HYDRONIC

Installation Instructions

Espar

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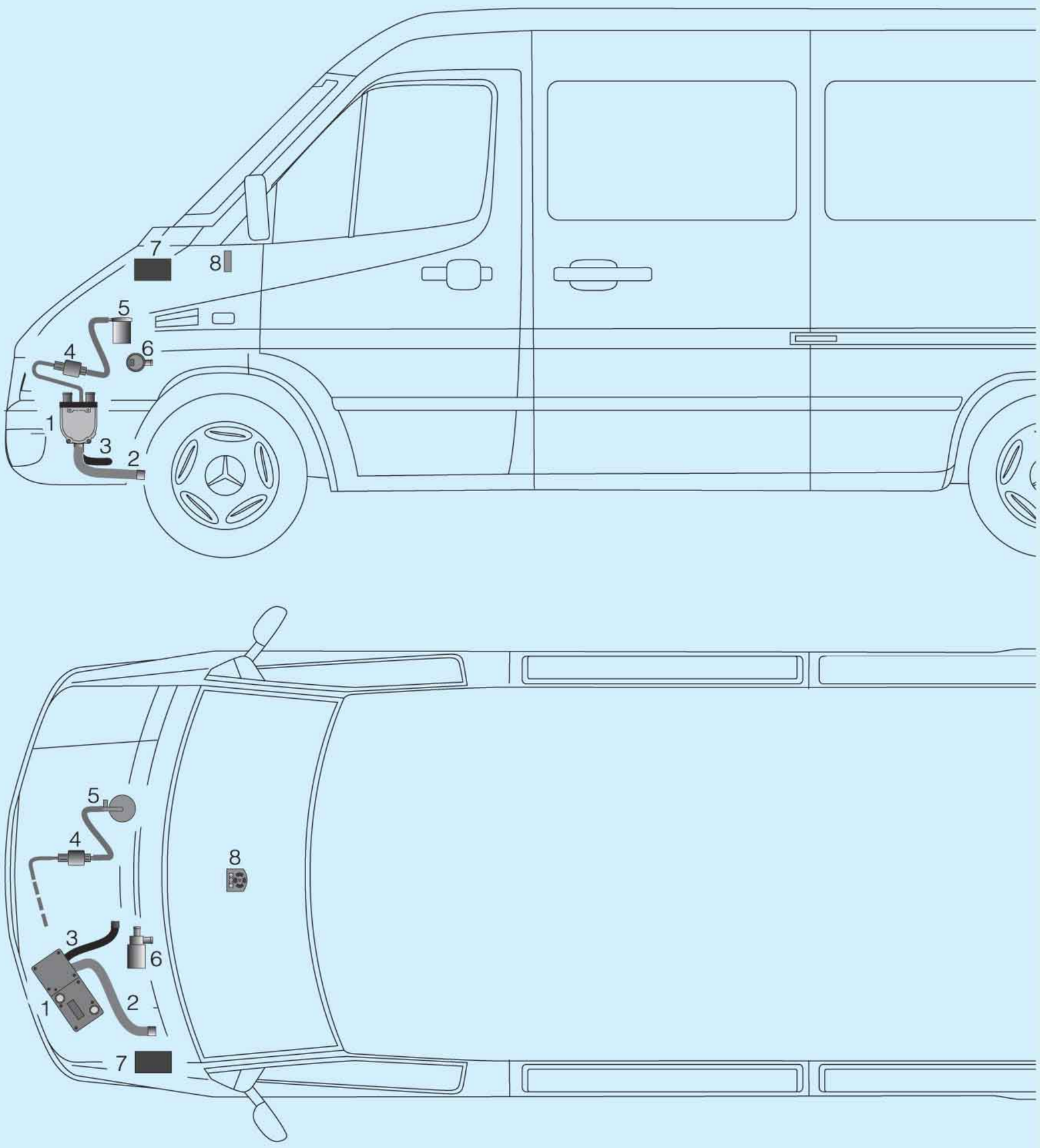
Upgrading the *HYDRONIC* D 5 W Z to an engine-independent heater in a Mercedes Benz - Sprinter

Model - 901.6, 902.6, 903.6, 904.6 with vehicle engine 611
Model - 902.6, 903.6, 904.6 with vehicle engine 612



The installation instructions describe the upgrading of the *HYDRONIC* D 5 W Z to an engine-independent heater in a MB Sprinter.

Order No. - Upgrade Kit
24 0212 00 00 00

Please Note !

These installation instructions apply to the vehicle described on the title page, precluding any liability claims.

Depending on the design and / or modified condition of the vehicle, deviations from these installation instructions may occur.
The person implementing the installation should check this prior to the installation and should make allowance for deviations from these installation instructions, if applicable. In addition to these installation instructions, please comply with the Technical Description and the installation instructions for the heater.

Parts already installed in the vehicle:

1 *HYDRONIC* D 5 W Z
2 Exhaust pipe
3 Combustion air hose
4 Fuel metering pump
5 Fuel connection at the filter
6 Water pump, MB part

Parts from the Upgrade Kit:

7 Control unit
8 Mini timer

Parts required for installation Order No.

