Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation
Mitsubishi ASX

Validity

Manufacturer	Model	Type	EG BE No. / ABE
Mitsubishi	ASX	GA0	e1 * 2007 / 46 * 0368*...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6 B ClearTec	Petrol	SG	86	1590	4A92
1.6 D ClearTec	Diesel	SG	84	1560	9HD
1.8 D ClearTec	Diesel	SG	110	1798	4N13
2.2 DiD	Diesel	AG	110	2268	4N14

SG = manual transmission
AG = automatic transmission

From model year 2010
Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning
Front fog lights
Headlight washer system
Xenon
2 WD / 4 WD
Euro 5
Euro 6 (1.6 D 84 kW)

Not verified: Passenger compartment monitoring

Total installation time: about 8.4 hours

Mitsubishi ASX

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit with FuelFix for Mitsubishi ASX 2010 Petrol and diesel: **1316517D**
- Heater control in accordance with price list and upon consultation with end customer
- For installation of MultiControl CAR: Installation frame MultiControl: **9030077**_
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

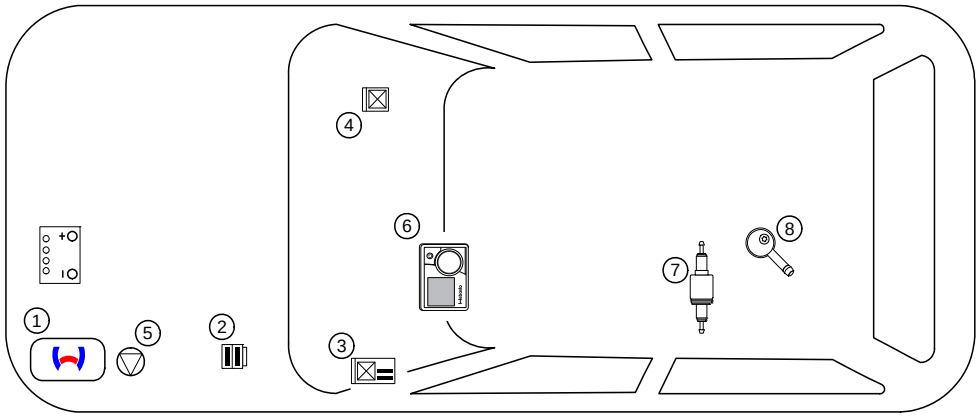
Installation instructions:

- 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. Passenger compartment relay and fuse holder
4. PWM Gateway
5. Circulating pump
6. MultiControl CAR
7. Metering pump
8. 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.

Mitsubishi ASX

Information on Validity

This installation documentation applies to Mitsubishi ASX Petrol and diesel vehicles - for validity, see page 1 - from model year 2010 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

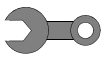
Dimensions
- All dimensions are in mm.

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.

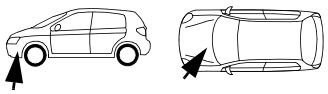
Specific risk of injury or fatal accidents.

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 tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the engine cover (not for 1.6 D 84 kW)
- Disconnect and remove the battery.
- Remove the air filter together with intake hose (not for 1.6 D 84 kW).
- Remove the intake hose of the intercooler on the left (only with automatic transmission).
- Remove the bottom engine trim.
- Remove the left-hand stoneguard in front of the fuel tank (if present).
- Detach the wheel well trim on the right and remove on the left.
- Remove the bumper.
- Drain the coolant into a suitable container.
- Remove the front underride protection.
- Remove the rear seat cushion.
- Fold back the floor covering.
- Open the tank-fitting service lid.
- Remove the footwell trim on the driver's and front passenger's sides.
- Remove the lateral instrument panel trim on the driver's side.
- Remove the A-pillar trim on the driver's side (only with Telestart option).
- Remove the lower instrument panel trim in the footwell on the front passenger's side.
- Remove the knee airbag on driver's side.

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.

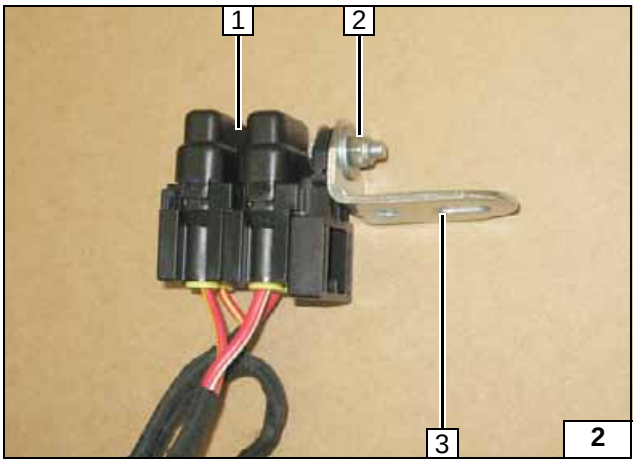
Heater Installation Location

1 Heater

Installation location

Preparing Electrical System

Premounting engine compartment fuse holder



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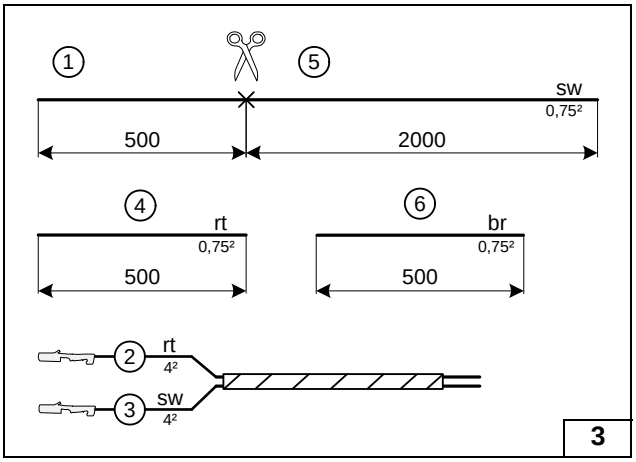
1 Fuses F1-2
2 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut
3 Angle bracket

Cutting to length / assigning wires



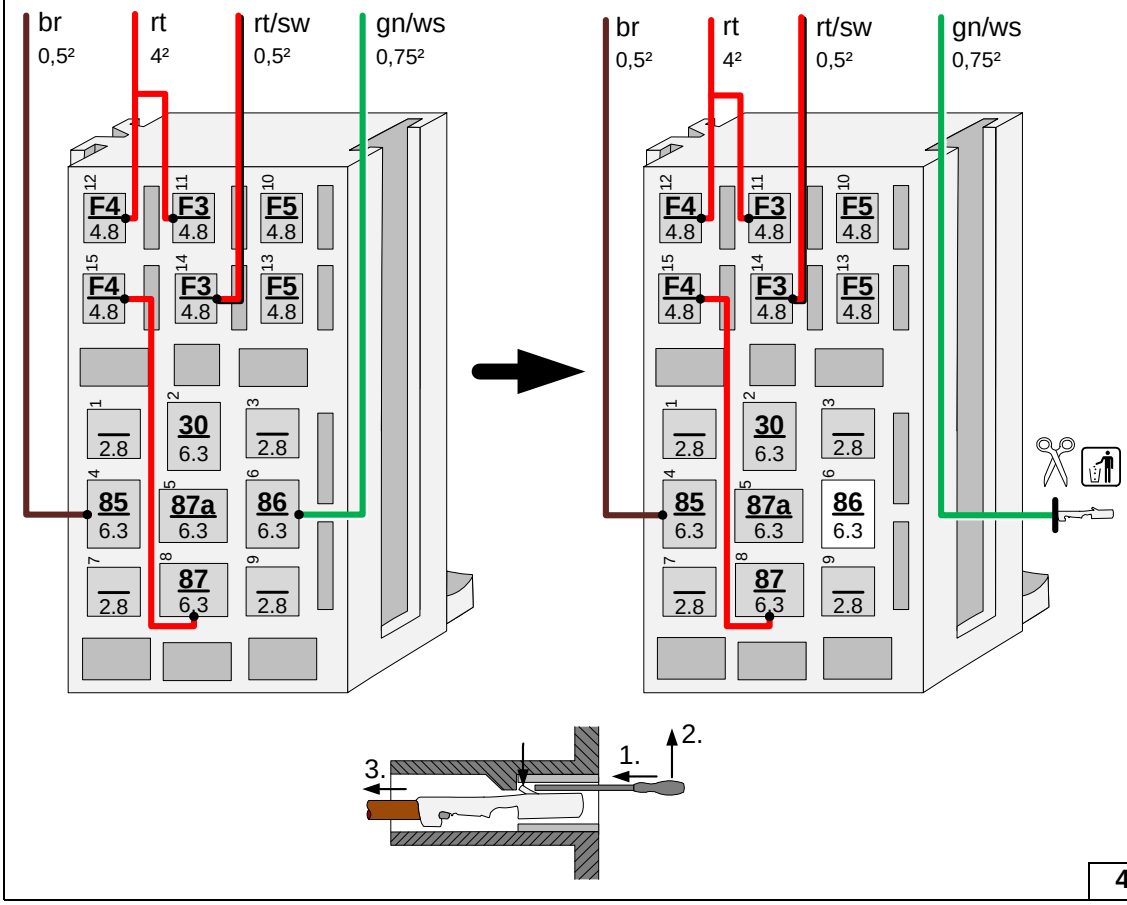
3

Wire sections retain their numbering in the entire document.

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

② Red (rt) wire of fan wiring harness
③ Black (sw) wire of fan wiring harness

Preparing passenger compartment relay and fuse holder



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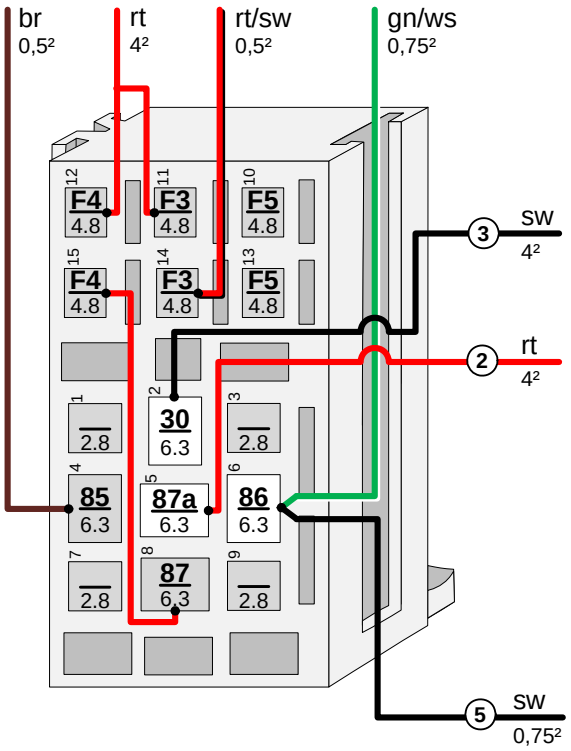

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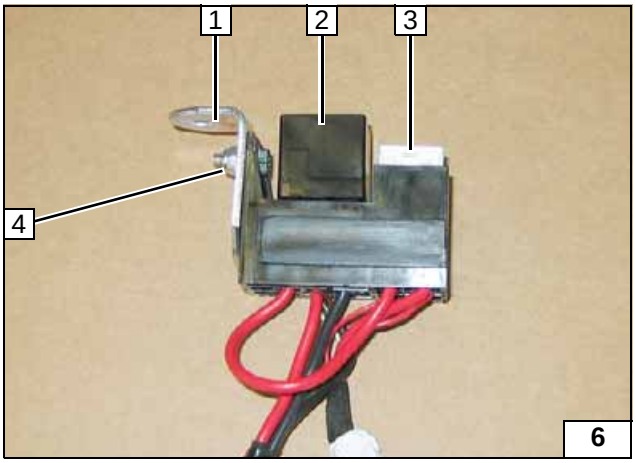
Connecting wires to passenger compartment relay and fuse holder



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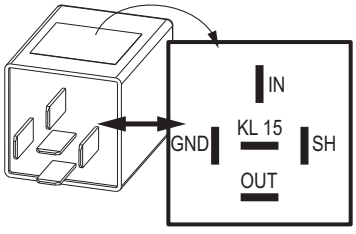
1 Angle bracket
2 Relay K1
3 25A fuse F4
4 M5x12 bolt, large diameter washer [2x], nut

Premounting passenger compartment relay and fuse holder



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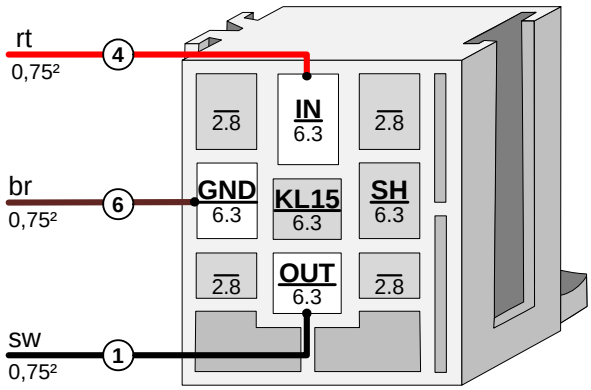
Check the PWM Gateway settings when starting up the heater and adjust if necessary.

Settings:

Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 4.2V
Function: High side

View of PWM GW



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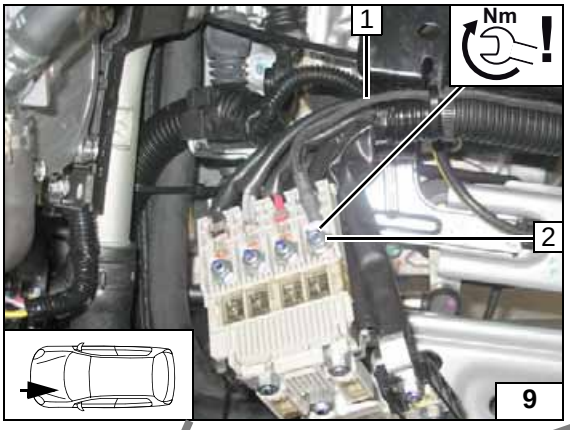
Installing wires in socket of PWM GW

Electrical System

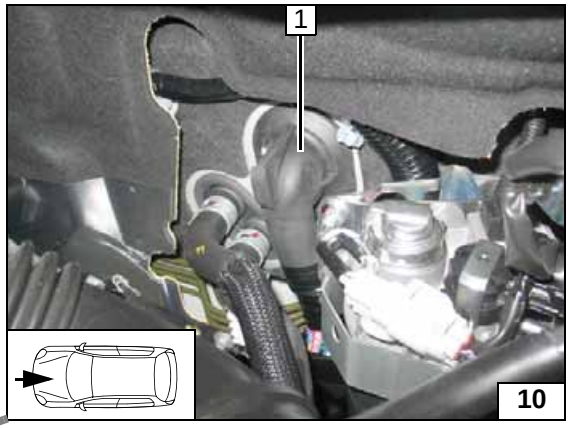
Positive wire

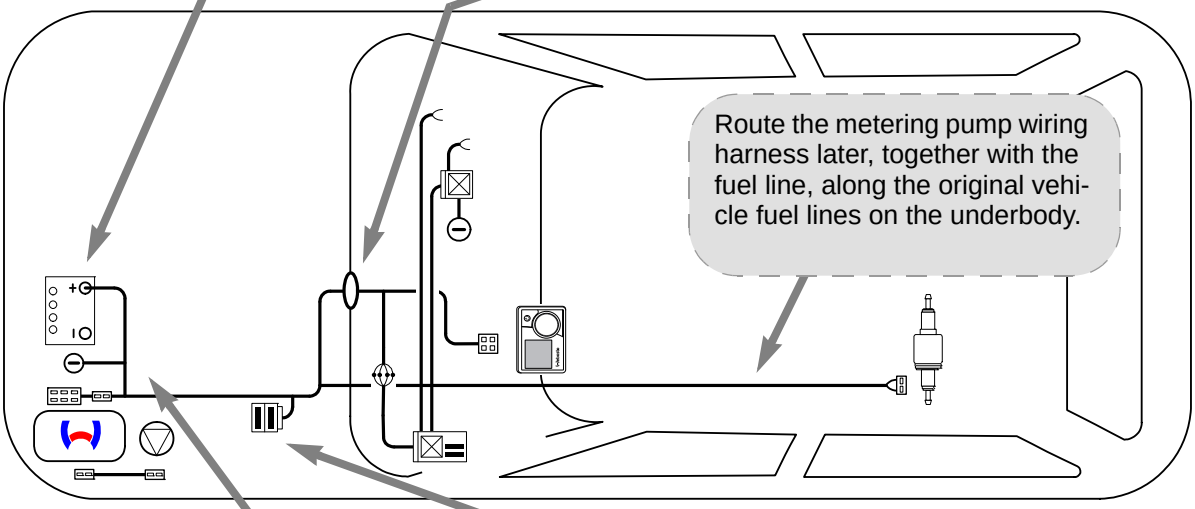
1 Red (rt) positive wire, 6mm dia. cable lug
2 Positive distributor of battery



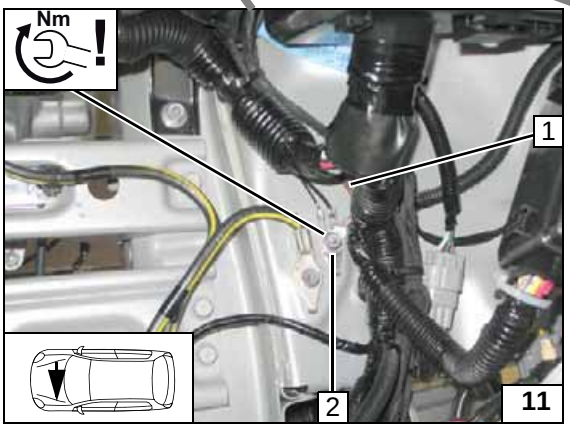
Wiring harness pass through

Route wiring harness of fuse holder in engine compartment and heater control through original vehicle protective rubber plug **1** in the passenger compartment.



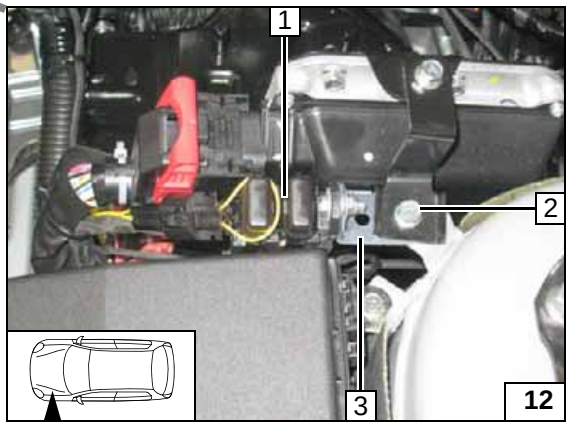


Wiring harness routing diagram



Earth wire

1 Brown (br) earth wire, 6mm dia. cable lug
2 Original vehicle earth point



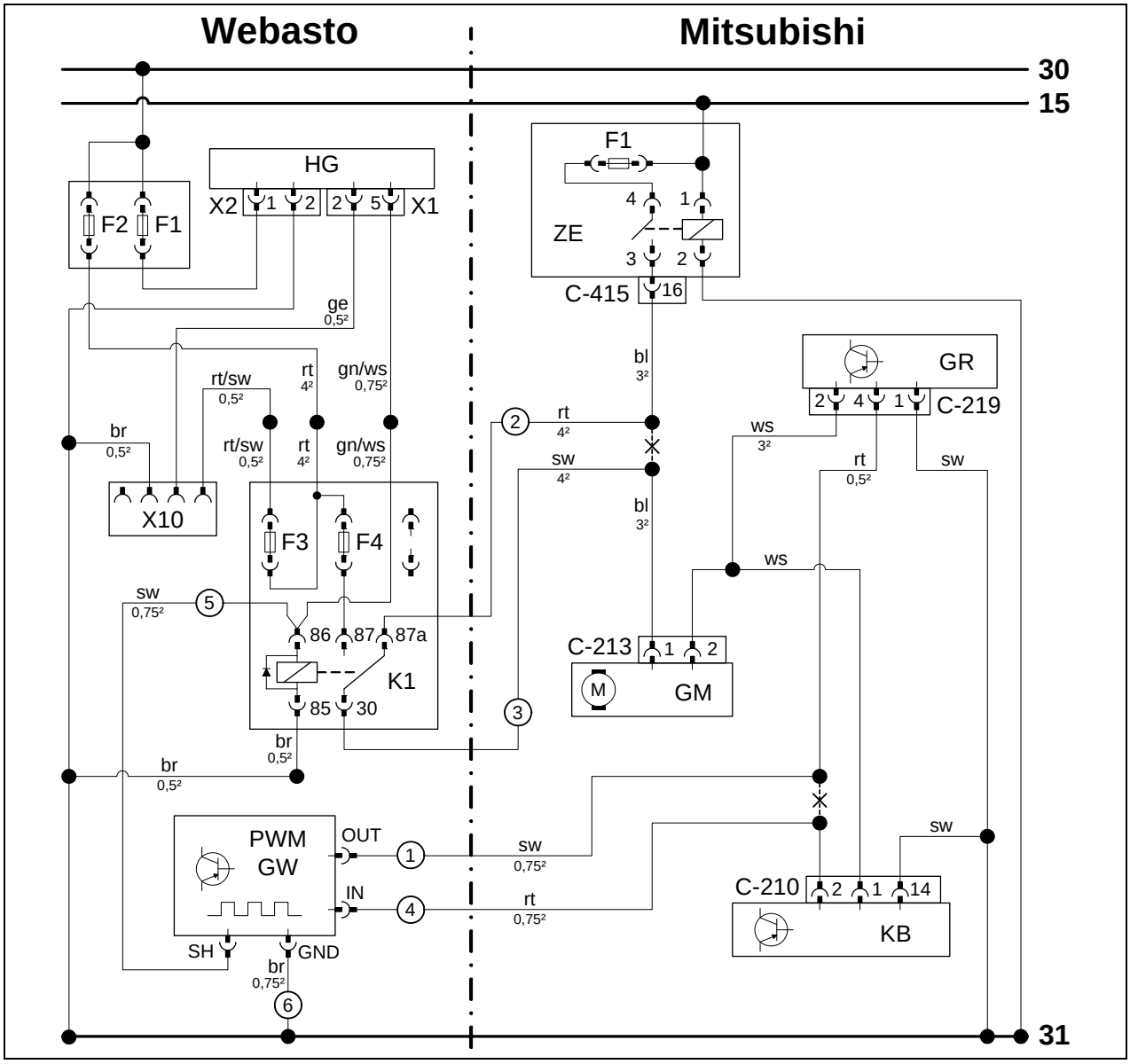
Engine compartment fuse holder

Figure shows 1.8 Diesel

1 Fuses F1-2
2 Original vehicle bolt
3 Angle bracket

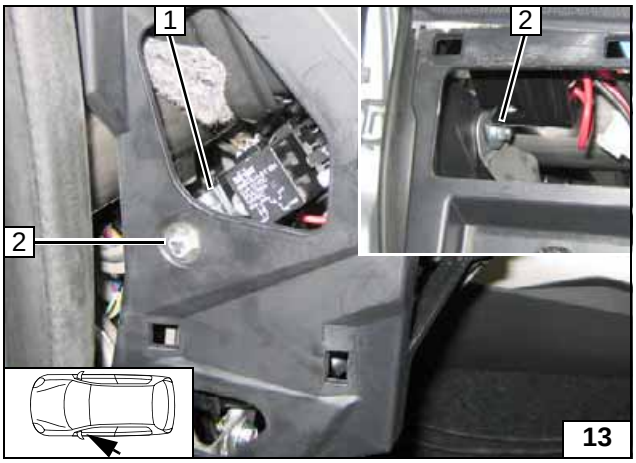
Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Central electrical box	rt	red
X1	6-pin heater connector	F1	Fuse	ws	white
X2	2-pin heater connector	C-415	19-pin connector of ZE	sw	black
F1	20A fuse	GR	Fan controller	br	brown
F2	30A fuse	C-219	4-pin connector of GR	gn	green
X10	4-pin connector of heater control	GM	Fan motor	ge	yellow
		C-213	2-pin connector of GM	bl	blue
F3	1A fuse	KB	A/C control panel		
F4	25A fuse	C-210	20-pin connector of KB		
K1	Fan relay				
PWM GW	Pulse width modulator				
PWM GW settings:					
Duty cycle:	100% (DC)				
Frequency:	not relevant				
Voltage:	4.2V			**X**	Cutting point
Function:	High side			Wiring colours may vary.	

