SERVICE MANUAL

COOKING

Cookers

MAGNETIC INDUCTION HOBS WITH THREE COOKING ZONES AND ROTARY CONTROLS WITH MINI AND TIGER PWB

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CONTENTS

GENERAL PRECAUTIONS

- To ensure that the magnetic induction hob functions correctly, it is important to use saucepans that are suitable for this type of hob and featuring dimensions that are suitable for those of the cooking zones as described in chapters 2.3 and 2.4.

- The intensity of the magnetic field generated in the vicinity of the cooking zones is within the limits laid down in current legislation; however, users of Pacemaker devices are advised to remain at a distance from the hob when in operation**.**

- To avoid data from being inadvertently deleted, do not place magnetic data storage devices (floppy disks, memory cards, hard disks, etc.) near the cooking zones.

1 - INTRODUCTION

1.1 - PURPOSE OF THIS MANUAL

The purpose of this manual is to provide service engineers with the information required to diagnose malfunctions in the new magnetic induction hob fitted to free-standing cookers and to perform the necessary repairs.

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 performing repairs, therefore, the service engineer must check for stabilisation of the potential on the cooker surround (i.e. discharge any static electricity by touching the oven casing) in order to prevent the possibility of overload, which might damage the circuit boards.
The same care is necessary when handling circuit boards supplied as spare parts (i.e. not yet fitted to the appliance), which must be removed from the protective bag in ESD only after stabilising 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 stabilisation of the potential takes place with semi-conductor components (i.e. components on a circuit board, such as integrated circuits, microprocessors etc.)?

Stabilisation of the potential takes place across the internal structure of the semi-conductor 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.

Concrete examples:

- Programmers connected 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.
- Interface boards on electronically-controlled gas hob.
- Induction hob board.

1.3 - GENERAL DESCRIPTION

With this type of hob, the food is cooked by magnetic induction.
The system comprises a series of **MINI or TIGER Induction** electronic modules, each with two cooking zones designed to suit saucepans of a given type.
The modules can be installed in combination to create different magnetic-induction cooking zones (two, three or four zones) as described below.

2 - GENERAL INFORMATION

2.1 - COOKING USING A MAGNETIC INDUCTION HOB

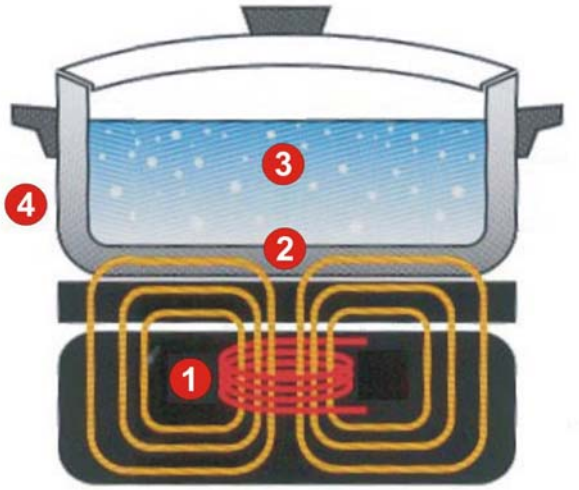
In magnetic induction cooking, the heat is transmitted directly to the pan, in very few seconds and using induced current. The cooking zone itself remains relatively cool.
The high-power, high-frequency induction current is generated by an electronic circuit connected to a coil, and generates heat that is transmitted directly to the pan.
When the pan is removed, the cooking zone cools, since the pan no longer absorbs the induced heat generated by the magnetic field.
The electronic control system detects the presence of the pan by measuring the impedance; when no pan is detected on the cooking zone, generation of the magnetic field is interrupted.
This method of cooking offers numerous advantages. Heat dispersion is significantly reduced, and it is no longer necessary to install a ventilation grille in the kitchen. There is no danger of scalding, nor any worry about the possibility of having left the gas outlet on. In addition, the hob does not switch on unless there is a pan of sufficient dimensions on the cooking zone. Using this technology, the method of cooking is very similar to that of a gas hob.

1 - Coil generating a high-frequency magnetic field, connected to the electronic circuit.

2 - The magnetic field penetrates into the ferrous (magnetic) material of the pan, causing the current to circulate and thus to generate heat.

3 - The heat generated inside the pan is transmitted to the food.

4 - There is no magnetic field outside the perimeter of the pan, and when it is removed from the hob the electronic circuit detects that the hob is empty. When this occurs, generation of the magnetic field is interrupted and the production of heat inside the pan stops instantaneously.



HDC02340.JPG

Fig. 1

Figure 2 shows a strange phenomenon.
Only the part of the egg in contact with the pan is heated, because the magnetic field has induced the current (and therefore the heat) only on the area covered by the pan itself.


HDC02339.JPG

Fig. 2

2.2 - PAN DETECTION SYSTEM

The circuit that generates the magnetic field also checks the impedance of the "load" (i.e. the pan). The difference in impedance between one pan and another depends on the magnetic properties of the metal, and not on the dimensions of the pan.
A pan made in non-magnetic metal (e.g. aluminium) will not be detected.
The minimum diameter of the pan is indicated for each cooking area, depending on its power and diameter.

2.3 - TYPES OF PANS FOR MAGNETIC INDUCTION COOKING

As described above, magnetic induction hobs require the use of special pans made using magnetic material which creates an impedance that is higher than the minimum required for the cooking zone on which the pan is placed.
If the pan is not of the correct type, the system will not detect the presence of the pan and will therefore not function.

Fig. 3 illustrates an example of a pan specially built for use with magnetic induction hobs. Table 1 shows the various materials used.

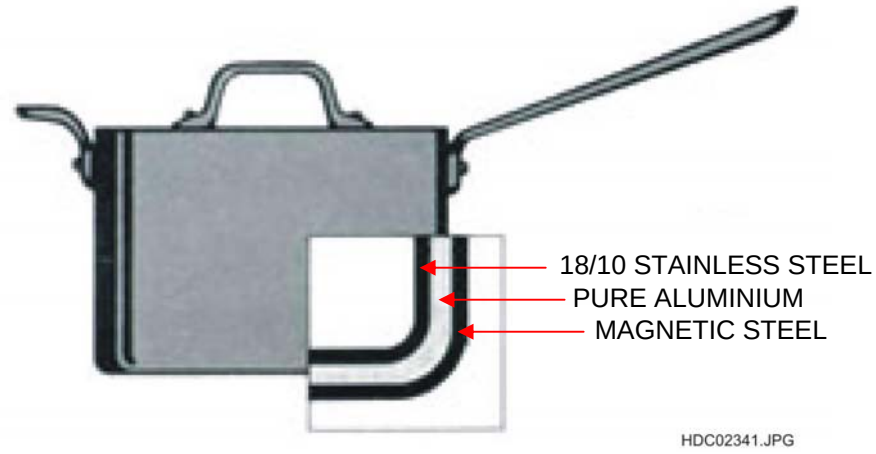


Fig. 3

PAN MATERIAL	SUITABLE FOR INDUCTION COOKING
Steel, enamelled steel	**YES**
Cast iron	**YES**
Stainless steel	**If stated by the manufacturer**
Aluminium, copper, brass	**NO**
Glass, ceramic, porcelain	**NO**

2.3.1 - HOW TO CHECK WHETHER A PAN IS SUITABLE

- Put a small amount of water into the pan, set the cooking zone to level 9 and check whether the water is heated rapidly.
- Use a magnet to check whether the pan is magnetic.

N.B.: Certain types of pan may produce noise when used on magnetic induction hobs. This noise is not a sign of a malfunction in the hob, and in no way affects its correct operation.

N.B.: The bottom of the pan must be as thick and as flat as possible

2.4 - DIMENSIONS OF PANS FOR MAGNETIC INDUCTION COOKING

For correct operation of the magnetic induction hob, the diameter of the pan must be suitable for the size of the cooking zone. Fig. 4 shows a pan that is ideal for the size of the cooking zone.

CORRECT SIZE FOR COOKING ZONE

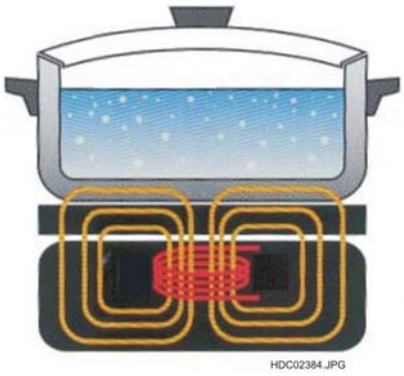


Fig. 4

If the pan is too small for the size of the cooking zone, the system will measure an insufficient impedance and therefore will not detect the presence of the pan. The system will not generate induction, as if there were no pan present (see Fig. 5).

PAN TOO SMALL FOR COOKING ZONE

Fig. 5

If the pan is too large for the cooking zone, the heat generated by induction will be insufficient for the quantity of mass to be heated and therefore insufficient for the cooking process (see Fig. 6)

PAN TOO LARGE FOR COOKING ZONE

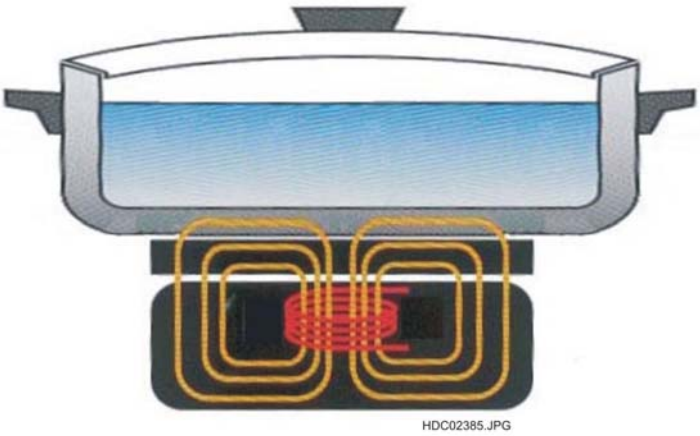


Fig. 6

3 - DESCRIPTION OF THE SYSTEM

The magnetic induction hob consists of two power modules, each with two generators.
The first module comprises two coils (one for each cooking zone). The second module controls the other cooking zone. Both modules are controlled by a single control unit board (see block circuit diagram below).
The module that controls a single cooking zone also features a heating element which acts as a dummy NTC.
The main components of the magnetic induction generating system are as follows:

- Power board, installed inside a generator module known as "MINI" or "TIGER" (including cooling fan).
- Coils for generation of magnetic field (one for each cooking zone).
- NTC temperature sensors (one for each cooking zone).
- COLIBRÌ' control unit (with rotary controls).

3.1 - BLOCK DIAGRAM OF THE SYSTEM

3.1.1 - BLOCK DIAGRAM OF THE SECTION WITH TWO COOKING ZONES

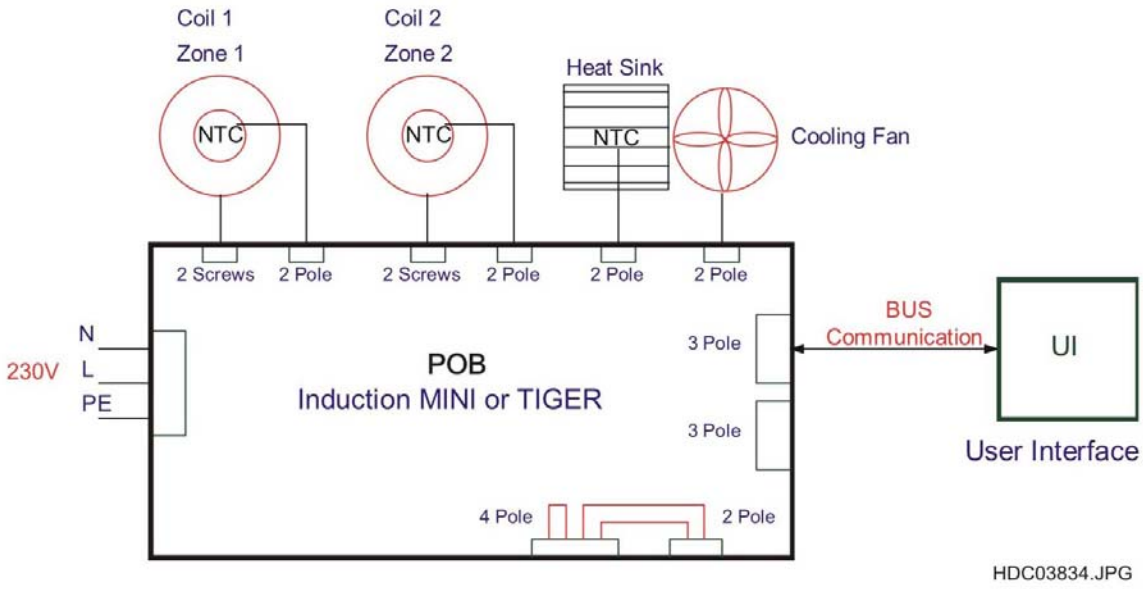


Fig. 7

BUS Communication	- BUS for communication between power board and control unit
Coil 1	- Coil 1
Coil 2	- Coil 2
Cooling Fan	- Cooling fan
Heat Sink	- Heat dissipator for coil final semiconductors
Induction MINI or TIGER	- MINI or TIGER Induction generator module
User Interface	- COLIBRI' control unit
Zone 1	- Cooking zone 1
Zone 2	- Cooking zone 2

3.1.2 - BLOCK DIAGRAM OF THE SECTION WITH ONE COOKING ZONE

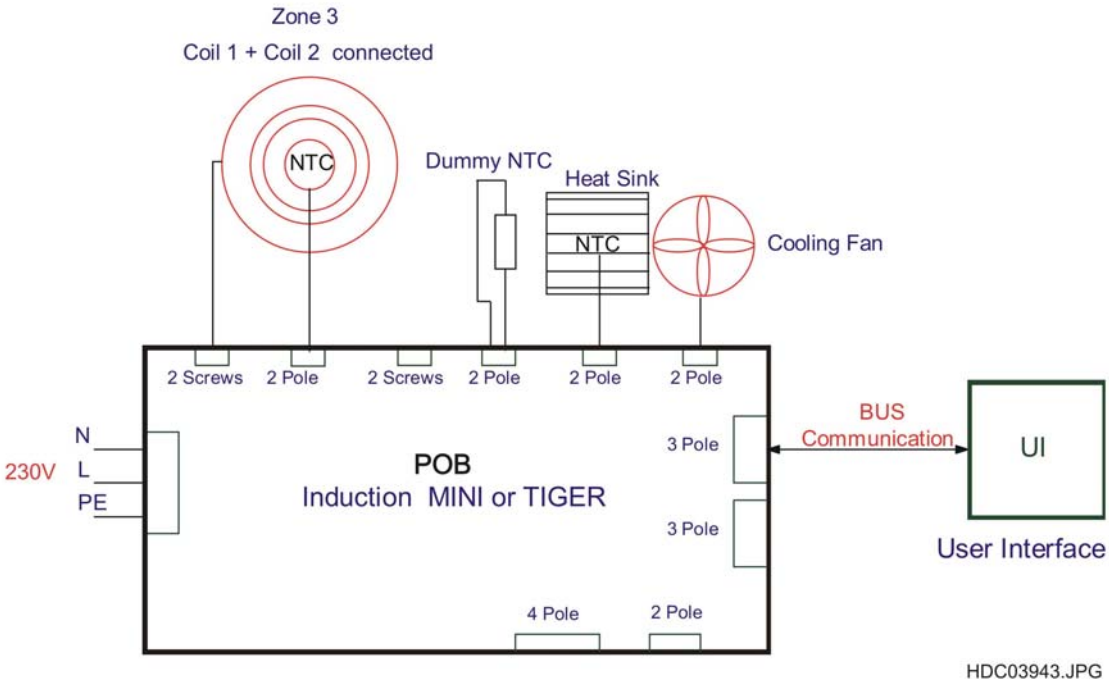


Fig. 8

BUS Communication	- BUS for communication between power board and control unit
Coil 1 + Coil 2	- 2 Coils inside zone 3 in serial connection
Cooling Fan	- Cooling fan
Heat Sink	- Heat dissipator for coil final semiconductors
Induction MINI or TIGER	- MINI or TIGER Induction generator module
User Interface	- COLIBRI' control unit
Zone 3	- Double coil cooking zone in serial connection

3.2 - MINI GENERATOR MODULE

The MINI induction module is a development of the TEIS module, and consists of two induction generators.
Each module generates a maximum power of 3.6 kW on two cooking zones.
The power and size of the cooking zones depends on the coils used.
The module is suitable for use with cooking zones (different coils) with diameters of 270mm, 210mm, 180mm and 140mm.
Each cooking zone also features the rapid heating function ("booster") with a power higher than the normal operating power but with a limited operating time.
The module is cooled by a variable-speed fan with a rotation detection device.

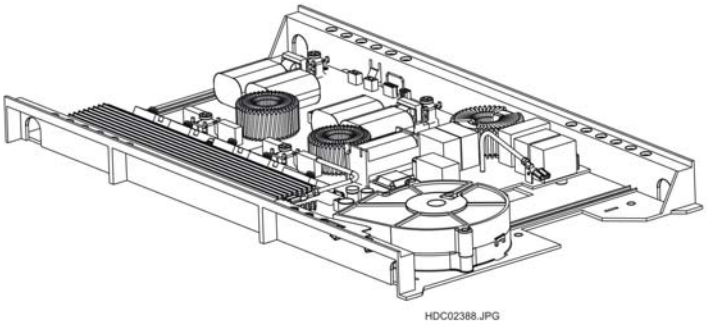


Fig. 9

Fig. 10

Figure 11 illustrates the connections for the induction module.

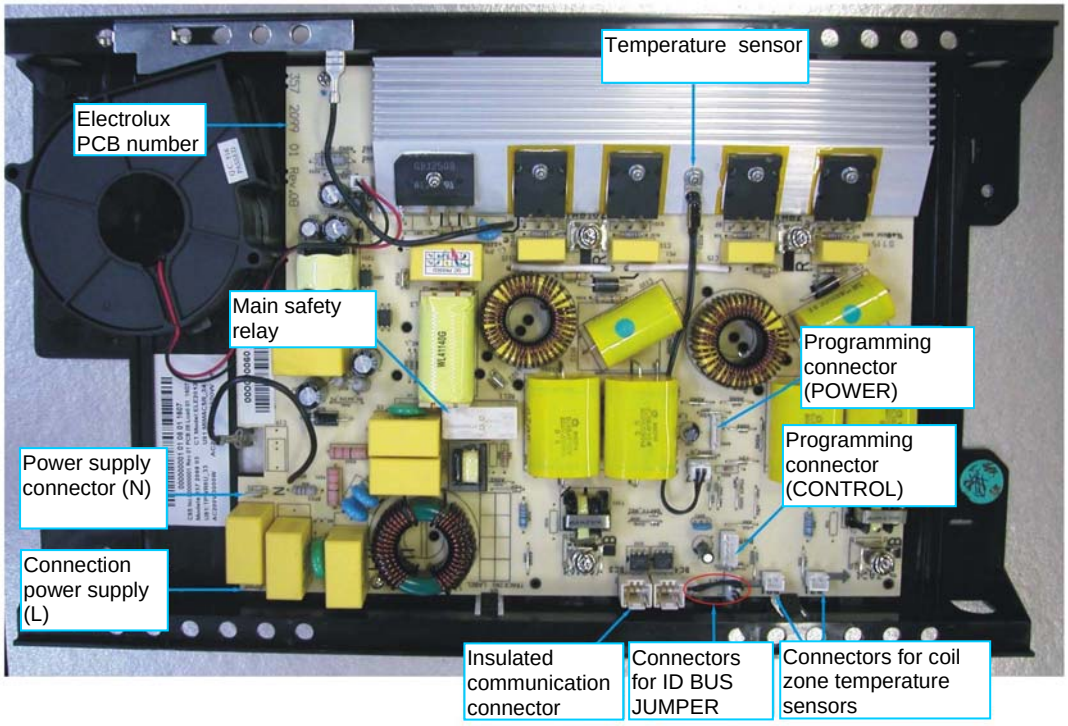


Fig. 11

3.2.1 - JUMPER FOR CONFIGURATION OF GENERATOR MODULE

The magnetic induction hob features two identical modules. Each module powers two cooking zones, and the entire system is controlled by the control unit board. The rear module is configured using a jumper across connectors BC1 and BC5 to feed power to the control unit via a connector between the control unit and the module's power board (BC3).
The front module is not fitted with a jumper. The two modules have two different spare parts codes, so in case of replacement, **it is important** to avoid switching the front and rear modules without moving the jumper. This might result in damage to the control board (see Fig. 12).

CONFIGURATION OF REAR INDUCTION MODULE TO POWER THE CONTROL UNIT

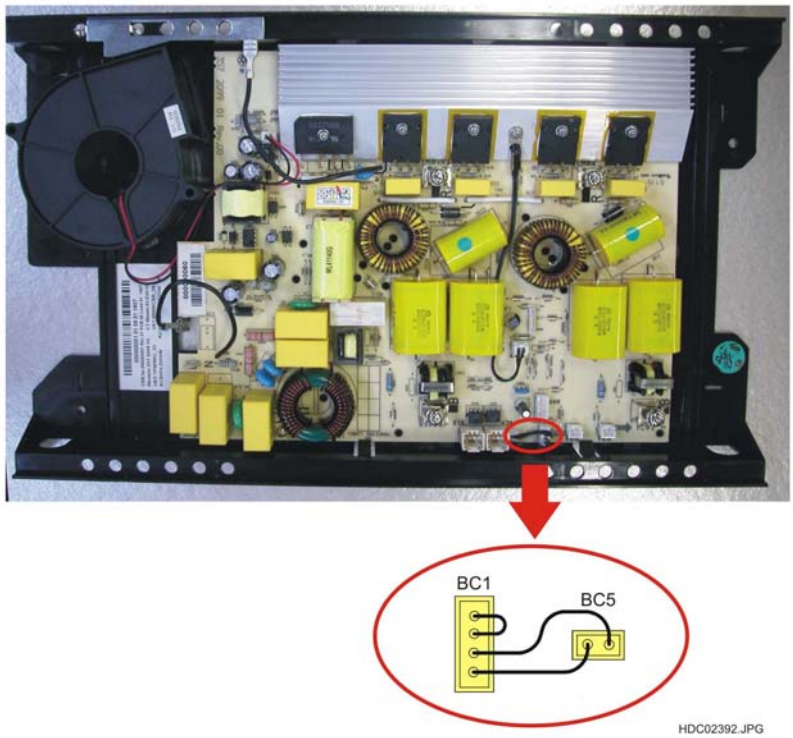


Fig. 12

3.2.2 - CONNECTIONS TO INDUCTION COILS - VERSION WITH TWO COOKING ZONES

The connections of the induction coils to the module controlling two cooking zones are shown in figure 13.

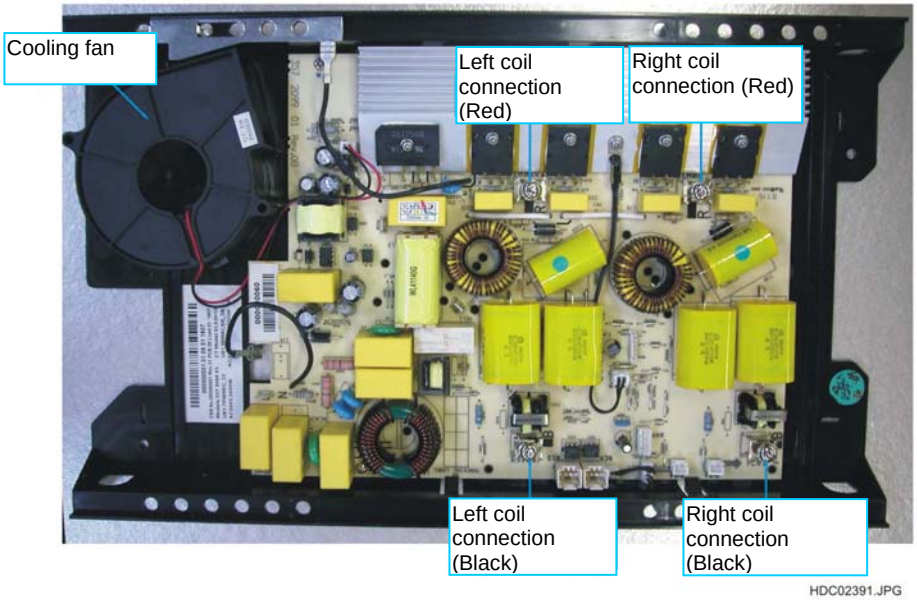


Fig. 13

3.2.3 - CONNECTIONS TO INDUCTION COILS - VERSION WITH ONE COOKING ZONE

The connections of the induction coils to the module controlling a single cooking zone are shown in figure 14.

