

SAMSUNG

REFRIGERATOR

FRENCH DOOR REFRIGERATOR

MODEL NAME : RF28R75*/RF22R75*

MODEL CODE : RF28R7551** /RF22R7551**

SERVICE Manual

REFRIGERATOR



CONTENTS

1. Precautions (Safety Warnings)	6
2. Product Features and Specifications.....	10
3. Disassembly and Reassembly.....	37
4. Troubleshooting.....	74
5. PCB Diagram	143
6. Wiring Diagram	149
7. Block Diagram	150
8. References	153



WARNING

IMPORTANT SAFETY NOTICE

The service guide is for service technicians with sufficient background in electrical, electronic and mechanical engineering.

Any attempt to repair the appliance yourself may result in personal injury and property damage.

The manufacturer or dealer will not be held responsible for the interpretation of this information.

SAMSUNG ELECTRONICS AMERICA, INC.

Technical Service Guide

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CONTENTS

1. Precautions (Safety Warnings)	6
2. Product Features and Specifications	10
2-1. Compartment Features by Model	10
2-2. Basic Product Specifications	11
2-3. Specifications	13
2-4. Dimensions	17
2-5. Feature panel	19
2-6. Samsung Connect	27
2-7. SMART GRID Function (Demand Response)	29
2-8. Samsung Family Hub	33
2-9. ICE-MAKER Function	34
2-10. Material Specification	36
3. Disassembly and Reassembly	37
3-1. Precautions	37
3-2. Refrigerator Door	38
3-3. Door Handle Refrigerator	40
3-4. Door Handle Freezer & Flex zone	41
3-5. Lever and Water-Dispenser	42
3-6. Glass Shelf	44
3-7. Foldable Glass Shelf	44
3-8. Vegetable & Fruit Drawers Shelf	45
3-9. Case Water Filter	46
3-10. Motor Damper	48
3-11. Water Filter (Assembly & Disassembly)	49
3-12. Disassembling the French	50
3-13. Evaporator Cover In Refrigerator	51
3-14. Evaporator In Refrigerator	52
3-15. Freezer Door	53
3-16. Convertible Door	54
3-17. Flex Zone Door	55
3-18. Ice-Maker	56
3-19. Flex Zone Light	59
3-20. Freezer Light	59
3-21. Evaporator Cover In Freezer	60
3-22. Evaporator In Freezer	61
3-23. Comp Cooling Fan	62
3-24. COMPRESSOR	64
3-25. Machine Compartment	66
3-26. Electric Box	67
3-27. COMPRESSOR	68
3-28. Electric Box	69
3-29. Top Table	70

CONTENTS

3-30. Humidity Sensor removing	70
3-31. Disassembling LCD	71
3-32. How to remove the subcomponents from the Assy Case Display	72
3-33. Removing the USB	73
4. Troubleshooting.....	74
4-1. Functions for failure diagnosis	74
4-2. Panel Function Test	75
4-2-1. LCD test	76
4-2-2. Touch Test	77
4-2-3. Multi-touch Test	78
4-2-4. Speaker Test	79
4-2-5. USB Test	80
4-2-6. Camera Test.....	81
4-2-7. Sensor Test	82
4-2-8. Mic Test	83
4-2-9. Wi-Fi Test	84
4-2-10. BT Test	85
4-2-11. Afterimage Test.....	86
4-2-12. Player Test.....	87
4-2-13. ADC Test	88
4-3. Fridge Function Test.....	89
4-3-1. System Information.....	90
4-3-2. Load Status.....	91
4-3-3. Self Diagnosis	93
4-3-4. Error History.....	99
4-3-5. Model Option	100
4-3-6. Force Run	101
4-3-7. Refrigerator Option	103
4-3-8. Energy Information.....	104
4-3-9. Option TABLE	105
4-4. Diagnostic method according to the trouble symptom	110
4-4-1. If the trouble is detected by self-diagnosis.....	110
4-4-2. If FAN does not operate	115
4-4-3. If ICE Room Fan does not operate	116
4-4-4. When ICE MAKER(FF) does not operate	117
4-4-5. If defrost does not operate (F,R DEF Heater).....	118
4-4-6. When Power is not applied.....	119
4-4-7. When Compressor does not run (Inverter COMP).....	121
4-4-8. When alarm sounds continuously without stop(related with buzzer sound)	122
4-4-9. When the Dispenser Panel PBA does not operate normally	123
4-4-10. When refrigerator ROOM Lamp does not light up	124
4-4-11. If ICE Water is not supplied.....	125
4-4-12. If Cubed or Crushed Ice is not supplied	126
4-4-13. If Cover Ice Route Motor(Geard Motor) is not working normally	127
4-4-14. IR Sensor Trouble-Shooting	128

CONTENTS

4-4-15. LED blinking frequency depending on protecting functions	129
4-4-16. When the LCD does not work properly	130
4-4-17. When it does not respond to touch	131
4-4-18. When the Wi-Fi does not work properly.....	132
4-4-19. When the BT does not work properly	133
4-4-20. When the microphone does not work properly.....	134
4-4-21. When the Glaze Camera does not work properly	135
4-5. Voice Recognition	138
5. PCB Diagram.....	143
5-1. PCB Layout with part positions (Main Board)	143
5-2. Inverter PCB Layout with part positions.....	145
5-3. Connector Layout with part positions (Main Board).....	146
5-4. LCD PBA Layout with part positions.....	147
5-5. Connector Layout with part positions	148
6. Wiring Diagram	149
7. Block Diagram.....	150
7-1. MAIN PBA.....	150
7-2. LCD PBA	151
7-3. CAMERA.....	152
8. References.....	153
8-1. Glossary	153
8-2. French Heater Control Using a Humidity Sensor.....	155
8-3. Model Numbering Convention.....	156
8-4. Troubleshooting. Check the following before calling the service centre.....	157

1. PRECAUTIONS (SAFETY WARNINGS)

- Unplug the appliance before replacing or repairing any of the electrical parts.
→ Be careful to avoid electric shock.
- Make sure to use the correct replacement parts.
→ Check the model, rated voltage, rated current and running temperature rating.
- When troubleshooting, verify that the wire harnesses are connected securely.
→ Make sure the connectors are not separated when power is supplied.
- Check for visible traces of water on the electrical parts.
→ Replace or secure any parts that have come into contact with water.
- Check the status of parts after the replacement or troubleshooting.
→ All parts must be reinstalled properly.
- Check the location where the refrigerator will be used.
Do not install the refrigerator in a damp or wet location and make sure that the surface where the product will be installed is even.
- The refrigerator must be grounded properly.
→ The product should be grounded if there is a risk of high humidity or wetness.
- The refrigerator must be plugged into a dedicated outlet.
Make sure that the power cord is not damaged in any way, or has any objects placed on it.
- If the plug is damaged, replace the plug.
Do not use the plug if it is damaged.
- Customers must not try to repair the refrigerator themselves.
- Do not store anything in the refrigerator other than food.
→ Drugs that require a specific temperature should not be stored in the refrigerator.
→ Do not store flammable substances (alcohol, benzene, ether, LP gas, etc.) in the refrigerator as this may result in explosion.

PRECAUTIONS(SAFETY WARNINGS)

Read all the instructions before repairing the product and make sure to follow the instructions in order to prevent danger or property damage.

Unplug the refrigerator and remove all the items before repairing the product.

CAUTION/WARNING SYMBOLS DISPLAYED



Warning

Indicates a danger of death or serious injury.



Caution

Indicates a risk of personal injury or material damage.

SYMBOLS



means "Prohibited".



means "Do not disassemble".



means "No contact".



means "Warning or Caution".



means "Unplug the unit before servicing the product"



means "Earth or Ground".



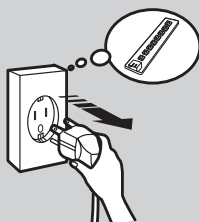
Warning & Caution

Unplug the product before changing the interior lamp.

- This may result in electric shock.



Unplug

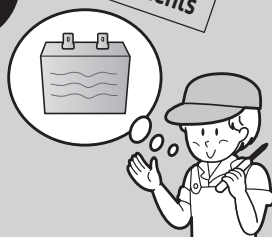


Use rated components when replacing parts.

- Check the correct model, rated voltage, rated current, operating temperature and so on.



Rated components



When repairing the product, make sure that the all wire harnesses are reconnected.

- The wire harnesses should be connected tightly and kept dry.
- Tightly tie the wires so that they are not detached by an external force and or become wet due to moisture.



When repairing the product, make sure that all parts and wires are free of dust and foreign substances.

- Cleaning parts when servicing the product can help prevent fire or short circuits.



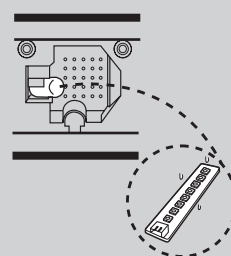
Check the status of parts after the replacement or troubleshooting.

- All parts must be reinstalled properly.



Check for visible traces of water on the electrical parts.

- Replace or secure any parts that have come into contact with water.



PRECAUTIONS(SAFETY WARNINGS)

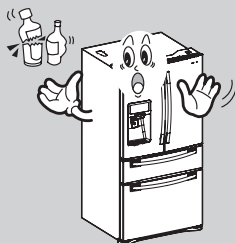
✧ Please let users know about the following warnings & cautions in detail.



Warning & Caution

Customers should not store full glass bottles in the freezer section.

- The frozen bottles could explode and result in injury.



Customers should not store narrow or long bottles, or food in one of the small door shelves.

- These items could fall when the door is opened, resulting in injury to the customer.



Drugs that require a specific temperature should not be stored in the refrigerator.

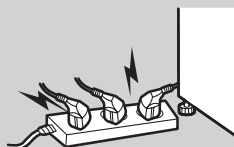


The refrigerator should be plugged into a dedicated outlet.

- Multiple plugs connected to an outlet may cause excessive heat or fire.



Prohibited



Consumers must not try to repair the refrigerator.

- Electrical and mechanical parts could injure the consumer.

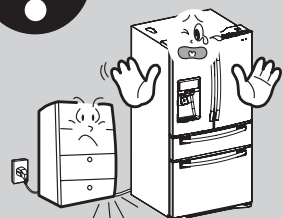


Do not
disassemble



Make sure that the power cord is not damaged.

- A damaged cord could result in excessive heat or fire.

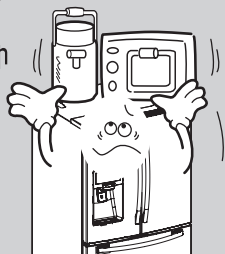


Customers should not place or store objects on the product.

- Opening or closing the door may cause items to fall, which may result in injury.

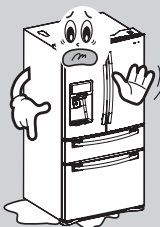


Prohibited



Do not allow users to install the refrigerator in the wet place or the place where water splashes.

- Deterioration of insulation of electric parts may cause electric shock or fire.

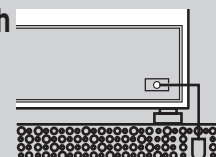


The refrigerator must be grounded properly.

- The product should be properly grounded if there is a risk of high humidity or moisture.



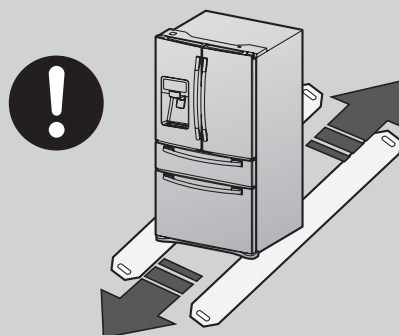
Earth



PRECAUTIONS(SAFETY WARNINGS)

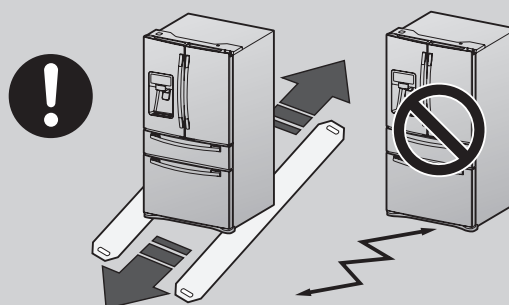
FLOORING

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

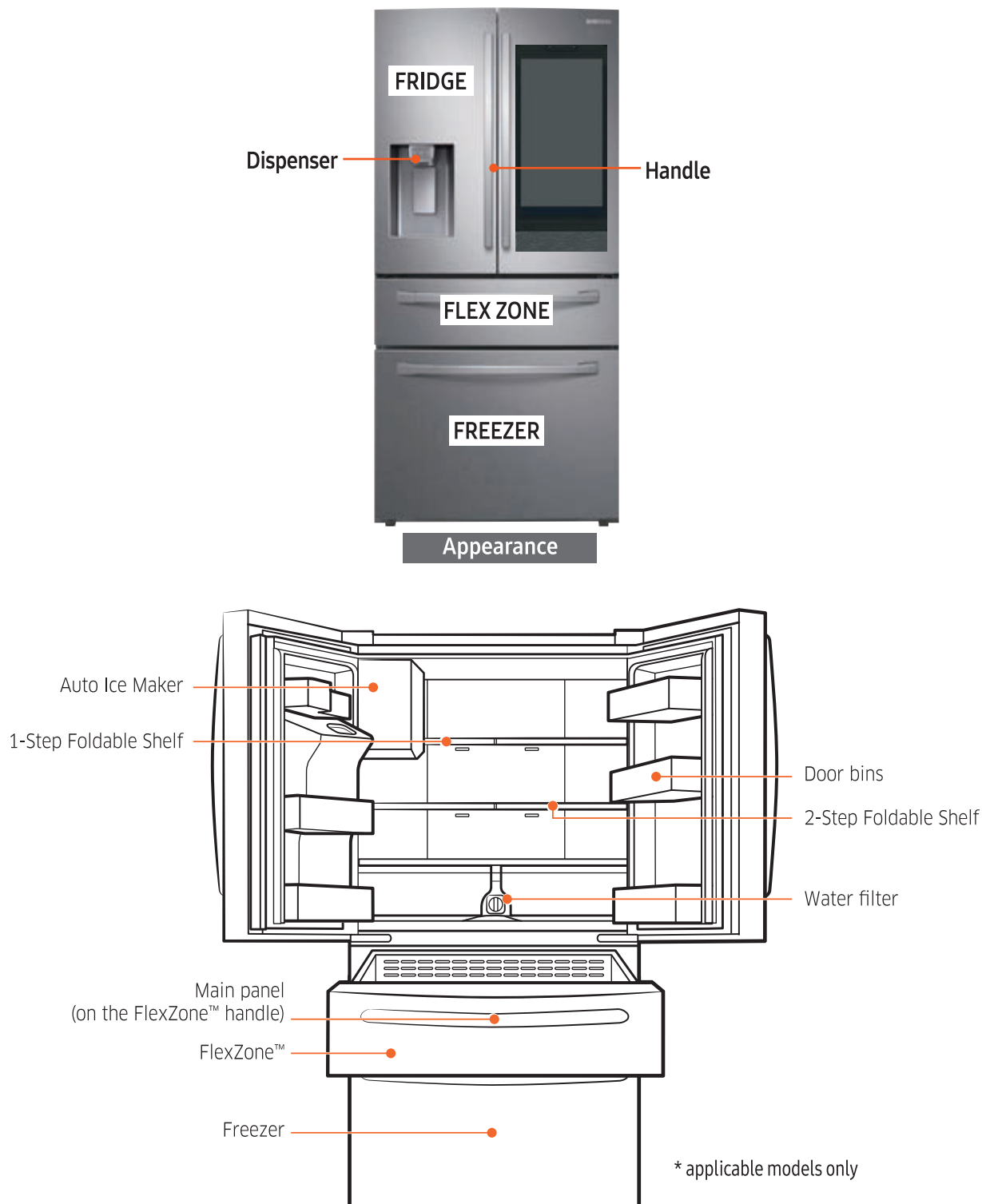
Protect the finish of the flooring. Cut a large section of cardboard carton and place it under the refrigerator where you are working. When moving the product, make sure that you pull the unit straight out and push it back straight in.



2. PRODUCT FEATURES AND SPECIFICATIONS

2-1. Compartment Features by Model

Water Dispenser model : RF22R75* / RF28R75*



PRODUCT FEATURES AND SPECIFICATIONS

2-2. Basic Product Specifications

Item	Specifications	
Model no.	RF22R75*	RF28R75*
External dimensions (width x depth x height)	35 6/8" * 31" * 70" (908 * 788 * 1777)	35 6/8" * 36 1/2" * 70" (908 * 926 * 1777)
Gross dimensions (width x depth x height)	38 2/8" * 31 1/8" * 76"	38 2/8" * 36 7/8" * 76"
Rated power frequency (HZ)	60	
Rated power (V)	115	
Rated power consumption of the electric motor (W)	125	
Rated power consumption of the electric heater (W)	486.8	507.8
Refrigerator type	Indirect cooling type	
Refrigerant	R-600a	
Amount of sealed refrigerant	70g	
Weight (kg)	147	157
Gross weight (kg)	157	167
FRE (cu.ft)	6.5	8.3
REF (cu.ft)	12.6	15.6
Flex Zone (cu.ft)	3.1	3.8
Total (cu.ft)	22.2	27.7
Energy (kWh/yr)	684	745
Door	SWING 2 Door / 2 Drawer	
Shelf (Fridge)	SLIDE, FIX, FOLD	
Drawer (Fridge)	2 Pieces	
Drawer (Flex Zone)	1 Piece	
Drawer (Freezer)	2 Pieces	
Ice Maker	Direct cooling system Auto I/M	
Guard (Fridge)	6 Pieces	
Handle	Bar handle	
Display	Center of the Right Fridge door	

PRODUCT FEATURES AND SPECIFICATIONS

Model		RF22R75*	RF28R75*
Motor & Fan	MOTOR BLDC (FRE)	DC 12V / DREP5020LC	DC12V, 2.1W / DREP5020LC
	MOTOR BLDC (REF)	DV12V, 0.1A / 2606JL-04W-S39-UQ1	DC12V, 1.92W / 3612JL-04W-S49-S49-G51
	Motor-BLDC BOX FAN	DC 12V, 0.16A / 2606JL-04W-S39-UQ1	DC12V, 1.7W / DRCP8020LA
	Motor-BLDC (CIRCUIT)	DC 12V, 0.14A / DRCP8020LA	DC12V, 3.2W / DREP5020LB
	AUGER MOTOR	AC120V, 102W / ISG-3240SSJ	AC120V, 102W / ISG-3240SSJ
	Geared Motor (ICE MAKER)	DC12V / GSP-24RW-001F	DC12V / GSP-24RW-001F
	GEARED MOTOR (DISPENSER)	AC120V, 3.5W / MVCD18AR19	AC120V, 3.5W / MVCD18AR19
	MOTOR DAMPER	DC12V / NSBY001TJ1	DC12V / NSBY001TJ1
Heater	F-Evap.	AC120V, 230W	AC120V, 230W
	R-Evap	AC120V, 120W	AC120V, 120W
	French	AC120V, 10W	AC120V, 10W
	Dispenser	AC120V, 2.5W	AC120V, 2.5W
	ICE MAKER	AC120V, 120W	AC120V, 120W
	ICE ROOM	DC12V, 2.0W	DC12V, 2.0W
	Water Pipe	DC12V, 2.3W	DC12V, 2.3W
Over heating protector	Freezer	Thermo- Bimetal[Off : 60°C, On : 40°C]	Thermo- Bimetal[Off : 60°C, On : 40°C]
	Fridge	Thermo- Bimetal[Off : 60°C, On : 40°C]	Thermo- Bimetal[Off : 60°C, On : 40°C]
Lamp	FLEX ZONE	DC 12V, 1.56W * 1EA	DC 12V, 1.56W * 1EA
	Fridge	DC 12V, 3.3W * 2EA DC 12V. 0.96W * 2EA	DC 12V, 3.3W * 2EA DC 12V. 0.96W * 2EA
	Freezer	DC 12V, 1.56W * 1EA	DC 12V, 1.56W * 1EA
ETC.	OLP	N/A	N/A
	Defrost Sensor	THERMISTOR (502AT)	THERMISTOR (502AT)
	Temperatur Sensor	THERMISTOR (PX41C/502AT)	THERMISTOR (PX41C/502AT)

PRODUCT FEATURES AND SPECIFICATIONS

2-3. Specifications

Items				Specification	
				RF28R75*	
Components for Freezer	Compressor		Model	NF54M7151AN/E01	
			Starting type	BLDC	
	Condenser			Forced and Natural Convection Type	
	Refrigerant			R600a	
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(°F)	
		THERMISTOR (F-SENSOR) 502AT	-8°F(-22°C)	-5°F(-20°C)	
			-2°F(-19°C)	1°F(-17°C)	
			8°F(-14°C)	11°F(-12°C)	
	Flex	Model	Temperature Selection	ON(°F)	
		THERMISTOR (F-SENSOR) 502AT	29°F(-1°C)	32°F(0°C)	
			42°F(5°C)	45°F(7°C)	
	Refrigerator	Model	Temperature Selection	ON(°F)	
		THERMISTOR (R-SENSOR) 502AT	34°F(1°C)	36°F(2°C)	
			38°F(3°C)	40°F(4°C)	
			46°F(7°C)	48°F(8°C)	
	Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		6hr ± 10min
Defrost Cycle(FRE)			12~23hr (vary according to the conditions used)		
Defrost Cycle(REF)			6~11hr (vary according to the conditions used)		
Pause time			12 ±1min		
Defrost Sensor		F/R Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0 kΩ at 77°F(25°C)	
		F/R Bimetal-thermo Protector	Rated	AC 250V / 3A	
			Operating temperature	Off : 140°F(60°C) / On : 104°F(40°C)	
		F/R Thermo Fuse- Assy Protector	Rated	AC 250V / 10A	
			Operating temperature	110(109)°C Off	

PRODUCT FEATURES AND SPECIFICATIONS

Items			Specification
			RF28R75*
Electric Components	Defrost Heater(FRE)	Heated at F Defrost	AC 120V, 230W / AC 230V, 230W
	Defrost Heater(REF)	Heated at R Defrost	AC 120, 120W / AC 230V, 120W
	Heater-Ice Maker		F/S : AC 120V, 141W / AC 230V, 141W C/D : AC 120V, 120W / AC 230V, 120W
	DISPENSER Heater	Interlock with French Heater	AC 120, 2.5W / AC 230V, 2.5W
	FRENCH Heater	-	AC 120V, 10W / AC 230V, 10W
	Heater Water Pipe	-	DC12V, 2.3W
	Heater Ice room	-	DC12V, 2W
	Bimetal Thermo For Preventing of Refrigerator Heater		AC 250V, 3A Off : 140°F(60°C). On : 104°F(40°C)
	Rated Voltage		AC 230V / 50HZ
	Motor BLDC (FRE)		DC12V, 2.1W / DREP5020LC
	Motor BLDC (REF)		DC12V, 1.92W / 3612JL-04W-S49-G51
	Motor BLDC (CIRCUIT)		DC12V, 1.7W / DRCP8020LA
	Motor BLDC (ICE ROOM)		DC12V, 3.2W / DREP5020LB
	Auger Motor		AC230V, 102W / ISG-3240SSJ
	Geared Motor (ICE MAKER)		DC12V / GSP-24RW-001F
	Geared Motor (DISPENSER)		AC230V, 3.5W / MVCD18AR19
	Motor DAMPER		DC12V / NSBY001TJ1
	Lamp LED(FRE)		DC 12V / 85 ~ 130mA
	Lamp LED(REF)		DC 12V, 506~588mA
	Lamp LED(MID)		DC 12V / 85 ~ 130mA
	Door Switch	FRE	DC 200V 0.5A / MDCG-4 (1EA)
		REF	DC 200V 0.5A / MDCG-4 (2EA)
		REF (ICE ROOM)	125VAC 5A, 250VAC 2.5A
		MID	DC 200V 0.5A / MDCG-4 (1EA)
	Power Cord		AC 120V, 15A / AC250V, 16A
	Earth Screw		BSBN (BRASS SCREW)

PRODUCT FEATURES AND SPECIFICATIONS

Items				Specification
				RF22R75*
Components for Freezer	Compressor		Model	NF54M7151AN/E01
			Starting type	BLDC
	Condenser			Forced and Natural Convection Type
	Refrigerant			R600a
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(°F)
		THERMISTOR (F-SENSOR) 502AT	-8°F(-22°C)	-5°F(-20°C)
			-2°F(-19°C)	1°F(-17°C)
			8°F(-14°C)	11°F(-12°C)
	Flex	Model	Temperature Selection	ON(°F)
		THERMISTOR (F-SENSOR) 502AT	29°F(-1°C)	32°F(0°C)
			42°F(5°C)	45°F(7°C)
	Refrigerator	Model	Temperature Selection	ON(°F)
		THERMISTOR (R-SENSOR) 502AT	34°F(1°C)	36°F(2°C)
			38°F(3°C)	40°F(4°C)
			46°F(7°C)	48°F(8°C)
	Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)	
Defrost Cycle(FRE)			12~23hr (vary according to the conditions used)	
Defrost Cycle(REF)			6~11hr (vary according to the conditions used)	
Pause time			12 ±1min	
Defrost Sensor		F/R Defrost-Sensor	Model	THERMISTOR (502AT)
			SPEC	5.0 kΩ at 77°F(25°C)
		F/R Bimetal-thermo Protector	Rated	AC 250V / 3A
			Operating temperature	Off : 140°F(60°C) / On : 104°F(40°C)
		F/R Thermo Fuse- Assy Protector	Rated	AC 250V / 10A
			Operating temperature	110(109)°C Off

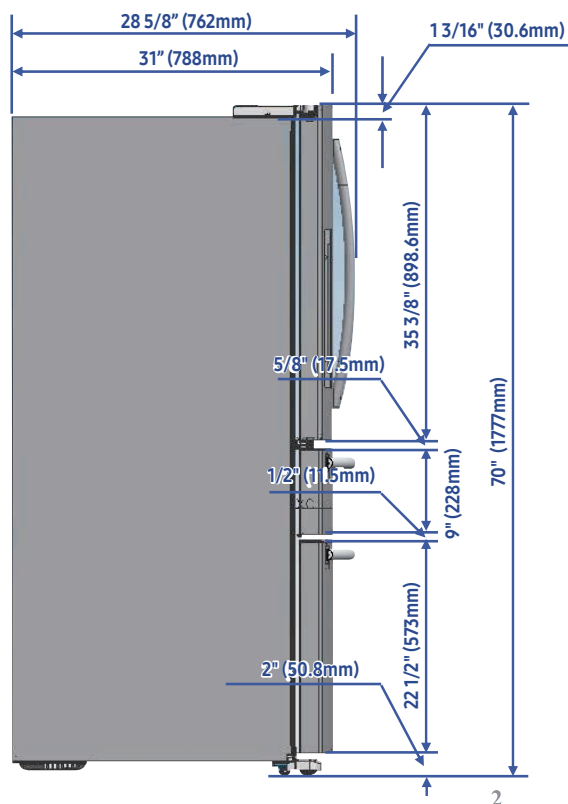
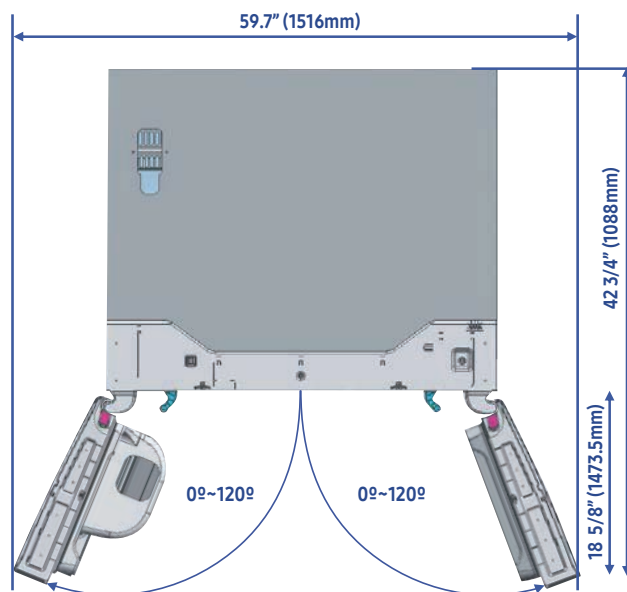
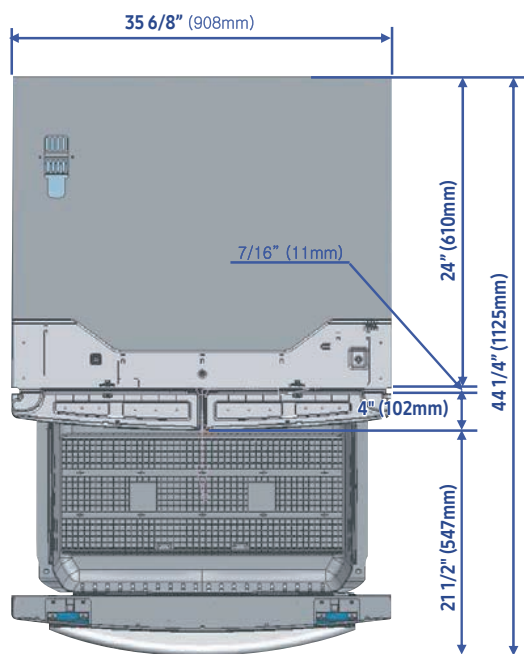
PRODUCT FEATURES AND SPECIFICATIONS

Items			Specification
			RF22R75*
Electric Components	Defrost Heater(FRE)	Heated at F Defrost	AC 120V, 230W / AC 230V, 230W
	Defrost Heater(REF)	Heated at R Defrost	AC 120, 120W / AC 230V, 120W
	Heater-Ice Maker		F/S : AC 120V, 141W / AC 230V, 141W C/D : AC 120V, 120W / AC 230V, 120W
	DISPENSER Heater	Interlock with French Heater	AC 120, 2.5W / AC 230V, 2.5W
	FRENCH Heater	-	AC 120V, 10W / AC 230V, 10W
	Heater Water Pipe	-	DC12V, 2.3W
	Heater Ice room	-	DC12V, 2W
	Bimetal Thermo For Preventing of Refrigerator Heater		AC 250V, 3A Off : 140°F(60°C). On : 104°F(40°C)
	Rated Voltage		AC 230V / 50HZ
	Motor BLDC (FRE)		DC12V, 2.1W / DREP5020LC
	Motor BLDC (REF)		DC12V, 1.92W / 3612JL-04W-S49-G51
	Motor BLDC (CIRCUIT)		DC12V, 1.7W / DRCP8020LA
	Motor BLDC (ICE ROOM)		DC12V, 3.2W / DREP5020LB
	Auger Motor		AC230V, 102W / ISG-3240SSJ
	Geared Motor (ICE MAKER)		DC12V / GSP-24RW-001F
	Geared Motor (DISPENSER)		AC230V, 3.5W / MVCD18AR19
	Motor DAMPER		DC12V / NSBY001TJ1
	Lamp LED(FRE)		DC 12V / 85 ~ 130mA
	Lamp LED(REF)		DC 12V, 506~588mA
	Lamp LED(MID)		DC 12V / 85 ~ 130mA
	Door Switch	FRE	DC 200V 0.5A / MDCG-4 (1EA)
		REF	DC 200V 0.5A / MDCG-4 (2EA)
		REF (ICE ROOM)	125VAC 5A, 250VAC 2.5A
		MID	DC 200V 0.5A / MDCG-4 (1EA)
	Power Cord		AC 120V, 15A / AC250V, 16A
	Earth Screw		BSBN (BRASS SCREW)

PRODUCT FEATURES AND SPECIFICATIONS

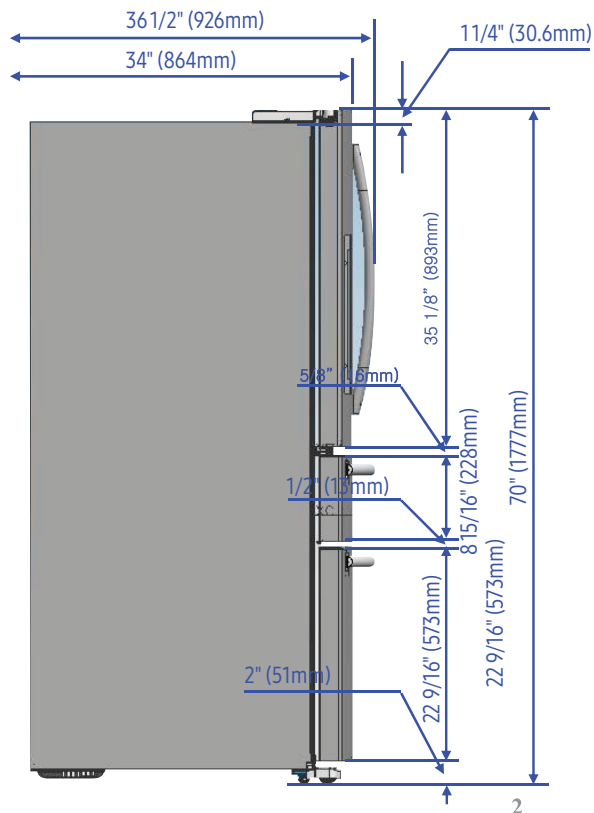
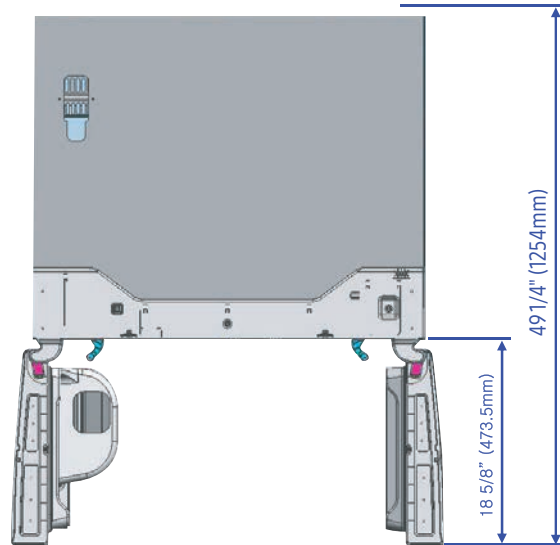
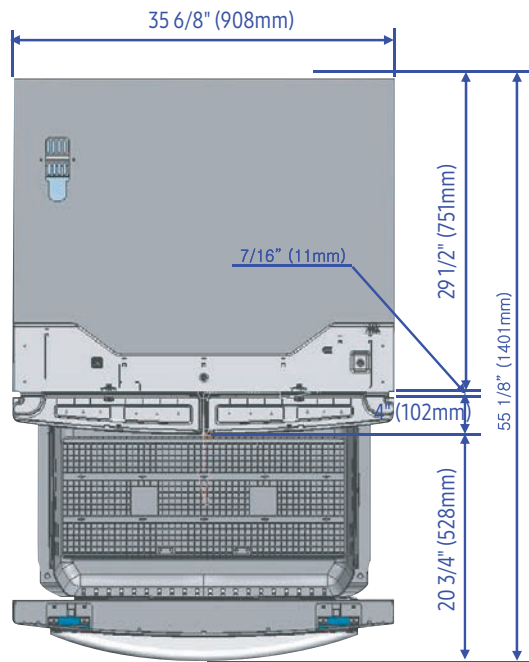
2-4. Dimensions

RF22R75*



PRODUCT FEATURES AND SPECIFICATIONS

RF28R75*



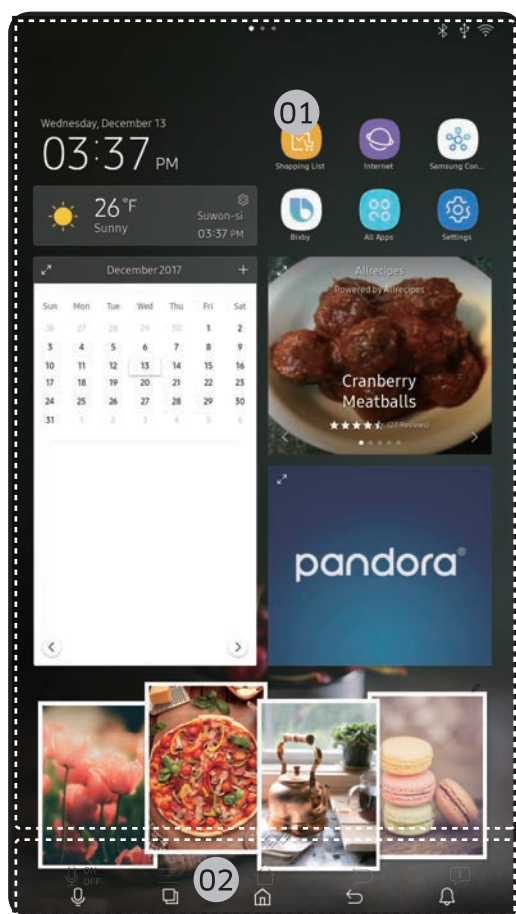
PRODUCT FEATURES AND SPECIFICATIONS

2-5. Feature panel

User interface

NOTE

- For detailed information about the refrigerator's functions, and apps, see the on-screen user manual available on the LCD display of your refrigerator.
- The content of apps and widgets and their design is subject to change. Support for apps and widgets may be discontinued without notice, depending on the content provider's policy.
- Children's use of the refrigerator's functions, apps, and services must be supervised by adults.
- The PANDORA apps are only available in the United States.

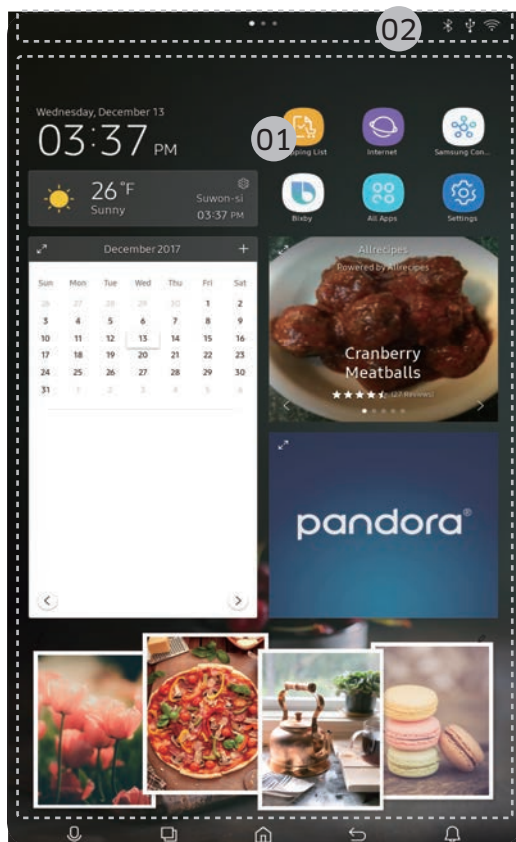


01 Home screen

02 Task bar (Soft buttons)

PRODUCT FEATURES AND SPECIFICATIONS

01 Home screen



01 Apps & Widgets

- Tap a desired app or widget to launch it.
- Tap and hold an app or widget to enter Edit mode. A grid appears. In Edit mode, you can drag and drop an app or widget to a new position on the grid. When you move the app or widget to a new grid location, the location turns blue if it is available. If it is not available, it turns red.
- You can add an app or widget that has been removed from the Apps list.

02 Status bar

Bluetooth (⌘)	Indicates Bluetooth connection status.
USB (ψ)	Indicates USB connection status. NOTE The refrigerator supports USB memory that is formatted in the FAT32 or exFAT file systems, NTFS is not supported, Be sure to convert NTFS to FAT32 or exFAT before use.
Remote Management (⌘)	Turns on when Remote Management is enabled and running.
Network (⌘)	Indicates network connection status in 5 levels (Off, 1-4)
Software Update (⌘)	Indicates that the newest version of the refrigerator's software has been downloaded from the server and is ready to update
Notification	Indicates there is a notification message.
Cloud sync	Indicates Family HUB is receiving data from the cloud server.
Energy Saver	Indicated Energy Saver is on.

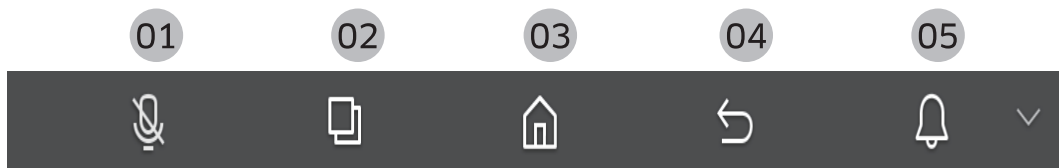
NOTE

The refrigerator supports USB memory that is formatted in the FAT32 or exFAT file systems. NTFS is not supported. Be sure to convert NTFS to FAT32 or exFAT before use.

