

Installation Instructions

Water Heater

Thermo Top Evo



This document is valid for:

- Thermo Top Evo - P
- Thermo Top Evo - D
- Thermo Top Evo HD - D
- Thermo Top Evo RV - D

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1 General information

1.1 Purpose of the document

These installation instructions are part of the Thermo Top Evo and contain all the information required to ensure correct and safe installation.



NOTE

The actual availability of these functions depends on each installed heater.

1.2 Intended use

The type approvals in accordance with the regulations ECE-R 122 (heating) and ECE-R 10 (EMC) for the Thermo Top Evo water heater apply in the area where the European Directive 70/156/EEC and/or EC/2007/46 (for new vehicle types as from 29/04/2009) is valid.

For approval number, see --- MISSING LINK ---.



NOTE

The stipulations of these regulations are binding in the area covered by Regulation (EU) 2018/858 and should also be observed in countries where there are no specific regulations.



DANGER

Failure to follow the installation instructions and the notes contained therein will lead to all liability being refused by Webasto. The same applies if repairs are carried out incorrectly or with the use of parts other than genuine spare parts. This will result in the invalidation of the type approval for the heater and therefore of its homologation / EC type licence.

■ The heater is approved for Class **M1** motor vehicles. Installation in Class **O**, **N2** and **N3** motor vehicles and vehicles for transporting hazardous substances is not permissible. See also: https://ec.europa.eu/growth/sectors/automotive/vehicle-categories_en.

If it is installed in special-purpose vehicles, the applicable regulations must be observed. Alternative applications are possible in agreement with Webasto.

The water heater works together with the vehicle's heating system:

- to heat the passenger compartment
- to defrost vehicle windows.
- to preheat water-cooled engines (if technically possible)

The heater can be installed as a parking heater or auxiliary heater.

1.2.1 Parking heater

The heater works independently of the vehicle engine and is integrated into the coolant system, the fuel system and the electrical system of the vehicle.

1.2.2 Auxiliary heater (optional)

When switching on the engine, the heater will be switched on, depending on the outside temperature.

When the engine is switched off, the heater is not automatically switched off.

1.3 Version

Thermo Top Evo - D

Water heater for diesel fuel:

Thermo Top Evo - B

Water heater for petrol fuel.

Thermo Top Evo RV – D

Thermo Top Evo HD - D

Water heater for diesel fuel with continuous heating.

The Thermo Top Evo water heater is designed for 12 volts.

For technical information, see „chapter 11 *Technical data*".



NOTE

Thermo Top Evo 5+ heater versions must not be used for island coolant system applications.

1.4 Use of symbols and highlighting



DANGER

This signal word denotes a hazard with a high degree of risk which, if not avoided, may lead to death or serious injury.



WARNING

This signal word denotes a hazard with a moderate degree of risk which, if not avoided, may lead to minor or moderate injury.



NOTE

This signal word denotes a Special Technical Feature or (if not observed) potential damage to the product.



CAUTION

This signal word denotes a hazard with a low degree of risk which, if not avoided, will lead to minor or moderate injury.

- ✓ Requirements for the following necessary action
- Necessary action

2 Installation location and installation position

Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

Requirement from ECE-R 122, point 5.3.2.1. See eur-lex.europa.eu document 42010X0630(08) for more information.

The heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be met if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

Requirement from ECE-R 122, point 5.3.2.2. See eur-lex.europa.eu document 42010X0630(08) for more information.

The heater must not be installed in the interior of the vehicle. The heater is preferably installed in the engine compartment, i.e. in the area between the wheel well and the front bumper.

It should be installed as low as possible in order to ensure automatic bleeding of the heater and coolant pump. This is particularly relevant for the coolant pump which is not self-priming.



WARNING

The openings of the heat exchanger must not point downwards in any installation position.

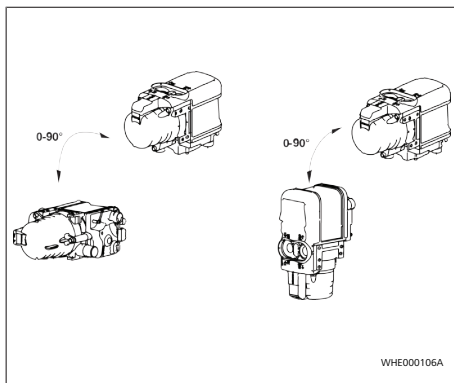


Fig. 1

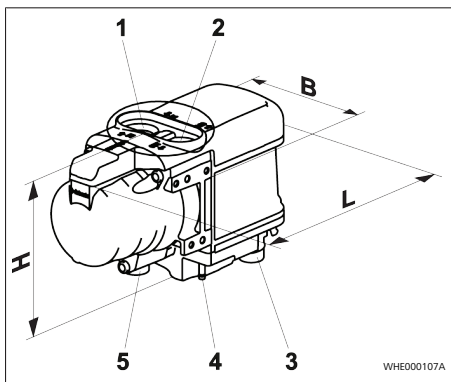


Fig. 2

- | | |
|-------------------------|------------------|
| 1 Heat exchanger inlet | 5 Exhaust outlet |
| 2 Heat exchanger outlet | L Length |
| 3 Combustion air inlet | B Width |
| 4 Fuel inlet | H Height |

For dimensions Thermo Top Evo see „chapter 11 Technical data“.



WARNING

The heater must not be installed:

- In the direct radiated heat range of exhaust systems
- Below the wading line of the vehicle
- Above the coolant expansion tank.

2.1 Type label

The label referred to in Annex 7, paragraph 4, or a duplicate, must be positioned so that it can be easily read when the combustion heater is installed in the vehicle.

Requirement from ECE-R 122, point 5.3.2.4. See [eur-lex.europa.eu document 42010X0630\(08\)](http://eur-lex.europa.eu/document/42010X0630(08)) for more information.

The type label must be positioned in a location where it is protected from damage. The non-applicable years should be removed from the type label, retaining the current year.

