dacor

REFRIGERATOR

FRENCH DOOR REFRIGERATOR

MODEL NAME : DRF48****/DA

MODEL CODE : DRF487500**/DA
DRF485300**/DA

SERVICE Manual

REFRIGERATOR

CONTENTS

WARNING

IMPORTANT SAFETY NOTICE

The service guide is for professional repairers who have technical competence to repair refrigerating appliances and comply with all applicable regulations for repairers of electrical equipment

Any attempt to repair the appliance by a non-professional repairer may result in personal injury and property damage.
The manufacturer or dealer will not be held responsible for the interpretation of this information.

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For information about purchasing parts and tools, please visit http://samsung.com/support

Dacor
Technical Service Guide

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CONTENTS

CONTENTS

1. PRECAUTIONS(SAFETY WARNINGS)

Read all instructions before repairing the product and follow the instructionsin order to prevent danger or property damage.
Unplug and remove all the items in refrigerator prior to repair.

CAUTION/WARNING SYMBOLS DISPLAYED

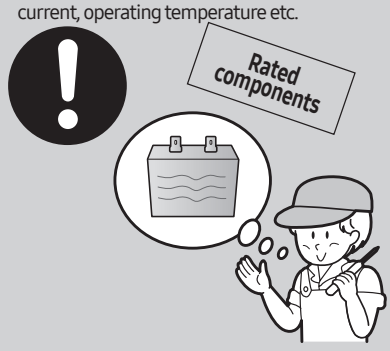
Warning	Indicates that a danger of death or serious injury exists.
Caution	Indicates that a risk of personal injury or material damage exists.

	means “Prohibited”.
	means “Do not disassemble”.
	means “No contact”.
	means ”Warning or Caution”.
	means "Unplug the unit before preforming service"
	means “Earth or Ground”.

Warning & Caution

Use only correctly rated replacement components and parts.

- Check the correct model, rated voltage, rated current, operating temperature etc.



Upon repair, make sure that all harnesses are watertight and are secured.

- Secure harnesses tightly in positon to prevent damage and the ingress of moisture or water.

Upon repair, completely remove any dust or other foreign substances from housing, harness, connector, etc.

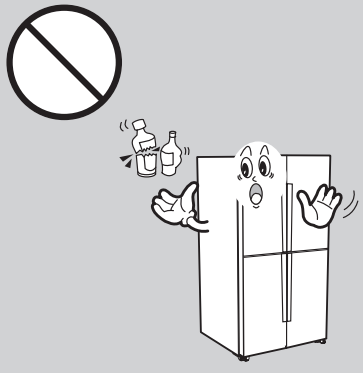
- Cleaning will prevent possible risk of fire or malfunction.

After repair, Ensure the product is fully reassembled.

- It should be returned to the the previous state, with all parts and covers correctly secured in position.

Advise users not to put bottles or glass in the freezer..

- Freezing of the contents may cause the item to explode.



Advise users not to store tall and narrow bottles or food Itmes in the door shelves.

- Items may fall out when opening the door causing injury.

PRECAUTIONS(SAFETY WARNINGS)

□ Please let users know about the following warnings & cautions in detail.

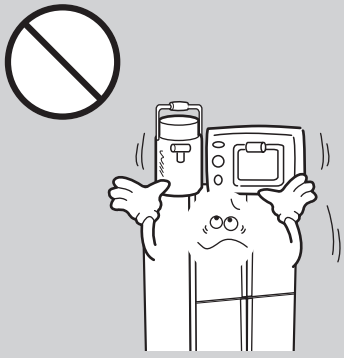
Warning & Caution

Do not allow users to store pharmaceutical products, scientific materials, etc., in the refrigerator.

- The products which need precise temperature control should not be stored in the refrigerator.

Advice users not to store items on top of the product.

- Opening or closing the door may cause items to fall down causing injury.



Advise users not to plug several appliances into the same socket outlet and not to use extension cables.

- To avoid the risk of fire or product malfunction.

Advise users not to attempt to disassemble, repair or alter the product.

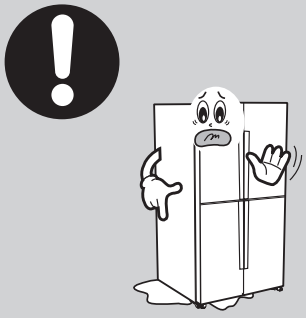
- To avoid the risk of fire or product malfunction.

Advise users not to bend the power cord with excessive force and ensure it is not restricted or trapped by heavy items.

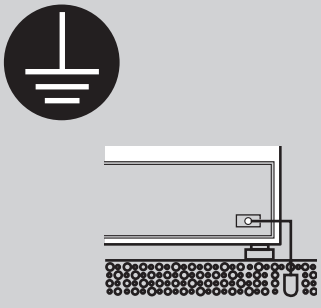
- To avoid the risk of fire.

Advise users not to install the refrigerator in the wet place or damp areas.

- To avoid the risk of fire and electric shock.

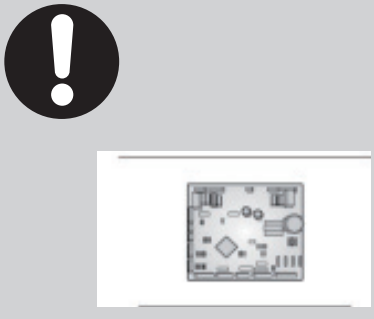


In order to reduce the risk of electric shock the appliance must be properly grounded.



Check for any water ingress or moisture.

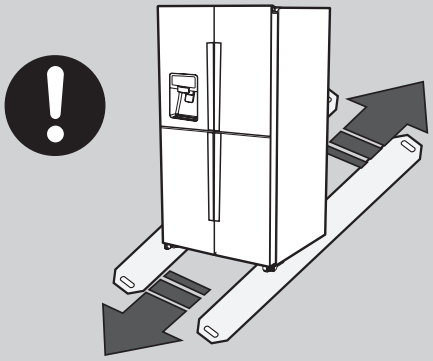
- If there is any water or moisture present, take necessary measures such as replacing components, insulation, seals, etc.



PRECAUTIONS(SAFETY WARNINGS)

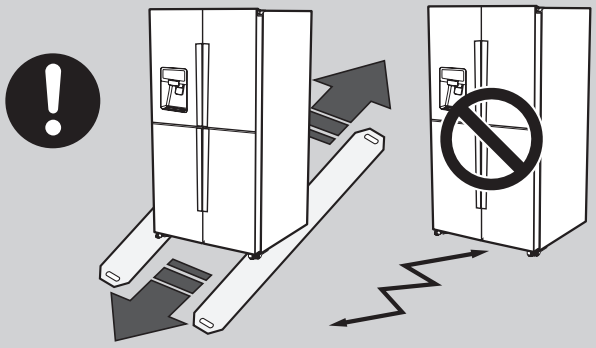
FLOORING

To ensure that the product is properly installed, the refrigerator must be installed on a level, solid surface that is the same height as the rest of the flooring. The surface should be strong enough to support a fully loaded refrigerator.



MOVING

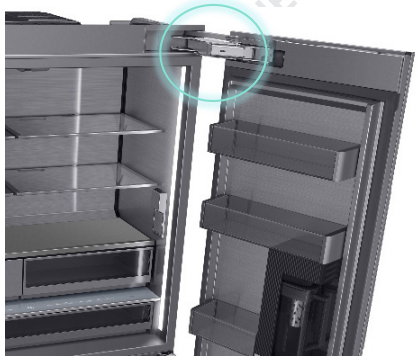
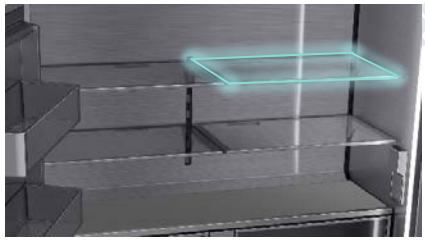
Protect the finish of the flooring. Cut a large section of cardboard carton and place it under the refrigerator where you are working.
When moving the product, make sure that you pull the unit straight out and push it back straight in.



2. PRODUCT SPECIFICATIONS

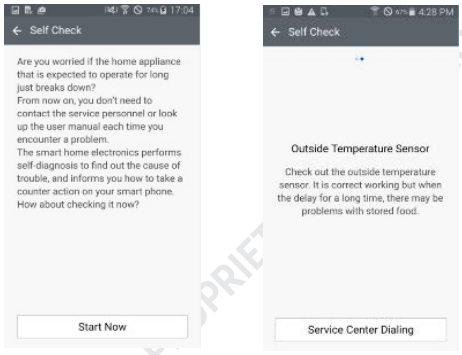
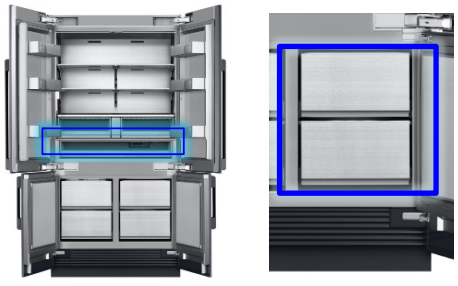
2-1. Introduction of Main Function

■ A newly developed Dacor FDR refrigerator in 2023 has the following characteristics.

<table>
<tr><th>Image</th><th>Feature</th></tr>
<tr><td>  </td><td>
AutoFill
Help yourself to refreshingly cold and naturally flavored water whenever you want, without having to wait for it to chill. The dishwasher safe and BPA free AutoFill Water Pitcher is automatically filled with purified water when you place it inside the fridge. You can also add any fruits or herbs you like in the built-in infuser to create deliciously flavored beverages. Its 1.4 liter (48oz) capacity means you always have plenty of filtered and chilled water that is ready to be served.
<table>
<tr><th></th><th>Time</th><th>Capacity</th><th>Infuser</th></tr>
<tr><td rowspan="3">Specification</td><td>Time to fill the pitcher automatically</td><td>Capacity of pitcher</td><td>Size of infuser</td></tr>
<tr><td>1 min~ 1 min 30 sec.</td><td>1.4ℓ</td><td>Φ50</td></tr>
<tr><td>1 min 30 sec is enough to fill again after emptying all water</td><td colspan="2">1.4ℓ is enough water to cook and enjoy with family during mealtime</td></tr>
</table>
</td></tr>
<tr><td>  </td><td>
Soft Closing
The Soft Close door is designed to close gently and silently. When the door is pushed shut, the hinge automatically makes it move slowly in the final few centimeters, so it can be closed smoothly and quietly.
Enjoy a more peaceful kitchen without any bangs!
</td></tr>
<tr><td>  </td><td>
Dual Ice Maker
The Dual Auto Ice Maker produces a large amount of both Cubed ice and Whisky Ball ice, which chills drinks faster, and melts more slowly so it lasts longer. It produces 1.91kg of ice a day, and store a total of 3.3kg. You will always have lots of ice, whether you are having a party or just need to cool down on a hot day.
</td></tr>
<tr><td>  </td><td>
4-side trimmed shelf
Have you ever spilled liquids inside your refrigerator? If so, you will know how messy it is. It rolls down like a waterfall along the shelf's edge, ruining other ingredients and foods. 4-side trimmed shelves will save you from that. Framed edges protect liquids from descending and leaving sticky mess in your fridge. It will reduce your effort to clean up the mess and help you use the fridge much cleaner.
</td></tr>
</table>

PRODUCT SPECIFICATIONS

■ A newly developed Dacor FDR refrigerator in 2023 has the following characteristics.

Image	Feature
	**Hidden Control Panel** Hidden control panel further refines the interior and ensures the style will always be a 'less-is-more' design classic.
	**Smart** You can check 22 failure mode through SmartThings App by RM(Remote Monitoring) and send failure mode. Service person can quickly find out problem and fix it.
	**FreshZone +** Provide optimal temperature settings for keeping food fresher and healthier. For fridge, it provides 3 modes: Cheese(3°C), Cold Drinks(1°C), Chill/ Meat(-1°C) For Freezer, it provides 4 modes: Cool(5°C), Chill/Meat(-1°C), Soft Freezing(-5°C), Freezer(-23 °C)

2-2. Model Specification

Item		Specification	
Models		DRF487500AP/DA	DRF485300AP/DA
Net Capacity (cu.ft)	Total	27.7	27.7
	Freezer	8	8
	Refrigerator	19.7	19.7
Net Dimension (Inch)	Width	47 ¼	
	Depth	23 13/16	
	Height	83 3/8	
Display		Inner(Hidden)	
Fresh Zone+		Yes (R/F/W)	
Ice maker		Auto Dual I/M (Whisky/Cube)	Auto I/M (Cube)
Water Dispenser		Auto Fill	-
Weight (lb)	Set	700	700
	Packing	770	770
Packing (Inch)	Width	1292	
	Depth	760	
	Height	2219	
Rated Voltage and Frequency		AC 110V~127V / 60Hz	
Type Refrigerator		Indirect Cooling Method Refrigerator	

PRODUCT SPECIFICATIONS

Model			DRF487500AP/DA	DRF485300AP/DA
Cooling system			Triple Cooling	
Energy Grade			E-Star	
Components for Freezer	Compressor (FRE,CONV)	Model	NF94T9131AT	
		Starting type	BLDC	
		Oil Charge	270 ± 13cc	
	Compressor (REF)	Model	NN55A9602AV	
		Starting type	BLDC	
		Oil Charge	212 ± 6cc	
	Evaporator	Freezer	Split Fin Type F/CV:Fin-Tube (Row 2, row 6) T0.8Xø8.0XL5.0 , 0.60㎡ CV : Accum NA F : Accum 105mm	
		Refrigerator	Split Fin Type Fin-Tube (Row 2, row 4) T0.8*ø8.0*L6200, 1.27㎡ No Accum.	
	Condenser		Forced Convection Type F: PFC B Type, 0.90㎡ R: PFC B Type, 0.90㎡	
	Dryer		Molecular sieve, XH-9, 6g	
	Capillary tube (D × L)		F : T0.7Xø4.0XL6,310 R : T0.7Xø4.0XL6,384	
	Refrigerant		R-600a	
	Refrigerant Input Amount		F:53g / R:43g	

PRODUCT SPECIFICATIONS

Items				Specification			
Model				DRF487500AP/DA		DRF485300AP/DA	
Room Temperature Sensor Components	FRE	Model	Temperature Selection	ON(℃)	OFF(℃)	ON(℃)	OFF(℃)
		THERMISTOR (F-sensor)	-21℃	-24.5	-21.5	-24.5	-21.5
			-18.5℃	-17.5	-20.5	-17.5	-20.5
			-15℃	-13.5	-16.5	-13.5	-16.5
	CONV	Model	Temperature Selection	ON(℃)	OFF(℃)	ON(℃)	OFF(℃)
		THERMISTOR (R-sensor)	-23~-15℃	Same with FRE	Same with FRE	Same with FRE	Same with FRE
			-5℃	-3	-7	-3	-7
			-1℃	0.5	-3.5	0.5	-3.5
			5℃	6.5	3.5	6.5	3.5
	REF	Model	Temperature Selection	ON(℃)	OFF(℃)	ON(℃)	OFF(℃)
		THERMISTOR (R-sensor)	1.5℃	3	0	3	0
			2.5℃	4	1	4	1
			6.5℃	8	5	8	5

PRODUCT SPECIFICATIONS

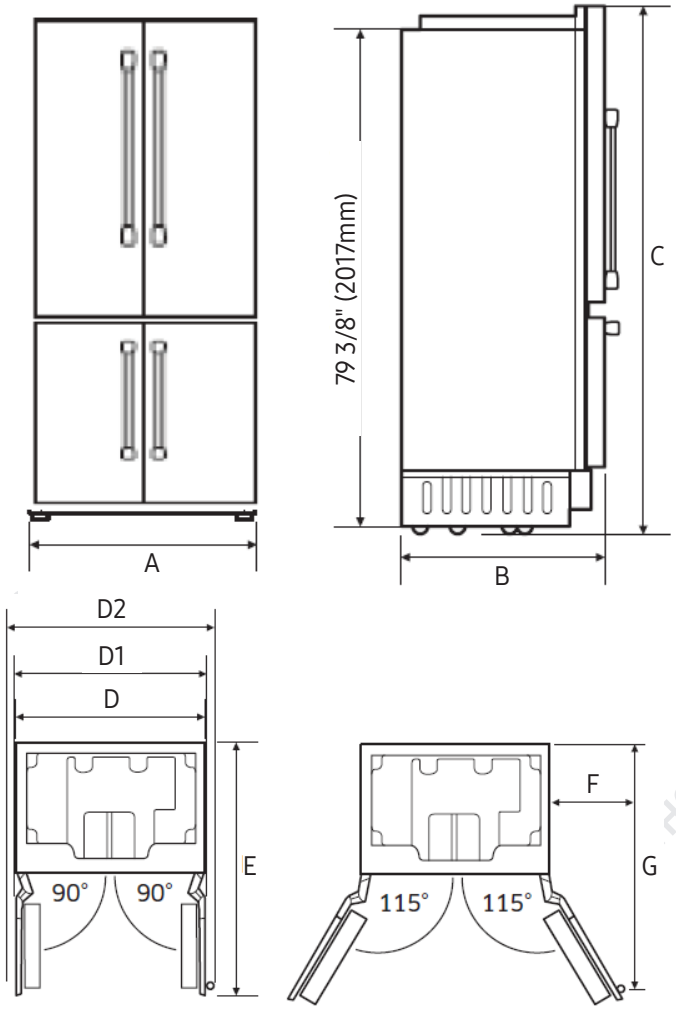
Model				DRF487500AP/DA	DRF485300AP/DA
Freezer performance				(4 stars)	
Defrost Related Components	Defrosting interval	First Defrost Cycle (Concurrent defrost of F and R)		6hr ± 10 min	
		Defrost Cycle (FRE)		12 ~ 100hr (depending on the operating conditions)	
		Defrost Cycle (CONV)		12 ~ 100hr (depending on the operating conditions)	
		Defrost Cycle (REF)		12 ~ 100hr (depending on the operating conditions)	
		Pause time		1 or 10min ± 1 min	
	Defrosting sensor	F defrosting - sensor	Model no.	THERMISTOR (DTN-C502)	
			Specifications	5.ㅅ0 kΩ at 77 °F (25 °C)	
		F defrosting - sensor	Model no.		
			Specifications		
		R defrosting - sensor	Model no.	-	
			Specifications	-	
	Bimetal		Model no.	BIMETAL THERMOSTAT	
			Operating temperature	Off : 140 °F (60 °C) / On: 104 °F (40 °C)	
	THERMO-FUSE		Model no.	THERMO-FUSE	
			Operating temperature	109(110) °C OFF	

2-3. Electric Parts Specification

Model			DRF487500AP/DA	DRF485300AP/DA
Electric Components	Heater	FRE	AC 120V 121W	AC 120V 121W
		CONV	AC 120V 121W	AC 120V 121W
		REF	-	-
		French	AC 120V 14W	AC 120V 14W
		Ice Maker (Cube)	-	-
		Ice Maker (Whisky)	DC 12V 6.8W DC 12V 14W	-
		Ice water pipe #1	DC 12V 4.5W	DC 12V 4.5W
		Ice water pipe #2	DC 12V 3W	-

Model			RF59C****
Electric Components	Motor	FRE	BLDC(AIO Q7), ø120, DC12V
		Machine Compartment	BLDC(C160), ø160,DC12V
		CONV (Flex Zone)	BLDC BOX Fan 92㎜, DC12V
	Lamp LED	FRE(L,R)	Top: 23pkg*2ea Back : 3pkg*2ea
		REF	Top: 61pkg*2ea Side : 17pkg*4ea
	Door Switch	FRE	Reed switch (DC 200V, 0.5A, MDCG-4)
		REF	Reed switch (DC 200V, 0.5A, MDCG-4)
	Rated Voltage		AC 115V, 50(60)HZ / AC220~240, 50(60)Hz
	Power Cord		AC 125V, 10A (230V 10A)
	Earth Screw		BSBN (BRASS SCREW)

2-4. Dimensions



Callout	48"
A (Width)	47 3/4" (1213 mm)
B (Depth)	25" (635 mm)
C (Height)	83 3/8" (2118 mm)
D	41 1/4' (1200 mm)
D1 (with Panel)	49 11/16" (1262 mm)
D2 (with Modernist Handle)	55 7/32" (1403 mm)
D3 (with Pro Handle)	48 11/16" (1237 mm)
E	51 ½" (1208 mm)
F	23 45/64" (602 mm)
G	50 25/64“ (1280 mm)

2-5. Interior Views

Inside Parts, Storage, and Shelving

01 Power switch
02 Glass shelves
03 Door bins
04 Camera *
05 Water dispenser
06 Metal/ceramic shelf
07 Main panel
08 FreshZone
09 FreshZone+
10 Freezer
11 Water filter (cover)
12 AutoFill Pitcher **
13 Mono ice maker *
14 Auto dual ice maker **

* applicable models only
** Auto Dual Ice Maker models only

2-6. Refrigerant Route in Refrigeration cycle

1. Freezer :

Compressor → Immerging Pipe → Condenser → Hot Pipe → Dryer →

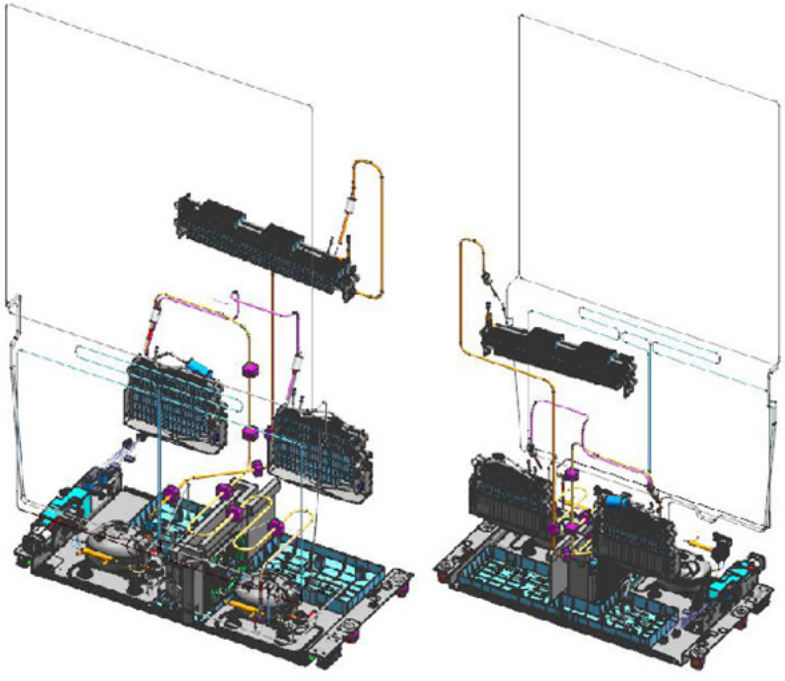
3-Way Valve → Cool Select Room Capillary Tube → Cool Select Room Evaporator → Suction Pipe → Compressor

3-Way Valve → Freezer Capillary Tube → Ice-maker → Freezer Evaporator → Suction Pipe

2. Fridge :

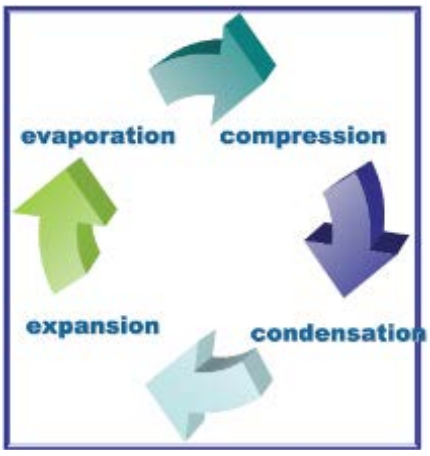
Compressor → Immerging Pipe → Condenser → Hot Pipe → Dryer →

2-Way Valve → Fridge Capillary Tube → Fridge Evaporator → Suction Pipe → Compressor

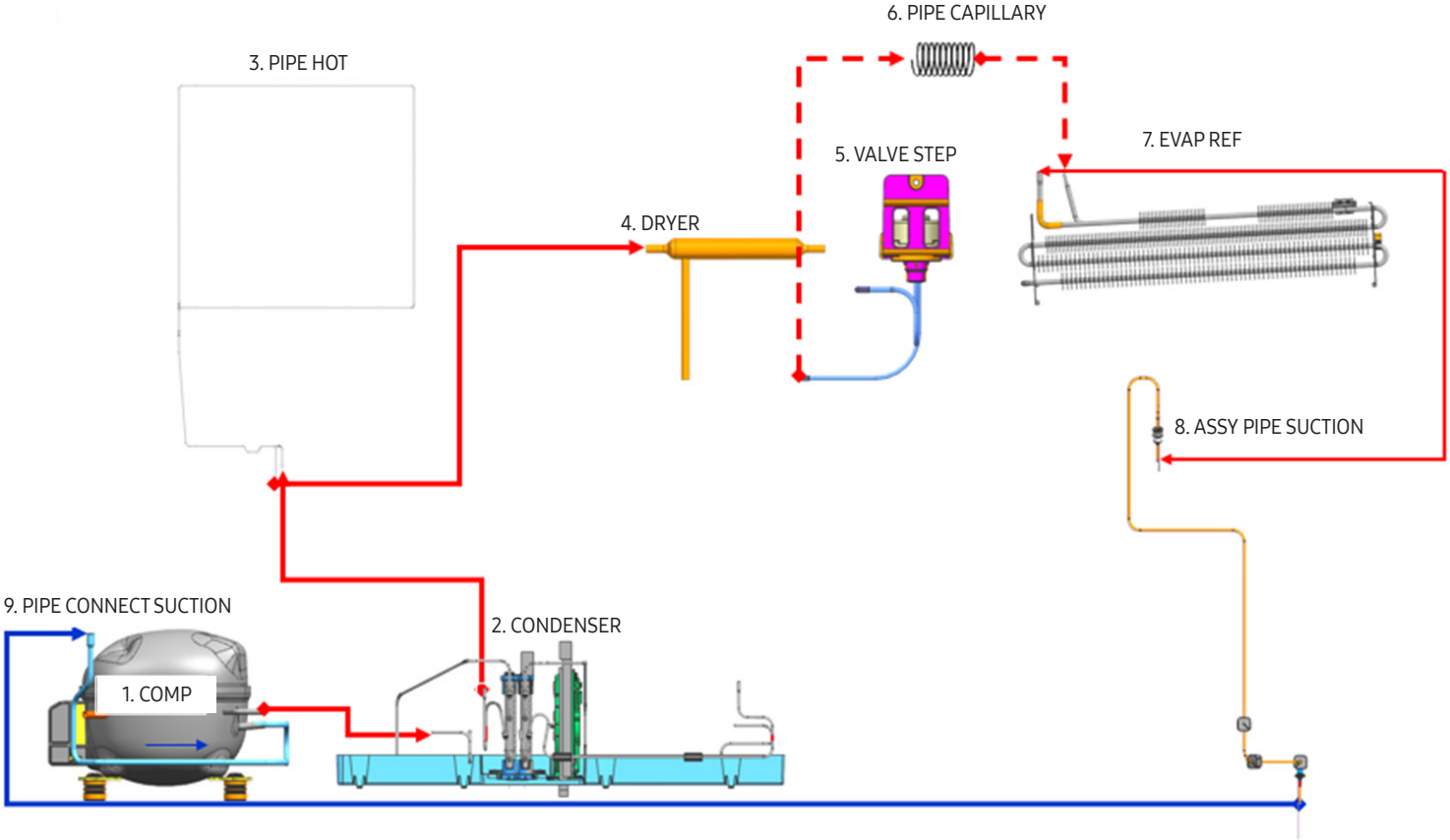


[FRONT-SIDE VIEW] [REAR-SIDE VIEW]

2-7. Principle Of Freezer

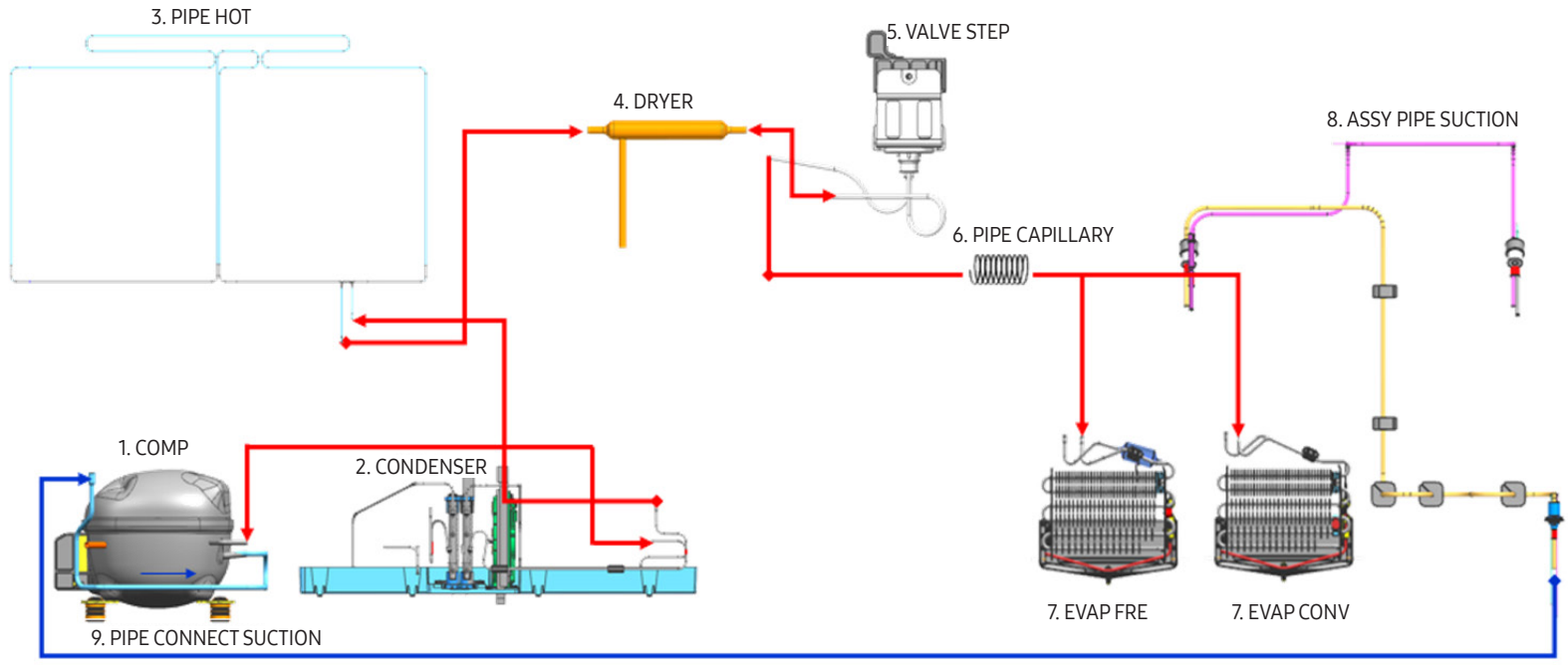


Fridge



PRODUCT SPECIFICATIONS

Freezer



2-8. Operation theory of refrigeration cycle components

■ Condenser

1) Role: A device which radiates heat to the outside (water/air) to make liquid state for the high temperature / high pressure gas refrigerant discharged from compressor

2) Types

A. Air-cooling Type : Condense air by circulating naturally or manually.

1) Natural Convection Type : Used for the household refrigerator which has small condensing capacity.

