

SERVICE DATA SHEET

Appliance with ES630 Electronic Oven Control

NOTICE: This service data sheet is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. The manufacturer cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this data sheet.

IMPORTANT NOTE: This unit includes an EOC (electronic oven control). This board is not field-repairable.

Safe Servicing Practices

To avoid the possibility of personal injury and/or property damage, it is important that safe servicing practices be observed. The following are some, but not all, examples of safe practices.

- Do not attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
- Before servicing or moving an appliance, remove power cord from electric outlet, trip circuit breaker to Off, or remove fuse.
- Never interfere with the proper installation of any safety device.
- Use only replacement parts specified for this appliance. Substitutions may not comply with safety standards set for home appliances.
- Grounding: The standard color coding for safety ground wires is green or green with yellow stripes. Ground leads are not to be used as current carrying conductors. It is extremely important that the service technician reestablish all safety grounds prior to completion of service. Failure to do so will create a potential hazard.
- Prior to returning the product to service, ensure that:
 - All electric connections are correct and secure.
 - All electrical leads are properly dressed and secured away from sharp edges, high-temperature components, and moving parts.
 - All uninsulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels.
 - All safety grounds (both internal and external) are correctly and securely reassembled.
 - All panels are properly and securely reassembled.

Oven Calibration

Set the electronic oven control for normal baking at 350°F. Allow oven to preheat to set temperature. Obtain an average oven temperature after a minimum of five cycles. Press the **STOP** key to end the Bake mode.

Temperature Adjustment

- Press USER PREFERENCES until you get the UPO menu page.
- To select the oven you want to adjust, press USER PREFERENCES again to toggle between the upper and lower display.
- Enter the temperature by pressing the HI or LO keys. The temperature can only be adjusted by ±35°F (°C).
- Press START to accept the changes and go back to USER PREFERENCES menu display.

Note: Changing calibration affects all baking modes. The adjustments made will not change the self-cleaning temperature.

2-Speed Cooling Fan

The EOC controls the speed of the cooling fan. The cooling fan is activated at low speed during any cooking function and will remain on until the oven is cooled down. The high speed is activated during the broil (with open door) and during clean cycles only when the temperature is above approximately 575°F/302°C.

| CIRCUIT ANALYSIS MATRIX | | | | | | | | | |
|---|----------------|----------|-----------|-----------------|---------------|----------------------|---------------|-----------------|-------------------|
| | On Relay Board | | | | | | TRIAC Board | | On Display Board |
| | ELEMENTS | | | | | | Conv Fan P2-7 | Oven Light P2-1 | Door Switch P10-3 |
| | Bake P9 | Broil P7 | Conv. P11 | Door Motor J3-5 | DLB L2 out P1 | Cooling Fan Low J3-7 | | | |
| Bake | X | X | X* | | X | X | X | X* | |
| Keep Warm | X | | | | X | X | | | |
| Broil | | X | | | X | X | X | | |
| Conv. Bake | X | X | X | | X | X | X | X** | |
| Conv. Roast | X | X | X | | X | X | X | X | |
| Conv. Broil | | X | | | X | X | X | X | |
| Clean | X | X | | | X | X | X | | |
| Locking | | | | X | | | | | |
| Locked | | | | | | | | | |
| Unlocking | | | | X | | | | | |
| Unlocked | | | | | | | | | |
| Light | | | | | | | | X | |
| Door Open | | | | | | | | X | |
| Door Closed | | | | | | | | | X |
| Bread Proof | X | | | | X | X | | | |
| Relay will operate in this condition only <input type="checkbox"/> *Convection element and fan are used for the first rise in temperature | | | | | | | | | |

| MEAT PROBE TEMPERATURE VS RESISTANCE TABLE | |
|--|--------------------|
| Temperature | Probe Resistance |
| 77 °F / 25°C | 50.020 Kohm +/- 6% |
| 122 °F / 50°C | 18.020 Kohm +/- 5% |
| 176 °F / 80°C | 6.290 Kohm +/- 5% |
| 212 °F / 100°C | 3.400 Kohm +/- 5% |

