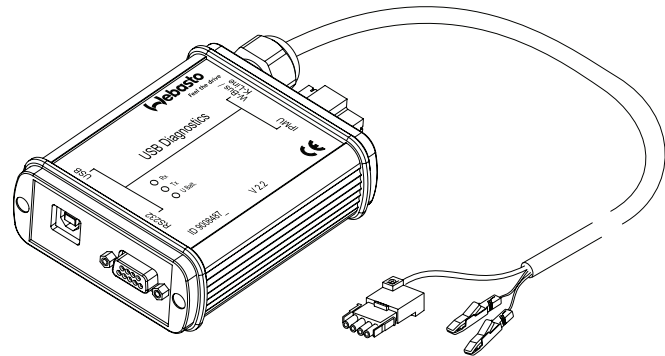


Webasto Thermo Test Version 2.08

Operating instructions



11/2006
2410063A

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General information/installation

General

1 General information/installation

1.1. General

The Webasto heater diagnostic software is used for checking heaters with a diagnostic capability in all voltage versions with the help of a personal computer.

The PC diagnostic adapter and the type-specific test adapter supplied with the software are required to connect the heater to the PC (see Fig. 1 to 13). The test adapters are identical as used in combination with the diagnostic computer.

Although the program has been tested successfully on many computers, it is not impossible that it will not run properly on certain PCs. In this case, please let us know so that we can make improvements if necessary.

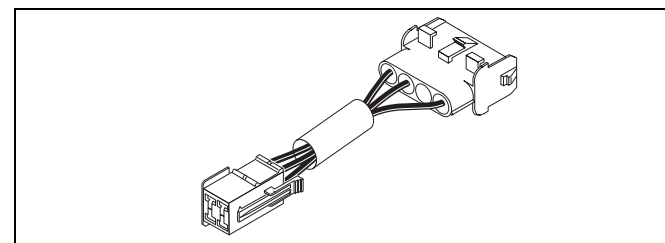
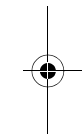
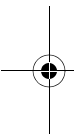
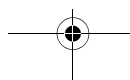
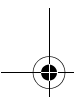
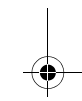


Fig. 1: Test adapter for Thermo 90 heaters,
order no. 836 61B



1





General

General information/installation

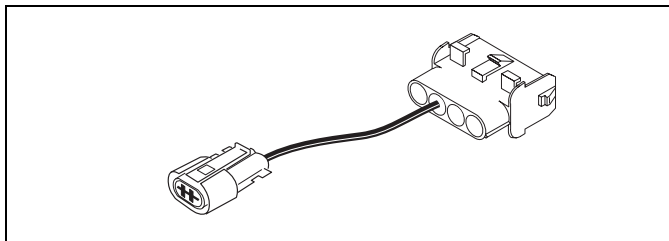


Fig. 2: Test adapter for Thermo 90 S/ST and Thermo 50 MAN/trade heaters, order no. 925 56A

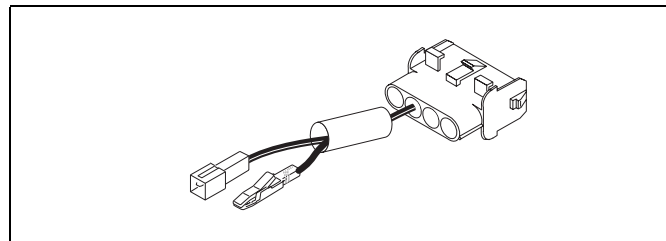


Fig. 5: Test adapter for Thermo Top Z/C trade and Air Top 2000/S heaters, order no. 925 66B

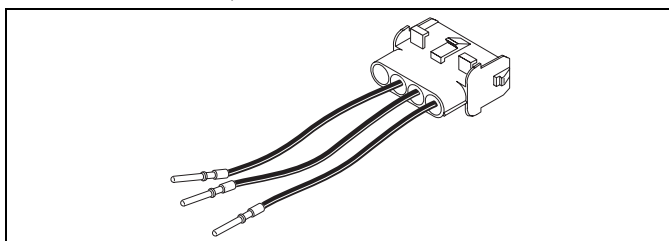


Fig. 3: Test adapter for BBW 46 S and DBW 46 S heaters
You can make an appropriate adapter yourself if required.

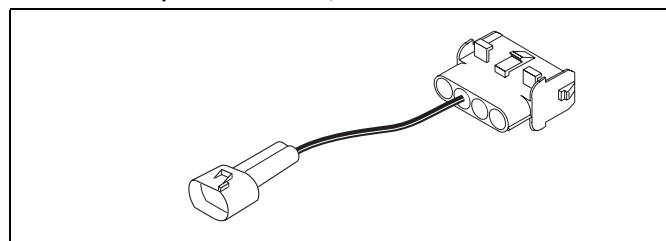


Fig. 6: Test adapter for Air Top 3500/5000/ST and Air Top 2000 S heaters, order no. 925 55A

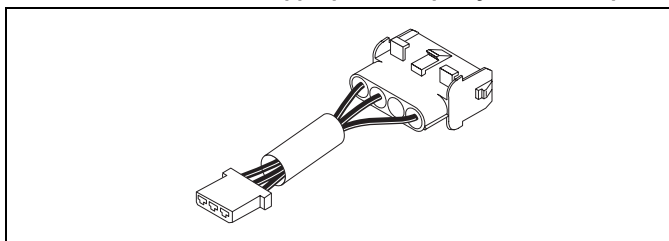


Fig. 4: Test adapter for BW 80 and DW 80 heaters, order no. 213 33A

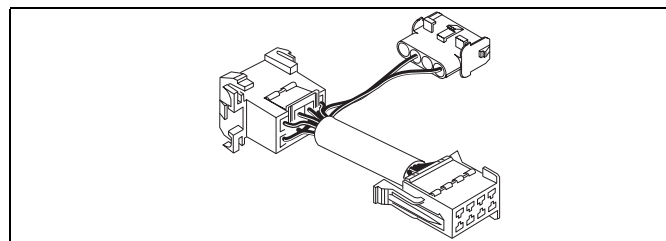
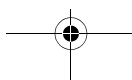
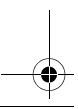
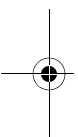


Fig. 7: Test adapter for DW 230/300/350 and Thermo 230/300/350 heaters, order no. 208 65A





General information/installation

General

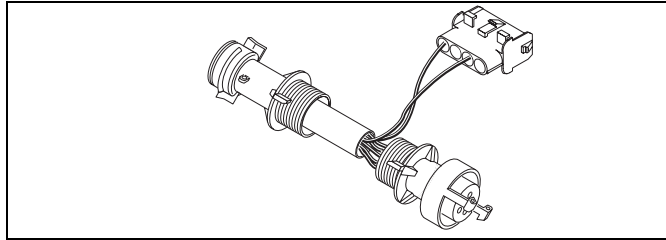


Fig. 8: Test adapter for DW 230/300/350 and Thermo 230/300/350 heaters, order no. 226 56A

