

SERVICE DATA SHEET

318047411 (0401) Rev. C

Electric Wall Oven with ES500 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.**

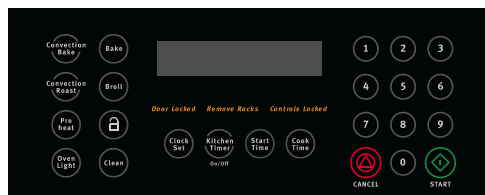
SAFE SERVICING PRACTICES

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.

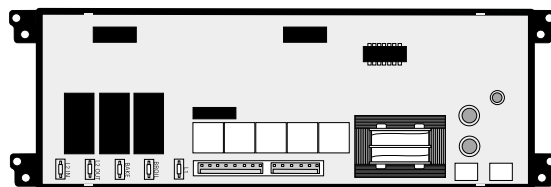
1. Do not attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
2. Before servicing or moving an appliance, remove power cord from electric outlet, trip circuit breaker to Off, or remove fuse and turn off gas supply.
3. Never interfere with the proper installation of any safety device.
4. USE ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.
5. 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.
6. 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 non-insulated 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.

ES500 ELECTRONIC OVEN CONTROL

1. This self-cleaning controller offers Bake, Broil, Preheat, Convection Bake and Convection Roasting modes, Timed and Delayed Baking, and Cleaning functions.
2. Convection operates with an element and a fan dedicated to convection.
3. This Controller have a touch sensitive glass.
4. This controller use an independent auxiliary board.



ES500



NOTE: The controller's are not field repairable. Only temperature settings can be changed. See oven calibration

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CONVECTION MODE

The convection oven uses the addition of a fan and an element to heat and to move the air already in the oven. Moving the heated air helps to destratify the heat and cause uniform heat distribution. Cooking times can be reduced by as much as 30%. The air is drawn in through a fan shroud and the element located on the rear wall of the oven. It is then discharged around the outer edges of this shroud. The air circulates around the food and then enters the shroud again. As with conventional electric ranges, there is still an oven vent which discharges through the rear of the cooktop.

To set the control in convection mode, follow these steps:

1. Press the **CONV. BAKE/ROAST** pad.
2. Enter the desired temperature on the keypad (setpoint).
3. Press the **START** pad.

The oven will automatically start and the fan will begin to run. To cancel the convection baking/roasting function, press the **CANCEL** pad.

NOTE: The fan runs continuously while in the convection mode. The fan will stop if the door is opened while convection baking/roasting. The bake element will continue to operate if the door is opened.

PREHEAT

During a preheat mode, the oven uses bake element to reach the controller set point. The element uses full power when it's on. When the setpoint is reached, the preheat mode is converted in a normal bake mode.

NORMAL BAKE

During a normal bake mode, the controller preheats the oven with the bake element. When the desired temperature is reached, the controller adds top heat by cycling the broil element on for 12 to 18 seconds per minute. The bake element is on for the remaining time of the minute. Both elements use full power when they are on but they are never on at the same time.

CLEAN

During a cleaning process, the oven uses bake element.

RACK SENSOR

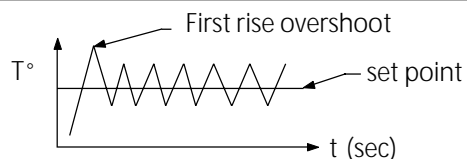
Racks and rack holders must be removed to do a self-cleaning cycle. RR (Remove Racks) should appear in the controller display if the racks and rack holders are not removed and self-clean won't start.

CLEAN AND TIMED CLEAN

When these modes are called, the door locks right after start button is pushed.

FIRST RISE

It is normal to see a temperature overshoot in the first rise of all modes when you monitor the temperature.



OVEN CALIBRATION

Set the electronic oven control for normal baking at 350°F/176°C. Obtain an average oven temperature after a minimum of 5 cycles. Press Cancel to end bake mode.

Note: Changing calibration affects all the cooking modes but not the clean mode.