2) Manual Convection Type : Circulate air manually by FAN-Motor (Large capacity)

B. Water-cooling Type : Make cooling water pass through the pipe in the condenser (Large capacity)

※ Location

① CLUSTER heat-radiating type : All Pipes effective for radiating heat are formed in the right/left, and front side of refrigerator with hard urethanes and radiate heat through the whole surfaces of cabinet to ambient air.

② Install the condenser on the outside of the product. (An old model)

③ Make them cluster at the lower part of product and radiate heat manually by fan.

※ Radiate condensed potential heat up to liquefy completely and make change the state without changing the gas temperature itself.

※ Pipe thickness

① Micro-channel tube: 0.34mm ② Steel Pipe : 0.5, 0.7mm ③ Capillary : About 0.4~0.8mm

※ Condenser length

① CONDENSER : 0.25m × 14Pcs (Parallel) ② HOT-PIPE : 8.4m, 8.14m

■ Capillary

1) Role: A device which makes low temperature and pressure refrigerant by reducing the pressure the normal temperature / high pressure liquid refrigerant condensed from condenser, and supply it to the evaporator.

A. To evaporate more lower temperature in case of evaporation.

B. It flows to the evaporator without back flowing to condenser, if compressor stops, and the difference of pressure between high pressure and low pressure is small so it is easy to operate the compressor again.

2) Outline

A. Thickness : About 0.4~0.8mm

B. Length : It is changeable to low temperature and pressure (10->5ßΠ/ß≤) depends on the 2M of thin and long copper pipe wall resistance.

■ Evaporator

1) Role: As the low pressure liquid refrigerant flowed from capillary absorbs heat inside of the refrigerator, it becomes low pressure gas and refrigerate the foods.

2) Theory: The low pressure refrigerant flowed to evaporator operates cooling which takes ambient evaporated potential heat with maintaining the evaporation up to evaporate completely.

3) Types:

A. ROLL-BOND Evaporator → Direct Cooling

☞ Rolled and adhere the 2 aluminum plate and then make refrigerant passage.

B. FIN-PIPE Evaporator → Indirect cooling

☞ A small aluminum plate on the aluminum pipe to increase the cooling effect.

■ Compressor

1) Role: It operates same as pump which pull out the subterranean water. It inhales the low temperature and pressure refrigerant gas (flowed out) from evaporator and make high temperature and pressure refrigerant liquid in the compressor and send it to the condenser.

2) Type

A. Reciprocating Type : A reciprocating compressor is a positive-displacement compressor that uses pistons driven by a crankshaft to deliver gases at high pressure.
The intake gas enters the suction manifold, then flows into the compression cylinder where it gets compressed by a piston driven in a reciprocating motion via a crankshaft, and is then discharged.

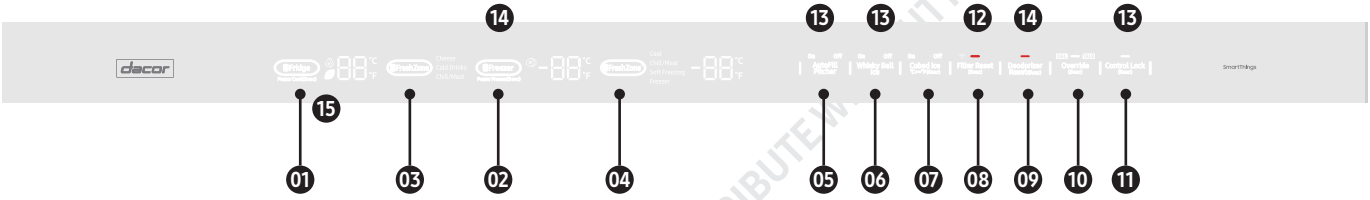
■ Dryer

1) Role: Absorb the moisture from the refrigerant that refrigeration cycle circulates and eliminate the foreign substance.

2) Structure: If even some moisture is included refrigerant is impossible to circulate by freezing the small capillary outlet, so silica gel or molecular sieve is (included and) sealed to absorb the internal moisture, and install a minute net to eliminate the foreign substance.

3. PRODUCT FUNCTIONS

3-1. Control Display



01	Fridge / Power Cool	06	Whisky Ball Ice	11	Control Lock
02	Freezer / Power Freeze	07	Cubed Ice / ° C↔° F	12	Network Connection
03	FreshZone	08	Filter Reset	13	Cooling Off
04	FreshZone+	09	Deodorizer Reset	14	Sabbath Mode
05	AutoFill Pitcher	10	Override	15	AI Energy Mode

NOTE

- When you change the temperature on the control panel, the panel displays the actual temperature inside the refrigerator until the temperature matches the temperature you set. Then, the panel displays the new set temperature. Note that it will take time for the refrigerator to reach the new temperature. This is normal. During this time, you need not set the temperature again.
- If no button is pressed for 10 seconds after Control Lock is deactivated, the display will turn off except for the Control Lock button. To turn the display on, press Control Lock again.
- If the control panel has moisture or liquid on its surface, it may fail. Wipe up the moisture or liquid using a dry cloth, and then try again.

PRODUCT FUNCTIONS

01. Fridge / Power Cool (3 sec)

Fridge	You can use the Fridge button to set the fridge temperature or to activate/deactivate Power Cool. The temperature indicator displays the currently set or selected temperature. Press Fridge repeatedly to select a desired temperature between 34 °F (1 °C) and 44 °F (7 °C).
Power Cool	Power Cool speeds up the cooling process using maximum fan speed. The fridge keeps running at full speed for several hours and then returns to its previous temperature. • To activate Power Cool, press and hold Fridge for 3 seconds. The corresponding indicator ( ) lights up and the refrigerator speeds up the cooling process. • To deactivate Power Cool, press and hold Fridge again for 3 seconds. The fridge returns to the previous temperature setting. **NOTE** Using Power Cool increases power consumption. Make sure you turn it off if you no longer need it and let the refrigerator return to its previous temperature.

02. Freezer / Power Freeze (3 sec)

Fridge	You can use the Freezer button to set the freezer temperature or to activate/deactivate Power Freeze. To set the freezer temperature, press Freezer repeatedly. Available temperatures are between 5 °F (-15 °C) and -8 °F (-23 °C).
Power Cool	Power Freeze lowers the freezer temperature and speeds up the freezing process. In Power Freeze mode, the freezer runs at full power for several hours and then returns to normal operation and the previous temperature setting. • To activate Power Freeze, press and hold Freezer for 3 seconds. The corresponding indicator ( ) lights up and the refrigerator speeds up the freezing process. • To deactivate, press and hold Freezer for 3 seconds again. **NOTE** Using Power Freeze increases power consumption. If you do not need the Power Freeze function on, make sure you turn it off so that the refrigerator can return to normal operation and its previous temperature setting.

03. Fresh Zone

he Fresh Zone is a full-width drawer featuring temperature control. It has a temperature sensor that adjusts the amount of cold air it allows in.

- Press Fresh Zone repeatedly to select a desired mode. By default, Deli is selected.
- The refrigerator adjusts the temperature in the Fresh Zone according to the selected mode.

Mode	Description	Examples
Cheese	Select this to keep food fresh for a longer time. The temperature of the Fresh Zone will be kept around 37 °F (3 °C).	Pineapple, lemon, biscuits, potatoes, cheese
Cold Drinks	Select this to keep drinks cold and refreshing. The temperature of the Fresh Zone will be kept around 33 °F (1 °C).	Bottled water, juice, soft drinks, beer
Chill/Meat	Select this to keep meat or fish fresh for a longer time. The temperature of the Fresh Zone will be kept around 29 °F (-1 °C).	Steak, cold cut, bacon, chili dog

CAUTION

- Do not use the Fresh Zone for storing fruit or leafy vegetables. They may suffer cold temperature damage.
- Do not store glass bottles in the Fresh Zone in Fish/Meat mode. They may break and cause physical injury.

04. Flex Zone™

With the Cool Select function, you can select an appropriate temperature for the food you have stored in the Cool Select Room. The Cool Select Room is located on the bottom right of the refrigerator. To initiate the Cool Select function, press FlexZone™ repeatedly to cycle through the modes. When a desired mode is selected, release the button. The Cool Select vfunction has the following four modes:

Cool	Select Cool to set the Cool Select Room to 41 °F (5 °C). Use when storing beverages that you will use fairly quickly or beverages you want to keep cold such as water, juice, soft drinks, and beer.
Chill/Meat	Select Chill/Meat to set the Cool Select Room to 30 °F (-1 °C). Use when storing deli food such as steak, cold cuts, fish, bacon, and cheese.
Soft Freezing	Select Soft Freezing to set the Cool Select Room to 23 °F (-5 °C). Use to keep meat and fish fresh for an extended time.
Freezer	Select Freezer to set the Cool Select Room to the same temperature as the freezer. Use to keep frozen food fresh.

CAUTION

- When you switch or turn off this function, blood in meat or moisture in food may come out due to the temperature change.
- Do not store meat or food in the Cool Select Room at the Cool setting. The meat or food may spoil.

05. AutoFill Pitcher

AutoFill Pitcher	Press to turn the AutoFill Pitcher on or off. If the AutoFill Pitcher Indicator indicates OFF mode, AutoFill Pitcher is disabled. You must change the indicator to ON mode.

PRODUCT FUNCTIONS

06. Ice Maker / °C ↔ °F (3 sec)

Ice Maker (Whisky Ball Ice)	Press to turn the IceMaker on or off. If the Ice Maker Indicator indicates OFF mode, ice making is disabled. You must change the indicator to ON mode.
Ice Maker (Cubed Ice)	Press to turn the IceMaker on or off. If the Ice Maker Indicator indicates OFF mode, ice making is disabled. You must change the indicator to ON mode.
°C ↔ °F	You can use the Cubed Ice button to switch the temperature scale between Celsius and Fahrenheit. To switch the temperature scale, press and hold Cubed Ice for 3 seconds.

07. Filter Reset (3 sec)

Filter Reset	After about 6 months of using the original water filter (which typically amounts to about 300 gallons or 1136 liters of water), the filter indicator blinks red to remind you that the filter needs to be replaced. When this happens, replace the filter, and then press and hold Filter Reset for 3 seconds. This resets the filter lifecycle detector and turns off the filter indicator. **NOTE** • Some areas have relatively large amounts of lime in their water. This may reduce the lifecycle of the filter. In these areas, you will have to replace the water filter more often than specified above. • If water is not dispensing properly, the water filter is most likely clogged. Even if the filter indicator is not blinking, replace the water filter.

08. Deodorizer Reset (3 sec)

Deodorizer Reset	After about 18 months of using the original deodorizer filter, the filter indicator blinks red to remind you that the filter needs to be replaced. When this happens, replace the filter, and then press and hold Deodorizer Reset for 3 seconds. The filter lifecycle will be reset and the filter indicator turns off.

09. Override (3 sec)

Override	The Override function activates/deactivates Smart Grid. Press and hold Override for 3 seconds to set/clear the Override function.

10. Control Lock (3 sec)

Control Lock	To prevent accidental setting changes, press and hold Control Lock for 3 seconds. The control panel will be disabled and the lock indicator ( ) will turn on. If you press and hold the button again for more than 3 seconds, Control Lock will be deactivated. However, Control Lock will be reactivated if no button is pressed within the next minute.
Device authentication	To authenticate your device, press and hold Control Lock for 5 seconds. A chime sounds and 'on' appears on the fridge temperature display for 5 seconds. Authorized devices can be used with Samsung Smart TV apps where the privacy information on the refrigerator can be shared to the TV. Availability of this function depends on the TV and refrigerator model.

11. Network connection (applicable models only)

You can control and monitor your refrigerator through the Smart Things app. For more information about Smart Things, see the Smart Things section.

12. Sabbath Mode

The Sabbath mode stays active for 85 hours once it is activated. After that, it will be deactivated automatically.

- To activate Sabbath mode, press and hold Freezer and Door Alarm simultaneously for 5 seconds. When the refrigerator is in Sabbath mode, you cannot adjust the temperature of the fridge or freezer, the ice maker does not work, and the inside lamps are disabled so they will not go on when you open the door.
- To deactivate Sabbath mode, press and hold Freezer and Door Alarm again simultaneously for 5 seconds.

NOTE

- If the Control Lock indicator turns on, you must first deactivate Control Lock.
- Even if the refrigerator powers off and restarts (for example, when there is a power failure), the Sabbath mode remains active. To exit Sabbath mode, you must deactivate it.

13. Cooling Off

Cooling Off mode (also called Shop mode) is designed for use by retailers when they are displaying refrigerators on a retail floor. In Cooling Off mode, the fan motor and lights operate normally, but the compressors do not run so both the refrigerator and the freezer do not get cold.

- To enter Cooling Off mode, press and hold Ice Maker, Filter Reset, and Control Lock simultaneously for 5 seconds. The refrigerator chime sounds and the temperature display flashes “OFF”.
- To exit Cooling Off mode, press and hold Ice Maker, Filter Reset, and Control Lock simultaneously for 5 seconds again.

NOTE

If the Control Lock indicator turns on, you must first deactivate Control Lock.

■ Smart Things

Installation

Visit the Google Play Store, Galaxy Apps, or Apple App Store and search for "Smart Things". Download and install the Smart Things app to your smart device.

NOTE

- The SmartThings app may have restrictions on some mobile devices.
- For improved performance, the Smart Things app is subject to change without notice, or discontinued support according to the manufacturer's policy.

Samsung account

You are required to register your Samsung account to use the app. If you don't have a Samsung account, follow the app's onscreen instructions to create a free Samsung account.

Getting started

1. Run the Smart Things app and log in with your Samsung account. iPhone users are required to provide the login information each time they access the app.
2. Select Add Device and then tap Refrigerator.
3. Follow the onscreen instructions to provide the necessary information about the router, and then tap Next.
4. Press and hold Fridge for more than 5 seconds until the "AP" message appears on the freezer display. Your refrigerator will be registered with the app.
5. When device registration is complete, the refrigerator icon will appear on the Smart Things app.
6. Tap the refrigerator icon to open the refrigerator page.
7. When a network connection is established, the Wi-Fi icon lights up on your refrigerator.

Refrigerator app

Integrated control

You can monitor and control your refrigerator at home and on the go.

- Tap the refrigerator icon in the Smart Things to open the refrigerator page.
- Check the operation status or notifications related to your refrigerator, and change options or settings if necessary.

NOTE

Some options or settings of the refrigerator may not be available for remote control.

PRODUCT FUNCTIONS

Category	Item	Description
Monitoring	Fridge temperature	Displays the current temperature setting of the fridge.
	Freezer temperature	Displays the current temperature setting of the freezer.
	Fresh Zone settings	Displays the settings of the Fresh Zone.
	Flex Zone™ settings	Displays the settings of the Flex Zone™.
Functions	AutoFill Pitcher	You can turn AutoFill Pitcher on or off, and check the current settings.
	Ice making	You can turn the ice making function on or off, and check the current settings of the function.
		You can also check the status and progress of ice making.
	Power Cool	You can turn Power Cool on or off, and check the current settings.
	Power Freeze	You can turn Power Freeze on or off, and check the current settings.
Alarms	Abnormally high temperature	This alarm is triggered when the fridge, the freezer, or the Flex Zone™ has abnormally high temperatures.
	Door opening	This alarm is triggered if the fridge or freezer door or the Flex Zone™ door is left open for a specific time.
	Deodorizer filter replacement (applicable models only)	This alarm reminds you that the deodorizer filter must be replaced.
	Water filter replacement	This alarm reminds you that the water filter must be replaced.

3-2. SMART GRID Function (Demand Response)

When the refrigerator operates in SMART GRID (Demand Response) mode, the Energy Management Refrigerator function can control energy usage or delay the operation of Some functions to save money when energy prices or demand are the highest.

NOTE

- You can deactivate the SMART GRID (Demand Response) function at any time using the Override On/Off function.)
- To use the SMART GRID (Demand Response) function, you need a separate contract with your electric utility company.

In addition, to use the Smart Grid (Demand Response) function, you must register for the service with your electric company. The company must have an EMS (Energy Management System) that supports SEP (Smart Energy profile).

Using the SMART GRID (Demand Response) Function

This feature monitors energy prices and demand information from your utility company and sends notifications to the refrigerator to run high energy consuming tasks during off peak times when electricity costs and demand are lower. If the refrigerator receives a control signal from the utility company, the refrigerator will display the DAL (L3) ~ TALR (L4) levels on the refrigerator display and control the power consumption according to the level.
[Exception condition] The DAL and TALR control signals from a utility company work as long as product performance is maintained.
If the refrigerator receives the SMART GRID (Demand Response) signal (DAL or TALR), the refrigerator will operate in Delay Appliance Load (Display: Turns on "DAL" icon) or Temporary Appliance Load Reduction (Display: Turns on "TALR" icon) mode.

- Delay Appliance Load (L3): The refrigerator responds to a DAL signal by providing a moderate load reduction for the duration of the delay period. This function controls functions that consume a lot of energy such as adjusting the Cooling system, running the defrost cycle, and making ice.
  - When the refrigerator operates in DAL (L3) mode, it turns on the "DAL" icon on the refrigerator display.
  - DAL mode is automatically deactivated after it lasts for the amount of time stipulated by the DAL signal (max. 4.5 hours) or when the Override key is pressed.
- Temporary Appliance Load Reduction (L4): The refrigerator responds to a TALR signal by aggressively reducing the load for a short time period. This function reduces energy consumption by stopping the compressor and controlling the functions that consume a lot of energy such as the defrost cycle and making ice.
  - When the refrigerator operates in TALR (L4) mode, it turns on the "TALR" icon on the refrigerator display.
  - TALR (L4) mode is automatically deactivated after it lasts for the received duration (max. 15 minutes), or when the Override key is pressed. The mode is immediately deactivated and the refrigerator returns to the normal state when the door is opened or closed, or the dispenser is used.

To check the MAC address

In this mode, the MAC address appears in the temperature panel (on both the freezer and the fridge sections of the panel) sequentially for 1 minute.

1. Press and hold both Freezer and Fridge for 6 seconds. The temperature panel blinks. Then, press Freezer again to display the MAC address. The fridge beeps.
2. For example, if the MAC address is "11-22-33-44-55-66", the temperature panel displays the address for 1 minute in this sequence: "-- / --" "22 / 11" "44 / 33" "66 / 55" "-- / --". After 1 minute, the MAC address disappears and the temperature panel returns to the normal state.

NOTE

The temperature panel displays "-- / --" for an unknown MAC address or if a Wi-Fi connection is not established or is lost.

Override Mode

When you want the refrigerator to ignore the SMART GRID (Demand Response) signal from the utility company, you can activate OVERRIDE mode.
When you activate OVERRIDE mode, the refrigerator ignores the SMART GRID (Demand Response) signal and is not controlled by the utility company.

Activating and deactivating Override mode

1. Press and hold Override for 3 seconds.
2. A chime sounds and 'Or' and 'on' is displayed in the fridge and freezer temperature displays for 5 seconds.
3. If the refrigerator receives a SMART GRID (Demand Response) signal from the utility company, 'Or' is displayed in the freezer temperature display.
4. To deactivate OVERRIDE mode, press and hold Override for 3 seconds.
5. A chime sounds and 'Or' and 'oF' is displayed in the fridge and freezer temperature displays for 5 seconds.

NOTE

Alternatively, you can activate or deactivate OVERRIDE mode using the Smart Things app and the Energy Management function. See the next page.

Using the Energy Management Function

The Energy Management function enables you to control and monitor your Energy Management refrigerator using the Smart Things app for your convenience.

NOTE

• To use the Energy Management refrigerator functions, you have to install the corresponding app first.

1. Operational Status, User Settings & Messages
   - You can view the freezer and fridge temperature settings.
   - You can receive an alarm when the freezer or fridge door is open for 2 minutes.
   - You can check the DR and Override status.
   - You can check the operational condition of the ice maker in the freezer.
2. Remote Management
   - Power Freeze Setting: You can remotely activate the Power Freeze function.
   - Power Cool Setting: You can remotely activate the Power Cool function. Ice On/Off Setting: You can remotely set up the Ice On/Off Setting function.
     You can only control the Ice maker in the freezer remotely.
3. Energy Consumption Reporting
   - Shows the accumulated power consumption. Power consumption data is updated every 10 minutes.

   NOTE

   The energy consumption report may differ from the power consumption specifications of the product depending on the operating environment and the stored food.

4. Delay Defrost Capability
   - The Delay Defrost Capability function saves energy by delaying the defrost operation to a time specified by the user. You can configure the time. and this function will save energy during the specified period in a 24 hour cycle. If the time is not set, the function works with the default time settings. The default time settings are below:
     - 6 am to 10 am: 1st. November ~ 30th. April
     - 3 pm to 7 pm: 1st. May ~ 31th. October

To change the time setting for the Delay Defrost Capability
You can change the time setting for the Delay Defrost Capability on the app.

PRODUCT FUNCTIONS

Provision for Open Access to the Connected Product Requirements

1. SGIP Open Standards (Smart Energy Profile 2.0 - http://www.csep.org/)
   - Energy Consumption Reporting
   - Demand Response
2. OPEN API
   - Operational Status, User Settings & Messages
   - ICE Maker Status: GET /icemaker/status/vs/0
   - Door Open Alarm: GET /doors/vs/0/
   - DR Status: GET /drlc/vs/0
   - Delay Defrost Capability
   - Set Schedule of the Defrost Delay: POST /defrost/reservation/vs/0?op=add
   - Get Schedule of the Defrost Delay: GET /defrost/reservation/vs/0
   - Delete Schedule of the Defrost Delay: POST /defrost/reservation/vs/0?op=remove
   - Defrost Delay On/OFF: POST /defrost/delay/vs/0\

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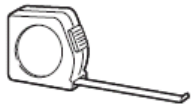
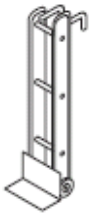
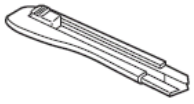
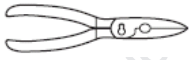
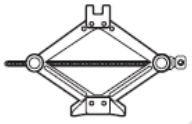
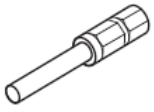
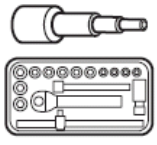
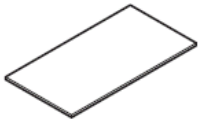
4. DISASSEMBLY AND REASSEMBLY

4-1. PRECAUTION

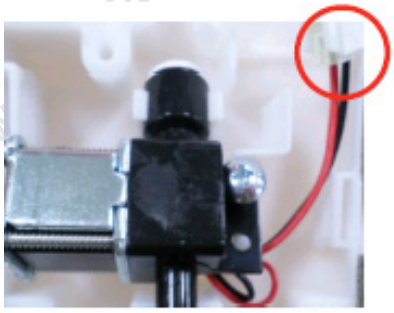
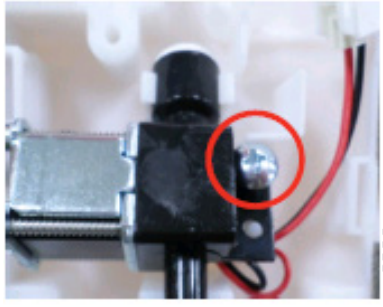
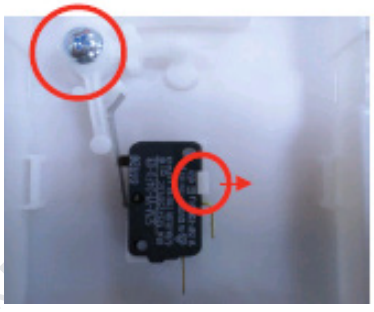
■ **Required Tools**

Image	Tool	Image	Tool
	Electric Screwdriver		Stepladder
	Measuring Tape		Appliance Dolly
	Flat/Slot HeadScrewdriver		Cutter
	Cutter (Scissors)		Level
	Adjustable Wrench		Jack
	Phillips HeadScrewdriver		Combination Wrench 3/8" (10 mm),1/2" (13mm)
	Ratchet 3/8" (10 mm),1/2" (13 mm)		SVC LOKRING TOOL KIT
	Protective Floor Mat		UV LAMP

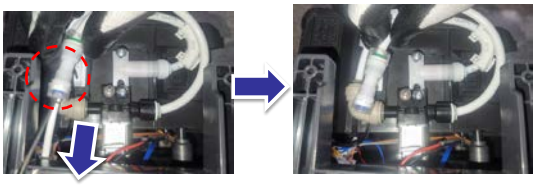
4-2. Internal Dispenser

Part name	How To Do	Descriptive Picture
Internal Dispenser	1. Remove the CAP DISPENSER with a flat-head screwdriver.	
	2. Unscrew one screw.	 
	3. Put a flat-head screwdriver under the ASSY, and lift it up as shown in the picture.	

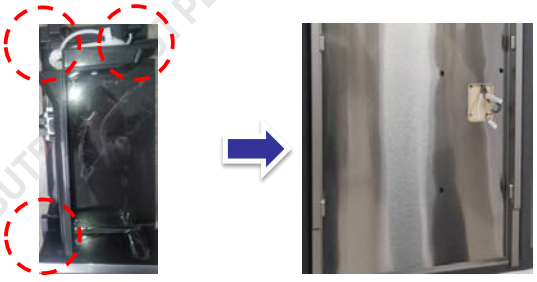
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Internal Dispenser	4. Pull the VALVE wire down, and disconnect the cable.	
	5. Unscrew 1 SCREW using a cross-head screwdriver	
	6. Detach LINK using a cross-head screwdriver 7. Push the holder towards the direction of the arrow and remove the SWITCH.	

4-3. Autofill

Part name	How To Do	Descriptive Picture
Autofill	1. Lift and remove Guards at the top and left of the AUTO FILL	
	2. Remove the 2 screws fixing the COVER on the top	
	3. Remove the 1 screw fixing the COVER andPull the AUTO FILL COVER forward to separate it. (Refer to the figure)	
	4. Unsnap the two housing connectors on the top.	
	5. Press the collet inside the fitting tube CAP using (-) driver at the top of AUTOFILL and pull off the water HOSE.	

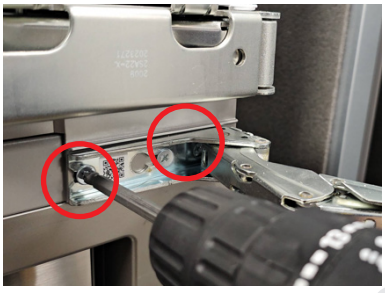
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Autofill	6. Remove the 3 screws fixing the AUTOFILL	

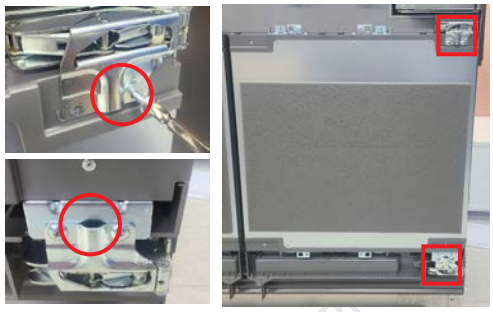
4-4. HINGE

Part name	How To Do	Descriptive Picture
HINGE (REF)	1. Open the Hinge, Remove Cover Hinge (Guide Wire).	
	2. Disassemble Cap Hinge.	
	3. Remove 2 Screws.	
	4. Disassemble Hinge. * When closing the hinge, be careful because the autoclose spring may cause finger jams.	

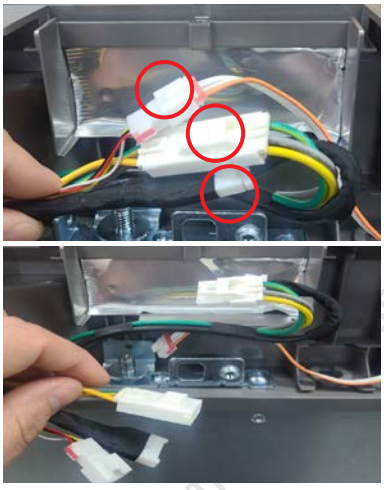
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
HINGE (FRE)	1. Open the Hinge, Remove Cap Hinge.	
	2. Disassemble 2 screws	
	3. Disassemble Hinge. * When closing the hinge, be careful because the autoclose spring may cause finger jams.	

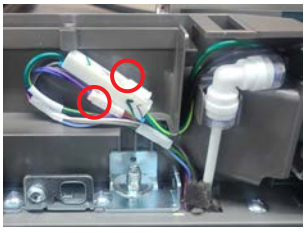
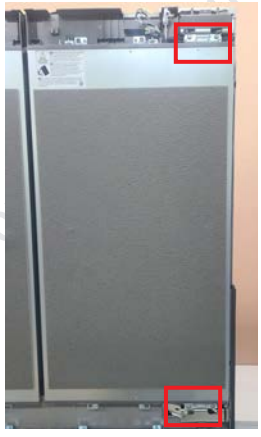
4-5. Door FRE

Part name	How To Do	Descriptive Picture
DOOR FRE	1. Remove the 4screws fixing the HINGE (FRE LEFT) - Up : 2screws - Low : 2screws ※ The order of left/right, up/down fastening and disassembly does not matter.	
	2. Remove the 4screws fixing the HINGE (FRE RIGHT) - Up : 2screws - Low : 2screws ※ The order of left/right, up/down fastening and disassembly does not matter.	

