

TECHNICAL NOTE N. 801 LB - Jan. 24, 2011

(Updated: February 21, 2011)

SUBJECT: Front Loading Tumble Dryers - New 2011 Electronic Core Boards: Drying Programs and Functions - Self-diagnosis and Error Codes.



"LOGIC" Version.



"DIGIT" Version (3 Digits).

A) FOREWORD:

The new 2011 range of Front Loading Tumble Dryers, is based on two different aesthetics: the "LOGIC" version and the "DIGIT" version (see pictures in the first page). The differences between the two versions only concern the User Interface, while the working algorithms and the available Drying Programs and Options, are exactly the same. The biggest novelty is indeed the Core Board of the Digit version, named "3 Digits" because of the new, biggest display that's now available. The following information is mainly related to the new "3 Digits" Core Boards.

B) GENERAL FEATURES OF THE "3 DIGITS" CORE CORE BOARD:

B1) Electronic Core Board control receives the following input signals:

B1a) Voltage Supply

The main Core Board is supplied by a 220-240 V-AC from the net (L and N). Continuous voltages are arisen by means of a switching regulator on the Core Board.

B1b) Drying Program Selection

It receives the signal from a 12 positions (11 + OFF) rotary switch, connected to the Core Board by a 3 ways PCB connector. The choice is among timed and automatic programs.

B1c) Temperature Sensors (NTC)

Temperatures control is done by means of 1 or 2 NTC (1 for vented type, 2 for condenser one), placed in the front duct (for both types) and in the rear (only for condenser).

B1d) Door

The Core Board recognizes the situation of open door through the feedback of a micro-switch normally open. When the door is open the status of the machine has to become STAND-BY and the Core Board cannot accept any signal from the User Interface.

B1e) Start Command

This is realized by a button on the Core Board. The signal is accepted only with door locked.

B1f) Water Level (only for Condenser Type)

The machine recognizes the condition of "Full Tank" by means of a pressure switch placed in the reservoir. The water drips from condensation in the reservoir and from it, through a valve, in the tank. When the tank is full, the reservoir begins to fill till the moment the pressure switch trips. Hence the machine stops and waits for the emptying of the tank.

B1f) Heating Element Feedback

This is a high voltage feedback that allows to detect failures in the heating circuit.

B2) The Core Board can also drive these electric loads:

B2a) Heating Element

A 2100 W heating resistance can be activated through the switch of a relay.

B2b) Asynchronous Motor for Drum Rotation

A 200 W motor has to be driven for turning both clockwise and counterclockwise. Drum rotation has to achieve about 56 rpm by means of a pulley and a belt. Ventilation is assured by a fan on the motor's crankshaft. Drum rotation activates ventilation. The motor is connected to a cue capacitor 7.5 μ F. The motor is driven by 2 relays in series, the first for the current supply and the second for the direction of rotation.

B2c) Recycle Pump

This is a synchronous pump, activated by a TRIAC, that brings water from the reservoir to the upper tank (only for Condenser Top Tray).

B2d) Buzzer

C) FEATURES OF THE "3 DIGITS" USER INTERFACE AND DRYING PROGRAMS:

C1) Features that can be operated through the User Interface of Control Panel:

C1a) Stand-by Mode

At the power-on, obtained by rotating the selector out of its OFF (0) position, the machine is in stand-by mode. In this situation the machine displays the Start/Pause LED blinking (1Hz) and eventually special programs or drying options LED's fixed on.

Every electrical load is disarmed. To reach the stand-by condition, the machine needs the door locked.

In this condition the Core Board accepts every selection in terms of selector rotation and/or buttons pressure. "Start" selection is accepted only in this Stand-By condition.

Every button pressure and every selector rotation is accompanied with a buzzer beep (always present on the Core Board). At the end of a cycle, displayed with "End", a power failure or a door opening move the machine to the Stand-By status.

C1b) Start the Drying Program

When the selected program starts, the Start/Pause LED stops blinking and becomes fixed. The other LEDs, relative to special programs and options, remain in the same condition of previous Stand-By. The program starts with the sequence of drum rotations and heater activations specific of the program. It is possible to change the program selection without aborting the cycle only within 2 minutes from the moment the Start/Pause button was pressed (this is not possible with the Special Timed Programs). After that period the Keyboard on the Control panel becomes "deaf" and no buzzer beep accompanies any incoming selection. The only way to restart a new program is to perform a RESET.