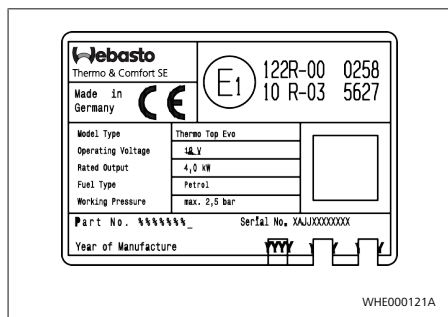


Fig.3

2.2 Standard bracket

Secure the heater bracket to the Thermo Top Evo using at least 3 heater-specific screws M5 with 8 Nm torque. The heater mounting screws are approved for bracket plate thicknesses of 1.5 to 3.0 mm.

The standard bracket must be secured to the vehicle body or to an intermediate bracket using at least 4 screws M6. Do not use sheet-metal screws to secure the bracket to the vehicle body. If necessary, the bracket must be properly and professionally machined according to engineering standards.

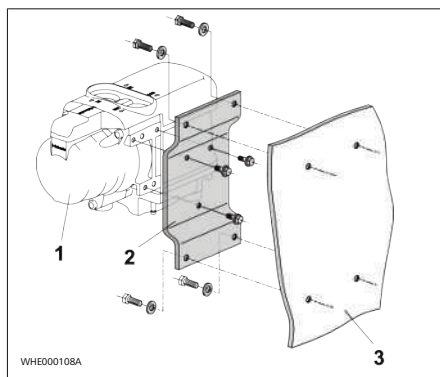
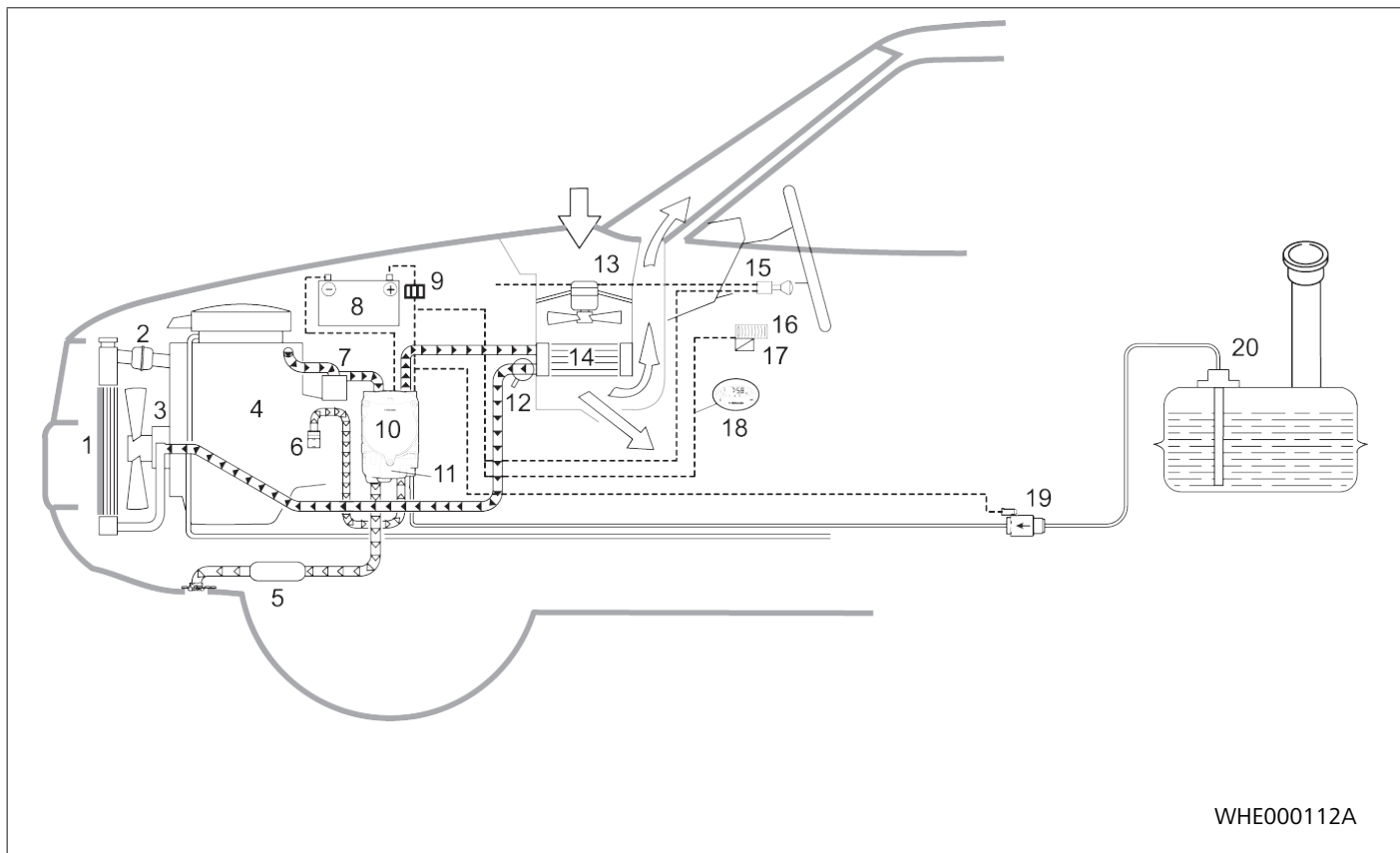


Fig.4

- 1 Water heater
- 2 Heater bracket
- 3 Vehicle body

3 Installation example in the vehicle



WHE000112A

Fig.5

1	Radiator	11	Control unit (in the heater)
2	Coolant thermostat	12	-
3	Coolant pump	13	Fan of the vehicle heating system
4	Internal combustion engine	14	Heat exchanger for vehicle heating system
5	Exhaust silencer	15	Switch for fan of the vehicle heating system
6	Intake silencer, combustion-air intake pipe	16	Fuse block in vehicle
7	Coolant pump	17	Vehicle connection/blower interface
8	Battery	18	Control element
9	Fuse holder	19	Fuse holder
10	Water heater	20	Fuel extraction

4 Integration in the coolant system

4.1 Connection

The Thermo Top Evo is connected to the vehicle coolant system as shown in *Integration in the coolant system In-line*"Fig. 6, *Installation example in the vehicle*"Fig. 5 and *Installing the coolant pump*"Fig. 10. The amount of coolant in the circuit must be at least the volume specified in "Technical data". The heater should preferably be integrated in the coolant system at the vehicle's heat exchanger inlet.

