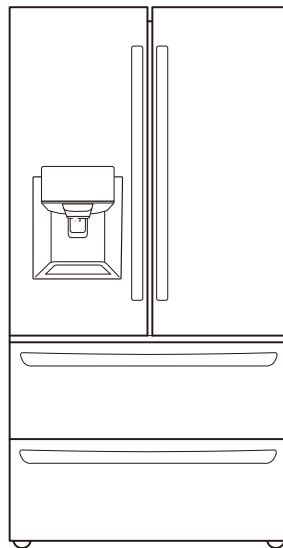




REFRIGERATOR

SERVICE MANUAL

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



MODEL : LMXS28626*

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.

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1. SPECIFICATIONS

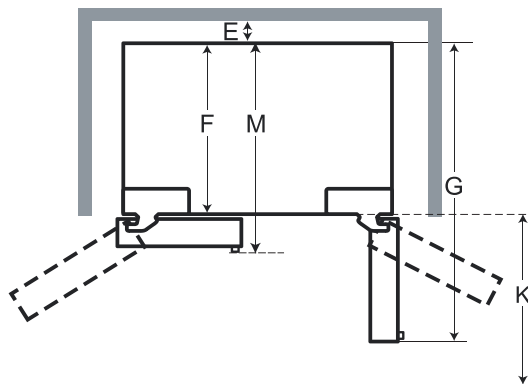
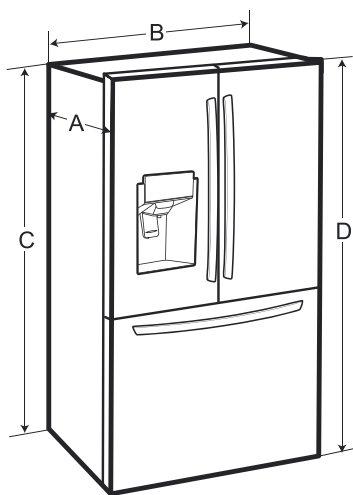
1-1 LFXS28566*

● 28 cu.ft.

ITEMS	SPECIFICATIONS
DOOR DESIGN	Side Rounded
DIMENSIONS (inches)	35 3/4 X 36 1/4 X 69 3/4 (WDXH) 27.7cu.ft.
NET WEIGHT (pounds)	143kg (316lb)
COOLING SYSTEM	Fan Cooling
TEMPERATURE CONTROL	Micom Control
DEFROSTING SYSTEM	Full Automatic
	Heater Defrost
DOOR FINISH	PCM, 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		Sparial Condenser	
REFRIGERANT		R-134a (140 g)	
LUBRICATING OIL		ISO10 (280 ml)	
DEFROSTING DEVICE		SHEATH HEATER	
LAMP	REFRIGERATOR	LED Module(20)	
	FREEZER	LED	

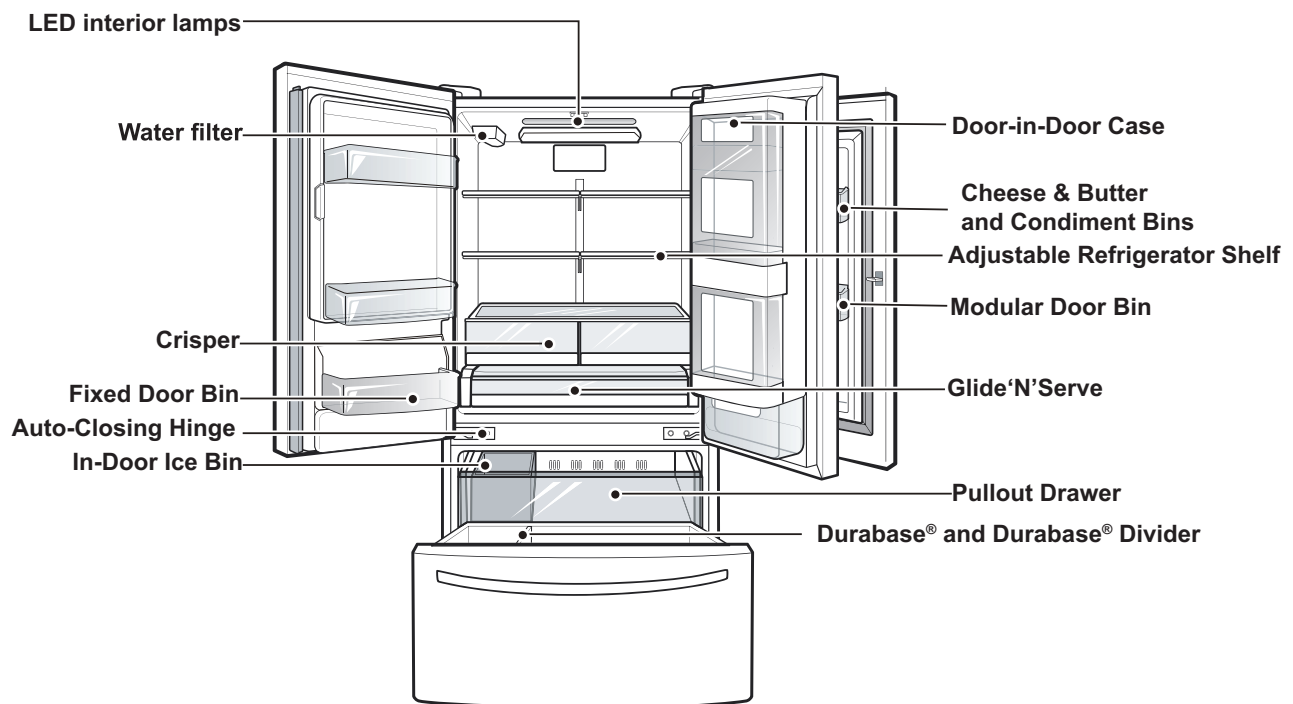
● DIMENSIONS



-	List	LMXS28626* / LFXS28566* LFXS28968*
A	Depth without handle	33 3/4" (857 mm)
B	Width	35 3/4" (908 mm)
C	Height to Top of Case	68 3/8" (1737 mm)
D	Height to Top of Hinge	69 3/4" (1772 mm)
E	Back Clearance	2" (50 mm)
F	Depth without Door	29 7/8" (759 mm)
G	Depth (Total with Door Open 90°)	48 1/2" (1232 mm)
K	Front Clearance	24" (610 mm)
M	Depth With handle	36 1/4" (921 mm)

2. PARTS IDENTIFICATION

Refrigerator Interior



3. DISASSEMBLY

● 3-1 Removing Refrigerator Door

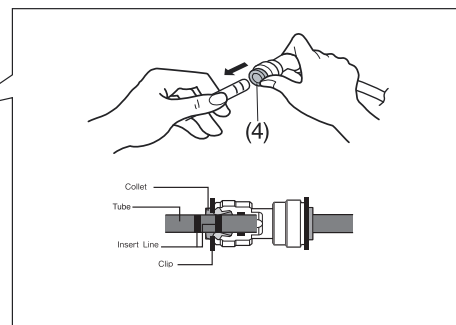
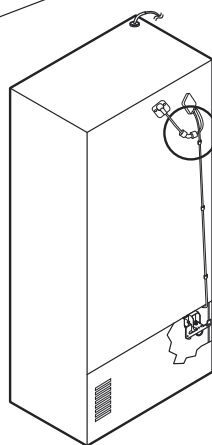
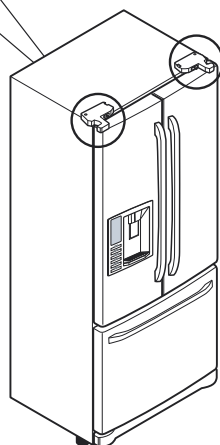
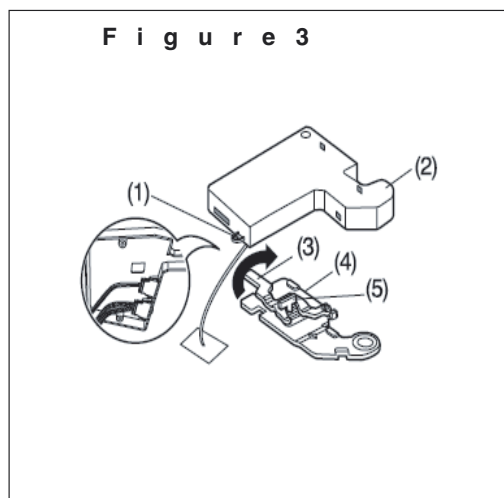
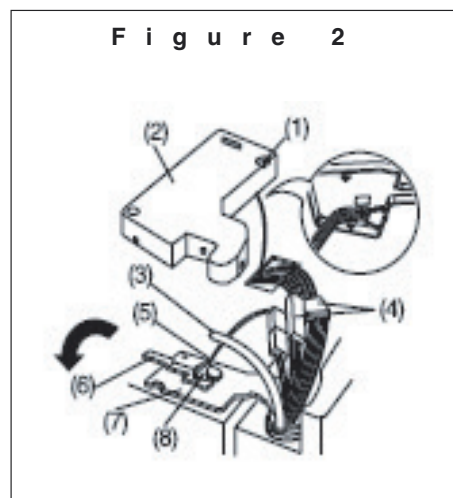
▲ **CAUTION** : Before you begin, unplug the refrigerator. Remove food and bins from doors.

► Left Door -FIG. 2

1. Disconnect water supply tube by pushing back on the disconnect ring (4).-FIG. 1
2. Open door. Loosen top hinge cover screw (1).
- Use flat tip screwdriver to pry back hooks on front underside of cover (2). Lift up cover.
3. Disconnect door switch wire harness. Remove cover.
4. Pull out the tube(3).
5. Disconnect the two wire harnesses (4). Remove the grounding screw (5).
6. Rotate hinge lever (6) counterclockwise. Lift top hinge (7) free of hinge lever latch (8).
- ▲ **CAUTION** : When lifting hinge free of latch, be careful that door does not fall forward.
7. Place door, facing up, down onto a non-scratching surface.

► Right Door -FIG. 3

1. Open door. Loosen top hinge cover screw (1). Lift up cover (2).
2. Disconnect door switch wire harness. Remove cover.
3. Rotate hinge lever (3) clockwise. Lift top hinge (4) free of hinge lever latch (5).
4. Lift door from middle hinge pin and remove door.
- ▲ **CAUTION** : When lifting hinge free of latch, be careful that door does not fall forward.
5. Place door, inside facing up, down onto a non-scratching surface.



3-2 DOOR

● Mullion Removal

1. Remove 2 screws.



Figure 1

2. Lift Mullion up carefully.



Figure 2

3. Disconnect wire harness.



Figure 3

● Door Gasket Removal

1. Remove gasket

Pull gasket free from gasket channel on the four remaining sides of door.

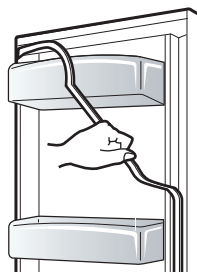


Figure 4

● Door Gasket Replacement

1. Insert gasket into channel

Press gasket into channels on the four remaining sides of door.

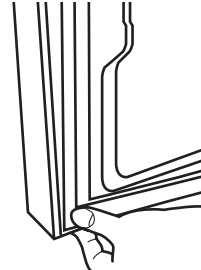


Figure 5

● Mullion Replacement

1. Connect wire harness.



Figure 6

2. Insert mullion into the channel.

Insert the cover assembly into bracket, door.



Figure 7

3. Assemble 2 screws.

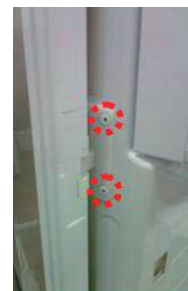


Figure 8

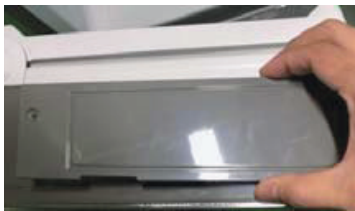
3-3 Sub PCB For Working Dispenser

● Sub,PCB Removal

1. Remove 1 Screw.



2. Lift Sub PCB up carefully.



3. Reverse the Suc PCB cover.



4. Disconnect capacitor housing.



5. Disconnect wire harness.



● Sub,PCB Replacement

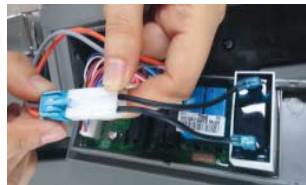
1. Reverse the Sub PCB cover.



2. Connect wire harness.



3. Connect the capacitor housing.



4. Insert the Sub PCB sidelng.



5. Assemble 1 screw.



3-4 Door Alignment

If the space between the door are uneven, follow the instructions to align them.

Remove the Base Grillie. Turn the leveling legs counter clock wise to raise or clock wise 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 User Manual) to adjust the bolt in the door hinge to adjust the height. (CCW to raise or CW to lower the height.)

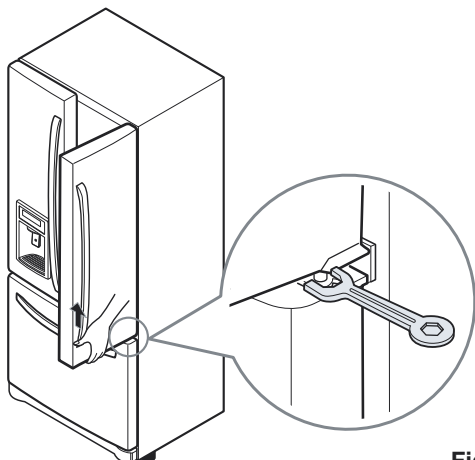


Figure 9

3-5 FAN AND FAN MOTOR(EVAPORATOR)

1. Remove the freezer drawer. (If your refrigerator has an icemaker, remove the icemaker first)
2. Remove the plastic guide for slides on left side by unscrewing phillips head screws.
3. Remove the grille by removing 4 screws and pulling the grille forward.
4. Remove the Fan Motor assembly by loosening 3 screws and disassembling the shroud.
5. Pull out the fan and separate the Fan Motor and Bracket.

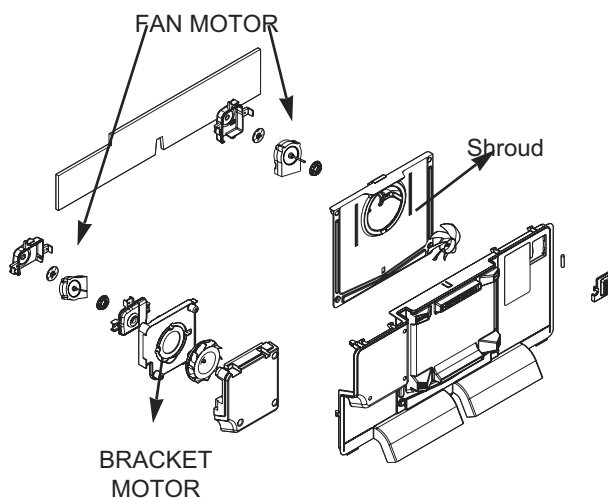


Figure 10

* Ice Fan Scroll Assembly Replacement

- 1) Remove the plastic guide on the left side, using a phillips screwdriver to remove the screws.
- 2) Pull off the sensor cover.
- 3) Remove the grill cover.
- 4) Gently pull on the grill assembly to remove.
- 5) Disconnect the wiring harness.
- 6) Remove all screws on the scroll assembly.

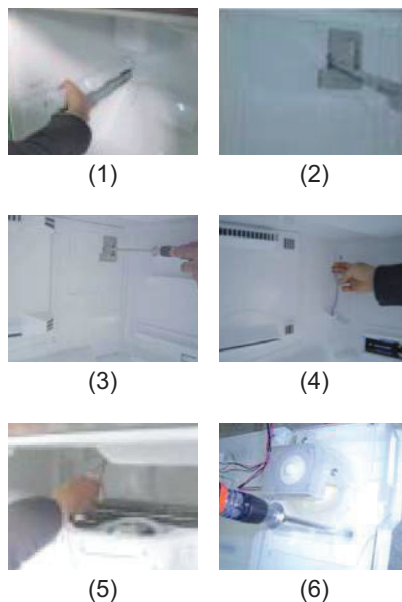


Figure 11

3-6 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 12)
2. Separate the connector with the Defrost Control assembly and replace the Defrost Control assembly after cutting the Tie Wrap. (Figure 13)

GRILLE ASSEMBLY

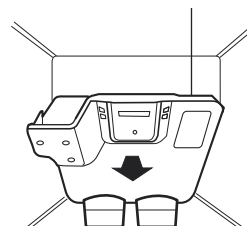


Figure 12

DEFROST-CONTROL ASSEMBLY

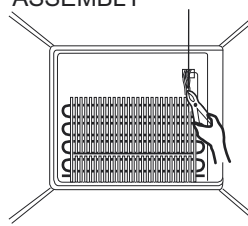


Figure 13

3-7 LAMP

Unplug, or disconnect power at the circuit breaker.
If necessary, remove top shelf or shelves.

3-7-1 Refrigerator Compartment Lamp

- 1) Pull out cover lamp as using sharp-edged tool.



Figure 14

- 2) To remove the LED assembly.

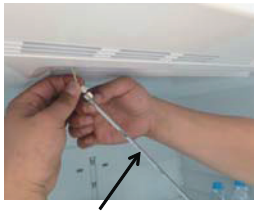


Figure 17

LED Assembly

- 3) Décor Duct(Grille) SVC 方法.

Remove the Décor Duct with tools like flat-head screwdriver



3-7-2 Cap Decor LED LAMP(Bottom)

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 MULTIDUCT

1. Remove the screw at the Center of Duct Multi
2. Remove the screw and cover filter
3. Disconnect the lead wire on the bottom position

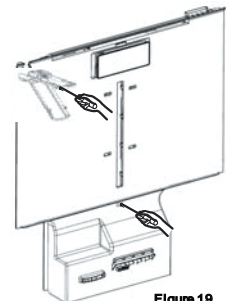


Figure 19

3-8 MAIN PWB

- 1) Loosen 3 screws on the PWB cover.



Figure 20

- 2) Remove the PWB cover

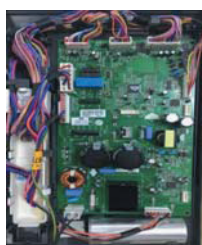


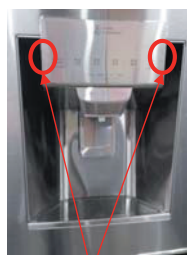
Figure 21

- 3) Disconnect wire harness and replace the main PWB in the reverse order of removal.



Figure 22

3-9 DISPLAY PCB



Fixing HOOK

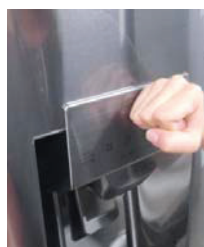


1. Hold the right side of the Display and pull to the inner diagonal angle to separate.

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.



3-10 ICE CORNER DOOR REPLACEMENT

- 1) Loosen the front screw as shown in the picture.
- 2) Lift up the hinge with one hand.
- 3) Pull out the Ice Corner Door with the other hand.

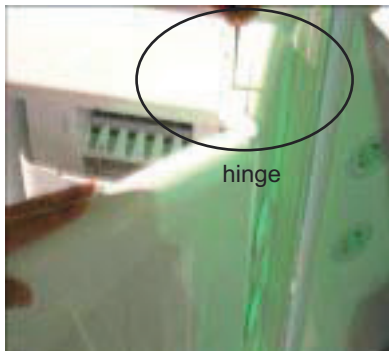


Figure 32

- 3) Disconnect wire harness from wall of compartment.

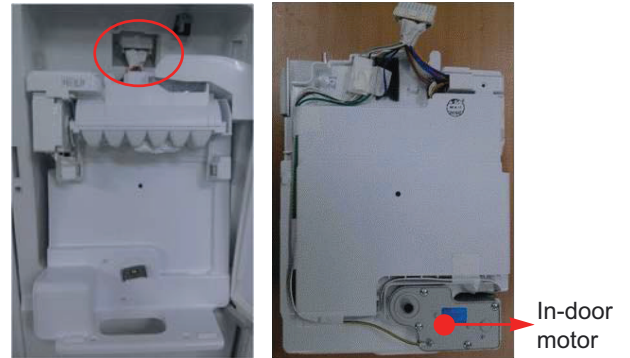


Figure 35

3-11 ICEMAKER REPLACEMENT

- 1) Remove 4 screws as shown.

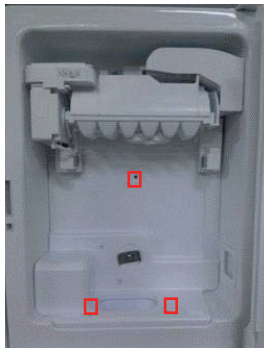


Figure 33

- 2) Grasp the bottom of motor cover assembly and pull slowly.



Figure 34

⚠ CAUTION: Make sure that the motor housing is taped to the mold, if not positioned correctly the cover will not fit properly.



Figure 36

3-12 CAP DUCT MOTOR REPLACEMENT

1) Separate the Housing of the Cap Duct Motor.



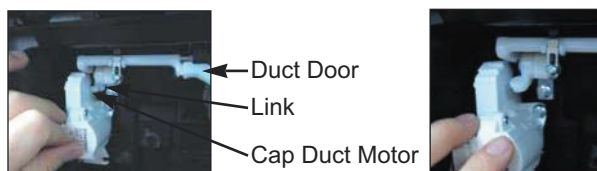
Figure 39

2) Unscrew 3 screws to disassemble the motor.



Figure 40

3) When replacing the motor, check the position of the door duct and the link for proper fit.



NG Position

Figure 41

4) Insert 2 screws.

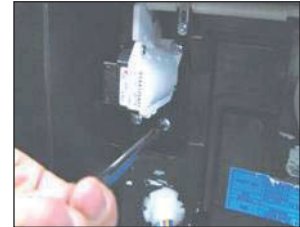


Figure 42

5) Push housing aside.



Figure 43

3-17 HOW TO REMOVE A ICE BIN

- 1) Grip the handles, as shown.

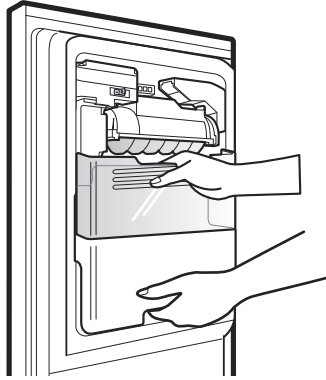


Figure 44

- 2) Tilt and lift slightly as shown.

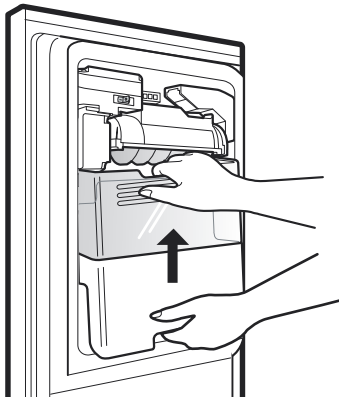


Figure 45

- 3) Remove ice bin slowly.

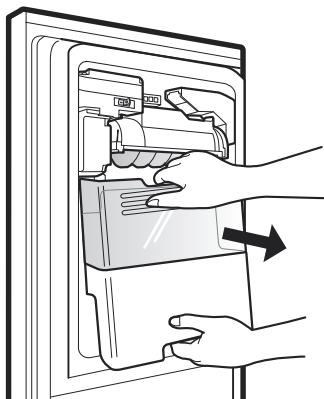


Figure 46

3-18 HOW TO INSERT A ICE BIN

- 1) Insert the Ice Bin, slightly tilting to avoid touching the Icemaker. (Especially, Ice-Detecting Sensor)

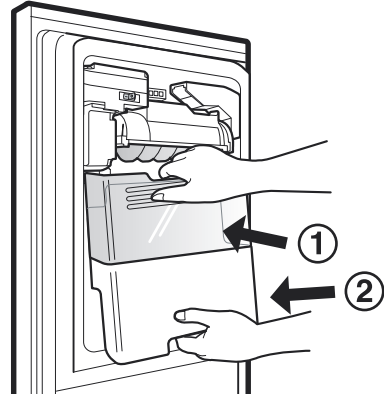


Figure 47

3-19 HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER

3-19-1 Follow Steps to Remove

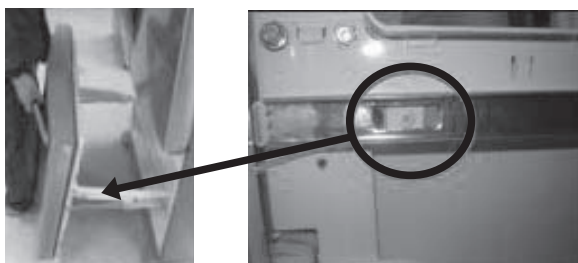
Step 1) Open the freezer door.



Step 2) Remove the lower basket.



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



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



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



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

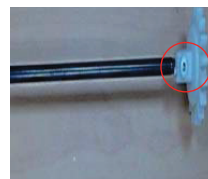
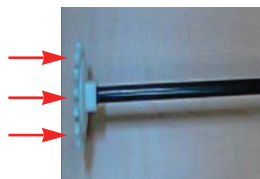


3-19-2 Follow Steps to Reinstall

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



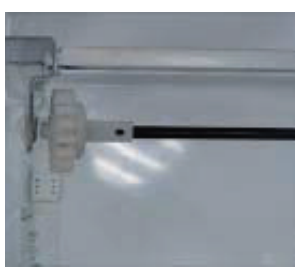
Step 2) ① Assemble a bar and gear ice with screw.
② Push the otherside of the gear to inside of the bar.



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.



* Assemble them like as pictures



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.



3-21 WATER VALVE DISASSEMBLY METHOD

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

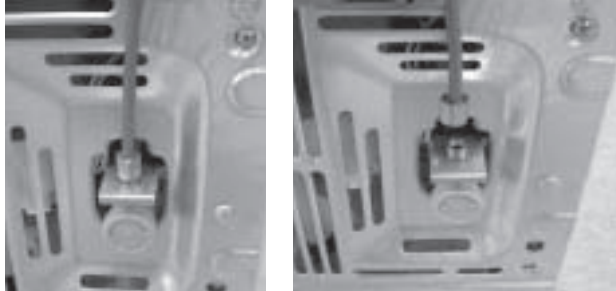


Figure 60

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

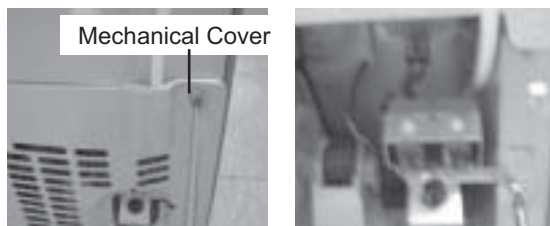


Figure 61

- 3) Separate the housing and remove the valve.

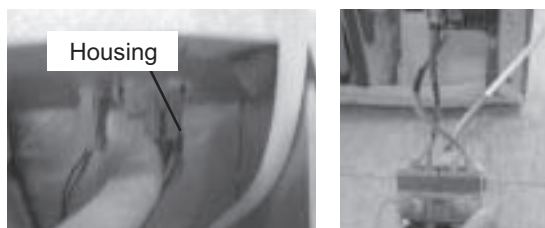


Figure 62

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

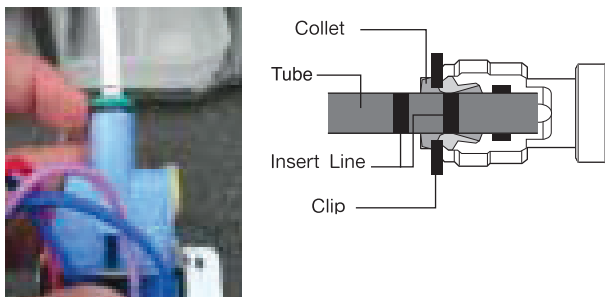


Figure 63

3-22 Fan motor assembly 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.).

3-23 Drawer Removal

Fully extend the drawer and lift from the front pulling straight out.

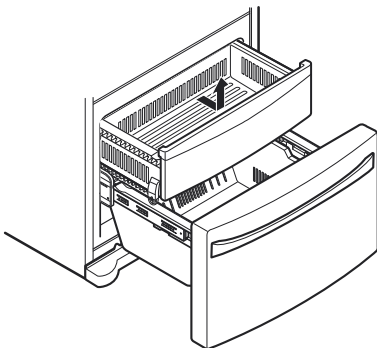


Figure 66

To install the drawer back into the frame, tilt the front slightly and pushing back into place.

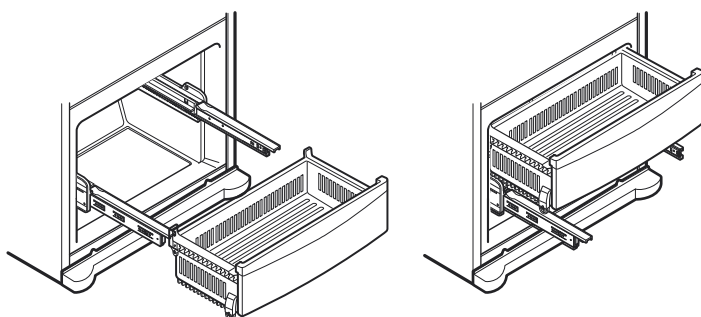


Figure 67

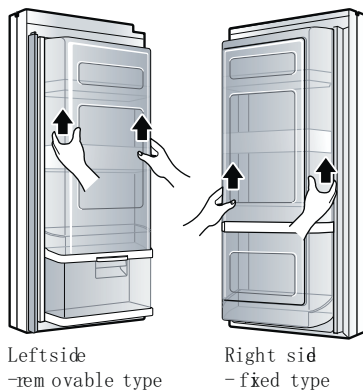
Chapter 13 How to disassemble and assemble the vegetable box

1. Cover TV service method (GC-J288***)

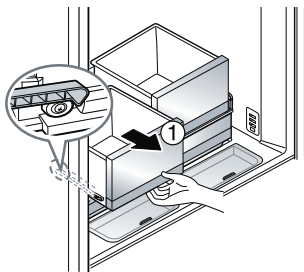
How to disassemble and assemble the vegetable box

How to disassemble vegetable box

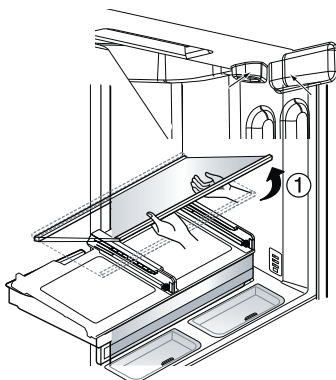
- 1 While the refrigeration chamber doors are open wide, remove all of the Magic Space cover and shelves. (Refer to page 27~28)



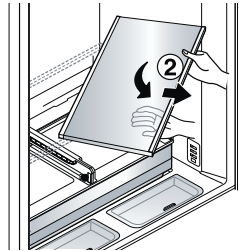
- 2 Remove left/right side vegetable chambers



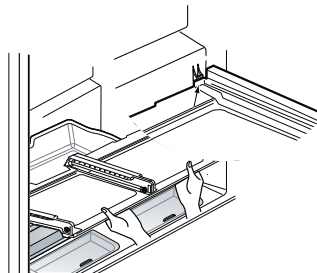
- 3 Support the bottom of the shelf with one hand and hold the front of the vegetable chamber with the other hand, and pull forward about 3cm while lifting the chamber so that the inner side fixing part can be taken out.



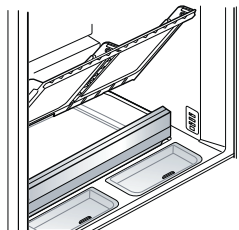
- 4 Take out the vegetable chamber shelf by laying it down 45°.



- 5 While lifting the front side of the vegetable chamber tray by 15°, take out forward 10cm so that it is fallen apart from the backside fixing part.



- 6 Erect the tray by 45° or more and slowly take it outside.



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) Loosen two screws on comp base



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

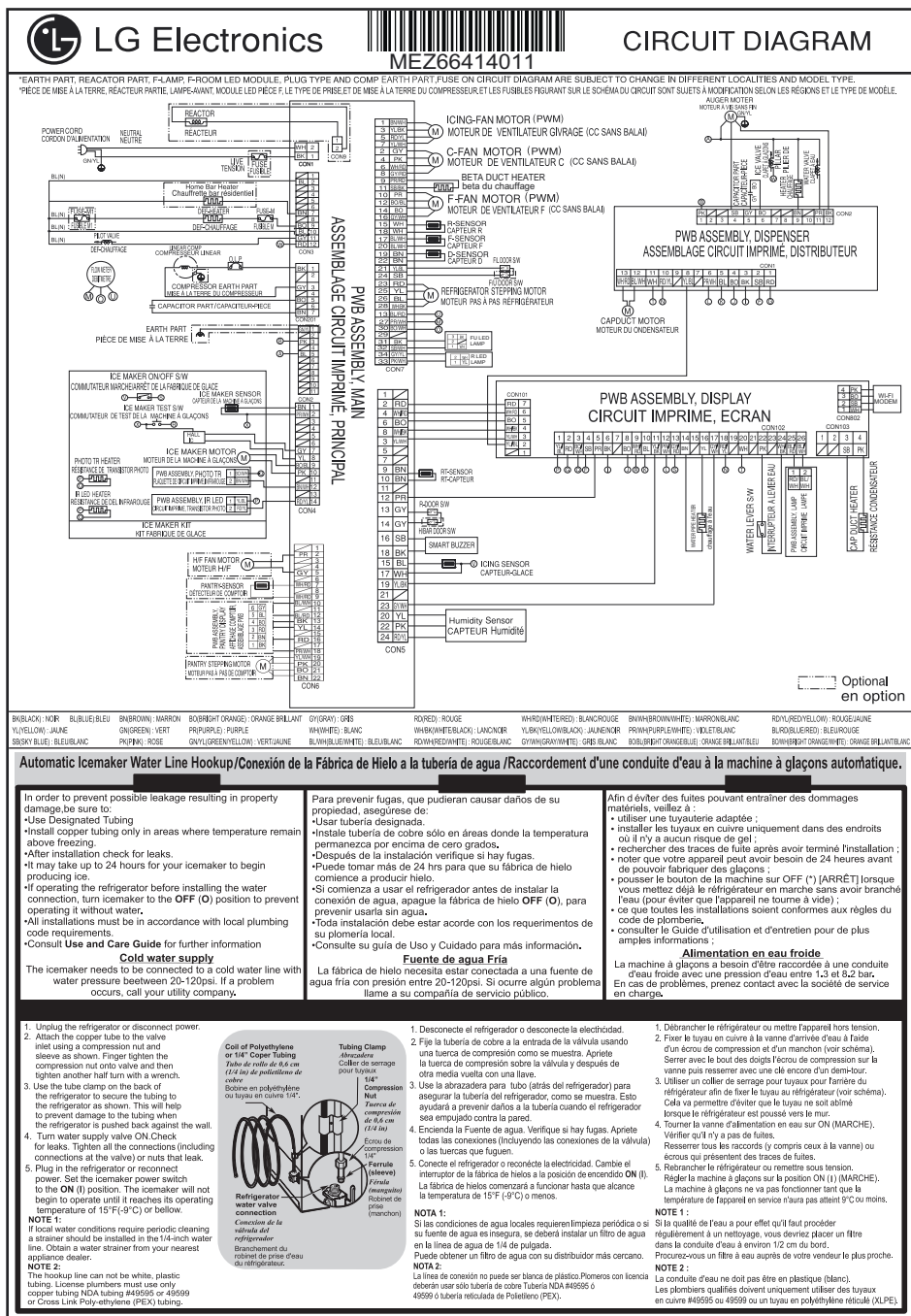
4-2-3 Compressor protection logic

- 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

MEZ66414011 (Label,Circuit)



技术要求:

1. 印刷应清晰，无污点及印刷痕迹等缺陷；
2. 印刷颜色为黑色PANTONG 422C；
3. 材料为80g铜版纸不可转移不干胶；
4. 外框线为切割线；
5. 部品必需不含有禁止物质(如：Pb, Cd, Hg, Cr+6, PBB, PBDE)，并且要完全符合LG(61)-A-9101基准。

6. TROUBLESHOOTING

6-1 Error Code Summary

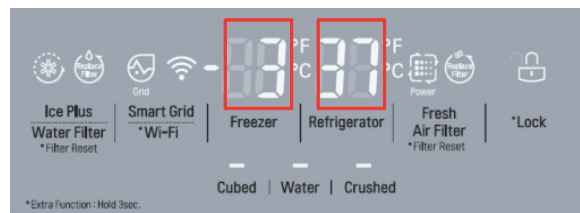
▲ WARNING: When checking Resistance values, make sure to turn off the power, and wait for the voltage to discharge.

