Water Heater

***Thermo Top Evo* Parking Heater** E1 00 0258

Installation Documentation
Mitsubishi Space Star

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Mitsubishi	Space Star	A03A	e1 * 2007 / 46 * 0951 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.0 Mivec	Petrol	SG	52	999	3A90
1.2 Mivec	Petrol	SG	59	1193	3A92
1.2 Mivec	Petrol	CVT	59	1193	3A92

SG = Manual transmission
CVT = Automatic transmission

From Model Year 2013
Left-hand drive vehicle

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

Not verified: Passenger compartment monitoring
Headlight washer system

Total installation time: about 6.5 hours

Mitsubishi Space Star

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit for Mitsubishi Space Star 2013 Petrol: **1321088B**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

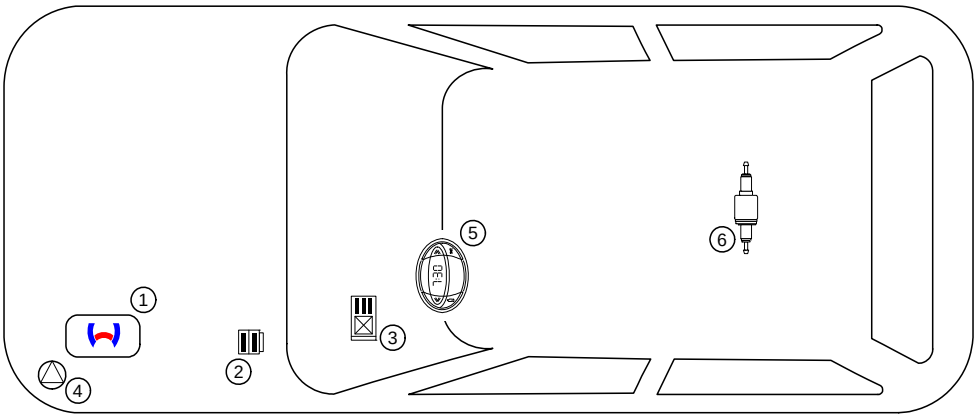
Notes on installation:

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

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. Circulating pump
5. Digital timer
6. Metering pump



Notes on Total Installation Time

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

Information on Operating and Installation Instructions

1 Important Information (not complete)

1.1 Installation and Repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

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

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

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

2 Statutory regulations governing installation

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

Note

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

Important

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

Note

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

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

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Mitsubishi Space Star

Notes on Validity

This installation documentation applies to the Mitsubishi Space Star Petrol vehicles - for validity, see page 1 - from model year 2013 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 Instructions

Special Tools
- Hose clamp pliers for self-clamping 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
- Webasto Thermo Test Diagnosis with current software

Dimensions
- All dimensions are in mm

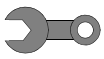
Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque of bolt on retaining plate of 5x15 water connection piece = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

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.

Special features are highlighted using the following symbols:

Mechanical system



Electrical system

Coolant circuit

Combustion air

Fuel

Exhaust gas

Software

Specific risk of injury or fatal accidents

Specific risk due to electrical voltage

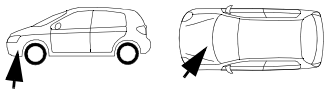
Specific risk of damage to components

Specific risk of fire or explosion

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

Reference to a special technical feature

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



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

Mitsubishi Space Star

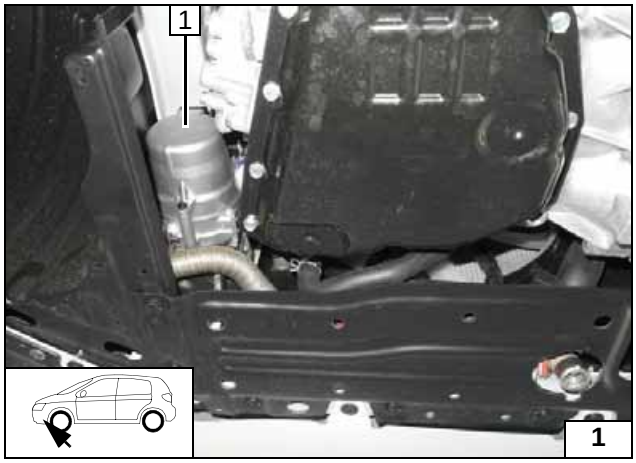
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect and completely remove the battery together with the carrier.
- Completely remove the air filter housing.
- Remove the lower engine trim.
- Remove the underbody trim on the left.
- Remove the rear bench seat.
- Open the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the glove compartment.
- Remove the radio.
- Remove the lower instrument panel trim on the driver's side.
- Remove the A/C control panel.

Heater

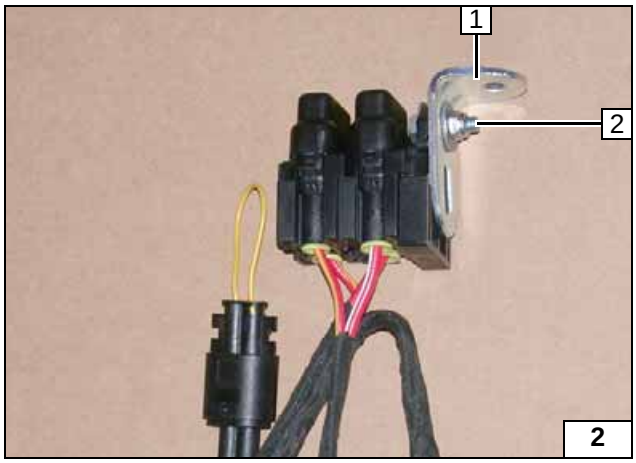
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) in the appropriate place inside the engine compartment.



Heater Installation Location

1 Heater

Installation location



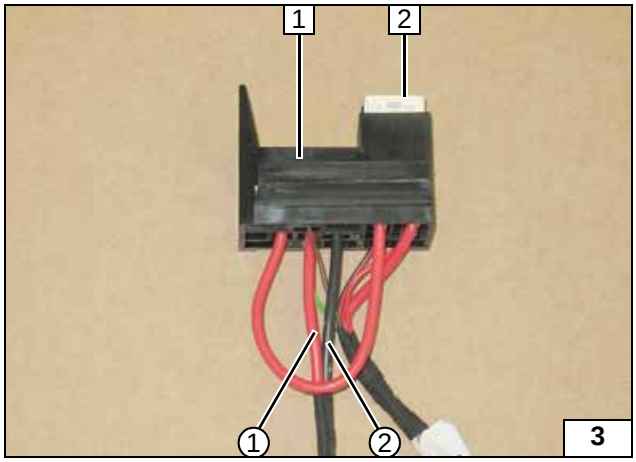
Preparing Electrical System

Wire sections retain their numbering in the entire document.

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

1 Angle bracket
2 M5x16 bolt, washer [2x], retaining plate of fuse holder, nut

Preparing engine compartment fuse holder

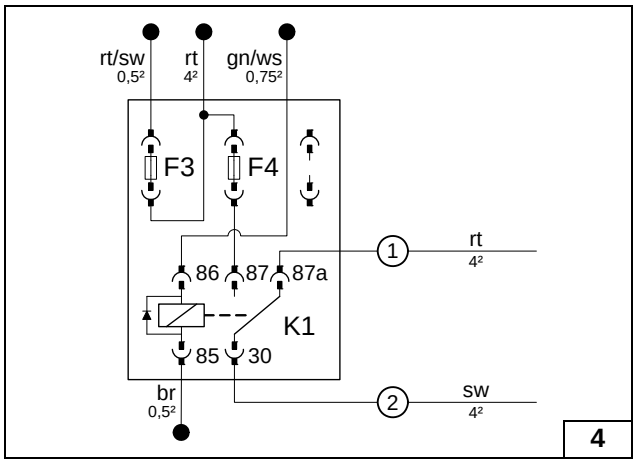


Manual air-conditioning

K1 relay will be mounted only after installation.

1 Passenger compartment relay and fuse holder
2 25A fuse F4
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

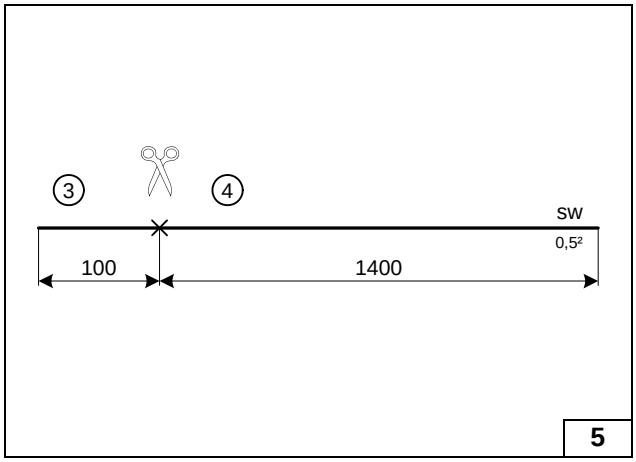
Preparing passenger compartment relay and fuse holder

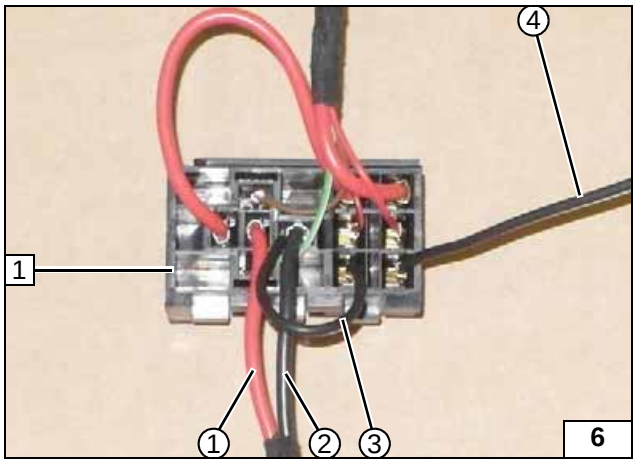


Automatic air-conditioning

Install wire section **4** in provided protective sleeving.

Cutting wires to length





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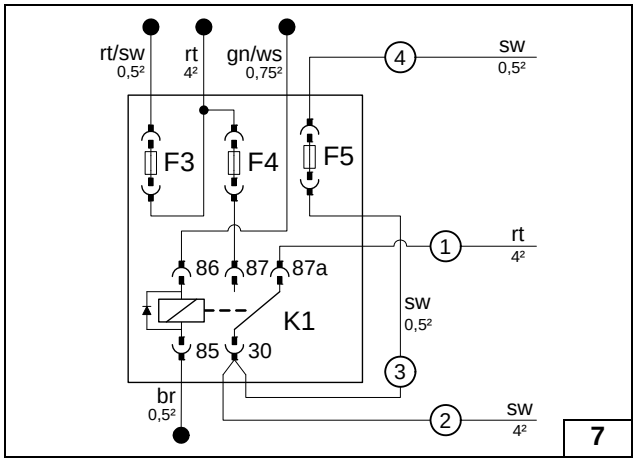
1 Passenger compartment relay and fuse holder
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness
③ Black (sw) wire from K1/30 - Fuse F5
④ Black (sw) wire of fuse F5

Preparing passenger compartment relay and fuse holder



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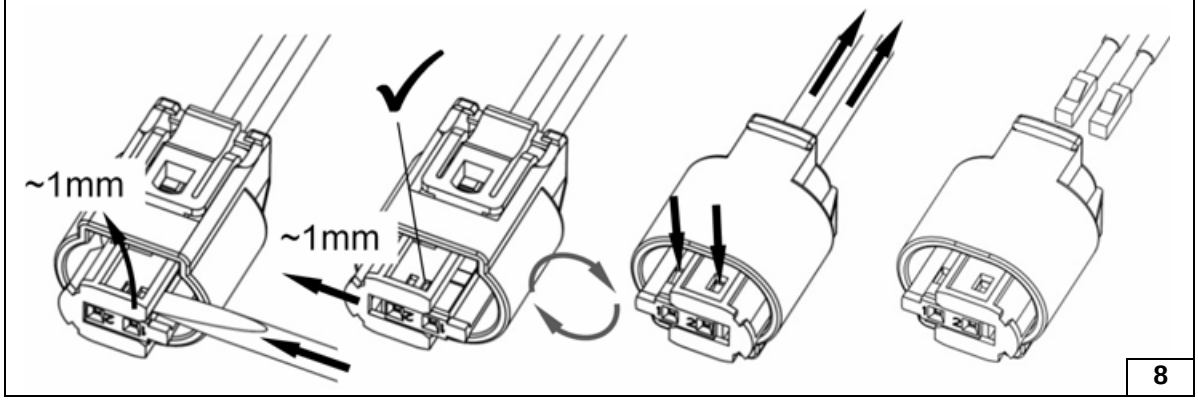
Change connection of K1/30. Insert 25A fuse F4 and 7.5A fuse F5. K1 relay will be mounted only after installation.

