



Water Heater

Thermo Top Evo Parking Heater



With FuelFix

Installation Documentation Hyundai i20

Validity

Manufacturer	Model	Type	Model year	EG BE No. / ABE
Hyundai	i20	GB	From model year 2016	e11 * 2007 / 46 * 1600 *

Motorisation	Fuel	Emission standard	Transmission type	Output in kW	Displacement in cm ³	Engine code
1.0 T-GDi	Petrol	Euro 6	SG	74	998	G3LC
1.0 T-GDi	Petrol	Euro 6	SG	88	998	G3LC

SG = manual transmission

Left-hand drive vehicle

Verified equipment variants: Manual A/C system (74 kW only)

- Automatic air-conditioning
- Projector headlights
- Halogen front fog lights
- Halogen headlights
- LED daytime running lights

Not verified: Passenger compartment monitoring
Start button with keycard

Total installation time: approx. 8.0 hours

Hyundai i20

Table of Contents

Validity	1	Preparing Installation Location	15
Necessary Components	2	Preparing Heater	19
Installation Instructions	2	Installing Heater	20
Information on Total Installation Time	2	Coolant Circuit	21
Information on Operating and Installation Instructions	3	Combustion Air	26
Information on Validity	4	Fuel	27
Technical Information	4	Installing FuelFix	30
Explanatory Notes on Document	4	Exhaust Gas	34
Preliminary Work	5	Installing Exhaust End Fastener	38
Heater Installation Location	5	Final Work	40
Preparing Electrical System	6	FuelFix Template	41
Electrical System	8	Operating Instructions for Manual Air-Conditioning	42
System Wiring Diagram	9	Operating Instructions for Automatic Air-Conditioning	43
Cold Start System Installation	12		
Heater Control Installation	12		
MultiControl CAR Option	12		
Remote Option (Telestart)	12		
ThermoCall Option	13		

Necessary Components

Description	Order No.:
Basic delivery scope of Thermo Top Evo	In accordance with price list
Installation kit for Hyundai i20 T-GDi 2016 Petrol	1325329A
In case of Telestart, heater control, as well as indicator lamp in consultation with end customer	In accordance with price list
In case of MultiControl CAR installation - MultiControl installation frame	9030077_

Webasto Individual Option

Description	Order No.:
Webasto Individual Auxiliary Heating additional kit	1320077_
Webasto Individual Quick additional kit	9030826_
Webasto Individual Select additional kit	9030828_

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.

Information on Total Installation Time

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

The total installation time may vary for vehicle equipment other than provided.

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair



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



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



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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

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

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Hyundai i20

Information on Validity

This installation documentation applies to Hyundai i20 Petrol 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.

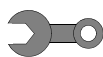
Tightening torque values

- 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.

Mechanics



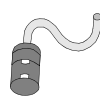
Electrics



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.



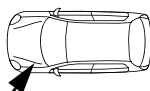
Specific risk of fire or explosion.



Reference to a special technical feature.



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



Reference to the manufacturer's vehicle-specific documents.



Reference to specific installation instructions of Webasto components (demonstrated with the example of the FuelFix).



Reference to general installation instructions of Webasto components.



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



Preliminary Work

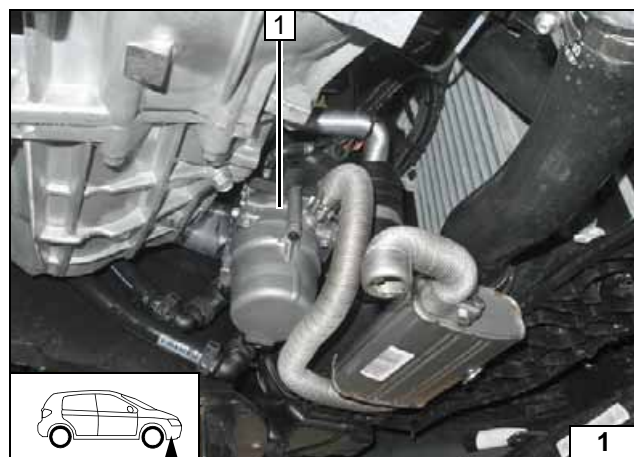
Vehicle



- 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 left wheel well trim.
- Disassemble the engine underride protection.
- Remove the underbody trim on the left.
- Remove the air filter and the hoses to the engine.
- Disconnect and remove the battery.
- Remove the engine control unit and bracket.
- Remove the rear bench seat.
- Open the tank-fitting service lid.
- Remove the lateral instrument panel trim on the left.
- Take off the lower instrument panel trim on the driver's side.
- Disconnect the central electrical box of the passenger compartment and lay it aside.

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.



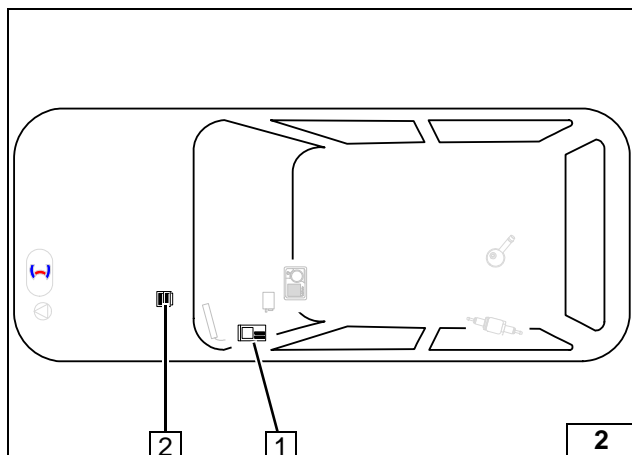
Heater Installation Location

Figure shows T-GDi 74 kW.

- 1 Heater



Installation location

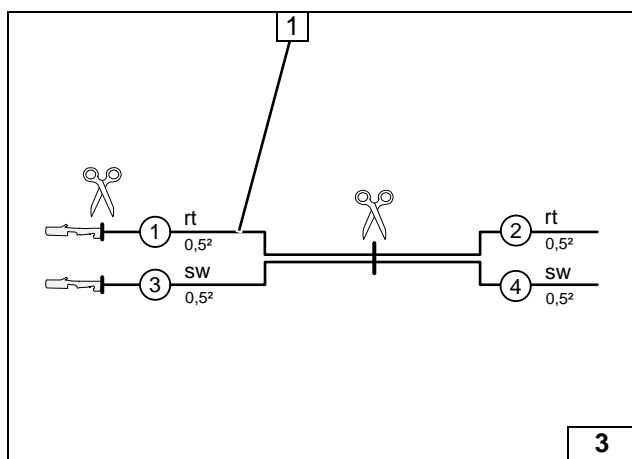


Preparing Electrical System

- 1 Passenger compartment relay and fuse holder
- 2 Engine compartment fuse holder

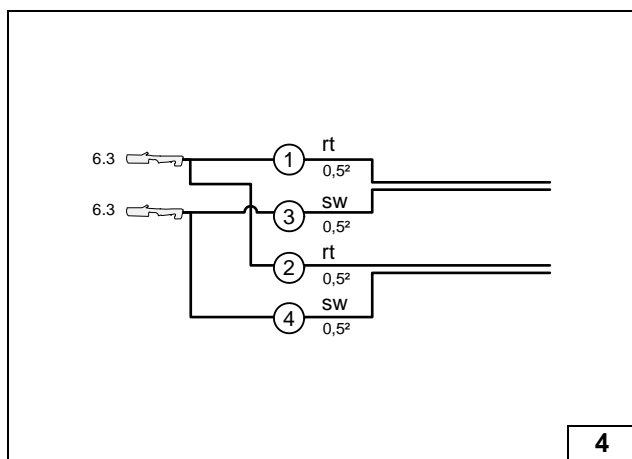


Installation overview



- 1 Power supply wiring harness

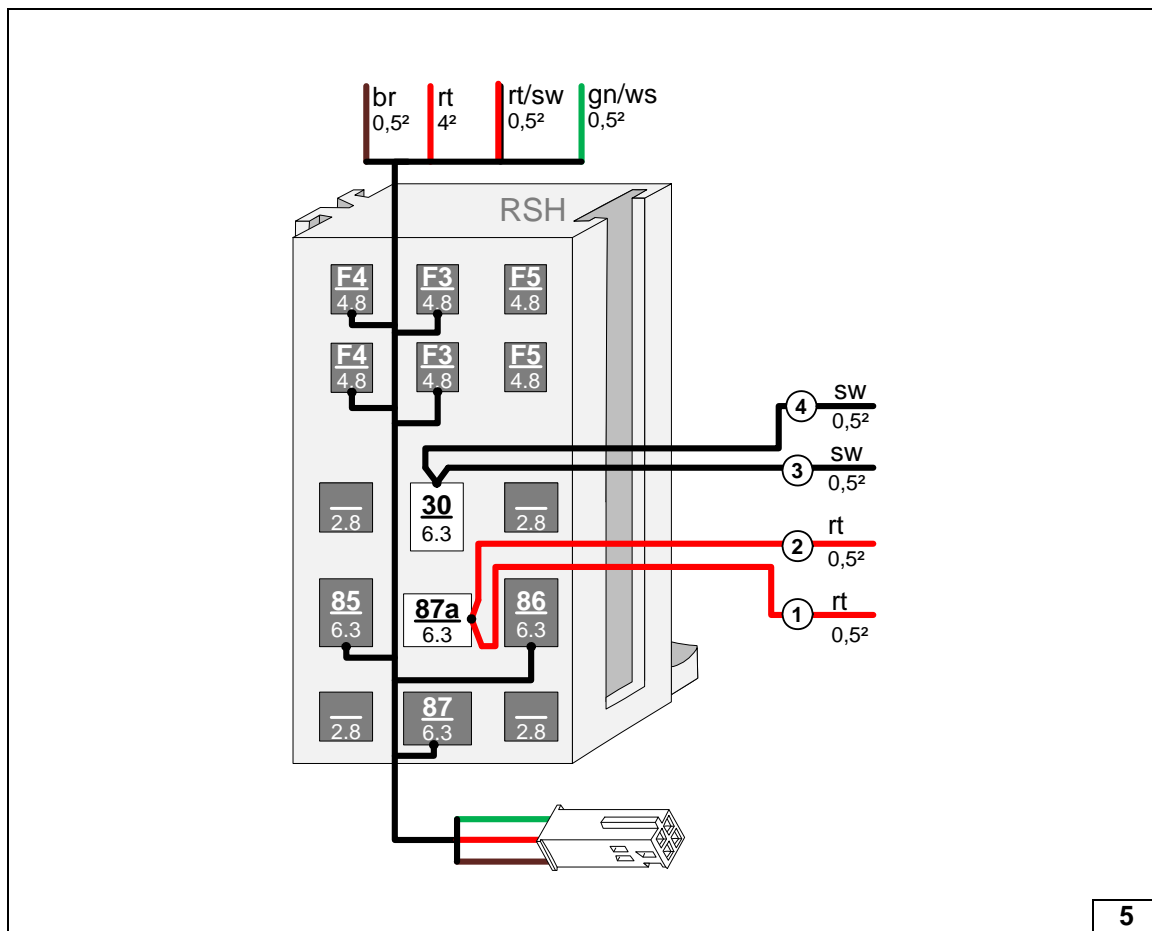
Preparing wiring harness



Wire sections retain their numbering in the entire document.

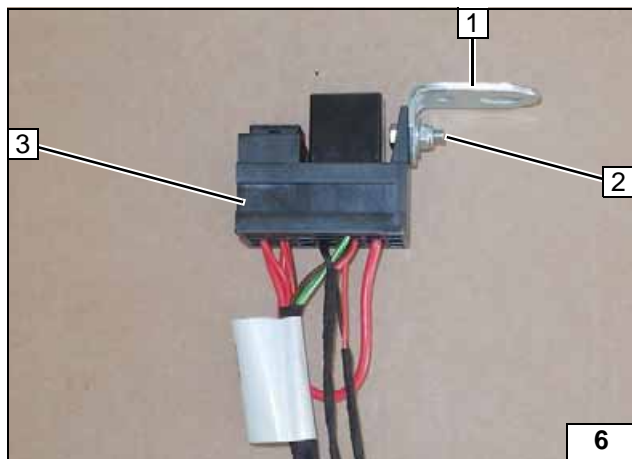


Premounting wiring harness section



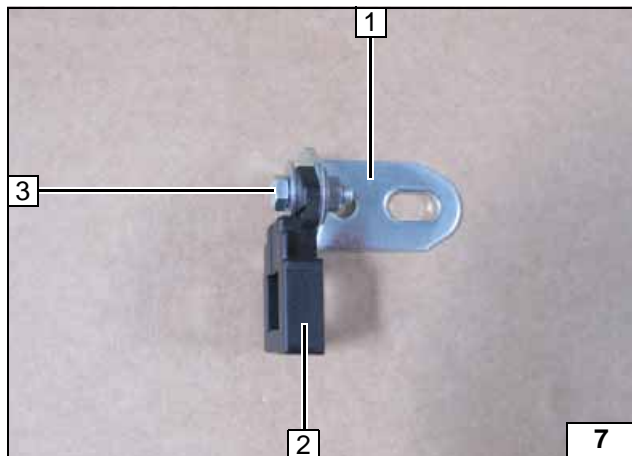
Connecting wires to socket of passenger compartment relay and fuse holder

5



- 1 Angle bracket
- 2 M5x16 bolt, washer [2x], nut
- 3 Passenger compartment relay and fuse holder

Preparing passenger compartment relay and fuse holder



- 1 Angle bracket
- 2 Engine compartment fuse holder retaining plate
- 3 M5x16 bolt, washer [2x], retaining plate, nut

Premounting engine compartment fuse holder retaining plate

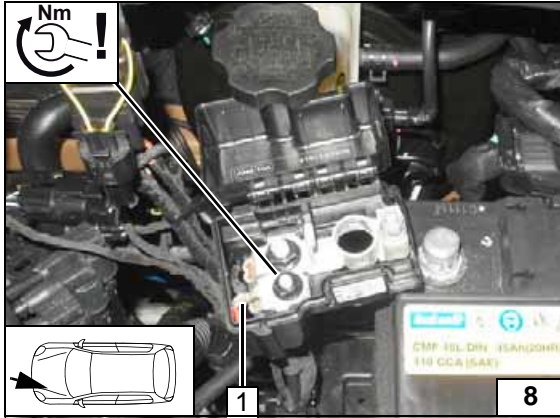


Electrical System



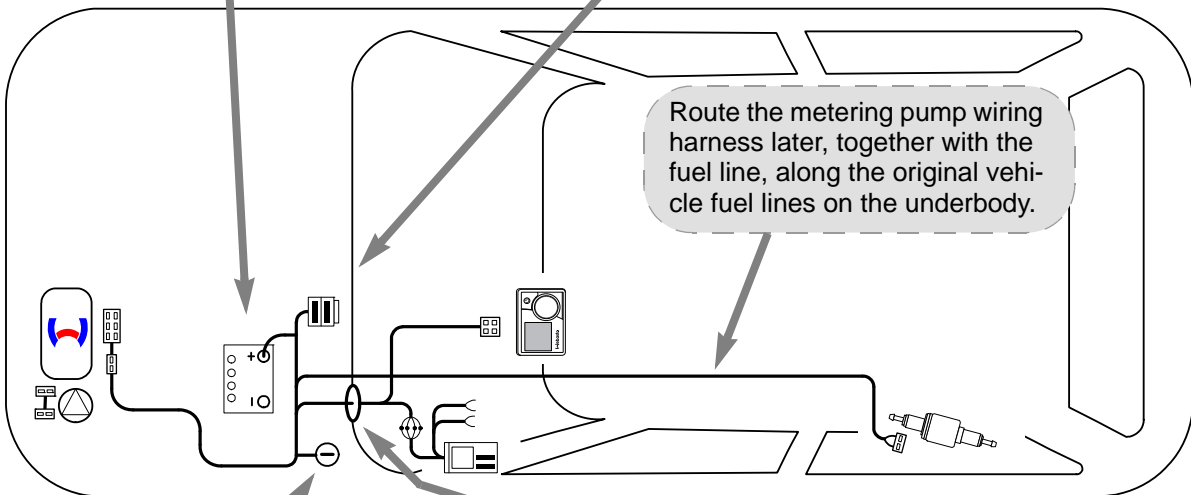
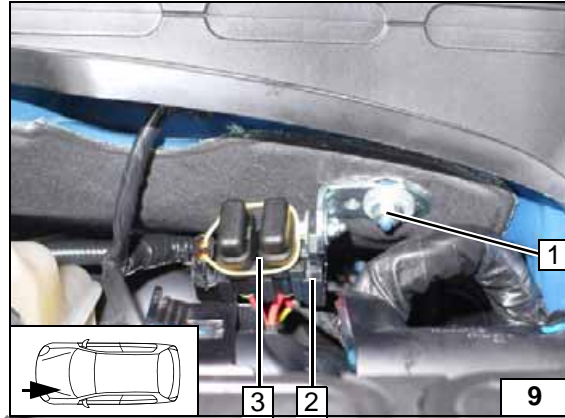
Positive wire

- 1 Positive wire on positive distributor

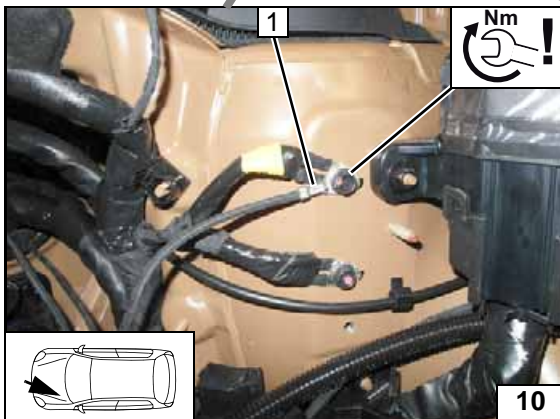


Engine compartment fuse holder

- 1 Original vehicle stud bolt, washer, flanged nut
- 2 Engine compartment fuse holder retaining plate
- 3 Fuses F1-2

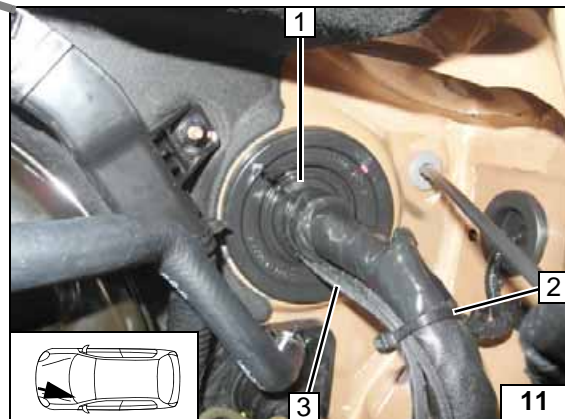


Wiring harness routing diagram



Earth wire

- 1 Earth wire on original vehicle earth support point



Wiring harness pass through

Route wiring harnesses of heater and heater control 3 through rubber plug 1 into the passenger compartment.

