SERVICE DATA SHEET 318047306 (0509) Rev. A

Electric Double Wall Ovens with 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 some, but not all, examples of safe 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.

3. Never interfere with the proper installation of any safety device.

4. USE ONLY REPLACEMENT PARTS SPECIFIED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.

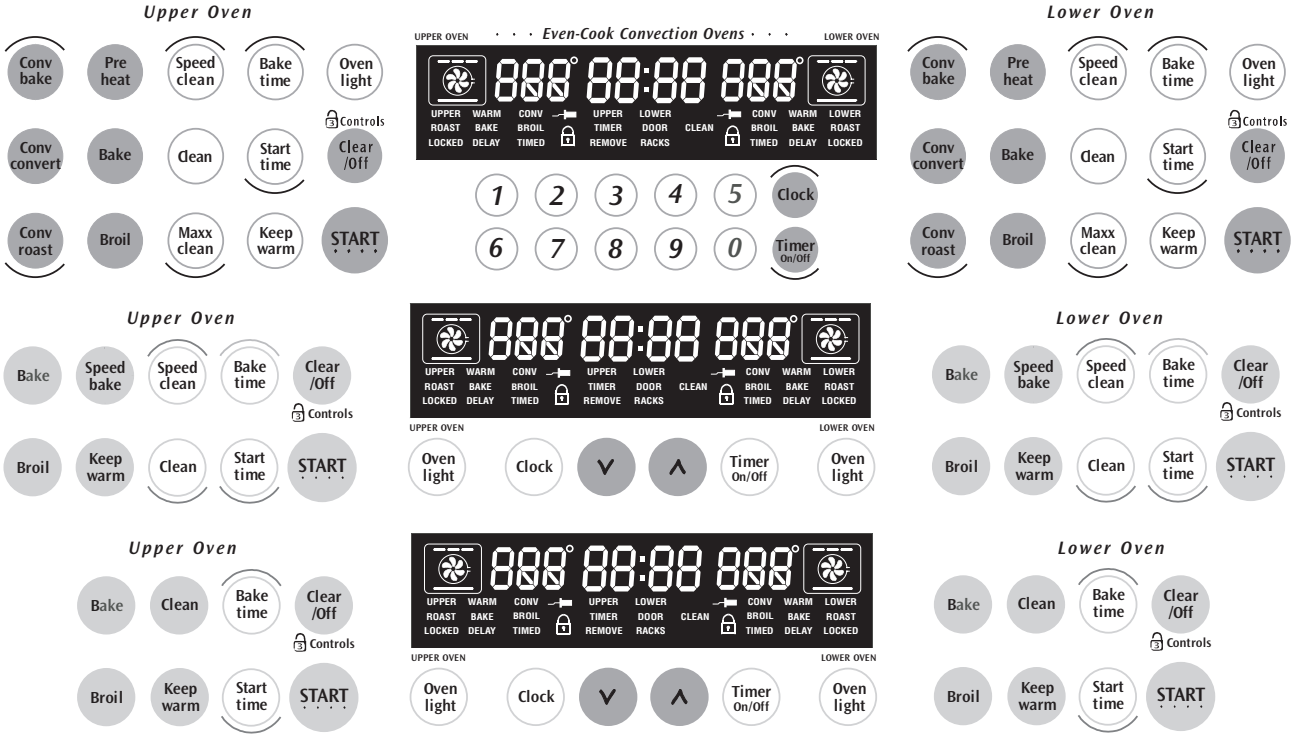
5. GROUNDING: The standard color coding for safety ground wires is GREEN OR GREEN WITH YELLOW STRIPES. Ground leads are not to be used as current carrying conductors. IT IS EXTREMELY IMPORTANT THAT THE SERVICE TECHNICIAN REESTABLISH ALL SAFETY GROUNDS PRIOR TO COMPLETION OF SERVICE. FAILURE TO DO SO 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 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.
   - All panels are properly and securely reassembled.

