Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Hyundai i30

Validity

Manufacturer	Model	Type	Model year	EG BE No. / ABE
Hyundai	i30	GDH	From model year 2016	e11 * 2007 / 46 * 0337 * ...

Motorisation	Fuel	Emission standard	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6CRDi	Diesel	Euro 6	AG	81	1582	D4FB

AG = automatic transmission

Left-hand drive vehicle

Verified equipment variants: Manual / automatic air-conditioning system
Front fog lights
Start-Stop

Not verified: Passenger compartment monitoring

Total installation time: approx. 7.1 hours

Hyundai i30

Table of Contents

Necessary Components

Description	Order No.:
Basic delivery scope of Thermo Top Evo	In accordance with price list
Installation kit with Hyundai i30 2016 Diesel	1325092A
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 - timer wiring harness extension cable	1319724_

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.

Information on Validity

This installation documentation applies to Hyundai i30 Diesel vehicles - for validity, see page 1 - from model year 2016 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this ‘installation documentation’.

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

Technical Information

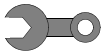
Special Tools
- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Deep-hole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

Dimensions
- All dimensions are in mm.

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

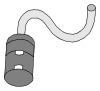
Explanatory Notes on Document

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

Mechanics 

Electrics 

Coolant Circuit 

Combustion Air 

Fuel 

Exhaust Gas 

Software 

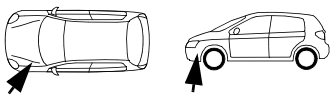
Special features are highlighted using the following symbols:

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. 

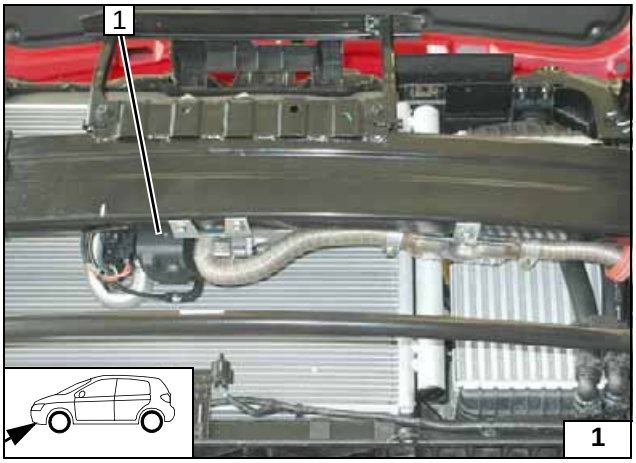
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the engine design cover.
- Disconnect and remove the battery together with the carrier.
- Remove the engine control unit.
- Remove the air filter box completely, including the intake hose.
- Remove the lateral instrument panel trim on the front passenger's side.
- Remove the decorative panel above glove box (see glove box dismantling instructions).
- Remove the glove box.
- Remove the A/C control panel, only in case of automatic air-conditioning (see instrument panel dismantling instructions).
- Remove the bumper trim.
- Remove the front underride protection.
- Remove the lateral underride protection on the left.
- Remove the cover of the fuel lines on the underbody.

Heater

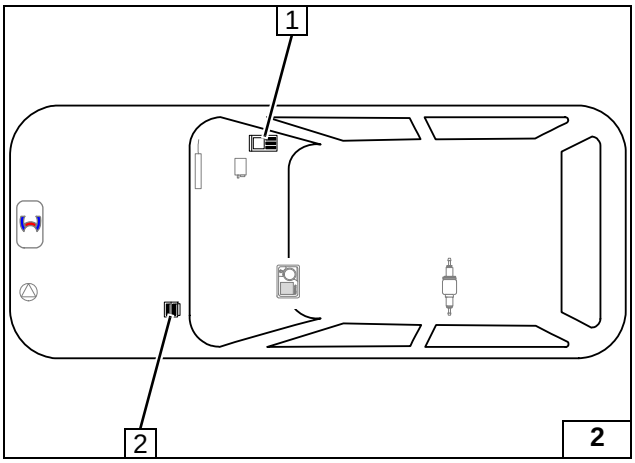
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

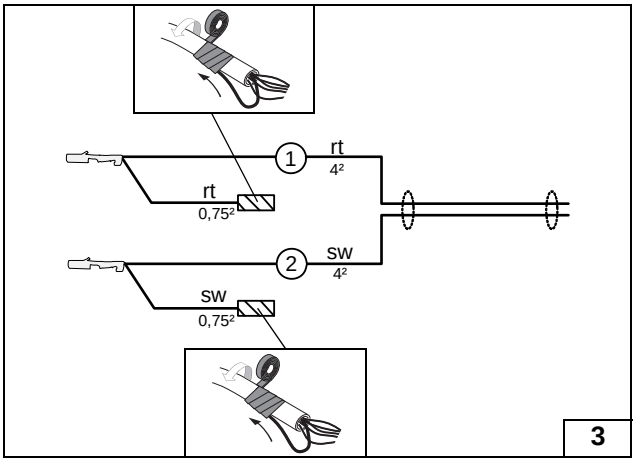
Installation location



Preparing Electrical System

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

Installation overview



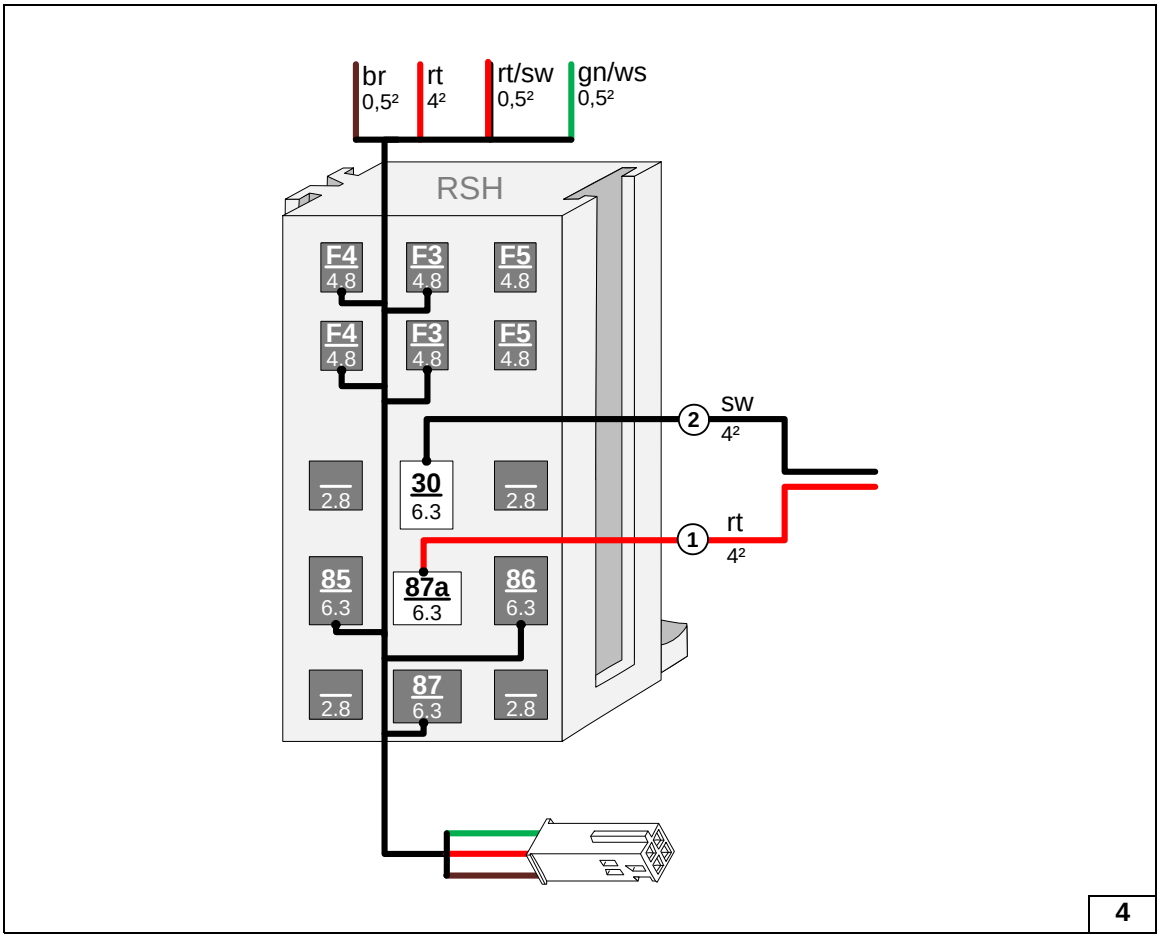
Wire sections retain their numbering in the entire document.

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

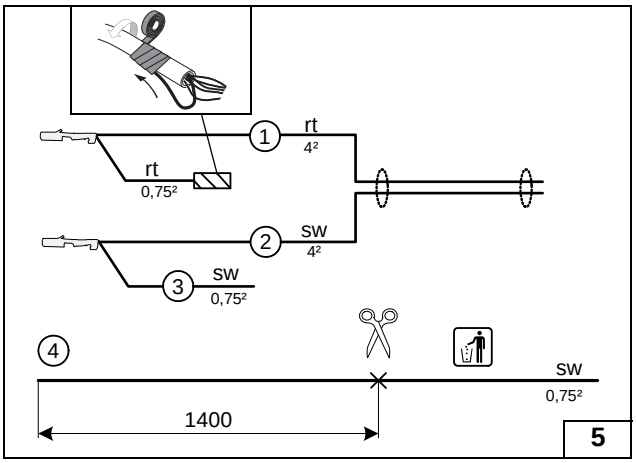
Manual A/C system

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

Assigning wires



Connecting wires to passenger compartment relay and fuse holder



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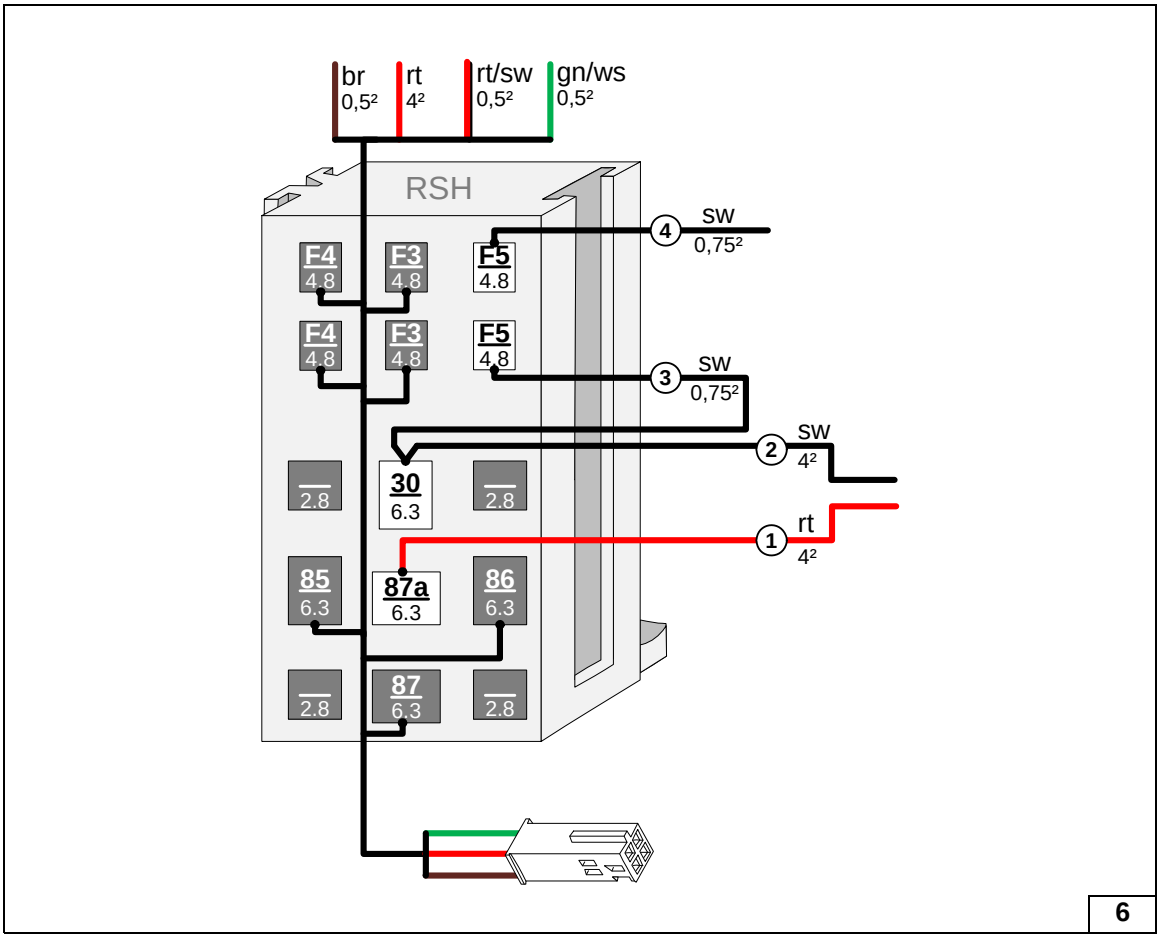
Automatic air-conditioning

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

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

Cutting to length / assigning wires



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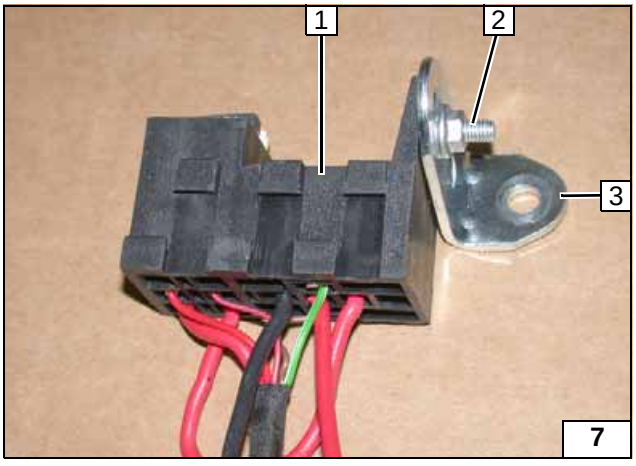
Connecting wires to passenger compartment relay and fuse holder



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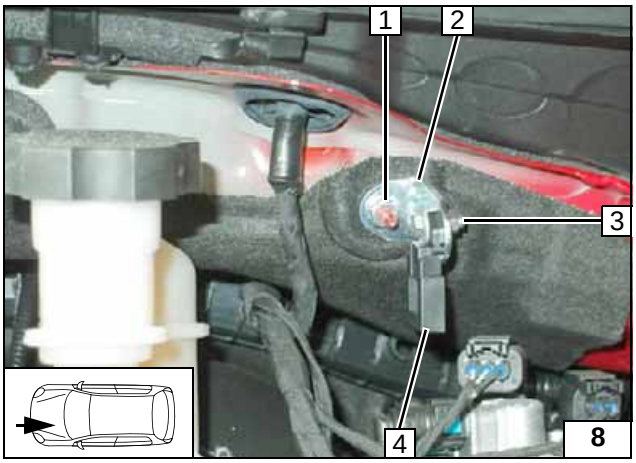
All vehicles

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

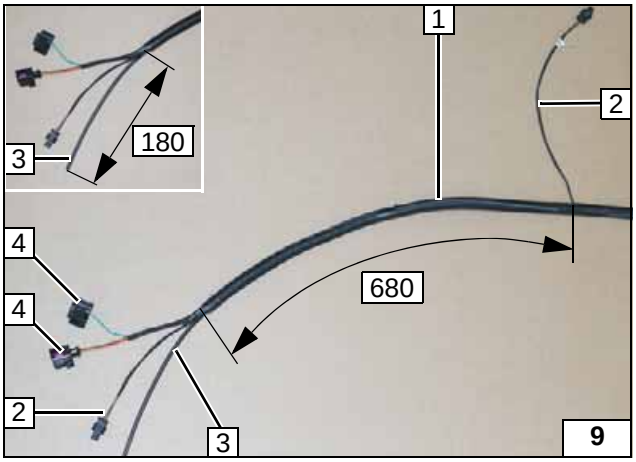
Premounting passenger compartment relay and fuse holder



Remove plastic nut at position **1**.

