SAMSUNG

Built in electric wall oven

BASIC: NV51M9770DS
MODEL: DOB30P977DS
MODEL CODE: DOB30P977DS

SERVICE Manual

Built in electric wall oven

CONTENTS

Refer to the service manual in the GSPN(see rear cover) for the more information.

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1. Precaution

1-1 Forward

This SAMSUNG Service Manual, "Built in electric wall oven" provides the technician with information on the operation and service of the built in electric wall oven.. It is to be used as a training Service Manual. For specific information on the model being serviced, refer to the "Owner's Manual" or "Tech Sheet" provided with electric wall oven.

1-2 Safety Precautions

- Repairs of the appliance should be carried out by a licensed technician only. Incorrect repairs may result in dangerous situations. If you need repairs, contact a SAMSUNG Service Center or your dealer.
- If the power cord is defective, it must be replaced by a qualified service agent with a UL listed range cord.
- Electrical leads and cables should not be allowed to touch the oven.
- Rating plate is located on the left side of trim door.
- The power supply of the appliance should be turned off when it is being repaired.

WARNING

- To avoid risk of severe personal injury or death, disconnect power before working/servicing on appliance to avoid electrical shock.
- When the oven operates, the interior parts will be very hot.

SAMSUNG Electronics assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

1-3 Important Safety Instructions

Read and follow all instructions before using your oven to prevent the risk of fire, electric shock, injury to person, or damage when using the oven. This guide doesn't cover all possible conditions that may occur.
For further assistance contact your service agent or manufacturer.

WARNING

This symbol will help alert you to hazards or unsafe practices which could cause serious bodily harm or death.

- Be sure your appliance is properly installed and grounded by a qualified technician.
- Do not repair or replace any part of the appliance unless specifically recommended in the manual. All other servicing should be referred to a qualified technician.
- Always disconnect power to appliance before servicing by removing the fuse or switching off the circuit breaker

WARNING

- **DO NOT TOUCH HEATING ELEMENTS OR INTERIOR SURFACES OF OVEN** – Heating elements may be hot even though they are dark in color. Interior surfaces of an oven become hot enough to cause burns. During and after use, do not touch, or let clothing or other flammable materials contact heating elements or interior surfaces of oven until they have had sufficient time to cool. Other surfaces of the appliance may become hot enough to cause burns – among these surfaces are oven vent openings and surfaces near these openings, oven doors, and windows of oven doors.

- Do Not Leave Children Alone - Children should not be left alone or unattended in area where appliance is in use. They should never be allowed to sit or stand on any part of the appliance.
- Never Use Your Appliance for Warming or Heating the Room.
- Storage in or on Appliance – Flammable materials should not be stored in an oven or near surface units. Be sure all packing materials are removed from the appliance before operating it. Keep plastics, clothes and paper away from parts of the appliance that may become hot
- Wear Proper Apparel – Loose-fitting or hanging garments should never be worn while using the appliance.
- Do Not Use Water on Grease Fires – Turn off oven to avoid spreading the flame. Smother the fire or flame by closing the door or use dry chemical, baking soda or foam- type extinguisher.
- Use Only Dry Potholders – Moist or damp potholders on hot surfaces may result in burns from steam. Do not let potholder touch hot heating elements. Do not use a towel or other bulky cloth.

WARNING

To avoid risk of electrical shock, personal injury, or death, make sure your range has been properly grounded and always disconnect it from main power supply before any servicing.

SELF-CLEAN OVENS

- **Do Not Clean Door Gasket** – The door gasket is essential for a good seal. Care should be taken not to rub, damage, or move the gasket.
- **Do Not Use Oven Cleaners** – No commercial oven cleaner or oven liner protective coating of any kind should be used in or around any part of the oven.
- **Clean in the self-clean cycle only parts listed in this manual.**
  Before self-cleaning the oven, remove the broiler pan and any utensils from the oven.
- **Never keep pet birds in the kitchen** – the health of birds is extremely sensitive to the fumes released during an oven self-clean cycle. Fumes may be harmful or fatal to birds. Move birds to well-ventilated room.
- **Important Instruction** – In the event the self-clean mode "F" code goes on, or three long beeps sound, oven is malfunctioning in the self-clean mode. Turn off or disconnect appliance from power supply and have serviced by a qualified technician.

VENTILATING HOODS:

- **Clean Ventilating Hoods Frequently** – Grease should not be allowed to accumulate on hood or filter.
- **When flaming foods under the hood, turn the fan on.**

OVEN

- **Use Care When Opening Door** – Let hot air or steam escape before you remove or replace food in the oven
- **Do Not Heat Unopened Food Containers** – Build-up of pressure may cause container to burst and result in injury.
- **Keep Oven Vent Ducts Unobstructed** – the oven vent is located in the front above the oven door and under the door. This area could become hot during oven use. Never block this vent and never place plastic or heat sensitive items near the vent
- **Placement of Oven Racks** – Always place oven racks in desired location while oven is cool. If rack must be moved while oven is hot, do not let potholder contact hot heating element in oven.
- **Do Not** allow aluminum foil or meat probe to contact heating elements.

DEEP FAT FRYERS:

- Use extreme caution when moving the grease kettle or disposing of hot grease.

1-4 Model & Serial Number Label and Tech Sheet Locations

This Model / Serial Number label and Tech Sheet locations are shown below.

Model & Serial Number Location

Tech Sheet Location (On Top Rear Cover)

2. Specifications

2-1 General Specification

■ New Appearance Design

- DOUBLE WALL OVEN
- KNOB+LCD CONTROL
- LED LIGHTING DOOR
- STEAM FUNCTION
- WI-FI
- CHEF COOK MODE

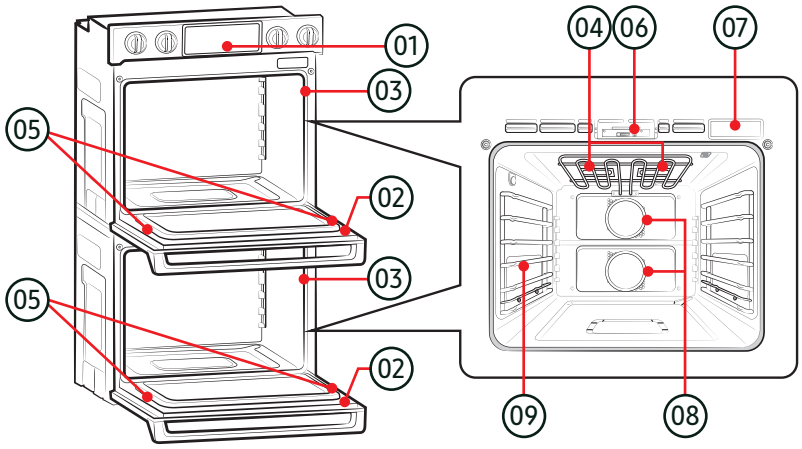
2. Specifications

2-2 Specification

ITEMS		BASIC MODEL	NEW MODEL
Model Name		NV51M9970DS	DOB30P977DS
Category		Double wall oven	Double wall oven
Overall	Width	30"	30"
	Installation type	Built-In	Built-In
	Color availability	STS	STS
Control	Oven	KNOB+LCD	KNOB+LCD
	Display	LCD	LCD
	Electronic clock	Yes	Yes
	Control lock capability	Yes	Yes
	Audible preheat signal	Yes	Yes
Upper Oven	Capacity (cu.ft)	5.1	4.8
	Broil element	4,400 watts	4,400 watts
	Bake element	3,000 watt	3,000 watt
	Convection system	Yes	Yes
	Convection element	1,300 watt	1,300 watt
	Steam element	500 watt / 120V	500 watt / 120V
	# of Racks	3	3
	Interior oven light	2 halogen, 2 door led	2 halogen, 2 door led
	Cleaning	Self-clean & Green clean	Self-clean & Green clean
Lower Oven	Capacity (cu.ft)	5.1	5.1
	Broil element	4,400 watts	4,400 watts
	Bake element	3,000 watt	3,000 watt
	Convection system	Yes	Yes
	Convection element	1,300 watt	1,300 watt
	Steam element	-	-
	# of Racks	3	3
	Interior oven light	2 halogen, 2 door led	2 halogen, 2 door led
	Cleaning	Self-clean & Green clean	Self-clean & Green clean
Dimensions	Outside (W*D*H)	29 3/4 * 24 3/8 * 51 1/2 (756*620*1307)	29 3/4 * 24 3/8 * 51 1/2 (756*620*1307)
	Cutout (W*D*H)	28 1/2 * 23 1/2 * 50 1/8 (724*597*1276)	28 1/2 * 23 1/2 * 50 1/8 (724*597*1276)
	Shipping (W*D*H)	33 1/2 * 29 3/4 * 56 3/8 (850*757*1432)	33 1/2 * 29 3/4 * 56 3/8 (850*757*1432)
	Net weight (lb)	298.9	327.4
Power	Rating (240V 60Hz)	10,600W	10,600W

2-3 Features & Accessories

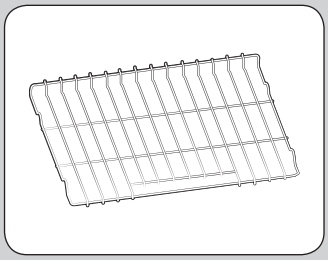
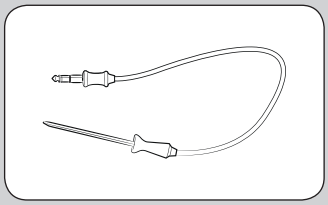
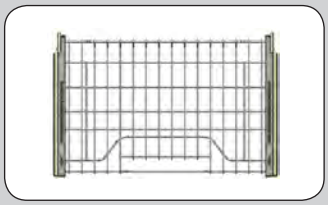
■ Oven Features



01	Oven control panel	**02**	Oven door	**03**	Oven gasket
04	Halogen lamp*	**05**	Door LED light	**06**	Door latch
07	Water reservoir	**08**	Convection fan	**09**	Shelf position

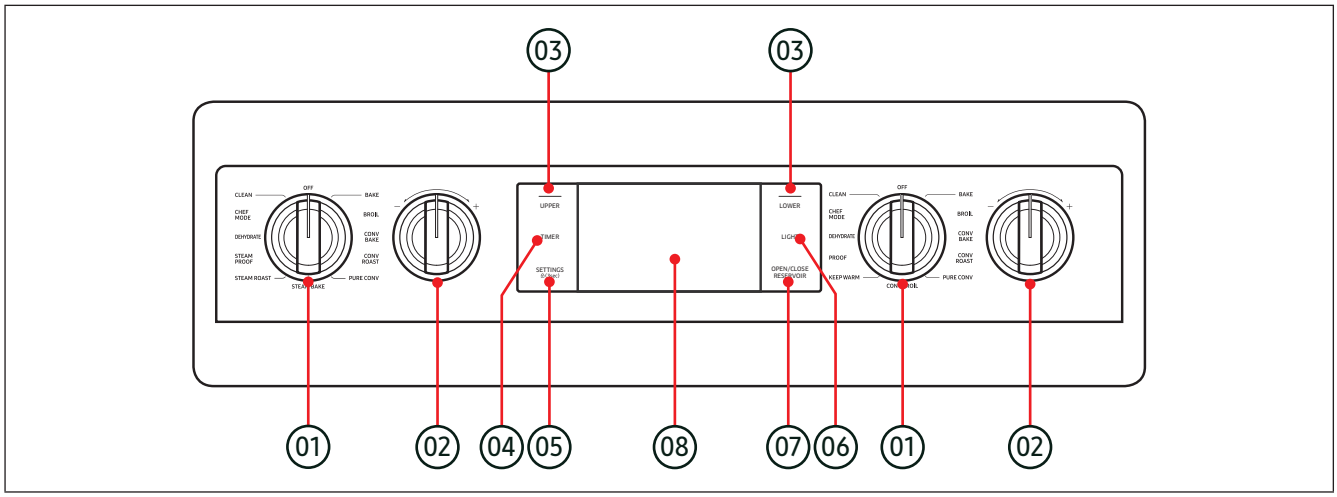
Features & Accessories

■ Accessories

Item	Description	Code No.	Q'ty
	RACK WIRE	DG67-00149A	3
	SENSOR-PROBE	DG32-00013A	1
	ASSY WIRE RACK	DG94-01486A	3

2-4 Functions

■ Control Panel - Oven



01 Upper or lower mode knob • **Upper** • **Lower**	Use to select the mode of the upper or lower oven. • BAKE, BROIL, CONV BAKE (Convection bake), CONV ROAST(Convection roast), PURE CONV(Pure convection), STEAM BAKE, STEAM ROAST, STEAM PROOF, DEHYDRATE, CHEF MODE, CLEAN. • BAKE, BROIL, CONV BAKE(Convection bake), CONV ROAST(Convection roast), PURE CONV(Pure convection), CONV BROIL(Convection broil), KEEP WARM, PROOF, DEHYDRATE, CHEF MODE, CLEAN.
02 Temperature knob	Use to set the temperature for the upper or lower oven respectively.
03 UPPER, LOWER	Use to display the upper oven or lower oven mode screen on the display. Touching here does not turn the ovens on or off. It only displays their current status.
04 Timer	Use to display the set Timer screen.
05 Settings and Control Lockout	Use to display the Setting screen. If you touch and hold this key for 3 seconds, all oven functions will be disabled.
06 LIGHT	Use to turn the oven light on or off.
07 OPEN/CLOSE RESERVOIR	Touch to open the water reservoir.
08 Display	Tap to select a desired setting.

3. Disassembly and Reassembly

3-1 Tool for assembly and disassembly

Item	How to use	Pictures
Screw Driver(+)	Use for assembly and disassembly of all screws.	
7mm Nut Driver	Use for assembly and disassembly of Broil Heater.	
9mm Nut Driver	Use for assembly and disassembly of Convection Fan.	

3-2 Cover-Back Main Wire

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Cover-Back Main wire		1. Turn off the electrical supply going to the oven. 2. Pull the oven away from the wall so that you can access the rear panel. 3. Remove 29(Upper back 16, Lower back 14) screws from the Cover-Back Main Wire and remove the panel.

3-3 PCB Main

WARNING

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CAUTION

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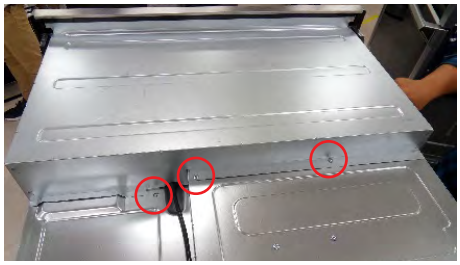
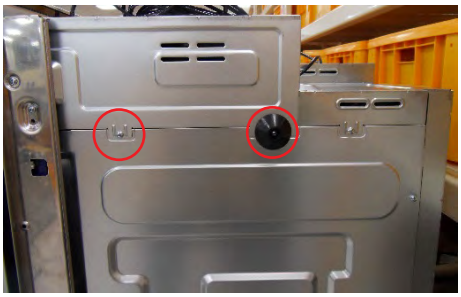
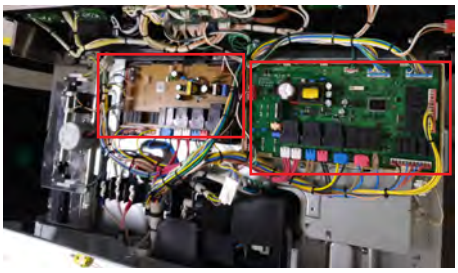
Parts	Explanation Photo	Explanation
PCB Main	  	**1.** Turn off the electrical supply going to the oven. **2.** Pull the oven away from the wall so that you can access the upper panel. **3.** To remove upper cover. a) remove each 2 screws from upper cover of left and right side. b) remove 3 screws from upper cover of upside. **4.** There is 2 main PCB (printed circuit board) on the top of the oven.