| RTD SCALE | |
|------------------------------|----------------------------------|
| Temperature °F (°C) | Resistance (ohms) |
| 32 ± 1.9 (0 ± 1.0) | 1000 ± 4.0 |
| 75 ± 2.5 (24 ± 1.3) | 1091 ± 5.3 |
| 250 ± 4.4 (121 ± 2.4) | 1453 ± 8.9 |
| 350 ± 5.4 (177 ± 3.0) | 1654 ± 10.8 |
| 450 ± 6.9 (232 ± 3.8) | 1852 ± 13.5 |
| 550 ± 8.2 (288 ± 4.5) | 2047 ± 15.8 |
| 650 ± 9.6 (343 ± 5.3) | 2237 ± 18.5 |
| 900 ± 13.6 (482 ± 7.5) | 2697 ± 24.4 |
| Probe circuit to case ground | Open circuit/infinite resistance |

| LOWER OVEN ANALYSIS MATRIX | On Relay Board | |
|----------------------------|----------------|-----------------|
| | ELEMENTS | DLB L2 out (P2) |
| | Bake (P10) | |
| Bake | X | X |
| Keep Warm | X | X |

ELECTRONIC OVEN CONTROL (EOC) FAULT CODE DESCRIPTIONS

Note: Generally speaking "F1X" implies a control failure, "F3X" an oven probe problem, and "F9X" a latch motor problem.

