

Air Heater



Air Top 2000 ST Air Heater



Installation documentation

Mercedes Benz Vito

Diesel
from Model Year 2009
Left-hand drive vehicle
Box-type lorry with partition wall



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, specialised tools and equipment are required to install and repair Webasto heating and cooling systems. Only original Webasto parts must be used. For this, also see the catalog of air and water heater accessories from Webasto.

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
Mercedes Benz	Vito	NCV2	L275

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

Installation location of heater controls as well as the routing of air routing parts must be coordinated with the end-customer before installation!

WARNING!

Original vehicle supporting components and/or components for crash safety may not be processed for hot air- and circulating air routing!

Heater/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories <i>Air Top 2000 ST</i>	See price list
1	Installation kit Mercedes Benz Vito 2009 Diesel	1315777A
1	Heater control	See price list

Foreword

This installation documentation applies to vehicles Mercedes Benz Vito Diesel (box wagon with partition wall) - for validity, see page 2 - from model year 2009 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation, and are to be adjusted accordingly

However, where this is the case the stipulations in this "installation documentation" and "operating and maintenance instructions" for the *Air Top 2000 ST* should 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).

The figures in this installation documentation show a vehicle with installed floor plate!

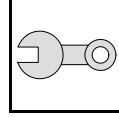
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Webasto flattening tool, Ident. No.: 82229A
- Metric thread-setter kit
- Circular hole drill Ø 26, 60, 63
- Jigsaw

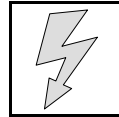
Explanatory Notes on Document

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.

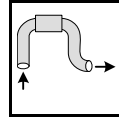
Mechanical system



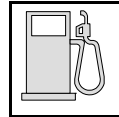
Electrical system



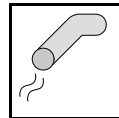
Hot air



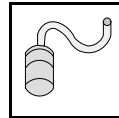
Fuel



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 for fuel and combustion air clamps = 3.0 Nm!

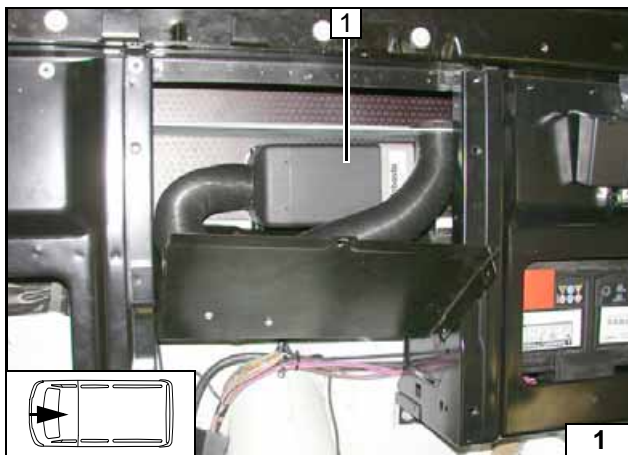
Tightening torque for exhaust gas hose clamps = 6.0 Nm!

Tightening torque for fuel tank pipe = 5.0 Nm!

Preliminary Work

WARNING!

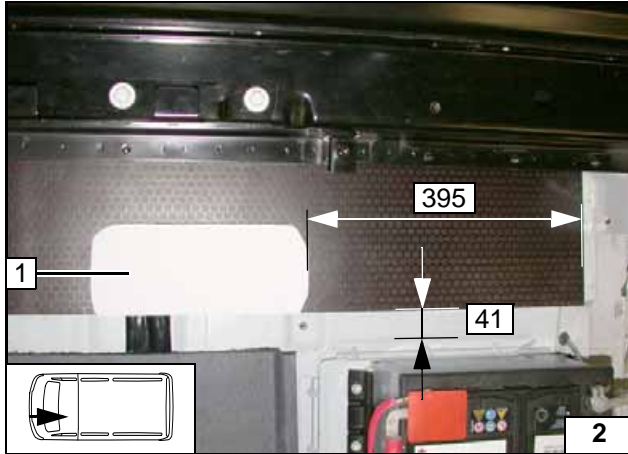
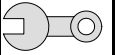
- Open the fuel tank cap, ventilate the tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Depressurize the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Remove driver seat
- Remove base frame of driver's seat
- Remove front passenger double bench seat
- Remove cover of centre console
- Remove the fuel-tank in accordance with the manufacturers specifications
- Remove the instrument panel trim on the driver side



Heater installation location

1 Heater

Installation location

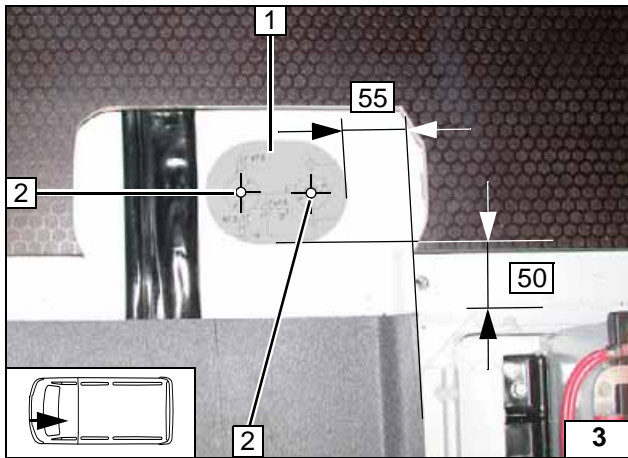


Preparing installation location

Mount template 1 and transfer the contour. Cut out floor plate (if it exists) with suitable means, pay attention to the components lying under it!



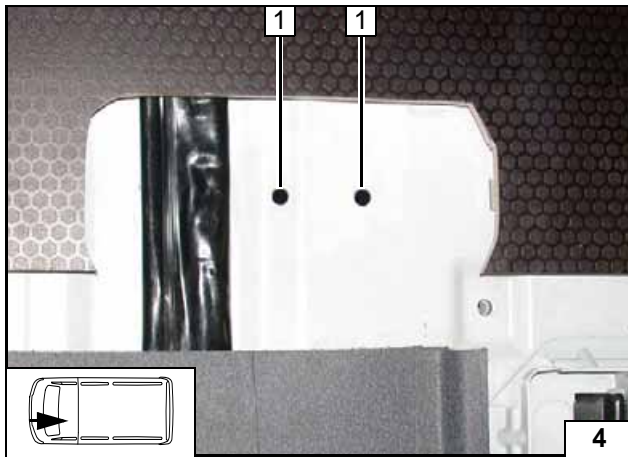
Cutting out floor plate



Cut out, mount and align template 1. Copy outline of stencil 1 and hole pattern to Position 2 [2x].



Copying hole pattern



Remove template.

1 12 mm dia. hole [2x]



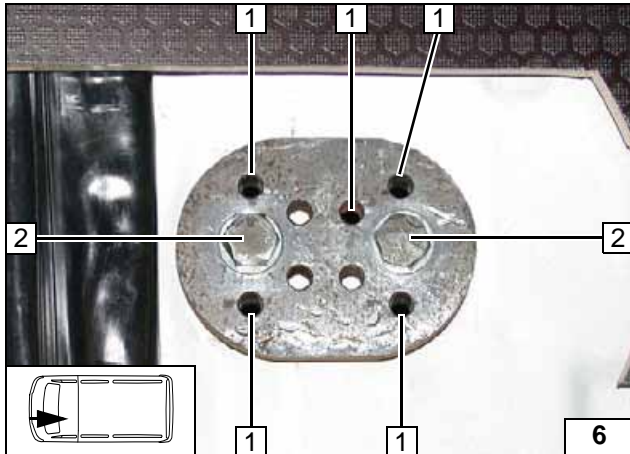
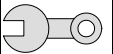
Holes in underbody



Remove underbody protection in the area of the heater fastening!



Removing underbody protection

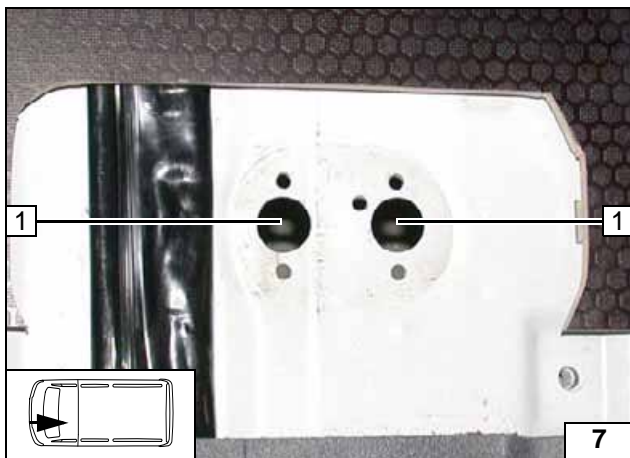


Install flattening tool 2 and flatten underbody (use flattening tool of Webasto).