4-6. DOOR REF

Part name	How To Do	Descriptive Picture
DOOR REF (LEFT)	1. Remove the screw fixing the COVER CAP DOOR	
	2. Separate the 3housings connected to the LEFT DOOR	
	3. Remove the 4bolts fixing the HINGE (REF RIGHT) - Up : 2bolts - Low : 2bolts ※ The order of left/right, up/down fastening and disassembly does not matter.	

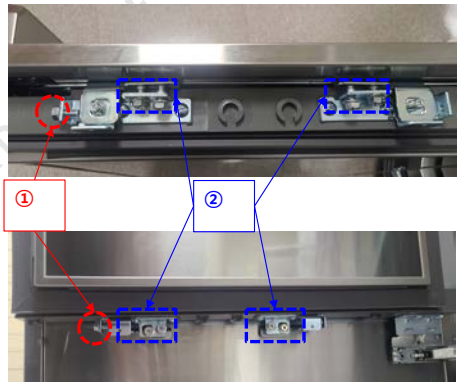
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
DOOR REF (RIGHT)	1. Remove the screw fixing the COVER CAP DOOR	
	2. Separate the 2housings connected to the RIGHT DOOR 3. Remove only one side of the fitting connected to the Hose (Press the blue part with a (-) driver to remove fitting.)	  
	4. Remove the 4bolts fixing the HINGE(REF RIGHT) - Up : 2bolts - Low : 2bolts ※ The order of left/right, up/down fastening and disassembly does not matter.	  

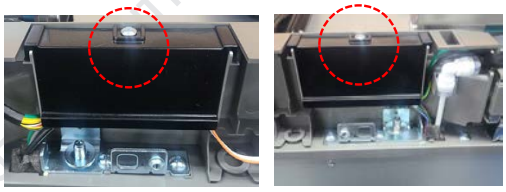
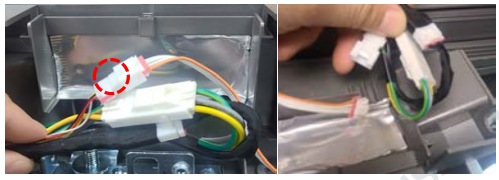
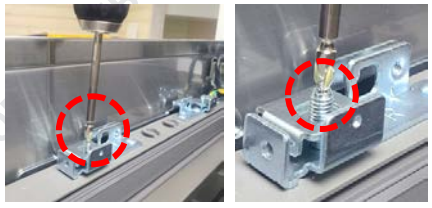
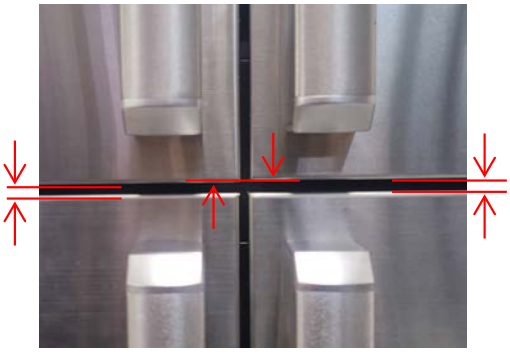
4-7. French

Part name	How To Do	Descriptive Picture
French	1. Separate the screw that has fixed the french.	
	2. Hold the French with both hands and put it in a vertical direction.	
	3. Separate the housing connected to the French. **NOTE** The French here refers to the part that looks like a long stick between the left and right fridge doors. (It prevents cold from escaping through the gap between the left and right doors.)	 

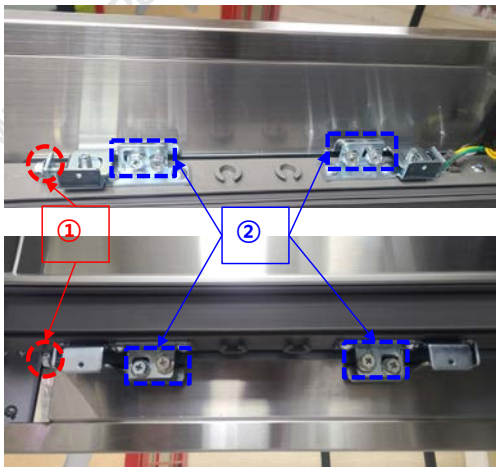
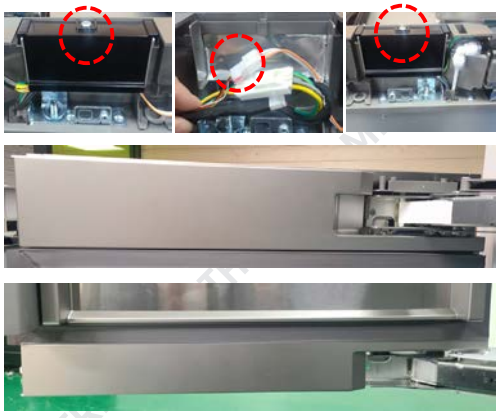
4-8. DOOR FRE PANEL

Part name	How To Do	Descriptive Picture
DOOR FRE PANEL (Install)	※ The CUSTOM PANEL assembles the DOOR FRE first. Disassembly proceeds in reverse order of assembly. 1. Remove the CAP DOOR-LOW from DOOR FRE (Left-right same)	
	2. Hang the bracket hole of the CUSTOM PANEL on the FIXER-UP FRONT of the DOOR FRE. (Left-right same)	
	3. Align the left and right DOOR FRE heights by adjusting the FIXER-UP FRONT fastening heights. (Left-right same)	 Height adjustment 
	4. Fasten the BOLT at each of the top and bottom 5 locations.(Left-right same) ① bolt can adjust gap left and right (→ ←) ② bolt can adjust gap before and after(↑ ↓) ※ The order up/down fastening does not matter.	
	5. Assemble the CAP DOOR-UP / LOW. (HOOK assembly)	

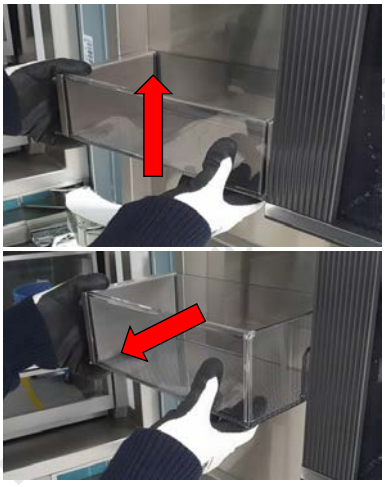
4-9. DOOR REF PANEL

Part name	How To Do	Descriptive Picture
DOOR REF PANEL (Install)	※ The CUSTOM PANEL assembles the DOOR REF after assembling DOOR FRE. Disassembly proceeds in reverse order of assembly. 1. Remove the screw fixing the COVER CAP DOOR (Left-right same)	
	2. Remove the CAP DOOR-UP from DOOR REF (Left-right same) 3. Separate only 1housing connected to the LEFT DOOR(only LEFT DOOR) The RIGHT DOOR is unnecessary.	 
	4. Hang the bracket hole of the CUSTOM PANEL on the FIXER-UP FRONT of the DOOR REF. (Left-right same)	
	5. Align the left and right DOOR REF heights and Gap with DOOR FRE by adjusting the FIXER-UP FRONT fastening heights. (Left-right same)	 Height adjustment 

DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
DOOR REF PANEL (Install)	6. Fasten the BOLT at each of the top and bottom 5 locations. (Left-right same) ① bolt can adjust gap left and right (→ ←) ② bolt can adjust gap before and after(↑ ↓) ※ The order up/down fastening does not matter.	
	7. Connect only 1housing the LEFT DOOR (only LEFT DOOR) The RIGHT DOOR is unnecessary. 8. Fasten the screw fixing the COVER CAP DOOR (Left-right same) 9. Assemble the CAP DOOR-UP / LOW. (HOOK assembly)	

4-10. DOOR BIN

Part name	How To Do	Descriptive Picture
Door Bin (Basic)	1. Lifting up the Door Bin, And disassemble	
Door Bin (Autofill)	1. Lifting up the Door Bin, And disassemble	

4-11. Drawer

Part name	How To Do	Descriptive Picture
Case veg	1. Hold the handle and pull out as much as possible. 2. And then you take it up and disassemble it.	
Case Pantry	1. Hold the handle and pull out as much as possible. 2. And then you take it up and disassemble it.	
Tray Fre-up	1. Hold the handle and pull out as much as possible. 2. Lift and remove the Case Ice 3. And then you take it up and disassemble it.	
Tray Fre-Low	1. Hold the handle and pull out as much as possible. 2. And then you take it up and disassemble it.	

4-12. Fixer Shelf

Part name	How To Do	Descriptive Picture
Fixer Shelf	1. Press the fixing hook between Fixer shelf	
	2. Lifting up the Shelf	
	3. Remove the Left Shelf, and Right shelf	

4-13. Vegetable Shelf

Part name	How To Do	Descriptive Picture
Vegetable Shelf	1. Remove the Case Veg under the vegetable Shelf.	
	2. Hold the front of the shelf and pull it forward to disassemble.	
	3. Set the shelf vertical and remove the shelf into the space of the separated guard.	

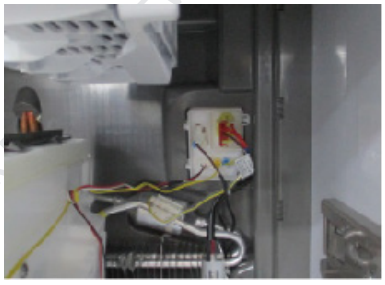
4-14. Display Shelf

Part name	How To Do	Descriptive Picture
Display Shelf	1. Remove 2 screw.	
	2. Remove 1 screw at the lower part of the Shelf.	
	3. Hold the front of the shelf and pull it forward to disassemble.	
	4. Disconnect Housing for Display	 
	5. Set the shelf vertical and remove the shelf into the space of the separated guard.	

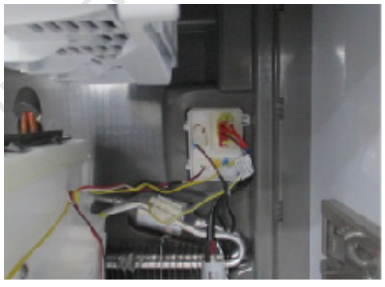
4-15. Case Convertible

Part name	How To Do	Descriptive Picture
Case Convertible	1. Hold the Side of the Case Convertible and pull it forward to disassemble	
	2. Hold the Other side of the Case Convertible and pull it forward to disassemble.	 

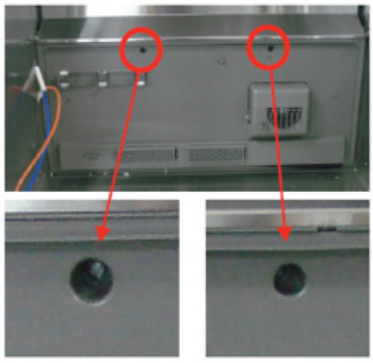
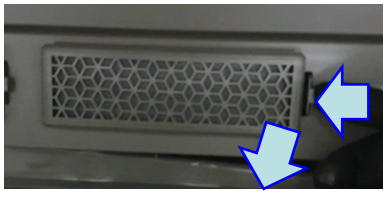
4-16. DAMPER

Part name	How To Do	Descriptive Picture
ASSY COVER EVAP Freezer (FRE)	1. Remove The left and right screws.	
	2. Pull out the bottom.	
	3. Remove the right upper housing. **NOTE** When reassembling, inserted it into the upper groove and press the hook	

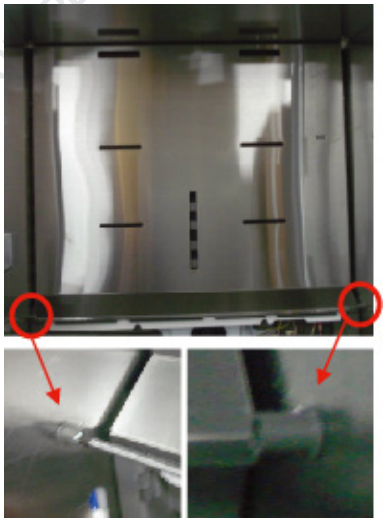
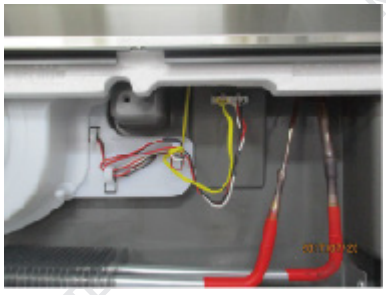
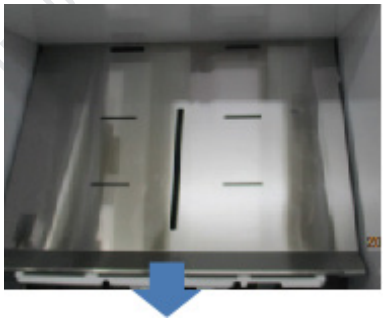
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
ASSY COVER EVAP Convertible (FRE)	1. Remove The left and right screws.	
	2. Pull out the bottom.	
	3. Remove the right upper housing. **NOTE** When reassembling, inserted it into the upper groove and press the hook.	

DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
ASSY COVER EVAP Fridge(REF)	1. Remove the left and right screws.	
	2. Pull out the bottom.	
	3. Remove the left two housings. **NOTE** When reassembling, inserted it into the upper groove and press the hook.	
ASSY DEODORIZER (REF)	1. Push the hook to the side and pull it backwards to disassemble it.	

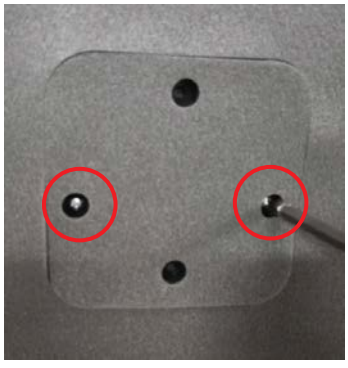
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
ASSY COVER MULTI Fridge(REF)	1. Remove both bosses supporting the drawer shelf.	
	2. Remove the right bottom housing.	
	3. Pull out the bottom **NOTE** When reassembling, inserted it into the upper groove and press the hook.	

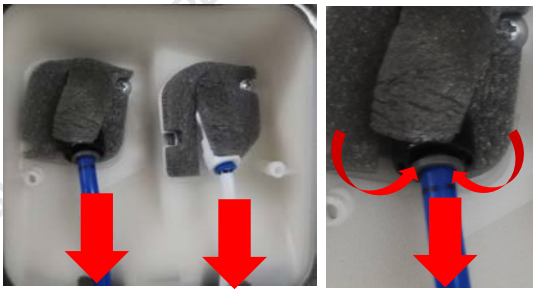
4-17. Ice Maker

Part name	How To Do	Descriptive Picture
Ice Maker	1. Remove the drawer from the freezer.	
	2. Remove 3 screws on ice maker	
	3. Remove the ice maker by separating the housing.	

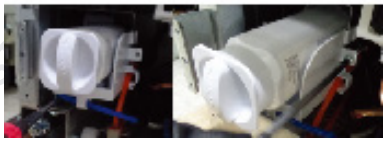
4-18. PIPE WATER ICE

Part name	How To Do	Descriptive Picture
PIPE WATER ICE	1. Pull out the set and check if the leg is down.	
	2. Remove the drawer from the freezer	 
	3. Remove 3 screws on ice maker.	
	4. Remove the ice maker and disconnect housings.	 
	5. Remove screws on the cover (Behind the SET)	

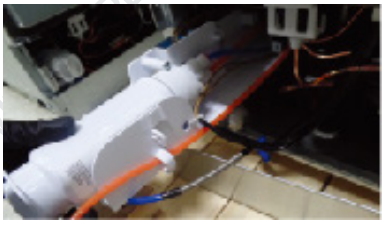
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
PIPE WATER ICE	6. Pull out the water hose (push the collet and pull out the hose)	
	7. Remove the screw and pull out the pipe water ice.	

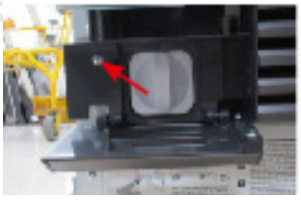
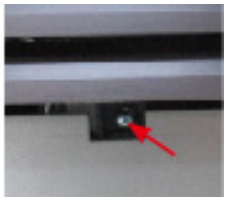
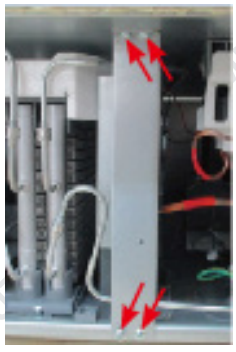
4-19. Case Water Filter

Part name	How To Do	Descriptive Picture
Case Water Filter	1. Open the filter on the lower part of the product.	
	2. Remove 2 Screws on the left side of the filter.	
	3. Detach the front cover of the machine room.	 
	4. Remove 2 filter set screws.	 
	5. Remove water supply hose fitting1.	

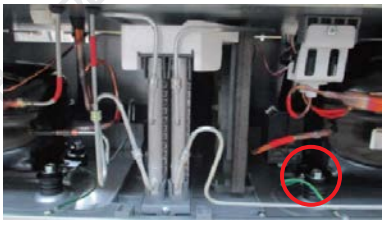
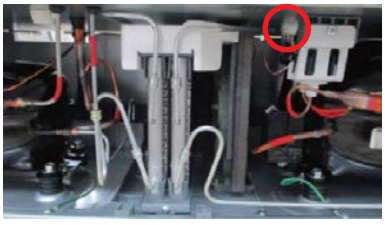
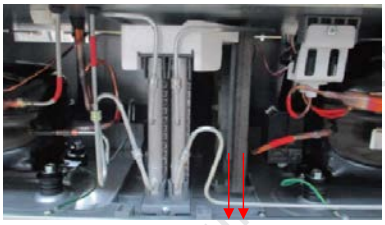
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Case Water Filter	6. Remove the filter case.	
	7. Remove water valve housing.	

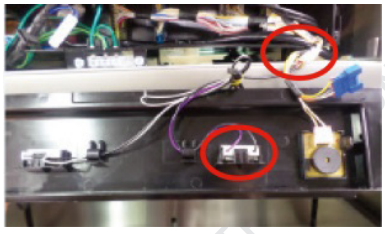
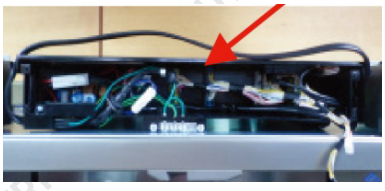
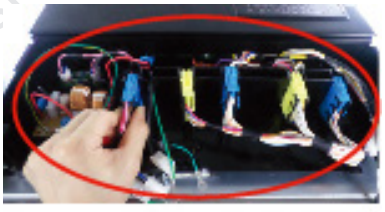
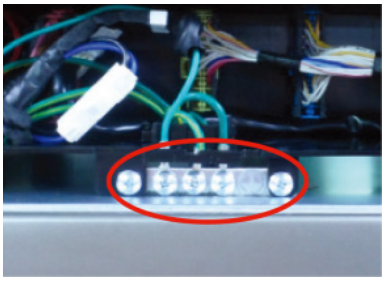
4-20. Unit

Part name	How To Do	Descriptive Picture
Unit	1. Open the door.	
	2. open the cover of the grille andremove two screw indicated with arrow mark.	 
	3. Pull left and right side of the grille. Then grille will be removed.	
	4. Remove two screw of cover complow (kick plate) indicated with the arrow mark.	

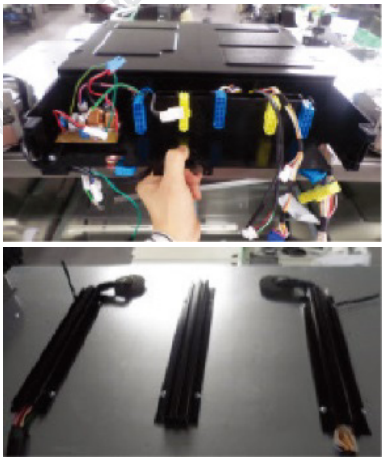
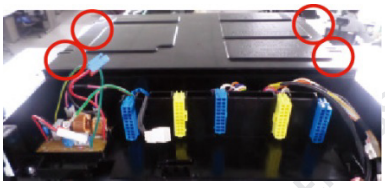
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
CONDENSER FAN MOTOR	1. Remove the screw indicated with arrow mark.	
	2. Disassemble housing of fan from Roof.	
	3. Pull the fan from unit.	
COVER RELAY	1. Remove the Screw and Pull out Assy case filter (you should prepare plate to spill some water in the filter)	
	2. Remove the screw of Step valve and move Step valve to right (Prevent the break of Pipe)	
	3 Disassemble the Cover Relay from Compressor.	
TRAY DRAIN WATER	To replace the tray, the refrigerator set must be serviced separately from the built-in furniture shelf.	

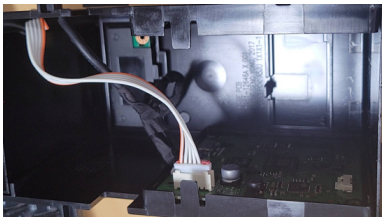
4-21. PCB Box

Part name	How To Do	Descriptive Picture
Top-table	1. Disassemble the Top-Table	
PCB BOX	2. Unscrew Cover-Front screws (4 units)	
	3. Disassemble the Reed switch / buzzer connector	
	4. Disassemble the Cover-Front Upp	
	5. Disassemble the connector	
	6. Remove and unscrew Earths (3 units) and Screws (2 units)	

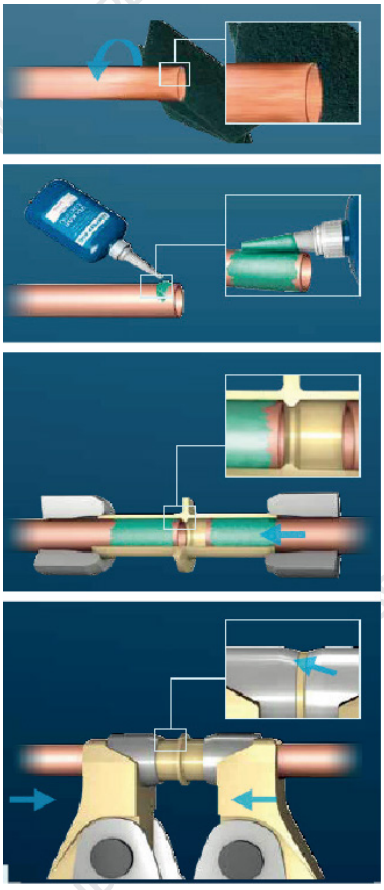
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
PCB BOX	7. Disassemble the PCB box	
	8. Unscrew the setscrews of the PCB box (4 units)	

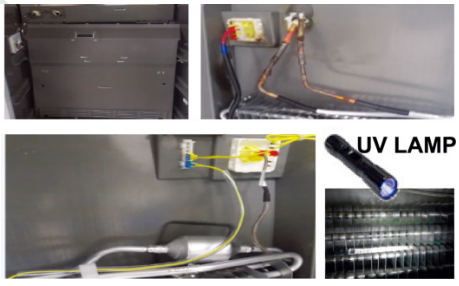
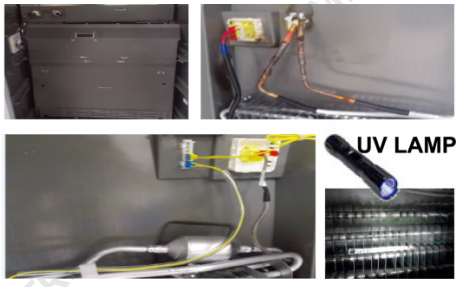
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
A20 PCB Box	1 Unscrew Cover screw (1 unit)	
	2. Disassemble Cover	

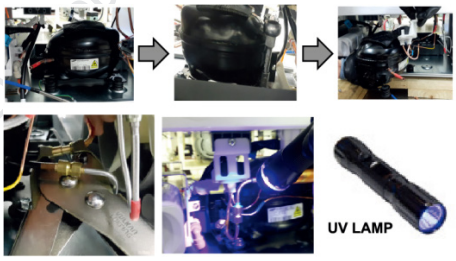
4-22. Procedure of Service lokring

Part name	How To Do	Descriptive Picture
Procedure of Service lokring	1. Use sand paper to remove foreign matter from the area to be bonded. 2. Apply Lokprep evenly over the joint. (The required amount is about 1g) 3. Use the SVC Lokring that meets the pipe standard, and push the pipe to the end. 4. Using the hand tool, slide the ring to the side where the center of the ring is abutted.	

4-23. Evap

Part name	How To Do	Descriptive Picture
Freezer	1. Open Duct first 2. Remove Harness and Cut The pipe 3. Remove harness of Heater and sensor from Liner. 4. Change the Evap and connect pipe with SVC LOKRING 5. After operating the refrigerator, use the UV lamp to check for leaks.	
Fridge (Refrigerator)	1. Open Duct first 2. Remove Harness and Cut The pipe 3. Remove harness of Heater and sensor from Liner. 4. Change the Evap and connect pipe with SVC LOKRING 5. After operating the refrigerator, use the UV lamp to check for leaks.	

4-24. Compressor

Part name	How To Do	Descriptive Picture
Compressor	1. Relay cover disassembly 2. Using wrench bolt 3. Replace comp after removing valve 4. Connect pipe with SVC lokring 5. After operating the refrigerator, use the UV lamp to check for leaks.	
	※ Use a protective steel plate to prevent damage to the water hose during welding of the Ref Comp area.	

※ Notice
When Lokring(Welding) service, smell may be transferred to water, so do not detach the filter, remove the entire assembly and service.

4-25. Cover Lamp

Part name	How To Do	Descriptive Picture
Cover Lamp Upper	1. Insert the '-' driver into the service hole ※ Separation groove is located in SET upper left back sides	
	2. Separates COVER LAMP UP by pulling tool down ※ Be careful injection molding SCRATCH when separating COVER LAMP UP	
	3. Separates COVER LAMP by pulling with hand slowly to direction of an arrow	

DISASSEMBLY AND REASSEMBLY

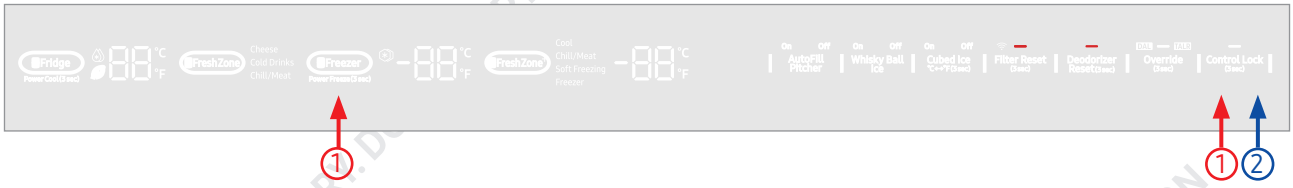
Part name	How To Do	Descriptive Picture
Cover Lamp Side	1. With the COVER LAMP UP removed, Sepearate the COVER LAMP SIDE by pulling it down using 'ㄱ' wrench 	
	2. Separates COVER LAMP SIDE by pulling to direction of an arrow ※ Be careful injection molding SCRATCH when separating COVER LAMP UP. ※ The assembly method shall be performed in reverse order of disassembly.	

5. FUNCTION FOR FAILURE DIAGNOSIS

5-1. Test Function (Forced Operation/ Forced Defrost Function)

1. When pressing both the "Control Lock" and "Freezer" keys for more than 5 seconds on PANEL PCB, the PANEL DISPLAY will be ALL ON/OFF at an interval of 0.5 sec. By leaving "control Lock" KEY and "Freezer" KEY and selecting "Control Lock" KEY at this moment, TEST MODE will be activated.
2. In the TEST MODE, every key on the Panel will function as a TEST KEY TEST MODE.
3. TEST Function changes as the TEST KEY is pressed in the following order: Forced Operation1 (FF) → Forced Operation (FF r) → Forced Operation 3(FF F) → Forced Operation 4(FF C) → Forced Operation 5(FF A) → Forced Defrost(Fd) → Cancel (Normal Operation) → Forced Operation1(FF) ....
4. The recommended way to cancel the TEST Function while running the function is to turn the power off and on.

(1) Test Mode Entering Process



(2) Test Mode Function Explanation

1) Forced Operation1

1-1) Pressing any KEY once in the TEST MODE will activate the Forced Operation1 function. When the Forced Operation function is activated, PANEL DISPLAY will show 'FF' on the 7-segment to indicate the Forced Operation status. At this moment, BUZZER will BEEP as an alarm.

1-2) When Forced Operation1 is selected, the COMP. operates instantly without any delay in any Operation MODE. If defrosting, Defrost will be stopped instantly, and Forced Operation will be activated. (Attention: If Forced Operation is activated immediately after COMP OFF time, it may cause OVER-LOAD)

1-3) When Forced Operation1 is selected, COMP and F-FAN will operate continuously irrespective of the interior temperature for about 24 hours.

1-4) When the Forced Operation1 is activated, F-Valve will maintain Open status, and F- Cooling Speed Valve will maintain Close status and R-Valve will control the temperature.

* When the Forced Operation is selected, the freezer compartment will select -23˚c(-8˚F) automatically.
* When Forced Operation is activated, Power Freeze function does not work. (Every KEY is entered normally) When the Power Function is selected, the selected Power Function will turn off in ten seconds automatically
* When Forced Defrost or Test Cancellation is selected within a minute after Forced Operation is selected, The set temperature will return to the previous set temperature.
* The beep sounds of Forced Operation continue until the Operation is complete. There is no deactivate function.

	F VALVE		FAN			Driving		
	F-VALVE	CV-VALVE	F-FAN	CV-FAN	R-FAN	F Room	CV Room	R Room
FF	normal driving		ON	Freezer: ON else: Normal Driving	Normal driving	ON	Freezer: ON else: Normal Driving	Normal driving
Fr	normal driving		ON	Freezer: ON else: Normal Driving	ON	ON	Freezer: ON else: Normal Driving	ON
FF F	OPEN	CLOSE	ON	OFF	Normal driving	ON	OFF	Normal driving
FF C	CLOSE	OPEN	OFF	ON	Normal driving	OFF	ON	Normal driving
FF A	OPEN	OPEN	ON	ON	Normal driving	ON	ON	Normal driving
FD	Defrost Heater On							

FUNCTION FOR FAILURE DIAGNOSIS

2) Forced Operation2

2-1) Pressing any KEY twice in the TEST MODE will activate Forced Operation2 function.
When the Forced Operation function is activated, PANEL DISPLAY will show 'FF r' on the 7-segment to indicate the Forced Operation status. At this moment, BUZZER will BEEP as an alarm.

