

## Service Manual For Electric BCP Oven

"Programmable Control"





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#### **Installation and Connections**

#### Data Plate

When communicating with BLODGETT, we kindly ask you inform us of the serial number of the oven that is stated on the approval plate. The approval plate is located on the right-hand corner post of the oven cabinet, as shown below.

The BLODGETT Technical Support, whose experience and expert knowledge are at your disposal, can be contacted at tel. # 800-331-5842 and fax # 802-652-2814.



#### Drain connection

From the factory, the BLODGETT ovens are equipped with a drain system that removes surplus water from the oven chamber. This water may be condensed water from the products, or it may occur when the oven chamber is cooled down with cold water, or when the oven chamber is cleaned.



Connection **must** be carried out by an authorised plumber, to an open or to a closed drain.



It is recommended that a water outlet is available/established in the floor of the room where the oven is located.



The drain must never end directly beneath the oven.

The drain must be of **copper** or an equally temperature -resistant material, have a diameter of at least 2'' (50mm) and a fall of at least  $3^{\circ}$  or 5%.





#### Water connections

BLODGETT ovens have one or two water connections. Two is most common.

To facilitate cleaning and service, the oven should be connected with an approved flexible <sup>3</sup>/<sub>4</sub>" hose and the permanent installations should be fitted with a stop-tap and a non-return valve. Before connecting the oven to water, flush the tubes thoroughly. Connect the oven.

Hardness of the water:	80-100 PPM
pH level	7.0-8.0
Total Dissolvable Solids:	100 PPM
Chloride:	max. 0 PPM
Sulfate:	max. 40 PPM/Gal
Conductivity:	min. 75 microsiemens
Water pressure:	min. 36 PSI (2.5 bar) dynamic pressure (when CombiClean activated.
	When CombiWash not activated: min. 22 PSI (1.5 bar), max. 87 PSI (6
	bar).
Water temperature:	max. 70°F (20°C)

If the water temperature exceeds 70°F (20°C), problems with regard to ClimaOptima calibration and cooling of the oven may occur.

The water connection must be carried out by an authorised plumber in accordance with existing rules and regulations

# To ensure that the water quality is in conformity with the above requirements, the installation of a water filter in front of the water connection to the oven is recommended.

- 1) 1 connection for raw water for the condensation jet (cold water). Located at the back.
- 2) The installation of a particle filter (0.25mm) is also recommended.
- 1 connection for the steam generator and the jet in the oven chamber. Must meet the requirements applying to water supplied to household appliances; however, hot water with a temperature not exceeding 125°F (50°C) can be used. Located at the front.

#### **Electrical connections**

#### When you connect the oven, you should:

Comply with federal, state and local rules and regulations.

The electrical connection **must** be carried out by an authorised electrician in accordance with existing rules and regulations.



**An approved plug outlet or a safety cut-out** must be located close to the oven so that the oven can be disconnected during installation and repair. The safety cut-out must be able to cut off all poles with a total distance of break of at least 3 mm. Each of the two units in a stacked arrangement (CombiPlus) must have its own plug outlet or safety cut-out.



The warranty does not cover incorrect connection.



#### Start Menu



• For further information on the modes shown on this page, see user's manuals



Main Menu



- Please note that prior to delivery, the oven's computer has been thoroughly tested and correctly set up and we therefore recommend that all users, with or without a code, navigate in the engineering with the utmost care. Incorrect handling may result in inappropriate changes to the computer set-up.
- Changing the computer set-up requires extended knowledge as to the design and structure of the oven. If in doubt, please contact your oven supplier.



Set-up Menu



• Access to various settings. Avoid changing the settings inappropriately (contact your oven supplier for further information).



#### Select Language



• Showing the languages available. The red square indicates which language has been selected.



## **Setting Sound**





#### **Setting Clock**







- With a code for the computer, the service engineer has the option of many settings. Changing the set-up requires extended knowledge of the BLODGETT ovens. Unnecessary or incorrect changes to the settings may change the computer set-up inappropriately.
- See Appendix 3, pp. 66 67 for a survey of the oven set-up.



#### **Service Menu**



- Access to various service functions.
- USB key is only active if a USB key is inserted. If the controller does not find a USB key, the text "USB key" will be grey.