ELECTRONIC OVEN CONTROL (EOC)

1. The EOC offers Bake, Broil, Preheat (some models), Speed Bake (some models), Convection Bake (some models) and Convection Roasting (some models) modes, Timed and Delayed Baking, and Cleaning functions.
2. Convection operates with an element and a fan dedicated to convection (some models).
3. Speed Bake operates with a fan dedicated to speed bake mode (some models).
4. This EOC has a touch sensitive membrane.
5. The EOC includes a display board and a relay board.

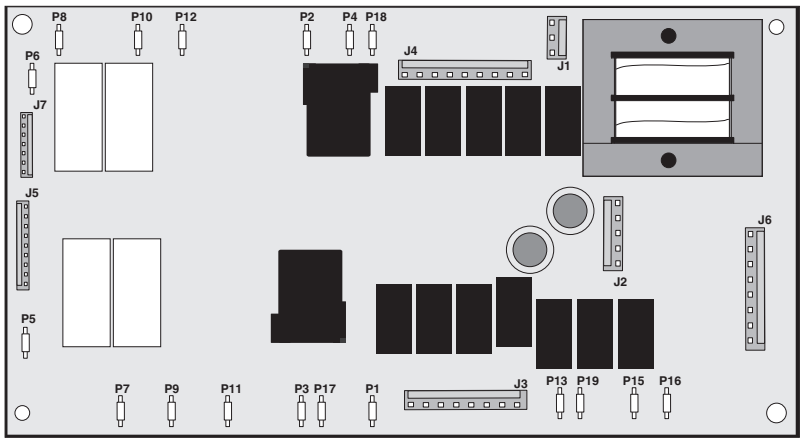
NOTE: The EOC is not field repairable. Only temperature settings can be changed. See oven calibration.
NOTE: Appearance may vary depending on model.



Electronic oven control relay board

Relay Board Legend:

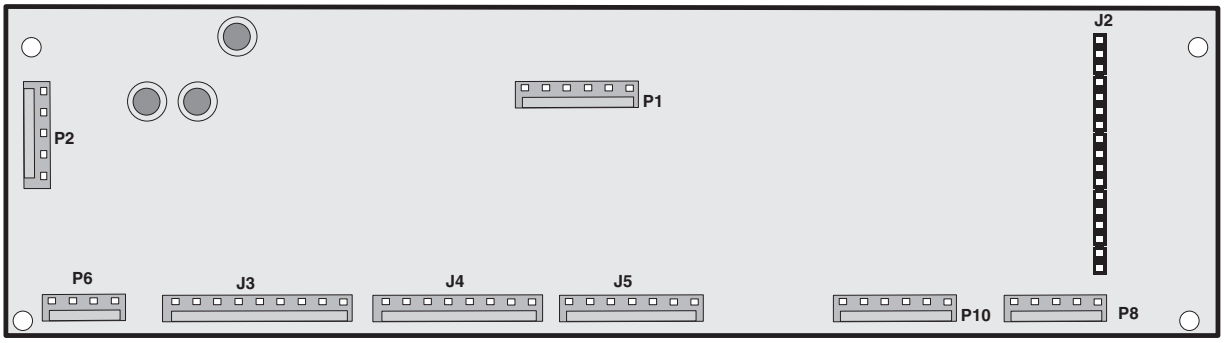
P1 Double line break, upper oven.
P2 Double line break, lower oven.
P3 L2 in, upper oven.
P4 L2 in, lower oven.
P5 L1, upper oven.
P6 L1, lower oven.
P7 Broil, upper oven.
P9 Bake, upper oven.
P13 Convection element, upper oven.
P15 L2 in.
P16 Convection element, lower oven.
P17 Not used.
P18 Not used.
P19 Not used.



J1 AC power input (120V)
J2 DC power output to display board.
J3 AC power outputs (conv fan, motor door latch, light, cooling fan) for upper oven.
J4 AC power outputs (conv fan, motor door latch, light, cooling fan) for lower oven.
J5 Relays control inputs (bake & broil elements, light, convection fan, motor door latch, DLB) for upper oven.
J6 Relays control inputs (cooling fan, conv. element) for both ovens.
J7 Relays control inputs (bake & broil elements, light, convection fan, motor door latch, DLB) for lower oven.