- 2 Cable tie

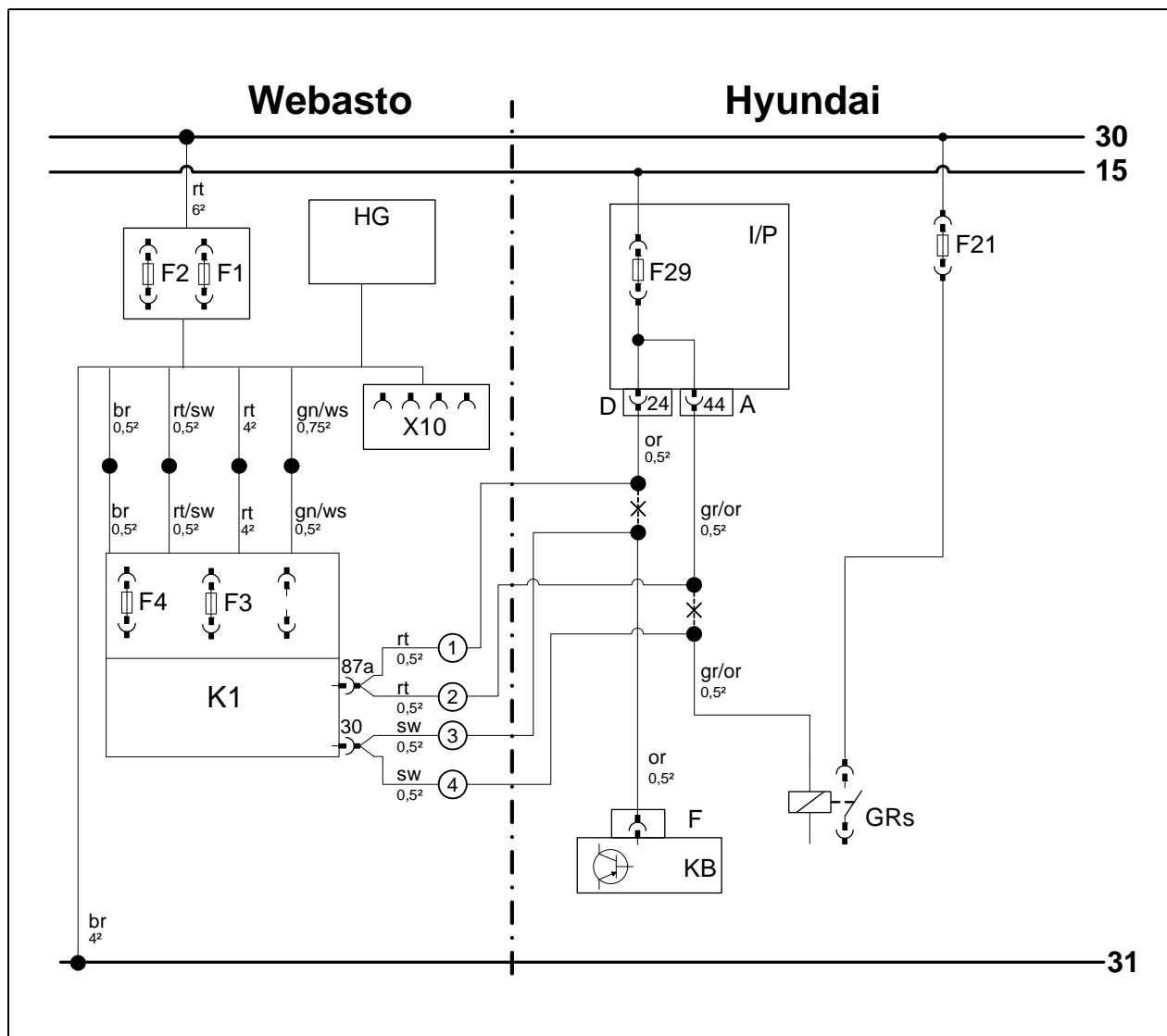




System Wiring Diagram

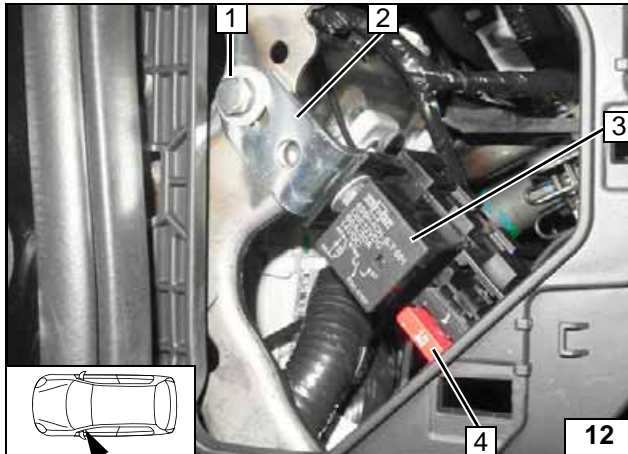
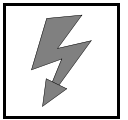


System Wiring Diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	I/P	Central electrical box for passenger compartment	rt	red
F1	20A fuse			sw	black
F2	30A fuse	F29	10A fuse	gr	grey
X10	4-pin socket of heater control	D	Connector I/P	gn	green
F3	1A fuse	A	Connector I/P	br	brown
F4	10A fuse	F21	40A fuse	ws	white
K1	Fan relay	GRs	Fan relay	or	orange
		KB	A/C control unit		
		F	Connector of KB		
				X	Cutting point
				Wiring colours may vary.	

Legend

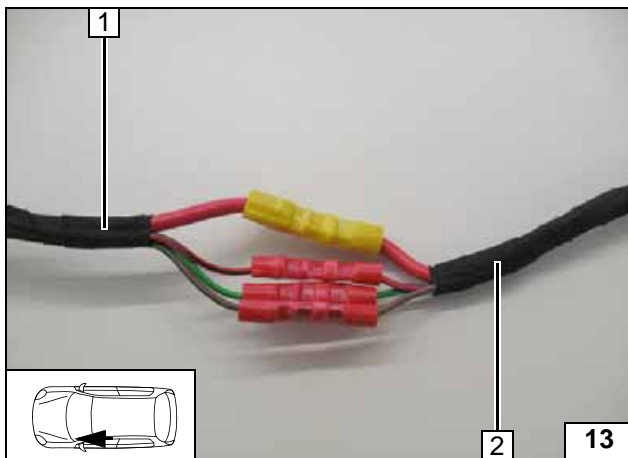


Fan controller

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

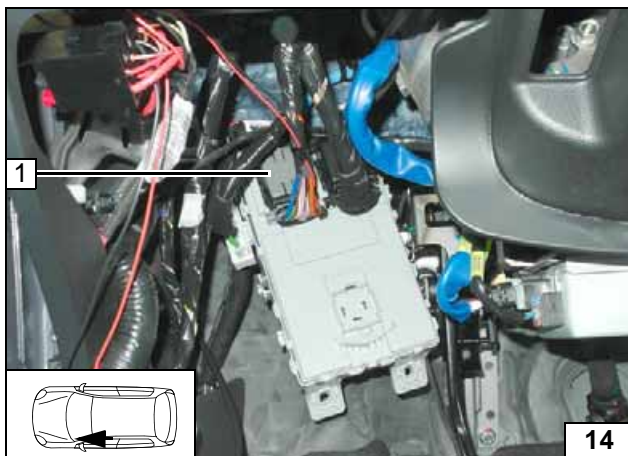
- 1 M6x20 bolt, spring lockwasher, large diameter washer, original vehicle thread
- 2 Angle bracket
- 3 Relay K1
- 4 10A fuse F4

Installing passenger compartment relay and fuse holder



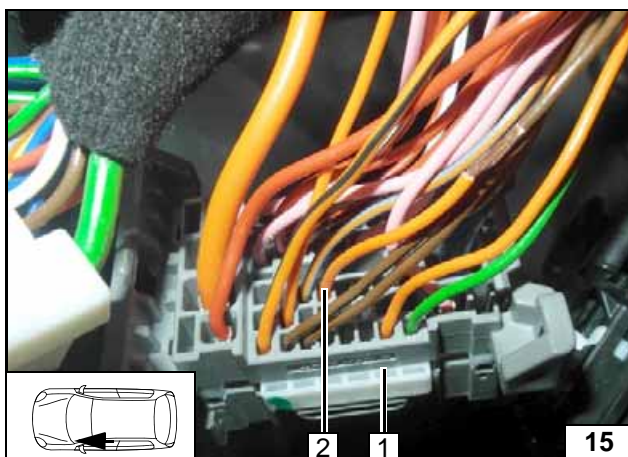
- 1 Passenger compartment relay and fuse holder wiring harness
- 2 Heater wiring harness

Connecting same colour wires of wiring harnesses



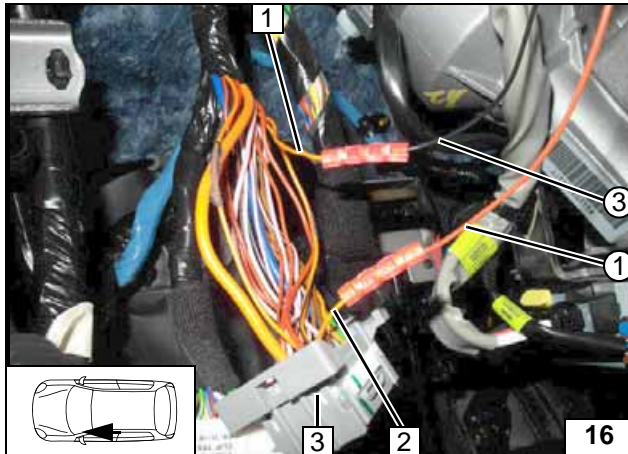
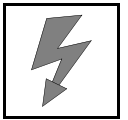
- 1 Grey connector I/P-D (back side of central electrical box)

View of connector I/P-D



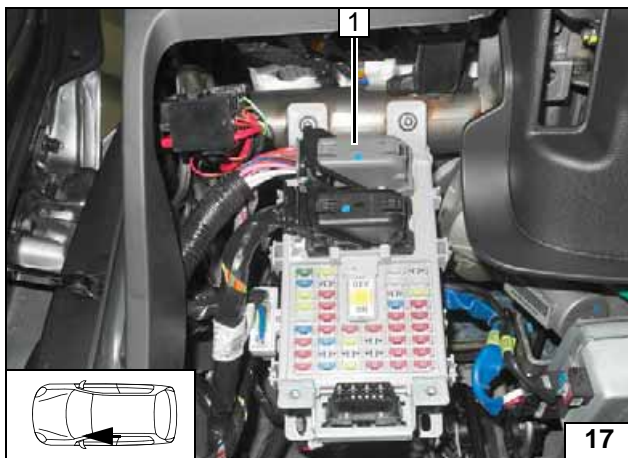
- 1 Grey connector I/P-D (back side of central electrical box)
- 2 Socket of orange (or) wire, pin 24

View of connector I/P-D



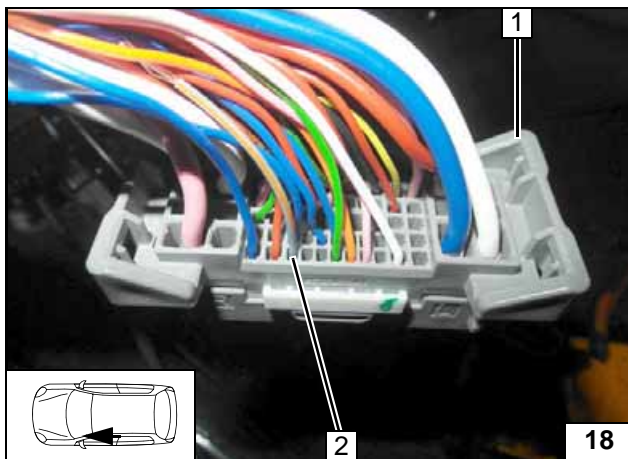
- 1 Orange (or) wire of connector F, from A/C control unit
- 2 Orange (or) wire of connector I/P-D/ pin 24, from central electrical box
- 3 Grey connector I/P-D (back side of central electrical box)
- ① Red (rt) wire of K1/87a
- ③ Black (sw) wire of K1/30

**Connec-
tion of cen-
tral
electrical
box**



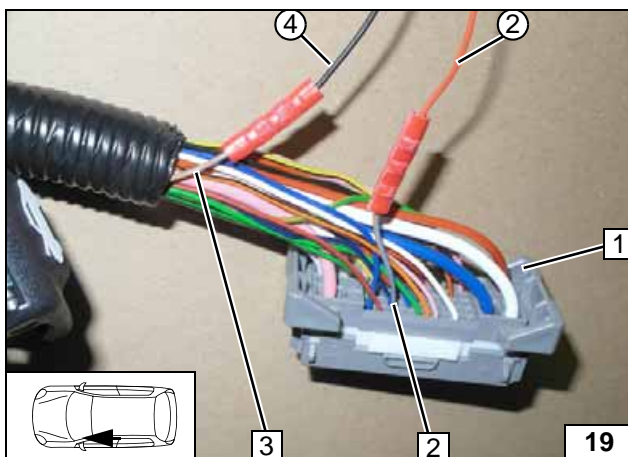
- 1 Grey connector I/P-A (front side of central electrical box)

**View of con-
nector I/P-A**



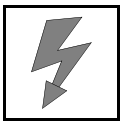
- 1 Grey connector I/P-A (front side of central electrical box)
- 2 Socket of grey/orange (gr/or) wire, pin 44

**View of con-
nector I/P-A**



- 1 Grey connector I/P-A (front side of central electrical box)
- 2 Grey/orange (gr/or) wire of connector I/P-A/ pin 44, from central electrical box
- 3 Grey/orange (gr/or) wire of fan relay
- ② Red (rt) wire of K1/87a
- ④ Black (sw) wire of K1/30

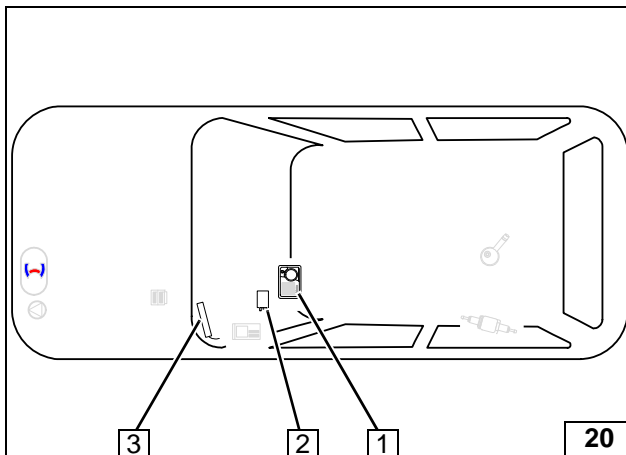
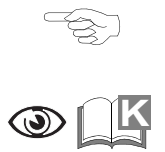
**Connec-
tion of cen-
tral
electrical
box**



Cold Start System Installation

! Integrate the cold start system as per the separate installation documentation:

Installation documentation of cold start system for Hyundai i20 1.0 T-GDi petrol

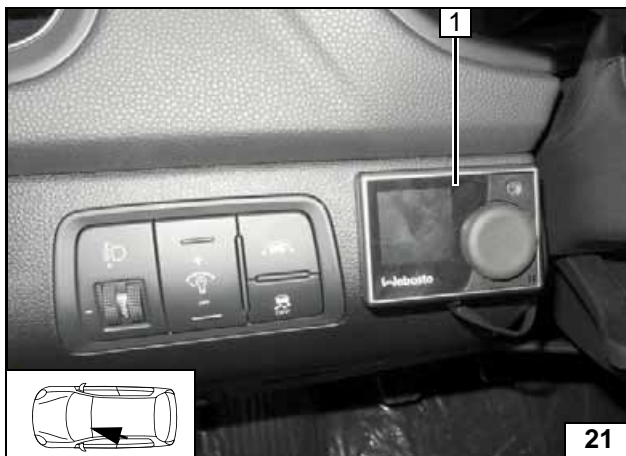


Heater Control Installation

- 1 MultiControl CAR
- 2 Telestart / ThermoCall receiver
- 3 Telestart / ThermoCall aerial



Installation overview

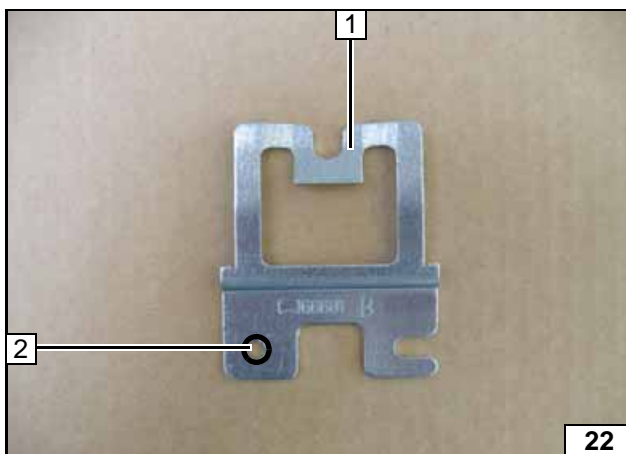


MultiControl CAR Option

- 1 MultiControl CAR with installation frame



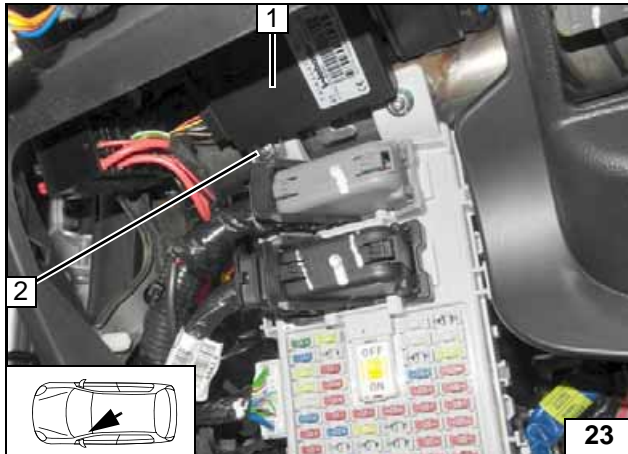
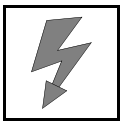
Installing MultiControl CAR



Remote Option (Telestart)

- 1 Receiver bracket
- 2 Drill out to 6.5 mm dia.