1 7 mm dia. hole [5x]



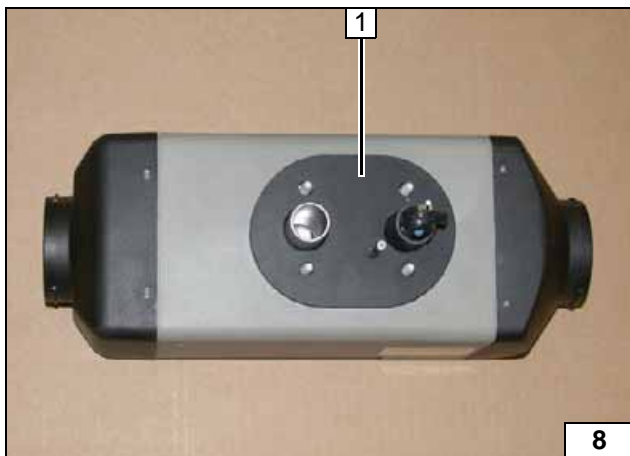
Flattening underbody



Dismantle flattening tool. Extend holes at Position 1 [2x] to 26mm dia. Provide all holes with corrosion protection.



Holes in underbody



Preparing heater

1 Plug in base seal



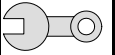
Preparing heater



1 Plug in spacer plate



Preparing heater

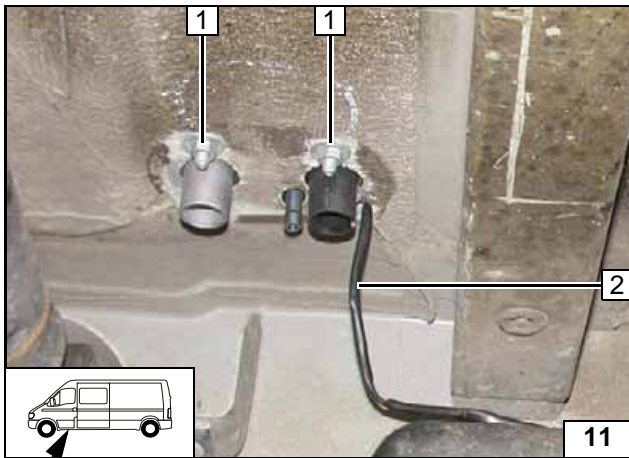


Installing heater

Insert heater in the holes!



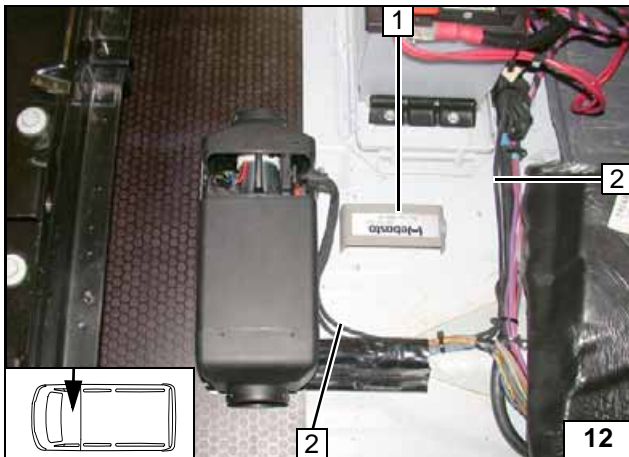
Positioning heater



Secure heater with large diameter washer and M6 nut **1** [4x each] (two mountings hidden). Route wiring harness of metering pump **2** through recess!



Installing heater



Plug in connector on heater, replace cover **1**. Route wiring harness of heater **2** along the original vehicle wiring harness to the left battery!



Installing wiring harness of heater



Fuel

CAUTION!

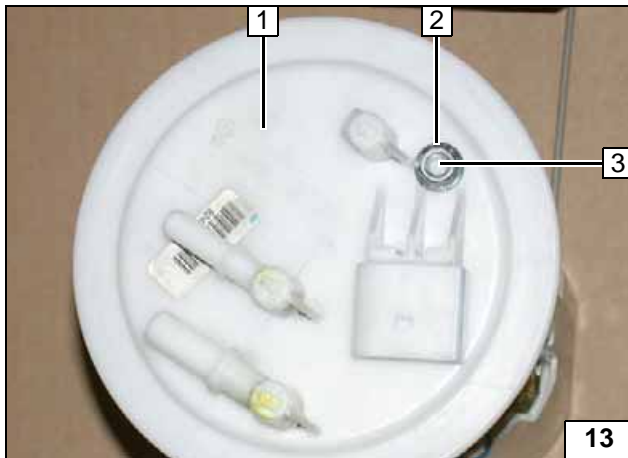
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

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!

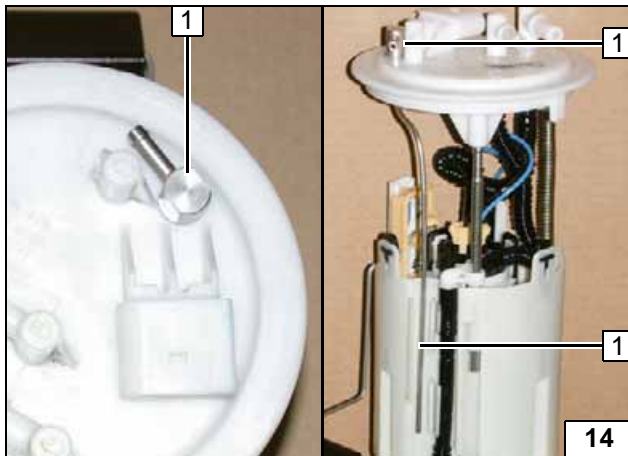
The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



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

- 2 Flanged nut
- 3 Copy hole pattern, 6 mm dia. hole

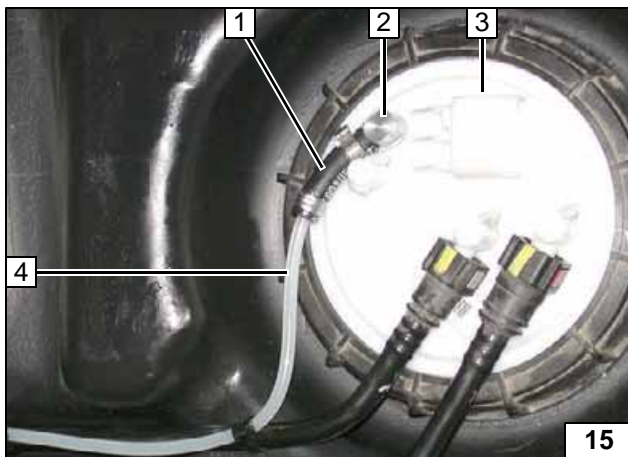
Removing fuel



Shape fuel standpipe 1 according to template, cut to length and install.



Installing fuel standpipe

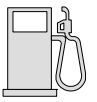


Install fuel-tank sending unit 3 in accordance with manufacturer's specifications. Cut to 1700mm length from fuel line 4 and install!

- 1 Moulded hose, 10 mm dia. clamp [2x]
- 2 Fuel standpipe



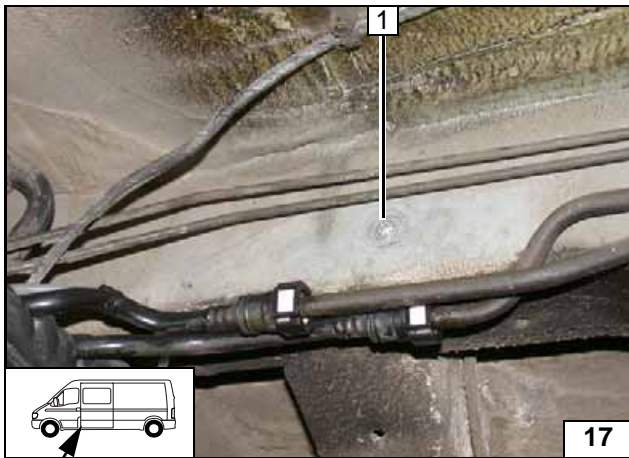
Connecting fuel line



Secure fuel line 1 to the original vehicle fuel line with cable tie. Reinstall fuel tank!

