

SERVICE DATA SHEET

Electric Ranges with ES 510 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.

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.

OVEN CALIBRATION

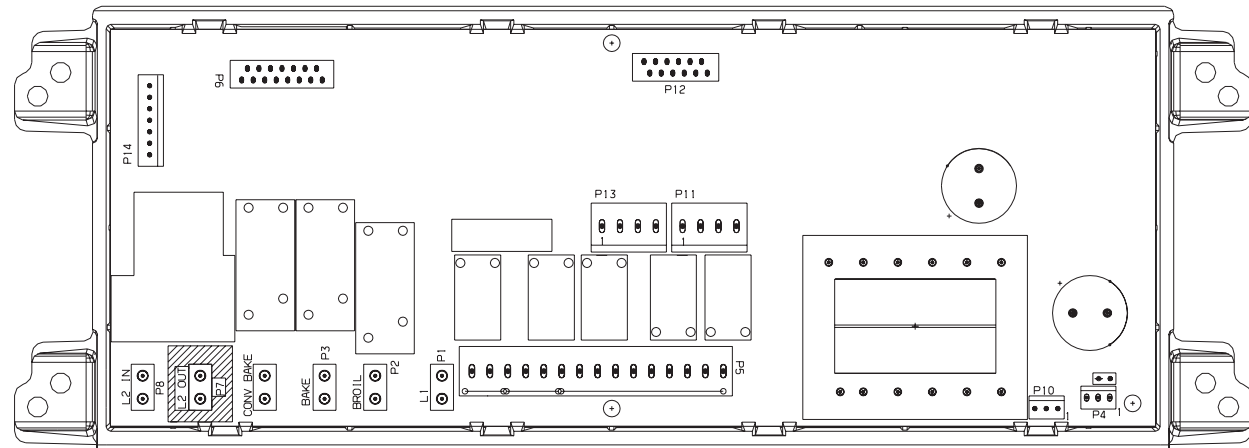
Set the electronic oven control for normal baking at 350°F. Obtain an average oven temperature after a minimum of 5 cycles. Press **STOP/CLEAR** to end bake mode.

TEMPERATURE ADJUSTMENT

1. Set EOC to bake at 550°F.
2. Within 5 seconds of setting 550°F, press and hold the bake pad for approximately 15 seconds until a single beep is heard (longer may cause **F11** shorted keypad alarm).
3. Calibration offset should appear in the display.
4. Use the slew keys to adjust the oven temperature up or down 35°F in 5°F increments.
5. Once the desired (-35° to 35°) offset has been applied, press **STOP/CLEAR**.

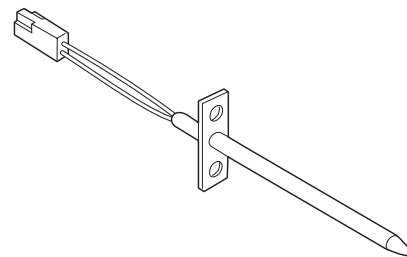
Note: Changing calibration affects normal Bake mode. The adjustments made will not change the Self-Cleaning cycle temperature.

ELECTRONIC OVEN CONTROL (REAR VIEW)

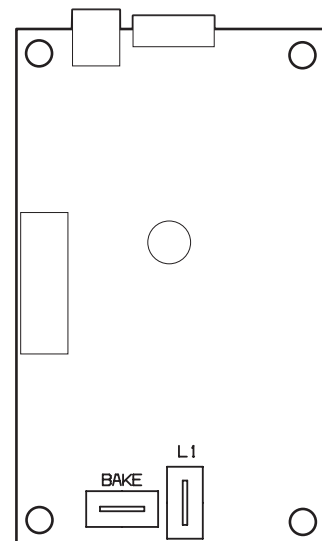


RTD SCALE	
Temperature (°F)	Resistance (ohms)
32 ± 1.9	1000 ± 4.0
75 ± 2.5	1091 ± 5.3
250 ± 4.4	1453 ± 8.9
350 ± 5.4	1654 ± 10.8
450 ± 6.9	1852 ± 13.5
550 ± 8.2	2047 ± 15.8
650 ± 9.6	2237 ± 18.5
900 ± 13.6	2697 ± 24.4

RESISTANCE TEMPERATURE DETECTOR



BAKE-N-WARM™ DOUBLE OVEN CONTROL BOARD (REAR VIEW)



IMPORTANT
DO NOT REMOVE THIS BAG
OR DESTROY THE CONTENTS
 WIRING DIAGRAMS AND SERVICE
 INFORMATION ENCLOSED
REPLACE CONTENTS IN BAG

