

SERVICE DATA SHEET

Gas Range with ES 540/541 Electronic Oven Control

A 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

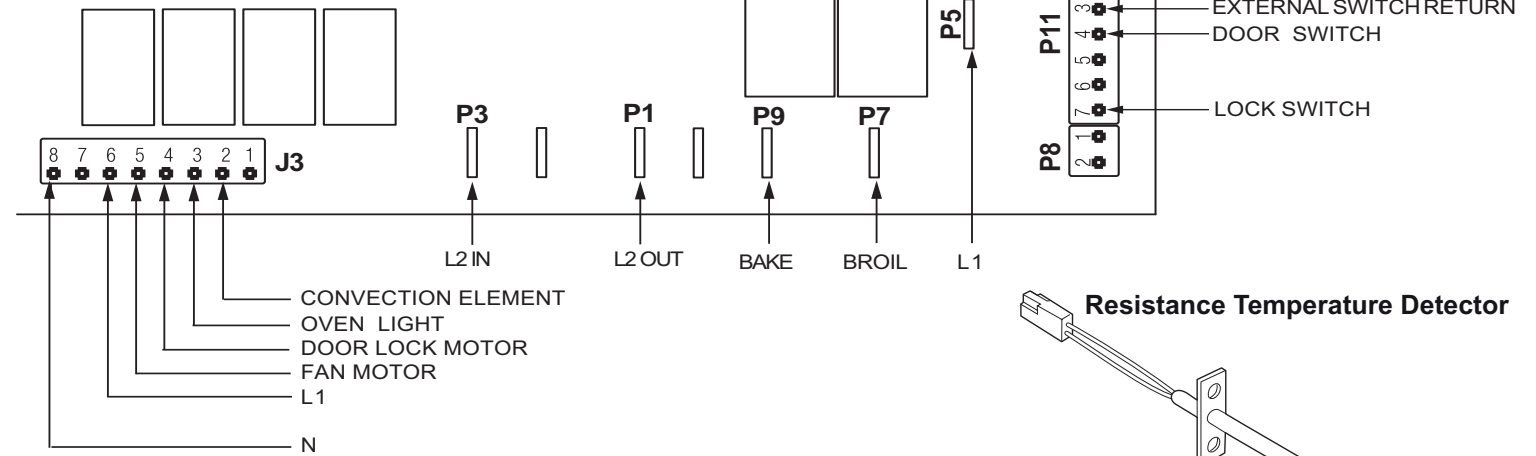
Set the electronic oven control for normal baking at 350°F. Obtain an average oven temperature after a minimum of 5 cycles. Press **cancel** keypad to end Bake mode.

Temperature Offset Adjustment

- While in a non-cooking mode, press and hold the **bake** key for 6 seconds.
- The current calibration offset (temperature adjustment) should appear in the temperature display.
- Use the number keypads (0-9) to enter the desired amount of adjustment (-35° to 35° F).
- Press the **self clean** keypad to change the sign of the adjustment to a (-) if necessary. A positive adjustment will not display a sign.
- Once the desired adjustment (-35° to 35° F) has been entered, press the **start** keypad to accept the change or the **cancel** keypad to reject the change.

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

Electronic Oven Control (EOC) & Jumper Connections (rear view)



