

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

Fiat Bravo

Gasoline and Diesel
from Model Year 2007
Left-hand drive vehicle



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.

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Validity

| Manufacturer | Model | Type | EG-BE No./ABE |
|--------------|-------|------|----------------------------|
| Fiat | Bravo | 198 | e3 * 2001/116 * 0248 * ... |

| Engine type | Engine model | Output in kW | Displacement in cm ³ |
|-------------|--------------|--------------|---------------------------------|
| 192B2000 | Gasoline | 66 | 1368 |
| 192A8000 | Diesel | 88 | 1910 |
| 192A5000 | Diesel | 110 | 1910 |

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 Fiat Bravo Gasoline and Diesel | 1312956A |

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 Fiat Bravo Gasoline and Diesel vehicles - for validity, see page 2 - from model year 2007 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).

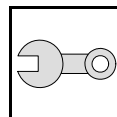
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit

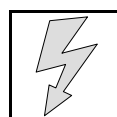
Explanatory Notes on Document

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.

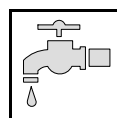
Mechanical system



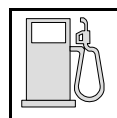
Electrical system



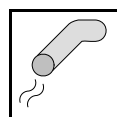
Water



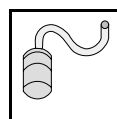
Fuel



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 Ejet screws, Ejet 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.
- Detach the central electrical box in the engine compartment on the left.
- Remove the engine design cover; only on JTD
- Remove the wheel well trim on the right and left.
- Remove bumper
- Remove the underride protection; only on JTD.
- Remove the cover of the fuel lines on the underbody.
- Remove the cover on the right next to the fuel tank.
- Fold up the seat surface of the rear bench seat.
- Open the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturers specifications.
- Remove the cover of the central electrical box on the driver's side.
- Remove the A/C control panel; only with automatic air-conditioning.

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



Heater unit installation location

1 Heater unit

Installation
location

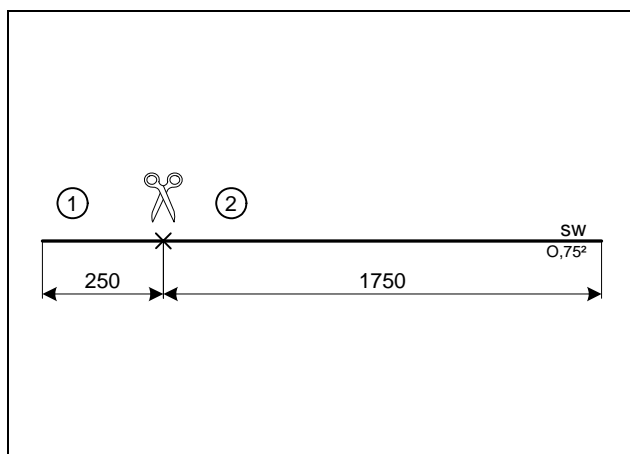


Preparing electrical system

Only with automatic air-conditioning



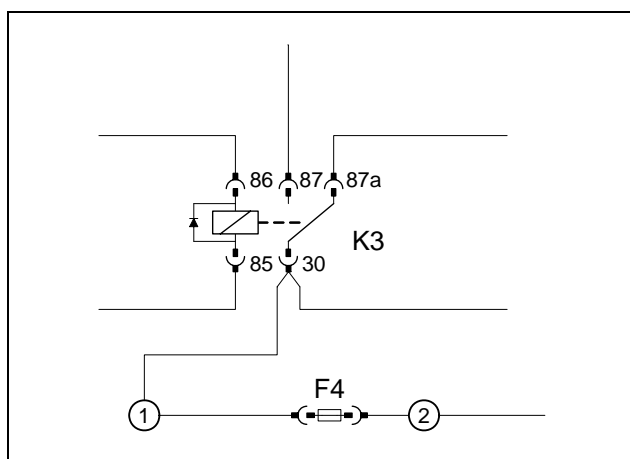
Cutting wires to length



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



Preparing fuse F4

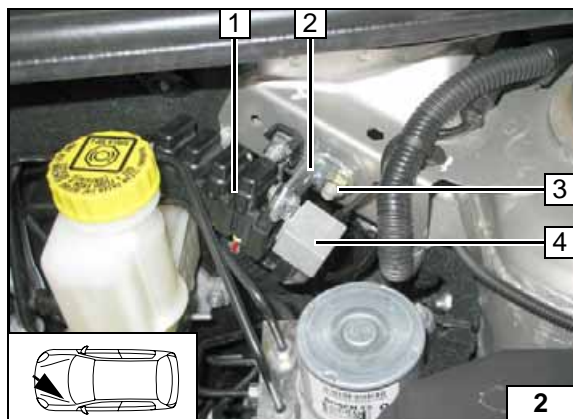




Electrical system

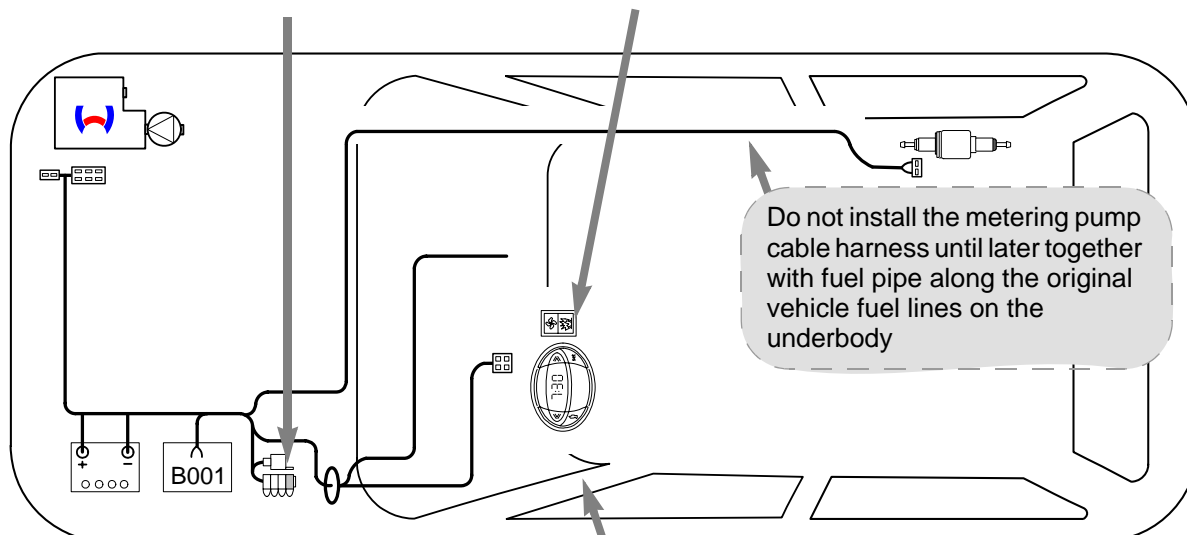
Fuse holder, relay K3

- 1 Fuse holder
- 2 Angle bracket, drilled out to 8 mm dia.
- 3 Original vehicle stud bolt, flanged nut
- 4 Relay K3, M5x16 bolt, washer, flanged nut

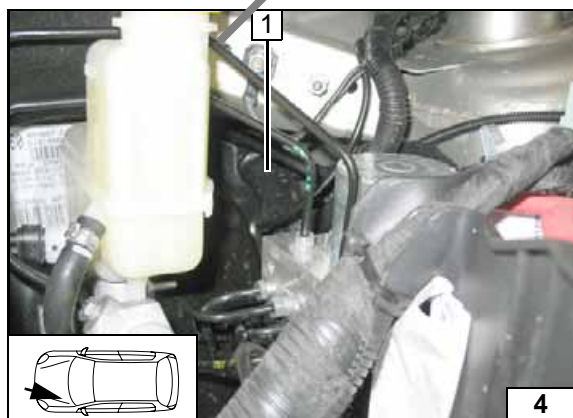


Summer/winter switch option

- 1 Summer/winter switch, drilled hole 12 mm dia.

