling Instructions



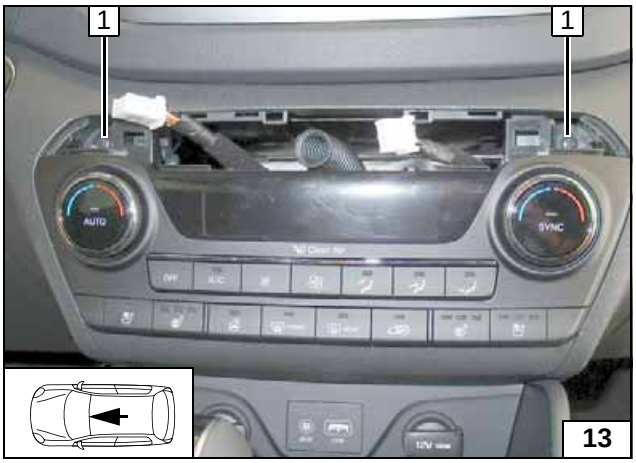
1 Switch unit
○ Fastening points

Detaching switch unit



1 Unplug original vehicle connector [2x]
2 Pull off original vehicle hose

Detaching switch unit

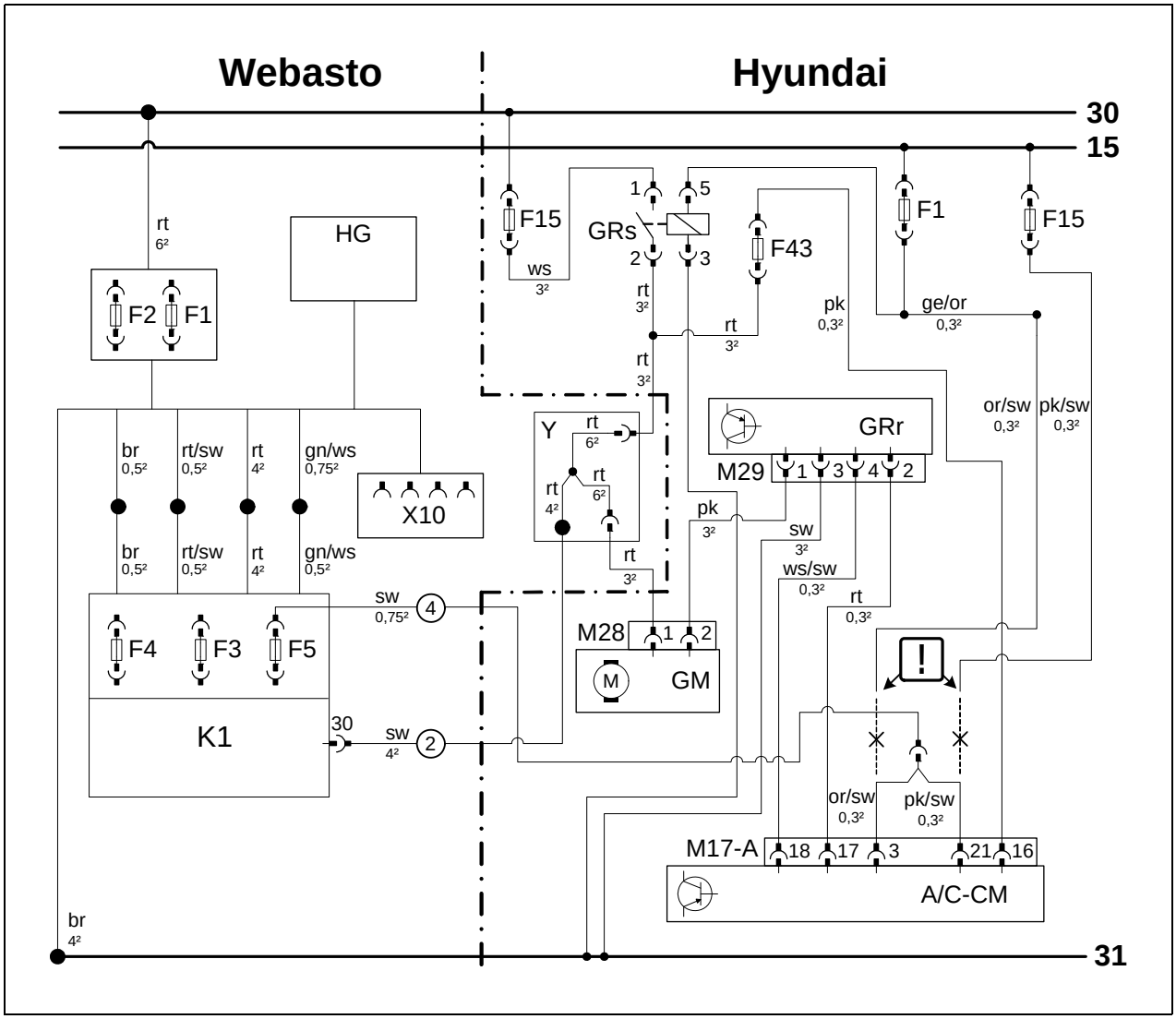


1 Original vehicle bolt [2x]

Removing bolts

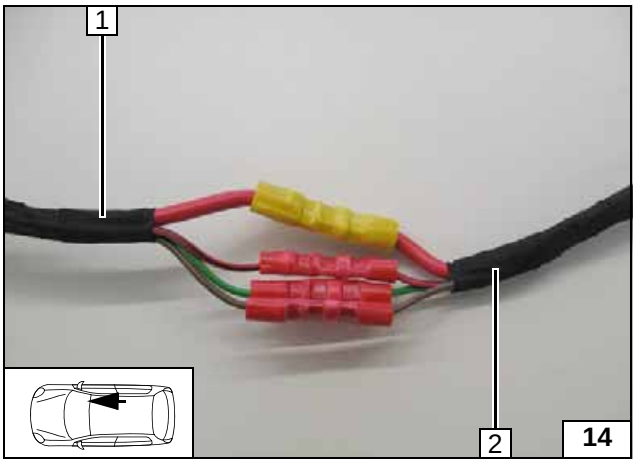
Fan Controller

System wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F15	40A fuse	rt	red
F1	20A fuse	GRs	Fan relay	sw	black
F2	30A fuse	F43	7.5A fuse	br	brown
Y	Power adapter	F1	7.5A fuse	gn	green
X10	4-pin connector of heater control	F15	7.5A fuse	ws	white
		GRr	Fan controller	ge	yellow
F3	1A fuse	M29	4-pin connector of GRr	pk	pink
F4	25A fuse	GM	Fan motor	or	orange
F5	7.5A fuse	M28	2-pin connector of GM		
K1	Fan relay	A/C-CM	A/C Control Module		
		M17-A	40-pin connector of A/C-CM	!	Insulate wire ends and tie back
				X	Cutting point
				Wiring colours may vary.	

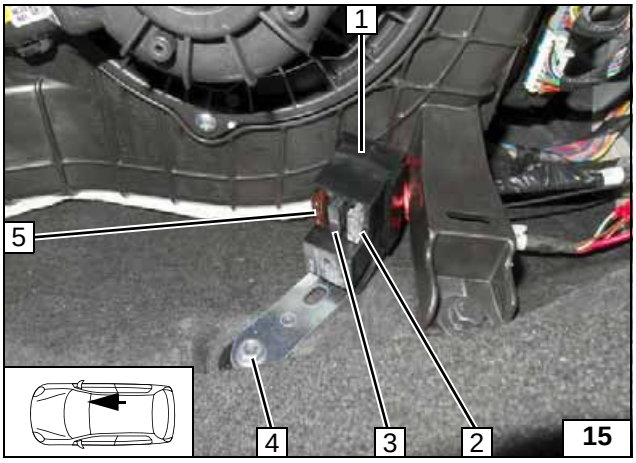
Legend



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

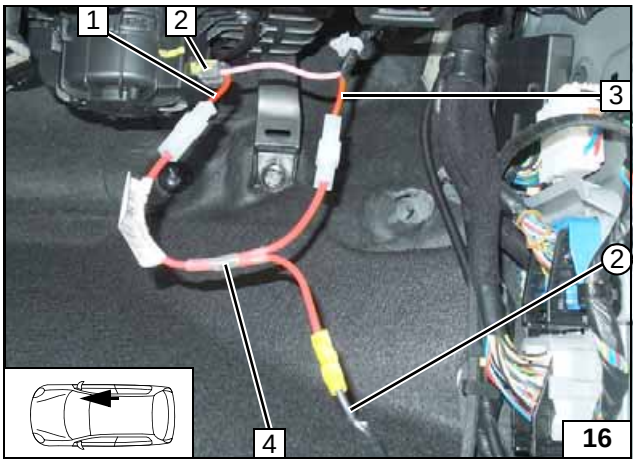
1 Heater wiring harness
2 Passenger compartment relay and fuse holder wiring harness

Connecting same colour wires of wiring harnesses



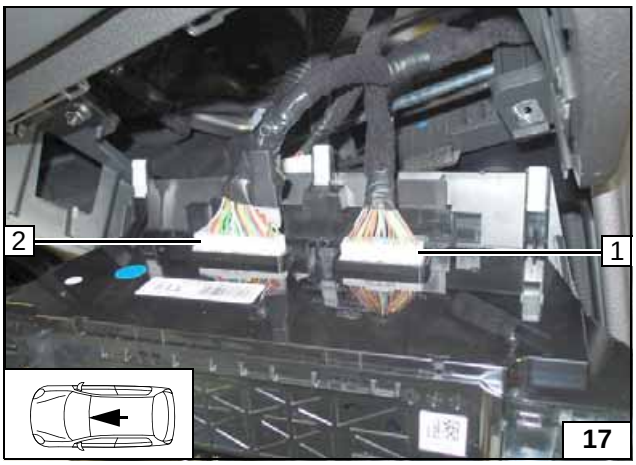
1 Passenger compartment relay and fuse holder
2 25A fuse F4
3 1A fuse F3
4 Original vehicle stud bolt, perforated bracket, flanged nut
5 7.5A fuse F5

Installing passenger compartment relay and fuse holder



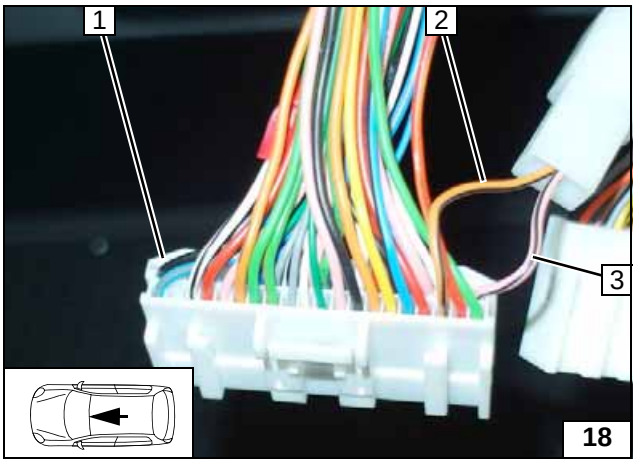
1 Red (rt) wire of connector M28, pin 1
2 2-pin connector M28 of GM
3 Red (rt) wire of original vehicle fan relay
4 Power adapter Y
② Black (sw) wire from K1/30 of fan wiring harness

Connecting fan motor



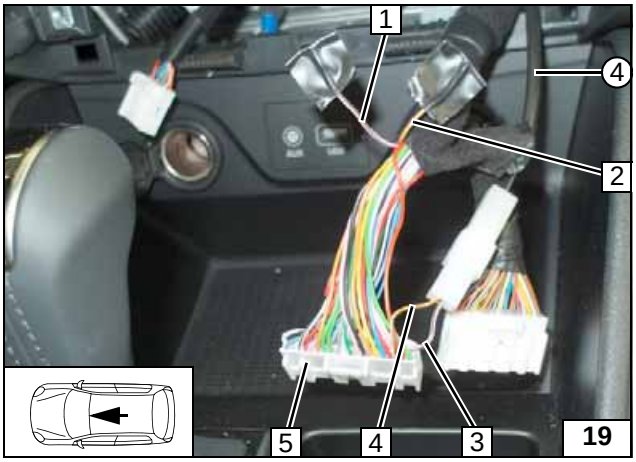
1 Connector M17-B
2 Connector M17-A

Unplugging connector [2x]



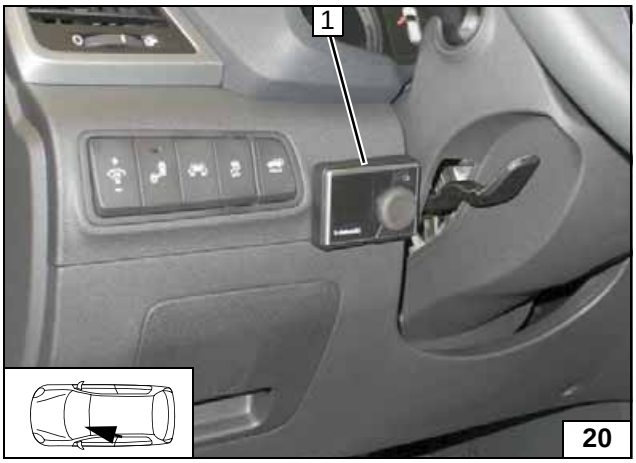
1 40-pin connector M17-A A/C-CM
2 Orange/black (or/sw) wire, pin 3
3 Pink/black (pk/sw) wire, pin 21

View of connector M17-A



1 Pink/black (pk/sw) wire of fuse F15
2 Orange/black (or/sw) wire of fuse F1
3 Pink/black (pk/sw) wire of 40-pin connector M17-A, pin 21
4 Orange/black (or/sw) wire of 40-pin connector M17-A, pin 3
5 40-pin connector M17-A A/C-CM
④ Black (sw) wire of fuse F5

Connection of A/C Control Module



MultiControl CAR Option

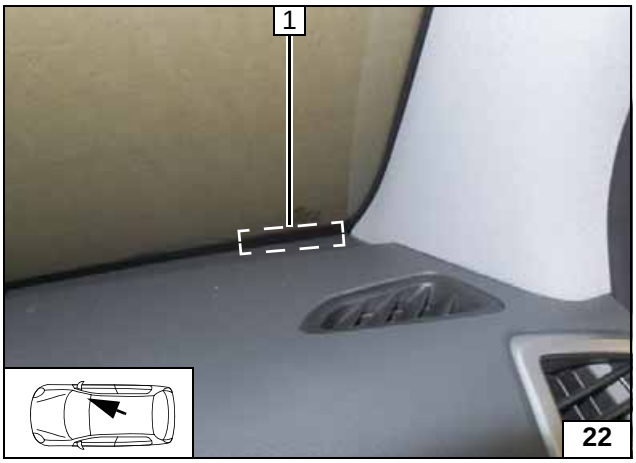
1 Installation frame

Installing MultiControl CAR

Remote Option (Telestart)

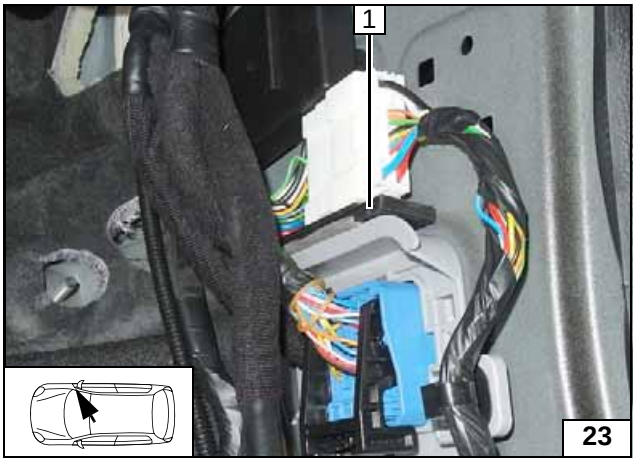
Fasten receiver **1** with double-sided adhesive tape.

Installing receiver



1 Aerial

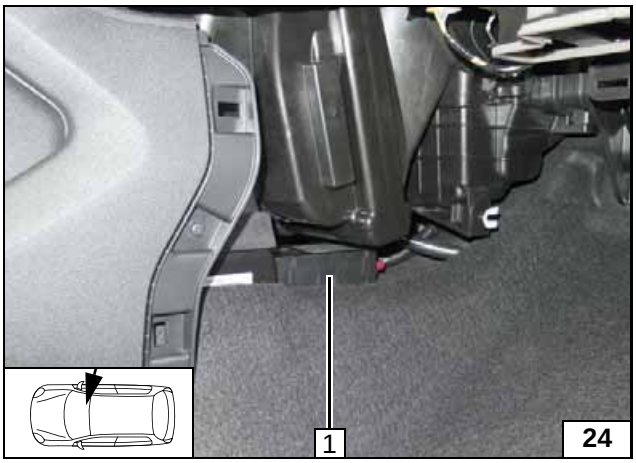
Installing aerial



Temperature sensor T100 HTM

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

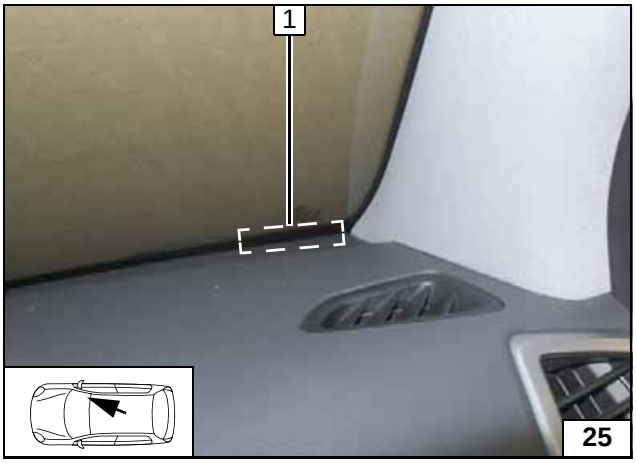
Installing temperature sensor



ThermoCall Option

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

Installing receiver



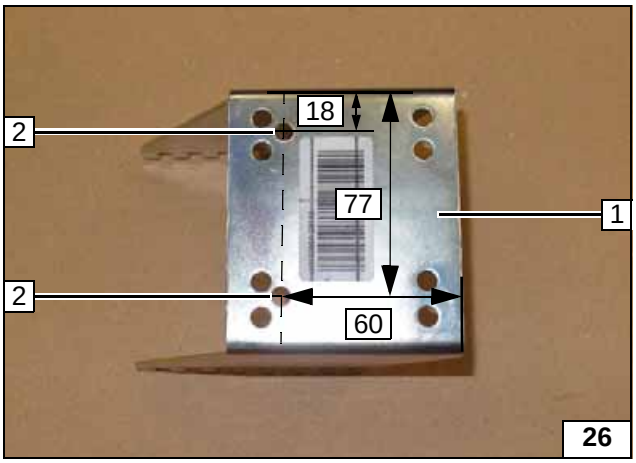
1 Aerial (optional)

Installing aerial

Preparing Installation Location

1 Bracket
2 6.5 mm dia. hole [2x]

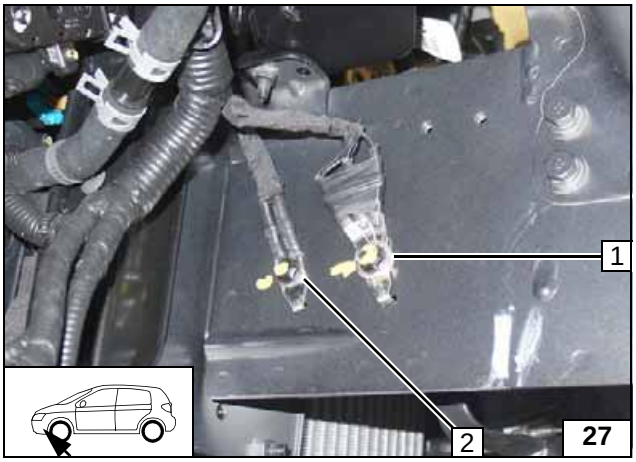
Preparing bracket



Petrol

1 Original vehicle earth point **a**
2 Original vehicle earth point **b**

Detaching original vehicle earth point

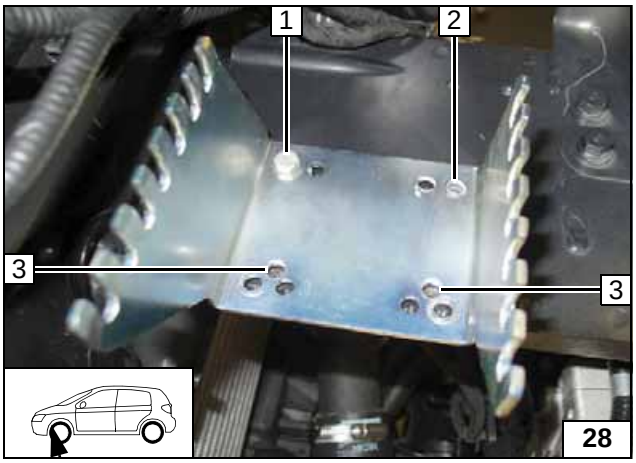


Loosely install bracket and align as shown.

1 Original vehicle threaded hole, M6x30 bolt
2 Copy hole pattern, 9.1mm dia. hole
3 Copy hole pattern, 6.5mm dia. hole [2x]

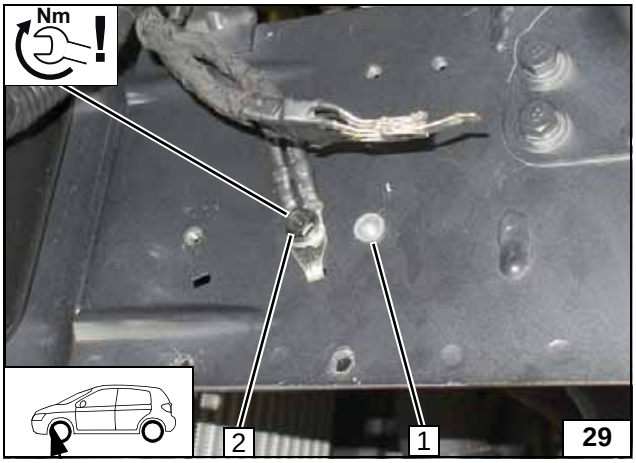
Copying hole pattern

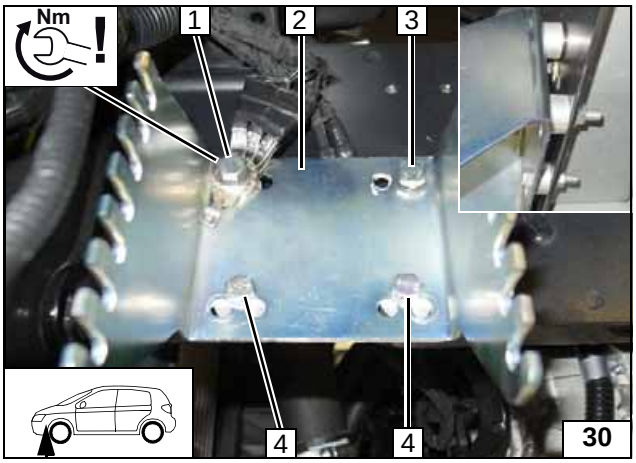
Remove bracket.



1 M6 rivet nut
2 Original vehicle earth point **b**, original vehicle bolt

Installing rivet nut



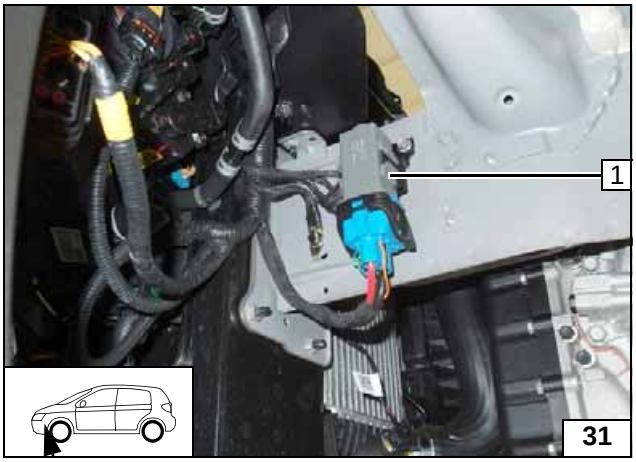


1 Original vehicle earth point **a**, M6x30 bolt, spring lockwasher, 8mm shim
2 Bracket
3 M6x30 bolt, spring lockwasher, 8 mm shim
4 M6x30 bolt, 8mm shim, M6 nut [2x each]

Installing bracket

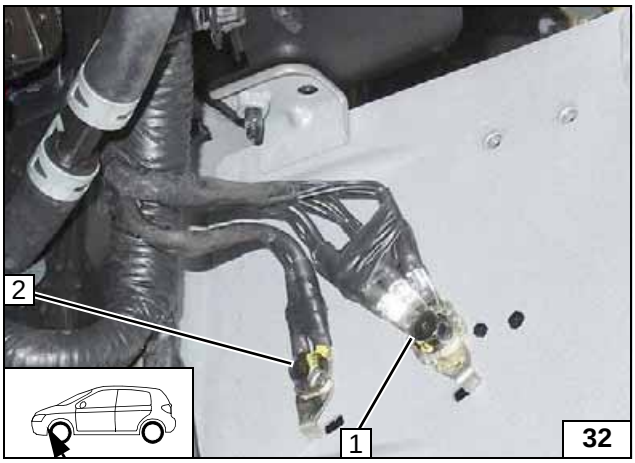
Diesel

Version 1



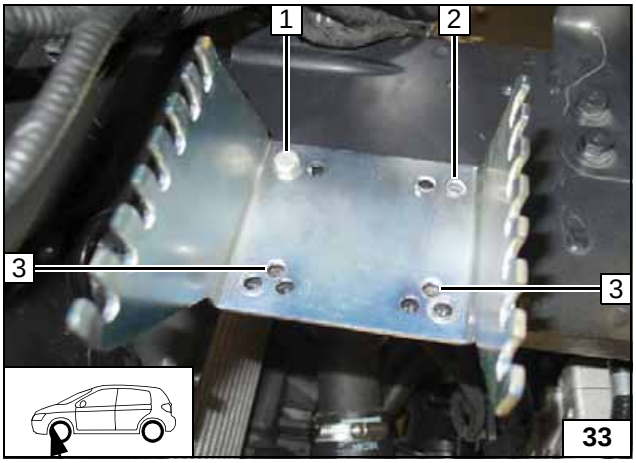
1 Original vehicle relay

Detaching original vehicle relay



1 Original vehicle earth point **a**
2 Original vehicle earth point **b**

Detaching original vehicle earth point

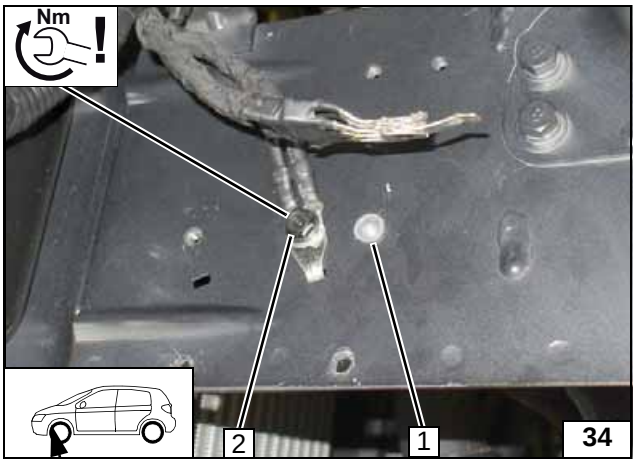


Loosely install bracket and align as shown.