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 sensor)", "gF E", "It E" error, are displayed.

"IS E" which is displayed without input of user is the error of Icing Sensor.

Error Code ② Error Code ①

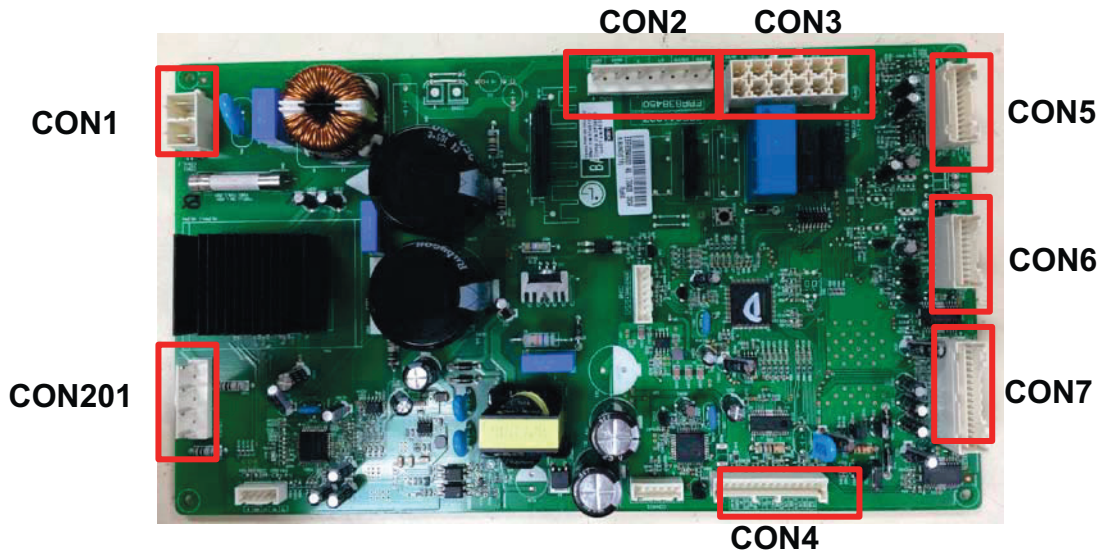


NO	Error Detection Category	Error Display		Error Generation Factors	Remark
		Freezer Temperature (Error code ②)	Refrigerator Temperature (Error code ①)		
1	lamroN			enoN	yalpsiD fo noitar
2	Freezer Sensor Error	FS	E	Short or Disconnection of Freezer Sensor	Check each sensor at it's connector.
3	Refrigerator Sensor Error	rS	E	Short or Disconnection of Refrigerator Sensor	
4	Defrosting Sensor Error	dS	F	Short or Disconnection of Defrosting Sensor	
5	Icing Sensor Error	IS	E	Short or disconnection of the sensor about Ice maker (Icing sensor, Ice maker sensor)	
6	Humidity Sensor Error	HS	E	Short or Disconnection of Humidity	
7	Room Temp Sensor Error	rt	E	Short or Disconnectoin of Room temp.sensor	
8	Ice maker kit defect	It	E	Other Electric system error such as moter, gear, Hall IC, operation circuit within I/M kit	When the ice does not drop even when the I/M Test S/W is pressed
9	Flow Meter(Sensor) Defect	gF	E	Error of flow meter or water input or low water pressure	Error of flow meter or water input or low water pressure or flow meter connection
10	Poor Defrosting	dH	F	During 2 consecutive cycles the defrosting sensor did reach over 46F (8C)	Temperature Fuse Disconnection, Heater disconnection, DRAIN Jam, Poor Relay for Heater
11	Abnormality of BLDC FAN Motor for Ice Making	IF	E	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
12	Abnormality of BLDC FAN Motor for Freezer	FF	E	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
13	Abnormality of BLDC FAN Motor for Mechanic Room	CF	E	It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating	Poor BLDC Motor connection, DRIVE IC, and TR
14	Communication Error	CO	E	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.

7. PCB Picture

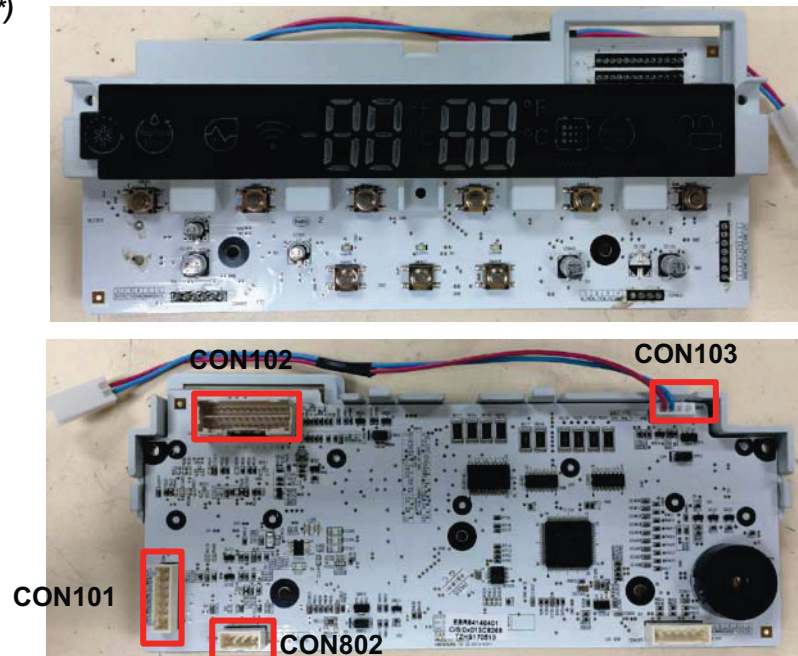
7-1. Main PCB

(P/N : EBR838450**)



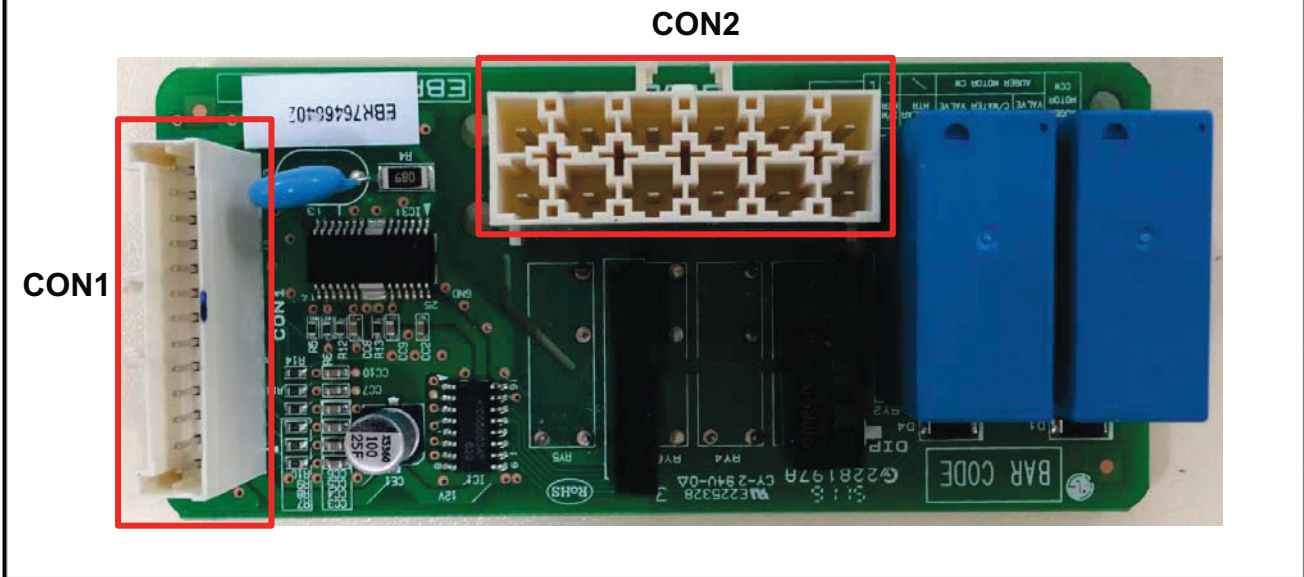
7-2. Display PCB

(P/N : EBR841464**)



7-3. Sub PCB

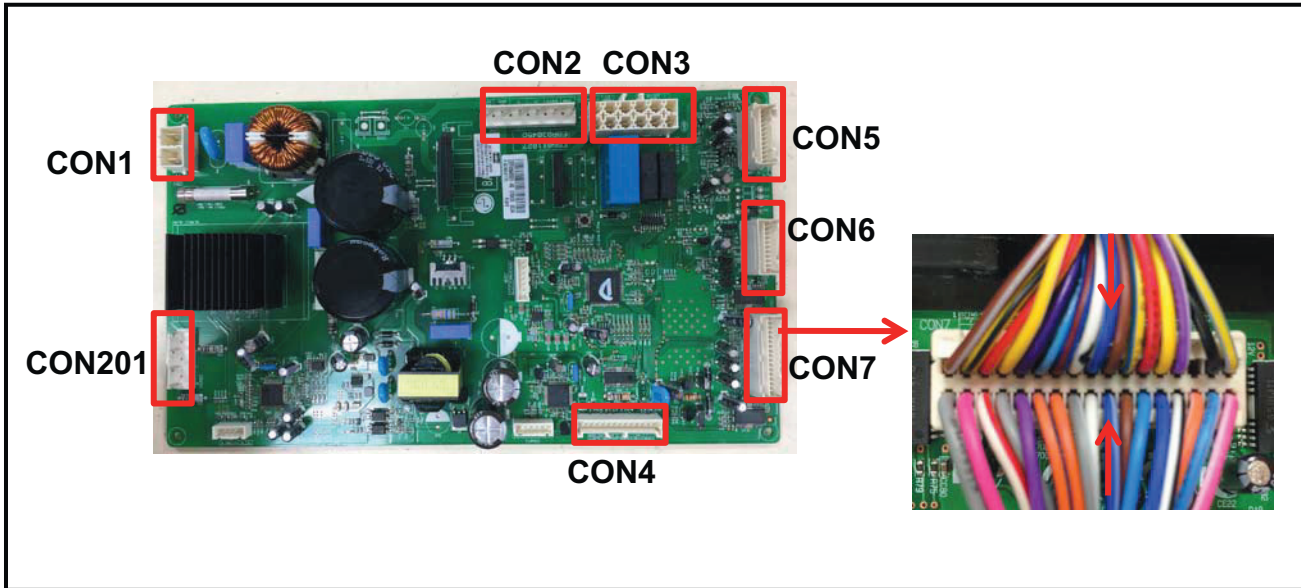
(P/N : EBR76468403)



8. Trouble Shooting

8-1. Freezer Sensor Error (FS E)

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



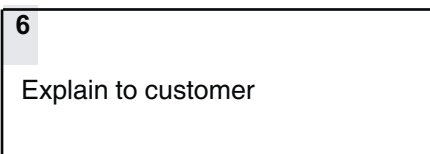
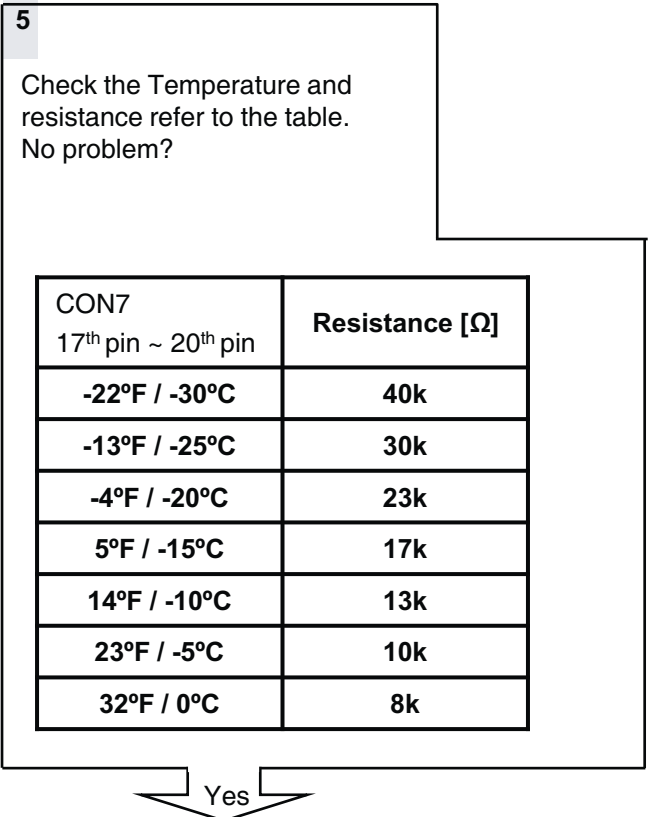
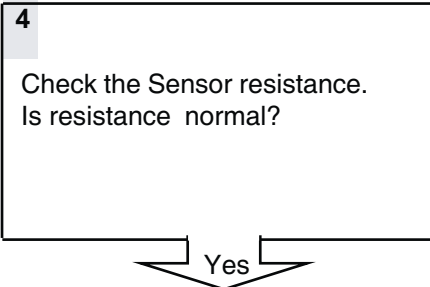
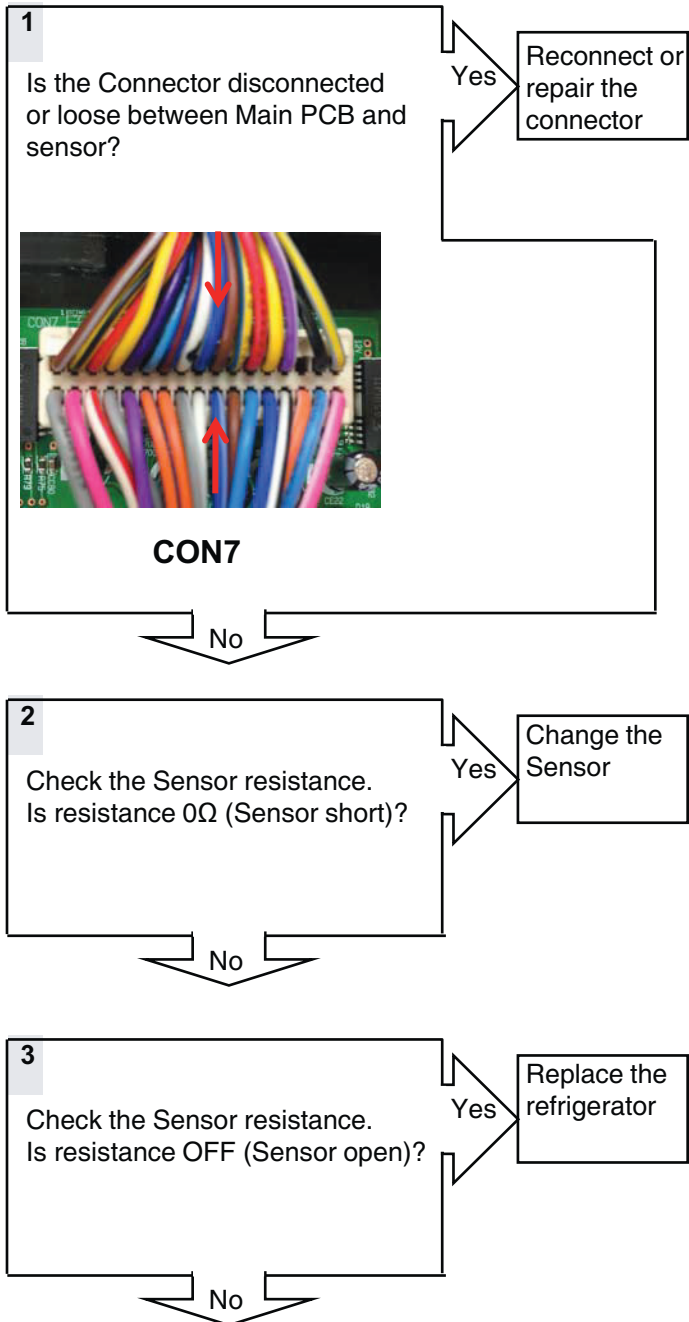
1 BN/WH → ICING-FAN MOTOR (PWM)
3 YL/BK → MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL → (M)
7 YL/WH →
2 GY → C-FAN MOTOR (PWM)
4 PK → MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD →
8 GY/RD → BETA DUCT HEATER
9 PR/RD → beta du chauffage
11 SB/BK →
10 PR →
12 BO/BL → (M)
14 BO → F-FAN MOTOR (PWM)
16 GY/WH → MOTEUR DE VENTILATEUR F (CC SANS BALAI)
15 WH → R-SENSOR
18 WH → CAPTEUR R
17 BL/WH → F-SENSOR
20 BL/WH → CAPTEUR F
19 BN → D-SENSOR
22 BN → CAPTEUR D
21 YL/BL → FIL DOOR S/W
24 SB → FIL DOOR S/W
23 RD → REFRIGERATOR STEPPING MOTOR
25 YL → MOTEUR PAS À PAS RÉFRIGÉRATEUR
26 BL →
28 WH/BK →
13 BL/RD →
27 PR/WH →
30 BO/WH →
29 →
31 BK → FU LED LAMP
32 SB/WH →
34 GY/YL → R LED LAMP
33 PK/WH →

CON7

	Resistance [Ω]	
CON7 17 th pin ~ 20 th pin	Short	0
	Open	OFF
	Other	Normal

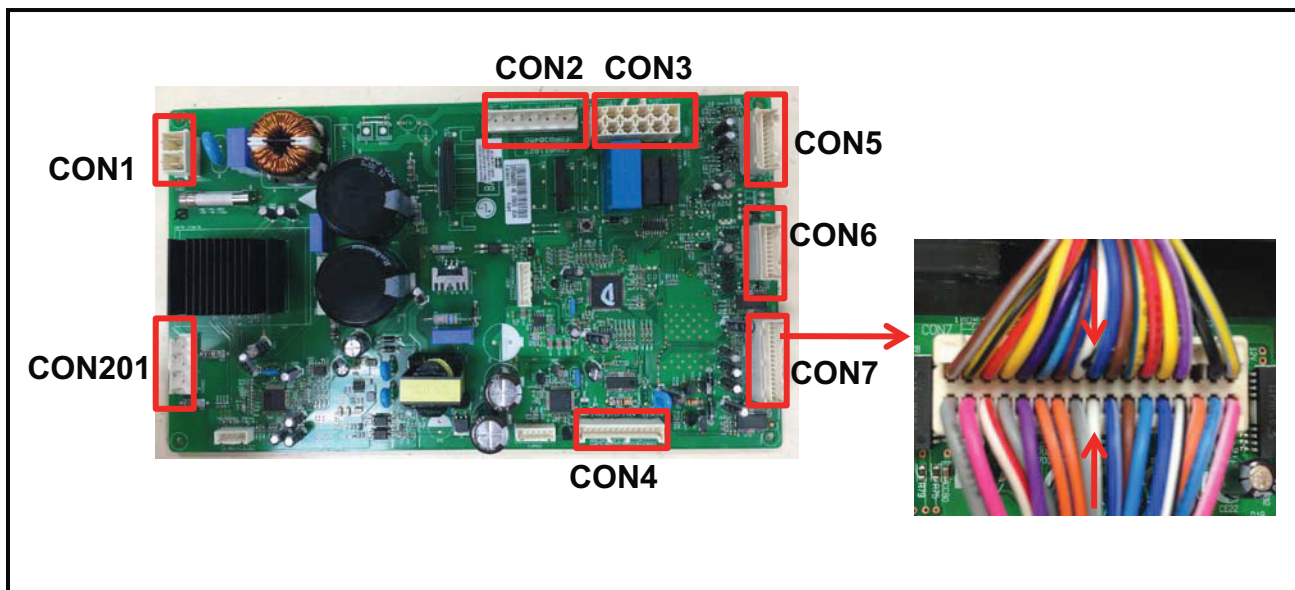
CON7 17 th pin ~ 20 th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
5°F / -15°C	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

Freezer Sensor Error (FS E)



8-2. Refrigerator Sensor Error (rS E)

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

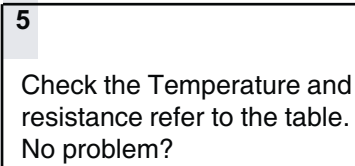
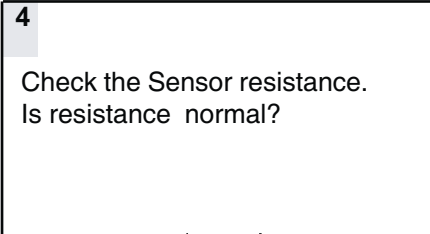
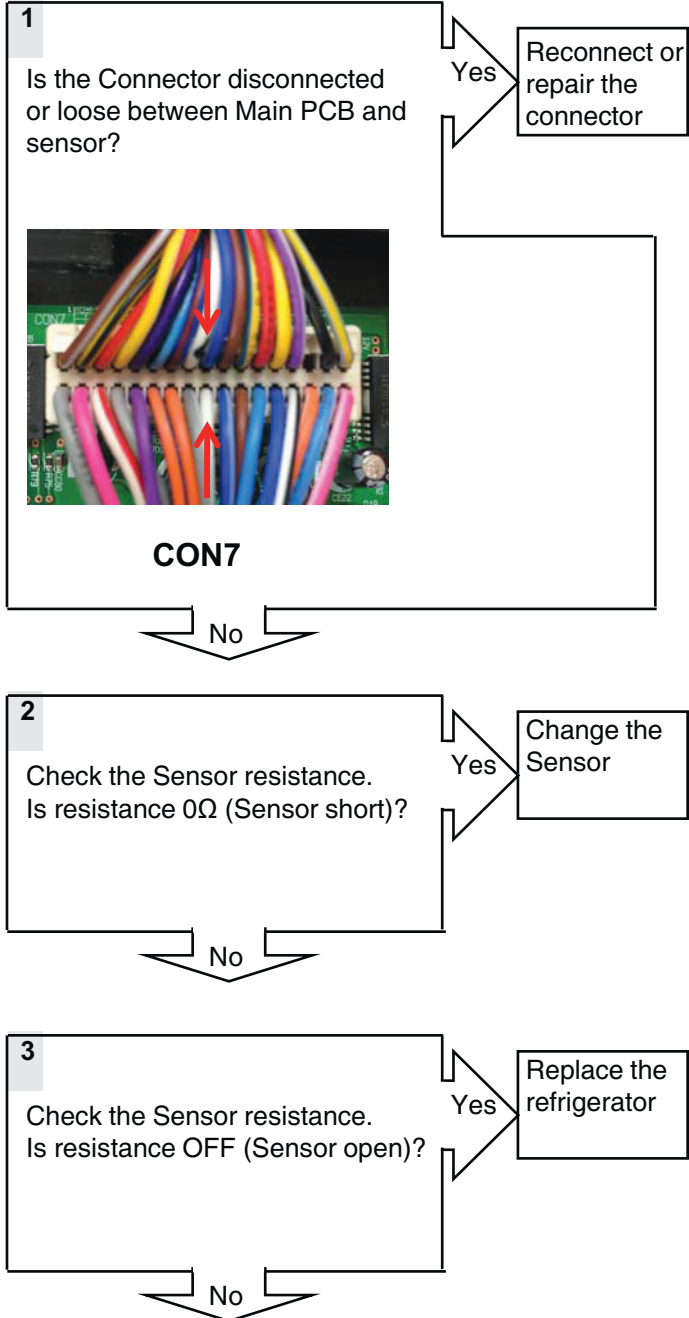


1 BNWH		ICING-FAN MOTOR (PWM)
3 YL/BK		MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL		
7 YL/WH		
2 GY		C-FAN MOTOR (PWM)
4 PK		MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD		
8 GY/RD		
9 PR/RD		BETA DUCT HEATER
11 SB/BK		beta du chauffage
10 PR		F-FAN MOTOR (PWM)
12 BO/BL		MOTEUR DE VENTILATEUR F (CC SANS BALAI)
14 BO		
16 GY/WH		
15 WH		R-SENSOR
18 WH		CAPTEUR R
17 BL/WH		F-SENSOR
20 BL/WH		CAPTEUR F
19 BN		D-SENSOR
22 BN		CAPTEUR D
21 YL/BL		FIL DOOR S/W
24 SB		FIU DOOR S/W
23 RD		REFRIGERATOR STEPPING MOTOR
25 YL		MOTEUR PAS À PAS RÉFRIGÉRATEUR
26 BL		
28 WH/BK		
13 BL/RD		
27 PR/WH		
30 BO/WH		
29		
31 BK		
32 SB/WH		
34 GY/YL		
33 PK/WH		
CON7		

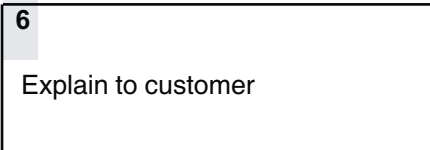
	Resistance [Ω]	
CON7 15 th pin ~ 18 th pin	Short	0
	Open	OFF
	Other	Normal

CON7 15 th pin ~ 18 th 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 (rS E)

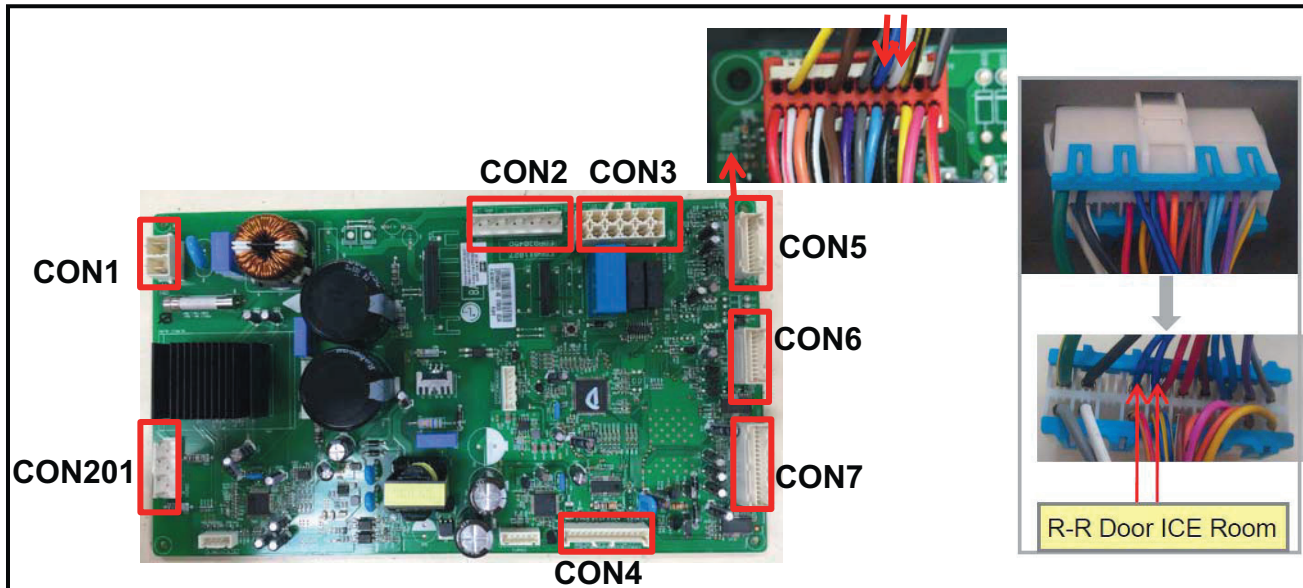


CON7 15 th pin ~ 18 th pin	Resistance [Ω]
23°F / -5°C	38k
32°F / 0°C	30k
41°F / 5°C	24k
50°F / 10°C	19.5k
59°F / 15°C	16k



8-3. Icing Sensor Error (IS E)

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



Wiring diagram showing connections for various sensors to a 24-pin connector (CON5) and a 7-pin connector (CON101).

CON5 (24 pins):

- 1: /
- 2: RD
- 4: WH/RD
- 6: BO
- 8: WH/BK
- 3: YL/WH
- 5: /
- 7: /
- 9: BN (RT-SENSOR)
- 10: BN (RT-SENSOR)
- 11: /
- 12: PR
- 13: GY (R-DOOR SW)
- 14: GY (HBAR DOOR SW)
- 16: SB (SMART BUZZER)
- 18: BK
- 15: BL (ICING SENSOR)
- 17: WH (ICING SENSOR)
- 19: YL/BK
- 21: /
- 23: GY/WH
- 20: YL (Humidity Sensor)
- 22: PK (Humidity Sensor)
- 24: RD/YL (Humidity Sensor)

CON101 (7 pins):

- RD: 7
- WH/RD: 6
- BO: 5
- WH/BK: 4
- YL/WH: 3
- YL/BL: 2
- /: 1

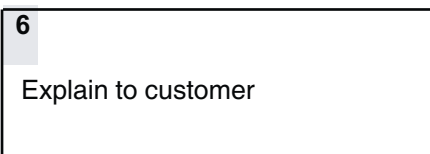
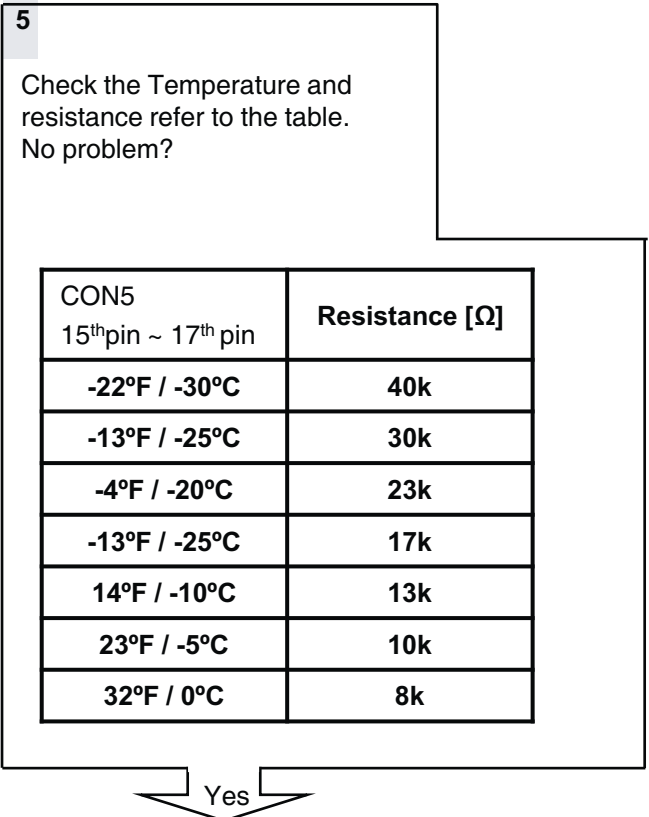
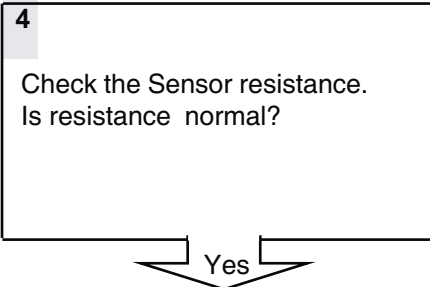
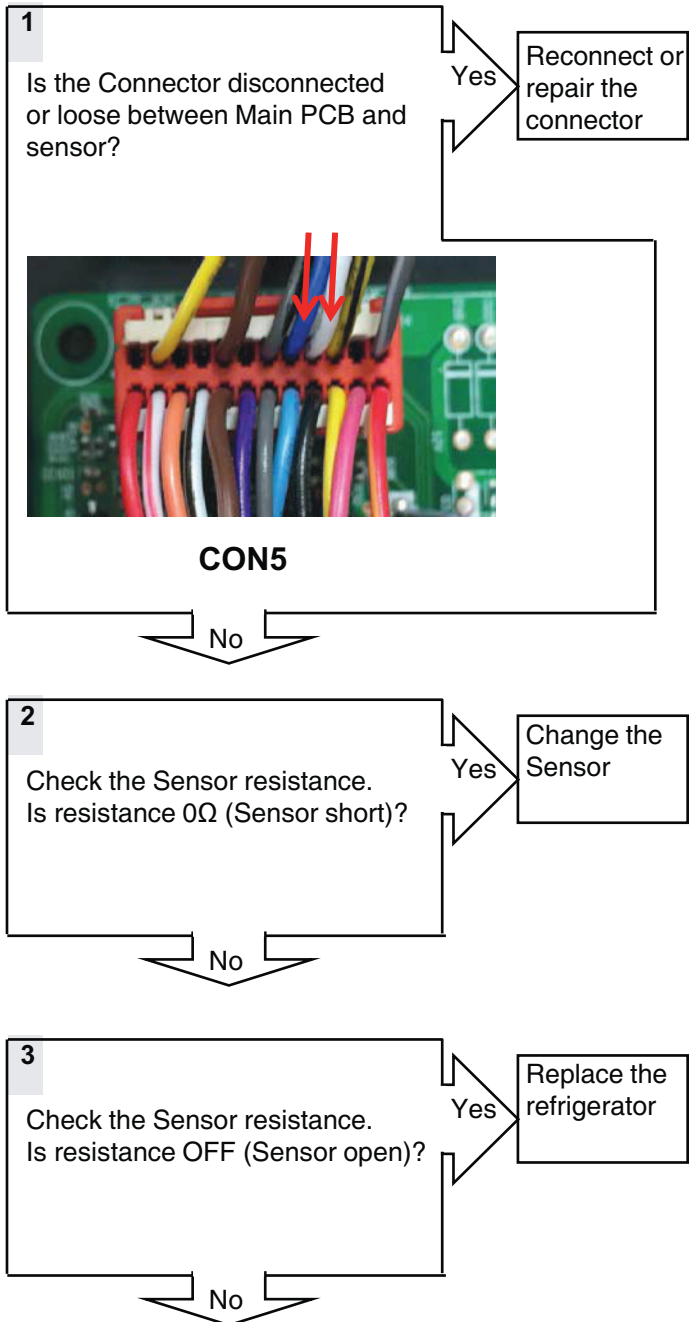
Sensors and Components:

- RT-SENSOR (RT-CAPTEUR)
- R-DOOR SW
- HBAR DOOR SW
- SMART BUZZER
- ICING SENSOR (CAPTEUR-GLACE)
- Humidity Sensor (CAPTEUR Humidité)

	Resistance [Ω]	
CON5 15 th pin ~ 17 th pin	Short	0
	Open	OFF
	Other	Normal

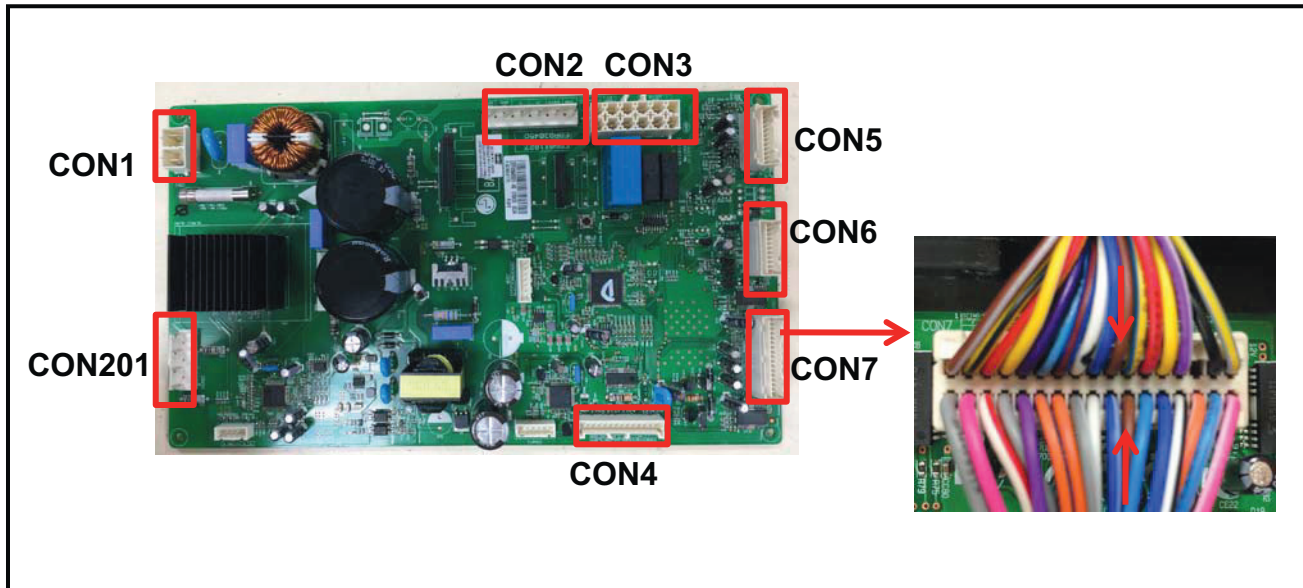
CON5 15 th pin ~ 17 th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
-13°F / -25°C	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

Icing Sensor Error (IS E)



8-4. Defrost Sensor Error (dS F)

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



	Resistance [Ω]	
	Short	0
	Open	OFF
	Other	Normal

CON7 19 th pin ~ 22 th 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

CON7 19 th pin ~ 22 th 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

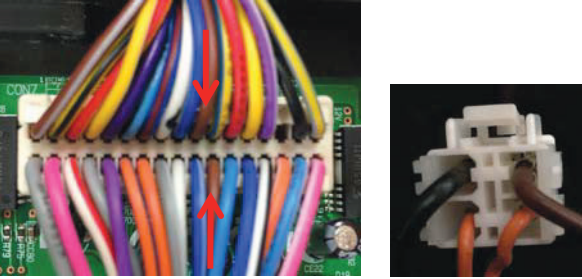
1 BN/WH	ICING-FAN MOTOR (PWM)
3 YL/BK	MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL	
7 YL/WH	
2 GY	C-FAN MOTOR (PWM)
4 PK	MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD	
8 GY/RD	BETA DUCT HEATER
9 PR/RD	beta du chauffage
11 SB/BK	
10 PR	
12 BO/BL	F-FAN MOTOR (PWM)
14 BO	MOTEUR DE VENTILATEUR F (CC SANS BALAI)
16 GY/WH	
15 WH	R-SENSOR
18 WH	CAPTEUR R
17 BL/WH	F-SENSOR
20 BL/WH	CAPTEUR F
19 BN	D-SENSOR
22 BN	CAPTEUR D
21 YL/BL	FIL DOOR S/W
24 SB	
23 RD	FU DOOR S/W
25 YL	REFRIGERATOR STEPPING MOTOR
26 BL	MOTEUR PAS À PAS RÉFRIGÉRATEUR
28 WH/BK	
13 BL/RD	
27 PR/WH	
30 BO/WH	
29	
31 BK	FU LED LAMP
32 SB/WH	
34 GY/YL	R LED LAMP
33 PK/WH	
CON7	

Defrost Sensor Error (dS F)

1

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

Yes → Reconnect or repair the connector



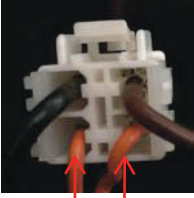
CON7

No →

2

Check the Sensor resistance. Is resistance 0Ω (Sensor short) or resistance Infinity Ω (Sensor open) ?

