SERVICE MANUAL

COOKING

THIS DOCUMENT UPDATES AND REPLACES THE PREVIOUS ONE WITH SAME NUMBER

Built-in ovens and Cookers

GENERAL TROUBLESHOOTING PROCEDURE KRONOS

(OVC1000)

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Publication number
599 37 14-84

IT/SERVICE/FV

SOI

Edition: 03.2008 – Rev. 01

CONTENTS

1 - INTRODUCTION

This troubleshooting procedure for the KRONOS system is intended to be used with reference to the basic information contained in the theoretical Service Manual (code 599 37 14 83), with the addition of flow charts, block diagrams and referring to any error codes that might be shown on the display.

1.1 - PURPOSE OF THIS MANUAL

The purpose of this Manual is to provide a general outline of an efficient troubleshooting procedure for the new KRONOS system.
This Manual contains the general information necessary to perform the troubleshooting procedure.
In relation to the various applications / personalizations, a brief Service Note will be issued describing the differences between the various applications.

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, since 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 accessible control and command connections (door switches, food probes etc.), bare tracks and microprocessors, as well as any other circuits with free access.

Examples:

- Programmers with accessible connections for 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 - DIAGNOSTICS AND APPROACH TO THE SYSTEM

In view of the diversified nature and the flexibility of the system, it is necessary to adopt a method of approach to each specific type of fault.
In other words, it is important to identify in detail the phenomena that take place when a fault occurs by attempting to correctly interpret the user's complaint.
For example, if the user makes a service call because the "oven is off", this may be due to:

- The oven does not switch on.
- The oven switches on for a few moments and then switches off.
- The display is lit but the oven does not heat.

Even in an oven with a traditional programming system, these three phenomena require three different approaches to locating the fault.
In a more complex system such as Kronos, it is even more important to correctly interpret the phenomena that occur.
In order to facilitate the process of identification, it is necessary to subdivide the system into separate blocks and then to identify the block in which the fault has occurred.
A first classification may be as follows:

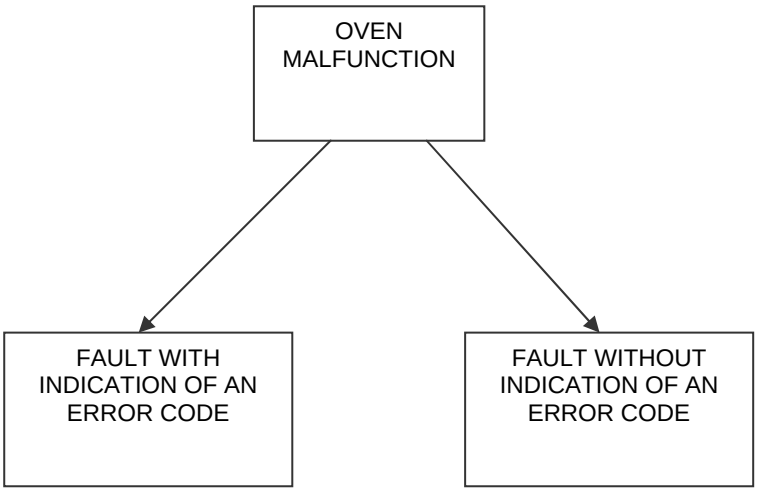


Fig. 1

If the fault is accompanied by an error code, it is easier to identify.
As explained in greater detail in sections 5, 7 and 9, the appearance of an error code indicates a situation that has been detected by the system.

2.1 – ERROR CODE DISPLAY
The normal flow of information governed by the microcontroller is monitored by an internal programme; in the event of certain malfunctions, the relative information is shown on the display in the form of an error code.

2.2 – MEMORISATION OF ERROR CODES
The data relative to the error code are memorized in one of the registers in the microcontroller.
When an error code is displayed, the oven switches off. To reset the error code, switch the oven off and then on.

3 - GENERAL BLOCK DIAGRAM

In order to facilitate troubleshooting, especially when no error code is displayed, it may be useful to represent the system in the form of a block diagram.

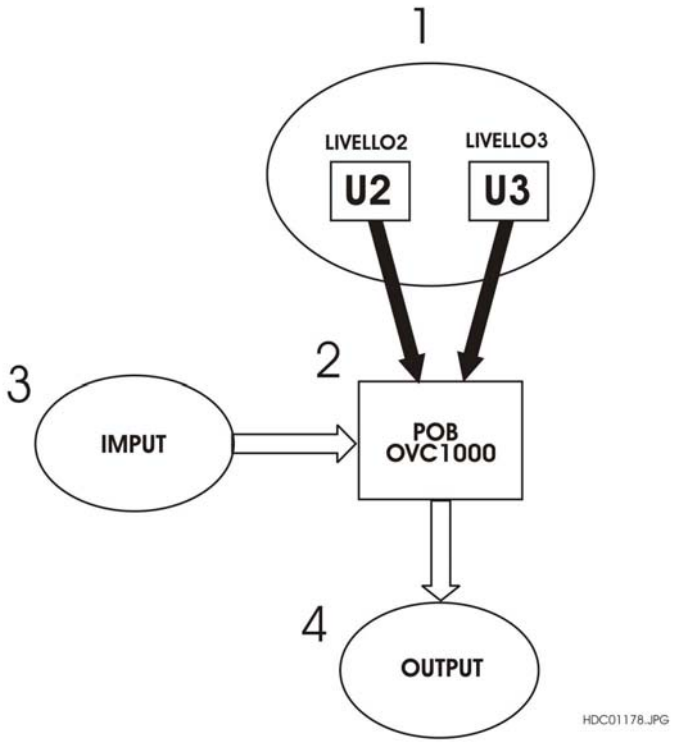


Fig. 2

1 - User interface (control units 1, 2 and 3)
2 - Power board OVC1000
3 - Input devices (sensors)
4 - Output devices (power loads)

- The user interfaces (1) are the various control units including the control interfaces (if present).
- The power board receives information from the control units and signals from the input devices (3) in order to control the output devices (4).
- The input devices are sensors which transfer to the system any variations in temperature, as well as thermostats (in some models) which guarantee user safety in case of overheating.
- Out devices include the heating elements, the oven light and the various motors (oven fans, rotary spits, and if present, the door lock).

4 - ERROR CODES

The KRONOS system performs an internal autodiagnostics routine and, when a malfunction is detected, displays the corresponding error code.
The error code is shown on the display as shown in the figures relative to the various levels (see figg. 3, 4).

The table below describes the various error codes:

ERROR CODE	DESCRIPTION OF THE CAUSE
F02	Door lock system (featured only on pyrolytic ovens).
F03	EEPROM Memory on Control Unit.
F04	Oven sensor temperature range exceeded (condition occurs for more than 5 seconds).
F05	Temperature safety limit exceeded > 350°C on normal ovens. > 530°C on pyrolytic ovens. (condition occurs for more than 10 seconds).
F08	Communication interruption between Control unit and power board.
F09	Software compatibility between Control unit and power board.
F10	Faulty triac (on power board)

Examples of the way in which error codes are displayed are shown below:

Example of error code (F05) on level 2 control unit

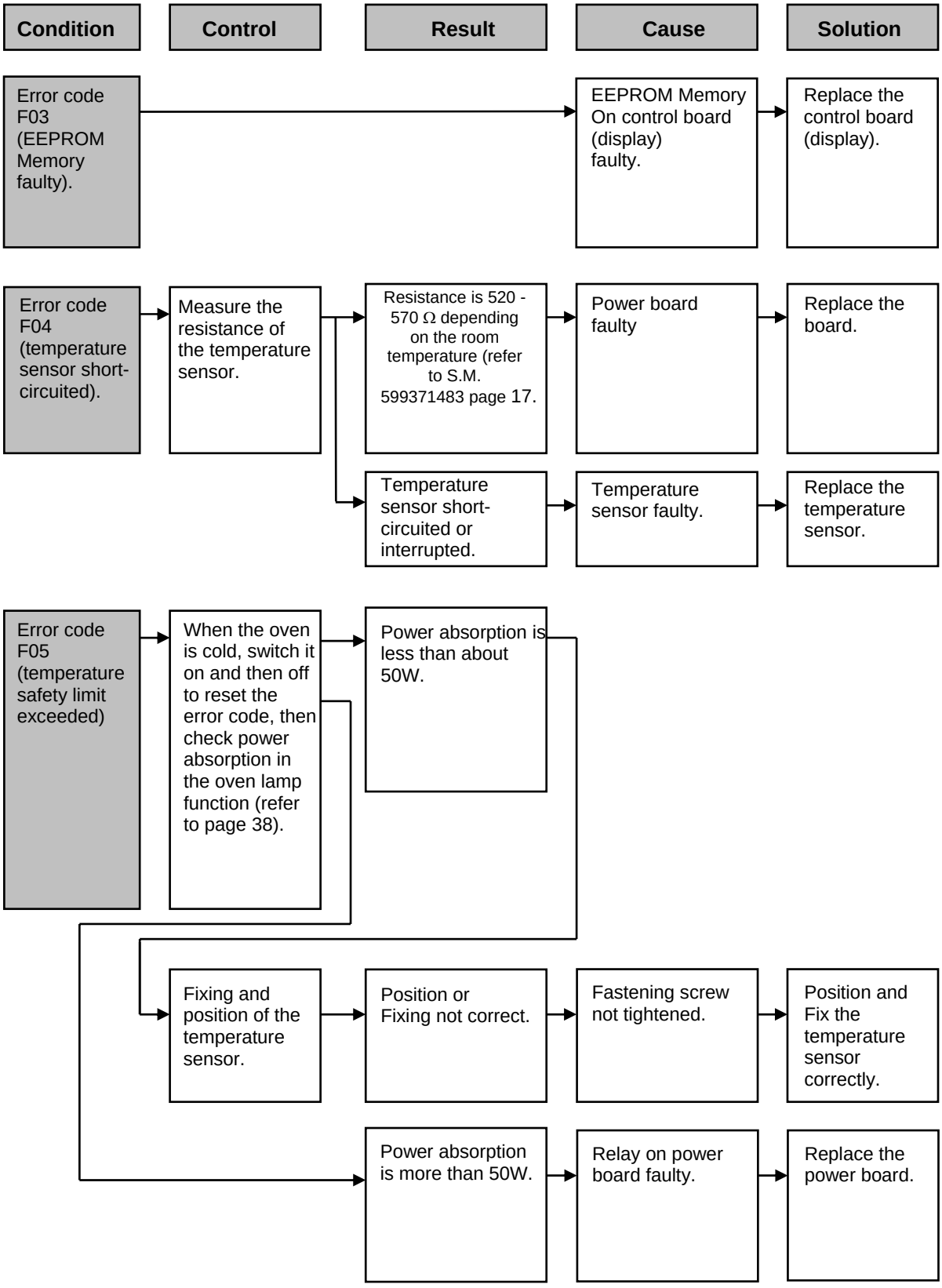
Fig. 3

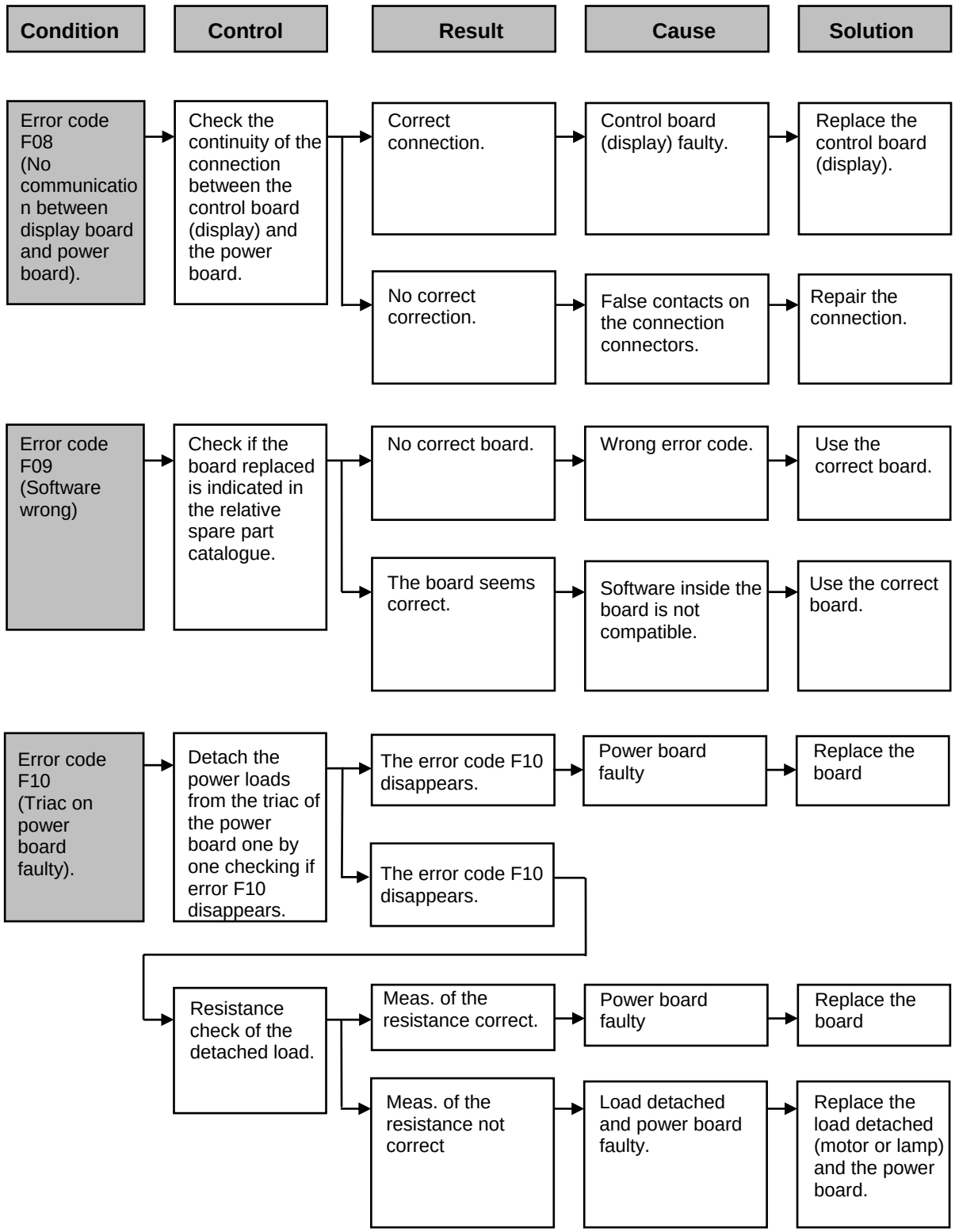
Example of error code (F05) on level 3 control unit

Fig. 4

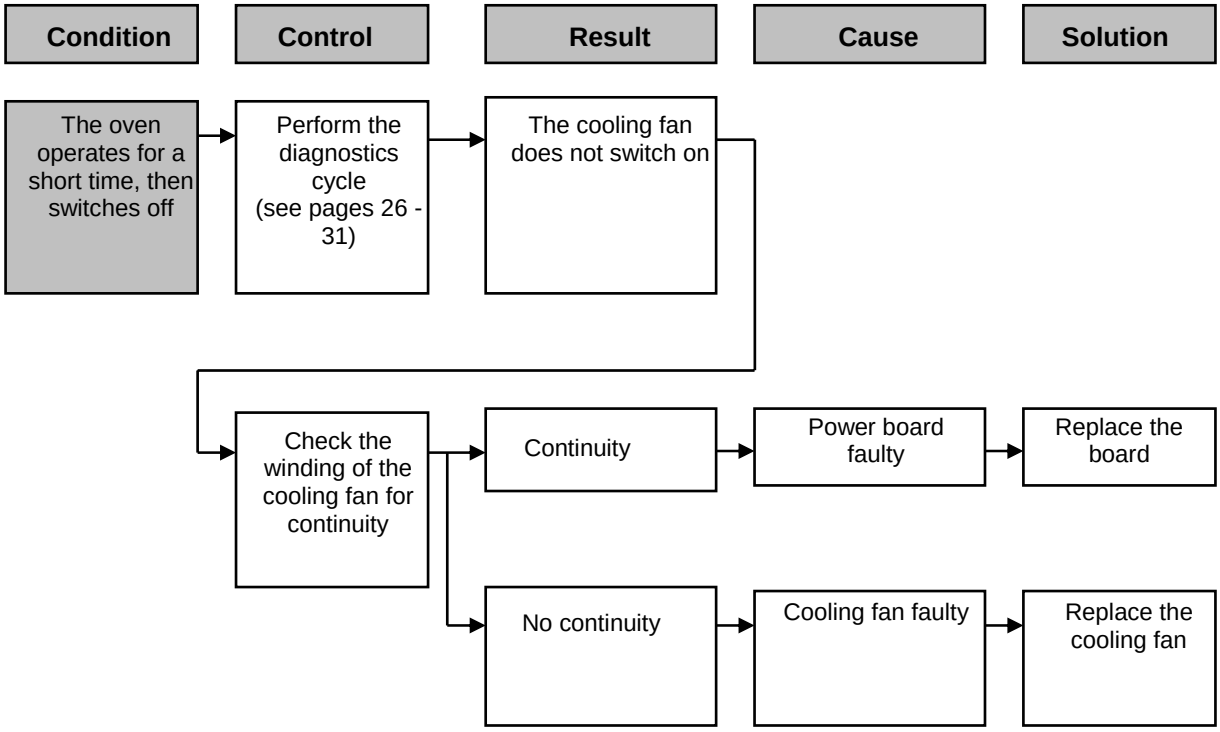
5 - TROUBLESHOOTING USING ERROR CODES ON NORMAL OVENS

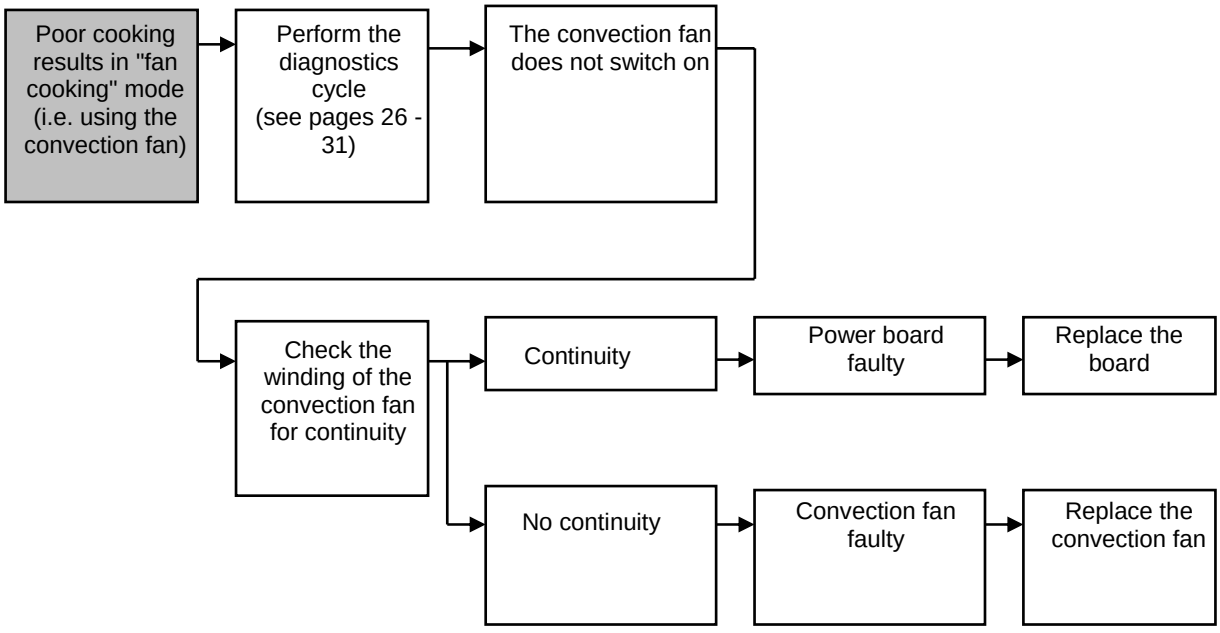
Troubleshooting based on error codes helps to identify the component or a specific section of the circuitry in the appliance.
When a malfunction is detected by the control circuit, the appliance shows the error code on the display and then switches off.

