

Water Heater Unit



Feel the drive

Thermo Top E Additional Heater



Thermo Top C Additional Heater



Thermo Top P Additional Heater



Installation Instructions

Mitsubishi Grandis

Gasoline and Diesel

from Model Year 2004

For left-hand drive vehicles only



WARNING!

Hazard warning:

Incorrect installation or repair of Webasto heating systems may cause a fire or result in the emission of carbon monoxide, which can be fatal. Serious or fatal injuries can be caused as a result.

Specialist company training, technical documentation, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.

NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills, or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.

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

Webasto does not accept any liability for defects and damage that are attributable to installation by untrained staff.

Table of Contents

Validity	2	Combustion Air	14
Heater Unit/Installation Kit	3	Installing Fuel Metering Pump	15
Foreword	3	Fuel Removal, Gasoline	16
Special Tools	3	Fuel Removal, Diesel	17
Notes on Installation	3	Coolant, Gasoline	18
Explanatory Notes on the Document	4	Coolant, Diesel	21
Preliminary Work	5	Exhaust Gas	24
Heater Unit Installation Location	5	Final Work	25
Electrical Connections	6	Operating Instructions for End Customer	26
Telestart T100 HTM Option	7	Template for Fuel-Tank Sending Unit on	
Thermo Call TC1.1 Option	8	Gasoline Vehicles	27
Fan Controller	9	Template for Fuel Standpipe on	
Wiring Diagram	10	Gasoline Vehicles	28
Preparing Installation Location	11	Template for Fuel Standpipe on	
Preparing Heater Unit	12	Diesel Vehicles	29
Installing Heater Unit	13		

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Mitsubishi	Grandis	NAOW	e1*2001/116*0269*00....

Engine type	Engine model	Output in kW	Displacement in cm ³
4G69	Gasoline	121	2378
BSY	Diesel	100	1968

Vehicle and engine types, equipment variants and national specifications not listed in these installation instructions have not been tested. However, installation according to these installation instructions may be possible.

The installation location of a digital timer and summer/winter switch should be confirmed with the end customer before installation.

Heater Unit/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories with desired heater control	See price list
1	Installation kit for Mitsubishi Grandis Gasoline and Diesel	1303000C

Heater unit recommended for the respective vehicle class:

Vehicle	Heater unit
Compact car	Thermo Top E
Mid-size car, station wagon	Thermo Top C
Full-size car, van, offroader	Thermo Top P

The selection of the heater unit is based on the passenger compartment size of the vehicle and the level of comfort required by the customer!



Foreword

The installation instructions apply to the Mitsubishi Grandis vehicles with a Gasoline and Diesel engine - For the validity, see page 2 - from model year 2004 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 these installation instructions.

However, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* must always be observed.

The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

General Instructions

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.

Sharp edges should be fitted with edge protectors (split-open plastic hose).

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

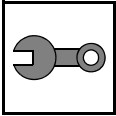
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers

Explanatory Notes on Document

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

Mechanical work



Electrical connection



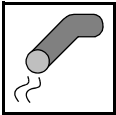
Coolant connection



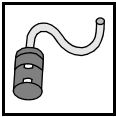
Fuel connection



Exhaust system



Combustion air



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



Specific risk of fire or explosion.



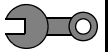
Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.



Reference to a special technical feature.



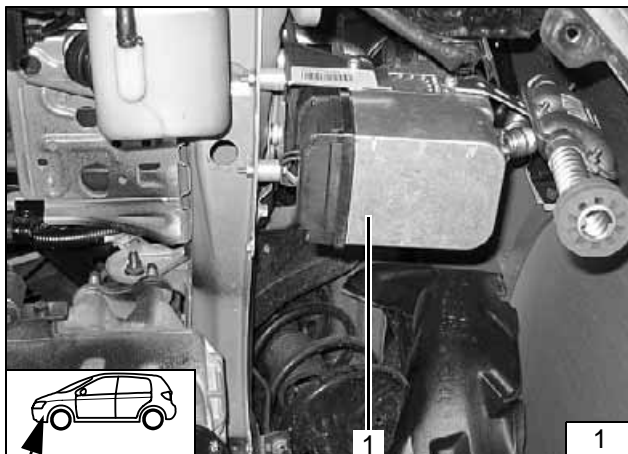
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.



Preliminary Work

WARNING!

- Disconnect the battery "earth" or "ground" connection.
- Depressurize the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Remove the engine cover (diesel vehicles only).
- Completely remove the battery.
- Remove the air filter together with the intake hose.
- Detach the relay and fuse box in the engine compartment at the left (diesel vehicles only).
- Remove the left front wheel well trim and wheel.
- Remove the underride protection.
- Open the fuel tank cap.
- Remove the individual seat or seat row (depending on equipment) behind the driver's seat.
- Fold back the floor covering in the area of the service door.
- Open the tank-fitting service lid
- Remove the fuel-tank sending unit in accordance with the manufacturers specifications.
- Remove the A/C control panel.
- Remove the cover of the footwell trim on the driver's and front passenger side.
- Remove the lower cover from the instrument panel trim on the driver's side.



Heater unit installation location

(1) Heater unit

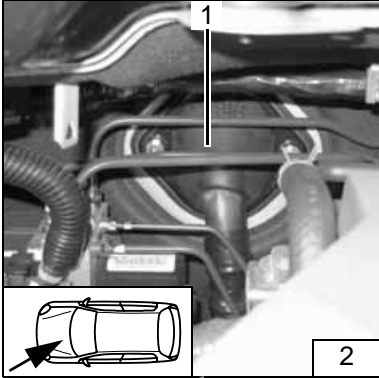
Heater unit installation location



Electrical Connections

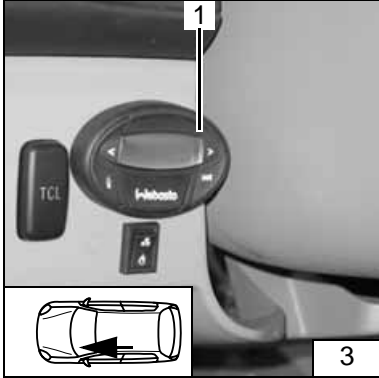
Wiring harness pass through

(1) Protective rubber plug



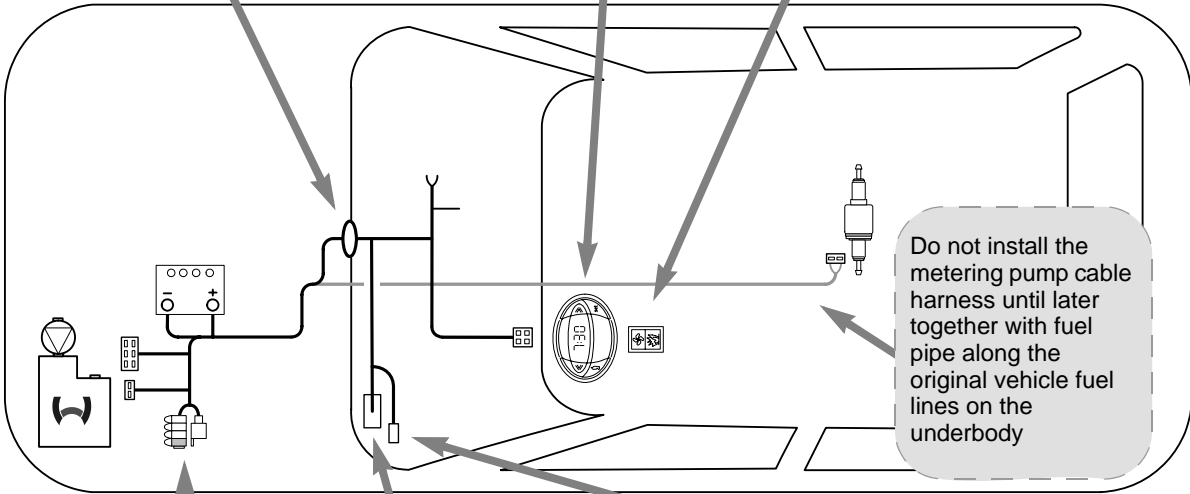
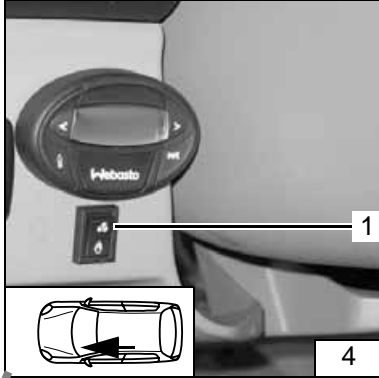
Digital timer

(1) Digital timer (use wiring harness extension)

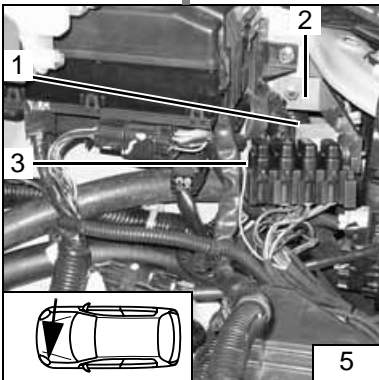


Opt. summer/winter switch

(1) Summer/winter switch, hole 12 mm dia.

