Life Style innovator

SAMSUNG BOTTOM MOUNT FREEZER

AW3-PJT

New product training for refrigerator

BASIC : RF4287HA

MODEL NAME : RF4287HARS
RF4287HAPN
RF4287HAWP
RF4287HABP

MODEL CODE : RF4287HARS/XAA
RF4287HAPN/XAA
RF4287HAWP/XAA
RF4287HABP/XAA
RF4287HARS/XAC

RF4287HA

2010

SAMSUNG DIGITall
everyone's invited

Contents

1-1. Introduction of main Function

■ A newly developed SAMSUNG bottom mount freezer in 2009 has the following characteristics.

Image	Feature
	Surround Multi Flow • Uniform cooling for each shelf and even in corner in fresh food compartment by center positioned fan and duct with multiple flow effluences.
	Twin Cooling System • The refrigerator and the freezer have two evaporators. Given this independent system, the freezer and the refrigerator are cooled individually as required and are, therefore, more efficient. Food odor from the refrigerator does not affect food in the freezer due to separate air flow circulation.
	Flex Zone • The Flex Zone is a full-width independent mid drawer with adjustable temperature control.

1-1. Introduction of main Function

■ A newly developed SAMSUNG bottom mount freezer in 2009 has the following characteristics.

Image	Feature
	Counter Height Design • The Independent Mid Drawer(Flex zone) is counter Height to fit contemporary kitchen.
	Two Lever Dispenser • Two lever dispenser can be get ice or water easily.
	Secure Auto Close Door System • Cool tight doors • Energy saving • Preventing sweat on fridge doors

1-1. Introduction of main Function

▶ Changing Items

Image	Feature
	Ez-Open Handle System • The freezer door and Mid drawer (Flex zone) are more user-friendly. So, They come as much convenient.
	Emotional Lighting • The lighting helps you find groceries Easier by lighting down when you open Mid drawer(Flex zone) and freezer door.
	Smart Divider • Easy rail partition can divide off 4 independent space easily. • The rail partition allow you to divide the space of the convertible room easier.

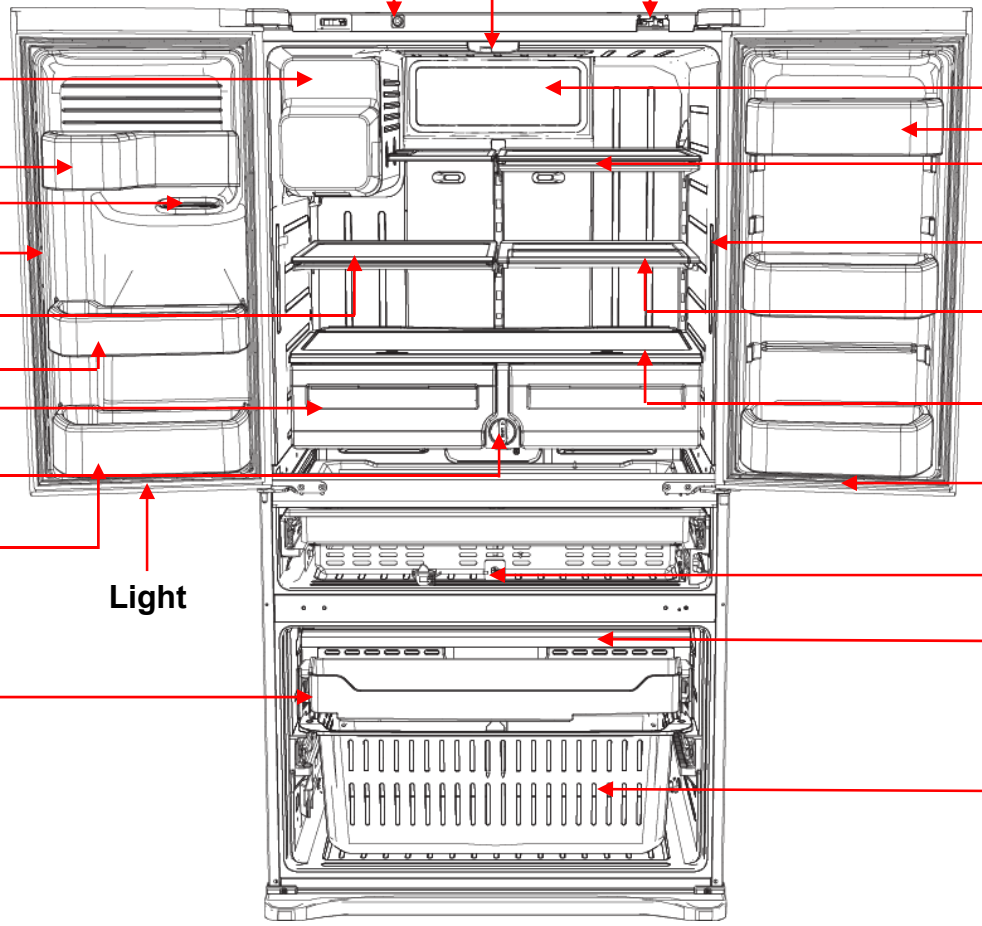
1-1. Introduction of main Function

▶ Changing Items

Image	Feature
	Slim Water Filtration System • Slim water filter is placed between crispers for changing filter conveniently without removing items from Refrigerator.
	Touch Sensor Lighting • The display change more wider and apply Blue LED lighting. And Touch Sensor Lighting make the refrigerator graceful.

1-2. Interior Views

Refrigerator



Freezer

1-3. Model Specification &Specification Chart

ITEM	Model		RF4287HA
			Ice & Water Dispenser with Pantry
External size	W		35 3/4 inch (908mm)
	D	On Cabinet	29 7/8 inch (760mm)
		W/O Handle	33 3/4 inch (858mm)
		With Handle	36 1/4 inch (920mm)
	H	W/O Hinge Cap	68 1/2 inch (1740mm)
		With Hinge Cap	69 7/8 inch (1774mm)
Net Capacity	Total		27.7 Cu.ft (785ℓ)
	Freezer		16.2 Cu.ft (460ℓ)
	Flex		3.6 Cu.ft (103ℓ)
	Refrigerator		7.8 Cu.ft (222ℓ)
Efficiency of volume			60%
Weight	Set		362.4 Pounds (164kg)
	Packing		402.1 Pounds (182kg)
Packing	Width		38 5/8 Inch (980mm)
	Depth		39 3/8 Inch (1001mm)
	Height		75 5/8 Inch (1923mm)
Compressor			Reciprocate
Rated Voltage and Frequency			AC 115V/60Hz
Refrigerant			R 134a
Foaming Agent			C-Pentane
Refrigerant Input Amount			5.64 oz (160g)
Type Refrigerator			Indirect Cooling Method Refrigerator
Motor Rated Consumption Power			140W
Electric Heater Rated Consumption Power			340W

1-3. Model Specification &Specification Chart

COLOR			
	Cabinet (Both sides)	Door	Molding
Black	All Black	Empire Black	I Black
Real STS	Noble STS	Versailles Stainless	Creamy STS
White	Snow White	Snow White	Snow White
Platinum STS	Noble STS	Stainless Platinum	Creamy STS

1-3. Model Specification &Specification Chart

Items				Specification	
Model				RF4287HA	
Components for Freezer	Compressor		Model	BK190C-L2C	
			Starting type	BLDC	
			Oil Charge	FREOL α- 15c	
	Evaporator		Freezer	SPLIT FIN TYPE	
			Refrigerator	SPLIT FIN TYPE	
	Condenser			Forced and Natural Convection Type	
	Dryer			Molecular sieve XH-9	
	Capillary tube (Dia × Length)			R : 0.032” x 118” (0.82mm x 3500mm) / F : 0.032” x 118” (0.82mm x 3500mm)	
	Refrigerant			R134a	
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(℉)	OFF(℉)
		THERMISTOR (F-SENSOR) 502AT	-8℉(-22℃)	5℉(-20℃)	-11℉(-24℃)
			-2℉(-19℃)	1℉(-17℃)	-5℉(-21℃)
			8℉(-13℃)	11℉(-12℃)	5℉(-15℃)
	Flex	Model	Temperature Selection	ON(℉)	OFF(℉)
		THERMISTOR (R-SENSOR) 502AT	29℉(-1℃)	32℉(0℃)	26℉(-3℃)
			42℉(5℃)	45℉(7℃)	39℉(4℃)

1-3. Model Specification &Specification Chart

Items				Specification	
Model				RF4287HA	
Room Temperature Sensor Components	Refrigerator	Model	Temperature Selection	ON(°F)	OFF(°F)
		THERMISTOR (R-SENSOR) 502AT	34°F(1°C)	36°F(2°C)	32°F(0°C)
			38°F(3°C)	40°F(4°C)	36°F(2°C)
			46°F(8°C)	48°F(9°C)	44°F(7°C)
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		6 hr ± 10 min	
		Defrost Cycle (FRE)		12 ~ 23 hr (vary according to the conditions used)	
		Defrost Cycle (REF)		6 ~ 11 hr (vary according to the conditions used)	
		Pause time		12 ± 1 min	
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0 kΩ at 77°F(25°C)	
		F Bimetal-thermo Protector	Rated	AC 125V 10A	
			Operating temperature	Off : 140°F(60°C) / On : 104°F(40°C)	
	Fuse	F/R Fuse	Rated	AC 250V 10A	
			Operating temperature	Off: 230°F(110°C)	

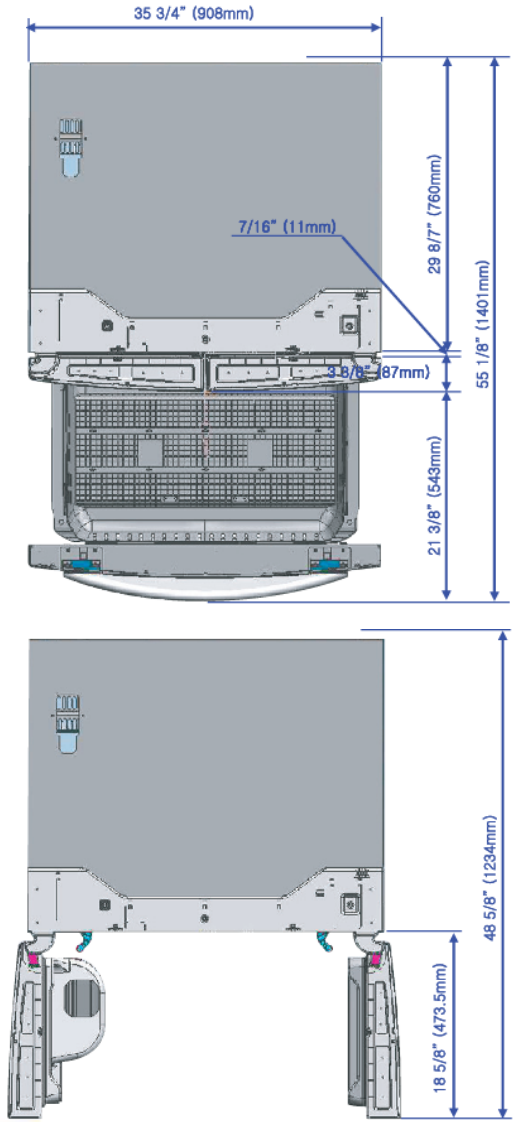
1-3. Model Specification &Specification Chart

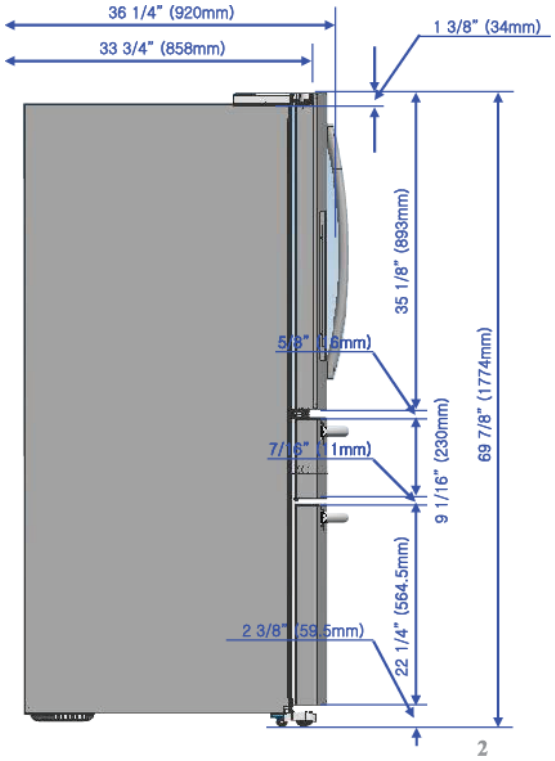
Items			Specification
Model			RF4287HA
Electric Components	Defrost Heater(FRE)	Heated at F Defrost	AC 120V, 230W
	Defrost Heater(REF)	Heated at R Defrost	AC 120V, 120W
	DISPENSER Heater	Interlock with French Heater	AC 120V, 1.6W
	FRENCH Heater	-	AC 120V, 7W
	ICE Duct Heater	Interlock with Defrost Heater (FRE)	AC 120V, 7W
	Damper	-	DC 12V, 1W
	Over load Relay	Models	4TM445PHBYY-82
		Temp.ON	257± 41°F(125± 5℃)
		Temp.OFF	156.2± 48.2°F(69± 9℃)
	Rated Voltage		AC 115V/ 60Hz
	Motor-BLDC(FRE)		DC12V / FDQT06SS3
	Motor BLDC(ICE ROOM)		DC12V / DREP5020LB
	Motor-BLDC(REF)		DC12V / FDQT06SS3
	Motor-BLDC(CIRCUIT)		DC12V / FDQT04SS2
	Motor-DAMPER(PANTRY)		DC12V / NSBY001TD1
	Lamp LED(REF)		DC12V / 290~380mA

1-3. Model Specification &Specification Chart

Items			Specification
Model			RF4287HA
Electric Components	Lamp LED(Flex&FRE)		DC 12V / 45~75mA
	Lamp LED(REF Side)		DC 12V / 45~75mA
	Lamp LED(Vegetable)		DC 12V / 95~145mA
	Lamp LED(REF Eva)		DC 12V / 65~95mA
	Door Switch	FRE	AC 125V 1.5A (1EA)
		REF & Flex	DC200V 1.5A / MS-406-SS-01(2EA)
		REF(ICE ROOM)	125~250V /11A, EMB606
	Power cord		AC125V 15A
	Earth Screw		BSBN (BRASS SCREW)

1-4. Dimensions of Refrigerator (Inches)

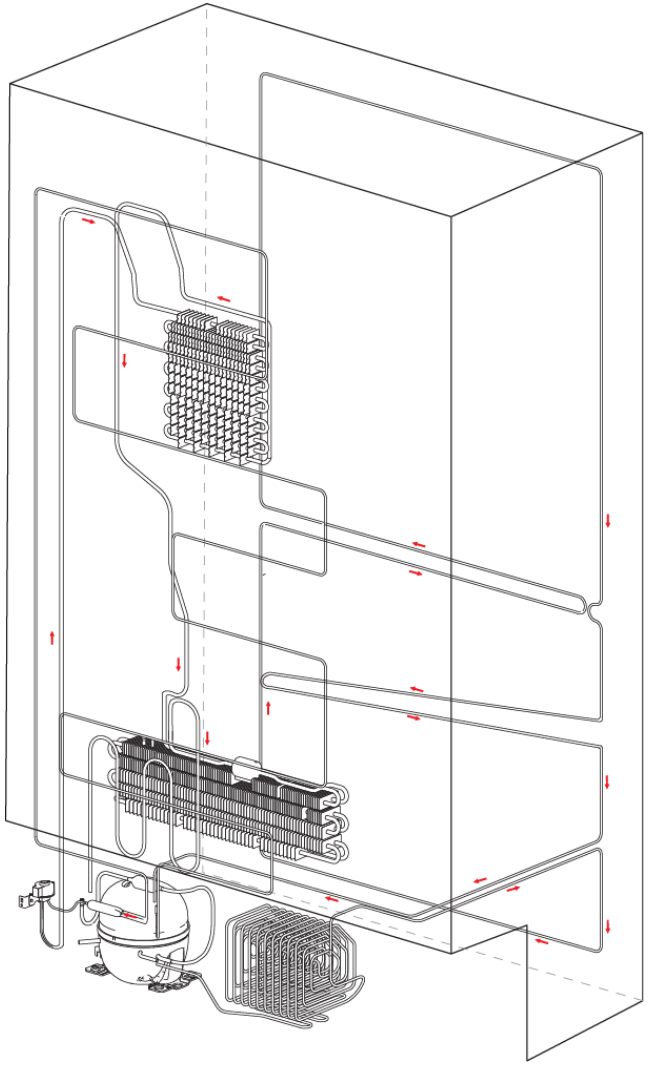




1-5. Refrigerant Route in Refrigeration cycle

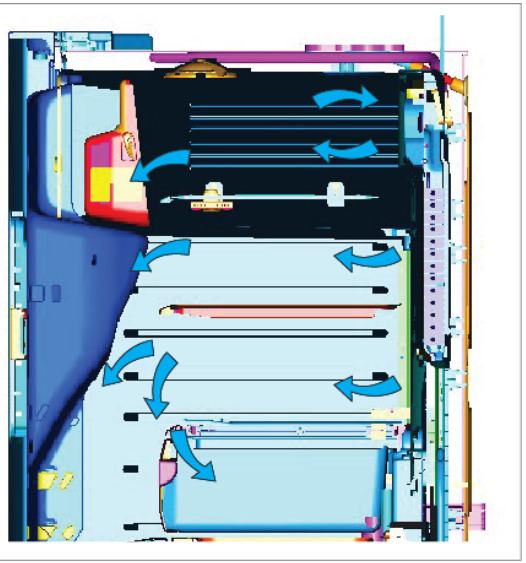
1. **Compressor → Condenser → Hot Pipe → Back Cluster Pipe → Dryer → Ref Capillary Tube → Refrigerator Evaporator → Freezer Evaporator → Suction Pipe → Compressor**

2. **Compressor → Condenser → Hot Pipe → Back Cluster Pipe → Dryer → Fre Capillary Tube → Freezer Evaporator → Suction Pipe → Compressor**

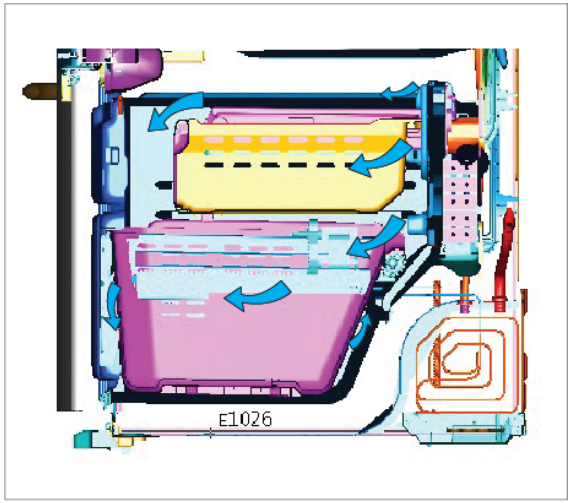


1-6. Cooling Air Circulation

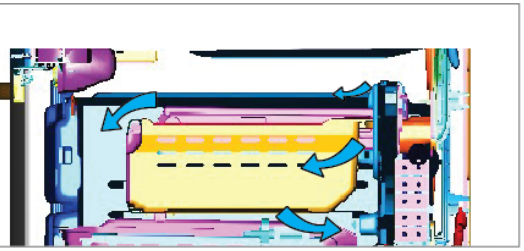
Refrigerator



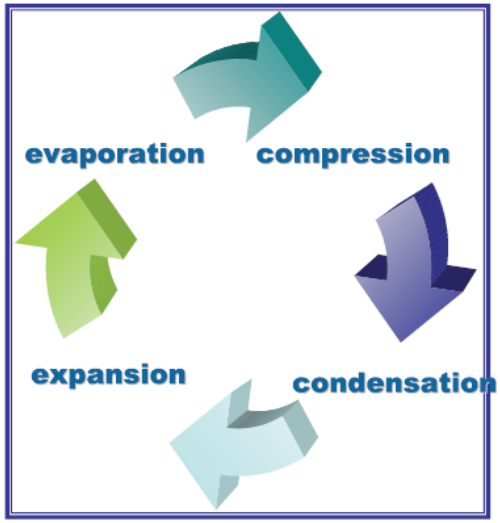
Freezer

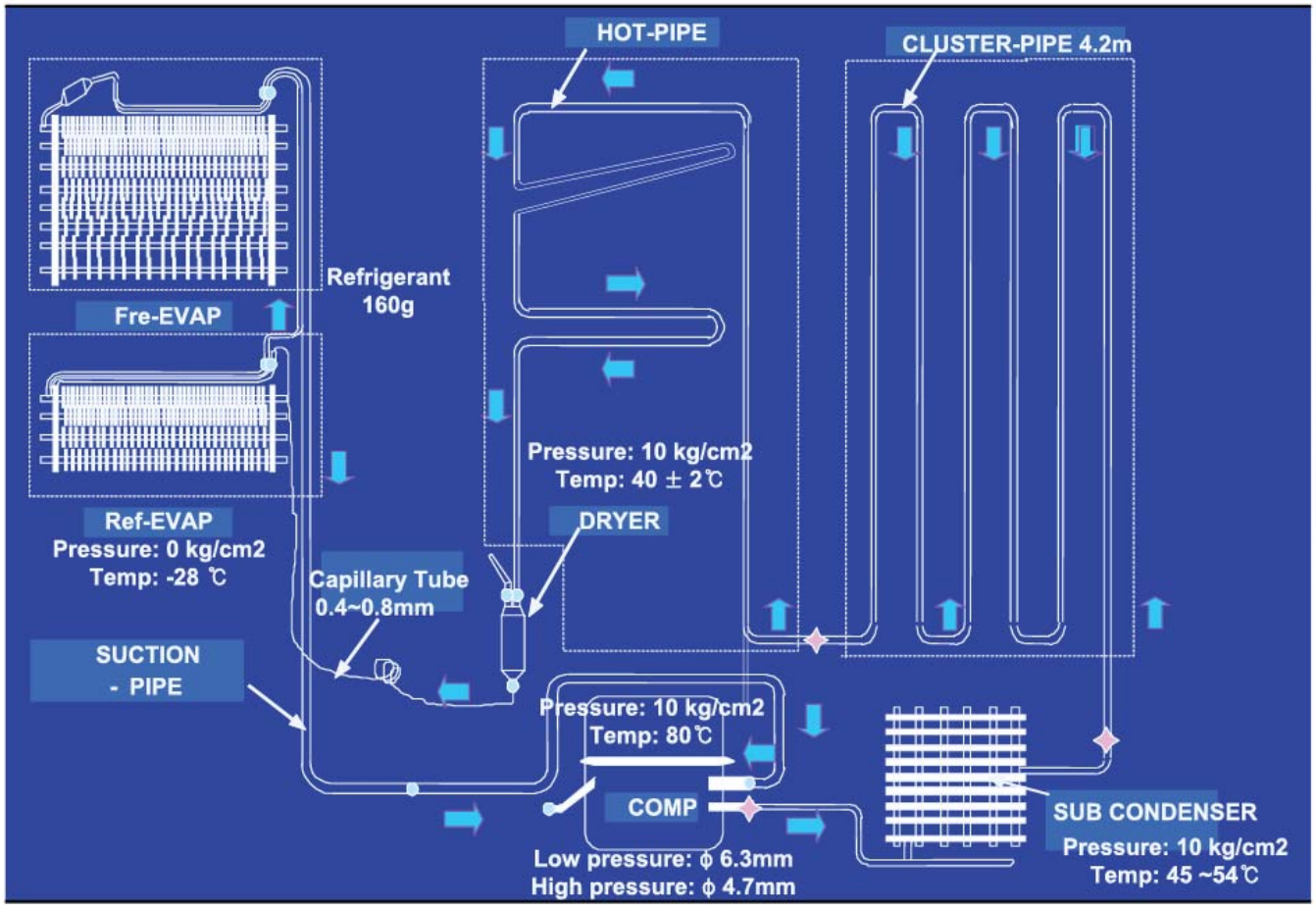


Flex Zone



1-7. Principle Of Freezer





1-8-1. Operation theory of refrigeration cycle components

■ Condenser

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

2) Types

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

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

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

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

※ Location

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

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

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

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

※ Pipe thickness

① Low pressure: 6.3mm ② High pressure : 4.7mm ③ Capillary : About 0.4-0.8mm

※ Condenser length (Based on 300ℓ): 26.5 M

① Assistance : 5 M ② HOT-PIPE: 6.6 M ③ CLUSTER-PIPE: 15 M

1-8-1. Operation theory of refrigeration cycle components

■ Capillary

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

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

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

2) Outline

A. Thickness : About 0.4-0.8ßÆ

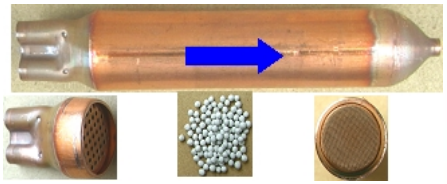
B. Length : It is changeable to low temperature and pressure (10->5ßΠ/ß≤) depends on the 2M of thin and long copper pipe wall resistance.

■ Evaporator

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

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

3) Types of Evaporator



A. ROLL-BOND Evaporator --> Direct Cooling ONE-DOOR Type

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

B. PIN-PIPE Type --> Indirect cooling TWO-DOOR Type

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

1-8-1. Operation theory of refrigeration cycle components

■ Compressor

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

2) Type of Condenser

A. Back-and-forth motion type: A method that pistol makes back-and-forth motion through shaft and cylinder of motor rotation and compresses. ※ Used for household refrigerant

B. Rotary Type: A method that inhales the refrigerant gas through the gap between the outside of rotor electric attached on the shaft (rotation axis) and the inside of cylinder and compresses.

C. Centrifugal Type

3) Please insert the explanation of inverter comp operation theory.

■ Dryer

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

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

1-8-1. Operation theory of refrigeration cycle components

※ Influence of moisture

① Moisture precipitation – Blocked by ice
② Refrigerant and reaction
③ Life reduction of oil
④ Acceleration of oxidization
⑤ Copper plating phenomenon
⑥ Gas dissolution by the interaction of synthetic insulating material (insulator)

※ Influence of foreign substance

① Increase of condensed temperature.
② Increase of temperature.
③ Decrease of cooling efficiency
④ Shorten the life by friction between oil and foreign substance in the compressor.

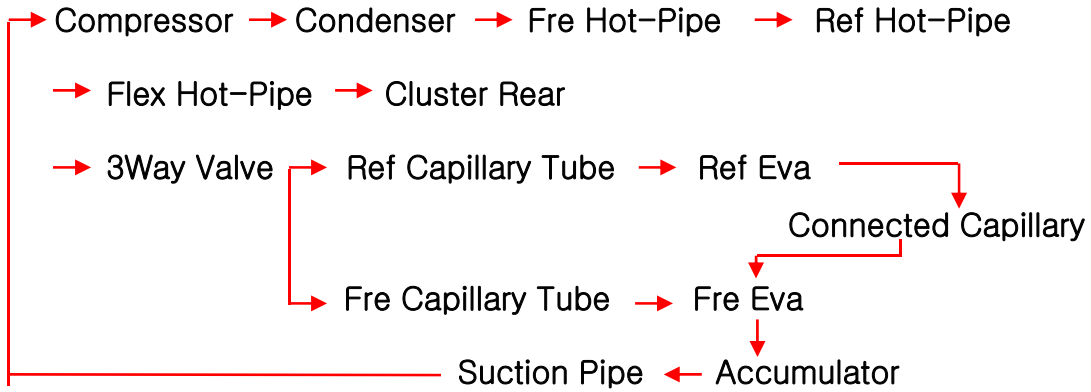
■ Accumulator

1) Role : To send a pure refrigerant gas to compressor by removing completely the refrigerant liquid from evaporator.

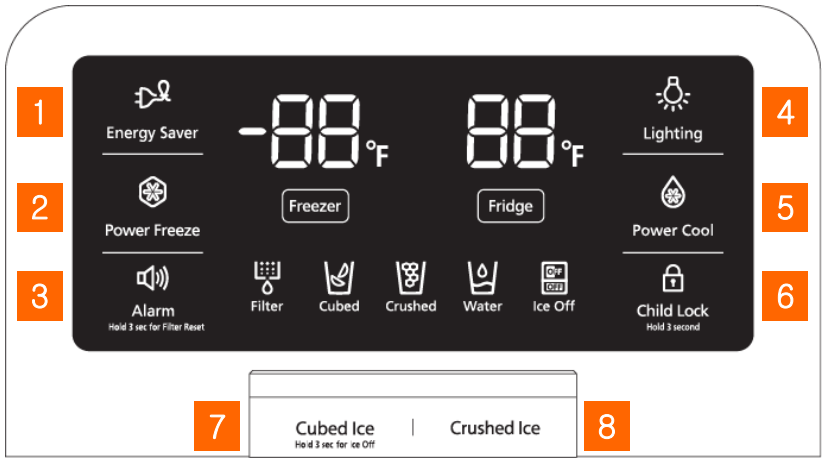
※ If a refrigerant liquid go into the compressor, overload is occurred.

1-8-2. Refrigeration Cycle Type

TDM Cycle



2-1. Digital Display



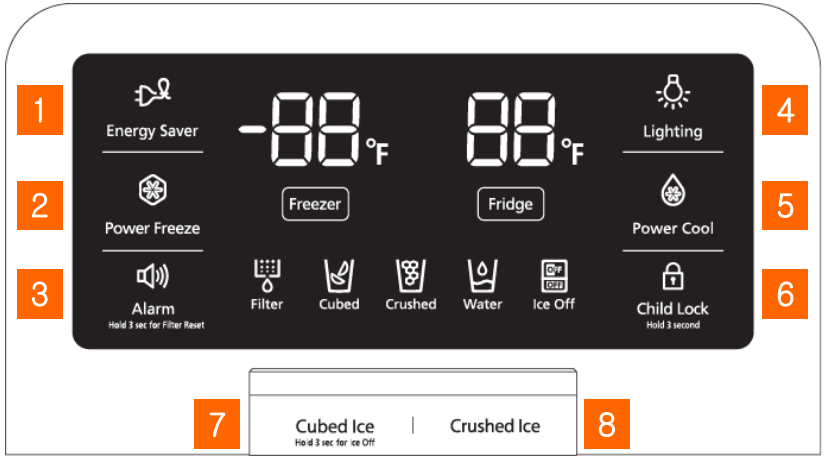
1 Energy Saver Button

Press the Energy Saver button for better energy efficiency.
The Energy Saver icon lights up when you press the Energy Saver button.
The Energy Saver function is automatically set to “ON” when power is supplied to the refrigerator.
If condensation or water drops appear on the doors, turn the Energy Saver mode off.

2 Power Freeze Button

Press the Power Freeze to set the freezer to your desired temperature. This icon will light up when you press the Power Freeze button. Power Freeze is great when you need a lot of ice.
It can be hepful if you need to quickly freeze easily spoiled items or if the temperature in the freezer has warmed dramatically (For example, if the door was left open).
When you have enough ice, just press the same button again to cancel the Power Freeze mode. After 2 and a half hours, Power Freeze mode will turn off automatically to decrease energy consumption.

2-1. Digital Display



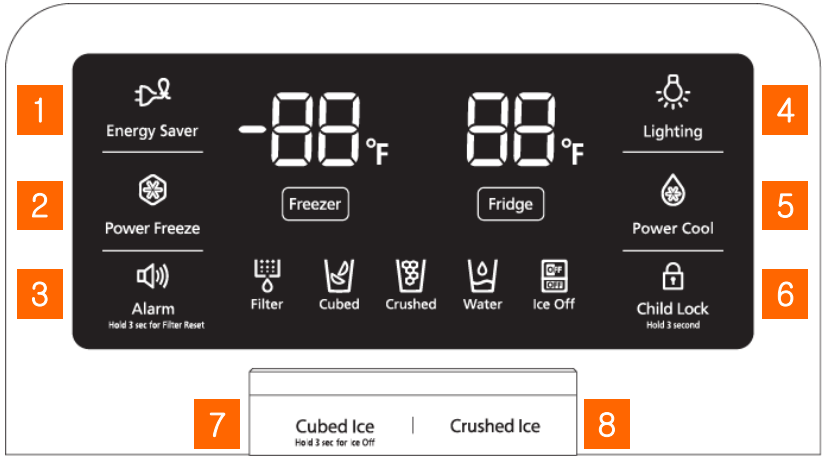
3 Alarm / hold 3sec for Filter Reset Button

Press the Alarm / hold 3 sec for Filter Reset button to turn on the door open alarm.
This icon will light up when you press the Alarm button.
The door alarm will sound if any door is open for more than 3 minutes.
The beeping stops when you close the door. Initially the Alarm is set to on.

4 Lighting Button

Press the Lighting button to turn on the Dispenser LED lamp.
This icon will light up when you press the Lighting button. In this case, the dispenser light (under the display) will be on constantly. If you would like the dispenser light to come on only when using the dispenser, turn the Lighting mode off.

2-1. Digital Display



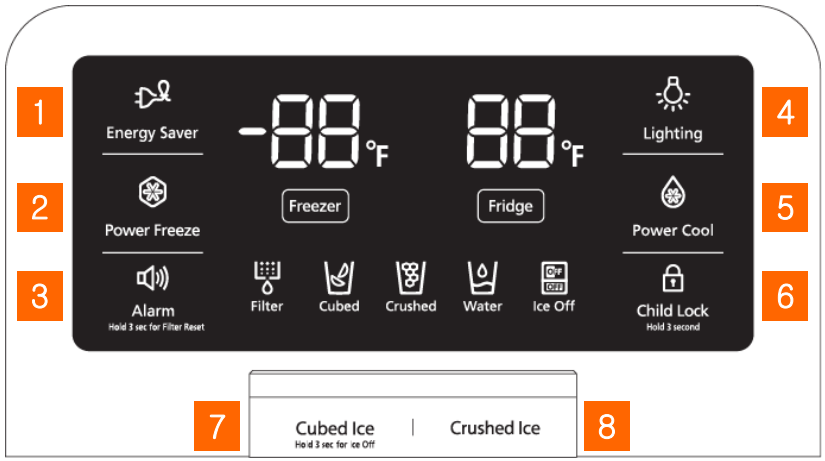
5 Power Cool Button

Press the Power Cool button to speed up the time needed to cool products in refrigerator.
This icon will light up when you press the Power Cool button. Power Cool is great when you need cool products in the refrigerator. It can be helpful if you need to quickly cool easily spoiled items or if the temperature in the fridge has warmed dramatically (For example, if the door was left open).
If you want to cancel the Power Cool mode, just press the same button again.
After 2 and a half hours, Power Cool mode will turn off automatically to decrease energy consumption.

6 Child Lock Button

Press the Child Lock button not to use the Display panel or Dispenser functions.
This icon will light up when you press the Lock button.
In this case, you won't be able to use the control panel. If you press the Child Lock button to cancel the Lock function, you will be able to use the control panel again.

2-1. Digital Display



7 Cubed Button

Press the Cubed or Crushed button to select the type of ice you want dispensed. Each time you press the button, the cubed and crushed ice modes alternate and the Cubed or Crushed ice icon lights up, indicating your selection.
If you don’t need ice, turn the function off to save on water and energy consumption.

8 Crushed Button

Press the Cubed or Crushed button to select the type of ice you want dispensed. Each time you press the button, the cubed and crushed ice modes alternate and the Cubed or Crushed ice icon lights up, indicating your selection.
If you don’t need ice, turn the function off to save on water and energy consumption.

2-2. C-Fan Motor Delay Function of the Machine Compartment

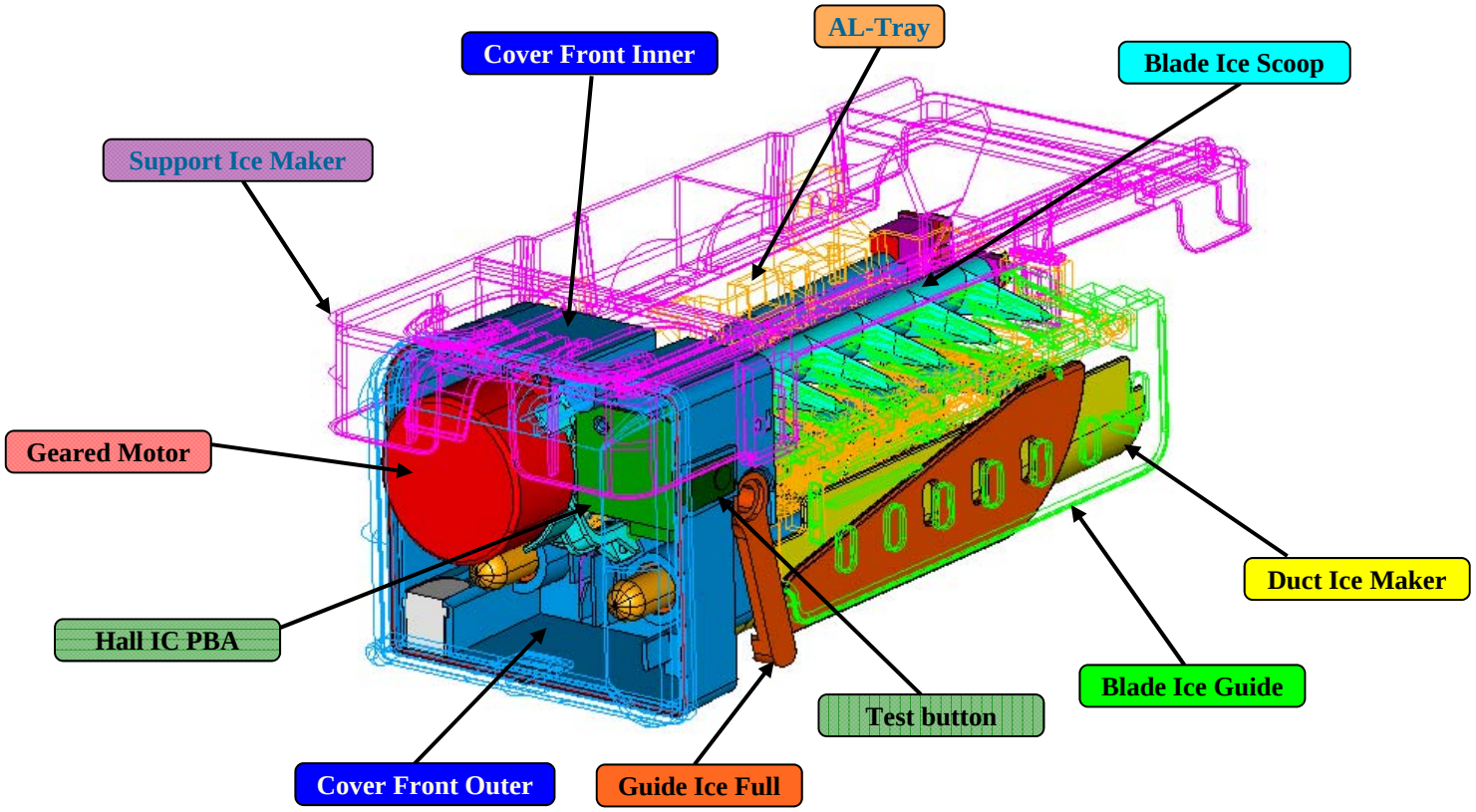
❖ **According to the ambient temperature, the condenser fan located in the machine compartment is operated with different modes.**

	Ranges of ambient temp.	Operation
Condenser Fan Delay function	Above 66°F(19 ° C)	Condenser-Fan is ON as soon as the compressor is on.
	61°F(16 ° C) ~ 65°F(18 ° C)	Condenser-Fan is ON with 5 minutes delay from the compressor on.
	Below 60°F(15 ° C)	Condenser-Fan is OFF regardless of the compressor operation.

2-3. Ice-Maker Function

❖ The Ice-maker is referred to the device with an automatic ice production, storage in the ice bucket

1) Ice-maker parts



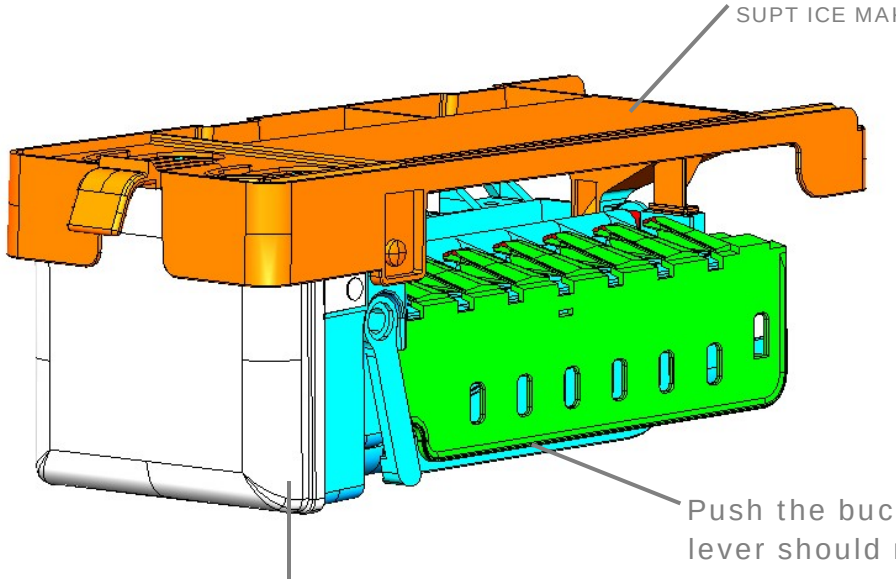
2-3. Ice-Maker Function

2) Preparation of Ice-maker

2-1) Connect the water line to the water supply valve of refrigerator to supply water. (See how to connect a water supply line in the owner's manual.)