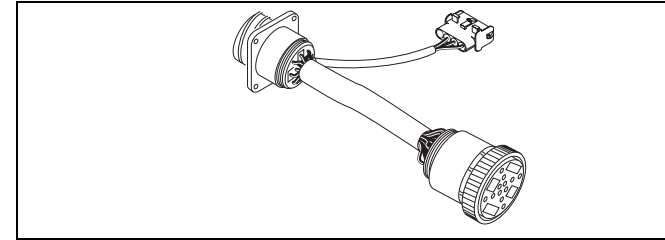


Fig. 11: Test adapter for DW 230/300/350 and Thermo 230/300/350 (Van Hool) heaters, order no. 926 37A

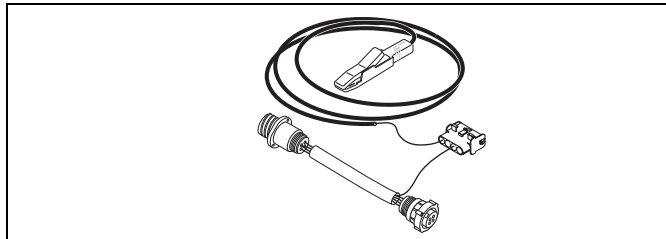


Fig. 9: Test adapter for DW 230/300/350 and Thermo 230/300/350 heaters, order no. 883 36A

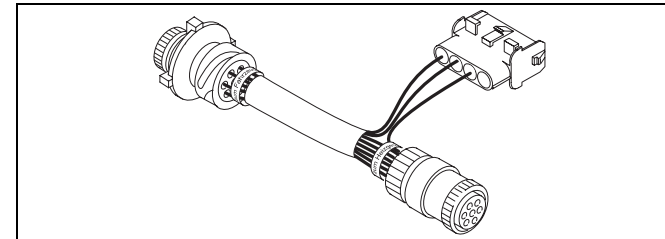


Fig. 12: Test adapter for DW 230/300/350 and Thermo 230/300/350 (MBI/Citaro) heaters, order no. 662 65A

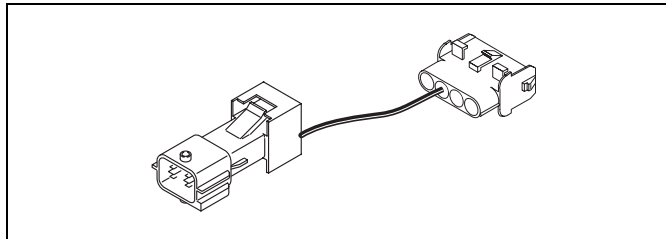


Fig. 10: Test adapter for DW 230/300/350 and Thermo 230/300/350 (RVI) heaters, order no. 926 29C

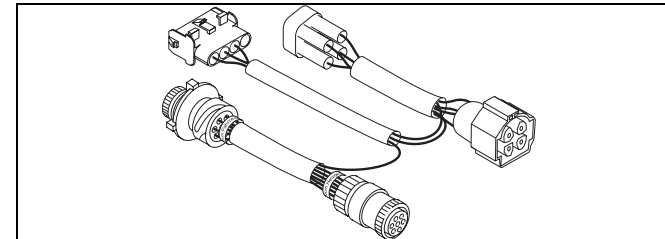
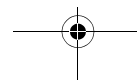
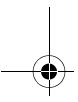
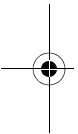


Fig. 13: Test adapter for Thermo 230/300/350 Rail heaters, order no. 9012265C





System requirements

General information/installation

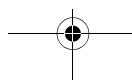
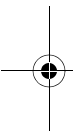
1.2. System requirements

- IBM-compatible PC, 486 or higher depending on the requirements of the operating system.
- Min. 16 MB of RAM, depending on the requirements of the operating system.
- Microsoft Windows 98, NT4, 2000, XP or newer versions.
- COMCTL32.DLL, Version 4.70 or newer
(Can be downloaded from the Microsoft Internet download area (<http://www.microsoft.com>).)
- 30 MB available space on the hard disk.
- A vacant COM port (RS232C) or a vacant USB port.
- Optional: Internet access (for software updates).

Webasto Thermo Test 2002 will not run under Windows 3.1 with Win32s.

NOTE

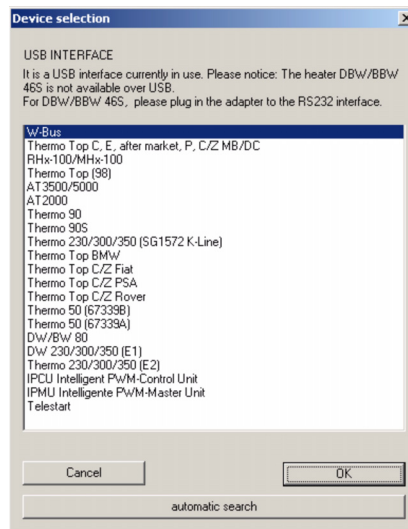
The USB port cannot be used for PC diagnosis with Windows NT because this operating system does not support USB ports.



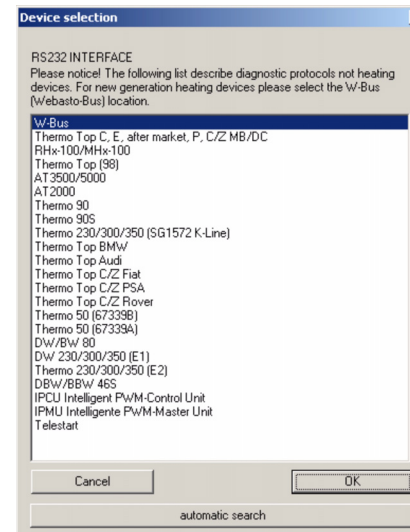
General information/installation

Diagnostic-capable units

1.3. Diagnostic-capable units



Heater selection for USB interface



Heater selection for COM interface

NOTE

If the device is not listed in Select device, the heater must be a model with W-Bus. W-Bus-capable heaters are grouped under the heading of W-Bus. In this case use the W-Bus selection. The W-Bus selection contains a list of various heaters that use the same diagnostic port (see also chapter 1.4., "OE-applications with W-Bus", page 6).

Diagnosis of the following units is only possible via serial port, the USB interface cannot be used with these units:
BBW 46S; DBW 46S.



OE-applications with W-Bus

General information/installation

1.4. OE-applications with W-Bus

PC-Diagnosis with W-Bus enables:

- overview of heaters' parameters and components;
- display error list (in case errors occur);
- delete error memory;
- heater information;
- graphs of actual values of components;
- overview heaters' operating data;
- component test;
- fuel prime;
- CO₂ calibration;
- protocol display (listing of all heater statuses during diagnoses);
- creation of a summary.

