Water Heater Unit

***Thermo Top E* Additional Heater** e1 00 0003

***Thermo Top C* Additional Heater** e1 00 0002

***Thermo Top P* Additional Heater** e1 00 0104

Installation Instructions

Nissan X-Trail

Gasoline
from Model Year 2008
Left-hand drive vehicle
Automatic air-conditioning

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.

Ident. No.:1313153A_EN Fee Euro 10.00

Table of Contents

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Nissan	X-Trail	T31	e1 * 2001/116 * 0432 * ...

Engine type	Engine model	Output in kW	Displacement in cm³
MR20	Gasoline	104	1997
QR25	Gasoline	124	2488

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	Nissan-specific delivery scope	See Nissan price list
1	Installation kit for Nissan X-Trail Gasoline	1313134A

Also required:

Quantity	Description	Order No.:
1	Heater control according to Nissan price list	See Nissan price list

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

These installation instructions apply to Nissan X-Trail Gasoline vehicles - for validity, see page 2 - from model year 2008 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).

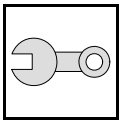
Special Tools

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

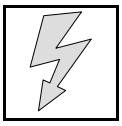
Explanatory Notes on Document

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 system

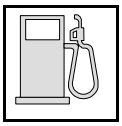


Electrical system



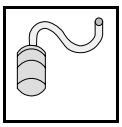
Coolant

Fuel



Exhaust gas

Combustion air



Special features are highlighted using the following symbols:

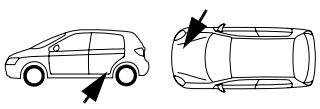
Specific risk of injury or fatal accidents.

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.

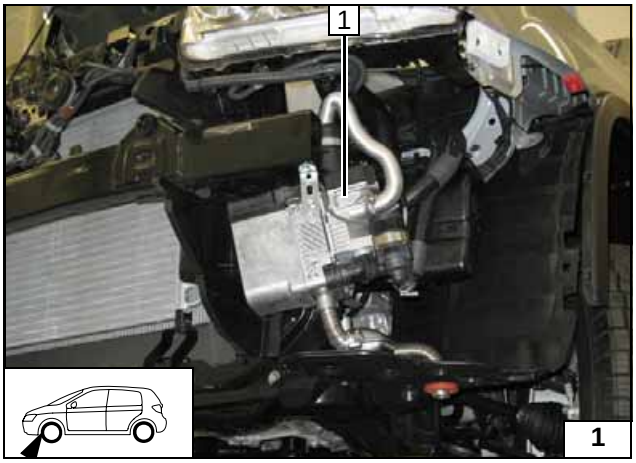
All dimensions are in mm!
Tightening torque of hose clamps = 2.0 + 0.5 Nm!
Tightening torque of Ejot screws, Ejot studs = 10 Nm!

Preliminary Work

WARNING!

- Open fuel tank cap, ventilate tank
- Close the tank cap again.
- 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.
- Completely remove the battery.
- Remove the air filter together with the intake hose.
- Remove the trim in the right footwell
- Remove the fuse and relay box.
- Remove the A/C control panel.
- Remove bumper
- Remove the underride protection
- Open the right-hand fuel sender service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturers specifications.

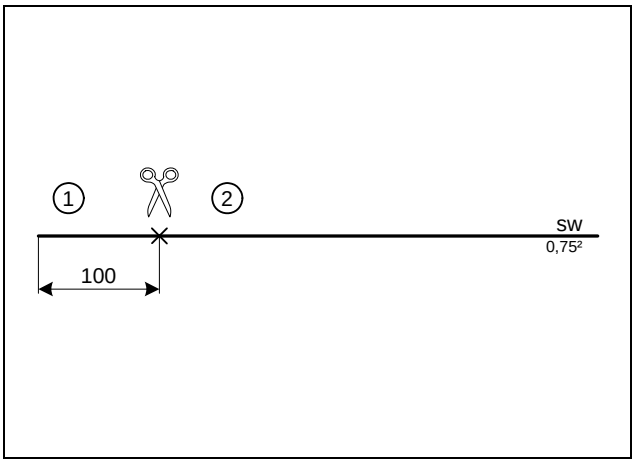
Remove page 29 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



Heater unit installation location

1 Heater unit

Installation location

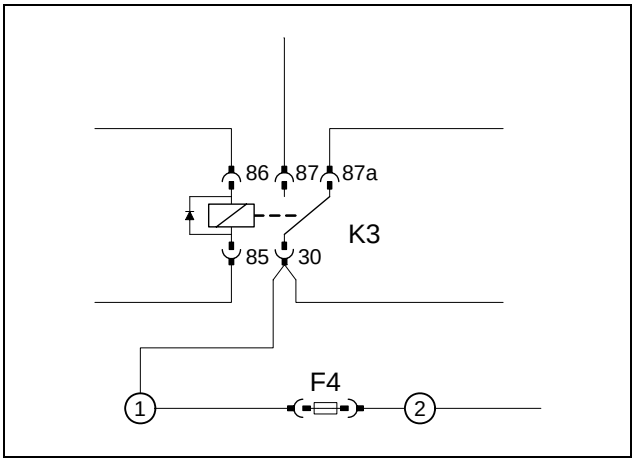


Preparing electrical system

Only with automatic air-conditioning

Wire section **1** and **2** will be required later for connecting fuse F4.

Cutting wires to length



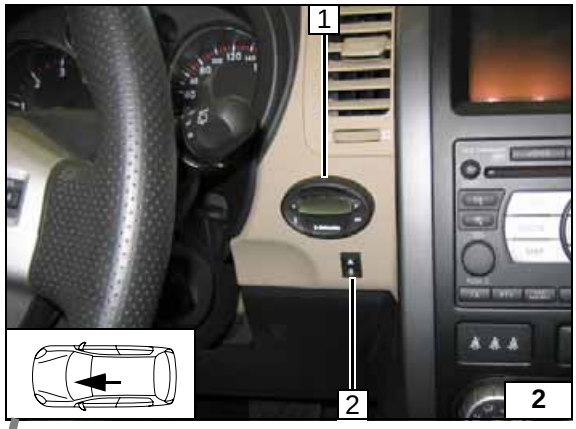
Produce connections as shown in wiring diagram. Install wire section **2** in the protective sleeving provided.

Preparing fuse F4

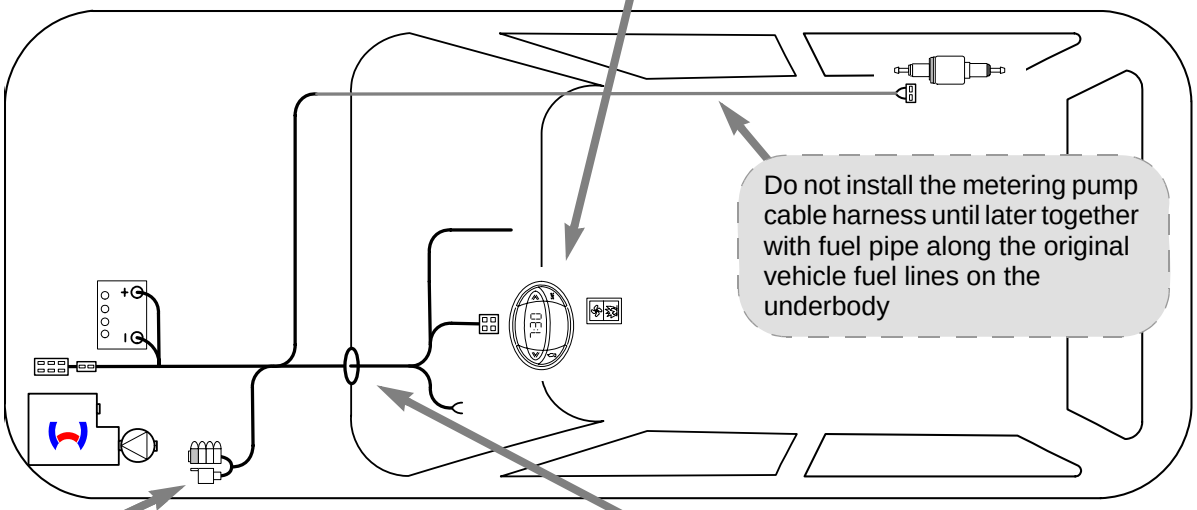
Electrical system

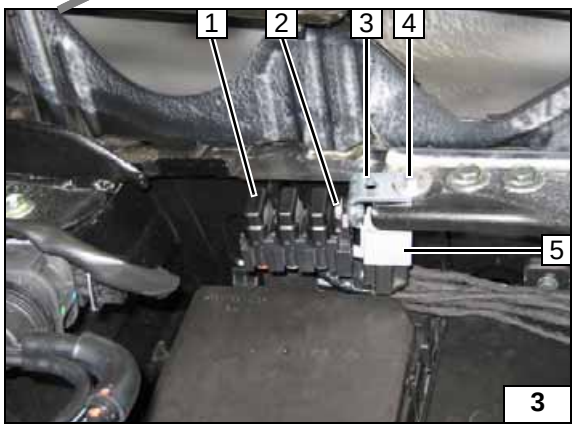
Digital timer / summer/winter switch option