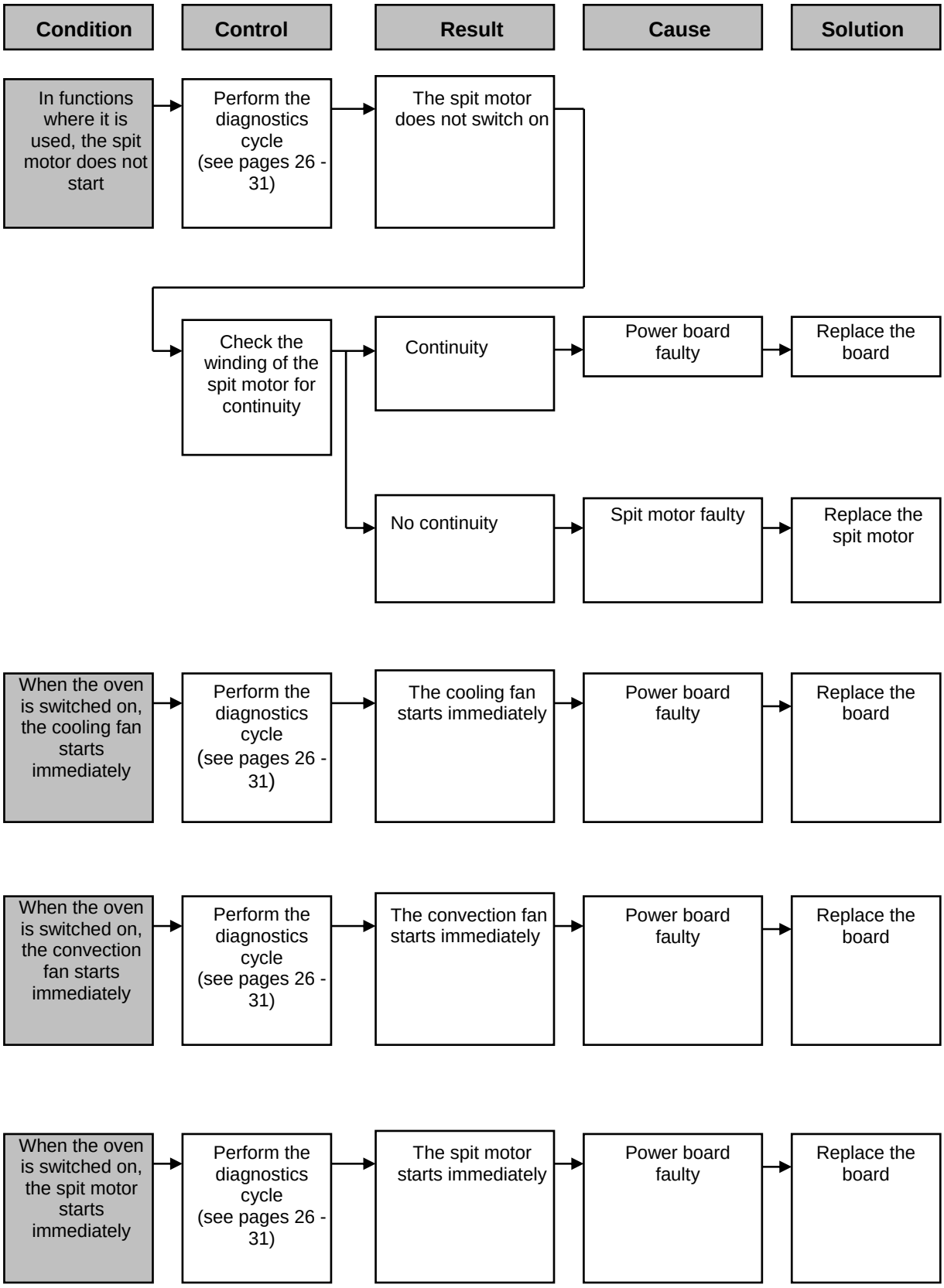


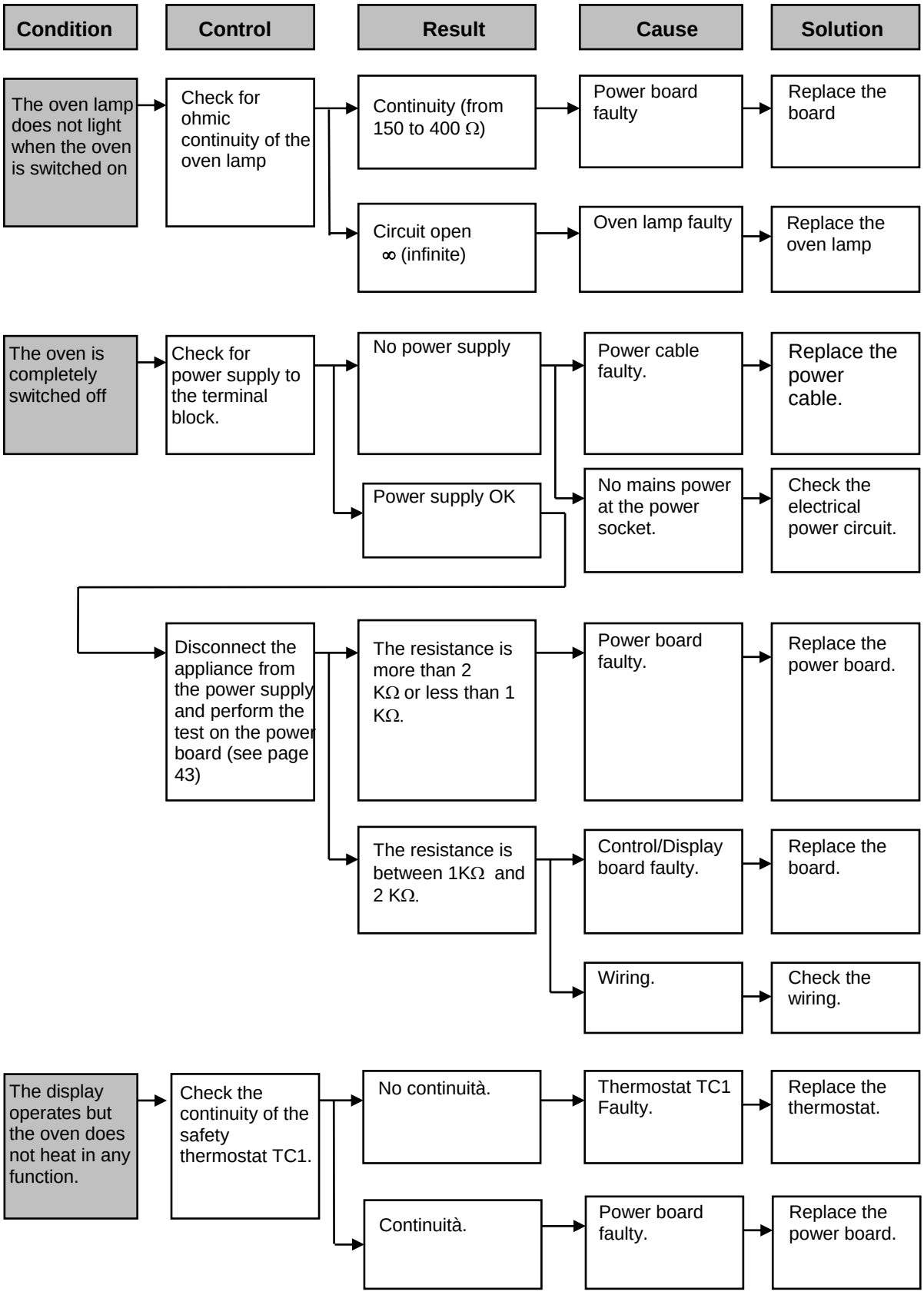

Condition
Control
Result
Cause
Solution
Error code F08 (No communication between display board and power board).
Check the continuity of the connection between the control board (display) and the power board.
Correct connection.
Control board (display) faulty.
Replace the control board (display).
No correct correction.
False contacts on the connection connectors.
Repair the connection.
Error code F09 (Software wrong)
Check if the board replaced is indicated in the relative spare part catalogue.
No correct board.
Wrong error code.
Use the correct board.
The board seems correct.
Software inside the board is not compatible.
Use the correct board.
Error code F10 (Triac on power board faulty).
Detach the power loads from the triac of the power board one by one checking if error F10 disappears.
The error code F10 disappears.
Power board faulty
Replace the board
The error code F10 disappears.
Resistance check of the detached load.
Meas. of the resistance correct.
Power board faulty
Replace the board
Meas. of the resistance not correct
Load detached and power board faulty.
Replace the load detached (motor or lamp) and the power board.