2-2) When Forced Operation2 is selected, the COMP. operates instantly without any delay in any Operation MODE.
If defrosting, Defrost will be stopped instantly, and Forced Operation will be activated.
(Attention: If Forced Operation is activated immediately after COMP OFF time, it may cause OVER-LOAD)

2-3) When Forced Operation2 is selected, COMP, F-FAN, and R-FAN will operate continuously irrespective of the interior temperature for about 24 hours.

2-4) When the Forced Operation 2 is activated, F-Valve will maintain close status, F-Cooling Speed Valve will maintain Close status and R-valve will maintain Open status.

3) Forced Operation3

3-1) Pressing any KEY three times in the TEST MODE will activate Forced Operation3 function When the Forced Operation function is activated, PANEL DISPLAY will show 'FF F' on the 7-segment to indicate the Forced Operation status. At this moment, BUZZER will BEEP as an alarm.

3-2) When Forced Operation3 is selected, the COMP. operates instantly without any delay in any Operation MODE.
If defrosting, Defrost will be stopped instantly, and Forced Operation will be activated.
(Attention: If Forced Operation is activated immediately after COMP OFF time, it may cause OVER-LOAD)

3-3) When Forced Operation3 is selected, COMP F-FAN, and R-FAN will operate continuously irrespective of the interior temperature for about 24 hours.

3-4) When the Forced Operation 3 is activated, F-Valve will maintain open status, F-Cooling Speed Valve will maintain Close status and R-valve will maintain Close status.

FUNCTION FOR FAILURE DIAGNOSIS

4) Forced Operation4

4-1) Pressing any KEY four times in the TEST MODE will activate Forced Operation4 function. When the Forced Operation function is activated, PANEL DISPLAY will show 'FF C' on the 7-segment to indicate the Forced Operation status. At this moment, BUZZER will BEEP as an alarm.

4-2) When Forced Operation4 is selected, the COMP. operates instantly without any delay in any Operation MODE. If defrosting, Defrost will be stopped instantly, and Forced Operation will be activated. (Attention: If Forced Operation is activated immediately after COMP OFF time, it may cause OVER-LOAD)

4-3) When Forced Operation4 is selected, COMP, F-FAN, and R-FAN will operate continuously irrespective of the interior temperature for about 24 hours.

4-4) When the Forced Operation 4 is activated, F-Valve will maintain Close status, F-Cooling Speed Valve will maintain Open status and R-valve will maintain Close status.

5) Forced Operation5

5-1) Pressing any KEY five times in the TEST MODE will activate Forced Operation5 function. When the Forced Operation function is activated, PANEL DISPLAY will show 'FF A' on the 7-segment to indicate the Forced Operation status. At this moment, BUZZER will BEEP as an alarm.

5-2) When Forced Operation5 is selected, the COMP. operates instantly without any delay in any Operation MODE. If defrosting, Defrost will be stopped instantly, and Forced Operation will be activated. (Attention: If Forced Operation is activated immediately after COMP OFF time, it may cause OVER-LOAD)

5-3) When Forced Operation5 is selected, COMP, F-FAN, and R-FAN will operate continuously irrespective of the interior temperature for about 24 hours.

5-4) When the Forced Operation4 is activated, F-Valve will maintain Open status, F-Cooling Speed Valve will maintain Open status and R-valve will maintain Open status.

6) Forced Operation6

6-1) If any Key is pressed when Forced Operation5 is activated, Forced Operation 5 will immediately deactivate and switch to Forced Defrost function. When the Forced Defrost function is activated, PANEL DISPLAY will show 'Fd' to indicate the Forced Defrost status. When Forced Defrost is activated, the alarm will BEEP for 3 seconds. After the first three seconds, during Forced Defrost Function, the alarm will BEEP continuously (0.5sec ON/ 0.5sec OFF).

7) Test Cancellation Mode.

7-1) When the Forced Defrost is activated, if DISPLAY PANEL is switched into the TEST MODE and TEST button is pressed one more time, Forced Defrost will be canceled and will return to the normal operation. Or, all the TEST functions will be canceled by turning the MAIN POWER OFF and ON.

5-2. Self-diagnosis function

1) Self-diagnosis function with the initial POWER ON

1-1) When the refrigerator is powered on for the first time, MICOM internally operates a self-diagnosis function to check the temperature sensors in a few seconds.

1-2) If a defective sensor is detected, “all the relevant DISPLAY LED”will blink at intervals of 0.5 sec. There will be no beep sound at this moment. (Refer to the self-diagnose CHECK LIST)

1-3) When the self-diagnostic error message is displayed due to a defective sensor, only the self-diagnose button will be recognized and Display will not operate normally while temperature control will be controlled under the emergency operation.

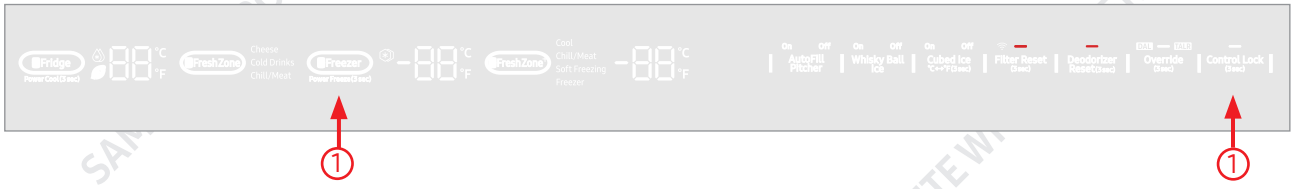
1-4) When a self-diagnosis indicates an ERROR, either fix the defective sensor, or press the Freezer KEY and Control Lock KEY for 10 seconds to automatically deactivate the initial self-diagnose function.

2) Self-diagnosis function during normal operation

2-1) If the Freezer KEY and Control Lock KEY are pressed for 10 seconds during normal operation, the Self-diagnosis function will be selected with a beep sound.

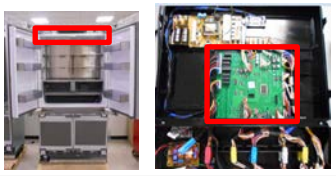
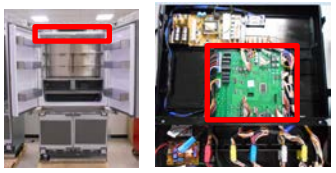
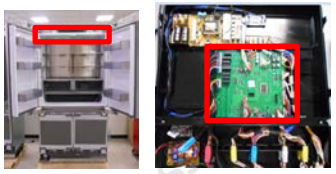
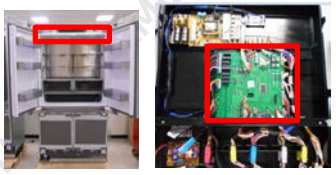
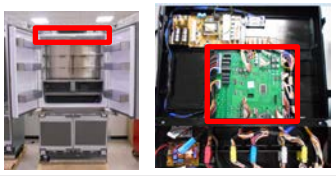
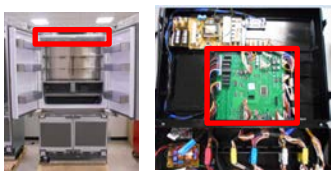
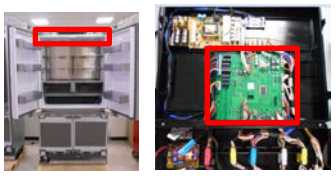
2-2) When initiating the self-diagnosis function, the entire LED will turn off. If there is an error the indication of the error will be displayed for 60 seconds and then restored to the normal status whether the error is fixed or not. (Refer to the Self-Diagnosis Checklist below)

2-3) During the self-diagnosis, button input will not be recognized.

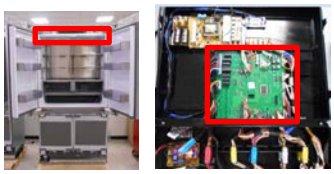
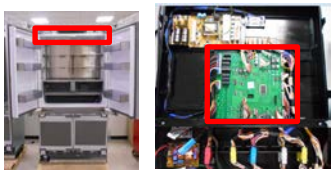
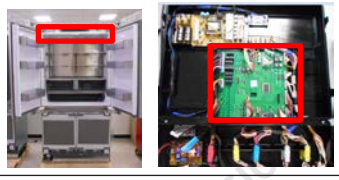
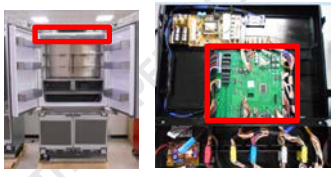
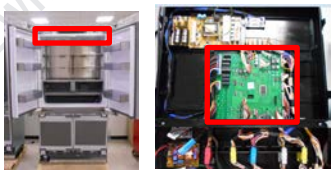
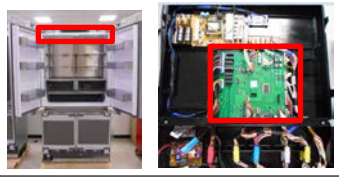
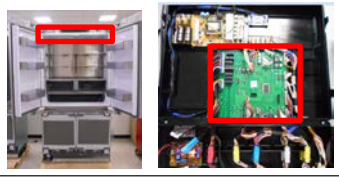


FUNCTION FOR FAILURE DIAGNOSIS

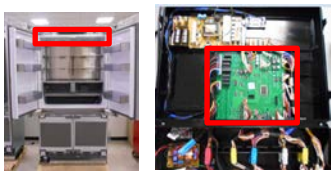
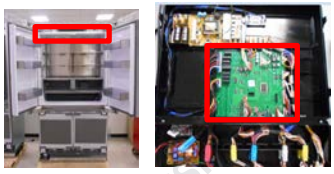
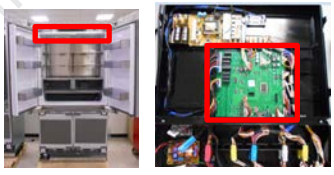
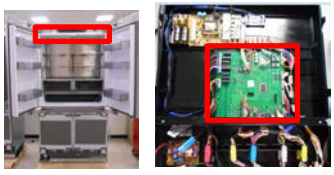
■ Self-diagnosis CHECK LIST

Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
F-Sensor Error	81		Slipped out Sensor Housing, Wire-Cut, Wire-Short, When the sensor pickup temp is over +50 ° C or under -50 ° C, Error occurs.	The voltage between Main PBA CN30 #5 ↔ #6 should be within 4.5V~1.0V	
R-Sensor Error	82			The voltage between Main PBA CN91 #1 ↔ #2 should be within 4.5V~1.0V	
F-Def Sensor Error	84			The voltage between Main PBA CN30 #3 ↔ #4 should be within 4.5V~1.0V	
R-Def Sensor Error	85	C		The voltage between Main PBA CN91 #1 ↔ #6 should be within 4.5V~1.0V	
Ambient Sensor Error	86			The voltage between Main PBA CN34 #5 ↔ #6 should be within 4.5V~1.0V	
Pantry Sensor Error	87			The voltage between Main PBA CN50 #9 ↔ #10 should be within 4.5V~1.0V	
Ice Maker Sensor Error	88			The voltage between Main PBA CN90 #6 ↔ #7 should be within 4.5V~1.0V	

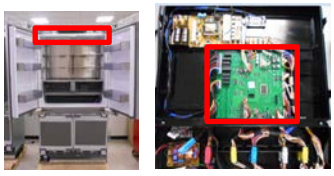
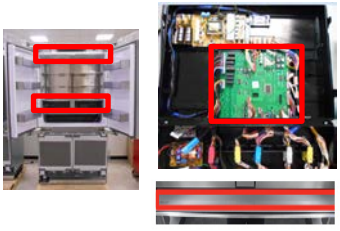
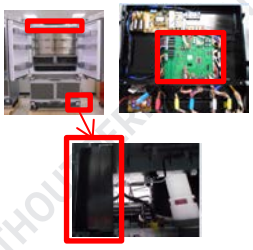
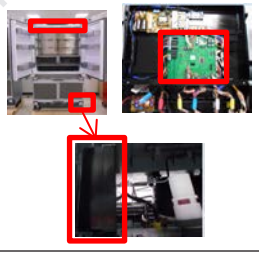
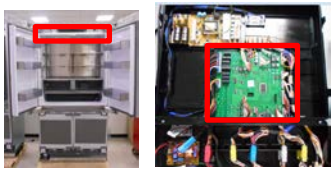
FUNCTION FOR FAILURE DIAGNOSIS

Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
Convertible-Sensor Error	89		Slipped out Sensor Housing, Wire-Cut, Wire-Short, When the sensor pickup temp is over +50 ° C or under -50 ° C, Error occurs.	The voltage between Main PBA CN31 #5 ↔ #6 should be within 4.5V~1.0V	
Convertible-Def Sensor Error	81		Slipped out Sensor Housing, Wire-Cut, Wire-Short, When the sensor pickup temp is over +50 ° C or under -50 ° C, Error occurs.	The voltage between Main PBA CN31 #3 ↔ #4 should be within 4.5V~1.0V	
Ambient-Humidity Sensor Error	83			The voltage between Main PBA CN34 #4 ↔ #6 should be within 4.5V~1.0V	
R-Humidity Sensor Error	86	C	Slipped out Sensor Housing, Wire-Cut, Wire-Short, When the sensor pickup temp is over +50 ° C or under -50 ° C, Error occurs.	The voltage between Main PBA CN32 #5 ↔ #6 should be within 4.5V~1.0V	
F-Fan Error	21		When the related Fan Motor operates, it occurs if the contact of the Feed Back Signal Wire is defective, the Motor Wire is slipped out or the Motor is defec-tive.	The voltage between Main PBA CN30 #8 ↔ #9 should be within 7V~12V	
R-Fan Error	22			The voltage between Main PBA CN32 #12 ↔ #13 should be within 7V~12V	
C-Fan Error	29			The voltage between Main PBA CN32 #9 ↔ #10 should be within 7V~12V	

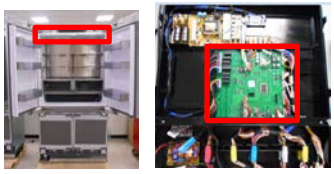
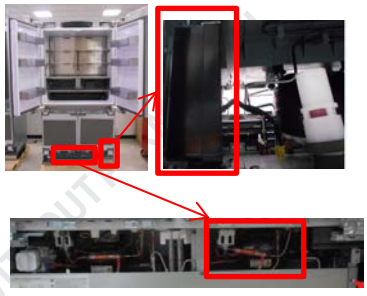
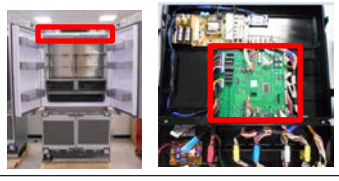
FUNCTION FOR FAILURE DIAGNOSIS

Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
F-Defrost Error	24		Separation of freezer compartment defrost heater housing part, contact error, disconnection, short circuit or tempera-ture fuse error. Display error : the defrosting does not finish though freezer compartment defrost is heating continuously for more than	After separating CN70+CN71 of Main PBA and CN1 of SMPS , resistance value between CN70+CN71 #11 ↔ SMPS CN1 #1 shall be 63(230) ohm ± 7%. (Resistance value is Varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)	
Ice Maker Function Error	26		When the Ice Maker error occurs more than 3 times, the error will be displayed.	After changing the Ice Maker (R), plug the refrigerator power code again, and check the operation.	
Convertible-Defrost Error	29	C	The separation of the FlexZone compartment defrosting heater housing part, contact error, disconnection, short circuit or temperature fuse error. One of these error codes is displayed if the defrosting operation of the FlexZone does not finish even after the continuous heating operation has been performed for 120 minutes.	After separating CN70+CN71 of Main PBA and CN1 of SMPS , resistance value between CN70+CN71 #1 ↔ SMPS CN1 #1 shall be 63(230) ohm ± 7%. (Resistance value is Varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)	
Convertible-Fan Error	91		When the related Fan Motor operates, it occurs if the contact of the Feed Back Signal Wire is defec-tive, the Motor Wire is slipped out or the Motor is defective	The voltage between Main PBA CN32 #9 ↔ #10 should be within 7V~12V	

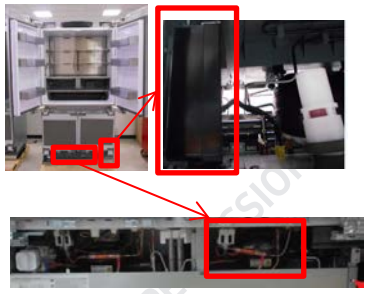
FUNCTION FOR FAILURE DIAGNOSIS

Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
Ice Maker Ice Pipe Heater Error	33	C	Display error when open error is detected by Heater : separation of Ice Pipe Heater housing part, contact error, disconnection, short circuit.	After separating Main PBA CN75, resistance value between Main PBA CN75 #5 ↔ #2 wire shall be 48 ohm ± 7%. 0 ohm : heater short, ∞ Ohm : wire.	
Communication Error between Main ↔ Panel	41		When there is no communication between MICOM MAIN ↔ PANEL for more than 10 seconds, the MICOM MAIN ↔ PANEL Communication Error Window will show on the Display.	To check its defect, a Oscilloscope is needed. So, replace the MAIN PCB and check if the problem persists.	
Communication Error Between Main↔F Inverter	44		Display 44Er in the panel : F Inverter MICOM ↔ Main MICOM communication error.	After checking the cable problem, replace the Main PBA and the Inverter PBA sequentially and check whether there is improvement.	
Communication Error Between Main↔F Inverter	45		Display 45Er in the panel : R Inverter MICOM ↔ Main MICOM communication error.	After checking the cable problem, replace the Main PBA and the Inverter PBA sequentially and check whether there is improvement.	
Communication Error between Main ↔ I/O Expander	46		When the related Fan Motor operates, it occurs if the contact of the Feed Back Signal Wire is defective, the Motor Wire is slipped out or the Motor is defective.	After checking the cable problem, replace the Main PBA and check whether there is improvement.	
Communication Error Between Main↔Wi-Fi	52		Display 52Er in the panel : Wi-Fi ↔ Main MICOM communication error.	First, separate CN05 of the MAIN PCB and CON1 of Wi-Fi and check the wire connection. If the error continues after that, replace the MAIN PCB and Wi-Fi sequentially.	

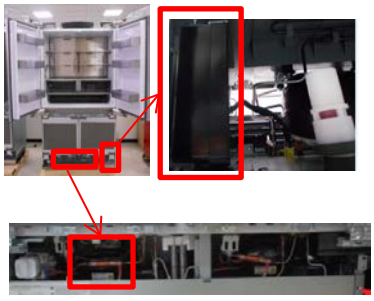
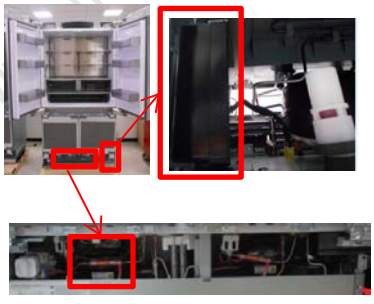
FUNCTION FOR FAILURE DIAGNOSIS

Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
Pantry Fan Error	62		The error occurs when the Freezer temperature rises a normally or when the Freezer Door remains open for a while while the unit's inside temperature is high.	The voltage between Main PBA CN74 #9 ↔ #8 should be within 7V~12V	
Abnormal High Temperature of Freezer	91		The error occurs when the Fridge temperature rises abnormally or when the Fridge Door remains open for a while while the unit's inside temperature is high.	When its Door remains open for an extended time or high temperature food is stored, close the Door or take out the hot food. Then, after a while, the error will disappear.	
Abnormal High Temperature of Fridge	92	C	The error occurs when the Fridge temperature rises abnormally or when the Fridge Door remains open for a while while the unit's inside temperature is high.		
Abnormal High Temperature of FreshZone+	99		The error occurs when the FreshZone+ temperature rises abnormally or when the FreshZone+ Door remains open for a while while the unit's inside temperature is high		
AutoFill Overflow Error	96		The error occurs when water over-flow.	Check the voltage between pins 6 and 3 of CN32 on the MAIN PCB. 0V ~ 4.5V : water over-flow 4.5V ~ 5V : normal	
Camera Error	97		Error occurs when camera shooting fails.	1. Camera hardware failure check. 2. Circuit disconnection check. 3. Unstable USB terminal due to power noise.	

FUNCTION FOR FAILURE DIAGNOSIS

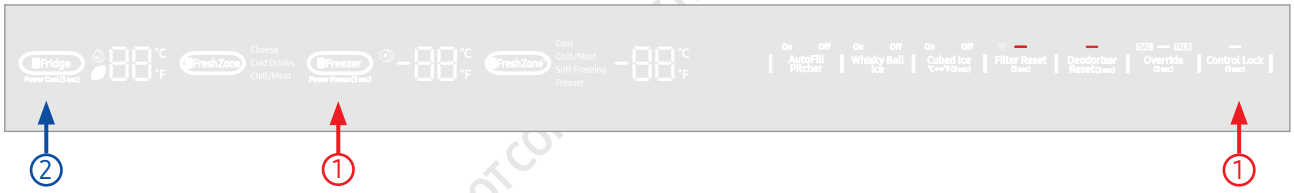
Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
F-Comp Startup Failure	81	C	When the Comp Startup Failure Is detected	1. Short between Comp. U/V/W (CN102) 2. Short between IPM PIN (#1~23) 3. IPM Operation Voltage Dropdown (Lower than DC13.5V) 4. Check Comp and Cycle	
F-Comp IPM Fault Error	82		When the F-Comp IPM Fault is detected	1. Short between Comp. U/V/W (CN102) 2. Short between IPM PIN (#1~23) 3. IPM Operation Voltage Dropdown (Lower than DC13.5V) 4. Check Comp and Cycle	
Abnormal Current-Pick-Up at F-Comp	89		When the Abnormal Current is pick-up at the F-Comp	1. Comp Connector Plugged Out (CN102) 2. R1 Defect or Assembly Defect 3. Check Comp and Cycle	
F-Comp Motor Restriction	84		When the F-Comp Motor Restriction is detected	1. When the Comp is restricted for more than 5 seconds 2. When the Comp runs at lower than 1000RPM for over 5 seconds 3. R1 Short 4. Severe fluctuation of Input Voltage 5. Check Comp and Cycle	

FUNCTION FOR FAILURE DIAGNOSIS

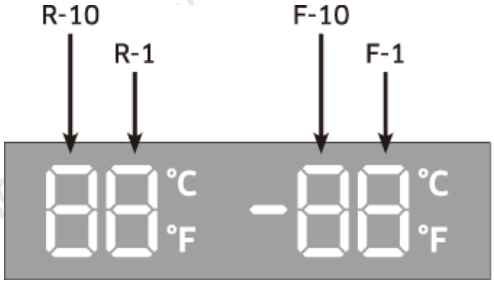
Error	Freezer Display	Fridge Display	Trouble contents	Diagnostic method	Picture
R-Comp Startup Failure	87		When the Comp Startup Failure is detected	1. Short between Comp. U/V/W (CN102) 2. Short between IPM PIN (#1~23) 3. IPM Operation Voltage Dropdown (Lower than DC13.5V) 4. Check Comp and Cycle	
R-Comp IPM Fault Error	88		When the R-Comp IPM Fault is detected		
Abnormal Current Pick-Up at R-Comp	89		When the Abnormal Current is pick-up at the R-Comp	1. Comp Connector Plugged Out (CN102) 2. R1 Defect or Assembly Defect 3. Check Comp and Cycle	
R-Comp Motor Restriction	90	C	When the R-Comp Motor Restriction is detected	1. When the Comp is restricted for more than 5 seconds 2. When the Comp runs at lower than 1000RPM for over 5 seconds 3. R1 Short4. Severe fluctuation of Input Voltage5. Check Comp and Cycle	
R-Comp Low Voltage	91		When the Low Voltage is detected at the R-Comp	1. Input AC Voltage 53V or lower 2. When R504 is short (DC Link Resistor)	
R-Comp High Voltage	92		When the High Voltage is detected at the R-Comp	1. Input AC Voltage 155V or higher 2. When R501, R502 or R503 is short (DC Link Resistor)	
F-Comp IPM-Shutdown Error	96		When the F-Comp IPM-Shutdown Error is detected	Heatsink assembly check, Inspect abnormal outside temperature and inverter PBA status	
R-Comp IPM-Shutdown Error	97		When the R-Comp IPM-Shutdown Error is detected	Heatsink assembly check, Inspect abnormal outside temperature and inverter PBA status	

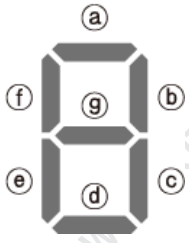
5-3. Load Condition Display functions

1) When the Freezer KEY and Control Lock KEY are simultaneously pressed for about six seconds, PANEL DISPLAY will be ALL ON/OFF at an interval of 0.5 sec. By leaving the Fridge KEY and Control Lock KEY and pressing Fridge KEY at this moment, the display will switch modes to the Load Condition Display Function.
2) The Load Condition Display MODE indicates what kind of load is outputting the MICOM signal.
However, it only indicates that the MICOM signal is outputted, not whether the load is actually operating. That is, even if it displays that a load is operating.
The actual load might not work due to a defective RELAY on PCB, defective load, etc. (Needs to be checked)
3) Load Condition Display Function only continues for 30 seconds, and restores the normal mode automatically.



4) Relevant Display indication of Load Condition is as follows :





5-4. Load Status Check function

*** Load mode Check list**

Load Item	DISPLAY LED	Description
R-FAN HIGHEST	R-compartment first letter "a", "b"	Relevant LED will BLINK when R-FAN HIGHEST operates
R-FAN HIGH	R-compartment first letter "a"	Relevant LED will BLINK when R-FAN HIGH operates
R-FAN LOW	R-compartment first letter "b"	Relevant LED will BLINK when R-FAN LOW operates
R-COMP	R-compartment first letter "d"	The relevant LED will BLINK when the R-COMP operates
Overload Condition	R-compartment first letter "e"	When ambient temperature is over 34˚C(93.2˚F), the relevant LED will BLINK
Low temperature condition	R-compartment first letter "f"	When ambient temperature is under 21˚C(69.8˚F), the relevant LED will BLINK
Normal condition	R-compartment first letter "e", "f"	When ambient temperature is between 22˚C and 33˚C, the relevant LED will BLINK
Exhibition Mode	R-compartment first letter "g"	The relevant LED will BLINK under exhibition mode
Cubed Ice-Maker Full Ice Detection	R-compartment first letter "d"	The LED BLINK when the Cubed Ice-maker is full
Whisky Ball Ice-Maker Full Ice Detection	R-compartment first letter "f"	The LED BLINK when the Whisky Ball Ice-maker is full
F-COMP	F-compartment first letter "a"	The relevant LED will BLINK when the F-COMP operates
F-FAN HIGHEST	F-compartment first letter "b", "c"	The relevant LED will BLINK when F-FAN HIGHEST operates
F-FAN HIGH	F-compartment first letter "b"	The relevant LED will BLINK when F-FAN HIGH operates
F-FAN LOW	F-compartment first letter "c"	The relevant LED will BLINK when F-FAN LOW operates
F-compartment defrost heater	F-compartment first letter "d"	The relevant LED will BLINK when F-compartment defrost heater operates
C-FAN HIGHEST	F-compartment first letter "e", "f"	The relevant LED will BLINK when C-FAN HIGHEST operates
C-FAN HIGH	F-compartment first letter "e"	Relevant LED will BLINK when C-FAN HIGH operates
C-FAN LOW	F-compartment first letter "f"	The relevant LED will BLINK when C-FAN LOW operates
F Valve	F-compartment second letter "b"	The relevant LED will BLINK when the F-Valve is open
CV Valve	F-compartment second letter "c"	The relevant LED will BLINK when the CV Valve is open
R Valve	F-compartment second letter "f"	The LED will BLINK when the R Valve is open
FreshZone FAN	F-compartment second first "d"	The LED BLINK when the FreshZone FAN is ON
French Heater	F-compartment second letter "g"	The LED BLINK when the French Heater operates
CV-FAN HIGHEST	"Freezer", "Soft Freeze" for the Flex Zone compartment	In the case of the CV-FAN HIGHEST operation, the corresponding LED is turned on.
CV-FAN HIGH	"Freezer" for the FlexZone compartment	In the case of the CV-FAN HIGH operation, the corresponding LED is turned on.

FUNCTION FOR FAILURE DIAGNOSIS

Load Item	DISPLAY LED	Description
CV-FAN LOW	"Soft Freeze" for the FlexZone compartment	In the case of the CV-FAN LOW operation, the corresponding LED is turned on.
CV compartment defrost heater	"Fridge" for the FlexZone compartment	When the CV compartment defrosting heater operates, the LED is turned on.
Wifi condition	Wifi Icon	When not connected to a router or Internet: Off
		When connected to a router: BLINK
		When connected to the Internet LED ON
Whisky Ball Ice-Maker Ice Making Heater	FreshZone+-compartment first letter "a"	The LED BLINK when the Whisky Ball Ice-Maker Ice Making Heater operates
Whisky Ball Ice-Maker Ice Removal Heater	FreshZone+-compartment first letter "b"	The relevant LED will BLINK when the Whisky Ball Ice-Maker Ice Removal Heater operates
AutoFill Bottle detected	FreshZone+-compartment first letter "c"	The relevant LED will BLINK when AutoFill Bottle detected
AutoFill water full detected	FreshZone+-compartment first letter "d"	The relevant LED will BLINK when AutoFill water full detected
Ice Pipe Heater1	FreshZone+-compartment first letter "e"	The relevant LED will BLINK when Ice Pipe Heater1 operates
Ice Pipe Heater 2	FreshZone+-compartment first letter "f"	The relevant LED will BLINK when Ice Pipe Heater 2 operates

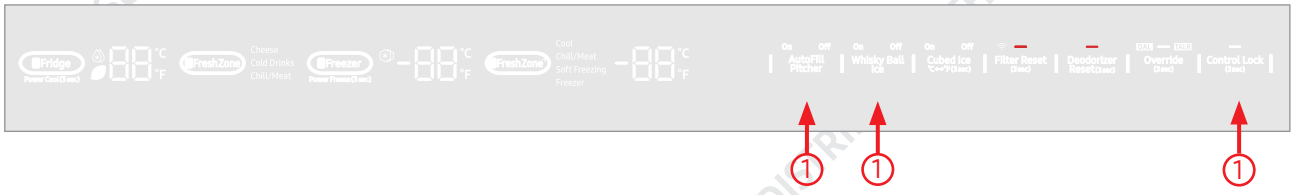
FUNCTION FOR FAILURE DIAGNOSIS

5-5. Operation Condition Restore Function For Blackout

1) If PANEL DISPLAY is reset by a momentary blackout, consumer's NON-SENSE CALL may occur To prevent this, when the power is restored, either initialization or Operation Condition Restore will be initiated, depending on the interior temperature.
2) With the initial POWER ON, interior temperature and the defrost sensor temperature are checked. If either of the two temperatures are under about +10˚C (50˚F), judging there was a momentary blackout, functions related to the PANEL DISPLAY (interior temperature settings, Door Alarm, Power Cool, Power Freeze,Ice On/Off setting, etc.) are restored.
3) On initial POWER ON, if both interior temperature and defrost sensor temperature are over +10˚C (50˚F), judging there was a long-term blackout, PANEL DISPLAY is initialized.
(Automatically sets -19˚C for F-compartment and 3˚C for R-compartment.)