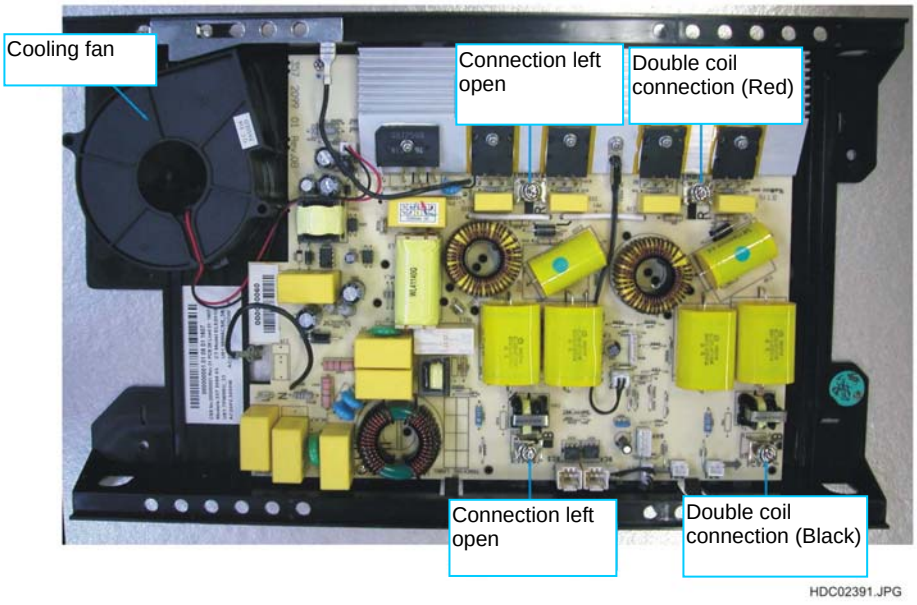


Fig. 14

3.2.4 - POSITION OF CONNECTORS FOR MINI GENERATOR MODULE

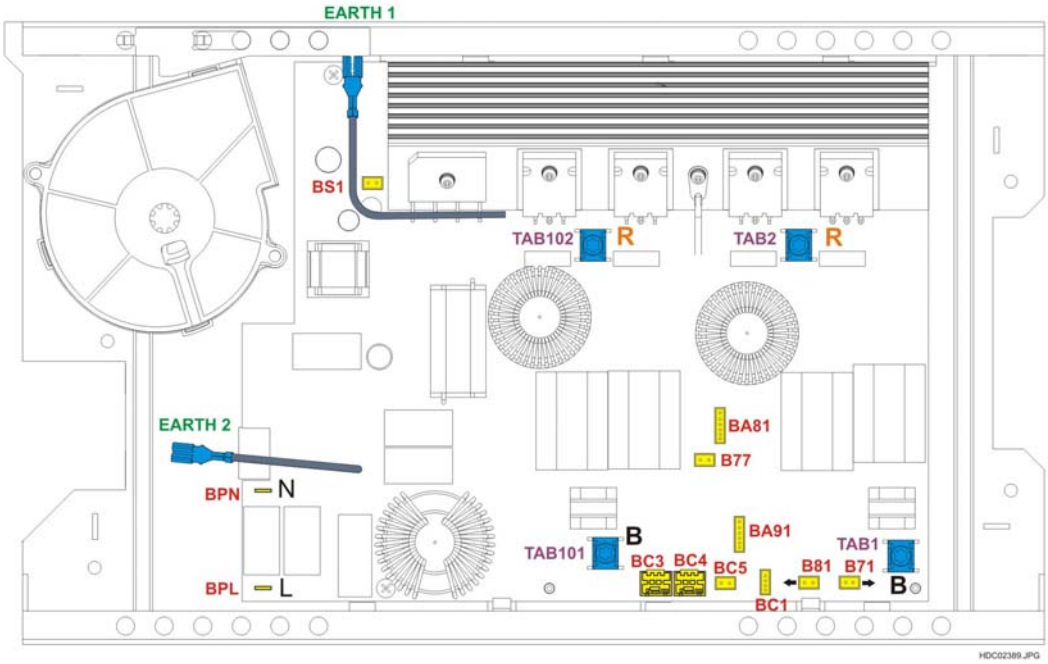


Fig. 15

B71	CONNECTOR FOR RIGHT COIL TEMPERATURE SENSOR
B77	CONNECTOR FOR FINAL STAGE TEMPERATURE SENSOR
B81	CONNECTOR FOR LEFT COIL TEMPERATURE SENSOR (*)
BA81	PROGRAMMING CONNECTOR (CONTROL)
BA91	PROGRAMMING CONNECTOR (POWER)
BC1	CONNECTOR FOR MODULE CONFIGURATION JUMPER (**)
BC3	(NOT USED)
BC4	INSULATED COMMUNICATION CONNECTOR (TO CONTROL UNIT)
BC5	CONNECTOR FOR MODULE CONFIGURATION JUMPER (**)
BPL	POWER SUPPLY (LIVE)
BPN	POWER SUPPLY (NEUTRAL)
BS1	CONNECTOR FOR COOLING FAN
EARTH1	FASTON EARTH CONNECTOR TO FRAME
EARTH2	FASTON EARTH CONNECTOR TO FRAME
TAB1	POWER TERMINAL FOR RIGHT COIL (BLACK)
TAB101	POWER TERMINAL FOR LEFT COIL (BLACK)
TAB102	POWER TERMINAL FOR LEFT COIL (RED)
TAB2	POWER TERMINAL FOR RIGHT COIL (RED)

(*) N.B.: In the version with a single cooking zone to the Dummy NTC, see chapter entitled "CONNECTIONS OF NTC AND DUMMY NTC SENSORS IN THE ONE COOKING ZONE MODULE"

(**) N.B.: For the jumper for configuration see chapter entitled “JUMPER FOR CONFIGURATION OF MODULE"

3.2.5 - CONNECTIONS OF NTC AND DUMMY NTC SENSORS IN THE ONE COOKING ZONE MODULE

To adapt the Induction module for operation with a single cooking zone, a resistor has been fitted instead of one of the two NTC sensors which acts as a dummy NTC fitted to the B81 connector (see Fig. 16).

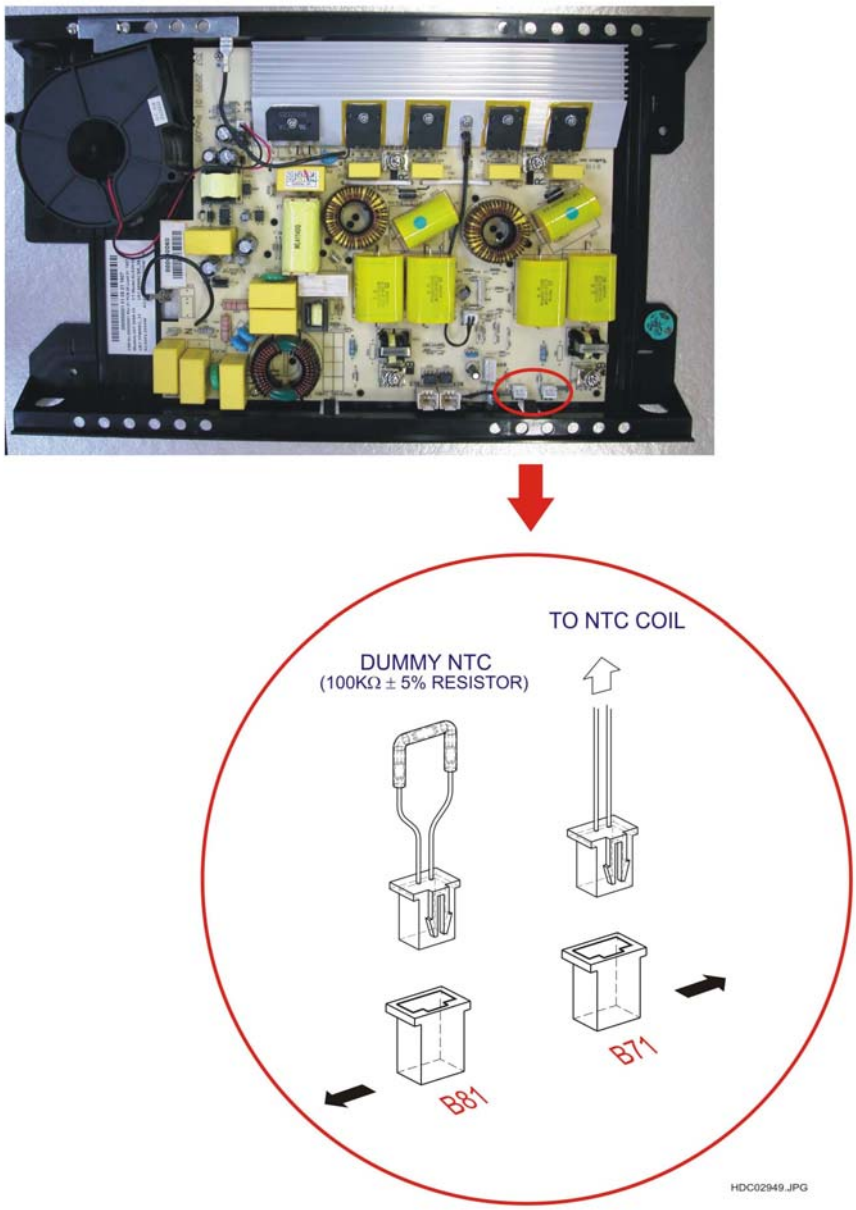


Fig. 16

N.B.: When replacing the induction module, and to guarantee proper operation of the appliance, the connector with the dummy NTC must be repositioned correctly in the new Module.

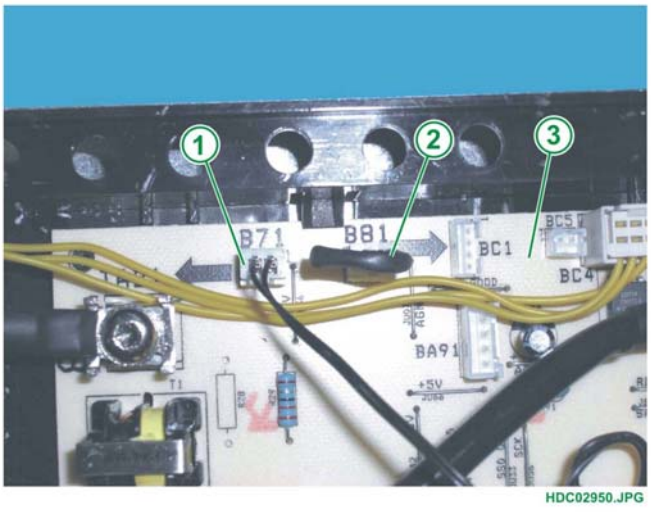


Fig. 17

1 - COOKING ZONE NTC CONNECTION (CONNECTOR B71)
2 - DUMMY NTC HEATING ELEMENT (CONNECTOR B81)
3 - RIGHT INDUCTION MODULE

3.3 - TIGER GENERATOR MODULE

The TIGER induction module is a development of the MINI module, and consists of two induction generators.
Each module generates a maximum power of 3.6 kW on two cooking zones.
The power and size of the cooking zones depends on the coils used.
The module is suitable for use with cooking zones (different coils) with diameters of 270mm, 210mm, 180mm and 140mm.
Each cooking zone also features the rapid heating function ("booster") with a power higher than the normal operating power but with a limited operating time.
The module is cooled by a variable-speed fan with a rotation detection device.

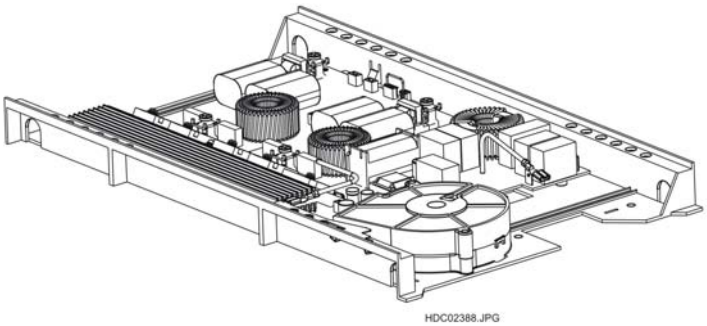


Fig. 18

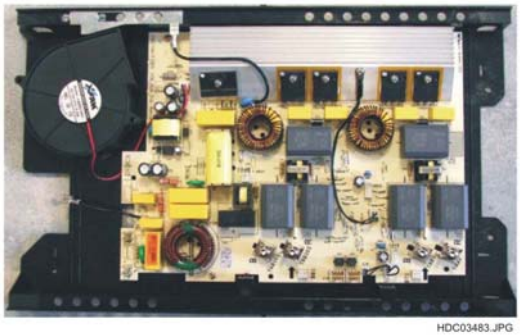


Fig. 19

Figure 20 illustrates the connections for the induction module.

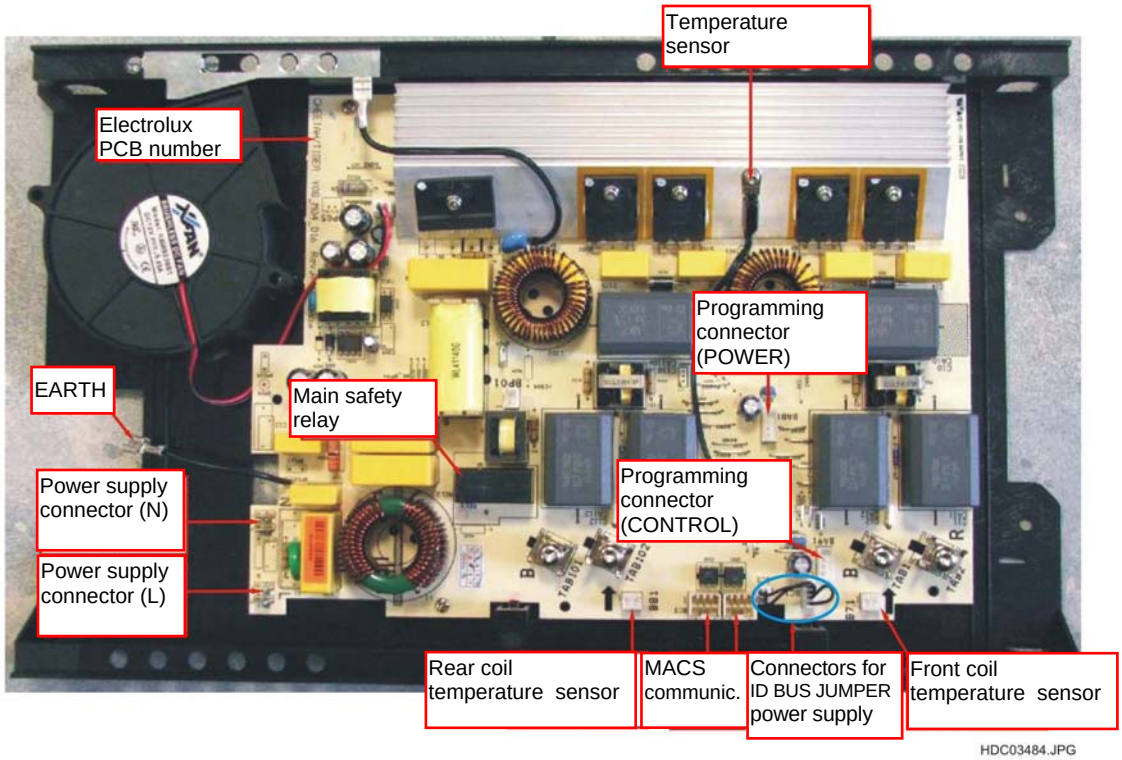


Fig. 20

3.3.1 - JUMPER FOR CONFIGURATION OF GENERATOR MODULE

The TIGER generator module can also power the control unit board. To power it, there must be a jumper present between connectors BC1 and BC5 (see Fig. 21).
This way, the module powers the control unit via the connector between the control unit and the module's power board (BC3).

CONFIGURATION OF INDUCTION MODULE TO POWER THE CONTROL UNIT

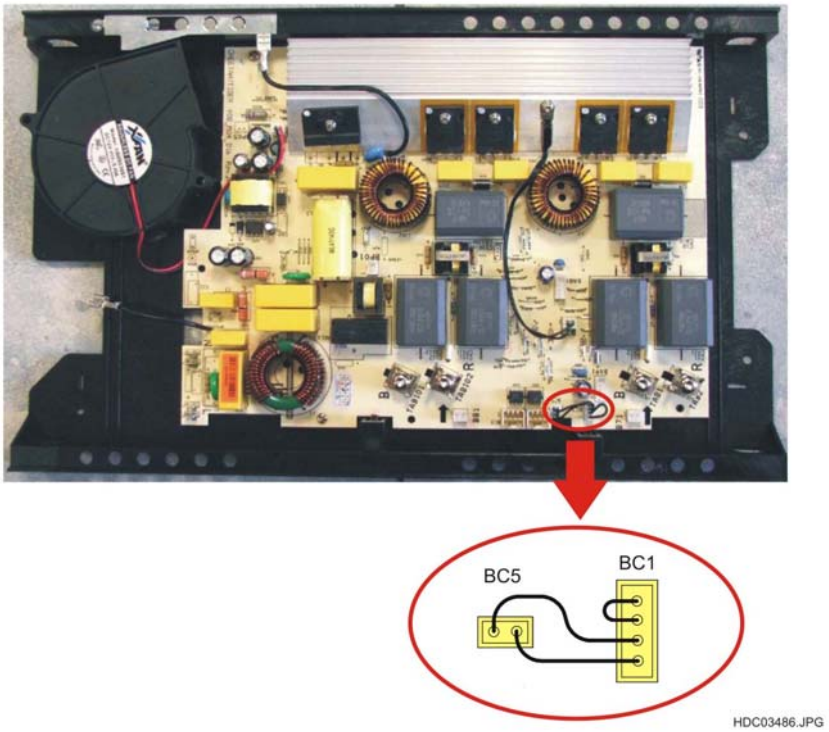


Fig. 21

3.3.2 - CONNECTIONS TO INDUCTION COILS

The connections between the induction coils and the module controlling the two cooking zones are highlighted in figure 22.

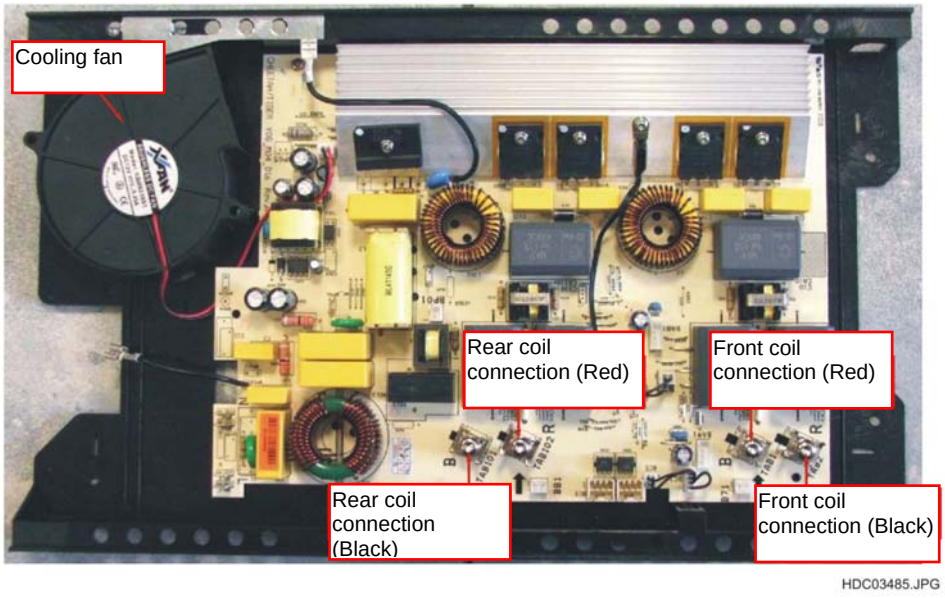


Fig. 22

NOTE: The connections of the module which controls the single cooking zone are the same as in the MINI version, see chapter 3.2.5 entitled - CONNECTIONS OF NTC AND DUMMY NTC SENSORS IN THE ONE COOKING ZONE MODULE

3.3.3 - POSITION OF CONNECTORS FOR TIGER GENERATOR MODULE

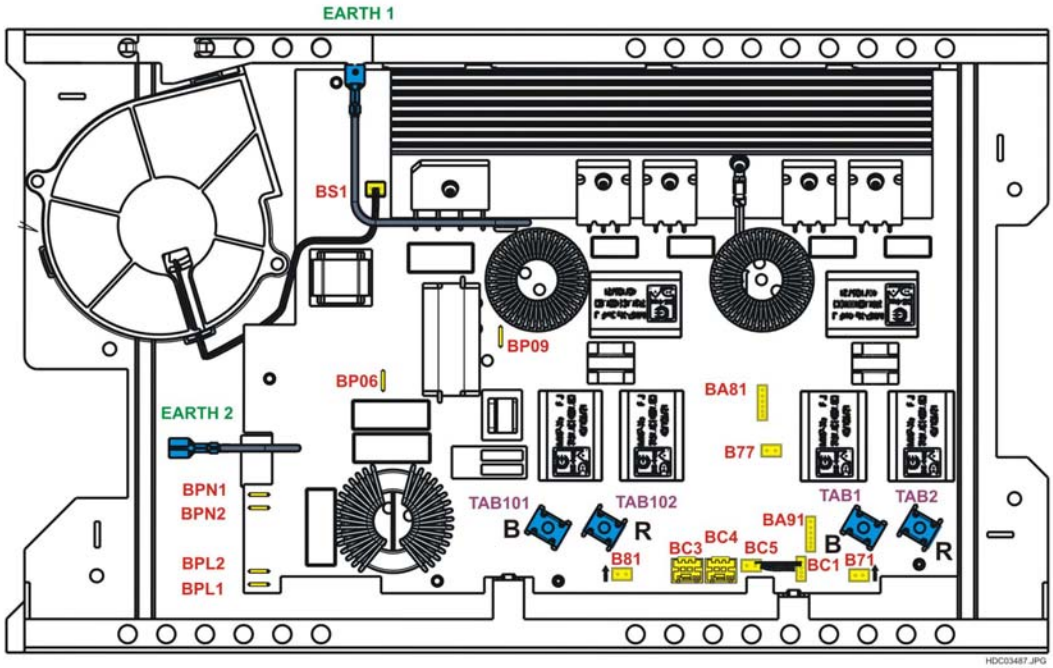


Fig. 23

B71	CONNECTOR FOR FRONT COIL TEMPERATURE SENSOR
B77	CONNECTOR FOR FINAL STAGE TEMPERATURE SENSOR
B81	CONNECTOR FOR REAR COIL TEMPERATURE SENSOR (*)
BA81	PROGRAMMING CONNECTOR (CONTROL)
BA91	PROGRAMMING CONNECTOR (POWER)
BC1	CONNECTOR FOR MODULE CONFIGURATION JUMPER (**)
BC3	(NOT USED)
BC4	INSULATED COMMUNICATION CONNECTOR (TO CONTROL UNIT)
BC5	CONNECTOR FOR MODULE CONFIGURATION JUMPER (**)
BP06	ON-OFF INDICATOR LIGHT FASTON
BP09	ON-OFF INDICATOR LIGHT FASTON
BPL1	POWER SUPPLY (LIVE)
BPL2	POWER SUPPLY (LIVE)
BPN1	POWER SUPPLY (NEUTRAL)
BPN2	POWER SUPPLY (NEUTRAL)
BS1	CONNECTOR FOR COOLING FAN
EARTH1	FASTON EARTH CONNECTOR TO FRAME
EARTH2	FASTON EARTH CONNECTOR TO FRAME
TAB1	FRONT COIL POWER SUPPLY TERMINAL (BLACK)
TAB101	REAR COIL POWER SUPPLY TERMINAL (BLACK)
TAB102	REAR COIL POWER SUPPLY TERMINAL (RED)
TAB2	FRONT COIL POWER SUPPLY TERMINAL (RED)

(*) N.B.: In the presence of just one double coil, the connection of the DUMMY NTC is the same as the MINI module, see chapter 3.2.5 entitled - CONNECTIONS OF NTC AND DUMMY NTC SENSORS IN THE ONE COOKING ZONE MODULE.

(**) N.B.: For the jumper for configuration see chapter 3.3.1 entitled - JUMPER FOR CONFIGURATION OF GENERATOR MODULE.

3.4 - MAGNETIC INDUCTION COIL ASSEMBLY

3.4.1 - SINGLE-COIL MAGNETIC INDUCTION COIL - FIRST VERSION

The induction coils are inserted into an assembly which includes a support element (pos. 5 Fig.24).
A suspension spring is fitted beneath the coil assembly so that the coil is pressed upwards against the glass ceramic hob underside (pos. 6 Fig. 24). It is necessary to place a layer of heat insulating material (pos. 3 Fig. 24) above the coil, and then the NTC heat sensor and the aluminium locking tab
(pos. 2 and 1 Fig. 24).

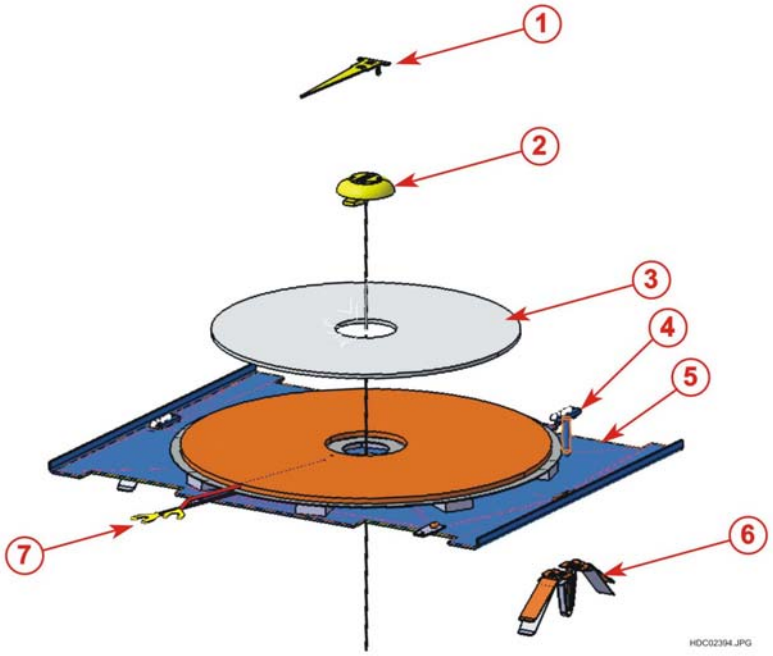


Fig. 24

1 - ALUMINIUM LOCKING TAB FOR NTC SENSOR
2 - NTC TEMPERATURE SENSOR
3 - HEAT INSULATING LAYER
4 - SPRING ANCHOR PIN
5 - COIL ASSEMBLY
6 - SUSPENSION SPRING
7 - CONNECTOR CABLES FOR COIL

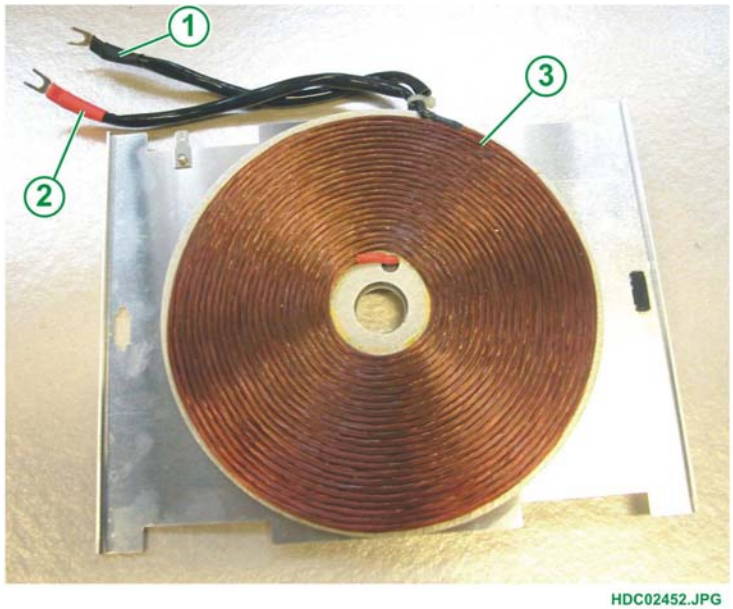


Fig. 25

1 - NEGATIVE CONNECTOR WIRE (BLACK)
2 - POSITIVE CONNECTOR WIRE (RED)
3 - INDUCTION COIL ASSEMBLY

3.4.2 - DOUBLE-COIL MAGNETIC INDUCTION COIL IN SERIAL CONNECTION - FIRST VERSION

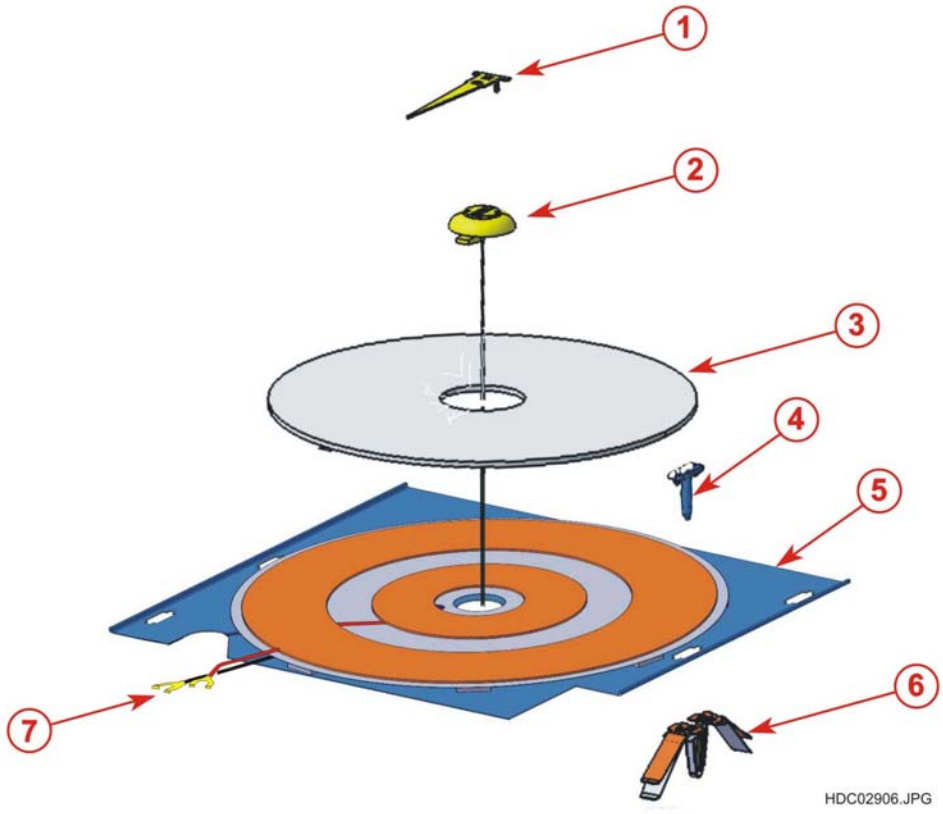


Fig. 26

1 - ALUMINIUM LOCKING TAB FOR NTC SENSOR
2 - NTC TEMPERATURE SENSOR
3 - HEAT INSULATING LAYER
4 - SPRING ANCHOR PIN
5 - COIL ASSEMBLY
6 - SUSPENSION SPRING
7 - CONNECTOR CABLES FOR COIL

Fig. 27

1 - INTERNAL COIL
2 - EXTERNAL COIL
3 - POSITIVE CONNECTION (RED)
4 - NEGATIVE CONNECTION (BLACK)

3.4.3 - SINGLE-COIL MAGNETIC INDUCTION COIL ASSEMBLY - SECOND VERSION

The induction coils are inserted into an assembly which includes a support element (pos. 5 Fig. 28). Suspension springs are fitted beneath the coil assembly so that the coil is pressed upwards against the glass ceramic hob underside (pos. 6 Fig. 28). It is necessary to place a layer of heat insulating material (pos. 3 Fig. 28) above the coil, and then the NTC heat sensor and the aluminium locking tab (Pos. 4 and 2 Fig. 28).