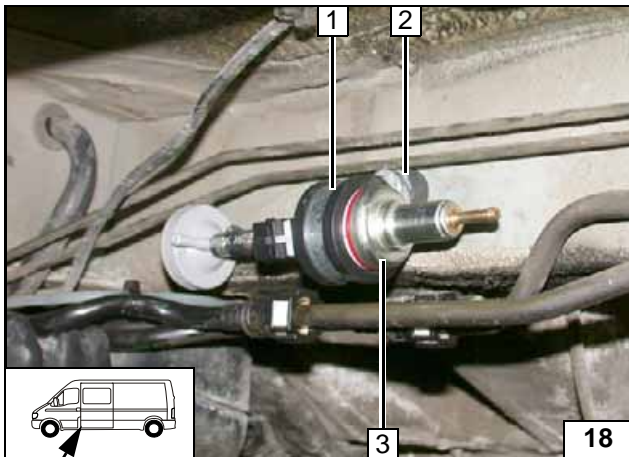


Installing fuel line



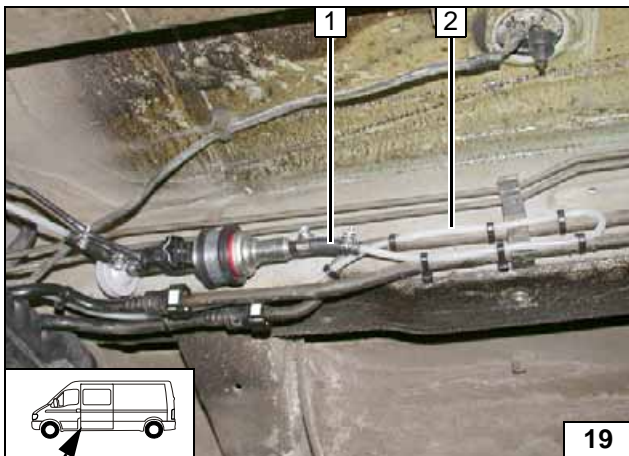
1 Rivet nut

Installing rivet nut



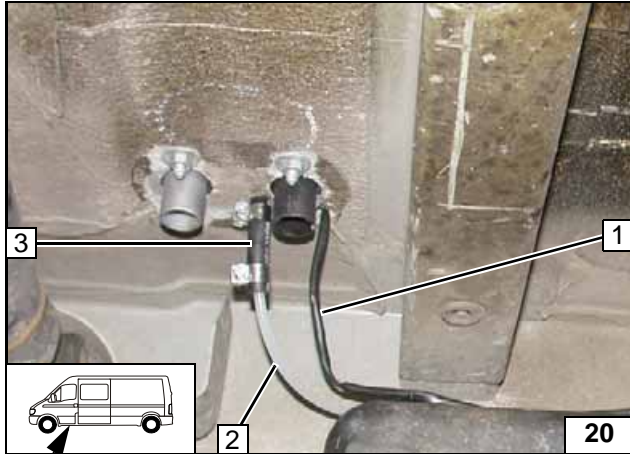
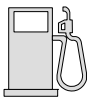
1 Rubber-coated pipe clamp
2 Silent block, flanged nut
3 Metering pump

Installing metering pump



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

Connecting metering pump



Cut to 440mm length from fuel line 2 and install!

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



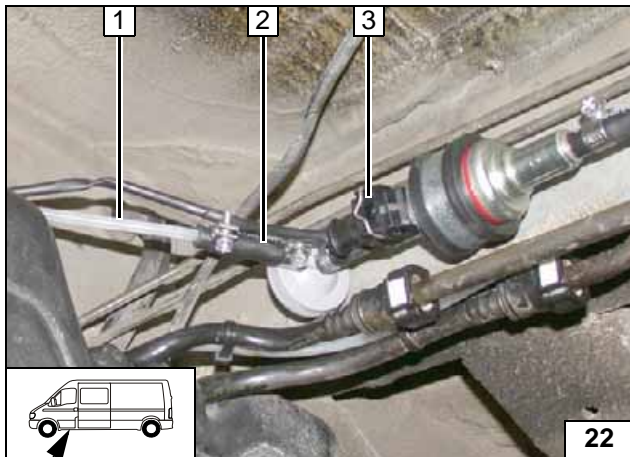
**Connect-
ing heater**



Rivet nut 1 in existing hole (is used later to fasten exhaust pipe)



**Installing
rivet nut**

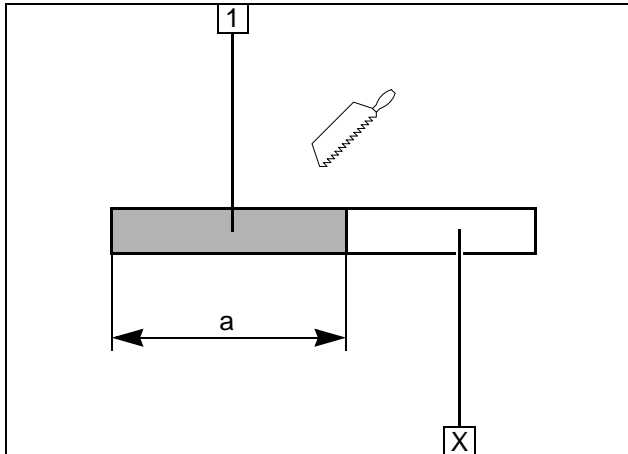
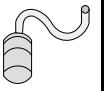


Check the position of the components; adjust if necessary. Check that they have free clearance.

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



**Connect-
ing meter-
ing pump**



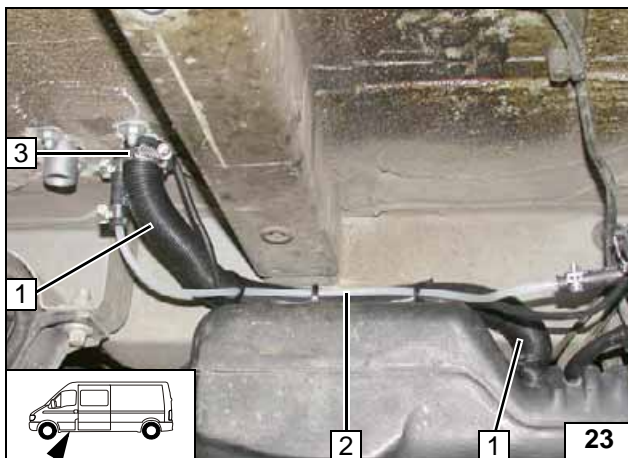
Combustion air

Discard section X.

- 1 Combustion air pipe
a = 520



Cutting combustion air pipe to length

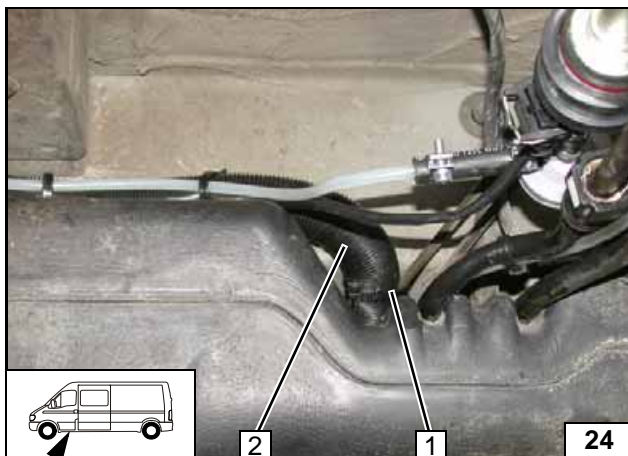


Secure combustion air pipe and wiring harness of metering pump with cable tie!

- 3 27 mm dia. clamp



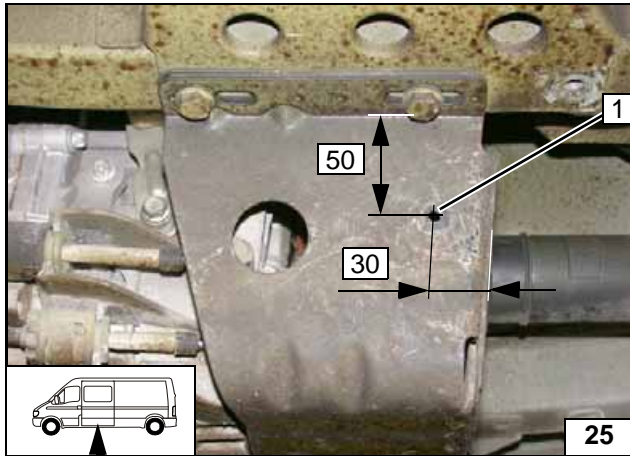
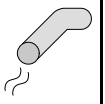
Installing combustion air pipe



Fasten combustion air pipe 2 to brake line with cable tie 1!