2-2) Push the bucket back fully so that the guide-ice of ice maker should not touch the back of bucket. (If the back of bucket is touched the guide-ice of ice maker, the ice maker will not make ice any more because of a ice full signal.)

2-3) It takes around 6 hours to harvest a first ice, and throw away 2-3 times of these ice to make sure the supplied water clean.



2-3. Ice-Maker Function

3) Initial Operation function

3-1) Whenever the power is on, the control board checks the temperature of ice sensor.
If the temperature of sensor is under 32℉(0 ° C), the heater is operated for 2 minutes.
Otherwise, the heater is not operated. Then initial test mode will be started.

3-2) At initial test mode, geared motor starts to rotate and heater is operated for 30 seconds.

3-3) When the ice tray is leveled within 6 minutes,
it will remain until the temperature of sensor drop down to 32℉(0 ° C),

3-4) If the temperature is maintained lower than 32℉(0 ° C), for 5 seconds, water is supplied.
It will remain until the temperature of sensor drop down to 18.5F

3-5) If the temperature is maintained lower than 18.5℉(-7.5 ° C) for 5 seconds,
and the ice full sensor is off position, the blade ice scoop starts to rotate
to scoop ice cubes out.

[Reference table]

Leveling S/W	Ice full S/W	Judgement	MICOM PORT
ON(“LOW”)	ON(“LOW”)	waiting until freezing of water	IC02-MICOM #27: Leveling IC02-MICOM #28: Ice full
ON(“LOW”)	OFF(“HIGH”)	Out of order	
OFF(“HIGH”)	ON(“LOW”)	Ice bucket with full ice-cubes	
OFF(“HIGH”)	OFF(“HIGH”)	Rotating before check of full ice-cubes	

2-3. Ice-Maker Function

4) Ice production

3-1) After 38 minutes pass from the water supply, the control board will check the temperature.

3-2) If the sensor reads the temperature lower than 18.5℉ for more than 5 secs, than the ice production process is completed.

5) Test function

- In order to operate a test function, press the Test button for 1.5 second.
- This function can be used to check a proper working, to clean the ice tray, and to adjust the water level in the ice tray.

4-1) This function only works when the ice tray is leveled and the ice full signal is cleared.

4-2) When the water line is connected, each process such as a water supply, scooping and leveling can be investigated by this button.

6) Ice off function

5-1) When the Ice off option is selected by Ice Type button, the ice making process will cease.

5-2) When the ice making process ceases, the final state will be the ice tray with supplied water.

5-3) When Cubed or Crushed option is selected again, the control board will check an accumulated time period. After making it 38 minutes and when the ice tray temperature is acceptable, ice-scooping process will begin.

7) Functions when the freezer door is open

- When the freezer door is open, icing fan will cease in order to prevent frost on the path of cold air from FZ compartment to ice compartment.

6-1) If the ices is being scooped when the freezer door is open, they can still be scooped out. So the ice-falling sound can happen.

6-2) The water supply process remains working as usual.

6-3) Because the icing fan ceased, another water supply will not happen.

2-4. Cooling off Mode

	Remark
Background	1. Exhibition Mode which is also called Cooling off is only for shop. But these display models are being sold with discount and customers who bought displayed model complained No Cool because of this mode 2. There is no information about Cooling off mode in Owners manual (Since it is not for consumers) but some models have a label attached on display. So if cooling off is performed and the label is detached, No one knows about this function.
Operation	1. With Cooling off mode, If both compartment sensors detect the room temperature higher than 65 C, this mode will be automatically canceled and return to freezing operation (There is no buzzer sound by the temperature when cancel the exhibition mode) 2. Display and fan motor operate normally except compressor 3. No Defrosting cycle is performed

Model	Operation way	As Power off	Display	Remark
RF4287AA	Press Energy Saver Key & Power Freeze/ Freezer Key temp buttons simultaneously for 3 sec	Even though power off and on again, it remains exhibition mode		When pressing any button, It will display setting temp for 5 sec

2-5. Automatic Lamp off Mode

	Remark
Background	When cleaning inside of refrigerator with power on, If doors of refrigerator remain open for a long time that makes the temperature goes up, lamp will be turned off and won't be back until temperature inside get cool enough.
Operation	1. MICOM Control - If you open the fridge door for over 10 minutes, Micom in Main PBA will turn the lamp off. → but once you close & open, the lamp will be on 2. BIMETAL Control - If the temperature around of fridge lamp is over 140°F, the BIMETAL(140°F OFF / 104°FON) around lamps will turn the lamp off -> According to UL250 Section 9.16 Distortion Test, Lamp will be off after 18 minutes of Door opening and It won't be on unless BIMETAL temperature reaches to 104°F

2-6. Abnormal Temperature Display Mode

Item		Function	Customer failure symptoms
When applying initial power (Include momentary power failure)	F	● In case of POWER ON, display current temperature → Up to reach setting temperature ([Ex] When setting −4°F, display setting temperature after reaching −4°F)	○ Freezer temperature does not drop easily. ○ Temperature going up and down. (Defrost section)
	R	● In case of POWER ON, display current temperature → Up to reach setting temperature	
When excluding initial operation (Normal state)	F	● Display setting temperature usually. ● If inner temperature of refrigerator rises more than 41°F or so and it passes 12hrs, the temperature number blinks	○ Display blinks in case of product failure. → Defrost failure / Fan failure / Refrigerant leakage ※ A failure used for a certain time. ○ Blinks in case of opening door for a long time → Opening door for a long time when cleaning and storing foods.
	R	● Display setting temperature usually. ● If inner temperature of refrigerator rises more than 59°F or so and it passes 12hrs, the temperature number blinks.	
ETC.		● When changing the current and setting temperature, it displays at least 2minutes of delaying time for rising or falling 33.8°F. Ex) When customer changes to 37.4°F during using 41°F: Display "Maintain 39.2°F for 2 minutes" → Display "Maintain 37.4°F for 2 minutes → Display "35.6°F"	

3-1. Precaution

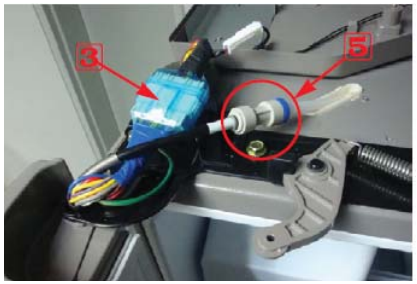
- Unplug the refrigerator before cleaning and making repairs.
- Do not dissemble or repair the refrigerator by yourself.
  - It may cause risk of causing a fire, malfunction and/or personal injury
- Remove any foreign matter or dust from the power plug pins.
  - Otherwise there is a risk of fire.
- Do not use a cord that shows cracks or abrasion damage along its length or at either end.
- Do not plug several appliances into the same multiple power board. The refrigerator should always be plugged into its own individual electrical which has a voltage rating that matched the rating plate.
  - This provides the best performance and also prevents overloading house wiring circuits, which could cause a fire hazard from overheated wires.
- Do not install the refrigerator in a damp place or place where it may come in contact with water.
  - Deteriorated insulation of electrical parts may cause an electric shock or fire.
- The refrigerator must be grounded.
  - You must ground the refrigerator to prevent any power leakages or electric shocks caused by current leakage from the refrigerator.
- Do not put bottles or glass containers in the freezer.
  - When the contents freeze, the glass may break and cause personal injury.
- Do not store volatile or flammable substances in the refrigerator.
  - The storage of benzene, thinner, alcohol, ether, LP gas and other such products may cause explosions.

3-1. Precaution

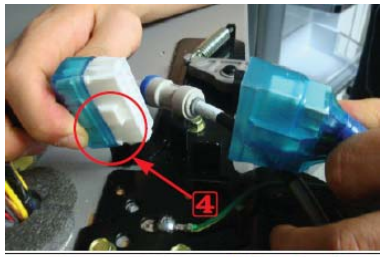
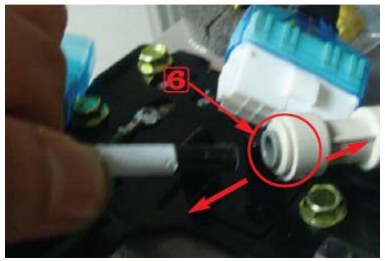
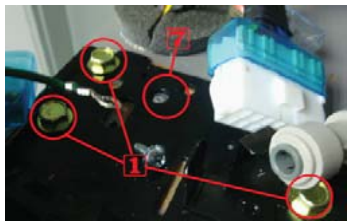
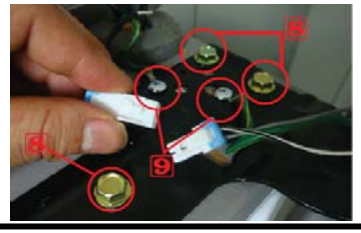
- Required Tools

IMAGE	ITEM	USE
	Phillips Head Driver	Use for assembling and disassembling of screw
	Flat Head Driver	Use for assembling and disassembling of Home Bar, Dispenser, Deli Cartessen Box, Main PBA etc...
	Socket Wrench Ø10mm	Use for assembling and disassembling of Door Hinge

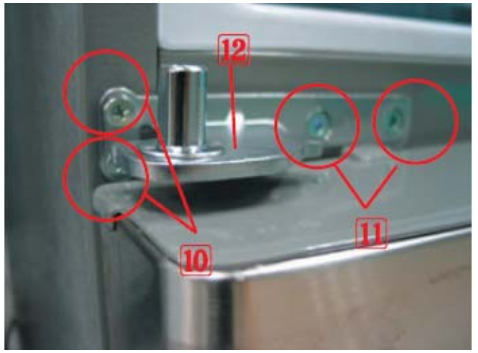
3-2. Refrigerator Door

Part name	How to do	Descriptive Picture
Refrigerator Door	1. With the door opened, remove the Top Table cap(1) with a Flat head screwdriver, and close the door. CAUTION Be careful not to scratch or break the parts	
	2. Remove the 3 screws holding down the Top Table and remove the Top Table(2).	
	3. Disconnect the electrical connector(3) above the upper left door hinge To disconnect the connector (3) more easily, press the end of the hook(4) and pull connector.	

3-2. Refrigerator Door

Part name	How to do	Descriptive Picture
Refrigerator Door	**4. Disconnect the water tube (5) by pulling the tube fitting(6) apart as shown in the picture.**	 
	5-1. Left door hinge **With a Philips head screwdriver, remove the ground screws (7) and remove the 3 hex head bolts(8).**	
	5-2. Right door hinge **At first, disconnect the LED housing (9) and with a Philips head screwdriver, remove the ground screws (7) and remove the 3 hex head bolts(8).**	

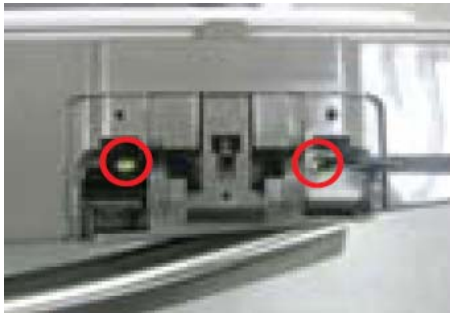
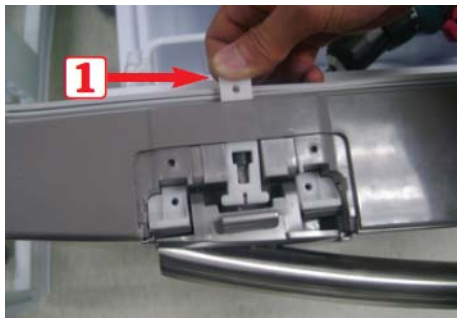
3-2. Refrigerator Door

Part name	How to do	Descriptive Picture
Refrigerator Door	**6. Lift the door straightly up to remove.** CAUTION **Be careful not to drop the door.**	
	7. With a Philips head screwdriver, remove the two screws (10) attatched to the lower left and right door hinges. **With a wrench(10mm), remove the 2 flat head screws (11) attatched to the lower left and right door hinges.** **Remove the lower left and right door hinges (12).**	

3-3. Door Handle

Part name	How to do	Descriptive Picture
Door Handle Fridge	**1. Disassemble the door handles by sliding them up straight.**	
	2. Remove the cover vinyl of door.	

3-4. Door Handle Freezer

Part name	How to do	Descriptive Picture
Door Handle Freezer	**1. Remove the Cap Door with a flat-blade (-) screwdriver.** CAUTION **Be careful not to scratch or break the parts**	
	2. Remove 4 screws.	
	3. Lift up the handle to have the Slider Handle Fre(1) pushed back.	

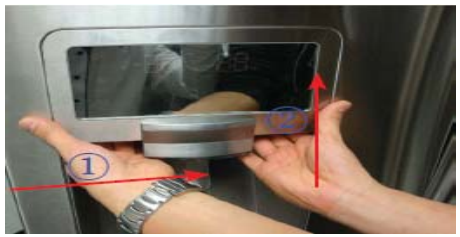
3-4. Door Handle Freezer

Part name	How to do	Descriptive Picture
Door Handle Freezer	4. After having the Slider Handle Fre(1) pushed back, screw up at the hole.	
	5. Remove the door handle by lifting it up. Remove the 4 Fixer Handle Fre(2) by using the flat-blade(-) screwdriver.	 
	6. Remove the door handle by lifting it up.	

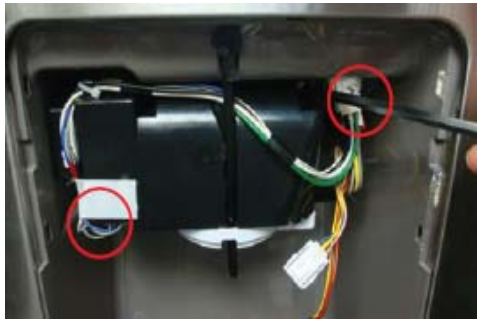
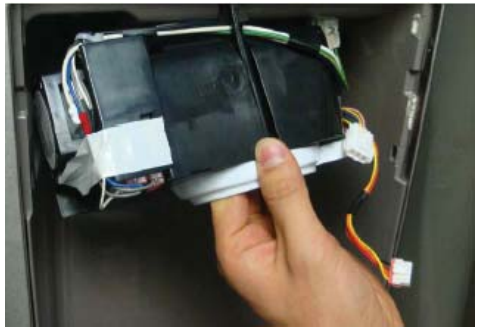
3-5. Refrigerator Light

Part name	How to do	Descriptive Picture
Refrigerator Light	1. Remove the lamp cover by pushing a flat-blade screwdriver Into the hooks behind and pull them out. CAUTION Be careful not to scratch or break the parts CAUTION Before doing the above, make sure that the unit is plugged out.	
	2. Remove 3 screws. And separate the LED housing.	

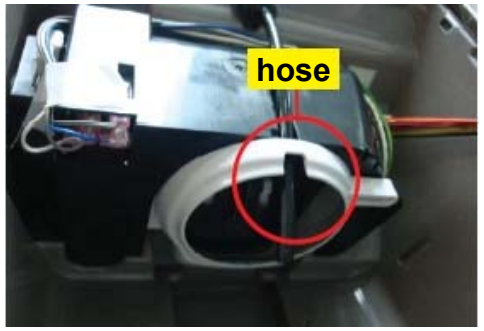
3-6. Cover-Display & Water-Dispenser

Part name	How to do	Descriptive Picture
Cover-Display	1. Remove a screw under the display cover.	
	2. Remove the display cover by pushing it to the right side and pulling it up.	
	3. Disengage the housing connect of display cover.	
	4. Remove 4 screws of coverdisplay.	

3-7. Water-dispenser

Part name	How to do	Descriptive Picture
Water-dispenser	1. Disengage the Housing Connectors by pushing a flatblade screwdriver.	
	2. Remove 2 screws of the Case Ice Route Assy.	
	3. Pull the Case Ice Route Assy.	

3-7. Water-dispenser

Part name	How to do	Descriptive Picture
Water-dispenser	4. Assembly shall be in order from the disassembly. Case-Ice and Route shall be assembled inside of hose. Otherwise, assemble cannot be accomplished.	 
	5. When assembling Cover- isplay, first insert it from leftside and then assemble to rightside. (Check the wire inside.) and knock the display into the Case dispenser.	

3-8. 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.**	

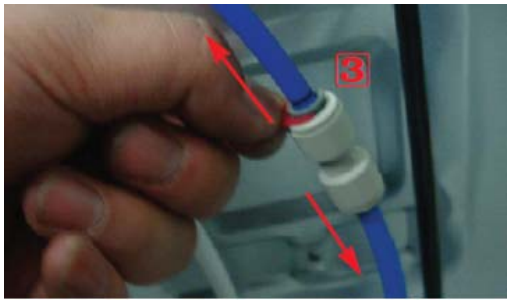
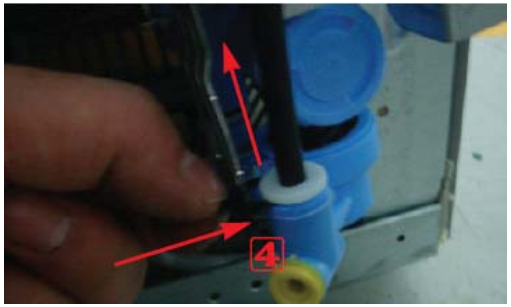
3-9. Foldable Glass Shelf

Part name	How to do	Descriptive Picture
Foldable Glass Shelf	**Remove 2 screws of the Folderble Glass Shelf.**	

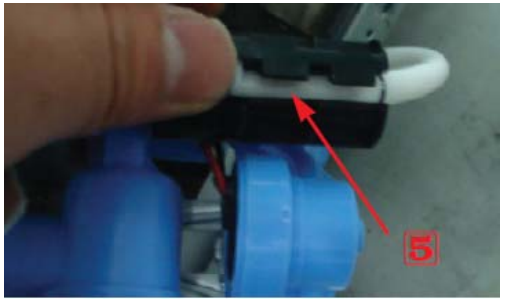
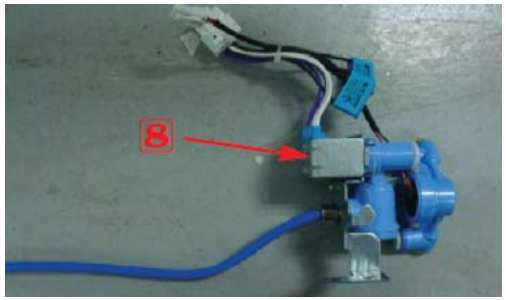
3-10. Vegetable & Fruit Drawers Shelf

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. Lift up the vegetable & fruit shelf slightly with the both side of snap-fits are pressed. (Refer to the picture)	
	2. Remove the vegetable & fruit drawer shelf by pulling it out. (Refer to the picture)	

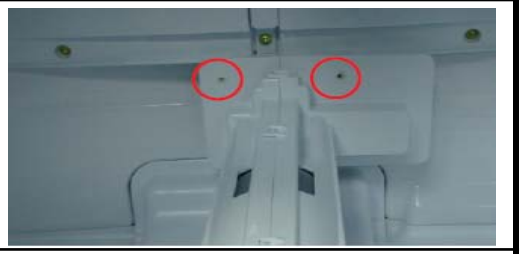
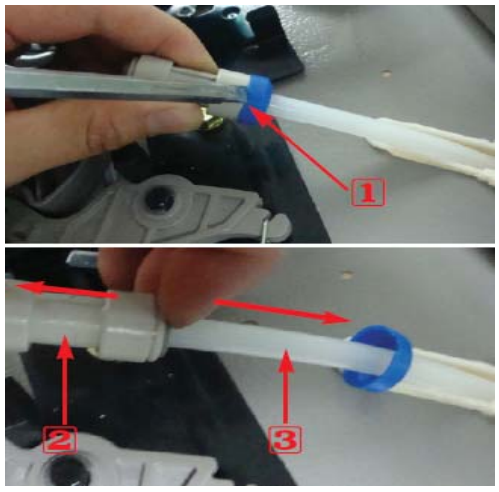
3-11. Water Valve

Part name	How to do	Descriptive Picture
Water Valve	One Water Tube is located in the machine compartment of the refrigerator. Before disassembling the Water Tube, take out the compressor cover. 1. Remove the water valve fixed by the screw.	
	2. Remove the tube clip(3) and disconnect the water hose by pushing the fiting apart.	
	3. Remove the tube clip(4) and disconnect the valve hose from Water Valve.	

3-11. Water Valve

Part name	How to do	Descriptive Picture
Water Valve	4. Open the Fixer hose(5) and disconnect the dispenser hose from Water Valve.	
	5. Disconnect the 2 Housing(6) beside Condenser(7).	
	6. Check the Water Valve(8). If it is not good, you must change it.	

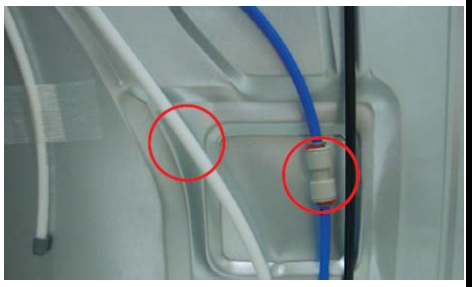
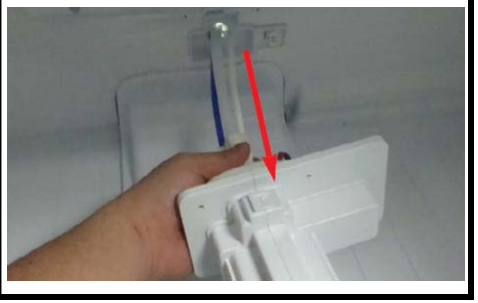
3-12. Case Water Filter

Part name	How to do	Descriptive Picture
Case Water Filter	**Before disassembling the Case Water Filter take out water filter and drawers and shelves located on the Case Water Filter. (Refer to the "Vegetable & Fruit Shelf")**	
	1. Remove 2 screws.	
	2. a. Disconnect the water fixer tube(1) on left top table.(Refer to the "Refrigerator door") push the flat-blade driver between fixer tube(1) and tube fitting(2). **b. Disconnect the water tube(3) by pulling the tube fitting(2).**	

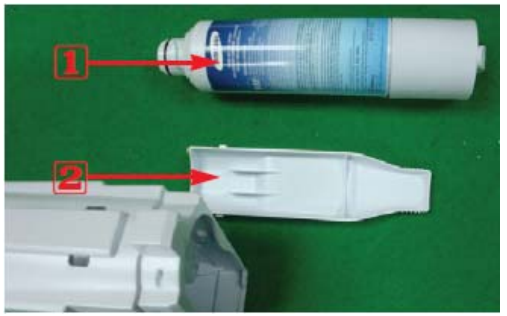
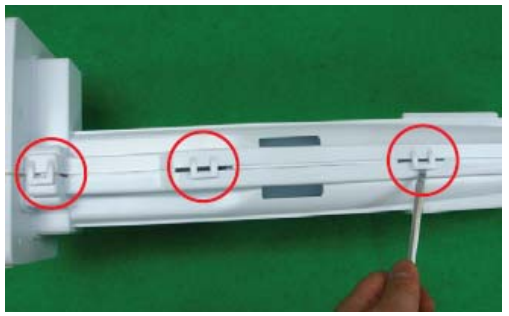
3-12. Case Water Filter

Part name	How to do	Descriptive Picture
Case Water Filter	**3. Turn the refrigerator back and remove 5 screws and lose 5 hoses.**	
	4. Pull the hose out.	

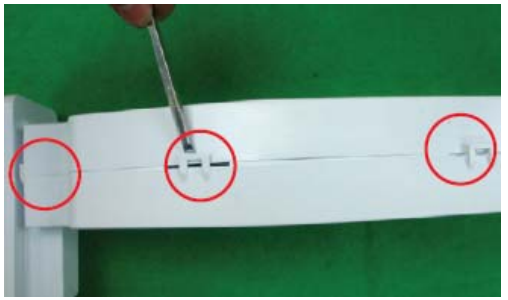
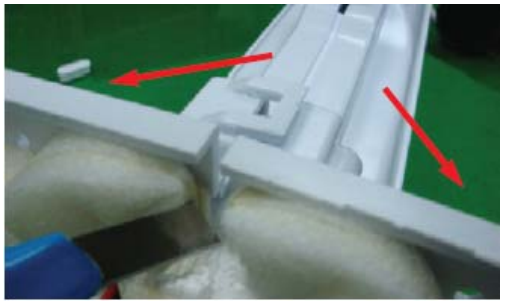
3-12. Case Water Filter

Part name	How to do	Descriptive Picture
Case Water Filter	**5. Pull the two hose out from the water valve. (Refer to the "Water Valve")**	
	5. Pick the Case Water Filter out.	

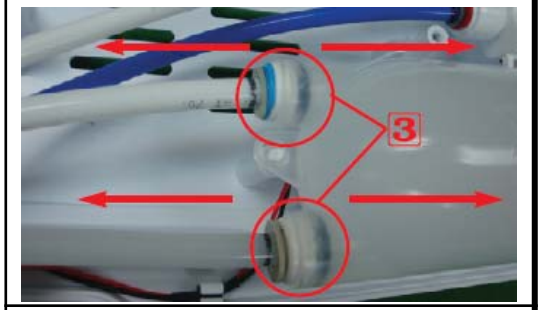
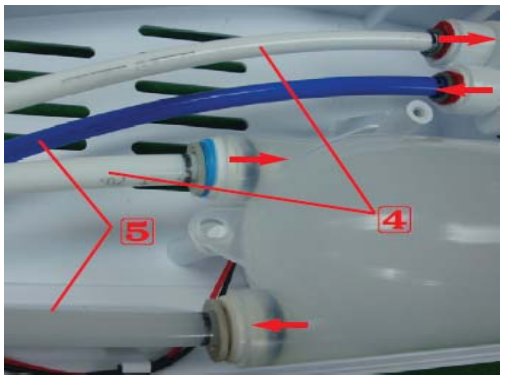
3-13. Water Tank

Part name	How to do	Descriptive Picture
Water Tank	**Before disassembling the Water Tank take the water filter(1) and water tray(2) out.**	
	1. Remove 2 screws beside.	
	2. a. Lose the hooks by pushing the flat-blade driver.	

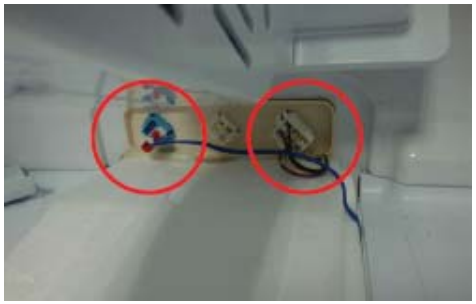
3-13. Water Tank

Part name	How to do	Descriptive Picture
Water Tank	**2. b. Lose the hooks by pushing the flat-blade driver.**	
	3. Cut the sponge stick on the Case Water tank. and divide Case Water Tank.	

3-13. Water Tank

Part name	How to do	Descriptive Picture
Water Tank	4. Remove the tube clips(3) and disconnect the water tank hoses by pulling the fitting tube.	 
	5. Be careful when you connect the hoses. White hoses(4) Go to the In mark(→). Other hoses(5) go to the out mark(←).	

3-14. Motor Damper

Part name	How to do	Descriptive Picture
Motor Damper	1. Remove the 1 screw 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.	

3-15. Water Filter (Assembly & Disassembly)

Part name	How to do	Descriptive Picture
Water Filter (Disassembly)	**1. Turn the water filter count-clockwise. (Refer to the picture)**	
	2. Remove the water filter by pulling it. (Refer to the picture)	

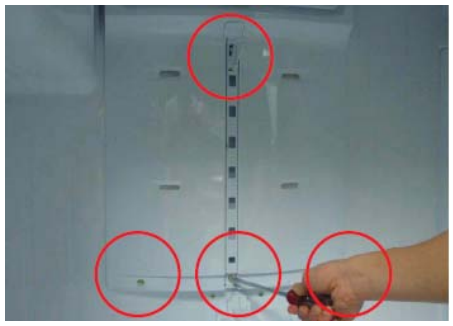
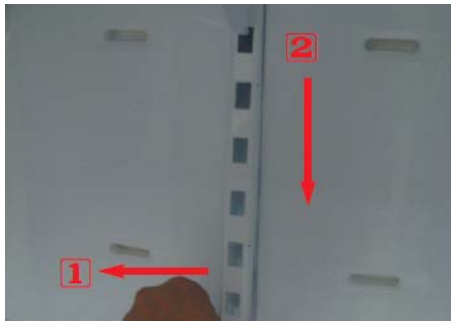
3-15. Water Filter (Assembly & Disassembly)

Part name	How to do	Descriptive Picture
Water Filter (Assembly)	**1. Push the water filter directly.**	
	2. Turn the water filter clockwise until it locked.	

3-16. Vertical Hinged Section

Part name	How to do	Descriptive Picture
Vertical Hinged Section	1. Remove 2 screw cap parts with a flat-blade (-) screwdriver. (Refer to the picture) CAUTION Be careful not to scratch or break the parts	
	2. Unscrew 2 screws.	
	3. Disengage the internal housing connector of the vertical hinge.	
	4. Remove the vertical hinged section by lifting the vertical hinge up. (Refer to the picture)	

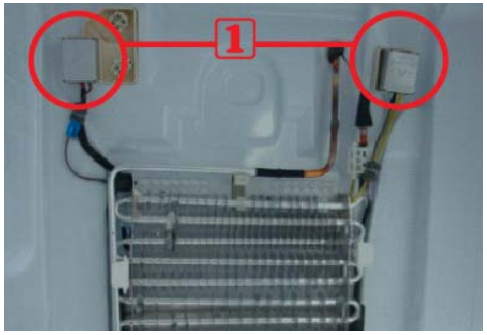
3-17. Evaporator Cover In Refrigerator

Part name	How to do	Descriptive Picture
Evaporator Cover In Refrigerator	**1. Remove the angle cap with a flat-blade screwdriver. (Refer to the picture)** CAUTION **Be careful not to scratch or break the parts**	
	2. Unscrew 4 screws.	
	3. Remove the the lower part of angle mid by pulling it out and pushing it down. (Refer to the picture)	

3-17. Evaporator Cover In Refrigerator

Part name	How to do	Descriptive Picture
Evaporator Cover In Refrigerator	**4. Remove the hook by pulling it from the lower part and pushing the cover down. (Refer to the picture)**	
	5. Disconnect the 2 housing connectors. (Refer to the picture)	

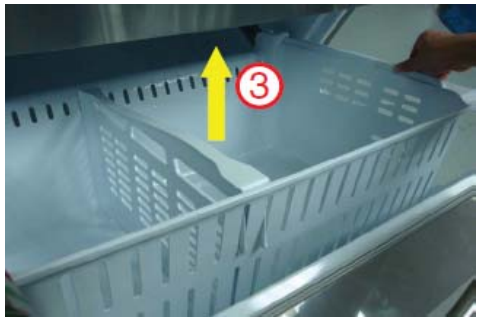
3-18. Evaporator In Refrigerator

Part name	How to do	Descriptive Picture
Evaporator In Refrigerator	**1. Remove the housing cover by pushing both lateral sides of the housing cover(1) and pulling it out. (Refer to the picture)**	 

3-18. Evaporator In Refrigerator

Part name	How to do	Descriptive Picture
Evaporator In Refrigerator	**2. Disconnect the housing connector 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)	

3-19. Freezer Door

Part name	How to do	Descriptive Picture
Freezer Door	1. Pull the drawer open to full extension.	
	2. Remove the brackets(①) by pulling the them outside after separate the tilting Pocket (②).	
	3. Take out the lower basket(③) by lifting the basket up from rail system.	

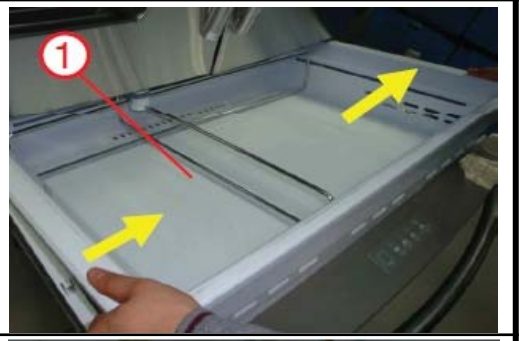
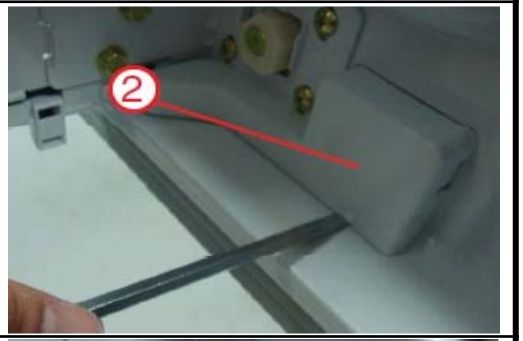
3-19. Freezer Door

Part name	How to do	Descriptive Picture
Freezer Door	**4. Unscrew 4 bolts.** **(2 bolts each on the both sides)**	
	5. Lifting up the freezer door, remove the freezer door from the rail.	
	6. Press the both side hooks with flat-blade(-) screw driver. (Refer to picture)	

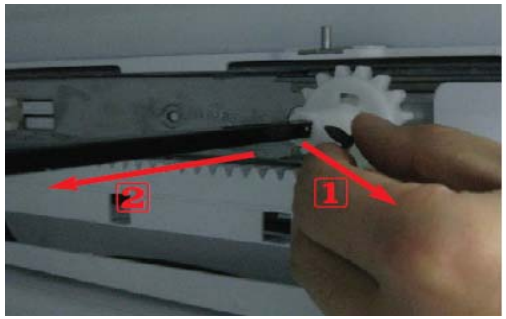
3-19. Freezer Door

Part name	How to do	Descriptive Picture
Freezer Door	**7. Remove the Freezer Rail by pulling it.**	

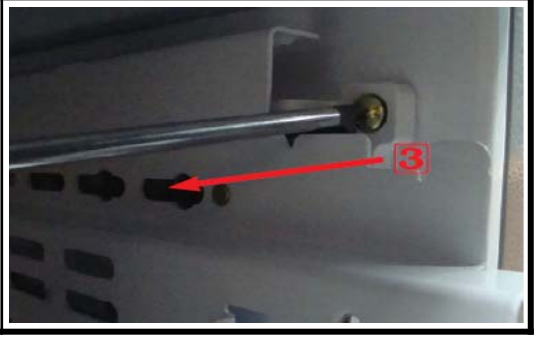
3-20. Convertible Door

Part name	How to do	Descriptive Picture
Mid drawer	1. Pull the and remove the convertible room (②) by pulling it to your body with both hands. open to full extension.	
	2. Remove the cover housing (②) by a flat-blade screwdriver.	
	3. Disengage the housing (lamp).	

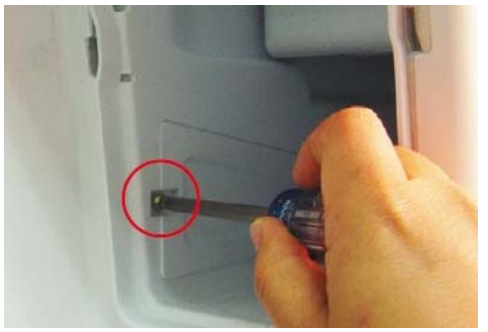
3-20. Convertible Door

Part name	How to do	Descriptive Picture
Mid drawer	**4. Unscrew 4 bolts.** **(2 bolts each on the both sides)**	
	5. Lifting up the convertible door. **remove the convertible door from the rail.**	
	6. Remove the shaft gear(2) by pull the pin(2) out.	

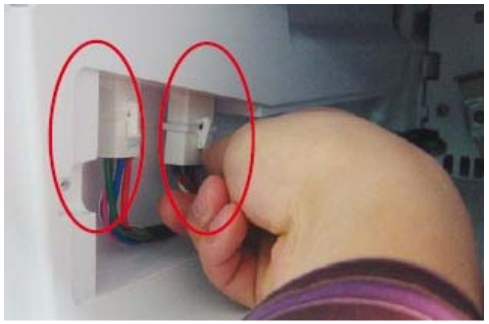
3-20. Convertible Door

Part name	How to do	Descriptive Picture
Mid drawer	**7. Remove the screw and pull out The rail.**	

3-21. Ice-Maker

Part name	How to do	Descriptive Picture
Ice-Maker	**1. Pull the lever forward and take out the ice bucket.**	
	2. Remove 1 screw of the Cover.	
	3. Disassemble the cover with a flat-blade(-) screwdriver and pull it out.	

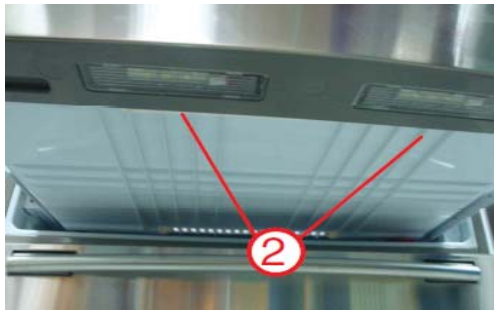
3-21. Ice-Maker

Part name	How to do	Descriptive Picture
Ice-Maker	**4. Disengage the 2 housing connectors.**	
	5. Push the hook and pull the Ice-Maker out.	
	6. To disassemble, push the tab and pull the case-auger and the motor out.	

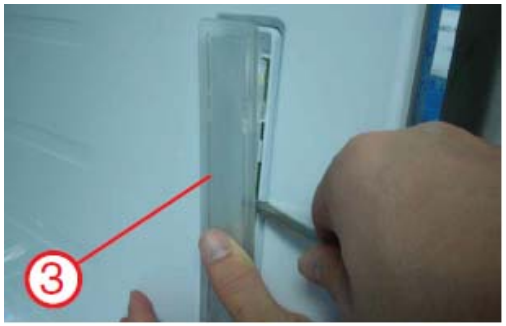
3-22. Convertible Light

Part name	How to do	Descriptive Picture
Freezer Light	1. Remove the cover Convertible lamp(①) by a flat-blade screwdriver.	
	2. Disengage the housing.	

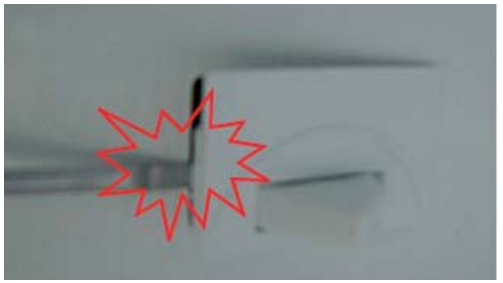
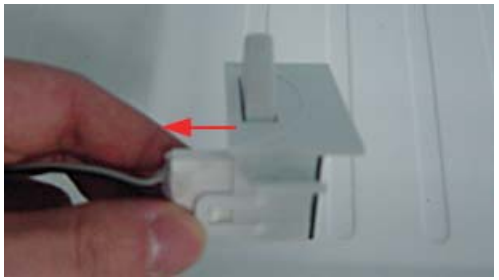
3-23. Freezer Light

Part name	How to do	Descriptive Picture
Door Switch In Freezer	1. Remove the cover Freezer lamp(②)like the way disassembling the Convertible lamp.	
	2. Disengage the housing.	

3-24. Side Light

Part name	How to do	Descriptive Picture
Freezer Light	1. Remove the cover Side lamp(③) by a flat-blade screwdriver.	
	2. Separate the Side lamp from the case.	
	3. Disengage the housing.	

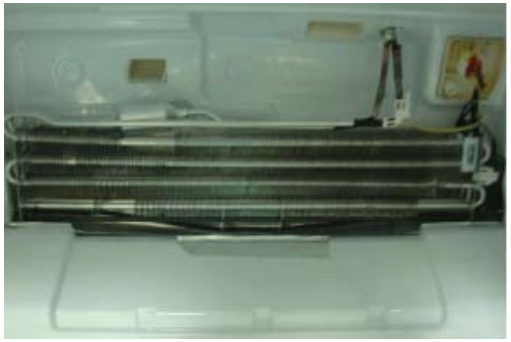
3-25. Door Switch In Freezer

Part name	How to do	Descriptive Picture
Door Switch In Freezer	1. Remove the freezer drawer bin by using a flat-blade(-) screwdriver.(Refer to the picture)	
	2. Disconnect the housing connector part.	