3-4 Control panel

WARNING

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CAUTION

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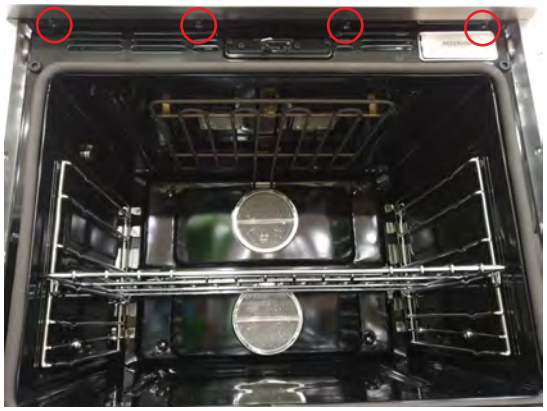
Parts	Explanation Photo	Explanation
Control panel		**1.** Unplug the cord or disconnect power. **2.** Open the oven door. **3.** Remove 4 screws under the control panel. **4.** Disconnect all of the wire harness connectors.

3-5 Sub PCB, ASSY PCB DISPLAY

WARNING

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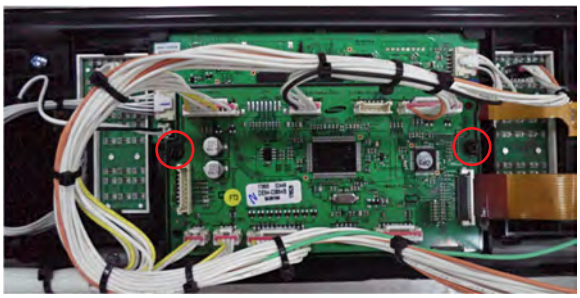
CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Sub PCB, ASSY PCB DISPLAY		1. Turn off the electrical supply going to the oven. 2. Remove 4 screws under the control panel. (See step control panel) 3. Remove connector on SUB PCB and 2 screws.
		1. Remove connector on ASSY PCB DISPLAY and 2 screws.

3-6 Knob Lighting

WARNING

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CAUTION

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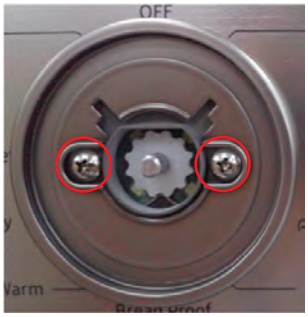
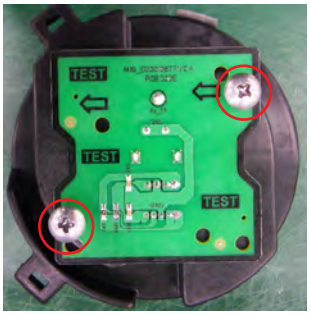
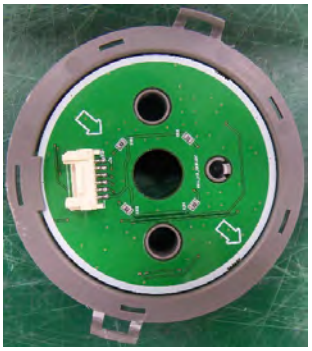
Parts	Explanation Photo	Explanation
Knob lighting	  	1. Turn off the electrical supply going to the oven. 2. Pull-out the Knob handle from the control panel. 3. Remove 2 screws from the knob bezel. 4. Remove 4 screws under the control box and remove control panel. (See step Control panel) 5. Remove knob from control panel. 6. Remove 2 screws on the knob holder. 7. Take off knob holder and knob lighting module.

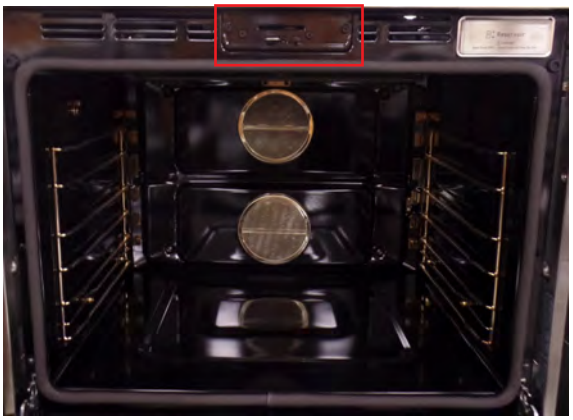
3-7 Door latch & Door switch plunger

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
door latch & door switch Plunger		1. Turn off the electrical supply going to the oven. 2. Open the oven door. 3. Remove 2 screws from the front of cavity and remove the door latch & bracket. 4. Remove 2 screws from the bracket and remove the door latch.

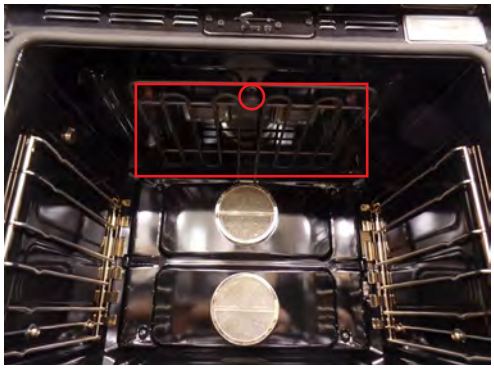
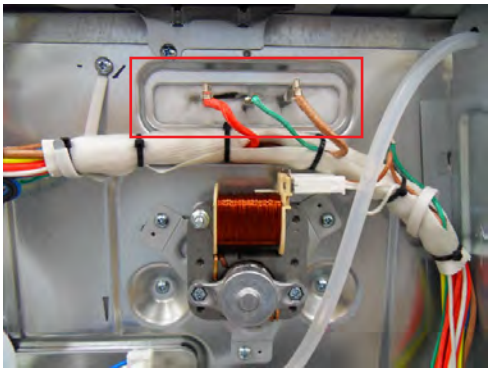
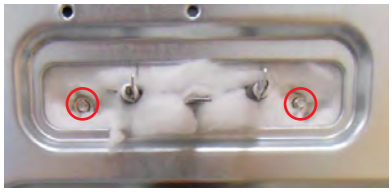
3-8 Heater broil element

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Heater-Broil	  	**1.** Turn off the electrical supply going to the oven. **2.** Open the oven door and remove the racks from inside the oven. **3.** Remove oven from its mounting location and remove the rear cover. **4.** Remove 3 wires from the broil element and 2 nut inside the insulation. **5.** Remove 1 screw that are securing the broil element to the cavity. **6.** Remove the broil element.

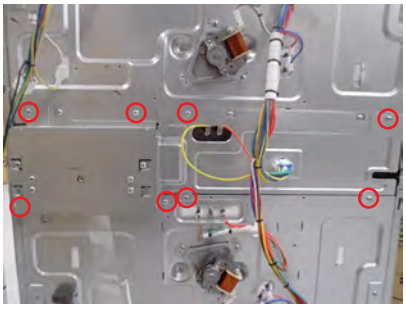
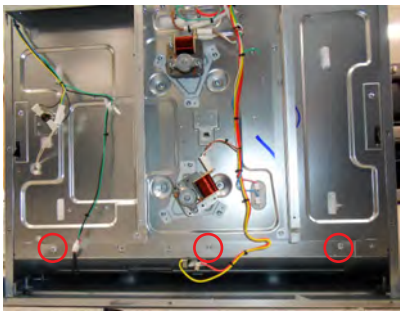
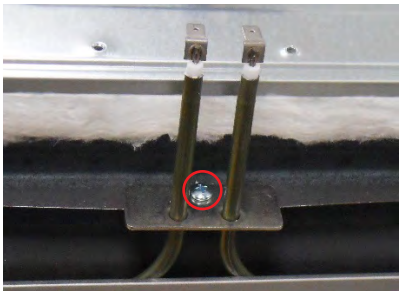
3-9 Heater bake element

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Heater-Bake	  	1. Unplug oven or disconnect power. 2. Pull the oven out of its mounting location so that you can access the rear of the unit. 3. Remove Cover-Back Main wire from the unit. (See step Cover-back main wire) 4. Remove oven door. • **Upper Heater-Bake** 5. Unscrew 8 screws and disconnect wire-harness. 6. Remove Cover back middle & Assy holder motor. 7. Unscrew 3 screws and remove Cover heater bottom. 8. Unscrew 1 screw and replace Heater bake element. • **Lower Heater-Bake** 5. Unscrew 3 screws and remove Cover heater bottom. 6. Unscrew 1 screw and replace Heater bake element.

3-10 Convection Element

WARNING

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CAUTION

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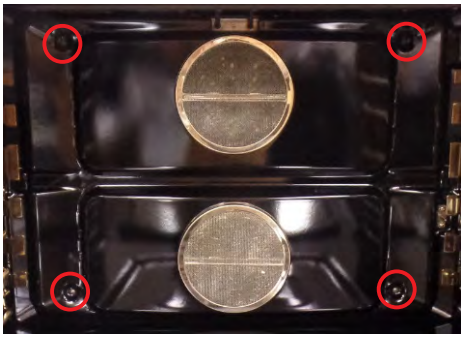
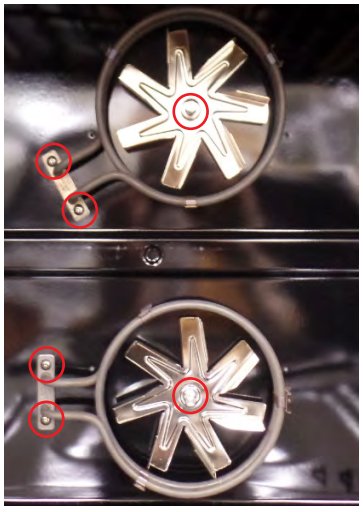
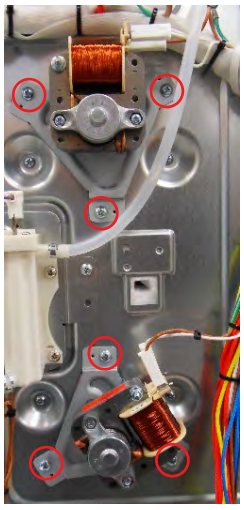
Parts	Explanation Photo	Explanation
Convection Element	  	**1.** Disconnect power and remove oven racks. **2.** Pull the oven out of its mounting location so that you can access the rear of the unit. **3.** Remove Cover-back-main-wire from the unit. (See step on Cover-back-main-wire) **4.** Remove oven door. **5.** Unscrew 4 screws and remove Cover-Casing. **6.** Unscrew 4 screws and remove Bracket-Convection element. **7.** Unscrew nut of Fan-Convection, and 2 Fan-Convection. **8.** Unscrew 3 points and disconnect a Motor-Convection wire and disconnect Heater-Convection wire.

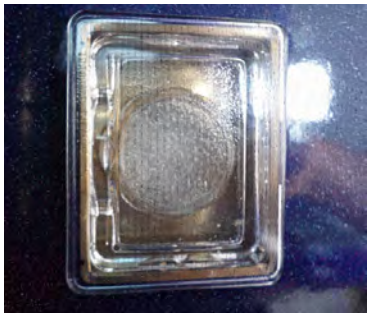
3-11 Lamp

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Lamp	  	1. Disconnect power. 2. Remove oven door. 3. remove screws holding broil element and let it hang down slightly to gain access to light. 4. Pull-out the glass cover in the oven. 5. Unscrew cover lamp. 6. Pull-out the bulb.

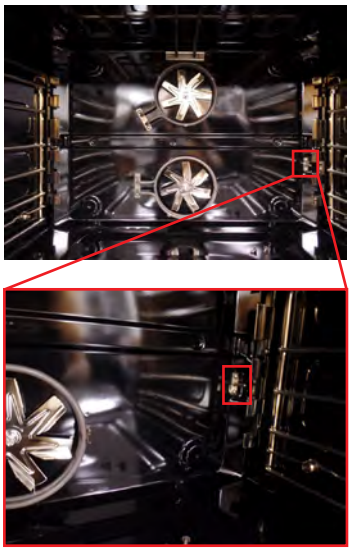
3-12 Sensor-Thermistor

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Sensor Thermistor	 	1. Turn off the electrical supply going to the oven and remove the oven from its mounting location. 2. Remove oven door and racks from inside the oven. 3. Unscrew Sensor-Thermistor. 4. Remove Cover-Back-Main-Wire and disconnect a wire harness.

3-13 Disassembly Door (UPPER)

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Disassembly Door (UPPER)	   	1. Remove rubber. 2. Disonnect wire harness. 3. Fully open the door with pressing the lever. 4. Pull the hinge locks downward. 5. Firmly grasp both side of the door at the top. 6. Close door to the door removal position, which is approximately 5 degrees. Lift the door up and out until the hinge arm are clear of the slot.

3-14 Disassembly Door (LOWER)

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Disassembly Door(LOWER)	   	**1.** Fully open the door with pressing the lever. **2.** Pull the hinge locks downward. **3.** Firmly grasp both side of the door at the top. **4.** Close door to the door removal position, which is approximately 5 degrees. Lift the door upand out until the hinge arm are clear of the slot. **5.** Disconnect wire harness and Remove Rubber. ** Caution : after step 4, to prevent wire harness damaged, should keep holding the door.

3-15 Replace Door (UPPER)

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Replace Door(UPPER)	   	1. Firmly grasp both sides of the door at the top position. 2. Fully open the door . (If the door will not fully open, it means that the indentation is not seated correctly in the bottom edge of the slot. Push the hinge locks up to the locked position.) 3. Close the oven door. 4. Connect wire harness and rubber.