- Network (⌘): Indicates network connection status in 5 levels (Off, 1-4).

PRODUCT FEATURES AND SPECIFICATIONS

02 Task bar

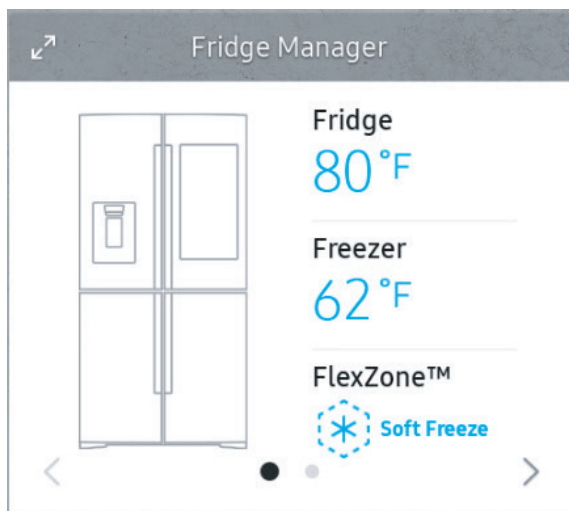


01 Microphone	- Tap to turn the microphone on or off.
02 Task Manager	- Tap to open the Task Manager. - See the Task Manager section for details.
03 Home	- Tap to open or return to the home screen.
04 Return	- Tap to return to the previous screen.
05 Notification	- Tap to display the Quick Panel.
06 Hide/Show	- Tap to hide or show Soft buttons. - The Hide/Show button only appears when an app is active.

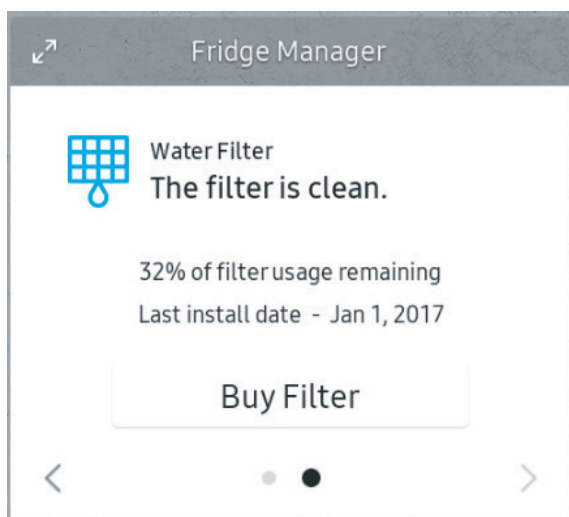
PRODUCT FEATURES AND SPECIFICATIONS

Fridge Manager

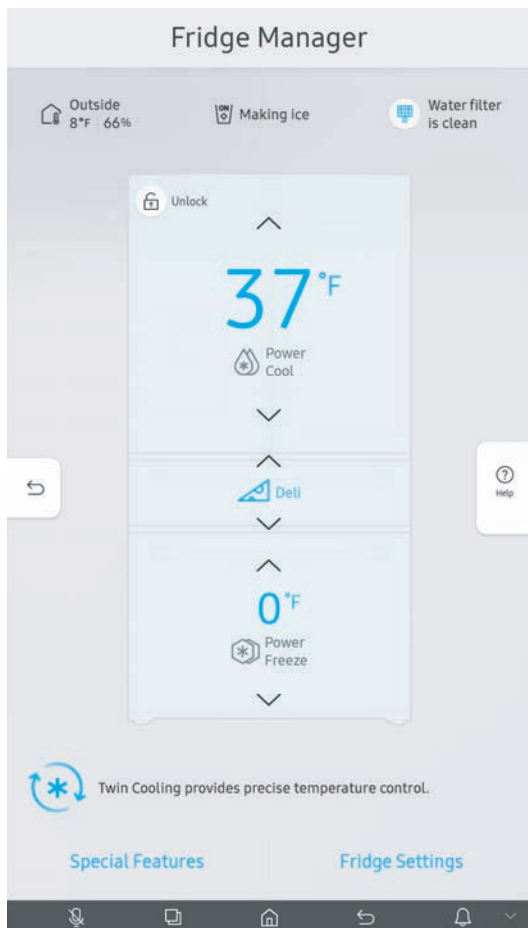
To access Fridge Manager, swipe the Home screen to the left, and then tap the FRIDGE MANAGER widget.



- On the Fridge Manager widget, the current fridge and freezer temperatures are displayed.
- For detailed settings, tap the widget to open the Fridge Manager.
- You can go to the first and second page of the widget by using the <,> button at the widget of refrigerator control.
- If the state of filter is yellow and red, the icon appears on the first page and the state of filter at second page is changed.
- If you touch the Buy Filter button at second page, you can go to a web page where you can buy a filter and if you touch the part other than second page button, you will move to the filter menu of 'Fridge Settings'.



PRODUCT FEATURES AND SPECIFICATIONS



The Fridge Manager is a graphical representation of your refrigerator.

The top half represents the refrigerator compartment, and the bottom half represents the freezer compartment.

The temperature or mode settings for each are displayed over each section.

Fridge Manager At a Glance

01 Temperature

Change the set temperature in the fridge, and freezer. You can also turn on and turn off the refrigerator's Power Cool function and the freezer's Power Freeze function.

- Power Freeze speeds up the freezing process at maximum fan speed. The freezer keeps running at full speed for several hours and then returns to the previous temperature.
- To freeze large amounts of food, activate Power Freeze for at least 20 hours before putting food in the freezer.

NOTE

Using Power Freeze increases power consumption. Make sure you turn it off to return to the previous temperature if you do not intend to use it.

02 Special Features

View a short explanation of some of the refrigerator's special features.

03 Fridge Settings

Change many of the fridge's settings including settings for ice making, the door alarm, and the temperature units (°F or °C). See the next page for details.

04 External Conditions

Displays the external (ambient) temperature and humidity.

Also displayed is the **Ice Off** (ice making off) indicator at the top, center.

When the indicator displays **Ice Off**, the refrigerator's ice maker is turned off.

PRODUCT FEATURES AND SPECIFICATIONS

NOTE

The displayed conditions may differ from the actual temperature and humidity.

NOTE

Also displayed is the Ice Off (ice making off) indicator at the top, center. When the indicator displays Ice Off, the refrigerator's ice maker is turned off.

Ice Maker	Turns the Ice maker on and off. Tap and drag the button to turn on or off. Note that if the ice bucket is full of ice, the refrigerator does not start making ice when you tap and drag this button (turning the ice maker on), but displays the ice Full indicator on the main screen. If you hold down the dispenser lever for 5 seconds, the ice Maker Off status changes to Ice Maker On.
Dispenser Lock	Turns the ice and water dispensers on and off. Tap and drag the button to turn on or off.
Door Alarm	The door alarm sounds if you leave the door open. Tap and drag the button to turn on or off.
Temp. Unit	Switch the temperature scale between Celsius and Fahrenheit. Touch °F or °C to change the scale.
Water Filter	Provides a water filter replacement tutorial and lets you reset the water filter replacement indicator. Tap to open.  NOTE - After installing the water filter, tap Water Filter, and then tap Reset. Tapping Reset re-initializes the function that measures the time remaining until the water filter needs to be replaced again. - If you tap Buy Filter, you will be directed to the website where you can purchase a water filter.
Self Check	Self Check is a self diagnoses function. Tap to open. Tap START to run.
Energy Saver	Tap and drag this button to turn Energy Saver mode on and off. The Energy Saver function automatically turns off when power is supplied to the refrigerator. If condensation or water drops appear on the doors, turn the Energy Saver mode off.
Demand Response	Works with the Smart Grid energy saving manager. Tap to open. Tap and drag the button to turn on or off. See the Smart Grid section in this manual for more information.
Cooling Off	Cooling Off mode (also called Shop mode), is designed for use by retailers when they are displaying refrigerators on the shop floor. In Cooling Off mode, the refrigerator's fan motor and lights work normally, but the compressors do not run, and the refrigerator and freezer do not get cold. If Cooling Off is turned on, all cooling controls will turn to OFF on the Fridge Manager. - To activate Cooling off, tap Activate > Proceed from Cancel/Proceed. - To deactivate Cooling Off, tap Deactivate > Proceed from Cancel/Proceed.

PRODUCT FEATURES AND SPECIFICATIONS

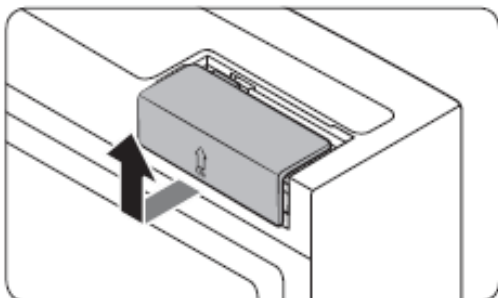
Settings

Display	You can set the screen brightness, wallpapers, auto wake-up, motion detector, and theme, screen timeout and duration of the screen saver.
Sound	Set the volume and equalizer and turn on or turn off the touch sound.
Wi-Fi	Turn on or turn off a Wi-Fi connection. The current Wi-Fi network is listed first in the access point(AP) list.
Bluetooth	Up to 4 recently paired Bluetooth devices are listed. To add a new device when 4 paired devices are listed, first unpair a paired device from the device list. Available devices are Bluetooth-enabled headsets, headphones, and speakers.
Voice	You can check the Voice function language, turn on or turn off Voice wake-up, select Wake Word, register and manage Voice ID, and check information about Bixby.
Profile	You can add, edit, or delete a profile.
Security	Enable or disable restrictions on Family Hub features and apps.
Language	Select a preferred language. Available languages depend on the sales region.
Date and Time	Make sure the Auto update function is on with a proper Wi-Fi network connection. Open the fridge door and locate the display reset button on the inner side of the door. Press the button and press again to reset the display. Then, the date and time will be synced by the time server. You can change the time zone through the Time zone menu.
About Device	Make sure the Software Update function is on with a proper Wi-Fi network connection. When updates are available, the Update button becomes active. When updates are complete, the refrigerator restarts automatically. Legal information displays the Open Source License Agreement. Tap the list item to open the Open Source Announcement.
Easy Connection	Easy Connection can be used with Samsung Smartphone apps, and allows you to connect your device to the same home Wi-Fi network that your smartphone is connected to.
Clean screen mode	Turn on so you can clean the screen without activating any apps.
Accessibility	Set to turn on or off the screen reader function for blind and lowvision users.
Help & Contact Us	You can send us feedback, question or minor issues about Family Hub or check the online manual.
Factory Reset	Tap Reset to restart the refrigerator in Factory Data Reset mode. All user data will be removed permanently. Data that will be removed includes account information, memos, photos, and user settings.  CAUTION Once factory reset is complete, no user data can be recovered.
Remote Management	Use Remote Management to allow a service representative to remotely diagnose problems and provide solutions. Remote Management requires a Wi-Fi connection. The Remote Management menu does not appear on models that do not support Remote Management.

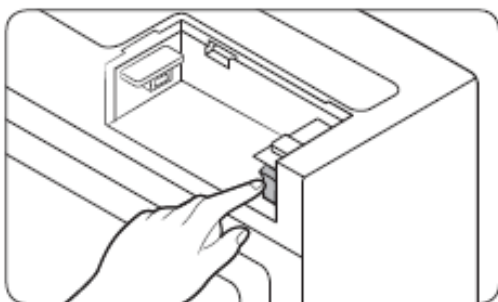
PRODUCT FEATURES AND SPECIFICATIONS

Display reset (applicable models only)

If the display is not working correctly, try resetting the display. This may resolve the problem.



1. Open the right-side fridge door and locate the switch cover on the top right corner of the door.
2. Push up the cover to reveal the power switch.



3. Turn the switch off, and then turn it on again.
4. Reinsert the switch cover to the end until you hear a clicking sound.

PRODUCT FEATURES AND SPECIFICATIONS

2-6. Samsung Connect

Installation

Visit the Google Play Store, Galaxy Apps, or Apple App Store and search for "Samsung Connect". Download and install the Samsung Connect app provided by Samsung Electronics to your smart device.

NOTE

- The Samsung Connect app is designed for Android 6.0 (Marshmallow) or later, iOS 10.0 or later, iPhone 6 or later, higher, and is optimized for Samsung smartphones (Galaxy S and Galaxy Note series).
- For improved performance, the Samsung Connect app is subject to change without notice or discontinued support according to the manufacturer's policy.
- Recommended encryption systems include WPA/TKIP and WPA2/AES. Any newer or non-standard Wi-Fi authentication protocols are not supported.
- Wireless networks may be affected by the surrounding wireless communication environment.
- If your Internet service provider has registered the MAC address of your PC or modem for identification, your Samsung Smart Refrigerator may fail to connect to the Internet.
If this happens, contact your Internet service provider for technical assistance.
- The firewall settings of your network system may prevent your Samsung Smart Refrigerator from accessing the Internet. Contact your Internet service provider for technical assistance.
If this symptom continues, contact a local Samsung service center or retailer.
- To configure the wireless access point (AP) settings, see the user manual of the AP.
- Samsung Smart Refrigerators support both Wi-Fi 2.4 GHz with IEEE 802.11 b/g/n and Soft-AP protocols. (IEEE 802.11 n is recommended.)
- Unauthorized Wi-Fi wireless routers may fail to connect to applicable Samsung Smart Refrigerators.

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

Turn on the device you want to connect, open the Samsung Connect app on your phone, then follow the instructions below.

If a pop-up appears saying that a new device has been found, tap ADD NOW.

If a pop-up doesn't appear, tap the + button, then select the device you want to connect from the list of available devices.

If your device isn't in the list of available devices, add the device manually by selecting the device type, and then selecting the specific device model.

Follow the instructions for setting up your device.

1. Sign in to your Samsung account (if not already signed in).
2. Add the device.
3. Check the connection.
4. Find and connect to a Wi-Fi network.
5. Register the device.
6. Setup is complete. Your device will now appear as a card on the My devices screen.

Refrigerator app

Integrated control

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

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

NOTE

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

PRODUCT FEATURES AND SPECIFICATIONS

Category	Item	Description
Monitoring	Fridge temperature	Displays the current temperature setting of the fridge.
	Freezer temperature	Displays the current temperature setting of the freezer.
	FlexZone™ settings	Displays the settings of the FlexZone™.
	Diagnosis	Detects abnormal operations of the refrigerator.
	Energy monitoring	Checks the accumulated power consumption of the refrigerator for the last 180 days.
Functions	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 or freezer has abnormally high temperatures.
	Door opening	This alarm is triggered if the fridge door, the freezer drawer, or the FlexZone™ drawer is open for a specific time.
	Water filter replacement	This alarm reminds you that the water filter must be replaced.
Inside Image		You can view the inside of the refrigerator and you can know when to replace food items.
Family Hub App Link		You can connect to the App Store and download the Refrigerator app.

PRODUCT FEATURES AND SPECIFICATIONS

2-7. 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 or Temporary Appliance Load Reduction 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.
 - **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 function is turned on.

PRODUCT FEATURES AND SPECIFICATIONS

- 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.
 - **TALR** (L4) mode is automatically deactivated after it lasts for the received duration (max. 15 minutes), or when the Override function is turned on. 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

1. Tap the **Settings** icon on the Home screen.
2. Scroll down to and open **About Device**.
3. The screen displays (among others) the Wi-Fi MAC address.

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. Tap the **Fridge Manage** icon.
2. On the bottom of the Fridge Manager screen, tap the **Fridge Settings** icon.
3. Tap **Demand Response**.
4. Slide the **DAL/TALR override** button to the **ON** or **OFF** position.

NOTE

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

PRODUCT FEATURES AND SPECIFICATIONS

Using the Energy Management Function

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

NOTE

- To use the Energy Management refrigerator functions, you have to install the corresponding app first.
- 1. Operational Status
 - You can check the DR and Override status.
- 2. Energy Consumption Reporting
 - Shows the accumulated power consumption. Power consumption data is updated every 5 minutes.

NOTE

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

3. 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: November 1st to April 30th.
 - 3 pm to 7 pm: May 1st to October 31st.

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 FEATURES AND SPECIFICATIONS

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 /devices/0/fridge/iceMaker
- Door Open Alarm: GET /devices/0/Door/openState
- DR Status: GET /devices/0/drlc
- Delay Defrost Capability
- Set Schedule of the Defrost Delay: POST /devices/0/fridge/defrostreservations
- Get Schedule of the Defrost Delay : GET /devices/0/fridge/defrostreservations
- Delete Schedule of the Defrost Delay: DELETE /devices/0/fridge/defrostreservations/<<id>>
- Defrost Delay On/OFF: PUT /devices/0/fridge

PRODUCT FEATURES AND SPECIFICATIONS

2-8. Samsung Family Hub

Installation

Visit the Google Play Store, Galaxy Apps, or Apple App Store and search for “Samsung Family Hub”. Download and install the Samsung Family Hub app provided by Samsung Electronics to your smart device.

NOTE

- The Samsung Family Hub app is designed for Android 4.4 (KitKat) or higher, or iOS 8.0 or higher, and is optimized for Samsung smartphones (Galaxy S and Galaxy Note series).
- For improved performance, the Samsung Family Hub app is subject to change without notice or support may be discontinued according to the manufacturer's policy.
- Wireless networks may be affected by the surrounding wireless communication environment.
- If your Internet service provider has registered the MAC address of your PC or modem for identification, your Samsung Smart Refrigerator may fail to connect to the Internet. If this happens, contact your Internet service provider for technical assistance.
- The firewall settings of your network system may prevent your Samsung Smart Refrigerator from accessing the Internet. Contact your Internet service provider for technical assistance. If this symptom continues, contact a local Samsung service center or retailer.

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.

NOTE

To connect your smartphone and the refrigerator, register your Samsung account in Settings → Profile.

Item	Description
Calendar	You can share your schedule with your family.
To Do	You can create and edit a to-do list to your needs.
Memo	You can create and edit a memo to specific users.
Whiteboard	You can send White Board contents created from the refrigerator to your smartphone or vice versa.
Photo	You can send photos from your smartphone to the refrigerator.
View Inside	You can check the inner view of the refrigerator, and use different labels to register item-specific storage periods and keep track of them for managerial purposes.
Shopping List	You can create and edit a shopping list to your needs.

PRODUCT FEATURES AND SPECIFICATIONS

2-9. ICE-MAKER Function

- The ICE-MAKER function is an option and the following explains the function of these models.
- The ICE-MAKER is a kit that supplies water on its own, freezes water into ice and stores the ice cubes in the Ice Container with the capability of making ice automatically without manual controlling

1) Shape of Icemaker



2) Initial Operations

1. When the power is on, it checks the temperature of the Ice Maker Sensor. If the Ice Maker Sensor temperature is lower than 0°C, the Ice Maker Heater will be on for 4 minutes. After that, it will run the Initial Test Mode. If the Ice Maker Sensor temperature is higher than 0°C, it will run the Initial Test Mode right away.
2. During the Initial Test Mode, it carries out the operation of the Ice Maker Motor and its Heater turns on for 30 seconds.
3. If the Ice Maker Sensor temperature is over 0°C upon the initial power on, the Water Valve will work for a second while its Heater is on.
4. The Ice Maker Motor rotates both clockwise and counter clockwise repeatedly. And, when it is sensed as being at the parallel position (Home) within 6 minutes after the Motor starts operating, its initial operation will stop and its normal ice making will begin.
5. When it does not sense the parallel position (Home) within 6 minutes after the Motor starts operating, it will be considered as the Ice Maker defect and its initial operation will stop.

※ Operation upon Ice Maker Defect during the Initialization.

- 1) Upon the termination of the Initialization due to the Ice Maker Defect, it runs the Initialization again. And, when the defect is detected during all the set number of times (ex. 3 times), it will stop the Initialization of the Ice Maker.
- 2) When it is sensed as defect 3 times in a row during the initialization, the Ice Maker does not operate for the set duration (ex. 3 hours) and it runs the initialization again after a set time period.

PRODUCT FEATURES AND SPECIFICATIONS

3) General Operation

- Water Supply > Stand-by Time for Ice Making > Temperature Checking for Ice Maker Sensor > Ice Removing
Water Supply Ice Making Ice Removing

1. After supplying water, it stands by for 14 minutes before starting the ice making. After that, it checks the Ice Maker Temperature.
2. When the Ice Maker Sensor temperature is measured lower than -13°C for more than 5 seconds, its ice making is completed.
3. When the ice making is completed, the Ice Maker Heater and Motor operates and the ice cubes are to be removed from the Ice Maker. At this time, its heater thaws out the outer surface of the ice cubes allowing them to be removed from the Ice Maker easily. And, its motor turns both clockwise and counter clockwise to remove the ice cubes from the Ice Maker.
4. The Ice Maker repeats the operation of the (1) ~ (3) until ice cubes build up in the Ice Bucket triggering the Full-Ice Detect Sensor on. At this time, the Ice Maker stops producing ice cubes.

4) Ice Off (Stopping Ice Making) Function

1. When turning on the Ice Off function at the preference setting, the Ice Maker function will be off.
2. When the Ice Maker is off, it does not supply water to the Ice Tray.
3. When turning off the Ice Off function, the Ice Off function will be cancelled. When the Ice Off is cancelled, it starts from ice making and the operation of the Ice Maker resumes.

5) TEST Function

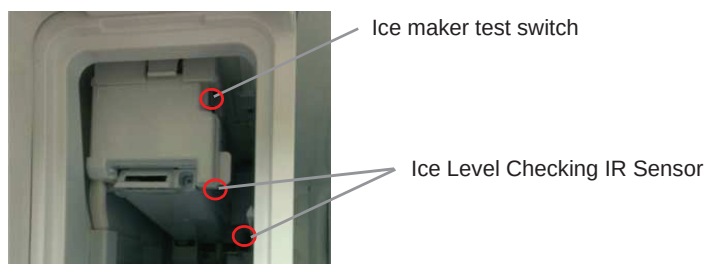
- It is a function to be used when it needs the forced operation for the purpose of repairs or cleaning.

1. When pressing the Test Button for 1.5 seconds, the Test Function will start.
2. The Test Function works as follows.
Start (Alarm Sound) → Motor On (Rotating Counter Clockwise) → Motor On (Rotating Clockwise) → Heater On → Motor On (Rotating Clockwise) → Home Location → Water Supply → Completed (Alarm Sound)
- ※ The Ice Maker Heater will be On / Off
The Ice Maker Heater will be On and Off according to the temperature conditions of the Ice Maker Sensor when the Ice Maker Motor rotates clockwise.
3. When the entire operation is to be completed within 6 minutes after the motor starts operating upon pressing the Test button, it sends out alarm sound. And, after this, it does normal ice making.
4. When the entire operation does not complete normally (ex. Not reaching at the Home location) within 6 minutes after the motor starts operating upon pressing the Test button, it will be considered as the Ice Maker defect and the entire loads (Motor, Heater, etc) will be off. (No alarm sound)
After this, it performs an operation checking whether the Ice Maker operates normally according to the set time cycle (ex. 3 hour).



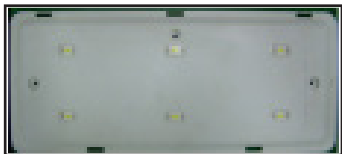
When the Ice Maker Heater is on, it may cause personal injury. So, take extra care

Caution



PRODUCT FEATURES AND SPECIFICATIONS

2-10. Material Specification

IMAGE	Part Name	Part Code	AMOUNT
	ASSY-PACKING SUB	DA99-03490L	1
	ASSY CASE LAMP-REF	DA97-12606C	1
	LED LAMP FRE	DA41-00676J	1
	LED LAMP MID	DA41-00676J	1

3. DISASSEMBLY AND REASSEMBLY

3-1. Precautions

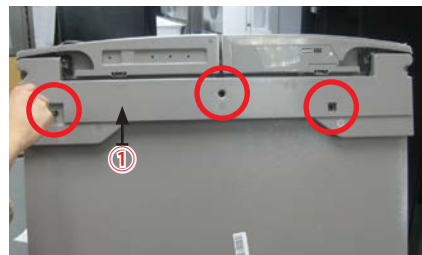
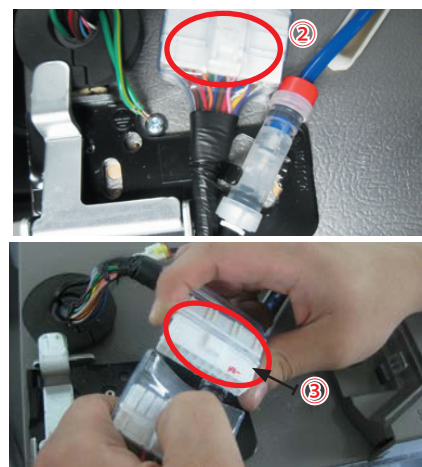
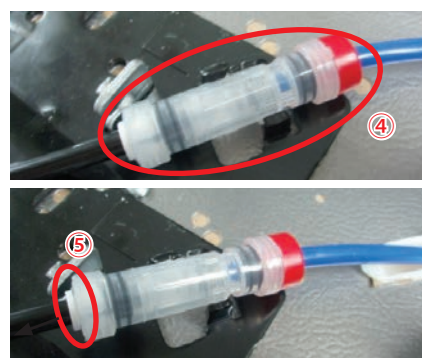
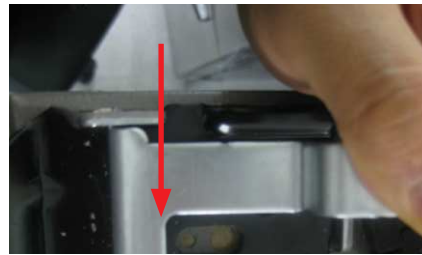
- Before replacing or repairing an electrical part, be sure to unplug the product's power cord.
 - Failing to do so may result in electric shock.
- Be sure to replace any electrical parts with rated parts.
 - Be sure to check the model no, rated power voltage, operating temperature etc. printed on the product.
- When repairing a product, connect the harnesses firmly so that no water enters the product.
 - They should not become separated if a certain amount of force is applied.
- When repairing the product, completely remove all dust or foreign substances from the housing, connectors and terminals.
 - Prevents fire due to tracking or short-circuits.
- Check if there are any marks of moisture having entered the electric parts.
 - If it appears that moisture has penetrated the part, take countermeasures such as replacing the part or wrapping the part with insulation tape.
- After fixing a problem, check the assembly status of the parts.
 - The status must be the same as before repairing the product.
- Check the operating environment of the refrigerator.
 - If the refrigerator is exposed to moisture or is installed near water or on an unstable surface, relocate the refrigerator.
- Ground the refrigerator if necessary.
 - In particular, if there is a danger of electric leakage due to moisture or water, be sure to ground the refrigerator.
- Do not share a power strip with other appliances.
- Check if the power plug or electrical outlet is damaged, deformed or old.
 - If the power plug or outlet is damaged or out of order, repair it immediately.
 - Take care when you move the product so that the power cord is not damaged, cut or becomes trapped.
- Do not store food in an unstable manner in the refrigerator or store bottles in the freezer.
- Do not let customers repair the product by themselves.
- Do not let customers store items other than food in the refrigerator.
 - Medicine or chemicals: A precise temperature cannot be maintained by the refrigerator for home use.
 - Inflammable materials (alcohol, benzene, ether, LP gas, butane gas, etc.): There is a danger of explosion.

Required Tools

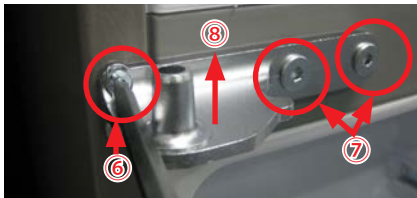
Image	Item
	(+) screw driver
	(-) screw driver
	Hexagon wrench (5 mm diameter)
	Long nose pliers
	Box wrench (12 mm) - To disassemble the compressor
	Box wrench (10 mm) - To disassemble the hinge Lower
	Suction Cup

DISASSEMBLY AND REASSEMBLY

3-2. Refrigerator Door

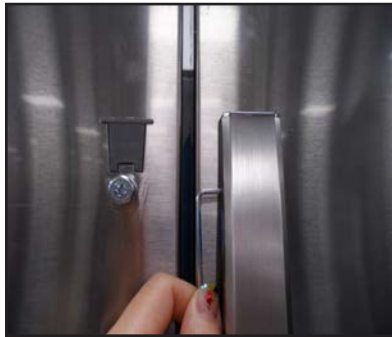
Part Name	How To Do	Descriptive Picture
Refrigerator Door	1. Remove the 3 screws holding down the Top Table and remove the Top Table (①)	
	2. Disconnect the electrical (②) above the upper left door hinge To disconnect the connector (②) more easily, press the end of the hook (③) and pull connector.  CAUTION Make sure unit is unplugged.	
	3. As shown in the picture, Remove water tube from hinge (④) by holding at the both sides of the Tube Fitting and pulling it out. And, remove the Tube Fitting (⑤) by pulling the water hose after pushing in the locking ring tab at the end of the Tube Fitting.	
	4. After pulling the Hinge Lever, remove the Hinge.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Refrigerator Door	5. Lift the door straight up to remove.  CAUTION Be careful not to drop the door.	
	6. Lift the grommet hinge straight up to remove.	
	7. With a Philips head screwdriver, remove the screw (⑥) attached to the lower left and right door hinges. With a 0.4in Hex wrench, remove the 2 flat head screws (⑦) Remove the lower left and right door hinges (⑧).	

DISASSEMBLY AND REASSEMBLY

3-3. Door Handle Refrigerator

Part Name	How To Do	Descriptive Picture
Door Handle Fridge	1. Loosen the set screw with 0.1 in Hex wrench and pull forward on the handle.	
	2. Remove Protective film completely from door panel.	

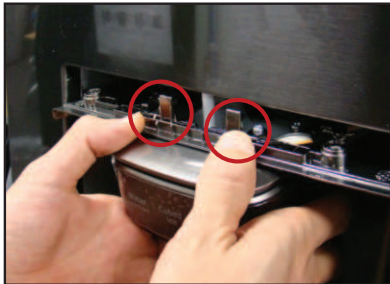
DISASSEMBLY AND REASSEMBLY

3-4. Door Handle Freezer & Flex zone

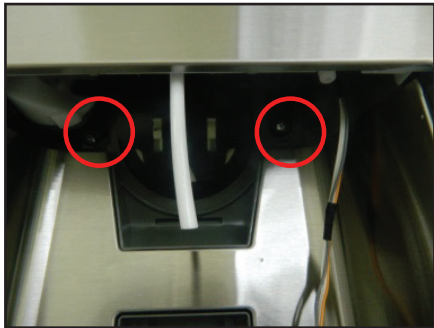
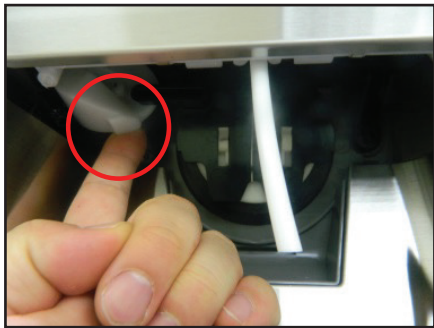
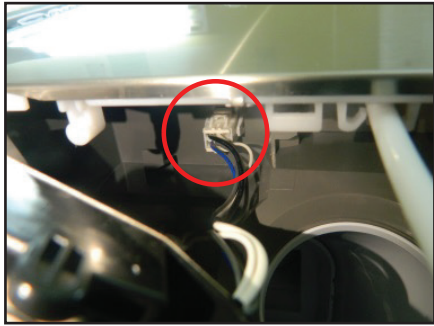
Part Name	How To Do	Descriptive Picture
Door Handle Freezer	Loosen the Set Screw situated at the bottom right of the appliance about 0.1in by using Hex wrench.	
	Pull the Set handle out by moving it to the right side.  CAUTION Be careful not to scratch or break the parts	 

DISASSEMBLY AND REASSEMBLY

3-5. Lever and Water-Dispenser

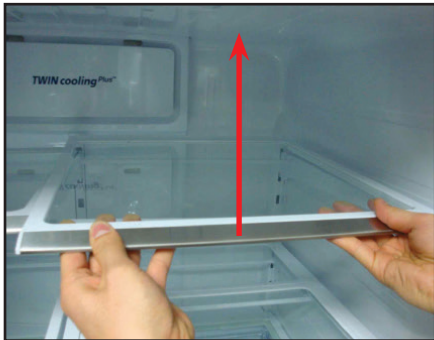
Part Name	How To Do	Descriptive Picture
Lever and Water-Dispenser (Disassembly)	1. Put both fingers in the upper of lever. Pull and remove the lever slowly.	
	2. Remove two screws under the Dispenser Display.	
	3. Grasp the top of the dispenser display and pull it down.  Be careful not to scratch or break the parts CAUTION	 
	4. Disengage the wiring connector of display cover.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Lever and Water-Dispenser (Disassembly)	5. Put both fingers in the upper of lever. Pull and remove the lever slowly.	
	6. Pull towards you to separate the ice route from the dispenser.	
	7. Separate the ice route from the door assembly in accordance with the photo.	
	8. Remove unplug connector.	

DISASSEMBLY AND REASSEMBLY

3-6. Glass Shelf

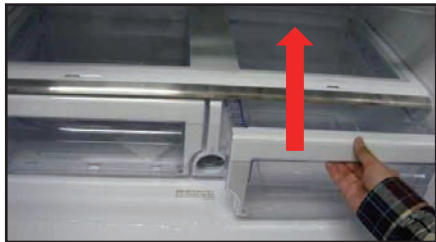
Part Name	How To Do	Descriptive Picture
Glass Shelf	Remove the shelf by lifting the front part of the shelf up and pulling it out.	

3-7. Foldable Glass Shelf

Part Name	How To Do	Descriptive Picture
Foldable Glass Shelf	1. Remove the Cap. 2. Remove 2 screws of the Folderble Glass Shelf.	

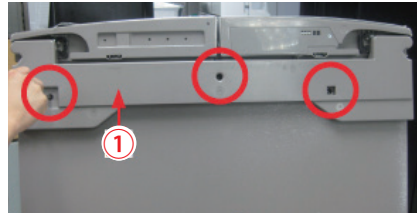
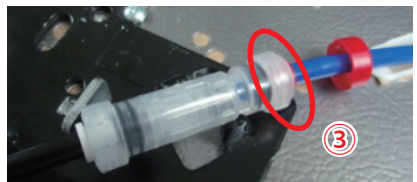
DISASSEMBLY AND REASSEMBLY

3-8. Vegetable & Fruit Drawers Shelf

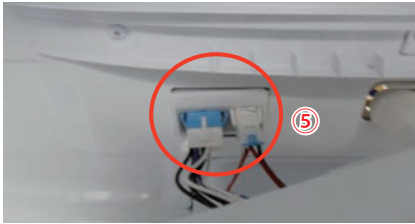
Part Name	How To Do	Descriptive Picture
Vegetable & Fruit Shelf	1. Remove the vegetable & fruit drawer by pulling the roller part and lifting it up.	
	2. If unit is cold, a small tool like a standard blade screw driver may help disengage the clips.	
	3. Remove the vegetable & fruit drawer shelf by pulling it out. (Refer to the picture)	

DISASSEMBLY AND REASSEMBLY

3-9. Case Water Filter

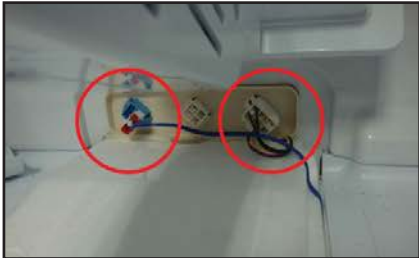
Part Name	How To Do	Descriptive Picture
Case Water Filter	To disassemble the Case Water Filter, remove the water filter and all drawers and shelves.	
	1. Remove the 3 screws holding down the Top Table and remove the Top Table (①).	
	2. a. Remove Cover Tube Fitting (①). b. Remove the Water tube (blue) from the tube fitting by pushing in on the locking ring (②) and pulling out the tube.	 
	3. Remove three screws securing the water tubes.	
	4. a. Pull the Water blue hose out. b. Push the Tube Fitting (④) and pull the grey hose out.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Case Water Filter	5. Disconnect the 2 Housing connectors (⑤).	
	6. Remove a screw the case filter right side.	
	7. Lift and pull the Case Water Filter out.	

DISASSEMBLY AND REASSEMBLY

3-10. Motor Damper

Part Name	How To Do	Descriptive Picture
Motor Damper	1. Remove the 2 screws under the. water filter case and take off the cover damper(②).	
	2. Disengage 2 housing connector.	
	3. Take off the Motor Damper by pulling a flat-blade screwdriver .	

DISASSEMBLY AND REASSEMBLY

3-11. Water Filter (Assembly & Disassembly)

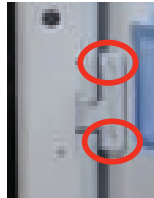
Part Name	How To Do	Descriptive Picture
Water Filter	1. Turn the water filter count-clockwise. (Refer to the picture)	
	2. Remove the water filter by pulling it. (Refer to the picture)	
	3. Push the water filter directly.	
	4. Turn the water filter clockwise until it locked.	



Be sure to flush the dispenser thoroughly (approx. 6 to 7 minutes), otherwise water may drip from the dispenser. This means that there is still air in the line.

DISASSEMBLY AND REASSEMBLY

3-12. Disassembling the French

Part Name	How To Do	Descriptive Picture
Disassembling the French	1. Remove the 2 screws.	 
	2. Lift the French upward perpendicularly to separate it. (Refer to the figure)	
	3. Separate the housing connector inside the French.	 

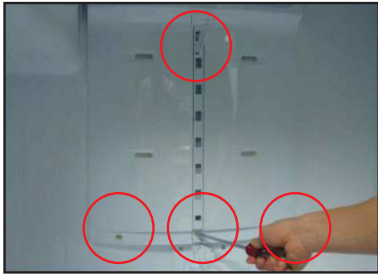
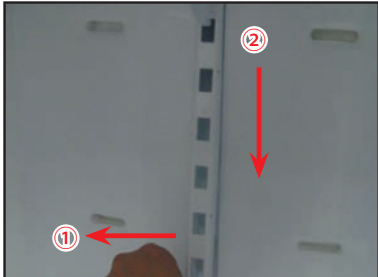
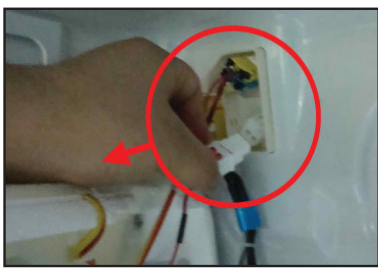


CAUTION

The French here refers to the part that looks like a long stick between the left and right fridge doors. (It prevents cold air from escaping through the gap between the left and right doors.)

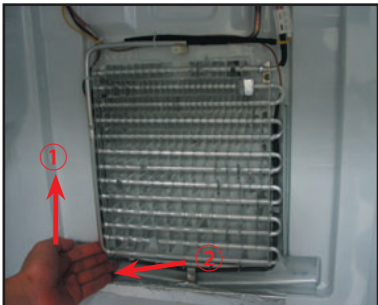
DISASSEMBLY AND REASSEMBLY

3-13. Evaporator Cover In Refrigerator

Part Name	How To Do	Descriptive Picture
Evaporator Cover In Refrigerator	Remove the angle cap with a flat-blade screwdriver. (Refer to the picture)  Be careful not to scratch or break the parts CAUTION	
	Unscrew 4 screws.	
	Remove the the lower part of angle mid by pulling it out and pushing it down. (Refer to the picture)	
	Remove the hook by pulling it from the lower part and pushing the cover down. (Refer to the picture)	
	Disconnect the 2 housing connectors. (Refer to the picture)  Continues a work after confirming that fan operation stops. CAUTION	

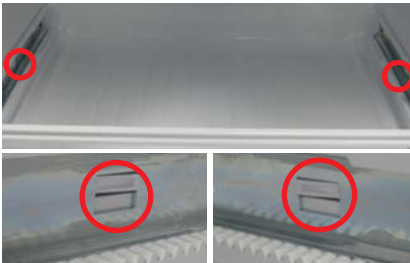
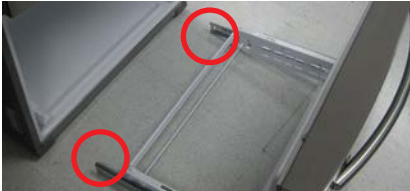
DISASSEMBLY AND REASSEMBLY

3-14. Evaporator In Refrigerator

Part Name	How To Do	Descriptive Picture
Evaporator In Refrigerator	1. Remove the the housing cover by pushing both lateral sides of the housing cover (①) and pulling it out. (Refer to the picture.)	
	2. Disconnect the housing connector part on left side. (Refer to the picture.)	
	3. Disconnect the housing connector on right side.	
	4. Remove the evaporator by lifting the bottom side of it up and pulling it out. (Refer to the picture.)	

