**SERVICE DATA SHEET - Electric Ranges with ES 830A Electronic Oven Control and Induction Cooktop**

**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.

**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/white 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 may 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.

5. **Oven Calibration/ Temperature adjustment - See Use & Care Guide.**
   - Note: Changing calibration affects normal Bake mode. The adjustments made will not change the Self-Cleaning cycle temperature.

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**Resistance Temperature Detector**

- Green or Green/White 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 may create a potential safety hazard.

**SERVICE DATA SHEET**

- **Component**
  - **Component**: L2 Out / K2
  - **Resistance**: 75 ± 2.5

**WIRING DIAGRAMS AND SERVICE INFORMATION ENCLOSED REPLACEMENT CONTENTS IN BAG**

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**Electrical Oven Control (EOC) Fault Code Descriptions**

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Symptom</th>
<th>Suggested Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F10</td>
<td>Runaway temperature. Oven heats when no cook cycle is programmed.</td>
<td>1. Check RTD Sensor Probe using the RTD scale found in the tech sheet. Replace if defective. 2. If oven is overheating disconnect power from the range and unplug connector P1 from power supply board. Reapply power to the range. If oven continues to heat when the power is reapplied, replace the oven relay board. 3. Replace the EOC.</td>
</tr>
<tr>
<td>F13</td>
<td>Internal software error in EOC.</td>
<td>Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC.</td>
</tr>
<tr>
<td>F14</td>
<td>TST Display tail missing or not connected.</td>
<td>1. Test ribbon harness and connections between TST panel and EOC. Replace if defective. 2. Replace the TST panel. 3. Replace the EOC.</td>
</tr>
<tr>
<td>F15</td>
<td>Signal loss between oven relay board &amp; EOC.</td>
<td>1. Test the harness and connections from EOC connector P16 to oven relay board J2. 2. Replace the oven relay board. 3. Replace the EOC.</td>
</tr>
<tr>
<td>F20</td>
<td>Communication failure between EOC and ESEC. (Electric models only)</td>
<td>1. Test wiring harness and connections between EOC connector P2 and ESEC 30 UB P9. 2. Test wiring harness and connections between PS board 1 (P3) and ESEC 30 UB connector P6. 3. Test for approximately 9 volts DC output from PS board 1 at ESEC 30 UB connector P6, pins 1 &amp; 2. If output voltage is incorrect test incoming power supply to PS board 1 at harness connector P1 pins 1 &amp; 4. If incoming power is correct (120 VAC), replace PS board 1. If output voltage is incorrect replace ESEC 30 UB.</td>
</tr>
<tr>
<td>F23</td>
<td>Communication failure between VSC board and EOC.</td>
<td>1. Check harness and connections between VSC board and EOC. 2. Test for approximately 5 volts DC to VSC board at P6 connector pins 1 &amp; 6. If voltage is correct replace VSC board. If voltage is incorrect replace EOC.</td>
</tr>
<tr>
<td>F30</td>
<td>Open probe connection.</td>
<td>1. (F30 or F31) Check resistance at room temperature &amp; compare to RTD Sensor resistance chart. If resistance does not match the RTD chart replace RTD Sensor Probe. Check Sensor wiring harness between EOC &amp; Sensor Probe connector. 2. (F30 or F31) Check resistance at room temperature, if less than 500 ohms, replace RTD Sensor Probe. Check for shorted Sensor Probe harness between EOC &amp; Probe connector.</td>
</tr>
<tr>
<td>F31</td>
<td>Shorted Probe connection.</td>
<td>1. If latch motor does not run when clean cycle is selected: 2. Check to see if latch motor coil is open. If open, replace latch motor assembly. 3. Test for 120 volts to the terminals of the latch motor. If voltage is correct and motor does not run replace latch motor assembly. If voltage is not correct replace EOC.</td>
</tr>
<tr>
<td>F90</td>
<td>Door lock motor latch failure</td>
<td>1. Check if latch motor runs when clean cycle is selected: 2. Test operation of the switch contacts. Replace latch motor assembly if defective. 3. Check for binding of the latch cam, latch motor rod &amp; latch motor cam. 4. If all situations above do not solve problem, replace EOC.</td>
</tr>
</tbody>
</table>
GENERAL TROUBLESHOOTING DIAGRAM

WARNING
POWER SOURCE MUST BE DESELECTED BEFORE DISASSEMBLY. DISCONNECT POWER BEFORE SERVICING.

