

SERVICE DATA SHEET
ELECTRIC RANGES WITH MODULAR OVEN CONTROLS

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.

IMPORTANT NOTE: This unit includes an EOC (electronic oven control). This board is not field-repairable.

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.

- Do not attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
- Before servicing or moving an appliance, remove power cord from electric outlet, trip circuit breaker to Off, or remove fuse.
- Never interfere with the proper installation of any safety device.
- Use only replacement parts specified for this appliance. Substitutions may not comply with safety standards set for home appliances.
- 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.
- 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.

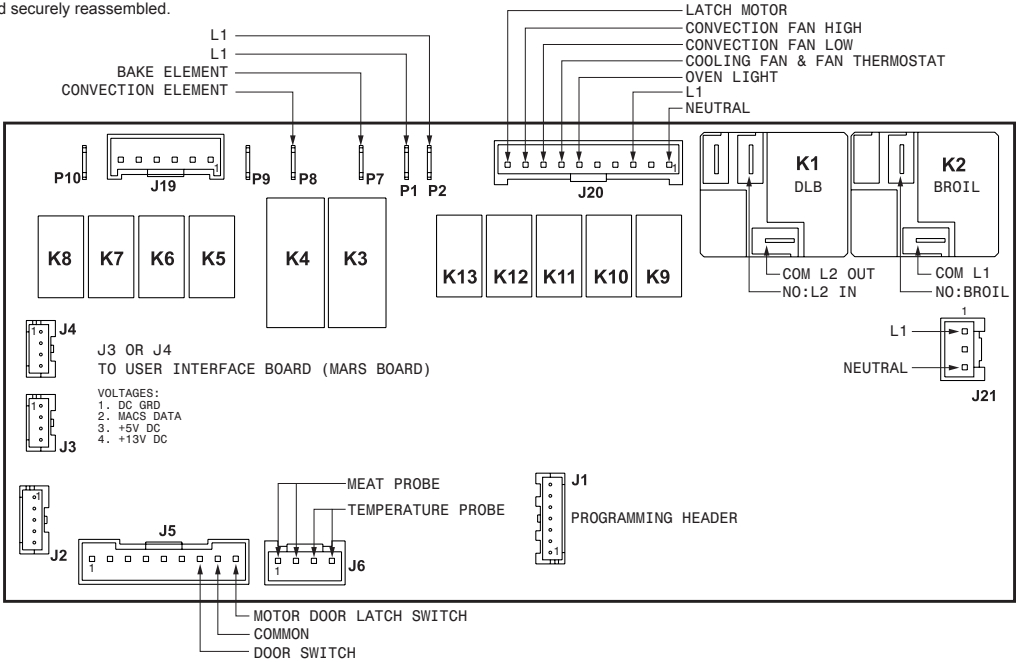
Temperature Adjustment

- While in a non-cooking mode, press and hold the Bake key for 3 seconds until UPO appears in the display.
- Use the number keys (0-9) to enter the desired adjustments (-35° to 35° F).
- Press the Self Clean key 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 START to accept the change or the STOP key to reject the change.

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

Modular Control Systems

This appliance is equipped with a modular system of controls. The modular system consists of various boards which communicate with one another to drive cooking functions. Oven functions, if available, operate through an oven user interface (UI or UIB) and an oven relay board. Cooktop functions, if available, operate through a cooktop UI/UIB and a cooktop relay board. There may be additional boards which work within the system to drive specific functions (refer to the schematics and diagrams and this sheet). Low voltage operating and communications power for the modular boards is provided through the wiring schemes. The boards that generate low voltage operating and communications power depend upon the individual control system (refer to the schematics and diagrams on this sheet). These voltages are only the operational voltages. Do not use these voltages as confirmation of communication between the boards. Communication occurs through software programming on each board. This communication is not detectable by volt ohmmeters. The programming is self-monitored and the UI displays will show error codes based on detected failures. The individual boards are not field repairable. See the schematics and diagrams included on this sheet for more unit-specific details.