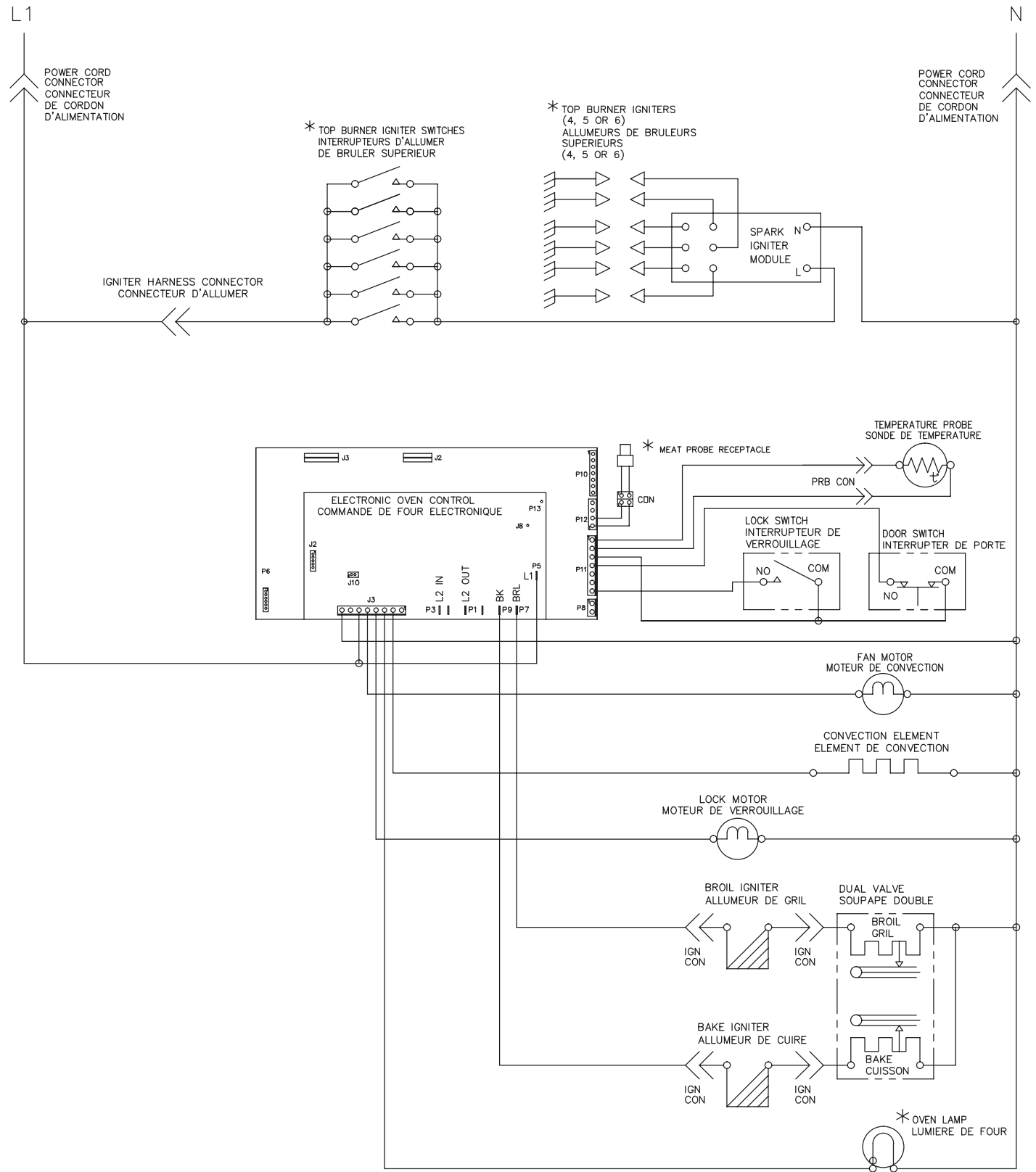
RTD SCALE	
Temperature °F (°C)	Resistance (ohms)
32 ± 1.9 (0 ± 1.0)	1000 ± 4.0
75 ± 2.5 (24 ± 1.3)	1091 ± 5.3
250 ± 4.4 (121 ± 2.4)	1453 ± 8.9
350 ± 5.4 (177 ± 3.0)	1654 ± 10.8
450 ± 6.9 (232 ± 3.8)	1852 ± 13.5
550 ± 8.2 (288 ± 4.5)	2047 ± 15.8
650 ± 9.6 (343 ± 5.3)	2237 ± 18.5
900 ± 13.6 (482 ± 7.5)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