Coolant system Inline

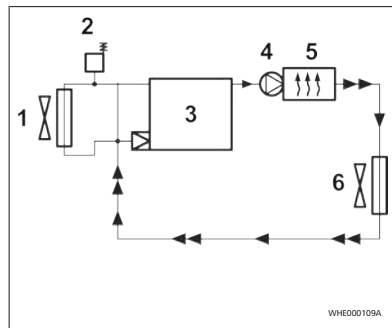


Fig.6 Integration in the coolant system Inline

- | | |
|------------------------------|---|
| 1 Radiator | 4 Coolant pump |
| 2 Expansion tank | 5 Water heater |
| 3 Internal combustion engine | 6 Heat exchanger for vehicle heating system |

Coolant system Island

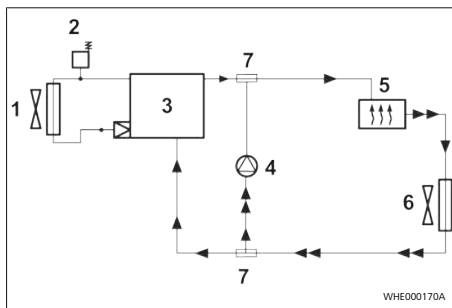


Fig.7 Integration in the coolant system Island

- | | |
|------------------------------|---|
| 1 Radiator | 5 Water heater |
| 2 Expansion tank | 6 Heat exchanger for vehicle heating system |
| 3 Internal combustion engine | 7 Non-return valve |
| 4 Coolant pump | |



NOTE

► Collect the coolant running out of the system in a suitable container. The cooling system must be vented according to the manufacturer's instructions.

The coolant hoses supplied by Webasto should always be used. If this is not possible, the hoses must comply with DIN 73411 material class B as a minimum. The hoses should be installed without kinks and – for problem-free bleeding – as far as possible with an upward slope away from the heater.

Only hoses with an inner diameter of 18 mm may be selected.

Hose connections must be secured against slipping using clamps.

4.2 Assembly of the water connection piece



NOTE

Never mount the holding plate and the water connection pieces when the heater is installed.

The contact surfaces of the O-rings in the heat exchanger must be clean and must not show any signs of damage.

The O-rings must be wetted with water before being inserted into the heat exchanger.

1. Position the O-rings in the openings in the heat exchanger.
2. Insert the water connection pieces in the holding plate.
3. Move the connection pieces into the required installation position.
4. Secure the retaining plate with water connection piece onto the heat exchanger. Self-tapping screw DG 5X15 mm, torque 7 Nm.

In order to ensure automatic bleeding of the heater, the water connection pieces must point upwards at an angle of 0° to 90°.

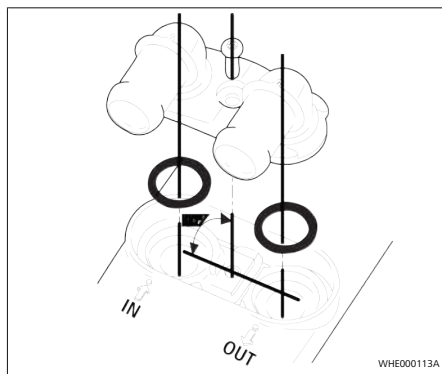


Fig. 8



WARNING

Make sure the sensor cable is positioned correctly.

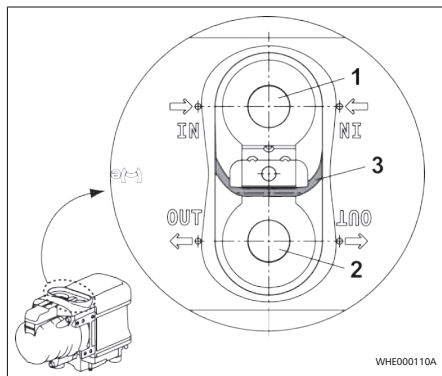


Fig. 9

- 1 Heat exchanger inlet
- 2 Heat exchanger outlet
- 3 Sensor cable

4.3 Assembling water hoses

When connecting the coolant hoses to the coolant circuit, pay attention to the correct direction of flow of the coolant. To facilitate installation, the coolant inlet and outlet on the heater and the coolant pump are marked with arrow markings.

The clamps must be installed on the heat exchanger connection piece between the bead and the hose stop. Before initial start-up of the heater, or following replacement of the coolant, the cooling system should be bled carefully. The heater and lines should be installed in such a way that static bleeding is ensured.

Insufficient bleeding can lead to a malfunction resulting from overheating in heating mode.



NOTE

- Only use spring clips that are approved by Webasto for securing the water hoses.

4.4 Installing the coolant pump

The coolant pump must be mounted in the coolant circuit on the pressure side of the heater/heat exchanger inlet (see *Integration in the coolant system In-line*"Fig. 6).

Ensure the correct direction of flow of the coolant pump to the vehicle coolant circuit.

The installation position of the coolant pump must be selected such that the coolant pump can perform automatic bleeding. The air volume contained in the coolant pump must be able to escape upwards independently via the connection pieces. Incorrect installation may lead to malfunctions of the coolant pump operation.

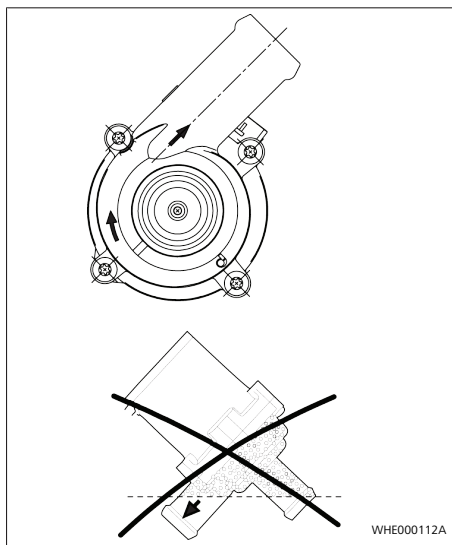


Fig.10

See also „chapter 8.2 Connecting coolant pump“.

