SERVICE MANUAL

COOKING

Built-in ovens

SPECIFIC MANUAL KRONOS LEVEL 2 (OVC1000)

PYRO VERSION EUROPE 7

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CONTENT

1 INTRODUCTION

1.1 Purpose of this Manual

The purpose of this Manual is to integrate the information provided in the Kronos Theory Manual OVC1000 599371483, the Troubleshooting Manual (599371424) and the Accessibility Manual (599359640), as well as the technical characteristics and the specific information relative to this version of the electronic control system

1.2 ESD - Electrostatic Discharge and its effect on the components

The interface for the control unit is not fitted with an internal device to protect against electrostatic discharge. When effecting repairs, therefore, the service engineer must check for stabilization of the potential on the oven casing (i.e. discharge any static electricity by touching the oven casing) in order to prevent the possibility of overload, which might damage the control unit.The same care is necessary when handling control units supplied as spare parts (i.e. not yet fitted to the oven), which must be removed from the protective bag in ESD only after stabilizing the potential (i.e. discharging any static electricity) and only then installed in the appliance.
Important!The theory behind the process of electrostatic charge and discharge is not discussed in this Manual.The tangible effects are considered to be more important.However, the effects are felt frequently when touching a metal handle and feeling the electrostatic discharge in the form of a minor shock.
But what happens when stabilization of the potential takes place with semi-conductor components (i.e. components on a circuit board, such as integrated circuits, microprocessors etc.)?
Stabilization of the potential takes place across the internal structure of the component.This does not necessarily lead to the immediate destruction of the component;Subsequent malfunctions across damaged internal connections may be more harmful, and these occur only as a result of overheating or current overloads.
It is true that almost all sensitive semi-conductor components (such as
MOS circuits) have been improved by the addition of protective measures, but the internal structures of these components are today smaller than, for example, ten years ago, which tends to increase their sensitivity to the previous levels).

IMPORTANT!

Which components are susceptible to damage by static electricity during repairs?
All circuit boards featuring control and command accesses (door switches, food probes etc.), bare tracks and microprocessors, as well as any other circuits with free access.

EXAMPLES:

- Programmers with access to the food probe and the door switch.
- Programmers whose control processors are accessible (due to their high costs, the protective systems are only partial).
- W.O.E.C. control units.
- S.O.E.C. control units.
- C.H.E.C. control units.
- KRONOS control units
- R.H.E.A. control units.

2 TECHNICAL CHARACTERISTICS

2.1 SOFTWARE

This level 2 version of "Kronos" - Pyro Europe 7 - features the software version k2c45_146, which is indicated as shown below:

C45 0146

N.B.: The last three digits of the software code (the number shown on the display), in this case "146", indicate the level of modification, and may vary; however the control units remain interchangeable with the previous having same number.

2.2 TIMES

Time indication	24 hours
Maximum cooking time	23 hours 59 minutes
Minute-minder	23 hours 59 minutes

2.3 AUTOMATIC SWITCH-OFF

The automatic switch-off function operates as follows:

Temperature setting	**Automatic switch-off**
30-115°C	After 12 hours
120-195°C	After 8 hours 30 minutes
200- 245°C	After 5 hours 30 minutes
250-280°C	After 3 hours

2.4 DIMENSIONS

2.4.1 Minimum internal dimensions of kitchen cabinet

Height	column installation:	593 mm
	under counter:	580 mm
Width		560 mm
Depth		550 mm

2.4.2 Net dimensions of oven cavity

Height	335 mm
Width	405 mm
Depth	410 mm
Net volume	56 l

2.5 POWER RATINGS

Upper heating element	800 W
Lower heating element	1000 W
Upper + lower heating element	1800 W
Single grill heating element	1650 W
Double grill heating element	2450W
Rear heating element (circular)	2000
Oven light	15 W
Cooling fan (tangential)	20 W
Oven fan (convection)	30 W
Total maximum power	3000W
Voltage (50Hz)	230 V