ELECTRONIC OVEN CONTROL FAULT CODE DESCRIPTIONS

Fault Code	Likely Failure Condition/Cause	Suggested Corrective Action
F10	Runaway Temperature.	1. (F10 only) Check RTD Sensor Probe & replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when the power is reappplied, replace EOC. Severe overheating may require the entire oven to be replaced should damage be extensive.
F11	Shorted Keypad.	2. (F11, 12 & 13) Disconnect power, wait 30 seconds and reapply power.
F12	Bad Micro Identification.	3. (F11, 12 & 13) If fault returns upon power-up, replace EOC.
F13	Bad EEPROM Identification/Checksum error.	
F20	Communication failure between EOC & ESEC system	1. Test harness/connections P4 (EOC) & P11 (Surface Element Control Board) or EOC. 2. If harness checks O.K. failure can be caused by faulty UIB, Surface Element Control Board or EOC.
F26	Communication failure with Mini Oven Control Board.	1. Check harness & connectors from the EOC to Mini Oven Control Board. Check for 15VDC to Mini Oven Control Board (red & gray wires). If harness and voltage are good replace Mini Oven Control Board. If fault returns replace the EOC.
F30	Shorted Probe connection.	1. (F30 or F31) Check resistance at room temperature & compare to RTD Sensor resistance chart. If resistance does not match the RTD chart replace RTD Sensor Probe. Check Sensor wiring harness between EOC & 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 & Probe connector.
F31		
F40	Cooktop Lockout error.	1. (F40) Check the wiring. 2. (F40) Replace the Cooktop Lockout Control Board. 3. (F40) Replace EOC.
F90	Maximum oven door unlock time exceeded.	1. (F90, 91, 92, 93 & 94) Check the wiring between EOC & Lock Motor Micro Switch.
F91	Maximum oven door unlock attempts exceeded.	2. (F90, 91, 92, 93 & 94) Replace the Motor Door Latch assembly if necessary.
F92	Maximum oven door open time exceeded.	3. (F90, 91, 92, 93 & 94) Check for binding of the Latch Cam, Lock Motor Rod & Lock Motor Cam.
F93	Maximum oven door lock time exceeded.	4. (F90, 91, 92, 93 & 94) Check to see if Lock Motor Coil is open. If open, repl;ace Lock Motor Assembly.
F94	Maximum oven door lock attempts exceeded.	5. (F90, 91, 92, 93 & 94) Lock Motor continuously runs - if Micro Switch is open, replace Lock Motor Assembly. 6. (F92, 93 & 94) Check oven door Light Switch - if open, replace Switch. 7. If all situations above do not solve problem, replace EOC.

REMOVING & REPLACING BAKE-N-WARM™ DOUBLE OVEN DRAWER

CAUTION Be sure the range is unplugged and all parts are **COOL** before replacing oven light. Wear a leather-faced glove for protection against possible broken glass.

TO REMOVE THE BAKE-N-WARM™ DOUBLE OVEN DRAWER:

1. Before drawer removal, be sure to turn OFF the Bake-n-Warm™ Double Oven and let the drawer area cool completely.
2. Pull the drawer away from the oven. Using a phillips-head screwdriver remove the two drawer screws from the insides of the oven drawer (See Fig. 1).
3. With one hand hold the drawer front in place. Use your other hand to pull the glide away from the oven (See Fig. 2) until the glide hook disengages (See Fig. 3).
4. Repeat from step 3 above for the other side of the drawer.
5. With BOTH glide hooks disengaged, carefully lift the drawer up and away from the oven. Push both drawer glides into lower oven cavity.

TO REPLACE THE BAKE-N-WARM™ DOUBLE OVEN DRAWER:

1. Pull both drawer glides and fully extend outward from lower oven cavity.
2. Carefully rest the drawer on top of both glides.
3. Adjust the drawer position on top of the rails until both of the drawer side slots are correctly engaged with the glide hooks (See Fig. 4).
4. Pull the drawer forward to line up the drawer with both screw holes in the glides. Using a phillips-head screwdriver replace the two screws removed from the inner drawer sides.
5. Replace drawer rack if removed.
6. Close lower oven drawer.