ELECTRONIC OVEN CONTROL (continued)

Electronic oven control display board



J2 Keyboard connection.
P1 Micro programming (not used).
P2 DC power input.
J3 Relays control outputs (bake & broil elements, light, MDL, conv. fan, DLB) for upper oven.
J4 Relays control outputs (cooling fan, conv element) for both ovens.
J5 Relays control outputs (bake & broil elements, light, MDL, conv. fan, DLB) for lower oven.
P6 Temperature probe inputs.
P8 Door switch and MDL switch for upper oven.
P10 Door switch and MDL switch for lower oven.

OVEN ELEMENT - OPERATION

Baking mode	-First rise (Models with hidden bake element):	Bake element is on 45 seconds per minute. Broil element is on 15 seconds per minute. Convection element and fan are on all the time.
	-First rise (Models without hidden Bake element):	Bake element is on 40-50 seconds per minute. Broil element is on 10-20 seconds per minute.
	-Normal baking:	The EOC will cycle through the bake element, broil element and off time to maintain the set temperature.
Broiling mode		Broil element is on for 60 seconds per minute.
Speed bake mode:	-First rise:	Bake element is on 40 seconds per minute. Broil element is on 20 secondes per minute.
	-Speed bake:	The EOC will cycle through the bake element, broil element and off time to maintain the set temperature.
Convection Bake	-First rise:	Bake element is on 45 seconds per minute. Broil element is on 15 seconds per minute. Convection element is on all the time
	-Convection baking:	3 elements (bake, broil, convection) will cycle.
Convection Roast	-First rise:	Bake element is on 30 seconds per minute. Broil element is on 30 seconds per minute. Convection element is on all the time.
	-Convection roast:	3 elements (bake, broil, convection) will cycle.
Clean mode: (Models without hidden bake element)	-First rise: -Clean:	Bake element is on 40 seconds per minute. Broil element is on 20 secondes per minute. Bake element is on all the time.
(Models with hidden bake element)	-First rise	Bake element is on 50 seconds per minute. Broil element is on 10 secondes per minute.
	-Clean:	Bake element is on 40 seconds per minute. Broil element is on 20 seconds per minute.

NOTE: Self-cleaning cycle cannot be started if the other oven is in operation, and you cannot operate the second oven if the other oven in on a self-cleaning cycle.

ELECTRONIC OVEN CONTROL (FAULT CODES)

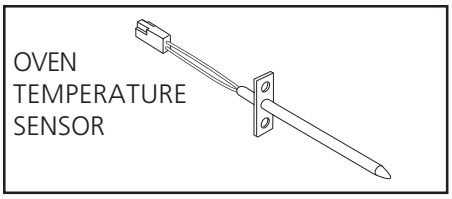
ELECTRONIC OVEN CONTROL (EOC) FAULT CODE DESCRIPTIONS

Note: Generally speaking "F1X" implies a control failure, "F3X" an oven probe problem, and "F9X" a latch motor problem.