3 CONTROL PANEL

3.1 CONTROLS

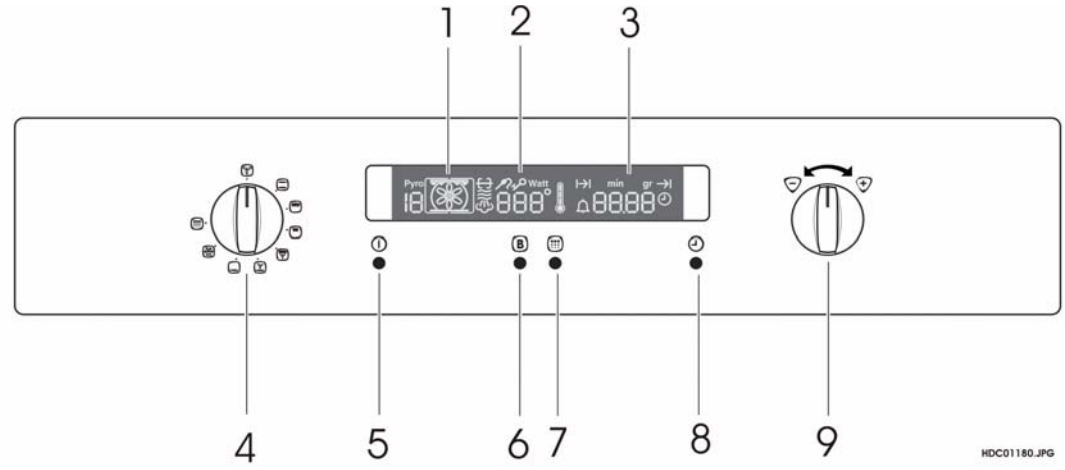


Fig.1

1 - Cooking functions
2 - Temperature display
3 - Time display
4 - Oven function control knob
5 - On/off button
6 - Rapid pre-heating time
7 - Pyrolysis function button
8 - Time function button
9 - Time function control knob

3.2 Activated symbols

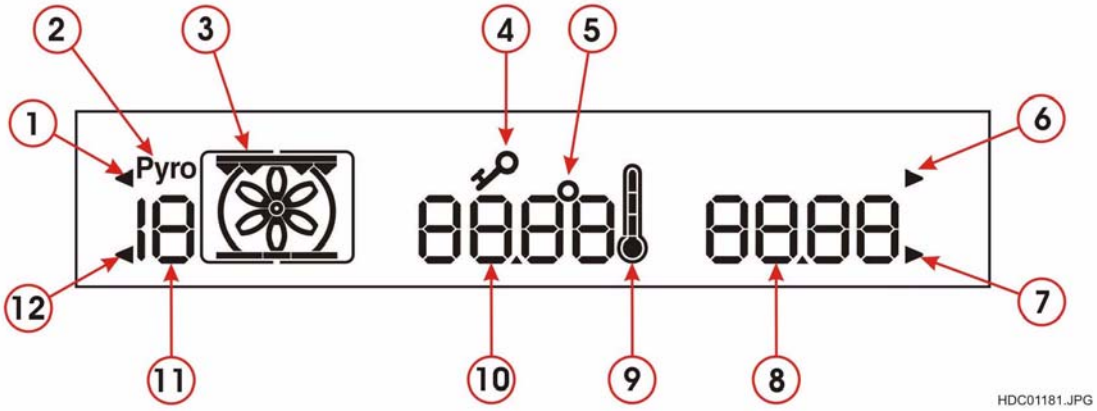


Fig.2

2 - Cooking time arrow
2 - Pyrolysis symbol
3 - Oven functions
4 - Turnspit symbol
5 - Door lock symbol
6 - Degrees centigrade symbol
7 - End of cooking arrow
7 - Clock arrow
9 - Time
10 - Thermometer
11 - Temperature
12 - Cooking function indication/Demo
13 - Minute-minder arrow

3.3 CONTROL KNOBS

FUNCTION SELECTOR

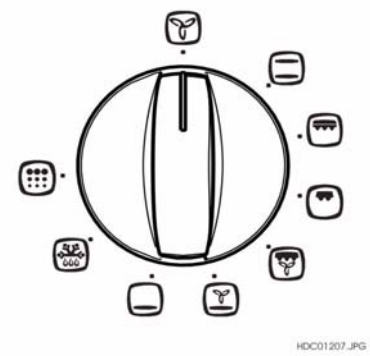


Fig.3

TIME/TEMPERATURE

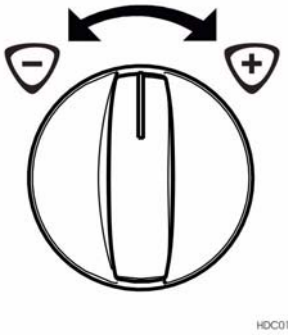
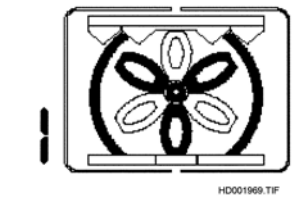