1 Digital timer
2 Summer/winter switch, drilled hole 12 mm dia.



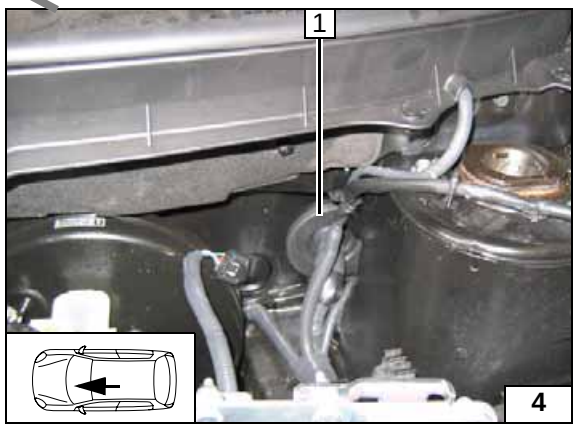
Wiring harness installation diagram





Fuse holder, relay K3

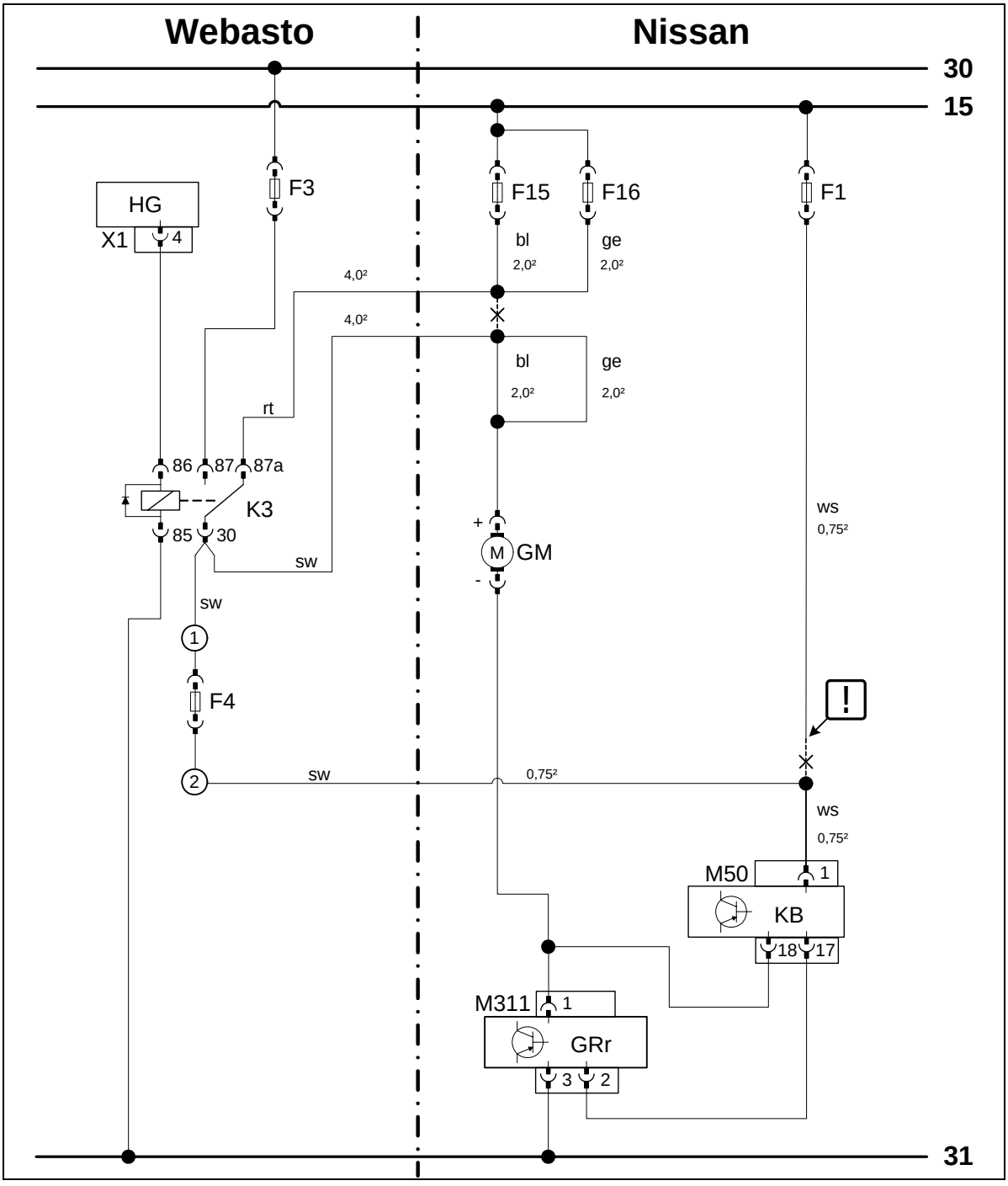
1 Fuse holder
2 Retaining plate of fuse holder, M5x12 bolt, washer, angle bracket **3**, K3 relay **5**, M5 flanged nut
4 M6x20 bolt, large diameter washer, existing hole, M6 flanged nut



Wiring harness pass through

1 Protective rubber plug

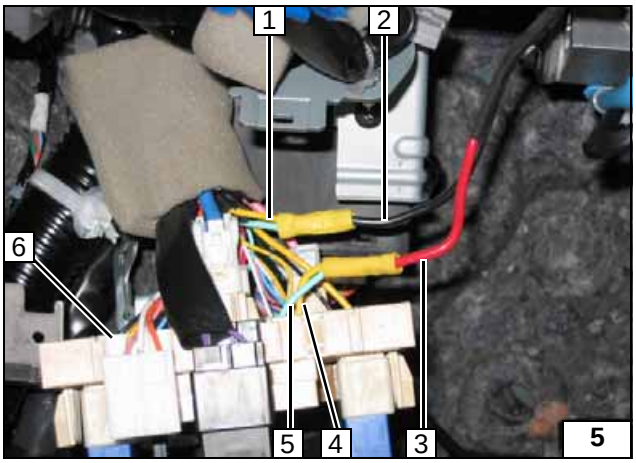
Automatic air-conditioning fan controller



Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater unit connector	KB	Air-conditioning control panel	ws	white
F3	25 A fuse	M50	20-pin connector KB	sw	black
K3	Fan relay	GRr	Fan controller	bl	blue
F4	10 A fuse	M311	4-pin connector, GRr	ge	yellow
		F1	10 A fuse		
		F15	15 A fuse		
		F16	15 A fuse	!	Insulate wire ends and tie back
				X	Cutting point
				Wiring colors may vary.	

Wiring diagram

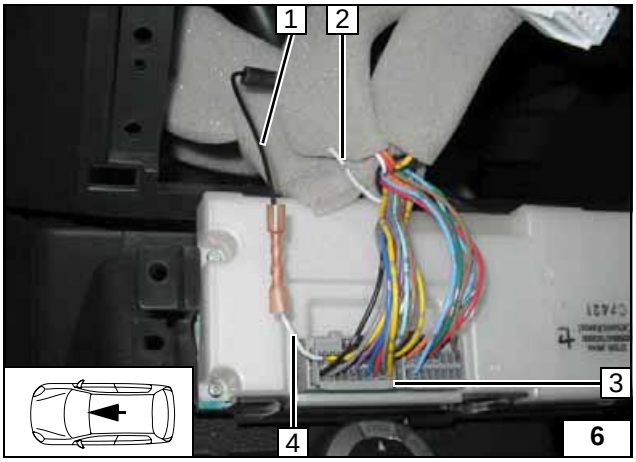
Legend



Produce connection on fuse carrier **6** behind fuses F15 and F16. according to wiring diagram.

1 Yellow and blue (ge/bl) wire of fan motor
2 Black (sw) wire from K3/30
3 Red (rt) wire from K3/87a
4 Yellow (ge) wire from fuse 16
5 Blue (bl) wire of fuse 15

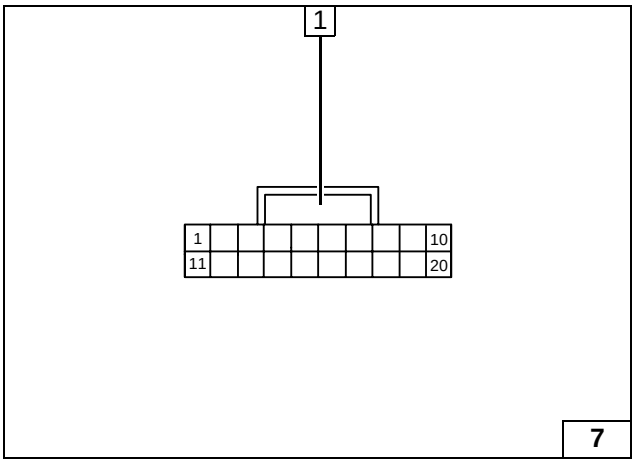
Connecting fan-motor



Connection to 20-pin connector **3** from A/C control element.
Produce connections as shown in wiring diagram.

1 Black (sw) wire from F4
2 Insulate white (ws) wire and tie back
4 White (ws) wire, Pin 1

Connecting A/C control panel



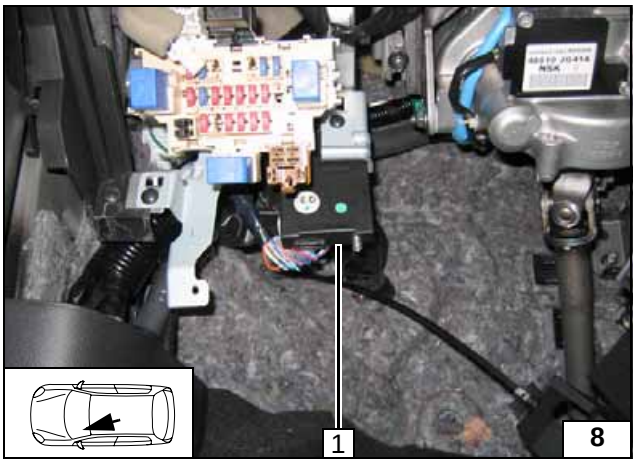
Connector imprint may differ from wiring diagram!