1 Upgrade kit , *HYDRONIC* D 5 W Z 24 0212 00 00 00

The upgrade kit contains:
1 Mini timer
1 Additional control unit
1 Connecting part, electric
1 Connecting part
10 Wiring tapes
5 Cables

Prior to installation

- Disconnect battery
- Remove driver's seat
- Dismantle cover of the installation box underneath the driver's seat
- Remove entry bar at the driver's seat
- Detach floor at the wheel arch in the driver's foot space and put aside
- Remove air-conditioning control and operating unit

Please Note !

It is imperative to inform the customer on how to adjust the vehicle's temperature control prior to switching on the heater; see also "Information for the customer" on page 8.

Installation

Mounting the control unit (see images 1-3)

Bore two fastening holes 4.5mm in diameter - as shown in the image - into the side wall of the engine compartment.
Trim holes and apply corrosion protection.

Elongate holes to a 6.5mm diameter at the fixing attachments of the control unit.

Fasten two rubber buffers to the side wall of the engine compartment.
Fasten the control unit to the rubber buffers, using 2 spring washers and 2 hexagon nuts.

Image 1

① Fastening holes, ø 4.5 mm

Image 2

① Rubber buffer

Image 3

① Control unit

Overview on opening the control unit and the cable duct (see images 4 and 5)

To run the wiring harnesses from the control unit, open the cable duct in the cowl on the left side of the vehicle.

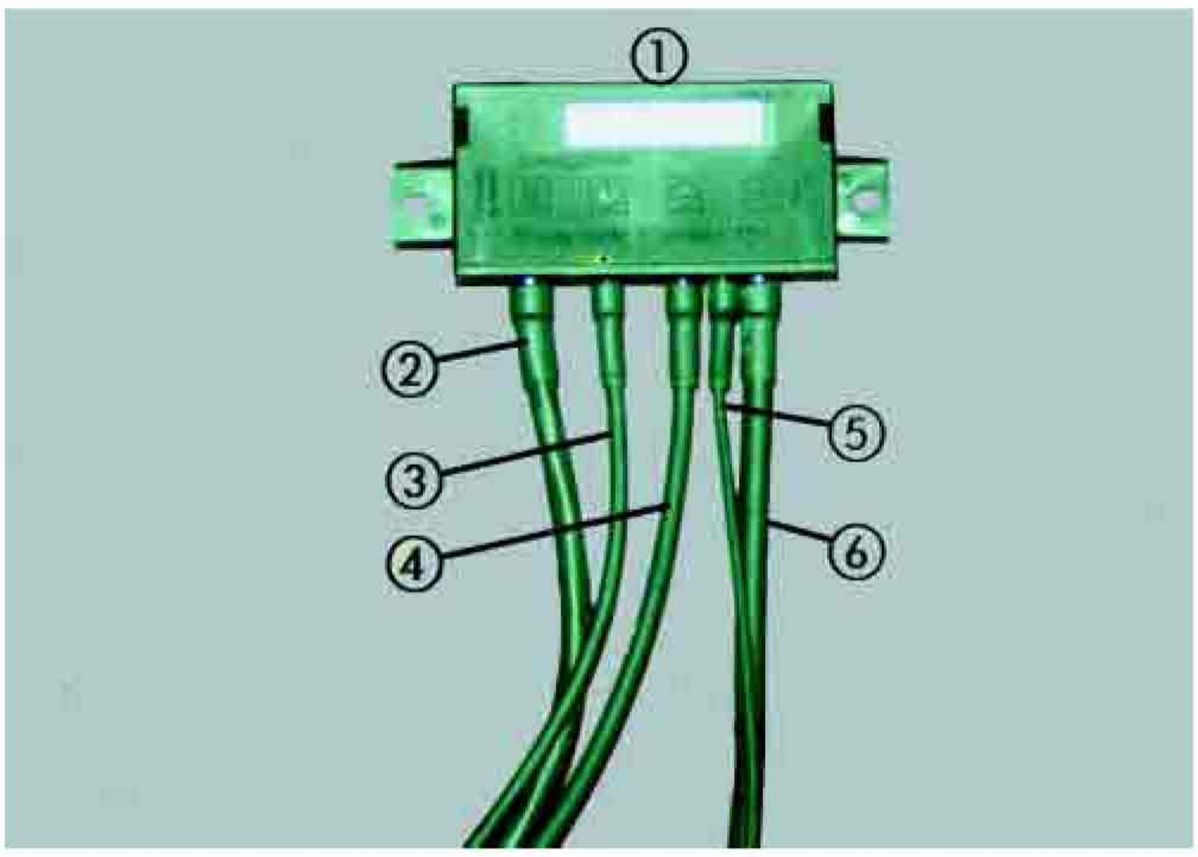


Image 4

① Control unit
② Adapter cable - *HYDRONIC*
③ Mini timer wiring harness / cable colors, red, yellow, brown
④ Water pump wiring harness / cable colors, brown, black / white
⑤ Positive wire - fan voltage supply, K1.30(+)"
cable color, red / white
⑥ Fan wiring harness / cable colors, black / red, black / purple, black

Image 5

① Control unit
② Cable duct

Only for vehicles with manual heating

Running the wiring harnesses from the control unit (see image 6)

Run the fan wiring harness, the water pump wiring harness, and the mini timer wiring harness into the interior of the vehicle through the opened cable duct in the cowl.

Run the *HYDRONIC* adapter cable and the positive cable down behind the battery to the left longitudinal chassis beam.