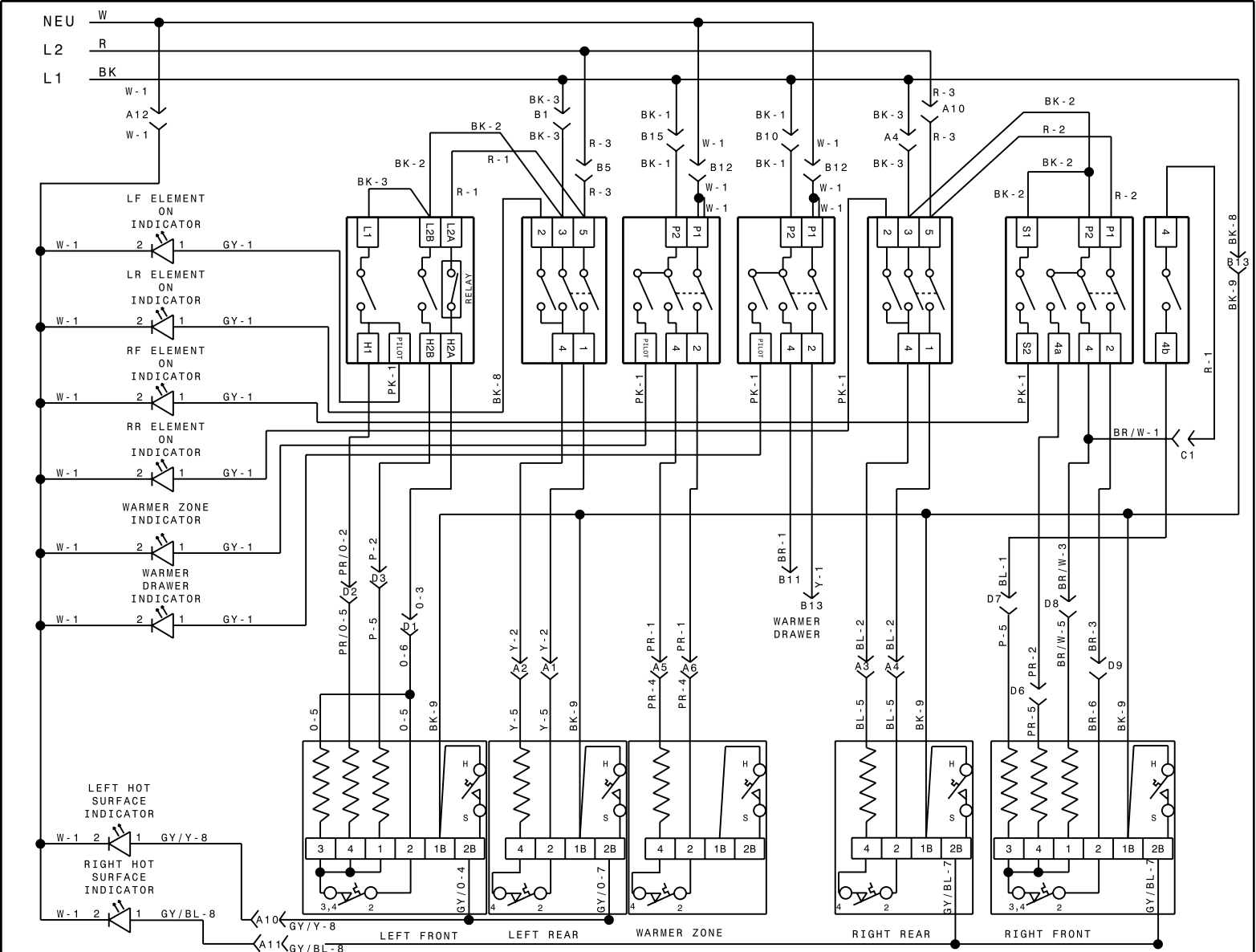
CIRCUIT ANALYSIS MATRIX	Elements			Door Motor J20-10	Light J20-6	Conv. Fan Low Speed J20-8 High Speed J20-9	Door Switch J5-7, J5-8	DLB L2 out K1	Cooling Fan J20-7
	Bake P7	Broil K2	Conv. P8						
Bake	X	X	X			X		X	X
Broil		X						X	X
Conv. Bake	X	X	X			X		X	X
Conv. Roast	X	X	X			X		X	X
Clean	X	X						X	X
Locking				X					
Unlocking				X					
Light					X				
Door Open					X				
Door Closed							X		