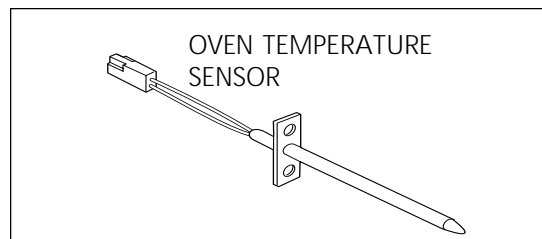
ELECTRONIC OVEN CONTROL

ELECTRONIC OVEN CONTROL FAULT CODE DESCRIPTIONS AND RTD SCALE

Note: Only three fault codes are displayed by this control "F1", "F2", "F3" and "F9". Generally speaking "F1" implies a control failure, "F2" is a communication problem, "F3" an oven probe problem, and "F9" a latch motor problem. In all occurrences the alarm is accompanied by a display of "F1". To see the exact description of the fault code, unplug the appliance and plug it again. When PF appears on the control, touch both BAKE and BROIL pad at the same time for 3 seconds, then touch the KITCHEN TIMER pad.

Fault Code	Likely Failure Condition/Cause	Suggested Corrective Action
F1	<ol style="list-style-type: none"> 1. (F10) Control has sensed a potential runaway oven condition. Control may have shorted relay, RTD sensor probe may have gone bad. 2. (F11) Shorted keypad. 3. (F13) Control's internal checksum may have become corrupted. 	<ol style="list-style-type: none"> 1. 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. 2. Press CLEAR key. 3. Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up, replace EOC.
F2	<ol style="list-style-type: none"> 1. (F21) Communication problem with the auxiliary board. 2. (F23) Communication problem with the TST board. 	<ol style="list-style-type: none"> 1. Verify wiring between controller (P4 and P10), auxiliary board (P1) and glass panel (J1). 2. If F21 appears, replace auxiliary board. 3. If F23 appears, replace glass panel. 4. It is possible that the controller does not communicate with the auxiliary board. If it is the case, change the controller.
F3	<ol style="list-style-type: none"> 1. (F31) Open RTD sensor probe/ wiring problem. Note: EOC may initially display an "F1", thinking a runaway condition exists. 2. Shorted RTD sensor probe / wiring problem. Note: "F3" is displayed when oven is in active mode or an attempt to enter an active mode is made. 3. Abusive operation (safety thermostat). 4. Safety thermostat opened, or cooling fan stalled. 	<ol style="list-style-type: none"> 1. Press CLEAR key. 2. 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. 3. Let the oven cool down and restart the function 4. Look for stalled cooling fan, broken safety thermostat (opens).
F9	<ol style="list-style-type: none"> 1. Door motor failure / jammed. Latch motor switch failure. 2. Control software failure, or component failure (relay stuck). 3. Wiring Problem. 	<ol style="list-style-type: none"> 1. Press CLEAR key. 2. If CLEAR key does not eliminate problem, turn off power for 30 seconds, then turn on power. 3. Check wiring of Lock Motor, and Lock Switch A and Door Switch circuits. 4. Unplug P4, apply power (L1) directly to the Lock Motor, if the motor does not rotate, replace Lock Motor Assembly. Plug P4. 5. Check Lock Switch A 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. 6. If all above steps fail to correct situation, replace control.

RTD SCALE		
Temp. °F	Temp. °C	Resistance (ohms)
32 ± 1.9	0.0 ± 1.1	1000 ± 4.0
75 ± 2.5	23.9 ± 1.4	1091 ± 5.3
250 ± 4.4	121.1 ± 2.4	1453 ± 8.9
350 ± 5.4	176.7 ± 3.0	1654 ± 10.8
450 ± 6.9	232.2 ± 3.8	1852 ± 13.5
550 ± 8.2	287.8 ± 4.6	2047 ± 15.8
650 ± 9.6	343.3 ± 5.3	2237 ± 18.5
900 ± 13.6	482.2 ± 7.6	2697 ± 24.4



CIRCUIT ANALYSIS MATRIX										
	ELEMENTS			Conv. Fan P5-7	Light P5-4	Door Motor P5-6	Lock Motor Switches P5-10 & P5-11		Cooling Fan P1 Aux. Brd	Door Switch P5-12 COM-NO
	Bake P3	Broil P2	Conv. P3-8 Aux. Brd				A	P5-10 & P5-13		
Bake	X	X*							X	
Broil		X							X	
Conv. Bake	X	X*	X	X					X	
Conv. Roast	X	X*	X	X					X	
Clean	X								X	
Locking						X	NC	NO		
Locked							NO	NC		
Unlocking						X	NO	NC		
Unlocked							NC	NO		
Light					X					
Door Open					X					X
Door Closed										