① Red (rt) wire from K1/87a
② Black (sw) wire from K1/30
③ Black (sw) wire from K1/30 - Fuse F5
④ Black (sw) wire of fuse F5

Preparing passenger compartment relay and fuse holder

All vehicles

Connector X7



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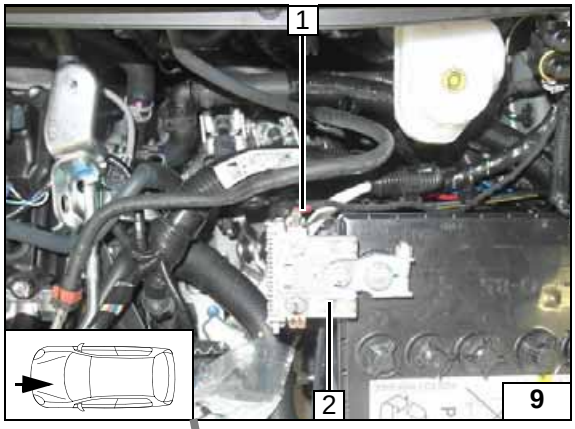
Dismantling connector of metering pump

Electrical System

Positive wire

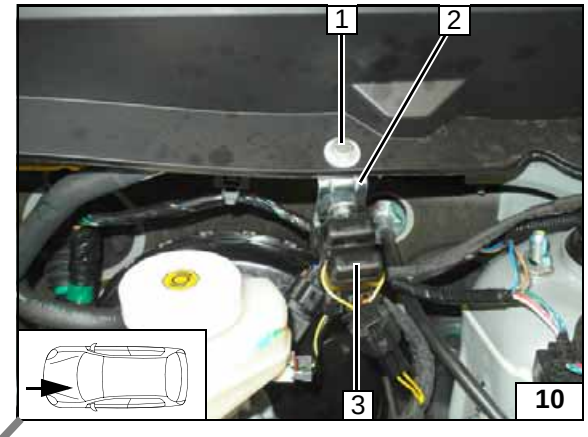
1 Positive wire to positive battery terminal
2 Positive battery terminal



Engine compartment fuse holder

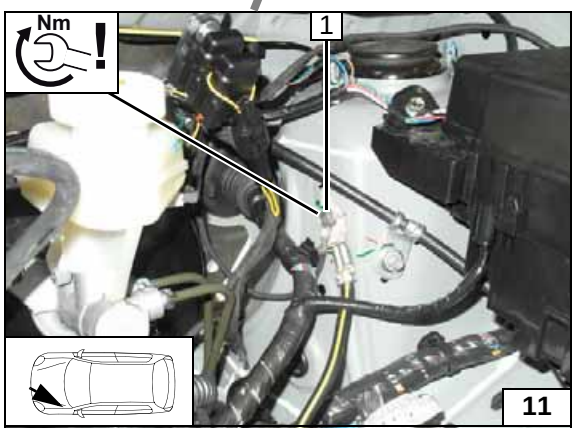
Remove retaining clip at position **1**.

1 M6x20 bolt, large diameter washer, flanged nut, existing hole
2 Angle bracket
3 F1-2 fuses



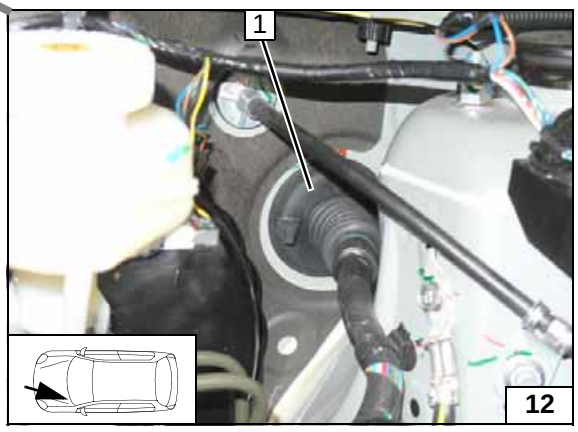
Do not install the metering pump wiring harness until later together with fuel pipe along the original vehicle fuel lines on the underbody.

Wiring harness routing diagram



Earth wire

1 Earth wire to original vehicle earth support point

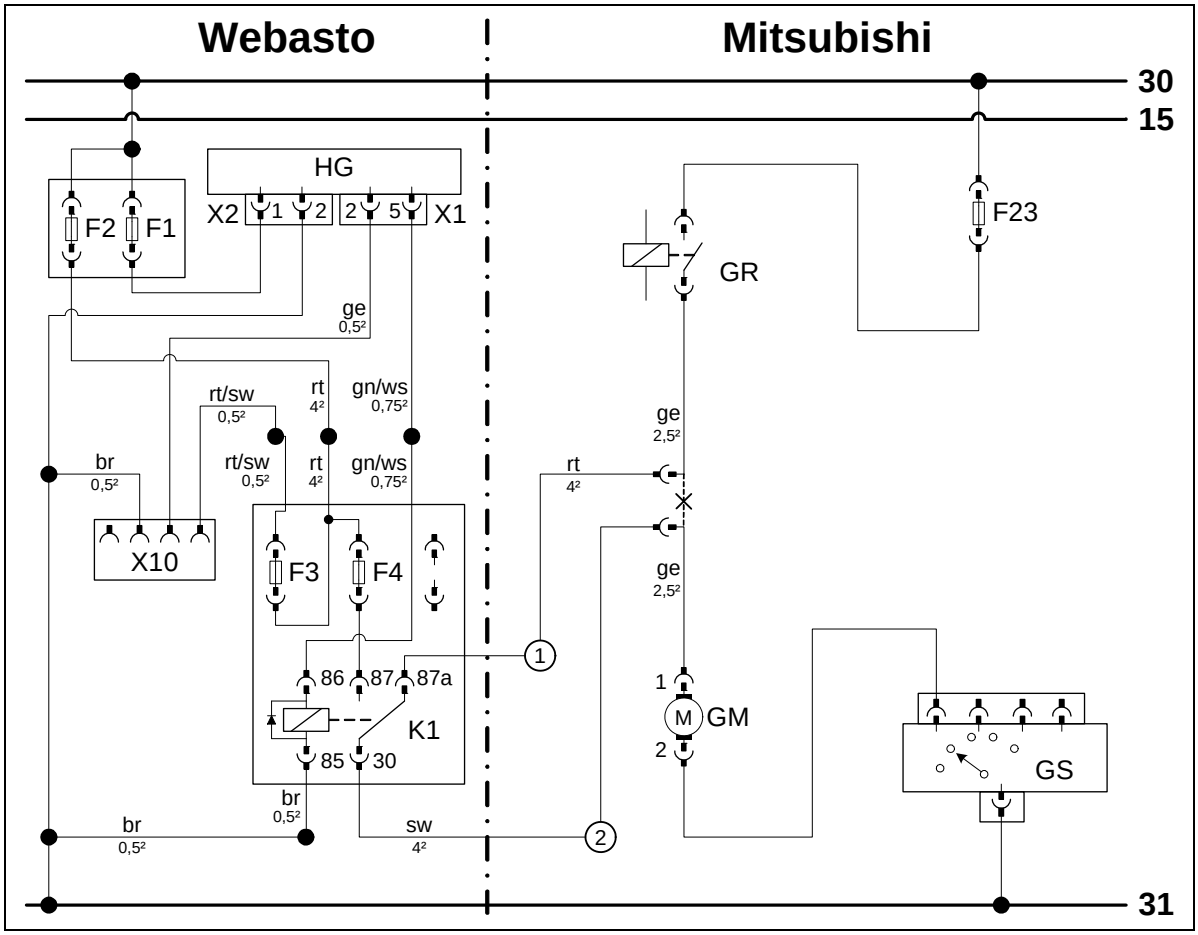


Wiring harness pass through

1 Protective rubber plug

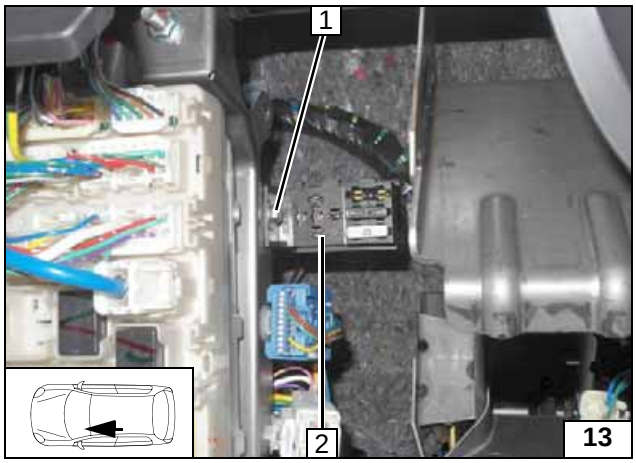
Manual Air-Conditioning Fan Controller

Wiring diagram



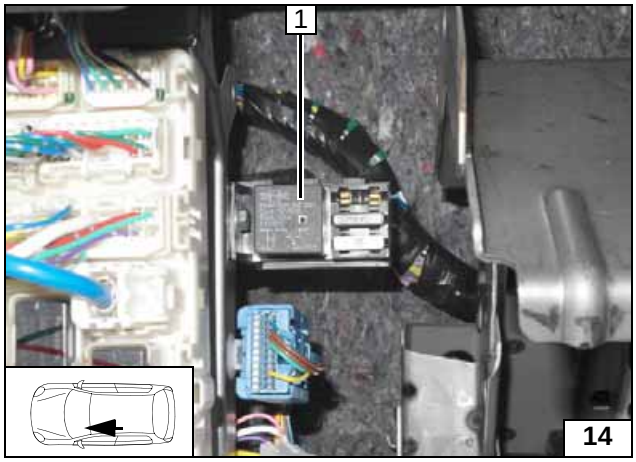
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F23	30A fuse	rt	red
X1	6-pin heater connector	GR	Fan relay	sw	black
X2	2-pin heater connector	GM	Fan motor	ge	yellow
F1	20A fuse	GS	Fan switch	gn	green
F2	30A fuse			br	brown
X10	4-pin connector of heater control				
F3	1A fuse				
F4	25 A fuse				
K1	Fan relay			**X**	Cutting point
				Wiring colours may vary.	



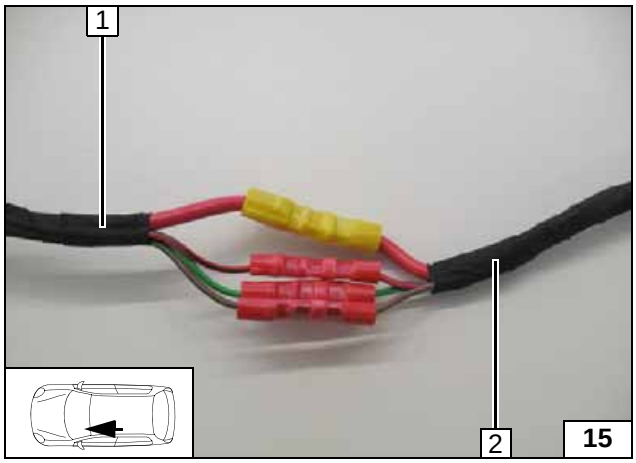
1 M5x16 bolt, large diameter washer [2x], nut, existing hole
2 Passenger compartment relay and fuse holder

Installing relay and fuse holder of passenger compartment



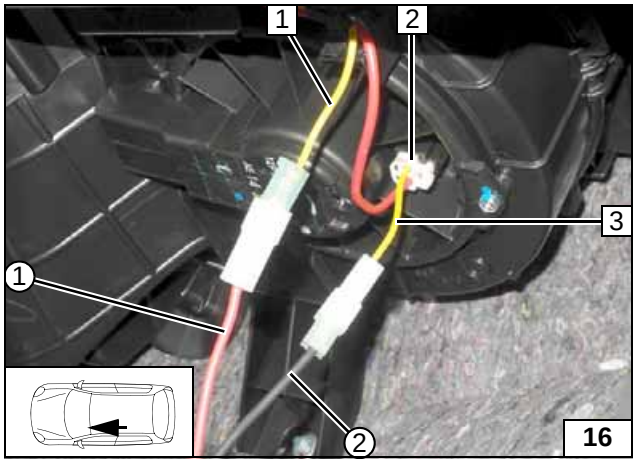
1 K1 relay

Mounting K1 relay



1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting same colour wires of wiring harnesses



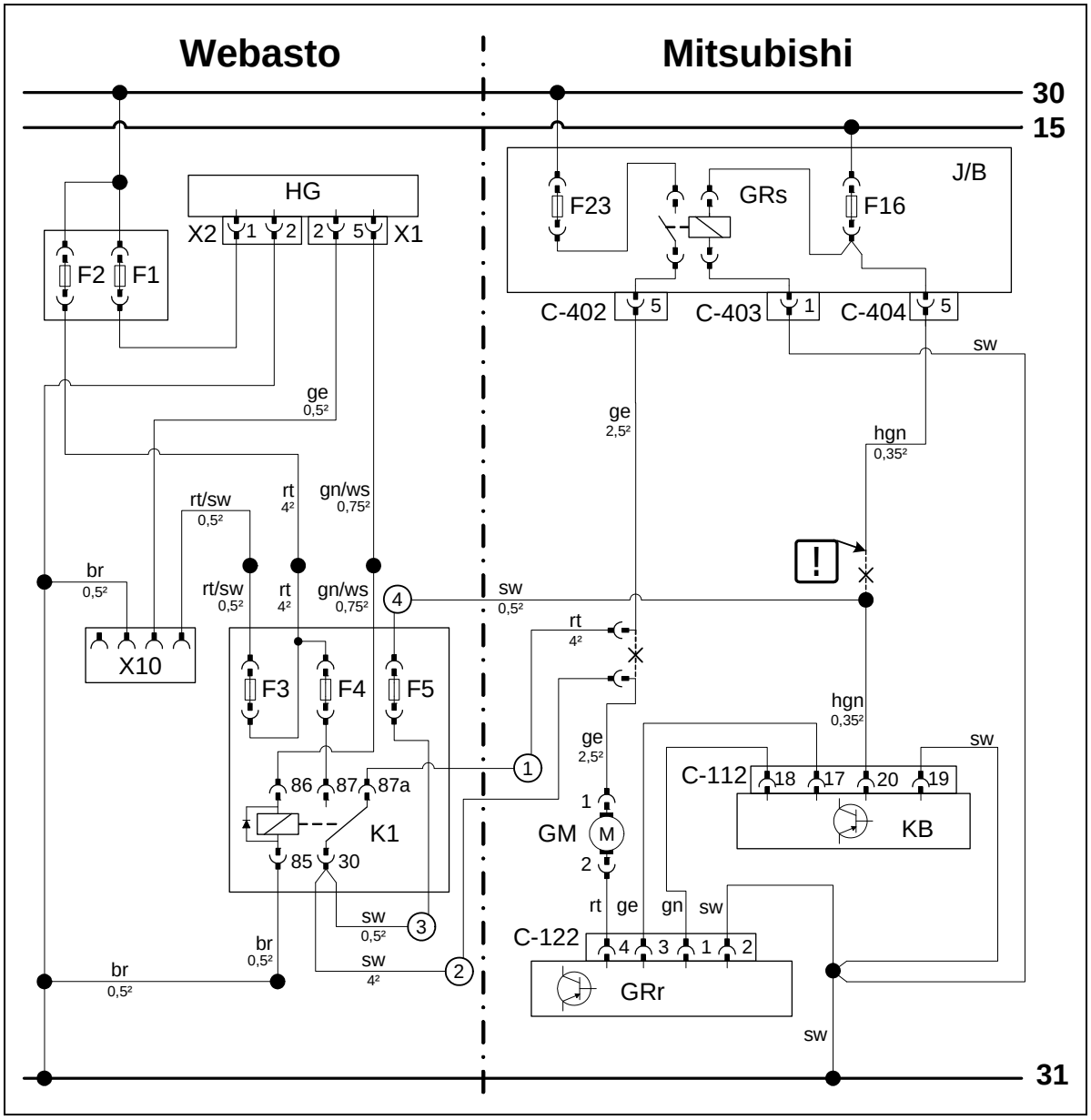
Connection to 2-pin connector **2** from the fan motor.