1 Original vehicle threaded hole, M6x30 bolt
2 Copy hole pattern, 9.1mm dia. hole
3 Copy hole pattern, 6.5mm dia. hole [2x]

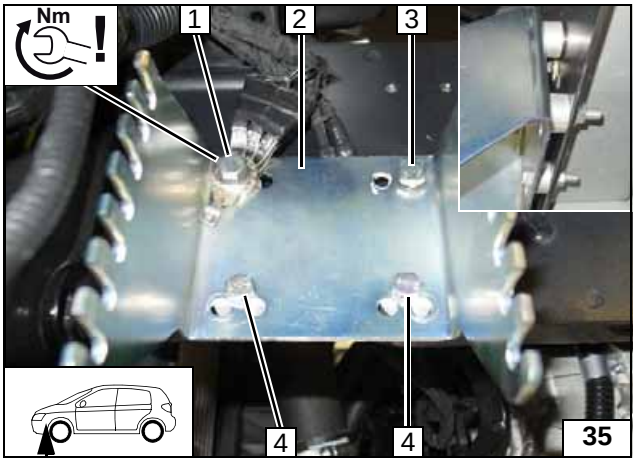
Remove bracket.

Copying hole pattern



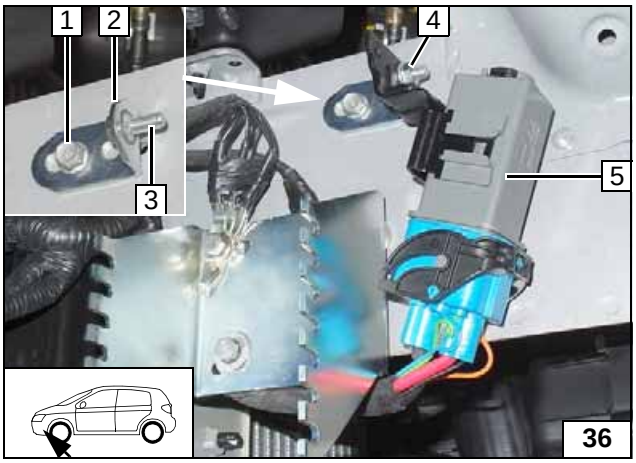
1 M6 rivet nut
2 Original vehicle earth point **b**, original vehicle bolt

Installing rivet nut



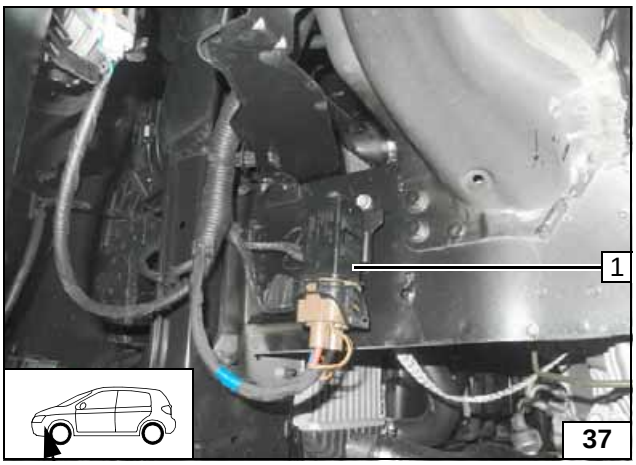
1 Original vehicle earth point **a**, M6x30 bolt, spring lockwasher, 8mm shim
2 Bracket
3 M6x30 bolt, spring lockwasher, 8 mm shim
4 M6x30 bolt, 8mm shim, M6 nut [2x each]

Installing bracket



1 Original vehicle bolt
2 Angle bracket
3 M6x20 bolt, lock washer
4 Flanged nut
5 Original vehicle relay

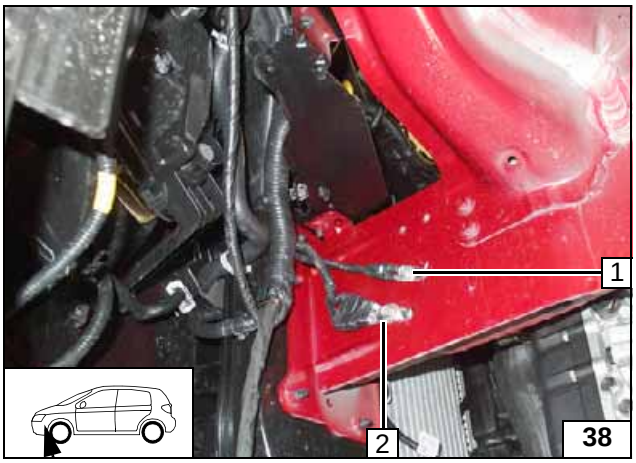
Installing original vehicle relay



Version 2

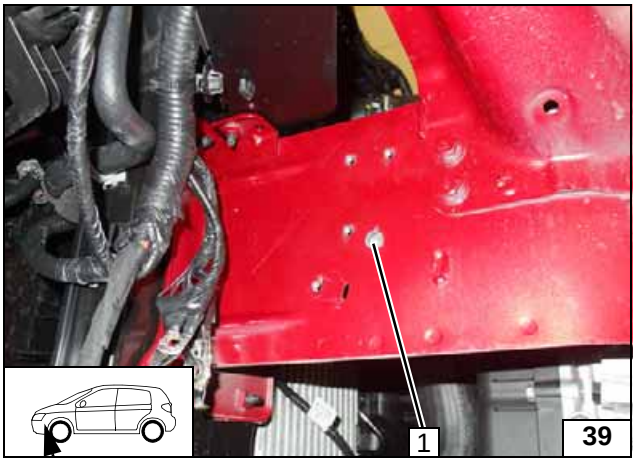
1 Original vehicle relay

Detaching original vehicle relay



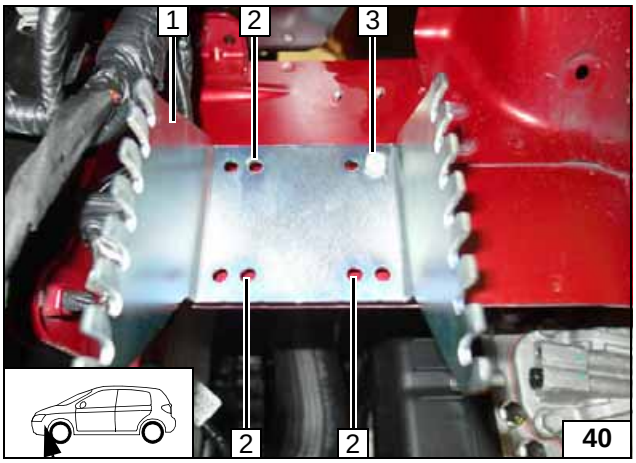
1 Original vehicle earth point **a**
2 Original vehicle earth point **b**

Detaching original vehicle earth point



1 Drill out oblong hole to 9mm dia., insert rivet nut

Installing rivet nut

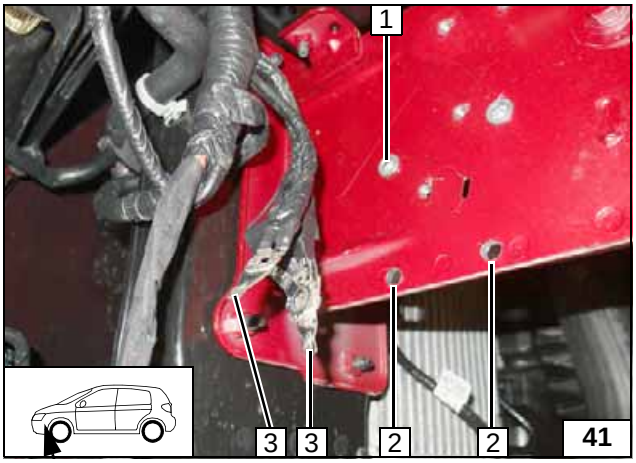


Loosely install bracket **1** and align as shown.

2 Copy hole pattern [3x]
3 M6x30 bolt

Remove bracket.

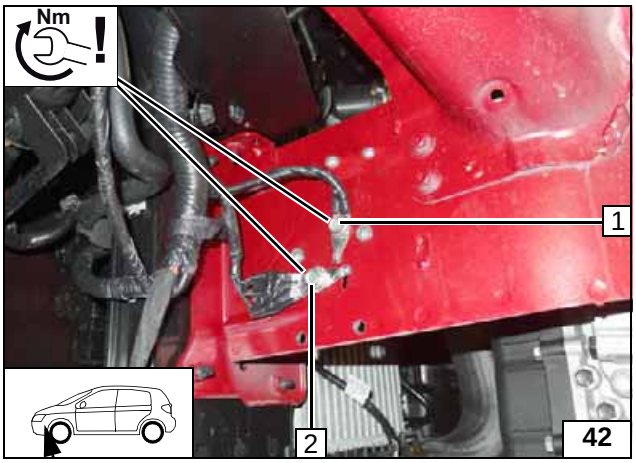
Copying hole pattern



Straighten earth point **3** [2x].

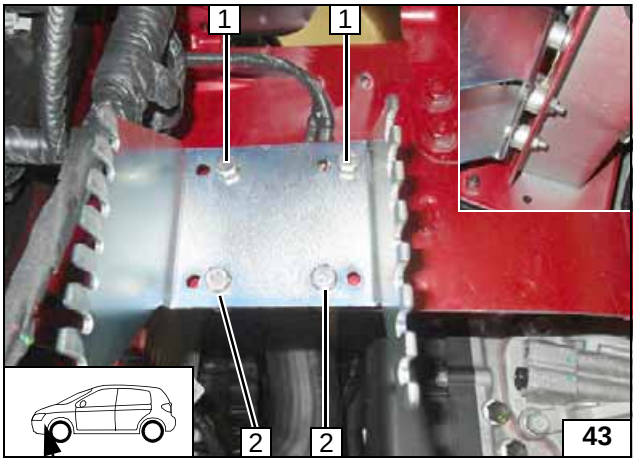
1 9.1mm dia. hole; rivet nut
2 7 mm dia. hole [2x]

Installing rivet nut



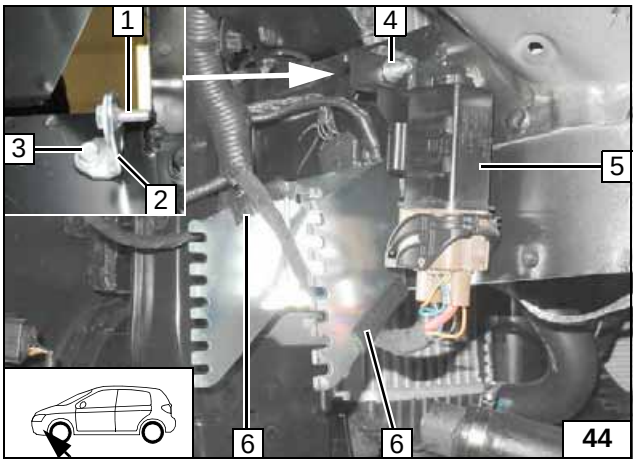
1 Original vehicle bolt, earth point **a**
2 Original vehicle bolt, earth point **b**

Installing earth point



1 M6x30 bolt, spring lockwasher, 8mm shim [2x each]
2 M6x30 bolt, 8mm shim, M6 nut [2x each]

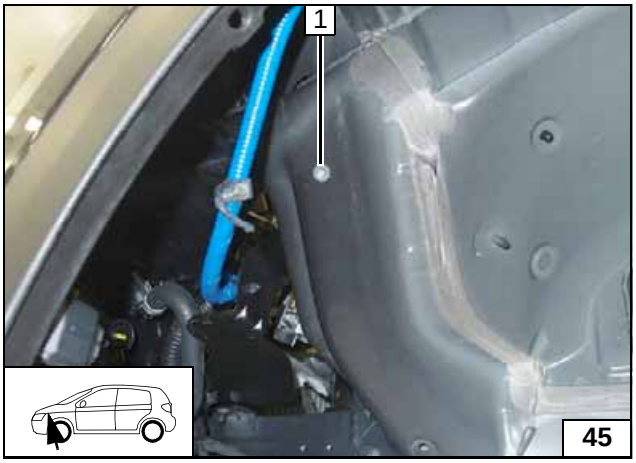
Installing bracket



Lead relay wiring harness through bracket as shown.

1 M6x20 bolt, large diameter washer, lock washer
2 Angle bracket
3 Original vehicle bolt
4 Flanged nut
5 Original vehicle relay
6 50 mm edge protection [2x]

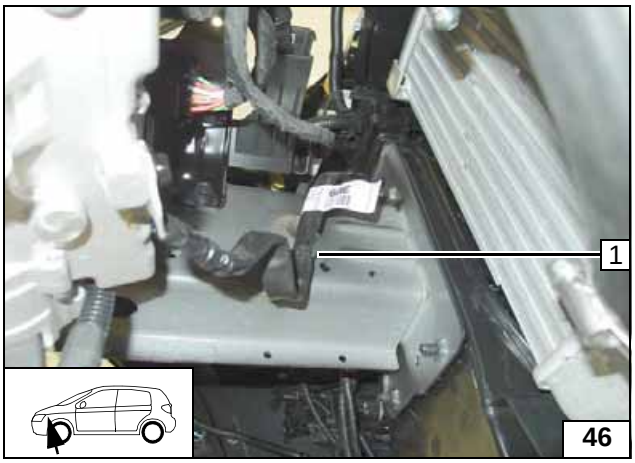
Installing original vehicle relay



All vehicles

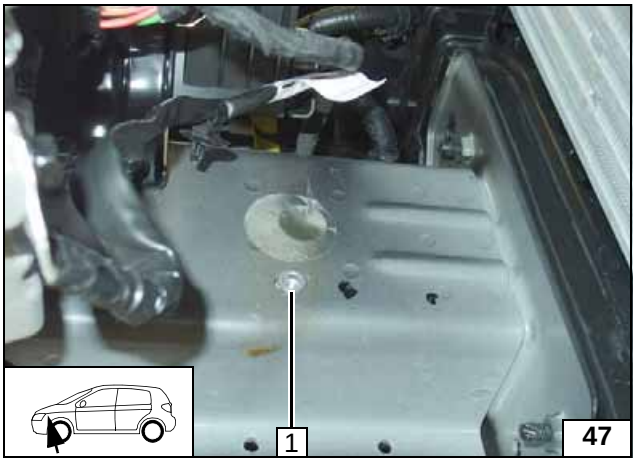
1 Rivet nut in original vehicle hole

Inserting rivet nut for air intake silencer



1 Original vehicle earth strap, retaining clip

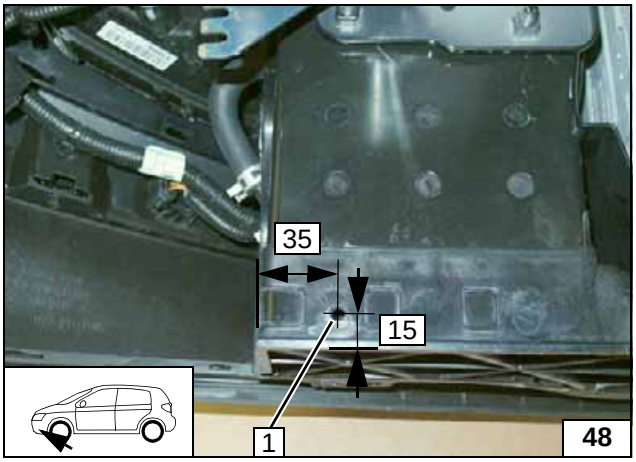
Removing original vehicle earth strap with retaining clip from hole



Drill out original vehicle hole to 9.1mm.

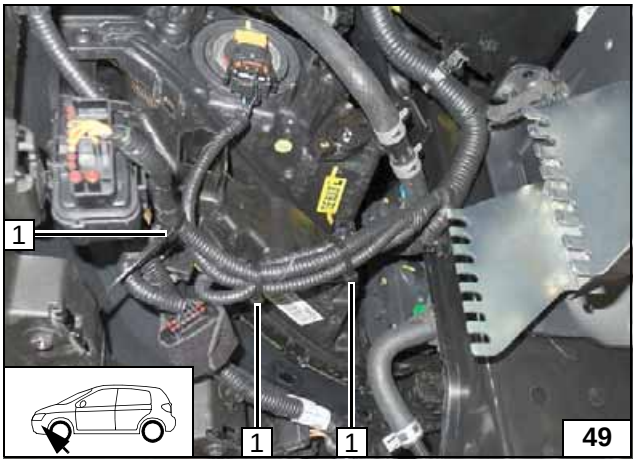
1 M6 rivet nut in original vehicle hole

Inserting rivet nut for circulating pump



1 7 mm dia. hole

Hole for exhaust silencer



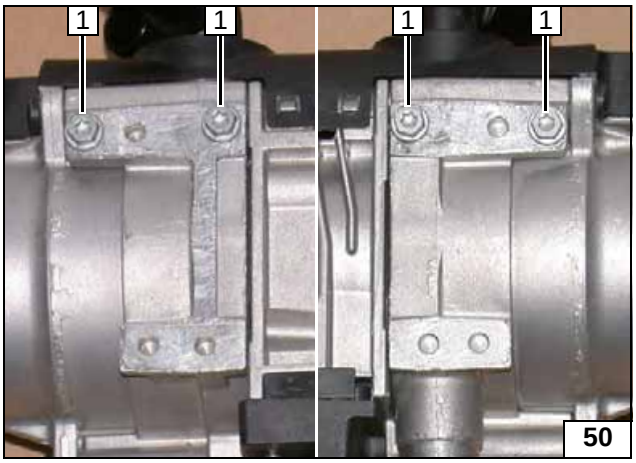
1 Cable tie [3x]

Fastening original vehicle wiring harnesses

Preparing Heater

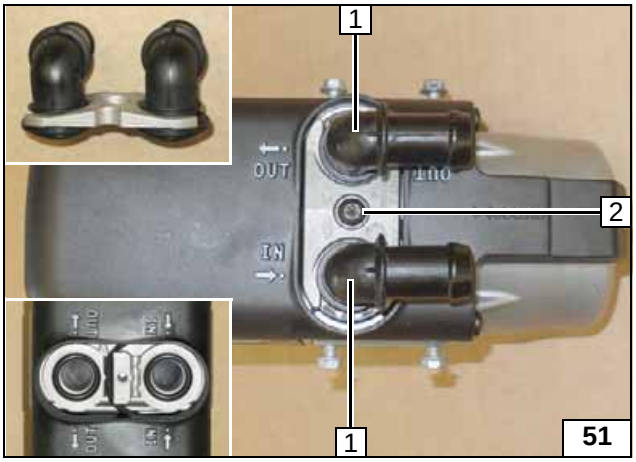
Screw 5x13 self-tapping bolts **1** [4x] into existing holes by a maximum of 3 thread turns.

Premounting bolts loosely



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

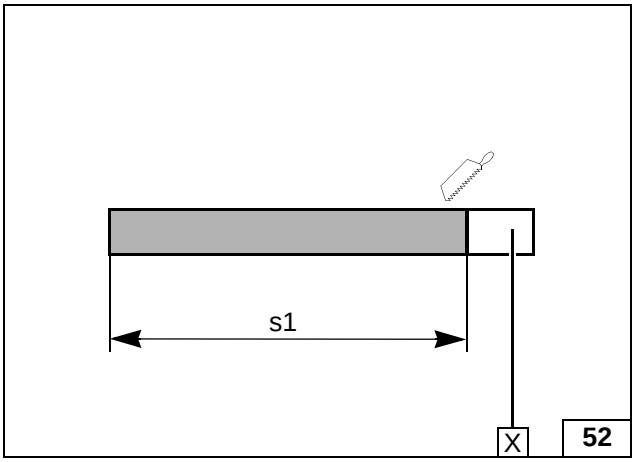
Installing water connection piece



s1 = 330

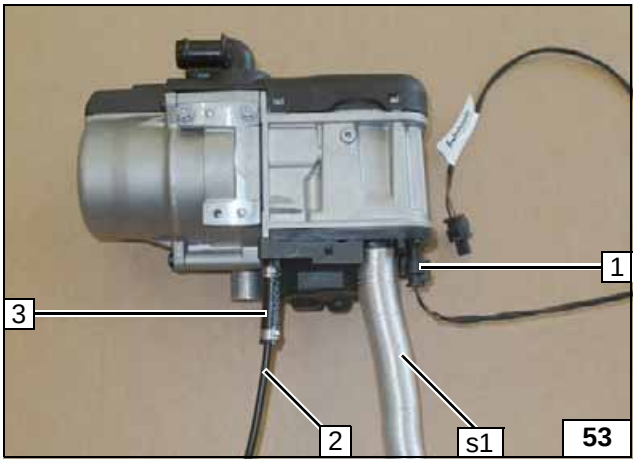
X= 

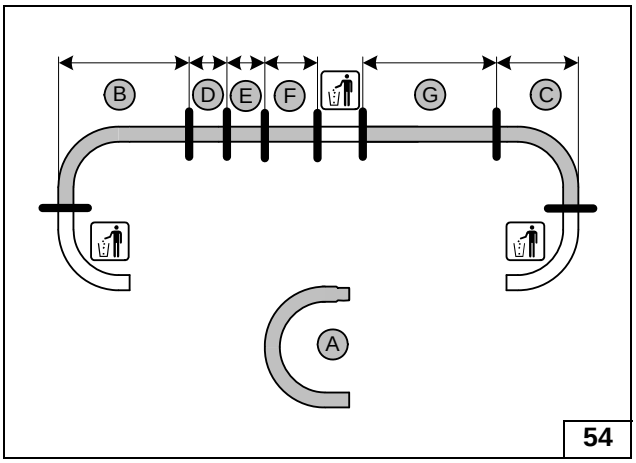
Cutting combustion air pipe to length



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

Installing fuel line and combustion-air intake pipe





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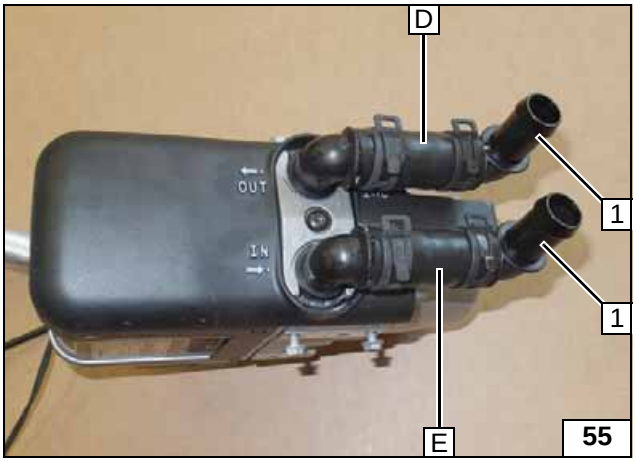
A = twisted by 180°, 15x20mm dia.

	1.6 GDI	1.5 TGDi	1.7 CRDi 2.0 CRDi
B	640	640	700
C	185	185	185
D	60	60	60
E	60	60	60
F	170	170	170
G	780	740	760

Cutting hoses to length



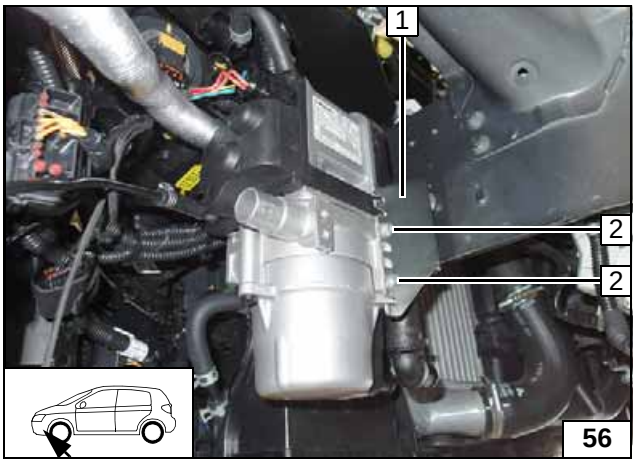
55

All spring clips 25mm dia.