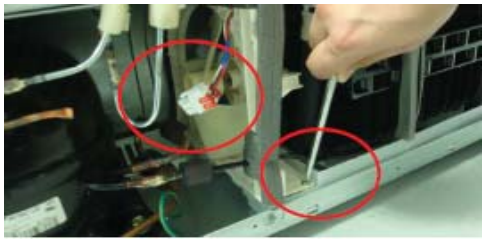
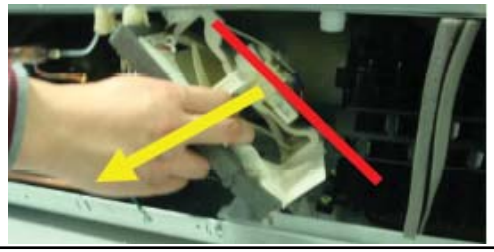
3-26. Evaporator Cover In Freezer

Part name	How to do	Descriptive Picture
Evaporator Cover In Freezer	1. Remove the freezer door and freezer drawer bin 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.	

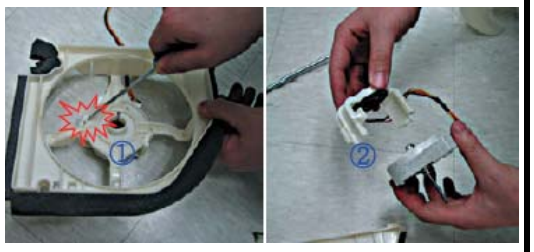
3-27. Evaporator In Freezer

Part name	How to do	Descriptive Picture
Evaporator In Freezer	1. Remove the housing cover by pushing both lateral sides of housing cover part and pulling it out. Remove the housing connector part.	
	2. Remove the evaporator by pulling the lower part of the evaporator while lifting it up.	

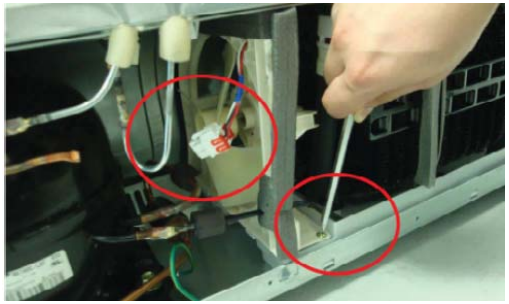
3-28. Machine Compartment

Part name	How to do	Descriptive Picture
Motor Fan	1. Unscrew 6 screws of cover compressor.	
	2. Remove 1 screw and disengae the housing connector. (Refer to the picture)	
	3. Remove the hooker of support circuit motor by lifting the hooker up and pulling it out.	
	4. Remove the screw with a flatblade screwdriver. (Refer to the picture)	

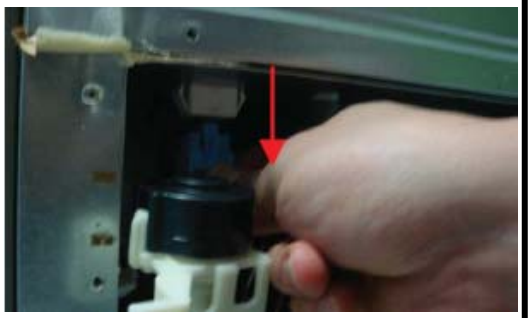
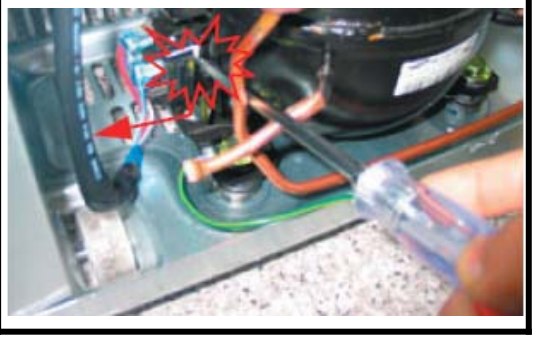
3-28. Machine Compartment

Part name	How to do	Descriptive Picture
Motor Fan	**5. Remove the motor fan by pulling the fan out while graping the motor part. (Refer to the picture)**	
	6. Unscrew 2 screws fixed in the motor.	
	7. Remove the hook of the motor cover with a flat-blade (-) screwdriver and then remove the motor.	

3-28. Machine Compartment

Part name	How to do	Descriptive Picture
Step Valve	**1. Unscrew 1 screw fixed on left.**	
	2. Disengage the housing connector.	

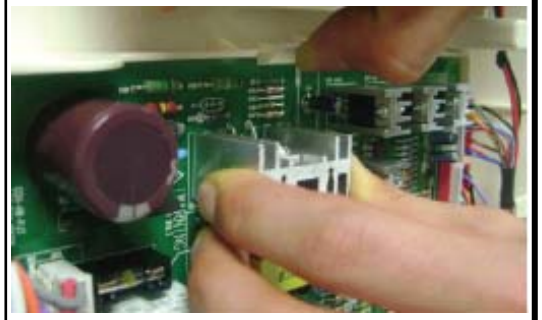
3-28. Machine Compartment

Part name	How to do	Descriptive Picture
Relay O/L	**1. Disengage the housing connector.**	
	2. Remove Cover Relay.	
	3. Remove the relay O/L with a flat-blade screwdriver. (Refer to the picture)	

3-29. Electric Box

Part name	How to do	Descriptive Picture
PBA Main	1. Unscrew 2 screws of the PCB cover.	
	2. Disengage all housing connectors from the main PCB.	
	3. Remove the main PCB by pushing the lower part of the hook down.	

3-29. Electric Box

Part name	How to do	Descriptive Picture
PBA Main	**4. Unscrew 2 PCB fixing screws.**	
	5. Remove the main PCB by lifting the upper part of the hook up. (Refer to the picture)	

3-29. Electric Box

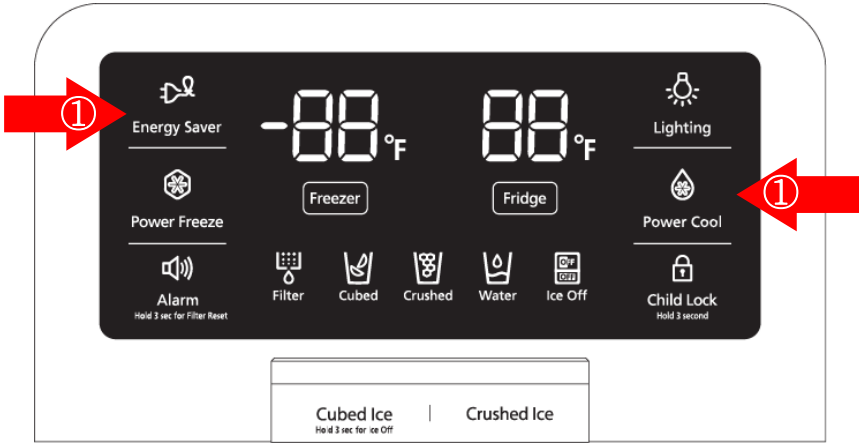
Part name	How to do	Descriptive Picture
PBA SMPS	**1. Remove the SMCS PCB by lifting the upper part of the hook up.**	

4-1. Function for failure diagnosis

4-1-1. Test mode (manual operation / manual defrost function)

- If Energy Saver Key + Power Cool Key on the front of panel are pressed simultaneously for 8 seconds , it will be changed to the test mode and all displays on the front of panel will be off.
- If any key on the front of panel is pressed within 15 seconds after the test mode, it will be operated as below sequence :
  Manual operation1(FF 1) Manual operation2(FF 2) Manual operation3(FF 3) -> manual defrost of fresh food and freezer compartments(fd) -> cancel(Display all off)
- If any key on the front of panel is not pressed within 15 seconds after the test mode, the test mode will be canceled and it will be returned to previous mode.

1) Manual operation function



① Energy Saver Key + Power Cool Key are pressed simultaneously for 8 seconds,
(displays are all off) It will be changed to the test mode (manual operation) by pressing any key

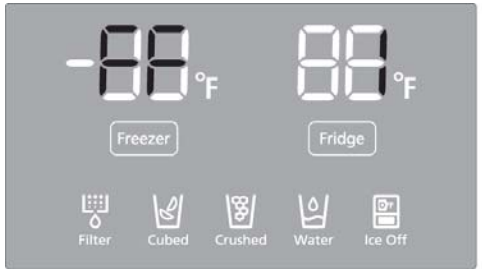
4-1. Function for failure diagnosis

1-1) If any key is pressed once in test mode, blinks "FF-1" on the display and it indicates the refrigerator has entered the manual operation. At this moment, buzzer beeps as an alarm.

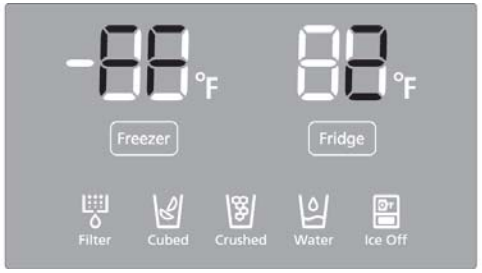
1-2) If any key is pressed once at the manual operation1 status, FF-2 will be displayed. And if any key is pressed one more time, FF-3 will be displayed. FF-2 and FF-3 means manual operation2 and 3 separately. These 3 functions operate with different RPM of COMP.

1-3) If manual operation 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 manual operation will begin. (Be careful if manual operation get started at the moment of compressor off, over load could be occurred.)

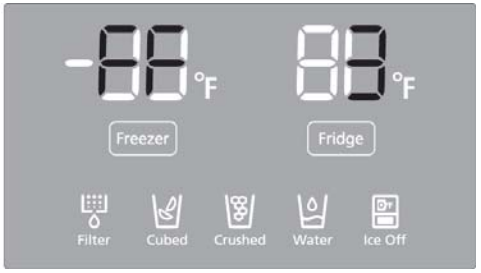
Compulsion working 1 : 3600RPM



Compulsion working 2 : 2450RPM



Compulsion working 3: 2200RPM



4-1. Function for failure diagnosis

1-4) If manual operation works, compressor & f-fan operate continuously for 24 hours and fresh food compartment will be controlled by the setting temperature.

1-5) When the manual operation runs, setting temperature will be selected automatically as below: freezer compartment -8℉(-22℃), fresh food compartment 32℉(1℃).

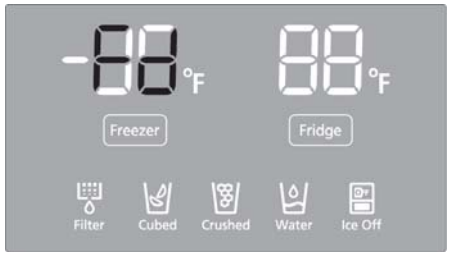
1-6) During manual operation, Power Freeze & Power Cool function will not be worked.
If a function is selected, the power function icon of the selected function will be off automatically after 10 seconds.

1-7) Manual operation can be canceled by turning on the appliance after power off(reset) or choosing the step 3) test cancel mode.

1-8) Alarm(0.25 sec ON/ 0.75 sec OFF) will beep continuously until manual operation is completed and there is no function to make the sound stop.

4-1. Function for failure diagnosis

2) Simultaneous manual defrost(fresh food and freezer compartments) function



2-1) If any key is pressed one more time during manual operation(Fresh food and freezerpartment), "Fd“ shows in the display and then manual operation will be canceled at once and fresh food compartment will be defrosted.

2-2) At this moment, alarm beeps for 3 seconds (0.1 sec ON/ 1 sec OFF) during manual defrost function of fresh food and freezer compartment.

3) Test cancel mode

3-1) During the simultaneous defrosting of fresh food and freezer compartments simultaneously, if the display panel change to the test mode and test button is pressed one more time, defrosting of fresh food and freezer compartments will be canceled at the same time and will return to the normal operation.

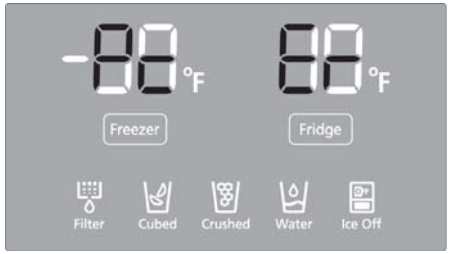
Or, all test functions will be canceled by turning main power ON and OFF.

4-1. Function for failure diagnosis

4-1-2. Display function of Communication error

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

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



1-2) “Pc - E” display on the display panel will be ON/OFF alternately until the communication error is canceled. (0.5 sec ALL ON, 1.5 sec ALL OFF alternately)

2) Display function when Panel ↔ MAIN MICOM OPTION has error

2-1) ”OP - Er” code is repeatedly ON/OFF until Option error settles down.

4-1. Function for failure diagnosis

4-1-3. Self-diagnostic function

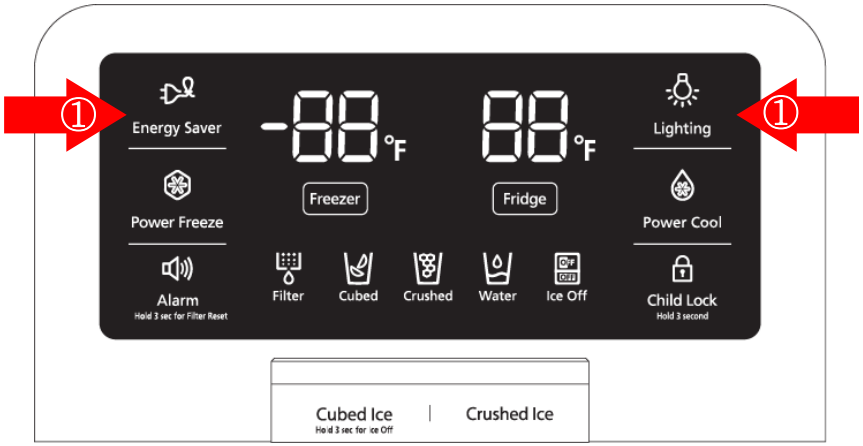
1) Self-diagnostic function in the Initial power ON

1-1) Micom operates self-diagnostic function to check the temperature sensor condition within 1 second when the refrigerator turned On initially.

1-2) If bad sensor is detected by the self-diagnostic function, the applicable display LED will blink for 0.5sec. At this moment, there is no beep sound.(Refer to self-diagnostic CHECK LIST)

1-3) Self-diagnostic button is recognized only when the error is displayed by the bad sensor. Display does not operate normally but temperature control will be controlled by the emergency operation.

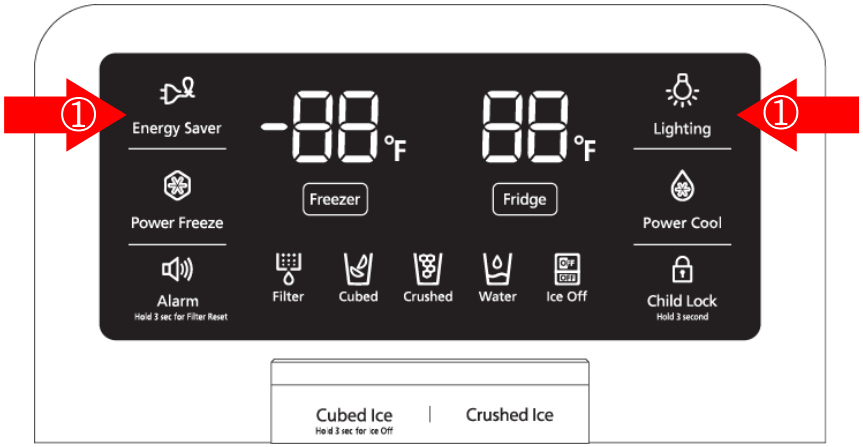
1-4) When the error is detected by self-diagnosis, the error can be canceled automatically if all troubled sensors are corrected or Self-diagnostic function key (Energy Saver Key + Lighting Key) are pressed simultaneously for 8 seconds. (Return to normal display mode)



① If Energy Saver Key + Lighting Key are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

4-1. Function for failure diagnosis

2) Self-diagnostic function during normal operation



① If Energy Saver Key + Lighting Key are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

2-1) If Energy Saver Key + Lighting Key are pressed simultaneously for 6 seconds during normal operation, the temperature setting display will operate for 2 seconds (ON/OFF 0.5sec each).
If Energy Saver Key + Lighting Key are pressed simultaneously for 8 seconds (including above 2 seconds), self-diagnostic function will be selected.

2-2) At this moment, self-diagnostic function will be returned with buzzer sound 'ding-dong'.
If there is an error, display of error will be operated for 30 seconds and then return to normal condition whether problem is corrected or not. (Refer to self-diagnosis CHECK LIST)

2-3) Input by button is not accepted during self-diagnostic function.

4-1. Function for failure diagnosis

*** Self-diagnosis CHECK LIST**

Display		Trouble item	Trouble contents
F	R		
		FZ-Sensor Error	Senser system in FZ compartment errors
		FF-Sensor Error	Sensor system in FF compartment errors
		FZ-DEF-Sensor Error	Defrost Sensor system in FZ compartment errors
		FF-DEF-Sensor Error	Defrost Sensor system in FF compartment errors
		Ambient-Sensor Error	Snesor external system errors
		Flex room Error	Sensor system in Pantry Room compartment errors
		I/M-Sensor Error(R)	Sensor system in ICE maker(R) errors
		HUMIDITY-Sensor Error	Sensor system in Humidity Sensor error
		I/M-Sensor Error(FF)	Sensor system in Ice maker(FF) errors
		ICE ROOM-SENSOR ERROR	Sensor system in Ice Room errors
		FZ-FAN Error	Fan motor system in FZ compartment errors

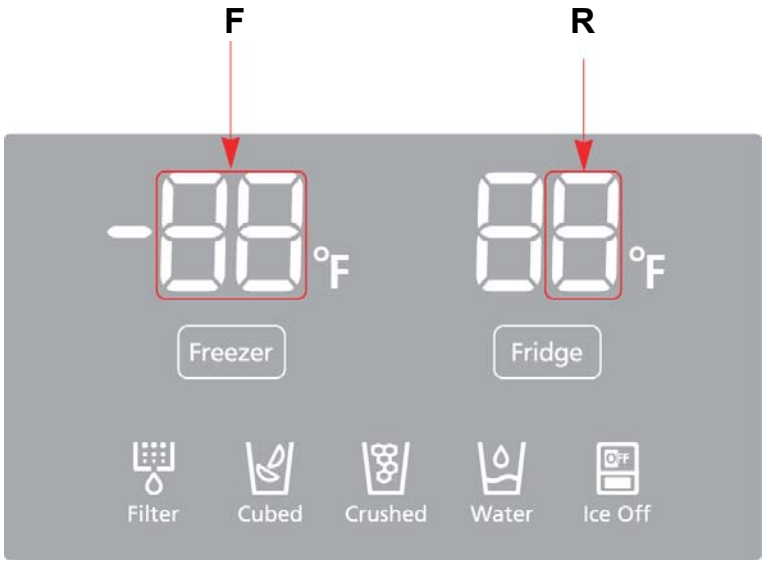
4-1. Function for failure diagnosis

*** Self-diagnosis CHECK LIST**

Display		Trouble item	Trouble contents
F	R		
22		FZ-DEF-HEATER ERROR	DEFROST SYSTEM IN FZ COMPARTMENT ERRORS
23		FF-DEF-HEATER ERROR	DEFROST SYSTEM IN FF COMPARTMENT ERRORS
24		ICE/MAKER FUNCTION ERROR	ICE MAKER IN FZ FUNCTION ERRORS
25		FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE
26		ICE/MAKER FUNCTION ERROR(FZ)	ICE MAKER IN FZ FUNCTION ERRORS
27	26	FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE
33		ICE PIPE HEATER ERROR(FZ)	ICE PIPE HEATER IN FZ COMPARTMENT ERRORS
39		ICE MAKER FUNCTION ERROR(FF)	SENSOR SYSTEM IN HUMIDITY SENSOR ERRORS
40		ICE ROOM-FAN ERROR	FAN MOTOR SYSTEM IN ICE ROOM ERRORS
41		PANEL ↔ MAIN MICOM COMMUNICATION ERROR	PANEL ↔ MAIN MICOM COMMUNICATION ERRORS
61		ICE DUCT-HEATER ERROR(FF)	HEATER SYSTEM IN ICE DUCT(FF) ERRORS

4-1. Function for failure diagnosis

*** Self-diagnosis CHECK LIST**



4-1. Function for failure diagnosis

*** Self-diagnosis check list**

LED		Item	Trouble contents	Diagnostic method
F	R			
		FZ-Sensor Error	Display error : separation of sensor housing part, contact error, disconnection, short circuit. Display error of detecting temperature of sensor : more than 149。F(+65℃) or less than -58。F(-50℃)	The voltage of MAIN PCB CN30- “3”↔N76-”1”: shall be between 4.5V~1.0V
		FF-Sensor Error		The voltage of MAIN PCB CN30- “6”↔N76-”1”: shall be between 4.5V~1.0V
		FZ-DEF-Sensor Error		The voltage of MAIN PCB CN30- “5”↔N76-”1”: shall be between 4.5V~1.0V
		FF-DEF-Sensor Error		The voltage of MAIN PCB CN30- “8”↔N76-”1”: shall be between 4.5V~1.0V
		Ambient-Sensor Error		The voltage of MAIN PCB CN78- “8”↔N78-”12”: shall be between 4.5V~1.0V
		Flex room-Sensor Error		The voltage of MAIN PCB CN78- “9”↔N76-”1”: shall be between 4.5V~1.0V
		Humidity-Sensor Error	Separation of sensor housing part, contact error, disconnection, short circuit	The voltage of MAIN PCB CN30- “1”↔N30-”7”: shall be between 4.5V~1.0V
		Ice Maker(FF) Sensor Error	Display error : separation of sensor housing part, contact error, disconnection, short circuit.	The voltage of MAIN PCB CN90- “1”↔N90-”7”: shall be between 4.5V~1.0V
		Ice Room Sensor Error	Display error of detecting temperature of sensor : more than 149 ∮ µ(+65℃) or less than -58。F(-50℃)	The voltage of MAIN PCB CN78-“10”↔N78-”1”: shall be between 4.5V~1.0V

4-1. Function for failure diagnosis

*** Self-diagnosis check list**

LED		Item	Trouble contents	Diagnostic method
F	R			
21	8E	FZ-FAN Error	Display error during operation of applicable fan motor : Feed back signal line contact error, motor wire separation, motor error	The voltage of MAIN PCB CN76-“3”(Yellow)↔ CN76-”1”(Gray): shall be between 7V~12V
22		FF-FAN Error		The voltage of MAIN PCB CN76-“4”(Orange)↔ CN76-”1”(Gray): shall be between 7V~12V
23		C-FAN Error		The voltage of MAIN PCB CN76- “5”(Sky-blue)↔ CN76-”1”(Gray): shall be between 7V~12V
24		FZ-DEF Error	Separation of freezer compartment defrost heater housing part, contact error, disconnection, short circuit or temperature fuse error. Display error : the defrosting does not finish though fresh food compartment defrost is heating continuously for more than 70 minutes.	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 Brown ↔ CN70 Gray shall be 63(230) ohm± 7%.(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)
25		FF-DEF Error	Separation of freezer compartment defrost heater housing part, contact error, disconnection, short circuit or temperature fuse error. Display error : the defrosting does not finish though fresh food compartment defrost is heating continuously for more than 80 minutes.	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 White ↔ CN70 Gray shall be 120(440) ohm± 7%.(Resistanc e value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)

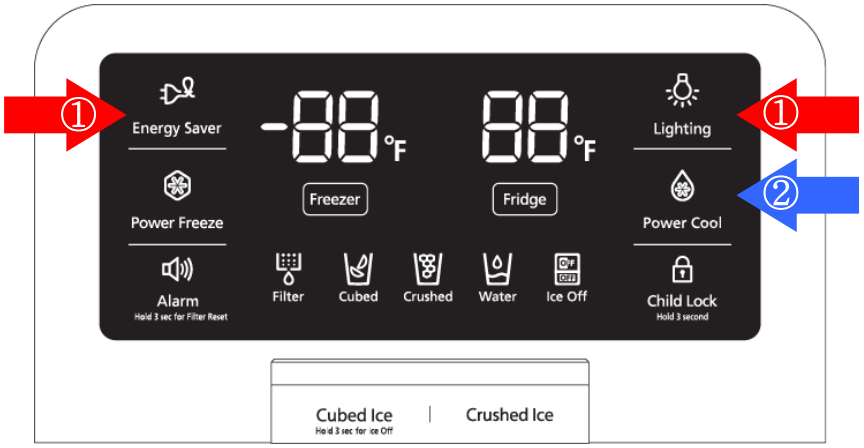
4-1. Function for failure diagnosis

*** Self-diagnosis check list**

LED		Item	Trouble contents	Diagnostic method
F	R			
29		Flex Zone-Damper-Heater Error	Display error when open error is detected by damper heater : separation of Damper Heater housing part, contact error, disconnection, short circuit	After separating MAIN PCB CN77 wire from PCB, resistance value between Black ↔ Brown wire shall be 135 ohm± 7%. 0 ohm : heater short, ∞ Ohm : wire / bimetal Open.
39		Ice Maker(FF) Function Error	Display error when open error is detected by Heater : separation of Ice Pipe Heater housing part, contact error, disconnection, short circuit.	After changing the Ice Maker(R), plug the refrigerator power code again, and check the operation.
40		Ice Room-FAN Error	Display error when the Ice Maker(FZ) kit operate moving ice over 3 times or it is not leveled.	The voltage of MAIN PCB CN76-"2"(Black) ↔ CN76-"1" (Gray): shall be between 7V~12V
41		Panel↔IMain Communication Error	Display ¢A°Δ41 - E¢A°a in the panel with alarm : MICOM MAIN↔ PANEL communication error. OP-Er is displayed when the Option is not equivalent with the right value.	Actually, If there is not a problem, it is desirable to replace Main and Panel PCB With the oscilloscope after a cable problem confirming.
60		Ice Duck-Heater Error	Dispay error when open error is detected by Heater: separation of Water Tank Heater housing, contact error, disconnection, short circuit	After separating MAIN PCB CN51 and CN79 wires from PCB, the resistant value between CN79 Yellow ↔ CN51 Brown wire shall be 60 ohm ± 7%. 0 ohm : heater short, ∞ Ohm : wire / bimetal Open.

4-1. Function for failure diagnosis

4-1-4. Display function of Load condition



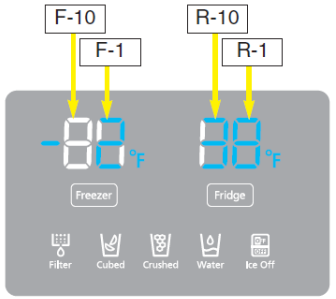
① If Energy Saver Key + Lighting key are pressed simultaneously for 6 seconds, ALL ON/OFF will blink with 0.5interval for 2 seconds. ② If take the finger off from above keys and press Power Cool Key, load condition mode will be started.

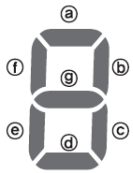
1) If Power Energy Saver Key + Lighting key are pressed simultaneously for 6 seconds during normal operation, the temperature setting display of fresh food and freezer compartments will blink ALL ON/OFF with 0.5 for 2 seconds.
2) At this moment, If Power Cool Key after Energy Saver Key + Lighting Key is pressed, load condition display mode will be returned with alarm.
3) Load condition display mode shows the load that micom signal is outputting.
   However, It means that micom signal is outputting, it does not mean whether load is operating or not.
   That is to say that though load operation is displayed, load could not be operated by actual load error or PCB relay error etc. (This function would be applied at A/S.)
4) Load condition display function will maintain for 30 seconds and then normal condition will be returned automatically.
5) Load condition display is as below. Only the load control LED will blink with 0.5interval in "Display LED"

4-1. Function for failure diagnosis

* Load mode Check list

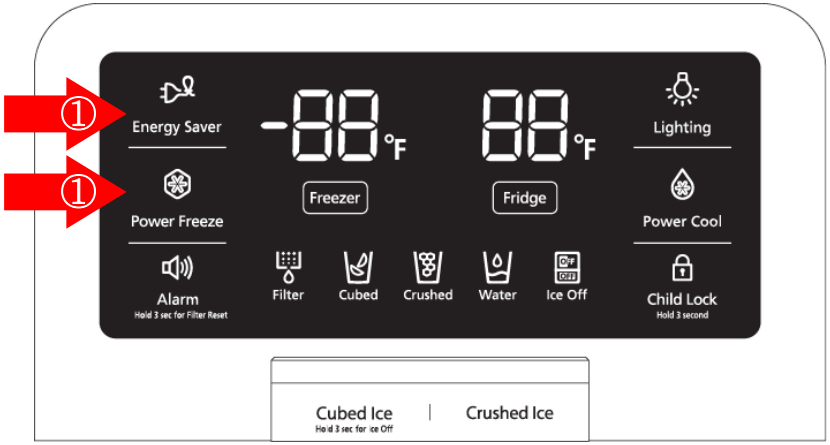
Display LED	Display contents	Operation contents
R-1-ⓐ	R-FAN High	When FF compartment FAN operates with high speed, applicable LED ON
R-1-ⓑ	R-FAN Low	When FF compartment FAN operates with low speed, applicable LED ON
R-1-ⓒ	R-DEF Heater	When FF compartment defrost heater operates, LED ON
R-1-ⓓ	Start Mode	When refrigerator is plugged initially, LED ON
R-1-ⓔ	Overload condition	When ambient temperature is more than 93℉(34℃), LED ON
R-1-ⓕ	Low temperature condition	When ambient temperature is less than 72℉(22℃), LED ON
F-1ⓔ,ⓕ ALL LED Off	Normal Condition	When ambient temperature is between 73℉(23℃) and 91℉(33℃)
R-1-ⓖ	Exhibition Mode	LED ON at the display mode.
F-1-ⓐ	COMP.	When COMP operates, applicable LED ON.
F-1-ⓑ	F-FAN High	When FZ compartment FAN operates with high speed, applicable LED ON
F-1-ⓒ	F-FAN Low	When FZ compartment FAN operates with low speed, applicable LED ON
F-1-ⓓ	F-DEF Heater	When FZ compartment defrost heater operates, LED ON
F-1-ⓔ	Mide Drawer Room	When Flex Zone FAN operates, LED ON
F-1-ⓖ	Dispenser Heater	When Dispenser Heater operates, applicable LED ON.
R-10-ⓐ	Mide Drawer Room Damper Open	When damper open, applicable LED ON
R-10-ⓑ	R-valve Open	When the R-valve operates LED ON
R-10-ⓔ	C-FAN High	When C-FAN operates with high speed, applicable LED ON
R-10-ⓕ	C-FAN Low	When C-FAN operates with low speed, applicable LED ON
F-10-ⓐ	Water Tank Heater	When Water Tank Heater operates, applicable LED ON.
F-10-ⓑ	F-valve Open	When the F-valve operates LED ON
F-10-ⓓ	Ice Room-FAN High	When Ice Room-FAN operates with high speed, applicable LED ON
F-10-ⓔ	Ice Room-FAN Low	When Ice Room-FAN operates with low speed, applicable LED ON
F-10-ⓖ	French Heater	When French Heater operates, applicable LED ON





4-1. Function for failure diagnosis

4-1-5. Exhibition mode setting function



① If Energy Saver Key + Power freeze Key are pressed for 3 seconds, Cooling Off mode will be started.

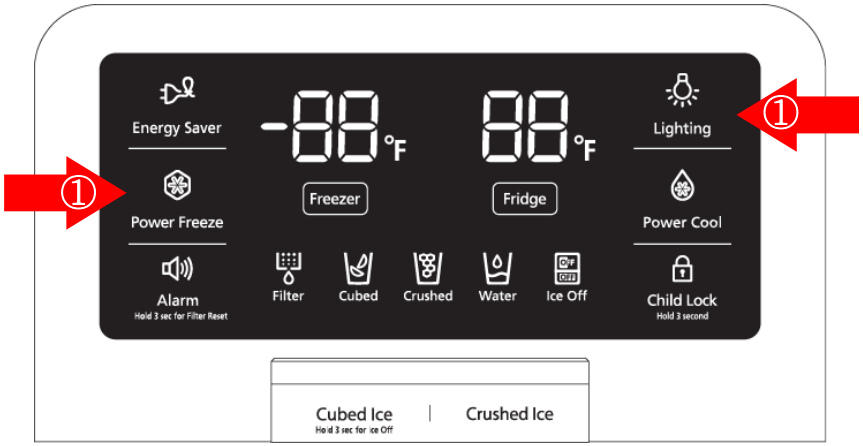
1) If Energy Saver Key + Power freeze are pressed simultaneously for 3 seconds during normal operation, Cooling Off mode will be started with buzzer sound(ding-dong).
2) If above Energy Saver Key + Power freeze Key are pressed one more time, Cooling Off mode will be canceled.
3) If Cooling Off mode is selected, blinks "OF-OF" on the temperature setting display of the panel and it indicates the refrigerator has entered the Cooling Off mode.
4) During Cooling Off mode, if fresh food and freezer compartments sensors are higher than 149℉(65℃) Cooling Off mode will be canceled automatically and freezing operation will be returned.
   (There is no buzzer sound when the Cooling Off mode is canceled by the temperature)
5) Operation contents of Cooling Off mode
   - Display, Fan motor and etc operate normally, not to operate compressor only.
   - Defrost is not operated. (including french heater)
   - Display function of the initial real temperature is finished.
   - Under the condition of Cooling Off mode, Cooling Off mode will be operated when Power On after Power OFF.

4-1. Function for failure diagnosis

4-1-6. Option setting function

- **If Power freeze Key + lighting Key are pressed simultaneously for 12 seconds during normal operation, fresh food and freezer compartments temperature display will be changed to option setting mode.**

KEY operation method for changing to option mode



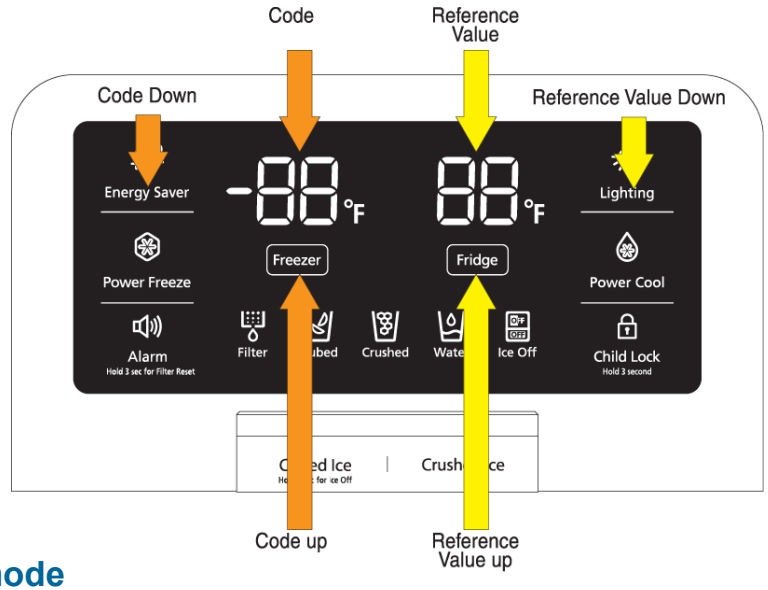
① If Freezer Key+ lighting Key are pressed simultaneously for 12 seconds, option setting mode will be started.

4-1. Function for failure diagnosis

4-1-6. Option setting function

- **If Power freeze Key + lighting Key are pressed simultaneously for 12 seconds during normal operation, fresh food and freezer compartments temperature display will be changed to option setting mode.**

KEY control method after converting to option mode

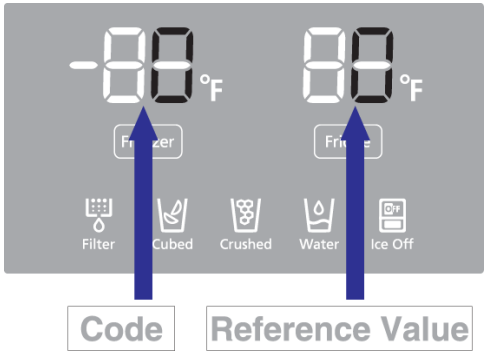


*** Key control in option mode**

Energy Saver Key	Code Down key
Freezer Key	Code Up key
Lighting key	Reference Value down key
Fridge key	Reference Value Up key

4-1. Function for failure diagnosis

- **If the display changes to option setting mode, all displays will be off except freezer and fridge compartments temperature display as below.**
  (Fresh food and freezer compartments case will be explained only because all options are operated with the same method according to the option table.)



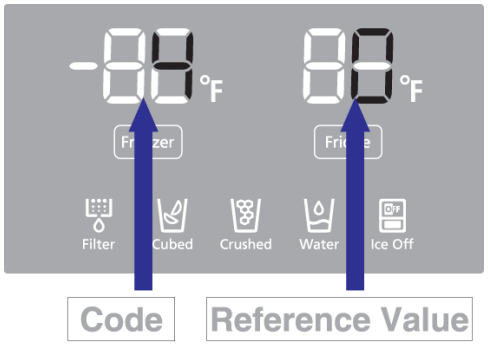
1) For example, if you want to change freezer compartment standard temperature to -4℉(-2℃) by operating option, do as below. This function is for changing the standard temperature.
In -2℉(-19℃) of current temperature of freezer compartment, if you make the temperature lower to -4℉ (-2℃) by the option, the standard temperature would be controlled -6℉(-21℃)
Therefore, if you change the setting of temperature option to -2℉(-19℃) on the panel, the appliance will be operated with -6℉(-21℃). It means that standard temperature is controlled -4℉(-2℃) less than setting temperature in the display.

Note **Basically, all the data in option has cleared from the factory.**
Therefore, almost all setting value are "0".
But, some setting values could be changed for the purpose of improving performmance.
You need to check the product manual and/or specification.

4-1. Function for failure diagnosis

2) After changing to the option mode, fresh food compartment "0" , freezer compartment "0" will be displayed.
(Basically fresh food compartment "0", freezer "0" would be set at shipping process, but setting value could be changed for the purpose of improving product at mass producing process.)
- If fresh food compartment "0" shows only, temperature reference value of freezer compartment will be set and current freezer compartment temperature code will be displayed on the freezer temperature display.

3) If freezer compartment "4" is set as below freezer compartment code after fresh food compartment "0 is set, standard temperature of freezer compartment will be lower than -4℉(-2.0℃).
(Refer to the picture "changing the freezer compartment temperature")



: If you wait for 20 seconds after completing the setting, MICOM will save the setting value to the EEPROM and normal display will be returned and the option setting mode will be canceled.

4-1. Function for failure diagnosis

4) Option changing method as above is the same as all RF4287***** model.

5) By the same method as above, it is possible to control the fresh food compartment temperature, water supply, ice-maker harvest temperature/time, defrost return time, hysteresis by temperature, notch gap by temperature etc.

6) Option function is set in the EEPROM at shipping process in the factory.
You would better not to change the option of your own.
Completing the setting is that option function return to normal display after 20 seconds.
Do not turn off the appliance before returning to the normal display mode.

Note Option setting function exists in the other items.
We will skip the explanation of the other functions by the option because it is associated with refrigerator control function and is not needed at SERVICE.
(Please do not set the other options except above SERVICE Manual.)