During the carrying out of a program, the pressure of Start/Pause button makes the machine pause. The behavior of the machine is same as with the door opened: Display and Start LED blinking and all electric loads disarmed. A new pressure of Start/Pause button makes the cycle restart from the step of previous stop. If any pause or door opening or power failure occurs, the performance of automatic programs is not guaranteed (because of the change of drying parameters).

C1c) Reset

A program can be interrupted by a Reset procedure. By pressing the Start/Pause button and keeping it pressed for at least 3 seconds, the program is aborted and the machine goes immediately in Stand-By condition (every load is immediately disarmed). Coming into Reset routine, the machine displays "0:00" blinking at 1 Hz for 3 seconds, together with 3 buzzer beeps.

C1d) Selection of the Drying Program

Programs are selected through a 12 position rotary switch. The list of programs is here below:

Position	Program
0	OFF
1	Memo
2	Bone Dry (Automatic -6% Cotton, -2% Synthetic)
3	Store Dry (Automatic -3% Cotton, 0% Synthetic)
4	Ready to Hang Dry (Automatic, 0% Cotton, +2% Synthetic)
5	Iron Dry (Automatic, +12%)
6	Relax (Special Timed Program)
7	Wool (Special Timed Program)
8	Mix & Dry (Special Timed Program)
9	Shirts (Special Timed Program)
10	Rapid 40' (Special Timed Program)
11	Time (Timed Programs)

C1e) Memo

The selection of Memo Program allows to re-run a program that the user has saved before (for example "Bone Dry" with "Synthetic" fabrics), without selecting the correct sequence of rotary switch positions and options buttons for that particular program. Like every program, it can start only with door closed.

When the chosen program (and option) is selected and started from at least 2 minutes, the user can store the program in memory by pressing simultaneously the "Anti - Crease" and the "Acrylic Synthetic" buttons for 3 seconds (a beep confirms the new storage and the display visualizes "Sto" for 2 seconds).

So the selection is saved in the Flash Memory and the user can start the program by setting the MEMO position. When the selector switch is positioned on MEMO, the visualization is the one of the recorded program (count-down time on the display and related LEDs fixed on). By default, MEMO is Cotton - Ready to Hang - Dry 0%.

C2) Features of the available Drying Programs:

C2a) Bone Dry

This is an automatic program that performs a laundry drying of -6% for Cotton and -3% for Synthetics. The percentage of drying effect is calculated on the weight of laundry (nominal and dried). The cycle is divided in 3 phases: "Heat Stroke", drying process and cool down. In the first 2 phases the heating element is activated, following a fixed duty-cycle, in the cool down phase there is no heating but only ventilation. The cool down sequence is from 5 to 15 minutes long.

When this program is selected, the display shows the "sun" LED (☀) fixed on, for all the duration of the program. When the cool down phase begins, the control lights the "fan" LED (🌀) fixed on. The program duration has to be estimated during the heat stroke phase. The time-out for this cycle is 230 minutes, comprehensive of cool down.

C2b) Store Dry

This is an automatic program that performs a laundry drying of -3% for Cotton and 0% for Synthetics. The percentage of drying effect is calculated on the weight of laundry (nominal and dried). The cycle is divided in 3 phases: "Heat Stroke", drying process and cool down. In the first 2 phases the heating element is activated, following a fixed duty-cycle, in the cool down phase there is no heating but only ventilation. The cool down sequence is from 5 to 15 minutes long.

When this program is selected, the display shows the "cupboard" LED (🗄) fixed on, during all the duration of the program. When the cool down phase begins, the control lights the

“fan” LED (🌀) fixed on. The program duration has to be estimated during the heat stroke phase. The time-out for this cycle is 210 minutes, comprehensive of cool down.

C2c) Hang Dry

This is an automatic program that performs a laundry drying of 0% for Cotton and +2% for Synthetics. The percentage of drying effect is calculated on the weight of laundry (nominal and dried). The cycle is divided in 3 phases: “Heat Stroke”, drying process and cool down. In the first 2 phases the heating element is activated, following a fixed duty-cycle, in the cool down phase there is no heating but only ventilation. The cool down sequence is from 5 to 15 minutes long.