* Denotes Topheat ** Stage 1 + Stage 2  Relay will operate in this condition only

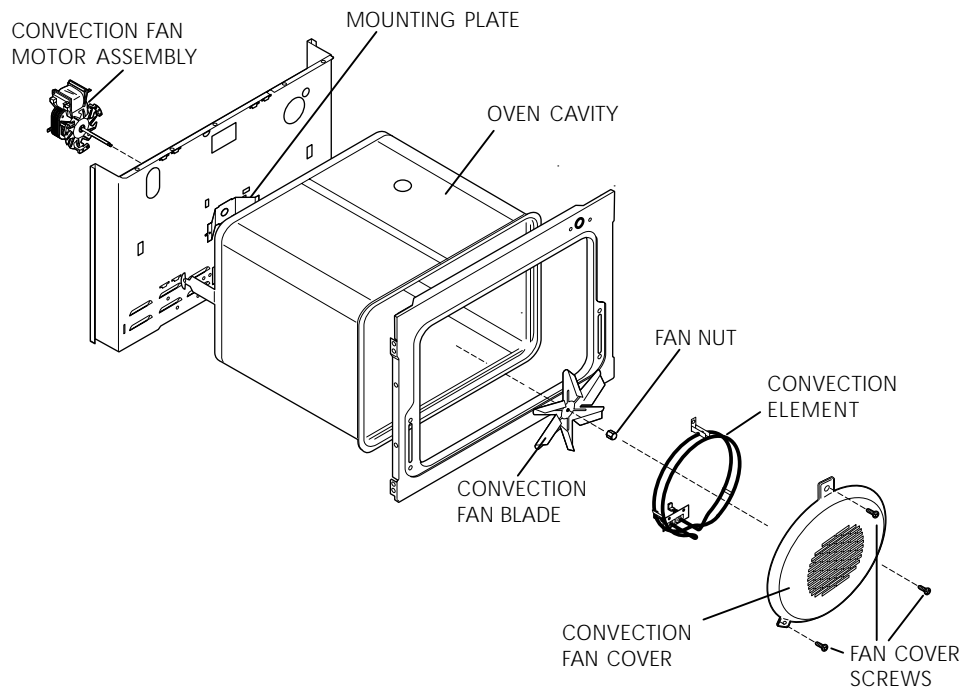
ELECTRICAL RATING			
Kw Rating 240/208 V	See nameplate	Bake Element Wattage	3400W/2552W
Broil Element Wattage	4000W/3004W	Convection Element Wattage	2500W/1879W

AUXILIARY BOARD

The auxiliary board controls the convection element and the 2 speeds of the blower.

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EXPLODED VIEW OF CONVECTION SYSTEM



FAN BLADE

The fan blade is mounted in the rear of the unit and has a "D" shaped mounting hole. Only minimum clearance exists between the oven back, fan blade, and fan shroud. Be careful not to bend blade when removing or installing.

Access to the fan blade is gained by removing the fan shroud, held in place by three screws, from the inside of the oven.

The fan blade is held in place with a hex nut that has left handed threads. When removing this nut, gently hold the fan blade, and turn the nut clockwise. If one of the blades becomes deformed, it may be bent back into shape using a flat surface as a reference.

A flat washer is located on the motor shaft between the snap ring on the shaft and the fan blade.

NOTE: If the fan blade is bent and motor vibrations increase, the noise made by the fan will be greater.

MOUNTING PLATE OVEN

The fan motor on the rear of the unit is mounted to the main back (with three screws). There is a mounting plate held in place between the main back (with 2 screws) and the rear oven wall (with 2 screws). Should it be necessary to replace the oven cavity, you must remove the 2 screws located inside the unit at the rear of the oven cavity.

FAN MOTOR

The 120 volt fan motor is located on the outside of the rear of the oven.