## Select USB Key Service



• In this menu, you can take a backup and restore data from the backup of the oven set-up and of the programs.



#### **Restore Backup**



- In this menu, you select the oven backup to restore from.
- This oven XXXXXXXXX(A/B) (ex. this oven 010755667): Shows the number of the oven in question.



## Select Backup Menu



- In this menu, you select the backup to restore from.
- Format: Backup ÅÅMMDDTTMM.



#### **Restore from Backup Menu**



• In this menu, you select the features to be restored from the backup.



## **USB Key Service Menu**



- This menu is a survey of the contents of the USB memory key.
- With this menu, it is possible to test the USB memory key.
- NOTE that when pressing *Delete key*, the entire contents of the key are deleted.



#### **Energy Counters**



• Shows consumption of electricity – in total and since last resetting (trip).



## **Reading Counters**



• Reading of various counters (units, consumption, errors).



**Error Log** 



• This menu shows the last 30 errors that have occurred, the most recent one at the top.



### **Error Statistics 3-20**



• This menu shows the number of times the various errors have occurred, and the time of the most recent error.



#### **Service Counters**



**ACT**: Shows how many times the unit in question has been active. **TIME**: Shows for how long the unit in question has been active.



### Lime-scale Diagnosis



• Do not interrupt the descaling process.



## Software Updating Menu



• Software updating via BLODGETT server, requires Internet access.



#### **BLODGETT Server, Software Updating Menu**



- In this menu, you update the controller with the latest version of the software via the Internet.
- This process usually takes 10 20 minutes; the oven must not be turned off during this time.
- The **<u>oven restarts automatically</u>** and is ready for use when the main menu reappears.



## USB Key (1), Software Updating Menu



- In this menu, you update the controller with the latest version of the software via a USB key.
- This process usually takes 10 20 minutes; the oven must not be turned off during this time.
- The **<u>oven restarts automatically</u>** and is ready for use when the main menu reappears.



## USB Key (2), Software Updating Menu



- This function is possible if the controller is updated with software version 1.64 or higher.
  - 1. Oven must be off.
  - 2. Insert USB key in oven.
  - 3. Turn oven on.
  - 4. This menu appears.



## **ClimaOptima Calibration**



#### Calibration should be carried out when

- CPU board is replaced
- Differential pressure sensor is replaced
- Fan wheel is removed and mounted again or replaced.
- Filter housing is replaced

Step		Time	Temp.	Oven	Exhaust
1	Cal.	Abt 15 min,	70	Dry	Open
2	Cal.	Abt. 2 min.	70	Dry	Open
3	Cal.	Abt. 2 min.	70	Dry	Closed
4	Cal.	Abt. 8 min	250	Dry	Open
5	Cal.	Abt. 3 min.	250	Dry	Closed
6	Cal.	Abt. 5 min.	190	Wet	Closed
7	Cooling	Abt. 30 sec	105		Open
8	Cal.	Abt. 5 min.	130	Wet	Closed
9	Cooling	Abt. 8 min.	45		Open
10	Cal	Abt. 4 min.	70	Wet	Closed



The oven should be as dry as possible before calibration is carried out. The oven temperature must not be higher than 100°F (40°C) when calibration is started.

NOTE: If calibration is started by mistake, turn off the oven (no other keys are active).

NOTE: Do not interrupt the calibration process.



## **Door Sensor Calibration**



- With this menu, you calibrate the door sensor. On the following page, the calibration process is explained step by step.
- The measurement is an internal value for the distance between the magnet and the sensor.
- When the door is door open, the voltage is approx. 2.5 V.
- When the door is closed, the voltage moves towards 5 or 0 V depending on the direction of the magnet.



#### How to Calibrate Door Sensor





• It is not possible to adjust the door sensor physically, only by means of software.



## **Technical Service**



• In this menu, you access TEST FUNCTIONS and SHOW/EDIT OVEN SET-UP and enter a new boot logo.



#### **Test Functions**





## **Test Functions, Oven**



- *Heat* can only be activated when main contactor and fan motor are on.
- *Door 1* and *Door 2* show status of doors.
- *Oven* shows current temperature in oven chamber.
- Drain shows current temperature in drain.
- *Exhaust* shows status of exhaust motor.