When this program is selected, the display shows the “hanger” LED (👔) fixed on, during all the duration of the program. When the cool down phase begins, the control lights the “fan” LED (🌀) fixed on. The program duration has to be estimated during the heat stroke phase. The time-out for this cycle is 190 minutes, comprehensive of cool down.

C2d) Iron Dry

This is an automatic program that performs a laundry drying of +12% for both Cotton and Synthetics. The percentage of drying effect is calculated on the weight of laundry (nominal and dried). The cycle is divided in 3 phases, “Heat Stroke”, drying process and cool down. In the first 2 phases the heating element is activated, following a fixed duty-cycle, in the cool down phase there is no heating but only ventilation. The cool down sequence is from 5 to 15 minutes long.

When this program is selected, the display shows the “iron” LED (👕) fixed on, during all the duration of the program. When the cool down phase begins, the control lights the “fan” LED (🌀) fixed on. The program duration has to be estimated during the heat stroke phase. The time-out for this cycle is 170 minutes, comprehensive of cool down.

C2e) Relax

This is a special timed program with the duration of 12 minutes. This Program is dedicated to refresh the long stored clothing, or to ease the ironing of too dried tissues. Once this program is selected, it is not possible to set the Synthetics option.

The cool down duration is fixed in 3 minutes (LED 🌀 switched on). Once this program is started, the election cannot be changed without a RESET procedure, neither within the first 2 minutes. It is not possible to modify the duration of the cycle.

C2f) Wool

This is a special timed program with the duration of 12 minutes, dedicated to the drying of woolens tissues. Once this program is selected, it is not possible to set the Synthetics option.

The cool down duration is fixed in 4 minutes (LED  switched on). Once this program is started, the election cannot be changed without a RESET procedure, neither within the first 2 minutes. It is not possible to modify the duration of the cycle.

C2g) Mix & Dry

This is a special timed program with the default duration of 99 minutes (for a maximum load of 3 Kg, for the best drying effect). The program will perform 14 iterations of the sequence:

5 min. heat (CW rev.) - 2 sec. pause - 1 min. heat (CCW rev.) - 2 sec. pause

Then 15 minutes of cool down (LED  switched on). When this program is selected, it is not possible to select Synthetics option. Once it's started, the selection can be changed within the first 2 minutes.

It is possible to modify the duration of the cycle, through the "Time Selection" button. The possible changes to the duration time of the Mix & Dry program, are:

- 1) 105 minutes (15 cycles with heater and 15 minutes of cool down)
- 2) 111 minutes (16 cycles with heater and 15 minutes of cool down)
- 3) 117 minutes (17 cycles with heater and 15 minutes of cool down)
- 4) 81 minutes (11 cycles with heater and 15 minutes of cool down)
- 5) 87 minutes (12 cycles with heater and 15 minutes of cool down)
- 6) 93 minutes (13 cycles with heater and 15 minutes of cool down)

Every pressure of the button modifies the cycle length, following the list here above. The display shows the duration of the program in terms of hours and minutes (i.e. 105 minutes are displayed as 1:45). When the program is selected, the display shows the default time to count down (99 minutes), then after a few seconds the actual length (corresponding to the User's choice) is displayed.

C2h) Shirts

This is a special timed program with the default duration of 60 minutes (for a load of 2 Kg-10 shirts - to obtain an optimal drying effect). The duty cycle for this program (both Condenser and Vented) is High Power profile "Cotton" (1) or Reduced Power "Acrylic Synthetic" (2) profile, depending on the use or not of the fabric selection button on the Control Panel. Profiles are as follows:

- (1) - 5 min. heat (CW rev.) - 2 sec. pause - 1 min. heat (CCW rev.) - 2 sec. pause
- (2) - 3.5 min. heat (CW rev.) - 2 sec. pause - 1 min. heat (3 min. CCW rev.) - 2 sec. pause

The program will perform 8 iterations of the sequence here above, then 12 minutes of cool down (LED  switched on).

Once this program is started, the program selection can be changed within the first 2 minutes. It is possible to modify the duration of the cycle, through the "Time Selection" button.

