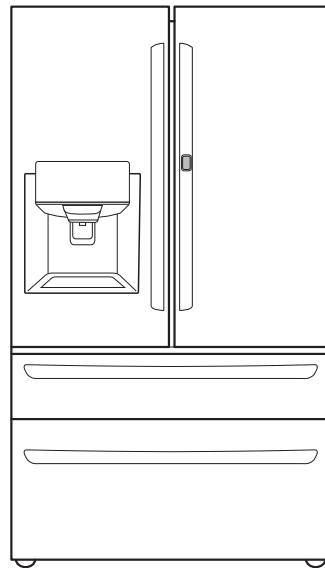




REFRIGERATOR

SERVICE MANUAL

CAUTION
BEFORE SERVICING THE UNIT,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



MODEL : LLMXS3006*

COLOR : BLACK STAINLESS(D)
STAINLESS(S)

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SAFETY PRECAUTIONS

Please read the following instructions before servicing your refrigerator.

1. Unplug the power before handling any elctrical componets.
2. Check the rated current, voltage, and capacity.
3. Take caution not to get water near any electrical components.
4. Use exact replacement parts.
5. Remove any objects from the top prior to tilting the product.

1. SPECIFICATIONS

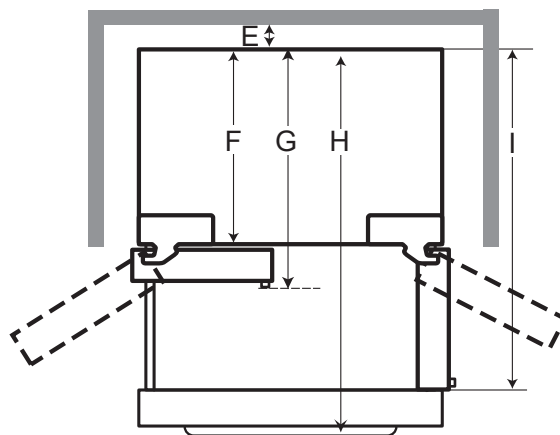
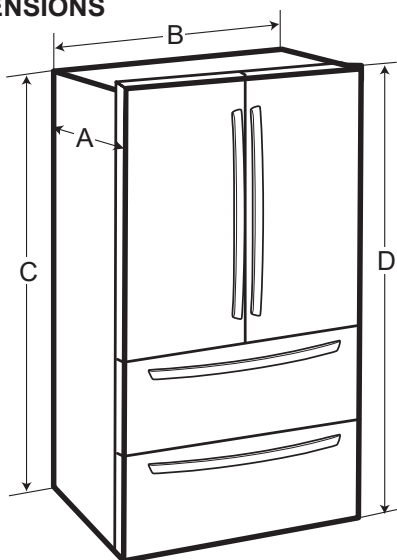
1-1 LRMS3006*

- 29.5 cu.ft.

ITEMS	SPECIFICATIONS
DOOR DESIGN	Side Rounded
DIMENSIONS (inches)	35 3/4 X 38 1/8 X 70 1/4 (WXDXH) 29.5cu.ft.
NET WEIGHT (pounds)	357lb (162kg)
COOLING SYSTEM	Indirect Cooling
TEMPERATURE CONTROL	Micom Control
DEFROSTING SYSTEM	Full Automatic Heater Defrost
DOOR FINISH	PCM, VCM, Stainless
HANDLE TYPE	Bar
INNER CASE	ABS Resin
INSULATION	Polyurethane Foam

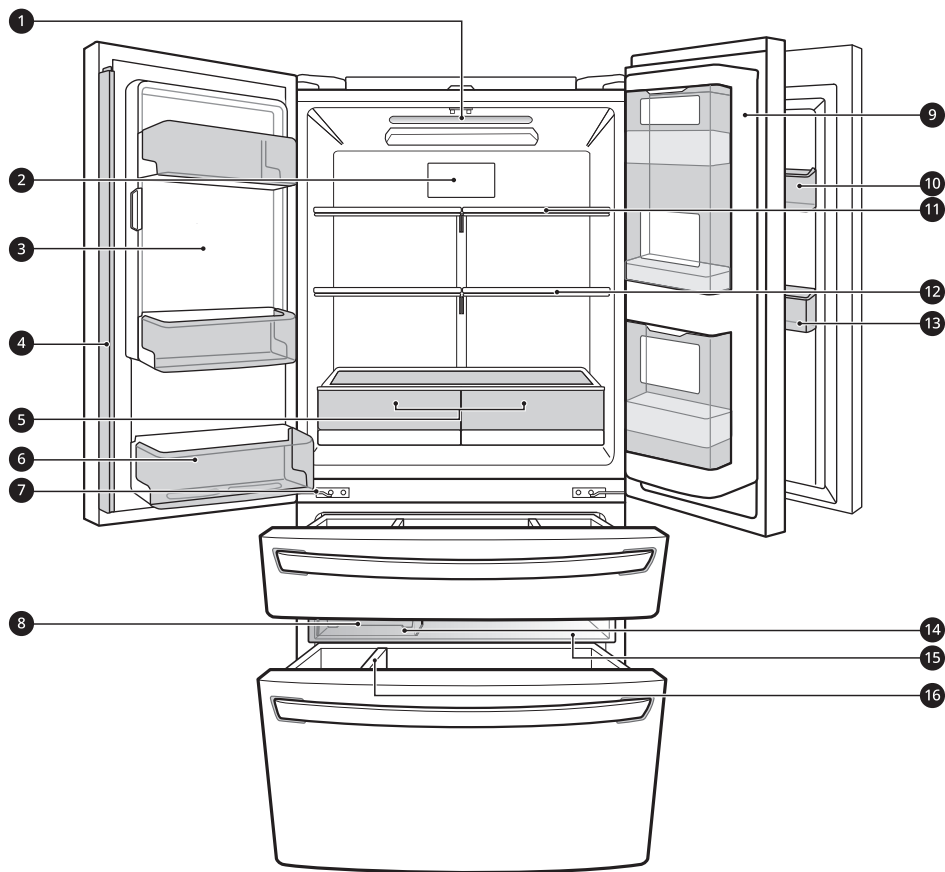
ITEMS	SPECIFICATIONS	
VEGETABLE TRAY	Clear Drawer Type	
COMPRESSOR	Linear	
EVAPORATOR	Fin Tube Type	
CONDENSER	MC	
REFRIGERANT	R-600a (55 g)	
LUBRICATING OIL	ISO10 (280 ml)	
DEFROSTING DEVICE	SHEATH HEATER	
LAMP	REFRIGERATOR	LED Module
	FREEZER	LED Module

• DIMENSIONS



-	Dimension/Clearance	LLMXS3006*	LRMDC2306*
		LRMVS3006*	LRMVC2306*
A	Depth without Handle	35 3/4" (908 mm)	28 7/8" (731 mm)
B	Width	35 3/4" (908 mm)	35 3/4" (908 mm)
C	Height to Top of Case	69 1/8" (1753 mm)	69 1/8" (1753 mm)
D	Height to Top of Hinge	70 1/4" (1785 mm)	70 1/4" (1785 mm)
E	Back Clearance	2" (50 mm)	2" (50 mm)
F	Depth without Door	31" (785 mm)	24 1/8" (610 mm)
G	Depth with Handle	38 1/8" (968 mm)	31 1/4" (793 mm)
H	Depth (Total with Freezer Drawer Open)	59 3/8" (1508 mm)	47 3/4" (1213 mm)
I	Depth (Total with Door Open 90°)	50 1/8" (1272 mm)	43 1/4" (1097 mm)

2. PARTS IDENTIFICATION



1 LED Interior Lighting

Lights up the inside of the refrigerator.

2 Air Filter

Reduces odors inside the refrigerator compartment.

3 In-Door Icemaker (Refrigerator)

This is where ice is automatically produced and stored.

4 Door Mullion

Prevents the cold air in the refrigerator from escaping when the doors are closed.

5 Humidity Controlled Crisper

Helps vegetables and fruit to stay crisp and controls humidity.

6 Fixed Door Bin

Stores chilled food or drinks.

7 Auto-Closing Hinge

The refrigerator doors and freezer drawers close automatically when pushed slightly.

8 Automatic Icemaker (Freezer)

Dispenses ice automatically.

9 Door-in-Door Case

A convenient storage area for frequently-used items that require easy access.

10 Cheese & Butter and Condiment Bins

Cheese & Butter and Condiment bins are specially designed for these items, making spreading butter and slicing cheese easier.

11 Adjustable Refrigerator Shelf

The refrigerator shelves are adjustable to meet individual storage needs.

12 Folding Shelf

Store taller items, such as gallon containers or bottles, by pushing the front half of the shelf underneath the back half of the shelf.

13 Modular Door Bin

Interchangeable bins can be arranged to suit storage needs.

14 Ice Bin

Stores ice from the freezer icemaker.

15 Pullout Drawer

Provides extra storage within the freezer compartment.

16 Durabase and Durabase Divider

Provides storage for large frozen food items.

3. DISASSEMBLY

3-1 REMOVING AND REPLACING REFRIGERATOR DOORS

● Removing Refrigerator Door

▲ **CAUTION:** Before you begin, unplug the refrigerator. Remove food and bins from doors.

● Left Door -FIG. 2

1. Disconnect water supply tube by pushing back on the disconnect ring.-FIG. 1
2. Open door. Loosen top hinge cover screw (1).
- (If FIG.4 is engraved) Using a flat tip screwdriver, remove the left and right hooks as shown in the engraving.
3. Use flat tip screwdriver to pry back hooks on front underside of cover (2). Lift up cover.
4. Disconnect door switch wire harness and remove the cover.
5. Pull out the tube.
6. Disconnect all wiring harnesses (4). Remove the grounding screw (5).
7. Rotate hinge lever (6) counterclockwise. Lift top hinge (7) free of hinge lever latch (8).

▲ **CAUTION:** When lifting hinge free from the latch, be careful that door does not fall forward.

8. Lift door from middle hinge pin and remove door.
9. Place the door with the insides facing up, on a not scratch surface.

● Right Door -FIG. 3

1. Open the door, Loosen top hinge cover screw (1). Lift up cover (2).
2. Disconnect all wiring wire harnesses (3)
3. Rotate hinge lever (4) clockwise. Lift top hinge (5) free of hinge lever latch (6).
4. Lift door from middle hinge pin and remove door.

▲ **CAUTION:** When lifting hinge free from the latch, be careful that the door does not fall forward.

5. Place the door with the insides facing up, on a not scratch surface.

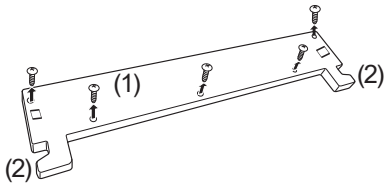


Figure 2

Figure 3

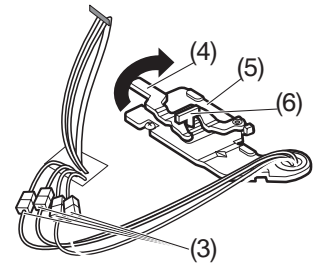
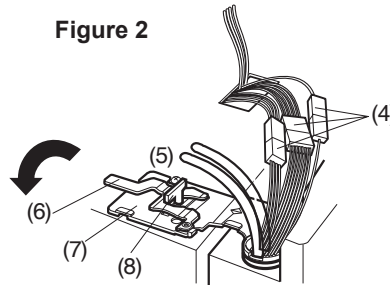
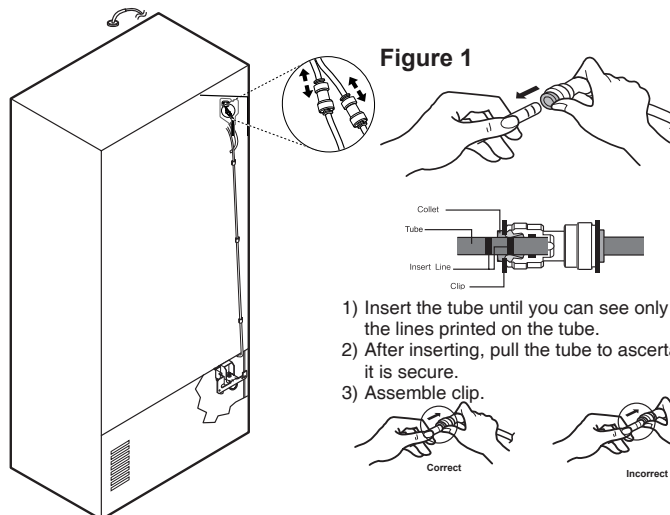
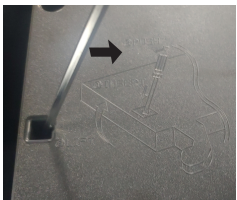


Figure 4 (Left)

Figure 4 (Right)

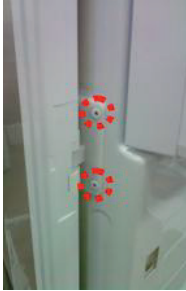


- 1) Insert the tube until you can see only one of the lines printed on the tube.
- 2) After inserting, pull the tube to ascertain that it is secure.
- 3) Assemble clip.

3-2 DOOR

● Mullion Removal

1. Remove 2 screws.



2. Lift mullion up carefully.



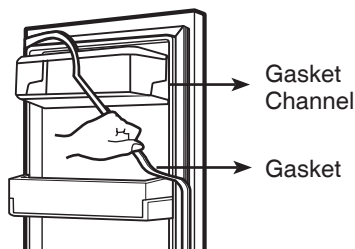
3. Disconnect wire harness.



● Door Gasket Removal

1. Remove gasket

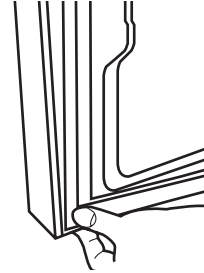
Remove the gasket from gasket channel at doorliner as shown in the illustration below.



● Door Gasket Replacement

1. Insert gasket into channel

Insert and press gasket into channels at doorliner.



● Mullion Replacement

1. Connect wire harness.

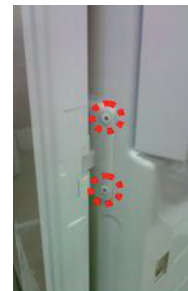


2. Insert mullion into channel.

Insert the mullion into channel at door as shown below.



3. Assemble 2 screws.



3-3 Sub PCB For Working Dispenser

● Sub,PCB Removal

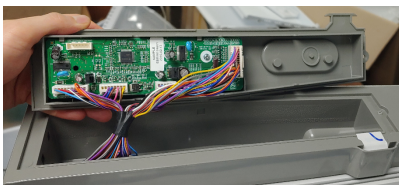
1. Remove 1 Screw.



2. Lift Sub PCB up carefully.



3. Reverse the Sub PCB cover.



4. Disconnect wire harness.



● Sub,PCB Replacement

1. Reverse the Sub PCB cover.



2. Connect wire harness.



3. Insert the Sub PCB sliding.

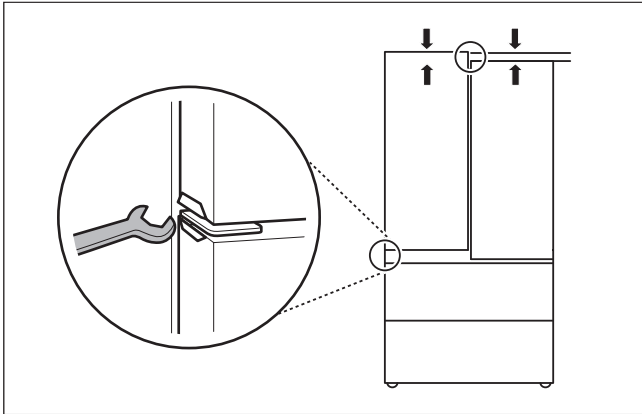


4. Assemble 1 screw.



3-4 Left Door Alignment

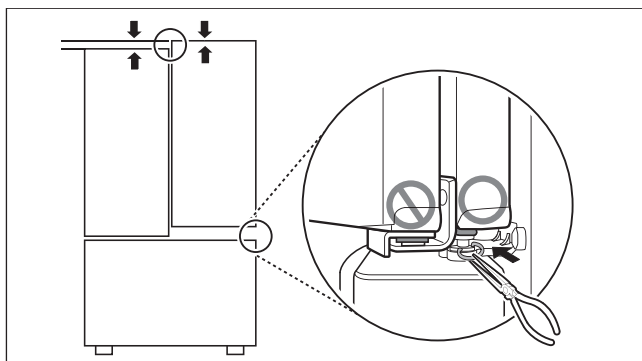
If the level of refrigerator doors is uneven, follow the instructions below to align the doors:
Turn the leveling legs (CW) to raise or (CCW) to lower the height of the front of the refrigerator by using flat blade screw driver or 11/32" wrench. Use the wrench (Included with the Owners Manual) to adjust the bolt in the door hinge to adjust the height. (CW to raise or CCW to lower the height.)



3-5 Right Door Alignment

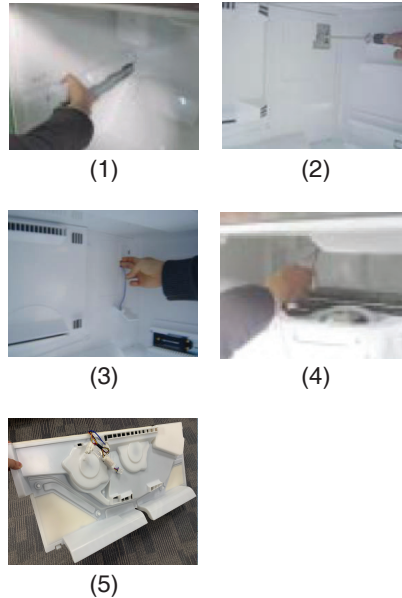
The right refrigerator door does not have an adjustable nut. If the space between the doors is uneven, follow the instructions below to align the right door:

- 1 With one hand, lift up both the inner and outer door sections of the right door to raise them at the middle hinge. (It may be easier to lift it with the doors open.)
- 2 With the other hand, use pliers to insert the snap ring on the middle hinge of the inner door section as shown. Do not insert the ring on the hinge of the outer door section.
- 3 Insert additional snap rings until the right door is aligned. (Two snap rings are provided with the unit.)



3-6 Grille Fan Assembly Replacement

- 1) Remove the plastic guide for slides on left side by unscrewing phillips head screws.
- 2) Pull out the cover grille to disassemble by using tools shown in the figure.
- 3) Put your hand into the inside of grille to disassemble shown in the figure.
- 4) Disconnect wire harness of the grille assembly.
- 5) Replace the grille fan assembly.



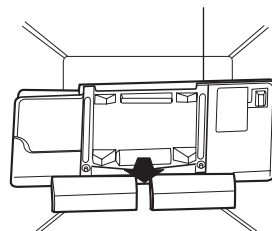
3-7 DEFROST CONTROL ASSEMBLY

Defrost Control assembly consists of Defrost Sensor and FUSE-M.

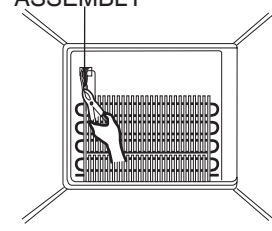
The Defrost Sensor works to defrost automatically. It is attached to the metal side of the Evaporator and senses its temperature. At 46F(8°C), it turns the Defrost Heater off. Fuse-M is a safety device for preventing over-heating of the Heater when defrosting.

1. Pull out the grille assembly. (Figure 1)
2. Separate the connector with the Defrost Control assembly and replace the Defrost Control assembly after cutting the Tie Wrap. (Figure 2)

GRILLE ASSEMBLY



DEFROST-CONTROL ASSEMBLY



3-8 Refrigerator Light (Top)

Unplug Refrigerator, or disconnect power at the circuit breaker.

If necessary, remove top shelf or shelves.

1. Unplug refrigerator power cord from electric outlet.
2. Tighten a screw to the cover.



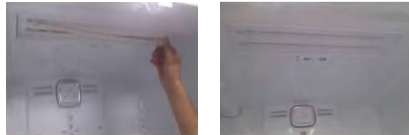
3. Pull a screw using a Plier and disassemble the cover.



4. Remove the LED assembly from connector.



5. Replace LED assembly.



6. Assemble the cover.

3-8-2 Refrigerator Light (Side)

1. Unplug refrigerator power cord from electric outlet.
2. Tighten a screw to the cover.



3. Pull a screw using a Plier and disassemble the cover.



4. Remove the LED assembly from connector.



5. Replace LED assembly.



6. Assemble the cover.

3-8-3 Cap Decor LED LAMP(Freezer Upper)

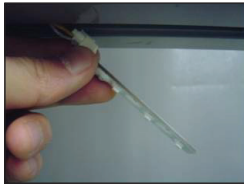
1. Unplug refrigerator power cord from electric outlet.
2. Open the refrigerator door to need diassembly.
3. Put flat screwdriver into service hole, remove the cover of cap decor LED LAMP.



4. Remove the LED assembly from connector.



5. Replace LED assembly.



6. Assembly the cover in reverse order.

3-8-4 Barrier LED LAMP(Freezer Lower)

1. Unplug refrigerator power cord from electric outlet.
2. Open the freezer door to need diassembly.
3. Put flat screwdriver into service hole, remove the cover of barrier LED LAMP.



4. Remove the LED assembly from connector.



5. Replace LED assembly.



6. Assembly the cover in reverse order.

3-9 MULTI DUCT

1. Remove 2 screws and Guide Rail .



2. Remove 1 screws and disassemble Duct Assembly,Connector .



3. Disconnect connector.



4. Disconnect the lead wire on the bottom position

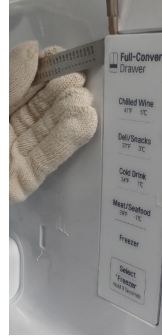


5. Grip both side of multi duct, pull it out.



3-10 Full Convert Drawer Display

1. Unplug refrigerator power cord from electric outlet.
2. Put a flat screwdriver and a steel ruler into the corner of full convert display.



3. Pull the display using a flat screwdriver.



4. Replace the display.



3-11 Dispenser

* If there is a problem with the WiFi module, please change the whole display.

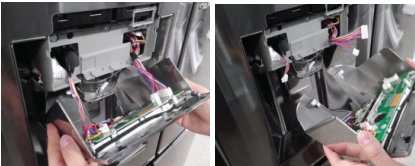


Fixing HOOK



1. Hold the right side of the Display and pull to the inner diagonal angle to separate.

2. After completely separating the Display from the door, separate 3 points of Wire Housing.



3. Assemble in the reverse order of the disassembly, and assemble while maintaining the horizontality of the Display. After the assembly, to bind 3 Hooks at the top of the Display, lightly hit "tok-tok-tok" with fist.



※ CAUTION

Display shall be combined after checking if the length of the Wire Housing at the right side of the Display is too long to cause interference after arranging Wire inside.



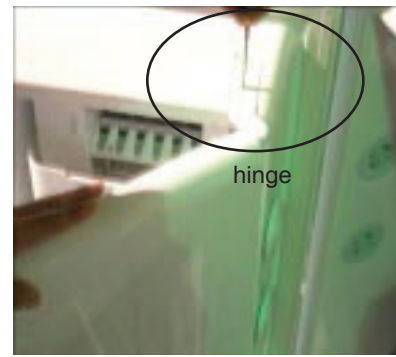
3-12 Ice corner door replacement

- 1) Loosen the front screw as shown in the picture.
- 2) Remove the Cover Home Bar as shown in the picture.



Cover Home Bar

- 3) Lift up the hinge with one hand.
- 4) Pull out the Ice Corner Door with the other hand.



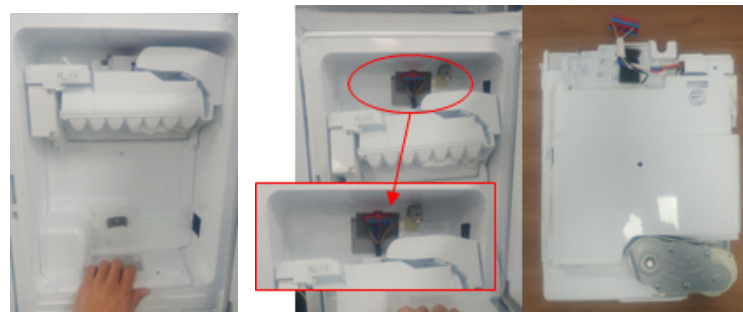
3-11 Icemaker replacement

- 1) Remove 3 screws marked in the picture below.



- 2) Grasp the bottom of motor cover assembly and pull it out slowly to remove.

- 3) Disconnect wire harness from wall of compartment.

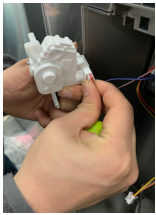


3-12 CAP DUCT MOTOR REPLACEMENT

- 1) Unscrew 3 screws to disassemble the motor.



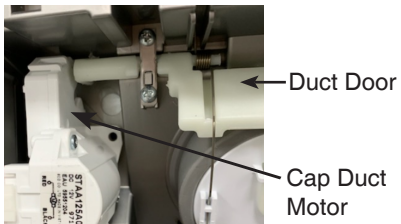
- 2) Separate the Housing of the Cap Duct Motor.



- 3) Replace the motor and push housing aside.



- 4) Replace the motor and check the position of the door duct and the link for proper fit.

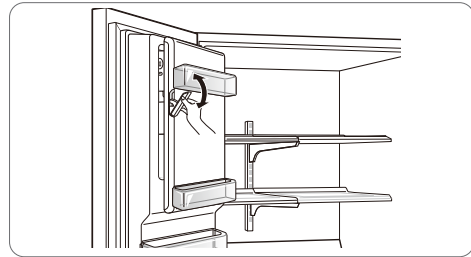


- 5) Insert 3 screws.

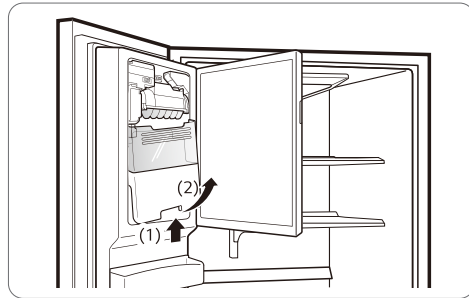


3-13 HOW TO REMOVE ICE BIN

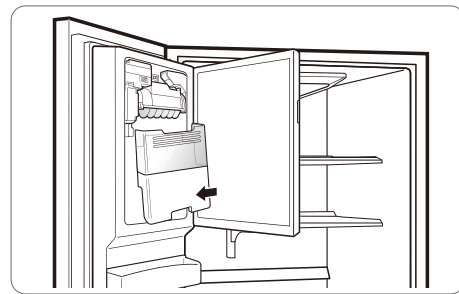
- 1) Grip the handles, as shown in the picture.



- 2) Lift the lower part slightly.



- 3) Take the Ice Bin out slowly.



3-14 Module filter Replacemen

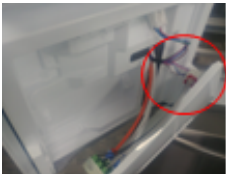
1) Open the baske



2) loosen a screw



3) Disconnect the Valve housin



[Installation order : Connect Orange →Blue→white]

5) Replace the new Module Filter



3-15 Module filter part Replacement

1) Loosen the 3 screw



2) Hold the connector and then Turn 90 to disconnect from Filter head Turn 90 the water tank to disconnect from Filter Head



3) Rotate the connector and pull out



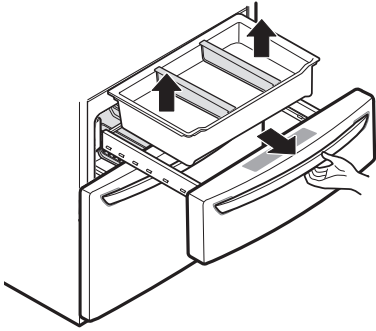
3) Rotate the connector and pull out



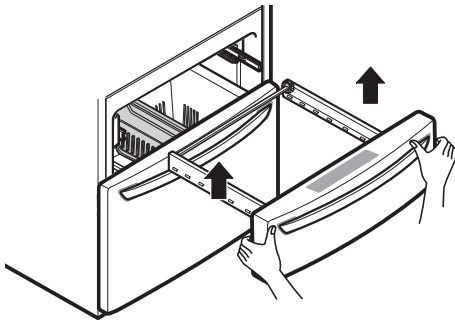
3-16 FULL CONVERT DRAWER

3-16-1 Follow Steps to Remove

- 1 Pull the drawer open to full extension. Remove the basket by lifting the basket from the rail system.

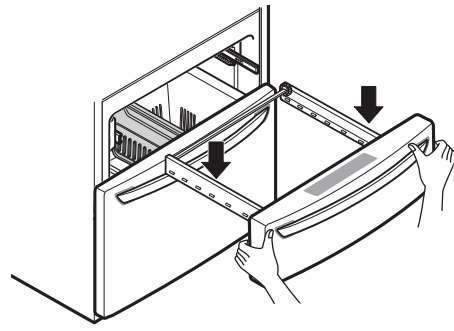


- 2 Hold both sides of the door and lift it to remove it from the rail system.

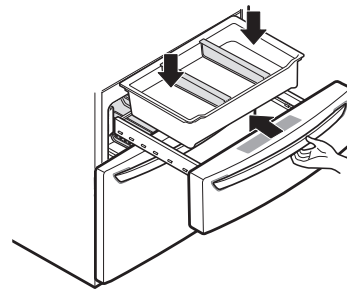


3-16-2 Follow Steps to Reinstall

- 1 Grasp the door on each side and lower it into place on the rail system.



- 2 Pull the drawer open to full extension. Lower the basket onto the rail system.



3-17 HOW TO REPLACE THE SENSOR FROM FULL CONVERT DRAWER

1) Pull the drawer open to full extension.



2) Pull out door.



3) Loosen a screw.

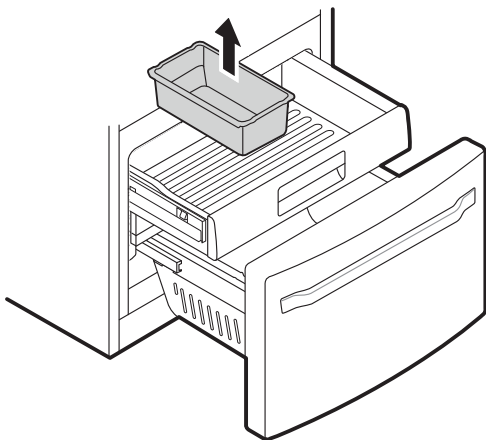


4) Disassembly Sensor from connector rail.

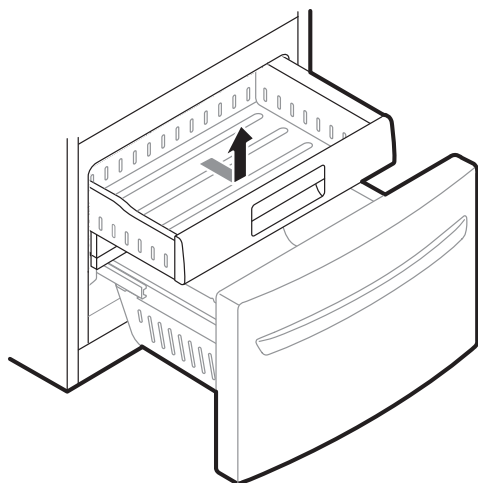


3-18 PULL OUT DRAWER

- 1 Pull the drawer open to full extension.
- 2 Gently lift and pull out the ice bin.



- 3 Lift the front of the drawer up, then pull it straight out.



3-19 HOW TO REMOVE AND REINSTALL THE FREEZER DRAWER

3-19-1 Follow Steps to Remove

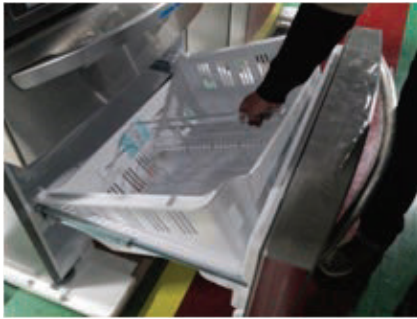
Step 1) Open the freezer door.



Step 4) Removal of the freezer door is done by lifting clear of the rail support.
Fully extend both rails.



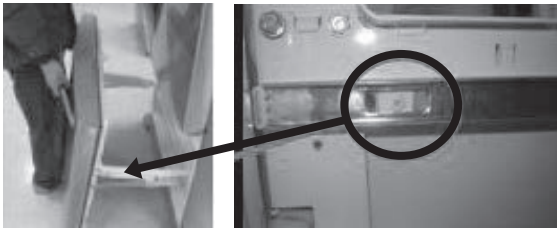
Step 2) Remove the lower basket.



Step 5) Remove only 1 screw of gearice, and disassemble the bar and gearice



Step 3) Remove the two screws from the guide rails
(one from each side).



Step 6) Remove 2 screws of both side of supporter covers
tv and disassemble the supporter cover tv.



3-19-2 Follow Steps to Reinstall

Step 1) Insert both side of supporter cover tv into connector rails, and then screw them.



Step 2) ① Assemble a bar and gear ice with screw.
② Push the otherside of the gear to inside of the bar.



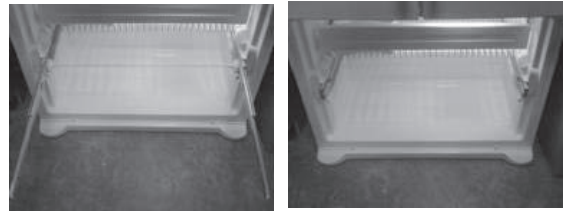
Step 3) Put gear ice assembled with the bar by screw into connector rail's hole.



Step 4) Insert opposite gear ice into connector rail and screw them



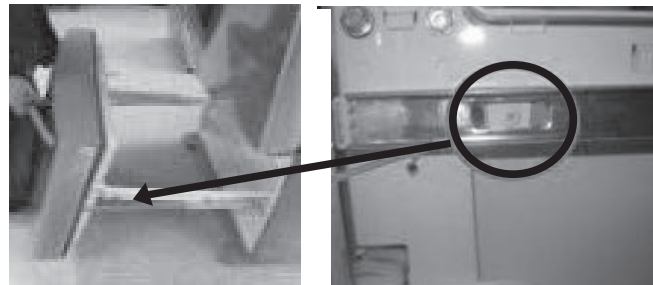
Step 5) The rail system will align itself by pushing the rails all the way into the freezer section. Pull the rails back out to full extension.



Step 6) Reinstall the freezer door by inserting the rail tabs into the guide rail.



Step 7) Reinstall the two screws into the guide rails (one from each side).

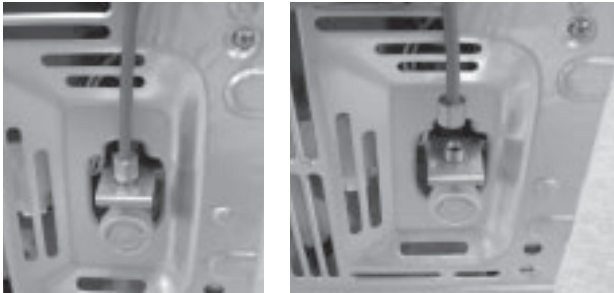


Step 8) Reinstall the lower basket, and close the freezer door.

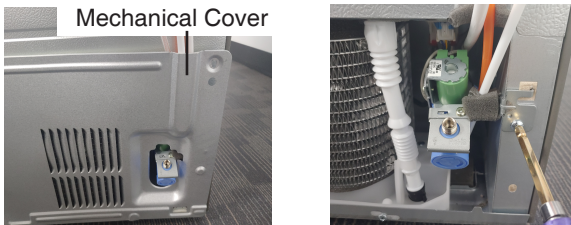


3-20 WATER VALVE DISASSEMBLY METHOD

- 1) Turn off the water to unit. Remove the waterline from the valve.



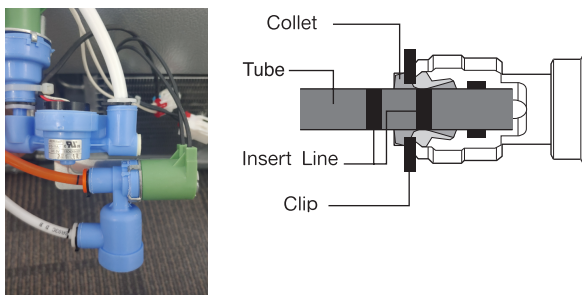
- 2) Remove cover and 1 screw from the valve.



- 3) Separate the housing and remove the valve.



- 4) Remove the clip, and press the collet to separate the tube from the connector. Note: there maybe some water in the line.



3-21 FAN MOTOR ASSEMBLY AND DISASSEMBLY METHOD

- 1) Remove screws for the Drain Pipe Assembly and the 1 connected to the Motor Cover.



- 2) Remove the screw from shroud and Separate the Fan motor assembly and Shroud.



Assemble in reverse order. Taking care to avoid.

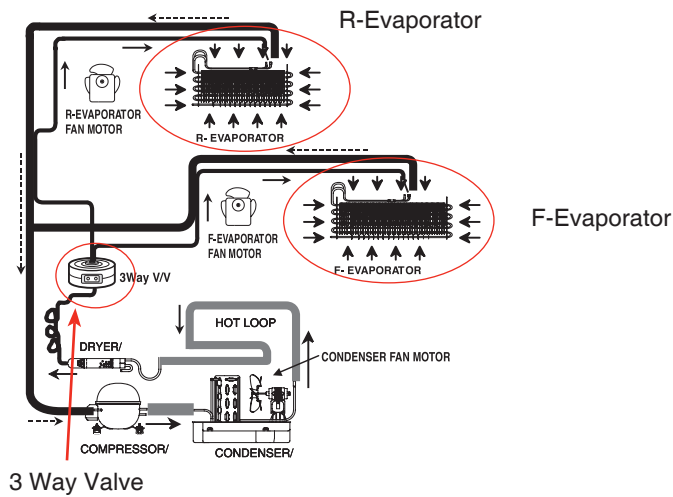
1. Do not to bend the tube during assembly.
2. Press the Water Dispenser button letting water pour out, this checks for any leaks in the tube connection, this may vary depending on the water pressure (about 2 minutes.).

3-22 CAUTION : Sealed System Repair

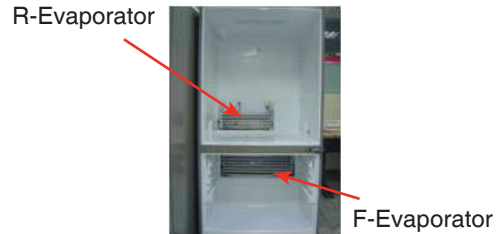
Before making a sealed system repair : Start with the power cord unplugged from the outlet. Plug in the power cord and between 6 and 12 seconds after it has been pugged in, unplug it from the power source. this will allow both sides of the 3 way valve to be opened to allow for proper evacuation.

3-23 3 Way Valve Service

- The 3 way valve has plastic parts inside, so always wrap it with a wet cloth before servicing when using a torch.
- Always replace the 3 way valve if there is a leak at any one of the 3 tubes coming from it.
 - Service in replacement of valve (valve failure) Perform service in the same method as above.



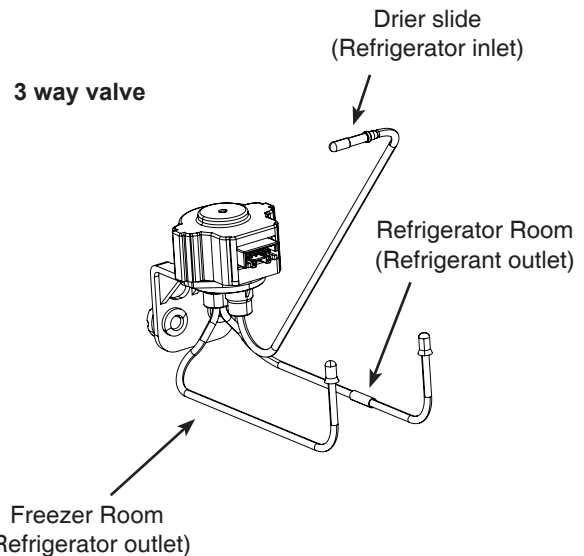
Whole picture of refrigerator



R-Evaporator



F-Evaporator



Note : To service sealed system, follow the directions in "3-22" and "3-23" above. Then service is the same as a single evaporator system.

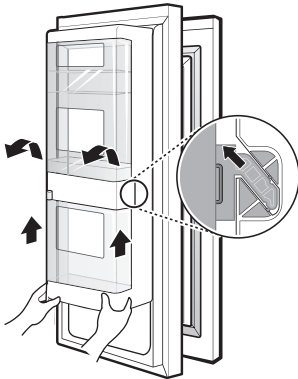
3-24 HOW TO REMOVE AND REINSTALL THE HOME BAR

3-24-1 CASE ASSEMBLY, HOME BAR

The Home Bar is removable for easy cleaning and adjustment.

1. To remove the Home Bar, Slopingly lifts the Home Bar up and pulls straight out.
2. To replace the Home Bar, Slopingly slides it in above the desired support and push down until it snaps into place.

NOTE : Some Home Bar may vary in appearance and will only fit in one location.

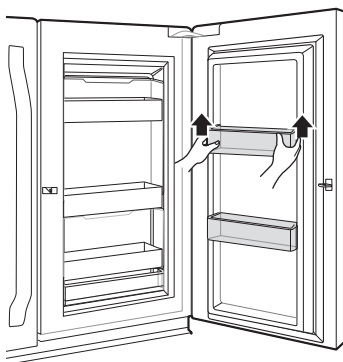


3-24-2 DOOR BASKET OF HOME BAR

The Door Baskets of Homebar are removable for easy cleaning and adjustment.

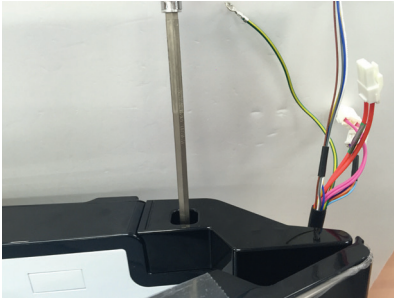
1. To remove the Door Baskets of Homebar, simply lifts the Door Baskets of Homebar up and pulls straight out.
2. To replace the Door Baskets of Homebar, slides it in above the desired support and push down until it snaps into place.

NOTE : Some Door Baskets of Homebar may vary in appearance and will only fit in one location.

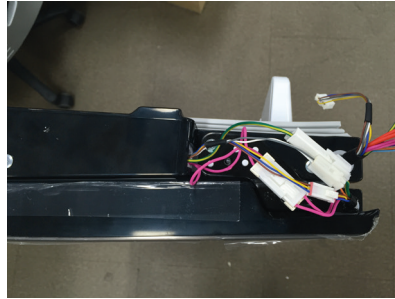


3-25 HOW TO REMOVE AND REINSTALL THE HOMEBAR DOOR

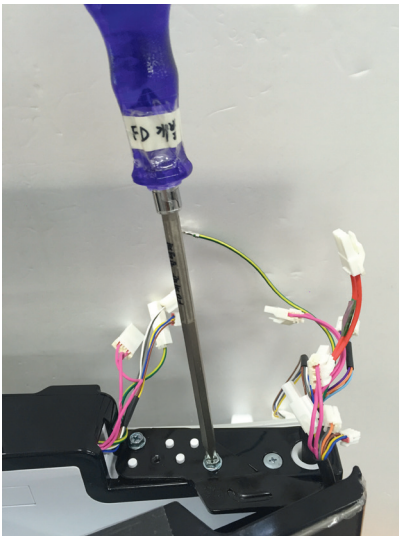
1. Loosen top hinge cover screw.