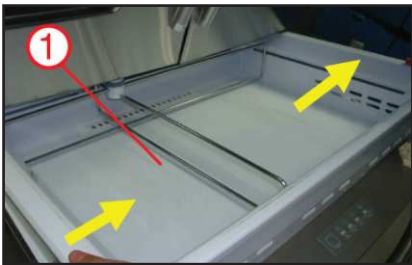
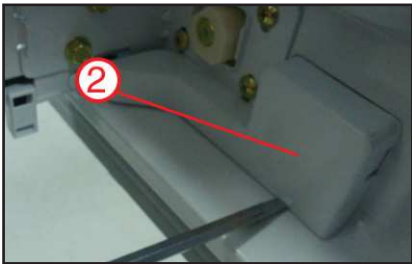
DISASSEMBLY AND REASSEMBLY

3-15. Freezer Door

Part Name	How To Do	Descriptive Picture
Freezer Door	1. Open the freezer compartment completely.	
	2. Remove after lifting the Pull Out Drawer up holding both sides, remove it at the rail system.	
	3. After lifting the Freezer Guard up holding both sides, remove it at the rail system.  CAUTION The box may get scratch on its side by getting twisted left and right when disassembling the drawer box.	
	4. Press the fixing hook of rail system.	
	5. After holding and pulling out the top of Freezer Door, remove it at the rail system.	
	 CAUTION Make sure there is no scratch at the end of Sliding Rail by being dented from the floor.	

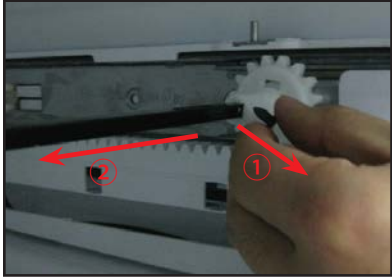
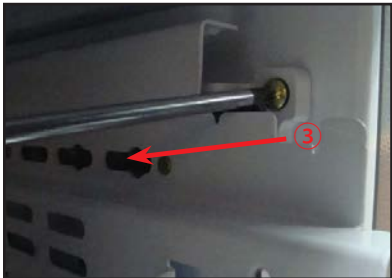
DISASSEMBLY AND REASSEMBLY

3-16. Convertible Door

Part Name	How To Do	Descriptive Picture
Mid drawer	1. Pull the and remove the convertible room (①) by pulling it to your body with both hands. open to full extension.	 A photograph showing the interior of a refrigerator drawer. A red circle with the number 1 is placed over a horizontal track. Two yellow arrows point outwards from the track, indicating the direction to pull the drawer to full extension.
	2. Remove the wire housing with a flat blade screwdriver. (②)	 A close-up photograph of a white plastic wire housing. A red circle with the number 2 is placed over the housing. A flat blade screwdriver is shown inserted into a slot on the side of the housing.
	3. Disengage the housing.	 A photograph showing a hand pulling a white plastic housing away from a metal track. The housing is being lifted and moved to the right, away from the track.
	4. Unscrew 2 bolts. (1 bolts each on the both sides.)	 A photograph showing the interior of a refrigerator drawer. Two red circles are placed over bolts on the left and right sides of the drawer, indicating the locations to be unscrewed.
	5. Lifting up the convertible door. Remove the convertible door from the rail.	 A photograph showing a hand lifting a white plastic convertible door from a metal rail. The door is being lifted upwards and away from the rail.

DISASSEMBLY AND REASSEMBLY

3-17. Flex Zone Door

Part Name	How To Do	Descriptive Picture
Mid drawer	6. To remove the gear shaft(①), pull the pin out(②) .	
	7. Remove the screw and pull out The rail.	

DISASSEMBLY AND REASSEMBLY

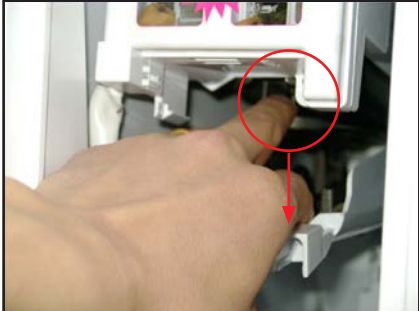
3-18. Ice-Maker

Part Name	How To Do	Descriptive Picture
Ice Maker	When pressing the Fridge + Flex zone keys for 8 seconds at the same time, it will proceed to TEST MODE. When you proceed to TEST MODE, press the Flex zone key in Panel to operate TEST KEY.	
	- Press TEST KEY to change the test function in the order of Manual operation (3600 RPM) → Manual operation (3600 RPM)[OF r]→ manual R defrost [rd]→ manual F/R defrost[Fd]→ cancel (normal operation)→ forced operation. - If the key on the front panel does not operate within 15 seconds of switching to TEST Settings MODE, it is deactivated and switches to the previous DISPLAY mode.	
	Lift up the Ice Bucket and pull it out.	
	Remove the screw from the Wire Housing Cover.	
	Remove the Wire Housing Cover.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Ice Maker	6. Disconnect the Ice Maker Housing Connector.	
	7. Remove the duct security screw.	
	8. With a flat blade screwdriver, push the duct to the right and remove it from the locking tab. (Refer to the image.)	
	9. If cooling loop does not drop you may CAREFULLY use a flat blade screw driver to gently pry down the loop. but this is part of the sealed system so exercise caution.	

DISASSEMBLY AND REASSEMBLY

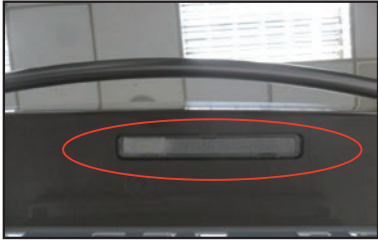
Part Name	How To Do	Descriptive Picture
Ice Maker	10. Push down the refrigerant pipe slightly and separate the refrigerant pipe and the Ice Maker Assembly completely.	
	11. While pressing the Hook, pull out the Ice Maker.	
	12. While pushing down the Duct-Tray-Ice, pull out the Ice Maker carefully and remove it. ※ When removing the ice maker, be careful not to damage the grommets on the tray or the refrigerant tube. (Refer to the dotted parts on the right side photo.)	
	※ If there is ice build up around the icemaker assembly use a steamer to free up the assembly from surrounding ice.	

DISASSEMBLY AND REASSEMBLY

3-19. Flex Zone Light

Part Name	How To Do	Descriptive Picture
Flex Zone Light	1. Remove the lamp cover (①) with a flat blade screw driver	
	2. Disengage the housing.	

3-20. Freezer Light

Part Name	How To Do	Descriptive Picture
Freezer Light	1. Remove the cover Freezer lamp like the way disassembling the Flex zone lamp.	
	2. Disengage the housing.	

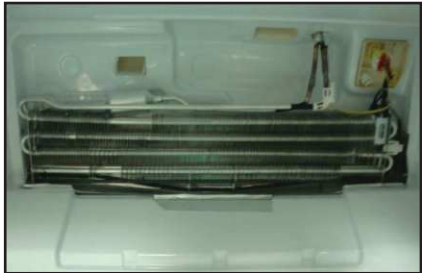
DISASSEMBLY AND REASSEMBLY

3-21. Evaporator Cover In Freezer

Part Name	How To Do	Descriptive Picture
Evaporator Cover In Freezer	1. Remove the freezer door and freezer drawer by pulling out the drawer and then unscrewing 2 screws.	
	2. Lift up the evaporator cover.	
	3. Disengage the 3 housing connectors and remove the evaporator cover.	

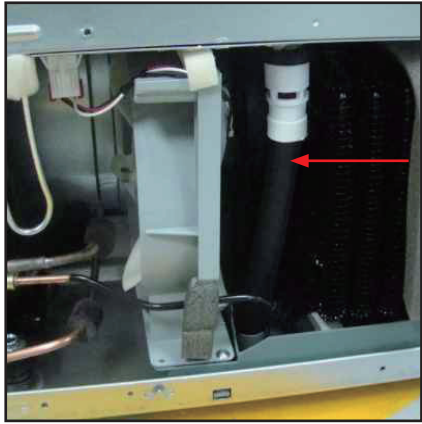
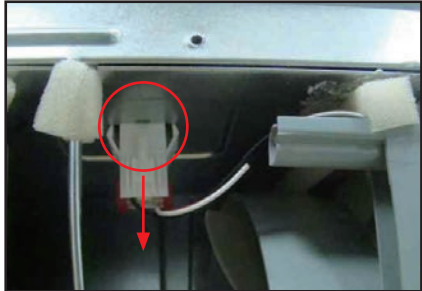
DISASSEMBLY AND REASSEMBLY

3-22. Evaporator In Freezer

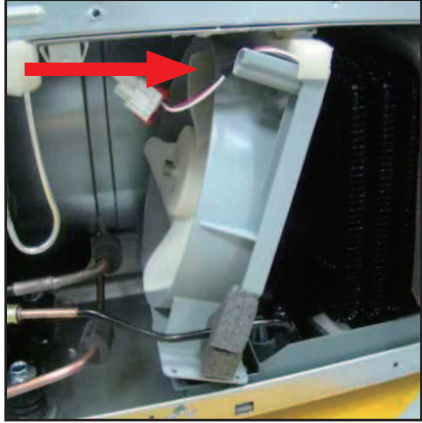
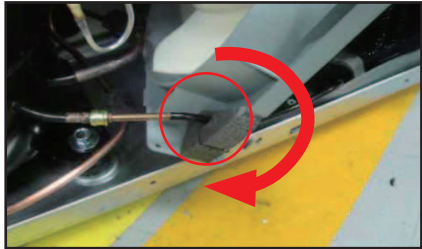
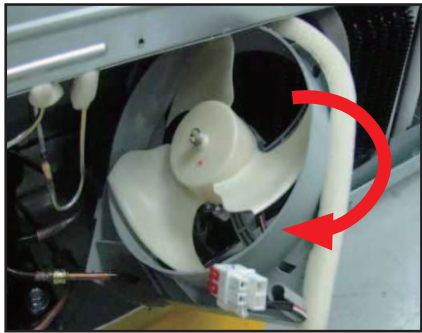
Part Name	How To Do	Descriptive Picture
Evaporator In Freezer	1. Remove the housing connector part left one.	
	2. Remove the evaporator by pulling the lower part of the evaporator while lifting it up.	

DISASSEMBLY AND REASSEMBLY

3-23. Comp Cooling Fan

Part Name	How To Do	Descriptive Picture
Comp Cooling Fan	1. Unscrew rear cover (7 screws) as shown.	
	2. Remove the DRAIN HOSE.	
	3. Remove 1 screw.	
	4. Disengage the HOUSING CONNECTOR. (Refer to the picture)	

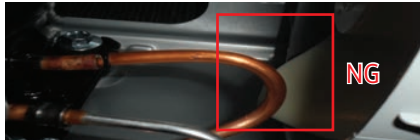
DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Comp Cooling Fan	5. Pull it forward and lean against the DRAIN HOSE.	
	6. Rotate it based on the PIPE.	
	7. The FAN is disassembled. / Assembly it in reverse order.	

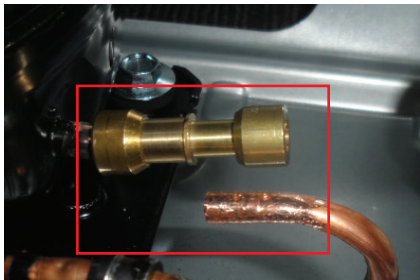
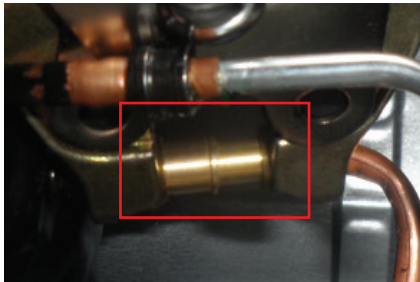
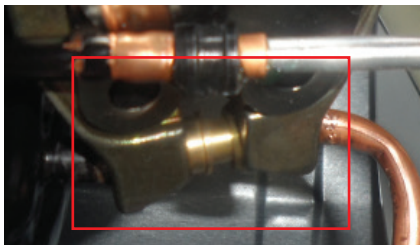
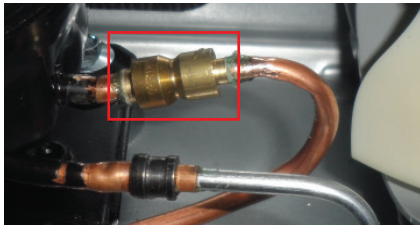
DISASSEMBLY AND REASSEMBLY

3-24. COMPRESSOR

 This appliance contains a small amount of isobutane refrigerant (R-600a), a natural gas with high environmental compatibility that is, however, also flammable. When transporting and installing the appliance, care should be taken to ensure that no parts of the refrigerating circuit are damaged.

Part Name	How To Do	Descriptive Picture
COMPRESSOR	1. Sand Paper Process - Use the Sand Paper to make the left part of the weld metaled metal smooth. - Use the Sand Paper to make the right part of the welded metal smooth.	
	2. Pipe Cutting Process - Using the pipe cutter, cut both welded parts. (Straight section should be at least 25mm)	
	3. Connect, Suc. Bending process- Bend Connect, and Suc. to make a straight line with the Comp Pipe. (Make sure Connect, and Suc. do not interrupt the Fan after the Bending process)	 
	4. Check Service Ring specifications of the Pipe.	
	5. Applying Lokprep and connecting the Service Ring_1 - Before applying Lokprep, remove any foreign substances on the pipe surface with Sand Paper- Apply 0.05g of Lokprep onto the Comp Pipe- Insert the Service Ring in the Comp Pipe and fasten it by screwing it 360° 2 times.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
COMPRESSOR	6. Applying Lokprep and connecting the Service Ring_2 - Apply 0.05g of Lokprep onto the pipe - Insert the service ring into the Connect, Suc. pipe and fasten it by screwing it 360° 2 times.	
	7. Installing manual Lokring Tool - Install manual Lokring Tool on the Service Ring.	
	8. Fastening Service Ring - Press the ring with the Lokring tool. - When fastening, press the ring multiple times slowly untill the ring is fastened in the middle. (DO NOT PRESS IT ONCE TO THE END)	
	9. Check the Service Ring connection status	

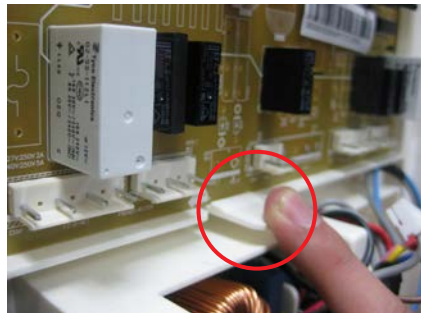
DISASSEMBLY AND REASSEMBLY

3-25. Machine Compartment

Part Name	How To Do	Descriptive Picture
Relay O/L	1. Disengage the housing connector.	
	2. Remove Cover Relay.	
	3. Disassemble Housing Connector from Comp.	

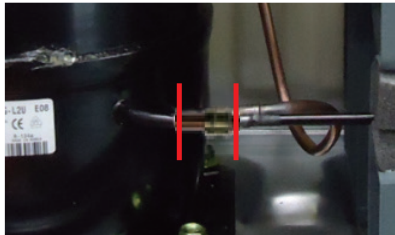
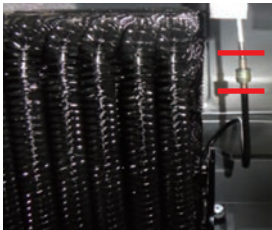
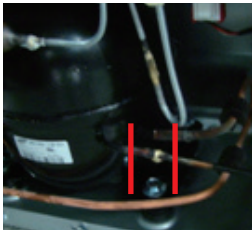
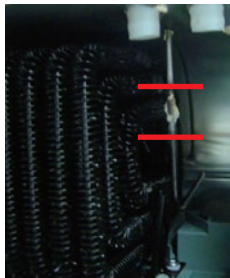
DISASSEMBLY AND REASSEMBLY

3-26. Electric Box

Part Name	How To Do	Descriptive Picture
PBA Main	Remove the 2 screw attached to the upper left and right Case PCB Panel with a phillips screwdriver(+).	
	Disengage all housing connectors from the main PCB.  CAUTION Before doing the above, make sure that the unit is unplugged.	
	Press the lower locking hook down and remove the Main PBA by pulling it out. (Refer to the picture)	

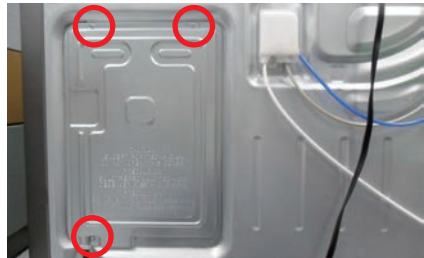
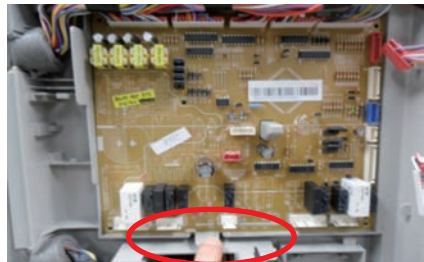
DISASSEMBLY AND REASSEMBLY

3-27. COMPRESSOR

Part Name	How To Do	Descriptive Picture
COMPRESSOR	1. Cut off the LOKRING connecting the COMP and the CONDENSER with a Pipe Cutter. (Red-line marking points)	
	2. Cut off the LOKRING connecting the CONDENSER and the HOT PIPE with a Pipe Cutter. (Red-line marking points)	
	3. Link the COMP and the CONDENSER with a PIPE-CONNECTOR (DA81-05659A) by brazing the joint areas.  	
	4. Link the CONDENSER and the HOT PIPE with a PIPE-CONNECTOR (DA81-05659B) by brazing the joint areas. 	

DISASSEMBLY AND REASSEMBLY

3-28. Electric Box

Part Name	How To Do	Descriptive Picture
PBA Main	1. Remove the 2 screw attached to the upper left and right Case PCB Panel with a phillips screwdriver(+).	
	2. Disengage all housing connectors from the main PCB.	
	3. Press the lower locking hook down and remove the Main PBA by pulling it out. (Refer to the picture)	
PBA INVERTER	1. Remove the INVERTER PBA by lifting the upper part of the hook up.	

DISASSEMBLY AND REASSEMBLY

3-29. Top Table

Part Name	How To Do	Descriptive Picture
Top Table	1. Remove the 3 screws holding down the Top Table.	
	2. Disconnect wire connectors.	

3-30. Humidity Sensor removing

Part Name	How To Do	Descriptive Picture
Humidity Sensor removing	1. Remove a screw on the top of fridge left door.	
	2. Remove a screw. Disconnect the humidity sensor connector by pushing the connector center.	

DISASSEMBLY AND REASSEMBLY

3-31. Disassembling LCD

Part Name	How To Do	Descriptive Picture
Disassembling LCD	1. Remove the top door bin of right fridge door.	
	2. Remove a cap screw and a screw.	
	3. Attach a suction cup to the top of the display and pull out the display. Make sure you hold the display at the bottom.	
	4. Disconnect carefully the wiring connectors.  CAUTION NEVER LAY THE PANEL FACE DOWN ON A FLAT SURFACE. PLACE THE DISPLAY ON A BLANKET OR MAT.	

DISASSEMBLY AND REASSEMBLY

3-32. How to remove the subcomponents from the Assy Case Display

Part Name	How To Do	Descriptive Picture
How to remove the subcomponents from the Assy Case Display	※ Componets ① LCD PBA ② Touch FPCB Cable ③ LCD FLAT Cable ④ Wi-Fi/BT Module ⑤ MIC PBA Cable ⑥ SPEAKER ⑦ Backlight cable ⑧ Proximity sensor	
	※ Dismantling components ① LCD PBA • Remove the 4 housings first and then push the latch to remove the bracket. ② Touch FPCB Cable • Remove a housing. ③ LCD FLAT Cable • Remove a housing. ④ Wi-Fi/BT Module • Separate from the LCD PBA. ⑤ MIC PBA Cable • Remove a housing. ⑥ SPEAKER • Remove a housing and Separate from LCD Assy. ⑦ Backlight cable • Remove a housing. ⑧ Proximity sensor • Remove a housing and Separate from LCD Assy.	① LCD PBA  ② Touch FPCB Cable  ③ LCD FLAT Cable  ④ Wi-Fi/BT Module  ⑤ MIC PBA Cable  ⑥ SPEAKER  ⑦ Backlight Cable  ⑧ Proximity sensor 

DISASSEMBLY AND REASSEMBLY

3-33. Removing the USB

Part Name	How To Do	Descriptive Picture
Removing the USB	1. Push the USB Cover upwards, which is on the top left of the right fridge door.	
	2. Pull the USB to the right and remove it. * Assembly is the reverse of disassembly.	

4. TROUBLESHOOTING

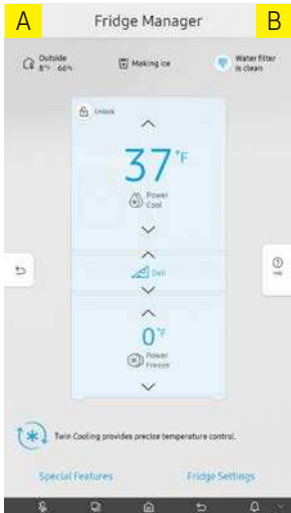
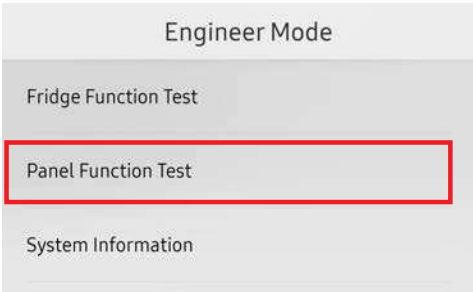
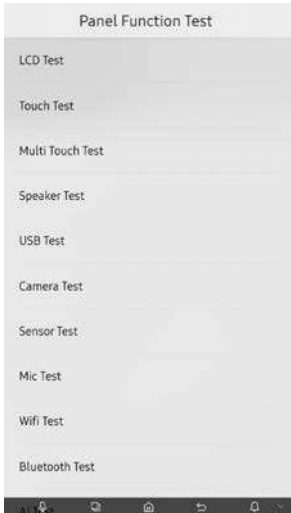
4-1. Functions for failure diagnosis

Function		How to operate	Use this case
System Information		Within 3 seconds, touch the "A" and "B" part as "A-B-A-B-A-B" 	To check the Kernel version, BSP version and Micom version.
Panel Function Test	LCD test		To check LCD pixel failure.
	Touch test		To check touch failure.
	Multi-touch test		To check multi-touch failure.
	Speaker test		To check the Speaker.
	USB test		To check the USB.
	Camera test		To check the cameras.
	Sensor test		To check proximity sensor.
	Mic test		To check the Mic.
	Wi-Fi test		To check Wi-Fi module.
	BT test		To check Bluetooth module.
	AI test		To check the afterimage effect.
	PLAYER test		To check the sound.
	ADC test		To check the strength of proximity sensor.
Fridge Function test	System Information		To check the Firmware year, Firmware model and Firmware version.
	Load Status		To check the present operating load of refrigerator.
	Self Diagnosis		To check the failure modes.
	Error History		To check the latest 5 errors.
	Model Option		To check the refrigerator model option.
	Force Run		To check operation of compressor.
	Refrigerator Option		To change the setting options about the refrigerator operating status. Need careful decision for option change.
	Energy Information		To check MICOM and LCD energy usages.

✱ In Fridge Manager, you can test below features.

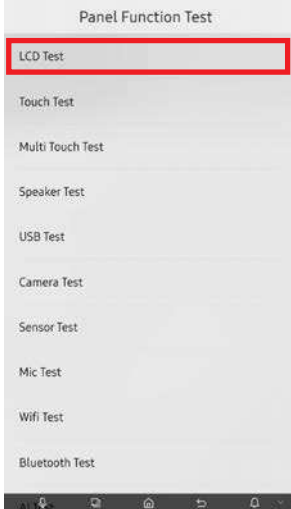
TROUBLESHOOTING

4-2. Panel Function Test

Sequence	Note
① Within 3 seconds, touch the "A" and "B" part as "A-B-A-B-A-B". (“Engineer mode” message will be displayed as toast popup.)	
② Choose “Panel Function Test”.	
③ Panel Function test launched.	

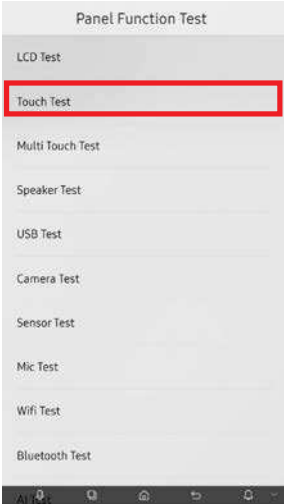
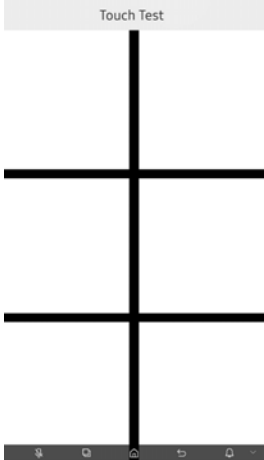
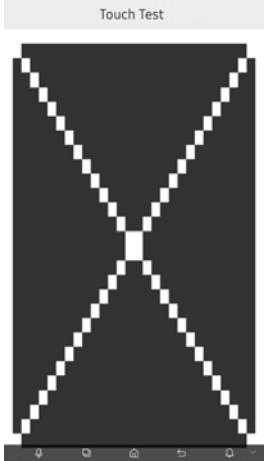
TROUBLESHOOTING

4-2-1. LCD test

Sequence	Note
① Choose "LCD TEST"	
② Touch the 'start test' screen until the LCD test ends. (At the end of the test, the screen will be returned to the panel function test list.)	
③ If you touch "UP" or "DOWN" button, the brightness of screen will be changed.	

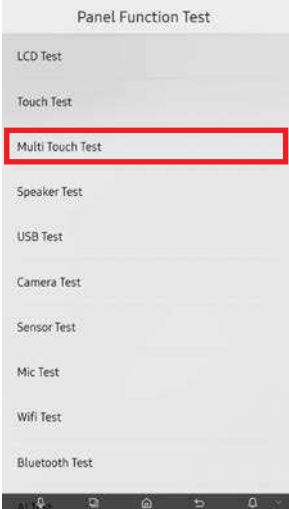
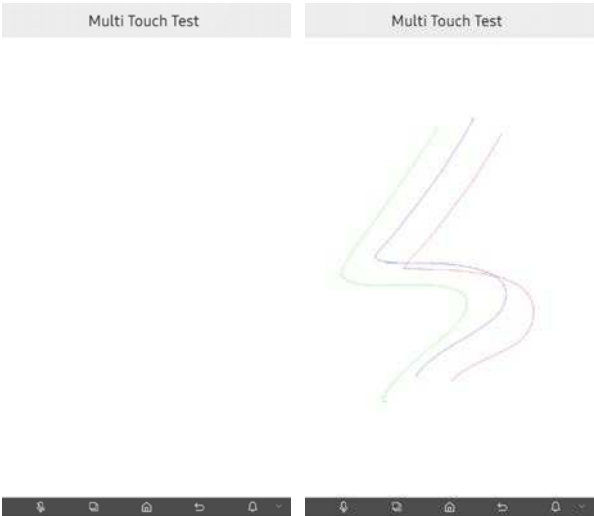
TROUBLESHOOTING

4-2-2. Touch Test

Sequence	Note
① Choose "TOUCH TEST".	
② Touch each Area.	
③ If you touch every area, you can see the line test. Touch small box.	
④ All the boxes' color were changed, the test will be ended.	

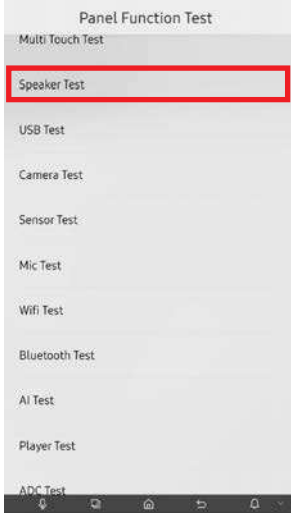
TROUBLESHOOTING

4-2-3. Multi-touch Test

Sequence	Note
① Choose "MULTI-TOUCH TEST".	
② You can draw up to 3 lines at the same time in the screen.	

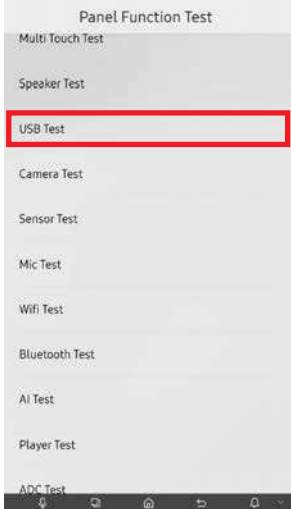
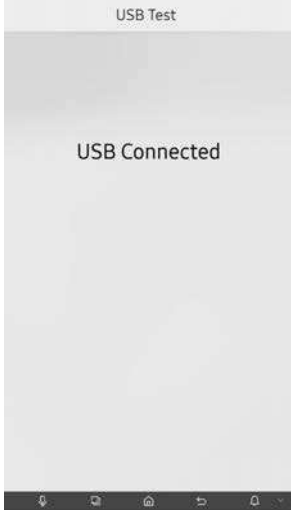
TROUBLESHOOTING

4-2-4. Speaker Test

Sequence	Note
① Choose "SPEAKER TEST".	
② If you touch "START", the standard test soundtrack will be played.	
③ If you touch "STOP", the sound being played will be stopped.	
④ If you touch "MAX VOLUME" or "MIN VOLUME", the sound volume will be changed to maximum or minimum.	
⑤ If you touch "MUTE", the sound will be changed to mute.	
⑥ You can control the sound volume to touch "VOLUME UP" or "VOLUME DOWN" button,	
⑦ If you touch "LEFT TEST" or "RIGHT TEST", the soundtrack of left speaker or right speaker will be played.	

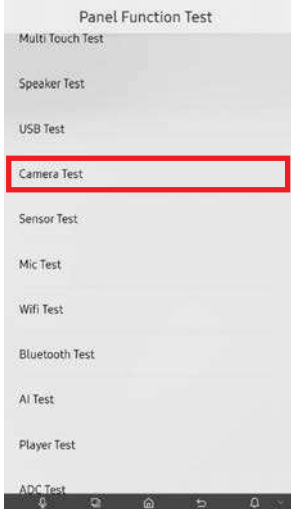
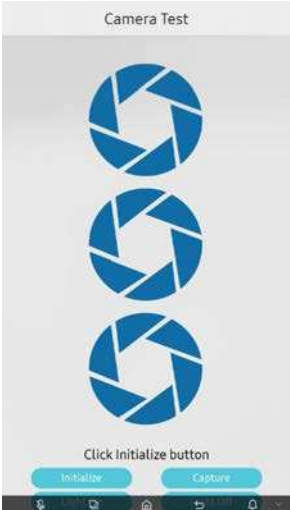
TROUBLESHOOTING

4-2-5. USB Test

Sequence	Note
① Choose "USB TEST".	 A screenshot of a mobile device screen showing a 'Panel Function Test' menu. The menu lists various tests: Multi Touch Test, Speaker Test, USB Test (highlighted with a red rectangular box), Camera Test, Sensor Test, Mic Test, Wifi Test, Bluetooth Test, AI Test, Player Test, and AD/DC Test. The bottom of the screen shows the Android navigation bar.
② Show the state of USB connection.	 A screenshot of a mobile device screen showing the 'USB Test' screen. The screen displays the text 'USB Connected' in the center. The bottom of the screen shows the Android navigation bar.

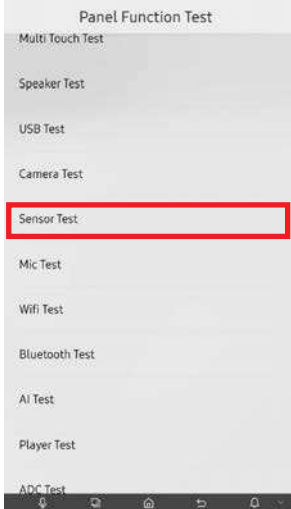
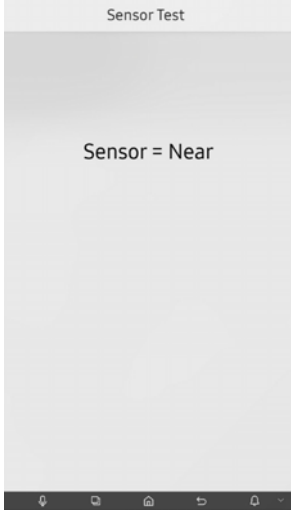
TROUBLESHOOTING

4-2-6. Camera Test

Sequence	Note
① Choose "CAMERA TEST".	
② Touch "Initialize button before capture.	 
③ Touch "CAPTURE" button.	
④ You can control the internal light of refrigerator through "Light on" and "Light off" button.	

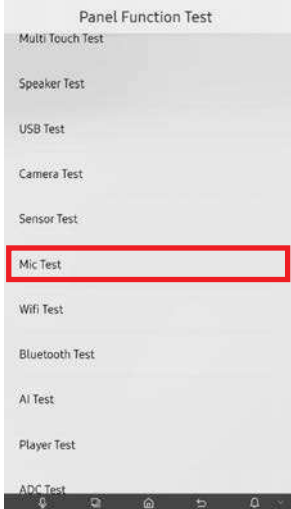
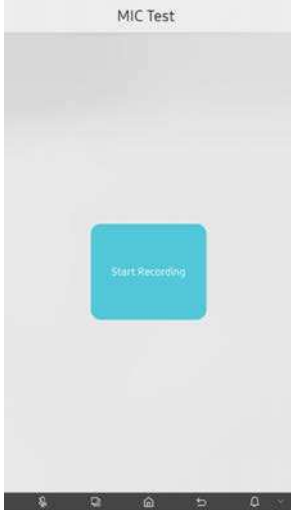
TROUBLESHOOTING

4-2-7. Sensor Test

Sequence	Note
① Choose "SENSOR TEST".	 A screenshot of a mobile device screen showing a menu titled 'Panel Function Test'. The menu lists several test options: Multi Touch Test, Speaker Test, USB Test, Camera Test, Sensor Test (highlighted with a red rectangular box), Mic Test, Wifi Test, Bluetooth Test, AI Test, Player Test, and ADIC Test. The bottom of the screen shows the standard Android navigation bar.
② Show the state of proximity sensor.(Far of Near)	 A screenshot of a mobile device screen showing the 'Sensor Test' interface. The screen displays the text 'Sensor = Near' in the center. The bottom of the screen shows the standard Android navigation bar.

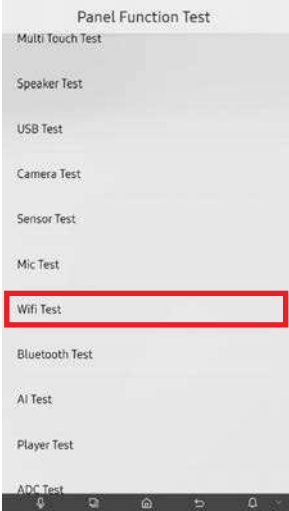
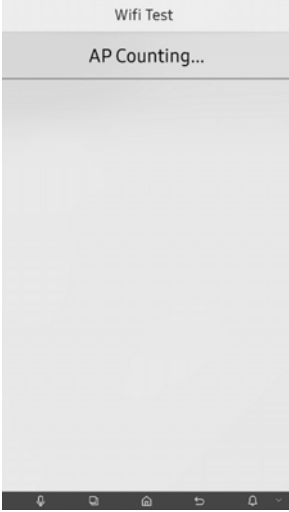
TROUBLESHOOTING

4-2-8. Mic Test

Sequence	Note
① Choose "MIC TEST".	 A screenshot of a mobile phone screen showing a list of diagnostic tests under the heading "Panel Function Test". The list includes: Multi Touch Test, Speaker Test, USB Test, Camera Test, Sensor Test, Mic Test (highlighted with a red rectangular box), Wifi Test, Bluetooth Test, AI Test, Player Test, and ADIC Test. The bottom of the screen shows the standard Android navigation bar.
② You can choose which Mic will be tested: Mic1, Mic2, stereo.	 A screenshot of a mobile phone screen titled "MIC Test". It features a large, light blue button in the center with the text "Start Recording". The background is a light gray gradient. The bottom of the screen shows the standard Android navigation bar.
③ Press start button. The Mic you chosen will record the sound in 3 sec and play it.	

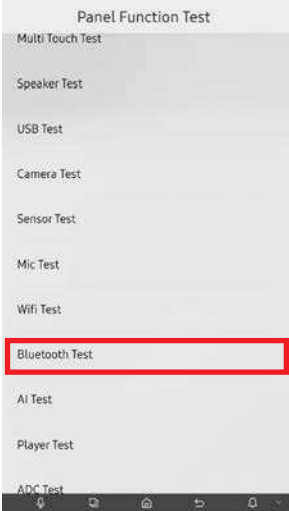
TROUBLESHOOTING

4-2-9. Wi-Fi Test

Sequence	Note
① Choose “Wi-Fi TEST”.	
② Show the number and Information of AP.	

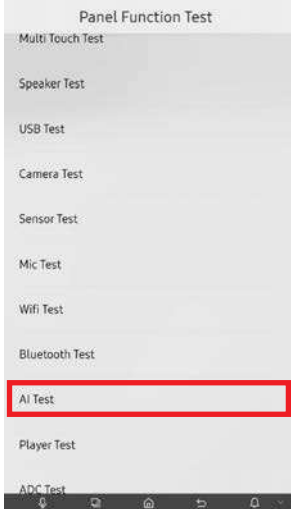
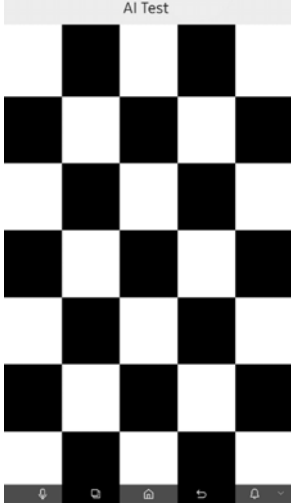
TROUBLESHOOTING

4-2-10. BT Test

Sequence	Note
① Choose “Bluetooth TEST”.	
② Show the state of BT module.	

TROUBLESHOOTING

4-2-11. Afterimage Test

Sequence	Note
① Choose "AI TEST".	
② Show the black and white image. If you touch the screen, show the white background only.	

TROUBLESHOOTING

4-2-12. Player Test

Sequence	Note
① Choose "Player Test".	
② You can play and stop the stored music, voice and 1Khz sound source at player test. You can play the relevant sound source by using USB FILE START when the usb tored mp3 file is connected.	

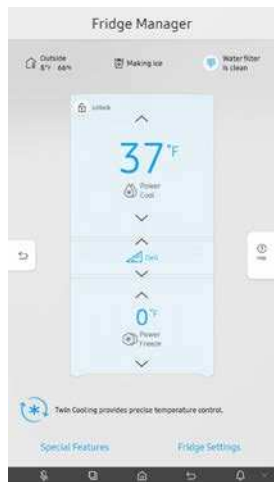
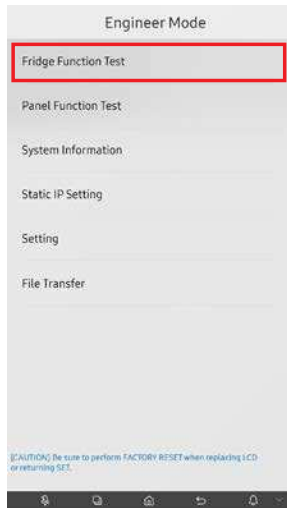
TROUBLESHOOTING

4-2-13. ADC Test

Sequence	Note
① Choose "ADC Test".	 A screenshot of a mobile application's 'Panel Function Test' menu. The menu lists various tests: Multi Touch Test, Speaker Test, USB Test, Camera Test, Sensor Test, Mic Test, Wifi Test, Bluetooth Test, AI Test, and Player Test. At the bottom, 'ADC Test' is highlighted with a red rectangular box.
② You can test the strength of the proximity sensor at ADC test. The more strength is strong, the more a device can detected a distant movement.	 A screenshot of the 'ADC Test' results screen. It displays 'Sensor ADC = Strong' in the center. At the bottom, there are three buttons labeled 'Weak', 'Medium', and 'Strong', with 'Strong' being the active result. The screen has a light gray background and a dark status bar at the top.