1 M6 flanged nut, original vehicle stud bolt
2 Angle bracket
3 M5x16 bolt, washer [2x], nut
4 Fuse holder retaining plate

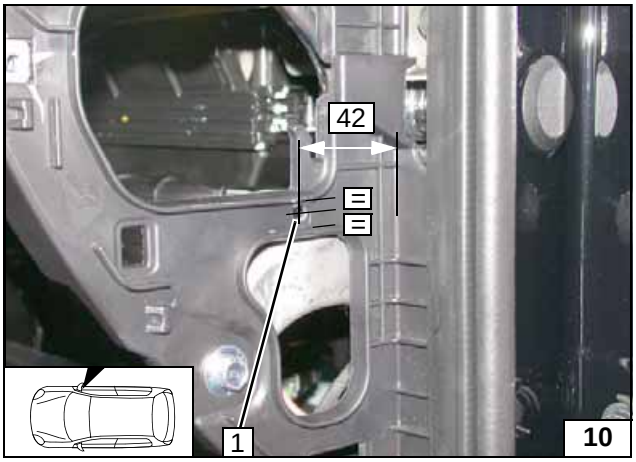
Premounting engine compartment fuse holder retaining plate



Align all wiring harnesses with fuel line **3** and pull together with metering pump wiring harness into corrugated tube **1**.

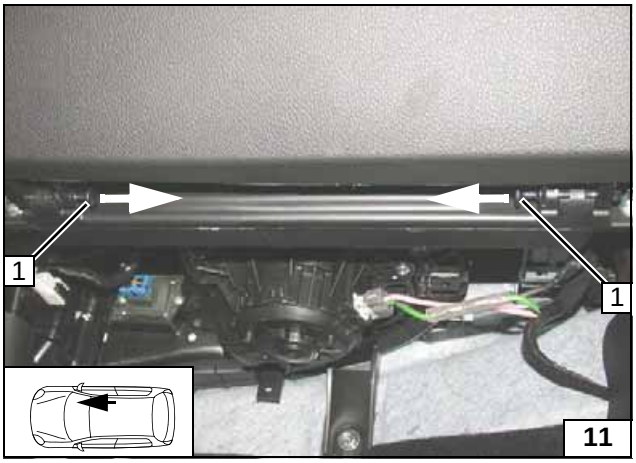
2 Circulating pump wiring harness
4 Heater wiring harness [2x]

Preparing wiring harness



1 7mm dia. hole in centre of bar

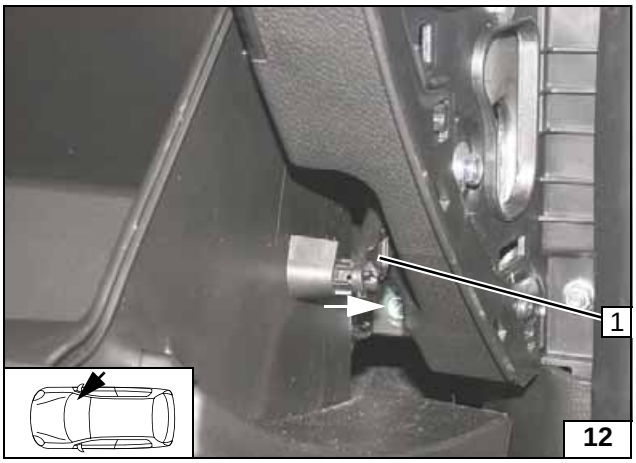
Hole for passenger compartment relay and fuse holder



Glove Box Dismantling Instructions

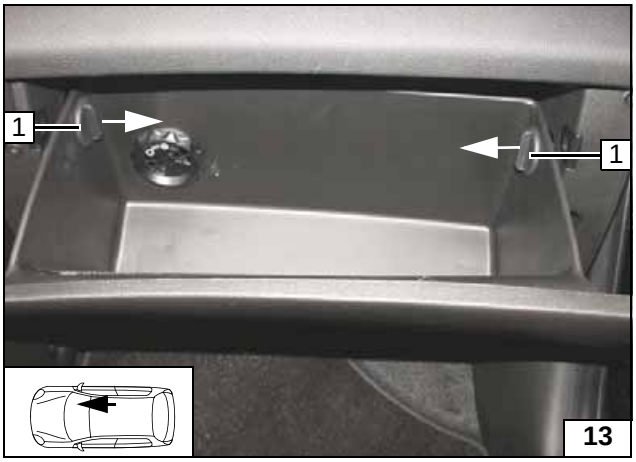
1 Remove plugs [2x] in direction of arrow

Removing glove box



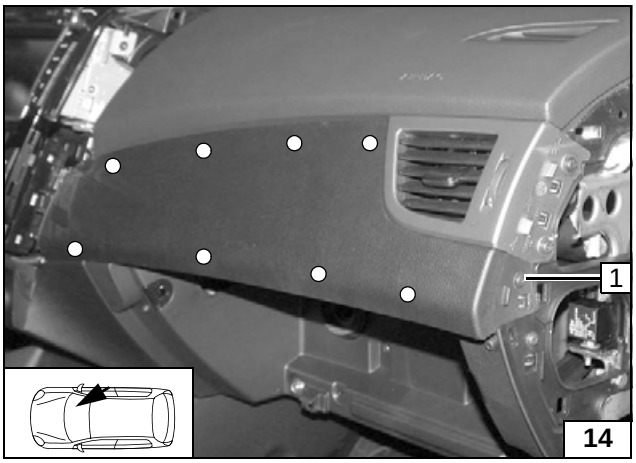
1 Detach glove box damper in direction of arrow

Removing glove box



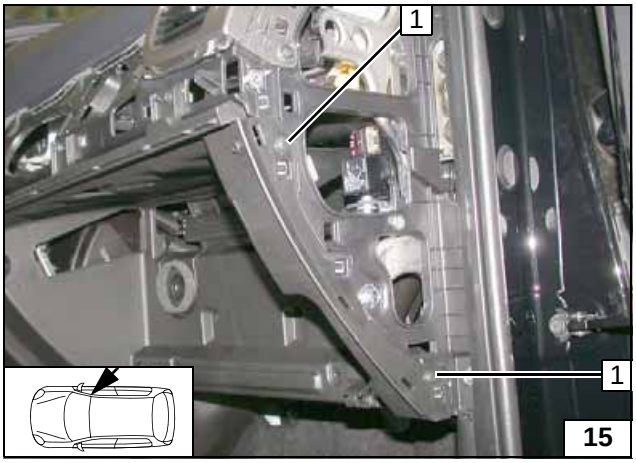
1 Turn stop button, take it off in direction of arrow

Removing glove box



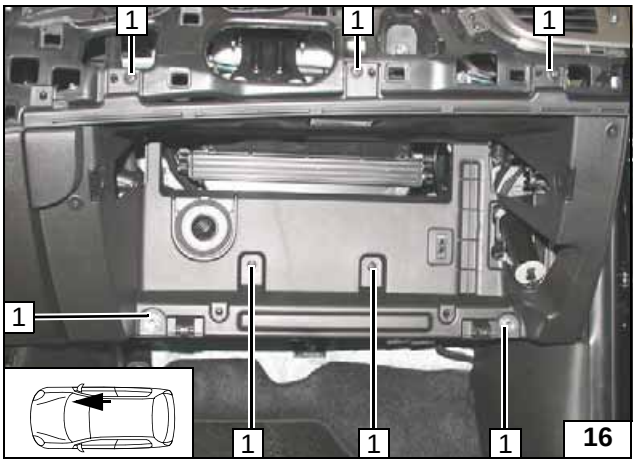
1 Remove bolt
○ Fastening clip of decorative panel [8x]

Removing decorative panel above glove box



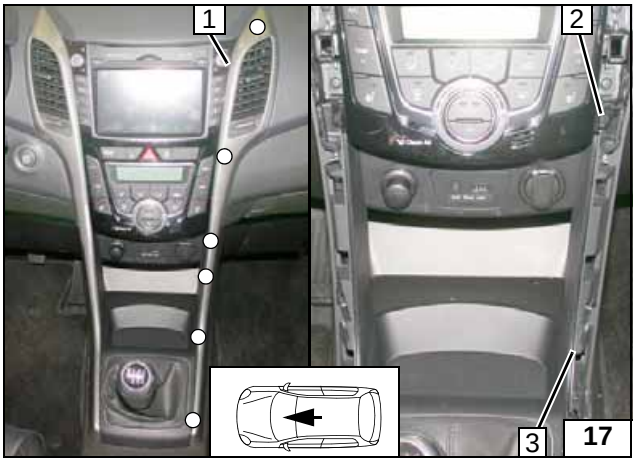
1 Remove bolts [2x]

Removing glove box frame



1 Remove bolts [7x]

Removing glove box frame



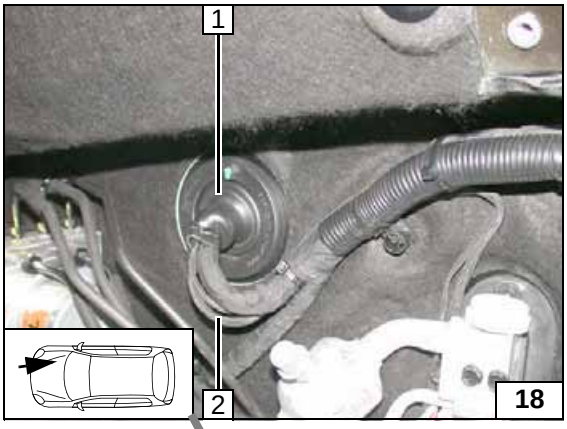
1 Take out trim piece by pulling it forward
○ Retaining clip [6x]
2 Remove bolt
3 Remove frame

Removing side trim

Electrical System

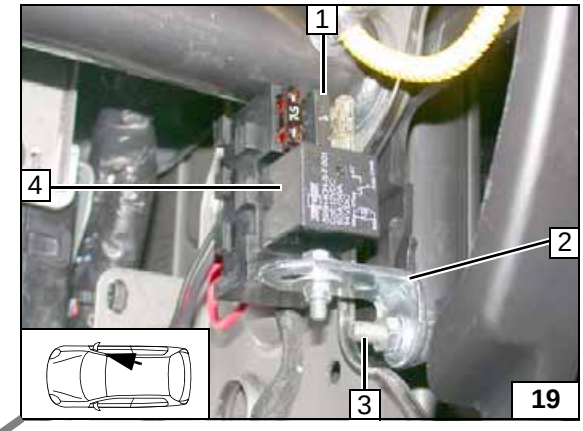
Wiring harness pass through

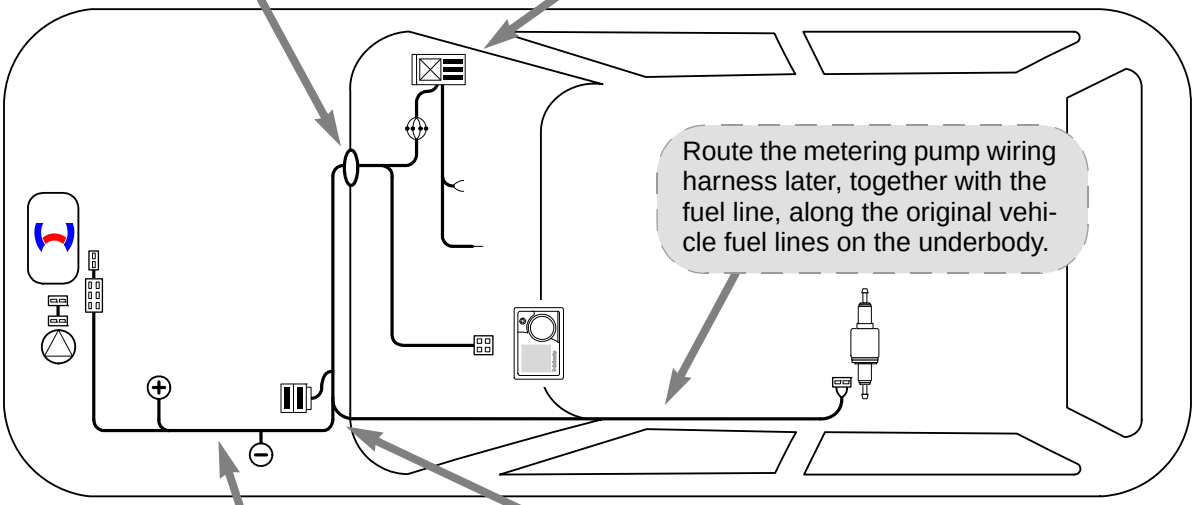
1 Protective rubber plug
2 Heater wiring harnesses, heater control



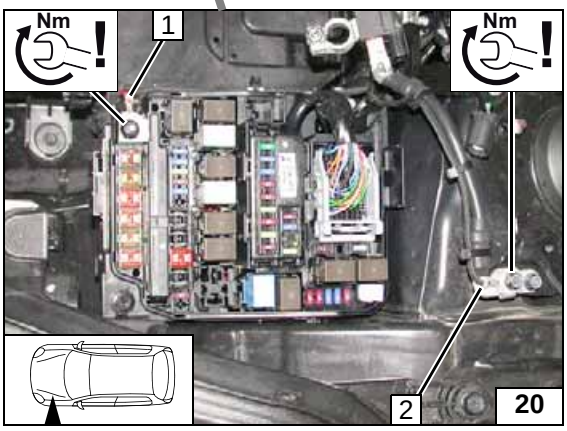
Passenger compartment relay and fuse holder

1 Fuse F3-5
2 Angle bracket
3 M6X20 bolt, flanged nut
4 Relay K1



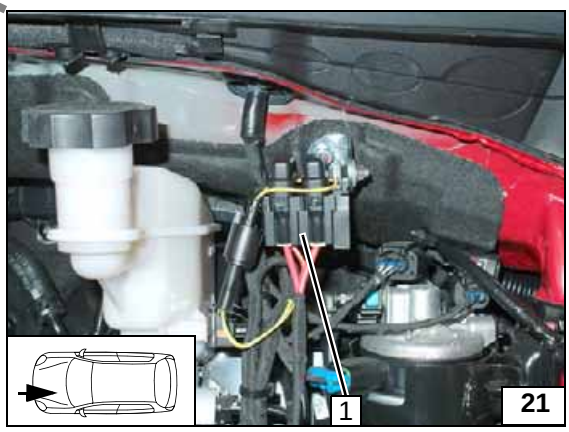


Wiring harness routing diagram



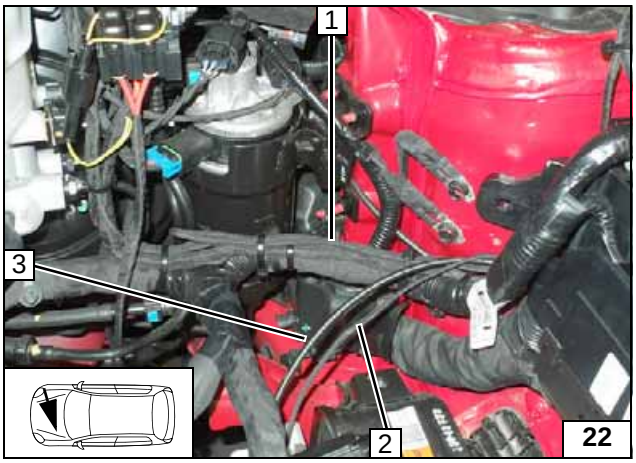
Positive and earth wire

1 Positive wire on original vehicle positive distributor
2 Earth wire on original vehicle earth support point



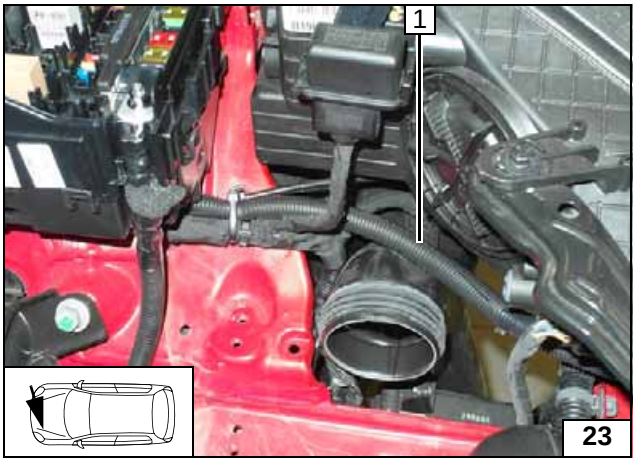
Engine compartment fuse holder

1 Fuses F1-2



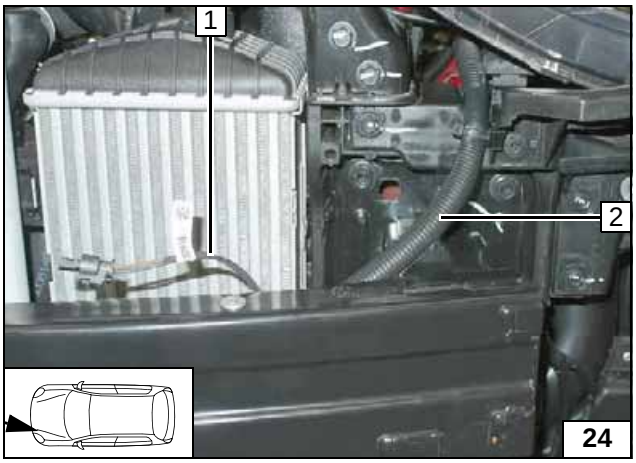
1 Heater wiring harness
2 Wiring harness of metering pump
3 Fuel line