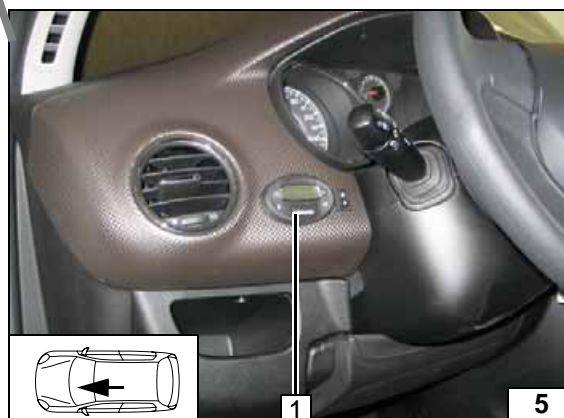


Wiring harness installation diagram



Wiring harness pass through

- 1 Protective rubber plug



Digital timer

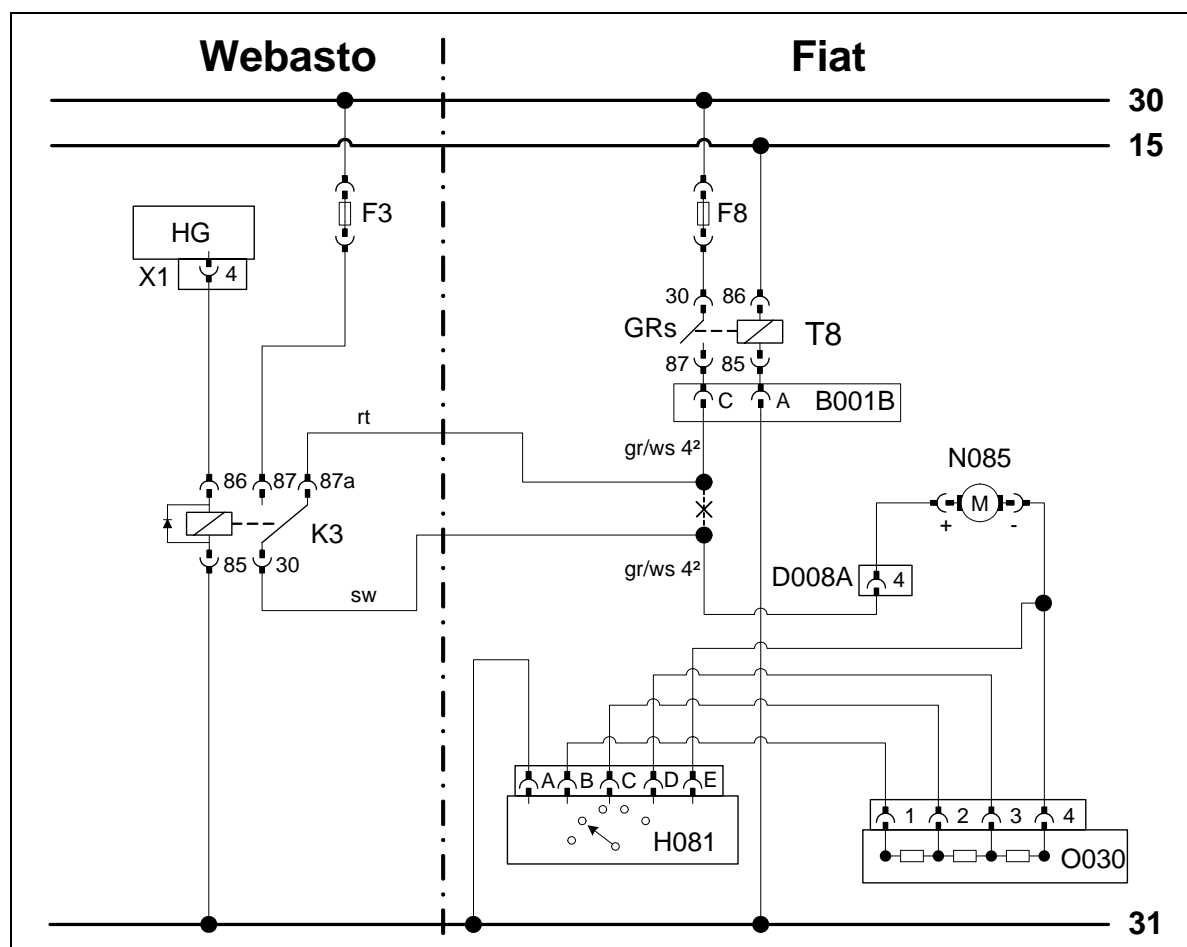
- 1 Digital timer



Fan controller for manual air conditioning

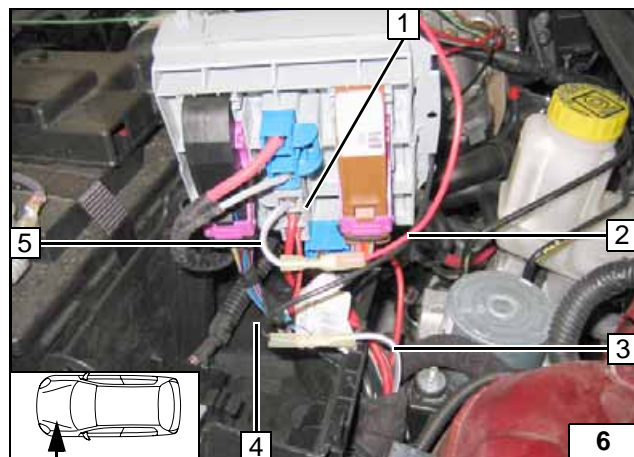


Wiring diagram



| Webasto components | | Vehicle components | | Colors and symbols | |
|--------------------|-----------------------------|--------------------|---|------------------------|---------------|
| HG | Heater unit TT-E/C/P | N085 | Fan motor | rt | red |
| X1 | 6-pin heater unit connector | GRs | Fan relay T8 | ws | white |
| F3 | Fuse | H081 | Fan switch | sw | black |
| K3 | Fan relay | O030 | Resistor group | br | brown |
| | | F8 | Fuse | gn | green |
| | | B001B | Connector of central electrical box, gray | gr | gray |
| | | | | X | Cutting point |
| | | | | Wiring colors may vary | |

Legend



Connection on gray (gr) 3-pin connector B001B 1 of central electrical box. Produce connections as shown in wiring diagram.

- 2 Red (rt) wire from K3/87a
- 3 Gray/white (gr/ws) wire of fan motor
- 4 Black (sw) wire from K3/30
- 5 Gray/white (gr/ws) wire of connector

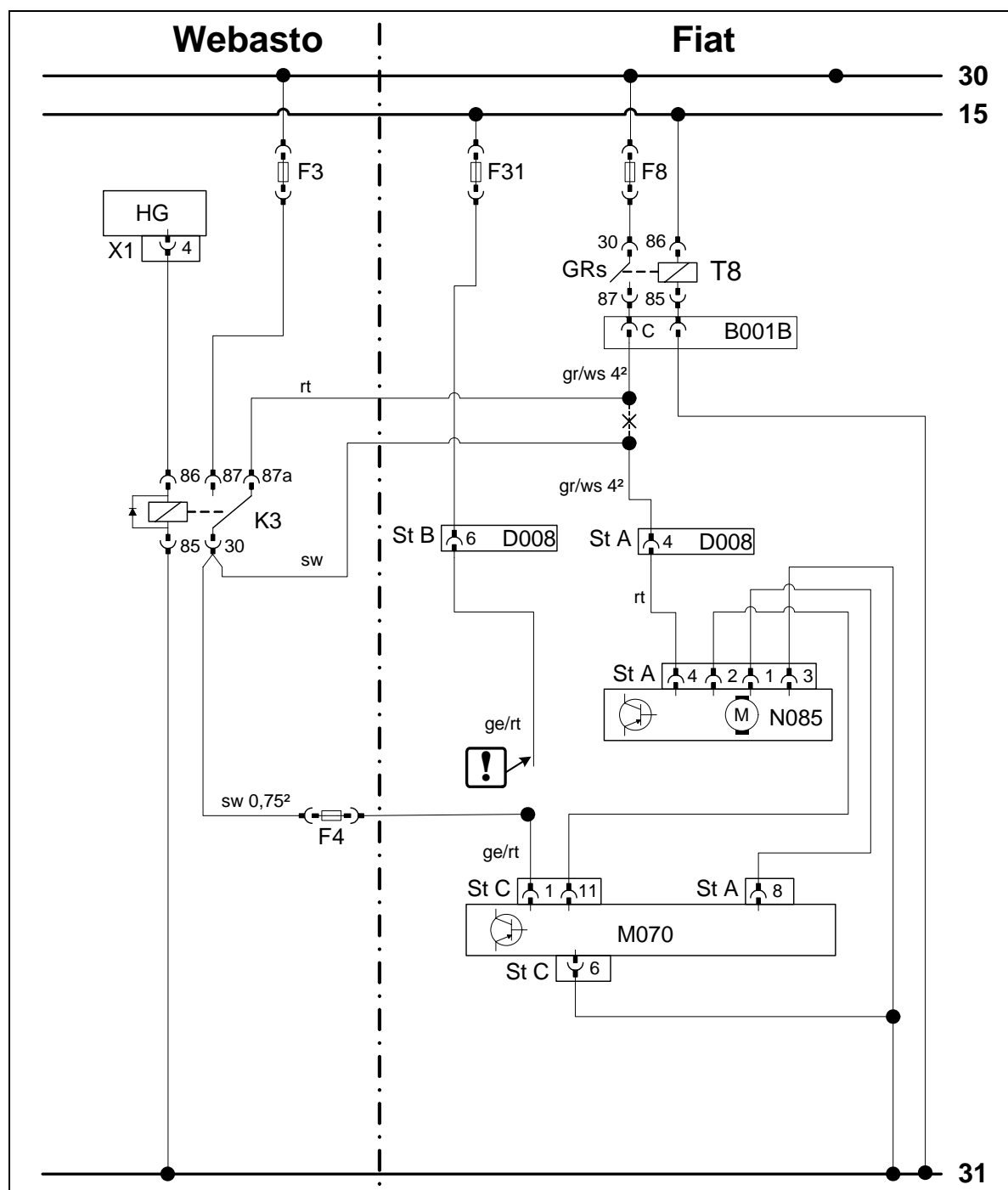
Connect-
ing fan-mo-
tor



Automatic air-conditioning fan controller

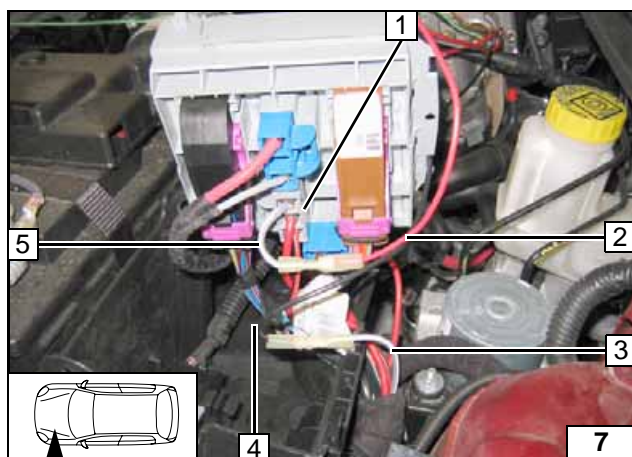


Wiring diagram



| Webasto components | | Vehicle components | | Colors and symbols | |
|--------------------|-----------------------------|--------------------|---|--------------------|---------------------------------|
| HG | Heater unit TT-E/C/P | N085 | Fan unit | rt | red |
| X1 | 6-pin heater unit connector | GRs | Fan relay T8 | ws | white |
| F3 | Fuse | M070 | Air-conditioning control panel | sw | black |
| K3 | Fan relay | St C | Connector, blue, 12-pin | br | brown |
| F4 | Fuse 5A | B001B | Connector of central electrical box, gray | gn | green |
| | | F8 | Fuse 30A | ge | yellow |
| | | F31 | Fuse 5A | gr | gray |
| | | D008 | Connector | ! | Insulate wire ends and tie back |
| | | | | X | Cutting point |
| | | | | | Wiring colors may vary. |

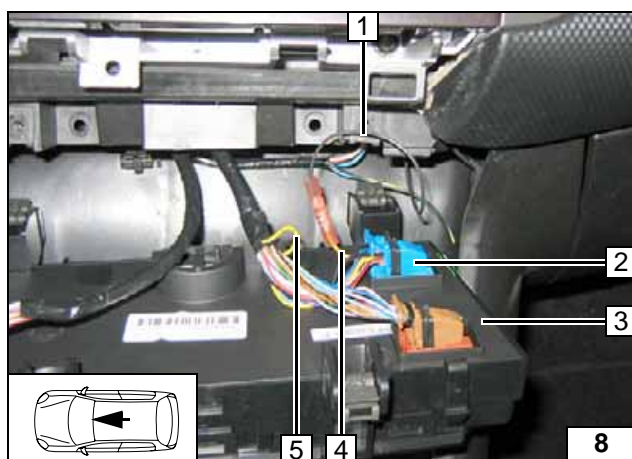
Legend



Connection on gray (gr) 3-pin connector B001B 1 of central electrical box.
Produce connections as shown in wiring diagram.