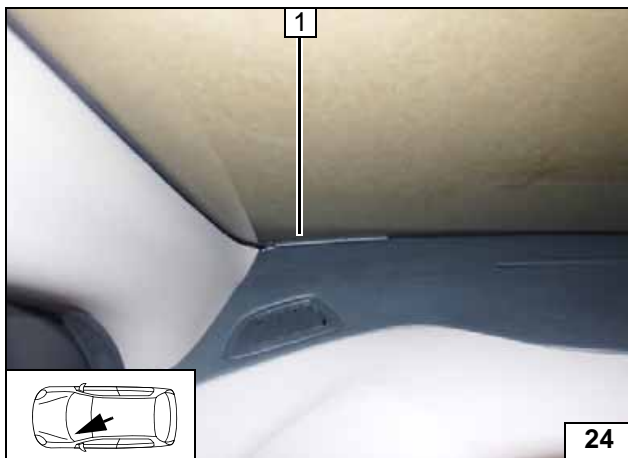
Preparing bracket



- 1 Receiver
- 2 Original vehicle stud bolt (fastening of central electrical box), receiver bracket, original vehicle nut



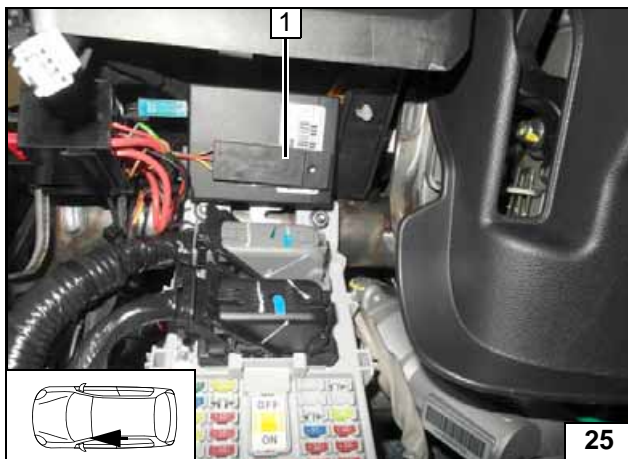
Installing receiver



- 1 Aerial



Installing aerial

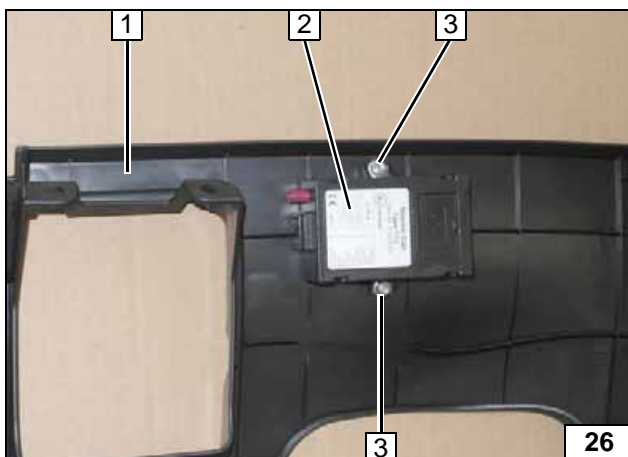


Temperature sensor T100 HTM

Fasten temperature sensor 1 using double-sided adhesive tape.



Installing temperature sensor

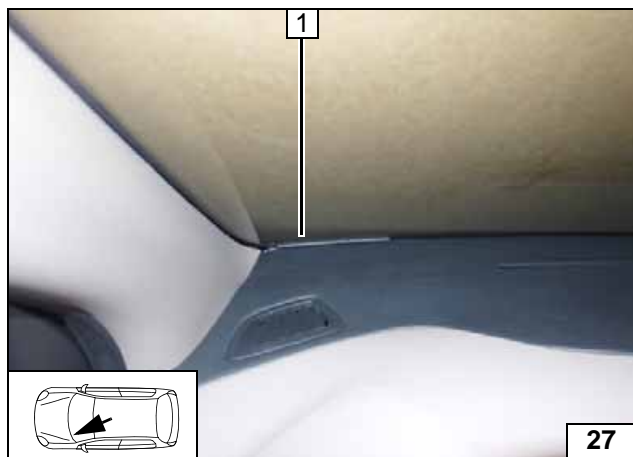


ThermoCall Option

- 1 Trim under the steering column
- 2 Receiver
- 3 5.5mm hole; M5x16 bolt, washer, flanged nut [2x]



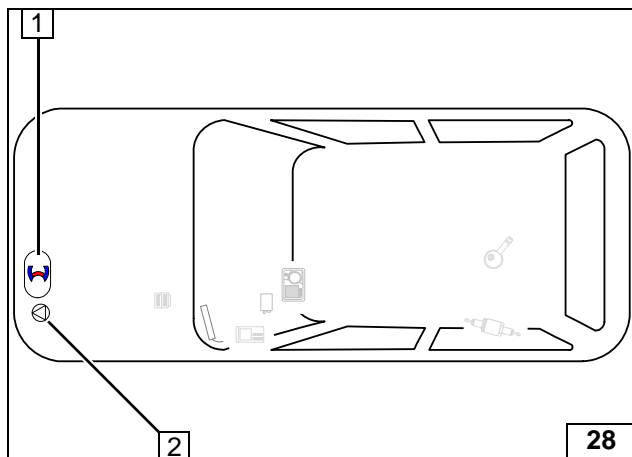
Installing receiver



1 Aerial (optional)



Installing
aerial

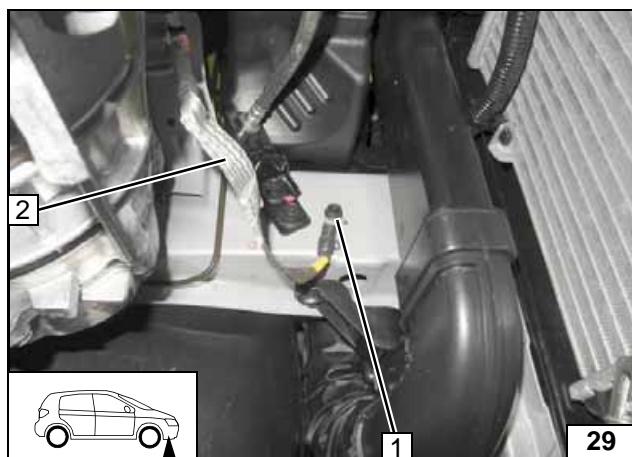


Preparing Installation Location

- 1 Heater
- 2 Circulating pump



Installation overview

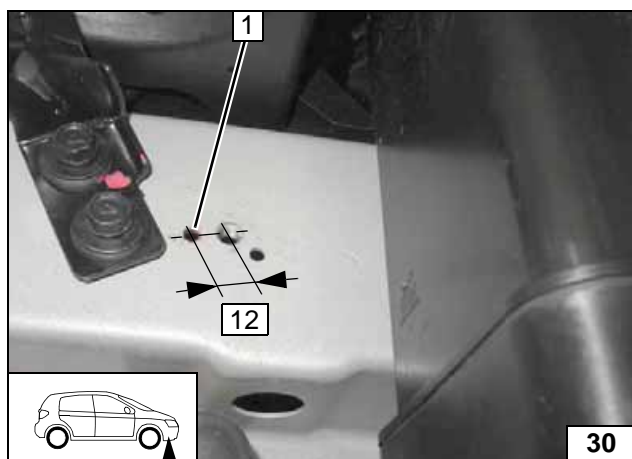


- 1 Original vehicle bolt
- 2 Earth strap

The earth strap will be installed later!

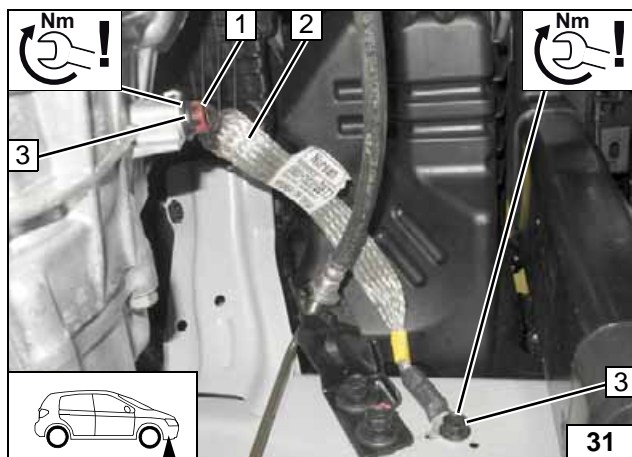


Detaching original vehicle earth strap



- 1 5mm dia. hole pattern for twist protection

Copying hole pattern

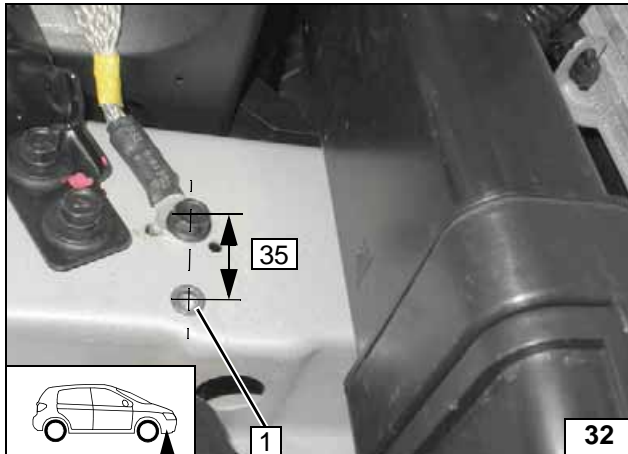
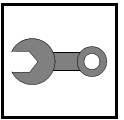


Turn original vehicle earth strap 2 at position 1 upwards by approx. 180°.

- 3 Original vehicle bolt [2x]

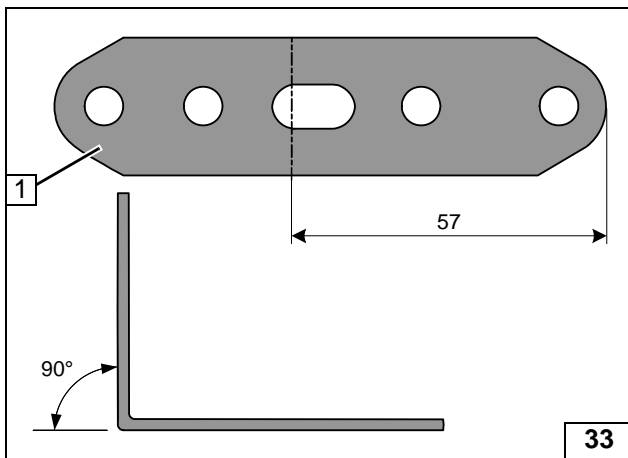


Installing original vehicle earth strap



1 9.1mm dia. hole; rivet nut

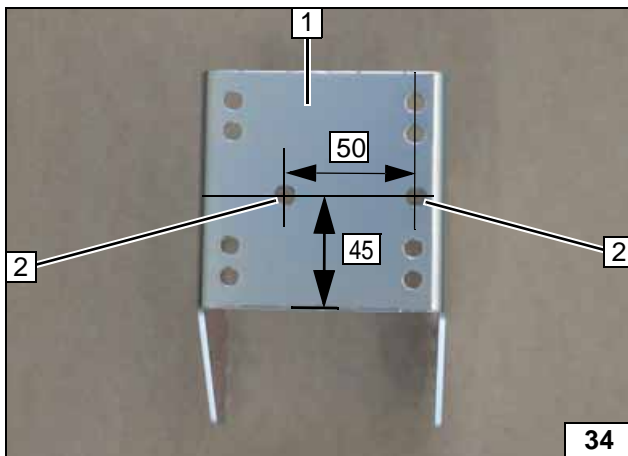
Installing rivet nut



1 Perforated bracket [2x]

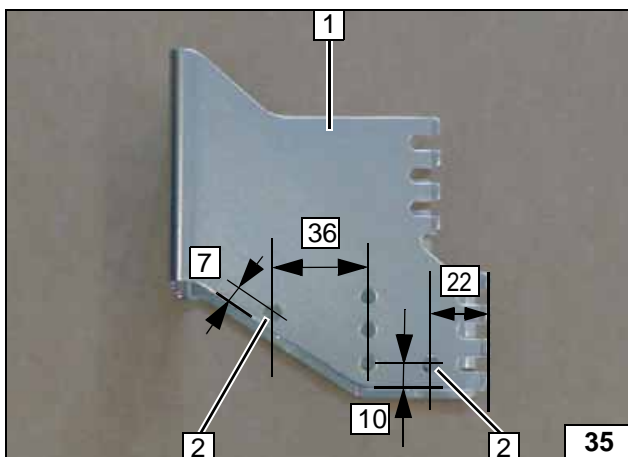


Bending perforated bracket



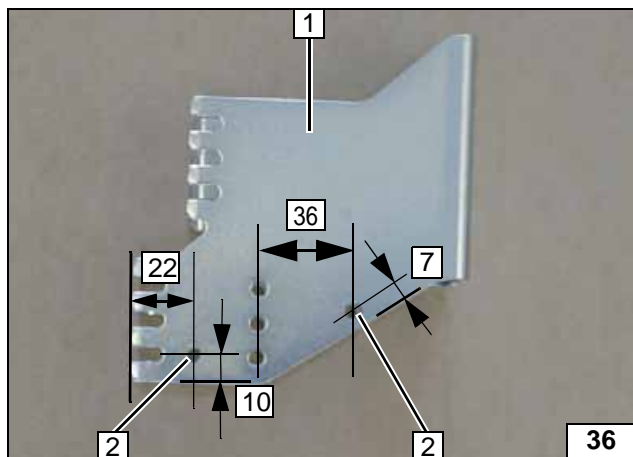
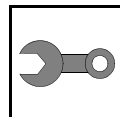
1 Bracket
2 7 mm dia. hole [2x]

Preparing bracket



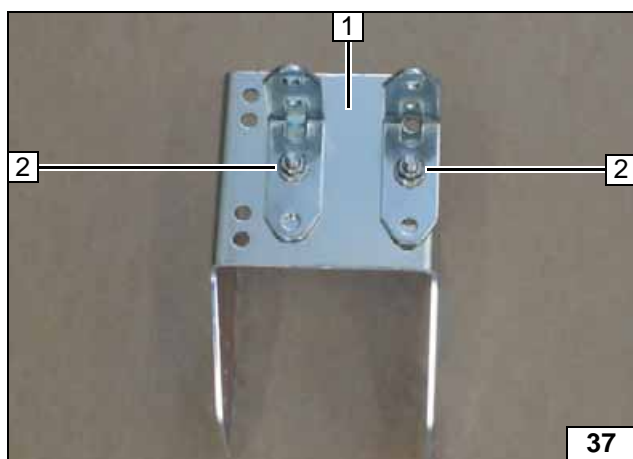
1 Bracket
2 7 mm dia. hole [2x]

Preparing bracket



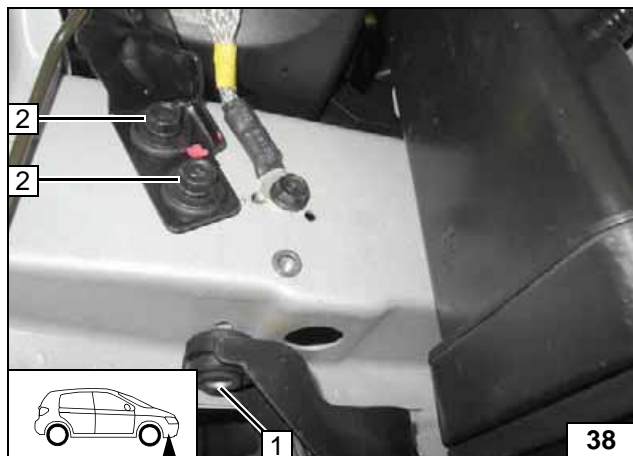
- 1 Bracket
- 2 7 mm dia. hole [2x]

Preparing bracket



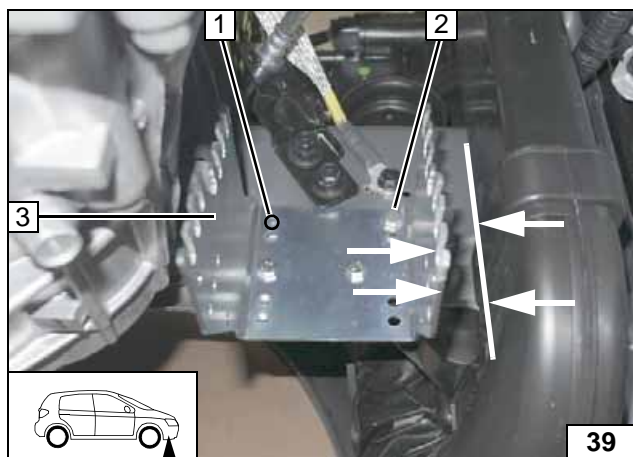
- 1 Bracket
- 2 M6x16 bolt, hole, perforated bracket (long side), flanged nut [2x each]

Installing perforated bracket



- 1 Remove original vehicle bolt; will be installed again later
- 2 Original vehicle bolt [2x]

Removing original vehicle bolt

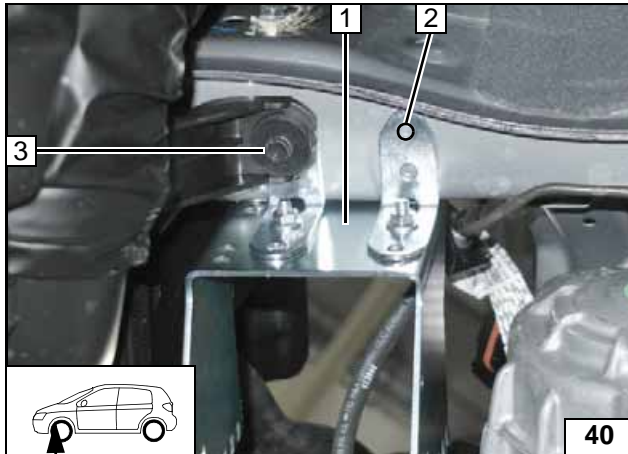
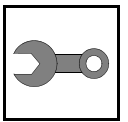


Loosely install bracket and align. Ensure sufficient distance from adjacent components, correct if necessary.