Yes → Change the Sensor



No →

3

Check the Sensor resistance. Is resistance normal?

Yes →

4

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

No → Change Main PCB

CON7 19 th pin ~ 22 th 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

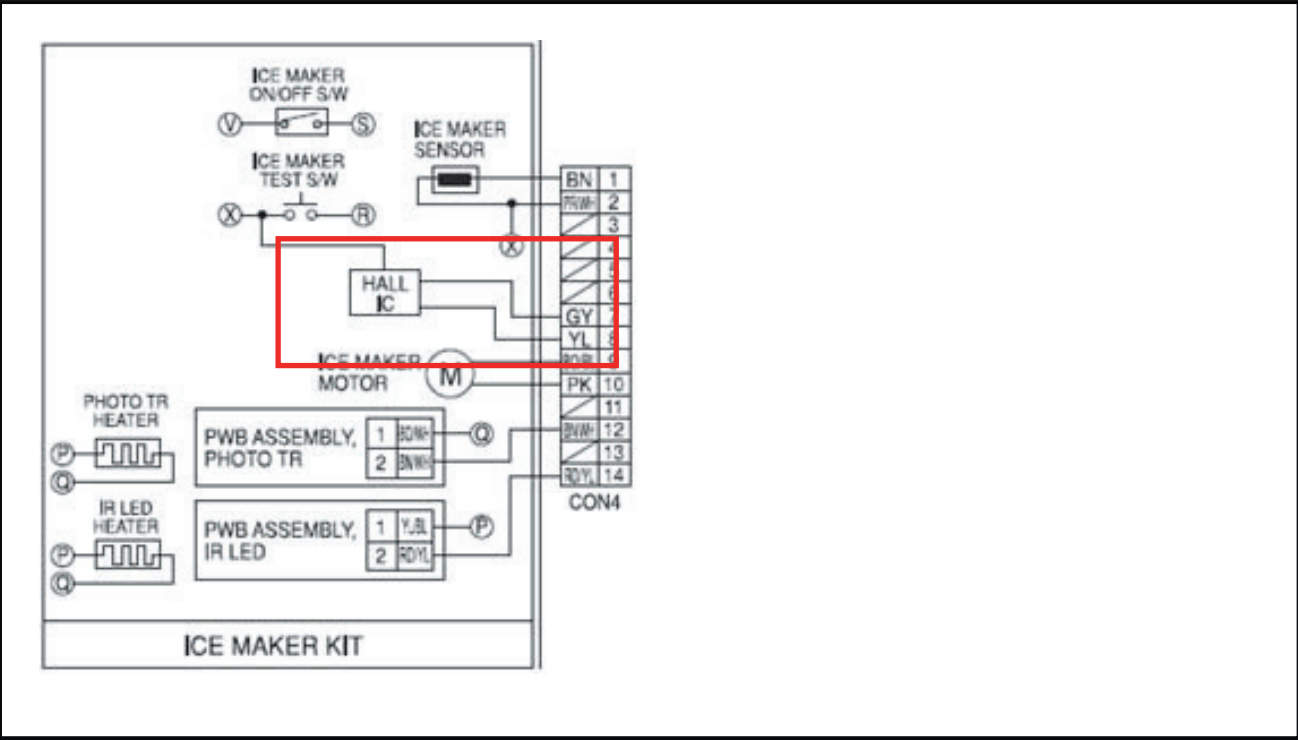
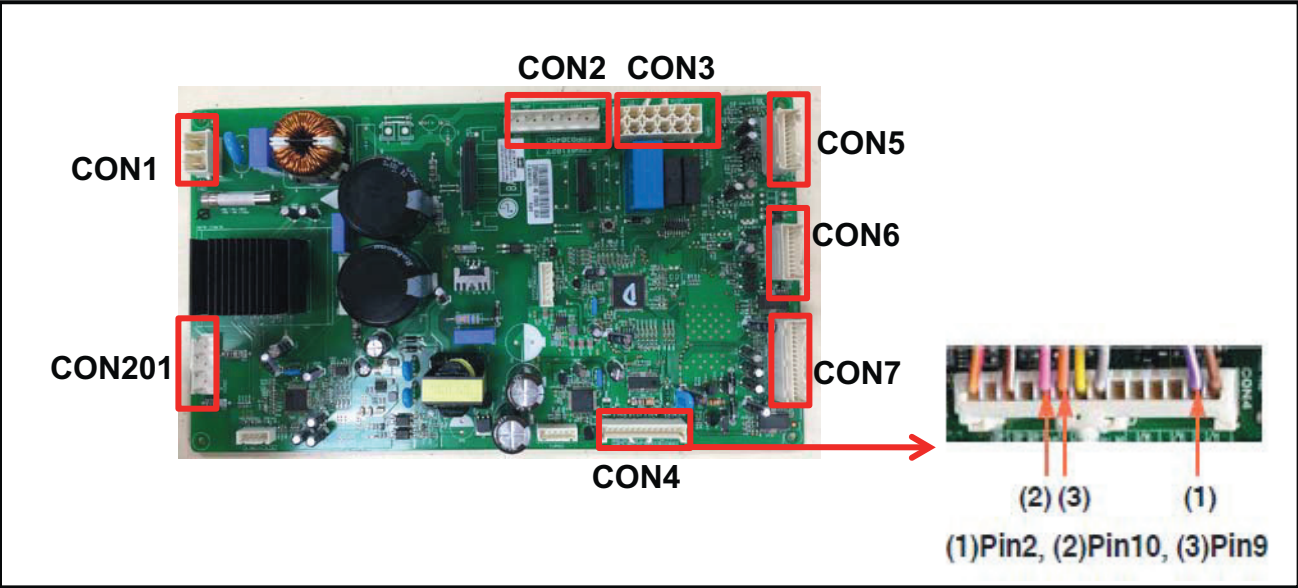
Yes →

5

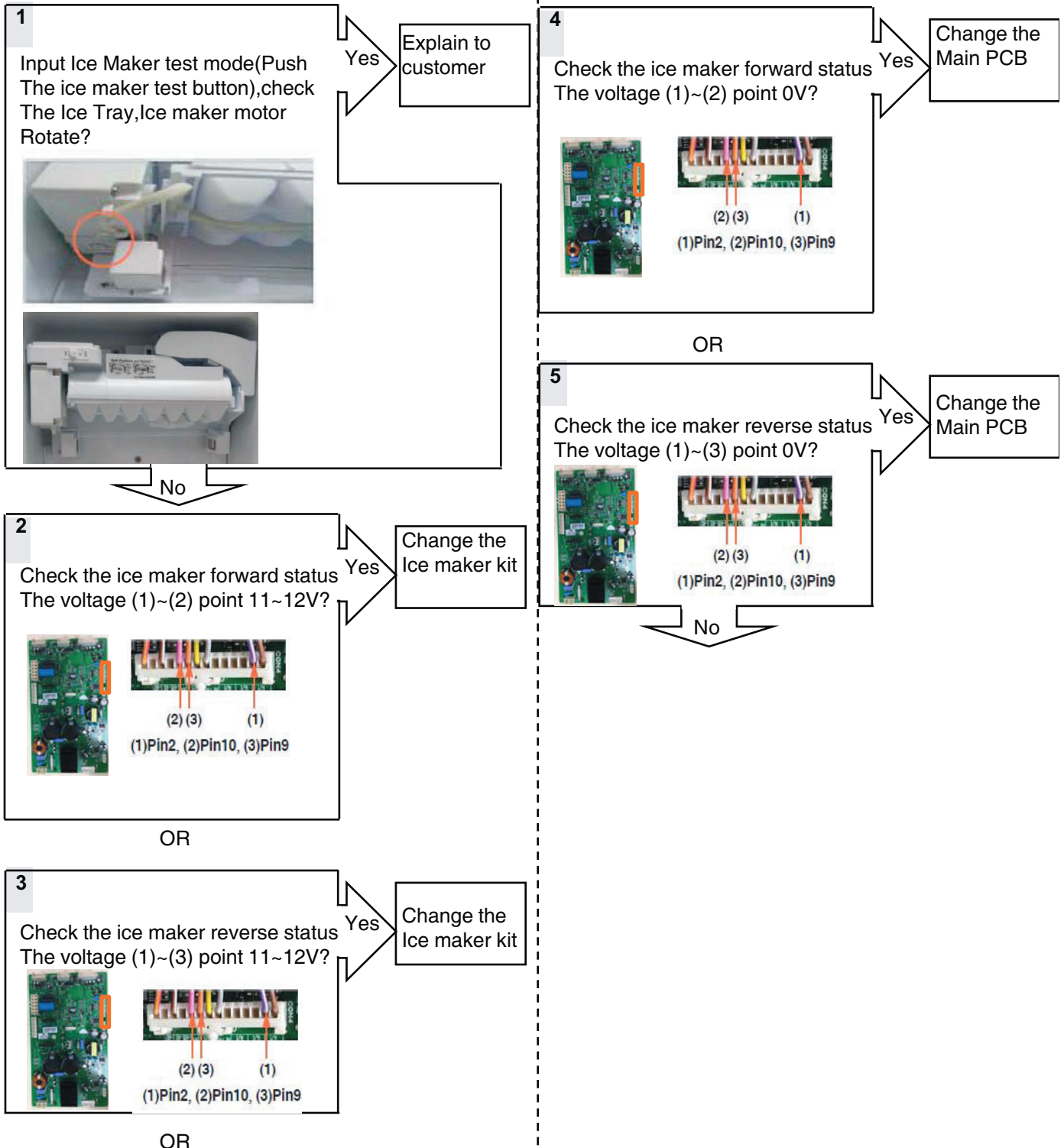
Explain to customer

8-5. Ice Maker Motor Error (It E)

Symptom	Check Point
1. It E	1. Check the Ice maker rotation 2. Check the motor voltage

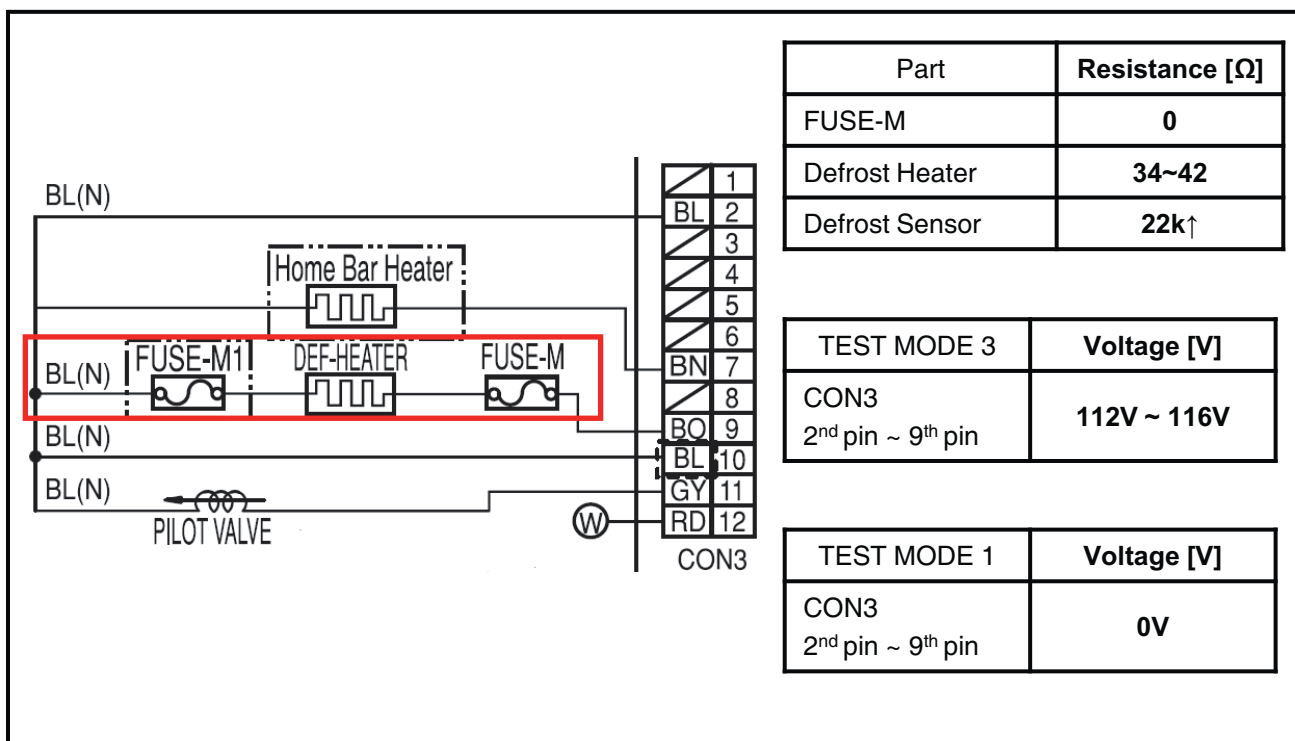
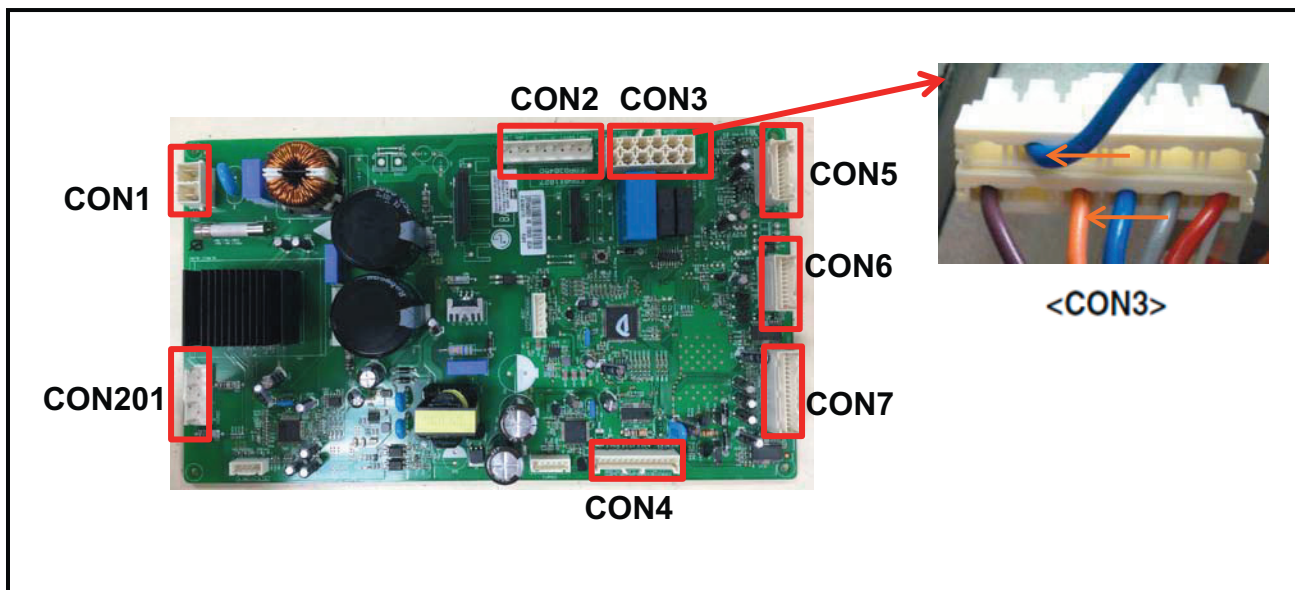


Ice Maker Motor Error (It E)



8-6. Defrost Heater Error (dH F)

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



Defrost Heater Error (dH F)

1
Check the Door gasket .
Is door gasket damaged?

Yes

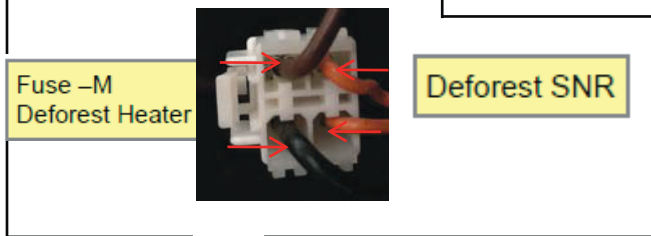
Replace the
Door gasket

No

2
Check the Defrost control part.
(1) Is Fuse-M resistance 34~42Ω?

No

Change
Defrost
Heater

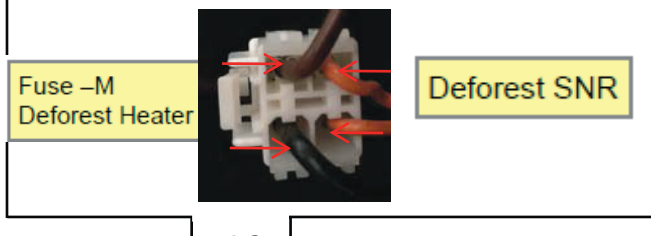


Yes

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

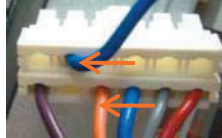
OFF

Replace
product



22kΩ↑

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



<CON3>

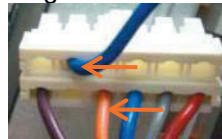
TEST MODE 3	Voltage [V]
CON3 2 nd pin ~ 9 th pin	112V ~ 116V

NO

Replace
Main PCB

Yes

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



<CON3>

TEST MODE 1	Voltage [V]
CON3 2 nd pin ~ 9 th pin	0V

No

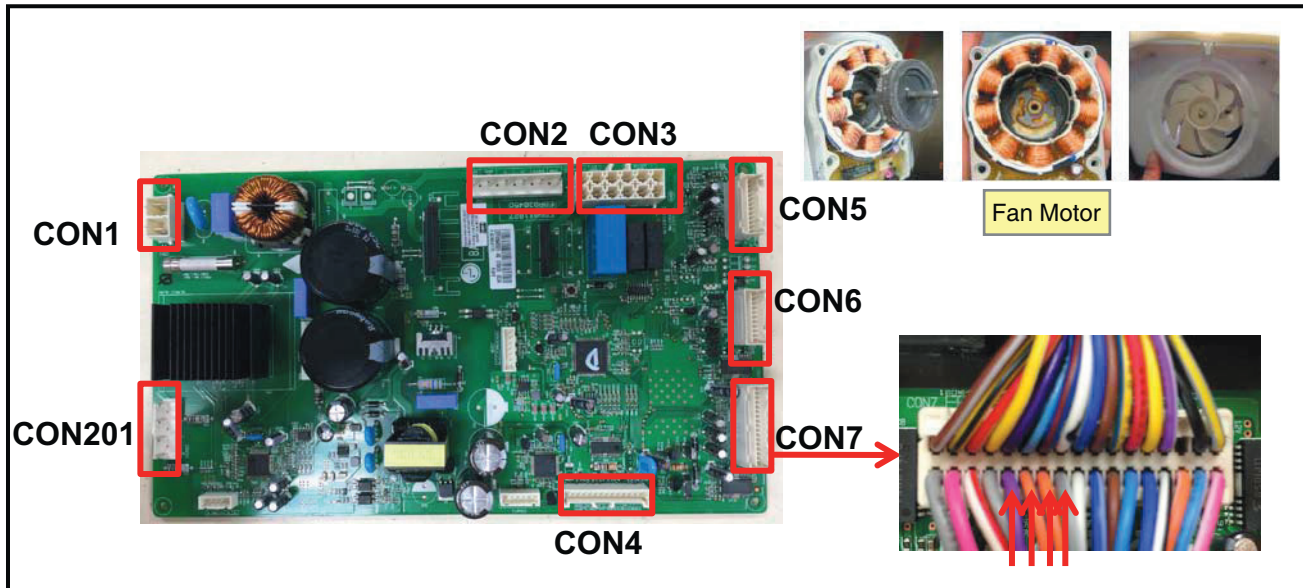
Replace
Main PCB

Yes

6
Explain to customer

8-7. Freezer Fan Error (FF E)

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



1 BNWH	ICING-FAN MOTOR (PWM)
3 YL/BK	MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL	
7 YL/WH	
2 GY	C-FAN MOTOR (PWM)
4 PK	MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD	
8 GY/RD	BETA DUCT HEATER
9 PR/RD	beta du chauffage
11 SBBK	
10 PR	F-FAN MOTOR (PWM)
12 BO/BL	MOTEUR DE VENTILATEUR F (CC SANS BALAI)
14 BO	
16 GY/WH	
15 WH	R-SENSOR
18 WH	CAPTEUR R
17 BL/WH	F-SENSOR
20 BL/WH	CAPTEUR F
19 BN	D-SENSOR
22 BN	CAPTEUR D
21 YL/BL	FL DOOR S/W
24 SB	F/U DOOR S/W
23 RD	
25 YL	REFRIGERATOR STEPPING MOTOR
26 BL	MOTEUR PAS À PAS RÉFRIGÉRATEUR
28 WH/BK	
13 BL/RD	
27 PR/WH	
30 BO/WH	
29	
31 BK	FU LED LAMP
32 SB/WH	
34 GY/YL	R LED LAMP
33 PK/WH	
CON7	

TEST MODE 1	Voltage [V]
CON7 12 th pin ~ 14 th pin	12V
CON7 16 th pin ~ 14 th pin	0V<Voltage<5V
CON7 10 th pin ~ 14 th pin	0V<Voltage<5V

Freezer Fan Error (FF E)

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



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

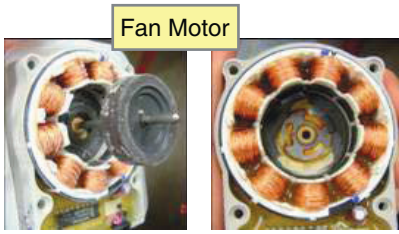
No → Go to 3



Yes → Go to 4

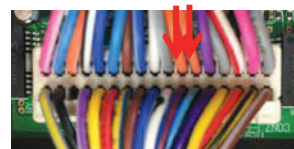
3 Check the Fan motor. Rotate fan using hand. It feel sticky?

Yes → Change the Fan motor



4 Check the Fan Motor voltage
Is Fan Motor voltage 12V?

No → Replace Main PCB

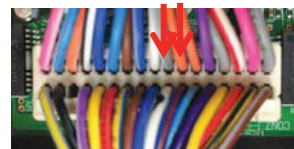


TEST MODE 1	Voltage [V]
CON7 12 th pin ~ 14 th pin	12V

Yes →

5 Check the Fan Motor voltage
Is Fan control signal voltage between 0V and 5V?

No → Replace Main PCB

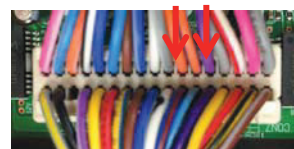


TEST MODE 1	Voltage [V]
CON7 16 th pin ~ 14 th pin	0V < Voltage < 5V

No →

6 Check the Fan Motor voltage
Is Fan feed back voltage between 0V and 5V?

No → Replace Motor



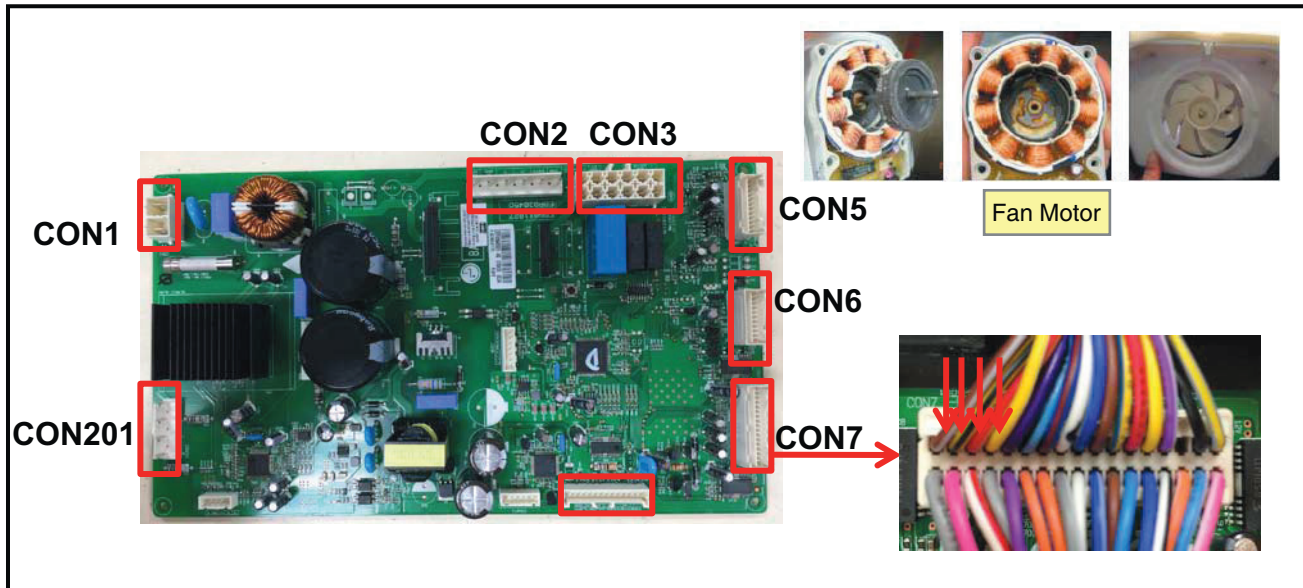
TEST MODE 1	Voltage [V]
CON7 10 th pin ~ 14 th pin	0V < Voltage < 5V

No →

7 Explain to customer

8-8. Icing Fan Error (IF E)

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

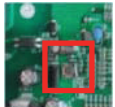
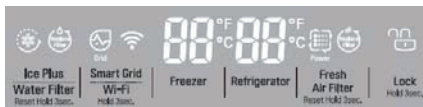


1 BNWH		ICING-FAN MOTOR (PWM)
3 YL/BK		MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL		
7 YL/AMH		
2 GY		C-FAN MOTOR (PWM)
4 PK		MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD		
8 GY/RD		
9 PR/RD		BETA DUCT HEATER
11 SB/BK		beta du chauffage
10 PR		F-FAN MOTOR (PWM)
12 BO/BL		MOTEUR DE VENTILATEUR F (CC SANS BALAI)
14 BO		
16 GY/WH		
15 WH		R-SENSOR
18 WH		CAPTEUR R
17 BL/WH		F-SENSOR
20 BL/WH		CAPTEUR F
19 BN		D-SENSOR
22 BN		CAPTEUR D
21 YL/BL		FIL DOOR S/W
24 SB		FIL DOOR S/W
23 RD		FIL DOOR S/W
25 YL		REFRIGERATOR STEPPING MOTOR
26 BL		MOTEUR PAS À PAS RÉFRIGÉRATEUR
28 WH/BK		
13 BL/RD		
27 PR/WH		
30 BO/WH		
29		
31 BK		FU LED LAMP
32 SB/WH		
34 GY/YL		R LED LAMP
33 PK/WH		
CON7		

TEST MODE 1	Voltage [V]
CON7 3 rd pin ~ 5 th pin	12V
CON7 7 th pin ~ 5 th pin	0V<Voltage<5V
CON7 1 st pin ~ 5 th pin	0V<Voltage<5V

Freezer Fan Error (IF E)

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

2

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

No → Go to 3



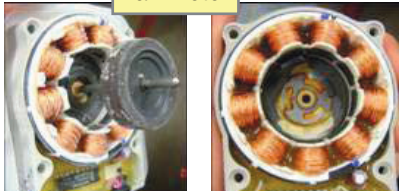
Yes → Go to 4

3

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

Yes → Change the Fan motor

Fan Motor



4 Check the Fan Motor voltage
Is Fan Motor voltage 12V?

No → Replace Main PCB



TEST MODE 1	Voltage [V]
CON7 3 rd pin ~ 5 th pin	12V

Yes →

5 Check the Fan Motor voltage
Is Fan control signal voltage between 0V and 5V?

No → Replace Main PCB



TEST MODE 1	Voltage [V]
CON7 7 th pin ~ 5 th pin	0V<Voltage<5V

No →

Check the Fan Motor voltage
Is Fan feed back voltage between 0V and 5V?

No → Replace Motor



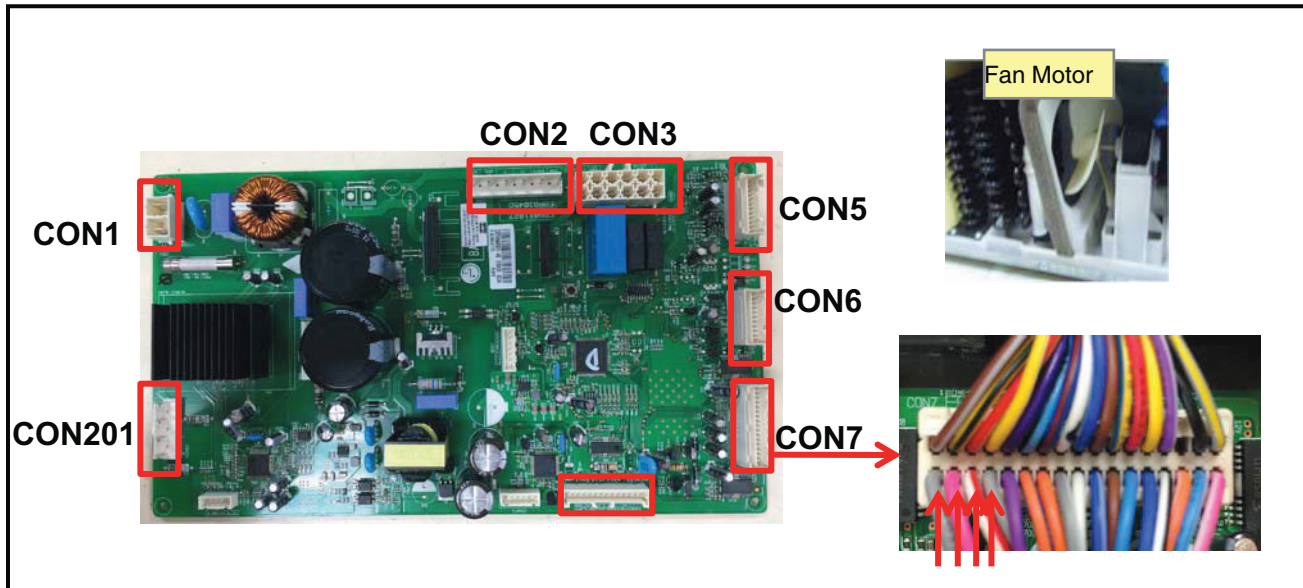
TEST MODE 1	Voltage [V]
CON7 1 st pin ~ 5 th pin	0V<Voltage<5V

No →

7 Explain to customer

8-9. Condenser Fan Error (CF E)

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



1 BNWH		ICING-FAN MOTOR (PWM)
3 YL/BK		MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5 RD/YL		
7 YL/AMH		
2 GY		C-FAN MOTOR (PWM)
4 PK		MOTEUR DE VENTILATEUR C (CC SANS BALAI)
6 WH/RD		
8 GY/RD		
9 PR/RD		BETA DUCT HEATER
11 SB/BK		beta du chauffage
10 PR		F-FAN MOTOR (PWM)
12 BO/BL		MOTEUR DE VENTILATEUR F (CC SANS BALAI)
14 BO		
16 GY/WH		
15 WH		R-SENSOR
18 WH		CAPTEUR R
17 BL/WH		F-SENSOR
20 BL/WH		CAPTEUR F
19 BN		D-SENSOR
22 BN		CAPTEUR D
21 YL/BL		FIL DOOR S/W
24 SB		
23 RD		F/U DOOR S/W
25 YL		REFRIGERATOR STEPPING MOTOR
26 BL		MOTEUR PAS À PAS RÉFRIGÉRATEUR
28 WH/BK		
13 BL/RD		
27 PR/WH		
30 BO/WH		
29		
31 BK		FU LED LAMP
32 SB/WH		
34 GY/YL		R LED LAMP
33 PK/WH		
CON7		

TEST MODE 1	Voltage [V]
CON7 4 th pin ~ 6 th pin	12V
CON7 8 th pin ~ 6 th pin	0V<Voltage<5V
CON7 2 nd pin ~ 6 th pin	0V<Voltage<5V

Condenser Fan Error (CF E)

1

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




2

Check the fan rotating.
Does fan rotate?