3-16 Replace Door (LOWER)

WARNING

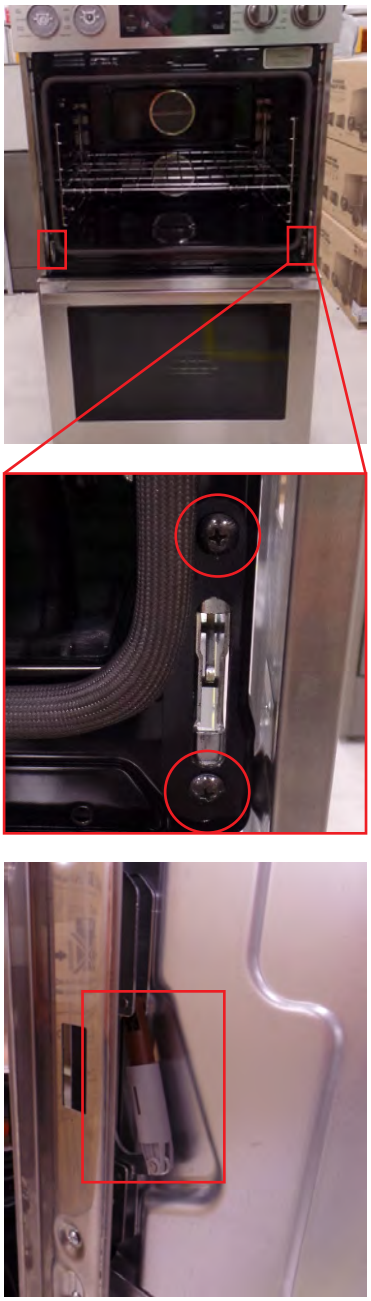
Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

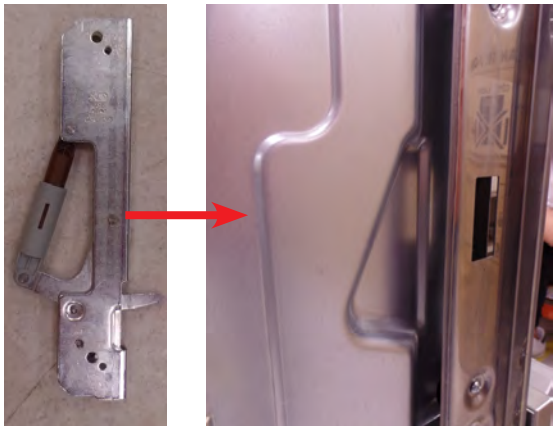
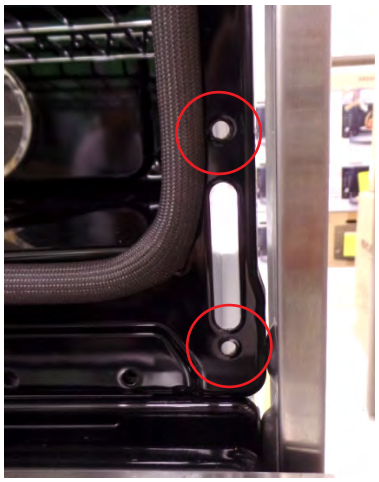
When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Replace Door(LOWER)	   	1. Assembly rubber and connect wire harness.(after connecting, push connector to inside of the hole) 2. Firmly grasp both sides of the door at the top and match hinge & support hinge. 3. Fully open the door. Note. If the door will not fully open, it means that the indentation is not seated correctly in the bottom edge of the slot. Push the hinge locks up to the locked position.) 4. Close the oven door.

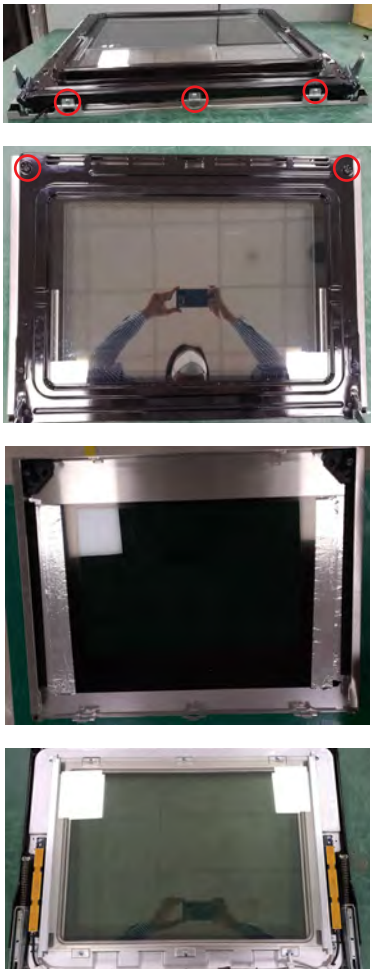
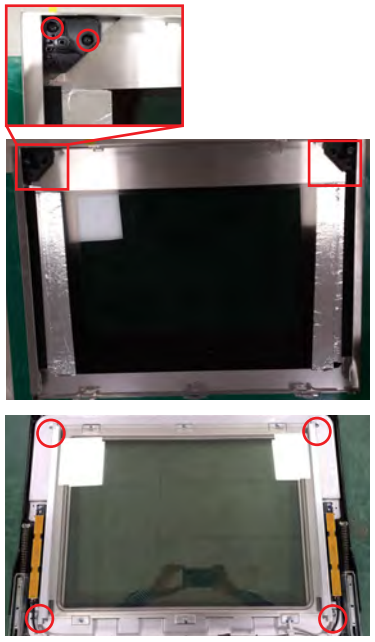
3-17 Disassembly hinge receptacle

Parts	Explanation Photo	Explanation
Disassembly SUPPORT HINGE		**1.** Remove door. (refer to page 24, 25) **2.** Remove 2 screws at each side. **3.** Remove the cover front and the support hinge. → When remove screw, be careful that the Cover front and the Support hinge is fall as soon as disassembly.

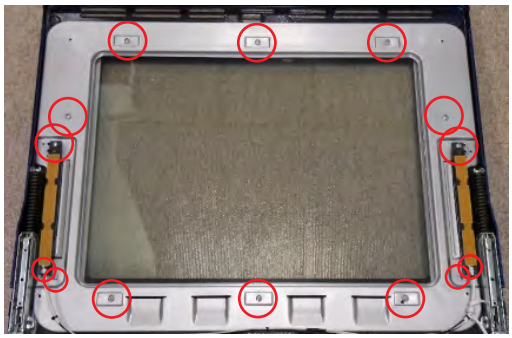
3-18 Replace hinge receptacle

Parts	Explanation Photo	Explanation
Replace SUPPORT HINGE	   ‹ Cover front L › ‹ left side ›   ‹ right side › ‹ Cover front R › **※ Cover front, L/R side part shape is same**	**1.** Put Support Hinge at back side of Cavity Front. **2.** Put Cover front at front side of Cavity Front. →Cover front should be placed between cavity front & screw. **3.** Tighten the Cover front and Support hinge together with 2 screws. →When tighten screws, hole of the Support hinge & Cover front & Cavity Front must be aligned.

3-19 HANDLE-DOOR AND GLASS-INNER - 1

Parts	Explanation Photo	Explanation
HANDLE-DOOR AND GLASS-INNER - 1		**To remove the HANDLE DOOR and GLASS INNER** **1.** Remove the oven door from the oven. **2.** Place the oven door on a padded work surface with the front glass facing down. **3.** Remove 3 bottom screws from the door. **4.** Remove 2 Handle-screws from the door. **5.** Lift the door rear assembly off the front assembly and set it aside.
		**To remove Handle-door** **6.** Remove 4 screws on holder handle.

3-20 HANDLE-DOOR AND GLASS-INNER - 2

Parts	Explanation Photo	Explanation
HANDLE-DOOR AND GLASS-INNER - 2	  	**To remove Glass-Inner** **1.** Remove 4 screws to remove the Glass inner sub. **2.** Remove 4 screws to remove LED assy and 2 sub glasses. **3.** Remove 10 screws to remove Baffle-door and take out the Glass inner assembly.

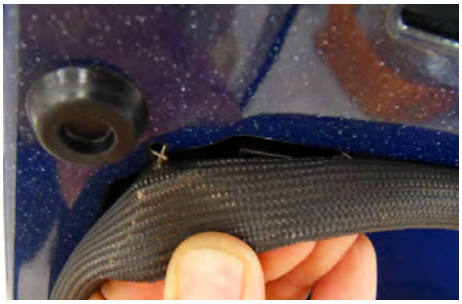
3-21 GASKET-DOOR

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
Gasket door	  	1. Open the oven door to its fully down position. 2. Pull the ends of the gasket out of the liner holes. 3. Pull the oven door gasket clips out of the holes until all of the clips are removed. Reassembly Note. When you install the new gasket, make sure that all of the clips are seated in their liner holes, and that the ends of the gasket are pushed fully into their holes. Use the pointed end of a pencil to push the gasket ends into the holes.

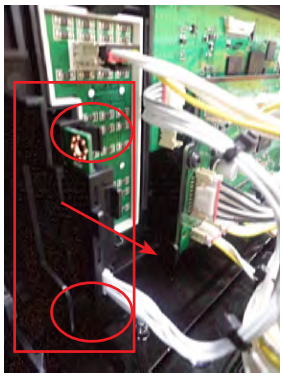
3-22 Wi-Fi module

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

Parts	Explanation Photo	Explanation
WI-FI MODULE	 	1. Turn off the electrical supply. 2. Remove 4 screws under the control box and remove control panel. (See step Control panel) 3. Disconnect wire harness. 4. Pull out the Wi-Fi module and remove connector.

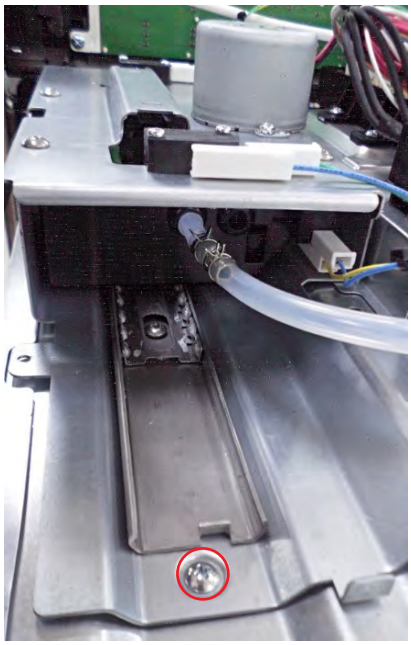
3-23 Steam set

WARNING

Disconnect power before servicing the oven. Replace all panels before operating range. Failure to do so can result in death or electrical shock.

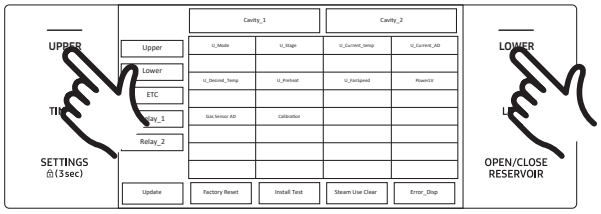
CAUTION

When you work on the electric oven, be careful when handling the sheet metal parts. Sharp edges may be present, and you can cut yourself if you are not careful.

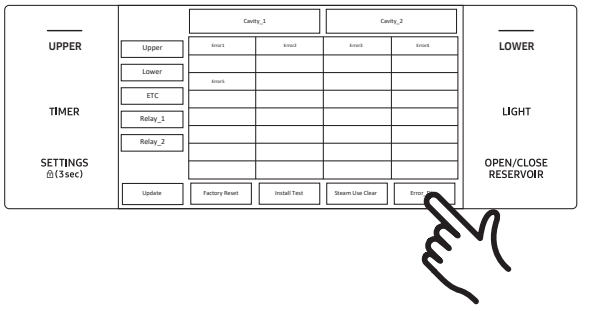
Parts	Explanation Photo	Explanation
Steam set	 	1. Turn off the electrical supply. 2. Pull the oven away from the wall so that you can access the upper panel. 3. To remove upper cover. (See step PCB main) a) remove each 2 screws from upper cover of left and right side. b) remove 3 screws from upper cover of upside. 4. Remove 4 screws and hose connect. 5. Remove 3 screws and hose connections.

4-1 Failure Display Codes

Possible check codes during use can be checked before service.



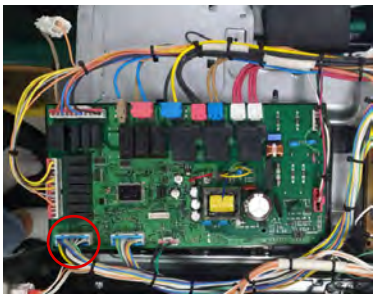
1. Touch **UPPER** and **LOWER** for 5 seconds.
   Information is displayed on screen.



2. Touch **Error_Disp**.
   The latest 5 check codes can be checked on display.
3. Touch **UPPER** and **LOWER** for 5 seconds to return to normal display mode.

4-2 Sensor

Failure code	CAUSE	SOLUTION
C-20	Oven sensor open (over 2950Ω)	1. Disconnect power. Open the back cover. Disconnect sensor harness from control Measure sensor resistance :1080Ω at the room temperature → If measured resistance is abnormal replace oven sensor. 2. If there is no problem with oven sensor, Please check wire harness terminals for damage. 3. Check resistance of oven sensor connectors on main PCB with wire harness disconnected. (Normal:2850Ω)
	Oven sensor short (Under 930Ω)	

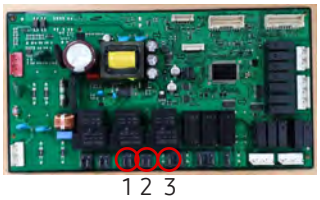


Main PBA
CN600

Sensor

Failure code	CAUSE	SOLUTION
C-21	Oven heating over	1. Disconnect power. Open the back cover. Disconnect sensor harness from control. Measure sensor resistance : 1080Ω at the room temperature → If measured resistance is abnormal replace oven sensor. 2. Check the broil, bake and convection heater. Check the resistance of the each heater. 3. Check whether DLB of Main PCB, Broil, Bake and Convection heater relay are working normally. 4. Check whether there is any disconnection of harness which is linked with Main PCB. 5. Check the resistance of oven sensor connector on Main PCB with wire harness disconnected. (Normal : 2850Ω)

Sensor



No.1 : Terminal for Broil Heater
No.2 : Terminal for common live
No.3: Terminal for Bake Heater