- 2 Red (rt) wire from K3/87a
- 3 Gray/white (gr/ws) wire of fan motor
- 4 Black (sw) wire from K3/30
- 5 Gray/white (gr/ws) wire of connector

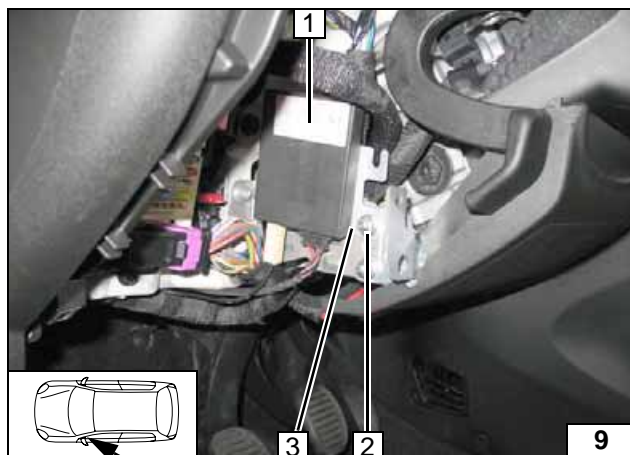
**Connect-
ing fan-mo-
tor**



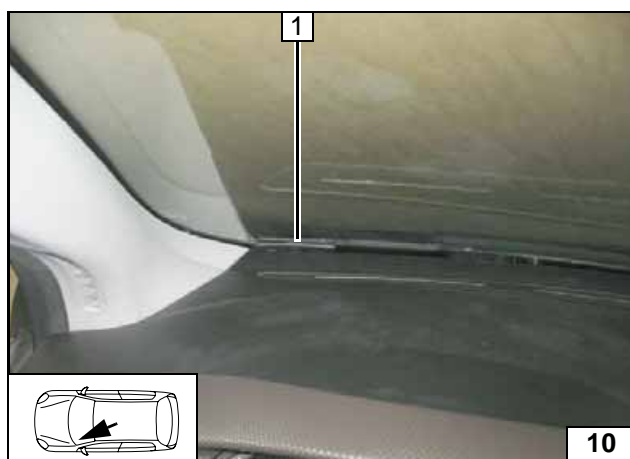
Connection on 12-pin connector 2 from A/C control panel 3.
Produce connections as shown in wiring diagram.

- 1 Black (sw) wire of K3/30, fuse F4
- 4 Yellow/red (ge/rt) connector
- 5 Yellow/red (ge/rt) wire of fuse F31

**Connect-
ing A/C
control
panel**

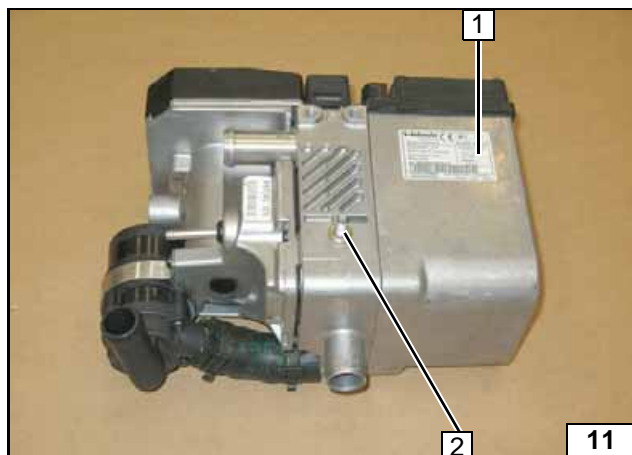
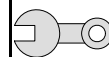
**Remote option (Telestart)**

- 1 Receiver
- 2 Original vehicle stud bolt, original vehicle flanged nut
- 3 Bracket, hole drilled out to 6.5 mm dia.

Installing receiver

- 1 Antenna

Installing antenna



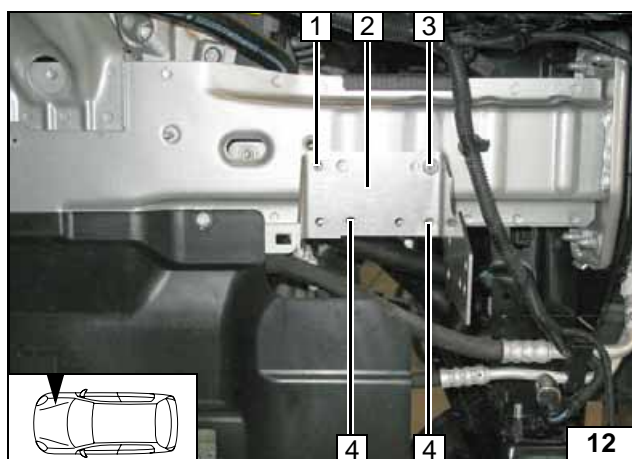
Preparing heater unit

Washer on Ejot stud 2!

1 Heater unit



Premounting heater unit



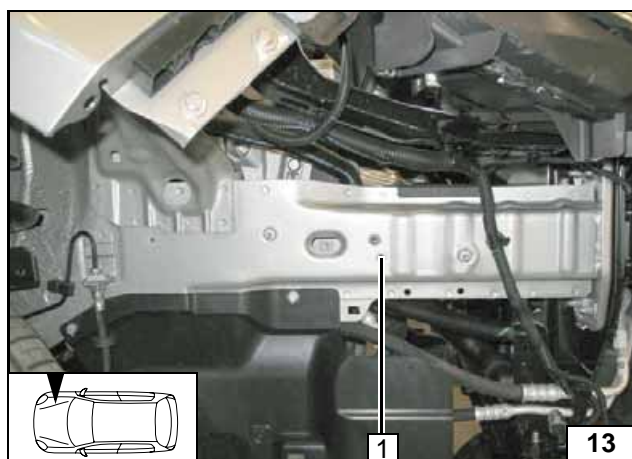
Preparing installation location

Mount bracket 2 on original vehicle stud bolt 3 with flanged nut, align and copy hole pattern.

1 Hole pattern, 9.1 mm dia. hole
4 Hole pattern, 6.5 mm dia. hole [2x]

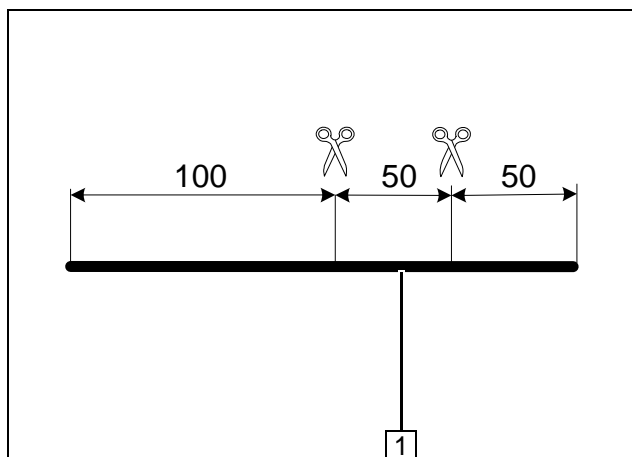


Copying hole pattern



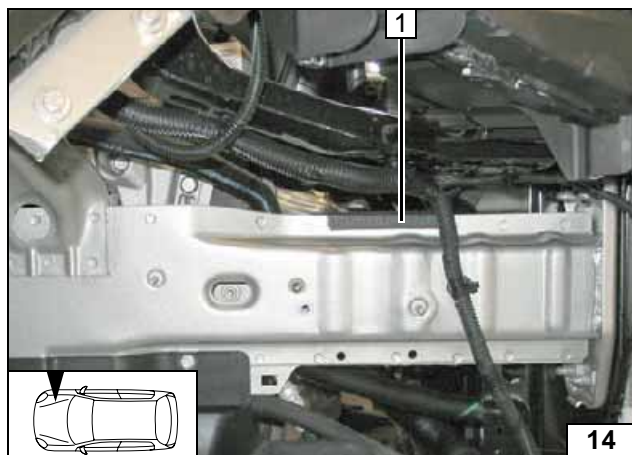
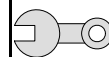
1 M6 rivet nut, 9.1 mm dia. hole

Installing rivet nut



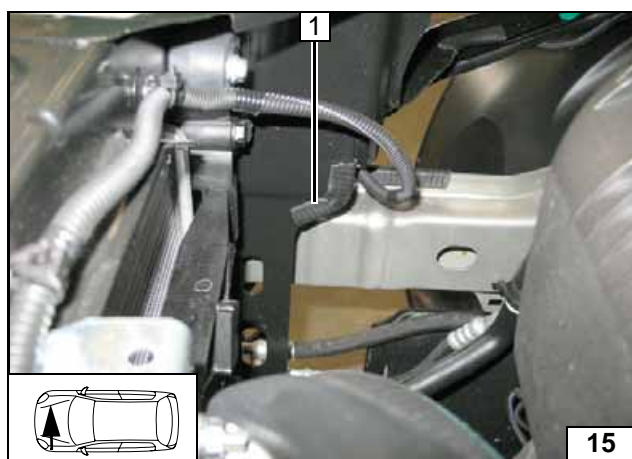
1 Edge protection section

Cutting edge protection section to length



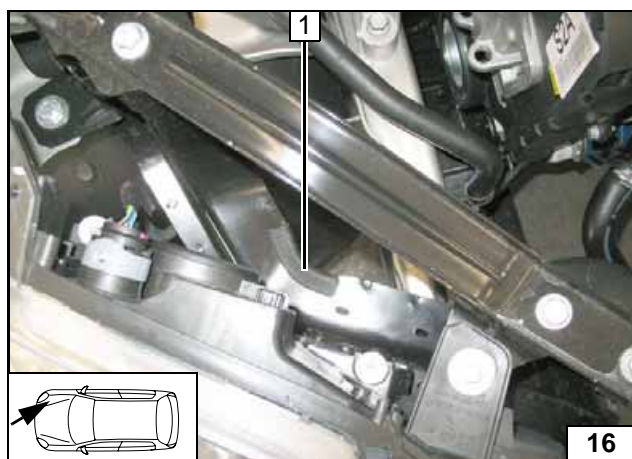
1 100 mm edge protection section

Mounting
edge
protection
section



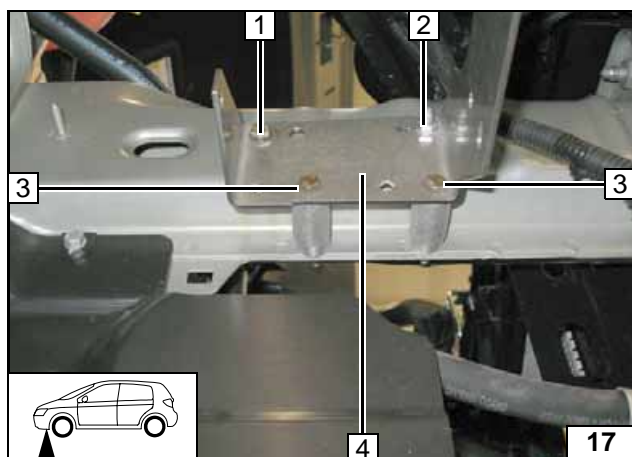
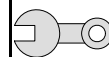
1 50 mm edge protection section