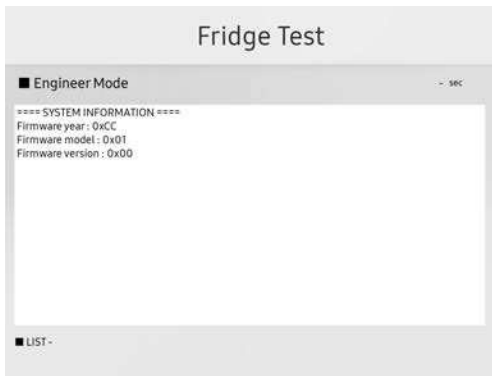
TROUBLESHOOTING

4-3. Fridge Function Test

Sequence	Note
① Within 3 seconds, touch the "A" and "B" part as "A-B-A-B-A-B". ("Engineer mode" message will be displayed as popup.)	
② Choose "Fridge Function Test".	
③ Fridge Function test launched.	

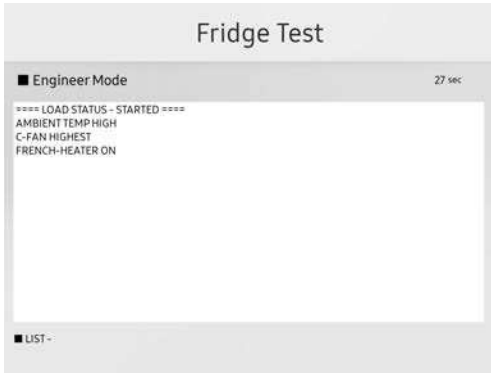
TROUBLESHOOTING

4-3-1. System Information

Sequence	Note
① Choose "System Information".	
② You can check Firmware year, Firmware model, Firmware version.	

TROUBLESHOOTING

4-3-2. Load Status

Sequence	Note
① Choose "Load Status".	 The screenshot shows the 'Fridge Test' screen within 'Engineer Mode'. At the top, it says 'Fridge Test' and 'Engineer Mode'. Below this, there's a section for 'SYSTEM INFORMATION' with details like 'Firmware year: 0x0C', 'Firmware model: 0x01', and 'Firmware version: 0x00'. A 'LIST' section is also visible. At the bottom, there are several menu options: 'System Info', 'Load Status' (highlighted with a red box), 'Self Diagnosis', 'Error History', 'Model Option', 'Force Run', 'Fridge Option', and 'Energy Info'.
② Load Status mode displays current output signals from MICOM. It is not the actual operating load status but output signals from MICOM. That is to say, even though the display shows any refrigerator mode is on, the actual status can be different with the display due to the errors of load and relay on PCB etc. The Load Status function stays on for 30 seconds.	 The screenshot shows the 'Load Status' screen within 'Engineer Mode'. It displays 'LOAD STATUS - STARTED' and lists output signals: 'AMBIENT TEMP HIGH', 'C-FAN HIGHEST', and 'FRENCH-HEATER ON'. The screen also shows a timer '27 sec' and a 'LIST' section at the bottom.

TROUBLESHOOTING

✕ Load mode checklist

No.	NAME_EN_US	Operation Contents
1	FRIDGE-FAN HIGHEST	When Fridge compartment FAN operates with highest speed
2	FRIDGE-FAN HIGH	When Fridge compartment FAN operates with high speed
3	FRIDGE-FAN LOW	When Fridge compartment FAN operates with low speed
4	COMP ON	When COMP operates
5	AMBIENT TEMP HIGH	When ambient temperature is more than 93°F(35°C)
6	AMBIENT TEMP LOW	When ambient temperature is less than 72°F(21°C)
7	SHOW ROOM MODE	Display mode (Cooling OFF)
8	FREEZER-FAN HIGHEST	When Freezer compartment FAN operates with highest speed
9	FREEZER-FAN HIGH	When Freezer compartment FAN operates with high speed
10	FREEZER-FAN LOW	When Freezer compartment FAN operates with low speed
11	FREEZER-DEFROST-HEATER ON	When Freezer compartment defrost heater operates
12	C-FAN HIGHEST	When Compressor compartment FAN operates with highest speed
13	C-FAN HIGH	When Compressor compartment FAN operates with high speed
14	C-FAN LOW	When Compressor compartment FAN operates with low speed
15	FULL ICE	When the Ice Maker's Ice BUCKET is Full
16	FRENCH-HEATER ON	When French Heater operates
17	FRIDGE-ICEMAKER-HEATER ON	When Ice maker heater operates
18	FRIDGE-DEFROST-HEATER ON	When Fridge compartment defrost heater operates
19	FLEX ROOM DAMPER OPEN	When the FLEX Room's Damper is Opened.
20	ICE-ROOM-FAN HIGHEST	When ICE-ROOM compartment FAN operates with highest speed.
21	ICE-ROOM-FAN HIGH	When ICE-ROOM compartment FAN operates with high speed.
22	ICE-ROOM-FAN LOW	When ICE-ROOM compartment FAN operates with low speed.

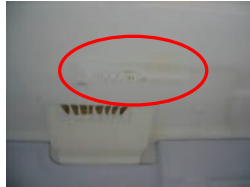
TROUBLESHOOTING

4-3-3. Self Diagnosis

Sequence	Note
① Choose "Self Diagnosis".	
② Current errors will be shown on the box. When the error on the List box is selected, the detailed failure mode is displayed. The Self Diagnosis function stays on for 60 seconds.	

TROUBLESHOOTING

※ R Self-diagnostics check list

LED		Item	Diagnostic method	Location image	
F	R				
88	88	Freezer Sensor	The voltage of MAIN PCB CN20-"10" ↔ "12": shall be between 4.5V~1.0V		
88		Fridge Sensor	The voltage of MAIN PCB CN20-"9" ↔ "11": shall be between 4.5V~1.0V		
88		Freezer compartment defrosting sensor	The voltage of MAIN PCB CN20-"6" ↔ "8": shall be between 4.5V~1.0V		
88		Fridge compartment defrosting sensor	The voltage of MAIN PCB CN20-"5" ↔ "7": shall be between 4.5V~1.0V		
88		External air sensor	The voltage of MAIN PCB CN60-"3" ↔ "5": shall be between 4.5V~1.0V		
88		Flex-Zone sensor	The voltage of MAIN PCB CN40-"18" ↔ "20": shall be between 4.5V~1.0V		

TROUBLESHOOTING

※ R Self-diagnostics check list

LED		Item	Diagnostic method	Location image
F	R			
88	88	Humidity sensor	The voltage of MAIN PCB CN60-"3" ↔ "7": shall be between 4.5V~1.0V	 
84		Ice Maker (Fridge) Sensor Error	The voltage of MAIN PCB CN90-"14" ↔ "24": shall be between 4.5V~1.0V	 
85		Ice Room Sensor Error	The voltage of MAIN PCB CN90-"2" ↔ "4": shall be between 4.5V~1.0V	 
88		Freezer Fan Error	The voltage of MAIN PCB CN20-"16" ↔ "18": shall be between 7V~12V	 
88		Fridge Fan Error	The voltage of MAIN PCB CN20-"15" ↔ "17": shall be between 7V~12V	 
88		C-Fan Error	The voltage of MAIN PCB CN40-"11" ↔ "13": shall be between 7V~12V	

TROUBLESHOOTING

※ R Self-diagnostics check list

LED		Item	Diagnostic method	Location image	
F	R				
88	88	Freezer Defrosting Error	After separating MAIN PCB CN20 wire from PCB, resistance value between CN20-"6" ↔ CN20-"8" shall be 63(230) ohm ± 7%. (Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/ bimetal open (Must power off)		
89		Fridge Defrosting Error	After separating MAIN PCB CN20 wire from PCB, resistance value between CN20-"6" ↔ "8" shall be 120 ohm ± 7%. (Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/ bimetal open (Must power off)		
89		Flex ROOM Damper Heater Error	After separating MAIN PCB CN40 wire from PCB, resistance value between CN40-"25" ↔ "27" shall be 135 ohm ± 7%. (Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/ bimetal open (Must power off)		
89		Ice Maker (Fridge) Function Error	After changing the Ice Maker(R), plug the refrigerator power code again, and check the operation.		
40		Ice Room Fam Error	The voltage of MAIN PCB CN20-"22" ↔ "24" shall be between 7V~12V		
43		Main ↔ Panel Communication Error	Actually, If there is not a problem, it is desirable to replace Main and Panel PCB With the oscilloscope after a cable problem confirming.		
44		Main ↔ Inverter Communication Error	Actually, If there is not a problem, it is desirable to replace Main and Inverter PCB With the oscilloscope after a cable problem confirming.		

TROUBLESHOOTING

※ R Self-diagnostics check list

LED		Item	Diagnostic method	Location image
F	R			
88	88	IO Expander Communication Error	It is desirable to replace Main PBA.	  
89		Main ↔ Dispenser Panel Communication Error	Actually, If there is not a problem, it is desirable to replace Main and Dispenser Panel PCB With the oscilloscope after a cable problem confirming.	
8A		Fridge Ice Duct Heater Error	After separating MAIN PCB CN20 wire from PCB, resistance value between CN20-"21" ↔ "23" shall be 63(230) ohm ± 7%. (Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/ bimetal open (Must power off)	 
8B		Fridge Ice Room Heater Error	After separating MAIN PCB CN20 wire from PCB, resistance value between CN20-"19" ↔ "23" shall be 135 ohm ± 7%. (Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/ bimetal open (Must power off)	 
8C		The Freezer compartment abnormal high-temperature indicator blinks	Check if the door has been open for a long time or if hot food has been stored in the compartment. If the reason for the error is removed, the error code disappears after a pre-determined period of time.	
8D		The Fridge compartment abnormal high-temperature indicator blinks		
8E		The Flex-Zone compartment abnormal high-temperature indicator blinks		

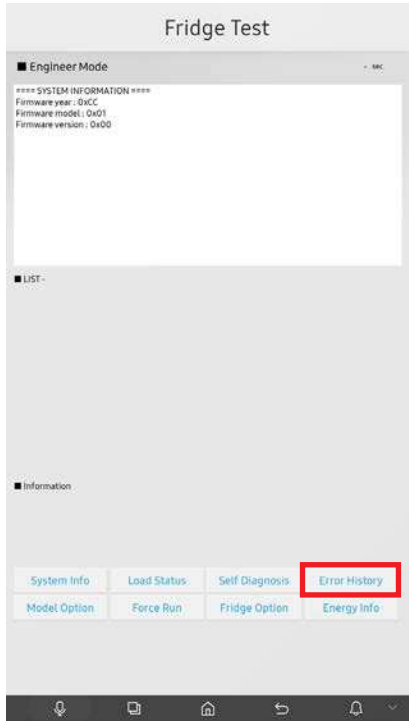
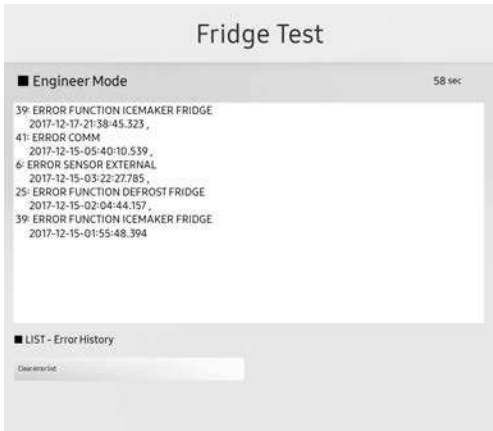
TROUBLESHOOTING

※ R Self-diagnostics check list

LED		Item	Diagnostic method	Location image
F	R			
88		Comp start failure error	Check if there is a short between compressor terminals. Check IPM Voltage [Under13.5V]	
88		Comp IPM Fault Error	Check if there is a short between IPM Pins [#1~33] Check the soldering status of the inverter PCB. (Check if any parts have short-circuited). Check the Compressor and the Cycle.	
88		Comp location detection error	Check the Compressor connections . Check the voltage of Resistance of R2 [0.090hm] Check the soldering status of the MAIN PCB. (Check if any parts have short-circuited) Check the Compressor and the Cycle.	
88		Comp motor constraint error	Compressor locking Error. Check the Compressor and the Cycle. Check the compressor wire connections.	
88		Comp low voltage error	Check the input voltage. - AC 60V (Input Power AC110~127V) - AC 106V (Input Power AC 220~240V) Check PCB bottom side soldering state.	
88		Comp over voltage error	Check the input voltage. - AC 155V (Input Power AC110~127V) - AC 310V (Input Power AC 220~240V) Check PCB bottom side soldering state.	
88	88	Comp IPM Shut Down Error	Check the soldering status of the inverter PCB. (Check if any parts have short-circuited). Check if the DC 15V output is less than 13.5V. Check the Comp and Cycle.	

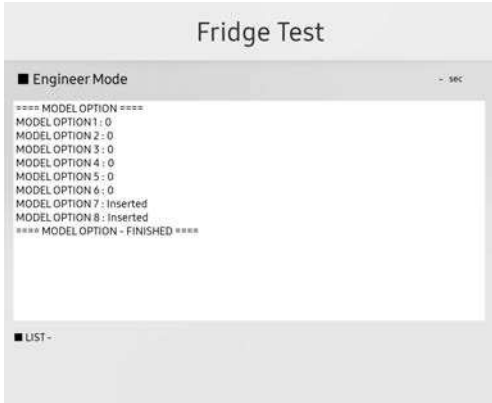
TROUBLESHOOTING

4-3-4. Error History

Sequence	Note
① Choose "Error History".	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode'. At the bottom, there are two rows of buttons: 'System Info', 'Load Status', 'Self Diagnosis', 'Error History' (highlighted with a red box), 'Model Option', 'Force Run', 'Fridge Option', and 'Energy Info'.
② Error History box shows currently occurred error list up to 5 events. Even if the power turns off, the list is not removed. However, if "Clear error list" button is pressed, the entire list will be removed. Error History is recorded up to maximum 1000 and duplicate error does not display.	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode' with the error history list displayed. The list contains five entries: 39: ERROR FUNCTION ICEMAKER FRIDGE 2017-12-17-21:38-45.323, 41: ERROR COMM 2017-12-15-05-40-10.539, 6: ERROR SENSOR EXTERNAL 2017-12-15-03-22-27.785, 25: ERROR FUNCTION DEFROST FRIDGE 2017-12-15-02-04-44.157, 39: ERROR FUNCTION ICEMAKER FRIDGE 2017-12-15-01-55-48.394 Below the list, there is a 'LIST - Error History' section with a 'Clear error list' button.

TROUBLESHOOTING

4-3-5. Model Option

Sequence	Note
① Choose "Model Option".	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode'. At the top, it says 'Fridge Test' and 'Engineer Mode'. Below this, there's a section for 'SYSTEM INFORMATION' with details like 'Firmware year: 0x0C', 'Firmware model: 0x01', and 'Firmware version: 0x00'. A 'LIST -' section is also visible. At the bottom, there's a grid of buttons: 'System Info', 'Load Status', 'Self Diagnosis', 'Error History', 'Model Option' (highlighted with a red box), 'Force Run', 'Fridge Option', and 'Energy Info'.
② Check the Model Option by MODEL OPTION 1~8.	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode' after selecting 'Model Option'. It displays a list of model options: 'MODEL OPTION 1: 0', 'MODEL OPTION 2: 0', 'MODEL OPTION 3: 0', 'MODEL OPTION 4: 0', 'MODEL OPTION 5: 0', 'MODEL OPTION 6: 0', 'MODEL OPTION 7: Inserted', and 'MODEL OPTION 8: Inserted'. The screen ends with 'MODEL OPTION - FINISHED'.

TROUBLESHOOTING

4-3-6. Force Run

Sequence	Note
① Choose "Force Run".	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode'. At the top, it says 'Fridge Test' and 'Engineer Mode'. Below that, there's a section for 'SYSTEM INFORMATION' with details like 'Firmware year: 0x00', 'Firmware model: 0x01', and 'Firmware version: 0x00'. A 'LIST' section is visible below. At the bottom, there's a grid of buttons: 'System Info', 'Load Status', 'Self Diagnosis', 'Error History', 'Model Option', 'Force Run' (highlighted with a red box), 'Fridge Option', and 'Energy Info'.
② To run compressor manually, press the force run button on the list. All test function will be canceled by click "TEST CANCEL" button on the top of the force test list.	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode' after selecting 'Force Run'. It displays 'Fridge Test' and 'Engineer Mode'. Below that, it says 'FORCE RUN - NUMBER' followed by '10'. A 'LIST - Force Run' section is visible at the bottom, containing buttons for 'TEST CANCEL', 'FORCE RUN(NOT)', 'FORCE RUN(NOT)', and 'FORCE DEPOSITING'.

TROUBLESHOOTING

FORCE RUN1 (FF)

If Force Run is selected, compressor will run at once without 7 minutes delay in any mode. If the refrigerator is on the defrost cycle at the moment, defrost will be finished and Force Run will begin.

(Be careful if Force Run get started at the moment of compressor off, over load could be occurred)

When Force Run operation runs, Compressor & F-fan(Freezer) operate continuously for 24 hours and Fridge compartment will be controlled by the setting temperature. And setting temperature will be selected automatically as below:

freezer compartment -8°F(-23°C), fresh food compartment 34°F(1°C).

During Force Run, Power Freeze & Power Cool function will not be work.

If a function is selected, the power function icon of the selected function will be off automatically after 10 seconds.

FORCE DEFROST (rd)

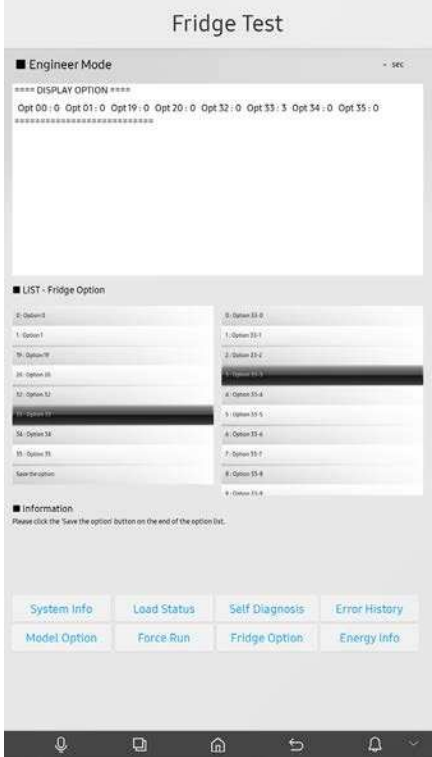
Forced Fridge compartment defrosting begins.

FORCE DEFROST (Fd)

Forced Freezer and Fridge compartment defrosting begins.

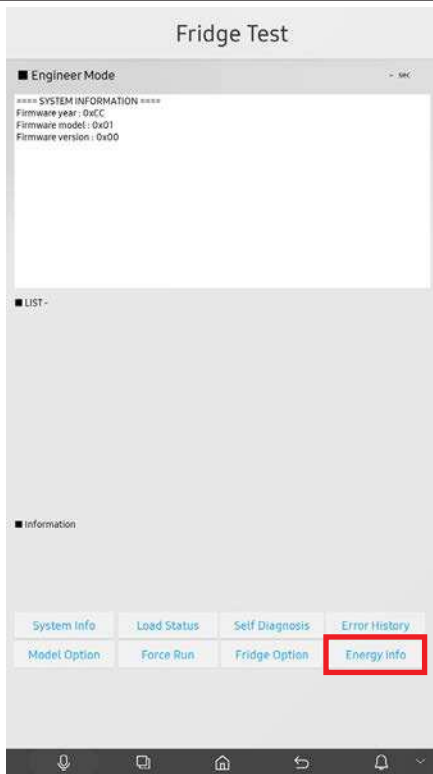
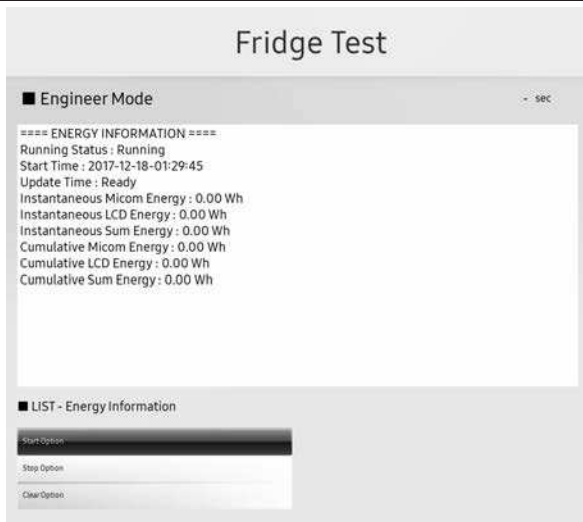
TROUBLESHOOTING

4-3-7. Refrigerator Option

Sequence	Note
① Choose "Fridge Option".	 The screenshot shows the 'Fridge Test' screen within the 'Engineer Mode'. At the top, it displays 'Engineer Mode' and 'sec'. Below this, there's a section for 'SYSTEM INFORMATION' showing 'Firmware year: 0x00', 'Firmware model: 0x01', and 'Firmware version: 0x00'. A 'LIST' section is empty. At the bottom, there are several buttons: 'System Info', 'Load Status', 'Self Diagnosis', 'Error History', 'Model Option', 'Force Run', 'Fridge Option' (highlighted with a red box), and 'Energy Info'.
② Change the option 00, 01, 19, 20, 32, 33, 34 and 35, and click the "Save Option" button on the end of the option list to save the options.	 The screenshot shows the 'Fridge Option' list within the 'Engineer Mode'. It displays a list of options: 'Option 00', 'Option 01', 'Option 19', 'Option 20', 'Option 32', 'Option 33', 'Option 34', and 'Option 35'. Each option has a corresponding value field. At the bottom, there are buttons for 'System Info', 'Load Status', 'Self Diagnosis', 'Error History', 'Model Option', 'Force Run', 'Fridge Option', and 'Energy Info'. The 'Save Option' button is highlighted with a red box.

TROUBLESHOOTING

4-3-8. Energy Information

Sequence	Note
① Choose "Energy Information".	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode'. At the top, it says 'Fridge Test' and 'Engineer Mode'. Below that, there's a section for 'SYSTEM INFORMATION' with details like 'Firmware year: 0x0C', 'Firmware model: 0x01', and 'Firmware version: 0x00'. A 'LIST -' section is empty. At the bottom, there's an 'Information' section with a grid of buttons: 'System Info', 'Load Status', 'Self Diagnosis', 'Error History', 'Model Option', 'Force Run', 'Fridge Option', and 'Energy Info'. The 'Energy Info' button is highlighted with a red box.
② It shows MICOM and LCD energy usages.	 The screenshot shows the 'Fridge Test' screen in 'Engineer Mode' with the 'Energy Info' option selected. It displays 'ENERGY INFORMATION' with the following details: 'Running Status : Running', 'Start Time : 2017-12-18-01:29:45', 'Update Time : Ready', 'Instantaneous Micom Energy : 0.00 Wh', 'Instantaneous LCD Energy : 0.00 Wh', 'Instantaneous Sum Energy : 0.00 Wh', 'Cumulative Micom Energy : 0.00 Wh', 'Cumulative LCD Energy : 0.00 Wh', and 'Cumulative Sum Energy : 0.00 Wh'. Below this, there's a 'LIST - Energy Information' section with three buttons: 'Start Option', 'Stop Option', and 'Clear Option'.

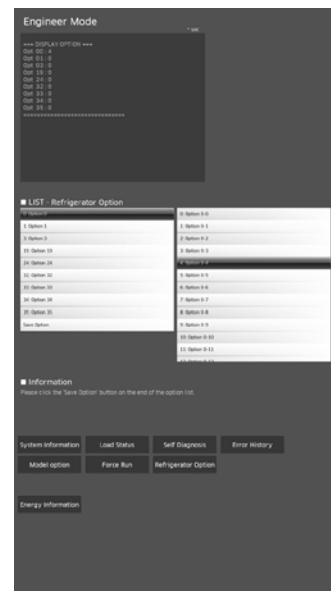
TROUBLESHOOTING

4-3-9. Option TABLE

1) Temperature changing table of freezer compartment

Set item	FreezerTemp Shift
MODEL	Common for all models
Reference	Freezer Room 7-SEG
Value	0

Setting value	
FZ compartment Code	Temp. compensation
0	0.0°C(0°F)
1	-0.5°C(-1°F)
2	-1.0°C(-2°F)
3	-1.5°C(-3°F)
4	-2.0°C(-4°F)
5	-2.5°C(-5°F)
6	-3.0°C(-6°F)
7	-3.5°C(-7°F)
8	+0.5°C(+1°F)
9	+1.0°C(+2°F)
10	+1.5°C(+3°F)
11	+2.0°C(+4°F)
12	+2.5°C(+5°F)
13	+3.0°C(+6°F)
14	+3.5°C(+7°F)
15	+4.0°C(+8°F)

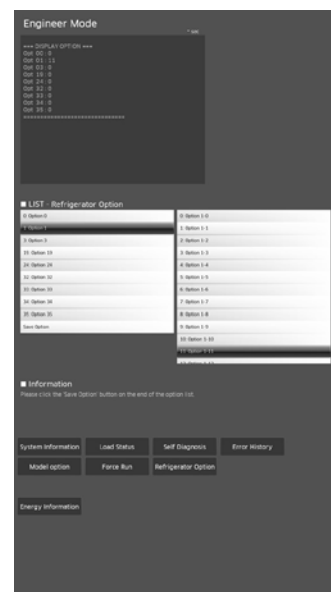


ex) If you want to change the freezer standard temperature to -2°C(-4°F)

2) Temperature changing table of Fridge Compartment

Set item	FridgeTemp Shift
MODEL	Common for all models
Reference	Fridge Room 7-SEG
Value	1

Setting value	
FZ compartment Code	Temp. compensation
0	0.0°C(0°F)
1	-0.5°C(-1°F)
2	-1.0°C(-2°F)
3	-1.5°C(-3°F)
4	-2.0°C(-4°F)
5	-2.5°C(-5°F)
6	-3.0°C(-6°F)
7	-3.5°C(-7°F)
8	+0.5°C(+1°F)
9	+1.0°C(+2°F)
10	+1.5°C(+3°F)
11	+2.0°C(+4°F)
12	+2.5°C(+5°F)
13	+3.0°C(+6°F)
14	+3.5°C(+7°F)
15	+4.0°C(+8°F)



ex) If you want to change the fridge compartment standard temperature to 2°C(4°F)

TROUBLESHOOTING

3) Sub Heater (French Heater, Door Handle Heater) Control Function

Setting Item	French Heater Control
Model	Common for all models
Option	Location: R compartment temperature display
	19

F compartment temperature display setting	Operation
0	Operating according to the control specifications
1	Operating according to the control specifications +20%(MAX100%)

4) Flex Room Temperature Change Table

Setting Item	Flex Room Temp Shift
Model	Common for all models
Option	20

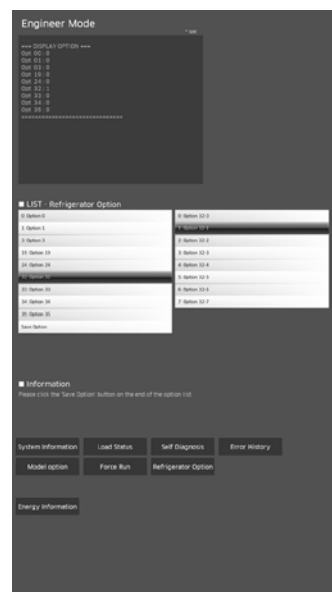
Option Value	Temp. compensation
0	0.0 °C
1	-0.5 °C
2	-1.0 °C
3	-1.5 °C
4	-2.0 °C
5	+0.5 °C
6	+1.0 °C
7	+1.5 °C

TROUBLESHOOTING

5) Amount of water supply to ice tray

Set item	Amount of Water Supply
Reference	Fridge Room 7-SEG
Value	32

Setting value	
FZ compartment Code	Amount of water supply
0	Operating according to the control specifications
1	Operating according to the control specifications +10CC.
2	-
3	-
4	-
5	-
6	-
7	-



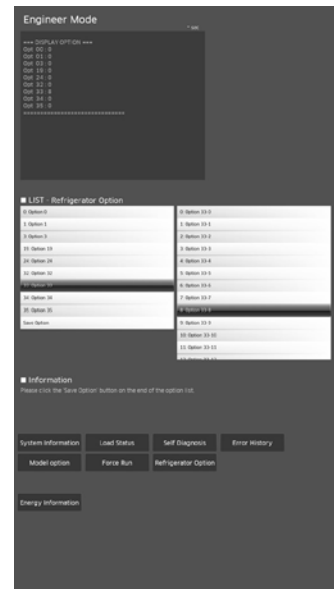
ex) If you want to change the amount of water supply to ice tray to 120CC

TROUBLESHOOTING

6) Time changing table of ice maker dropping standby time

Set item	Ice Maker Standby Time
Reference	Fridge Room 7-SEG
Value	33

Setting value	
FZ compartment Code	Temp. compensation
0	14min.
1	13min.
2	12min.
3	11min.
4	10min.
5	15min.
6	16min.
7	17min.
8	18min.
9	19min.
10	20min.
11	21min.
12	22min.
13	23min.
14	24min.
15	25min.

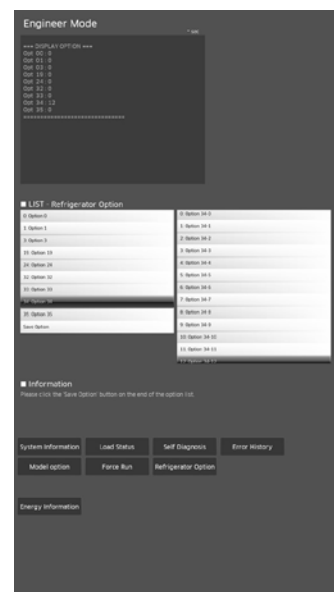


ex) If you want to change the ice maker dropping standby time to 18minutes.

7) Temperature changing table of ice room

Set item	Ice Room Temp Shift
Reference	Fridge Room 7-SEG
Value	34

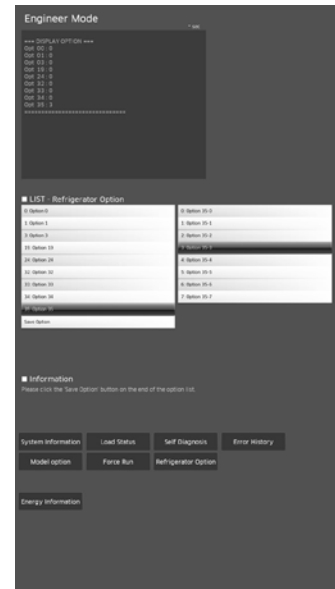
Setting value	
FZ compartment Code	Temp. compensation
0	0°F(0.0°C)
1	-1°F(-0.5°C)
2	-2°F(-1.0°C)
3	-3°F(-1.5°C)
4	-4°F(-2.0°C)
5	-5°F(-2.5°C)
6	-6°F(-3.0°C)
7	-7°F(-3.5°C)
8	+1°F(+0.5°C)
9	+2°F(+1.0°C)
10	+3°F(+1.5°C)
11	+4°F(+2.0°C)
12	+5°F(+2.5°C)
13	+6°F(+3.0°C)
14	+7°F(+3.5°C)
15	+8°F(+4.0°C)



ex) If you want to change the ice room standard temperature to +5°F(+2.5°C)

Set item	Ice Maker Dropping Temperature
Reference	Fridge Room 7-SEG
Value	35

Setting value	
FZ compartment Code	Temp. compensation
0	-13°C
1	-12°C
2	-11°C
3	-10°C
4	-14°C
5	-15°C
6	-16°C
7	-17°C



109

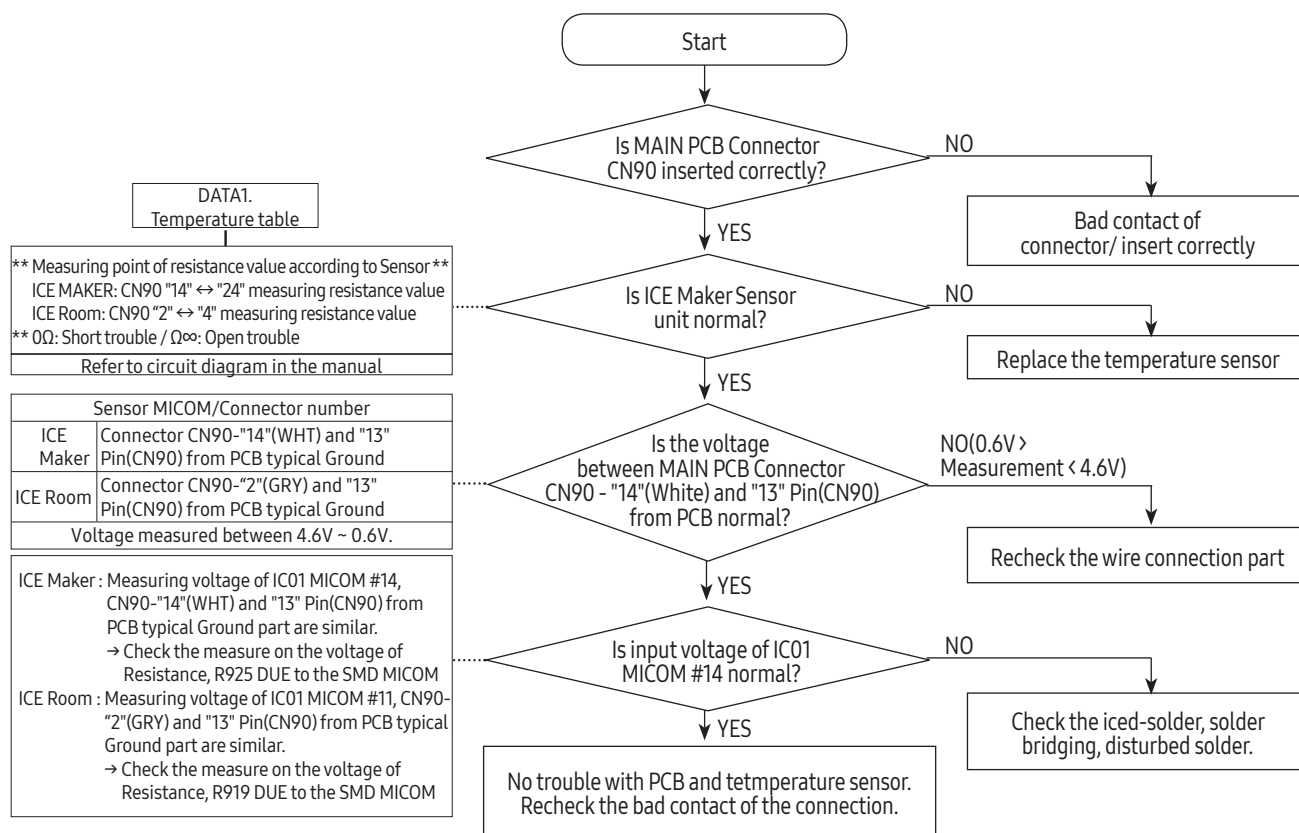
TROUBLESHOOTING

4-4. Diagnostic method according to the trouble symptom

4-4-1. If the trouble is detected by self-diagnosis

- 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 display of abnormal sensor part will blink.
- 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) If ICE Maker(R) Sensor has troubled (check the other sensors in the same procedure)



ICE Maker

- ☞ Checking method of ICE Maker Sensor resistance
 CN90 "14"(FLAT WHT) ↔ "24"(FLAT WHT)- Compare the temperature table after the measure.

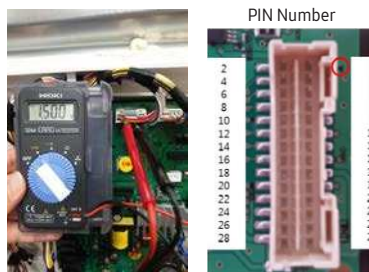
ICE Room

- ☞ Checking method of ICE Room Sensor resistance
 CN90 "2"(GRY) ↔ "4"(YEL)- Compare the temperature table after the measure.



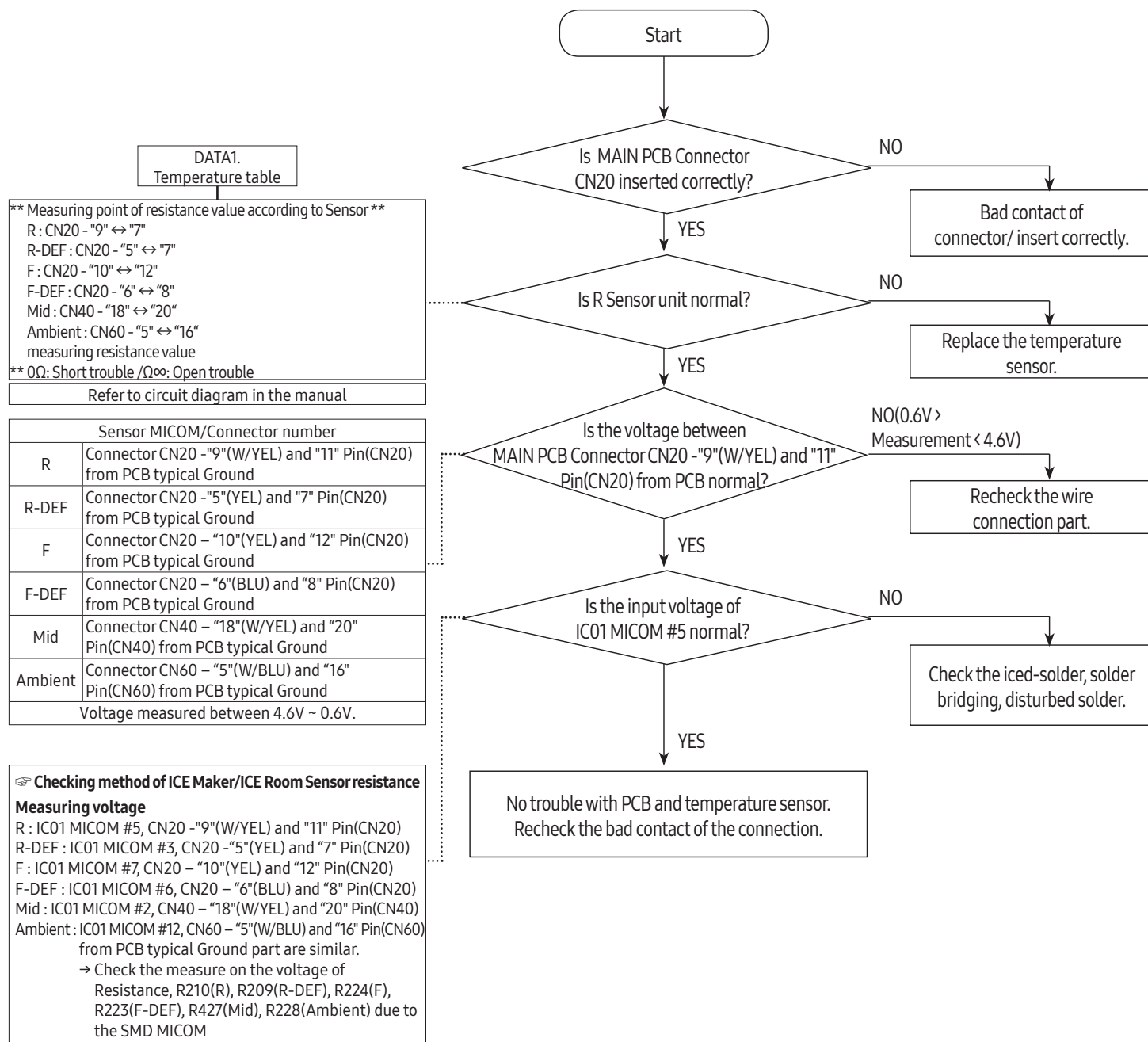
☞ Checking method of ICE Maker Sensor resistance

- Measure the voltage of Resistance
 ICE Maker: R925(IC01 MICOM #14) on PCB or CN90 "14"(WHT) and "13" Pin(CN90) from PCB
 ICE Room: R919(IC01 MICOM #11) on PCB or CN90-"2"(GRY) and "13" Pin(CN90) from PCB
- Compare the temperature table after the measure. Measuring voltage of
 ICE Maker: CN90-"14"(White) and "13" Pin(CN90) from PCB
 ICE Room: CN90-"2"(GRY) and "13" Pin(CN90) from PCB



TROUBLESHOOTING

2) If R Sensor has trouble (check the other sensors in the same procedure) (cont.)