1 90°, 18x18mm connecting pipe [2x]

Premounting hoses

Installing Heater



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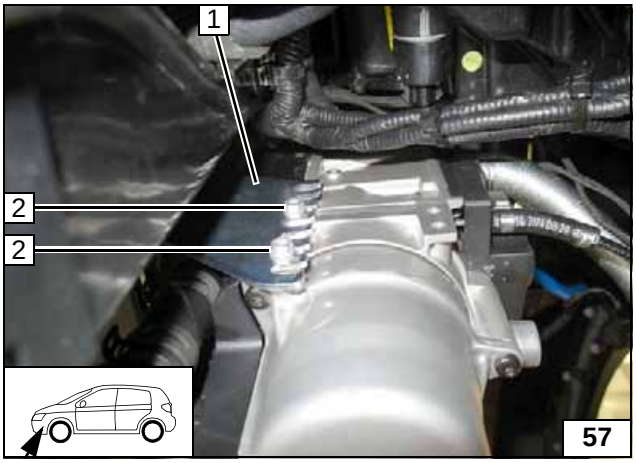
1 Bracket
2 5x13 self-tapping bolt [2x]

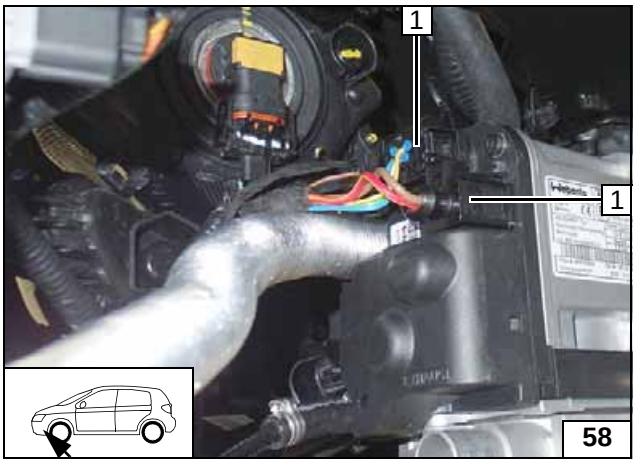
Installing heater



57

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

Installing heater



1 Heater wiring harness connector [2x]

Installing heater wiring harness connector

Fuel

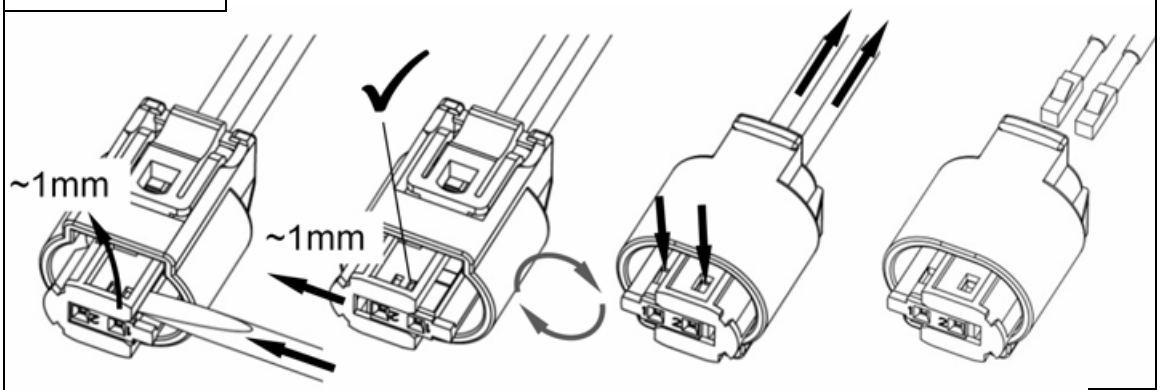
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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.

Connector X7



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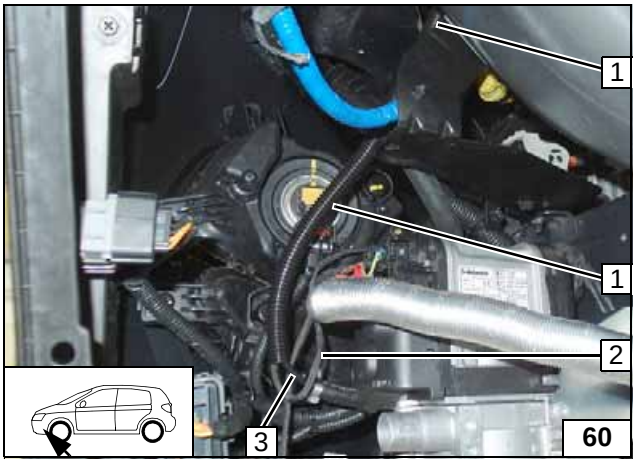
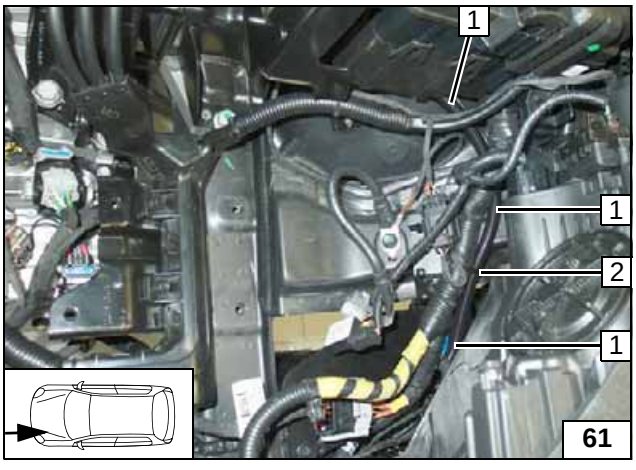
Dismantling metering pump connector



60

Pull fuel line **3** and wiring harness of metering pump **2** into 10mm dia. corrugated tube **1** and in route in the engine compartment.

Connecting heater



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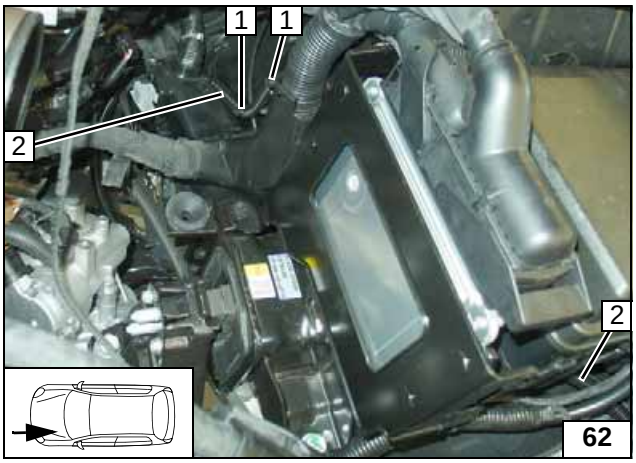
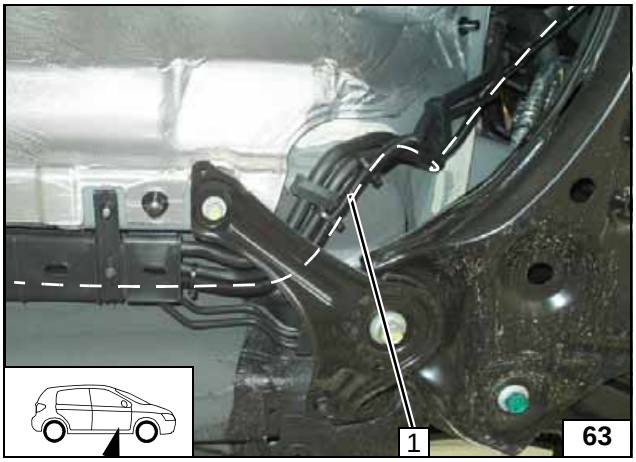
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube
2 Cable tie

Routing lines



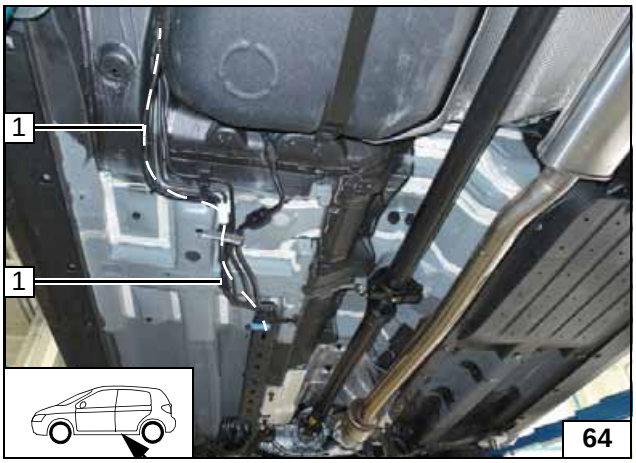
1 Cable tie [2x]
2 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines



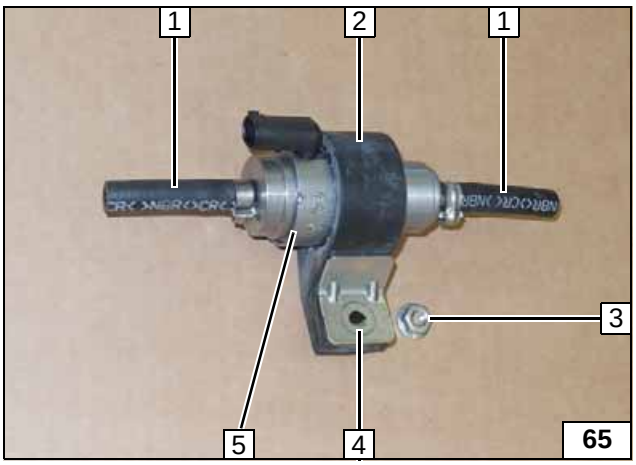
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** along original vehicle fuel lines to the underbody and secure using cable ties.

Routing lines



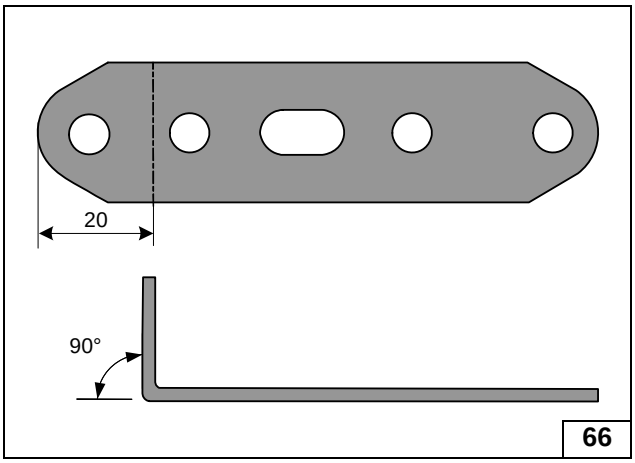
Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** along original vehicle fuel lines to the installation location of the metering pump and secure using cable ties.

Routing lines

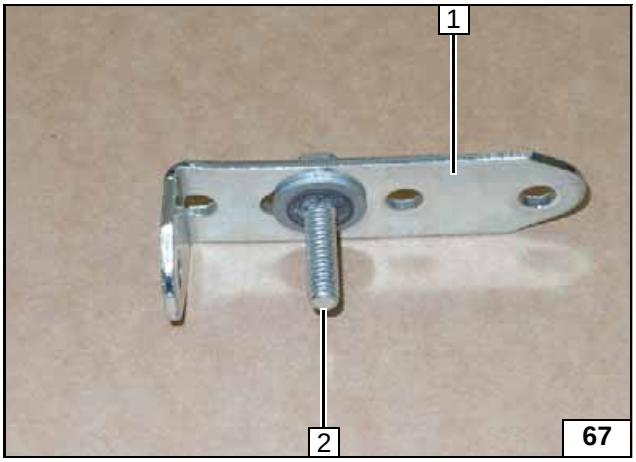


1 Hose section, 10mm dia.clamp [1x each]
2 Metering pump mount
3 Flanged nut
4 Support angle bracket
5 Metering pump

Premounting metering pump

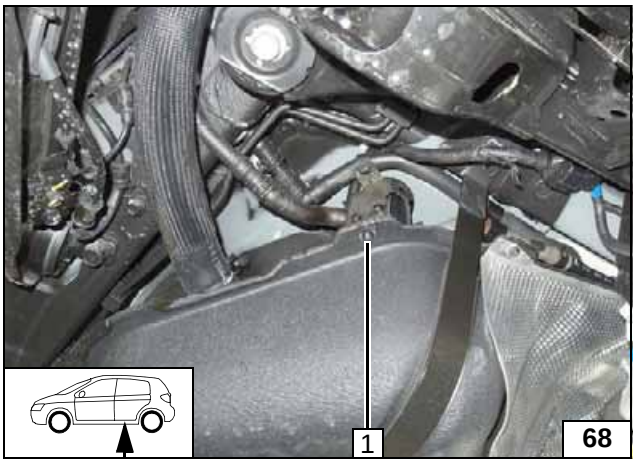


Preparing perforated bracket of metering pump



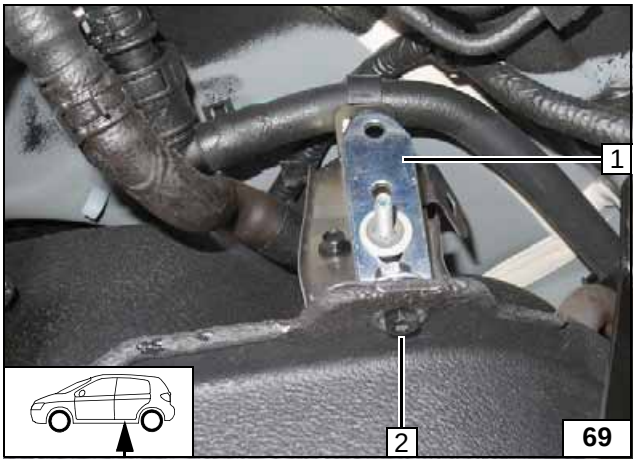
1 Perforated bracket
2 M6x25 bolt, large diameter washer, lock washer

Preparing perforated bracket



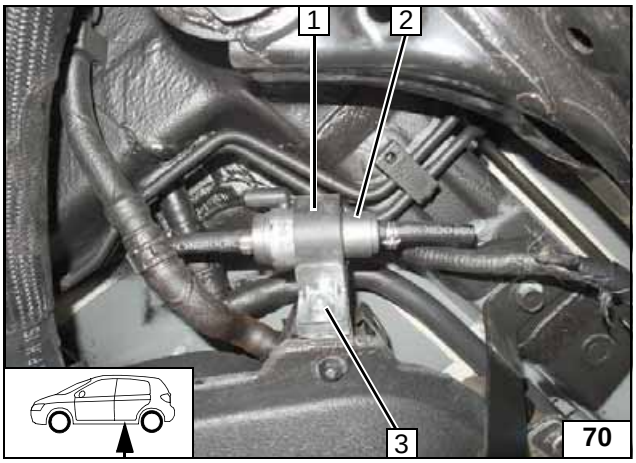
1 Remove original vehicle bolt, nut will be reused

Preparing installation location of metering pump



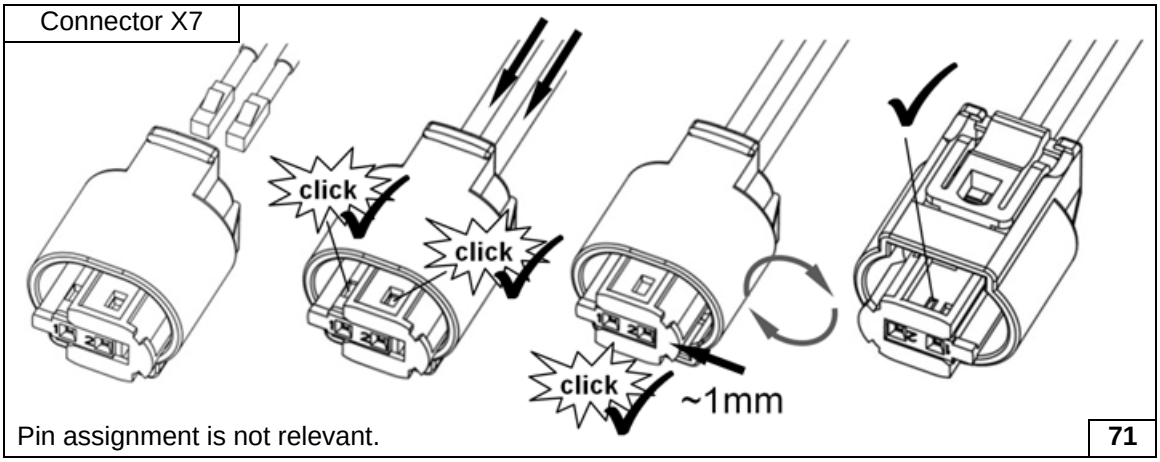
1 Perforated bracket
2 M6x20 bolt, large diameter washer, original vehicle nut

Installing perforated bracket of metering pump

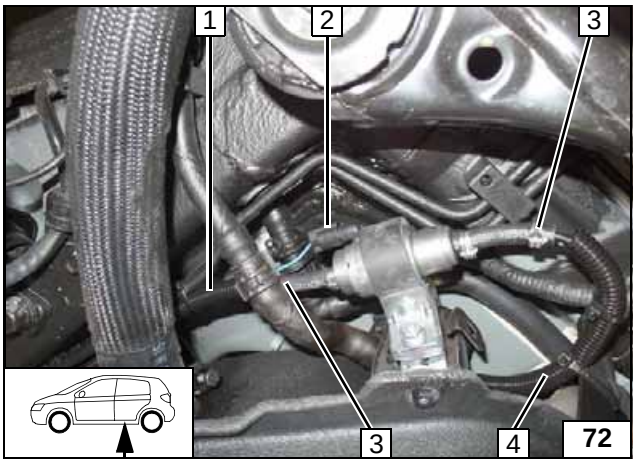


1 Metering pump mount
2 Metering pump
3 Flanged nut

Installing metering pump



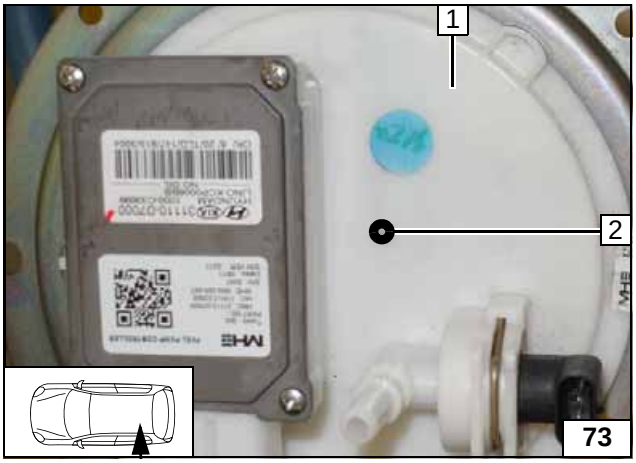
Completing metering pump connector



Ensure sufficient distance from adjacent components, correct if necessary.

1 Heater fuel line in 10mm dia. corrugated tube
2 Metering pump wiring harness, connector X7 mounted
3 10 mm dia. clamp [2x]
4 FuelFix fuel line in 10mm dia. corrugated tube

Installing metering pump



Installing FuelFix for Petrol Vehicles

Work steps F1 and F2.

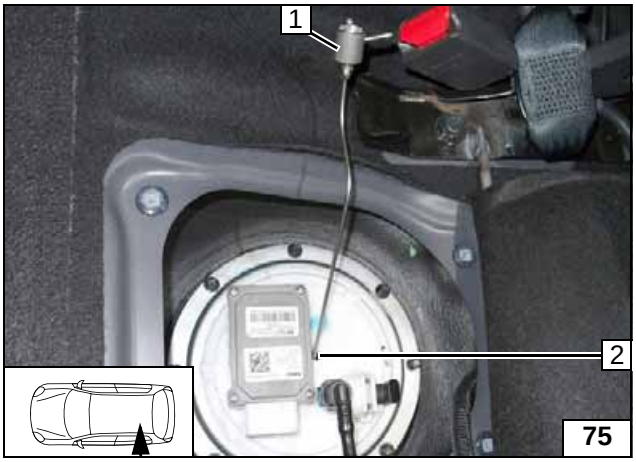
1 Fuel tank sending unit
2 Use embossed area on fuel tank sending unit for hole pattern (indicated in colour for better illustration)

Marking hole pattern

Work step F3.

1 Hole made with provided drill

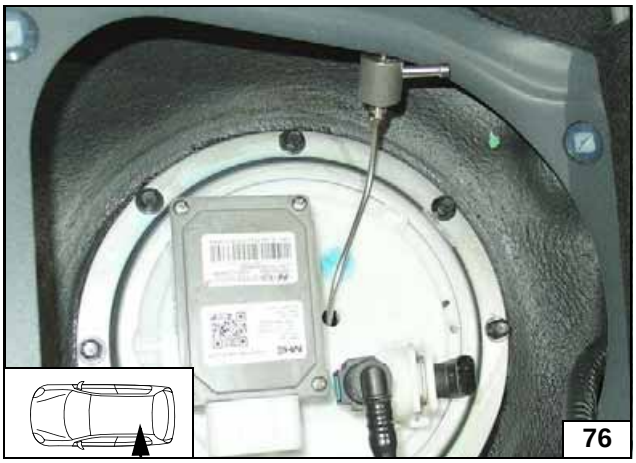
Hole for FuelFix



Work steps F4 and F5.

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

Inserting FuelFix



Work step F5.

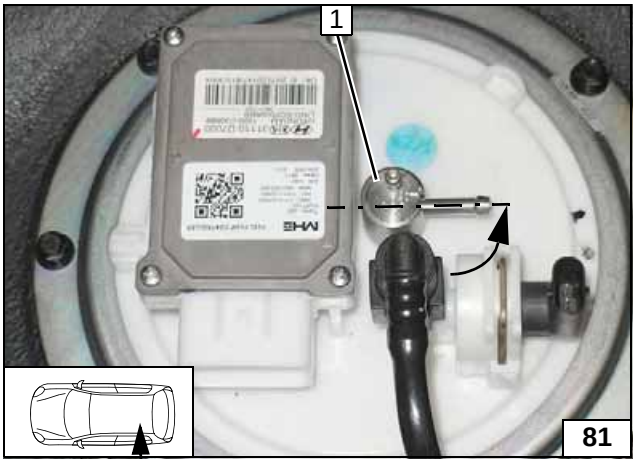
Inserting FuelFix

Inserting FuelFix

Inserting FuelFix

Inserting FuelFix

Inserting FuelFix



Work steps F5.3 and F5.4.

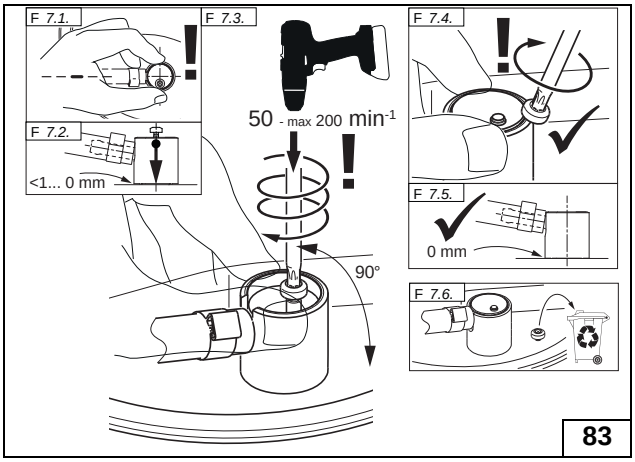
Align FuelFix **1** as shown.

Aligning FuelFix

Work step F6.

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

Connecting fuel line

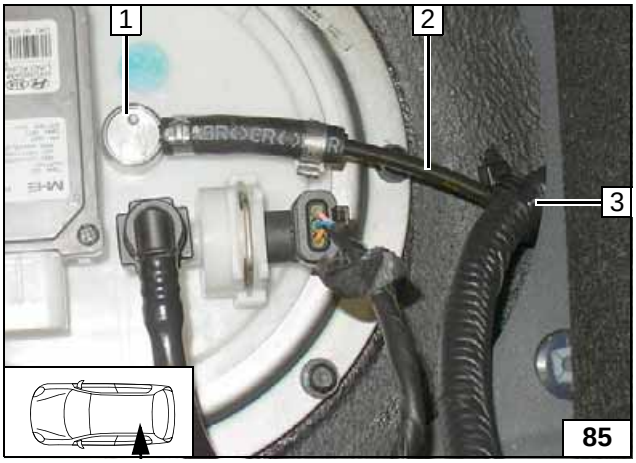


Work step F7.

Installing FuelFix

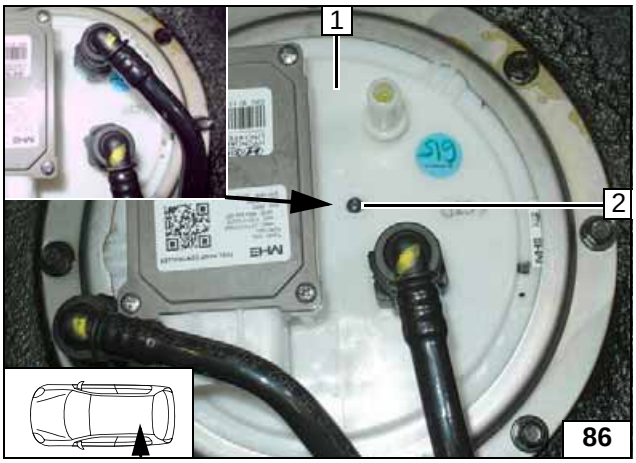
Work step F8.

Ensuring firm seating of FuelFix



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

Securing fuel line

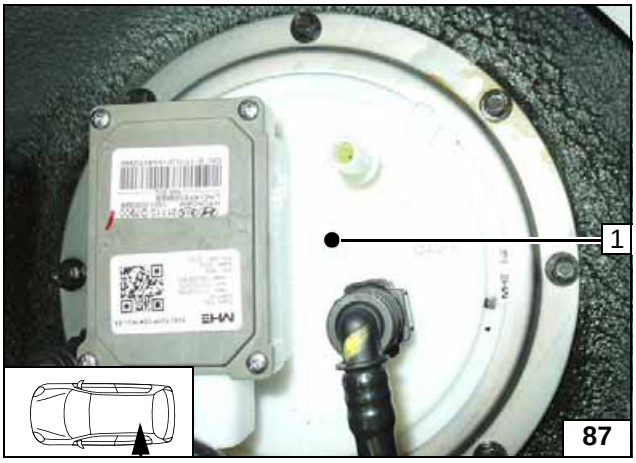


Installing FuelFix for Diesel Vehicles

Work steps F1 and F2.

1 Fuel tank sending unit
2 Use embossed area on fuel tank sending unit for hole pattern (indicated in colour for better illustration)

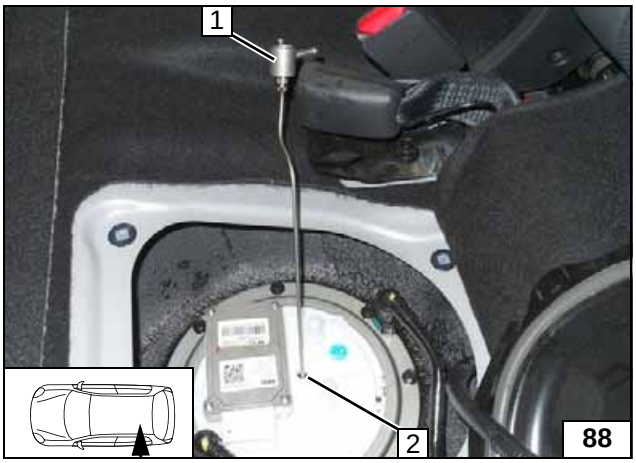
Marking hole pattern



Work step F3.

1 Hole made with provided drill

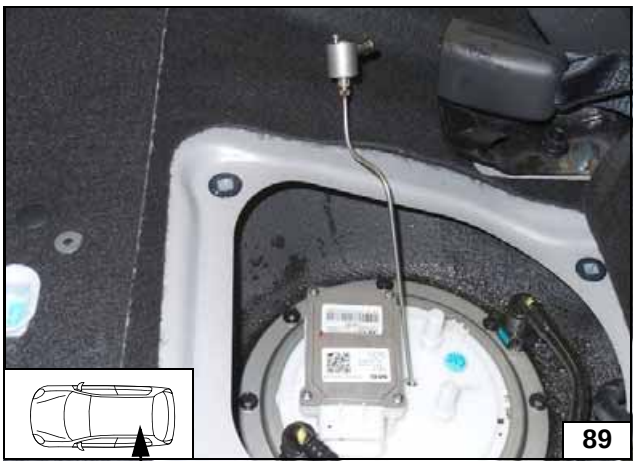
Hole for FuelFix



Work steps F4 and F5.