| Failure Code/ Condition/Cause | Suggested Corrective Action |
|--|--|
| F10 Control has sensed a potential runaway oven condition. Control may have shorted relay, RTD sensor probe may have a gone bad. | Check RTD sensor probe and replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when power is reapplied, replace relay board and/or display board. |
| F11 Shorted Key: a key has been detected as pressed for a long period and will be considered a shorted key alarm and will terminate all oven activity. | Press any key to clear the error. If fault returns, replace the keyboard (touch panel). If the problem persists, replace the display board. |
| F13 Control's internal checksum may have become corrupted. | Press any key to clear the error. Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace display board. |
| F14 Misconnected keyboard cable | Verify connection between display board and touch panel (2 ribbon cables). Make sure the cables are well connected at both ends. If the cables are good, replace the touch panel. If the problem persists, replace the display board. |
| F15 Controller self check failed. | Verify if relay board receives 120VAC between J4 pin 1 and 3. Verify the wiring between J2 on the relay board and P16 on the display board. If wiring and 120VAC supply is good replace the display board. If problem persists replace the relay board. |
| F20 The oven controller has detected a problem with the communication link to the surface element controller (ESEC) | <ol style="list-style-type: none"> Is the ESEC User Interface Board powered on (are the surface element displays showing something)? If not, that is the reason why the oven control cannot communicate with it (ESEC has no power). Check the 120VAC voltage going in to the ESEC power supply board located in the front console (connector P1) and the low voltage supply going from the power supply board (connector P2) to the ESEC UIB (connector P7). Check connections between connector P2 on the oven controller and P9 on the ESEC User Interface Board. This is the communication link. Verify for continuity. Refer to the wiring diagram. If the above steps failed to solve the problem, replace the ESEC UIB board. If problem persists replace the oven controller. |
| F23 The controller failed to communicate with the oven lights control board. | Verify wiring between P2 on the display board and P2 on the oven lights control board. If wiring is good, replace oven lights board. If the problem persists, replace the display board. |
| F30 Open RTD sensor probe/ wiring problem. Note: EOC may initially display an "F10", thinking a runaway condition exists. | Check wiring in probe circuit for possible open condition. Check RTD resistance at room temperature (compare to probe resistance chart). If resistance does not match the chart, replace the RTD sensor probe. |
| F31 Shorted RTD sensor probe / wiring problem. | Let the oven cool down and restart the function. If the problem persists, replace the display board. |
| Note: F30 or F31 is displayed when oven is in active mode or an attempt to enter an active mode is made. | |
| F43 The cooling fan speed, as read by the tachometer input of the EOC-display board, is abnormally too slow. | Determine first if the problem appears to be caused by a cooling fan not turning or turning slowly or by a problem with the sensing of the fan speed. Start a Bake and check during the first 15 seconds if the fan is turning (should feel air flowing through the vent above the upper oven door). If the fan does not appear to be turning or turn slowly check the 120VAC at the fan. If 120VAC is present at the fan motor but the fan does not turn replace the fan motor. If 120VAC is not present at the fan motor when a Bake is started check the connection to the relay board (J3 pin 7) and Neutral: is there 120VAC on J3 pin 7? Does it reach the fan motor? Is the other terminal of the fan motor connected to Neutral? If the harness or relay board are faulty replace them. If the fan appears to be normally turning but an F43 error code is generated, it means there is a problem with the reading of the fan speed sensor. Make sure the connection of the fan speed sensor is properly made (refer to wiring diagram), between the sensor on the fan and the EOC- display board. For trouble-shooting purposes, it is possible to enter a test mode that will indicate on the display the reading of the fan speed in RPM: to enter the test mode, power-up the unit and within 30 seconds press and hold the upper oven Bake and Broil keys for 3 seconds (until you see all segments in the screen illuminated). Once in the test mode, pressing the upper oven Light key once will display the fan speed in RPM. In normal client mode the F43 error is generated for a fan speed below approximately 700 RPM. |
| F44 The cooling fan speed, as read by the tachometer input of the EOC- display board, is abnormally too fast. | Inspect the cooling fan. Does it appear to be turning normally (air flow, noise)? Verify the fan blade is well assembled. Verify there is nothing blocking the air flow of the fan (that could make the fan turn faster). Check the 120VAC voltage on the fan. A voltage higher than 120VAC + 10% could make it go too fast. Make sure the connection of the fan speed sensor is properly made (refer to wiring diagram), between the sensor on the fan and the EOC- display board. For trouble-shooting purposes, it is possible to enter a test mode that will indicate on the display the reading of the fan speed in RPM: to enter the test mode, power-up the unit and within 30 seconds press and hold the upper oven Bake and Broil keys for 3 seconds (until you see all segments in the screen illuminated). Once in the test mode, pressing the upper oven Light key once will display the fan speed in RPM. In normal client mode the F44 error is generated for a fan speed above approximately 2500 RPM. If problem persists replace both the fan+sensor assembly and the EOC- display board. |
| F90 Door motor mechanism failure. | Press any key to clear the error. If it does not eliminate the problem, turn off power for 30 seconds, then turn on power. Check wiring of Lock Motor, Lock Switch and Door Switch circuits. Unplug the lock motor from the board and apply power (L1) directly to the Lock Motor. If the motor does not rotate, replace Lock Motor Assembly. Check Lock Switch for proper operation (do they open and close, check with ohmmeter). The Lock Motor may be powered as in above step to open and close Lock Switch. If the Lock Switch is defective, replace Motor Lock Assembly. If all above steps fail to correct situation, replace the display board and/or the relay board in the event of a motor that does not rotate. If all the above steps fail to correct the situation, replace the display board in the event of a motor that rotates endlessly. |

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SERVICE DATA SHEET
30" INDUCTION COOKTOP