Electronic Oven Control Code Descriptions		
Fault Code	Likely Failure Condition/Cause	Suggested Corrective Action
F10	Runaway temperature. Oven heats when no cook cycle is programmed.	1. Check oven 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 1. Reapply power to the range. If oven continues to heat when the power is reapplied, replace the EOC. NOTE: Severe overheating may require the entire oven to be replaced should damage be extensive.
F11	Shorted keypad or selector switch.	1. Reset power supply to range - disconnect power, wait 30 seconds and reapply power. 2. Check/reseat ribbon harness connections. 3. Replace the EOC.
F12 F13 F15 F16 F17 F18	EOC internal software error or failure.	Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC.
F30	Open oven sensor probe circuit.	Check resistance at room temperature & compare to RTD Sensor resistance chart. If resistance is correct replace the EOC. If resistance does not match the RTD chart replace RTD Sensor Probe. Check Sensor wiring harness between EOC & Sensor Probe connector.
F31	Shorted oven sensor probe circuit.	Check resistance at room temperature, if less than 500 ohms, replace RTD Sensor Probe. Check for shorted Sensor Probe harness between EOC & Probe connector. If resistance is correct replace the EOC.
F60	Electronic Oven Control (EOC) over temperature. Higher than normal temperature detected on the EOC circuit board.	1. Verify proper assembly of backguard panel. Check for damaged or loose panels, brackets, endcaps, etc. 2. Check for blocked ventilation slots in control panel rear cover. 3. Inspect oven vent for proper assembly and air flow. 4. Verify operation of cooling fan (if present).
F90 F91 F92 F93 F94 F95	Door lock motor or latch circuit failure.	If lock motor runs: 1. Test continuity of wiring between EOC and lock switch on lock motor assy. Repair if needed. 2. Advance motor until cam depresses the plunger on lock motor switch. Test continuity of switch contacts. If switch is open replace lock motor assy. 3. If motor runs and switch contacts and wiring harness test good, replace the EOC. If lock motor does not run: 1. Test continuity of lock motor windings. Replace lock motor assembly if windings are open. 2. Test lock motor operation by using a test cord to apply voltage. If lock motor does not operate replace lock motor assembly. 3. If motor runs with test cord check continuity of wire harness to lock motor terminals. If harness is good replace the EOC.
LinE ERR	EOC internal voltage test error or failure	Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC.
SPr	If voltage is detected at the AC detect board this will signal to the oven control that the spark module is trying to light a burner.	This device detects voltage from spark ignitor harness. If voltage is detected at the AC detect board this will signal to the oven control that the spark module is trying to light a burner. The oven control will only look for the signal from the AC detect board when self-clean cycle is started or running. Detection of the signal will cause clean to be cancelled and "SPR" (which means spark detected) will appear in the display. The cooktop should not be used during a self-clean cycle. On some models, turning on any cooktop surface burner will cause the clean cycle to cancel. If the clean cycle is canceled, the oven control display will show "SPR" for 5 seconds. The oven door will remain locked until the oven has cooled down below cleaning temperature. If the oven is in cleaning temperature range, another self-clean cycle can be set once the door unlocks (up to 4 hours). If SPr continues: 1. Start a self-clean cycle. 2. If "SPR" appears immediately after clean is selected, check for a disconnected wire to A/C detect board or bad harness to control board. 3. If SPr does not appear immediately, turn any burner ignitor to the LITE position. 4. Verify that the self-clean cycle has been cancelled and "Spr" is displayed in the oven display. If this does not happen, proceed the following troubleshooting steps. 1. Verify the harness AC harness is connected at J1 of the AC detect board. 2. Verify the DC harness is connected to J2 of the AC detect board. 3. Multi-meter set to AC volts. 4. Verify 0 VAC at J1 pins 1 and 3 when the spark ignitor is turned OFF. 5. Verify 120 VAC at J1 pins 1 and 3 when the spark ignitor is turned ON. 6. Multi-meter set to DC volts. 7. Verify 4 - 5 VDC at J2 pins 1 and 3, of the AC detect board or P10 pins 1 and 2 of the control board, (pin 3 is GND on AC detect and pin 2 is GND on control board) 8. Verify 5 VDC at J2 pins 2 and 3, of the AC detect board or P10 pins 2 and 4 of the control board, when the spark ignitor is turned OFF. (Pin 3 is GND on AC detect and pin 2 is GND on control board.) 9. Verify 0 - 1 VDC at J2 pins 2 and 3, of the AC detect board or P10 pins 2 and 4 of the control board, when the spark ignitor is turned ON. (Pin 3 is GND on AC detect and pin 2 is GND on control board.) 10. If step 9 shows voltage drop to 0 - 1 VDC, and all the low voltage wires have continuity to control board, replace control board.

Circuit Analysis Matrix	EOC Relays						Door Switch Contacts COM-NO
	L1 to Bake	L1 to Broil	L1 to Conv Element	L1 to Conv Fan	L1 to Motor Door Latch	L1 to Oven Lamps	
Bake/ Bake Time	X*						
Convection Bake	X*		X	X			
Convection Roast	X*		X	X			
Broil		X					
Self-Clean	X*						
Locking					X		
Unlocking					X		
Door Open						X	O
Door Closed						O	X
Oven Lamps(ON)						X	

Notes: X = Circuit contact closed. O = Circuit contacts open. * = Cycles as needed. X' = During preheat.