EXAMPLE:
FIRST, STRIPE NEXT.

EXAMPLE:
G / Y-8 GREEN WIRE WITH YELLOW STRIPE.

NOTES:
1. CIRCUIT SHOW WITH ALL CONTROLS SET TO OFF.
2. COMPONENTS WITH * DO NOT APPEAR ON ALL MODELS.
3. UTILITIANS OR GROUP WITH 110/120 VOLT COMPONENTS
4. BOARD WITH 115/120 VOLT COMPONENTS
5. BOARD WITH 115/120 VOLT COMPONENTS

GENERAL TROUBLESHOOTING SCHEMATIC

INDUCTION SYSTEM

COOKTOP DATA CONTROL
COMMANDS FOR ELECTRONIC COOKTOP LOCS

L1
L2
N

DISCONNECT POWER BEFORE SERVICING.
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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.

**ELECTRONIC SURFACE ELEMENT CONTROL (ESEC)**

This range 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 window message** - If any of the surface elements are hot, the Hot Element window message will turn on and remain ON until the cooktop becomes sufficiently cool.

**ESEC Lockout Feature** - The electronic oven control's Clean and Lock features will not operate when a surface element is ON. Conversely, the surface elements controlled by the ESEC will not operate when an oven control Clean or Control Lockout mode is active. When the oven control is in a Clean or Control Lockout mode, a "- -" will appear in the surface element displays to signify that the surface elements are locked out.

**ESEC System Components**

- **UIB** or User Interface Board. This circuit board is mounted with 4 screws in the backguard.
- **TSEC** or Touch Sensor Electronic Control. The TSEC controls the touch pads for all surface element controls.
- **ESEC Harness** connects the ESEC system components and communicates with the EOC (Electronic Oven Control).
- **Induction Control Assembly**—circuit boards in plastic housings mounted on the back side on two brackets with four screws.

**Notes on Replacing Parts**

**Replacing the Induction Control Assembly** – When replacing the induction control assembly on the back of the range, do not over-tighten the 4 screws that secure the Control Assembly to the range or the screws that secure the rear wire shield to the Control Assembly. Over-tightening the screws can damage the plastic housings holding the circuit boards.

**Replacing An Induction Element**

Whenever replacing any induction element use only the nonmagnetic shoulder screws supplied with the range to secure the element to the mounting panel. Never use any other type of screw to attach the induction element or damage will occur.

**Replacing the TSEC** – The Touch Sensor Electronic Control includes several parts and must be replaced as an assembly.

**Replacing the UIB** – When replacing the User Interface Board located in the backguard, do not over-tighten the screws that secure the UIB. To secure the UIB use NO MORE THAN 20 in. - lbs. Over-tightening these screws can possibly damage the UIB board.

* 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.
## ELECTRONIC SURFACE ELEMENT CONTROL SYSTEM (ESEC 30) ERROR CODE DESCRIPTIONS

When a specific error condition occurs in the ESEC system, the control will beep and usually display an error code. These error codes will appear in the two front element displays with “E” in the left display and the code number in the right display. For each Error Code or symptom there is a listing of the likely cause or failure condition, as well as suggested corrective actions to be taken. Always reset the power by disconnecting or turning off the power supply for 30 seconds to see if the failure condition will clear. If the error code returns the steps one at a time in the order listed below to connect the specific failure condition. **NOTE:** If multiple changing error codes are displayed check for disconnected wires or cables.