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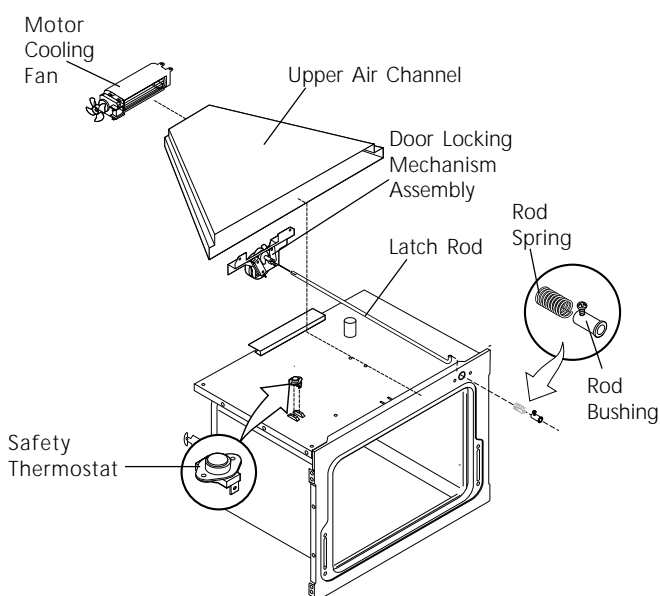
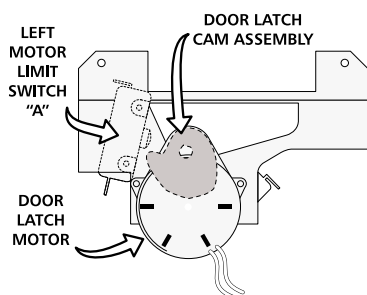
FAN RELAY

The fan motor runs continuously while in the convection mode unless the door is opened. If the fan does not operate, check the following:

- Display illuminated on the electronic control.
- Voltage output between terminals P5-7 and Neutral.
- 120 Volts available at fan motor.
- Fan motor coil resistance $56.5 \text{ ohms} \pm 10\%$.
- Door/light switch.

DOOR LOCK MECHANISM

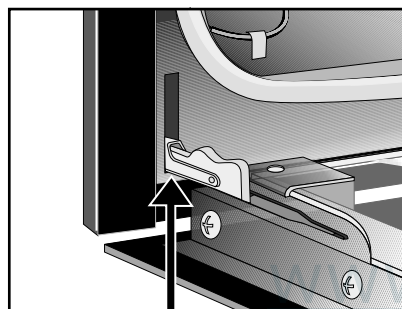
The appliance is equipped with an electronic oven control and has an auto locking door latch feature. When the self clean cycle is programmed, the door is locked by a motor operated latch system. The interior of oven does'nt need to heat up to 500°F/260°C before the door locks. However, until the temperature inside oven reaches 500°F/260°C, the self-clean program can be canceled and door will unlock immediately. After oven reaches temperatures over 500°F/260°C, the door will not unlock until temperature drops below 500°F/260°C.



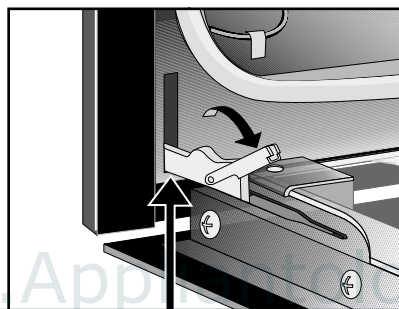
OVEN DOOR REMOVAL AND REPLACEMENT

To Remove and Replace Oven Door

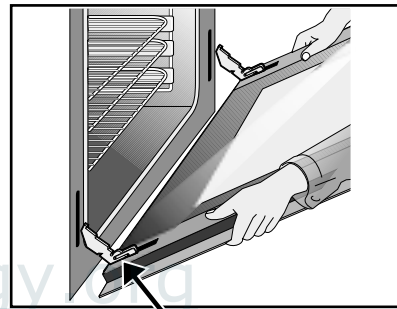
1. Open the door to the fully opened position.
2. Pull up the lock located on each hinge support toward front of range. You may have to apply a little upward pressure on the lock to pull it up.
3. Grasp the door by the sides, pull the bottom of the door up and toward you to disengage the hinge supports. Keep pulling the bottom of the door toward you while rotating the top of the door toward the appliance to completely disengage the hinge levers.
4. Proceed in reverse to re-install the door. Make sure the hinge supports are fully engaged before unlocking the