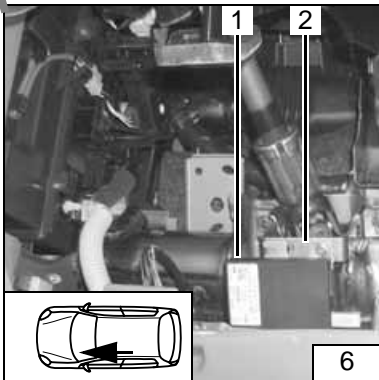


Electrical diagram



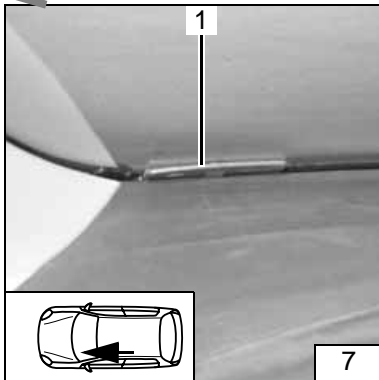
Fuse holder, relay K3

- (1) K3 relay, M5x12 bolt, washers, nut
- (3) Fuse holder, M4x12 bolt, washers, M4 nut
- (2) Drill 6.5 mm dia. hole, angle bracket, M6x20 bolt, spring lockwasher



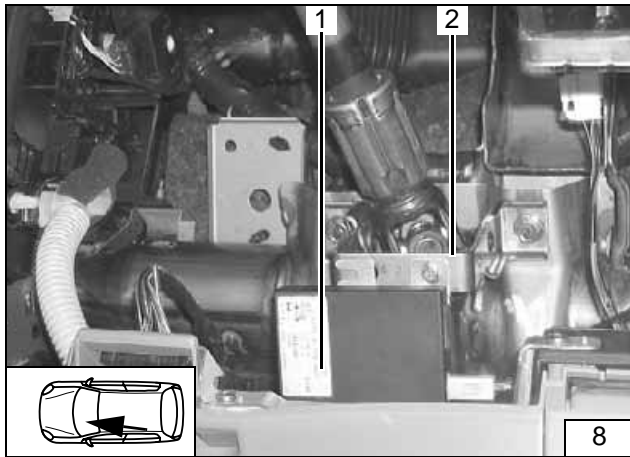
Telestart T70/80 Option

- (1) Receiver
- (2) Bracket, M5x12 bolt, washer, flanged nut



Antenna T70/80/90

- (1) Antenna

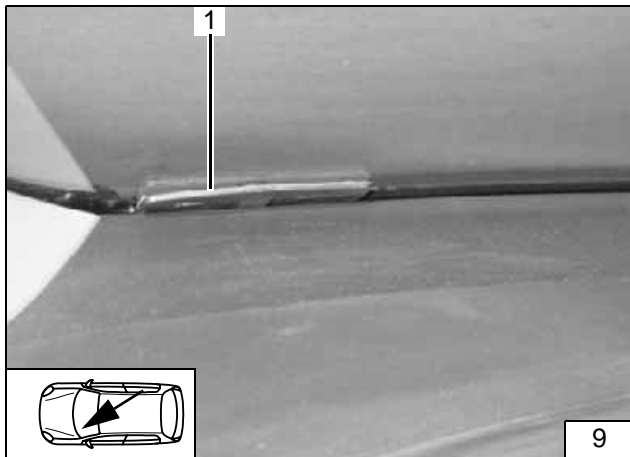


Remote option (Telestart)

- (1) Receiver
- (2) Bracket, M5x12 bolt, washer, flanged nut

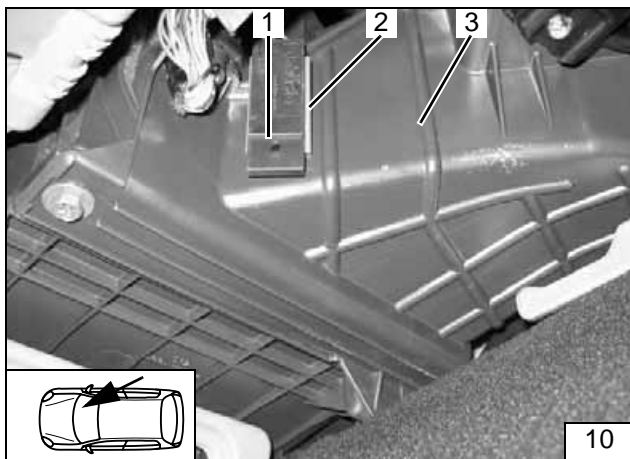


Installing receiver



- (1) Antenna of Telestart T100 HTM

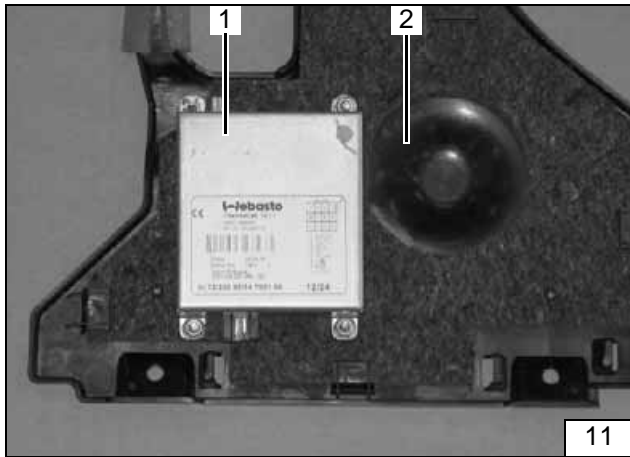
Installing antenna



- (1) Temperature sensor of Telestart T100 HTM
- (2) Dual Lock, self-adhesive
- (3) Air distribution for passenger compartment fan



Temperature sensor



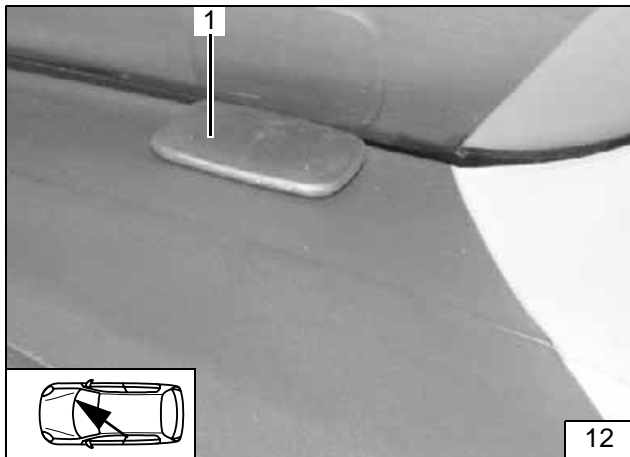
Remote option (Thermo Call)

Cut out insulation mat.

- (1) Thermo Call receiver, M5x20 bolts, flanged nut, washers [4x]
- (2) Lower footwell cover on front passenger side

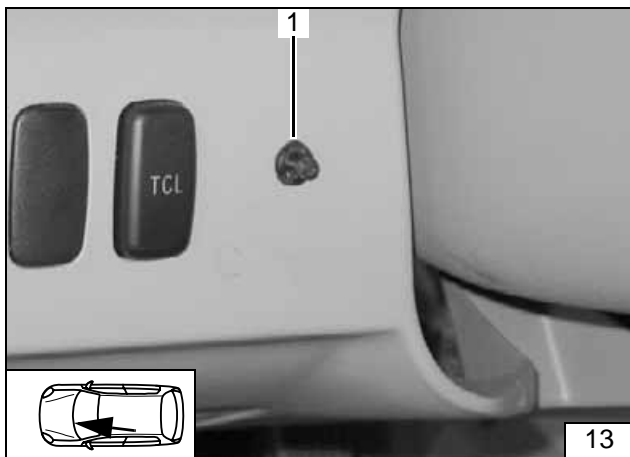


Installing receiver



- (1) Antenna TC 1.1

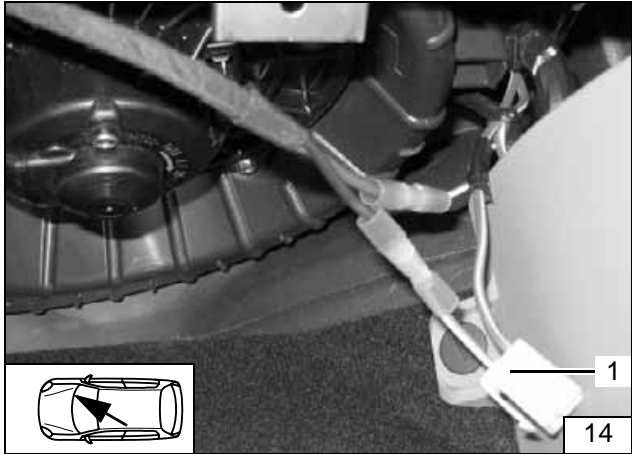
Installing antenna



- (1) Push button



Installing push button



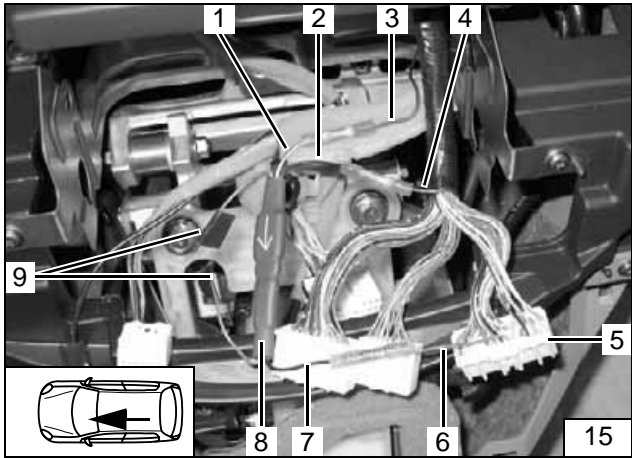
Automatic air-conditioning fan controller

Connection to 2-pin connector from blower motor.
Make connections as shown in the wiring diagram with the connectors provided.

- (1) Connector, 2-pin



Fan controller

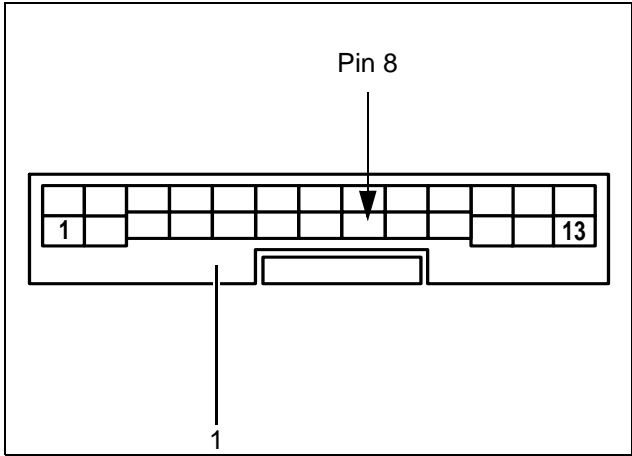


Connection of diode group 8 on 26-pin connector 5 from A/C control panel.
Insulate wire ends 9 [2x].