NOTE

Vehicle specific, W-Bus capable heaters have been summarized here. At device selection, please select *W-Bus*.

NOTE

For PC-Diagnosis, a wire harness Diagnosis OEM (order no. 9016761A) is required.

NOTE

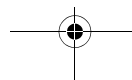
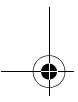
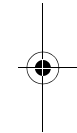
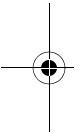
Avoid switching on the heater via W-bus in additional heating mode, because at applications without circulation pump control it can lead to over-heating.

NOTE

At many OEM applications, the error memory can only be deleted via the OEM interface.



Fig. 14: Wire harness Diagnosis OEM
order no. 9016761A

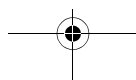
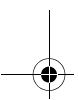
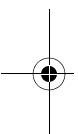




General information/installation

OE-applications with W-Bus

Brand	Model	Heater	Diagnosis via...
Audi	A3, ABII	TT-V	PIN 2 of the control unit or via Telestart. Telestart is situated in the trunk.
Audi	A6, C6	TT-V	PIN 2 of the control unit or via Telestart. Telestart is situated in the trunk.
Audi	A8, D3	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated near the C-pillar.
Audi	A8, D3	TT-Z	PIN 1 of the control unit.
Bentley	Continental, Coupé GT	TT-C	PIN 1 of the control unit or via Telestart.
BMW	5 Series, E60	TT-C	PIN 1 of the control unit.
BMW	7 Series, E65	TT-C	PIN 1 of the control unit.
BMW	7 Series, E65	TT-Z	PIN 1 of the control unit.
Jaguar	S-Type, X204	TT-V	PIN 2 of the control unit.
Landrover	Baby Range, L320	TT-V	PIN 2 of the control unit or via Telestart.
Maybach	Maybach, W240	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mazda	6, J56	TT-Z	PIN 1 of the control unit.
Mazda	MPV, J16	TT-Z	PIN 1 of the control unit.
Mercedes	C Class, W203	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	CL, C215	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	CLK, A209	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.

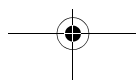
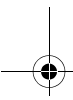
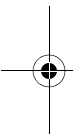




OE-applications with W-Bus

General information/installation

Brand	Model	Heater	Diagnosis via...
Mercedes	CLS, C209 starting 11/2004	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	E Class, W211	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	G Class, G463	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	S Class, W220	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	S Class, W220	TT-Z	PIN 1 of the control unit.
Mercedes	SL, R230	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Mercedes	Sport Coupé, CL203	TT-C	PIN 1 of the control unit or via Telestart. Telestart is situated in the trunk.
Porsche	Cayenne, E1	TT-C	PIN 1 of the control unit.
VW	Caddy, PQ35 starting week 22, 2004	TT-V	PIN 2 of the control unit or via Telestart.
VW	Golf V Plus, PQ35 starting summer 2004	TT-V	PIN 2 of the control unit or via Telestart. Connection with Telestart is very complex.
VW	Golf V, PQ35	TT-V	PIN 2 of the control unit or via Telestart. Connection with Telestart is very complex.
VW	Multivan, T5	TT-C	PIN 1 of the control unit or via Telestart.
VW	Multivan, T5	TT-Z	PIN 1 of the control unit.
VW	Passat, PQ46, starting 11/2004	TT-V	PIN 2 of the control unit.



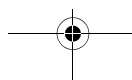
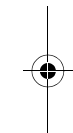
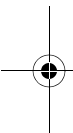


General information/installation

OE-applications with W-Bus



Brand	Model	Heater	Diagnosis via...
VW	Passat, PQ46, starting 11/2004	TT-V	PIN 2 of the control unit or via Telestart.
VW	Phaeton, D1	TT-C	PIN 1 of the control unit or via Telestart.
VW	Phaeton, D1	TT-Z	PIN 1 of the control unit.
VW	Touareg, Mac	TT-C	PIN 1 of the control unit or via Telestart.
VW	Touareg, Mac	TT-Z	PIN 1 of the control unit.
VW	Touran, PQ35	TT-V	PIN 2 of the control unit.
VW	Touran, PQ35	TT-V	PIN 2 of the control unit or via Telestart.





OE-applications with K-Line

General information/installation

1.5. OE-applications with K-Line

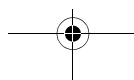
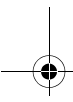
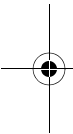
Vehicle specific, K-Line capable heaters have been summarized here. At device selection, please select the device specified in the column "device selection" of the table below.

NOTE
Avoid switching on the heater via K-Line in additional heating mode, because at applications without circulation pump control it can lead to over-heating.

NOTE
For PC-Diagnosis, a wire harness Diagnosis OEM is required. See Fig. 14.

NOTE
At many OEM applications, the error memory can only be deleted via the OEM tester.

Brand	Model	Heater	Device selection	Diagnose via...
Alfa Romeo	166, 936	TT-Z	TT-Z Fiat	Vehicle diagnosis plug (adapter required), or directly at PIN 2 of the control unit.
BMW	X5, E53	TT-C	TT-Z/C BMW	PIN 2 of the control unit.
BMW	X5, E53	TT-Z	TT-Z BMW	PIN 2 of the control unit.
Chrysler	Voyager, RG Minivan	TT-Z	TT-Z	PIN 2 of the control unit.
Citroen	Berlingo, M59	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Citroen	C5, X4	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Citroen	C8, V	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Citroen	Xsara Picasso , N68	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Fiat	Ducato, 244	TT-C	TT-Z/C Fiat	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Fiat	Ducato, 244	TT-Z	TT-Z Fiat	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Fiat	Multipla, 186	TT-C	TT-Z/C Fiat	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Fiat	Stilo, 192	TT-C	TT-Z/C Fiat	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Fiat	Ulysse, V	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.

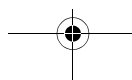
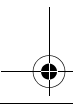
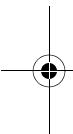




General information/installation

OE-applications with K-Line

Brand	Model	Heater	Device selection	Diagnosis via...
Hyundai	Trajet, F0	TT-Z	TT-Z PSA	Vehicle diagnosis plug (below steering column) or directly at PIN 2 of the control unit.
Kia	Sorento, BL	TT-Z	TT-Z PSA	Vehicle diagnosis plug (front fuse box) or directly at PIN 2 of the control unit.
Lancia	Thesis, 841	TT-C	TT-Z/C Fiat	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Landrover	Discovery, L25	TT-Z	TT-Z BMW	PIN 2 of the control unit.
Landrover	Range Rover, L30	TT-C	TT-Z/C BMW	PIN 2 of the control unit.
Landrover	Range Rover, L30	TT-Z	TT-Z BMW	PIN 2 of the control unit.
MG Rover	75, R40	TT-C	TT-Z/C BMW	PIN 2 of the control unit.
MG Rover	75, R40	TT-Z	TT-Z BMW	PIN 2 of the control unit.
Peugeot	807, V	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Peugeot	Jumper, U64	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.
Peugeot	Partner, M49	TT-Z	TT-Z PSA	Vehicle diagnosis plug or directly at PIN 2 of the control unit.