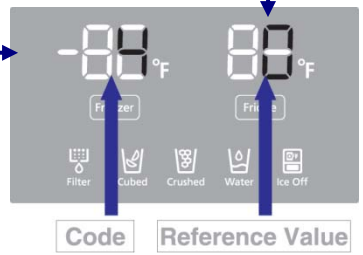
4-1. Function for failure diagnosis

4-1-7. Option TABLE

1) Temperature changing table of freezer compartment

Set item	Freezer Temp Shift
MODEL	RF4287***
Reference Value	Fridge Room 7-SEG
	0

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



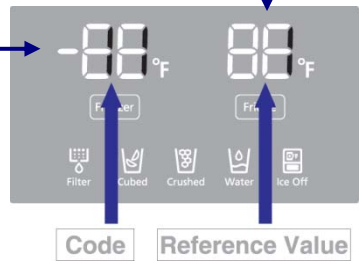
ex) If you want to change the freezer standard temperature to -4℉(-2℃)

2) Temperature changing table of fresh food compartment

Set item	Freezer Temp Shift
MODEL	RF4287***
Reference Value	Fridge Room 7-SEG
	1

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

ex) If you want to change the freezer compartment standard temperature to 4℉(2℃)



4-2. Diagnostic method according to the trouble symptom (Flow Chart)

DATA1.Temperature table
Resistance value and MICOM port voltage of sensor according to the temperature
SENSOR CHIP : based on PX41C, PX41C, 502AT/ 103(ICE MAKER SENSOR(MOLD)/FULL UP, 20Kohm**
(Actual measurement = value of the table below X 2)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
-50	-58	4.694	153319	-36	-32.8	4.385	71246
-49	-56.2	4.677	144794	-35	-31	4.356	67634
-48	-54.4	4.659	136798	-34	-29.2	4.326	64227
-47	-52.6	4.641	129294	-33	-27.4	4.296	61012
-46	-50.8	4.622	122248	-32	-25.6	4.264	57977
-45	-49	4.602	115631	-31	-23.8	4.232	55112
-44	-47.2	4.581	109413	-30	-22	4.199	52406
-43	-45.4	4.560	103569	-29	-20.2	4.165	49848
-42	-43.6	4.537	98073	-28	-18.4	4.129	47431
-41	-41.8	4.514	92903	-27	-16.6	4.093	45146
-40	-40	4.490	88037	-26	-14.8	4.056	42984
-39	-38.2	4.465	83456	-25	-13	4.018	40938
-38	-36.4	4.439	79142	-24	-11.2	3.980	39002
-37	-34.6	4.412	75077	-23	-9.4	3.940	37169

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
-22	-7.6	3.899	35433	-5	23	3.107	16419
-21	-5.8	3.858	33788	-4	24.8	3.057	15731
-20	-4	3.816	32230	-3	26.6	3.006	15076
-19	-2.2	3.773	30752	-2	28.4	2.955	14452
-18	-0.4	3.729	29350	-1	30.2	2.904	13857
-17	1.4	3.685	28021	0	32	2.853	13290
-16	3.2	3.640	26760	1	33.8	2.802	12749
-15	5	3.594	25562	2	35.6	2.751	12233
-14	6.8	3.548	24425	3	37.4	2.700	11741
-13	8.6	3.501	23345	4	39.2	2.649	11271
-12	10.4	3.453	22320	5	41	2.599	10823
-11	12.2	3.405	21345	6	42.8	2.548	10395
-10	14	3.356	20418	7	44.6	2.498	9986
-9	15.8	3.307	19537	8	46.4	2.449	9596
-8	17.6	3.258	18698	9	48.2	2.399	9223
-7	19.4	3.208	17901	10	50	2.350	8867
-6	21.2	3.158	17142	11	51.8	2.301	8526

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
12	53.6	2.253	8200	29	84.2	1.520	4369
13	55.4	2.205	7888	30	86	1.483	4218
14	57.2	2.158	7590	31	87.8	1.447	4072
15	59	2.111	7305	32	89.6	1.412	3933
16	60.8	2.064	7032	33	91.4	1.377	3799
17	62.6	2.019	6771	34	93.2	1.343	3670
18	64.4	1.974	6521	35	95	1.309	3547
19	66.2	1.929	6281	36	96.8	1.277	3428
20	68	1.885	6052	37	98.6	1.253	3344
21	69.8	1.842	5832	38	100.4	1.213	3204
22	71.6	1.799	5621	39	102.2	1.183	3098
23	73.4	1.757	5419	40	104	1.153	2997
24	75.2	1.716	5225	41	105.8	1.124	2899
25	77	1.675	5039	42	107.6	1.095	2805
26	78.8	1.636	4861	43	109.4	1.068	2714
27	80.6	1.596	4690	44	111.2	1.040	2627
28	82.4	1.558	4526	45	113	1.014	2543

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
46	114.8	0.988	2462	66	150.8	0.598	1335
47	116.6	0.963	2384	67	152.6	0.574	1297
48	118.4	0.938	2309	68	154.4	0.560	1260
49	120.2	0.914	2237	69	156.2	0.546	1225
50	122	0.891	2167	70	158	0.532	1190
51	123.8	0.868	2100	71	159.8	0.519	1157
52	125.6	0.846	2036	72	161.6	0.506	1125
53	127.4	0.824	1973	73	163.4	0.493	1093
54	129.2	0.803	1913	74	165.2	0.481	1063
55	131	0.783	1855	75	167	0.469	1034
56	132.8	0.762	1799	76	168.8	0.457	1006
57	134.6	0.743	1745	77	170.6	0.446	978
58	136.4	0.724	1693	78	172.4	0.435	952
59	138.2	0.706	1642	79	174.2	0.424	926
60	140	0.688	1594	80	176	0.414	902
61	141.8	0.670	1547	81	177.8	0.404	877
62	143.6	0.653	1502	82	179.6	0.394	854
63	145.4	0.636	1458	83	181.4	0.384	832
64	147.2	0.620	1416	84	183.2	0.375	810
65	149	0.604	1375				

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

DATA2. Humidity Sensor table

- Voltage output table @23°…, 5Vdc --- HTG3515CH/HTG3535CH

RH(Temperature compensate) = RH (Relative Humidity) + (Temp(°C) °c 23°C) x 0.05

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
0	909	186	744	14	1359	278	1113
1	943	193	772	15	1390	284	1138
2	977	200	800	16	1420	291	1163
3	1010	207	827	17	1450	297	1188
4	1043	213	854	18	1480	303	1212
5	1076	220	881	19	1510	309	1237
6	1109	227	908	20	1540	315	1261
7	1141	233	935	21	1569	321	1285
8	1173	240	961	22	1598	327	1309
9	1205	247	987	23	1627	333	1333
10	1235	253	1011	24	1656	339	1356
11	1266	259	1037	25	1685	345	1380
12	1297	265	1062	26	1713	350	1403
13	1328	272	1088	27	1741	356	1426

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
28	1769	362	1449	48	2298	470	1882
29	1797	368	1472	49	2324	475	1903
30	1825	373	1495	50	2350	481	1925
31	1852	379	1517	51	2376	486	1946
32	1879	384	1539	52	2402	491	1967
33	1906	390	1561	53	2428	497	1989
34	1933	395	1583	54	2454	502	2010
35	1960	401	1605	55	2480	507	2031
36	1986	406	1627	56	2505	513	2052
37	2012	412	1648	57	2530	518	2072
38	2038	417	1669	58	2555	523	2093
39	2064	422	1690	59	2580	528	2113
40	2090	428	1712	60	2605	533	2133
41	2116	433	1733	61	2630	538	2154
42	2142	438	1754	62	2655	543	2174
43	2168	444	1776	63	2680	548	2195
44	2194	449	1797	64	2705	553	2215
45	2220	454	1818	65	2730	559	2236
46	2246	460	1839	66	2756	564	2257
47	2272	465	1861	67	2782	569	2278

4-2. Diagnostic method according to the trouble symptom (Flow Chart)

℃	℉	Voltage	Resistance	℃	℉	Voltage	Resistance
68	2808	575	2300	88	3344	684	2739
69	2834	580	2321	89	3372	690	2762
70	2860	585	2342	90	3400	696	2785
71	2886	590	2364	91	3426	701	2806
72	2912	596	2385	92	3452	706	2827
73	2938	601	2406	93	3478	712	2848
74	2964	606	2428	94	3504	717	2870
75	2990	612	2449	95	3530	722	2891
76	3017	617	2471	96	3566	730	2920
77	3044	623	2493	97	3595	735	2944
78	3071	628	2515	98	3624	741	2968
79	3098	634	2537	99	3653	747	2992
80	3125	639	2559	100	3683	754	3016
81	3152	645	2581				
82	3179	650	2604				
83	3206	656	2626				
84	3233	661	2648				
85	3260	667	2670				
86	3288	673	2693				
87	3316	678	2716				

5-1. 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.

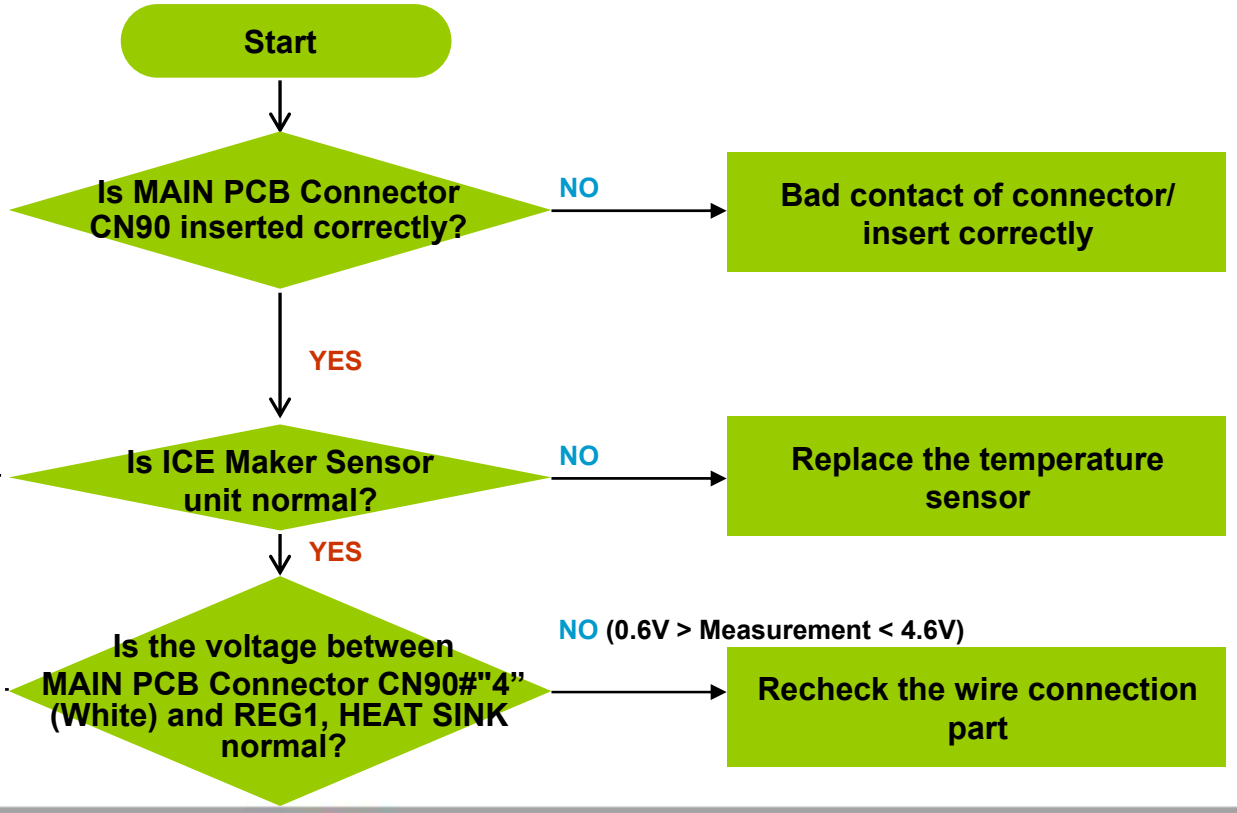
1) If ICE Maker(R) Sensor has troubled

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** ICE MAKER: CN90#1↔ #7 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
ICE Maker	Connector CN90# "±1"(Brown)and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #89, CN90# ”1” (Brown) and REG1, HEAT SINK from
PCB typical Ground part are similar.
→ Check the measure on the Resistance, R914due to the SMD MICOM

YES

Is input voltage of IC01 MICOM #78 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder.**

YES

No trouble with PCB and temperature sensor.
Recheck the bad contact of the connection.

☞ Checking method of ICE Maker Sensor resistance CN90 "1"(Brown) ↔ "7"(Gray)
- Compare the temperature table after the measure.

☞ Checking method of ICE Maker Sensor resistance
- Measure the Resistance R914(IC01 MICOM #89) on PCB or CN90 "1"(Brown) ↔ REG1, HEAT SINK
- Compare the temperature table after the measure.
  Measuring voltage of CN90#4(White) ↔ REG1, HEAT SINK are below.

typical PCB Ground
REG1 HEAT-SINK

5-1. If the trouble is detected by self-diagnosis

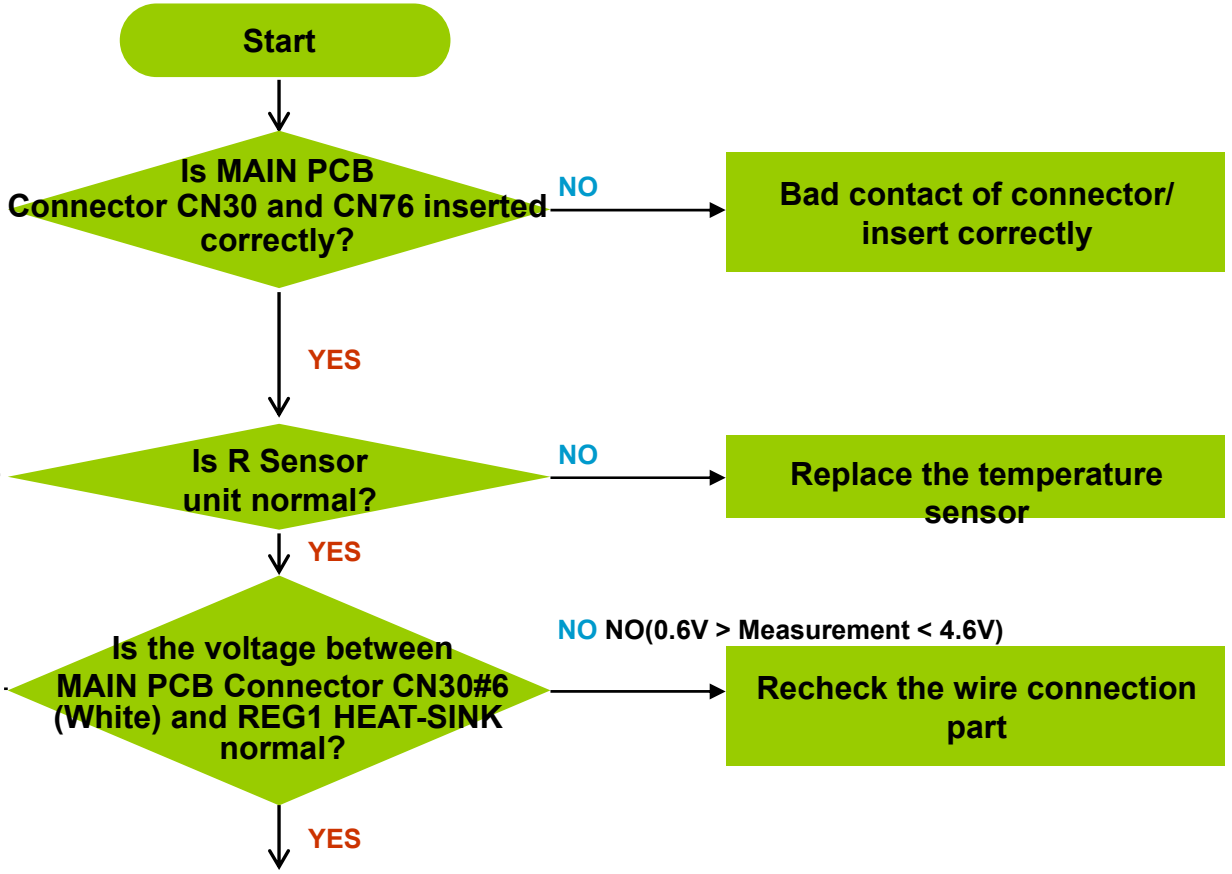
2) If R Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** R : CN30#6 ↔ CN76#1 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
R	Connector CN30#6(White) to REG1 HEAT-SINK PCB typical Ground
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage IC01 MICOM #76, CN30#6(White) and REG1, HEAT SINK from PCB typical Ground part are similar.

→ Check the measure on the Resistance, R311 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM #76 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder.**

YES

No trouble with PCB and temperature sensor.
Recheck the bad contact of the connection.

☞ Checking method of R Sensor resistance
CN30#6(White) ↔ CN76#1(Gray) Compare the temperature table after measurment..

☞ Checking method of R Sensor resistance

- Measure the voltage of Sensor Check Point #3(IC01 MICOM #76) on PCB or CN30#6(White) ↔ REG1, HEAT SINK
- Compare the temperature table after measurement. Measuring voltage of CN30#6(White) ↔REG1, HEAT SINK are as below.

Typical PCB Ground
REG1, HEAT SINK

5-1. If the trouble is detected by self-diagnosis

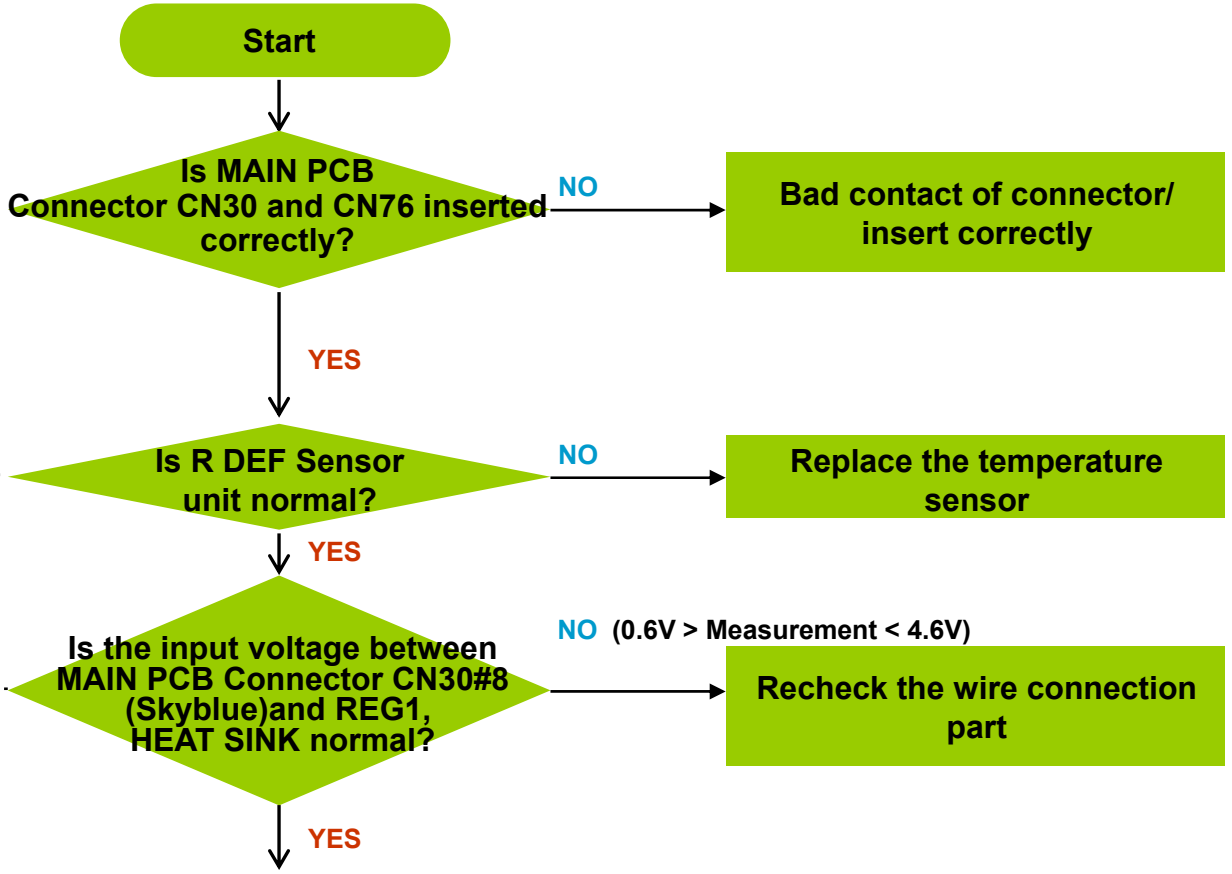
3) If R DEF Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** R-DEF : CN30#8 ↔ CN76#1 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector Number	
R DEF	**Connector CN30-"8"(Sky-blue) and REG1, HEAT SINK PCB common Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #78 CN30-"8"(Sky-blue) and REG1, HEAT SINK from PCB typical Ground part are similar.

→ Check the measure on the Resistance R313 due to the SMD MICOM

YES

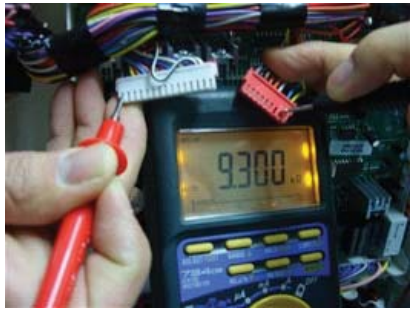
Is the input voltage of IC01 MICOM # 74 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder.**

YES

No trouble with PCB and temperature sensor.
Recheck the bad contact of the connection.

☞ Checking method of R Sensor resistance
CN30#8(Sky-blue) ↔ CN76#1(Gray)
- Compare the temperature table after measurement.



☞ Checking method of R DEF Sensor resistance
- Measure the resistance R313(IC01 MICOM #78) on PCB or CN30#8(Sky-blue)↔REG1, HEAT SINK
- Compare the temperature table after measurement.
  Measuring voltage of CN30#8(Sky-blue) ↔ REG1, HEAT SINK are as below.

Typical PCB Ground
REG1, HEAT SINK

5-1. If the trouble is detected by self-diagnosis

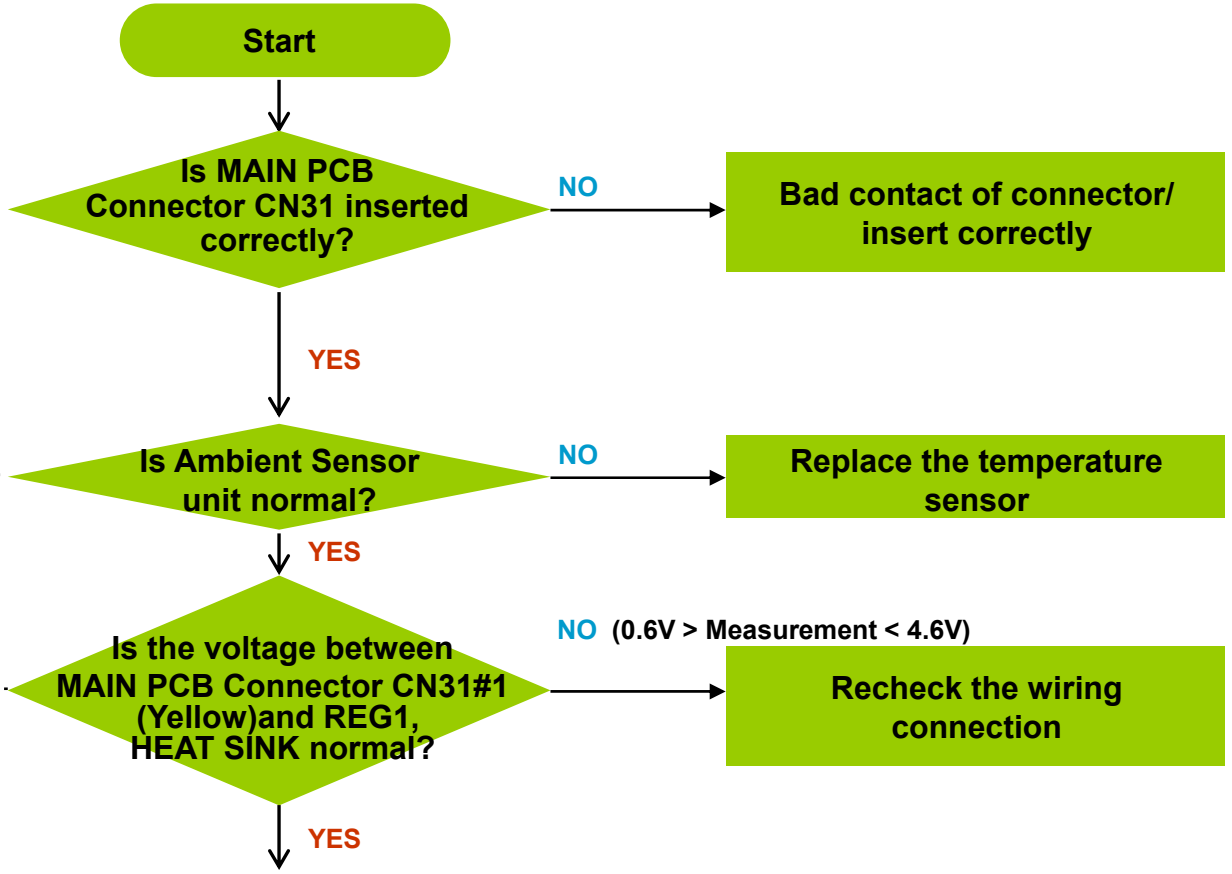
4) If Ambient Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor **
Ambient : CN78#8 ↔ #12 measuring resistance value
** Placed in the right top table of upper hinge.
** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
Ambient	**Connector CN78"8"(Yellow) to REG1, HEAT-SINK PCB typical Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM CN78-"8"(Yellow) and REG1, HEAT SINK from PCB typical Ground part are similar.

→ Check the measure on the Resistance, R315 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM #72 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder**

YES

No trouble with PCB and temperature sensor

Recheck the bad contact of the connection

☞ Checking method of Ambient Sensor resistance CN78-#"8"(Yellow) ↔ # "12"(Yellow)

- Compare the temperature table after measurement.

☞ Checking method of Ambient Sensor voltage

- Measure the voltage of Resistance R315(IC01 MICOM #91) on PCB or CN78-"8"(Yellow) ↔ REG1, HEAT SINK
- Compare the temperature table after measurement. Measuring voltage of CN78-"8"(Yellow) ↔ REG1, HEAT SINK are as below

Typical PCB Ground
REG1 Heater Sink

5-1. If the trouble is detected by self-diagnosis

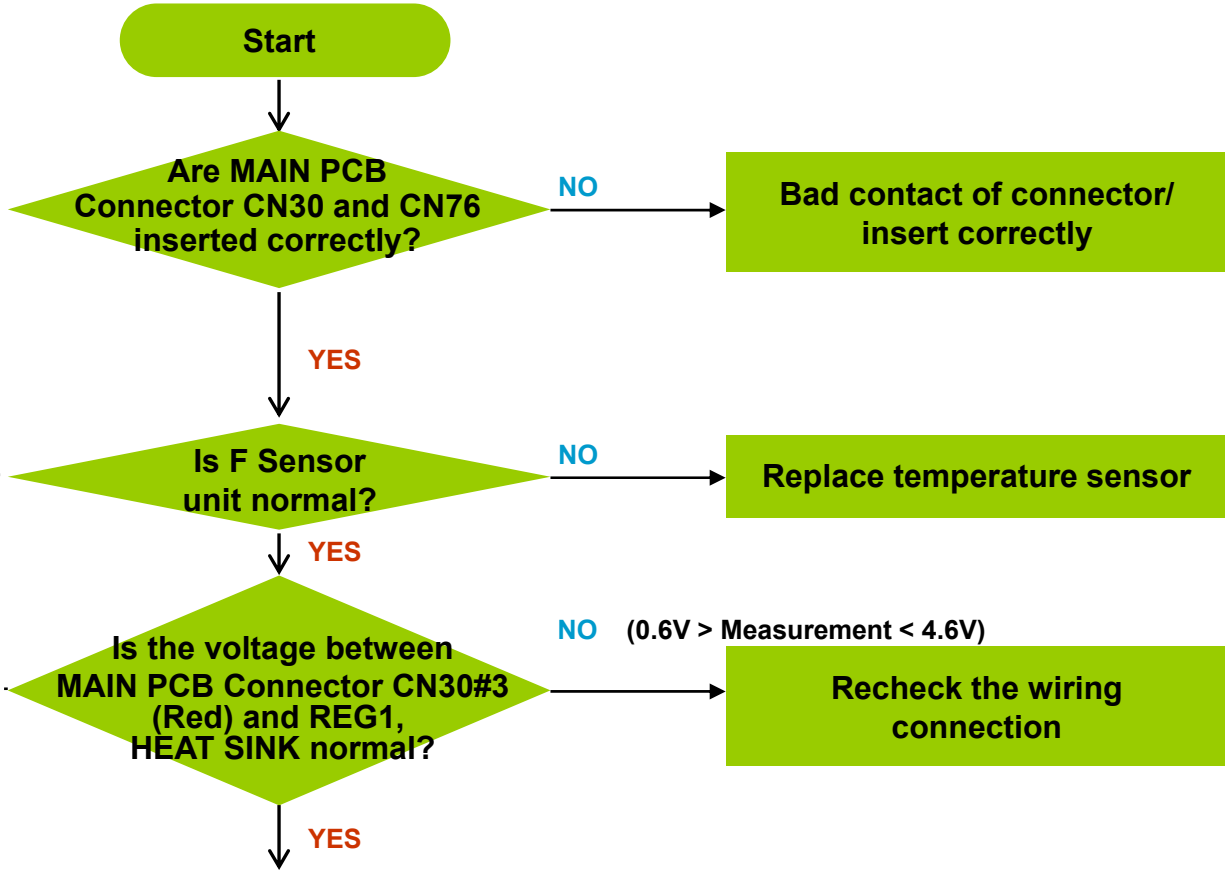
5) If F Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** F :CN30#3 ↔ CN76#1 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
F	**Connector CN30#3(Red) to REG1, HEAT SINK PCB typical Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #74, CN30#3(Red) and REG1, HEAT SINK from PCB typical Ground part are similar.
→ Check the measure on the Resistance, R309 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM #81 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder**

YES

No trouble with PCB and temperature sensor
Recheck the bad contact of the connection

☞ Checking method of F Sensor resistance
CN30- "4"(Red) ↔ CN76-"1"(Gray)
- Compare the temperature table after measurement.

☞ Checking method of F Sensor voltage
- Measure the voltage of Resistanec, R309(IC01 MICOM #74) on PCB or CN30-"4"(Red) ↔ REG1, HEAT SINK
- Compare the temperature table after measurement.

Measuring voltage of CN30-"4"(Red) ↔ REG1, HEAT SINK are as below.

Typical PCB Ground
REG1 Heater Sink

5-1. If the trouble is detected by self-diagnosis

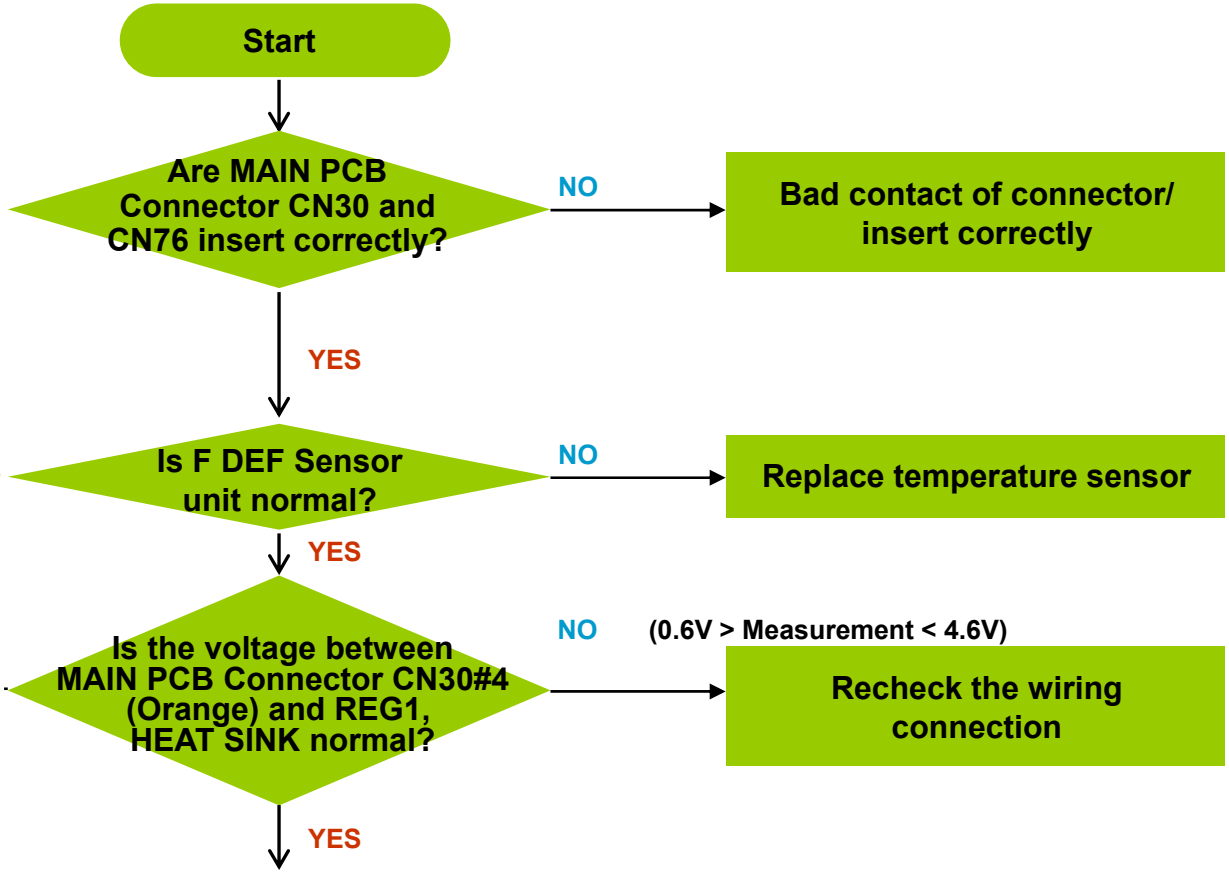
6) If F DEF Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** F-DEF : CN30#5 ↔ CN76#1 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
F DEF	**Connector CN30 "5" (Orange) to REG1, HEAT SINK PCB typical Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #75, CN30-"5"(Orange) and REG1, HEAT SINK from
PCB typical Ground part are similar.
→ Check the measure on the Resistance, R310 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM #77 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder**

YES

No trouble with PCB and temperature sensor.
Recheck the bad contact of the connection.

☞ Checking method of F DEF Sensor resistance CN30-"5"(Orange) ↔ CN76#1(Gray)

- Compare the temperature table after measurement.

☞ Checking method of F DEF Sensor voltage

- Measure the voltage of Resistance, R310(IC01 MICOM #75) on PCB or CN30-"5"(Orange) ↔ REG1, HEAT SINK
- Compare the temperature table after measurement.
  Measuring voltage of CN30-"5"(Orange) ↔ REG1, HEAT SINK are as below

Typical PCB Ground
REG1 Heater Sink

5-1. If the trouble is detected by self-diagnosis

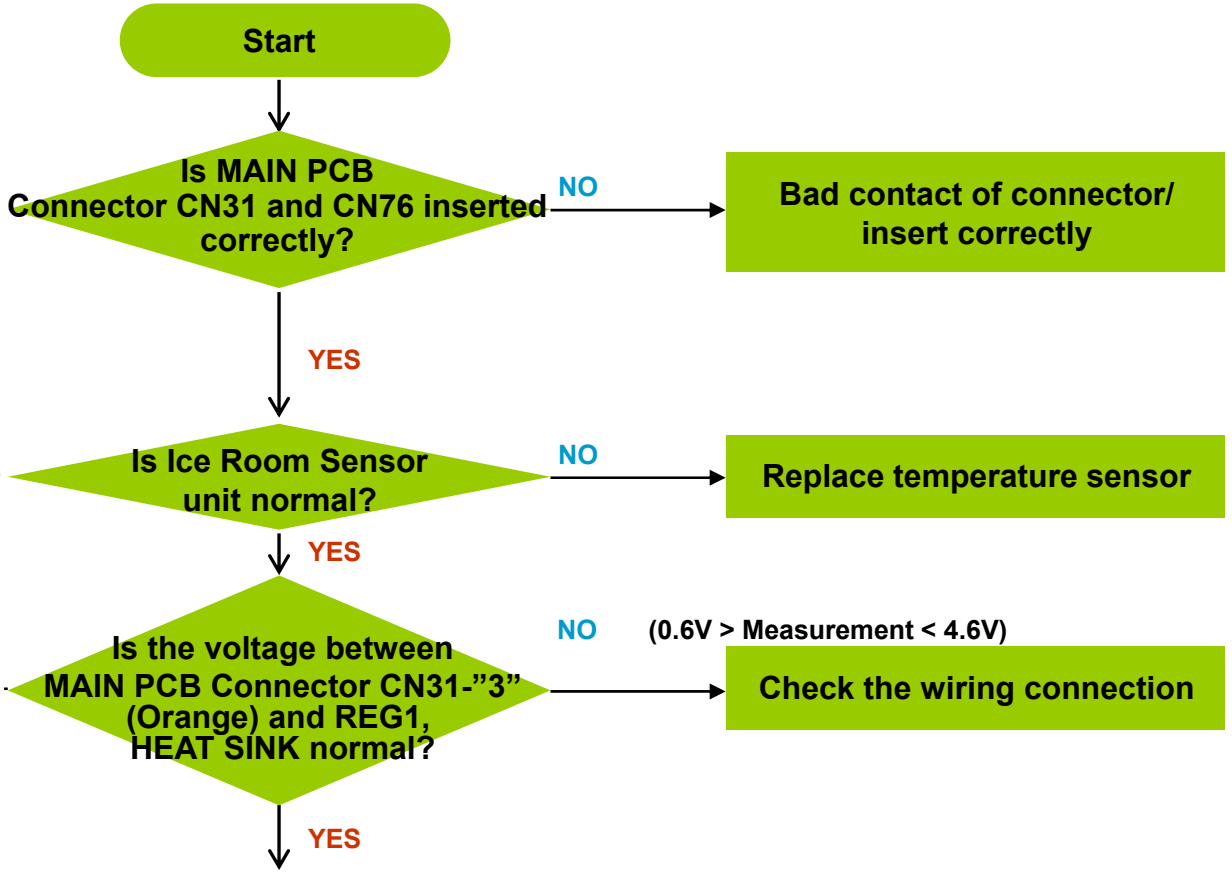
7) If Ice Room Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor **
Ambient : CN78#10 ↔ CN76#1 Measure the resistance value
** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
Ice Room	Connector CN78-"10"(Orange) and REG1, HEAT SINK from typical PCB Ground
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #90, CN78-"10"(Orange) and REG1, HEAT SINK from typical PCB Ground are similar.
→ Check the measure on the Resistance, R316 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM #71 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder**

YES

No trouble with PCB and temperature sensor. Check the bad connections.

☞ Checking Mehod of Ice Room Sensor voltage CN78-"10"(Orange) ↔ CN76-"1" (Gray)

- Compare with the temperature table after measurement.

☞ Checking Method of Ice Room Sensor Voltage

- Measure the Resistance, R316(IC01 MICOM #90) on PCB or CN78-"10"(Orange) ↔ REG1, HEAT SINK
- Compare with the temperature table after measurement.

Measured voltage of CN78-"10"(Orange) ↔ REG1, HEAT SINK are as below

Typical PCB Ground
REG1 Heater Sink

5-1. If the trouble is detected by self-diagnosis

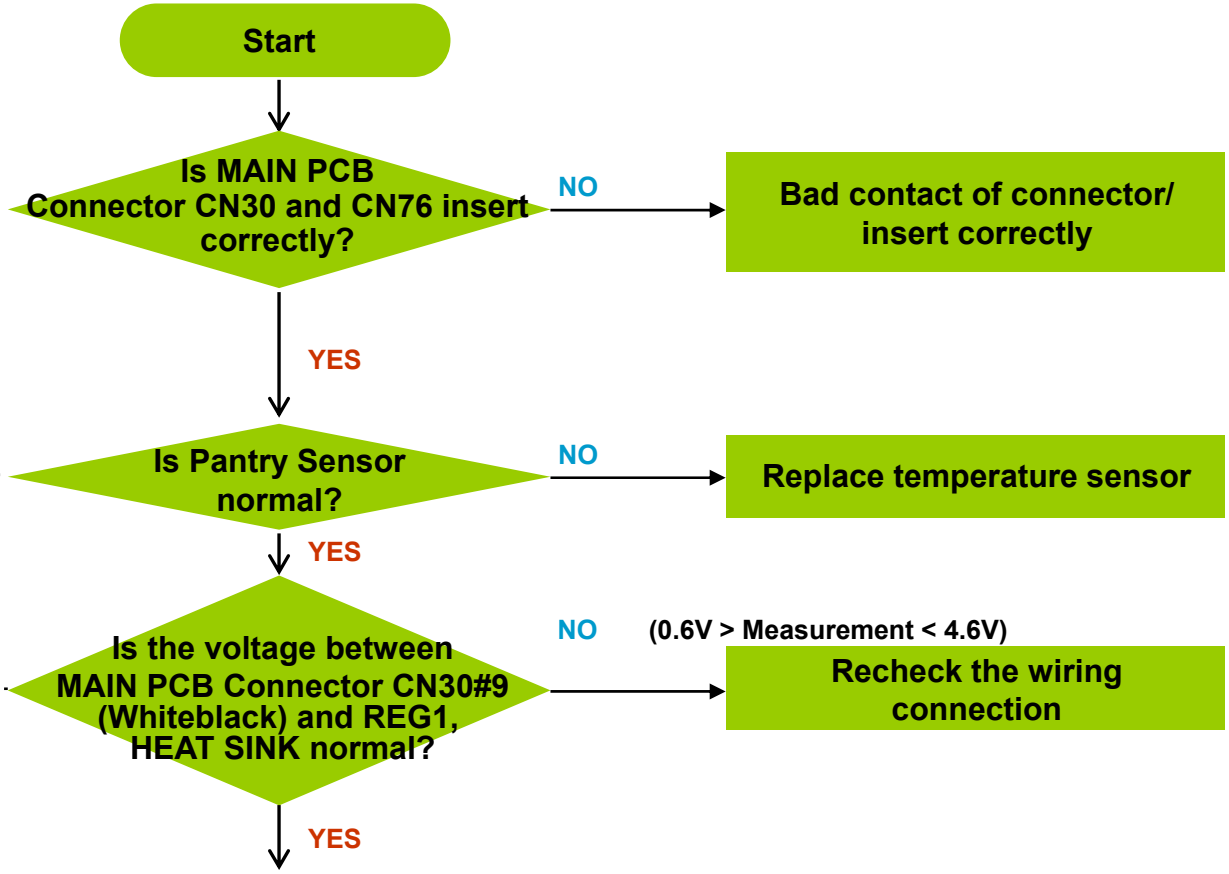
8) If Flex Sensor has trouble

ERROR Code

DATA1. Temperature table
** Measuring point of resistance value according to Sensor ** Flex : CN30#9 ↔ CN76 #1 measuring resistance value ** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
Pantry	**Connector CN30"9" (Yellow) to REG1 HEAT SINK PCB typical Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of IC01 MICOM #81, CN30-"9"(Yellow) and REG1, HEAT SINK from PCB typical Ground part are similar.
→ Check the measure on the Resistance, R314 due to the SMD MICOM

YES

Is the input voltage of IC01 MICOM Pin# 73 normal?