The possible changes to the length of the Shirts program, are:

- 1) 66 minutes (9 cycles with heater and 12 minutes of cool down)
- 2) 72 minutes (10 cycles with heater and 12 minutes of cool down)
- 3) 79 minutes (11 cycles with heater and 12 minutes of cool down)
- 4) 42 minutes (5 cycles with heater and 12 minutes of cool down)
- 5) 48 minutes (6 cycles with heater and 12 minutes of cool down)
- 6) 54 minutes (7 cycles with heater and 12 minutes of cool down)

Every pressure of the button modifies the cycle time, following the list here above. The display shows the duration of the program in terms of hours and minutes (i.e. 66 minutes are displayed as 1:06). When the program is selected, the display shows the default time to count down (60 minutes), then after a few seconds the actual program length (corresponding to the User's choice) is displayed.

C2i) Rapid 40'

This is a special timed program with the duration of 40 minutes. The duty cycle for this program (both Condenser and Vented) is the High Power profile described here below:

5 min. heat (CW rev.) - 2 sec. pause - 50 sec. heat (1 min. CCW rev.) - 2 sec. pause

Once this program is started, the program selection cannot be changed without a RESET procedure, neither within the first 2 minutes. It is not possible to change the duration of the cycle. The display shows the duration of the program in terms of minutes (i.e. 40 minutes are displayed as 40).

C2m) Time (Timed Drying Programs)

This selection includes all the normal time programs. The research of the specific program has to be performed with the repetitive pressure of the "Time Selection" button. The duration of program can be selected among the following:

- 1) 20 minutes of ventilation only (the LED  is lighted all along the cycle)
- 2) 30 minutes (10 minutes of cool down )
- 3) 45 minutes (10 minutes of cool down )
- 4) 60 minutes (10 minutes of cool down )
- 5) 75 minutes (10 minutes of cool down )
- 6) 90 minutes (15 minutes of cool down )
- 7) 120 minutes (15 minutes of cool down )
- 8) 150 minutes (15 minutes of cool down )
- 9) 180 minutes (15 minutes of cool down )

Pushing the "Acrylic Synthetic" button, the user can choose between the High Power or Reduced Power profile. The display shows the duration of the program in terms of hours and minutes (i.e. 90 minutes are displayed as 1:30). The scrolling of time programs (by pressure of relative switch) is performed from 1) to 7) and then back to 1) and so on. The default value displayed is 60 minutes. When ventilation (20 minutes) is chosen, once the program is started, the program selection cannot be changed without a RESET procedure, neither within the first 2 minutes.

C3) Options

The Control Panels feature a display with 5 switches, 3 of which with a dedicated LED. Here follows the explanation of how programs are changed by the use of those switches.

C3a) Time Selection Button

This button has the function of changing the duration of the program selected through the rotary switch.

- It cannot be used with automatic programs, where the duration depends on the load.
- It cannot be used also with time programs very short (Relax, Wool and Rapid 40').
- It can be used only with the selection of:
 - 1) Mix & Dry Program
 - 2) Shirts Program
 - 3) Time Programs

Every pressure of the switch will change the displayed time, like it was described in the specific paragraph (C2m). No LED is coupled with the operation of this switch.

C3b) Delay Start Button and LED

This button has the function of selecting a delay before the start of the selected program. By default the associated LED is off. The button is active (the control accepts its pressure) only if the machine status is STAND-BY.

At the first pressure of the switch, the associated LED becomes fixed on and the display starts to show the delay that can be chosen. The visualization of the delay time is "h:xx". This time is visualized blinking at 1 Hz, alternating with the count-down indication of the selected cycle.

The choice of delay times is from 1 hour to 24 hours, with 1 hour steps.

After the complete scrolling of the 24 possibilities of delay to set (h:24), another pressure of the switch deactivates the Delay Start option and the associated LED goes off. Once the delay time is set, the user has to press the Start button to start the count-down.

After the Start, the Start LED becomes fixed, while the display goes on blinking until the end of the set delay time. When the delay time has expired, the machine goes in the working mode (display fixed, showing the count-down of the cycle duration and Delay Start LED switched off). If no door openings or power fails occurred, the machine starts the program selected, without any user intervention.