4.5 Inspection

Once the heater and all coolant-carrying components have been installed, the entire coolant system should be checked for leaks at the system pressure specified by the vehicle manufacturer.

5 Fuel integration

The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

Requirement from ECE-R 122, point 5.3.3.1. See [eur-lex.europa.eu document 42010X0630\(08\)](http://eur-lex.europa.eu/document/42010X0630(08)) for more information.

In the case of liquid fuel heaters, where a supply separate from that of the vehicle is provided, the type of fuel and its filler must be clearly labelled.

Requirement from ECE-R 122, point 5.3.3.2. See [eur-lex.europa.eu document 42010X0630\(08\)](http://eur-lex.europa.eu/document/42010X0630(08)) for more information.

The fuel integration is carried out either in the supply or return line or by a special tank extraction unit.

5.1 Integration in the motor supply or return line

On vehicles with their own fuel feed pump in the fuel tank, the fuel must not be removed from the fuel supply line!

- If the vehicle is equipped with a non-return valve to the tank, the fuel must not be extracted from the return line.
- It must be ensured that no zero shut-off occurs in the vehicle system when extracting fuel.
- When removing fuel from the swirl pot, it must be ensured that it is not completely empty.

Proper installation is carried out as shown in figure:

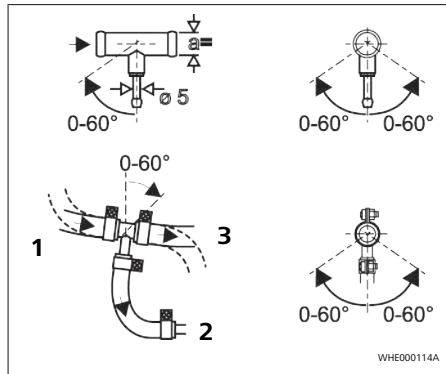


Fig. 11

- 1 from fuel tank
- 2 to fuel pump
- 3 to motor

5.2 Integration via vehicle's own fuel delivery unit

See also „chapter 3 *Installation example in the vehicle*“.

The tank extracting device is installed in the fuel extraction unit of the tank.

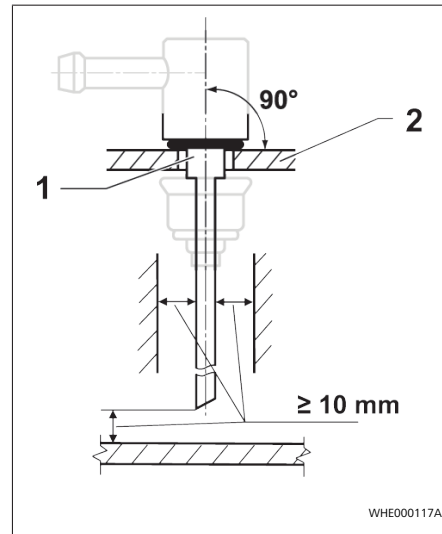


Fig. 12

- 1 Tank extracting device
- 2 Vehicle's own fuel delivery unit with hole

The mounting surface of the tank extracting device must be clean, level and free of burrs. Make sure the standpipe is carefully routed when inserting the tank extracting device into the fuel extraction unit. It must not adversely affect the function of the fuel extraction unit parts, including the fill level indicator, during any of the operating states. The length of the standpipe should be selected such that, in the installed state, a minimum clearance of 10 mm above the floor of the tank or 20 mm above the floor of the fuel delivery unit is ensured.

The safeguarding measures and the corresponding torque specified by the vehicle manufacturer must be observed.



NOTE

The tank extracting device must under no circumstances be mounted in the tank body, but only in the vehicle's fuel delivery unit.

5.3 Fuel line

The fuel line is divided into an intake and a pressure line. Here, the intake line forms a connection between tank and fuel pump, and the pressure line forms a connection between fuel pump and heater.

NOTE
Only lines approved by Webasto may be used as fuel lines.

5.4 Installing lines

When installing the fuel line make sure that it is kept as short as possible.

Length of intake pipe [m]	max. 3.0m
Intake height [m] (height difference between tank and fuel pump)	max. 1.0m
Length of pressure pipe	max. 9.0m

The line must be protected against damage (e.g. stone chips) in all areas. It is essential that the fuel line is installed in cool areas to avoid bubbles being formed by the effect of heat. High fuel temperatures can cause the heater to malfunction. The line must therefore not be directed past heat sources (e.g. exhaust gas) and also not in the region of trapped heat zones. Moreover, the

fuel line should be installed with as much of an incline as possible from the tank to the heater.

Fuel lines must be secured in accordance with the state of the art so that sagging of the lines is avoided. An abrasion guard should be fitted at transition points with sharp edges.

WARNING
Do not route the fuel lines through the vehicle interior.

5.5 Connecting 2 lines using a hose

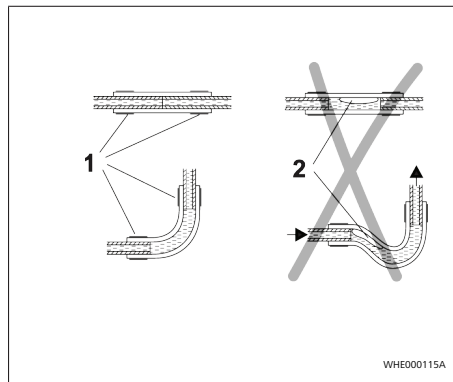


Fig.13

1 Hose clip

2 Air bubble

WARNING
Make sure there are no leaks!

NOTE
Only Webasto-approved fastening and connecting parts may be used.

5.6 Fuel pump

The fuel pump is a combined delivery, metering and a shut-off system and is subject to certain installation criteria.

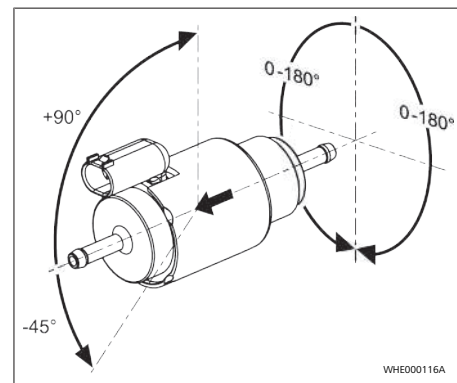


Fig.14

The Thermo Top Evo heater must only be operated with the fuel pump DP 42.