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

MEAT PROBE TEMPERATURE VS RESISTANCE	
Temperature °F (°C)	Resistance (Kohm)
77 (25)	50.0 ± 7%
122 (50)	18.0 ± 4.9%
176 (80)	6.3 ± 3.3%
212 (100)	3.4 ± 4.6%

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 (EOC) FAULT CODE DESCRIPTIONS		
Fault Code	Description of Error Code	Suggested Corrective Action
F001 F002 F004 F005	Touch panel failure	Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up replace the touch panel.
F003	The oven user interface board is incorrectly configured.	Replace the oven user interface board. Make sure you install the latest revision available for this model.
F010	Oven temperature runaway: the cavity temperature has been detected in excess of the maximum safe operating temperature.	1. If oven is overheating, disconnect power. Check oven temperature probe (RTD) and replace if necessary. 2. If the oven temperature probe is good and if oven continues to overheat when power is reapplied, replace the oven relay board.
F011	Stuck key: a key has been detected has pressed continuously for 30 seconds or more.	1. If a key was pressed inadvertently for a long time this error code will be displayed. Make sure there is nothing (water, utensils) in contact with the keyboard. The fault code should go away once the key is released and the Stop key is pressed. If the F011 error comes back when a key is pressed it means the error condition is still there. If the F011 error does not come back it means the error condition is gone and the oven can be used. 2. If the fault code cannot be cleared, test the wiring harness between oven user interface board (connector I2C1 or I2C2) and touch panel (connector I2C1 or I2C2). 3. If the fault code cannot be cleared and the wiring is good, the touch panel is most likely defective: replace the touch panel. 4. If changing the touch panel did not fix the problem replace the oven user interface board.
F012	Keyboard configuration alarm: the oven user interface board received from the touch panel a key code that does not match the key map.	1. Verify the unit has the proper oven user interface board and touch panel, based on the model number and parts catalog. 2. Replace the oven user interface board. 3. If the problem persists replace the touch panel.
F013	Data written to non-volatile memory has failed verification	Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up replace the oven user interface.
F015	Keyboard error	Disconnect power, wait 30 seconds and reapply power. If fault returns upon power-up replace the touch panel.
F017	The oven user interface board is unable to configure the touch panel.	1. Disconnect power to the unit, wait 30 seconds, then reapply power. 2. If fault returns, verify harness going to I2C1 or I2C2 connector of the touch panel. 3. Verify the unit has the proper oven user interface board and touch panel, based on the model number and parts catalog. 4. If fault persists, replace the oven user interface. 5. If fault persists, replace the touch panel.
F018	Oven relay board failure (wiggler)	Replace the oven relay board.
F019	The oven user interface board is unable to configure the oven relay board	1. Disconnect power to the unit, wait 30 seconds, then reapply power. 2. If fault returns, verify connection between the oven user interface board (MACS1 or MACS2 connector) and the oven relay board (connector J3 or J4). 3. Verify the unit has the proper oven user interface board and oven relay board, based on the model number and parts catalog. 4. If fault persists, replace oven user interface board. 5. If fault persists, replace the relay board.
F022	Communication failure between the oven user interface board and the oven relay board	1. Disconnect power, wait 30 seconds and reapply power. Check if error condition is still there. 2. Test wiring harness between oven user interface board (connector MACS1 or MACS2) and oven relay board (connector J3 or J4). 3. If wiring harness is good replace oven relay board. 4. If the problem persists replace the oven user interface.
F023	Communication failure between the oven user interface board and the glass touch panel	1. Disconnect power, wait 30 seconds and reapply power. Check if error condition is still there. 2. Test wiring harness between oven user interface board (connector I2C1 or I2C2) and touch panel (connector I2C1 or I2C2). 3. If wiring harness is good replace touch panel. 4. If the problem persists replace the oven user interface.
F025 F027	The communication between the over user interface and the oven relay board cannot be initiated.	1. Disconnect power to the unit, wait 30 seconds, then reapply power. 2. If fault returns, verify connection between the oven user interface board (MACS1 or MACS2 connector) and the oven relay board (connector J3 or J4). 3. Verify the unit has the proper oven user interface board and oven relay board, based on the model number and parts catalog. 4. If fault persists, replace relay board. 5. If fault persists, replace the oven user interface board.