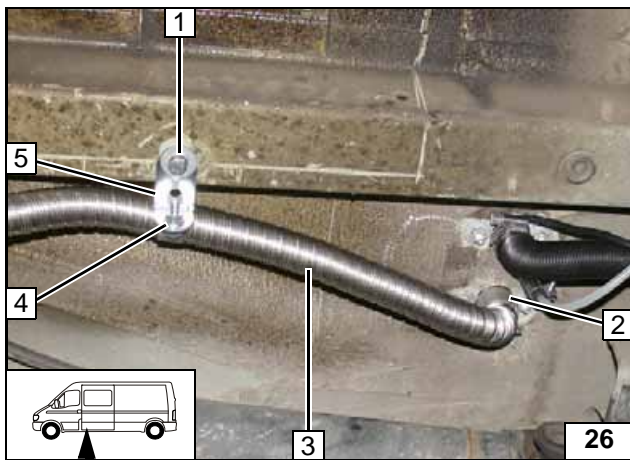
Fastening combustion air pipe



Exhaust gas

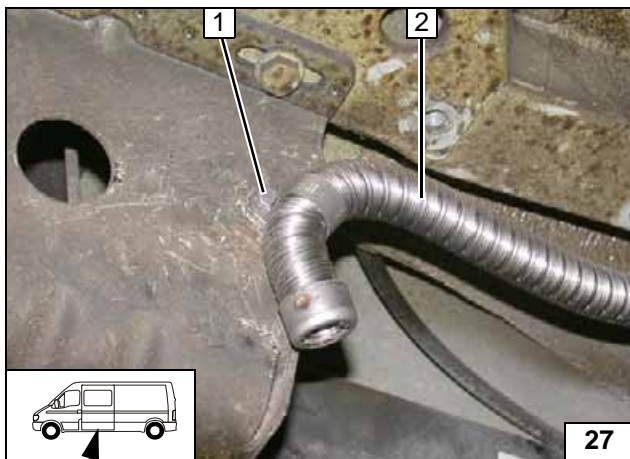
1 7 mm dia. hole

Hole in cross member



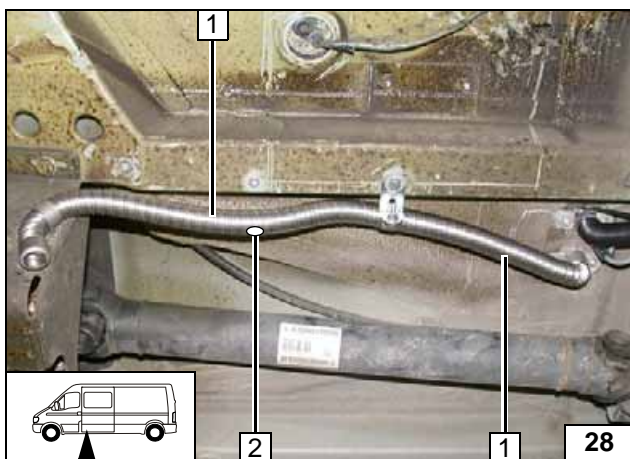
1 M6x20 bolt, spring lock washer, large diameter washer
 2 Hose clamp
 3 Exhaust pipe
 4 M6x20 bolt, pipe clamp, flanged nut
 5 Angle bracket

Installing exhaust pipe



1 M6x20 bolt, pipe clamp, flanged nut
 2 Exhaust pipe

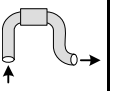
Installing exhaust pipe



2.5mm dia condensate discharge hole 2 at the deepest position in exhaust pipe 1. Check the position of the components; adjust if necessary. Check that they have free clearance.



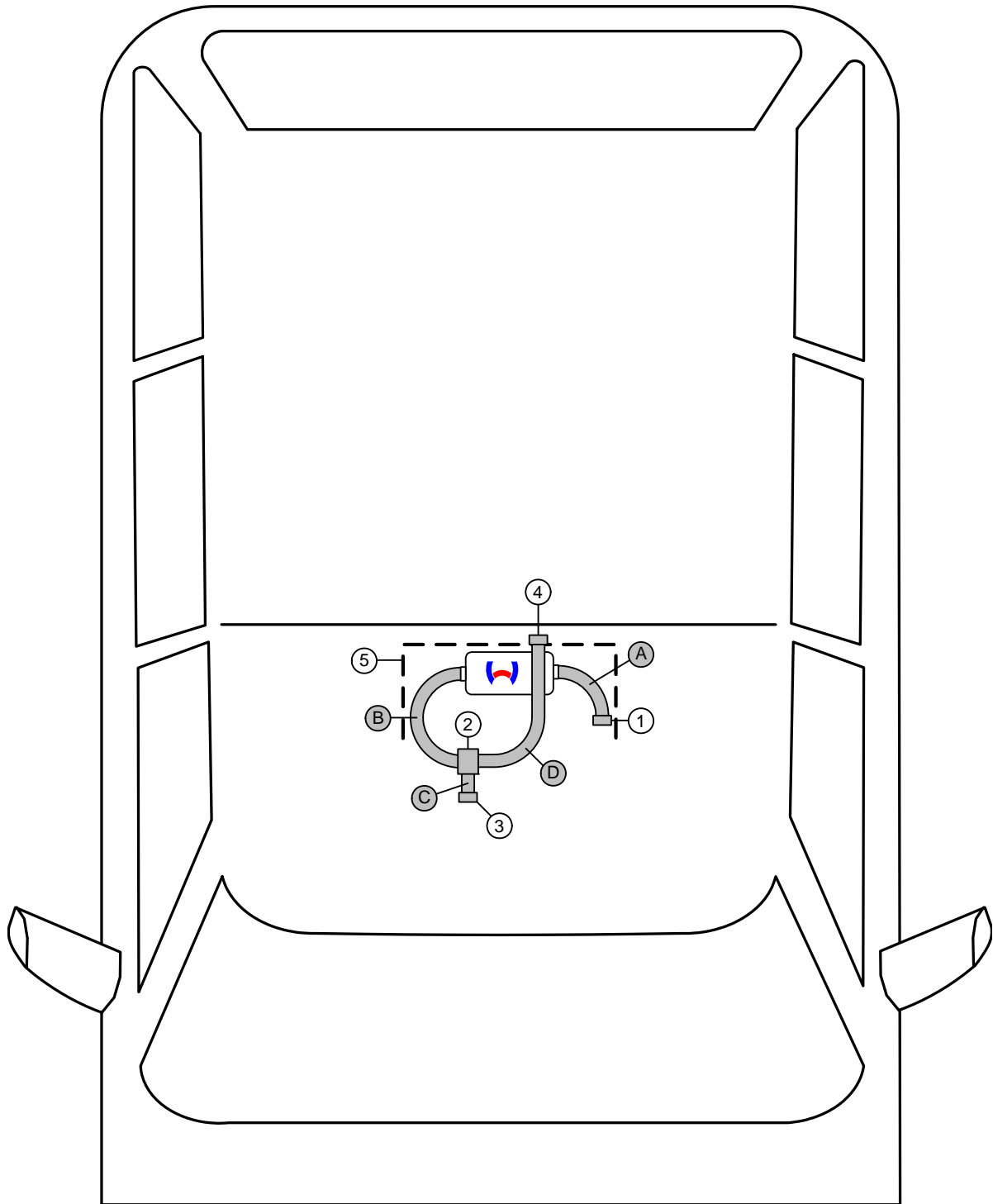
Aligning exhaust pipe



Hot air

Install flexible tubes so that they are kink-free.

The following diagram shows the hot air distribution for heating the passenger- and cargo compartment.

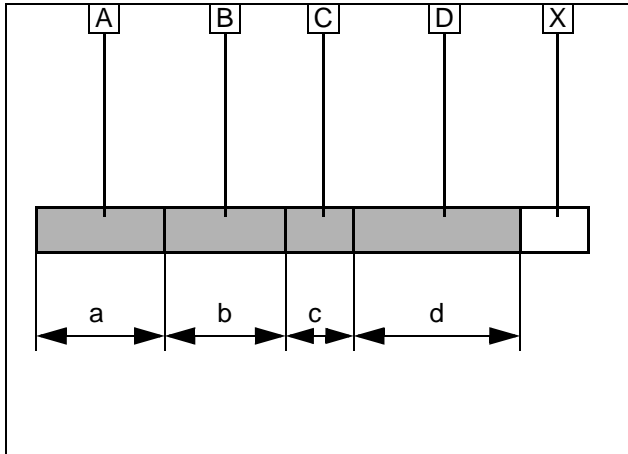
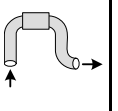


Flexible tube routing diagram

- 1 = Pass-through of hot air inlet!
- 2 = Air distribution flap!
- 3 = Air outlet of passenger compartment!
- 4 = Air outlet of cargo compartment!