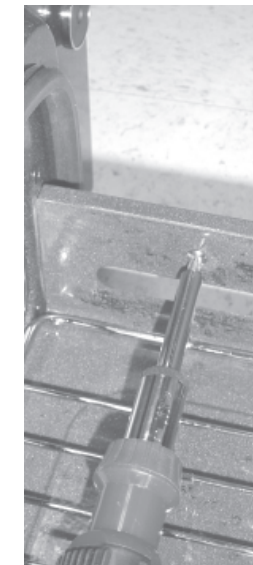


Fig. 1

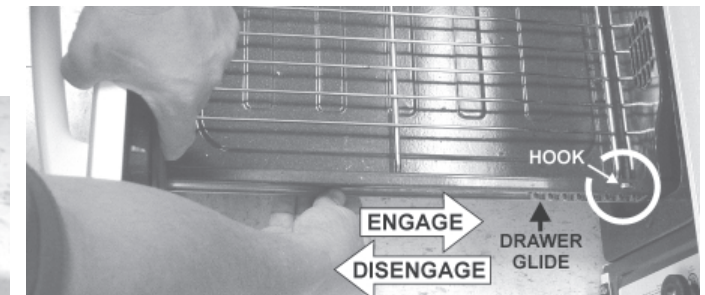
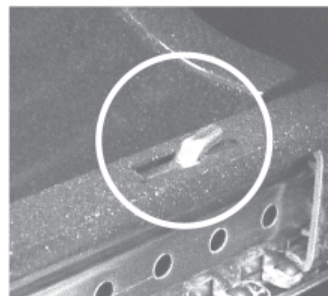


Fig. 2



Glide Hook Disengaged
Fig. 3



Glide Hook Engaged
Fig. 4

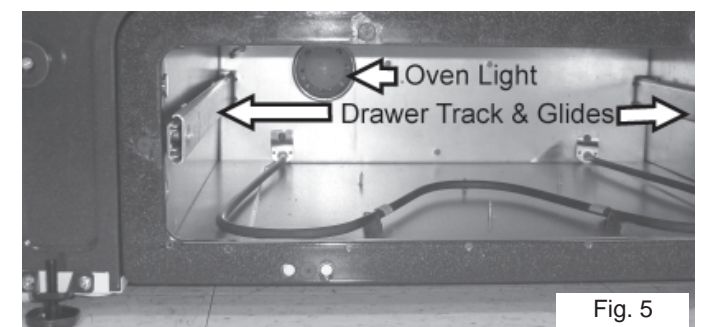


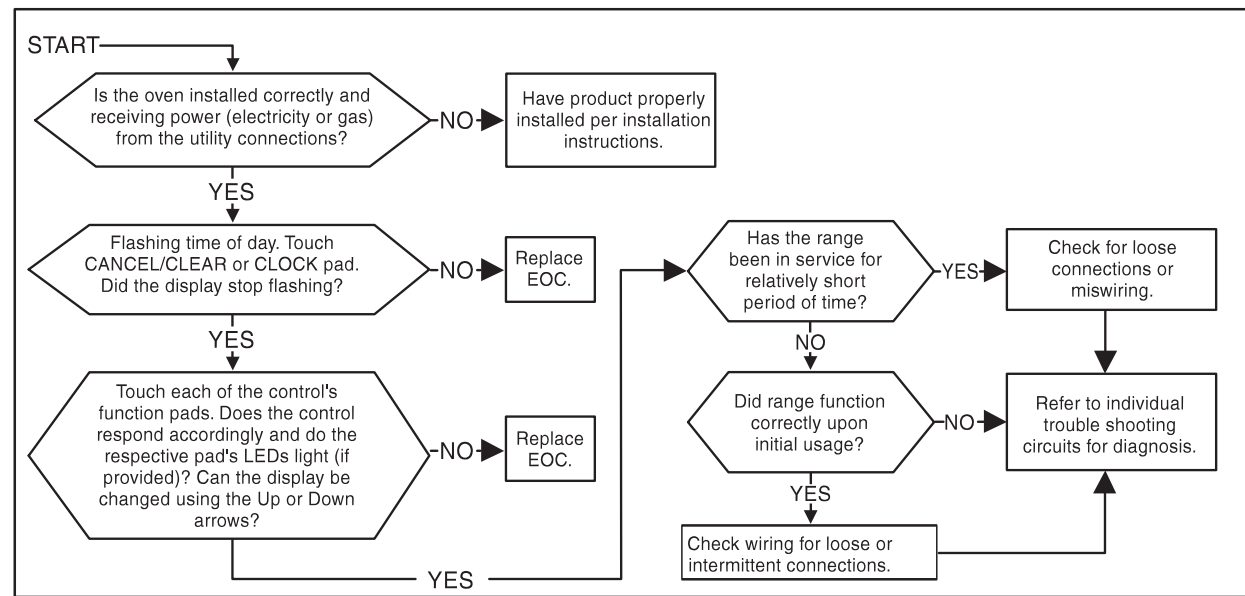
Fig. 5

CIRCUIT ANALYSIS MATRIX

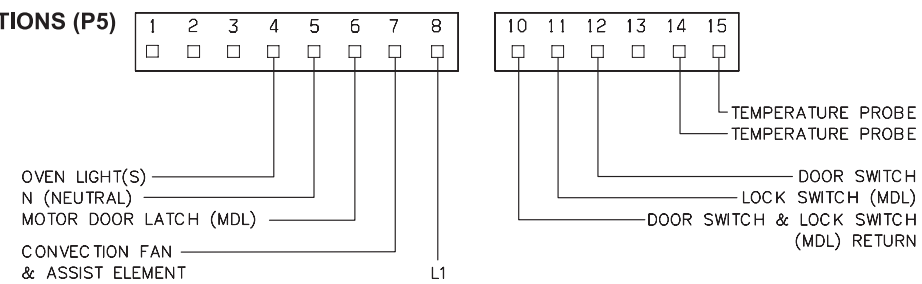
	EOC Relays					Door Switch COM-NO
	L1 to Bake	L1 to Broil	L1 to Motor Door Latch	L1 to Conv/Speed Bake Fan	L2 IN to L2 OUT	
Bake/Time Bake	X	X*			X	
Conv/Speed Bake	X	X*		X	X	
Broil		X			X	
Clean	X				X	
Locking			X			
Unlocking			X			
Door Open						
Door Closed						X
Cooktop Active						

Note: X=Relay Contacts Closed. *Alternates with the Bake Element.

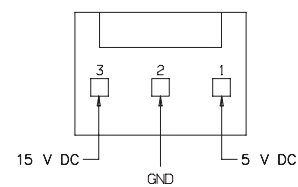
ELECTRONIC OVEN CONTROL (EOC) TROUBLESHOOTING GUIDE



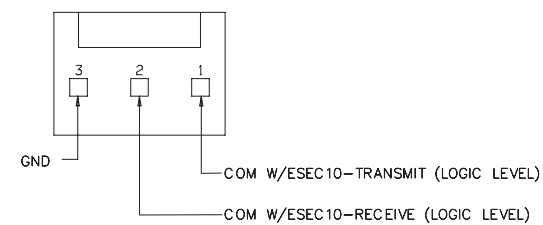
E.O.C. CONTROL CONNECTIONS (P5)



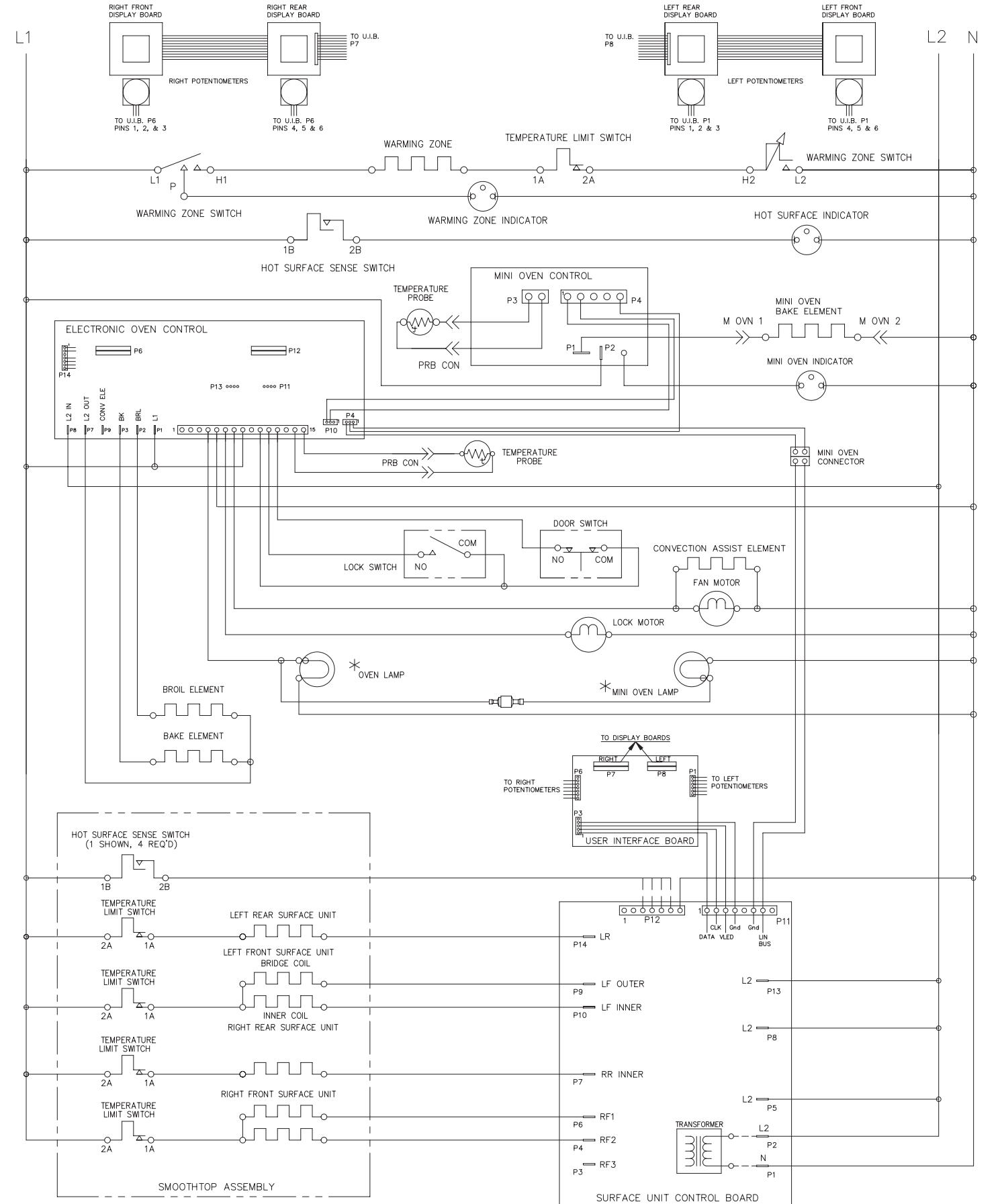
P10 BAKE-N-WARM™ CONNECTIONS



P4 BAKE-N-WARM™ CONNECTIONS



GENERAL TROUBLESHOOTING SCHEMATIC



NOTES:

1. CIRCUIT SHOWN WITH ALL CONTROLS SET TO OFF. OVEN DOOR CLOSED AND UNLOCKED.
2. COMPONENTS WITH * DO NOT APPEAR ON ALL MODELS.

SERVICE DATA SHEET

Electric Smoothtop Ranges with Electronic Surface Element Control (ESEC 10R)

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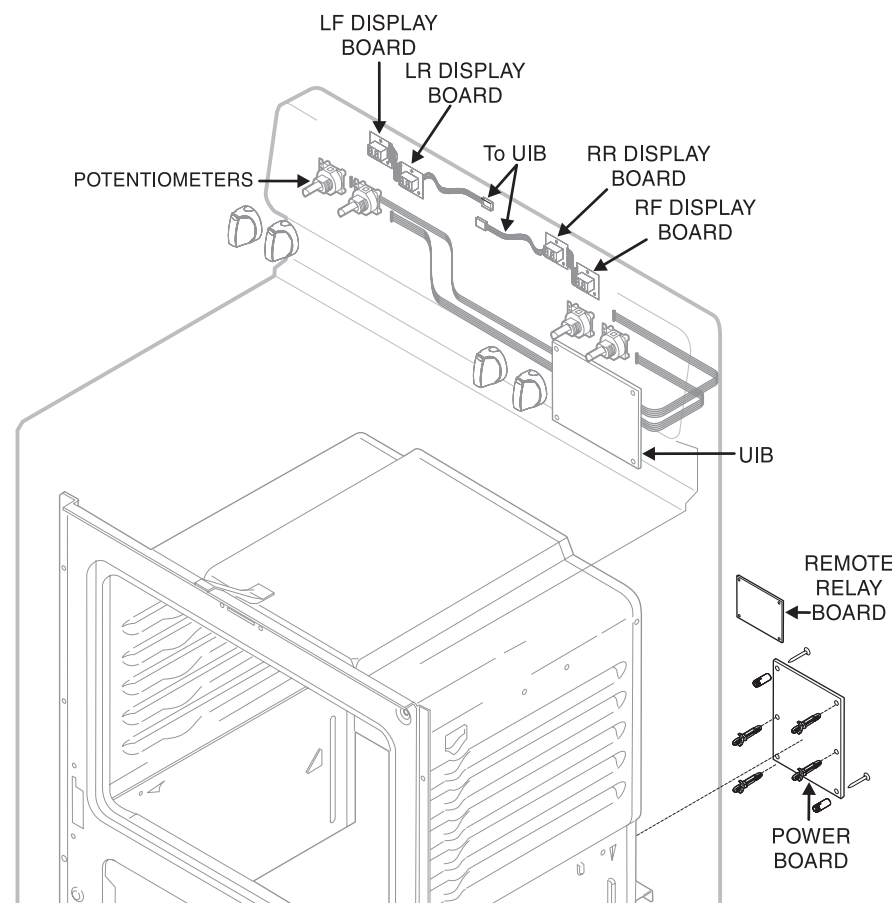
ELECTRONIC SURFACE ELEMENT CONTROL (ESEC)

This range is equipped with an Electronic Surface Element Control (ESEC), which precisely controls the smoothtop cooking elements at multiple settings. (The Warming Zone element is not controlled by the ESEC). For the user, the elements are operated in the same way as with conventional controls, by pushing in and turning the knob to the desired setting. The setting is shown in the digital display above the knob, instead of using graphics on the control panel.

ESEC Hot Element Indicator ("HE") - While an element surface is hot, that element's display will show "HE". This is in place of the usual hot surface indicator light on ranges with conventional controls.

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 Lock mode is active. When the oven control is in a Clean or Lock mode, "- -" will appear in the ESEC displays to signify that the surface elements are locked out. **NOTE:** The "HE" (hot element) display will always have priority over the "- -" display.

ESEC System Components - The ESEC system consists of a **Power Board** (main control board mounted on the mainback of the range) and User Interface Board or **UIB** (circuit boards with digital displays, mounted in the control panel), four **Potentiometers** (push-to-turn control for each element) and the **ESEC Harness** that connects the boards and the oven control. The ESEC boards communicate with each other to control the elements and with the oven control for the lockout modes. (See the ESEC System Diagram.)



Notes on Replacing Parts

Replacing Potentiometers – Each of the four push-to-turn controls is mounted to the control panel with a hex nut and lockwasher. When replacing a potentiometer, do not over-tighten the hex nut – a torque of only 5 in.-lbs. is required to properly mount the potentiometer. Over-tightening the hex nut will negatively affect the smooth feel of the knob turn and can damage the potentiometer.

Replacing the Power Board – When replacing the main control board (power board) on the back of the range, do not over-tighten the 2 screws that secure the Power Board. A torque of only 10 in.-lbs. is required to tighten the screws. Over-tightening the screws can damage the plastic standoffs and possibly the board itself.

SERVICE DATA SHEET

Electric Smoothtop Ranges with Electronic Surface Element Control (ESEC 10R)

ELECTRONIC SURFACE ELEMENT CONTROL (ESEC 10R) TROUBLESHOOTING GUIDE

Symptom	Likely Failure Condition/Cause	Suggested Corrective Action
F5 A0	Bad EEPROM checksum.	1. Replace Power Board.
F5 00	No LinBUS master communication.	1. Bad EOC. 2. Bad Power Board. 3. Bad ESEC Harness 4. Contact technical line for further assistance.
F5 01	Power Board not communicating.	1. Bad ESEC harness. 2. Bad UIB. 3. Bad Power Board. 4. Contact technical line for further assistance.
F5 02	UIB not communicating.	1. Bad UIB. 2. Bad Power Board. 3. Bad ESEC harness. 4. Contact technical line for further assistance.
F5 F0	Watchdog timer timed out - Power Board.	1. Replace Power Board.
F5 FF	Watchdog timer timed out - UIB.	1. Replace UIB.
F7 10 F7 20 F7 30 F7 40	Potentiometer LF is open. Potentiometer LR is open. Potentiometer RR is open. Potentiometer RF is open.	1. Bad potentiometer. 2. Bad UIB. 3. Contact technical line for assistance.
F7 11 F7 21 F7 31 F7 41	Potentiometer LF is shorted. Potentiometer LR is shorted. Potentiometer RR is shorted. Potentiometer RF is shorted.	1. Bad potentiometer. 2. Bad UIB. 3. Contact technical line for assistance.
F7 12 F7 22 F7 32 F7 42	Potentiometer for LF is wrong value. Potentiometer for LR is wrong value. Potentiometer for RR is wrong value. Potentiometer for RF is wrong value.	1. Bad potentiometer. 2. Bad UIB. 3. Check for moisture. 4. Contact technical line for assistance.

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ESEC SYSTEM DIAGRAM