2. Disconnect door switch wire harness.



3. Remove three Screws on the Top of Frame Door.

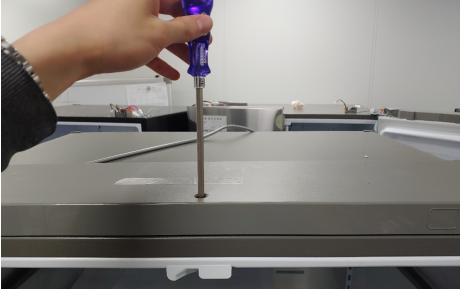


4. Pull Frame Door. up and out.

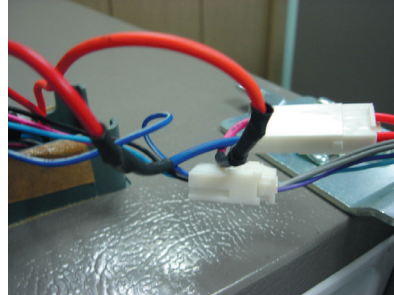


3-26 HOW TO REMOVE AND REINSTALL THE DOOR FOAM ASSEMBLY, REFRIGERATOR

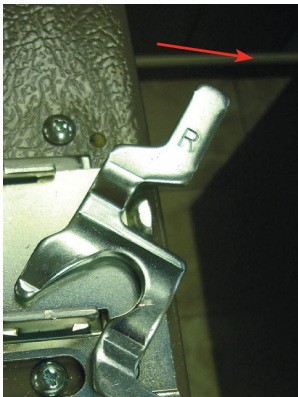
1. Remove the 3 Screw of Hinge Cover.



2. Remove Wire connectors.



3. Rotate the hinge lever clockwise.



4. Separate the Home Bar.



5. Pull THE DOOR FOAM ASSEMBLY, REFRIGERATOR up and out.



3-27 HOW TO REMOVE THE CASE HOME BAR

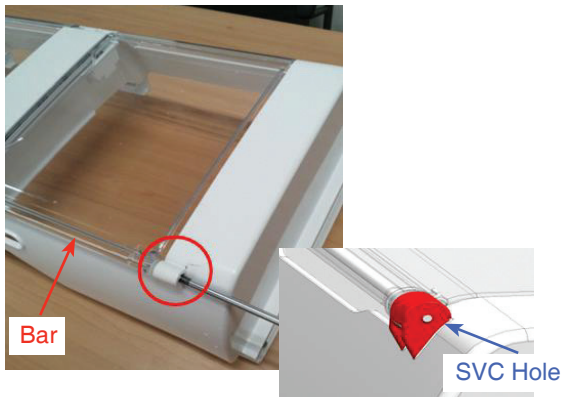
1. Remove the screw located on the top of hinge.



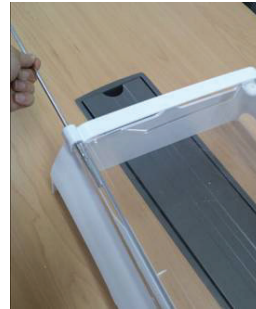
2. Remove the cap hinge(upper)



3. Remove the bar by pushing it up from the bottom through the SVC hole (bottom hinge).



4. Pull out the bar through the top hinge.



5. Separate the Cover.



3-28 HOW TO REMOVE AND REINSTALL THE CASE ASSEMBLY LAMP

When servicing the LEDs, Cover,Lamp is positively necessary.

1. Open the Home bar.



2. Tighten a screw to the cover.



3. Pull a screw using a Plier and disassemble the cover.



4. 1) Push the flat screwdriver in the rear of the LED lamp and take the lamp out from the hook.
2) Disassemble the combined housing with the flat screwdriver.
3) You should take LED lamps out and pull from the right.



4. ADJUSTMENT

4-1 COMPRESSOR

4-1-1 Role

The compressor intakes low temperature and low pressure gas from the evaporator of the refrigerator and compresses this gas to high-temperature and high-pressure gas. It then delivers the gas to the condenser.

4-1-2 Note for Usage

- (1) Be careful not to allow over-voltage and over-current.
- (2) Do not drop or handle carelessly.
- (3) Keep away from any liquid.
If liquid such as oil or water enters the Cover PTC Compressor may fail due to breakdown of their insulating capabilities.
- (4) Always use the Parts designed for the compressor and make sure it is properly attached to the compressor. Parts may appear physically identical but could have different electrical ratings. Replace parts by part number and model number. Use only approved substitute parts.

4-1-3 Remove the cover PTC



(1) Remove the Cover Back M/C



(2) Remove two screws on comp base



- (3) Use a L-shaped flap tool to pry off the cover
- (4) Assembly in reverse order of disassembly

4-2 Compressor protection logic

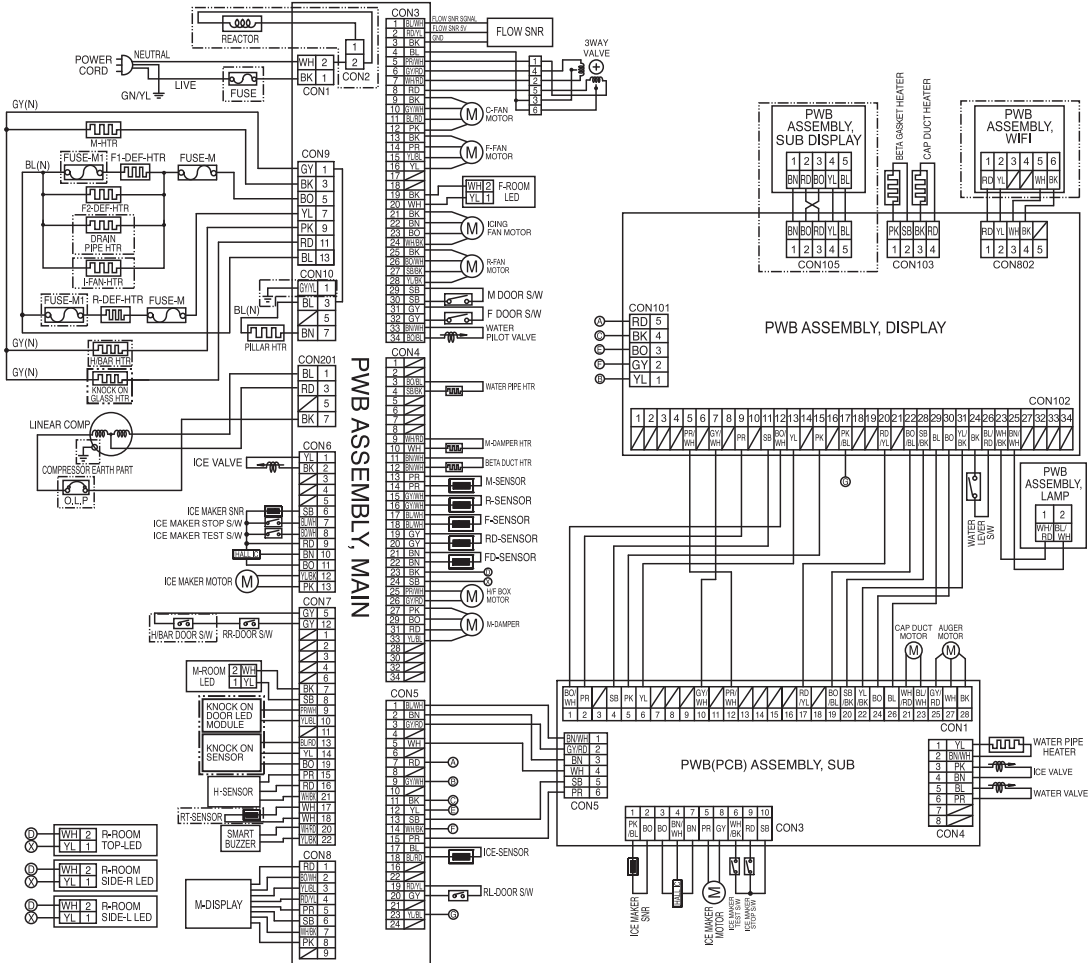
- Since linear Comp conducts linear reciprocating motion, we have protection logic for compressor, motor and PCB as the below.

- Stroke Trip
During the operation, if stroke is above the target value, decrease the target volt by 3V.
- Current Trip
Current trip is set in order to protect compressor mechanical part and drive from the overcurrent that might arise during the operation.
Check the current for every 416.7us and if the Trip exceeds 1.86Arms more than three times at Comp ON, forcibly stop and restart six minutes later.
- Lock Piston Trip
If stroke is under 5mm even if the current is more than 14Arms, Take it as 'piston lock' and restart after 2'30" of Comp OFF. Check the current and stroke for every 416.7us and if the condition fits more than three times at Comp ON, the Trip occurs.
- IPM fault Trip
It occurs if FO signal received from IPM is LOW. For every 416.7us, check whether FO signal is LOW. The trip occurs if it is found three times during the five periods(83ms).

5. CIRCUIT DIAGRAM



*EARTH PART, DUCT HEATER, PLUG TYPE AND COMP*EARTH PART, FUSE ON CIRCUIT DIAGRAM ARE SUBJECT TO CHANGE IN DIFFERENT LOCALITIES AND MODEL TYPE.
 - : OPTIONAL



BK(BLACK) : NOIR	BL(BLUE) : BLEU	BN(BROWN) : MARRON	BO(BRIGHT ORANGE) : ORANGE BRILLANT	GY(GRAY) : GRIS	GY/RD(GRAY/RED) : GRIS/ROUGE
YL(YELLOW) : JAUNE	RD(RED) : ROUGE	GN(GREEN) : VERT	BL/WH(BLUE/WHITE) : BLEU/BLANC	WH(WHITE) : BLANC	BL/RD(BLUE/RED) : BLEU/ROUGE
PK(PINK) : ROSE	SB/BK(SKY BLUE/BLACK) : CIEL BLEU/NOIR	GN/YL(GREEN/YELLOW) : VERT/JAUNE	PR(PURPLE) : PURPLE	SB(SKY BLUE) : CIEL BLEU	
YL/BL(YELLOW/BLUE) : JAUNE/BLEU	WH/BK(WHITE/BLACK) : LANC/NOIR	WH/RD(WHITE/RED) : BLANC/ROUGE	BN/WH(BROWN/WHITE) : MARRON/BLANC		
RD/YL(RED/YELLOW) : ROUGE/JAUNE	RD/WH(RED/WHITE) : ROUGE/BLANC	YL/BK(YELLOW/BLACK) : JAUNE/NOIR	PR/WH(PURPLE/WHITE) : VIOLET/BLANC		
BO/WH(BRIGHT ORANGE/WHIT) : ORANGE BRILLANT/BLANC		GY/WH(GRAY/WHITE) : GRIS /BLANC	BO/BL(BRIGHT ORANGE/BLUE) : ORANGE BRILLANT/BLEU		

6. TROUBLESHOOTING

6-1 Error Code Summary

Error Code ② Error Code ①



▲ WARNING: When checking Resistance values, make sure to turn off the power, and wait for the voltage to discharge.

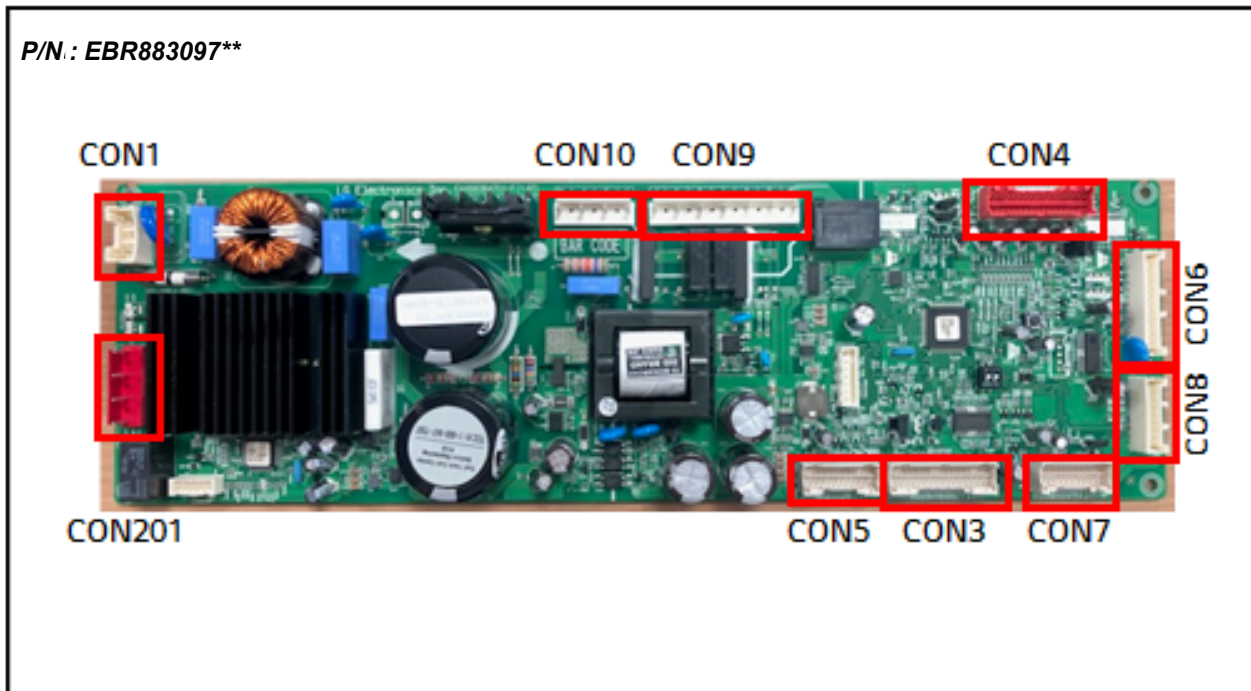
NOTE) Within 3 hours after the error : Press the Ice Plus button and Freezer button simultaneously
3 hours after the error : All errors, except for "rt E", "HS E", "IS E"(except for icing room sensor), "Od E", "IU E", "Id E", "gF E", "It E" error. are displayed.

NO	Error Detection Category	Error Display		Error Generation Factors	Remark
		Refrigerator Temperature (Error code ①)	Freezer Temperature (Error code ②)		
1	Normality			None	Normal operation of Display
2	Freezer Sensor Error	E	FS	Short or Disconnection of Freezer Sensor	Check Each sensor and its Connector.
3	Refrigerator Sensor Error	E	rS	Short or Disconnection of Refrigerator Sensor	
4	Freezer Defrost Sensor Error	F	dS	Short or Disconnection Of Defrost Sensor	
5	Refrigerator Defrost Sensor Error	r	dS	Short or Disconnection Of Defrost Sensor	
6	Humidity Sensor Error	E	HS	Short or Disconnection Of Humidity	
7	Icing Sensor Error	E	IS	Short or disconnection of the sensor about Ice maker (Icing sensor, Ice maker sensor)	
8	Convertible Sensor Error	E	CS	Short or Disconnection of Pantry sensor	
9	Room Temp Sensor Error	E	rt	Short or Disconnectoin of Room temp.sensor	
10	Ice maker kit defect	E	It	Other Electric system error such as motor, gear, Hall IC, operation circuit within I/M kit	
11	Flow Meter(Sensor) Defect	E	gF	Error of flow motor or water input or low water pressure	Error of flow meter or water input or low water pressure or flow meter connection
12	Freezer Defrosting Error	F	dH	Even though it is passed 80Minute since then Defrosting, If Defrosting sensor is not Over 41°F (5°C), it is caused	Temperature Fuse Disconnection Heater Disconnection, DRAIN Jam, Poor Relay for Heater
13	Refrigerator Defrosting Error	r	dH	Even though it is passed 80Minute since then Defrosting, If Defrosting sensor is not Over 41°F (5°C) it is caused	
14	Abnormality of BLDC FAN Motor for Ice Making	E	IF	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
15	Abnormality of BLDC FAN Motor for Freezer	E	FF	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR

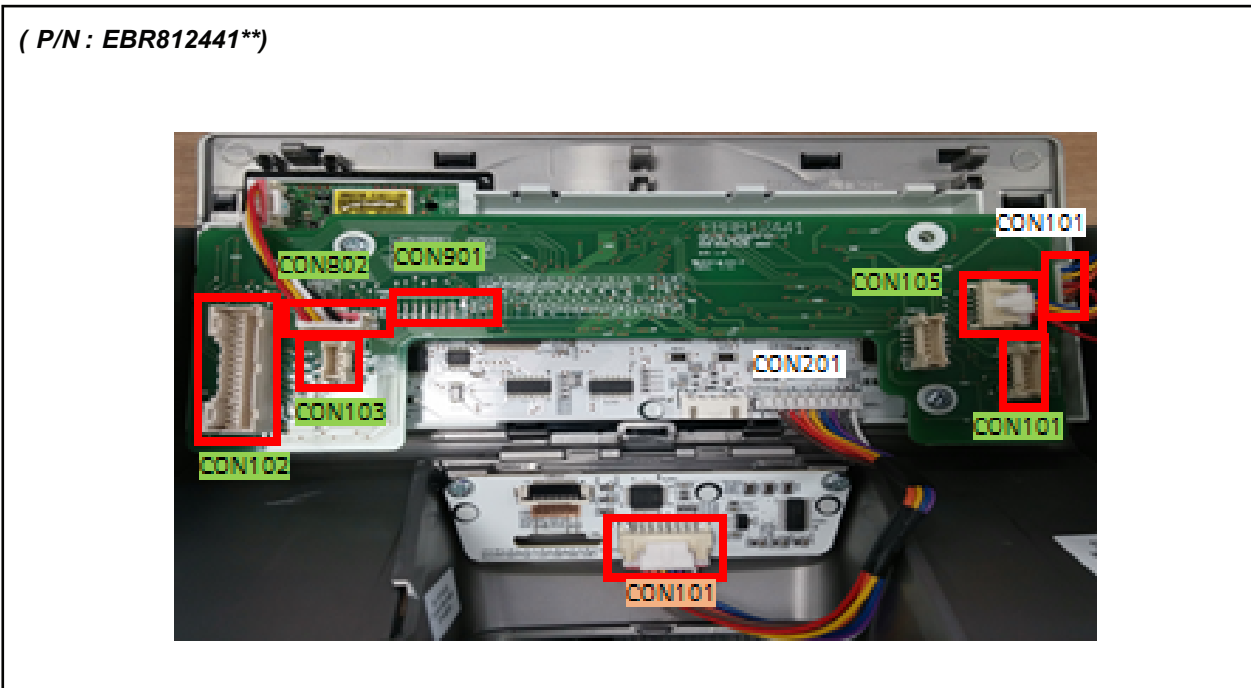
NO	Error Detection Category	Error Display		Error Generation Factors	Remark
		Refrigerator Temperature (Error code ①)	Freezer Temperature (Error code ②)		
16	Abnormality of BLDC FAN MOTOR For Refrigerator	E	rF	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
17	Abnormality of BLDC FAN Motor for Mechanic Room	E	CF	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
18	Communication Error	E	CO	Communication Error between Micom of Main PCB and Display Micom	Poor Communication connection, Poor TR of Transmitter and Receiver Tx/Rx between display and main board.
19	WiFi Modem Error	E	Od	Error of WiFi Modem or Communication Error between Micom of Display PCB and WiFi Modem	Error of WiFi Modem or Poor Communication connection, Poor TR of Tx/Rx between display and WiFi Modem.
20	High side cycle leakage	E	CH	Detected by high side refrigerant leak, restriction, bad comp, bad valve, etc.	Refer to 8-24
21	Low side cycle leakage	E	CL	Detected by low side refrigerant leak, bad comp, long time door open, etc.	Refer to 8-24
22	Abnormal F Room Icemaker Tray Sensor	E	ID	Icemaker Tray Sensor Short Or Open Circuit	Check sensor at it's connector
23	Abnormal F Room IceMaker Kit	E	IU	Other Electrics System Error Such As Motor, Gear, Hall IC, Operation circuit Within I/M Kit, Upper HTR Or Lower HTR On the Icemaker is Open circuit	When the Ice Does not Drop even when the I/M Test S/W is pressed Or check connection or resistance **Diagnosis for Test S/W not working
24	Communication Error	E	Sd	Communication Error between Micom of Sub PCB and Display Micom	Poor Communication connection, Poor TR of Transmitter and Receiver Tx/Rx between display and sub PCB.

7. PCB Picture

7-1. Main PCB



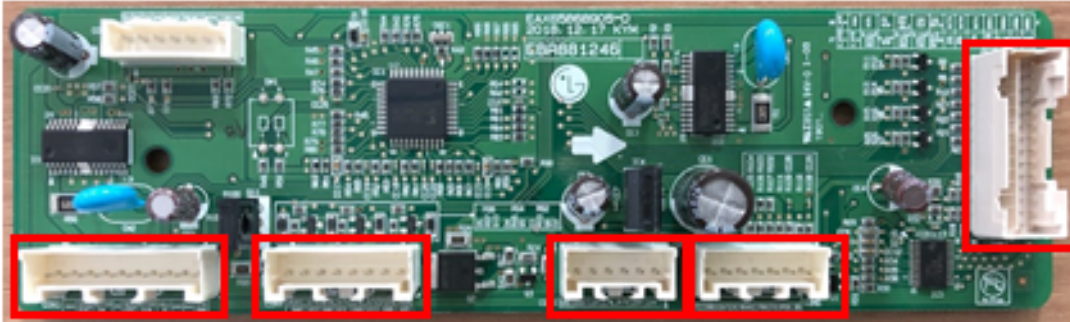
7-2. Display PCB



7-3. Sub PCB

(P/N : EBR881246**)

CON1



CON3

CON4


CON5

CON2

Freezer Sensor Error (E FS)

1
Is the Connector disconnected or loose between Main PCB and sensor?

Yes → Reconnect or repair the connector



CON4

No → [Next Step]

2
Check the Sensor resistance. Is resistance 0Ω (Sensor short)?

Yes → Change the Sensor

No → [Next Step]

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes → Go to 6

No → [Next Step]

4
Check the Temperature and resistance refer to the table.
No problem? → Change the Sensor


CON4 18th pin ~ 17th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
5°F (-15°C)	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

No → [Next Step]

5
Explain to customer

6
Check the sensor connection. Is the sensor connection normal?

Yes → Replace the refrigerator

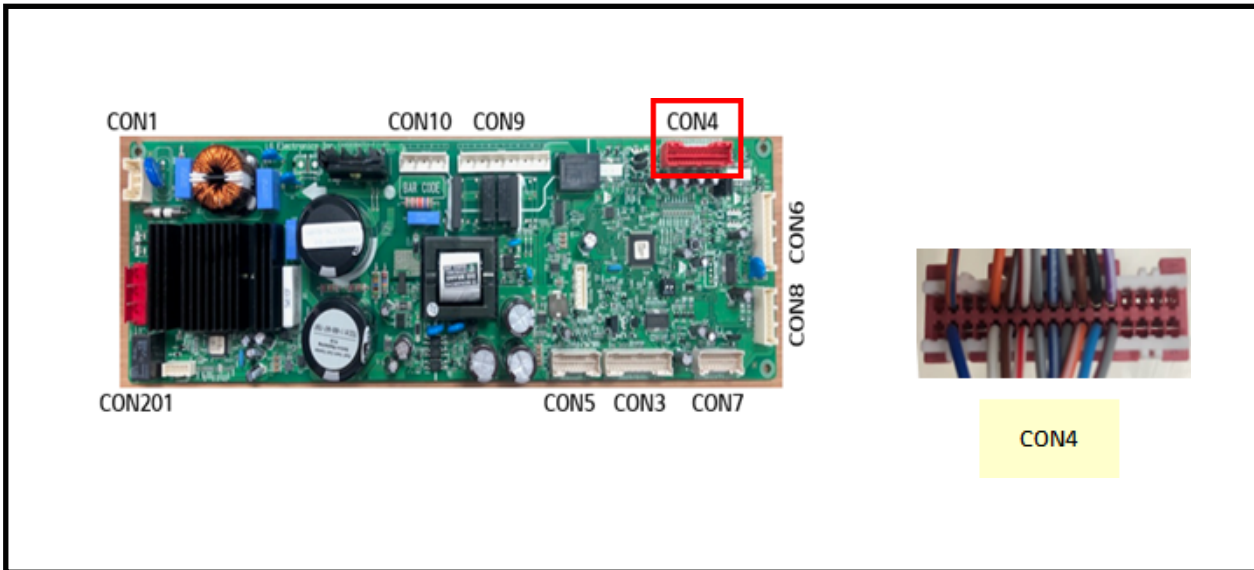


No → [Next Step]

7
Reconnect or repair the connector

8-2. Refrigerator Sensor Error (E rS)

Symptom	Check Point
1. E rS	1. Check for a loose connection 2. Check Sensor Resistance




	Resistance [Ω]	
	Short	0
CON4 16th pin ~ 15th pin	Open	OFF
	Other	Normal

CON4 16th pin ~ 15th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Refrigerator Sensor Error (E rS)

1
Is the Connector disconnected or loose between Main PCB and sensor?

Yes → Reconnect or repair the connector



CON4

No → [Next Step]

2
Check the Sensor resistance. Is resistance 0Ω (Sensor short)?

Yes → Change the Sensor

No → [Next Step]

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes → Go to 6

No → [Next Step]

4
Check the Temperature and resistance refer to the table. No problem?

No → Change the Sensor

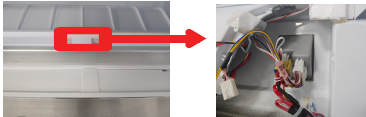
CON4 16th pin ~ 15th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Yes → [Next Step]

5
Explain to customer

6
Check the sensor connection. Is the sensor connection normal?

Yes → Replace the refrigerator

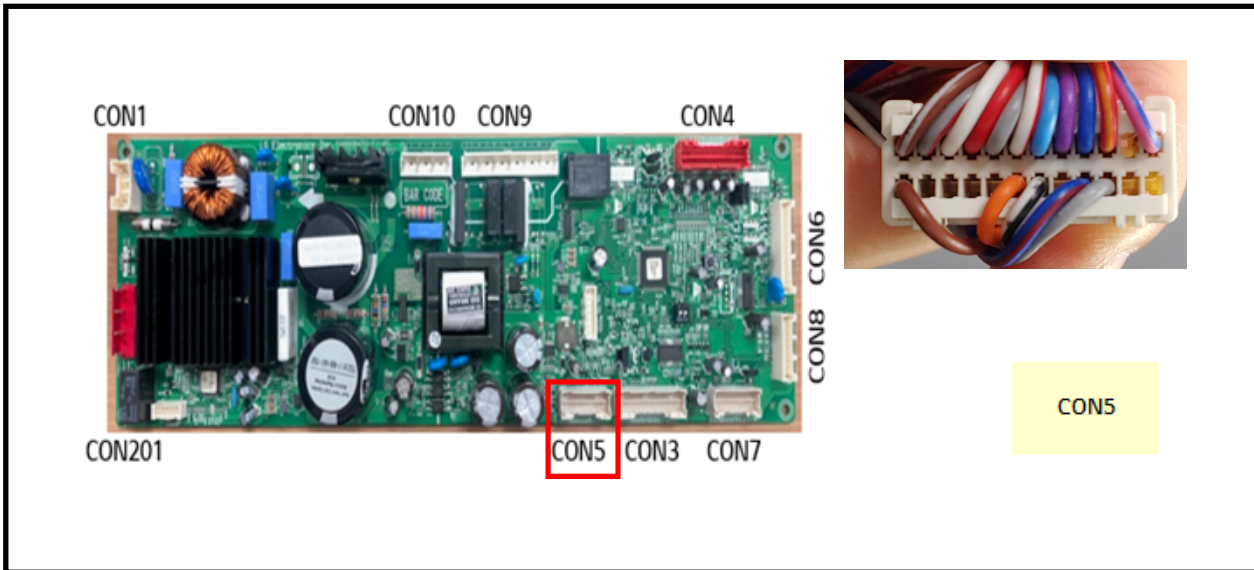


No → [Next Step]

7
Reconnect or repair the connector

8-3. Icing Sensor Error (E IS)

Symptom	Check Point
1. E IS	1. Check for a loose connection 2. Check Sensor Resistance



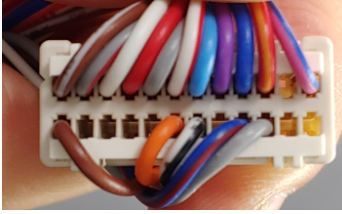
CON5	Resistance [Ω]	
	18th pin ~ 17th pin	Short
	Open	OFF
	Other	Normal

CON5	Resistance [Ω]
18th pin ~ 17th pin	
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
5°F (-15°C)	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

Icing Sensor Error (E IS)

1
Is the Connector disconnected or loose between Main PCB and sensor?

Yes → Reconnect or repair the connector



CON5

No → [Next Step]

2
Check the Sensor resistance. Is resistance 0Ω (Sensor short)?

Yes → Change the Sensor

No → [Next Step]

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes → Go to 6

No → [Next Step]

4
Check the Temperature and resistance refer to the table.
No problem? → Change the Sensor


CON5 18th pin ~ 17th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
5°F (-15°C)	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

Yes → [Next Step]

5
Explain to customer

6
Check the sensor connection. Is the sensor connection normal?

Yes → Replace the refrigerator

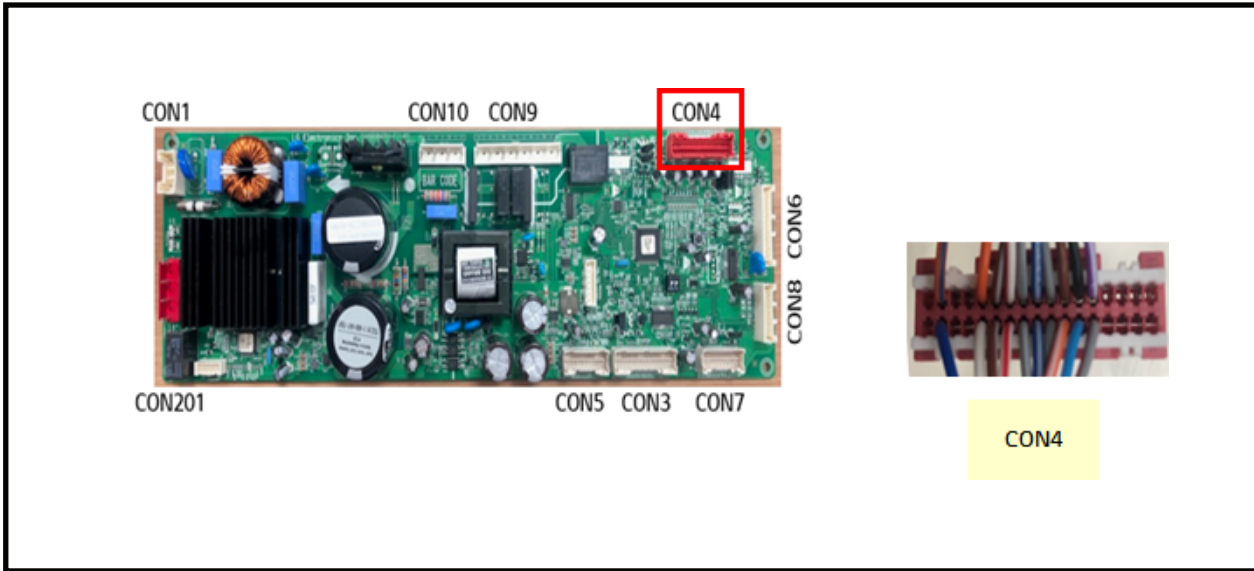


No → [Next Step]

7
Reconnect or repair the connector

8-4. Defrost Sensor Error (F dS)

Symptom	Check Point
1. F dS	1. Check for a loose connection 2. Check Sensor Resistance




	Resistance [Ω]	
	CON4	Short
CON4	Open	OFF
CON4	Other	Normal

CON4	Resistance [Ω]
22nd pin ~ 21st pin	
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Defrost Sensor Error (F dS)

1
Is the Connector disconnected or loose between Main PCB, Defrost controller and Sensor?

Yes → Reconnect or repair the connector



CON4

No → [Next Step]

2
Check the Sensor resistance. Is resistance 0Ω (Sensor short)?

Yes → Change the Sensor

No → [Next Step]

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes → Replace the refrigerator

No → [Next Step]

4
Check the Sensor resistance. Is resistance normal?

Yes → [Next Step]

5
Check the Temperature and resistance refer to the table. No problem?

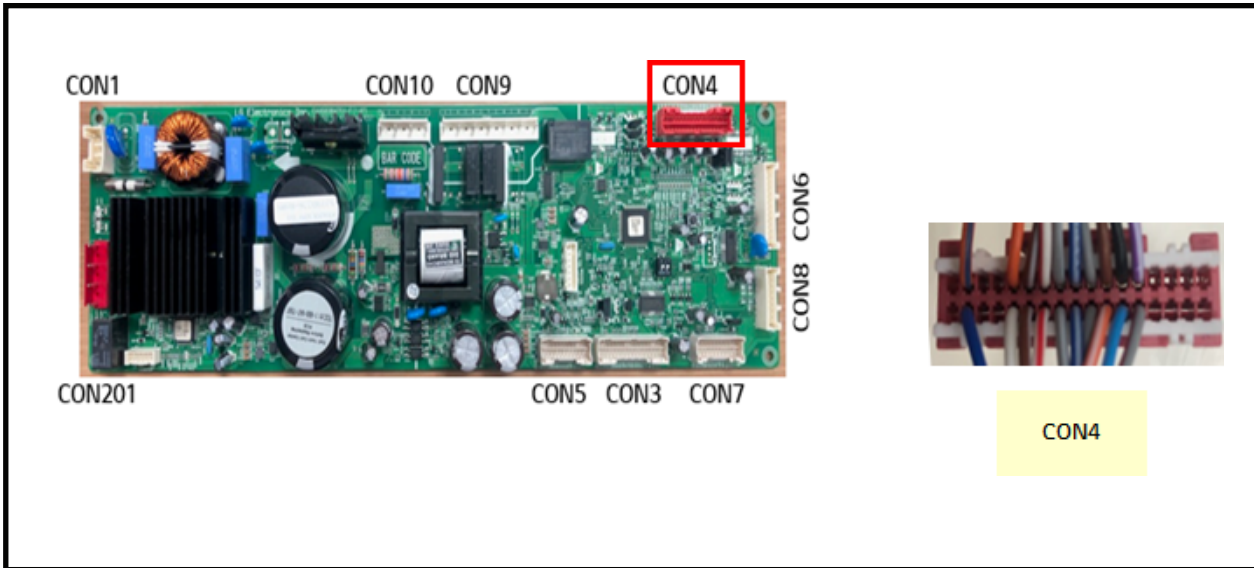
CON4 22nd pin ~ 21st pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Yes → [Next Step]

6
Explain to customer

8-5. Defrost Sensor Error (r dS)

Symptom	Check Point
1. r dS	1. Check for a loose connection 2. Check Sensor Resistance



	Resistance [Ω]	
	CON4	Short
20th pin ~ 19th pin	Open	OFF
	Other	Normal

CON4	Resistance [Ω]
20th pin ~ 19th pin	
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Defrost Sensor Error (r dS)

1
Is the Connector disconnected or loose between Main PCB, Defrost controller and Sensor?

Yes
Reconnect or repair the connector



CON4

No

2
Check the Sensor resistance. Is resistance 0Ω (Sensor short)?

Yes
Change the Sensor

No

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes
Replace the refrigerator

No

4
Check the Sensor resistance. Is resistance normal?

Yes

5
Check the Temperature and resistance refer to the table. No problem?

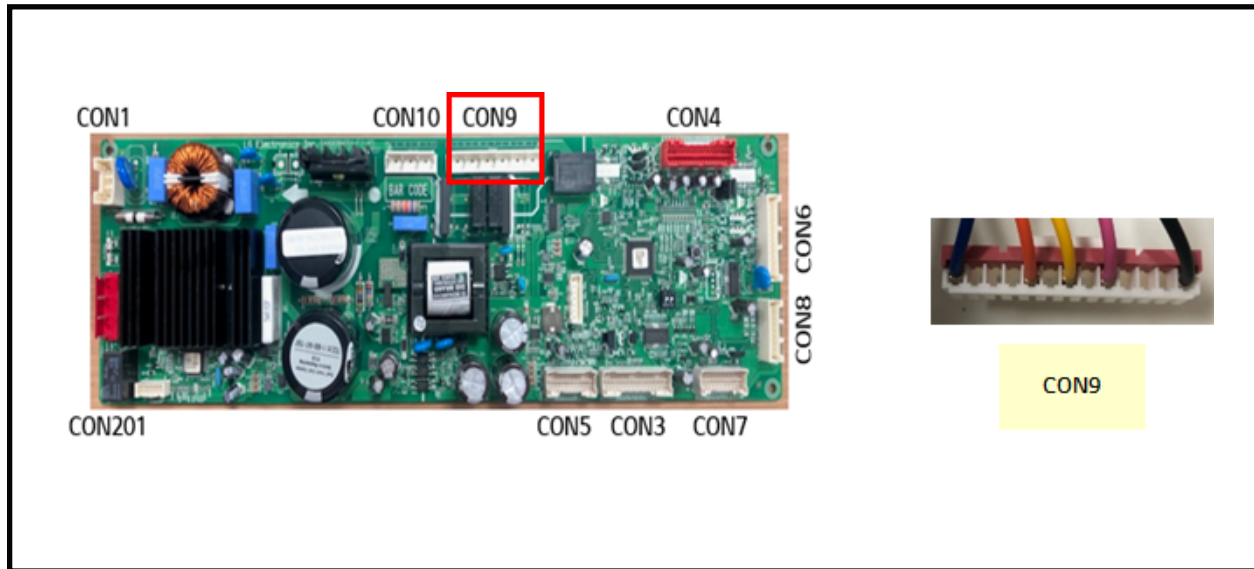
CON4 20th pin ~ 19th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Yes

6
Explain to customer

8-6. Defrost Heater Error (F dH)

Symptom	Check Point
1. F dH	1. Check the door gasket 2. Check the Defrost Heater 3. Check the PCB output voltage



Part	Resistance [Ω]
FUSE-M	0
Defrost Heater	(1) 62~70 (2) 144~167
Defrost Sensor	22k \uparrow

TEST MODE 3	Voltage [V]
CON9 5th pin ~ 13th pin	112V ~ 116V

TEST MODE 1	Voltage [V]
CON9 5th pin ~ 13th pin	0V

Defrost Heater Error (F dH)

1
Check the Door gasket .
Is door gasket damaged?

Yes → Replace the Door gasket

2
Check the Defrost control part.
Is heater resistance 42~50Ω ?

No → Change Fuse-M

TEST MODE 1	RESISTANCE [Ω]
CON9 5th pin ~ 13th pin	42~50Ω

3
Check the Defrost control part.
Is Defrost Sensor resistance 22k↑ or OFF?

OFF → Replace product

CON4 22nd pin ~ 21st pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

22k↑

4 Input Test 3 Mode
(Push the button 3 times)
Check the Heater Voltage.
Is voltage 112~116V?

No → 1. Check the input Voltage
2. Replace Main PCB

TEST MODE 3	Voltage [V]
CON9 5th pin ~ 13th pin	112V ~ 116V

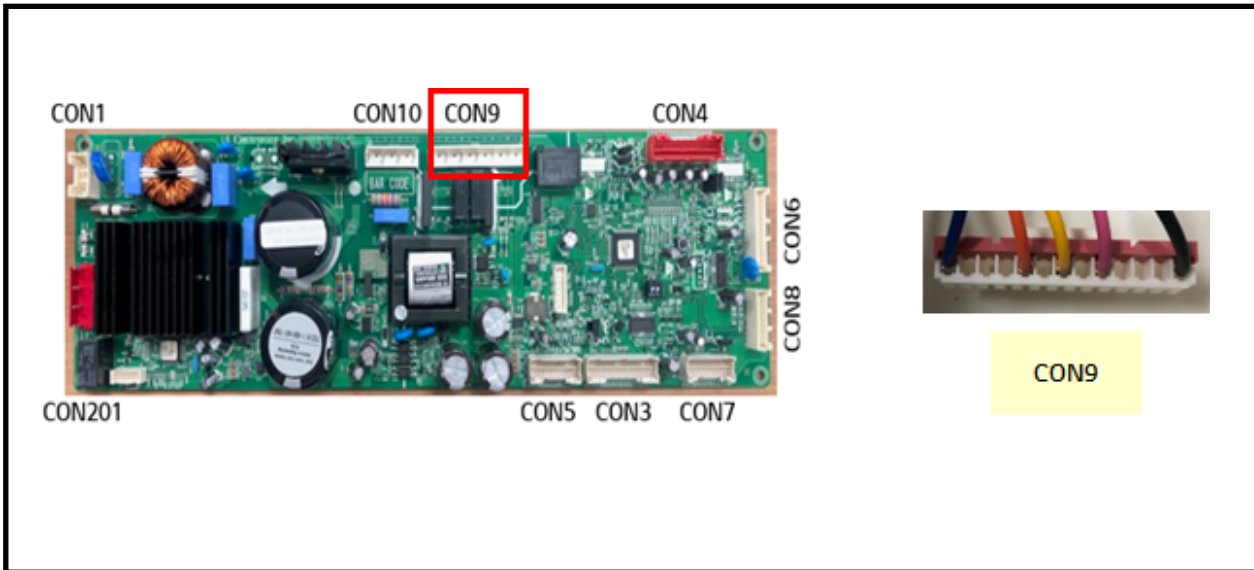
5 Input Test 1 Mode
(Push the button 1 times)
Check the Heater Voltage.
Is voltage 0V?

No → Replace Main PCB

TEST MODE 1	Voltage [V]
CON9 5th pin ~ 13th pin	0V

8-7. Defrost Heater Error (r dH)

Symptom	Check Point
1. r dH	1. Check the door gasket 2. Check the Defrost Heater 3. Check the PCB output voltage



The circuit diagram shows the defrost heater circuit. It includes components like FUSE-M1, F1-DEF-HTR, FUSE-M, F2-DEF-HTR, DRAIN PIPE HTR, FAN-HTR, R-DEF-HTR, and FAN-HTR. The circuit is connected to BL(N) and BK(N) lines. The CON9 connector is highlighted in red, showing pins 1 (BL), 3 (BL), 5 (BO), 7 (YL), 9 (PK), 11 (YL), and 13 (BK). The CON10 connector is also shown with pins 1 (SYL), 3 (BL), 5 (BL), and 7 (BN). The CON201 connector is shown with pin 1 (BL).