Fig.4

4 COOKING FUNCTIONS

This version of pyrolytic oven has the following 9 cooking functions, which can be selected in the sequence listed below:

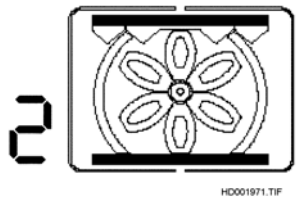
Fan cooking



Elements activated:
Oven light
Circular heating element
Convection fan

Pre-set temperature: 175°C
Temperature range: 30-285°C

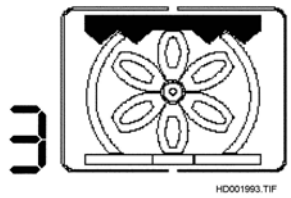
Traditional cooking



Elements activated:
Oven light
Upper heating element
Lower heating element

Pre-set temperature: 200°C
Temperature range: 30-285°C

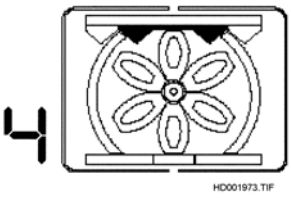
Large grill



Elements activated:
Oven light
Grill heating element
Upper heating element

Pre-set temperature: 250°C
Temperature range: 200-250°

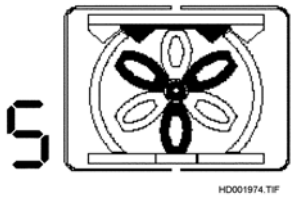
Grill



Elements activated:
Oven light
Grill heating element

Pre-set temperature: 250°C
Temperature range: 30-250°C

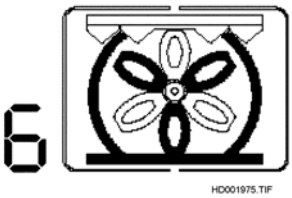
Grill + Fan



Elements activated:
Oven light
Grill heating element
Convection fan

Pre-set temperature: 180°C

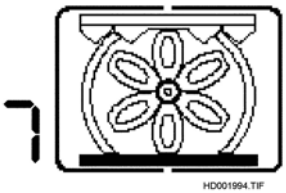
Pizza



Elements activated:
Oven light
Circular heating element
Lower heating element
Convection fan

Pre-set temperature: 175°C

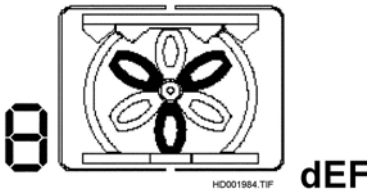
Bottom panel



Elements activated:
Oven light
Lower heating element

Pre-set temperature: 250°C

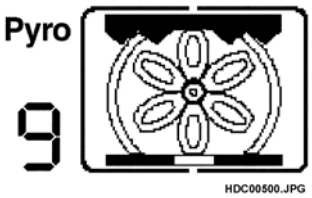
De-frosting



Elements activated:
Oven light
Convection fan

Pre-set temperature: 30°C

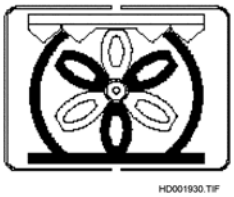
Pyrolytic



Elements activated:
Oven light
Upper heating element 100%
Grill heating element 80%
Lower heating element 20%

5 SPECIAL FUNCTIONS

5.1 Rapid heating



Elements activated:
Oven light
Circular heating element
Lower heating element
Convection fan

FHU

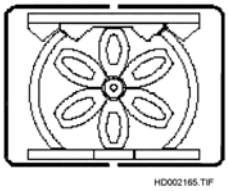
The figure illustrates the elements that are effectively in operation when the RAPID HEATING function has been selected, although the display indicates only the first function selected.