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

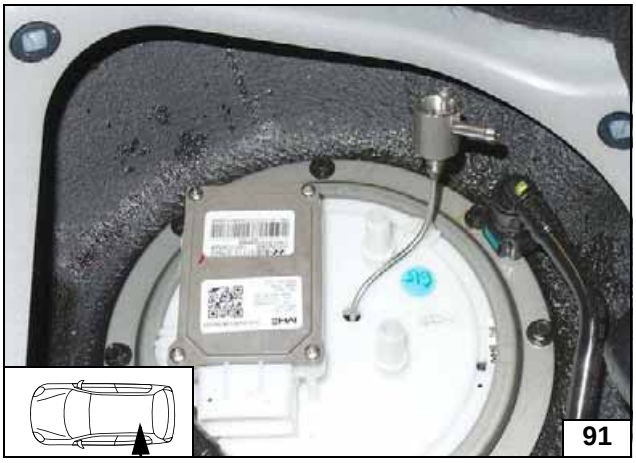
Inserting FuelFix



Work step F5.

Inserting FuelFix

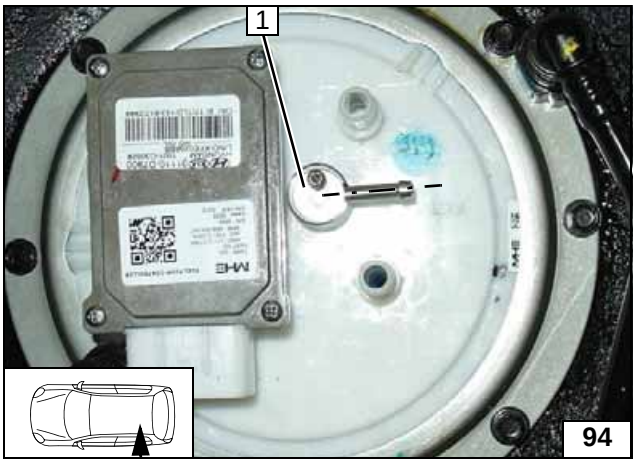
Inserting FuelFix



Inserting FuelFix

Inserting FuelFix

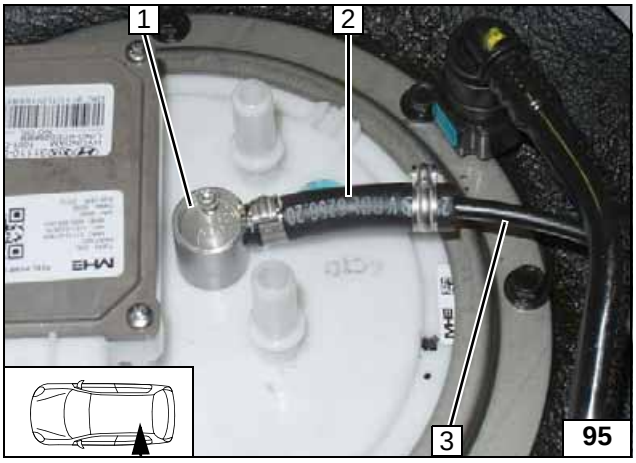
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

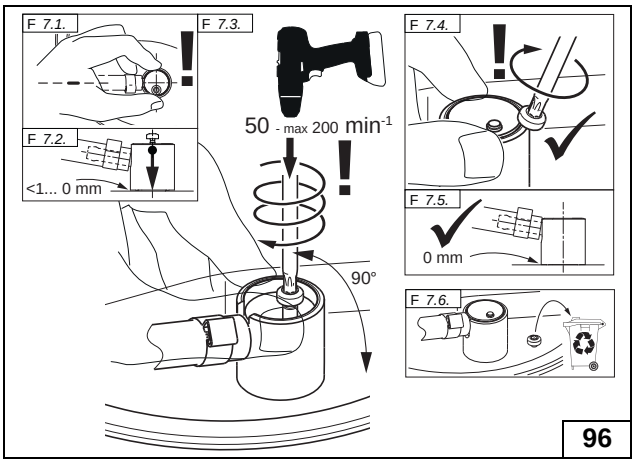
Aligning FuelFix



Work step F6.

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

Connecting fuel line

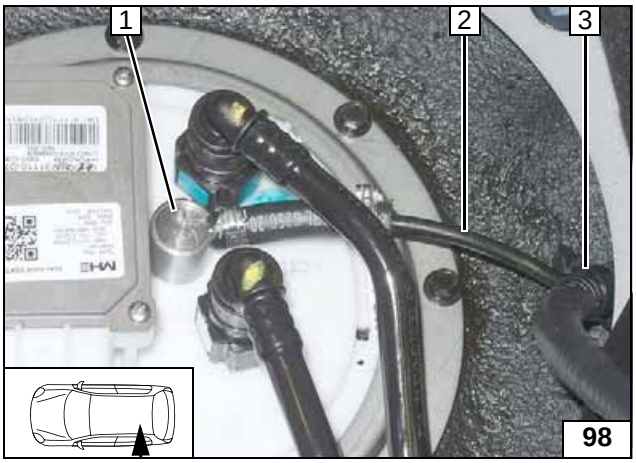


Work step F7.

Installing FuelFix

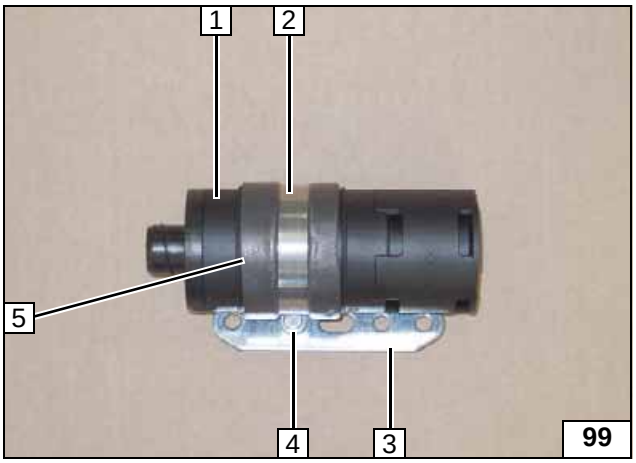
Work step F8.

Ensuring firm seating of FuelFix



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

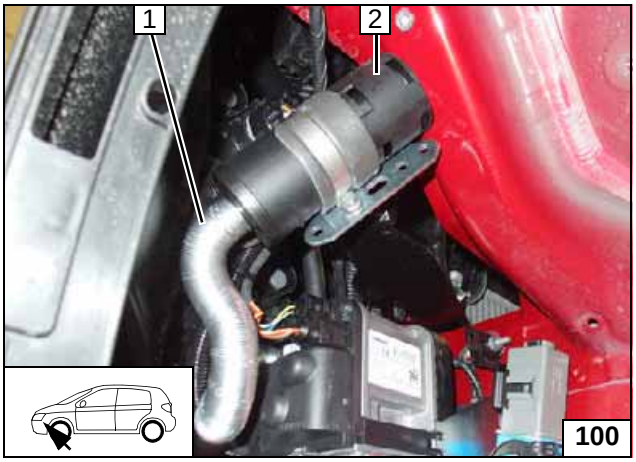
Securing fuel line



Combustion Air

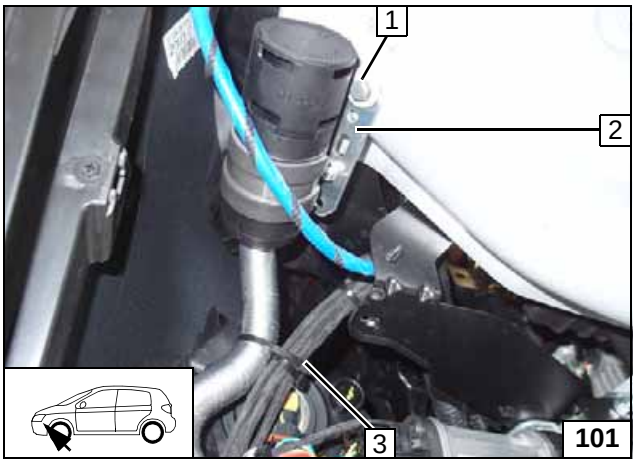
1 Silencer
2 51mm dia. clamp
3 Perforated bracket
4 M5x16 bolt, large diameter washer, flanged nut
5 Self-adhesive foam

Premounting combustion air silencer



1 Combustion air pipe
2 Silencer

Installing combustion air silencer



1 M6x20 bolt, spring lockwasher, large diameter washer
2 Perforated bracket
3 Cable tie

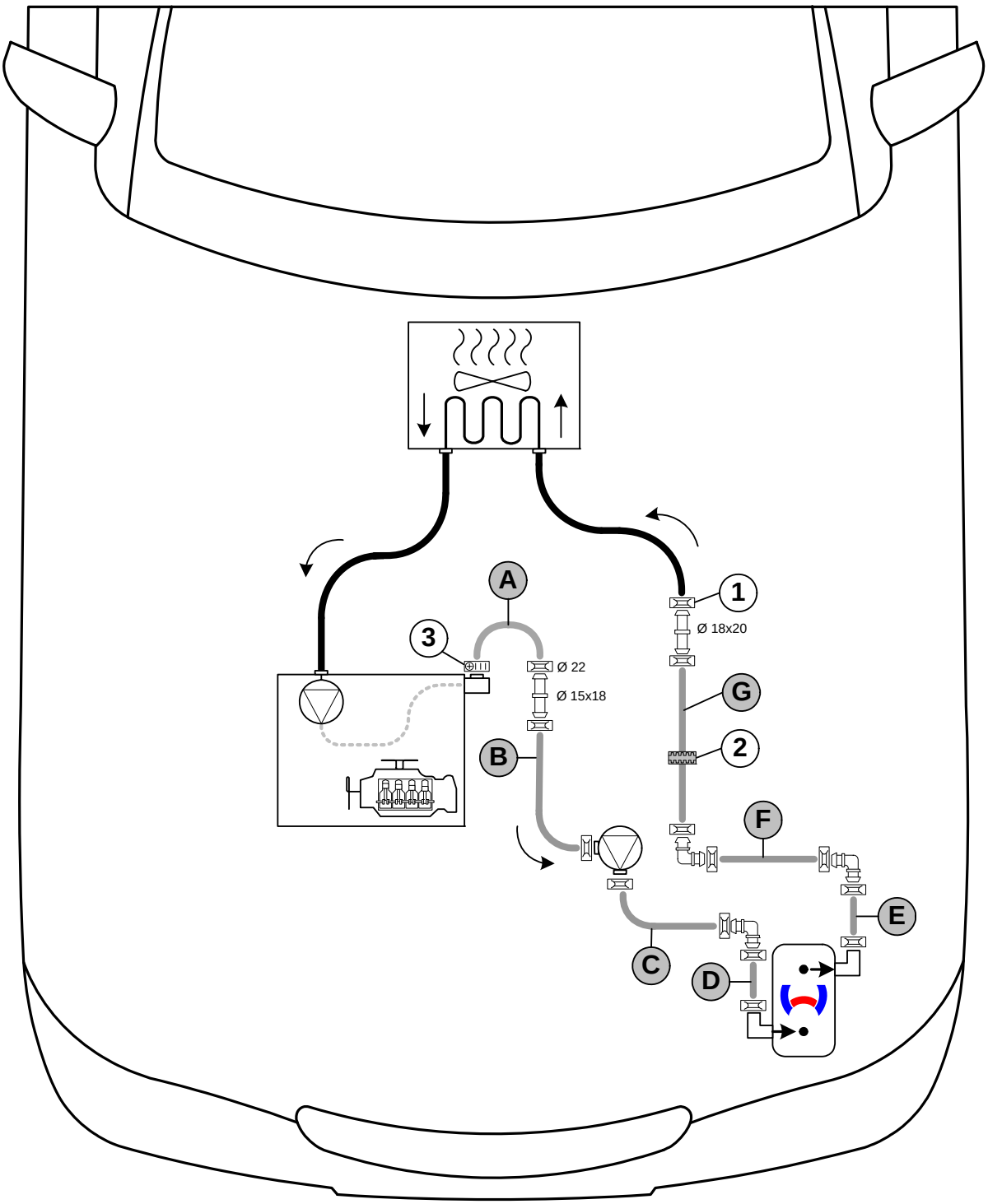
Installing combustion air silencer

Coolant Circuit of 1.6 GDi

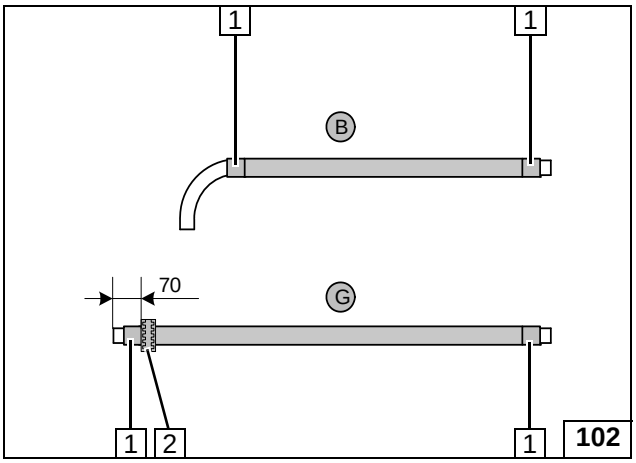
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



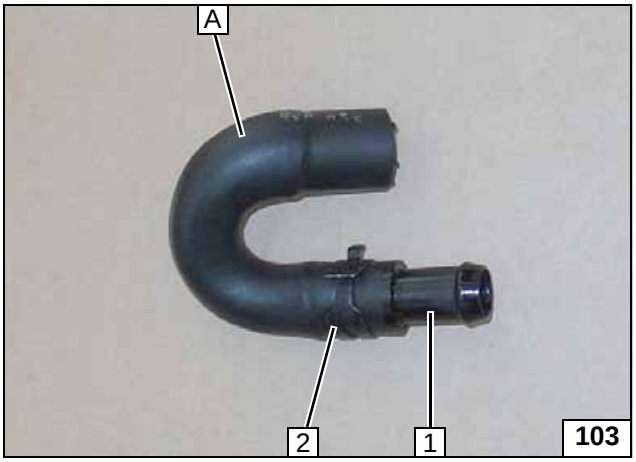
1 = Original vehicle spring clip. **2** = Black (sw) rubber isolator. **3** = 16-27mm dia. hose clamp.
All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation = 18x18mm dia.



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

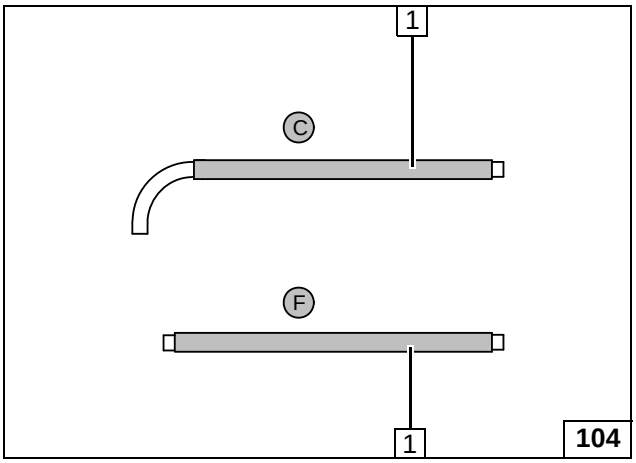
1 50 mm long heat shrink plastic tubing [4x]
2 Slide on black (sw) rubber isolator

Preparing hoses



1 Connecting pipe 15x18 dia.
2 22mm dia. spring clip

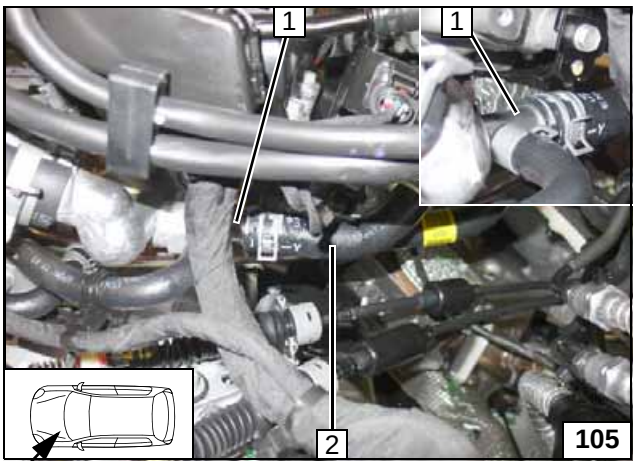
Premounting hose A



Cut heat protection hose to length and slide onto hoses **C** and **F**.

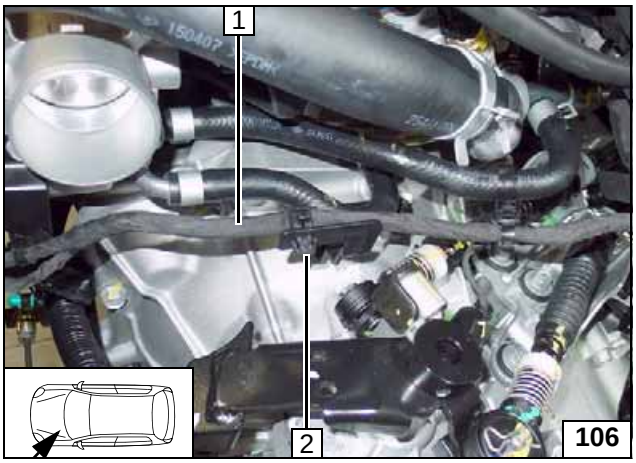
1 Heat protection hose [2x]

Preparing hoses



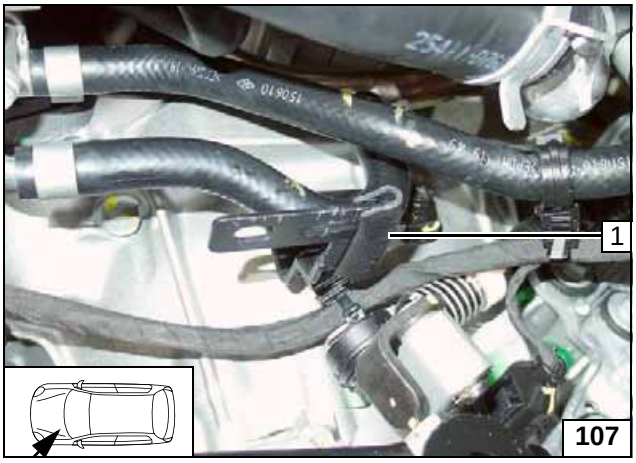
Detach hose on engine outlet / heat exchanger inlet **2** from engine outlet connection piece **1**. Original vehicle spring clip will be reused.

Cutting point



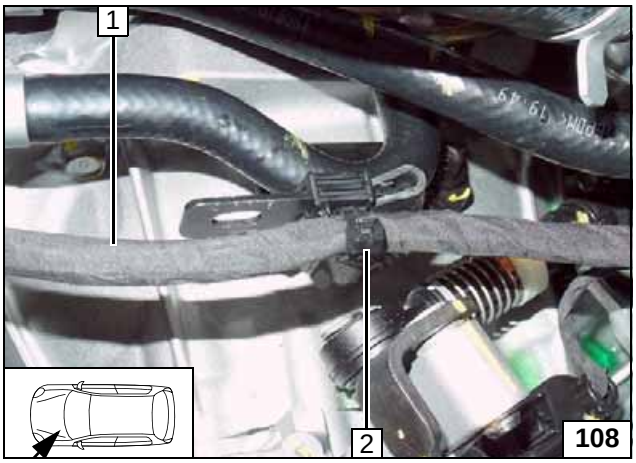
1 Original vehicle wiring harness
2 Original vehicle bracket

Detaching wiring harness from bracket



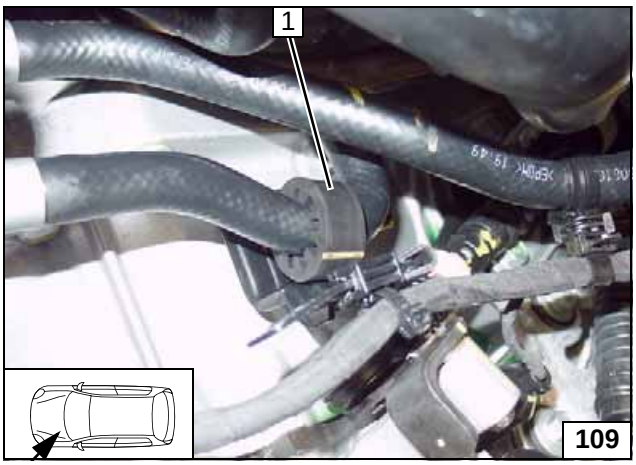
1 50 mm edge protection

Installing edge protection



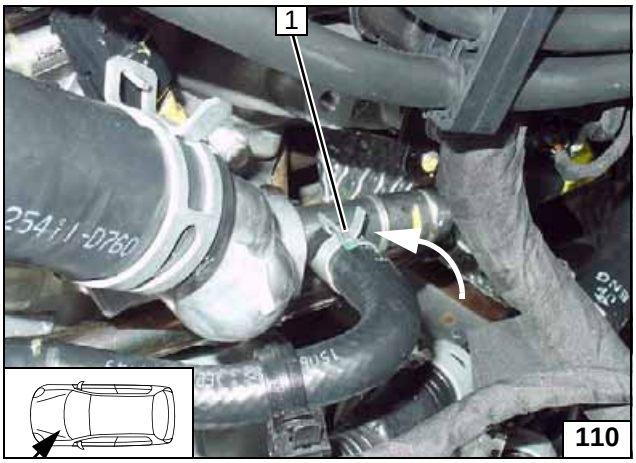
1 Original vehicle wiring harness
2 Edge clip cable tie on original vehicle bracket

Fastening wiring harness with edge clip cable tie



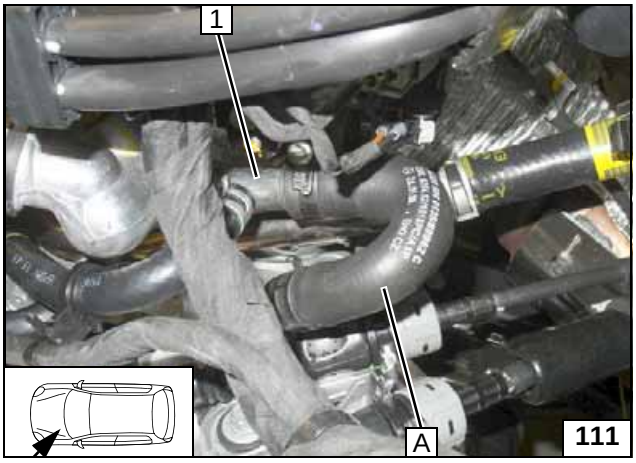
Slide black (sw) rubber isolator with inner dia. di = 13.5mm **1** onto original vehicle hose.

Sliding on rubber isolator



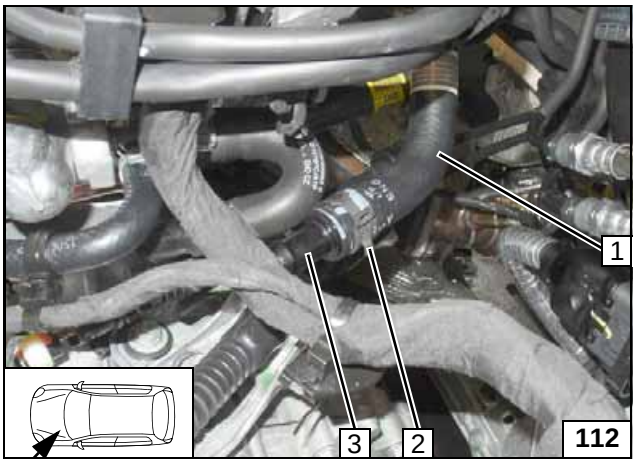
Turn original vehicle spring clip **1** on original vehicle hose upwards by 45° as shown.