No

Go to 3

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 12V?



No

Replace Main PCB

TEST MODE 1	Voltage [V]
CON7 4 th pin ~ 6 th pin	12V

5

Check the Fan Motor voltage
Is Fan control signal voltage
between 0V and 5V?

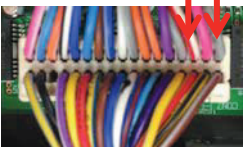


No

Replace Main PCB

TEST MODE 1	Voltage [V]
CON7 8 th pin ~ 6 th pin	0V<Voltage<5V

Check the Fan Motor voltage
Is Fan feed back voltage
between 0V and 5V?



No

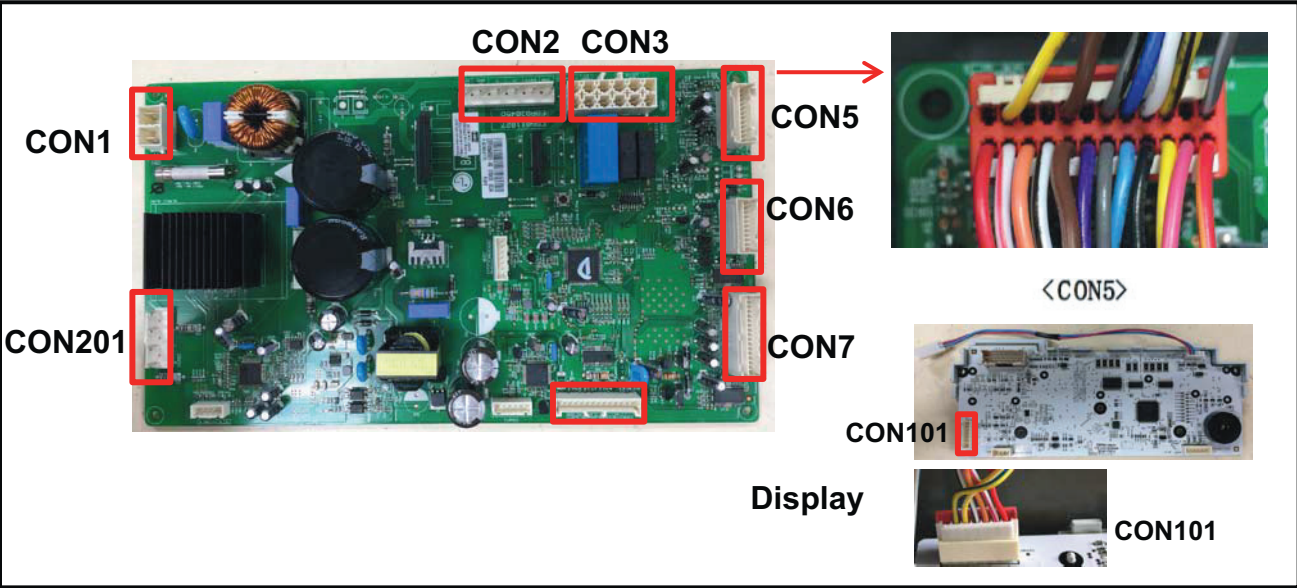
Replace Motor

TEST MODE 1	Voltage [V]
CON7 2 nd pin ~ 6 th pin	0V<Voltage<5V

7 Explain to customer

8-10. Communication Error (CO E)

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



CON5		CON101	
1	RD	RD	7
2	RD	WH/RO	6
4	WH/PA	BO	5
6	BC	WH/BK	4
8	WH/B	YL/WH	3
3	YL/W	YL/BL	2
5			1
7			
9	BN		
10	BN		
11			
12	PR		
13	GY		
14	GY		
16	SB		
18	BK		
15	BL		
17	WH		
19	YL/BK		
21			
23	GY/WH		
20	YL		
22	PK		
24	RD/YL		

RT-SENSOR
RT-CAPTEUR

R-DOOR SW

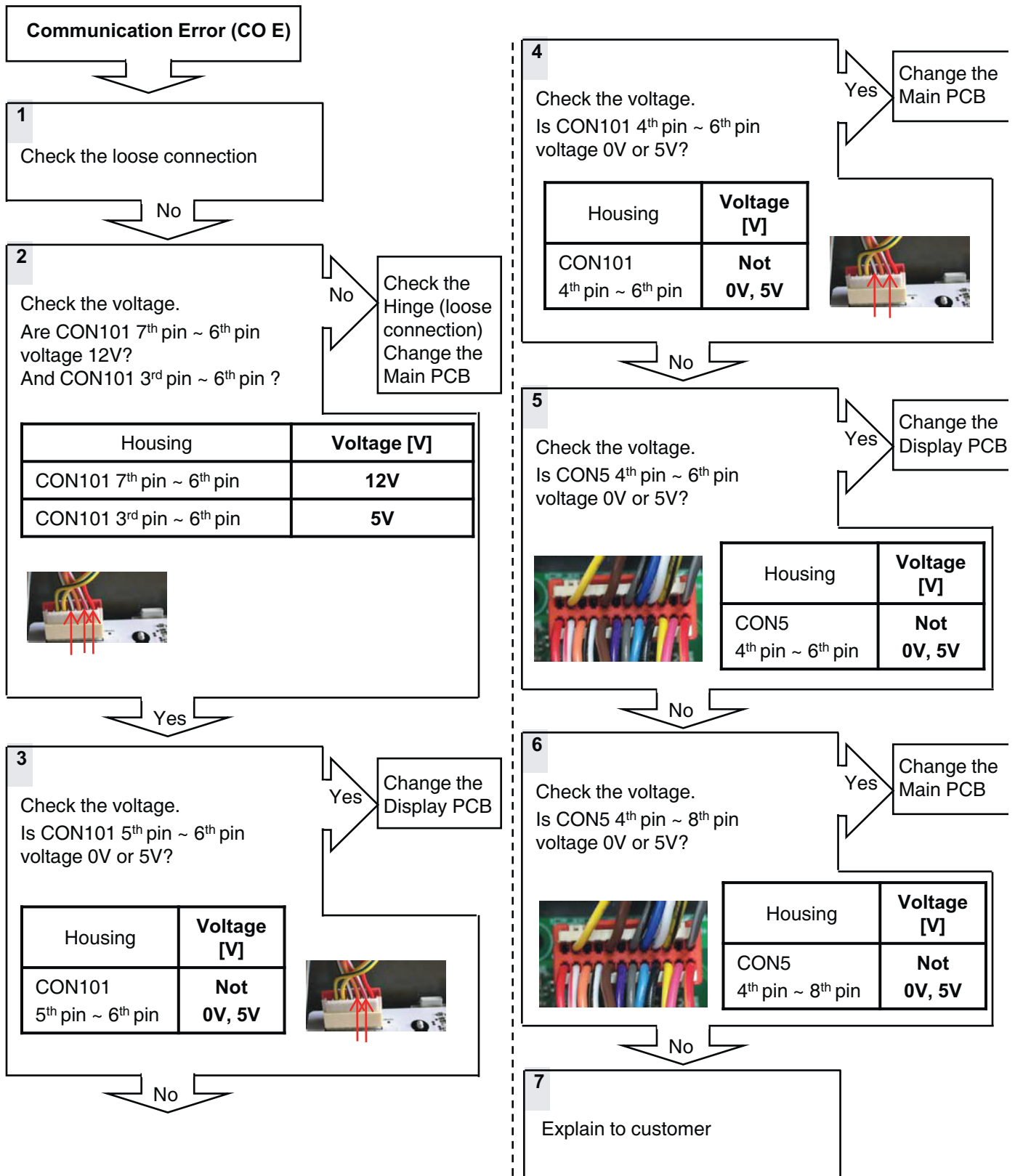
H/BAR DOOR SW

SMART BUZZER

ICING SENSOR
CAPTEUR-GLACE

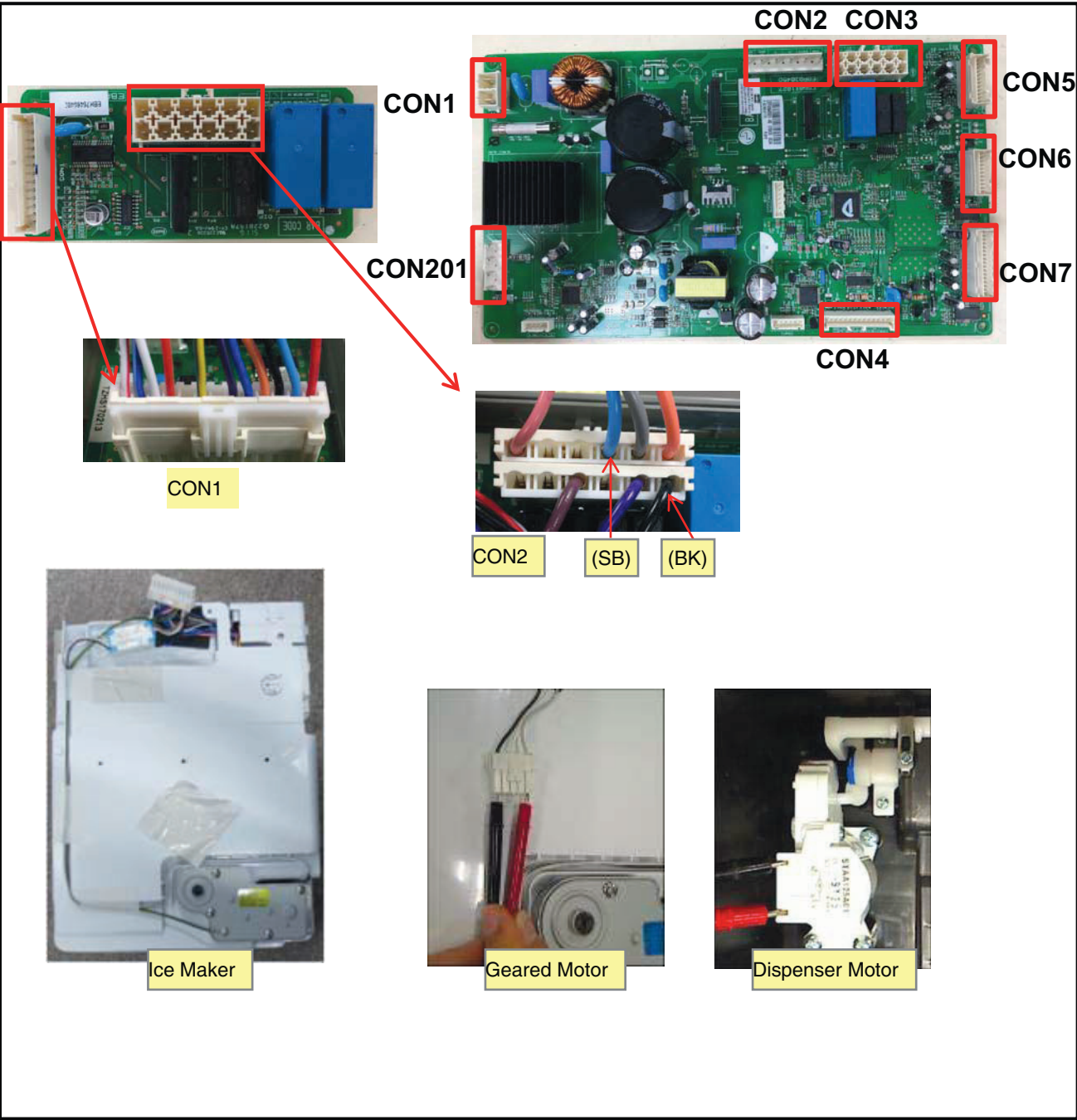
Humidity Sensor
CAPTEUR Humidité

	Voltage [V]
CON101 7 th pin ~ 6 th pin	12V
CON101 5 th pin ~ 6 th pin	Not 0V, 5V
CON101 4 th pin ~ 6 th pin	Not 0V, 5V
CON5 3 th pin ~ 6 th pin	5V

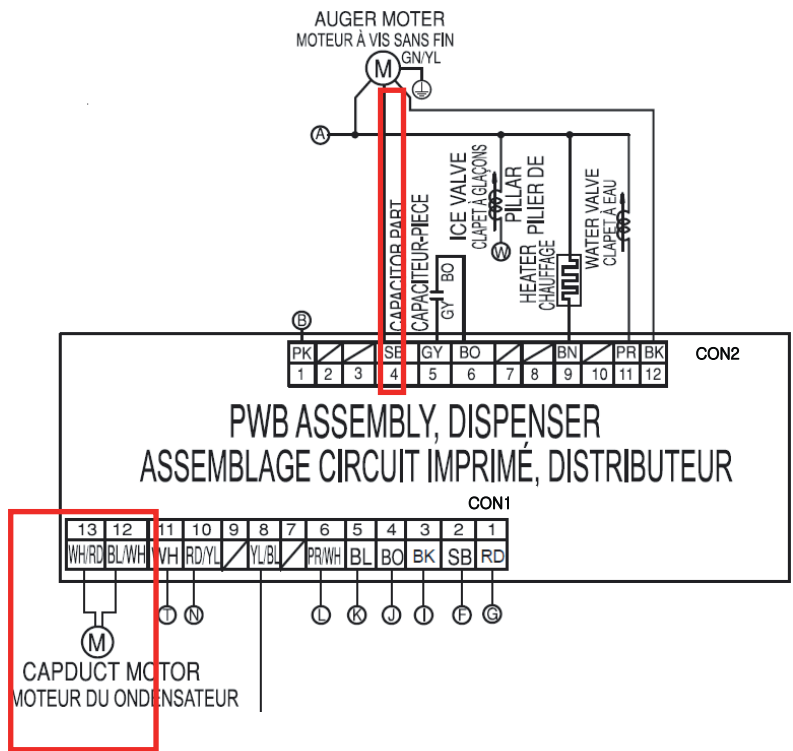


8-11. Cube mode doesn't work

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

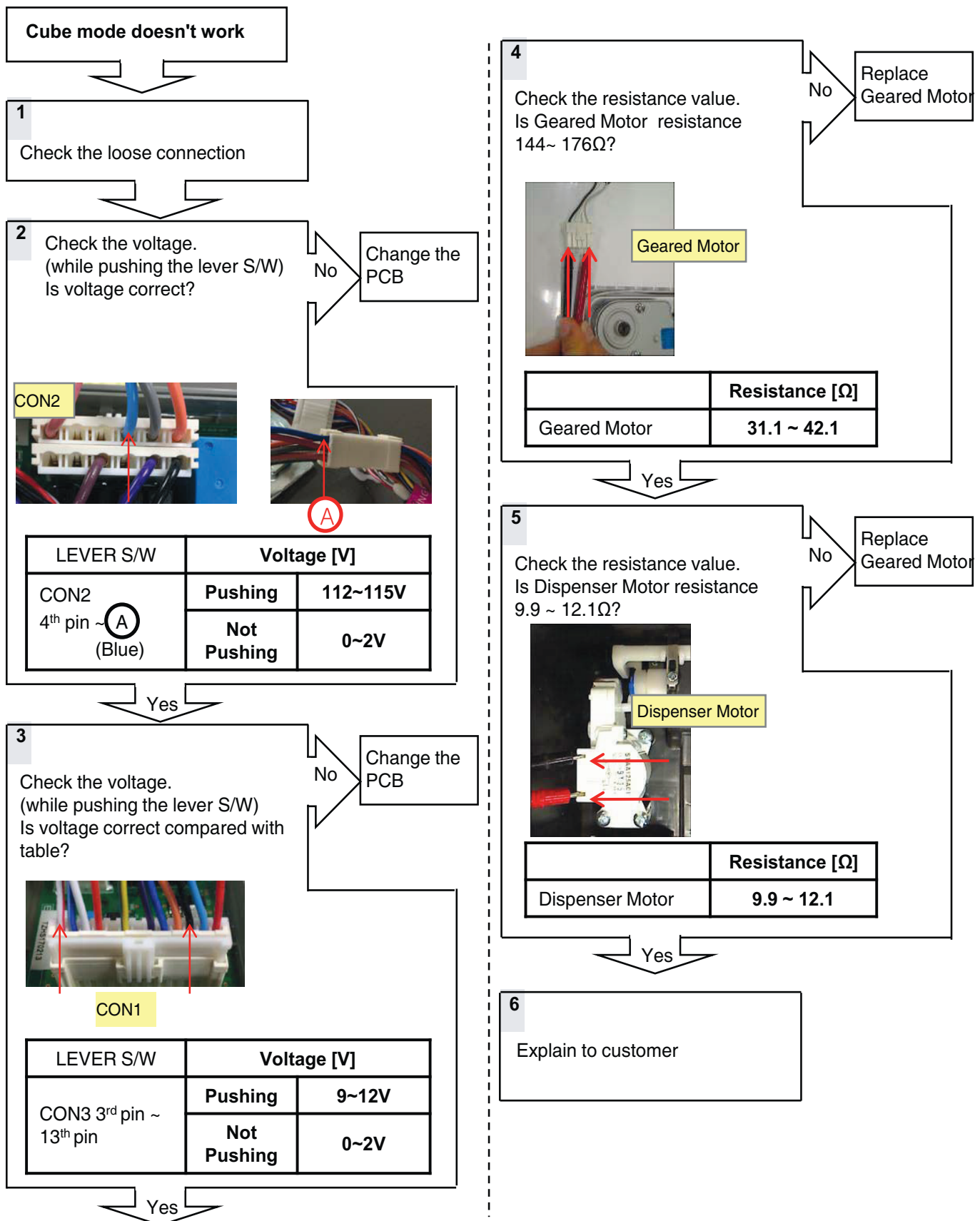


8-11. Cube mode doesn't work



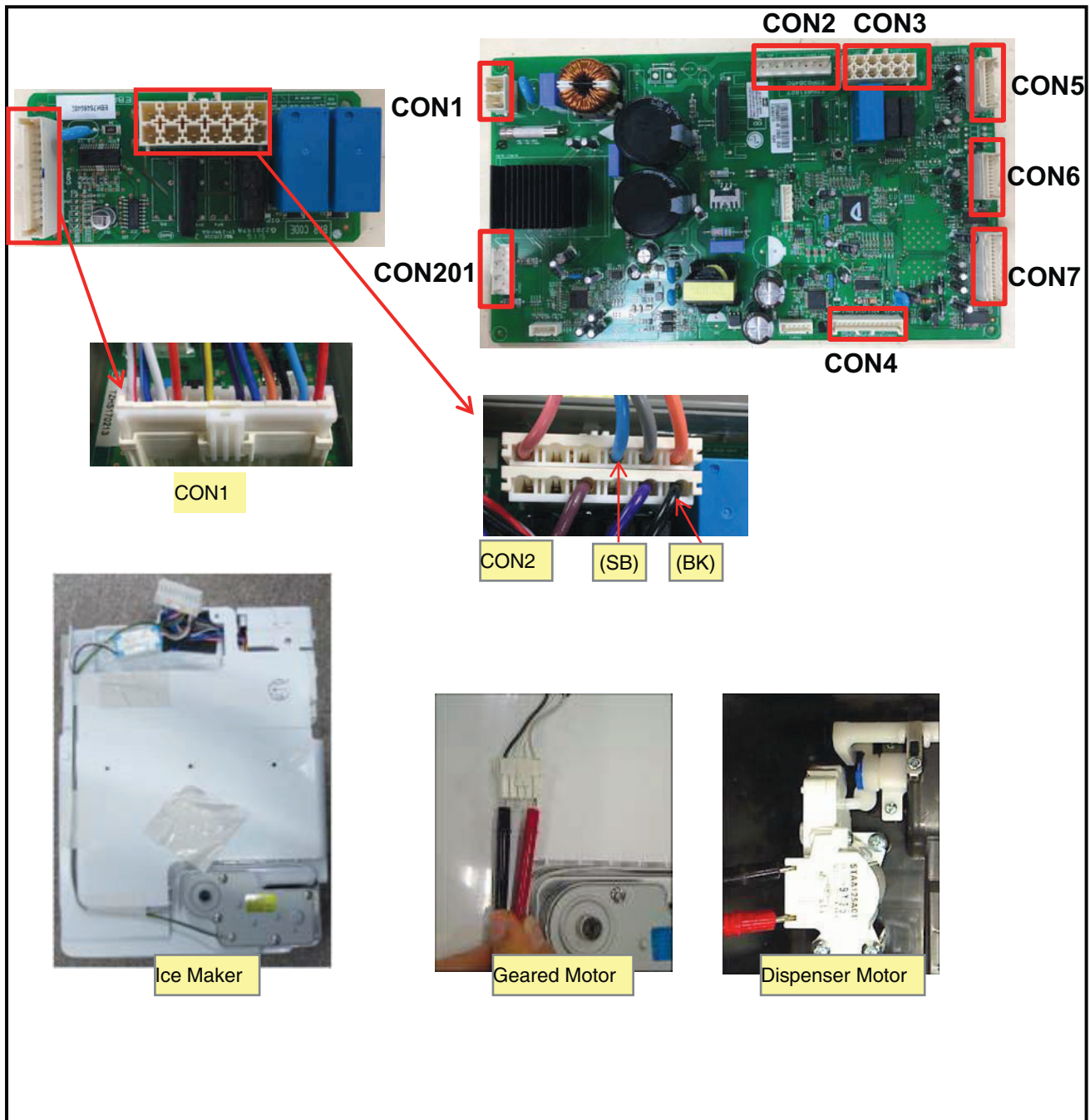
LEVER S/W	Voltage [V]	
CON2 4 th pin ~ (A)	Pushing	112~115V
	Not Pushing	0~2V
CON1 3 rd pin ~ 13 th pin	Pushing	9~12V
	Not Pushing	0~2V

	Resistance [Ω]
Geared Motor	31.1 ~ 42.1
Dispenser Motor	9.9 ~ 12.1

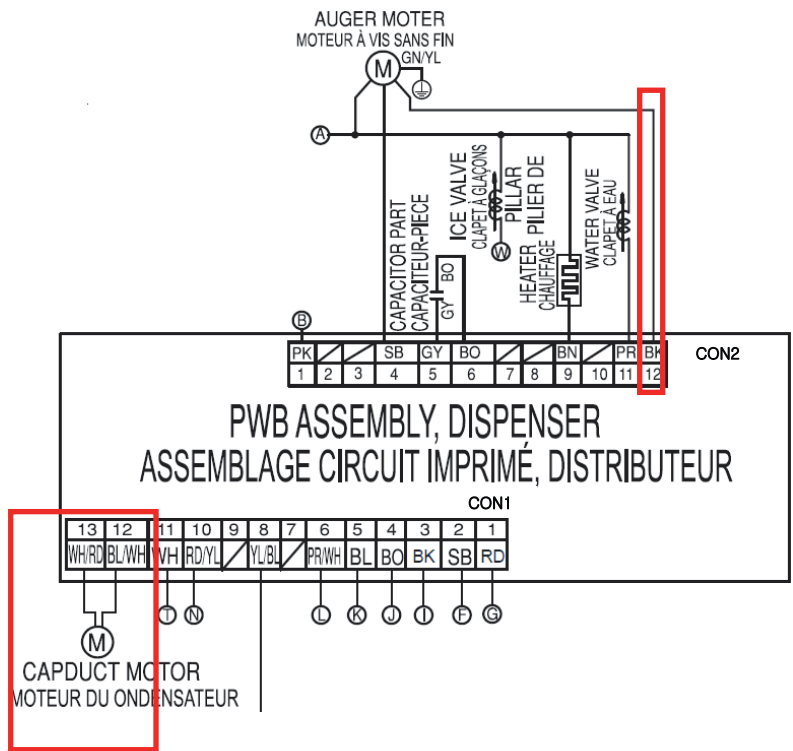


8-12. Crush mode doesn't work

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

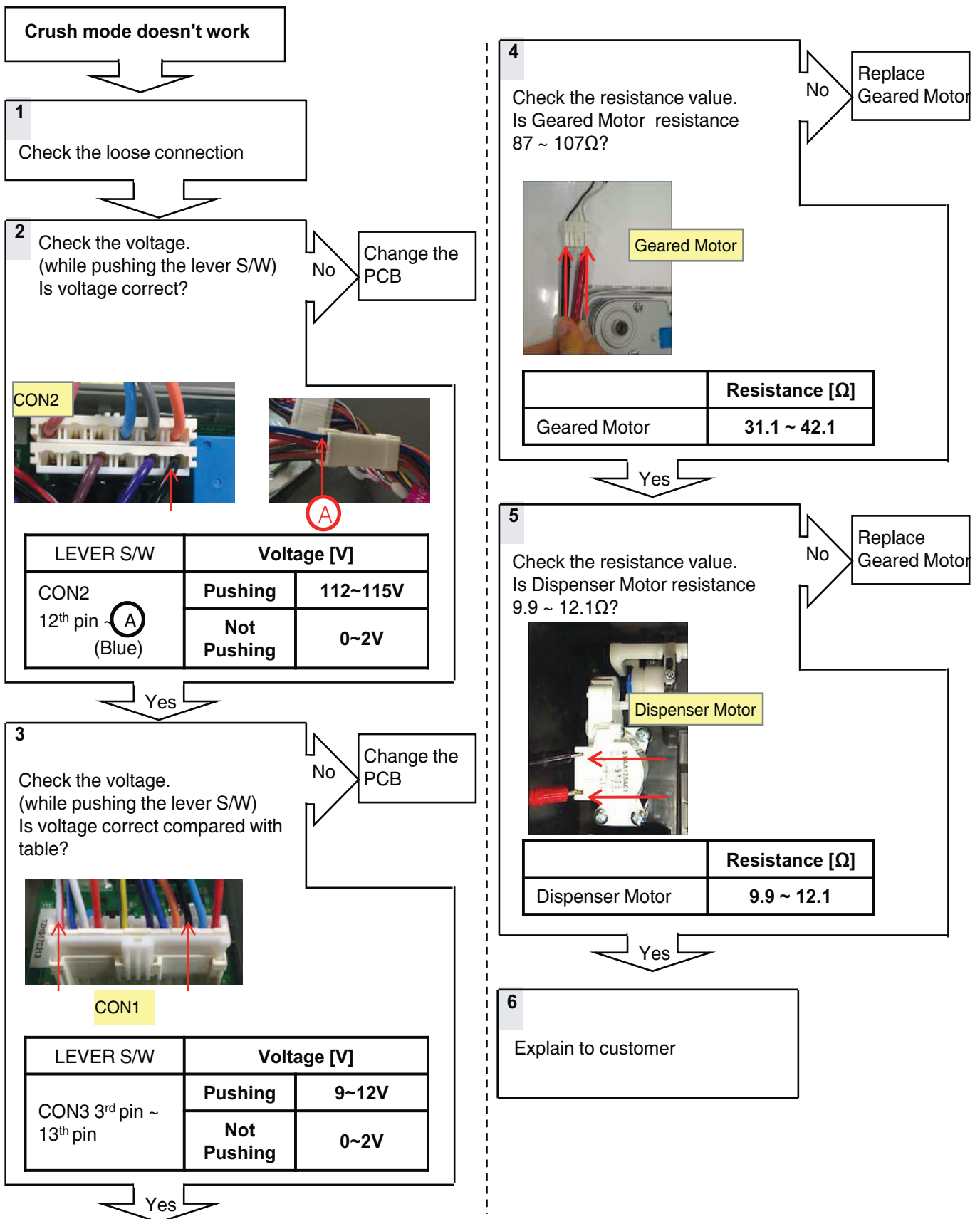


8-12. Crush mode doesn't work



LEVER S/W	Voltage [V]	
CON2 12 th pin ~ 	Pushing	112~115V
	Not Pushing	0~2V
CON1 3 rd pin ~ 13 th pin	Pushing	9~12V
	Not Pushing	0~2V

	Resistance [Ω]
Geared Motor	31.1 ~ 42.1
Dispenser Motor	9.9 ~ 12.1



8-13. Water mode doesn't work

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

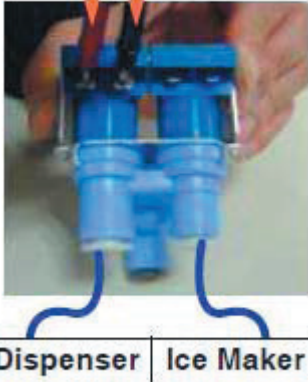


CON2



(1) (2)

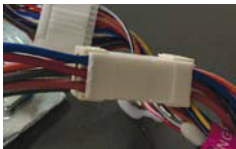
<Pilot Valve>
Machine Room



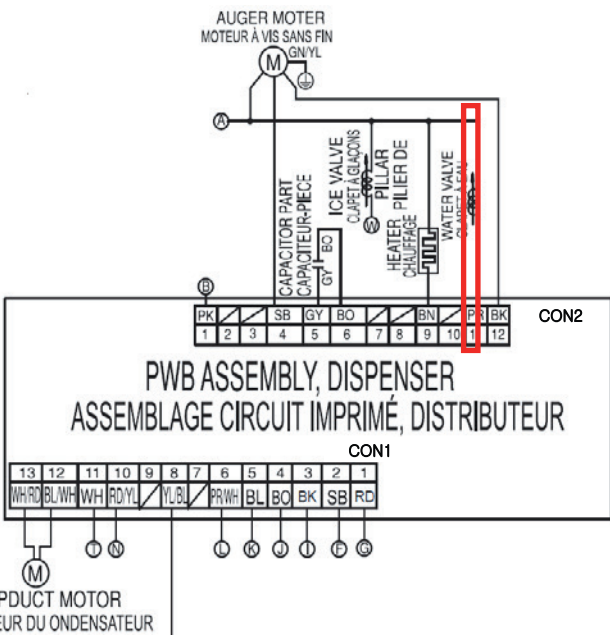
(3) (4)

Dispenser Ice Maker

<Water Valve>
In door



A



AUGER MOTER
MOTEUR À VIS SANS FIN

CAPACITOR PART
CAPACITEUR-PIECE

ICE VALVE
CLAPET GLAÇONS

HEATER
CHAUFFAGE

WATER VALVE
CLAPET EAU

CON2

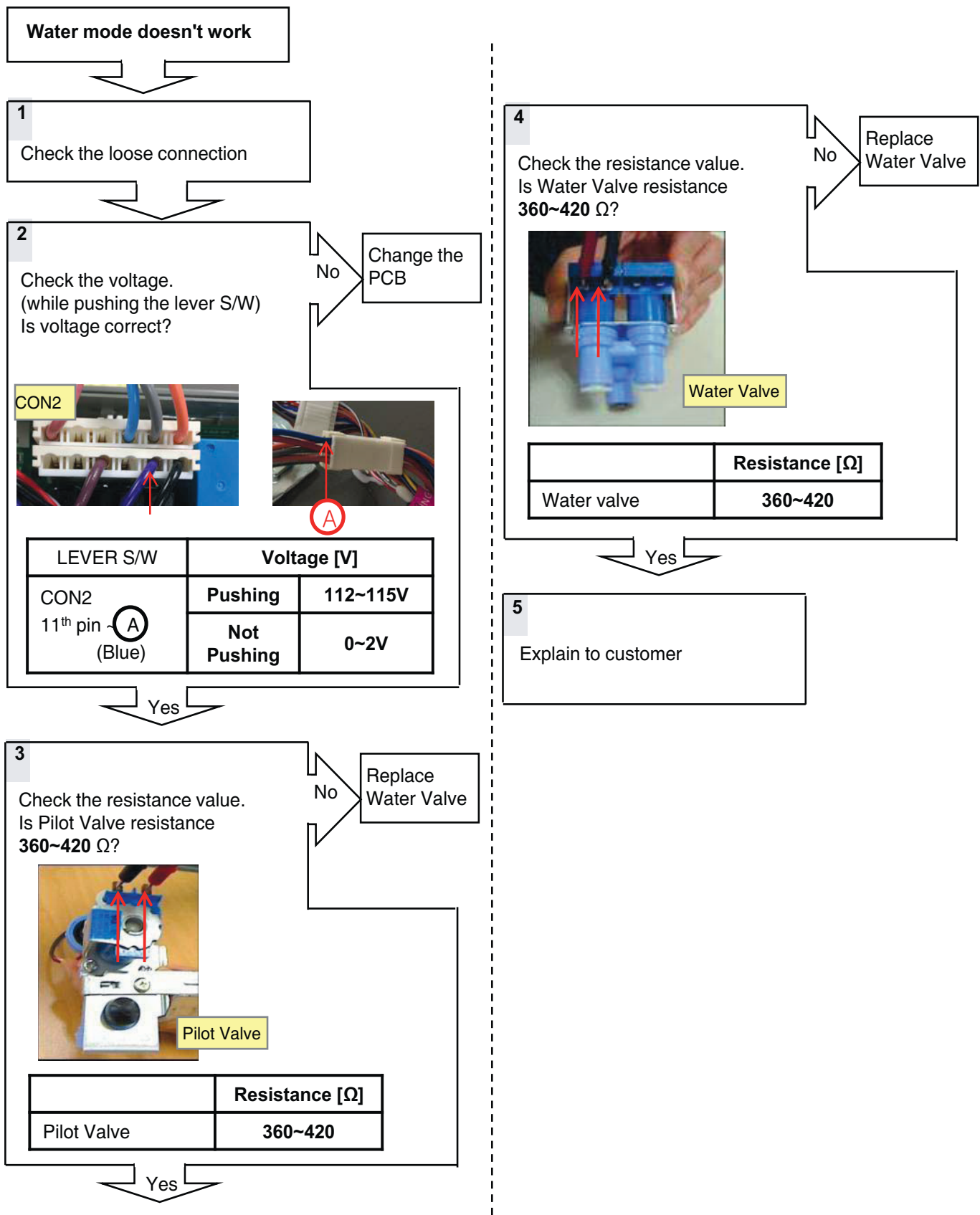
PWB ASSEMBLY, DISPENSER
ASSEMBLAGE CIRCUIT IMPRIMÉ, DISTRIBUTEUR

CON1

CAPDUCT MOTOR
MOTEUR DU ONDENSATEUR

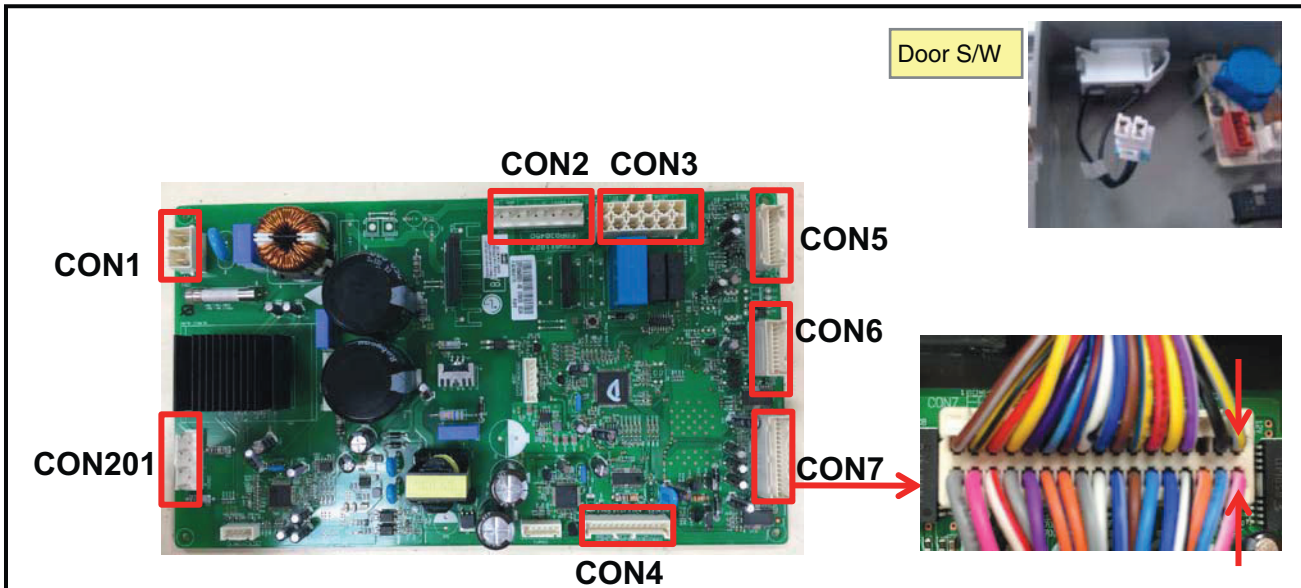
LEVER S/W	Voltage [V]	
CON2 11 th pin A	Pushing	112~115V
	Not Pushing	0~2V