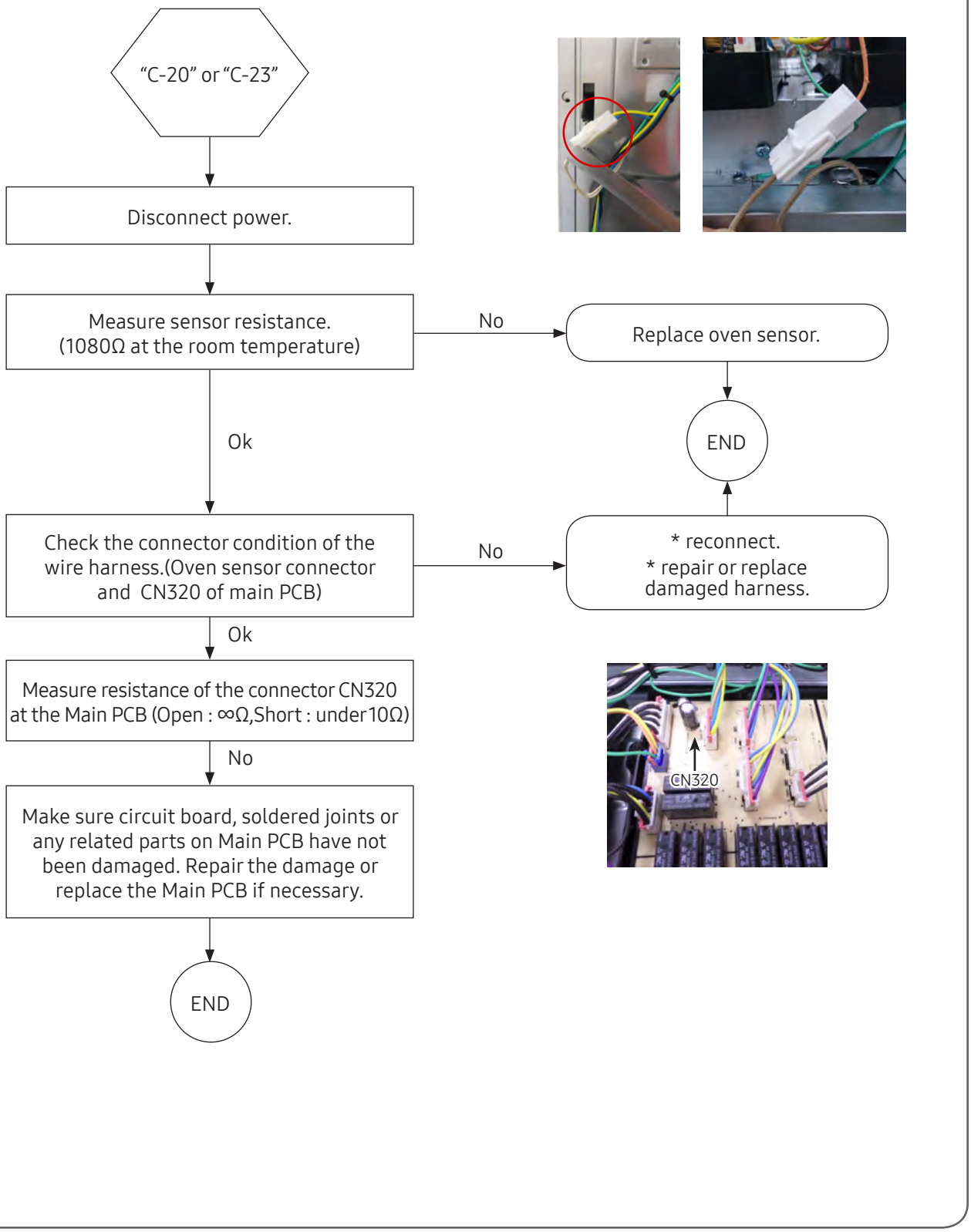
Check Resistance

Position	Normal	Abnormal
1 to 2	Open	Short
2 to 3	Open	Short

Sensor

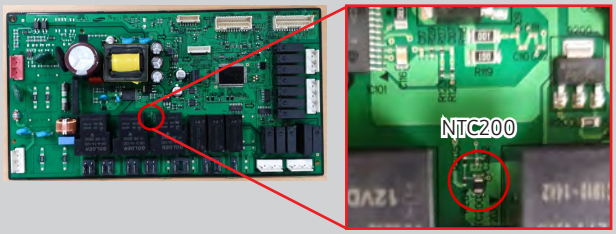
Failure code	CAUSE	SOLUTION
C-23	The temp probe sensor is shorted when oven is operating.	1. Disconnect power. Disconnect probe harness from control. Measure probe resistance. : 50kΩ at room temperature. -> If there are any problems, replace meat probe. 2. If there is not any problem with meat probe, Please check whether there is a damaged terminal or wire on harness. 3. Check resistance of meat probe connector on main PCB (Normal :10kΩ~11kΩ)

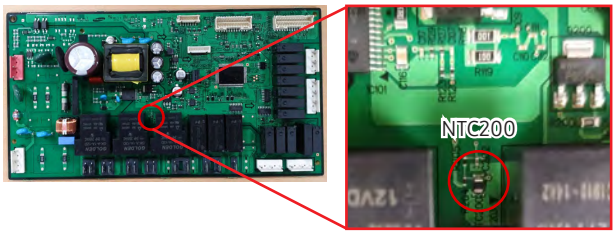
Sensor



Sensor

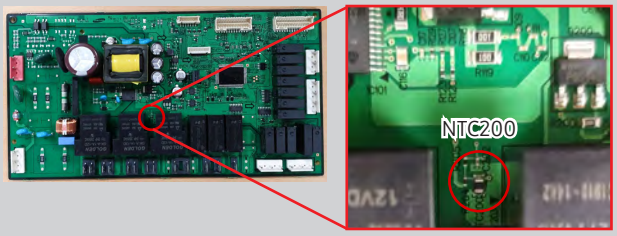
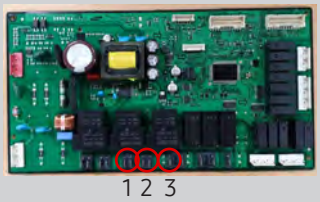
■ Oven Sensor Error

Failure code	CAUSE	SOLUTION
C-30	PCB Sensor Open PCB Sensor Short	1. Disconnect electrical Power to the oven. Remove the back cover. Check NTC sensor status (Broken or soldering condtion)  2. Replace the Main PCB.

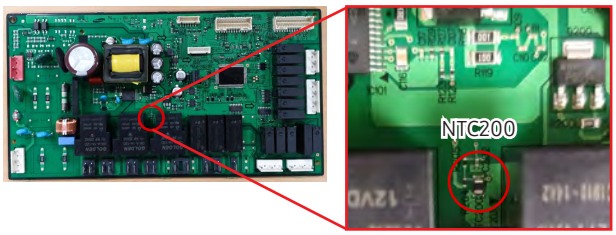


Sensor

■ Safety Error

Failure code	CAUSE	SOLUTION
C-31	Occurance when NTC sensor over 10 seconds very hot condition.	1. Disconnect power. Open the back cover. Check NTC sensor status(Broken or soldering condtion)  2. Check Resistance of relay for heater.  No.1 : Terminal for Broil Heater No.2 : Terminal for common live No.3: Terminal for Bake Heater **Check Resistance** Position / Normal / Abnormal 1 to 2 / Open / Short 2 to 3 / Open / Short 3. Replace the PCB.

Sensor



No.1 : Terminal for Broil Heater
No.2 : Terminal for common live
No.3: Terminal for Bake Heater

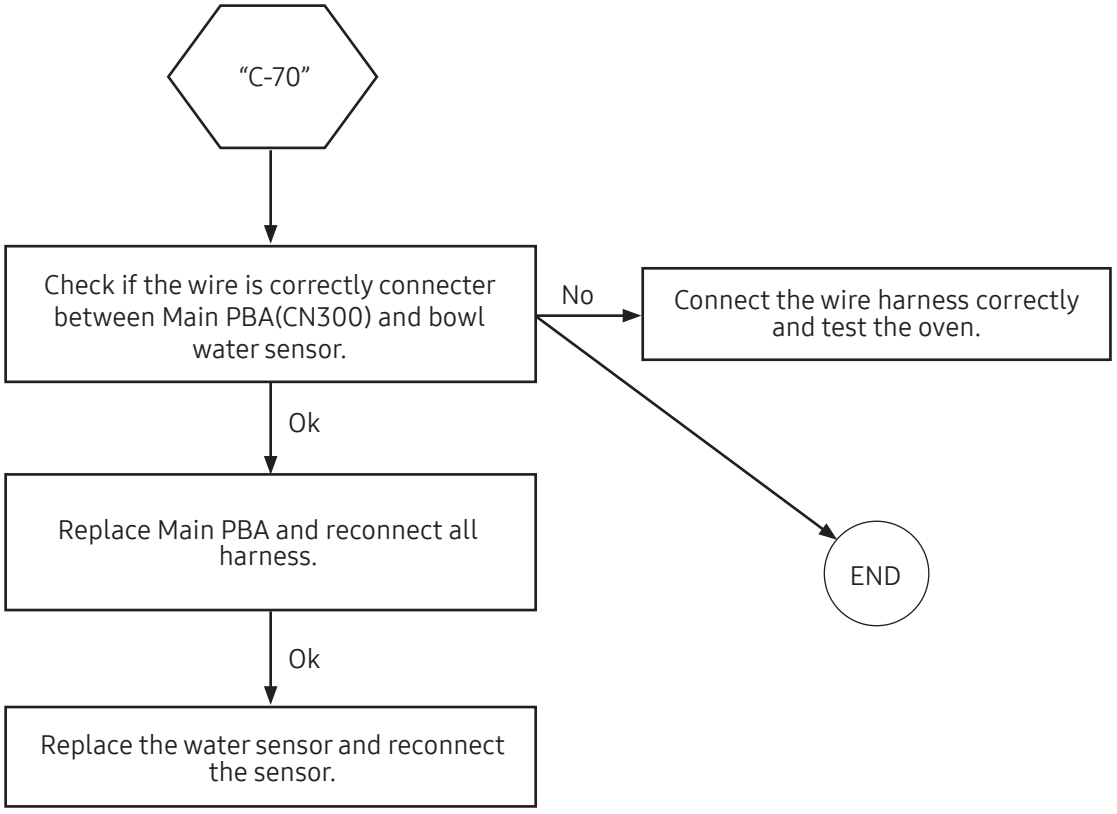
Check Resistance

Position	Normal	Abnormal
1 to 2	Open	Short
2 to 3	Open	Short

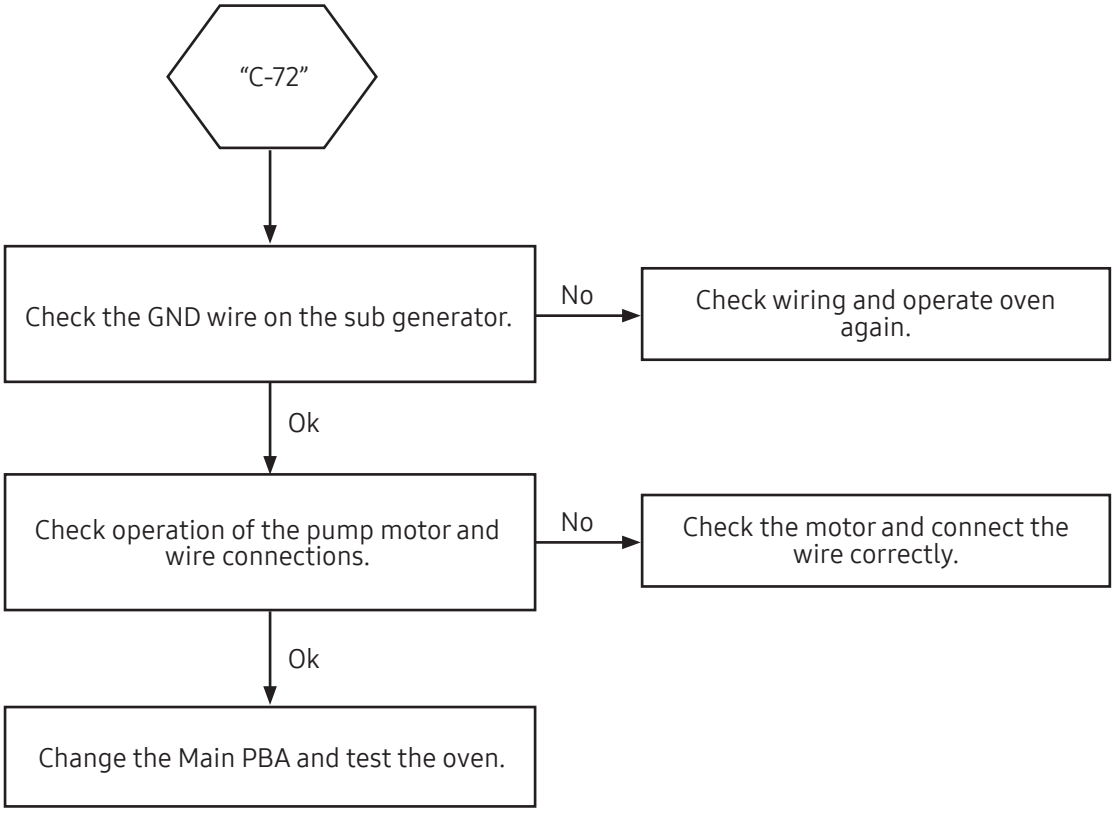
Sensor

Failure code	CAUSE	SOLUTION
C-70	The steam sensor is open when the steam mode is operating.	1. Check whether connector at the main pcb has been inserted. 2. Check whether connector at the sensor has been inserted. 3. If connector at the Main PCB and the sensor are inserted correctly, replace the temperature sensor. 4. If the problem is still not solved, replace the Main PCB.
	The steam sensor is short when the steam mode is operating.	
C-72	The Drain system-related problem. When the water level sensor sensed the water is remained after max time draining.	1. Check the ground wire on the steam generator. 2. Check the pump motor operation and wire connection. 3. If the problem is still not solved, replace the Main PCB.

Sensor

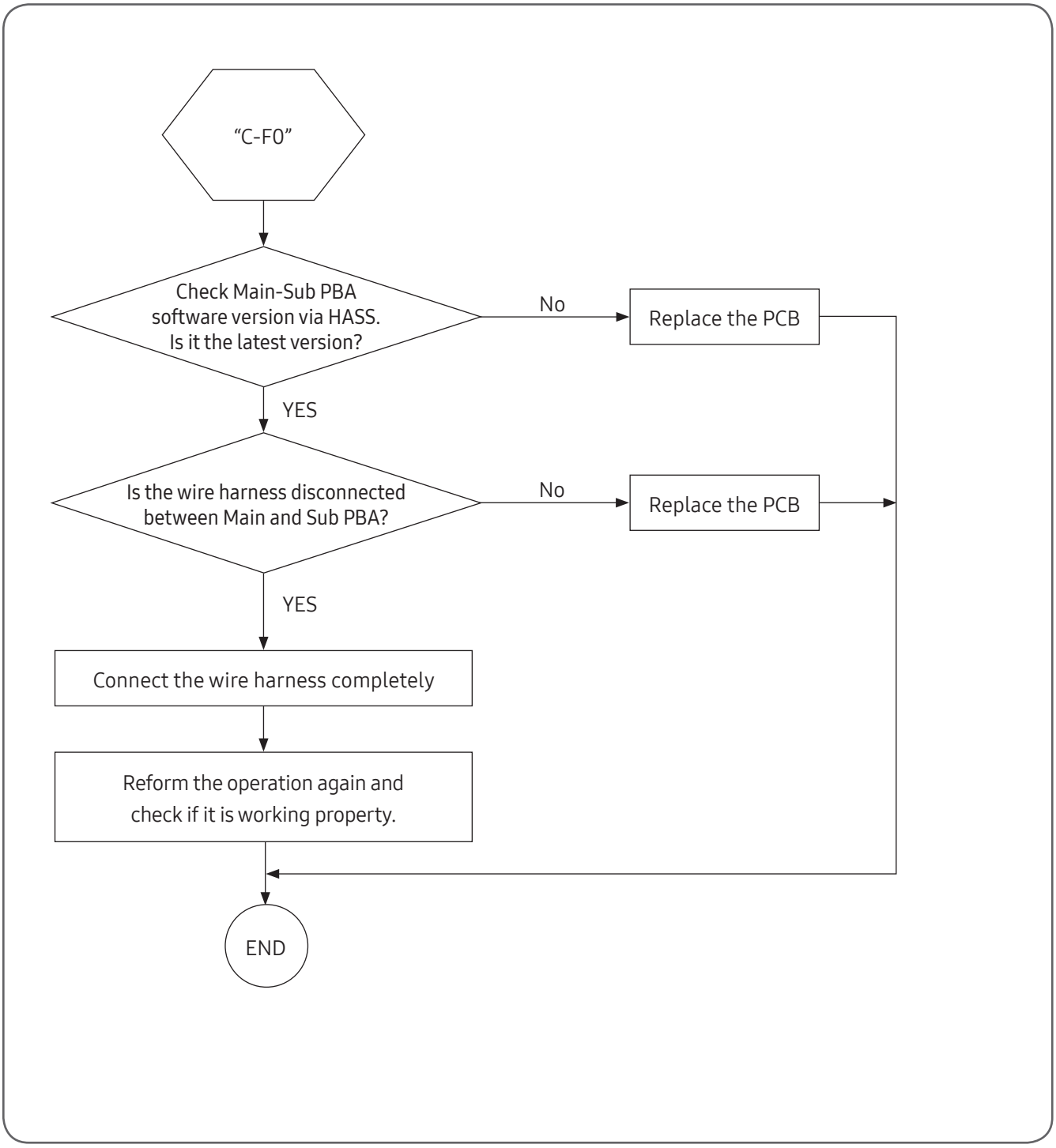


Sensor



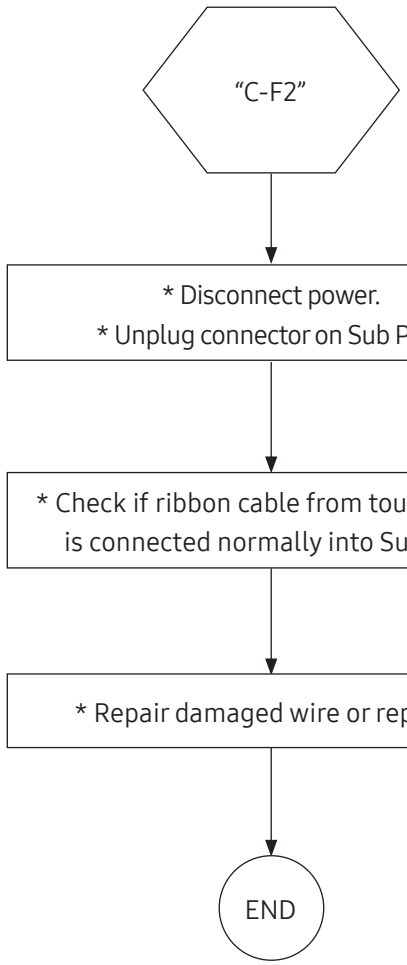
Sensor

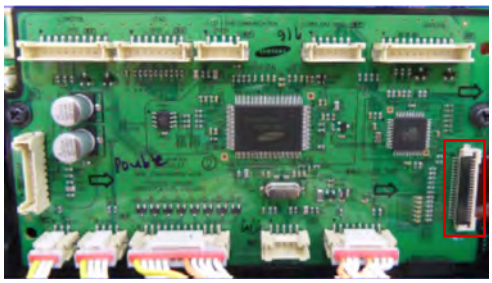
Failure code	CAUSE	SOLUTION
C-F0	This code occurs if communication between the Main and Sub PBA is interrupted.	1. Check wire harness. (Main PBA : CN600, SUB PBA : CNS200)



Sensor

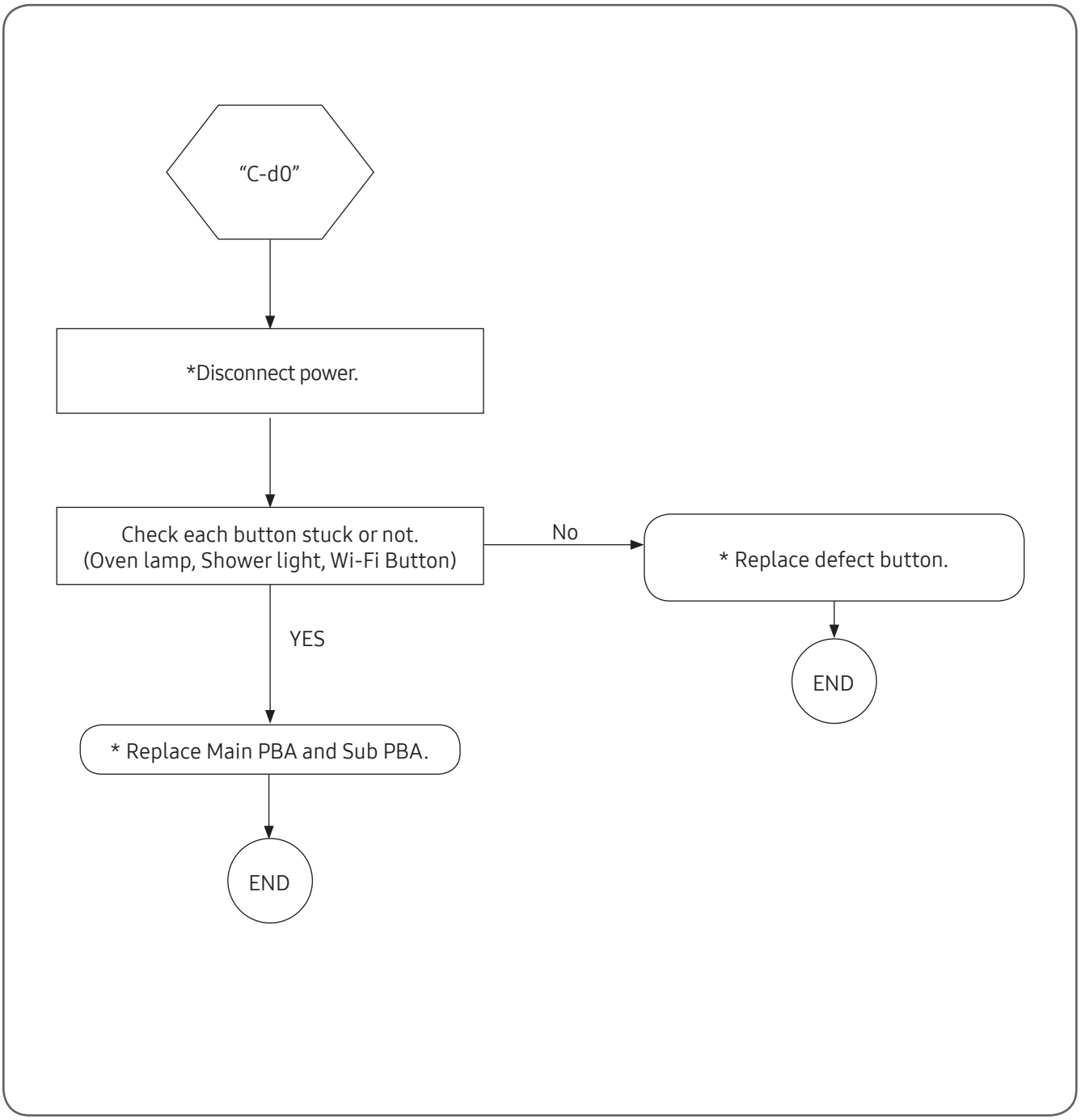
Failure code	CAUSE	SOLUTION
C-F2	This code occurs if communication between the main and touch is interrupted.	1. Check whether connector of sub pcb has been inserted. 2. If there is not a problem occurred with connector on sub pcb, replace the sub pcb. 3. If can't solve the problem after replace the sub pcb, replace the control box.





Sensor

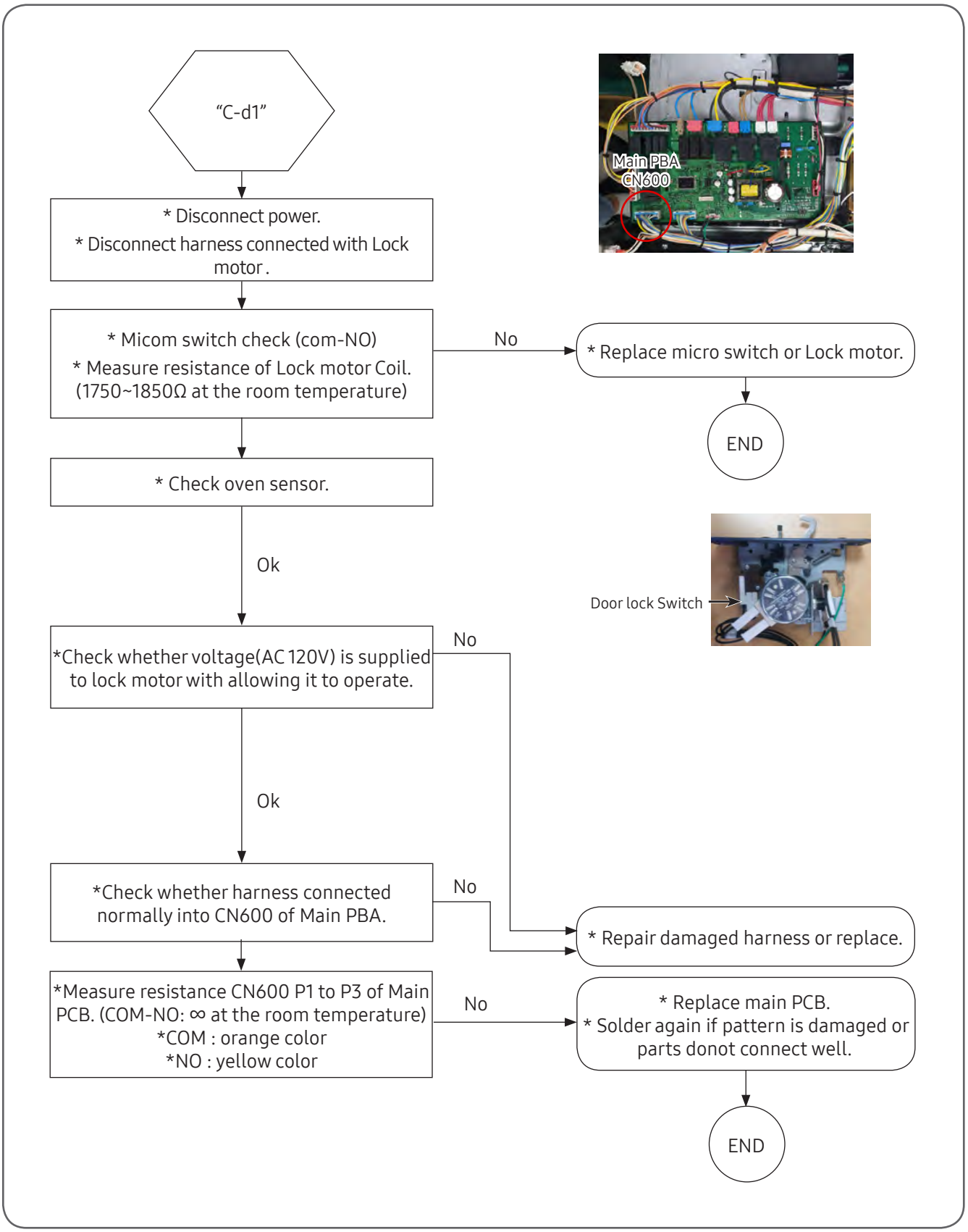
Failure code	CAUSE	SOLUTION
C-d0	Key short error when it take over 1 minute	1. Check whether oven lamp, shower light button was stucked. 2. Check touch glass surface is clean or not. 3. Check each button stuck or not. (Oven lamp, Shower light, Wi-Fi Button)



Sensor

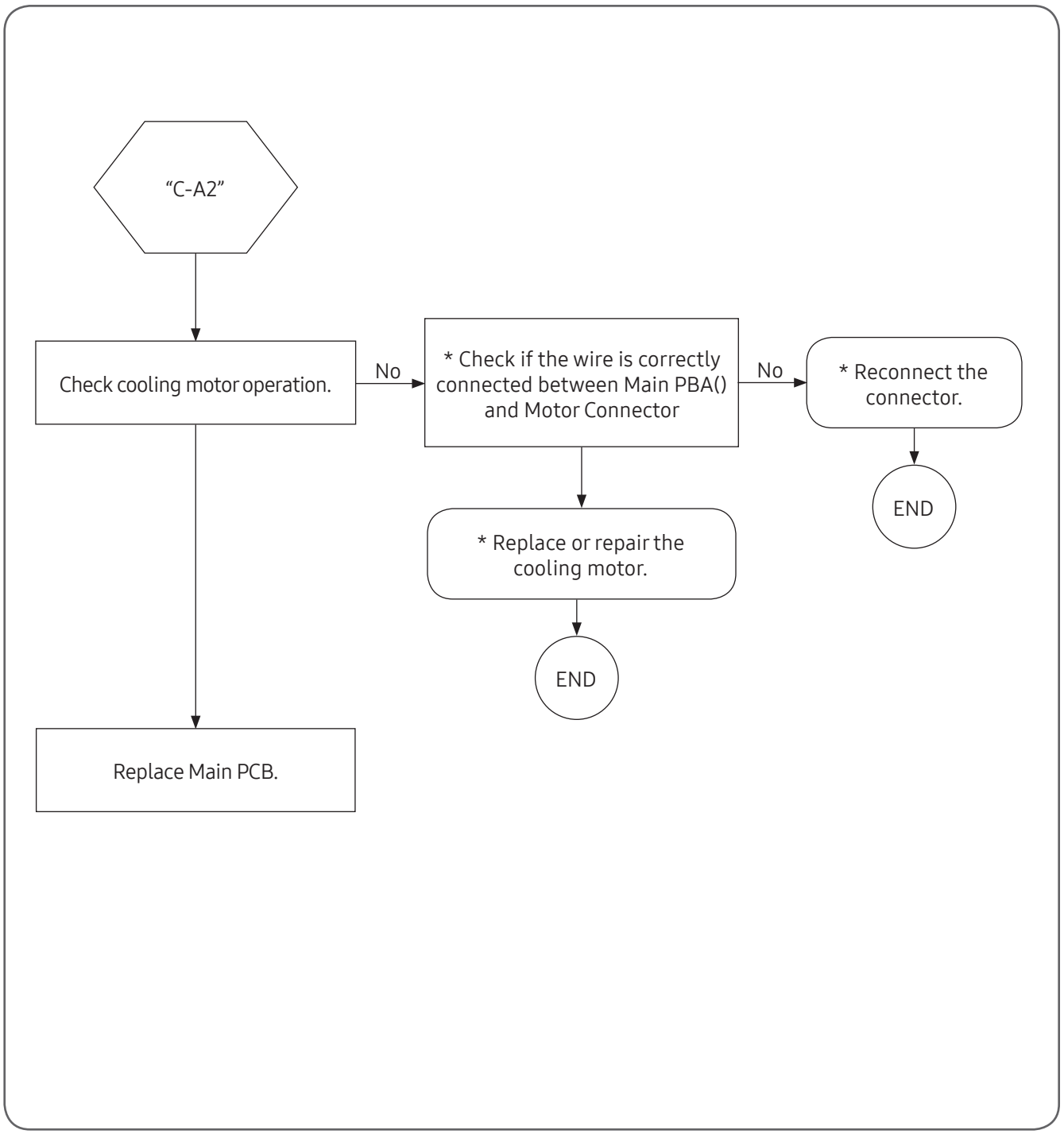
Failure code	CAUSE	SOLUTION
C-d1	Occurance when door lock cannot find corrent position over1 minute	1. Disconnect power. Open the back cover. Check whether harness has been connected with door lock switch and motor. 2. Confirm whether resistance value of door lock motor is normal. 3. With operating door lockout, measure a voltage of connector on harness which is linked with door lock motor. (Normal Voltage : AC 120V) 4. Check whether door locking switch is working.