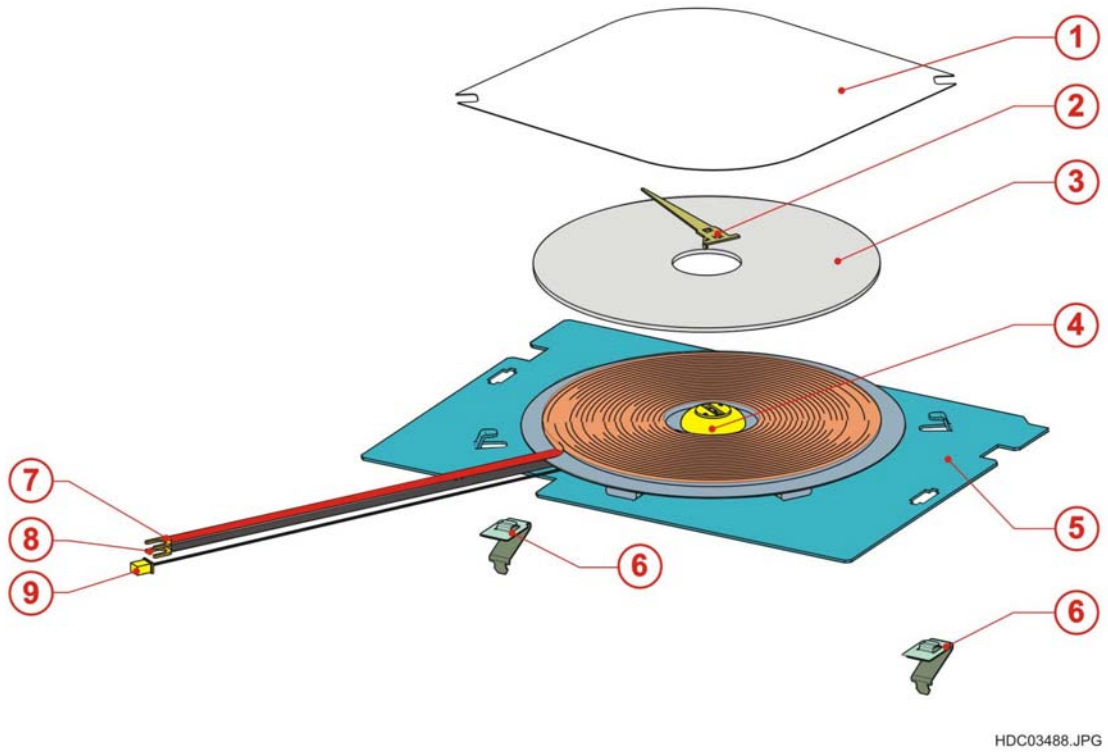


Fig. 28

1 - INSULATING MICA
2 - ALUMINIUM LOCKING TAB FOR NTC SENSOR
3 - HEAT INSULATING LAYER
4 - NTC TEMPERATURE SENSOR
5 - COIL ASSEMBLY
6 - SUSPENSION SPRINGS
7 - RED COIL CONNECTION CABLE (POSITIVE)
8 - BLACK COIL CONNECTION CABLE (NEGATIVE)
9 - NTC SENSOR CONNECTOR

3.4.4 - DOUBLE-COIL MAGNETIC INDUCTION COIL ASSEMBLY - SERIAL CONNECTION - SECOND VERSION

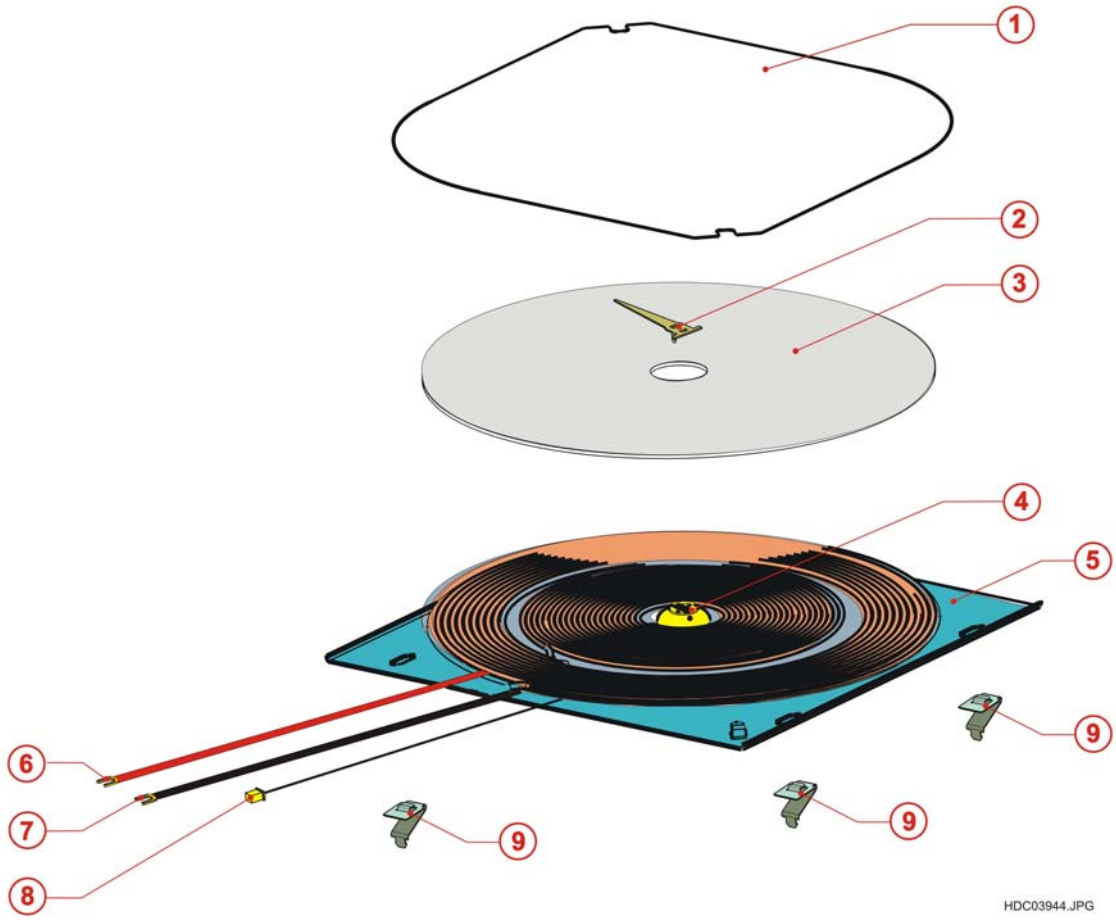


Fig. 29

1 - INSULATING MICA
2 - ALUMINIUM LOCKING TAB FOR NTC SENSOR
3 - HEAT INSULATING LAYER
4 - NTC TEMPERATURE SENSOR
5 - COIL ASSEMBLY
6 - RED CONNECTOR WIRE (POSITIVE)
7 - BLACK CONNECTOR WIRE (NEGATIVE)
8 - NTC SENSOR CONNECTOR
9 - SUSPENSION SPRINGS

3.4 - NTC TEMPERATURE CONTROL OF COOKING ZONES

The temperature of each cooking zone is measured by an NTC sensor positioned between the coil and the glass ceramic hob (see Fig. 28 and 29). This way, the hob is protected against overheating.
If one of the cooking zones is found to overheat:

- The power is reduced to **0** if the temperature is in excess of **190°C**.
- The generator module switches off and error code **E1** is displayed if the temperature is in excess of **200°C**.
- The module can be switched on again when the temperature drops below **150°C** (after error code E1 is displayed).

If the cooking module switches off due to overheating, and error code E1 is displayed, the cooking zone does not switch on again automatically. To use the cooking zone again, it is necessary to wait until the temperature falls to below 150°C, after which the cooking zone can be switched on again the normal way (i.e. using the control panel).

The system also features an automatic system which detects the presence and correct attachment of the connectors to the NTC sensors.

3.5 - INDICATION OF RESIDUAL HEAT IN THE COOKING ZONES

A temperature measurement system on the hob (with NTC sensors) also displays the residual heat remaining in the cooking zones after they are switched off, by displaying the letter "**H**" on the display panel. The residual heat is displayed when the temperature measured exceeds 65°C approximately, and switches off when it falls below about 60°C (± 5°C).

3.6 - BLOCK DIAGRAM OF THE HOB

To provide for three cooking zones, two MINI induction modules are connected to a single control unit, powered by the rear induction module, after being configured appropriately via the jumper across BC1 - BC5 (see section entitled "JUMPER FOR CONFIGURATION OF GENERATOR MODULE").

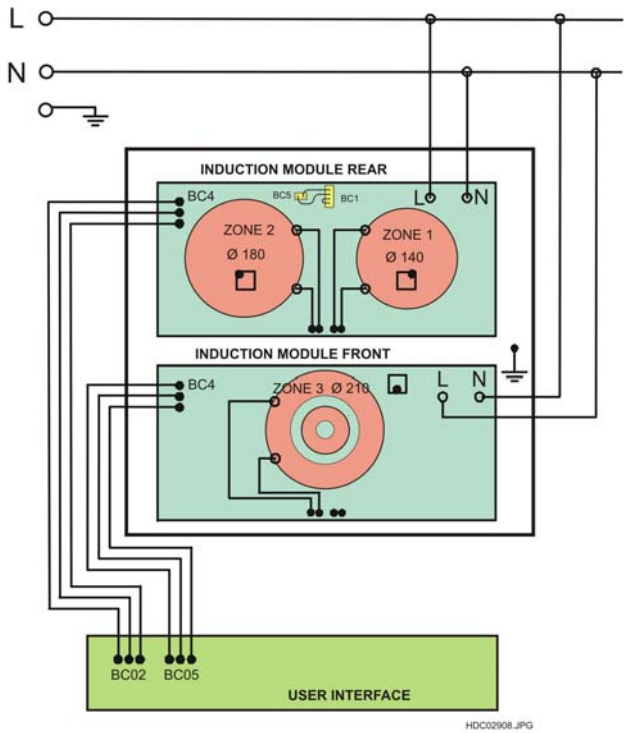


Fig. 30

INDUCTION MODULE REAR	- TWO COOKING ZONE MINI REAR INDUCTION MODULE WITH POWER SUPPLY TO CONTROL UNIT (FITTED WITH JUMPER BC1 - BC5)
INDUCTION MODULE FRONT	- ONE COOKING ZONE MINI FRONT INDUCTION MODULE
USER INTERFACE	- COLIBRÌ' CONTROL UNIT WITH ROTARY CONTROLS
ZONE 1	- RIGHT REAR COOKING ZONE
ZONE 2	- LEFT REAR COOKING ZONE
ZONE 3	- FRONT COOKING ZONE

3.7 - COOKING ZONES AND PAN DETECTION SYSTEM

The system detects the presence of a pan by measuring the inductance through the generator coil. The inductance value depends on the diameter, the mass and the type of material used for the pan.
To ensure correct operation of the system, it is important to use a pan whose diameter is suitable for that of the cooking zone. If the pan is too small (thus with a low inductance), it will not be detected by the system.
Each cooking zone requires the use of pans with different minimum diameters (see table below).

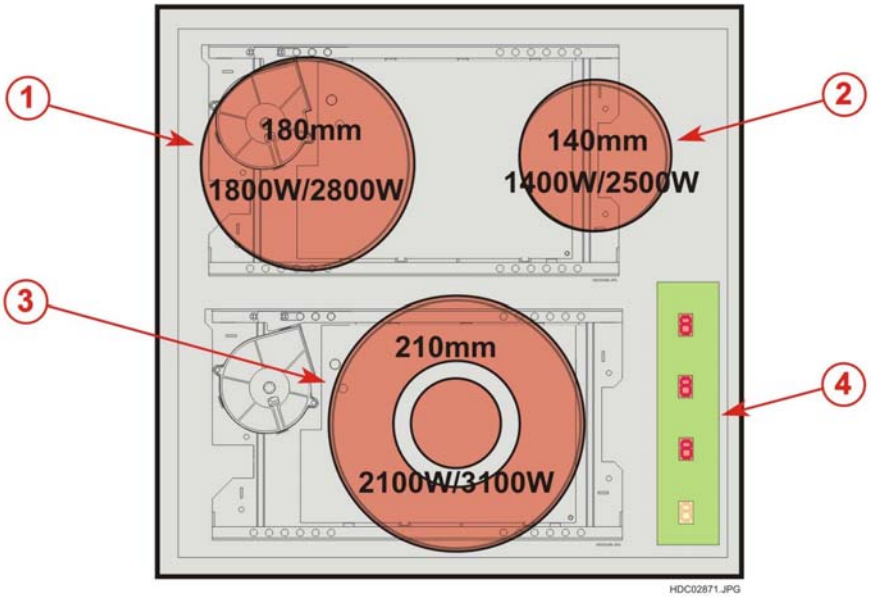


Fig. 31

1 - LEFT REAR COOKING ZONE Ø180 mm
2 - RIGHT REAR COOKING ZONE Ø140 mm
3 - FRONT CENTRAL COOKING ZONE Ø210 mm
4 - COLIBRI' CONTROL UNIT

3.7.1 - TABLE OF COOKING ZONES AND MINIMUM PAN DIAMETERS

The table below lists the minimum pan diameters for the various cooking zones

DIAMETER OF COOKING ZONE	MAXIMUM POWER OUTPUT	BOOSTER POWER (POWER FUNCTION)	MINIMUM PAN DIAMETER
140 mm	1400W	2500W	120 mm
180 mm	1800W	2800W	145 mm
210 mm	2100W	3100W	180 mm

3.8 - COLIBRI' CONTROL UNIT

This type of control unit features a control interface actioned by rotary potentiometer controls.
In this application, the control potentiometers are connected to connectors BK01 and BK02.

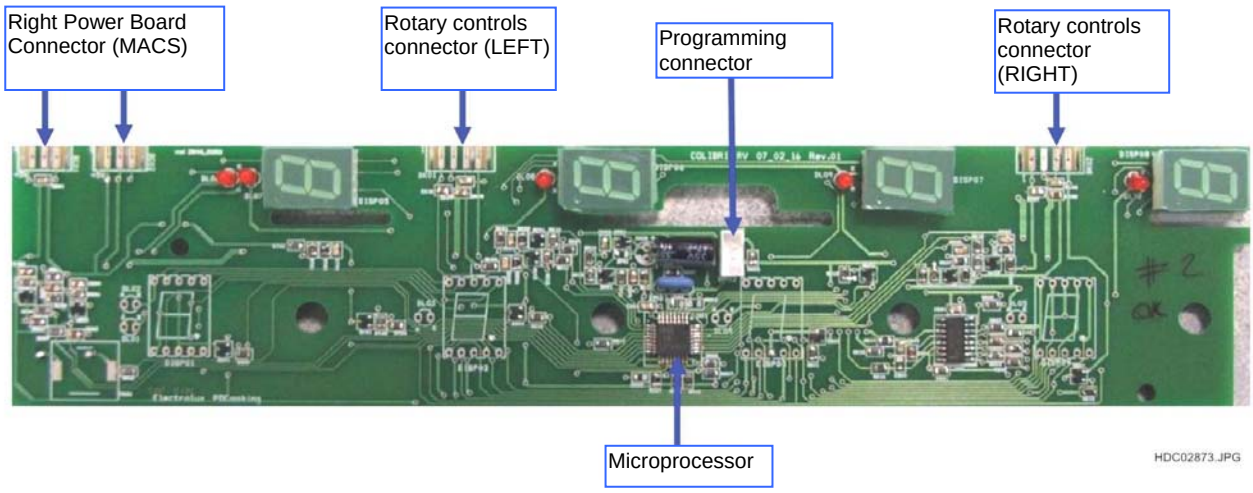


Fig. 32

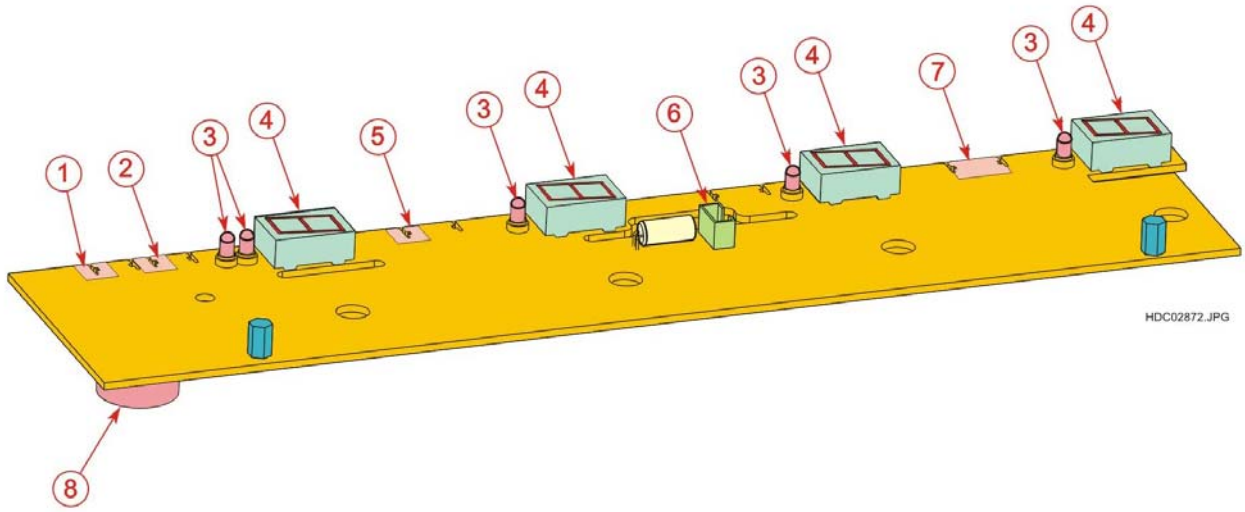


Fig. 33

1 - CONNECTOR BC01 TO REAR POWER MODULE
2 - CONNECTOR BC02 TO FRONT POWER MODULE
3 - LEDS
4 - DISPLAY
5 - CONNECTOR BK01 TO POTENTIOMETER FOR LEFT REAR COOKING ZONE
6 - CONNECTOR BP02 FOR PROGRAMMING
7 - CONNECTOR BK02 TO POTENTIOMETERS FOR RIGHT REAR COOKING ZONE AND FRONT COOKING ZONE
8 - BUZZER

3.8.1 - CONTROL POTENTIOMETERS

The control potentiometers are used to select a power level by rotating the knob in a clockwise direction; the additional (rightmost) position actions the "rapid heating" function.
Each potentiometer sends different resistance values to the power board; these correspond to the various levels of power for each of the cooking zones.

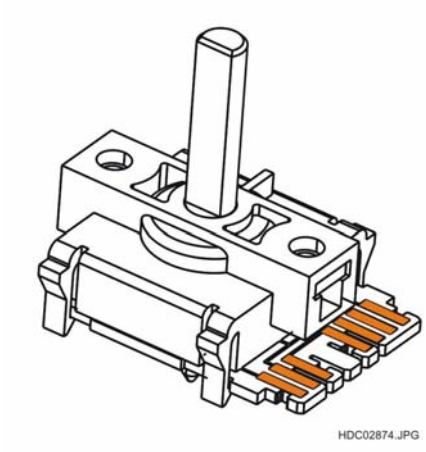


Fig. 34

ANGLE OF ROTATION

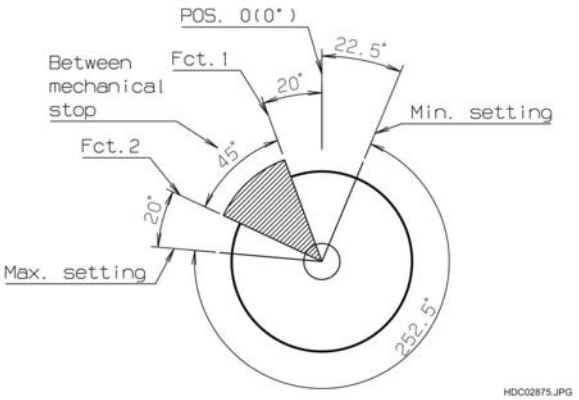


Fig. 35

ELECTRICAL CONTACTS

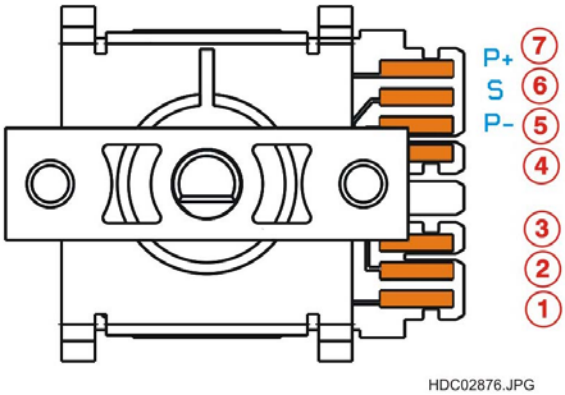


Fig. 36

WIRING DIAGRAM

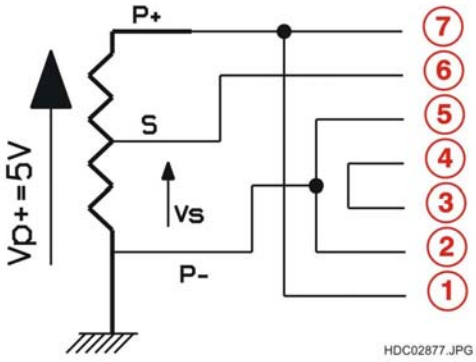


Fig. 37

4 - TECHNICAL CHARACTERISTICS OF MAGNETIC INDUCTION HOB SECTION

4.1 - TECHNICAL CHARACTERISTICS

4.1.1 - POSITIONS OF COOKING ZONES

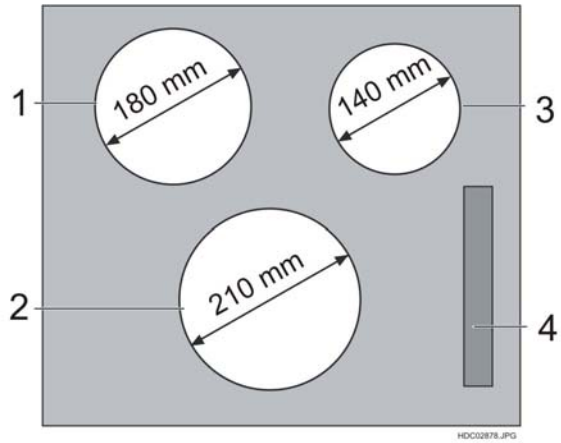


Fig. 38

1 - LEFT REAR COOKING ZONE Ø180 mm
2 - FRONT COOKING ZONE Ø210 mm
3 - RIGHT REAR COOKING ZONE Ø140 mm
4 - DISPLAY PANEL SHOWING FUNCTIONS AND ERROR CODES

4.1.2 - TECHNICAL DATA OF HOB SECTION

POWER SUPPLY VOLTAGE	V	220 - 230
POWER ABSORPTION (PRE-HEATING)	W	2
MAXIMUM POWER ABSORPTION	KW	6.7
MAXIMUM POWER Ø140 mm COOKING ZONE	KW	1.4
BOOSTER POWER Ø140 mm COOKING ZONE	KW	2.5
MAXIMUM POWER Ø180 mm COOKING ZONE	KW	1.8
BOOSTER POWER Ø180 mm COOKING ZONE	KW	2.8
MAXIMUM POWER Ø210 mm COOKING ZONE	KW	2.1
BOOSTER POWER Ø210 mm COOKING ZONE	KW	3.1
COOKING ZONE POWER SETTINGS	Qty.	9+BOOSTER
CHILD SAFETY FUNCTION		

4.2 - CONTROL OF COOKING ZONES

The cooking zones are controlled by knobs which action the potentiometers connected to the control board. Each cooking zone features its own control knob and window in the display panel.