- 1 Hole pattern
- 2 M6x20 bolt, spring lockwasher
- 3 Bracket



Copying hole pattern

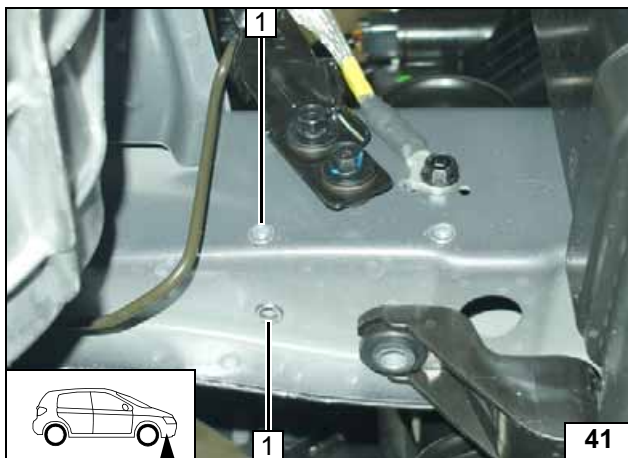


- 1 Bracket
- 2 Hole pattern
- 3 Original vehicle bolt

Remove bracket again.

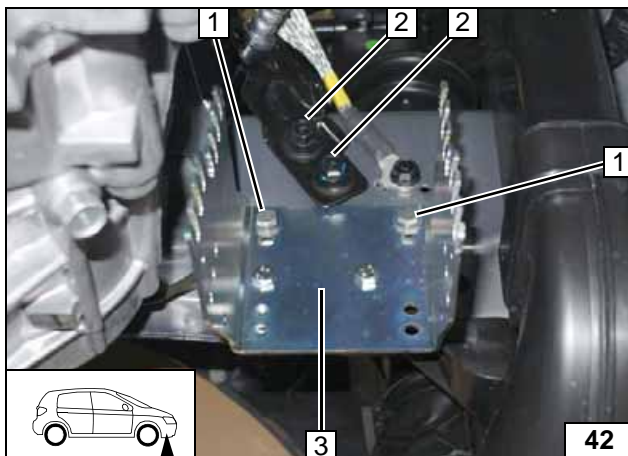


**Copying
hole pattern**



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

**Installing
rivet nut**



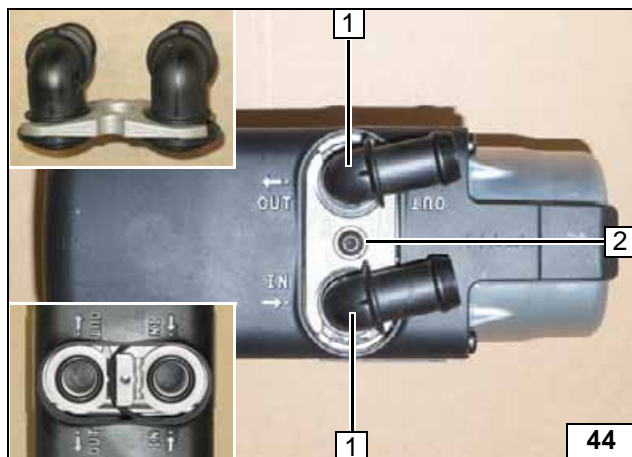
- 1 M6x20 bolt, spring lockwasher [2x each]
- 2 Tighten original vehicle bolts [2x]
- 3 Bracket

**Installing
bracket**



- 1 M6x20 bolt, spring lockwasher
- 2 Perforated bracket
- 3 Original vehicle bolt

**Installing
bracket**

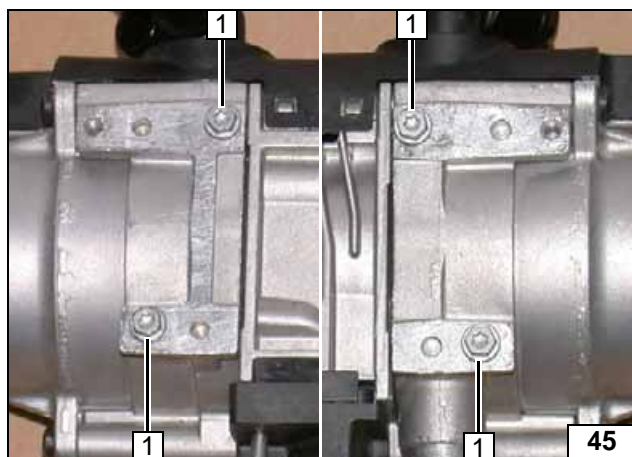


Preparing Heater

- 1 90° water connection piece, sealing ring [2x each]
- 2 5x15 self-tapping bolt, retaining plate of water connection piece



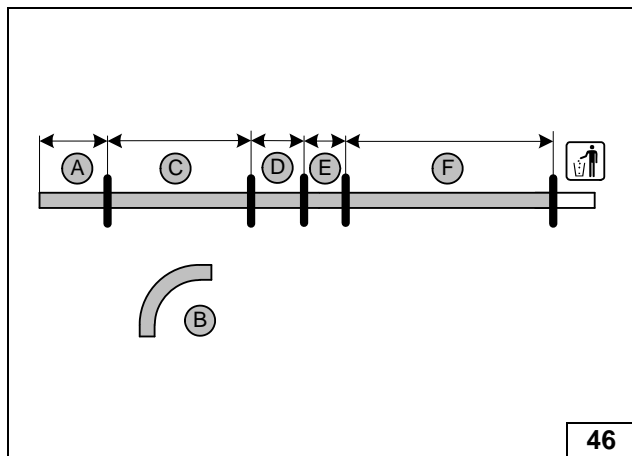
Installing water connection piece



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

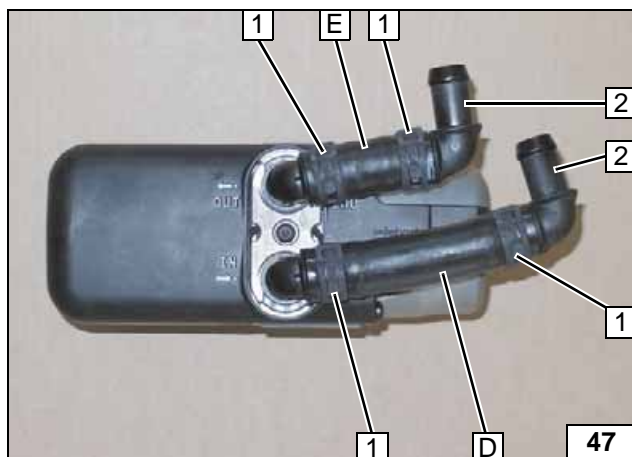


Screwing bolts in by a number of thread turns



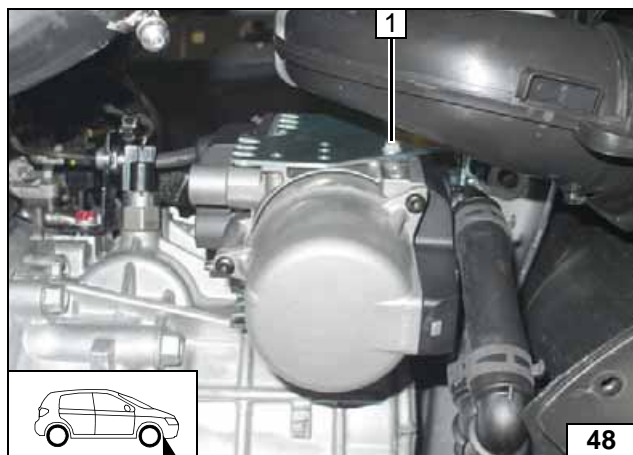
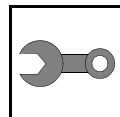
- A = 200
- B = 90°, 18mm dia.
- C = 420
- D = 100
- E = 60
- F = 700

Cutting hoses to length



- 1 25mm dia. spring clip [4x]
- 2 90°, 18x18mm connecting pipe [2x]

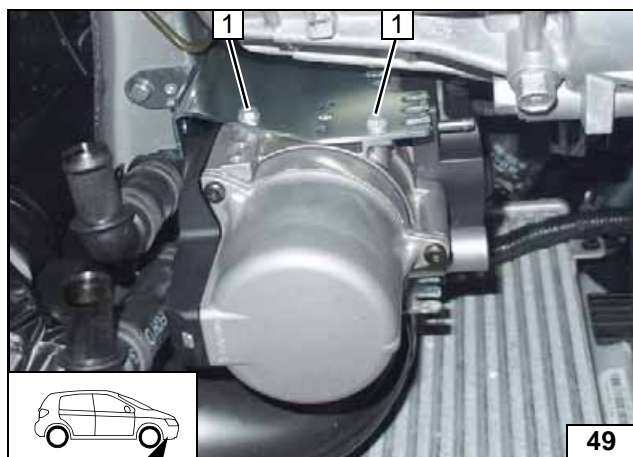
Installing hoses D and E



Installing Heater

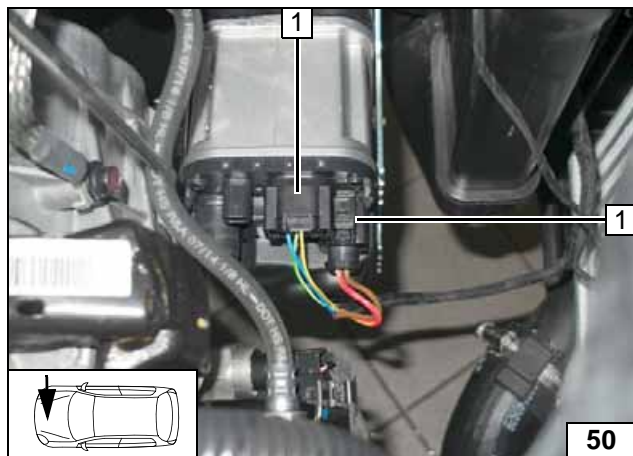
- 1 5x13 self-tapping bolt

Installing heater



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

Installing heater



- 1 Heater wiring harness connector [2x]

Installing wiring harness of heater

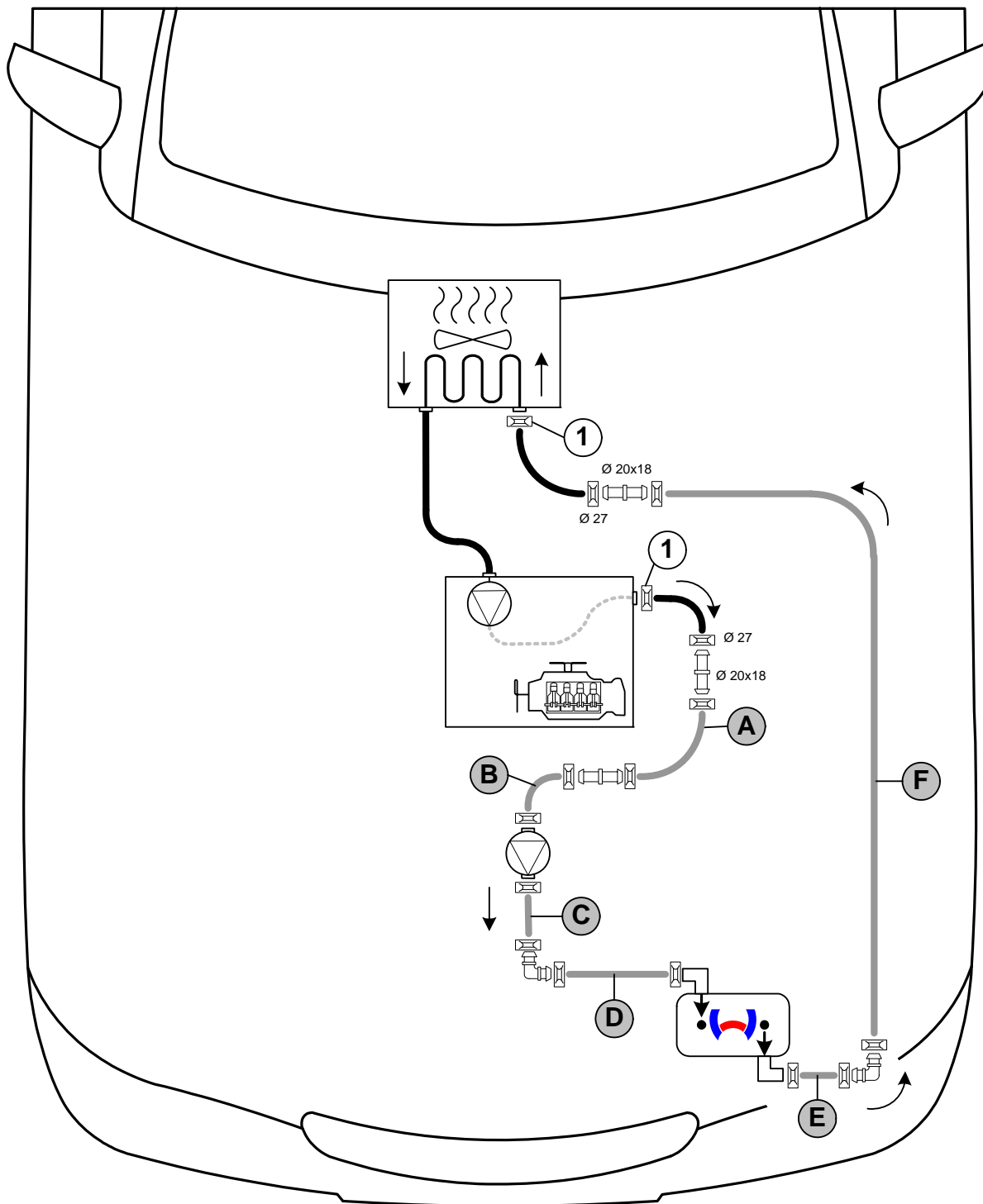


Coolant Circuit






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

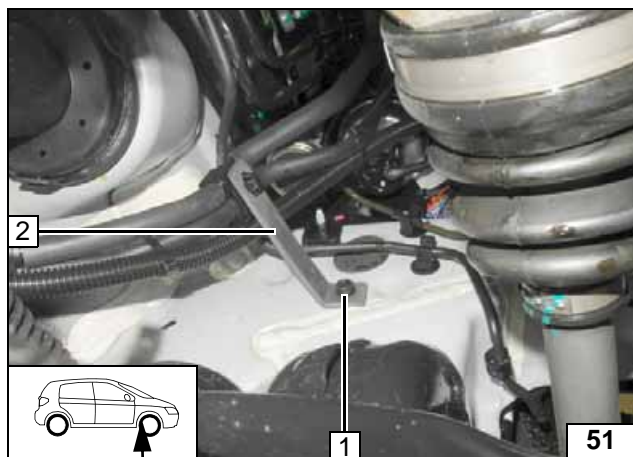
The connection should be modelled on an 'inline' circuit and based on the following diagram:



Hose routing diagram

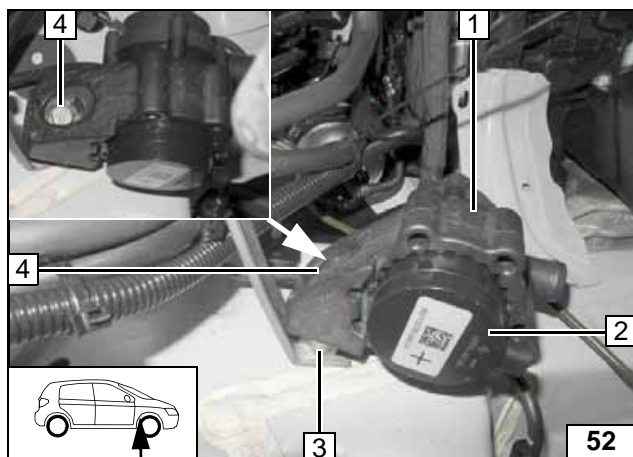
All spring clips without a specific designation  = 25 mm dia.
 All connecting pipes without a specific designation  = 18x18mm dia.
 1 = Original vehicle spring clip .





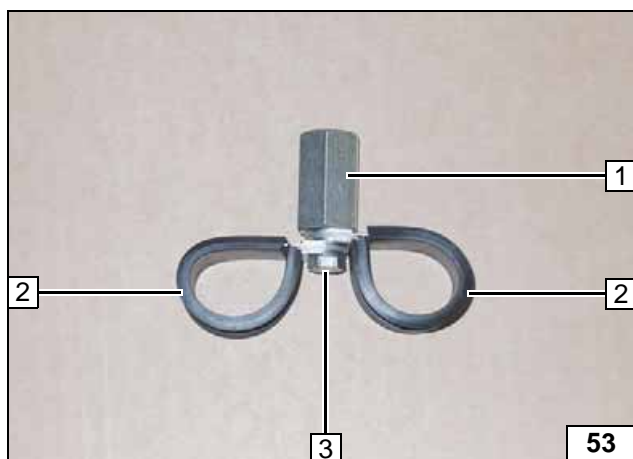
- 1 Remove original vehicle bolt
- 2 Original vehicle bracket

Installing circulating pump



- 1 Circulating pump mount
- 2 Circulating pump
- 3 20mm shim
- 4 M6x50 bolt

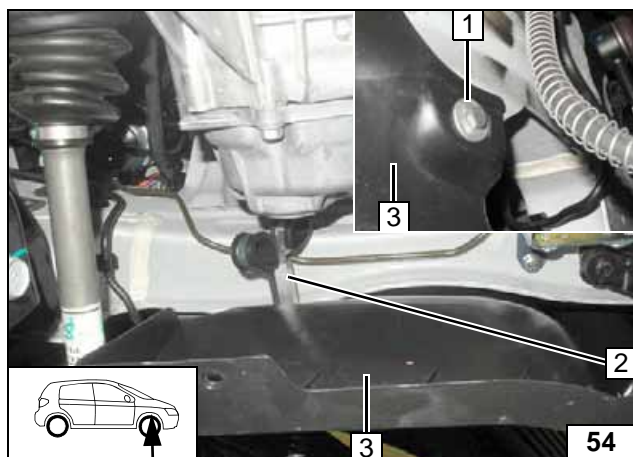
Installing circulating pump



- 1 30mm spacer nut
- 2 25mm dia. rubber-coated p-clamp [2x]
- 3 M6x16 bolt

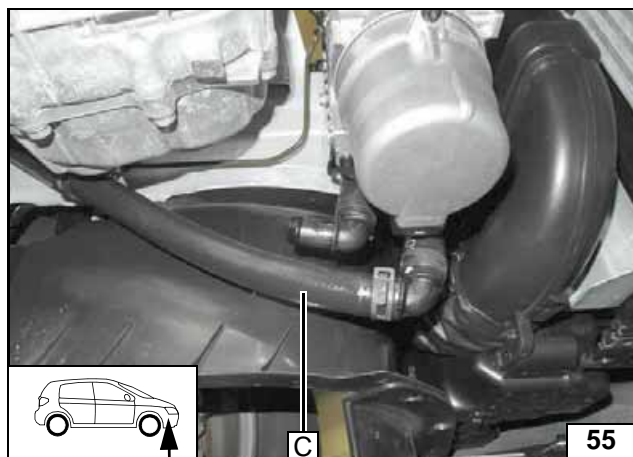


Premounting fastening for hoses

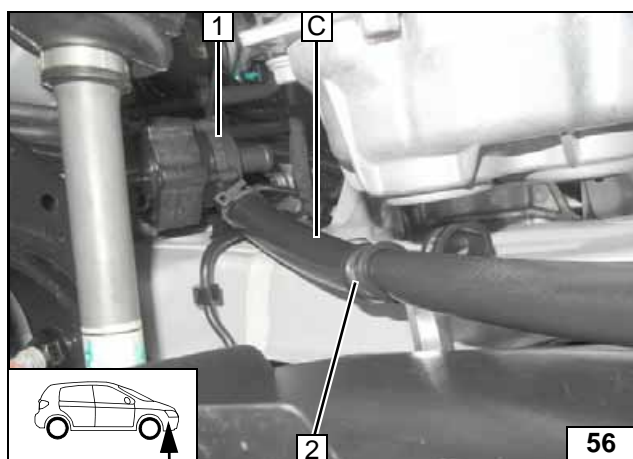


- 1 Install M6x16 bolt, large diameter washer loosely
- 2 Premounted fastening for hoses, M6x16 bolt, large diameter washer
- 3 Wheel-well inner panel

Installing wheel-well inner panel / fastening for hoses



Connect-
ing heater
inlet

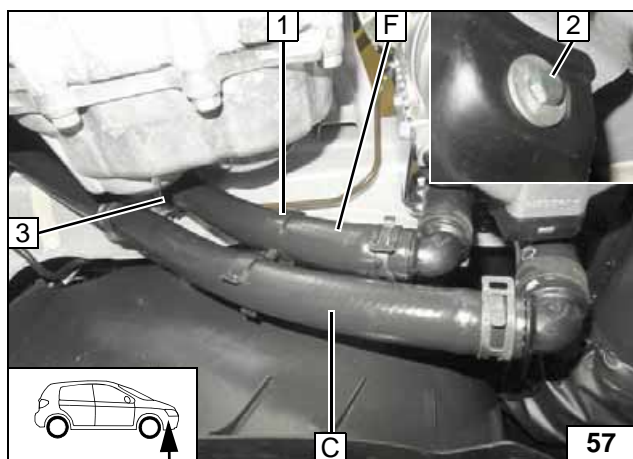


Lead hose **C** through rubber-coated hose clamp **2**.



1 Circulating pump

Connect-
ing circulat-
ing pump
outlet



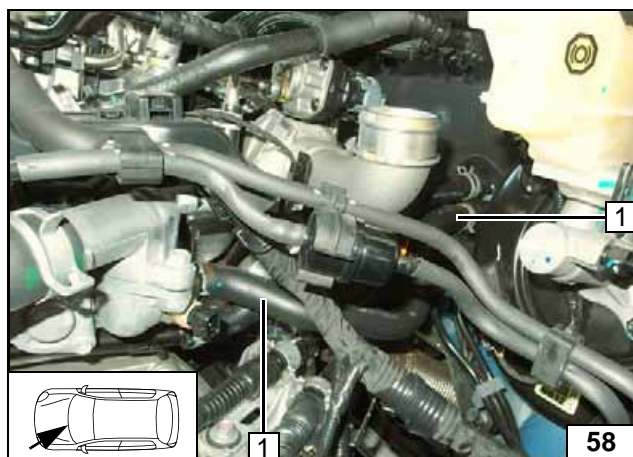
Lead hose **F** through rubber-coated hose clamp **3**.

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



1 20x22 spacer bracket
2 Tighten M6x16 bolt, large diameter washer

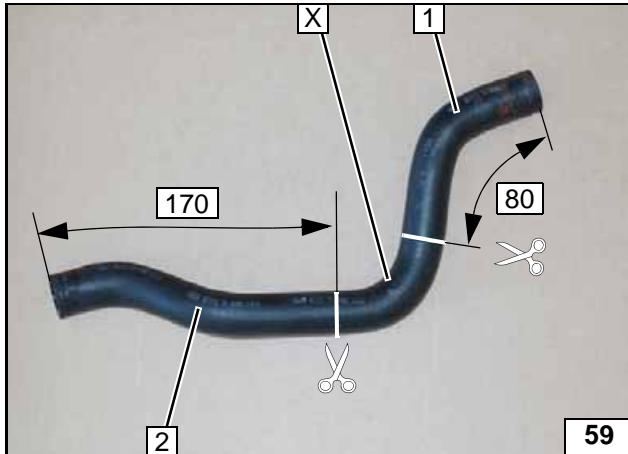
Connect-
ing heater
outlet



Remove hose of engine outlet / heat exchanger inlet **1**. Original vehicle clamps will be reused.



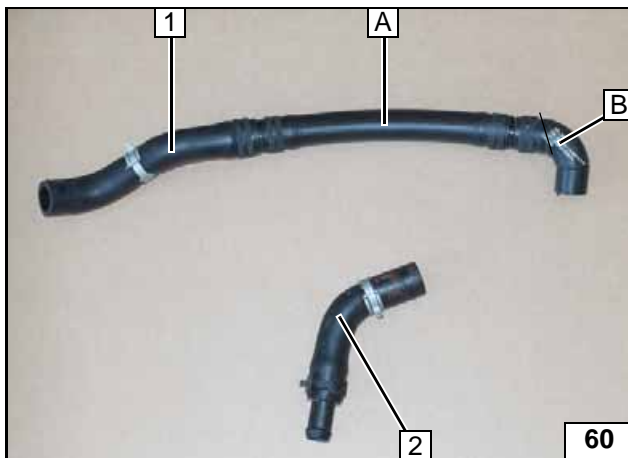
Cutting
point



- 1 Heat exchanger inlet hose section
- 2 Engine outlet hose section

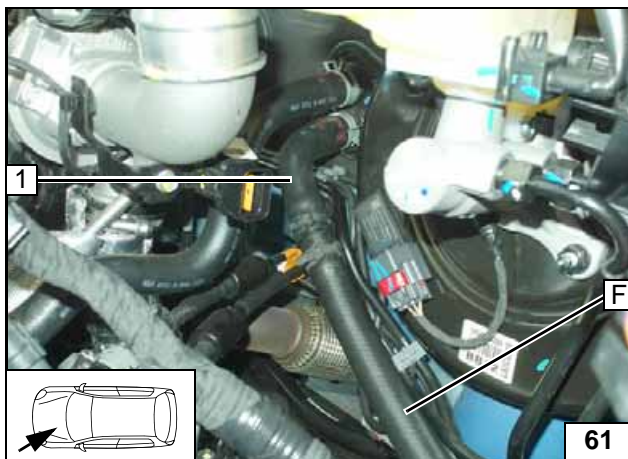
X =

Preparing hose



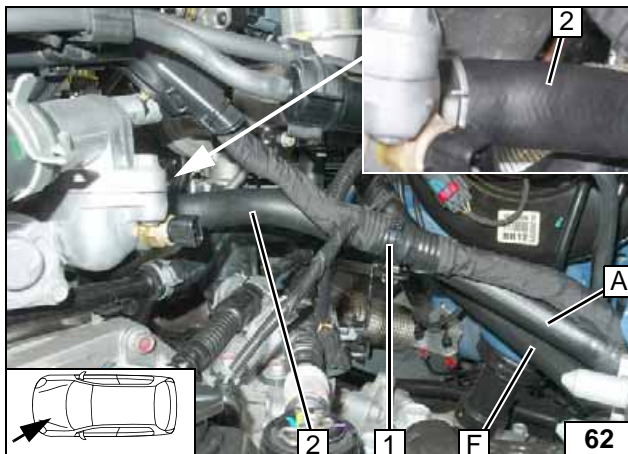
- 1 Engine outlet hose section
- 2 Heat exchanger inlet hose section

Preparing hoses



- 1 Heat exchanger inlet hose section

Connecting heat exchanger inlet

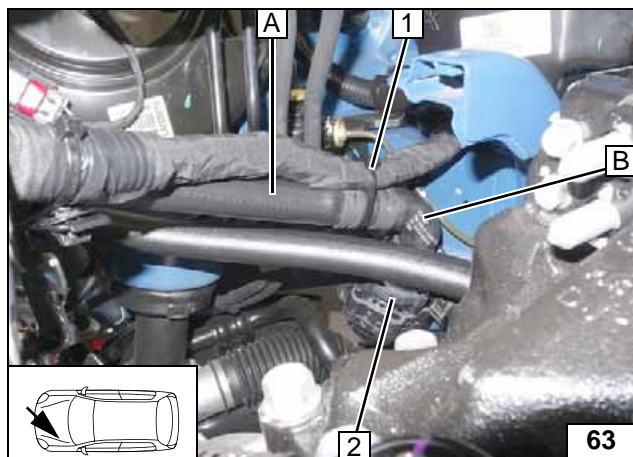


Align hoses.
Ensure sufficient distance from adjacent components, correct if necessary.

- 1 Cable tie
- 2 Engine outlet hose section

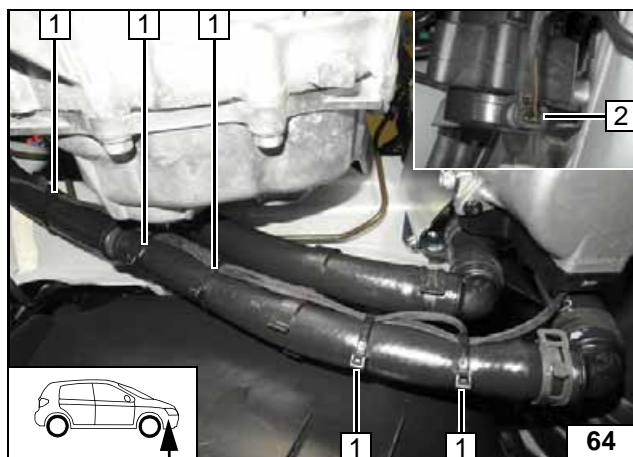


Connecting engine outlet



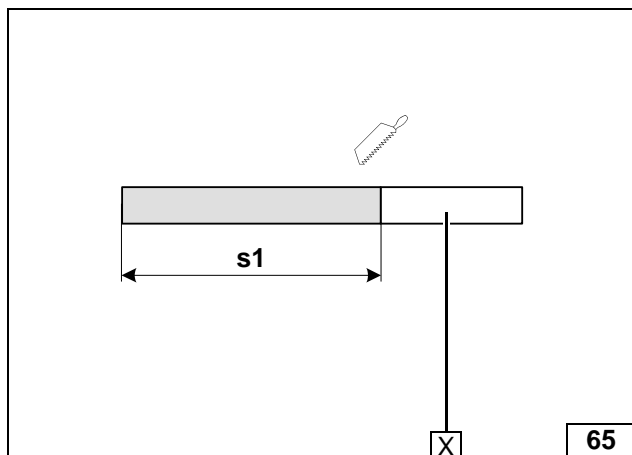
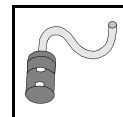
- 1 Cable tie
- 2 Circulating pump

Connect-
ing circulat-
ing pump
inlet



- 1 Cable tie [5x]
- 2 Mounted connector of circulating pump wiring harness

Routing
wiring har-
ness of cir-
culating
pump

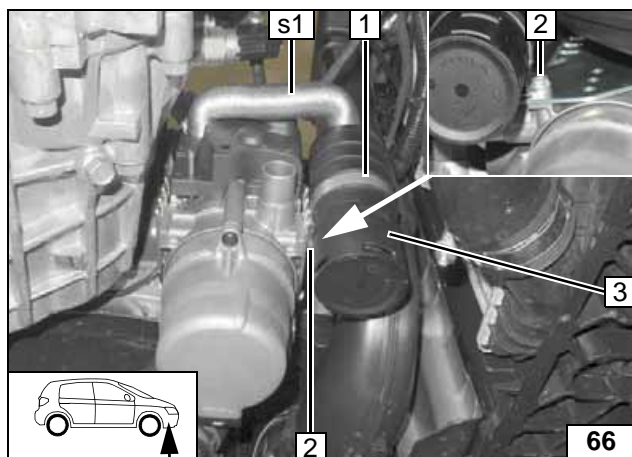


Combustion Air

s1 = 240

X =

Cutting combustion air pipe to length



- 1 51mm dia. clamp
- 2 5x16 self-tapping bolt
- 3 Silencer



Installing silencer and combustion air pipe s1



Fuel



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

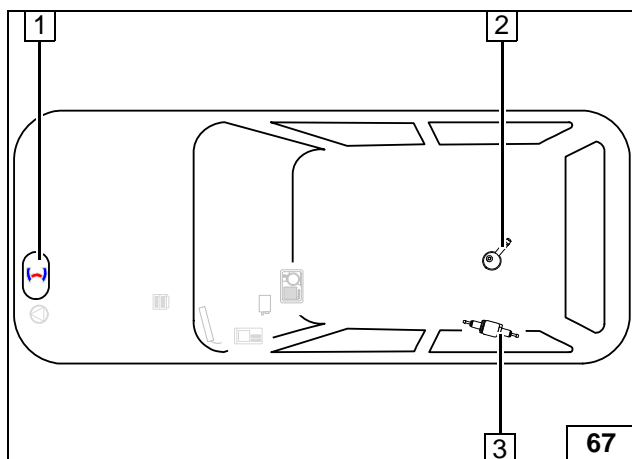
Catch any fuel running off in an appropriate container.

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.

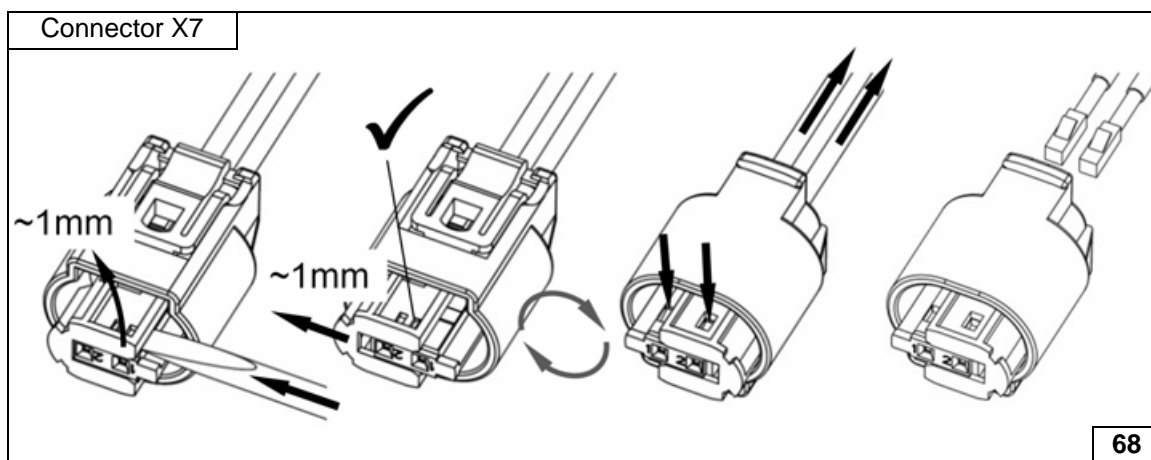
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.



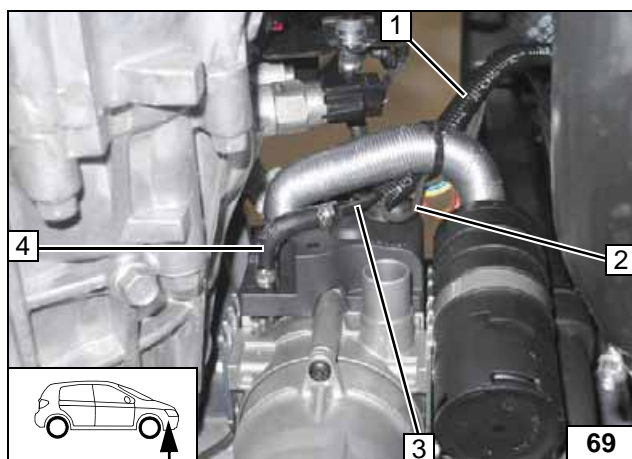
- 1 Heater
- 2 FuelFix
- 3 Metering pump



Installation overview



Dismantling metering pump connector

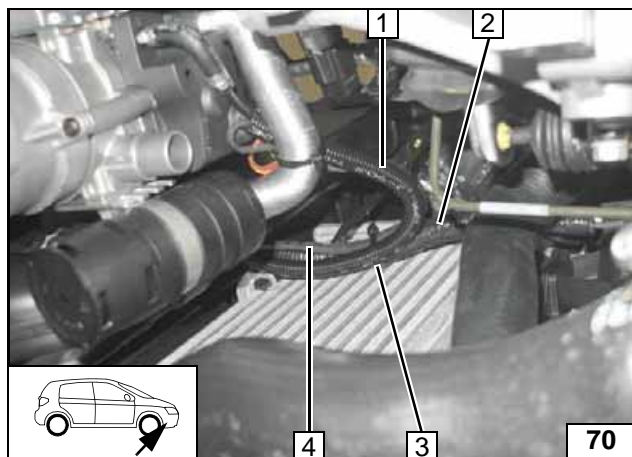


Pull fuel line 3 and wiring harness of metering pump 2 into 10mm dia. corrugated tube 1. Attach wiring harness of heater and wiring harness of circulating pump to corrugated tube 1 using a cable tie.