1 Connector M50 on line side

View of connector M50

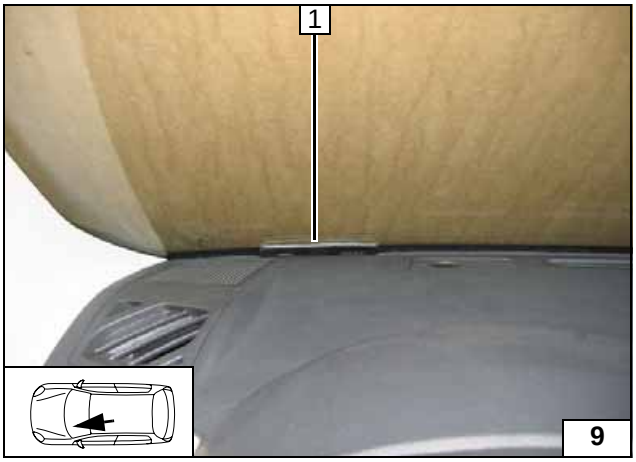
Remote option (Telestart)

Installing receiver



1 Fasten receiver with double-sided adhesive tape

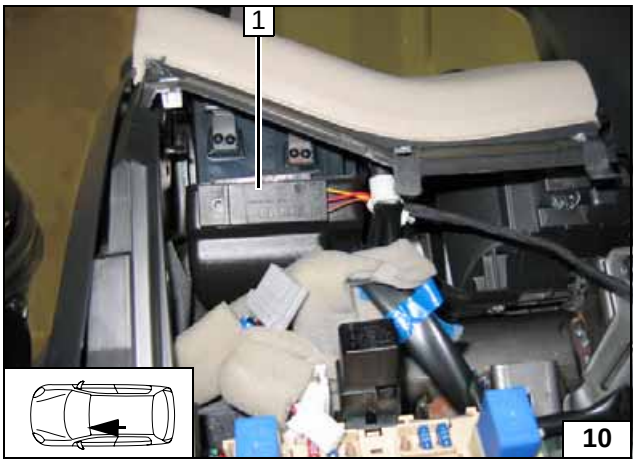
Installing antenna



1 Antenna

Temperature sensor for HTM100 only

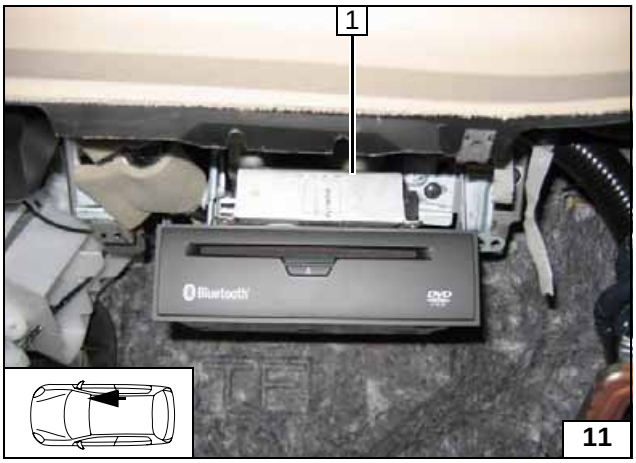
Installing temperature sensor



1 Fasten temperature sensor with double-sided adhesive tape

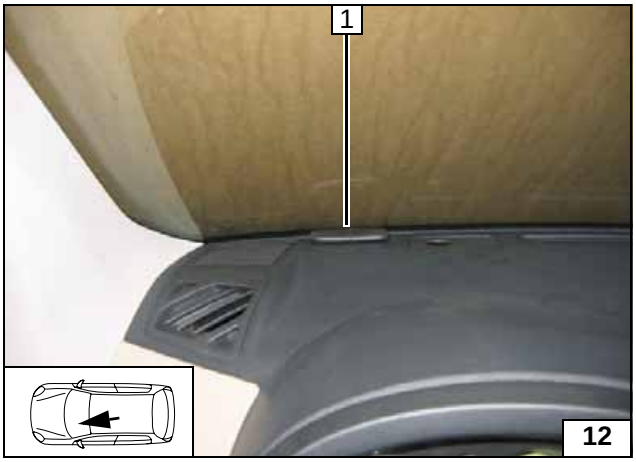
Remote option (Thermo Call)

Installing receiver



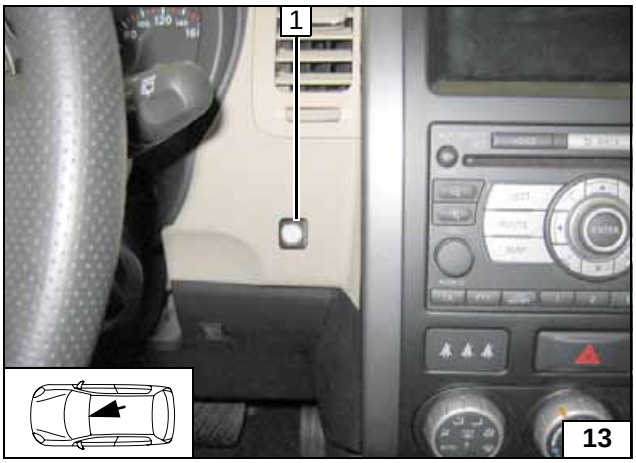
1 Fasten receiver with double-sided adhesive tape

Installing antenna

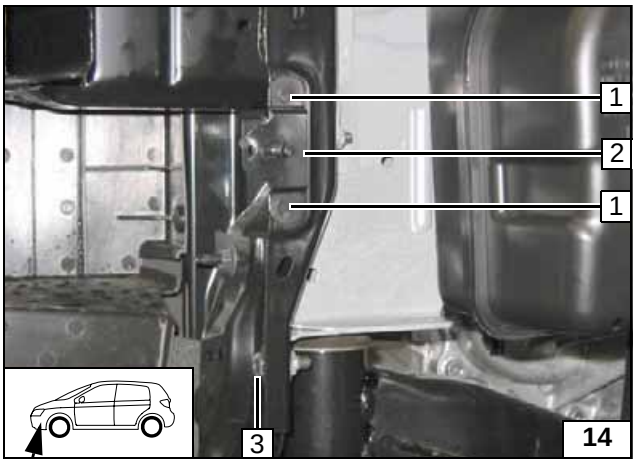


1 Antenna

Installing push button



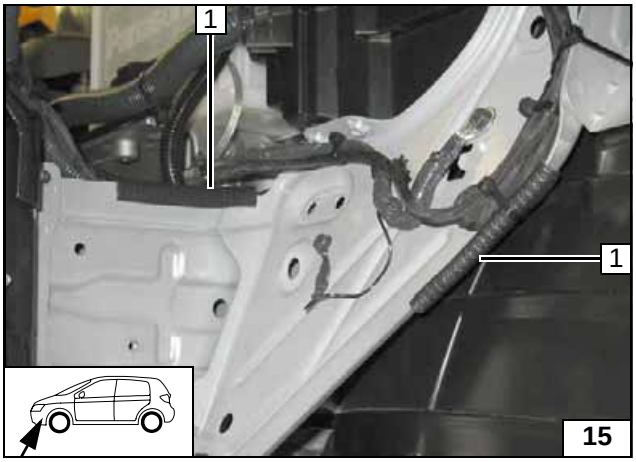
1 Pushbutton



Preparing installation location

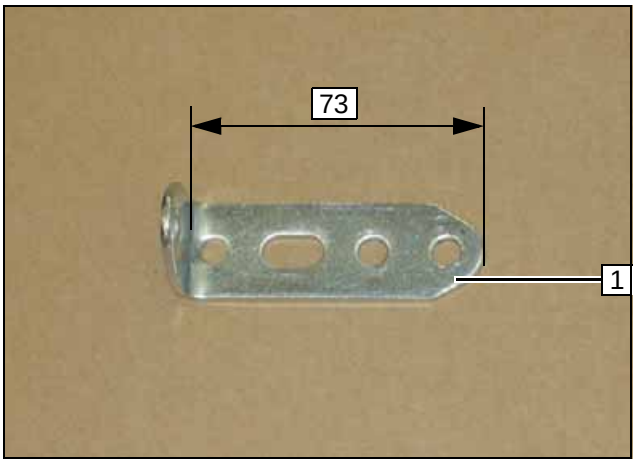
Drill out bracket **2** at weld points **1** [2x] and discard! Replace original vehicle M8x20 bolt **3** with M8x40 bolt and large diameter washer.

Removing bracket



1 Edge protection [2x]

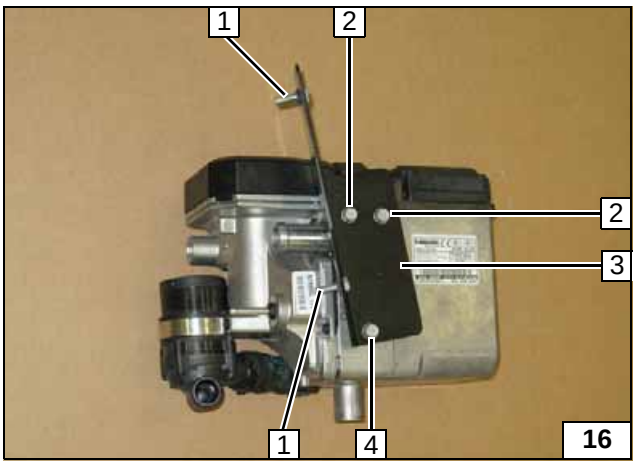
Installing edge protection



Preparing heater unit

Angle down perforated bracket **1** by 90°.

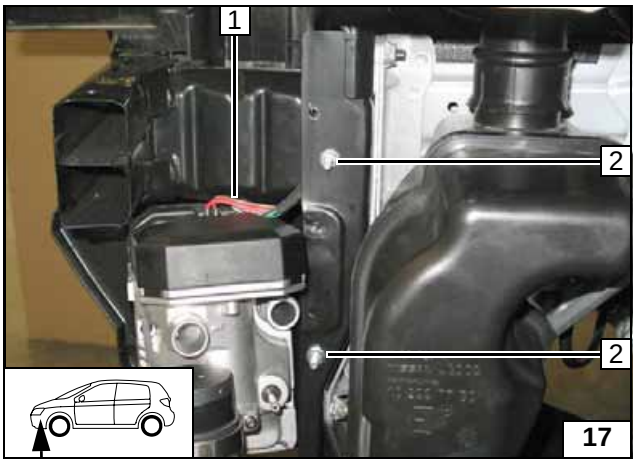
Bending perforated bracket



Insert two washers between heater unit and bracket **3** at Position **4**.