When a delay is set and the Start button is pressed, if also the option "Anti - Crease" is activated, the machine executes a "pre drying anti-crease" routine. Every 10 minutes, until the end of the delay, the following sequence is executed by the machine:

- 1) Pump and Motor work (Clockwise rotation) for 4 seconds.
- 2) 1 second pause. Relay switches to Counterclockwise rotation.
- 3) Pump and Motor work (Counterclockwise rotation) for 4 seconds.
- 4) 1 second pause. Relay switches to prepare for the next Clockwise rotation.

C3c) Acrylic Synthetic Button

This button has the function of setting the Dryer behavior, in accordance with the type of fabrics to dry, i.e. allowing to choose between Cotton fabrics and Acrylic/Synthetics. The 2 types of fabrics obviously need a different power profile (described here after).

By default every program is set with Cotton option set (and Cotton LED fixed on). If this button is pressed, the setting changes in Synthetics. The Cotton LED is switched off and the Synthetics one is lighted fixed.

The Cotton drying follows the heating sequence of High Power here below:

5 min. heat (CW rev.) - 2 sec. pause - 1 min. heat (CCW rev.) - 2 sec. pause

The Synthetics drying follows the heating sequence of Reduced Power here below:

3.5 min. heat (CW rev.) - 2 sec. pause - 1 min. heat (2 min. CCW rev.) - 2 sec. pause

Every program (except Relax, Wool, Mix & Dry and Rapid 40' which have a specific duty-cycle) follows the duty-cycles here above, according with the fabric option selection.

C3d) Anti-Crease Button

This function sets a "post drying anti-crease" cycle. When the function is selected (this can be done within the first 2 minutes of the working, where available), the associated LED is on. After the end of the cycle, every 10 minutes the machine behaves this way:

- 1) Pump and Motor work (Clockwise rotation) for 4 seconds.
- 2) 1 second pause. Relay switches to Counterclockwise rotation.
- 3) Pump and Motor work (Counterclockwise rotation) for 4 seconds.
- 4) 1 second pause. Relay switches to prepare for the next Clockwise rotation.

When the door is opened the anti-crease cycle is interrupted and the machine goes in STAND-BY mode (once the door is closed again).

C3e) Start/Pause Button

This button has the function of starting the Drying Cycle of the selected program, or, if pressed during the program execution, to Pause the carrying out without aborting the cycle (STAND-BY). From the STAND-BY condition (the related LED blinks at 1 Hz), when the button is pressed again the related LED becomes fixed and the program re-starts from the point of interruption.

Every time the door is opened or a power failure occurs, the machine goes in STAND-BY mode, then needing a confirmation to restart the program. The confirmation is given through a new pressure of Start button.

When a working machine is put in Pause with the pressure of the Start button, the associated LED becomes blinking (1 Hz), and goes back fixed after another Start button pressure.

C3f) Eco LED

This LED is automatically switched on when an economic program is set. The programs that can be coupled with the Economic Function are:

- 1) Hang Dry
- 2) Iron Dry
- 3) Mix & Dry (only if the program length is decreased from the default time)
- 4) Shirts (only if the program length is decreased from the default time)

C3g) Buzzer Inhibition

It is possible to inhibit the buzzer sounds, by carrying out a specific sequence of pushing some switches. The effect is not to hear any beep when the selector is rotated or a switch is pressed.

In case of error, the buzzer will normally work, even if it is inhibited (in order to alert the customer).

The buzzer inhibition is performed by switching-on the machine by moving the rotary switch to the 11th position (Timed Programs), while contemporarily pushing and keeping pushed for at least 3" the Time Selection switch.

After this period of time, the display visualizes "OFF" for 1 sec. (or "ON" when the buzzer is re-enabled).

C4) Typical Carrying Out of a Drying Cycle

Every drying cycle can be divided in 3 phases, the "heat stroke", the "drying process" and the "cool down":

1) Heat Stroke (Not Present in the Timed Programs):

It's the initial phase used to reach the operative temperature. In this phase the water extraction from the load can be considered negligible. In this phase a drum load "estimation" (and also the calculation of the cycle duration) is performed.

2) Drying Process:

This is the central phase of the Drying Cycle, in which the water is extracted from the laundry. Starting from a minimal water extraction, the maximum is reached, followed by another minimal water quantity extracted. The duration of this phase is strictly related to the amount of loaded laundry and to the heat exchanger efficiency. In this phase all automatic programs evaluations occur.