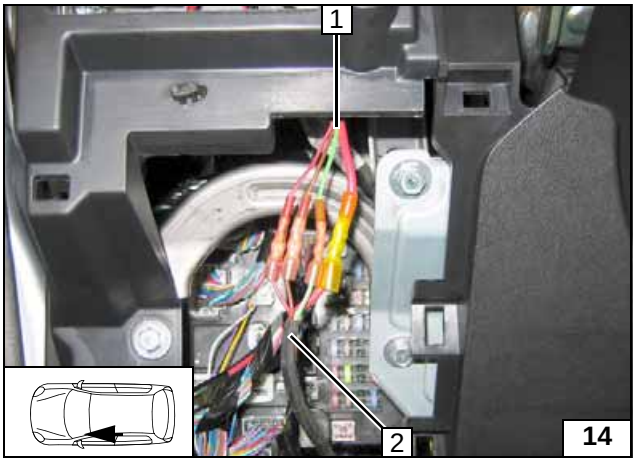
Legend



Replace original vehicle bolt at position **2** with M6x20 bolt, large diameter washer and flanged nut. Original vehicle bolt will be reused for Telestart.

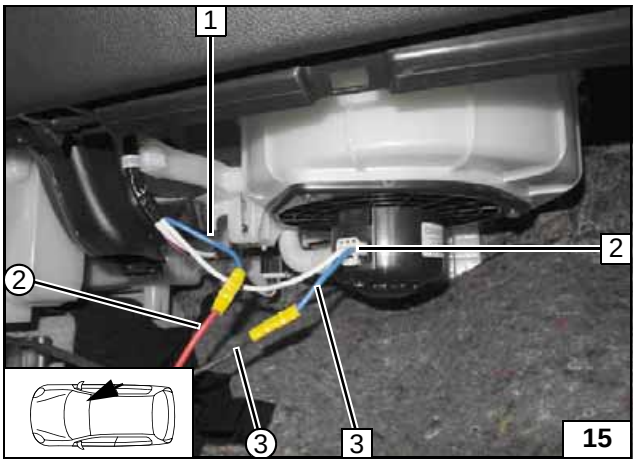
1 Angle bracket

Installing passenger compartment relay and fuse holder



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

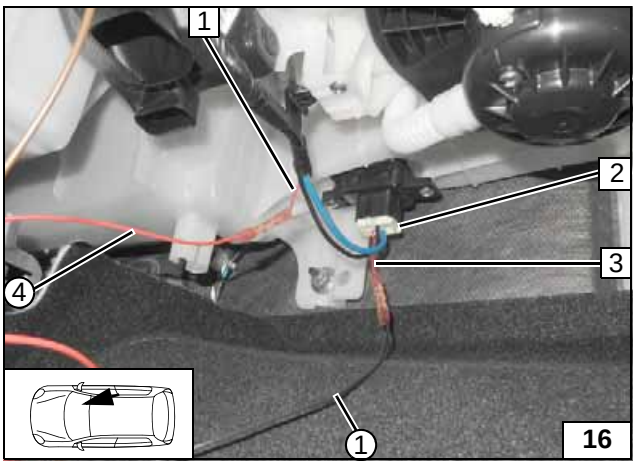
Connecting wiring harnesses



Connection to 2-pin connector C-213 **2** from fan motor.

1 Blue (bl) wire from central electrical box of fan relay
3 Blue (bl) wire of connector C-213 / Pin 1
② Red (rt) wire of K1/87a, fan wiring harness
③ Black (sw) wire of K1/30, fan wiring harness

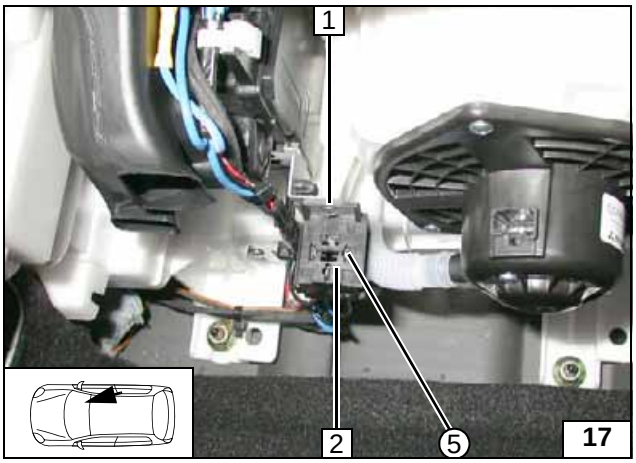
Connecting fan motor



Connection to 4-pin connector **2** from the fan controller.

1 Red (rt) wire of A/C control panel
3 Red (rt) wire of fan controller
① Black (sw) wire of PWM GW / OUT
④ Red (rt) wire of PWM GW / IN

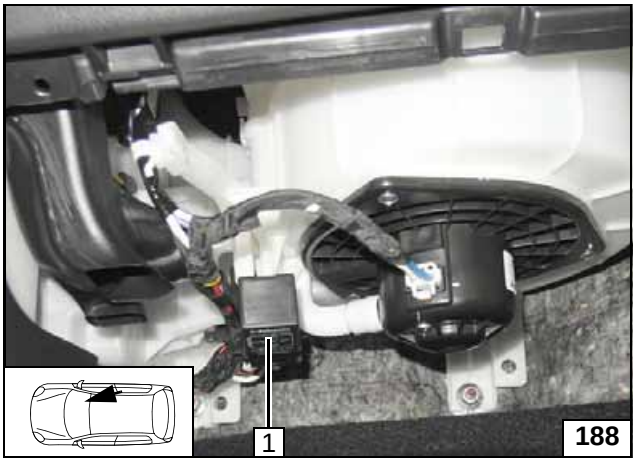
Connecting fan controller



Connect black (sw) wire ⑤ K1/86 to PWM GW/SH socket.

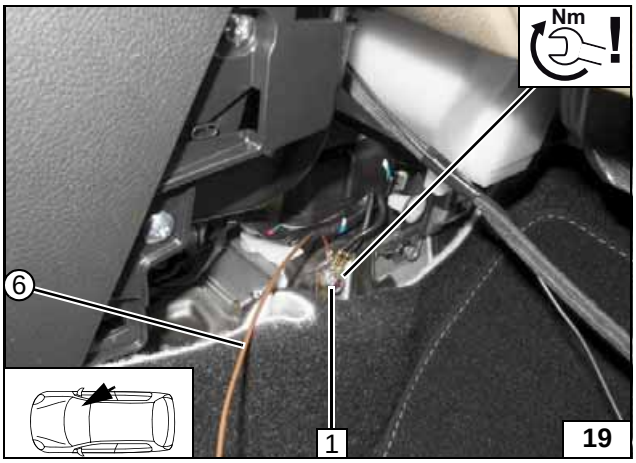
1 Original vehicle bolt
2 PWM GW socket
⑤ Black (sw) wire of K1/86 attached

Installing PWM GW socket



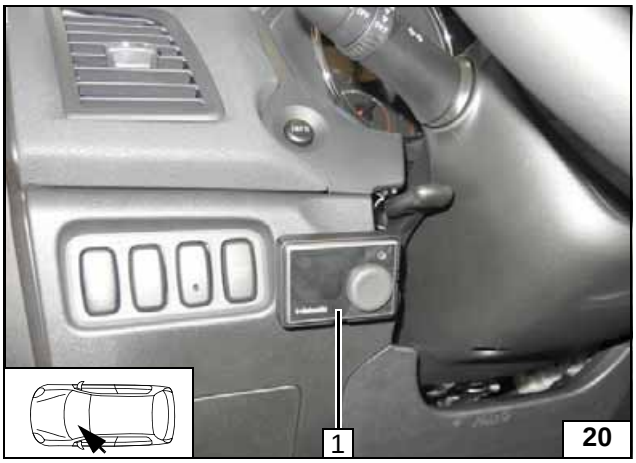
1 PWM GW

Mounting PWM GW



1 Original vehicle earth point
⑥ Brown (br) wire of PWM GW / GND

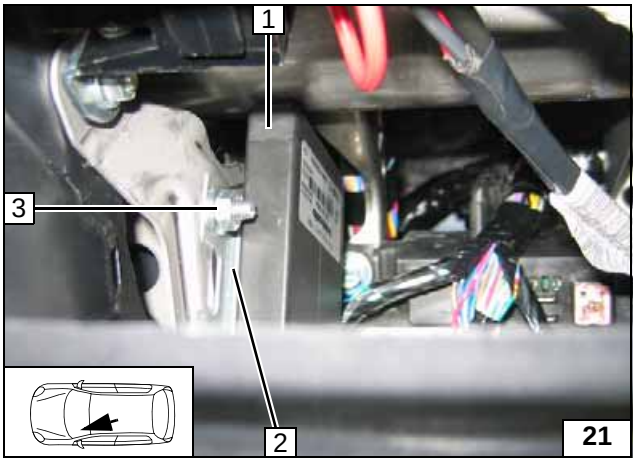
Connecting earth wire



MultiControl CAR Option

1 MultiControl CAR with installation frame

Installing MultiControl CAR

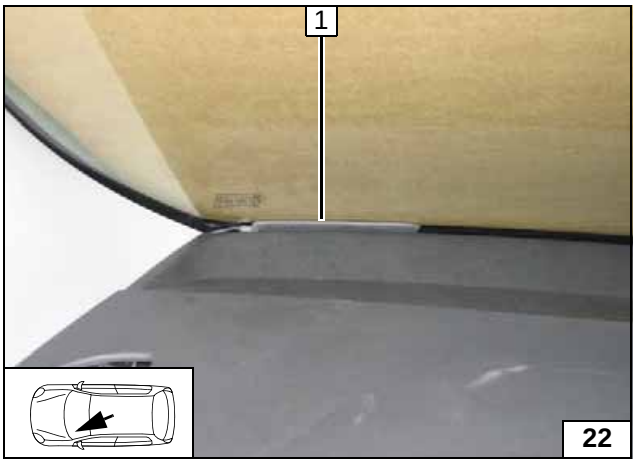


Remote Option (Telestart)

Drill hole of Telestart bracket **2** at position **3** to 7mm dia.
(Optional: existing hole, M6x20 bolt)

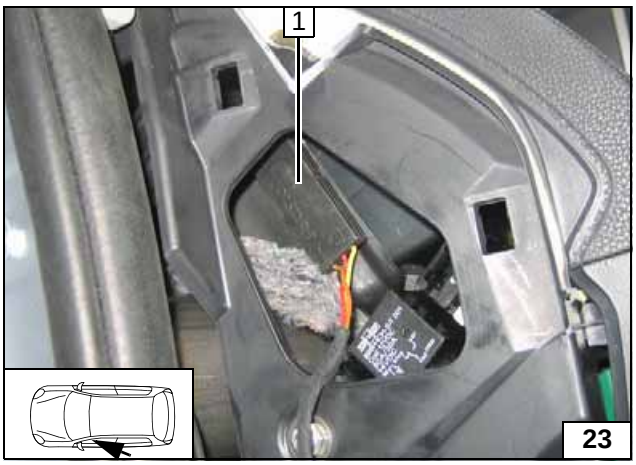
1 Receiver
2 Bracket
3 Original vehicle bolt, flanged nut

Installing receiver



1 Aerial

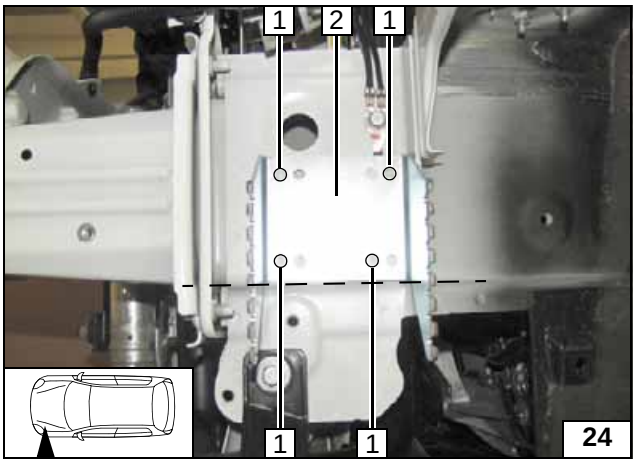
Installing aerial



Temperature sensor T100 HTM

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

Installing tempera-ture sensor

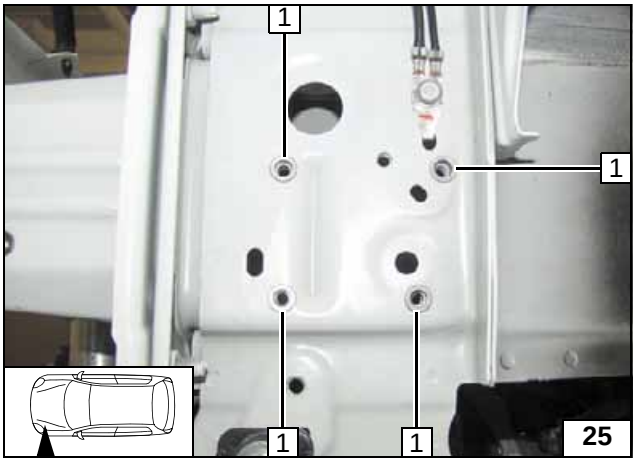


Preparing Installation Location

Align bracket **2** with the lower edge (see markings) and flush to the right.

1 Copy hole pattern [4x]

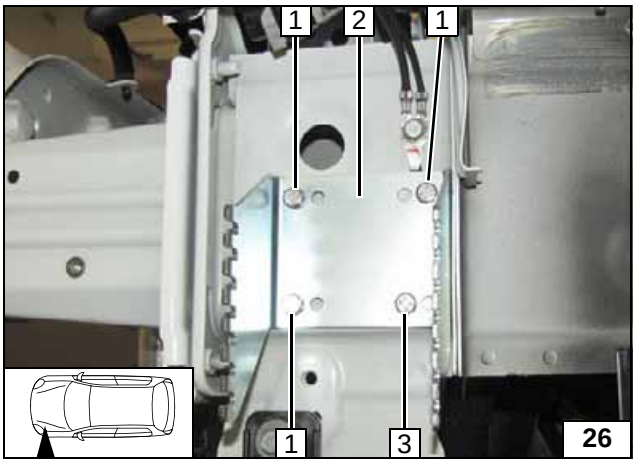
Copying hole pattern



Remove bracket.

1 9.1 mm dia. hole, rivet nut [4x each]

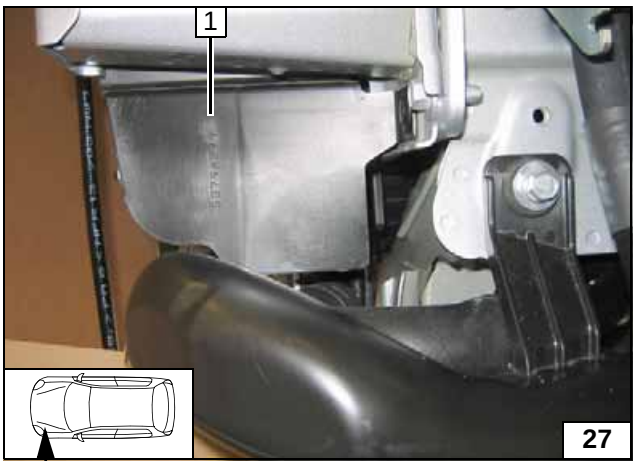
Installing rivet nut



Insert large diameter washer between bracket **2** and body at position **3**.

1 M6x20 bolt, spring lockwasher [3x each]
3 M6x20 bolt, spring lockwasher, large diameter washer

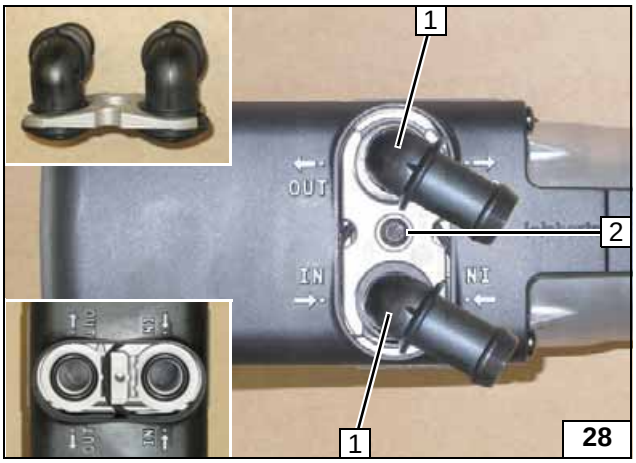
Installing bracket



1.6 P / 1.8 D / 2.2 D

1 Remove air ducting and discard

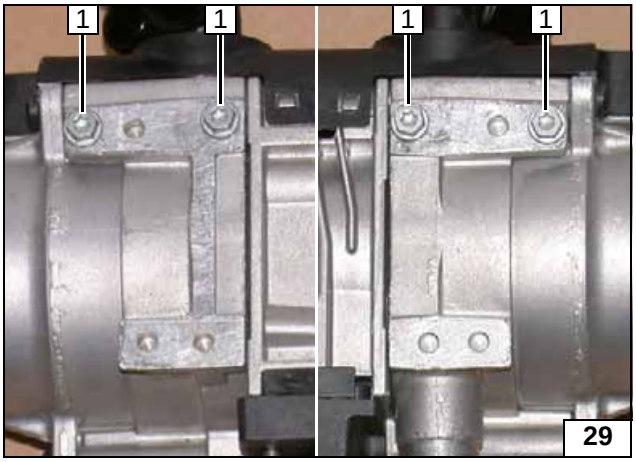
Removing air ducting



Preparing Heater

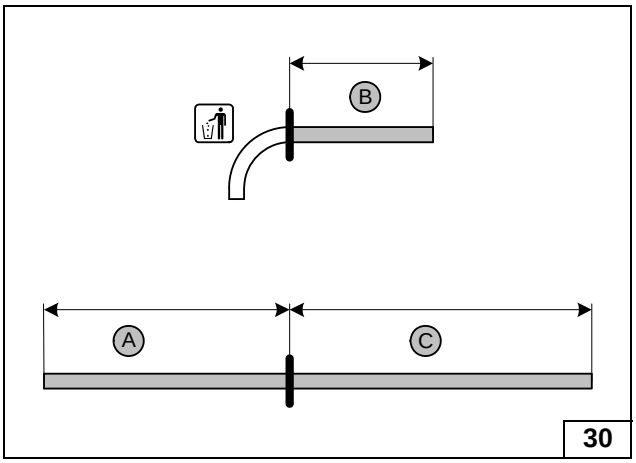
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



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

Premounting bolts loosely

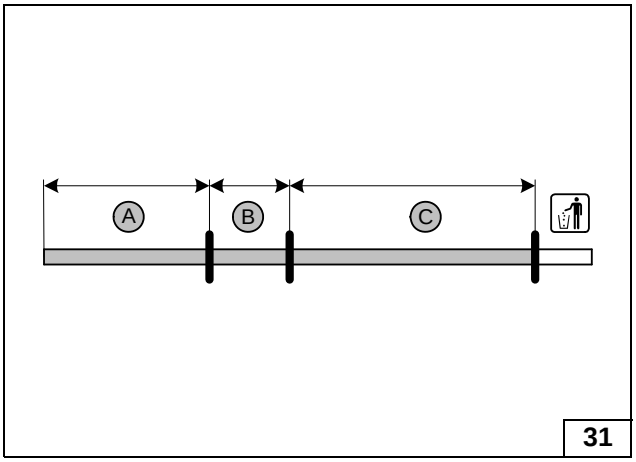


Petrol

Hose **B** = 90° moulded hose 18mm dia.