Snap the socket of the diode out of the relay bar (see image 6)

Pull the "water pump activation" diode out of the receptacle in the installation box underneath the driver's seat.
Snap the receptacle of the diode out of the relay bar and crimp the snap-on contact of the green / red cable from the middle chamber.
Remove the snap-on contact from the green / red cable.

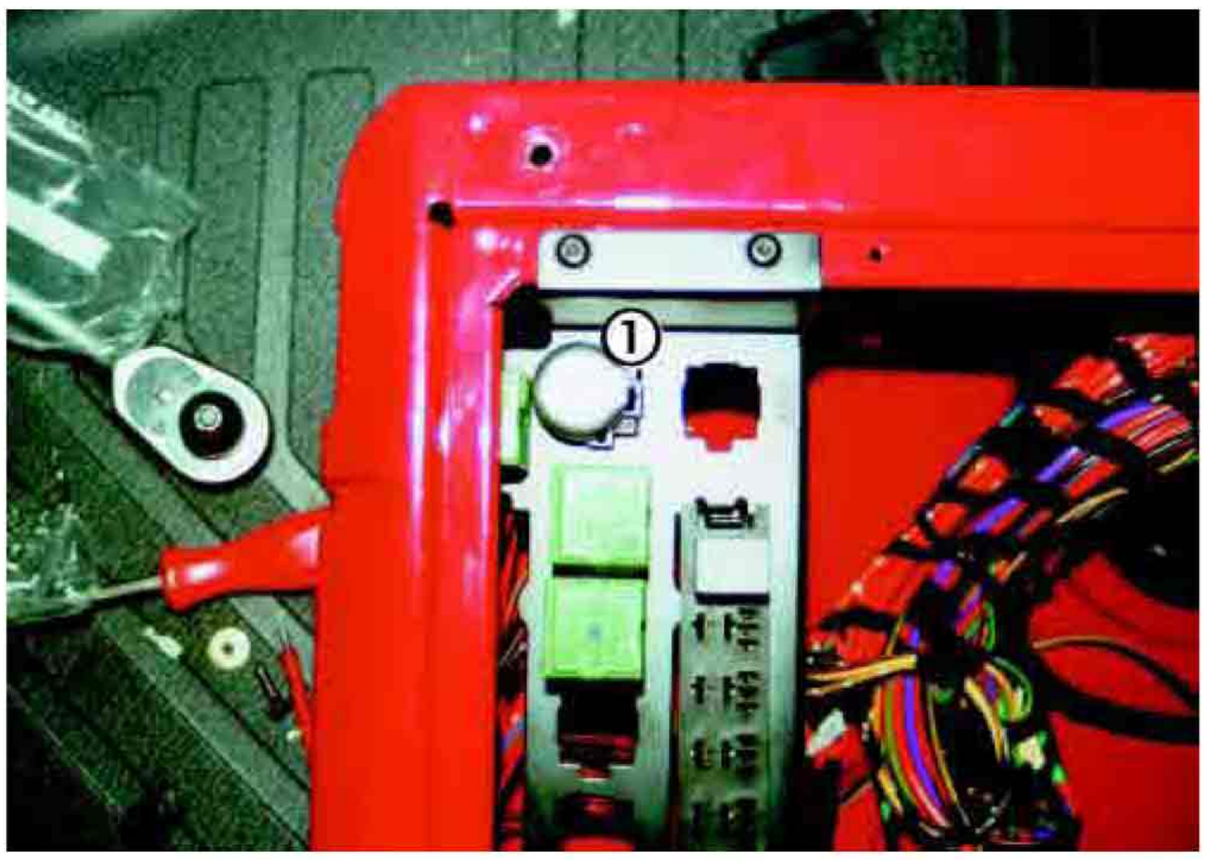


Image 6

① "Activate water pump" diode

Please Note !

If the diode is not in slot 2 in the installation box underneath the driver's seat - as shown in image 6 - connect the "water pump" wiring harness as described on page 4.

Only for vehicles with manual heating

Connecting the water pump wiring harness
(see image 7)

Guide the water pump wiring harness down via the wheel arch and insert the brown and black / white cables into a 2-pole plug connection.
The brown cable ends in a 2-pole plug connection.

Insert the 0.5mm² extension cable for the black / white cable into a 2-pole plug connection and connect it to the water pump wiring harness.
Run the 0.5mm² extension cable into the installation box underneath the driver's seat to the receptacle, and trim it.
Crimp the 0.5mm² extension cable and the green / red cable together in a snap-on contact and then insert the snap-on contact into the middle chamber of the receptacle.

Snap the receptacle into the relay bar and insert the diode.

Image 7

① Water pump wiring harness
② 0.5 mm² extension cable

Connecting the water pump wiring harness in vehicles without a diode in the underseat installation box

If the diode is not in slot 2 in the installation box underneath the driver's seat - as shown in image 6 - connect the "water pump" wiring harness as follows:
Run the "water pump" wiring harness towards the water pump in the engine compartment underneath the brake booster and trim as needed.
Pull the plug at the water pump and open the plug.
Remove the green / red positive cable from the plug and braze out the pin.
Isolate the green / red positive cable and tie it back.