Turning original vehicle spring clip



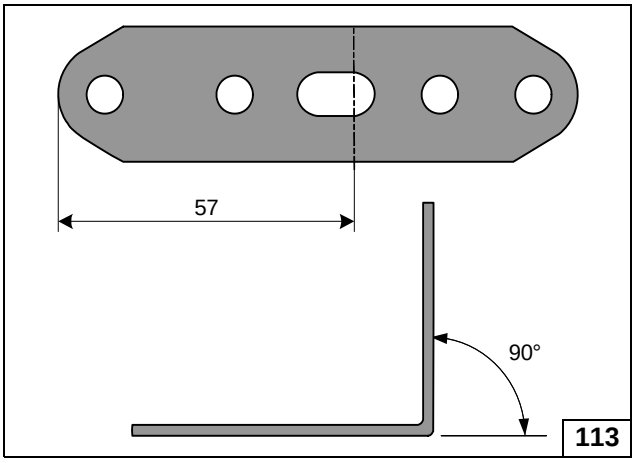
1 Engine outlet connection piece

Connecting engine outlet

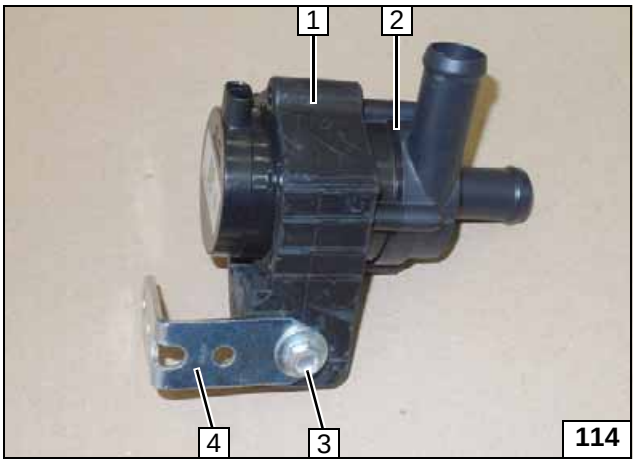


1 Heat exchanger inlet hose section
2 Original vehicle spring clip
3 Connecting pipe 20x18 dia.

Preparing connection of heat exchanger inlet

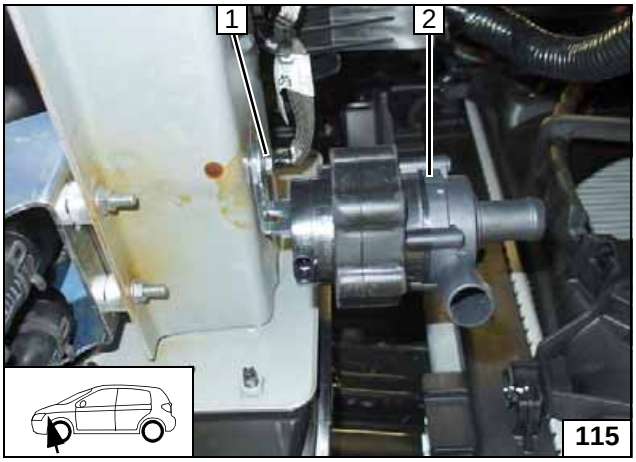


Preparing perforated bracket of circulating pump



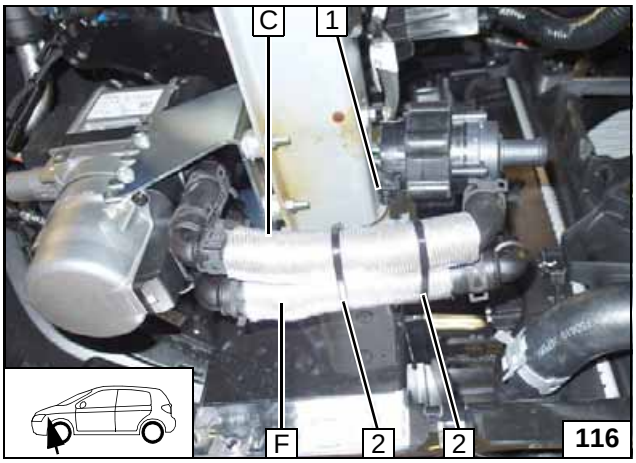
1 Circulating pump mount
2 Circulating pump
3 M6x25 bolt, large diameter washer, flanged nut
4 Perforated bracket

Premounting circulating pump



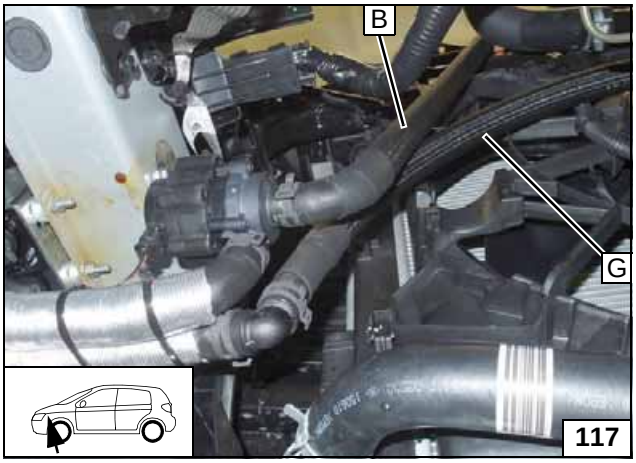
1 M6x20 bolt, spring lockwasher
2 Circulating pump

Installing circulating pump

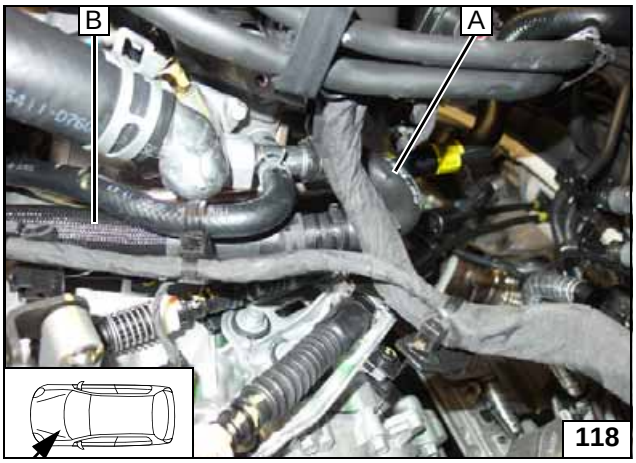


1 Connector of circulating pump wiring harness
2 Cable tie [2x]

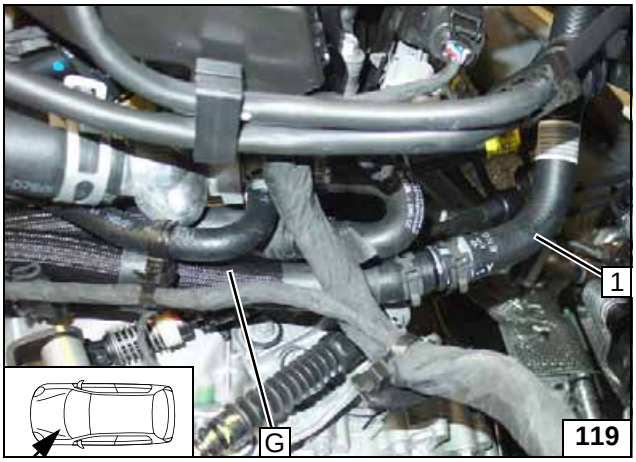
Connecting heater inlet / heater outlet



Routing of hoses B and G

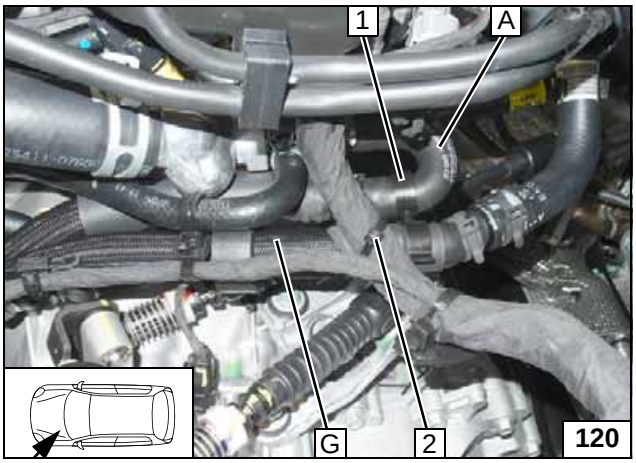


Connecting engine outlet



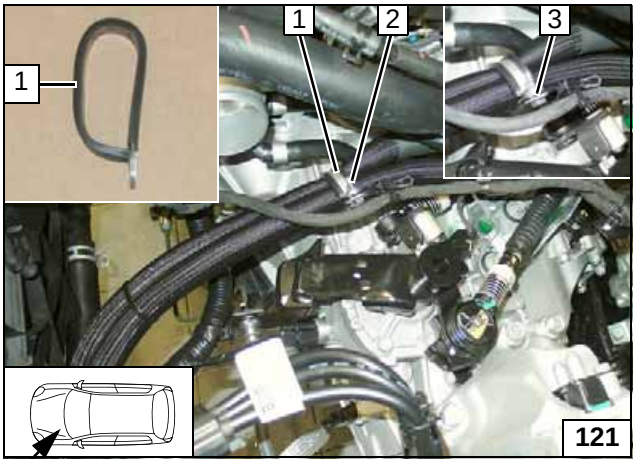
1 Heat exchanger inlet hose section

Connecting heat exchanger inlet



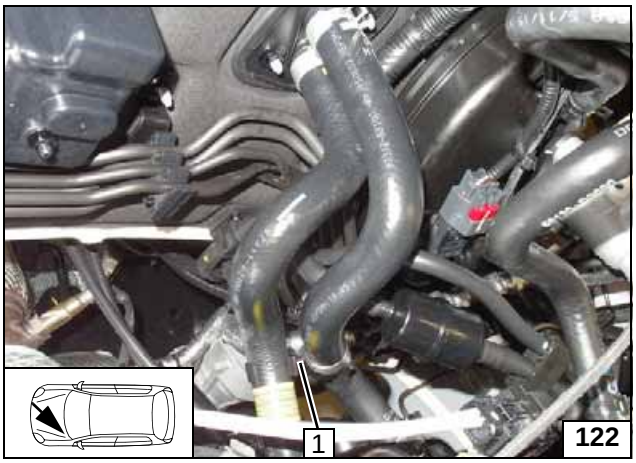
1 Hose bracket
2 Cable tie

Securing hoses A and G



1 38mm dia. rubber-coated p-clamp, shaped as shown
2 M6x20 bolt, nut
3 Original vehicle bracket

Securing hoses



1 Hose bracket between hose section of heat exchanger inlet and hose of heat exchanger outlet

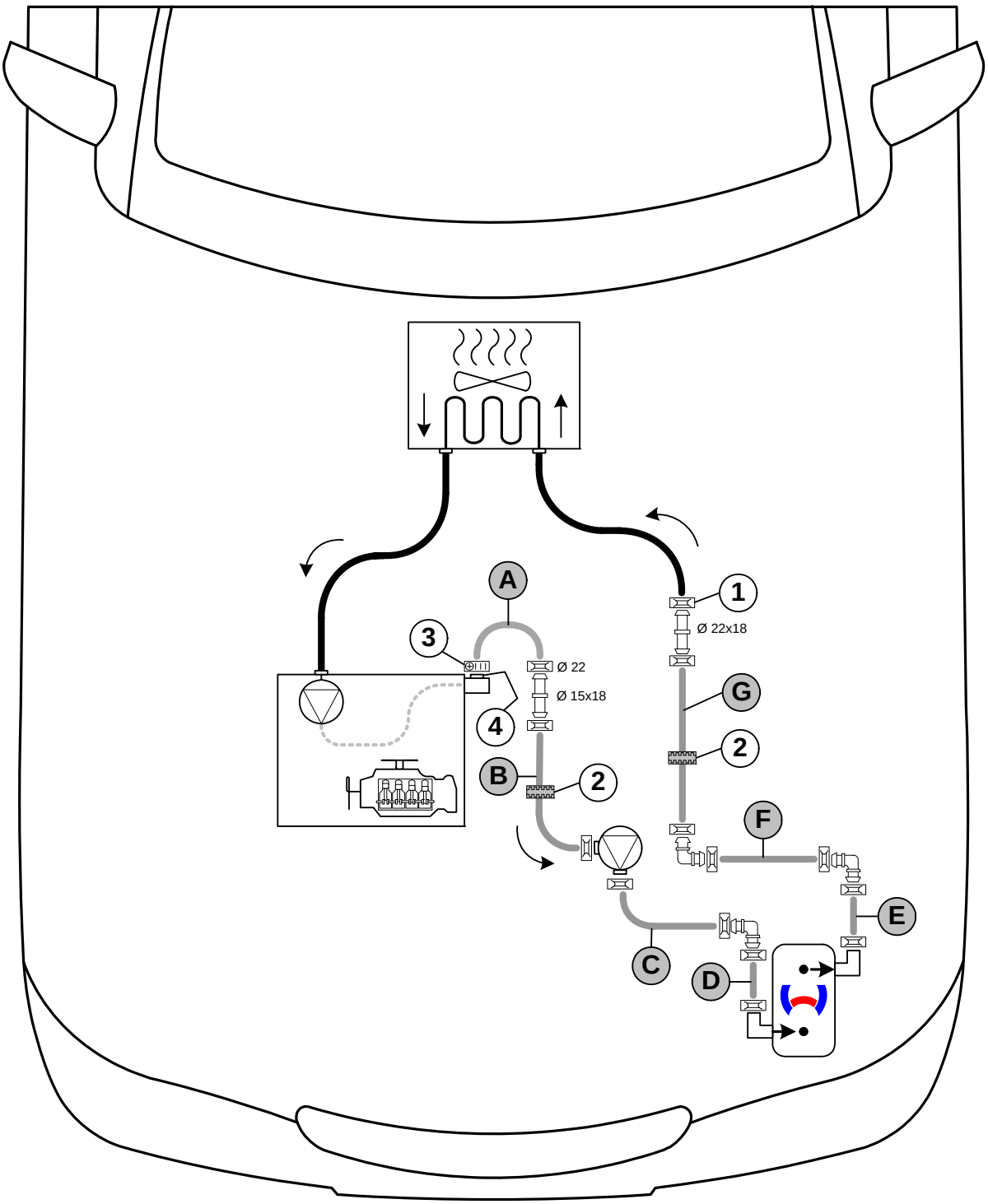
Securing hoses

Coolant Circuit of 1.6 TGDi

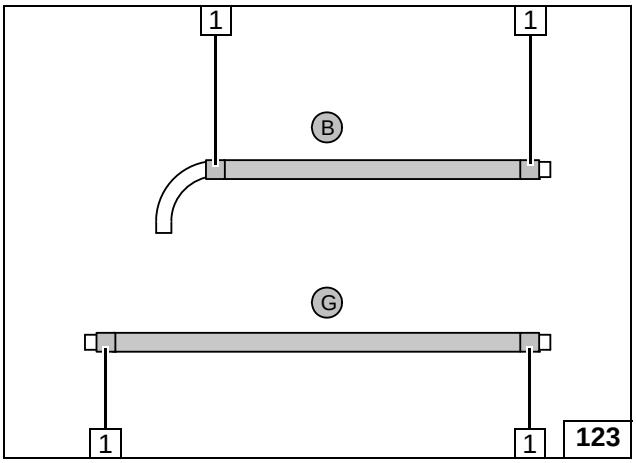
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



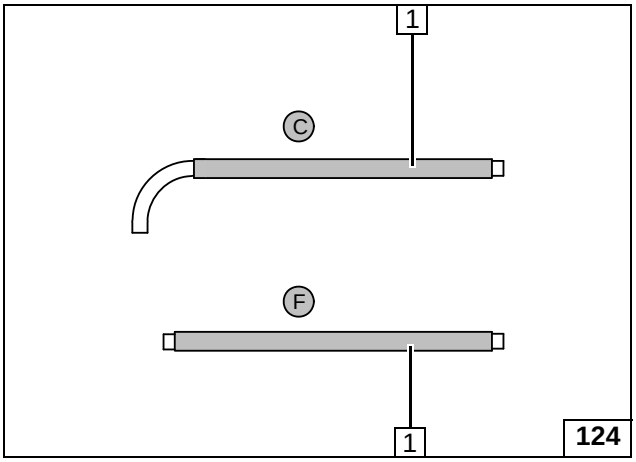
1 = Original vehicle spring clip. **2** = Black (sw) rubber isolator. **3** = 16-27mm dia. hose clamp.
4 = Quick-release coupling.
All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation = 18x18mm dia.



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

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

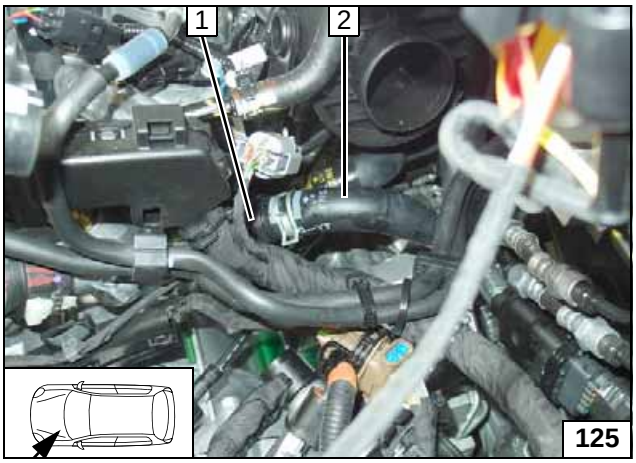
Preparing hoses



Cut heat protection hose to length and slide onto hoses **C** and **F**.

1 Heat protection hose [2x]

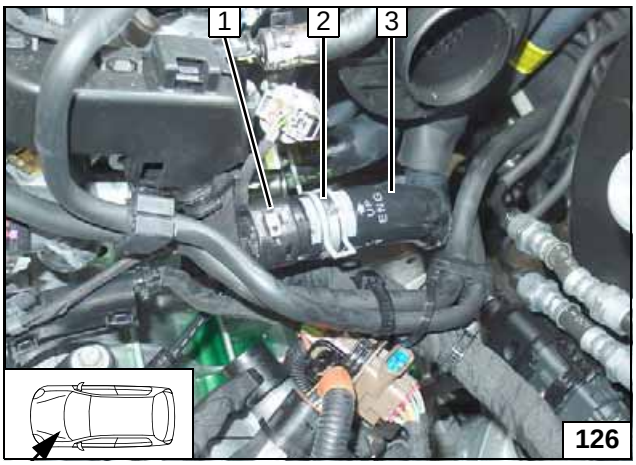
Preparing hoses



Detach hose on engine outlet / heat exchanger inlet **2** from engine outlet connection piece.

1 Quick-release coupling

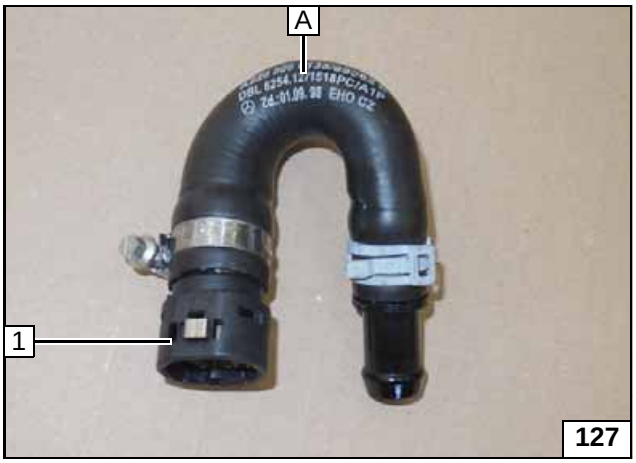
Cutting point



Remove quick-release coupling **1**.
Spring clip **2** will be reused.

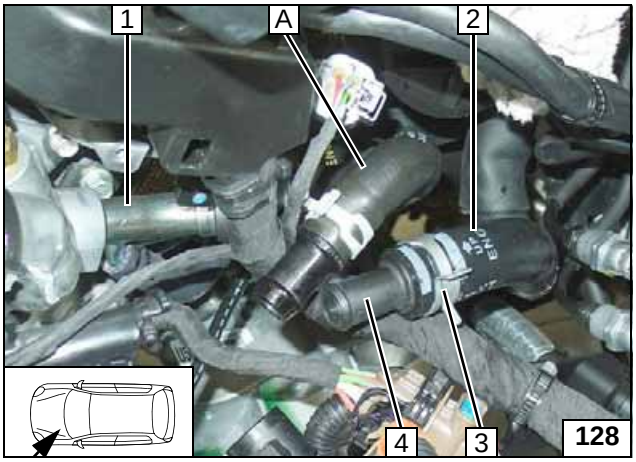
3 Hose on engine outlet / heat exchanger inlet

Cutting point



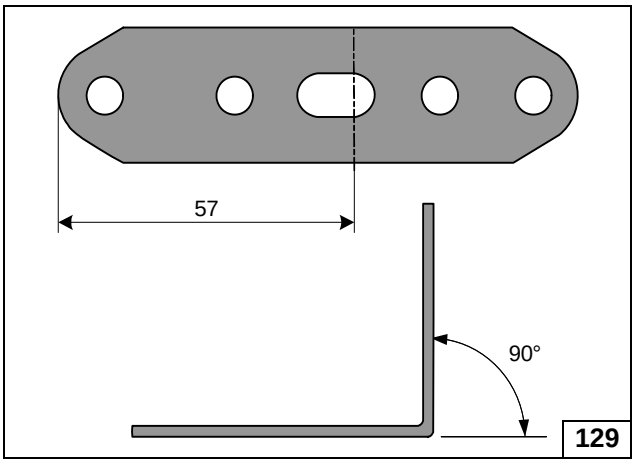
1 Quick-release coupling

Premounting hose A

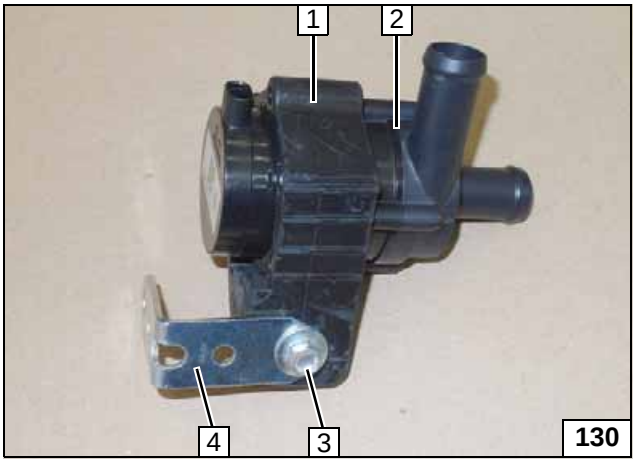


1 Engine outlet connection piece
2 Heat exchanger inlet hose section
3 Original vehicle spring clip
4 18x22 connecting pipe

Connecting engine outlet / heat exchanger inlet

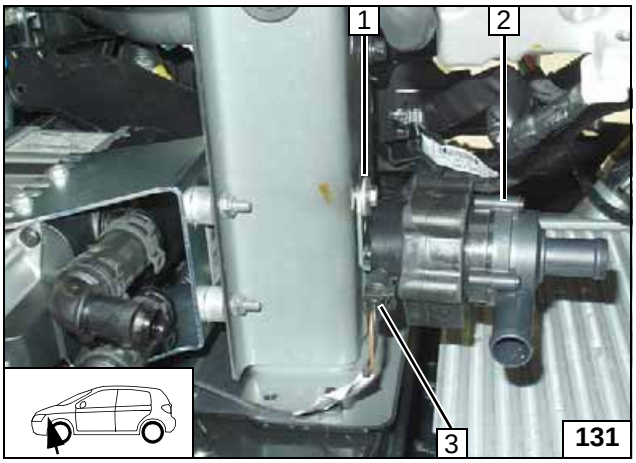


Preparing perforated bracket of circulating pump



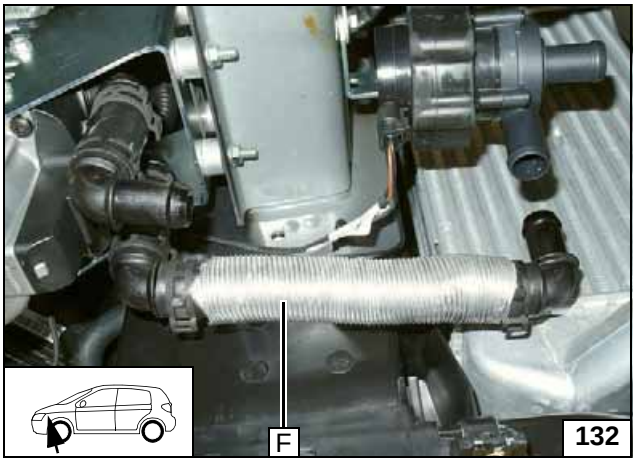
1 Circulating pump mount
2 Circulating pump
3 M6x25 bolt, large diameter washer, flanged nut
4 Perforated bracket

Premounting circulating pump

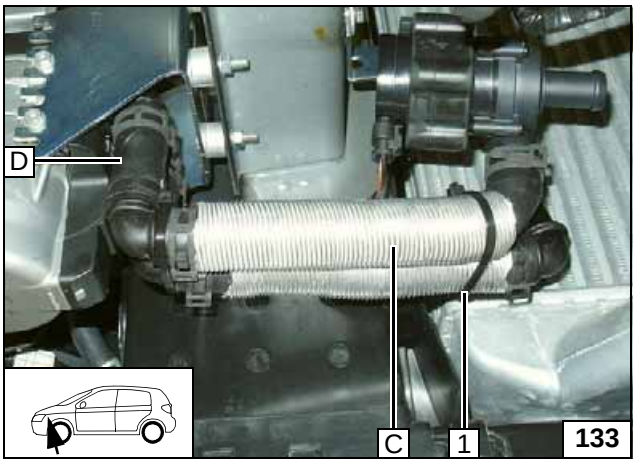


1 M6x20 bolt, spring lockwasher
2 Circulating pump
3 Connector of circulating pump wiring harness

Installing circulating pump

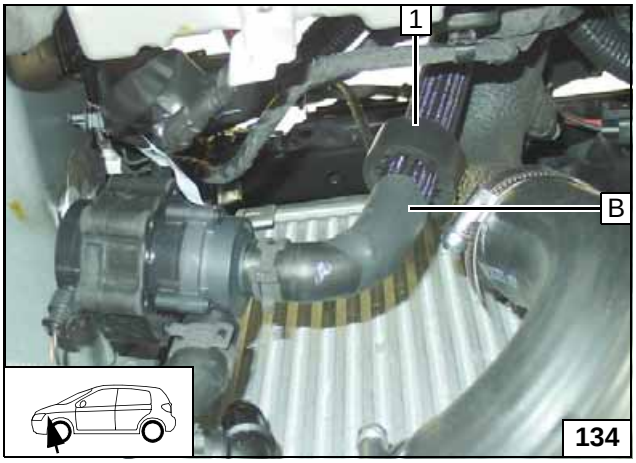


Connecting heater outlet



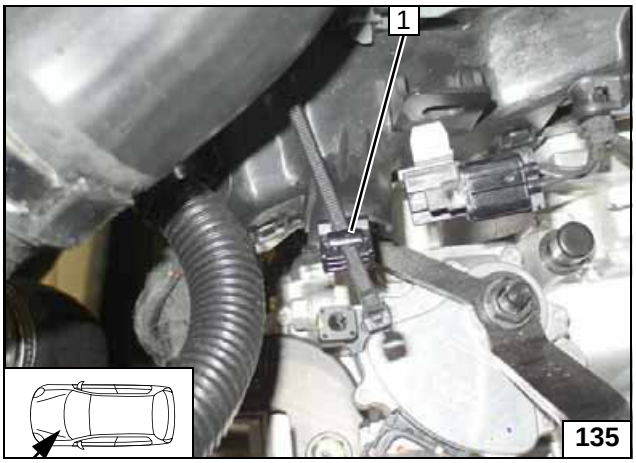
1 Cable tie

Connecting heater inlet



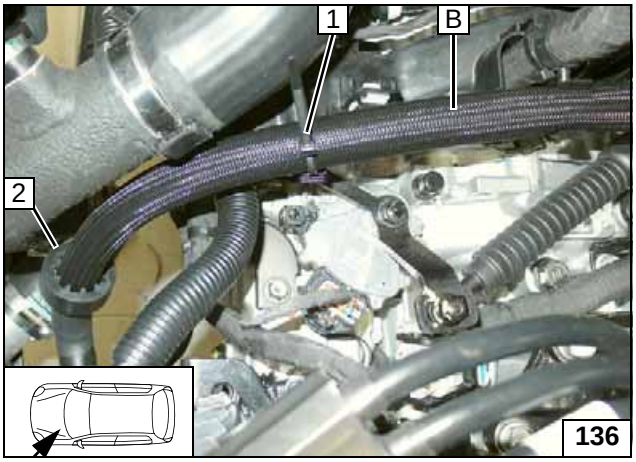
1 Slide on black (sw) rubber isolator

Connecting circulating pump inlet



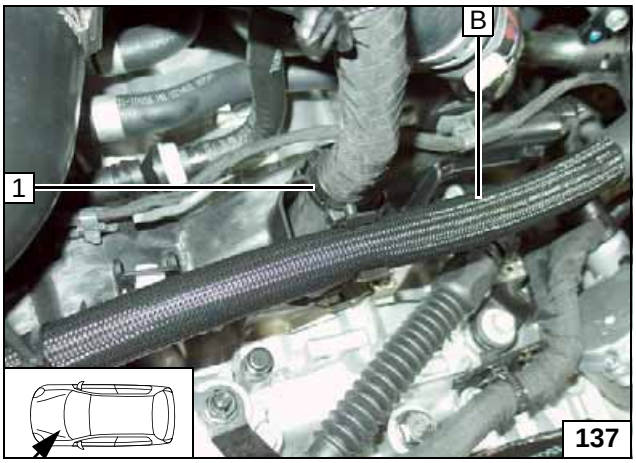
1 Edge clip cable tie

Installing cable tie



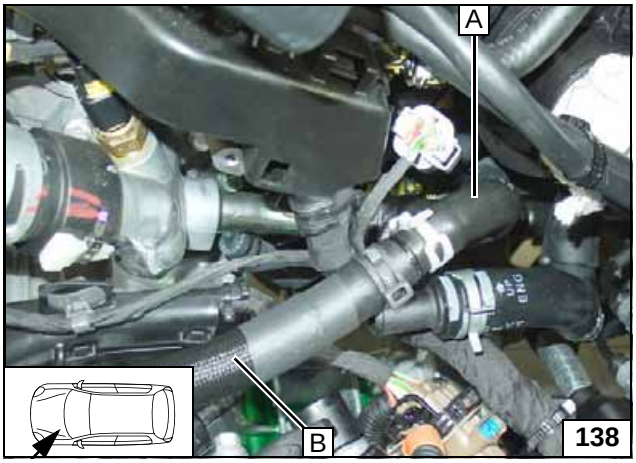
1 Cable tie
2 Align black (sw) rubber isolator