A = 800
B = 320
C = 1400

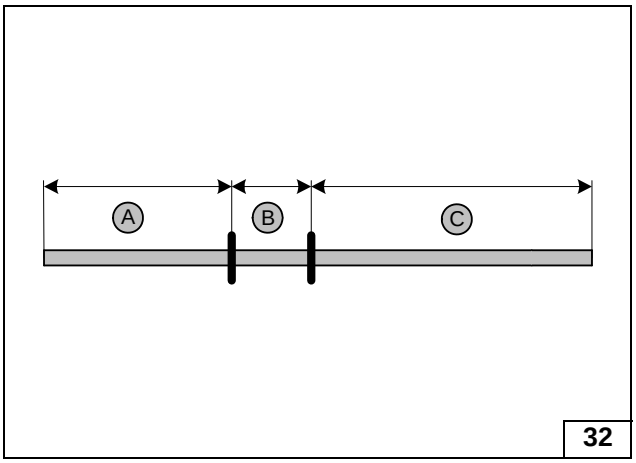
Cutting hoses to length



Diesel SG

	1.6	1.8
A	410	680
B	350	320
C	910	1140

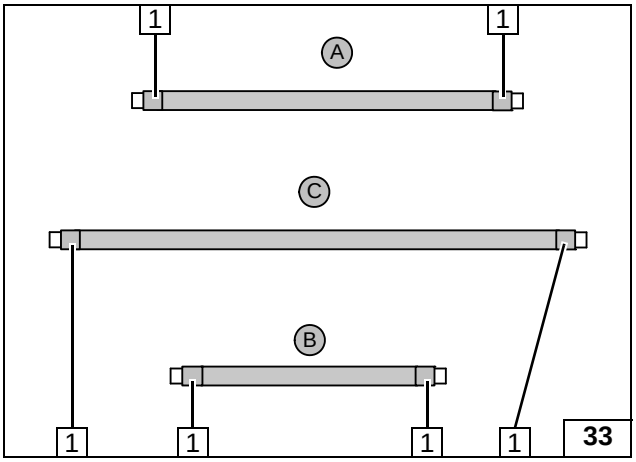
Cutting hoses to length



Diesel AG

A = 640
B = 390
C = 1170

Cutting hoses to length

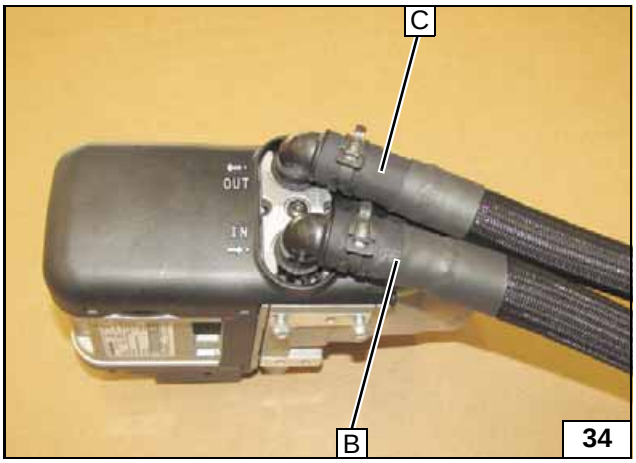


All vehicles

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

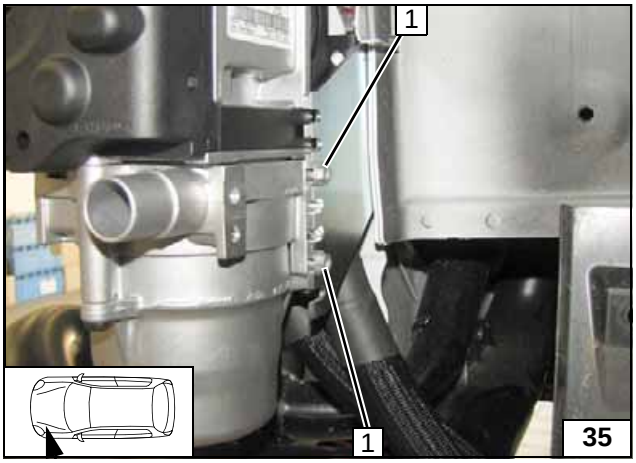
1 40 mm long heat shrink plastic tubing [6x]

Preparing hoses



All spring clips = 25 mm dia.

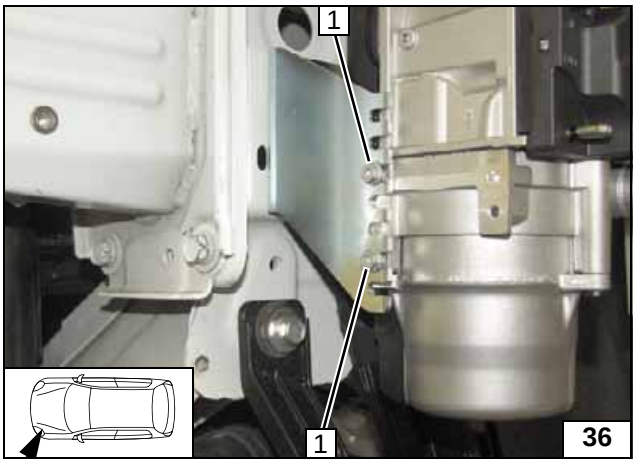
Premounting hoses



Installing Heater

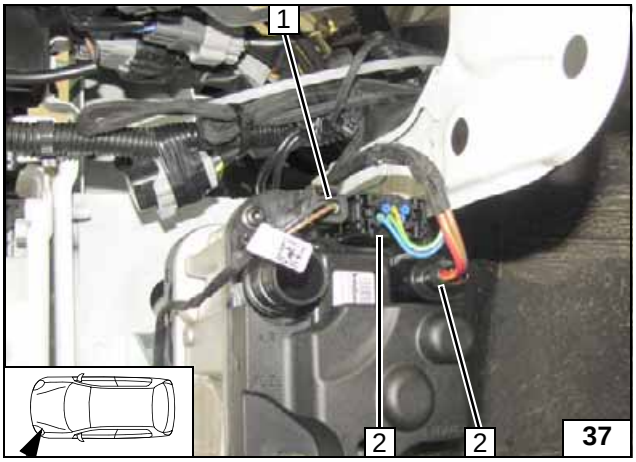
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



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

Installing heater



1 Connector of circulating pump wiring harness
2 Heater wiring harness connector [2x]

Installing wiring harnesses

Fuel

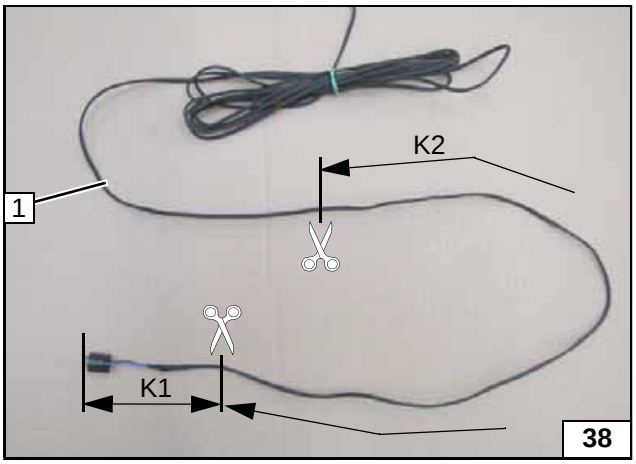
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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.

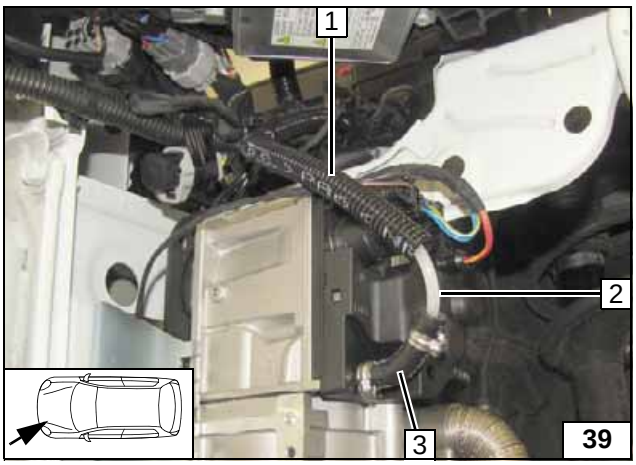
Preparing connecting wire metering pump



1 Connecting wire of metering pump from wiring harness of heater

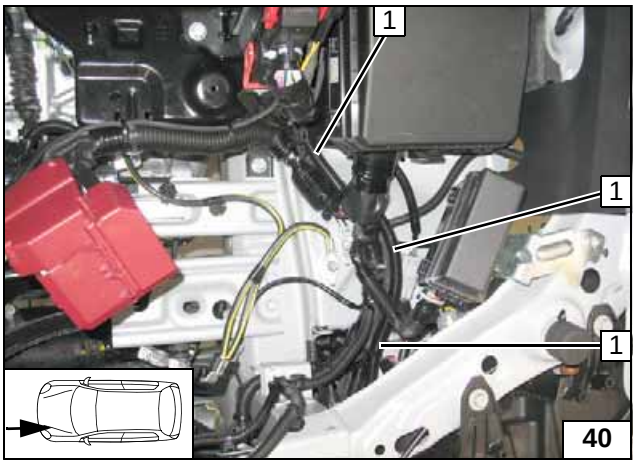
K1 = 150
K2 = 1000

Connecting heater

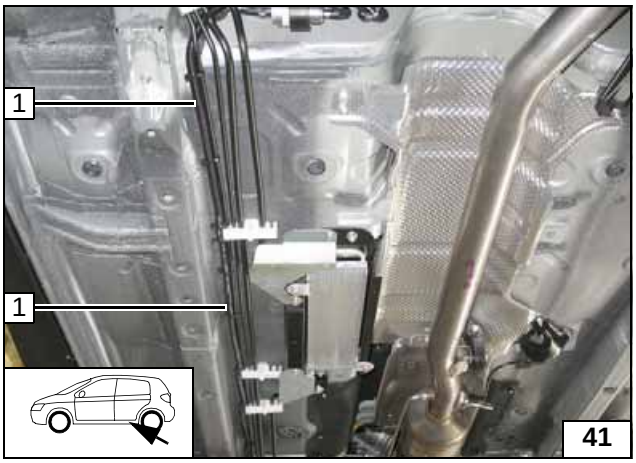


1 Fuel line, wiring harness of metering pump in corrugated tube
2 Fuel line
3 Hose section, 10mm dia. clamps [2x]

Routing lines

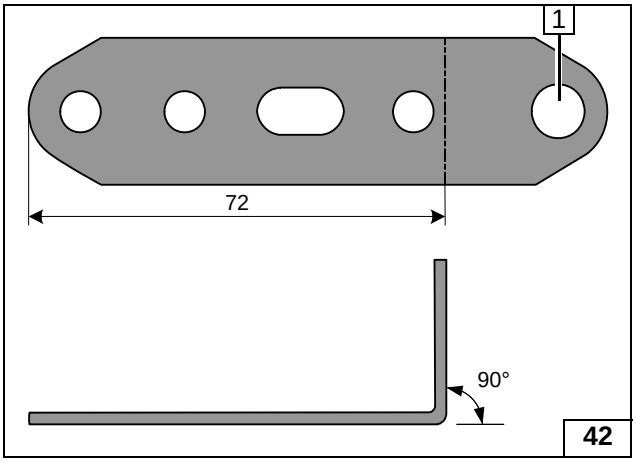


Route fuel line and wiring harness of metering pump in corrugated tube **1** of the firewall and further along the original vehicle fuel lines to the underbody.



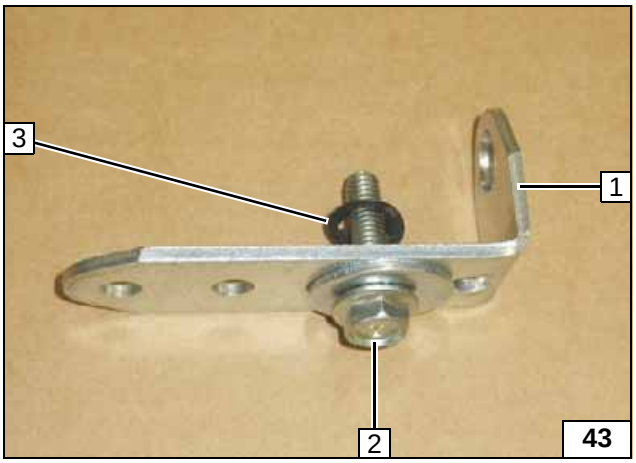
Route fuel line and wiring harness of metering pump in corrugated tube **1** along original vehicle fuel lines to installation location of metering pump.

Routing lines



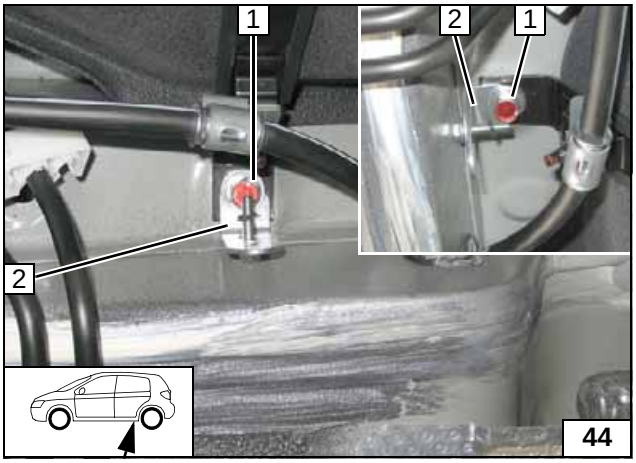
1 10.5 mm dia. hole

Preparing perforated bracket



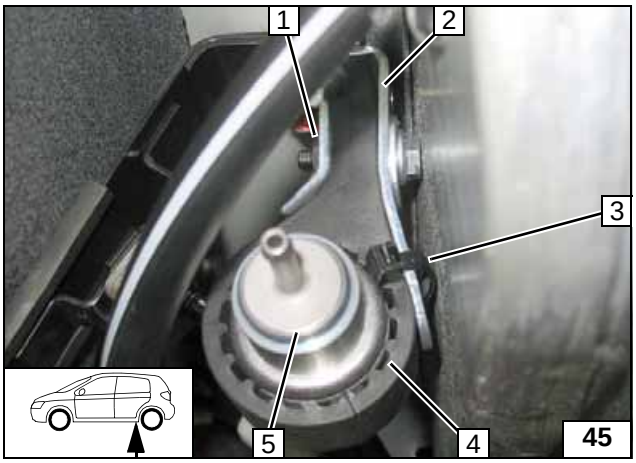
1 Perforated bracket
2 M6x25 bolt, large diameter washer
3 Pin lock (slide on only by 3 threads)

Preparing perforated bracket



1 Original vehicle bolt of fuel-tank fastening
2 Perforated bracket

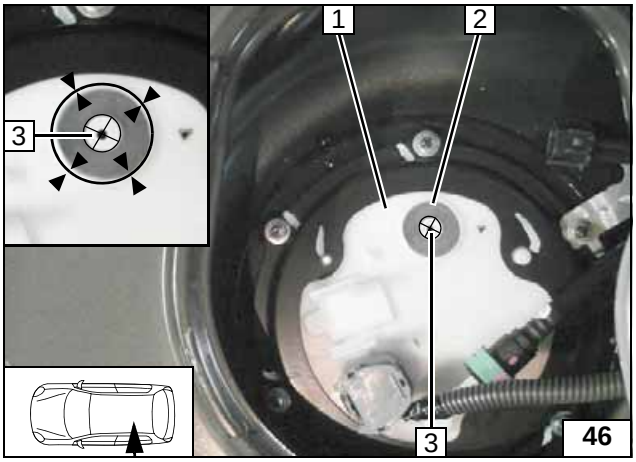
Installing perforated bracket



Align perforated bracket **2** after installation as shown.

1 Support angle bracket, flanged nut
3 Cable tie
4 Metering pump mount
5 Metering pump

Installing metering pump



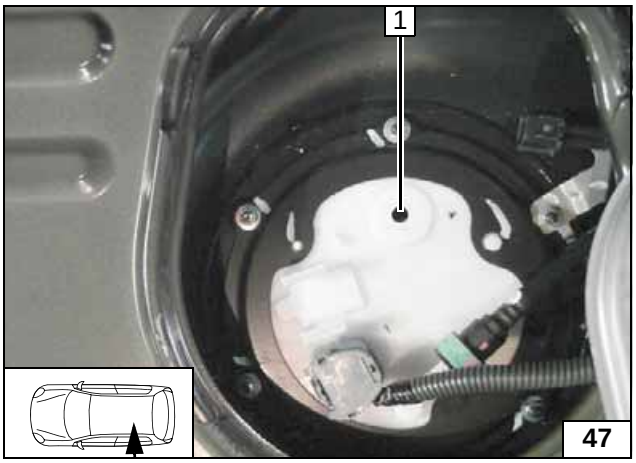
Installing FuelFix

Petrol

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position washer with outer dia. d_a = 24mm as template in the middle of the raised part
3 Hole pattern

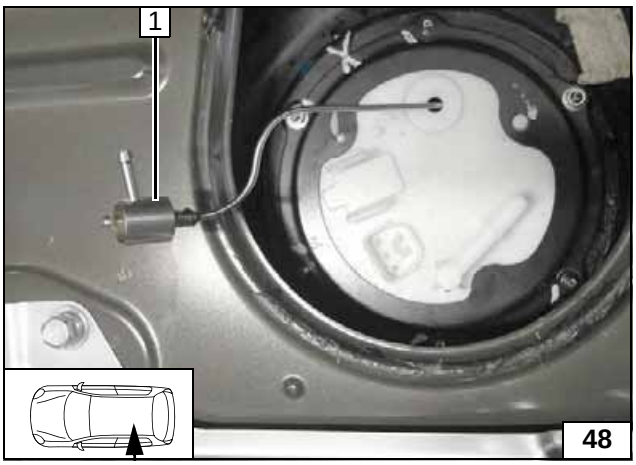
Copying hole pattern



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**.

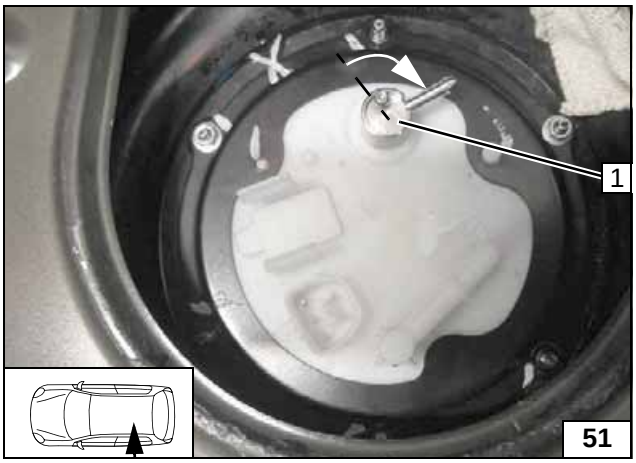
Inserting FuelFix

Inserting FuelFix

Inserting FuelFix

Work steps F5.3 and F5.4.

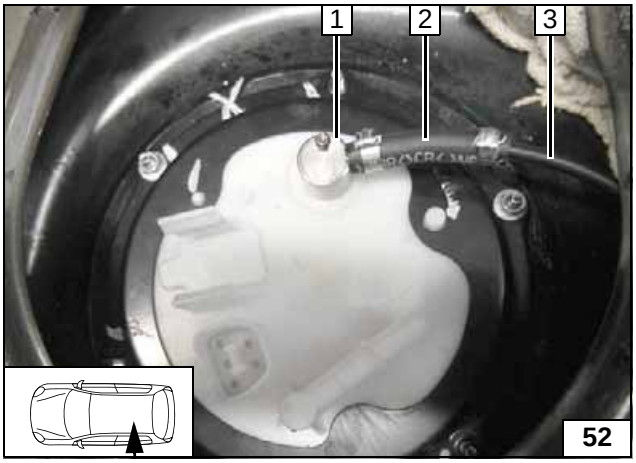
Align FuelFix **1** as shown.



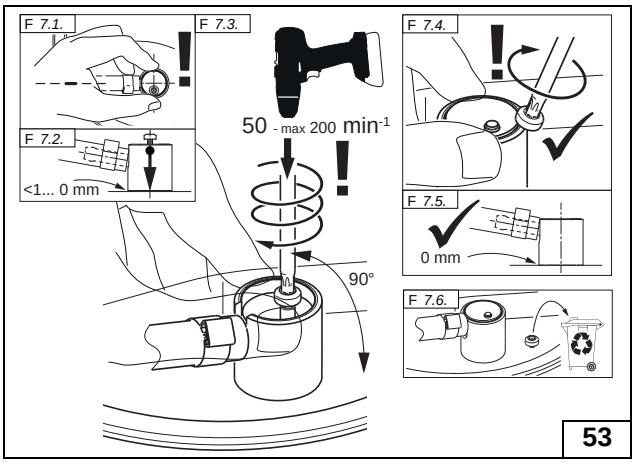
Aligning FuelFix

Work step F6.

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

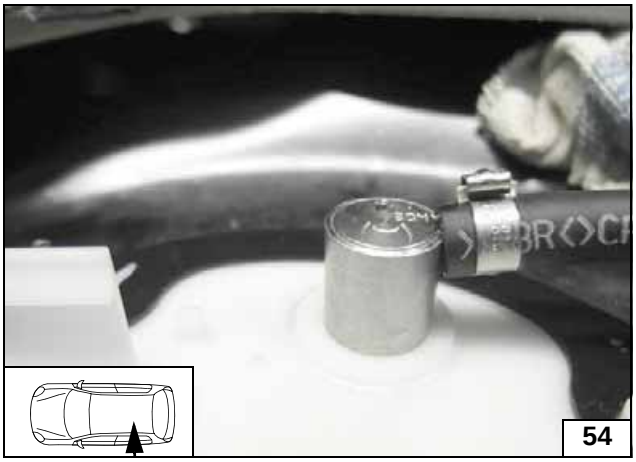


Connecting metering pump



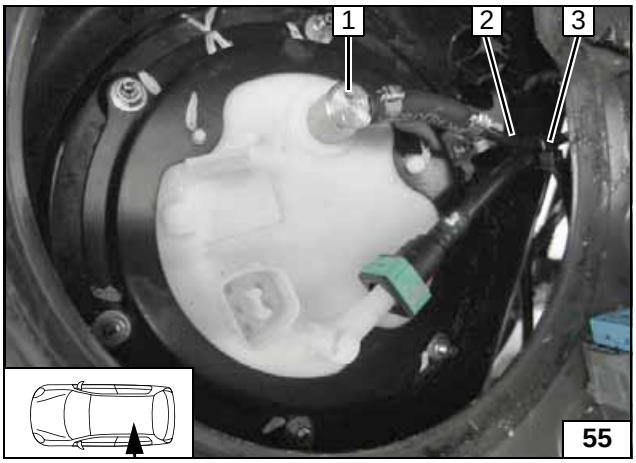
Work step F7.

Installing FuelFix



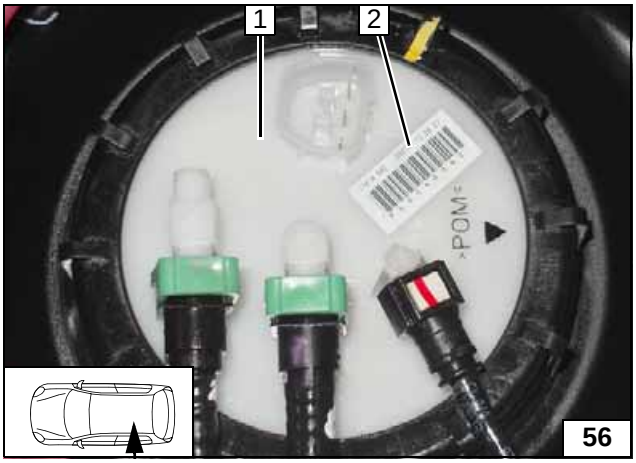
Work step F8.