Routing wiring harness



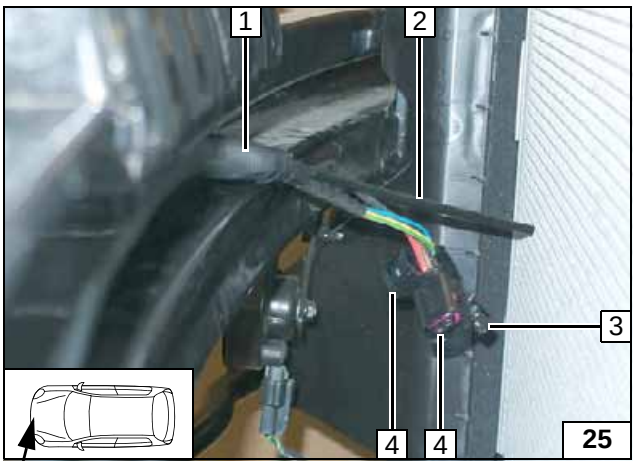
1 Corrugated tube with heater wiring harness, fuel line and metering pump wiring harness

Routing wiring harness



1 Circulating pump wiring harness
2 Corrugated tube with heater wiring harness, fuel line and metering pump wiring harness

Routing wiring harness

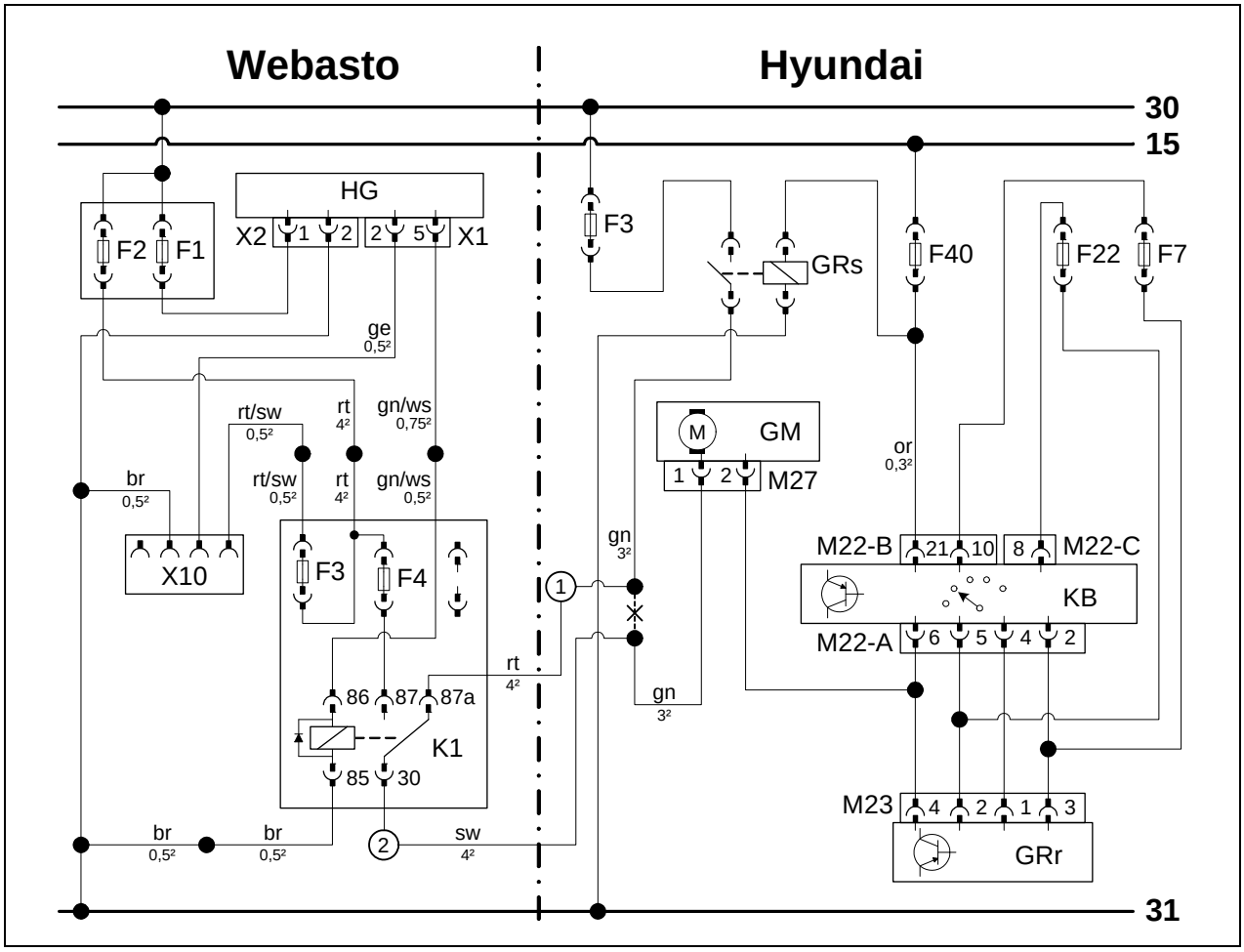


1 Corrugated tube
2 Fuel line
3 Circulating pump wiring harness
4 Heater wiring harness [2x]

Routing wiring harness

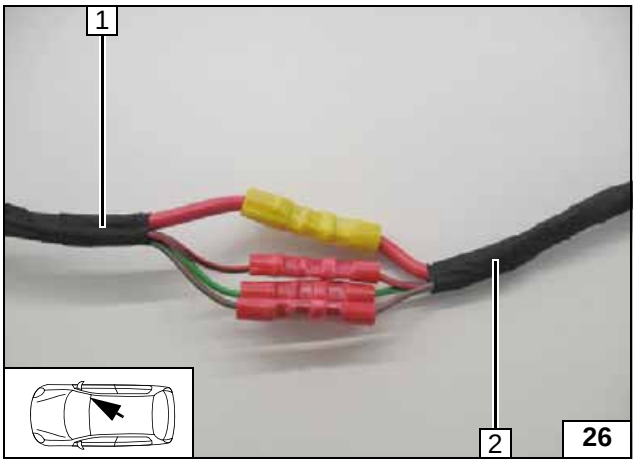
Manual Air-Conditioning Fan Controller

Wiring diagram



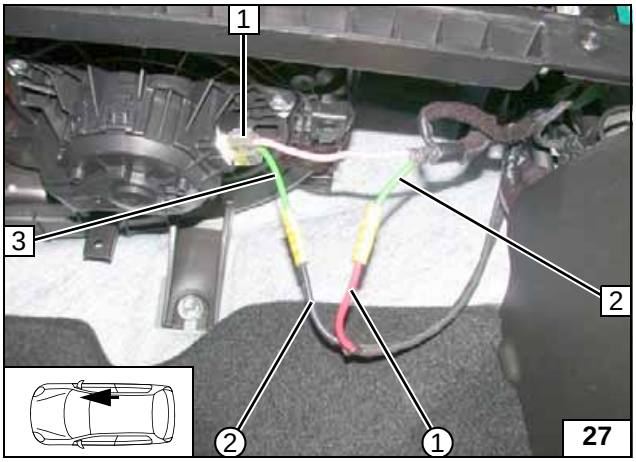
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F3	40A fuse	rt	red
X1	6-pin heater connector	F40	7.5A fuse	sw	black
X2	2-pin heater connector	F22	10A fuse	ge	yellow
F1	20A fuse	F7	7.5A fuse	gn	green
F2	30A fuse	GRs	Fan relay	or	orange
X10	4-pin connector of heater control	GM	Fan motor	ws	white
		M27	2-pin connector of GM	br	brown
F3	1A fuse	KB	A/C control unit		
F4	25A fuse	M22-B	40-pin connector of KB		
K1	Fan relay	M22-C	16-pin connector of KB		
		M22-A	6-pin connector of KB		
		GRr	Fan controller	**X**	Cutting point
		M23	4-pin connector of GRr	Wiring colours may vary.	

Legend



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

Connecting same colour wires of wiring harnesses

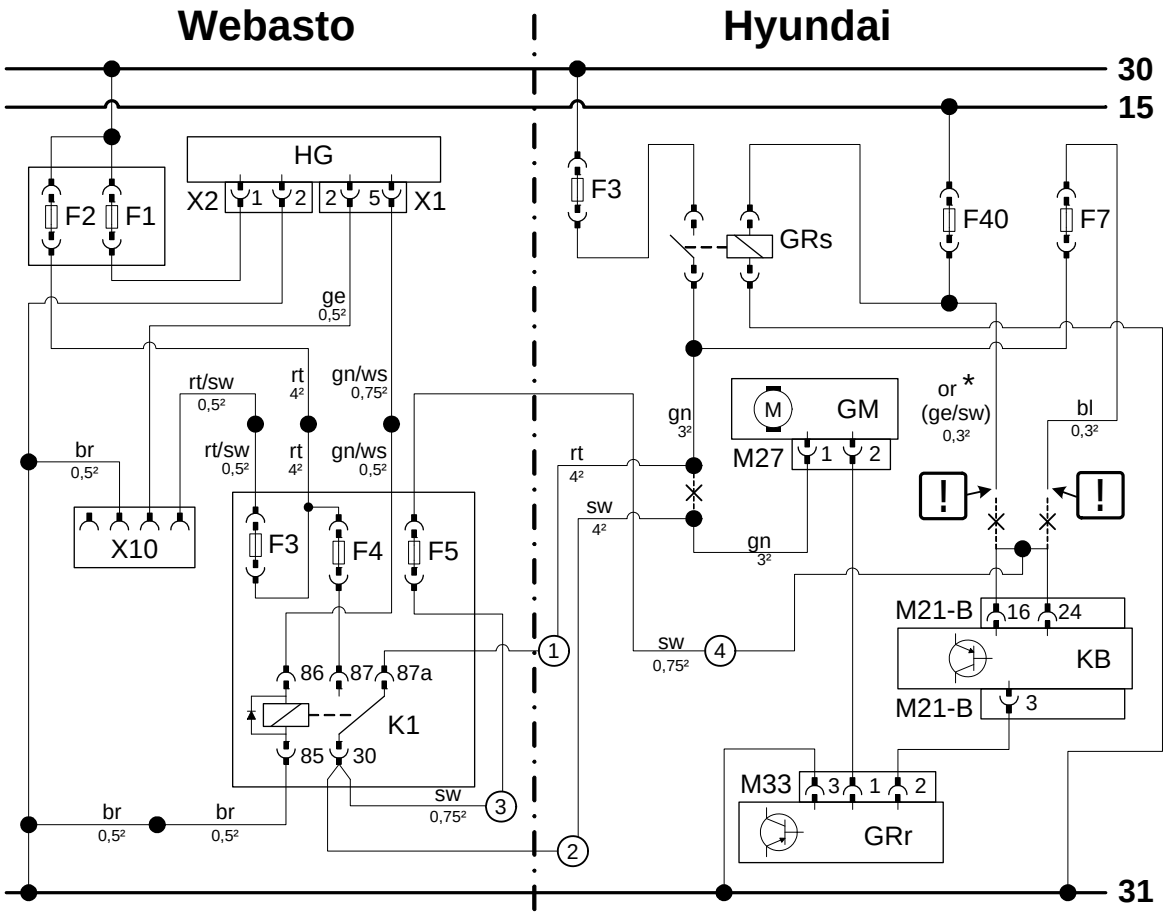


1 2-pin connector M27 of fan motor
2 Green (gn) wire of fan relay
3 Green (gn) wire of connector M27, pin 1
① Red (rt) wire from K1/87a of fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

Connecting fan motor

Automatic Air-Conditioning Fan Controller

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F3	40A fuse	rt	red
X1	6-pin heater connector	F40	7.5A fuse	sw	black
X2	2-pin heater connector	F7	7.5A fuse	ge	yellow
F1	20A fuse	GRs	Fan relay	gn	green
F2	30A fuse	GM	Fan motor	or	orange
X10	4-pin connector of heater control	M27	2-pin connector of GM	ws	white
		KB	A/C control unit	br	brown
F3	1A fuse	M21-B	32-pin connector of KB	bl	blue
F4	25A fuse	GRr	Fan controller		
F5	7.5A fuse	M33	4-pin connector of GRr	*	Wire colours depend on the model year
K1	Fan relay				
				!	Insulate wire end and tie back
				X	Cutting point
				Wiring colours may vary.	

Legend

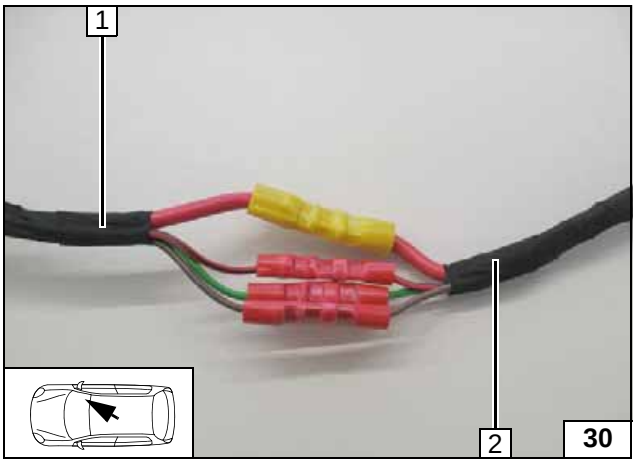
A/C Control Panel Dismantling Instructions

1 Take out trim piece by pulling it forward
○ Retaining clip [6x]
2 Remove bolt
3 Remove frame

Removing A/C control panel

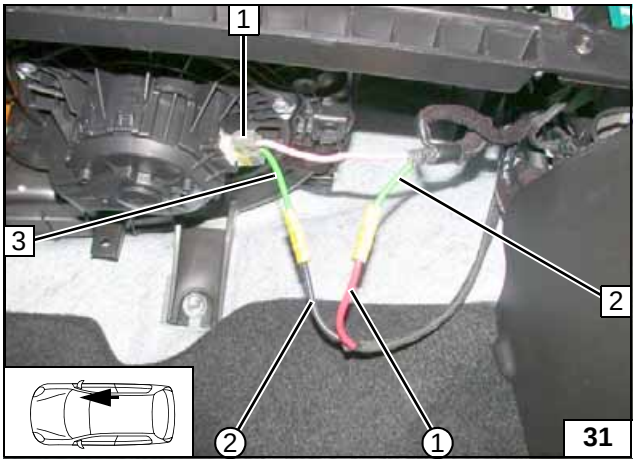
1 Remove bolts [4x]

Removing A/C control panel



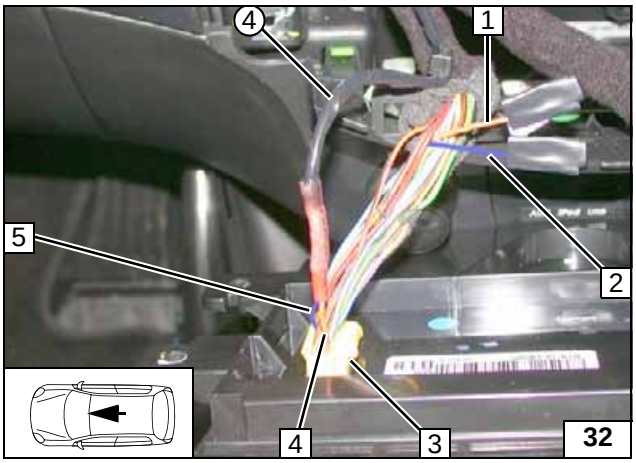
1 Passenger compartment relay and fuse holder wiring harness
2 Heater wiring harness

Connecting same colour wires of wiring harnesses



1 2-pin connector M27 of fan motor
2 Green (gn) wire of fan relay
3 Green (gn) wire of connector M27, pin 1
① Red (rt) wire from K1/87a of fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

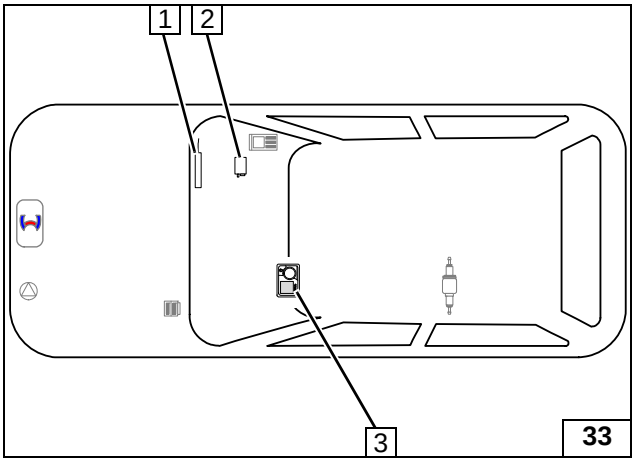
Connecting fan motor



Insulate orange (or) or yellow/black (ge/sw) wire **1** of fuse F40 and blue (bl) wire **2** of fuse F7 and tie back.