5.7 Installation and attachment fuel pump

The fuel pump must be secured with a vibration-damping mounting. The installation position is restricted (maximum inclination angle and axial installation position of fuel pump) as illustrated in *Fuel pump*"Fig. 14 to ensure effective automatic bleeding.

The arrow indicates the direction the fuel is flowing.

The fuel pump must not be installed within the radiated heat range of hot vehicle components. Fit a heat shield if necessary. The fuel pump should be preferably installed close to the fuel tank.

Permissible ambient temperature depending on the fuel used: see „chapter 11 *Technical data*".

5.8 Sticker

A notice, indicating that the heater must be shut down before refuelling, must be affixed to the filler neck of the vehicle. [...]

Requirement from ECE-R 122, point 5.3.3.3. See eur-lex.europa.eu document 42010X0630(08) for more information.

The enclosed sticker "Switch off heater when fuelling" should be attached in the region of the vehicle filler neck.

The image shows an example.

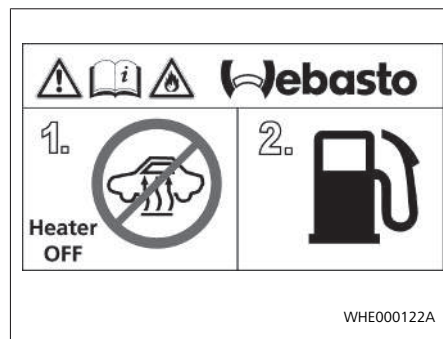


Fig. 15

5.9 Cold-resistant fuels

When switching to cold-resistant fuels, the heater must be run in operation for approx. 15 minutes so that the fuel line and fuel pump are also filled with new fuel.

There are no known adverse effects of using additives.

6 Combustion air supply

The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

Requirement from ECE-R 122, point 5.3.5.1. See eur-lex.europa.eu document 42010X0630(08) for more information.

The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

Requirement from ECE-R 122, point 5.3.5.2. See eur-lex.europa.eu document 42010X0630(08) for more information.

6.1 Combustion air pipe

The combustion air intake line can only be used in combination with an intake silencer.

6.2 Intake silencer

The combustion intake opening must be arranged in such a way that it cannot become clogged with dirt.

The take-off point for the combustion air must be situated at a location above the wading depth of the vehicle that is cool and protected against spray; the

installation space must not cause overpressure or underpressure (e.g. owing to the airstream).

A ventilation opening measuring at least 3 cm² is required if the intake opening is installed in an enclosed installation space.

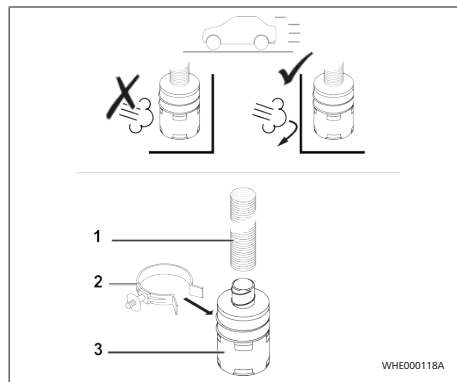


Fig. 16

- 1 Combustion air intake line
- 2 Mounting clip
- 3 Combustion-air intake silencer

6.3 Notes on installation

1. Screw a combustion-air intake pipe with a maximum length of 400 mm onto the combustion-air intake connection piece of the heater.

2. Screw the combustion-air intake silencer as far as possible into the combustion-air intake pipe.



WARNING

Leaks can result in a higher noise level. Ensure an adequate distance from the exhaust system to prevent the intake of exhaust gas!

Depending on the installation, the combustion air intake silencer can be located in a suitable location and secured with the included mounting clip or other installation materials which utilise the latest technology.

7 Exhaust system

7.1 Exhaust pipe

The exhaust pipe (internal diameter 22 mm) can be installed with a number of bends (totalling 270°, smallest bend radius 50 mm).

The total pipe length must be between 500 and 1000 mm.

7.2 Exhaust silencer

Operation of the Thermo Top Evo heater is not permitted without the use of an exhaust silencer.

The exhaust silencer must be installed near the heater and must not be installed near the intake opening for the combustion air.

The exhaust silencer must be installed at least 200 mm away from the heater.



NOTE

Drill a Ø 2 mm condensed-water drain hole at the lowest point of the exhaust silencer.

7.3 Notes on installation

The exhaust silencer and the exhaust pipe may not be secured to temperature-sensitive vehicle parts (e.g. brake line, electrical lines, vehicle control units, headlamps, underbody coating, plastic parts, etc.) and must be positioned at a suitable spacing from these of at least 20 mm.

Only the exhaust pipe approved by Webasto may be used. These must be sufficiently fixed in place to ensure the minimum distances even during driving. The approved spacer brackets (see *Notes on installation*"Fig. 17, Pos. 3) must be used for this purpose. The spacer must be mounted on the exhaust pipe before the exhaust pipe is installed.

We recommend installing the exhaust gas application so that it is splash-proof.

To fasten the exhaust line (exhaust outlet), the exhaust-pipe end mounting device (EFIX, *Notes on installation*"Fig. 17, Pos. 2) must be used in the engine undertray (*Notes on installation*"Fig. 17, Pos. 1). See the installation instructions of the EFIX exhaust-pipe end mounting device.



NOTE

The spacer must not be used as an exhaust pipe end mounting device in the engine undertray.



NOTE

Accumulations of condensation in the exhaust pipe must be discharged immediately. If necessary, a condensation drain hole may be fitted at the lowermost point.

Condensation drain holes must not blow onto temperature-sensitive vehicle parts.

The exhaust gas outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

Requirement from ECE-R 122, point 5.3.4.1. See [eur-lex.europa.eu document 42010X0630\(08\)](http://eur-lex.europa.eu/document/42010X0630(08)) for more information.

The exhaust outlet must be unobstructed. It should not be directed towards vehicle parts. The exhaust outlet may not be in the area in which the wheels throw up matter.

Ensure the maximum turning angle of the front wheels. Care must be taken to ensure that the exhaust outlet cannot be blocked and cannot be damaged under any usage conditions.