1 M6x20 bolt, pin lock [2x each]
2 Ejot screw [2x each]
4 Ejot screw, washer [2x]

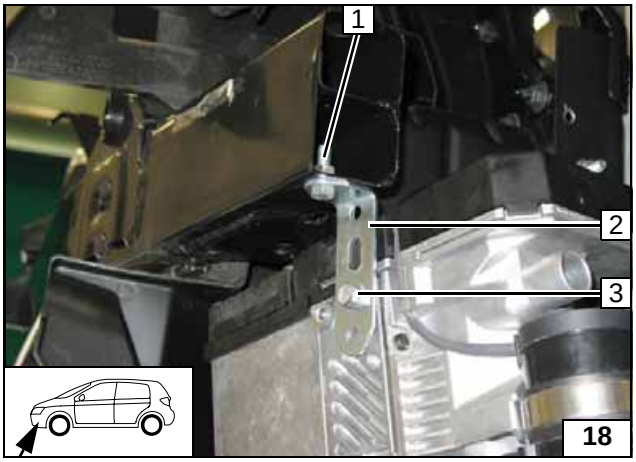
Preassembling bracket on heater unit



Installing heater unit

1 Wiring harness of heater unit
2 M6x20 bolt, large diameter washer in existing hole [2x]

Installing heater unit

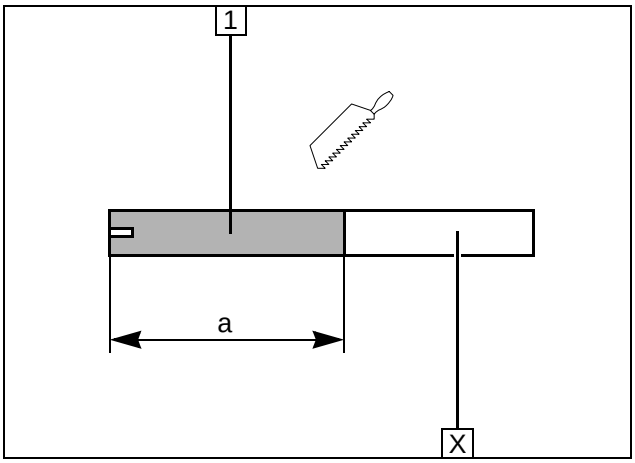


Copy hole pattern at Position **1**.
6.5 mm dia. hole in cross member.

1 M6x20 bolt, flanged nut
2 Perforated bracket
3 Ejot screw

Installing perforated bracket

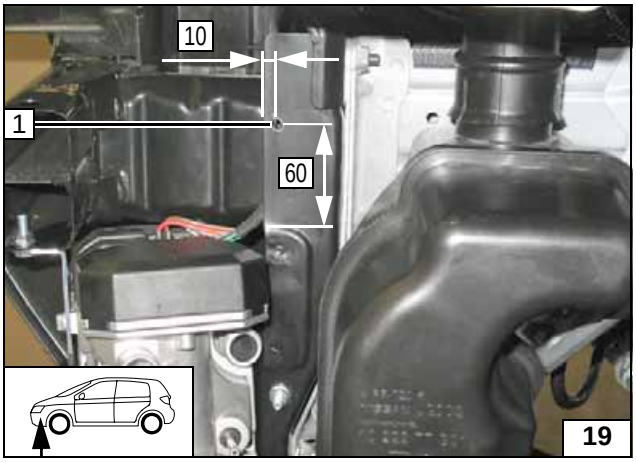
Combustion air



1 Combustion air pipe
a = 300

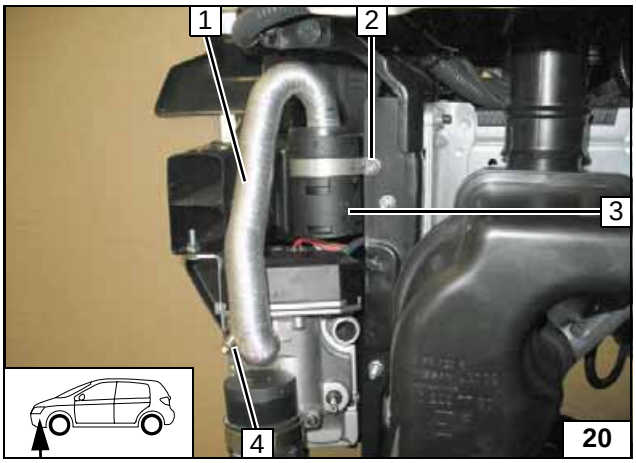
Discard section **X**

Cutting combustion air pipe to length



1 5.2 mm dia. hole

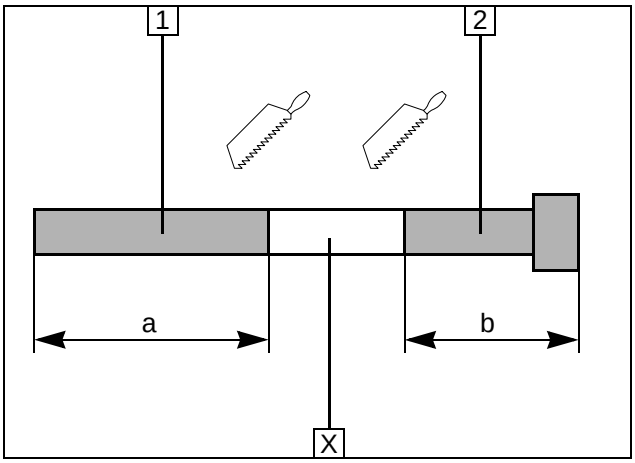
Installing intake pipe



1 Combustion-air intake pipe
2 M5x12 bolt, 51 mm dia. clamp, M5 flanged nut
3 Intake muffler
4 27 mm dia. clamp

Installing muffler

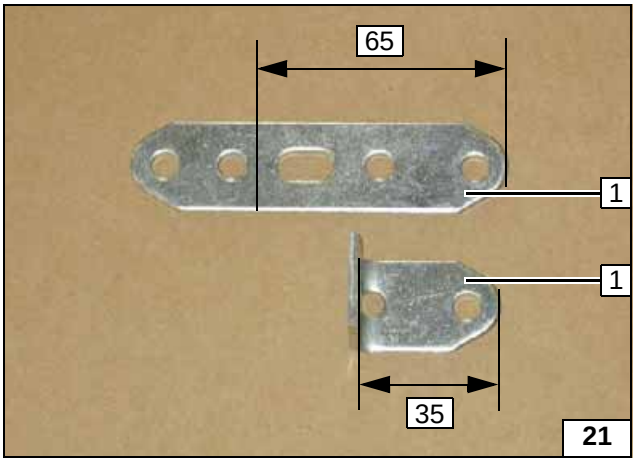
Exhaust gas



1 Exhaust pipe
a = 120
2 Exhaust end section
b = 260

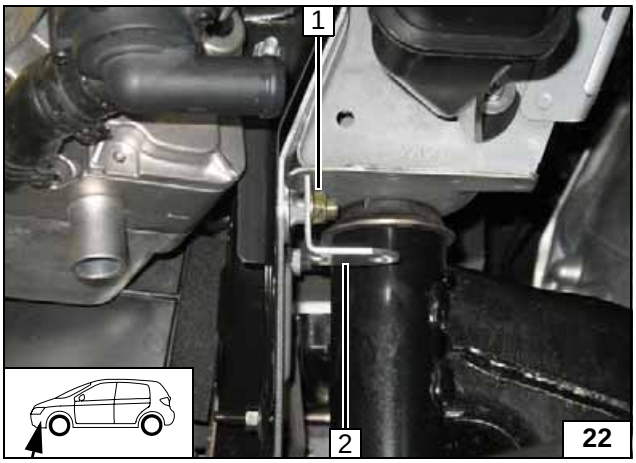
Discard section **X**

Preparing exhaust pipe



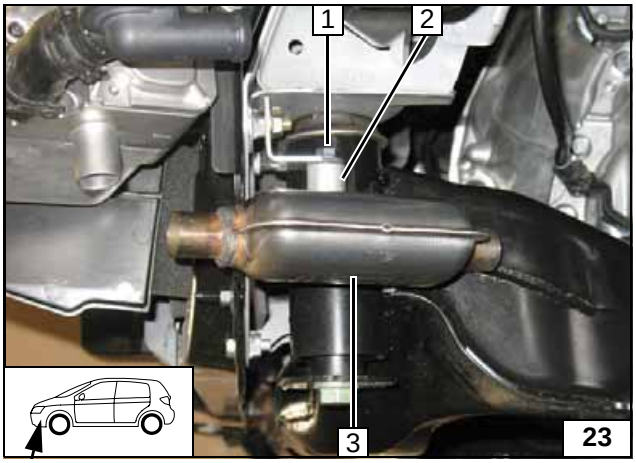
1 Perforated bracket

Cutting perforated bracket to length and angling down



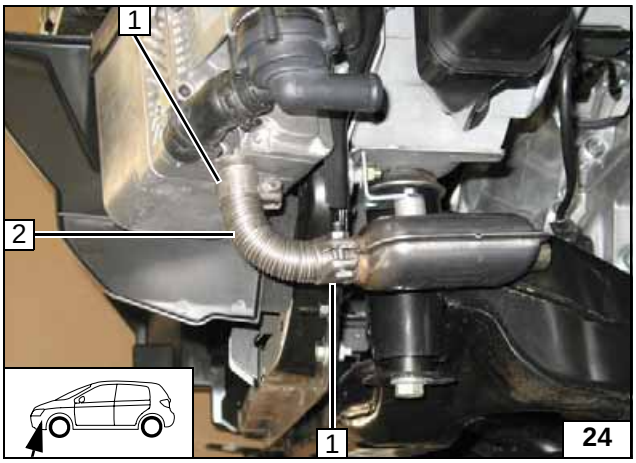
1 Flanged nut
2 Perforated bracket angled down

Installing perforated bracket



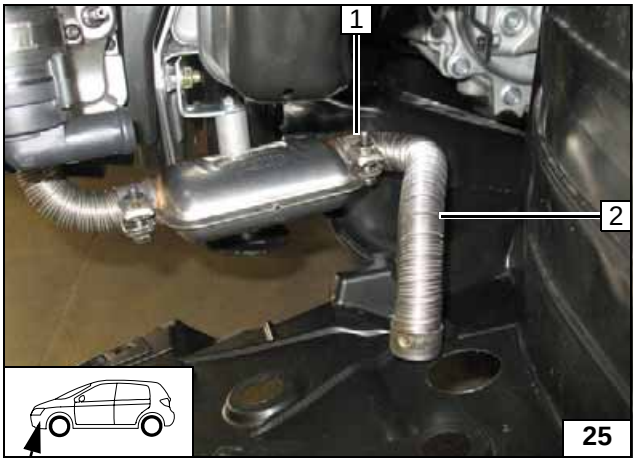
1 Covered M6x50 bolt, flanged nut
2 40 mm shim
3 Muffler

Installing muffler



1 Hose clamp [2x]
2 Exhaust pipe

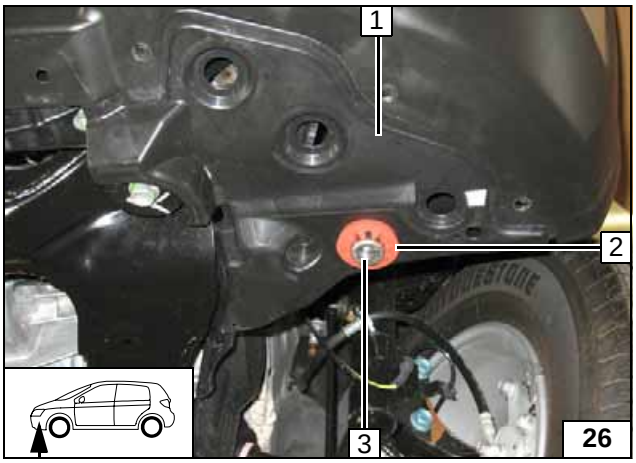
Installing exhaust pipe



Ensure sufficient distance to neighboring components.