- (1) White/black (ws/sw) wire
- (2) Black (sw) wire
- (3) Black (sw) wire from fuse F4
- (4) Blue/red (bl/rt) wire from +15
- (6) Blue/red (bl/rt) wire from Pin 8
- (7) Black (sw) wire



Fan controller

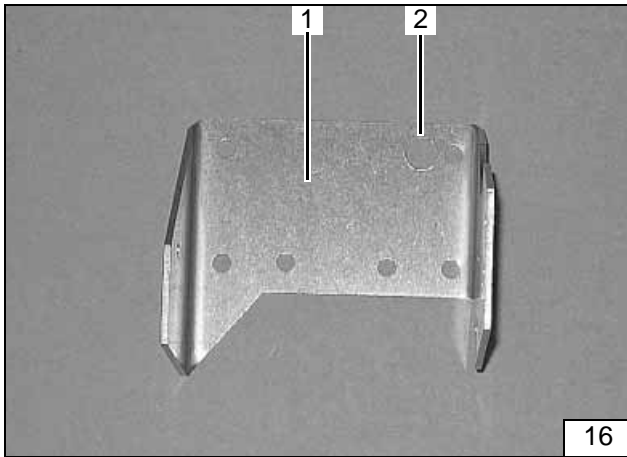
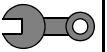


26-pin connector from A/C control panel

- (1) Connector, 26-pin

The pin assignment (Pin 8) does not match the wiring diagram from the Rep. Manual!!!!

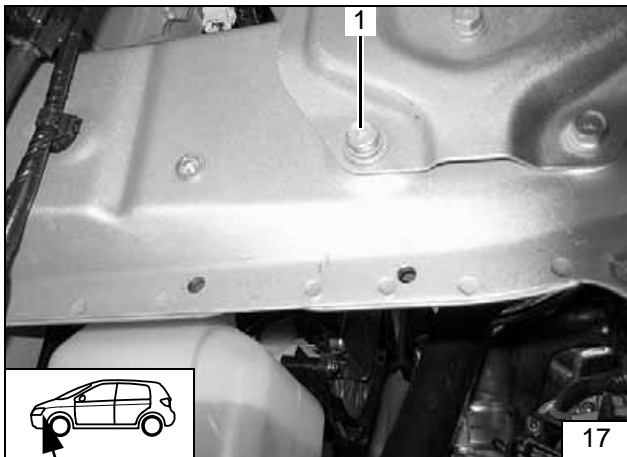




Preparing installation location

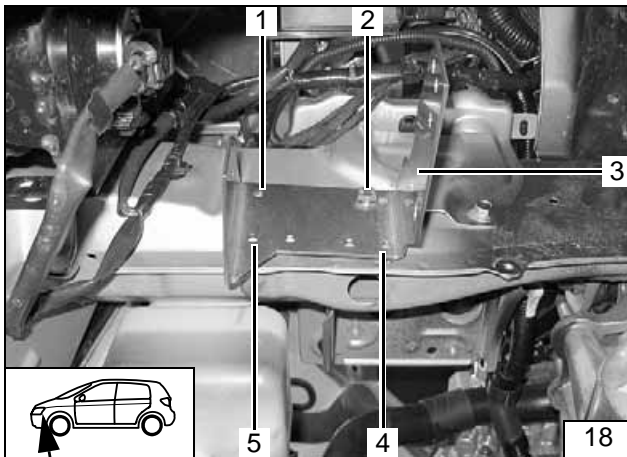
- (1) Bracket
- (2) Drill out existing hole to 8.5 mm dia.

Preparing bracket



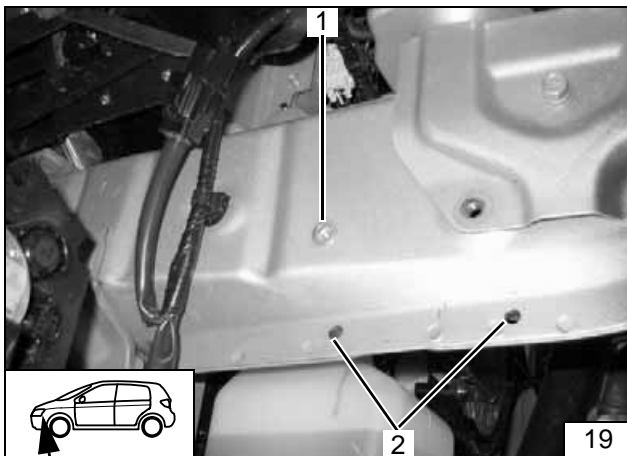
- (1) Remove original vehicle bolt

Preparing installation location



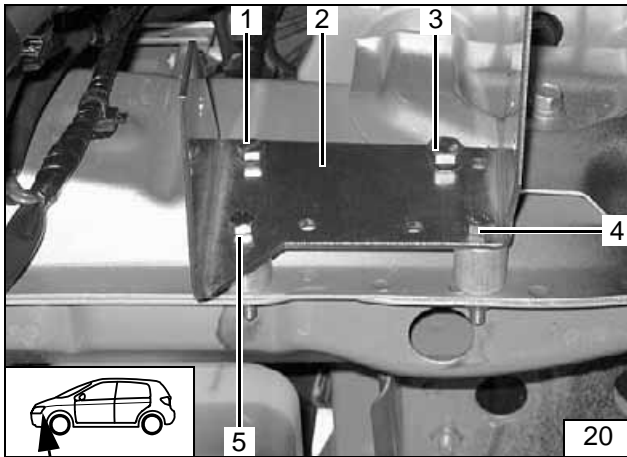
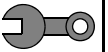
- (3) Install bracket and align
- (2) M8x30 bolt
- (1, 4, 5) Copy hole pattern

Preparing installation location



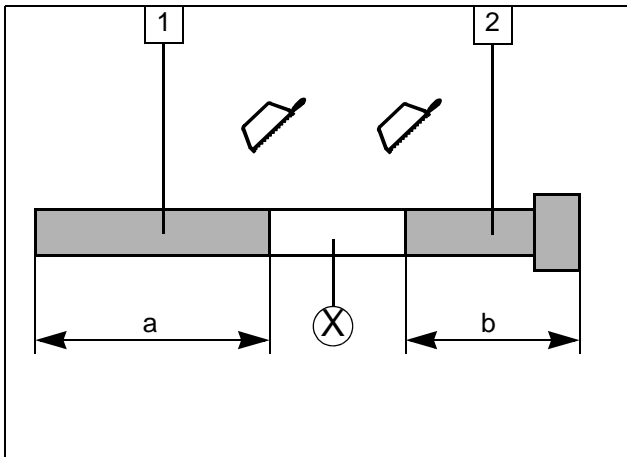
- (1) 9.1 mm dia. hole, M6 rivet nut
- (2) 7.0 mm dia. hole

Preparing installation location



- (2) Bracket
- (1) M6x35 bolt, spring lockwasher, 5 mm shim
- (3) M8x35 bolt, 5 mm shim, 8 mm dia. washer
- (4) M6x35 bolt, 5 mm shim, flanged nut
- (5) M6x35 bolt, 5 mm shim, flanged nut

Installing bracket

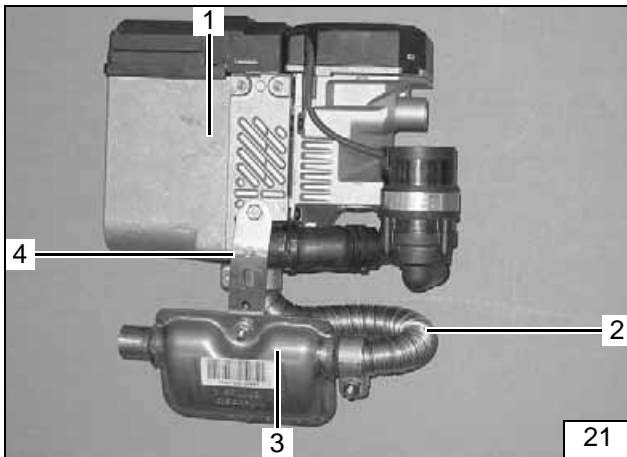


Preparing heater unit

- (1) Exhaust pipe
a = 250 mm
- (2) Exhaust end section
b = 145 mm

Discard section ⊗

Preparing exhaust pipe

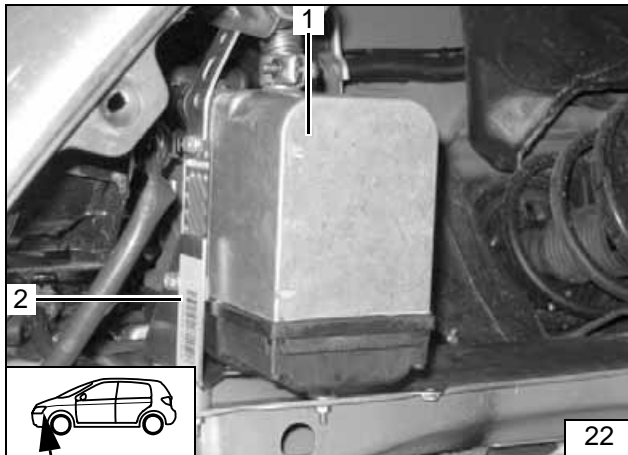
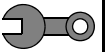


Tighten EJOT screws to 10 Nm!

- (1) Heater unit
- (4) Perforated bracket, Ejoyt screw
- (3) Exhaust muffler, M6x20 bolt, flanged nut
- (2) 250 mm exhaust pipe, hose clamp [2x]
- (4) Bend perforated bracket



Premounting ex-haust pipe and ex-haust muffler



Installing heater unit

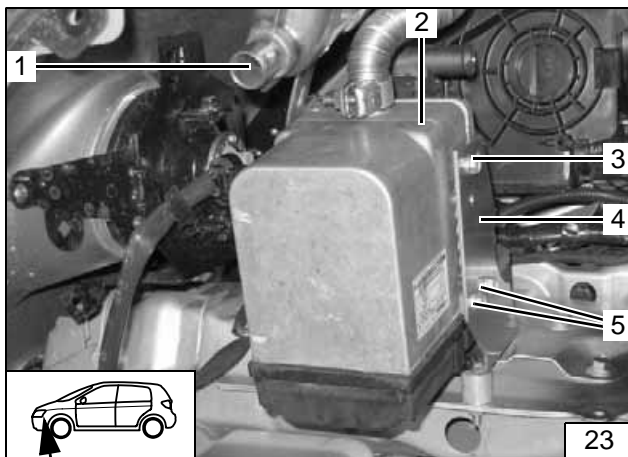
Tighten EJOT screws to 10 Nm!

Mount heater-unit wiring harness.