5-6. Cooling Off Setting Function

1) If the autofill Pitcher, Whisky Ball Ice, and Control Lock KEY are pressed for 5 seconds during the normal operation, the mode will be switched into the Cooling Off Mode. When switched into the Cooling Off Mode, temperature display panel will display “0 FF” sign.
2) When set to Cooling Off Mode DISPLAY and Fan Motor will operate normally. Only the Comp will not operate.
3) Cooling Off Mode will deactivate when Cooling Off KEY is pressed one more time.
4) If interior temperature rises over 65˚C (149˚F) when Cooling Off is set Cooling Off will deactivate, and restore Cooling Operation condition.

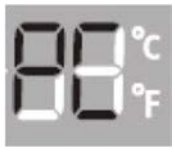


5-7. Display function of Communication error

1) Display function when Panel ↔ MAIN MICOM communication has error.

1-1) If there is no answer for 10 seconds after the panel micom received the requirement of communication, "PC" display on the panel PCB will be ON/OFF alternately until the communication error is canceled.
(0.5 sec ALL ON, 0.5 sec ALL OFF alternately)

1-2) "PC" display on the Panel Display will be ON/OFF alternately until the communication error is canceled.
(0.5 sec ALL ON, 0.5 sec ALL OFF alternately)



5-8. Entering AP Mode and connect Product Registration

1) Launch Smart Things app, press “add device” button, and select Refrigerator from the product list.
2) Follow the directions on the screen, input information of the wire/wireless router to be connected, and press “Next” button. (This step is to connect to the wire/wireless router to register the product, follow the app instructions.)
3) Press [Fridge] button for more than five seconds on the display. (After three seconds, Power Cool will be activated, and after two more seconds, Power cool will be deactivated and AP will be displayed.)
   When “AP” is displayed on the temperature display panel, start Easy Connection.
   ※ If Easy Connection does not proceed on the smartphone, please try this step again.
4) Easy Connection will automatically register the product. When product registration is finished, a refrigerator icon will appear on the app display.
   (If product registration fails, please try again from the first step.)
5) Select registered refrigerator icon.

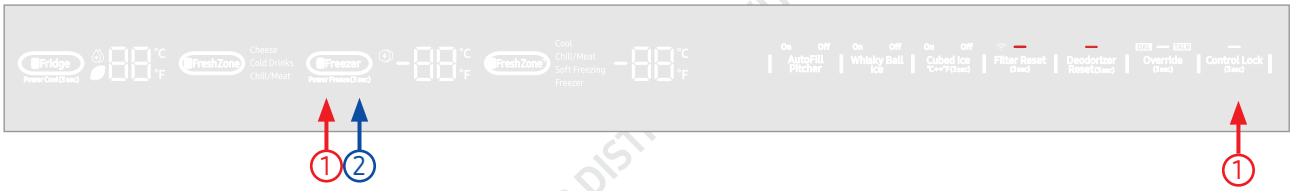
5-9. MAC Address Display Mode

1) This function displays the MAC Address of the refrigerator Wi-Fi. The MAC address will be alternately displayed on the temperature display panel for a minute.
   1. If the [Freezer] and [Fridge] buttons are pressed for more than 6 seconds, the Display will blink.
      Press [Freezer] button at this point, and it will initiate MAC Address Display Mode with a beep sound.
2) If MAC address is "11-22-33-44-55-66", it will display "--" → "11" → "22" → ... → "66" → "--” on the display panel for a minute. After a minute, MAC Address Display Function will be deactivated, and switched into the normal display mode.
   ※ If the MAC address is invalid, or a Wi-Fi module is not connected, "--" will be displayed on the freezer compartment display panel for a minute.
   When “AP” is displayed on the temperature display panel, start Easy Connection
   ※ If Easy Connection does not proceed on the smartphone, please try this step again.
4) Easy Connection will automatically register the product. When product registration is finished, a refrigerator icon will appear on the app display. (If product registration fails, please try again from the first step.)
5) Select registered refrigerator icon.

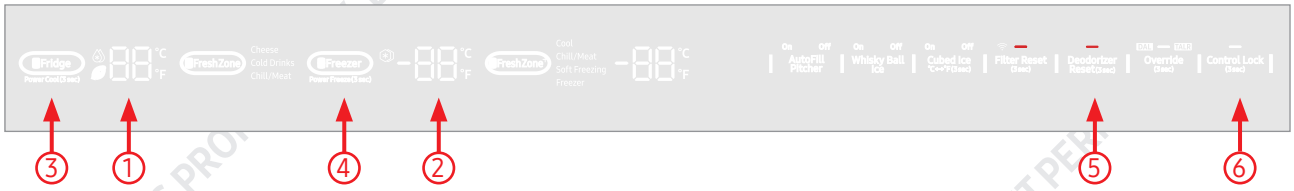
5-10. Option Setting Function

1) When the Freezer KEY and Control Lock KEY are simultaneously pressed for about six seconds,PANEL DISPLAY will be ALL ON/OFF at an interval of 0.5 sec. By leaving the Fridge KEY and Control Lock KEY and pressing Freezer KEY at this moment, it operates in Option setting mode.

- If there is no KEY input for 20 seconds in Option Setting Mode, it will switch into the normal DISPLAY.



Option Mode & Key operation Instructions



1. Displays selected Option number.
2. Displays the set value of the selected Option.
3. Increase Option number by one level.
4. Decrease the Option number by one level.
5. Increase Option setting value by one level.
6. Decrease Option setting value by one level.

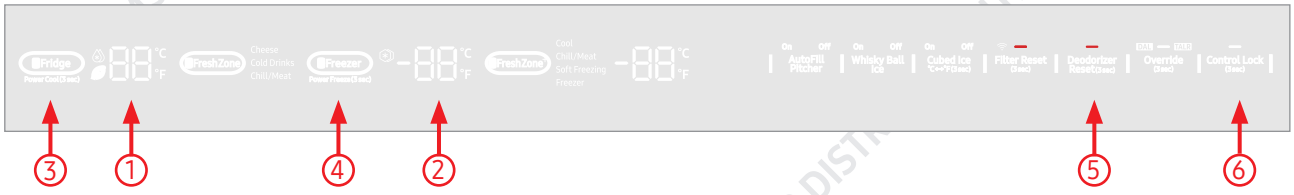
FUNCTION FOR FAILURE DIAGNOSIS

1) For example, if you want to SHIFT the reference temperature of F-compartment to -2˚C(-4˚F) by changing the operating option, follow the below instructions.
   This function changes the reference temperature. If F-compartment reference temperature is -21˚C(-5.8˚F), and lowered by -2˚C(-4˚F) by the option, the reference temperature will be controlled at -23˚C (-9.4˚F). That is, if you change the temperature setting, even if -21˚C(-5.8˚F) is set on the panel, The appliance will internally be operated at -23˚C(-9.4˚F).
   Therefore, it means that the reference temperature is controlled -2˚C(-4˚F) lower than the set temperature displayed on the panel.

Note

Fundamentally, Every data of the option function is cleared during the shipping process. In other words, every setting value is "0" during the shipping process. However, as some values may change for quality improvement during mass production, Always check quality information, and other related documents.

2) When switched into the option mode, DISPLAY will show "0"for OPTION numbers and setting values. (Every setting value is supposed to be set to"0"during the shipping process, but the basic setting values may have changed for quality improvement during mass production.)



Press number 3 or 4 buttons to set the desired option number.

FUNCTION FOR FAILURE DIAGNOSIS

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	Freezer Temperature shift	0.0℃	-0.5℃	-1.0℃	-1.5℃	-2.0℃	-2.5℃	-3.0℃	-3.5℃	+0.5℃	+1.0℃	+1.5℃	+2.0℃	+2.5℃	+3.0℃	+3.5℃	+4.0℃
1	Fridge Temperature shift	0.0℃	-0.5℃	-1.0℃	-1.5℃	-2.0℃	-2.5℃	-3.0℃	-3.5℃	+0.5℃	+1.0℃	+1.5℃	+2.0℃	+2.5℃	+3.0℃	+3.5℃	+4.0℃
3	FreshZone+ Temperature shift	0.0℃	-0.5℃	-1.0℃	-1.5℃	-2.0℃	-2.5℃	-3.0℃	-3.5℃	+0.5℃	+1.0℃	+1.5℃	+2.0℃	+2.5℃	+3.0℃	+3.5℃	+4.0℃
19	Sub Heater's driving rate	current control status	add 20 percent on thecurrent control status(maximum 100 %)														
20	FreshZone Temperature shift	0.0℃	-1.0℃	-2.0℃	-3.0℃	-4.0℃	+1.0℃	+2.0℃	+3.0℃	-	-	-	-	-	-	-	-
31	Whisky Ball Ice water supply rate	207cc	212cc	217cc	222cc	227cc	202cc	197cc	192cc	-	-	-	-	-	-	-	-
32	Cubed Ice water supply rate	6.2sec	6.3sec	6.4sec	6.5sec	6.6sec	6.1sec	6.0sec	5.9sec	-	-	-	-	-	-	-	-
33	Cubed Ice idle time of ice ejection	85min	86min	87min	88min	89min	90min	91min	92min	93min	94min	95min	96min	97min	84min	83min	82min
34	Whisky Ball Ice idle time of ice ejection	60min	65min	70min	75min	80min	85min	90min	95min	100min	105 min	110 min	115 min	55min	50min	45min	40min
35	Cubed Ice ejection temperature	-17℃	-16℃	-15℃	-14℃	-13℃	-12℃	-18℃	-19℃	-	-	-	-	-	-	-	-
36	Whisky Ball Ice ejection temperature	-17℃	-16℃	-15℃	-14℃	-13℃	-12℃	-11℃	-10℃	-	-	-	-	-	-	-	-

FUNCTION FOR FAILURE DIAGNOSIS

1) For example, if you want to SHIFT the reference temperature of F-compartment, use number 3 or 4 button to set the option number to 0 as shown below. At this point, if you want to shift -2˚C(-4˚F), press the number 5 or 6 button to set the value of the Freezer Display to'4'.

Setting value Freezer Temp Display Panel Set Value	Option Value
0	0.0°C
1	-0.5°C
2	-1.0°C
3	-1.5°C
4	-2.0°C
5	-2.5°C
6	-3.0°C
7	-3.5°C
8	+0.5°C
9	+1.0°C
10	+1.5°C
11	+2.0°C
12	+2.5°C
13	+3.0°C
14	+3.5°C
15	+4.0°C

5-11. Diagnostic method according to the trouble symptom

DATA1. Internal Temperature Sensor table

T(°F)	T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)
-40	-40	84.44	87.81	91.27
-38.2	-39	80.13	83.28	86.52
-36.4	-38	76.06	79.01	82.04
-34.6	-37	72.22	74.98	77.82
-32.8	-36	68.6	71.18	73.84
-31	-35	65.18	67.6	70.08
-29.2	-34	61.95	64.21	66.54
-27.4	-33	58.89	61.02	63.2
-25.6	-32	56.01	58	60.04
-23.8	-31	53.28	55.15	57.06
-22	-30	50.7	52.45	54.24
-20.2	-29	48.26	49.9	51.58
-18.4	-28	45.95	47.49	49.06
-16.6	-27	43.77	45.21	46.68
-14.8	-26	41.7	43.05	44.43
-13	-25	39.74	41.01	42.3
-11.2	-24	37.88	39.07	40.28
-9.4	-23	36.12	37.24	38.38
-7.6	-22	34.45	35.5	36.57
-5.8	-21	32.87	33.85	34.86
-4	-20	31.37	32.29	33.23
-2.2	-19	29.94	30.81	31.69
-0.4	-18	28.59	29.41	30.24
1.4	-17	27.31	28.08	28.85
3.2	-16	26.09	26.81	27.54
5	-15	24.93	25.61	26.29
6.8	-14	23.83	24.47	25.11
8.6	-13	22.79	23.39	23.99
10.4	-12	21.8	22.36	22.92
12.2	-11	20.85	21.38	21.91
14	-10	19.95	20.45	20.95
15.8	-9	19.1	19.56	20.03
17.6	-8	18.28	18.72	19.16
19.4	-7	17.51	17.92	18.33
21.2	-6	16.77	17.16	17.55
23	-5	16.07	16.43	16.8
24.8	-4	15.4	15.74	16.08
26.6	-3	14.76	15.08	15.41
28.4	-2	14.16	14.46	14.76
30.2	-1	13.58	13.86	14.14
32	0	13.02	13.29	13.56
33.8	1	12.49	12.75	13.01
35.6	2	11.97	12.23	12.48
37.4	3	11.49	11.73	11.98
39.2	4	11.02	11.26	11.51
41	5	10.57	10.81	11.05
42.8	6	10.15	10.38	10.62
44.6	7	9.745	9.973	10.2
46.4	8	9.359	9.581	9.805
48.2	9	8.989	9.207	9.425

T(°F)	T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)
50	10	8.637	8.849	9.063
51.8	11	8.3	8.507	8.716
53.6	12	7.977	8.18	8.384
55.4	13	7.67	7.867	8.067
57.2	14	7.375	7.568	7.763
59	15	7.094	7.282	7.473
60.8	16	6.824	7.008	7.194
62.6	17	6.567	6.746	6.928
64.4	18	6.32	6.495	6.673
66.2	19	6.084	6.255	6.429
68	20	5.858	6.025	6.195
69.8	21	5.642	5.805	5.97
71.6	22	5.435	5.594	5.755
73.4	23	5.236	5.391	5.549
75.2	24	5.046	5.197	5.351
77	25	4.863	5.011	5.162
78.8	26	4.689	4.833	4.98
80.6	27	4.521	4.662	4.805
82.4	28	4.36	4.498	4.638
84.2	29	4.206	4.34	4.477
86	30	4.058	4.189	4.322
87.8	31	3.916	4.044	4.174
89.6	32	3.78	3.904	4.032
91.4	33	3.649	3.771	3.895
93.2	34	3.523	3.642	3.763
95	35	3.403	3.518	3.637
96.8	36	3.287	3.4	3.515
98.6	37	3.175	3.286	3.399
100.4	38	3.068	3.176	3.286
102.2	39	2.965	3.07	3.178
104	40	2.866	2.969	3.074
105.8	41	2.771	2.871	2.974
107.6	42	2.68	2.778	2.878
109.4	43	2.592	2.687	2.785
111.2	44	2.507	2.6	2.696
113	45	2.426	2.517	2.61
114.8	46	2.347	2.436	2.527
116.6	47	2.272	2.359	2.448
118.4	48	2.199	2.284	2.371
120.2	49	2.129	2.212	2.297
122	50	2.062	2.143	2.226
123.8	51	1.997	2.076	2.157
125.6	52	1.934	2.011	2.091
127.4	53	1.874	1.949	2.027
129.2	54	1.816	1.889	1.965
131	55	1.76	1.832	1.906

DATA2.Internal Humidity Sensor table

0	996
1	992
2	1019
3	1046
4	1073
5	1100
6	1127
7	1154
8	1181
9	1208
10	1235
11	1262
12	1289
13	1316
14	1343
15	1370
16	1397
17	1424
18	1451
19	1478
20	1505
21	1532
22	1559
23	1586
24	1613
25	1640
26	1667
27	1694
28	1721
29	1748
30	1775
31	1802
32	1829
33	1856
34	1883
35	1910
36	1937
37	1964
38	1991

0	996
39	2018
40	2045
41	2072
42	2099
43	2126
44	2153
45	2180
46	2207
47	2234
48	2261
49	2288
50	2315
51	2342
52	2359
53	2396
54	2423
55	2450
56	2477
57	2504
58	2531
59	2558
60	2685
61	2612
62	2639
63	2666
64	2693
65	2720
66	2747
67	2774
68	2801
69	2828
70	2855
71	2882
72	2909
73	2936
74	2963
75	2990
76	3017

0	996
77	3044
78	3071
79	3098
80	3125
81	3152
82	3179
83	3206
84	3233
85	3260
86	3287
87	3314
88	3341
89	3368
90	3395
91	3422
92	3449
93	3476
94	3503
95	3530
96	3557
97	3584
98	3611
99	3638
100	3665

DATA3. External Temperature+Humidity Sensor table

- External Temperature

T(°C)	Vout	T(°C)	Vout	T(°C)	Vout
-40	0.62	5	2.132	50	4.1
-39	0.644	6	2.18	51	4.124
-38	0.668	7	2.228	52	4.148
-37	0.692	8	2.276	53	4.172
-36	0.716	9	2.324	54	4.196
-35	0.74	10	2.372	55	4.22
-34	0.764	11	2.42	56	4.244
-33	0.788	12	2.468	57	4.268
-32	0.812	13	2.516	58	4.292
-31	0.836	14	2.564	59	4.316
-30	0.86	15	2.612	60	4.34
-29	0.884	16	2.66	61	4.364
-28	0.908	17	2.708	62	4.388
-27	0.932	18	2.756	63	4.412
-26	0.956	19	2.804	64	4.436
-25	0.98	20	2.852	65	4.46
-24	1.004	21	2.9	66	4.484
-23	1.028	22	2.948	67	4.508
-22	1.052	23	2.996		
-21	1.076	24	3.044		
-20	1.1	25	3.092		
-19	1.124	26	3.14		
-18	1.148	27	3.188		
-17	1.172	28	3.236		
-16	1.196	29	3.284		
-15	1.22	30	3.332		
-14	1.244	31	3.38		
-13	1.268	32	3.428		
-12	1.316	33	3.476		
-11	1.364	34	3.524		
-10	1.412	35	3.572		
-9	1.46	36	3.62		
-8	1.508	37	3.668		
-7	1.556	38	3.716		
-6	1.604	39	3.764		
-5	1.652	40	3.812		
-4	1.7	41	3.86		
-3	1.748	42	3.908		
-2	1.796	43	3.932		
-1	1.844	44	3.956		
0	1.892	45	3.98		
1	1.94	46	4.004		
2	1.988	47	4.028		
3	2.036	48	4.052		
4	2.084	49	4.076		

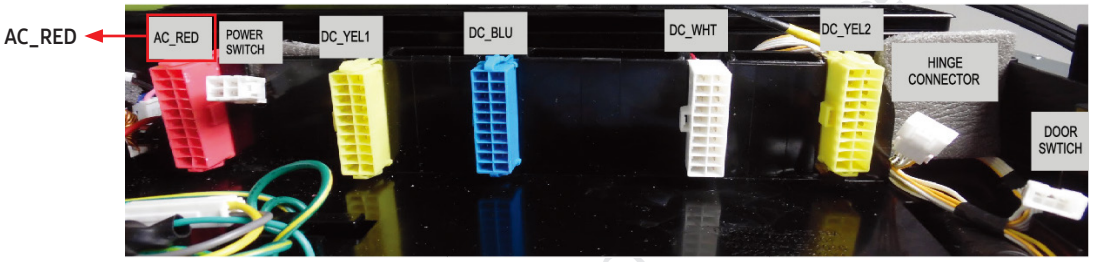
- External Humidity

Relative Humidity	Vout	Relative Humidity	Vout	Relative Humidity	Vout
0	0.985	44	2.173	88	3.361
1	1.012	45	2.2	89	3.388
2	1.039	46	2.227	90	3.415
3	1.066	47	2.254	91	3.442
4	1.093	48	2.281	92	3.469
5	1.12	49	2.308	93	3.496
6	1.147	50	2.335	94	3.523
7	1.174	51	2.362	95	3.55
8	1.201	52	2.389	96	3.577
9	1.228	53	2.416	97	3.604
10	1.255	54	2.443	98	3.631
11	1.282	55	2.47	99	3.658
12	1.309	56	2.497	100	3.685
13	1.336	57	2.524		
14	1.363	58	2.551		
15	1.39	59	2.578		
16	1.417	60	2.605		
17	1.444	61	2.632		
18	1.471	62	2.659		
19	1.498	63	2.686		
20	1.525	64	2.713		
21	1.552	65	2.74		
22	1.579	66	2.767		
23	1.606	67	2.794		
24	1.633	68	2.821		
25	1.66	69	2.848		
26	1.687	70	2.875		
27	1.714	71	2.902		
28	1.741	72	2.929		
29	1.768	73	2.956		
30	1.795	74	2.983		
31	1.822	75	3.01		
32	1.849	76	3.037		
33	1.876	77	3.064		
34	1.903	78	3.091		
35	1.93	79	3.118		
36	1.957	80	3.145		
37	1.984	81	3.172		
38	2.011	82	3.199		
39	2.038	83	3.226		
40	2.065	84	3.253		
41	2.092	85	3.28		
42	2.119	86	3.307		
43	2.146	87	3.334		

6. SELF DIAGNOSIS & TROUBLE SHOOTING

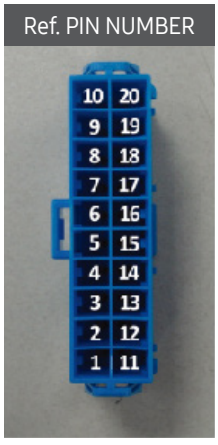
6-1. Case Output Terminal

(The Main PCB and the Case Output Terminals are connected with wire connectors.)



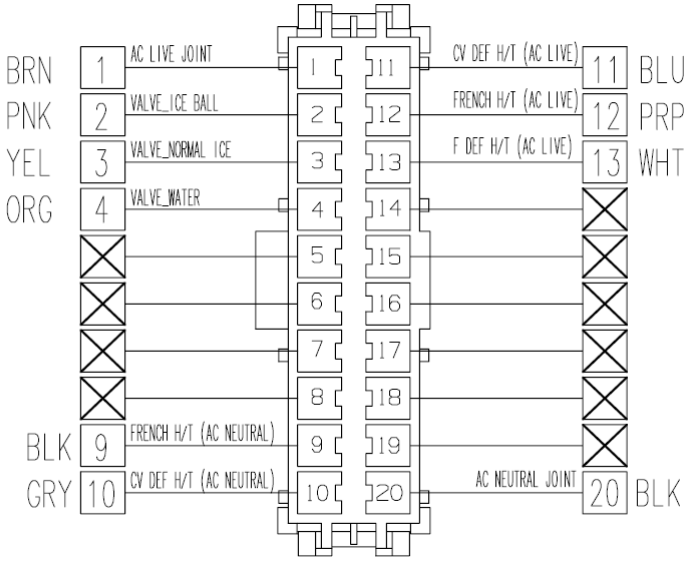
* Test the terminals on the PCB Case to check for voltage of operation related errorsconcerning BUILT-IN PJT. The terminal composition is shown in the diagram. If an error is found while testing The above terminals and the housing connectors, check the inside of the PCB Case.

  =>The following descriptions are based on the PCB Case.

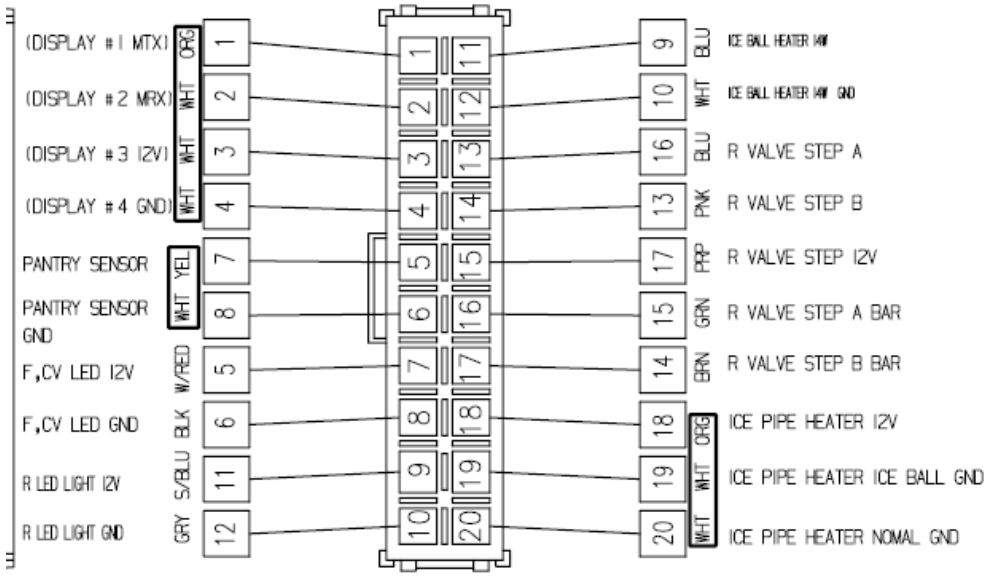


(PLATE FIXER HOUSING PIN MAPPING)

AC RED

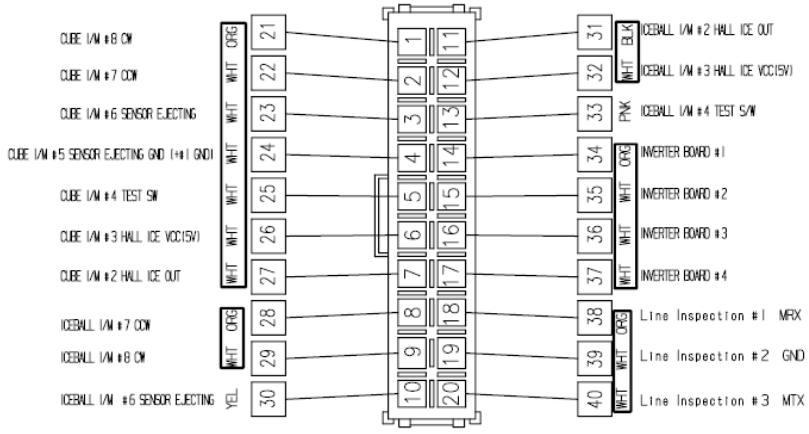


DC YEL1

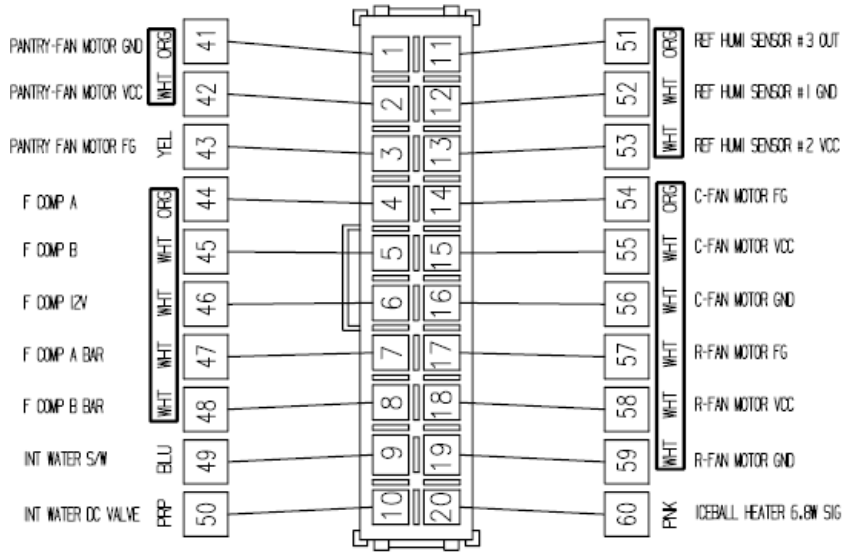


(PLATE FIXER HOUSING PIN MAPPING)

DC BLC

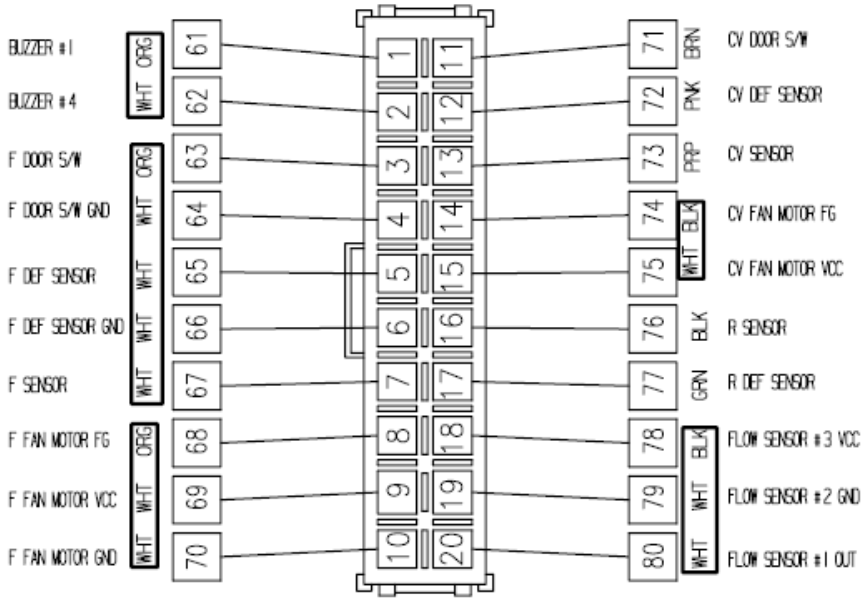


DC WHT

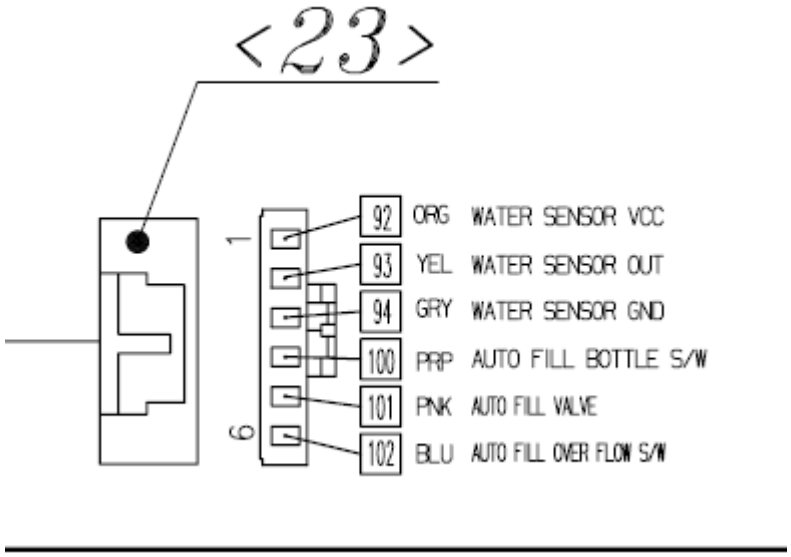


(PLATE FIXER HOUSING PIN MAPPING)