At the 1² black / white cable of the "water pump" cable harness, braze in the pin previously brazed out.
Insert the brazed-in pin into the water pump plug with the 1² black / white cable.
Connect the water pump plug at the water pump.
Isolate the tie back the 1² brown cable from the "water pump" cable harness; this cable is not needed.

Connecting the fan wiring harness (see image 8)

Run the "fan" wiring harness with the black / red, black / purple and black cables underneath the dashboard towards the installation location of the "air conditioning" control and operating unit.
Pull out the 5-pole plug from the dismantled "air conditioning" control and operating unit. Pin out the yellow cable from chamber 1 of the 5-pole plug and disconnect the plug-in contact.
Mount a plug-in contact at the black cable of the "fan" wiring harness and insert the cable in place of the pinned-out yellow cable into chamber 1 of the 5-pole plug.
Connect the black / purple cable of the "fan" wiring harness to the pinned-out yellow cable via a 1-pole plug connection.
Reconnect the 5-pole plug to the air conditioning control and operating unit.

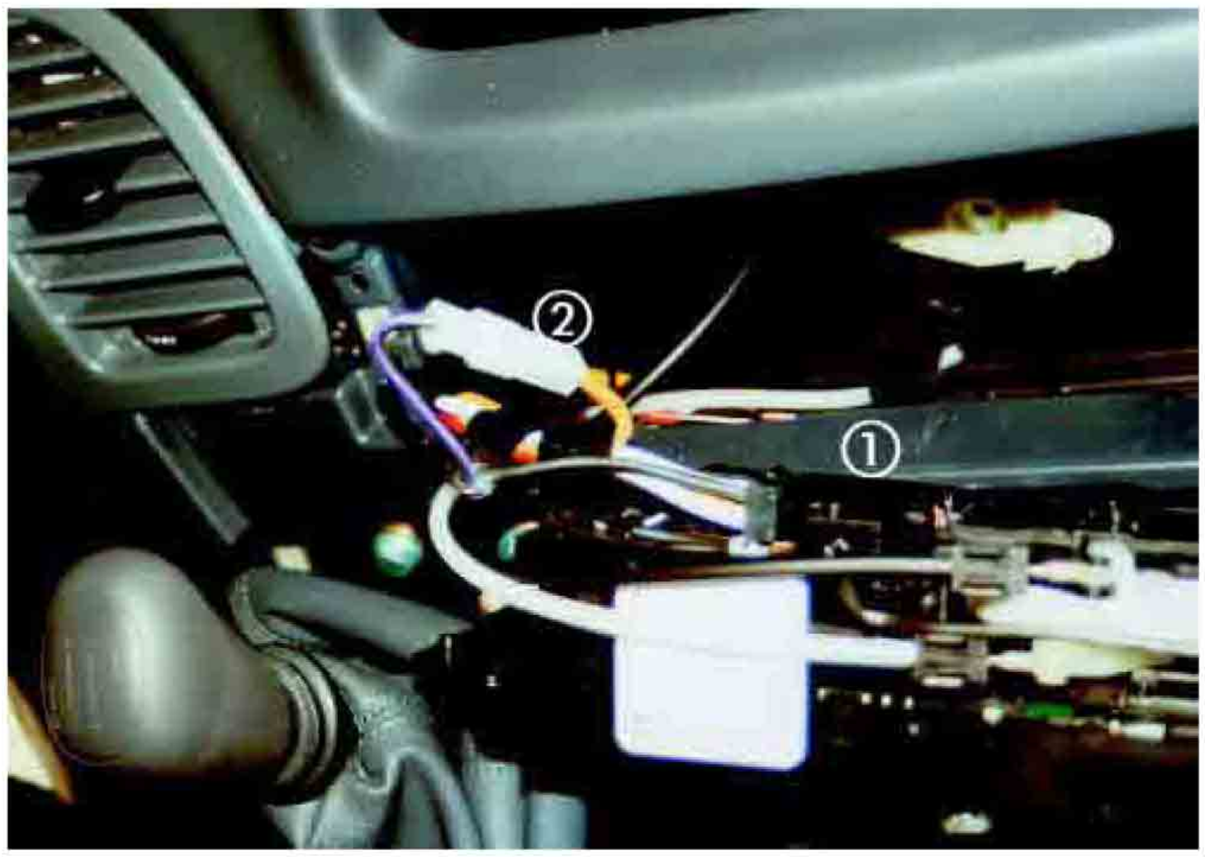


Image 8

① 5-pole plug
② 1-pole plug (yellow cable / black / purple cable)