#### **Test Functions, Fan**



• *RPM 1* is used for all oven models.



#### **Test Functions, Steam Generator**



- How to set the water level:
  - 1. Empty steam generator and read sensor input.
  - 2. Fill steam generator until water level is high, and read sensor input.
  - 3. Set level to a value between high and low sensor input.
  - 4. Conclude by pressing OK.



Test Functions, CombiWash





**Test Functions, Misc.** 



- *Core 1*: Shows current temperature of core temperature probe 1 (3 measuring points).
- *Core 2*: Shows current temperature of core temperature probe 2 (3 measuring points).
- When the external ventilation is activated, the oven control leaves the outlet active during program performance and 10 minutes after the program has ended.



- Press sens shows voltage from pressure sensor (between 0 and 5 volts).
- *IO temp* shows temperature of IO board.
- CPU temp shows temperature of CPU board.



**Test Functions, Main Alarm** 





#### **Oven Number**



- In this menu, you enter the serial number of the oven.
- The serial number consists of 9 figures. The serial number of the CombiPlus models includes the letters A or B (A = upper oven B = lower oven).
- The serial number is printed on the approval plate.
- The serial number is used in the HACCP mode and in the menus *Oven back-up* and *Restore from backup*.
- The serial number can only be deleted if it holds 9 figures. Press 4/CE.



#### **Display Oven Set-up**



• This menu shows the features incorporated in this particular oven. Changes not possible.



#### **Oven Set-up 1: Select Generation**



• We recommend that you write down the settings of DISPLAY OVEN SET-UP before making any changes to the set-up.



#### **Oven Set-up 2: Select Oven Model**



• We recommend that you write down the settings of DISPLAY OVEN SET-UP before making any changes to the set-up.



### **Oven Set-up 3: Select Oven Size**



• We recommend that you write down the settings of DISPLAY OVEN SET-UP before making any changes to the set-up.









- \*Special oven set-up for BKI UK.
- \*\*Special oven set-up for EUROSPICE in Sweden.
- \*\*\* For ovens that start up in the recipes menu (not in the start menu). CombiClean / CombiWash is then found with each recipe.









• This is the final set-up of the oven. Changes not possible.



Logo



- In this menu, you select new boot logo / logo screen saver.
- You can have your own logo affixed to the oven. Please contact BLODGETT A/S



Logo



- Oven restarts automatically after downloading of new logo.
- The new boot logo will be active after restart and the logo screen saver appears when oven has been idle for a while.



## Language Update



• In this menu, you update language files from the USB key.