Sensor

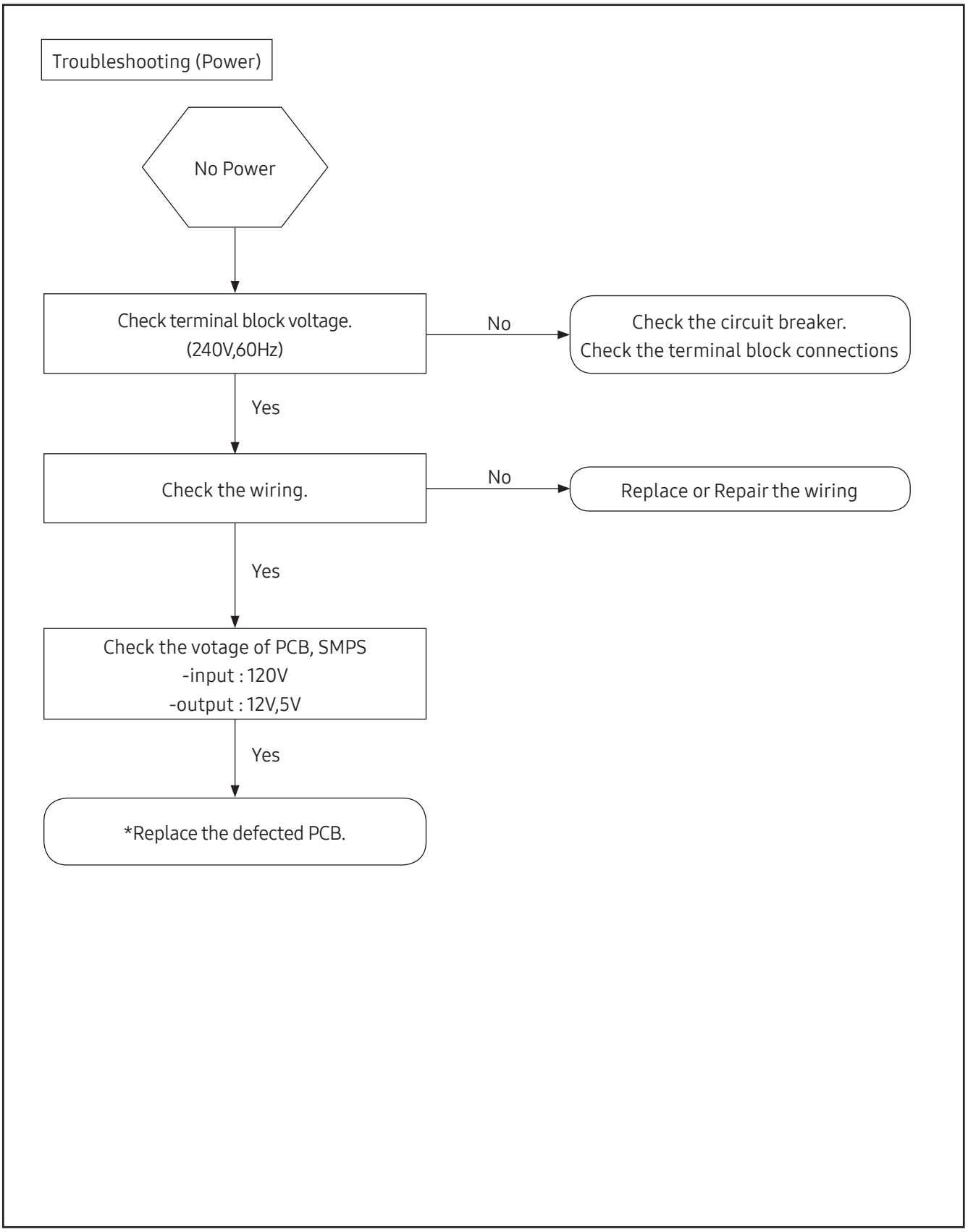


Sensor

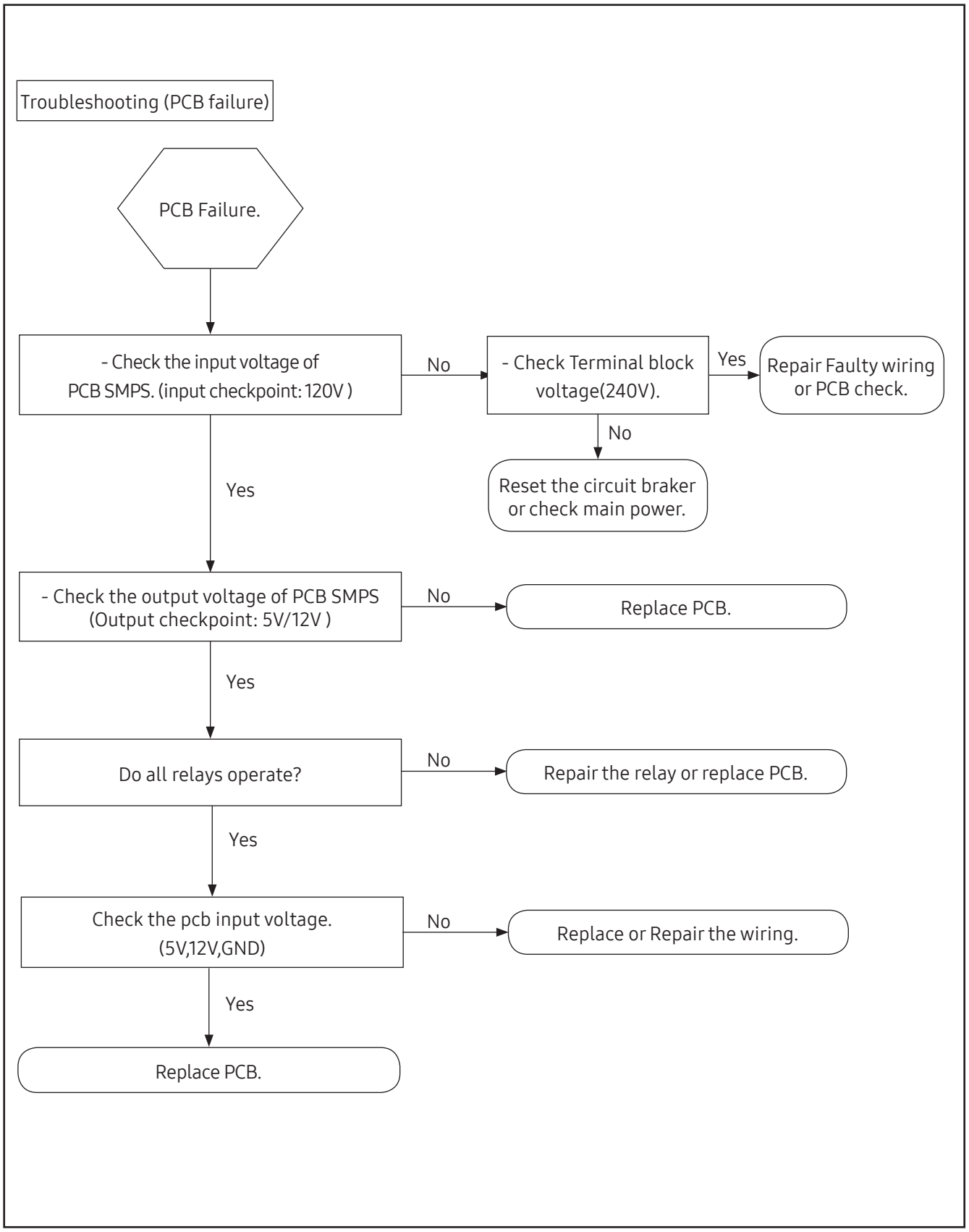
Failure code	CAUSE	SOLUTION
C-A2	Cooling motor is operating abnormally.	1. Check whether connector at the main pcb has been inserted. 2. Check whether connector at the motor has been inserted. 3. If the problem is still not solved, replace the cooling motor.



4-3 Electrical Malfunction



Electrical Malfunction



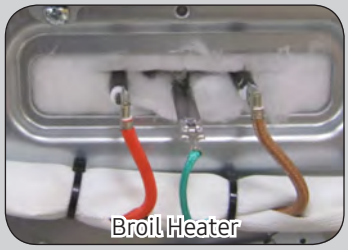
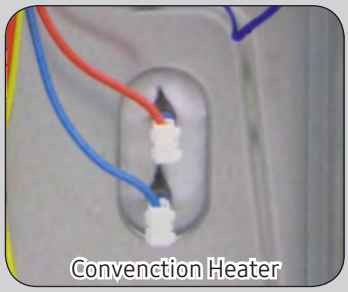
Electrical Malfunction

SYMPTOM	DIAGNOSIS	REMEDY
Oven not operating (No power, No display)	* Measure an input voltage. (240/120V or 208/120V) * Measure an input voltage of terminal block.	* Check circuit breaker. * Make sure that the state of wire is connected with Terminal block
	* Measure supplied voltage at the connector on main PCB L1~N : 120V	* Replace of repair if harness has been loosen or disconnected.
	* Make sure that the relay on Sub PCB is working normally * Make sure whether harness between connector on sub PCB and connector on main PCB has been loosen or disconnected.	* Replace sub PCB if relay has been damaged or there is any cracking on the sub PCB. * Repair harness is connected main PCB with sub PCB * After confirming whether harness has been inserted into relay on sub PCB or not, take action follow as - Replace or repair harness. - Replace or repair sub PCB.
	* Check the state both ends of terminal on thermostat. - short : normal. - open : abnormal * Check whether harness is connected terminal on thermostat has been loosen or disconnected. * Measure marked voltage on main PCB. (At CN600 +12V, +5V, GND) 	* Replace the thermostat. * Replace or repair harness. * Replace or repair after confirming the state of working of main PCB.
Oven temperature is risen slowly	* Make sure whether harness is connected with Broil, Bake and convection heater has been loosen or disconnected.	* Repair and replace harness.
	* Make sure whether Broil, Bake, and convection heater has been disconnected.	* After taking out terminal from each heater, measure resistance of heater and then replace that if it is not a normal resistance value.
	* Make sure that heater relay and pattern on main PCB.	* Replace or repair relay. * Replace or repair main PCB.
Oven temperature is risen fast.	* Check whether temperature is risen over 400˚F(202˚C) within 10 minutes in a state of room temperature.	* Replace or repair it if relay on sub or main PCB have a short circuit.
	* Check whether harness has been misconnected or have a short circuit.	* Replace or repair harness.
	* Measure resistance values of each heater are within a normal extent or not.	* Replace heater is in a abnormal state.

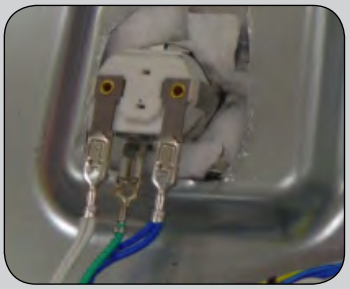
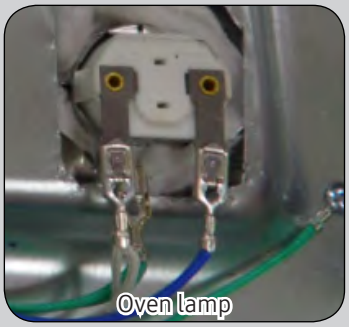
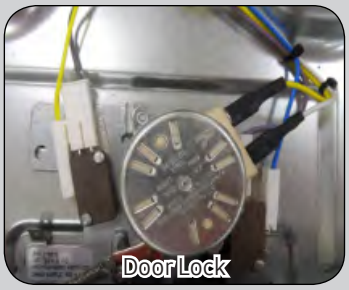
Electrical Malfunction

SYMPTOM	DIAGNOSIS	REMEDY
Keypad is not worked normally in partially or entirely.	* Make sure that keypad cable on main PCB is in normal state.	* Replace after confirming whether it has been loosen or disconnected.
	* Make sure connector on main PCB or PCB pattern.	* Replace or repair after confirming whether keypad cable has been loosen or Disconnected.
Oven lamp is not working.	* Check the oven lamp relay and connector.	* Replace or repair if harness has been loosen or disconnected. * Replace oven lamp relay or Resource relay. * Replace main PCB.
	* Measure the resistance value of both ends of lamp terminal.	* Replace lamp if it has been disconnected.(120V / 40W)
Convection fan is not rotated.	* Check whether Convection fan relay on main PCB and connector is in normal.	* Replace or repair Relay. * Replace or repair connector.
	* Make sure whether harness between Connector on main PCB and connector on main PCB has been connected normally.	* Replace or repair harness. * Replace or repair connector. * Replace Wall Main PCB.
It has smell or smoke when oven has been started initially.	* This is in normal state.	* It has smell or smoke with burning dirt in oven or a foreign substance when oven has been working initially. * Ventilate after getting self cleaning mode to work.
LED display is a little bit dim partially or invisible entirely.	* LED display is defective.	* Replace sub PCB
There is not buzzer beep sound when keypad is being worked.	* Check the state of buzzer on main PCB and whether PCB pattern have a short circuit or has been open.	* Replace or repair main PCB.
The oven door is locked.	* The circuit breaker has been tripped or there was a power failure while the oven door was locked.	* Activate control lockout and then, unlock the control.

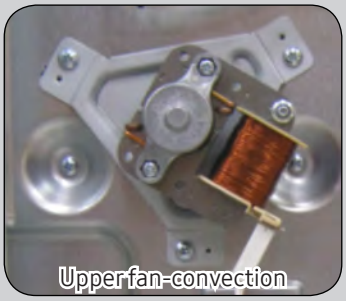
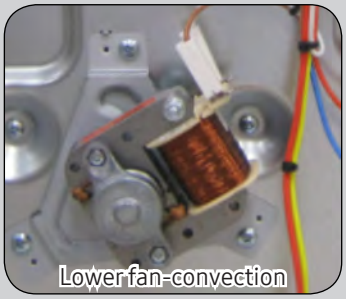
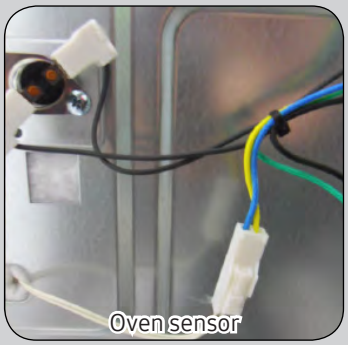
4-4 Parts Checking Method

FIGURE	TESTS MEASURE	RESULTS
 Broil Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing broil keypad.	* Approx : 11~15Ω (at the room temperature) * Terminal voltage of Broil heater : AC 240V * Replace or repair harness.
 Bake Heater	* Measure resistance values of heater's terminal after taking off harness from heater. * Measure voltage of heater's terminal after making oven work by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to on-off cycling work.)	* Approx : 18~21Ω (at the room temperature) * Terminal voltage of bake heater : AC 240V * Replace or repair harness
 Convenction Heater	* Measure the resistance values of heater's terminal after taking off harness from heater. * Measure the voltage of heater's terminal after having oven worked, by pressing convection bake keypad. (Make sure that voltage has to be measured for more than 1 minute because heater is supposed to cycle on and off.)	* Approx : 40~46Ω(at the room temperature) * Terminal voltage of convection heater : AC 240V * Replace or repair harness
 Steam Heater	* Measure resistance value of the heater terminals after removing connectors from the heater. * Measure voltage of heater terminals after selecting steam bake. (Make sure that voltage has to be measured for over temperature in cavity than 215 °F because heater is supposed to on-off cycling work.)	* Approx : 26~30Ω (at the room temperature) * Terminal voltage of Drawer heater : AC 120V * Replace or repaire harness

Parts Checking Method

FIGURE	TESTS MEASURE	RESULTS
  Oven lamp	* First of all, check the bulb for resistance, open or no resistance is a bad bulb. * Measure resistance socket's terminal after separating harness from socket and removing lamp. * Measure the voltage of socket's terminal after having lamp worked by pressing oven light keypad.	* Approx : ∞Ω * Terminal voltage of lamp socket :120V * Replace or repair harness. * Replace or repair main PCB
 Door Lock	* Measure the state of micro switch and motor after taking off harness from the socket. * Check whether lock work normally by pressing Control Lock(3sec) for 3 seconds.	* Lock motor Resistance : 1600 ~ 2200Ω (at the room temperature) voltage : 120V * Micro switch COM-NC * Replace or repair if harness has been loosen or disconnected.