3 32-pin connector M21-B of A/C control unit
4 Orange (or) or yellow/black (ge/sw) wire of connector M21-B, pin 16
5 Blue (bl) wire of connector M21-B, pin 24
④ Black (sw) wire of 7.5A fuse F5

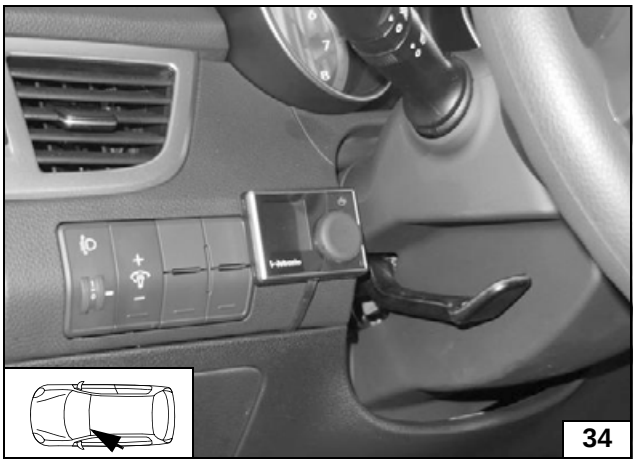
Connecting A/C control unit



Heater Control Installation

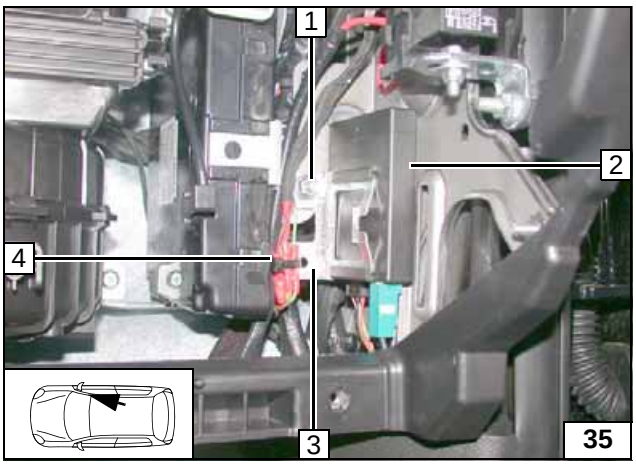
1 Telestart / ThermoCall aerial
2 Telestart / ThermoCall receiver
3 MultiControl CAR

Installation overview



MultiControl CAR Option

Installing MultiControl CAR

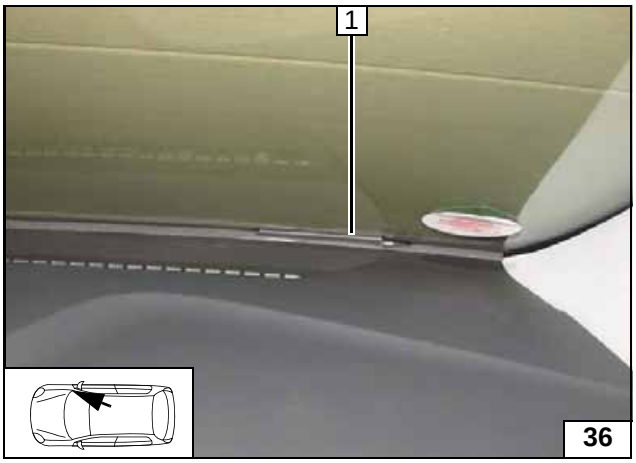


Remote Option (Telestart)

Bend bracket **3** by 90° and install on original vehicle stud bolt **1**.

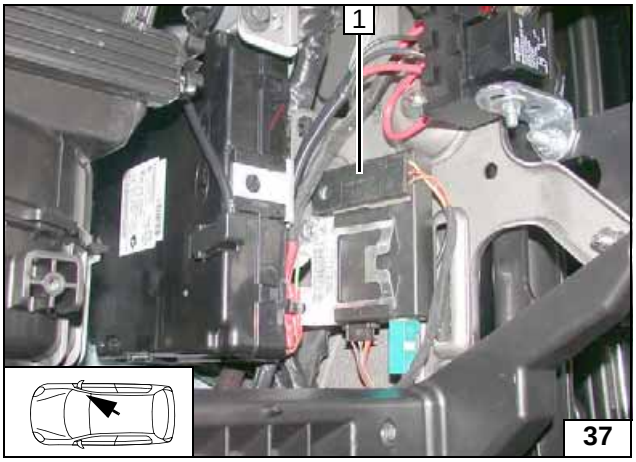
2 Receiver
4 Cable tie, wiring harness of heater

Installing receiver



1 Aerial

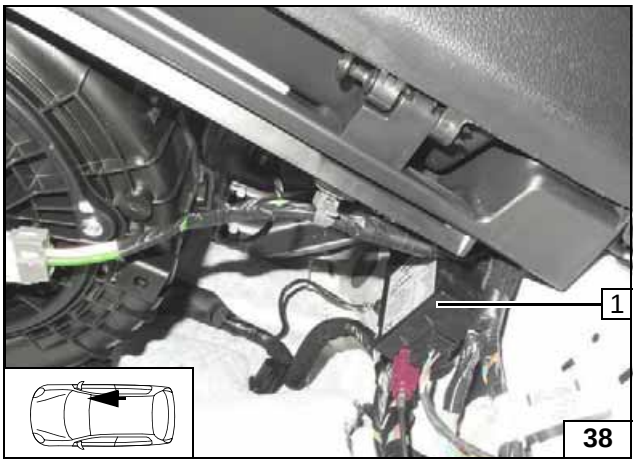
Installing aerial



Temperature sensor T100 HTM

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

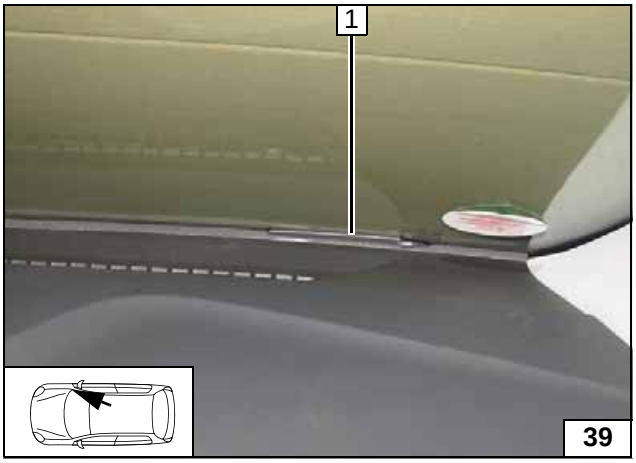
Installing temperature sensor



ThermoCall Option

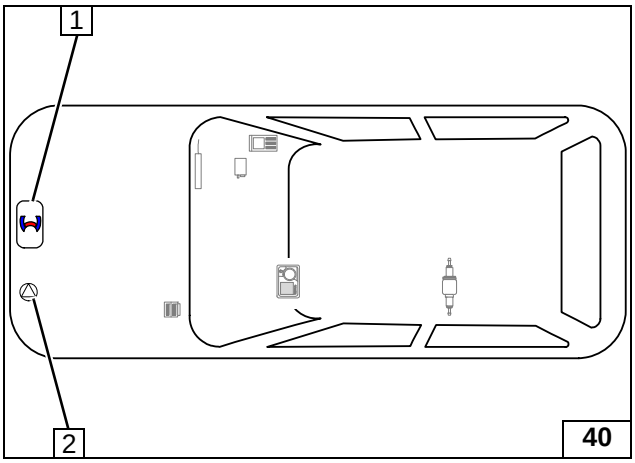
Fasten receiver **1** with double-sided adhesive tape.

Installing receiver



1 Aerial (optional)

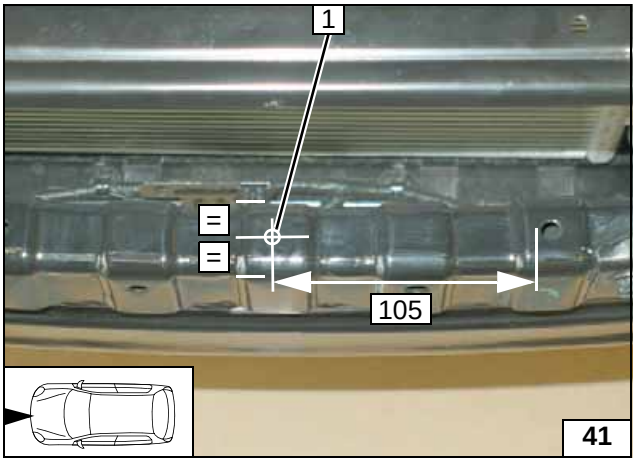
Installing aerial



Preparing Installation Location

1 Heater
2 Circulating pump

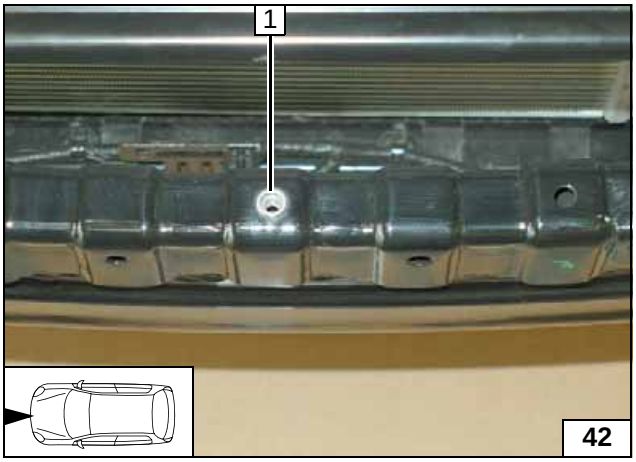
Installation overview



Preparing Installation Location

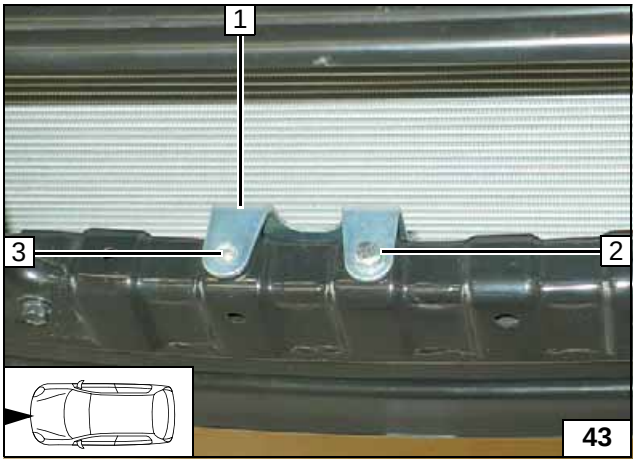
1 9 mm dia. hole

Copying hole pattern



1 Rivet nut

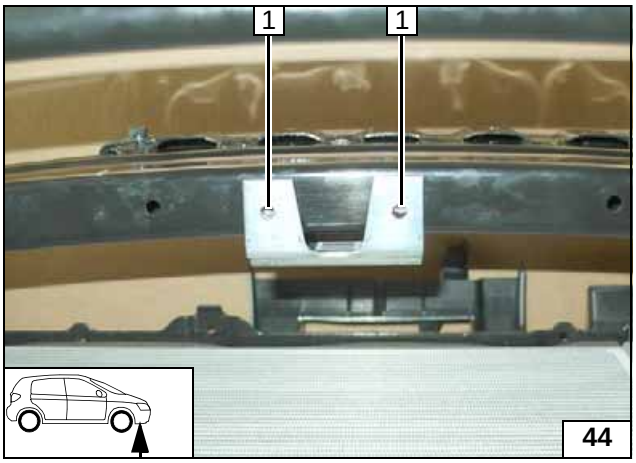
Installing rivet nut



Cut bracket **1** to length and bend in accordance with template.

2 M6x20 bolt
3 Copy hole pattern

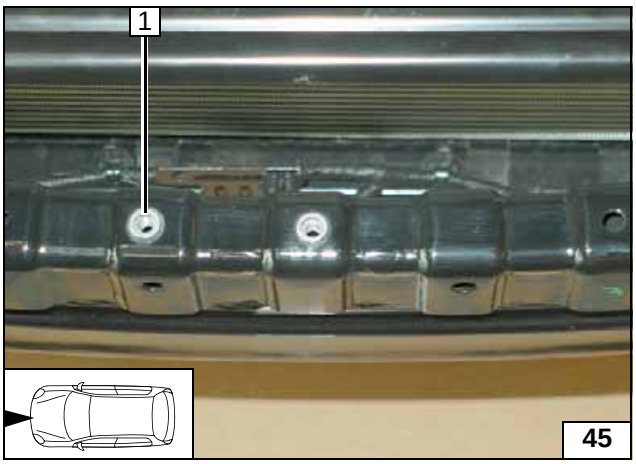
Copying hole pattern



1 Copy hole pattern [2x]

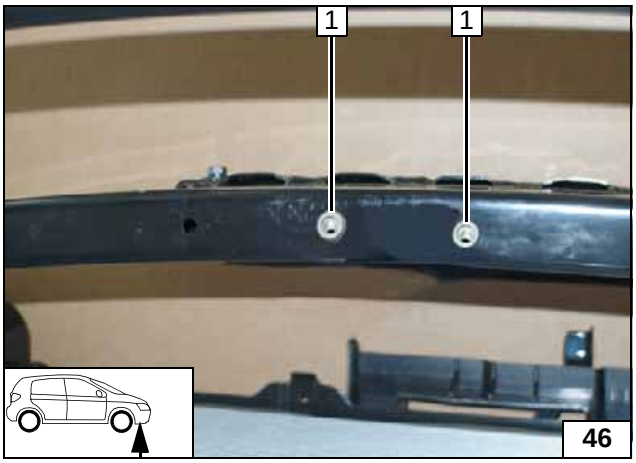
Remove bracket.