- (2) Bracket, Ejoyt screw
- (1) Heater unit



Installing heater unit



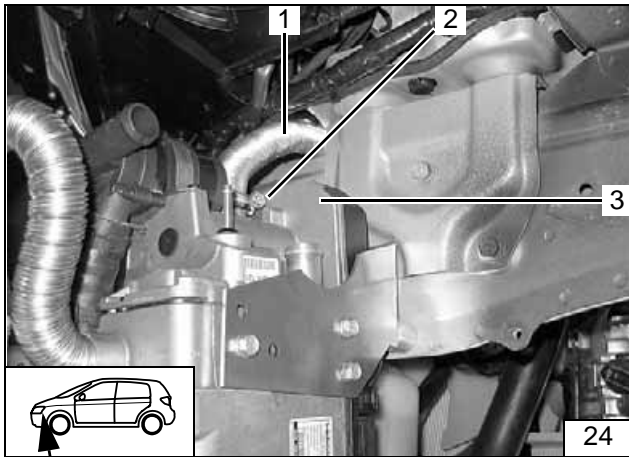
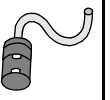
Tighten EJOT screws to 10 Nm!

Insert two washers between heater unit and bracket at position 3.

- (2) Heater unit
- (4) Bracket
- (3) Ejoyt screw
- (5) Ejoyt screws [2x]
- (1) Exhaust system, watch spacing to other components!



Installing heater unit



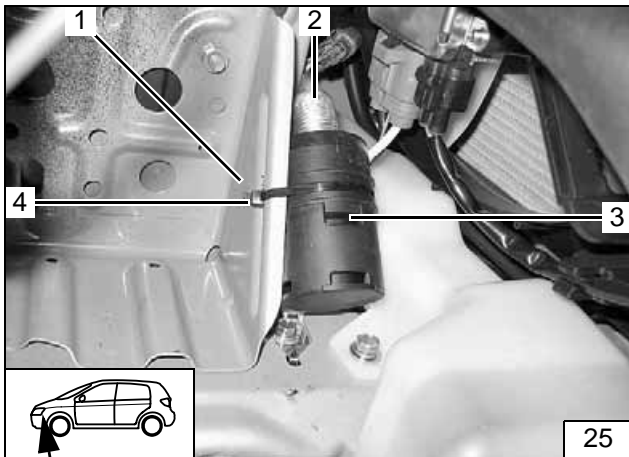
Combustion air

Ensure proper installation position of air intake muffler, see "Installation Instructions".

- (3) Heater unit
- (2) 27 mm dia. hose clamp
- (1) Combustion-air intake pipe



Installing combustion-air intake muffler



- (2) Combustion-air intake pipe
- (3) Combustion-air intake muffler
- (1) Battery carrier, drill 7.0 mm dia. hole
- (4) Cable tie



Installing combustion-air intake muffler



Fuel

CAUTION!

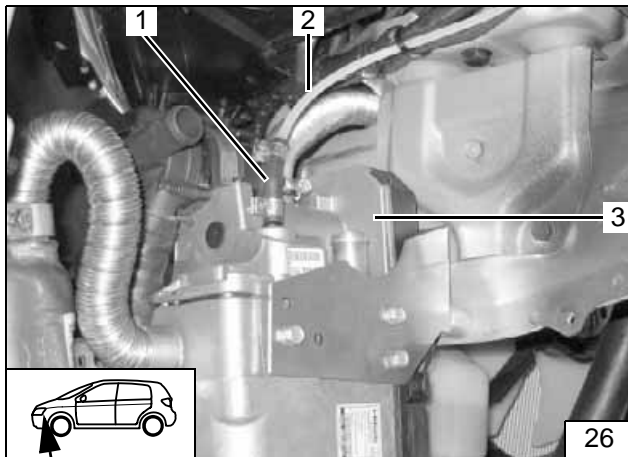
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off with an appropriate container.

Install fuel line and wiring harness so that they are protected against stone impact. Mount the fuel line and wiring harness with rub protection on sharp edges.

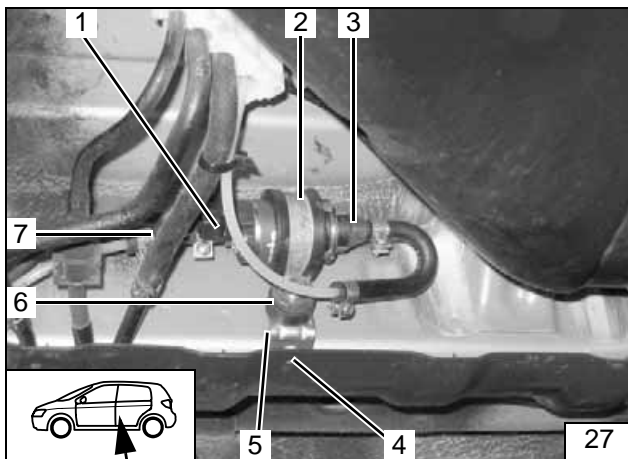
WARNING!

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



- (3) Heater unit
- (2) Mecanyl fuel line
- (1) Hose section, 10 mm dia. hose clamp [2x]

Fuel on heater unit

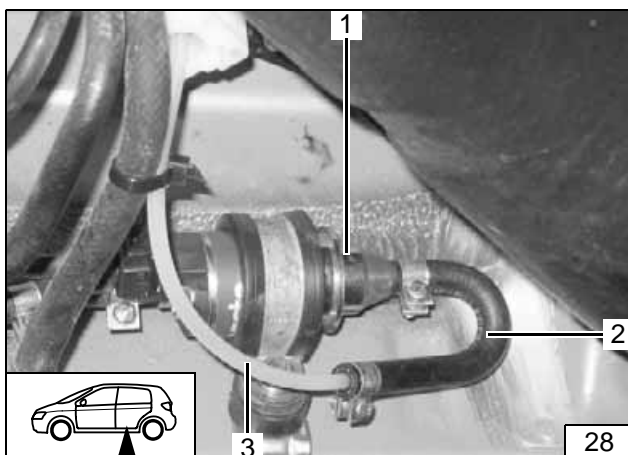


Ensure proper installation position of metering pump, see "Installation Instructions". Installation location on left in front of vehicle fuel tank!

Fuel line from heater unit on pressure side of metering pump [side with connector].

- (6) Silent block, flanged nut
- (5) Angle bracket
- (2) Rubber-coated p-clamp, flanged nut
- (3) Metering pump
- (7) Hose section, fuel line, 10 mm dia. hose clamps [2x]
- (1) Wiring harness of metering pump, protective rubber plug, tab connector, connector housing
- (4) Original vehicle bolt

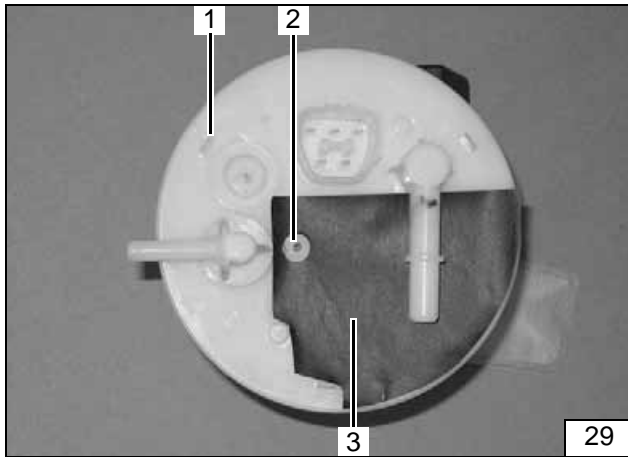
Installing metering pump



- (1) Metering pump
- (2) Molded hose 180° elbow, 10 mm dia. hose clamp [2x]
- (3) Mecanyl fuel line



Installing metering pump



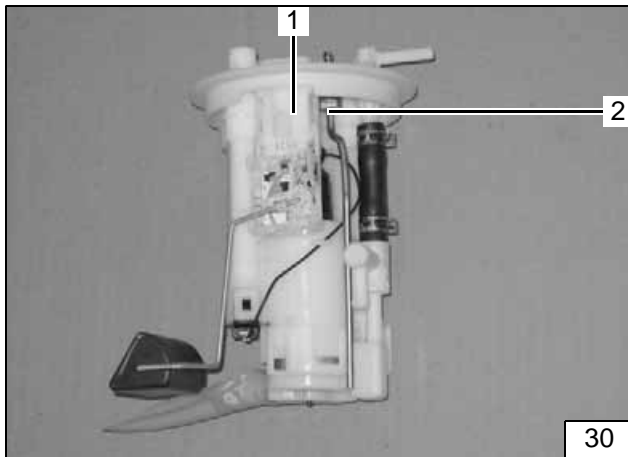
Gasoline vehicles only

Remove fuel-tank sending unit in accordance with manufacturer's instructions.

- (1) Fuel-tank sending unit
- (3) Drilling template
- (2) Copy hole pattern, 6 mm dia. hole



Preparing fuel-tank sending unit

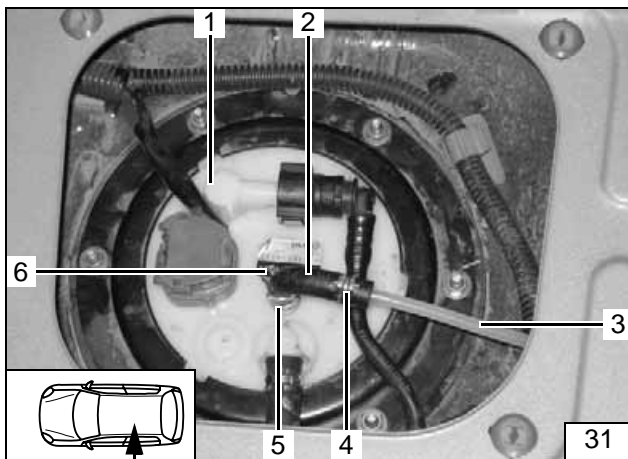


Shape fuel standpipe according to template, cut to length and install, see "installation instructions".