The exit of the exhaust pipe must not face in the direction of travel. Point the direction of outflow vertically downward or a maximum of 20° opposite the direction of travel.

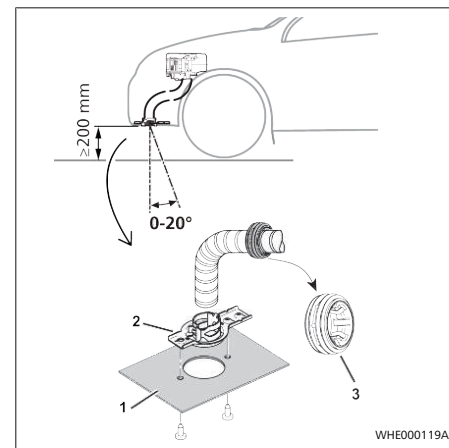


Fig. 17

- 1 Underride protection
- 2 Exhaust end fastener
- 3 Spacer

8 Electrical Connections

Electrical components, such as relays, fuses, switches, etc., must be installed so that they are protected from the penetration of water (splash water, high-pressure cleaners, etc.).

8.1 Connecting control unit/ heater

The electrical connection of the heater is carried out as shown in „chapter 9.1 *Wiring diagrams* “.

The power supply must not be connected until directly before commissioning. Therefore, we recommend that you connect the heater power supply as the last work step prior to commissioning.

8.2 Connecting coolant pump

The electrical connector must be routed so that the cable cannot be kinked directly after the connector under any circumstances. The electrical connector must be installed tension and pressure-free in all directions.

8.3 Installing and connecting the control elements

A clearly visible operating display in the operator's field of view must indicate whether the combustion heater is switched on or off.

Requirement from ECE-R 122, Annex 7, point 7.1. See eur-lex.europa.eu document 42010X0630(08) for more information.

The control element is connected as shown in „chapter 9.1 *Wiring diagrams* “

The installation of control elements, approved by Webasto, must be carried out in accordance with the specific installation instructions.

8.4 Vehicle blower

The vehicle blower is controlled as set out in the vehicle-specific installation documentation.

9 Wiring Diagram

**NOTE**

The line cross-sections specified in the system wiring diagram apply for line lengths < 4.5 m.

bl	Blue
br	Brown
ge	Yellow
gn	Green
gr	Grey
or	Orange
rt	Red
sw	Black
vi	Violet
ws	White

9.1 Wiring diagrams

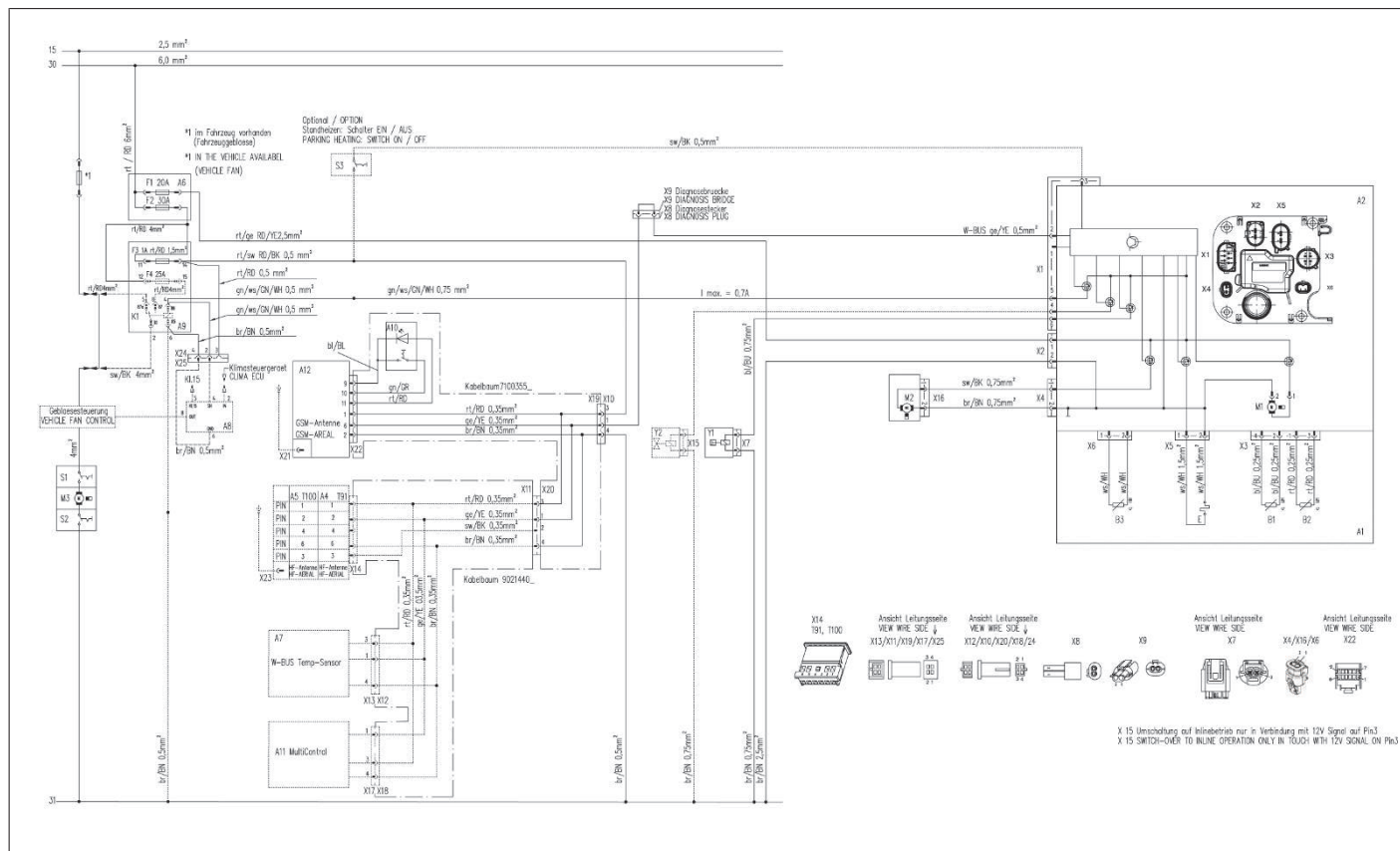


Fig.18 W-bus application Car

9041701A Thermo Top Evo

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9.1.1 Legend to wiring diagrams and pin assignment

TT-Evo Connector X1: possible pin assignment		TT-Evo Standard (car)	TT-Evo RV/HD
Pin 1	No connection	X	
	Input select AH/PH		X
Pin 2	W-bus	X	X
Pin 3	No connection	X	
	Analogue switch-on signal		X
Pin 4	No connection	X	
	Flash code for fault display		X
Pin 5	Vehicle blower	X	X
Pin 6	Fuel pump	X	X



NOTE

The connection in the heater control unit is designed for a current consumption of $I_{\max} = 0.5 \text{ A}$.