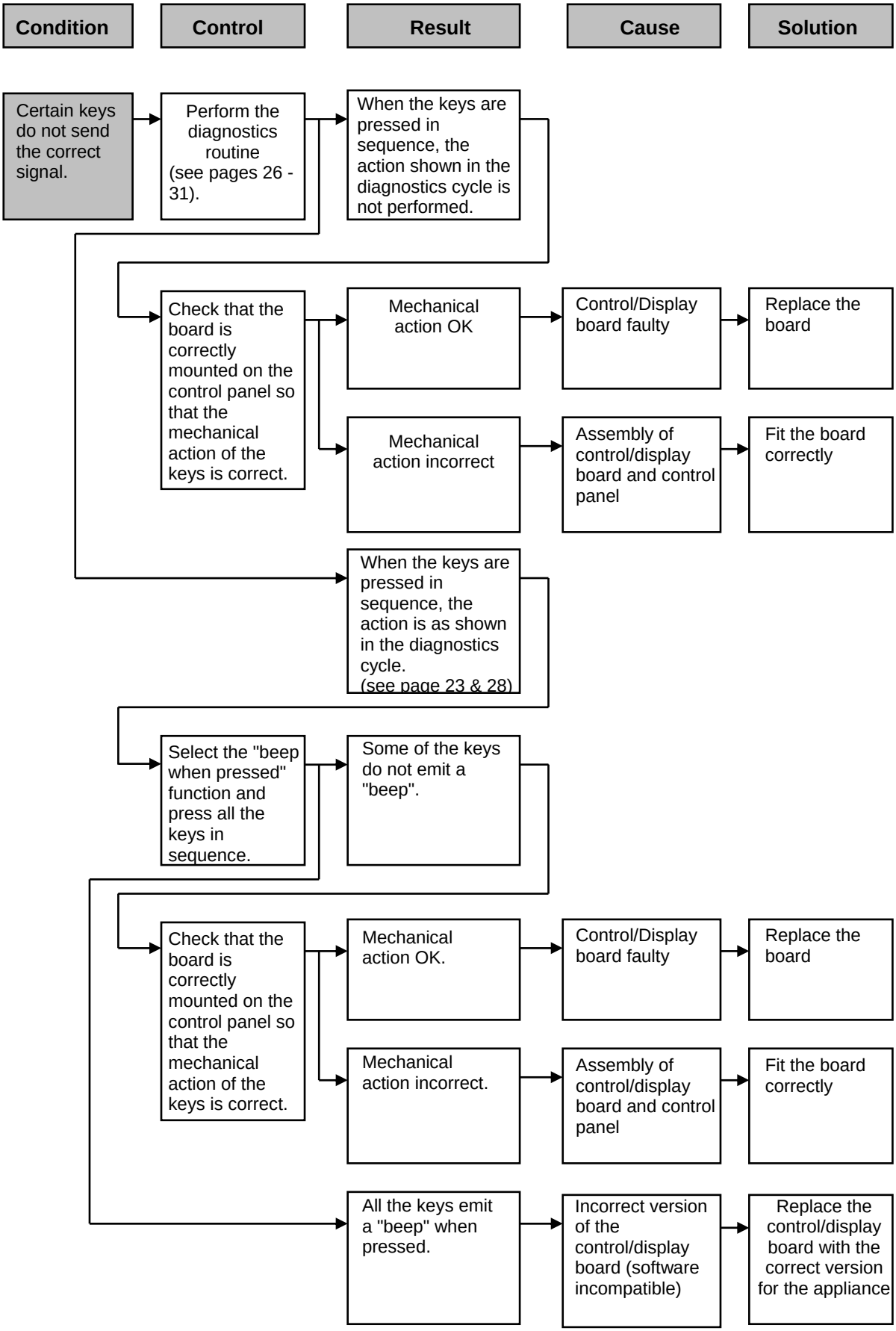
6 - TROUBLESHOOTING WITHOUT ERROR CODES

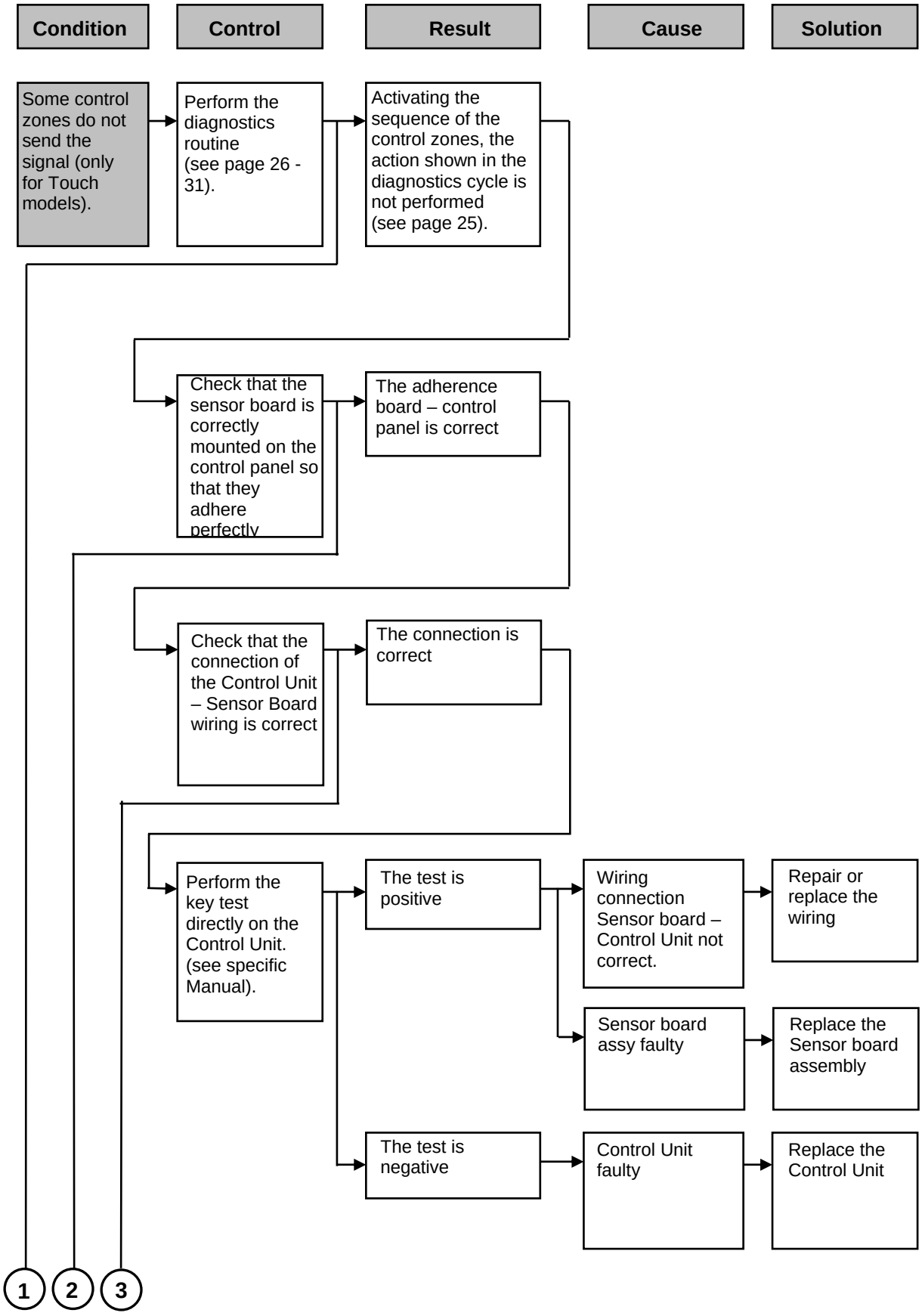


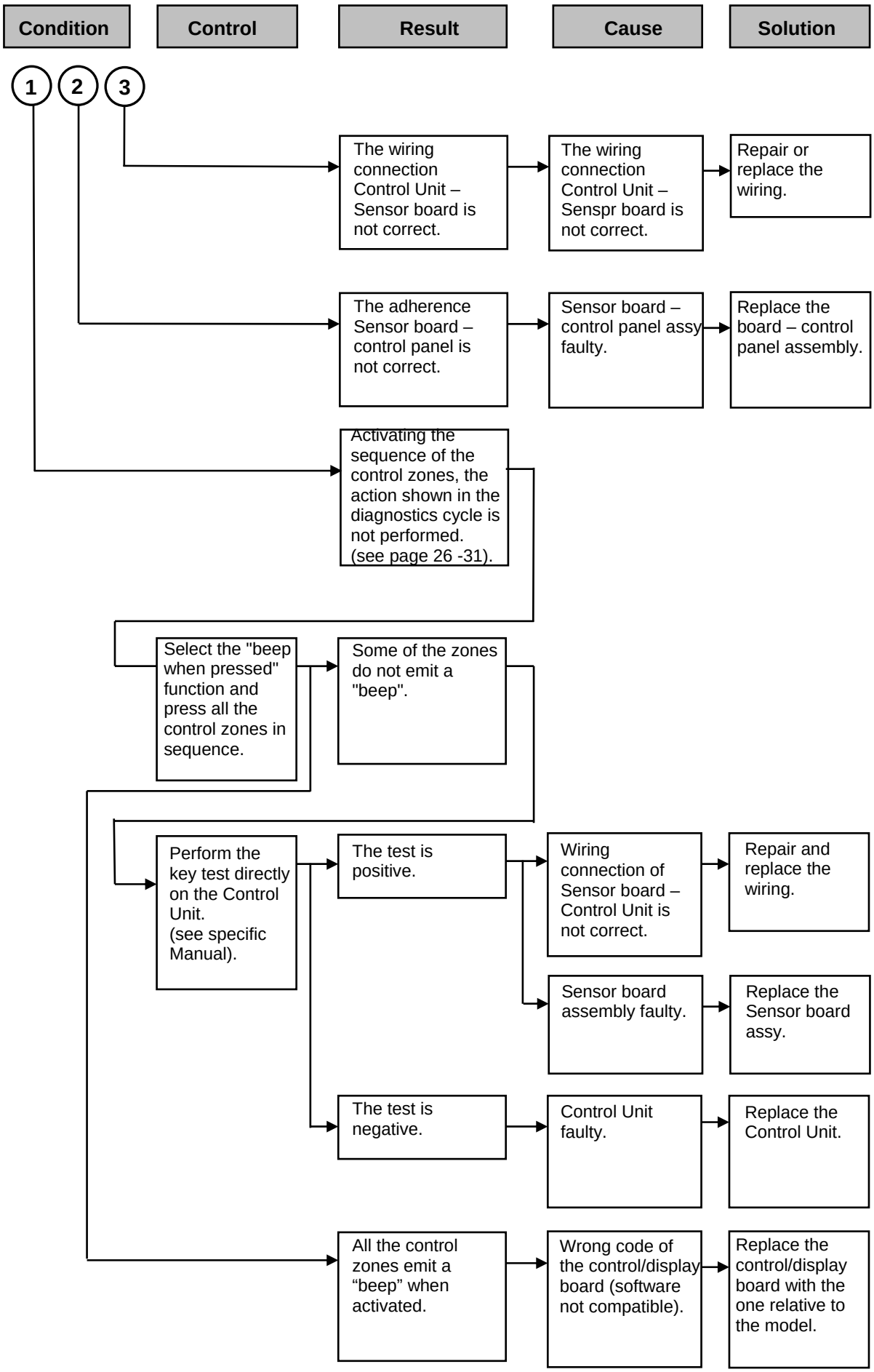


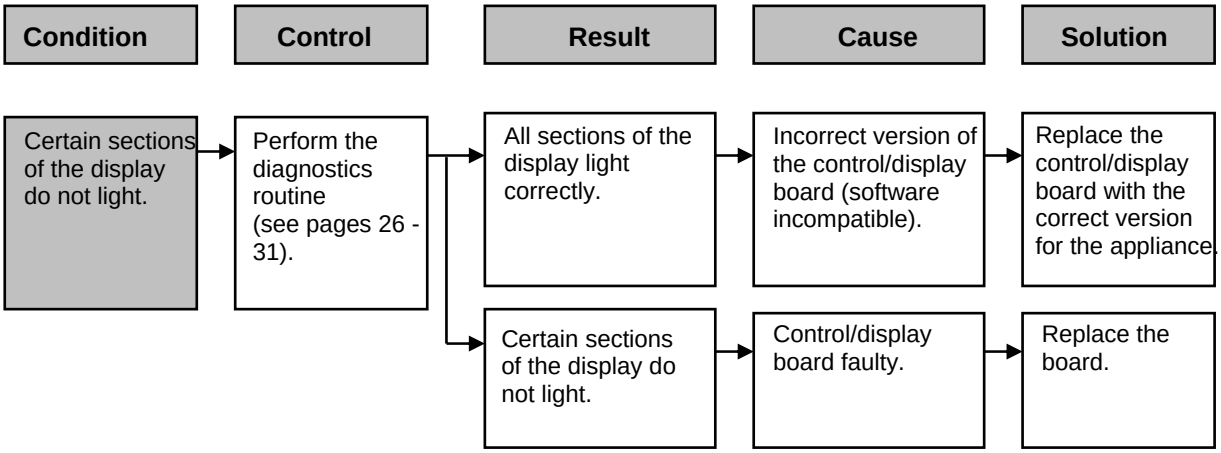

Condition
Control
Result
Cause
Solution
In functions where it is used, the spit motor does not start
Perform the diagnostics cycle (see pages 26 - 31)
The spit motor does not switch on
Check the winding of the spit motor for continuity
Continuity
Power board faulty
Replace the board
No continuity
Spit motor faulty
Replace the spit motor
When the oven is switched on, the cooling fan starts immediately
Perform the diagnostics cycle (see pages 26 - 31)
The cooling fan starts immediately
Power board faulty
Replace the board
When the oven is switched on, the convection fan starts immediately
Perform the diagnostics cycle (see pages 26 - 31)
The convection fan starts immediately
Power board faulty
Replace the board
When the oven is switched on, the spit motor starts immediately
Perform the diagnostics cycle (see pages 26 - 31)
The spit motor starts immediately
Power board faulty
Replace the board


Condition
Control
Result
Cause
Solution
The oven lamp does not light when the oven is switched on
Check for ohmic continuity of the oven lamp
Continuity (from 150 to 400 Ω)
Power board faulty
Replace the board
Circuit open ∞ (infinite)
Oven lamp faulty
Replace the oven lamp
The oven is completely switched off
Check for power supply to the terminal block.
No power supply
Power cable faulty.
Replace the power cable.
Power supply OK
No mains power at the power socket.
Check the electrical power circuit.
Disconnect the appliance from the power supply and perform the test on the power board (see page 43)
The resistance is more than 2 KΩ or less than 1 KΩ.
Power board faulty.
Replace the power board.
The resistance is between 1KΩ and 2 KΩ.
Control/Display board faulty.
Replace the board.
Wiring.
Check the wiring.
The display operates but the oven does not heat in any function.
Check the continuity of the safety thermostat TC1.
No continuità.
Thermostat TC1 Faulty.
Replace the thermostat.
Continuità.
Power board faulty.
Replace the power board.


Condition
Control
Result
Cause
Solution
Certain keys do not send the correct signal.
Perform the diagnostics routine (see pages 26 - 31).
When the keys are pressed in sequence, the action shown in the diagnostics cycle is not performed.
Check that the board is correctly mounted on the control panel so that the mechanical action of the keys is correct.
Mechanical action OK
Control/Display board faulty
Replace the board
Mechanical action incorrect
Assembly of control/display board and control panel
Fit the board correctly
When the keys are pressed in sequence, the action is as shown in the diagnostics cycle. (see page 23 & 28)
Select the "beep when pressed" function and press all the keys in sequence.
Some of the keys do not emit a "beep".
Check that the board is correctly mounted on the control panel so that the mechanical action of the keys is correct.
Mechanical action OK.
Control/Display board faulty
Replace the board
Mechanical action incorrect.
Assembly of control/display board and control panel
Fit the board correctly
All the keys emit a "beep" when pressed.
Incorrect version of the control/display board (software incompatible)
Replace the control/display board with the correct version for the appliance

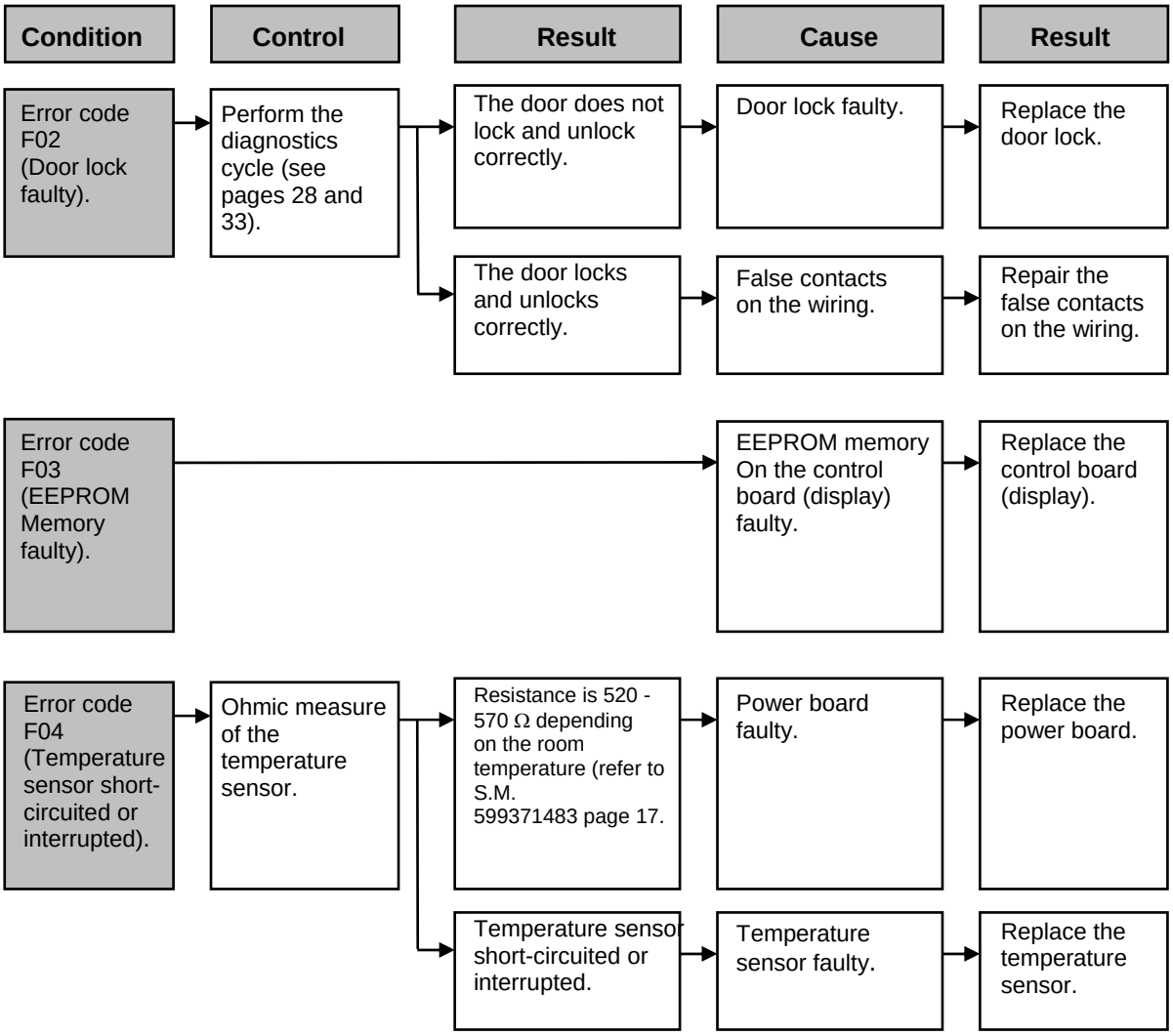

Condition
Control
Result
Cause
Solution
Some control zones do not send the signal (only for Touch models).
Perform the diagnostics routine (see page 26 - 31).
Activating the sequence of the control zones, the action shown in the diagnostics cycle is not performed (see page 25).
Check that the sensor board is correctly mounted on the control panel so that they adhere perfectly
The adherence board – control panel is correct
Check that the connection of the Control Unit – Sensor Board wiring is correct
The connection is correct
Perform the key test directly on the Control Unit. (see specific Manual).
The test is positive
Wiring connection Sensor board – Control Unit not correct.
Repair or replace the wiring
Sensor board assy faulty
Replace the Sensor board assembly
The test is negative
Control Unit faulty
Replace the Control Unit
1
2
3

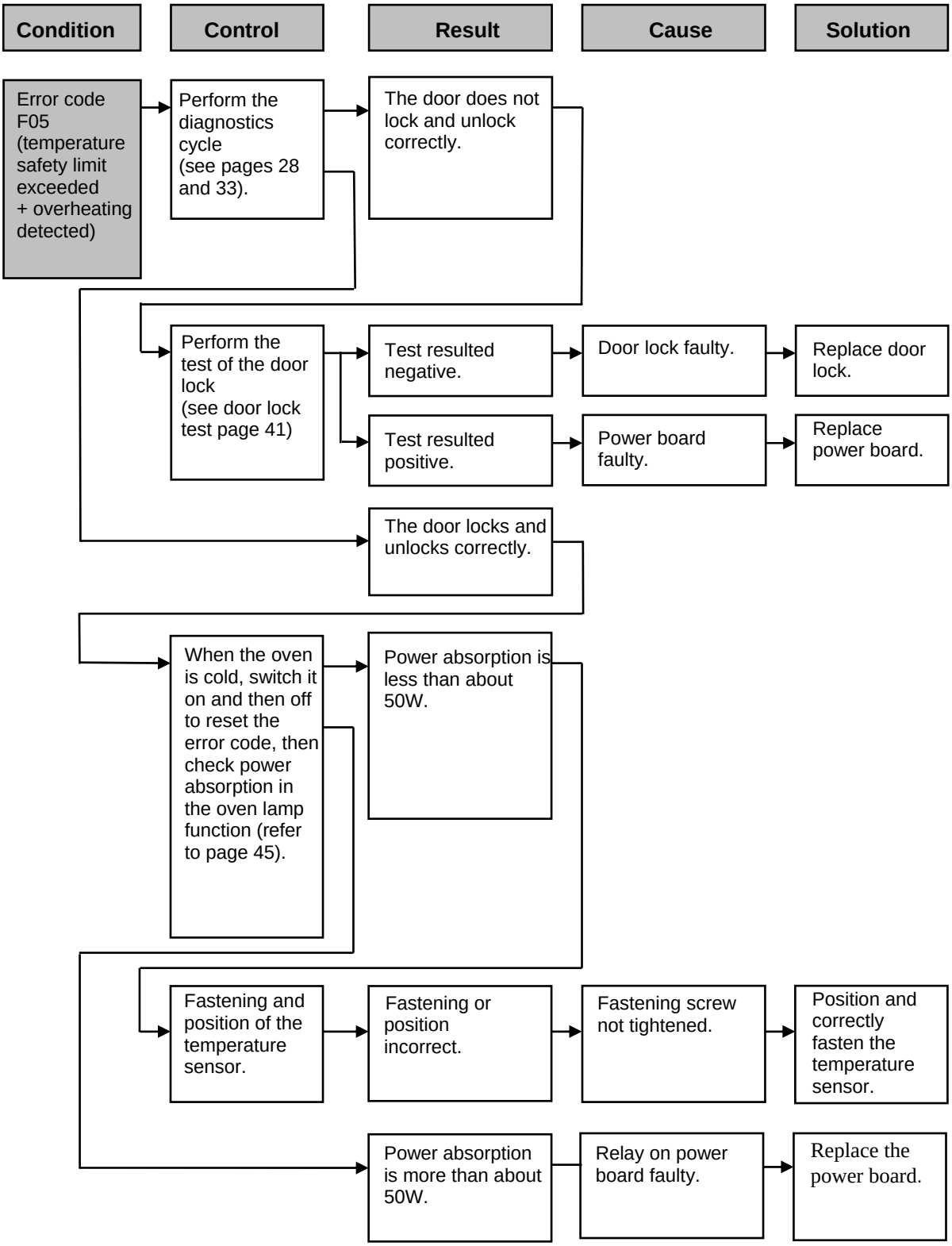

Condition
Control
Result
Cause
Solution
1
2
3
The wiring connection Control Unit – Sensor board is not correct.
The wiring connection Control Unit – Senspr board is not correct.
Repair or replace the wiring.
The adherence Sensor board – control panel is not correct.
Sensor board – control panel assy faulty.
Replace the board – control panel assembly.
Activating the sequence of the control zones, the action shown in the diagnostics cycle is not performed. (see page 26 -31).
Select the "beep when pressed" function and press all the control zones in sequence.
Some of the zones do not emit a "beep".
Perform the key test directly on the Control Unit. (see specific Manual).
The test is positive.
Wiring connection of Sensor board – Control Unit is not correct.
Repair and replace the wiring.
Sensor board assembly faulty.
Replace the Sensor board assy.
The test is negative.
Control Unit faulty.
Replace the Control Unit.
All the control zones emit a “beep” when activated.
Wrong code of the control/display board (software not compatible).
Replace the control/display board with the one relative to the model.

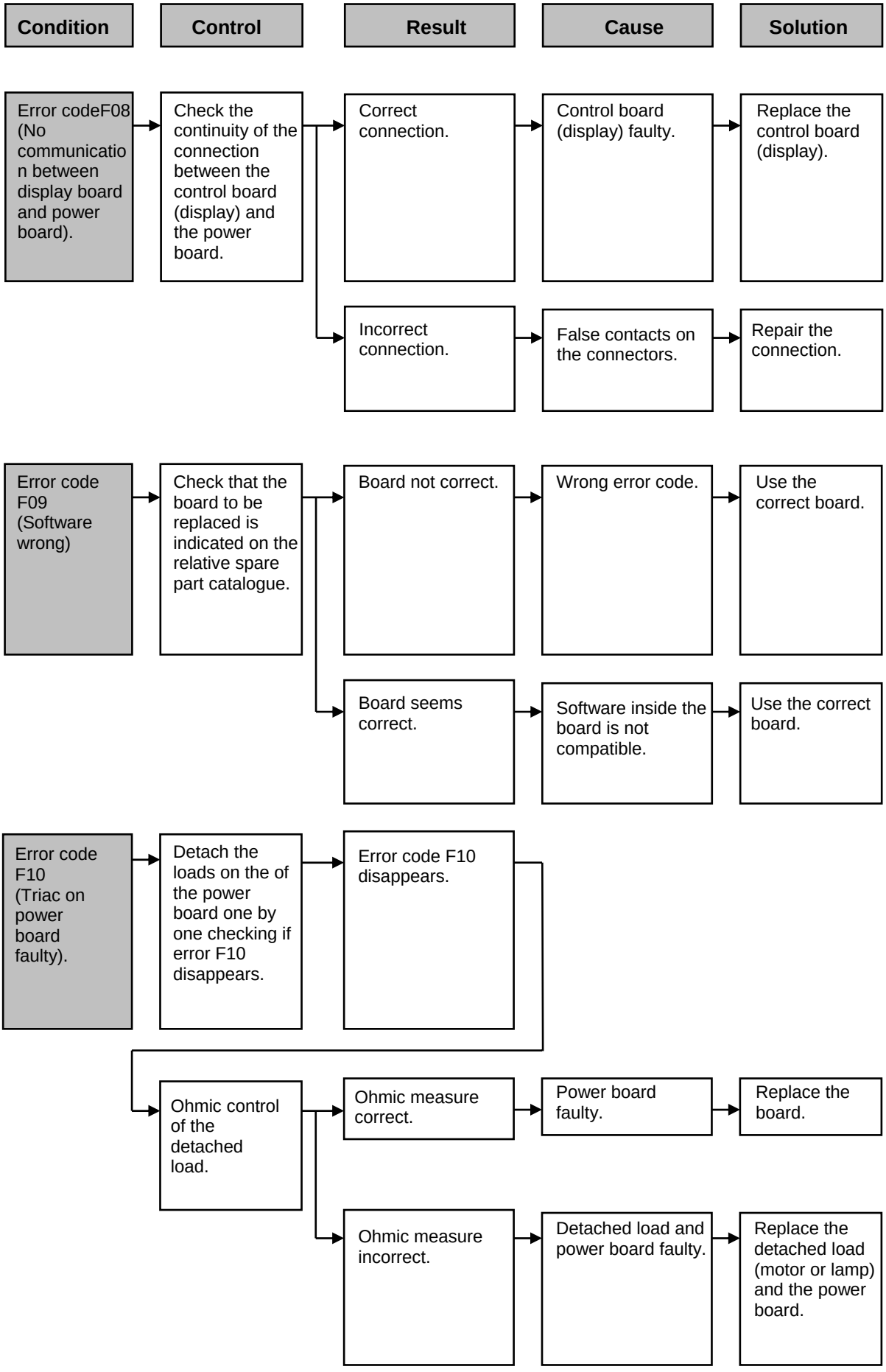

Condition
Control
Result
Cause
Solution
Certain sections of the display do not light.
Perform the diagnostics routine (see pages 26 - 31).
All sections of the display light correctly.
Incorrect version of the control/display board (software incompatible).
Replace the control/display board with the correct version for the appliance.
Certain sections of the display do not light.
Control/display board faulty.
Replace the board.