1 Yellow (ge) wire of fan relay
3 Yellow (ge) wire of 2-pin connector, Pin 1
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

Connecting fan motor

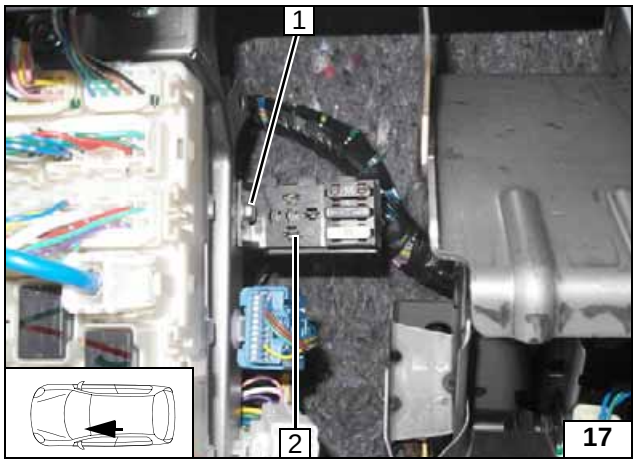
Automatic Air-Conditioning Fan Controller

Wiring diagram



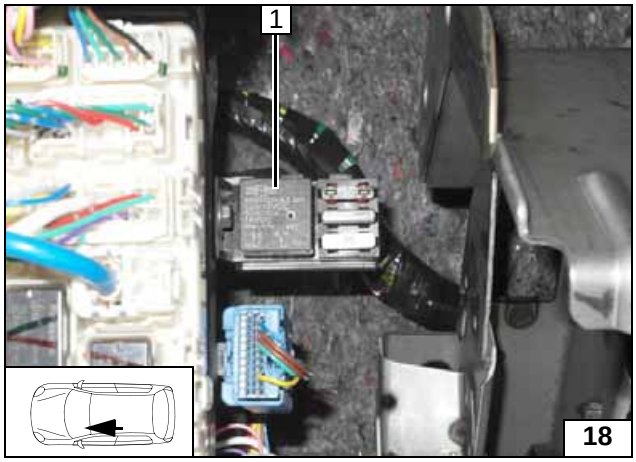
Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	J/B	Relay and fuse holder	rt	red
X1	6-pin heater connector	F23	30A fuse	sw	black
X2	2-pin heater connector	F16	7.5A fuse	ge	yellow
F1	20A fuse	GRs	Fan relay	gn	green
F2	30A fuse	C-402	6-pin connector J/B	br	brown
X10	4-pin connector of heater control	C-403	14-pin connector J/B	hgn	light green
		C-404	8-pin connector J/B		
F3	1A fuse	KB	A/C control panel		
F4	25 A fuse	C-112	24-pin connector KB		
F5	7.5A fuse	GM	Fan motor		
K1	Fan relay	GRr	Fan controller		
		C-122	4-pin connector GRr	!	Insulate wire end and tie back
				X	Cutting point
				Wiring colours may vary.	

Legend



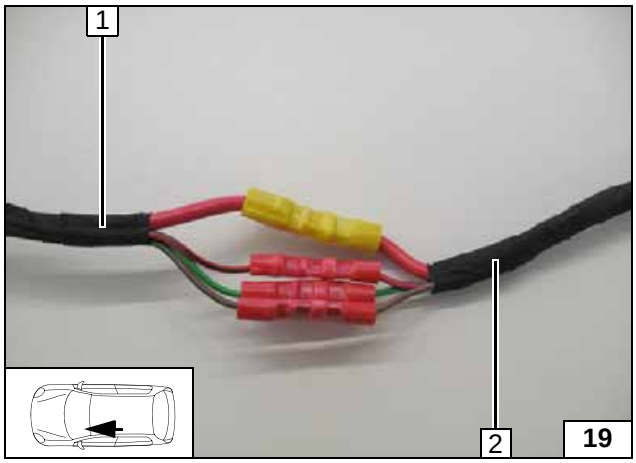
1 M5x16 bolt, large diameter washer [2x], nut, existing hole
2 Passenger compartment relay and fuse holder

Installing relay and fuse holder of passenger compartment



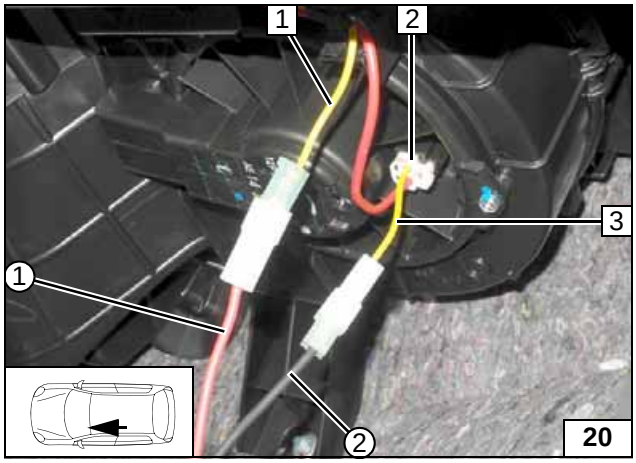
1 K1 relay

Mounting K1 relay



1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

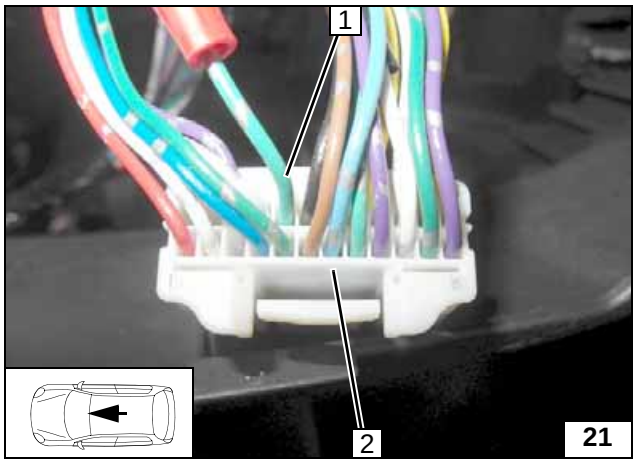
Connecting same colour wires of wiring harnesses



Connection to 2-pin connector **2** from the fan motor.

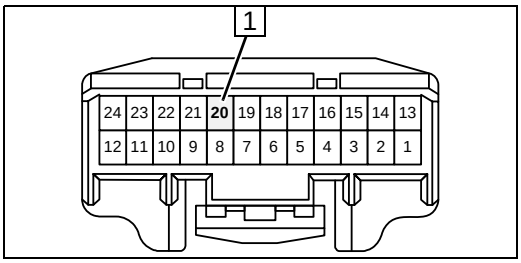
1 Yellow (ge) wire of fan relay
3 Yellow (ge) wire of 2-pin connector, pin 1
① Red (rt) wire from K1/87a, fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

Connecting fan motor

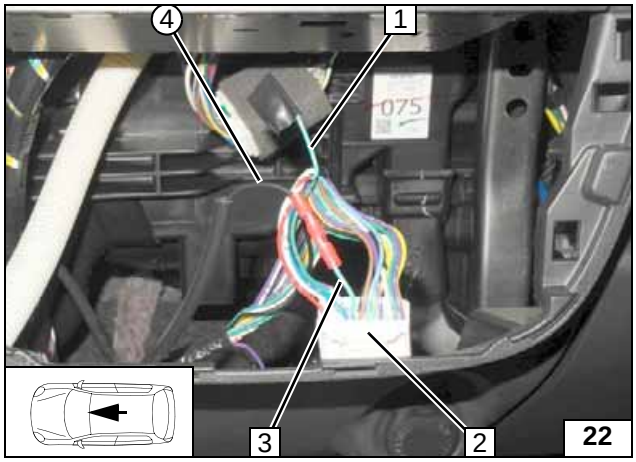


1 Light green (hgn) wire of 24-pin connector, pin 20
2 24-pin connector C112

View of connector C112 on wire side:



View of connector C112, A/C control unit

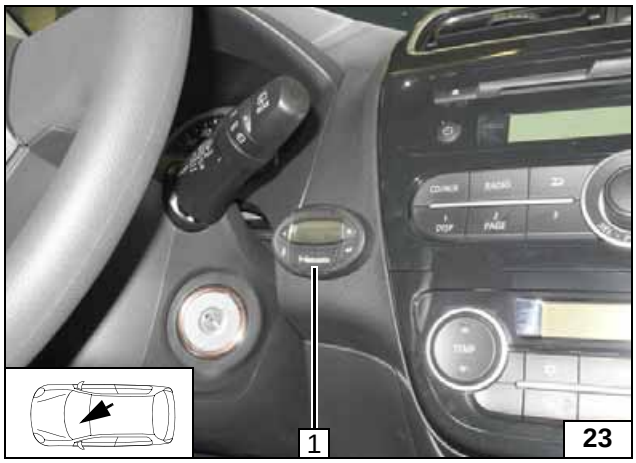


Connection to 24-pin connector **2** from A/C control unit. Insulate light green (hgn) wire **1** from fuse F16 and tie back.

3 Light green (hgn) wire of 24-pin connector, pin 20
④ Black (sw) wire of fuse F5

Connection of A/C control unit

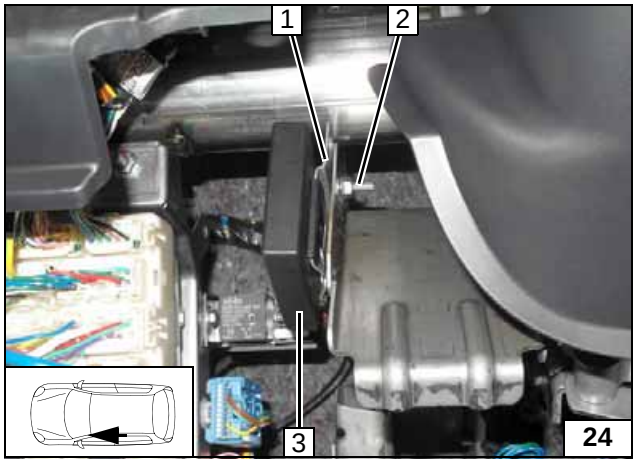
Digital Timer



1 Digital timer

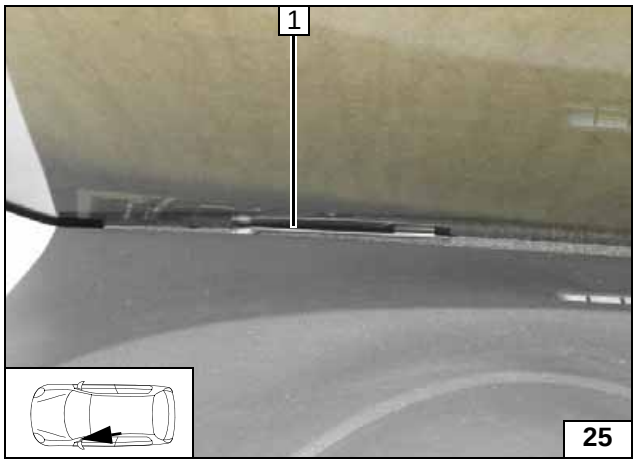
Mounting digital timer

Remote Option (Telestart)



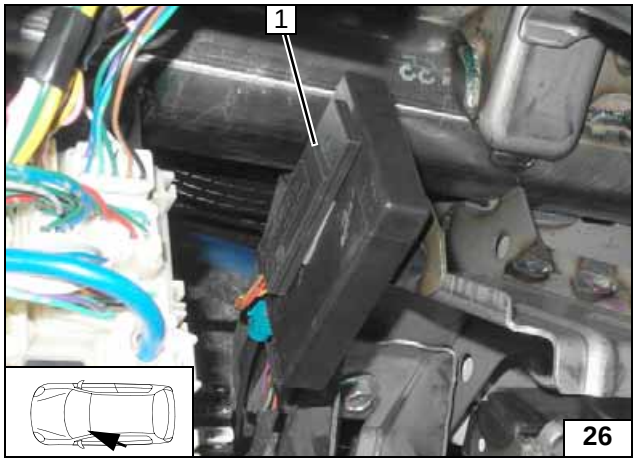
1 Bracket of receiver
2 M5x16 bolt, flanged nut, existing hole
3 Receiver

Mounting receiver



1 Antenna

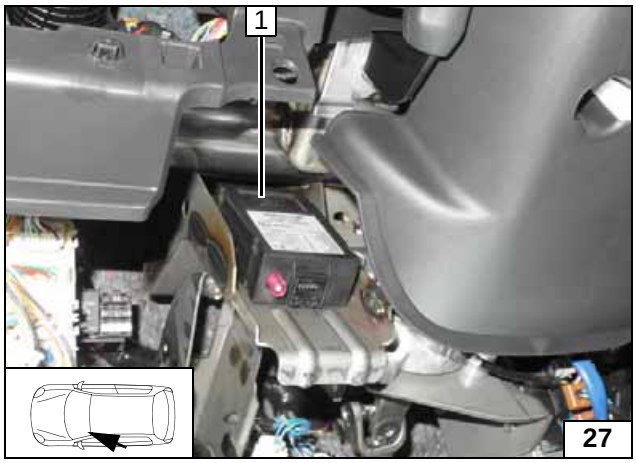
Mounting antenna



Temperature sensor T100 HTM

Fasten temperature sensor **1** with adhesive tape.