Part	Resistance [Ω]
FUSE-M	0
Defrost Heater	103~119
Defrost Sensor	22k°

TEST MODE 3	Voltage [V]
CON9 7th pin ~ 13th pin	112V ~ 116V

TEST MODE 1	Voltage [V]
CON9 7th pin ~ 13th pin	0V

Defrost Heater Error (r dH)

1
Check the Door gasket .
Is door gasket damaged?

Yes
Replace the Door gasket

No

2
Check the Defrost control part.
Is heater resistance 105~117° ?

No
Change Fuse-M

TEST MODE 3	RESISTANCE [°]
CON9 7th pin ~ 13th pin	105~117°

Yes

3
Check the Defrost control part.
Is Defrost Sensor resistance 22k° or OFF?

OFF
Change Defrost Sensor

CON4 20th pin ~ 19th pin	Resistance [°]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

22k°

4 Input Test 3 Mode
(Push the button 3 times)
Check the Heater Voltage.
Is voltage 112~116V?

No
1. Check the input Voltage
2. Replace Main PCB

TEST MODE 3	Voltage [V]
CON9 7th pin ~ 13th pin	112V ~ 116V

Yes

5 Input Test 1 Mode
(Push the button 1 times)
Check the Heater Voltage.
Is voltage 0V?

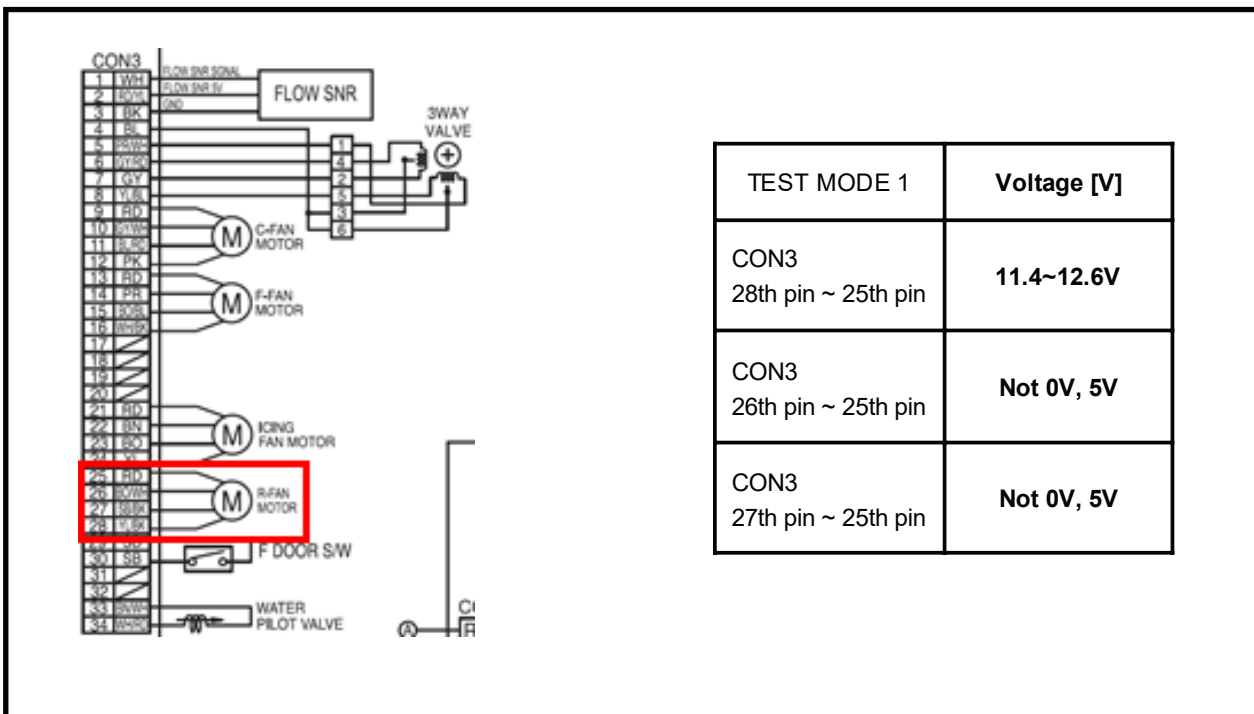
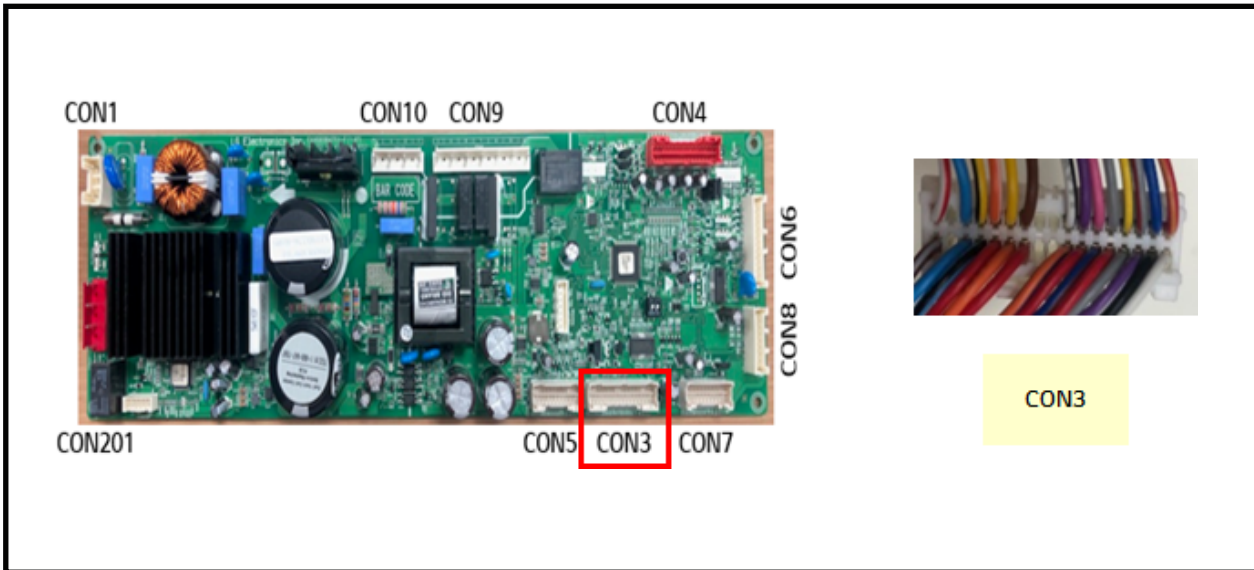
No
Replace Main PCB

TEST MODE 1	Voltage [V]
CON9 7th pin ~ 13th pin	0V

Yes

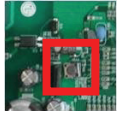
8-8. Refrigerator Fan Error (E rF)

Symptom	Check Point
1. E rF	1. Check the air flow 2. Check the PCB Fan motor voltage



Refrigerator Fan Error (E rF)

1 Reset the unit and Input Test1 Mode. (Push the button 1 time)

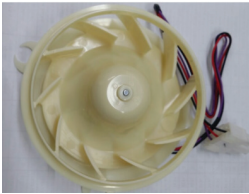


2 Open the freezer door and Check the air flow. Windy?



Go to 4

3 Check the Fan motor. Rotate fan using hand. It feel sticky?



4 Check the Fan Motor voltage
Is Fan Motor voltage 11.4~12.6V?

Replace Main PCB

TEST MODE 1	Voltage [V]
CON3 28th pin ~ 25th pin	11.4~12.6V

5 Check the Fan Motor voltage
Is Fan feed back voltage 0V, 05V?

Change the motor

TEST MODE 1	Voltage [V]
CON3 26th pin ~ 25th pin	Not 0V, 5V

6 Check the Fan Motor voltage
Is Fan PWM voltage 0V, 05V?

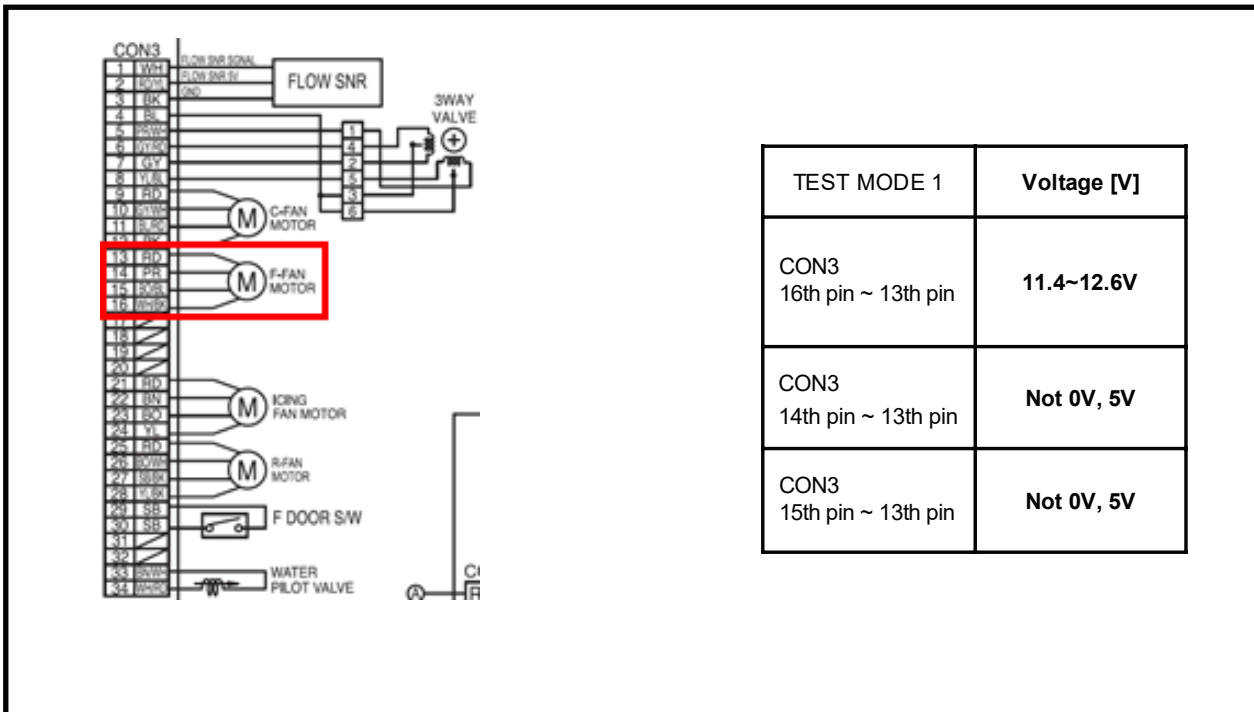
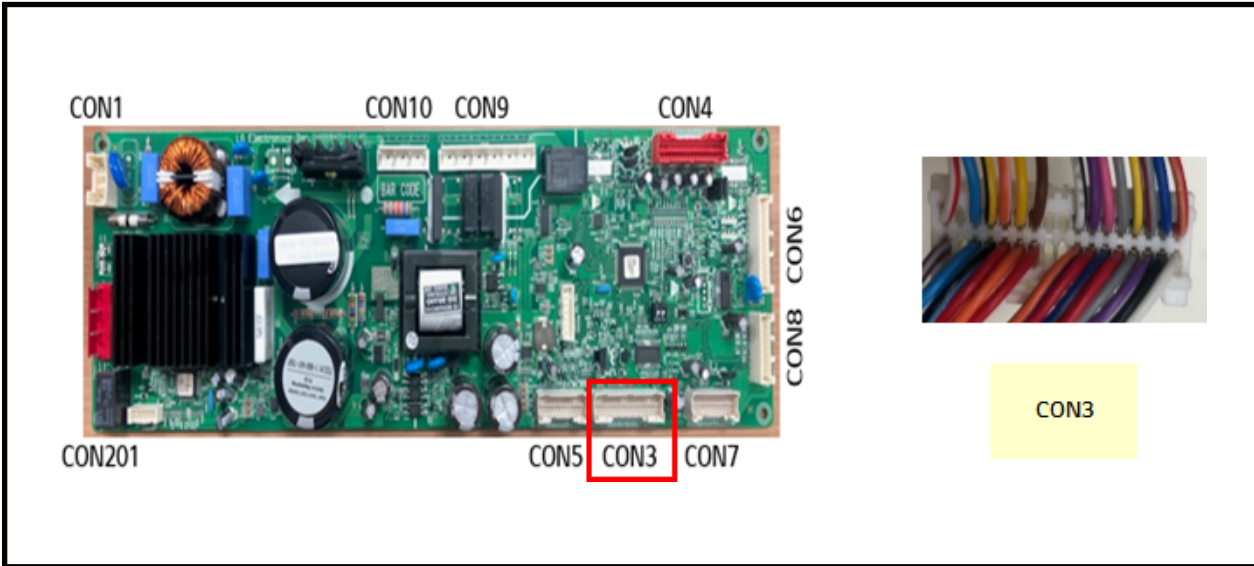
Replace Main PCB

TEST MODE 1	Voltage [V]
CON3 27th pin ~ 25th pin	Not 0V, 5V

7 Explain to customer

8-9. Freezer Fan Error (E FF)

Symptom	Check Point
1. E FF	1. Check the air flow 2. Check the Fan Motor 3. Check the PCB Fan motor voltage



Freezer Fan Error (E FF)

1 Reset the unit and Input Test1 Mode. (Push the button 1 time)

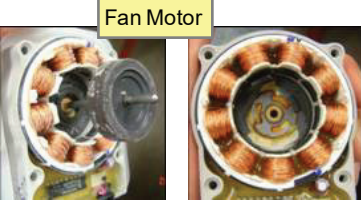


2 Open the freezer door and Check the air flow. Windy?



Yes → Go to 3
No → Go to 4

3 Check the Fan motor. Rotate fan using hand. It feel sticky?



Yes → Change the Fan motor
No → Go to 4

4 Check the Fan Motor voltage
Is Fan Motor voltage 11.4~12.6V?

No → Replace Main PCB

TEST MODE 1	Voltage [V]
CON3 16th pin ~ 13th pin	11.4~12.6V

Yes → Go to 5

5 Check the Fan Motor voltage
Is Fan Feed Back voltage 0V, 5V?

Yes → Change the motor
No → Go to 6

TEST MODE 1	Voltage [V]
CON3 14th pin ~ 13th pin	Not 0V, 5V

6 Check the Fan Motor voltage
Is Fan PWM voltage 0V, 5V?

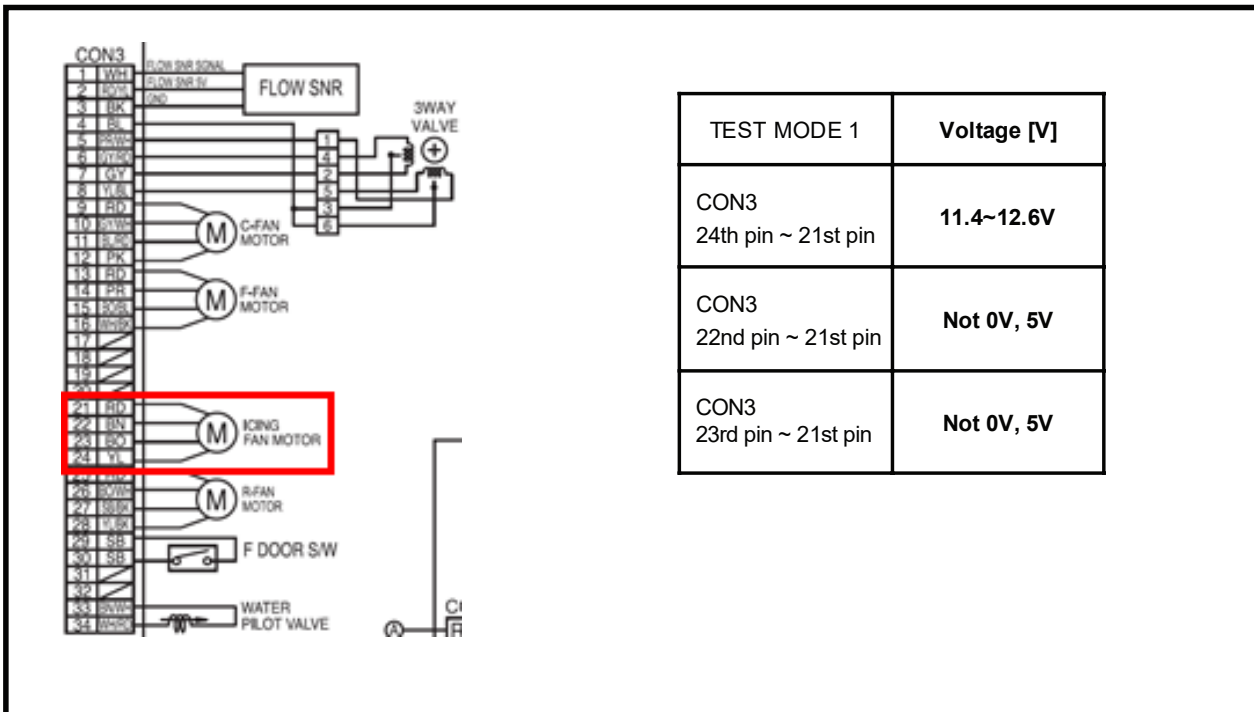
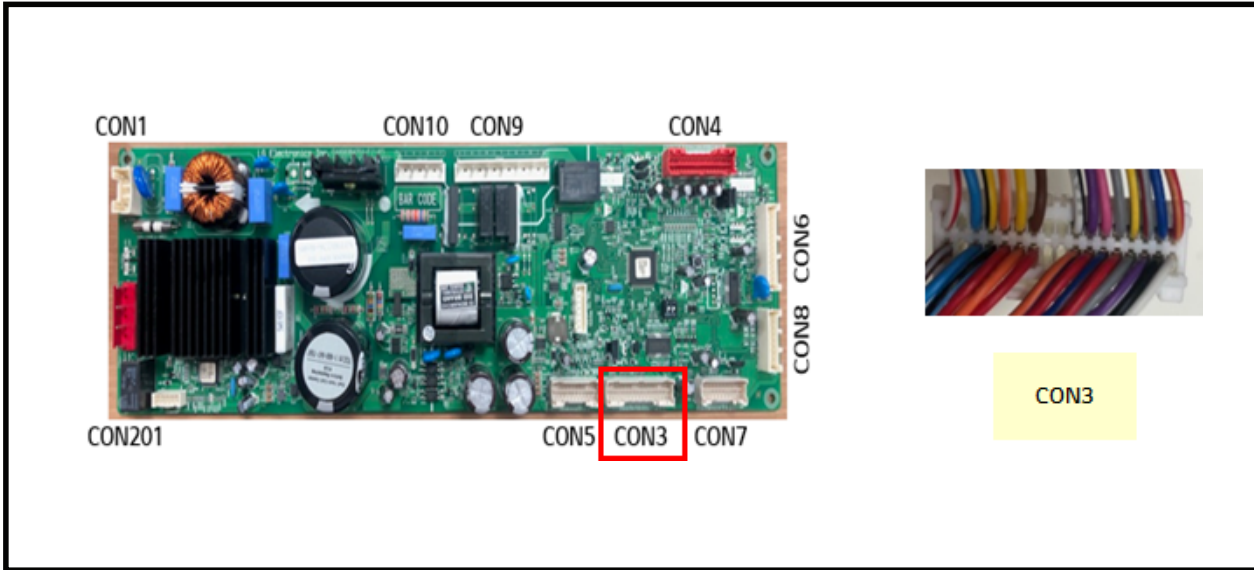
Yes → Replace Main PCB
No → Go to 7

TEST MODE 1	Voltage [V]
CON3 15th pin ~ 13th pin	Not 0V, 5V

7 Explain to customer

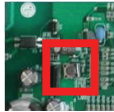
8-10. Icing Fan Error (E IF)

Symptom	Check Point
1. E IF	1. Check the air flow 2. Check the Connector 3. Check the PCB Fan motor voltage



Freezer Fan Error (E IF)


1 Reset the unit and Input Test1 Mode. (Push the button 1 time)



2 Open the freezer door and Check the air flow. Windy?

Yes → Go to 3

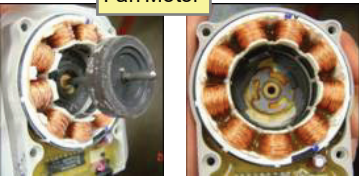
No → Go to 4



3 Check the Fan motor. Rotate fan using hand. It feel sticky?

Yes → Change the Fan motor

No → Go to 4



4 Check the Fan Motor voltage
Is Fan Motor voltage 11.4~12.6V?

No → Replace Main PCB

Yes → Go to 5

TEST MODE 1	Voltage [V]
CON3 24th pin ~ 21st pin	11.4~12.6V

5 Check the Fan Motor voltage
Is Fan Feed Back voltage 0V, 5V?

Yes → Change the motor

No → Go to 6

TEST MODE 1	Voltage [V]
CON3 22nd pin ~ 21st pin	Not 0V, 5V

6 Check the Fan Motor voltage
Is Fan PWM voltage 0V, 5V?

Yes → Replace Main PCB

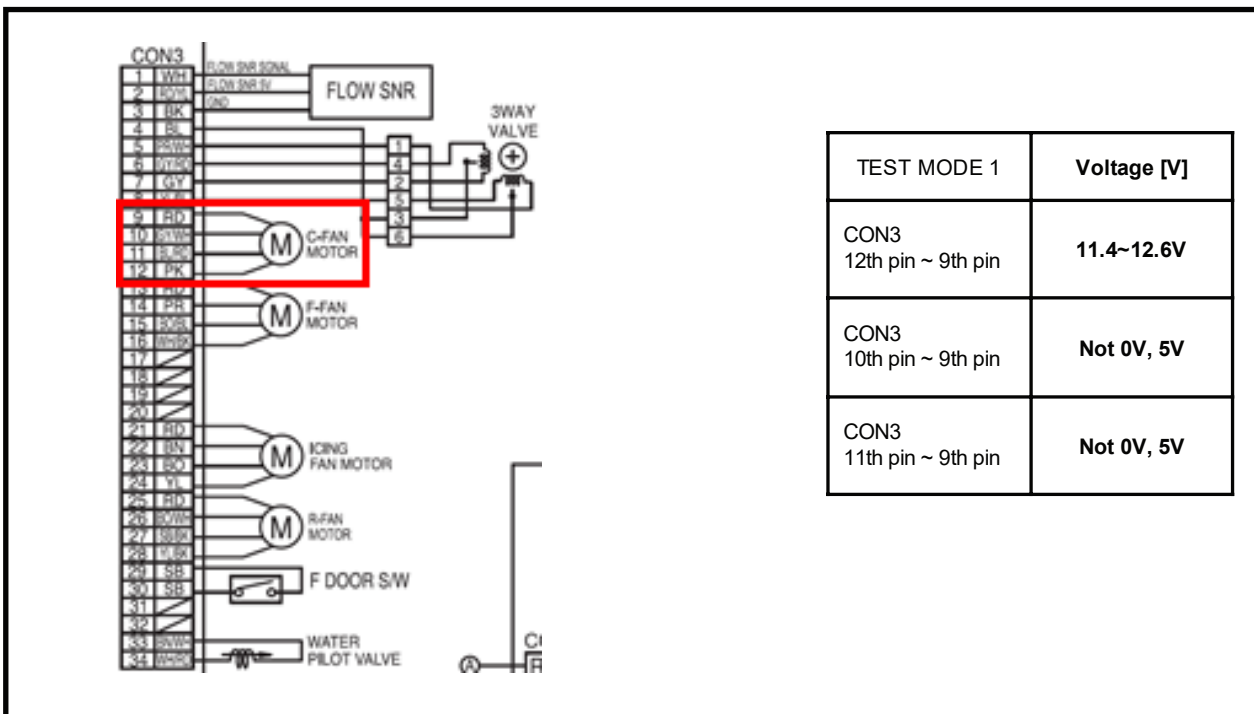
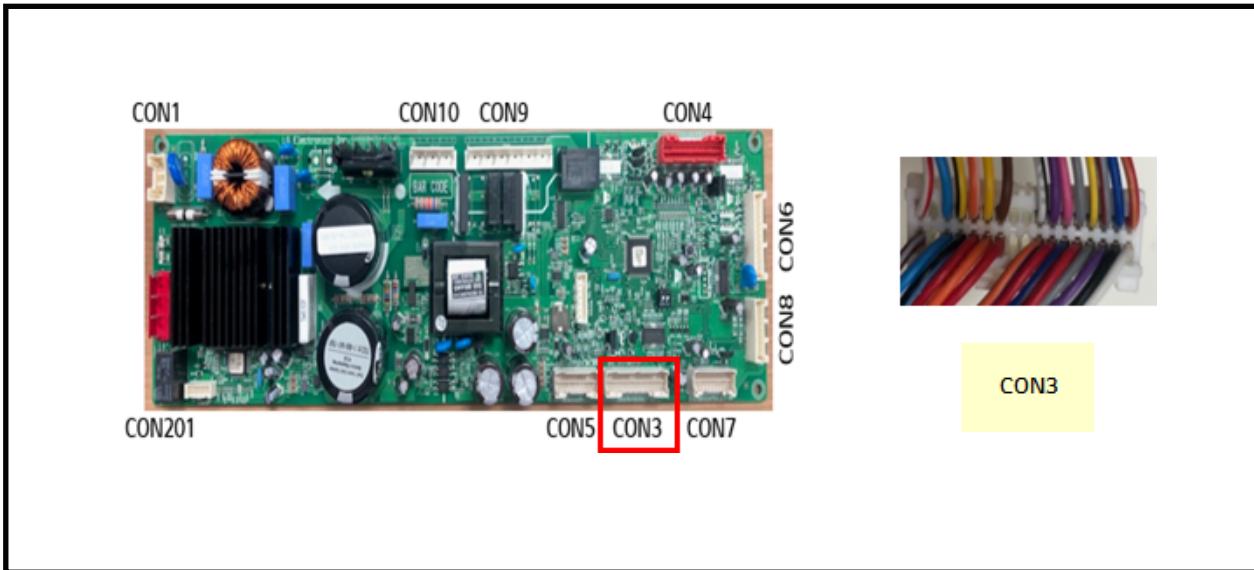
No → Go to 7

TEST MODE 1	Voltage [V]
CON3 23rd pin ~ 21st pin	Not 0V, 5V

7 Explain to customer

8-11. Condenser Fan Error (E CF)

Symptom	Check Point
1. E CF	1. Check the air flow 2. Check the Connector 3. Check the PCB Fan motor voltage

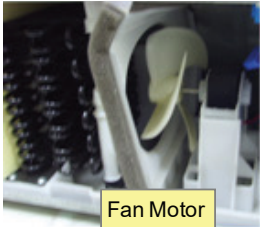


Condenser Fan Error (Er CF)

1 Reset the unit and Input Test1 Mode. (Push the button 1 time)

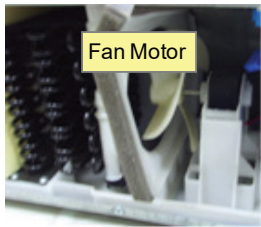


2 Check the fan rotating. Does fan rotate?



Yes
Go to 4

3 Check the Fan motor. Rotate fan using hand. It feel sticky?



Yes
Change the Fan motor

4 Check the Fan Motor voltage
Is Fan Motor voltage 11.4~12.6 V?

No
Replace Main PCB

TEST MODE 1	Voltage [V]
CON3 12th pin ~ 9th pin	11.4~12.6V

Yes

5 Check the Fan Motor voltage
Is Fan Feed Back voltage 0V, 5V?

Yes
Change the motor

TEST MODE 1	Voltage [V]
CON3 10th pin ~ 9th pin	Not 0V, 5V

No

6 Check the Fan Motor voltage
Is Fan PWM voltage 0V, 5V?

Yes
Replace Main PCB

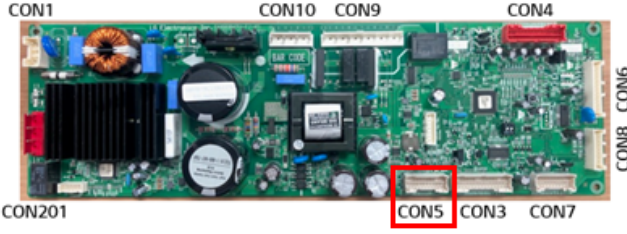
TEST MODE 1	Voltage [V]
CON3 11th pin ~ 9th pin	Not 0V, 5V

No


7
Explain to customer

8-12. Communication Error (E CO)

Symptom	Check Point
1. E CO	1. Check the loose connection 2. Check the Hinge connection




CON1 CON10 CON9 CON4
CON201 CON3 CON7 CON8 CON6
CON5

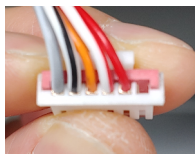


CON5

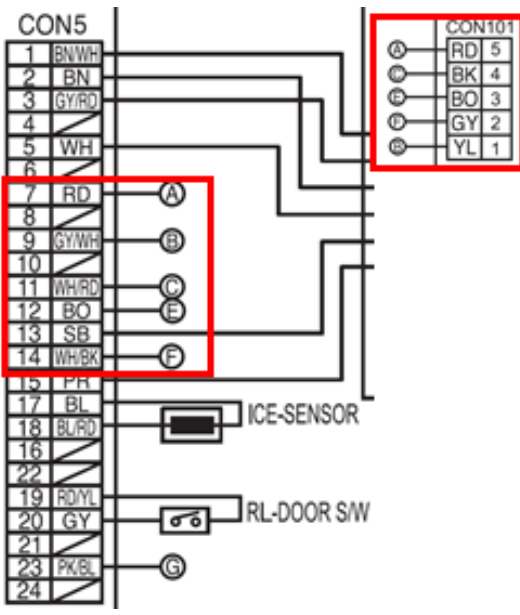
Display PCB 사진 변경



CON101



CON101



CON5

1	BN/WH
2	BN
3	GY/RO
4	
5	WH
6	
7	RD
8	
9	GY/WH
10	
11	WH/RO
12	BO
13	SB
14	WH/BK
15	PH
17	BL
18	BL/RO
16	
22	
19	RO/YL
20	GY
21	
23	PK/BL
24	

CON101

Ⓐ	RD	5
Ⓑ	BK	4
Ⓒ	BO	3
Ⓓ	GY	2
Ⓔ	YL	1

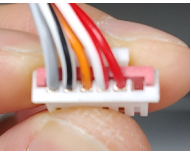
ICE-SENSOR
RL-DOOR SW

	Voltage [V]
CON101 5 th pin & 4 th pin	12V
CON101 2 nd pin & 4 th pin	Not 0V, 5V
CON101 3 rd pin & 4 th pin	Not 0V, 5V
CON101 1 st pin & 4 th pin	5V
CON5 12 th pin & 11 th pin	Not 0V, 5V
CON5 14 th pin & 11 th pin	Not 0V, 5V

Communication Error (E CO)

1
Check the loose connection

2
Check the voltage.
Is CON101 5th Pin ~ 4th Pin voltage 12V?

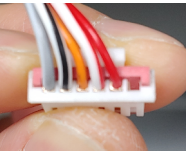


CON101

	Voltage [V]
CON101 5th pin & 4th pin	12V

Yes → [Action box]
No → [Action box]

3
Check the voltage.
Is CON101 1st Pin ~ 4th Pin voltage 5V?

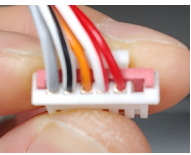


CON101

	Voltage [V]
CON101 1st pin & 4th pin	5V

Yes → [Action box]
No → [Action box]

4
Check the voltage.
Is CON101 CON101 2nd Pin ~ 4th Pin voltage 0V or 5V?

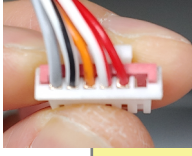


CON101

	Voltage [V]
CON101 2nd pin & 4th pin	Not 0V, 5V

Yes → [Action box]
No → [Action box]

5
Check the voltage.
Is CON101 3rd Pin ~ 4th Pin voltage 0V or 5V?

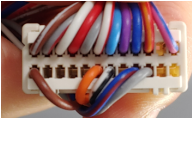


CON101

	Voltage [V]
CON101 3rd pin & 4th pin	Not 0V, 5V

Yes → [Action box]
No → [Action box]

6
Check the voltage.
Is CON5 12th Pin ~ 11th Pin voltage 0V or 5V?

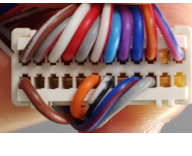


CON5

	Voltage [V]
CON5 12th pin & 11th pin	Not 0V, 5V

Yes → [Action box]
No → [Action box]

7
Check the voltage.
Is CON5 14th Pin ~ 11th Pin voltage 0V or 5V?



CON5

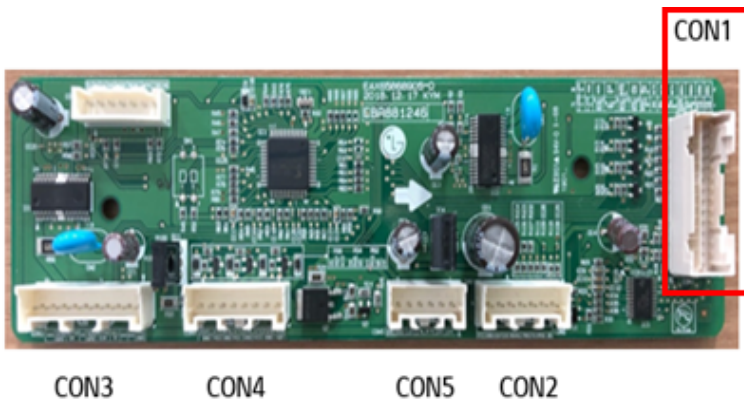
	Voltage [V]
CON5 14th pin & 11th pin	Not 0V, 5V

Yes → [Action box]
No → [Action box]

7
Explain to customer

8-13. Cube mode doesn't work

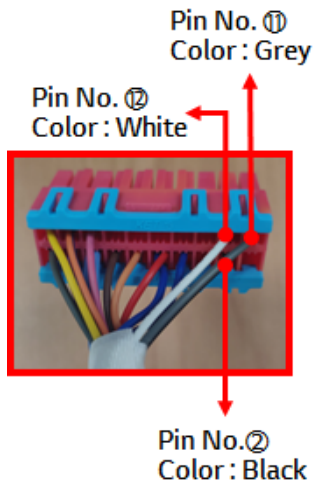
Symptom	Check Point
1. Cube mode doesn't work	1. Check the loose connection 2. Check the resistance



CON1



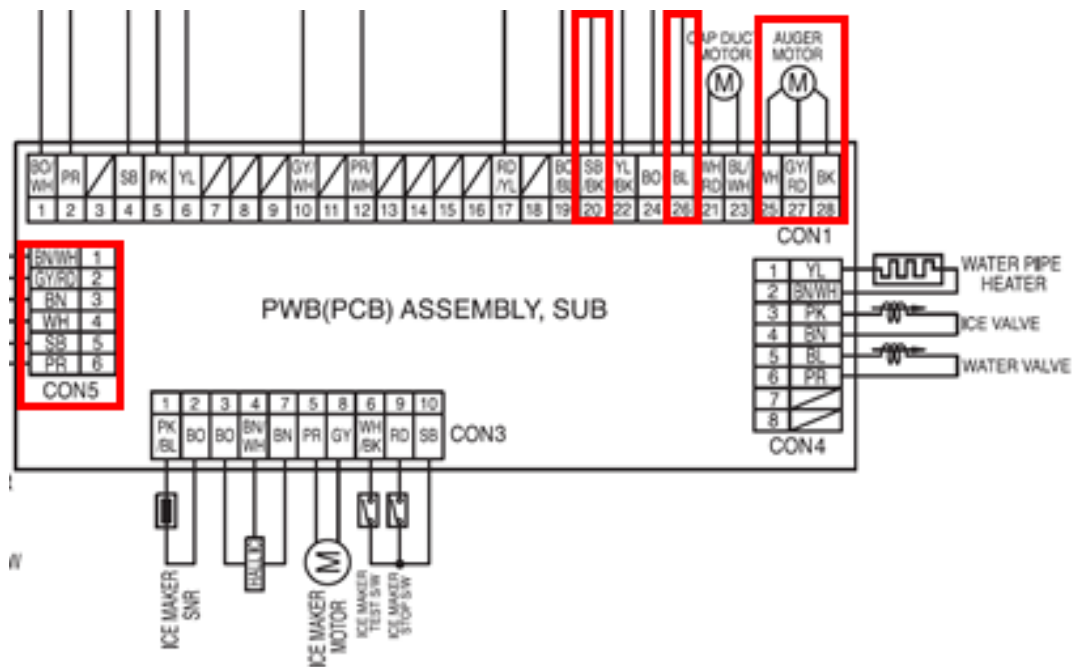
Ice Maker



Geared Motor
(BLDC Type)



Dispenser Motor



	Resistance [Ω]
CON1 25 th pin, 27 th pin 25 th pin, 28 th pin 27 th pin, 28 th pin	2.37 ~ 2.73 Ω

	Voltage [V]
CON5 1 st pin, 5 th pin	24V \pm 10%

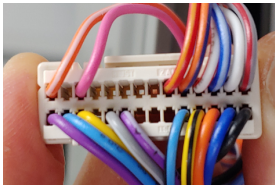
Pushing The LEVER S/W	Voltage [V]
CON1 CON5 20 th pin, 5 th pin 26 th pin, 5 th pin	5V \pm 10%

Cube mode doesn't work

1 Check the Auger Motor
(Working Sound,
Visual inspection)

Yes

2 Check the SUB PCB Resistance Value



CON1 25th pin, 27th pin 25th pin, 28th pin 27th pin, 28th pin	Resistance [Ω]
U, V, W	2.37~2.73

No
Change the
Dispenser
Assembly, Ice
(Loc. 612A)

Yes

3 Check the SUB PCB Voltage Value



CON5 1st pin, 5th pin	Voltage [V]
24V	24V±10%

While pushing the lever S/W
is voltage correct?

CON1 CON5 26th pin, 5th pin	Voltage [V]
PWM	5V±10%

CON1 CON5 20th pin, 5th pin	Voltage [V]
24V Enable	5V±10%

No
Check the
Item ⑤
(Main PCB
Voltage value)

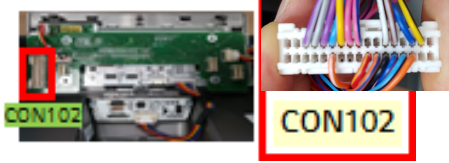
※ Sub PCB Voltage NG or,
When Main PCB Voltage is
OK,
Estimated Harness open
circuit.

No
Change the
Case
Assembly,
PCB
(Loc. 500C)

Yes

4 Check the Display PCB Voltage Value

No
Change the
Cover
Assembly,
Display
(Loc. 279A)



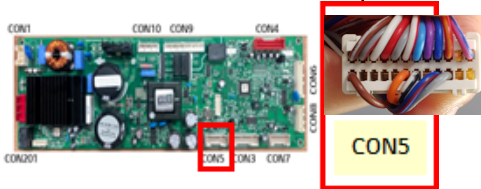
CON102 29th pin, 3rd pin	Voltage [V]
PWM	5V±10%

CON102 28th pin, 3rd pin	Voltage [V]
24V Enable	5V±10%

Yes

5 Check the Main PCB Voltage Value

No
Change the PCB
Assembly, Main
(Loc. 500A)



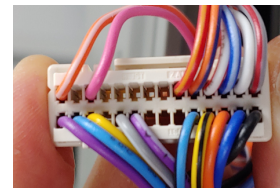
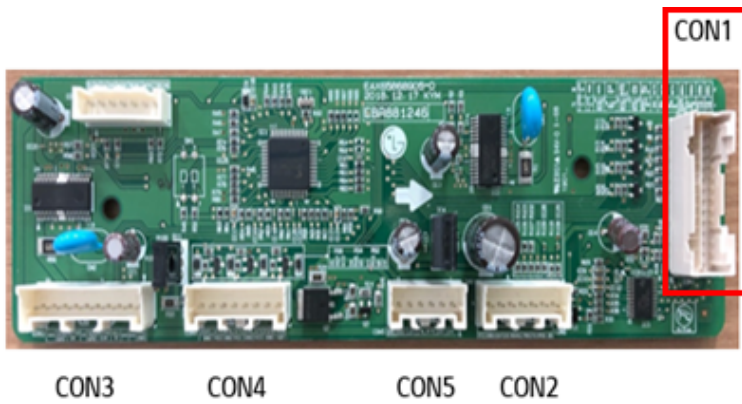
CON5 1st pin, 13th pin	Voltage [V]
24V	24V±10%

Yes

6 Explain to the customer
(Refrigerator is OK)

8-14. Crush mode doesn't work

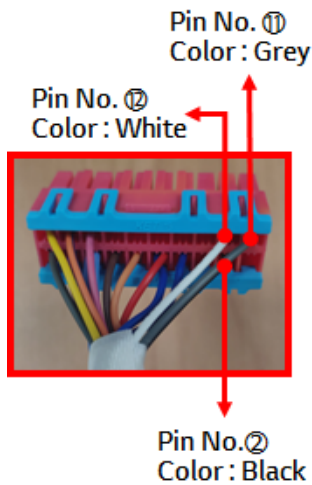
Symptom	Check Point
1. Crush mode doesn't work	1. Check the loose connection 2. Check the resistance



CON1



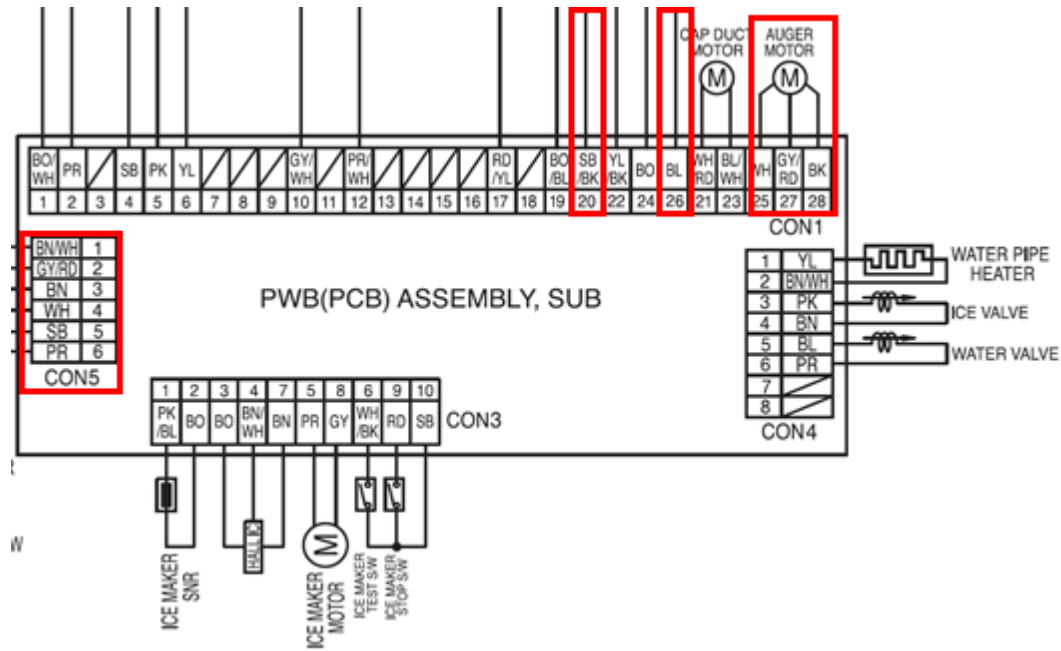
Ice Maker



Geared Motor (BLDC Type)



Dispenser Motor



	Resistance [Ω]
CON1 25th pin, 27th pin 25th pin, 28th pin 27th pin, 28th pin	2.37 ~ 2.73 Ω

	Voltage [V]
CON5 1st pin, 5th pin	24V \pm 10%

Pushing The LEVER S/W	Voltage [V]
CON1 CON5 20th pin, 5th pin 26th pin, 5th pin	5V \pm 10%

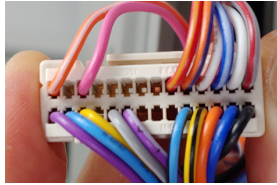
Crush mode doesn't work

1 Check the Auger Motor (Working Sound, Visual inspection)

No → Check the Ice Bucket

2 Check the SUB PCB Resistance Value

No → Change the Dispenser Assembly, Ice (Loc. 612A)



CON1 25th pin, 27th pin 25th pin, 28th pin 27th pin, 28th pin	Resistance [Ω]
U, V, W	2.37 ~ 2.73 Ω

3 Check the SUB PCB Voltage Value

No → Check the Item ⑤ (Main PCB Voltage value)



CON1 1st pin, 5th pin	Voltage [V]
24V	24V \pm 10%

While pushing the lever S/W is voltage correct?