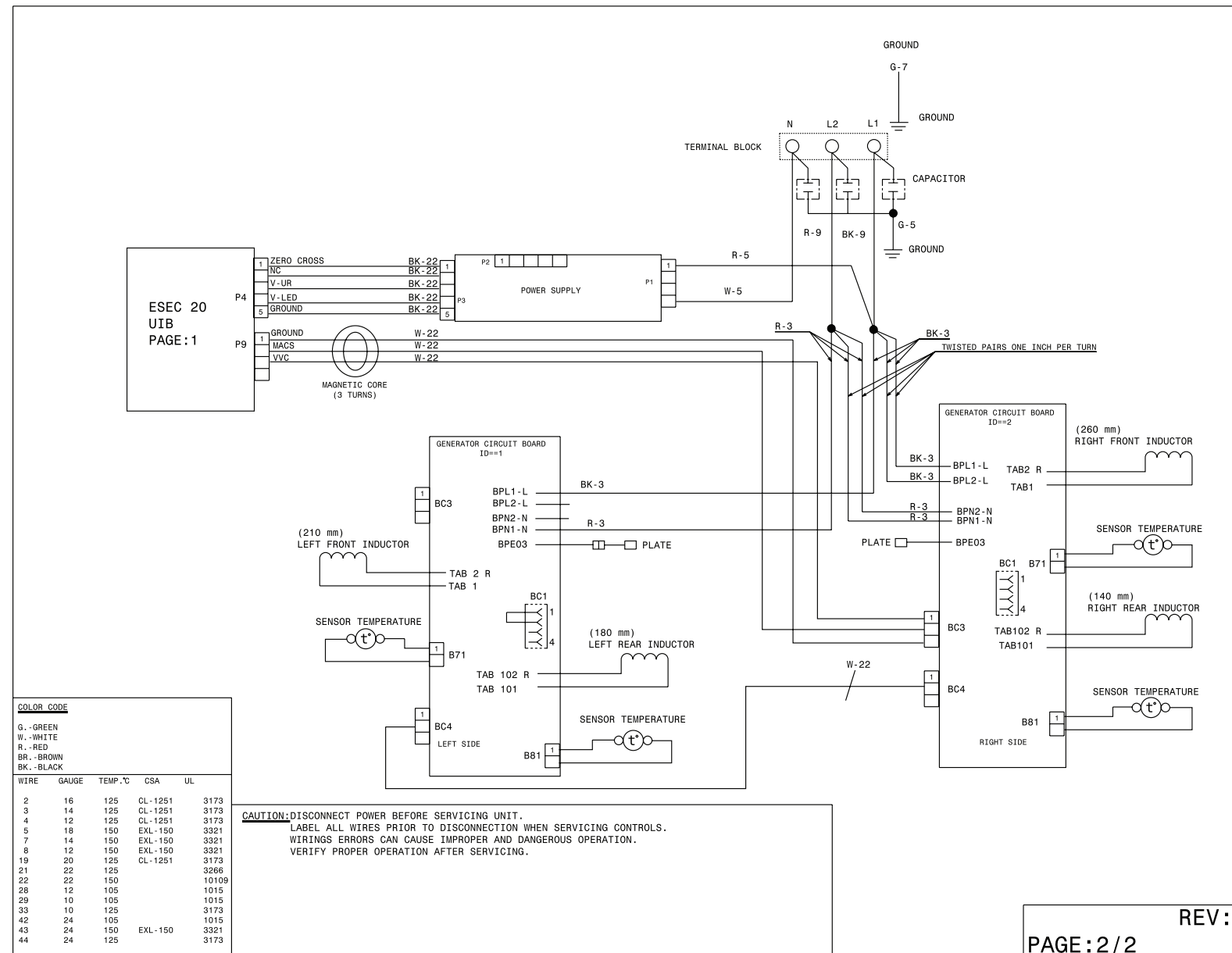
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SAFE SERVICING PRACTICES