POSITION OF COOKING ZONES

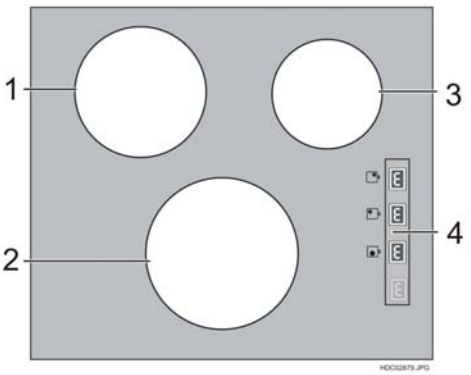


Fig. 39

1 - LEFT REAR COOKING ZONE
2 - RIGHT REAR COOKING ZONE
3 - FRONT CENTRAL COOKING ZONE
4 - DISPLAY PANEL SHOWING FUNCTIONS AND ERROR CODES

COOKING ZONE CONTROL KNOBS

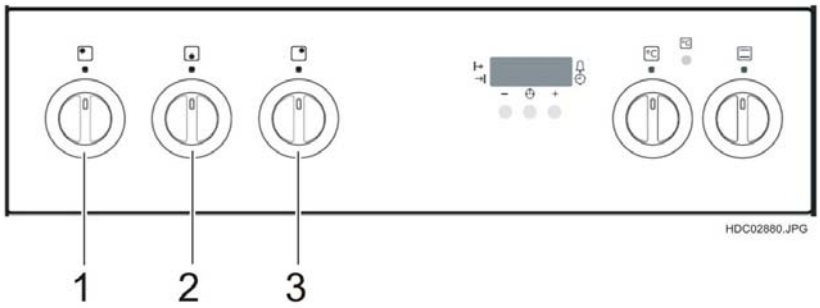


Fig. 40

1 - CONTROL KNOB FOR LEFT REAR COOKING ZONE
2 - CONTROL KNOB FOR FRONT CENTRAL COOKING ZONE
3 - CONTROL KNOB FOR RIGHT REAR COOKING ZONE

DISPLAY PANEL

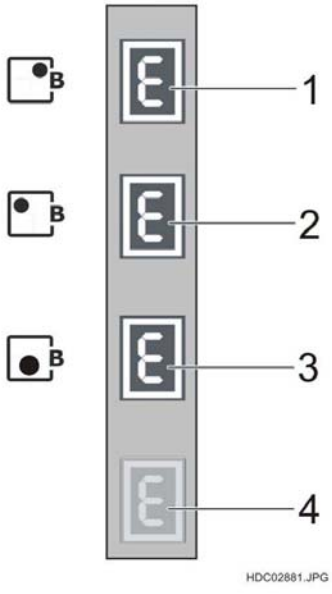


Fig. 41

1 - DISPLAY WINDOW FOR RIGHT REAR COOKING ZONE
2 - DISPLAY WINDOW FOR LEFT REAR COOKING ZONE
3 - DISPLAY WINDOW FOR FRONT CENTRAL COOKING ZONE
4 - UNUSED DISPLAY WINDOW

4.3 - COOKING ZONE DISPLAY WINDOWS

Each cooking zone is connected to a display window which indicates the power setting, the function and any error codes.

The cooking zone is switched OFF.

The cooking zone is still hot. This error code is displayed when a cooking zone is switched off after cooking, but remains hot (refer to Chapter 3.5).

Power setting (cooking zone switched ON) from 1 to 9.

Indicates that the BOOSTER function has been selected.

Error code (hob malfunction).

Automatic switching-off of the hob.

Pan recognition indicator: indicates that no pan (or a pan that is too small) has been placed on the cooking zone.

Child safety function has been selected.

4.4 - SWITCHING ON THE COOKING ZONES

Before switching on a cooking zone on an induction hob, ensure that a suitable pan has been placed on the cooking zone.
To switch on a cooking zone, simply select a power setting by turning the corresponding knob.

4.5 - ADJUSTING THE POWER SETTING

The power setting for the cooking zone (from 1 to 9) is selected by turning the corresponding knob, and is displayed in the corresponding display window.

4.6 - BOOSTER FUNCTION

The "BOOSTER" (extra power) function is selected by turning the corresponding knob completely clockwise (the corresponding display window shows "P"). This function sets the cooking zone to an extra-high temperature for a short period of time, which is sometimes required for special cooking methods (such as boiling large quantities of water).

4.7 - CHILD SAFETY FUNCTION

The hob can be completely locked in order to prevent inadvertent operation or operation by children.

4.7.1 - ENABLING THE CHILD SAFETY FUNCTION

To enable the child safety function, turn the first and third knobs simultaneously in a counter-clockwise direction for a few seconds.
The letter "L" will appear on the display to indicate that the function has been enabled.

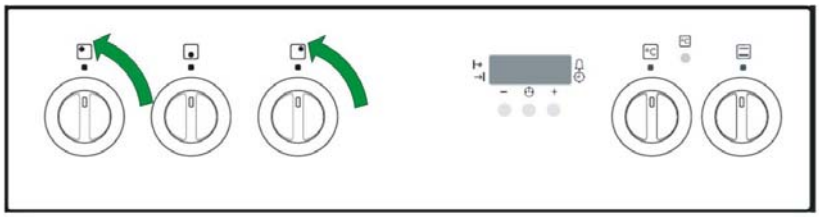


Fig. 42

4.7.2 - DISABLING THE CHILD SAFETY FUNCTION

To disable the child safety function, turn the first and third knobs simultaneously in a counter-clockwise direction for a few seconds.
The letter "L" will disappear from the display to indicate that the function has been disabled.

4.8 - POWER CONTROL

Each cooking zone module is set to supply a maximum power of 3600W. Thus, in the module controlling two cooking zones (left and right), each branch (module) cannot exceed 3600W.
If this power level is exceeded using the "BOOSTER" option (selected by turning the control clockwise beyond the last stop) the power control system will reduce the power to the other cooking zone. The power level indicator for this cooking zone will display the level entered and the reduced level alternately for one minute, after which the actual (i.e. reduced) power level will remain on the display.

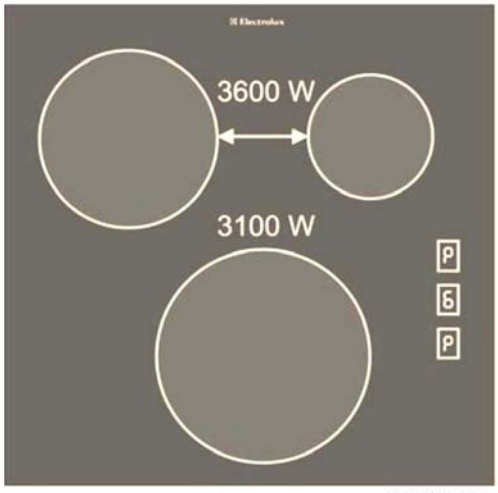


Fig. 43

EXAMPLE:

Last cooking zone set	**Second cooking zone controlled by module**		
Selected power level	Selected power level	Power level displayed	Actual power level
P	9	6 alternating with 9	6

4.9 - DEMO FUNCTION

The "DEMO" function is used in the store or showroom to demonstrate the operation of the hob without consuming any energy, except for the LEDs and the control panel windows. The "DEMO" function can be enabled only when the appliance is connected to the power supply.

4.9.1 - STARTING THE DEMO FUNCTION

To start the "Demo" function, proceed as follows:

1. Knob number 3 must be set to minimum (see Fig. 44).
2. Set knob number 3 to “0” within 4 seconds of supplying electricity to the appliance (see Fig. 45).
3. Keep the knob on this setting until a double beep is emitted.

The enabling of the "DEMO" function is indicated by the symbol  in the display window for the cooking areas when the appliance is connected to the power supply.

The "DEMO" function remains in operation even after the appliance has been switched off.

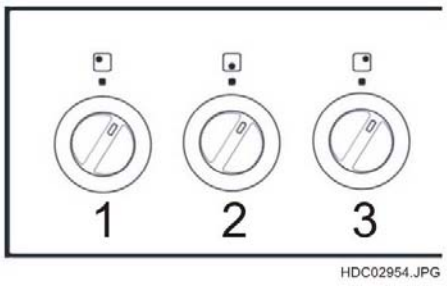


Fig. 44

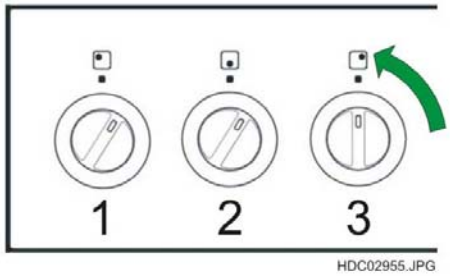


Fig. 45

All the hob functions can be enabled. However, the cooking zones are not heated in "DEMO" mode.

4.9.2 - EXITING THE DEMO FUNCTION

To exit this function, repeat the procedure for enabling it from step 1 to step 3.

4.10 - AUTOMATIC HOB SWITCH-OFF

4.10.1 - SWITCHING OFF THE INDUCTION COOKING ZONES

- If the temperature rises excessively (e.g. a pan containing food that is burning), the cooking zone will switch off automatically and “**-**" will be shown on the display. Before re-using the cooking zone, it is necessary to set the power to "**0**” and wait until the zone cools.
- If the pan being used is not suitable (e.g. of the correct type and size for the cooking zone), the letter “**F**” will be shown on the display, disappearing after 2 minutes.
- If after a certain time a cooking zone is not switched off or the power setting modified, the cooking zone will switch off automatically and “**-**" will be shown on the display.
  Before re-using the cooking zone, it is necessary to set the power to “**0**”.

Power setting	Switches off after
1-2	6 hours
3-4	5 hours
5	4 hours
6-9	1.5 hours

5 - ERROR CODES

If a malfunction should occur, an error code is displayed. This code is intended to aid the service engineer in identifying the fault.
The error codes differ according to the type of power board.
Below are the error codes for both versions.

5.1 - ERROR CODES WITH MINI POWER BOARD

In the version featuring a MINI power board, error codes may be one of two types:
- Error codes with an "E" prefix are those which interrupt the operation of the appliance.
- Error codes with an "C" prefix are shown when the hob can still be operated in spite of the error.

5.1.1 - ERROR CODES WITH "E" PREFIX

When the hob is switched on, and the diagnostics system detects an error, an error code with an "E" prefix is displayed and the operation of the hob is disabled.

ERROR CODE	CAUSE OF THE ERROR
E1	Overheating of cooking zone.
E2	Overheating of control board.
E3	Excessive mains power supply voltage.
E4	Cooking zone sensor open.
E5	Cooking zone sensor short-circuited.
E6	Communication problem between the microprocessors on the power board.
E7	Final IGBT temperature sensor open.
E8	Communication problem between the control board and the power board.
E9	Communication problem internal to the control board.
EA	Configuration software incorrect / faulty.
Eb	15V power supply voltage incorrect.
EC	Configuration software not compatible with power board.
Ed	Control board and power board incompatible.
EF	Control potentiometer blocked, disconnected or blocked in maximum or minimum position for more than 20 seconds.

Example of error code "E8".

The two digits which make up the error code are shown alternately on the display corresponding to the cooking zone (figs. 46 and 47).

STEP 1

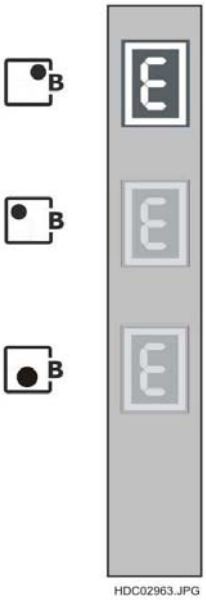


Fig. 46

STEP 2

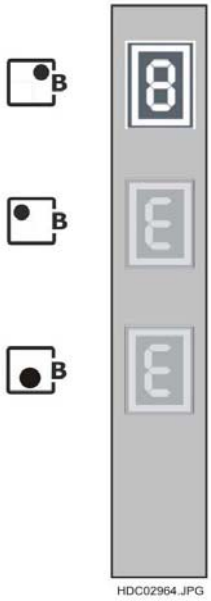


Fig. 47

5.1.2 - ERROR CODES WITH "C" PREFIX

When the hob is switched off, and the diagnostics system detects an error, an error code with a "C" prefix is displayed. In this case, the hob can still be used.

ERROR CODE	CAUSE OF THE ERROR
C1	The current at the IGBT final stages and the measured mains current are not coherent.
C2	Sync error between the internal microprocessors on the power board.
C3	Mains power supply voltage too low.
C4	Mains frequency incorrect.
C5	Main relay contacts sticking.
C6	Cooling fan blocked.
C7	Mains voltage incorrect.
C8	Mains current incorrect.
CC	Cooling fan not connected.

Example of error code "C8". The two digits which make up the error code are shown alternately on the display corresponding to the cooking zone (figs. 48 and 49).

STEP 1

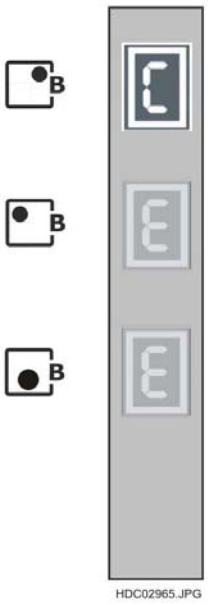


Fig. 48

STEP 2

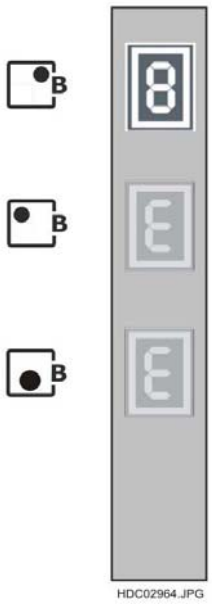


Fig. 49

5.2 - ERROR CODES WITH TIGER POWER BOARD

The version featuring the TIGER power board only has type "E" error codes.
When one such error is detected, the appliance shuts down.

ERROR CODE	ERROR DESCRIPTION
E0	Control board and power board incompatible
E1	Control board configuration error.
E3	Excessive mains power supply voltage.
E4	Cooking zone sensor faulty.
E6	Communication problem between the microprocessors on the power board.
E7	Fan error on power board
E8	Communication problem between the control board and the power board.
E9	Communication problem within the control (or touch control) board.

N.B.: The criterion for the occurrence of error codes in appliances featuring the TIGER power board is the same as for appliances featuring the MINI power board (see page 34).

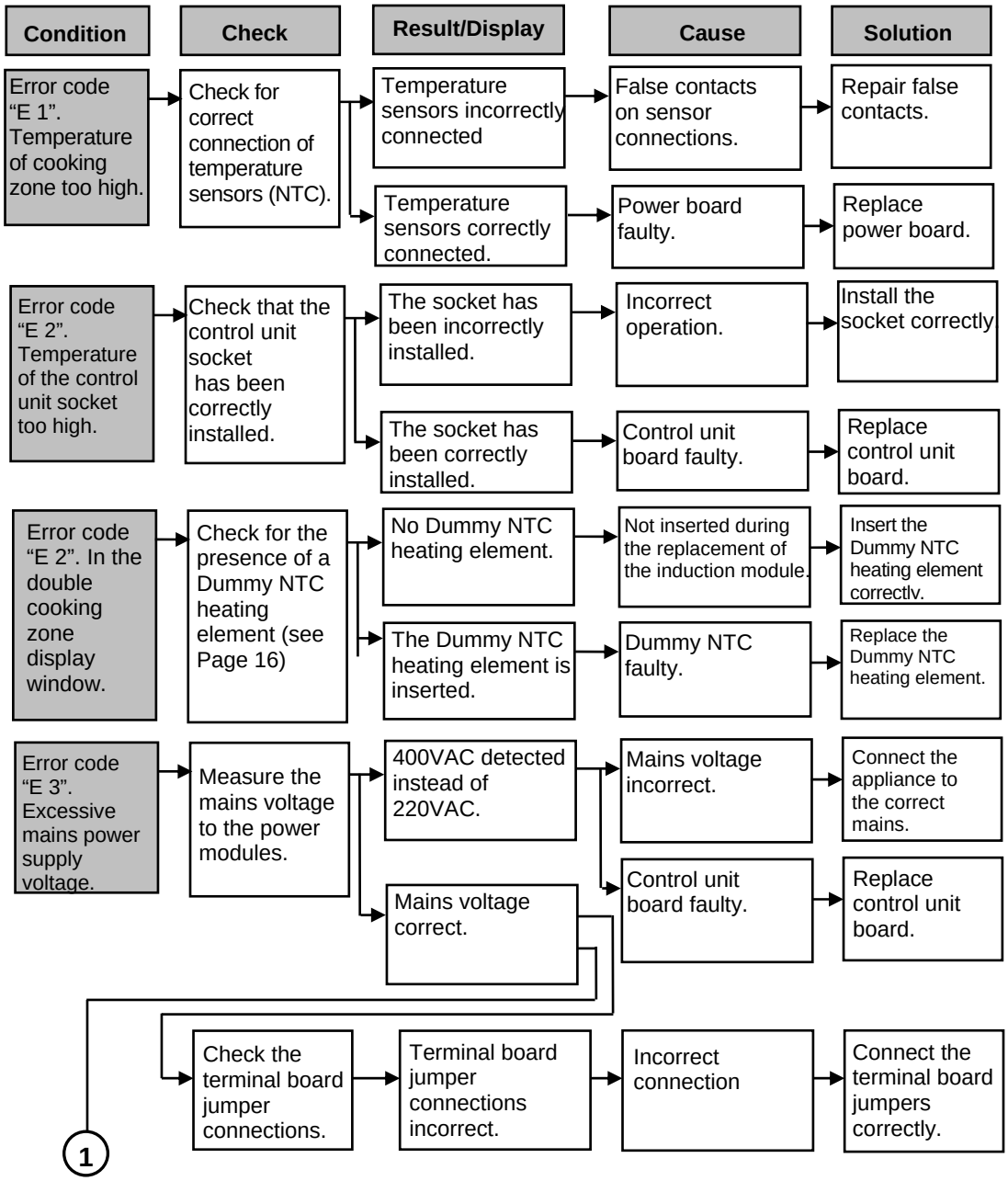
6 - TROUBLESHOOTING

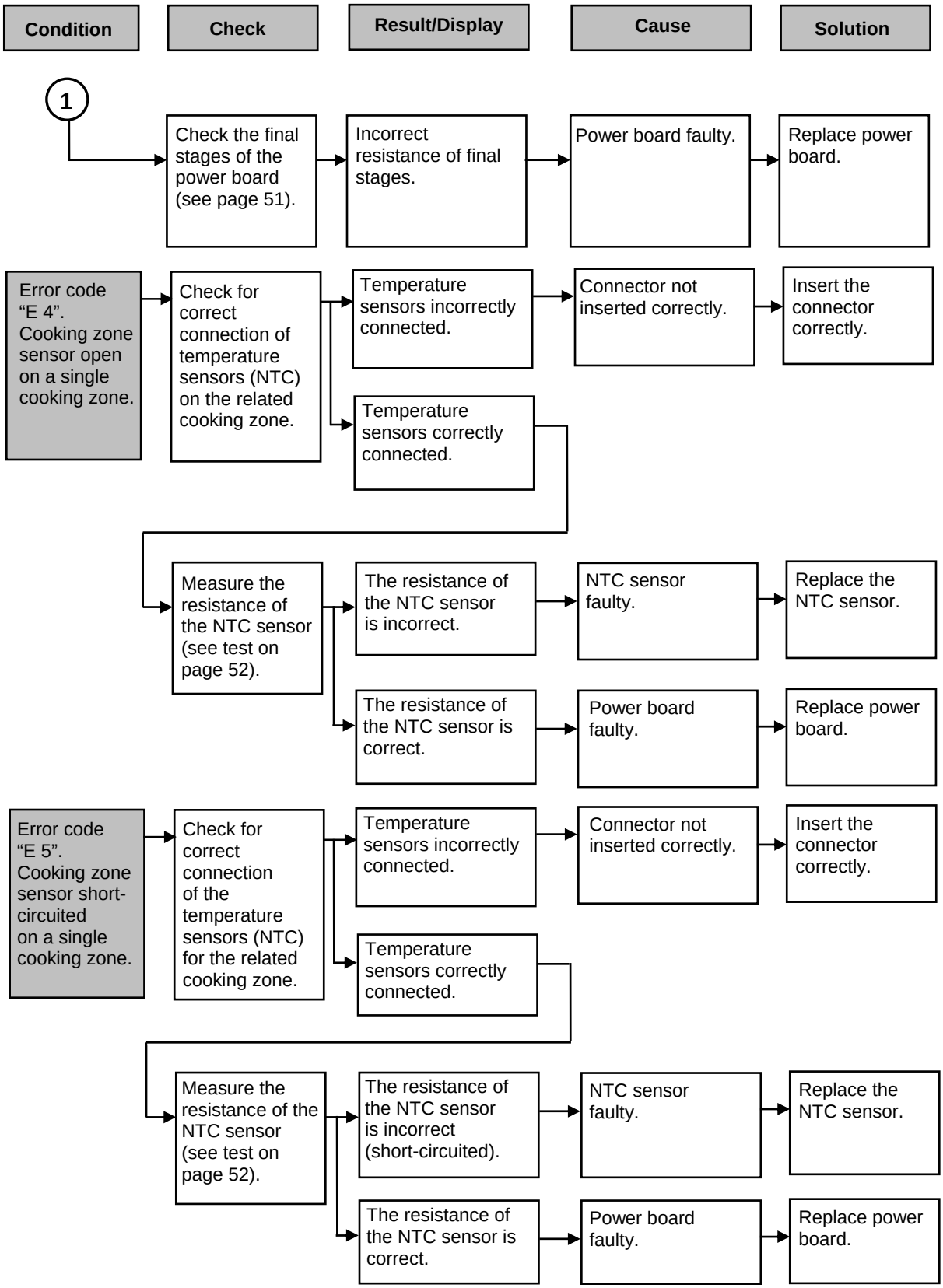
Certain types of malfunction are detected by the internal diagnostics software, which displays the related error code (see chapter entitled "ERROR CODES").

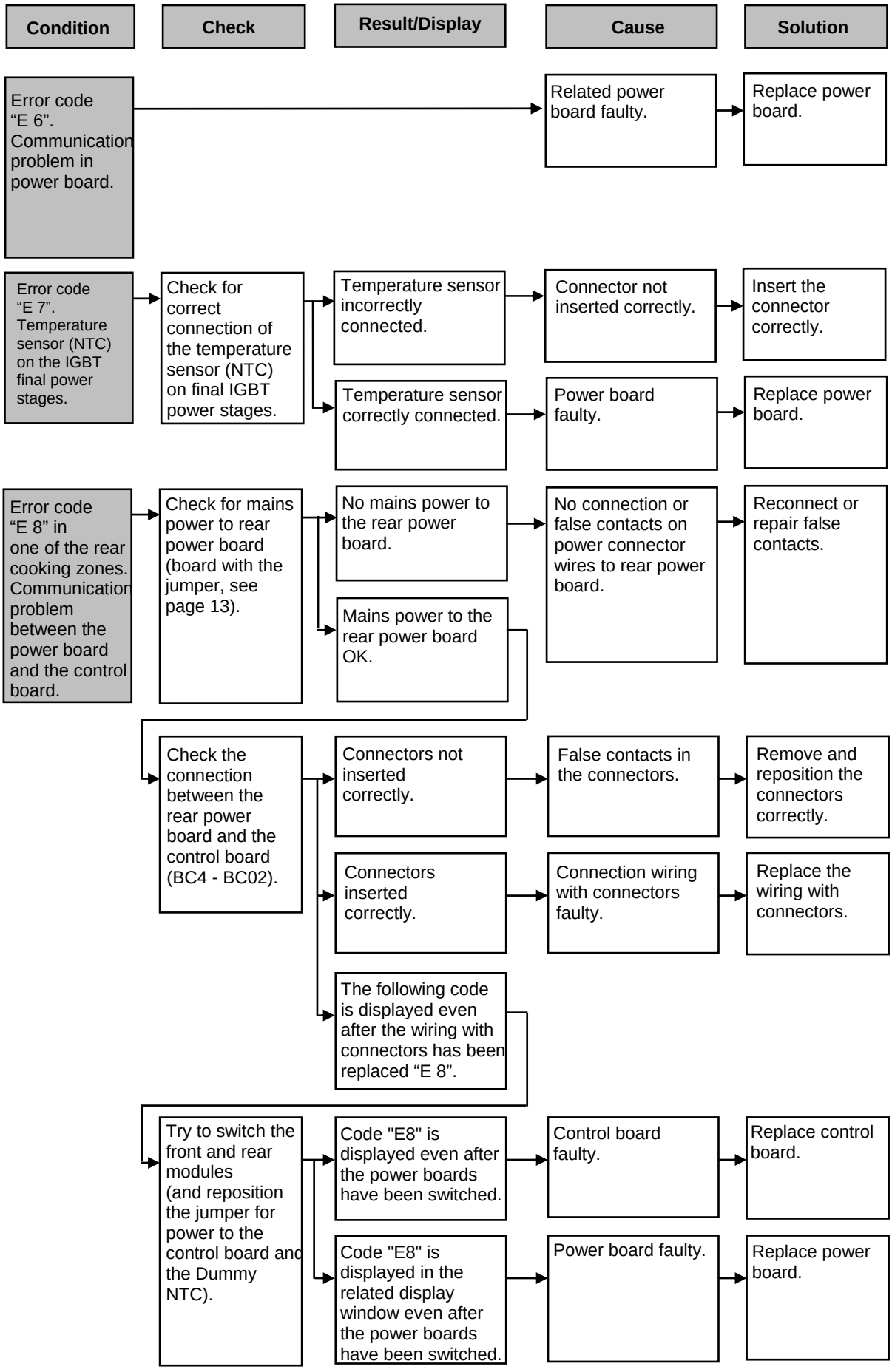
6.1 - TROUBLESHOOTING BASED ON ERROR CODES ON MINI POWER BOARD

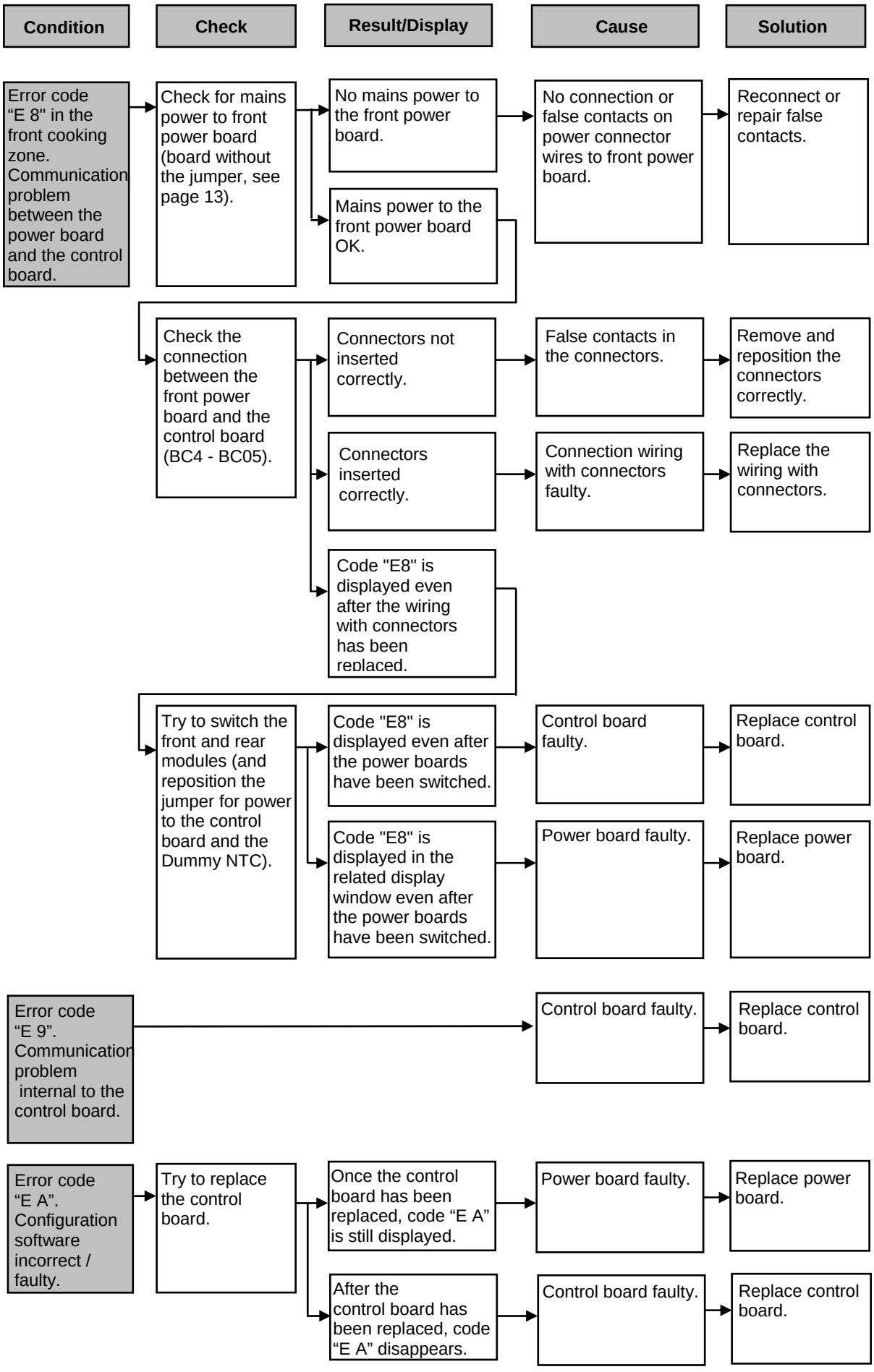
Troubleshooting based on error codes guides the service engineer to a specific part or component in the appliance's circuit.
When the control circuit detects a malfunction, an error code is displayed (see related chapter). If the error code prefix is "**E**" the appliance is switched off. If the error code prefix is "**C**", the malfunction is less serious and the hob can still be used.