CON1 CON5 26th pin, 5th pin	Voltage [V]
PWM	5V \pm 10%

CON1 CON5 20th pin, 5th pin	Voltage [V]
24V Enable	5V \pm 10%

No → Change the Case Assembly, PCB (Loc. 500C)

4 Check the Display PCB Voltage Value

No → Change the Cover Assembly, Display (Loc. 279A)

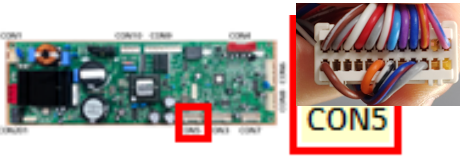


CON102 29th pin, 3rd pin	Voltage [V]
PWM	5V \pm 10%

CON102 28th pin, 3rd pin	Voltage [V]
24V Enable	5V \pm 10%

5 Check the Main PCB Voltage Value

No → Change the PCB Assembly, Main (Loc. 500A)

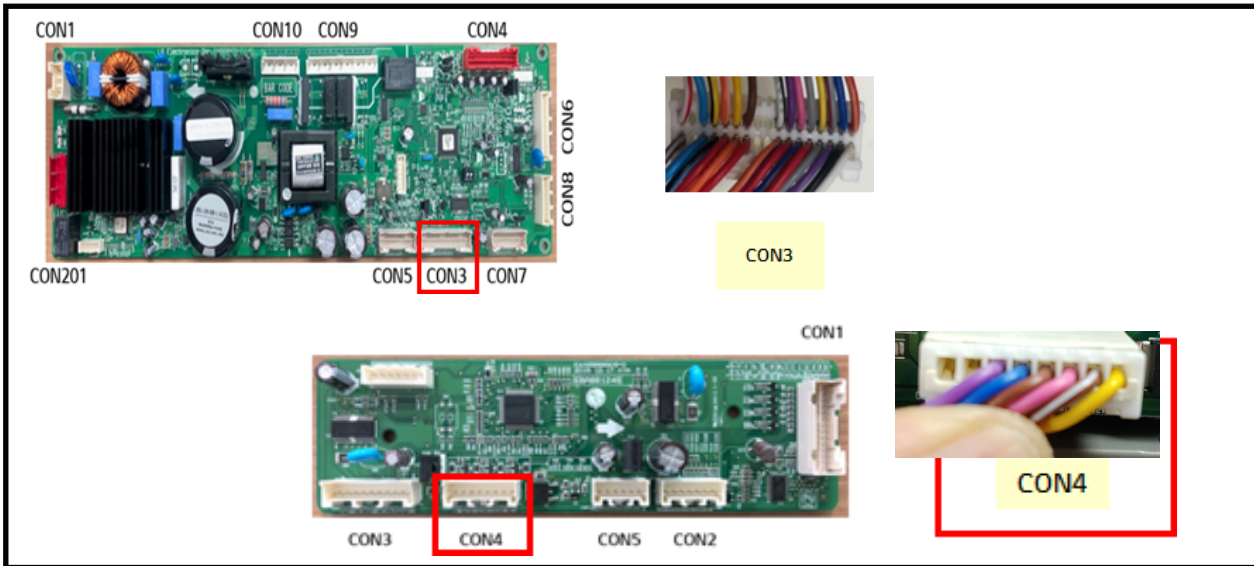


CON5 1st pin, 13th pin	Voltage [V]
24V	24V \pm 10%

6 Explain to the customer (Refrigerator is OK)

8-15. Water mode doesn't work

Symptom	Check Point
1. Water mode doesn't work	1. Check the loose connection 2. Check the resistance valve



LEVER S/W	Voltage [V]	
CON4 5th pin & 6th pin	Pushing	20.4V ↑
	Not Pushing	0~2V
CON3 34th pin & 33rd pin	Pushing	20.4V ↑
	Not Pushing	0~2V

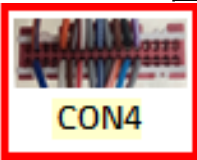
	Resistance [Ω]
Pilot Valve	69.06 ~ 76.33Ω
Water valve	24.03 ~ 26.56Ω

Water mode doesn't work

1
Check the loose connection

2
Check the voltage.
(while pushing the lever S/W)
Is voltage correct?

No
Change the PCB

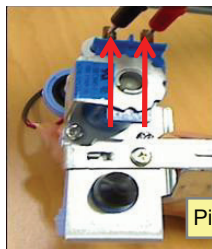


LEVER S/W	Voltage [V]	
CON4 5th pin & 6th pin	Pushing	20.4V ↑
	Not Pushing	0~2V
CON3 34th pin & 33rd pin	Pushing	20.4V ↑
	Not Pushing	0~2V

Yes

3
Check the resistance value.
Is Pilot Valve resistance
69.06 ~ 76.33Ω ?

No
Replace P/ Valve



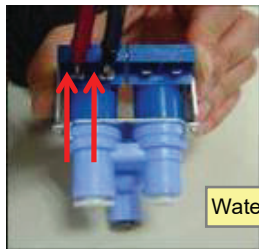
Pilot Valve

	Resistance [Ω]
Pilot Valve	69.06 ~ 76.33

Yes

4
Check the resistance value.
Is Water Valve resistance
24.03 ~ 26.56Ω?

No
Replace Water Valve



Water Valve

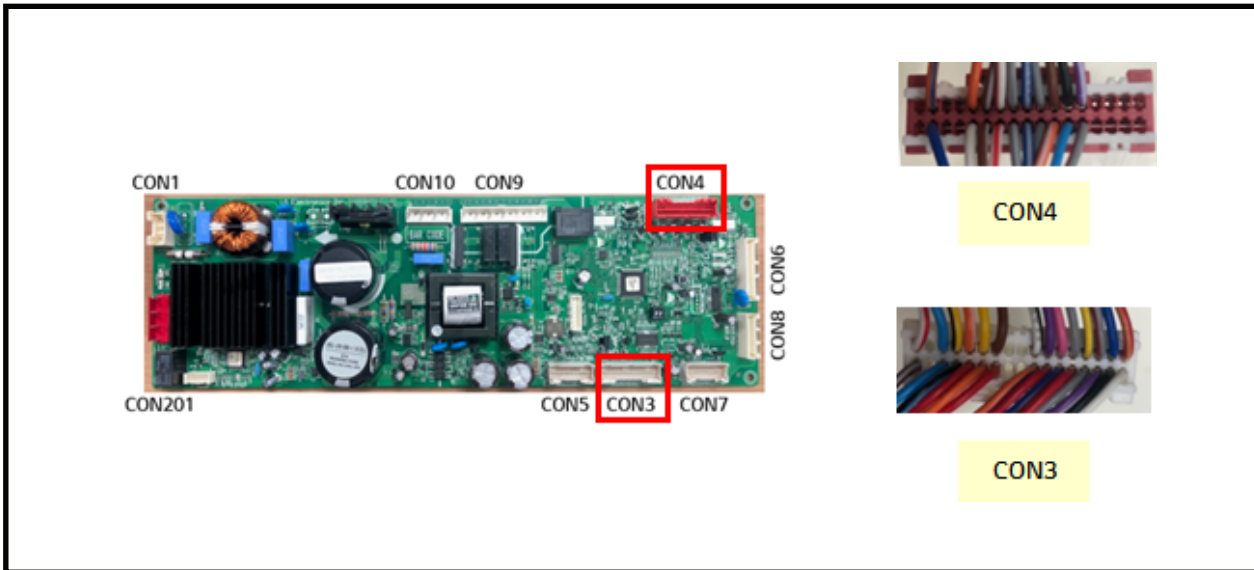
	Resistance [Ω]
Water valve	24.03 ~ 26.56

Yes

5
Explain to customer

8-16. Poor cooling in Fresh food section

Symptom	Check Point
1. Poor cooling in Fresh food section	1. Check the sensor resistance 2. Check the air flow 3. Check the air Temperature 4. Check the R-Fan motor voltage




CON4 16th pin ~ 15th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

TEST MODE 1	Voltage [V]
CON3 28th pin ~ 25th pin	11.4~12.6V
CON3 26th pin ~ 25th pin	Not 0V, 5V
CON3 27th pin ~ 25th pin	Not 0V, 5V

Duct	Status
Air Flow	Windy
Air Temperature	Cold

Poor cooling in Fresh food section

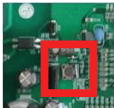
1 Check the sensor resistance.




CON4

CON4 16th pin ~ 15th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

2 Reset the unit and Input Test1 Mode. (Push the button 1 time)



3 Open the fresh food door and Check the air flow. Windy?



No → Check the R Fan Motor
Check the damper
Go to 5

Yes →

4 Check the air temperature. Is it cold?

No → Check the Compressor and sealed system

Yes → Go to 8

5 Check the Fan Motor voltage Is Fan Motor voltage 11.4~12.6V?

No → Replace Main PCB

TEST MODE 1	Voltage [V]
CON3 28th pin ~ 25th pin	11.4~12.6V

Yes →

6 Check the Fan Motor voltage Is Fan Feed Back voltage 0V, 5V?

Yes → Change the motor

TEST MODE 1	Voltage [V]
CON3 26th pin ~ 25th pin	Not 0V, 5V

No →

7 Check the Fan Motor voltage Is Fan PWM voltage 0V, 5V?

Yes → Change the motor

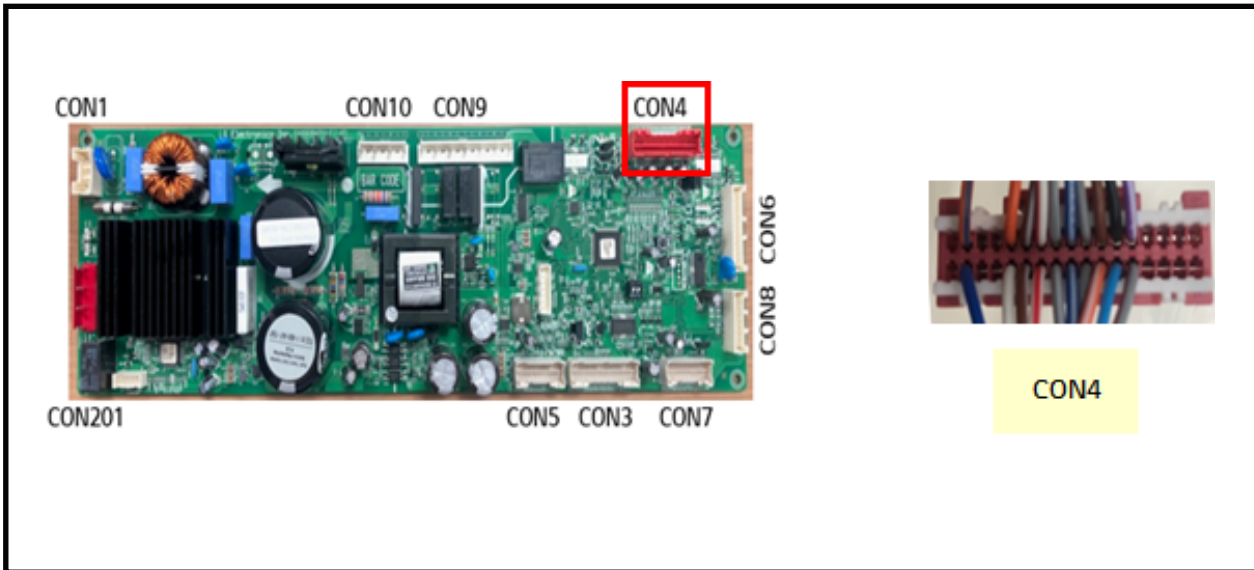
TEST MODE 1	Voltage [V]
CON3 27th pin ~ 25th pin	Not 0V, 5V

No →

8 Explain to customer

8-17. Refrigerator room lamp doesn't work

Symptom	Check Point
1. Refrigerator room lamp doesn't work	1. Check the Refrigerator door switch 2. Check the door S/W resistance 3. Check the LED Lamp



The diagram shows the pinout for the 24-pin CON4 connector. Pins 1-8 are unlabeled. Pin 9 is connected to BO (Pantry Box Motor). Pin 10 is connected to WH (Water Pipe Heater). Pin 11 is connected to BETA DUCT HTR. Pin 12 is connected to PANTRY-SENSOR. Pin 13 is connected to R-SENSOR. Pin 14 is connected to F-SENSOR. Pin 15 is connected to RD-SENSOR. Pin 16 is connected to FD-SENSOR. Pins 23 (BK) and 24 (SB) are highlighted with a red box. Pins 25 and 26 are connected to the FRY BOX MOTOR.

		Resistance [Ω]	
Door S/W	Normal	0	
	Open	Infinity	


		Voltage [V]	
CON4	24th pin ~ 23rd Pin	11.4~12.6V	

LED Lamp		Voltage [V]	
Blue & Black	Closed	0~2V	
	Open	11.4~12.6V	

Refrigerator room lamp doesn't work

1

The Switch senses if the door is open or close.
When the door open, lamp On
When the door Close, lamp Off

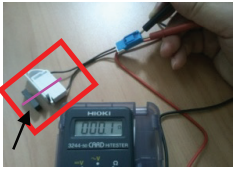


Yes → Explain to customer

No → 2

2

Check the door S/W resistance.
Is it correct compared with table?




Resistance [Ω]		
Door S/W	No magnet near the switch	Infinity
	Magnet is near the switch	0

No → Change the Door S/W

Yes → 3

3

Check the PCB Voltage. Is CON4 24th pin ~ 23rd Pin voltage 11.4~12.6V? (While door open)




Voltage [V]	
CON4 24th pin ~ 23rd Pin	11.4~12.6V

No → Change the PCB

Yes → 4

4

Check the PCB Voltage.
Is CON4 24th pin ~ 23rd Pin voltage 0~2V? (While door closed)



Voltage [V]	
CON4 24th pin ~ 23rd Pin	11.4~12.6V

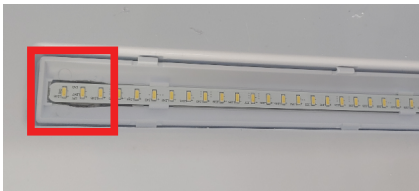
No → Change the PCB

Yes → 5


5

Check the LED Lamp voltage
Is voltage 11.4 ~ 12.6V? (While door open)

Top LED Lamp



Side LED Lamp



No → Check LED Lamp Connection

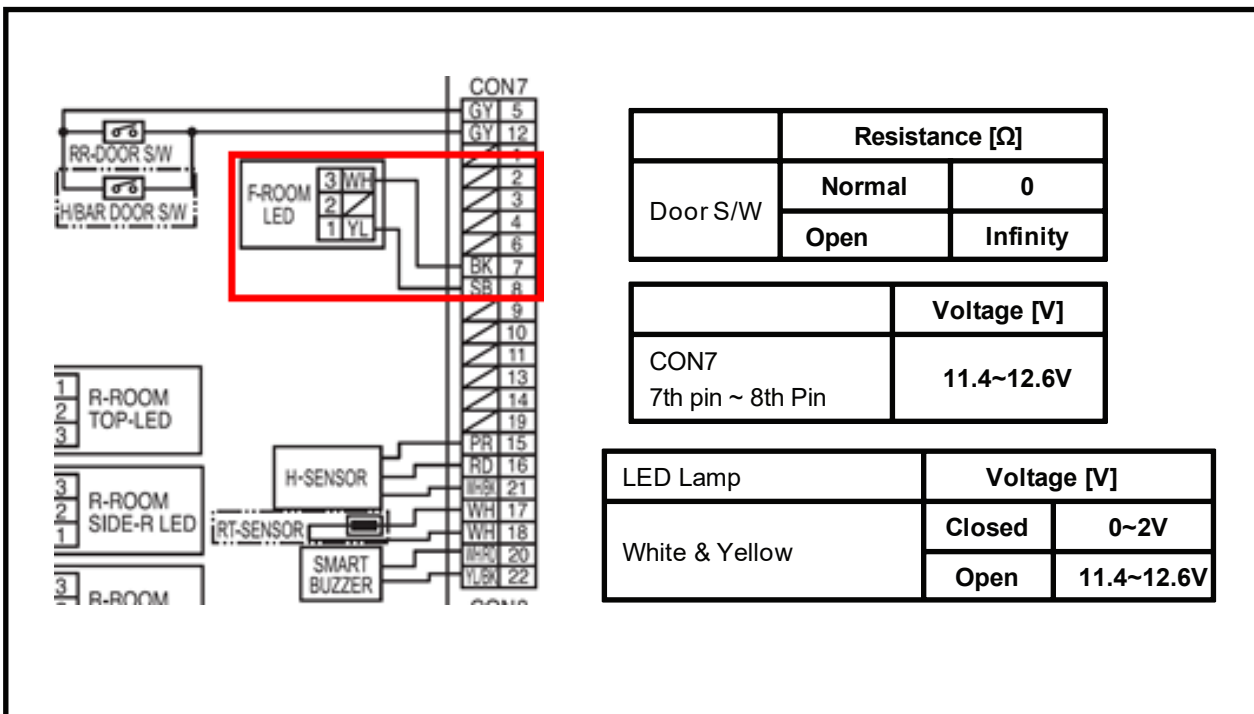
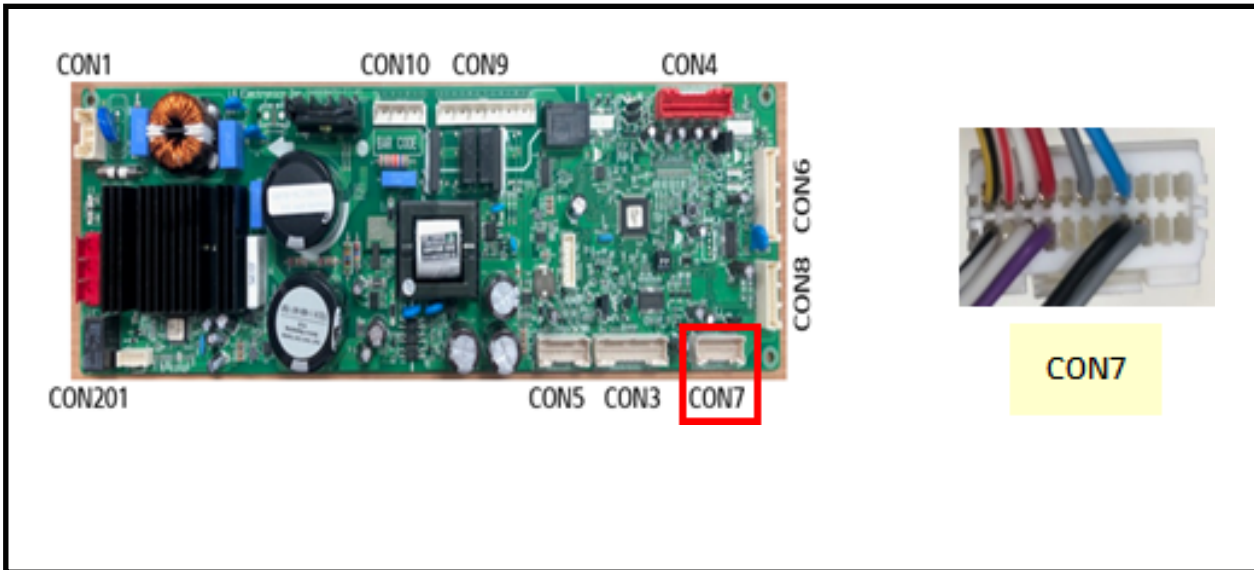
Yes → 6

6

Change the LED Lamp

8-18. Freezer lamp doesn't work


Symptom	Check Point
1. Freezer room lamp doesn't work	1. Check the freezer door switch 2. Check the door S/W resistance 3. Check the LED Lamp



Freezer room lamp doesn't work

1

The Switch senses if the door is open or close.
When the door open, lamp On
When the door Close, lamp Off

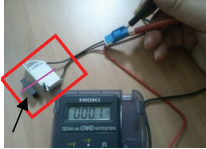


Yes → Explain to customer

No →

2

Check the door S/W resistance.
Is it correct compared with table?




		Resistance [Ω]	
Door S/W	No magnet near the switch	Infinity	
	Magnet is near the switch	0	

Yes →

No → Change the Door S/W

3

Check the PCB Voltage. Is CON7 7th pin ~ 8th Pin voltage 11.4 ~ 12.6V?





		Voltage [V]
CON7	7th pin ~ 8th Pin	11.4 ~ 12.6V

Yes →

No → Change the PCB

4

Check the LED Lamp voltage
Is voltage 11.4 ~ 12.6V?






Yes →

No → Change the LED Lamp

5

Check the LED Lamp voltage.
Is it 0~2V? (While door closed)

Yes →

No → Change the Door S/W

6

Check the LED Lamp voltage.
Is it 11.4 ~ 12.6V? (While door open)

Yes →

No → Change the LED Lamp

7

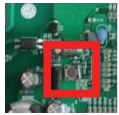
Explain to customer

Poor cooling in Freezer compartment


1
Check the sensor resistance.

CON4 17th pin ~ 18th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
5°F (-15°C)	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

2 **Reset the unit and Input Test1 Mode.**
(Push the button 1 time)



3
Open the Freezer door and Check the air flow. Windy?



No → Check the F Fan Motor
Go to 5

Yes →

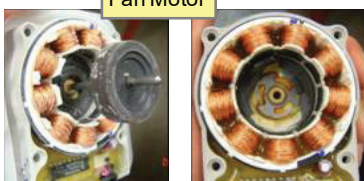
4
Check the air temperature. Is it cold?

No → Check the Compressor and sealed system

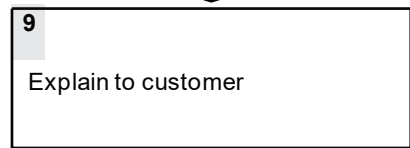
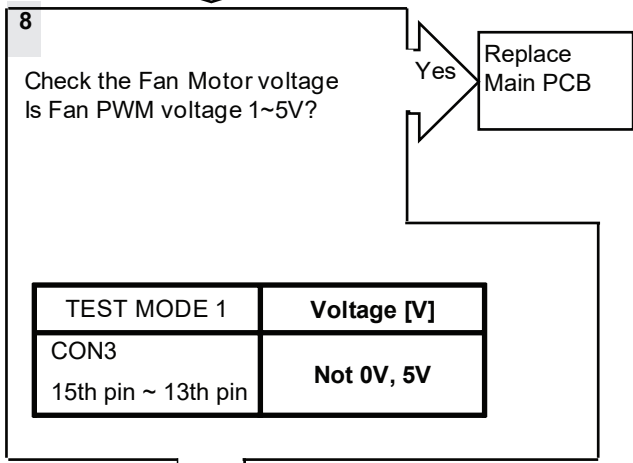
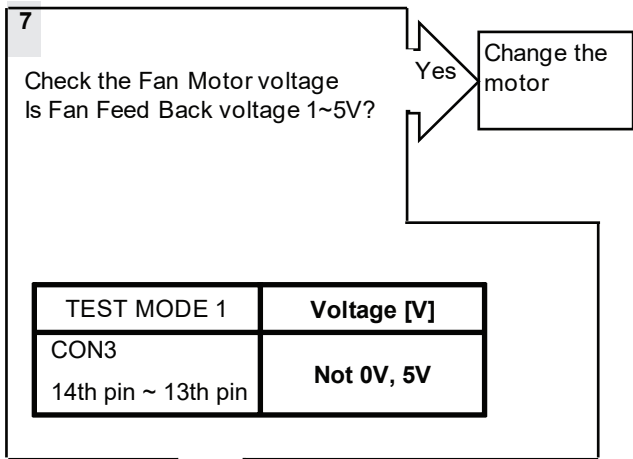
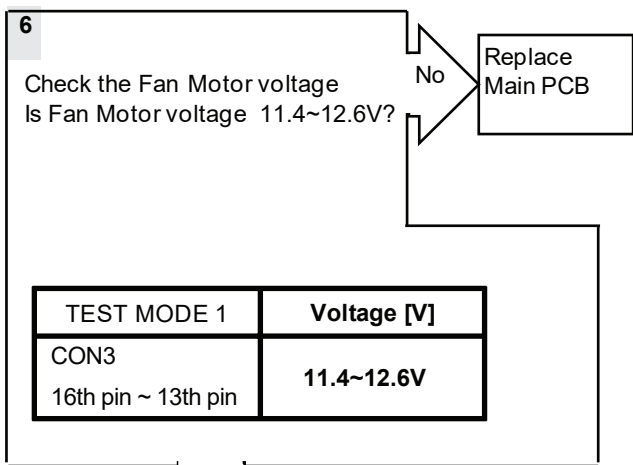
Yes →

5
Check the Fan motor. Rotate fan using hand. It feel sticky?

Yes → Change the Fan motor

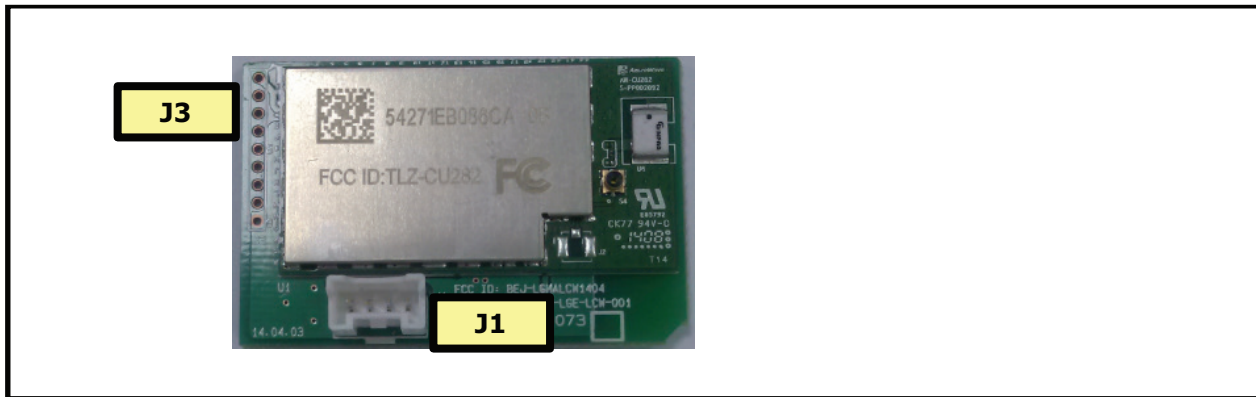


No →



8-20. Wi-Fi Modem Error (E Od)

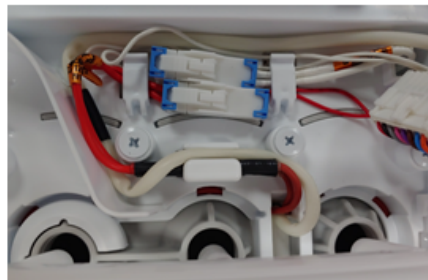
Symptom	Check Point
1. E Od	1. Check the loose connection 2. Check the voltage



8-21 Freezer Icemaker Error(E IU)

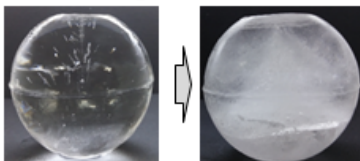
Symptom	Check Point
E IU	1. Check for a loose connection 2. Check heater resistance

1. Harvest failure



Resistance	
Upper HTR (Red)	14.1 ~ 16.3 Ω

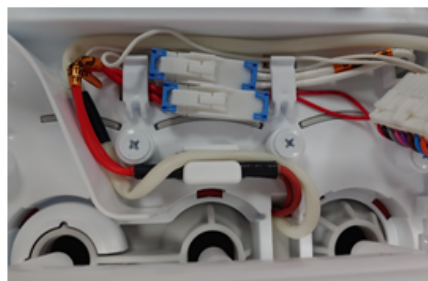
2. Icemaking failure



More cloudy ice



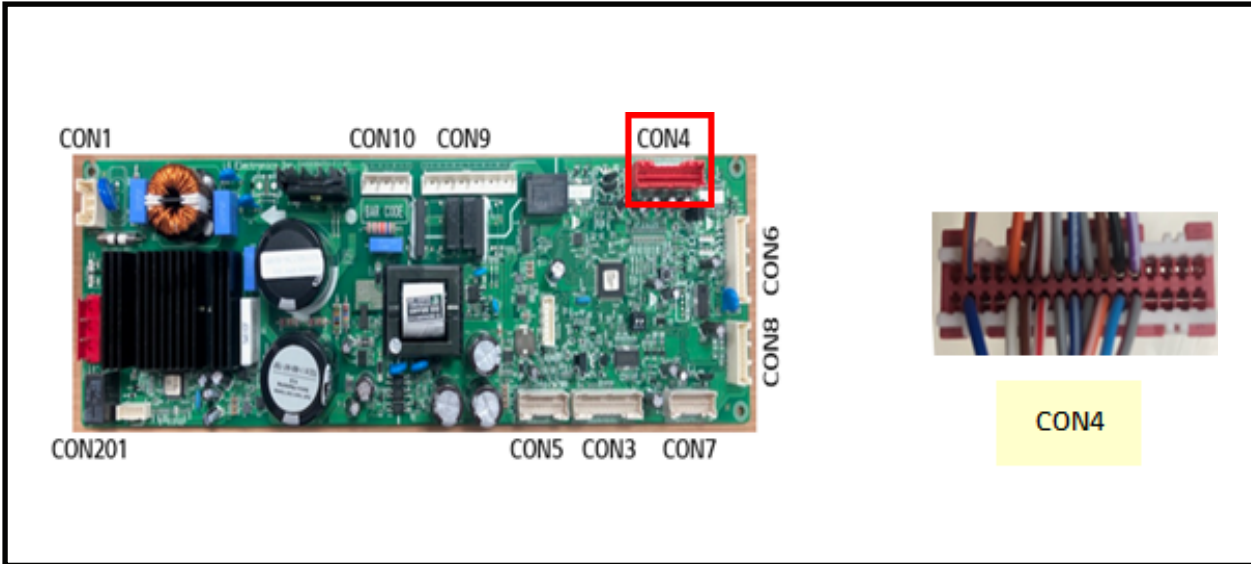
Shape like lump on ice



Resistance	
Lower HTR (White)	22.3 ~ 25.7 Ω

8-22. Convertible Sensor Error (E CS)

Symptom	Check Point
1. E CS	1. Check the loose connection 2. Check the voltage



CON4	Resistance [Ω]	
	CON4 13th pin ~ 14th pin	Short
	Open	OFF
	Other	Normal


CON4 13 th pin ~ 14 th pin	Resistance [Ω]
-4°F / -20°C	77K
5°F (-15°C)	60K
14°F / -10°C	47K
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Pin	Color	Component
1		
2		
3	BO/BL	WATER PIPE HTR
4	SB/BK	
5		
6		
7		
8		
9	WH/RD	M-DAMPER HTR
10	WH	
11	BN/WH	BETA DUCT HTR
12	BN/WH	
13	PR	M-SENSOR
14	PR	
15	GY/WH	R-SENSOR
16	GY/WH	
17	BL/WH	F-SENSOR
18	BL/WH	
19	GY	RD-SENSOR
20	GY	
21	BN	FD-SENSOR
22	BN	
23	BK	
24	SB	
25	PR/WH	H/F BOX MOTOR
26	GY/RD	
27	PK	
29	BO	
31	RD	M-DAMPER
33	YL/BL	
32		

Convertible Sensor Error (E CS)

1
Is the Connector disconnected or loose between Main PCB and sensor?

Yes → Reconnect or repair the connector



CON4

No → [Next Step]

2
Check the Sensor resistance. Is resistance 0 Ω (Sensor short)?

Yes → Change the Sensor

No → [Next Step]

3
Check the Sensor resistance. Is resistance OFF (Sensor open)?

Yes → Go to 6

No → [Next Step]

4
Check the Temperature and resistance refer to the table. No problem?

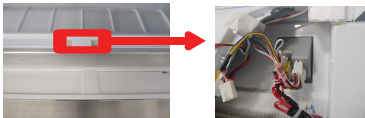
No → Change the Sensor

CON4 13 th pin ~ 14 th pin	Resistance [Ω]
-4°F / -20°C	77K
5°F (-15°C)	60K
14°F / -10°C	47K
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k

Yes → [Next Step]

5
Explain to customer

6
Check the sensor connection. Is the sensor connection normal?



Yes → Replace the refrigerator

No → [Next Step]

7
Reconnect or repair the connector

8-22 High/Low side Cycle leakage(Refrigerant leak of Sealed system problem) Error (E CH/E CL)

• Error CH or CL might be detected by refrigerant leak, sealed system, etc. Please follow smart svc process.

Symptom	Check Point
<p>E CH (No cooling)</p> <p>※ This logic might be detected by high side refrigerant leak, restriction, bad comp, bad valve, etc.</p>	<ol style="list-style-type: none"> ① The LG Refrigerator displays an error code on the display for sealed system problem . Through this error code(E CH or E CL), please follow svc process . ② Through Step1 using SVC App, you can know it is compressor or sealed system problem, or you can know it is normal(customer's emotional fault) . If you have no SVC App jig, please check temperature using temperature gun. ③ You check voltage to know whether it is a PCB problem or not. ④ By checking the return time to the equilibrium pressure after measuring the pressure of the high pressure part (drier) and the low pressure part (comp processing pipe) of the sealed system, You can find sealed system is blocked or not. When there is clogging, it takes long time (15min ↑) to return to the equilibrium pressure . ⑤ By checking equilibrium pressure, it is confirmed that there is sufficient refrigerant in the sealed system. Then it can be know that cause of "Not cooling" is whether compressor fault or sealed system leak. ⑥ In case of leak of sealed system, leak test is carried out using refrigerant or nitrogen . ⑦ Check the leak of high- pressure parts (Condenser, Drier, etc.). ⑧ If there is no leak of high- pressure parts, Check the leak of low pressure parts (Evaporator, Suction pipe, etc.) ⑨ After sealed system repair, when freezer temperature is 14°F ↓ , the error code will disappear automatically . Check the leak using UV Drier (for next visit)

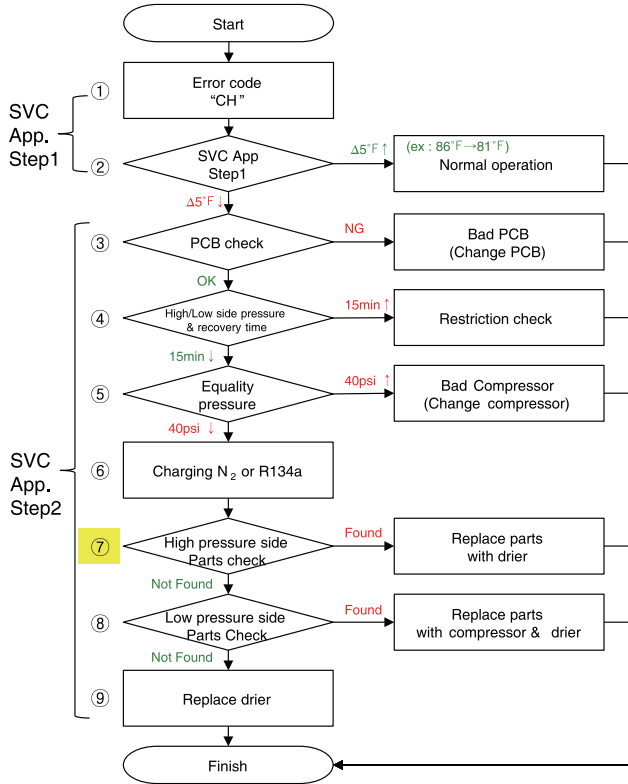
Symptom	Check Point
<p>E CL (No cooling)</p> <p>※ This logic might be detected by low side refrigerant leak, bad comp, long time door open, etc.</p>	<ol style="list-style-type: none"> ① The LG Refrigerator displays an error code on the display for sealed system problem . Through this error code(E CH or E CL), please follow svc process . ② Through Step1 using SVC App, you can know it is compressor or sealed system problem, or you can know it is normal(customer's emotional fault) . If you have no SVC App jig, please check temperature using temperature gun. ③ You check voltage to know whether it is a PCB problem or not. ③ You check voltage to know whether it is a PCB problem or not. ④ By checking the return time to the equalized pressure after measuring the pressure of the high pressure part (drier) and the low pressure part (comp processing pipe) of the sealed system, You can find sealed system is blocked or not. When there is clogging, it takes long time (15min ↑) to return to the equalized pressure . ⑤ By checking equalized pressure , it is confirmed that there is sufficient refrigerant in the sealed system. Then it can be know that cause of "Not cooling" is whether compressor fault or sealed system leak. ⑥ In case of leak of sealed system, leak test is carried out using refrigerant or nitrogen . ⑦ Check the leak of low- pressure parts (Evaporator, Suction pipe, etc.) ⑧ If there is no leak of low- pressure parts, Check the leak of high- pressure parts (Condenser, Drier, etc.). ⑨ After sealed system repair, when freezer temperature is 14°F ↓ , the error code will disappear automatically . Check the leak using UV Drier (for next visit)

- ※ Freezer temperature is 14 °F ↓ (After a day of SVC) the error code(E CH, E CL) disappears .
But, If temperature(sealed system) is normal and Error CH or CL displays continuously , please press error forced deletion button.
※ Error(CH or CL) forced deletion button(*Customer complaint rise and algorithm problem etc.)
F key + R key(3times) with the door open

Error CH, CL SVC Process

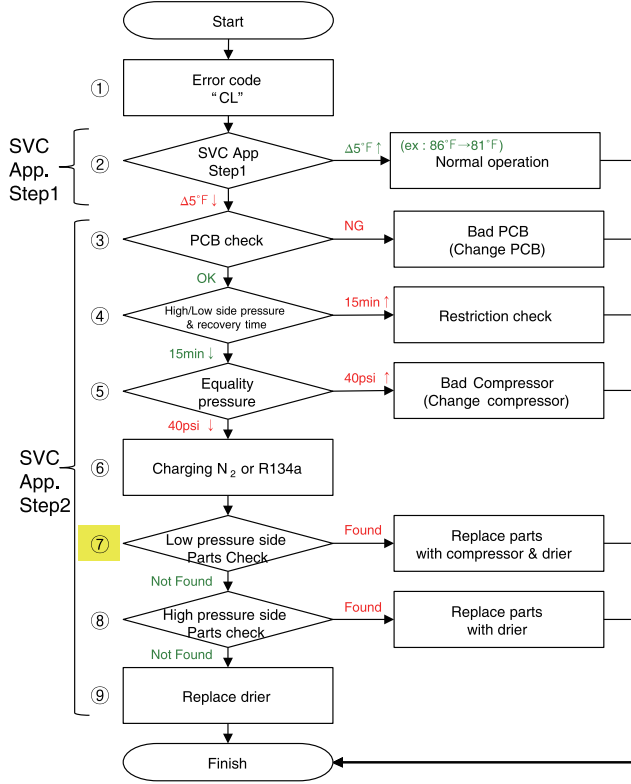
1. E CH : No Cooling

(High side refrigerant leak, Restriction, Bad comp, Bad valve, etc.)

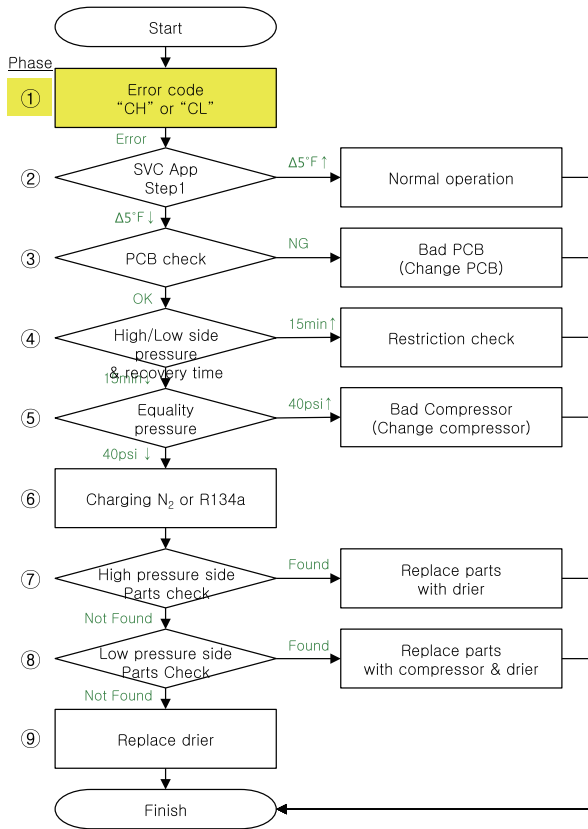


2. E CL : No Cooling

(Low side refrigerant leak, Bad comp, Long time door open, etc.)



STEP 1. Check Error Code



The LG Refrigerator displays an error code on the display for defrost or other electrical problems. Press "Ice Plus" + "Freezer Temp" button for 3 seconds continuously until the beep sounds 3 times. (these 2 buttons must be pressed within 10 minutes after plug in)

All ON Mode



No.	Category	Failure CODE Display Part	
		Freezing Setting Temperature	Refrigeration Setting Temperature
1	F-Sensor Problem	FS	E
2	RT-Sensor Problem	rt	E
3	R-Sensor Problem	rS	E
4	FD-Sensor Problem	dS	F
5	RD Sensor Problem	dS	r
6	H Sensor Problem	HS	E
7	Icing Room Sensor Problem	IS	E
8	Ice Maker Sensor Problem	IS	E
9	Flow Meter(Sensor) Problem	gF	E
10	F Defrost Defect	dH	F
11	R Defrost Defect	dH	r
12	Ice Maker Kit Error	It	E
13	F FAN Motor Problem	FF	E
14	C FAN Motor Problem	CF	E
15	R FAN Motor Problem	rF	E
16	Icing FAN Motor Problem	IF	E
17	Communication Problem	CO	E
18	WiFi Communication Problem	Od	E
19	Cycle Problem	CH	E
20	Cycle Problem	CL	E
21	Abnormal F room Ice maker Tray sensor	ID	E
22	Abnormal F room Ice kit	IU	E

STEP 2. Check sealed system



Through the SVC App Step1, we can determine whether the sealed system problem or not. The temperature measured in Step1 is the temperature from the sensor of the evaporator. The temperature of freezer or refrigerator has remained virtually unchanged for a short time. So we can determine the reason of No cool is if sealed system problem or other problem through the temperature of evaporator.

※ Freezer temperature is 14°F ↓ (After a day of SVC), the error code(E CH, E CL) disappears. But, If temperature(sealed system) is normal and the error displays continuously, please press error forced deletion button.

※Error(CH or CL) forced deletion button

F key + R key(3times) with the door open

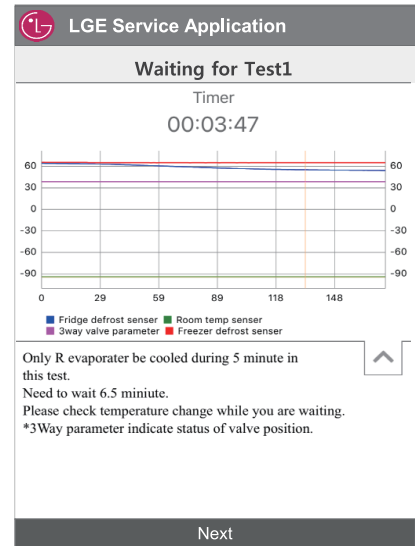
The Wi-Fi Module



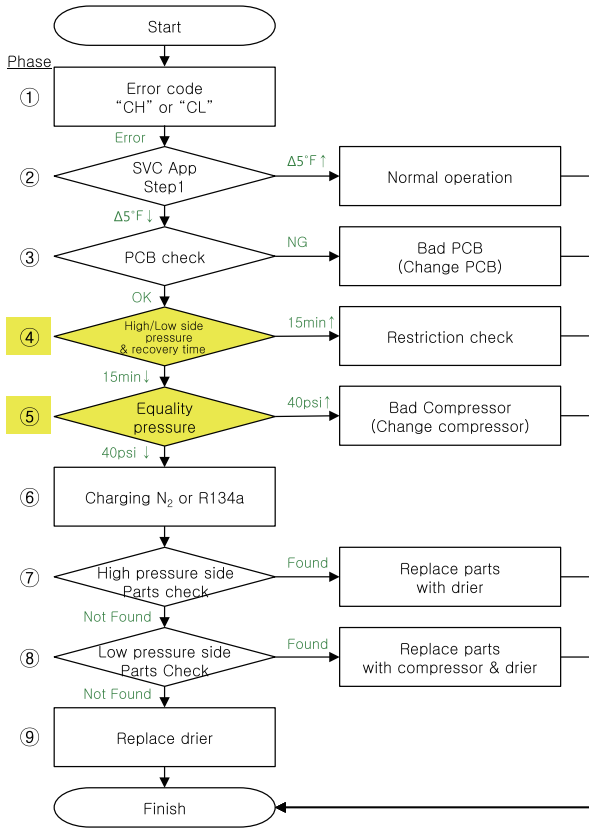
SVC App. check temp. of eva.



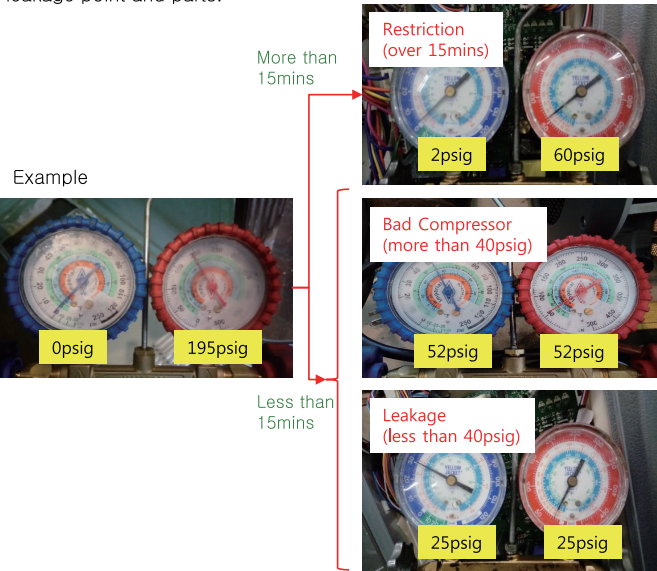
SVC App.



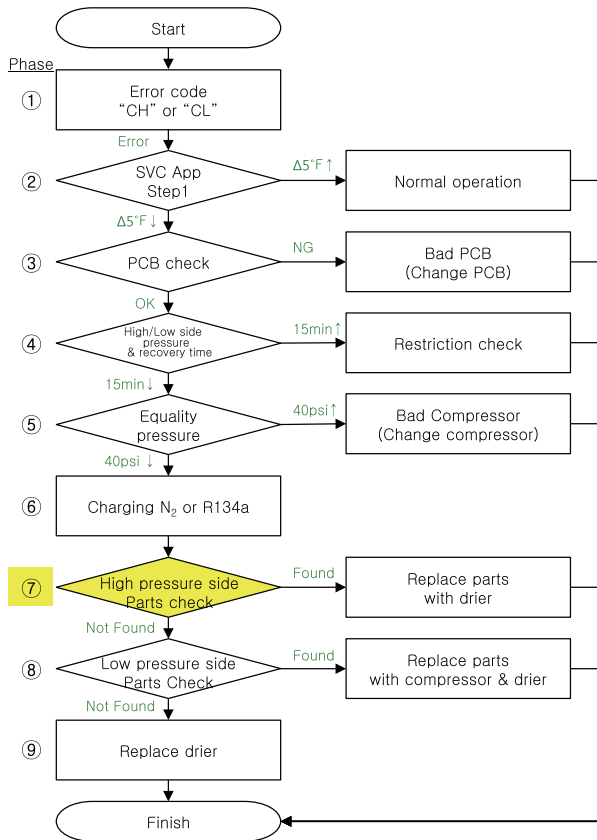
STEP 3. Check restriction or comp



Through phase 4 and 5, we can see major defects in the sealed system. In phase 4, we can see whether the sealed system is blocked or not. In phase 5, we can see whether it is bad Compressor or leakage problem. If the time for equilibrium between high pressure side and low pressure side after power off in phase 4 is more than 15 minutes, we judge it is a blockage. Normally, it take time within about 5 minutes. If the equilibrium pressure is more than 40psi in phase 5, it is determined that the refrigerant is normally charged and the compressor is defective. However, if the equilibrium pressure is 40psi or less, it is judged that the refrigerant is leaked and we have to move the process of finding the leakage point and parts.



STEP 4. Check high pressure side parts



E CH : Check Phase 7. If high pressure side is no problem, please check Phase 8.

E CL : Check Phase 8. If low pressure side is no problem, please check Phase 7.

If the equilibrium pressure is less than 40psi in phase5, it should be determined that the refrigerant is leaked and we have to find leakage point and parts.

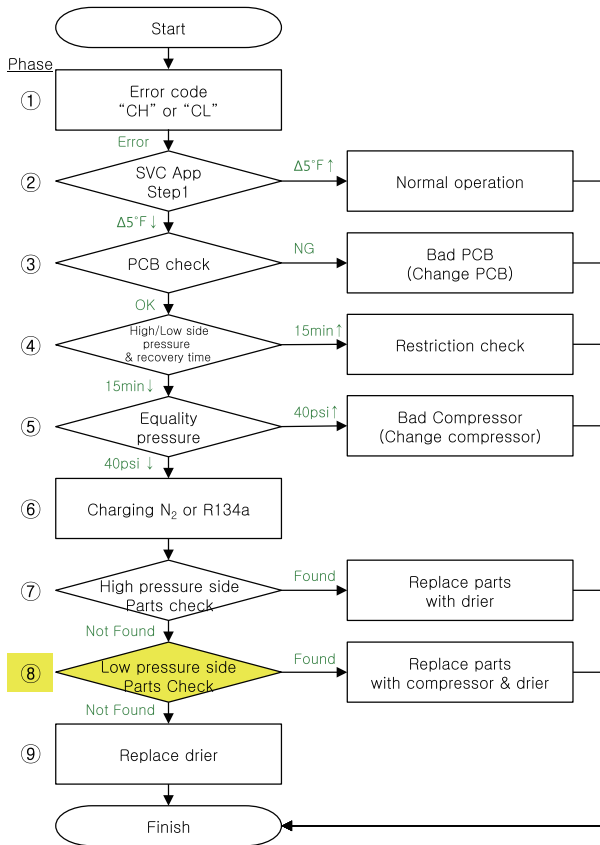
First of all, check from the high pressure part which is easy to find the leakage part. Through bubble or refrigerant leak detector, we can check compressor discharge pipe, drier and condenser .

If you see a leak, replace the part and drier. After repairing all sealed systems, replace drier.

Because the moisture of air can lead to carbonization of compressor oil and corrosion of sealed system components.



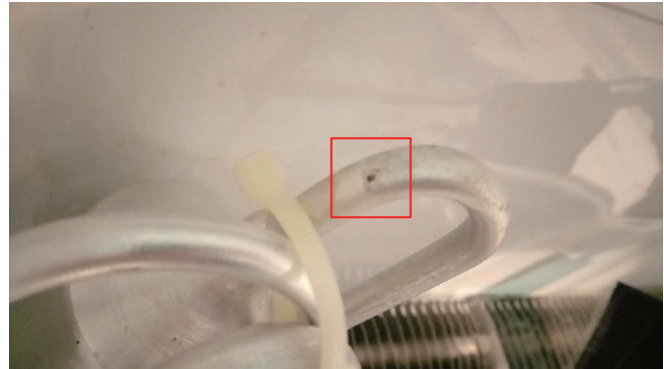
STEP 5. Check low pressure side parts



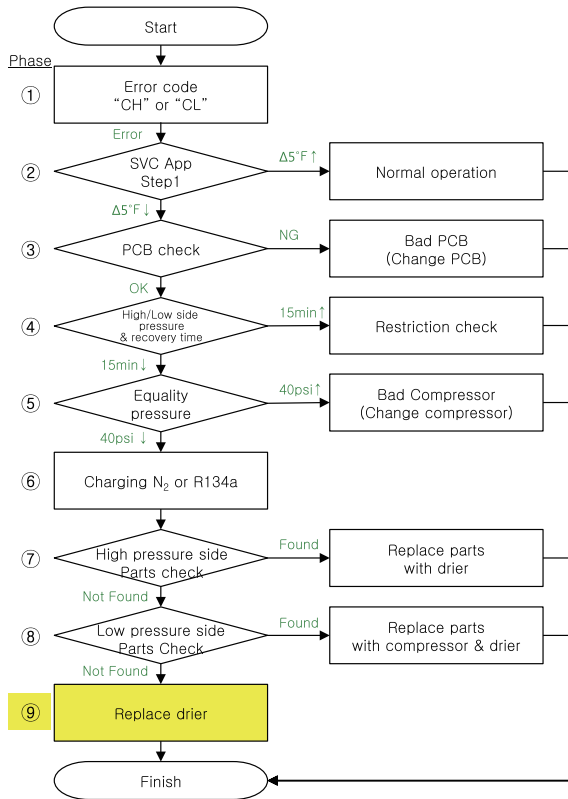
E CH : Check Phase 7. If high pressure side is no problem, please check Phase 8.

E CL : Check Phase 8. If low pressure side is no problem, please check Phase 7.

If leakage is not found during the high pressure side leak test in phase7, the low pressure side leakage should be inspected. Use the bubble and refrigerant leak detector in the same way as the high-pressure leak test, and look for the leakage point. Because the low pressure side is lower than the atmospheric pressure at the time of leakage, it is very likely that the moisture in the air has entered. Therefore, if you find leakage in the low pressure side parts, replace both the drier and compressor, too.



STEP 6. Check the leak using UV Driver



The SVC drier contains UV fluorescent material. So it is called UV drier and also called Dye drier.

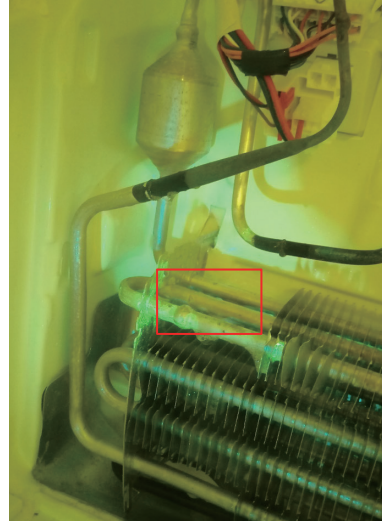
The refrigerant leakage is certain but we can not find the refrigerant leakage part, there is a way to check the leakage parts at the next SVC after using the UV drier.

Fluorescent materials melt in the compressor oil and refrigerant. It travel around the sealed system and leak out when the compressor oil and refrigerant leaks out.

Through UV light and UV goggles, you can see the leaked parts

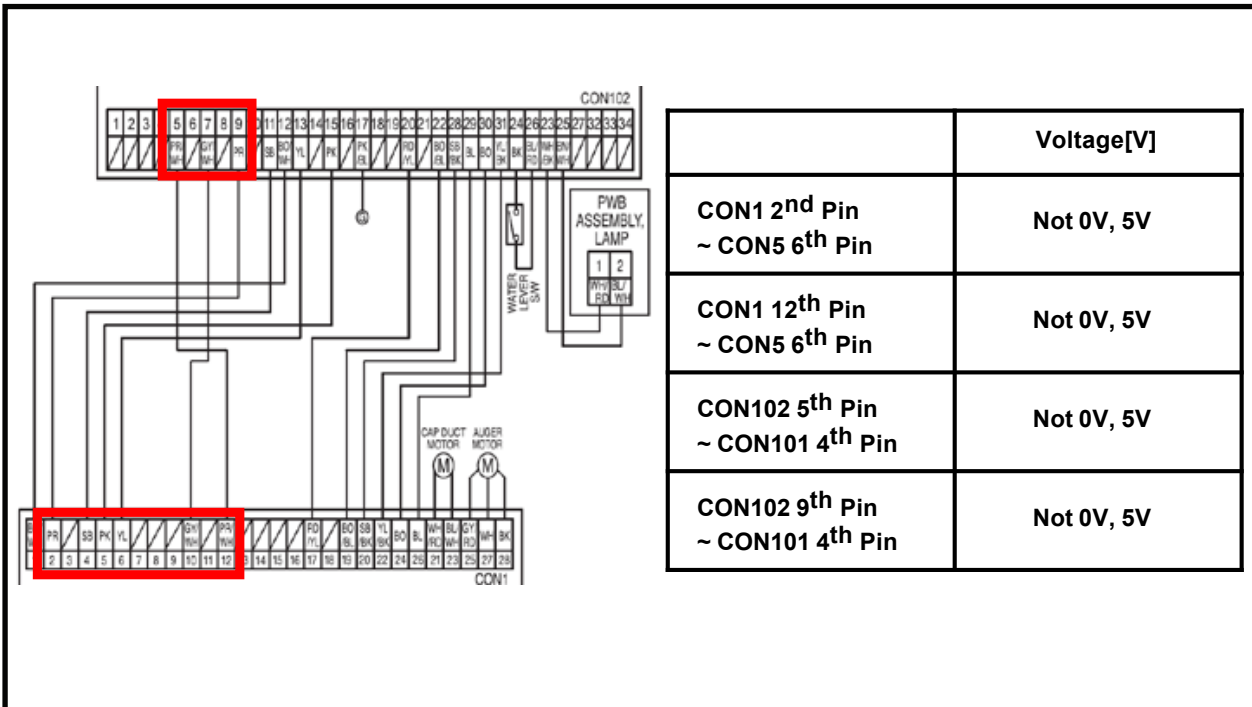
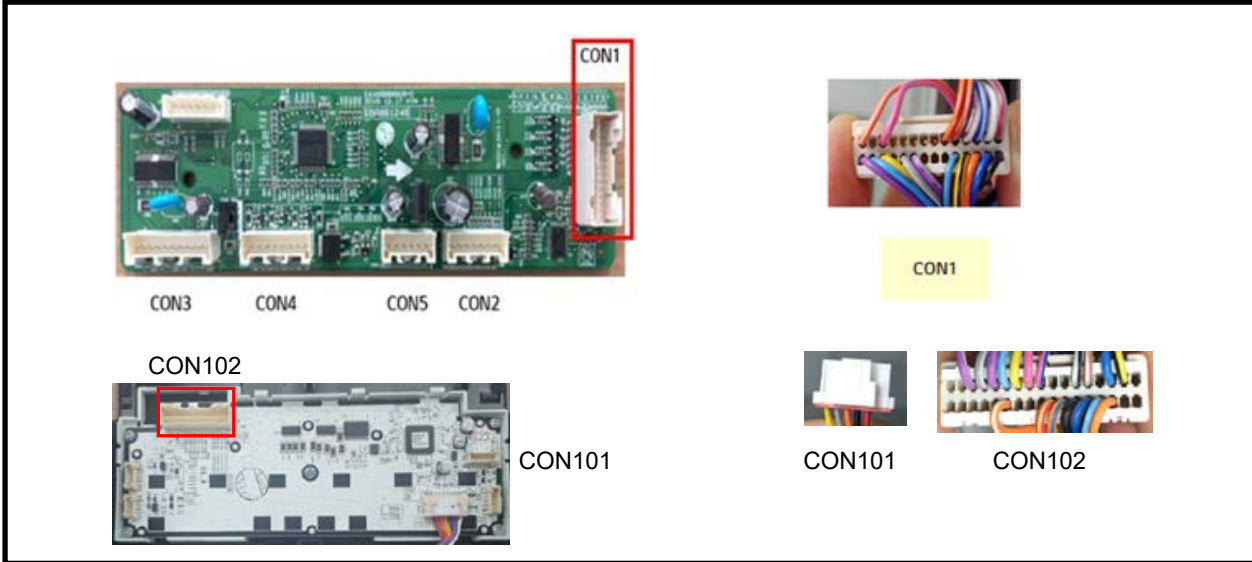
※ After sealed system repair.

When freezer temperature is 14°F ↓ (after a day), the error code will disappear.



8-23. Display PCB ↔ Sub PCB Communication Error (E Sd)

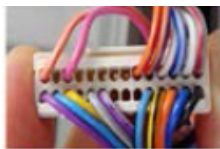
Symptom	Check Point
1. E Sd	1. Check the loose connection



**Display PCB ↔ Sub PCB
Communication Error (E Sd)**

1
Check the loose connection

2
Check the voltage
Is CON1 2nd Pin ~ CON5 6th Pin
Voltage 0V or 5V?




CON1

	Voltage [V]
CON1 2 nd Pin ~ CON5 6 th Pin	Not 0V, 5V

YES → Check the Sub PCB (loose Connection) Change the Sub PCB

NO →

3
Check the voltage
Is CON1 2nd Pin ~ CON5 6th Pin
Voltage 0V or 5V?




CON1

	Voltage [V]
CON1 12 th Pin ~ CON5 6 th Pin	Not 0V, 5V


Yes → Check the Sub PCB (loose Connection) Change the Sub PCB

No →

4
Check the voltage
Is CON102 5th Pin~CON101 4th Pin
Voltage 0V or 5V?



CON102



CON101


	Voltage [V]
CON102 5 th pin ~ CON101 4 th pin	Not 0V, 5V

YES → Check the Display PCB (loose Connection) Change the Display PCB


NO →

5
Check the voltage
Is CON102 9th Pin~CON101 4th Pin
Voltage 0V or 5V?

Yes → Check the Display PCB (loose Connection) Change the Display PCB



CON102



CON101

	Voltage [V]
CON102 9 th pin ~ CON101 4 th pin	Not 0V, 5V

No →

6
Explain to customer

9. Reference

9. TEST MODE and Removing TPA

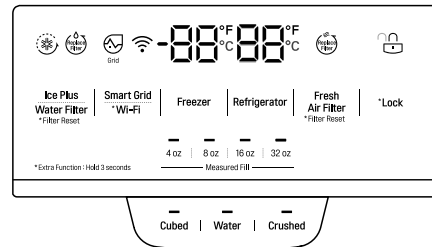
1. How to make TEST MODE

If you push the test button on the Main PCB, the refrigerator will enter the TEST MODE.

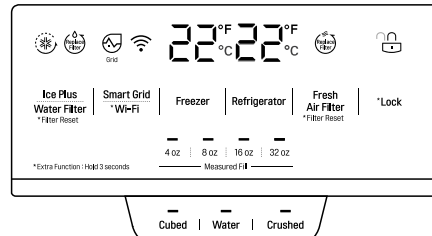


Main PCB

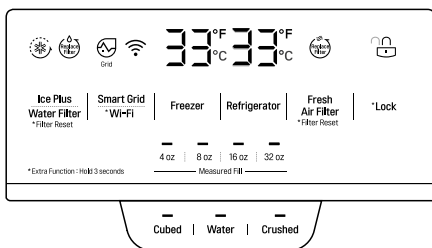
*** 1 time : Comp / Damper / All FAN on
(All things displayed)**



*** 2 times : Damper closed
(22 22 displayed)**

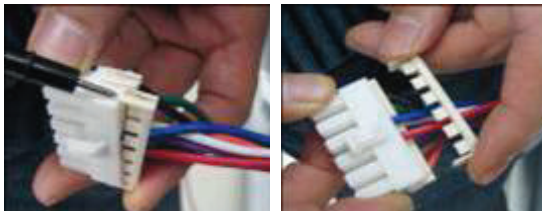


*** 3 times : Forced defrost mode
(33 33 displayed)**

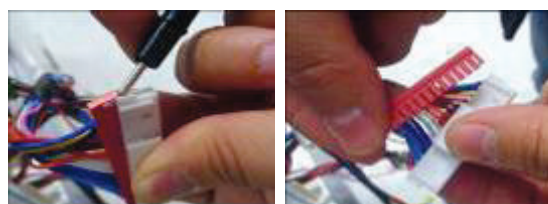


2. How to remove Terminal Position Assurance (TPA)

<AC TPA>



<DC TPA>



After measure the values, you should put in the TPA again.

9-2 TEMPERATRUE CHART - FREEZER AND ICING SENSOR

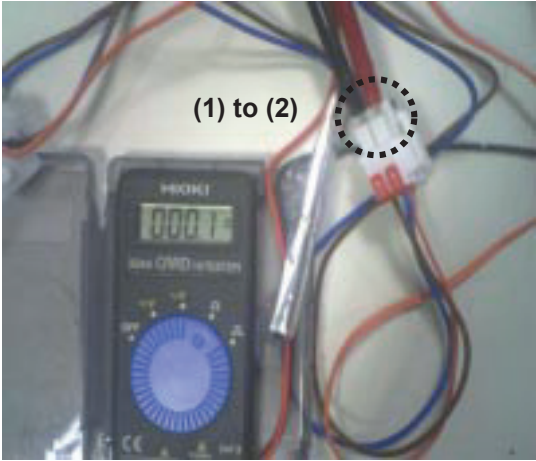
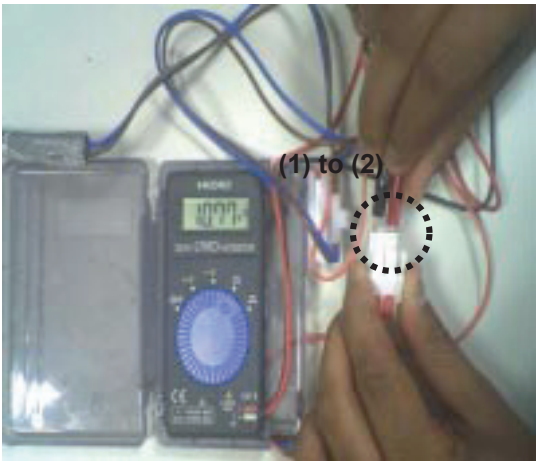
TEMP	RESISTANCE	VOLTAGE
-39°F (-40°C)	73.29 kΩ	4.09 V
-30°F (-35°C)	53.63 kΩ	3.84 V
-30°F (-21°C)	39.66 kΩ	3.55 V
-13°F (-25°C)	29.62 kΩ	3.23 V
-4°F (-20°C)	22.33 kΩ	2.89 V
5°F (-15°C)	16.99 kΩ	2.56 V
14°F (-10°C)	13.05 kΩ	2.23 V
23°F (-5°C)	10.10 kΩ	1.92 V
32°F (0°C)	7.88 kΩ	1.63 V
41°F (+5°C)	6.19 kΩ	1.38 V
50°F (+10°C)	4.91 kΩ	1.16 V
59°F (+15°C)	3.91 kΩ	0.97 V
68°F (+20°C)	3.14 kΩ	0.81 V
77°F (+25°C)	2.54 kΩ	0.67 V
86°F (+30°C)	2.07 kΩ	0.56 V
95°F (+35°C)	1.69 kΩ	0.47 V
104°F (+40°C)	1.39 kΩ	0.39 V

9-3 TEMPERATRUE CHART - REFRIGERATOR AND DEFROST SENSOR


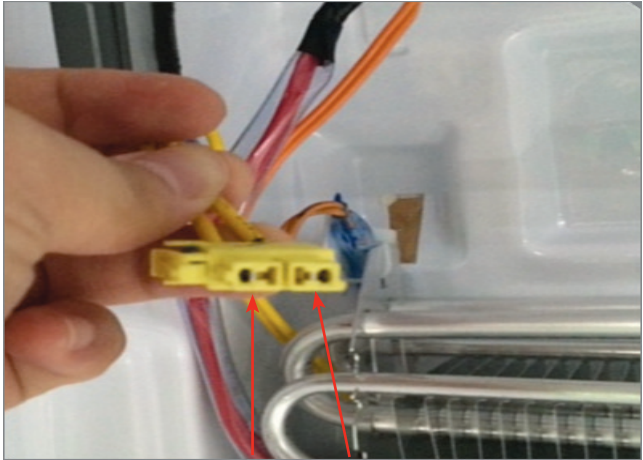
TEMP	RESISTANCE	VOLTAGE
-39°F (-40°C)	225.1 kΩ	4.48 V
-30°F (-35°C)	169.8 kΩ	4.33 V
-30°F (-21°C)	129.3 kΩ	4.16 V
-13°F (-25°C)	99.30 kΩ	3.95 V
-4°F (-20°C)	76.96 kΩ	3.734 V
5°F (-15°C)	60.13 kΩ	3.487 V
14°F (-10°C)	47.34 kΩ	3.22 V
23°F (-5°C)	37.55 kΩ	2.95 V
32°F (0°C)	30 kΩ	2.67 V
41°F (+5°C)	24.13 kΩ	2.40 V
50°F (+10°C)	19.53 kΩ	2.14 V
59°F (+15°C)	15.91 kΩ	1.89 V
68°F (+20°C)	13.03 kΩ	1.64 V
77°F (+25°C)	10.74 kΩ	1.45 V
86°F (+30°C)	8.89 kΩ	1.27 V
95°F (+35°C)	7.40 kΩ	1.10 V
104°F (+40°C)	6.20 kΩ	0.96 V

10. COMPONENT TESTING INFORMATION


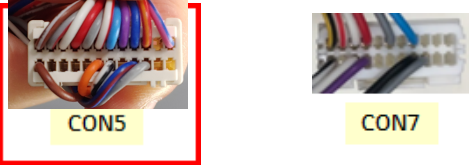

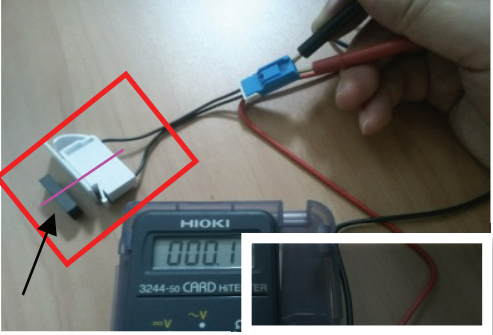
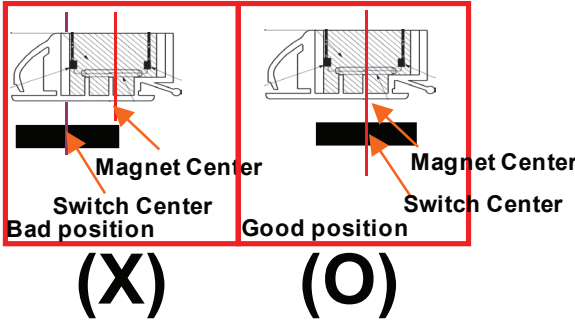
10-1 Defrost Controller Assembly


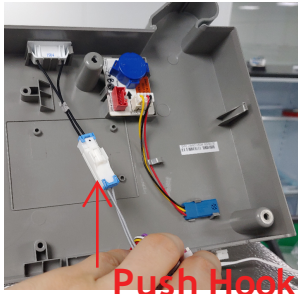
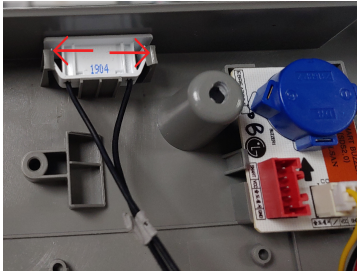
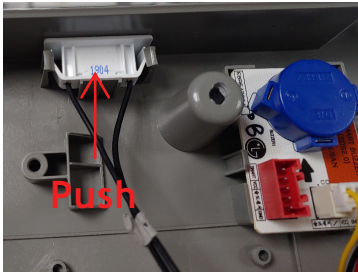
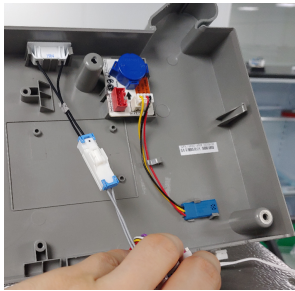

<p>Function</p>	<p>The controller assembly is made up of two different kinds of parts. The fuse and the sensor. To determine if these parts are defective, check for resistance. The fuse will cut power to the defrost heater at very high temperatures.</p>									
<p>How to Measure (Fuse-M)</p>		<p>Set a ohmmeter to the 2 housing pin. Measure the 2 pin connected to Fuse-M. If the ohmmeter indicate below 0.1ohm fuse-m is a good condition, But if infinite the part is bad.</p>								
<p>How to Measure (Sensor)</p>		<p>Set a ohmmeter to The 2housing pin. Measure the 2 pin connected to Sensor. If the ohmmeter indicate 11kΩ (at room temperature) Sensor is good. When check the ohm at other temperatures Check the sensor manual.</p>								
<p>Standard</p>	<p style="text-align: center;">Fuse-M (at all temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Ressult</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>0 ~ 0.1 Ω</td> </tr> </tbody> </table>	Test Point	Ressult	(1) to (2)	0 ~ 0.1 Ω	<p style="text-align: center;">Sensor (at room temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Ressult</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>11 Ω</td> </tr> </tbody> </table>	Test Point	Ressult	(1) to (2)	11 Ω
Test Point	Ressult									
(1) to (2)	0 ~ 0.1 Ω									
Test Point	Ressult									
(1) to (2)	11 Ω									

10-2 Sheath Heater (Freezer Room)

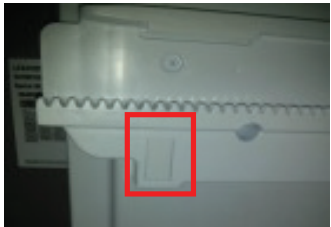
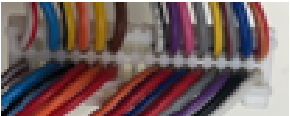

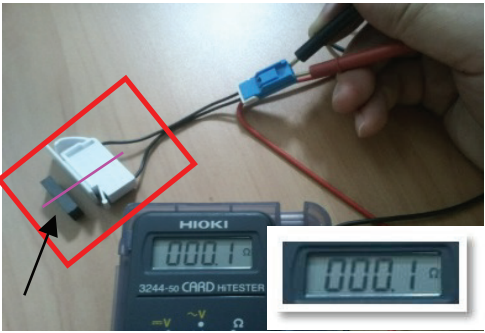
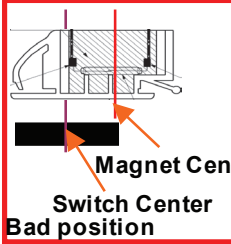
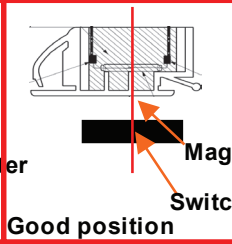
<p>Function</p>	<p>Sheath heater is the part for defrost. All heating wire is connected to only one line. So we can decide part is defective or not when we check the resistance.</p>				
<p>How to Measure</p>	<div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">(1) (2)</p> <p>Set a ohmmeter connect to The housing pins. Measure the pins connected to Sheath Heater. If the ohmmeter indicates $(V \times V) / P = R$ (V=voltage, P=watt, R=Resistance) is on a good condition, ex) watt=200W, voltage=115V $R = (115 \times 115) / 200 = 66 \Omega$ Infinitive value implies sheath heater is disconnected.</p>				
<p>Standard</p>	<p>Sheath heater (at all temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>62 ~ 70</td> </tr> </tbody> </table>	Test Point	Result	(1) to (2)	62 ~ 70
Test Point	Result				
(1) to (2)	62 ~ 70				









10-3 Door Switch
10-3-1 Door Switch,R

No.	Checking Flow	Result & SVC Action																		
1	<p>▶ Check Reed Switch</p> 	<p>The Switch senses if the door is open or close. .When the door open, lamp On .When the door Close, lamp Off</p> <p>※ close Door and check the lamp Through the gap</p>																		
2	<p>▶ Check Voltage Between CON5 19th pin and CON7 12th pin</p> 	<table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>In case of Door Close</td> <td>1V ↑</td> <td>1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> <tr> <td>In case of Door Open</td> <td>0V</td> <td>1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> </tbody> </table>	Status	Result	SVC Action	In case of Door Close	1V ↑	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB	In case of Door Open	0V	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB									
Status	Result	SVC Action																		
In case of Door Close	1V ↑	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB																		
In case of Door Open	0V	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB																		
3	<p>▶ Check the Reed S/W resistance</p> <p>-No Magnet</p>  <p>-Magnet Near the Switch</p> 	<p>-Magnet must be center of Switch</p>  <p>-Resistance & Service Action</p> <table border="1"> <thead> <tr> <th>Status</th> <th>Resistance</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">No magnet near the Switch</td> <td>$\infty \Omega$</td> <td>O.K.</td> <td>Go to 2</td> </tr> <tr> <td>$10 \Omega \downarrow$</td> <td>N.G.</td> <td>Go to 4</td> </tr> <tr> <td rowspan="2">Magnet is near the Switch</td> <td>$1 \Omega \downarrow$</td> <td>O.K.</td> <td>Go to 2</td> </tr> <tr> <td>$10 \Omega \uparrow$</td> <td>N.G.</td> <td>Go to 4</td> </tr> </tbody> </table>	Status	Resistance	Result	SVC Action	No magnet near the Switch	$\infty \Omega$	O.K.	Go to 2	$10 \Omega \downarrow$	N.G.	Go to 4	Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2	$10 \Omega \uparrow$	N.G.	Go to 4
Status	Resistance	Result	SVC Action																	
No magnet near the Switch	$\infty \Omega$	O.K.	Go to 2																	
	$10 \Omega \downarrow$	N.G.	Go to 4																	
Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2																	
	$10 \Omega \uparrow$	N.G.	Go to 4																	


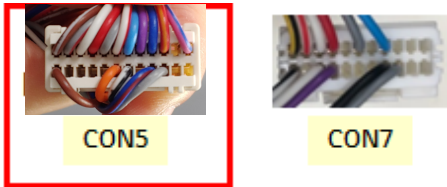
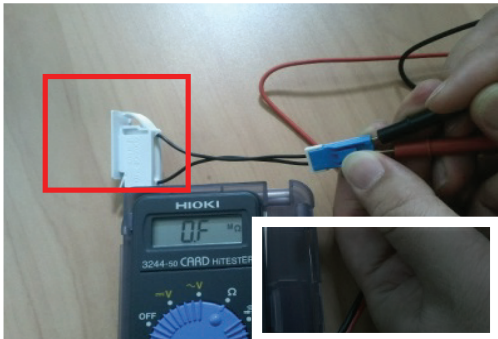
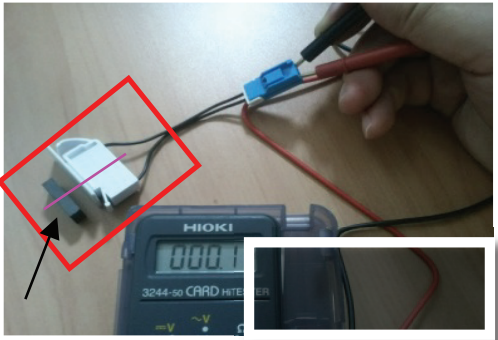
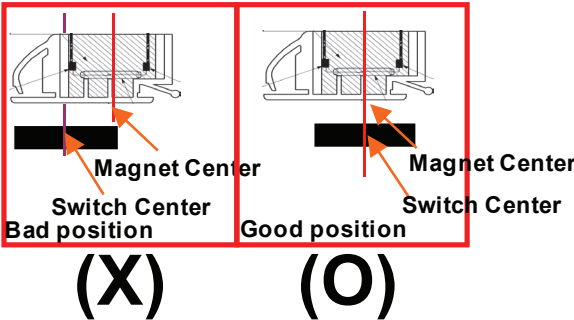
No.	Checking Flow	Result & SVC Action
4	<p>► Change Reed S/W -. Remove screw</p>	
	<p>-. Disassemble Housing</p>	<p>Push Hook</p>  
	<p>-. Check Resistance of Reed S/W. if it is NG, change it(Number3)</p>	
	<p>-. Assemble Reed S/W to hinge cover and Assemble Reed S/W Housing</p>	 
	<p>-. Assemble Screw to hinge cover</p>	



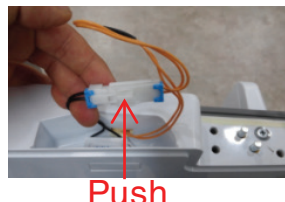
10-3-2 Door Switch,F

No.	Checking Flow	Result & SVC Action																		
1	<p>▶ Check the Freezer door switch</p> 	<p>The Switch senses if the door is open or close. .When the door open, lamp On .When the door Close, lamp Off</p> <p>※ close Door and check the lamp Through the gap</p>																		
2	<p>▶ Check Voltage Between CON3 30th pin and 29th pin</p>  <p style="text-align: center; background-color: yellow;">CON3</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>In case of Door Close</td> <td>1V ↑</td> <td>1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> <tr> <td>In case of Door Open</td> <td>0V</td> <td>1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> </tbody> </table>	Status	Result	SVC Action	In case of Door Close	1V ↑	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB	In case of Door Open	0V	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB									
Status	Result	SVC Action																		
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3	<p>▶ Check the Reed S/W resistance</p> <p>-No Magnet</p>  <p>-Magnet Near the Switch</p> 	<p>-Magnet must be center of Switch</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>(X)</p> </div> <div style="text-align: center;">  <p>(O)</p> </div> </div> <p>-Resistance & Service Action</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Status</th> <th>Resistance</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">No magnet near the Switch</td> <td>$\infty \Omega$</td> <td>O.K.</td> <td>Go to 2</td> </tr> <tr> <td>$10 \Omega \downarrow$</td> <td>N.G.</td> <td>Go to 4</td> </tr> <tr> <td rowspan="2">Magnet is near the Switch</td> <td>$1 \Omega \downarrow$</td> <td>O.K.</td> <td>Go to 2</td> </tr> <tr> <td>$10 \Omega \uparrow$</td> <td>N.G.</td> <td>Go to 4</td> </tr> </tbody> </table>	Status	Resistance	Result	SVC Action	No magnet near the Switch	$\infty \Omega$	O.K.	Go to 2	$10 \Omega \downarrow$	N.G.	Go to 4	Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2	$10 \Omega \uparrow$	N.G.	Go to 4
Status	Resistance	Result	SVC Action																	
No magnet near the Switch	$\infty \Omega$	O.K.	Go to 2																	
	$10 \Omega \downarrow$	N.G.	Go to 4																	
Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2																	
	$10 \Omega \uparrow$	N.G.	Go to 4																	

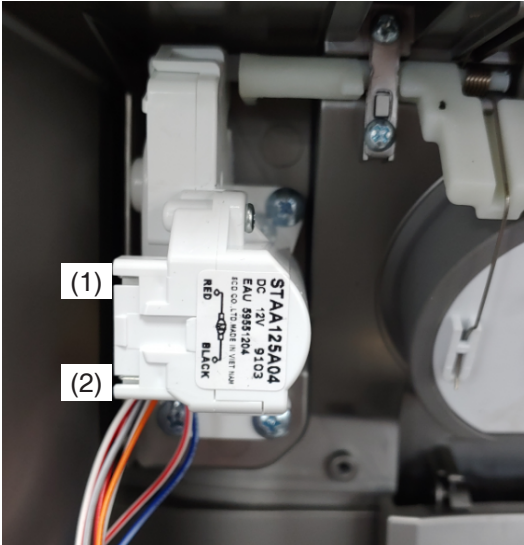
No.	Checking Flow	Result & SVC Action
4	<p>► Change Reed S/W -. Remove 3 screw and divide housing</p>	
		
	<p>-. Divide Reed S/W</p>  <p style="text-align: center; color: red;">Push</p>	
	<p>-. Push the part of hook and divide Reed S/W -. Check the Reed S/W resistance and if it is NG. Change it (Number 3)</p>	
	<p>-. Push the Reed S/W to direction of the arrow</p>	
	 <p style="text-align: center; color: red;">First push</p>  <p style="text-align: center; color: red;">Second push</p>	
<p>-. Assemble 3 Screw after Assemble Reed Switch housing</p>		
		

10-3-3 H/Bar Door Switch



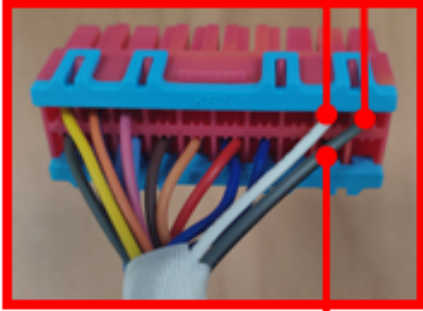
No.	Checking Flow	Result & SVC Action																		
1	<p>▶ Check Reed Switch</p> 	<p>The Switch senses if the door is open or close. .When the door open, lamp On .When the door Close, lamp Off</p> <p>※ Close Door and check the lamp through the gap</p>																		
2	<p>▶ Check Voltage Between CON5 19th pin and CON7 12th pin</p> 	<table border="1"> <tr> <td data-bbox="808 715 987 783">In case of Door Close</td> <td data-bbox="987 715 1073 783">1V ↑</td> <td data-bbox="1073 715 1365 783">1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> <tr> <td data-bbox="808 783 987 851">In case of Door Open</td> <td data-bbox="987 783 1073 851">0V</td> <td data-bbox="1073 783 1365 851">1. Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB</td> </tr> </table>	In case of Door Close	1V ↑	1.Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB	In case of Door Open	0V	1. Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB												
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In case of Door Open	0V	1. Check Reed S/W 2.Check Harness disconnection 3.If No.1,2 ok ,change PCB																		
3	<p>▶ Check the Reed S/W resistance</p> <p>-No Magnet</p>  <p>-Magnet Near the Switch</p> 	<p>-Magnet must be center of Switch</p>  <p>-Resistance & Service Action</p> <table border="1"> <thead> <tr> <th data-bbox="846 1432 1008 1474">Status</th> <th data-bbox="1008 1432 1138 1474">Resistance</th> <th data-bbox="1138 1432 1219 1474">Result</th> <th data-bbox="1219 1432 1357 1474">SVC Action</th> </tr> </thead> <tbody> <tr> <td data-bbox="846 1474 1008 1570" rowspan="2">No magnet near the Switch</td> <td data-bbox="1008 1474 1138 1517">$\infty \Omega$</td> <td data-bbox="1138 1474 1219 1517">O.K.</td> <td data-bbox="1219 1474 1357 1517">Go to 2</td> </tr> <tr> <td data-bbox="1008 1517 1138 1570">$10 \Omega \downarrow$</td> <td data-bbox="1138 1517 1219 1570">N.G.</td> <td data-bbox="1219 1517 1357 1570">Go to 4</td> </tr> <tr> <td data-bbox="846 1570 1008 1666" rowspan="2">Magnet is near the Switch</td> <td data-bbox="1008 1570 1138 1613">$1 \Omega \downarrow$</td> <td data-bbox="1138 1570 1219 1613">O.K.</td> <td data-bbox="1219 1570 1357 1613">Go to 2</td> </tr> <tr> <td data-bbox="1008 1613 1138 1666">$10 \Omega \uparrow$</td> <td data-bbox="1138 1613 1219 1666">N.G.</td> <td data-bbox="1219 1613 1357 1666">Go to 4</td> </tr> </tbody> </table>	Status	Resistance	Result	SVC Action	No magnet near the Switch	$\infty \Omega$	O.K.	Go to 2	$10 \Omega \downarrow$	N.G.	Go to 4	Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2	$10 \Omega \uparrow$	N.G.	Go to 4
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Magnet is near the Switch	$1 \Omega \downarrow$	O.K.	Go to 2																	
	$10 \Omega \uparrow$	N.G.	Go to 4																	

No.	hecking C	Flow ▶	Result & SVC Action
4	<p>Change Reed S/W</p>		
	<p>- . Remove screw(7EA and Cover Hinge Screw 3EA)</p>		
			
	<p>- . Disassemble R/L Door</p>		
			
	<p>- . Remove screw(1EA)</p>		
			
<p>- . Disassemble Cap Deco</p>			
			
<p>- . Push Hook and Disassemble Housing</p>			
			
<p>- . Check the Reed S/W resistance and if it is NG, Change it (Number 3)</p>			
<p>- . Assemble in reverse order how to disassemble</p>			

10-4 Dispenser DC Motor

Function	- Dispenser DC Motor : When customer push the dispenser button, Pull duct door						
How to Measure	<div style="text-align: center;">  <p>Dispenser DC Motor</p> </div>						
Standard	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">Dispenser DC Motor</th> </tr> <tr> <th style="text-align: center;">Test Points</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">(1) to (2)</td> <td style="text-align: center;">9.9 ~ 12.1Ω</td> </tr> </tbody> </table>	Dispenser DC Motor		Test Points	Result	(1) to (2)	9.9 ~ 12.1Ω
Dispenser DC Motor							
Test Points	Result						
(1) to (2)	9.9 ~ 12.1Ω						

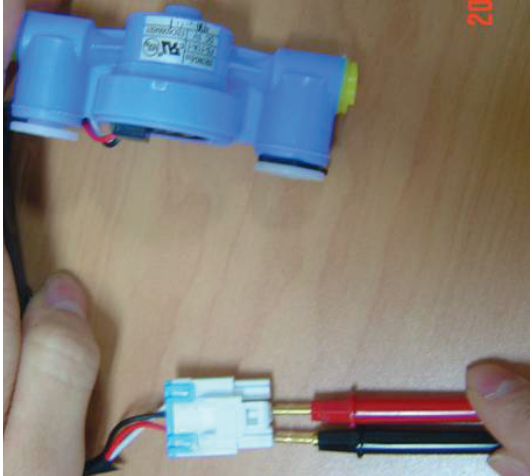

10-5 Dispenser Assembly Ice (Twisting Lever & BLDC Motor)

<p>Function</p>	<p>The motor in the door pushed the ice into the dispenser.</p>				
<p>How to Measure</p>	<div style="display: flex; justify-content: space-around; align-items: center;">   <div style="text-align: center;">  <p>Pin No. ⑪ Color : Grey</p> <p>Pin No. ⑫ Color : White</p> <p>Pin No. ② Color : Black</p> </div> </div>				
<p>Standard</p>	<p style="text-align: center;">Geared Motor (BLDC Type)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>2rh pin, 11th pin 2st pin, 12th pin 11th pin, 12th pin</td> <td style="text-align: center;">2.37 ~ 2.73 Ω</td> </tr> </tbody> </table>	Test Points	Result	2rh pin, 11th pin 2st pin, 12th pin 11th pin, 12th pin	2.37 ~ 2.73 Ω
Test Points	Result				
2rh pin, 11th pin 2st pin, 12th pin 11th pin, 12th pin	2.37 ~ 2.73 Ω				

10-6 Damper

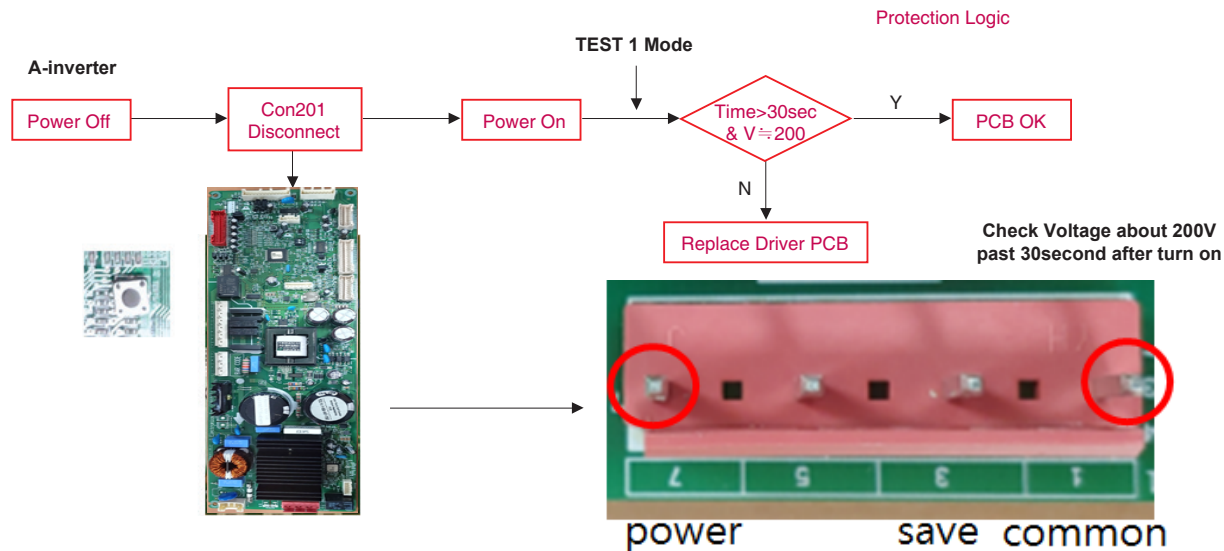
Function	<p>The damper supplies cold air from the freezer to the chill room using the damper plate. The chill room is colder when the damper plate is open. When the damper is closed the chill rooms temperature will rise.</p>																													
How to Measure	<div style="display: flex; justify-content: space-around;"> <div data-bbox="446 485 771 521"> <p>Table(1): 결선도(Wiring)</p> </div> <div data-bbox="857 491 1274 527"> <p>Table(2): 2-2상 여자순서(CW Rotation)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div data-bbox="435 570 771 840"> </div> <div data-bbox="857 527 1339 791"> <table border="1"> <thead> <tr> <th rowspan="2">Housing No. & L/Wire Color</th> <th colspan="4">Step</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>1- Blue (A)</td> <td>+</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>2- Red (B)</td> <td>+</td> <td>+</td> <td>-</td> <td>-</td> </tr> <tr> <td>3- White (A)</td> <td>-</td> <td>+</td> <td>+</td> <td>-</td> </tr> <tr> <td>4- Yellow (B)</td> <td>-</td> <td>-</td> <td>+</td> <td>+</td> </tr> </tbody> </table> </div> </div> <p style="text-align: center; margin-top: 10px;">< Damper Circuit ></p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="342 925 792 1251"> <p>Check the ②, ④</p> </div> <div data-bbox="1015 925 1393 1251"> <p>Check the ①, ③</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="342 1266 738 1585"> <p>Check the ①, ③</p> </div> <div data-bbox="1003 1272 1339 1685"> <p>Check the ①, ③</p> </div> </div> <p style="margin-top: 20px;">Check to see if there is electrical current, if there is resistance the damper is good.</p>	Housing No. & L/Wire Color	Step				1	2	3	4	1- Blue (A)	+	-	-	+	2- Red (B)	+	+	-	-	3- White (A)	-	+	+	-	4- Yellow (B)	-	-	+	+
Housing No. & L/Wire Color	Step																													
	1	2	3	4																										
1- Blue (A)	+	-	-	+																										
2- Red (B)	+	+	-	-																										
3- White (A)	-	+	+	-																										
4- Yellow (B)	-	-	+	+																										
Standard	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">Damper</th> <th colspan="2"></th> </tr> <tr> <th style="width: 25%;">Test Points</th> <th style="width: 25%;">Result</th> <th style="width: 25%;">Test Points</th> <th style="width: 25%;">Result</th> </tr> </thead> <tbody> <tr> <td>Red and Yellow</td> <td>270~330Ω</td> <td>Blue and White</td> <td>270~330Ω</td> </tr> </tbody> </table>	Damper				Test Points	Result	Test Points	Result	Red and Yellow	270~330Ω	Blue and White	270~330Ω																	
Damper																														
Test Points	Result	Test Points	Result																											
Red and Yellow	270~330Ω	Blue and White	270~330Ω																											

10-7 Flow Sensor

Function	Flow Sensor (in machine room) Count the water quantity from city water to water filter in refrigerator					
How to Measure	<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">Flow Sensor (in machine room)</p>					
Standard	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Red wire to Black wire</td> <td>4 ~ 30 kΩ</td> </tr> </tbody> </table>		Test Points	Result	Red wire to Black wire	4 ~ 30 kΩ
Test Points	Result					
Red wire to Black wire	4 ~ 30 kΩ					

11. Compressor Troubleshooting

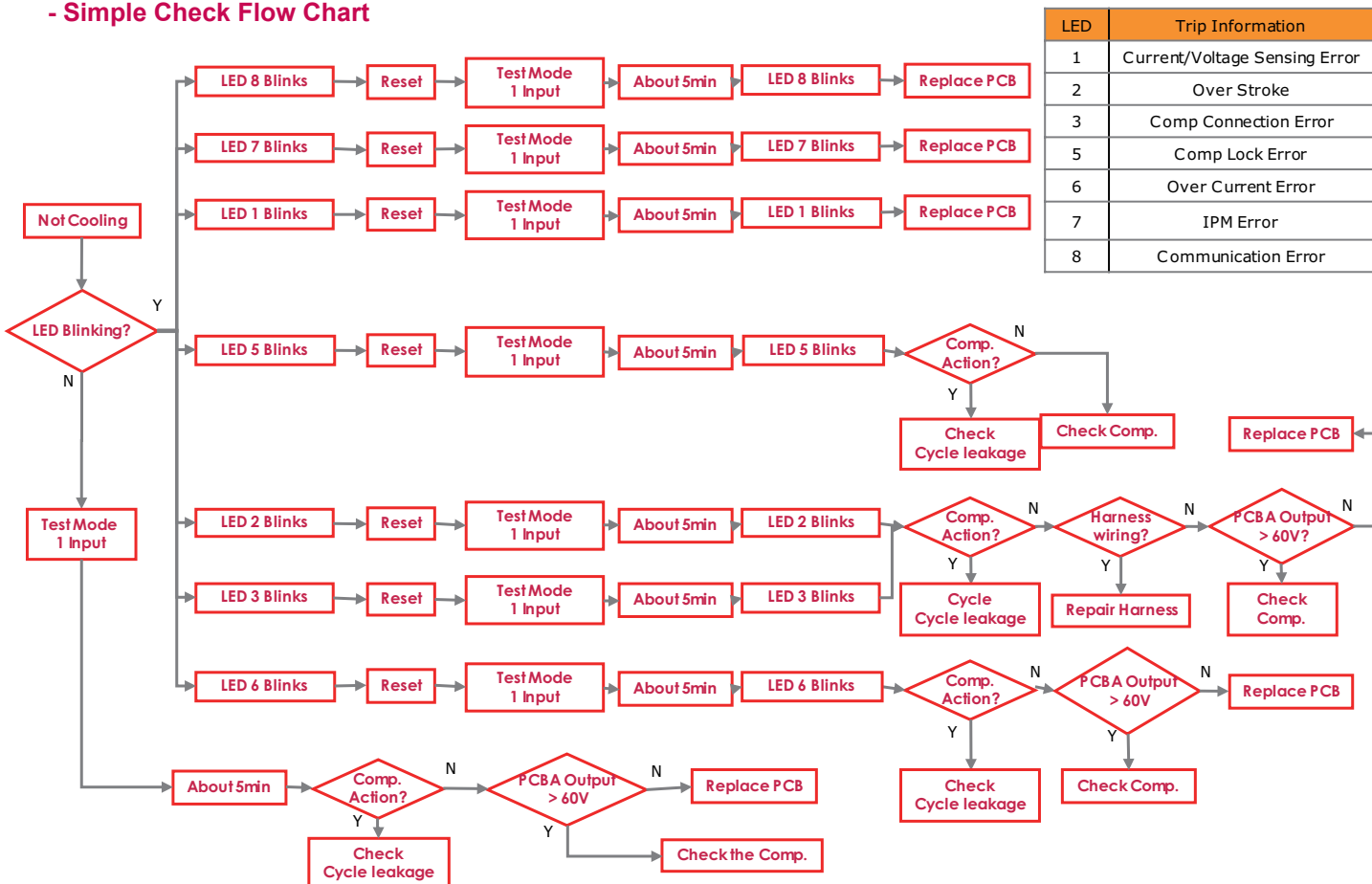
PCB Check (Simplify)



Test Mode

	Ref.	Comp	Display & sound	Refer
		FLD165NBMA		
TEST1	Forced Starting	TDC (Full Stroke)	Display ON, Buzz 1 time	

- Simple Check Flow Chart



11-1 Check A

- There is PC Board located in the PCB case.
The control driver is PC board for the compressor.
- This step shows the source voltage of the driver PC board.

Step1. Open PCB Cover



Remove 3 Screw
and cover hinge



Push side to open PCBA Cover
(Remove both side hook)

Step2. Check Driver PCB



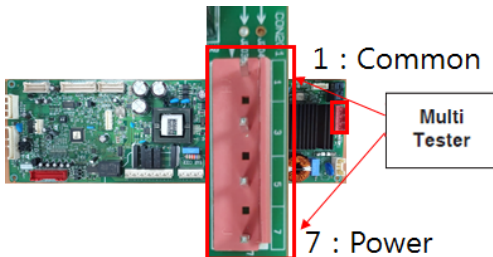
Check the LED blinking times
(Refer to the next chapter for LED blinking and actions.)



If the Comp is normal,
the LED does not blink.

IPM Output check

- Measure the voltage between the POWER and COMM pins of the connector as shown below.



Check to make sure compressor is receiving voltage from IPM

In order to determine whether the compressor is operating normally,
check the output voltage during the refrigeration cycle.

After initial power-up, when the compressor begins to operate, wait 10
minutes before checking.

The compressor is operating normally if the voltage is greater than 80V.

11-2 Check B

1. FCT0 Trip and LED Blinking 1 time (FCT0 Fault)



Blink OFF Blink OFF

- Purpose : To detect the compressor voltage and current sensing error.
- Restart every 30 seconds after compressor off.

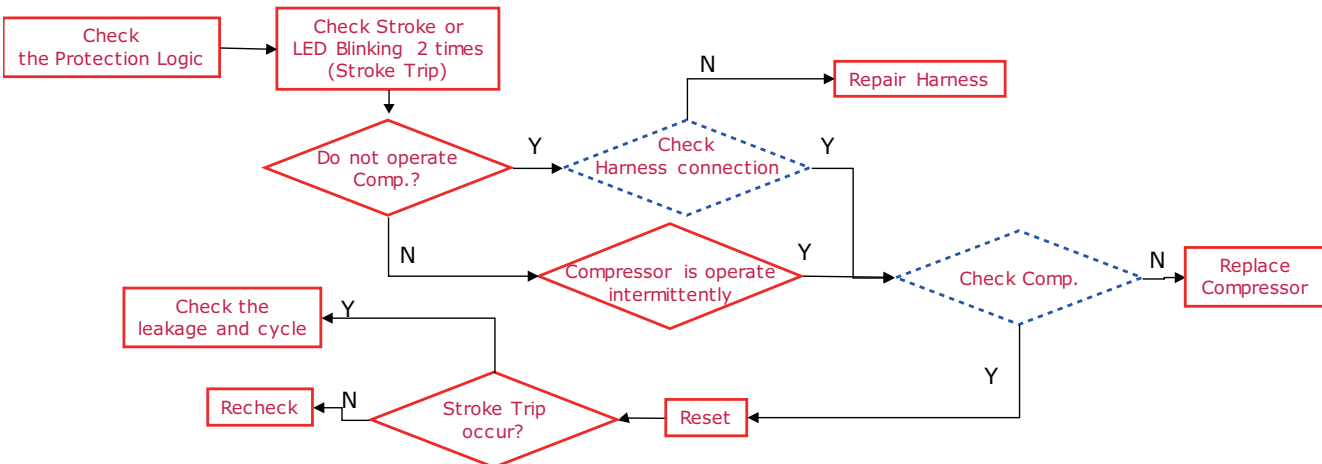


2. Stroke Trip and LED Blinking 2 times (Stroke Trip)



Blink Blink OFF Blink Blink OFF

- Purpose : Protection piston crash by abnormally large Stroke.
- Case 1. Do not operate Comp.
 - : Harness connection failure between the PCB, Comp, Capacitor.
- Case 2. Do operate Comp. intermittently
 - : Condenser Fan or Freezer Fan Error.
 - System Error like water-clogging, capillary-clogging, refrigerant-leakage
- Logic: After the Comp. Off every 1 minute restart Comp.



3. No Connect Trip and LED Blinking 3 times (No Connection Trip)

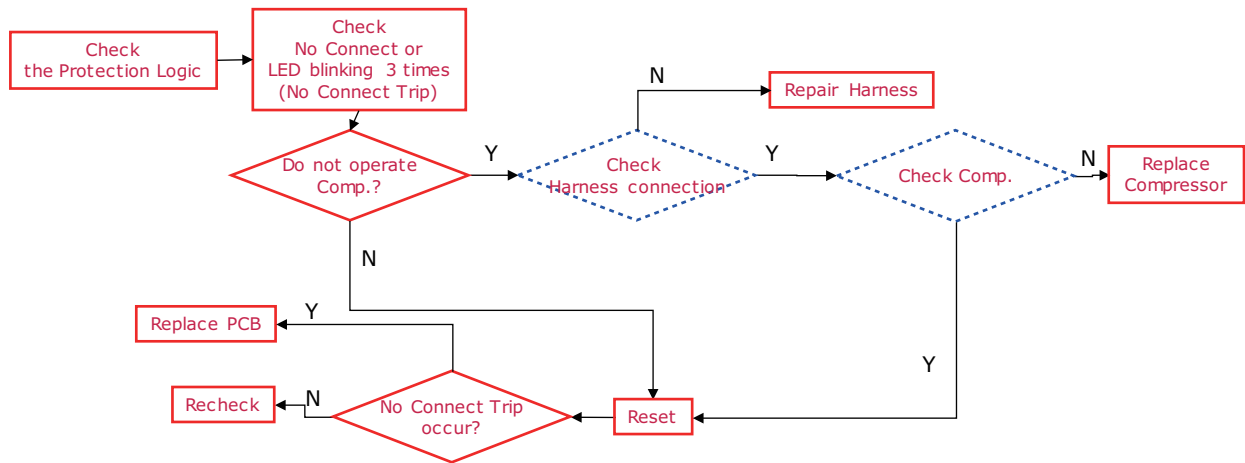


Blink Blink Blink OFF Blink Blink Blink OFF

→ Purpose : Prevention Over-Voltage and Over-Current by detecting connection error check.

→ Cause : Harness connection failure between PCB, Comp, Capacitor.
Comp. insulation breakdown.

→ Logic : After the Comp. Off every 40 seconds restart Comp.



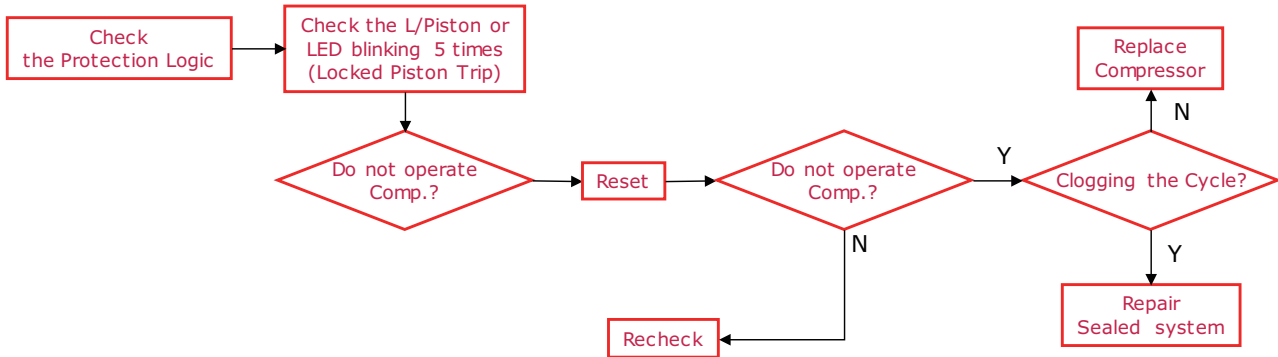
5. L/Piston Trip and LED Blinking 5 times (Locked Piston)

Protection Logic



Blink Blink Blink Blink Blink OFF

- Purpose : Detect locked piston.
- Cause : Oil shortage of the cylinder, Cylinder or Piston damage, clogging the discharge, Comp. internal debris.
- Logic : After the Comp. Off every 2 min 30 seconds restart Comp.



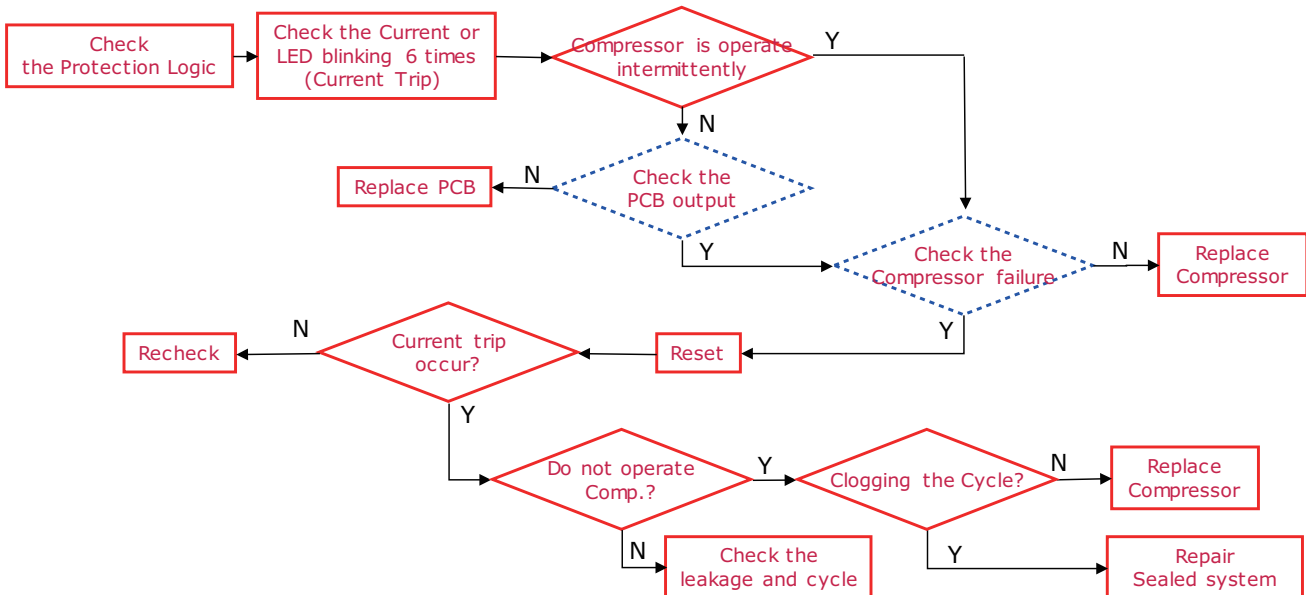
6. Current Trip and LED Blinking 6 times (Current Trip)

Protection Logic



Blink Blink Blink Blink Blink Blink OFF

- Purpose : Protection Over-Current(Over-Load)
- Cause : Abnormally ambient temperature(Over 43°C), Abnormally conditions like Shield machine room etc.
Condenser Fan failure, Comp. failure, PCB failure(IPM breakdown)
Oil shortage of the cylinder, Cylinder or Piston damage, clogging the discharge, Comp. internal debris.
- Logic : After the Comp. Off every 6 minutes restart Comp.



7. IPM Fault Trip and LED Blinking 7 times (IPM Fault)



Blink Blink Blink Blink Blink Blink OFF

- Purpose : Protection Over-Current by failure IPM(IPM short)
- Cause : IPM Short and failure
- Logic : After the Comp. Off every 20 seconds restart Comp.



8. Comp Tx Error Trip and LED Blinking 8 times (Communication Error)



Blink Blink Blink Blink Blink Blink Blink OFF

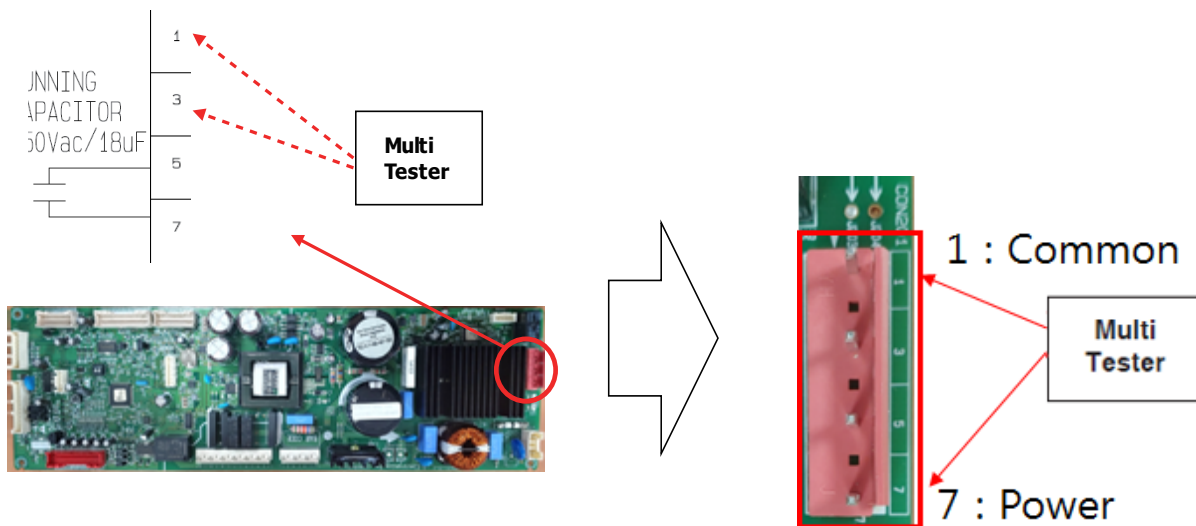
- Purpose : Detection communication error with the Micom of the refrigerator control.
- Cause : Communication Error
- Logic : Only LED blinking without the Comp. Off
(Comp. is operate command before communication error)



Check the PCB Output

→ Check output voltage from PCB to Compressor.

IPM Output check

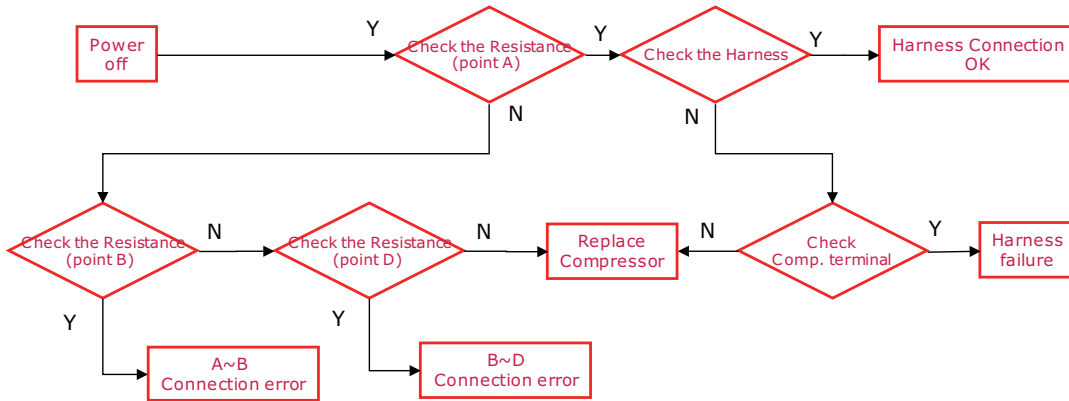


A-Inverter

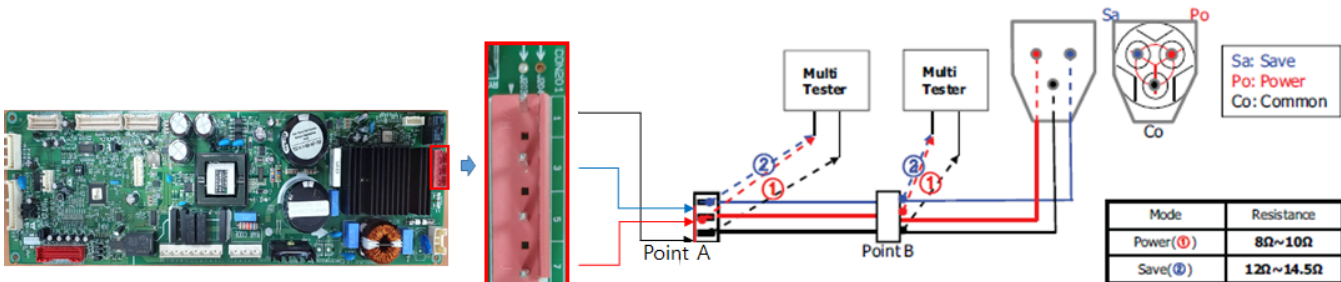
- To judge whether there is any issue with the PCB operation, check the PCB output voltage.
Normal: Voltage 80[V] or higher output at ((COMMON,POWER)

Check the Compressor & Harness

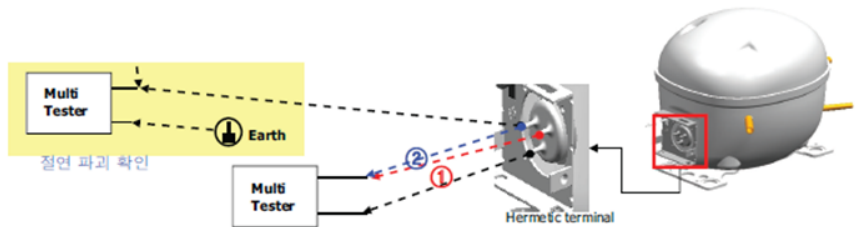
1. Check the Harness connection → Step 1. Power off.
2. Check the Compressor
 - Step 2. Check the Resistance(point A)
 - Step 3. Check the Harness(INF ohm).
 - Step 4. Check the Resistance(point B)
 - Step 5. Check the Resistance(point D)



- Comp Terminal resistance measurement (Power & Common, Save & Common)
- Check the broken-down insulation : Comp. Save - Earth resistance measurement



* 주위 온도 또는 운전 조건에 따라 수Ω 정도 저항값이 차이 날 수 있습니다.

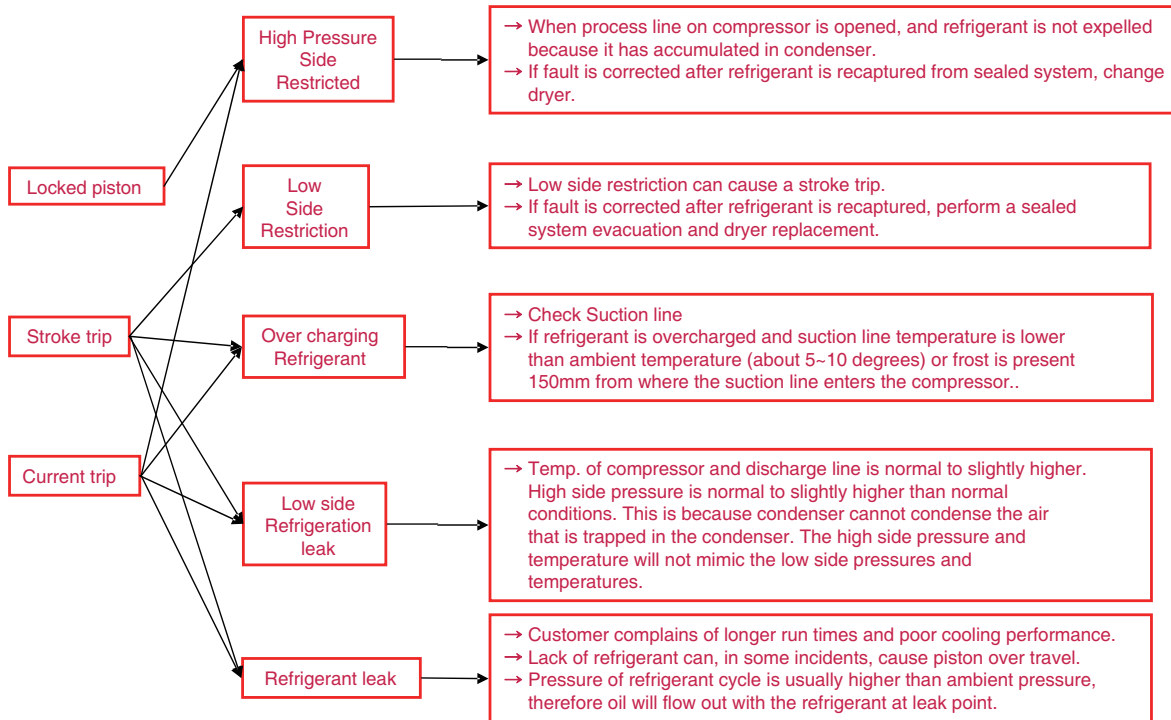


11-4 Check D

D1. Activate Protection logic

Cycle check with protection logic

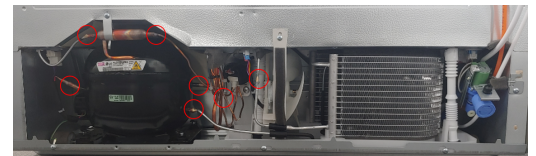
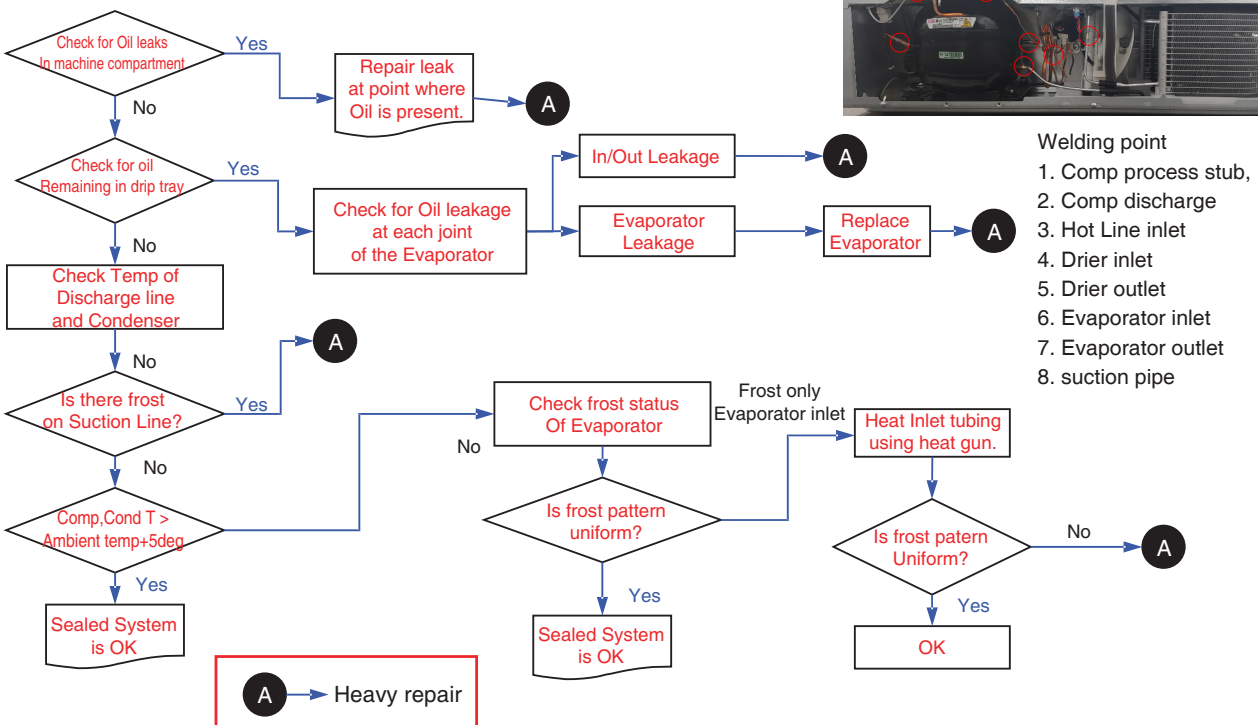
- We have to check Condenser fan and Freezer fan before performing Check D
- Locked Piston, Current trip and stroke trip can be activated by other problems than the driver or compressor.



D2. sealed system diagnosis

- Check as follows;

Sealed system



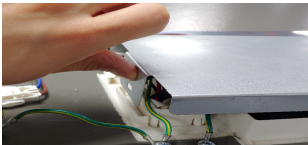
Compressor Troubleshooting

⚠ WARNING HIGH VOLTAGE

Step 1) Open PCB cover

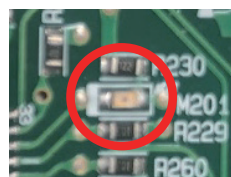
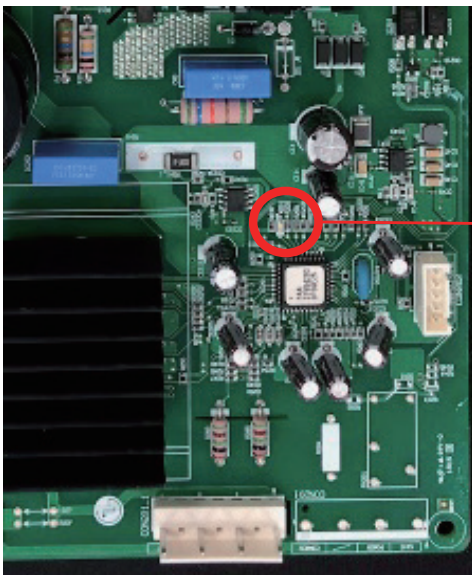


Remove 3 Screw and cover hinge







Push side to open PCBA Cover
(Remove both side hook)

Step 2) Check for blinking frequency of LED and PCB



LED Lamp

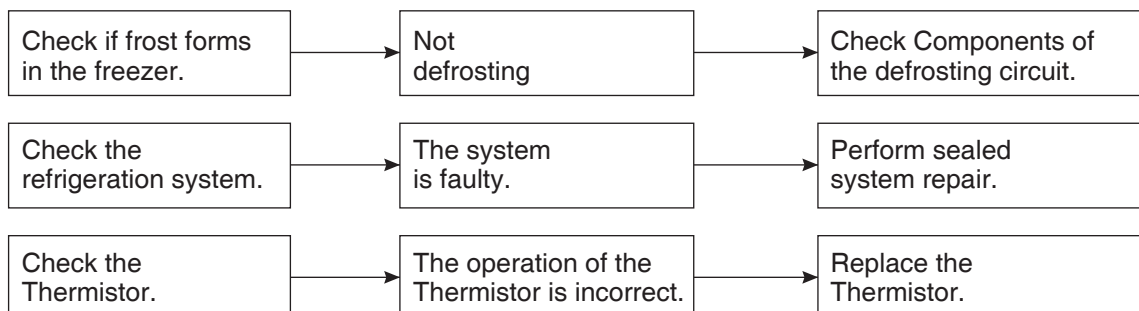
When compressor is normal, it does not blink
: Refer to the next page to find out what actions to take according to how many times LED blink

No	LED operating condition	Cause	Service guideline
1	<p>LED two - time repetiton (Stroke Trip)</p>  <p>... on - on - off - on - on - off - on - on - off ... repeating</p>	<p>PCB Parts defect or Compressor Connector miss connecting (Piston over run)</p>	<ol style="list-style-type: none"> 1. Please check, Whether connector of compressor is attached rightly or not. after power off 2. After the first action, You check on normal operation of compressor. 3. If the same symptom arises after the second action, replace PCB
2	<p>LED five - time repetiton (Piston Lock Trip)</p>  <p>... on - on - on - on - on - off - on - on - on - on - on - off ... repeating</p>	<p>Piston constraint</p>	<ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action 3. If the same symptom arises after the second action, replace compressor
3	<p>LED six - time repetiton (Current Trip)</p>  <p>... on - on - on - on - on - on - off - on - on - on - on - on - off ... repeating</p>	<p>Circuit over current error Or cycle error</p>	<ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action 3. If the same symptom arises after the second action, replace compressor
4	<p>LED seven- time repetiton (IPM Fault Trip)</p>  <p>... on - on - on - on - on - on - on - off - on - on - on - on - on - on - off ... repeating</p>	<p>PCB parts defect (IPM)</p>	<ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action, replace PCB

11-5 SERVICE DIAGNOSIS CHART

COMPLAINT	POINTS TO BE CHECKED	REMEDY
No Cooling.	<ul style="list-style-type: none"> Is the power cord unplugged from the outlet? Check if the power switch is set to OFF. Check if the fuse of the power switch is shorted. Measure the voltage of the power outlet. 	<ul style="list-style-type: none"> Plug into the outlet. Set the switch to ON. Replace the fuse. If the voltage is low, correct the wiring.
Cools poorly.	<ul style="list-style-type: none"> Check if the unit is placed too close to the wall. Check if the unit is placed too close to the stove, gas cooker, or in direct sunlight. Is the ambient temperature too high or the room door closed? Check if food put in the refrigerator is hot. Did you open the door of the unit too often or check if the door is sealed properly? Check if the Control is set to Warm position. 	<ul style="list-style-type: none"> Place the unit about 4 inches (10 cm) from the wall. Place the unit away from these heat sources. Lower the ambient temperature. Put in foods after they have cooled down. Don't open the door too often and close it firmly. Set the control to Recommended position.
Food in the Refrigerator is frozen.	<ul style="list-style-type: none"> Is food placed in the cooling air outlet? Check if the control is set to colder position. Is the ambient temperature below 41°F(5°C)? 	<ul style="list-style-type: none"> Place foods in the high-temperature section. (front part) Set the control to Recommended position. Set the control to Warm position.
Condensation or ice forms inside the unit.	<ul style="list-style-type: none"> Is liquid food sealed? Check if food put in the refrigerator is hot. Did you open the door of the unit too often or check if the door is sealed properly? 	<ul style="list-style-type: none"> Seal liquid foods with wrap. Put in foods after they have cooled down. Don't open the door too often and close it firmly.
Condensation forms in the Exterior Case.	<ul style="list-style-type: none"> Check if the ambient temperature and humidity of the surrounding air are high. Is there a gap in the door gasket? 	<ul style="list-style-type: none"> Wipe moisture with a dry cloth. It will disappear in low temperature and humidity. Fill up the gap.
There is abnormal noise.	<ul style="list-style-type: none"> Is the unit positioned in a firm and even place? Are any unnecessary objects placed in the back side of the unit? Check if the Drip Tray is not firmly fixed. Check if the cover of the compressor enclosure in the lower front side is taken out. 	<ul style="list-style-type: none"> Adjust the Leveling Screw, and position the refrigerator in a firm place. Remove the objects. Fix the Drip Tray firmly in the original position. Place the cover in its original position.
Door does not close well.	<ul style="list-style-type: none"> Check if the door gasket is dirty with an item like juice. Is the refrigerator level? Is there too much food in the refrigerator? 	<ul style="list-style-type: none"> Clean the door gasket. Position in a firm place and level the Leveling Screw. Make sure food stored in shelves does not prevent the door from closing.
Ice and foods smell unpleasant.	<ul style="list-style-type: none"> Check if the inside of the unit is dirty. Are foods with a strong odor unwrapped? The unit smells of plastic. 	<ul style="list-style-type: none"> Clean the inside of the unit. Wrap foods that have a strong odor. New products smell of plastic, but this will go away after 1-2 weeks.