No.	W-bus	W-bus RD/HV	Cronus
A1	Heater Thermo Top Evo	Heater Thermo Top Evo	
A2	Control unit	Control unit	Control unit
A4	Telestart T91		
A5	Telestart T100 HTM		
A6	Fuse holder Heating / air-conditioning control unit	Fuse holder Temperature sensor W bus	Fuse holder Fuse and diagnostics
A7	W-bus temperature sensor		T-LIN-R module / optional
A8	PWM Gateway Fan controller	PWM Gateway Fan controller	
A9	Relay socket with fuses	Relay socket with fuses	
A10	Button TC4		
A11	MultiControl		

Thermo Top Evo

No.	W-bus	W-bus RD/HV	Cronus
A12	ThermoCall TC4		
A13			Cronus / Webasto passenger compartment control unit
A14			Cronus pushbutton
F1	Fuse 20A	Fuse 20A	Fuse 20A
F2	Fuse 30A	Fuse 30A	Fuse 30A
F3	Fuse 1A	Fuse 1A	Fuse 1A
F4	Fuse 25A	Fuse 25A	
B1	Coolant temperature sensor	Coolant temperature sensor	Coolant temperature sensor
B2	Temperature sensor overheating	Temperature sensor overheating	Temperature sensor overheating
B3	Temperature sensor not in use	Exhaust gas temperature sensor	Exhaust gas temperature sensor optional
M1	Motor Combustion air fan	Motor Combustion air fan	Motor Combustion air fan
M2	Motor Coolant pump	Motor Coolant pump	Motor Coolant pump
M3	Vehicle blower	Vehicle blower	Motor Second coolant pump (optional)
M4			Motor vehicle blower
S1	Switch for vehicle blower	Switch for vehicle blower	
S2	Switch for vehicle blower	Switch for vehicle blower	
S3		Main switch	
E	Glow plug	Glow plug	
Y1	DP42 fuel pump	DP42 fuel pump	
Y2	Coolant switching valve		Coolant switching valve
BA		Operating indicator	

No.	W-bus	W-bus RD/HV	Cronus
K1	Fan relay	Fan relay	
X1	6-pin connector Vehicle signal	6-pin connector Vehicle signal	6-pin connector Vehicle signal and coolant pump control
X2	2-pin connector Power supply	2-pin connector Power supply	2-pin connector Power supply
X3	4-pin connector Temperature sensors	4-pin connector Temperature sensors	4-pin connector Temperature sensor for heater
X4	2-pin connector Coolant pump	2-pin connector Coolant pump	2-pin connector Coolant pump
X5	2-pin connector Glow plug	2-pin connector Glow plug	2-pin connector Glow plug
X6	2-pin connector not in use	2-pin connector Exhaust gas temperature sensor	2-pin connector Exhaust gas temperature sensor
X7	2-pin connector Fuel pump	2-pin connector Fuel pump	2-pin connector Fuel pump
X8	2-pin connector Diagnostic connector	2-pin connector Diagnostic connector	
X9	2-pin connector Diagnosis bridge	2-pin connector Diagnosis bridge	
X10	4-pin connector Heater controls	4-pin connector Heater controls	4-pin connector Passenger compartment, Cronus
X11	4-pin connector Wiring harness		4-pin connector Passenger compartment, Cronus
X12	4-pin connector Temperature sensor W bus wiring harness		3-pin connector Temperature sensor and cold start module

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No.	W-bus	W-bus RD/HV	Cronus
X13	4-pin connector W-bus temperature sensor		3-pin connector Temperature sensor and cold start module
X14	6-pin connector Telestart T91 / T100 HTM		
X15	Coolant switching valve		
X16	2-pin connector Coolant pump	2-pin connector Coolant pump	3-pin connector Coolant pump
X17	4-pin connector MultiControl		4-pin connector Control element
X18	4-pin connector wiring harness		4-pin connector Control element
X19	4-pin connector wiring harness	4-pin connector Control elements	4-pin connector Push button connector
X20	4-pin connector wiring harness		4-pin connector Push button connector
X21			3-pin connector Adapter for 2-pin coolant pump
X22	4-pin connector ThermoCall		2-pin connector Adapter for 2-pin coolant pump
X24	4-pin connector Relay socket with fuses	4-pin connector vehicle connection	
X25	4-pin connector Air-conditioning control unit	4-pin connector vehicle connection	
1	Present in vehicle PWM Gateway socket		
2	Fan controller		

No.	W-bus	W-bus RD/HV	Cronus
3	Air-conditioning control unit		
4	Aerial		
5	Plug connection View of Line Side		
6	Wiring harness		

10 Initial startup



Carefully read through and follow the heater Operating and Installation Instructions and the safety information contained therein.

Carefully bleed the coolant circuit and the fuel supply system after installing the heater. The vehicle manufacturer's specifications should be followed.

In addition, the circulation pump must be controlled via the component test function of the Webasto Thermo Test PC Diagnosis to bleed the coolant system.

Before initial start-up of the heater, the coolant temperature should be $< 30^{\circ}\text{C}$ since the heater does not commence burner operation at high engine temperatures.

10.1 When using without 'Cronus' passenger compartment module

The initial start-up is to be executed with the Webasto Thermo Test PC Diagnosis.

Pre-deliver fuel for the heater with Webasto Thermo Test:

Select the "Fuel priming" button from the 'Component test' selection menu and fill the line until fuel is present at the heater.