F028 F029	The communication between the over user interface and the touch panel cannot be initiated.	1. Disconnect power to the unit, wait 30 seconds, then reapply power. 2. If fault returns, verify touch panel is connected (verify harness going to I2C1 or I2C2 connector) and is getting power from the oven user interface. 3. Verify the unit has the proper oven user interface board and touch panel, based on the model number and parts catalog. 4. If fault persists, replace the touch panel. 5. If fault persists, replace the oven user interface.
F030	Open oven temperature sensor (RTD)	1. Check probe circuit wiring for possible open or short condition. 2. Verify RTD resistance at room temperature (compare to probe resistance chart). If resistance does not match the chart, replace the RTD probe. 3. If the problem persists replace the oven relay board.
F031	Shorted oven temperature probe (RTD)	
F033	Meat probe temperature sensor shorted or too hot	1. The error is triggered if the meat probe sees a temperature in excess of 392°F. Make sure the meat probe was not used in such way that it could have seen such temperature. If the tip of the probe is not inserted in the meat it will see the cavity temperature, which can be higher than 392°F (depending on the setpoint) and trigger the alarm. 2. When the meat probe is connected to the socket inside the oven cavity, if the meat probe is not fully inserted into the socket it may short the contacts and cause the error. Make sure the probe is inserted as much as it can. 3. Verify meat probe resistance at room temperature. Compare to meat probe resistance chart. If the meat probe does not match the chart, replace it. 4. If the above steps failed to correct the problem, replace the oven relay board.
F050	A/D Out of Range: the oven relay board is unable to read the status of the switches (door, MDL)	1. Check to ensure that the connections between the door switch, MDL and temp probes are properly connected. This includes all splices and junctions. 2. If the above step failed to correct the problem, replace the oven relay board.
F090	Motor Door Lock mechanism failure. The Motor Door Lock does not see the Motor Door Lock running.	1. Disconnect power to the unit, wait 30 seconds, then reapply power. Try again to make the door lock or unlock (ex: initiate a Lockout or a Clean cycle). 2. Check if the Lock Motor is running or not. If it is not running, test the wiring between the Lock Motor and the oven relay board. If the wiring is good, check if there is 120VAC at the motor when it is expected to run to see if the failure originates from a bad motor (120VAC present but not turning) or a problem with the relay board (J20 pin 10 on the oven relay board is the output to the Lock Motor). The Lock Motor can also be tested by applying 120VAC directly to the motor (unplug it from the relay board first). If the Lock Motor does not run when 120VAC is applied replace the Lock Motor Assembly. If it is the relay board that does not provide 120VAC to the Lock Motor replace the oven relay board. 3. If the Lock Motor is running but the oven control cannot find the locked or unlocked position (ex: motor turns continuously until F90 fault code is generated) the Lock Switch needs to be verified. Check wiring between Lock Switch and oven relay board. Verify with ohmmeter if the switch makes contact properly (verify continuity with ohmmeter when the switch is pressed). If the Lock Switch is defective replace the Motor Lock Assembly. If all above steps failed to correct the situation, replace the oven relay board.
F095	Motor Door Lock mechanism failure. The Motor Door Lock does not stop running or the Lock Switch sends an invalid signal.	1. The problem can be caused by a faulty Lock Switch or by a defective oven relay board. If the Motor Door Lock is always running (as if the relay controlling it is stuck closed) replace the oven relay board. 2. If the motor is not always running replace the Motor Lock Assembly.
F096	The oven door has been detected open during a Self Clean cycle.	1. This error occurs if the door switch has lost its contact during a Self Clean cycle. Make sure the oven door closes well and fully presses on the door switch plunger when the door is locked, and no one attempted to pull on the oven door during the Self Clean cycle. 2. Test continuity of wiring between the door switch and the oven relay board, make sure the door switch is well connected. With an ohmmeter, verify the switch is closed when the plunger is pressed. If the door switch is found to be defective replace the door switch. 3. If the switch and wiring are good and the problem persists, replace the oven relay board.