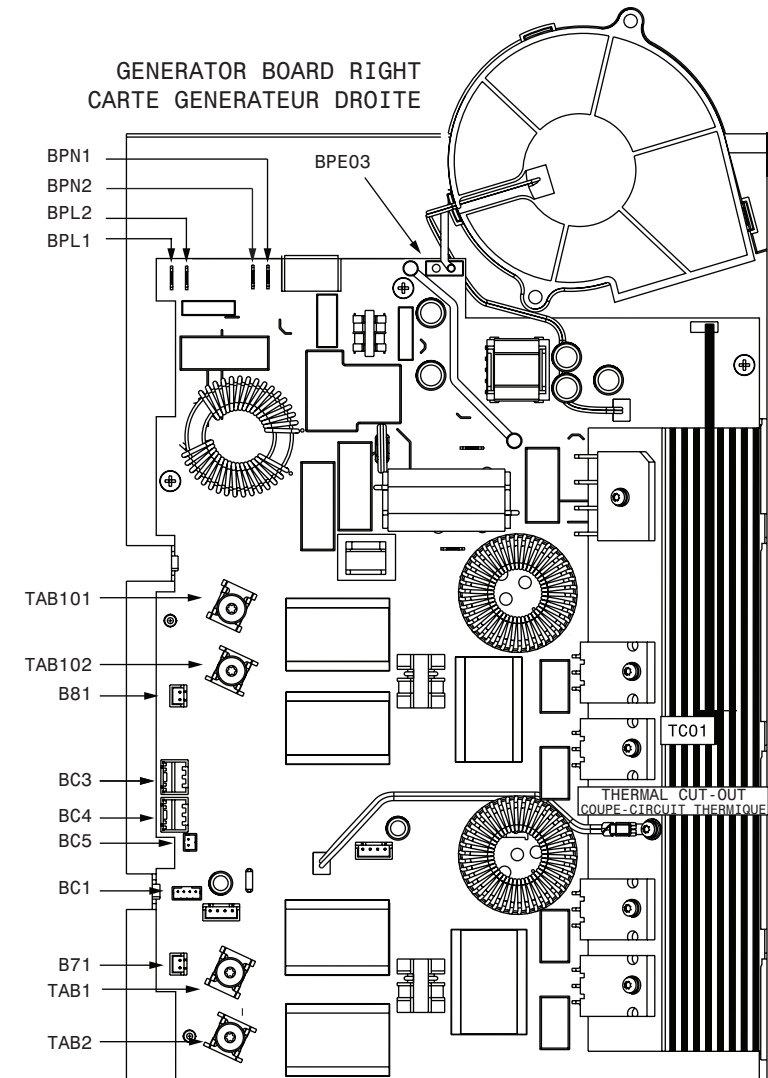
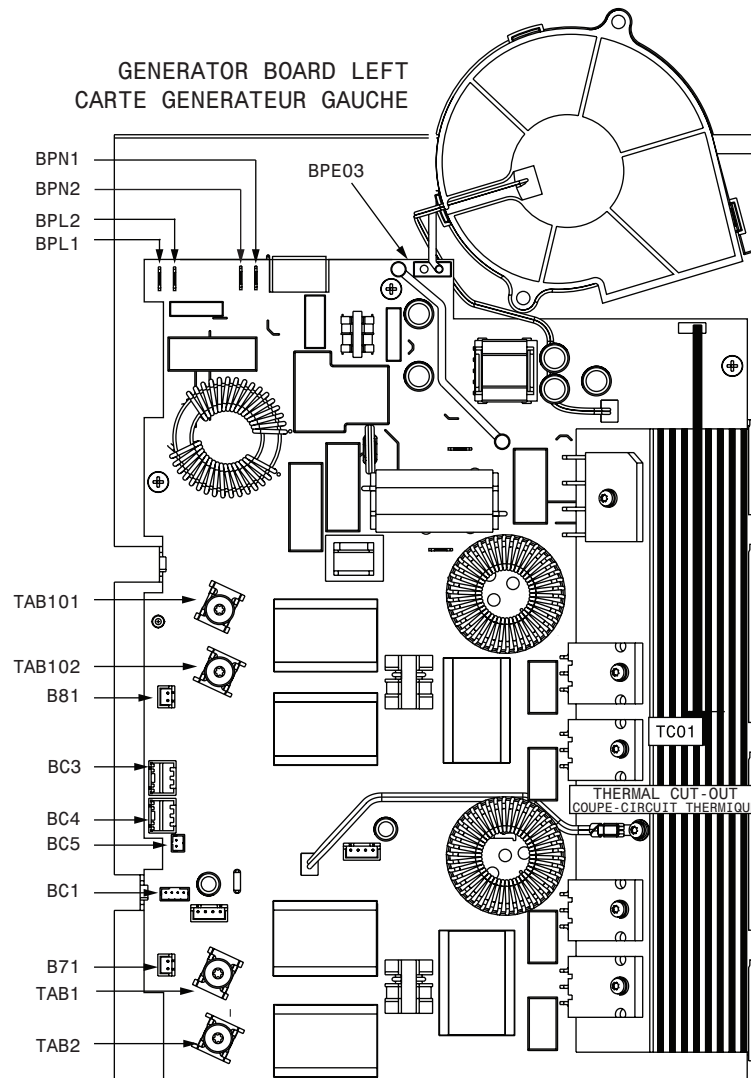
To avoid the possibility of personal injury and/or property damage, it is important that safe servicing practices be observed. The following are examples, but without limitation, of such practices.