Example:

43 s filling time with line length of 300 cm, frequency of fuel pump 7 Hz.

The CO_2 setting must be checked during the initial start-up (for value range, see „chapter 11 *Technical data*“).

Check CO_2 setting as per workshop manual.

During the test run of the heater, check all coolant and fuel connections for leaks and tight fit. All faults entered in the heater memories must be deleted before turning the vehicle over to the customer.

10.2 When using the 'Cronus' passenger compartment module

Further information can be found in the general installation and operating instructions of the Webasto components.

Initialisation of Cronus with the Webasto Thermo Test Diagnosis:

1. Activate the 'Cronus' application, initiate the start-up then follow and carry out the instructions in the indicated sequence
2. Save or print the final report
3. Program MultiControl CAR, pair Telestart transmitter
4. Make settings on A/C control panel according to the 'Operating Instructions'
5. Initial start-up and function check
6. Affix 'Switch off parking heater before refuelling' caution label in area of vehicle filler neck

11 Technical data

If no limit values are specified, the technical data below will refer to the usual heater tolerances of $\pm 10\%$ at an ambient temperature of $+20^{\circ}\text{C}$ and at the rated voltage.

11.1 Technical data for coolant pump

Coolant pump	U4847econ
Volume flow against 0.1 bar	approx. 900 l/h
Rated voltage	12 Volt
Operating voltage range	10.5 to 17 Volt
Rated power consumption	14W
Dimensions fuel pump	Length max. 109 mm Diameter 48.5 mm
Weight	Approx. 0.3 kg

Fig.21

CE-Konformitätserklärung CE-Declaration of Conformity	
Hersteller Manufacturer	Webasto Thermo & Comfort SE Friedrichshafener Straße 9 82205 Gilching
Für die Verwendung des Webasto Heizgerätesystems For the use of the Webasto heating system	
Thermo Top Evo	
Richtlinie Directive	Harmonisierte Normen Harmonised Standards
2006/42/EG Maschinenrichtlinie 2006/42/EG machinery directive 2014/30/EU EMV 2014/30/EU EMC 2011/65/EU RoHS	EN ISO 13849-1:2008-12 EN ISO 3744:2010 EN ISO 12100:2011 DIN EN 61310-2:2008-09 DIN EN 60335-1:2012-10 DIN EN 61000-6-1:2007 DIN EN 61000-6-3:2007 DIN EN 13309:2010 EN ISO 14982:2009 EN ISO 13766:2006
Befolgen Sie die Einbauanweisung und die Bedienungsanweisung Follow the installation instruction and operating instruction	
 ppa. Dr. W. Forshuber EVP Program Management & Product Engineering Webasto Thermo & Comfort SE	 i.A. R. Kaindl Certification and Regulation Webasto Thermo & Comfort SE
Ort und Datum der Ausstellung Place and Date of issue	
Gilching, den 02.09.2014	
Webasto Thermo & Comfort SE Friedrichshafener Straße 9 82205 Gilching Telefon +49 (89) 8 57 94-0 Fax +49 (89) 8 57 94-4 48 Sitz Gilching Handelsregister: München HRB 185000 Vorsitzender des Aufsichtsrats: Franz-Joerg Kortum Vorstandsmitglieder: Dr. Joachim Damsky Michael Kneifus UST-ID: DE280008926 Bankverbindung: HypoVereinsbank München BLZ: 700 202 70 Konto: 276 83 21 IBAN: DE55 7002 0270 0002 7683 21 SWIFT: HYVEDE33XXX www.webasto.com	
Original in deutscher Fassung. Original in german version.	
Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. This declaration of conformity is issued under the sole responsibility of the manufacturer.	

11.2 Technical data Thermo Top Evo

Heater	Operation	Thermo Top Evo - B		Thermo Top Evo - D	
		5 kW	4 kW	5 kW	4 kW
ECE approval mark		R122 E1 00 0258 (heating) R10 E1 04 5627 (EMC)			
Design		Water heater with evaporator burner			
Heat flow	Maximum heating capacity Minimum heating capacity	5.0 kW 2.8 kW	4.0 kW 2.8 kW	5.0 kW 2.5 kW / 1.8 kW *	4.0 kW 2.5 kW
Fuel		E0-E10 according to EN 228 E85 according to DIN 51625		B7 according to EN 590 DIN EN 15940	
Fuel consumption +/- 10 %	Maximum heating capacity Minimum heating capacity	0.705 l/h 0.395 l/h	0.560 l/h 0.395 l/h	0.620 l/h (5 kW) 0.310 l/h (2.5 kW) 0.22 l/h (1.8 kW)*	0.495 l/h 0.310 l/h
Rated voltage		12 Volt			
Operating voltage range		10 to 16.5 Volt			
Rated power consumption +/- 10% without coolant pump and vehicle blower	Maximum heating capacity Minimum heating capacity	31W 14W	21W 14W	31W 12 W (2.5 kW), 10 W (1.8 kW)	21W 12W
Ambient temperature in heating mode (installation situation)					
Heater		-40 °C to +60 °C		-40 °C to +60 °C	
Fuel pump					

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Heater		Operation	Thermo Top Evo - B	Thermo Top Evo - D
arctic diesel				-40 °C to +30 °C
winter diesel				-20 °C to +30 °C
winter petrol			-40 °C to +10 °C	
summer petrol			-20 °C to +20 °C	
Ambient storage temperature				
Heater			-40 °C to +125 °C	
Control unit			-40 °C to +125 °C	
Fuel pump			-40 °C to +90 °C	
Perm. operating pressure			2.5 bar	
Capacity of the heat exchanger			0.075 l	
Minimum volume in coolant circuit			2.0 + 0.5 l	
Minimum volume flow for heater			200 l/h	
CO ₂ in exhaust gas (permitted function range)			functional range approx. 8-12 %	
Dimensions of heater without attached parts. Also see Fig 2 (tolerance ± 3 mm)			Length 218 mm Width 91 mm Height 147 mm without coolant connection piece	
Weight			2.2 kg	

* Thermo Top Evo RV

These are the original instructions. The German language is binding.

You can request your language if it is missing. The telephone number of each country can be found in the Webasto service centre leaflet or the website of the respective Webasto representative of your country.

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