5.2 Functions with key combinations + regulation knob

FUNCTION	KEY COMBINATION + KNOB		
	KEY	POSITION (Ref.fig. 1)	KNOB ROTATION
Child safety function		(5)	
"Demo" function		(5)	

5.3 Oven light function

Automatic switch-off:after 3 minutes



5.4 Pottery removal warning

When the cleaning function with pyrolysis is selected, the cleaning programme setting is shown on the display (see fig. 5) and alternatively the indication of pottery removal from the oven before using the pyrolysis programme (see fig.6).

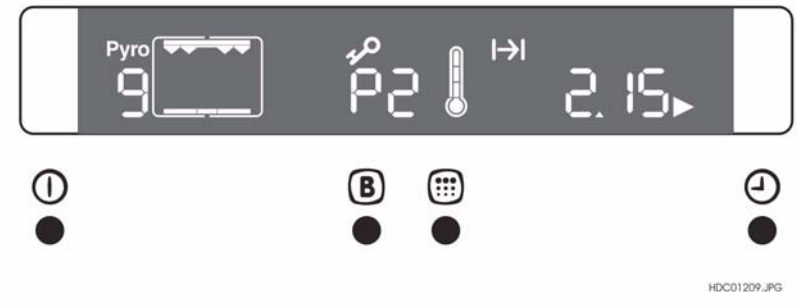


Fig.5

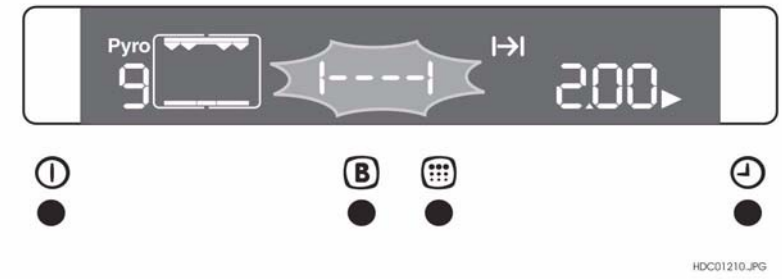


Fig.6

6 ERROR CODES

The KRONOS system performs some internal auto-diagnosis, and if it detects an operation inconsistency, it displays the error codes.

The error code is showed on the display as indicated in the figure 7.

The various error codes are listed in the table below:

ERROR CODE	CAUSE
F02	Door locking system (featured only on pyrolytic ovens)
F03	EEPROM Memory on control unit
F04	Temperature range of oven sensor excedeed (for more than 5 seconds)
F05	Temperature safety level exceeded > 350°C on normal ovens > 530°C on pyrolytic ovens (for more than 10 seconds)
F08	Communication interrupted between control unit and power board
F09	Software compatibility between control unit and power board
F10	Triac faulty (on power board)

Example of error code (F05)