#### **Enter Code**



## **Access Codes:**

MANAGER'S LEVEL:	87 64 12
SERVICE LEVEL:	57 60 21



### **Error Codes**

Error code 3:	<b>Generator too hot</b> (Generator thermo-switch has tripped. Reconnect by pressing button under operation panel)		
	<b>Oven too hot</b> (oven thermo-switch has tripped. Reconnect by pressing button under		
Error code 4:	operation panel)		
Error code 5:	<b>Fan too hot</b> (Thermo-switch in motor has tripped. Wait for 10 min. and try again.)		
	Drain too hot (Drain temperature has been too hot (above 165°F (75°C) for more than 5		
Error code 6:	min. Check that jet in drain is working. Check for dirt in solenoid valve, jet or dirt filter. Check if by mistake hot water has been connected. Check if sensor is defective or jet is		
	sprinkling in the wrong direction.)		
F	<b>Oven sensor defective</b> (Temperature sensor in oven not working properly. Check wire		
Error code 7:	connections or replace sensor)		
Error codo 9.	Core temp. probe not connected (A program using core temp. probe has been selected		
Error code 8:	but probe has not been connected)		
Error code 9:	Generator sensor defective (Temperature sensor in generator not working. Recipes		
Entri code 9.	prescribing use of steam generator cannot be used. Check wire or replace sensor.)		
Error code 10	Drain sensor defective (Sensor in drain not working. Oven can still be used. Check wire		
	connections or replace sensor.)		
	Water shortage (Steam generator was not filled within two minutes. Check that the water		
Error code 11:	has been turned on. Check if solenoid valve or dirt filter is blocked. Check water pressure		
	(should be at least 2 bar))		
Error code 12:	<b>SSR too hot</b> . Thermo-switch for solid-state relay has tripped. Wait for 10 – 20 minutes and		
	try again. Check that the cooler opening is not blocked.)		
Error code 13:	Generator too hot (Temperature in steam generator higher than 266°F (130°C). If error		
Error code 14:	Fan too slow		
Error code 16:	TO hoard too hot		
	Internal defect (Oven server process does not respond. Oven server process fails. Restart		
Error code 19:	oven)		
Error code 20:	Internal defect (Failure in communication between computer and IO board)		
Error code 21:	Invalid program (Program uses a function which the oven does not support)		
Error codo 22	Program interrupted (Power cut-out during program performance. Cut-out has lasted so		
Entor code 22:	long that program cannot be restarted)		
Error code 23:	CombiWash (Oven is so hot that CombiWash cannot start. Cool oven and start again.		
Error code 24:	Draining defect (Steam generator could not be emptied during flushing. Level sensor		
	reports high water level when generator is emptied)		
Error code 25:	ClimaOptima (ClimaOptima not calibrated. Enter service menu and calibrate)		
Error code 26:	<b>ClimaOptima</b> (ClimaOptima sensor defective. Pressure sensor does not give out correct signal.)		
Error code 27:	ClimaOptima (Calibration could not be performed. Start cal when oven is cold and dry)		
Error codo 29	Alarm defective (An invalid combination of the main alarms has been detected. The main		
Ellor code 28:	alarms are not shown correctly.)		
Error code 29:	Door sensor defective (Door sensor does not work. Note: Oven does not stop when door		
	is opened. Oven can still be used.)		
Error code 34:	Water pressure too low (Check that water is turned on)		
Error code 36:	Detergent insufficient (Detergent or rinse aid has run out)		
	Detergent in oven (CombiClean interrupted while detergent in oven chamber. Run		
Error code 38:	CombiWash step 0 before using oven. Food products and oven may be damaged if oven is		
Ennon es de 20	useu belore soap is removed.		
Error code 39	<b>Memory Insufficient</b> (Memory Insufficient for this operation)		
Ennon acido 40-	<b>IU board not</b> (Internal temperature of IU board has been too high. Clean filter at the		
Error code 40:	orcor code 16		
	Citor coue 10. Main alarm (Steam generator therme, switch has tripped during out of convice time. Main		
Error code 41:	contactor disconnected.)		
	<b>SW defect</b> (An SW defect has been detected during operation. Steam generator activated		
Error code 42:	by mistake.)		



## Oven Set-up (Set-up Menu)

No.	Parameter	Factory Setting	Description	
1	Oven light door	<u>NO</u> , YES	Oven light off when door is open	
2	Oven light 5 mins	<u>NO</u> , YES	Oven light off after 5 min., otherwise oven light on continuously.	
3	Screen saver	Off, 5sec, 15sec, 1min, <u>5min</u> ,15min, 1hour	Show screen saver after selected time of inactivity.	
4	Menu start	<u>NO</u> , YES	Oven starts by showing selection of programs instead of manual functions.	
5	Start up permission	User, <u>SUPER</u>	Choose if oven should start in the user or superuser mode.	
6	DeltaT C/F	10/18 - <u>20/36 </u> - 70/126	Select difference between core temperature and oven temperature during Delta-T.	
7	C&H diff C/F	3/5.4, <u>5/9</u> , 10/18	Cook & Hold: Choose at which difference between actual and set-point core temperature the oven temperature should be reduced.	
8	Restart key	<u>None</u> , Display, Extern,Both	Pass-Through. Restart last step. From which side of the oven should the restart be operated?	
9	Restart time	1- <u>5</u> -10 min	Pass-Through. Select for how long the oven has to restart (minutes).	
10	Exhaust 1	<u>YES,</u> NO	External ventilation, speed 1 on-off.	
11	Exhaust 2	<u>NO</u> , YES	External ventilation, speed 2 on-off (not yet implemented).	
12	Hand steam	<u>YES,</u> NO	Select possibility of manual steam while oven is running.	
13	Steam int 1	6 - <u>12</u> - 30 sec	Injection interval, Combi 1.	
14	Steam int 2	3 - <u>5</u> - 17 sec	Injection interval, Combi 2.	
15	Steam int 3	<u>1</u> - 8 sec	Injection interval, Combi 3.	
16	Reheat Steam int	4 - <u>8</u> - 18 sec	Injection interval, Reheating.	
17	Proving Steam input	12 - <u>20</u> - 32 sec	Injection interval, Proving.	
18	Proving Steam pulse	0.6 - <u>1.0</u> - 2.0 sec	Duration of injection pulse, Proving.	
19	Temp. Unit	Cels. Fahr.	Temperature unit, Celsius or Fahrenheit.	
20	Oven type	BPE, CPE, KPE	Oven type.	
21	Oven size	1.06-2.14	Oven size.	
22	Mechanical	vc1, vc2	Oven generation (VC II after Oct. 07).	
23	PassThrough	NO. YES	Oven with two doors.	
24	Two fans	<u>NO</u> , YES	Is oven equipped with two fans (1.20 and new 1.16)?	
25	Custom mode	None, Menu,	Customer-specific function. CombiWash selectable in Recipes menu; notice about emptying of fat tray; special recipe icons.	