Failure Code/Condition/Cause	Suggested Corrective Action
F10 Control has sensed a potential runaway oven condition. Control may have shorted relay, RTD sensor probe may have a gone bad.	- Check RTD sensor probe and replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when power is reapplied, replace power/relay board and/or display board. Severe overheating may require the entire oven to be replaced, should damage be extensive.
F11 Shorted Key: a key has been detected as pressed (for more than the debounce period) will be considered a shorted key alarm and will terminate all oven activity.	- Press Clear or Cancel key. - If fault returns, replace the keyboard (membrane). - If the problem persist, replace the display board.
F13 Control's internal checksum may have become corrupted.	- Press Clear or Cancel key. - Disconnect power, wait 30 seconds ad reapply power. If fault returns upon power-up, replace display board.
F14 Misconnected keyboard cable.	- Disconnect power. Verify the flat cable connection between the keyboard membrane and the display board on J2. - If the connection is good but the problem persist, replace the keyboard (membrane switch). - If the problem persist, replace the display board.
F15 Controller self check failed.	- Replace the display board.
F30 Open RTD sensor probe/ wiring problem. Note: EOC may initially display an "F10", thinking a runaway condition exists. **F31** Shorted RTD sensor probe / wiring problem. Note: **F30** or **F31** is displayed when oven is in active mode or an attempt to enter an active mode is made.	- 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. - Let the oven cool down and restart the function. - If the problem persist, replace the display board.
F90 Door motor mechanism failure.	- Press CLEAR key. - If CLEAR key does not eliminate problem, turn off power for 30 seconds, then turn on power. - Check wiring of Lock Motor, Lock Switch and Door Switch circuits. - Unplug the lock motor from the board and apply power (L1) directly to the Lock Motor. If the motor does not rotate, replace Lock Motor Assembly. - Check Lock Switch 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. - If all above steps fail to correct situation, replace the display board or the relay board in the event of a motor that does not rotate.

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



ELECTRICAL RATING

	27"	30"
KW rating 240/208	7.5/5.6	7.5/5.6
Bake Element Wattage	Vary depending on model: 2300W/17820W or 2700W/2028W	3400W/2554W
Broil Element Wattage	3400W/2554W	2750W/2065W
Convection Element Wattage	Vary depending on model: No convection element or 350W/263W element	Vary depending on model: No convection element or 350W/263W

UPPER OVEN CIRCUIT ANALYSIS MATRIX

	On Relay Board						On Display Board		On Relay Board		
	ELEMENTS			Conv.Fan J3-4	Light J3-6	Door Motor J3-5	Lock Motor Switch P8-1 & P8-5	Door Switch P8-3 / P8-5	DLB L2 out P1	Cooling Fan Low speed J3-7	Cooling Fan High speed J3-8
	Bake P9	Broil P7	Conv. P13								
Bake	X	X	X*	X*					X	X	
Speed Bake	X	X							X	X	
Broil		X							X	X	
Conv. Bake	X	X	X	X					X	X	
Conv. Roast	X	X	X	X					X	X	
Clean	X	X							X	X	X
Locking						X	NO				
Locked							NC				
Unlocking						X	NC				
Unlocked							NO				
Light					X						
Door Open					X						
Door Closed								X			

LOWER OVEN CIRCUIT ANALYSIS MATRIX

	On Relay Board						On Display Board		On Relay Board		
	ELEMENTS			Conv.Fan J4-5	Light J4-7	Door Motor J4-6	Lock Motor Switch P10-1 & P10-6	Door Switch P10-3 / P10-6	DLB L2 out P2	Cooling Fan Low speed J4-8	Cooling Fan High speed J4-9
	Bake P10	Broil P8	Conv. P16								
Bake	X	X	X*	X*					X	X	
Speed Bake	X	X							X	X	
Broil		X							X	X	
Conv. Bake	X	X	X	X					X	X	
Conv. Roast	X	X	X	X					X	X	
Clean	X	X							X	X	X
Locking						X	NO				
Locked							NC				
Unlocking						X	NC				
Unlocked							NO				
Light					X						
Door Open					X						
Door Closed								X			

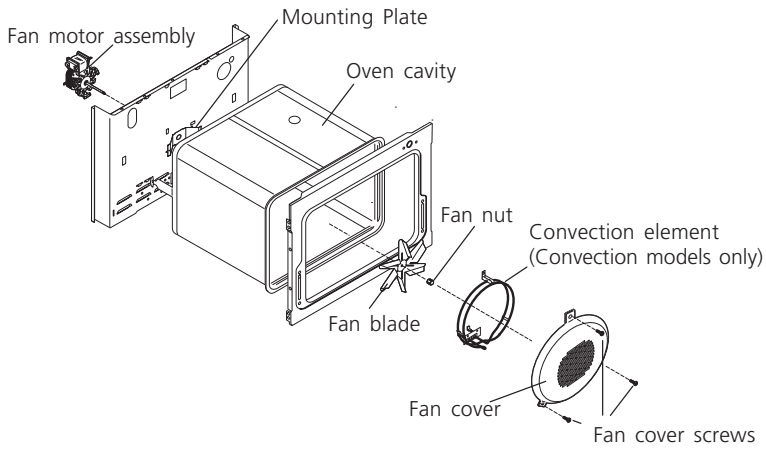
Relay will operate in this condition only

* Convection element and fan are used for the first rise of temperature on the models with hidden bake element.