DC YEL 2

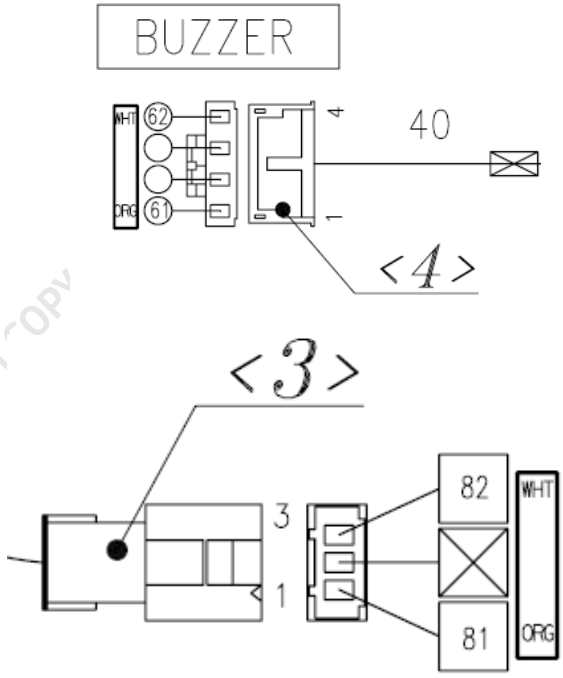


6P HOUSING

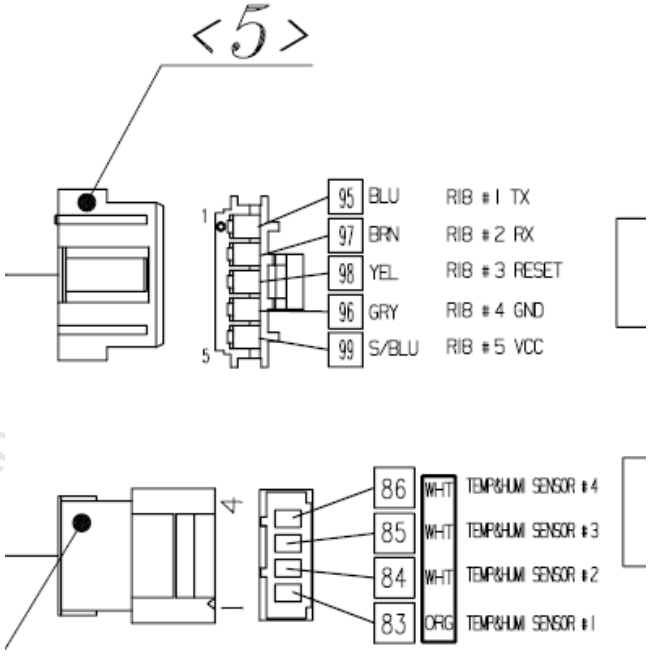


(PLATE FIXER HOUSING PIN MAPPING)

DOOR S/W & BUZZER

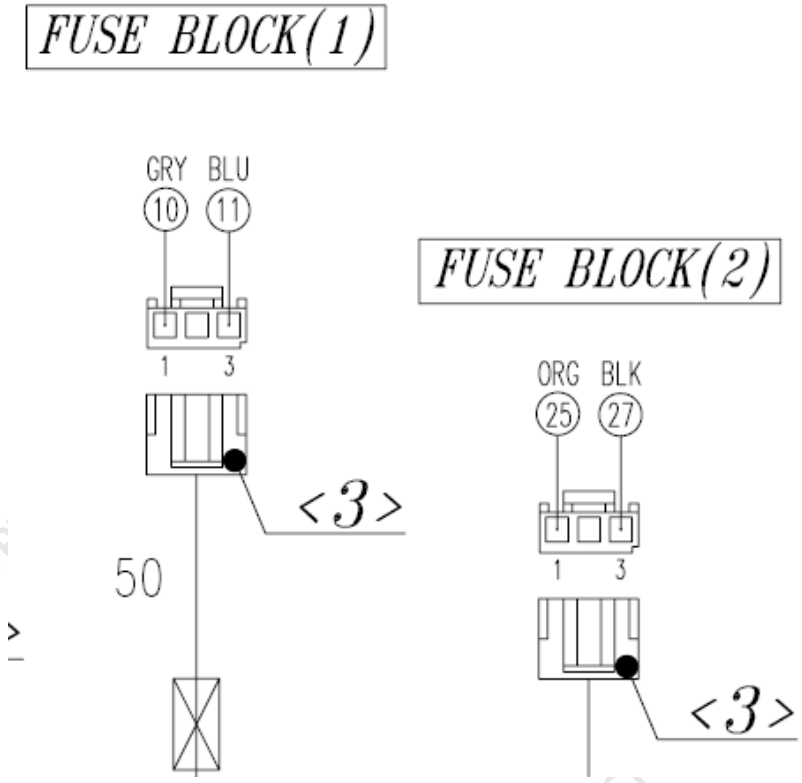


SENSOR, R18



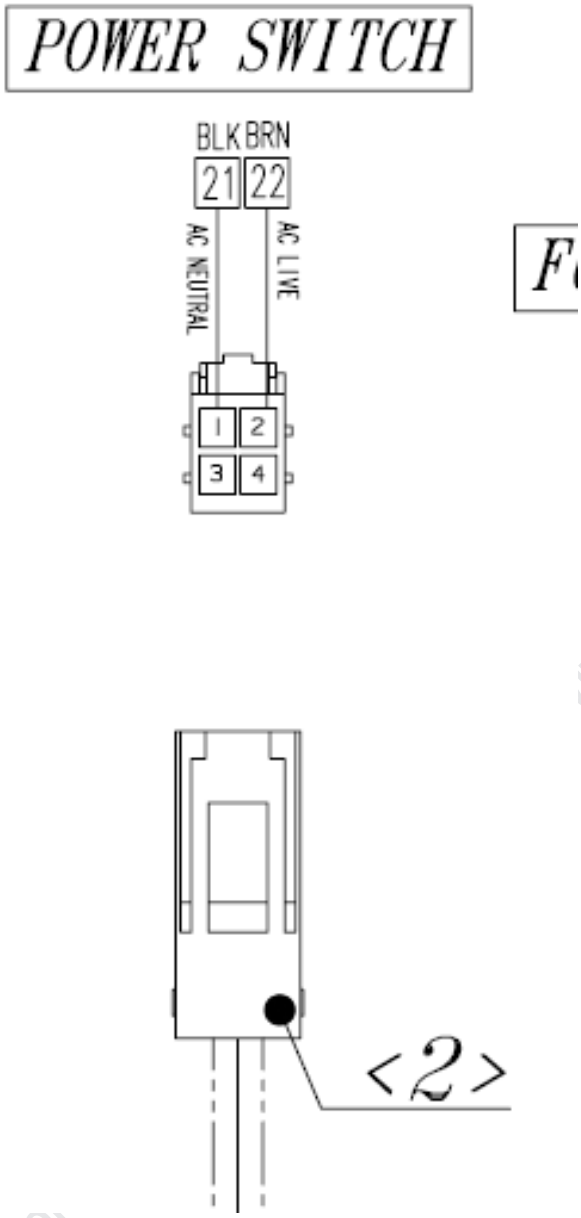
(PLATE FIXER HOUSING PIN MAPPING)

F DEF HEATER FUSE BLOCK



(PLATE FIXER HOUSING PIN MAPPING)

POWER SWITCH

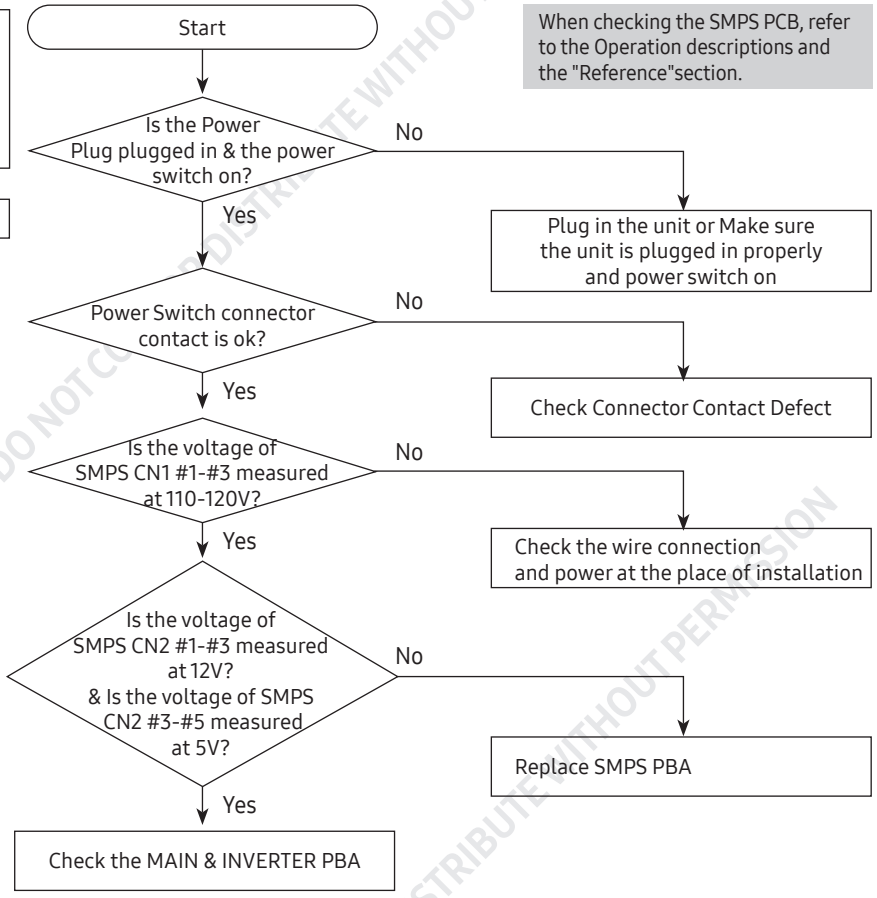


6-2. How to Enter the Test Mode

6-2-1. When there is no Power (SMPS PCB)

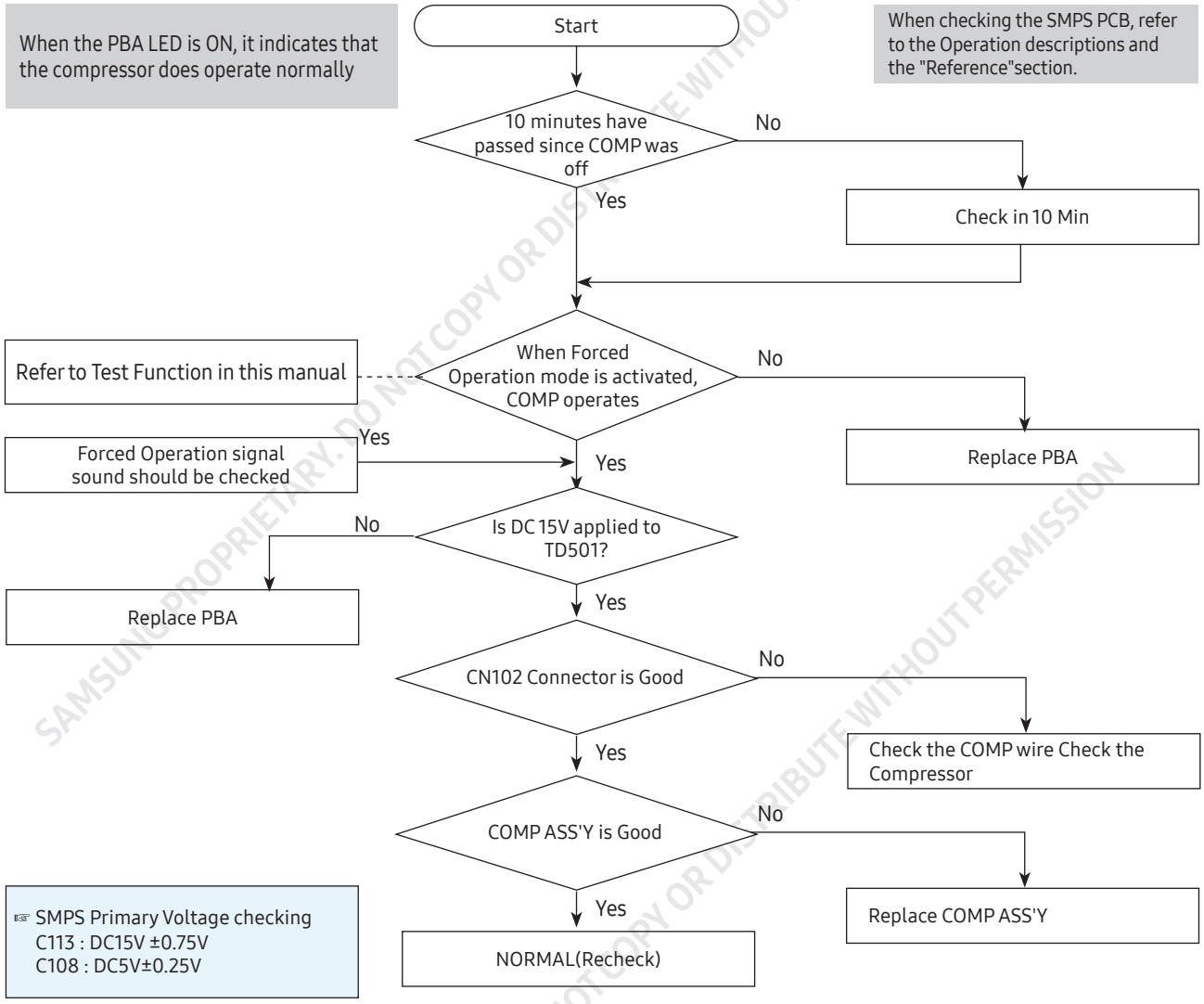
Caution There are AC input voltage running on Power switch connector. So, be cautious when repairing the unit or measuring values.

SMPS PCB CHECK Using Multimeter



When checking the SMPS PCB, refer to the Operation descriptions and the "Reference"section.

6-2-2. When the compressor does not operate (Inverter Comp)

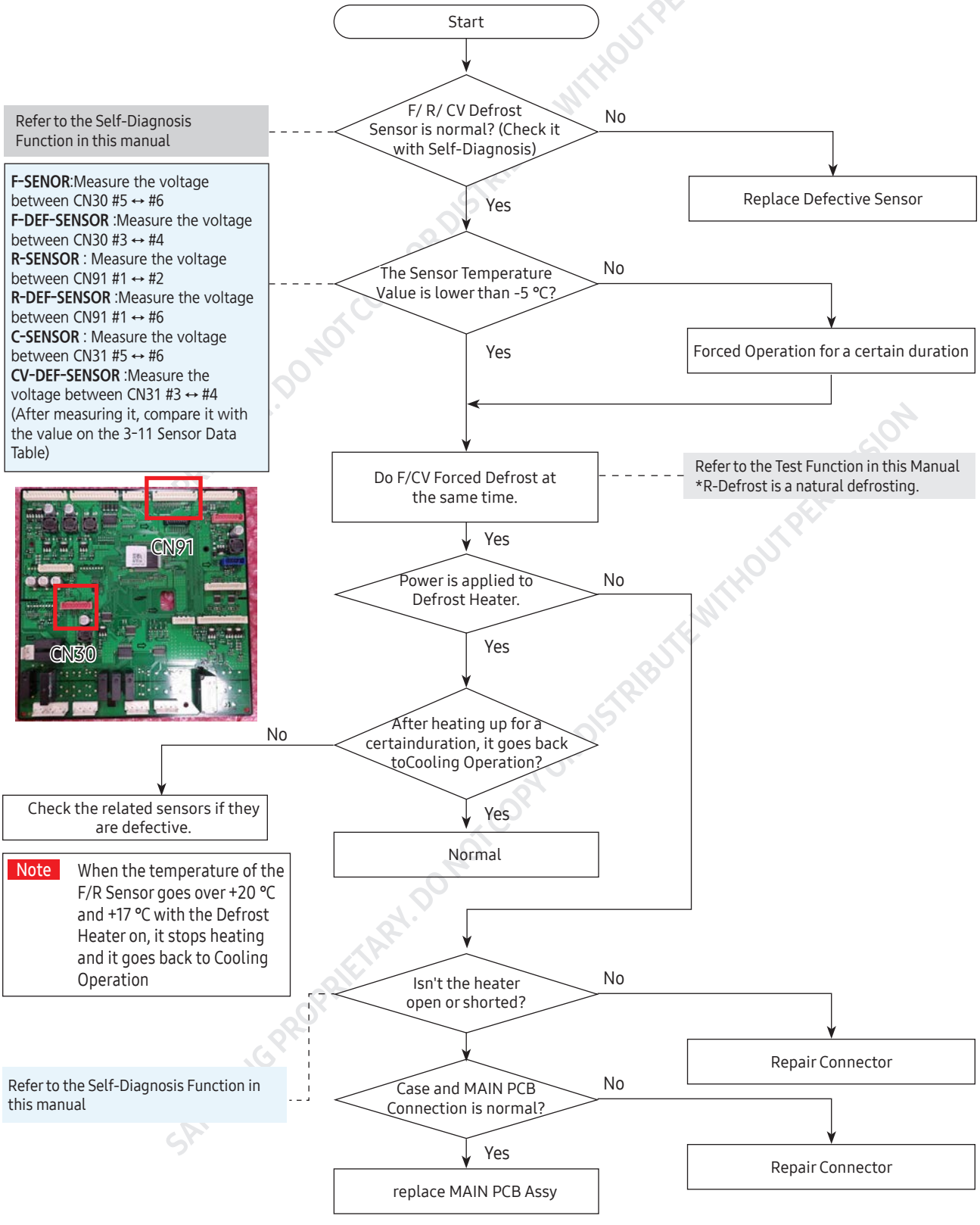


6-2-3. Troubleshooting based on LED Blinking Frequency

When failure is detected by the Inverter PCB, the Compressor will immediately stop if the Compressor is running and there will be a 5 minute standby. During the 5 minute standby, RPM signals will be ignored.
That is, even though the Inverter PCB receives the RPM signals, the Compressor does not work.
It blinks every second and there is 2 second off at the end of each cycle.

LED Blinking Frequency	Protecting Functions	Remarks
	Normal Operation	
	Starting Failure	1. Check the COMP terminals short(U,V,W) 2. Check IPM Pins short of Inverter PBA3. Check IPM operating Voltage(under DC 13.5V)4. Other cases, check the COMP, cycle, etc.
	IPM Fault	
	Abnormal Current Detection	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side soldering state3. Other cases, check the COMP, cycle, etc.
	Motor Locked / Over RPM	1. Check PCB Bottom side soldering state. 2. Check Input voltage oscillation3. Other cases, check the COMP, cycle, etc.
	Under Voltage	1. Check input voltage under AC 53V(Input Power AC110 ~ 127V) 2. Check PCB Bottom side soldering sate.
	Over Voltage	1. Check input voltage over AC 155V(Input Power AC110 ~ 127V) 2. Check PCB Bottom side soldering sate.
	Communictaion error	Main-Inverter Communicaiton error

6-2-4. When Defrost does not work

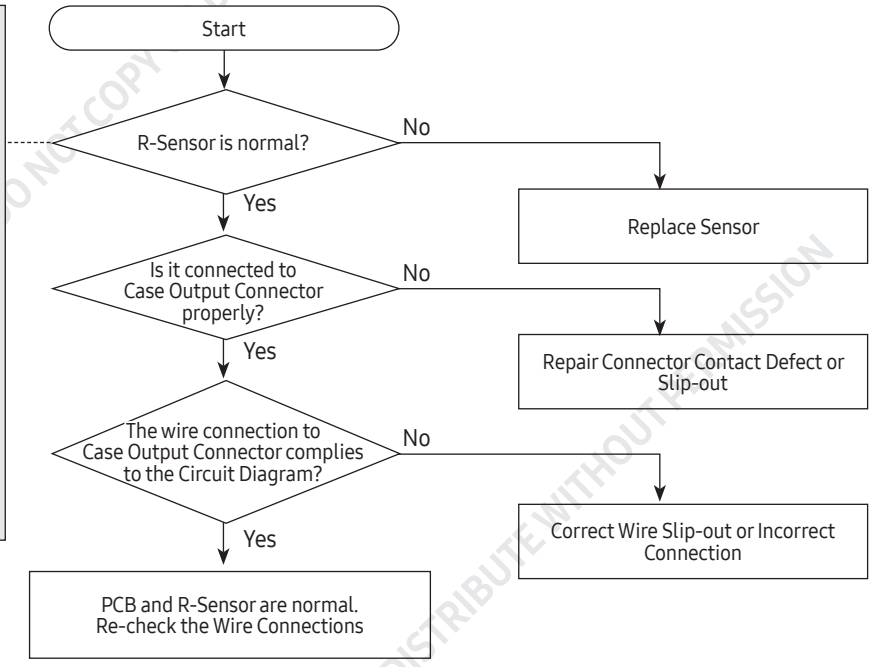


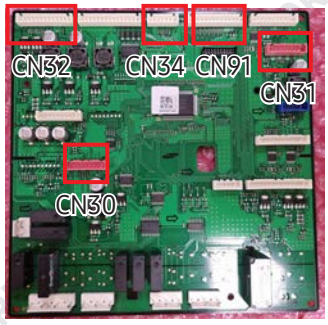
6-2-5. When there is Self-Diagnosis Error (with Defective Sensor)

- The error of sensor will be displayed on the front of display. when the error of sensor is detected at initial power ON, the appliance will not operated and the error message will be displayed.
- The appliance will not stop operating when the error of sensor is detected during operation of the appliance. But normal freezing might be not operated if the appliance is operated by the emergency operation mode. You would better to check the appliance according to the self-diagnosis of the manual.

① When R-Room Sensor error occurs (check the other sensors in the same procedure)
- Measure with PCB Case as a base

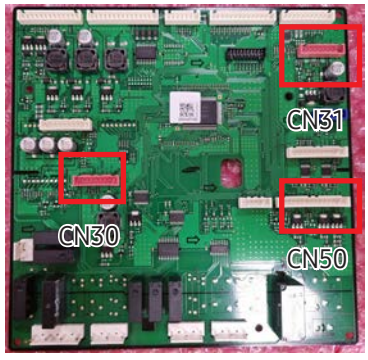
F-SENOR: Measure the voltage between CN30 #5 ↔ #6
F-DEF-SENSOR : Measure the voltage between CN30 #3 ↔ #4
R-SENSOR : Measure the voltage between CN91 #1 ↔ #2
R-DEF-SENSOR : Measure the voltage between CN91 #1 ↔ #6
C-SENSOR : Measure the voltage between CN31 #5 ↔ #6
CV-DEF-SENSOR : Measure the voltage between CN31 #3 ↔ #4
External Temp. Sensor : Measure the voltage between CN34 #5 ↔ #6
External Hum. Sensor : Measure the voltage between CN34 #4 #6
R-Hum. Sensor : Measure the voltage between CN32 #5 ↔#1
(After measuring it, compare it with the value on the 3-11 Sensor Data Table)



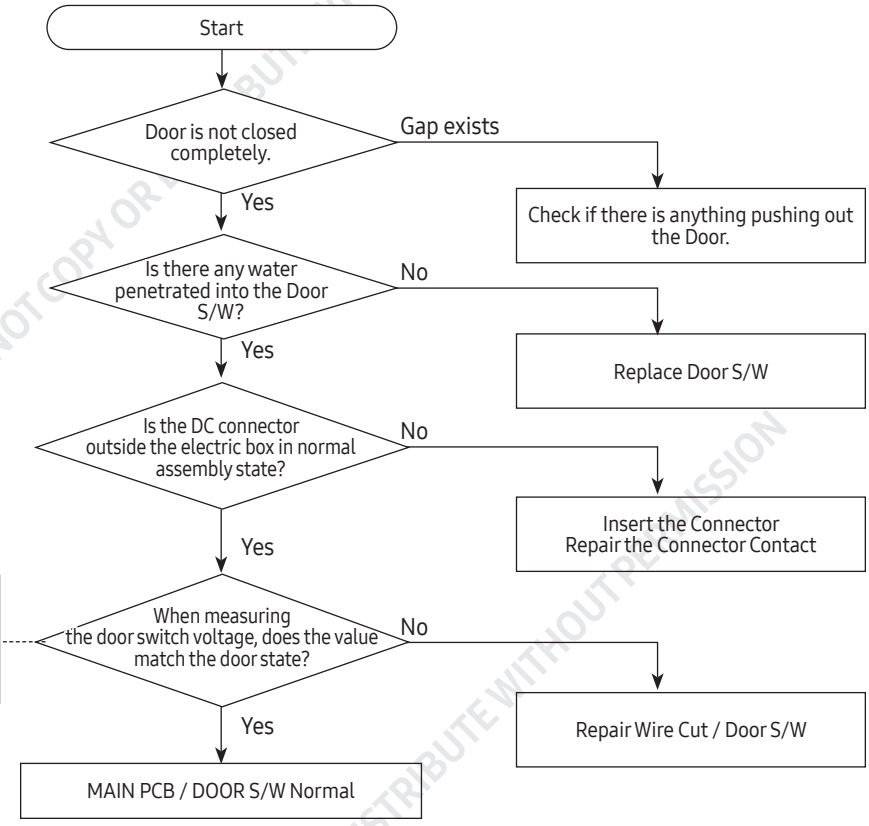


6-2-6. When the alarm sound will not turn off.