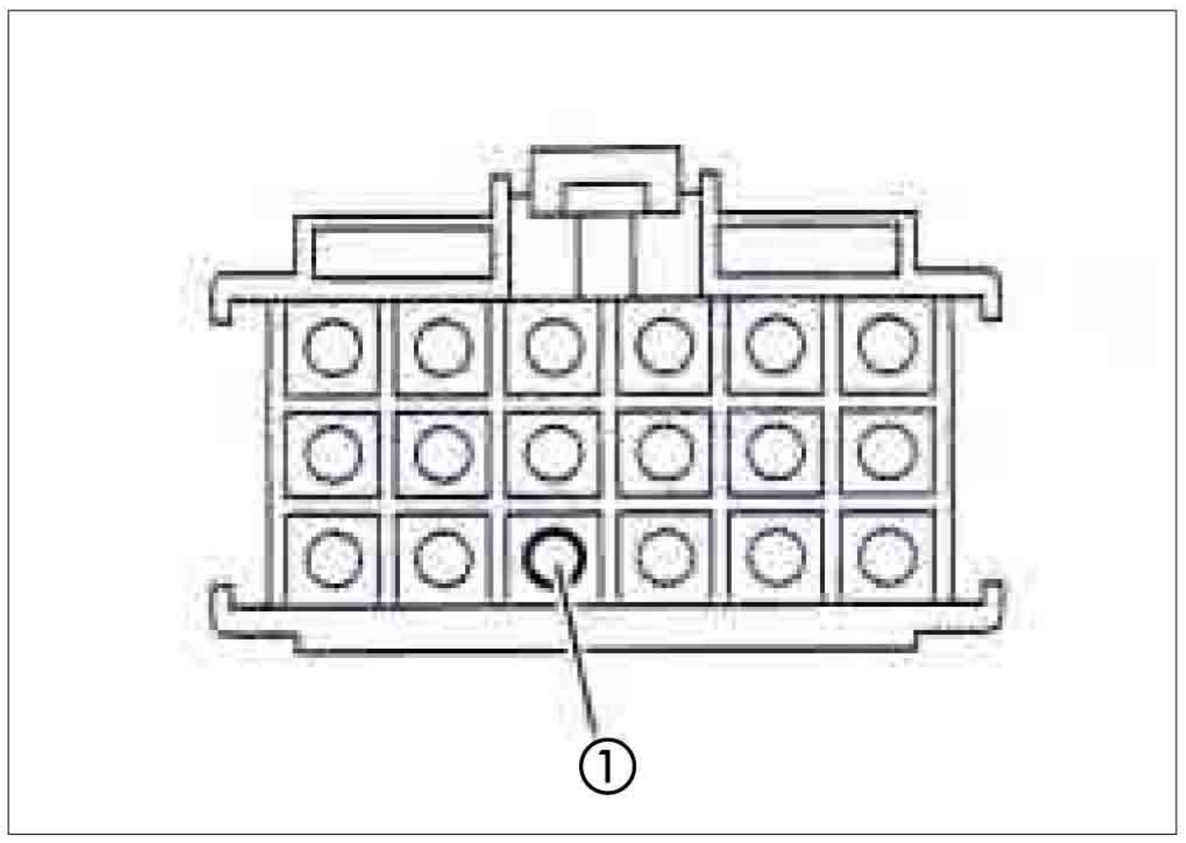
Connecting the fan wiring harness - in vehicles without a break-in / theft alarm "BTA"

Isolate and tie back the black / red cable of the fan wiring harness.

Connecting the fan wiring harness - in vehicles with a break-in / theft alarm "BTA"
(see sketch 1)

Produce a 0.5mm² extension cable for the black / red cable of the fan wiring harness from the installation location of the air conditioning control and operating unit to the installation location of the "BTA" control unit in the installation box underneath the driver's seat.
Connect the black / red cable to the 0.5mm² extension cable via a 1-pole plug connection. Run the 0.5mm² extension cable towards the wheel arch of the driver underneath the dashboard, then guide it downwards via the wheel arch and run it along the extension cable of the water pump into the installation box underneath the driver's seat.
Pull the 21-pole plug out of the "BTA" control unit in the underseat installation box.
Attach a snap-on contact to the 0.5mm² extension cable and insert it into chamber 15 of the 21-pole plug.

Reconnect the 21-pole plug to the "BTA" control unit.



Sketch 1

① 21-pole plug - chamber 15

Connecting the positive cable (see image 9)

Run the positive cable (red / white cable) to the battery via a fuse holder and connect it to the battery's positive pole.

Insert a 25A fuse into the fuse holder.
Fasten the positive cable to the existing cables with cable tape.