5 = protective plate (to be installed later)





Discard section X.

- A** Flexible tube
a = 250
- B** Flexible tube
b = 290
- C** Flexible tube
c = 45
- D** Flexible tube
d = 330

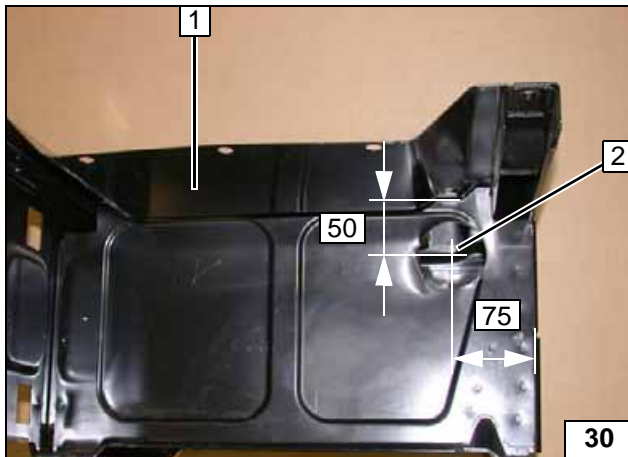


Cut 60mm dia flexible tube to length



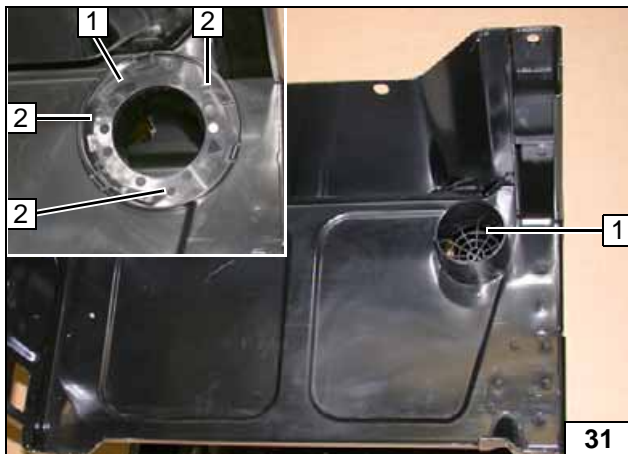
A Screw on flexible tube

Connect-ing heater inlet



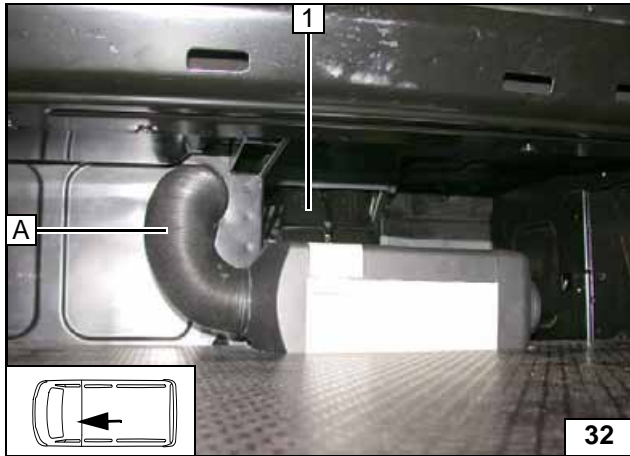
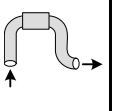
- 1** Underbody of driver's seat
- 2** 60 mm dia. hole

Preparing pass through



- 1** Pass through to fresh air inlet
- 2** 3mm dia hole, 3.9x13 self-tapping screw [3x]

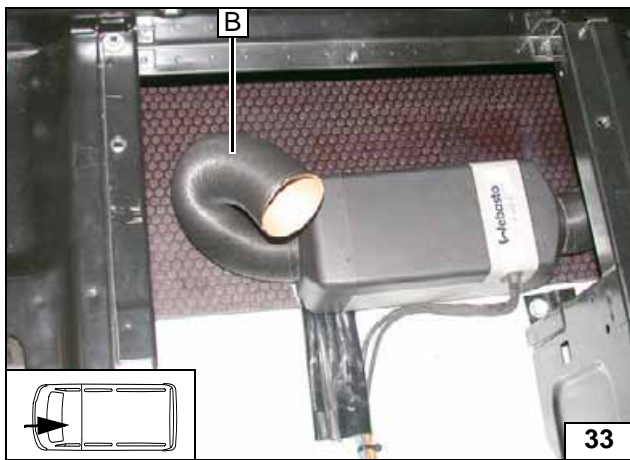
Inserting pass-through



Install underbody of driver's seat 1, Plug flexible tube A on to pass-through!

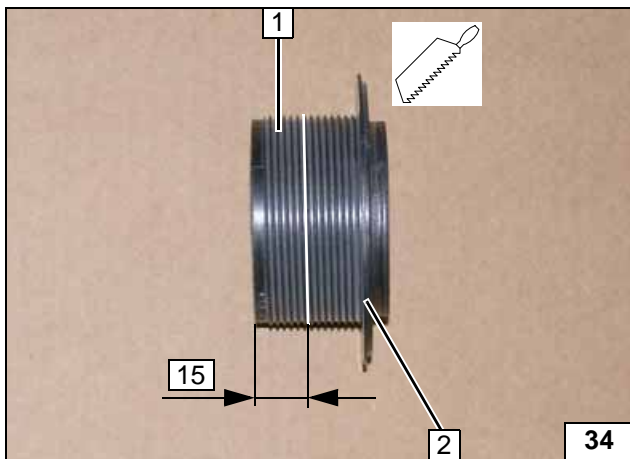


Connect-
ing heater
inlet



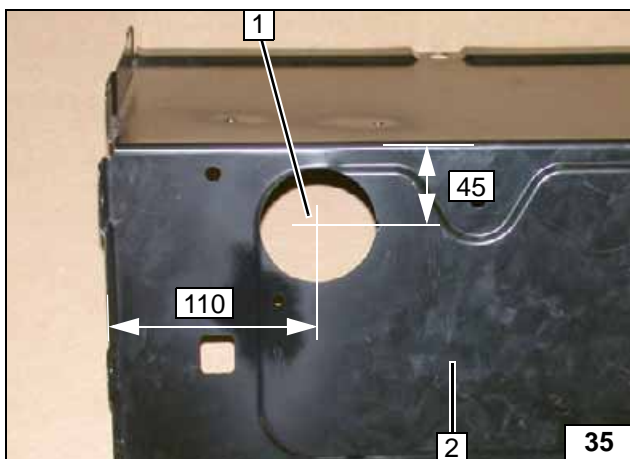
B Screw on flexible tube

Connect-
ing heater
outlet



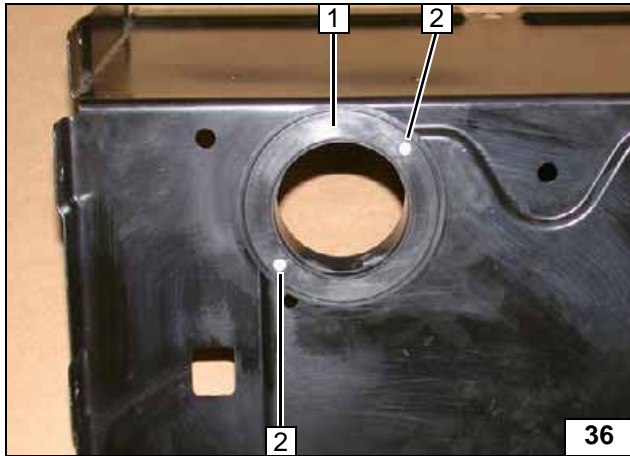
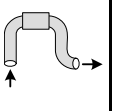
1 Discard section
2 Pass-through