Ensuring firm seating of FuelFix



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

Securing fuel line



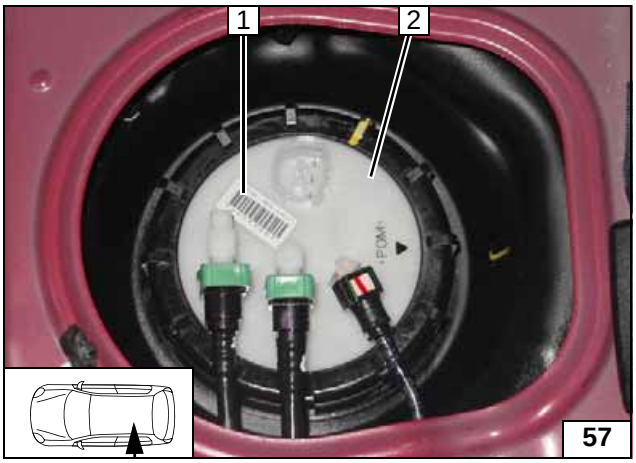
Diesel 1.6

Work step F1.

Remove barcode label **2**; will be used again (see next figure)!

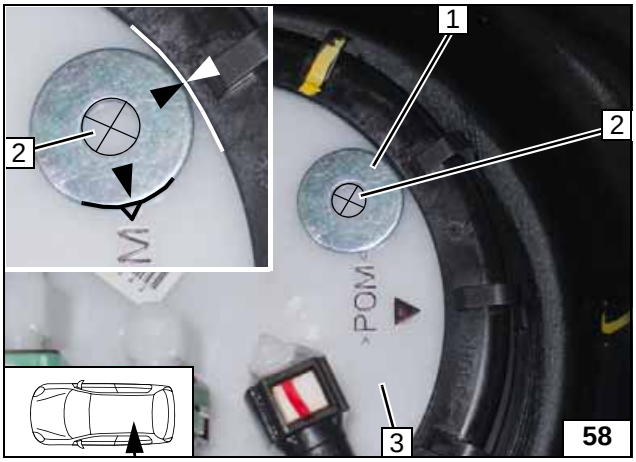
1 Fuel tank sending unit

Reposition-ing barcode label



1 Repositioned barcode label
2 Fuel tank sending unit

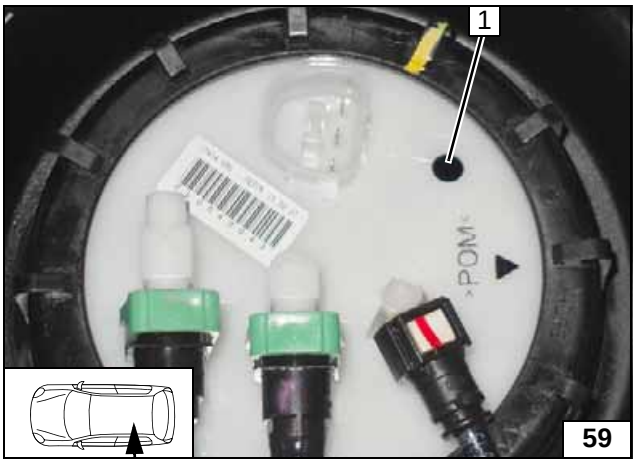
Repositioning barcode label



Work step F2.

1 Position washer with outer dia. d_a = 24mm as template after the letters as shown
2 Copy hole pattern
3 Fuel tank sending unit

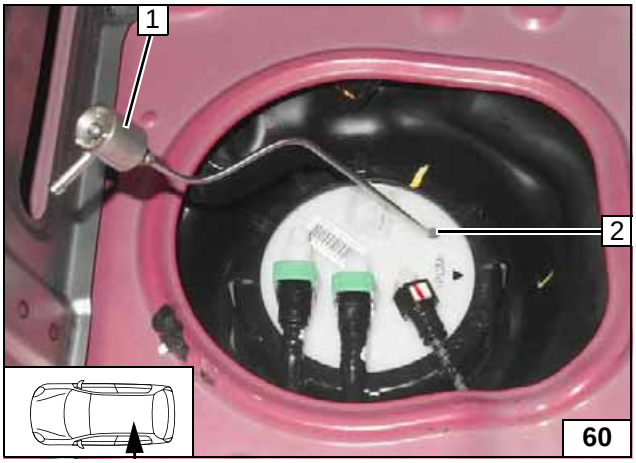
Copying hole pattern



Work step F3.

1 Hole made with provided drill

Hole for FuelFix



Work steps F4 and F5.

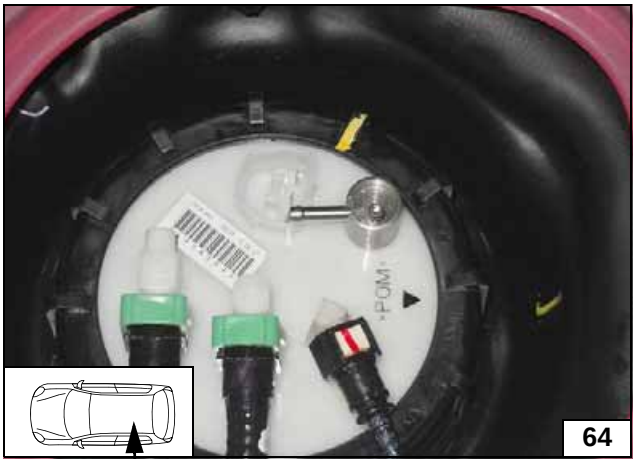
Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

Inserting FuelFix

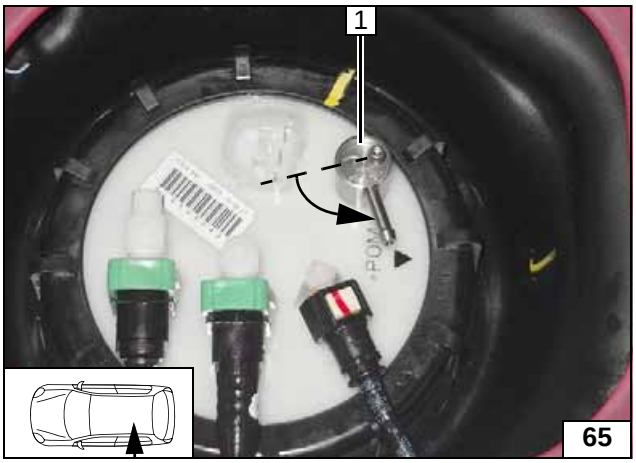
Inserting FuelFix

Inserting FuelFix

Inserting FuelFix



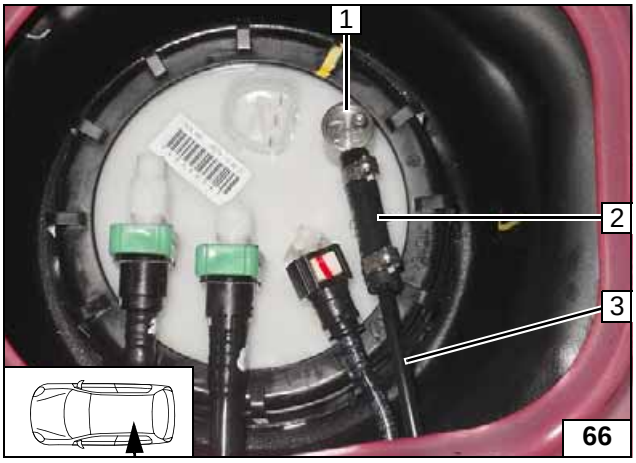
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

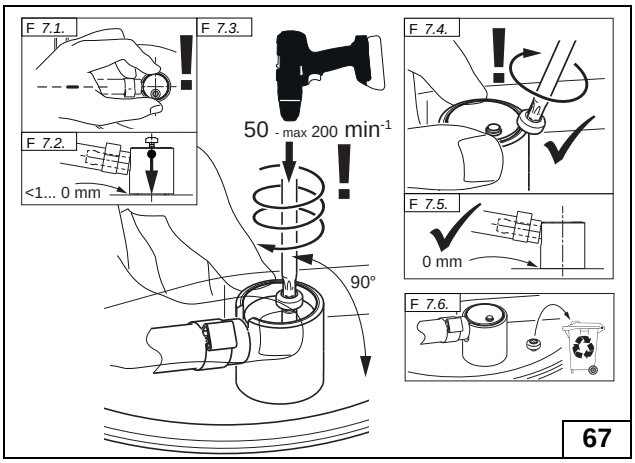
Aligning FuelFix



Work step F6.

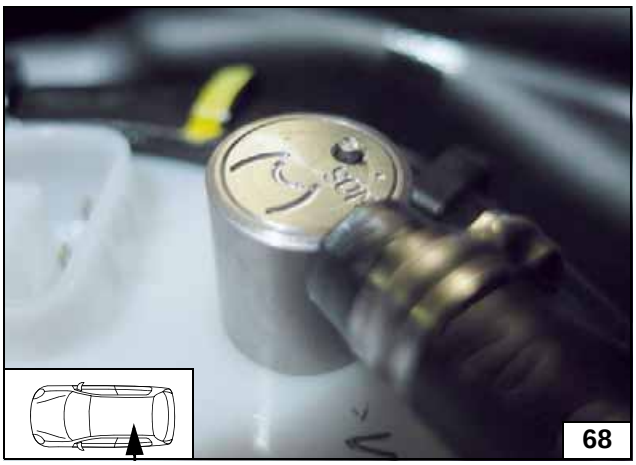
1 FuelFix
2 Hose section, 10mm dia. clamps [2x]
3 Fuel line

Connecting fuel line



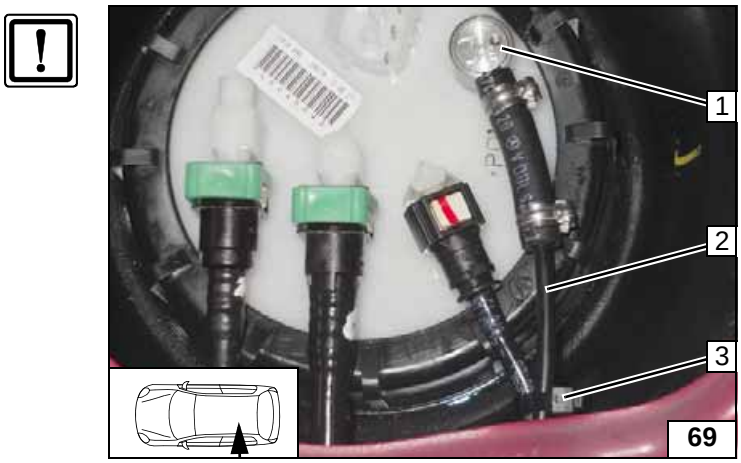
Work step F7.

Installing FuelFix



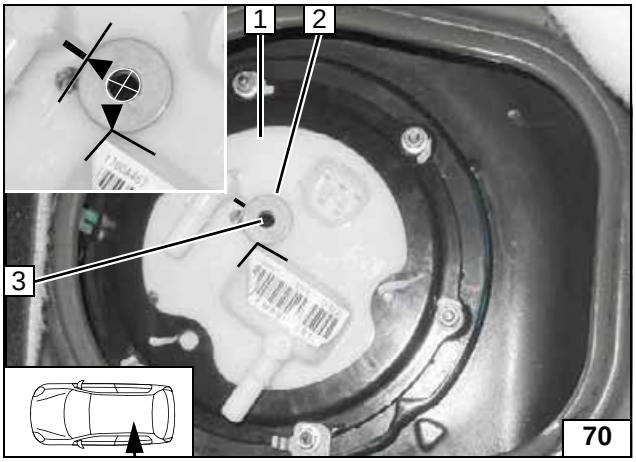
Work step F8.

Ensuring firm seating of FuelFix



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

Securing fuel line

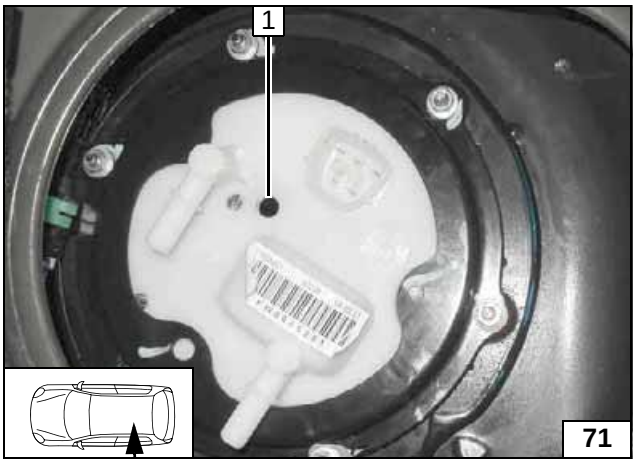


Diesel 1.8 / 2.2

Work steps F1 and F2.

1 Fuel tank sending unit
2 Position washer with outer dia. d_a = 22mm as template at the connection piece
3 Copy hole pattern

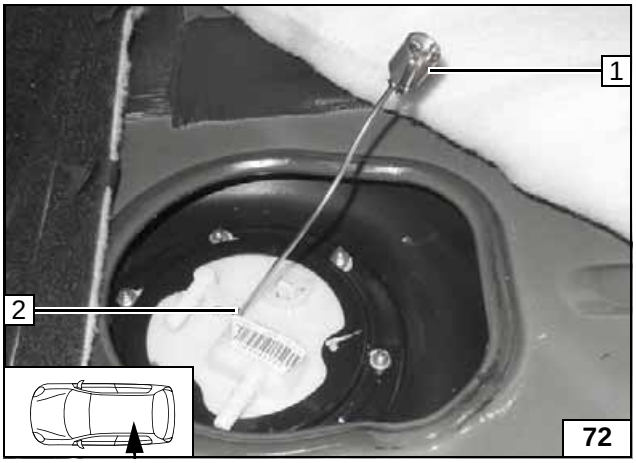
Copying hole pattern



Work step F3.

1 Hole made with provided drill

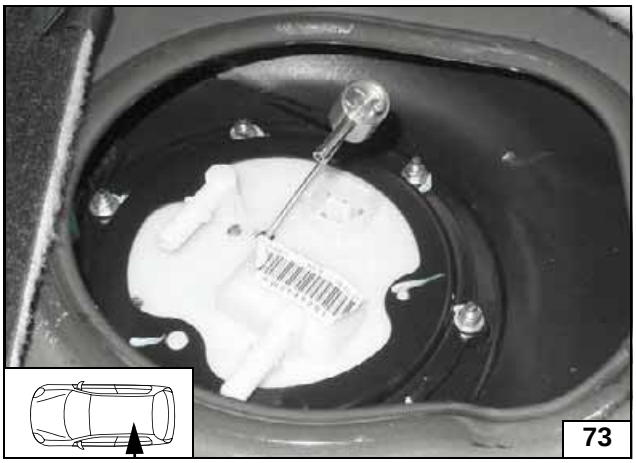
Hole for FuelFix



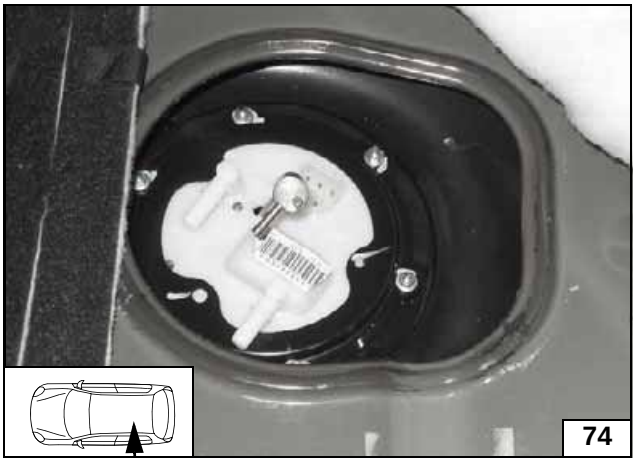
Work steps F4 and F5.

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

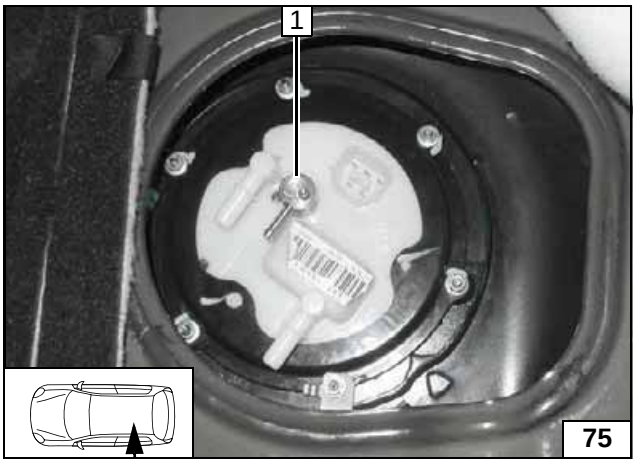
Inserting FuelFix



Inserting FuelFix



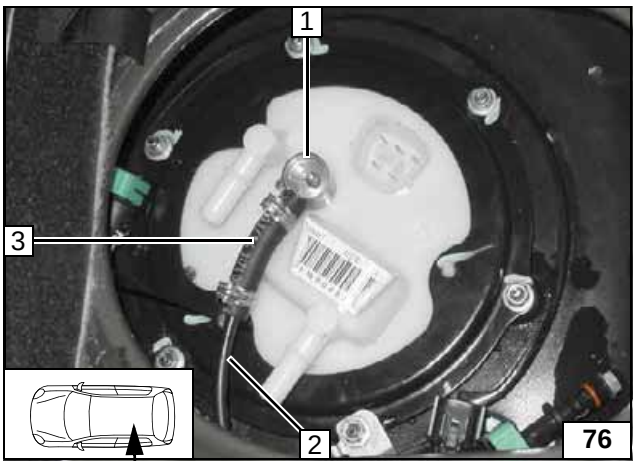
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

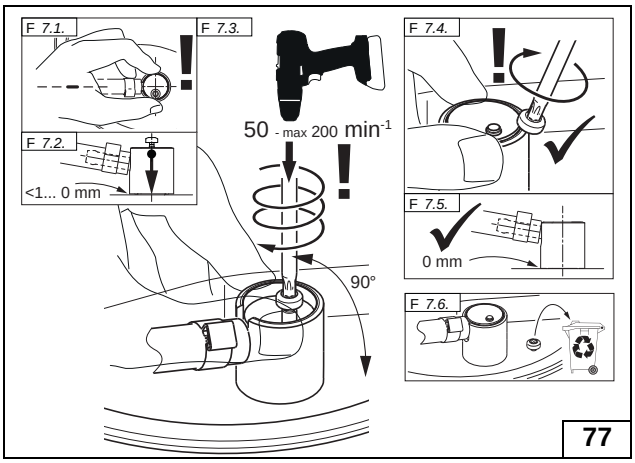
Aligning FuelFix



Work step F6.

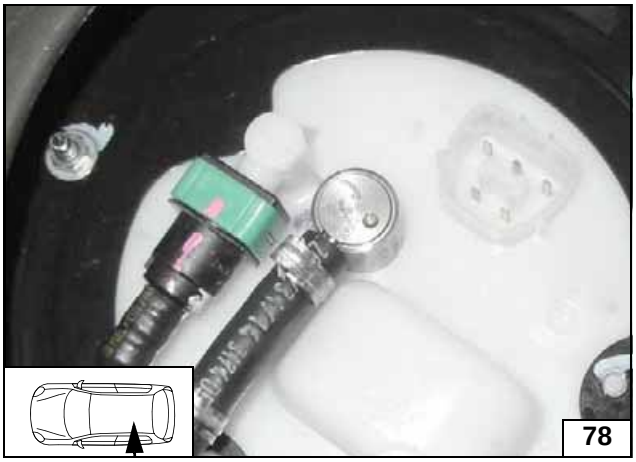
1 FuelFix
2 Fuel line
3 Hose section, 10mm dia. clamps [2x]

Connecting fuel line



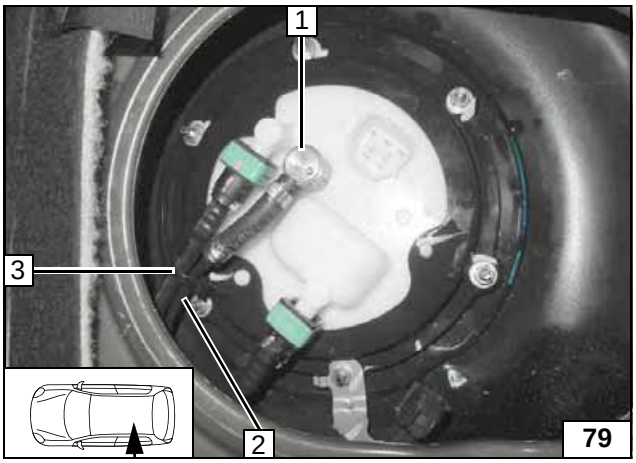
Work step F7.

Installing FuelFix



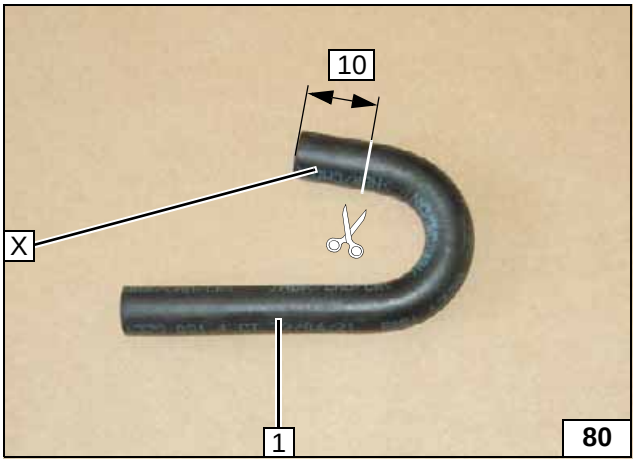
Work step F8.