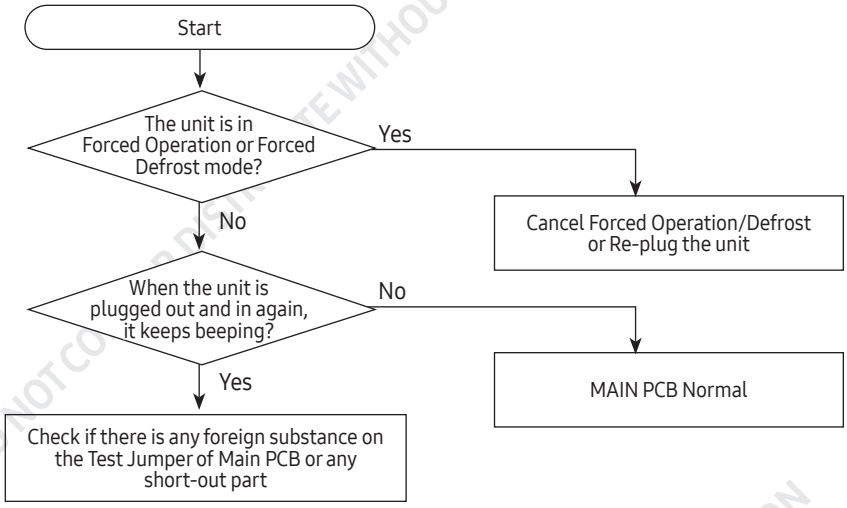
① When Door Open "Sound" keeps alarming



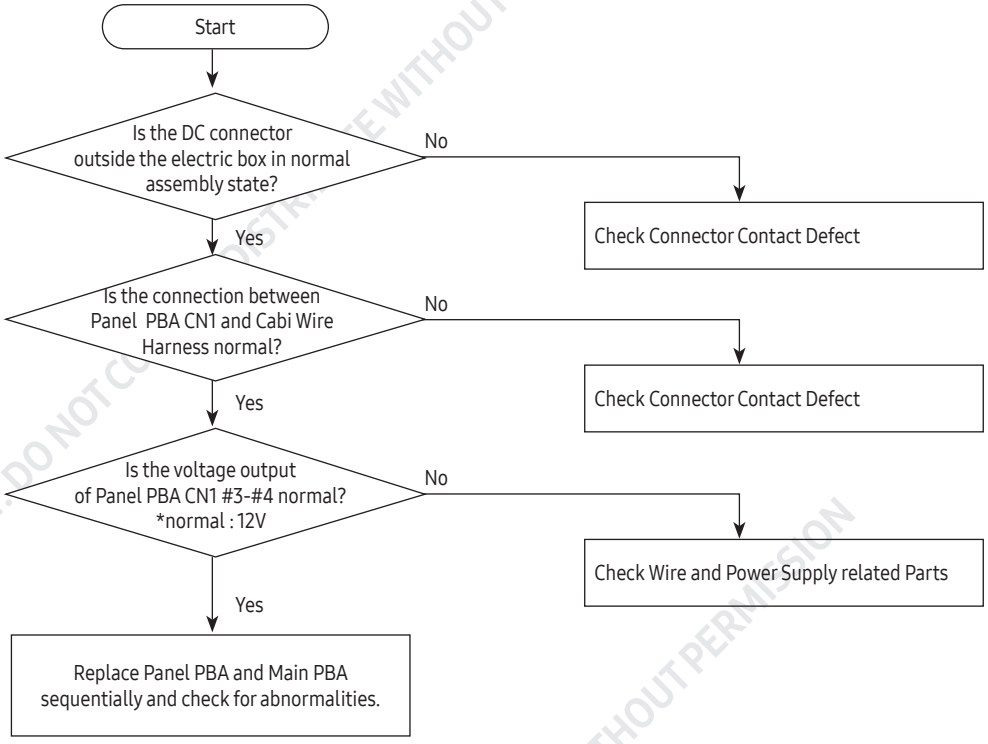
F - Door : CN30 #1 - #2
R - Door : CN50 #7 - #8
CV – Door : CN31 #1 - #2
*Normal Voltage : Open 0V & Close 5V



② " When alarm sound "Beep" continues

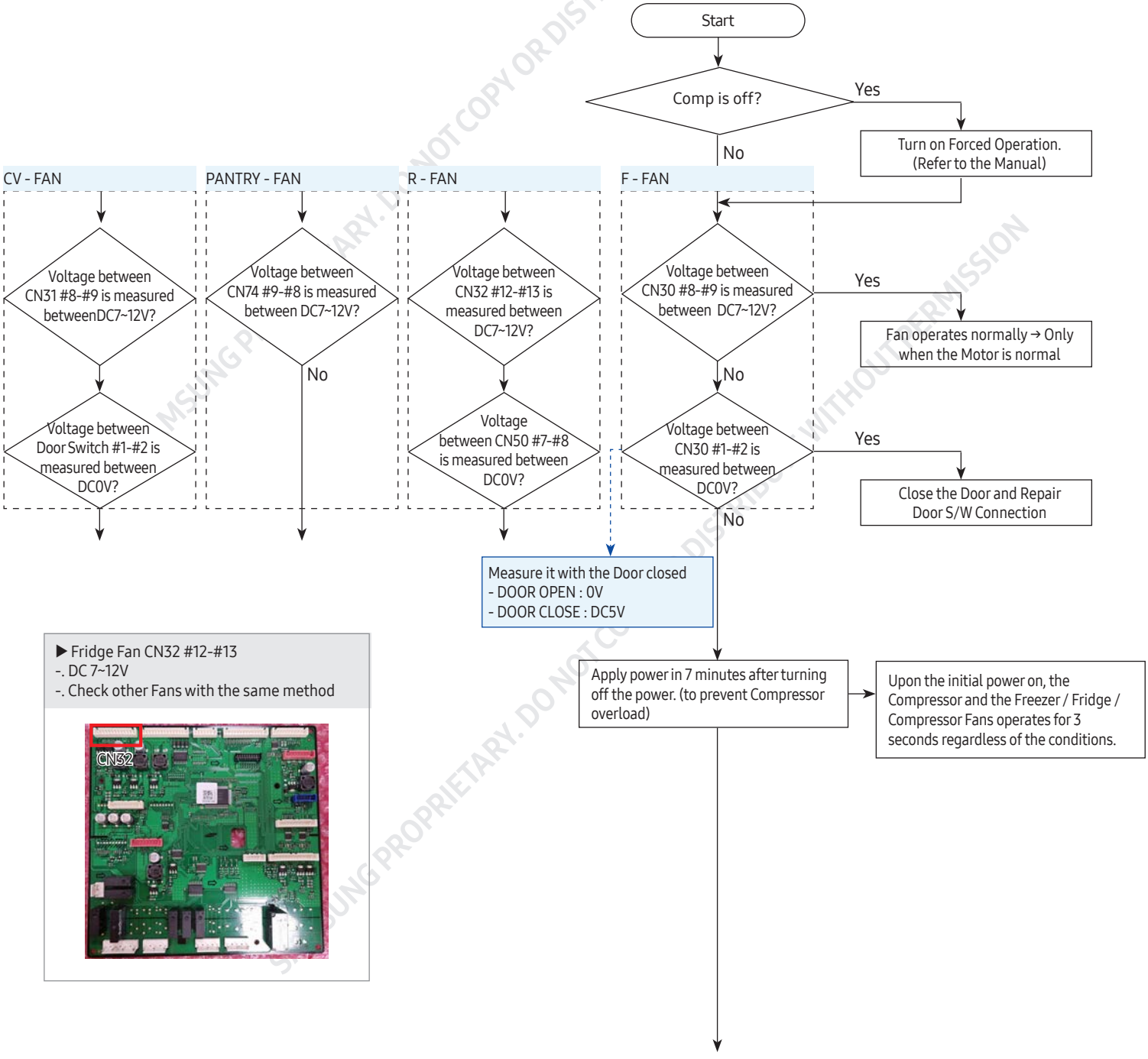


6-2-7. When the Display is defective or there is Communication Error



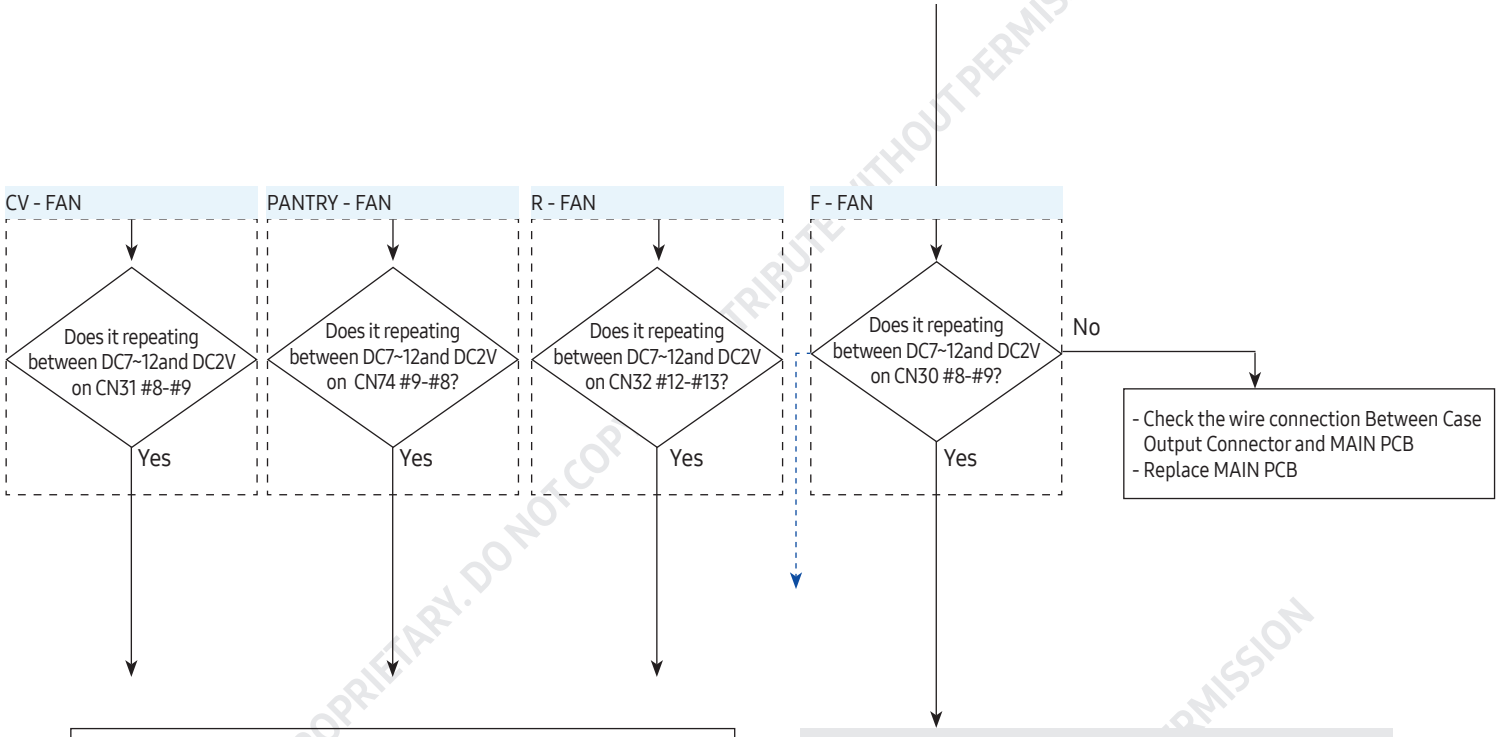
6-2-8. When Fan does not operate

- This refrigerator uses the BLDC Fan Motor. The BLDC Motor operates with DC 7~12V.
- Under Comp On conditions, the F-Fan operates generally. But, the F-Fan Motor may not work due to various conditions (such as the operating condition of Cool Select Pantry, etc) ,and when the ambient temperature is high or when you open and close the Door once, it operates after one minute delay. So, don't get misled by it. It is normal.
- Also, when the Fridge Door is open, the Freezer Fan Motor stops together with the Fridge Fan Motor (for the purpose of performance improvement).



▶ Fridge Fan CN32 #12-#13
-. DC 7~12V
-. Check other Fans with the same method

SELF DIAGNOSIS & TROUBLE SHOOTING



Note_reference of PCB CASE

Pulse signal is input to CN32#4(PANTRY), CN30#7(F), CN32#11(R), CN32 #8(C), CN31#7(CV) when the Motor spins. This signal enters to MICOM and if there is no signal entering when the Motor spins, the Fan goes off and works again in 10 seconds. If there is still no signal entering, it repeats the above operation 4 more times. If it keeps not sending the signal, the Motor operates in 10 minutes. This is a function to overcome the case that there is a restriction in the Motor due to foreign substances around the Motor.

Expected Causes

① Defective Fan-Motor
② Contact error at wire connection
③ When the Fan Motor operates, check the input of the Motor Spinning Pulse. (Refer to the Fan Motor Drive Circuit in this manual)
④ peration Error due to Motor Fan Restriction

6-2-9. When the Freezer / Fridge Lamp does not light up

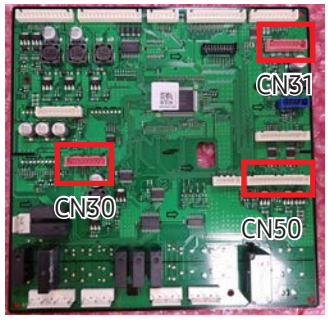
CAUTION

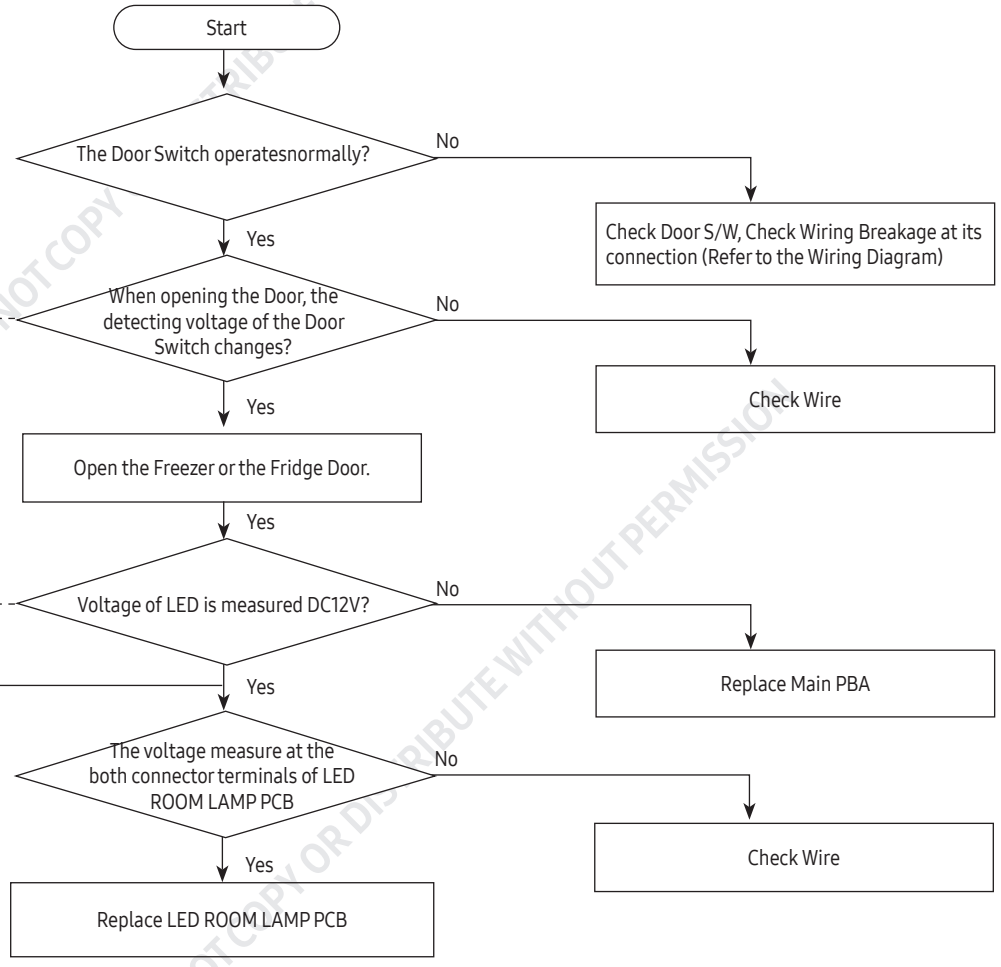
1. When replacing the Freezer Lamp, be sure to turn off the power to prevent electric shock.
2. LED lamps are used in the both of the Fridge and the Freezer compartments of this model.

Remove the Door S/W. And, when measuring its resistance at its both terminals while opening and closing the Door, the value should change between 0Ω and ∞Ω.
1) 0Ω: Door S/W is short.
2) ∞Ω: Door S/W is open.

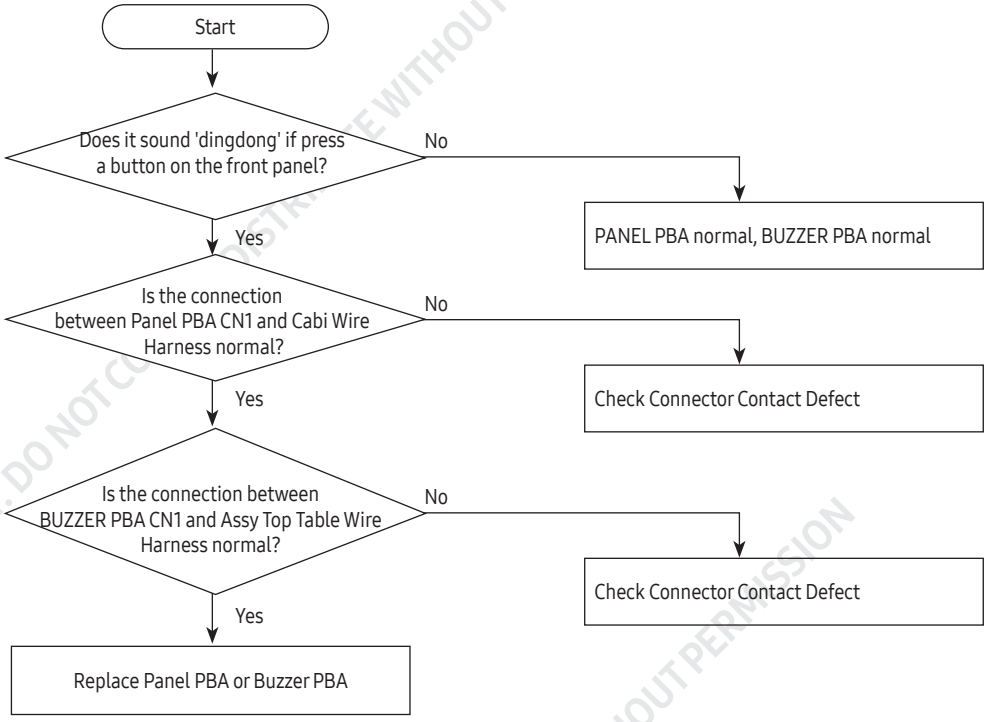
* Measure point
1. F-DOOR : CN30 #1-#2
2. R-DOOR : CN50 #7-#8
3. CV-DOOR : CN31 #1-#2

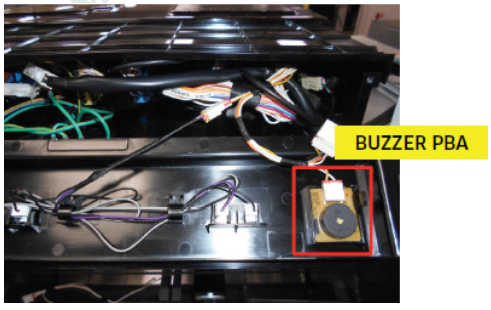
* Measure point
1. F/CV-LED : CN50 #5-#6
2. R-LED : CN50 #14-#15





6-2-10. When there is problem in the sound function

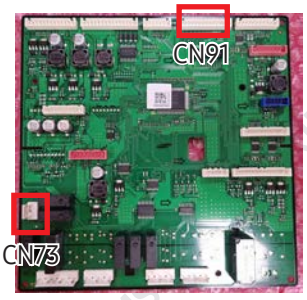


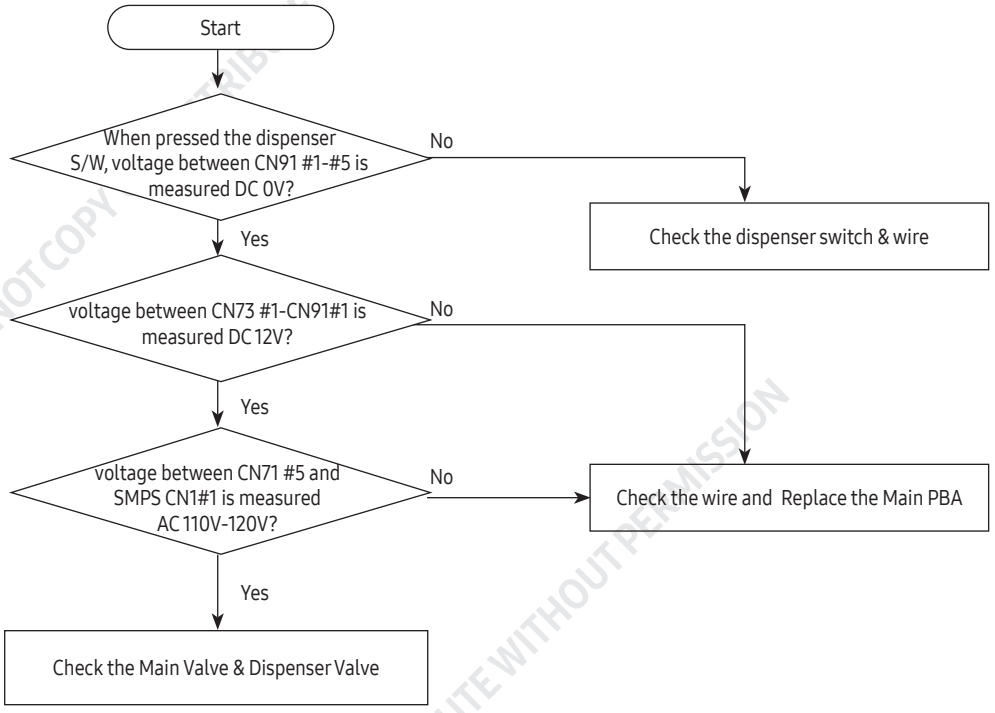


6-2-11. When the Water Valve does not work

Pre-checking

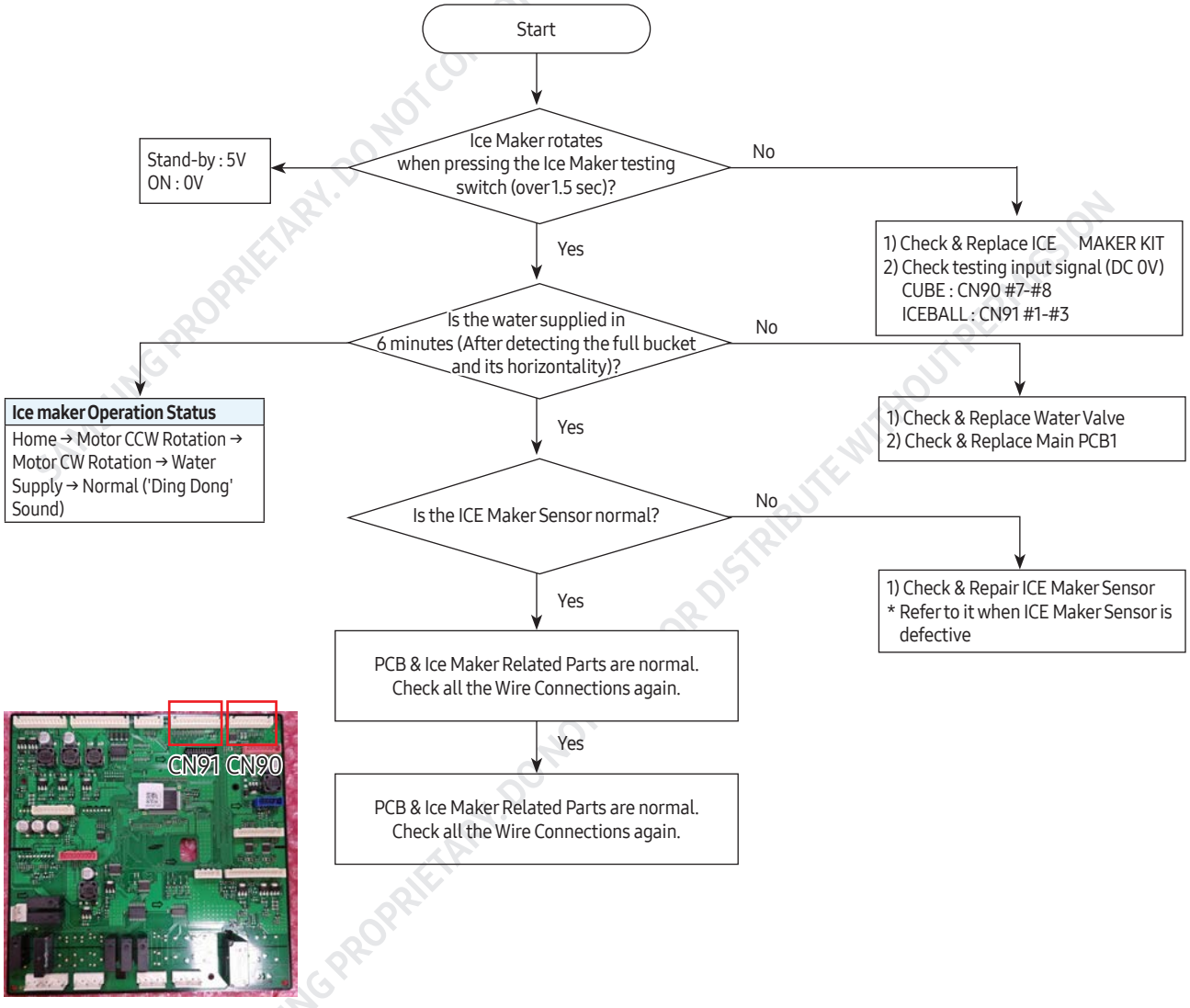
1. Water is directly supplied to the Water Valve. So, make sure to cut off the water before doing repairs.
2. There is electricity flowing in the wire. So, take extra care not to get electric shock.



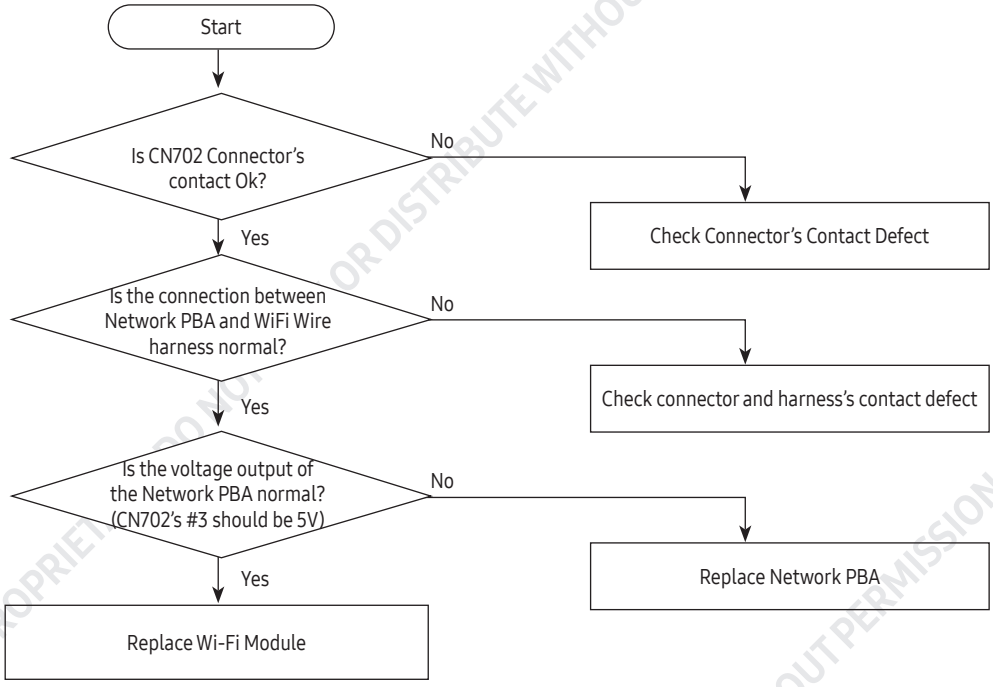


6-2-12. When ICE MAKER does not operate

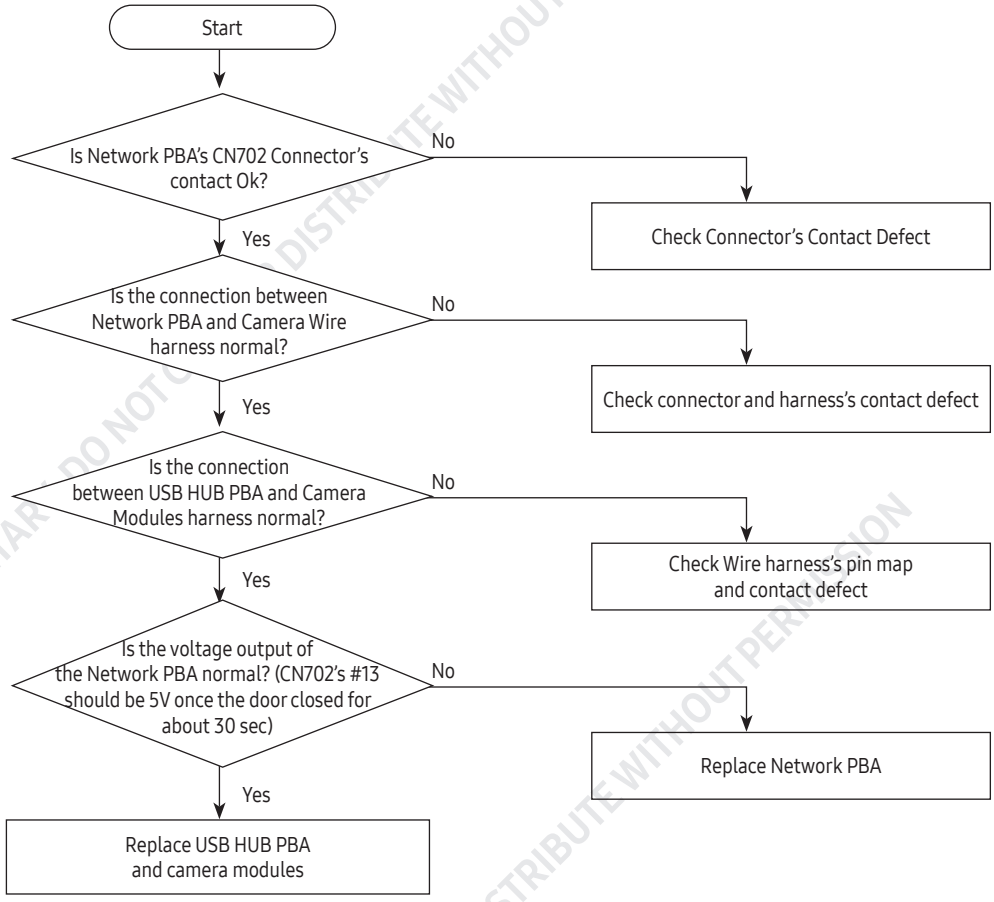
1. Water will be automatically supplied to the Ice Maker depending on temperature & time conditions, and ice will be produced to dispense.
2. Power is applied to one end of the wires. So, make sure to refer to its Exploded View whenever doing the disassembly.
3. The operation of the Ice Maker shall be done after pressing the Ice Maker Test Button.
   (Fridge Ice Maker) It is not possible to check when the power is off.
4. Since both of the PCB and the Ice Maker are located at the front and the back each other, make sure to have two people check them.
5. It may cause burn when the Ice Maker Heater heats up. So, please take an extra caution.
6. The Ice Maker has a counter-clockwise rotation function. So, its counter-clockwise rotation is normal