- 4 90° moulded hose, 10mm dia. clamp [2x]

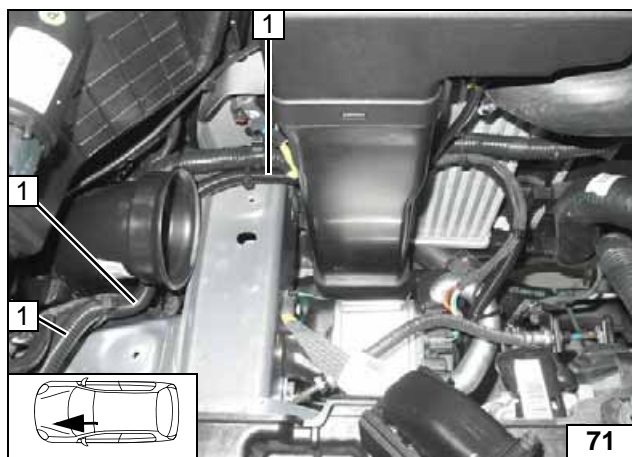


Installing wiring harness and fuel line



- 1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube
- 2 Original vehicle wiring harness
- 3 Cable tie
- 4 Heater wiring harness

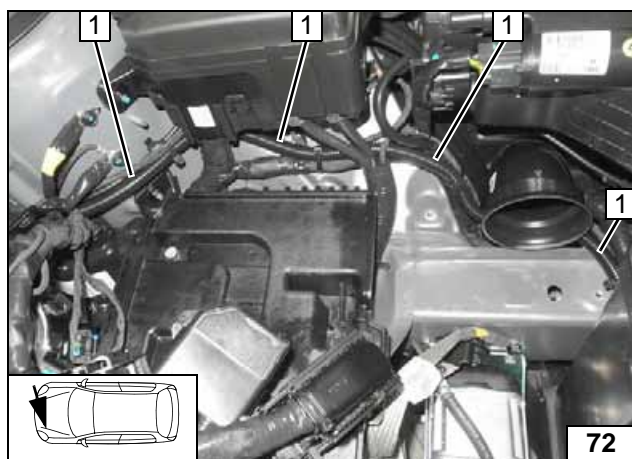
Routing lines



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube 1 along original vehicle wiring harness upwards in the engine compartment.



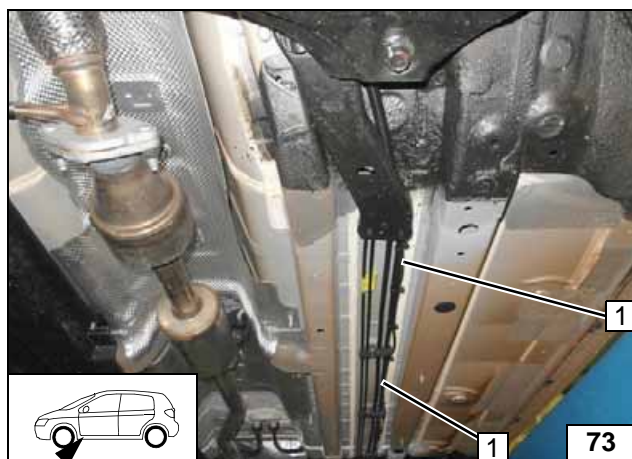
Routing lines



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



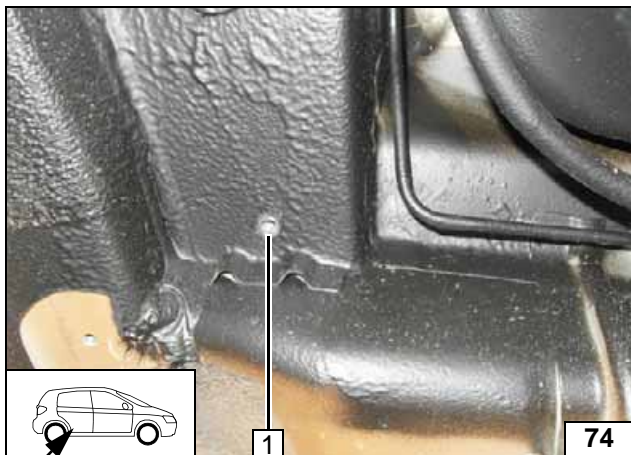
Routing lines



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



Routing lines

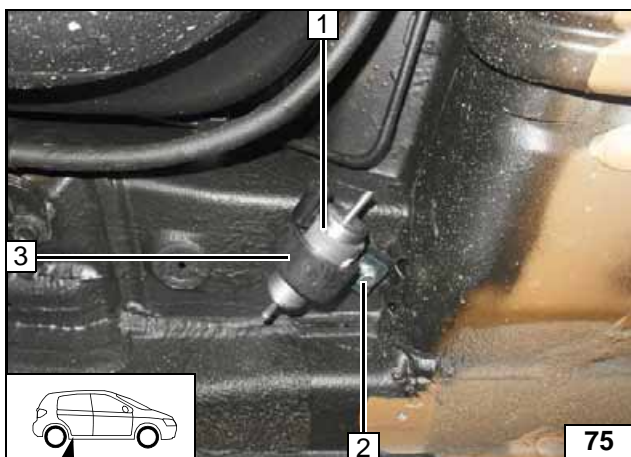


Drill out original vehicle hole to 9.1 mm dia.

- 1 M6 rivet nut in original vehicle hole



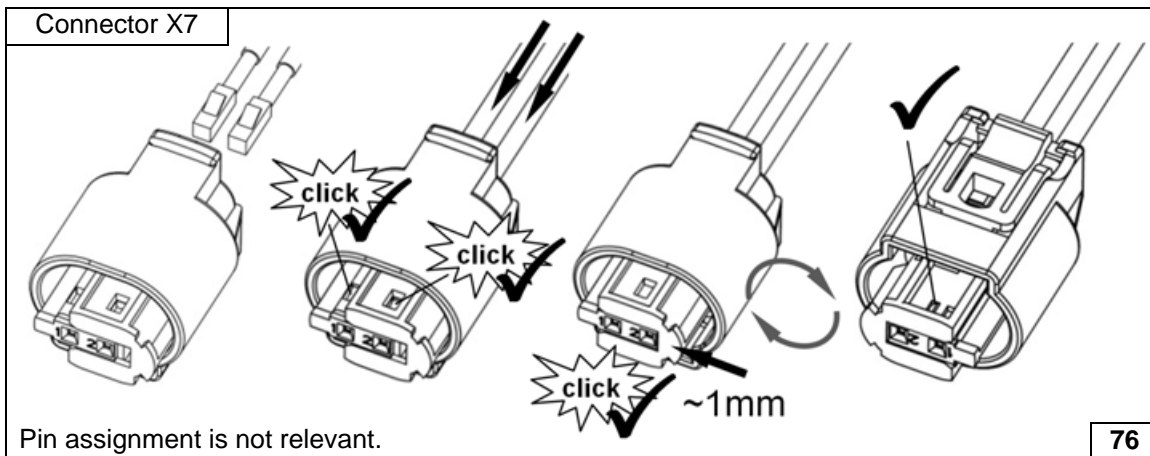
Preparing installation location of metering pump



- 1 Metering pump
- 2 M6x25 bolt, support angle bracket
- 3 Metering pump mount

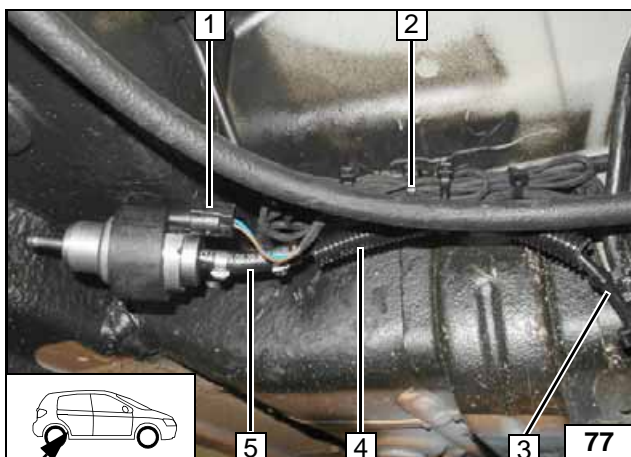


Installing metering pump



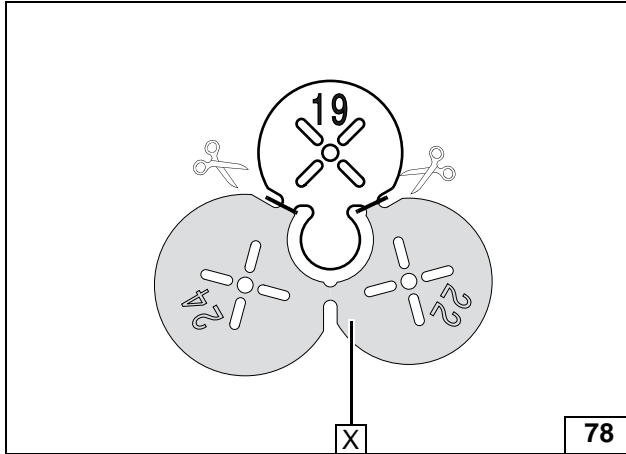
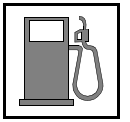
Pin assignment is not relevant.

Completing metering pump connector



- 1 Metering pump wiring harness, connector X7 mounted
- 2 Wiring harness of metering pump
- 3 Fuel line of heater
- 4 150mm, 10mm dia. corrugated tube
- 5 Hose section, 10mm dia. clamp [2x]

Connecting metering pump

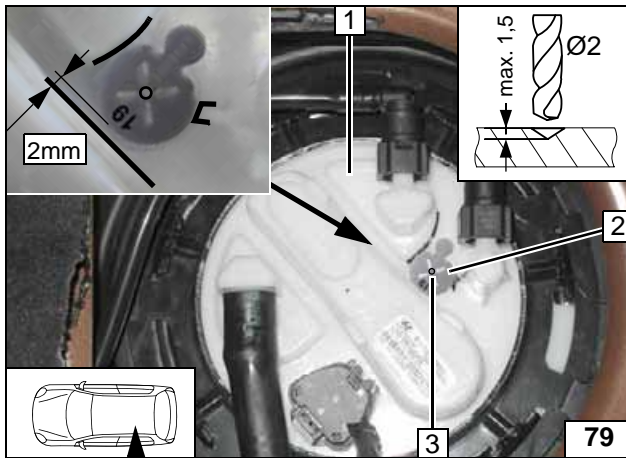


Installing FuelFix

X =



Preparing drilling template

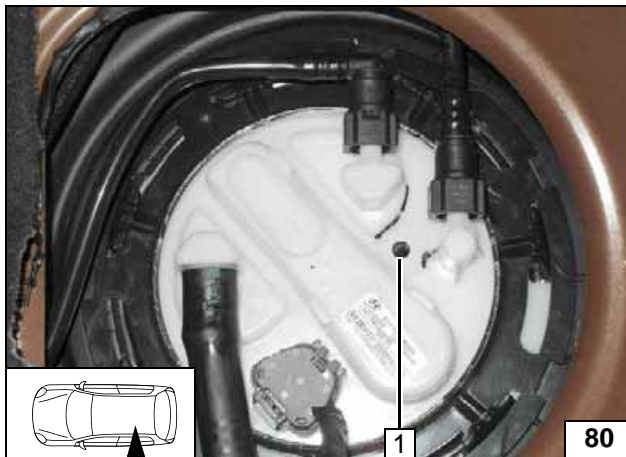


Work steps F1 and F2.

- 1 Fuel tank sending unit
- 2 Position 19mm dia. drilling template at the indicated distance against the raised parts.
- 3 2mm dia. centre hole



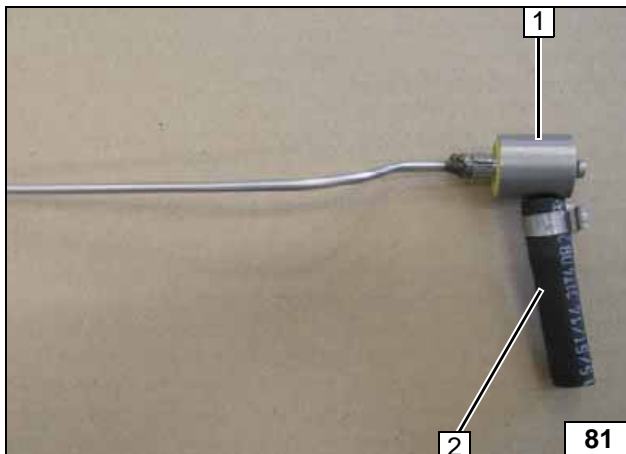
Drilling centre hole



Work step F3.

- 1 Hole made with provided drill

Hole for FuelFix



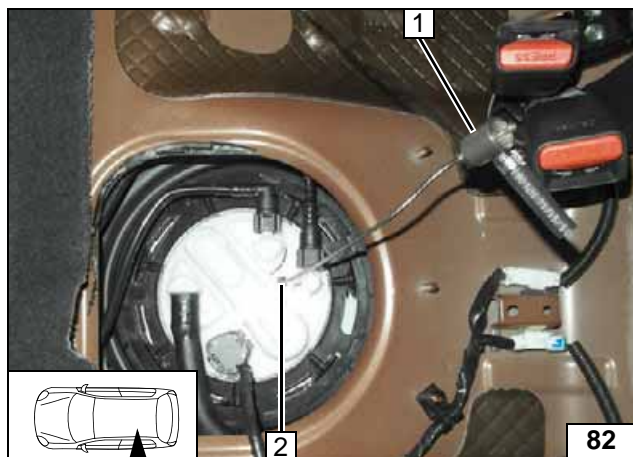
Work steps F4 and F6.1.

Bend FuelFix 1 according to template and cut to length.

- 2 Hose section, 10 mm dia. clamp



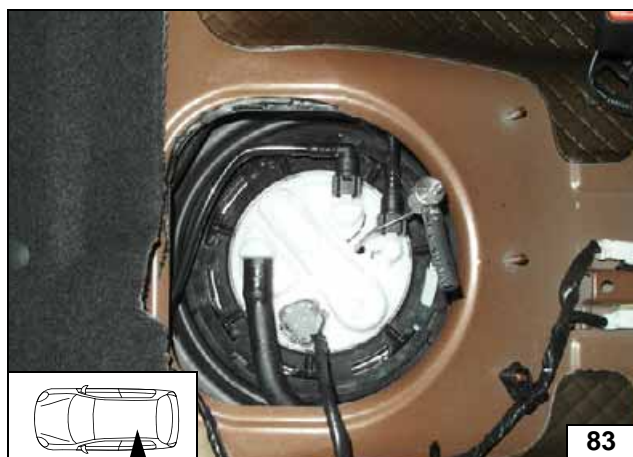
Premounting FuelFix



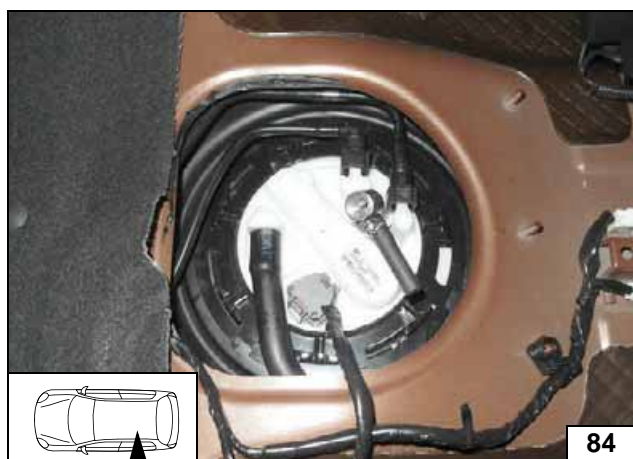
Work step F5.
Insert FuelFix 1 into hole 2.



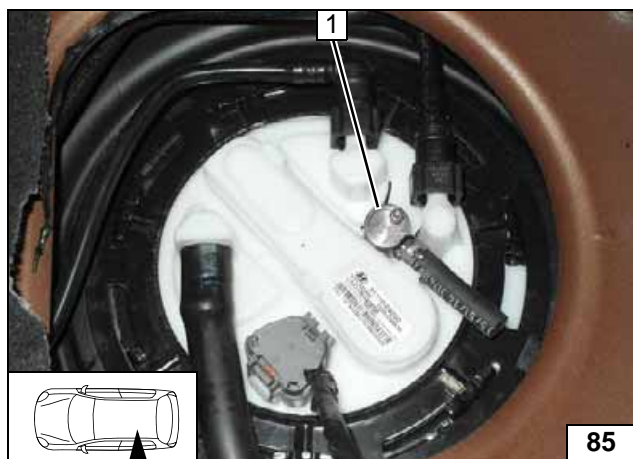
Inserting
FuelFix



Inserting
FuelFix



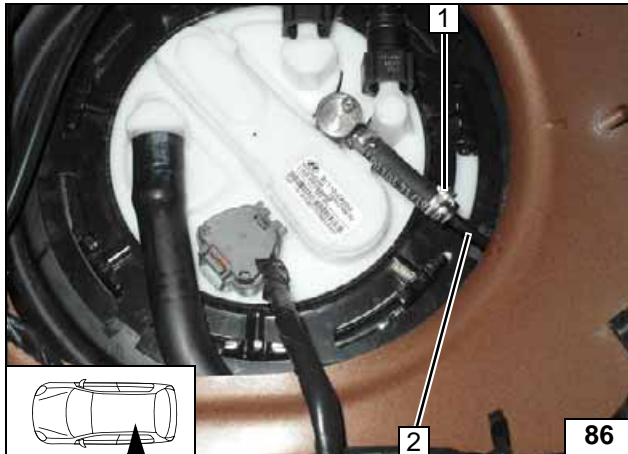
Inserting
FuelFix



Work step F5.4.
Align FuelFix 1 as shown.