Shorten-
ing pass-
through



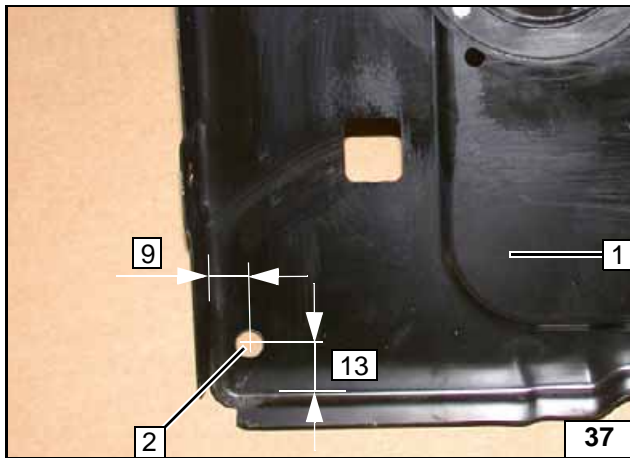
1 63 mm dia. hole
2 Cover of centre console

Preparing
pass
through



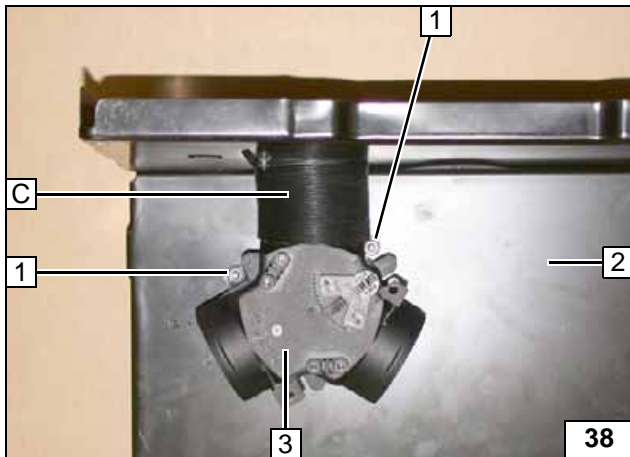
- 1 Air outlet of passenger compartment
- 2 3 mm dia hole, 3.9x13 self-tapping screw [2x]

Installing air outlet



- 1 Cover of centre console
- 2 9 mm dia. hole

Hole for Bowden cable

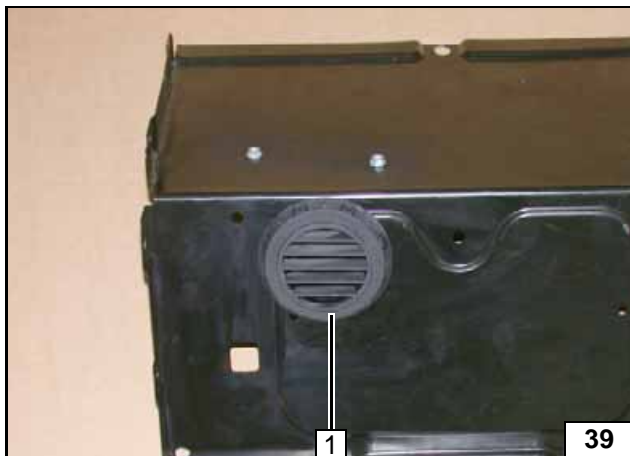


Plug flexible tube **C** on to air outlet of passenger compartment. Plug air distributor flap **3** on to flexible tube **C** . Copy hole pattern at Position **1** [2x].



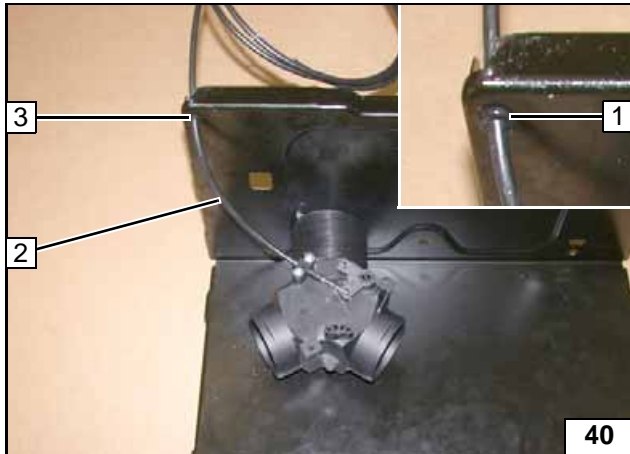
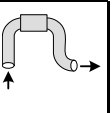
- 1 5.5 mm dia. hole, M5x12 bolt [2x]

Installing air distribution flap



- 1 Cover lid

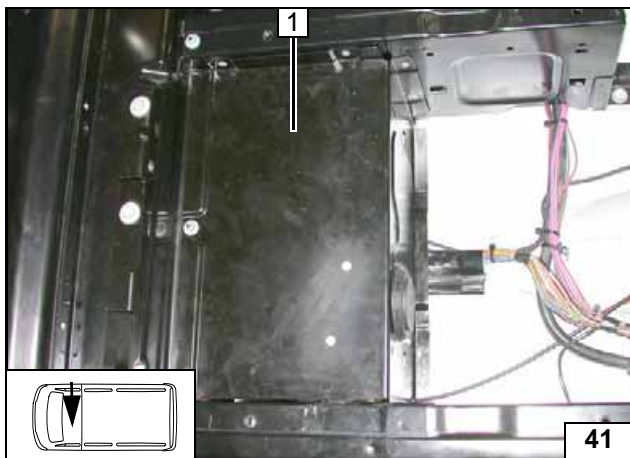
Plugging cover lid on



Route Bowden cable **2** through hole to Position **3**, insert protective rubber plug **1** and mount on air distribution flap.

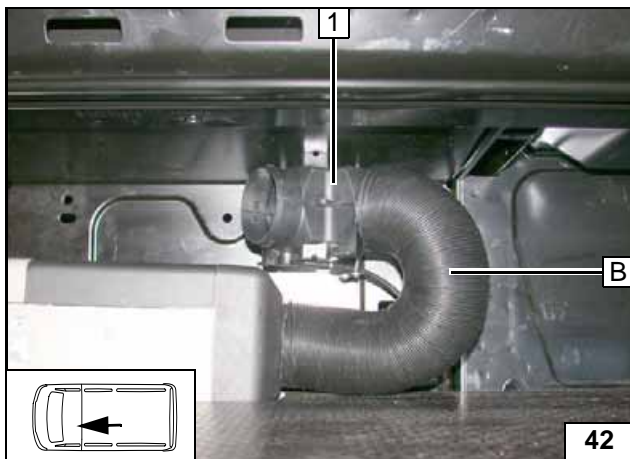


Installing Bowden cable



1 Install cover

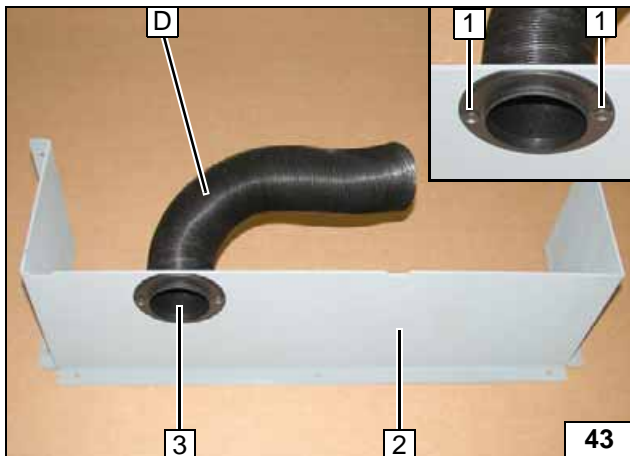
Installing cover of centre console



Plug flexible tube **B** on to air distribution flap **1**.



Installing flexible tube B



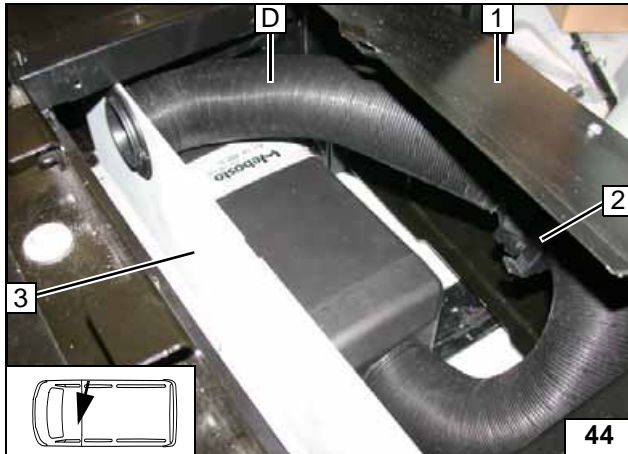
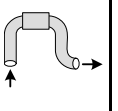
Produce shield plate **2** according to the sketch. Install air outlet of cargo compartment **3** and copy hole pattern to Position **1** [2x]!