6-2-13. When Wi-Fi does not operate properly

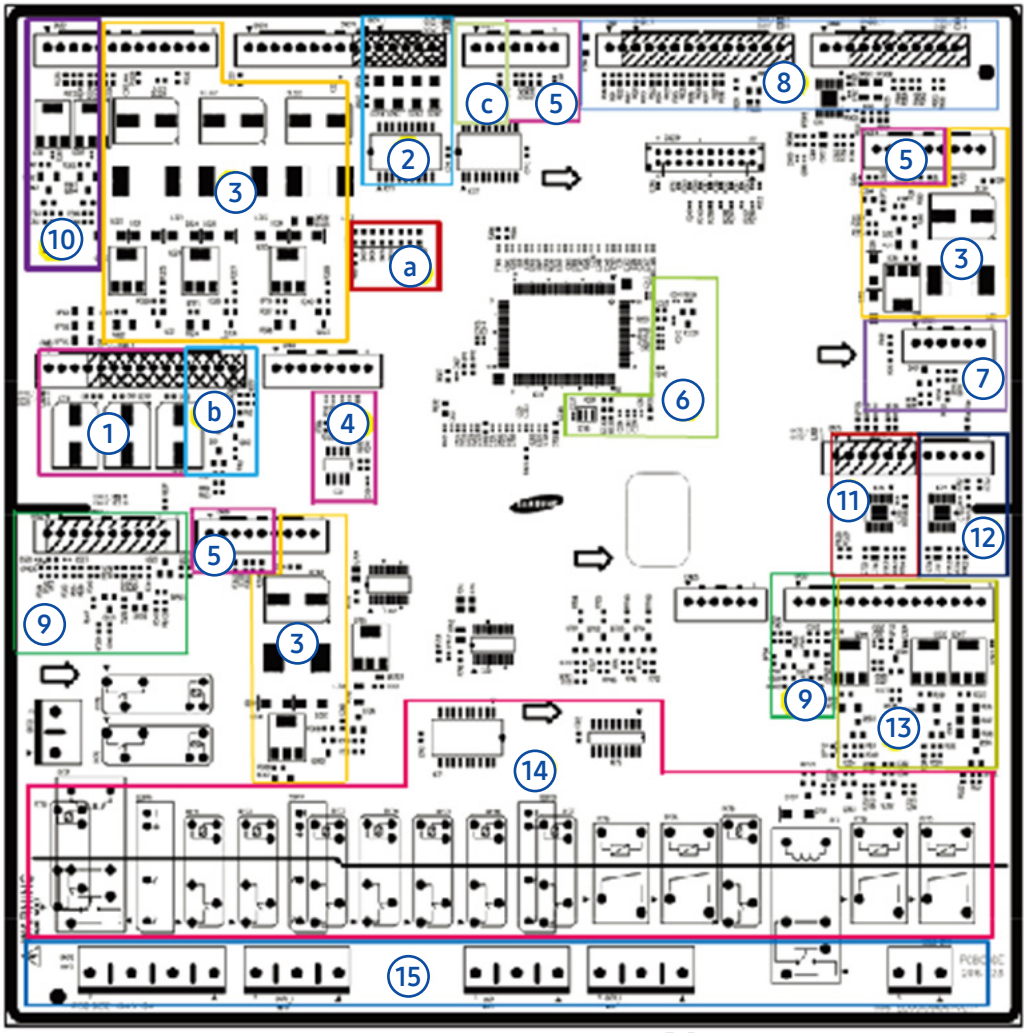


6-2-14. When Camera does not operate properly



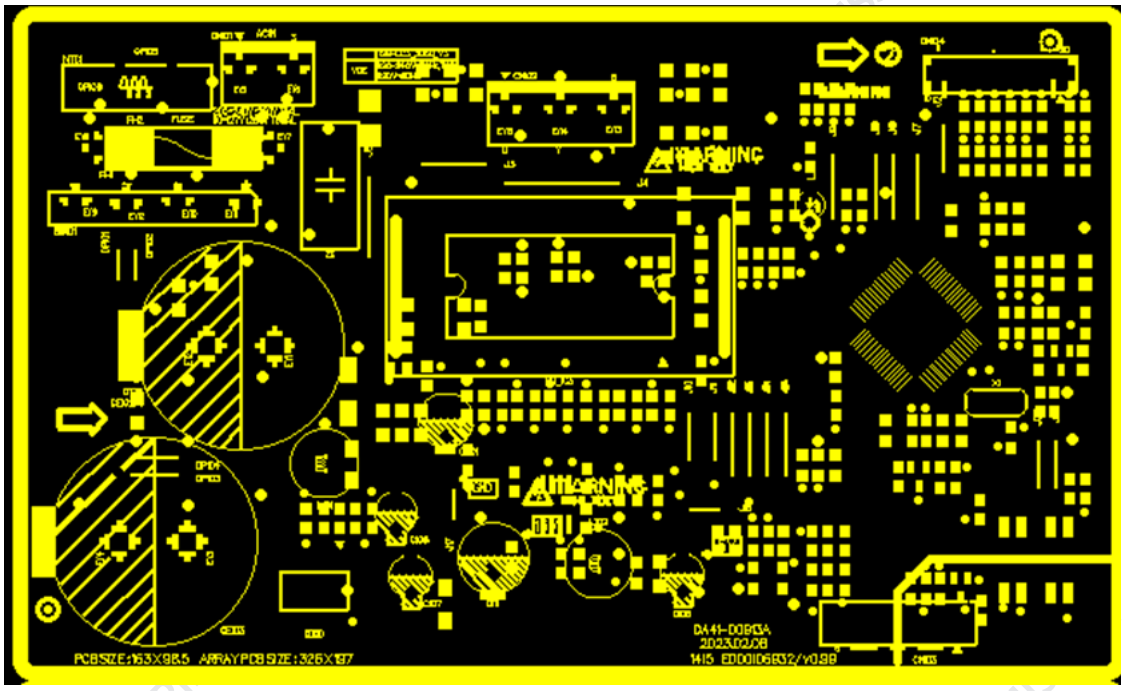
7. PCB DIAGRAM

7-1. PCB Layout with part position



1. DC12V, 5V, GND supplied from SMPS PCB (Not Used)
2. Circuit for controlling Step-Valve (3-Way Valve) * Option
3. FAN MOTOR control part : To supply the power from 7V ~ 12V according to the motor types. (F,R,C,ICE)
4. EEPROM : Save and record every kinds of data.
5. Transmit inputted signals from every sensor into MICOM after eliminate the noise.
6. Micom : control the regrigerator Ceramic resonator : generate the basic frequency of Micom operation.Reset IC : make Micom reset if input voltage of Micom is detected less than the specified voltage
7. PLC input/output- PLC (Power Line communication) * Option (PLC module is not inserted unless specified occasion)
8. Operate ICE-MAKER, supply power to MOTOR, and sense the variation of switch.
9. Main Micom ↔ Panel Micom serial communication circuit - Dispenser option input part (Water & Cover Ice route switch)
10. Auto Fill control part
11. Control Mid drawer Room damper & Damper heater
12. Water Tank Heater Controls (also controls other options)
13. LED LAMP Control Circuit (F,R room Lamp)
14. Relay parts that controls AC load and receives Micom operating signal through Sink IC.
15. Connector with AC loada. Diode option setting areab. Inverter COMP controlling signal c. Flow Sensor controlling signal

7-2. Connector Layout & Descriptions of Inverter Controller Board



- PCB Power Supply : From the AC Input Voltage(110V), it supplies DC 15V and 5V to the Inverter circuit for the Compressor control.
- COMP Driving / Communication Circuit receives the COMP operation signals from the Main PBA and feedbacks the inverter errors to the Main PBA.
- BOOTSTRAP Charger : It is an independent power circuit for the driving of the IPM High-Phase IGBT.
- Current Pickup Circuit : It pickups the currents taken by the Shunt resistance and does the PWM DUTY control.
- IPM (AIM5D05K060M2S)
- Micom (HART-I910Z)

PCB DIAGRAM

7-3. Connector Layout with part position (Main Board)

CN32
1: AUTOFILL VALVE
2: OPEN
3: AUTOFILL OVER FLOW
4: PANTRY FAN FG
5: HUMIDITY SENSOR(FF)
6: GND
7: +5V
8: C-FG
9: C-FAN
10: GND
11: R-FG
12: R-FAN
13: GND

CN74
1~7: OPEN
8: GND
9: PANTRY-FAN
10: OPEN
11: STEP VALVE A
12: STEP VALVE B
13: +12V
14: STEP VALVE /A
15: STEP VALVE /B

CN34
1: +5V
2: GND
3: FLOW-SENSOR
4: HUMIDITY-SENSOR(EXT)
5: TEMP.-SENSOR(EXT)
6: GND
7: +5V

CN91
1: GND
2: R-SENSOR
3: ICEBALL TEST SW
4: AUTOFILL BOTTLE SW
5: INT. WATER SW
6: R DEF SENSOR
7 : ICEBALL SENSOR
8:OPEN
9: 12V
10: ICEBALL HALL SENSOR
11 : 5V
12: GND
13: OPEN
14 5V

CN90
1: +12V
2: ICEBALL CCW
3: ICEBALL CW
4: CUBE I/M CCW
5: CUBE I/M CW
6: CUBE-SENSOR
7: GND
8: CUBE TEST SW
9: +5V
10: CUBE HALL SENSOR
11: GND

CN31
1: CV-DOOR SWITCH
2: GND
3: CV-DEF-SENSOR
4: GND
5: CV-SENSOR
6: GND
7: CV-FG
8: CV-FAN
9: GND

CN10
1~5: OPEN
6: GND
7: +12V
8: +12V
9: GND
10: GND
11: +5V
12: +5V
13: GND
14: COMP. Signal Out
15: COMP. Signal Input

CN04(PLC)
1: RX
2: GND
3: TX
4: RESET
5: +12V
6: +5V

CN30
1: F-DOOR SWITCH
2: GND
3: F-DEF-SENSOR
4: GND
5: F-SENSOR
6: GND
7: F-FG
8: F-FAN
9: GND

CN75
1: OPEN
2: +12V
3: OPEN
4: ICEBALL PIPE HEATER
5: CUBE PIPE HEATER
6: OPEN
7: TDM VALVE
8: TDM VALVE
9: TDM VALVE
10: TDM VALVE
11: WATER SENSOR
12: 12V

CN73
1: INT. DC WATER VALVE
3: ICEBALL HEATER

CN50
1: DISPLAY TX
2: DISPLAY RX
3: +12V
4: GND
5: CV LED
6: GND
7: R-DOOR SW
8: GND
9: PANTRY-SENSOR
10: GND
11: ICEBALL HEATER
12: GND
13: OPEN
14: R LED
15: GND

CN05
1: RX
2: GND
3: TX
4: RESET
5: +12V
6: +5V

CN70
1: OPEN
3: FRENCH HEATER
5: F DEF HETER
7: LIVE

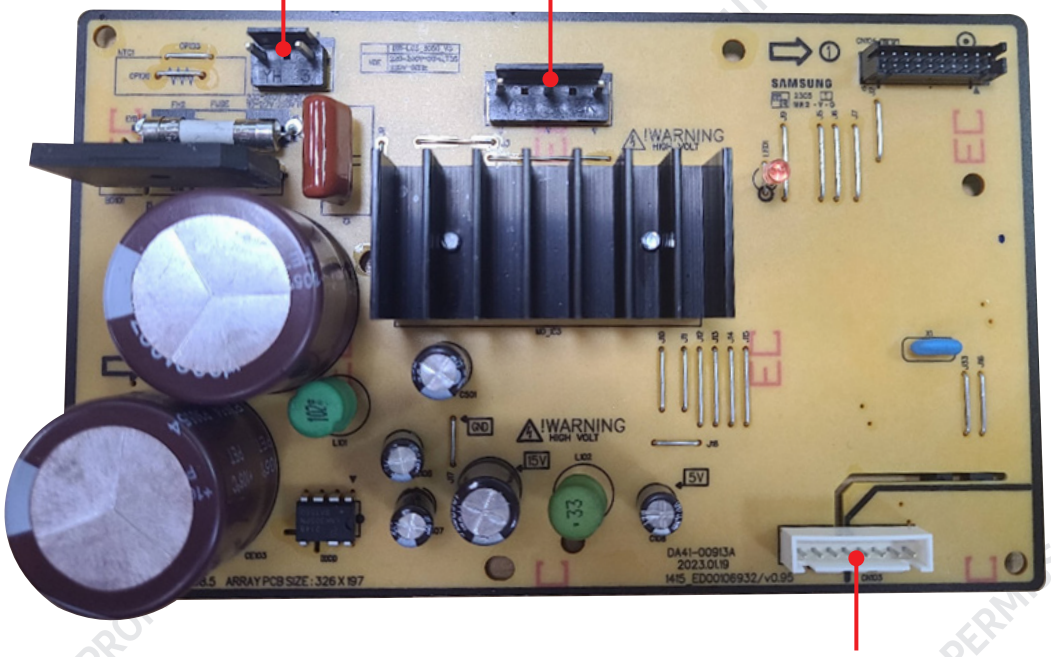
CN70_1
1: CV-DEF-HEATER
3: OPEN
5: OPEN

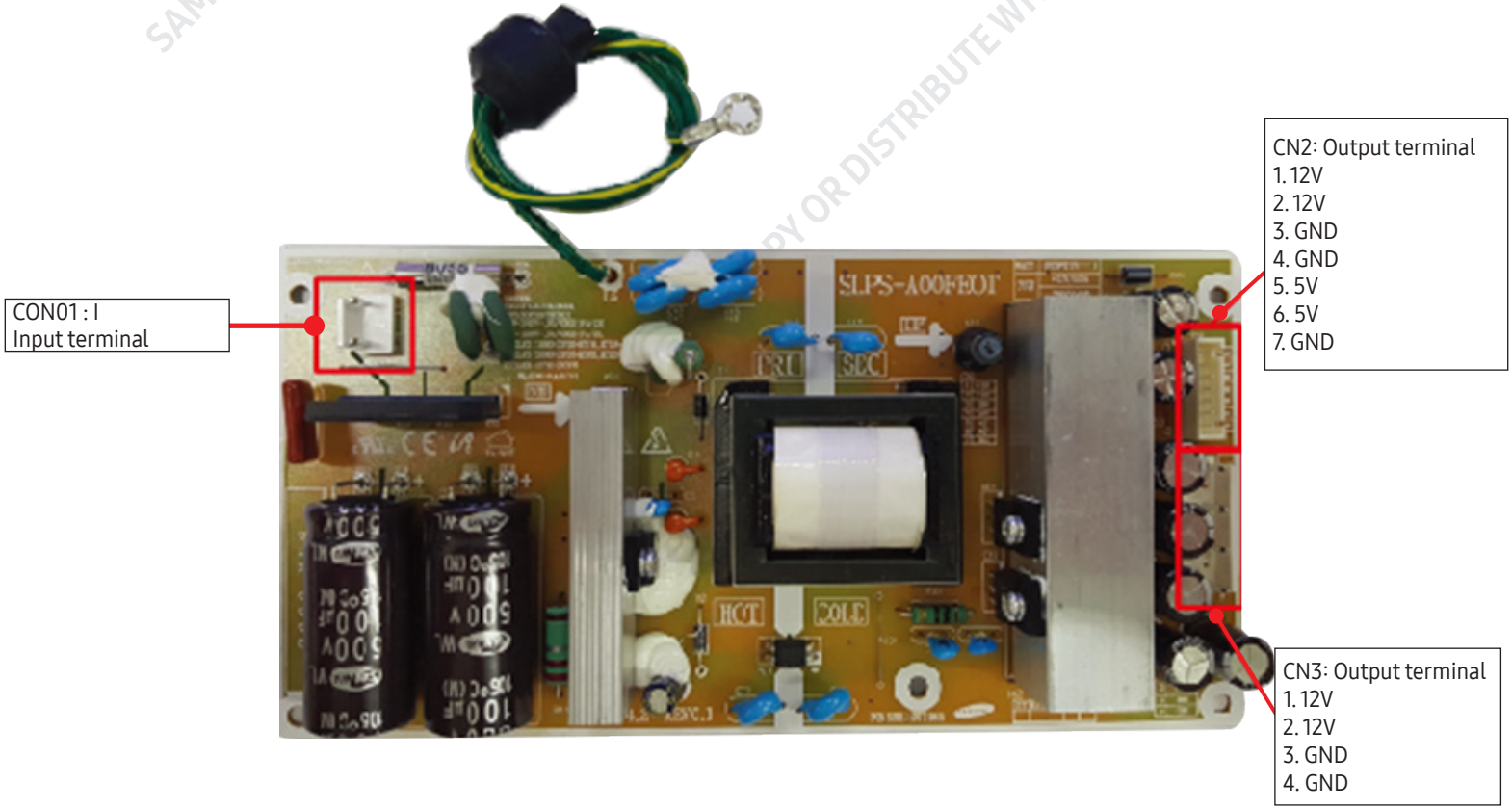
CN71
1: OPEN
3: ICE WATER VALVE (CUBE)
5: MAIN WATER VALVE

CN71_1
1: OPEN
3: ICE WATER VALVE (ICEBALL)
5: NEUTRAL

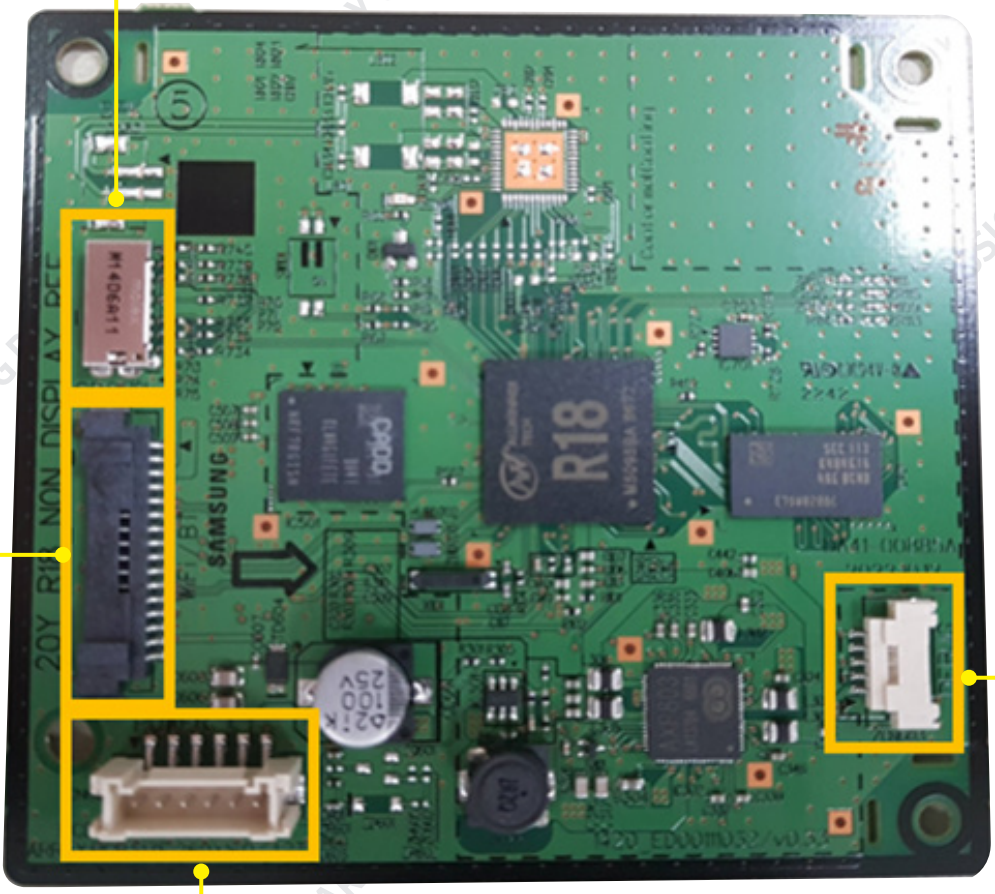
PCB DIAGRAM

7-4. Connector Layout with part position (Inverter PBA, SMPS PBA)





7-5. Network PBA(DA92-00960A)'s Pin assignment



CN701 : SD Connector
Not Assembled for MP (Debug Only)

CN702 : WIFI/ Camera Connector

#1 WiFi Reset
#2 NC
#3 WiFi_5V
#4 GND
#5 WiFi_USB_DM
#6 WiFi_USB_DP
#7 GND
#8 NC
#9 GND
#10 GND
#11 CAM_USB_DP
#12 CAM_USB_DM
#13 CAM_5V
#14 NC
#15 NC
#16 NC

CN601 : MAIN PBA R18 Connector

#1 UART SET Rx
#2 UART SET Tx
#3 RESET
#4 GND
#5 12V
#6 NC

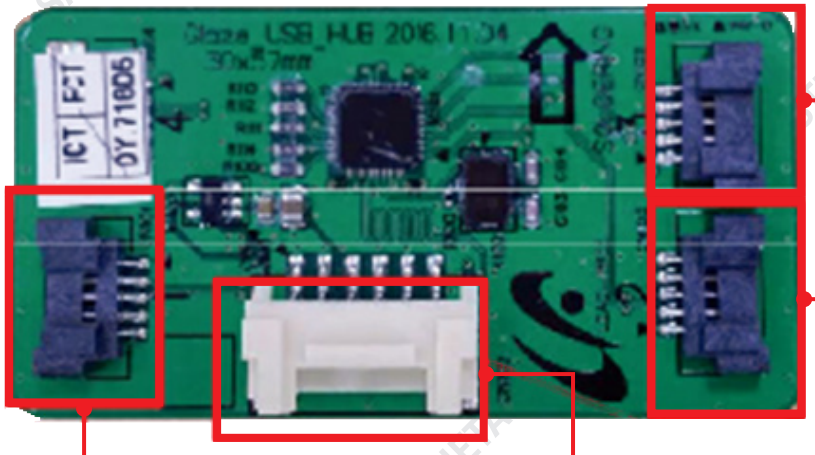
CN603 : DEBUG Connector
Not Assembled for MP (Debug Only)

PCB DIAGRAM

7-6. Wi-Fi Module(4709-002997)'s Pin Assignment

Terminal	name
1	GND
2	USB_SUSPEND
3	GND
4	USB DP
5	USB DM
6	GND
7	VCC
8	WAKE UP
9	RESET
10	GND

7-7. USB_HUB PBA(DA92-00792A)'s Pin Assignment



CN102 (CAM3) :
#1: 5V
#2: D-
#3: D+
#4: GND
#5: GND

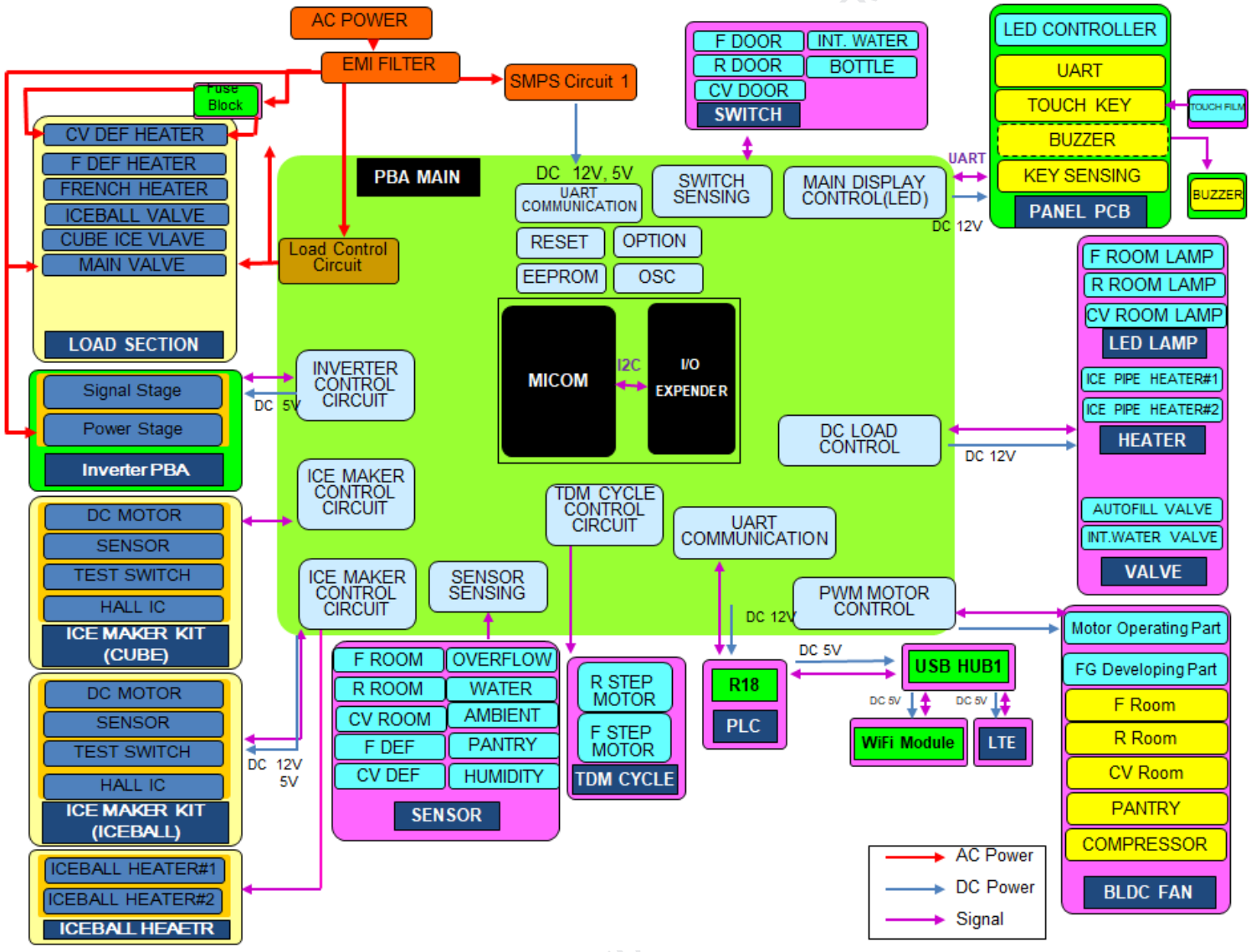
CN103 (CAM2) :
#1: 5V
#2: D-
#3: D+
#4: GND
#5: GND

CN101(CAM1):
#1: 5V
#2: D-
#3: D+
#4: GND
#5: GND

CN100 (HOST) : USB_HUB PBA Network PBA
#1: 5V
#2. 5V
#3. D-
#4: D+
#5: GND
#6: GND

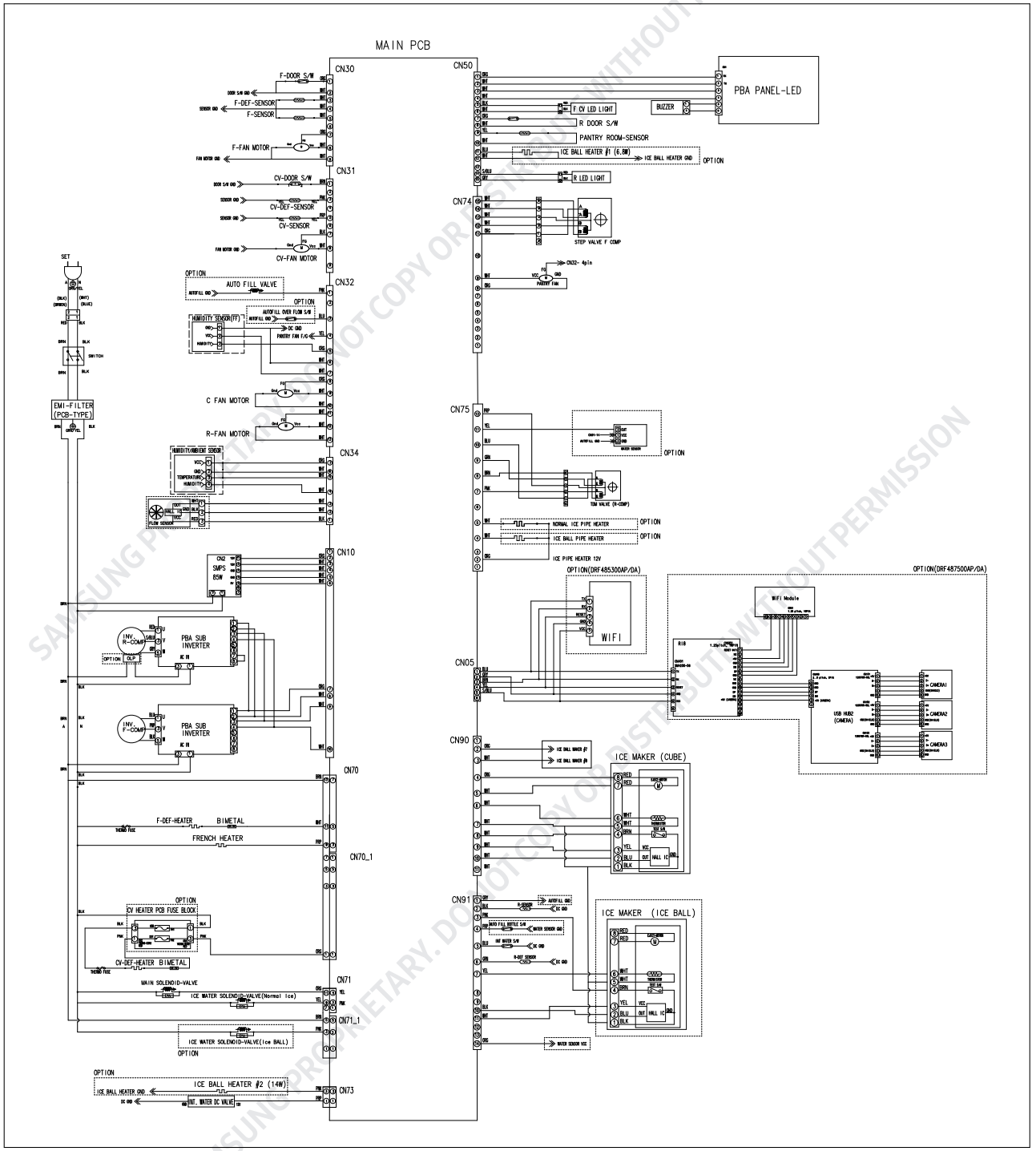
8. BLOCK DIAGRAM

8-1. Whole block diagram



9. WIRING DIAGRAM

9-1. Wiring diagram



10. REFERENCE INFORMATION

10-1. Nomenclature

Code	Type			Basic		Feature 1	Feature 1											Feature 2		Feature 3		Color		구분자	Country	
						Grade	(Exterior)											(Interior)		(Hinge)						
	D	R	F	4	8	7	5											0		0		A	P	/	DA	DACOR
Feature	B: Built-In Samsung D: Built-In Dacor	Refrige-rator	FDR	4	8			Interior CMF	Camera	Display	Box/ Guard Material	Metal duct /Shelf	FlexZone (Pantry)	Ice Maker (F)	Precise Cooling (R/F)	Chef Pan	Internal Disp.		Energy		0	AP : Panel Ready SR: Silver stainless MS: Graphite MT: Matt Black Stainless			AA	SEA
							0											0	E/star	0	N/A					
						• 5 : Chef	1											1		L	L:Left Hinge					
							2	WHT AL	●	Ice Blue LED (Glass Printing - White-->Gray)	Plastic/ Covering	●	-1/1/3℃	Mono Ice Maker	●	N/A	●	2	Korea 2grade	R	R:Right Hinge					
							3	SILVER STSS (후면) WHT AL (측면)	X	White LED (Glass Printing - White-->Gray)	Plastic/ Covering	●	-1/1/3℃	Mono Ice Maker	●	N/A	●	3								
						• 7 : Heritage	4											4								
							5	SILVER STSS	●	White LED (Glass Printing - Gray)	Metal/ Glass , Plastic Covering	●	-1/1/3℃	Dual Ice Maker	●	N/A	●	5								
							6											6								

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