NO → **Check the iced-solder, solder bridging, disturbed solder**

YES

No trouble with PCB and temperature sensor.
Recheck the bad contact of the connection.

☞ Checking method of Flex Sensor resistance CN30-"9"(Yellow) ↔ CN76#1(Gray)

- Compare the temperature table after measurement.

☞ Checking method of Flex Sensor voltage

-Measuring resistance, R314(IC01 MICOM #81) on PCB or CN30-"9"(Yellow) ↔ REG1, HEAT SINK

- Compare the temperature table after measurement.
  Measuring voltage of CN30-"9"(Yellow) ↔REG1, HEAT SINK are as below

Typical PCB Ground
REG1 Heater Sink

5-1. If the trouble is detected by self-diagnosis

9) If Humidity Sensor has trouble

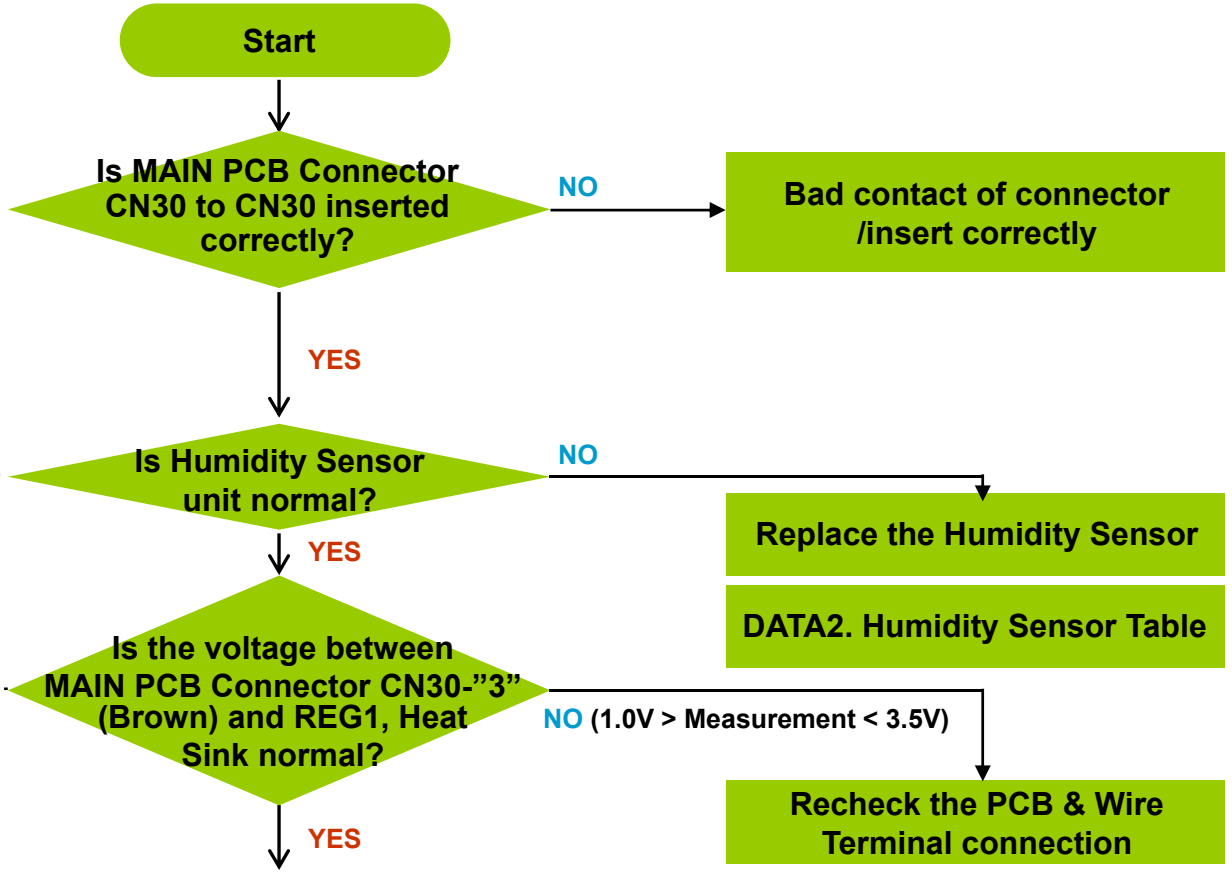
ERROR Code

DATA1. Temperature table

** Measuring point of resistance value according to Sensor“ Humidity : CN30#1↔ #3
Resistance value with opened : about 50Ω
** 0Ω: Short trouble / ∞Ω: Open trouble

Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
Humidity	**Connector CN30-"3"(brown) to REG1 HEAT-SINK PCB typical Ground**
Voltage measured between 4.6V ~ 0.6V.	



5-1. If the trouble is detected by self-diagnosis

Measuring voltage of ICO1 MICOM #73, CN30-"3"(Brown) and REG1, HEAT SINK fromPCB typical Ground part are similar.
→ Check the Resistance, R321

YES

Is input voltage of ICO1 MICOM #73 normal?

NO → **Check the iced-solder, solder bringing, disturbed solder Exchange the PCB**

YES

No trouble with PCB and temperature sensor. Recheck the bad contact of the connection.

☞ Checking method ofHumidity Sensor resistance CN30-"3"(Brown)↔ "1"(Gray)

- Compare the temperature table after the measure.

☞ Checking method ofHumidity Sensor voltage.

- Measure the voltage of Resistance, R321(IC01 MICOM #73) on PCB or CN30-"3"(Brown) ↔ REG1, HEAT SINK
- Compare the temperature table after the measure. Measuring voltage of CN30-"3"(Brown) ↔ REG1, HEAT SINK are below

Typical PCB Ground
REG1 HEAT-SINK

5-1. If the trouble is detected by self-diagnosis

10) Mid Drawer Room Damper Heater has trouble

ERROR Code

Start

Is Damper Heater normal?(about135ohm)

NO → Bad contact of connector/ insert correctly

YES

Is MAIN PCB connector (CN77) inserted correctly?

Measure the resistance between ⑥-⑩ after CN77 connector open 135ohm ± 7%

NO → 1) Wire connector 2) Replace Heater

YES

Is the input voltage of IC01 MICOM #48 normal?

MICOM #48 condition	Initial power On	Heater off	Working heater
	3.5V ~ 4.8V	3.5V ~ 4.8V	0V

NO → 1) Recheck the wire 2) Replace PCB MAIN

YES

Is Tank Water Heater normal?(about72ohm)

5-1. If the trouble is detected by self-diagnosis

↓ YES

Normal(recheck)

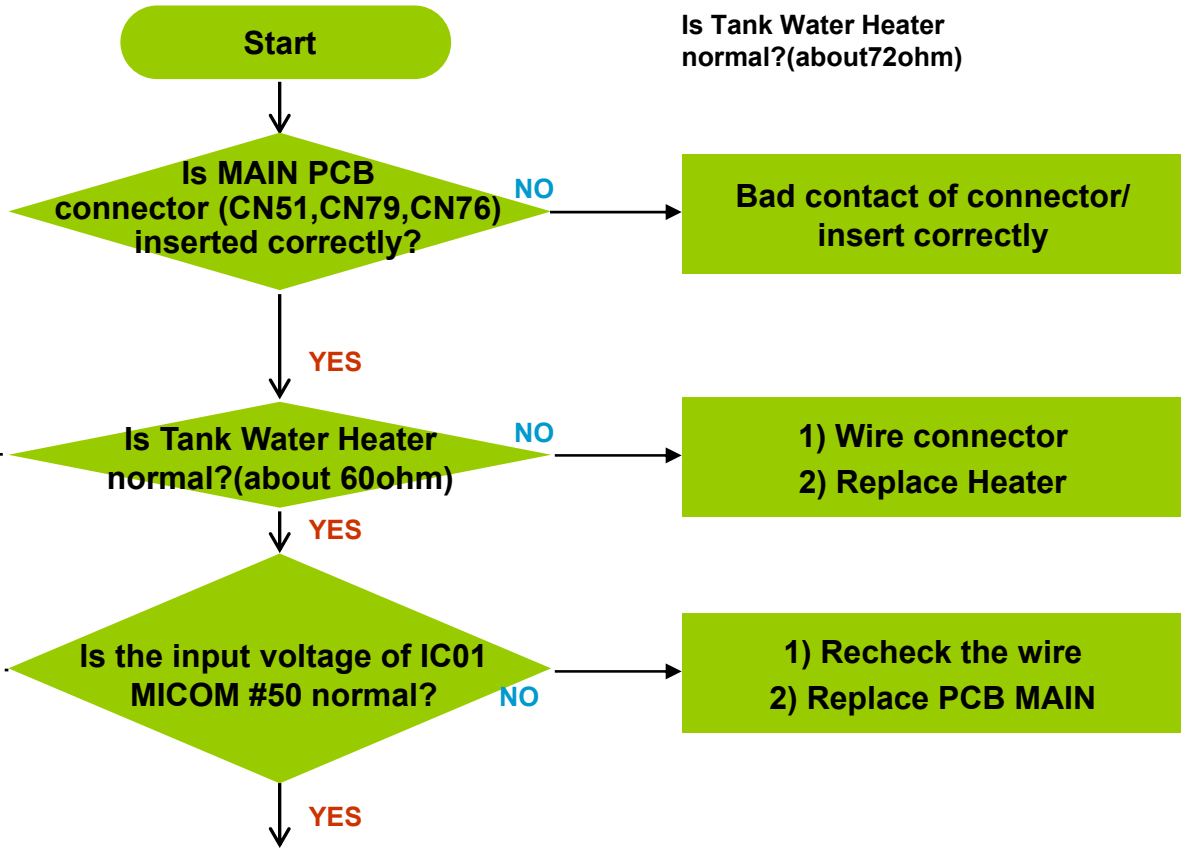
☞ Checking method of Flex Room Damper resistance
CN77-"1"(Black) ↔ "2"(Brown)

** ∞Ω: Open(wire disconnection, heaterdisconnection) trouble / 0Ω: Short trouble

5-1. If the trouble is detected by self-diagnosis

11) Ice Duct Heater(option) has trouble

ERROR Code



Heater	Ice Duct
Connector	CN51-#2 ↔ CN79-#2
ohm	60ohm ± 7%

Heater	Micom (IC01)	Initial power On	Heater off	Working heater
Ice Duct	#50	3.5V ~ 4.8V	3.5V ~ 4.8V	0V

5-1. If the trouble is detected by self-diagnosis

↓ YES

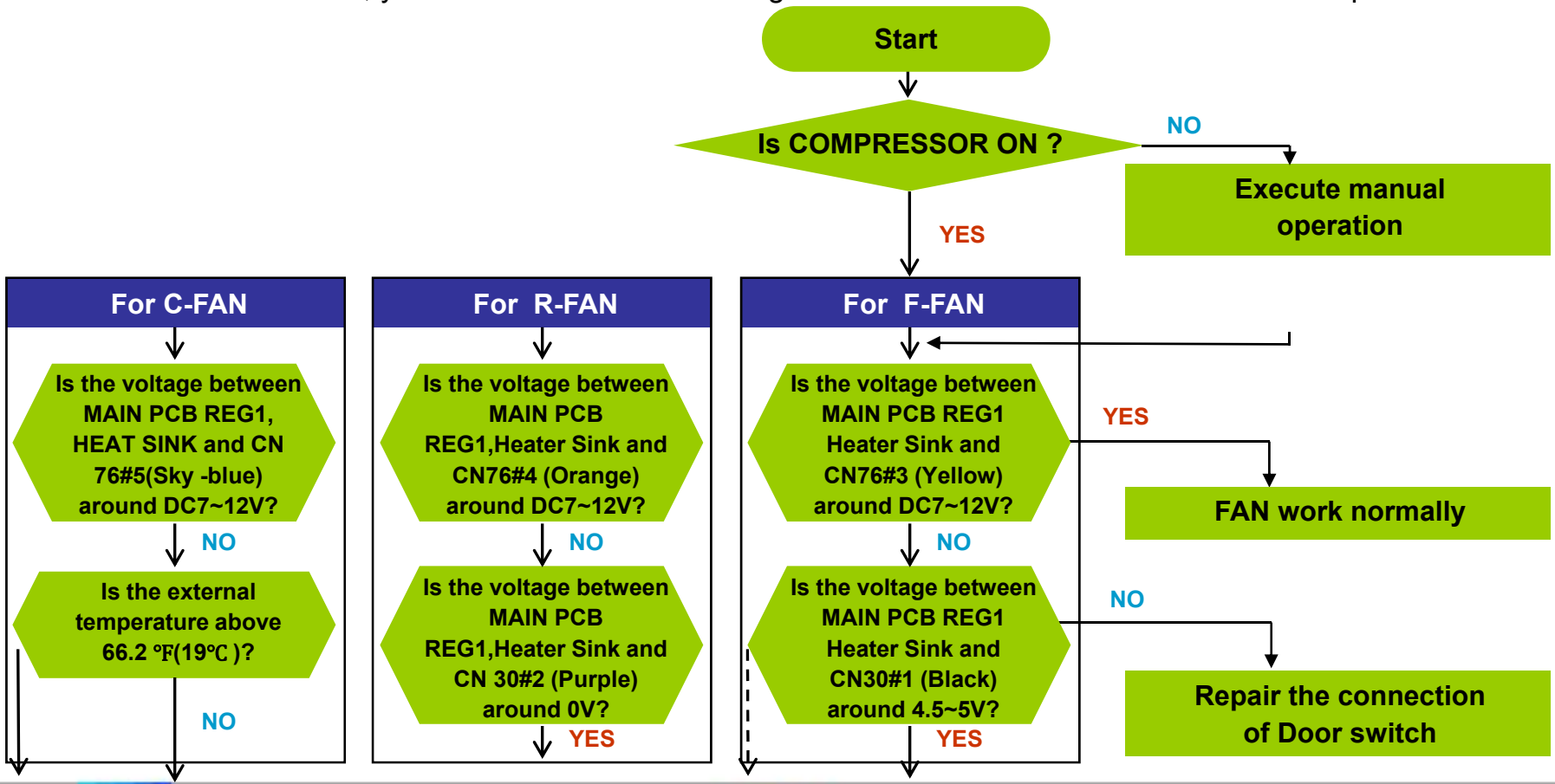
Normal(recheck)

☞ Checking method of Flex Room Damper resistance
CN51-"2"(Brown) ↔ CN79-"2"(Yellow)

** ∞Ω: Open(wire disconnection, heater disconnection) trouble / 0Ω: Short trouble

5-2. 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.



5-2. If FAN does not operate

NO

Recheck after 5 minutes (Time could be delayed depending on the temperatures. If the temperature is lower, It may not operate : about 59℉ (below 15℃)

YES

Door & MICOM State		
Door	F MICOM (#83)	R MICOM(#82)
		Right and Left
Close	5V(High)	0V(Low)
Open	0V(Low)	5V(High)

YES

Power ON with 5 minutes delay after power OFF. For preventing the over load of compressor)

In initial power to appliance, the compressor and fans of fresh food/ freezer, compressor fan operate. If freezer temperature is sensed of 41℉ by momentary power failure, fans will operate after 5 minutes.

For C-FAN

Does DC7~12V alternate with below DC 2V between MAIN PCB REG1 Heater Sink and CN76#5(Sky-blue)

YES

For R-FAN

Does DC7~12V alternate with below DC 2V between MAIN PCB REG1 Heater Sink and CN76#4(Orange)

YES

For F-FAN

Does DC7~12V alternate with below DC 2V between MAIN PCB REG1 Heater Sink and CN76 #3(Yellow)

NO

Replace MAIN PCB

YES

5-2. If FAN does not operate

F FAN pulse voltage CN76#7(Brown)

typical PCB Ground REG1 Heater Sink

The voltage measured around 2~3V with multi-meter though the voltage is very weak because of pulse signal

Reference

CN76-7(F),8(R),9(C)will generate the pulse signal when motor rotates. These signals will be inputted into MICOM. Unless signals are not inputted during motor operating, will be ON 10 seconds after fan Off. But if signals are not still entered, the above operation will restart four times more. If signals are not entered continuously, the motor will be restarted after 10 Minutes. This function is effective when the normal operation of motor would be restrained by foreign matters such as ice.

YES

◆ **Expected causes**

① **Check that if FAN-MOTOR has failure itself.**

② **Check that if wiring connection has bad contact.**

③ **Check the input of the fan motor rotation pulse when motor fan operates.**

☞ Display for checking the self-diagnostic function

R FAN ERROR

F FAN ERROR

C FAN ERROR

☞ Checking method of R,F,C FAN Motor voltage

The voltage between PCB typical Ground REG1 Heater Sink and

F FAN ; CN76#3(Yellow) shall be less than DC 7~12V.

R FAN ; CN76#4(Orange) shall be less than DC 7~12V.

C FAN ; CN76#5(Sky-blue) shall be less than DC 7~12V.

- Recheck if resistance values are different after measuring.

1) F-FAN

2) R-FAN

3) C-FAN

typical PCB Ground REG1 Heater Sink

5-3. 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℃.

- If it exceeds 0℃, 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.

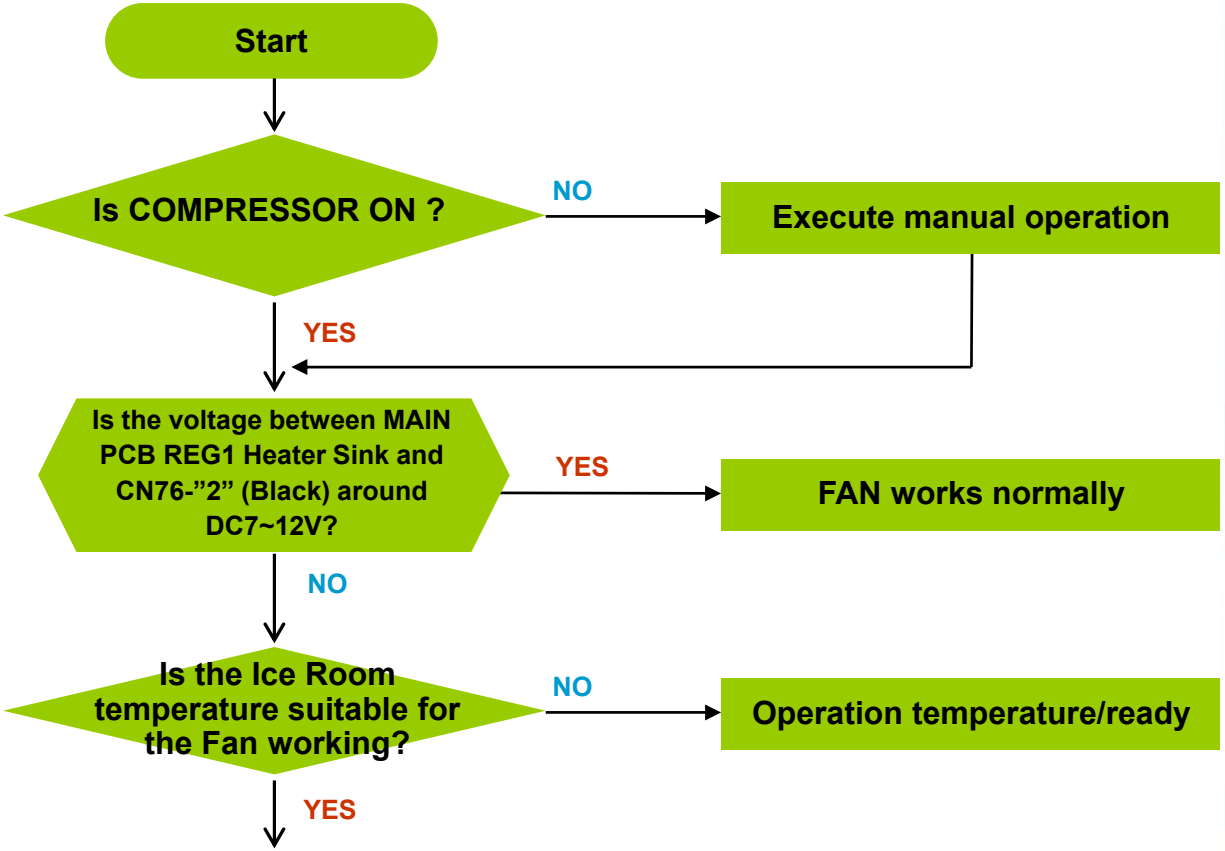
- As the Ice maker motor turns on, TEST MODE COUNT operates. (6 minutes count)

Condition

- Ambient temperature : 32℃/75%

- Notch : 2℉/38℉(-19.0℃/3.3℃) Initial full of ice bucket capacity : 794 g, 58ea

Ice Room control temperature	
Ice ON	8.6℉ (-13℃)
Ice OFF	26.6℉ (-3℃)



5-3. If ICE Room Fan does not operate

Reference
CN76 #6 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.

YES

Is the voltage between MAIN PCB REG1 Heater Sink and CN76-"2" (Black) around DC7~12V?

YES → **FAN works normally**

YES

◆ Predicted Cause
① FAN-MOTOR troubles itself
② Bad wiring connections.
③ Wrong Input of the fan motor rotation pulse

F FAN pulse voltage CN76-"6"(Pink)

typical PCB Ground REG1 Heater Sink

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

☞ Display for checking the self-diagnostic function

Ice Room FAN ERROR

☞ Checking method of Ice Room FAN Motor Voltage with the voltage between typical PCB Ground REG1 Heater Sink and Ice Room FAN ; CN7~12V(Black) shall be less than DC 6~12V.

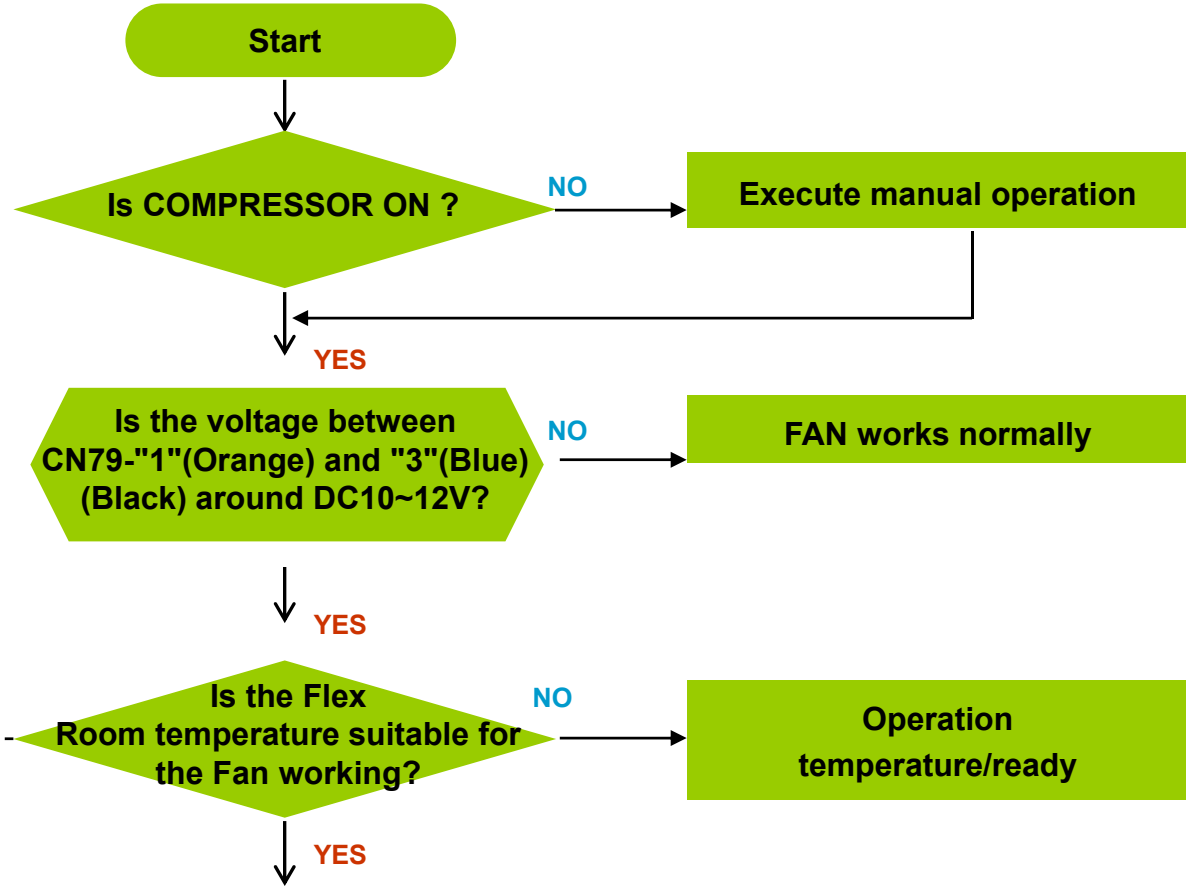
- Additional check if resistance values are different after measurement.

1) Ice Room - FAN

Typical PCB Ground REG1 Heater Sink

5-4. If FAN does not operate(Flex Room - FAN)

- This refrigerator has BLDC FAN motor. BLDC motor is driven by DC10~12V
- When COMP ON, normally with F-FAN motor.



Flex Room control temperature				
Sort	Micom (IC01)	Initial power On	Heater off	Working heater
Temperature	37°F (3°C)	42°F (6°C)	27°F (-3°C)	32°F (0°C)

5-4. If FAN does not operate(Flex Room - FAN)

Does DC7~12V alternate with below DC2V between CN79-"1"(Orange) and "3"(Blue)

NO → Replace MAIN PCB

YES ↓

◆ **Predicted Cause**
① **FAN-MOTOR troubles itself**
② **Bad wiring connections.**
③ **Wrong Input of the fan motor rotation pulse**

☞ Checking method of Flex Zoon FAN Motor Voltage with the voltage between CN79-"1"(Orange) and "3"(Blue) shall be less than DC10~12V

- Additional check if resistance values are different after measurement.

1) Flex Room - FAN

5-5. If Ice Maker does not operate

1. Water is automatically supplied to the Ice Maker depending on temperature & time condition and Ice Maker Dispenses cubed or crushed ice.
2. Power is applied to the one end of wires. Be careful when disassembling and shall refer to its exploded diagram in any case.
3. Ice Maker operation shall be checked after pressing the Ice Maker testing switch. (Fridge Ice Maker) It is not possible to check when the power is disengaged.
4. We recommend that TWO PEOPLE check the PCB and Ice Maker because they are located at front and rear side each.
5. Be careful! The Ice Maker Heater can cause personal injury like burn.

Operating Condition when motor rotates Operating Status of Micom(IC01)		
	Ready	Operation
Heater Load(#85)	0V	5V
Motor CCW Load(#101)	0V	5V
Motor CW Load(#102)	0V	5V
Heater operates differently according to the conditions. Test Mode operation will be 30 sec.		

ERROR Code

Start

Does Ice Maker rotate when pressing the Ice Maker testing switch(over 1.5 sec)?

NO

1) Replace the Ice Maker Kit
2) Check/Replace the Main PCB input signal (Micom IC01 Pin #37 - "0V")

YES

MICOM(IC02) Operation Status		
#37 (Test Switch)	Operation	Ready
	5V	0V

5-5. If Ice Maker does not operate

MICOM(IC01) Operation Status				
	Ready	Rotation	Before Complete	Returning
#39 (Blade Ice Scoop)	0V	4.9V	4.9V	0V
#39 (Guide Ice Full)	0V	0V	4.9V	0V

YES

Is the input voltage of IC01 MICOM #38,#39 normal?

NO → **1) Check the wiring connections.**
2) Replace Ice Maker Kit
3) Replace MAIN PCB

YES

Is the water supplied in 6 minutes (After sensing ice bucket fully)?

NO → **1) Replace the Water Valve**
*** Refer to the operation condition of Water Valve**
2) Replace the Main PCB

YES

Is the Ice Maker Sensor unit normal?

NO → **1) Repair the Ice Maker Sensor**
*** Refer to the solution "If Ice Maker Sensor has trouble"**

YES

No trouble with PCB and temperature sensor, Check the bad wiring connections.

5-5. If Ice Maker does not operate

☞ Checking Method of ICE Maker Voltage With typical PCB Ground REG1 Heater Sink and

1) Test Switch operation (press selected) : CN90-"2"(Black) shall be DC 0V. Test Switch ready ; CN90-"2"(Black) shall be less than DC 5V.

1)Test Switch operating

1)Test Switch ready

Typical PCB Ground
REG1 Heater Sink

☞ Checking Method of ICE Maker Voltage With typical PCB Ground REG1 Heater Sink and

2) IC02 MICOM #39 voltage ; Ready(0V) → Rotate (4.9V) → Before complete(4.9V) → Return(0V)

* MICOM #39 voltage is same as Connector CN90-”7”(Purple)

3) IC02 MICOM #38 voltage ; Ready(0V) → Rotate (0V) → Before complete(4.9V) → Return(0V)

* MICOM #38 voltage is same as Connector CN90-”6”(Blue)

☞ Check the ICE Maker Heater & Motor Resistancele)

1) Measuring the Ice Maker Heater resistance values CN70-"3"(Black) ↔ "13"(Black)

Resistance value :
91(365)Ohm± 30%

2) Measuring the Ice Maker Motor resistance values
CW :CN73-"11"(Brown) ↔ CN70-"11"(Red)
CCW:CN73-"13"(White) ↔ CN70-"11"(Red)

Resistance value :
3.5KOhm± 7%

5-6. If defrost does not operate (F,R DEF Heater)

• If defrost has trouble, select the self-diagnostic function to detect the error of defrost heater before Power Off. (Check the function with the self-diagnostic function)

R DEF ERROR

F DEF ERROR

Start

Are the all deforst heater normal?

NO → **Check the bimetal, heater disconnection, wiring connection etc.**

Refer to self-diagnostic function in the manual

****Measuring point of resistance value according to heater****

F-DEF : CN70#9(Brown) ↔ CN70#13(Gray)
measuring resistance value(63 ohm ± 7%)

R-DEF : CN70#7(White) ↔ CN70#13(Gray)
measuring resistance value(120 ohm ± 7%)

** 0Ω: Short trouble / ∞Ω: Open(bimetal, heater) trouble

YES

Is defrost sensor by self-diagnostic normal?

NO → **Replace the applicable sensor**

Reference to the manual "Self-Diagnostic"

YES

5-6. If defrost does not operate (F,R DEF Heater)

****Measuring point of resistance value according to sensor ****

F-DEF : CN30#5 ↔ CN76#1 measuring resistance value

R-DEF : CN30#8 ↔ CN76#1 measuring resistance value

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

Resistance value of sensor according to temperature		
86℃ (30℉)	4.22㏀	If you need the temperature with detail, refer to DATA1. temperature table
68℃ (20℉)	6.05㏀	
50℃ (10℉)	8.87㏀	
32℃ (0℉)	13.29㏀	
14℃ (-10℉)	20.42㏀	
-4℃ (-20℉)	32.23㏀	
-22℉(-30℃)	52.41㏀	

YES

Is the temperature of defrost sensor lower than 53.6℉(12℃)?

NO → **manual operation for a certain time**

YES

Manual defrosting of fresh food and freezer compartments operate simultaneously.

If Energy Saver + Power Cool Key are pressed simultaneously for 8 seconds and then select any key, 3rd test mode(manual defrosting) will be operated.

YES

Is power applied to each defrost heaters?

NO

YES

Does the system return to cooling operation after heating for specified time?

NO → **Recheck the applicable sensor.**

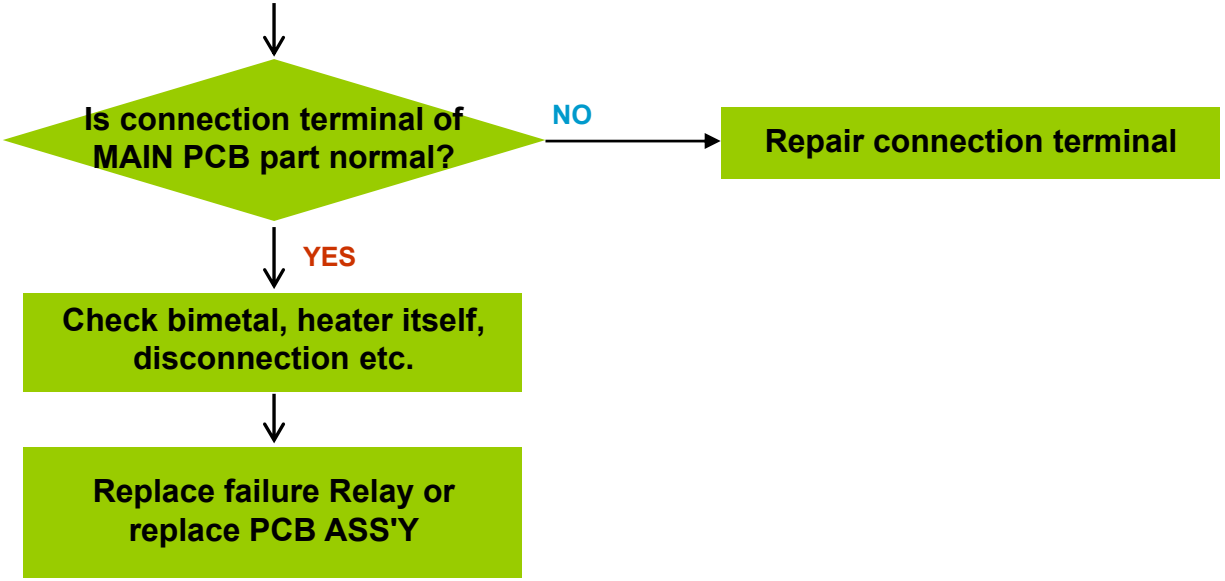
YES

Normal

Reference

If defrost sensor temperatures of fresh food and freezer compartments are higher than 50℉(10℃), 53.6℉(12℃) by the heating from heater, heating would be finished and will return to cooling operation after a pause.

5-6. If defrost does not operate (F,R DEF Heater)



☞ Checking method of F,R DEF Heater resistance value

CN70-"9"(Brown)↔ CN70 "13"(Gray)

CN70-"7"(White) ↔ CN70 "13"(Gray)

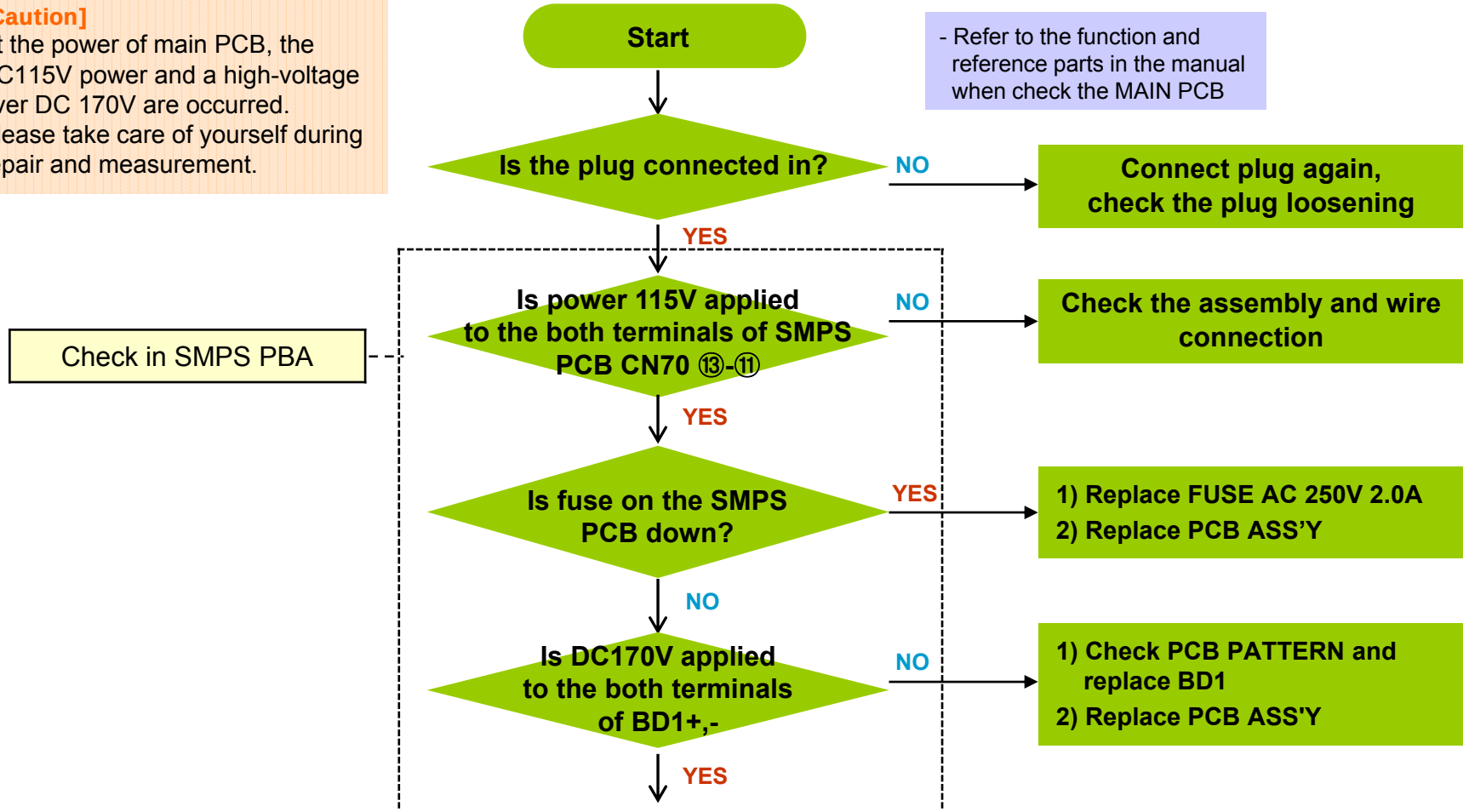
- Recheck if resistance values are different after the test

1) F DEF Heater

2) R DEF Heater

5-7. If Power is not supplied

[Caution]
At the power of main PCB, the AC115V power and a high-voltage over DC 170V are occurred.
Please take care of yourself during repair and measurement.