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Likely Cause or Failure Condition</th>
<th>Suggested Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>Synchronization failure - Right side cooking zones generator board.</td>
<td>1. Verify all cable and harness connections to the right side cooking zones generator board.</td>
</tr>
<tr>
<td>72 or 73</td>
<td>Power supply defect - Right side cooking zones.</td>
<td>1. Test all cables &amp; connections on filter board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Replace the filter board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Replace the generator board for the right side cooking zones.</td>
</tr>
<tr>
<td>74</td>
<td>Internal communication failure - generator board, right side cooking zones.</td>
<td>1. Check cables between the filter board X12 connector and the X10 connector on right side cooking zones generator board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Replace right side cooking zones generator board.</td>
</tr>
<tr>
<td>76</td>
<td>Communication error (right cooking zones).</td>
<td>1. Test / reseat communication harness between UIB connector P8 and filter board X14 connector.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Replace the filter board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Replace the generator board for the left side cooking zones.</td>
</tr>
<tr>
<td>77</td>
<td>Heat sink temp sensor break (right cooking zones).</td>
<td>1. Replace right side cooking zones generator board.</td>
</tr>
</tbody>
</table>

### ADDITIONAL FAILURE CONDITIONS

<table>
<thead>
<tr>
<th>Symptom or Failure</th>
<th>Control Display</th>
<th>Possible Cause or Condition</th>
<th>Suggested Corrective Action</th>
</tr>
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<tbody>
<tr>
<td>Pan does not heat.</td>
<td>Normal operation</td>
<td>Pan too small for proper pan detection and only works with low power. Use larger pan or pan on a smaller cooking zone. Refer to owners guide for proper pan selection.</td>
<td></td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>3. Replace the generator board for the right side cooking zones.</td>
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<tr>
<td>74</td>
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<td>1. Check cables between the filter board X12 connector and the X10 connector on right side cooking zones generator board.</td>
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<td></td>
<td></td>
<td>2. Replace right side cooking zones generator board.</td>
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<td>76</td>
<td>Communication error (right cooking zones).</td>
<td>1. Test / reseat communication harness between UIB connector P8 and filter board X14 connector.</td>
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<tr>
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<td></td>
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**Tech Sheet Abbreviations and Terminology**

- **EOC** = Electronic Oven Control
- **UIB** = User Interface Board
- **VSC** = Variable Speed Control
- ESEC = Electronic Surface Element Control
- TSST = Touch Sensor Technology (touch control glass panel)
- TSB = Touch Sensor Electronic Control
- RTD = Resistance Temperature Device, (Temp Probe or Temp Sensor)
- TCO = Thermal Cut Out also “Thermo Disc” or “Thermo Disc”
- ESEC key display ribbon cable is shorted keypad.
- Beeping codes
- AC input voltage too high
- AC input voltage too low
- Individual buttons cannot be used or cannot always be used.
- None
- Power supply defect - left side cooking zones
- Communication error (left cooking zones)
- Heat sink temp sensor break (left cooking zones)
- Configuration mismatch between the UIB and the filter board. (Can occur when a filter board is replaced)
- Surface unit temp sensor break
- Surface unit sensor too hot

**Error Code Symptom Details**

<table>
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<tr>
<th>71</th>
<th>Error is displayed on the two front element displays with “E” in the left display and the code number in the right display.</th>
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<tr>
<td>72</td>
<td>Power supply defect - Right side cooking zones. If power supply defect code 72 or 73 is displayed, check the power supply board.</td>
</tr>
<tr>
<td>73</td>
<td>Power supply defect - Right side cooking zones. If power supply defect code 72 or 73 is displayed, check the power supply board.</td>
</tr>
<tr>
<td>74</td>
<td>Internal communication failure - generator board, right side cooking zones. If internal communication failure code 74 is displayed, check the communication harness between the filter board and the UIB.</td>
</tr>
<tr>
<td>76</td>
<td>Communication error (right cooking zones). If communication error code 76 is displayed, check the communication harness between the filter board and the UIB.</td>
</tr>
</tbody>
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**Additional Information**

- **SAFETY**
  - **CAUTION**
    - Do not operate the ESEC system without proper ventilation. Make sure the airway and fans are clear and not obstructed.
  - **WARNING**
    - Use only genuine replacement parts as specified in the owner's guide. Improperly installed or damaged parts can result in personal injury or damage to the appliance.

**Notes**

- Always use genuine replacement parts as specified in the owner's guide.
- Improperly installed or damaged parts can result in personal injury or damage to the appliance.

**Troubleshooting Tips**

1. Check all cables and harness connections to the right side cooking zones generator board.
2. Replace the generator board.
3. Replace the filter board.
4. Replace the UIB.
5. Replace the power supply board.