1 Hose clamp
2 Exhaust end section

Installing exhaust end section



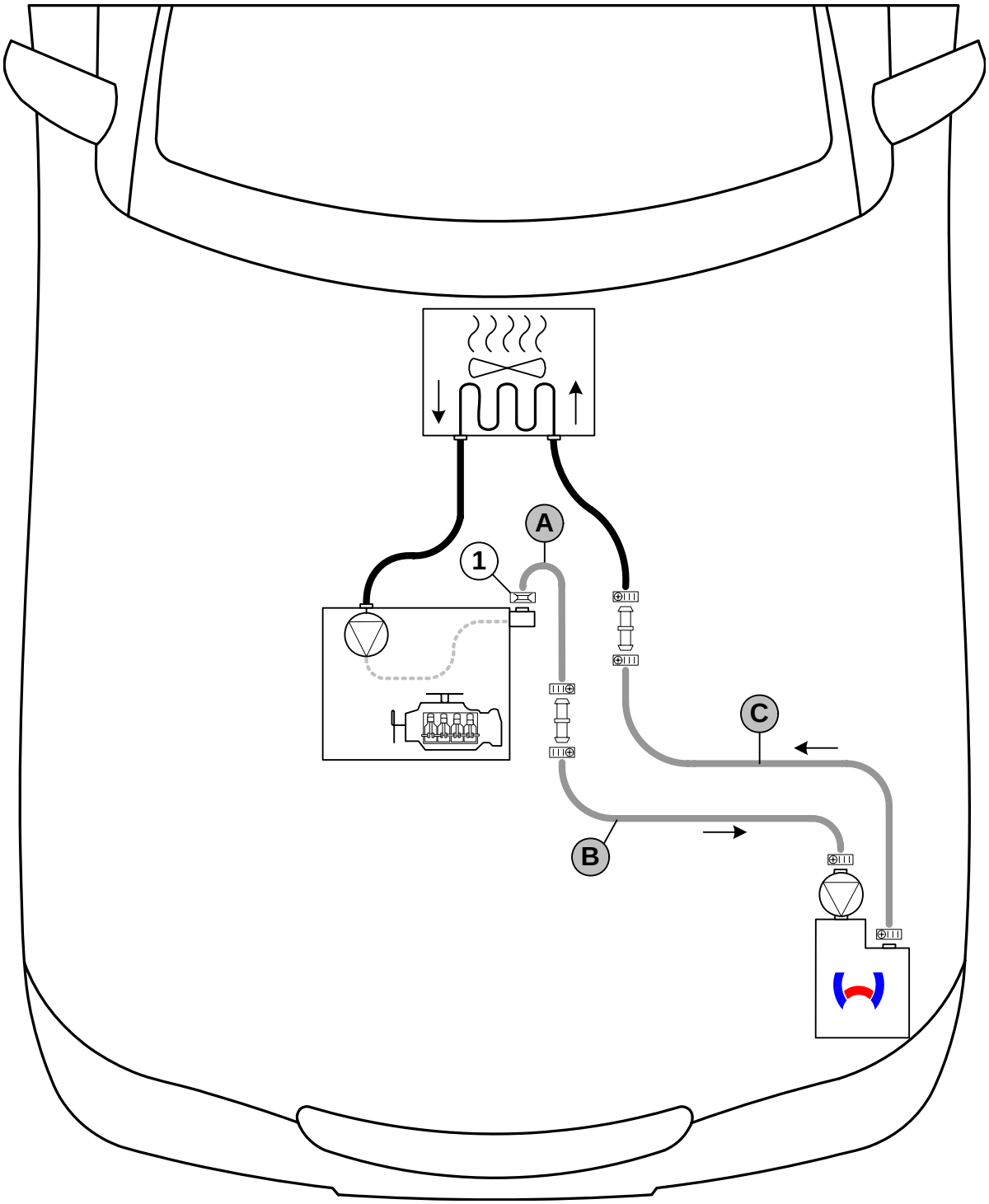
Drill out existing hole in wheel-well inner panel **1** to 42 mm dia.
Mount exhaust end section **3** and red (rt) rubber isolator **2** in hole. Align exhaust end section **3** flush on red (rt) rubber isolator **2**.

Mounting rubber isolator

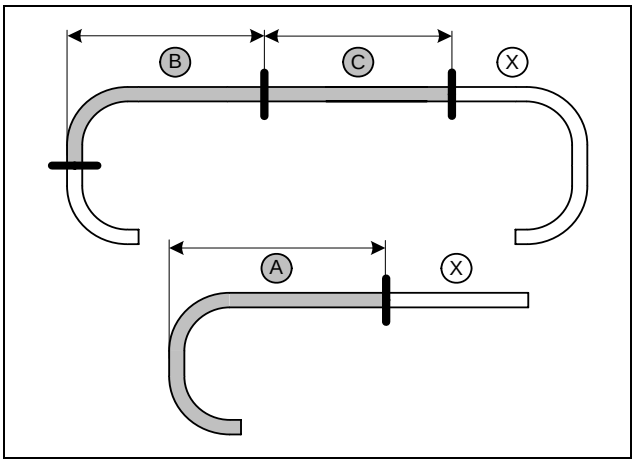
Coolant on 2.0 liter

WARNING!
Any coolant running off should be collected using an appropriate container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can be damaged! When installing the coolant hose, the heater unit must be filled with coolant.
The connection should be "inline" based on the following diagram:

Coolant routing diagram



1 = Original vehicle spring clip . All connecting pipes = Ø 18x20.
All hose clamps = 20-27 mm dia.!

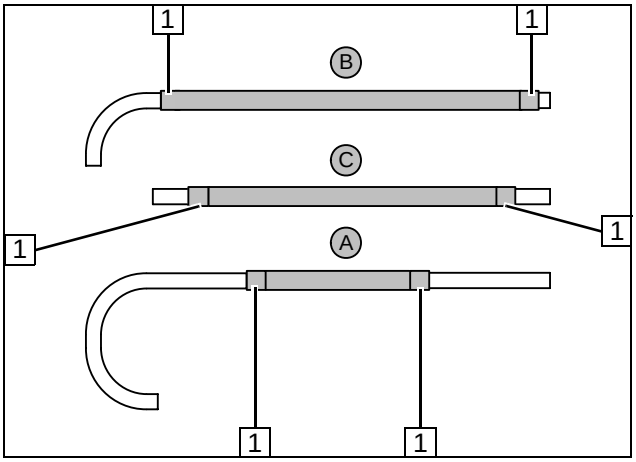


18 mm dia. hose **A**

a = 400
b = 830
c = 1220

Discard section **X**

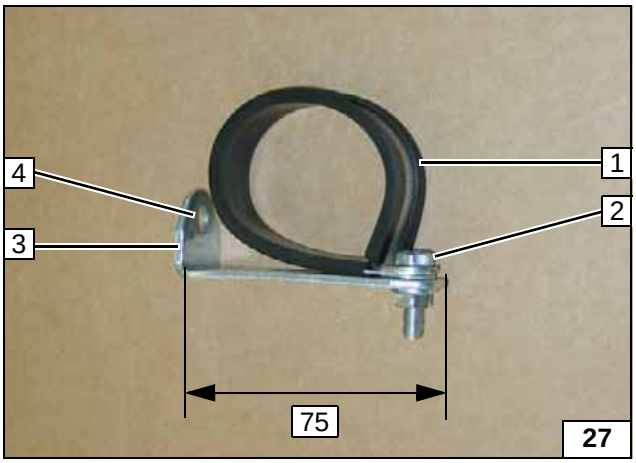
Cutting coolant hoses to length



Push braided protection hoses onto hose **B** and **C** and cut to length.
Push remaining braided protection hose of hose **B** onto hose **A**.
Cut heat shrink plastic tubing to length.