Installation on the hard disk

General information/installation

1.6. Installation on the hard disk

NOTE

Webasto does not accept liability for any data loss on your computer. Therefore, we recommend you back up your hard disk.

If you already have older versions of the software installed on your computer, they must be uninstalled before the new installation.

1.6.1. Installation using the installation CD

To install the Webasto PC heater diagnostic software proceed as follows. Webasto recommends using the automatic installation program:

1. Close all Windows programs.
2. Deactivate the virus scanner.
3. Insert the installation CD in the appropriate drive.
4. The installation will start automatically.
If the program does not autorun, select Start > Run. Click Browse and then select "Setup.exe" on the installation CD and click OK. Alternatively select the CD drive containing the installation CD using Explorer. In the main directory click "Setup.exe".

Der Windows Setup-Manager führt Sie dann weiter.

1.6.1.1. Webasto Thermo Test 2002 software installation

NOTE

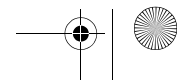
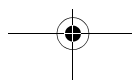
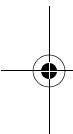
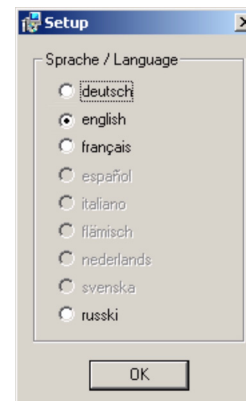
In this example, installation under Windows 2000 has been selected. The installation under other Microsoft operating systems such as Windows 98 or XP is identical.

Please note

If you are working in a network and require administrator rights for the installation then please log on using the corresponding user name and password.

1. Perform the steps listed in chapter 1.6.1., "Installation using the installation CD", page 12.

Windows responds:



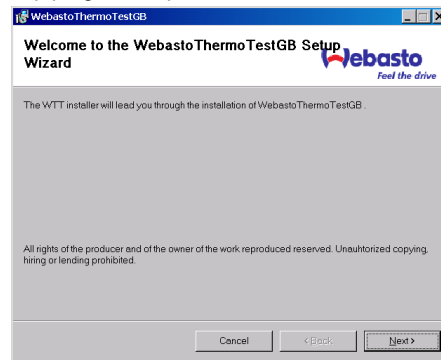
General information/installation

2. Select the required language and confirm your selection with "OK".

NOTE

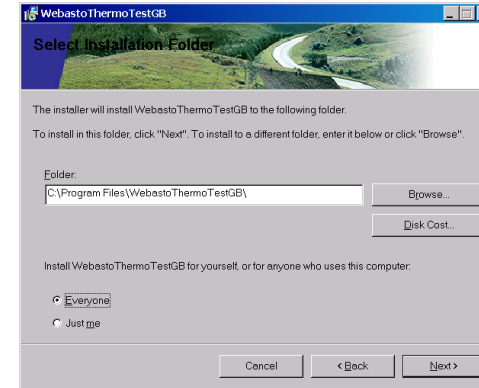
The Russian version just runs under WIN 2000 and WIN XP.

3. Wait for the installation preparation to finish.
The Setup program responds:



4. This is information about the copyright and industrial rights of this software. If you agree with these clauses, click "Next" to continue.

Installation on the hard disk



5. At this point, you are asked in which folder you want to install the Webasto Thermo Test software. If you wish to change the specified path (C:\Program Files\WebastoThermoTest\), click "Browse" and select a different folder.

You are then asked whether the program should be installed for all users of this computer or only for the current user.

Please note

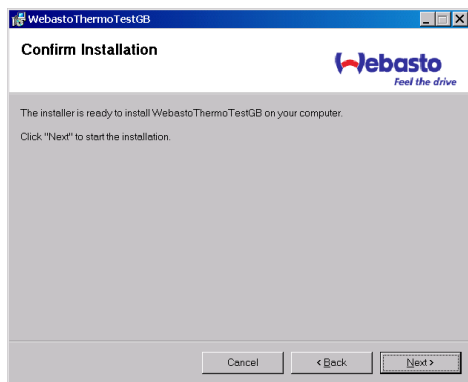
Please note that if you select your own path, any folders with the same name on the hard disk will be overwritten.

If you select the "Current User" option, the program is only installed for the current user.

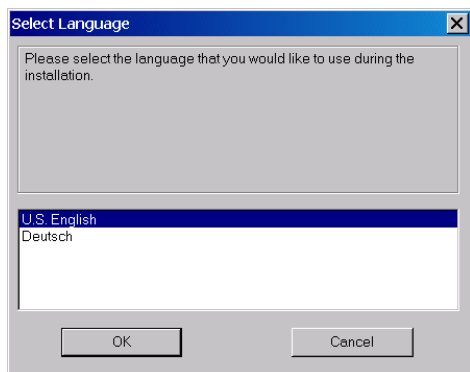
6. Confirm the settings with "Next".



Installation on the hard disk



7. Click "Next" to start the installation.



8. Please wait, the installation is not yet finished.

14

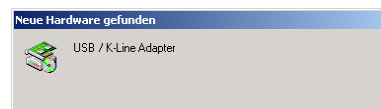


General information/installation

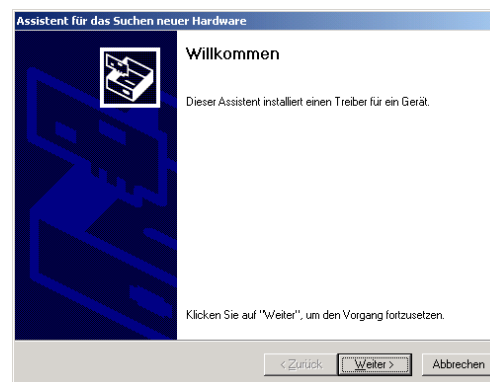
Connect the USB adapter to a vacant USB connection on your computer.

The process runs automatically after you plug in the USB adapter.

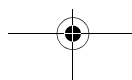
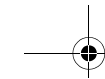
9. Windows responds:



Wait until the matching drivers have been found.