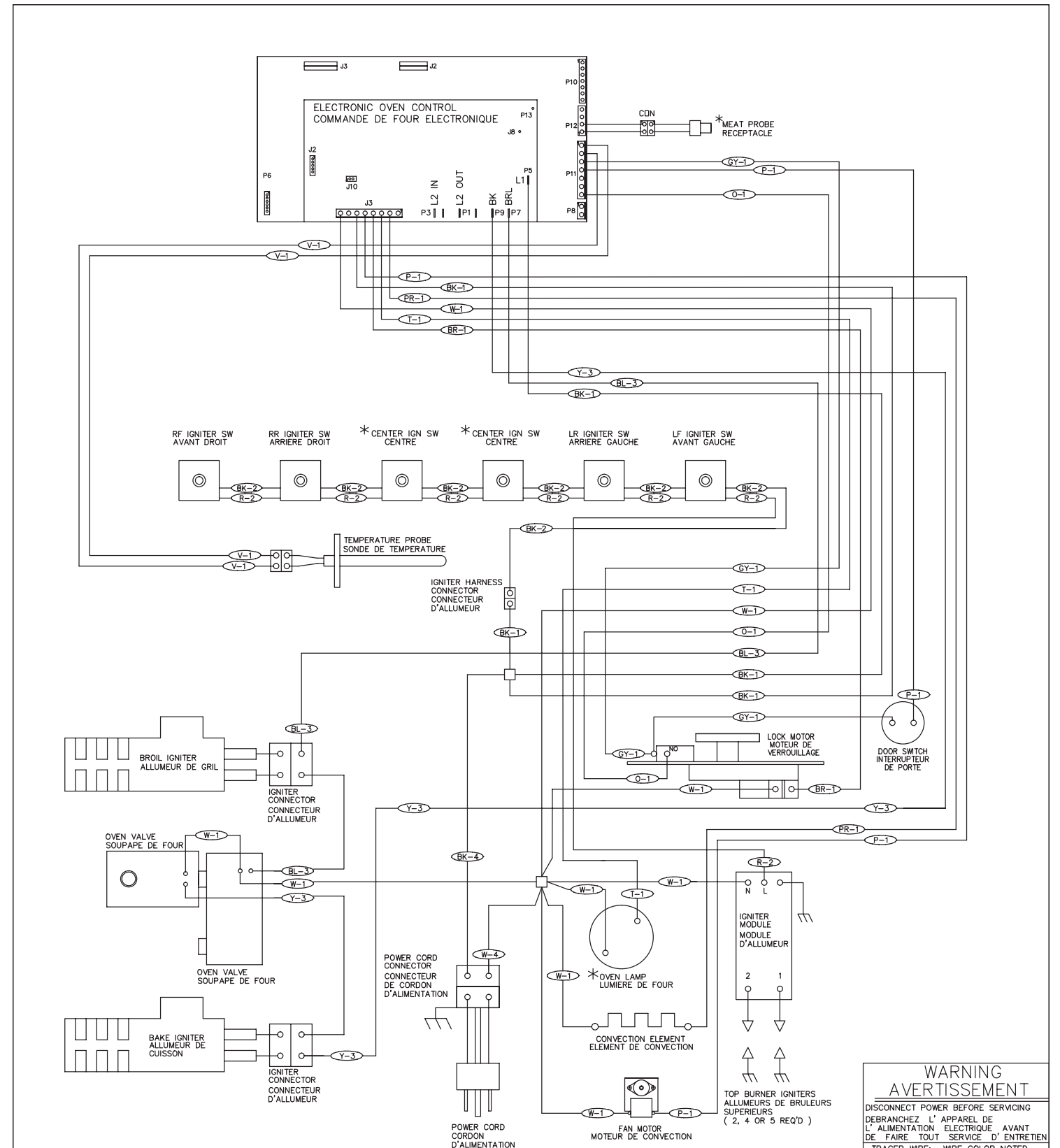
IMPORTANT
DO NOT REMOVE THIS BAG
OR DESTROY THE CONTENTS
WIRING DIAGRAMS AND SERVICE
INFORMATION ENCLOSED
REPLACE CONTENTS IN BAG



- NOTES:
1. CIRCUIT SHOWN WITH ALL CONTROLS SET TO OFF.
 2. COMPONENTS WITH * DO NOT APPEAR ON ALL MODELS.

- NOTES:
1. ILLUSTRATION DE CIRCUIT AVEC TOUTES LES COMMANDES REGLEES A OFF. PORTE DE FOUR FERMEE ET DEVERROUILLEE.
 2. LES ITEMS POURVUS D'UN * NE SONT PAS COMPRIS DANS TOUS LES MODELES.

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WIRE	AWG	TEMP °C	UL STYLE
5	20	105	1015
4	16	125	3173
3	18	125	3173
2	20	150	3321
1	20	125	3173

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WARNING
AVERTISSEMENT

DISCONNECT POWER BEFORE SERVICING
DEBRANCHEZ L' APPAREIL DE L' ALIMENTATION ELECTRIQUE AVANT DE FAIRE TOUT SERVICE D' ENTRETIEN

TRACER WIRE: WIRE COLOR NOTED FIRST, STRIPE NEXT.
EXAMPLE: **G/Y-8**
GREEN WIRE WITH YELLOW STRIPE.

LEGENDE DE FILAGE: LA COULEUR DU FIL EN PREMIER, SUIVIE DE CELLE DE TOUTE BANDE.
EXAMPLE: **G/Y-8**
FIL VERT AVEC BANDE JAUNE.

COLOR CODE	CODE DES COULEURS
BK BLACK / NOIR	P PINK / ROSE
BL BLUE / BLEU	PR PURPLE/POURPRC
BR BROWN / BRUN	R RED/ROUGE
C COPPER / CUIVRE	T TANBRUN CLAIR
G GREEN / VERT	V VIOLET
GY GRAY / GRIS	W WHITE/BLANC
O ORANGE	Y YELLOW/JAUNE