- (1) Fuel-tank sending unit
- (2) Fuel standpipe



Installing fuel standpipe

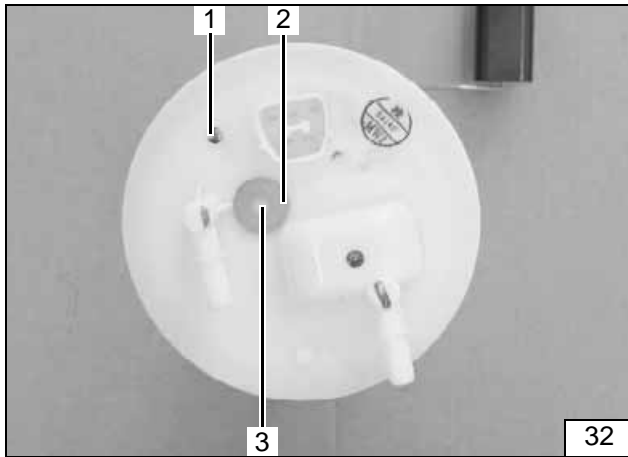
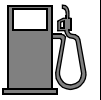


Install fuel-tank sending unit according to manufacturer's specifications. Shorten molded hose with 3.5 mm dia. by 10 mm.

- (1) Fuel-tank sending unit
- (5) Fuel standpipe
- (2) Molded hose
- (3) Mecanyl fuel line
- (6) 8 mm dia. Caillau clamp
- (4) 10 mm dia. Caillau clamp



Connecting fuel line



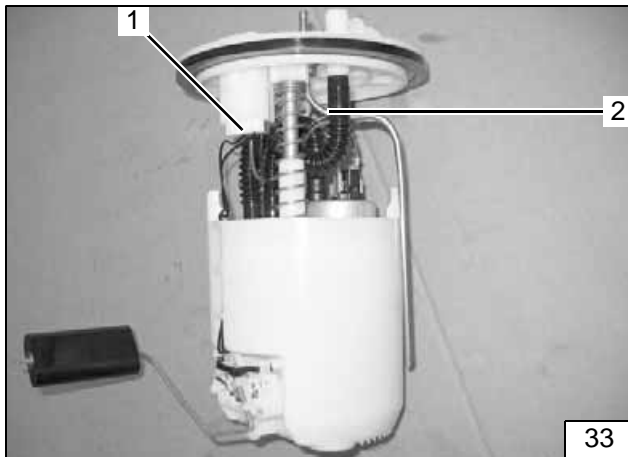
Diesel vehicles only

Remove fuel-tank sending unit in accordance with manufacturer's instructions. Lay on large diameter washer ash shown and copy hole pattern.

- (1) Fuel-tank sending unit
- (2) Large diameter washer
- (3) Copy hole pattern, 6 mm dia. hole



Preparing fuel-tank sending unit

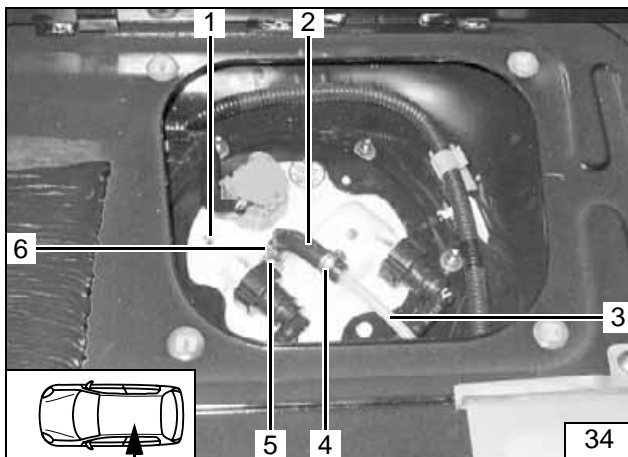


Shape fuel standpipe according to template, cut to length and install, see "installation instructions".

- (1) Fuel-tank sending unit
- (2) Fuel standpipe



Installing fuel standpipe

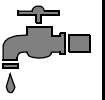


Install fuel-tank sending unit according to manufacturer's specifications. Shorten molded hose with 3.5 mm dia. by 10 mm.

- (1) Fuel-tank sending unit
- (5) Fuel standpipe
- (2) Molded hose
- (3) Mecanyl fuel line
- (6) 8 mm dia. Caillau clamp
- (4) 10 mm dia. Caillau clamp



Connecting fuel line



Coolant for gasoline engine



WARNING!

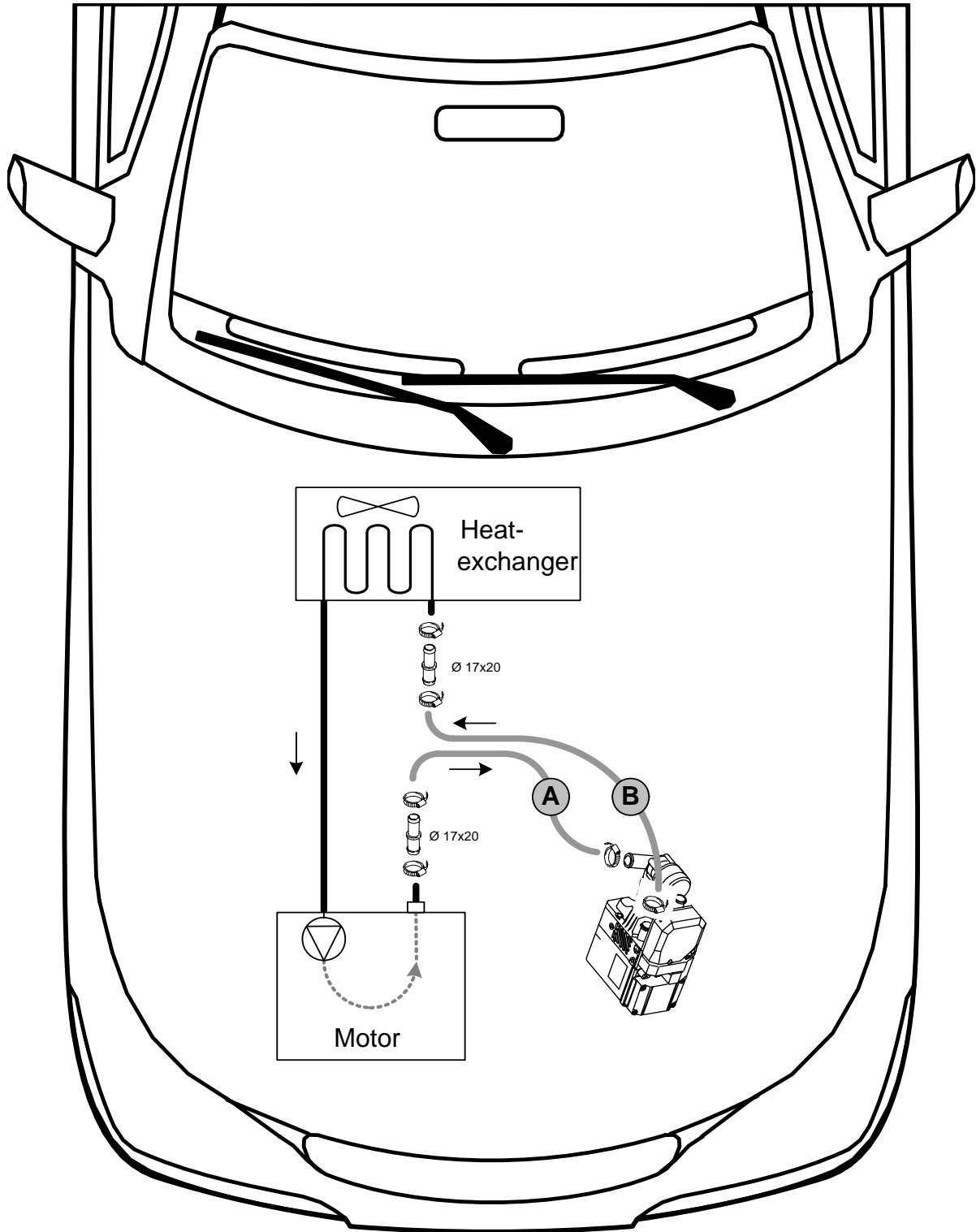
Tighten all hose clamps to 2.0 + 0.5 Nm.

Any cold water running off should be collected using an appropriate container!

Install hoses so that they are kink-free.

Position hose clamps so that no other hose can be damaged!

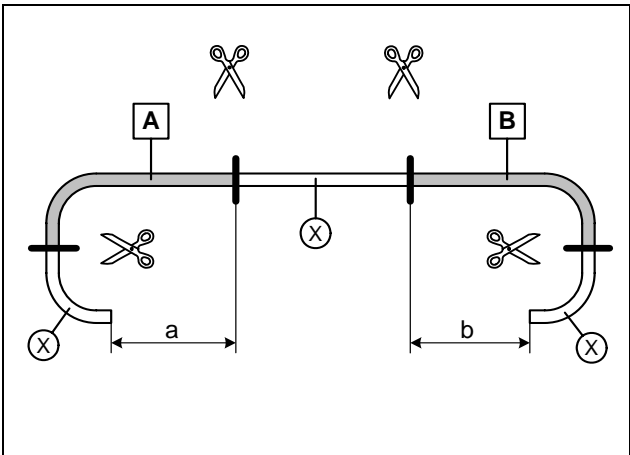
The connection should be "inline" based on the following diagram:



Coolant Diagram

All clamps without a specific designation are 20-27 mm dia. hose clamps.