2 SPEED COOLING FAN

The oven control controls the speed of the cooling fan. The cooling fan is activated at low speed during any cooking function. The high speed is activated during clean cycles only when the temperature is above approximately 575°F.

EXPLODED VIEW OF CONVECTION OR SPEED BAKE SYSTEM (some models)



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 also increase.

MOUNTING PLATE

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.

CONVECTION FAN MOTOR (some models)

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

FAN RELAY (some models)

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

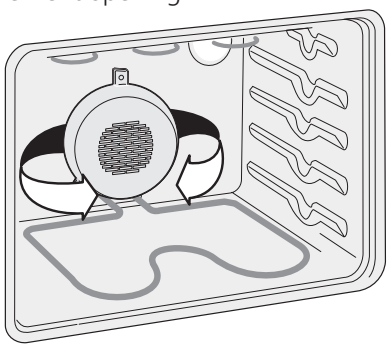
- Display illuminated on the electronic control.
- Voltage of 120Vac is present on the relay board at output between terminals J3-5 and N for the upper oven and J4-5 and neutral for the lower oven board.
- 120 Volts available at fan motor.
- Fan motor coil resistance 15.0 ohms ± 10%.
- Voltage input to fan relay coil during convection bake with door closed.
- Door/light switch.

CONVECTION OR SPEED BAKE MODE (some models)

The convection or speed bake oven uses the addition of a fan to move the heated air already in the oven. Moving the heated air helps to destratify the heat and cause uniform heat distribution. Longer cooking times can be reduced by as much as 30%. The air is drawn in through a fan shroud located on the rear wall of the oven. It is then discharged around the outer edges of this shroud. The air is circulated around the food and then enters the shroud again. There is still an oven vent which discharges through the control panel vent opening.

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

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



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

NOTE: THE FAN RUNS CONTINUOUSLY WHILE IN THE CONVECTION OR SPEED BAKE MODE. THE FAN WILL STOP IF THE DOOR IS OPENED WHILE CONVECTION BAKING/ROASTING. THE HEATING ELEMENTS WILL CONTINUE TO OPERATE IF THE DOOR IS OPENED.

"HIDDEN BAKE" COVER REMOVAL AND REPLACEMENT (SOME MODELS)

To remove the "hidden bake" cover:

1. In order to remove the "hidden bake" cover, pull the back edge with one hand about 1/2" inch and lift up the "hidden bake" cover with both hands. (See picture)
2. When re-installing the "hidden bake" cover, be sure to put it all the way to the back of the oven and lay it down on the 2 shoulder screws. Then push the front edge of the cover in its place below the front bracket.

To have an easier access to the oven floor, you can remove the oven door by following the instructions above.

IMPORTANT: Always replace the "hidden bake" cover before the next use.

ADJUSTING OVEN TEMPERATURE

PLEASE NOTE that each oven may be adjusted individually.

1. Press and hold for 6 seconds upper or lower oven BAKE pad, on the cavity which needs adjustment.
2. The display now indicates the difference in degrees between the original factory temperature setting and the current temperature setting. If the oven control has the original factory calibration, the display will read "00".
3. The temperature can now be adjusted up or down 35°F or 19°C, in 1°F or 1°C increments, by pushing the UP or Down arrow pads or by entering a value with the numeric pads. Adjust the UP/DOWN arrow pads until the desired amount of offset appears in the display. For models with numeric pads, enter the adjustment desired with the number pad; to have a negative value press CLEAN pad. A minus sign (-) will appear before the number to indicate the oven will be cooler by the displayed amount of degrees.
4. When you have made the desired adjustment, push the START pad to go back to the time of day display.