Routing of hose B

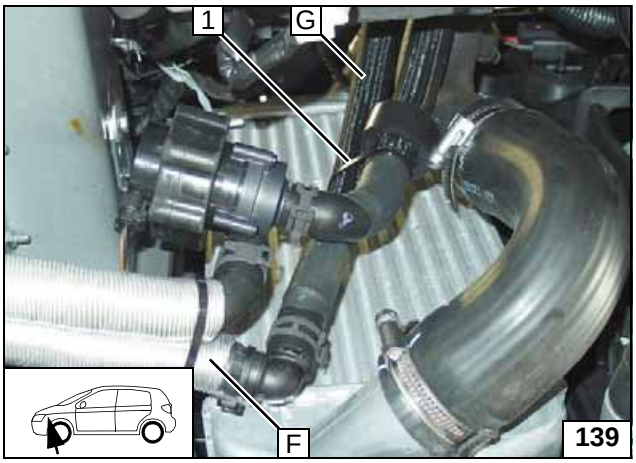


1 22x22 hose bracket between hose **B** and original vehicle wiring harness

Installing hose bracket

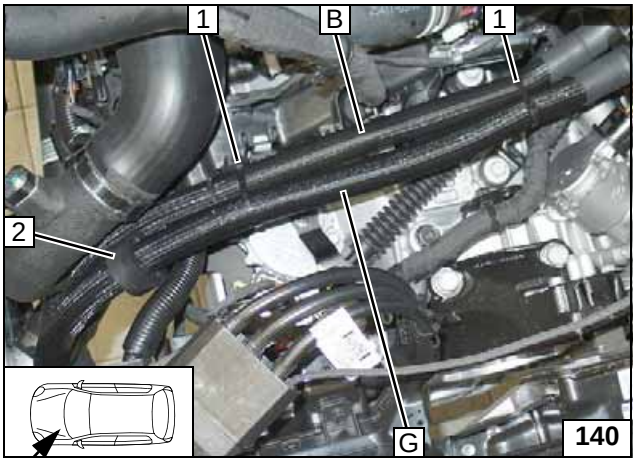


Connecting engine outlet



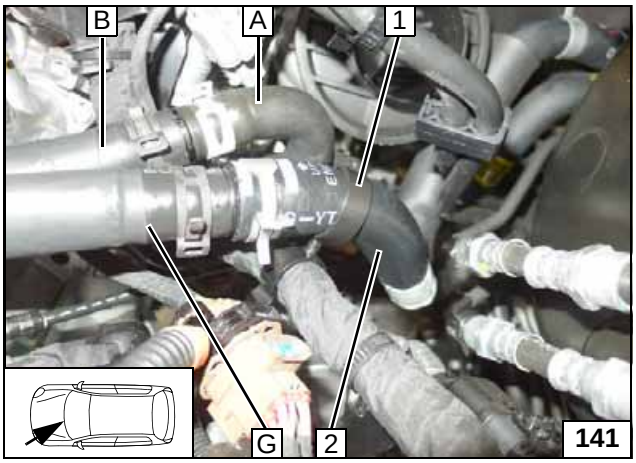
1 Cable tie

Routing in engine compartment



1 Cable tie [2x]
2 Slide on black (sw) rubber isolator

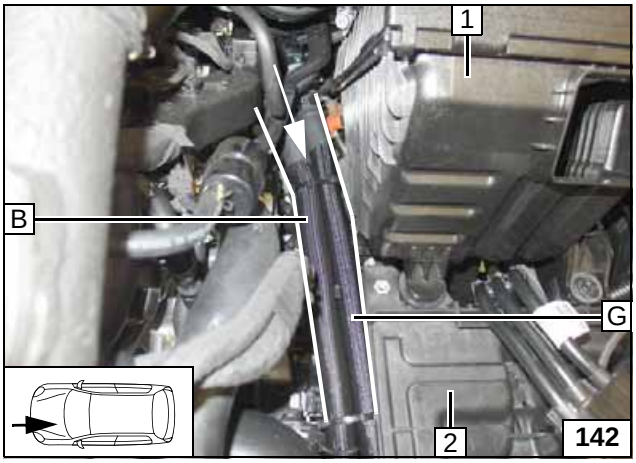
Routing of hoses B and G



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

1 22x22 hose bracket
2 Heat exchanger inlet hose section

Connecting heat exchanger inlet



Ensure sufficient distance between hoses **B** and **G** to air filter box **1** as well as battery carrier **2**, correct if necessary.

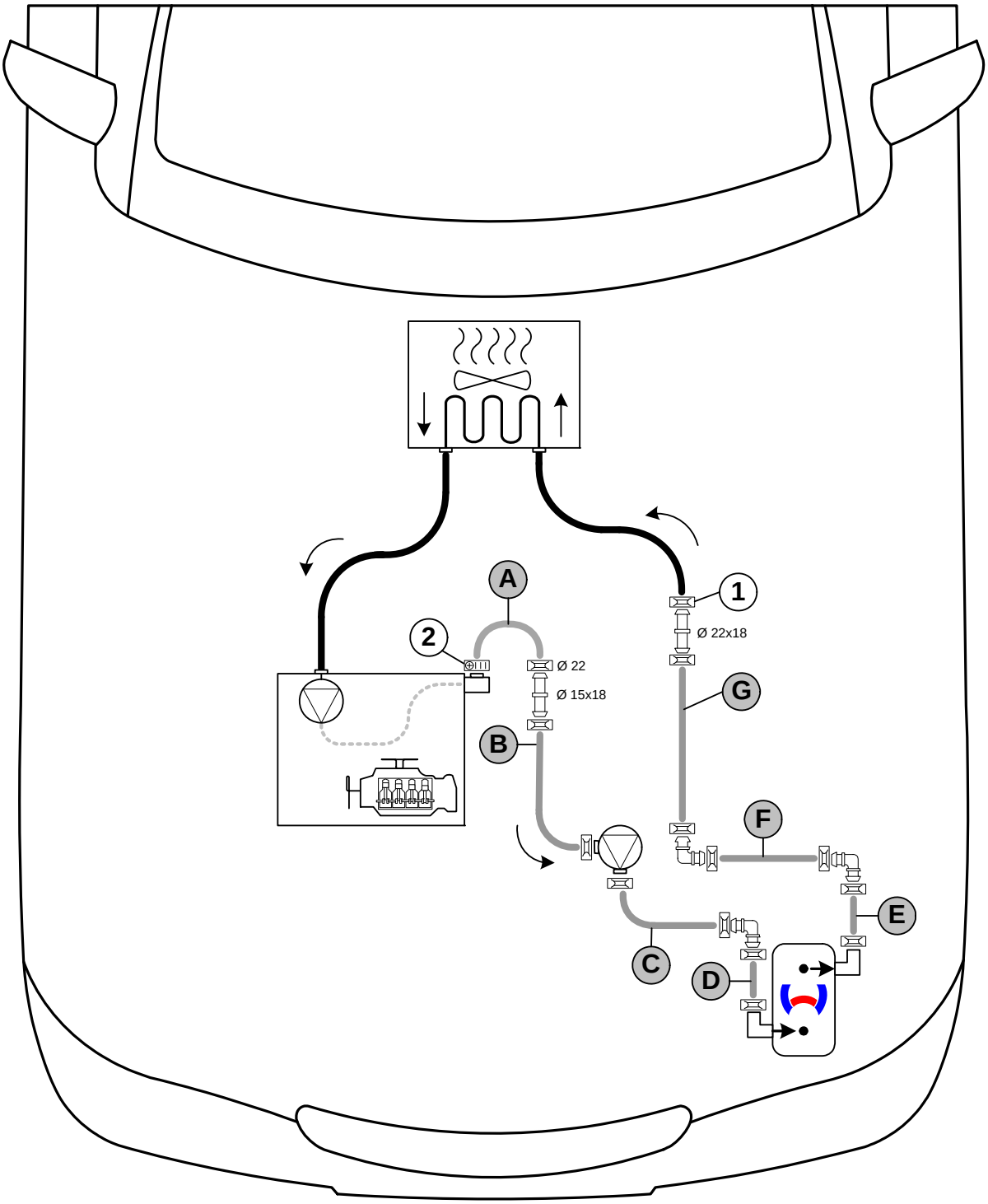
Checking distance

Coolant Circuit of 1.7 CRDi

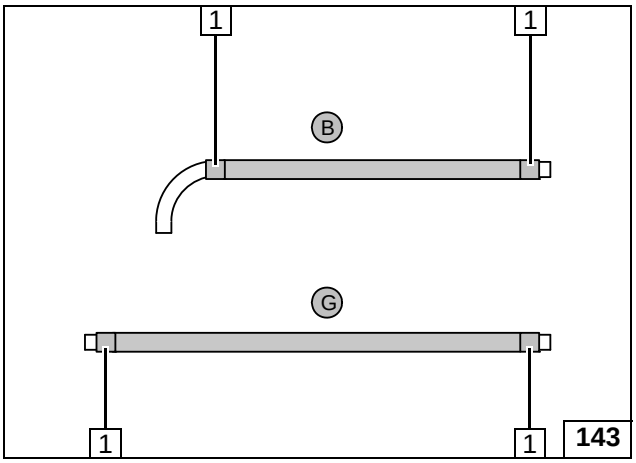
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



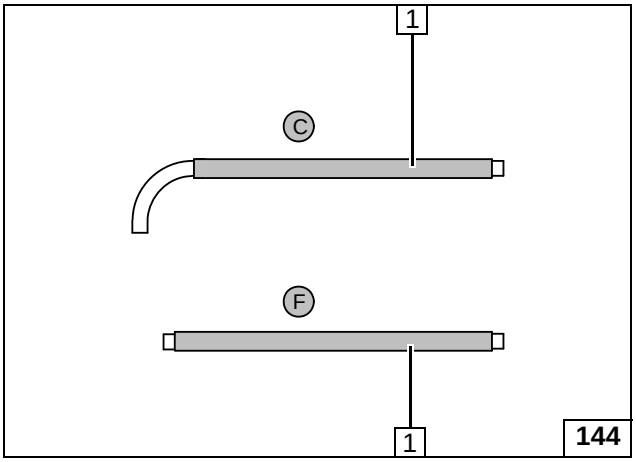
1 = Original vehicle spring clip. **2** = 16-27mm dia. hose clamp.
All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation = 18x18mm dia.



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

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

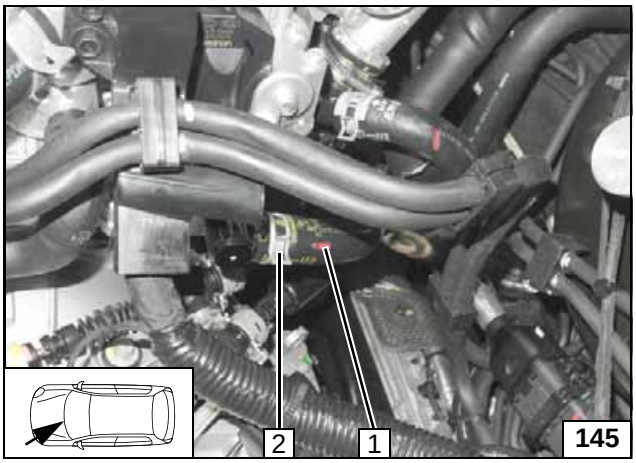
Preparing hoses



Cut heat protection hose to length and slide onto hoses **C** and **F**.

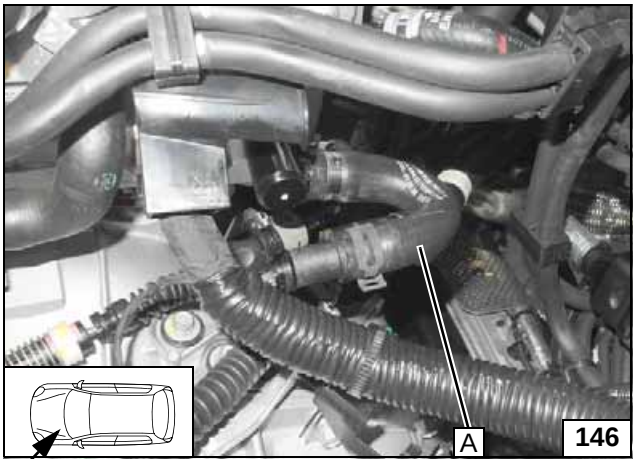
1 Heat protection hose [2x]

Preparing hoses

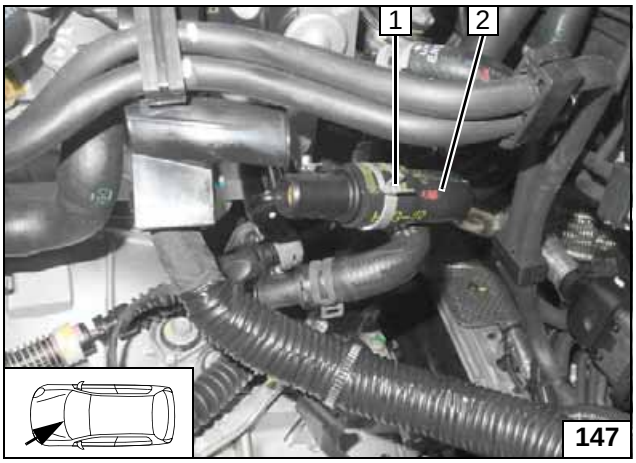


Detach hose on engine outlet / heat exchanger inlet **1** from engine outlet connection piece. Spring clip **2** will be reused.

Cutting point

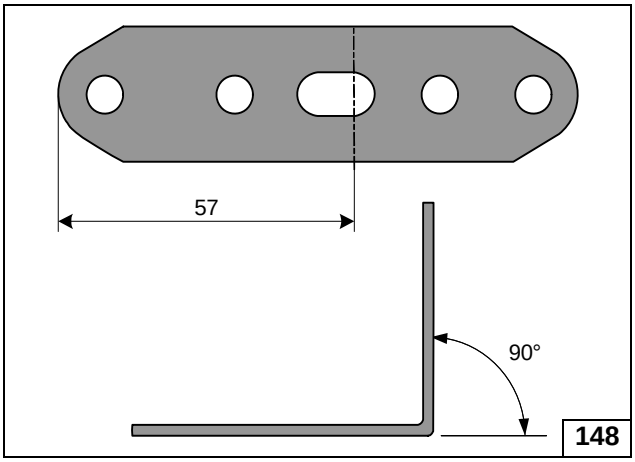


Preparing connection of engine outlet

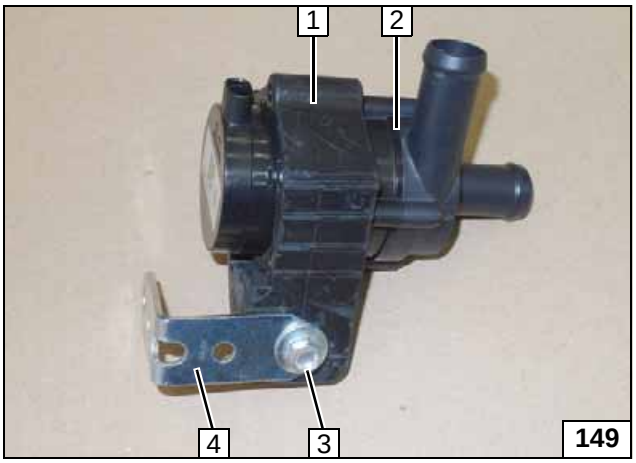


1 Original vehicle spring clip
2 Hose of heat exchanger inlet

Preparing connection of heat exchanger inlet

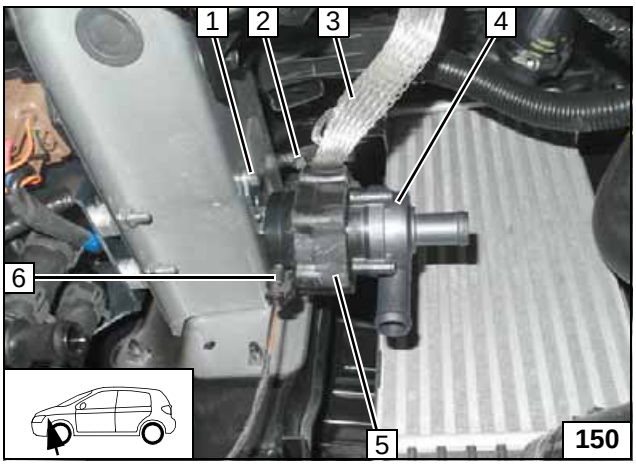


Preparing perforated bracket of circulating pump



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

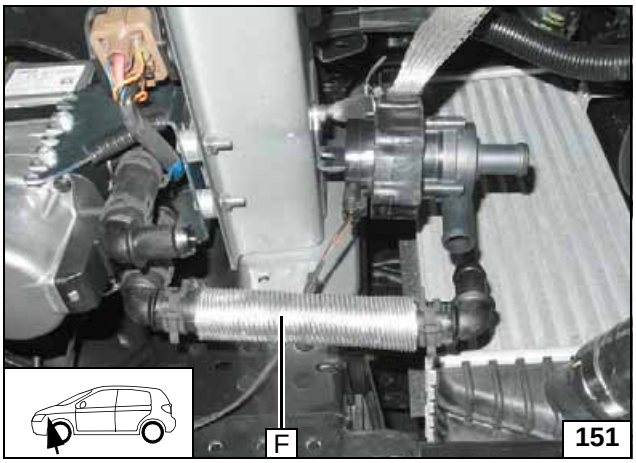
Premounting circulating pump



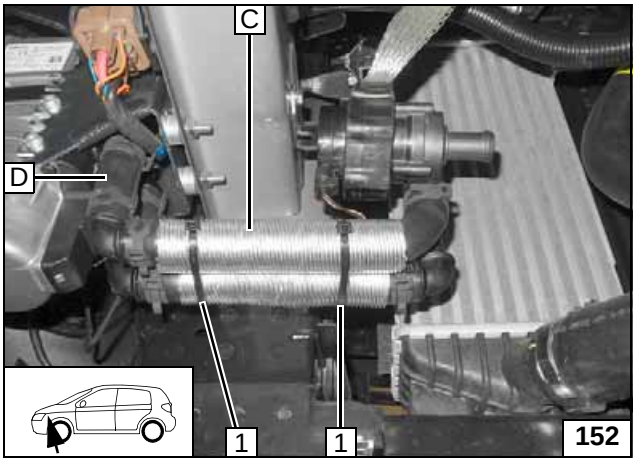
Attach original vehicle earth cable **3** using cable tie **2** to circulating pump mount **5**.

1 M6x20 bolt, spring lockwasher
4 Circulating pump
6 Connector of circulating pump wiring harness

Installing circulating pump

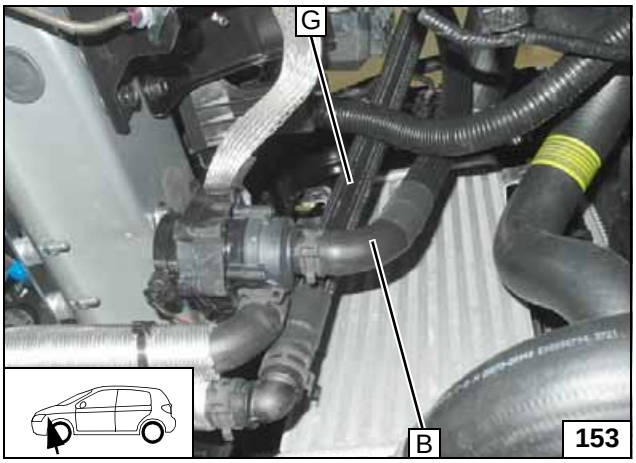


Connecting heater outlet

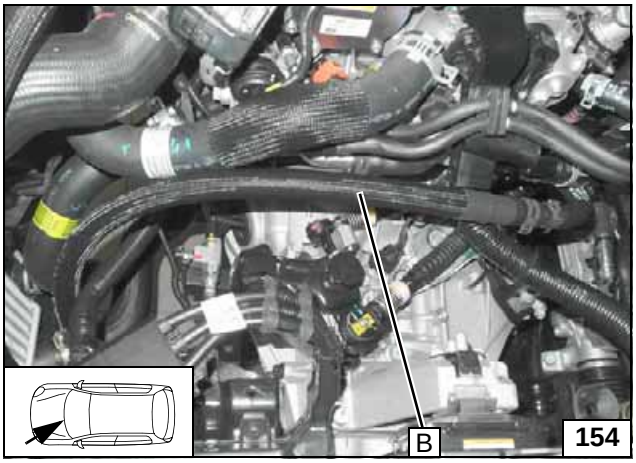


1 Cable tie [2x]

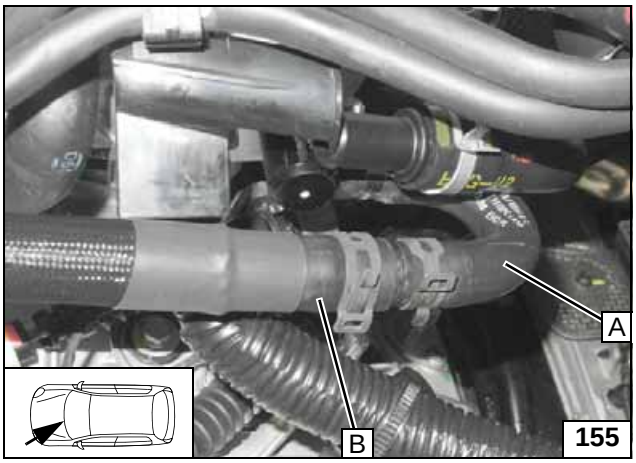
Connecting heater inlet



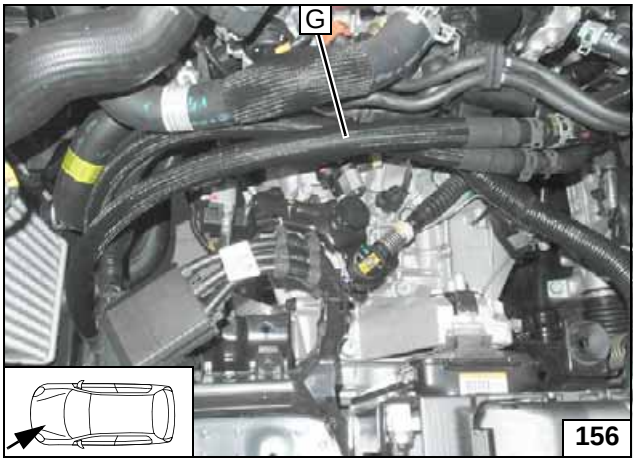
Routing of hoses B and G



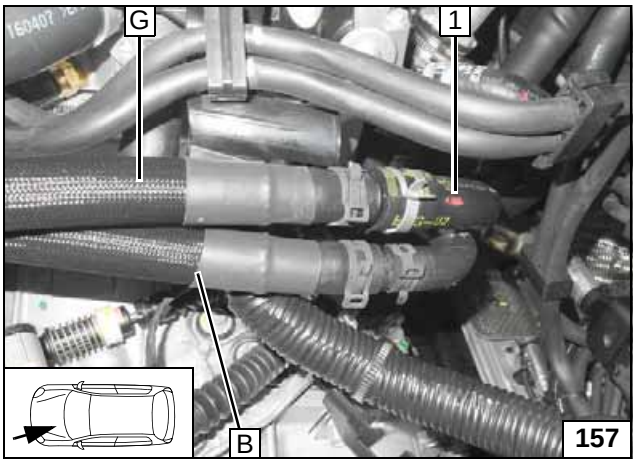
Routing of hose B



Connecting engine outlet

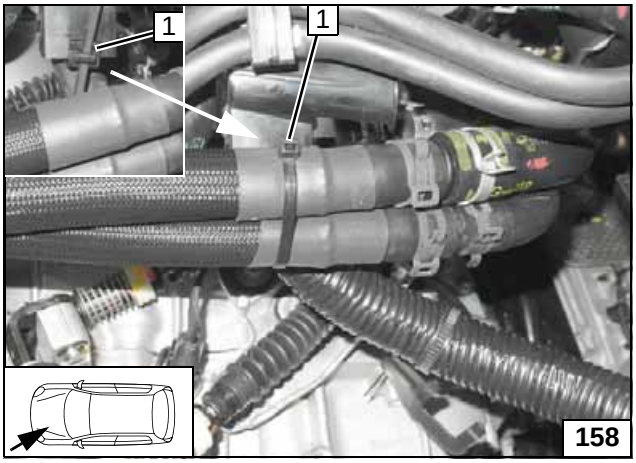


Routing of hose G



1 Heat exchanger inlet hose section

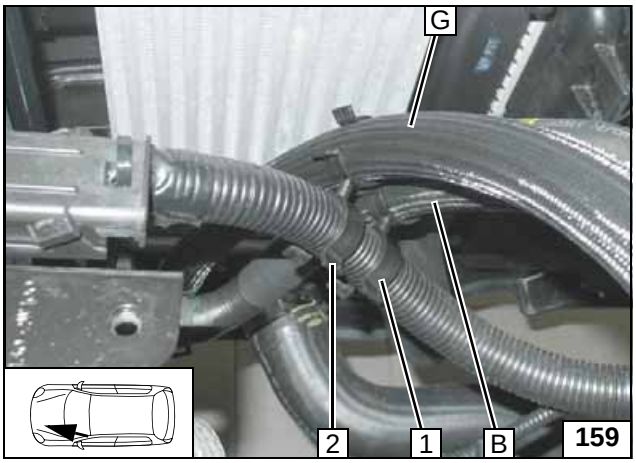
Connecting heat exchanger inlet



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

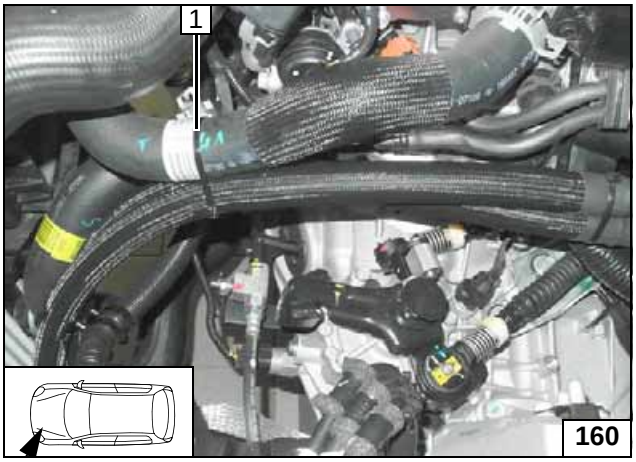
1 Edge clip cable tie

Securing hoses



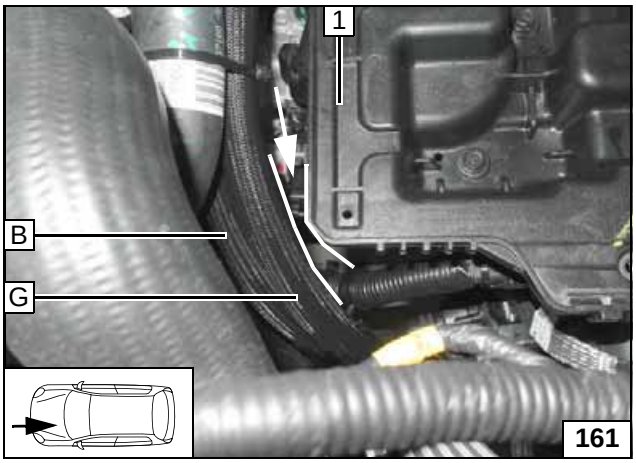
1 Hose bracket between original vehicle wiring harness and hose section **B**
2 Hose bracket between original vehicle wiring harness and hose section **G**

Securing hoses



1 Cable tie

Securing hoses



Ensure sufficient distance between hoses **B** and **G** and battery carrier **1**, correct if necessary.