Fig.7

7 OVEN BASIC WIRING DIAGRAM

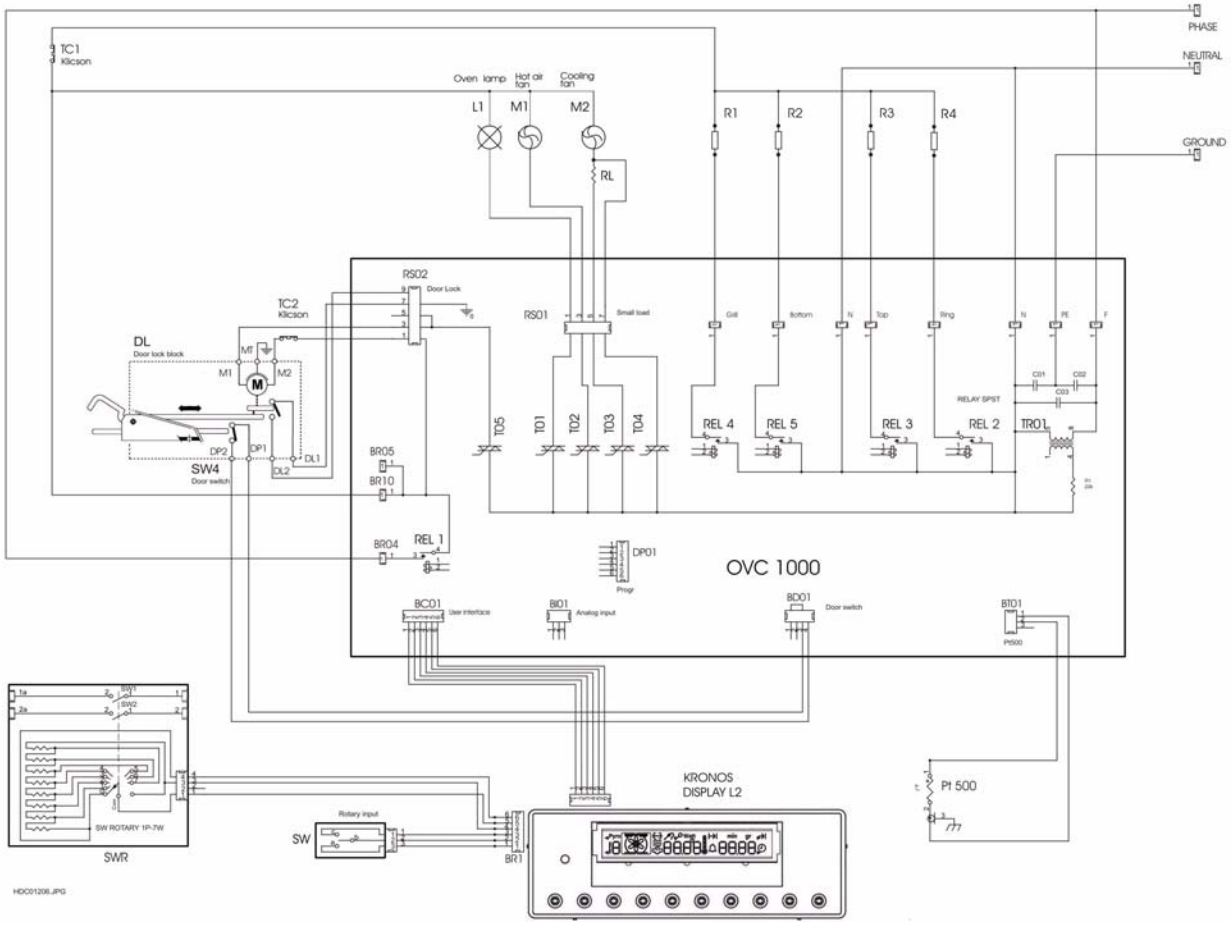


Fig.7

KEY

DISPLAY L2	- CONTROL UNIT KRONOS LEVEL 2
DL	- DOOR LOCK ASSEMBLY
Ground	- MAINS (EARTH)
L1	- OVEN LIGHT
M1	- CONVECTION FAN
M2	- COOLING TANGENTIAL FAN
Neutral	- MAINS (NEUTRAL)
Phase	- MAINS (PHASE)
RT1	- PT500 OVEN SENSOR
R1	- GRILL HEATING ELEMENT
R2	- LOWER HEATING ELEMENT (BOTTOM)
R3	- UPPER HEATING ELEMENT (TOP)
R4	- CONVECTION HEATING ELEMENT (CIRCULAR)
OVC1000	- POWER BOARD
REL1	- SAFETY MAIN RELAY
REL3	- UPPER HEATING ELEMENT CONTROL RELAY
REL5	- LOWER HEATING ELEMENT CONTROL RELAY
REL2	- CONVECTION HEATING ELEMENT CONTROL RELAY
REL4	- GRILL HEATING ELEMENT CONTROL RELAY
RL	- DROP RESISTOR FOR FAN (DOUBLE SPEED)
SW1	- DOOR LOCK HOOK MICROSWITCH
SW	- TIME/TEMPERATURE ROTARY SELECTOR
SW2	- DOOR MICROSWITCH
SWR	- FUNCTION ROTARY SELECTOR
TC1	- SAFETY THERMOSTAT
TC2	- DOOR LOCK THERMOSTAT
TO1	- OVEN LAMP CONTROL TRIAC
TO2	- CONVECTION FAN CONTROL TRIAC
TO3	- COOLING TANGENTIAL FAN CONTROL TRIAC
TO4	- TURNSPIT MOTOR CONTROL TRIAC
TO5	- DOOR LOCK CONTROL TRIAC
TR01	- LOW VOLTAGE TRANSFORMER