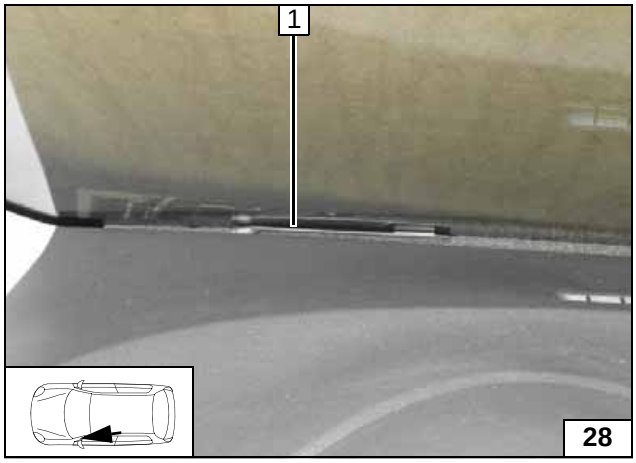
Mounting tempera-ture sensor



Remote Option (Thermo Call)

Fasten receiver **1** with adhesive tape.

Mounting receiver



1 Antenna

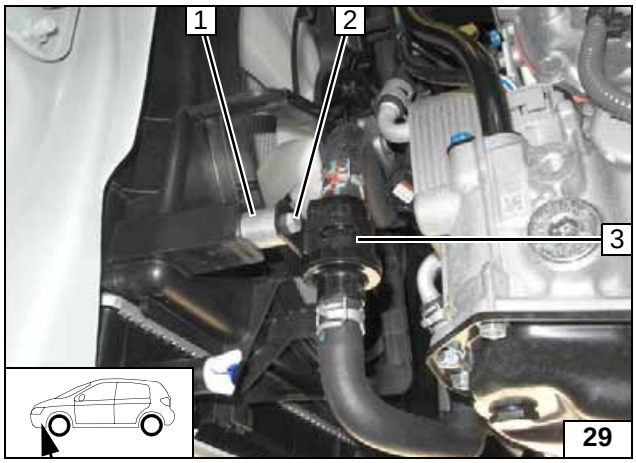
Mounting antenna

Preparing Installation Location

Only for automatic transmission (CVT)! Remove original vehicle bolt at position **2** and discard. Reposition original vehicle valve **3** with bracket.

1 20 mm shim
2 M6x30 bolt, existing threaded insert

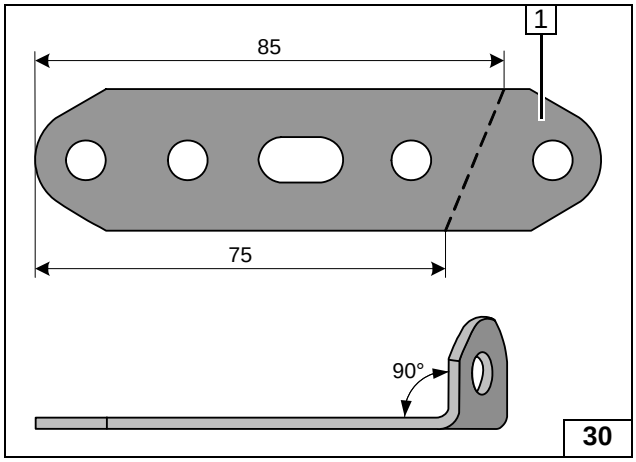
Repositioning hose



All vehicles

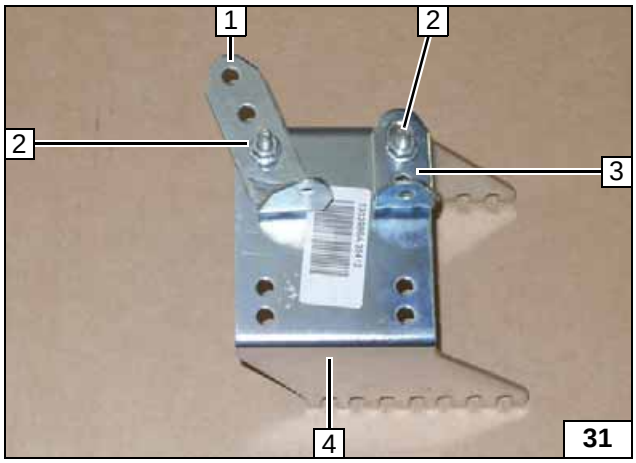
1 Perforated bracket

Preparing perforated bracket



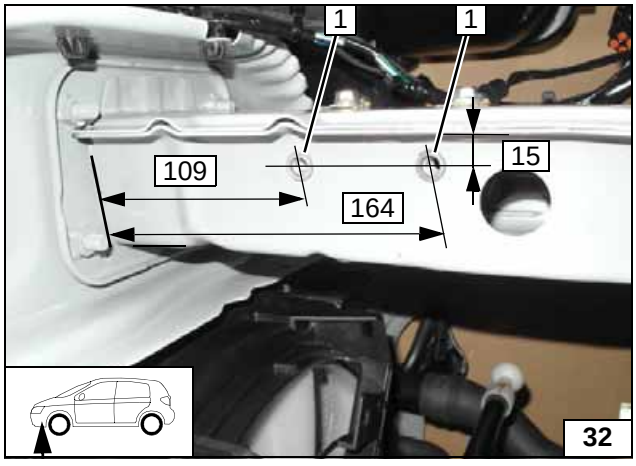
1 Perforated bracket
2 M6x12 bolt, flanged nut [2x each]
3 Angle bracket
4 Bracket

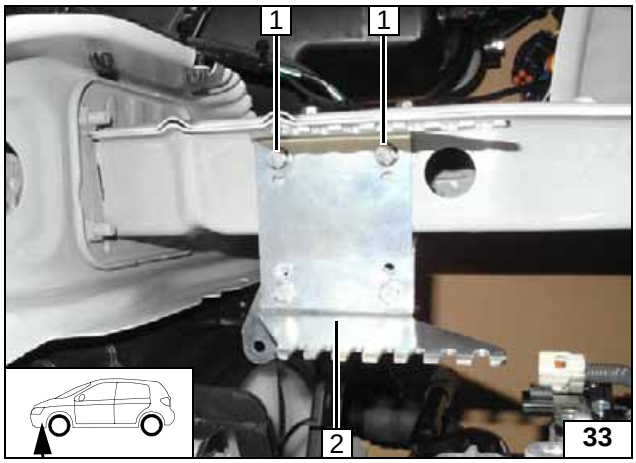
Premounting bracket



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

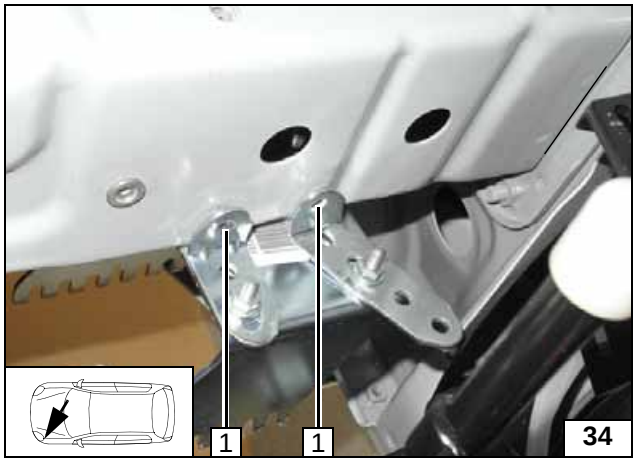
Installing rivet nuts





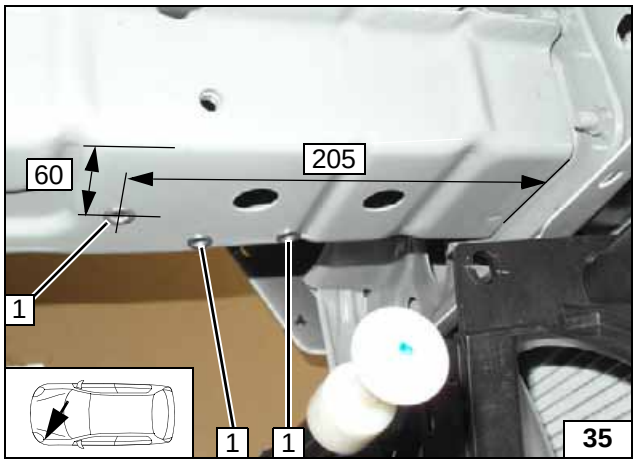
1 M6x20 bolt [2x]
2 Bracket

Installing bracket loosely



1 Copy hole pattern [2x]

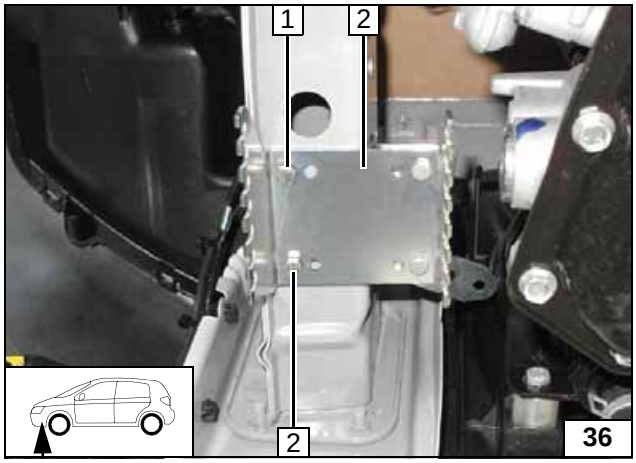
Copying hole pattern



Remove bracket.

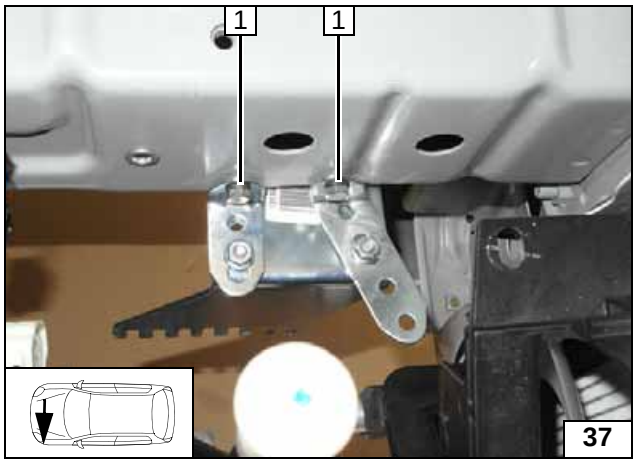
1 9.1mm dia. hole; rivet nut

Installing rivet nuts



1 M6x20 bolt, spring lockwasher [2x each]
2 Bracket

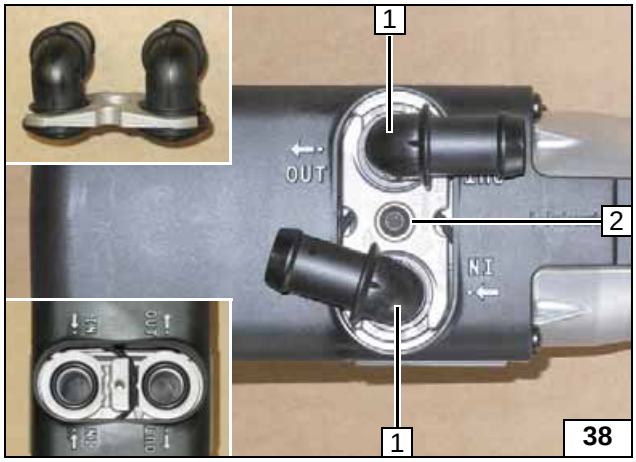
Mounting bracket



1 M6x20 bolt, spring lockwasher, [2x each]

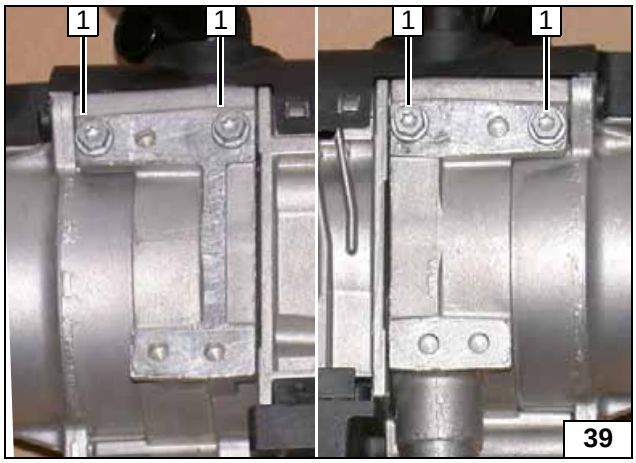
Mounting bracket

Preparing Heater



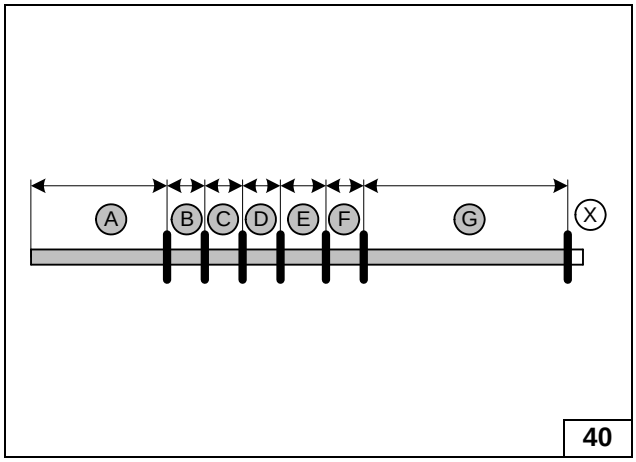
1 90° water connection piece, sealing ring [2x each]
2 5x15mm self-tapping bolt, retaining plate of water connection piece

Mounting water connection pieces



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

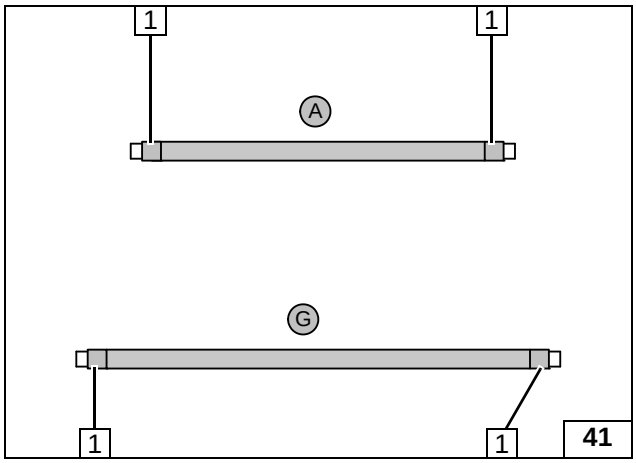
Premounting bolts loosely



Discard section **X**.

A = 710
B = 60
C = 60
D = 80
E = 70
F = 60
G = 790

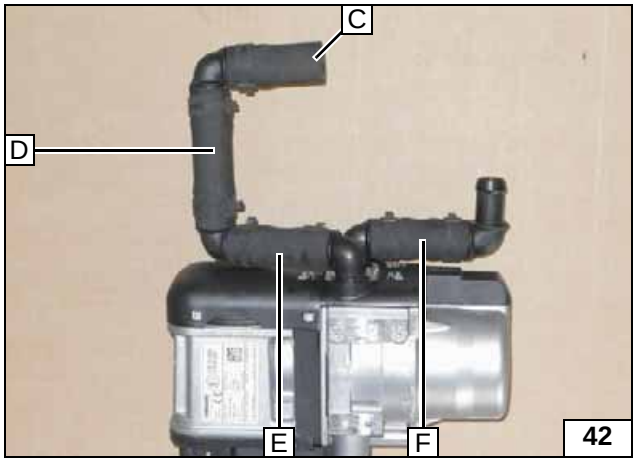
Cutting hoses to length



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

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

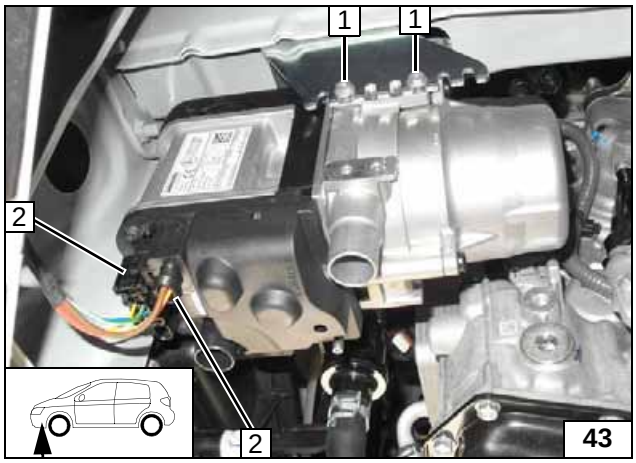
Preparing hoses



All spring clips = 25 mm dia.
All 90° connecting pipes = 18x18 mm dia.

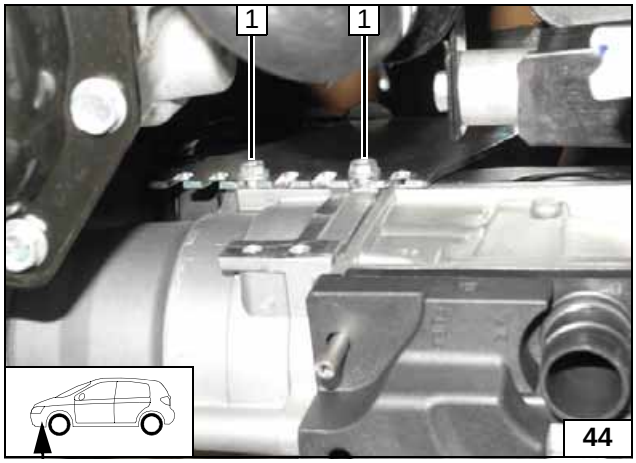
Premounting hoses

Installing Heater



1 5x13 self-tapping bolt [2x]
2 Wiring harness of heater [2x]

Mounting heater



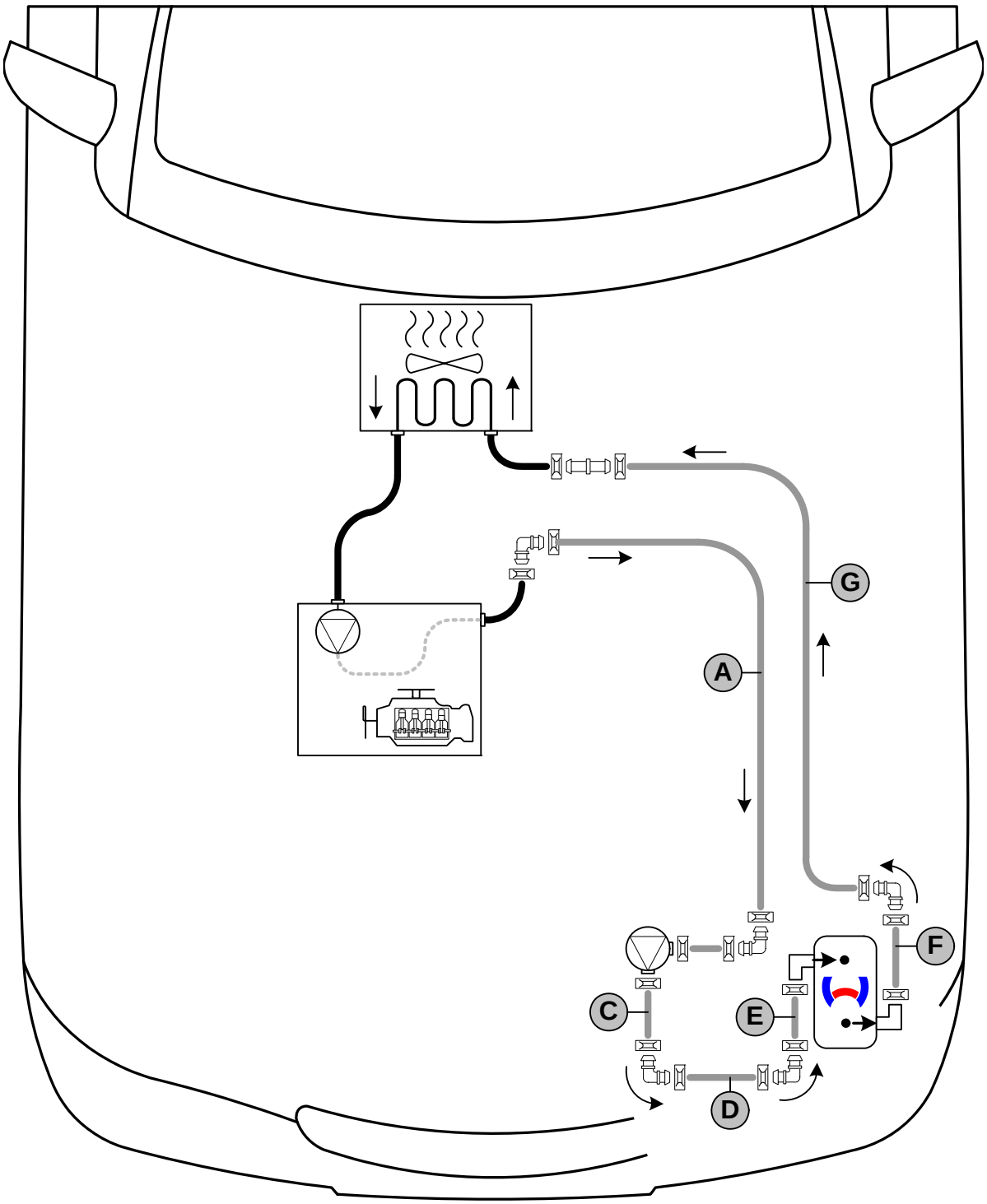
1 5x13 self-tapping bolt [2x]

Mounting heater

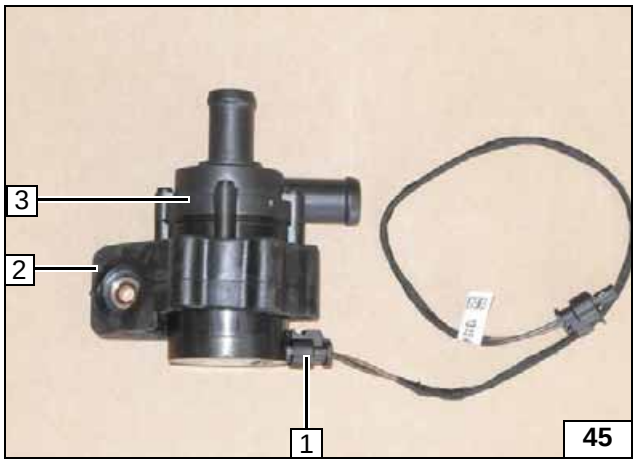
Coolant Circuit

WARNING!
Any coolant running off should be collected using an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.
The connection should be modelled on an "inline" circuit and based on the following diagram:

Hose routing diagram

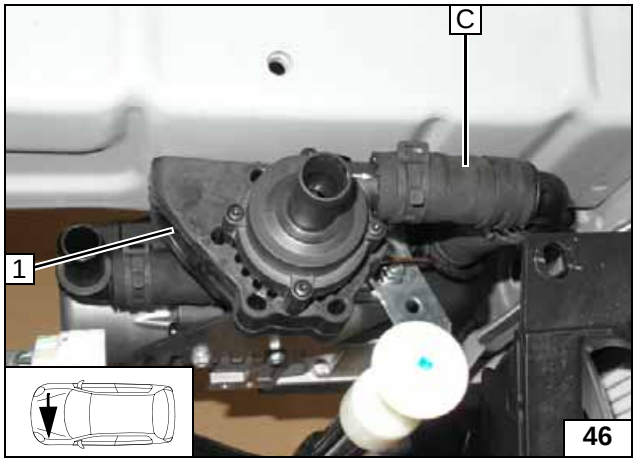


All spring clips = 25 mm dia. Connecting pipe = 18x18 mm dia.
All connecting pipes = 18x18 mm dia.



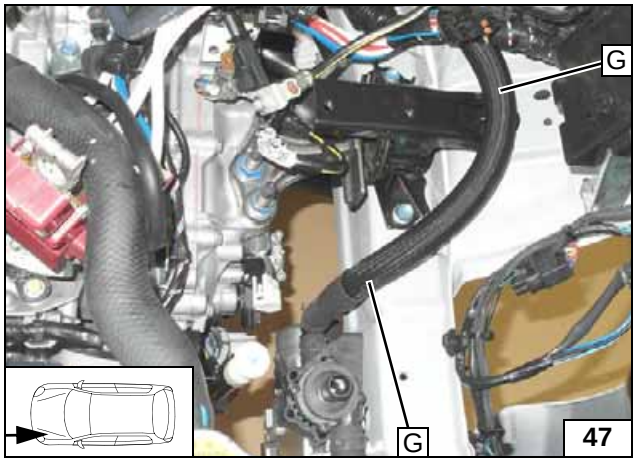
1 Wiring harness of circulating pump
2 Mounting of circulating pump
3 Circulating pump

Premounting circulating pump

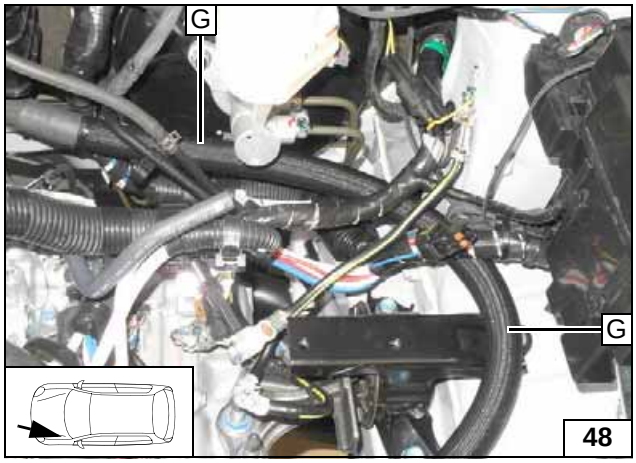


1 M6x25 bolt on rivet nut (hidden)

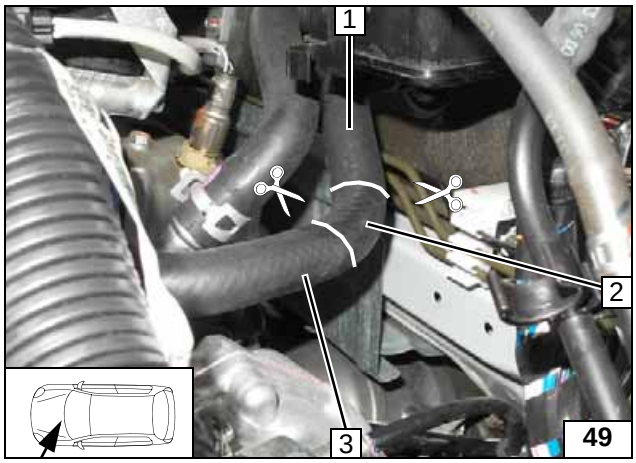
Installing and connecting circulating pump



Connection to heater outlet



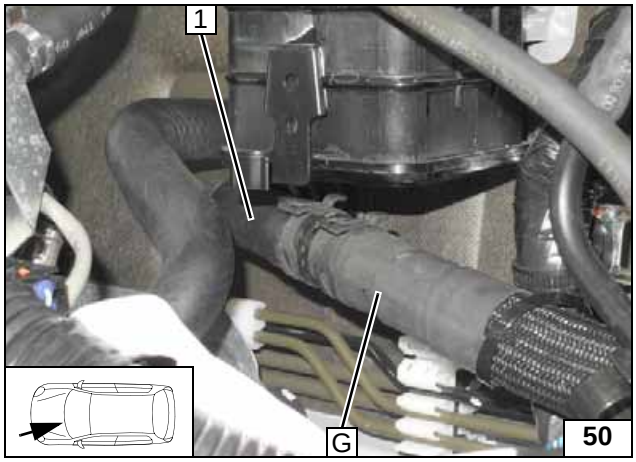
Routing in engine compartment



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

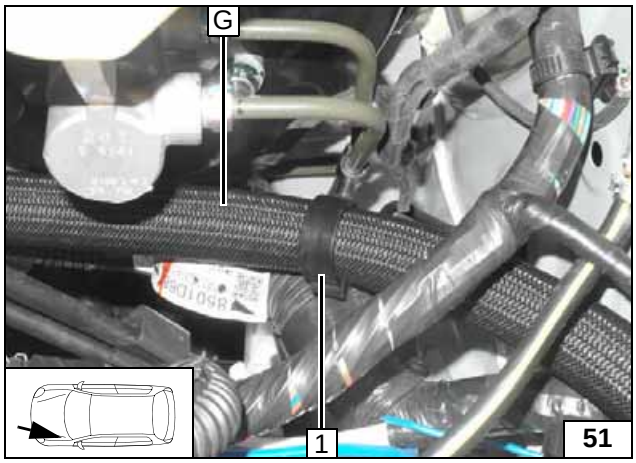
1 Hose section of heat exchanger inlet
2 Discard section
3 Engine outlet hose section