Parts Checking Method

FIGURE	TESTS MEASURE	RESULTS
 Upper fan-convection  Lower fan-convection	* Measure resistance value of Motor terminal after taking off harness from Motor. * Measure Voltage of Motor's terminal after making oven work by pressing bake keypad. (Make sure that voltage has to be measured for more than 1 minute because Fan is supposed to on-off Cycling work.)	**Approx** * Convection Fan : 20 ~ 30Ω * Terminal Voltage of Convection Fan : 120V * Replace or repair harness * Replace or repair main PCB
  Oven sensor	* Check whether the resistance values of oven sensor is same with a chart's one * Check if wire harness is loose or disconnected.	**Approx.** * at the room temperature :1080Ω

4-4 Parts Checking Method

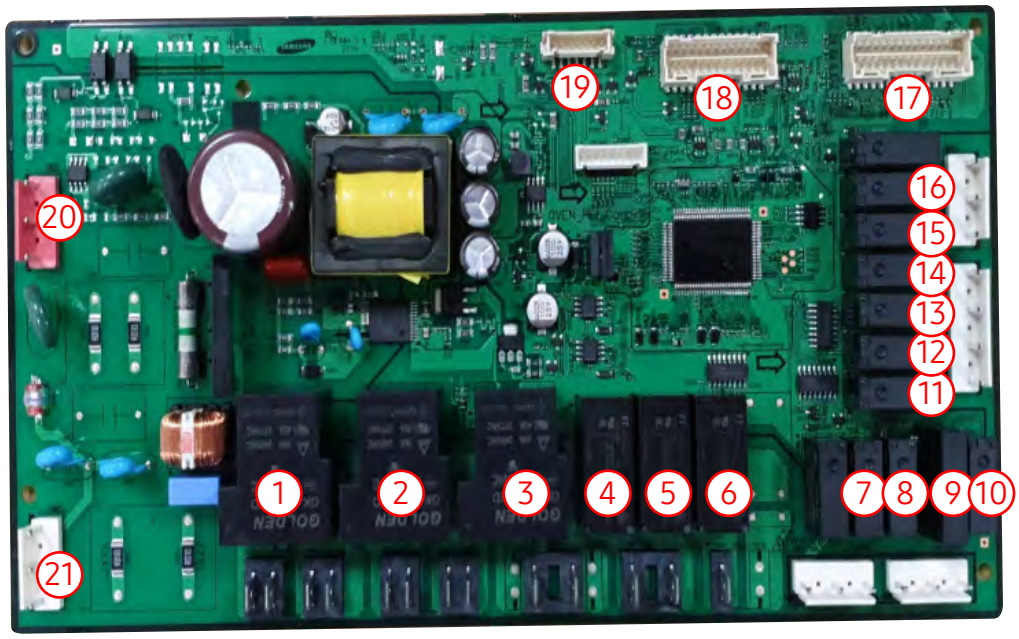
Oven sensor resistance (Temperature vs. Sensor resistance)

Ro = 1000 Ohms (0˚C), RP = 2757 Ohms, Up = 5V, a = 0.00375

degree F	degree C	ohms	degree F	degree C	ohms
0	-17.8	932.12	113	45	1170.17
14	-10	961.86	122	50	1188.93
23	-5	980.95	212	100	1374.93
32	0	1000.00	302	150	1558.01
41	5	1019.02	392	200	1738.06
50	10	1038.02	482	250	1915.39
59	15	1056.99	572	300	2089.69
68	20	1075.92	662	350	2261.07
77	25	1094.83	752	400	2429.52
86	30	1113.71	842	450	2595.05
95	35	1132.56	932	500	2757.65
104	40	1151.38	1000	538	2878.57

5. PCB Diagrams

5-1 PCB Diagrams (Upper oven)

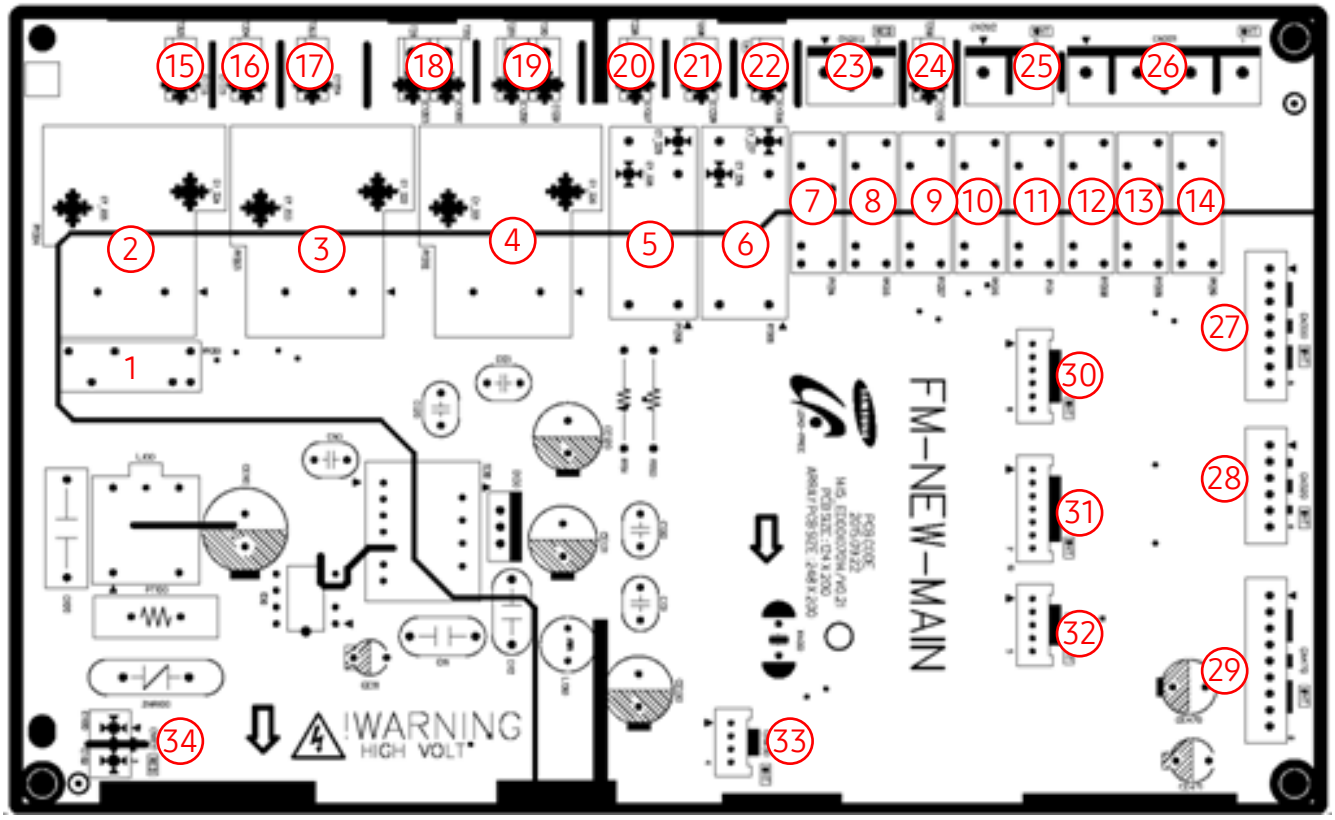


No.	Location	Function	Prorange_Gas	Prorange_D /Fuel	Wall Oven	Combi Oven
1	RY200	DLB Relay	O	O	O	O
2	RY202	Broil Heater Relay	O	O	O	O
3	RY203	Bake Heater Relay	O	O	O	O
4	RY205	Convection Heater Relay	X	O	O	O
5	RY206	Steam Heater Relay	X	O	O	O
6	RY207	4 Part Convection Heater Relay	X	O	O	O
7	RY210	Cooling Fan(High) Relay	O	O	O	O
8	RY211	Convenction Fan(Upper) Relay	O	O	O	O
9	RY212	Oven Lamp Relay	X	X	O	O
	SSR201		O	O	X	X
10	RY213	Convection Fan(Lower) Relay	O	O	O	O
	SSR202		X	X	X	X
11	RY214	Drain Pump Relay	X	O	O	O
12	RY215	Water Pump Relay	X	O	O	O
13	RY216	Cooling Fan(Low) Relay	O	O	O	O
14	RY217	Door Lock Motor Relay	O	O	O	O
15	RY218	Water Tank(CW) Motor Relay	X	O	O	O

PCB Diagrams (Upper oven)

No.	Location	Function	Prorange_Gas	Prorange_D /Fuel	Wall Oven	Combi Oven
16	RY219	Water Tank(CCW) Motor Relay	X	O	O	O
17	CN600	Connector for Communication, Temperature Sensor, Door Switch, Door Lock Switch, Divider Switch				
18	CN300	Connector for steam function(Steam temperature, water tank switch, steam level)				
19	CN500	Connector for Door LED Lamp				
20	CNP100	Connector for AC Power Input				
21	CNP101	Connector for AC load(Motor, Lamp, Pump) power supply, Surge protection wire connected				

5-2 PCB Diagrams (Lower oven)



No.	Parts No.	Part Name	Function and Rule
1	RY201	RY-Source Relay	This is relay which control source of DLB, BAKE, BROIL, W/ Drawer relay
2	RY204	Bake-Heater Relay	Broil relay(Ry203), Bake relay(Ry204), convection relay(Ry205) will be on-off working by mi-com signal after DLB relay is worked. (Broil relay : It will not be problem with reversing the order in inserting Brown) (Bake relay : It will not be problem with reversing the order in inserting Blue)
3	RY203	Broil-Heater Relay	Broil relay(Ry203), Bake relay(Ry204), convection relay(Ry205) will be on-off working by mi-com signal after DLB relay is worked. (Broil relay : It will not be problem with reversing the order in inserting Brown) (Bake relay : It will not be problem with reversing the order in inserting Blue)
4	RY202	DLB Relay	Circuit is designed to have broil relay or convection relay worked after DLB relay is being worked by Double line break. (It will not be problem with reversing the order in inserting Red)
5	RY206	Warming Drawer Heater Relay	This is Relay to control Warming Drawer-Heater.

PCB Diagrams (Lower oven)

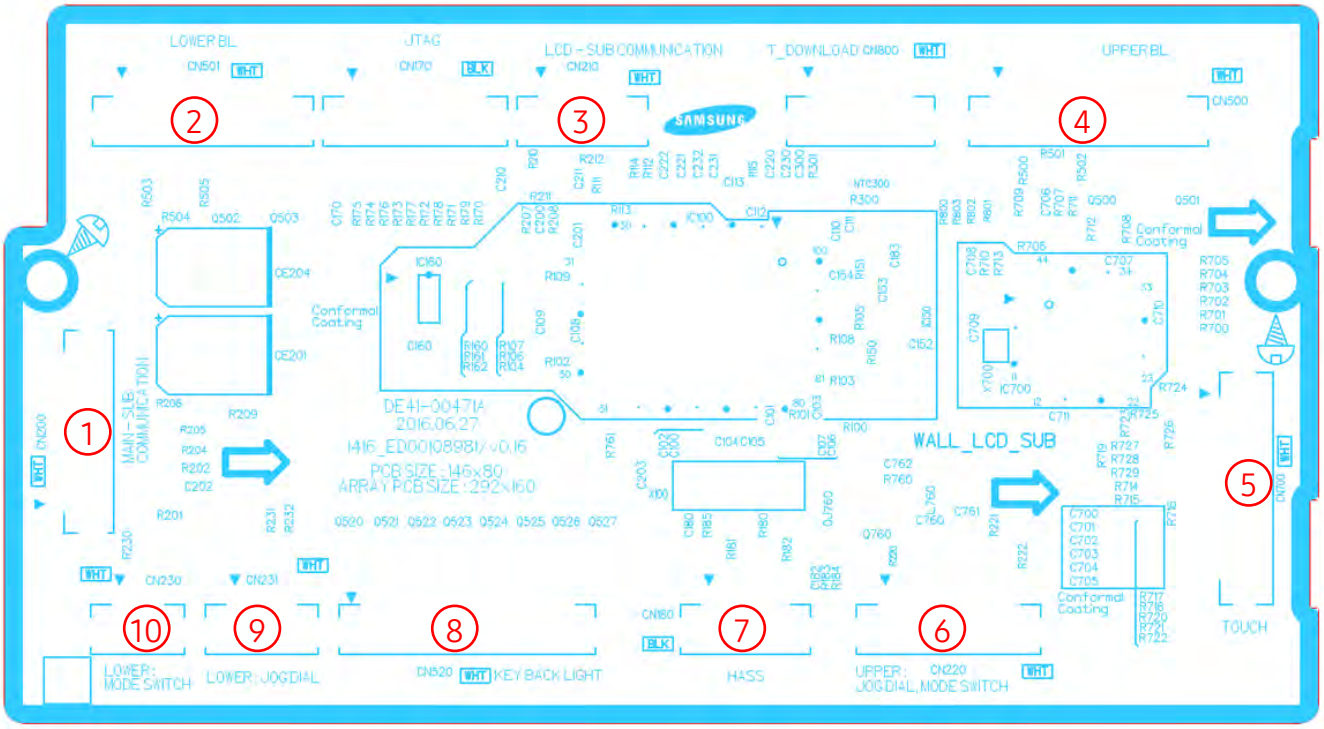
No.	Parts No.	Part Name	Function and Rule
6	RY205	Convection Relay	Broil relay(Ry203), Bake relay(Ry204), convection relay(Ry205) will be on-off working by mi-com signal after DLB relay is worked. (Broil relay : It will not be problem with reversing the order in inserting Brown) (Bake relay : It will not be problem with reversing the order in inserting Blue)
7	RY214	OPTION (Cooling Fan)	This is a spare relay. (This relay is connected with Cooling fan Lo in this model)
8	RY213	OPTION (Cooling Fan)	This is a spare relay. (This relay is connected with Cooling fan Hi in this model)
9	RY207	WC-Heater Relay	This is Relay to control Warming Centor-Heater.
10	RY212	Oven-Lamp-L Relay	This is relay which is connected with Oven-Lamp-Low.
11	RY211	Oven-Fan-L Relay	This is relay which is connected with Oven-Fan-Low.
12	RY208	Conv-Fan-U Relay	This is relay which is connected with Conv. Fan.
13	RY209	Conv-Lamp-U Relay	This is relay which is connected with Conv-Lamp-Upper
14	RY210	Door Lock Relay	This is relay which is connected with door lock motor.
15	T205	Bake Terminal	This is terminal to connect harness with Bake relay.
16	T204	Broil Terminal	This is terminal to connect harness with Broil relay.
17	T203		
18	T211	DLB Terminal	This is terminal to connect harness with DLB relay.
	T202		
19	T201		
	T210		
20	T206	Convection-Heater Terminal	This is terminal to connect harness with convection-heater relay.
22	T207		
21	T208	WD-Heater Terminal	This is terminal to connect harness with relay to get heater on warming drawer work.
23	CN203	spare connector	This is for spare relays (RY213, RY214). (This connector is connected with Cooling fan in this model.)
24	T209	WC-Heater Terminal	This is terminal to connect harness with relay to get heater on warming center work.
25	CN202	Relay Connector	OVEN FAN L, OVEN LAMP L
26	CN201	Relay Connector	CONV FAN U, OVEN LAMP U, DOOR LOCK, AC120V_LINE
27	CN300	Door Lock, Divider Connector	This is connector which is connected with Door plung switch and Door lock switch, divider switch.
28	CN320	Oven Sensing Connector	This connector which is connected with oven sensor.
29	CN470	Sub Communication Connector	This is connector which is connected with Sub PCB to communicate.
30	CN460	COOK TOP UART	(For ELEC OVEN) This is to connect Cook-Top to FM-NEW-MAIN PBA.