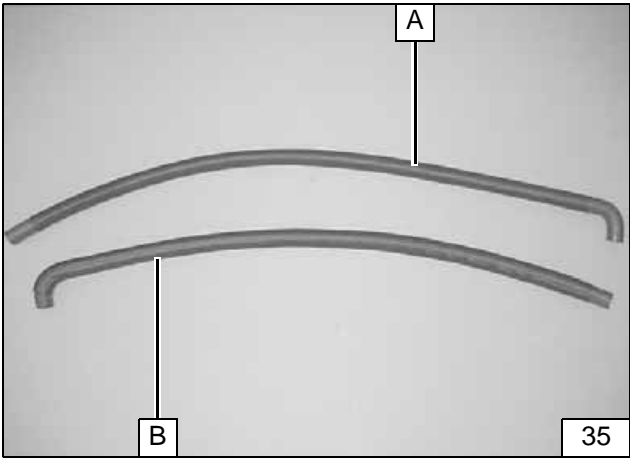




a = 950 mm
b = 860 mm

Discard section ⊗

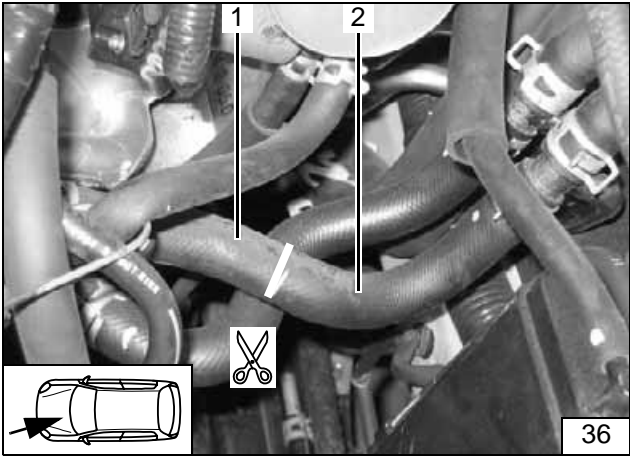
Cutting coolant hoses to length



Push braided protection hoses onto hose A and B

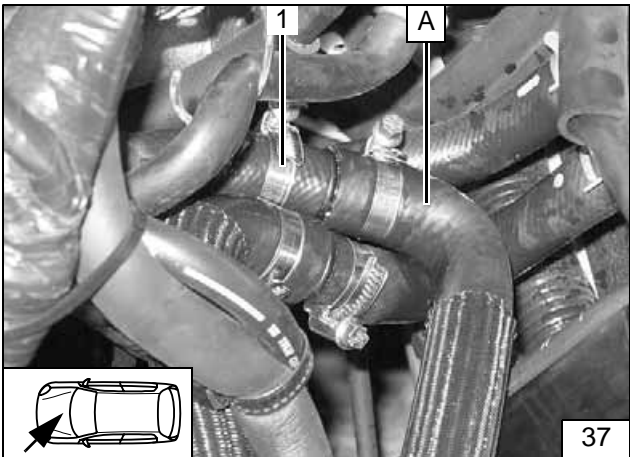


Preparing coolant



(2) Hose on heat exchanger inlet
(1) Hose on engine outlet

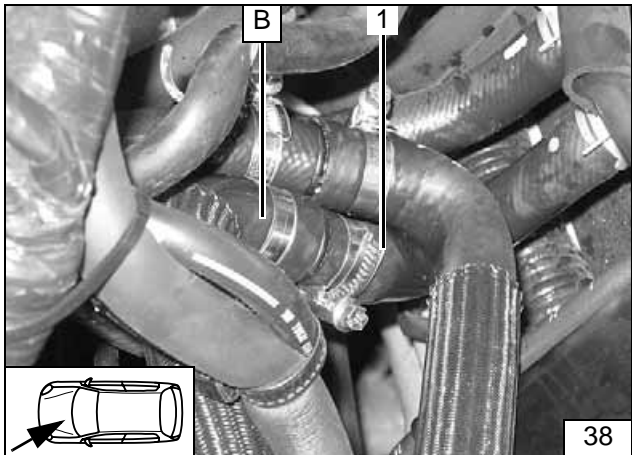
Cutting point



(1) Hose section on engine outlet



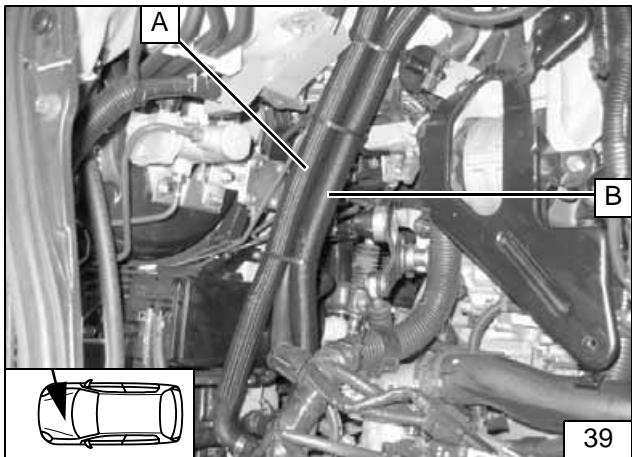
Connection on engine outlet



(1) Hose section on heat exchanger inlet



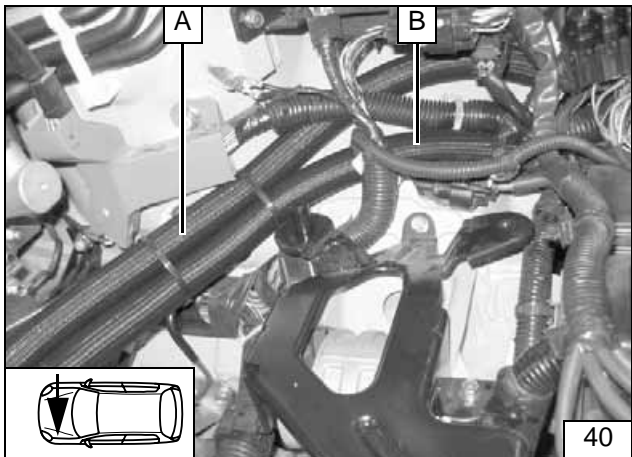
Con-
nection
on heat
exchang-
er inlet



Secure coolant hoses with cable ties.



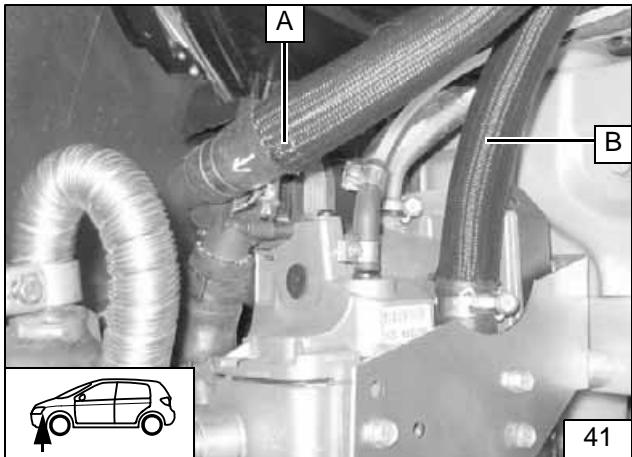
Routing in
engine
compartment



Secure coolant hoses with cable ties.



Routing in
engine
compartment



Fill heater unit with coolant before installing coolant hoses.



Con-
nection
on
heater unit

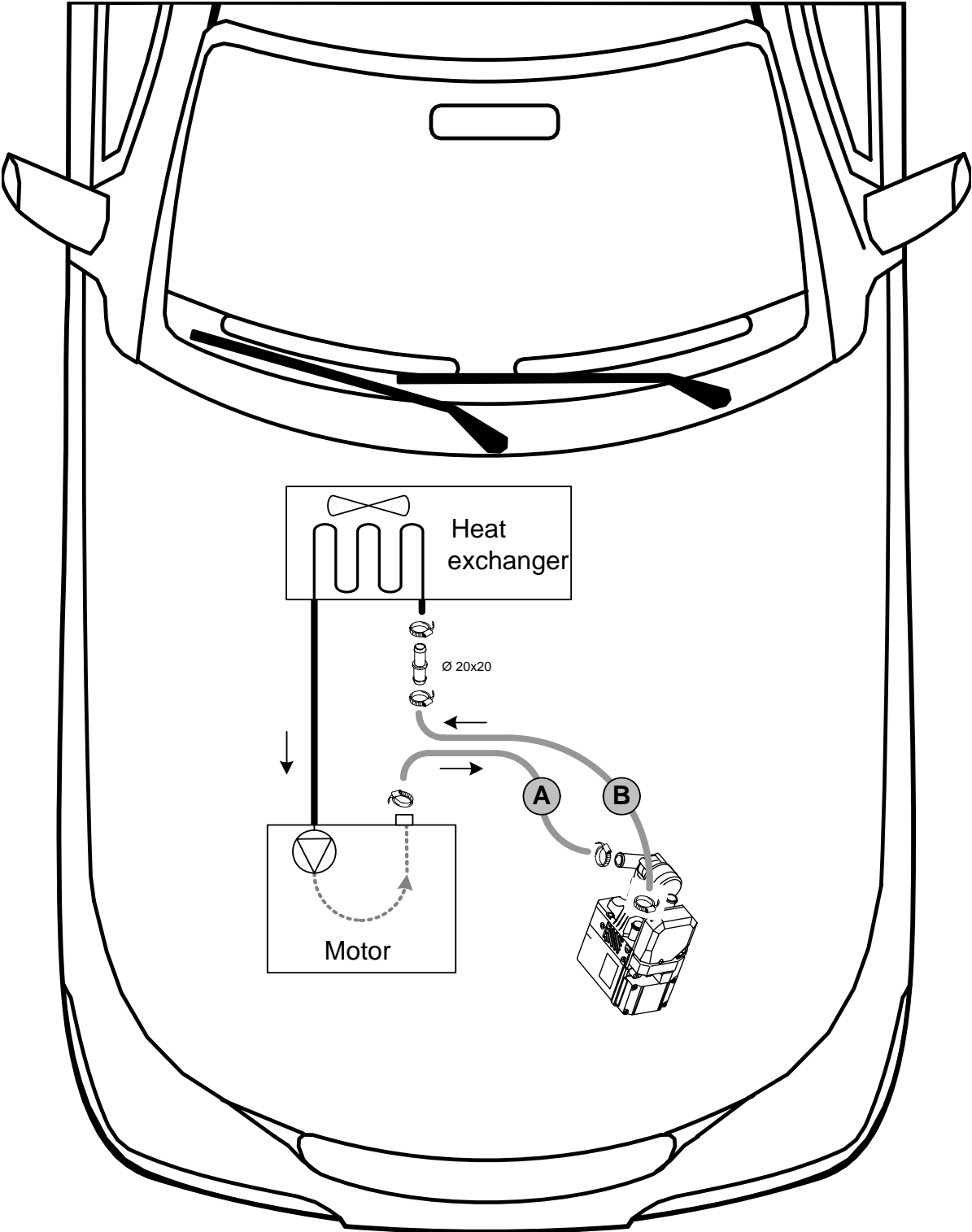


Coolant for diesel engine



WARNING!