7 - TROUBLESHOOTING USING ERROR CODES ON PYROLYTIC OVENS

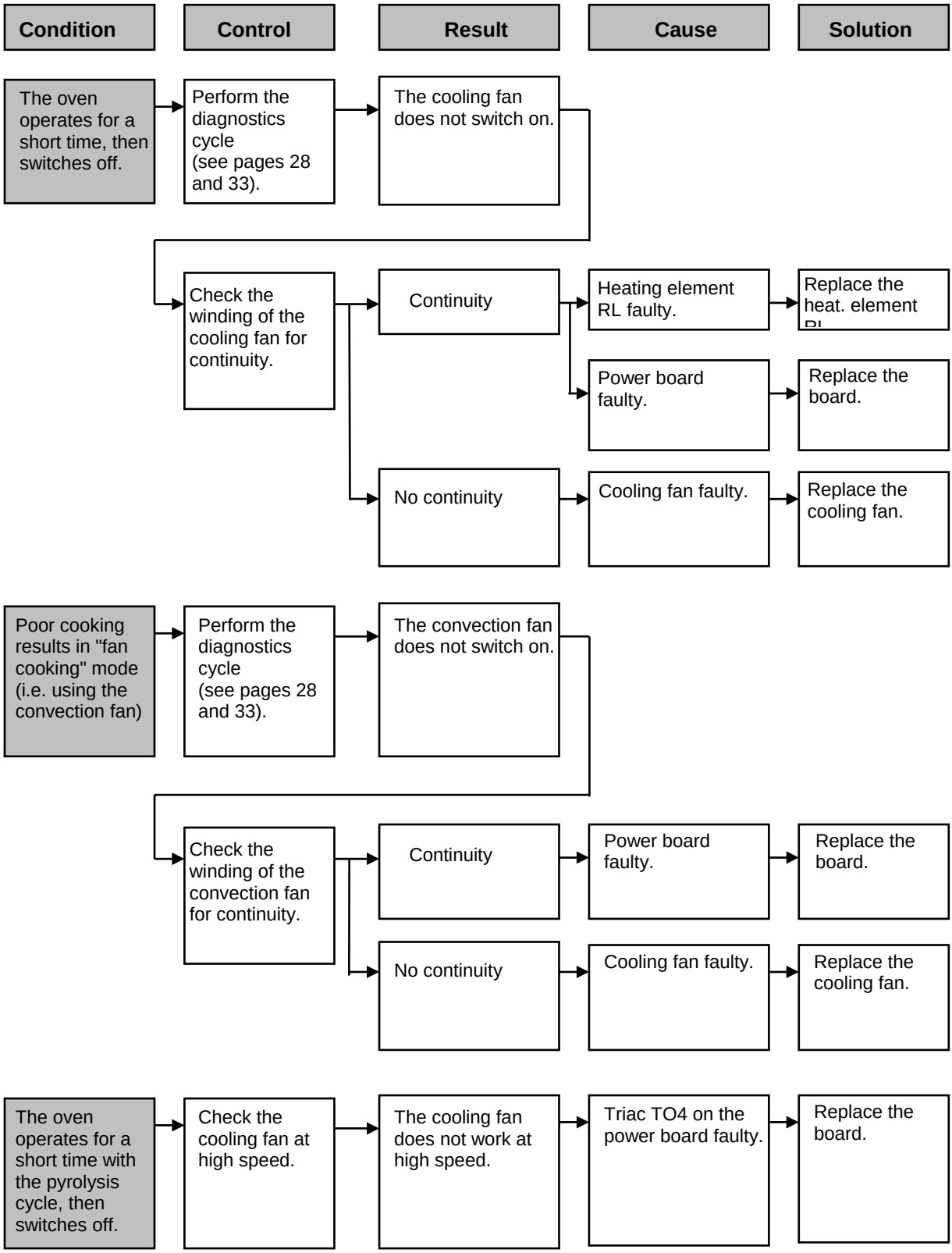
Troubleshooting based on error codes helps to identify the component or a specific section of the circuitry in the appliance.
When a malfunction is detected by the control circuit, the appliance shows the error code on the display and then switches off.

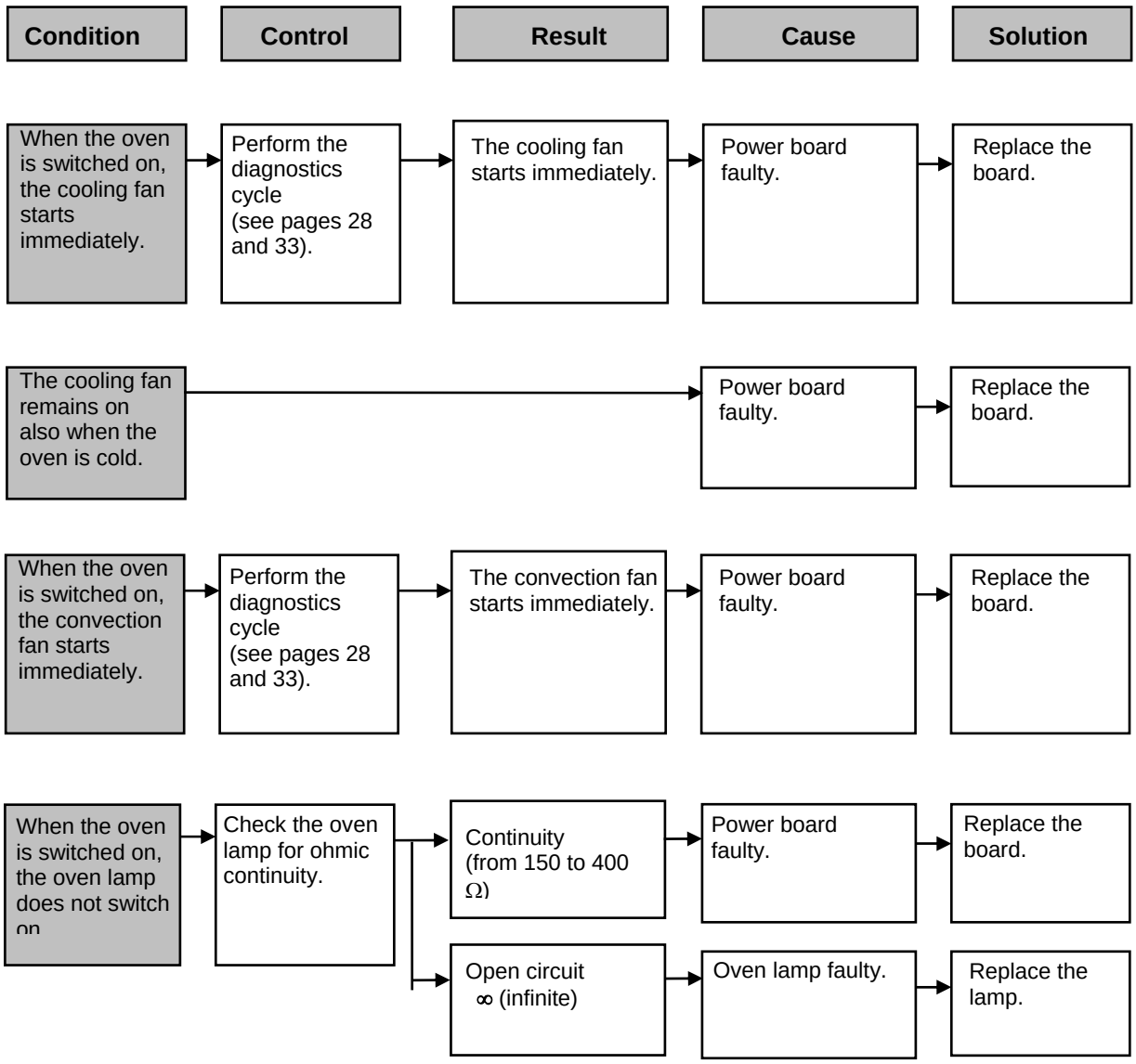


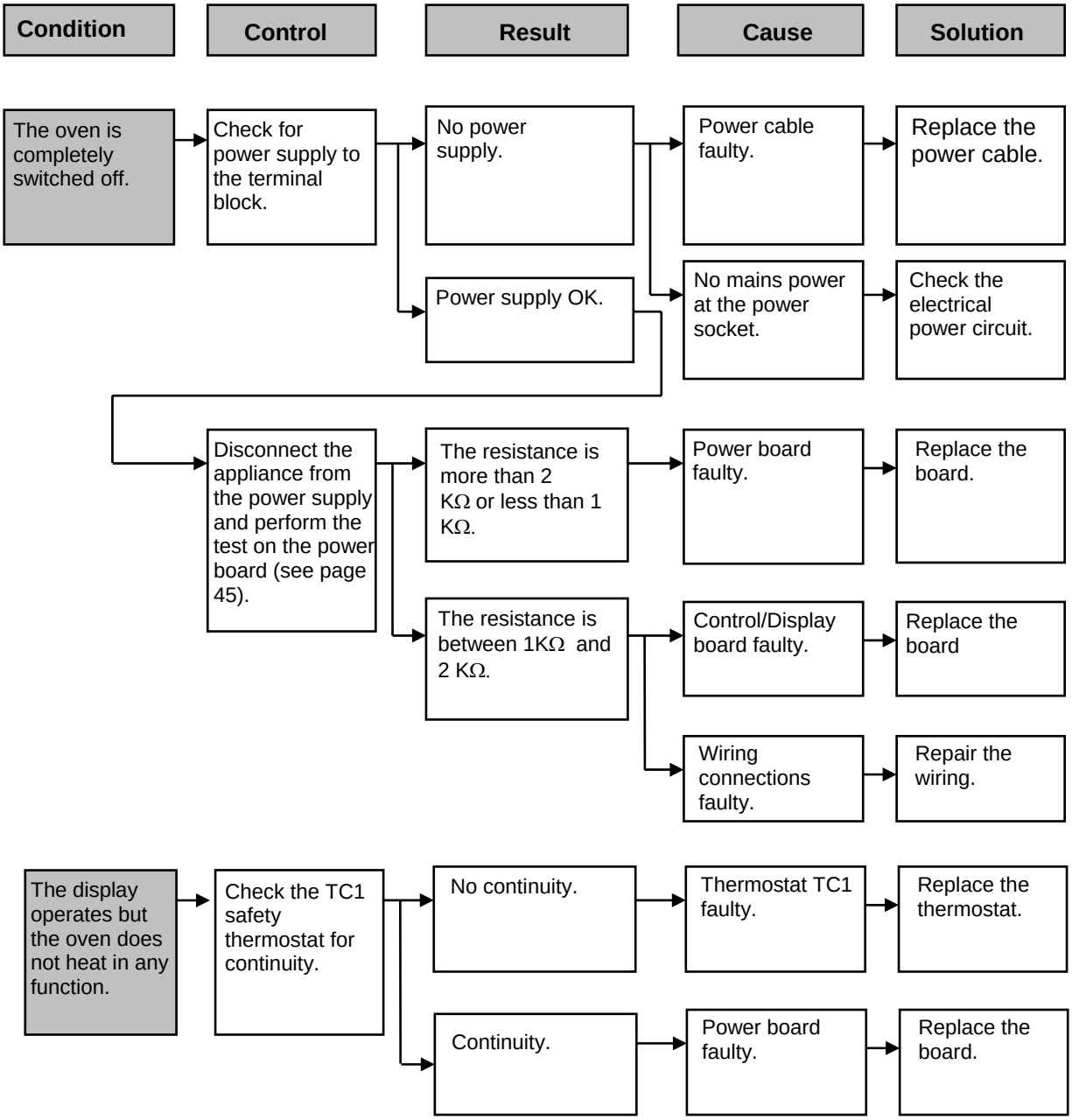

Condition
Control
Result
Cause
Solution
Error code F05 (temperature safety limit exceeded + overheating detected)
Perform the diagnostics cycle (see pages 28 and 33).
The door does not lock and unlock correctly.
Perform the test of the door lock (see door lock test page 41)
Test resulted negative.
Door lock faulty.
Replace door lock.
Test resulted positive.
Power board faulty.
Replace power board.
The door locks and unlocks correctly.
When the oven is cold, switch it on and then off to reset the error code, then check power absorption in the oven lamp function (refer to page 45).
Power absorption is less than about 50W.
Fastening and position of the temperature sensor.
Fastening or position incorrect.
Fastening screw not tightened.
Position and correctly fasten the temperature sensor.
Power absorption is more than about 50W.
Relay on power board faulty.
Replace the power board.

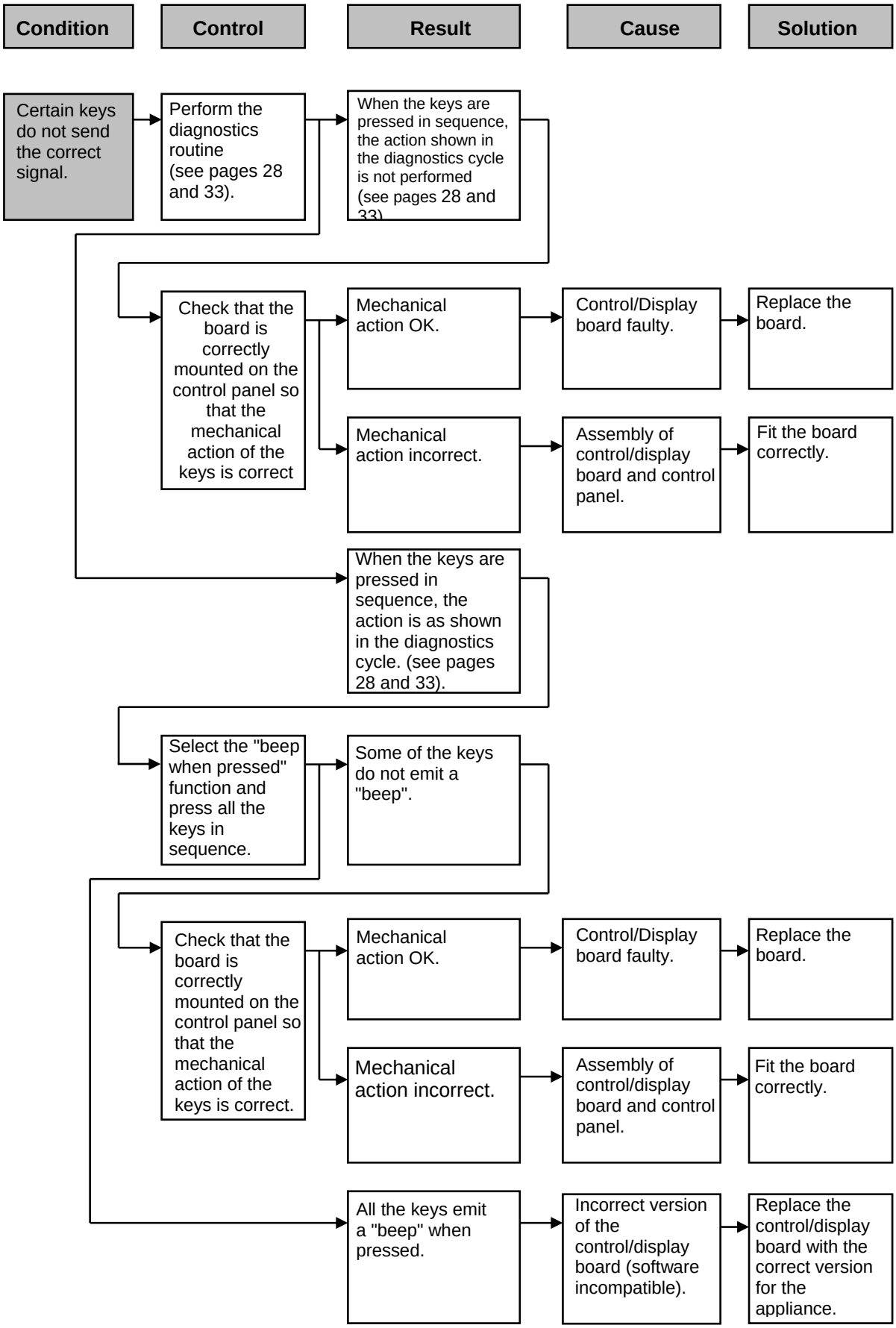

Condition
Control
Result
Cause
Solution
Error codeF08 (No communicatio n between display board and power board).
Check the continuity of the connection between the control board (display) and the power board.
Correct connection.
Control board (display) faulty.
Replace the control board (display).
Incorrect connection.
False contacts on the connectors.
Repair the connection.
Error code F09 (Software wrong)
Check that the board to be replaced is indicated on the relative spare part catalogue.
Board not correct.
Wrong error code.
Use the correct board.
Board seems correct.
Software inside the board is not compatible.
Use the correct board.
Error code F10 (Triac on power board faulty).
Detach the loads on the of the power board one by one checking if error F10 disappears.
Error code F10 disappears.
Ohmic control of the detached load.
Ohmic measure correct.
Power board faulty.
Replace the board.
Ohmic measure incorrect.
Detached load and power board faulty.
Replace the detached load (motor or lamp) and the power board.

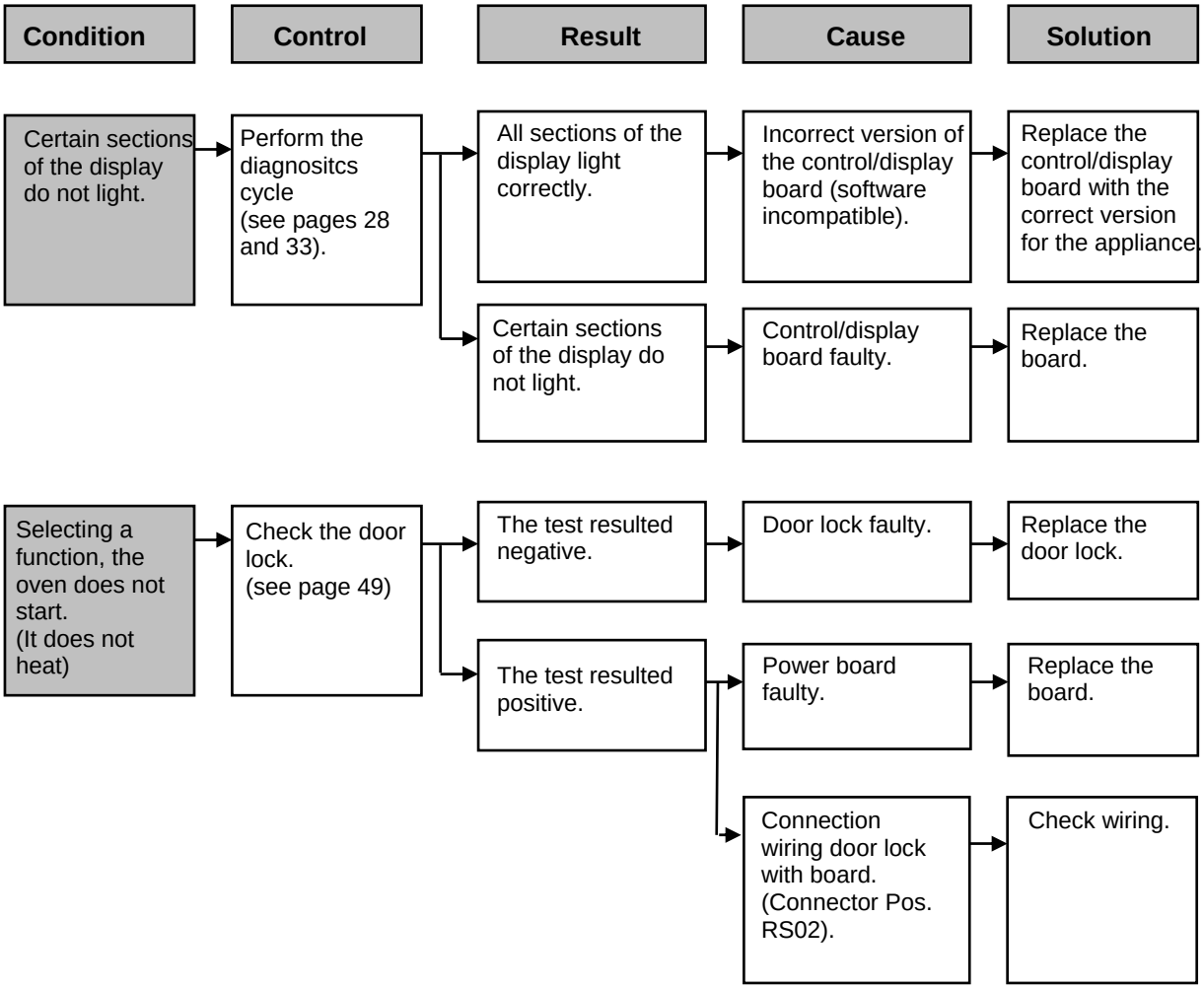
8 - TROUBLESHOOTING WITHOUT ERROR CODES ON PYROLYTIC OVENS




Condition
Control
Result
Cause
Solution
When the oven is switched on, the cooling fan starts immediately.
Perform the diagnostics cycle (see pages 28 and 33).
The cooling fan starts immediately.
Power board faulty.
Replace the board.
The cooling fan remains on also when the oven is cold.
Power board faulty.
Replace the board.
When the oven is switched on, the convection fan starts immediately.
Perform the diagnostics cycle (see pages 28 and 33).
The convection fan starts immediately.
Power board faulty.
Replace the board.
When the oven is switched on, the oven lamp does not switch on
Check the oven lamp for ohmic continuity.
Continuity (from 150 to 400 Ω)
Power board faulty.
Replace the board.
Open circuit ∞ (infinite)
Oven lamp faulty.
Replace the lamp.