Mounting
edge
protection
section



1 50 mm edge protection section

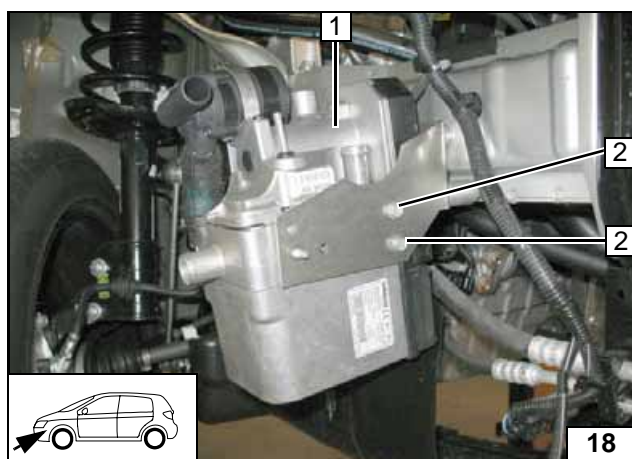
Mounting
edge
protection
section



Installing bracket

- 1 M6x30 bolt, spring washer, 8 mm shim, M6 rivet nut
- 2 Original vehicle stud bolt, 5 mm shim, flanged nut
- 3 M6x50 bolt [2x], 30 mm spacer [2x], 8 mm shim [2x], flanged nut [2x]
- 4 Bracket

Installing bracket

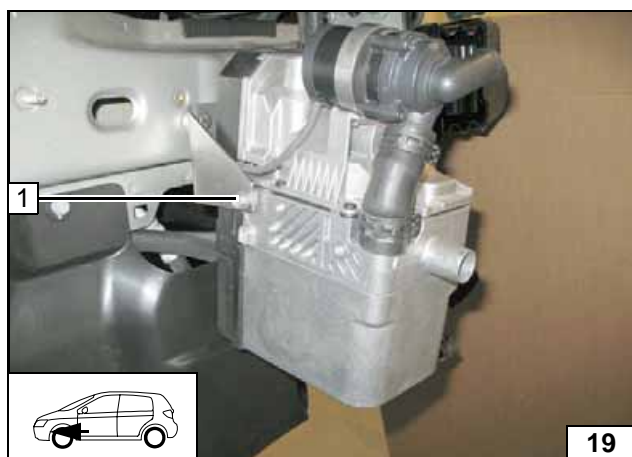


Installing heater unit

Connect wiring harness of heater unit before installing heater unit 1.

- 2 E-jot screw [2x]

Installing heater unit



- 1 E-jot screw

Installing heater unit

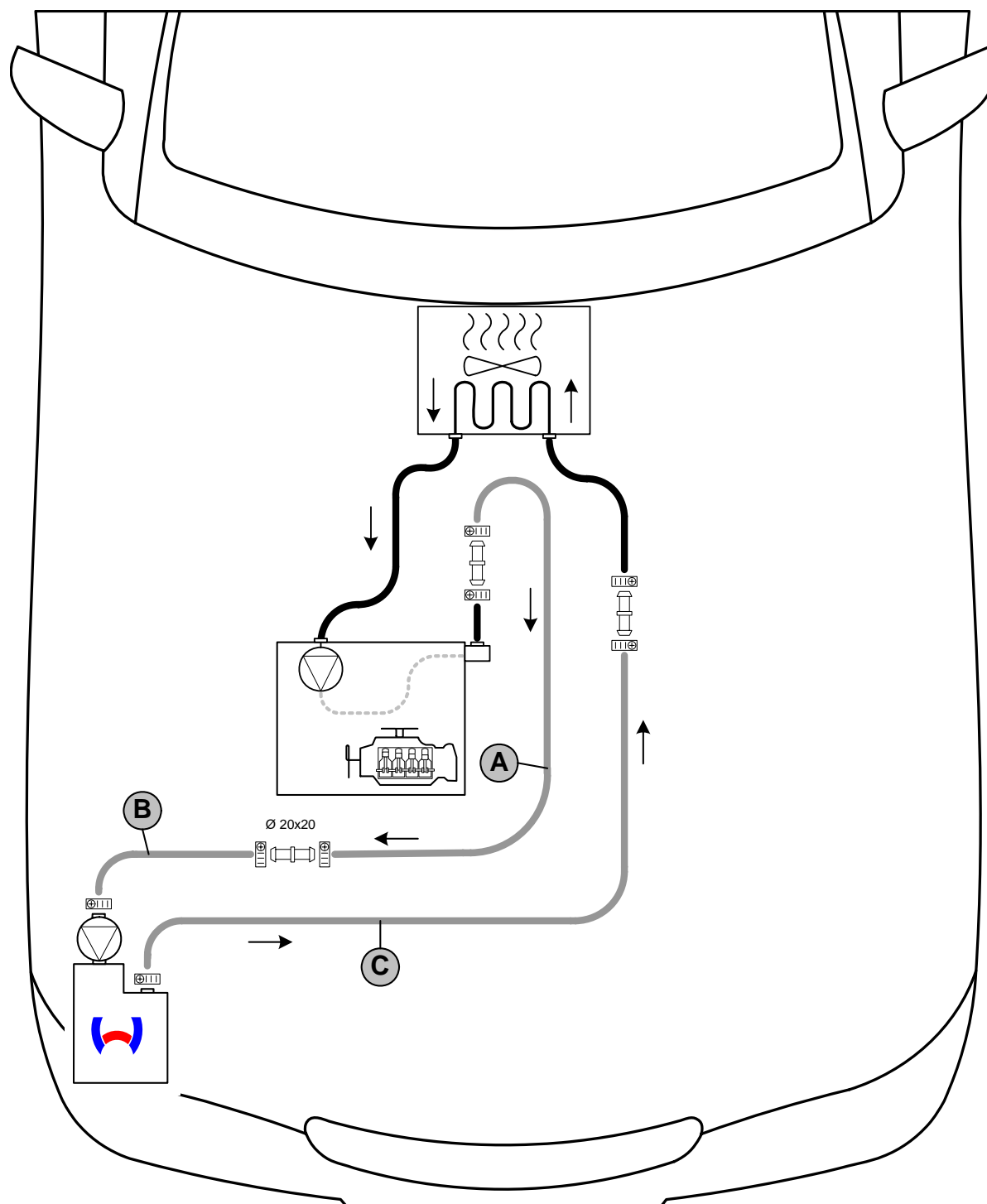


Water



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.

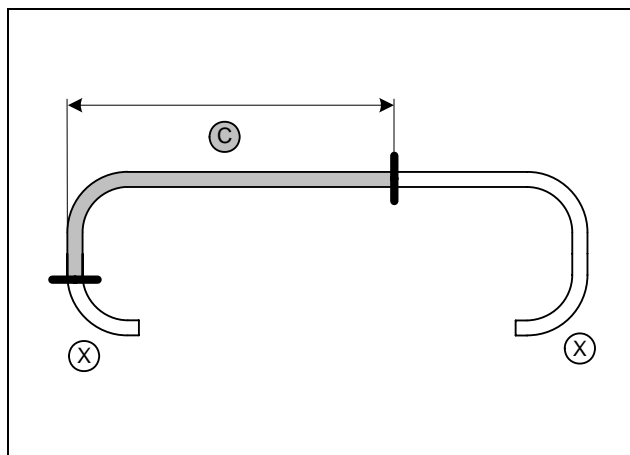
The connection should be "inline" based on the following diagram:



Coolant routing diagram

All connecting pipes without a specific designation  = dia. 18x20.
All hose clamps  = 20-27 mm dia.!





Gasoline

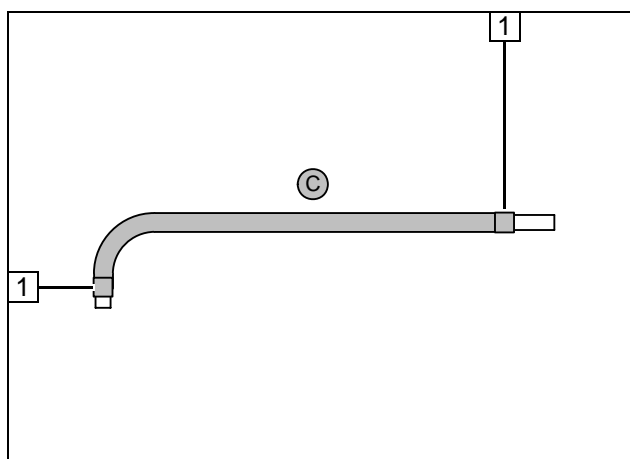
c = 1280

Diesel

c = 1220

Discard section **X**

**Cutting
hose C to
length**

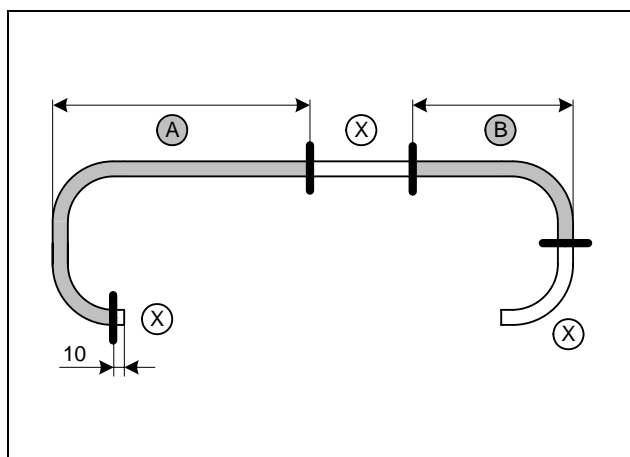


All vehicles

Slide braided protection hose onto hose **C**
and cut to length.
Cut heat shrink plastic tubing to length.