PCB Diagrams (Lower oven)

No.	Parts No.	Part Name	Function and Rule
31	CN461	COOK TOP UART	(For GAS OVEN) This is to connect BLDC-FAN-SUB PBA to FM-NEW-MAIN PBA.
32	CN450	HASS	This is to connect HASS.
33	CN430	On Board Writing Connector	When do micom revision, connect to micom writer. And this connector which is connected with Touch PCB to communicate.
34	CN100	Power Connector	This is to supply power with SMPS.

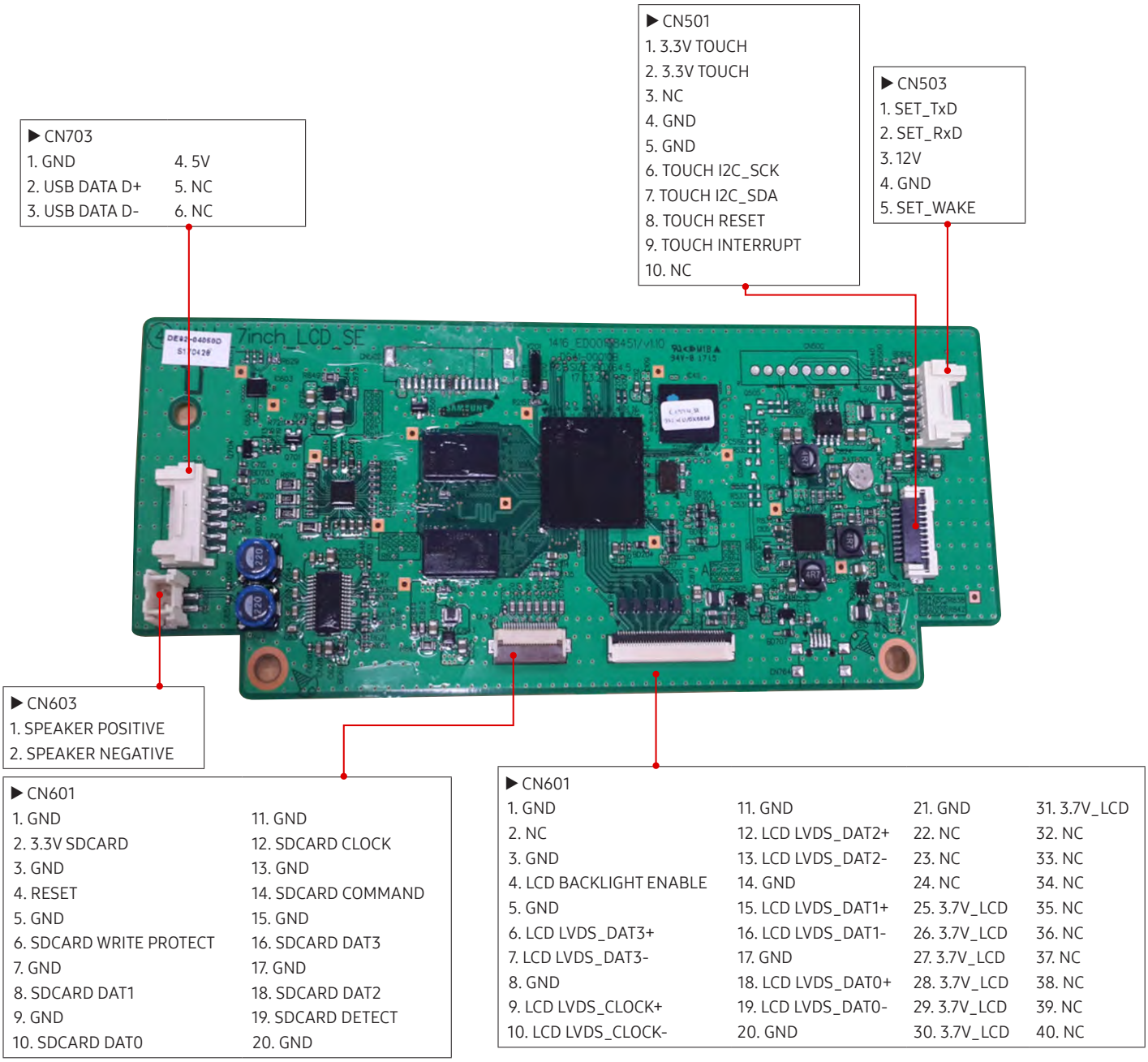
5. PCB Diagrams

5-3 PCB Diagrams (LCD PBA)



No.	Parts No.	Part Name	Function and Rule
1	CN200	Main Communication Connector	This is connector which is connected with Main PCB to communicate.
2	CN501	Lower Oven Knob Backlight Connector	This is connector which is connected with lower oven knob backlight circuit. (N/A for Single model)
3	CN210	LCD Communication Connector	This is connector which is connected with LCD PBA to communicate.
4	CN500	Upper Oven Knob Backlight Connector	This is connector which is connected with lower oven knob backlight circuit.
5	CN700	Touch Film Connector	This is connector which is connected touch film.
6	CN220	Upper Oven Dial Connector	This is connector which is connected upper oven dial(Jog Dial, Mode Dial).
7	CN180	HASS Connector	This is connector which is HASS.
8	CN520	Key Backlight Connector	This is connector which is connected with lower oven knob backlight circuit.
9	CN231	Lower Jog Dial Connector	This is connector which is connected lower oven jog dial
10	CN230	Lower Mode Dial Connector	This is connector which is connected lower oven mode dial

5-4 PCB Diagrams (SUB PBA)



No.	Parts No.	Part Name	Function and Rule
1	CN503	Sub Board Connector	This is connected with sub board.
2	CN501	Touch Connector	This is connected with touch panel.
3	CN601	LCD Connector	This is connected with 7.0" LCD.
4	CN603	Speaker Connector	This is connected with speaker.
5	CN703	Wi-Fi Connector	This is connected with Wi-Fi module.

6. Wiring Diagram

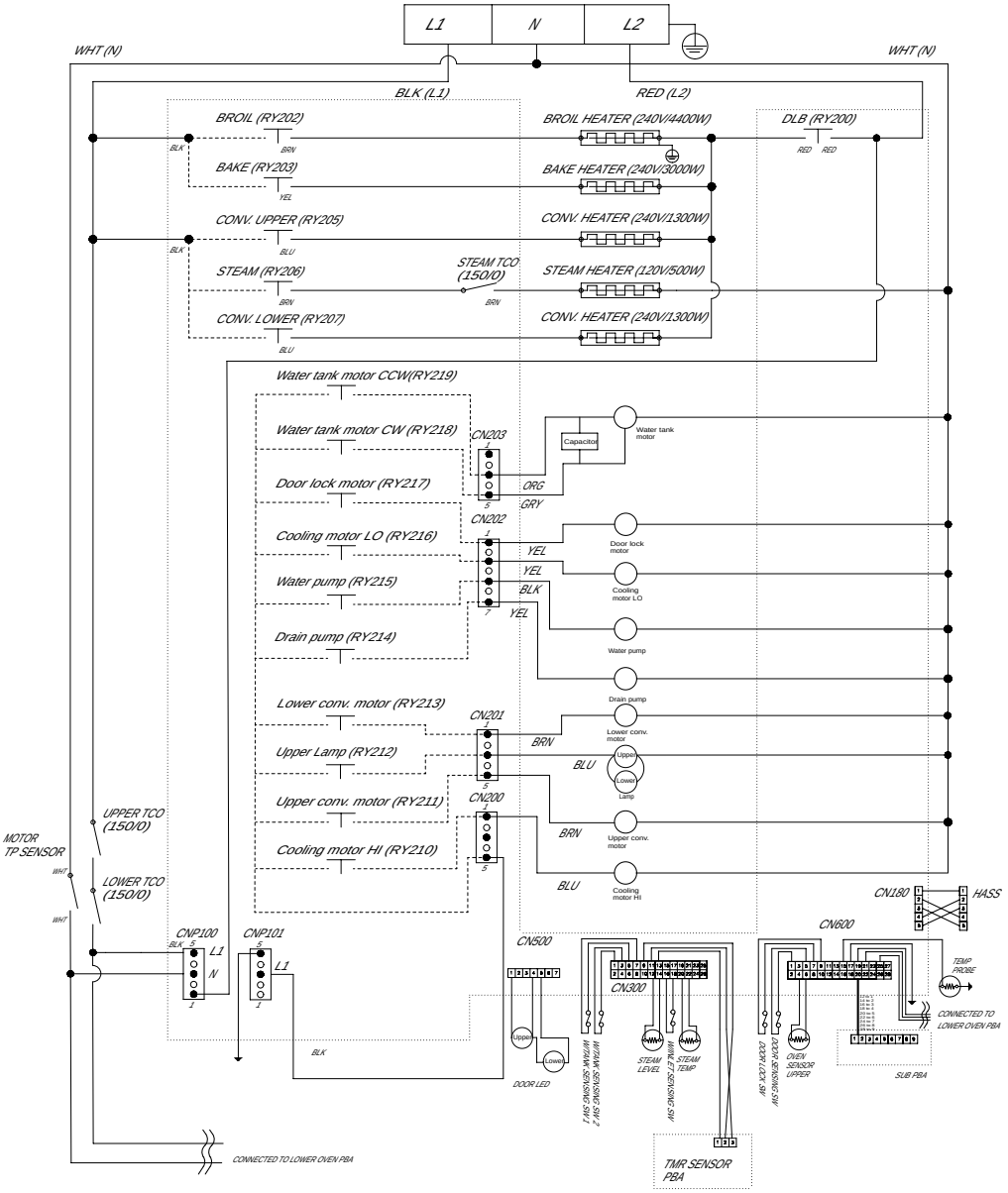
6-1 Schematic diagram (Upper oven)

NOTE
1) CIRCUIT SHOWN WITH ALL CONTROLS SET TO OFF
2) OVEN DOOR OPENED AND UNLOCKED
3) WATER RESERVOIR INPUTTED AND LOCATED INSIDE

SCHEMATIC DIAGRAM

MODEL: DOB30P977D*

COLOR	
RED	RED
BLK	BLACK
WHT	WHITE
BRN	BROWN
YEL	YELLOW
BLU	BLUE
ORG	ORANGE
VIO	VIOLET
GRN	GREEN



HEAETING ELEMENTS (UPPER)		
COMPONENTS	INPUT	WATTAGE
BROIL HEATER	240V	4400
BAKE HEATER	240V	3000
CONVECTION HEATER	240V	1300+1300
STEAM HEATER	120V	500

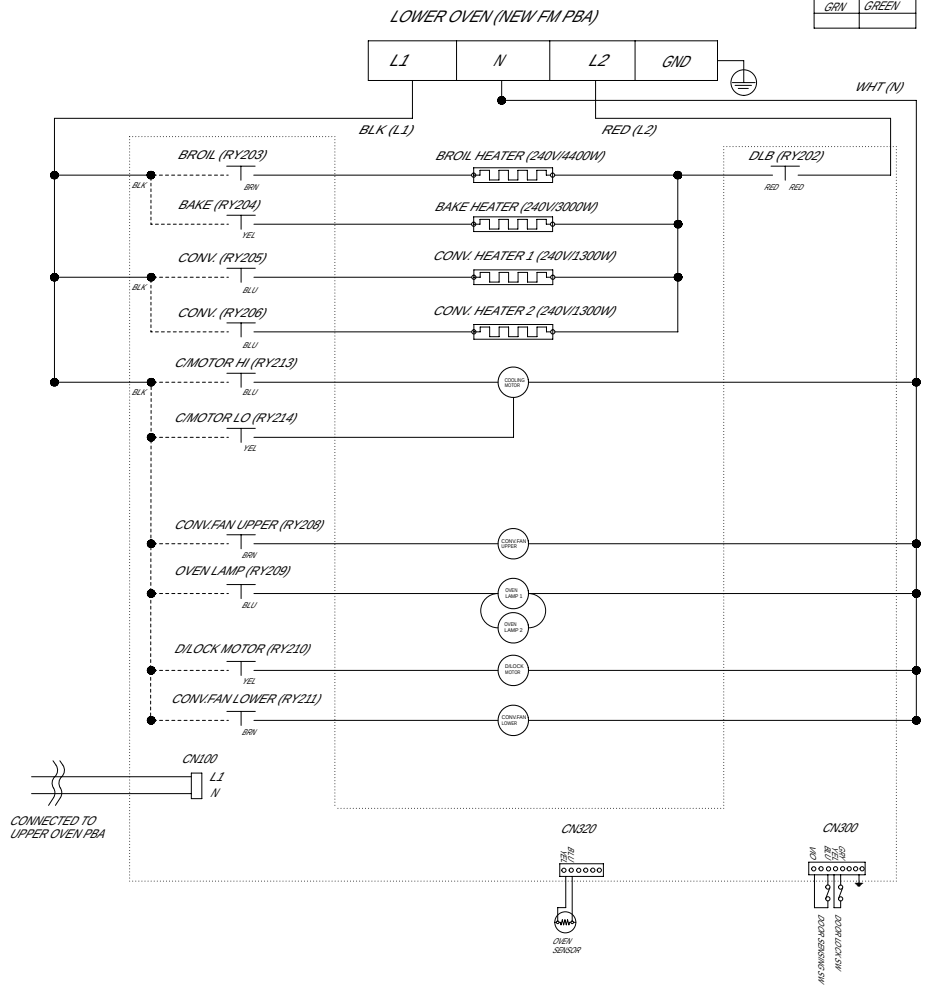
HEAETING ELEMENTS (LOWER)		
COMPONENTS	INPUT	WATTAGE
BROIL HEATER	240V	4400
BAKE HEATER	240V	3000
CONVECTION HEATER	240V	1300+1300

6-2 Schematic diagram (Lower oven)

NOTE
1) CIRCUIT SHOWN WITH ALL CONTROLS SET TO OFF
2) OVEN DOOR OPENED AND UNLOCKED
3) WATER RESERVOIR INPUTTED AND LOCATED INSIDE

SCHEMATIC DIAGRAM
MODEL: DOB30P977D*

COLOR	
RED	RED
BLK	BLACK
WHT	WHITE
BRN	BROWN
YEL	YELLOW
BLU	BLUE
ORG	ORANGE
VIO	VIOLET
GRN	GREEN



HEAETING ELEMENTS (UPPER)		
COMPONENTS	INPUT	WATTAGE
BROIL HEATER	240V	4400
BAKE HEATER	240V	3000
CONVECTION HEATER	240V	1300+1300
STEAM HEATER	120V	500

HEAETING ELEMENTS (LOWER)		
COMPONENTS	INPUT	WATTAGE
BROIL HEATER	240V	4400
BAKE HEATER	240V	3000
CONVECTION HEATER	240V	1300+1300

SAMSUNG

GSPN (GLOBAL SERVICE PARTNER NETWORK)

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