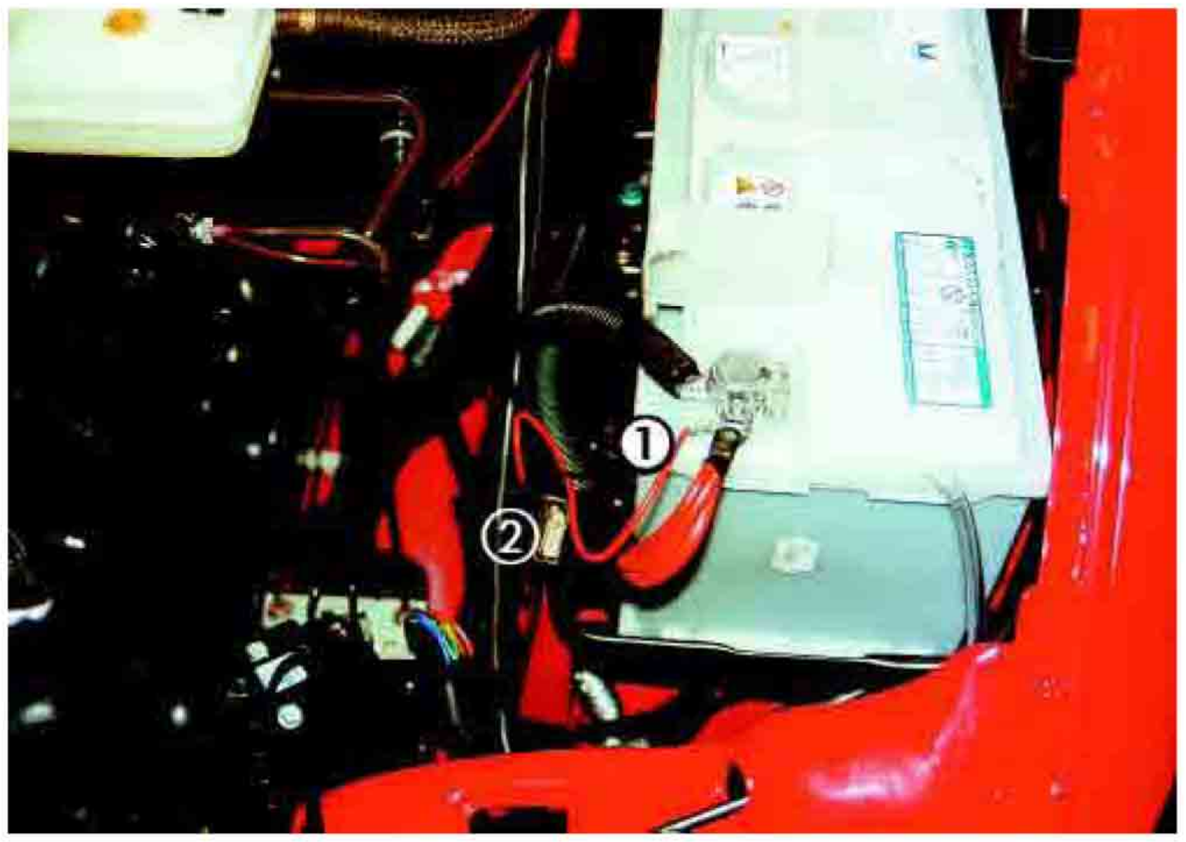


Image 9

① Positive cable (red / white cable) run towards the battery via the fuse holder
② Fuse holder

Only for vehicles with automatic heating / temperature control (Code HH9 or H25)

Running the wiring harnesses from the control unit
(see image 10 and sketch 2)

Run fan wiring harness, water pump wiring harness, min tim wiring harness and positive cable through the opened cable duct in the cowl, into the interior of the vehicle.
Run the adapter cable down behind the battery to the left longitudinal chassis beam. Isolate and tie back the fan wiring harness underneath the dashboard.
Run the water pump wiring harness underneath the dashboard to the installation location of the air conditioning control and operating unit.