	Resistance [Ω]
Pilot Valve	360~420
Water valve	360~420



8-14. Refrigerator room lamp doesn't work

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



1 BNWH	 ICING-FAN MOTOR (PWM) MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
3 YL/BK	
5 RD/YL	
7 YL/WH	 C-FAN MOTOR (PWM) MOTEUR DE VENTILATEUR C (CC SANS BALAI)
2 GY	
4 PK	
6 WH/RD	 BETA DUCT HEATER beta du chauffage
8 GY/RD	
9 PR/RD	
11 SB/BK	 F-FAN MOTOR (PWM) MOTEUR DE VENTILATEUR F (CC SANS BALAI)
10 PR	
12 BO/BL	
14 BO	 R-SENSOR CAPTEUR R
16 GY/WH	
15 WH	
18 WH	 F-SENSOR CAPTEUR F
17 BL/WH	
20 BL/WH	
19 BN	 D-SENSOR CAPTEUR D
22 BN	
21 YL/BL	
24 SB	 FIL DOOR S/W
23 RD	 FU DOOR S/W
25 YL	 REFRIGERATOR STEPPING MOTOR MOTEUR PAS À PAS RÉFRIGÉRATEUR
26 BL	
28 WH/BK	
13 BL/RD	  
27 PR/WH	
30 BO/WH	
29	  
31 BK	
32 RY/WH	
34 GY/YL	  
33 PK/WH	

3 BK

2

1 WH

FU LED LAMP

2 WH

1 YL

R LED LAMP

CON7

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

	Voltage [V]
CON7 33 th pin ~ 34 th pin	12V

LED Lamp	Voltage [V]	
White~ Yellow	Closed	0~2V
	Open	12V

Refrigerator room lamp doesn't work

1 Check the Refrigerator door switch. Does it feel sticky?

Yes → Change the Door S/W

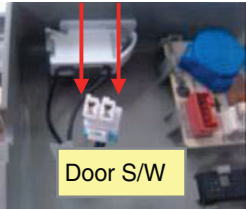
No →



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

No → Change the Door S/W

Yes →



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

3 Check the PCB Voltage. Is CON7 33th pin ~ 34th pin voltage 12V?

No → Change the PCB

Yes →

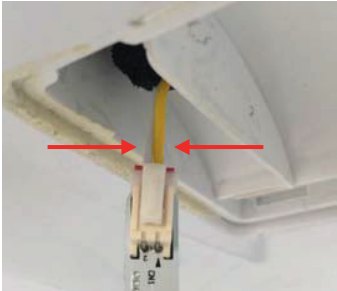


	Voltage [V]
CON7 33 th pin ~ 34 th pin	12V

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

No → Change the Door S/W

Yes →



5 Check the LED Lamp voltage. Is it 12V? (While door open)

No → Change the LED Lamp

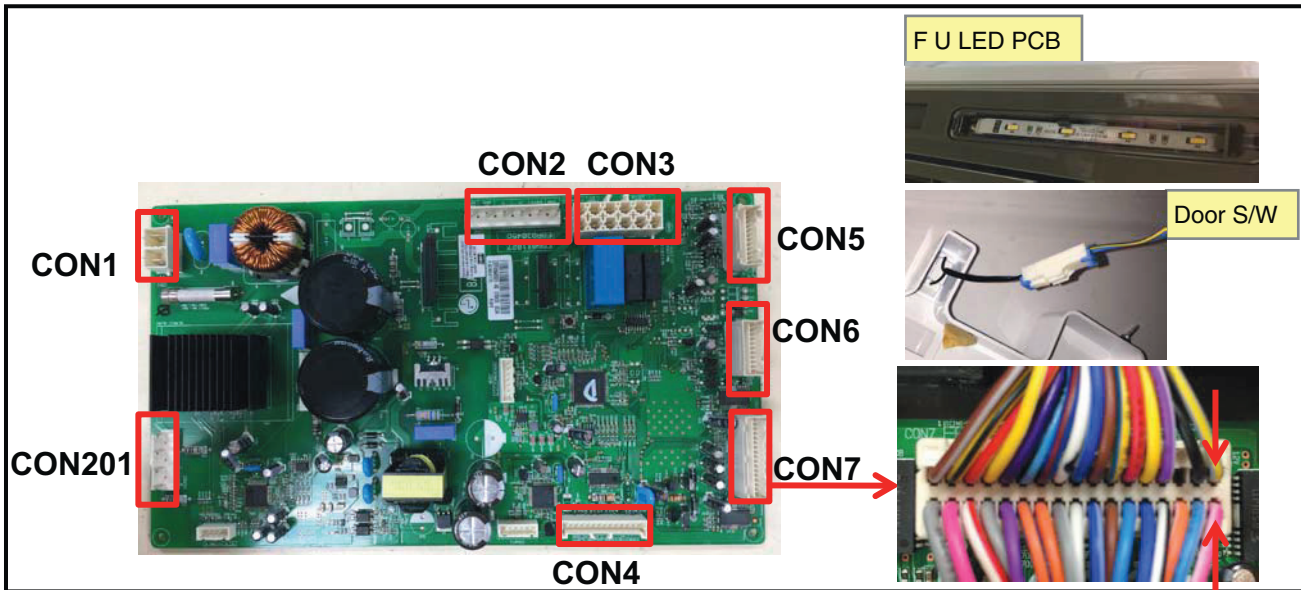
Yes →



6 Explain to customer

8-15. Freezer room upper lamp doesn't work

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

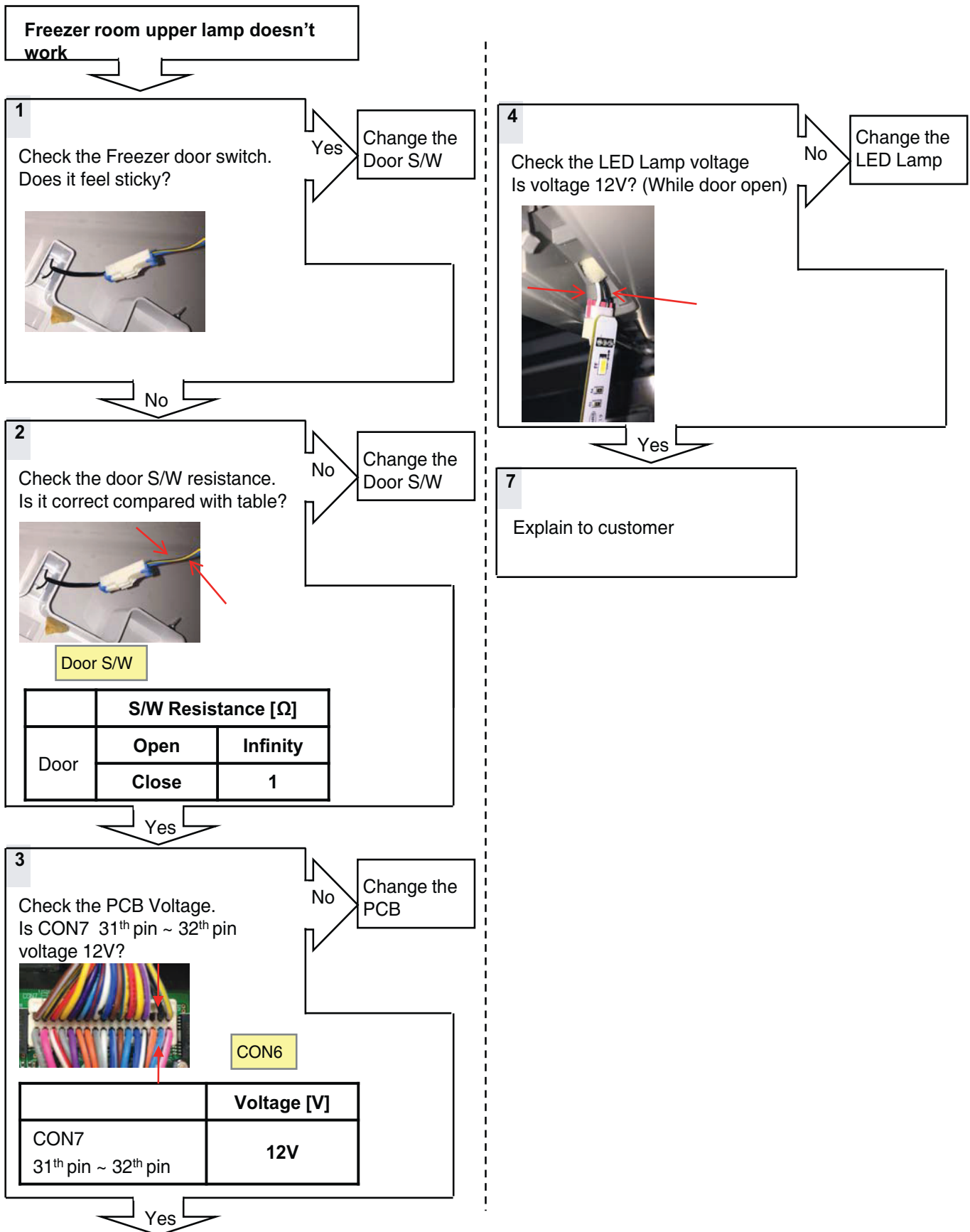


1	BN/WH	M	ICING-FAN MOTOR (PWM)
3	YL/BK		MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
5	RD/YL		
7	YL/WH	M	C-FAN MOTOR (PWM)
2	GY		MOTEUR DE VENTILATEUR C (CC SANS BALAI)
4	PK		
6	WH/RD	R	BETA DUCT HEATER
8	GY/RD		beta du chauffage
9	PR/RD		
11	SB/BK	M	F-FAN MOTOR (PWM)
10	PR		MOTEUR DE VENTILATEUR F (CC SANS BALAI)
12	BO/BL		
14	BO	R	R-SENSOR
16	GY/WH		CAPTEUR R
15	WH		
18	WH	R	F-SENSOR
17	BL/WH		CAPTEUR F
20	BL/WH		
19	BN	R	D-SENSOR
22	BN		CAPTEUR D
21	YL/BL		
24	SB	M	REFRIGERATOR STEPPING MOTOR
23	RD		MOTEUR PAS À PAS RÉFRIGÉRATEUR
25	YL		
26	BL	U	
28	WH/BK		
13	BL/RD		
27	PR/WH	U	
29	PR/WH		
31	BK		
32	SB/WH	U	FU LED LAMP
33	PK/WH		R LED LAMP

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

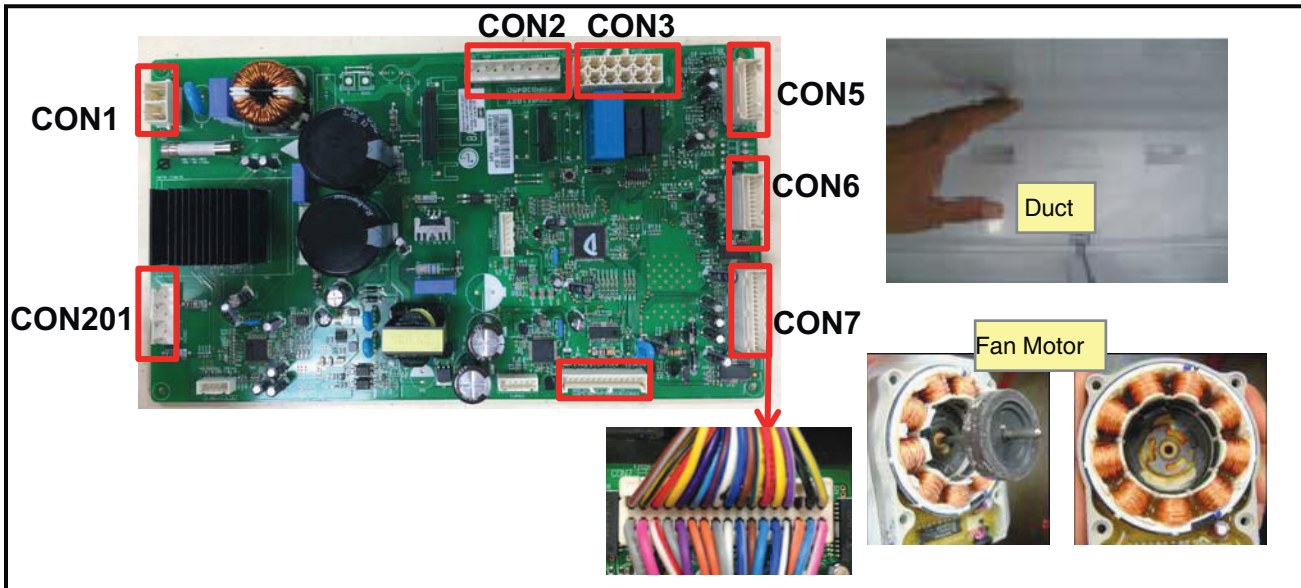
Voltage [V]	
CON7 31 th pin ~ 32 th pin	12V

F-Door	LED Lamp	Voltage [V]
Open	White ~ Black	12V
Close	White ~ Black	0~2V



8-16. Poor cooling in Fresh food section

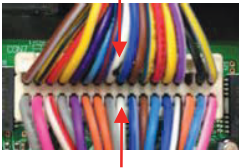
Symptom	Check Point
1. Poor cooling in Fresh food section	1. Check the sensor resistance 2. Check the air flow 3. Check the air Temperature 4. Check the R-Damper motor voltage



	CON7 15 th pin ~ 18 th 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]
	CON7 12 th pin ~ 14 th pin	12V
	CON7 16 th pin ~ 14 th pin	0V<Voltage<5V
	CON7 10 th pin ~ 14 th pin	0V<Voltage<5V
	Duct	Status
	Air Flow	Windy
	Air Temperature	Cold

Poor cooling in Fresh food section

1 Check the sensor resistance.



CON7 15 th pin ~ 18 th 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 Damper?



Test Mode	Damper state	SVC Action
1 Mode	Closed	Damper is normal. (Go to the 7)
2 Mode	Open	
1, 2 mode	Not working	Change the damper

Test Point	Result	SVC Action
(1) To (2)	270 ~ 330 Ω	It's normal
	Other	Change damper
(3) To (4)	270 ~ 330 Ω	It's normal
	Other	Change damper



No
Check the damper
Go to 5

Yes

4 Check the air temperature.
Is it cold?

No

Check the Compressor and sealed system

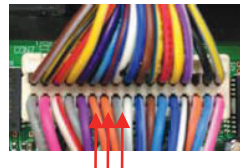
Yes

Go to 7

5 Check the Fan Motor voltage
Is Fan Motor voltage right?

No

Replace Main PCB



TEST MODE 1	Voltage [V]
CON7 12 th pin ~ 14 th pin	12V
CON7 16 th pin ~ 14 th pin	0V<Voltage<5V

Yes

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

Yes

Change the motor



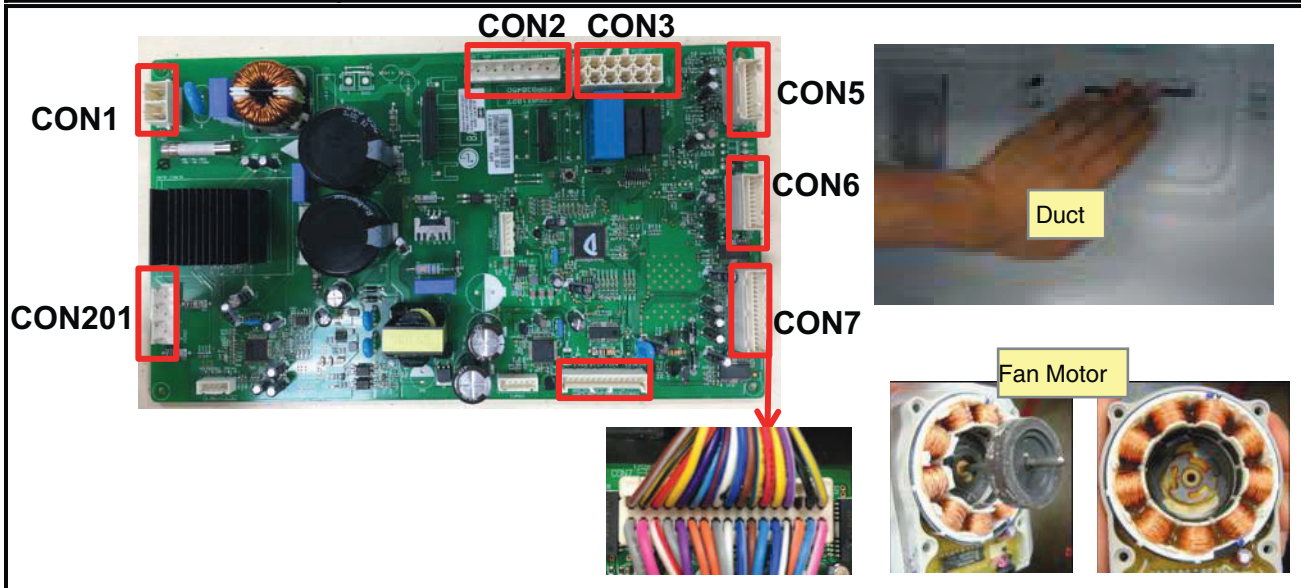
TEST MODE 1	Voltage [V]
CON7 10 th pin ~ 14 th pin	0V<Voltage<5V

No

7 Explain to customer

8-17. Poor cooling in Freezer compartment

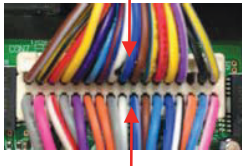
Symptom	Check Point
1. Poor cooling in Freezer compartment	1. Check the sensor resistance 2. Check the air flow 3. Check the air Temperature 4. Check the Fan motor sticky 5. Check the Fan motor voltage



1 BNWH 3 YL/BK 5 RD/YL 7 YL/WH 2 GY 4 PK 6 WH/RD 8 GY/RD 9 PR/RD 11 SR/BK 10 PR 12 BO/BL 14 BO 16 GY/WH 15 WH 18 WH 17 BL/WH 19 BL/WH 19 BN 22 BN 21 YL/BL 24 SB 23 RD 25 YL 26 BL 28 WH/BK 13 BL/RD 27 PR/WH 30 BO/WH 29 31 BK 32 SR/WH 34 GY/YL 33 PK/WH CON7 ICING-FAN MOTOR (PWM) M MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI) C-FAN MOTOR (PWM) M MOTEUR DE VENTILATEUR C (CC SANS BALAI) BETA DUCT HEATER beta du chauffage F-FAN MOTOR (PWM) M MOTEUR DE VENTILATEUR F (CC SANS BALAI) R-SENSOR CAPTEUR R F-SENSOR CAPTEUR F D-SENSOR CAPTEUR D REFRIGERATOR STEPPING MOTOR M MOTEUR PAS À PAS RÉFRIGÉRATEUR FU LED LAMP 1 2 3 BK WH R LED LAMP 1 2 YL WH Duct Air Flow Air Temperature Status Windy Cold	<table><tr><th>CON7 17th pin ~ 20th pin</th><th>Resistance [Ω]</th></tr><tr><td>-22°F / -30°C</td><td>40k</td></tr><tr><td>-13°F / -25°C</td><td>30k</td></tr><tr><td>-4°F / -20°C</td><td>23k</td></tr><tr><td>-13°F / -25°C</td><td>17k</td></tr><tr><td>14°F / -10°C</td><td>13k</td></tr><tr><td>23°F / -5°C</td><td>10k</td></tr><tr><td>32°F / 0°C</td><td>8k</td></tr></table> <table><tr><th>TEST MODE 1</th><th>Voltage [V]</th></tr><tr><td>CON7 12th pin ~ 14th pin</td><td>12V</td></tr><tr><td>CON7 16th pin ~ 14th pin</td><td>0V<Voltage<5V</td></tr><tr><td>CON7 10th pin ~ 14th pin</td><td>0V<Voltage<5V</td></tr></table>	CON7 17 th pin ~ 20 th pin	Resistance [Ω]	-22°F / -30°C	40k	-13°F / -25°C	30k	-4°F / -20°C	23k	-13°F / -25°C	17k	14°F / -10°C	13k	23°F / -5°C	10k	32°F / 0°C	8k	TEST MODE 1	Voltage [V]	CON7 12 th pin ~ 14 th pin	12V	CON7 16 th pin ~ 14 th pin	0V<Voltage<5V	CON7 10 th pin ~ 14 th pin	0V<Voltage<5V
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TEST MODE 1	Voltage [V]																								
CON7 12 th pin ~ 14 th pin	12V																								
CON7 16 th pin ~ 14 th pin	0V<Voltage<5V																								
CON7 10 th pin ~ 14 th pin	0V<Voltage<5V																								

Poor cooling in Freezer compartment

- 1 Check the sensor resistance.

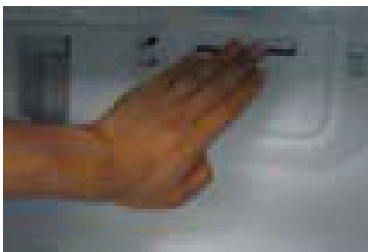


CON7 17 th pin ~ 20 th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
-13°F / -25°C	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

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



- 3 Open the fresh food 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?

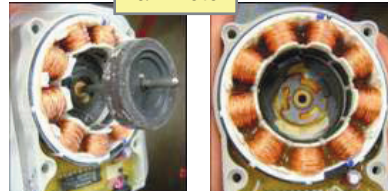
No
Check the Compressor and sealed system

Yes

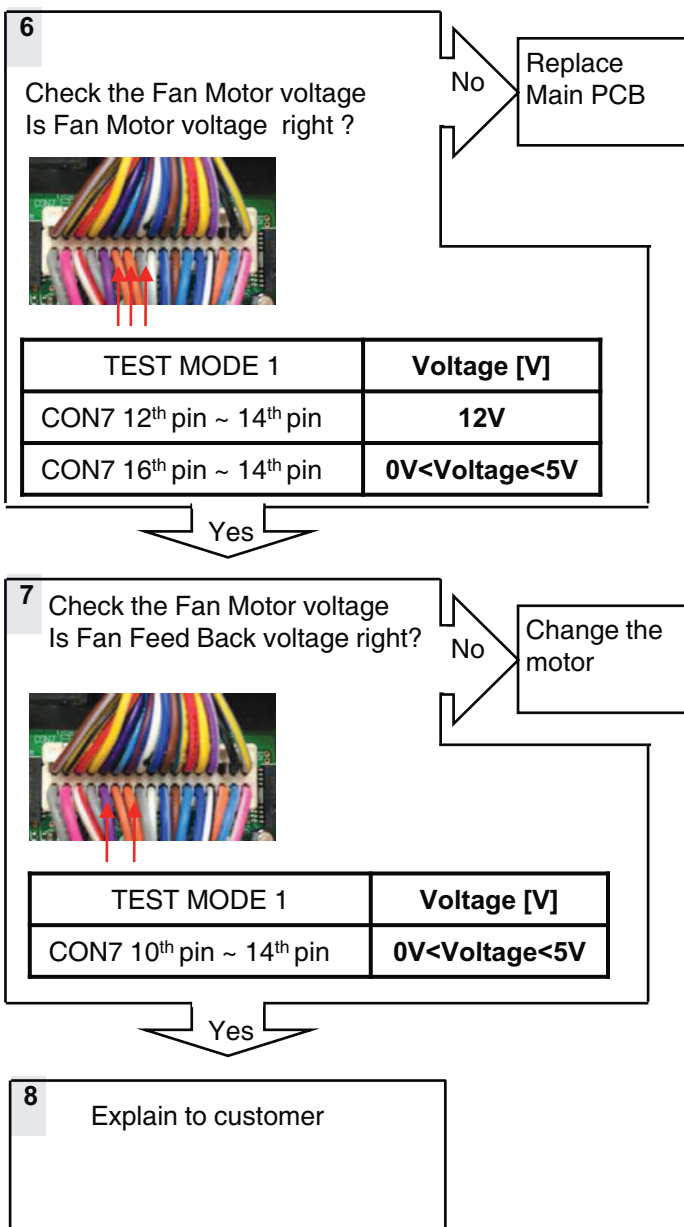
- 5 Check the Fan motor. Rotate fan using hand. It feel sticky?

Yes
Change the Fan motor

Fan Motor

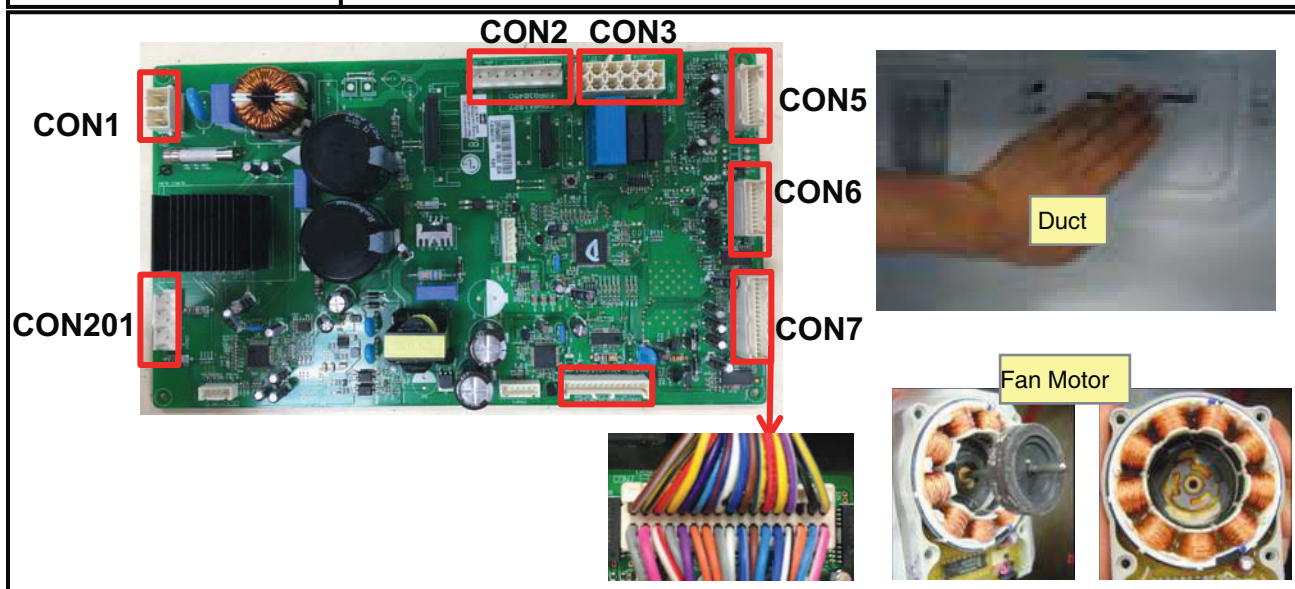


No



8-17. Over cooling in Freezer compartment

Symptom	Check Point
1. Over cooling in Freezer compartment	1. Check the sensor resistance 2. Check the air flow 3. Check the air Temperature 4. Check the Fan motor sticky 5. Check the Fan motor voltage



Pinout diagram for CON7 connector:

- 1 BNWH, 3 YL/BK, 5 RDYL, 7 YL/WH, 2 GY, 4 PK, 6 WH/RD, 8 GY/RD, 9 PR/RD, 13 PR/BK, 10 PR, 12 BO/BL, 14 BO, 16 GY/WH, 15 WH, 18 WH, 17 BL/WH, 20 BL/WH, 19 BN, 22 BN, 21 YL/BL, 24 SB, 23 RD, 25 YL, 26 BL, 28 WH/BK, 13 BL/RD, 27 PR/WH, 30 BO/WH, 29, 31 BK, 32 SB/WH, 34 GY/YL, 33 PK/WH, CON7
- ICING-FAN MOTOR (PWM)
MOTEUR DE VENTILATEUR GIVRAGE (CC SANS BALAI)
- C-FAN MOTOR (PWM)
MOTEUR DE VENTILATEUR C (CC SANS BALAI)
- BETA DUCT HEATER
beta du chauffage
- F-FAN MOTOR (PWM)
MOTEUR DE VENTILATEUR F (CC SANS BALAI)
- R-SENSOR
CAPTEUR R
- F-SENSOR
CAPTEUR F
- D-SENSOR
CAPTEUR D
- REFRIGERATOR STEPPING MOTOR
MOTEUR PAS À PAS RÉFRIGÉRATEUR
- FU LED LAMP (3 BK, 2 WH, 1 WH)
- R LED LAMP (2 WH, 1 YL)

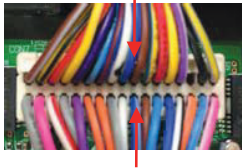
CON7 17 th pin ~ 20 th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
-13°F / -25°C	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

TEST MODE 1	Voltage [V]
CON7 12 th pin ~ 14 th pin	12V
CON7 16 th pin ~ 14 th pin	0V<Voltage<5V
CON7 10 th pin ~ 14 th pin	0V<Voltage<5V

Duct	Status
Air Flow	Windy
Air Temperature	Cold

Over cooling in Freezer compartment

1 Check the sensor resistance.



CON7 17 th pin ~ 20 th pin	Resistance [Ω]
-22°F / -30°C	40k
-13°F / -25°C	30k
-4°F / -20°C	23k
-13°F / -25°C	17k
14°F / -10°C	13k
23°F / -5°C	10k
32°F / 0°C	8k

2 Check the air flow in test mode 1 & 3
(Push the button 1 or 3 time)



Test1	Air Flow
Test3	No Air Flow

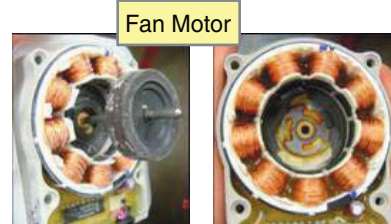
OK
Explain to customer

NG

3

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

Yes
Change the Fan motor



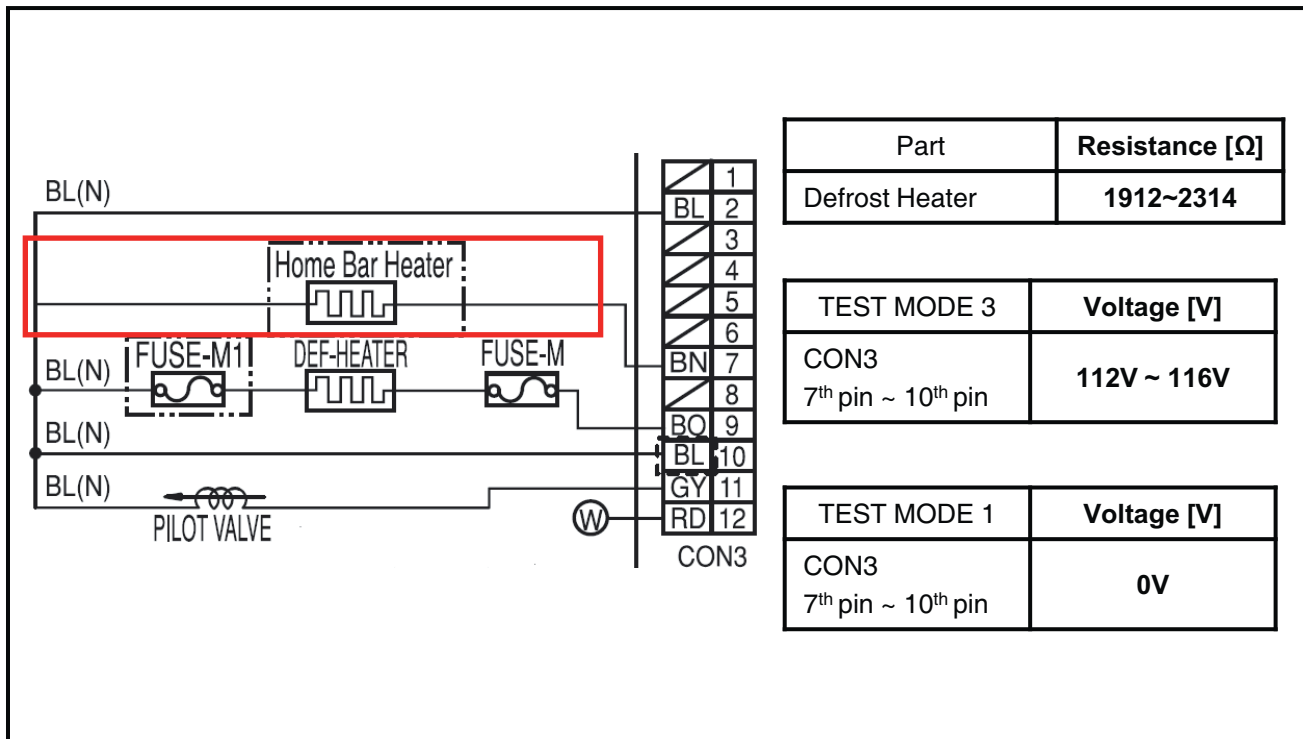
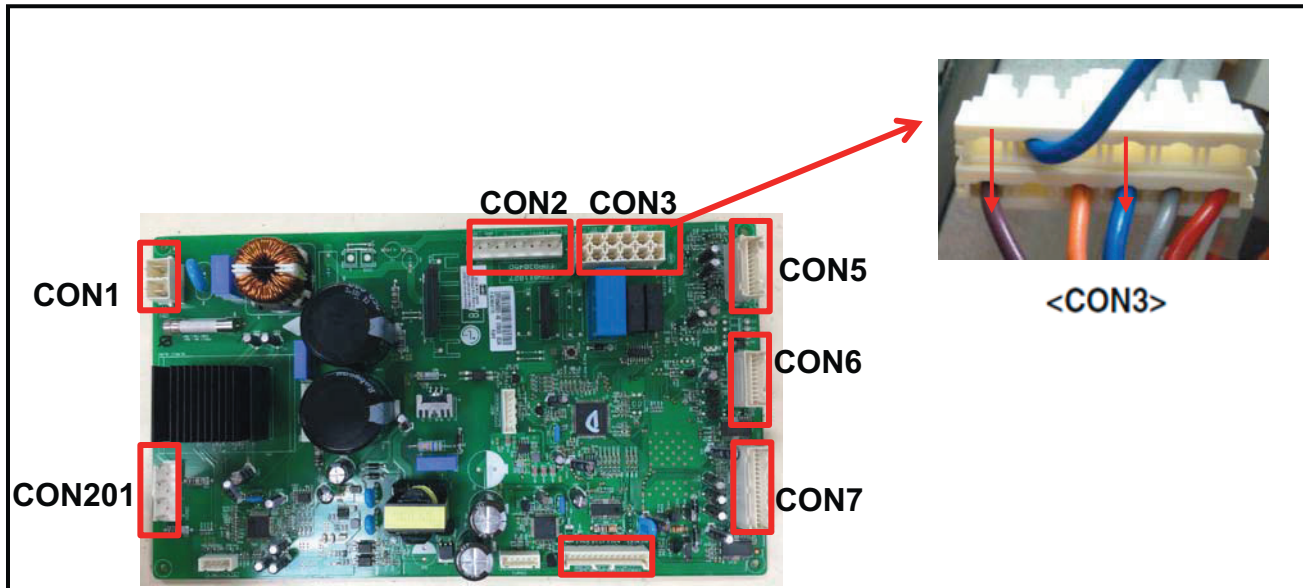
No

4

Change the Main PCB

8-18. Home Bar Heater do not work

Symptom	Check Point
1. Home Bar do not work	1. Check the Main PCB 2. Check the Home Bar Heater



Home Bar Heater do not work)

1

Check the Door gasket .
Is door gasket damaged?