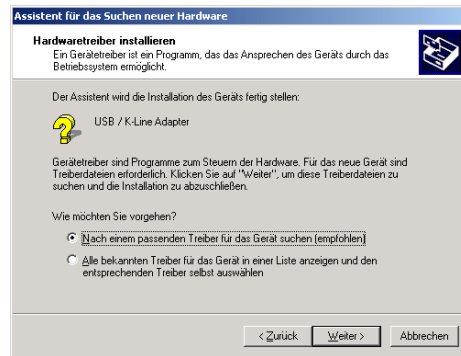


10. Click "Next" to continue the installation of the USB drivers.

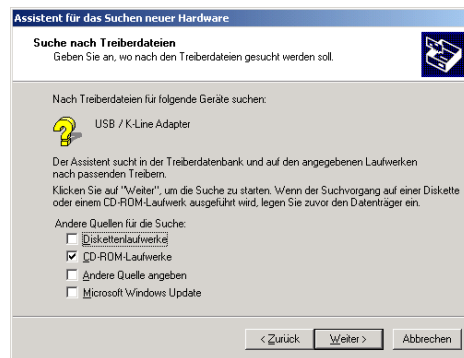


General information/installation

Installation on the hard disk

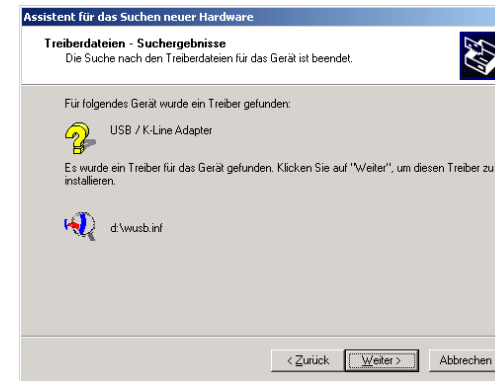


11. Select "Search for a suitable driver for the device" and confirm your selection with "Next".



12. Select "CD-ROM drives" from the other sources and click "Next" to confirm.

Wait until the matching drivers have been found

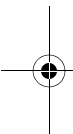


13. Windows has found the suitable drivers. Click "Next" to install the driver.



Installation on the hard disk

General information/installation



14. Click "Finish" to complete installation of the USB drivers successfully.
15. Restart the computer to complete the installation.

1.6.2. Download from the Internet and installation

The latest version of the program is available from our dealer area under <http://dealers.webasto.com>.

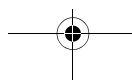
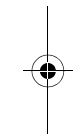
If you do not have access, please contact the regional manager responsible for your area or your Webasto dealer.

Download:

- Click the download link on the Internet.
- Select save file and save the file in a suitable folder on your hard drive.

Installation (new installation or update):

- Close all Windows programs.
- Open Explorer and go to the folder in which you saved the file from the Internet.
- Double click this file.
- The Windows Setup Manager will then guide you through the installation.
(See chapter 1.6.1.1., "Webasto Thermo Test 2002 software installation", page 12)





General information/installation

Connections

1.7. Connections

CAUTION

The work **MUST** be completed in the following sequence!

- Connect the 9-pin plug or the USB plug (both cables are supplied) to a vacant serial port (COM1 or COM2) or a vacant USB port on the PC (the plug can remain connected if necessary).
- Connect the 9-pin plug or USB plug to the diagnostic adapter.

NOTE

The system must be switched manually between COM1 and COM2 (if the PC has more than one serial port). There is no need to switch between the COM and USB ports manually. The USB port to which the hardware is connected will be recognised automatically. This applies even if there is more than one USB port.

Both COM and USB connections are not allowed to be used at the same time.

CAUTION

To avoid potential differences the vehicle must not be connected to a charger during the diagnostic procedure.

CAUTION

Before connecting to the heater ensure that there is no voltage between the earths of the PC and the vehicle. Voltages in excess of 5 V may damage both the diagnostic adapter and the PC.

First connect the adapter to the positive pole and then to the earth to ensure this.

- Connect the type-specific test adapter to the 4-pole connector of the diagnostic adapter and the heater. The heater may be switched on.

CAUTION

Contact with moving parts of the vehicle (e.g. ventilator) can lead to damages.

CAUTION

Risk of tripping over the supply line or data line of the adapter.

WARNING

Don't let the heater run without exhaust.

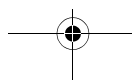
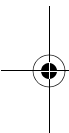
CAUTION

Don't open the body of the heater because of risk of injuries and loss of warranty.

NOTE

The connection cable to the heater is not allowed to be routed near the vehicle ignition system or activated electrical devices (e.g. electric drill).

- Exit the diagnostic program before disconnecting the cables. No particular sequence must be observed for disconnecting the cables.





Test procedure

Heater-specific diagnosis



2 Heater-specific diagnosis

2.1. Test procedure

NOTE

The heater must be connected to the vehicle's electrical system but not necessarily operating to execute a test function.

If the adapter is not connected or connected to the wrong port or the heater is not on or not properly connected, an error message will be displayed. In this case check the above causes.

The program monitors the connection to the heater and identifies disconnects. Irregular disconnects (e.g. pulling a plug during the test) will result in the message "Timeout" being displayed in the status window.

Specific notes on the various types of heaters:

Thermo Top Z/C:

If the diagnostic cable is connected, the heater (depending on the version) cannot be started using the timer or the Telestart. In this case first disconnect the diagnostic cable, start the heater and then reconnect the diagnostic cable.

BBW46S/DBW46S:

After the diagnosis has been started the heater enters a diagnostic mode with a run-down.

Thermo Top P:

The UP (circulating pump) button is not permanently activated during diagnosis; instead, it flashes at various frequencies depending on the operating status of the circulating pump.

Thermo Top 98:

When using USB diagnosis adapter ID 9008487B, test adapter ID 92566B is required.

When using USB diagnosis adapter ID 9008487D via a RS232 (COM) port, test adapter ID 92566B is also required.

When using USB Diagnoseadapter ID 9008487D via a USB port, an additional test adapter is not required.

DW 230..350/Thermo 230..350:

The diagnostic port may suffer malfunctions when errors from this unit are saved. The diagnostic program detects these malfunctions and will rectify the problem by deleting the error memory (saved error data will be lost).

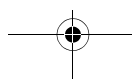
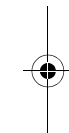
The pump pressure test is not possible.

Thermo 50 MAN/trade:

The Thermo 50 MAN/trade heater does not need to be switched on during the diagnosis.

After a TRS condition has been triggered, the heater may only be restarted as follows:

- Switch off the heater
- To exit the diagnosis
- Wait at least 10 s.




Heater-specific diagnosis

Menu: Diagnosis

2.2. Menu: Diagnosis

2.2.1. Select device (Start diagnosis)

Open the dialog box to select the control unit using the menu command *Diagnosis/Select device* or by clicking the button .

Unit	Applications with W-Bus
Thermo Top V	All existing applications
Thermo Top C/Z	DC C Class (W203 and W203Mopf after 09/04), DC E Class (W211), DC S Class (W220 and W220Mopf after 09/02), DC SL Class (R230), DC CLK Class (W209), Porsche Cayenne, AUDI A8 (D3), VW Phaeton (D1), VW T5, VW Touareg (MAC), BMW 7 Series (E65), Mazda 6, Mazda MPV (both U222)
AT2000ST	All
AT3500ST	All
Thermo 90ST	All
GBW 300	All


NOTE

If the device is not listed in *Select device*, the heater must be a model with W-Bus. W-Bus-capable heaters are grouped under the heading of W-Bus. In this case use the W-Bus selection. The W-Bus selection contains a list of various heaters that use the same diagnostic port (See also chapter 1.4., "OE-applications with W-Bus", page 6).