Cutting point



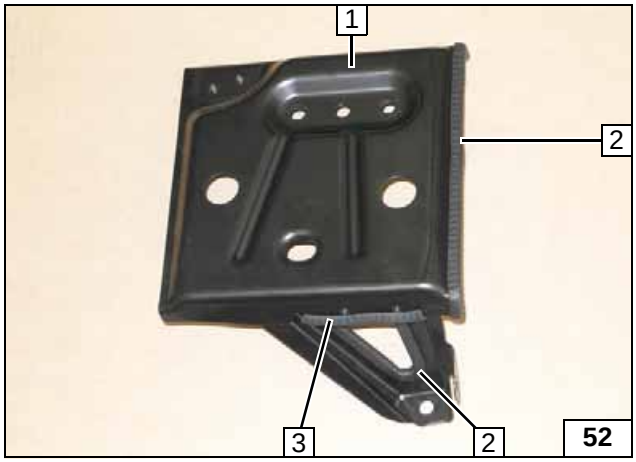
1 Hose on heat exchanger inlet

Connecting heat exchanger inlet



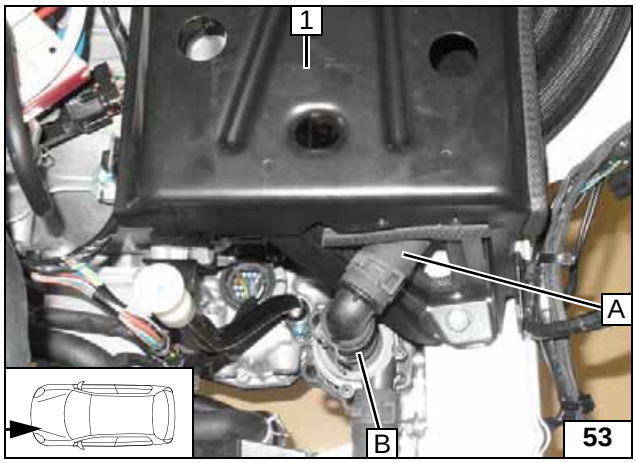
1 Hose bracket on brake line

Inserting hose bracket



1 Battery carrier
2 200 mm edge protection
3 80 mm edge protection

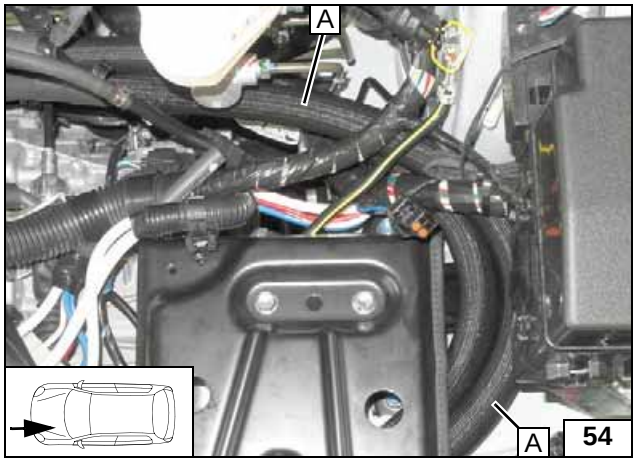
Installing edge protection



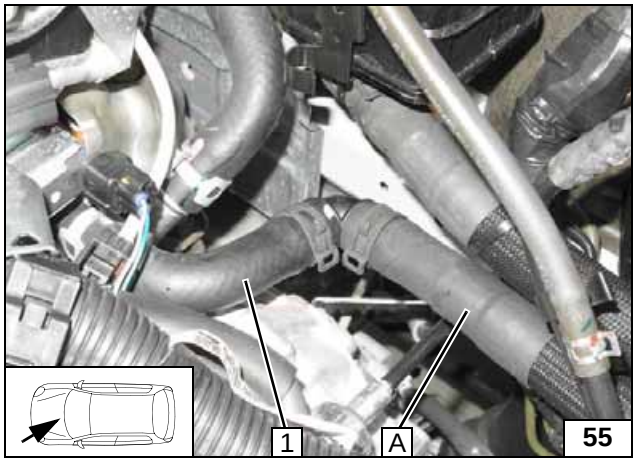
Hose **B** on circulating pump inlet.

1 Battery carrier mounted

Connecting circulating pump

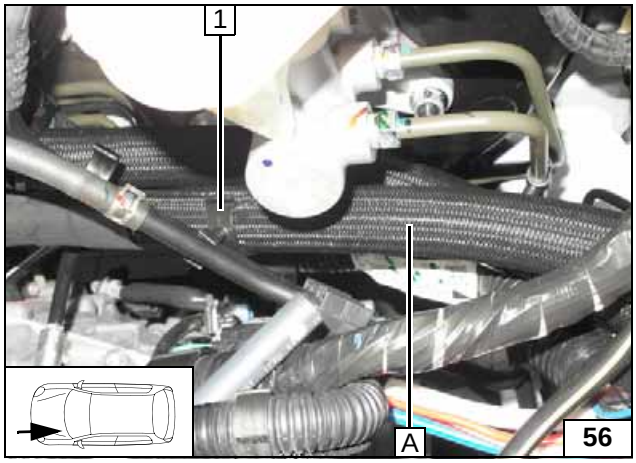


Routing in engine compartment



1 Hose of engine outlet

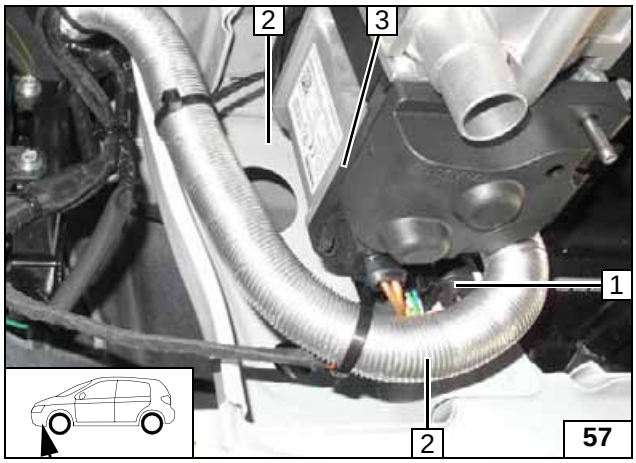
Connecting engine outlet



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

1 Hose bracket on original vehicle line

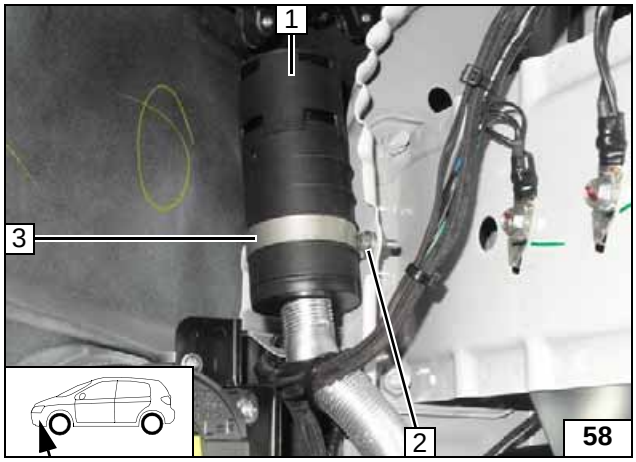
Inserting hose bracket



Combustion Air

1 Wiring harness of circulating pump
2 Combustion air pipe

Mounting combustion air pipe



1 Silencer
2 M5x16 bolt, flanged nut, existing hole
3 51 mm dia. clamp

Mounting silencer

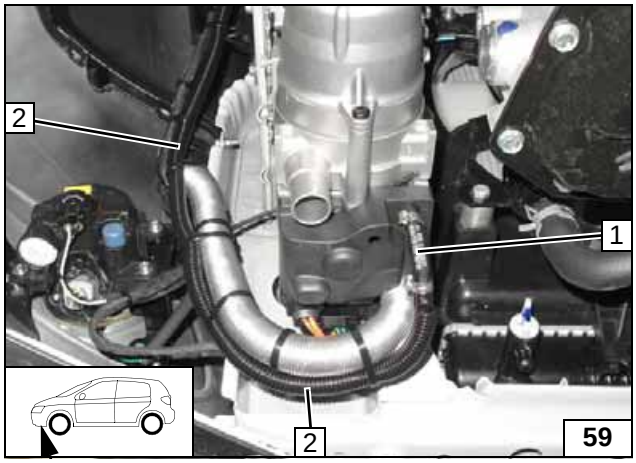
Fuel

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

Catch any fuel running off with an appropriate container.

Install 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.

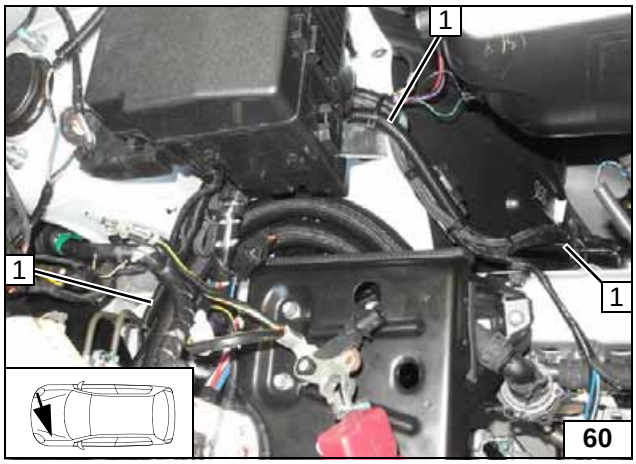
WARNING!
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.



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

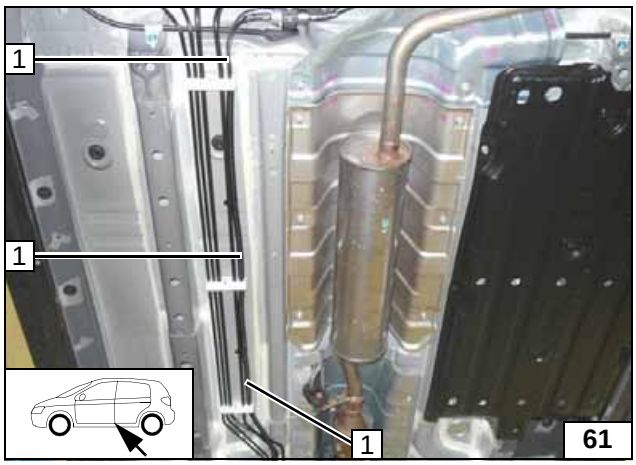
1 90° moulded hose, 10 mm dia. clamp [2x]

Connecting heater



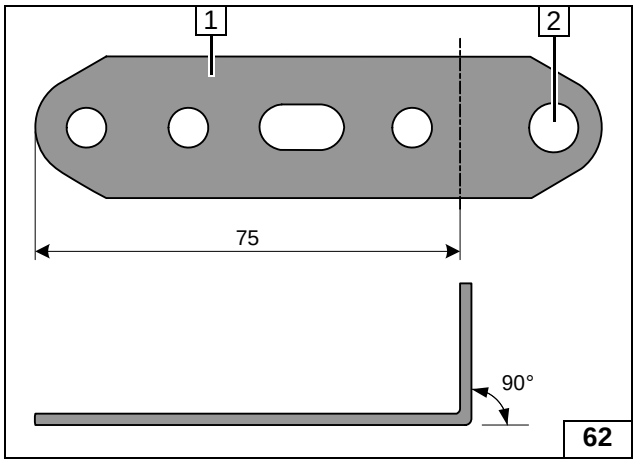
1 Fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube

Routing lines



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** in original vehicle line holders to installation location of metering pump.