Yes

Replace the
Door gasket

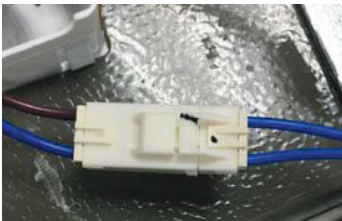
No

3

Is the connector loose?

Yes

Connect the
housing



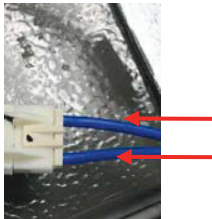
NO

3

Check Heater part.
Heater resistance
1912~2314 Ω?

NO

Change
The door

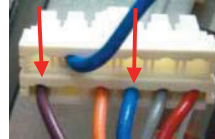


Yes

4 Input Test 3 Mode

(Push the button 3 times)

Check the Heater Voltage.
Is voltage 112~116V?



<CON3>

TEST MODE 3	Voltage [V]
CON3 7 th pin ~ 10 th pin	112V ~ 116V

NO

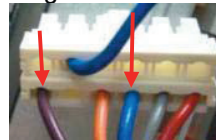
Replace
Main PCB

Yes

5 Input Test 1 Mode

(Push the button 1 times)

Check the Heater Voltage.
Is voltage 0V?



<CON3>

TEST MODE 1	Voltage [V]
CON3 7 th pin ~ 10 th pin	0V

No

Replace
Main PCB

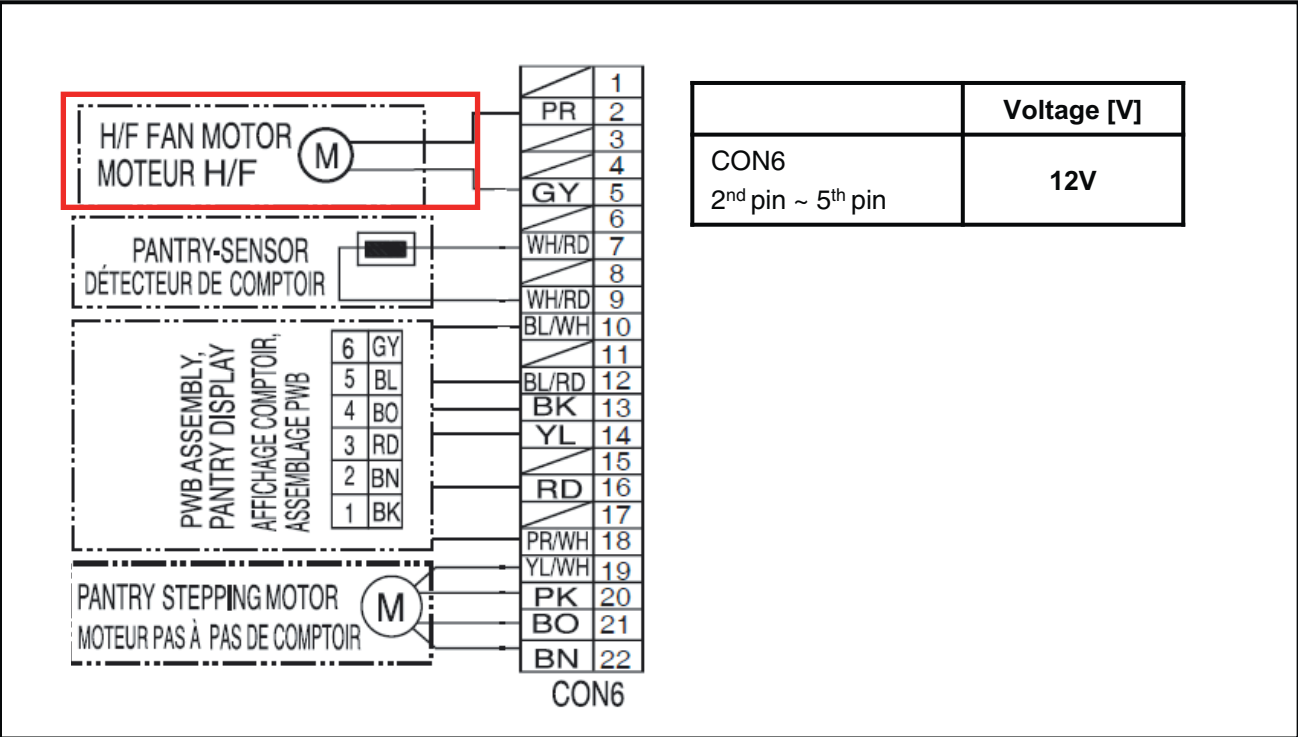
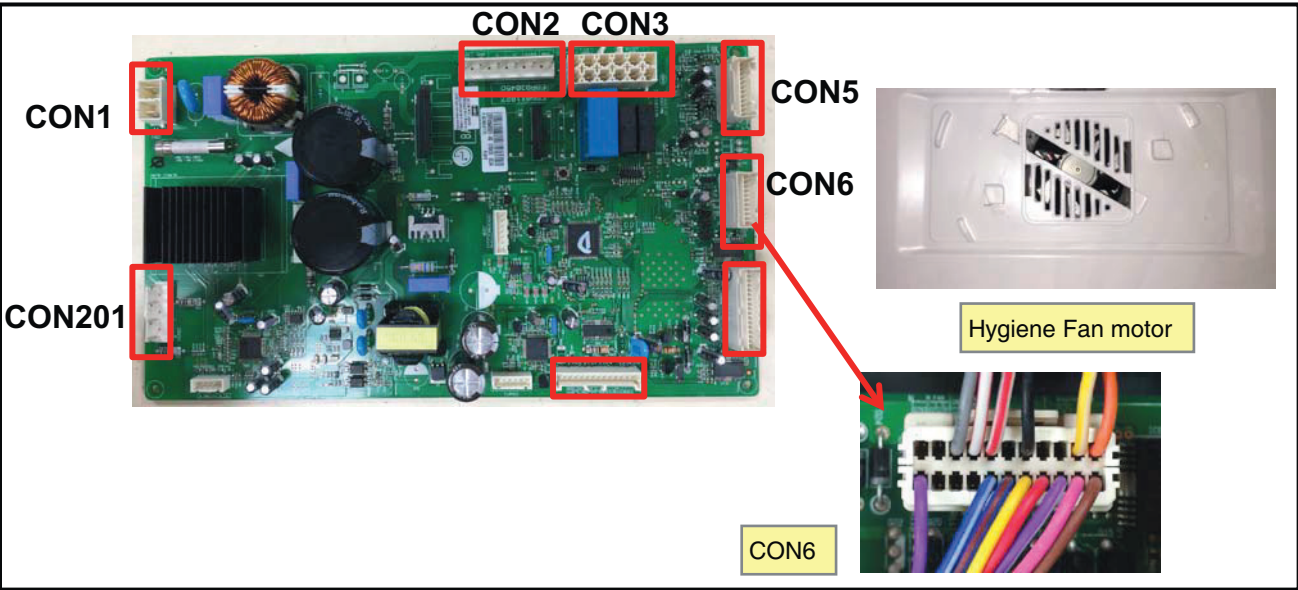
Yes

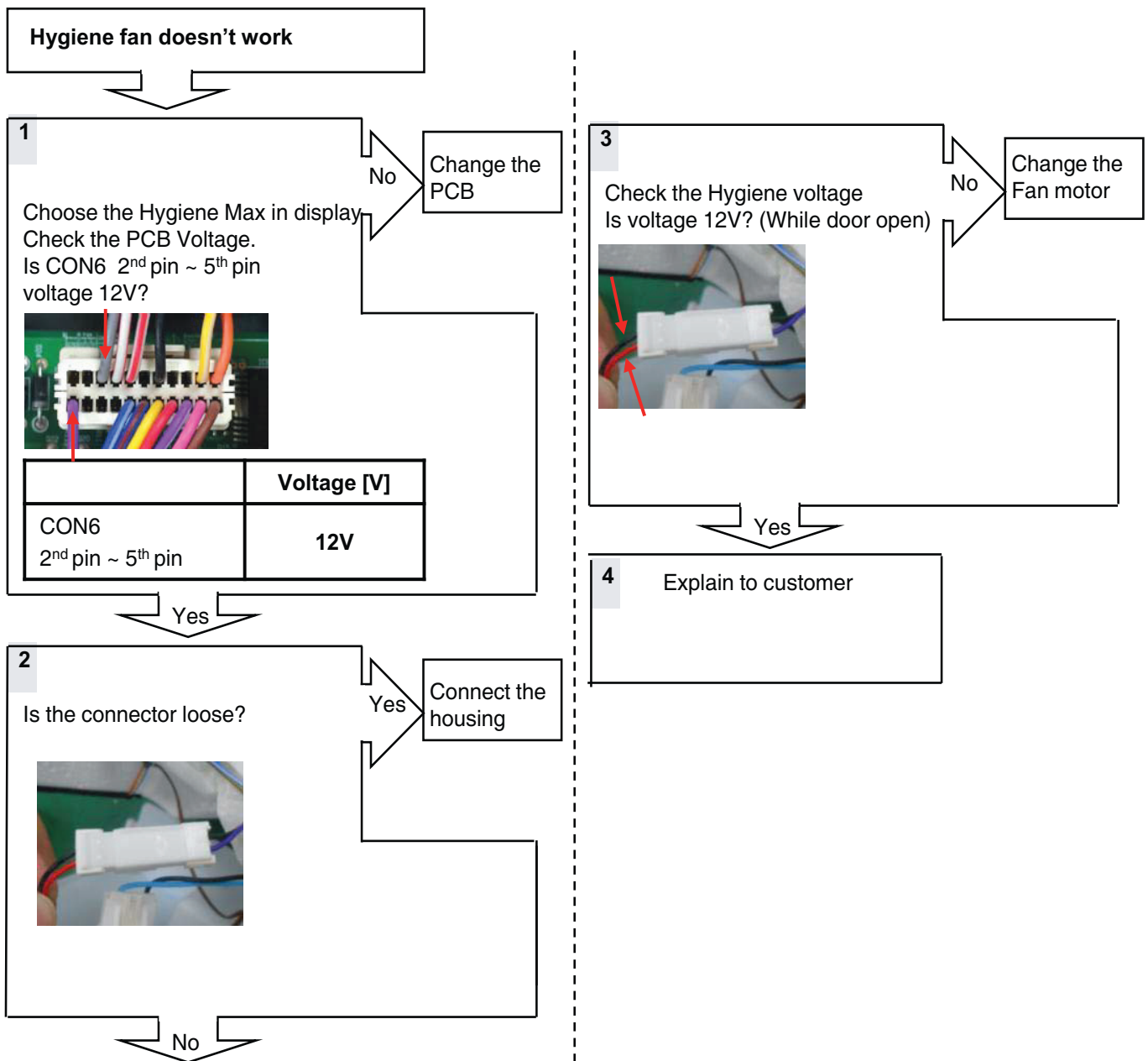
6

Explain to customer

8-19. Hygiene fan doesn't work

Symptom	Check Point
1. Hygiene fan doesn't work	1. Check Hygiene Fan motor voltage 2. Main PCB

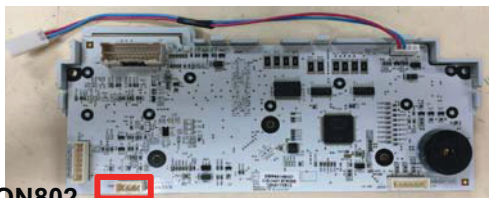




8-20. Wi-Fi modem doesn't work

Symptom	Check Point
1. Wi-Fi modem doesn't work	1. Check connector 2. Display PCB 3. Wi-Fi modem PCB

Display PCB

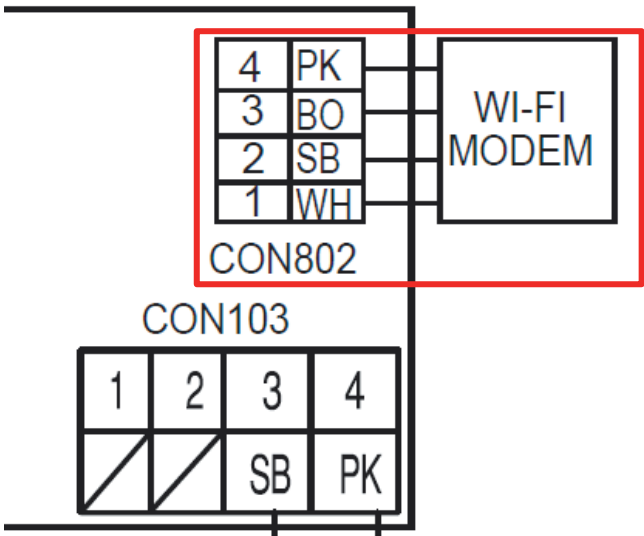


CON802

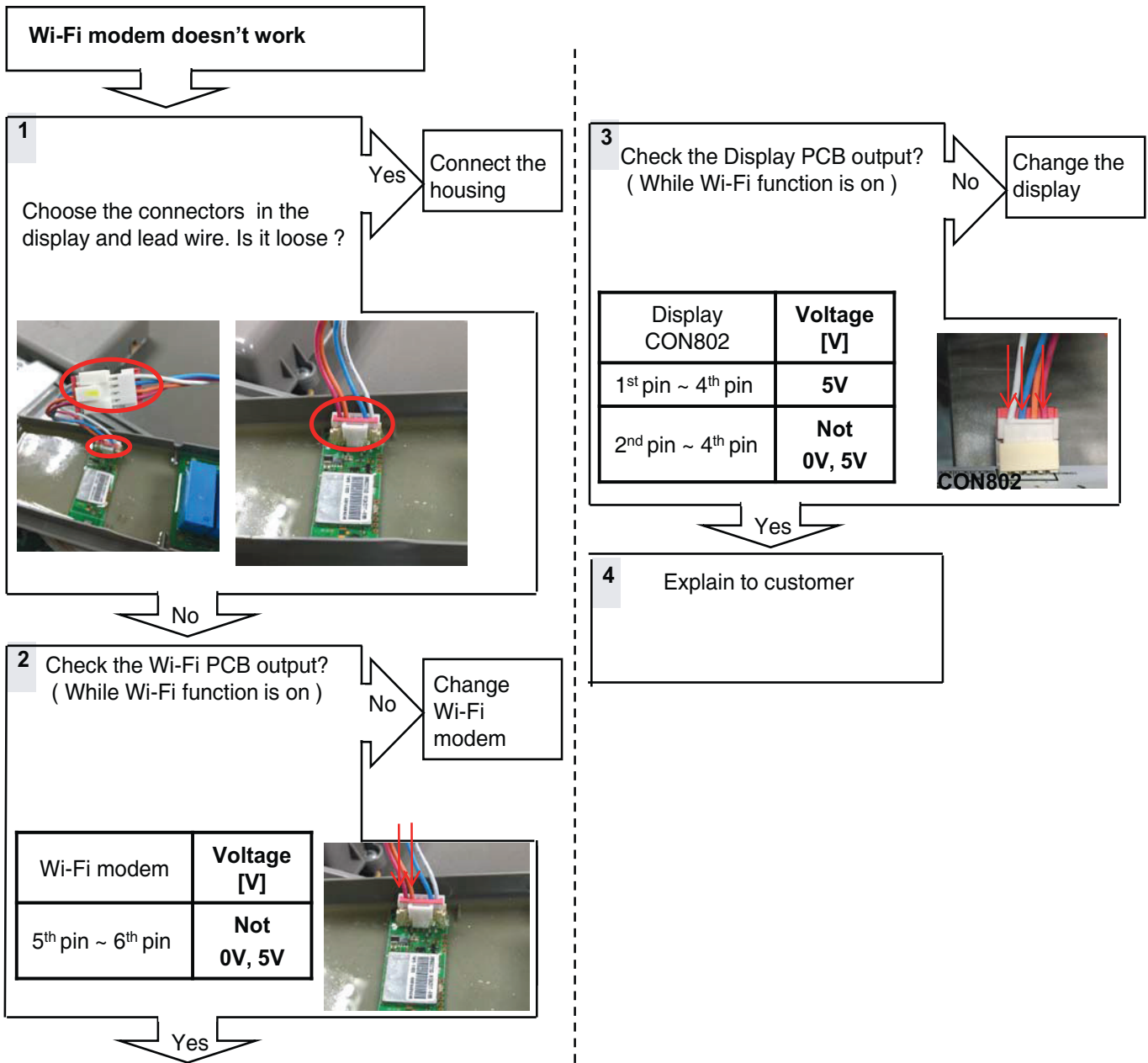


CON802

Wi-Fi PCB



Wi-Fi ON	Voltage [V]
CON802 1 st pin ~ 4 th pin	5V
CON802 2 nd pin ~ 4 th pin	Not 0V, 5V
CON802 3 rd pin ~ 4 th pin	Not 0V, 5V



10. REFERENCE

10-1 TEST MODE and Removing TPA

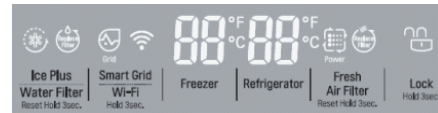
1. How to enter the TEST MODE

Push the test button on the Main PCB to enter the TEST MODE.



Main PWB

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



* 2 times : Damper closed
(22 22 displayed)

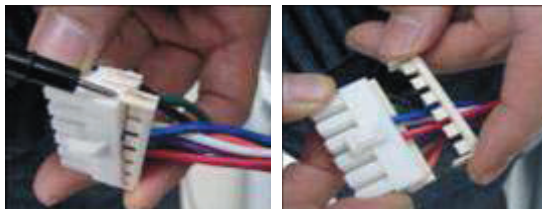


* 3 times : Forced defrost mode
(33 33 displayed)

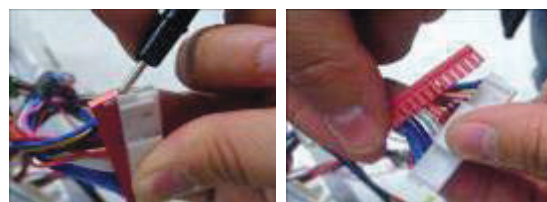


2. How to remove Terminal Position Assurance (TPA)

<AC TPA>



<DC TPA>



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

10-2 TEMPERATRUE CHART - FRZ 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
-21°F (-30°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

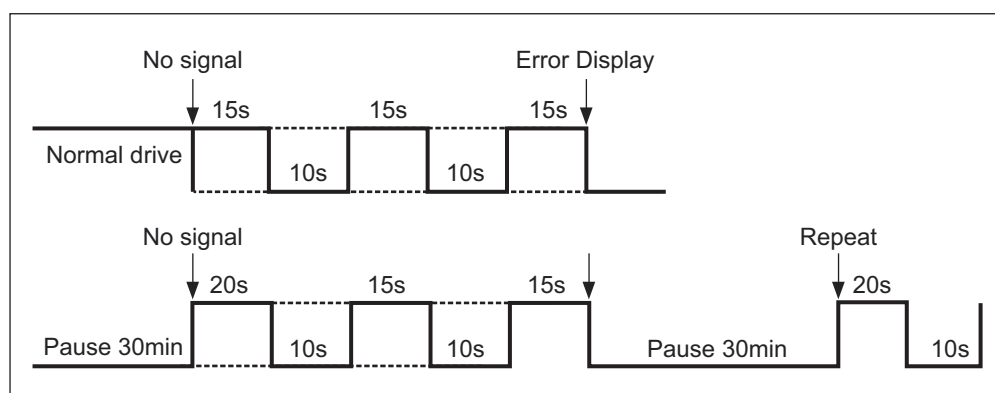
10-3 TEMPERATRUE CHART - REF AND DEF SENSOR

TEMP	RESISTANCE	VOLTAGE
-39°F (-40°C)	225.1 kΩ	4.48 V
-30°F (-35°C)	169.8 kΩ	4.33 V
-21°F (-30°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

10-4 How to check the Fan-Error

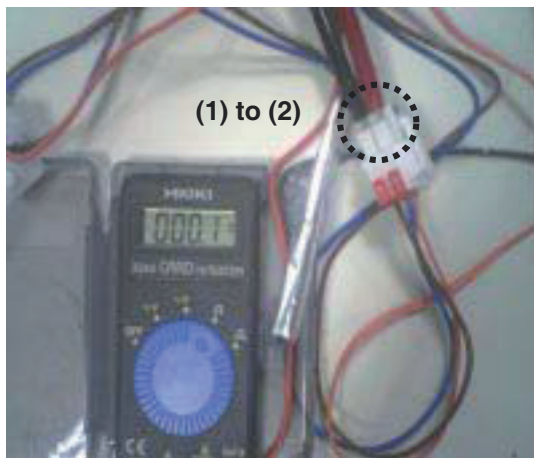
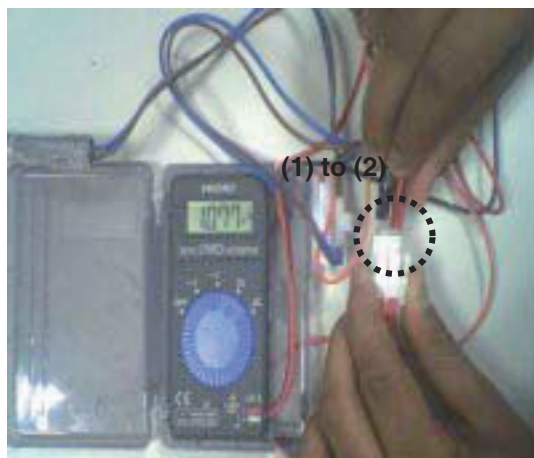
(1) EBR650027**

After sending a signal to the fan, the MICOM checks the BLDC fan motor's lock status. If there is no feedback signal from the BLDC fan, the fan motor stops for 10 seconds and then is powered again for 15 seconds. To determine that there is a fan motor malfunction, this process is repeated 3 times. If the fan motor is determined to be defective, the error code will be shown in the display for 30 minutes. At this point, the process will be repeated until the fan motor operates normally. If normal operation is achieved, the error display is erased and the MICOM is reset automatically.



11. COMPONENT TESTING INFORMATION

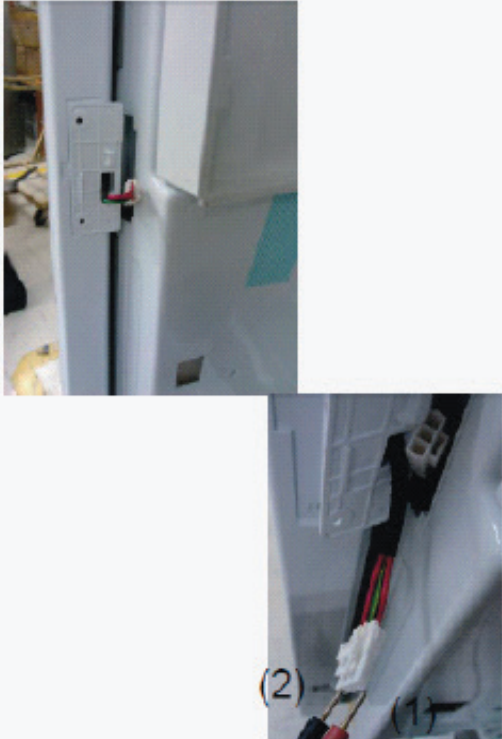
11-1 Defrost Controller Assembly

Function	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.														
How to Measure (Fuse-M)		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.													
How to Measure (Sensor)		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.													
Standard	<table><tr><th colspan="2">Fuse-M (at all temperature)</th><th colspan="2">Sensor (at room temperature)</th></tr><tr><td>Test Point</td><td>Ressult</td><td>Test Point</td><td>Ressult</td></tr><tr><td>(1) to (2)</td><td>0 ~ 0.1Ω</td><td>(1) to (2)</td><td>11KΩ</td></tr></table>			Fuse-M (at all temperature)		Sensor (at room temperature)		Test Point	Ressult	Test Point	Ressult	(1) to (2)	0 ~ 0.1Ω	(1) to (2)	11KΩ
Fuse-M (at all temperature)		Sensor (at room temperature)													
Test Point	Ressult	Test Point	Ressult												
(1) to (2)	0 ~ 0.1Ω	(1) to (2)	11KΩ												

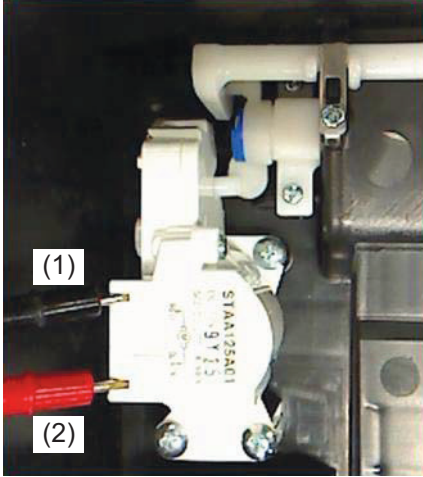
11-2 Sheath Heater

Function	Sheath heater is a part for defrost. All heating wire is connected to only one line. To check if the part is defective, check the resistance.				
How to Measure	Set a ohmmeter connect to The 2 housing pin. Measure the 2 pin connected to Sheath Heater. If the ohmmeter indicate $(V^{\circ}\emptyset V)/Watt=R$ is good condition, ex) when watt=350w, voltage=115v $R=(115^{\circ}\emptyset 115)/350=38\Omega$ But if the ohm meter indicate infinity the Sheath heater is bad.				
Standard	Sheath heater (at all temperature) <table border="1"> <thead> <tr> <th>Test Point</th><th>Ressult</th></tr> </thead> <tbody> <tr> <td>(1) to (2)</td><td>34 ~ 42 Ω</td></tr> </tbody> </table>	Test Point	Ressult	(1) to (2)	34 ~ 42 Ω
Test Point	Ressult				
(1) to (2)	34 ~ 42 Ω				

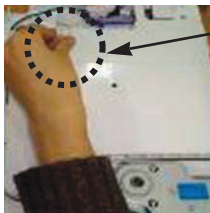
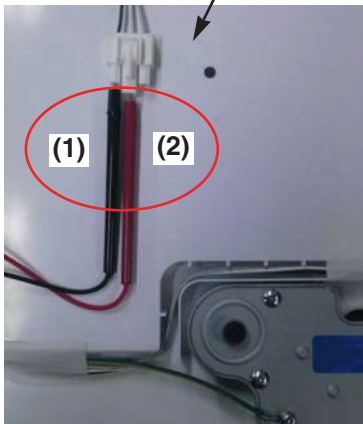
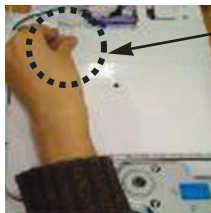
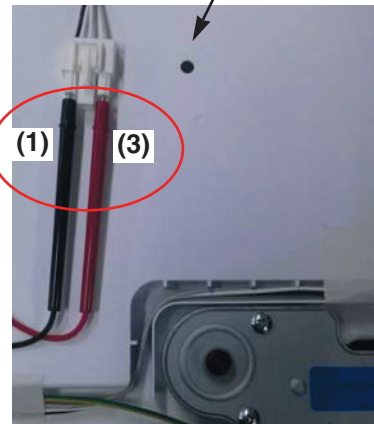
11-3 Door Heater Assembly

Function	The heater is designed to prevent the raising dew from door.					
How to Measure						
Standard	<table><tr><th>Test Point</th><th>Result</th></tr><tr><td>(1) to (2)</td><td>1.9-2.2KΩ</td></tr></table>		Test Point	Result	(1) to (2)	1.9-2.2KΩ
Test Point	Result					
(1) to (2)	1.9-2.2KΩ					

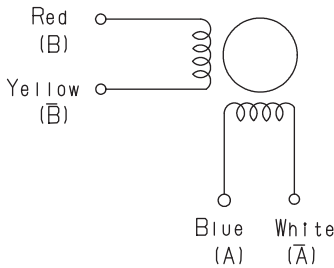
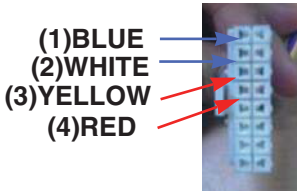
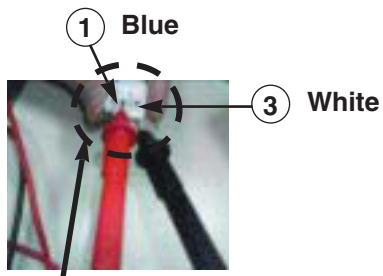
11-5 Dispenser DC Motor

Function	- Dispenser DC Motor : When customer push the dispenser button, Pull duct door and abstract from ice bank.				
How to Measure	 Dispensor DC Motor				
Standard	Dispenser DC Motor <table border="1"> <thead> <tr> <th>Test Points</th><th>Result</th></tr> </thead> <tbody> <tr> <td>(1) to (2)</td><td>9.9 ~ 12.1Ω</td></tr> </tbody> </table>	Test Points	Result	(1) to (2)	9.9 ~ 12.1Ω
Test Points	Result				
(1) to (2)	9.9 ~ 12.1Ω				

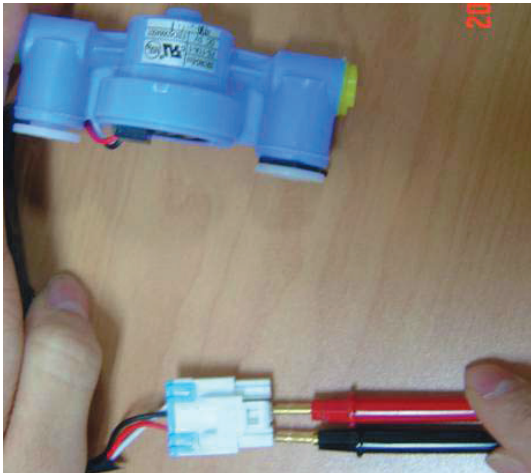
11-6 AC Motor ASSEMBLY

Function	The motor in the door pushed the ice into the dispenser.							
How to Measure	< In-door Motor >  ① Separate the housing.  ② Measure the resistance between (1) and (2) < In-door Motor >  ① Separate the housing.  ② Measure the resistance between (1) and (3) Check the resistance between connectors (In-door motor 1, 2) and (In-door motor 1, 3). It means check whether or not applying an Electric current. If there is resistance, it means the geared motor or solenoid is not inferiority							
Standard	Geared Motor <table><tr><td>Test Points</td><td>Result</td></tr><tr><td>(1) to (2)</td><td>31.1 ~ 42.09Ω</td></tr><tr><td>(1) to (3)</td><td>31.1 ~ 42.09Ω</td></tr></table>		Test Points	Result	(1) to (2)	31.1 ~ 42.09Ω	(1) to (3)	31.1 ~ 42.09Ω
Test Points	Result							
(1) to (2)	31.1 ~ 42.09Ω							
(1) to (3)	31.1 ~ 42.09Ω							

11-7 Damper

Function	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.																														
How to Measure	Table(1) : 결선도(Wirering)  Table(2) : 2-2상 여자순서(CW Rotation) <table><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><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></table> < Damper Circuit >  Check the ①, ②  Check the ①, ③ < extension >  Check the ③, ④  Check to see if there is electrical current, if there is resistance the damper is good.		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	Damper <table><tr><th>Test Points</th><th>Result</th></tr><tr><td>Red and Yellow</td><td>373 ~ 456Ω</td></tr></table> <table><tr><th>Test Points</th><th>Result</th></tr><tr><td>Blue and White</td><td>373 ~ 456Ω</td></tr></table>		Test Points	Result	Red and Yellow	373 ~ 456Ω	Test Points	Result	Blue and White	373 ~ 456Ω																					
Test Points	Result																														
Red and Yellow	373 ~ 456Ω																														
Test Points	Result																														
Blue and White	373 ~ 456Ω																														

11-9 Flow Sensor

Function	Flow Sensor (in machine room) Count the water quantity from city water to water filter in refrigerator					
How to Measure	 Flow Sensor (in machine room) 					
Standard	<table><tr><td>Test Points</td><td>Result</td></tr><tr><td>Red wire to Black wire</td><td>4 ~ 30 kΩ</td></tr></table>		Test Points	Result	Red wire to Black wire	4 ~ 30 kΩ
Test Points	Result					
Red wire to Black wire	4 ~ 30 kΩ					

PCB Check (Simplify)



Troubleshooting



12-1 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



Step2. Check Driver PCB



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.