TROUBLESHOOTING

2) If R Sensor has trouble (check the other sensors in the same procedure)

Checking method of R Sensor resistance

R : CN20 - "9"(W/YEL) ↔ "11"(WHT)
R-DEF : CN20 - "5"(YEL) ↔ "7"(GRN)
F : CN20 - "10"(YEL) ↔ "12"(YEL)
F-DEF : CN20 - "6"(BLU) ↔ "8"(W/GRY)
Mid : CN40 - "18"(W/YEL) ↔ "20"(GRY)
Ambient : CN60 - "5"(W/BLU) ↔ "16"(FLAT_WHT)
Compare the temperature table after measurement.



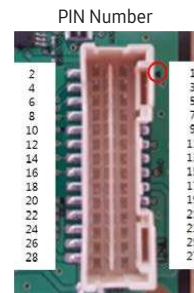
Checking method of Sensor resistance

- Measure the voltage of Resistance

R : R210(IC01 MICOM #5) on PCB or CN20 "9"(W/YEL) and "11" Pin(CN20) from PCB
R-DEF : R209(IC01 MICOM #3) on PCB or CN20 - "5"(YEL) and "7" Pin(CN20) from PCB
F : R224(IC01 MICOM #7) on PCB or CN20 - "10"(YEL) and "12" Pin(CN20) from PCB
F-DEF : R223(IC01 MICOM #6) on PCB or CN20 - "6"(BLU) and "8" Pin(CN20) from PCB
Mid : R427(IC01 MICOM #2) on PCB or CN40 - "18"(W/YEL) and "20" Pin(CN40) from PCB
Ambient : R228(IC01 MICOM #12) on PCB or CN60 - "5"(W/BLU) and "16" Pin(CN60) from PCB

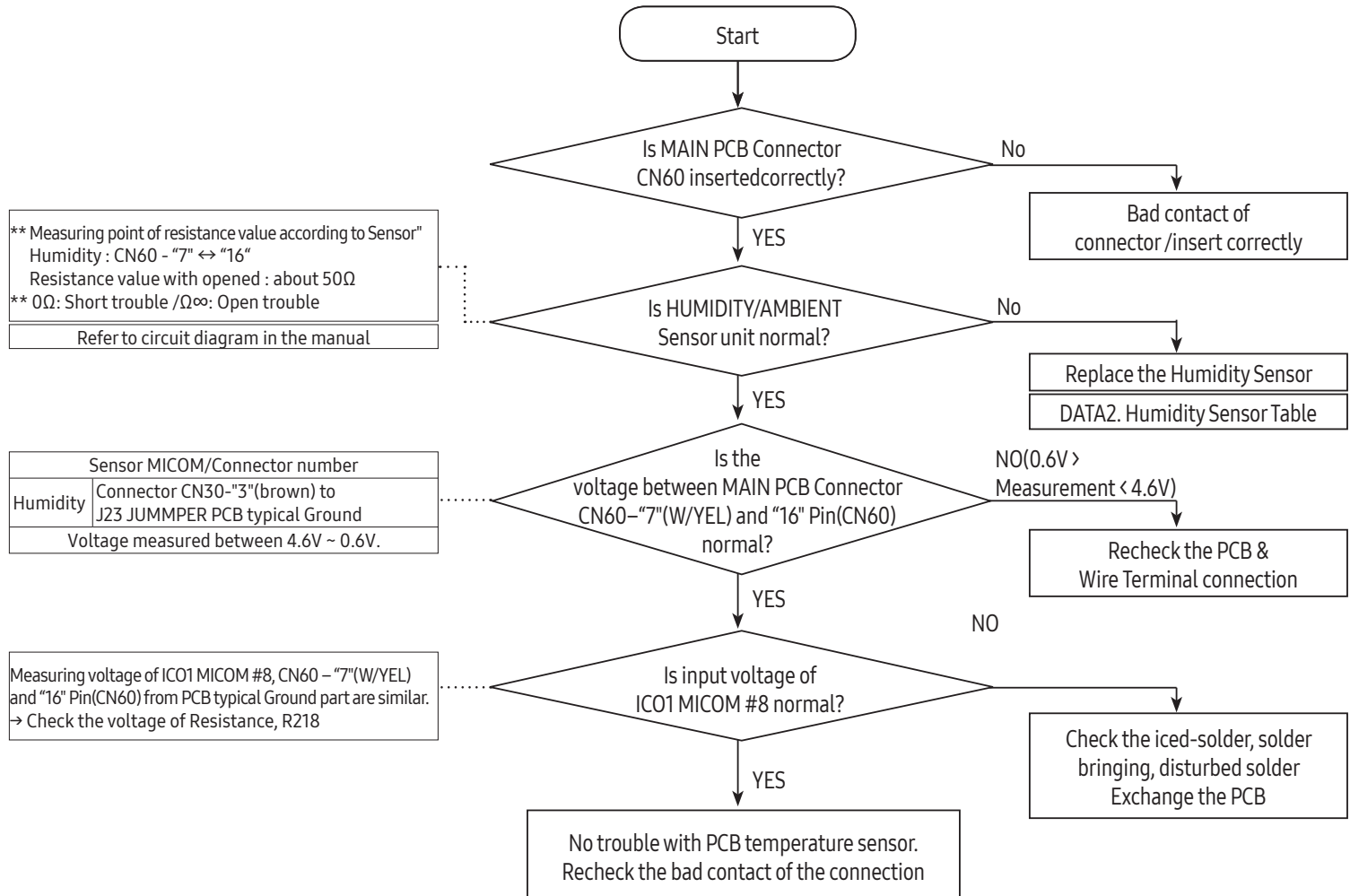
- Compare the temperature table after the measure. Measuring voltage of

R : R210(IC01 MICOM #5) on PCB or CN20 "9"(W/YEL) and "11" Pin(CN20)
R-DEF : R209(IC01 MICOM #3) on PCB or CN20 - "5"(YEL) and "7" Pin(CN20)
F : R224(IC01 MICOM #7) on PCB or CN20 - "10"(YEL) and "12" Pin(CN20)
F-DEF : R223(IC01 MICOM #6) on PCB or CN20 - "6"(BLU) and "8" Pin(CN20)
Mid : R427(IC01 MICOM #2) on PCB or CN40 - "18"(W/YEL) and "20" Pin(CN40)
Ambient : R228(IC01 MICOM #12) on PCB or CN60 - "5"(W/BLU) and "16" Pin(CN60) from PCB are as below.



TROUBLESHOOTING

3) If Humidity Sensor has trouble

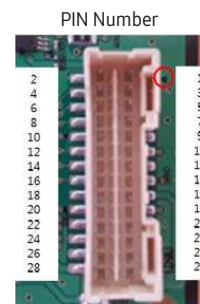


- Checking method of Humidity Sensor resistance**
- CN60 - "7"(W/YEL) ↔ "16"(FLAT_WHT)
- Compare the temperature table after the measure.



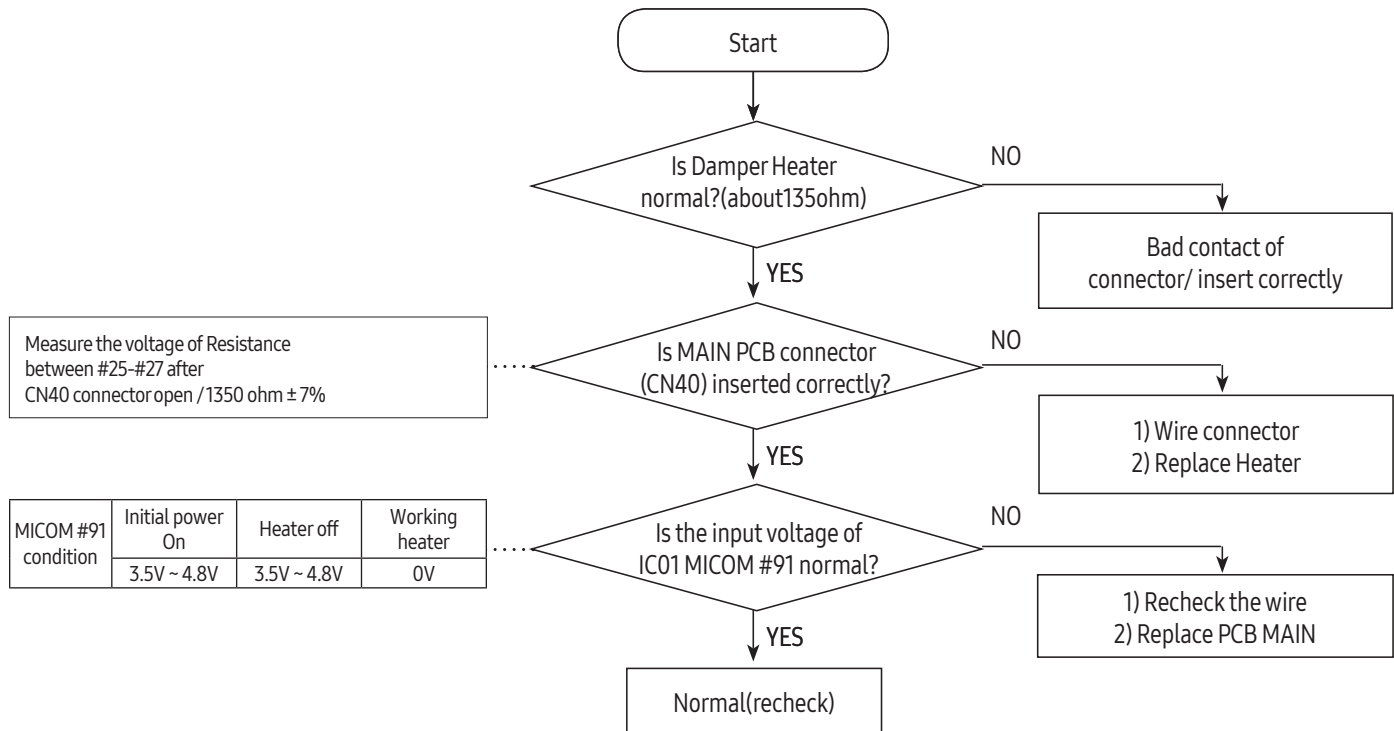
- Checking method of Sensor resistance**

- Measure the voltage of Resistance, R218(IC01 MICOM #8) on PCB or CN60 - "7"(W/YEL) and "16" Pin(CN60) from PCB are as below.
 - Compare the temperature table after the measure.
- Measuring voltage of R218(IC01 MICOM #8) on PCB or CN60 - "7"(W/YEL) and "16" Pin(CN60) from PCB are as below.



TROUBLESHOOTING

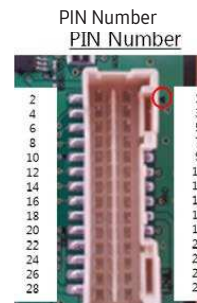
4) Mid Drawer Room Damper Heater has trouble (OPTION)



☞ Checking method of Mid Drawer Room Damper resistance

CN40-"25"(Brown) ↔ "27"(Black)

** $\Omega\infty$: Open (wire disconnection, heater disconnection) trouble / 0Ω : Short trouble



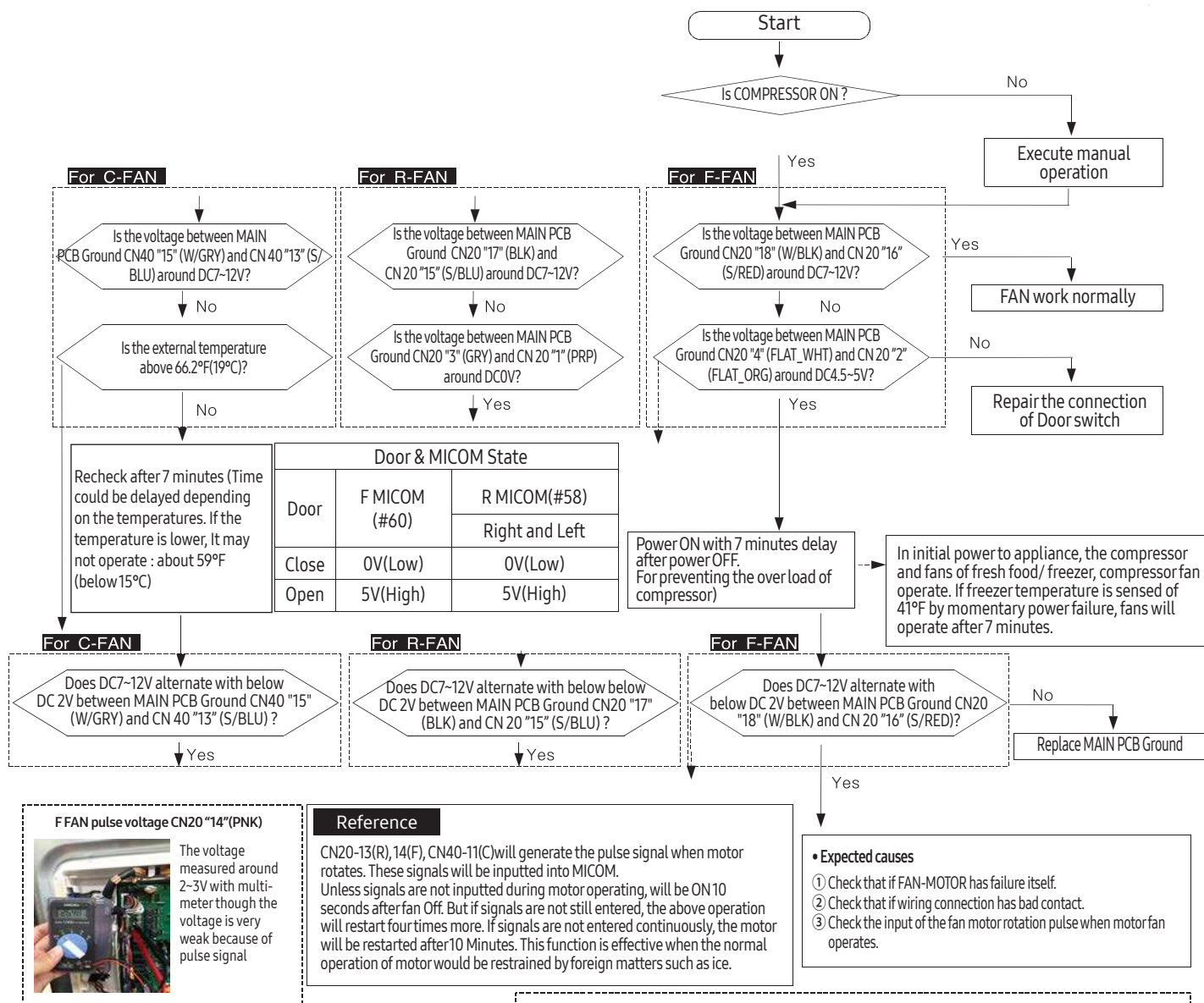
TROUBLESHOOTING

4-4-2. If FAN does not operate

The refrigerator of this model has BLDC FAN motor. BLDC motor is driven by DC 7~12V.

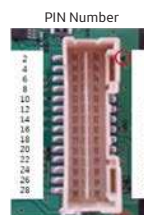
On the normal condition of COMP ON, it operates together with F-FAN motor. If door is opened and closed once at a high ambient temperature, it will be operated after 1 minute delay. Therefore, you are advised not to taken it for an error.

If there is a trouble, you should select the self-diagnostic function to check the trouble before power off.



Display for checking the self-diagnostic function

The voltage between PCB typical Ground CN20 "17" Pin and F FAN : CN20 "16" (S/RED) shall be less than DC 7~12V.
R FAN : CN20 "15" (S/BLU) shall be less than DC 7~12V.
C FAN : CN 40 "13" (S/BLU) shall be less than DC 7~12V.
- Recheck if resistance values are different after measuring.



TROUBLESHOOTING

4-4-3. If ICE Room Fan does not operate

This refrigerator has BLDC FAN motor. BLDC motor is driven by DC7~12V.

When COMP ON, normally operates with F-FAN motor.

If there is any trouble, you should select the self-diagnostic function to check the trouble before power off.

- When pressing the ICE TEST S/W for a certain period of time (over 1.5sec), the function is accomplished. After beginning of TEST mode, Ice maker heater turns on for initial 2 minutes, if the ice making temperature is below 0°C.
- If it exceeds 0°C, Ice maker heater turns on for initial 30 seconds.
- After Ice maker heater turns on for 30 seconds, it turns off and then Ice maker motor turns on.
- As the Ice maker motor turns on, TEST MODE COUNT operates. (6 minutes count)

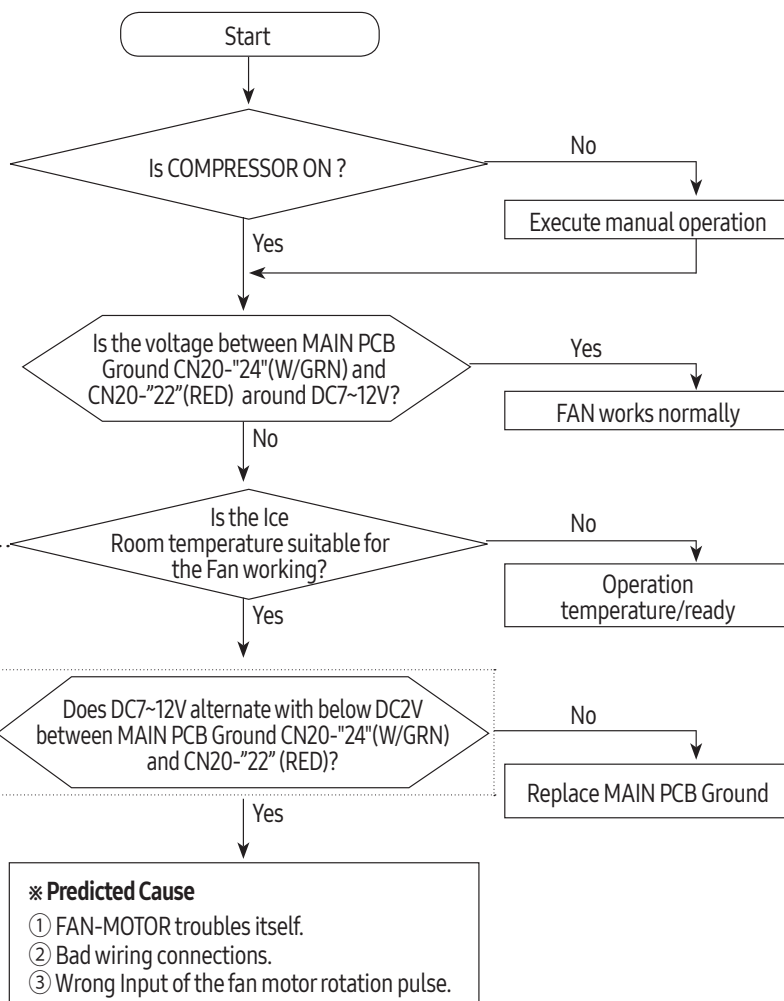
Condition

- Ambient temperature : 32°C/75%
- Notch : 2°F/38°F(-19.0°C/3.3°C)
- Initial full of ice bucket capacity : 794 g, 58ea

Ice Room control temperature	
Ice ON	8.6°F(-13°C)
Ice OF	26.6°F(-3°C)

Reference

CN20 "20" will generate the pulse signal when motor rotates. These signals will be input into MICOM. Unless signals are not input during motor operating, will be ON 10seconds after fan OFF. But if signals are not still taken, the above operation will be retried four times more. If signals are not taken continuously, the motor will be restarted after 10 minutes. This function is against the case that motor movement would be restrained by foreign matters like ice.

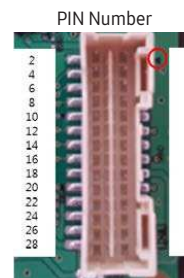


FAN pulse voltage CN20-"20"(WHT/PURPLE)



The voltage is variable due to pulse signal but measured about 2~3V with the Multi-Meter.

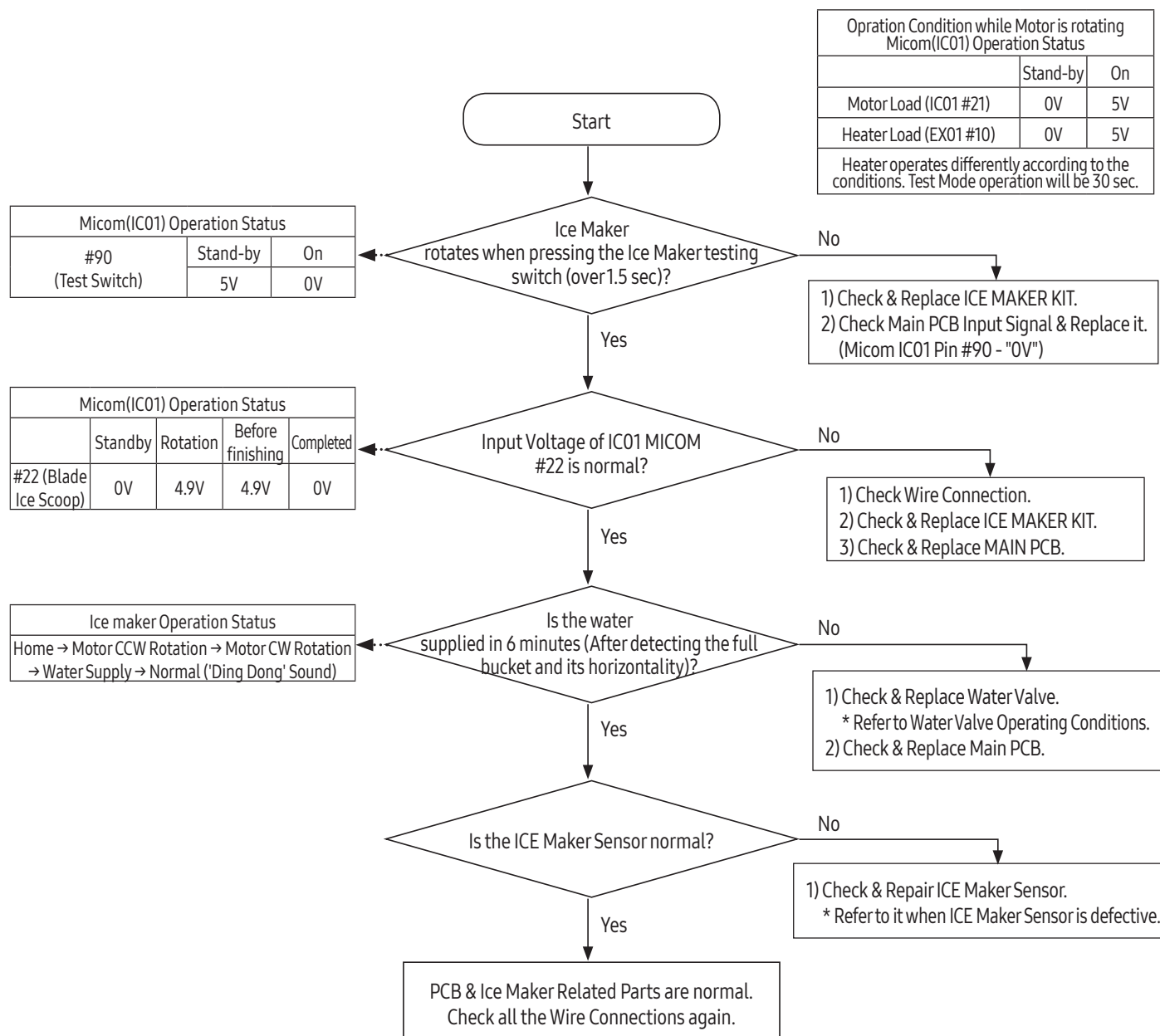
☞ Checking method of Ice Room FAN Motor Voltage with the voltage between Ice Room FAN : CN20-"24"(W/GRN) and CN20-"22"(RED) shall be less than DC 7~12V.



TROUBLESHOOTING

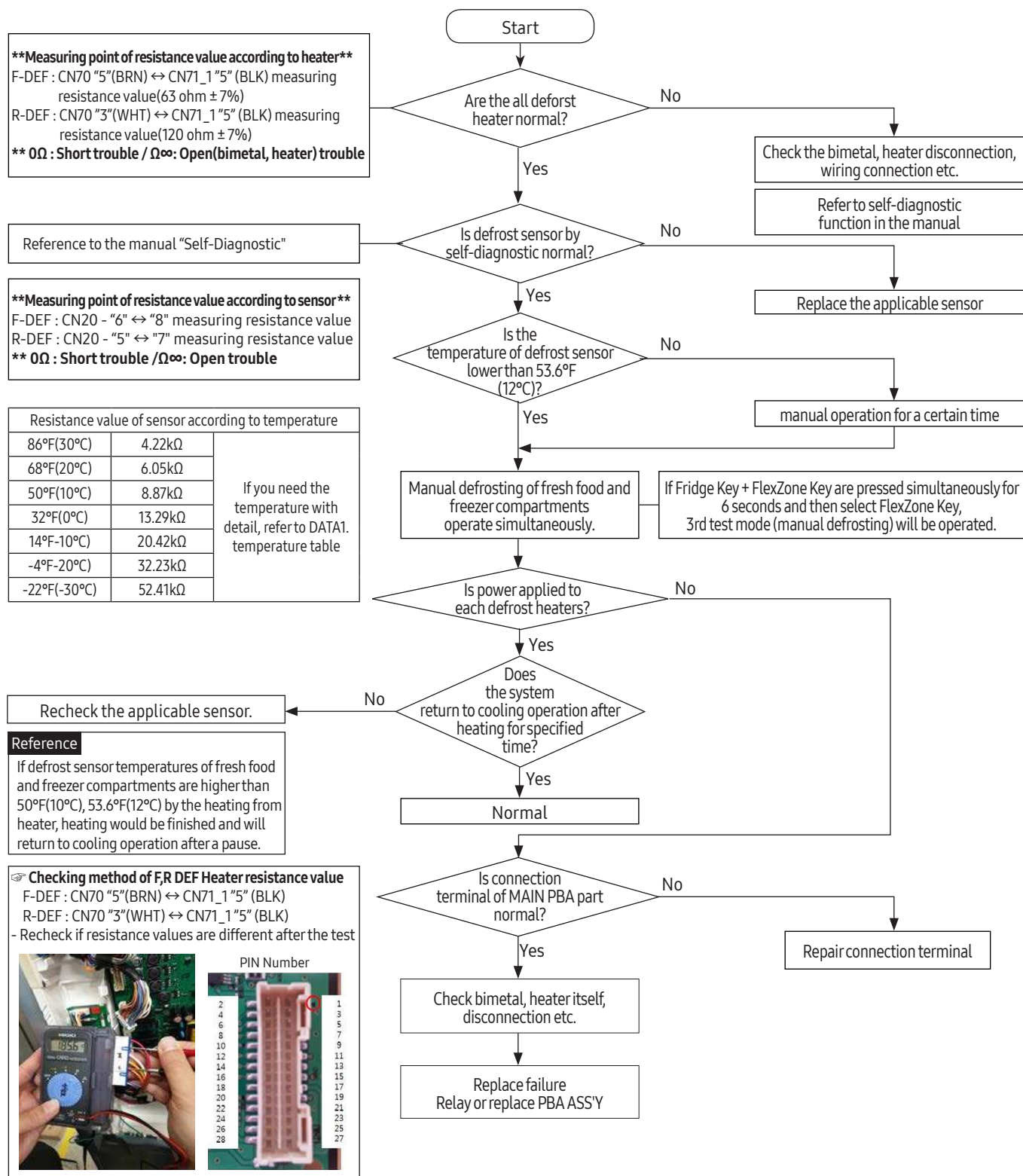
4-4-4. When ICE MAKER(FF) does not operate

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.



TROUBLESHOOTING

4-4-5. If defrost does not operate (F,R DEF Heater)



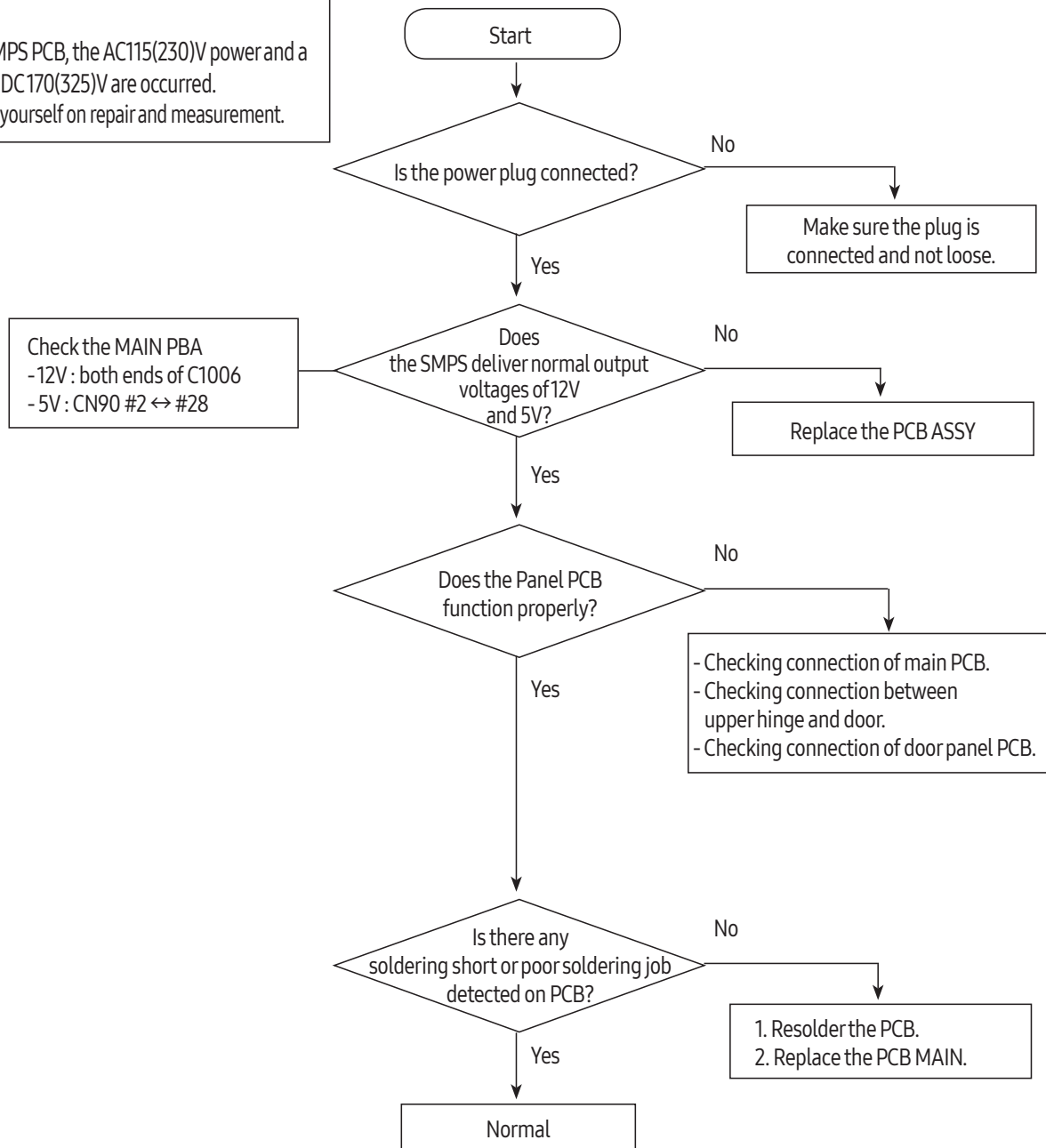
TROUBLESHOOTING

4-4-6. When Power is not applied

1) SET

Caution

At the power of SMPS PCB, the AC115(230)V power and a high-voltage over DC170(325)V are occurred. Please take care of yourself on repair and measurement.

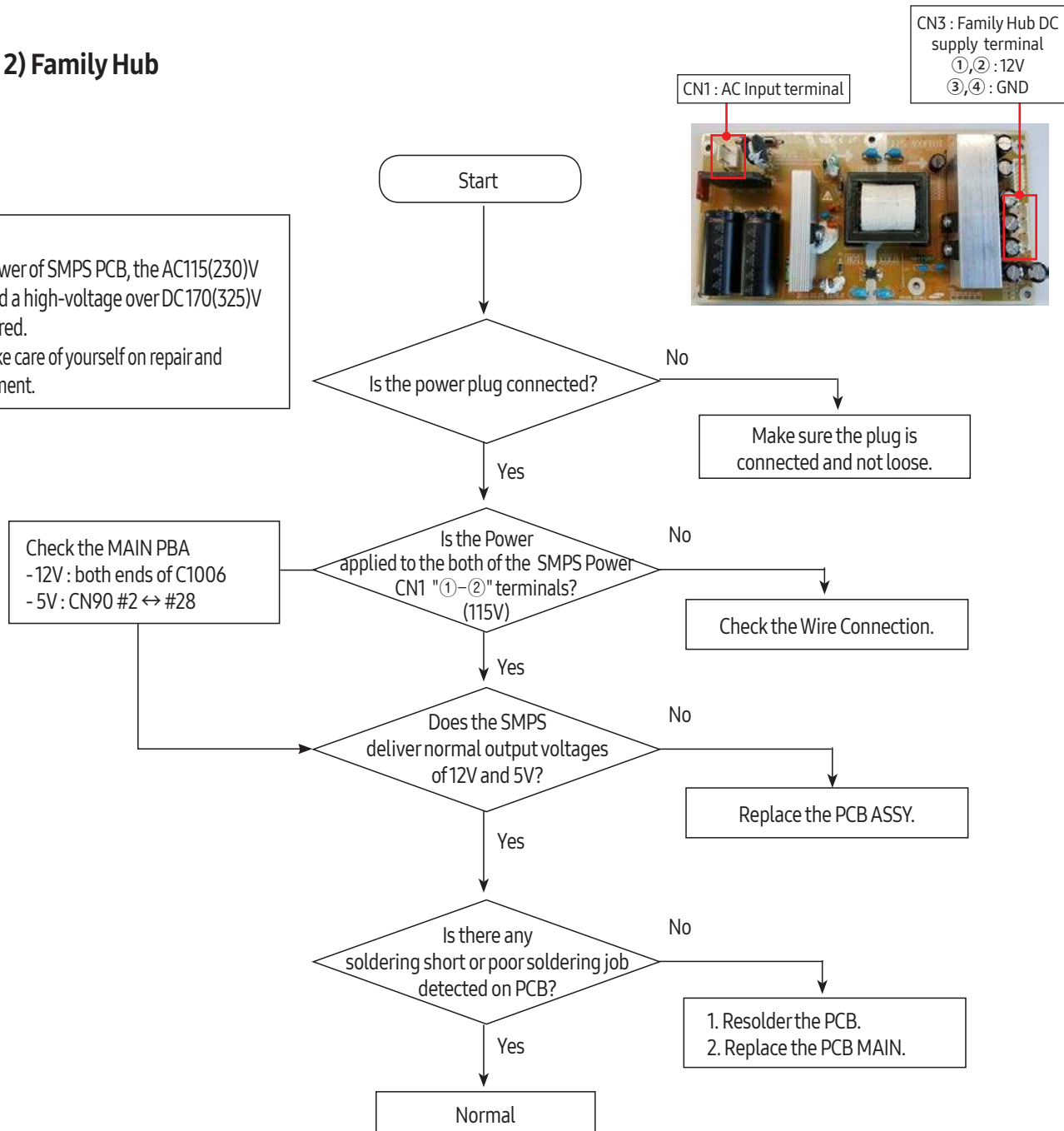


TROUBLESHOOTING

2) Family Hub

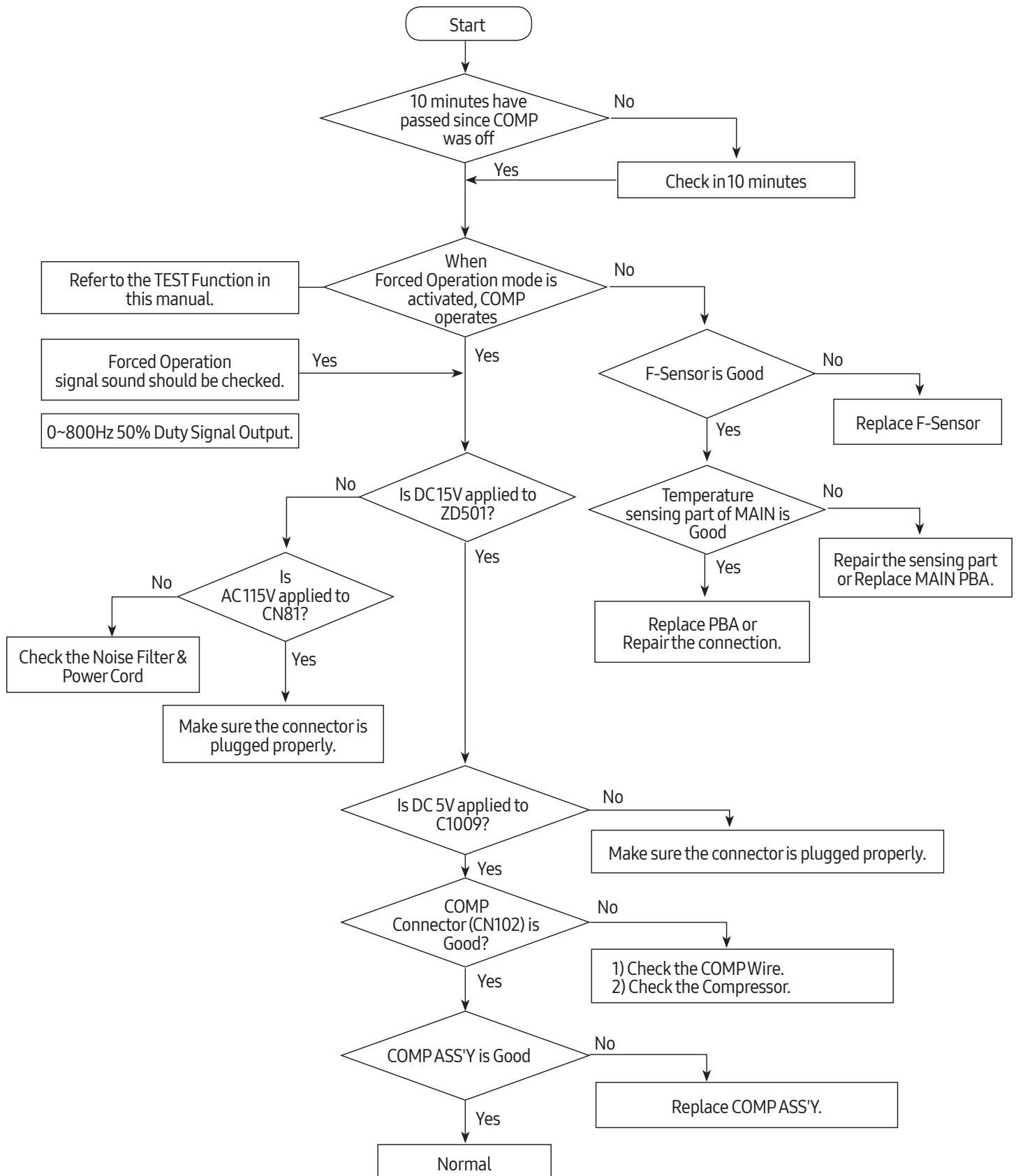
Caution

At the power of SMPS PCB, the AC115(230)V power and a high-voltage over DC170(325)V are occurred.
Please take care of yourself on repair and measurement.



TROUBLESHOOTING

4-4-7. When Compressor does not run (Inverter COMP.)