Aligning
FuelFix

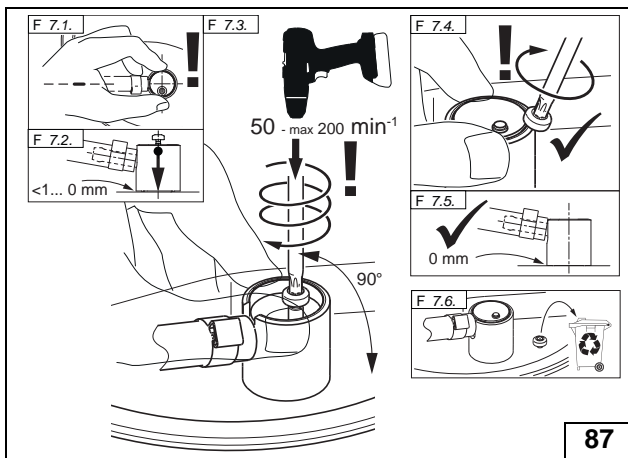


Work step F6.

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



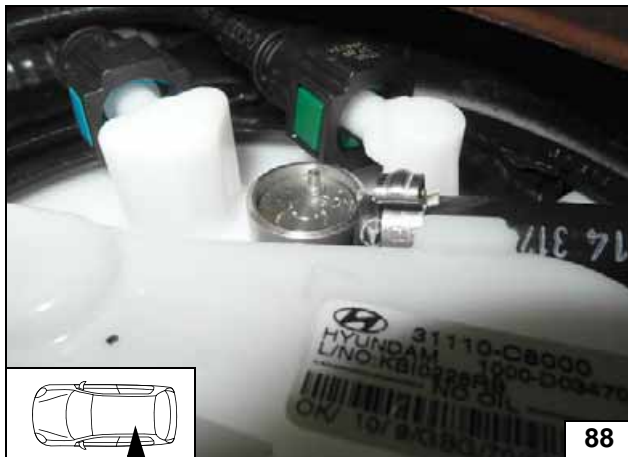
Connect-
ing fuel line



Work step F7.

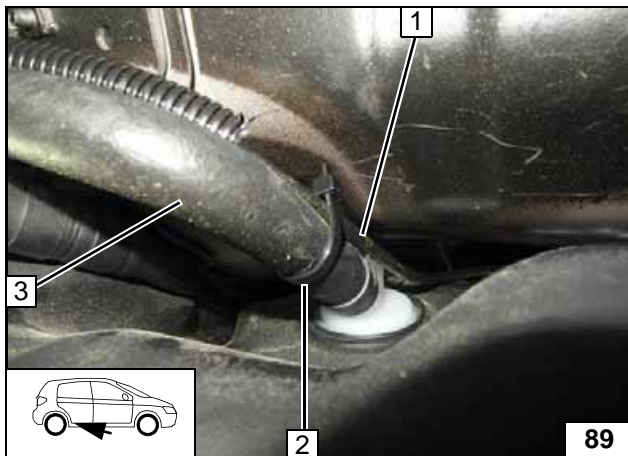


Installing
FuelFix



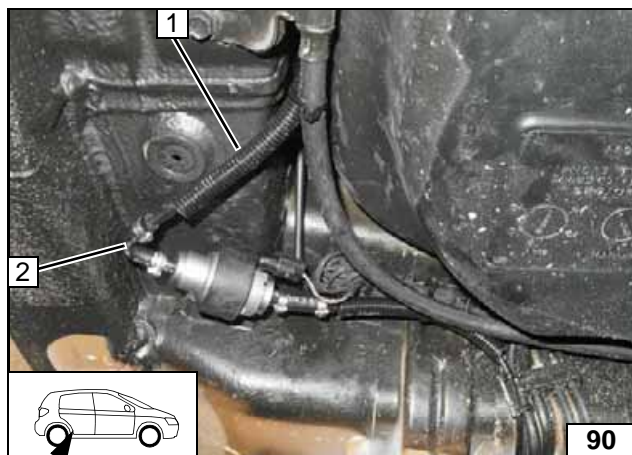
Work step F8.

Ensuring
firm seating
of FuelFix



- 1 Fuel line of FuelFix
- 2 Cable tie as tension relief
- 3 Original vehicle hose

Securing
fuel line

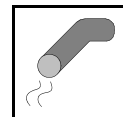


Check the position of the components; adjust if necessary. Check that they have freedom of movement.



- 1 Fuel line of FuelFix in corrugated tube
- 2 90° moulded hose, 10mm dia. clamp [2x]

**Connect-
ing meter-
ing pump**



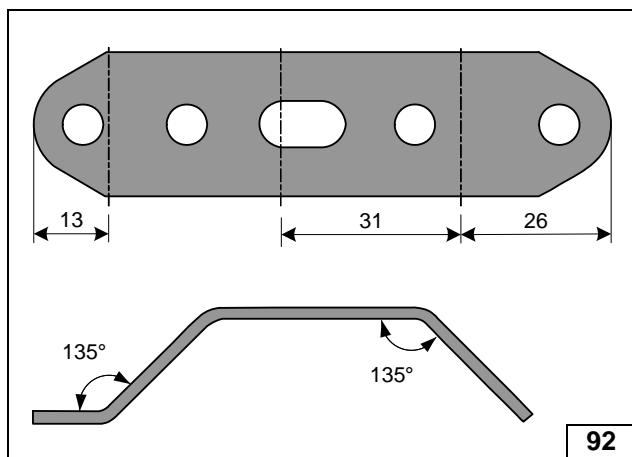
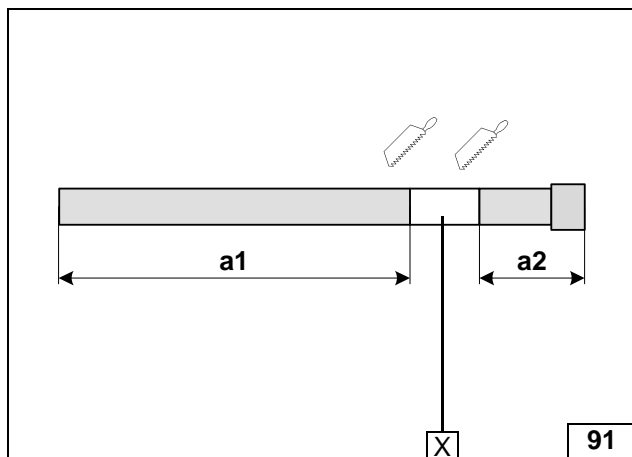
Exhaust Gas

74 kW

a1 = 450

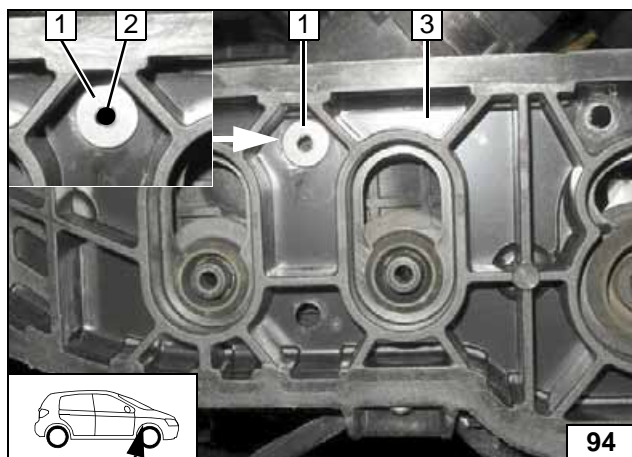
a2 = 130

X =



- 1 Underride protection of engine
- 2 2x180 heat protection film

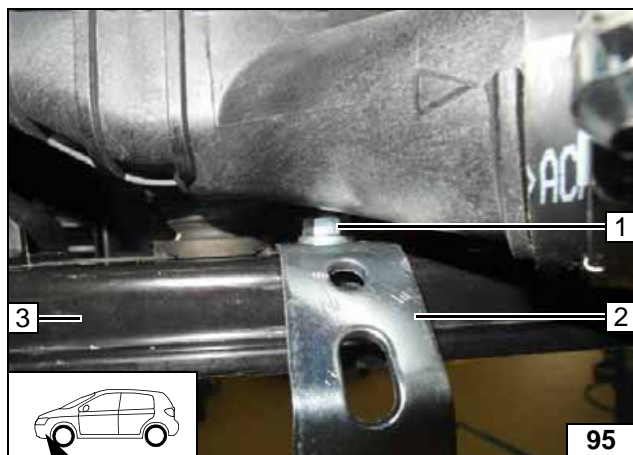
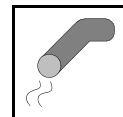
Applying heat protection film on underride protection of engine



When drilling ensure sufficient distance from neighbouring components.

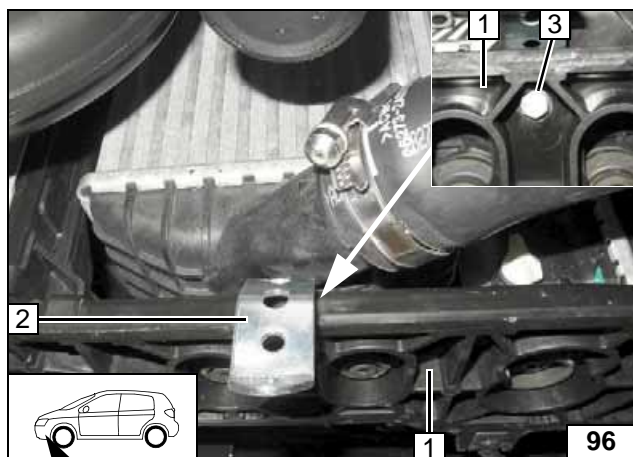
- 1 M5 large diameter washer, used as template
- 2 Hole pattern, 6.5 mm dia. hole
- 3 Radiator carrier

Drilling hole



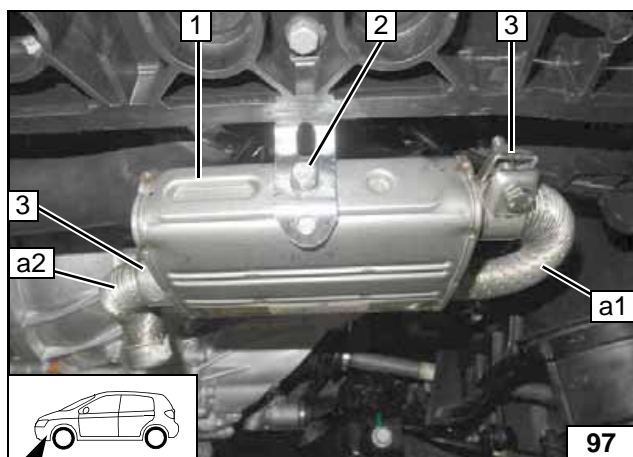
- 1 M6x12 bolt, large diameter washer, hole, perforated bracket, flanged nut
- 2 Perforated bracket
- 3 Radiator carrier

Installing perforated bracket



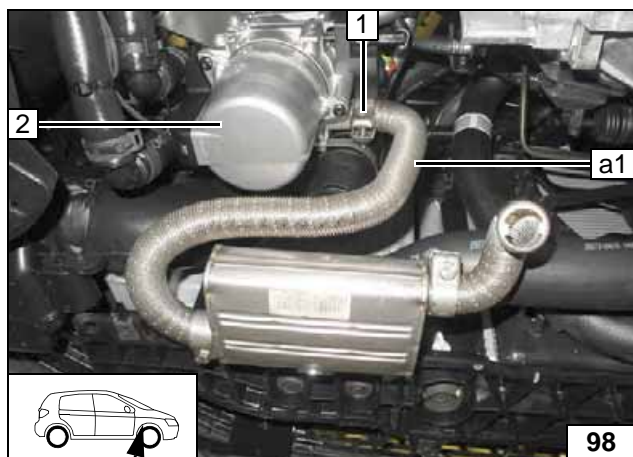
- 1 Radiator carrier
- 2 Perforated bracket
- 3 M6x12 bolt, large diameter washer, hole, perforated bracket, flanged nut

Installing perforated bracket



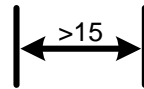
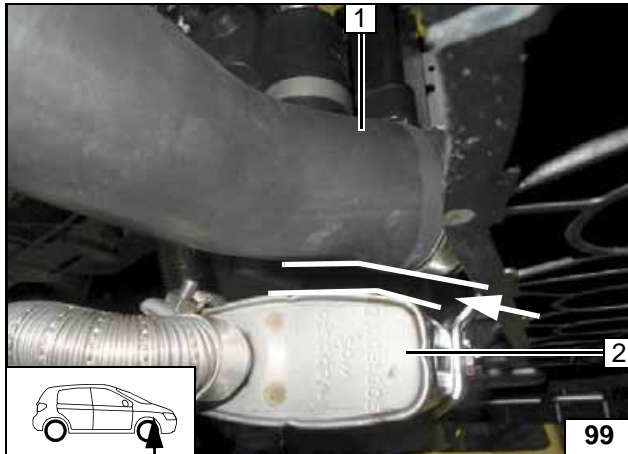
- 1 Silencer
- 2 M6x16 bolt, spring lockwasher
- 3 Hose clamp [2x]

Installing silencer, exhaust pipes a1 and a2



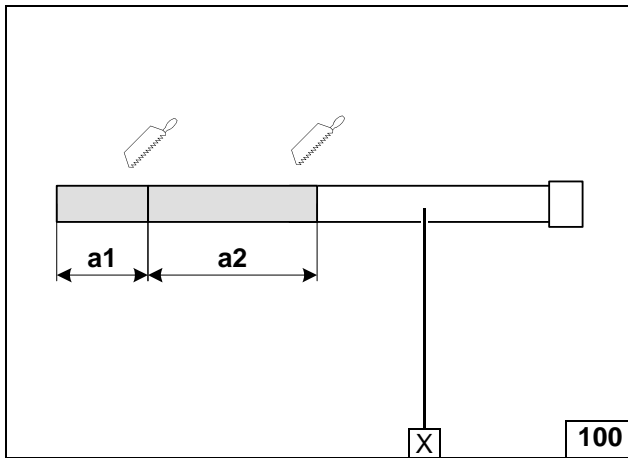
- 1 Hose clamp
- 2 Heater

Installing ex-haust pipe a1



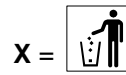
- 1 Charge-air tube
- 2 Silencer

Aligning silencer



88 kW

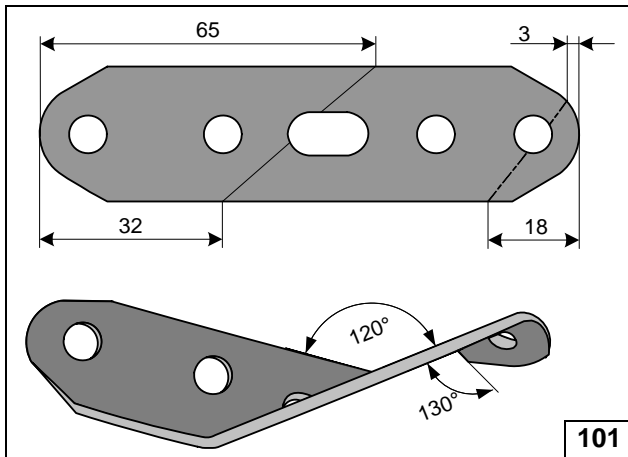
- a1 = 100
- a2 = 180



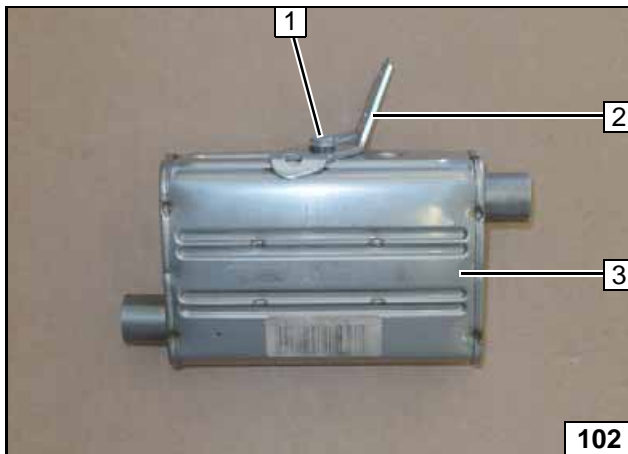
X =



Preparing exhaust pipe

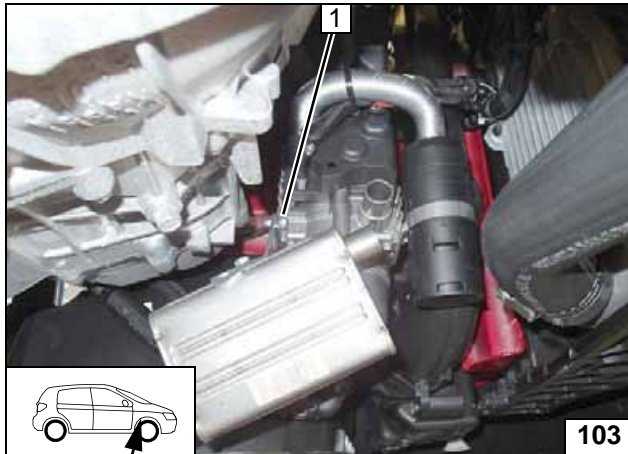
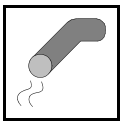


Bending perforated bracket



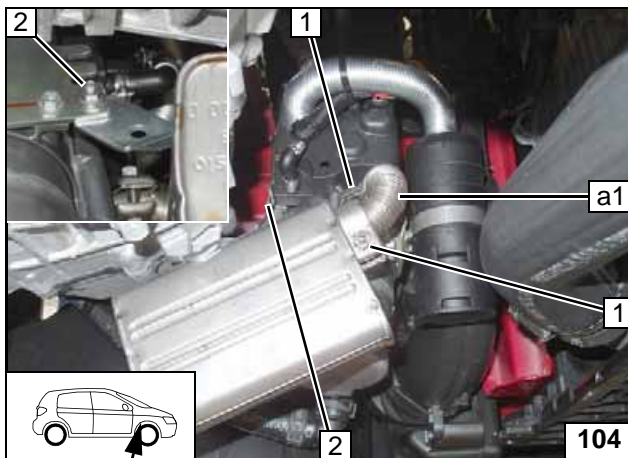
- 1 M6x16 bolt, spring lockwasher
- 2 Perforated bracket
- 3 Silencer

Premounting exhaust silencer



- 1 M5x13 bolt, flanged nut

Installing ex-
haust silenc-
er loosely



Tighten M5x13 bolt, flanged nut at position 2.