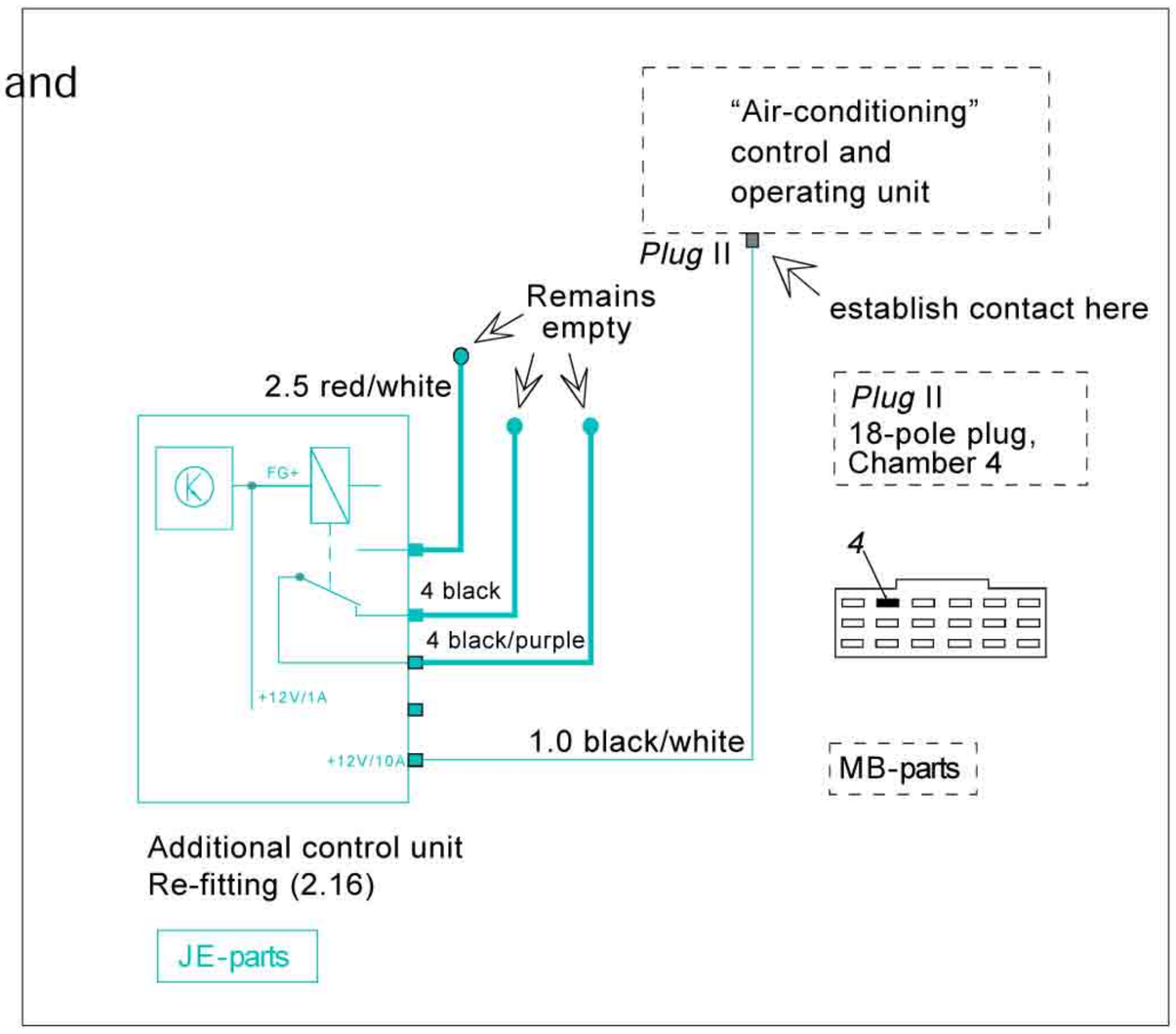
Image 10

① Control unit
② Cable duct

Isolate and tie back the brown cable from the water pump wiring harness.
Pull the 18-pole plug out of the air conditioning control and operating unit.
Attach a plug connection to the black / white cable of the water pump wiring harness and insert the cable into chamber 4 of the 18-pole plug.
Reconnect the 18-pole plug to the air conditioning control and operating unit.

Please Note !

Depending on the year of the model, plug II has changed from 18 to 21 poles.
The occupancy of chamber 4 remains unchanged even with the 21-pole plug.



Sketch 2

2.5 = 12 ga wire
4.0 = 10 ga wire
1.0 = 16 ga wire

Installing and connecting the mini timer (see image 11)

Connect the 4-pole plug housing to the mini timer wiring harness.
Attach three snap-on contacts and the 4-pole plug housing at the mini timer wiring harness coming from the control unit.

Slot 4 of the plug housing remains empty; it is intended for the later connection of the remote control unit.

Slot 4-pole plug housing	**Connect cable**
1	red (+clamp 30)
2	yellow (control cable)
3	brown (-)
4	blue (remote control, optional)

Fasten the mini timer to the dashboard on the right side of the steering column.
Plug the two 4-pole plug housings together and attach them to existing wiring harnesses underneath the instruments, using cable tape.

Image 11

① Mini-timer

Please Note !

When running the wiring harnesses, it is imperative to maintain enough distance to hot vehicle parts. Attach wiring harnesses at suitable locations, using cable tape.

Avoid rubbing spots, apply rubbing protection, if necessary.
Trim or tie back overlong cable harnesses.

Connecting the adapter cable (see image 12)

Disconnect the serial plug connection in the *HYDRONIC* area and connect the adapter cable from the control unit.