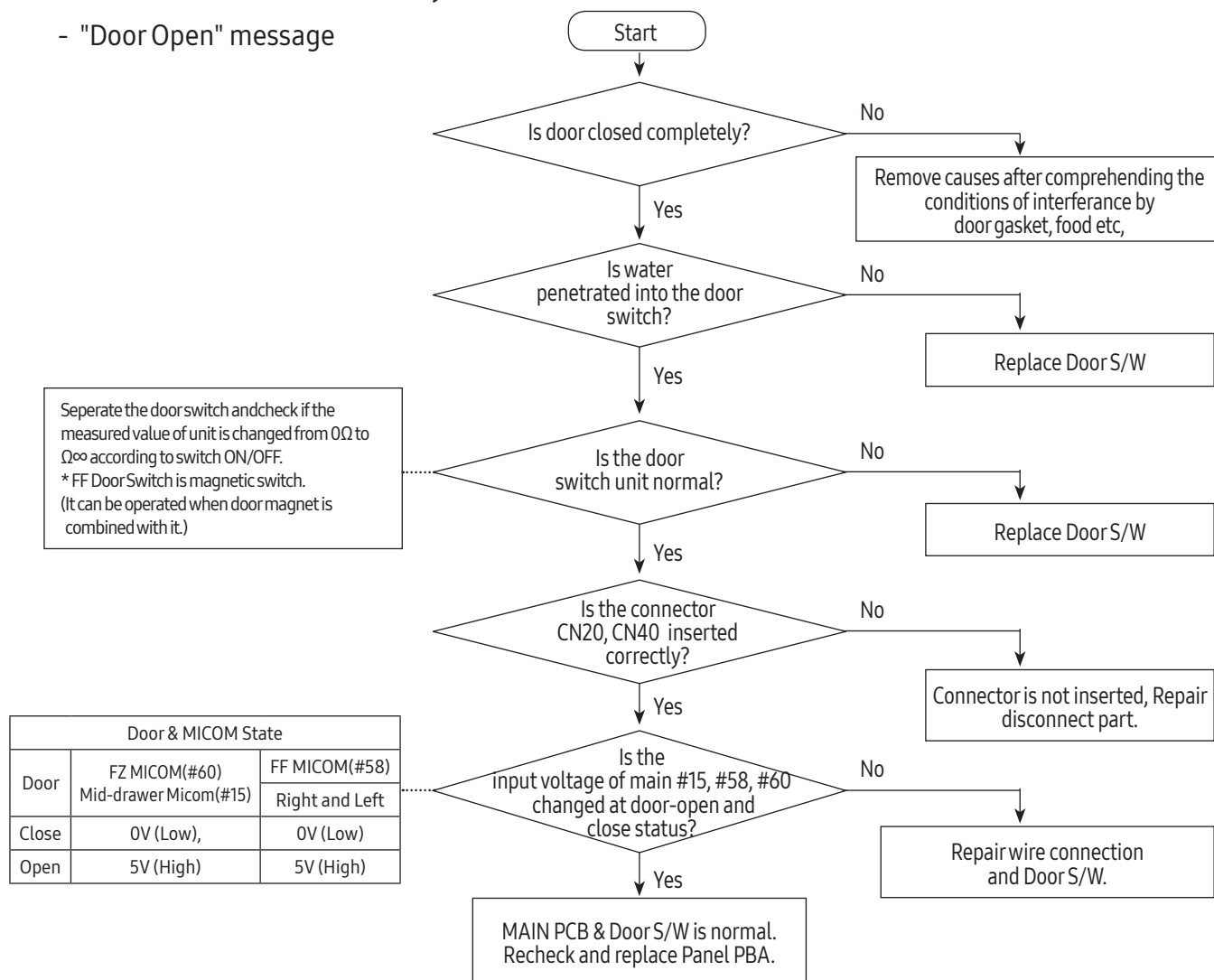


TROUBLESHOOTING

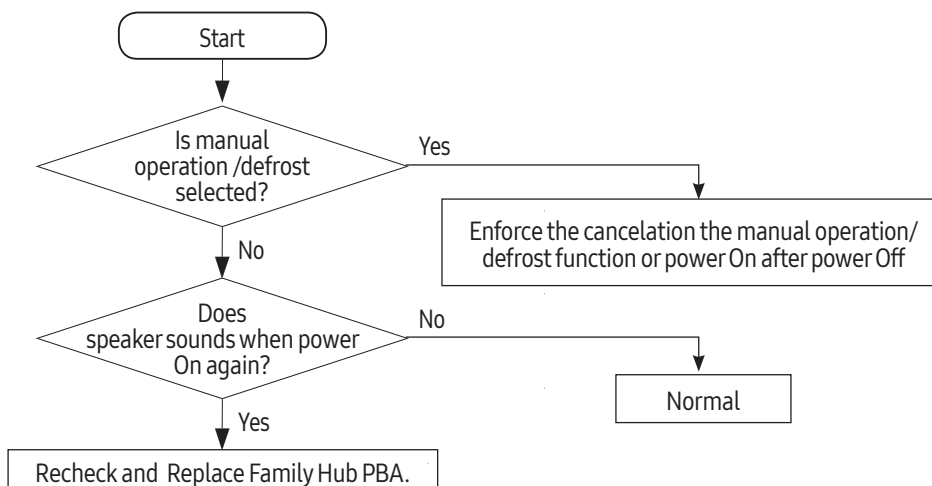
4-4-8. When alarm sounds continuously without stop(related with buzzer sound)

① If door alarm sound continuously

- "Door Open" message



② If 'beep-beep' sounds continuously

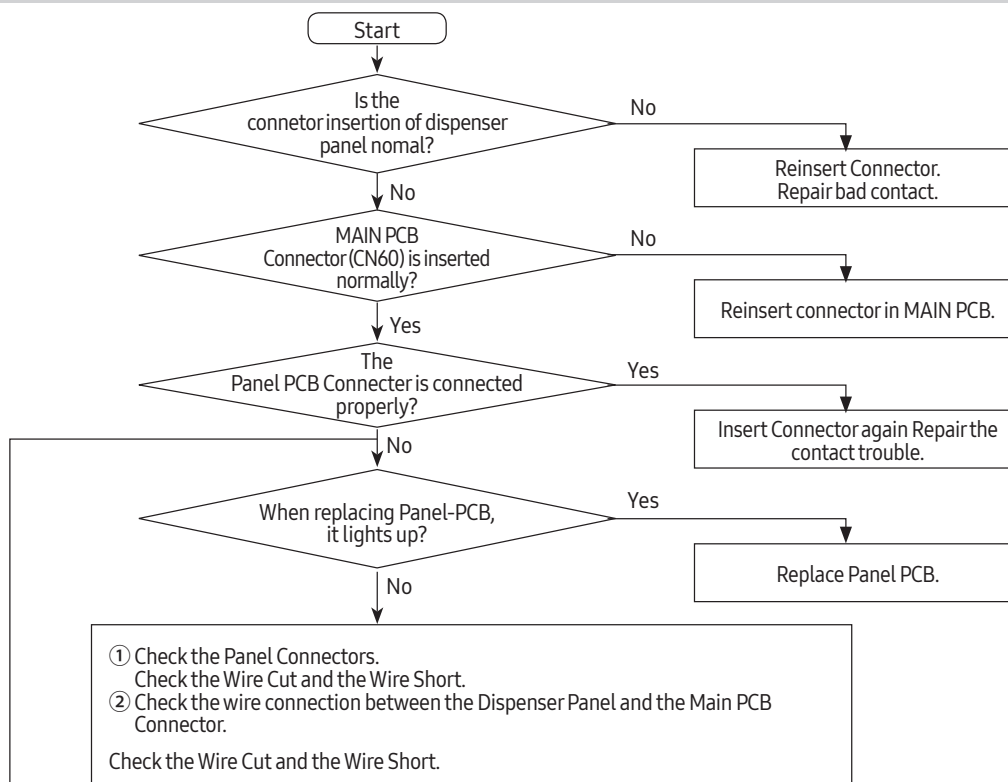


TROUBLESHOOTING

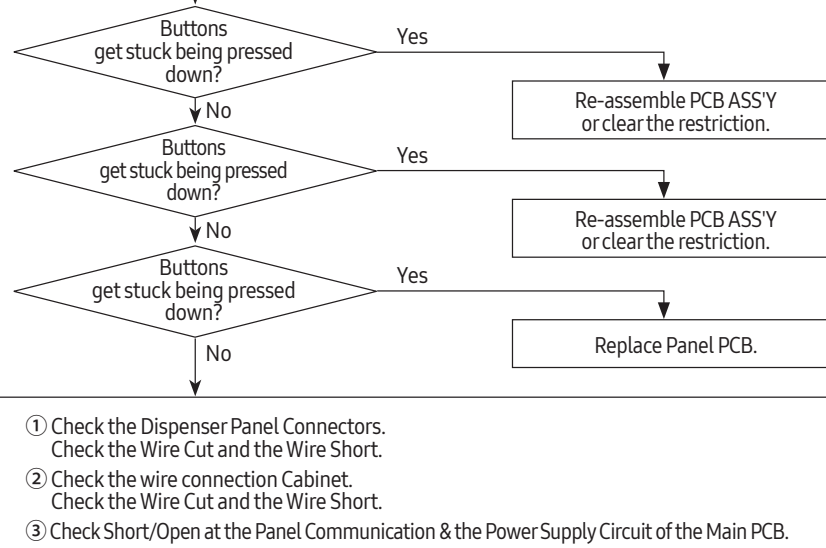
4-4-9. When the Dispenser Panel PBA does not operate normally

① When the entire or a certain section of the Panel PCB does not light up

There is a MICOM embedded in the Dispenser Panel PCB. So, take care when doing repairs.
And, except the Solder Touch, replace the PCB.



② When the Panel PCB buttons do not work ※ When it keeps troubling after check with the above procedures [Check after turning off the unit and turning it on again]



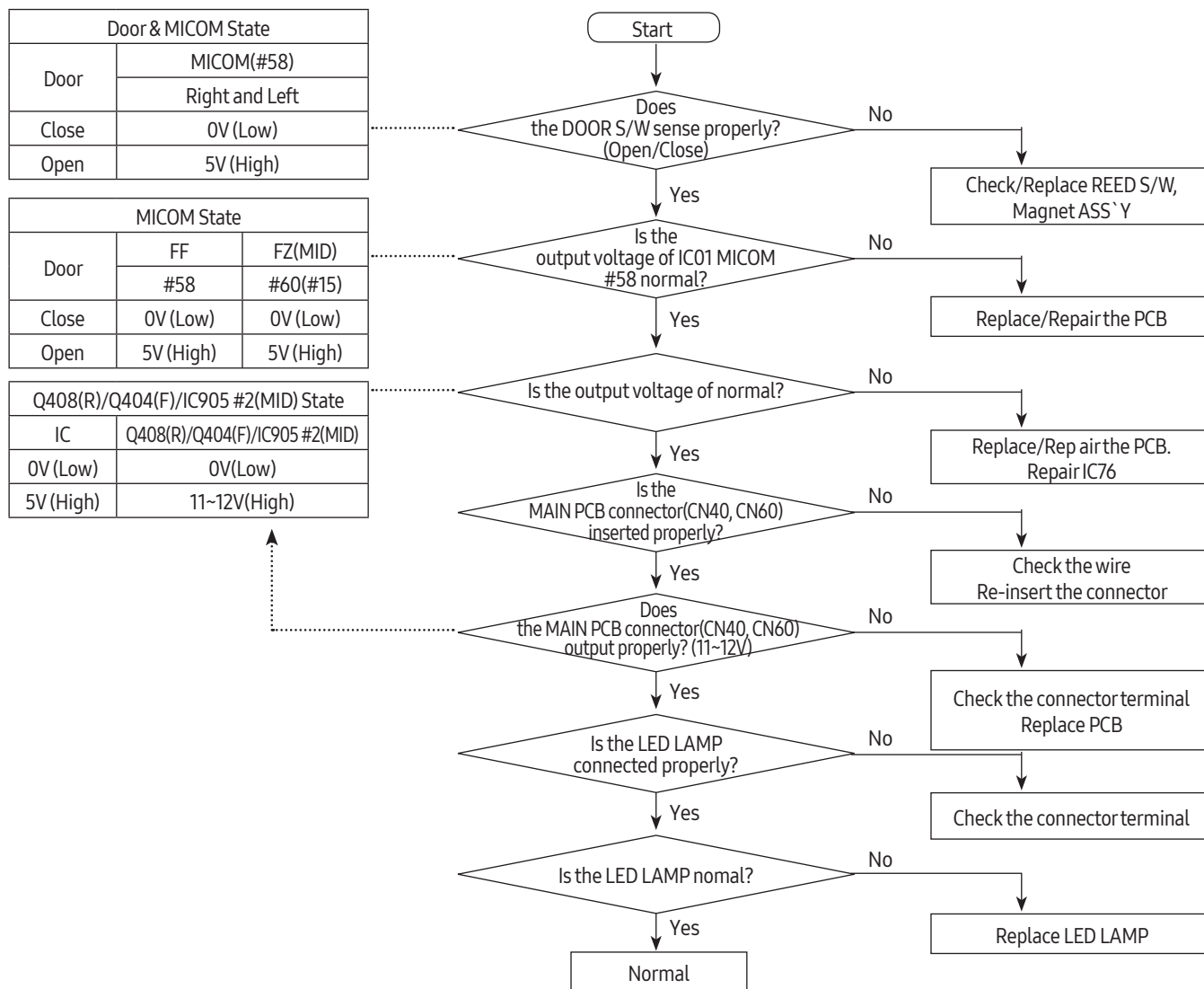
Since all Touch is used for the Panel PCB Switch, be sure to turn off the unit and turn it on again after doing a repair.
[It is to adjust the sensitivity of the Touch Panel.]

TROUBLESHOOTING

4-4-10. When refrigerator ROOM Lamp does not light up

When controlling the refrigerator light with Regulator(12V) : LED LAMP
→ Applying to the F/R Room compartment (Option)

* If the Vegetable Lamp does not work properly, check the R compartment LED Lamp because it is connected with the R compartment LED Lamp in parallel. Refer to the circuit diagram to repair.



1) Measuring output voltage

- F LED : CN40 "10"(W/RED) and CN40 "12"(GRY)
- R LED : CN40 "26"(RED) and CN40 "28"(GRY)
- MID LED : CN60 "19"(W/RED) and CN40 "22"(W/BLK)

R LED Lamp ON



R LED Lamp OF



- F Door : CN20 "2"(FLAT_ORG) and CN20 "4"(FLAT_WHT)
- R Door : CN20 "1"(PRP) and CN20 "3"(GRY)
- MID LED : CN40 "14"(W/BLU) and CN40 "16"(GRY)

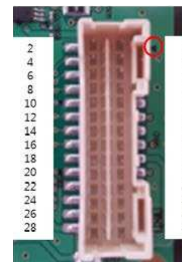
Close



Open



PIN Number



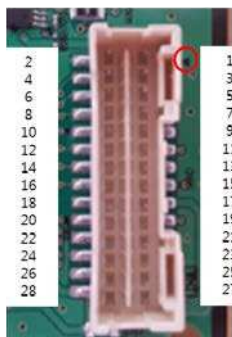
TROUBLESHOOTING

4-4-11. If ICE Water is not supplied

1. Please shut the water supplying prior to repair.
2. Power is applied to the one end of wires. Be careful when disassembling not to get an electric shock.

Ice Water(R) Valve

PIN Number



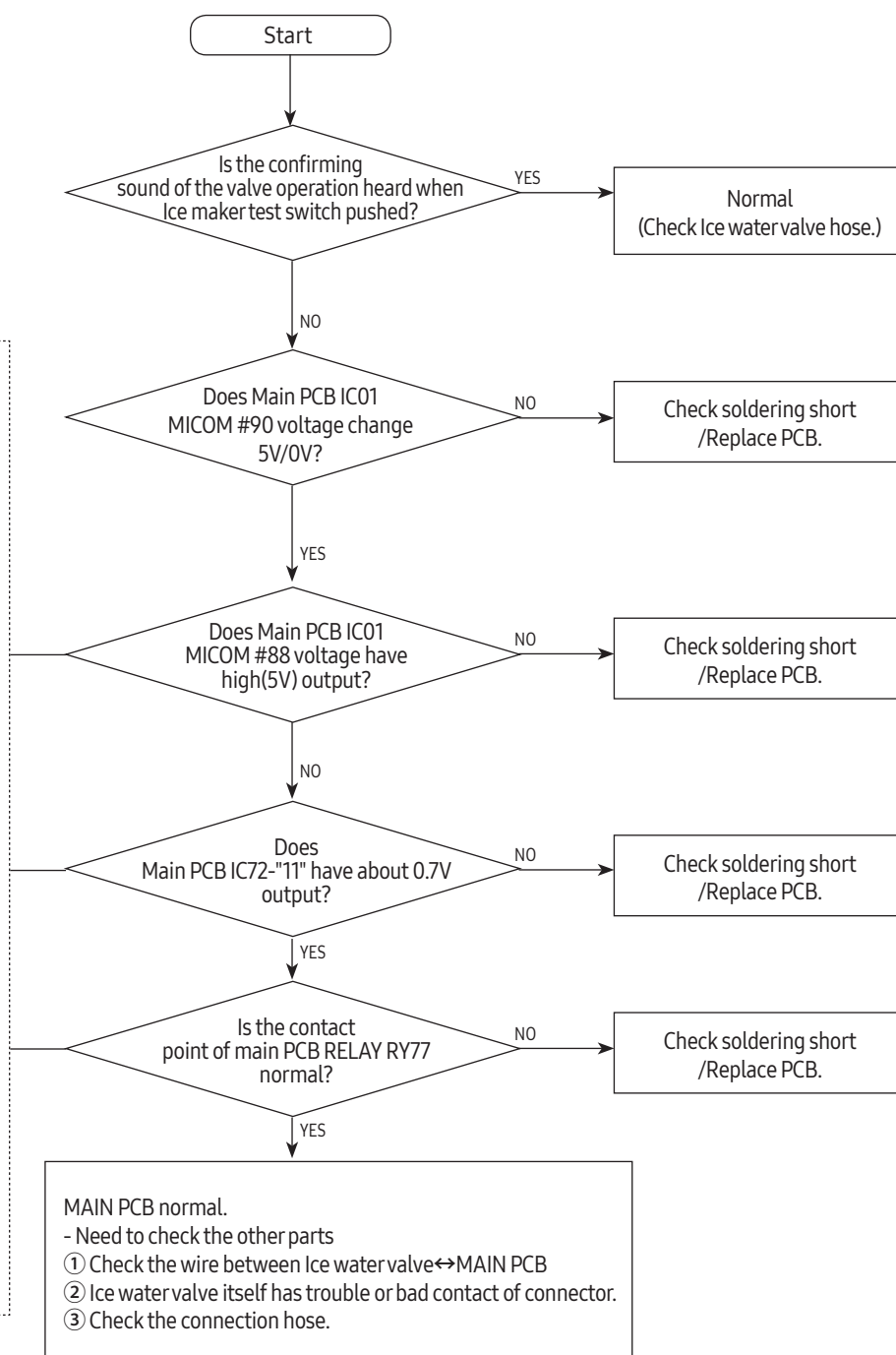
- ☞ Checking method of voltage Based on
- 1) Check the voltage of IC72-"6" ↔ IC72-"8"
(same voltage as IC01 "#88")
- ICE Water valve waiting (about 0V)



- 2) IC72-"11" ↔ IC72-"8"
- ICE Water valve Waiting (about 12V±0.8V)
- ICE Water valve Operating (about 0.7V±0.5V)

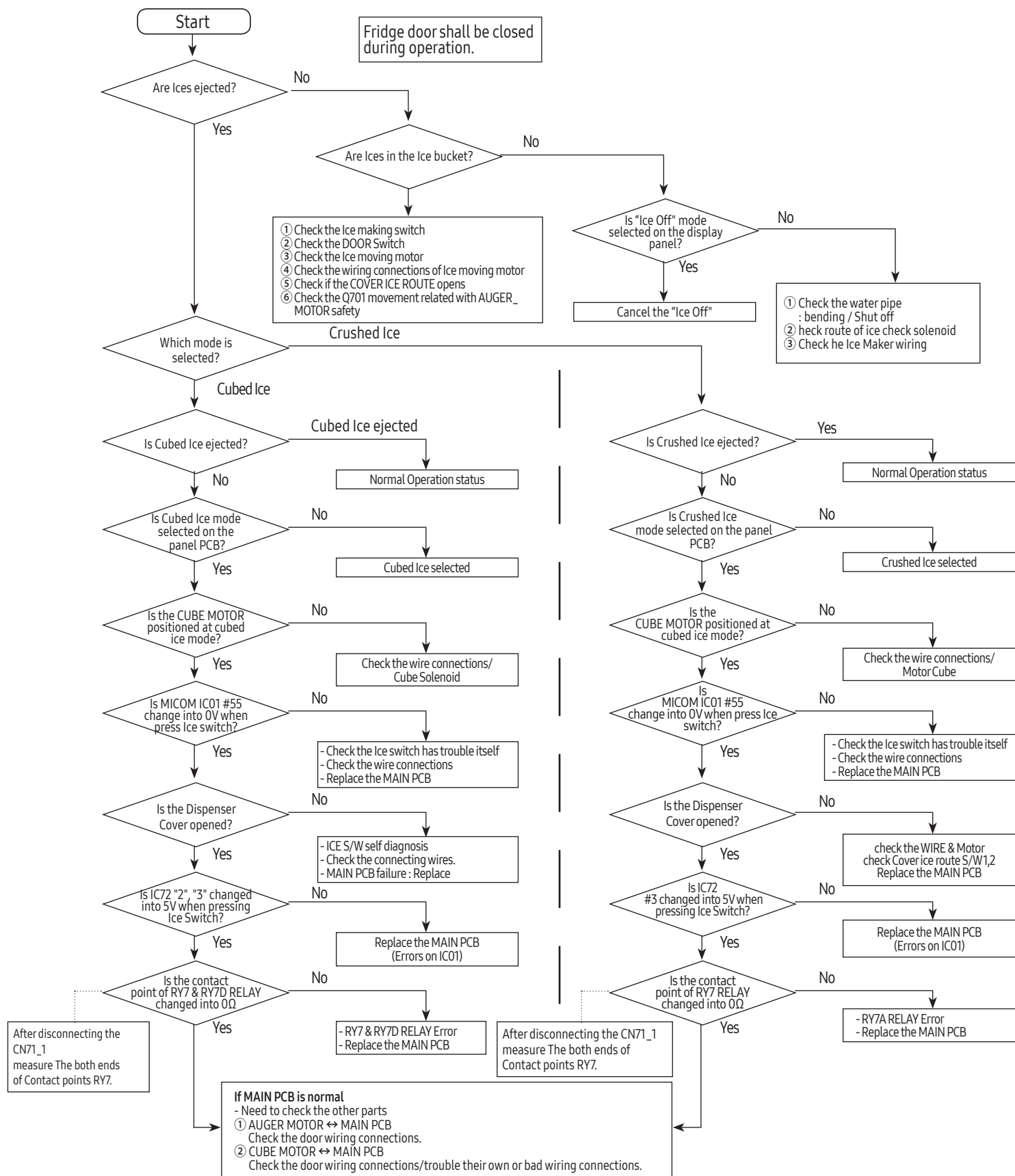


- 3) Check the voltage of Water Valve operating (AC voltage)
=> The Relay RY77 operating.CN71-"5" ↔ CN71_1-"5"
- ICE Water valve waiting (about AC 0V)



TROUBLESHOOTING

4-4-12. If Cubed or Crushed Ice is not supplied



TROUBLESHOOTING

4-4-13. If Cover Ice Route Motor(Geard Motor) is not working normally

Caution

1. When replacing the Cover Ice Motor, pull out the plug to avoid an electric shock.
2. Be careful! When disassemble the Cover Ice Motor, spring can jumped out and may cause personal injury.
3. Motor will rotate continuously when the Motor Switch is not sensed.

Checking Method of Cover Ice Route Motor Resistance

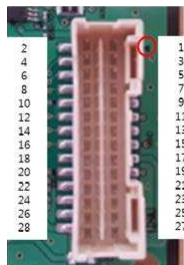
(Make sure to work after Power Off) the voltage of Resistance is variable according to the input voltage.

CN71-"1"(BLU) ↔ CN71_1-"5"(BLK)

** 0Ω: Short trouble / ∞Ω: Open trouble



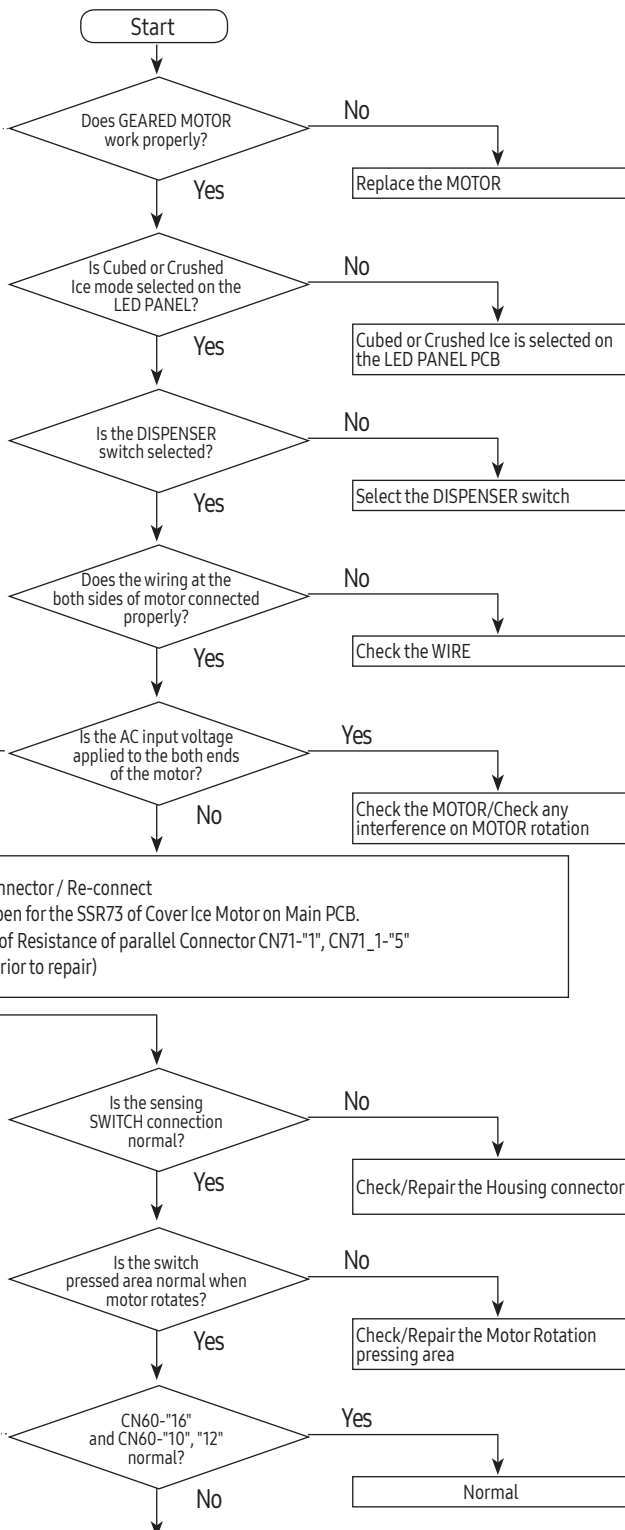
PIN Number



When the MOTOR rotates.

Operating Condition of Dispenser Open/Close CN60 - Switch 1,2 Operating			
	Close	ing	Open
Ice Route Switch 1 CN60-"12"(Purple)	0V	5V	0V
Ice Route Switch 2 CN60-"10"(WHT)	0V	5V	0V

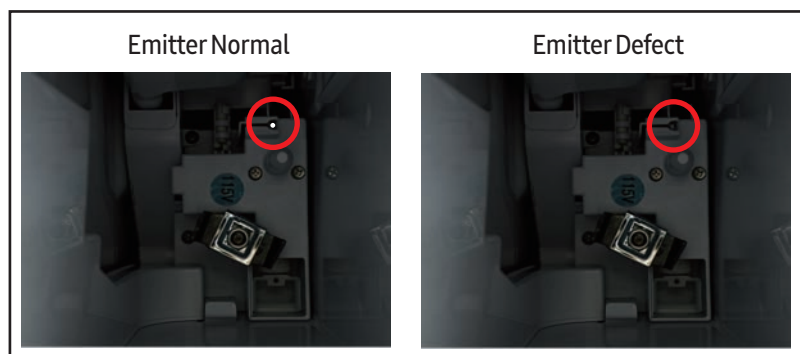
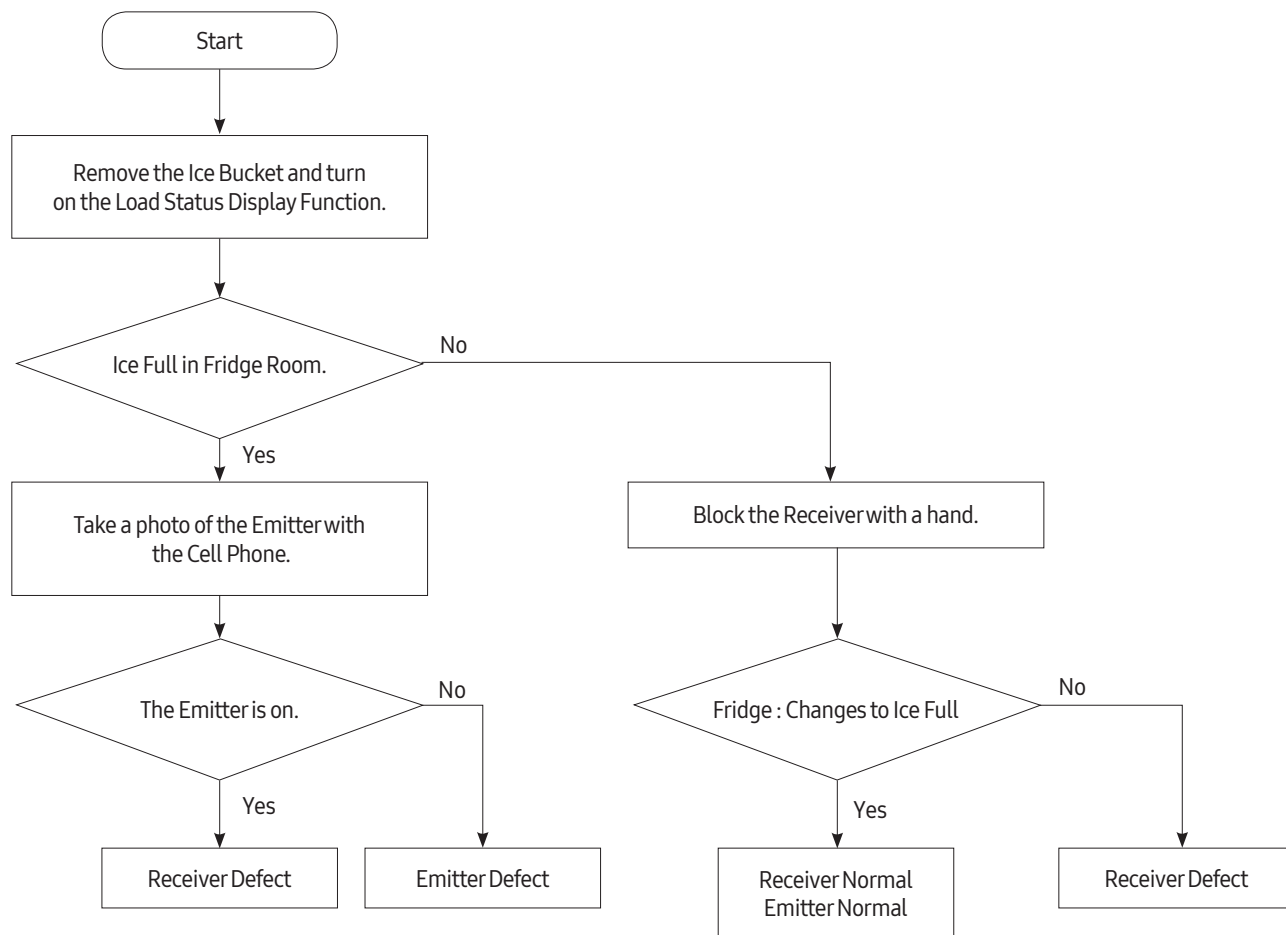
- ① Main PCB - Check the wire OPEN/SHORT between the Cover Ice Motor Rotation sensing switches.
- ② Check the Short of Cover Ice Motor Control Circuit SSR73 in the MAIN PCB.
- ③ Replace the MAIN PCB or the Dispenser Cover Motor.



TROUBLESHOOTING

4-4-14. IR Sensor Trouble-Shooting

1. When the IR sensor is defective, ice is not produced even if there is no Ice Maker Error, Ice Maker Sensor Error or the Ice Maker Function Error.
(When turning on the Self Diagnosis Function, it does not produce ice even if there is no 14C, 15C or 39C being displayed.)
2. Proceed with the Fridge Door being open and the Ice Bucket being removed.

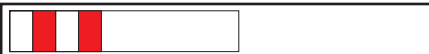


TROUBLESHOOTING

4-4-15. LED blinking frequency depending on protecting functions

If Failure Condition is detected during compressor is operating, immediately stop Compressor operating and stand by 5 minutes. During this 5 minutes, RPM command signal is not available. It means, even if available RPM command signal is applied to the compressor, it does not work and keep standing by.

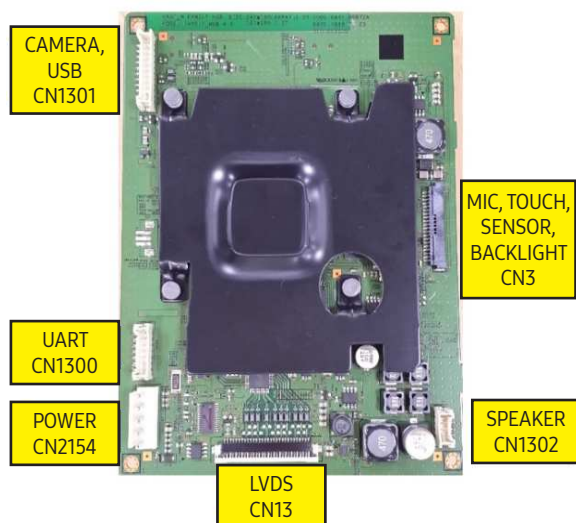
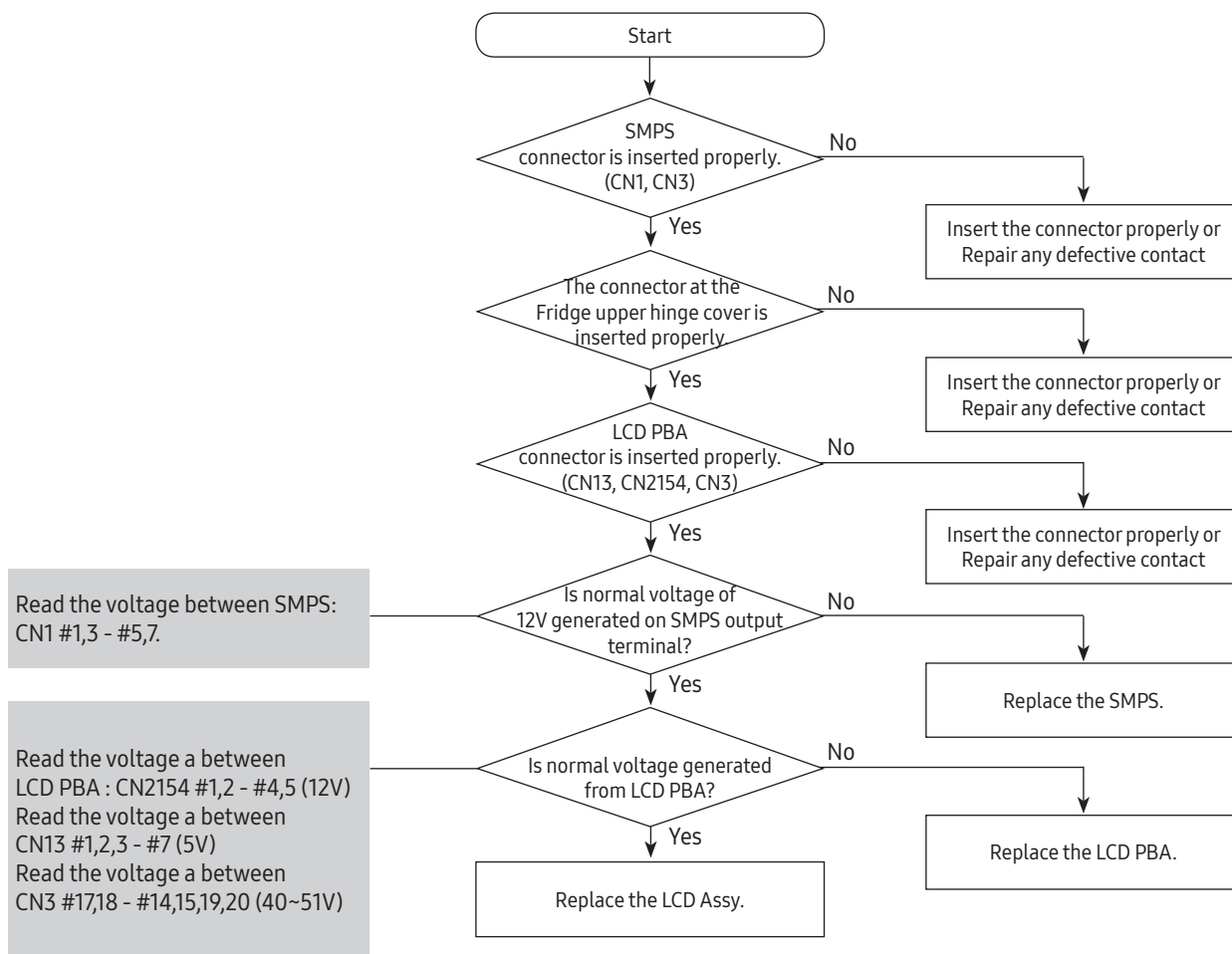
Blinking time is 1 second and dwell time is 2 seconds.

LED Blinking Frequency	Protecting Functions	Remarks
	Normal Operation	N/A
	Starting Failure	1. Short between COMP U,V, and W phase(CN04) 2. Short among IPM Pins(No. #1 ~ 26)
	IPM Fault	3. Drop the IPM operating Voltage under DC 13.5V 4. Other cases, check the COMP, cycle, etc.
	Abnormal Current Detection	1. Open the COMP wire(CN04) 2. Bad condition of R1(ex. Bad soldering.) 3. Other cases, check the COMP, cycle, etc.
	Motor Locked / Over RPM	1. Operating the locked rotor COMP within 5 second. 2. Operating the COMP under 1000 RPM more than 5 second. 3. Occur the huge change of input voltage in a moment 4. Other cases, check the COMP, cycle, etc.
	Under Voltage	1. Drop the input voltage under AC 53V 2. Short resistor R312(DC link resistor)
	Over Voltage	1. Increase the input voltage over AC 155V 2. Short resistor among R309, R310 and R311. (DC link resistor)

LED blinking frequency depending on protecting functions.