3) Cool Down:

This is a load refresh phase. It is necessary to Cool Down the load inside the drum in order to avoid any harm to the user, when the laundry is removed. **Every timed or automatic program ends with a Cool Down phase.** The Cool Down duration depends on the carried out program: Timed programs have a fixed Cool Down. In the Automatic programs, both for Condenser and Vented machines, the Cool Down duration depends on the temperature felt by the frontal NTC. When it reaches 48° C the cool down sequence is stopped, but anyway the overall sequence duration must be between 5 and 15 minutes.

D) AUTOMATIC SEQUENCE OF SEL-DIAGNOSIS (AUTO TEST) AND LIST OF THE ERROR CODES:

D1) PREPARING AND STARTING THE SELF-DIAGNOSTIC SEQUENCE (AUTO-TEST):

- D1a) **Empty the Dryer and plug it in.** The Dryer must be OFF and the door CLOSED. Connect a 20 A/AC reading scale Ammeter, in series to one of the two phases of the mains wire.
- D1b) **PUSH AND HOLD the START button and contemporarily turn the Programs Selector knob to the position # 3.** The Delay Start LED (for Condenser Dryers) or the Acrylic/Synthetic LED (for Vented Dryers) **becomes lighted and stays lit with FIXED light.**
- D1c) **RELEASE the START button, then PUSH AND RELEASE IT TWICE, within 2 seconds.** The AUTO-TEST sequence is then automatically started.

D2) AUTOMATIC CARRYING OUT OF THE SELF-DIAGNOSTIC SEQUENCE:

- D2a) **For 3 seconds, the Delay Start LED (Condenser Type) or the Acrylic/Synthetic LED (Vented Type) is lighted fixed. Buzzer beeps 2 times for Condenser Dryers and 1 time for the Vented ones. The display visualizes ---.**

D2b) All LEDs are lighted fixed. The BUZZER beeps once.

Should any ERROR be present in the Memory, the machine displays the last ERROR that happened in time. ALL LEDs blink at 2 Hz for a number of times equivalent to the Error Number (see the Error Description Table) and contemporarily the display visualizes the error number. i.e. In case of Clogged Filter Error = E 7, all LEDs blink 7 times at 2 Hz. After the blinking sequence, the LEDs are turned off for 3 seconds and then the Error Displaying sequence starts again. This condition is maintained until the moment the Start button is pressed.

Press again the Start button, the buzzer beeps once and the test goes on. N.B. the Start button has to be pressed twice only if there is an error to display.

D2c) All loads are OFF. The Eeprom checks for any internal error (E 6) and checks the conditions of both NTC Temperature Sensing Probes, whose value of resistance must be found within a specific range (can be displayed E 5 in case of opened circuit and E 14 in case of short circuit). In case of ERROR, the Dryer enters the ERROR MODE (see par. D3).

D2d) All LEDs are ON. Motor works clockwise for 3 seconds and Display shows "RIG".

D2e) All LEDs are OFF. Motor works clockwise for 3 seconds and the Heater is fed. Ammeter's reading is ~ 11 A. Defective Heater displays E 8.

D2f) All LEDs are OFF. Heater is OFF. Motor is OFF. Recycle PUMP is ON for 2 seconds (in Vented Dryers without any pump, only the related relay on PCB is fed).

D2g) All LEDs are ON. Motor works counterclockwise for 3 seconds and Display shows "LEF".

D2h) All LEDs are OFF. 1 second pause.

D2i) All LEDs are OFF. Heater is OFF. Motor is OFF. Recycle PUMP is ON for 2 seconds (in Vented Dryers without any pump, only the related relay on PCB is fed).

D2l) The LEDs of the functions Refresh and Synthetics are ON. The LEDs over the buttons are ON. Display shows "GO". Pressing each button, will switch OFF and ON a single LED. Push two times all the buttons in sequence, to test the full functionality of the Power Board. Every time a button is pushed, the buzzer beeps one time.

D2m) Turn the Program Selector back to OFF, to end the Self-Diagnostic Sequence.