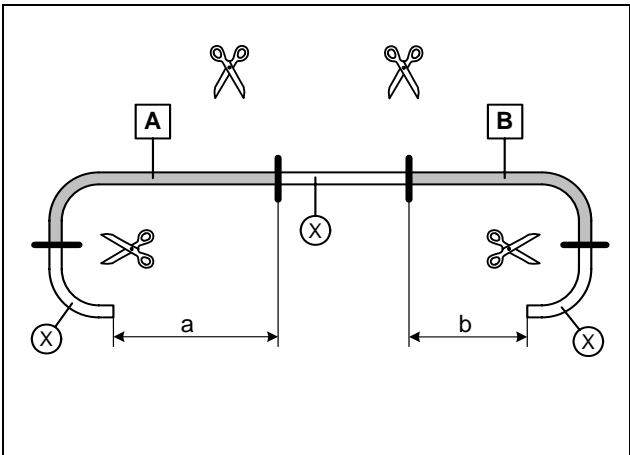
Tighten all hose clamps to 2.0 + 0.5 Nm.
 Any cold water running off should be collected using an appropriate container!
 Install hoses so that they are kink-free.
 Position hose clamps so that no other hose can be damaged!
 The connection should be "inline" based on the following diagram:



Coolant Diagram

All clamps without a specific designation are 20-27 mm dia. hose clamps.

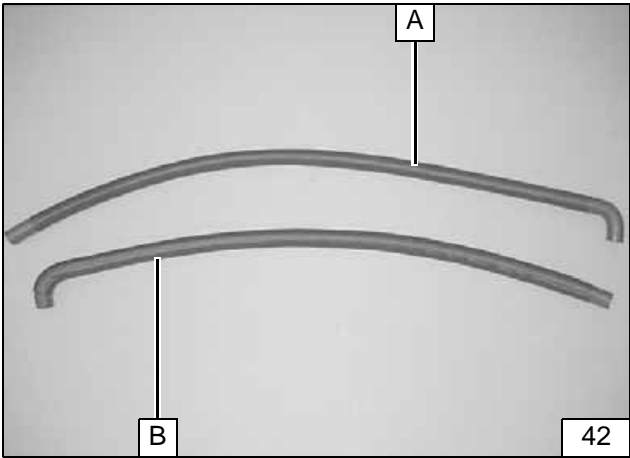




a = 850 mm
b = 760 mm

Discard section ⊗

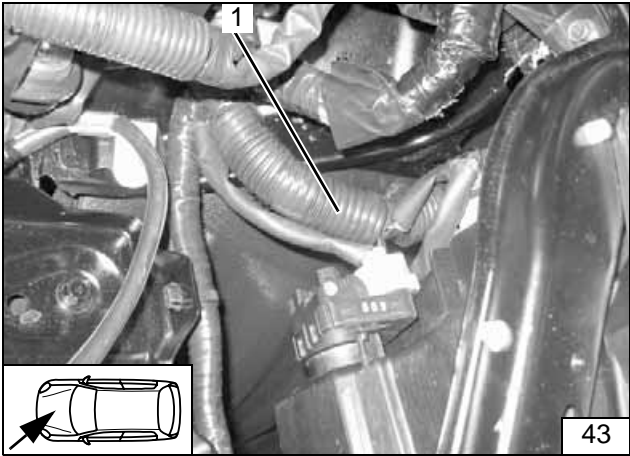
Cutting coolant hoses to length



Push braided protection hoses onto hose A and B



Preparing coolant

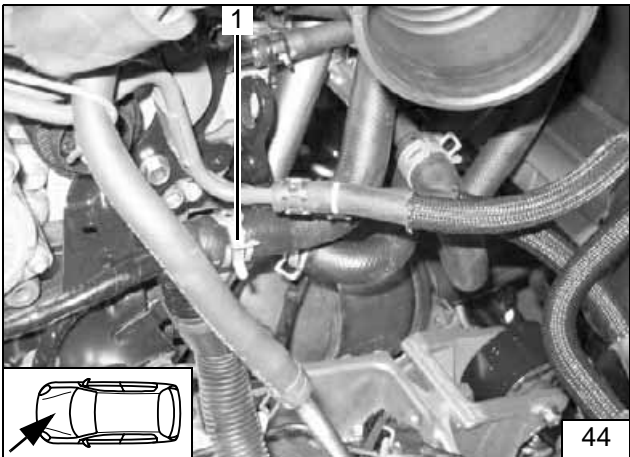


Disconnect wiring harness.

(1) Wiring harness



Preparing hose pass through

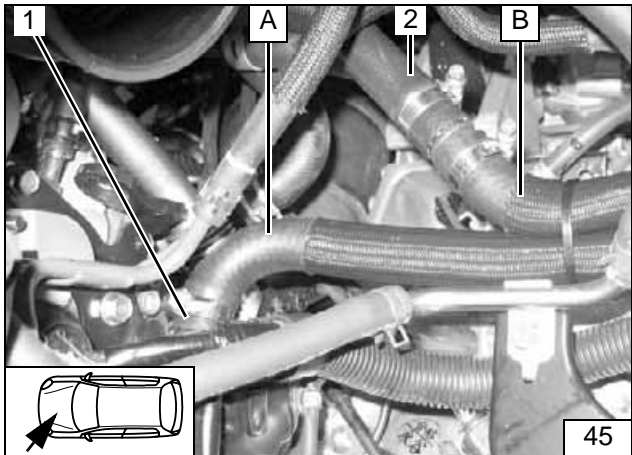


Disconnect hose from engine outlet.

(1) Hose on engine outlet

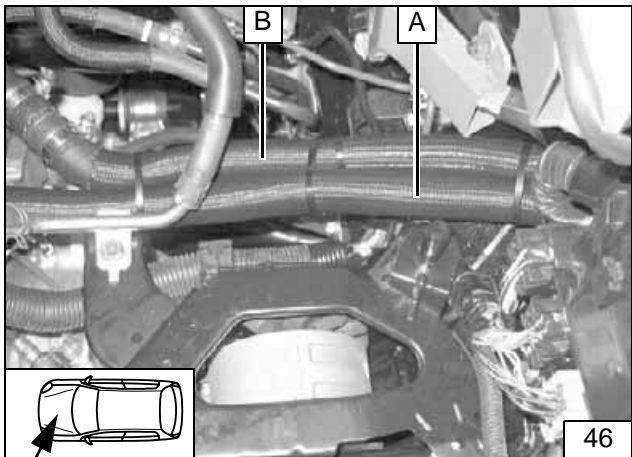


Cutting point



- (1) Connection piece on engine outlet
- (2) Hose section on heat exchanger inlet

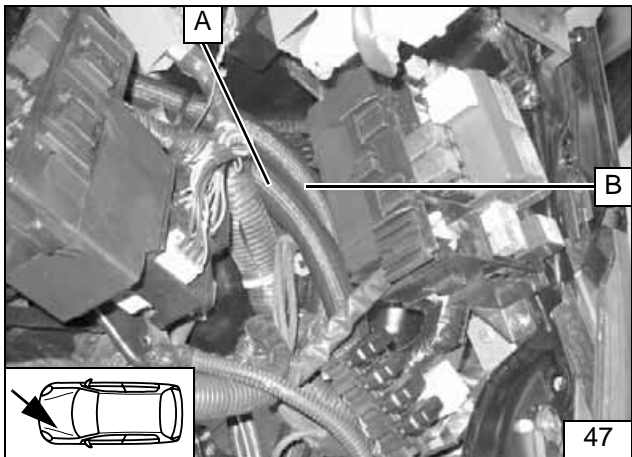
Connect-
ing
coolant
hoses



Secure hoses with cable ties.



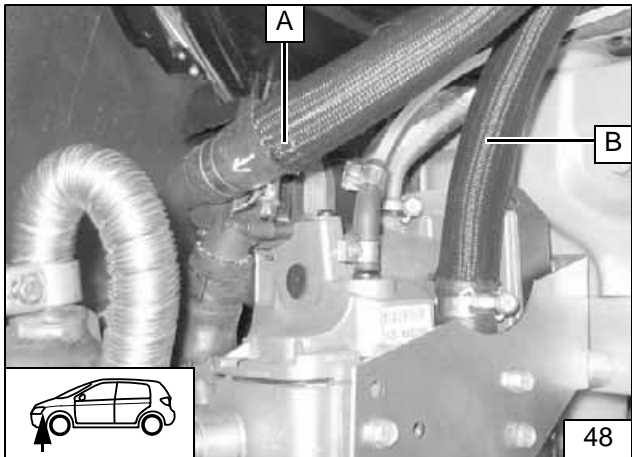
Conne-
ction
on heat
exchang-
er inlet



Secure coolant hoses with cable ties.



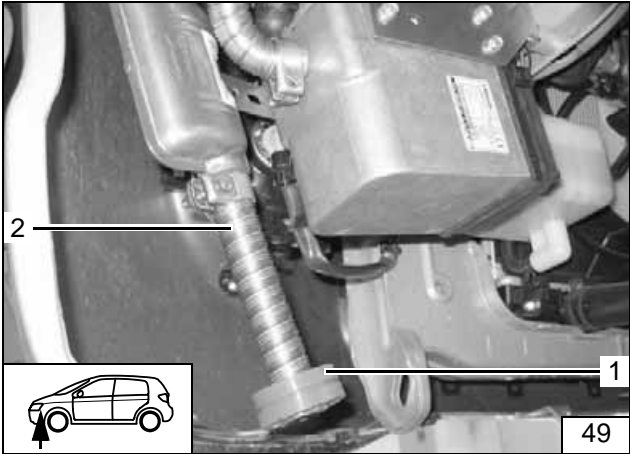
Routing in
engine
compart-
ment



Fill heater unit with coolant before installing coolant hoses.



Conne-
ction on
heater unit

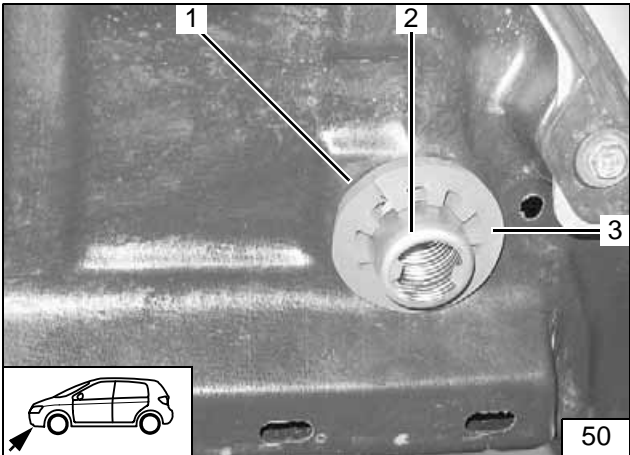


Exhaust gas

Ensure sufficient distance to neighboring components.