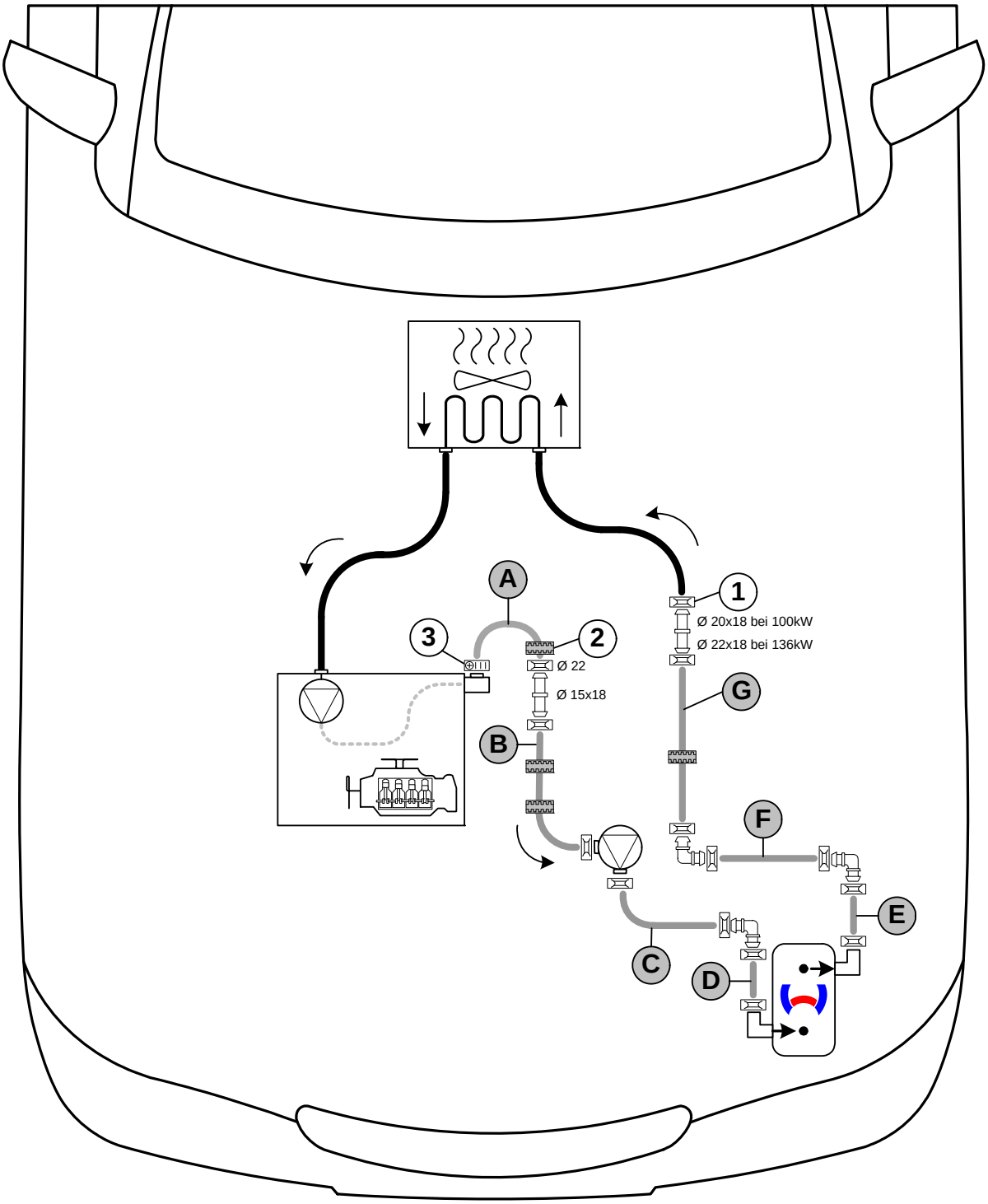
Checking distance

Coolant Circuit of 2.0 CRDi

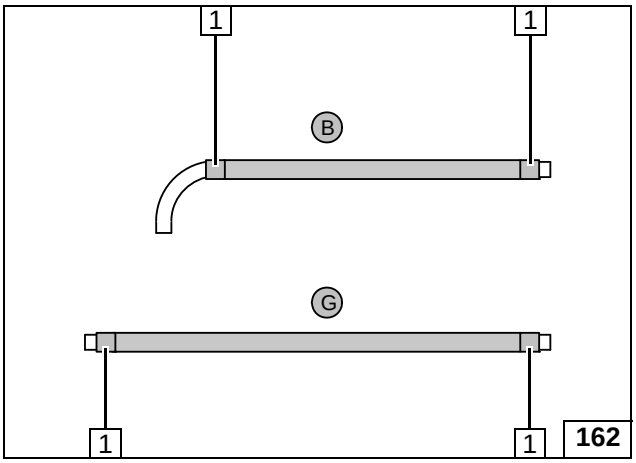
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



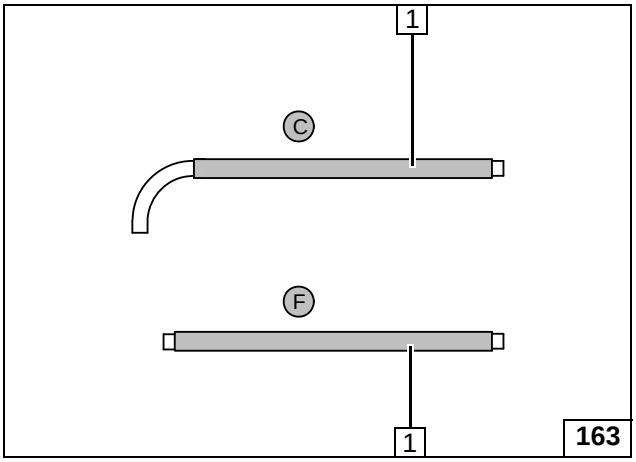
1 = Original vehicle spring clip. **2** = Black (sw), 18mm dia. rubber isolator. **3** = 16-27mm dia. hose clamp.
All spring clips without a specific designation = 25 mm dia.
All black (sw) rubber isolators without a specific designation = 20mm dia.
All connecting pipes without a specific designation and = 18x18 mm dia.



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

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

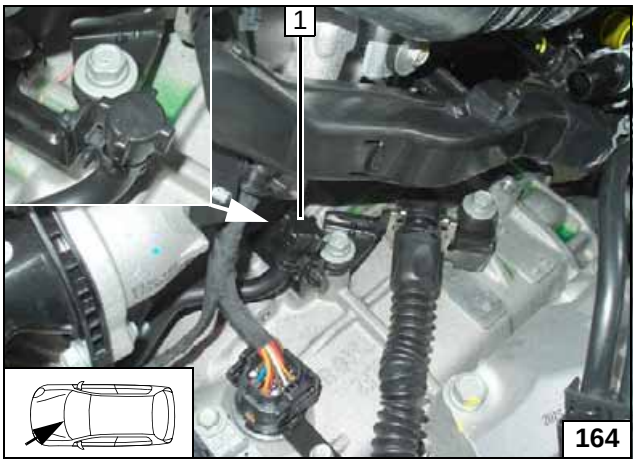
Preparing hoses



Cut heat protection hose to length and slide onto hoses **C** and **F**.

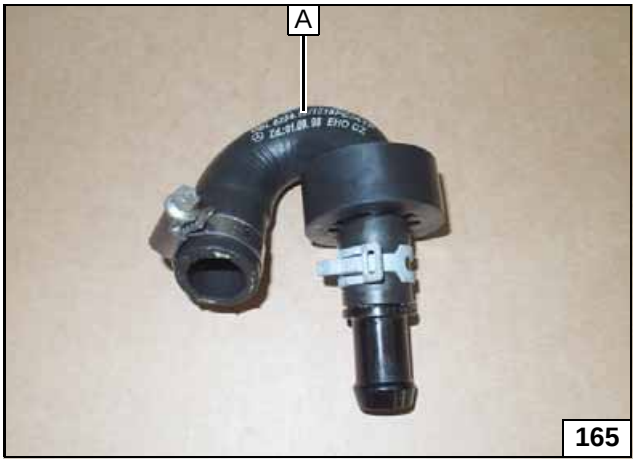
1 Heat protection hose [2x]

Preparing hoses



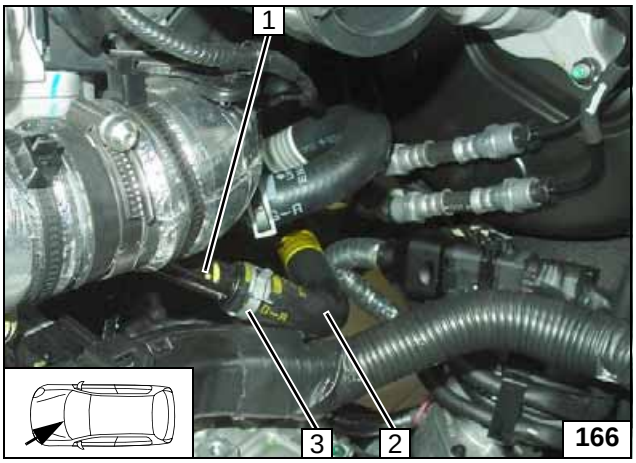
1 Original vehicle transmission ventilation, moved

Moving transmission ventilation



1 20x15mm dia. moulded hose **A**, turned by 180°

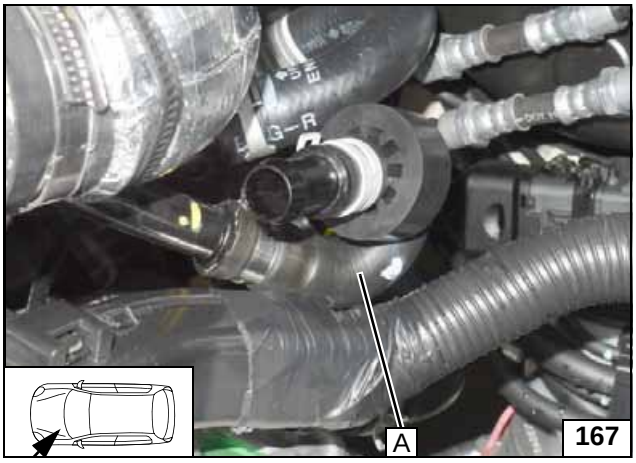
Premounting hose A



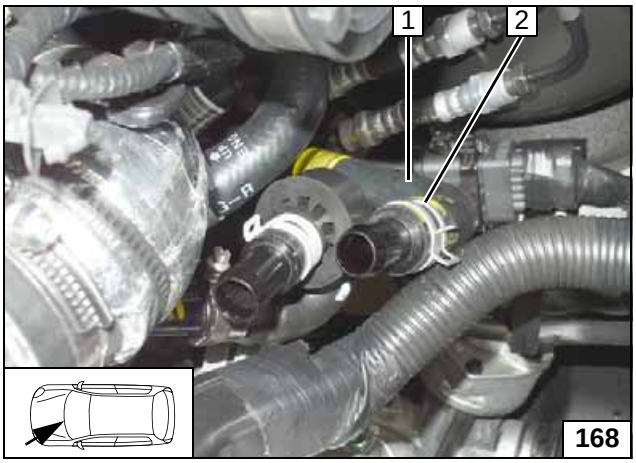
Detach hose on engine outlet / heat exchanger inlet from the engine outlet connection piece **1**. Spring clip **3** will be reused.

2 Heat exchanger inlet hose section

Cutting point



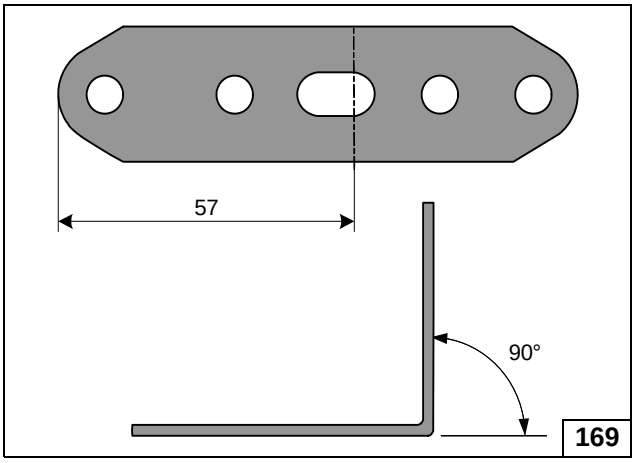
Connecting engine outlet



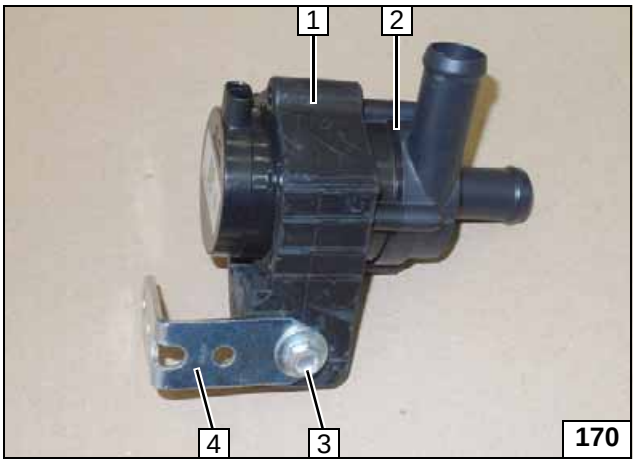
Install the correct connecting pipe! (see water diagram of 2.0 CRDi!)

1 Heat exchanger inlet hose section
2 Original vehicle spring clip

Preparing connection of heat exchanger inlet

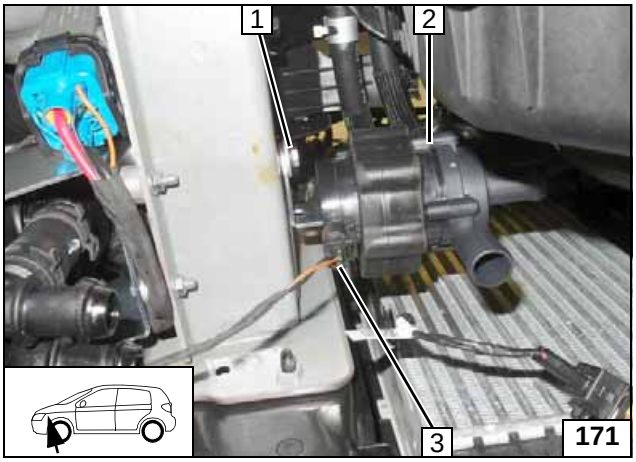


Preparing perforated bracket of circulating pump



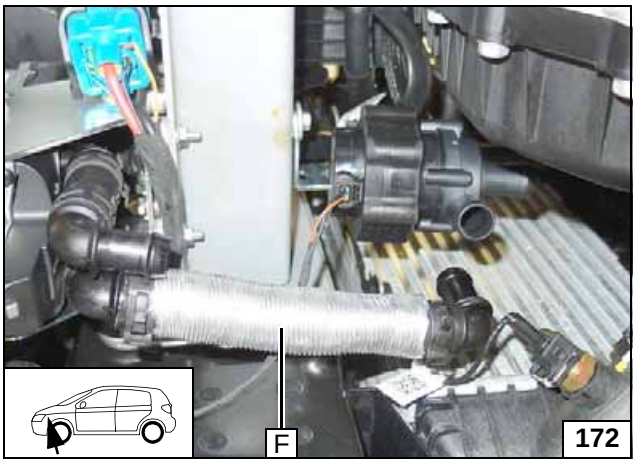
1 Circulating pump mount
2 Circulating pump
3 M6x25 bolt, large diameter washer, flanged nut
4 Perforated bracket