1. Before servicing or moving an appliance remove power cord from electrical outlet, trip circuit breaker to OFF, or remove fuse.
2. Never interfere with the proper installation of any safety device.

3. **GROUNDING:** The standard color coding for safety ground wires is GREEN or GREEN WITH YELLOW STRIPES. Ground leads are not to be used as current carrying conductors. **It is extremely important that the service technician reestablish all safety grounds prior to completion of service. Failure to do so will create a potential safety hazard.**
4. Prior to returning the product to service, ensure that:
 - All electric connections are correct and secure.
 - All electrical leads are properly dressed and secured away from sharp edges, high-temperature components, and moving parts.
 - All uninsulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels.
 - All safety grounds (both internal and external) are correctly and securely reassembled.




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Electronic Surface Element Control (ESEC)

This cooktop is equipped with an Electronic Surface Element Control (ESEC), which precisely controls the smoothtop cooking elements at multiple settings. For the user, the elements are operated by pressing the touch pads located on the control panel for the desired settings. The control settings are shown in 2-digit displays.

Hot Surface display message - If any of the induction elements are hot, the hot surface message (HE) will display and remain ON until the cooktop cools.

ESEC lockout feature - The Cooktop Lockout features will not operate when a surface element is ON. Conversely, the surface elements controlled by the ESEC will not operate when Cooktop Lockout mode is active. When the control is in Cooktop Lockout mode,  will appear in the display to signify that the surface heating elements are locked out.

*** Please note:** Electronic boards are very sensitive to static electricity. Static electricity can permanently damage electronic boards. Before handling these parts, be sure to drain static electricity from your body by properly grounding yourself.

| Indicated | % Power | Notes |
|-----------|---------|-----------|
| Lo | 3 | Keep Warm |
| 1.2 | 3.5 | - |
| 1.4 | 4 | - |
| 1.6 | 4.5 | - |
| 1.8 | 5 | - |
| 2 | 5.5 | - |
| 2.2 | 6 | - |
| 2.4 | 7 | - |
| 2.6 | 8 | - |
| 2.8 | 9 | - |
| 3 | 10.5 | - |
| 3.5 | 13 | - |
| 4 | 15.5 | - |
| 4.5 | 18 | - |
| 5 | 21 | - |
| 5.5 | 25 | - |
| 6 | 31 | - |
| 6.5 | 38 | - |
| 7 | 45 | - |
| 8 | 54 | - |
| 9 | 64 | - |
| Hi | 100 | - |
| Pb | 125-141 | Boost |