12-2 Check B

B1. LED blinks once, then repeats (FCT0 Fault)

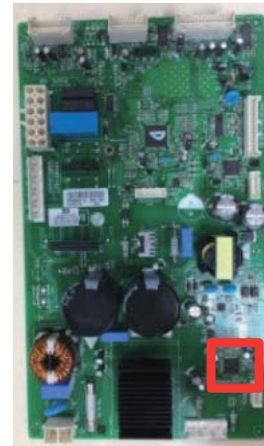
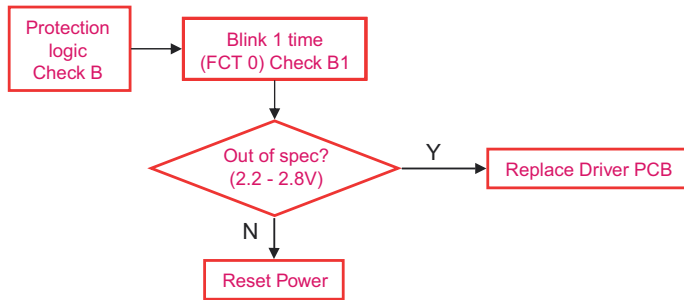
Protection Logic



Blink OFF Blink OFF

- Purpose: Detecting motor current and voltage error
- Check voltage at **point A** (Motor Voltage), **point B** (Motor Current) and **Point C** (Capacitor Voltage) when **compressor is off**.
- Spec: **Points A, B, & C** $2.5V \pm 0.3V$

⦿ GND
○ Voltage



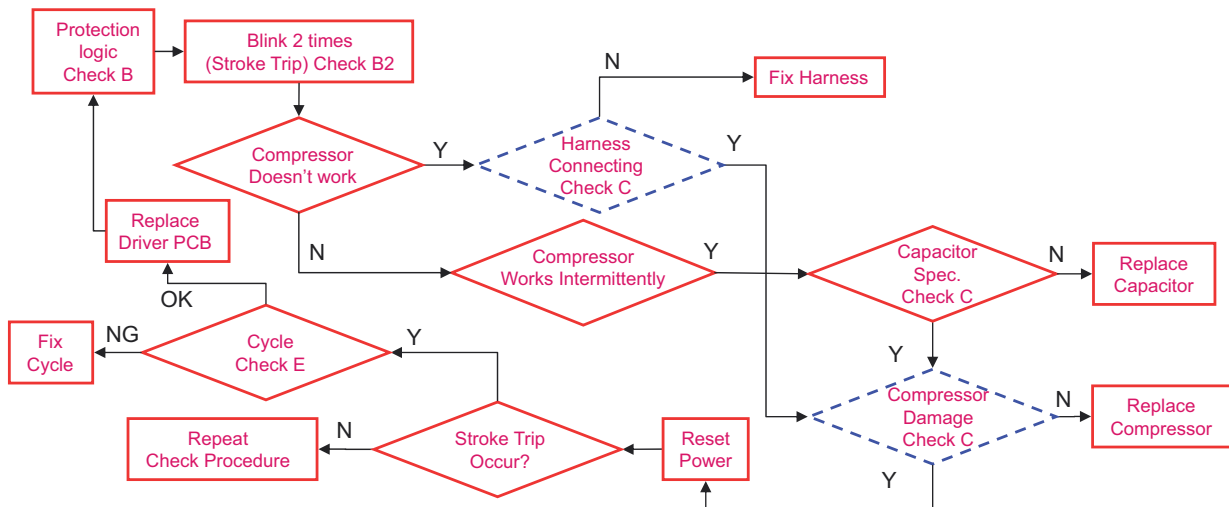
B2. LED blinks two times, then repeats (Stroke Trip)

Protection Logic



Blink Blink OFF Blink Blink OFF

- Purpose: Prevent abnormally long piston strokes.
- Case 1. If compressor doesn't work and LED blinks - Cause: Possibly harness from compressor to PCB might be defective.
- Case 2. If compressor works intermittently and LED blinks - Cause: Condenser Fan or Freezer Fan is not running. Sealed system problem such as moisture restriction, restriction at capillary tube or refrigerant leak.
- Logic: Compressor is forced to off and then tries to restart after 1 minute.



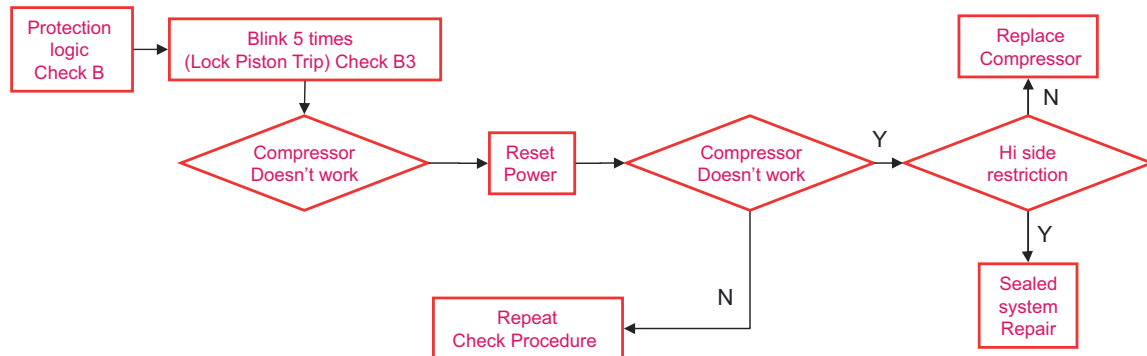
B3. LED blinks five times, then repeats (Locked Piston)

Protection Logic



Blink Blink Blink Blink Blink OFF

- Purpose: To detect locked piston
- Cause: Lack of oil to the cylinder, cylinder or piston damaged and or restricted discharge.
A Locked Piston can also be caused by foreign materials inside the compressor.
- Logic: Compressor is forced off and tries to restart within 2.5 minutes.



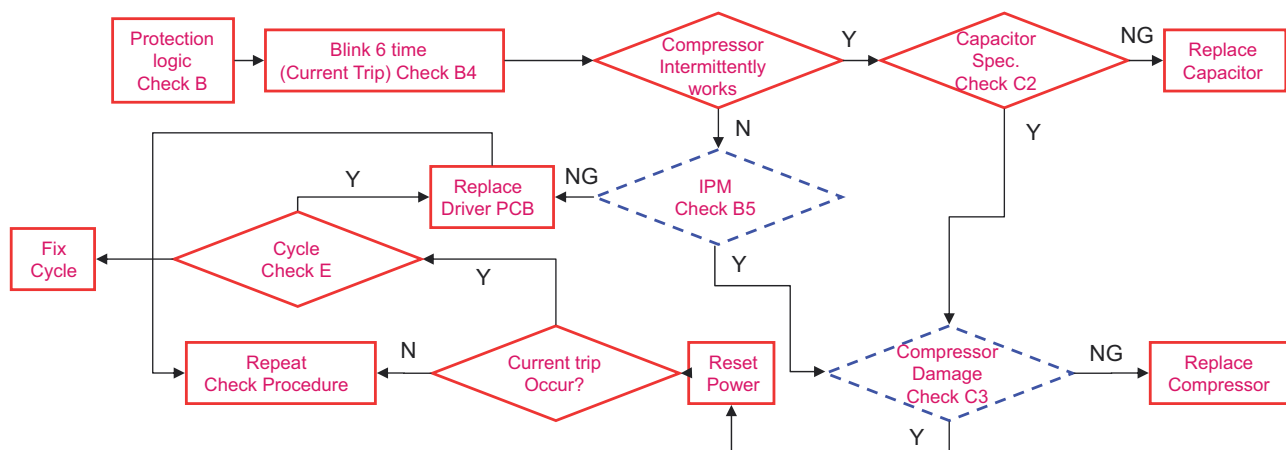
B4. LED blinks six times, then repeats (Current Trip)

Protection Logic



Blink Blink Blink Blink Blink Blink OFF

- Purpose: Prevent over-current (overload protect)
- Cause: Ambient temperature is high (over 43°C) and/or refrigerator's condenser air movement is restricted.
- Condenser Fan is stopped, restricted discharge line, compressor is damaged, or IPM device is defective.
- Logic: Compressor is forced off and tries to restart after 6 minutes.

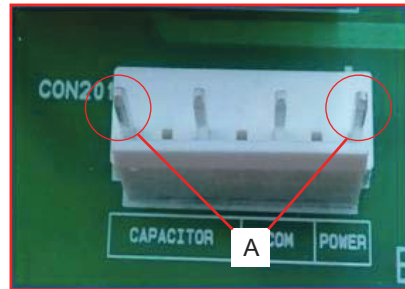
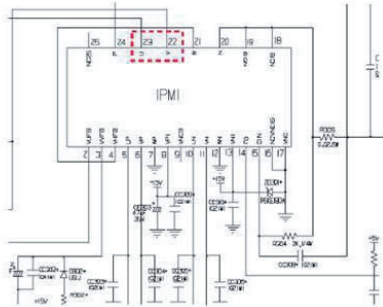


B5. LED blinks seven times, then repeats (IPM Fault)

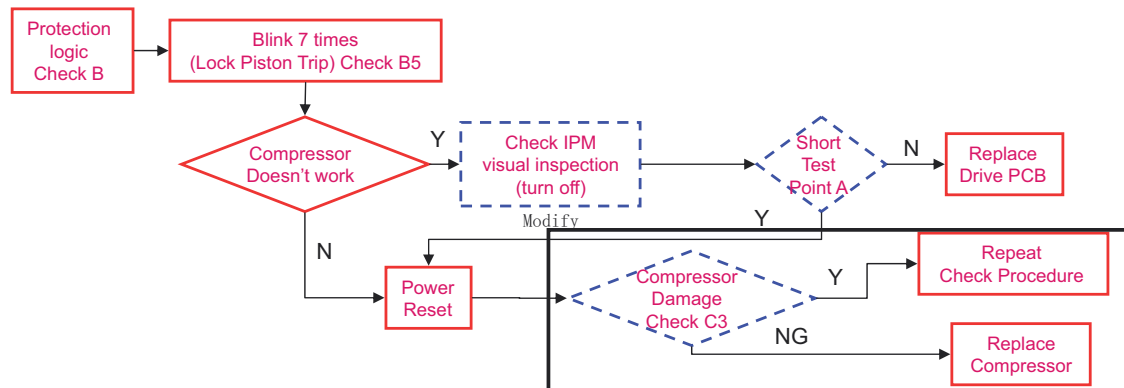


Blink Blink Blink Blink Blink Blink OFF

- Purpose: Prevent high current due to IPM Short
- Cause: Damaged IPM (Dead Short)
- Test for a dead short at **Point A** with a VOM.
- Logic: Compressor is forced off and tries to restart in 20 seconds.



Protection Logic



12-3 Check C

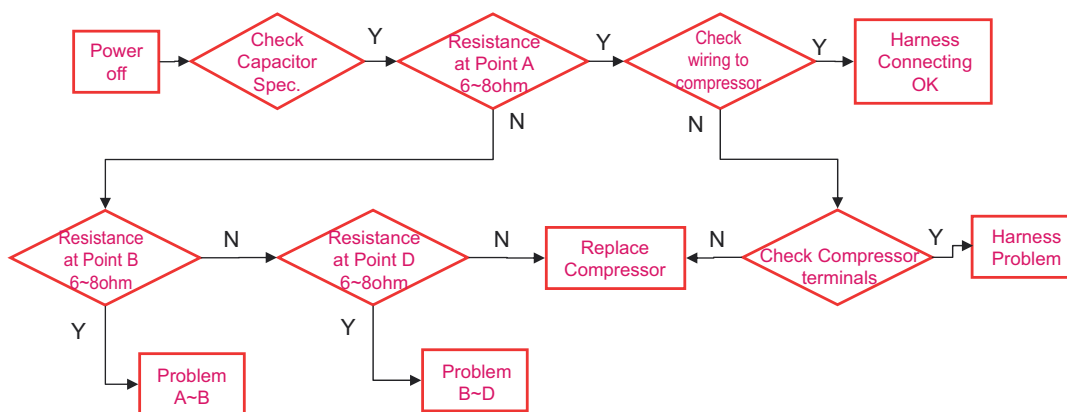
C1. Harness Connection Check

C2. Capacitor Specifications

C3. Compressor Check

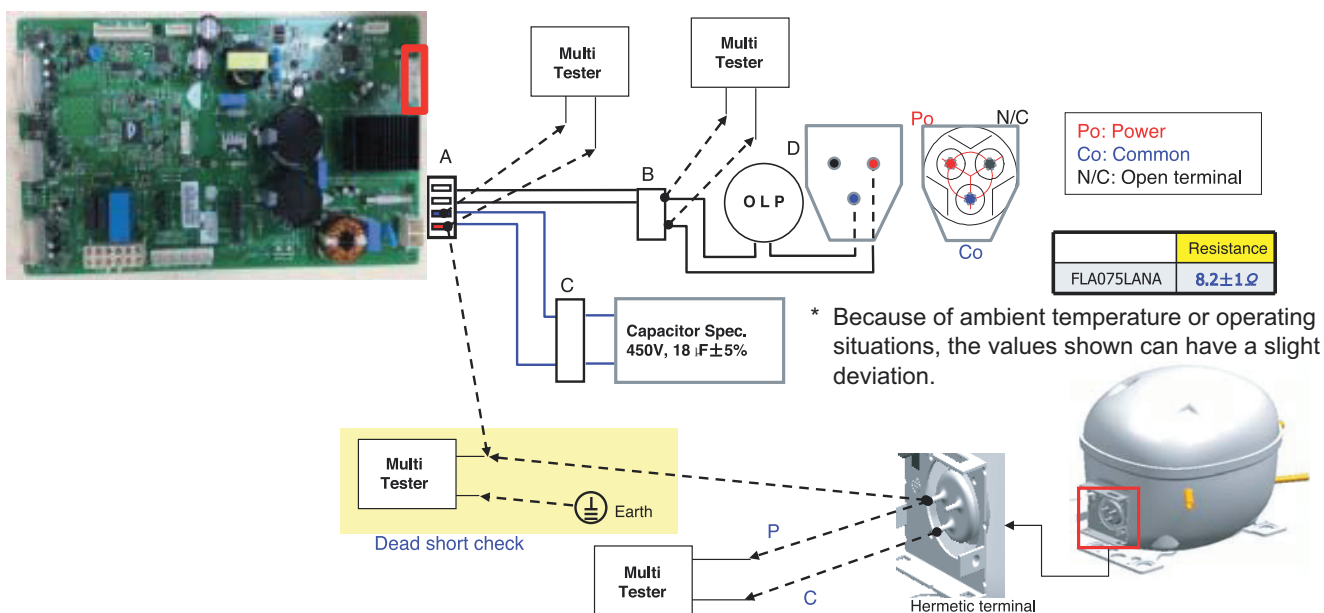
Check Process

- Step 1. Power off. Step 2. Check capacitor spec. (table1). Step3. Check resistance of point A
- Step 4. Check wire harness (INF ohm). Step 5. Check resistance at point B. Step 6. Point D.



Caution : Turn off power during check C

- Measure the resistance at each point except point C
- Dead short check: measure the resistance between power line in compressor and earth ground in refrigerator (Inf. Ohm)

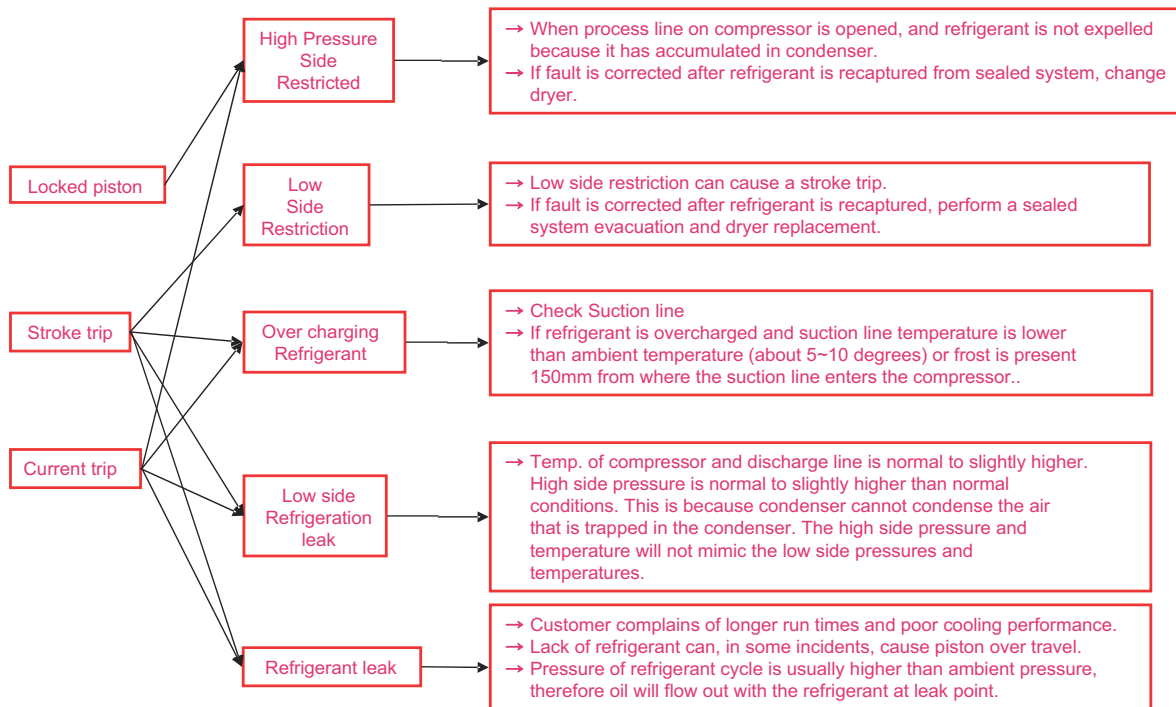


12-4 Check D

D1. Activate Protection logic

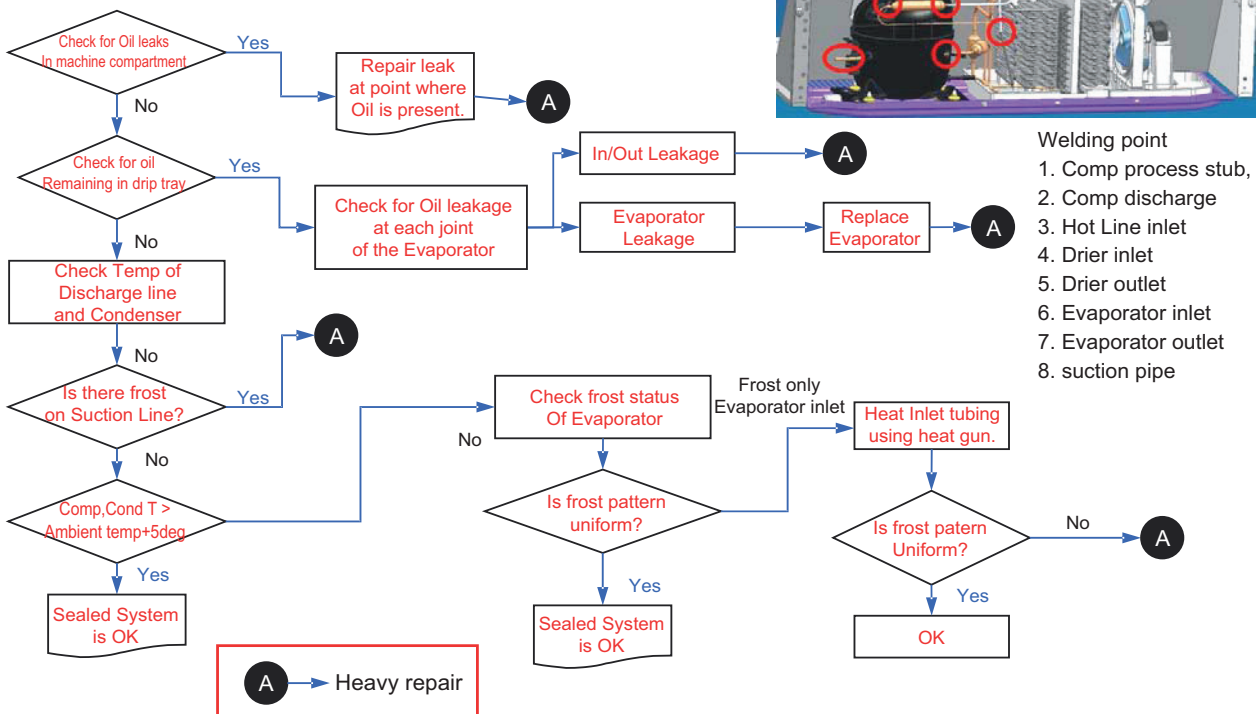
Cycle check with protection logic

- 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 then the driver or compressor.



D2. sealed system diagnosis

- Check as follows;



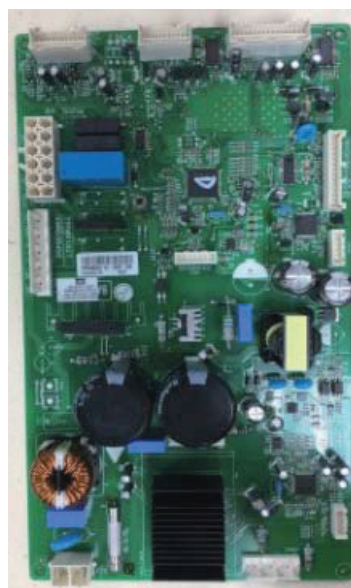
Compressor Troubleshooting

⚠ WARNING HIGH VOLTAGE

Step 1) Open PWB cover



Step 2) Check for blinking frequency of LED, PWB



LED Lamp



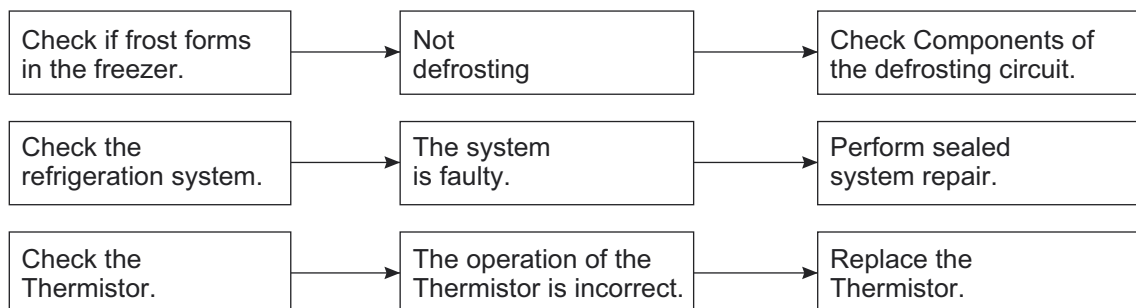
If compressor is normal, it does not blink
: Refer to the next page to find out what actions to take according to how many times LED blink

No	LED operating condition	Cause	Service guideline
1	LED two - time repetiton (Stroke Trip)  •• on - on - off - on - on - off - on - on - off •• repeating	PCB Parts defect or Compress or Connector miss connecting (Piston over run)	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	LED five - time repetiton (Piston Lock Trip)  •• on - on - on - on - on - off - on - on - on - on - on - off •• repeating	Piston constraint	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	LED six - time repetiton (Current Trip)  •• on - on - on - on - on - on - off - on - on - on - on - on - off •• repeating	Circuit over current error Or cycle error	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	LED seven- time repetiton (IPM Fault Trip)  •• on - on - on - on - on - on - on - off - on - on - on - on - on - on - off •• repeating	PCB parts defect (IPM)	1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action, replace PCB
5	LED once repetiton (FCT0 Trip)  ** on - off - on - off - on - off - on - off •• repeating	PCB parts defect (Motor current & Capacitor Voltage)	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 PCB

12-5 SERVICE DIAGNOSIS CHART

COMPLAINT	POINTS TO BE CHECKED	REMEDY
No Cooling.	- 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.	- Plug into the outlet. - Set the switch to ON. - Replace the fuse. - If the voltage is low, correct the wiring.
Cools poorly.	- 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.	- 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.	- 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)?	- 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.	- 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?	- 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.	- Check if the ambient temperature and humidity of the surrounding air are high. - Is there a gap in the door gasket?	- Wipe moisture with a dry cloth. It will disappear in low temperature and humidity. - Fill up the gap.
There is abnormal noise.	- 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.	- 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.	- Check if the door gasket is dirty with an item like juice. - Is the refrigerator level? - Is there too much food in the refrigerator?	- 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.	- Check if the inside of the unit is dirty. - Are foods with a strong odor unwrapped? - The unit smells of plastic.	- 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:



12-6 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.	- 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.	- 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.	- 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.	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.	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.	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.	No pressure in the high pressure part of the compressor.

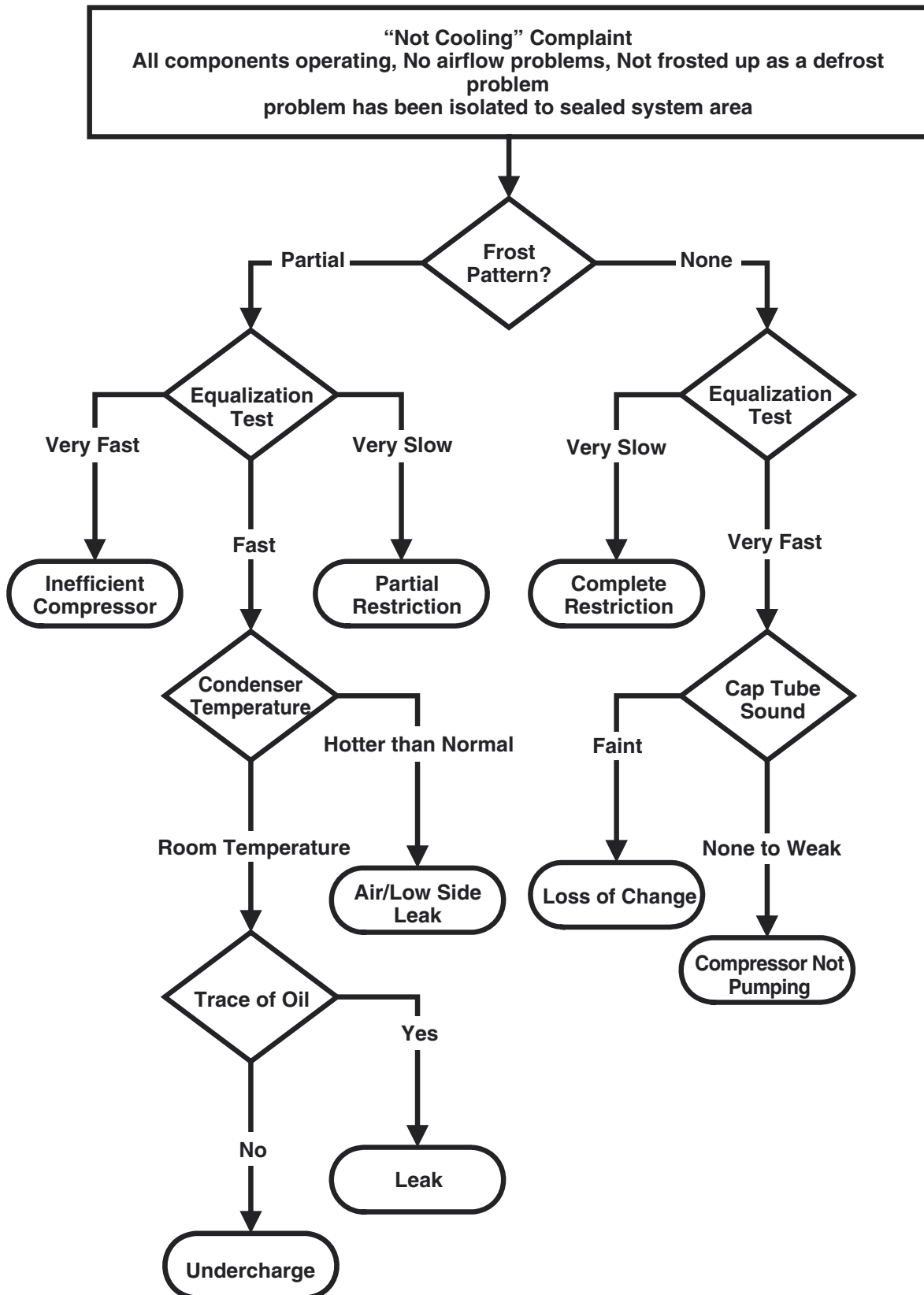
12-6-1 Cleaning

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.

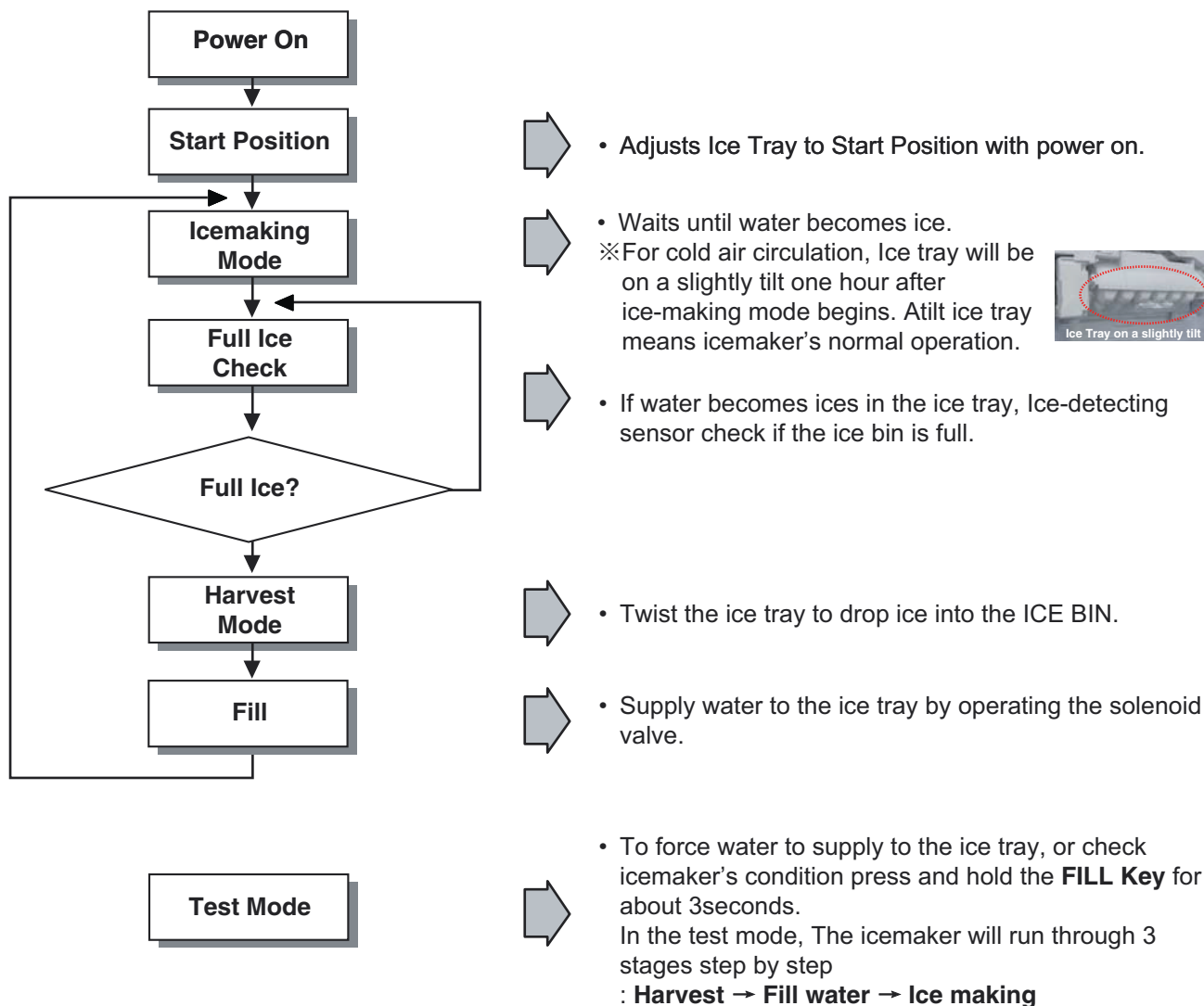
12-6-2 SEALED SYSTEM DIAGNOSIS



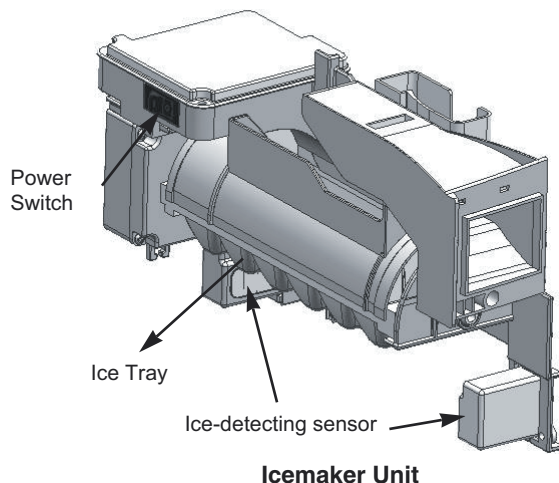
(The equalization test is trying to restart a compressor using a start kit after it has been operating.)

13. ICEMAKER OPEARTING AND TROUBLE SHOOTING METHOD

13-1 Icemaker's Basic Operating Method



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



13-2 ICE MAKER FUNCTIONS

13-2-1 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.

13-2-2 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.