2.2.1.1. To select the control unit and start the diagnostic process:

- Click the <Auto search> button.
The system performs an automatic search using the device identifier and then starts the diagnostic process.
or
- Mark the appropriate control unit by clicking it and then click the <OK> button.
The diagnostic process will be started.
or
- Double click the relevant control unit.
The diagnostic process will be started.

2.2.2. To exit the diagnosis

End the current diagnosis using the menu command *Diagnosis/End diagnosis*, function key **F3** or by clicking the button .

2.2.3. To restart the diagnosis

You can restart the diagnosis of the control unit you have specified earlier by selecting the menu command *Diagnosis/Start diagnosis*, pressing function key **F2** or clicking the button .


2.2.4. Component test

Open the dialog box of the same name using the menu command



Menu: Diagnosis

Heater-specific diagnosis

Diagnosis/Component test... or by clicking the button .

- Mark the components that you wish to test in the options box, for example the combustion air fan.
- Click the <Start> button to start the test on the selected component.
- Click the <Stop all> button to terminate the current test.

NOTE

This function is not available for BBW 46 S/DBW 46 S.


Note on Air Top 2000:

Heating mode is terminated with a short slow-down time, after which the test functions are available (diagnostic mode). The test starts after a further acknowledgement by pressing the Enter key or clicking the OK button. After the component test has been ended by clicking the Cancel button, the heater will resume normal control mode.

Note on Thermo 50 MAN/trade:

The component test is only available when the heater is OFF. The CO₂ adjustment may only be carried out in combustion mode with the heater in full power.

2.2.5. Line priming

Open the dialog box of the same name using the menu command *Diagnosis/Prime line...* or by clicking the button .

- Enter the time for priming the line in seconds in the priming time box. The default is 30 seconds.
- Click the <Start priming> button to start the line priming process.
- Click the <Stop priming> button to cancel your entry or to stop the line priming prematurely.

NOTE

The priming process cannot be stopped on some heaters.

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2.2.6. Fuel pump test

Measuring the fuel discharge flow to the heaters Thermo Top Z, E, C, P trade with PC-Diagnosis "Webasto Thermo-Test".

NOTE

Perform the following steps when testing the fuel pump (measuring discharge flow):

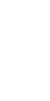
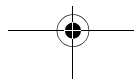
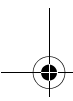
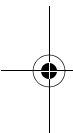
1. Loosen the fuel line at the heater and put it into a suitable metering box (range 30 ml).
2. Make all necessary connections for Webasto Thermo Test.
3. Select heater: Thermo Top C,E trade, C/Z MB/DC.
4. Open display *Overview*.
5. Select menu *Fuel pump test*.
6. Start measurement.
7. During the filling check the fuel pump frequency (5.263 Hz) displayed in the overview.
8. Wait 60 s.

Analysis

1. Compare the fuel quantity in the metering box with the setpoint value of 20 ml (+/- 2 ml).
2. When there are deviations from the setpoint value, disconnect the fuel pump from the vehicle's fuel tank.

CAUTION

Remove fuel tank cap, relief pressure, close fuel tank. Collect fuel that





Heater-specific diagnosis

Menu: Diagnosis

runs out in a suitable container and respectively close fuel line with an appropriate tool. Connect the suction side to an unpressurised container and lead the pressure side with a short line directly to the metering box. Then, repeat the measurement.

- In case of the same deviation, the fuel pump may be defect. Otherwise, search and remedy the failure at the fuel extraction (e.g. too high or too low pressure) or fuel line (e.g. kinked or blocked).



CAUTION

When starting the fuel pump test, fuel is pumped!

Consider the relevant rules for safety and for the prevention of accidents prescribed by the professional associations, the legislator, other generally recognized, safety-relevant rules and rules according to industrial medicine, as well as the legal environmental protection amendments!

Smoking and any kind of open fire is prohibited.

Fuels can contain solvent-similar substances. Avoid skin and eye contacts. Wear protective gloves. Change and clean protective clothing frequently. Don't bring fuel in contact with clothes. If case fuel comes in contact with clothes, change clothes immediately!

Do not inhale fuel. Inhalation of fuel can cause physical damage.

Don't spill fuel. When spilling fuel, bind immediately with appropriate bonding agents and dispose environment-friendly. Make sure that no

fuel is spilled in the soil!

In particular avoid fire, open light and sparks in the circumference of 20 meters around the workspace.

2.2.7. To save the data summary

Select menu command *Diagnosis/Save summary...* to open the report file dialog box.

The summary shows operating data and control unit information. For additional information, see chapter 2.3.2., "Operating data", page 23 and chapter 2.3.3., "Control unit information", page 23.

- Enter as clear a file name as possible in the file name box for the new text file, e.g. report_dated_011213.
The file extension (.TXT) is added automatically or may be entered as part of the file name, e.g. Test_011214.txt.
- Click the <Save> button to save the summary of the diagnostic data.

2.2.8. To open the data summary

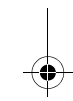
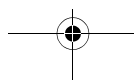
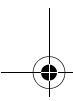
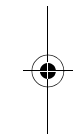
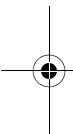
To open an existing summary of diagnostic data, open the report file dialog box using menu command *Diagnosis/Open summary...*

- Mark the file you want to review by clicking it. The name of the marked file will be transferred into the file name box.
- Click the <Open> button or double click the file name to open the text file.
- The Display summary view will be opened.
- Click the <OK> button to close the view.

2.2.9. Start test record

Use the *Diagnosis/Start measurement recording...* menu command to open the Protocol file dialog box.

- Enter as clear a name as possible into the protocol file name box for the new text file, e.g. protocol_dated_011213.





Menu: Diagnosis

Heater-specific diagnosis

The file extension (.TXT) is added automatically or may be entered as part of the file name, e.g. Test_011214.txt.

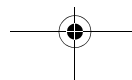
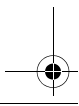
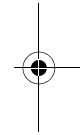
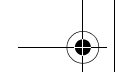
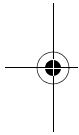
- Enter the recording interval (the default is 10 seconds).

NOTE

When you have finished the diagnosis, end the measurement recording.

2.2.10. To end measurement recording

- The <OK> button starts the recording.
- Use the Diagnosis/Measurement recording menu command to end measurement recording.





Heater-specific diagnosis


Menu: View

2.3. Menu: View

You can select between different views in order to see different displays and data about the heaters:


2.3.1. Overview window

This view gives you an overview on the values during the diagnosis. In addition to the operating voltage, temperature, etc. the device status is also shown.