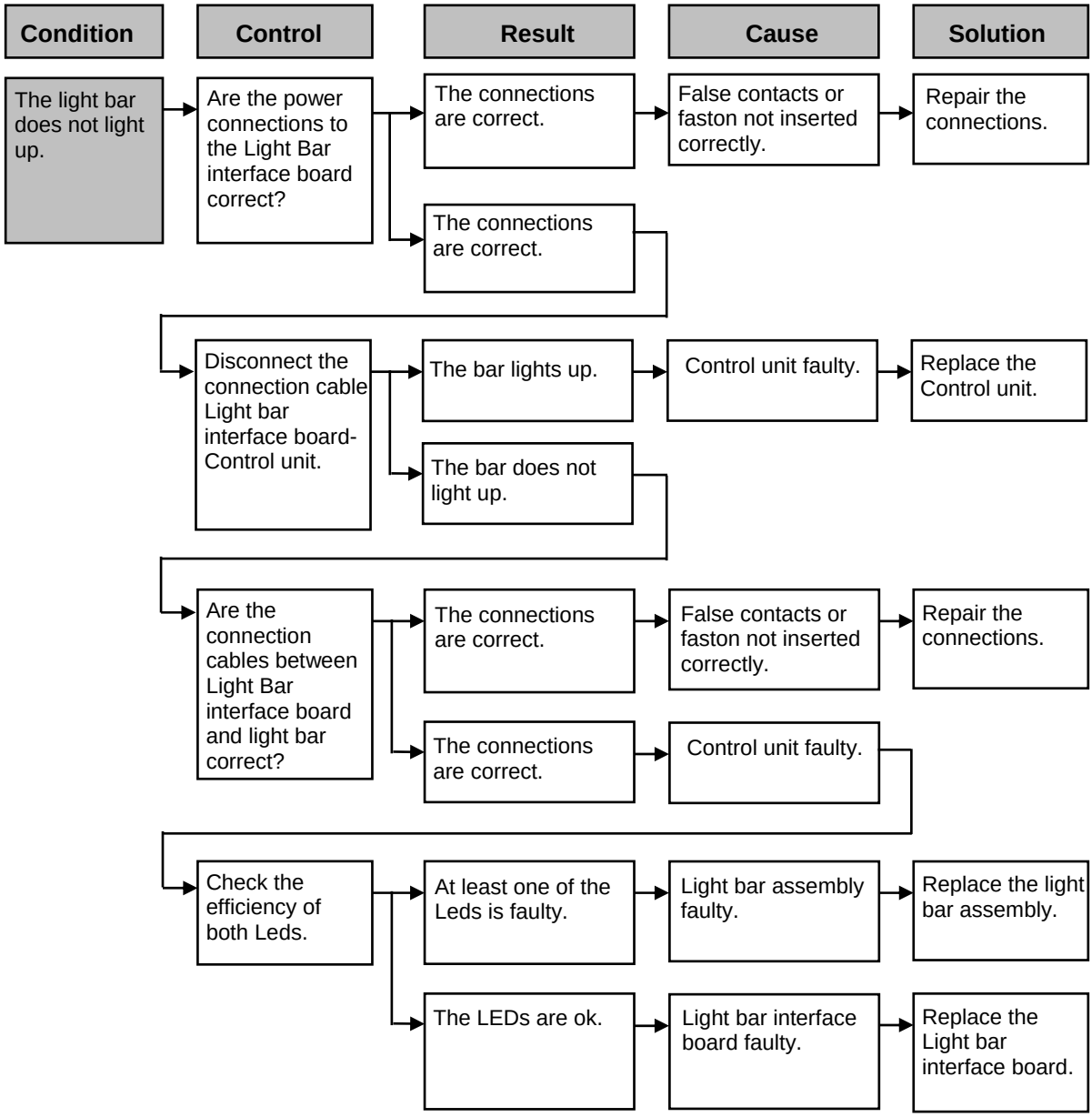

Condition
Control
Result
Cause
Solution
The oven is completely switched off.
Check for power supply to the terminal block.
No power supply.
Power cable faulty.
Replace the power cable.
Power supply OK.
No mains power at the power socket.
Check the electrical power circuit.
Disconnect the appliance from the power supply and perform the test on the power board (see page 45).
The resistance is more than 2 KΩ or less than 1 KΩ.
Power board faulty.
Replace the board.
The resistance is between 1KΩ and 2 KΩ.
Control/Display board faulty.
Replace the board
Wiring connections faulty.
Repair the wiring.
The display operates but the oven does not heat in any function.
Check the TC1 safety thermostat for continuity.
No continuity.
Thermostat TC1 faulty.
Replace the thermostat.
Continuity.
Power board faulty.
Replace the board.


Condition
Control
Result
Cause
Solution
Certain keys do not send the correct signal.
Perform the diagnostics routine (see pages 28 and 33).
When the keys are pressed in sequence, the action shown in the diagnostics cycle is not performed (see pages 28 and 33)
Check that the board is correctly mounted on the control panel so that the mechanical action of the keys is correct
Mechanical action OK.
Control/Display board faulty.
Replace the board.
Mechanical action incorrect.
Assembly of control/display board and control panel.
Fit the board correctly.
When the keys are pressed in sequence, the action is as shown in the diagnostics cycle. (see pages 28 and 33).
Select the "beep when pressed" function and press all the keys in sequence.
Some of the keys do not emit a "beep".
Check that the board is correctly mounted on the control panel so that the mechanical action of the keys is correct.
Mechanical action OK.
Control/Display board faulty.
Replace the board.
Mechanical action incorrect.
Assembly of control/display board and control panel.
Fit the board correctly.
All the keys emit a "beep" when pressed.
Incorrect version of the control/display board (software incompatible).
Replace the control/display board with the correct version for the appliance.


Condition
Control
Result
Cause
Solution
Certain sections of the display do not light.
Perform the diagnositcs cycle (see pages 28 and 33).
All sections of the display light correctly.
Incorrect version of the control/display board (software incompatible).
Replace the control/display board with the correct version for the appliance.
Certain sections of the display do not light.
Control/display board faulty.
Replace the board.
Selecting a function, the oven does not start. (It does not heat)
Check the door lock. (see page 49)
The test resulted negative.
Door lock faulty.
Replace the door lock.
The test resulted positive.
Power board faulty.
Replace the board.
Connection wiring door lock with board. (Connector Pos. RS02).
Check wiring.

9 - VARIANT FOR MODELS WITH LIGHT BAR

The troubleshooting part below is dedicated to the light bar and the relative control board featured only on some models.



10 - DIAGNOSTICS CYCLE

10.1 - DIAGNOSTICS LEVEL 2 CONTROL UNIT NORMAL

To activate the diagnostics cycle in the base version it is necessary:

Press buttons FHU and simultaneously within some seconds after the switching on:
The test has the following sequence:

Switching on

Fig. 5

Activation of the test

Fig. 6

Displaying of the display segments

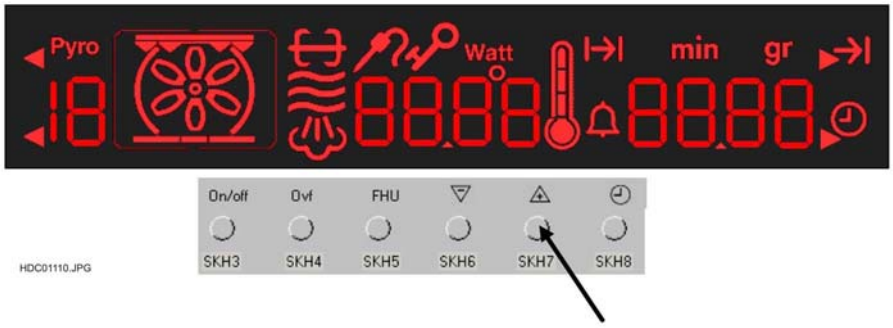


Fig. 7

Displaying of the programme code

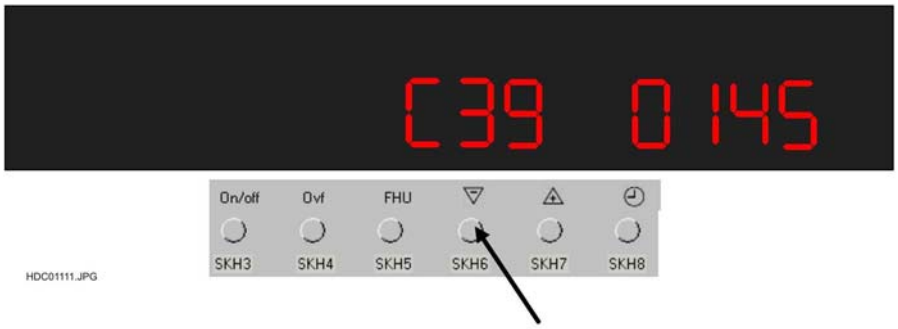


Fig. 8

Sensor temperature (25)

Fig. 9

Power and auxiliary loads test

Fig. 10

End of test

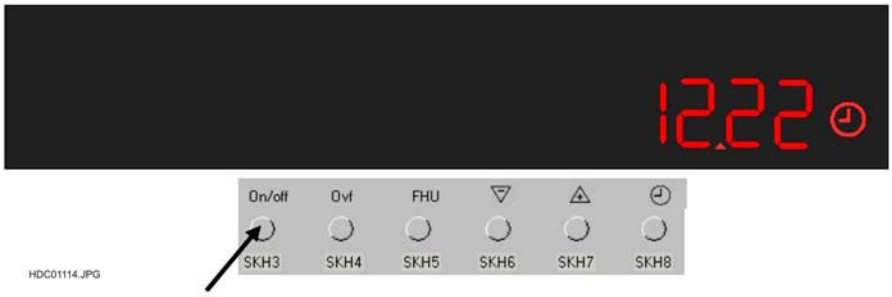


Fig. 11

10.2 - DIAGNOSTICS LEVEL 2 CONTROL UNIT PYRO

To activate the diagnostics cycle in the base version it is necessary:

Press buttons FHU and simultaneously within some seconds after the switching on:
The test has the following sequence:

Switching on

Fig. 12

Activation of the test

Fig. 13

Displaying of the display segments

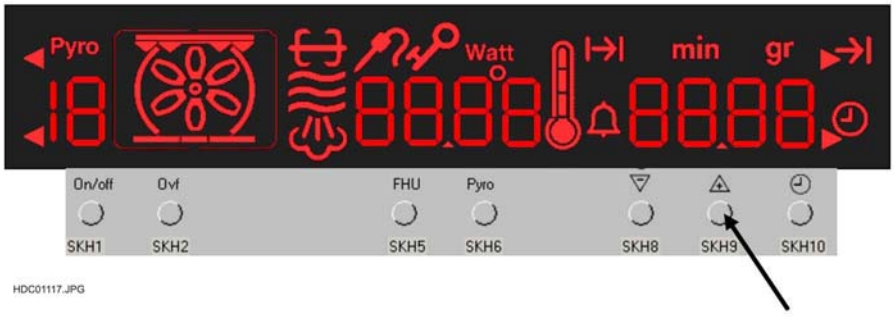


Fig. 14

Displaying of the programme code

Fig. 15

Door closed not locked (02) Sensor temperature (25)

Fig. 16

Door open not locked (02) Sensor temperature (25)

Fig. 17

Door locked

Fig. 18

Power and auxiliary loads test

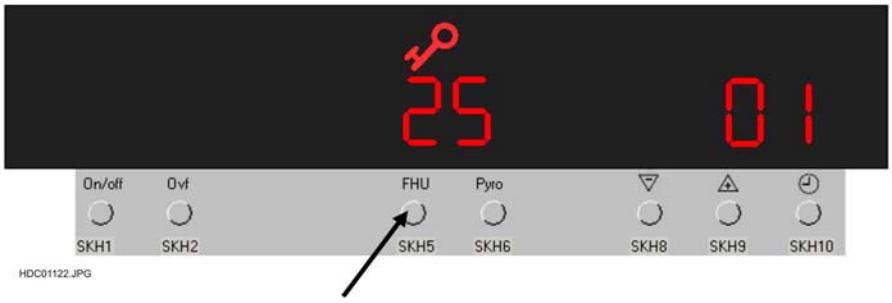


Fig. 19

Door lock deactivated

Fig. 20

End of test

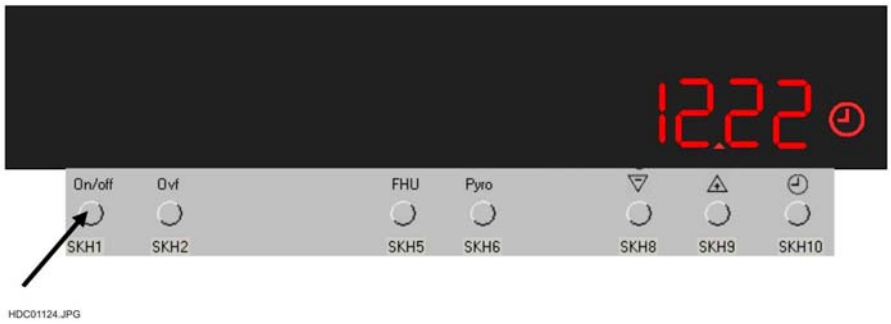


Fig. 21

10.3 - DIAGNOSTICS LEVEL 3 CONTROL UNIT NORMAL

To activate the diagnostics cycle in the base version it is necessary:

Press buttons FHU and simultaneously within some seconds after the switching on:
The test has the following sequence:

Switching on

Fig. 22

Activation of the test

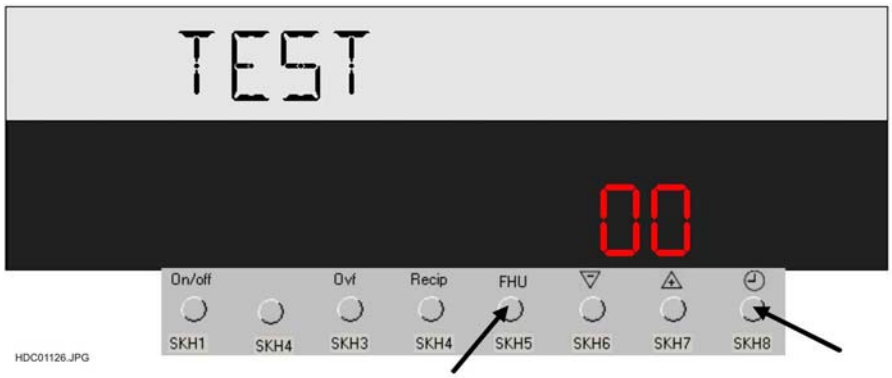


Fig. 23

Displaying of the display segments

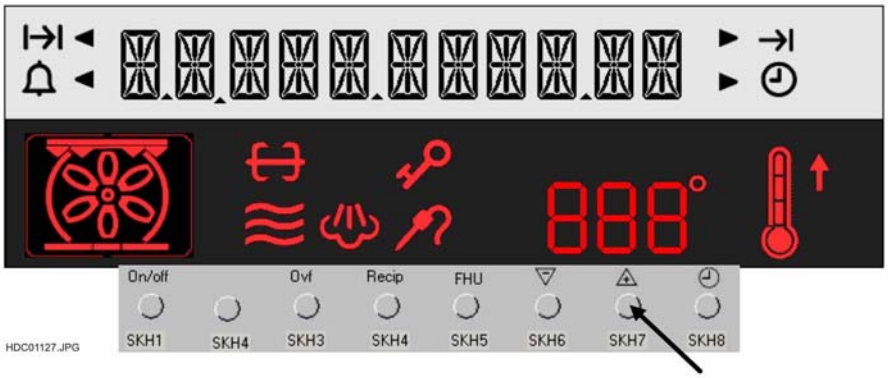


Fig. 24

Displaying of programme code and Sensor temperature (25)

Fig. 25

Power and auxiliary loads test

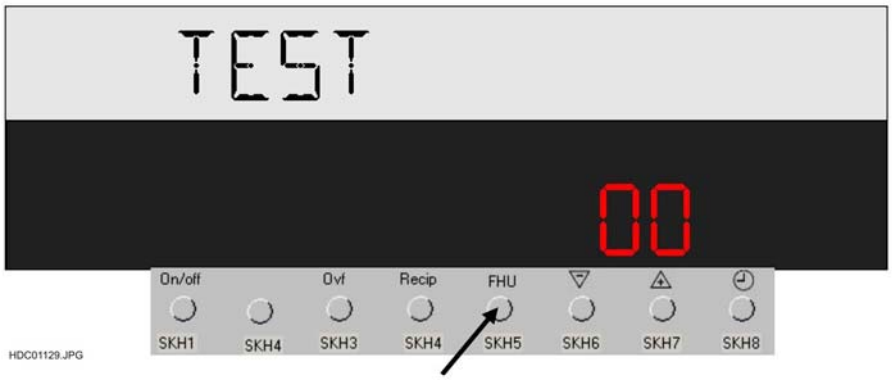


Fig. 26

End of test

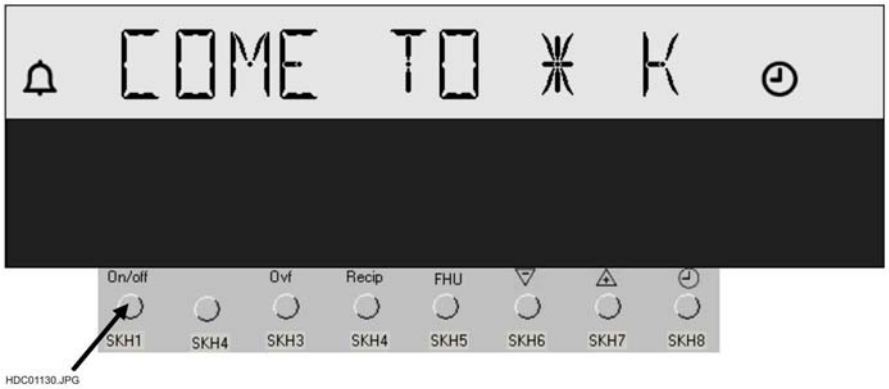


Fig. 27

10.4 - DIAGNOSTICS LEVEL 3 CONTROL UNIT PYRO

To activate the diagnostics cycle in the base version it is necessary:

Press buttons FHU and simultaneously within some seconds after the switching on:
The test has the following sequence:

Switching on

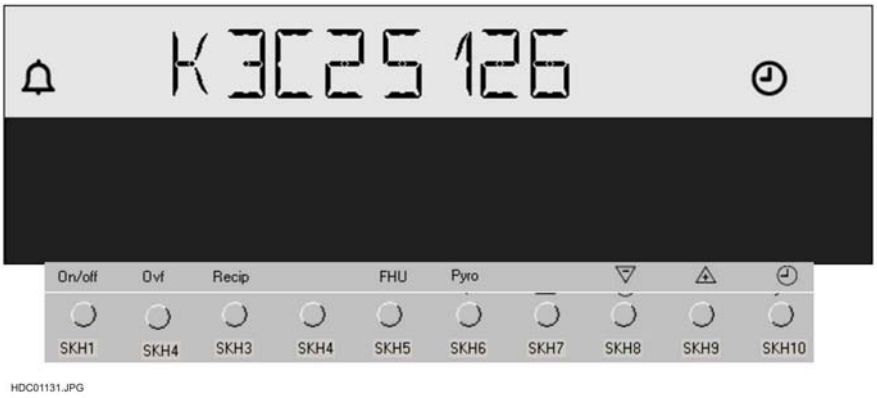


Fig. 28

Activation of the test

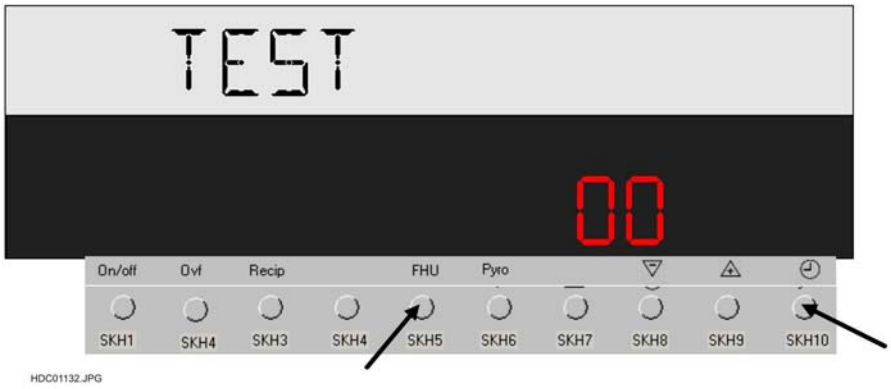


Fig. 29

Displaying of the display segments

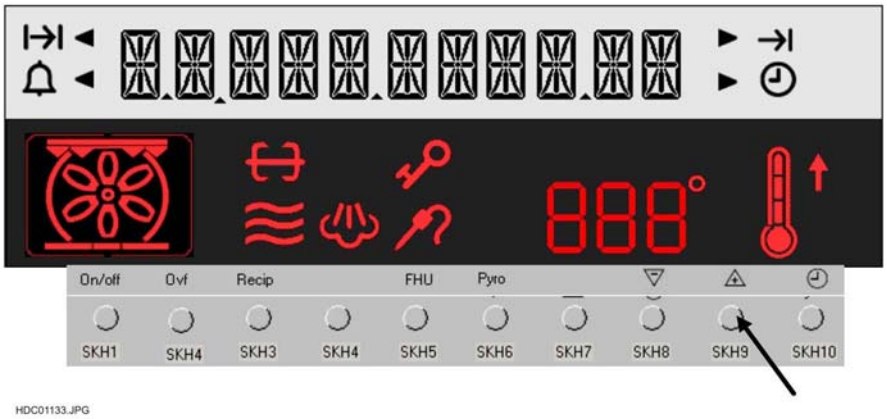


Fig. 30

Displaying of programme code and Sensor temperature (25)

Fig. 31

Door closed not locked (00)

Fig. 32

Door open not locked (02)

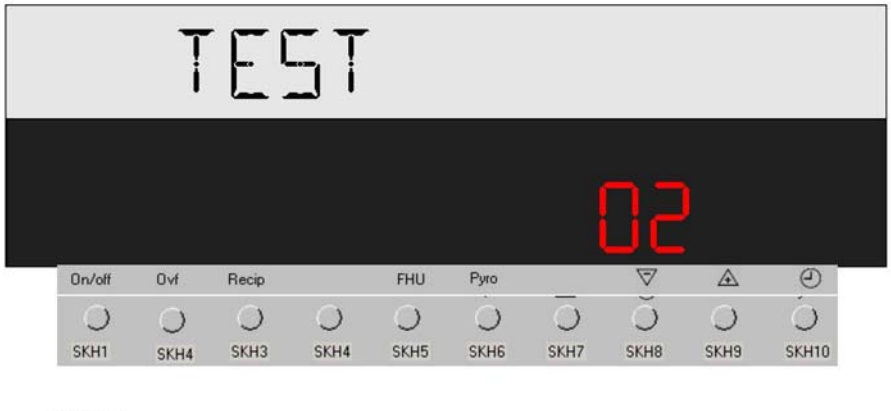


Fig. 33

End of test

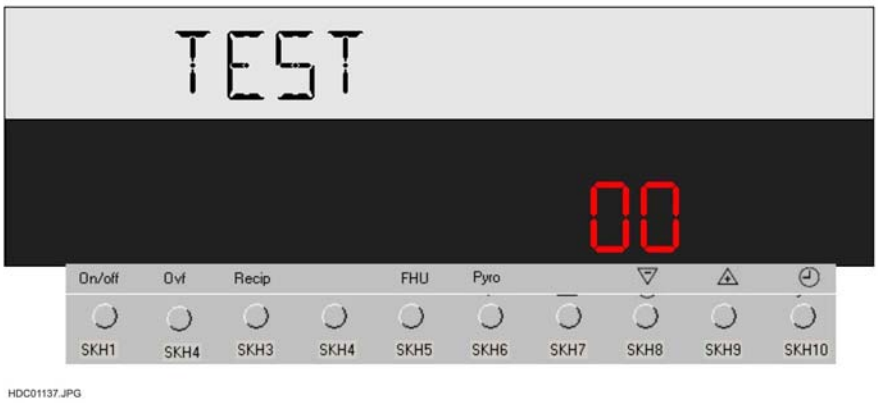


Fig. 34

11 - FUNCTIONAL DIAGRAMS

11.1 - FUNCTIONAL DIAGRAMS NORMAL OVEN

11.1.1 - FUNCTIONAL DIAGRAM LEVEL 2 NORMAL OVEN

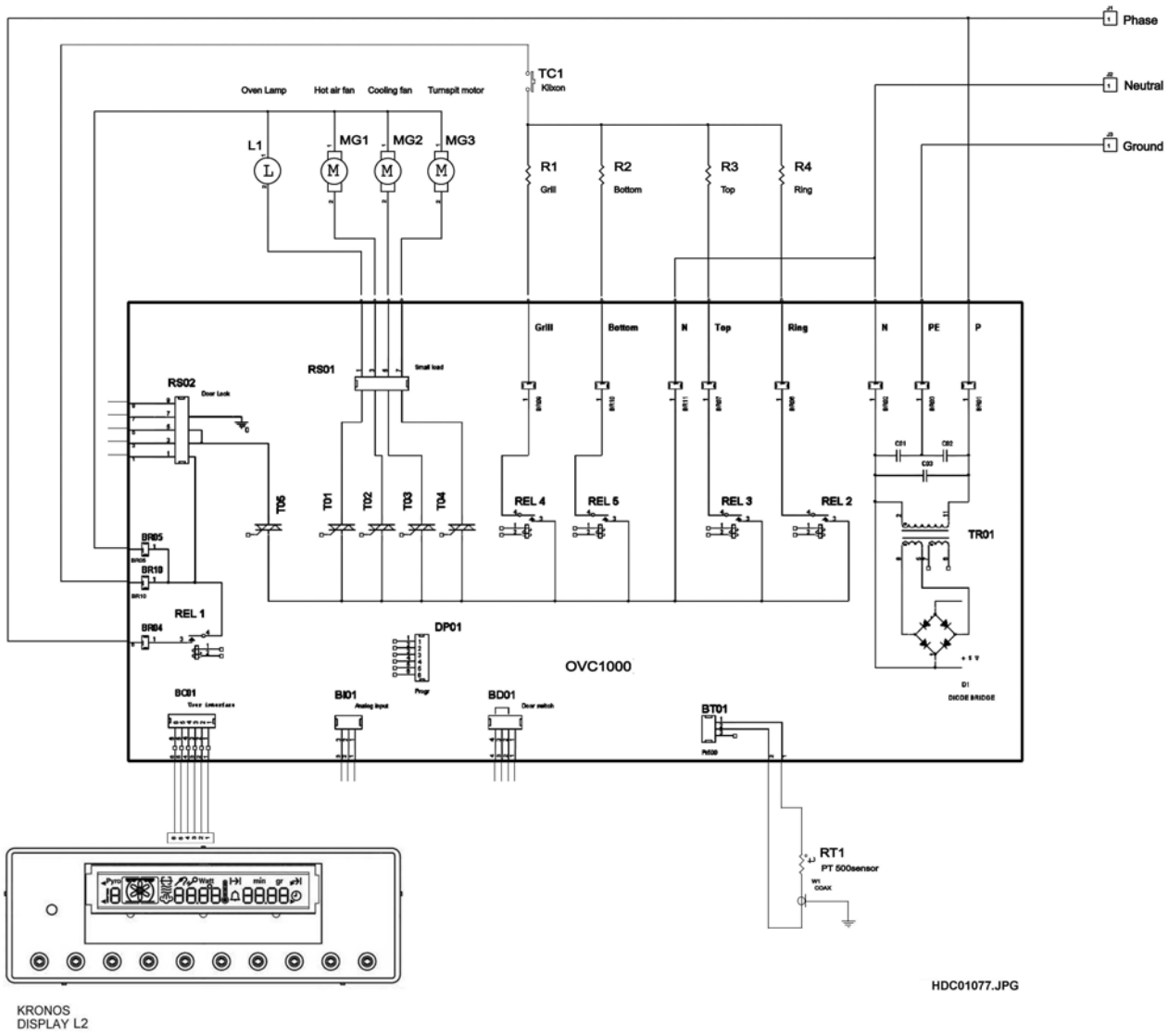


Fig. 35

KEY

DISPLAY L2	-	KRONOS CONTROL UNIT LEVEL 2.
Ground	-	MAINS (EARTH).
L1	-	OVEN LAMP.
MG1	-	CONVECTION FAN
MG2	-	TANGENTIAL COOLING FAN.
MG3	-	SPIT MOTOR
Neutral	-	MAINS (NEUTRAL).
Phase	-	RETE (FASE).
RT1	-	OVEN SENSOR PT500.
R1	-	GRILL HEATING ELEMENT.
R2	-	LOWER HEATING ELEMENT (BOTTOM).
R3	-	UPPER HEATING ELEMENT (CEILING).
R4	-	CONVECTION HEATING ELEMENT (CIRCULAR).
OVC1000	-	POWER BOARD.
REL1	-	SAFETY MAIN RELAY.
REL2	-	CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL3	-	CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL4	-	CONTROL RELAY FOR GRILL HEATING ELEMENT.
REL5	-	CONTROL RELAY FOR LOWER HEATING ELEMENT.
TC1	-	SAFETY THERMOSTAT.
TO1	-	CONTROL TRIAC FOR OVEN LAMP.
TO2	-	CONTROL TRIAC FOR CONVECTION FAN.
TO3	-	CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4	-	CONTROL TRIAC FOR SPIT MOTOR
TO5	-	CONTROL TRIAC FOR DOOR INTERLOCK
TR01	-	LOW-POWER TRANSFORMER

11.1.2 - FUNCTIONAL DIAGRAM LEVEL 2 NORMAL OVEN WITH LIGHT BAR

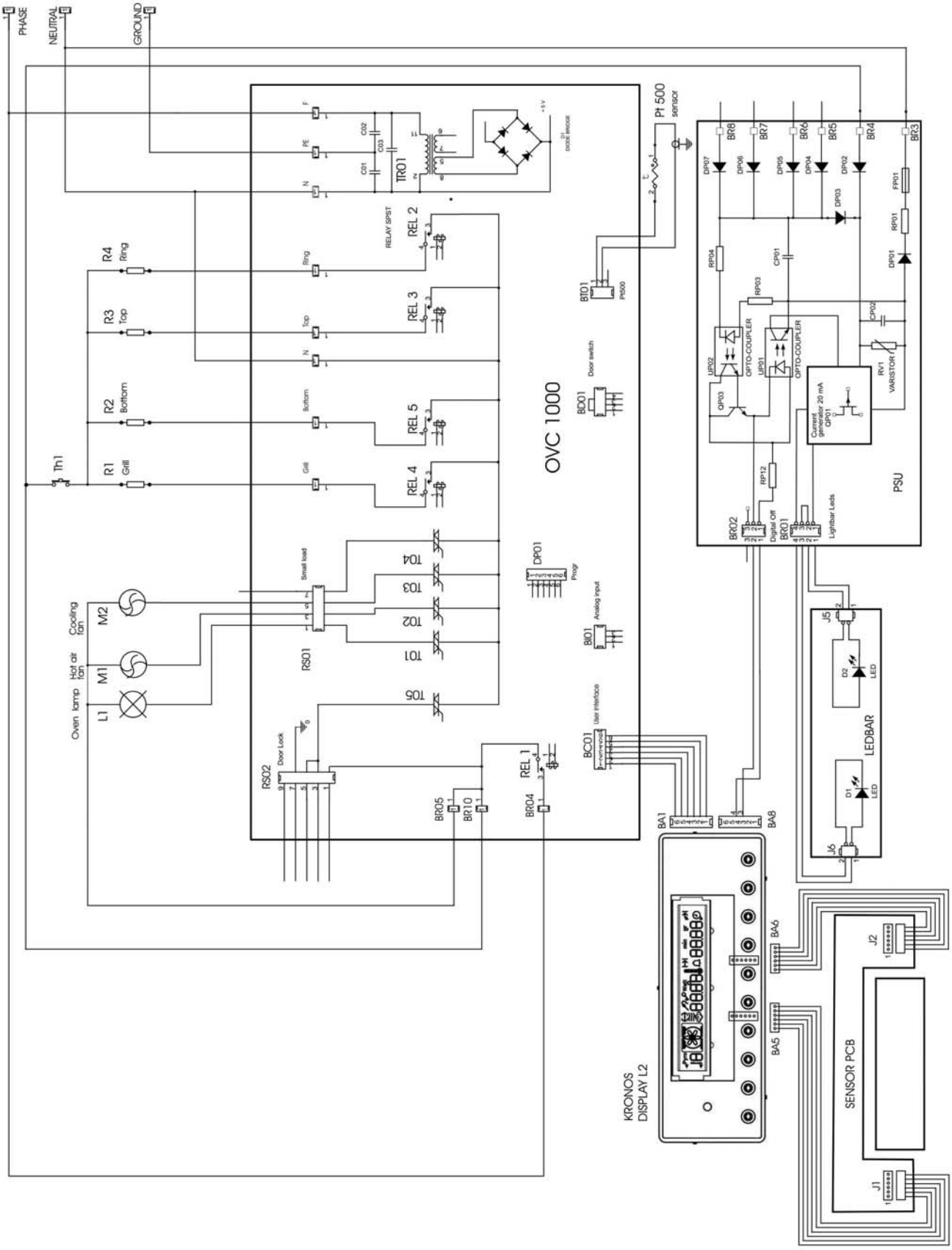


Fig. 36

KEY

DISPLAY L2 - KRONOS CONTROL UNIT LEVEL 2.
Ground - MAINS (EARTH).
L1 - OVEN LAMP.
LEDBAR - LIGHT-BAR ASSEMBLY.
M1 - CONVECTION FAN
M2 - TANGENTIAL COOLING FAN.
NEUTRAL - MAINS (NEUTRAL).
OVC1000 - POWER BOARD.
PHASE - MAINS (PHASE).
Pt500 - OVEN SENSOR PT500.
PSU - LIGHT-BAR INTERFACE BOARD
R1 - GRILL HEATING ELEMENT.
R2 - LOWER HEATING ELEMENT (BOTTOM).
R3 - UPPER HEATING ELEMENT (CEILING).
R4 - CONVECTION HEATING ELEMENT (CIRCULAR).
REL1 - SAFETY MAIN RELAY.
REL2 - CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL3 - CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL4 - CONTROL RELAY FOR GRILL HEATING ELEMENT.
REL5 - CONTROL RELAY FOR LOWER HEATING ELEMENT.
SENSOR PCB - SENSOR INTERFACE BOARD.
Th1 - SAFETY THERMOSTAT.
TO1 - CONTROL TRIAC FOR OVEN LAMP.
TO2 - CONTROL TRIAC FOR CONVECTION FAN.
TO3 - CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4 - CONTROL TRIAC FOR SPIT MOTOR (NOT USED)
TO5 - CONTROL TRIAC FOR DOOR INTERLOCK (NOT USED)
TR01 - LOW-POWER TRANSFORMER

11.1.3 - FUNCTIONAL DIAGRAM LEVEL 3 NORMAL OVEN

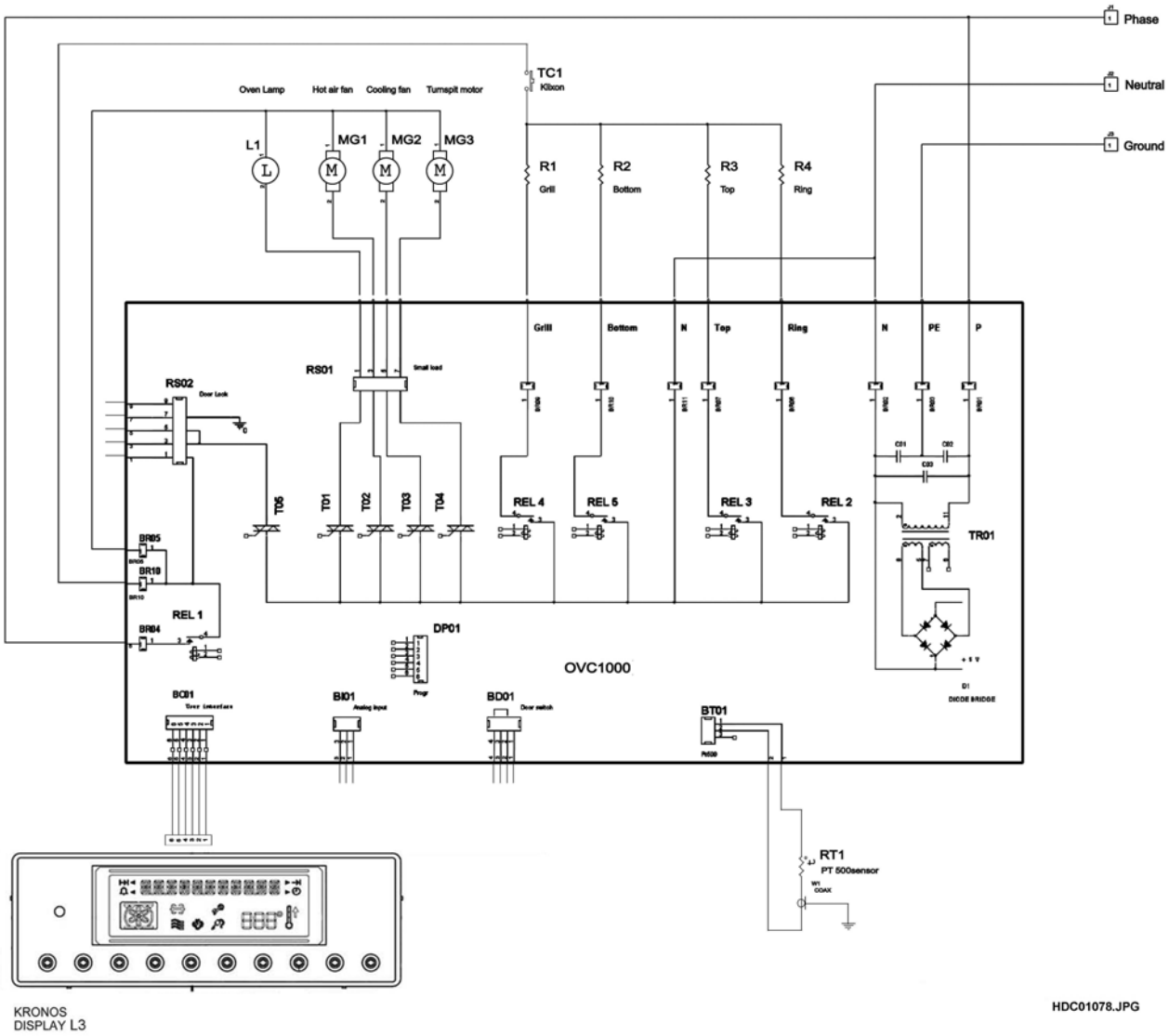


Fig. 37

KEY

DISPLAY L3	-	KRONOS CONTROL UNIT LEVEL 3.
Ground	-	MAINS (EARTH).
L1	-	OVEN LAMP.
MG1	-	CONVECTION FAN
MG2	-	TANGENTIAL COOLING FAN.
MG3	-	SPIT MOTOR
Neutral	-	MAINS (NEUTRAL).
Phase	-	RETE (FASE).
RT1	-	OVEN SENSOR PT500.
R1	-	GRILL HEATING ELEMENT.
R2	-	LOWER HEATING ELEMENT (BOTTOM).
R3	-	UPPER HEATING ELEMENT (CEILING).
R4	-	CONVECTION HEATING ELEMENT (CIRCULAR).
OVC1000	-	POWER BOARD.
REL1	-	SAFETY MAIN RELAY.
REL2	-	CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL3	-	CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL4	-	CONTROL RELAY FOR GRILL HEATING ELEMENT.
REL5	-	CONTROL RELAY FOR LOWER HEATING ELEMENT.
TC1	-	SAFETY THERMOSTAT.
TO1	-	CONTROL TRIAC FOR OVEN LAMP.
TO2	-	CONTROL TRIAC FOR CONVECTION FAN.
TO3	-	CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4	-	CONTROL TRIAC FOR SPIT MOTOR
TO5	-	CONTROL TRIAC FOR DOOR INTERLOCK
TR01	-	LOW-POWER TRANSFORMER