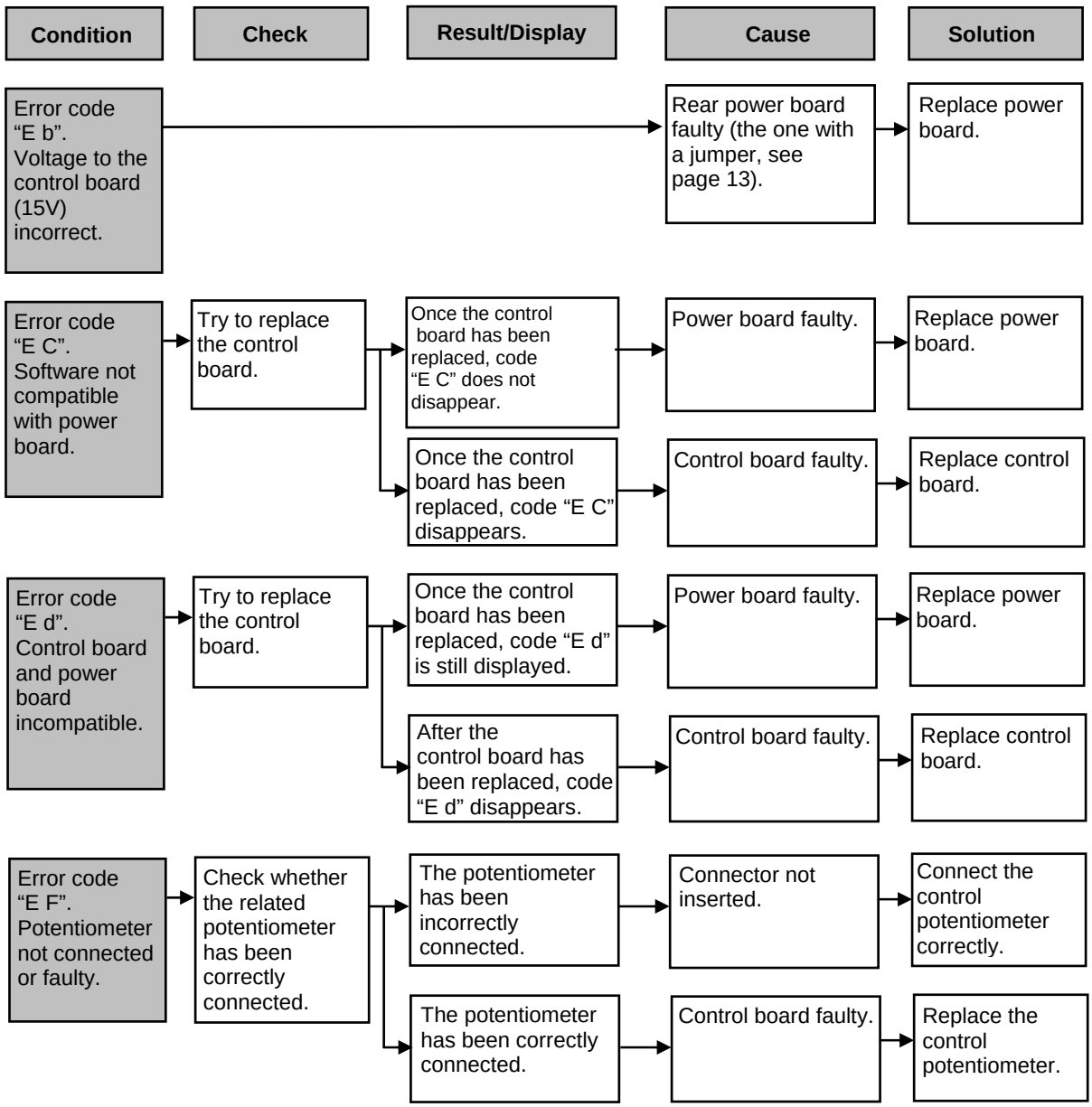
6.1.1 - TROUBLESHOOTING WITH "E" CODES




Condition
Check
Result/Display
Cause
Solution
1
Check the final stages of the power board (see page 51).
Incorrect resistance of final stages.
Power board faulty.
Replace power board.
Error code “E 4”. Cooking zone sensor open on a single cooking zone.
Check for correct connection of temperature sensors (NTC) on the related cooking zone.
Temperature sensors incorrectly connected.
Connector not inserted correctly.
Insert the connector correctly.
Temperature sensors correctly connected.
Measure the resistance of the NTC sensor (see test on page 52).
The resistance of the NTC sensor is incorrect.
NTC sensor faulty.
Replace the NTC sensor.
The resistance of the NTC sensor is correct.
Power board faulty.
Replace power board.
Error code “E 5”. Cooking zone sensor short-circuited on a single cooking zone.
Check for correct connection of the temperature sensors (NTC) for the related cooking zone.
Temperature sensors incorrectly connected.
Connector not inserted correctly.
Insert the connector correctly.
Temperature sensors correctly connected.
Measure the resistance of the NTC sensor (see test on page 52).
The resistance of the NTC sensor is incorrect (short-circuited).
NTC sensor faulty.
Replace the NTC sensor.
The resistance of the NTC sensor is correct.
Power board faulty.
Replace power board.

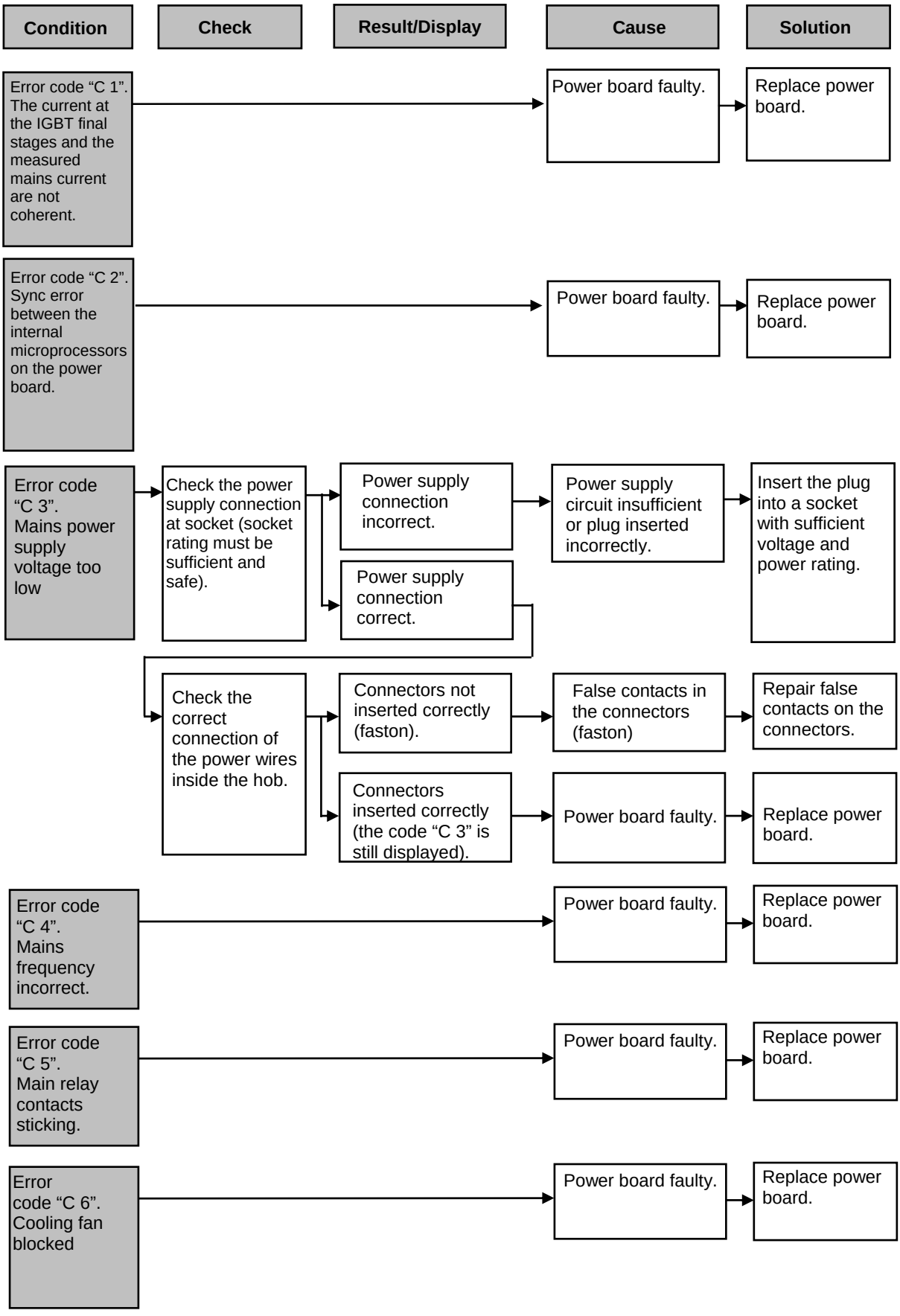

Condition
Check
Result/Display
Cause
Solution
Error code “E 6”. Communication problem in power board.
Related power board faulty.
Replace power board.
Error code “E 7”. Temperature sensor (NTC) on the IGBT final power stages.
Check for correct connection of the temperature sensor (NTC) on final IGBT power stages.
Temperature sensor incorrectly connected.
Connector not inserted correctly.
Insert the connector correctly.
Temperature sensor correctly connected.
Power board faulty.
Replace power board.
Error code “E 8” in one of the rear cooking zones. Communication problem between the power board and the control board.
Check for mains power to rear power board (board with the jumper, see page 13).
No mains power to the rear power board.
No connection or false contacts on power connector wires to rear power board.
Reconnect or repair false contacts.
Mains power to the rear power board OK.
Check the connection between the rear power board and the control board (BC4 - BC02).
Connectors not inserted correctly.
False contacts in the connectors.
Remove and reposition the connectors correctly.
Connectors inserted correctly.
Connection wiring with connectors faulty.
Replace the wiring with connectors.
The following code is displayed even after the wiring with connectors has been replaced “E 8”.
Try to switch the front and rear modules (and reposition the jumper for power to the control board and the Dummy NTC).
Code "E8" is displayed even after the power boards have been switched.
Control board faulty.
Replace control board.
Code "E8" is displayed in the related display window even after the power boards have been switched.
Power board faulty.
Replace power board.

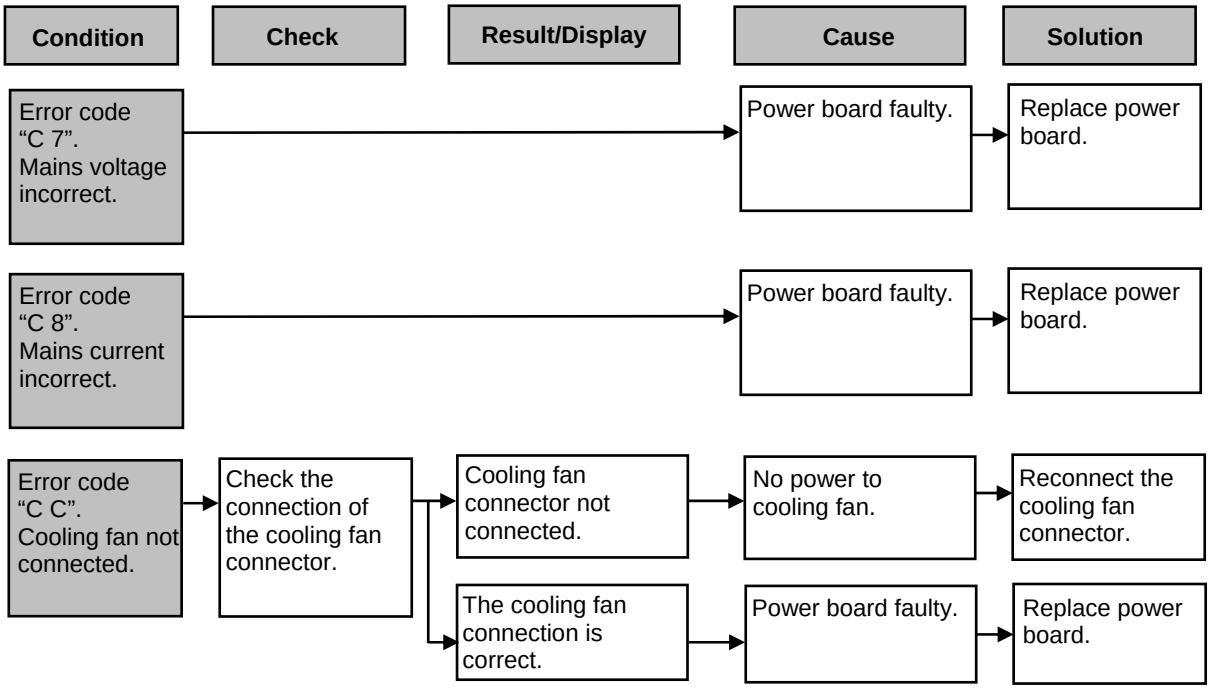

Condition
Check
Result/Display
Cause
Solution
Error code “E 8" in the front cooking zone. Communication problem between the power board and the control board.
Check for mains power to front power board (board without the jumper, see page 13).
No mains power to the front power board.
No connection or false contacts on power connector wires to front power board.
Reconnect or repair false contacts.
Mains power to the front power board OK.
Check the connection between the front power board and the control board (BC4 - BC05).
Connectors not inserted correctly.
False contacts in the connectors.
Remove and reposition the connectors correctly.
Connectors inserted correctly.
Connection wiring with connectors faulty.
Replace the wiring with connectors.
Code "E8" is displayed even after the wiring with connectors has been replaced.
Try to switch the front and rear modules (and reposition the jumper for power to the control board and the Dummy NTC).
Code "E8" is displayed even after the power boards have been switched.
Control board faulty.
Replace control board.
Code "E8" is displayed in the related display window even after the power boards have been switched.
Power board faulty.
Replace power board.
Error code “E 9”. Communication problem internal to the control board.
Control board faulty.
Replace control board.
Error code “E A”. Configuration software incorrect / faulty.
Try to replace the control board.
Once the control board has been replaced, code “E A” is still displayed.
Power board faulty.
Replace power board.
After the control board has been replaced, code “E A” disappears.
Control board faulty.
Replace control board.


Condition
Check
Result/Display
Cause
Solution
Error code “E b”. Voltage to the control board (15V) incorrect.
Rear power board faulty (the one with a jumper, see page 13).
Replace power board.
Error code “E C”. Software not compatible with power board.
Try to replace the control board.
Once the control board has been replaced, code “E C” does not disappear.
Power board faulty.
Replace power board.
Once the control board has been replaced, code “E C” disappears.
Control board faulty.
Replace control board.
Error code “E d”. Control board and power board incompatible.
Try to replace the control board.
Once the control board has been replaced, code “E d” is still displayed.
Power board faulty.
Replace power board.
After the control board has been replaced, code “E d” disappears.
Control board faulty.
Replace control board.
Error code “E F”. Potentiometer not connected or faulty.
Check whether the related potentiometer has been correctly connected.
The potentiometer has been incorrectly connected.
Connector not inserted.
Connect the control potentiometer correctly.
The potentiometer has been correctly connected.
Control board faulty.
Replace the control potentiometer.

6.1.2 - TROUBLESHOOTING WITH "C" CODES

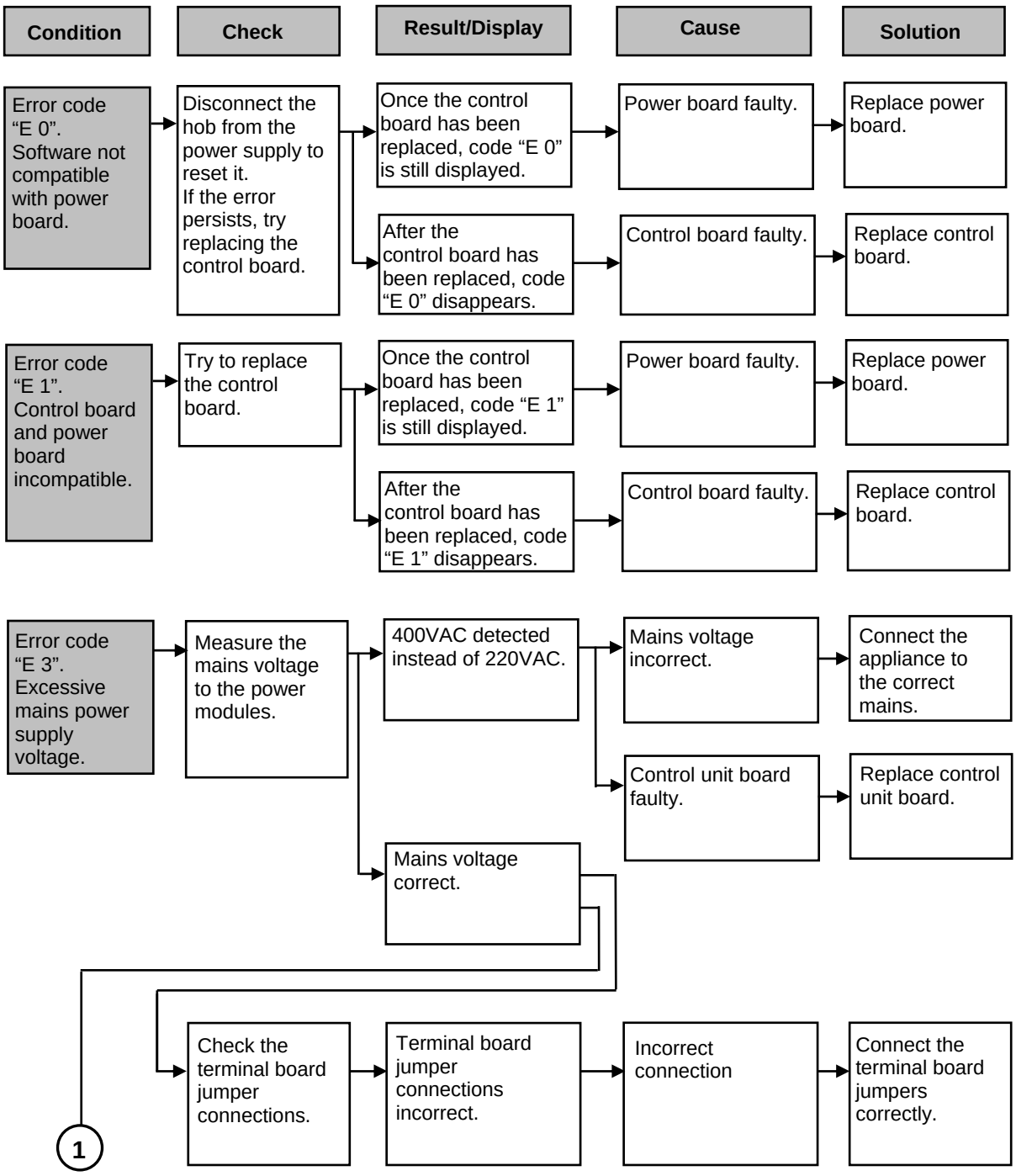
"**C**" type error codes are displayed for 10 seconds when the hob is switched off.