Routing lines



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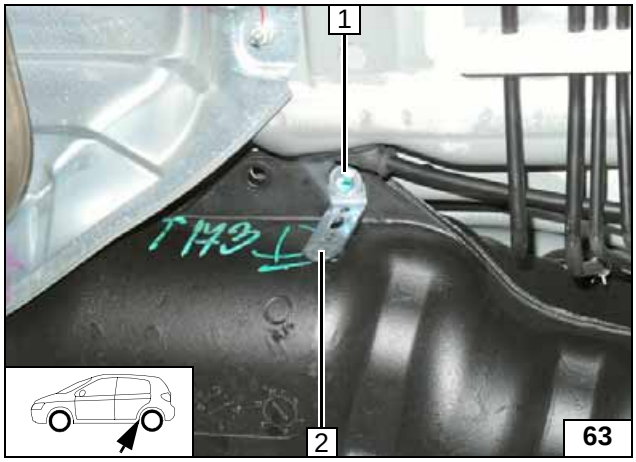
1 Perforated bracket
2 8.5 mm dia. hole

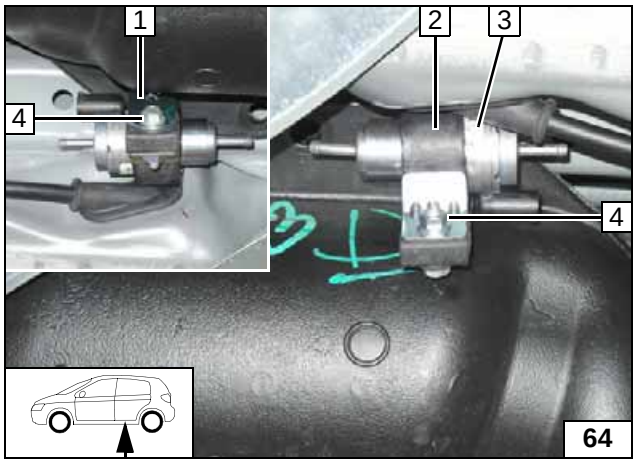
Preparing perforated bracket



63

1 Original vehicle bolt
2 Perforated bracket

Mounting perforated bracket

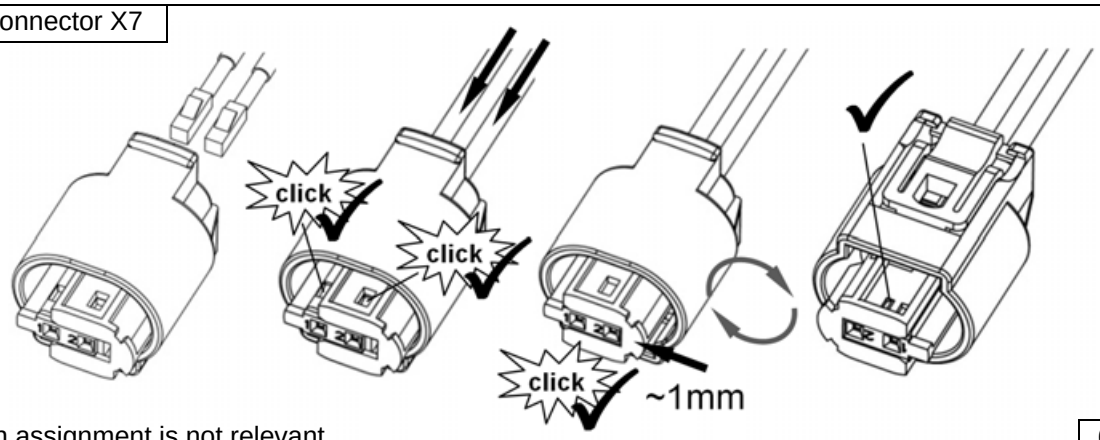


64

1 Perforated bracket
2 Mounting of metering pump
3 Metering pump
4 M6x25 bolt, support angle bracket, flanged nut

Mounting metering pump

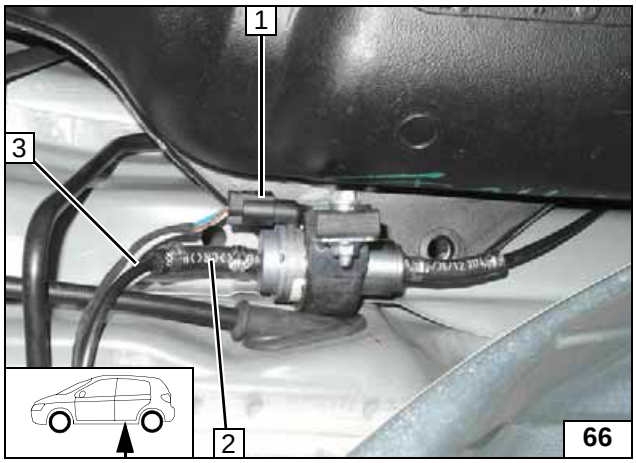
Connector X7



Pin assignment is not relevant.

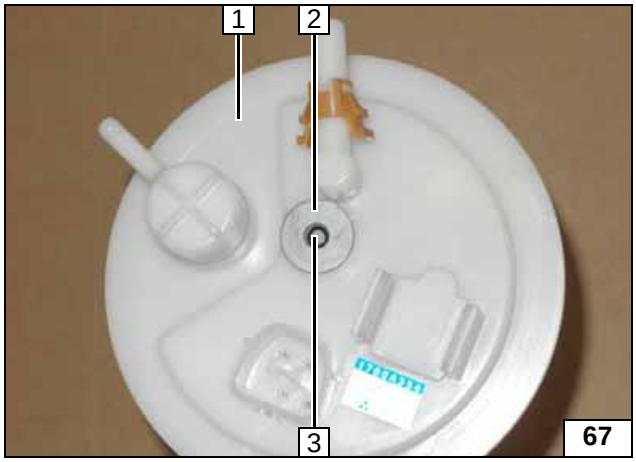
65

Completing connector of metering pump



1 Wiring harness of metering pump, connector mounted
2 Hose section, 10 mm dia. clamp [2x]
3 Fuel line of heater

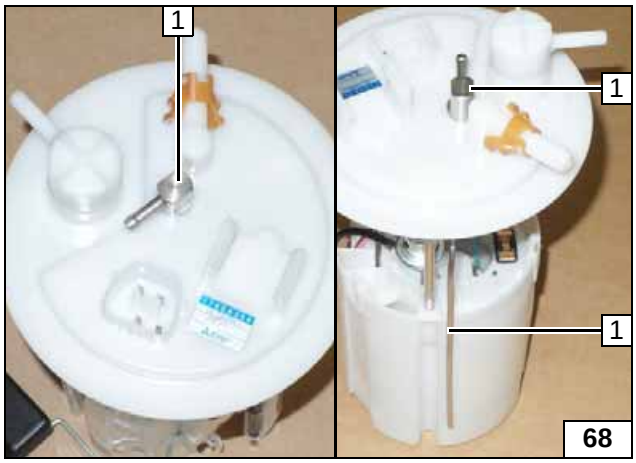
Connecting metering pump



Remove and dismantle fuel-tank sending unit **1** according to manufacturer's instructions.

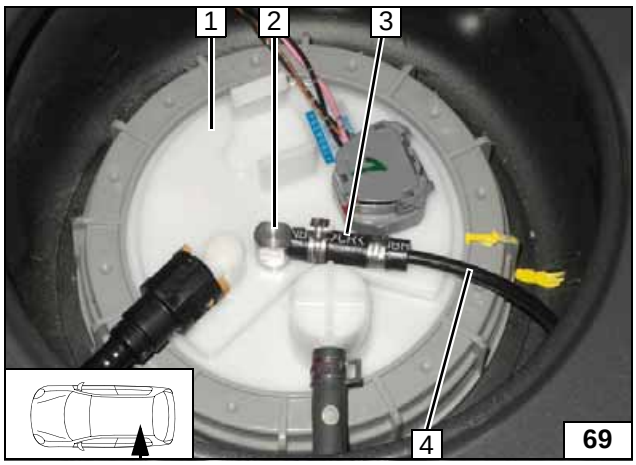
2 Washer with outer dia. d_a = 21.6 mm
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Shape fuel standpipe **1** according to template and cut to length.

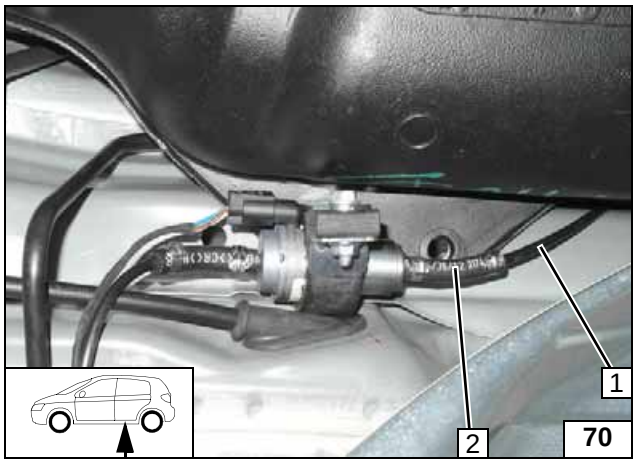
Installing fuel standpipe



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 Fuel standpipe
3 Moulded hose, 10 mm dia. clamp [2x]
4 Fuel line

Connecting fuel line



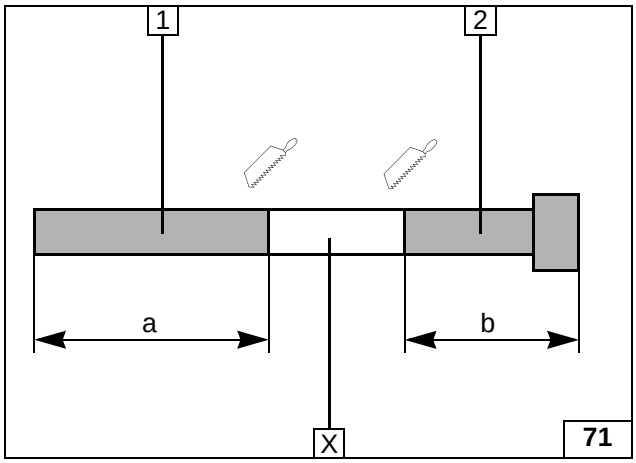
Check the position of the components; adjust if necessary. Check that they have freedom of movement.

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

Connecting metering pump

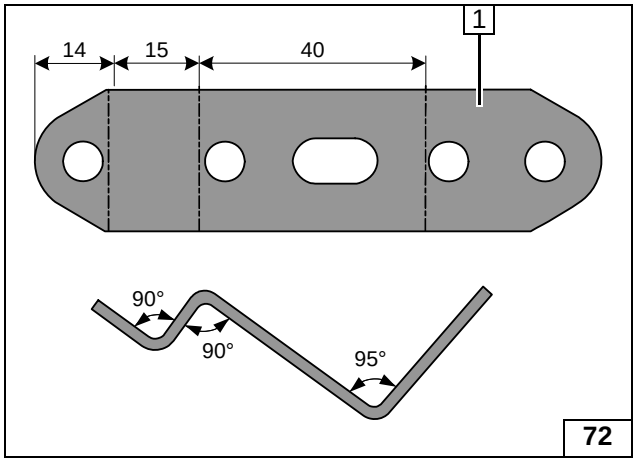
Exhaust Gas

Discard section **X**.



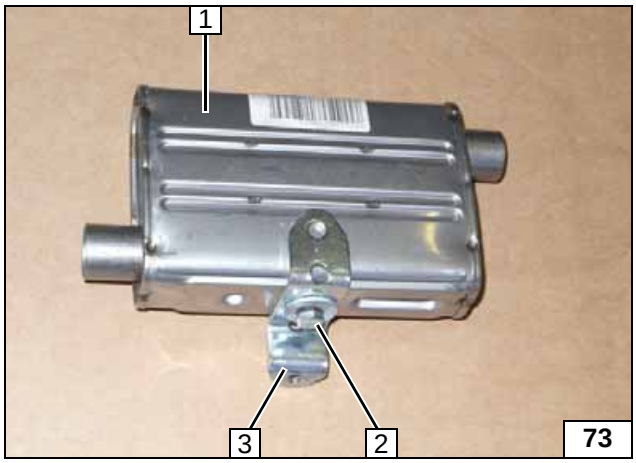
1 Exhaust pipe
a= 190
2 Exhaust end section
b = 80

Preparing exhaust pipe



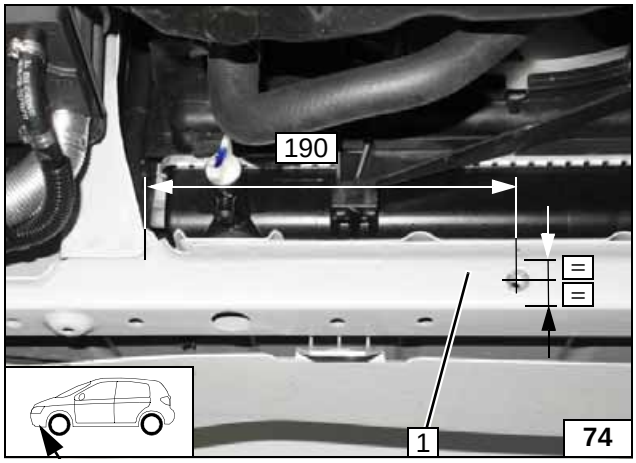
1 Perforated bracket

Preparing perforated bracket



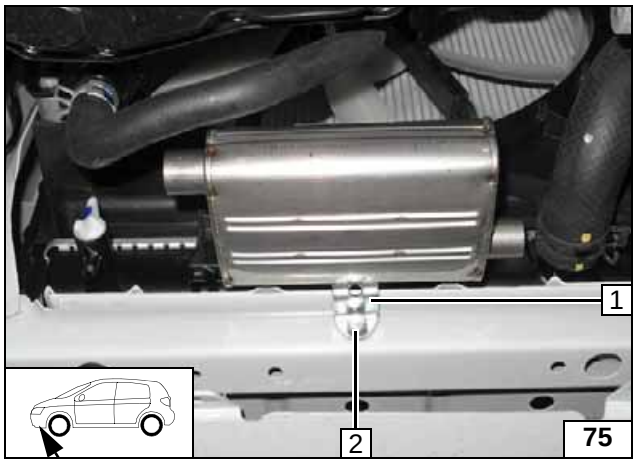
1 Silencer
2 M6x16 bolt, spring lockwasher, large diameter washer
3 Perforated bracket

Premounting silencer



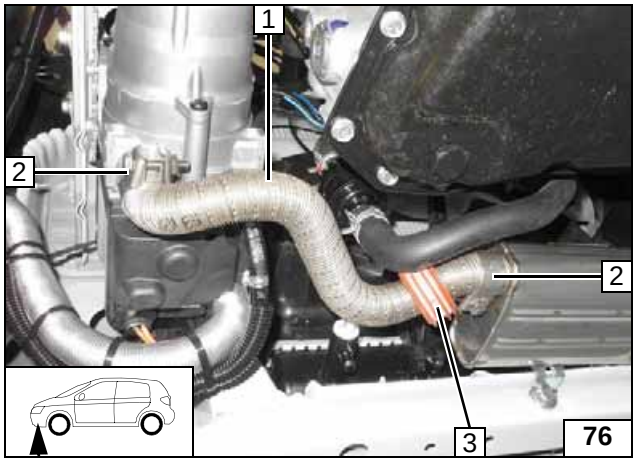
1 9.1mm dia. hole; rivet nut (in the centre of the cross member)

Installing rivet nut



1 Perforated bracket
2 M6x20 bolt, spring lockwasher

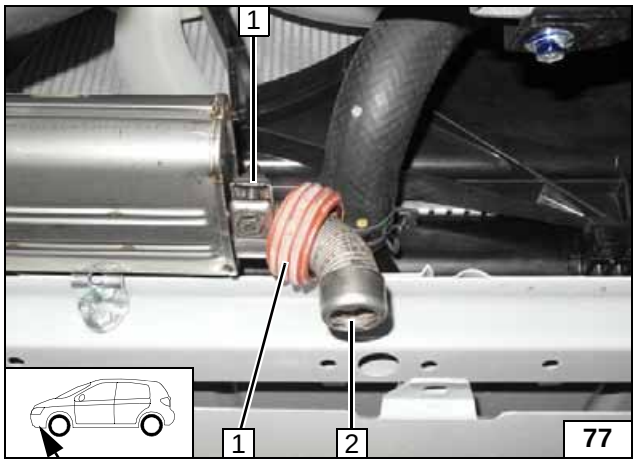
Mounting silencer



Ensure sufficient distance from adjacent components; correct if necessary.