Copying hole pattern



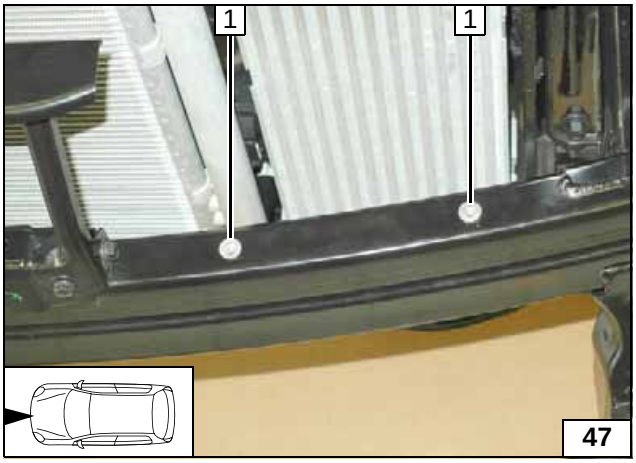
1 9 mm dia. hole; rivet nut [2x each]

Installing rivet nut



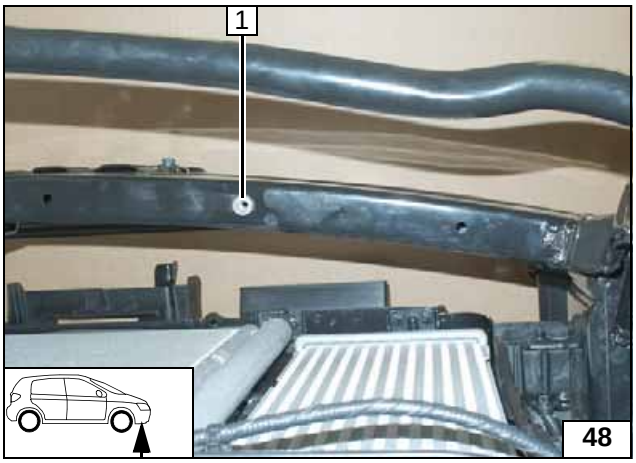
1 9 mm dia. hole; rivet nut [2x each]

Installing rivet nut



1 Rivet nut in existing hole [2x]

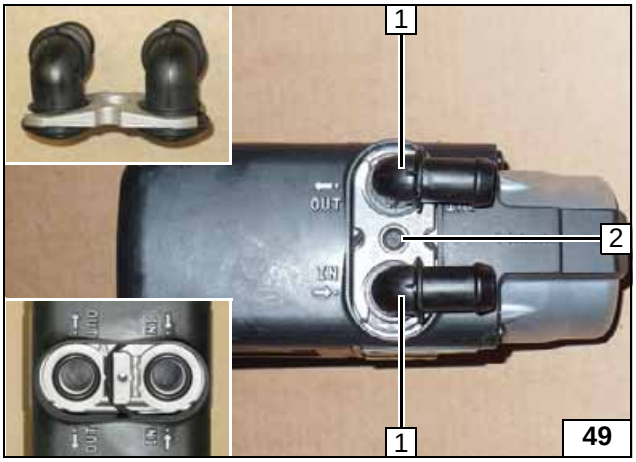
Installing rivet nut



1 Rivet nut in existing hole

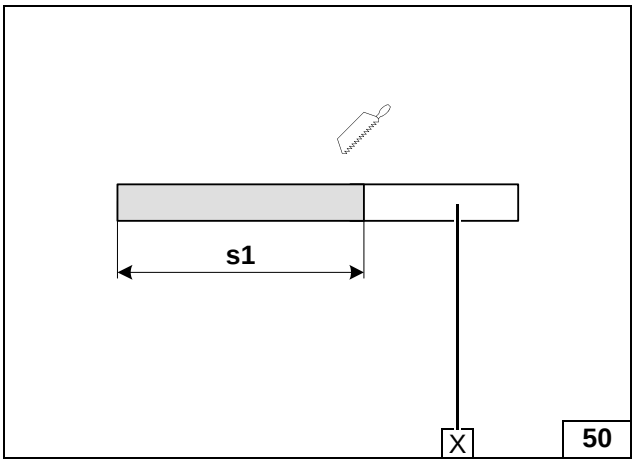
Installing rivet nut

Preparing Heater



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

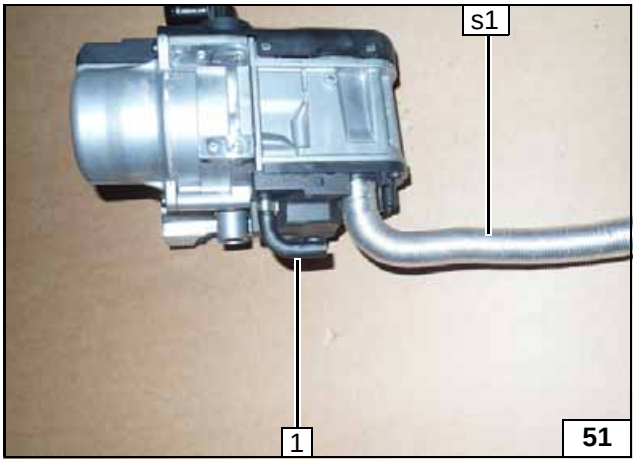
Installing water connection piece



s1 = 280

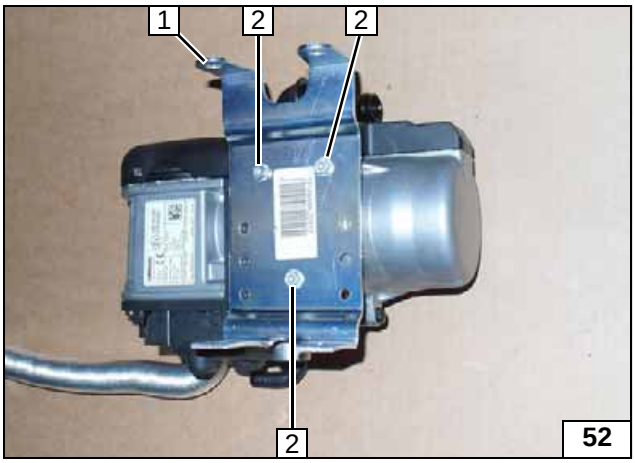
X =

Cutting combustion air pipe to length



1 90° moulded hose, 10mm dia. clamp

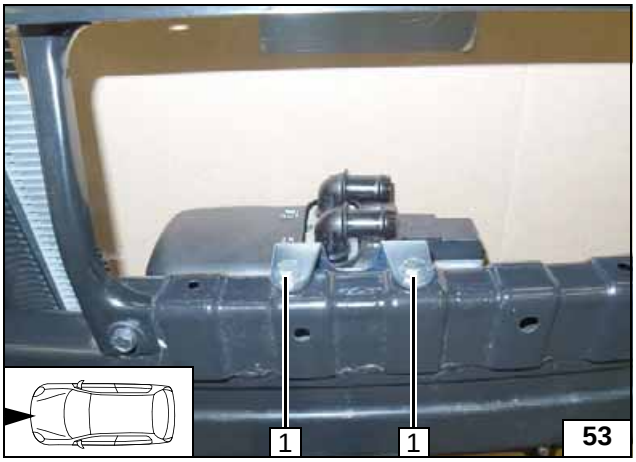
Premounting combustion air pipe s1 and moulded hose



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

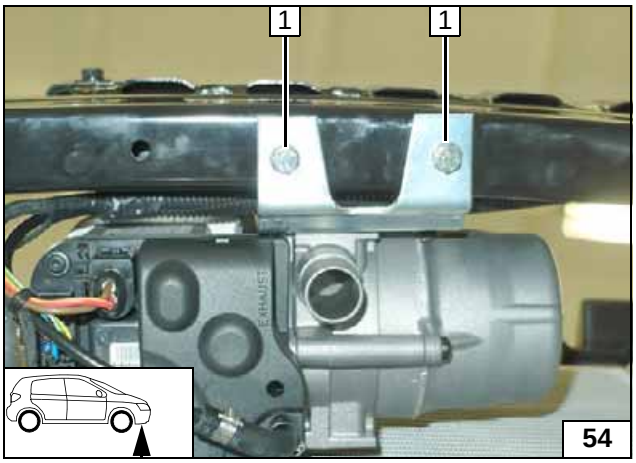
Installing bracket

Installing Heater



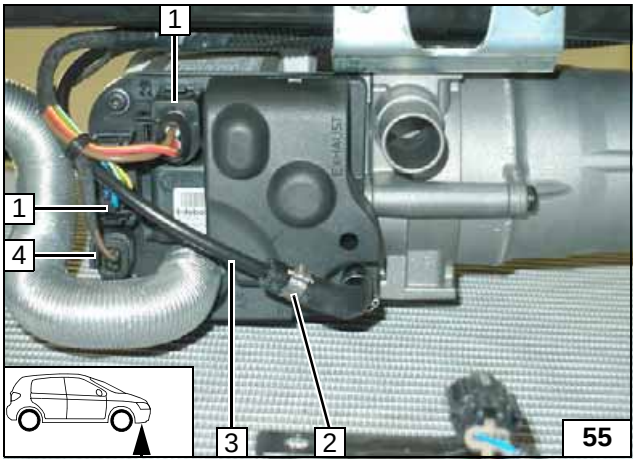
1 M6x20 bolt, spring lockwasher [2x each]

Installing heater



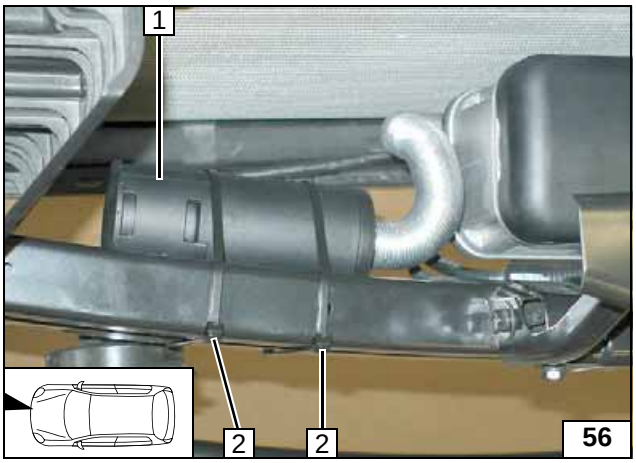
1 M6x20 bolt, spring lockwasher [2x each]

Installing heater



1 Heater wiring harness connector [2x]
2 10 mm dia. clamp
3 Fuel line
4 Connector of circulating pump wiring harness

Connecting heater



Combustion Air

1 Silencer
2 Cable tie [2x]

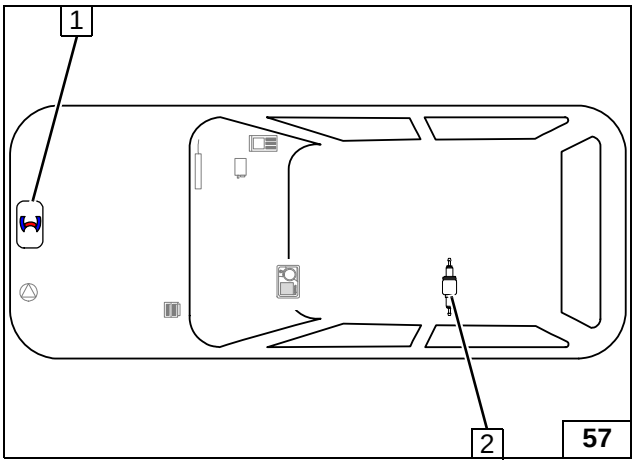
Fuel

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.

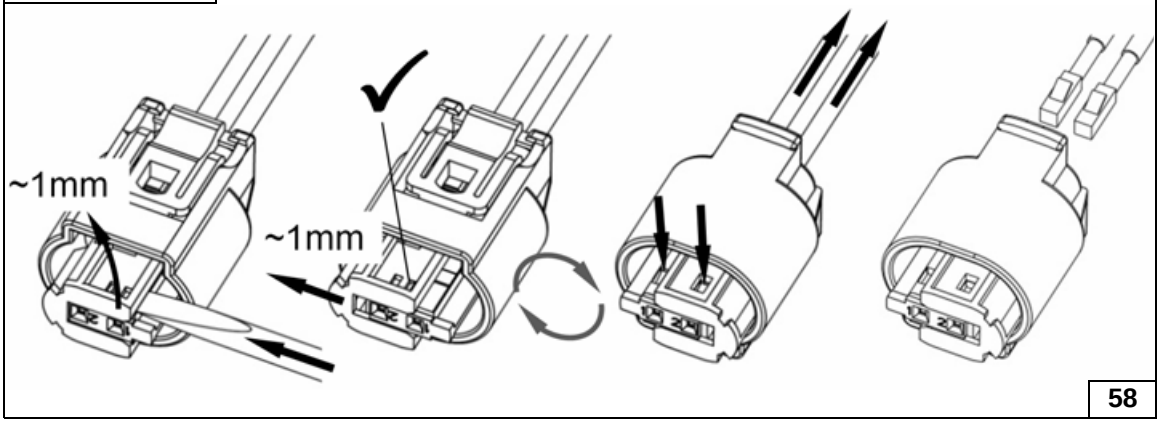


Preparing Installation Location

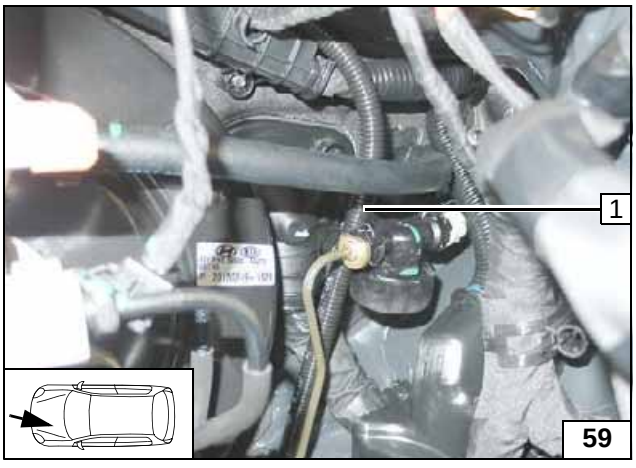
1 Heater
2 Metering pump

Installation overview

Connector X7

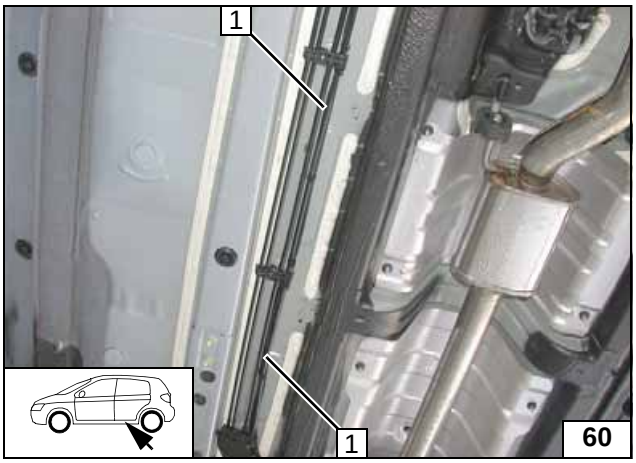


Dismantling metering pump connector



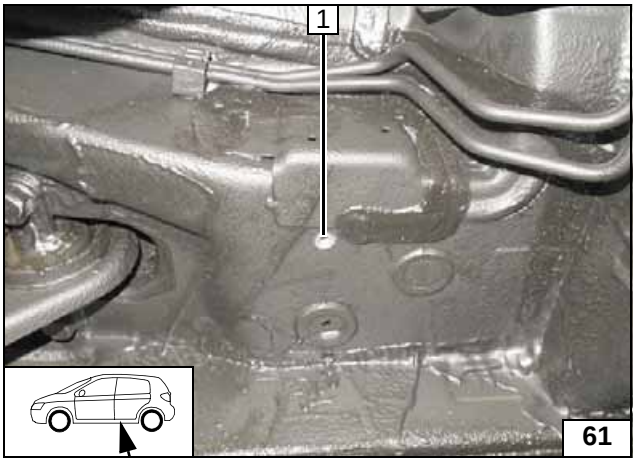
Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **1** along original vehicle lines to the underbody.

Routing lines



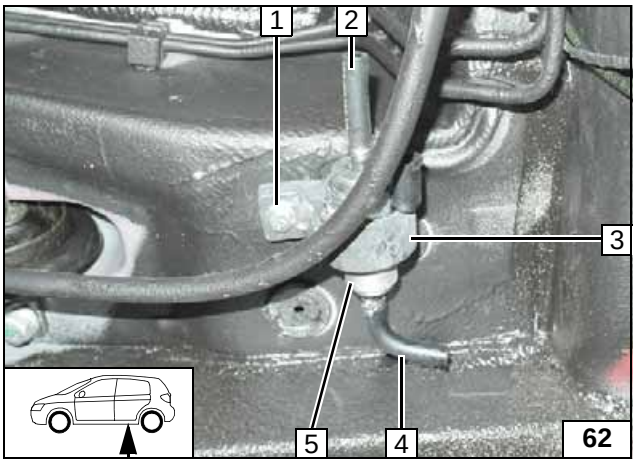
1 Fuel line, wiring harness of metering pump

Routing lines



1 Rivet nut, existing hole

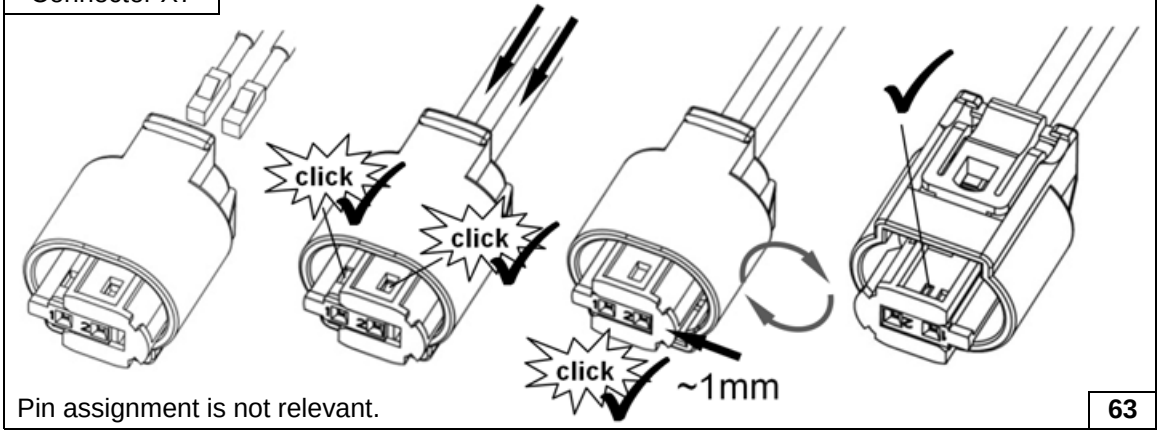
Installing rivet nut



1 M6x25 bolt, support angle bracket
2 Hose section, 10 mm dia. clamp
3 Metering pump mount
4 90° moulded hose, 10mm dia. clamp
5 Metering pump

Installing metering pump

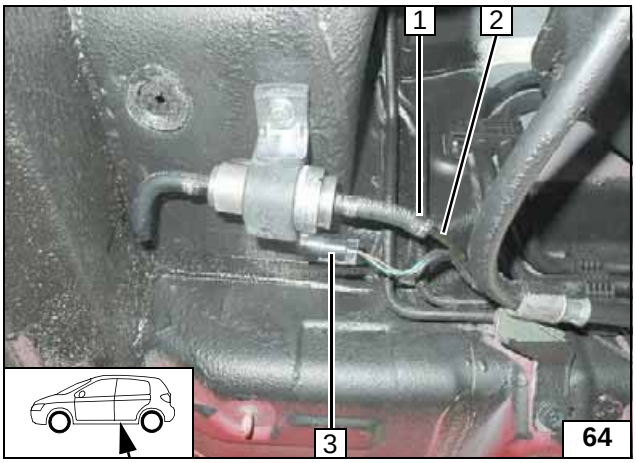
Connector X7



Pin assignment is not relevant.