1 25 mm long heat shrink plastic tubing [2x]

**Braided
protection
hose C**

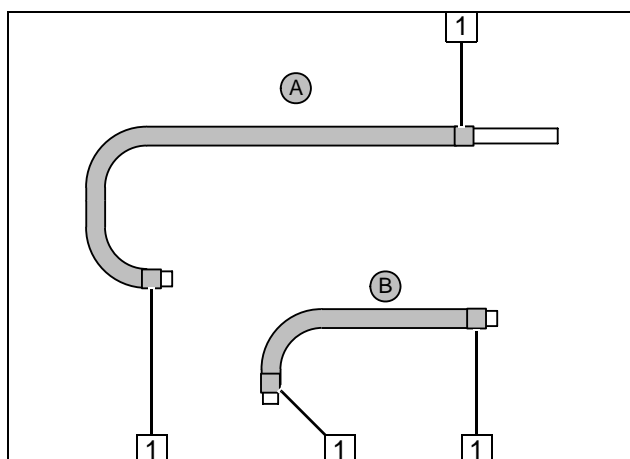


a = 970

b = 410

Discard section **X**

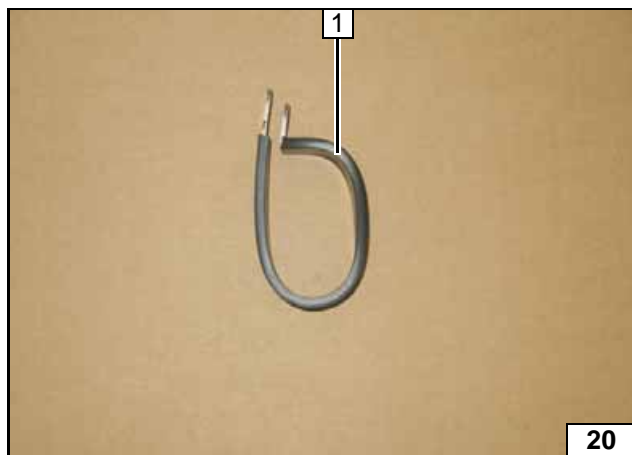
**Cutting
hose
A and B to
length**



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

1 25 mm long heat shrink plastic tubing [4x]

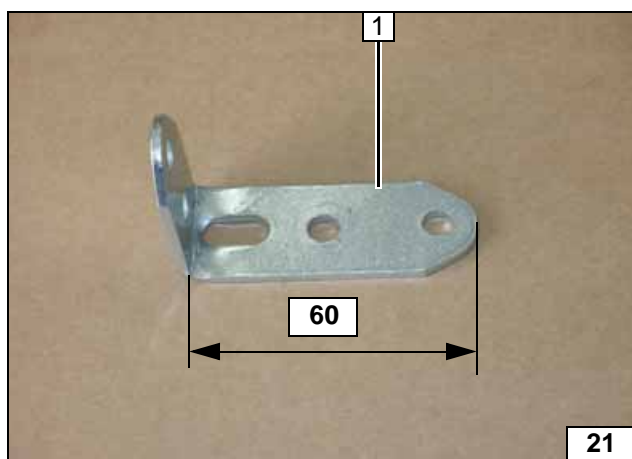
**Braided
protection
hoses A
and B**



Bend 48 mm dia. rubber-coated p-clamp 1.



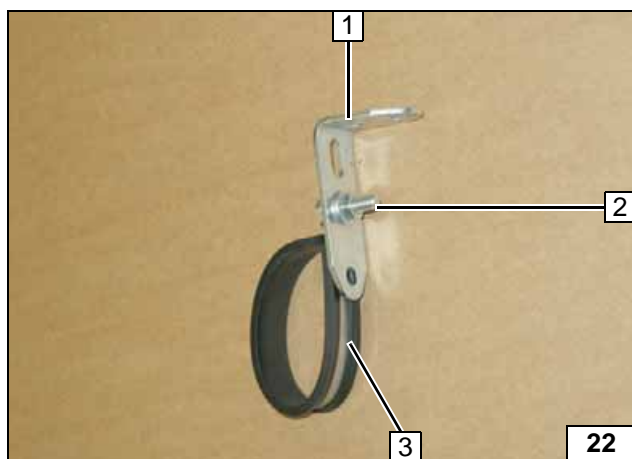
Preparing p-clamp



Bend perforated bracket 1 by 90°.

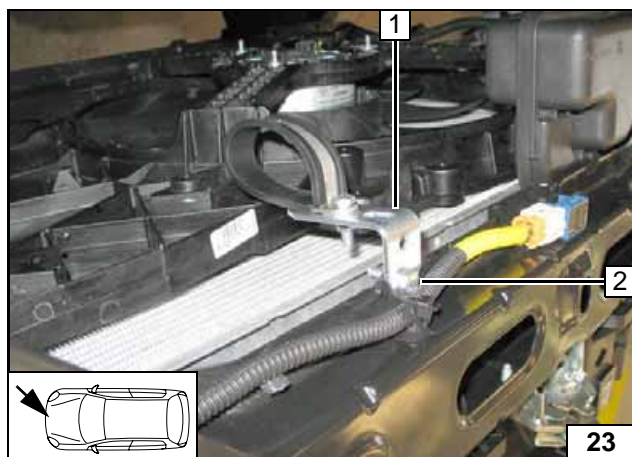


Preparing perforated bracket



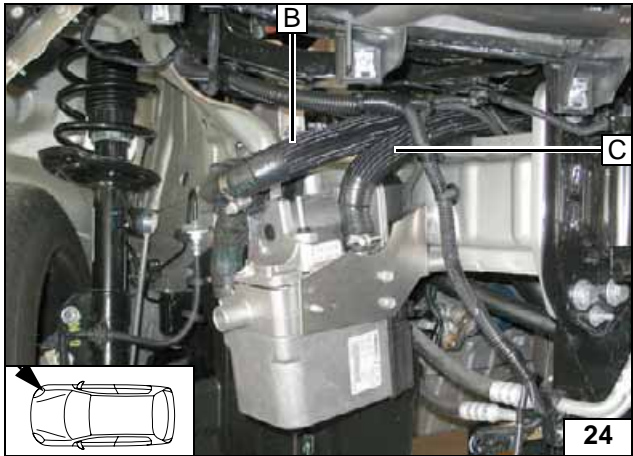
- 1 Perforated bracket, angled down
- 2 M6x20 bolt, flanged nut
- 3 48 mm dia. rubber-coated p-clamp

Premounting p-clamp

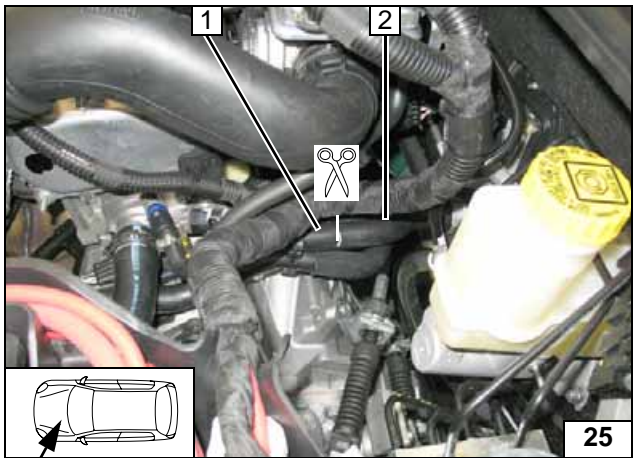


- 1 Perforated bracket
- 2 M6x20 bolt, original vehicle hole, flanged nut

Installing p-clamp



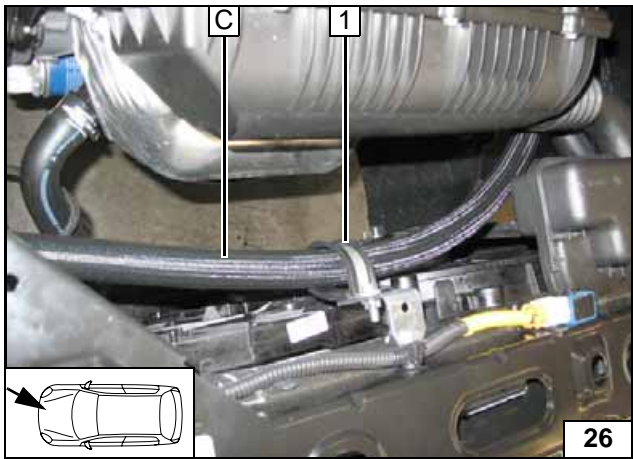
Conne-
ction to
heater unit



Gasoline

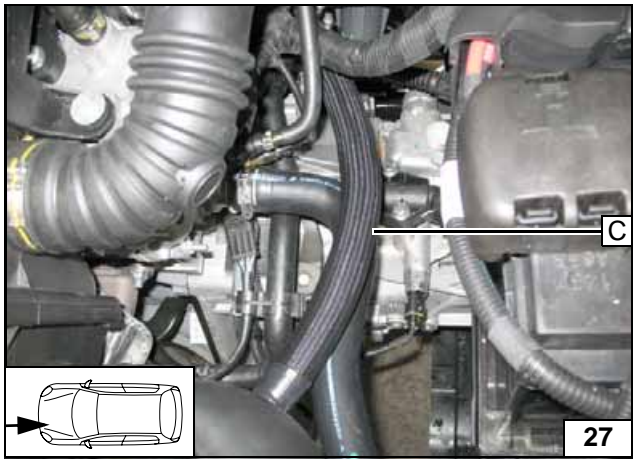
- 1 Engine-outlet hose section
- 2 Hose section of heat exchanger inlet

Cutting
point

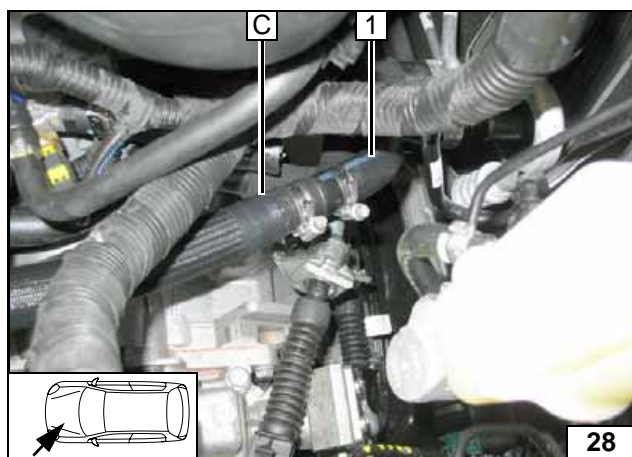
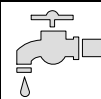


- 1 48 mm dia. rubber-coated p-clamp

Routing in
engine
compart-
ment



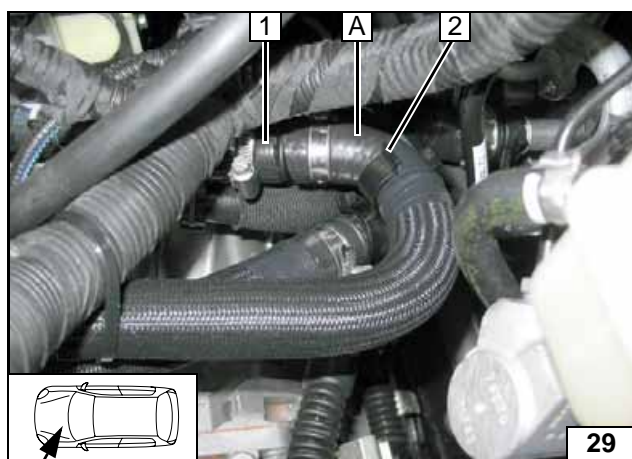
Routing in
engine
compart-
ment



Ensure sufficient distance to neighboring components.