1 3mm dia hole, 3.9x13 self-tapping screw [2x]

D Flexible tube

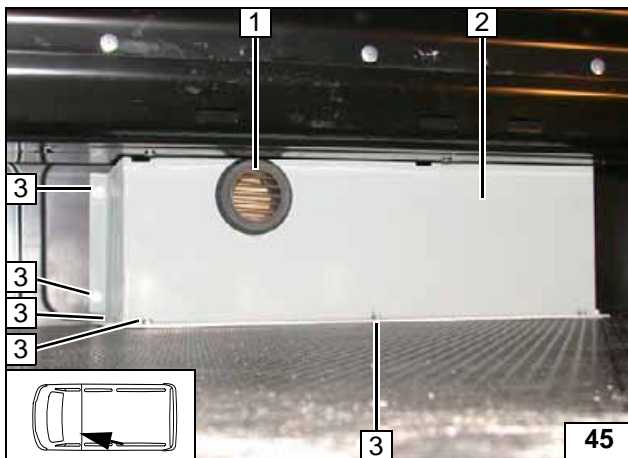


Installing flexible tube D with air outlet



Install shield plate **3** and align. Mount flexible tube **D** on to distribution flap **2**.
Close cover of centre console **1**.

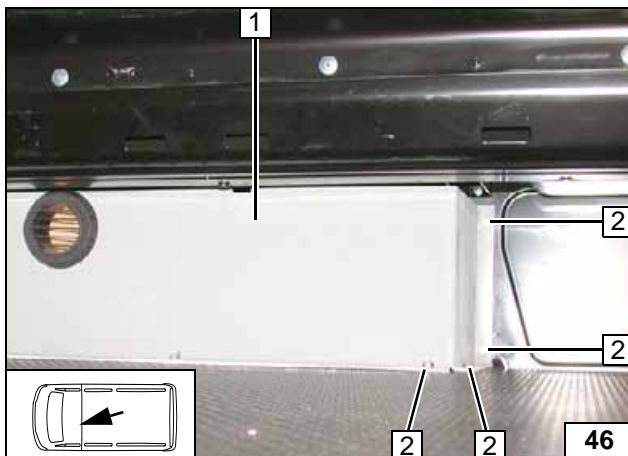
Installing flexible tube **D**



Mount cover **1**. Copy hole pattern at Position **3** [5x].

- 2** Shield plate
- 3** 4mm dia hole, 4.8x13 self-tapping screw [5x]

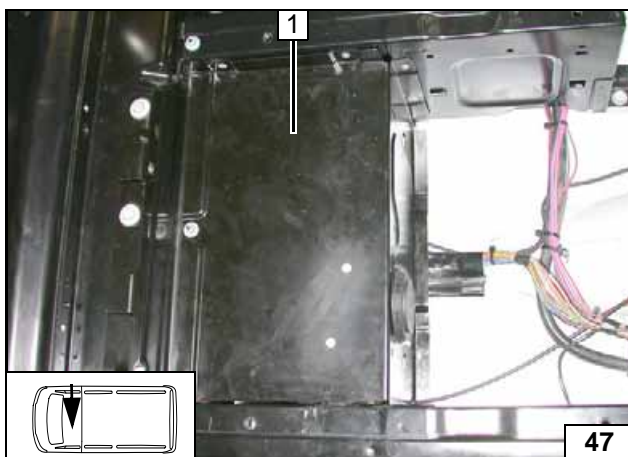
Fastening shield plate



Copy hole pattern at Position **2** [4x].

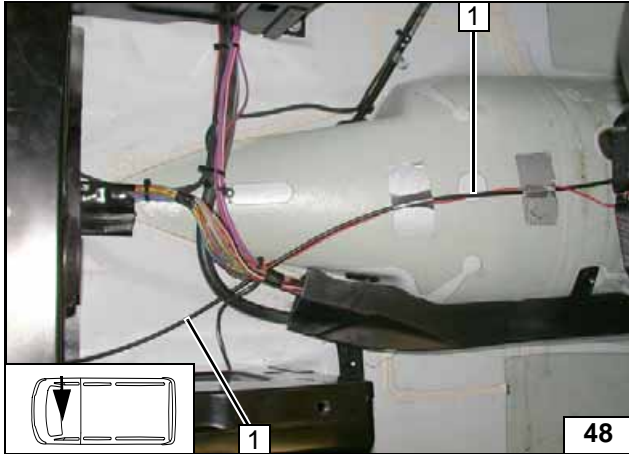
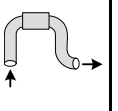
- 1** Shield plate
- 2** 4mm dia hole, 4.8x13 self-tapping screw [4x]

Fastening shield plate



Fasten cover of centre console **1** with attached rivet between the seats!

Fastening cover



Fasten Bowden cable 1 to the centre tunnel with adhesive tape!



Routing Bowden cable at front



Route Bowden cable 1 along the ventilation duct and secure with adhesive tape!



Routing Bowden cable



Electrical system

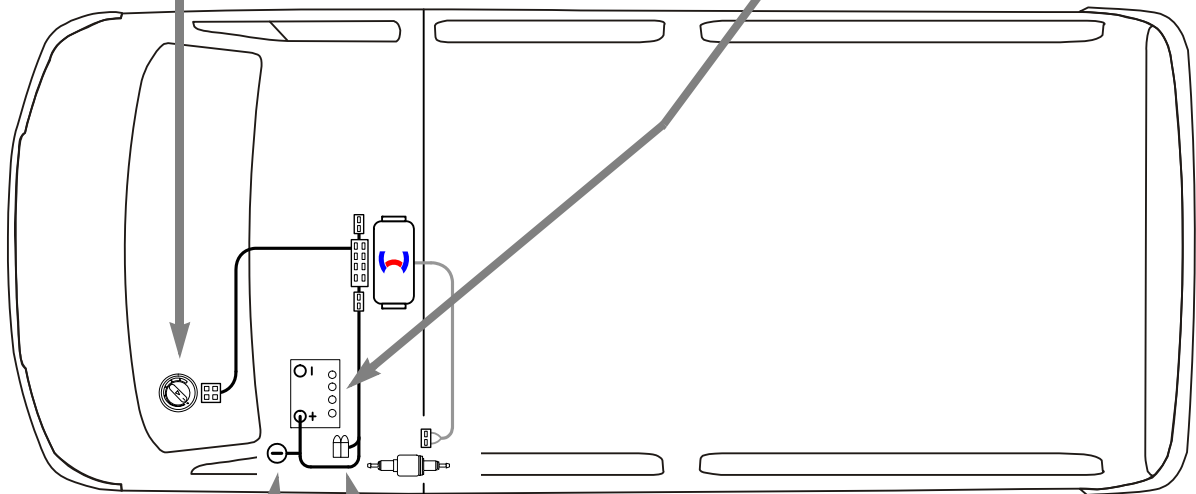
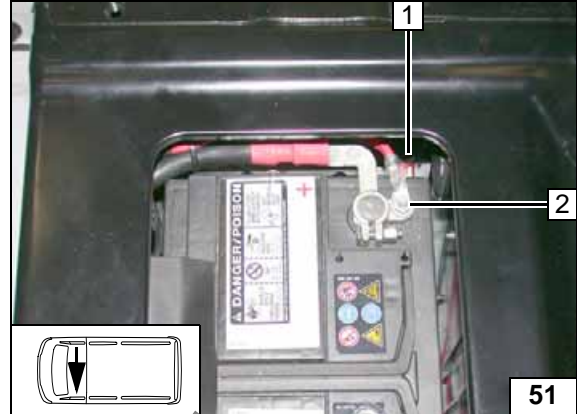
Heater control