Other possible problems:



11-6 REFRIGERATION CYCLE

• Troubleshooting Chart

CAUSE		STATE OF THE UNIT	STATE OF THE EVAPORATOR	TEMPERATURE OF THE COMPRESSOR	REMARKS
LEAKAGE	PARTIAL LEAKAGE	Freezer compartment and Refrigerator don't cool normally.	Low flowing sound of Refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	<ul style="list-style-type: none"> Refrigerant level is low due to a leak. Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.
	COMPLETE LEAKAGE	Freezer compartment and Refrigerator don't cool normally.	Flowing sound of refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	<ul style="list-style-type: none"> No discharging of Refrigerant. Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.
CLOGGED BY DUST	PARTIAL CLOG	Freezer compartment and Refrigerator don't cool normally.	Flowing sound of refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	<ul style="list-style-type: none"> Normal discharging of the refrigerant. The capillary tube is faulty.
	WHOLE CLOG	Freezer compartment and Refrigerator don't cool.	Flowing sound of refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	<ul style="list-style-type: none"> Normal discharging of the Refrigerant.
MOISTURE CLOG		Cooling operation stops periodically.	Flowing sound of refrigerant is not heard and frost melts.	Lower than ambient temperature.	<ul style="list-style-type: none"> Cooling operation restarts when heating the inlet of the capillary tube.
DEFECTIVE COMPRESSION	COMP-RESSION	Freezer and Refrigerator don't cool.	Low flowing sound of refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	<ul style="list-style-type: none"> Low pressure at high side of compressor due to low refrigerant level.
	NO COMP-RESSION	No compressing operation.	Flowing sound of refrigerant is not heard and there is no frost.	Equal to ambient temperature.	<ul style="list-style-type: none"> No pressure in the high pressure part of the compressor.

11-6-1 Cleaning

There is no need for routine condenser cleaning in normal Home operating environments. If the environment is particularly greasy or dusty, or there is significant pet traffic in the home, the condenser should be cleaned every 2 to 3 months to ensure maximum efficiency.

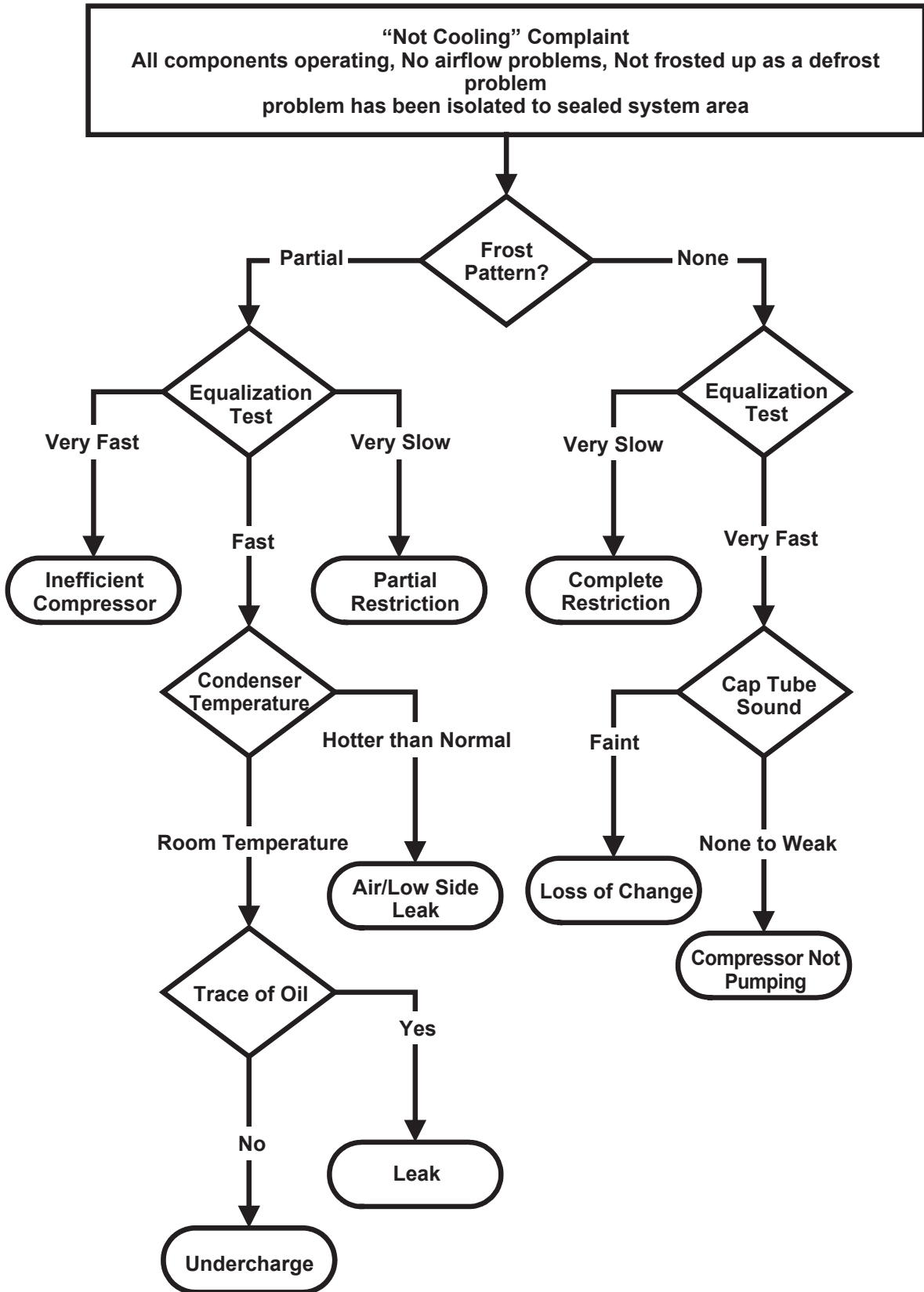
If you need to clean the condenser:

: : Remove the mechanical cover.

Use a vacuum cleaner with a soft brush to clean the grille, the open areas behind the grille and the front surface area of the condenser.

: : Replace the mechanical cover.

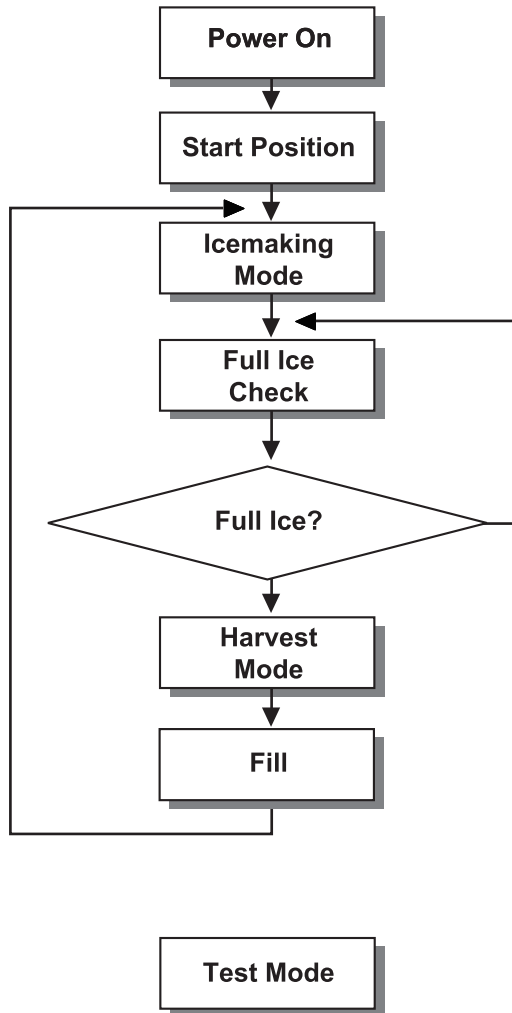
11-6-2 SEALED SYSTEM DIAGNOSIS



(The equalization test is trying to restart a compressor using a start kit after it has been operating.)

12. ICEMAKER OPERATING METHOD AND TROUBLE SHOOTING

12-1 Icemaker's Basic Operating Method



• Adjusts Ice Tray to Start Position with power on.



• Waits until water becomes ice.
 ※ For cold air circulation, Ice tray will be on a slightly tilt one hour after ice-making mode begins. Atilt ice tray means icemaker's normal operation.



• If water becomes ices in the ice tray, Ice-detecting sensor check if the ice bin is full.



• Twist the ice tray to drop ice into the ICE BIN.

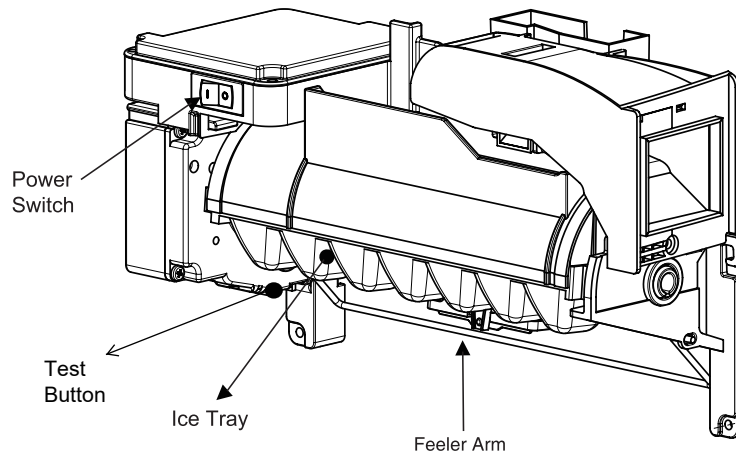


• Supply water to the ice tray by operating the solenoid valve.



• To force water to supply to the ice tray, or check icemaker's condition press and hold the **FILL Key** for about 3seconds.
 In the test mode, The icemaker will run through 3 stages step by step
 : **Harvest** → **Fill water** → **Ice making**

To reset the icemaker's operation, set the power switch OFF position and back it to ON position.



Icemaker Unit

12-2 ICEMAKER FUNCTIONS

12-2-1 Icemaking mode

1. Icemaking Mode begins right after the ice tray fills with water.
 2. Icemaker waits until water becomes ice in the ice tray.
- ※ Ice-detecting sensor checks if the ice bin is full every 2min.

12-2-2 Harvest mode

At least in 110min, since icemaker begun icemaking mode, Icemaker starts to twist the ice tray to drop ices into the Ice bin.
(After installation, at least 1day is needed to make ices)

- ※ If the icemaker never drop ices to the ice bin though water becomes ices in the ice tray, check the real temperature of compartment. (not temperature on display)
Icemaker needs below 0°F to drop ices to ice bin.

12-2-3 Fill/Park Position

Once the normal harvest mode has been completed, the water solenoid will be activated.

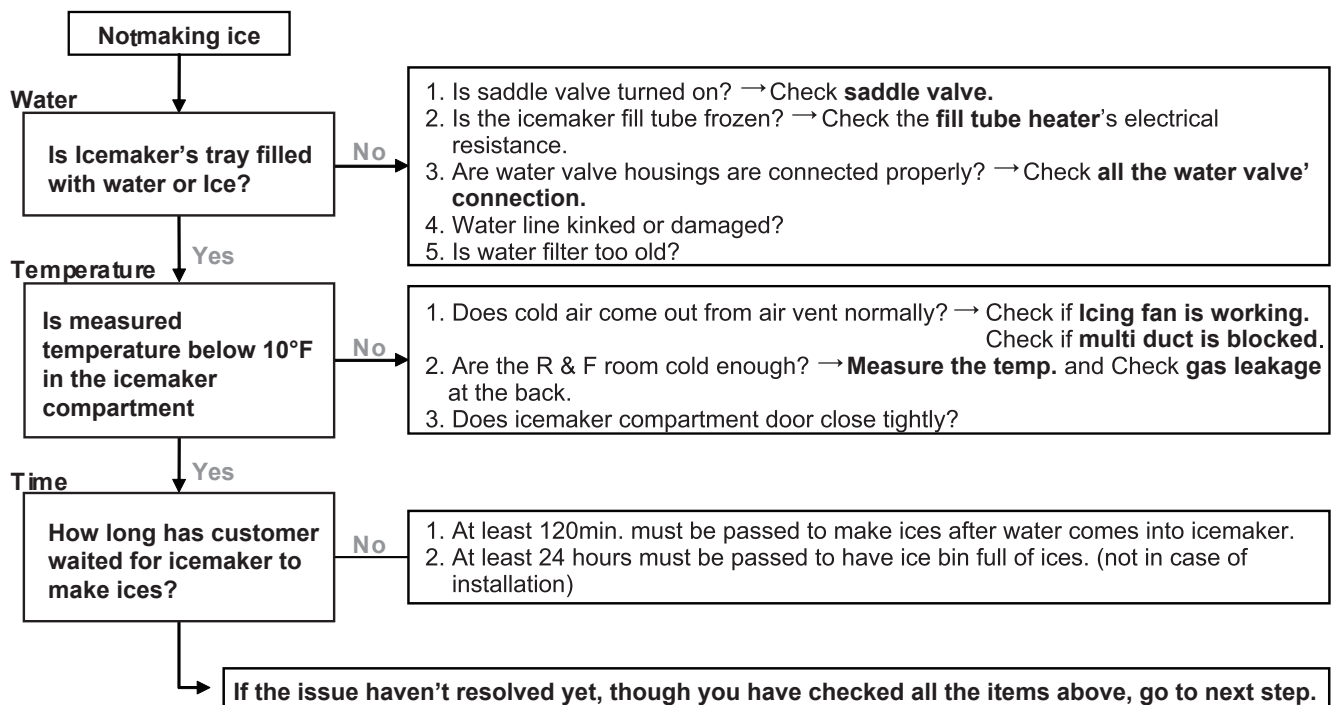
12-3 Trouble Shooting Ice & Water System Issues

12-3-1 Icemaker not making ice or not making enough ice (Environmental Diagnosis)

► Icemaker can't make ices itself. Basically, water, temperature and time are needed.

- Water : If no Water, then no Ice.
- Temperature : The compartment, where the icemaker is located, has to be at least 1°F so that icemaker dumps ices to the bin.
- Time : At least 80 minutes must be passed to make one series of ices after water comes into icemaker.

※ **Test Mode should not be carried out before checking below.**

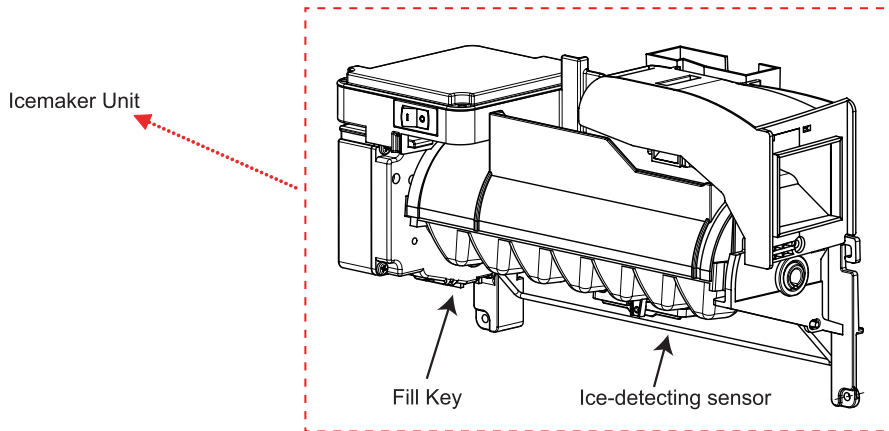


12-3-2 Icemaker not making ice or not making enough ice
(Icemaker Unit & Ice-detecting sensor Diagnosis)

► **Icemaker Unit and Ice-detecting sensor Diagnosis**

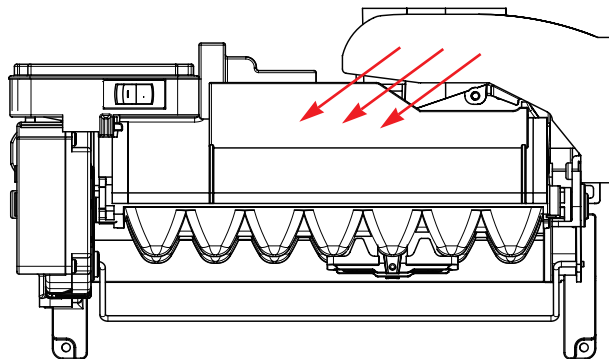
The icemaker unit and Ice-detecting sensor is programmed to be diagnosed.

Follow the procedure step by step to check to see if icemaker and Ice-detecting sensor is working normally.



1st STEP (Icemaker Unit Diagnosis)

Press the fill key for about 3sec. If the icemaker runs 2 stages of harvest and filling water step by step, It means icemaker's mechanism is normal.



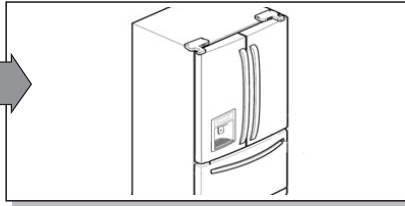
※ Caution : Be sure that the ice tray is not filled with water before pressing fill key.

2st STEP (Ice-detecting sensor Diagnosis)

1. Remove Ice bin from compartme



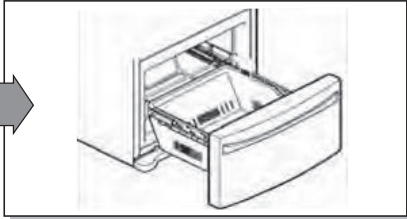
2. Close the left do (Door switch pushed)



3. Wait for 3m .



4. Freezer door stays op



5. Push the refrigerat button & lock button at the same time.



If “**ETY**” is shown on the display after the procedure above, Ice-detecting sensor is **normal**.
If “**FULL**” is shown on the display after the procedure above, Ice-detecting sensor is **abnormal**.
※ *ETY* = empty

12-3-3 Icemaker not making ice or not making enough ice (Other suspected Items)

Strongly suspect items below If the issue remains yet, though all the diagnosis for icemaker has been carried out.

- Cap duct bad sealing
- Defective thermal sensor in the icemaker compartment
- Not cold icemaker compartment area (sealed system)

12-3-4 Not Dispensing Ice

► Clogged Ice In the Ice Bin (suspected items)

- Customer haven't used ice dispenser over a week.

→ **Resolution** : the ices gets stuck if customer doesn't use ice dispenser.

In this case, empty the ice bin and wait until the new ices are stacked in the ice bin.

- Temperature of icemaker compartment is not cold enough.

→ **Resolution** : Check ice fan, sealed system, cap duct, vent and other items related to temperature.

- Cap duct doesn't seal the air properly.

→ **Resolution** : Possibly, warm air could get into the compartment and make ices get stuck. Replace the cap duct with new one.

- In-door geared motor doesn't work

→ **Resolution** : Change the in-door geared motor and test it.

- The water comes out of fill cup and the water get into the ice bin.

→ **Resolution** : The water pressure from shutoff valve is too high.

Recommend to use regulator to the customer and close the shutoff valve slightly.

► Clogged Ices In the Chute (suspected items)

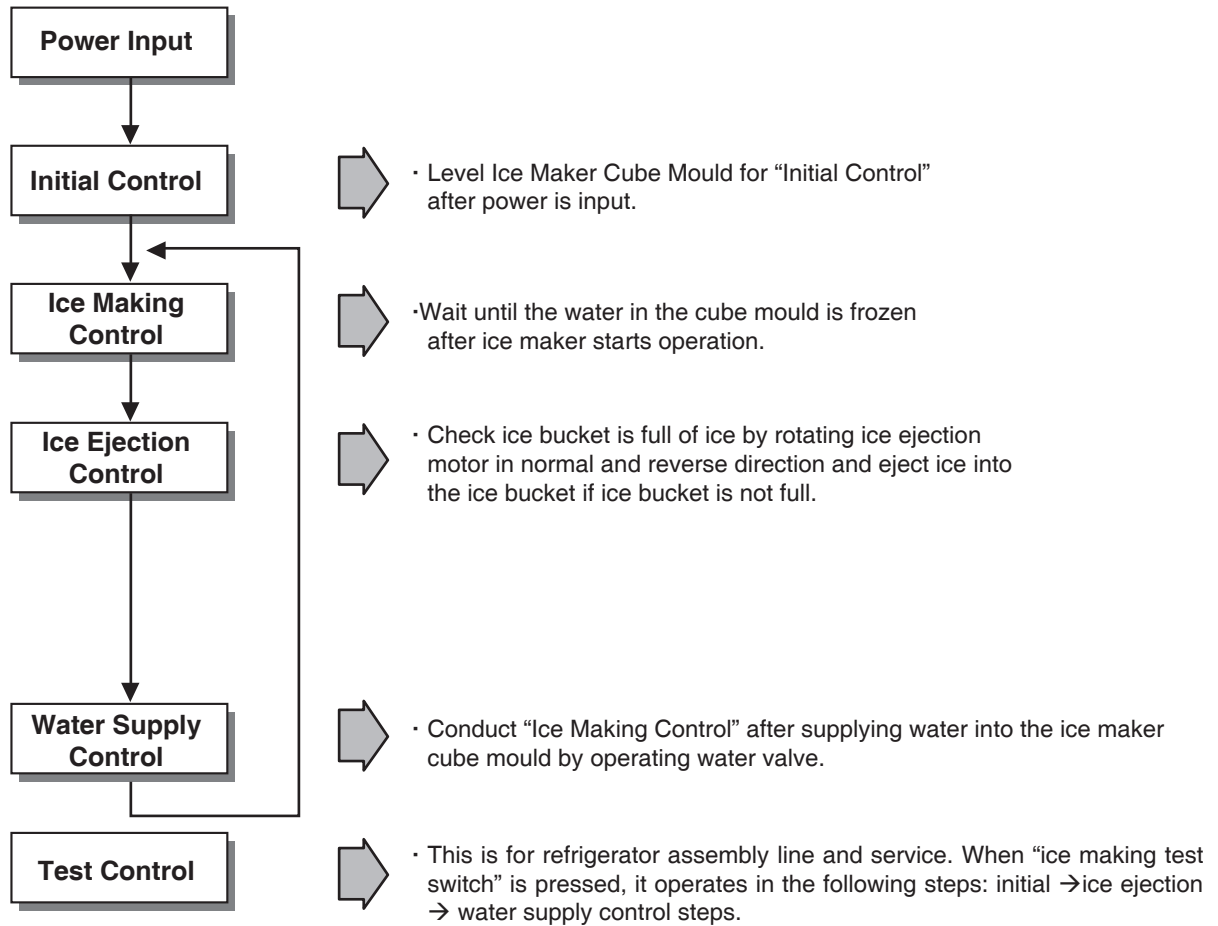
- Cap duct doesn't seal the air properly.

→ **Resolution** : Possibly, warm air could get into the compartment and make ices get stuck. Replace the cap duct with new one.

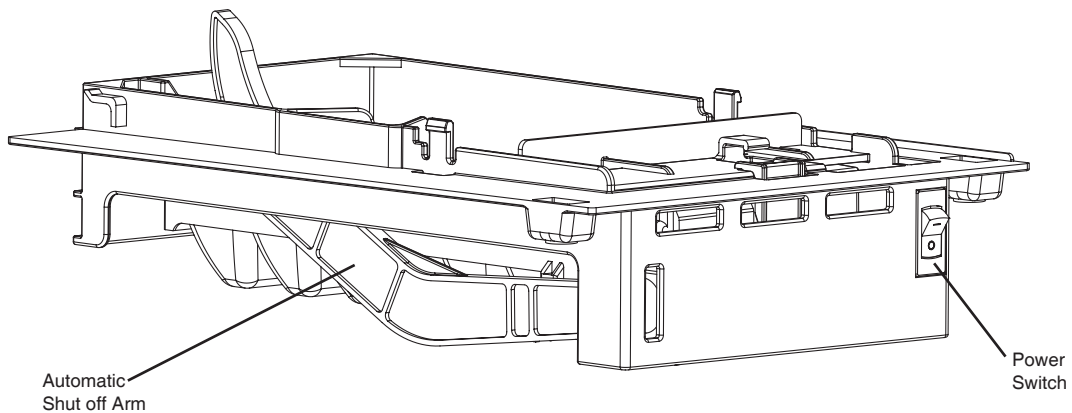
13. ICE MAKER (Freezer Room) OPERATING METHOD AND TROUBLE SHOOT

13-1 Working Principles

14-1-1 Ice Maker Working Principles



1. Turning the Icemaker stop switch off (O) stops the Icemaking function.
2. Setting the Icemaker switch to OFF and then turning it back on will reset the Icemaker control.



13-2 Function of Ice Maker

13-2-1 Initial Control Function

1. When power is initially applied or reapplied after power cut, it detects level of ice maker cube mould after completion of MICOM initialization. The detecting lever moves up and down.
2. The level of ice maker cube mould is judged by output signal, high and low signal, of Hall IC. Make the cube mould to be horizontal by rotating ice ejection motor in normal or reverse direction.
3. If there is no change in signals one minute after the geared motor starts to operate, it stops icemaker operation and check the signal every hour. It resets initialization of icemaker when it becomes normal.
4. It judges that the initial control is completed when it judges the ice maker cube mould is horizontal.
5. Ice ejection conducts for 1 cycle irrespect of ice in the ice bucket when power is initially applied.

13-2-2 Water Supply Control Function

1. This is to supply water into the ice maker cube mould by operating water valve in the machine room when ice ejection control is completed and ice maker mould is even.
2. The quantity of water supplied is determined by DIP switch and time.

<Water Supply Quantity Table>

No	DIP SWITCH SETTING		WATER SUPPLY TIME	REMARKS
	S1	S2		
1	OFF	OFF	9 SEC	* The quantity of water supplied depends on DIP switch setting conditions and water pressure as it is a direct tap water connection type. (the water supplied is generally 60 cc to 100 cc) * DIP switch is on the main PCB.
2	ON	OFF	8 SEC	
3	OFF	ON	10 SEC	
4	ON	ON	11 SEC	

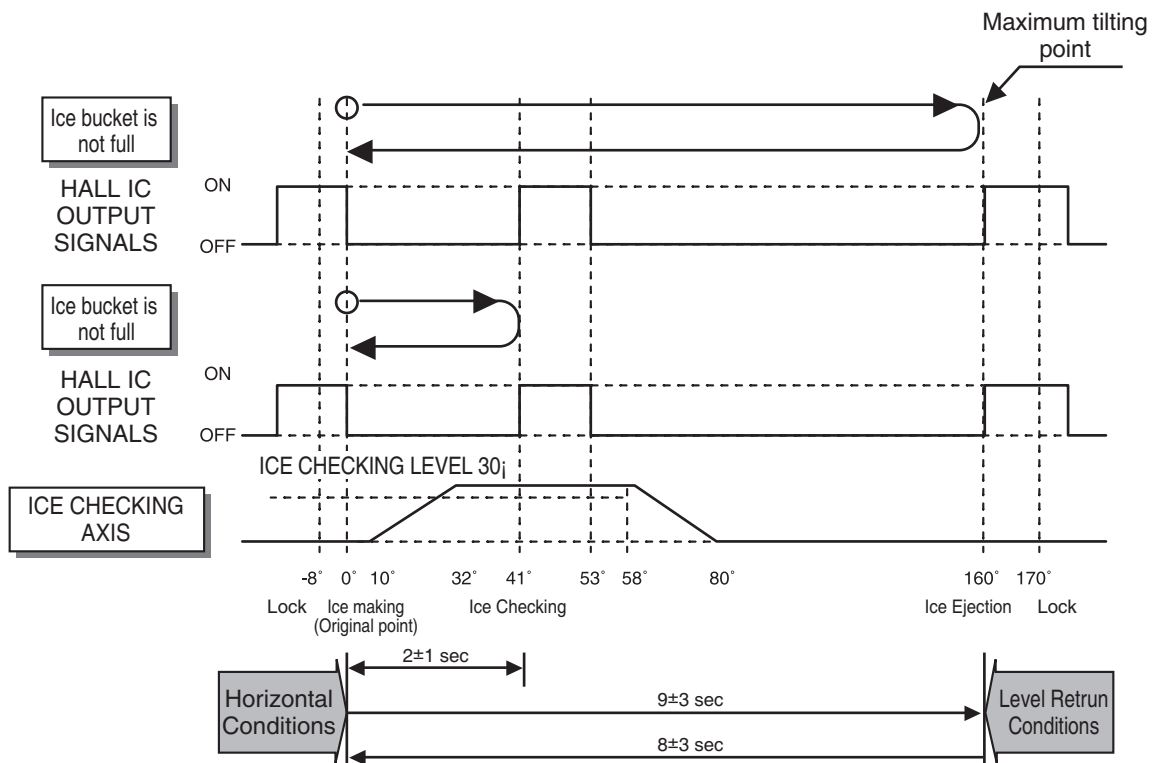
3. If water supply quantity setting is changed while power is on, water supplies for the amended time. If DIP switch is changed during water supply, water shall be supplied for the previous setting time. But it will supply for the amended time from the next supply.
4. When water supply signal is applied to water and ice valves at the same time during water supply, water shall be supplied to water valve. If water supply signal is applied to ice valve during water supply, water shall be supplied to both water and ice valves.

13-2-3 Ice Making Control Function

1. Ice making control is carried out from the completion of water supply to the completion of ice making in the cube mould. Ice making sensor detects the temperature of cube mould and completes ice making. (ice making sensor is fixed below ice maker cube mould)
2. Ice making control starts after completion of water supply control or initial control.
3. At first, It is judged that ice making is completed when ice making sensor temperature reaches at -8°C after 70 minutes when water is supplied to ice maker cube mould.
4. Finally, It is judged that ice making is completed when ice maker sensor temperature reaches below -8 °C after 10 minutes in condition 3.

13-2-4 Ice Ejection Control Function

1. This is to eject ice from ice maker cube mould after ice making is completed.
2. If Hall IC signal is on within 3.6 seconds after ice ejection motor rotates in normal direction, it does not proceed ice ejection but waits. If the ice bucket is full, ice ejection motor rotates in normal direction in every hour to check the condition of ice bucket. If the ice bucket is not full, the water supply control starts after completion of ice ejection control. If the ice bucket is full, ice ejection motor rotates in reverse direction and sops under ice making or waiting conditions.
3. If ice bucket is not full, ice ejection starts. The cube mould tilts to the maximum and ice is separated from the mould and ice checking lever raises.
4. Ice ejection motor stops for 1 second if Hall IC signal changes from OFF (low) to ON (high) after 3.6 seconds when ice ejection motor rotates in normal direction. If there is no change in Hall IC signals within 1 minute after ice ejection motor operates, ice ejection motor stops as ice ejection motor or hall IC is out of order.
5. If ice ejection motor or Hall IC is abnormal, ice ejection motor rotates in normal direction to exercise initial operation. It resets the ice maker if ice ejection motor or Hall IC is normal.
6. The mould stops for 1 second at maximum tilted conditions.
7. The mould returns to horizontal conditions as ice ejection motor rotates in reverse direction.
8. When the mould becomes horizontal, the cycle starts to repeat:
Water Supply → Ice Making → Ice Ejection → Mould Returns to Horizontal
9. When freezer door is open, ice ejection don't operating, and after 1minute of Freezer door closing, ejection control function is operated.



<Timing Chart During Ice Ejection>

13-2-5 Test Function

1. It is to force the operation during operation test, service, and cleaning. The test switch is mounted under the automatic ice maker. The test function starts when the test switch is pressed for more than 0.5 second.
2. Test button does not work during ice ejection and water supply. It works when it is in the horizontal conditions. If mould is full of ice during test function operation, ice ejection control and water supply control do not work.
3. When test switch is pressed for more than 0.5 second in the horizontal conditions, ice ejection starts irrespective of the mould conditions. Water shall be splashed if test switch is pressed before the water in the mould freezes. Water shall be supplied while the mould returns to the horizontal conditions after ice ejection. Therefore the problems of ice ejection, returning to the horizontal conditions, and water supply can be checked by test switch. When test function performs normally, buzzer sounds and water supply shall carry out. Check it for repair if buzzer does not sound.
4. When water supply is completed, the cycle operates normally as follows: Ice maki → Ice ejection → Returning to horizontal conditions → Water supply
5. Remove ice from the ice maker cube mould and press test switch when ice maker cube mould is full of ice as ice ejecti and water supply control do not work when cube mould is full of ice.

14. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

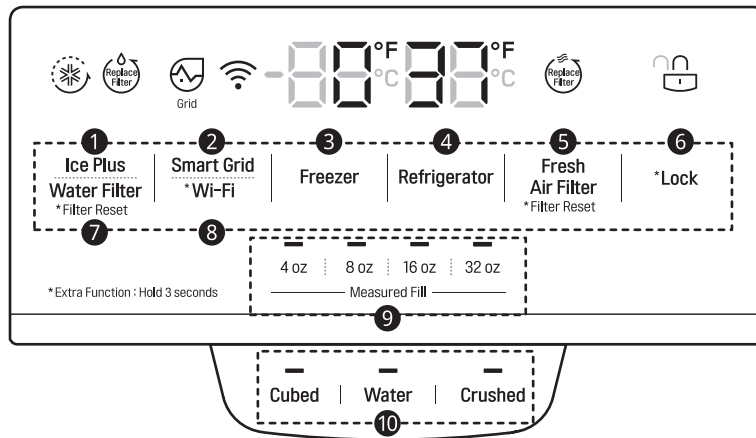
13-1 FUNCTION

Control Panel

Depending on the model, some of the following functions may not be available.

The actual control panel may differ from model to model.

Control Panel Features



1 Ice Plus

This function increases both ice making and freezing capabilities.

Press the **Ice Plus** button to illuminate the icon and activate the function for 24 hours. The function automatically shuts off after 24 hours. Stop the function manually by pressing the button once more.

2 Smart Grid

Press the **Smart Grid** button to turn the function On/Off. When the function is on, the icon illuminates. The function automatically turns on when the refrigerator is connected to the Wi-Fi network.

When the refrigerator is responding to a Demand Response (DR) message from the electric company, the Grid text illuminates.

3 Freezer

Indicates the set temperature of the freezer compartment in Celsius (°C) or Fahrenheit (°F). The default freezer temperature is 0°F (-18 °C). Press the **Freezer** button repeatedly to select a new set temperature from - 7 °F to 5 °F (-23 °C to -15 °C).

4 Refrigerator

Indicates the set temperature of the refrigerator compartment in Celsius (°C) or Fahrenheit (°F). The default refrigerator temperature is 37 °F (3 °C). Press the **Refrigerator** button repeatedly to select a new set temperature from 33 °F to 43 °F (1 °C to 7 °C).


NOTE

- To change the temperature mode from °F to °C (or vice versa) press and hold the **Refrigerator** and **Freezer** buttons simultaneously for approximately five seconds. The temperature indicator on the display window switches between Celsius and Fahrenheit.
- The displayed temperature is the target temperature, and not the actual temperature of the refrigerator. The actual refrigerator temperature depends on the food inside the refrigerator.

5 Fresh Air Filter


The Fresh Air Filter helps remove odors from the refrigerator.

NOTE


- Replace the air filter when the  icon turns on. After replacing the air filter, press and hold the **Fresh Air Filter** button for three seconds to turn the icon light off. Replace the air filter approximately every six months.

6 Lock

The lock function disables every other button on the display.


- When power is initially connected to the refrigerator, the lock function is off.
- To lock the control panel buttons, press and hold the **Lock** button until the  icon appears in the display and the function is activated.
- To disable the function, press and hold the **Lock** button for approximately three seconds.

7 Water Filter

Replace the water filter when the  icon turns on. After replacing the water filter, press and hold the **Water Filter** button for three seconds to turn the icon light off. Replace the water filter approximately every six months.

8 Wi-Fi

The Wi-Fi button, when used with the **LG ThinQ** app, allows the refrigerator to connect to a home Wi-Fi network. Refer to Smart Functions for information on the initial setup of the application.

The  icon shows the status of the refrigerator's network connection. The icon illuminates when the refrigerator is connected to the Wi-Fi network.

Press and hold the **Wi-Fi** button for 3 seconds to connect to the network. The icon blinks while the connection is being made, then turns on once the connection is successfully made.

9 Measured Fill

The measured fill function dispenses premeasured amounts of water automatically.

10 Water & Ice Type

Select the desired dispenser mode from the buttons on the dispenser control panel. Press the dispenser switch with a glass or other container to dispense cubed ice, water or crushed ice.

NOTE**Display Mode and InstaView Display Mode (For Store Use Only)**

- The **Display Mode** disables all cooling in the refrigerator and freezer sections to conserve energy while on display in a retail store. When activated, OFF is displayed on the control panel and the display remains on for 20 seconds.
 - To deactivate/activate the Display Mode:
Open either refrigerator door. Press the **Ice Plus** button 3 times while pressing and holding the **Refrigerator** button. The control panel beeps and the temperature settings display to confirm that Display Mode is deactivated. Use the same procedure to activate Display Mode.
 - The **InstaView Display Mode** automatically turns the LED light inside the InstaView Door-in-Door on and off in cycles of 10 seconds ON and 2 minutes 50 seconds OFF.
 - To activate the InstaView Display Mode:
Activate the Display Mode first. Then open all refrigerator and freezer doors and within 5 seconds knock 3 times on the door glass.
 - To deactivate the InstaView Display Mode:
Open all refrigerator and freezer doors and within 5 seconds knock 3 times on the door glass. The refrigerator is now in Display Mode.
 - To deactivate the Display Mode and InstaView Display Mode at once:
Open either refrigerator door. Press the **Ice Plus** button 3 times while pressing and holding the **Refrigerator** button.
-

NOTE

- When the refrigerator is in the Power Saving Mode, the display remains off until a door is opened or a button is pressed. Once on, the display remains on for 20 seconds.
-

13-1-10 CONTROL OF FREEZER FAN MOTOR

1. Freezer fan motor has high and standar speed.
2. When refrigerator is overloaded, fan motor runs in high speed as powered-up Standard speeds is used for general purposes.
3. To improve cooling speed, the RPM of freezer fan motor changes from normal speed to high.

13-1-11 Cooling Fan Motor

1. The cooling fan is switched ON and OFF in conjunction with the compressor.
2. The Failure sensing method is the same as in the fan motor of the freezing fan motor(refer to failure diagnosis function table for failure display).

13-1-12 Ice Compartment Fan

1. The Icing Fan is controlled by the the sensor on the top of the ice compartment.
2. The Failure sensing method is the same as in the fan motor of the freezer (refer to failure diagnosis function table for failure display)

13-1-13 Refrigeration room Fan Motor

1. The refrigeration room fan is switched ON and OFF in conjunction with the refrigeration room temperature.
2. The Failure sensing method is the same as in the fan motor of the freezing fan motor (refer to failure diagnosis function table for failure display).

13-1-14 Ice PLUS

1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
2. Whenever selection switch is pressed, selection/release, the Icon will turn ON or OFF.
3. If there is a power outage and the refrigerator is powered on again, Ice PLUS will be canceled.
4. To activate this function, press the Ice PLUS key and the Icon will turn ON. This function will remain activated for 24 hrs.
 - (1) control temperature of freezer room is to set -2°F notch temperature.
 - (2) If ice bin is full of ice, no change logic of ice compartment fan.
 - (3) If function is activated and de-ice status to be, ice compartment fan is operated by force.
 - Upper RT 18°C, Standard RPM
 - Below RT 18°C, operate low speed RPM

13-1-15 How to set the display mode and cancel it

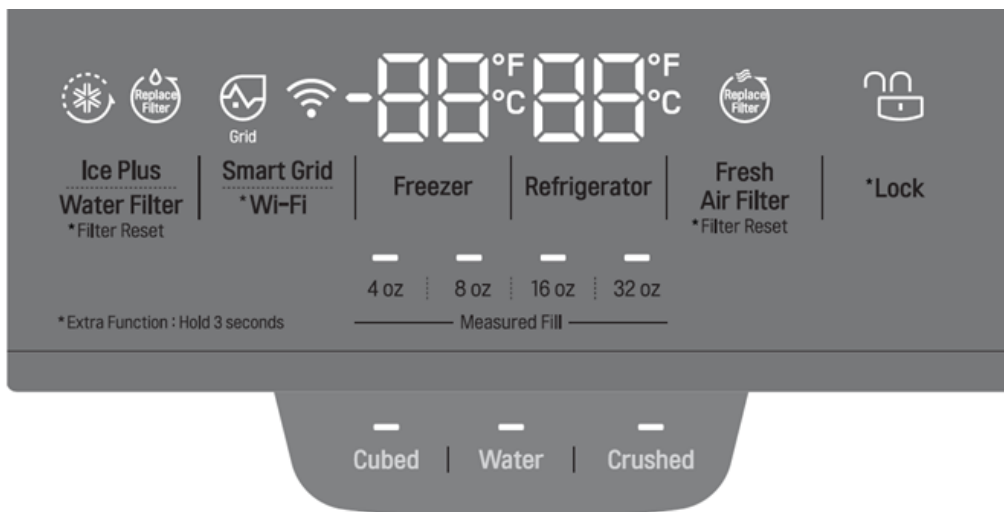
1. With the refrigerator door open, press the Ice Plus button 3 times consecutively while pressing the Refrigerator button, then it goes to the display mode with Special Beep Sound With Special Beep Sound.
2. Perform the same way again to cancel the display mode.
3. All Freezing unit will be turned off at display mode (Exceptions : Lamp, Display)

13-1-16 Defrosting (removing frost)

1. Defrosting starts each time the COMPRESSOR running time Between 7~50 hours.
2. Defrosting stops if the sensor temperature reaches 41°F(5°C) or more. If the sensor doesn't reach 41°F(5°C) in 1 hours, the defrost mode is malfunctioning. (Refer to the defect diagnosis function)
3. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

13-1-17 Defect Diagnosis Function

1. Automatic diagnosis makes servicing the refrigerator easy.
2. When a defect occurs, the buttons will not operate.
3. When the defect CODE removes the sign, it returns to normal operation (RESET).
4. The defect CODE shows on the Refrigerator and Freezer Display.