- 1 Hose clamp [2x]

Installing ex-
haust pipe a1

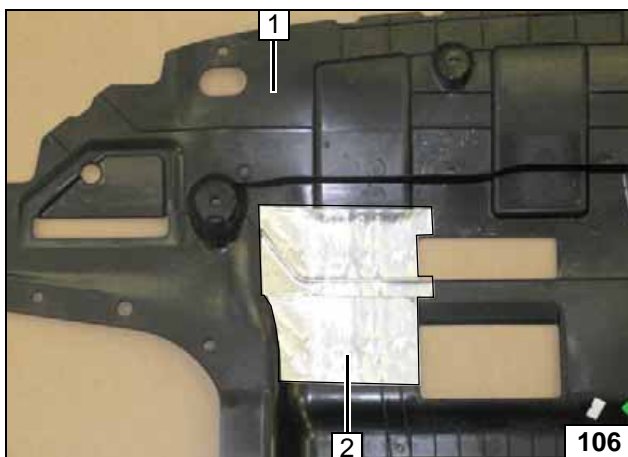


Bend exhaust pipe a2 as shown.



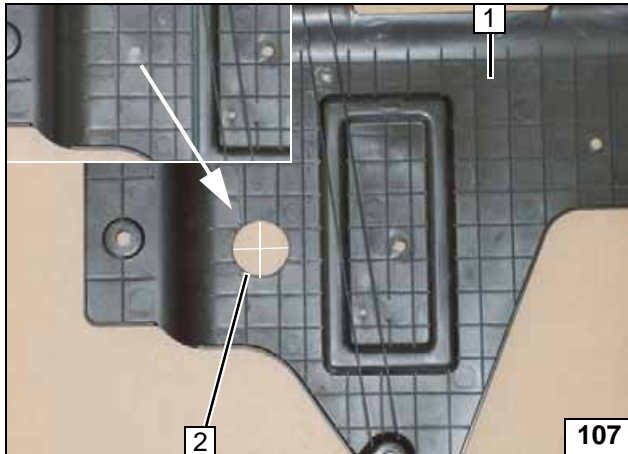
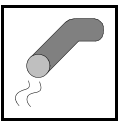
- 1 Hose clamp

Installing ex-
haust pipe a2



- 1 Underride protection of engine
- 2 Heat protection film

Applying
heat protec-
tion film on
underride
protection of
engine



Installing Exhaust End Fastener

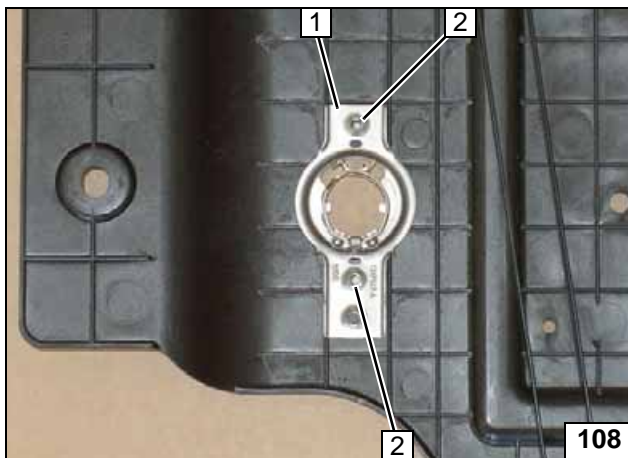
88 kW



Work step E1.

- 1 Underride protection (view from inside)
- 2 Drill out existing hole

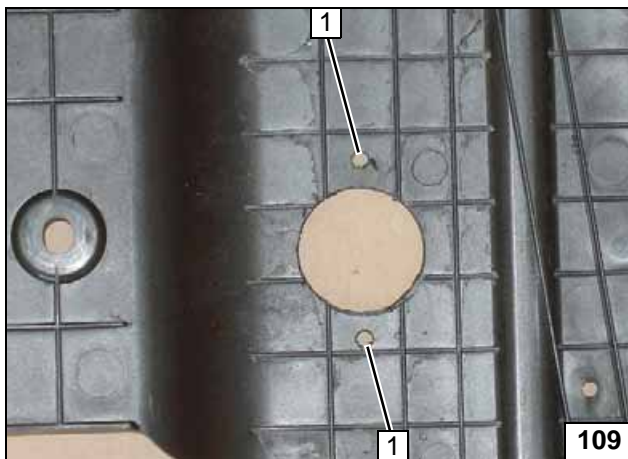
Hole in underride protection



Work step E3.

- 1 Exhaust end fastener
- 2 Hole pattern [2x]

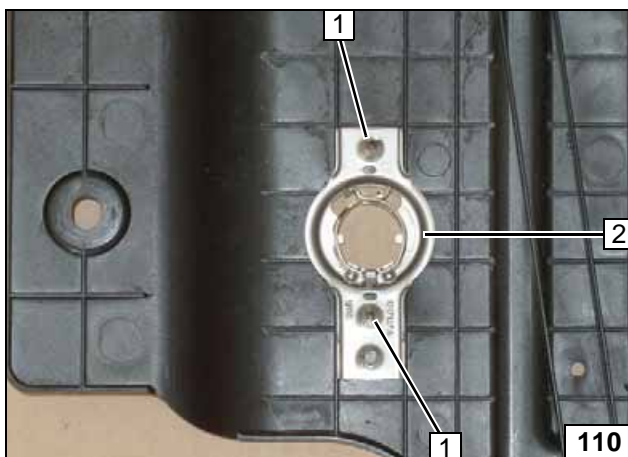
Copying hole pattern



Work step E4.

- 1 Hole [2x]

Holes in underride protection

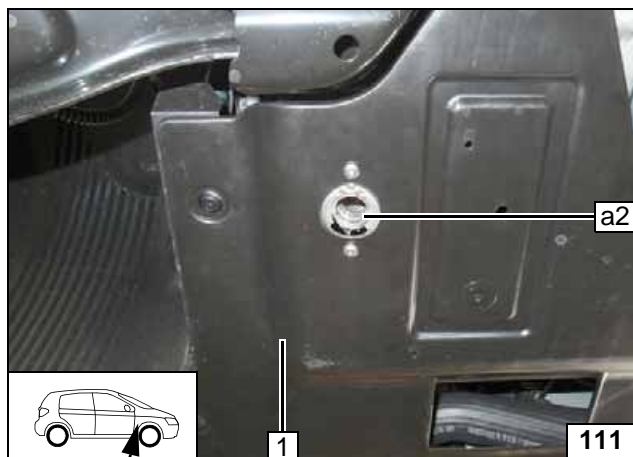
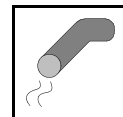


Work step E5.

- 1 5x13 self-tapping screw [2x]
- 2 Exhaust end fastener



Installing exhaust end fastener

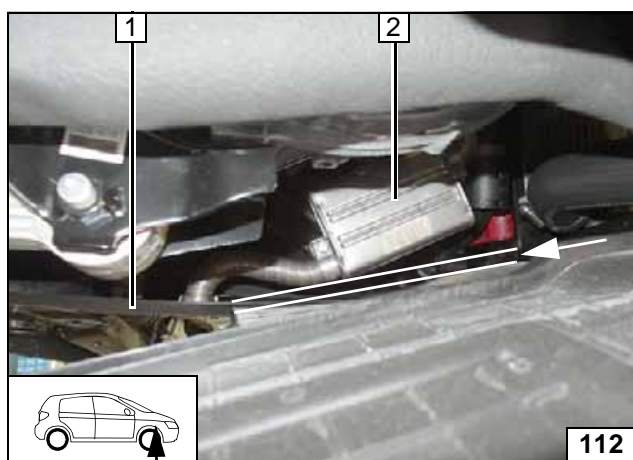


Install under-ride protection 1.



Installing exhaust pipe a2

Work steps E6 - E8.



Check the distance between silencer 2 and under-ride protection 1, adjust, if necessary!

Aligning silencer

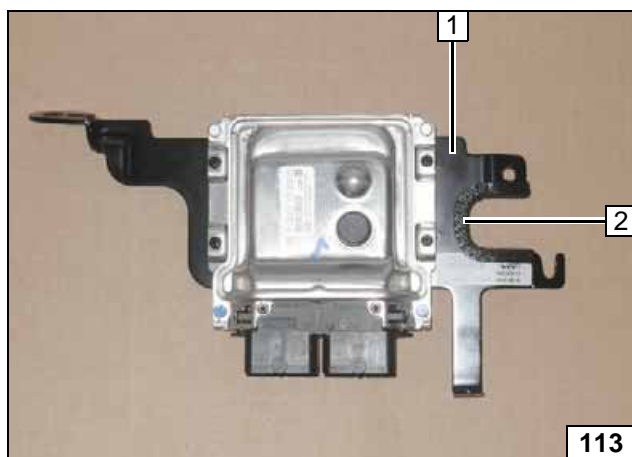


Final Work



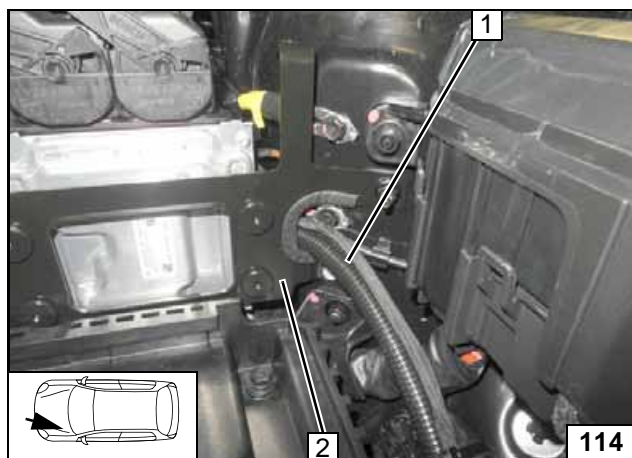
Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back loose lines. Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **For initial startup and function check, please see installation instructions.**
- **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.**



- 1 Bracket of engine control unit
- 2 100 mm edge protection

Installing edge protection



- 1 Wiring harness of heater and fuel line as well as wiring harness of metering pump in corrugated tube
- 2 Engine control unit bracket

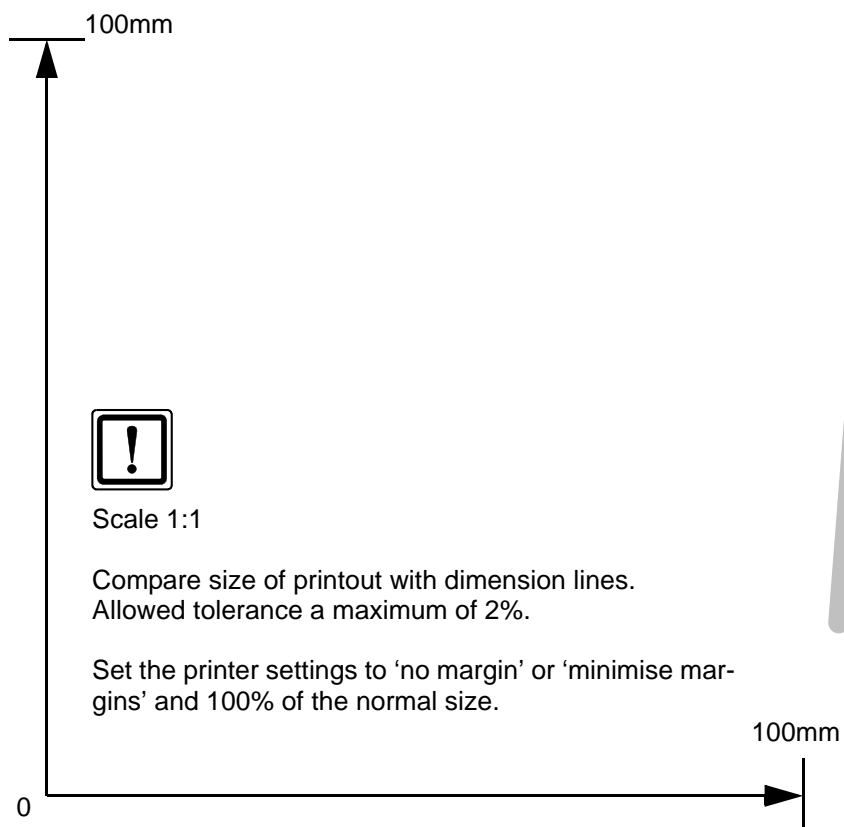
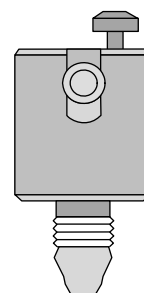
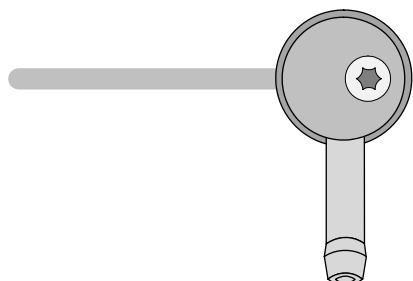
Installing engine control unit

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



FuelFix Template

Top view



Operating Instructions for Manual 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

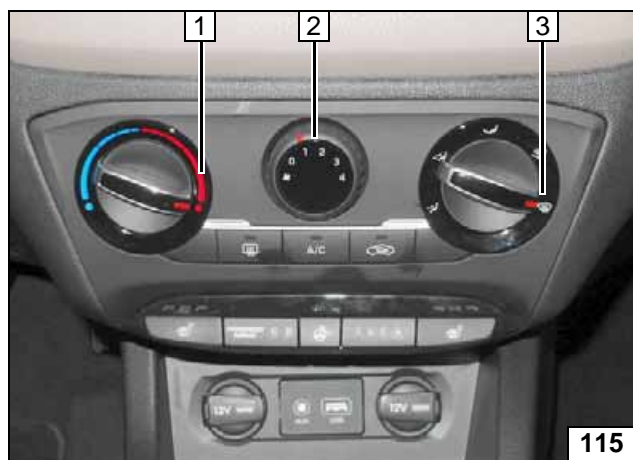
Example:

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.

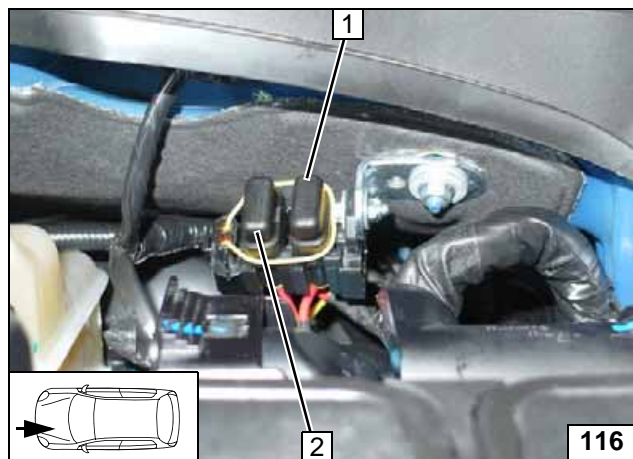
Before parking the vehicle, make the following settings:



- 1 Set temperature to 'max.'
- 2 Set fan to level '1', or max. '2'
- 3 Air outlet faces 'upward' (windscreen)

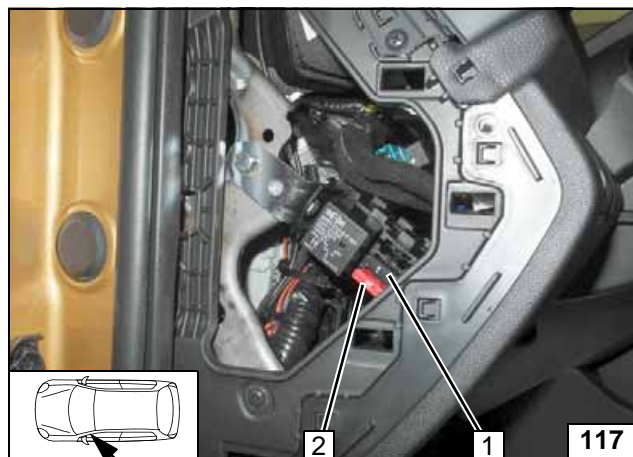


A/C control panel



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

Engine compartment fuses



- 1 1A fuse F3 of heater control
- 2 10A fan fuse F4

Passenger compartment fuses



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.

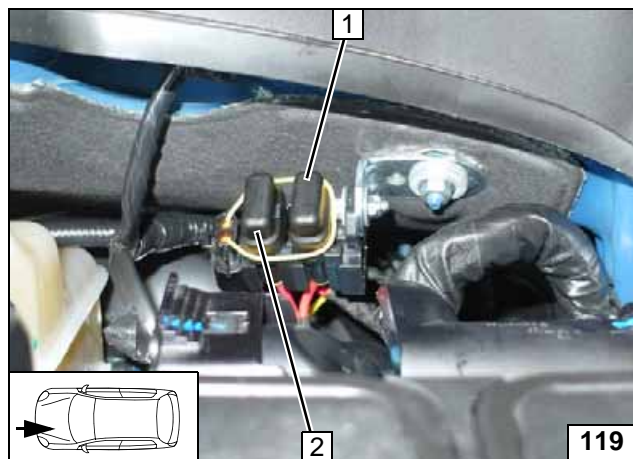
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.

For instructions on deactivation, please refer to the operating instructions of the vehicle.

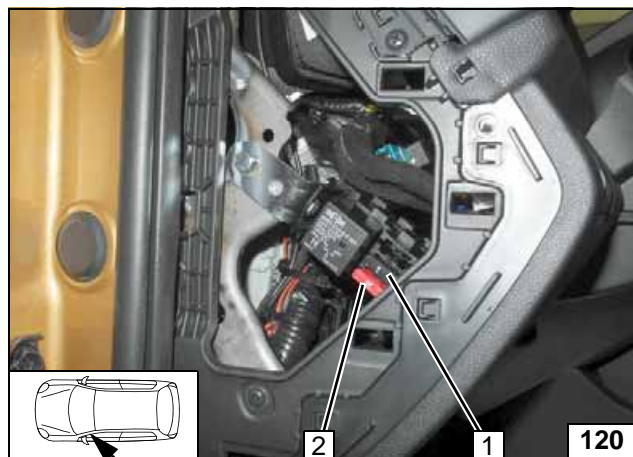
Before parking the vehicle, make the following settings:



- 1 Set temperature to 'HI'
- 2 Set fan to level '2', or max. '3'
- 3 Air outlet faces 'upward' (windscreen)



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



- 1 1A fuse F3 of heater control
- 2 10A fan fuse F4



A/C control panel

Engine compartment fuses

Passenger compartment fuses