11.2 - FUNCTIONAL DIAGRAM PYROLYTIC OVEN

11.2.1 - FUNCTIONAL DIAGRAM LEVEL 2 PYROLYTIC OVEN

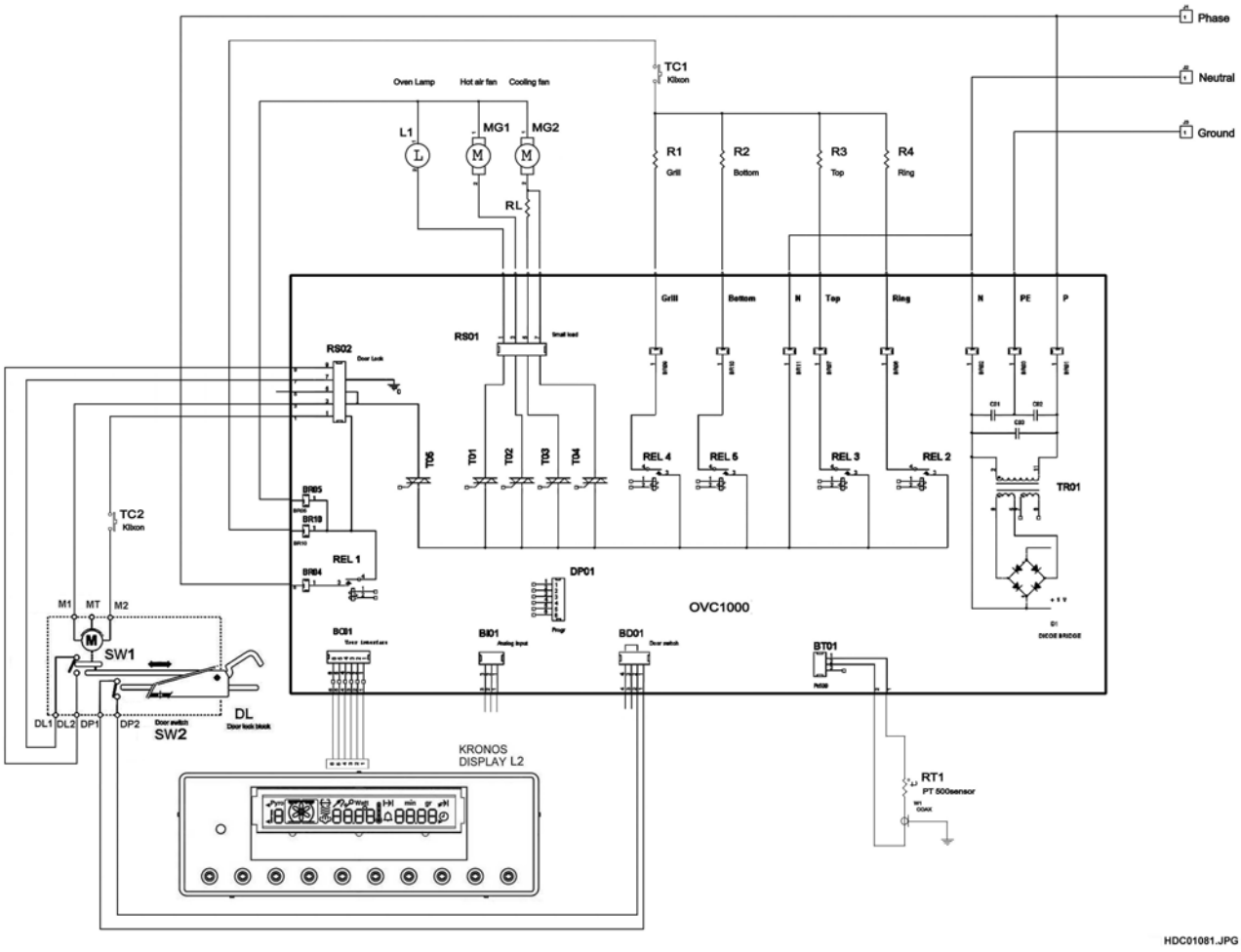


Fig. 38

KEY

DISPLAY L2 - KRONOS CONTROL UNIT LEVEL 2.
DL - DOOR INTERLOCK ASSY
Ground - MAINS (EARTH).
L1 - OVEN LAMP.
MG1 - CONVECTION FAN
MG2 - TANGENTIAL COOLING FAN.
MG3 - SPIT MOTOR
Neutral - MAINS (NEUTRAL).
Phase - RETE (FASE).
RT1 - OVEN SENSOR PT500.
R1 - GRILL HEATING ELEMENT.
R2 - LOWER HEATING ELEMENT (BOTTOM).
R3 - UPPER HEATING ELEMENT (CEILING).
R4 - CONVECTION HEATING ELEMENT (CIRCULAR).
OVC1000 - POWER BOARD.
REL1 - SAFETY MAIN RELAY.
REL3 - CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL5 - CONTROL RELAY FOR LOWER HEATING ELEMENT.
REL2 - CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL4 - CONTROL RELAY FOR GRILL HEATING ELEMENT.
RL - FAN HEATING ELEMENT (DOUBLE SPEED)
SW1 - MICROSWITCH DOOR INTERLOCK.
SW2 - MICROSWITCH DOOR CLOSED.
TC1 - SAFETY THERMOSTAT.
TC2 - DOOR INTERLOCK THERMOSTAT
TO1 - CONTROL TRIAC FOR OVEN LAMP.
TO2 - CONTROL TRIAC FOR CONVECTION FAN.
TO3 - CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4 - CONTROL TRIAC FOR COOLING TANGENTIAL FAN DOUBLE SPEED
TO5 - CONTROL TRIAC FOR DOOR INTERLOCK
TR01 - LOW-POWER TRANSFORMER

11.2.2 - FUNCTIONAL DIAGRAM LEVEL 2 PYROLYTIC OVEN WITH LIGHT BAR

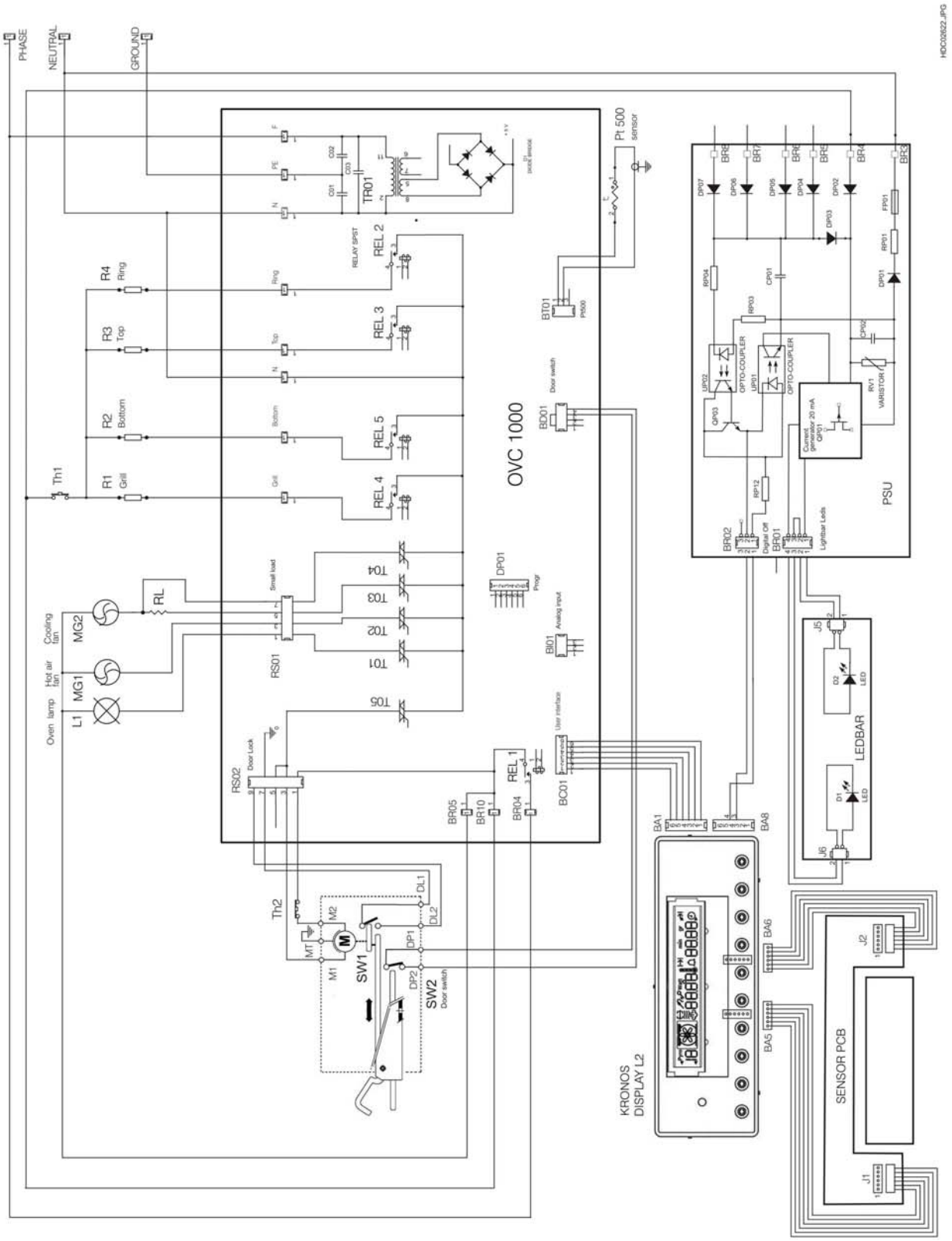


Fig. 39

KEY

DISPLAY L2 - KRONOS CONTROL UNIT LEVEL 2.
Ground - MAINS (EARTH).
L1 - OVEN LAMP.
LEDBAR - LIGHT-BAR ASSEMBLY.
MG1 - CONVECTION FAN
MG2 - TANGENTIAL COOLING FAN.
NEUTRAL - MAINS (NEUTRAL).
OVC1000 - POWER BOARD.
PHASE - MAINS (PHASE).
Pt500 - OVEN SENSOR PT500.
PSU - LIGHT-BAR INTERFACE BOARD
R1 - GRILL HEATING ELEMENT.
R2 - LOWER HEATING ELEMENT (BOTTOM).
R3 - UPPER HEATING ELEMENT (CEILING).
R4 - CONVECTION HEATING ELEMENT (CIRCULAR).
RL - DROP RESISTANCE FOR FAN (DOUBLE SPEED).
REL1 - SAFETY MAIN RELAY.
REL2 - CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL3 - CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL4 - CONTROL RELAY FOR GRILL HEATING ELEMENT.
REL5 - CONTROL RELAY FOR LOWER HEATING ELEMENT.
SENSOR PCB - SENSOR INTERFACE BOARD.
SW1 - MICROSWITCH DOOR INTERLOCK HOOK.
SW2 - MICROSWITCH DOOR INTERLOCK.
Th1 - SAFETY THERMOSTAT.
Th2 - DOOR LOCK THERMOSTAT
TO1 - CONTROL TRIAC FOR OVEN LAMP.
TO2 - CONTROL TRIAC FOR CONVECTION FAN.
TO3 - CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4 - CONTROL TRIAC FOR COOLING TANGENTIAL FAN DOUBLE SPEED
TO5 - CONTROL TRIAC FOR DOOR INTERLOCK
TR01 - LOW-POWER TRANSFORMER

112.3 - FUNCTIONAL DIAGRAM LEVEL 3 PYROLYTIC OVEN

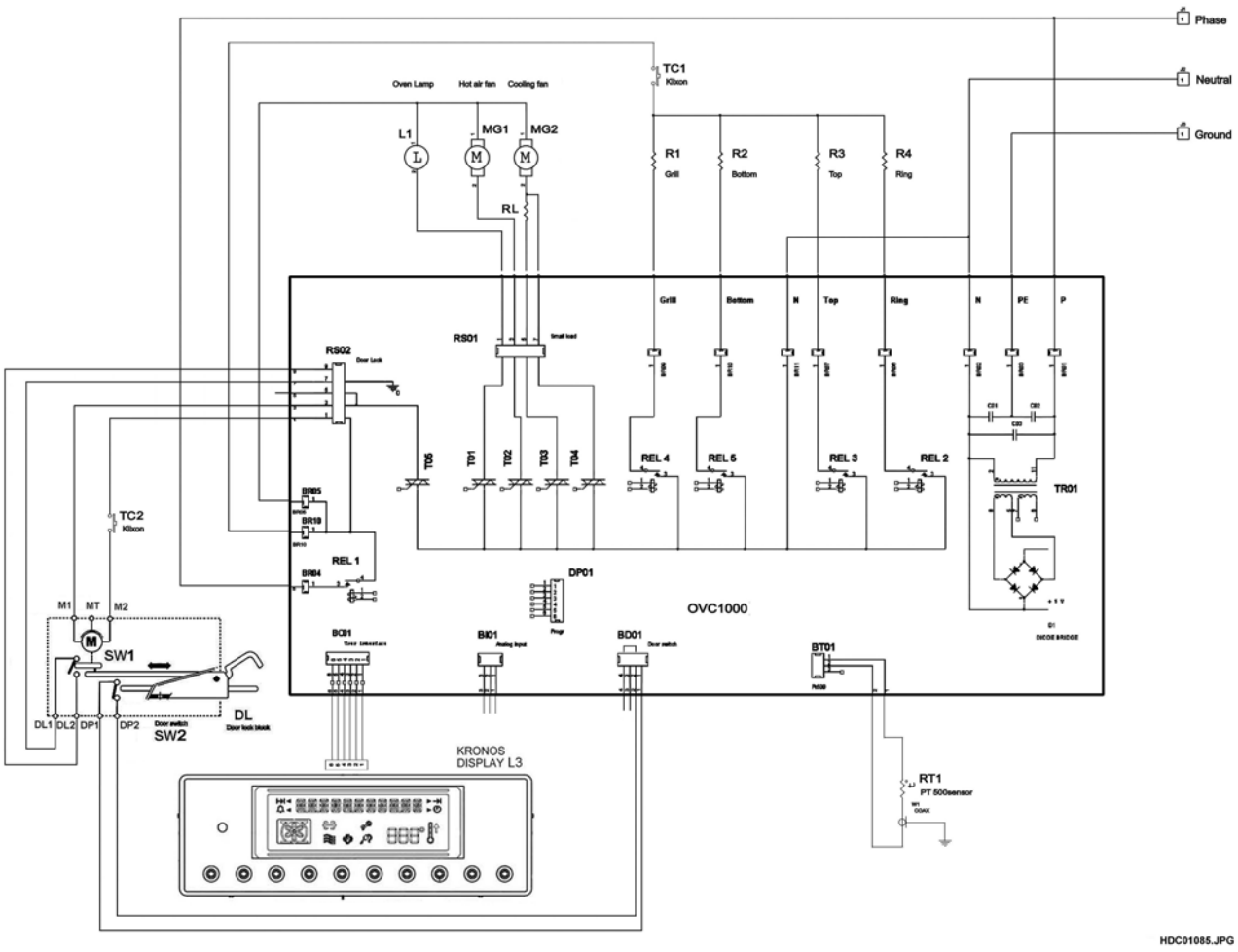


Fig. 38

KEY

DISPLAY L3 - KRONOS CONTROL UNIT LEVEL 3.
DL - DOOR INTERLOCK ASSY
Ground - MAINS (EARTH).
L1 - OVEN LAMP.
MG1 - CONVECTION FAN
MG2 - TANGENTIAL COOLING FAN.
MG3 - SPIT MOTOR
Neutral - MAINS (NEUTRAL).
Phase - RETE (FASE).
RT1 - OVEN SENSOR PT500.
R1 - GRILL HEATING ELEMENT.
R2 - LOWER HEATING ELEMENT (BOTTOM).
R3 - UPPER HEATING ELEMENT (CEILING).
R4 - CONVECTION HEATING ELEMENT (CIRCULAR).
OVC1000 - POWER BOARD.
REL1 - SAFETY MAIN RELAY.
REL3 - CONTROL RELAY FOR UPPER HEATING ELEMENT.
REL5 - CONTROL RELAY FOR LOWER HEATING ELEMENT.
REL2 - CONTROL RELAY FOR CONVECTION HEATING ELEMENT.
REL4 - CONTROL RELAY FOR GRILL HEATING ELEMENT.
RL - FAN HEATING ELEMENT (DOUBLE SPEED)
SW1 - MICROSWITCH DOOR INTERLOCK.
SW2 - MICROSWITCH DOOR CLOSED.
TC1 - SAFETY THERMOSTAT.
TC2 - DOOR INTERLOCK THERMOSTAT
TO1 - CONTROL TRIAC FOR OVEN LAMP.
TO2 - CONTROL TRIAC FOR CONVECTION FAN.
TO3 - CONTROL TRIAC FOR TANGENTIAL COOLING FAN.
TO4 - CONTROL TRIAC FOR SPIT MOTOR
TO5 - CONTROL TRIAC FOR DOOR INTERLOCK
TR01 - LOW-POWER TRANSFORMER

12 - TESTING THE COMPONENTS

12.1 - TESTING THE OVEN TEMPERATURE SENSOR

In case of doubt regarding the correct operation of the oven temperature sensor, use an ohmmeter to measure its resistance as follows.