Lock in normal position

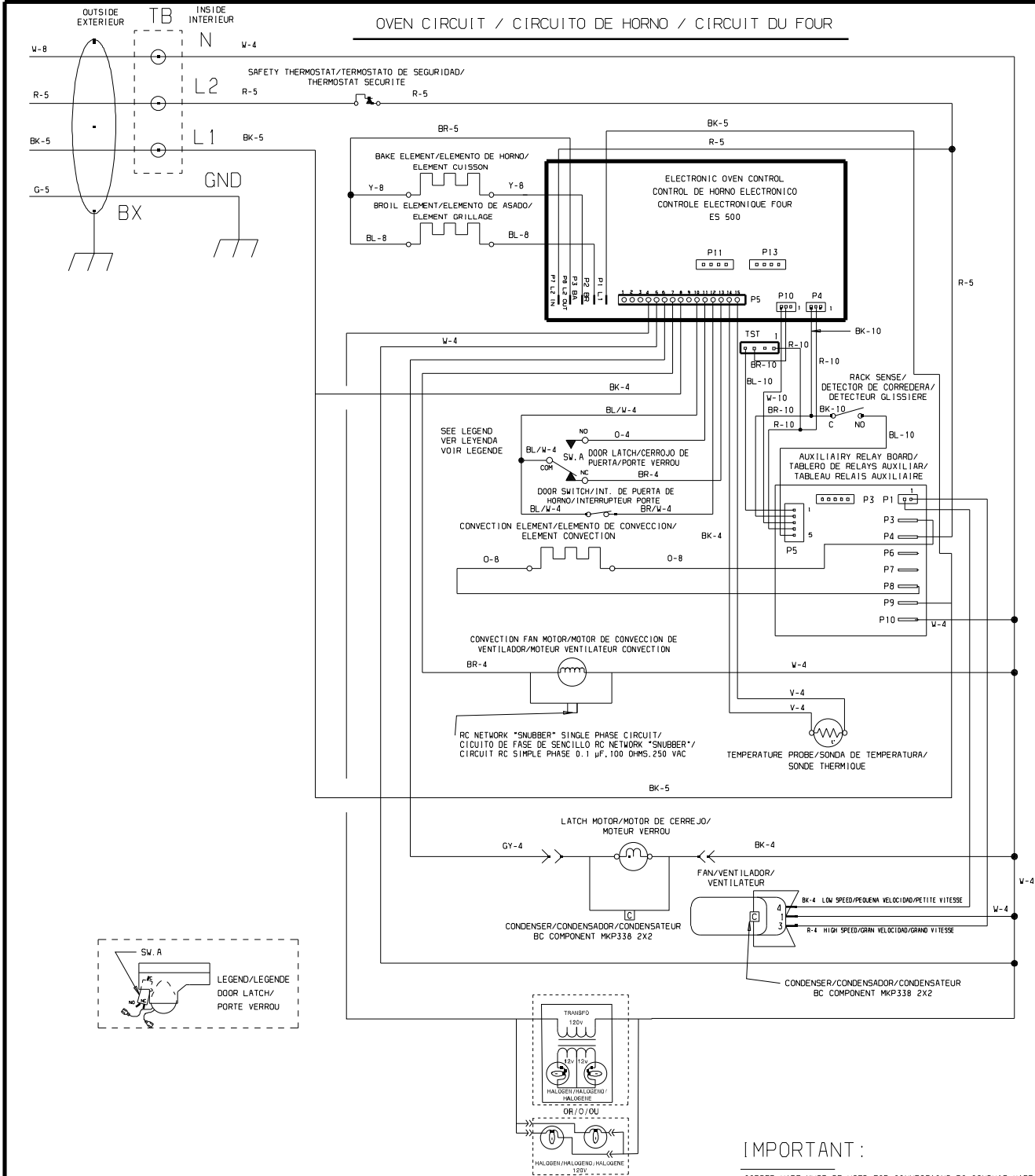


Lock engaged for door removal



HINGE SLOT Door removed from the range

OVEN CIRCUIT / CIRCUITO DE HORNO / CIRCUIT DU FOUR



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