

# Operating Instructions

Thermo 90 S  
Thermo 90 ST

## General Information

Dear Webasto Customer,

We presume that the principle and mode of operation of your new heater has been explained to your complete satisfaction by the workshop/service centre which installed the heater. In these operating instructions we would like to once again provide you with an overview of the safe use of the heaters.

## Maintenance and Safety Instructions

Within the territory governed by European Directive 70/156/EEC and/or EC/2007/46 (for new vehicle types from 29/04/2009), there are homologation approvals for the Thermo 90 S water heaters in accordance with the directives 2001/56/EC (Heating systems) and 72/245/EEC (EMC) and for the Thermo 90 ST water heaters in accordance with ECE-R 122 (Heatings) and ECE-R 10 (EMC).

The units must be installed in accordance with the enclosed installation instructions. The installation must be checked in accordance with statutory installation provisions. Refer to the installation instructions for more details.

The year in which the heater was used for the first time must be permanently displayed on the type label by deleting the inapplicable years from the label.

When installing the Thermo 90 S / Thermo 90 ST heater in vehicles for transporting dangerous goods, the requirements of the ADR in the respectively valid version must also be complied with in addition to the German Road Traffic Regulations (StVZO).



Danger of explosion  
and suffocation!

The heater **must not be operated** :

- In filling stations and tank farms.
- At locations at which highly flammable gases or dusts can form, and at locations at which highly flammable liquids or solid materials are stored (e.g. near fuel, coal and wood dust, grain warehouses, dry grass and leaves, cardboard, paper, etc.)
- In enclosed rooms (e.g. garages), not even via the timer or Teletstart.



The heater **must not**:

- be exposed to storage temperatures of more than +85 °C. Otherwise the electronics may suffer permanent damage.
- Be operated without at least 20 % brand name anti-freeze in the water of the heating circuit.



- may only be operated with the fuel specified on the rating plate and at the nominal voltage specified on the rating plate.
- must be taken out of operation by switching it off immediately and removing the fuse if smoke develops, if unusual burning noises are heard or if there is a smell of fuel.  
The heater must not be restarted until the unit has been checked exclusively by personnel duly trained by Webasto.
- must be put into operation for 10 minutes at least once a month with the engine cold and the fan set to the minimum setting.
- must be inspected every year by a specialist at the beginning of the heating season or earlier.



#### Liability:

- Non-compliance with the installation instructions and the warnings contained therein will lead to the exclusion of all liability by Webasto. The same applies if repairs are carried out incorrectly or with the use of parts other than genuine spare parts. This invalidates the type approval for the heater and its homologation/EC or ECE-type permit.
- Claims can only be made if it can be verified that the claimant has complied with the servicing and safety instructions.

## Operation of the heater

Before switching on the heater, the vehicle heater must be set to "hot", and the vehicle heater fan must be set to the slowest speed (reduced current consumption)!

#### For ADR vehicles only:

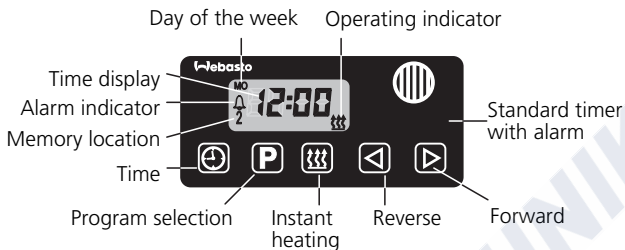
The Thermo 90 S / Thermo 90 ST heaters are switched on and off manually with a switch. The use of automatic control systems is prohibited. In class FL vehicles these heaters must not be used during loading and unloading procedures or at the loading points.

In FL type vehicles the

heaters are switched off automatically and the supply of combustion air is stopped after a maximum of 40 seconds in the following circumstances:

- The vehicle engine is at a standstill; in this case the heater may be switched on again by hand
- A transport device on the vehicle is started in which case the brief slow-down time is stopped after 20 seconds (Thermo 90 ST after 40 seconds).

Subsequently, the control unit is in its "fault lock-out" mode. Before the heater can be restarted, the On/Off switch must be set to "Off". The Emergency-Stop switch may only be operated in case of danger, as the heater is then switched off without run-on (overheating possible).



## General information

The standard timer allows the heater start time to be selected for a period of up to seven days. It is possible to program 3 different starting times, only one of which can be activated. The standard digital timer features a wake-up alarm function.

When the ignition is switched on the timer shows the current time and the day. When the heater is switched on, the display and the buttons are illuminated. After the power supply has been connected, all symbols on the display will flash. The current time and weekday must be set.

## Operation

The timer can be operated in that all flashing symbols can be adjusted by means of the ◀ and ▶ buttons. If no button is pressed for five seconds the displayed time is saved. If the ◀ and ▶ buttons are pressed for longer than two seconds, they will switch to high speed adjustment.