Ensuring firm seating of FuelFix



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

Securing fuel line

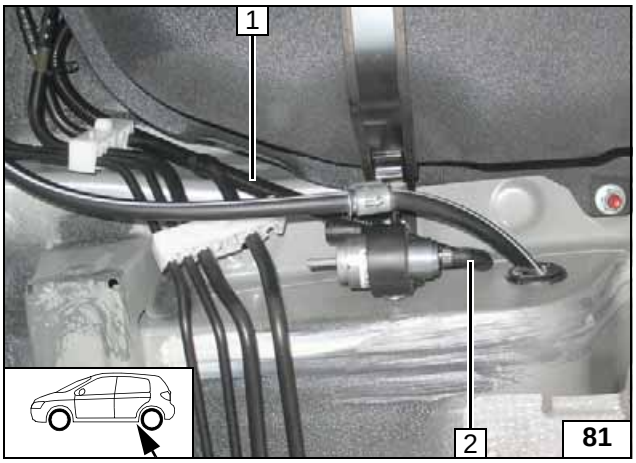


All vehicles

1 180° moulded hose

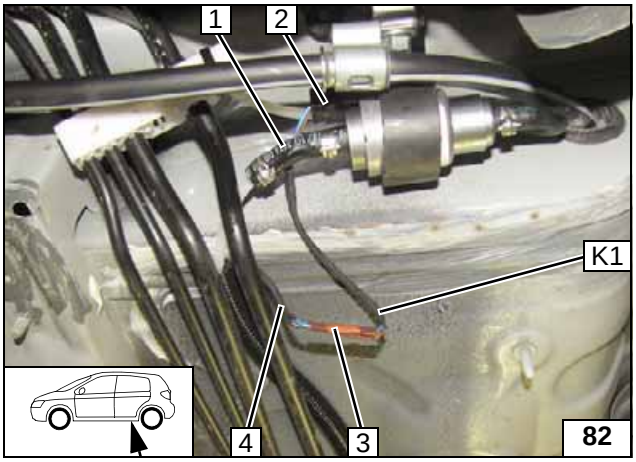
X =

Shortening moulded hose



1 Corrugated tube on fuel line
2 Fuel line of FuelFix, 180° moulded hose, 10 mm dia. Caillau clamp [2x]

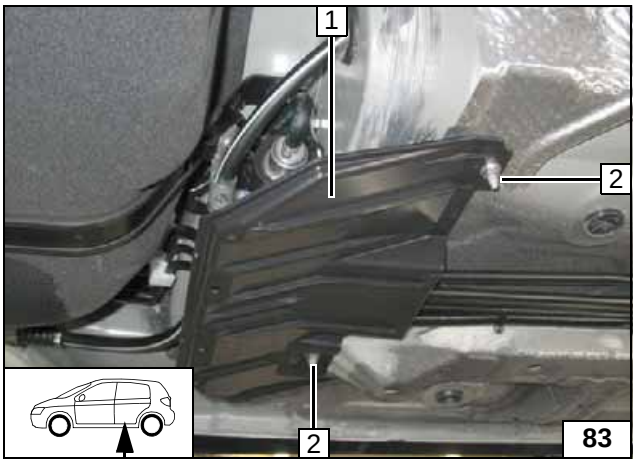
Connecting metering pump



Connect same colour wires of wiring harness of metering pump **4** and section of connector of metering pump **K1** together.

1 Fuel line of heater, hose section, 10 mm dia. Caillau clamp [2x]
2 Connector X7
3 Butt connector [2x], should be crimped and shrunk

Connecting metering pump



1 Stoneguard
2 Original vehicle nut [2x]

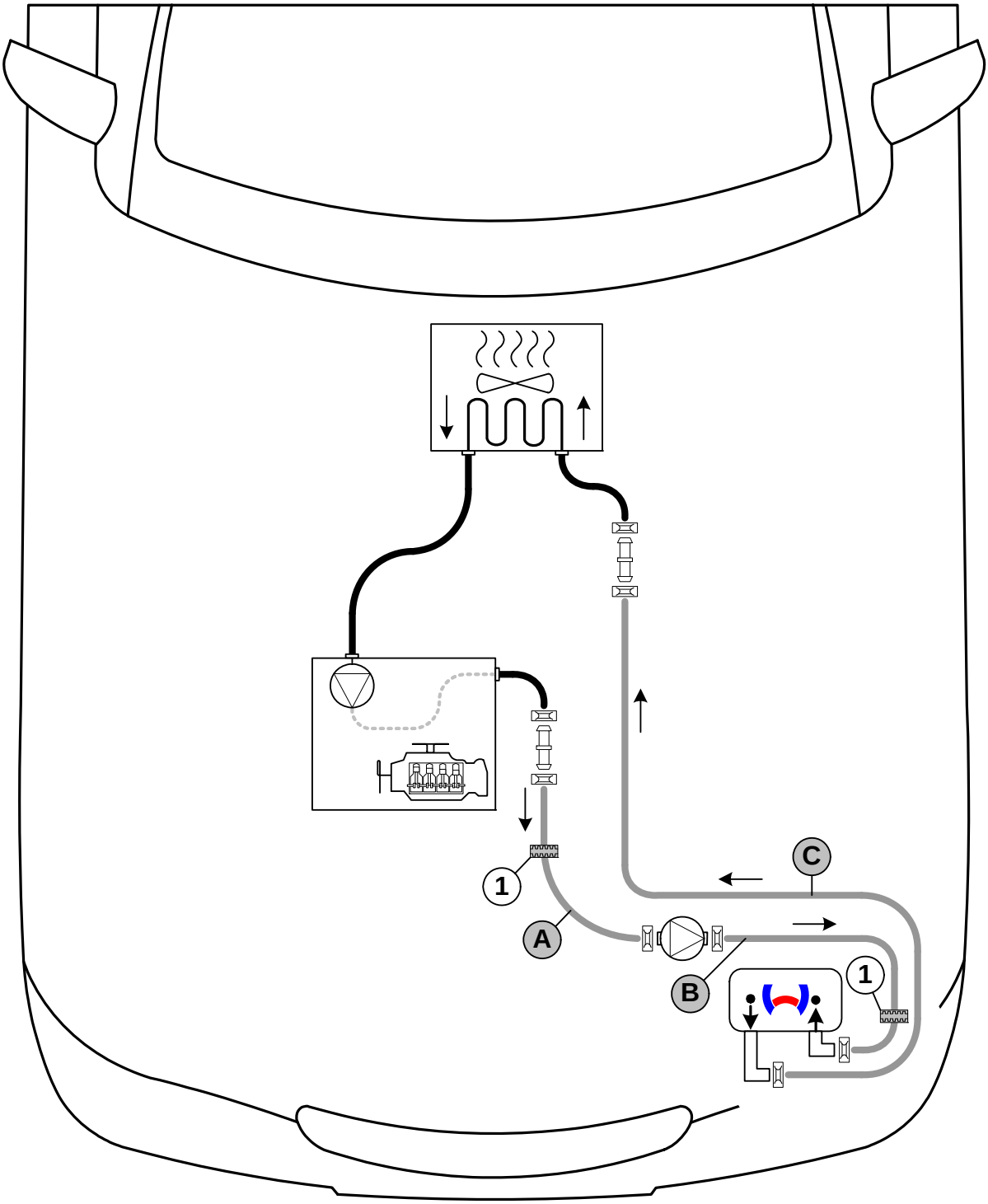
Installing stoneguard

Coolant Circuit for Petrol Vehicles

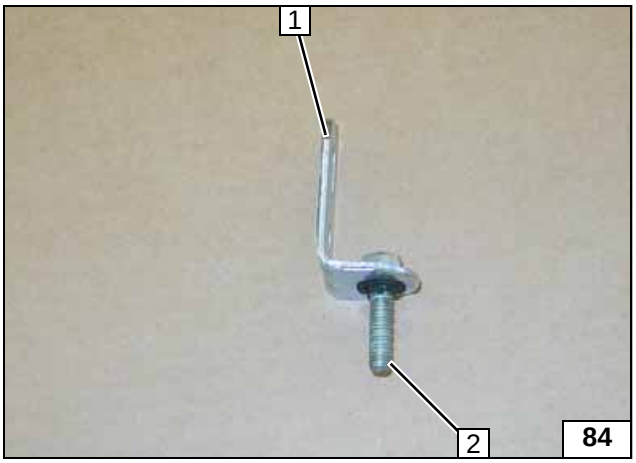
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram

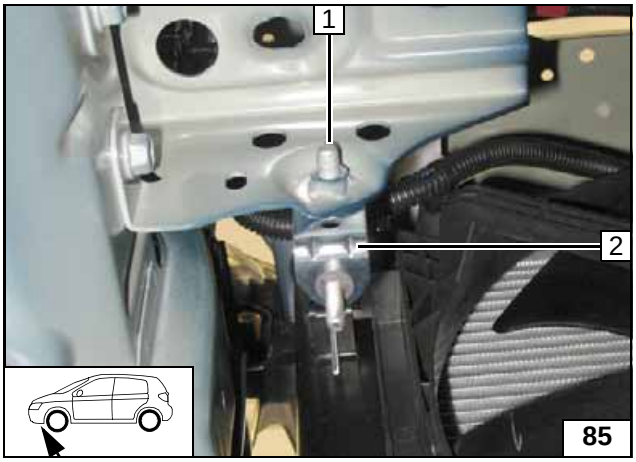


All spring clips = 25 mm dia. All connecting pipes = 18x18 mm dia.
1 = Black (sw) rubber isolator [2x]!



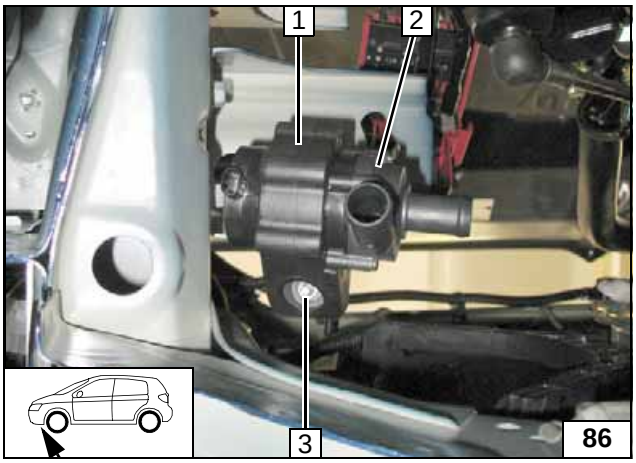
1 Angle bracket
2 M6x25 bolt, pin lock

Preparing angle bracket



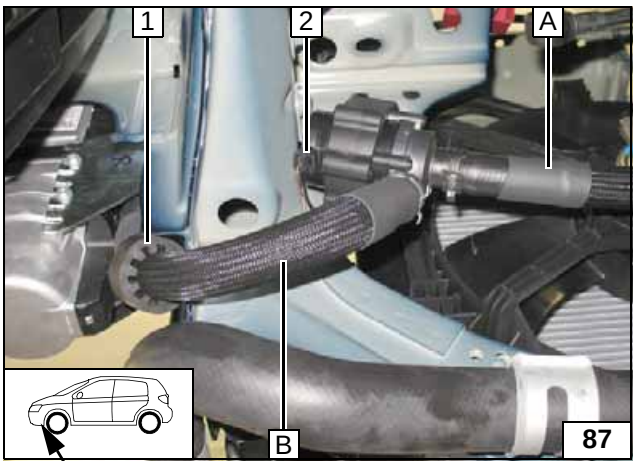
1 M8x20 bolt, spring lockwasher, existing threaded hole
2 Angle bracket

Installing angle bracket



1 Circulating pump mount
2 Circulating pump
3 Flanged nut

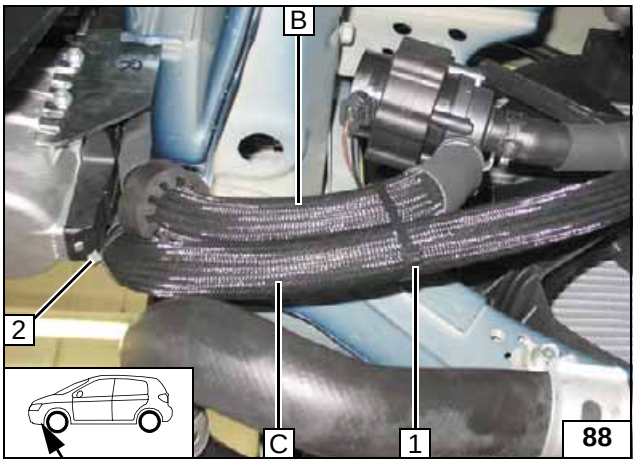
Installing circulating pump



Slide black (sw) rubber isolator **1** on to hose **B** and position.

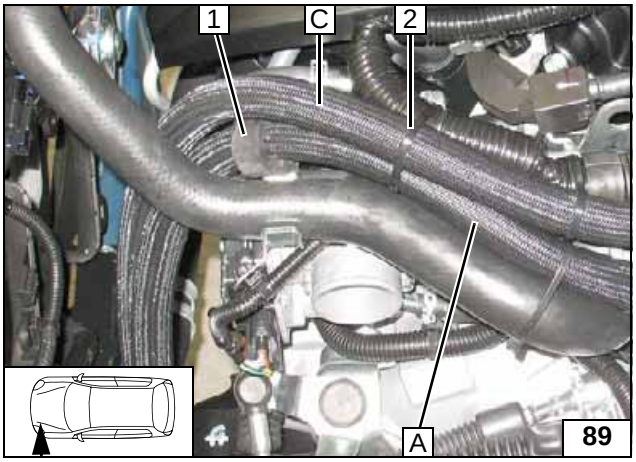
2 Connector of circulating pump wiring harness

Connecting circulating pump



1 Cable tie
2 Cable tie through rubber isolator

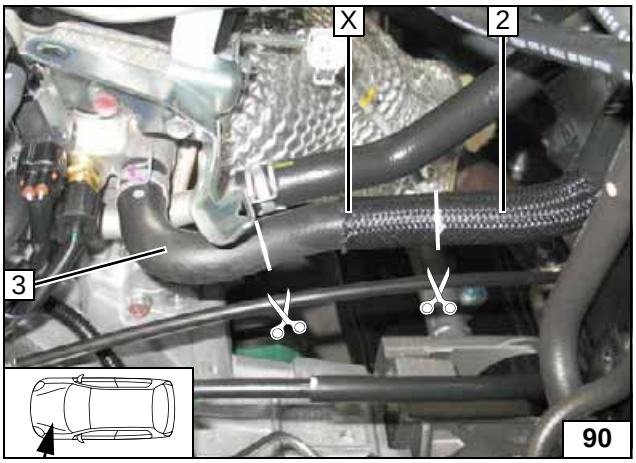
Routing in engine compartment



Slide black (sw) rubber isolator **1** on to hose **A** and position.

2 Cable tie

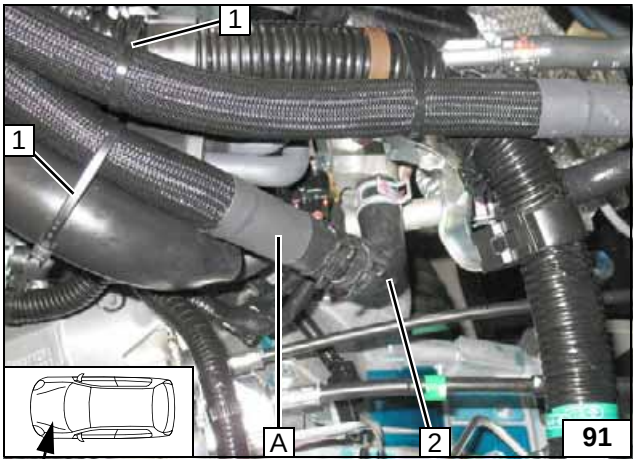
Routing in engine compartment



Remove braided protection hose in the area of the cutting point on the hose section of the heat exchanger inlet **2**. Twist hose section of engine outlet **3** on the connection piece of the engine outlet to the front.

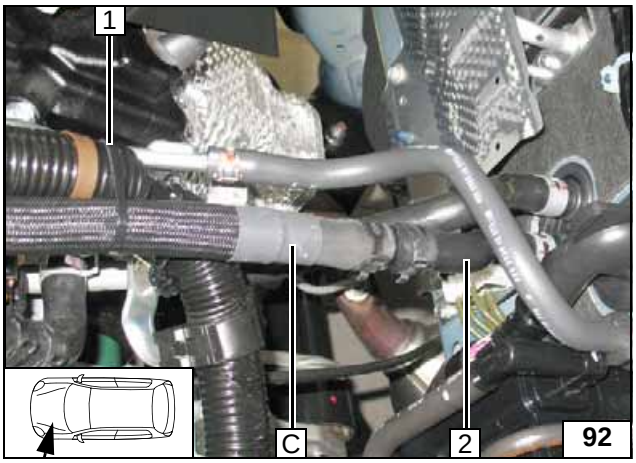
X = 

Cutting point



1 Cable tie [2x]
2 Hose section on engine outlet, turned

Connecting engine outlet



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

1 Cable tie
2 Heat exchanger inlet hose section

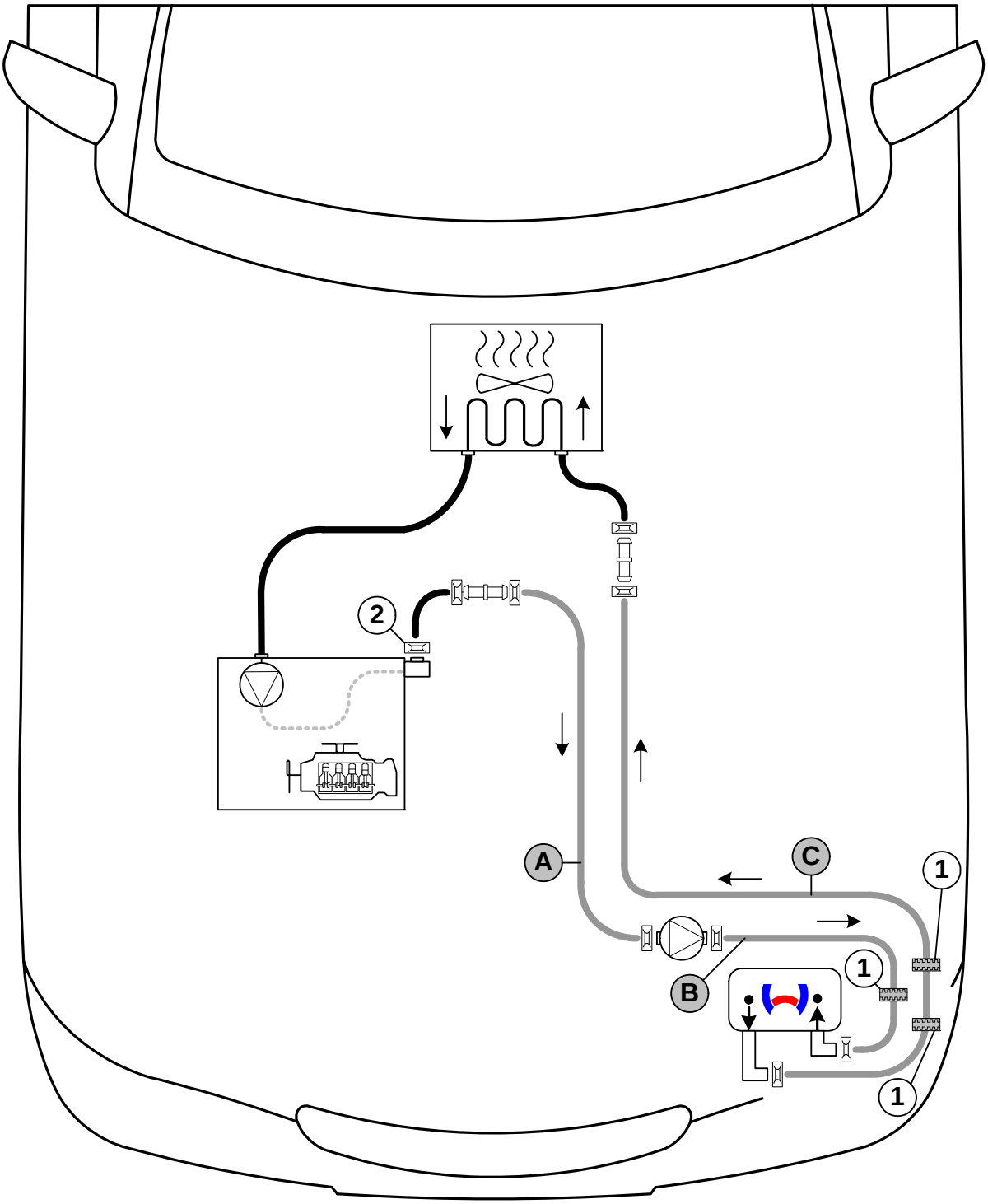
Connecting heat exchanger inlet

Coolant Circuit for SG 1.6 Diesel Vehicles

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.

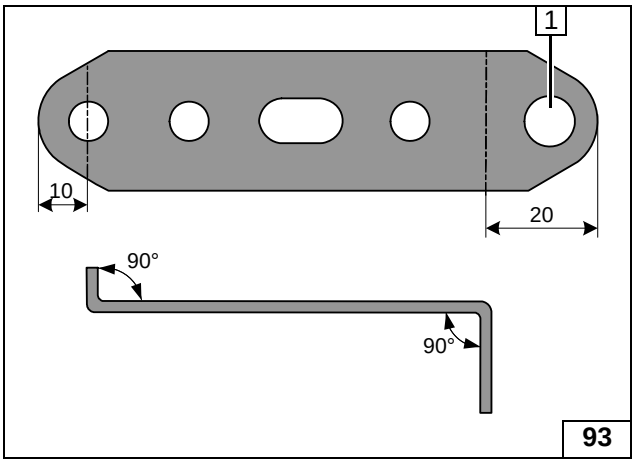
The connection should be modelled on an ‘inline’ circuit and based on the following diagram:

Hose routing diagram



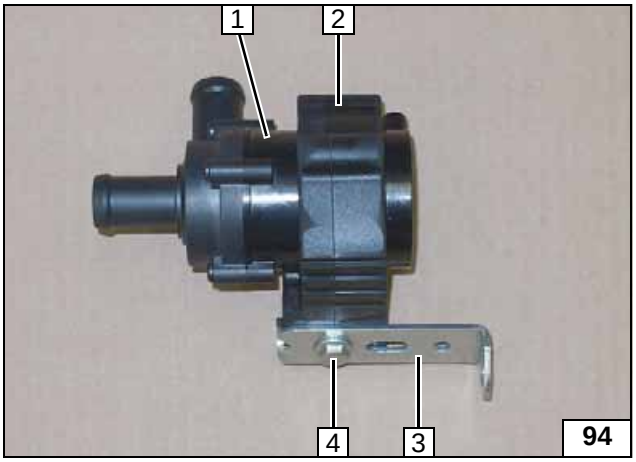
All spring clips without a specific designation = 25 mm dia. All connecting pipes and = 18x18 mm dia.
1 = Black (sw) rubber isolator [3x]. **2** = Original vehicle spring clip.