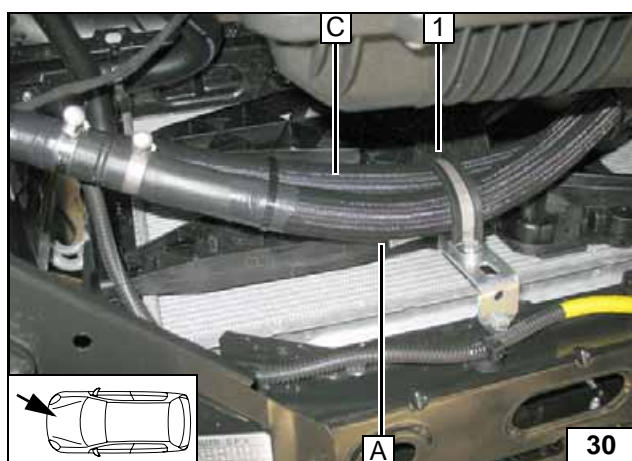
1 Hose on heat exchanger inlet

Connect-
ing heat
exchanger
inlet



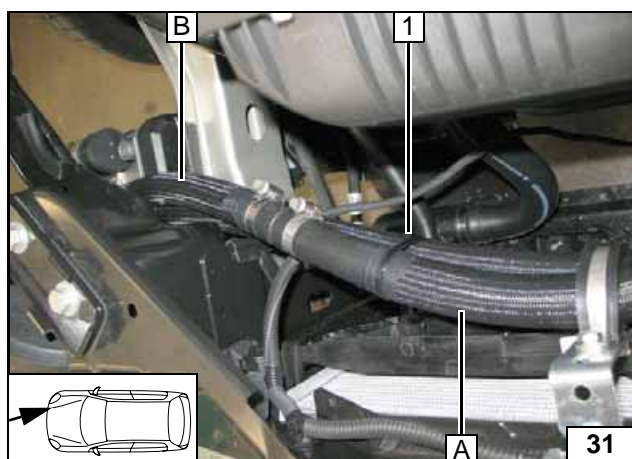
1 Hose on engine outlet
2 Spacer bracket

Connect-
ing engine
outlet



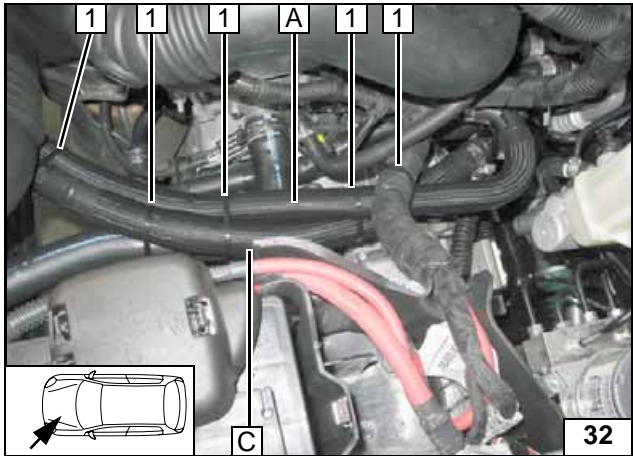
1 48 mm dia. rubber-coated p-clamp

Routing in
engine
compart-
ment



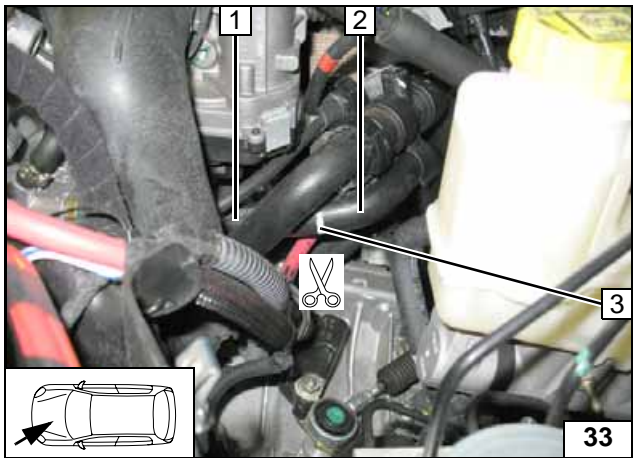
1 Cable tie

Connect-
ing hose A
and B



1 Cable tie [5x]

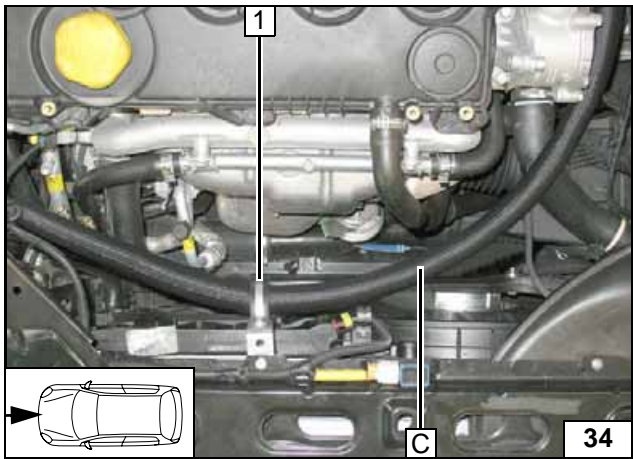
Routing in engine compartment



Diesel

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

Cutting point



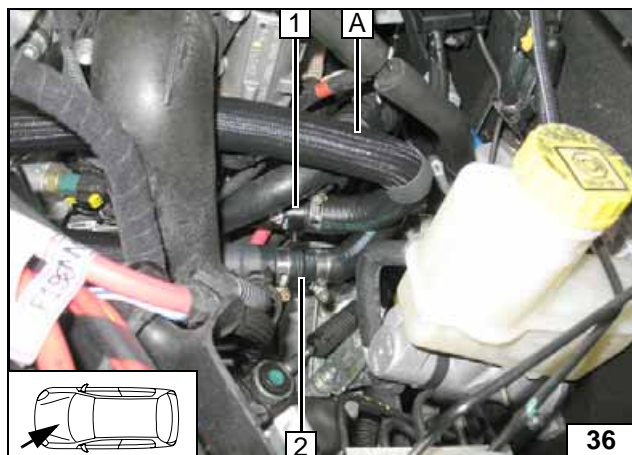
1 48 mm dia. rubber-coated p-clamp

Routing in engine compartment



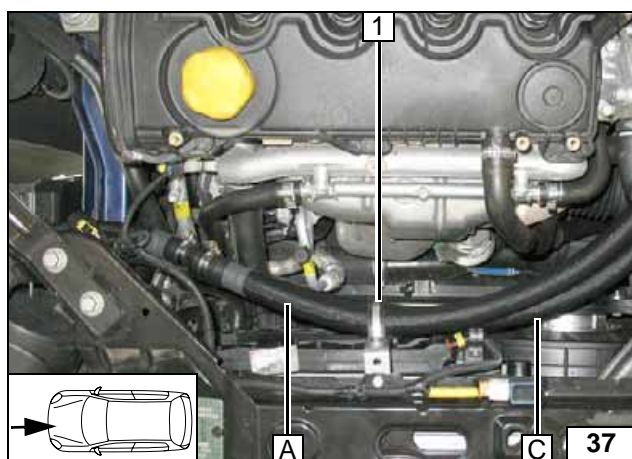
2 Hose section of heat exchanger inlet

Connect- ing heat exchanger inlet



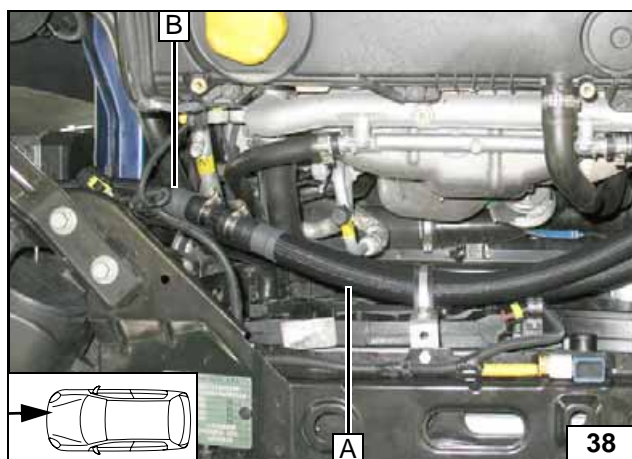
- 1 Engine-outlet hose section
- 2 Spacer bracket

Connect-
ing engine
outlet

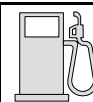


- 1 48 mm dia. rubber-coated p-clamp

Routing in
engine
compart-
ment



Connect-
ing hose A
and B



Fuel

CAUTION!

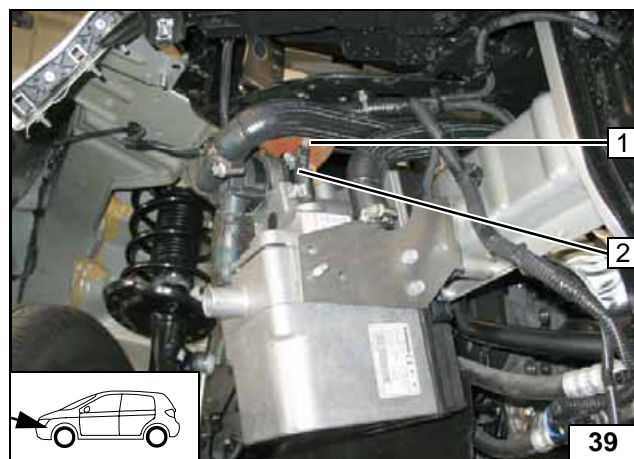
Open the vehicle's fuel tank lock, ventilate the fuel tank and then re-close the tank lock.

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.