- Use the *View/Overview window...* menu command or click the  button to open the Overview window.


2.3.2. Operating data

The operating data view gives you an overview of a number of parameters in addition to the values that have been found and the units for them.

- Use the *View/Operating data...* menu command or click the  button to open the Operating data..


2.3.3. Control unit information

The device information view contains a list of all the information and values relating to the connected device.

- Use the *View/Control unit information...* menu command or click the  button to open the Control unit information.


2.3.4. Trend graphic

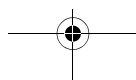
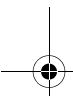
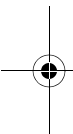
The graphical trend view shows the sequence of the heater values over time in a diagram. Right-clicking the display with the mouse displays a shortcut menu for the displayed values. You can show or hide the individual values by clicking here. The same thing applies to the displays in chapter 2.3.5., "Protocol display", page 23.

- Use the *View/Trend graphic...* menu command or click the  button to open the Trend graphic.

2.3.5. Protocol display

This protocol display view lists all the statuses of the heater during the diagnosis.

- Open the last of the five views of the diagnostic results using menu command *View/Protocol display...* or by clicking the button .
- To close this view click the square at the far right of the window title bar.






Menu: Error memory

Heater-specific diagnosis




2.4. Menu: Error memory

2.4.1. To display the error list

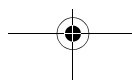
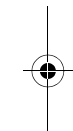
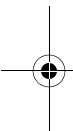
- Open the error display window using menu command *Error memory/Display error list...* or by clicking the button .
- This view displays a list of all the errors saved in the control unit together with the values that occurred during the error. Each error is listed separately to distinguish clearly between them.
- If you click an error, an explanation of that error will be displayed.

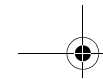
2.4.2. To delete the error memory

To delete all the entries in the error memory select menu command *Error memory/Delete error memory ...*, function key **F5**, or click the button .

NOTE

Please note that after they have been deleted, the error values can no longer be reviewed. If necessary you should print out the error values before you delete them (see chapter 2.5., "Menu: Print", page 25).






Heater-specific diagnosis

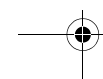
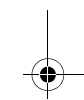
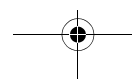
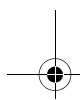
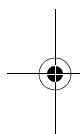
Menu: Print



2.5. Menu: Print

2.5.1. To print the summary

To print a summary select menu point Print/Summary, function key **F12**, or click the button .






Menu: Control (depending on heater version)


Heater-specific diagnosis

2.6. Menu: Control (depending on heater version)


2.6.1. Off

To switch off the heater select menu command *Control/Off*, function key **F4**, or click the button .


2.6.2. On

To switch on the heater select menu command *Control/On*, or click the button .


2.6.3. Auxilliary heating

If you wish to use auxiliary heating mode, select menu command *Control/Auxiliary heating*, or click the button .

2.6.4. Additional heating

If you wish to use additional heating mode select menu command *Control/Additional heating*, or click the button .

2.6.5. Ventilation

If you wish to use ventilation mode select menu command *Control/Ventilation*, or click the button .

2.6.6. Boost mode

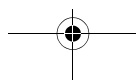
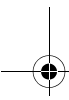
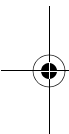
If you wish to use boost mode select menu command *Control/Boost mode*.

2.6.7. Circulating pump

To switch on the circulation pump select menu command *Control/Circulation pump*.

NOTE

Not all of the control commands are available for all of the heaters.






Heater-specific diagnosis

Menu: Calibration



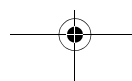
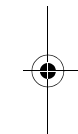
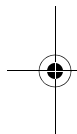
2.7. Menu: Calibration

2.7.1. CO₂ adjustment

To carry out the calibration process select menu command *Calibration/CO₂ adjustment* or click the button .

NOTE

This function is only available when the heater is in certain statuses.
Please also read the corresponding chapter in the workshop manual of the heater in question!





Menu: Tools

Heater-specific diagnosis



2.8. Menu: Tools

NOTE

If the diagnostic adapter is connected to the USB port, it will be automatically recognised by Windows. No settings are required.

The Tools menu provides you with two menu commands to configure your computer:

2.8.1. COM port

- Open the COM port selection dialog box using menu command *Tools/COM port*.
- Select the COM port (COM1 or COM2) you want to use to connect to the external device.
- Click the <OK> button to confirm your selection.

CAUTION

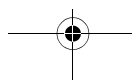
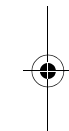
If the COM port you wish to use is not displayed, this means that the port is being used by a different program. In this case quit all your applications and restart Thermo Test.

2.8.2. Startup

Select menu command *Tools/Startup* if you wish to restart the connection to the control unit automatically after an interrupt. This is an advantage if the operating voltage is disconnected frequently during the test.

The selection will be confirmed by a tick being placed next to the Startup menu command.

If you reselect the menu command or terminate the connection, this selection will be cancelled.





Heater-specific diagnosis

Menu: Window



2.9. Menu: Window

The Window menu enables you to influence how open dialog boxes and view windows are displayed:

2.9.1. Overlapping

Select menu command *Window/Overlapping* if you want open windows to be arranged overlapping each other.

2.9.2. Side-by-side

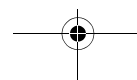
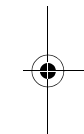
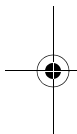
Select menu command *Window/Side-by-side* if you want open windows to be of the same size and arranged next to each other without any overlap.

2.9.3. Close all

Select menu command *Window/Close all* if you want to close all open windows.

2.9.4. To select an open window

Select the *Select an open window* menu command if you want to switch between windows that are open at the same time.





Menu: Help


Heater-specific diagnosis



2.10. Menu: Help


2.10.1. Help

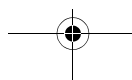
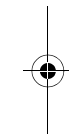
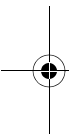
This menu displays help topics relating to this diagnostic software.

- To obtain help on the program and problems, select menu command *Help/Help* or click the button . From this window you can go to instructions that will give you a step by step guide to using Webasto Thermo Test 2002 or you can view various types of reference information.
- As soon as you have opened the help topic you can click the Contents button at any time to return to the contents window.

2.10.2. Program information

This displays the version of this diagnostic software:

- Select the Help/Program information... menu command or click the  button to obtain information on your WTT version.
- Click <OK> to close the program information window.