63

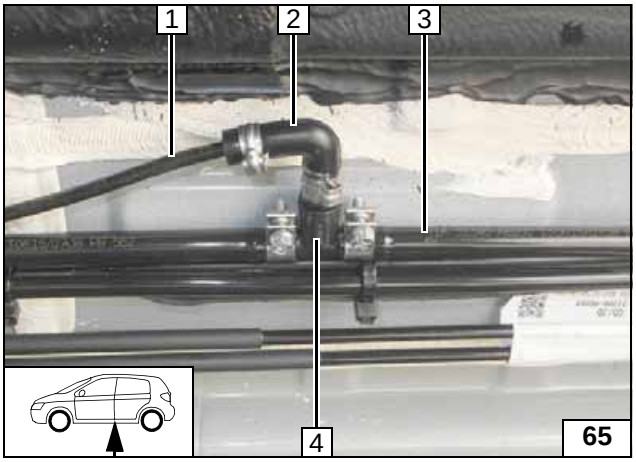
Completing metering pump connector



Ensure sufficient distance from adjacent components, correct if necessary.

1 10 mm dia. clamp [2x]
2 Fuel line of heater
3 Metering pump wiring harness, connector X7 mounted

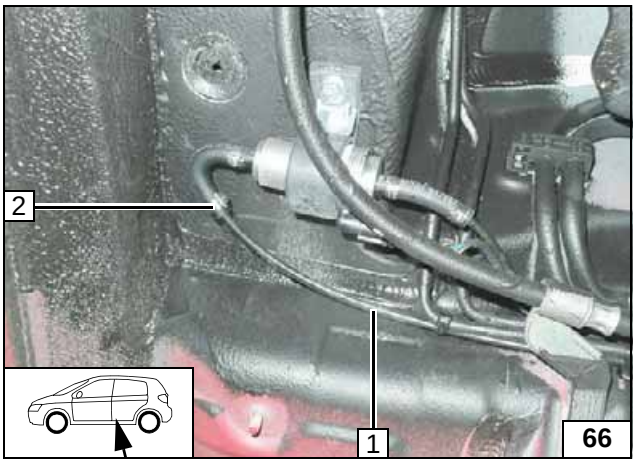
Connecting metering pump



Cut off fuel return line **3** at position **4**.

1 Fuel line
2 90° moulded hose, 10mm dia. clamp [2x]
4 8x5x8 fuel standpipe, 10mm dia. clamp [2x]

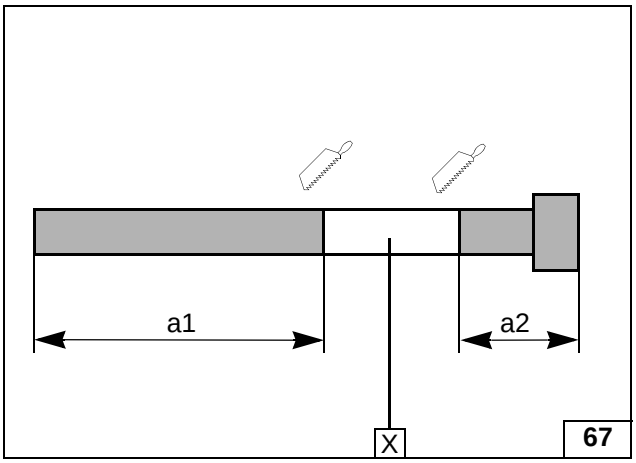
Fuel extraction



Ensure sufficient distance from adjacent components, correct if necessary.

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

Connecting metering pump

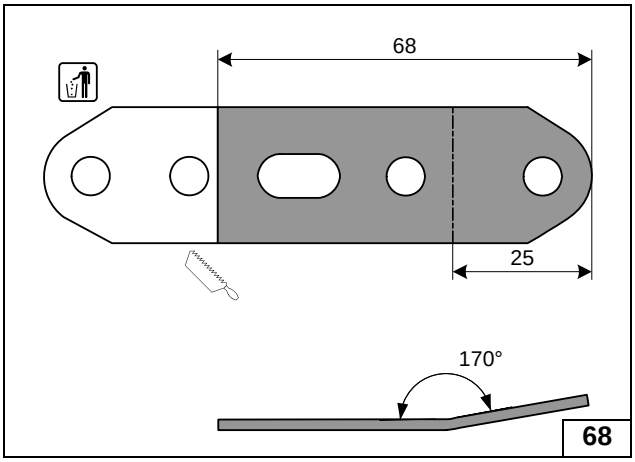


Exhaust Gas

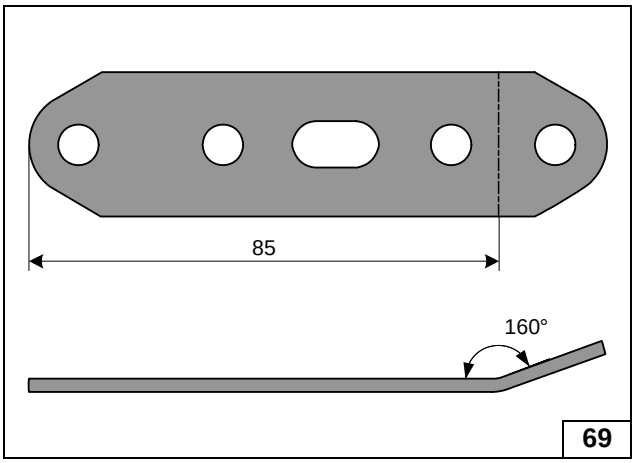
a1 = 270
a2 = 350

X =

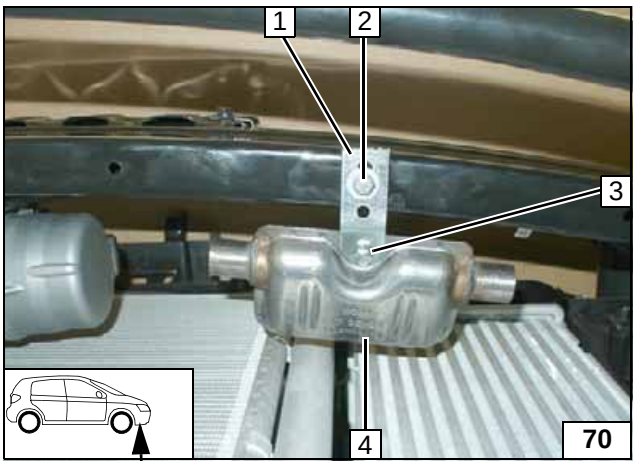
Preparing exhaust pipe



Preparing perforated bracket 1

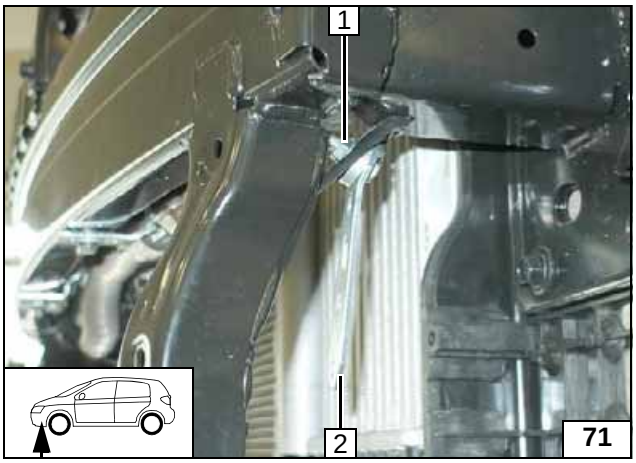


Preparing perforated bracket 2



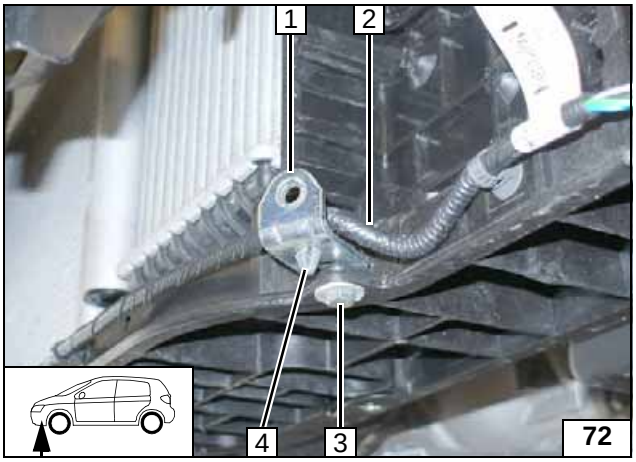
1 Perforated bracket 1
2 M6x20 bolt, spring lockwasher, large diameter washer
3 M6x16 bolt, flanged nut
4 Silencer

Installing silencer



1 M6x20 bolt, 5mm spacer, original vehicle hole, flanged nut
2 Perforated bracket 2

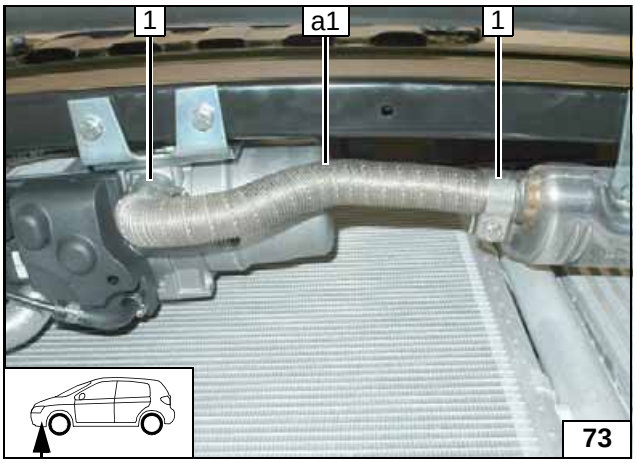
Installing perforated bracket 2



Detach original vehicle wiring harness **2** at position **3** and mount at position **4**!

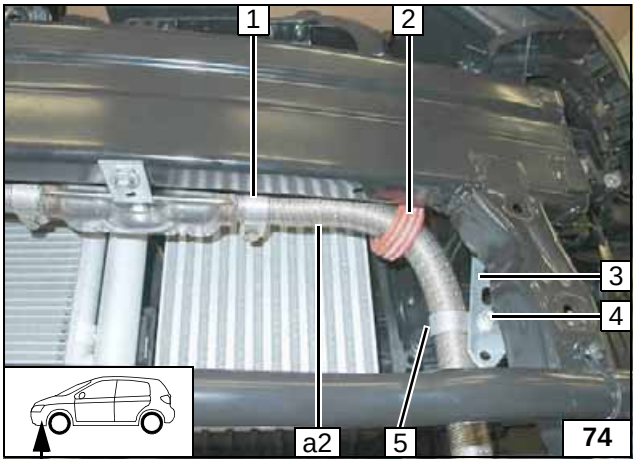
1 Angle bracket
3 M6x20 bolt, large diameter washer, existing hole, large diameter washer, flanged nut

Installing angle bracket



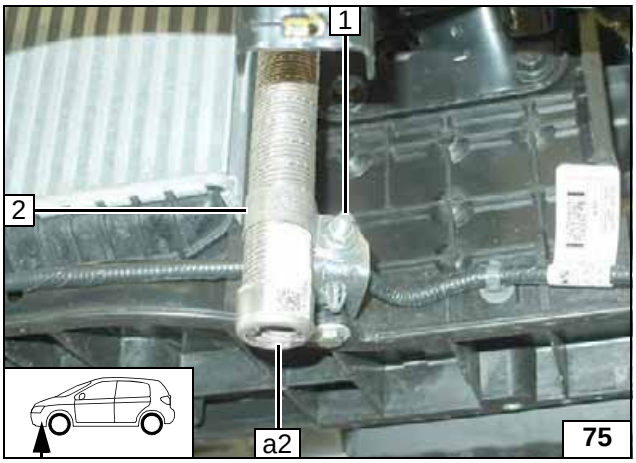
1 Hose clamp [2x]

Installing exhaust pipe a1



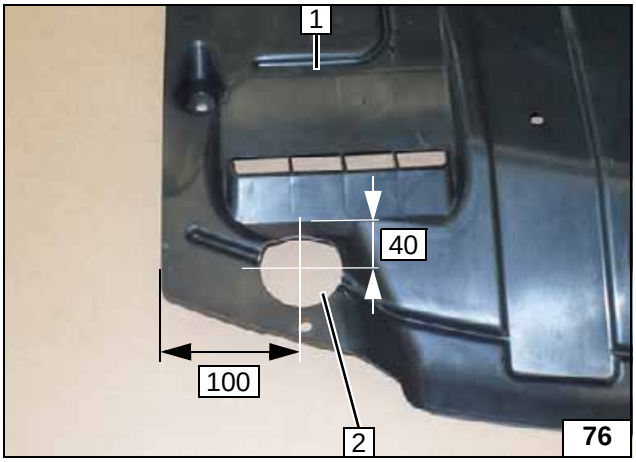
1 Hose clamp
2 Spacer bracket
3 Perforated bracket 2
4 M6x20 bolt, flanged nut
5 P-clamp

Installing exhaust pipe a2



1 M6x20 bolt, flanged nut
2 P-clamp

Installing exhaust pipe a2



1 Underride protection
2 60 mm dia. hole

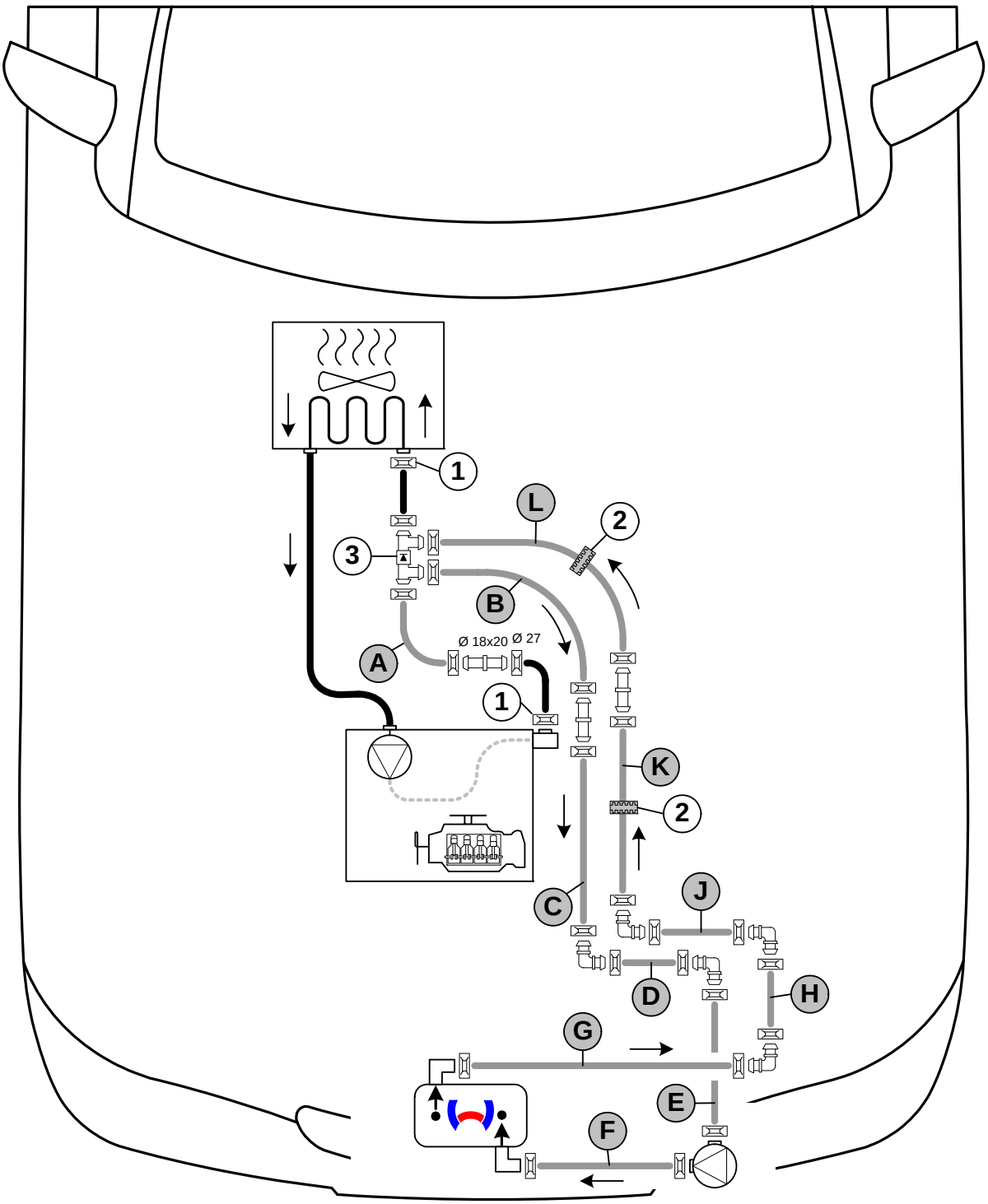
Hole in underride protection

Coolant Circuit

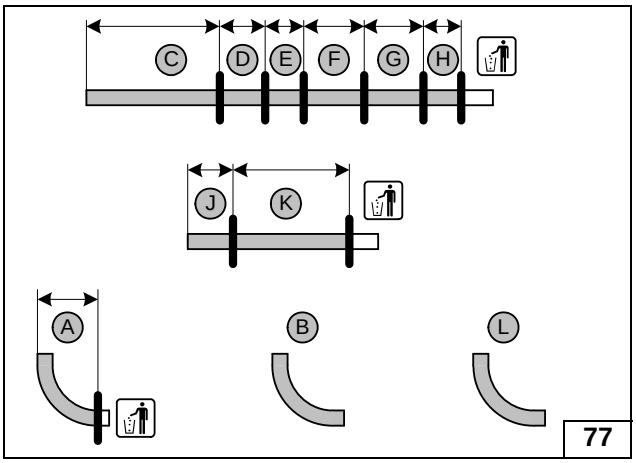
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram



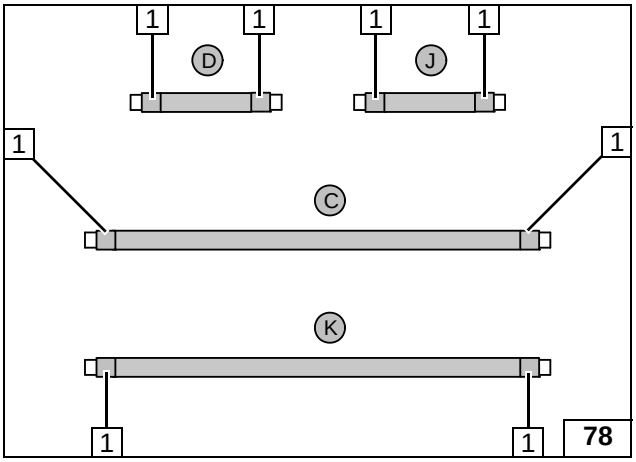
1 = Original vehicle spring clip. **2** = Black (sw) rubber isolator. **3** = Check valve.
All spring clips without a specific designation = 25 mm dia.
All connecting pipes without a specific designation and = 18x18 mm dia.



Cutting hoses to length

A, B, and **L** = 90°, 18mm dia. moulded hose

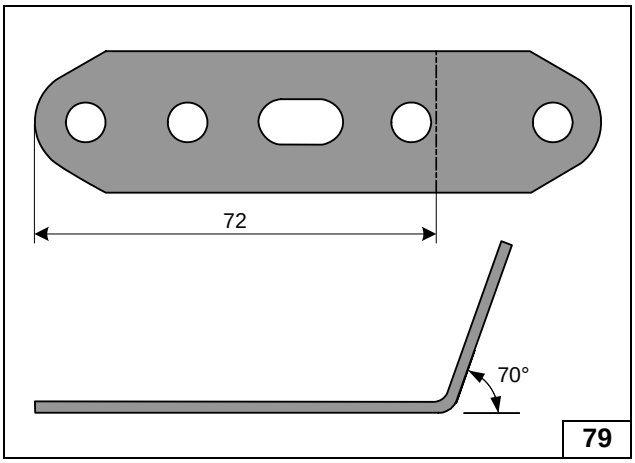
A =	50
C =	840
D =	190
f**E** =	180
F =	420
G =	420
H =	145
J =	185
K =	880



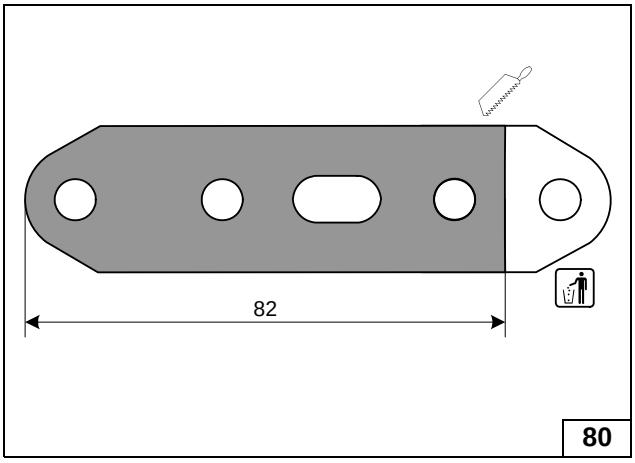
Installing braided protection hoses

Slide on braided protection hoses and cut to length.

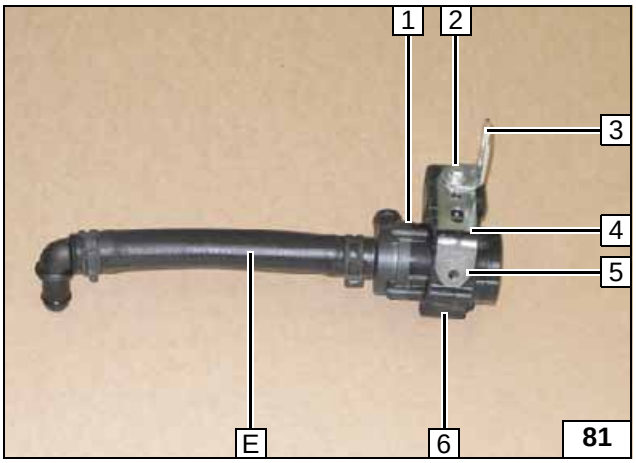
1 Cut heat shrink plastic tubing to size, 50mm long [8x]



Bending perforated bracket 3

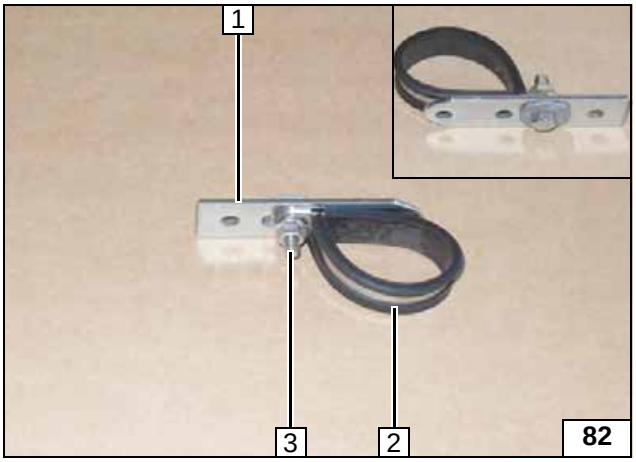


Shortening perforated bracket 4



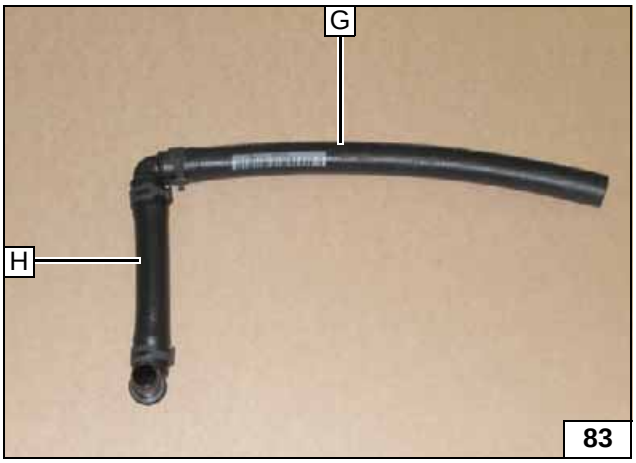
1 Circulating pump
2 M6x25 bolt, flanged nut
3 Angle bracket
4 Cable tie
5 Perforated bracket 3
6 Circulating pump mount

Premounting circulating pump

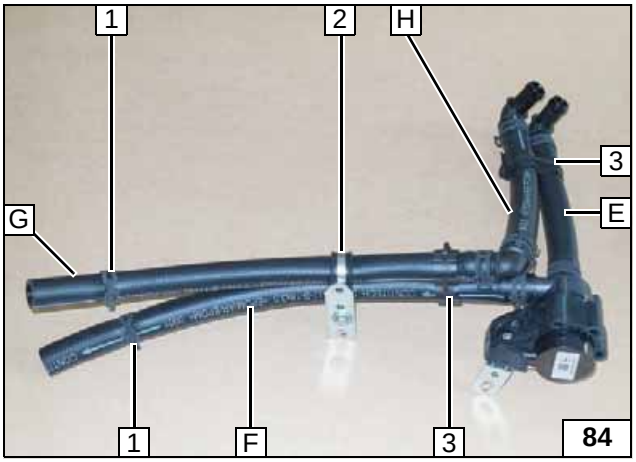


1 Perforated bracket 4
2 38 mm dia. rubber-coated p-clamp
3 M6x20 bolt, large diameter washer, flanged nut

Premounting p-clamp

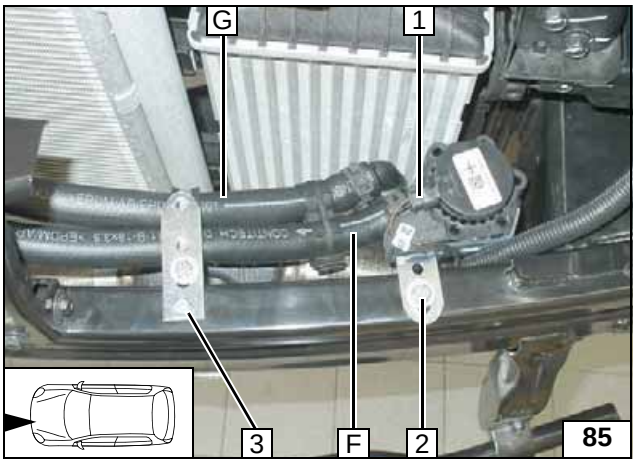


Premounting hoses G and H



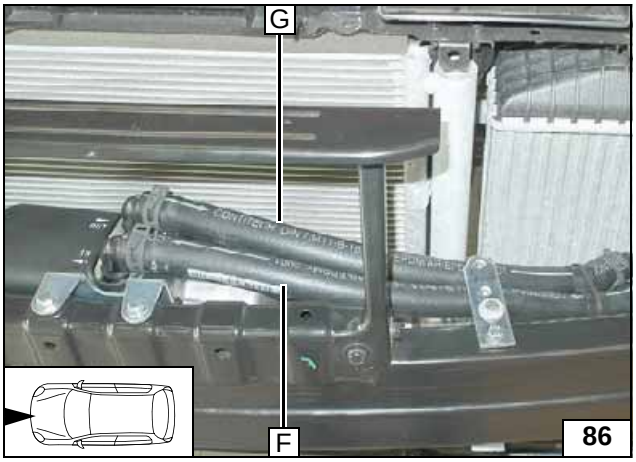
1 Premount spring clip [2x]
2 38 mm dia. premounted rubber-coated p-clamp
3 Hose bracket [2x]

Premounting circulating pump

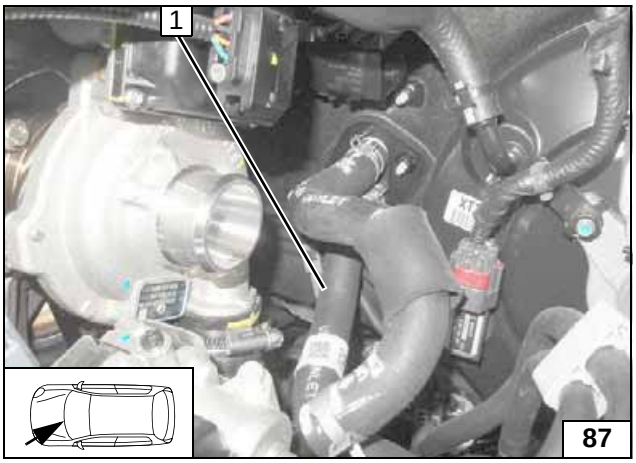


1 Circulating pump wiring harness, connector mounted
2 M6x20 bolt, spring lockwasher, large diameter washer
3 M6x20 bolt, spring lockwasher

Installing circulating pump

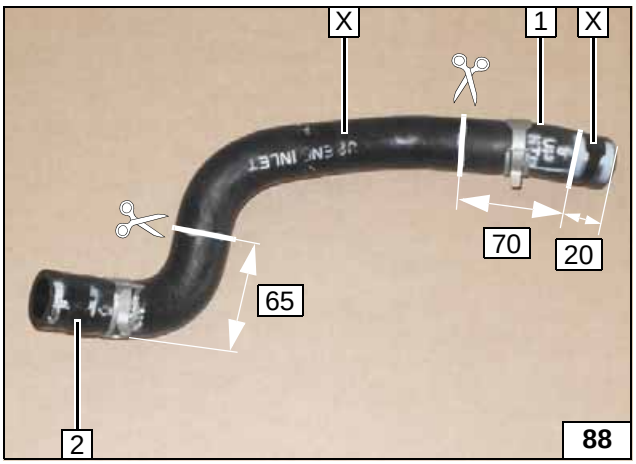


Connecting heater



Remove hose of engine outlet / heat exchanger inlet **1**. Spring clips will be reused.

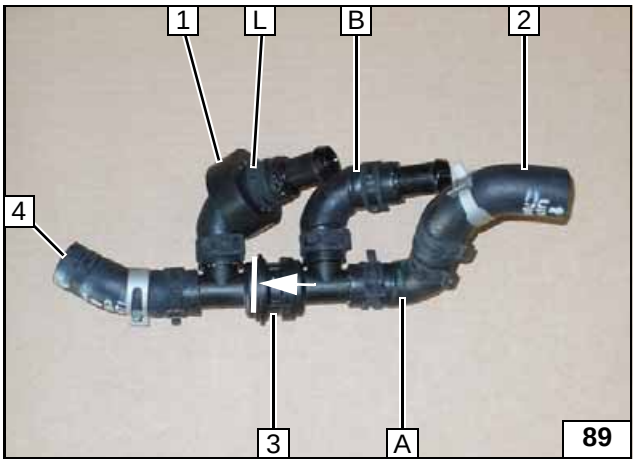
Removing original vehicle hose



1 Heat exchanger inlet hose section, original vehicle spring clip
2 Engine outlet hose section, original vehicle spring clip

X = 

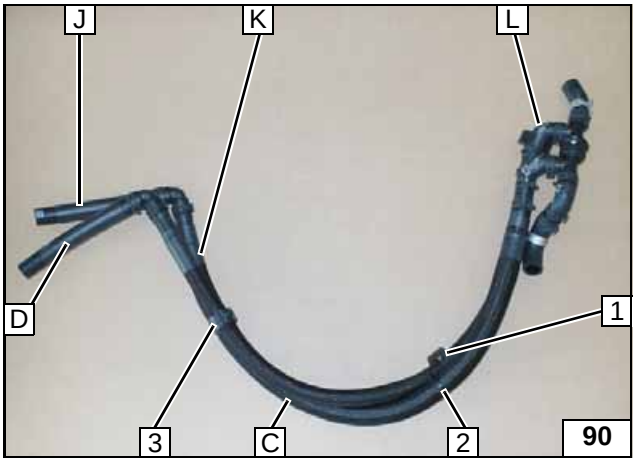
Cutting point



Install hose **A** with long part on check valve **3**.