TROUBLESHOOTING

4-4-16. When the LCD does not work properly

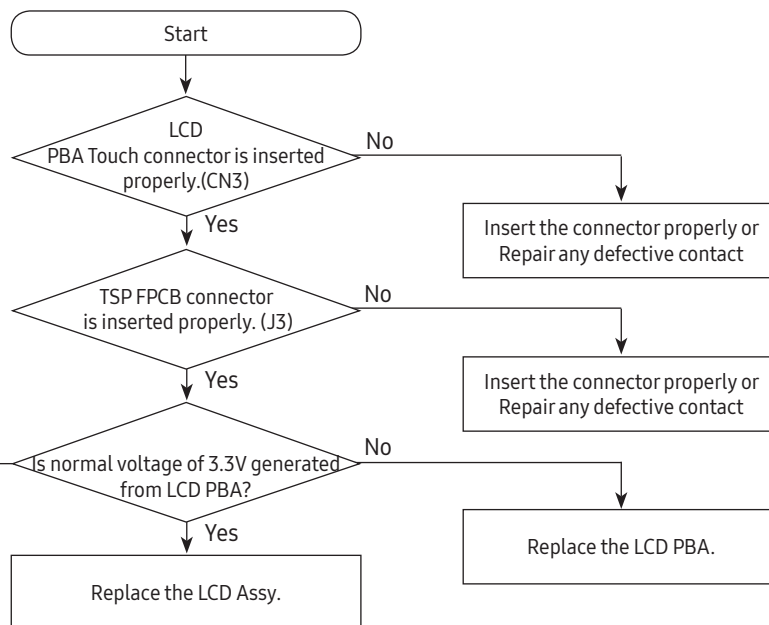


TROUBLESHOOTING

4-4-17. When it does not respond to touch

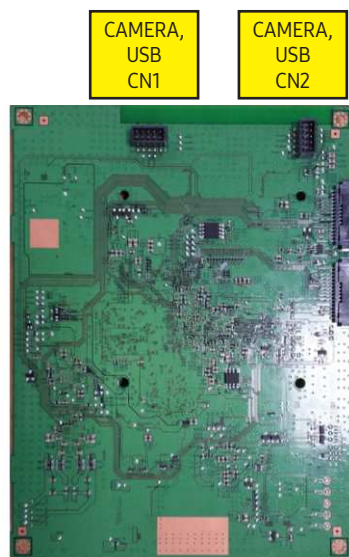


Read the voltage between LCD PBA: CN3 #14 - #10

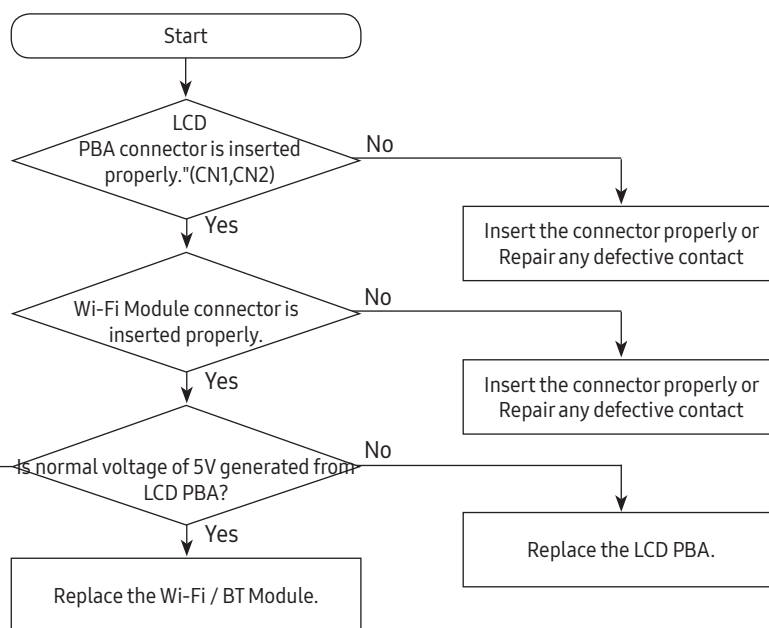


TROUBLESHOOTING

4-4-18. When the Wi-Fi does not work properly

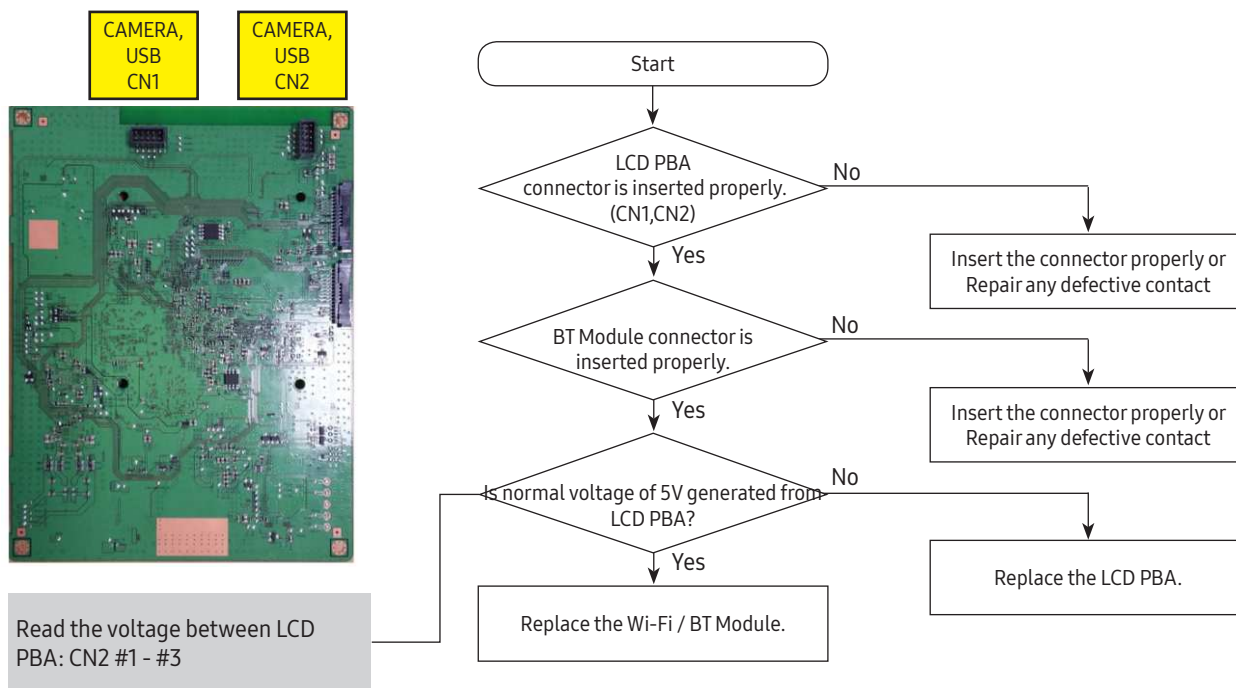


Read the voltage between LCD PBA: CN2 #1 - #3



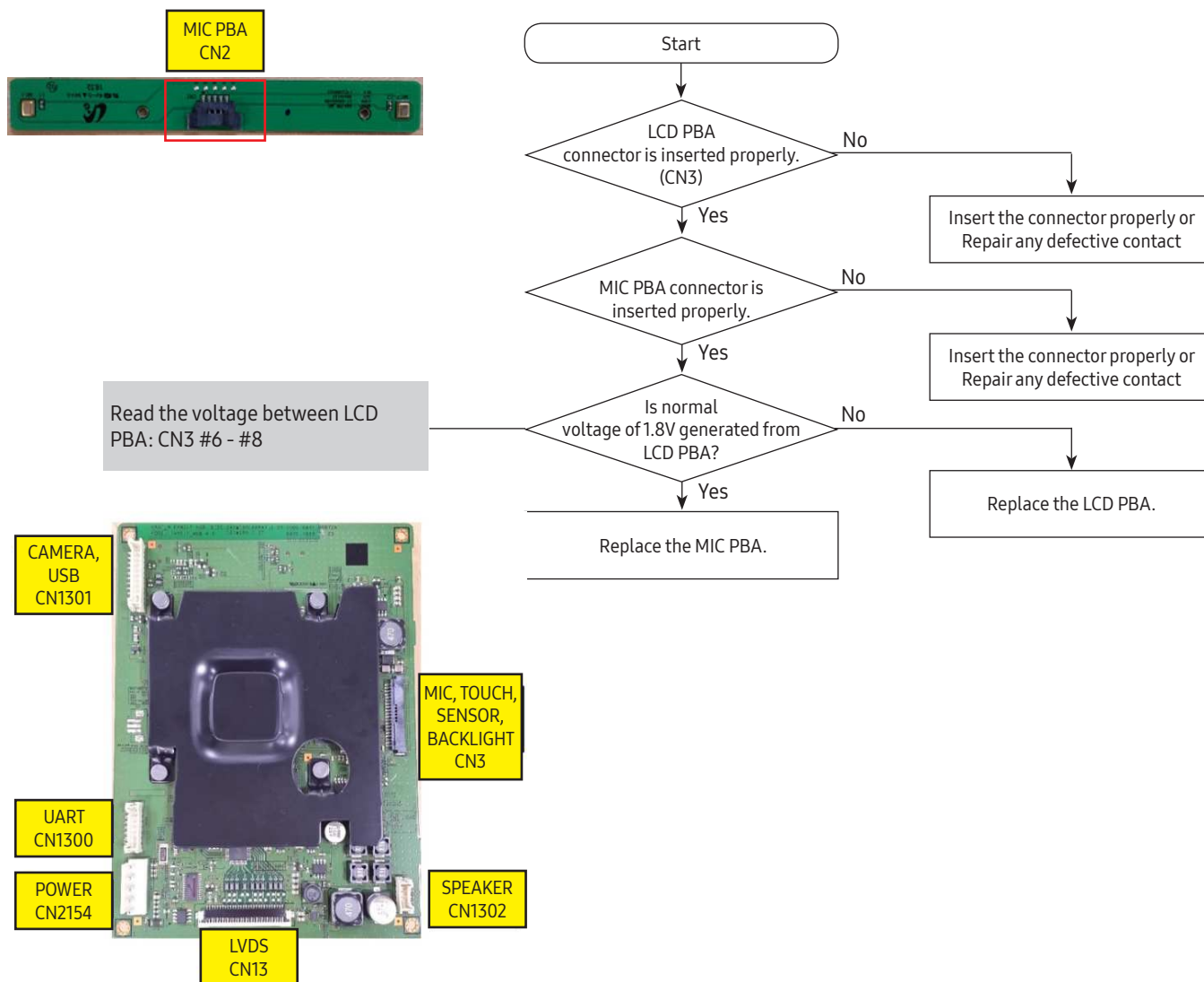
TROUBLESHOOTING

4-4-19. When the BT does not work properly



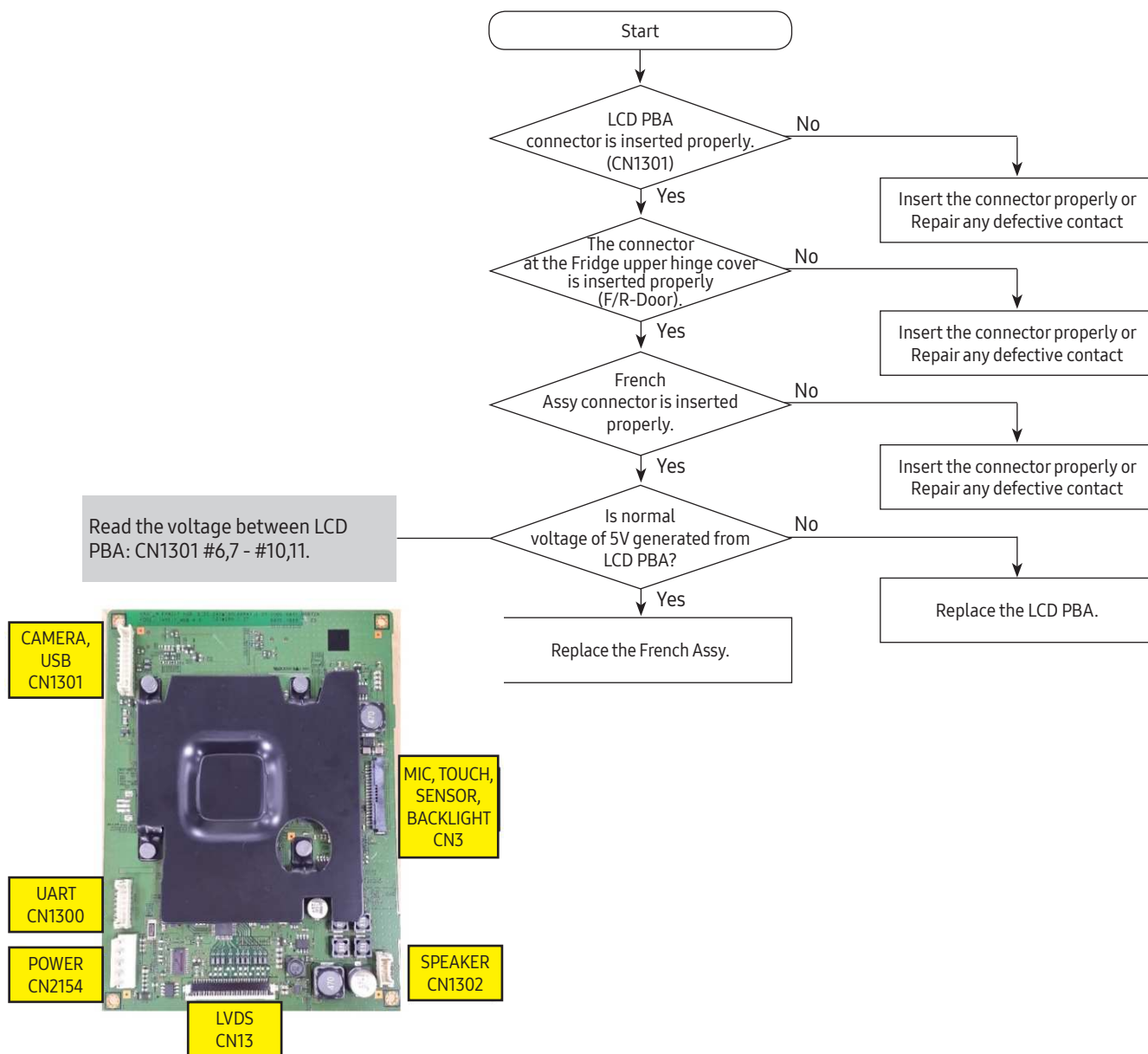
TROUBLESHOOTING

4-4-20. When the microphone does not work properly



TROUBLESHOOTING

4-4-21. When the Glaze Camera does not work properly



TROUBLESHOOTING

■ Voltage and resistance of the temperature sensor by temperature

Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)
-43.6	-42	98.9	4.54
-41.8	-41	93.7	4.52
-40.0	-40	88.9	4.49
-38.2	-39	84.2	4.47
-36.4	-38	79.8	4.44
-34.6	-37	75.7	4.42
-32.8	-36	71.8	4.39
-31.0	-35	68.2	4.36
-29.2	-34	64.7	4.33
-27.4	-33	61.5	4.30
-25.6	-32	58.4	4.27
-23.8	-31	55.6	4.24
-22.0	-30	52.8	4.20
-20.2	-29	50.2	4.17
-18.4	-28	47.8	4.13
16.6	-27	45.5	4.10
-14.8	-26	43.3	4.06
-13.0	-25	41.2	4.02
-11.2	-24	39.2	3.99
-9.4	-23	37.4	3.95
-7.6	-22	35.7	3.91
-5.8	-21	34.0	3.86
-4.0	-20	32.4	3.82
-2.2	-19	30.9	3.78
-0.4	-18	29.5	3.73
1.4	-17	28.1	3.69
3.2	-16	26.9	3.64
5.0	-15	25.7	3.60
6.8	-14	24.5	3.55
8.6	-13	23.4	3.50
10.4	-12	22.4	3.46

Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)
12.2	-11	21.4	3.41
14.0	-10	20.5	3.36
15.8	-9	19.6	3.31
17.6	-8	18.7	3.26
19.4	-7	17.9	3.21
21.2	-6	17.2	3.16
23.0	-5	16.4	3.11
24.8	-4	15.7	3.06
26.6	-3	15.1	3.01
28.4	-2	14.5	2.96
30.2	-1	13.9	2.90
32.0	0	13.3	2.85
33.8	1	12.7	2.80
35.6	2	12.2	2.75
37.4	3	11.7	2.70
39.2	4	11.3	2.65
41.0	5	10.8	2.60
42.8	6	10.4	2.55
44.6	7	10.0	2.50
46.4	8	9.6	2.45
48.2	9	9.2	2.40
50.0	10	8.8	2.35
51.8	11	8.5	2.30
53.6	12	8.2	2.25
55.4	13	7.9	2.20
57.2	14	7.6	2.15
59.0	15	7.3	2.10
60.8	16	7.0	2.06
62.6	17	6.7	2.01
64.4	18	6.5	1.97
66.2	19	6.2	1.92

Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)
68.0	20	6.01	1.88
69.8	21	5.79	1.83
71.6	22	5.58	1.79
73.4	23	5.38	1.75
75.2	24	5.19	1.71
77.0	25	5.00	1.67
78.8	26	4.82	1.63
80.6	27	4.65	1.59
82.4	28	4.49	1.55
84.2	29	4.33	1.51
86.0	30	4.18	1.47
87.8	31	4.03	1.44
89.6	32	3.89	1.40
91.4	33	3.76	1.37
93.2	34	3.63	1.33
95.0	35	3.51	1.30
96.8	36	3.39	1.27
98.6	37	3.28	1.23
100.4	38	3.17	1.20
102.2	39	3.06	1.17
104.0	40	2.96	1.14
105.8	41	2.86	1.11
107.6	42	2.77	1.09
109.4	43	2.68	1.06
111.2	44	2.59	1.03
113.0	45	2.51	1.00
114.8	46	2.43	0.98
116.6	47	2.35	0.95
118.4	48	2.28	0.93
120.2	49	2.21	0.90

TROUBLESHOOTING

■ Voltage of the humidity sensor by humidity

RH (%)	Output (mV)	RH (%)	Output (mV)
0	909	51	2376
1	943	52	2402
2	977	53	2428
3	1010	54	2454
4	1043	55	2480
5	1076	56	2505
6	1109	57	2530
7	1141	58	2555
8	1173	59	2580
9	1205	60	2605
10	1235	61	2630
11	1266	62	2655
12	1297	63	2680
13	1328	64	2705
14	1359	65	2730
15	1390	66	2756
16	1420	67	2782
17	1450	68	2808
18	1480	69	2834
19	1510	70	2860
20	1540	71	2886
21	1569	72	2912
22	1598	73	2938
23	1627	74	2964
24	1656	75	2990
25	1685	76	3017

RH (%)	Output (mV)	RH (%)	Output (mV)
26	1713	77	3044
27	1741	78	3071
28	1769	79	3098
29	1797	80	3125
30	1825	81	3152
31	1852	82	3179
32	1879	83	3206
33	1906	84	3233
34	1933	85	3260
35	1960	86	3288
36	1986	87	3316
37	2012	88	3344
38	2038	89	3372
39	2064	90	3400
40	2090	91	3426
41	2116	92	3452
42	2142	93	3478
43	2168	94	3504
44	2194	95	3530
45	2220	96	3566
46	2246	97	3595
47	2272	98	3624
48	2298	99	3653
49	2324	100	3683
50	2350	-	-

TROUBLESHOOTING

4-5. Voice Recognition

1. Recommendations for voice recognition

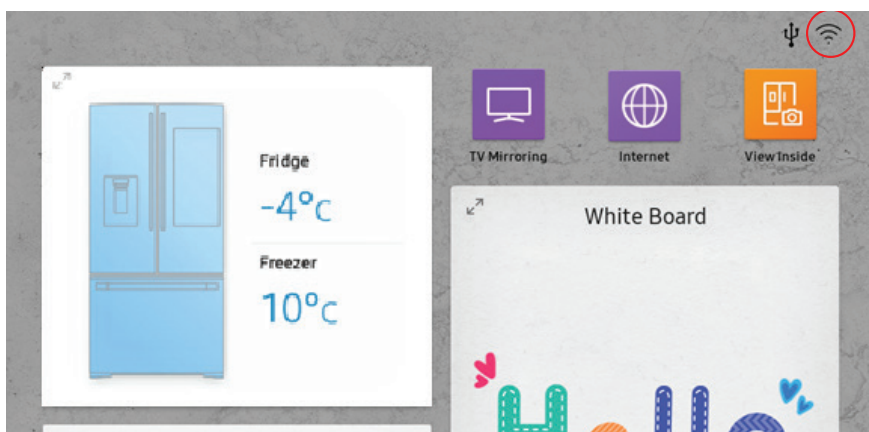
Around the 'MIC' marked area of the refrigerator's display is a built-in microphone.

- Speak loud and clear towards the built-in microphone within 1 m from the refrigerator's display.
- Voice recognition may not be triggered or enabled at distances over 1 m or with low voices.
- Speak clearly at a regular pace. Reduce ambient noises, such as from the living-room TV.

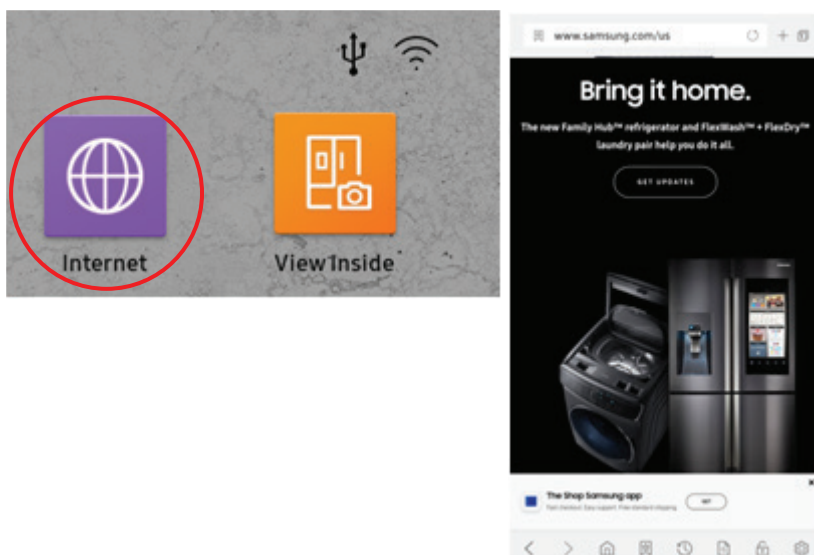
2. Preparation ways when Voice recognition does not work

① Check the network environment

- Check WIFI Router (Wireless AP)
- Check Network signal on LCD panel



- Check if Internet Browser works without problem



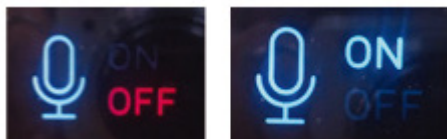
TROUBLESHOOTING

② Check the On/Off status of Mic button (Family Hub hard key)

- Mic button position



- Check if Mic button is Off (sometime, users try a voice recognition when Mic button is off)



③ Check if the recording works correctly using voice recording of “White Board” app

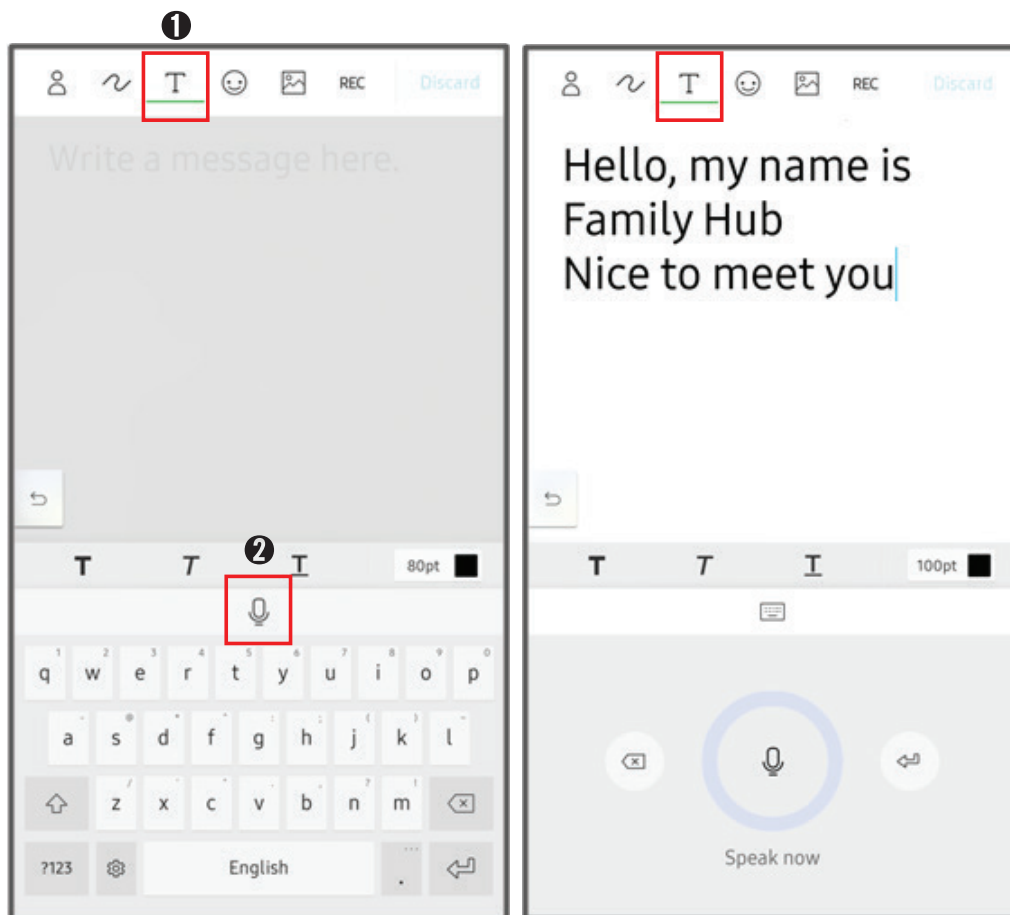
- Check if the voice gets into the Mic correctly (sometimes, voice does not get recorded)



TROUBLESHOOTING

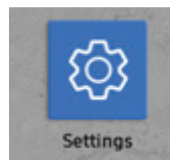
④ Check the On/Off status of Mic button (Family Hub hard key)

- Mic button position

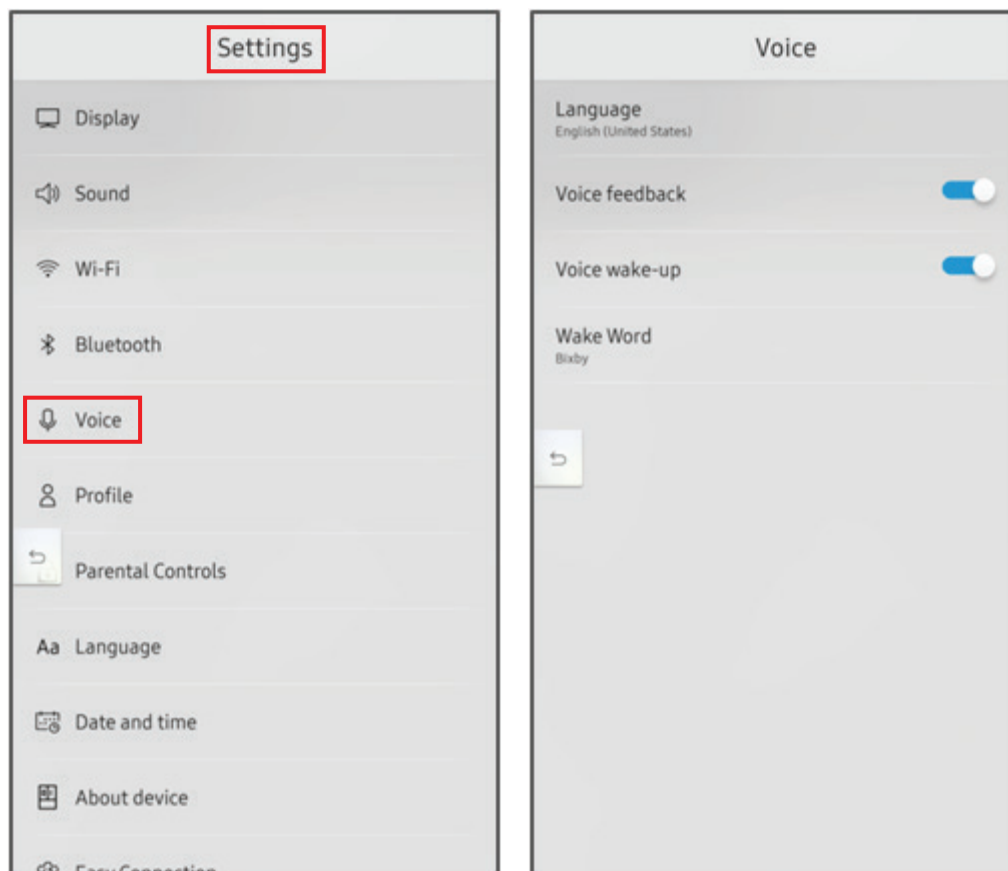


⑤ Remove LCD protection film on Mic button

⑥ Setting → Voice → Check the On/Off status of Voice wake-up



TROUBLESHOOTING

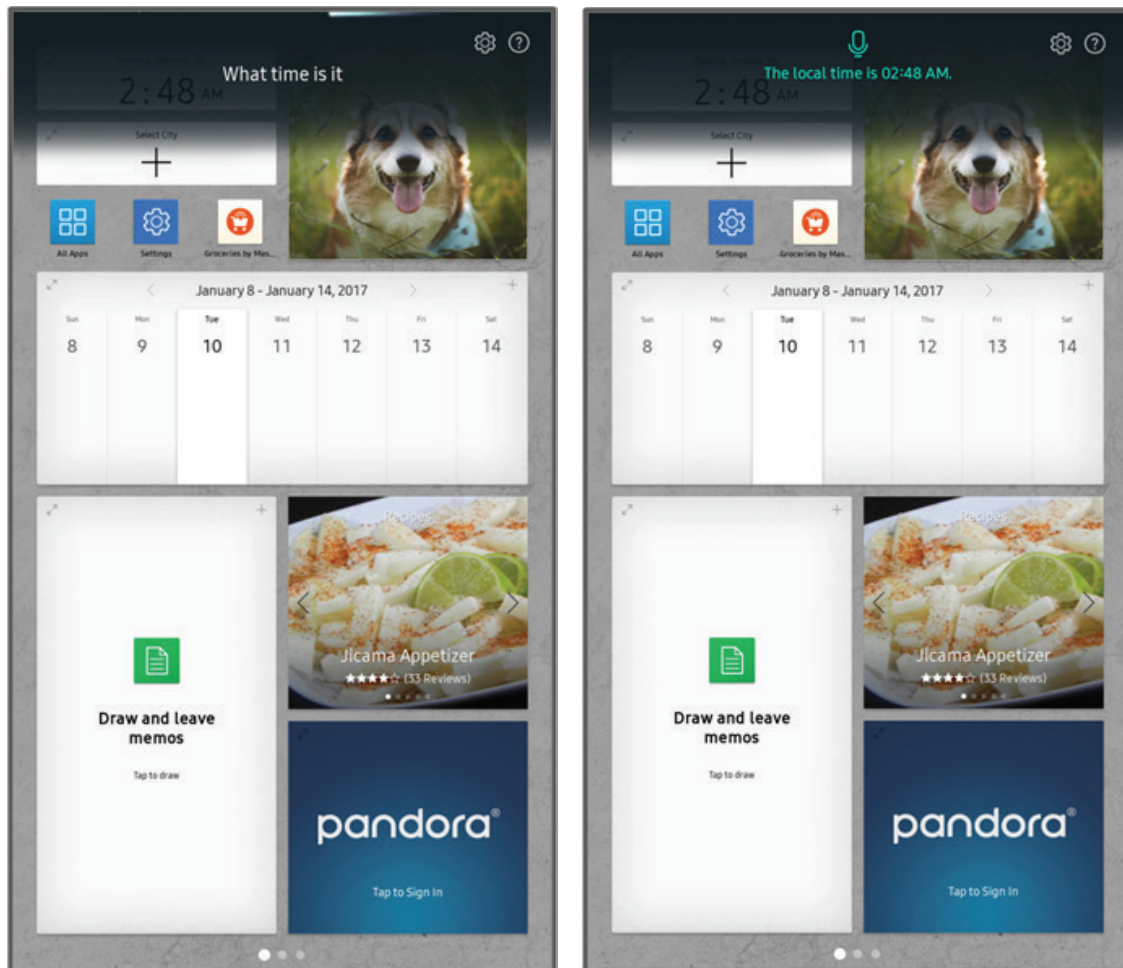


⑦ Check the word setting of Wake word (e.g. "Hi, Samsung")

⑧ Under a quiet environment, try to follow the sequence below

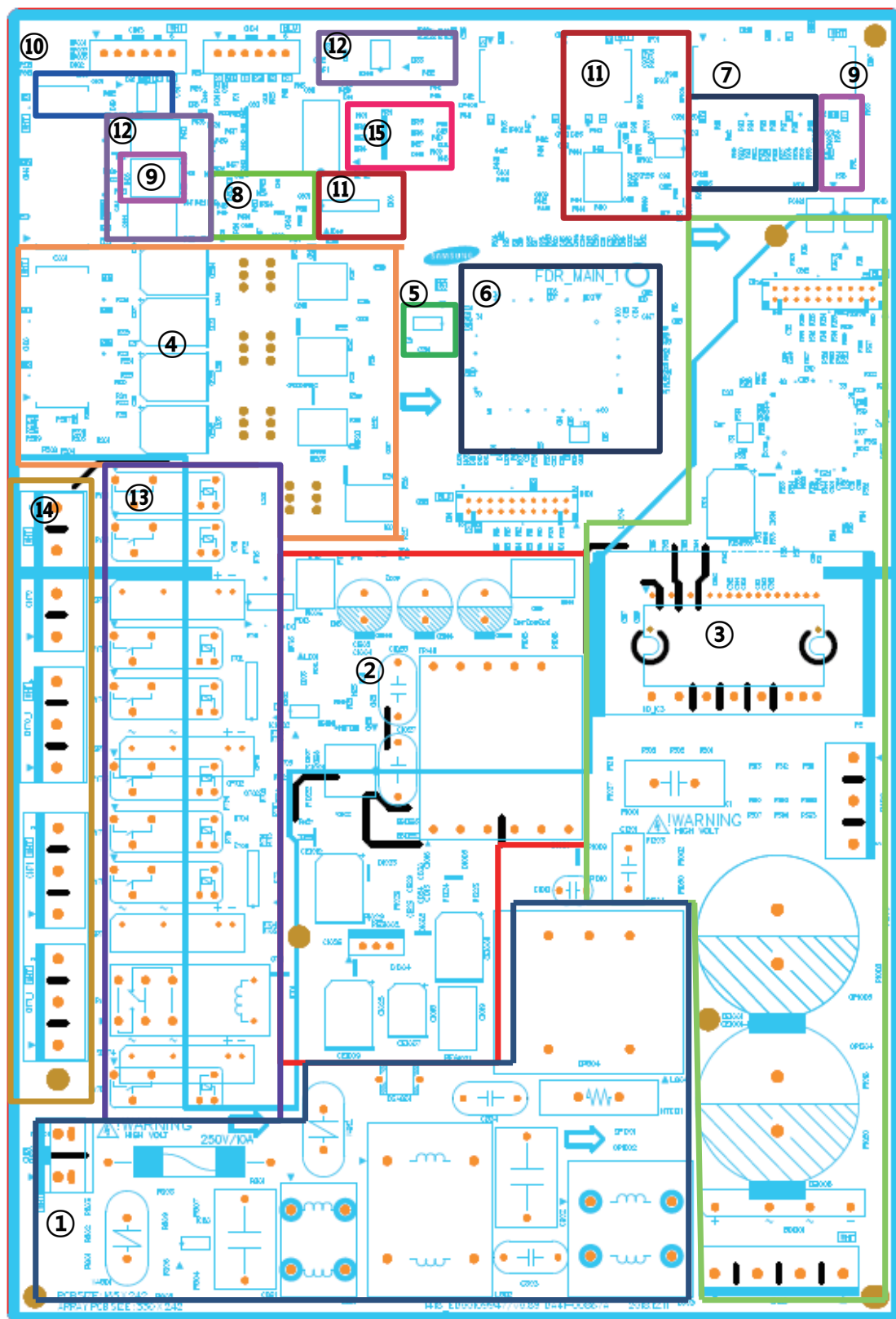
- 1) Speak "Wake up" word
Speak "Hi, Samsung", and once the voice recognition is ready, say something like below.
- 2) After beep sound, say "What time is it now"
- 3) As a result, the voice feedback is supposed to be mentioned like "It is 3:38PM now."
At the same time, the screen displays the same information.

TROUBLESHOOTING



5. PCB DIAGRAM

5-1. PCB Layout with part positions (Main Board)



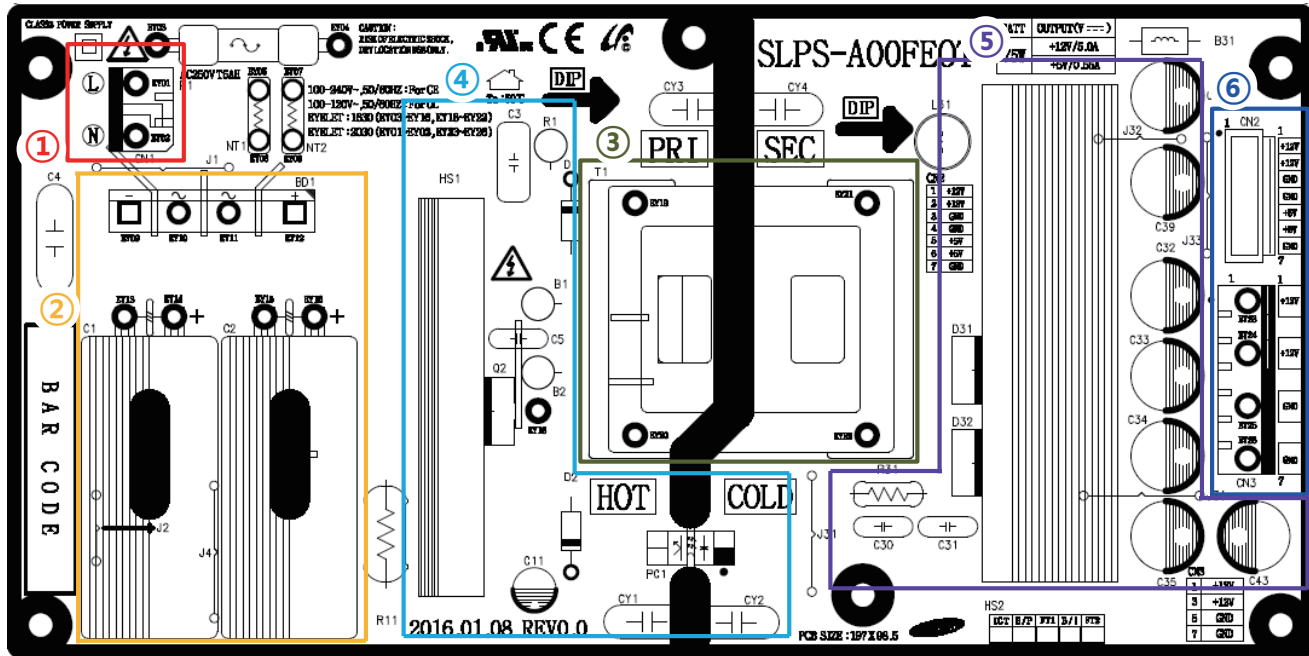
PCB DIAGRAM

1. EMI FILTER part
2. DC 15V, 12V, 5V, GND supplied from SMPS PCB
3. Inverter circuit part
 - COMP Driving / Feedback Circuit
 - BOOTSTRAP Charger : It is an independent power circuit for the driving of the IMP High-Phase IGBT.
 - Current Pickup Circuit : It pickups the currents taken by the Shunt resistance and does the PWM DUTY control.
4. FAN MOTOR control part : To supply the power from 7V ~ 12V according to the motor types. (F,R,C,ICE)
5. EEPROM : Save and record every kinds of data.
6. Micom : control the refrigerator 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. Operate ICE-MAKER, supply power to MOTOR, and sense the variation of switch.
8. Main Micom ↔ Panel Micom serial communication circuit
 - Dispenser option input part (Water & Cover Ice route switch)
9. Auto Fill control part.
10. Control Mid drawer Room damper & Damper heater
11. Water Tank Heater Controls (also controls other options)
12. LED LAMP Control Circuit (F,R, MID room Lamp)
13. Relay parts that controls AC load and receives Micom operating signal through Sink IC.
14. Connector with AC load
15. Diode option setting area

PCB DIAGRAM

5-2. Inverter PCB Layout with part positions

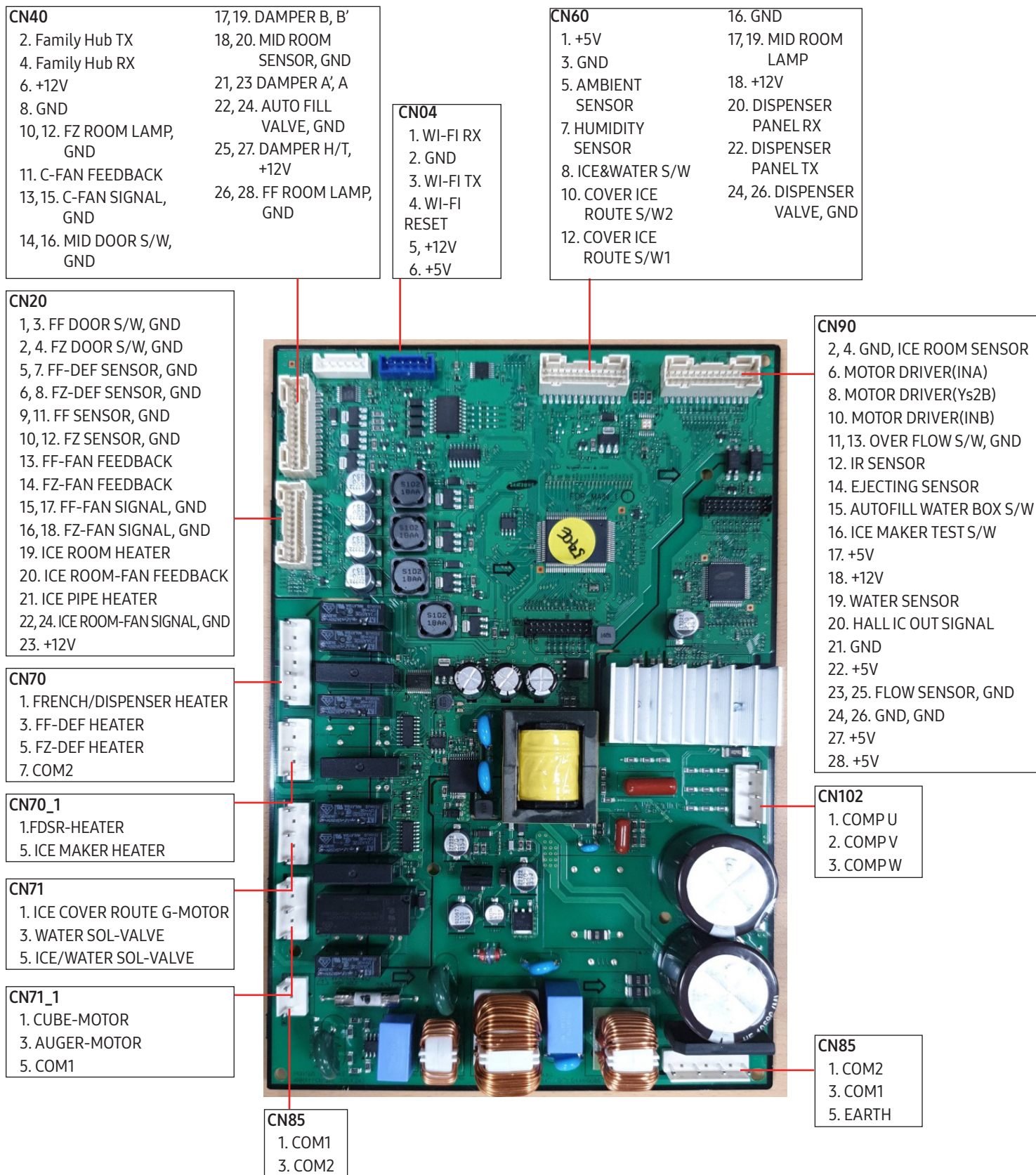
Family Hub



1. AC Input Connector : AC 110V Power Input Connector
2. Input Voltage Rectification Block : Rectifying AC 110V to DC 310V
3. Transformer
4. Switching and Feedback Block: Converting 310V DC to 5V, 12V Voltage by Switching and supplying stable DC voltage by receiving feedback signal
5. Output Voltage Rectification Block : Supplying stable DC output Voltage by Rectifying 5V, 12V Output Voltage
6. DC Output Connector : 5V, 12V DC Output Connector