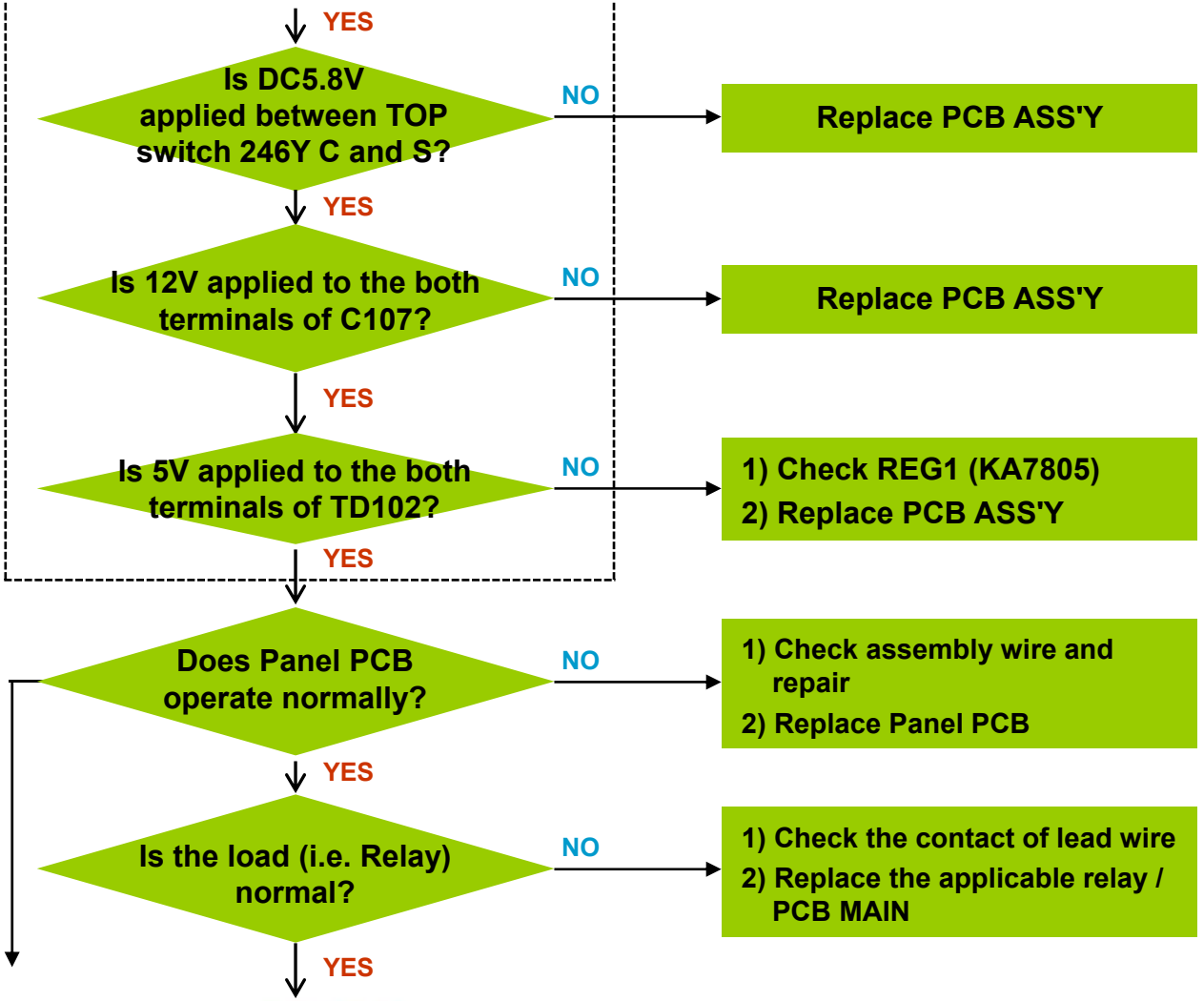


5-7. If Power is not supplied

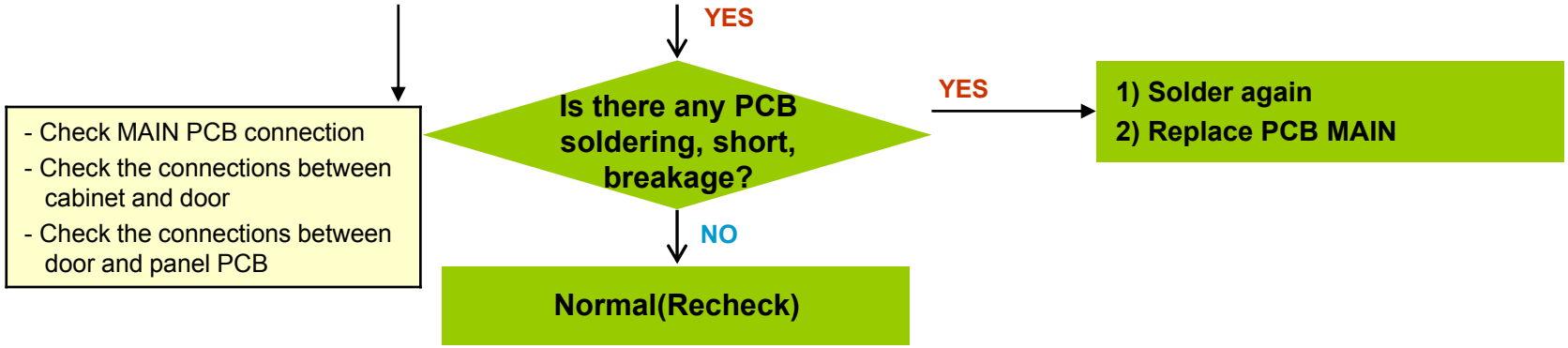
☞ Checking method of voltage
CN70 - "11"(Red) ↔ "13"(Gray)
AC voltage

☞ Checking method of DC 2nd output voltage
REG1 input ; Regulator 7805 → same as C107 terminals. DC 12.0V 0.8V

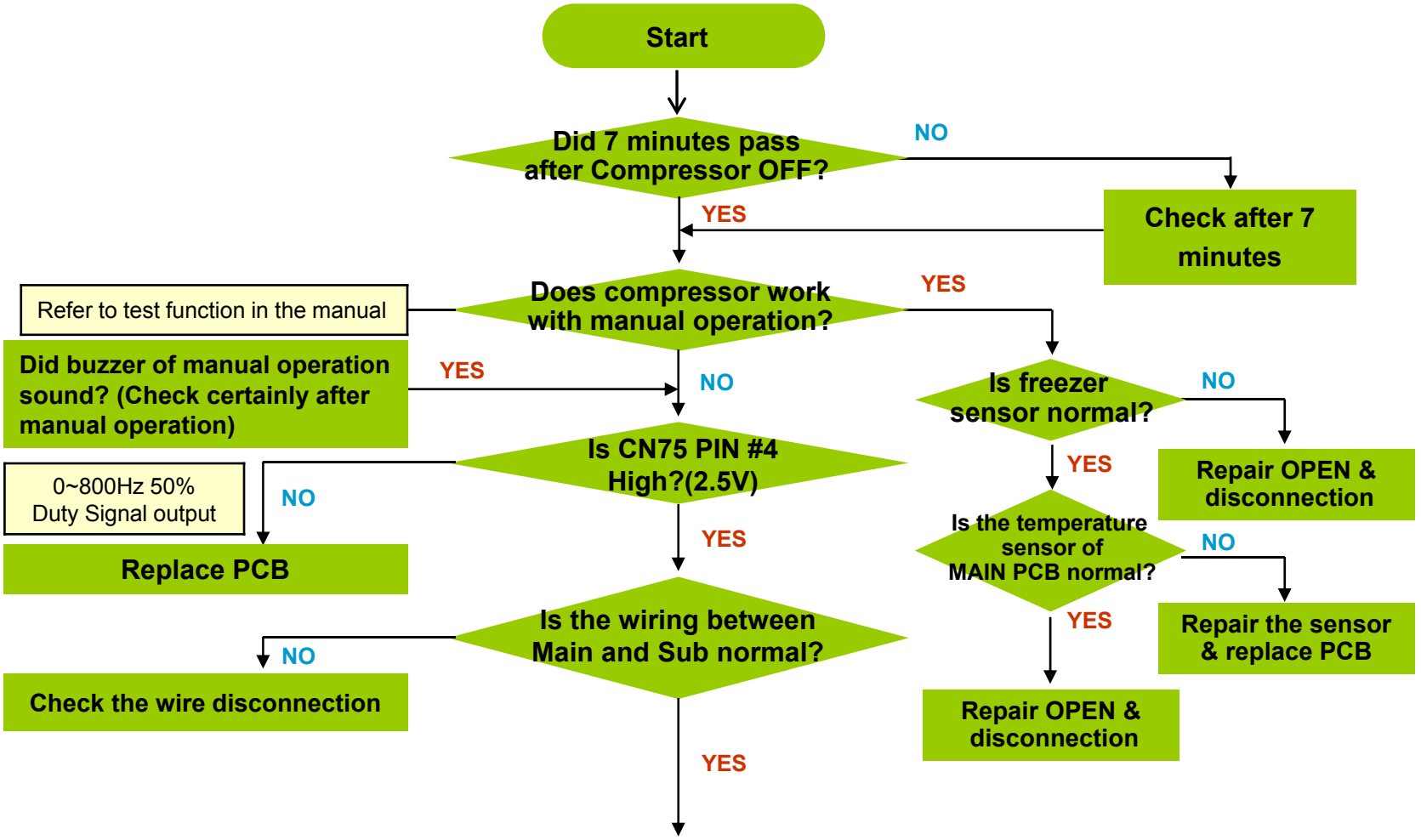
☞ Checking method of DC 2nd output voltage
REG1 output ; Regulator 7805 → same as TD102terminals. DC 5V ± 0.5V



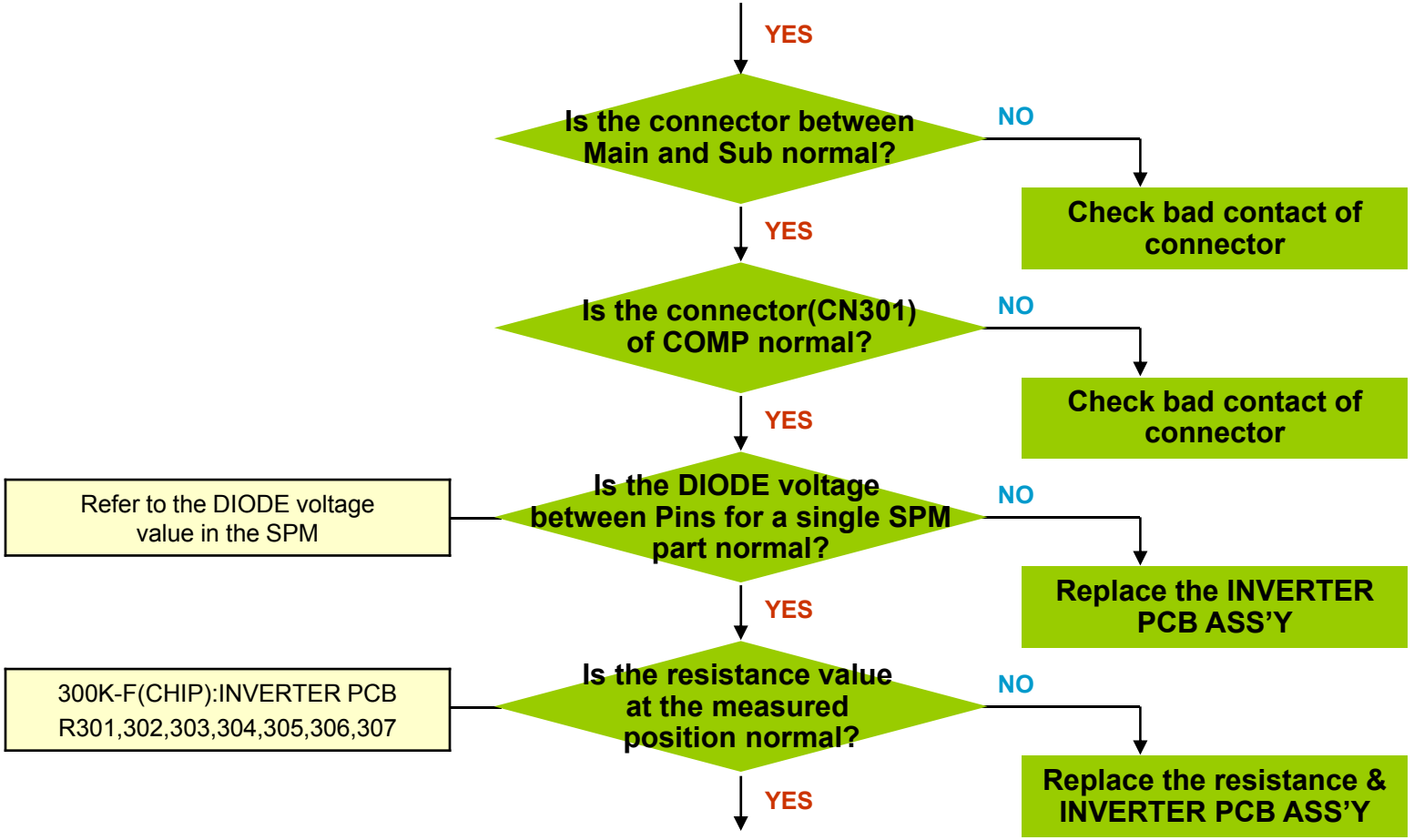
5-7. If Power is not supplied



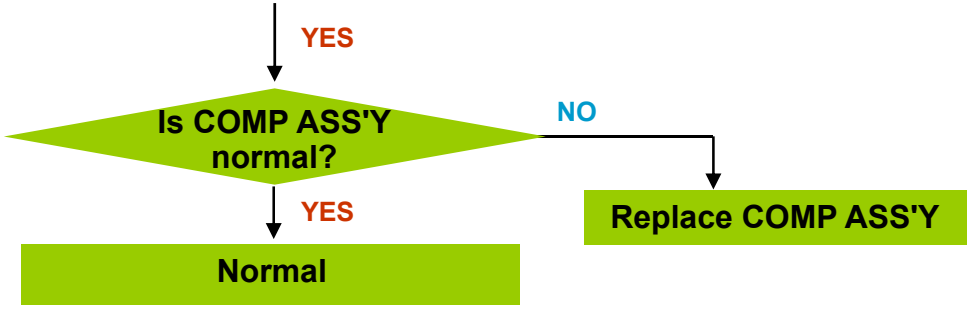
5-8. If compressor does not operate



5-8. If compressor does not operate



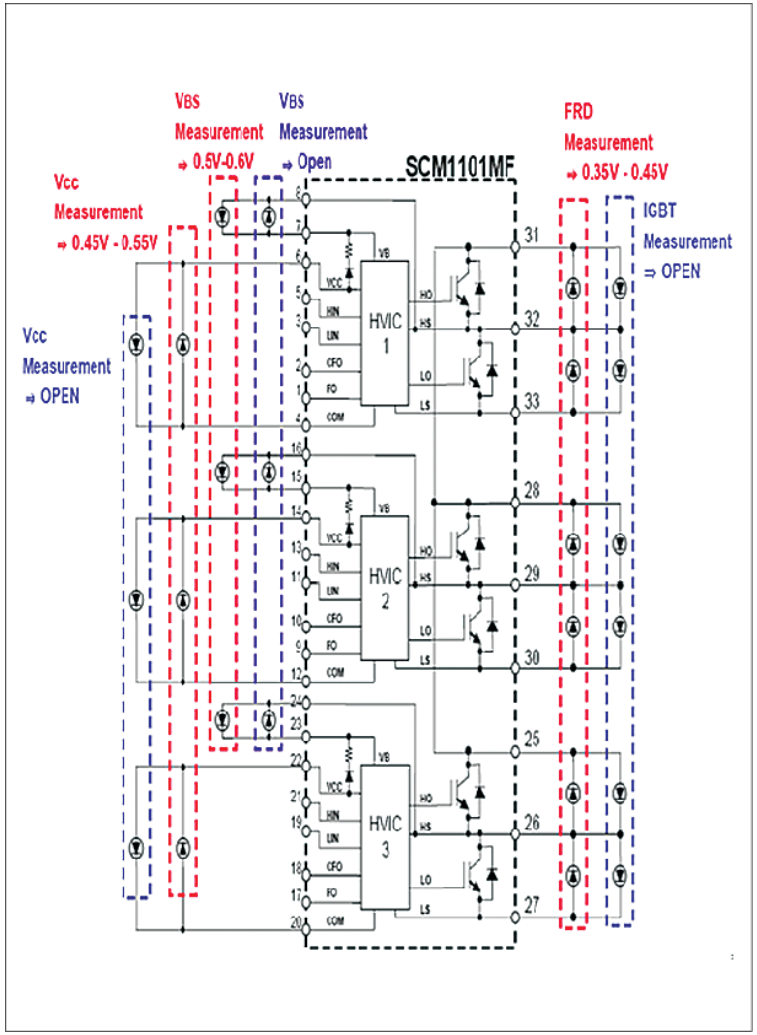
5-8. If compressor does not operate



☞ Voltage checking method
Common Ground REG1 Heater Sink in PCB and
1) IC01 MICOM #4 ; Square wave voltage → 3V measured after MULTI TEST IC01 MICOM #4, COMP operates

Common PCB Ground
REG1 Heater Sink

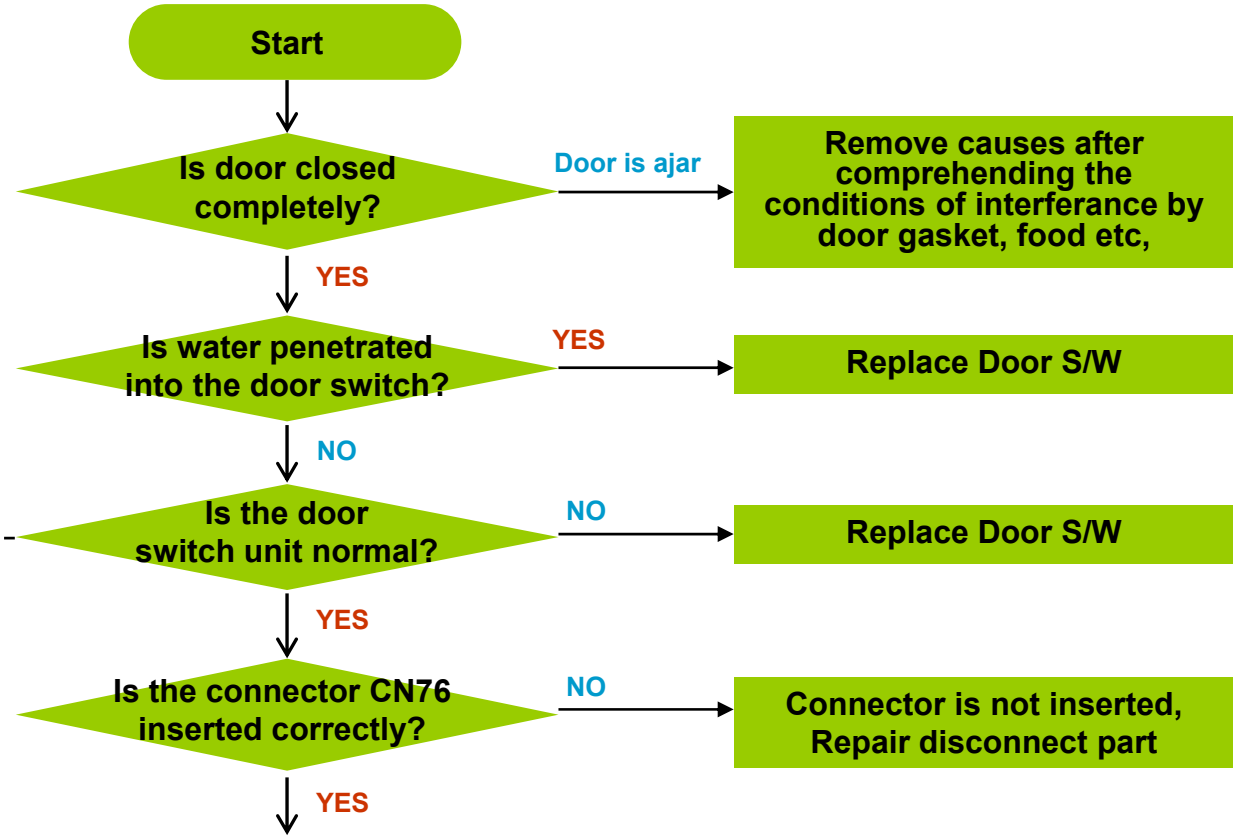
IPM FREEWHEELING DIODE VOLTAGE VALUE



5-9. When alarm sounds continuously without stop (related with buzzer sound)

1) If 'ding-dong‘ sound continuously

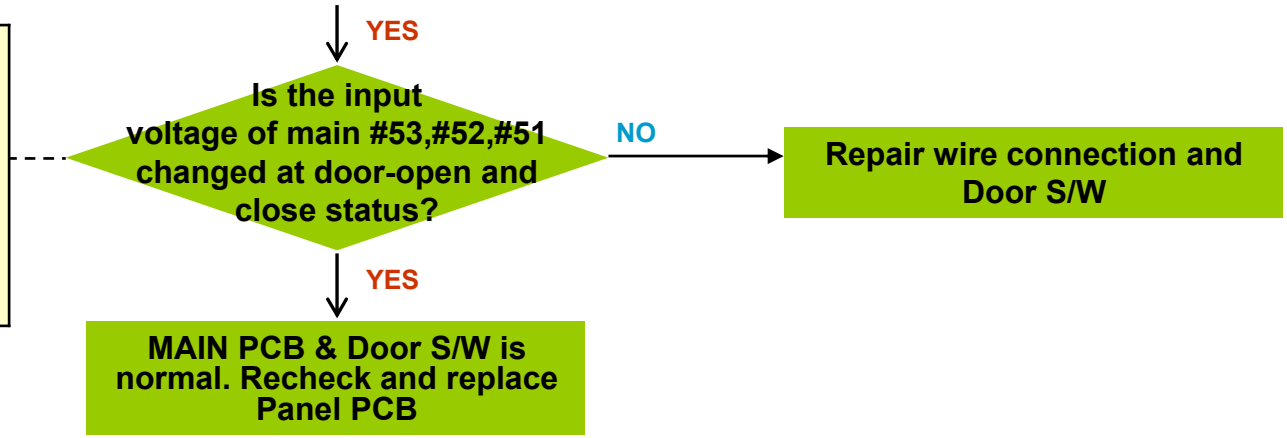
Door & MICOM State			
Door	FZ MICOM (#53)	FF MICOM(#52) Right and Left	Mid Drawer MICOM (#51)
Close	5V(High)	0V(Low)	0V(Low)
Open	0V(Low)	5V(High)	5V(High)



5-9. When alarm sounds continuously without stop (related with buzzer sound)

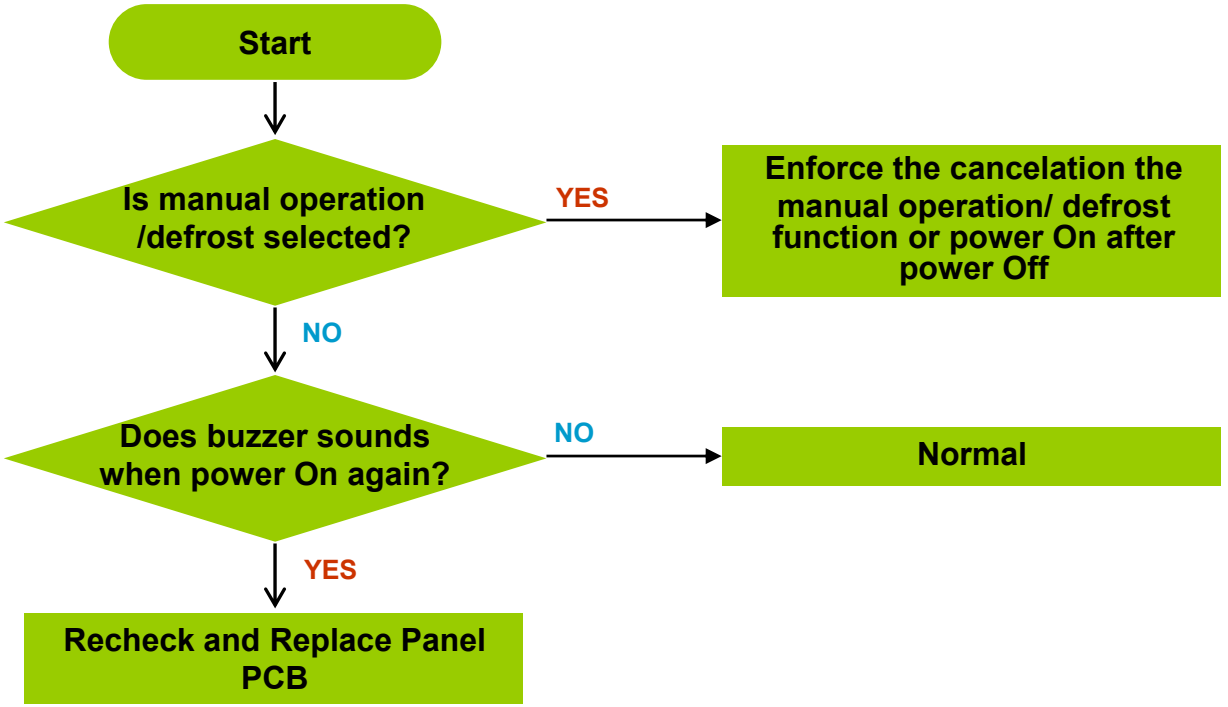
1) If 'ding-dong‘ sound continuously

Seperate the door switch andcheck if the measured value of unit is changed from 0Ω to ∞Ω according to switch ON/OFF.
* FF Door Switch is magnetic switch. (It can be operated when door magnet is combined with it.)



5-9. When alarm sounds continuously without stop (related with buzzer sound)

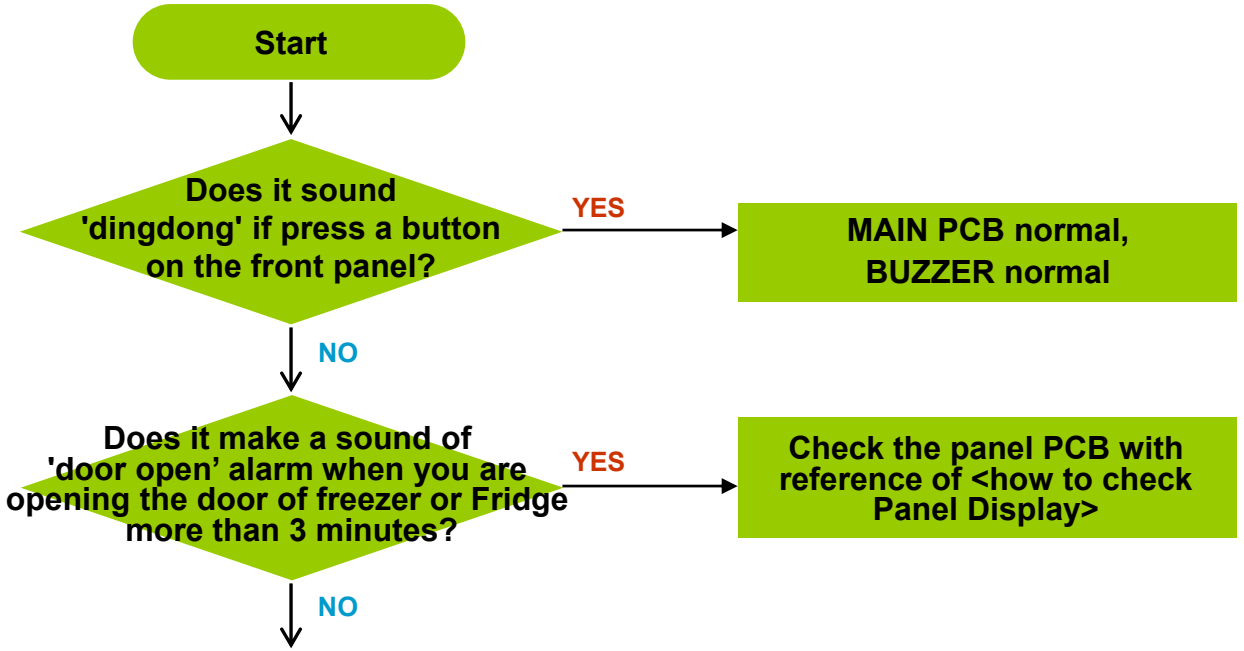
2) If 'beep-beep' sounds continuously



5-9. When alarm sounds continuously without stop (related with buzzer sound)

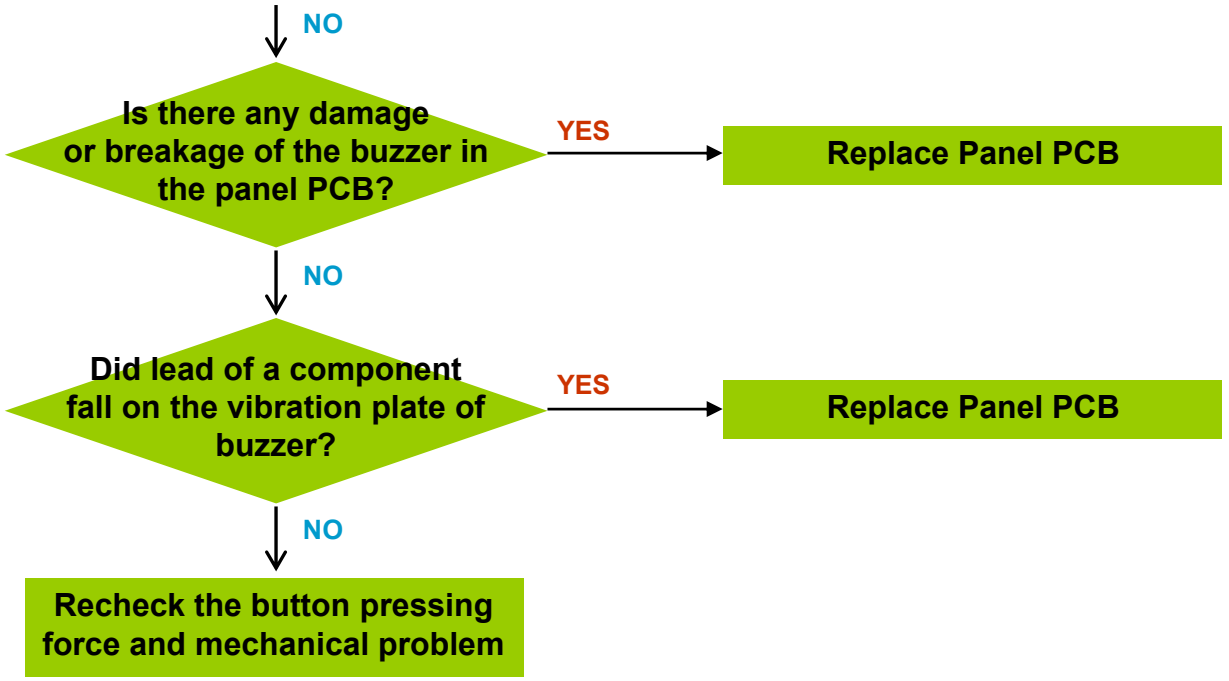
3) If buzzer does not sound

Buzzer is installed on the panel PCB in this model.
If buzzer does not sound even though the button is pressed, manual operation is started and door is opened, it should separate panel PCB and check the breakage of buzzer and bad soldering.
It is very hard to repair the panel PCB because it consists of SMD assemblies.
It is recommended to replace PCB assembly when the failure associated with panel is occurred except the minor error such as switch pressing error, surface peeling off and so on.



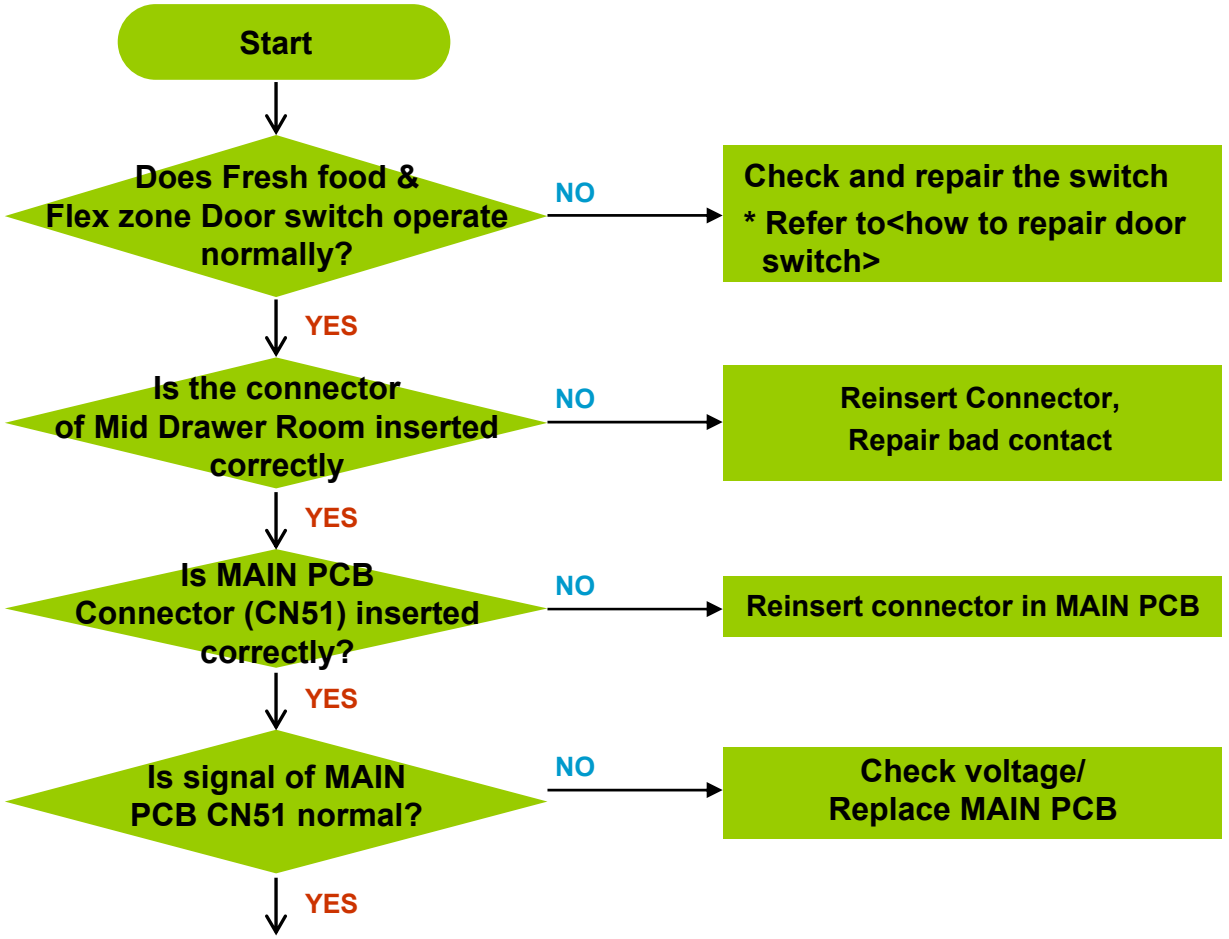
5-9. When alarm sounds continuously without stop (related with buzzer sound)

3) If buzzer does not sound



5-10. If Mid Drawer Panel PCB does not work normally

You should check the display after door opening because the display of this model operates only when the fresh food compartment door is opened.



5-10. If Mid Drawer Panel PCB does not work normally

If Panel Key is not selected

YES

Is the lighting operated when replace Pantry Panel-PCB?

YES → **Panel PCB itself has trouble.**

NO

① Check the wires of Flex Room - disconnection, short between wires
② Recheck the control circuit of MAIN PCB Flex Panel
③ Check the wire assembling between Panel and MAIN

← **② If Panel PCB Key is not selected**

※ If it is not repaired with the above basic checking method

Is a key pressed continuously?

Pressed → **Reassemble PCB ASS'Y / Enforce the cancelation of pressed keys**

NO

Is the PCB system still operated by separating of the mechanism?

Operated by separation → **Reassemble PCB ASS'Y / Enforce the cancelation of pressed keys**

NO

5-10. If Mid Drawer Panel PCB does not work normally

Common PCB Ground
REG1 Heater Sink

The Voltage of KEY is
Working every 2msec/4min

☞ Checking method of voltage Based on PCB typical Ground REG1 Heater Sink

1) Key voltage ; CN51-"11"(Sky Blue)

a) Working: 2V±0.5V b) Normal: 0V

NO

Is the lighting operated after replacing the Pantry Panel-PCB?

YES → **Convertible compartment Panel PCB itself has trouble.**

NO

Is a normal voltage outputted from MAIN PCB IC74 during the key operating?

NO → **① Replace MAIN PCB**
② Check the short of MAIN Panel wire

YES

① Check the wire of Pantry Room - disconnection, short between wires
② Check the short/open of the pantry panel lighting circuit in MAIN PCB.

5-11. When refrigerator ROOM Lamp does not light up

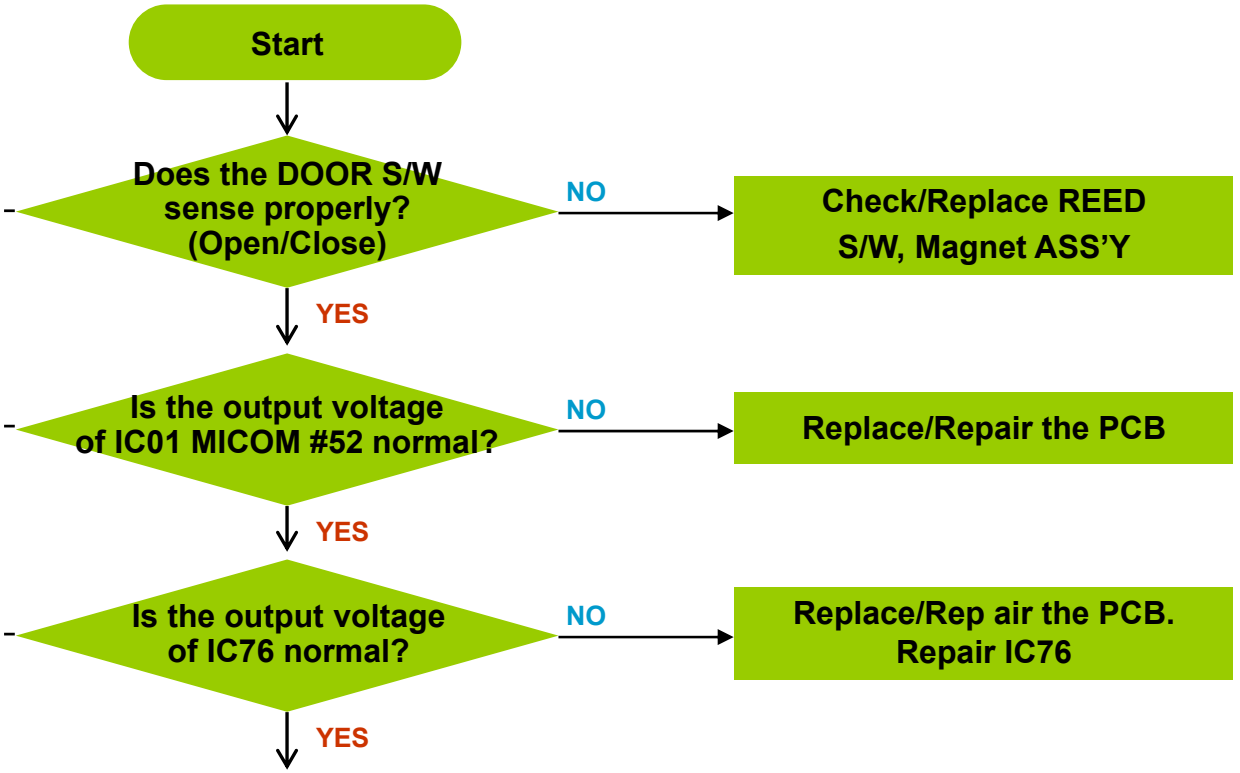
When controlling the regrigerator light with Regulator(12V) : LED LAMP
→ Applying to the FF/FZ/Mid Drawer compartment (Option)

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

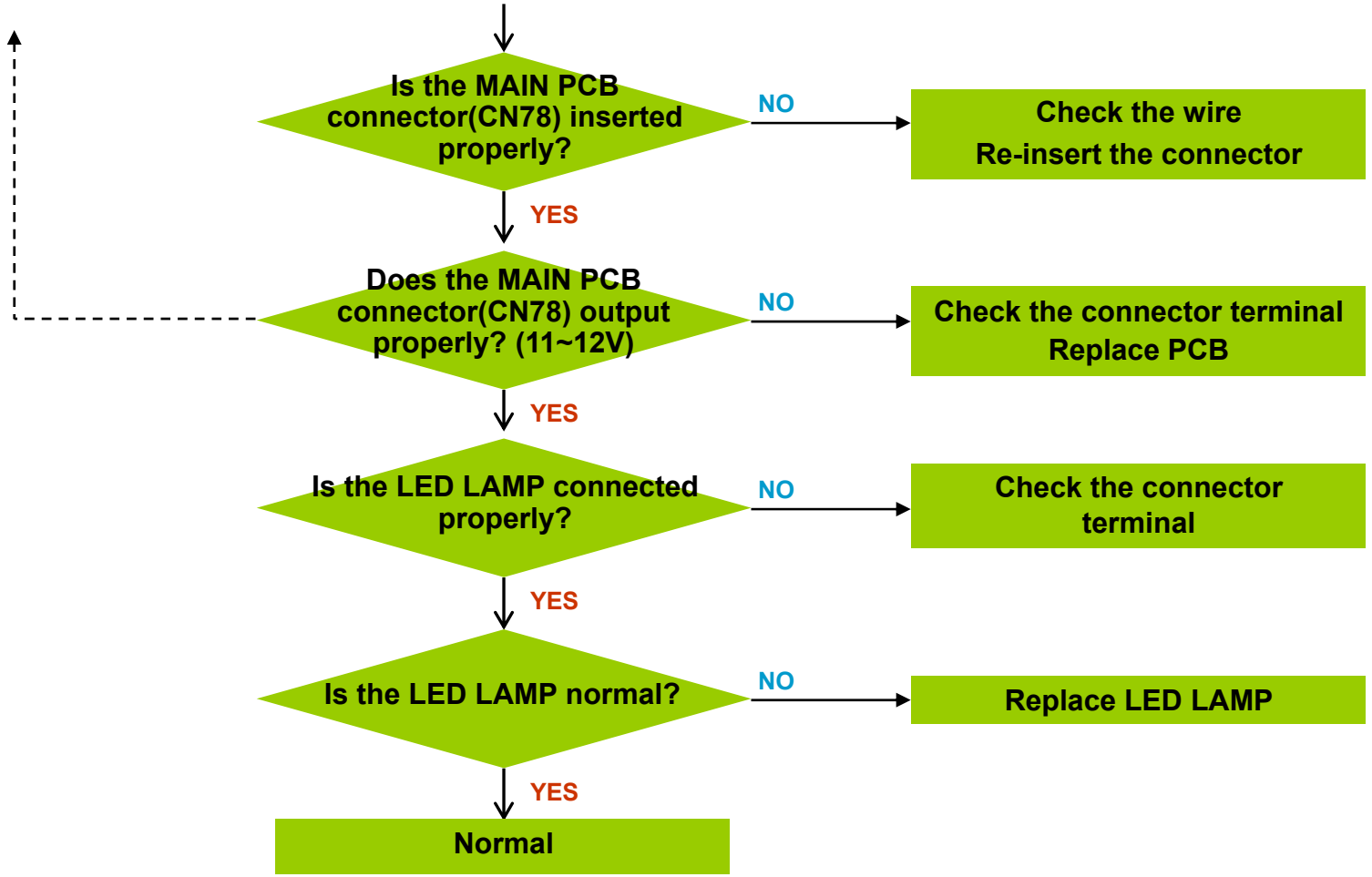
Door & MICOM State	
Door	MICOM(#52)
	Right and Left
Close	0V(Low)
Open	5V(High)

MICOM State			
Door (Right and Left)	FF	FZ	Mid Drawer
	#52	#53	#51
Close	0V(Low)	5V(High)	0V(Low)
Open	5V(High)	0V(Low)	5V(High)

IC76(FF)/IC77(FZ)/IC78(Mid Drawer) State	
MICOM	IC76(FF)/IC77(FZ)/IC78(Mid Drawer)
0V(Low)	0V(Low)
5V(High)	11~12V(High)



5-11. When refrigerator ROOM Lamp does not light up



5-11. When refrigerator ROOM Lamp does not light up

1) Measuring IC76 voltage(CN-"3" (Red)/FF LED) Measuring IC77 voltage(CN78-"1"(Brown)/FZ LED) Measuring IC78 voltage(CN78-"6"(White-Black)/Mid Drawer LED)

FF LED Lamp ON

FF LED Lamp OFF

CLOSE

OPEN

Typical PCB Ground REG1 Heater Sink

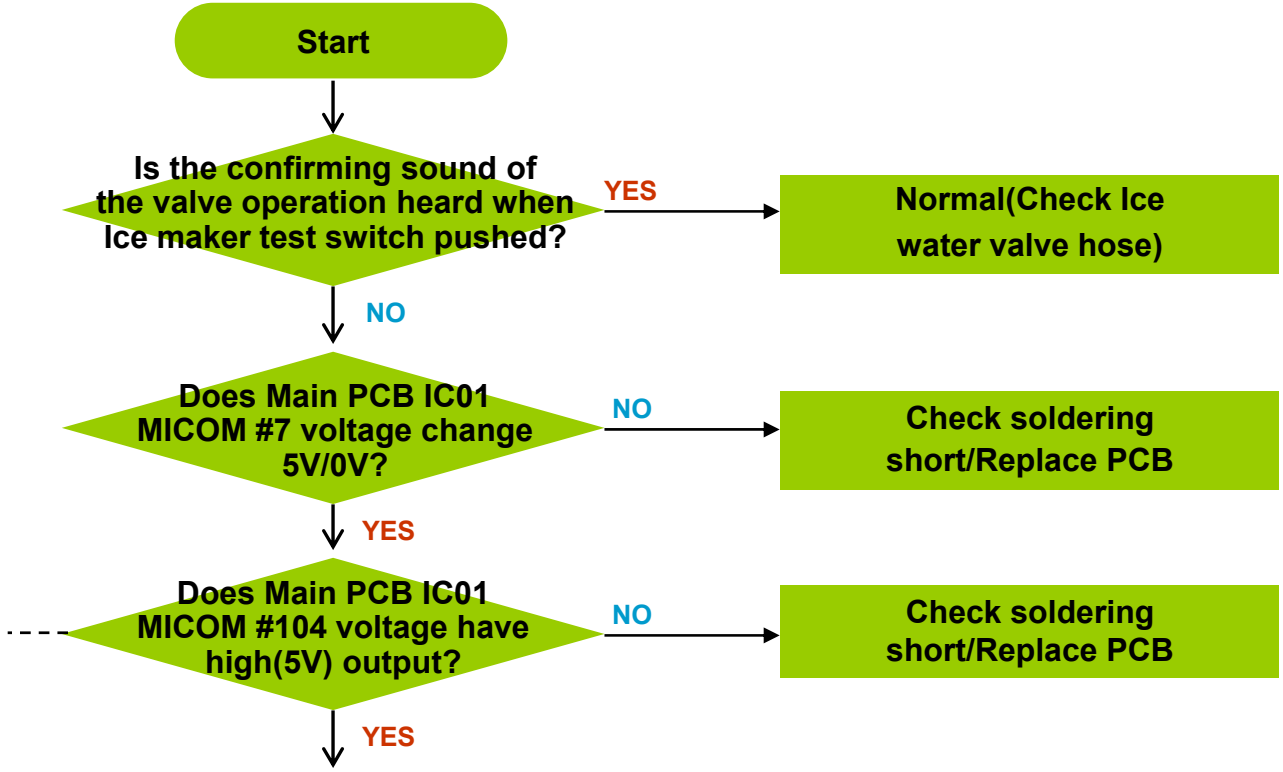
5-12. If ICE Water is not supplied

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.