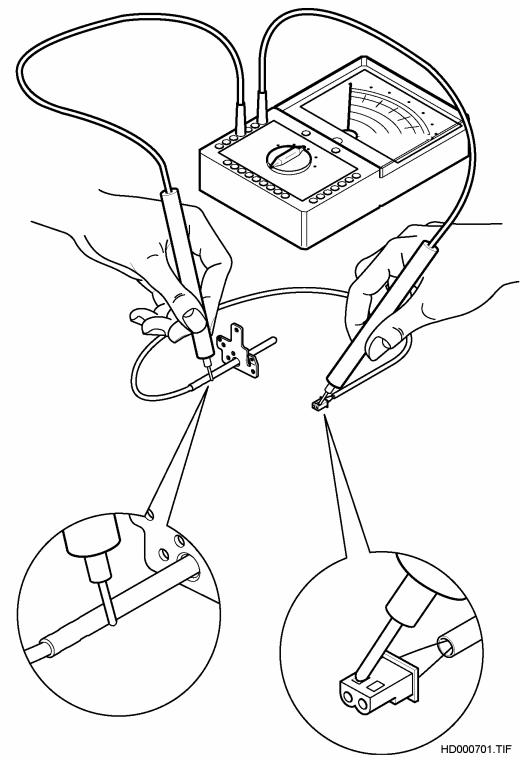


Fig. 39

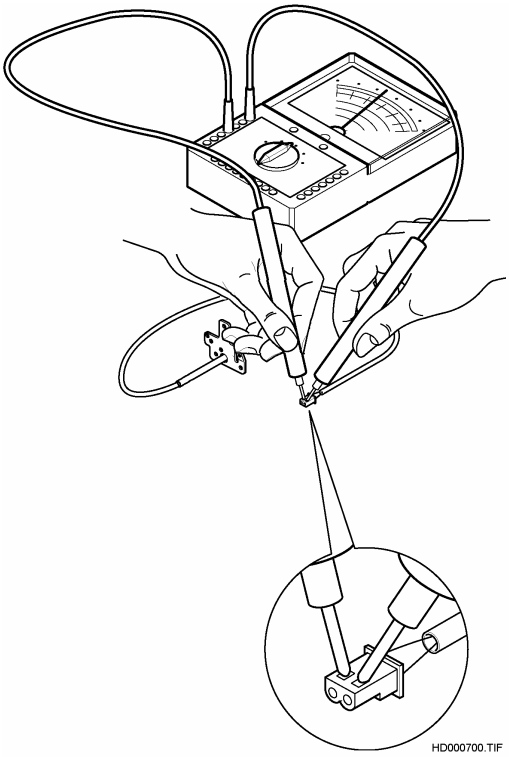


Fig. 40

The resistance should be approximately 500 - 600 ohm at room temperature.
It is important to measure the insulation resistance between the metal casing and each of the terminals, which must be greater than 2 Mohm.

12.2 - POWER ABSORPTION TESTS

The power absorption can be measured using the appropriate instrument (e.g. wattmeter), which should be applied between the power supply and the appliance.
The table below also shows indicative values for the relative current absorption in the event that an amperometric pincer is used for measurement.

POWER ABSORPTION (W)	CURRENT ABSORPTION (A)
50	0,20
1700	7,40
2000	8,70

NOTA: The values measured refer to a power supply voltage of 230 V.

12.3 - TESTING THE POWER BOARD

The continuity of the primary winding of the power transformer on the power board can be checked by measuring the ohmic resistance on the power supply terminal block. The test points for the various types of appliance are shown in fig. 41.

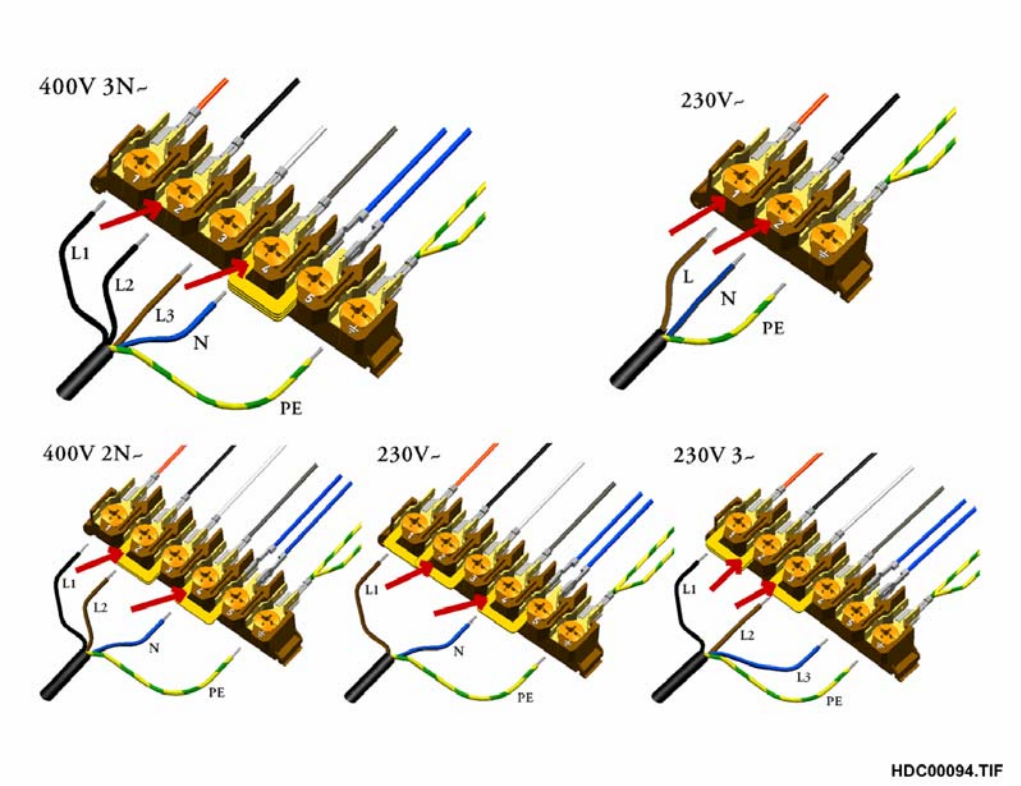


Fig. 41

12.4 - RELEASING THE DOOR LOCK MANUALLY

If the door remains locked mechanically, it must be released manually. To do so, proceed as follows:

12.4.1 - RELEASING THE DOOR LOCK MANUALLY ON ACCESS OVENS

To release the door lock manually on Access ovens, it is necessary to remove the hook screw through a hole on the venting grid:

1. Insert a 3mm Philips (cross-head) screwdriver through the hole and loosen the screw which secures the latch of the lock.

2. Remove the screw which secures the latch; in the way, the latch can be raised to release the door (see fig. 44).

3. Check that the door interlock functions correctly. If not, replace the interlock (see chapter 11.5).

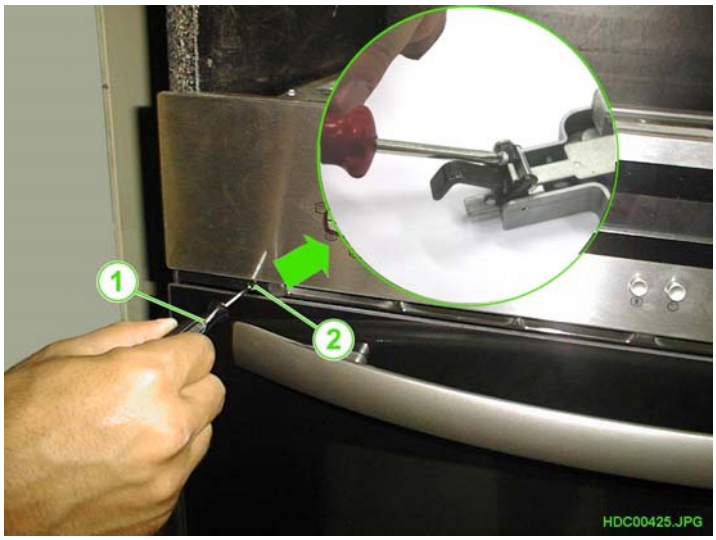


Fig. 44

1 - 3mm PHILIPS (CROSS-HEAD) SCREWDRIVER
2 - HOLE FOR ACCESS TO RELEASE SCREW

When the door interlock is released for the first time, it is necessary to perforate the thin plastic film which covers the hole next to the door interlock release screw (see fig. 43).

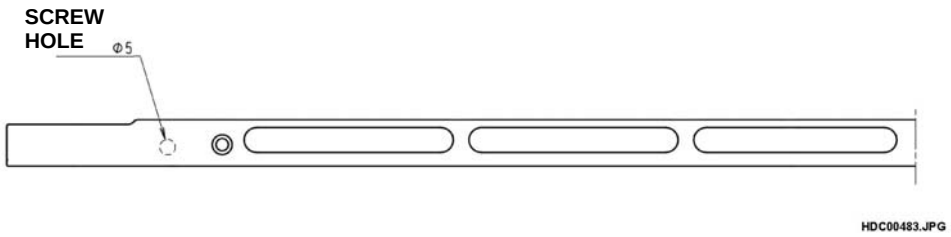


Fig. 45

12.4.2 - RELEASING THE DOOR LOCK MANUALLY ON ACCESS PLUS OVENS

To release the door lock manually on Access Plus ovens, it is necessary to remove the hook screw or to lift up the hook (depending on the door interlock, see 12.4.2.3 and 12.4.2.4) through a hole on the oven front panel.

12.4.2.1 - HOLE POSITION ON MODELS WITH TRADITIONAL OPENING DOOR AND LEFT HINGED DOOR

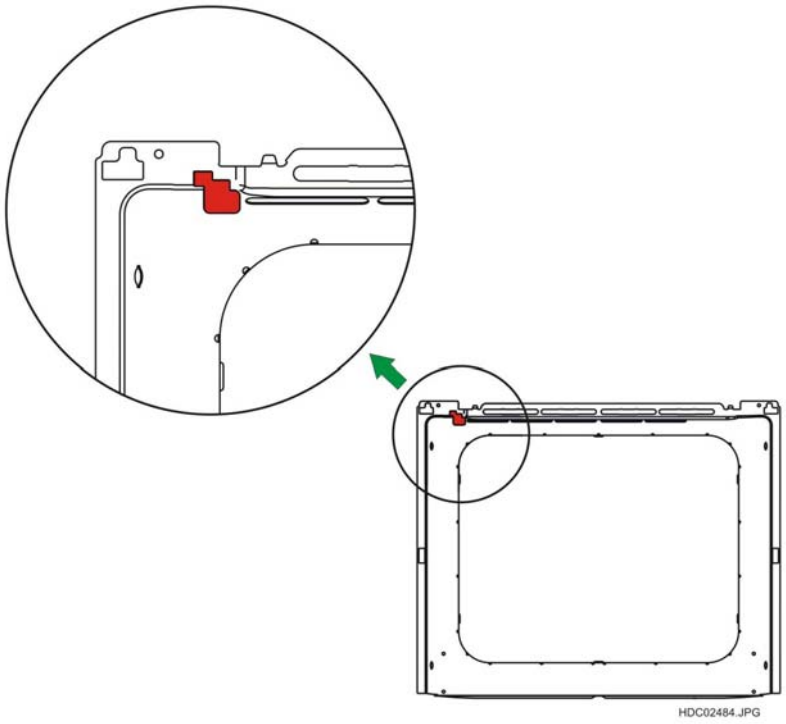


Fig. 46

12.4.2.2 - HOLE POSITION ON MODELS WITH RIGHT HINGED DOOR

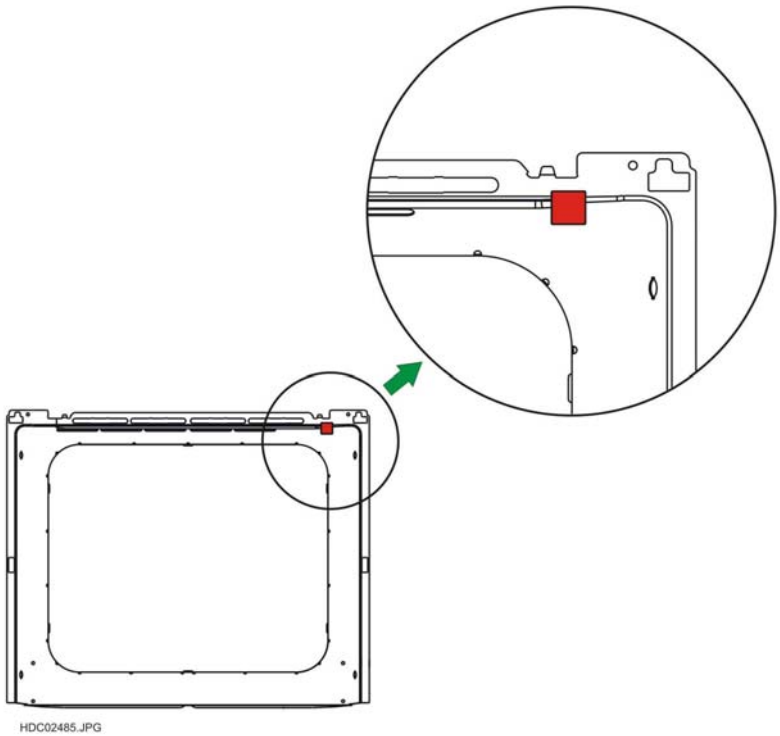


Fig. 47

12.4.2.3 - RELEASING THE “METEOR” DOOR LOCK

To release the door lock manually on Access Plus ovens with “METEOR” door lock, it is necessary to remove the hook screw through a hole on the front panel (see 11.4.1):

1 - Insert a 3mm screwdriver into the hole to remove the hook fixing screw.

2 - Remove the hook fixing screw, in this way the closure hook lifts up releasing the door (see Fig. 48).

3 - Check the operation of the door lock and if faulty replace it (see 11.5).

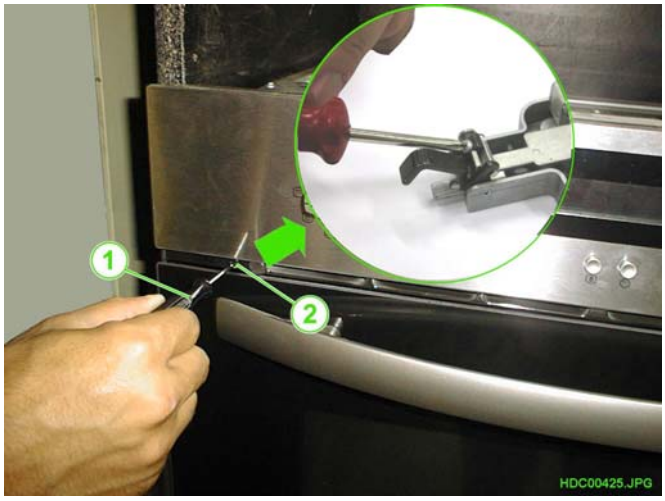


Fig. 48

1 - 3 mm CROSS SCREWDRIVER
2 - HOLE TO ACCESS THE SCREW

12.4.2.4 - RELEASING THE “ELTEK” DOOR LOCK

To release the door lock manually on Access Plus ovens with “ELTEK” door lock, it is necessary to remove directly the hook through the hole on the front panel (see 11.4.1):

1 - Insert a 3mm screwdriver into the hole to lift up the closure hook of about 3 mm to allow releasing the door lock (see Fig. 49).

2 - Check the operation of the door lock and if faulty replace it (see 12.5).

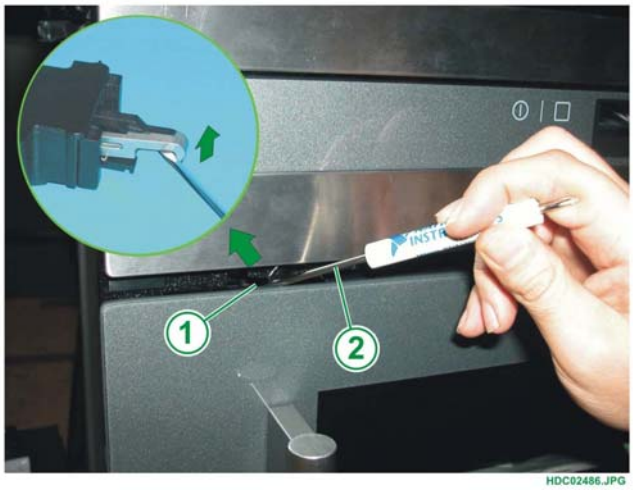


Fig. 49

1 - 3 mm SCREWDRIVER
2 - HOLE TO ACCESS THE DOOR LOCK HOOK

12.5 - TESTING THE DOOR LOCK

- Measure the resistance of the winding of the door lock actioning motor, which should be about 9.5 Ω.

- Check that the two microswitches open and close correctly in the various sequences (door open, door closed etc.) as indicated in Service Manual 599 36 07 64, section 3.5.

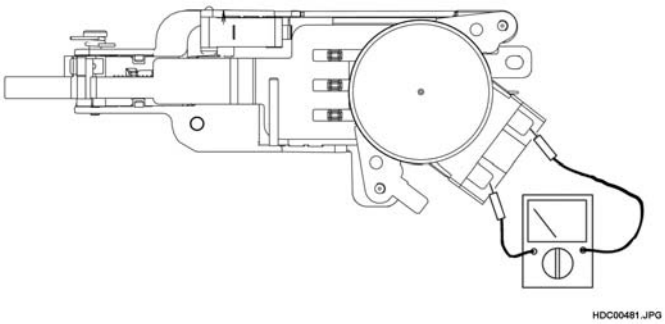
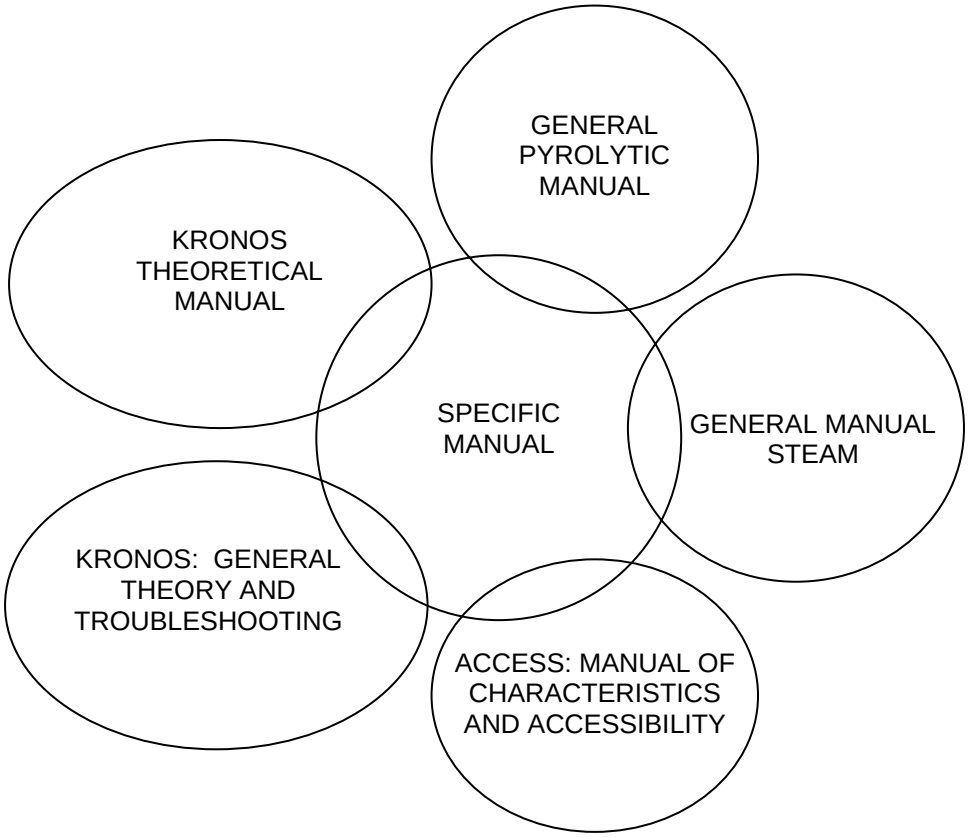


Fig. 50

13 - ACCESS/KRONOS: ORGANIZATION OF SERVICE MANUALS

In view of the quantity of theoretical, technical and practical information relative to the various combinations for the structure of the ACCESS/KRONOS system, this information has been subdivided into Service Manuals describing the general concepts, and separate Service Manuals containing specific information relative to each group of appliances.
Only the specific Service Manuals should be used for a specific appliance.

The various Service Manuals are as shown in the diagram below.



14 - REVISIONS

REVISION	DATE	
01	03/2008	- Added Chapter 9 - VARIANTS FOR MODELS WITH LIGHT BAR on page 25. - Added diagram on page 41. - Added “Eltek” door lock in 12.4 page 47.