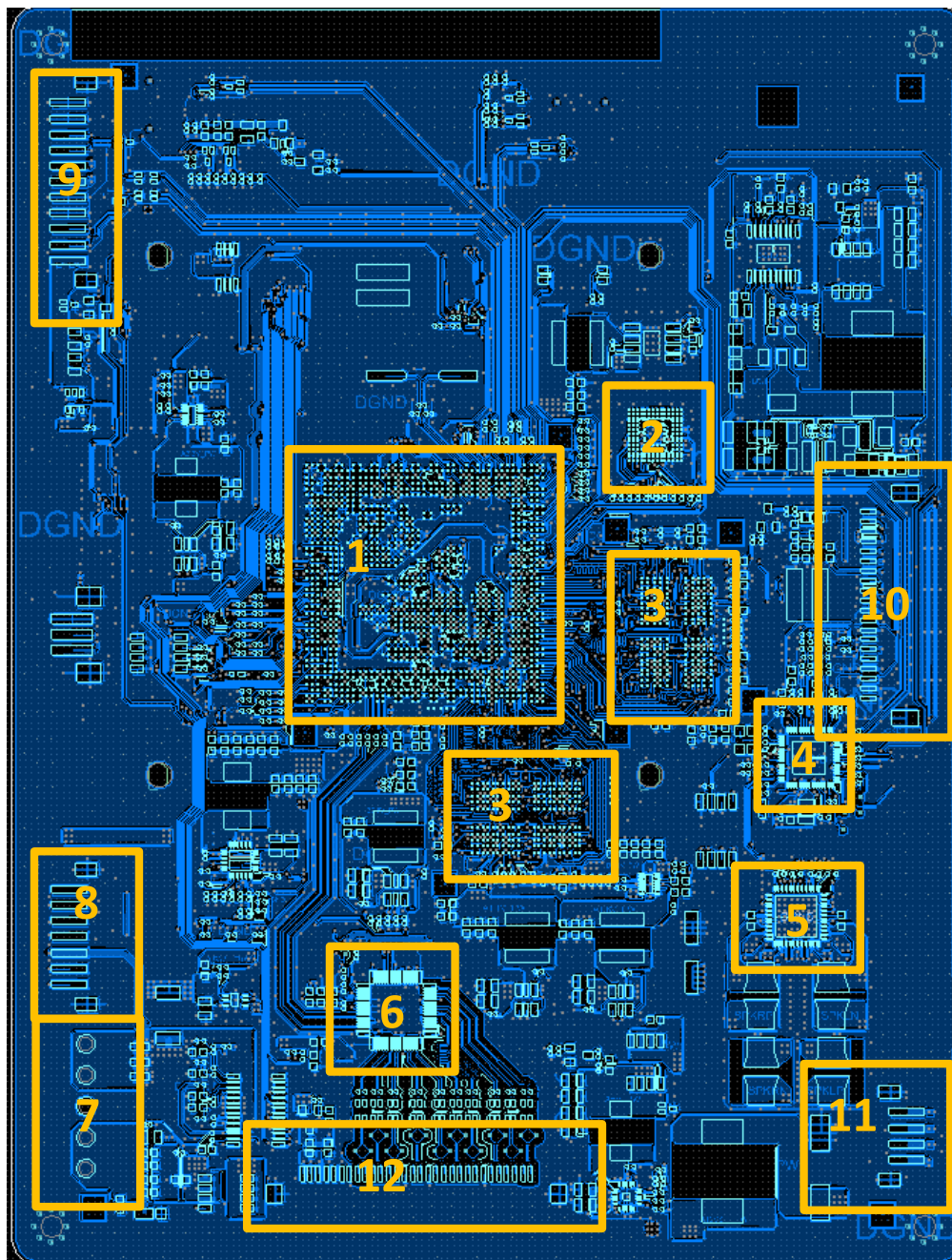
PCB DIAGRAM

5-3. Connector Layout with part positions (Main Board)



PCB DIAGRAM

5-4. LCD PBA Layout with part positions

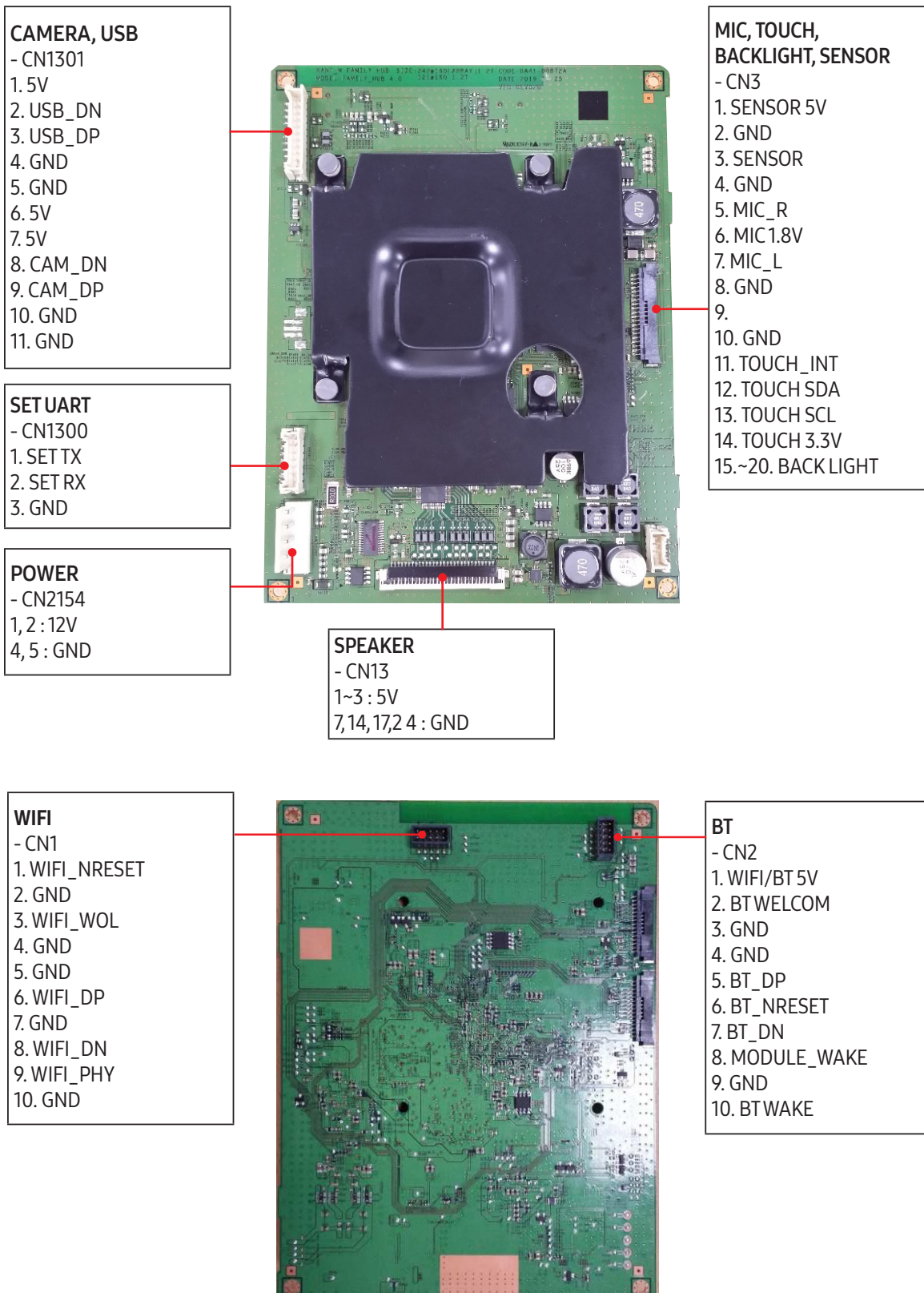


1. CPU (KANT-MS) – It controls performance of all loads
2. eMMC – Memory for operating CPU
3. LPDDR – Memory for operating CPU
4. CODEC – Circuit for sound input
5. AMP – Circuit for sound output
6. LVDS Circuit – LCD signal (Vx1 to LVDS)

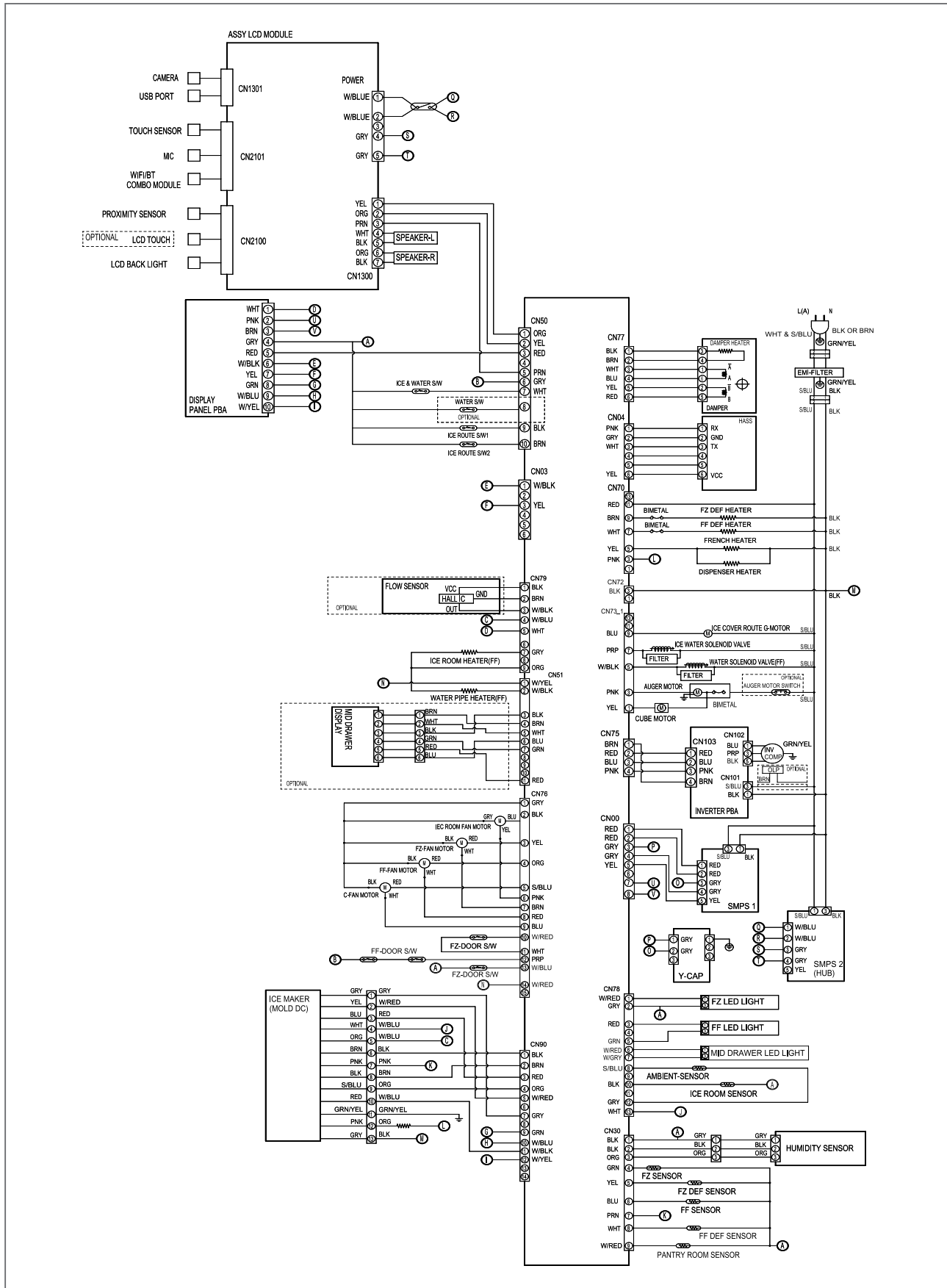
7. DC 12V Power – Supply 12V to LCD PBA
8. Connector – UART
9. Connector – USB, Camera
10. Connector – Touch, Backlight, Sensor, Mic
11. Connector – Speaker
12. Connector – LVDS Signal for LCD

PCB DIAGRAM

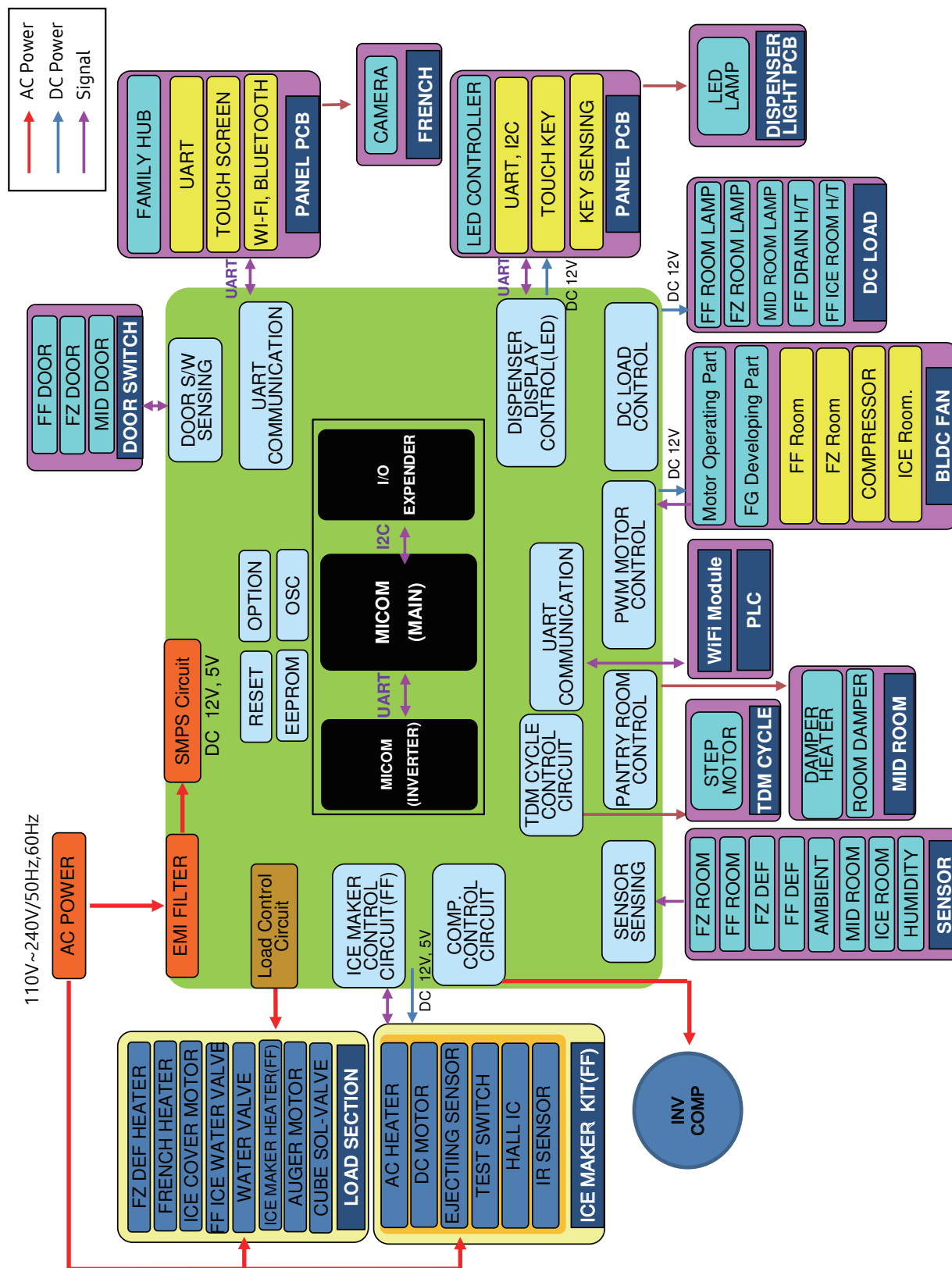
5-5. Connector Layout with part positions



6. WIRING DIAGRAM

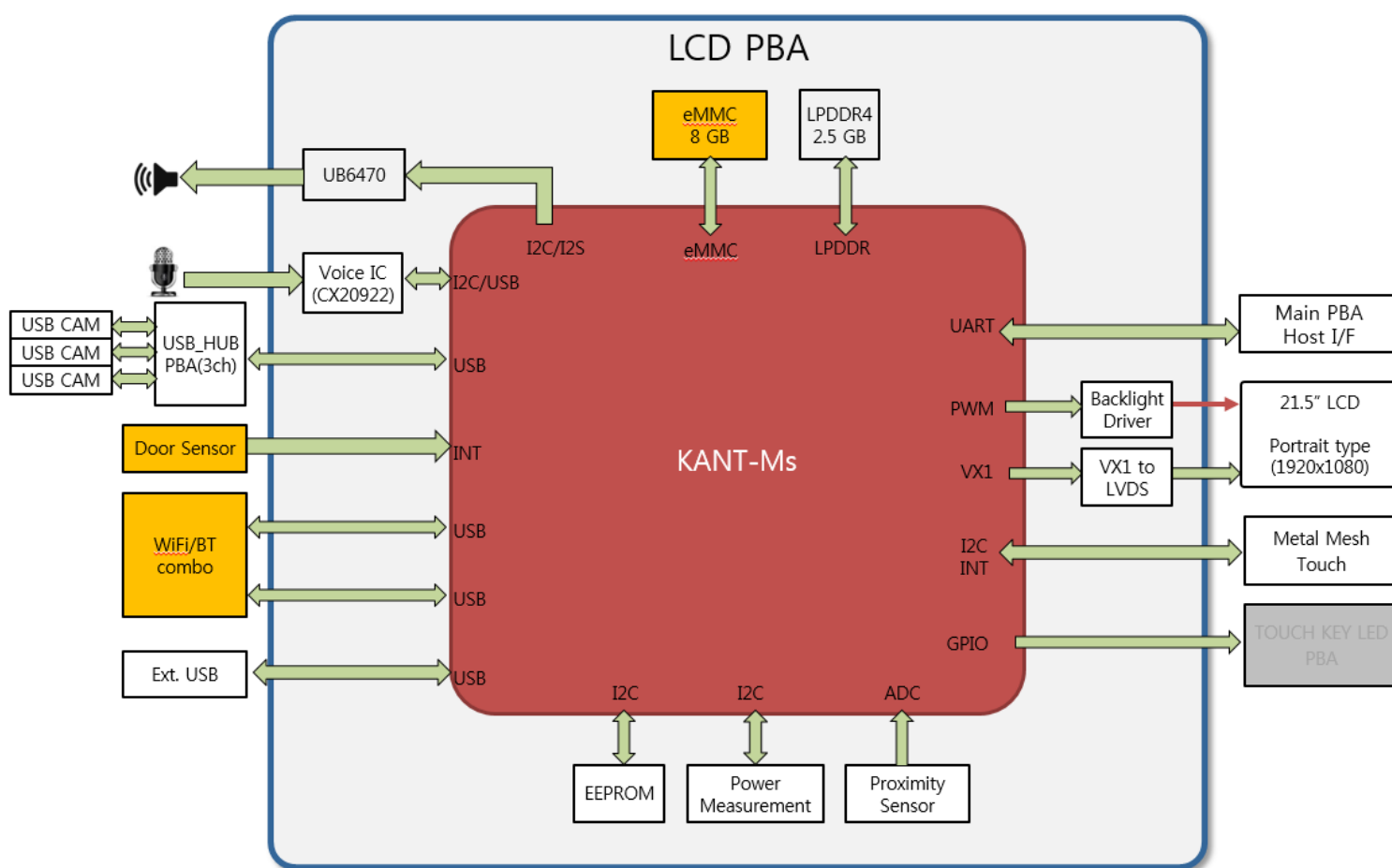


7-1. MAIN PBA



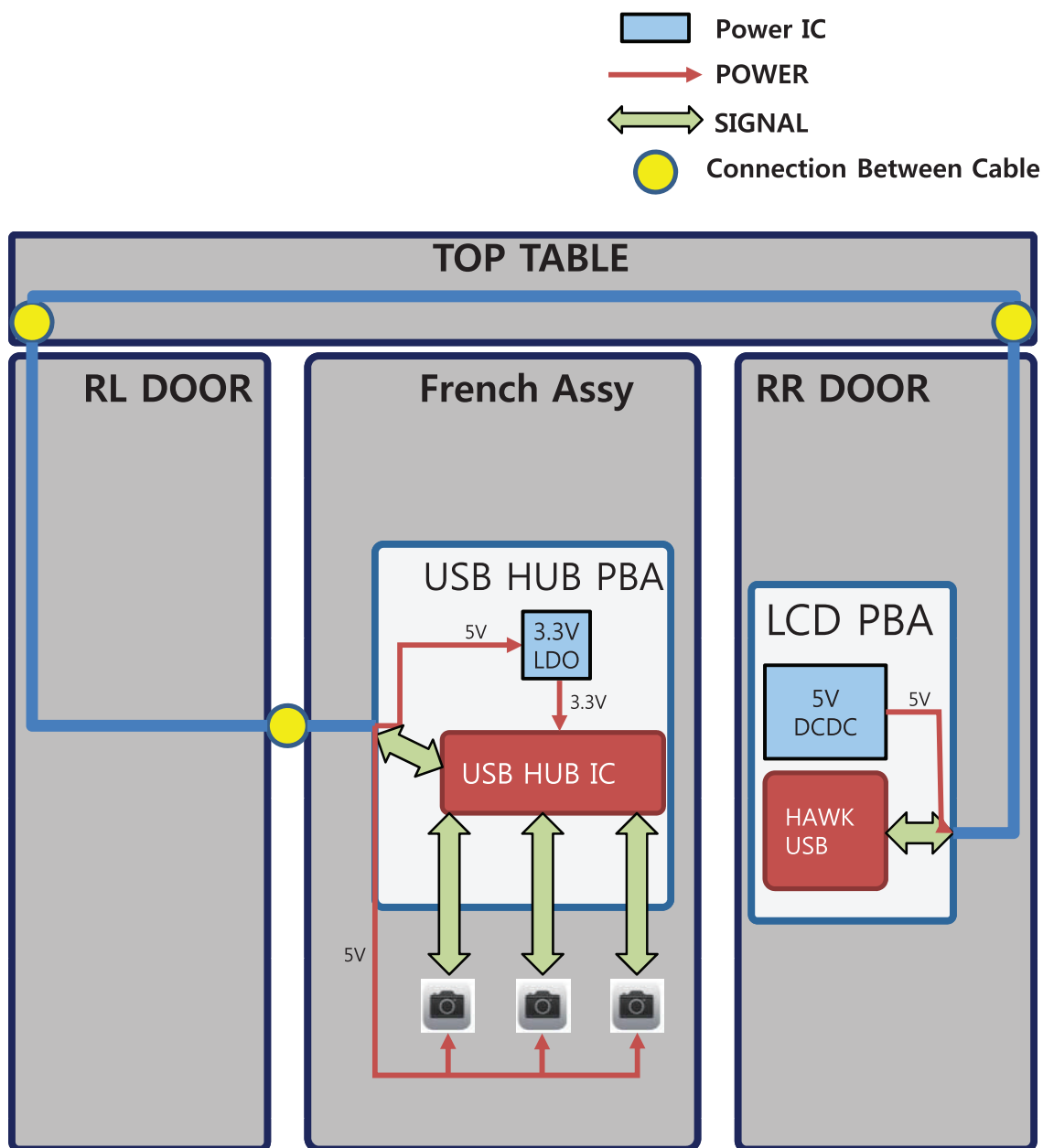
BLOCK DIAGRAM

7-2. LCD PBA



BLOCK DIAGRAM

7-3. CAMERA

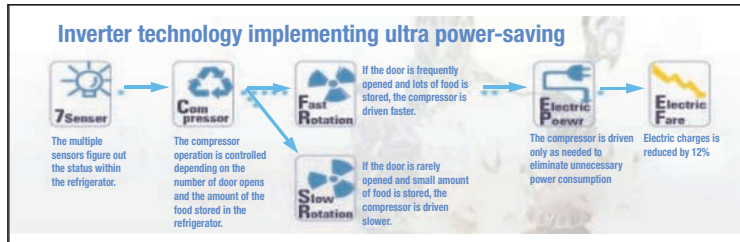


8. REFERENCES

8-1. Glossary

About Inverter technology

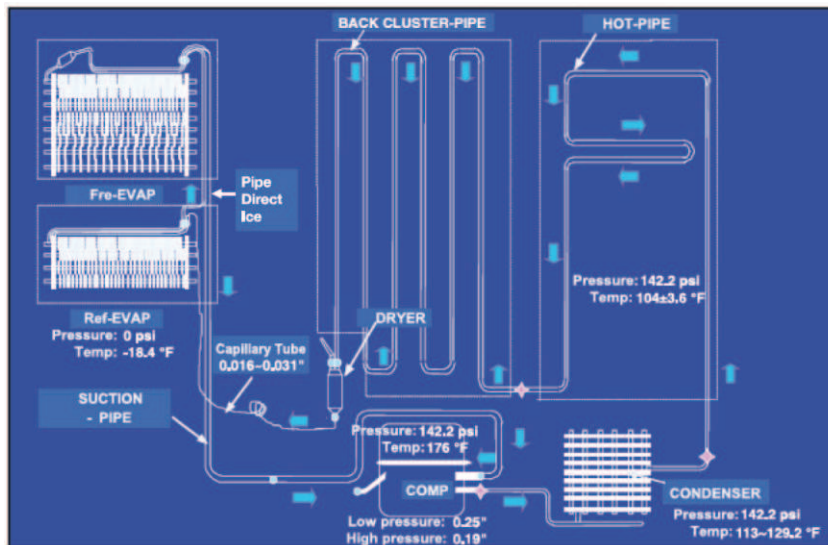
This is a technology for ensuring efficiency that automatically controls the freezing and cooling performance depending on the various conditions including the surrounding temperature, the number of times the door is opened and the amount of stored food.



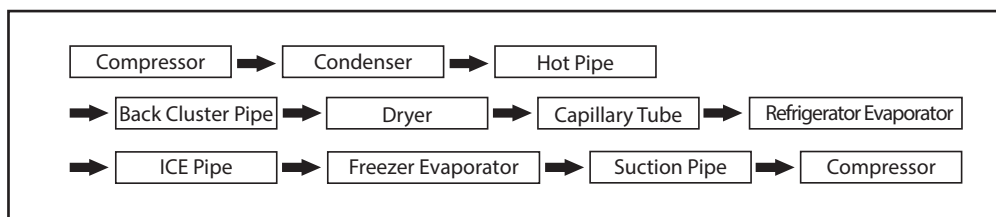
About Natural Defrosting

- This is a technology that helps keep food fresh by raising the humidity in the refrigerator by removing frost that has formed on the evaporator by running the fan when the cooling operation is not being executed.

About the HM Cycle



HM Cycle



REFERENCES

* Glossary

Terminology	Description
LED	LED stands for Light Emitting Diode. An LED is a semiconductor device that emits visible light when an electric current passes through it.
Tx, Rx	This refers to the communication ports of the micom. TX : Transmit signal. RX : Receive Signal.
Driver IC	The IC used to electrically drive devices. (Power supply type - Source, power cut-off type-Sink)
Micom	This is also called a Micro Computer. It can be viewed as a small computer on a single chip that consists of a ROM where the program is stored, RAM where the data are stored, and ALU that calculates, I/O, Interrupt, etc.
Connector	The connector that connects a separate load and circuit.
Resistor	This is used to suppress the current in the circuit or to distribute voltages.
PCB	This stands for Printed Circuit Board and is used to mechanically support and electrically connect electronic components using conductive pathways, tracks or signal traces etched from copper sheets laminated onto a non-conductive substrate.
Single-Sided PCB	A Printed Circuit Board that only has conductive pathways on one side of the substrate.
Double-Sided PCB	A Printed Circuit Board that has conductive pathways on both sides of the substrate.
SCR SSR	SCR Silicon Control Rectifier, SSR Solid State Relay (Electrical Contact Relay)
TR	Transistor --- An amplification device using the electric conduction of semiconductor crystals.
Varistor	This stands for Variable Resistor. There are symmetric varistors whose resistance is determined by the voltage only regardless of the polarity of the voltage and asymmetric varistors whose resistance is determined by the polarity of the applied voltage.
Compressor	Compressor - A mechanical device that compresses gas to increase the pressure of the gas. In general, the compressor used for refrigerators is a reciprocating compressor that uses pistons driven by a crankshaft that is rotated by the motor to deliver gas at high pressure.
Inverter	A device that converts DC to AC. This device converts direct current voltage (or current) to alternating current voltage (or current) that is required to drive a motor.
Alignment	This refers to the process that generates a rotating magnetic field in a direction to align the location of the rotor to the rotating magnetic field when starting a motor. In general, to drive a motor, the rotor location must be identified (except V/f) but the location of the rotor cannot be easily identified before starting the motor. Therefore, a process to locate the rotor at a specific position by force is required and this is called alignment.
Activation	A valid signal status This represents the Low status for an activation low signal and the High status for an activation high signal.
Deactivation	An invalid signal status This represents the High status for the activation low signal and the Low status for the activation high signal.
Bootstrap Capacitor	The capacitor that stores the power voltage to drive the High-Side Power Switch of the SPM. A 3-Phase Full-Bridge Inverter consists of 3 capacitors. By turning on the Low-Side Power Switch for a pre-determined period of time just before the motor starts, the capacitors are charged.
SPM	Smart Power Module Although this was originally the model name for a product, it now refers to a power semiconductor package that has an inverter function including a switching device, a driving circuit of the switching device and a protection circuit.
PWM	Pulse Width Modulation
RPM	Revolutions Per Minute This refers to the number of rotations per 1 minute.
RPS	Revolutions Per Second This refers to the number of rotations per 1 second.

REFERENCES

8-2. French Heater Control Using a Humidity Sensor

- ▶ The French heater of the fridge is controlled by the humidity sensor value, the surrounding temperature and the fridge temperature.
- ▶ If the output voltage of the humidity sensor is 0.6V or lower or 4.7V or higher, it is judged to be a humidity sensor error (self diagnosis error code: 13E) and the French heater of the fridge is controlled by the surrounding temperature and the fridge temperature. (Humidity sensor voltage table : Refer to page 112)

External Air Condition		High surrounding temperature			Fridge compartment internal lamp		
Fridge Temperature Setting	Humidity	High humidity	~	Low humidity	High humidity	~	Low humidity
	0 °C						
	~						
	5 °C						

- ▶ The French heater operating ratio depending on whether the humidity sensor is applied or not
- ▶ If the humidity sensor is in the Open or Short Error state, the French Heater operates: The heater operates in the high-humidity condition
- ▶ The French Heater operating ratio when the control function service option is applied: 100 %

REFERENCES

8-3. Model Numbering Convention

Digit	1	2	3	4	5	6	7	8	9	10	11	12	13
Model Code	Product	Type	Capacity		Year	Series	Door/Dispenser Option	Handle/내상 Option	Energy	CMF		Buyer Code	
	R	F	2	8	R	8	5	5	1	S	G	A	A

REF	FDR	FS	28cf	R : 2019	9	T-type (4Door Flex)	9	CHEF	9	1	Energy Star	DT	Truffle Stainless Steel
		CD	24/22cf	T : 2020	8	4D FDR Premium급	8		8	0	DOE	SG	Black Caviar
					7	4D FDR Masstige급	7		7			SR	Real Stainless
					6	3D FDR Premium급	6	F-Hub + FDSR	6	Recess + Metal		SL	ALF
					5	3D FDR Mass 급	5	F-Hub	5	Arc + Metal			
					4	33" 4D FDR	4	Double FDSR	4	Twin I/M			
					3	33" 3D FDR	3	FDSR	3	Internal Camera			
					2	30" FDR	2	W&I Dispenser	2				
					1	Multi Door	1	Internal Dispenser	1	Recess			
					0	중국향 FDR	0	Non Dispenser	0	Arc			

※ example

PJT	Digit	Sub	1	2	3	4	5	6	7	8	9	10	11		12	13	
AW3 F/L	Basic	SEA	R	F	2	8	R	7	2	0	1	S	R	/	A	A	RF28R7201SR/AA
AW4CD F/L	FDSR	SEUK	R	F	2	2	R	7	3	5	1	S	R	/	E	U	RF22R7351SR/EU
AW4CD F/L	F-Hub	SEAU	R	F	2	2	R	7	5	5	1	S	G	/	S	A	RF22R7551SG/SA
RF8000R	Basic	SEA	R	F	2	8	R	8	2	1	1	S	R	/	A	A	RF28R8211SR/AA
RF8000RC	F-Hub	SEA	R	F	2	2	R	8	5	6	1	D	T	/	A	A	RF22R8561DT/AA

REFERENCES

8-4. Troubleshooting. Check the following before calling the service centre

General

Symptom	Action
The refrigerator does not operate or cool.	• Make sure the power cord is connected properly. • Make sure the temperature control is set correctly. Try setting to a lower temperature. • Make sure the refrigerator is not being exposed to direct sunlight and is not near a heat source. Failing to do so may affect the cooling performance. • Make sure the refrigerator is far enough away from rear walls, side walls, or cabinets to allow proper ventilation. Failing to do so may affect the cooling performance. • Too much food can block the internal ventilation of the refrigerator. To keep the refrigerator operating normally, do not put too much food inside.
Food in the fridge freezes.	• Check if the temperature control is set to the lowest temperature. If so, change to a higher temperature. • This can happen if the ambient room temperature is too low. Set the room temperature higher. • Check if food containing a high proportion of water has been put in the coldest area of the fridge or near the cooling vent. If so, move the food to other shelves in the fridge.
You hear unusual noises or sounds.	• Make sure the refrigerator is installed on a stable, flat surface. • Make sure the refrigerator is far enough away from rear walls, side walls, and cabinets to allow proper ventilation. • Make sure that there are no foreign objects (coins, keys, cutlery, etc.) inside or underneath the refrigerator. • The refrigerator may produce a ticking sound from inside. This occurs when the various accessories contract or expand as the temperature inside changes. This is normal.

REFERENCES

Symptom	Action
The front corners and sides become warm and form condensation.	- To prevent condensation from forming, the refrigerator has heat-proof piping in the front corners. If the ambient temperature rises, this equipment may not work effectively. This is not a system failure. - Make sure the door is closed properly. Condensation may form if you leave the door open for an extended period of time. - Condensation may form on the exterior surface of the refrigerator if humid air comes into contact with the cool surface of the refrigerator.
The ice maker does not make ice.	- If you have used all the ice in the ice bucket, you must wait for 12 hours for the refrigerator to make more ice. - See if the Ice Maker Off icon is lit. If it is, press and hold Ice Maker Off for 3 seconds. - Make sure the freezer is set below 32 °F (0 °C) (or 23 °F (-5 °C) in warm ambient air). - Make sure the water tank is filled with water. - Check if the ice bucket contains ice clumps. If it does, empty the ice bucket and try again.
The water dispenser is not functioning.	- Check if the water tank is frozen. If so, select a higher fridge temperature. - Make sure the water tank is filled with water. - Make sure the water tank is installed properly. - Make sure the water filter is installed properly.
You hear a bubbling sound.	This is normal. The bubbling sound comes from refrigerant circulating through the refrigerator.
A bad smell comes from inside the refrigerator.	- Check for any spoiled food. We recommend cleaning the refrigerator on a regular basis and removing any spoiled or suspect food items. - Make sure strong smelling food is wrapped tightly or stored in air tight containers.
Frost forms on the interior walls.	- Make sure no food blocks the vents of the refrigerator. It is also important to arrange food items evenly for ventilation. - Make sure the door is closed properly.

REFERENCES

Symptom	Action
Condensation forms on the interior walls or around vegetables.	• This happens when food containing a high proportion of water is stored uncovered, or the door has been left open for an extended period of time. • Make sure food is covered or put in sealed containers.
The freezer door does not close.	• Push the water dispenser lever to check the water supply. • Push the ice dispenser lever to check the operation of the auger motor in the ice maker assembly. • Check if there are any objects obstructing the auger motor and preventing it from running. If found, remove the objects and clear the motor area. • If the ice maker has not been used for an extended time, the ice bucket may contain ice chunks that obstruct the auger motor and prevent it from running properly. If this is the case, remove and empty the ice bucket.

REFERENCES

SAMSUNG CONNECT

Symptom	Action
Could not find "SAMSUNG CONNECT" in the app market.	The Samsung Connect app is designed for Android 6.0 (Marshmallow) or later, iOS 10.0 or later, iPhone 6 or later, and is optimized for Samsung smartphones (Galaxy S and Galaxy Note series).
The SAMSUNG CONNECT app fails to operate.	- The SAMSUNG CONNECT app is available on applicable models only. - The old Samsung Smart Refrigerator app cannot connect with SAMSUNG CONNECT models.
The SAMSUNG CONNECT app is installed but is not connected to my refrigerator.	- You must log into your Samsung account to use the app. - Make sure that your router is operating normally. - If you have not connected your refrigerator to the Samsung Connect App after the app was installed, you must make the connection using the device registration function of the app.
Could not log into the app.	- You must log into your Samsung account to use the app. - If you don't have a Samsung account, follow the app's onscreen instructions to create one.
An error message appears when I try to register my refrigerator.	Easy Connection may fail due to the distance from your access point (AP) or electrical interference from the surrounding environment. Wait a moment and try again.
The SAMSUNG CONNECT app is successfully connected to my refrigerator but does not run.	- Exit and restart the SAMSUNG CONNECT app, or disconnect and reconnect the router. - Unplug the power cord of the refrigerator, and plug it again after 1 minute.

REFERENCES

Smart Grid

Symptom	Action
What Do I Need to use the Energy Management and Smart Grid functions?	To use the Smart Grid (Demand Response) and Energy Management functions on your refrigerator, you need the following: Devices • Wireless access point (router) • Samsung Energy Management-supported refrigerator • Smartphone Registration • Connect your refrigerator to your home Wi-Fi network. • Register for the EMS service with your electric company that has an EMS (Energy Management System) supporting SEP (Smart Energy profile). Application • Download the SAMSUNG CONNECT app from the Google Play Store, Apple App Store, or Samsung Galaxy Apps. • Install and run the SAMSUNG CONNECT app on your smartphone.
Why isn't the Energy Management function working normally?	• Make sure that your home router is operating normally with proper Internet service and connection. • Make sure that the refrigerator is connected to the AP. Checkpoints • Connect your smartphone to the router (AP, Access Point), and then check if you can browse the Internet on the smartphone. • Check if the Wi-Fi icon on the refrigerator's display is on. If not, connect the refrigerator to the AP.
Why isn't the Delay Defrost Capability working normally?	• Make sure that your home router is operating normally with proper Internet service and connection. • Make sure that the refrigerator does not display L3(DAL) or L4(TALR) on the Fridge Manager > Fridge Settings > Demand Response.

SAMSUNG

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