Typical PCB Ground REG1
Heater Sink

☞ Checking method of voltage Based on PCB typical Ground REG1 Heater Sink

1) Check the voltage of IC73#4(same voltage as IC01 #104)
   - ICE Water valve operating (about 5V±0.5V)



5-12. If ICE Water is not supplied

Based on PCB typical Ground REG1 Heater Sink

2) IC73 #15 voltage
- 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)

=> For checking the Relay RY78 operating.
CN73 and CN74 combined and use same connector(13p)
CN70-"11"(Red) ↔ CN73-"7"(Purple)
- ICE Water valve waiting (about AC 0V)

YES

Is the contact point of main PCB RELAY RY78 normal? — NO → **Check soldering short/Replace PCB**

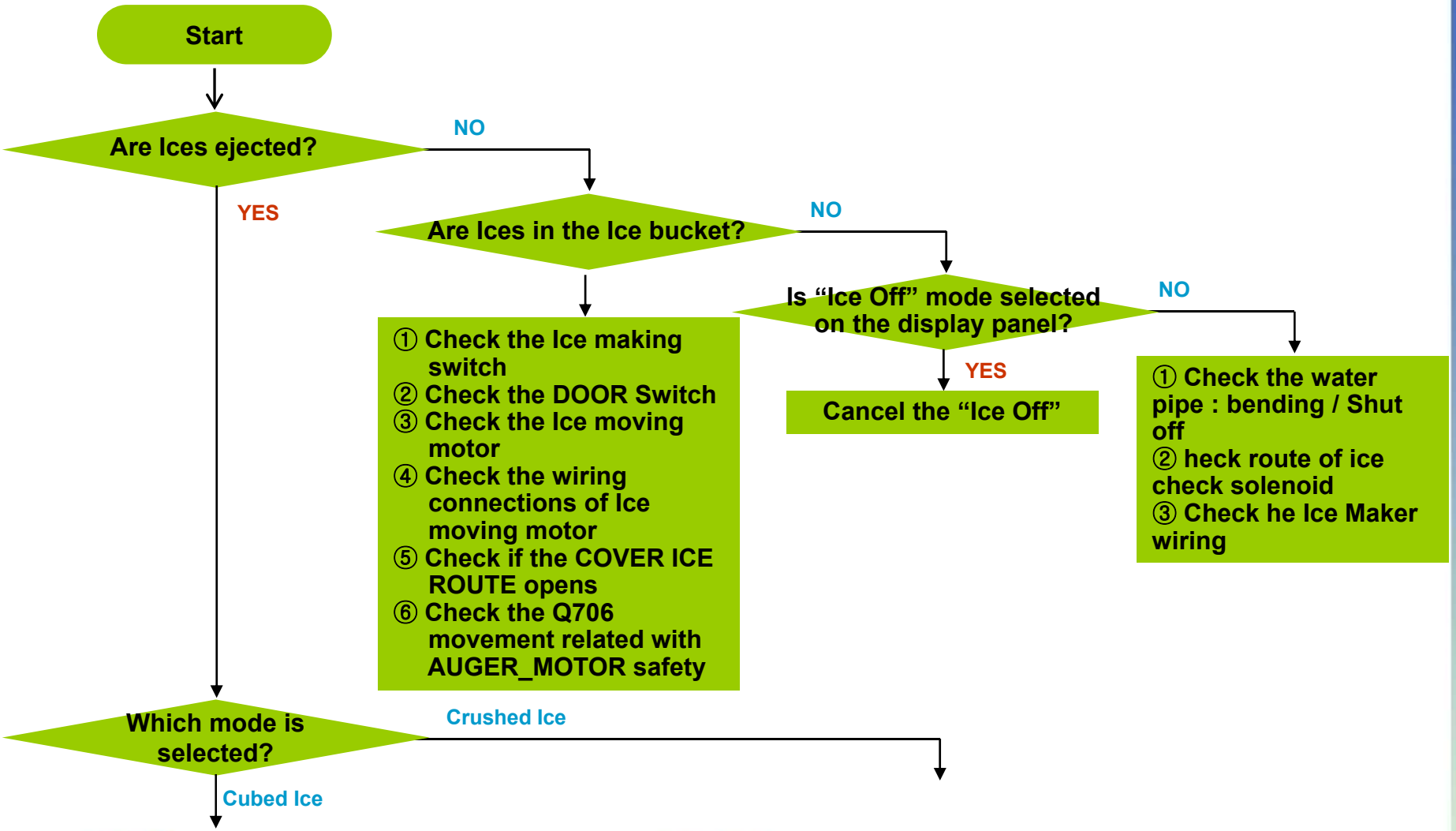
YES

Does Main PCB IC73 #15 have about 0.7V output? — NO → **Check soldering short/Replace PCB**

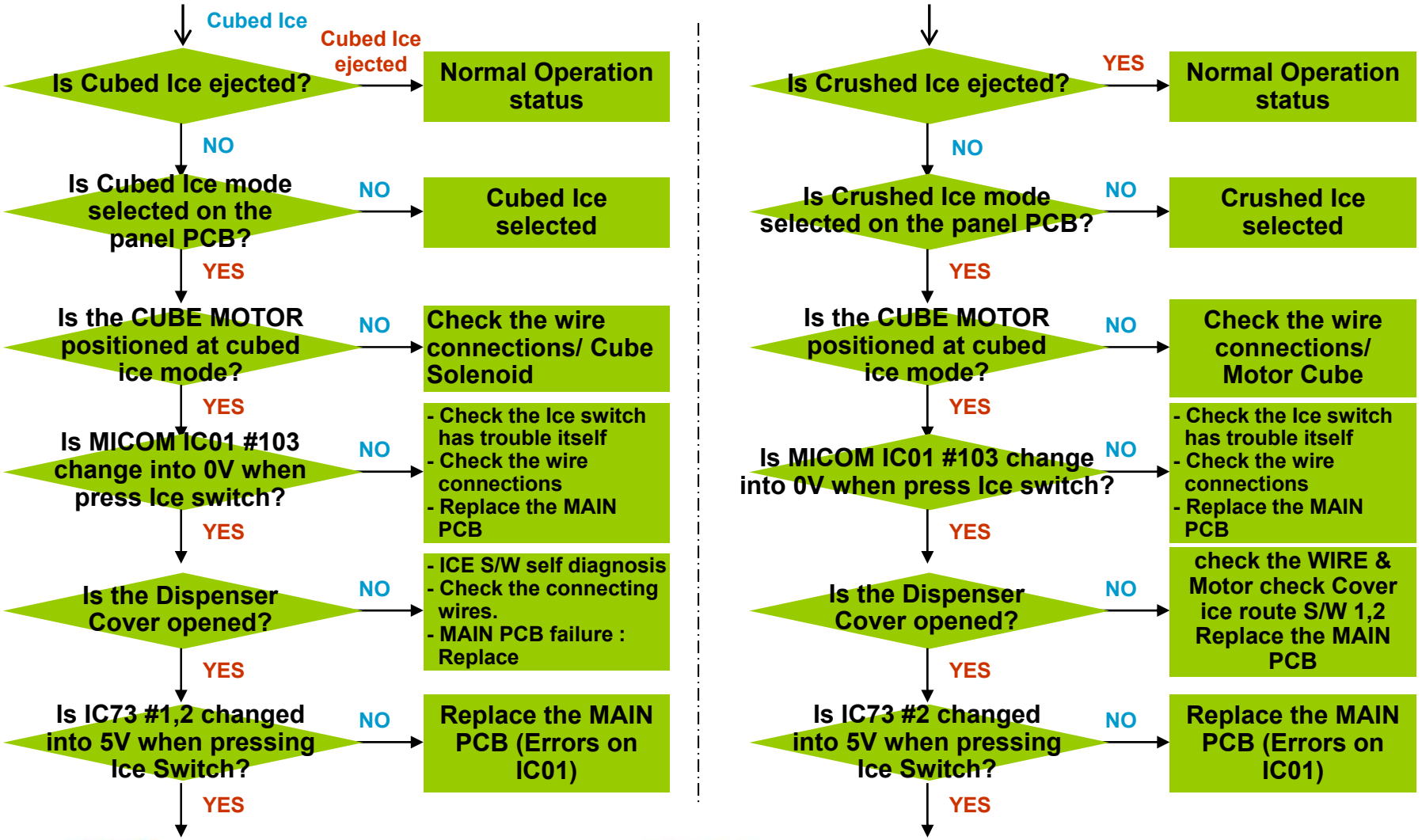
YES

MAIN PCB normal
-- Need to check the other parts
① Check the wire between Ice water valve↔MAIN PCB
② Ice water valve itself has trouble r bad contact of connector
③ Check the connection hose

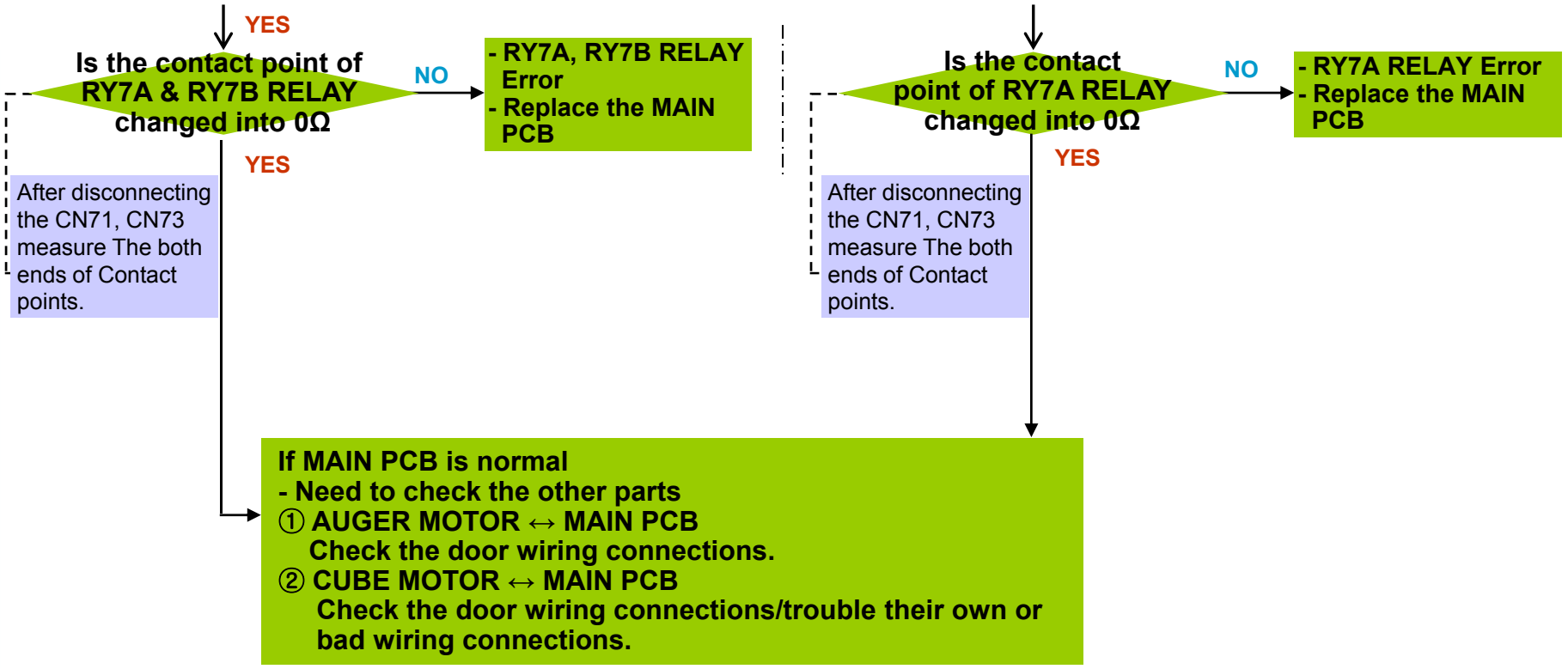
5-13. If Cubed or Crushed Ice is not supplied



5-13. If Cubed or Crushed Ice is not supplied



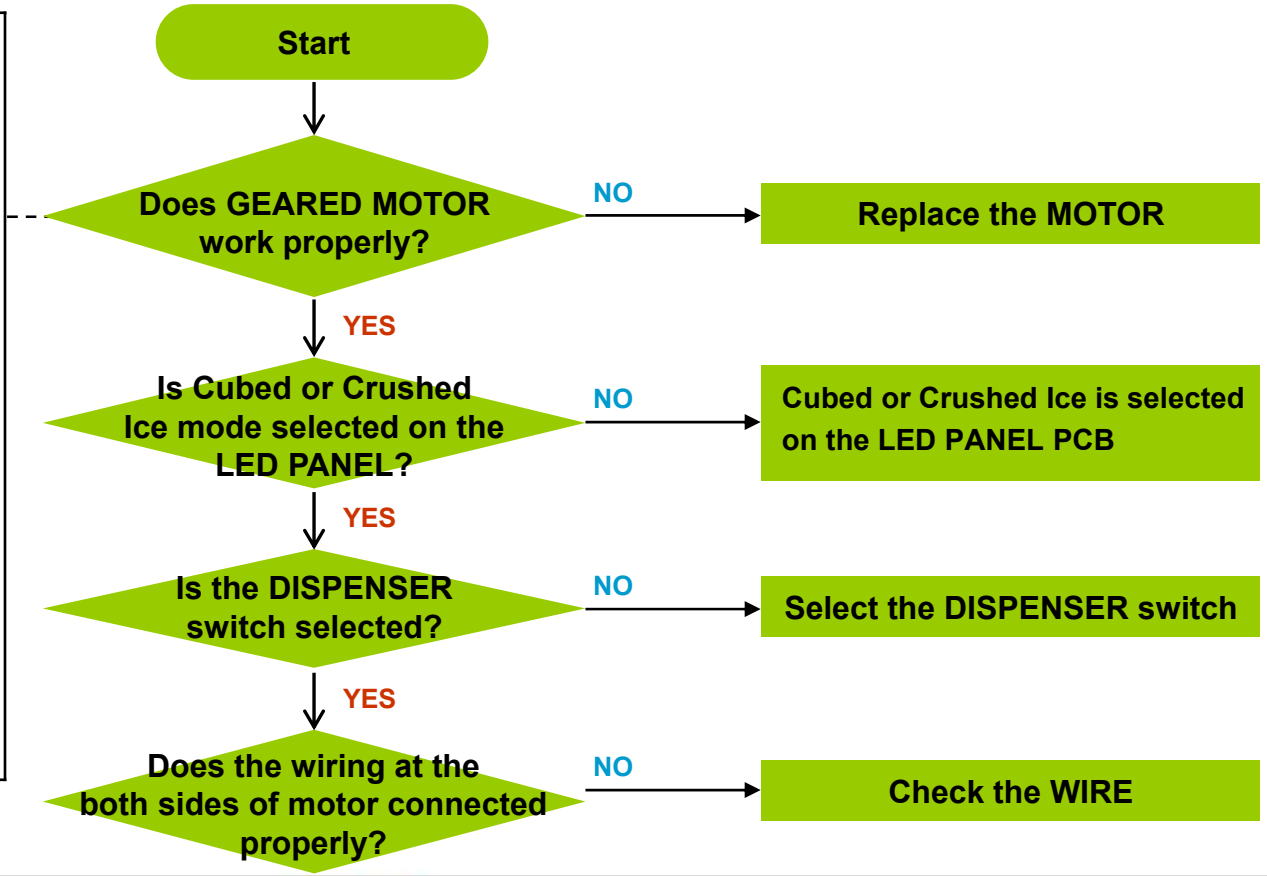
5-13. If Cubed or Crushed Ice is not supplied



5-14. 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 Resistance is variable according to the input voltage.
CN73 and CN74 combined and use same connector(13P)
CN70 -"11" (Red) ↔ CN73 -"9" (Blue)
** 0Ω: Short trouble / ∞Ω: Open trouble



5-14. If Cover Ice Route Motor(Geard Motor) is not working normally

When the MOTOR rotates.

YES

Is the AC input voltage applied to the both ends of the motor?

YES → **Check the MOTOR/Check any interference on MOTOR rotation**

NO

① Check CN73 -"9" Connector / Re-connect
② Check the short/open for the SSR75 of Cover Ice Motor on Main PCB.
③ Check the resistance of parallel Connector CN73 -"9", CN70 -"11" (Definitely plug out prior to repair)

Is the sensing SWITCH connection normal?

NO → **Check/Repair the Housing connector**

YES

Is the switch pressed area normal when motor rotates?

NO → **Check/Repair the Motor Rotation pressing area**

YES

5-14. If Cover Ice Route Motor(Geard Motor) is not working normally

Operating Condition of Dispenser Open/Close CN50 - Switch 1,2 Operating			
	Close	ing	Open
Ice Route Switch 1 CN50 - “9” (Purple)	0V	5V	0V
Ice Route Switch 2 CN50 - “10” (White)	0V	5V	0V

YES

Are the voltage REG1 Heater Sink and CN50-”9”, “10” normal?

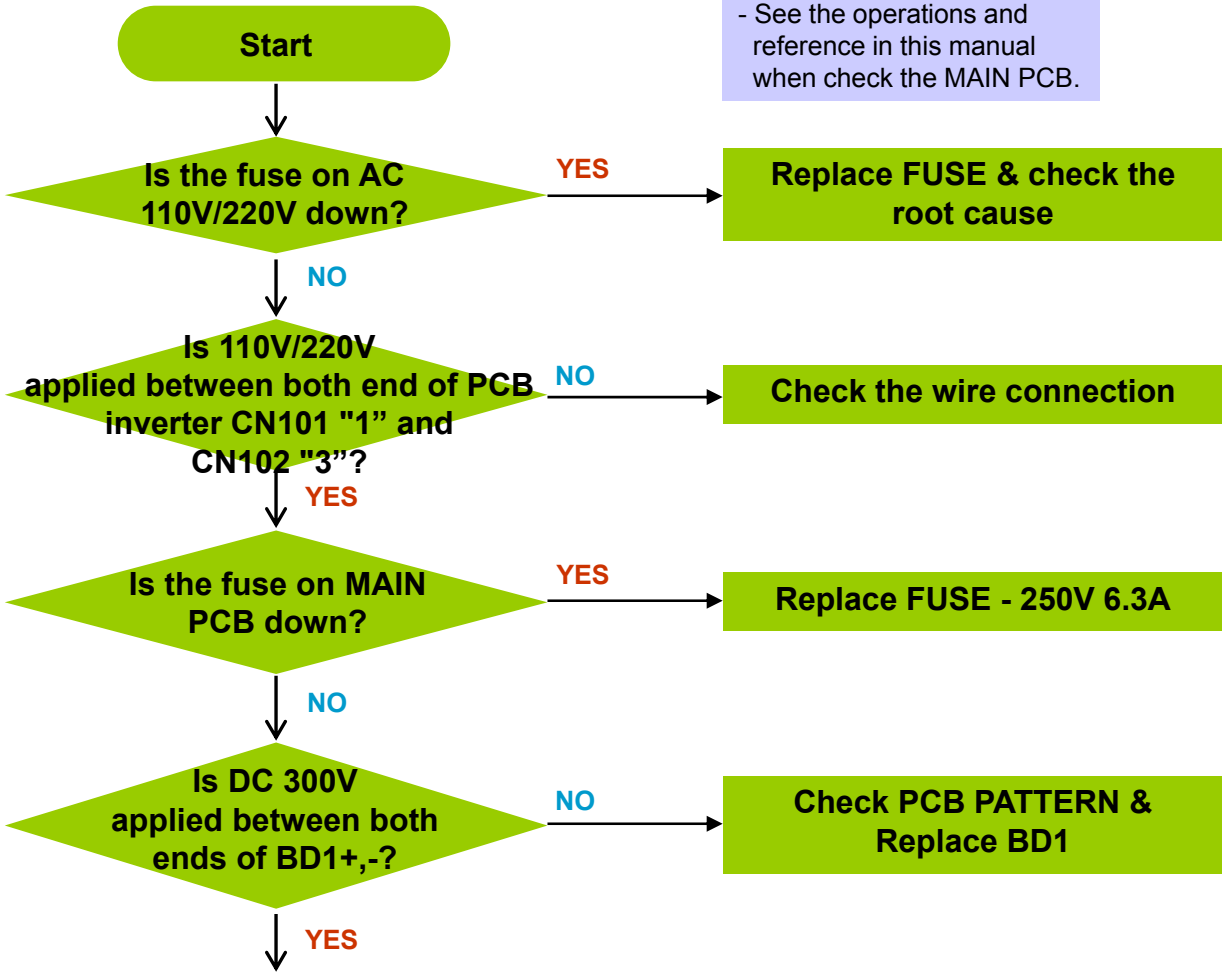
YES → **Normal**

NO

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 SSR75 in the MAIN PCB.
③ Replace the MAIN PCB or the Dispenser Cover Motor.

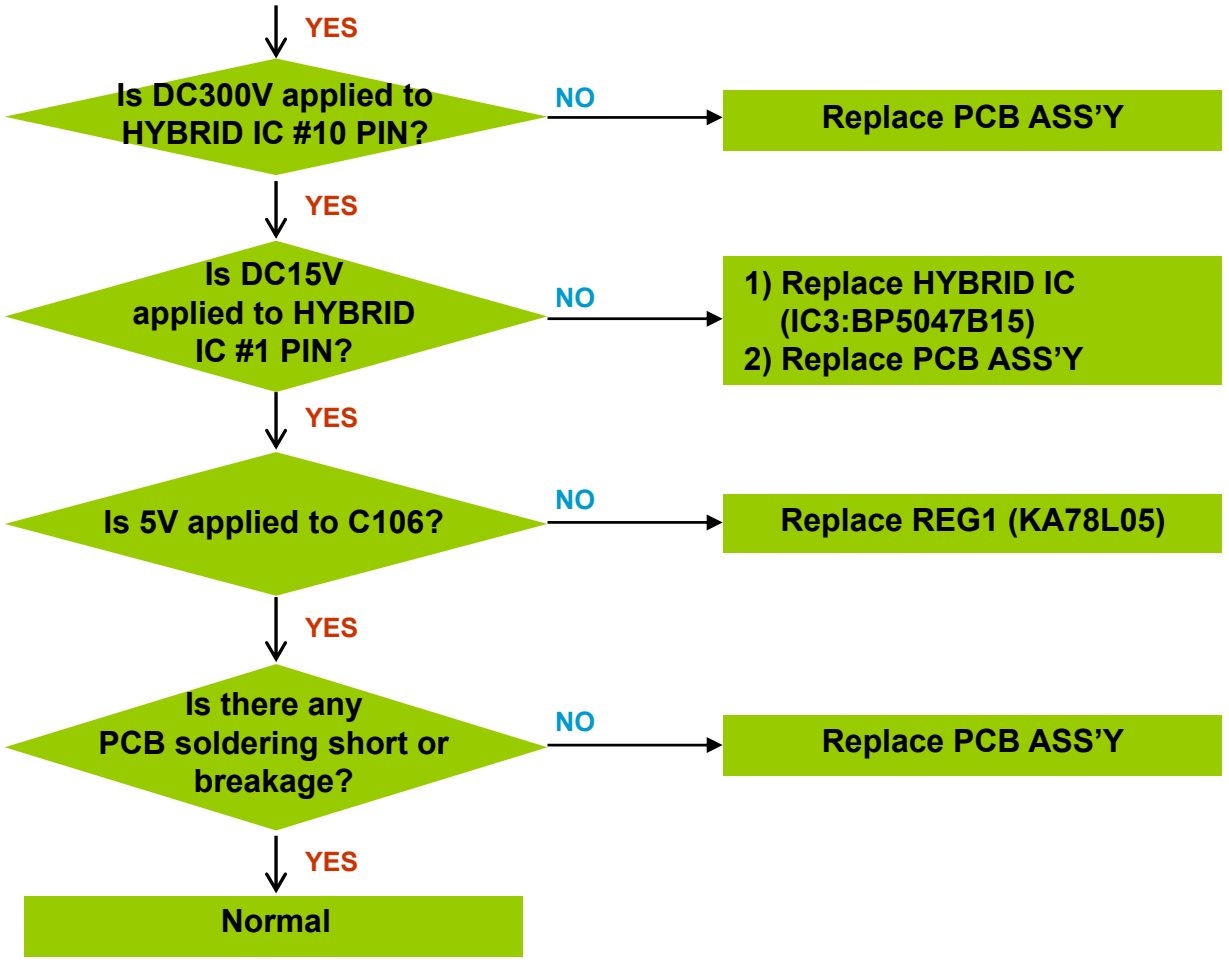
5-15. If Inverter PCB Power is not supplied

[Caution]
At the INVERTER PCB Power, AC 110V/220V power and over DC 300V of high-voltage are applied. Please take care of yourself when repair and measure.



- See the operations and reference in this manual when check the MAIN PCB.

5-15. If Inverter PCB Power is not supplied



5-16. 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(CN301) 2. Short among IPM Pins(No, #1~33) 3. Drop the IPM operating Voltage under DC 13.5V 4. Other cases, cjeck the COMP, cycle, etc.
	SPM Fault	
	Abnormal Current Detection	1. Open the COMP wire(CN301) 2. Bad condition of R 308(ex. Bad soldering) 3. Other cases, cjeck the COMP, cycle, etc.
	Motor Locked / Over RPM	1. Operating the locked rotor COMP with in 5 second. 2. Operating the COMP under 1000RPM more than 5secod. 3. Short the shunt resistor between leads. 4. Occur the huge change of input voltage in a moment 5. Other cases, check the COMP, cycle,etc.
	Under Voltage	1. Drop the input voltage under AC 53V 2. Short resistor R513(DC link resistor)
	Over Voltage	1. Increase the input voltage over AC 154V 2. Short resistor among R501, R505 and R509 (DC link resistor)

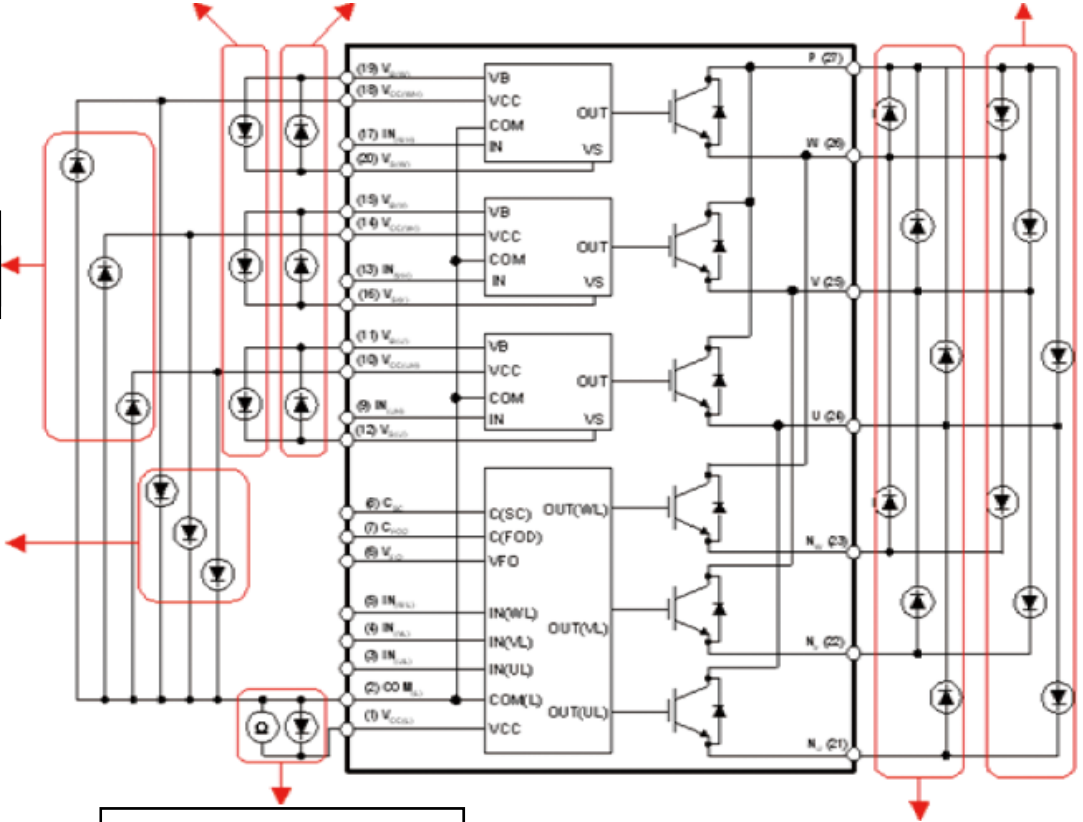
LED blinking frequency depending on protecting functions

SPM Internal DIODE Voltage

V_{BS} measurement
→ Open

V_{BS} measurement
→ 0.5V ~ 0.6V

IGBTmeasurement
→ Open



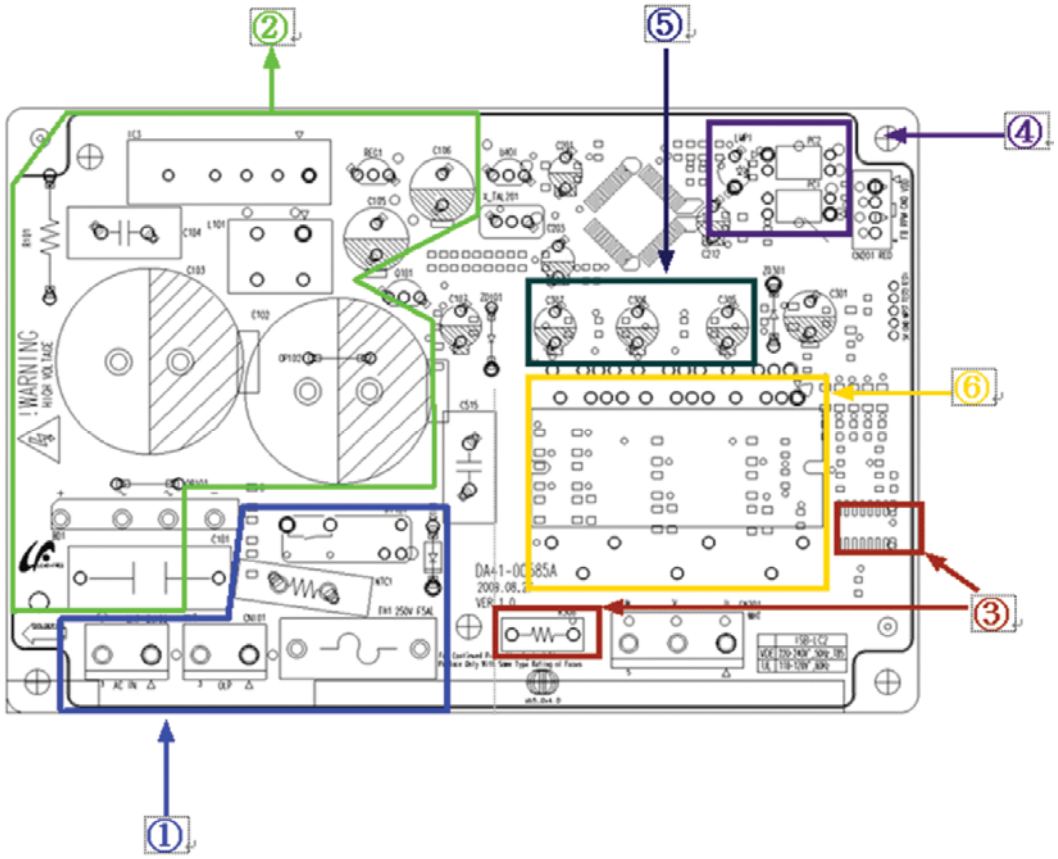
V_{BS} measurement
→ 0.5V ~ 0.6V

measurement
→Open

$V_{CC(LS)}$ measurement
→ 0.5V ~ 0.6V
→30~40 kohm

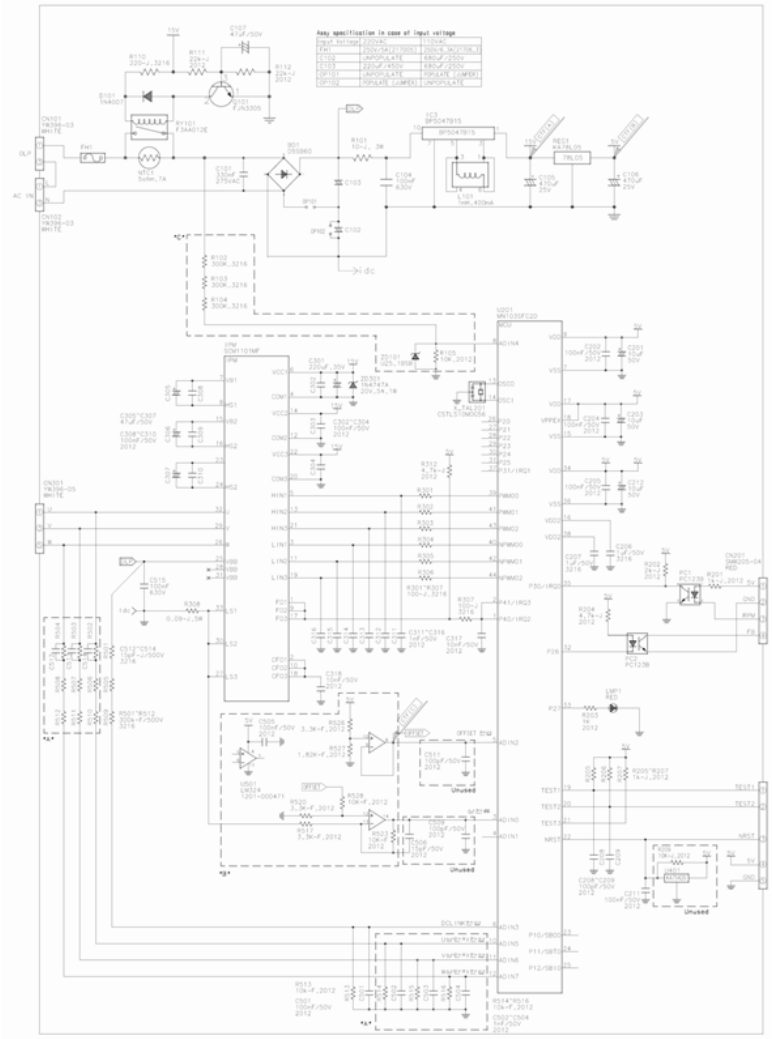
FWD measurement
→ 0.4V ~ 0.5V

INVERTER CONTROLLER BOARD Connector Location

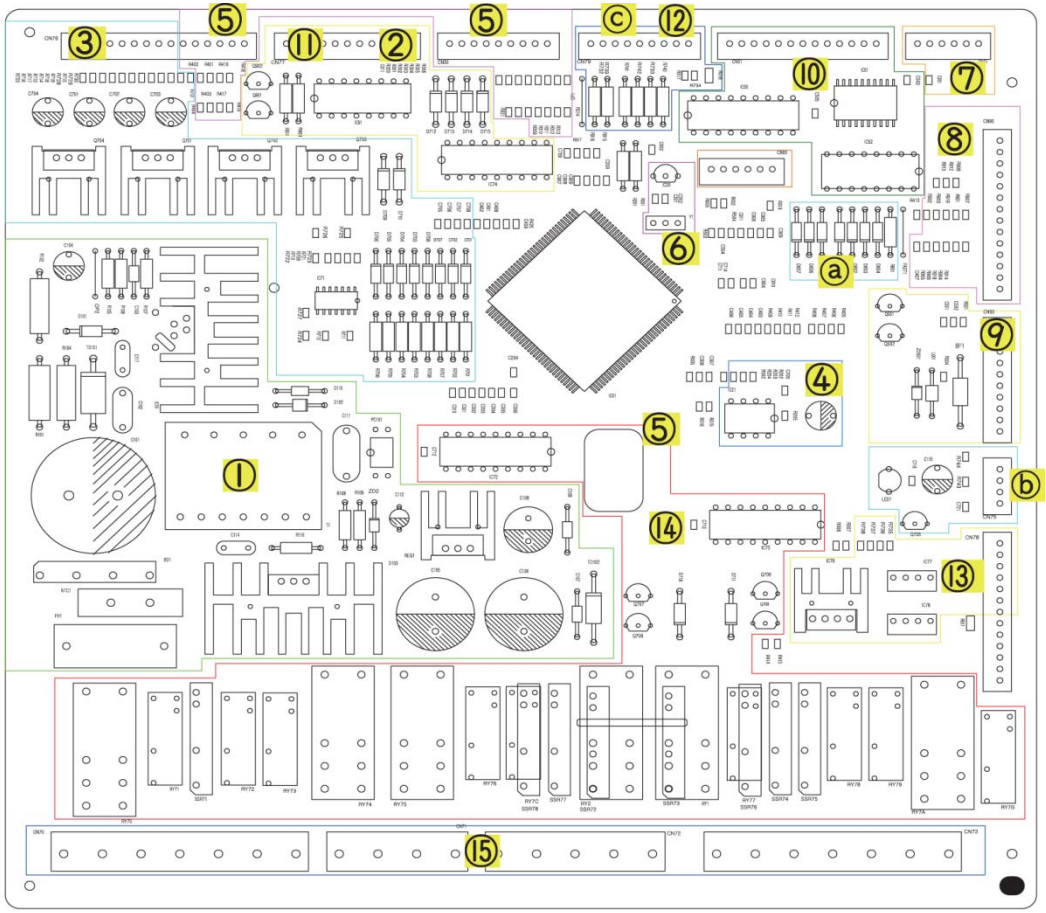


1. **Inrush Current protecting area :**
   It prevents an instant inrush of current generated in condenser when plug in.
2. **PCB Power Source :**
   Power source (HYBRID IC).
   It supplied DC15V and 5V to MICOM.
3. **Location sensing resistance area :**
   It senses motor location through the current detected.
4. **Current sensing area :**
   It senses the current from the SHUNT resistance and controls PWM DUTY.
5. **COMP operating SIGNAL area :**
   It receives COMP operating signal from MAIN PCB and conduct it.
6. **BOOTSTRAP live part :**
   Charging circuit that 1GBT of SPM can On/Off securely.