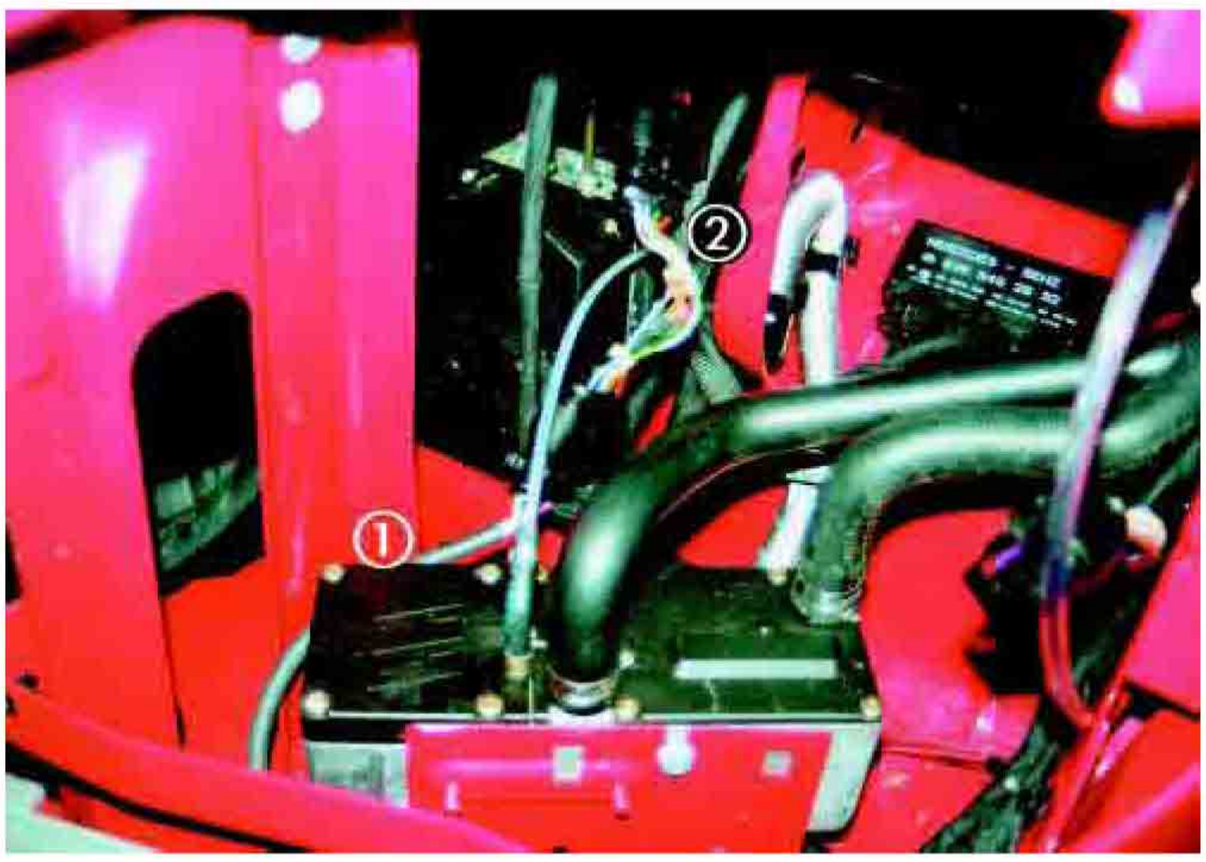


Image 12

① *HYDRONIC*
② Adapter cable

Affixing the label (see image 13)

Affix the "switch off heater before fuelling" label to the B column on the driver's side.

Image 13

① Label

After installation is complete

- Connect battery.
- Reinstall all dismantled parts.
- Vent the coolant system.
- Please also observe the instructions of the vehicle manufacturer for the filling and venting of the water circuit.
- Check that the water circuit is sealed.
- Observe official regulations and safety instructions.

Information for the customer

The heater that has been upgraded to an engine-independent heater is turned on with a control element (mini timer).
An operating manual is enclosed with the control element.

Prior to switching on

Before you switch on or pre-program the heating operation, set the vehicle's temperature control to "warm" (maximum setting).
Set the vehicle fan to "low setting". This keeps the energy consumption at the lowest possible level.

In vehicles with automatic air-conditioning

No pre-programming is required in vehicles with automatic air-conditioning. All necessary adjustments are made by the automatic air-conditioning control unit when the control element (mini timer) is turned on.

§ Official regulations

For heaters with a General Design Certification, the upgrade has to be inspected and certified in writing by an officially recognized motor vehicle expert or inspector (section 7.4a of Enclosure VIII to the Traffic Admission Regulations) in compliance with § 19 paragraph 4 of the Traffic Admission Regulations.

Heaters with a General Design Certification bear the following inspection label on their type plates:

HYDRONIC D 5 W Z ∿∿∿ S 274

For heaters with a European Community Type Certification, an inspection by an expert or inspector is not required.

Heaters with a European Community Type Certification bear the following inspection label on their type plates:

HYDRONIC e1 00 0023

Please Note !

- If the heater is upgraded at a later time from an auxiliary heater to an engine-independent heater, this must occur in compliance with the installation instructions.
- Compliance with the legal provisions and safety instructions is the prerequisite for warranty and liability claims. In case of non-observance of the legal provisions and safety instructions, as well as in case of non-professional repairs, even if original spare parts are used, the warranty shall expire and J. Eberspaecher GmbH & Co. KG shall no longer be liable.
- The legal provisions are binding and must also be observed in countries which do not have any specific provisions.

Safety instructions for installation and operation

⚠ Injury, fire and poisoning hazard!

- Disconnect the vehicle battery before starting any work.
- Turn off the heater and let all hot components cool off before performing work on the heater.
- The heater may not be run in closed rooms, such as a garage or multi-storey car park.

Accident prevention

The general accident prevention regulations and the corresponding garage and industrial safety instructions must be observed in principle.

Safety instructions for installation and operation

Caution!

- The heater may only be upgraded in compliance with the specifications in this documentation and possible specific installation suggestions, or repaired, in case of a repair or warranty, by a JE partner authorized by the manufacturer.

- Repairs performed by non-authorized third parties and / or using non-original spare parts are dangerous and therefore not permissable. They lead to the expiry of the type certification of the heater and thus, in the case of motor vehicles, possibly to the expiry of the vehicle's operating license.

- The following measures are not permissible:
  – Modifications to heating-related components.
  – Use of alien parts not released by Eberspaecher Co.
  – Installation or operation - related deviations from legal, safety and / or function related specifications made in the installation instructions and the operating manual. This applies specifically to electric wiring, fuel supply and combustion air and exhaust evacuation.

- Only original accessory parts and original spare parts may be used for installations or repairs.

- Only operating elements released by Eberspaecher Co. may be used to operate the heater.
  The use of other operating elements may lead to defects.

- When performing electric welding work on the vehicle, the positive pole cable must be disconnected from the battery and grounded to protect the control unit.

- It is not permissible to operate the heater in a place where flammable vapors or dust can form, eg. near a:
  – fuel depot
  – coal stockyard
  – lumberyard
  – grain storage or similar.

- The heater must be turned off when fuelling.

- Defect fuses may only be replaced by fuses with the specified fuse value.

- If fuel leaks from the fuel system of the heating unit (leakage), have the damage repaired by a JE service partner immediately.

- When filling up the coolant, only use coolant licensed by the vehicle manufacturer; see operating manual of the vehicle. Mixing in non-licensed coolant can lead to damage to the engine and the heater.

- The heater's caster may not be prematurely interrupted, for example by activating the battery disconnection switch, except in case of an emergency switch.