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| ERROR CODES | | |
|----------------------|---|--|
| UI Display | Error Description | Corrective Action |
| 11 | Shorted keypad. The defective control will flashes the error code in its display. | 1- Cycle power on affected zone. If stuck button comes back while zone is on then proceed. 2- Verify there is no mechanical interference near the defective control (harness, metallic devices, etc.). 3- Replace defective control. |
| 14 | Touch panel tail missing | Disconnect power, wait 30 seconds and reapply power. If fault returns: 1- Verify harnesses between ESEC-UIB and the Touch Panel. 2- Replace ESEC-UIB. 3- Replace the Touch Panel. |
| 15/16/17 | FMEA Error. | Replace defective control. |
| 20 | Loss of communication with ID1 Generator Housing Assembly. | 1- Check communication harness attached to the ID1 Induction Generator Housing. Replace if defective. 2- Verify ID1 Connection is the proper one. 3- Replace ID1 generator. |
| 21 | Loss of communication with ID2 Generator Housing Assembly. | 1- Check communication harness attached to the ID2 Induction Generator Housing. Replace if defective. 2- Verify ID2 Connection is the proper one. 3- Replace ID2 generator. |
| 23 | Loss of communication between 2 or more generator. | 1- Check communication harness from UI to harnesses and generator to generator. 2- Check ID1 connection to verify that the ID jumper is connected from BC1 to BC5. |
| 30/70/90 | AC input voltage too high in either ID1, ID2 place designated by UI display. | 1- Verify AC Input voltage at cooktop input (customer wiring) and AC from pole. 2- Verify AC voltage between BPL and PBN connectors should measure 240V AC +- 24V AC. 3- Replace Induction Generator Housing. |
| 31/71/ 91 | Internal generator error ID1/ ID2. | Replace Induction Generator Housing ID1, ID2. |
| 32/72/92 | Power supply defect ID1/ ID2. | Replace Induction Generator Housing ID1, ID2. |
| 33/73/93 | Cooling fan blocked ID1/ID2. | 1- Verify there is no interference for the fan. 2- Replace generator housing ID1, ID2. |
| 34/74/94 | Main AC Phase error ID1/ID2 | Replace generator housing ID1, ID2. |
| 35/75/95 | Main AC voltage too low ID1/ID2. | 1- Check line voltage coming into the house if all zones are showing this error. 2- Replace generator housing ID1, ID2. |
| 36/76/96 | Internal communication error ID1/ID2. | Replace generator housing ID1, ID2. |
| 37/77/97 | Internal induction generator housing error ID1, ID2. | Replace generator housing ID1, ID2. |
| 38/78/98 | Fan not connected ID1, ID2. | 1- Verify fan is correctly connected at BS1. 2- Replace induction generator housing ID1, ID2. |
| 39 | Configuration mismatch between generator and UI control. | 1- Verify if user interface is the right one for that model. 2- Verify if generators are the correct type. 3- If all displays are showing this error replay UI otherwise replace appropriate generator. |
| 40/80/A0 | IGBT heat sink sensor error ID1/ID2. | 1- Verify if the heat sink sensor is installed properly (measure approx. 100kOhm for NTC). 2- Replace generator housing assembly ID1, ID2. |
| 41/81/A1 | Induction sensor (coils) defect ID1/ID2. | 1- Verify if the inductor (coils) are connected properly (measure approx. 0Ohm at room temperature). 2- Replace the induction generator housing if 0 ohm otherwise the inductor (coil). |
| 42/82/A2 | General pot detection alarm ID1/ID2. | 1- Verify pans are the proper type (magnet sticks to the bottom of pan). 2- Verify pan is not warped or rusty, pan is proper size, pan is placed correctly. 3- Replace induction generator housing ID1, ID2. |
| 43/83/A3 | Pot detection sensor fail ID1/ID2. | 1- Verify pan is not warped or rusty, pan is proper size for zone, pan is placed correctly. 2- Replace induction generator housing ID1, ID2. |
| 44/84/A4 | Board temperature warning ID1/ID2. | 1- Ensure customer is not using the cooktop with a dry pan at a high temperature level. 2- Allow zone to cool down and then continue cooking. |
| 45/85/A5 | Board temperature alarm ID1/ID2. | 1- Ensure customer is not using the cooktop with a dry pan at a high temperature level. 2- Replace induction generator housing ID1, ID2. |
| 51/52/53 54/55/56 | Element temperature sensor failure ID1/ ID2. | 1- Verify induction temperature sensor is connected properly at B71 or B81 as per wiring diagram. 2- Verify the inductor temperature sensor is installed properly and not damaged (measure approx. 100K Ohms at room temperature). 3- Replace induction generator housing ID1, ID2. |
| 63/64/65 66/67/68 | Element temperature sensor too hot ID1/ID2. | 1- Ensure customer does not use the cooktop with a dry pan at high temperature levels. 2- Verify the inductor temperature sensor is installed properly and not damaged in the proper generator (measure approx. 100k Ohms at room temperature). 3- Replace induction generator housing ID1, ID2. |