INVERTER PCB Circuit Diagram



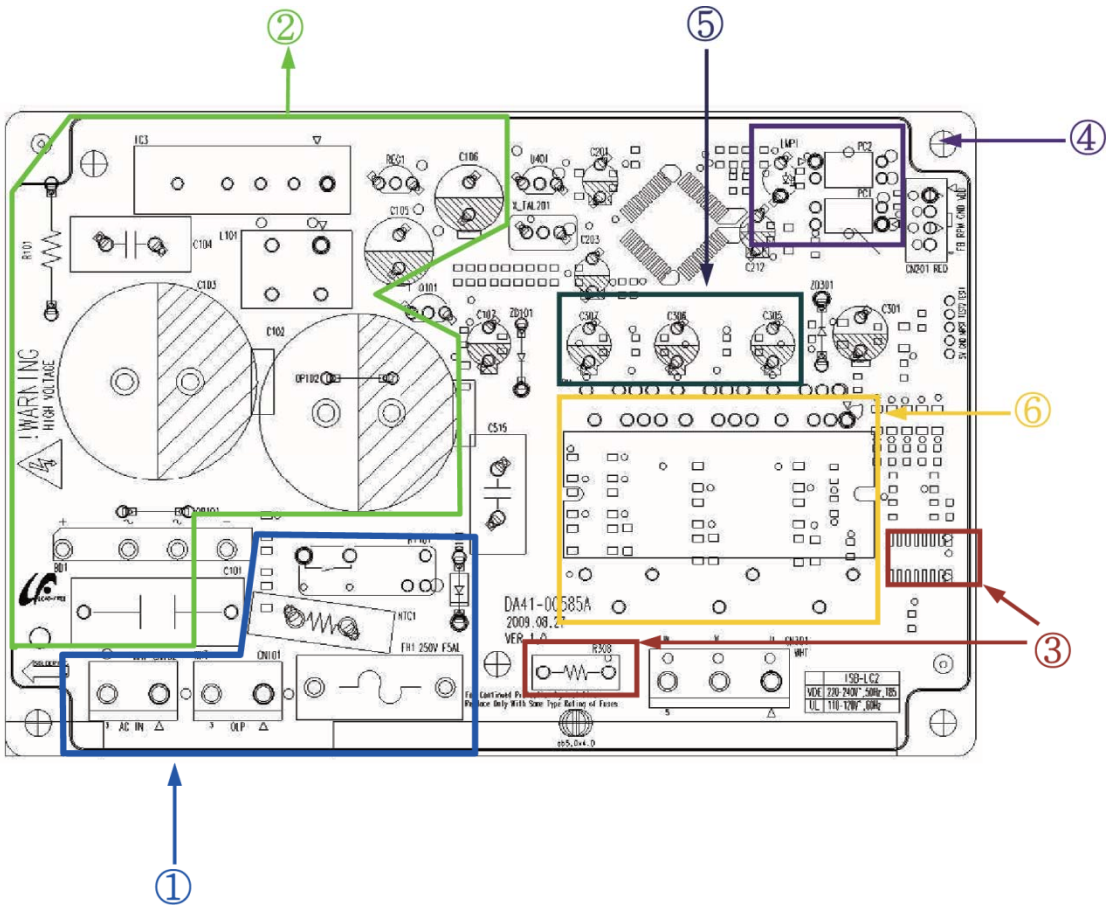
6-1. PCB Layout with part position



6-1. PCB Layout with part position

1. DC12V, 5V, GND supplied from SMPS PCB
2. Circuit for controlling Step-Valve (3-Way Valve) * Option
3. FAN MOTOR control part : To supply the power from 8.3V ~ 12V according to the motor types. (F,R,C,ICE)
4. EEPROM : Save and record every kinds of data.
5. Transmit inputted signals from every sensor into MICOM after eliminate the noise.
6. Micom : control the regrigerator Ceramic resonator : generate the basic frequency of Micom operation.
   Reset IC : make Micom reset if input voltage of Micom is detected less than the specified voltage
7. PLC input/output
   - PLC (Power Line communication) * Option(PLC module is not inserted unless specified occasion)
8. Operate ICE-MAKER, supply power to MOTOR, and sense the variation of switch.
9. Main Micom ↔ Panel Micom serial communication circuit
   - Dispenser option input part (Water & Cover Ice route switch)
10. Flex room display control part : display LED, detect KEY state.
11. Control Flex room damper & Damper heater
12. Water Tank Heater Controls (also controls other options)
13. LED LAMP Control Circuit (F, R, Flex Lamp)
14. Relay parts that controls AC load and receives Micom operating signal through Sink IC.
15. Connector with AC load
    a. Diode option setting area
    b. Inverter COMP controlling signal
    c. Flow Sensor controlllimg signal

6-2. PCB Layout with part position (Inverter Board)

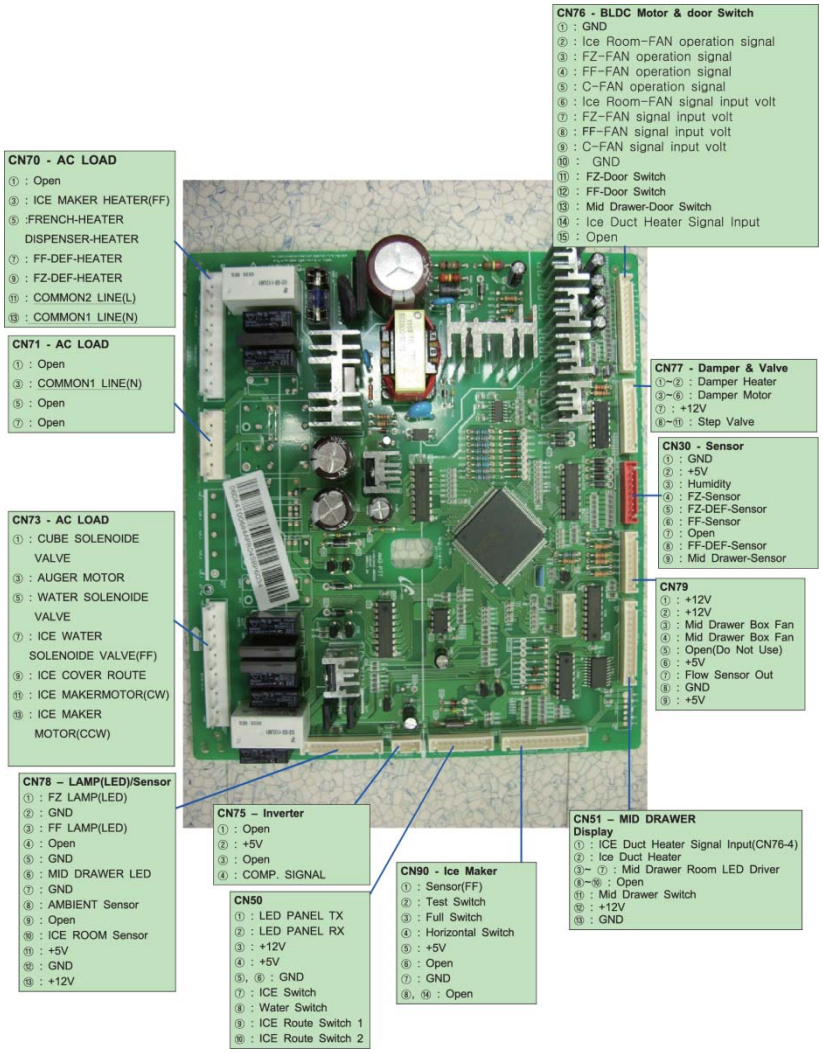


6-2. PCB Layout with part position (SMPS Board)

1. **Inrush current protecting area : It prevents an instant inrush of current generated in condenser when plug in.**
2. **PCB Power Bus : power bus (Hybrid IC). It supplies DC15V and 5V to MICOM.**
3. **Current detecting area : It detects the current from the SHUNT resistance and controls PWM DUTY.**
4. **COMP operating Signal area : It receives COMP operating signal from Main PCB and conduct it.**
5. **BOOTSTRAP live part : Charging circuit that 1GBT of SPM can On/Off securely.**
6. **IPM : The output circuit for operating COMP of the Refrigerator.**

6-3. Connector Layout with part position (Main Board)

6-3-1. RF4287HA**



6-4. Connector Layout with part position (Inverter Board)

6-4-1. RF4287HA**

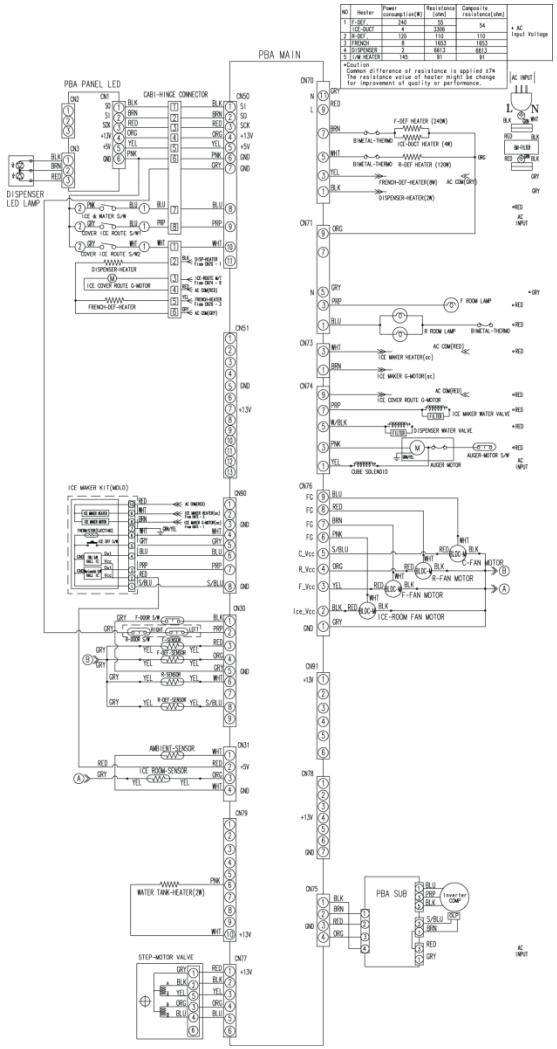
① VDD
② VSS
③ RPM
④ FB

POWER(110V)

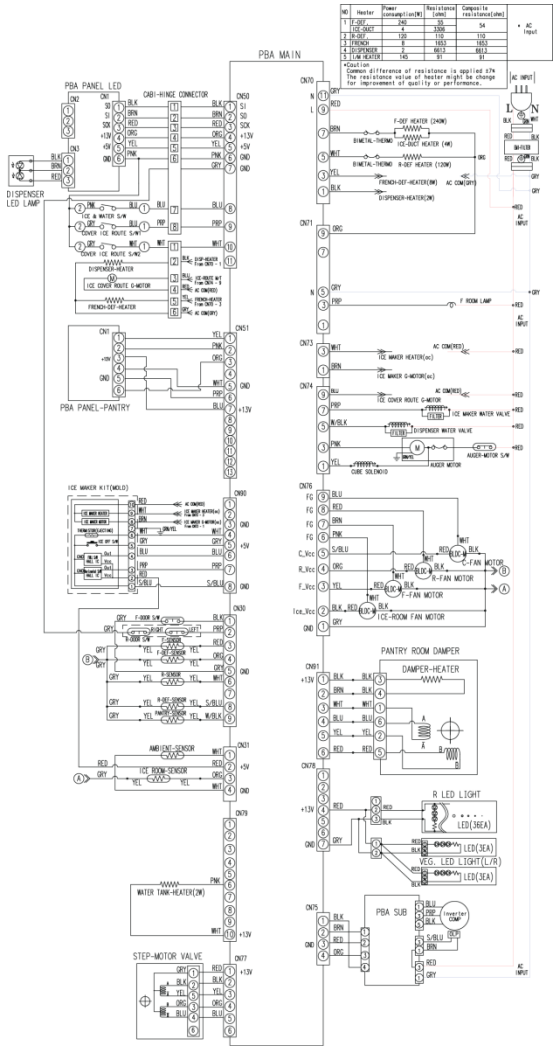
OLP

① U ② V ③ W

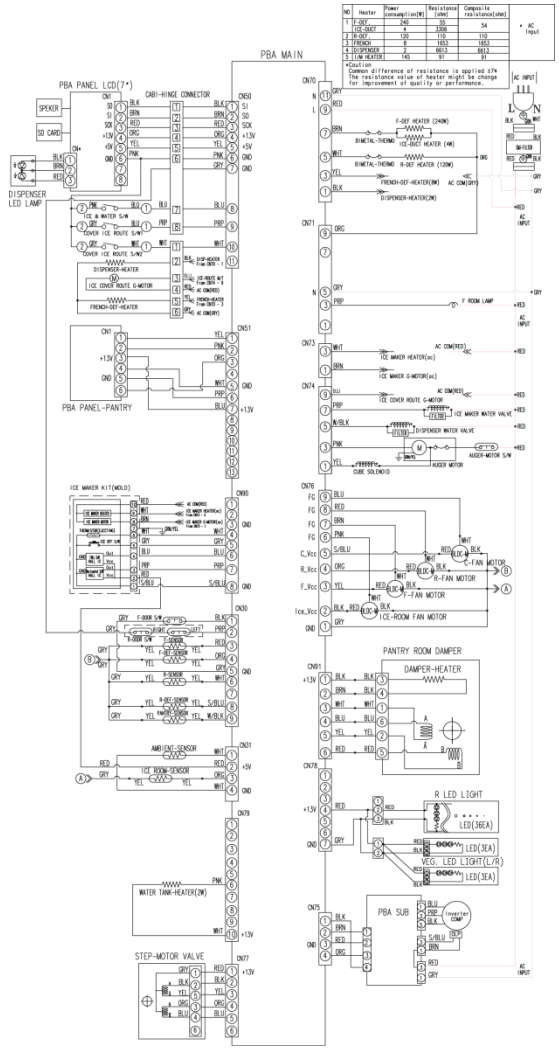
7-1. Model : RFG295AA**[BETTER]



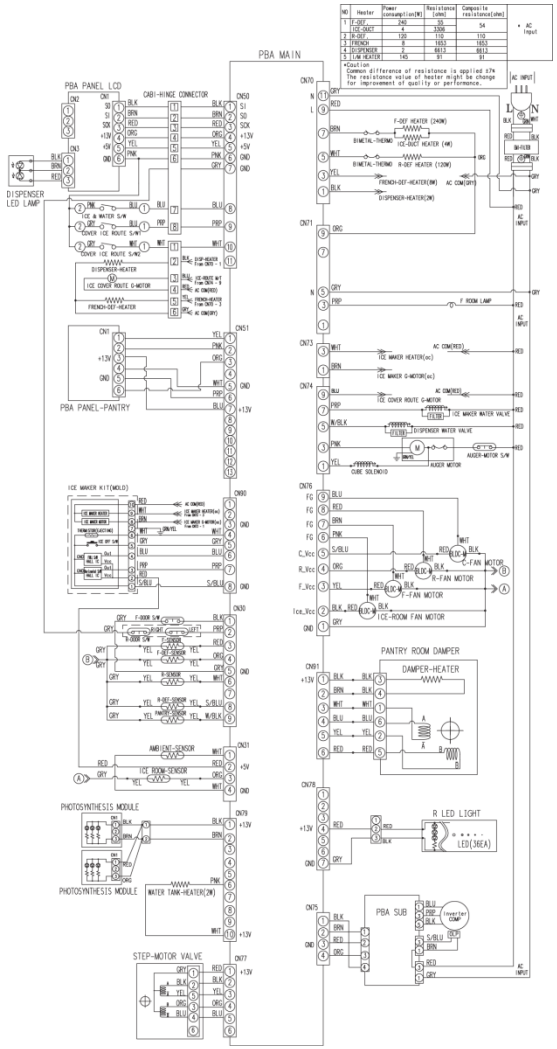
7-2. Model : RF4287AA**[BEST]



7-3. Model : RFG299AA**[7" LCD]

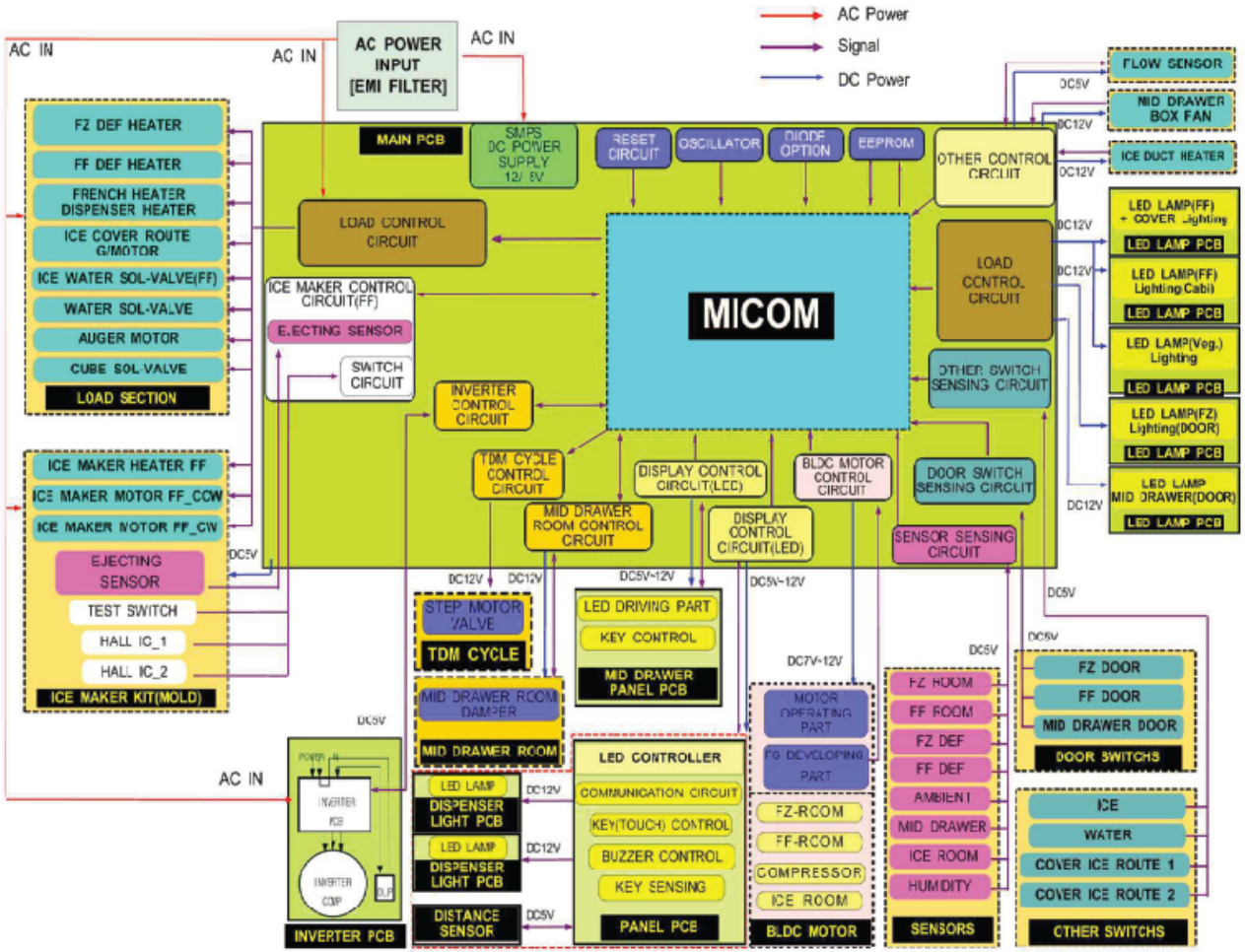


7-4. Model : RFG294AA**[SEARS]



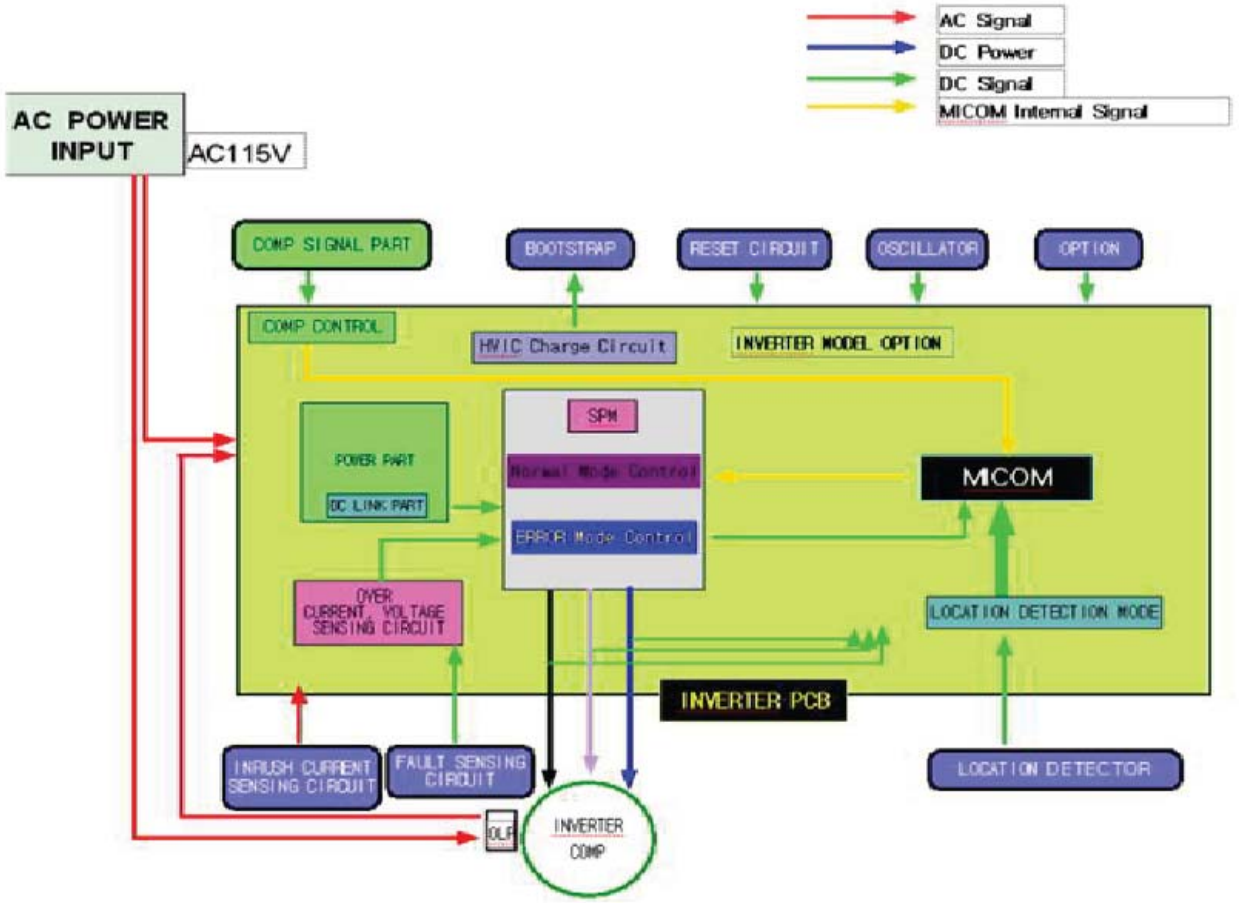
8-1. Whole block diagram

8-1-1. MAIN BLOCK(RF4287**)



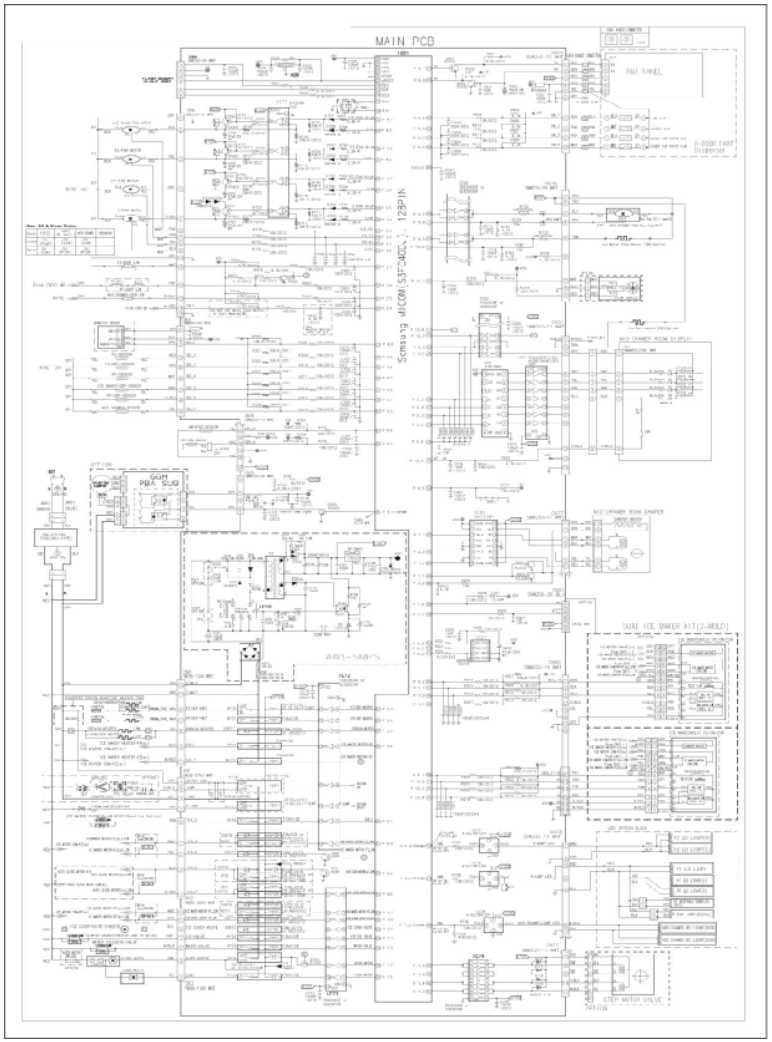
8-1. Whole block diagram

8-1-2. INVERTER BLOCK(RF4287***)



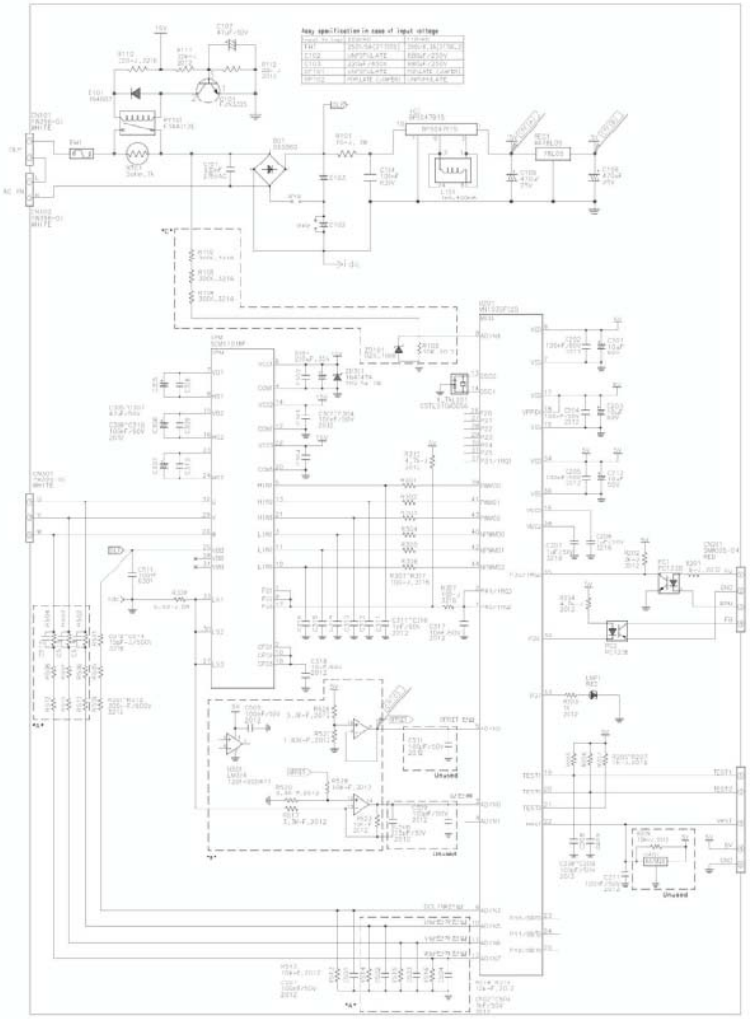
8-2. CIRCUIT DIAGRAM

8-2-1. Main



8-2. CIRCUIT DIAGRAM

8-2-2. INVERTER



9-1. Trouble Shooting

PROBLEM	SOLUTION
The Refrigerator does not work at all or it does not chill sufficiently.	• Check that the power plug is properly connected.
	• Check the set temperature on the digital display is warmer than freezer or fridge inner temperature.
	• Try setting it to a lower temperature.
	• Is the Refrigerator in direct sunlight or located near a heat source?
	• Is the back of the Refrigerator too close to the wall and therefore keeping air from circulating?
The food in the Refrigerator is frozen.	• Check the set temperature on the digital display is too low.
	• Try setting it to a warmer temperature.
	• Is the temperature in the room too low? Try setting it to a warmer temperature.
	• Did you store the food which is juicy in the coldest part of the Refrigerator? Try moving those items on the other shelves in fridge instead of keeping them in the Cool Select Pantry™.

9-1. Trouble Shooting

PROBLEM	SOLUTION
You hear unusual noise or sounds.	• Check that the Refrigerator is level and stable.
	• Is the back of the Refrigerator too close to the wall and therefore keeping air from circulating?
	• Try locate the refrigerator keep away from the wall over 2 inches.
	• Was anything dropped behind or under the Refrigerator?
	• A “ticking” sound is heard from inside the Refrigerator. It is normal and occurs because various accessories are contracting or expanding according to the temperature of the Refrigerator interior.
The front corners and vertical hinged section of the appliance are hot and condensation is occurring.	• Some heat is normal as anti-condensators are installed in the vertical hinged section of the Refrigerator to prevent condensation.
	• Is the Refrigerator door ajar? Condensation can occur when you leave the door open for a long time.
	• If a sound that hit something is heard from inside the refrigerator, it is normal and occurs because ice dropping make a sound by periods.

9-1. Trouble Shooting

PROBLEM	SOLUTION
Ice Maker is not producing ice.	• Did you wait for 12 hours after installation of the water supply line before making ice?
	• Is the water line connected and the shut-off valve opened?
	• Did you manually stop the ice making function?
	• Is the Freezer temperature too warm? Try setting the Freezer temperature lower.
You can hear water bubbling in the Refrigerator.	• This is normal. The bubbling comes from the Refrigerator coolant liquid circulating through the Refrigerator.
There is a bad smell in the Refrigerator.	• Check for spoiled food.
	• Foods with strong odors(for example, fish) should be tightly covered.
	• Clean out your Freezer periodically and throw away any spoiled or suspicious food.

9-1. Trouble Shooting

PROBLEM	SOLUTION
Frost forms on the walls of the Freezer	• Is the air vent blocked? Remove any obstructions so air can circulate freely.
	• Allow sufficient space between the foods stored for efficient air circulation.
	• Is the Freezer drawer closed properly?
Water dispenser is not functioning.	• Is the water line connected and the shut-off valve opened?
	• Has the water supply line tubing been crushed or kinked? Make sure the tubing is free and clear of any obstruction.
	• Is the water tank frozen because the Refrigerator temperature is too low? Try selecting a warmer setting on the Digital display.

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ Noise (resonance) problems keep on even though the noise generating BLDC motors for both of the compartments are replaced several times. What does generate the resonance and how can it be settled down?	When the BLDC fan motor rotates in low RPM, The friction with air is quite high and it generates “grinding” noises.	If you replace the ambient thermistor with a 2.7K resistance (detecting 109.4℉), the BLDC fan motor rotates in high RPM, which reduces friction with air resulting in reduction of the “grinding” resonance.
▶ What causes the “knocking” noises? How to solve it?	It makes “knocking” or “branch breaking” noises when the liner and the shelves hit each other due to the fluctuation of the inside air pressure upon door open/close. Also, these noises occur when the liners and the shelves hit each other as the liners expand and contract due to the temperature change in both of the compartments.	Check the clearance between the selves and the liners. ① Freezer Shelves: Remove the trim shelves already attached and replace them with those supplied for service. ② Fridge Shelves: Because noise-preventing trim selves are not attached, it needs attaching.
▶ What is the solution if the same problem occurs even though the counter action in the service bulletin has been implemented already for the “knocking” noises?	Check if the selves wobble. If they do, have shelves sit firmly on their places.	

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶What causes the liquid passing noises from the back of the refrigerator?	Refrigerant goes into the evaporator via the capillary tube in which the refrigerant expands as it circulates the cooling cycle. At this time, the refrigerant is in its liquid state and it starts evaporating as it reaches at the inlet of the evaporator with a bigger diameter, which causes the refrigerant noises. And, it gets worse when the refrigerant does not flow freely.	
▶What is the solution for the compressor noises?	For new refrigerators	
	Check if the refrigerator is leveled.	Check if the refrigerator wobbles by shaking with hands.
	Check if there is enough clearance at the back of the refrigerator for the ventilation of the machine compartment.	If there is not enough clearance or it is blocked by things such as newspaper, there could be resonance noises.
	Required clearance around the product.	More than 2 inches from the back, 12 inches from the top and 4 inches from its sides.

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ What is the solution for the compressor noises?	For old refrigerators	
	Dust could get built-up in the machine compartment. Then, its ventilation would get restricted which makes the refrigerator overheated resulting in the increase of the noise level.	Explain it to customers and let them clean dust or any other foreign substances in the machine compartment.
	As the vibration proof rubbers get hardened, noises generate during the comp operation. (The noise level is quite high.) → Replace the vibration proof rubbers.	The compressor is dislocated due to impact during its transportation such as moving-in. → Check if it's dislocated when it is more noisy after moving-in.
▶ During the comp start-up, iron friction noises occur. What causes them?	The reciprocation piston could get worn out or inner components could get dislocated.	
▶ What can be checked when the unit sends out noises?	1. Check its symptoms and patterns. 2. Check if the unit is installed on a firm and leveled floor. 3. Check if the unit is installed close to the customer's living area. 4. Check if the panel on the machine compartment hits on the rear wall and the unit has enough clearance with the rear wall. 5. Check if the refrigerant pipes are shaped as normal.	

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ Why is the fridge compartment not cool? (Not a defect)	Advise customers to adjust its temperature level to one or two step higher. For example, when the ambient temperature is low such as in winter (especially, when you use it in the morning with the door not being opened or closed during the night), the compartment temperature could get increased by 33.8~35.6℉. So, advise customers to shift its temperature level and explain to them that it does not affect its power consumption that much when its temperature setting is adjusted to one or two step lower.	
▶ Why is the food melt even though the display of the freezer compartment shows -4℉?	Check the compartment temperature with a thermometer.	If it is considered to be low cooling, When the BLDC motor fan does not rotate because its restriction is not picked up. When the evaporator is frozen-up (defrost it) Temp detection error according to the characteristic change of the thermistor (set the compartment temperature or replace the thermoistor)

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ What is the reason that vegetables get frozen even though the fridge compartment is set to MIN?	Replace the fridge thermistor because it could be faulty. 1st: Check if the thermistor works after referring to the self-diagnosis checklist on the MAIN-PCB cover. If the over-cooling keeps on even though there is no problem with the above, replace it.	
▶ What can be done when frozen food gets melt in the freezer compartment or it does not cool down?	Defrost it by using hot water and check the defrost system for any fault. And then, eliminate the root causes so as to prevent it from reoccurring.	
▶ Why doesn't the compressor operate upon power supply?	Upon the initial power on, the compressor starts operating after a five minute delay to protect the compressor. So, please wait until it starts operating.	
▶ Why does it send out "Ding Dong" or alarm sounds with the doors closed?	Check if the food sticks out preventing the doors from closing properly. If it send out the above sounds with the door closed well, the door switch may not have been pressed down completely. So, make sure for the door switches to be pressed completely. Still, if it does not stop going off, check the wiring connections because the door switch signals may not be inputted into the PCB. And, when the door switch is faulty or it is not pressed down completely, the fan does not rotate and it causes low-cooling advancing to a defrost problem.	
	Note : When it comes to automatic models, the fan motor does not operate right on with the door closed after being opened. The fan motor for dual-evaporator refrigerators starts after a 50℉~ second delay and when the ambient temperature is higher than 91.4℉, it starts after a minute.	

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ What can be done when it sends out much smell in the fridge and the freezer compartments after 2 months?	When the stored food sends out much smell. ☞ Check if there is any food sending out sustaining smells. Dried squid, dried laver : Hold on them Pounded garlic : Put it in an airtight container Medical herbs : Make sure they are packed airtight. Replace the old packing or wrap with a new one. Others : Check if the container is sealed or the food is packed airtight. ☞ Check if the compartment temperature is normal and the food is contaminated. ☞ Check if there are any overflow of side dishes on the shelves or the bottom of the compartments. ☞ Put the food sending out much smell in an airtight bag or container. ☞ Open the door and ventilate it. Also, clean liners, shelves, containers and door bins.	
▶ What is the cause and its counter action for chemical smells with new products?	During its delivery to customers, chemical smells from various components could build up inside of the compartments. So, please let the doors open for some time to use the unit.	
	Precautions : Smells tend to get soaked into the liners or other components. If food generating much smell is stored inside, it would stick onto the liners and other components and it is so difficult to remove the smell. Especially, customers should take care in storing smelly food properly with its sealing being tight during the early period of the product's use.	

9-2. Q&A

Descriptions of symptoms	Check Points	Corrective Measures
▶ What can be done when the smell keeps on even thought the deodorizers are cleaned?	1) Turn off the refrigerator (unplug the unit) and remain the door opened. 2) Take out the food stored in the refrigerator. And then, take out all the shelves, door bins and containers, and put them in warm water. After cleaning them by using dish detergents and drying them, put them back to their locations. 3) Remove the deodorizer and soak it in warm water more than 4 hours. After drying it in sunlight, put it back to its location. 4) Throw away the smell-soaked plastic bags and put the food in new ones.	
▶ What causes the funny smell in water?	When it tastes and smells funny ☞ It tastes funny even though it does not smell funny.	It could happen when remnants of the water filter or organics have been built up in the water tank. So, replace the water filter and the water tank together. If there is no replacement part and the water tank need cleaning, use dish detergents and make sure to clean the inside without any detergents remaining inside.

9-3. Model name (nomenclature)

R F 26 8 AB PN / XAA

PRODUCT: F-FRENCH DOOR
S-SBS
M-MULTI DOOR
B-BMF

Capacity: CU.FT

MAIN OPTION
7 : Twin ice maker
8 : Best
V : Defeature
6 : Better
5 : Good

SUB OPTION
AA: 1st Generation
AB: 2nd Generation made in korea
AC: 2nd Generation made in mexico

COLOR

BP DOOR : BLACK (PCM)	CABI : BLACK (EMBO)
WP DOOR : SNOW WHITE	CABI : SNOW WHITE (EMBO)
RS DOOR : REAL STS (UNCOATED)	CABI : NOBLE STS (EMBO)
PN DOOR : Platinum Inox	CABI : NOBLE STS (EMBO)

BUYER NAME

Thank you

The End

SAMSUNG DIGITall
everyone's invited