- * Display check function: If simultaneously pressing Ice Plus button and freezing temperature adjustment button for a second, display LCD graphics on. If releasing the button, the LCD graphic displays the previous status.
You can check the error code Within 3-hour Period from initial error

13-1-18 Display SVC temperature compensation

This function allows additional compensation for temperature control in the refrigerator and the freezer through SVC temperature compensation setting mode on the display.

Input : When pressing 'Freezer' + 'Express Frz.' for 5 seconds in normal mode

Action :

1. Fridge temperature Seg. : indication the stage of Refrigeration temperature compensation

Freezer temperature Seg. : indication the stage of Freezer temperature compensation

2.

1) When the fridge button is pressed, the fridge temperature compensation step is displayed with a blink.

After that, when the press fridge button, it is changed in order of 5→4→3→... 1→9 →8 →... →5.

If the fridge button is pressed for 3 seconds, the step is confirmed.

2) When the freezer button is pressed, the freezer temperature compensation step is displayed with a blink

After that, when the freezer button is pressed, it is changed in order of 5 →4→3→... 1→9 →8 →... →5.

If the freezer button is pressed for 3 seconds, the step is confirmed.

※ While the room is blinking by selecting it, you cannot switch to another room until you confirm it.

※ If you don't confirm it, the compensation step will not be set as normal.

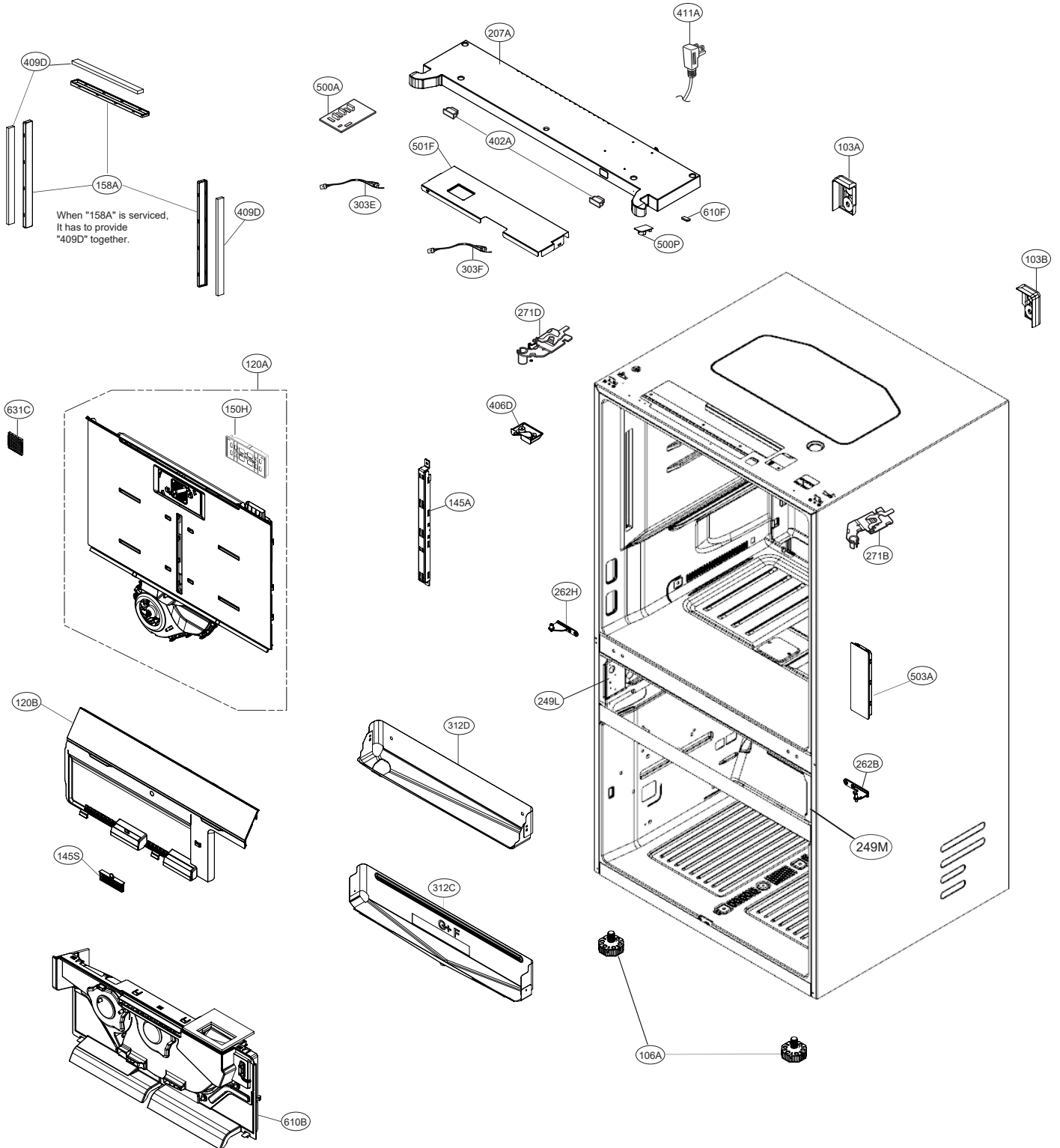
Release : If there is no input in 5 seconds, the temperature compensation setting mode is disabled.

Compartment	Displayed Step	Compensation Temp.
Fridge	9	+2.0
	8	+1.5
	7	+1.0
	6	+0.5
	5	+0.0
	4	-0.5
	3	-1.0
	2	-1.5
	1	-2.0
Freezer	9	+2.0
	8	+1.5
	7	+1.0
	6	+0.5
	5	+0.0
	4	-0.5
	3	-1.0
	2	-1.5
	1	-2.0

EXPLODED VIEW & REPLACEMENT PARTS LIST

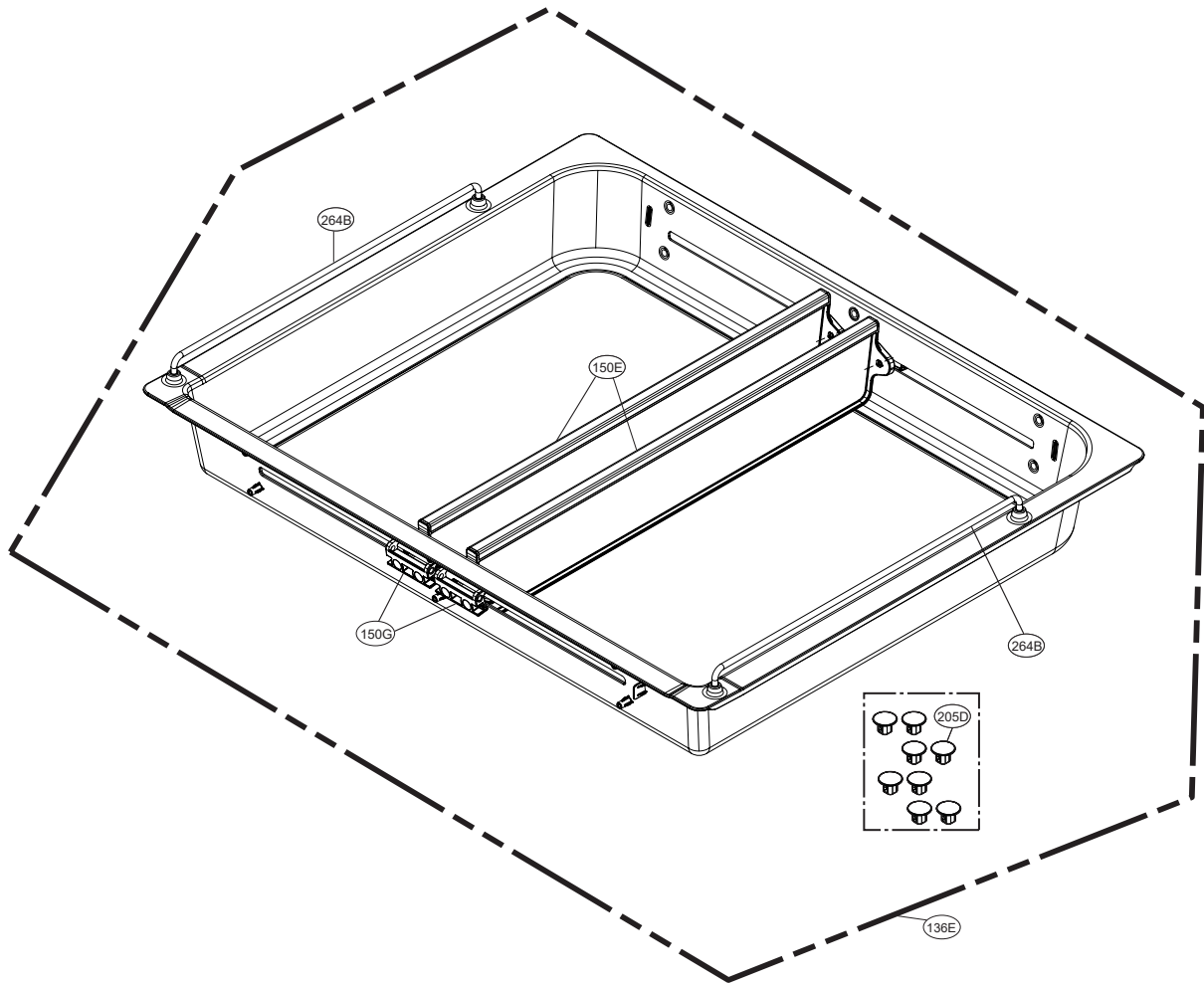
CASE PARTS

CAUTION : Use the part number to order part, not the position number.



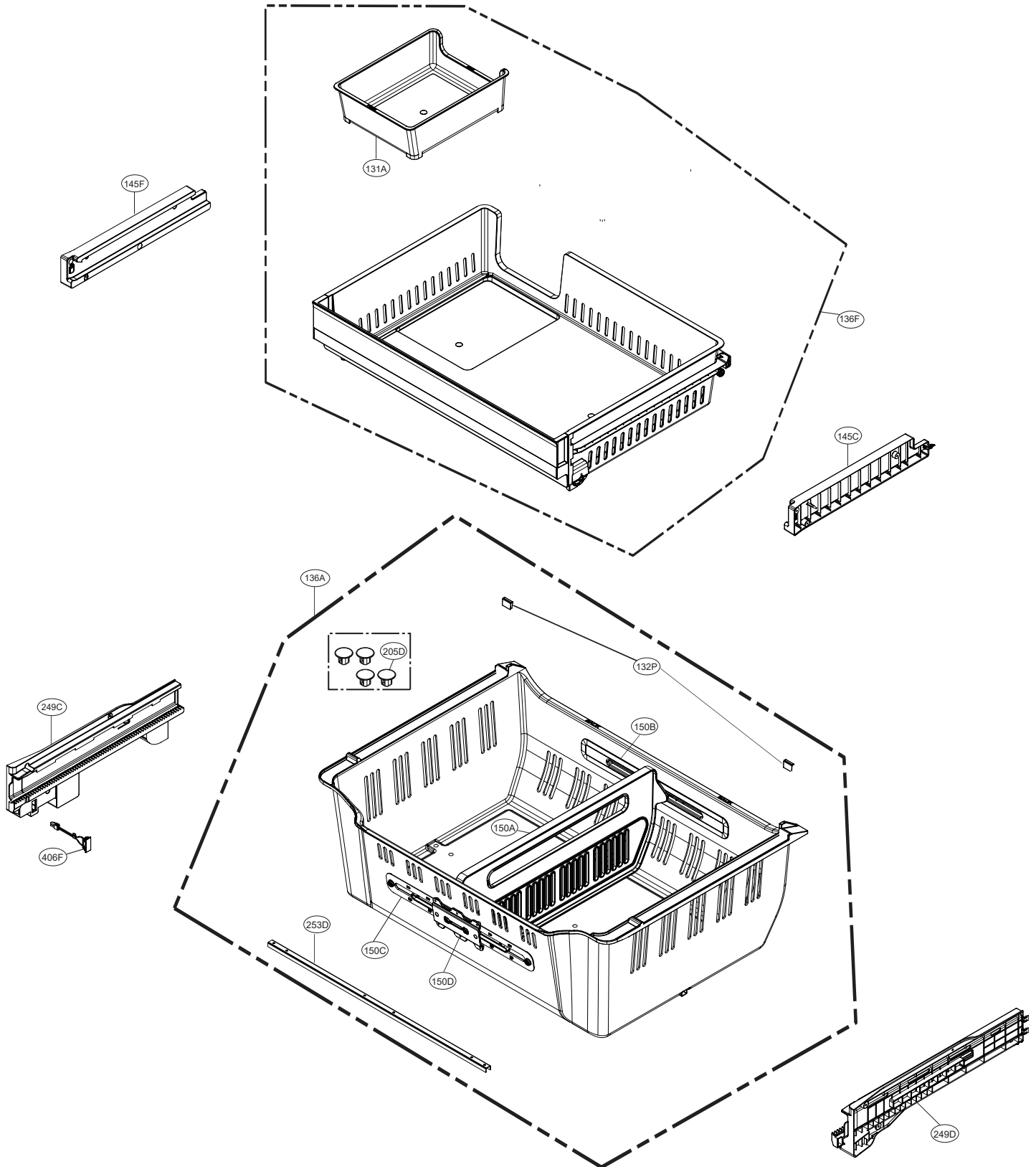
FULL CONVERT DRAWER PARTS

CAUTION: Use the part number to order part, not the position number.



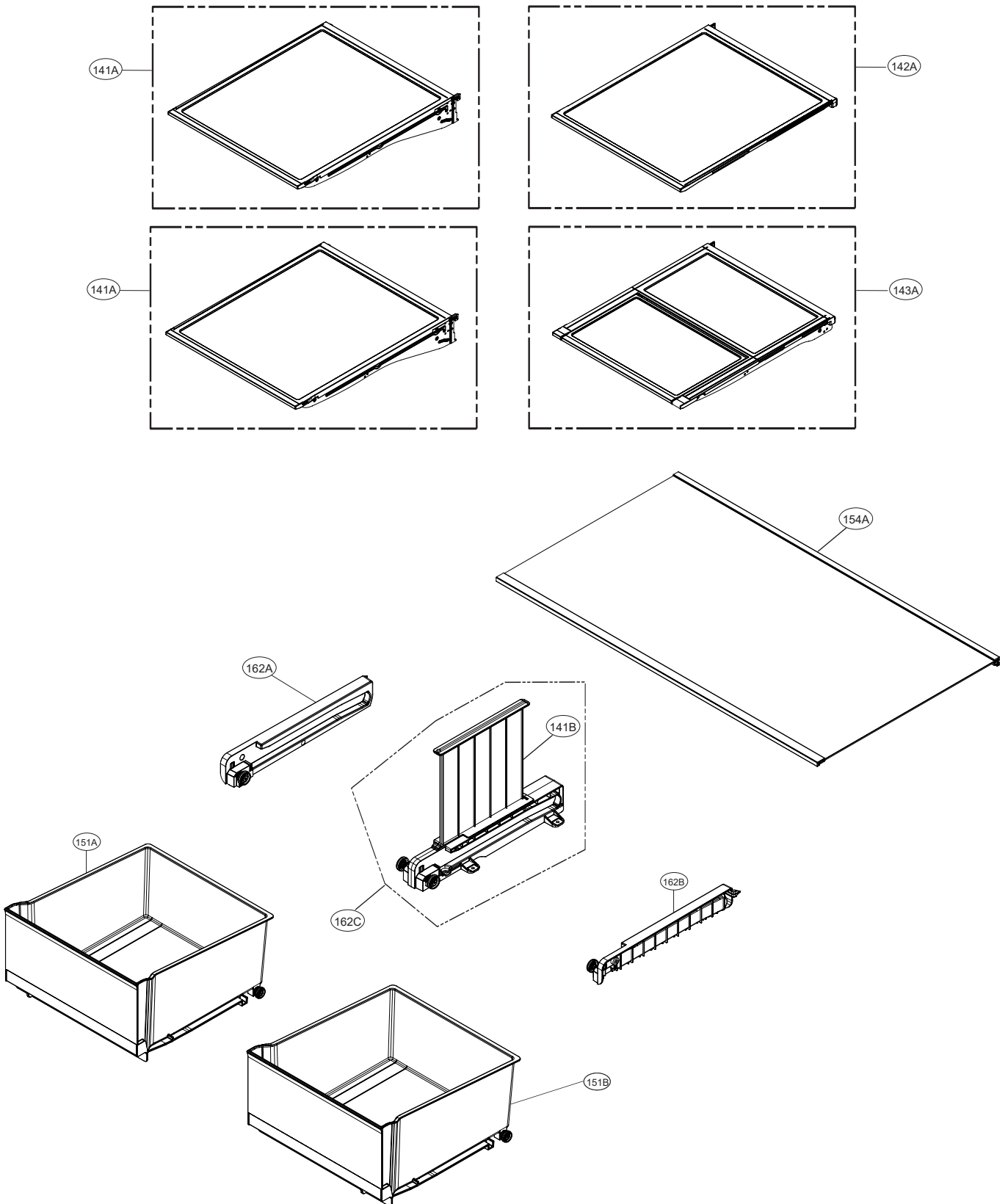
FREEZER PARTS

CAUTION: Use the part number to order part, not the position number.



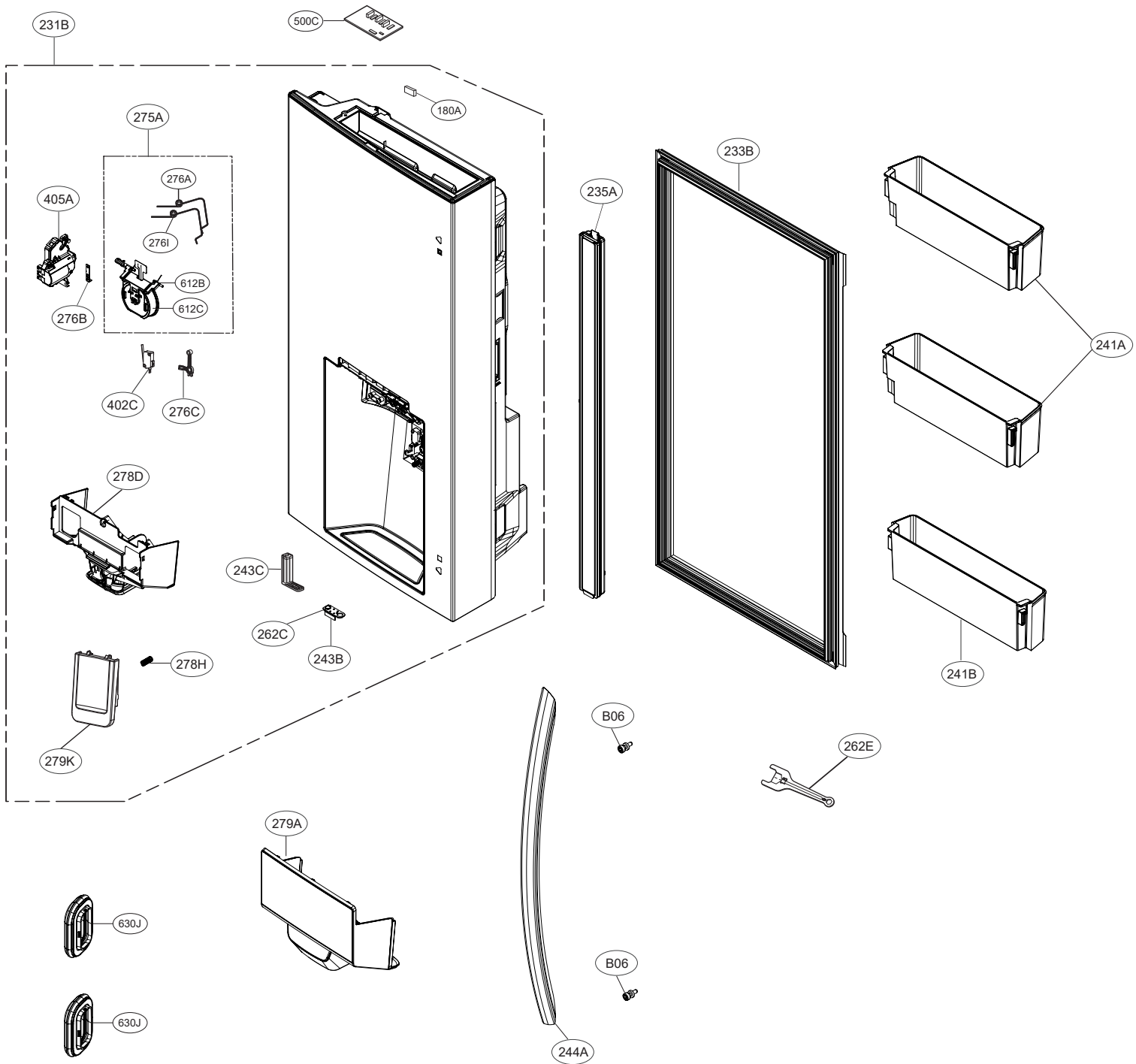
REFRIGERATOR PARTS

CAUTION: Use the part number to order part, not the position number.



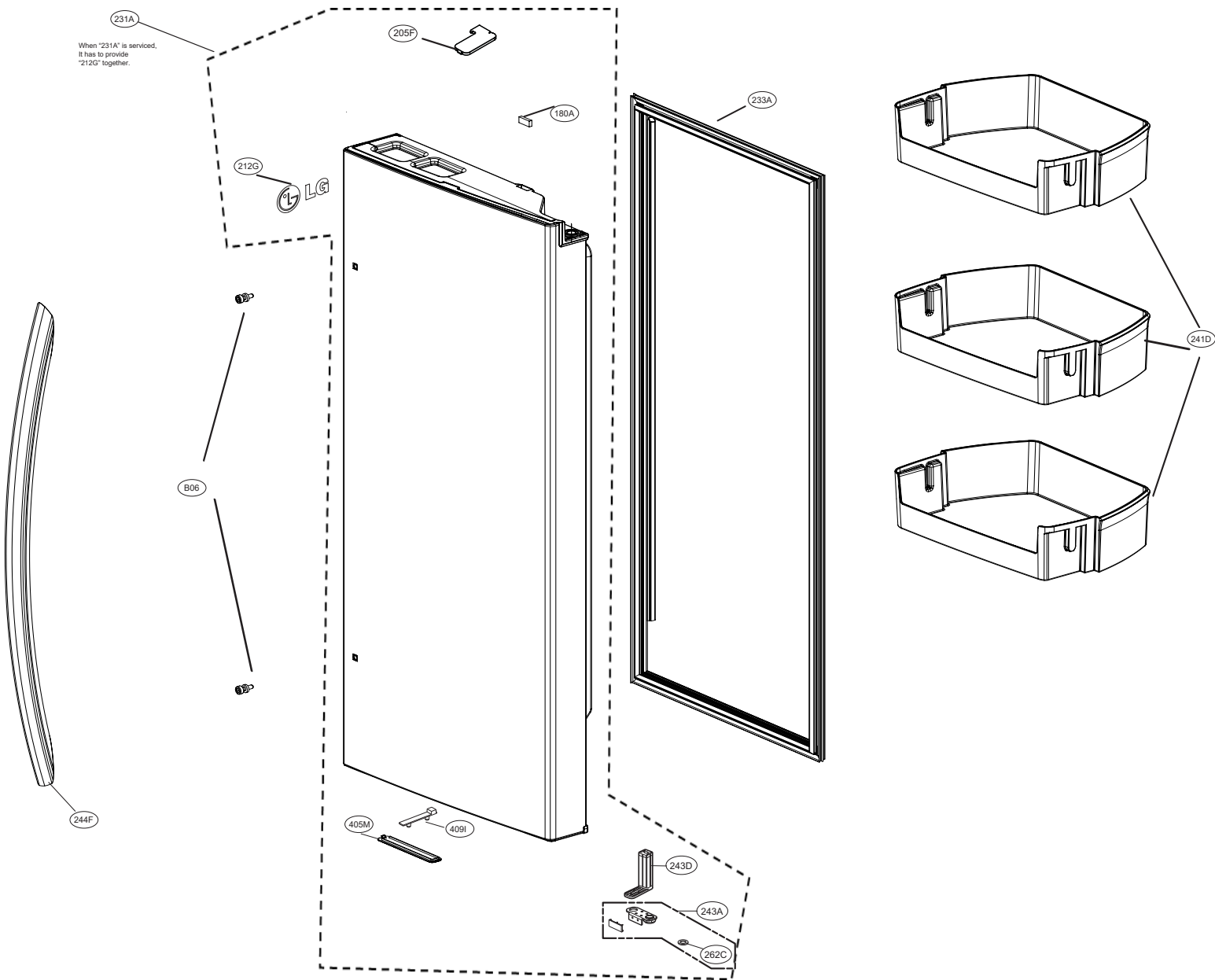
DOOR PARTS

CAUTION: Use the part number to order part, not the position number.



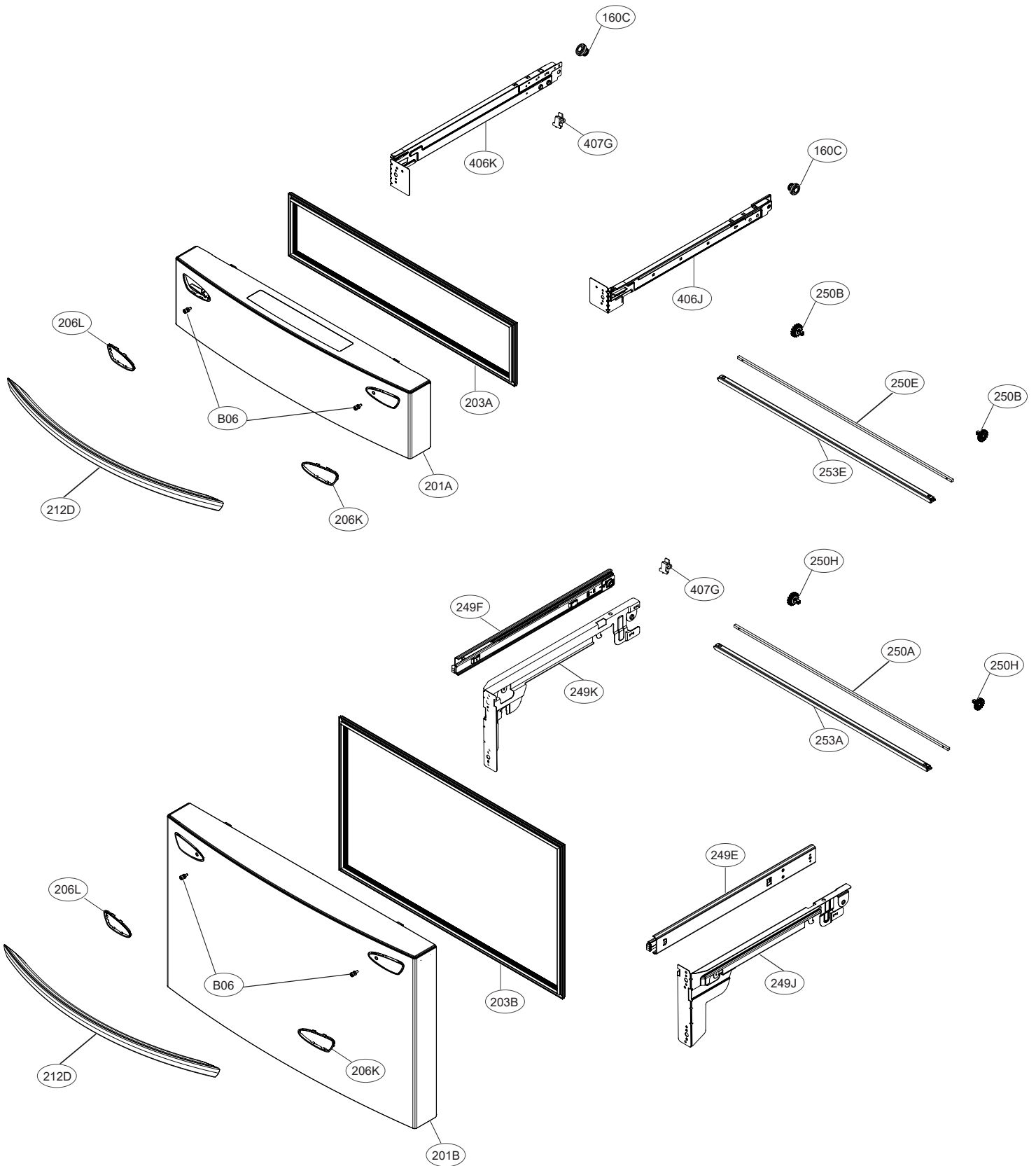
DOOR PARTS

CAUTION: Use the part number to order part, not the position number.



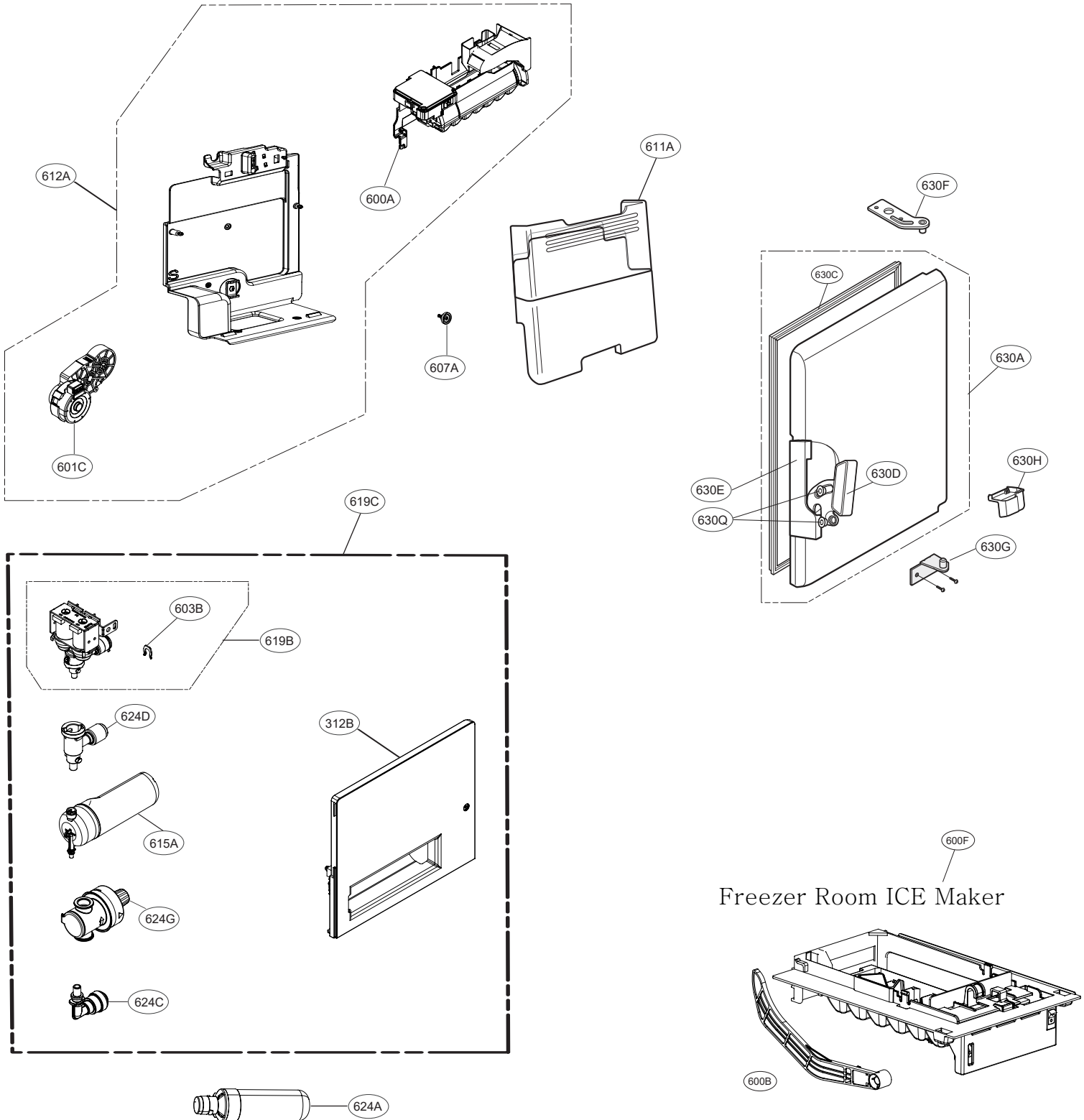
DOOR PARTS

CAUTION: Use the part number to order part, not the position number.



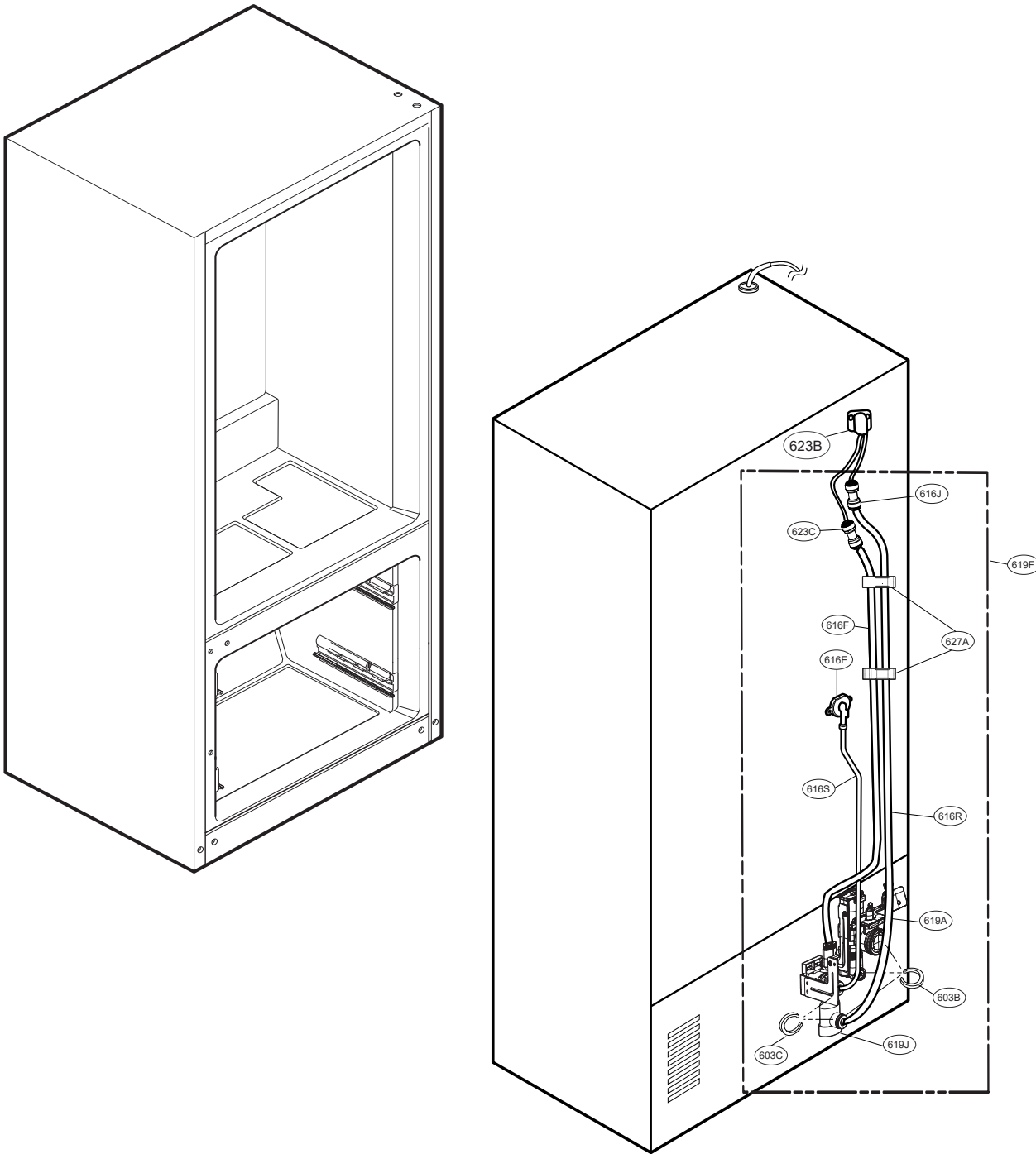
ICE MAKER & ICE BIN PARTS

CAUTION: Use the part number to order part, not the position number.



VALVE & WATER TUBE PARTS

CAUTION: Use the part number to order part, not the position number.

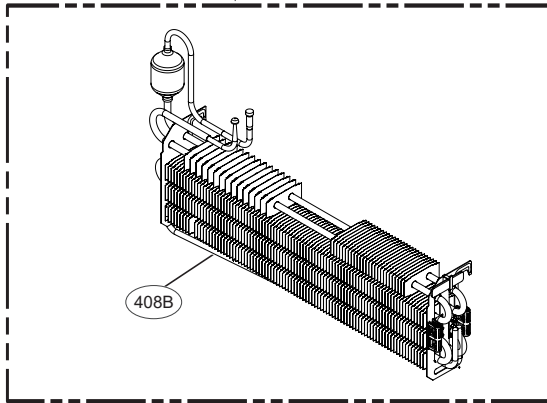


CYCLE PARTS

CAUTION: Use the part number to order part, not the position number.

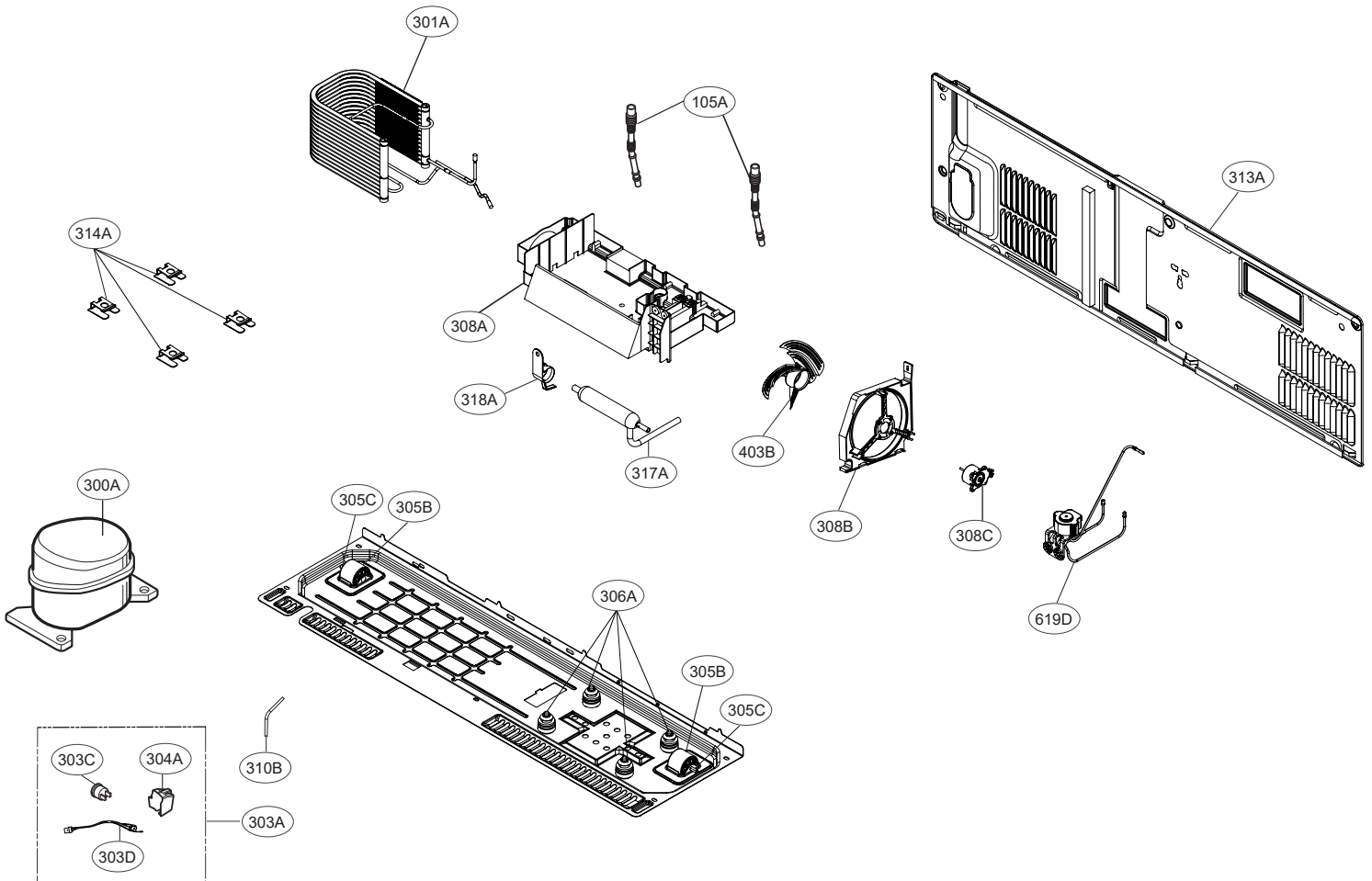
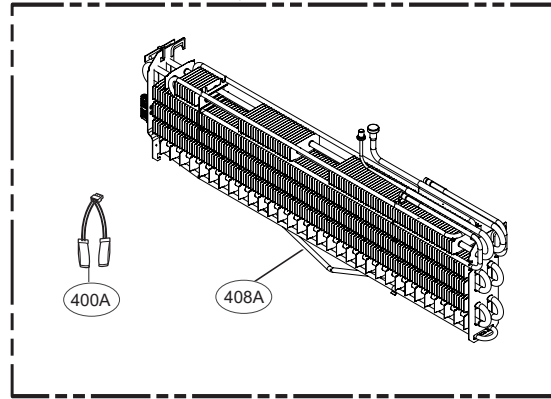
Fresh Food
Compartment

302C



Freezer
Compartment

302B





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