Preparing perforated bracket



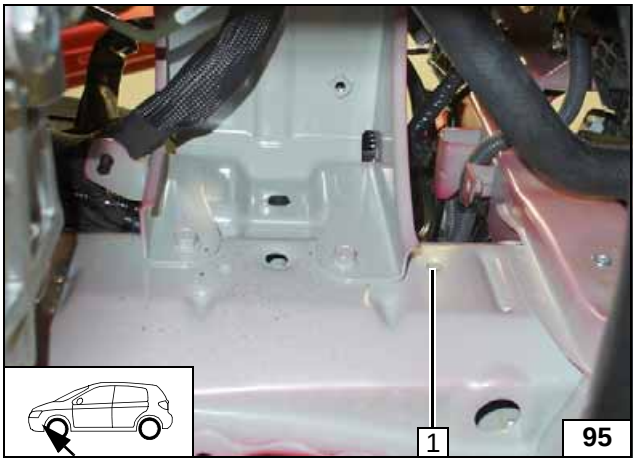
1 Drill out 9 mm dia. hole

Premounting circulating pump



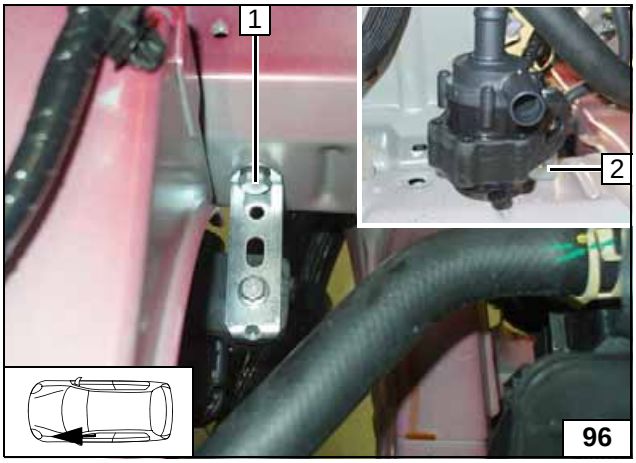
1 Circulating pump
2 Circulating pump mount
3 Perforated bracket
4 M6x25 bolt, flanged nut

Preparing installation location of circulating pump

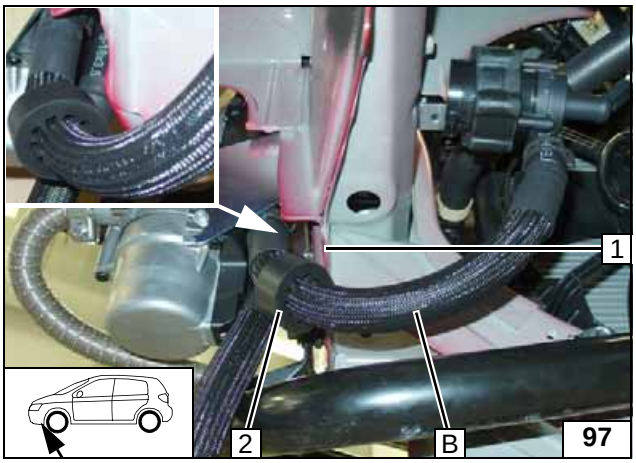


1 M8 threaded hole

Installing circulating pump

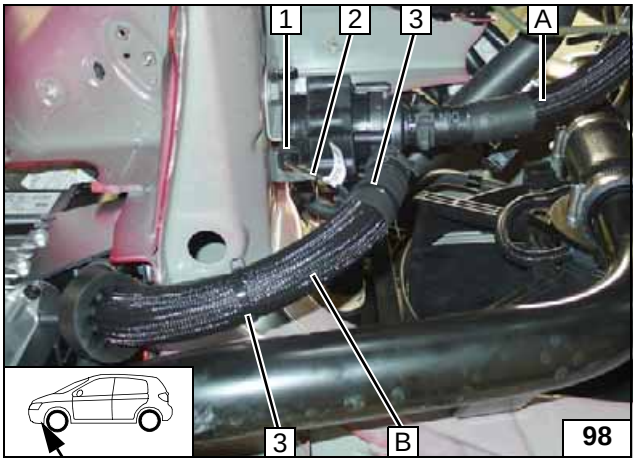


1 M8x20 bolt, spring lockwasher
2 Perforated bracket



Slide black (sw) rubber isolator **2** onto hose **B** and align with edge **1**.

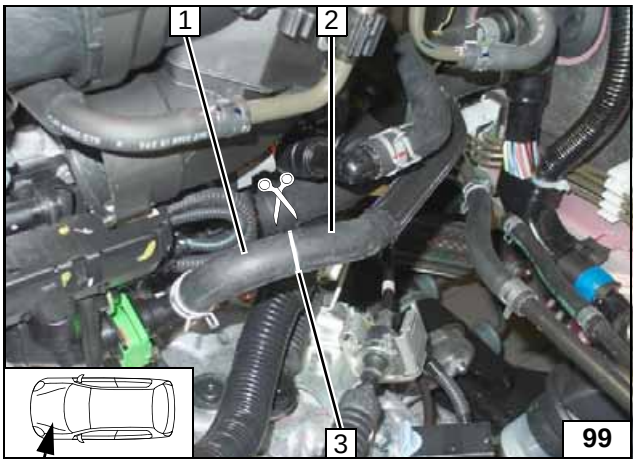
Connecting circulating pump



Fasten wiring harness of circulating pump **2** to hose **B** using cable ties **3** [2x].

1 Connector of circulating pump wiring harness

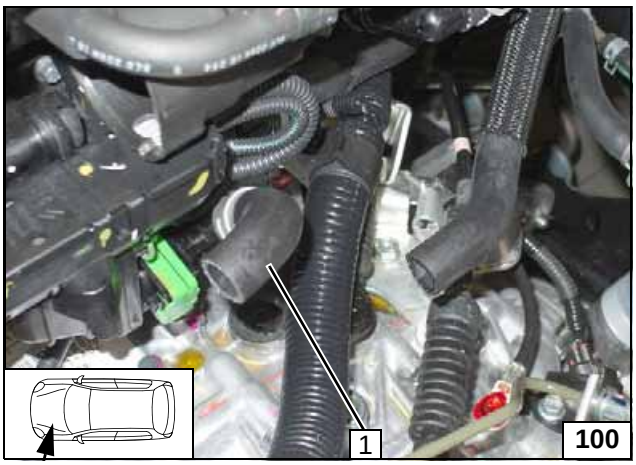
Routing in engine compartment



Cutting point **3** at the middle of straight section of engine outlet / heat exchanger inlet hose.

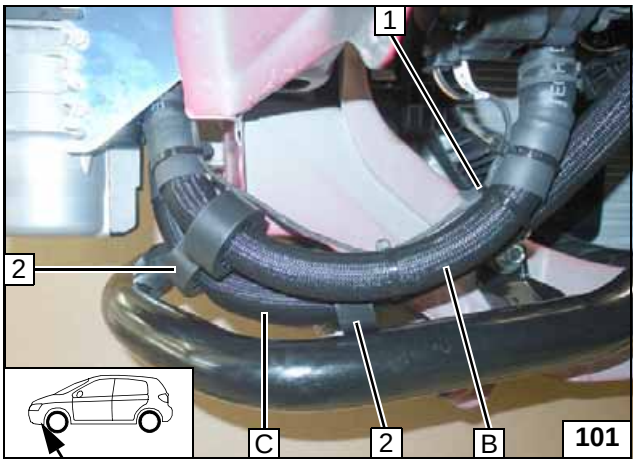
1 Engine outlet hose section
2 Heat exchanger inlet hose section

Cutting point



1 Hose section of engine outlet, turned by approx. 90°

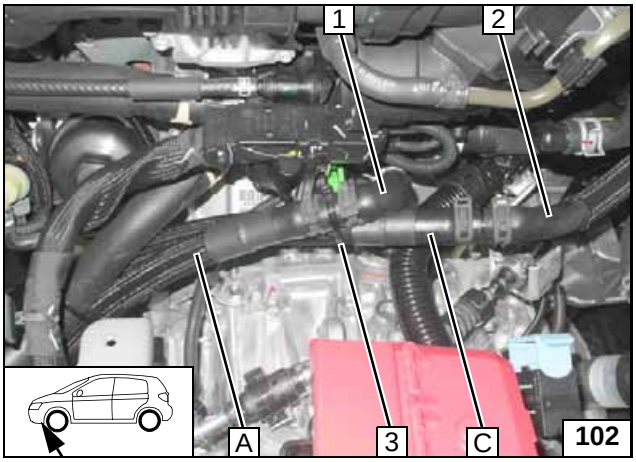
Turning hose section of engine outlet



Slide black (sw) rubber isolator **2** [2x] onto hose **C** and position.

1 Cable tie

Routing in engine compartment



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

1 Engine outlet hose section
2 Heat exchanger inlet hose section
3 Cable tie

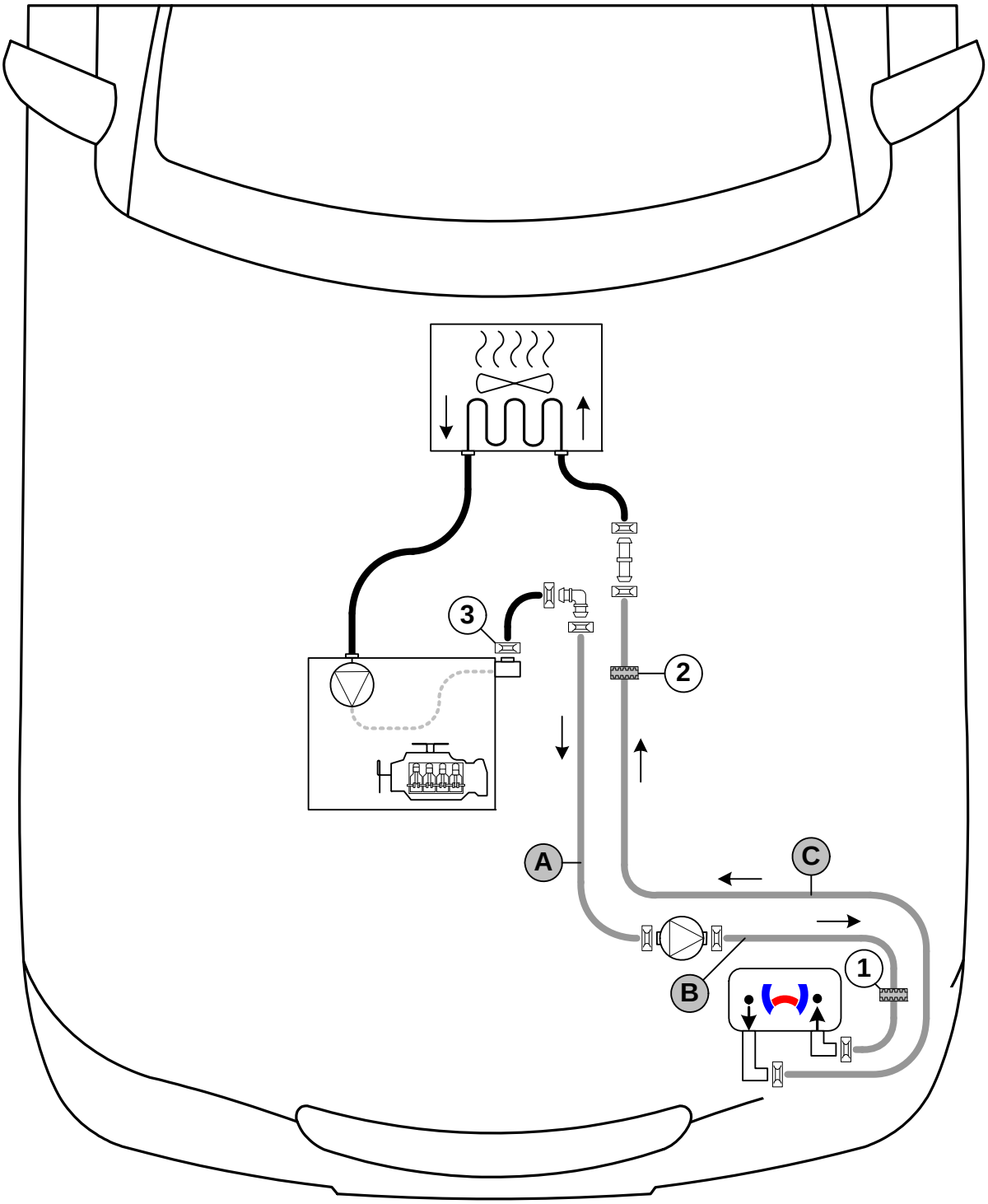
Connecting engine outlet / heat exchanger inlet

Coolant Circuit for SG 1.8 / AG 2.2 Diesel Vehicles

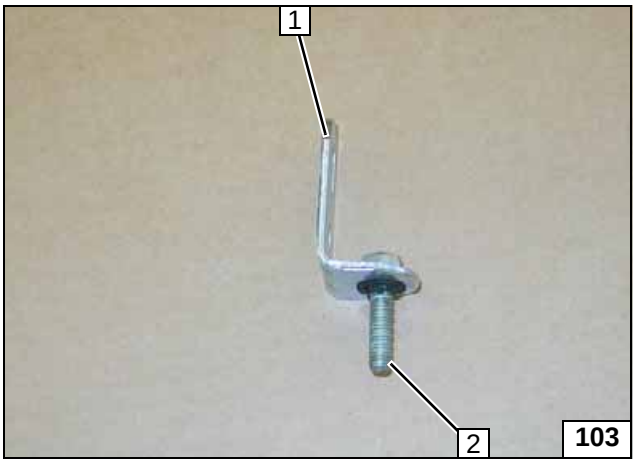
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



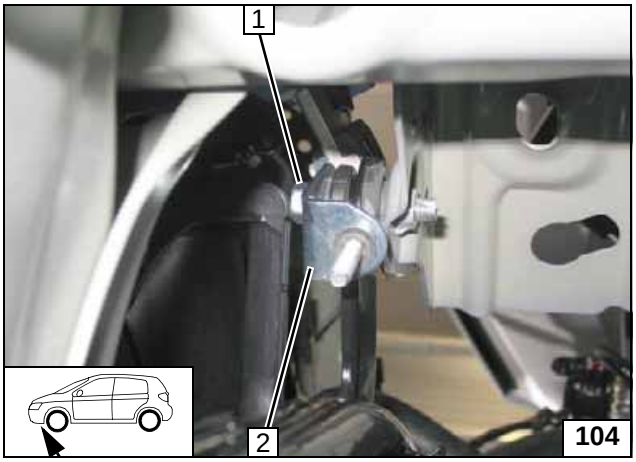
All spring clips without a specific designation = 25 mm dia. All connecting pipes and = 18x18 mm dia.
1 = Black (sw) rubber isolator. **2** = Back (sw) rubber isolator (only in case of automatic transmission).
3 = Original vehicle spring clip.



1.8 manual transmission

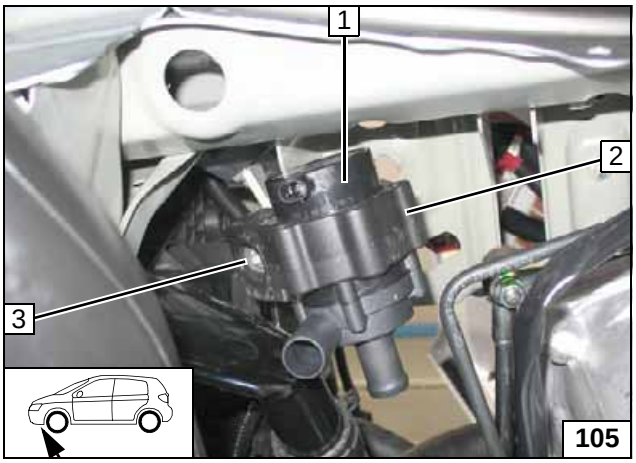
1 Angle bracket
2 M6x25 bolt, pin lock

Preparing angle bracket



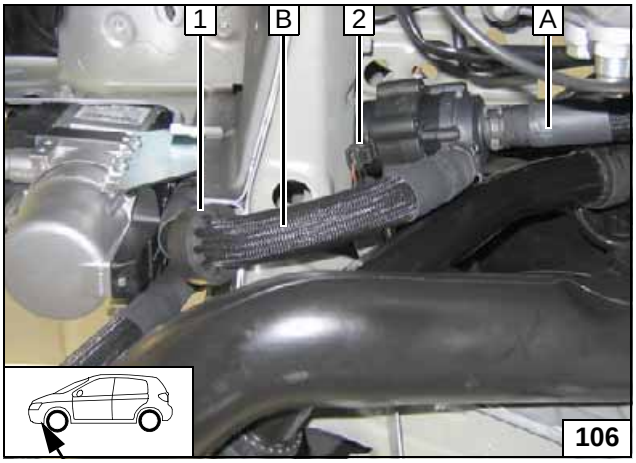
1 Original vehicle bolt
2 Angle bracket

Installing angle bracket



1 Circulating pump
2 Circulating pump mount
3 Flanged nut

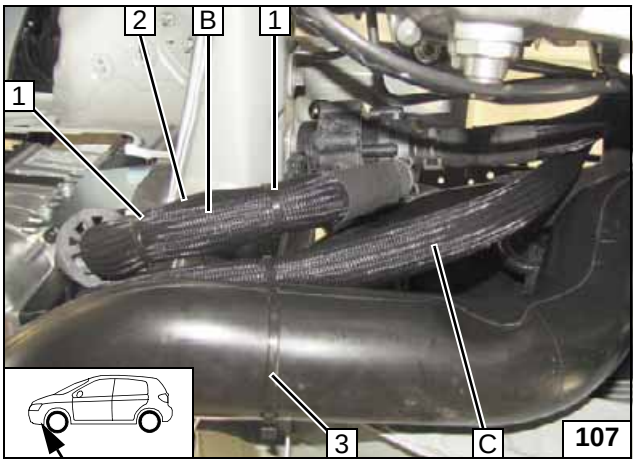
Installing circulating pump



Slide black (sw) rubber isolator **1** on to hose **B** and position.

2 Connector of circulating pump wiring harness

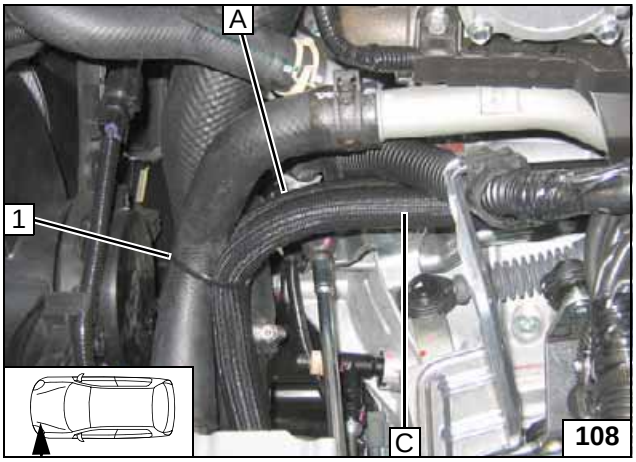
Connecting circulating pump



Fasten wiring harness of circulating pump **2** to hose **B** using cable ties **1** [2x].

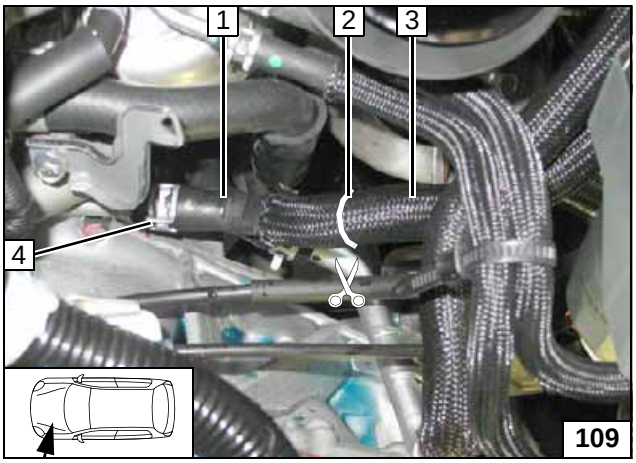
3 Cable tie

Routing in engine compartment



1 Cable tie

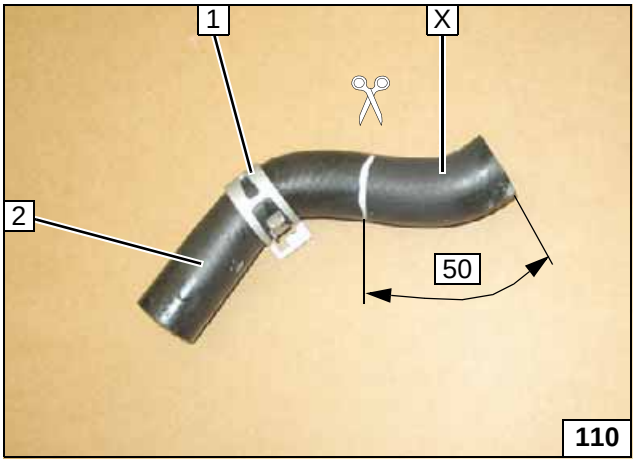
Routing in engine compartment



Remove braided protection hose in area of cutting point **2**. Remove hose section of engine outlet **1**. Spring clip **4** will be re-used.