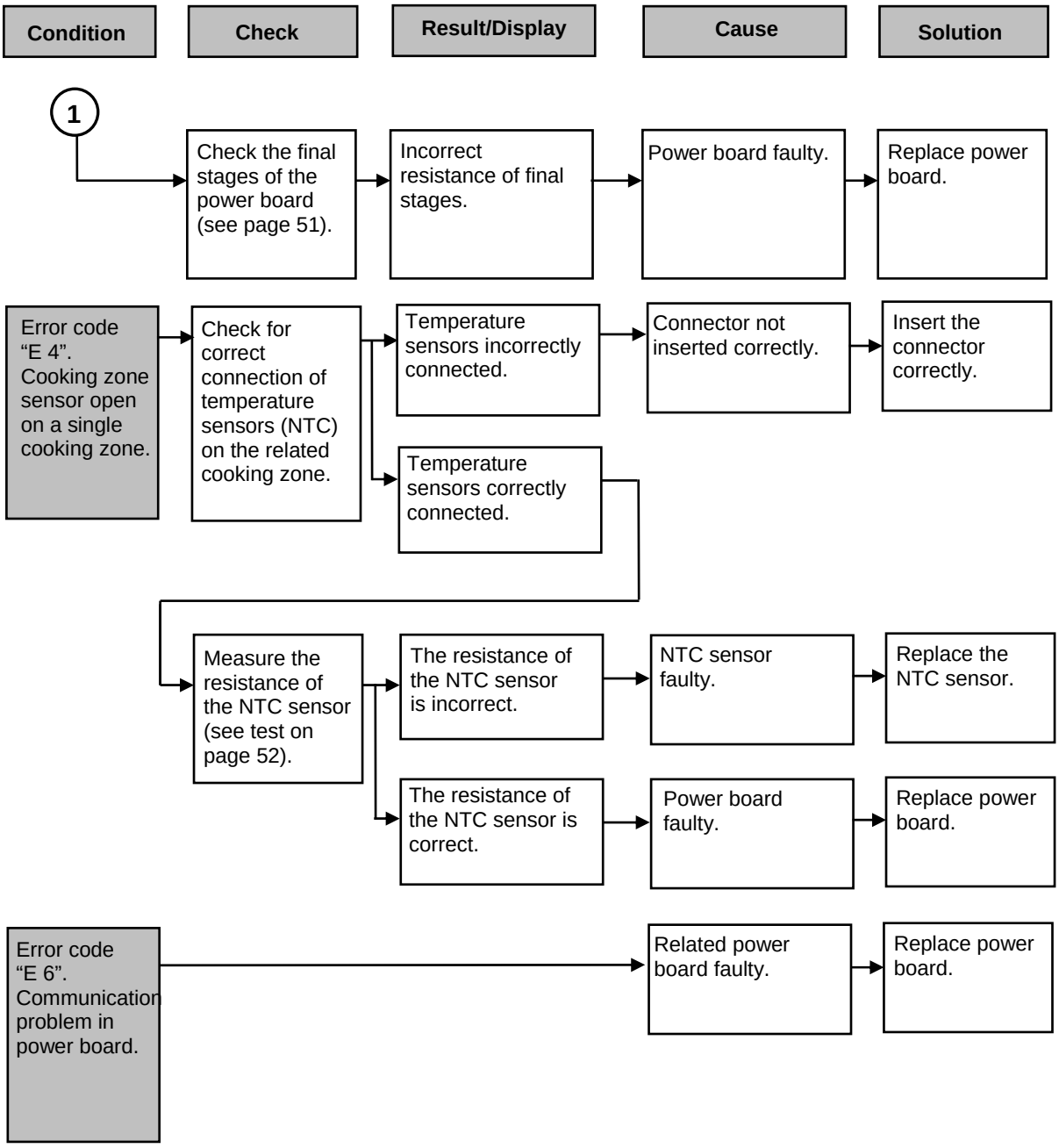


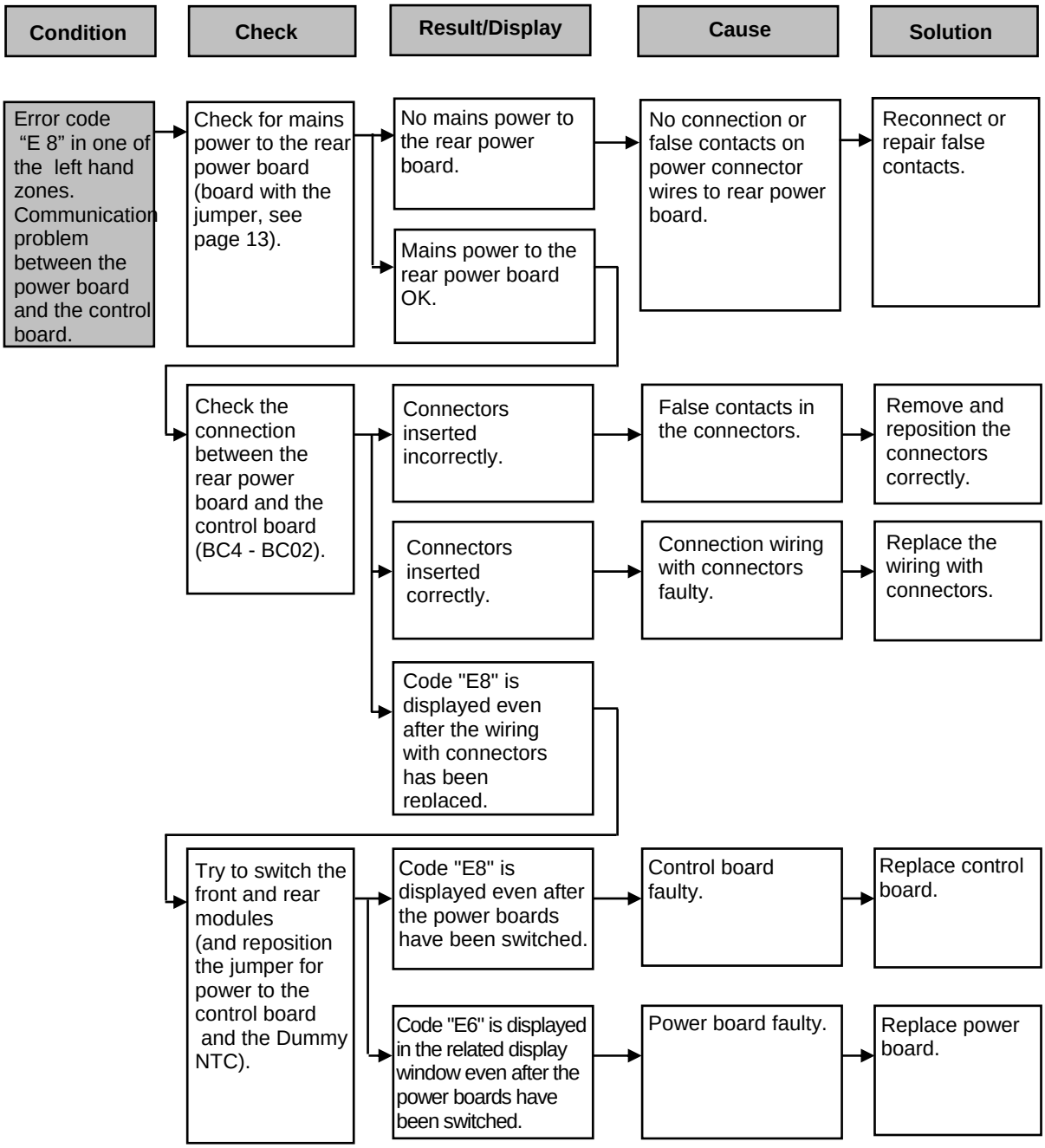

Condition
Check
Result/Display
Cause
Solution
Error code “C 7”. Mains voltage incorrect.
Power board faulty.
Replace power board.
Error code “C 8”. Mains current incorrect.
Power board faulty.
Replace power board.
Error code “C C”. Cooling fan not connected.
Check the connection of the cooling fan connector.
Cooling fan connector not connected.
No power to cooling fan.
Reconnect the cooling fan connector.
The cooling fan connection is correct.
Power board faulty.
Replace power board.

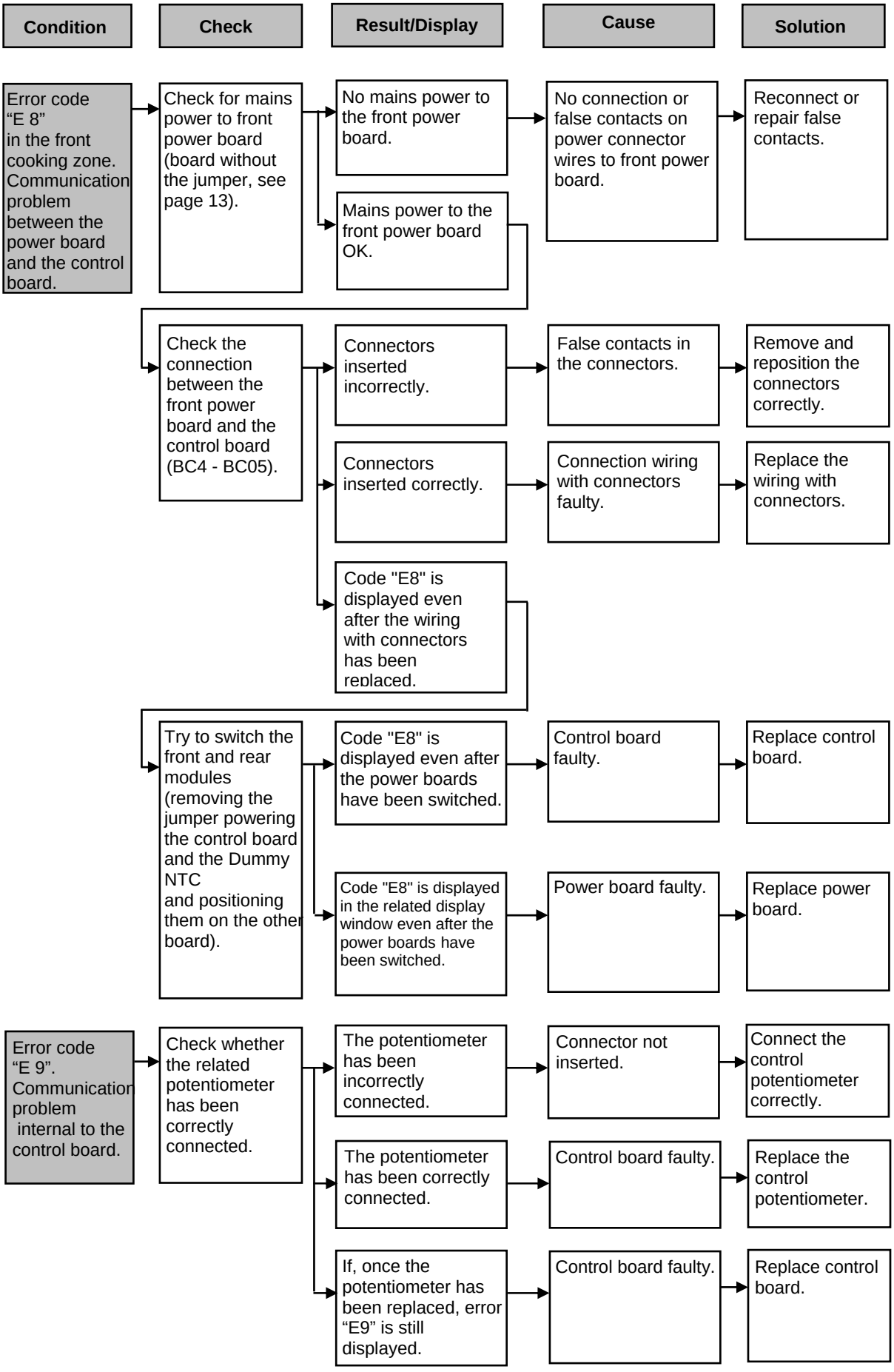
6.2 - TROUBLESHOOTING BASED ON ERROR CODES ON TIGER POWER BOARD

Troubleshooting based on error codes guides the service engineer to a specific part or component in the appliance's circuit.
When the control circuit detects a malfunction, an error code is displayed and the appliance is switched off.



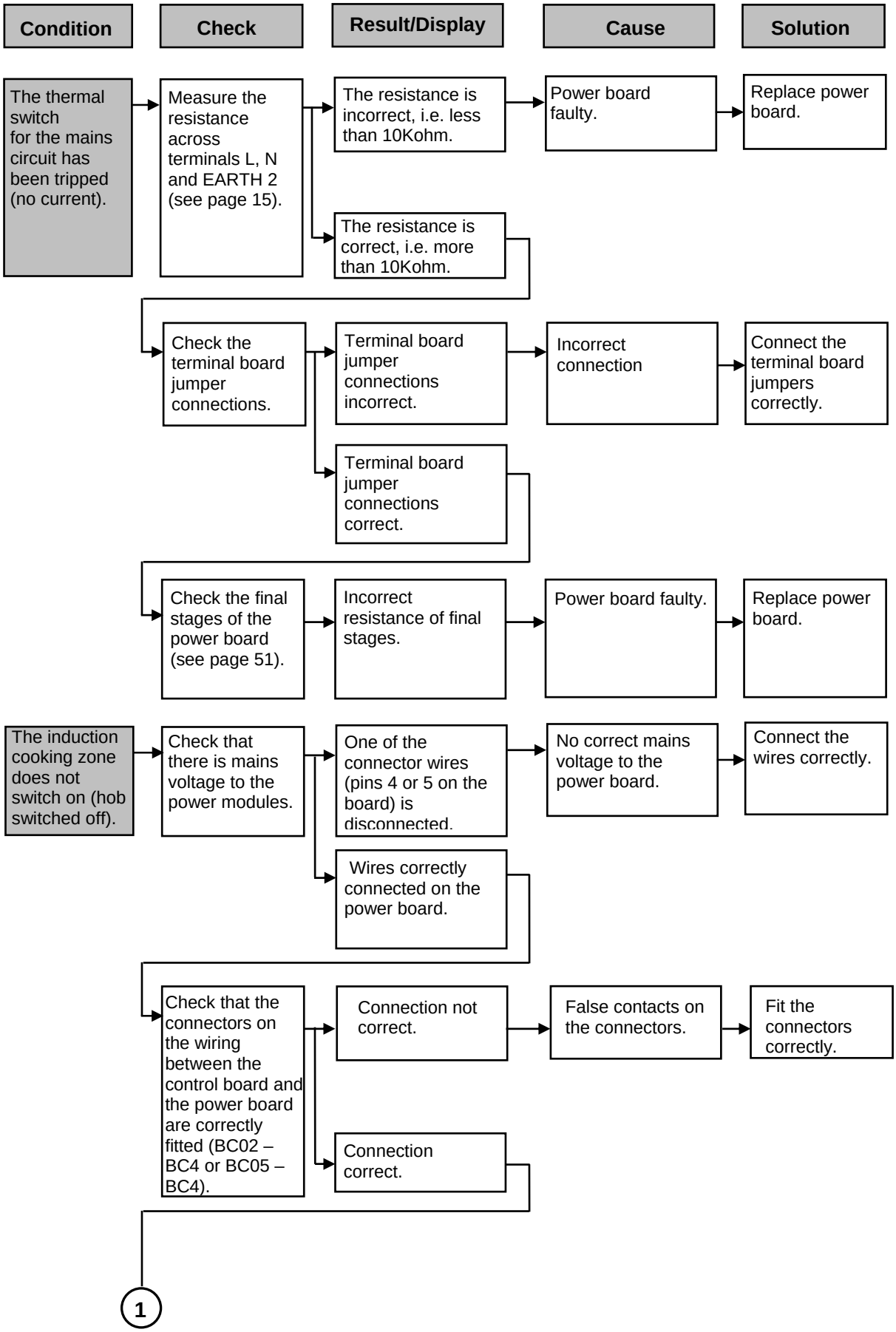

Condition
Check
Result/Display
Cause
Solution
1
Check the final stages of the power board (see page 51).
Incorrect resistance of final stages.
Power board faulty.
Replace power board.
Error code “E 4”. Cooking zone sensor open on a single cooking zone.
Check for correct connection of temperature sensors (NTC) on the related cooking zone.
Temperature sensors incorrectly connected.
Connector not inserted correctly.
Insert the connector correctly.
Temperature sensors correctly connected.
Measure the resistance of the NTC sensor (see test on page 52).
The resistance of the NTC sensor is incorrect.
NTC sensor faulty.
Replace the NTC sensor.
The resistance of the NTC sensor is correct.
Power board faulty.
Replace power board.
Error code “E 6”. Communication problem in power board.
Related power board faulty.
Replace power board.

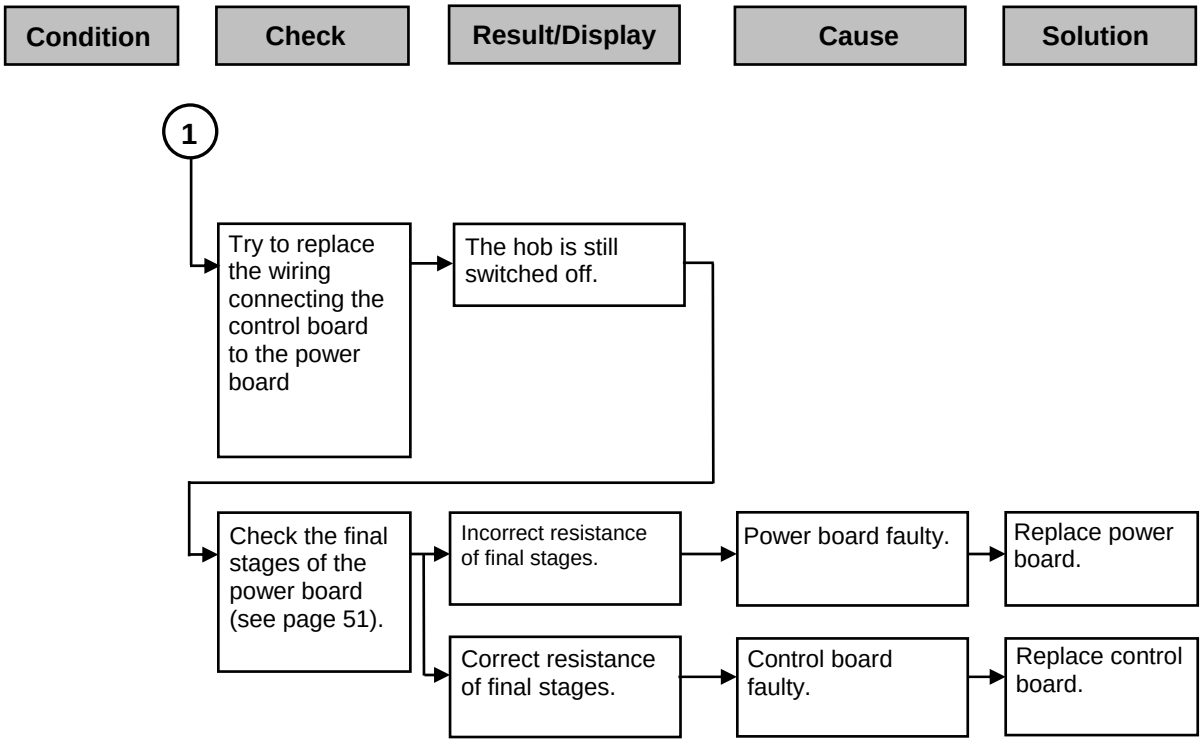

Condition
Check
Result/Display
Cause
Solution
Error code “E 8” in one of the left hand zones. Communication problem between the power board and the control board.
Check for mains power to the rear power board (board with the jumper, see page 13).
No mains power to the rear power board.
No connection or false contacts on power connector wires to rear power board.
Reconnect or repair false contacts.
Mains power to the rear power board OK.
Check the connection between the rear power board and the control board (BC4 - BC02).
Connectors inserted incorrectly.
False contacts in the connectors.
Remove and reposition the connectors correctly.
Connectors inserted correctly.
Connection wiring with connectors faulty.
Replace the wiring with connectors.
Code "E8" is displayed even after the wiring with connectors has been replaced.
Try to switch the front and rear modules (and reposition the jumper for power to the control board and the Dummy NTC).
Code "E8" is displayed even after the power boards have been switched.
Control board faulty.
Replace control board.
Code "E6" is displayed in the related display window even after the power boards have been switched.
Power board faulty.
Replace power board.


Condition
Check
Result/Display
Cause
Solution
Error code “E 8” in the front cooking zone. Communication problem between the power board and the control board.
Check for mains power to front power board (board without the jumper, see page 13).
No mains power to the front power board.
No connection or false contacts on power connector wires to front power board.
Reconnect or repair false contacts.
Mains power to the front power board OK.
Check the connection between the front power board and the control board (BC4 - BC05).
Connectors inserted incorrectly.
False contacts in the connectors.
Remove and reposition the connectors correctly.
Connectors inserted correctly.
Connection wiring with connectors faulty.
Replace the wiring with connectors.
Code "E8" is displayed even after the wiring with connectors has been replaced.
Try to switch the front and rear modules (removing the jumper powering the control board and the Dummy NTC and positioning them on the other board).
Code "E8" is displayed even after the power boards have been switched.
Control board faulty.
Replace control board.
Code "E8" is displayed in the related display window even after the power boards have been switched.
Power board faulty.
Replace power board.
Error code “E 9”. Communication problem internal to the control board.
Check whether the related potentiometer has been correctly connected.
The potentiometer has been incorrectly connected.
Connector not inserted.
Connect the control potentiometer correctly.
The potentiometer has been correctly connected.
Control board faulty.
Replace the control potentiometer.
If, once the potentiometer has been replaced, error “E9” is still displayed.
Control board faulty.
Replace control board.

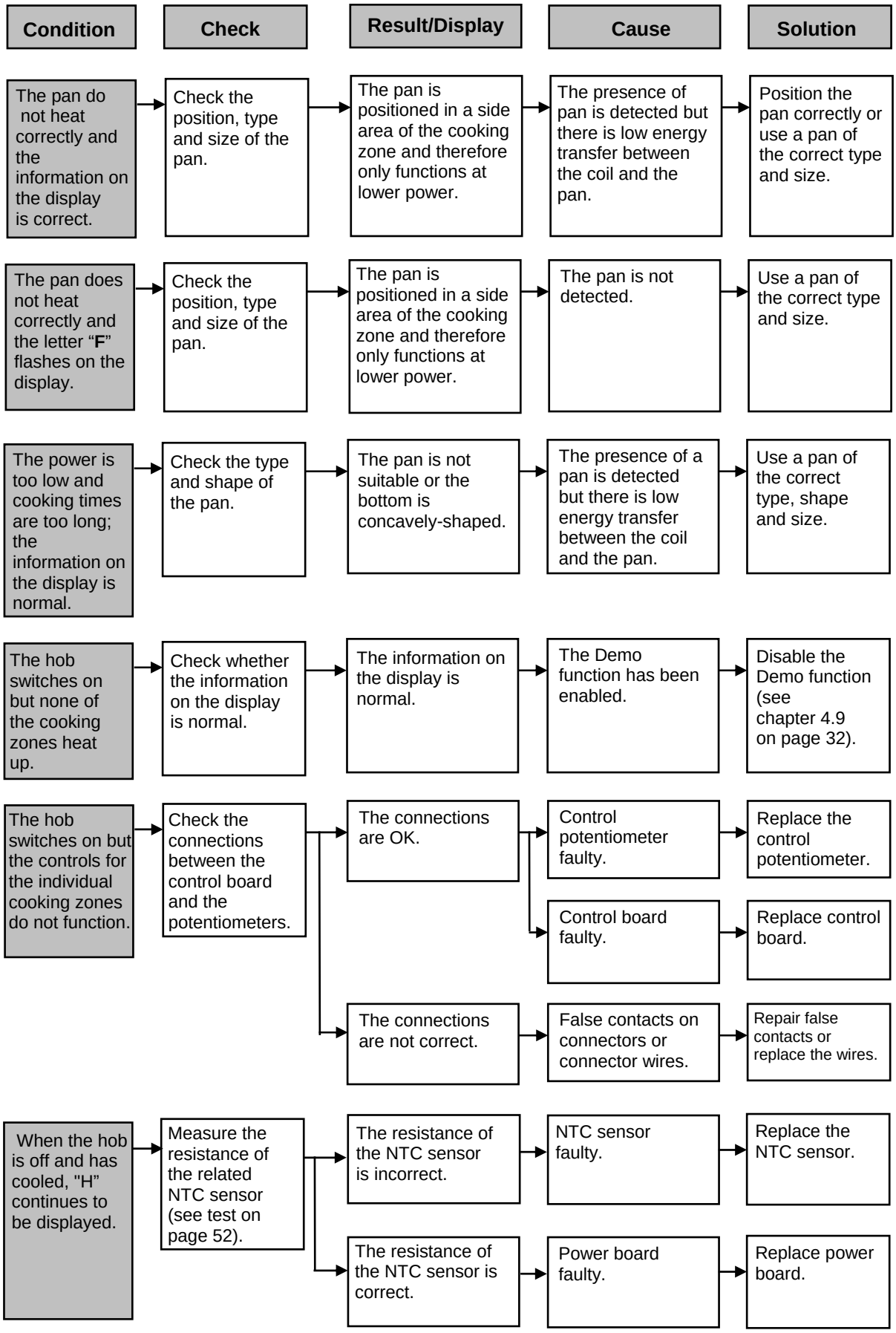
6.3 - TROUBLESHOOTING FAULTS WITHOUT ERROR CODES

6.3.1 - THE HOB IS COMPLETELY SWITCHED OFF




Condition
Check
Result/Display
Cause
Solution
1
Try to replace the wiring connecting the control board to the power board
The hob is still switched off.
Check the final stages of the power board (see page 51).
Incorrect resistance of final stages.
Power board faulty.
Replace power board.
Correct resistance of final stages.
Control board faulty.
Replace control board.

6.3.2 - ONE OR MORE COOKING ZONES INOPERATIVE



6.3.3 - OTHER MALFUNCTIONS

Condition	Check	Result/Display	Cause	Solution
The buzzer does not sound.			Control board faulty.	Replace control board.
An individual display window does not light, lights partially or flickers.			Control board faulty.	Replace control board.
The pan emits a noise.	Check the type and shape of the pan.	The pan is unsuitable.	Noise is generated by interference between the high frequency signal and the pan.	Use a pan of the correct type and shape.
		The pan is suitable.	Certain types of pans with particular shapes may produce a slight interference noise, but this does not affect operation and is not a fault.	See chapter 2.3 entitled “TYPES OF PANS FOR MAGNETIC INDUCTION COOKING”.

6.4 - TESTING THE FINAL STAGES OF THE POWER BOARD

If you have any doubts as to the efficiency of the power board, or if error code “**E 3**” is displayed, the service engineer can measure the resistance of the IGBT final power stages.
Measure their resistance across pins 1 and 2 or across pins 2 and 3 (see fig. 50).
If the resistance is greater than 50 kOhm, the final stage is not faulty. If the resistance is less than 50 Ohm, the final stage is faulty. If this is the case, the power board must be replaced.

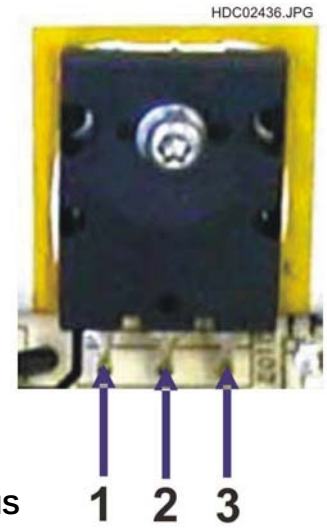


Fig. 50

6.5 - CHECKING THE COOKING ZONE NTC SENSORS

If you have any doubts as to the operation of the NTC sensor, its resistance should be measured (see Fig. 51). The correct resistance is approximately 100 kOhm at room temperature (approx. 25°C).

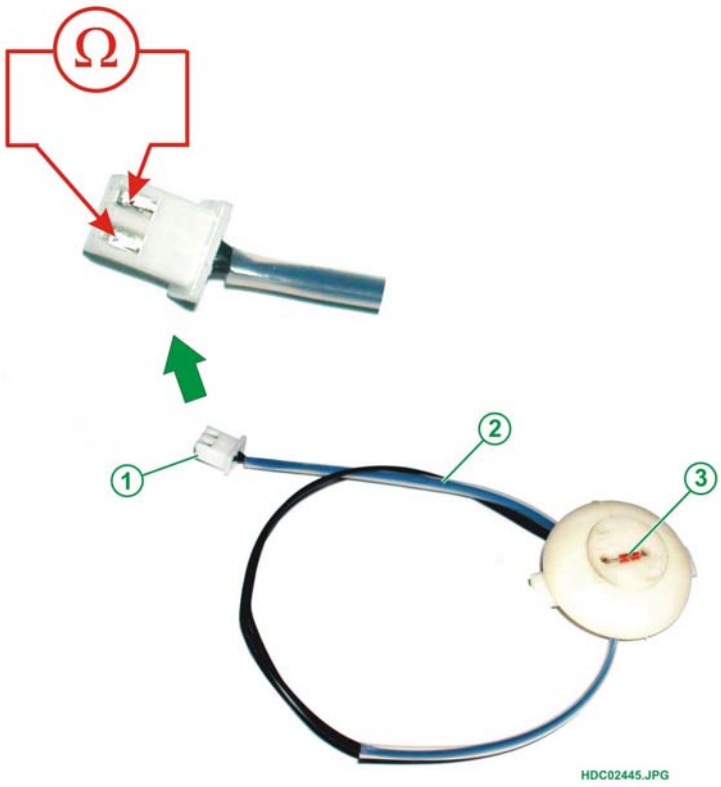


Fig. 51

1 - NTC SENSOR CONNECTOR
2 - CONNECTOR CABLE
3 - NTC SENSOR

7 - ACCESSIBILITY

7.1 - REMOVING THE UPPER HOB

The glass ceramic top is secured by four screws (two on each side)

Fig. 52

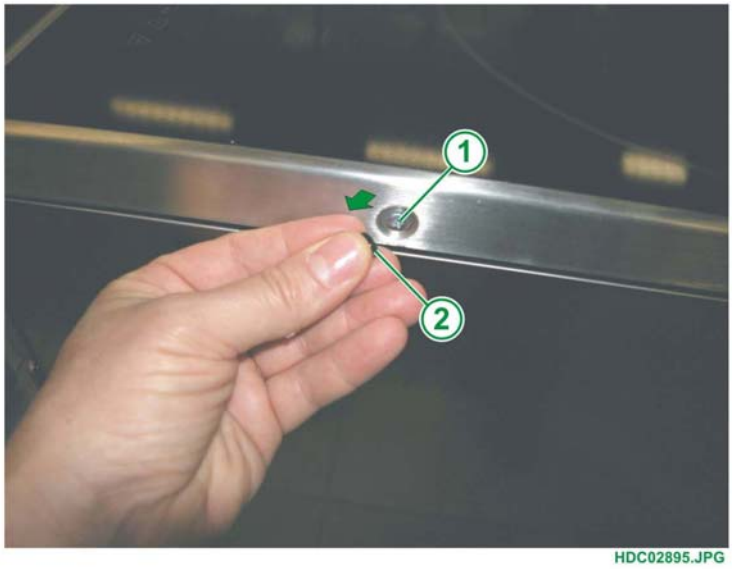
1 - GLASS CERAMIC TOP
2 - REAR STEAM VENT
3 - REAR LEFT FIXING SCREW
4 - FRONT LEFT FIXING SCREW

To remove the glass ceramic top, proceed as follows:

1. Remove the plastic screw head masking caps (see Fig. 53).
2. Remove the 4 screws – 2 on the right (Fig. 52) and 2 on the left.