- (2) 145 mm exhaust end section, hose clamp
- (1) Red rubber isolator with groove

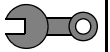
Installing exhaust end section



- (1) Lower wheel well trim, expand existing cut-out to 42 mm dia.
- (2) Exhaust tailpipe
- (3) Red (rt) rubber isolator with groove

Cutting out under-ride protection and positioning rubber isolator





Final Work

WARNING!

Reassemble the disassembled components in reverse order.

Check all hoses, hose and Caillau clamps, as well as all electrical connections for firm seating.

Secure all loose cables using cable ties.

Spray heater unit components with anti-corrosion wax (Tectyl 100K, Order No. 111 329).

- Connect the battery
- Start the engine, bleed the coolant circuit according to the instructions of the vehicle manufacturer and add coolant
- Set the digital timer.
- Adjust the vehicle heater with automatic air-conditioning or without automatic air-conditioning according to "Operating Instructions for End Customer".
- Check the proper operation of the additional heater, see the operating instructions/installation instructions.

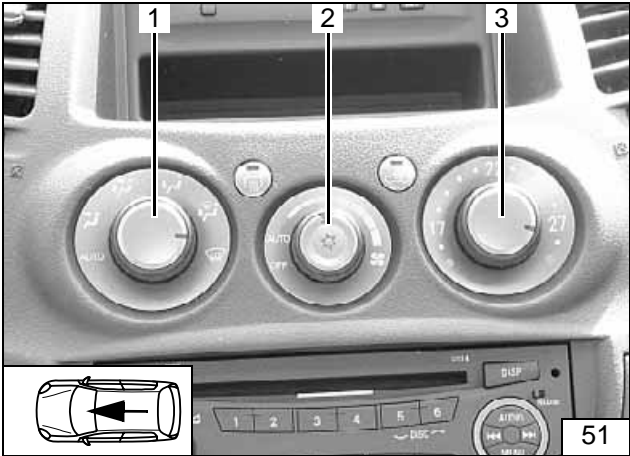


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(0)1805-932278

Operating Instructions for End Customer

(Please remove page and add to the vehicle operating instructions.)

Before parking the vehicle, make the following settings:

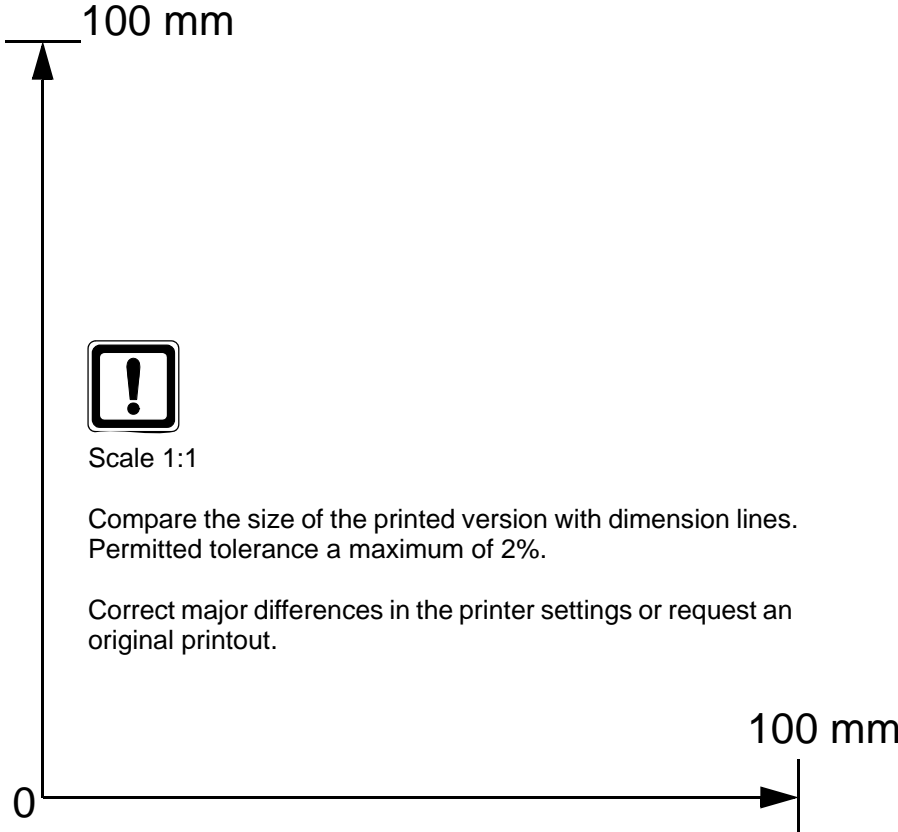
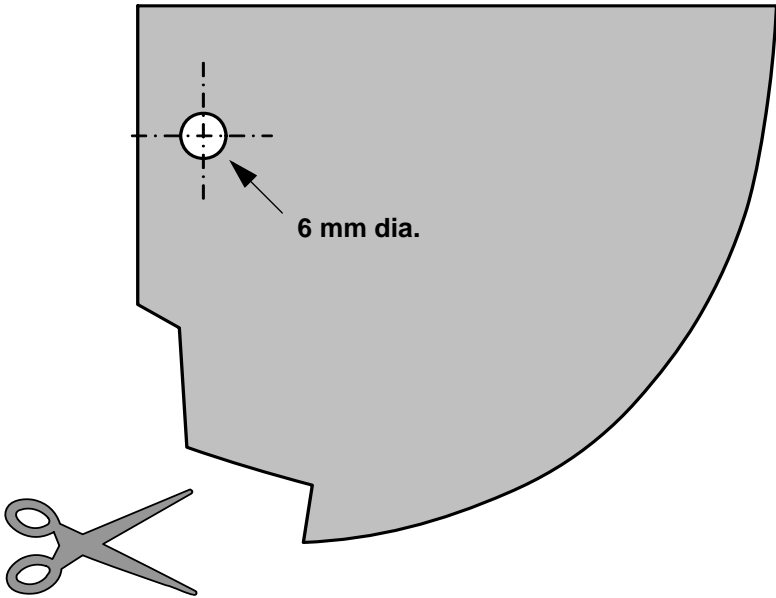


- (1) Direct air outlet toward windshield
- (2) Set fan to level "2", or possibly "3"
- (3) Set temperature to "max."

**Automatic
air-condi-
tioning**

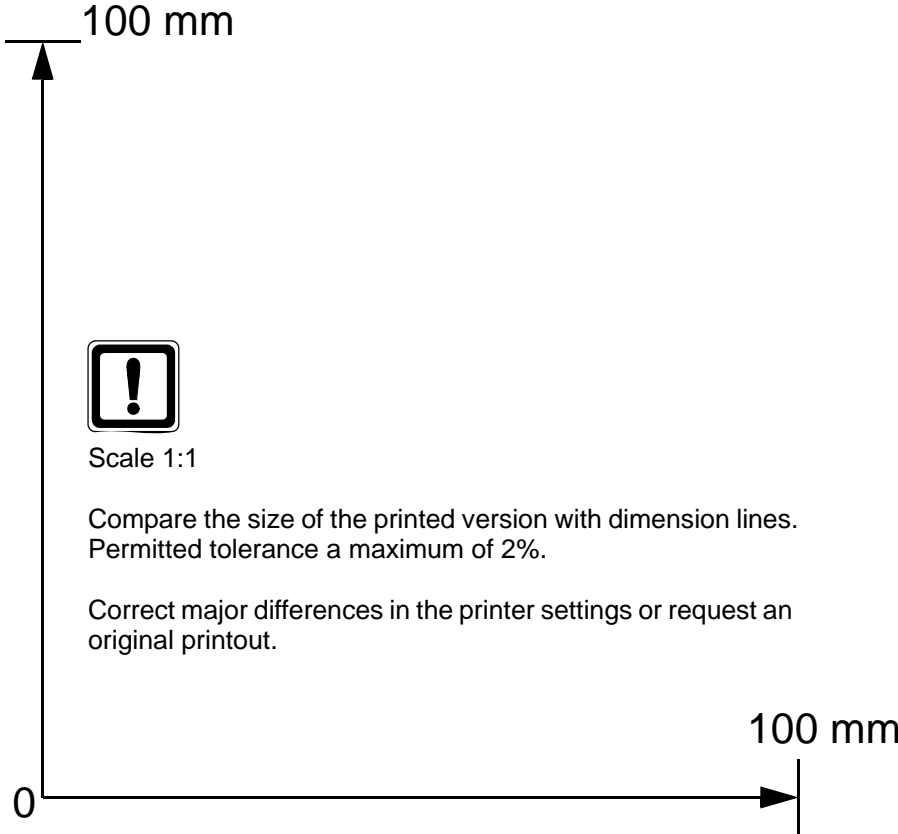
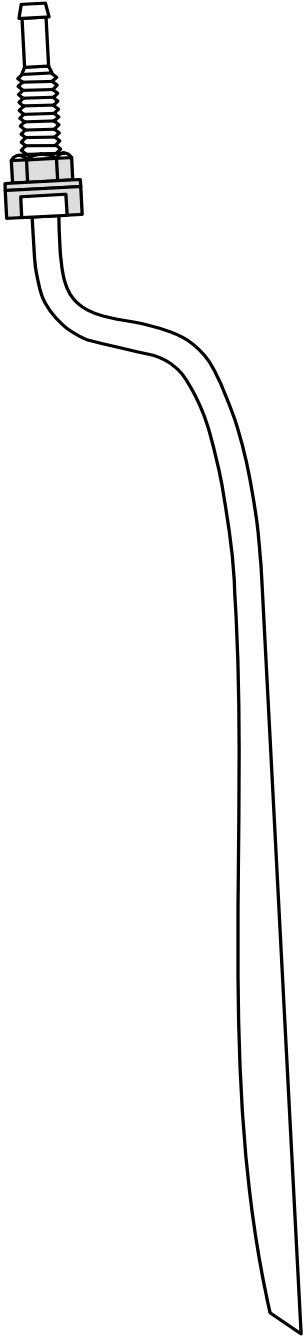


Template for Fuel-Tank Sending Unit on Gasoline Vehicles





Template for fuel standpipe on gasoline vehicles



Scale 1:1

Compare the size of the printed version with dimension lines.
Permitted tolerance a maximum of 2%.

Correct major differences in the printer settings or request an original printout.



Template for Fuel Standpipe on Diesel Vehicles