COLOR CODE / CODE
COULEUR

BK = BLACK/NOIR

BR = BROWN/BRUN

R = RED/ROUGE

O = ORANGE/ORANGE

Y = YELLOW/JAUNE

GN = GREEN/VERT

BL = BLUE/BLEU

PU = PURPLE/VIOLET

GY = GREY/GRIS

W = WHITE/BLANC

T = TAN/BRONZER

PK = PINK/ROSE

BR/W = BROWN/WHITE
BRUN/BLANC

O/BK = ORANGE/BLACK
ORANGE/NOIR

PR/O = PURPLE/ORANGE
VIOLET/ORANGE

GR/BK = GREY/BLACK
GRIS/NOIR

GR/O = GREY/ORANGE
GRIS/ORANGE

GR/Y = GREY/YELLOW
GRIS/JAUNE

GR/R = GREY/RED
GRIS/ROUGE

GR/BL = GREY/BLUE
GRIS/BLEU

CONNECTOR/
CONNECTEUR

A

4321

8765

1211109

CONNECTOR/
CONNECTEUR

C

12

CONNECTOR/
CONNECTEUR

B

54321

109876

1514131211

CONNECTOR/
CONNECTEUR

D

321

664

987

CODE

GAUGE

TEMP. °C

CSA

UL

CODE

CALIBRE

118150EXL-B 3321

216150EXL-B 3321

314150EXL-B 3321

418200SEW-1 3122

516200SEW-1 3122

614200SEW-2 3071

718200SEW-2 3071

820150EXL-B 3321

920200SEW-1 3122

S3

6 inch

Warmer Zone

6 inch

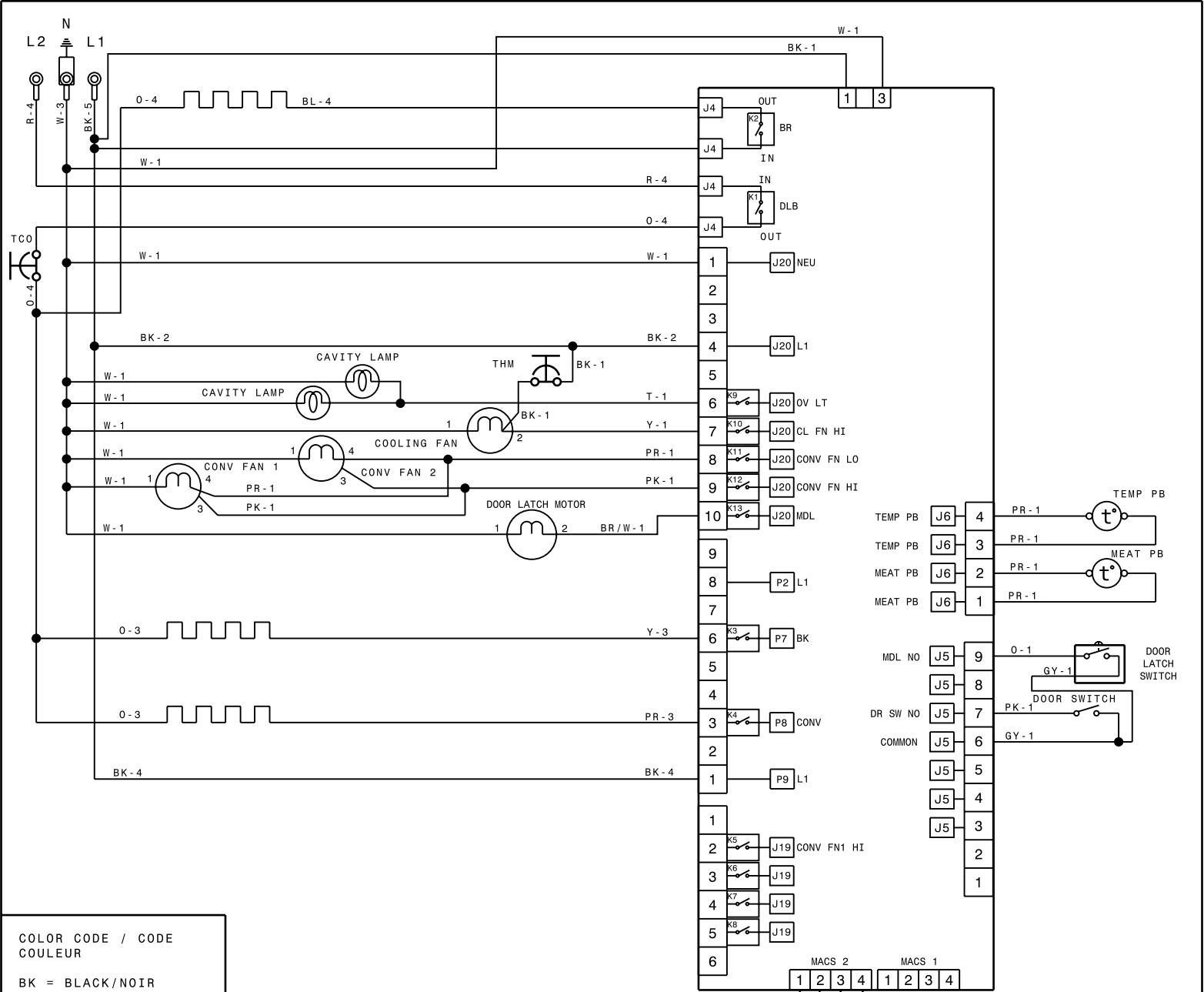
9 inch
3200W
Turbo Boil

6-9-12 inch
expandable
1200/2000/3000W

CAUTION:DISCONNECT POWER BEFORE SERVICING UNIT.
LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS.
WIRINGS ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION.