NOTE: CHANGING CALIBRATION EFFECTS BOTH CONVENTIONAL AND CONVECTION MODES.

DOOR LOCK MECHANISM

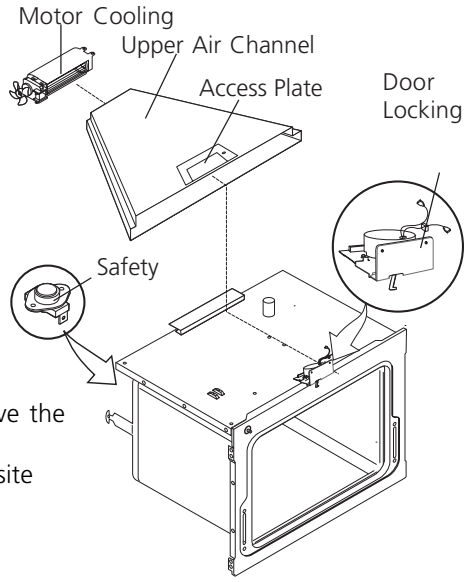
The appliance is equipped with an electronic oven control and has an auto locking door latch feature. When the self clean cycle is programmed, the door is locked by a motor operated latch system. The interior of oven doesn't need to heat up to 500°F/260°C before the door locks. However, until the temperature 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.

If a problem appears and the door stays locked it is possible for the **servicer** to unlock the door without removing the appliance from its place. Follow the steps below:

1. Trip the circuit breaker to **OFF** position.
2. Remove the 2 screws, which are fixing the oven door latch, located between the control panel and the oven door.
3. When the screws are removed it is possible to unlock the latch with a flat screwdriver, or one of the tools supplied with the wall oven which are used to take off the oven from the cabinet. Insert the tool tip through the slot on top of the oven door. During this step it's important to take care to not damage the appliance.
4. As soon as the latch is in the unlock position, you can open the door.
5. Replace the motor latch:

   Upper Oven:
   1. To have access to the door latch assembly, remove the 3 screws under the control panel which are fixing it.
   2. Remove the electronic plate located on the access plate.
   3. Remove the access plate located on the upper air channel by removing the screw.
   4. Replace the motor latch with a new one and reassemble in opposite order and manner of removal.

   Lower Oven:
   1. Pull out the appliance approximately 4" from the cabinet.
   2. Remove the 4 screws which are fixing the center trim and remove the center trim by pulling it from both extremities.
   3. Replace the motor latch by a new one and reassemble in opposite order and manner of removal.



OVEN DOOR REMOVAL AND REPLACEMENT

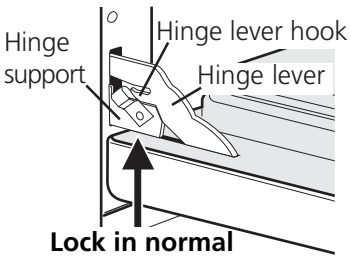
To Remove the Oven Door:

1. Open the door to the fully opened position.
2. Pull up the lock located on each hinge support and engage it in the hinge lever. You may have to apply a little downward pressure on the door to pull the locks fully over the hinge lever hooks.
3. Grab 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 range to completely disengage the hinge levers.

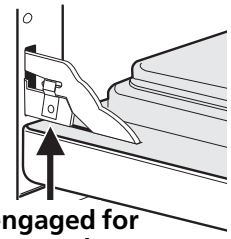
To Replace the Oven Door:

1. Grab the door by the sides; place the hinge supports in the hinge slots. Open the door to the fully opened position.
2. Disengage the lock from the hinge lever hooks on both sides.
   Note: Make sure the hinge supports are fully engaged before unlocking the hinge levers.
3. Close the oven door.

⚠ CAUTION The door is heavy. After removing door, lay it flat on the floor with the inside of the door facing down.



Lock in normal position



Lock engaged for door removal

HINGE SLOT
Door removed from the range