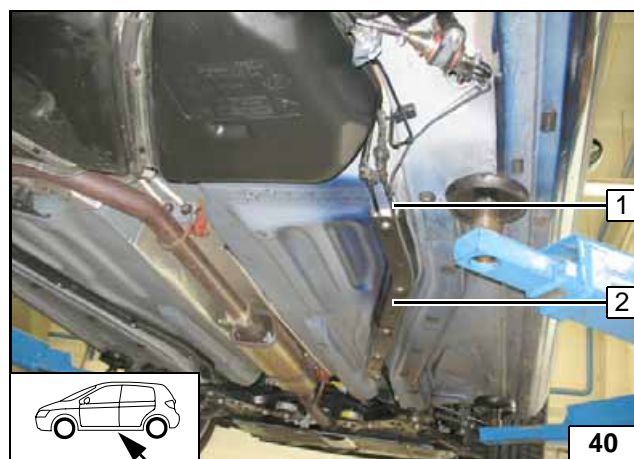
WARNING!

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



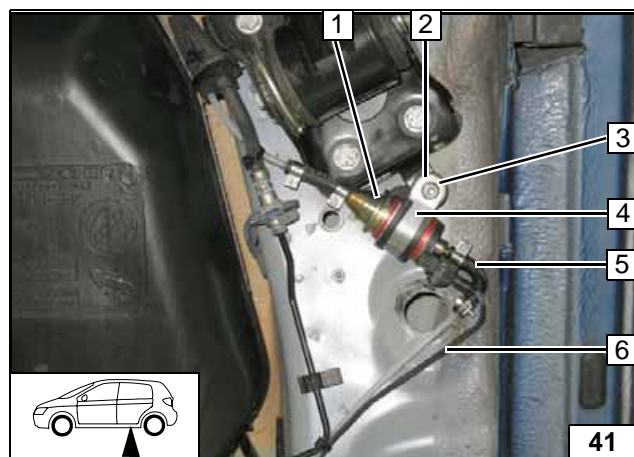
- 1 Fuel line
- 2 Hose section, 10 mm dia. clamp [2x]

Conne-
ction to
heater unit



Route fuel line and wiring harness of metering pump 1 in original vehicle cover of fuel line 2.

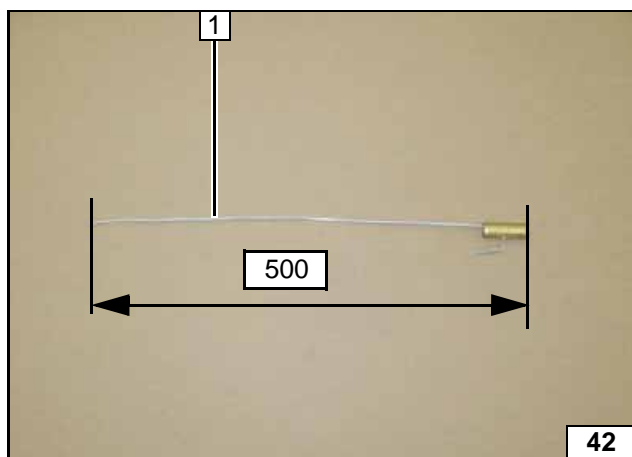
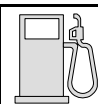
Installing
lines



- 1 Metering pump
- 2 Original vehicle hole
- 3 Silent block, flanged nut [2x]
- 4 Rubber-coated pipe clamp
- 5 90° molded hose, 10 mm dia. clamp [2x], fuel line
- 6 Metering pump wiring harness



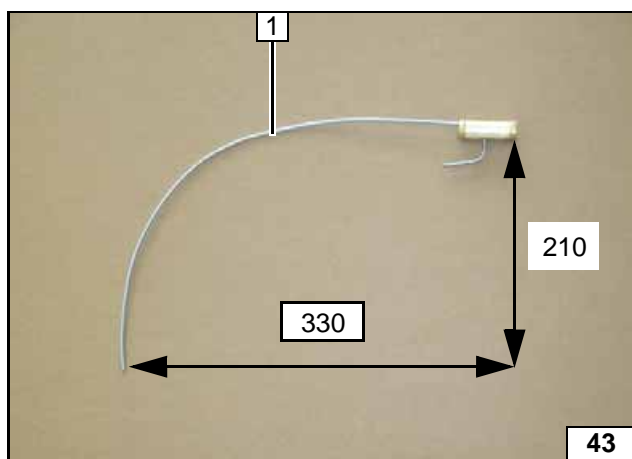
Installing
metering
pump



Cut fuel standpipe 1 to length.



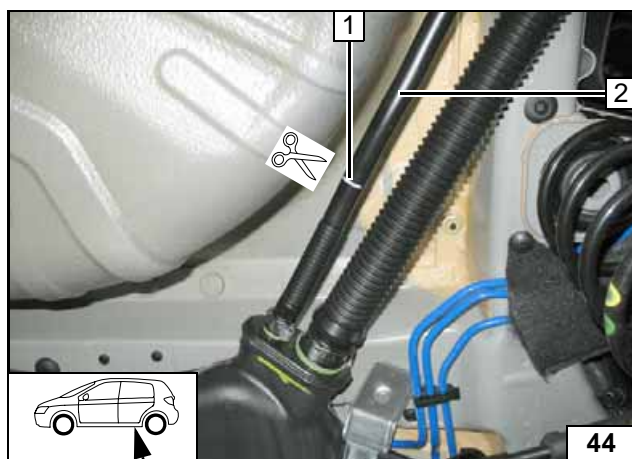
**Cutting
fuel
standpipe
to length**



Shape fuel standpipe 1.



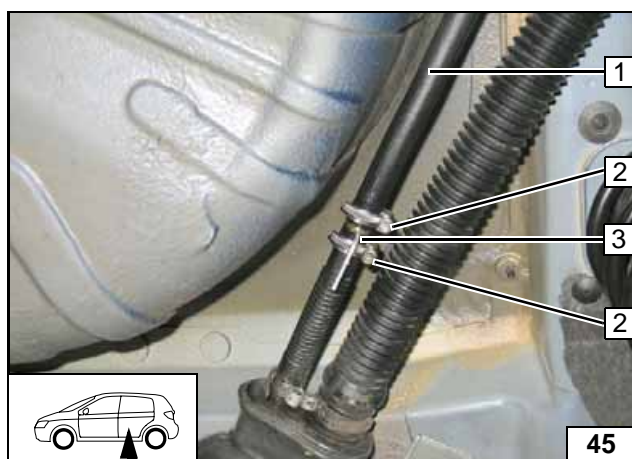
**Shape fuel
standpipe**



1 Cutting point
2 Fuel-tank vent line



**Removing
fuel**

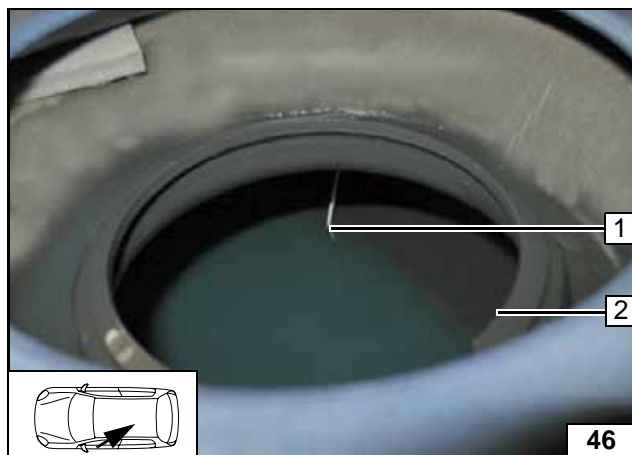


Mount fuel standpipe 3 in fuel- tank vent line 1.
Align removal pipe of fuel standpipe to fuel tank bottom.

2 Hose section, 16-24 mm dia. clamp [2x]



**Connect-
ing to me-
tering
pump**

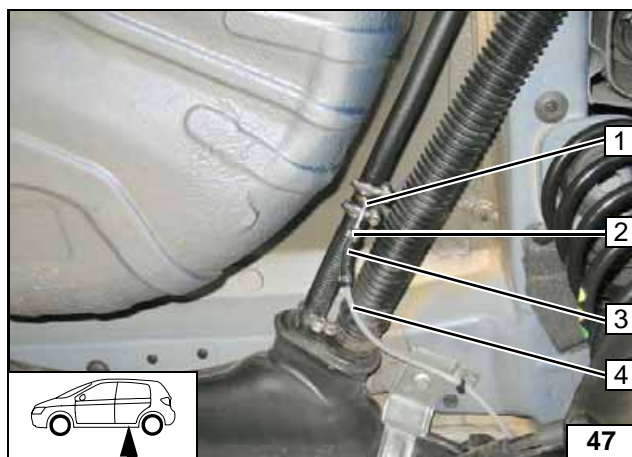


Align fuel standpipe 1 so that freedom of movement of fuel gauge is ensured after mounting fuel-tank sending unit.

2 Opening of fuel-tank sending unit



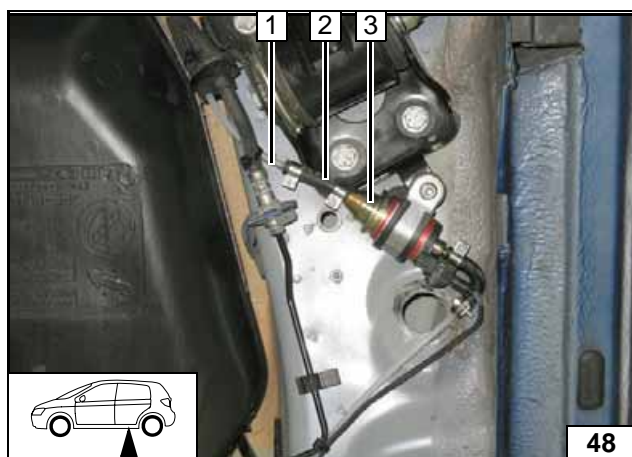
Removing fuel



- 1 Fuel standpipe
- 2 8 mm dia. clamp
- 3 Hose section, 9 mm dia. clamp
- 4 Fuel line