VERIFY PROPER OPERATION AFTER SERVICING.

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IDENTIFIEZ TOUS LES FILS AVANT DE LES DEBRANCHER QUAND L'APPAREIL EST HORS SERVICE.
LES ERREURS DE CONNEXION DE FILS PEUVENT CAUSER UN MAL FONCTIONNEMENT ET UN DANGER D'USAGE DE L'APPAREIL.
VERIFIEZ LE BON FONCTIONNEMENT DE L'APPAREIL APRES LE SERVICE.

PART NUMBER	REV.
A12802907	A



COLOR CODE / CODE COULEUR		CONNECTOR A / CONNECTEUR A	
BK = BLACK/NOIR BR = BROWN/BRUN R = RED/ROUGE O = ORANGE/ORANGE Y = YELLOW/JAUNE GN = GREEN/VERT BL = BLUE/BLEU PU = PURPLE/VIOLET GY = GREY/GRIS W = WHITE/BLANC T = TAN/BRONZER PK = PINK/ROSE BR/W = BROWN/WHITE BRUN/BLANC O/BK = ORANGE/BLACK ORANGE/NOIR PR/O = PURPLE/ORANGE VIOLET/ORANGE GR/BK = GREY/BLACK GRIS/NOIR GR/O = GREY/ORANGE GRIS/ORANGE GR/Y = GREY/YELLOW GRIS/JAUNE GR/R = GREY/RED GRIS/ROUGE GR/BL = GREY/BLUE GRIS/BLEU		3 2 1 6 5 4	

CODE CODE	GAUGE CALIBRE	TEMP. °C	CSA	UL
1	20	150	EXL-B 3321	
2	18	150	EXL-B 3321	
3	16	150	EXL-B 3321	
4	14	150	EXL-B 3321	
5	12	150	EXL-B 3321	
6	22	125	UL 1569	

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PART NUMBER	REV.
A13871318	A