If the ignition is switched off whilst the heater is in immediate heating mode, a remaining operating time of 15 minutes will appear on the display and the heater will continue to operate.

## Switching on

Manually: by pressing the 🔥 button (immediate heat)

Automatically: By programming the start time.

## Switching off

Manually: by pressing the 🔥 button (immediate heat)


Automatically: by programming the switch-on duration

With running heater: by setting the remaining operating time.

## Setting time/day of the week



Press the ⌚ button for more than two seconds - the time flashes - set the time using the ◀ and ▶ buttons - the day flashes - set the day.

## Viewing time

With ignition switched off: press the  button.

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## Programming heater starting time




Press the **P** button - program number flashes - set the start time using the  and  buttons - the day flashes - set the day.

If you press the **P** button several times, you can set the program numbers 2 and 3 or go to the time mode.



## Viewing/deleting selected times

Press **P** button repeatedly until the desired program number is displayed. To delete the selected time, press the **P** button repeatedly until the time is displayed, with no program number.

## Programming duration of operating time




The heater must be switched off. Press the  button for three seconds - the operating duration flashes - set the required operating duration using the  and  buttons (10 to 120 minutes).

## Setting remaining operating time

Set the desired remaining operating time (1 to 120 minutes) using the  and  buttons. The remaining operating time refers to the time the heater still continues to remain in operation. It can only be changed whilst the heater is operating and the ignition is off.


## Setting wake-up time

A wake-up time can only be programmed with the standard timer.

The wake-up time is not bound to a specific day of the week. Press the **P** button repeatedly until the bell symbol  appears in the display. Set the desired wake-up time using the  and  buttons.

The timer switches off after 5 minutes or when one of the buttons is pressed.

## Viewing/deleting wake-up time

Press the **P** button repeatedly until the bell symbol  appears in the display and read off the wake-up time.

Delete the wake-up time by pressing the **P** button repeatedly until the bell symbol  is no longer visible in the display.

## Remote control

Possible using an external optional immediate heat button.

## Vehicles with ADR equipment

It is not possible to set a time on ADR vehicles. The remaining time is shown on the display while the heater is in operation. The time can be adjusted. The alarm clock function can be programmed on the standard digital timer.

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## Action in the event of faults [www.butlertechnik.com](http://www.butlertechnik.com)

If a fault occurs, check that the fuses and plug connections are in perfect condition and secure.

If this action does not correct the defect, consult your authorised Webasto dealer.

After the heater has been shut down due to a fault lock-out, a coded flashing signal is emitted through the operation indicator during the run-on time of the heater. These coded flashing signals are designed to assist the authorised Webasto dealer in diagnosing the fault.

### Heater switches off automatically (= fault lock-out)

#### Cause

No combustion after starting and restarting. Flame goes out during operation.

Voltage drop for more than 20 seconds.

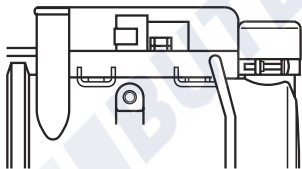
Heater has overheated due to lack/loss of coolant.

#### Remedy

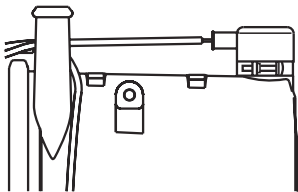
Switch off heater and switch on again. If the heater fails to re-start consult your authorised Webasto dealer.

Check fuses, electrical connections and battery.

Top up coolant in accordance with the vehicle manufacturer's instructions.



Thermo 90 S



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### Fault code output

When equipped with the standard timer, a fault output appears in the display after a fault occurs.

## Fault Codes on the Display of the Combination or Standard Digital Timer



### NOTE

If the heater is activated by the switch, the types of malfunctions are indicated by coded flashing signals via the operation indicator light during the run-on time of the heater.



After five short signals, count the long flashes:

The flashing pulses match the number in the table below.

F 00/--	(only five short flashing pulses) Heater lock-out or control unit defective, Unlocking only possible by specialised workshop
F 01	No start (after 2 starting attempts)
F 02	Flame failure
F 03	Undervoltage or overvoltage
F 04	Premature flame detection
F 05	Flame monitor interruption or flame monitor short circuit
F 06	Temperature sensor interruption or temperature sensor short-circuit
F 07	Metering pump interruption or metering pump short-circuit
F 08	Fan motor interruption or fan motor short-circuit or incorrect fan motor speed
F 09	Glow plug interruption or glow plug short circuit
F 10	Overheating
F 11	Circulation pump interruption or circulation pump short circuit

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The telephone number of each country can be found in the  
Webasto service center leaflet or the website of the respective  
Webasto representative of your country

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