Fig. 53

1 - GLASS CERAMIC TOP FIXING SCREW
2 - PLASTIC SCREW HEAD MASKING CAPS



3. Lift the rear edge of the glass top and slide it forwards (see Fig. 54).

Fig. 54

7.1.1 - VERSION WITH SINGLE INSULATING SHEET

4. Remove the insulating sheet (see Fig. 55).

Fig. 55

1 - GLASS CERAMIC TOP
2 - CONTROL BOARD

NOTE: In order to prevent insulation problems, the insulating sheet must be correctly positioned when replacing the glass ceramic top.

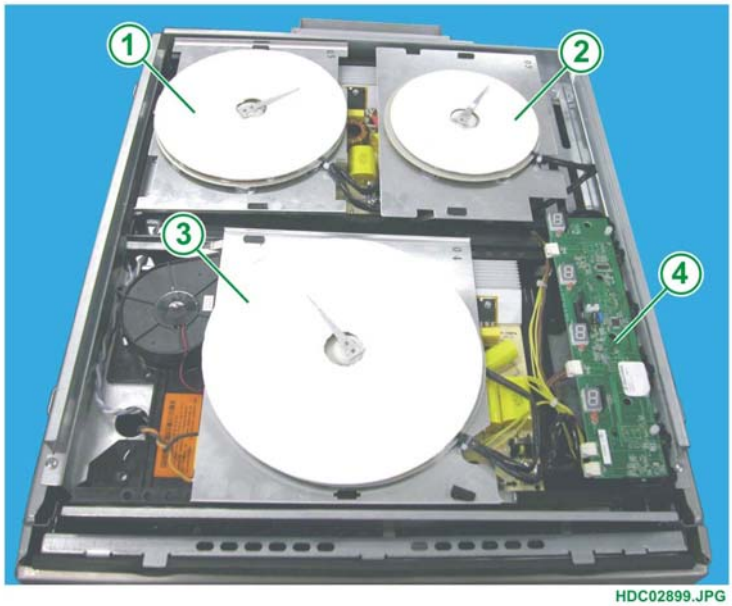


Fig. 56

1 - REAR LEFT COOKING ZONE COIL
2 - REAR RIGHT COOKING ZONE COIL
3 - FRONT LEFT COOKING ZONE COIL
4 - CONTROL BOARD

7.1.2 - VERSION WITH SEPARATE INSULATING SHEETS

In the version with separate insulating sheets, to remove the individual sheets, simply release them from the anchor tabs (see Fig. 57 and 58).

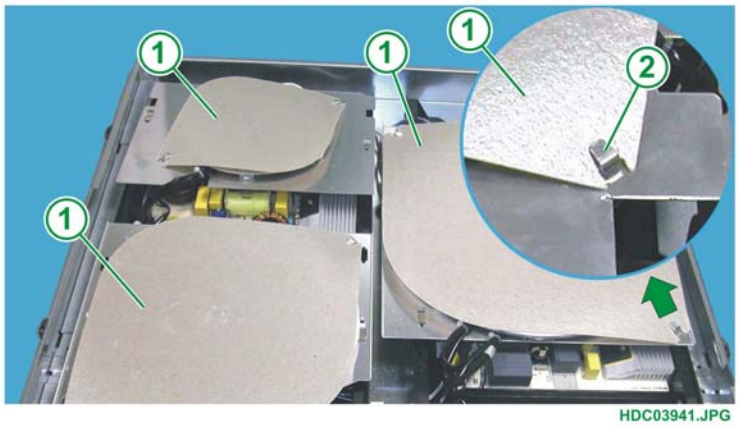


Fig. 57

1 - INDIVIDUAL INSULATING SHEET
2 - ANCHOR TAB

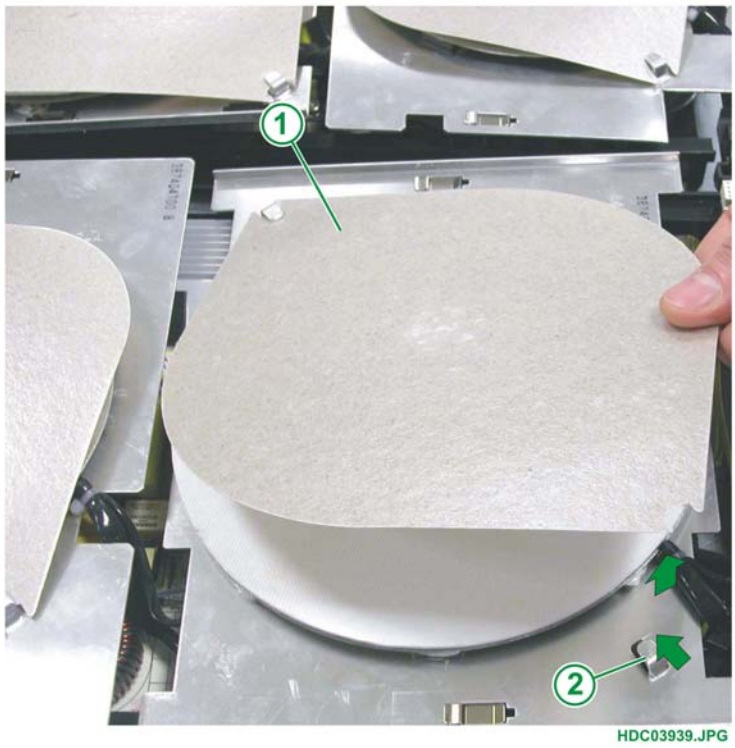


Fig. 58

1 - INDIVIDUAL INSULATING SHEET
2 - ANCHOR TAB

7.2 - REMOVING THE INDUCTION COILS AND THE NTC SENSORS

To remove the induction coil assembly and the NTC sensor, first remove the glass ceramic top. Then:
1. Detach the retaining spring which secures the NTC thermal protector (see Fig. 59).
2. Remove the insulating disk.

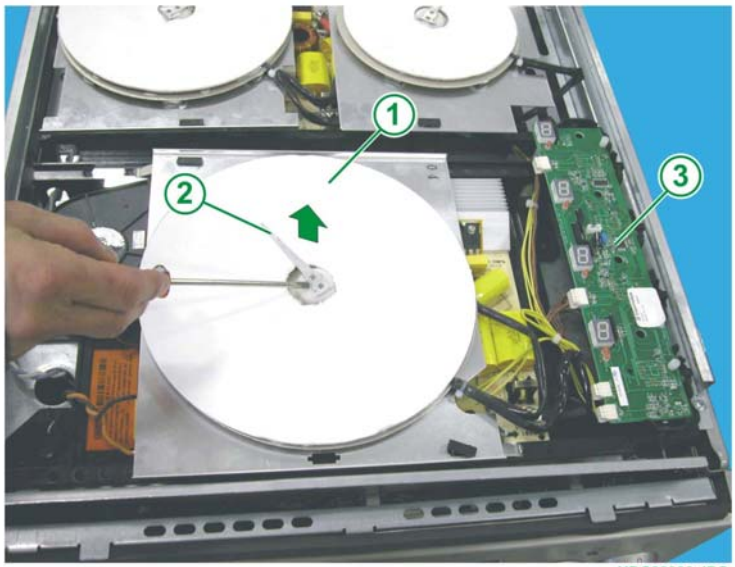


Fig. 59

1 - INSULATING DISK
2 - NTC THERMAL PROTECTOR RETAINING SPRING

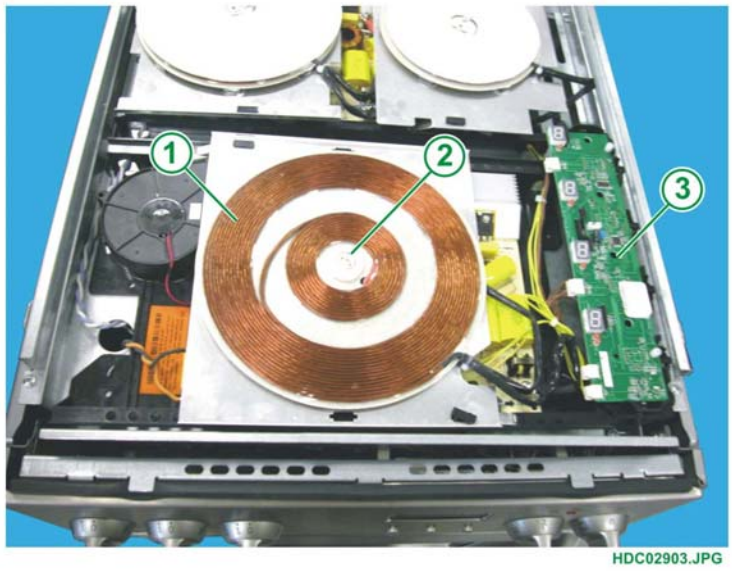
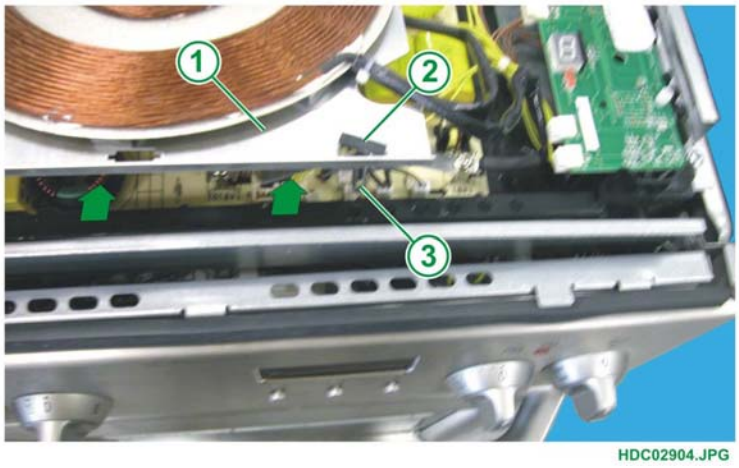


Fig. 60

1 - DOUBLE INDUCTION COIL
2 - NTC THERMAL PROTECTOR
3 - CONTROL BOARD

3. Lift the coil assembly from its housing.



HDC02904.JPG

Fig. 61

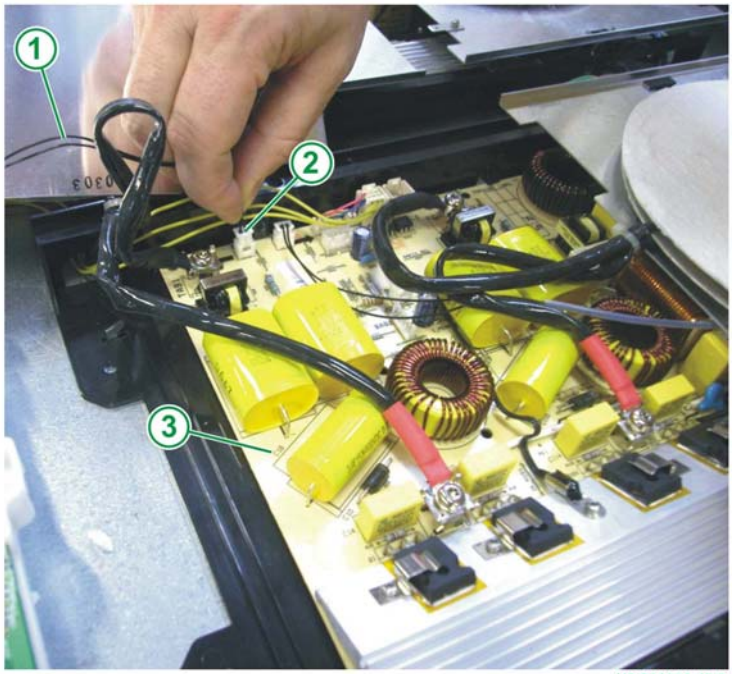
1 - INDUCTION COIL ASSEMBLY
2 - RETAINING PIN FOR SPRING
3 - SUSPENSION SPRING

HDC02956.JPG

Fig. 62

1 - RETAINING PIN FOR SPRING
2 - INDUCTION COIL ASSEMBLY
3 - SUSPENSION SPRING
4 - CONTROL BOARD
5 - POWER BOARD MODULE

4. Detach the NTC sensor connector (see Fig. 63).

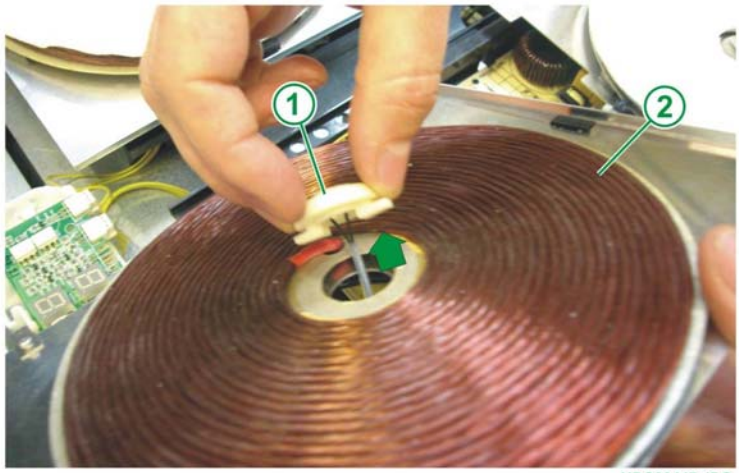


HDC02958.JPG

Fig. 63

1 - NTC SENSOR CONNECTOR WIRES
2 - NTC SENSOR CONNECTOR
3 - POWER BOARD MODULE

5. Remove the NTC sensor (see Fig. 64).



HDC02447.JPG

Fig. 64

1 - NTC SENSOR
2 - INDUCTION COIL ASSEMBLY

6. Detach the power supply wires from the induction coil (see chapter entitled “POWER SUPPLY CONNECTION TO INDUCTION COILS").

7. Remove the induction coil assembly (see also page 61 and 62).

7.2.1 - DUMMY NTC

As described in chapter 3.2.4, the left induction module which controls a single cooking zone is fitted with a Dummy NTC.
If the module is replaced, make sure you reposition the dummy NTC correctly (see Fig. 65)

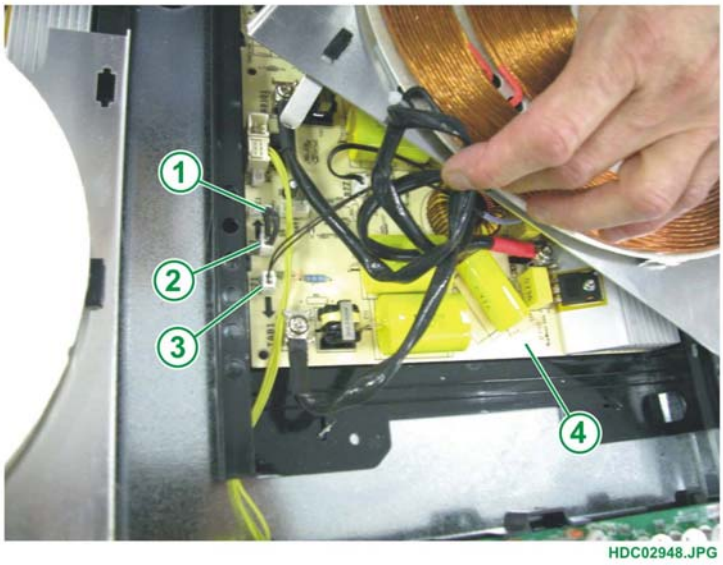


Fig. 65

1 - DUMMY NTC
2 - CONNECTOR B81
3 - CONNECTOR B71
4 - POWER BOARD MODULE

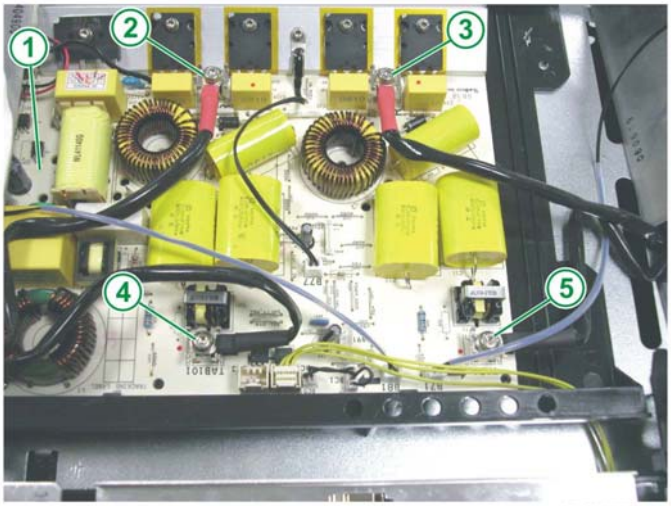
7.2.2 - POWER SUPPLY CONNECTION TO INDUCTION COILS

The connections to the power coils are made using wire terminals secured to the related terminals with screws.

VERSION WITH MINI PWB

Fig. 66

1 - MINI POWER BOARD MODULE
2 - LEFT INDUCTION COIL POWER SUPPLY CABLE (RED POSITIVE)
3 - RIGHT INDUCTION COIL POWER SUPPLY CABLE (RED POSITIVE)
4 - LEFT INDUCTION COIL POWER SUPPLY CABLE (BLACK NEGATIVE)
5 - RIGHT INDUCTION COIL POWER SUPPLY CABLE (BLACK NEGATIVE)

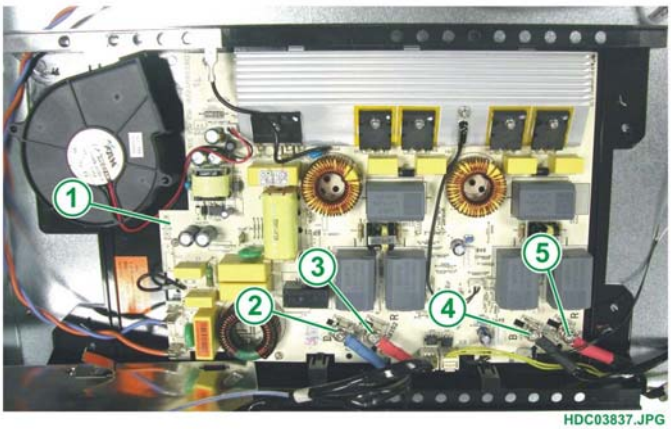


HDC03719.JPG

VERSION WITH TIGER PWB

Fig. 67

1 - TIGER POWER BOARD MODULE
2 - LEFT INDUCTION COIL POWER SUPPLY CABLE (BLUE NEGATIVE)
3 - LEFT INDUCTION COIL POWER SUPPLY CABLE (RED POSITIVE)
4 - RIGHT INDUCTION COIL POWER SUPPLY CABLE (BLACK NEGATIVE)
5 - RIGHT INDUCTION COIL POWER SUPPLY CABLE (RED POSITIVE)



HDC03837.JPG

NOTE: When replacing induction coils, make sure you connect them correctly depending on the type of coil (single or double), see chapter 3.4.

7.2.3 - COIL ASSEMBLY ANCHOR SYSTEM - FIRST VERSION (see page 20)

The induction coil assemblies are anchored by suspension springs (designed to keep the coils as close as possible to the glass top) and by spring retaining pins.

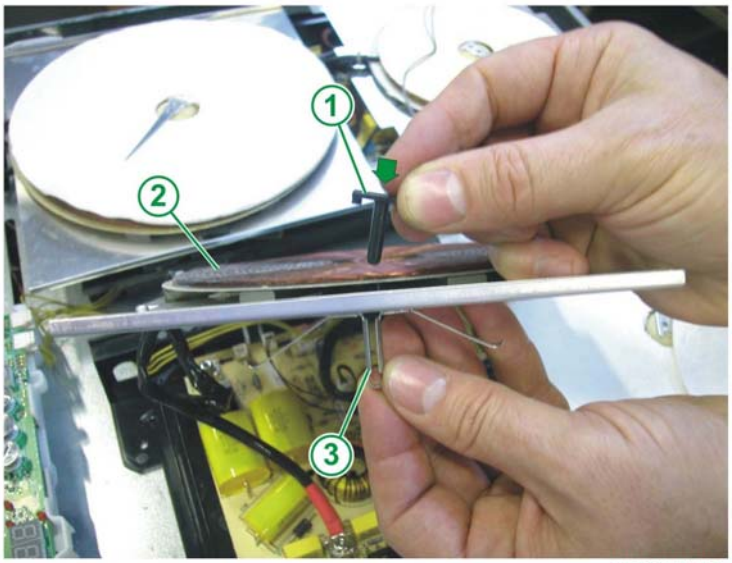


Fig. 68

1 - RETAINING PIN FOR SPRING
2 - INDUCTION COIL ASSEMBLY
3 - SUSPENSION SPRING

7.2.4 - COIL ASSEMBLY ANCHOR SYSTEM - SECOND VERSION (see page 22)

The induction coil assemblies are anchored by suspension springs (designed to keep the coils as close as possible to the glass top) which hook onto the related fixing holes (see Fig. 69).

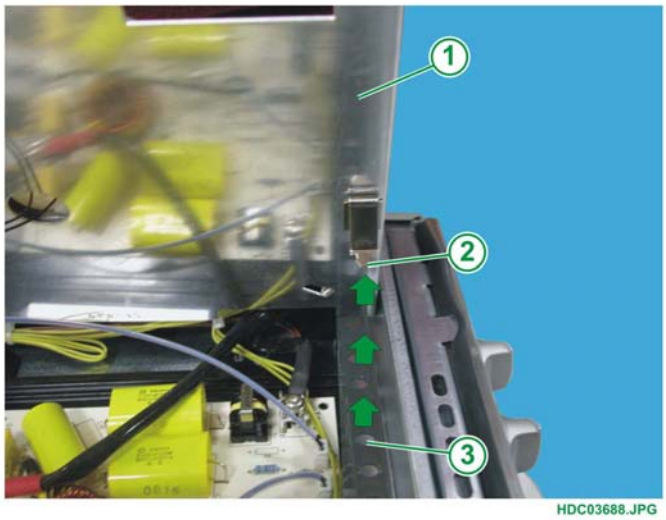


Fig. 69

1 - INDUCTION COIL ASSEMBLY
2- SUSPENSION SPRING ANCHOR PIN
3 - SPRING POSITIONING HOLE

NOTE: When repositioning the coil assembly in its seat, make sure you position it correctly, and that the position of the coil corresponds with the glass ceramic hob silk-screen printing, making a note of the initial positioning hole before removing the coil assembly.

7.2.5 - REMOVING THE SUSPENSION SPRINGS ON COILS - FIRST VERSION

To remove the suspension springs from the coil assemblies, first remove the glass top and the insulating sheet. Then:
1. Lift the coil assembly from its housing.
2. Remove the retaining pin from the suspension spring.
3. Remove the suspension spring by pressing its sides and pulling it (see Fig. 70).

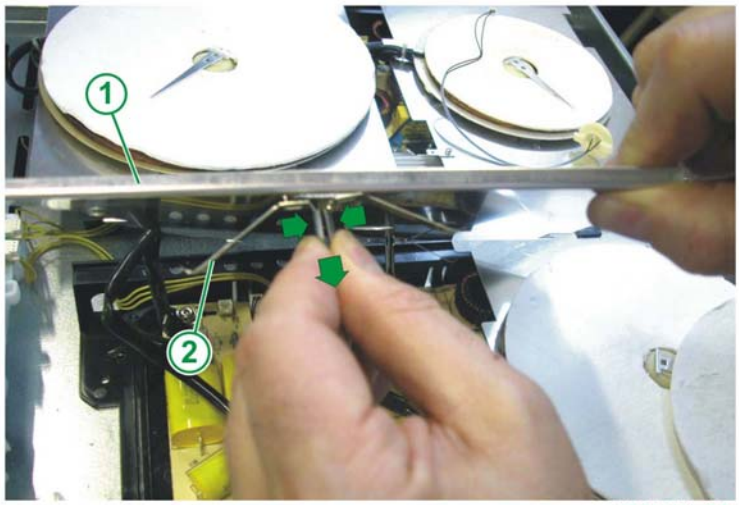


Fig. 70

1 - INDUCTION COIL ASSEMBLY
3 - SUSPENSION SPRING

7.2.6 - REMOVING THE SUSPENSION SPRINGS ON COILS - SECOND VERSION

To remove the suspension springs from the coil assemblies, simply slide the spring and pull it out towards the lower part of the coil assembly (see Fig. 71).

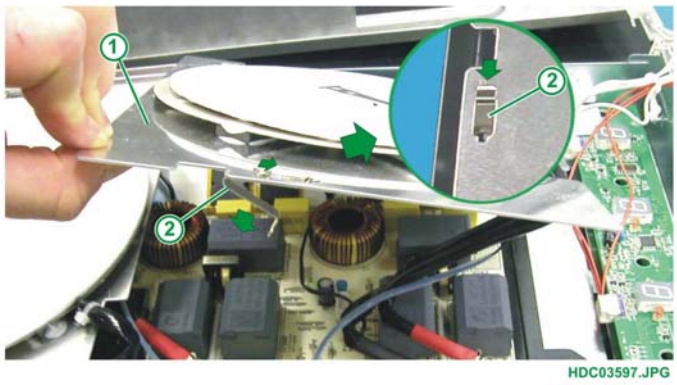


Fig. 71

1 - POWER BOARD MODULE
2 - SUSPENSION SPRINGS

7.3 - REMOVING THE POWER BOARD MODULE

To remove the power board module, proceed as follows:

1. Remove the glass ceramic top.
2. Remove the induction coil assembly.
3. Disconnect the connectors.
4. Straighten out the anchor tabs (two on the right, two on the left) (see Fig. 72 and 73).