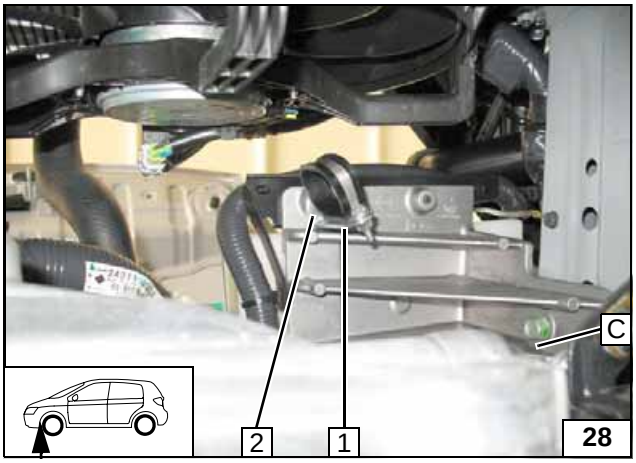
1 50 mm long heat shrink plastic tubing [6x]

Preparing coolant hoses



1 48 mm dia. p-clamp
2 M6x20 bolt, flanged nut
3 Perforated bracket angled down
4 8.5 mm dia. hole

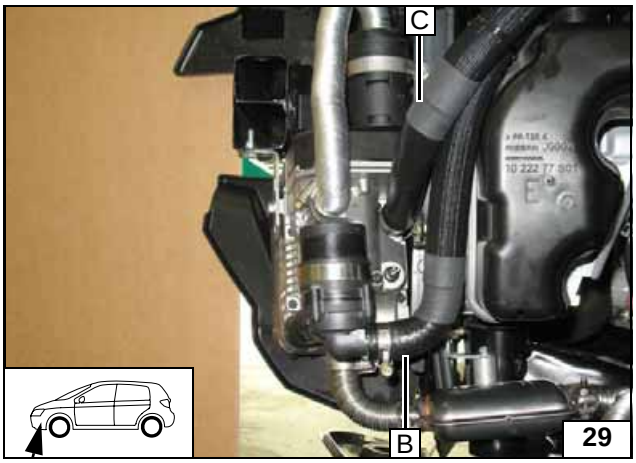
Preparing perforated bracket



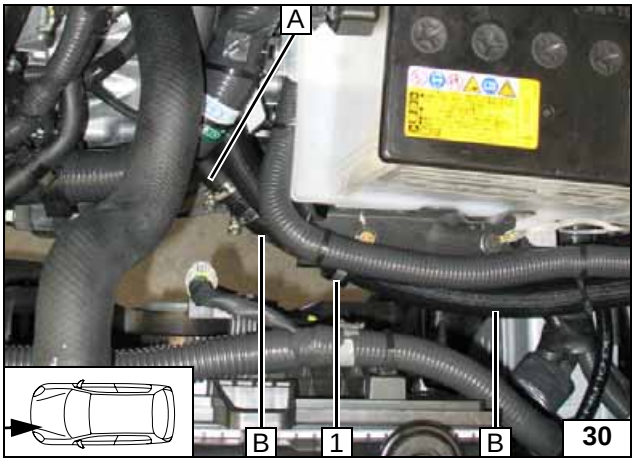
Replace original vehicle M8 bolt at Position **2** with M8x30 bolt and flanged nut.

1 Premount perforated bracket with rubber-coated p-clamp

Premounting perforated bracket

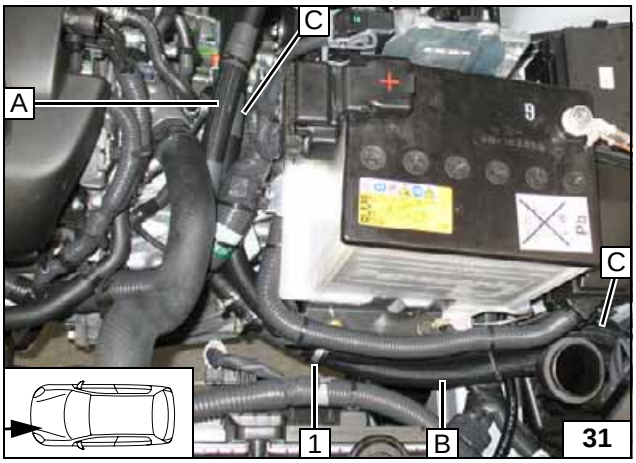


Connecting heater unit



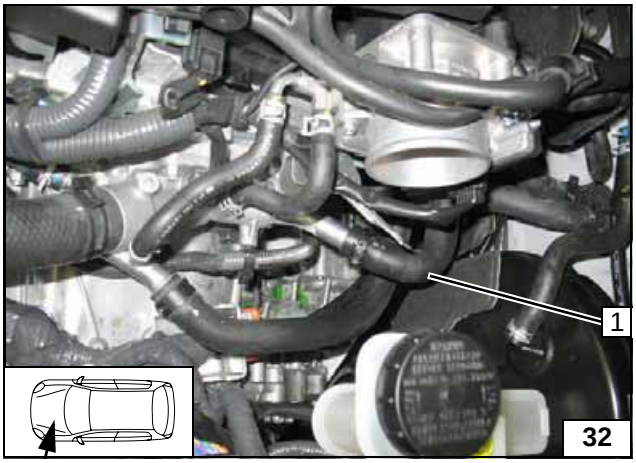
Route hose **B** through 48 mm dia. rubber-coated p-clamp **1**.

Connecting hose A and B



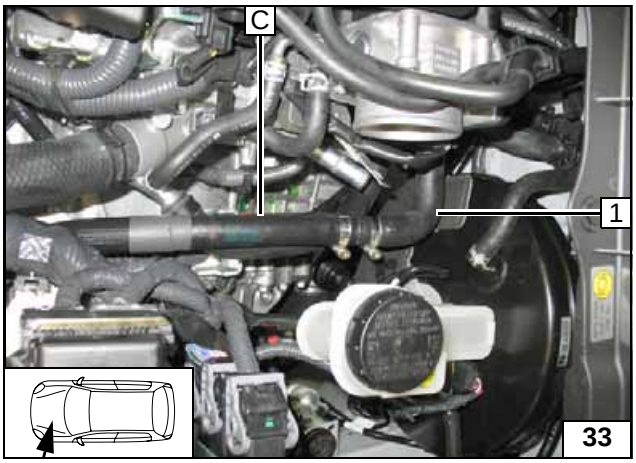
Route hose **C** through 48 mm dia. rubber-coated p-clamp **1**.

Routing in engine compartment



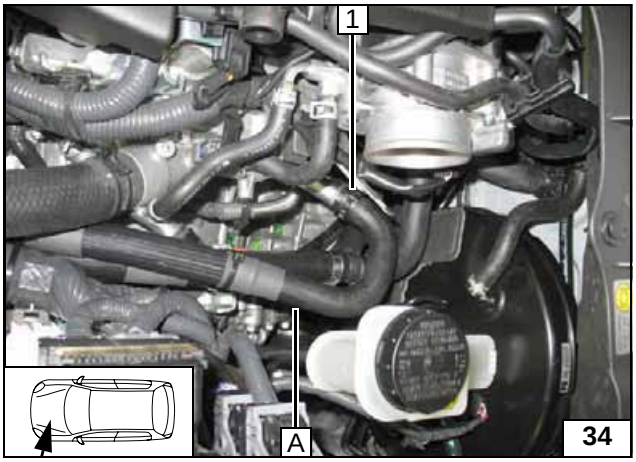
1 Pull hose off connection piece on engine outlet

Cutting point



1 Hose on heat exchanger inlet

Connection to heat exchanger inlet



Ensure sufficient distance to neighboring components.

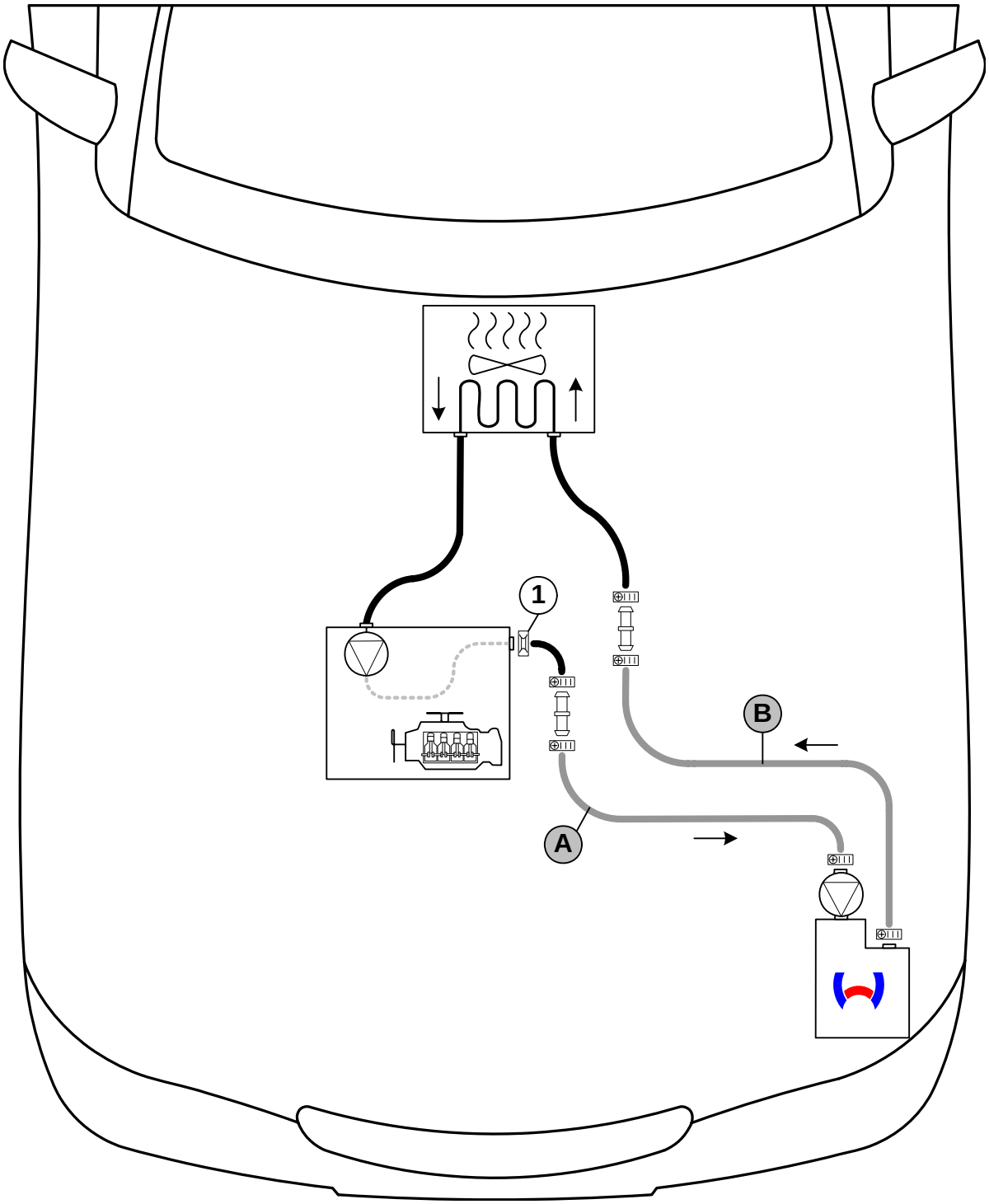
1 Original vehicle spring clip

Connecting engine outlet

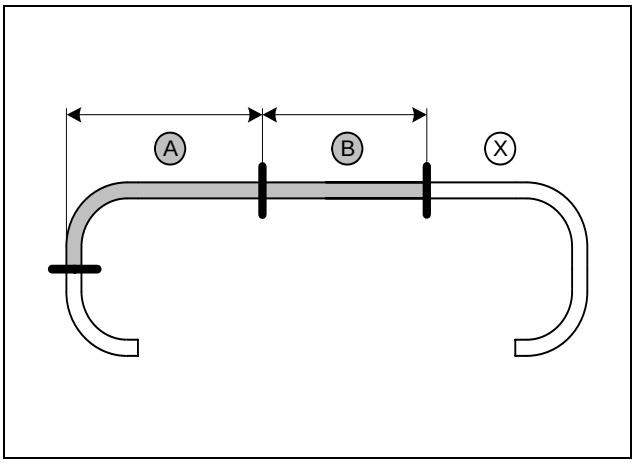
Coolant on 2.5 liter

WARNING!
Any coolant running off should be collected using an appropriate container. Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hose can be damaged! When installing the coolant hose, the heater unit must be filled with coolant.
The connection should be "inline" based on the following diagram:

Coolant routing diagram



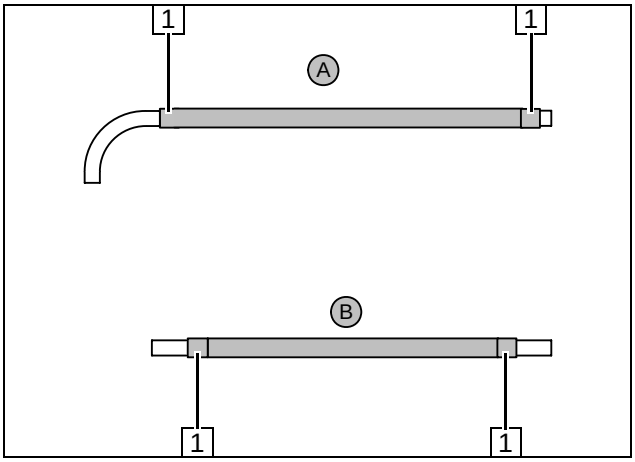
1 = Original vehicle spring clip . All connecting pipes = Ø 18x20.
All hose clamps = 20-27 mm dia.!



a = 940
b = 1060

Discard section **X**

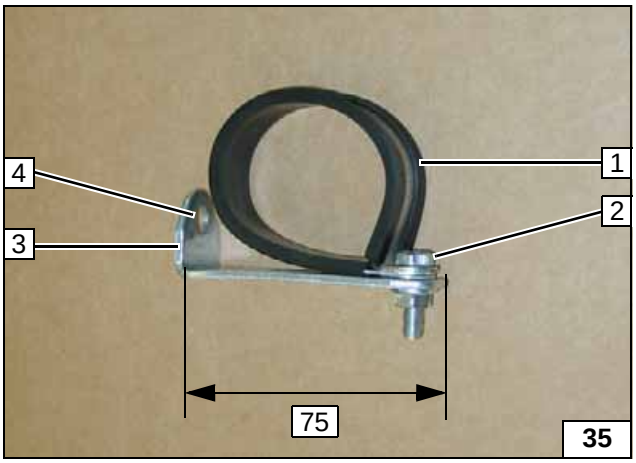
Cutting coolant hoses to length



Push braided protection hoses onto hose **A** and **B**.
Cut heat shrink plastic tubing to length.

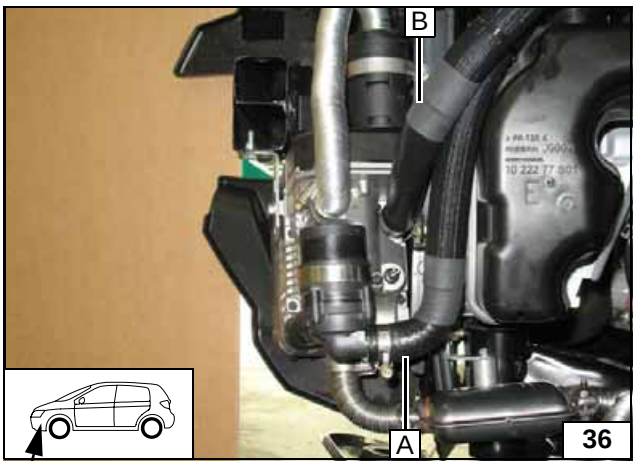
1 50 mm long heat shrink plastic tubing [4x]

Preparing coolant hoses

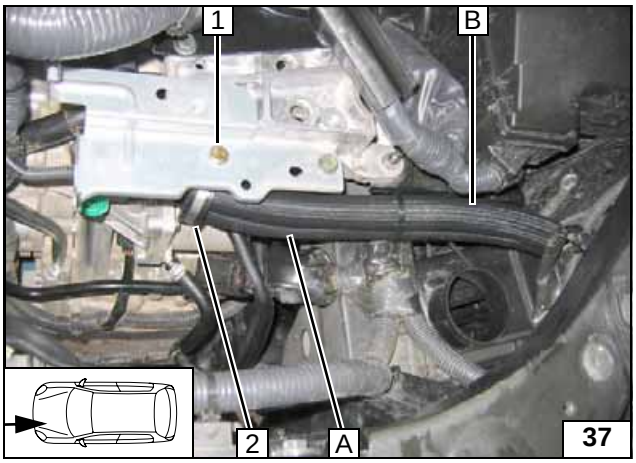


1 48 mm dia. p-clamp
2 M6x20 bolt, flanged nut
3 Perforated bracket angled down
4 8.5 mm dia. hole

Preparing perforated bracket



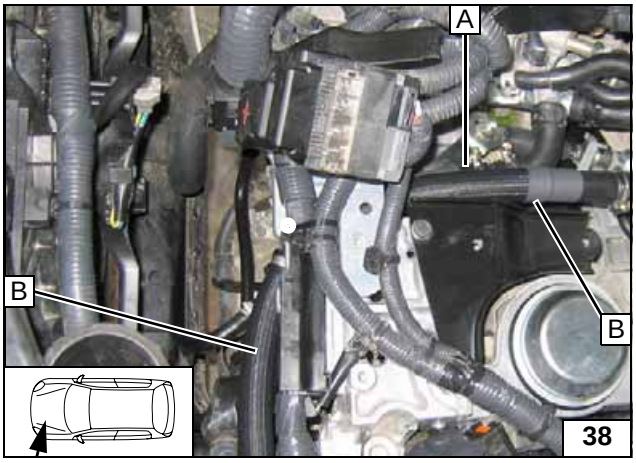
Connecting heater unit



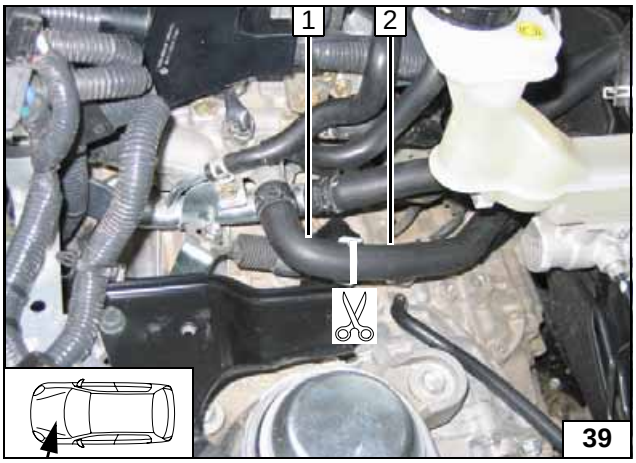
Replace original vehicle M8 bolt at Position **1** with M8x30 bolt and flanged nut.
Route hose **A** and **B** through rubber-coated p-clamp.

2 Premounted perforated bracket with rubber-coated p-clamp

Routing in engine compartment

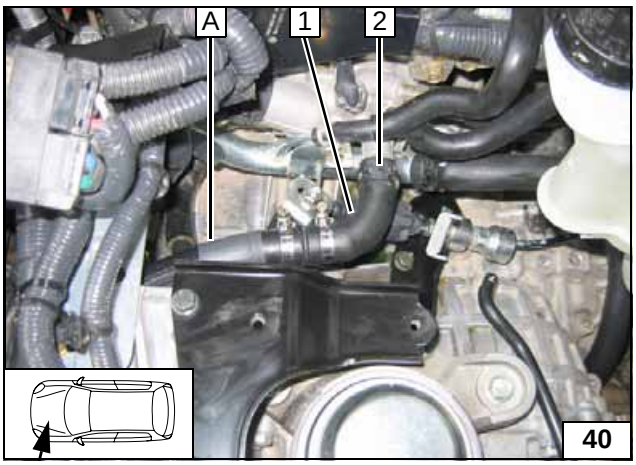


Routing in engine compartment



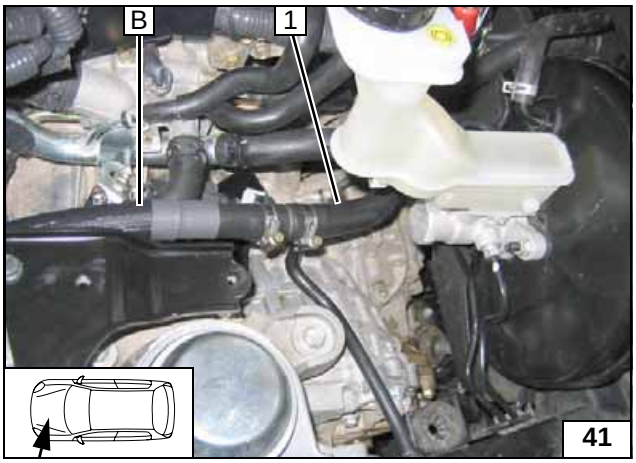
1 Engine-outlet hose section
2 Hose section of heat exchanger inlet

Cutting point



1 Hose on engine outlet turned
2 Original vehicle spring clip

Connecting engine outlet



Ensure sufficient distance to neighboring components.