## Oven Set-up (Set-up Menu) Continued

No.	Parameter	Factory Setting	Description
26	Recipes	20/4, 200/10	Max. number of recipes and steps.
27	Fan freq. Inv	NO, YES	Is fan with frequency inverter?
28	Fan freq. volt.	5, <u>10</u>	Control voltage for frequency inverter, 5 or 10V. Only 10V is used.
29	dT/C&H	NO, <u>YES</u>	Should Delta-T and Cook & Hold be selectable?
30	Core temp 1	NO, YES	Should core temperature 1 be selectable?
31	Core temp 2	NO, YES	Should core temperature 2 be selectable.
32	Pre heat max C/F	250/482, <u>300/572</u>	Max. preheat temperature 300°C/572°F (250°C or 300°C).
33	CombiNet	<u>NO</u> , YES	CombiNet is access to recipe editing through web and offline through USB key.
34	ClimaOptima	NO, <u>YES</u>	Is oven equipped with ClimaOptima (automatic humidity control)?
35	CombiClean / CombiWash	No, Yes, Wash	Is oven equipped with CombiClean or CombiWash (auto cleaning system)?
36	CC Level	<u>NO</u> , YES	Monitoring of content of detergent container during CombiWash.
37	Energy Count	<u>NO</u> , YES	Energy counters (kWh)
38	Drain cooling	NO, <u>YES</u>	Drain cooling with water nozzle (condensation).
39	HACCP logging	<u>NO,</u> YES	Logging of recipe runs.
40	Update server	<u>None</u> , Local, Laptop PC	Select source for SW update through web.
41	Demo mode	<u>NO</u> , YES	Setting for use at exhibitions (no heat and with temperature simulation).
42	Oven temp offset C/F	-10/-18 - <u>0/0</u> -10/18	Adjustment of oven temperature sensor.
43	Core 1 temp offset C/F	-10/-18 - <u>0/0</u> - 10/18	Adjustment of core temperature sensor 1.
44	Core 2 temp offset C/F	-10/-18 - <u>0/0</u> -10/18	Adjustment of core temperature sensor 2.
45	Enable FAN alarm	NO, <u>YES</u>	Activate fan alarm (Err 14, 15).
46	Restart after PF	<u>Never</u> , 10min, 30min, 60min	Restart after power failure. Select duration of interruption until oven restarts automatically.
47	Descale	NO, <u>YES</u>	Descale program for steam generator (KPE).
48	Lime saturation factor	<u>30</u> , 60, 90hrs	Scale diagnosis, monitoring of scale in generator. Select hardness of water.
49	Multistep Fan speed	NO, <u>YES</u>	Multistep fan speed, 20-100%, 1 step = 10%

1-3 OPEFRATOR LEVEL

1-19 MANAGER'S LEVEL

1-49 SERVICE LEVEL



#### Notes:
