

# SERVICE DATA SHEET

## Electric Ranges with ES 100/105 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

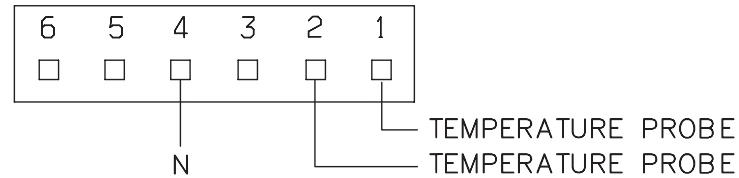
To avoid the possibility of personal injury and/or property damage, it is important that safe servicing practices be observed. The following are examples, but without limitation, of such practices.

- Before servicing or moving an appliance remove power cord from electrical outlet, trip circuit breaker to OFF, or remove fuse.
- Never interfere with the proper installation of any safety device.
- 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.**
- 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 **CANCEL** or **CLEAR** to end bake mode.

### Electronic Oven Control (E.O.C.) Connections (J1)



### Oven Temperature Adjustment

(some models - do not use Bake or Broil while adjusting the oven temperature):

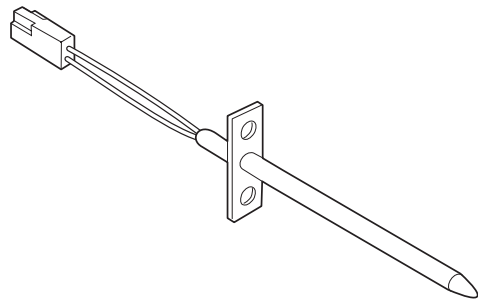
- Press & hold the **BAKE** key pad and release after the display begins flashing the factory temperature setting of **00**.  
**Note:** If the oven temperature has been previously adjusted from the factory setting, the current temperature adjusted value will flash in the display instead.
- You may increase the oven temperature in 5°F increments with each press of the **UP ARROW** key pad to a maximum oven adjustment of +35°F. You may also adjust the oven temperature downward in 5°F increments with each press of the **DOWN ARROW** key pad (total adjustment range of -35 to +35 F. **Note:** Your oven control was factory set in the (Fahrenheit) °F Temperature Display Mode. To change for (Celsius) °C, see **Changing the Temperature Display Mode** in the Oven Control Functions section of this Use & Care Manual.
- If no other key pad is pressed after 5 seconds the display will begin to flash.
- If you **do not want** to keep the display adjustment, press the **CANCEL** or **CLEAR** key pad before the oven control beeps. This will cancel the temperature adjustment procedure. To start this procedure over again begin with step 1 above **OR**;
- If you **want** to keep the adjustment, wait until the display quits flashing and the oven control beeps once.
- The oven temperature adjustment has been accepted by the oven control and the display will return to the time of day.

**Notes:** The oven temperature adjustment may be made if your oven control has been set to operate in the (Celsius) °C **Temperature Display Mode**. In this case each press of the **UP ARROW** or **DOWN ARROW** key pad will adjust in 1°C increments upward (maximum +18°C) or downward (maximum -18°C), depending on which arrow key pad is pressed.

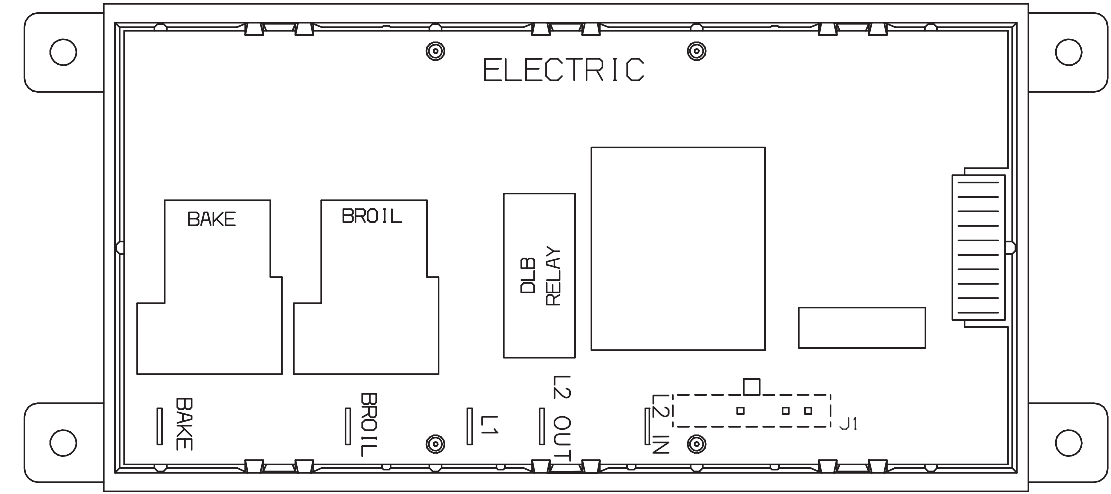
### Resistance Temperature Detector Scale

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



### Electronic Oven Control (E.O.C. Rear View)



Electronic Oven Control (E.O.C.) Fault Code Descriptions (some models-models that display F1 or F3)		
<b>Note:</b> Only two fault codes are displayed by this control - <b>F1</b> or <b>F3</b> . Generally, <b>F1</b> display implies the electronic oven control itself has detected an internal malfunction. <b>F3</b> implies the control has detected a sensor probe failure. In either case, an alarm will accompany a displayed <b>F1</b> or <b>F3</b> .		
Fault Code	Likely Failure Condition/Cause	Suggested Corrective Action
<b>F1</b>	<ol style="list-style-type: none"> <li>Shorted keypad.</li> <li>Control's internal checksum may have become corrupted.</li> <li>Control has sensed a potential runaway oven condition. Control may have shorted relay, RTD sensor probe may have gone bad.</li> </ol>	<ol style="list-style-type: none"> <li>Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC.</li> <li>Check RTD sensor probe and replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when the power is reapplied, replace EOC. Severe overheating may require the entire oven to be replaced, should damage be extensive. Replace EOC.</li> </ol>
<b>F3</b>	<ol style="list-style-type: none"> <li>Open RTD sensor probe. Note: The EOC will initially display an <b>F1</b> for this condition. The EOC thinks a runaway oven condition exists.</li> <li>Shorted RTD sensor probe. Note: The <b>F3</b> for shorted probe should only occur when the oven is active or when an attempt is made to enter a mode.</li> </ol>	<ol style="list-style-type: none"> <li>Check resistance at room temperature and compare to RTD sensor resistance chart. If resistance does not match the chart, replace RTD sensor probe.</li> <li>Check resistance at room temperature, if less than 500 ohms, replace RTD sensor probe.</li> </ol>

Electronic Oven Control (E.O.C.) Fault Code Descriptions (some models-models that display F10, F11, F13, F30 or F31)		
Fault Code	Likely Failure Condition/Cause	Suggested Corrective Action
<b>F10</b>	<b>Runaway Temperature.</b>	<ol style="list-style-type: none"> <li>(F10 only) Check RTD Sensor Probe &amp; replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when the power is reapplied, replace EOC. Severe overheating may require the entire oven to be replaced should damage be extensive.</li> <li>(F11 &amp; 13) Disconnect power, wait 30 seconds and reapply power.</li> <li>(F11 &amp; 13) If fault returns upon power-up, replace EOC.</li> </ol>
<b>F11</b>	<b>Shorted Keypad.</b>	
<b>F13</b>	<b>Bad EEPROM Identification/Checksum error.</b>	
<b>F30</b>	<b>Open probe connection.</b>	<ol style="list-style-type: none"> <li>(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.</li> <li>(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.</li> </ol>
<b>F31</b>	<b>Shorted Probe connection.</b>	

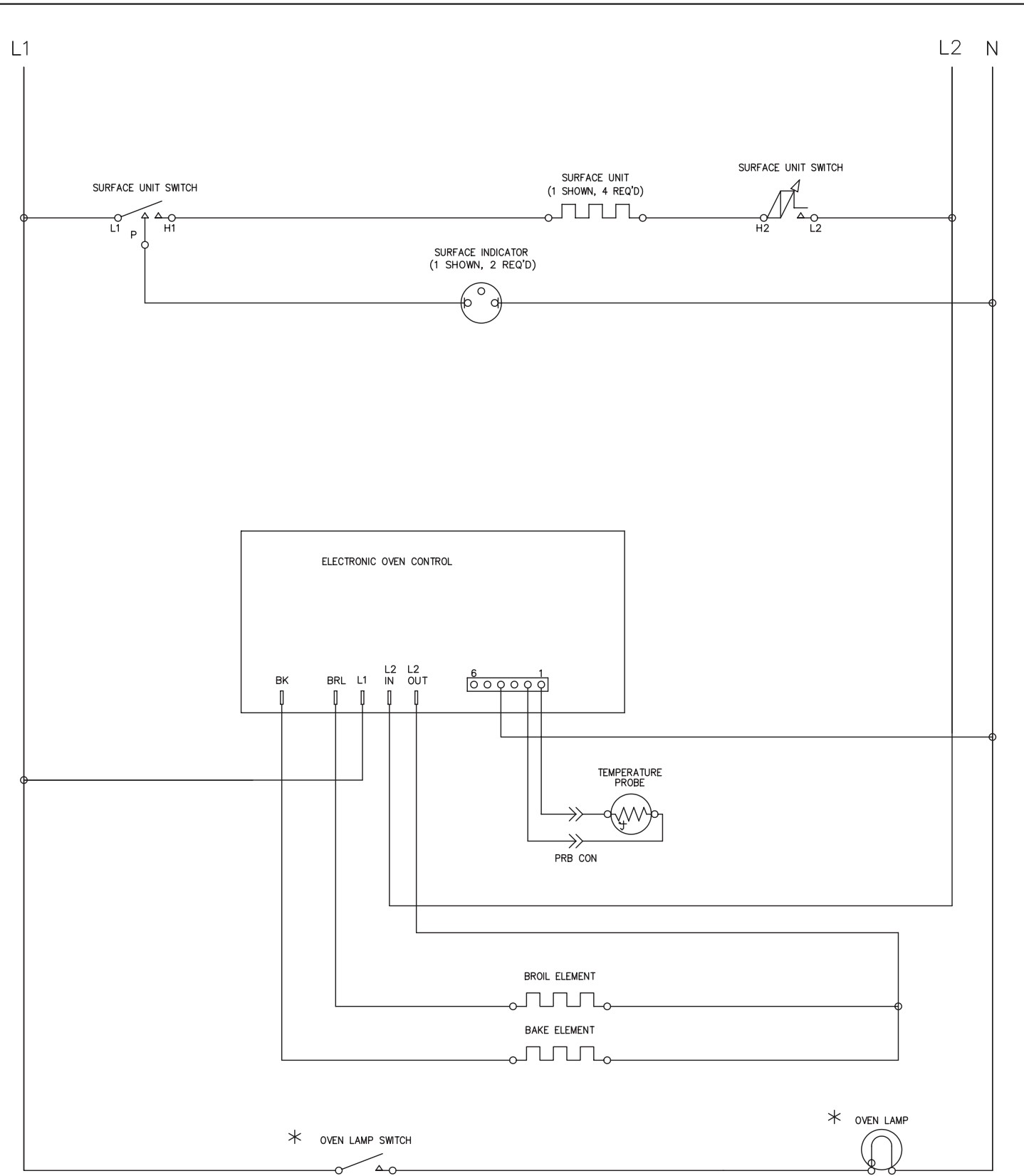
### Circuit Analysis Matrix

	EOC Relays		
	L1 to Bake	L1 to Broil	Door Switch COM-NC
Bake	X	X*	
Broil		X	
Door Open			X
Door Closed			

Note: X=Check listed circuits. \*=Alternates with Bake element.

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

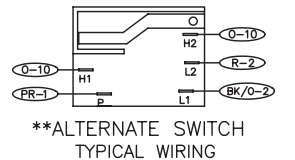
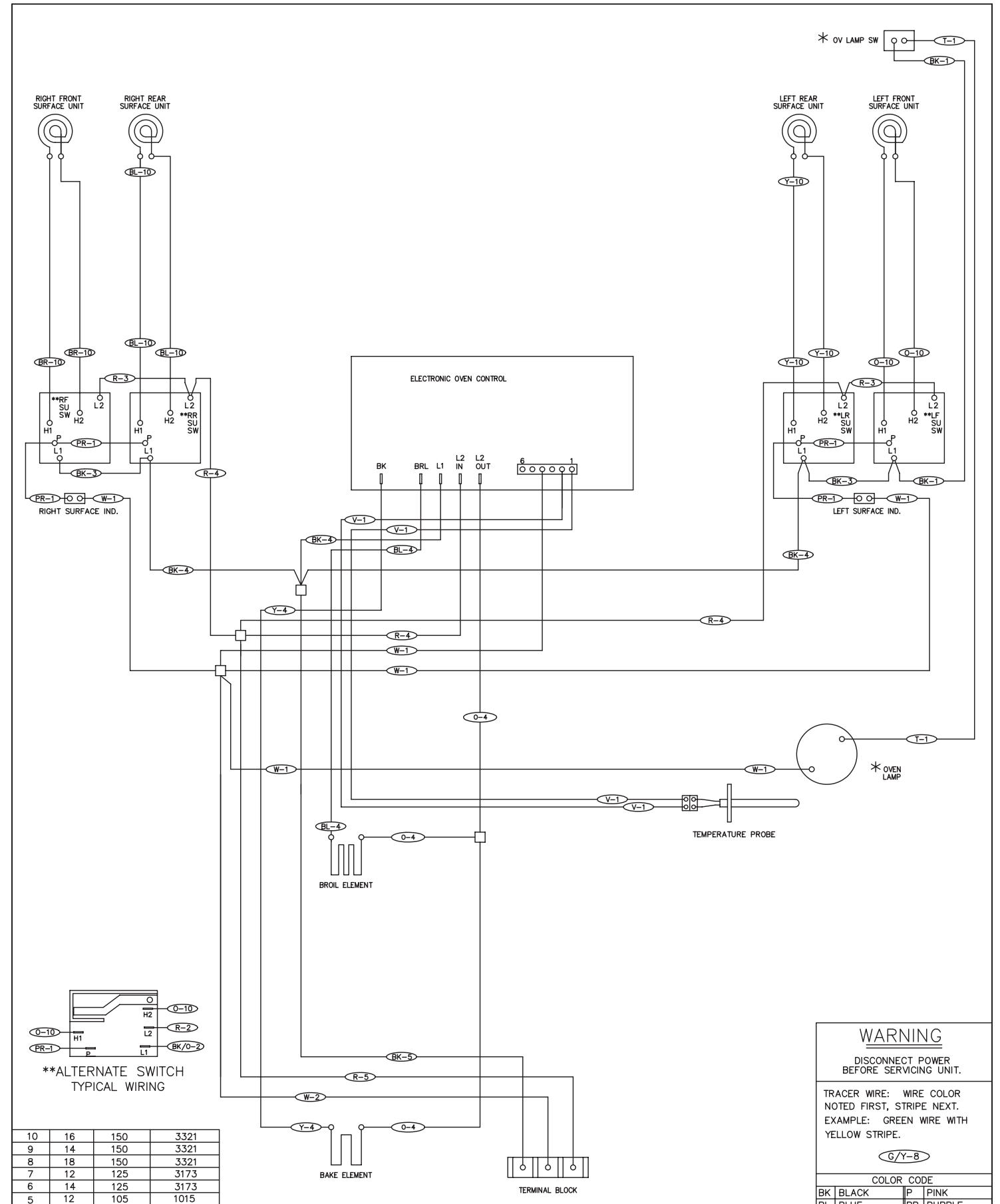
# GENERAL TROUBLESHOOTING DIAGRAM



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

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# GENERAL TROUBLESHOOTING SCHEMATIC



WIRE	AWG	TEMP °C	UL STYLE
10	16	150	3321
9	14	150	3321
8	18	150	3321
7	12	125	3173
6	14	125	3173
5	12	105	1015
4	14	105	1015
3	16	105	1015
2	18	105	1015
1	20	105	1015

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**WARNING**  
DISCONNECT POWER BEFORE SERVICING UNIT.

TRACER WIRE: WIRE COLOR NOTED FIRST, STRIPE NEXT. EXAMPLE: GREEN WIRE WITH YELLOW STRIPE.

G/Y-B

COLOR CODE		
BK	BLACK	P PINK
BL	BLUE	PR PURPLE
BR	BROWN	R RED
C	COPPER	T TAN
G	GREEN	V VIOLET
GY	GRAY	W WHITE
O	ORANGE	Y YELLOW