| UI Display | Error Description | Corrective Action |
|------------|---|--|
| 71 | Internal generator error. Sync, Induction Housing Assembly / Right side cooking zones. | 1- Check all cables and connectors on the Right Side Generator Circuit Board, replace if defective. 2- Replace the Right Side Generator Circuit Board. |
| 72/73 | Power Supply defect. Induction Housing Assembly / Right side cooking zones | 1- Test all cables & connections on Filter Circuit Board. 2- Replace the Filter Circuit Board. 3- Replace the Right Side Generator Circuit Board. |
| 74 | Internal generator error. Communication, Induction Housing Assembly / Right side cooking zones. | 1- Check cable between Filter Circuit Board, connector X13 and the Right Side Generator Circuit Board, connector X10. 2- Replace the Filter Circuit Board. 3- Replace the Right Side Generator Circuit Board. |
| 76 | Communication error. Induction Housing Assembly / Right side cooking zones. | 1- Verify communication harness between ESEC-UIB P9 connector and Filter Circuit Board X20/X14, replace if damaged. 2- Verify communication harness going between Filter Circuit Board, connector X13 and Right Side Generator Circuit Board, X10 connector. Replace if defective. 3- Replace Filter Circuit Board. 4- Replace the Right Side Generator Circuit Board. 5- Replace ESEC-UIB. |
| 77 | Heat sink temperature sensor break, Induction Housing Assembly / Right side cooking zones. | Replace the Right Side Generator Circuit Board. |

| ADDITIONAL ERROR (FAULT) CONDITIONS | | | |
|---|---|---|---|
| Symptom or failure | Control Display | Possible cause or condition | Suggested Corrective Action |
| Pan does not heat up. | Normal operation. | Pan too small for proper pan detection and only works with low power. | Use larger pan or this pan on a smaller cooking zone. Refer to owners guide for proper pan selection. |
| | Flashing "Power level" and pan does not heat. | Pan not detected. | Check whether the pots or pans are suitable for induction. Refer to owners guide for proper pan selection. |
| | | Induction coil not correctly connected or induction coil open. | Check the coil wire terminal connections. Ensure that they are properly connected and tightened. Test continuity of coil (should be less than 1 ohm). |
| | | Distance between coil and glass ceramic too large. | Check whether the coil is properly positioned and touching the glass cooktop surface. |
| Individual buttons cannot be used or cannot always be used. | None. | Test cables & connections. Touch control defective. | 1. Follow instructions for proper use of touch controls. 2. Replace Touch Control. |
| Cooking power too low or shuts down prematurely. | None. | Fluids spilled or object lying on control panel keypads. | Clean up spills or remove objects. Restart cooktop in normal manner. |
| | Normal operation | Ventilation slots obstructed. | Clear vent openings. |
| | | Unsuitable pots (bottom bent). | Follow owners guide for proper pan selection. |
| | | Distance between coil and glass ceramic too large. | Check whether the glass ceramic was pushed down when being screwed in position and the coil has been correctly positioned. |
| HE in display when cooking zone is cold and switched off. | "HE" | Temperature sensor defect. | 1. Test coil sensor , approximately 100Kohms at room temperature. Replace coil if resistance is incorrect. 2. Replace power generator board. |