3 Heat exchanger inlet hose section

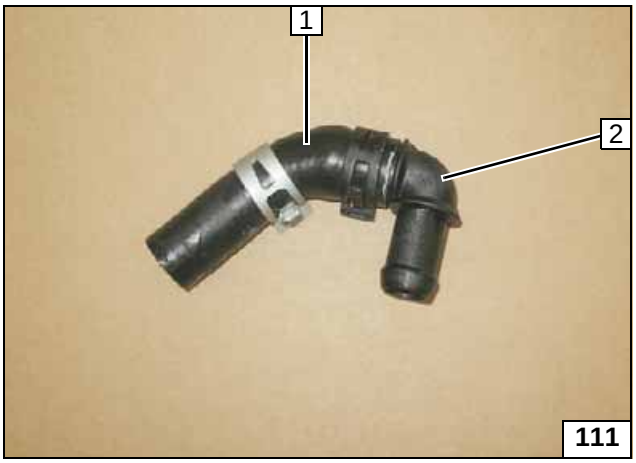
Cutting point



1 Original vehicle spring clip
2 Engine outlet hose section

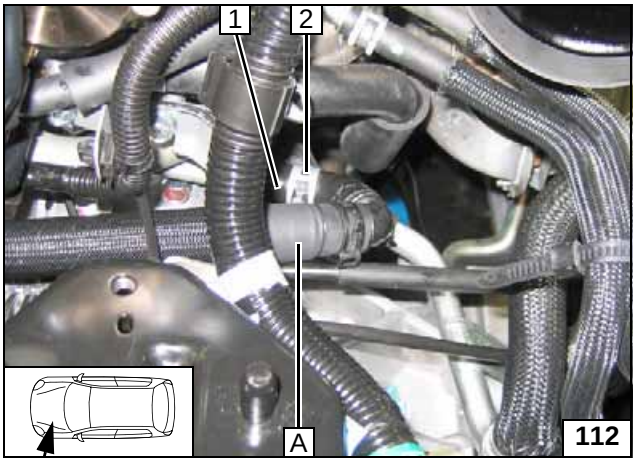
X = 

Cutting hose section of engine outlet to size



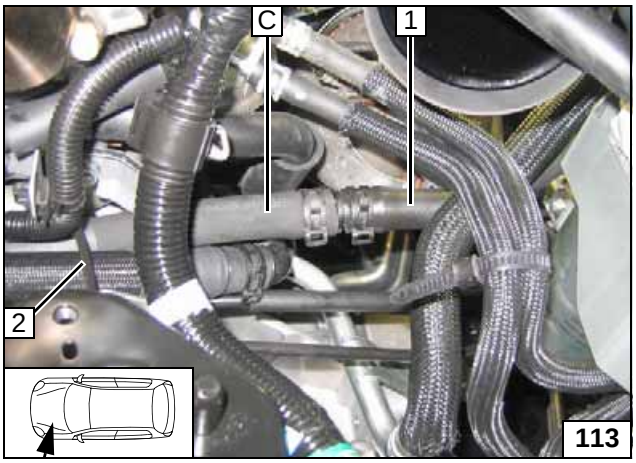
1 Engine outlet hose section
2 90°, 18x18 mm dia. connecting pipe, 25mm dia. spring clip

Premounting hose section of engine outlet



1 Connection piece for engine outlet
2 Original vehicle spring clip

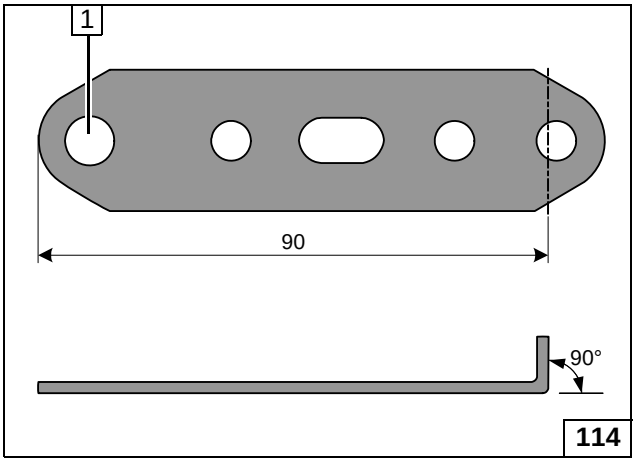
Connecting engine outlet



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

1 Heat exchanger inlet hose section
2 Cable tie

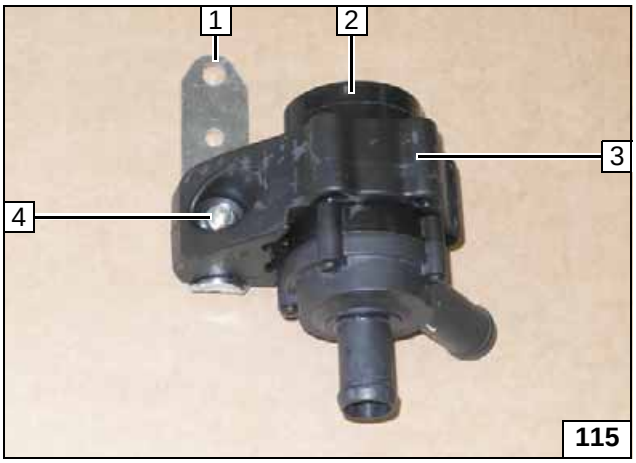
Connecting heat exchanger inlet



Automatic transmission

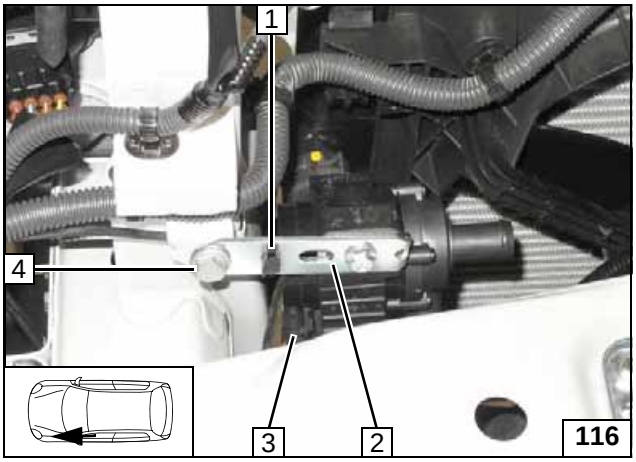
1 Drill out 9 mm dia. hole

Preparing perforated bracket



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

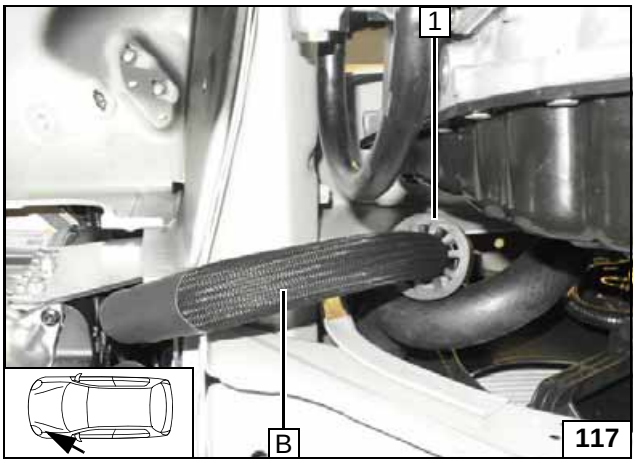
Premounting circulating pump



Install wiring harness of circulating pump**3** and fasten with cable tie **1** to perforated bracket **2**.

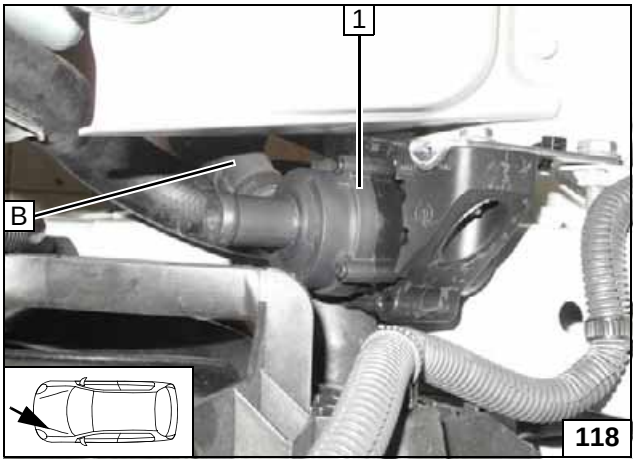
4 Original vehicle bolt

Installing circulating pump



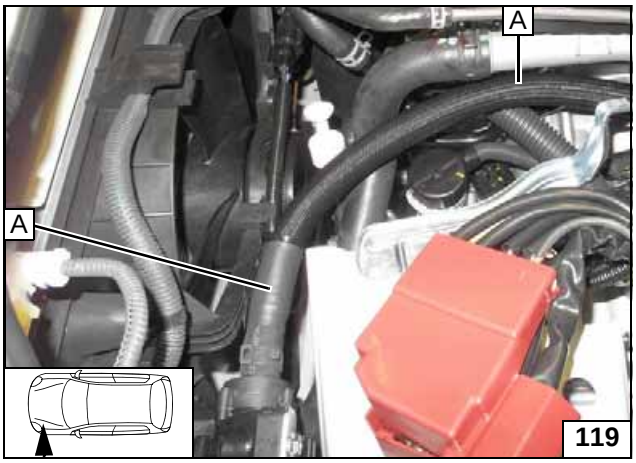
Slide black (sw) rubber isolator **1** on to hose **B** and position.

Routing hose B

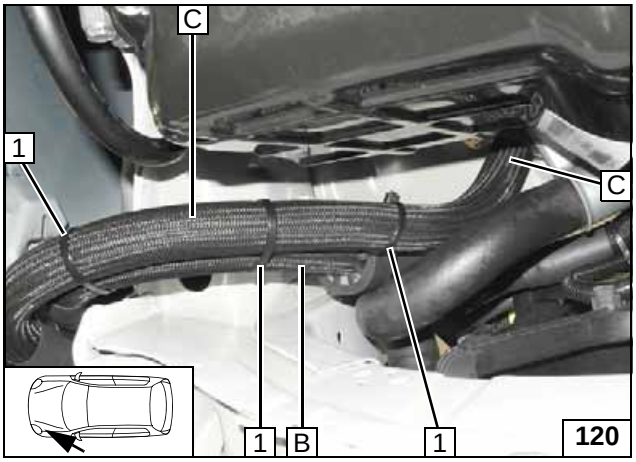


1 Circulating pump

Connecting circulating pump

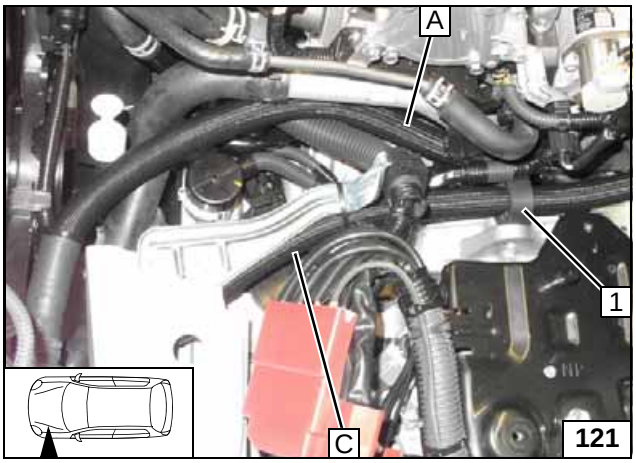


Connecting circulating pump



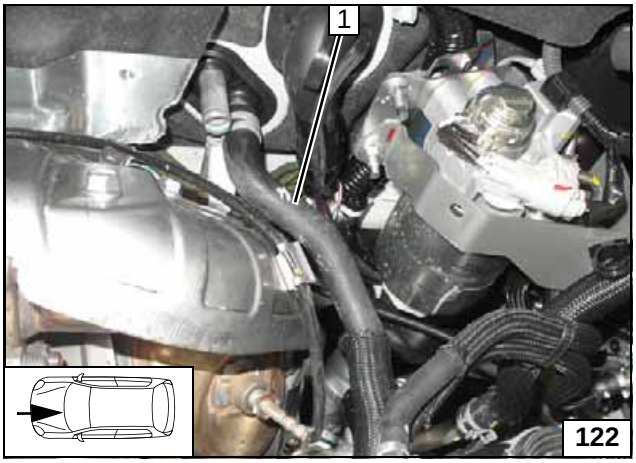
1 Cable tie [3x]

Routing in engine compartment



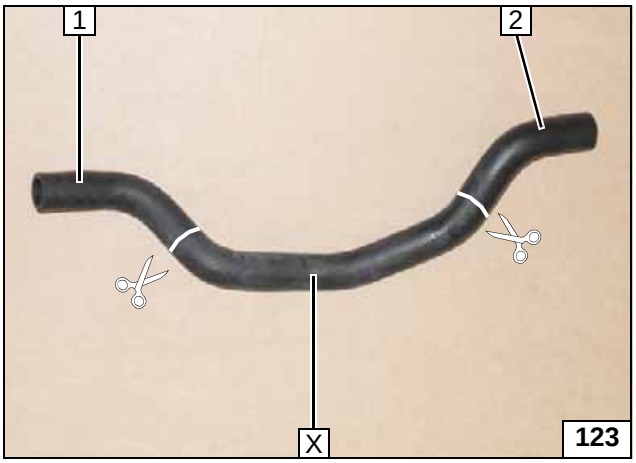
Push black (sw) rubber isolator **1** on to hose **C**.

Routing in engine compartment



Hose at heat exchanger outlet only removed for demonstration purposes. Remove hose section of engine outlet / heat exchanger inlet **1**. Spring clips will be reused!

Cutting point

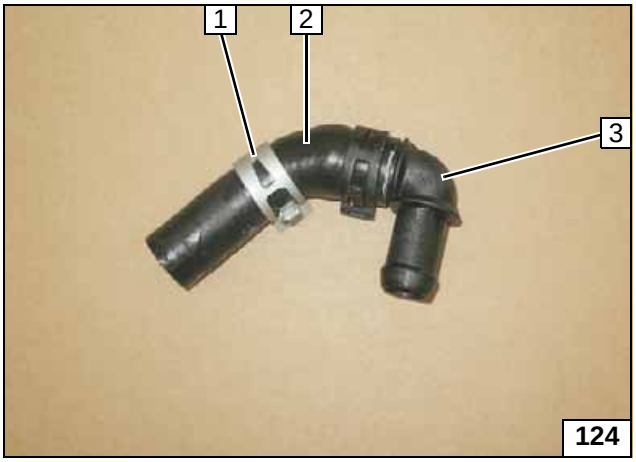


Remove braided protection hose. Cut hose of engine outlet / heat exchanger inlet at the markings.

1 Engine outlet hose section
2 Heat exchanger inlet hose section

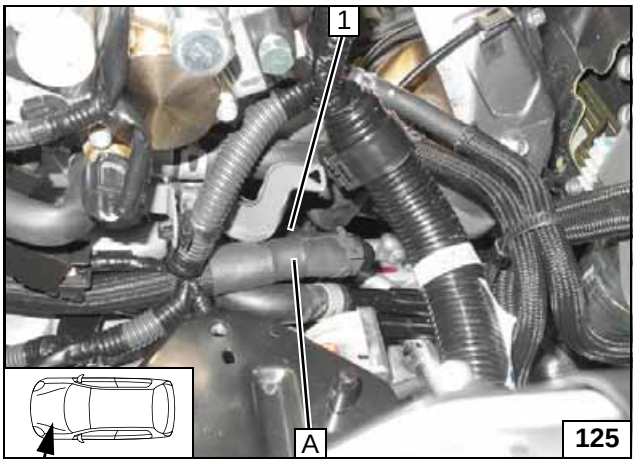
X =

Cutting point



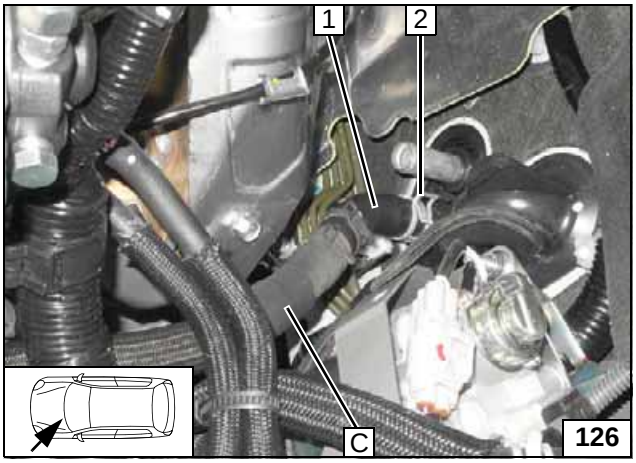
1 Original vehicle spring clip
2 Engine outlet hose section
3 90°, 18x18 mm dia. connecting pipe, 25mm dia. spring clip

Premounting hose section of engine outlet



Install hose section of engine outlet using original vehicle spring clips onto engine outlet connection piece **1**.

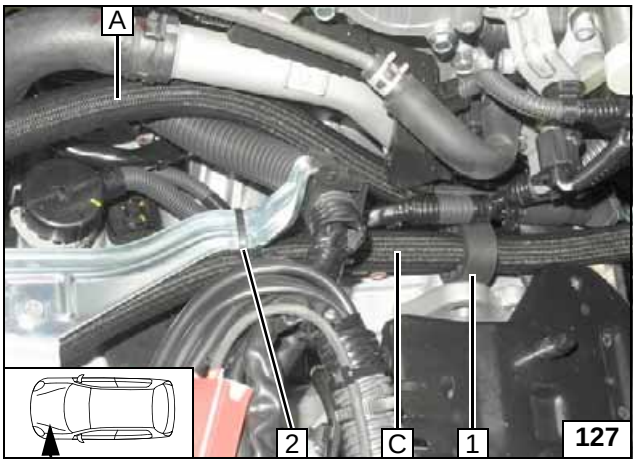
Connecting engine outlet



Ensure sufficient distance from neighbouring components.

1 Heat exchanger inlet hose section
2 Original vehicle spring clip

Connecting heat exchanger inlet

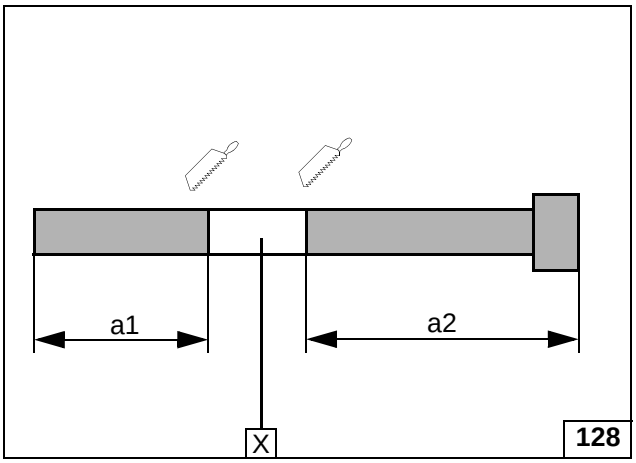


Ensure sufficient distance from neighbouring components, correct if necessary.

1 Align black (sw) rubber isolator
2 Cable tie

Aligning hoses

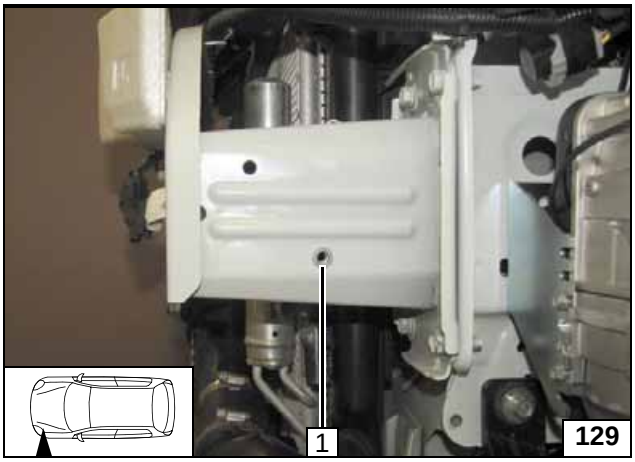
Exhaust Gas



a1 = 360
a2 = 440

X =

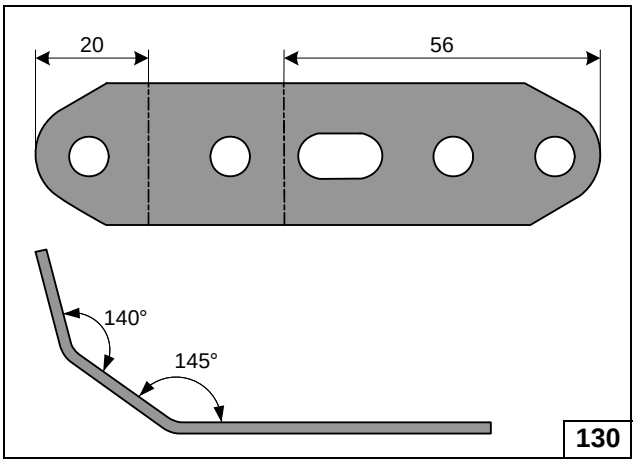
Preparing exhaust pipe



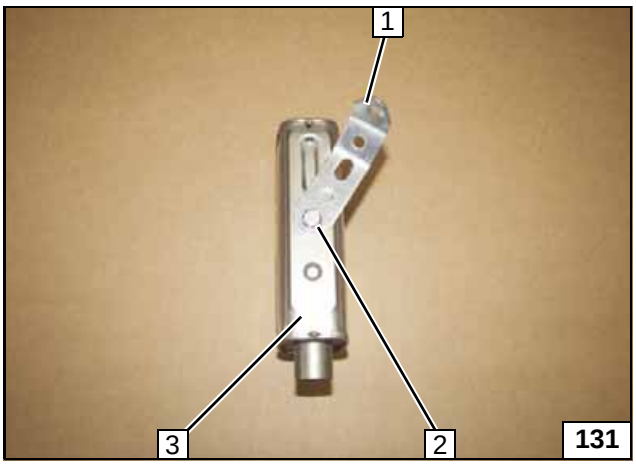
Drill out existing hole at position **1** to 9.1 mm dia.

1 Rivet nut

Installing rivet nut

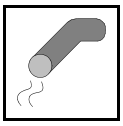


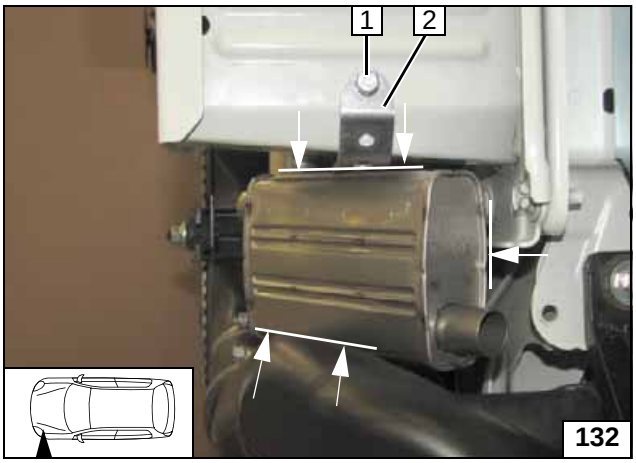
Angling down perforated bracket



1 Perforated bracket
2 M6x16 bolt, spring lockwasher
3 Silencer

Premounting silencer

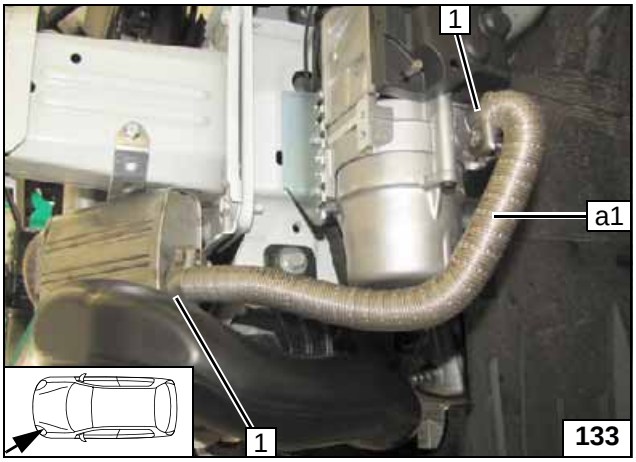




Figures show diesel vehicle.
Ensure sufficient distance from adjacent components, correct if necessary.