1 Exhaust pipe
2 Hose clamp [2x]
3 Align spacer bracket to fabric-reinforced hose

Mounting exhaust pipe



Ensure sufficient distance from adjacent components; correct if necessary.

1 Hose clamp
2 Exhaust end section
3 Align spacer bracket to radiator hose

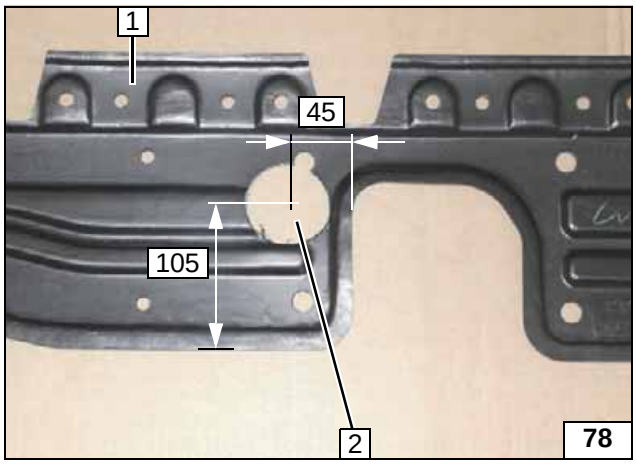
Installing exhaust end section

Final Work

WARNING!
Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose wires.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

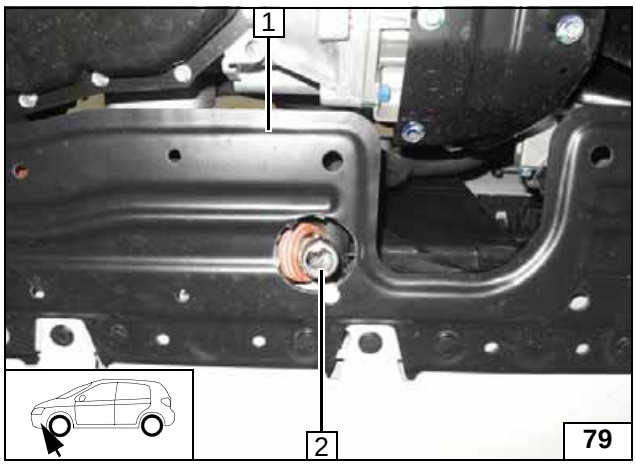
- **Connect the battery**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Adjust the digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label near the filler neck.**
- **For initial start up and function check, see Installation Instructions**

Cutting out underride protection



1 Underride protection
2 60 mm dia. hole

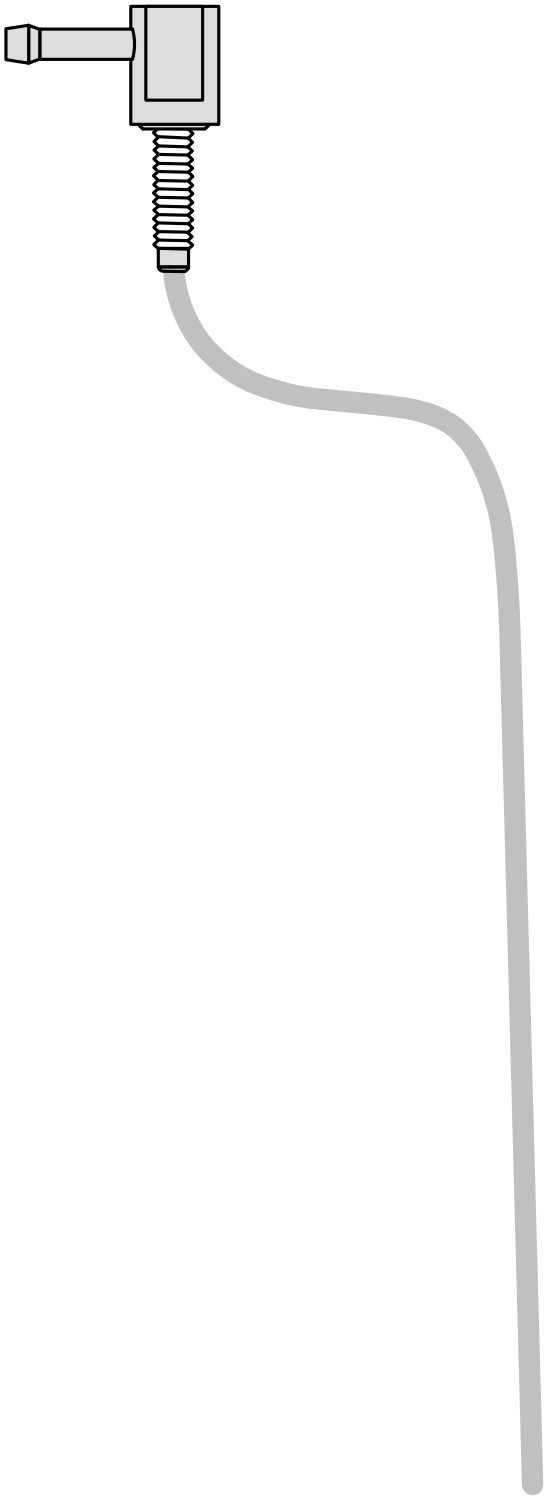
Mounting underride protection

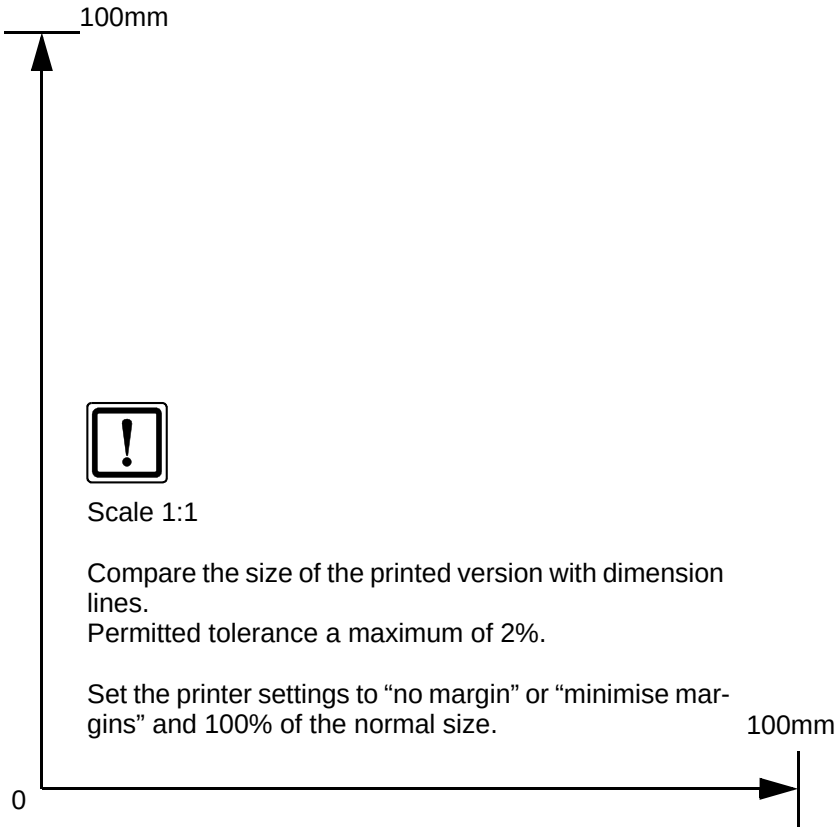


Align exhaust end section **2** at the middle of the hole and flush with underride protection**1**. Ensure sufficient distance from adjacent components; correct if necessary.

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

Template for Fuel Standpipe





Webasto
Feel the Drive

Operating Instructions for Manual Air-Conditioning

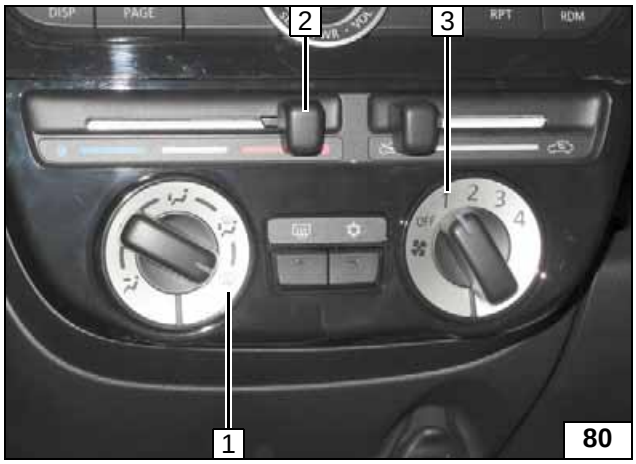
Please remove page and add to the vehicle operating instructions.

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.

If vehicles have passenger compartment monitoring this must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

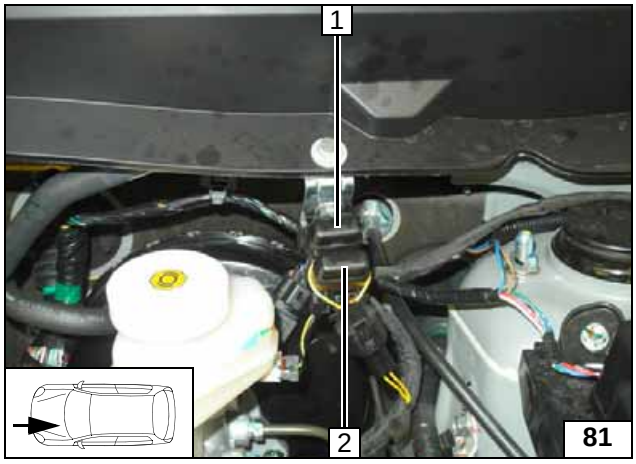
Before parking the vehicle, make the following settings:

A/C control panel



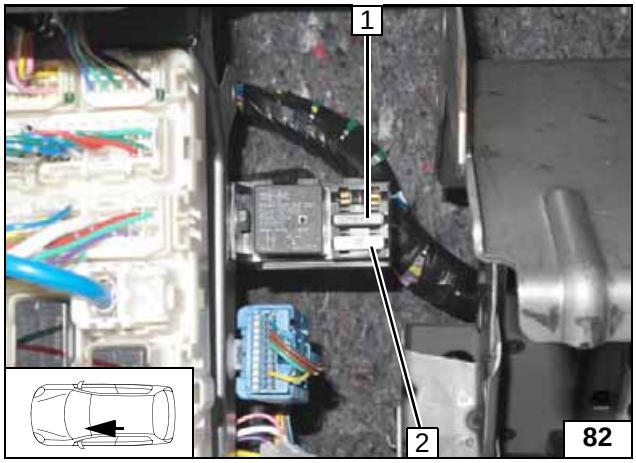
1 Air outlet to windscreen
2 Set temperature to "max."
3 Set fan to level "1" or max. "2"

Engine compartment fuses



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

Passenger compartment fuses



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

Webasto
Feel the Drive

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.

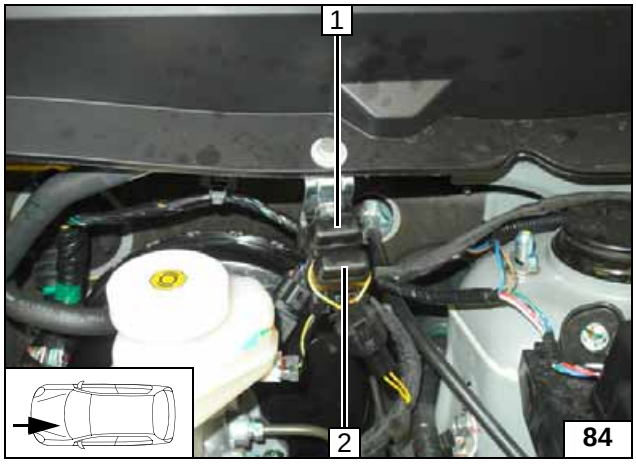
If vehicles have passenger compartment monitoring this must be deactivated in addition to the vehicle settings for the heating operation.
For information on deactivation, please see the vehicle owner's manual.

Before parking the vehicle, make the following settings:

A/C control panel

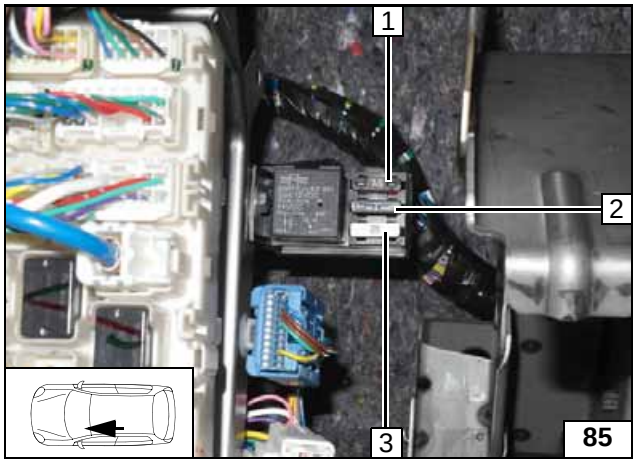
1 Air outlet to windscreen
2 Set temperature to "29?"
3 Set fan to level "1" or max. "2"

Engine compartment fuses



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

Passenger compartment fuses



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