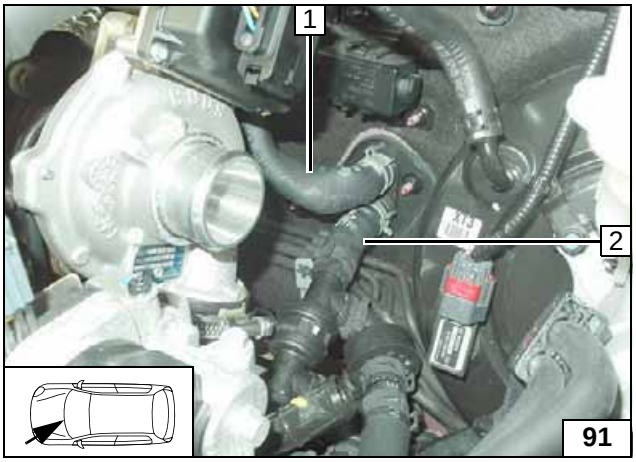
1 Black (sw) rubber isolator
2 Engine outlet hose section
3 Check valve
4 Heat exchanger inlet hose section

Premounting check valve



1 Black (sw) rubber isolator
2 Cable tie
3 Hose bracket

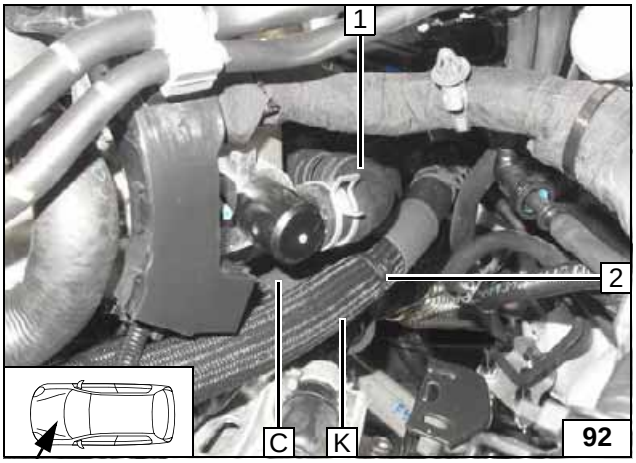
Premounting hose group



Heat exchanger outlet / engine inlet hose **1** separated for a better view of the engine!

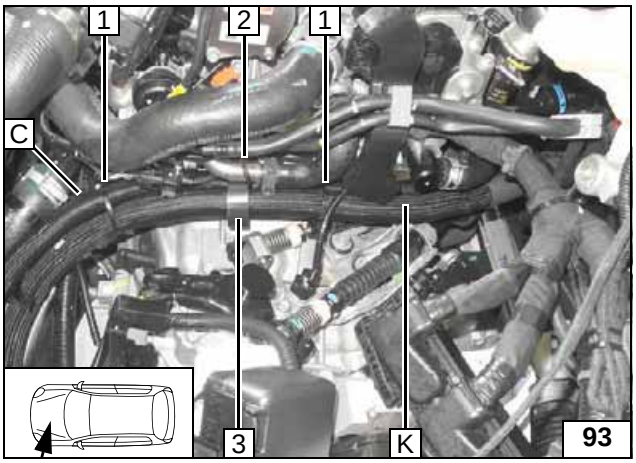
2 Heat exchanger inlet hose section

Connecting heat exchanger inlet



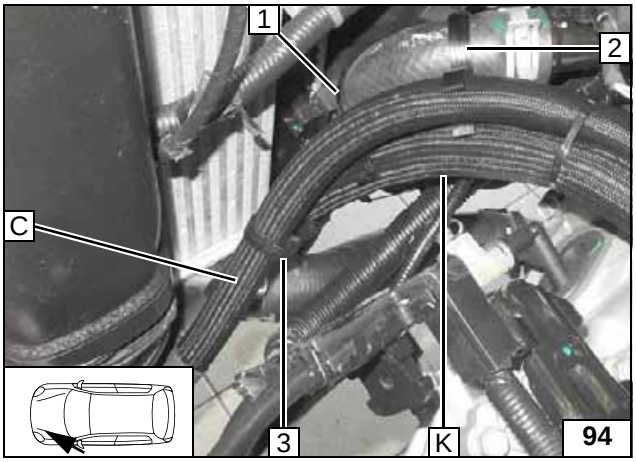
1 Engine outlet hose section
2 Cable tie between hoses **C** and **K**

Connecting engine outlet



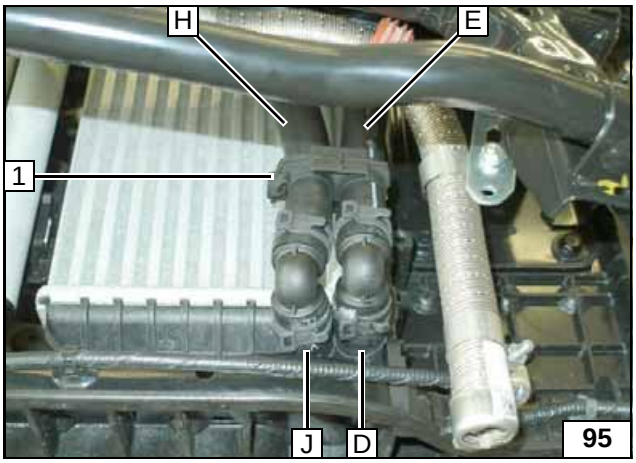
1 Cable tie between hoses **C** and **K** [2x]
2 Cable tie between hose **C** and original vehicle coolant hose
3 Position black (sw) rubber isolator

Routing in engine compartment



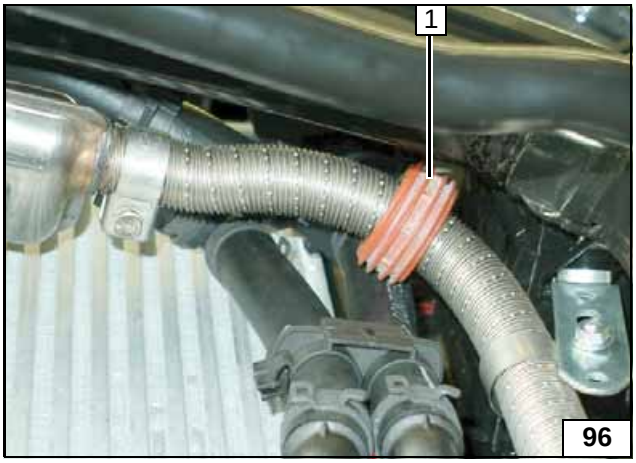
1 Hose bracket between hose **K** and original vehicle hose
2 Hose bracket between hose **C** and original vehicle hose
3 Hose bracket between hoses **C** and **K**

Routing in engine compartment



1 Hose bracket

Connecting hoses H and J



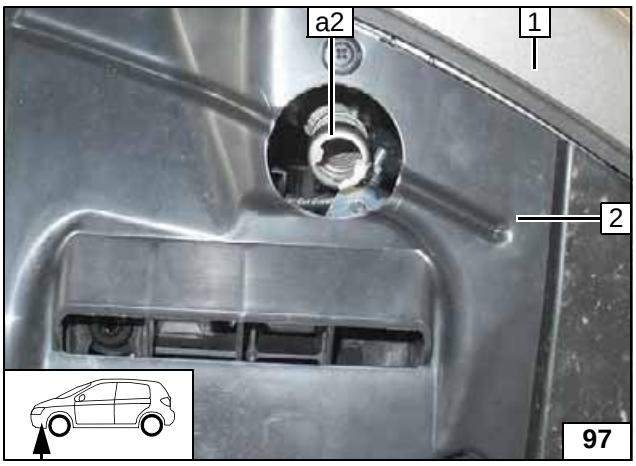
1 Spacer bracket

Positioning spacer bracket

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.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**

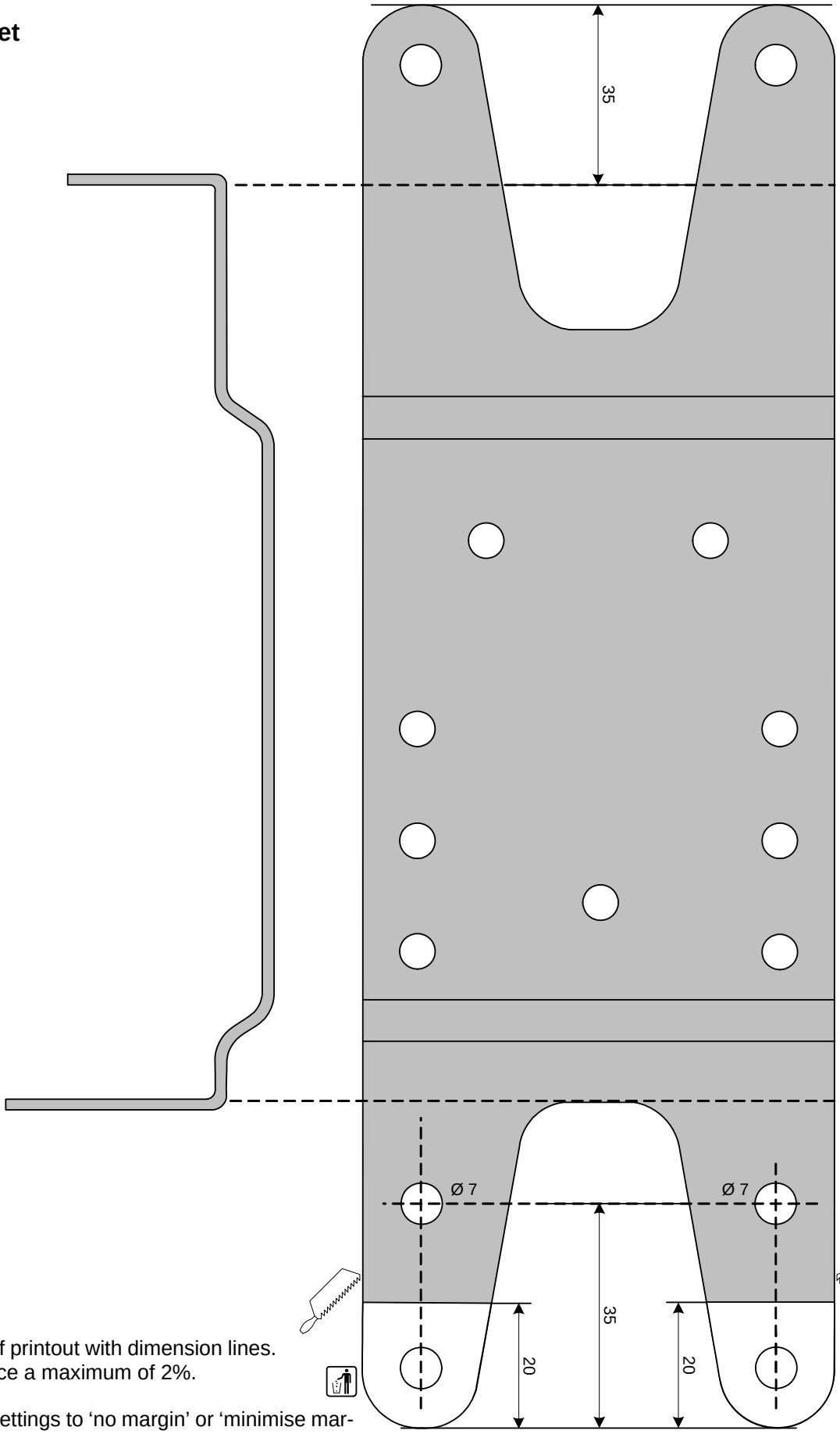


Install bumper **1**.
Install underride protection **2**.

Aligning exhaust pipe a2

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

Template for Bracket



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.

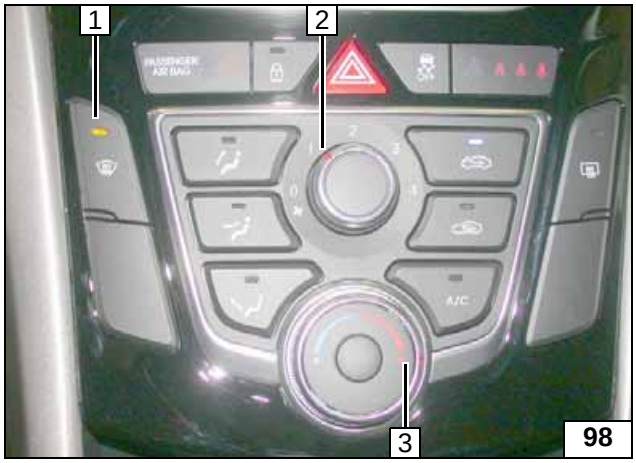
Operating Instructions for Manual Air-Conditioning

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.

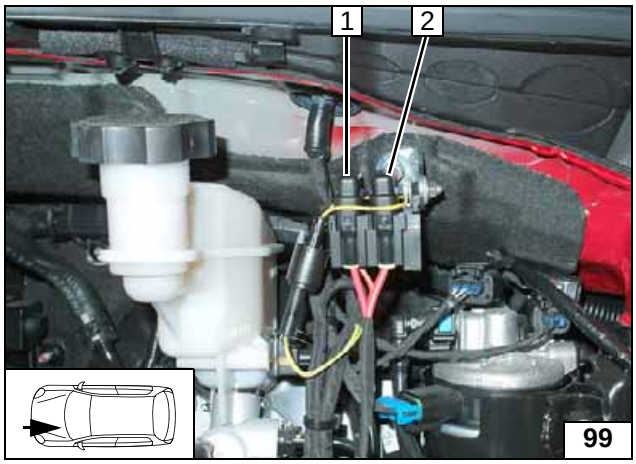
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



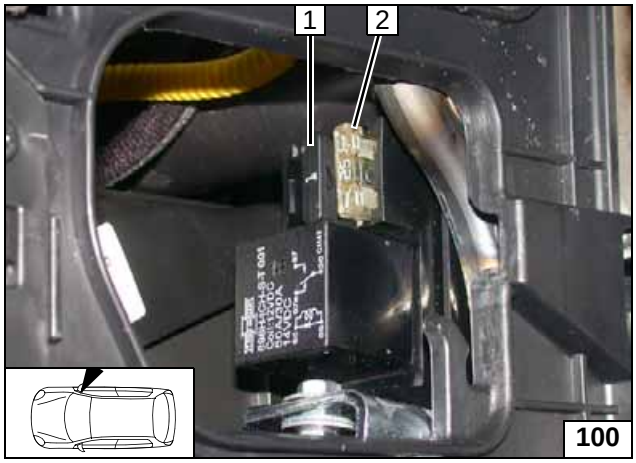
1 Air outlet to windscreen
2 Set fan to level ‘1’, or max. ‘2’
3 Set temperature to ‘max.’

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

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.

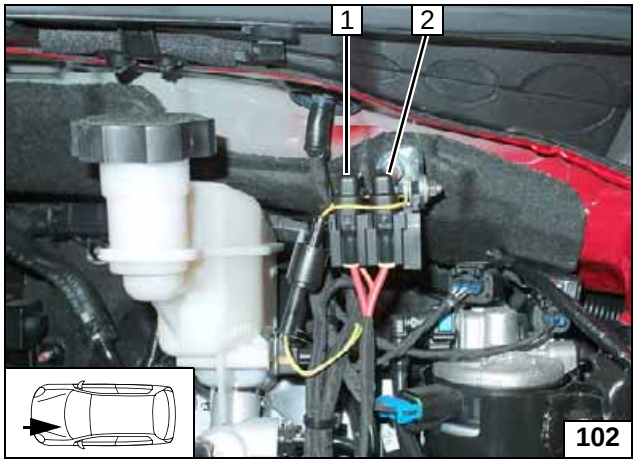
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

A/C control panel

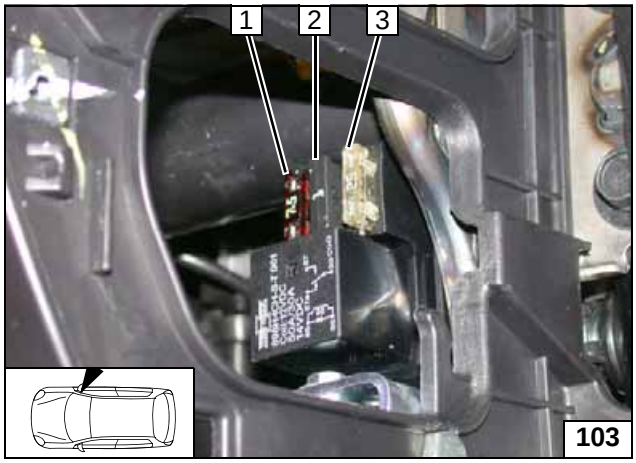
1 Set temperature on both sides to ‘HI’
2 Air outlet faces ‘upward’
3 Set fan to level ‘2’, or max. ‘3’

Engine compartment fuses



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

Passenger compartment fuses



1 7.5A fuse F5 of power supply fuse
2 1A heater control fuse F3
3 25A fan fuse F4