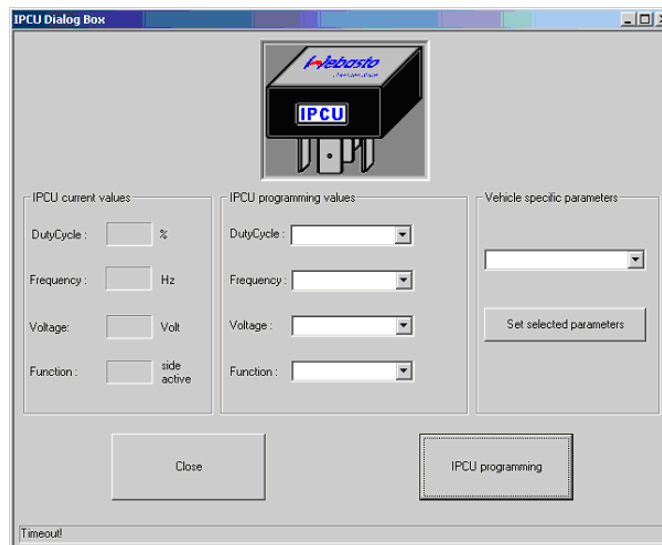


Service modules for components and accessories IPCU intelligent PWM control unit

3 Service modules for components and accessories

3.1. IPCU intelligent PWM control unit

3.1.1. IPCU programming



The button “Set selected parameters” sets the predefined parameter for the selected vehicle module under “IPCU programming”. The parameter values can also be changed individually.

Programming of the selected parameters is only performed using the button “IPCU programming”.

NOTE:

When selecting user-defined parameters, make sure they are suitable for the requirements of the fan motor. Incorrect parameters can lead to a malfunction or damage to the fan motor when the module is operating.

This dialog box is used for programming an electrical system, referred to as IPCU module for short, for controlling vehicle fan motors.

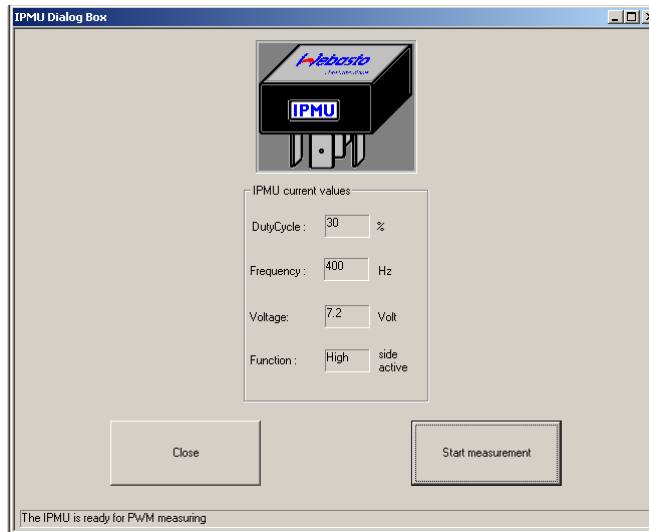
The current settings of the IPCU module are continuously read out and displayed under “Current IPCU settings”.

A list of vehicle modules can be found in “Vehicle-specific parameters”.

IPMU Intelligent PWM Master Unit Service modules for components and accessories

3.2. IPMU Intelligent PWM Master Unit

3.2.1. Reading out vehicle specific parameters via IPMU



NOTE:
The IPMU and the necessary measuring equipment can be purchased under order no. 9016656A.

In case the correct vehicle specific parameters for programming the IPCU module are unknown, these can be read out via a IPMU module and special measuring equipment.

After the IPMU module is plugged onto the USB DIAGNOSTICS adapter and connected with the vehicle via the measuring equipment, the readout can be started with this dialog box. For that purpose, click "Start measurement".

After a successful measurement the message PWM VALUES READ OUT SUCCESSFULLY appears.

In order to program an IPCU with these values, select the IPCU from the device selection list, without closing the Webasto Thermo Test 2002 program. Then, the measured values will be transferred automatically into the window "IPCU programming values" of the IPCU dialog box. Programming the measured values is accomplished by clicking the button "IPCU programming".

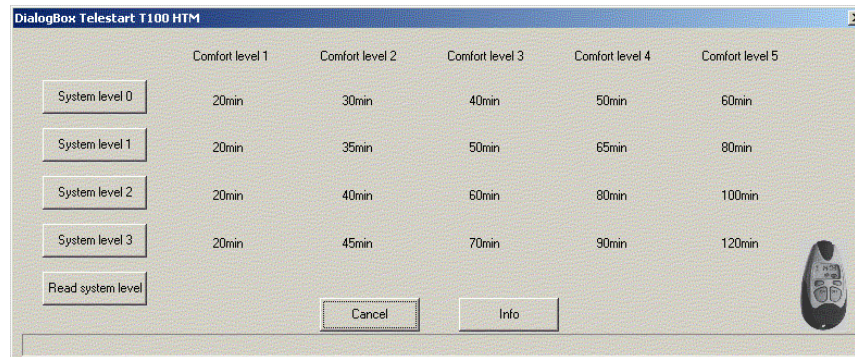
NOTE:
The function "High side active" or "Low side active" cannot be established with the IPMU. After a successful measurement the function is always indicated as "High side active".
If controlling of the vehicle fan motors is not possible, please change the function to "Low side active".

Service modules for components and accessories

Telestart T100HTM

3.3. Telestart T100HTM

3.3.1. Programming the system level



Heating Time Management (HTM) in the Telestart receiver calculates the heating duration depending on the prevailing temperature and the comfort level (C1 to C5) selected using the hand-held transmitter.

Comfort level

We recommend comfort level 2/3 as the basic setting. However, the user can adapt the comfort level according to his or her individual requirements using the HTM transmitter. The specialist workshop can select a higher system level in advance to adapt the system in accordance with specific requirements.

System level

The system level setting is used for the default setting depending on the corresponding vehicle type. This setting can only be made by the Webasto specialist workshop or an installation partner using the diagnostic software.

We recommend the following typical default settings for the system level:

S0: For small cars and saloons

S1: For off-roaders, estate cars, SUVs and in general for vehicles with a spacious interior

S2/S3 : Only in regions with very cold outdoor temperatures or if the customer has special requirements.

Altering the system levels makes it possible to adapt the heating duration to the given features of a particular vehicle heating system.

The maximum heating duration (below -20 °C) is specified for each system level in the dialog box.

The minimum heating duration (above +10 °C) is always 10 minutes.

The heating duration between these two temperature values varies with an approximately linear progression.



General

Troubleshooting



4 Troubleshooting

4.1. General

When you select a test function, an error message is displayed.

- Check if the diagnostic adapter is connected to the selected serial port or the USB port on the PC and that heater is properly connected.
- Check whether the heater is switched on and is receiving power.
- Is there an earth connection (apart from via the diagnostic cable) between the PC and the vehicle? If so immediately disconnect the diagnostic cable and disconnect the relevant connection to prevent damage to the adapter and PC.
- The control unit may be defective (check with a different unit before replacing it).
- A control unit that has no diagnostic capability may have been selected.
- An incorrect connection on the control unit has been used for the diagnostic cable.
- If you are using an RS232 (COM) port:
If another program (e.g. keypad or mouse) is accessing the port, this application must be closed.