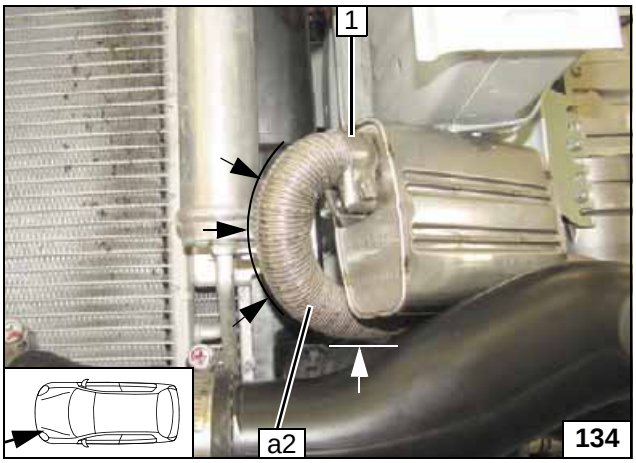
1 M6x20 bolt, spring lockwasher
2 Perforated bracket

Installing silencer



1 Hose clamp [2x]

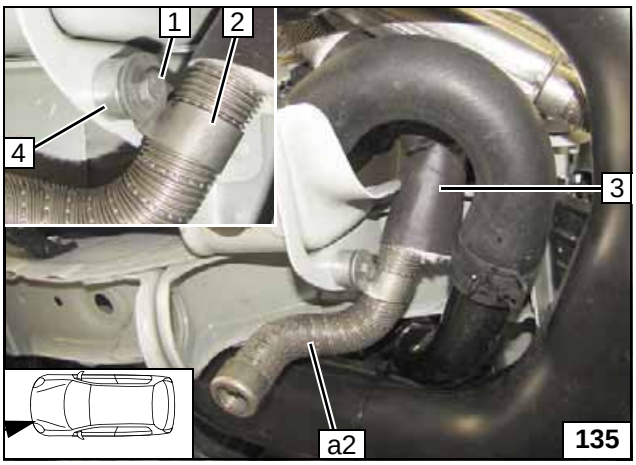
Installing exhaust pipe a1



Ensure sufficient distance from adjacent components, correct if necessary.

1 Hose clamp

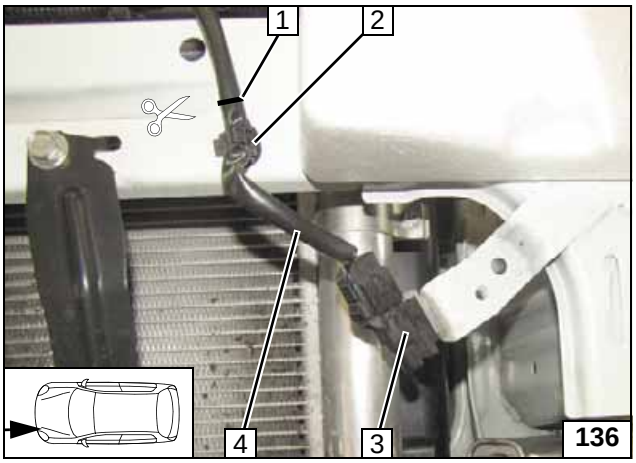
Installing exhaust pipe a2



Push exhaust insulation **3** onto exhaust pipe **a2** and align. Ensure sufficient distance from adjacent components, correct if necessary.

1 M6x25 bolt, large diameter washer, flanged nut, existing hole
2 P-clamp
4 10 mm shim

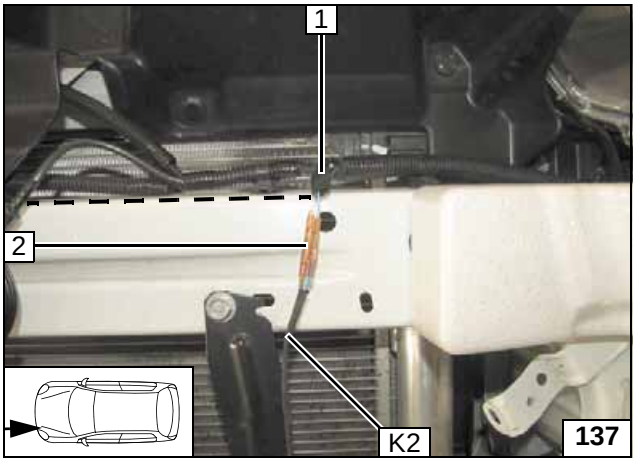
Installing exhaust pipe a2



Shifting Temperature Sensor

1 Cutting point
2 Remove clip and discard
3 Detach retaining clip of temperature sensor
4 Wiring harness section of temperature sensor (will be reused)

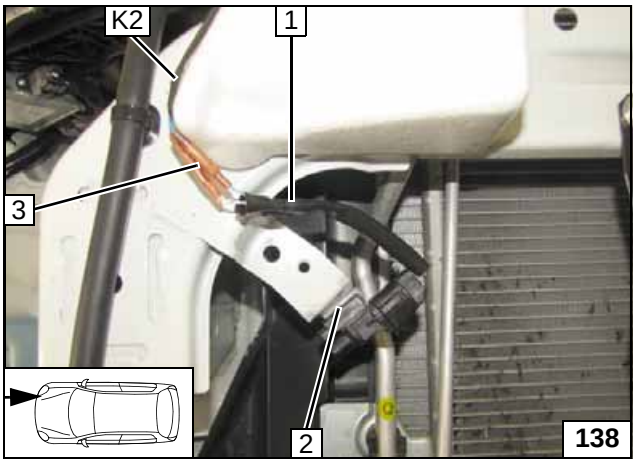
Cutting wiring harness



Connect section of wiring harness of metering pump **K2** and wiring harness of temperature sensor **1** using butt connectors **2**. Route section of metering pump wiring harness **K2** along the marking to the right side of the vehicle.

2 Butt connector [2x], should be crimped and shrunk

Routing wiring harness



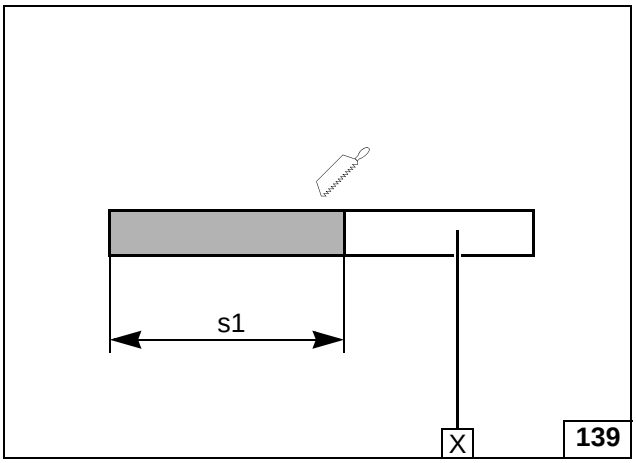
1 Section of temperature sensor wiring harness
2 Retaining clip of temperature sensor, existing hole
3 Butt connector [2x], should be crimped and shrunk
K2 Section of metering pump wiring harness

Inserting temperature sensor

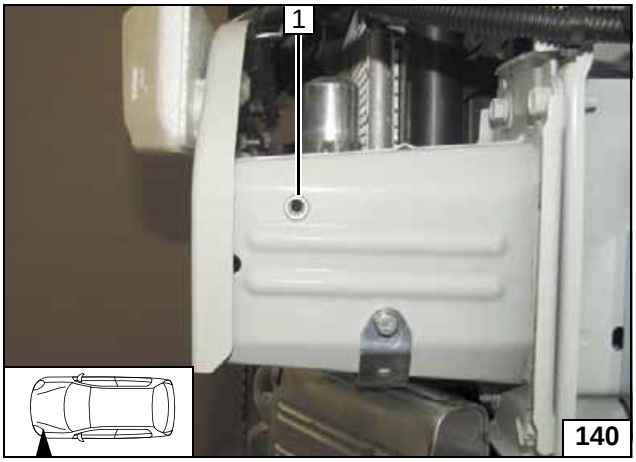
Combustion Air

s1 = 300

X =

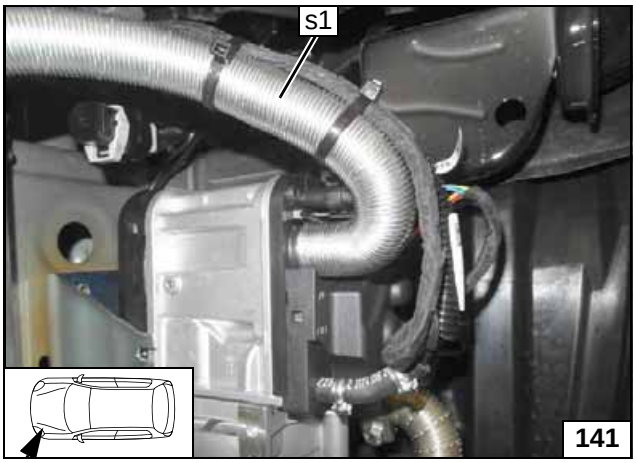


Cutting combustion air pipe to length

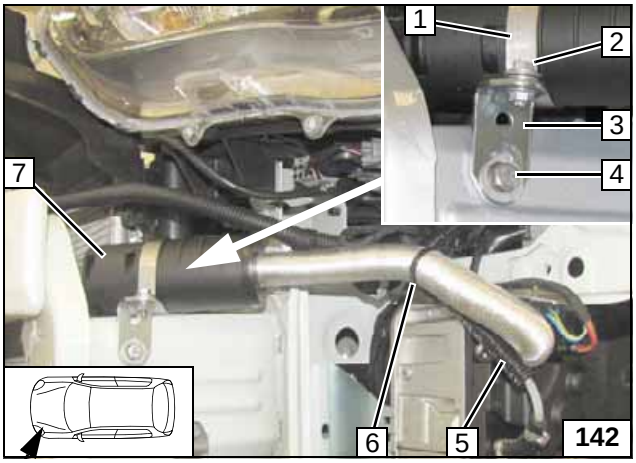


1 9.1mm dia. hole drilled out, rivet nut

Installing rivet nut



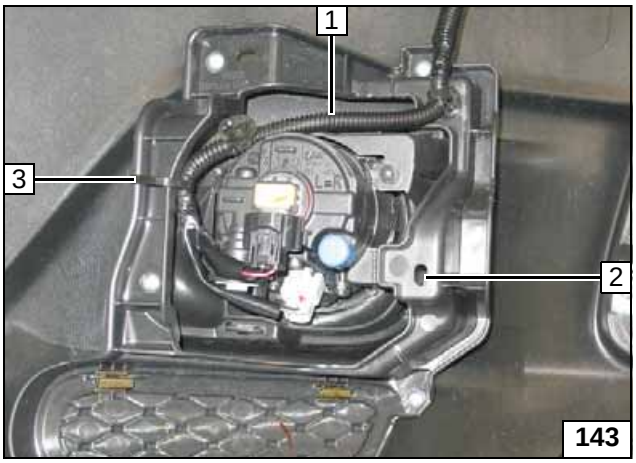
Installing combustion air pipe s1



1 51mm dia. clamp
2 M5x16 bolt, flanged nut
3 Angle bracket
4 M6x20 bolt, spring lockwasher, large diameter washer
5 Fuel line in corrugated tube
6 Cable tie
7 Silencer

Installing silencer

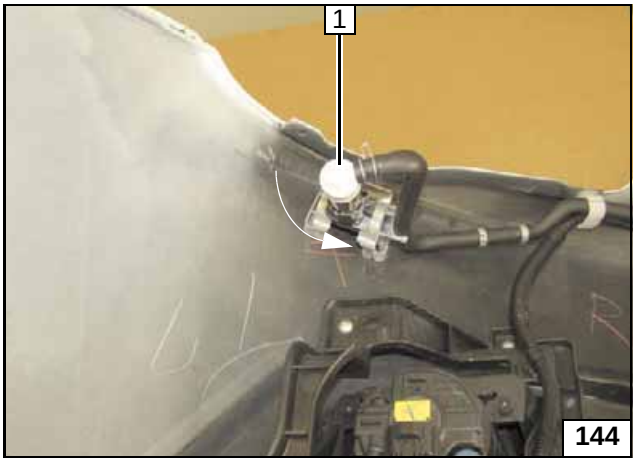
Bumper and Underride Protection



Routing wiring harness

Up to model 2012

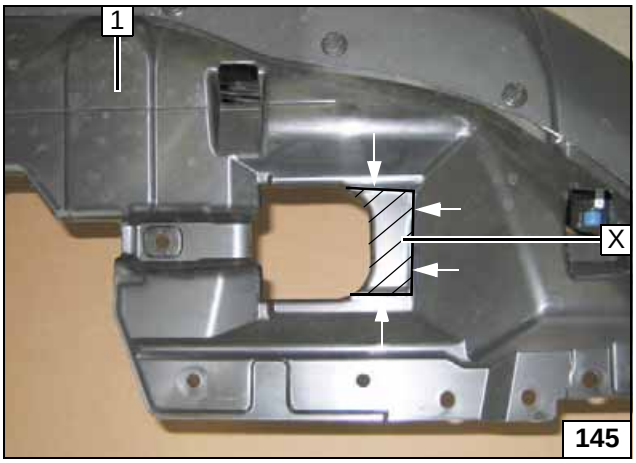
Detach wiring harness of left fog light **1** at position **2** and fasten with cable tie to position **3**.



Turning headlight washer system

All vehicles

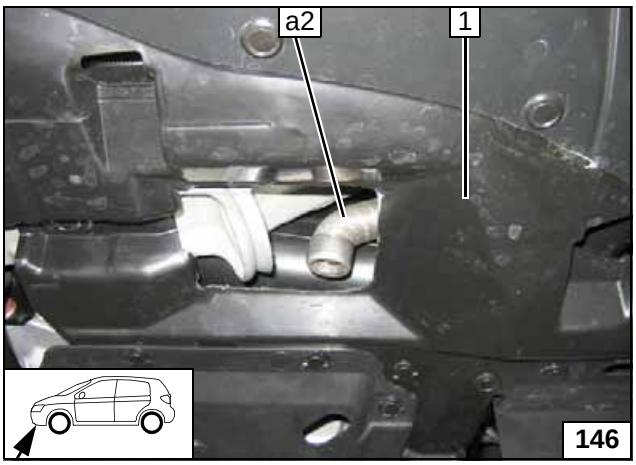
Turn connecting piece **1** (if present) as shown by approx. 90°. Mount bumper. Ensure sufficient distance, especially from exhaust system to bumper, correct if necessary



Cutting out underride protection

Cut out underride protection **1** at the marking.

X=



Aligning exhaust pipe a2

Install underride protection **1**. Align exhaust pipe **a2** with the centre of the cutout. Ensure sufficient distance from neighbouring components.

Final Work

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

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **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.**

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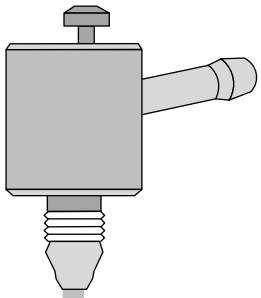
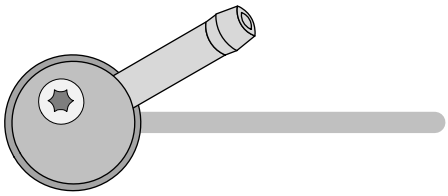
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

FuelFix Template for Petrol Vehicles



Top view



100mm

Scale 1:1

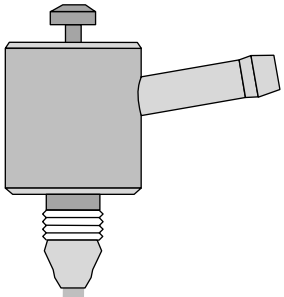
Compare size of printout with dimension lines.
Allowed tolerance a maximum of 2%.

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

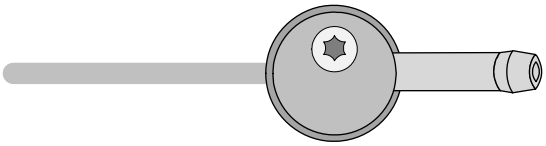
100mm

0

FuelFix Template for SG 1.6 Diesel Vehicles



Top view



100mm

Scale 1:1

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

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100mm

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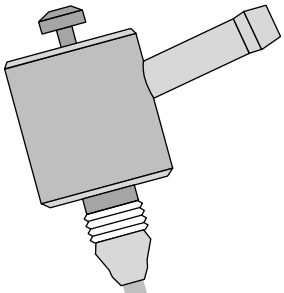
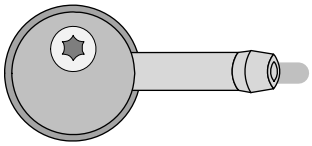
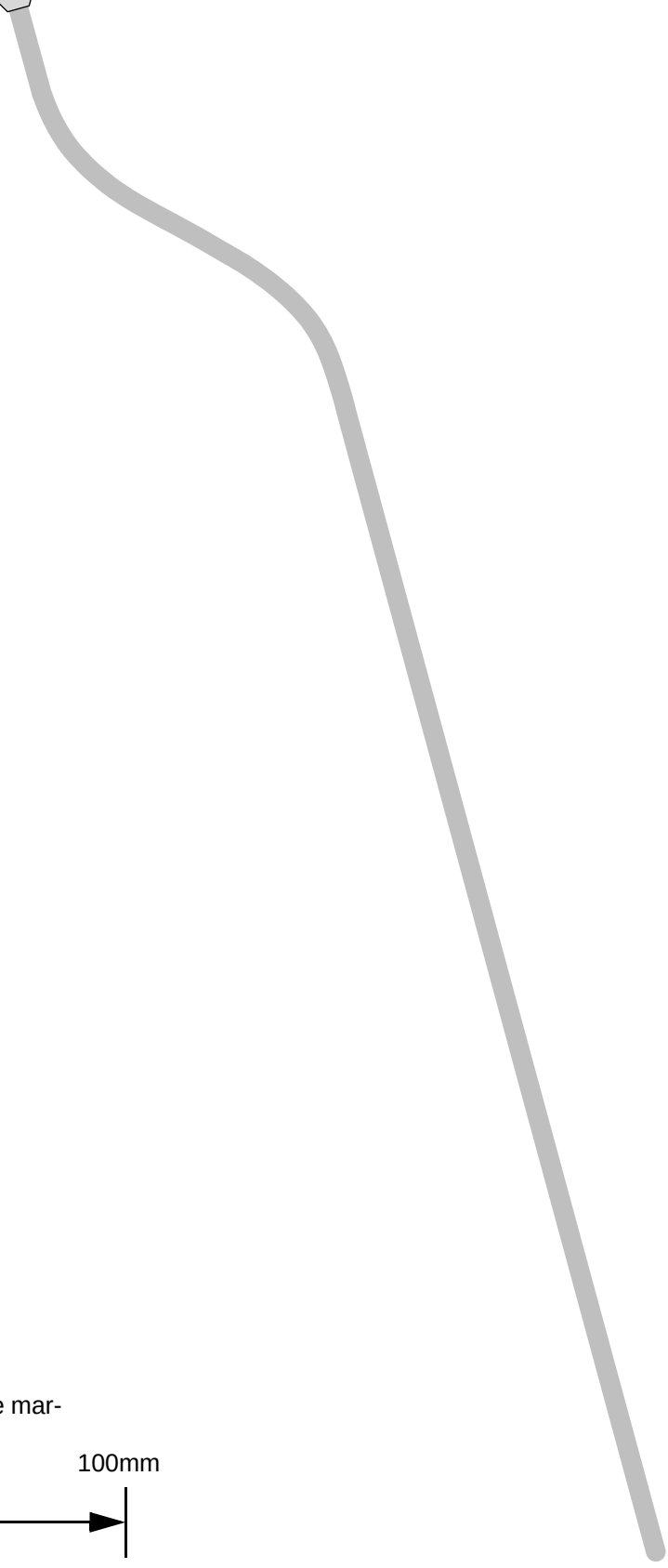
FuelFix Template for SG 1.8 / AG 2.2 Diesel Vehicles



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.

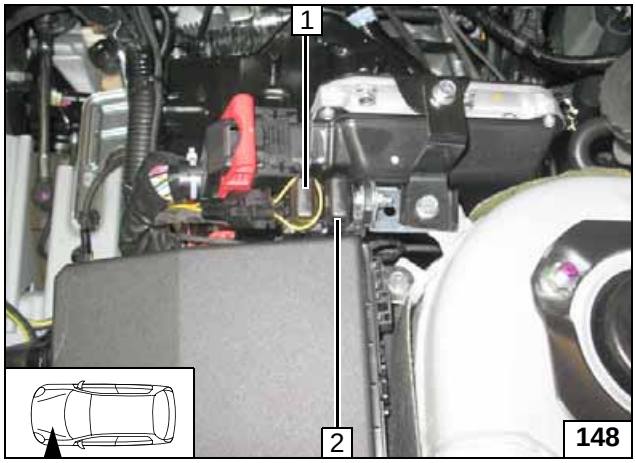
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

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:

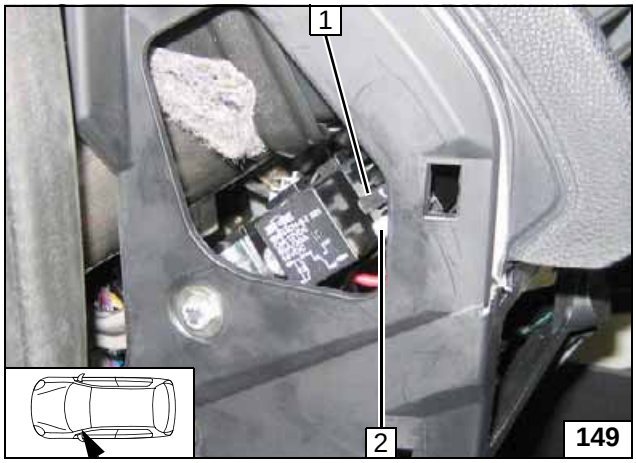
1 Air outlet to windscreen
2 Set temperature to ‘max.’

A/C control panel



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

Engine compartment fuses



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

Passenger compartment fuses