- 1 12 mm dia. hole, thermostat

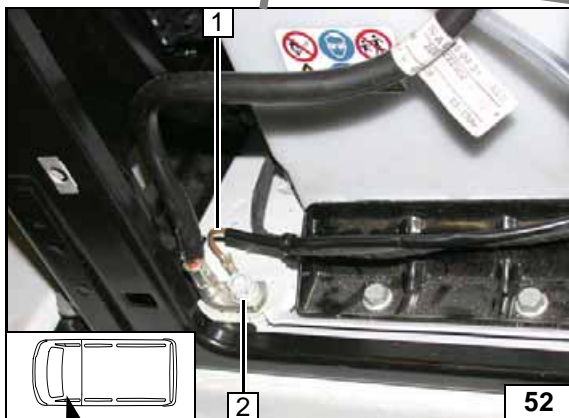


Plus wire

- 1 Positive terminal
- 2 Positive terminal of battery

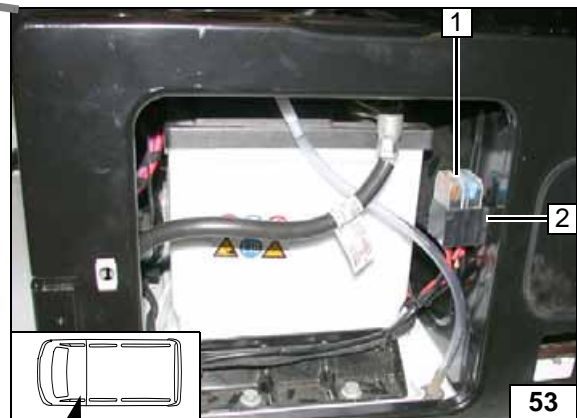


Wiring harness installation diagram



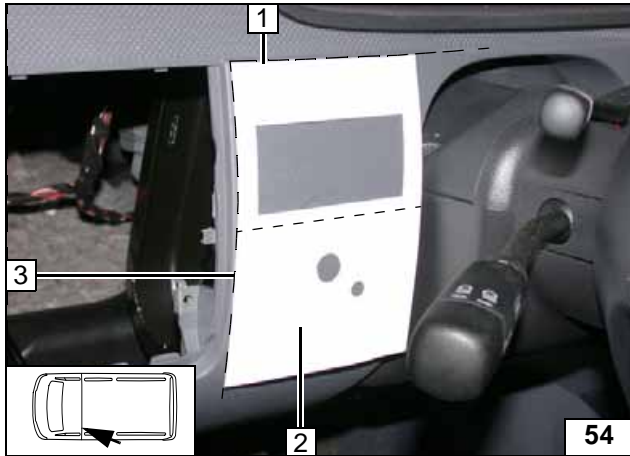
Ground wire

- 1 Ground wire
- 2 Original vehicle ground support point



Fuse holder

- F4 fuse only in case of combination timer!
- 1 Fuse holder
 - 2 4 mm dia hole, M3x10 counter-sunk bolt, retention plate of fuse holder, nut



Combination timer option and controller of air distribution flap

Cut out template 2 and place on top 1 and left edge 3. Copy installation frame for combination timer and/or holes for controller of air distributor flap to the instrument panel, depending on the selection of the heater control.



Mounting the template

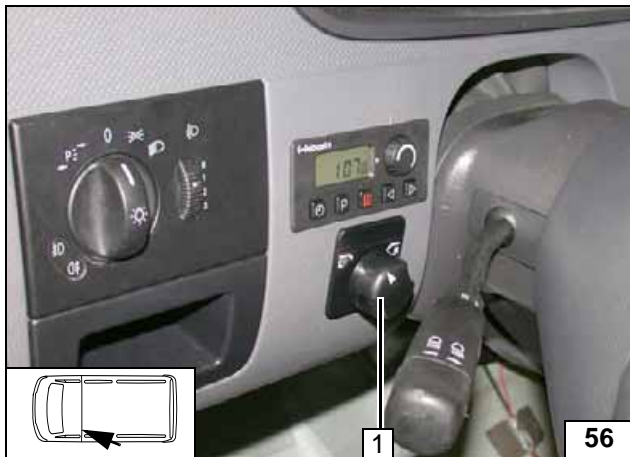


Combination timer option

Cut out installation frame, install combination timer 1!



Installing combination timer

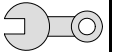


Controller of air distribution flap

7 mm dia and 13 mm dia hole in instrument panel trim, install controller 1.



Installing temperature sensor



Final Work

WARNING!

Reassemble the disassembled components in reverse order.

Check all clamps and all electrical connections for firm seating.

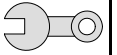
Secure all loose cables using cable ties.

Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

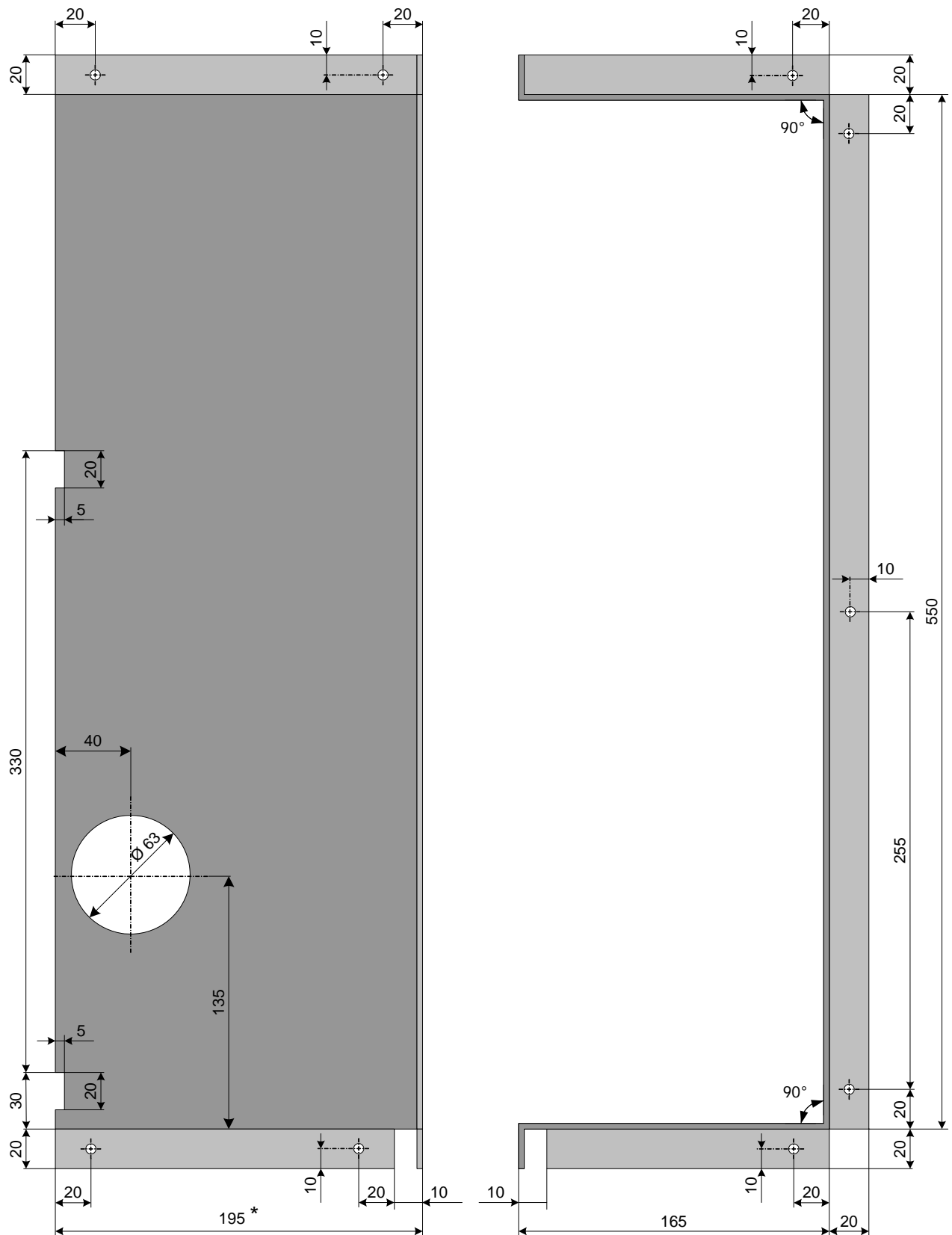
- Connect the battery
- Adjusting heater control
- Check the proper operation of the parking heater, see the operating instructions/installation instructions.
- Mount information label "Switch off parking heater before refueling" in area of filler neck.



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Sketch of shield plate

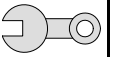


Material = 2 mm thick steel plate

All holes without a specific designation = 5 mm dia.

* = 195 mm for vehicle without floor plate!

* = 175 mm for vehicle with floor plate!



Template of heater



Drive direction

100 mm



Scale 1:1

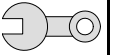
Compare the size of the printed version with dimension lines.

Permitted tolerance a maximum of 2%.

Set the printer settings to "no margin" or "minimise margins" and 100% of the normal size.

100 mm

0



Template for Fuel Standpipe



100 mm



Scale 1:1

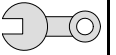
Compare the size of the printed version with dimension lines.

Permitted tolerance a maximum of 2%.

Set the printer settings to "no margin" or "minimise margins" and 100% of the normal size.

100 mm

0



Template of heater control option