D3) DESCRIPTION OF THE "ERROR PHASE":

Error Phase is a special protective mode that's set every time a critical Error is detected:

- All LEDs flash together at 4 Hz. The buzzer beeps at 1 Hz (1 beep per second).
- The motor rotates the drum in clockwise sense.
- All buttons are inhibited, as long as the machine is in the Error mode.
- All LEDs flash until the Program Selector is moved (the door can be opened).

Every time the Dryer is found in Error Phase, it must be powered OFF and restarted. If the Error Phase persists, then launch the AUTO-TEST to be informed about the Error Number.

D4) LIST OF THE PRESENTLY AVAILABLE ERROR CODES:

Error Description	Error Num.	Detecting Condition	Possible Malfunction	Machine Behavior	Recommended Intervention
Full Tank Alarm	E 3	The error condition is detected if the pressure switch goes on the "FULL" and remains in that condition for at least 10".	The tank is full of water from condensation and has to be emptied.	Drying Cycle is halted. Delicates LED blinks at 1 Hz. Display visualizes "E 3".	Empty the tank, check the pressure switch and related wiring harness.
Selector Error	E 4	The selector is shorted or open circuited (detection 10" long)	The selector is damaged	Drying Cycle is halted. The display visualizes "E 4"	Replace the Programs Selector
Front NTC Error	E 5	The Front NTC sensor is in short or open circuit, or it has a resistive value not compliant with the specifications (NTC value stays out of the range - 14° C - 95° C for longer time than 15 seconds.	Front NTC not connected or damaged	Drying Cycle is halted. The display visualizes "E 5". All LEDs flash together (generic error condition).	Check Front NTC and the related wiring harness.
Data Flash Error	E 6	The micro controller can't find configuration parameters in Data Flash Block A, or checksum is incorrect	Main board not programmed (Data Flash)	Blocking Error (not displayed because the user interface is powered OFF).	Program or replace the Power Board.
Clogged Filter Alarm	E 7	3 interventions of the Heater's safety thermostat in less than 10 minutes.	The filter is clogged from lint, correct ventilation is not allowed.	The Ventilation LED blinks at 1 Hz. The Dryer switches from High Power to Reduced Power. The Display shows "E 7"	Clean the filter.

Error Description	Error Num.	Detecting Condition	Possible Malfunction	Machine Behavior	Recommended Intervention
Thermal Fuse Intervention	E 8	The control has to detect N as a heater feedback. If L is detected for more than 20 minutes, it means the thermal fuse is open.	Rear temperature is grown over the thermal fuse threshold (206° C)	Non Blocking Error, Dryer makes a Cool Down sequence and displays the error condition with 1 Hz LEDs blinking. Display shows "E 8".	Change the thermal fuse and check mechanical circuit (something occludes the circuit), check the Wiring.
Thermal Cut-Out Alarm (automatic reset).	E 9	Control has to detect N as a heater feedback. If it detects L and then N within 20 sec., this means there was a TOC intervention.	The Thermal Cut-Out switched off the heater, due to a temporary overheating.	The Error is not displayed, but only saved in Data Flash. The Dryer switches to Reduced Power.	Check the conditions of the Heater and of the related wiring, the filter cleanliness and the installation.
Missing Load	E 10	During the Heat Stroke Phase (automatic cycles) the temperature increases over 80° C.	The Dryer is working empty, without any laundry load.	The Error is not displayed, but only saved in Data Flash. The cycle goes on with a Cool Down sequence and is ended.	Correctly load the Dryer.
Rear NTC Error (only Condenser Dryers)	E 14	The Rear NTC is short circuited or open circuited, or has an incorrect resistive value (out of the range - 14° C - 95° C) for more than 15 sec.	Rear NTC not connected or damaged.	Drying Cycle is halted. All LEDs blink together (generic error condition). The Display shows "E 14"	Check Rear NTC and the related Wiring Harness.
Heater Relay glued contacts (Front Thermal Fuse for Vented machine)	E 15	When the Heater relay is opened, the control must detect L through heater feedback. If it detects N for more than 8 sec., relay is glued.	The heater relay could have glued contacts or, if the machine Vented the Front Thermal Fuse is opened.	Drying Cycle is halted. All LEDs blink together (generic error condition). The Display shows "E 15".	Replace the Power Card.

Best regards.

GIAS Italy