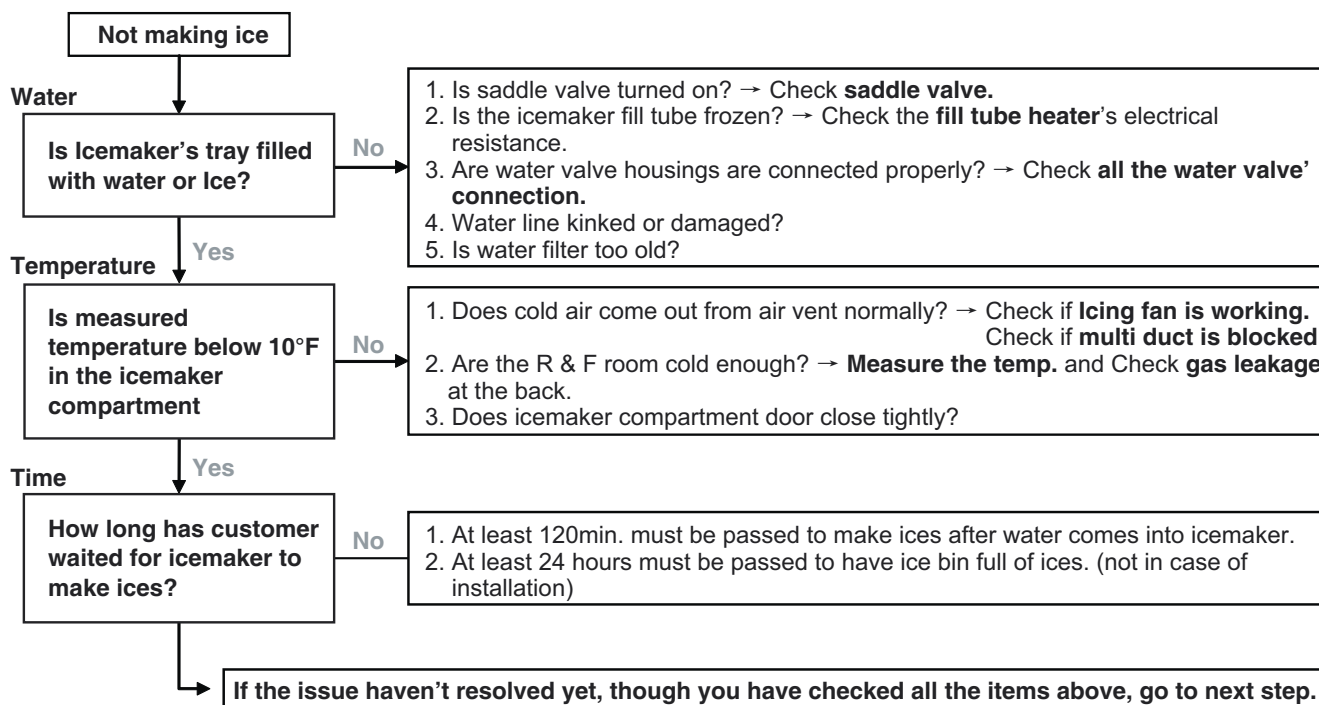
13-2-3 Fill/Park Position

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

13-3 Trouble Shooting Ice & Water system Issues

13-3-1 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.**

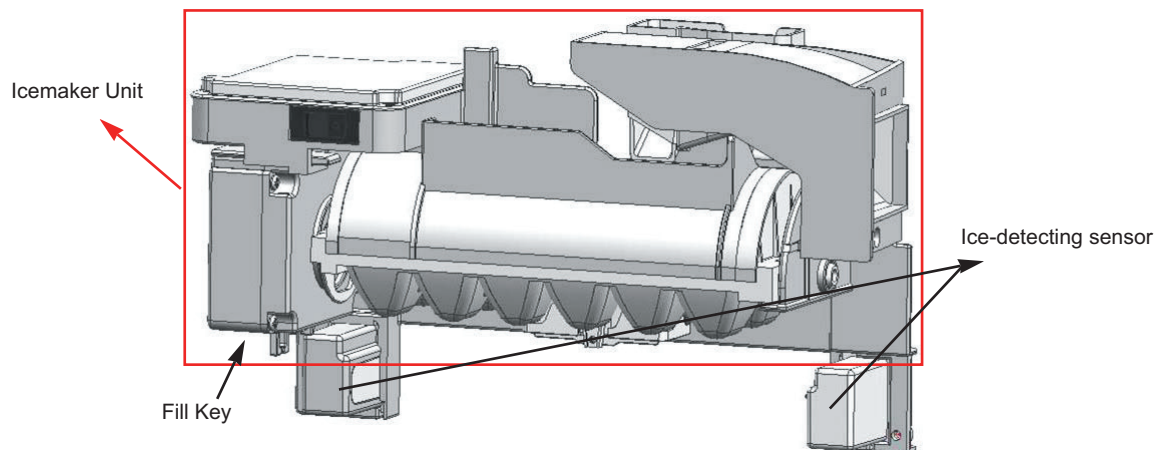


13-3-2 Icemaker not making ice or not making enough ice (Icemaker Unit & Ice-detecting sensor Diagnosis)

☒ Icemaker Unit and Ice-detecting sensor Diagnosis

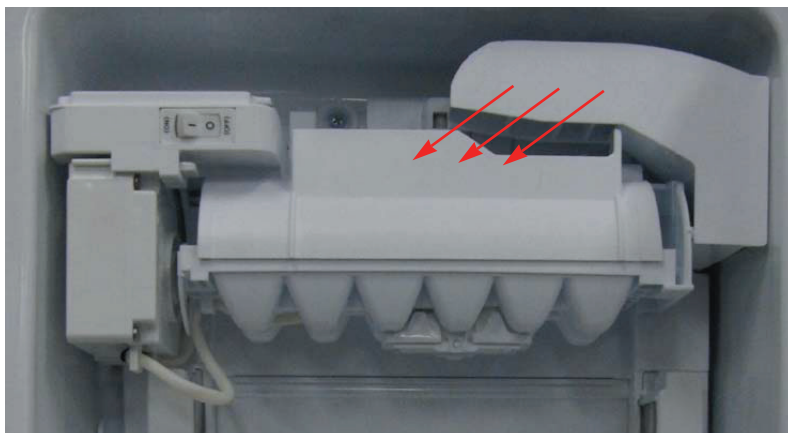
The icemaker unit and Ice-detecting sensor is programmed to be diagnosed.

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



1st STEP (Icemaker Unit Diagnosis)

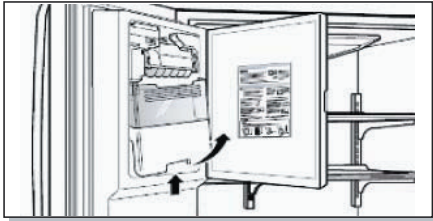
Press the fill key for about 3sec. If the icemaker runs 2 stages of harvest and filling water step by step, It means icemaker's mechanism is normal.



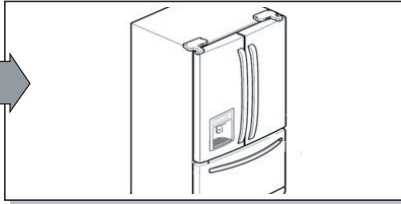
※ Caution : Be sure that the ice tray is not filled with water before pressing fill key.

2st STEP (Ice-detecting sensor Diagnosis)

1. Remove Ice bin from compartment



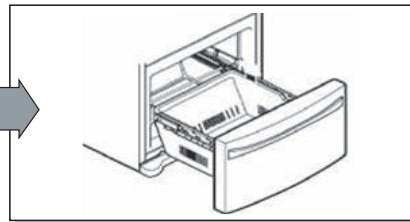
2. Close the left door (Door switch pushed)



3. Wait for 3min.



4. Freezer door stays open



5. Push the refrigerator 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

13-3-3 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)

13-3-4 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)

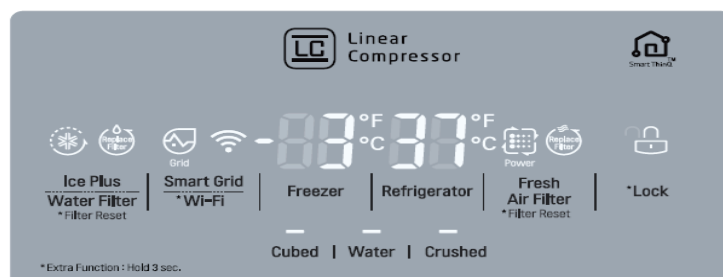
- Cap duct doesn't seal the air properly.
 - **Resolution** : Possibly, warm air could get into the compartment and make ices get stuck. Replace the cap duct with new one.

14. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

14-1 FUNCTION

14-1-1 Function

1. When the appliance is plugged in, it is set to 37°F for Refrigerator and 0°F for freezer.
You can adjust the Refrigerator and the Freezer control temperature by pressing the ADJUST button.
2. When the power is initially applied or restored after a power failure, it is set to Control temperature Previously.
3. If you do not press any button after turning on the power, only CRUSH or CUBE Label that has been selected will be turned on and all other LEDs on the display Panel will be turned off within 60 seconds. (Power Save Mode)
4. If you press a button, only CRUSH, CUBE label and Lock icon that has been selected will be turned on and all other LEDs on the display Panel will be turned off within 20 seconds. (Power Save Mode)



5. If you do not want to use the Power Save Mode, you can change the Mode by pressing the ICE PLUS Button and Freezer TEMP button simultaneously for more than 5 seconds.

14-1-2 How to Toggle the Display between °F & °C

1. The initial setting is °F and the display temperature mode can be changed from °F to °C or °C to °F by pressing and holding the FRZ TEMP and the REF TEMP keys at the same time for over 5 seconds.

14-1-3 Lock function (dispenser and display button lock)

1. When the refrigerator is first turned on, the buttons are not locked.
“LOCK” is deactivated with no light on.
2. To lock the display, the dispenser, and the control panel, press and hold the LOCK button for 3 seconds. “LOCK” is activated with “Lock Icon” on.
3. The LOCK button is the only control feature that remains active in the locked state. The buzzer sound, other control buttons, and the dispenser are deactivated.
4. To release from the locked state, press and hold the LOCK button again for 3 seconds.
5. If you don't hold the Alarm/Lock button more than 3 seconds, Alarm function will be changed and alarm for opened door will be on/off same as alarm icon indicating.

14-1-4 Filter condition display function

1. There is a replacement indicator light for the water filter cartridge on the dispenser.
2. Water filter needs replacement once six months or of using water filter.
3. When the Water Filter Icon on, you must exchange the filter.
4. After replacing the filter, press and hold the Water Filter button for more than 3 seconds. After then Water Filter icon turn off with reset status.

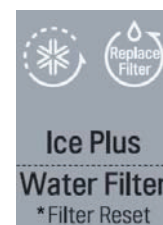
Classification

Filter Status Display

In initial Power On / Filter RESET	Blinking
	

14-1-5 Ice Plus selection

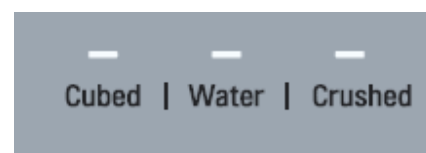
1. Please select ice plus function for quick freezing.
2. When you press the ice plus button, the ice plus icon will be turned on again.
3. Ice plus function automatically turns off after a fixed time passes.
4. If you want additional power save, you can turn on energy saving (some heater off for anti-dew).
5. To turn on or off the energy saving function, press Ice plus/Energy saving Button for more than 3 seconds.
6. We recommend using energy saving function when you go out for quite a long time and are out of the rainy season.



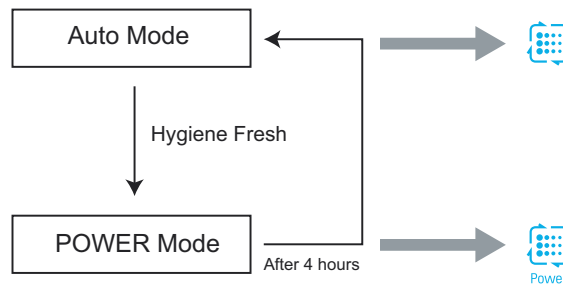
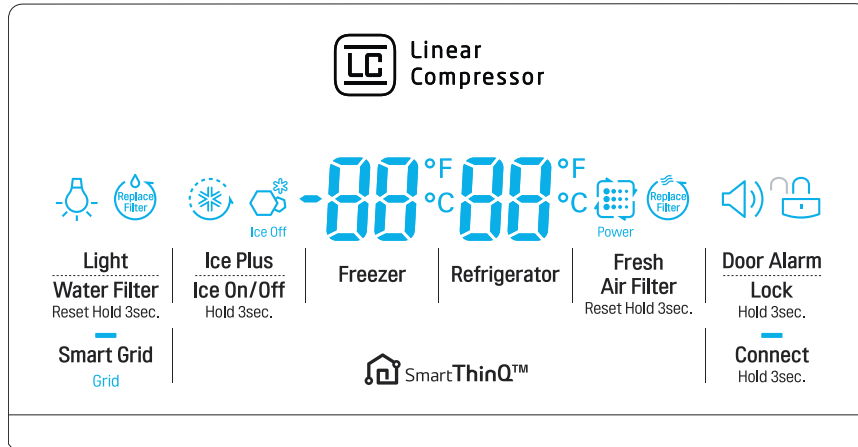
14-1-6 Dispenser use selection

You can select water or ice by separated pad switch.

- When you press ice type button, ice type will be changed. (Crush or Cube)
- Hold your cup in the dispenser for a few seconds after dispensing ice or water to allow the last pieces of ice drops of water to fall into the cup.
- When after initially establishing the water comes out, the water tank inside fills and until at the time of quality the hour is caught.



14-1-7. How to operate the Hygiene fresh filter



14-1-8. AUTO Mode

1. Fan installed on the multi.duct on the rear side of the filter operates.
2. Fan is repeatedly turned on for 10 minutes and then off for 60 minutes.
3. If the R-door is opened while the fan is operating, the fan will be turned off, and when the R-door is closed, the fan will be turned on.
4. LED near the filter installed on the multi duct is turned on when the R -door is opened and off when closed.

14-1-9. POWER Mode

1. Fan installed on the multi.duct on the rear side of the filter operates.
2. Fan is repeatedly turned on for 10 minutes and then off for 5 minutes for 4 hours, and then automatically switches over to AUTO Mode.
3. If the R -door is opened while the fan is operating, the fan will be turned off, and when the R -door is closed, the fan will be turned on.
4. LED near the filter installed on the multi duct is turned on when the R -d oor is opened and off when closed.

14-1-10 CONTROL OF FREEZER FAN MOTOR

1. Freezer fan motor has high and standard speeds.
2. High speed is used at power-up, for Ultra Ice, and when refrigerator is overloaded.
Standard speeds is used for general purposes.
3. To improve cooling speed, the RPM of the freezer fan motor change from normal speed to high.
4. High speed (2700RPM) : Initial power on or load corresponding operation, Ultra Ice.
Normal speed (2400RPM) : General working conditions.

14-1-11 Cooling Fan Motor

1. The cooling fan is switched ON and OFF in conjunction with the compressor.
2. The cooling fan Motor has high and standard speeds. (When room temperature more high then 38°C speed is high)
3. 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).

14-1-12 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)

14-1-13 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.
The first one hour the compressor, Freezer Fan and Icing Fan will be ON. The next 23 hours the Ice room will be controlled at the lowest temperature. After 24 hours or if the Ice PLUS key is pressed again, the Ice room will return to its previous temperature.
5. During the first hour :
 - (1) Compressor, Freezer Fan and Icing Fan run continuously.
 - (2) If a defrost cycle begins during the first 30 minutes of Ice Plus, the Ice PLUS cycle will complete its cycle after defrosting has ended.
If the defrost cycle begins when Ice Plus has run for more than 30 minutes, Ice PLUS will run for 40 minutes after the defrost is completed.
 - (3) If Ice PLUS is pressed during defrost, Ice Plus Icon is on but this function will start seven minutes after defrost is completed and it shall operate for three hours.
 - (4) If Ice Plus is selected within seven minutes after compressor has stopped, the compressor (compressor delays seven minutes) shall start after the balance of the delay time.
6. For the rest of the 23 hours, the Ice room will be controlled at the lowest temperature.

14-1-14 How to set the display mode and cancel it

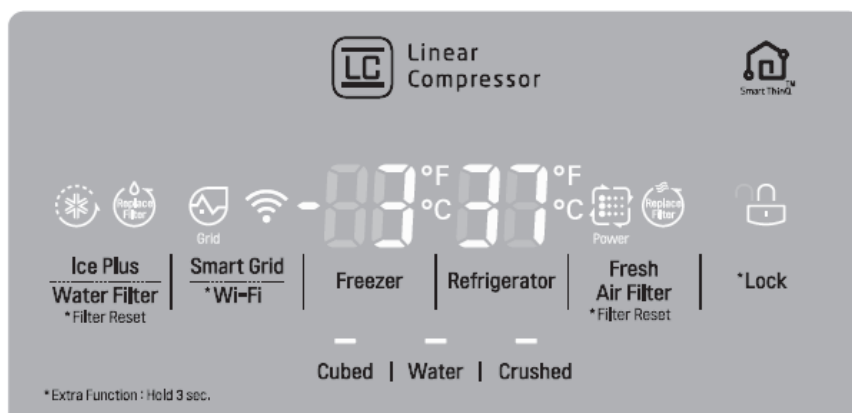
1. With the refrigerator door open, keep pressing the Refrigerator Temp Button and ICE PLUS Button more than 5 seconds, then it goes to the display mode with Special Beep Sound With Special Beep Sound.
2. Perform the same way again to cancel the display mode.
3. All Freezing unit will be turned off at display mode (Exceptions : Lamp, Display)

14-1-15 Defrosting (removing frost)

1. Defrosting starts each time the COMPRESSOR running time Between 7~50 hours.
2. For initial power on or for restoring power, defrosting starts when the compressor running time reaches 4 hours.
3. Defrosting stops if the sensor temperature reaches 46.4°F(8°C) or more. If the sensor doesn't reach 46.4°F(8°C) in 1 hours, the defrost mode is malfunctioning. (Refer to the defect diagnosis function, 8-1-15.)
4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

14-1-16 Defect Diagnosis Function

1. Automatic diagnosis makes servicing the refrigerator easy.
2. When a defect occurs, the buttons will not operate; but the tones. such as ding. will sound.
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 Ultra Ice 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

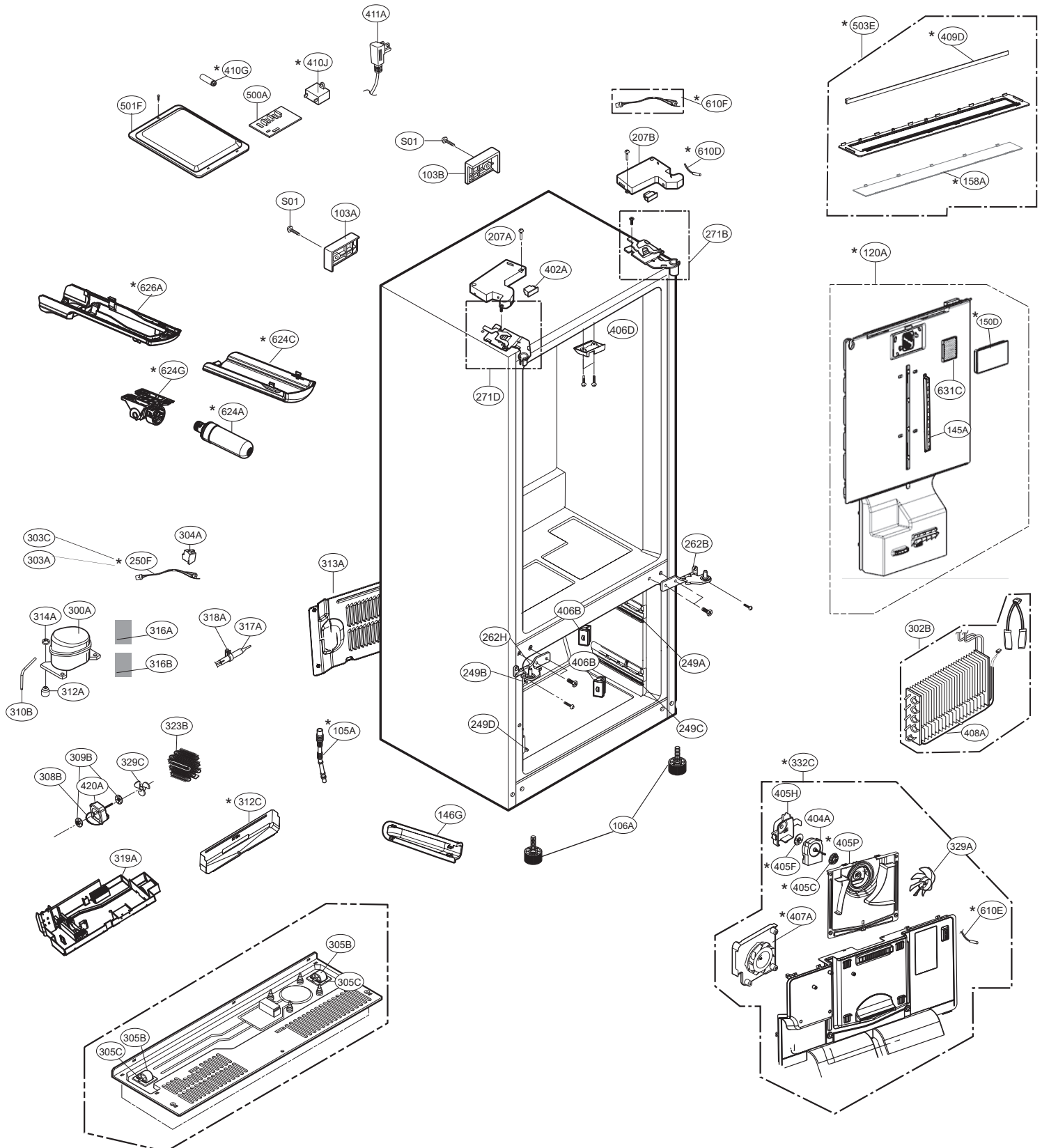
14-1-17 Auto pantry

1. The temperature control will automatically start upon the selected Auto Pantry temperature control.
2. You can adjust the Pantry control with three different temperature ranges by pressing the Temp.Selector button.

EXPLODED VIEW & REPLACEMENT PARTS LIST

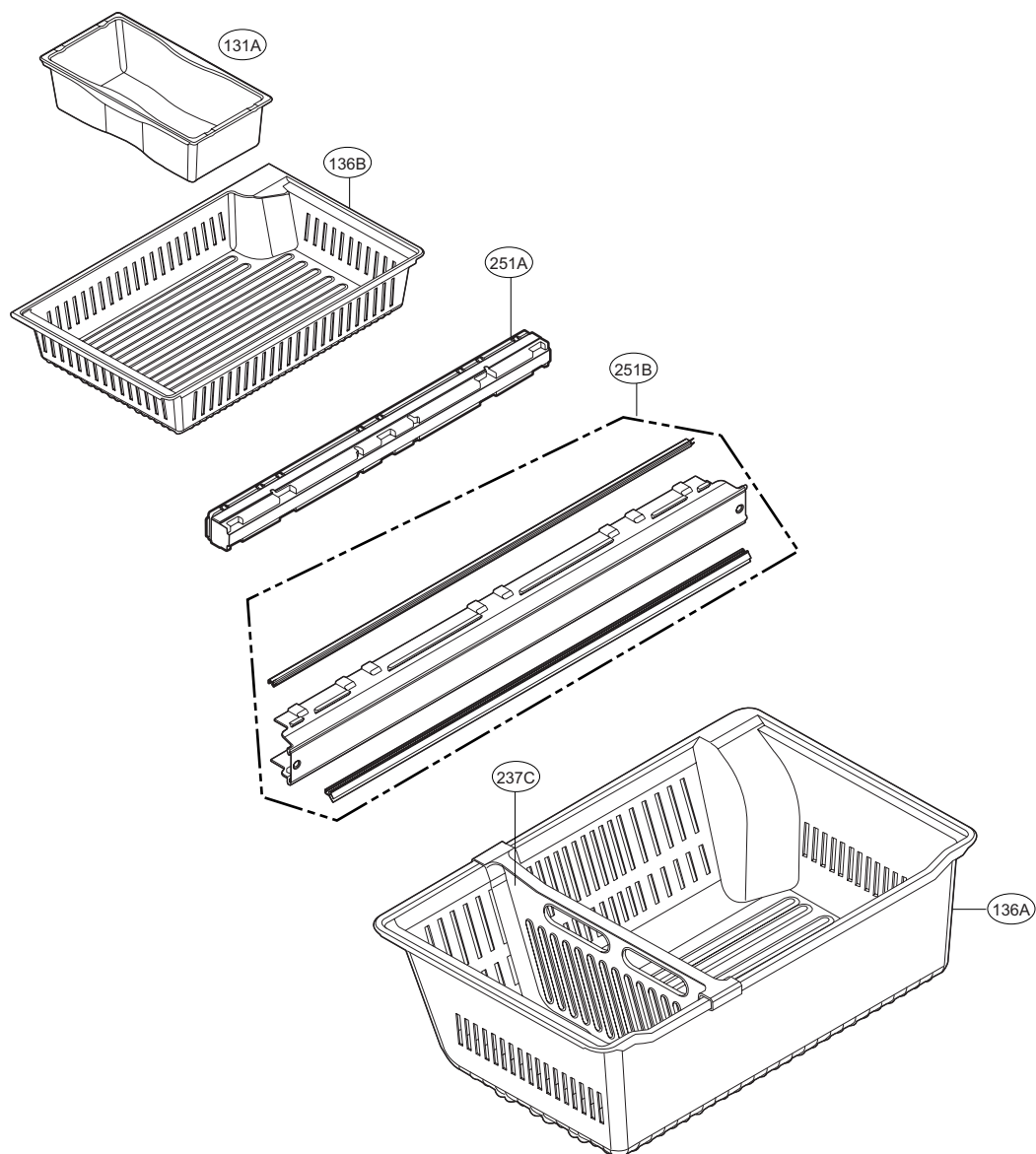
CASE PARTS

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



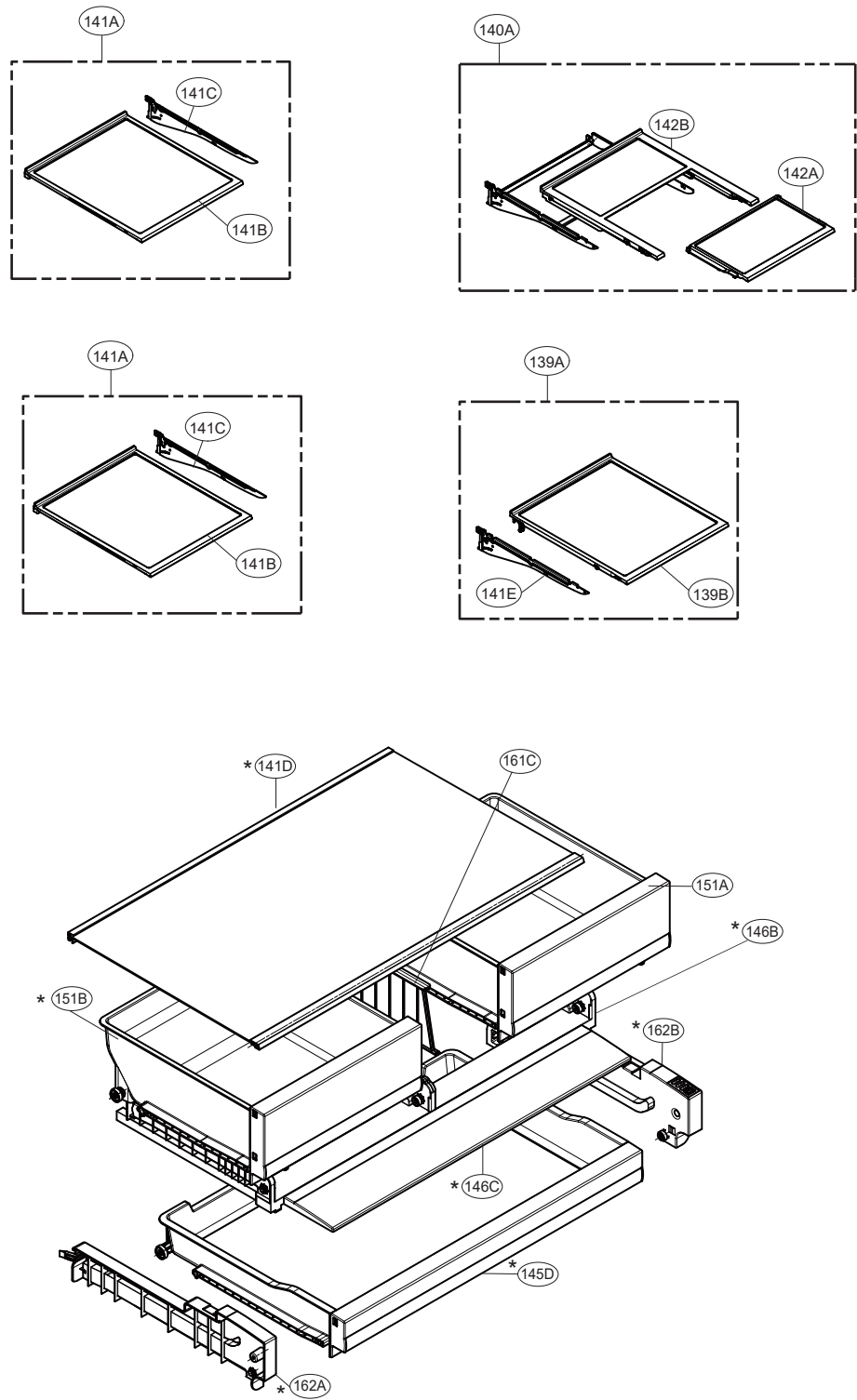
FREEZER PARTS

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.

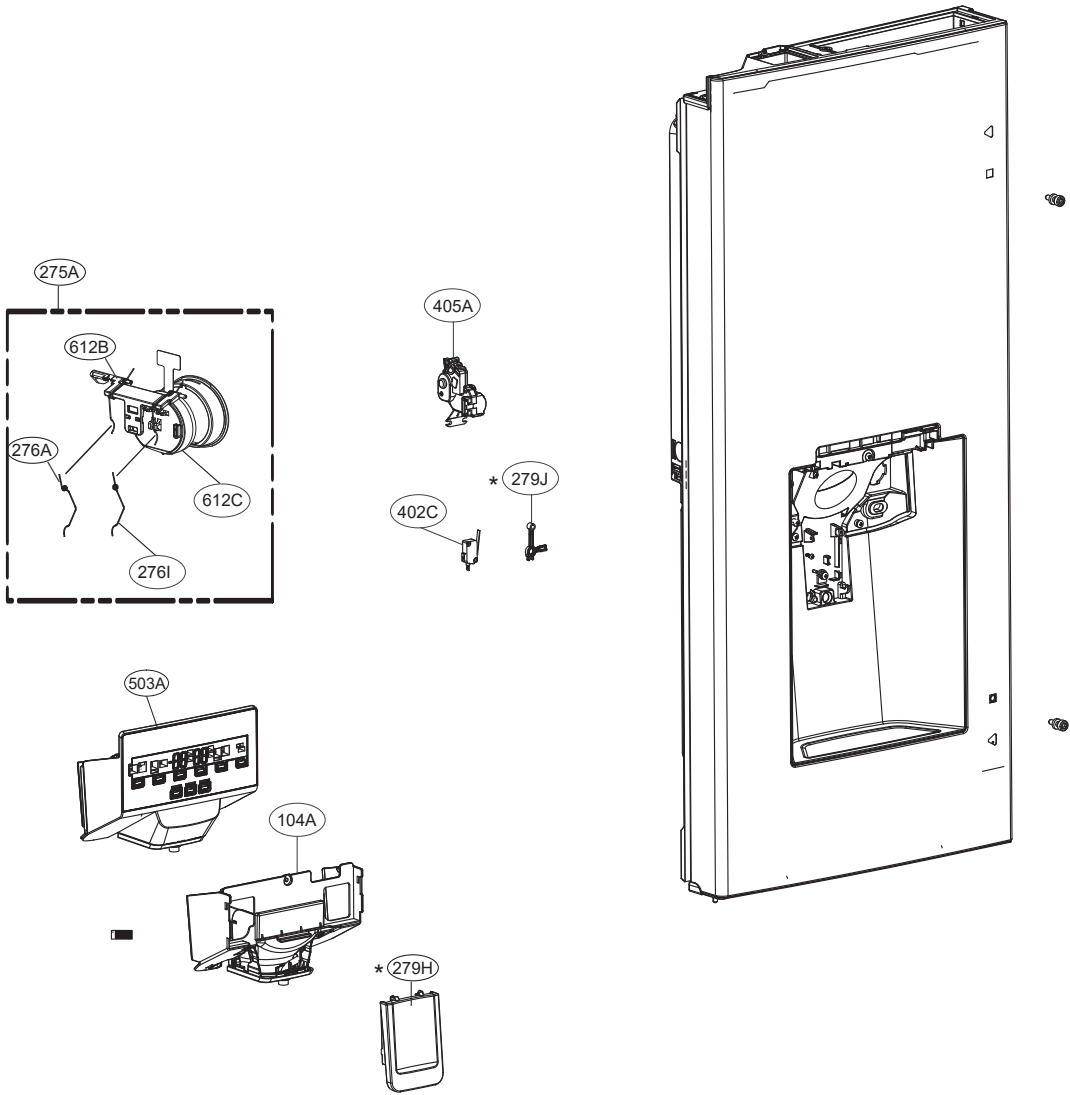


CAUTION: Use the part number to order part, not the position number.



DISPENSER PARTS

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

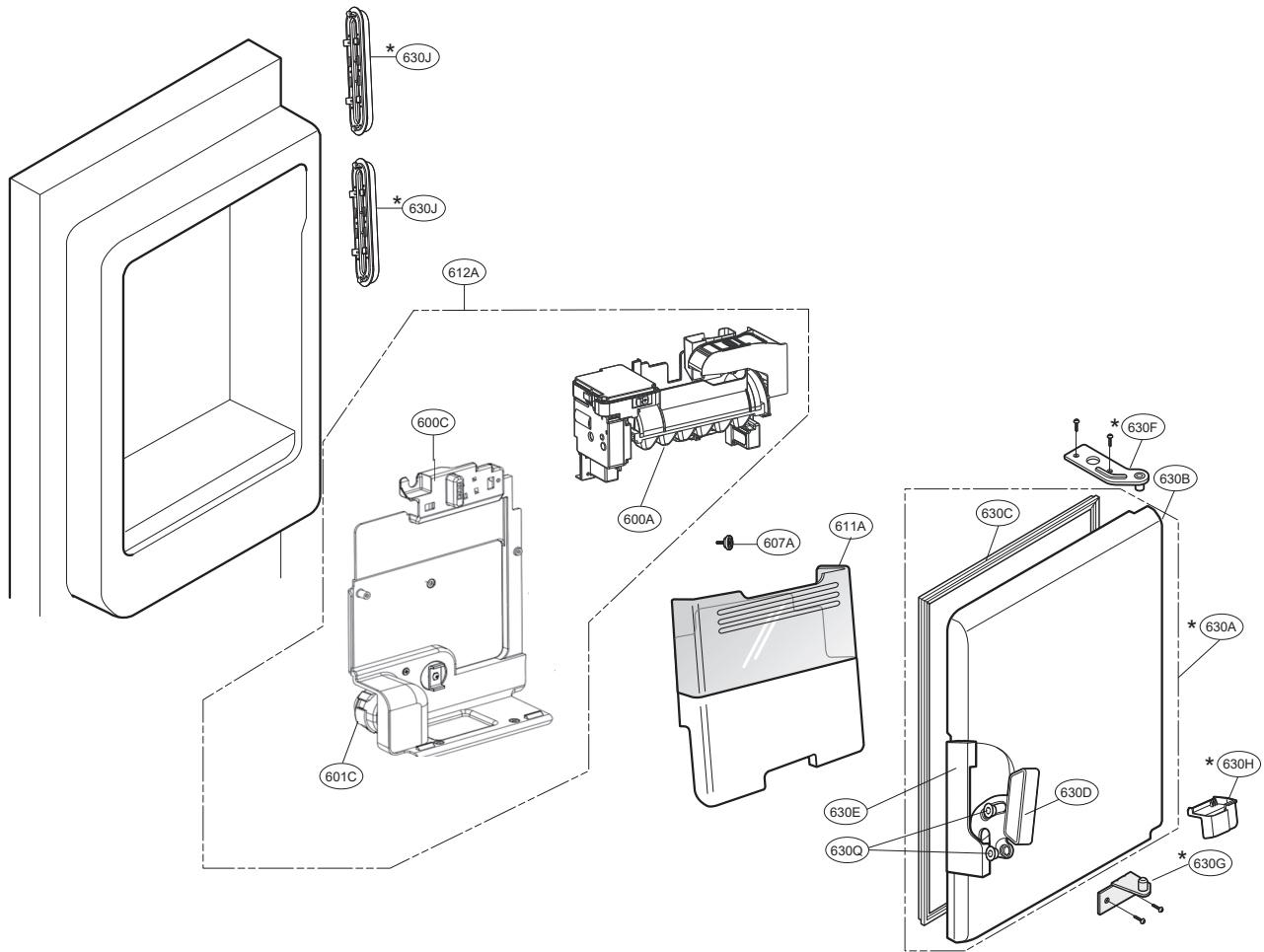


CAUTION: Use the part number to order part, not the position number.



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

Related on location number of “*” mark, It's same with produced by China Model. So that parts are supplied by China, Please refer to the list.





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