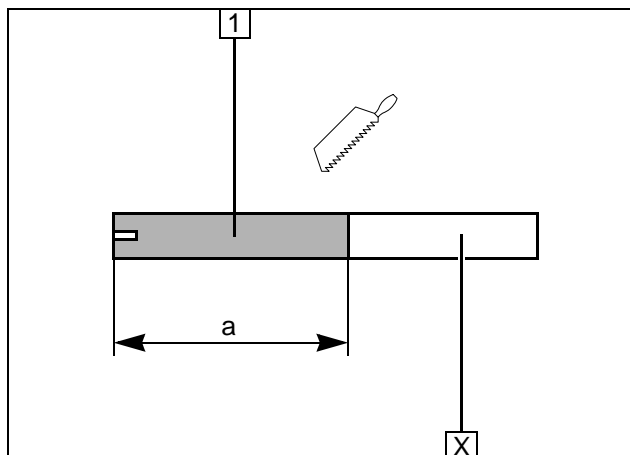
**Connect-
ing fuel
line**



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



**Installing
metering
pump**

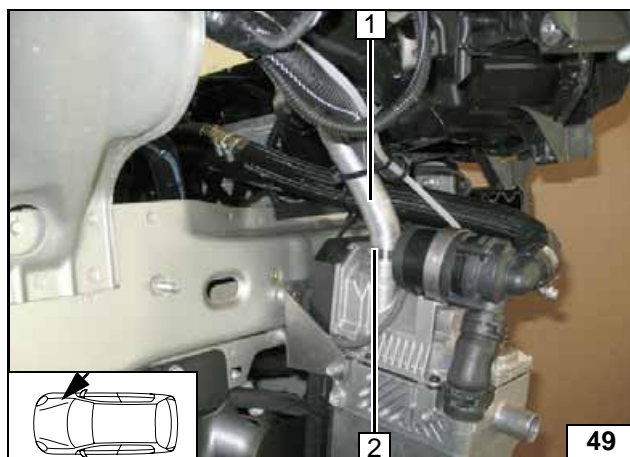


Combustion air

- 1 Combustion air pipe
a = 210

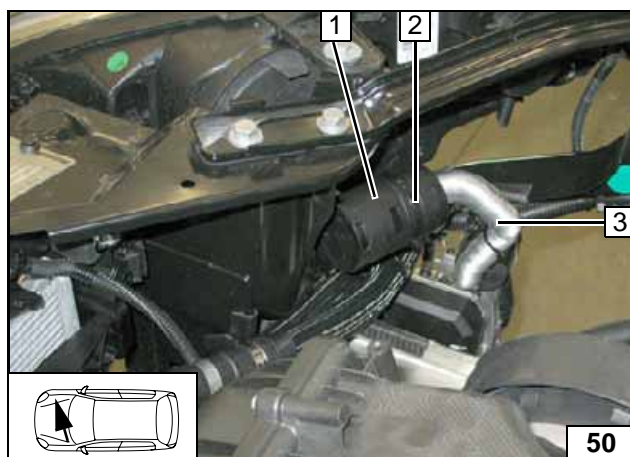
Discard section X

Cutting combustion air pipe to length



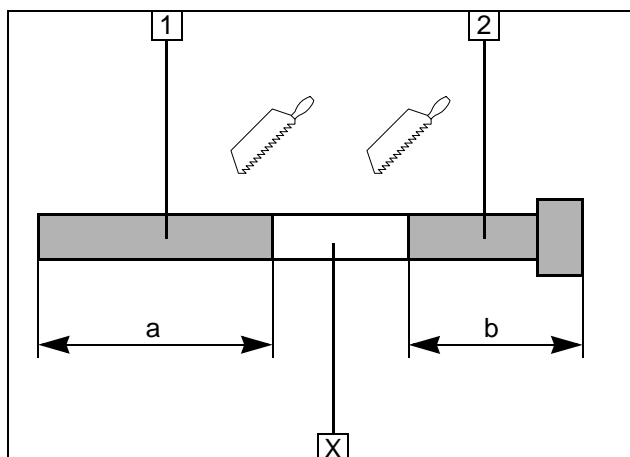
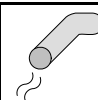
- 1 Combustion-air intake pipe
2 27 mm dia. clamp

Installing intake pipe



- 1 Intake muffler
2 Cable tie, original vehicle hole
3 Combustion-air intake pipe

Installing muffler

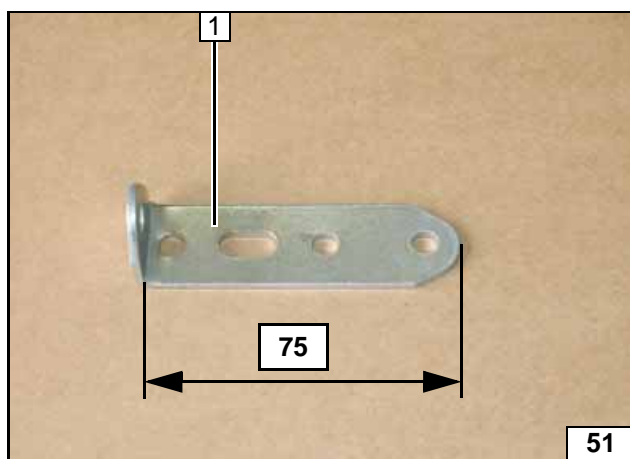


Exhaust gas

- 1 Exhaust pipe
a = 170
- 2 Exhaust end section
b = 230

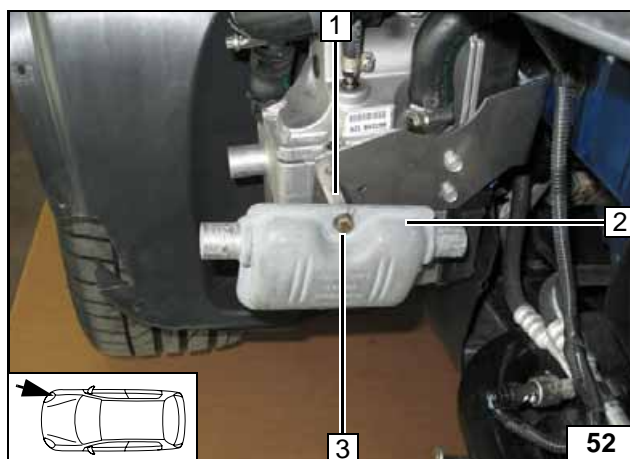
Discard section X

Preparing
exhaust
pipe



Bend perforated bracket 1 by 90°.

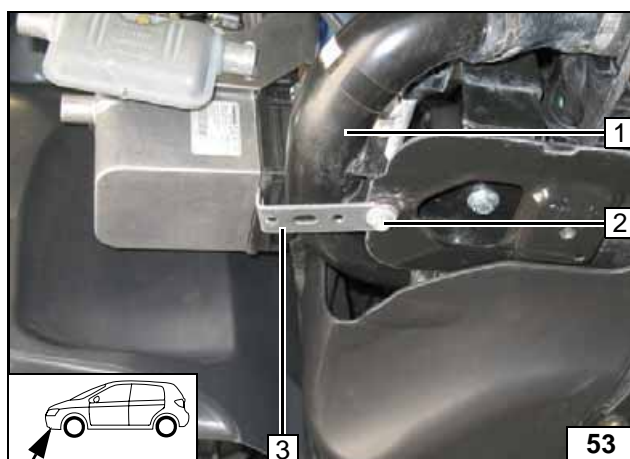
Preparing
perforated
bracket



All following photos show diesel vehicle.

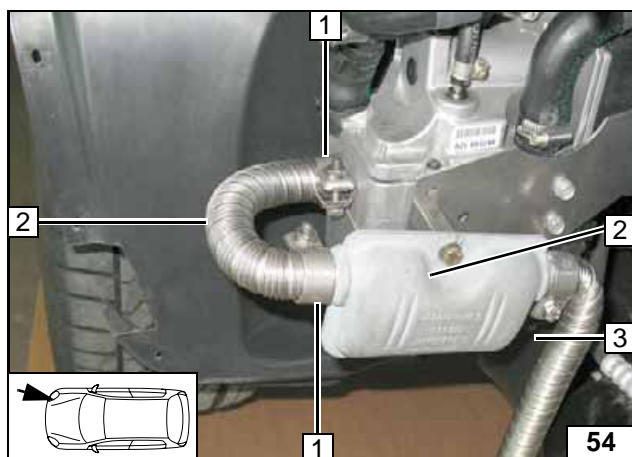
- 1 M6x30 spacer nut, Ejot stud
- 2 Exhaust muffler
- 3 M6x12 bolt, spring lockwasher

Installing
exhaust
muffler



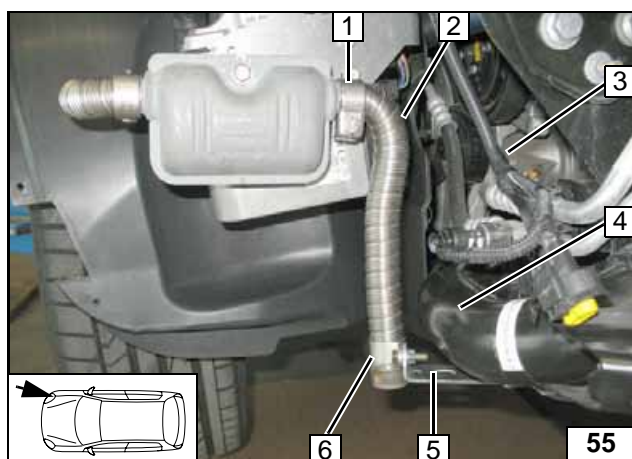
Install perforated bracket 3 with original vehicle bolt 2 of charge-air tube bracket 1.

Installing
perforated
bracket



- 1 Hose clamp [2x]
- 2 Exhaust pipe

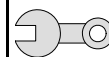
**Installing
exhaust
pipe**



Secure wiring harness of pressure switch **3** in bracket of A/C line.
Ensure sufficient spacing between exhaust end section **2** and charge-air tube **3**.

- 1 Hose clamp
- 5 Perforated bracket
- 6 Pipe clamp, M6x20 bolt, flanged nut

**Installing
exhaust
end
section**



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.

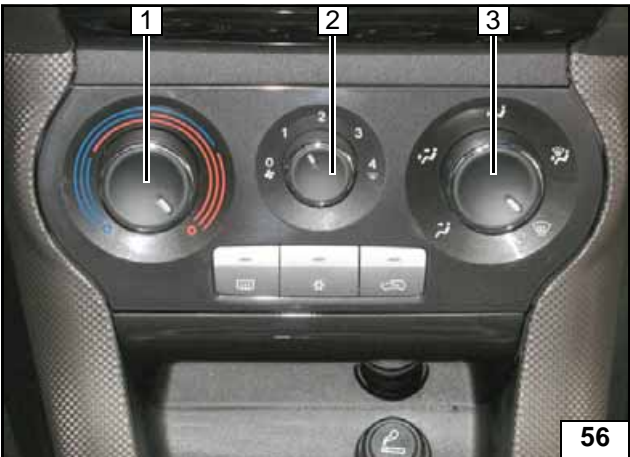
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time

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:

Note:
On vehicles with a factory installed alarm system with passenger compartment monitoring, this must be deactivated before leaving the vehicle. Please see the owner's manual of the vehicle for additional information.



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



- 1 Air outlet to windshield
- 2 Set fan to level "1", or possibly "2"
- 3 Set temperature to "HI"

Manual air conditioning

Automatic air-conditioning