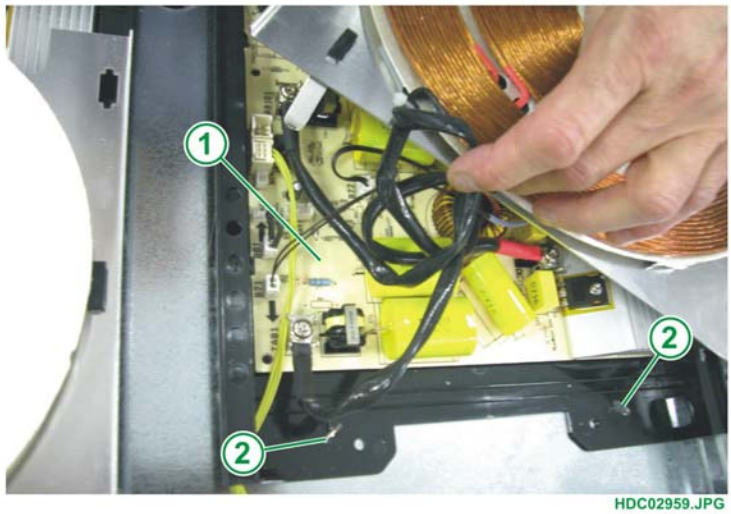


Fig. 72

1 - POWER BOARD MODULE
2 - ANCHOR TABS

Fig. 73

1 - POWER BOARD MODULE

NOTE: When repositioning the induction module, to avoid any appliance malfunctions due to interference, it is important to twist the power supply connector wires around each other five or six times as shown in figure 74.

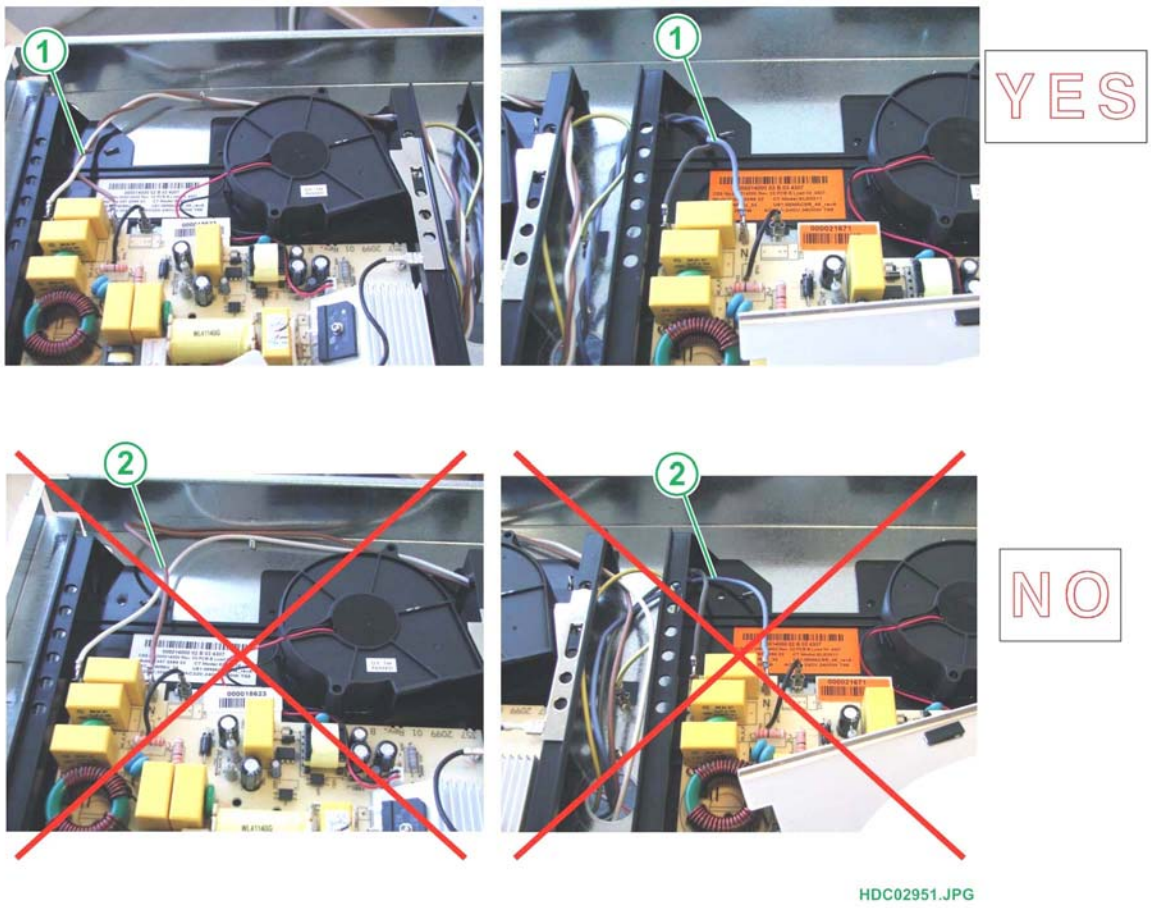


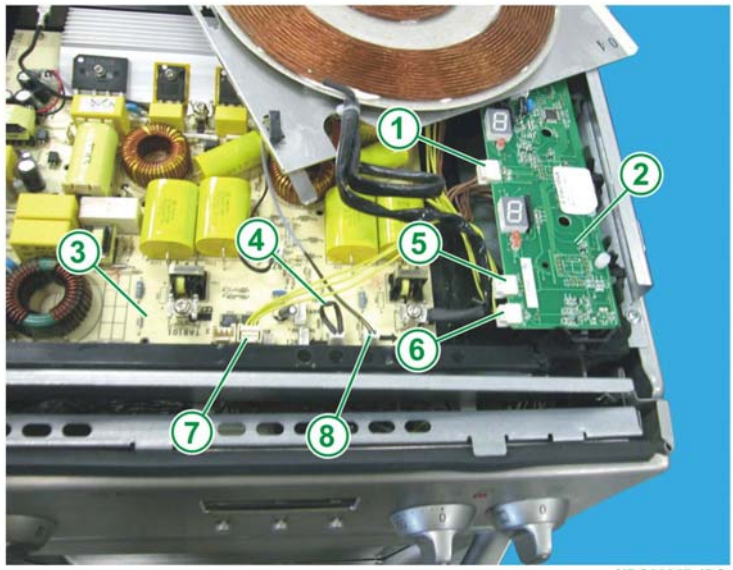
Fig. 74

1 - CORRECT POSITION OF WIRES
2 - INCORRECT POSITION OF WIRES

7.4 - CONNECTION BETWEEN CONTROL BOARD AND POWER BOARD

Fig. 75

1 - CONNECTION CONNECTOR TO CONTROL POTENTIOMETERS
2 - CONTROL BOARD
3 - POWER BOARD MODULE
4 - DUMMY NTC HEATING ELEMENT
5 - CONNECTOR FOR CONNECTION BETWEEN CONTROL BOARD AND REAR POWER BOARD
6 - CONNECTOR FOR CONNECTION BETWEEN CONTROL BOARD AND FRONT POWER BOARD
7 - CONNECTOR FOR CONNECTION BETWEEN FRONT POWER BOARD AND CONTROL BOARD
8 - CONNECTION CONNECTOR TO FRONT COOKING ZONE NTC



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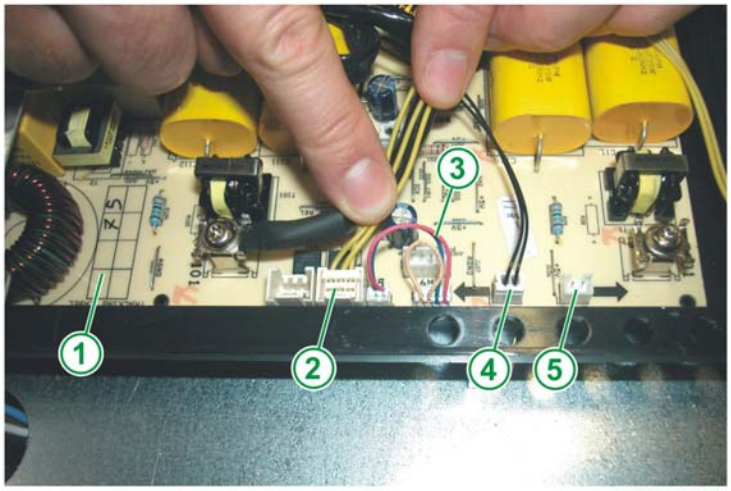
7.5 - JUMPERS FOR CONFIGURATION OF POWER BOARDS

Fig. 76

1 - POWER BOARD MODULE
2 - CONNECTION CONNECTOR TO CONTROL BOARD
3 - CONFIGURATION JUMPER FOR POWER SUPPLY TO CONTROL BOARD **(*)**
4 - CONNECTION CONNECTOR TO LEFT COOKING ZONE NTC
5 - CONNECTION CONNECTOR TO RIGHT COOKING ZONE NTC



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(*) N.B.: The power supply to the control board must arrive at the rear board only (the one that controls two cooking zones), therefore the configuration jumper is fitted to the rear board only. If the power board is replaced, check that the configuration jumper is fitted to the **rear board only**, otherwise the board might be damaged.

7.6 - REMOVING THE CONTROL BOARD

To remove the control board, proceed as follows:

1. Remove the glass ceramic top.
2. Detach the connectors from the board (see Fig. 77).
3. Bend the anchor tabs slightly to release the board (see Fig. 78).
4. Lift the board and remove.

Fig. 77

1 - POWER BOARD MODULE
2 - CONNECTOR FOR CONNECTION BETWEEN CONTROL BOARD AND FRONT POWER BOARD
3 - CONNECTOR FOR CONNECTION BETWEEN CONTROL BOARD AND REAR POWER BOARD
4 - CONNECTOR FOR LEFT REAR COOKING ZONE POTENTIOMETER
5 - CONNECTOR FOR CONNECTION BETWEEN REAR RIGHT AND FRONT COOKING ZONE POTENTIOMETERS
6 - CONTROL UNIT BOARD

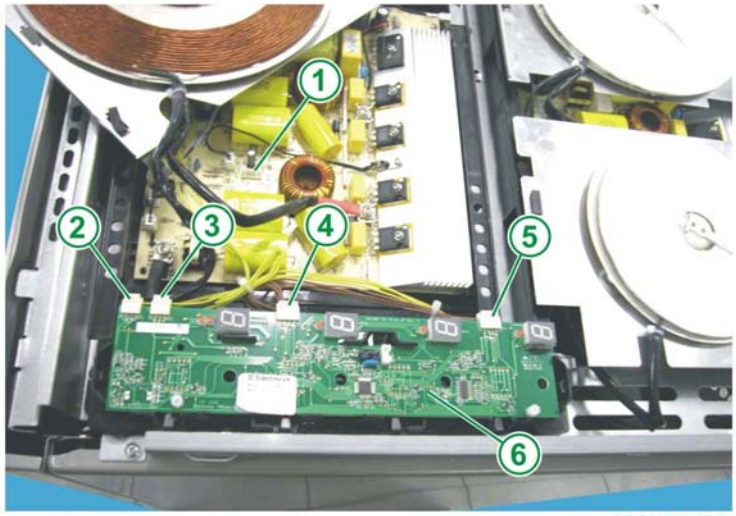

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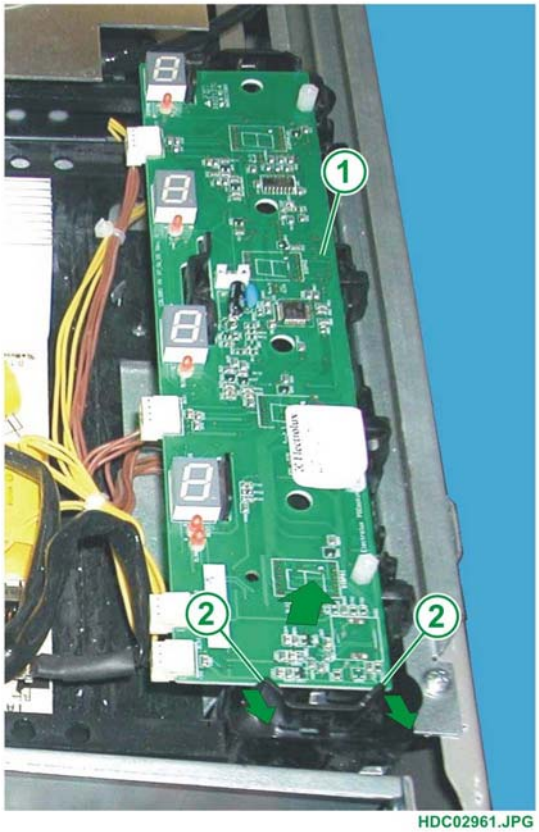
Fig. 78

1 - CONTROL UNIT BOARD
2 - ANCHOR TABS



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7.7 - REMOVING THE CONTROL POTENTIOMETERS

To remove the control potentiometers, proceed as follows:

1. Remove the control knob (see Fig. 79).
2. Remove the glass ceramic top.

Fig. 79

3. Remove the two screws from the lower part of the control panel and detach the panel (see Fig. 80).

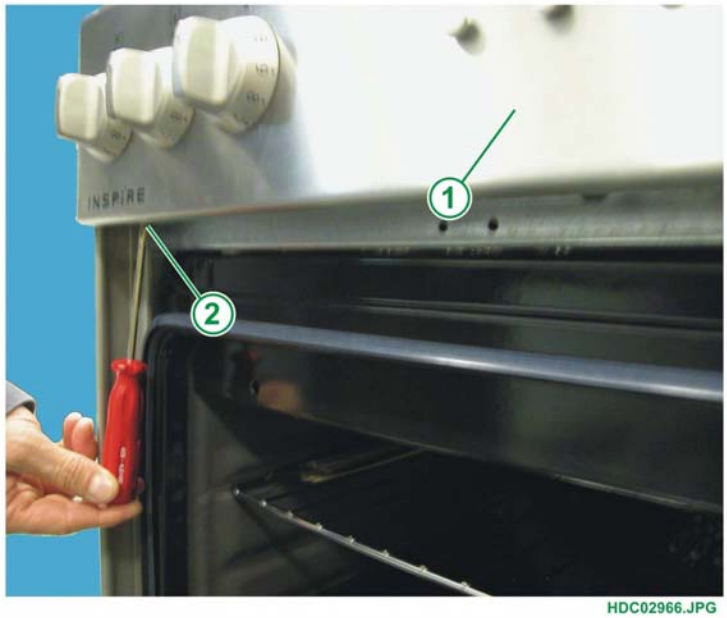

Fig. 80

1 - CONTROL PANEL
2 - FIXING SCREW

4. Release the control panel from the upper retaining tabs.

Fig. 81

1 - CONTROL UNIT BOARD
2 - LEFT REAR COOKING ZONE POTENTIOMETER
3 - FRONT COOKING ZONE POTENTIOMETER
4 - RIGHT REAR COOKING ZONE POTENTIOMETER
5 - CONTROL PANEL

5. Detach the connectors from the potentiometer (see Fig. 82).

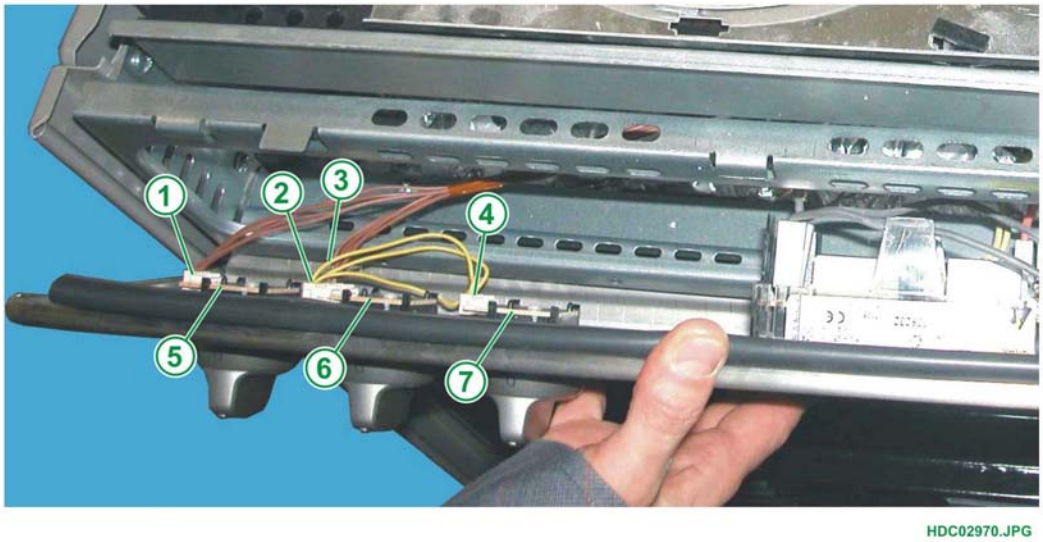

Fig. 82

1 - CONNECTOR BETWEEN LEFT REAR COOKING ZONE POTENTIOMETER - CONTROL BOARD
2 - CONNECTOR BETWEEN FRONT COOKING ZONEPOTENTIOMETER - RIGHT REAR COOKING ZONE POTENTIOMETER
3 - CONNECTOR BETWEEN FRONT COOKING ZONE POTENTIOMETER - CONTROL BOARD
4 - CONNECTOR BETWEEN RIGHT REAR COOKING ZONE POTENTIOMETER - FRONT COOKING ZONE POTENTIOMETER
5 - LEFT REAR COOKING ZONE POTENTIOMETER
6 - FRONT COOKING ZONE POTENTIOMETER
7 - RIGHT REAR COOKING ZONE POTENTIOMETER

6. Remove the two screws which secure the potentiometer in place (see Fig. 83).

Fig. 83

1 - CONTROL UNIT BOARD
2 - ANCHOR TABS

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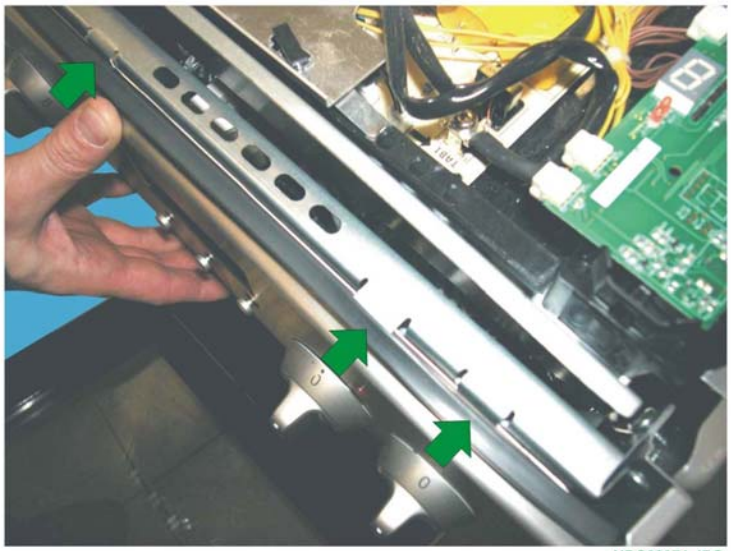
N.B.: When replacing the control panel, ensure that it repositioned correctly on the upper retaining tabs (see Fig. 84).

Fig. 84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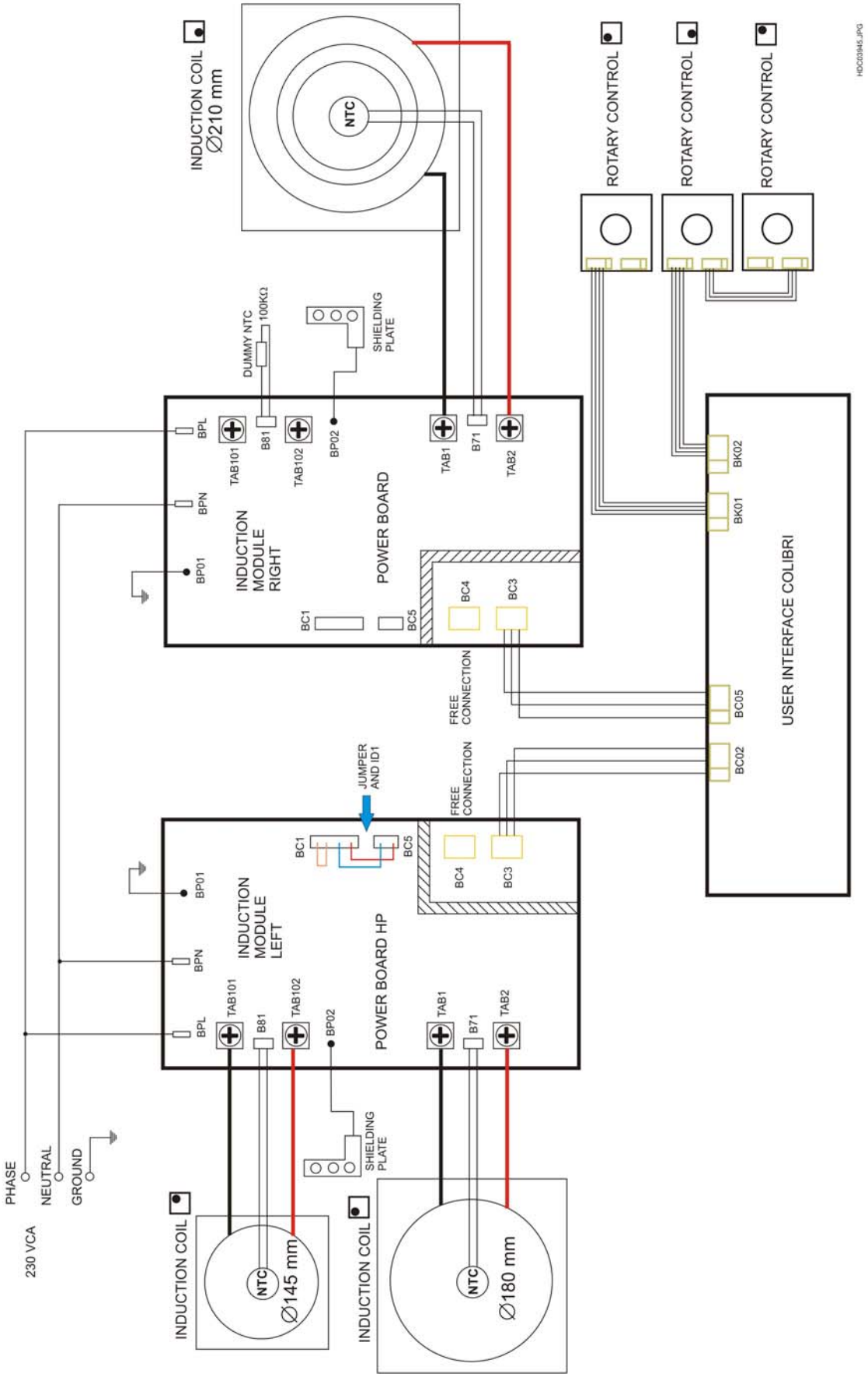
8 - CIRCUIT DIAGRAM OF HOB SECTION



8.1 - KEY TO CIRCUIT DIAGRAM

DUMMY NTC	- DUMMY NTC HEATING ELEMENT
FREE CONNECTION	- CONNECTION USING STANDARD WIRES (NOT FLAT CONNECTORS)
GROUND	- EARTH (MAINS)
INDUCTION COIL	- INDUCTION COIL
INDUCTION MODULE LEFT	- LEFT INDUCTION MODULE
INDUCTION MODULE RIGHT	- RIGHT INDUCTION MODULE
NEUTRAL	- NEUTRAL (MAINS)
NOT USED CONNECTION	- UNUSED CONNECTION
NTC	- NTC TEMPERATURE SENSOR
PHASE	- PHASE (MAINS)
POWER BOARD	- “MINI” OR "TIGER" POWER BOARD WITHOUT POWER SUPPLY TO CONTROL BOARD
POWER BOARD HP	- “MINI” OR "TIGER" POWER BOARD WITH POWER SUPPLY TO CONTROL BOARD
ROTARY CONTROL	- COOKING ZONE CONTROL POTENTIOMETER
SHIELDING PLATE	- INTERFERENCE SHIELDING PLATE
USER INTERFACE COLIBRI	- COLIBRI’ CONTROL BOARD
JUMPER AND ID1	- CONFIGURATION JUMPER FOR POWER SUPPLY TO CONTROL BOARD

9 - REVISIONS

REVISION	DATE	
00	02/2008	- Document created
01	03/2010	- Modified title on cover page. - Modified chapter 1.3 - GENERAL DESCRIPTION on page 6. - Modified chapter 3.1 - BLOCK DIAGRAM OF THE SYSTEM on page 10 and 11. - Added chapter 3.3 - TIGER GENERATOR MODULE. - Modified chapter 3.4 - MAGNETIC INDUCTION COIL ASSEMBLY on page 20 and 21. - Amended figure 30 page 24. - Added chapter 3.4.3 - SINGLE-COIL MAGNETIC INDUCTION COIL ASSEMBLY - SECOND VERSION. - Added chapter 3.4.4 - DOUBLE-COIL MAGNETIC INDUCTION COIL ASSEMBLY - SERIAL CONNECTION - SECOND VERSION. - Modified chapter 5 - ERROR CODES on page 33. - Added chapter 5.2 - ERRORS WITH TIGER POWER BOARD. - Modified chapter 6 - TROUBLESHOOTING on page 37. - Added chapter 6.2 - TROUBLESHOOTING BASED ON ERROR CODES ON TIGER POWER BOARD. - Resistance values corrected in chapter 6.4 - TESTING THE FINAL STAGES OF THE POWER BOARD on page 51. - Modified chapter 7.1 - REMOVING THE TOP on page 53. - Added chapter 7.1.2 - VERSION WITH SEPARATE INSULATING SHEETS. - Modified point 7 on page 58. - Modified chapter 7.2.1 - POWER SUPPLY CONNECTION TO INDUCTION COILS on page 59. - Modified chapter 7.2.3 - COIL ASSEMBLY ANCHOR SYSTEM on page 61. - Added chapter 7.2.4 - COIL ASSEMBLY ANCHOR SYSTEM - SECOND VERSION. - Modified chapter 7.2.5 - REMOVING THE SUSPENSION SPRINGS on page 62. - Added chapter 7.2.6 - REMOVING THE SUSPENSION SPRINGS ON COILS - SECOND VERSION. - Modified CIRCUIT DIAGRAM on page 70. - Modified table 10.1 - KEY TO CIRCUIT DIAGRAM on page 71. - Modified chapter and figure numbering and page references.