Premounting circulating pump

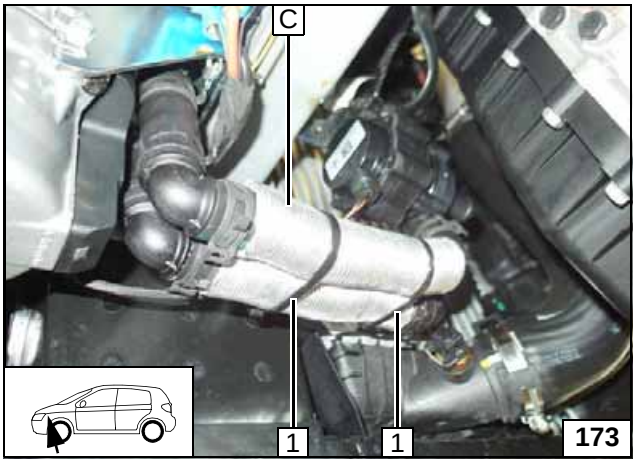


1 M6x20 bolt, spring lockwasher
2 Circulating pump
3 Connector of circulating pump wiring harness

Installing circulating pump

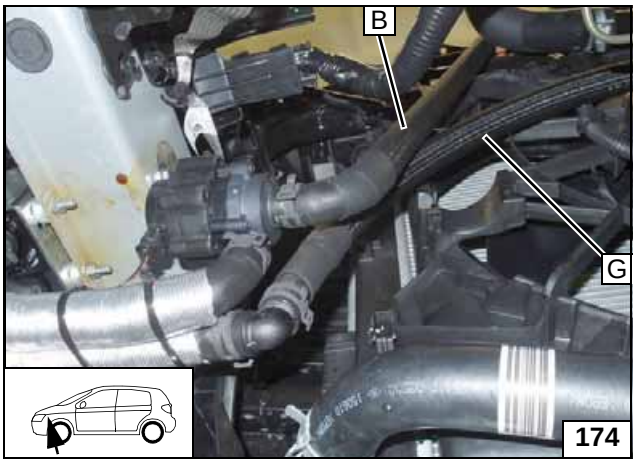


Connecting heater outlet

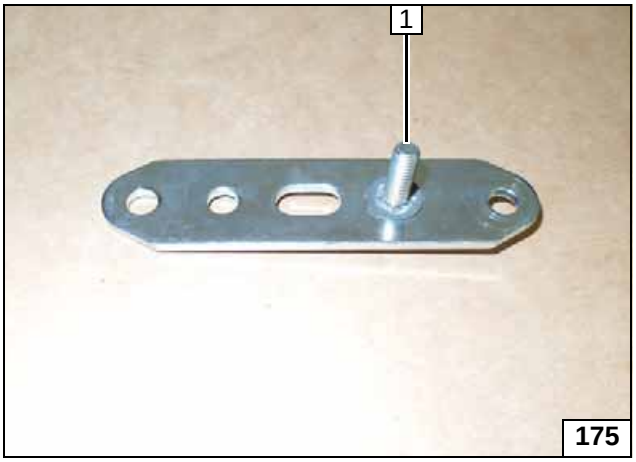


1 Cable tie [2x]

Connecting heater inlet

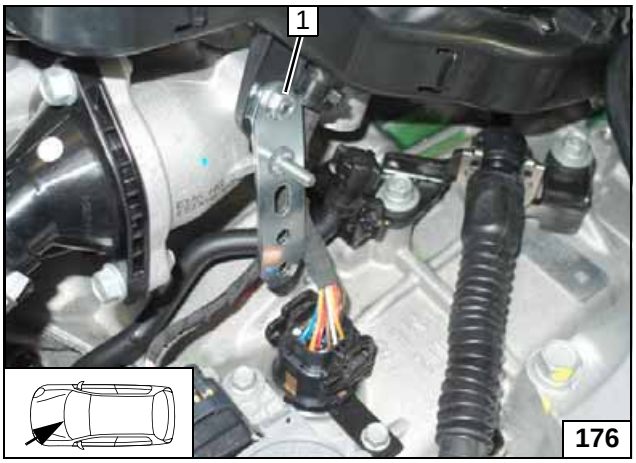


Routing of hoses B and G



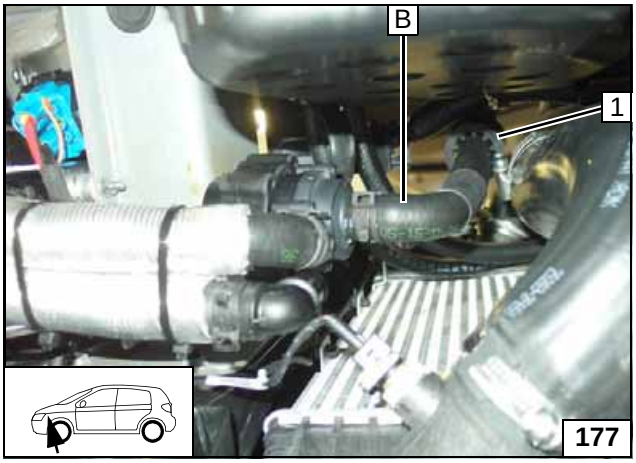
1 M6x20 bolt, lock washer

Adapting perforated bracket for use as hose bracket



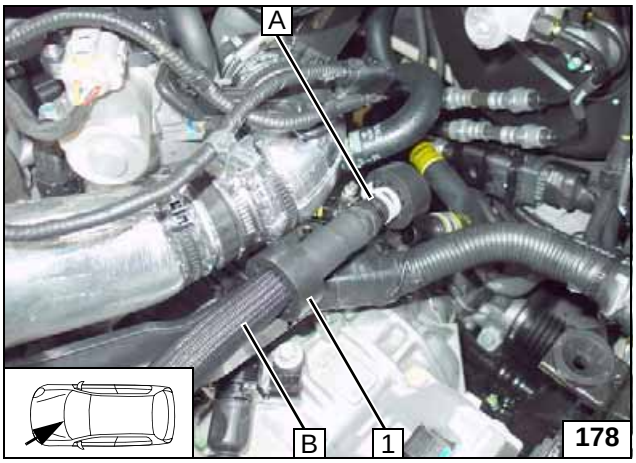
1 Original vehicle nut

Installing perforated bracket



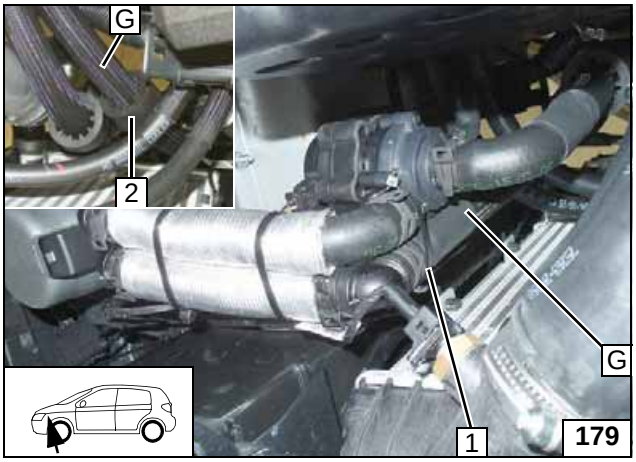
1 Slide on black (sw) rubber isolator

Routing in engine compart-ment



1 Slide on black (sw) rubber isolator

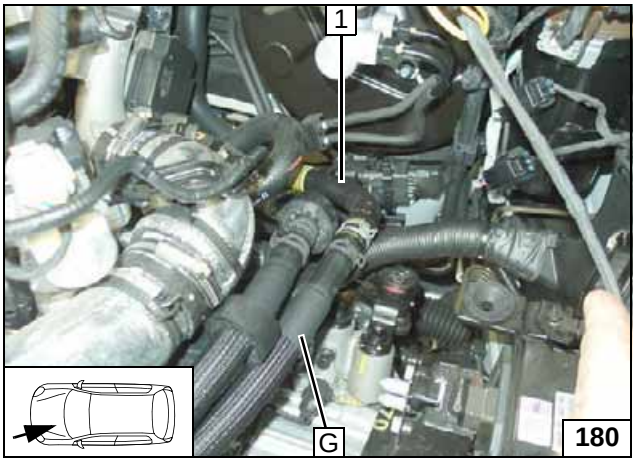
Connecting engine outlet



1 Cable tie
2 Align black (sw) rubber isolator [2x]

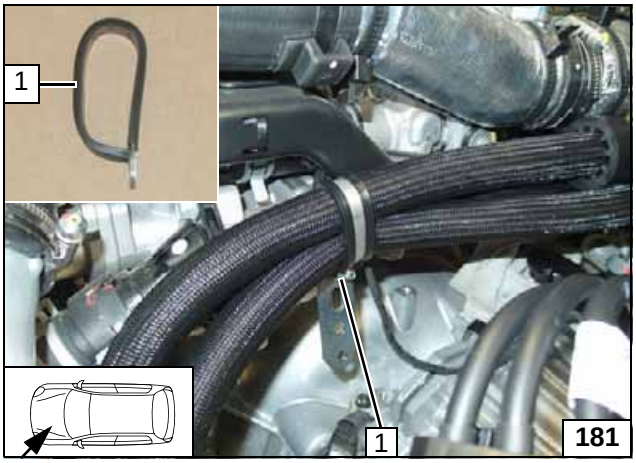
Routing of hose G

100kW



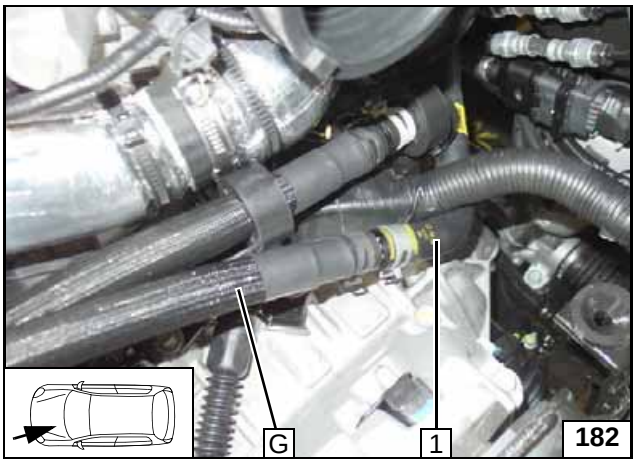
1 Heat exchanger inlet hose section

Connecting heat exchanger inlet



1 38mm dia. Rubber-coated p-clamp, shaped as shown, flanged nut

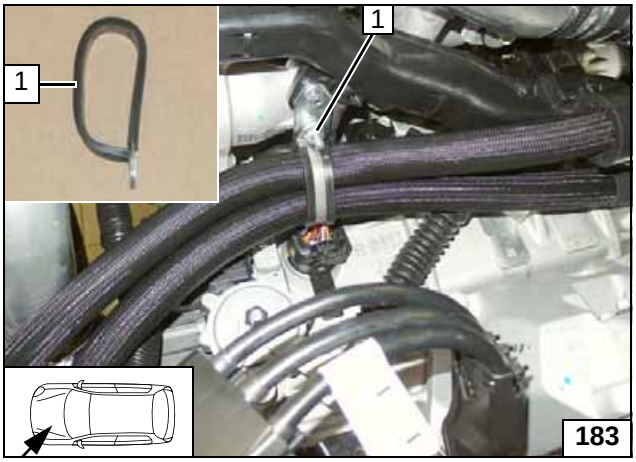
Securing hoses



136 kW

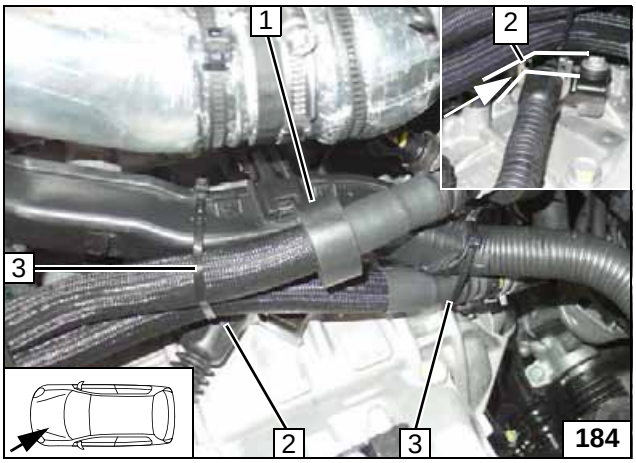
1 Heat exchanger inlet hose section

Connecting heat exchanger inlet



1 38mm dia. Rubber-coated p-clamp, shaped as shown, flanged nut

Securing hoses

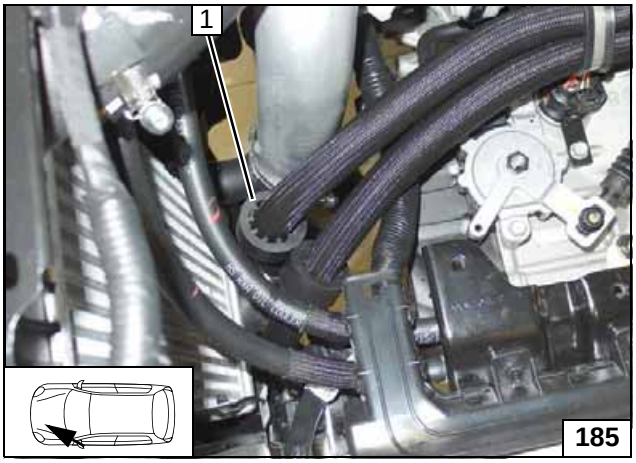


All 2.0 CRDi

Align hoses and rubber isolator **1**. Ensure sufficient distance to clutch actuator at position **2**, correct if necessary.

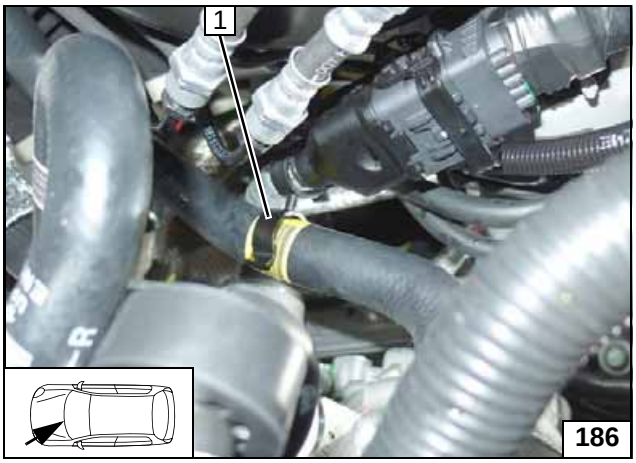
3 Cable tie [2x]

Securing hoses



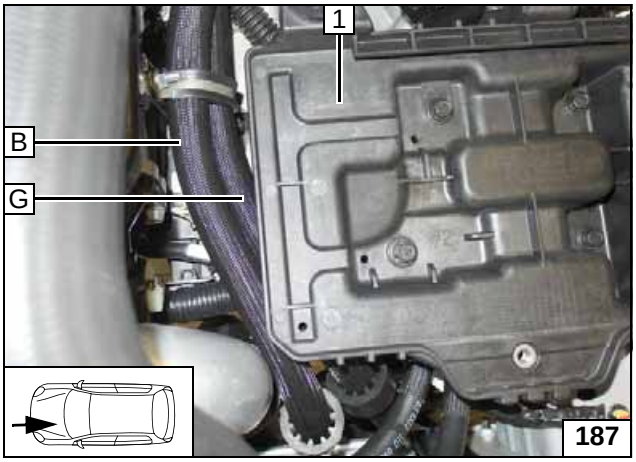
1 Black (sw) rubber isolator

Aligning rubber isolator with charge-air tube / clamp



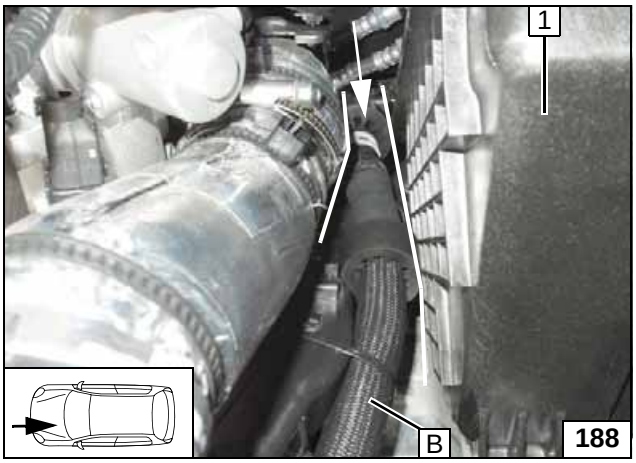
1 Hose bracket between hose section of heat exchanger inlet and original vehicle wiring harness

Securing hose



Ensure sufficient distance between hoses **B** and **G** and battery carrier **1**, correct if necessary.

Checking distance



Ensure sufficient distance between hoses **B** and **G** and air filter box **1**, correct if necessary.

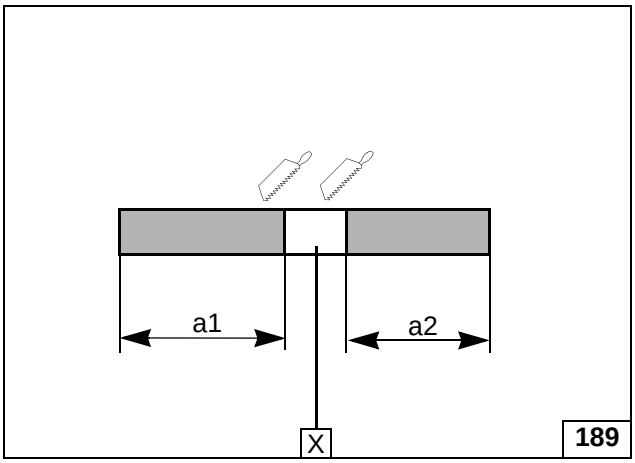
Checking distance

Exhaust Gas

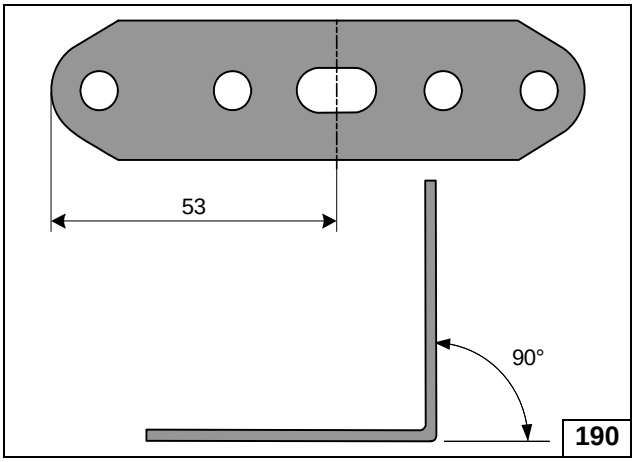
All vehicles

a1 = 270
a2 = 250

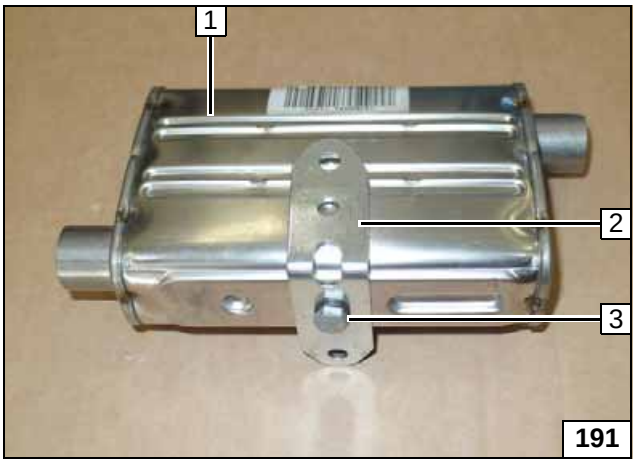
X =



Preparing exhaust pipe

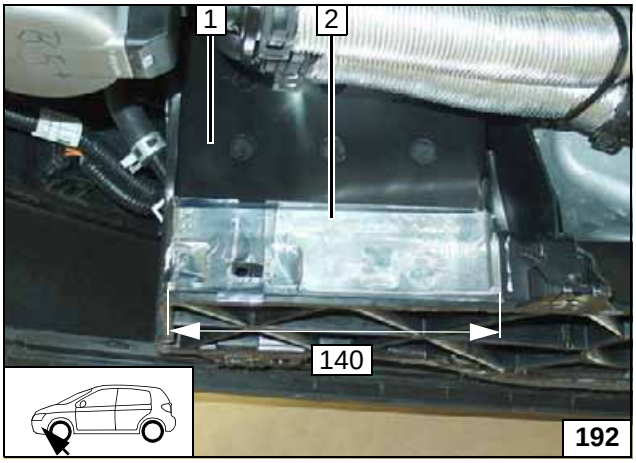


Angling down perforated bracket of exhaust silencer



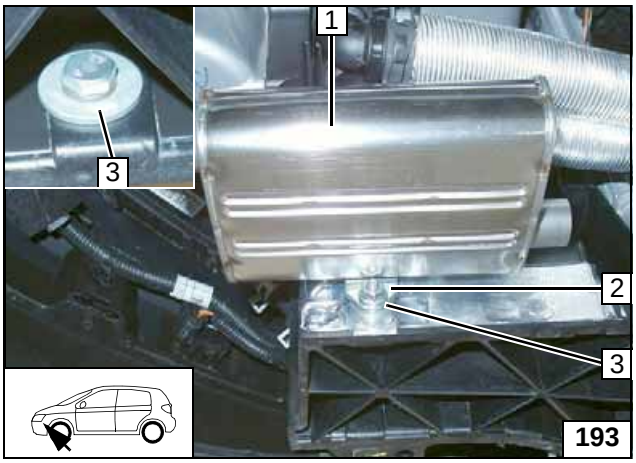
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premounting silencer



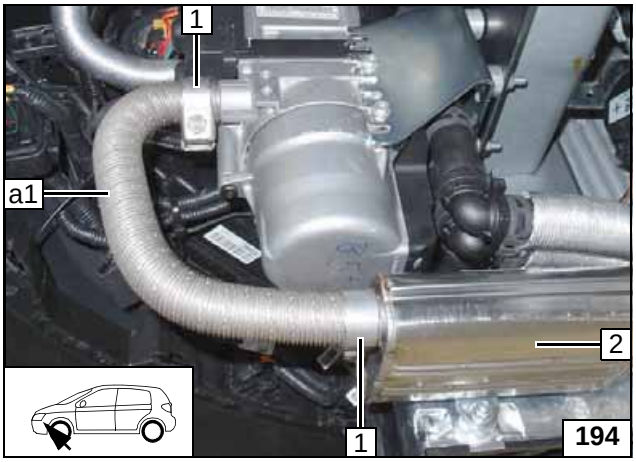
1 Radiator cross member
2 Heat protection film

Affixing heat protection film



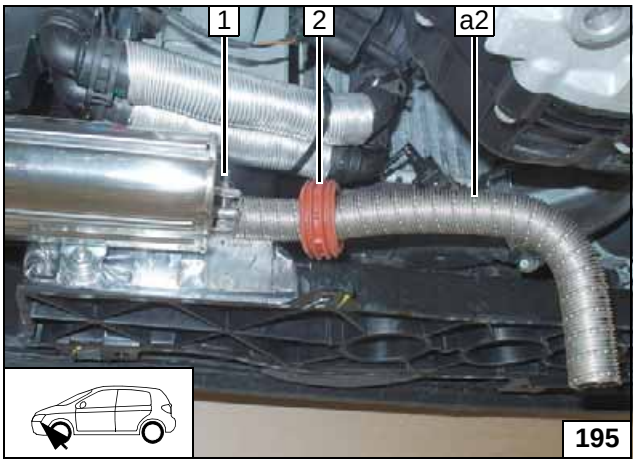
1 Silencer
2 Perforated bracket
3 M6x30 bolt, large diameter washer, 10mm shim, flanged nut

Installing silencer



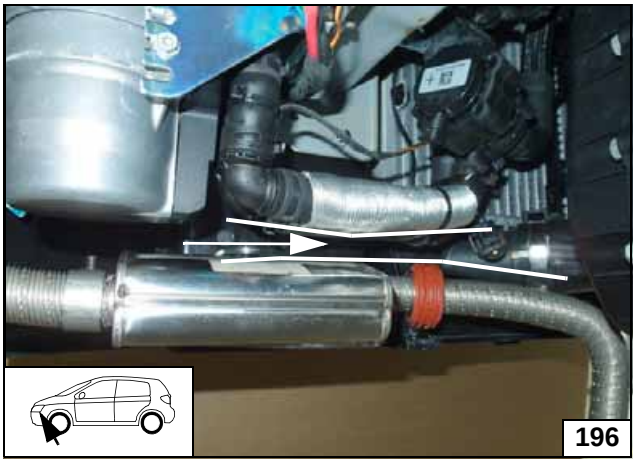
1 Hose clamp [2x]
2 Exhaust silencer

Installing exhaust pipe a1

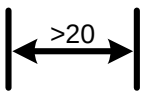


1 Hose clamp
2 Slide on spacer bracket

Installing exhaust pipe a2

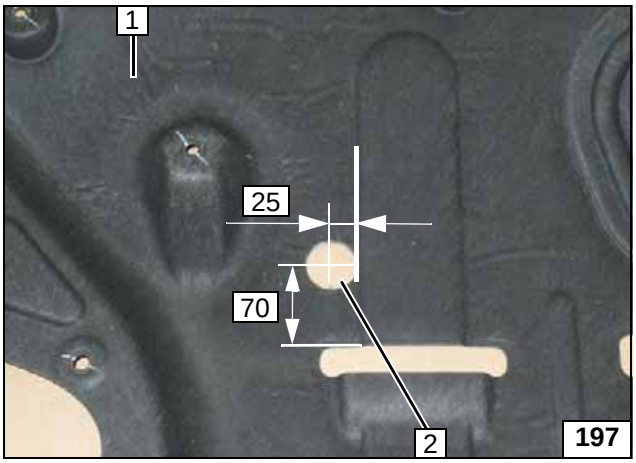


Ensure sufficient distance from adjacent components, correct if necessary.



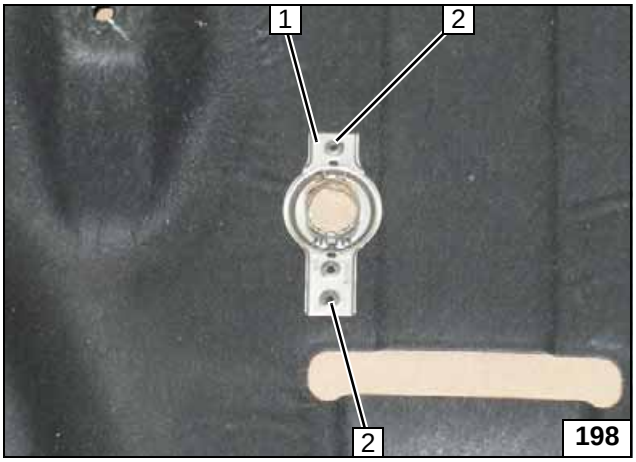
Aligning exhaust pipe

Installing Exhaust End Fastener



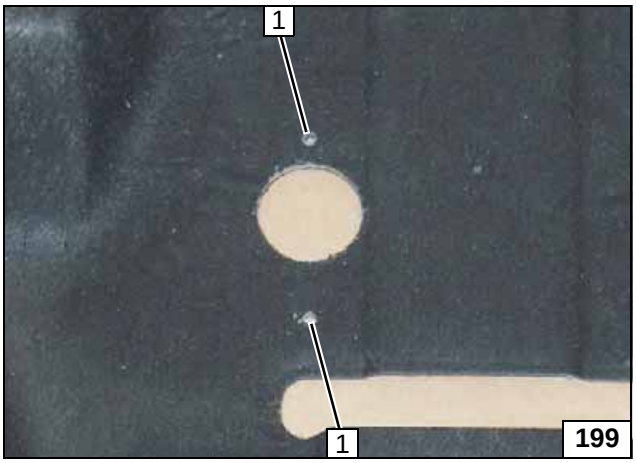
1 Underride protection
2 Hole (as per work step 1 of the installation instructions)

Hole in underride protection



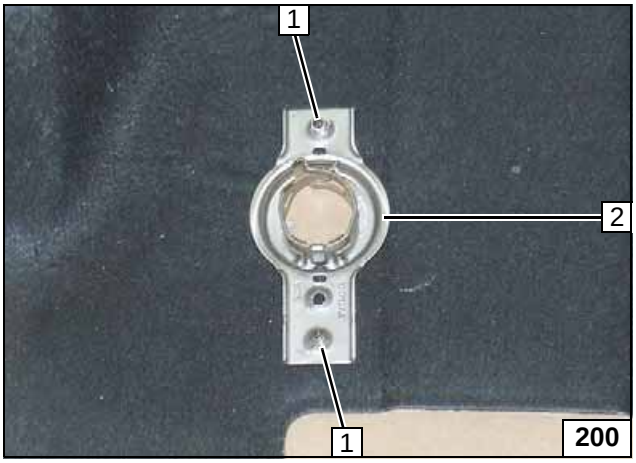
Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2** [2x].

Copying hole pattern



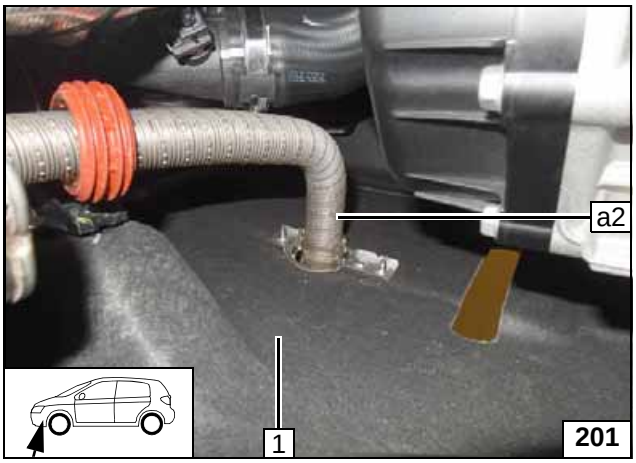
Hole **1** [2x] as per work step 4 of the installation instructions.

Holes in underride protection



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

Installing exhaust end fastener



Install underride protection **1**. Install exhaust pipe **a2** as per work steps 6 - 8 of the installation instructions.

Installing exhaust pipe a2

Final Work

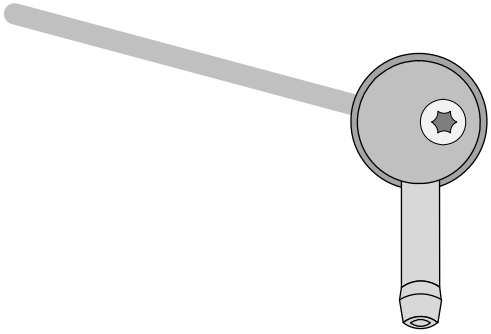
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on the 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.**

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

FuelFix Template

Top view



100mm

Scale 1:1

Compare size of 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

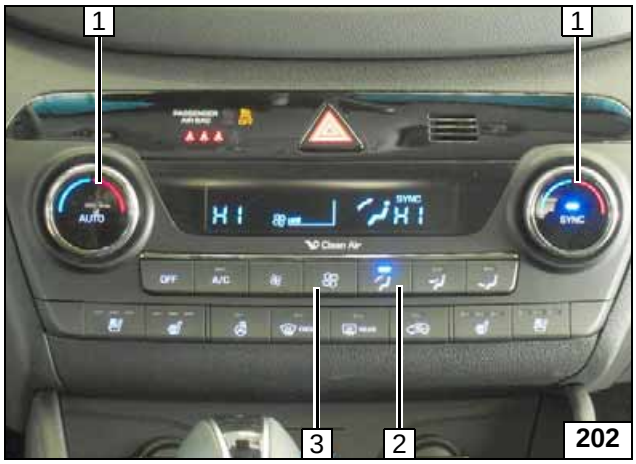
Operating Instructions for Automatic Air-Conditioning

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.

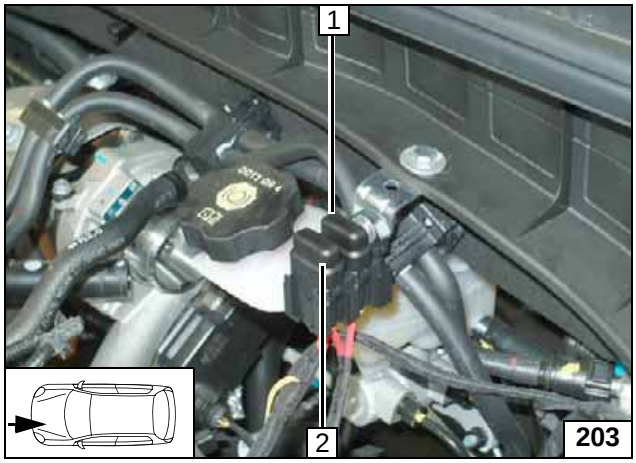
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



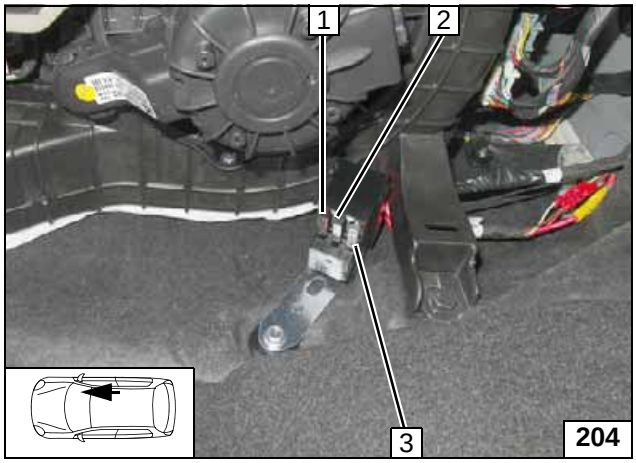
1 Set temperature on both sides to ‘HI’
2 Air outlet to windscreen
3 Set fan to level ‘2’ to ‘3’

A/C control panel



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

Engine compartment fuses



1 7.5A fuse F5 of A/C control panel
2 1A heater control fuse F3
3 25A fan fuse F4

Passenger compartment fuses