1 Hose on heat exchanger inlet

Connecting heat exchanger inlet

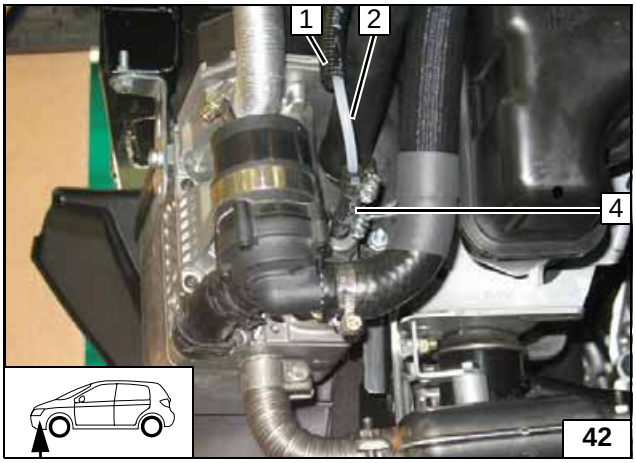
Fuel

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.

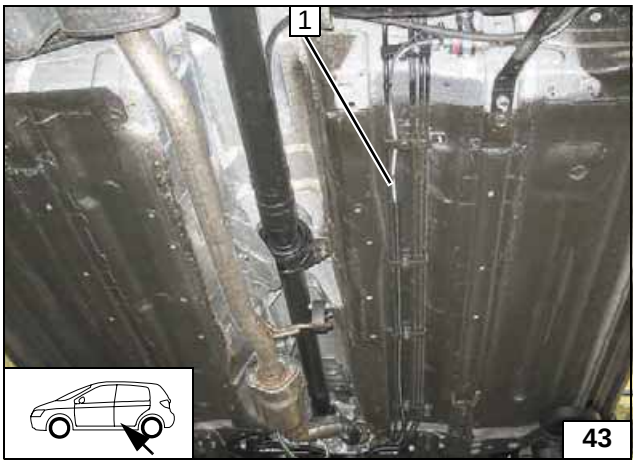
Install fuel line and metering-pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



1 Corrugated tube
2 Fuel line
3 Hose section, 10 mm dia. clamp [2x]

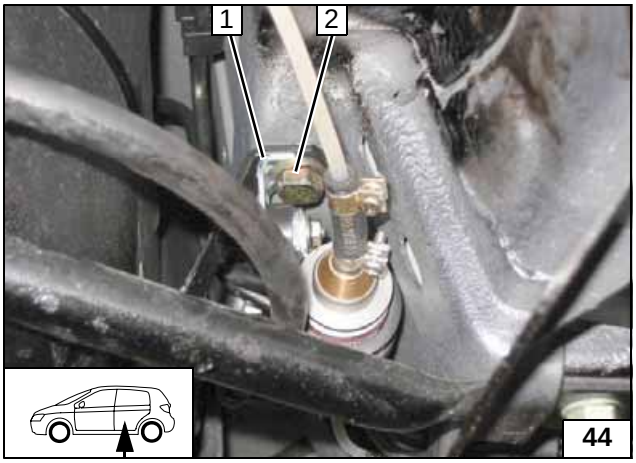
Connection to heater unit



Route fuel line to right-hand side of vehicle, slide into 3x corrugated tube together with wiring harness of metering pump and route along original vehicle fuel line to installation location of metering pump**.**

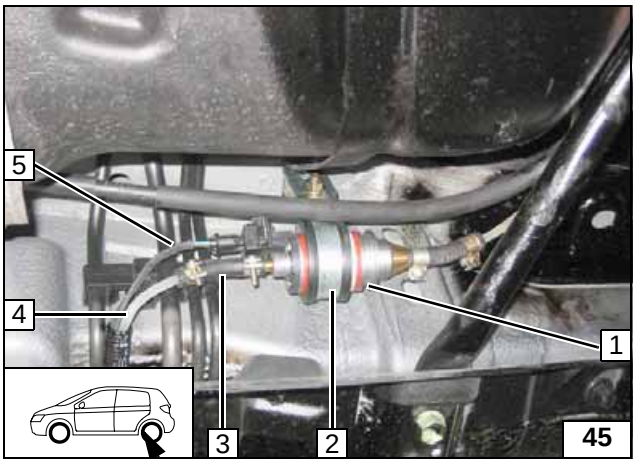
1 Corrugated tube with fuel line and wiring harness for metering pump

Installing lines



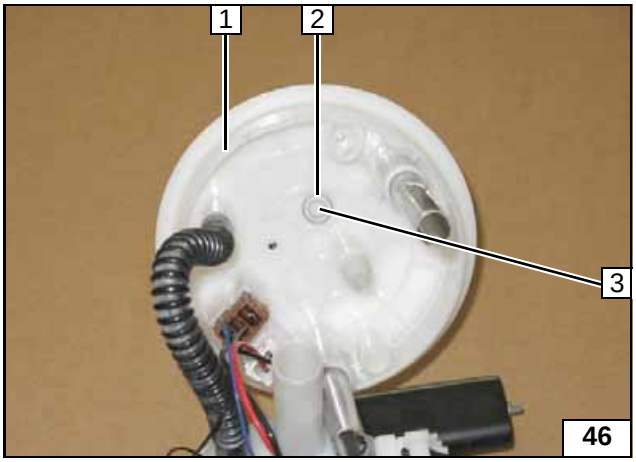
1 Angle bracket, hole drilled out to 10.5 mm dia.
2 Original vehicle bolt

Installation location of metering pump



1 Metering pump
2 Rubber-coated p-clamp, silent block, flanged nut [2x]
3 Hose section, 10 mm dia. clamp [2x]
4 Fuel line
5 Wiring harness of metering pump, connector mounted

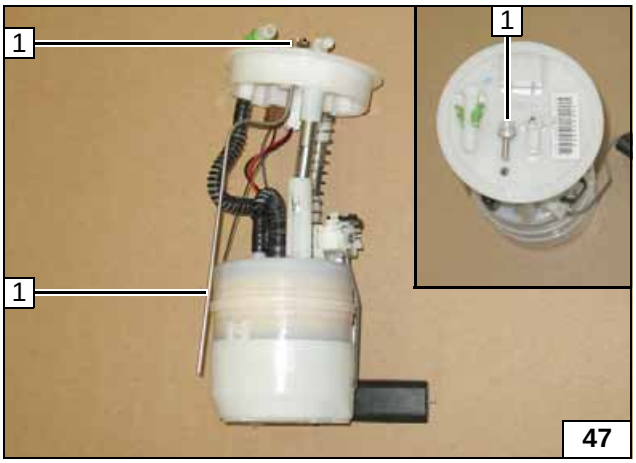
Installing metering pump



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

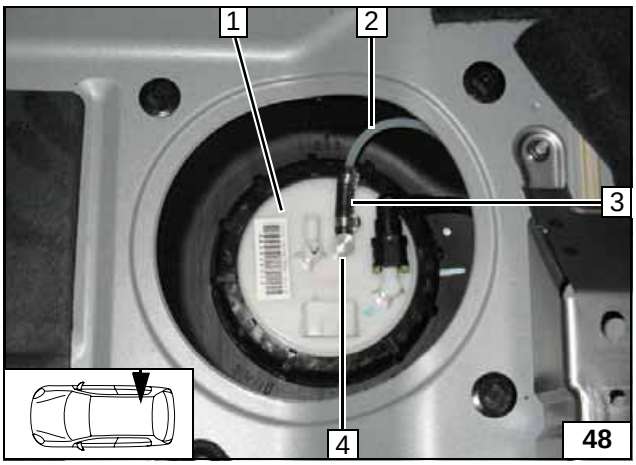
2 Lay on washer, outside dia. = 6.4 mm
3 Copy hole pattern, 6 mm dia. hole

Removing fuel



Shape fuel standpipe **1** according to template, cut to length and install.
Mount washer (outside dia. = 6.4 mm) between fuel-tank sending unit and flanged nut [3x].

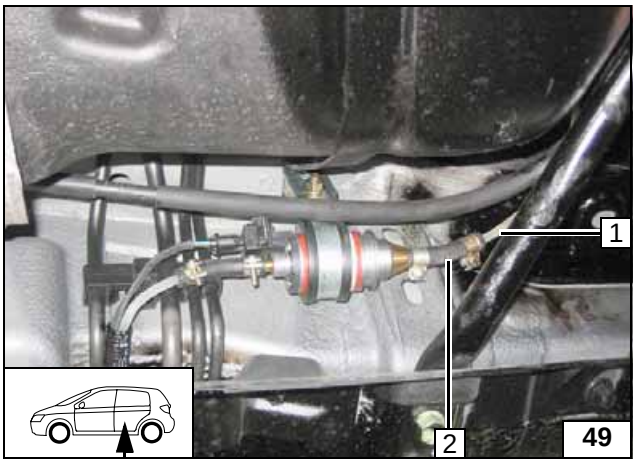
Installing fuel standpipe



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

2 Fuel line
3 Hose section, 10 mm dia. clamp [2x]
4 Fuel standpipe

Connecting fuel line



Check the position of the components; adjust if necessary. Check that they have free clearance.

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

Connecting to metering pump

Final Work

WARNING!
Reassemble the disassembled components in reverse order.
Check all hoses, clamps and all electrical connections for firm seating.
Secure all loose cables using cable ties.
Only use manufacturer-approved coolant.
Spray the heater unit 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.
- Set the digital timer.
- Make settings on A/C control panel according to the "Operating Instructions for End Customer".
- Check the proper operation of the additional heater, see the operating instructions/installation instructions.
- Attach the "Switch off additional heater before refueling" sticker to the left-hand B-pillar.

Operating Instructions for End Customer

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 the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater unit will then only switch on the vehicle fan to ventilate the vehicle interior in the position Winter heat and in the position Summer .

Before parking the vehicle, make the following settings:

1 Adjust fan as shown
2 Air outlet to windshield
3 Set temperature to "max."

Template for Fuel Standpipe