SAMSUNG

REFRIGERATOR

BOTTOM MOUNT FREEZER

MODEL NAME : RFG293HARS
RFG293HABP
RFG293HAWP

MODEL CODE : RFG293HARS/XAC
RFG293HABP/XAC
RFG293HAWP/XAC

SERVICE *Manual*

REFRIGERATOR

RFG293HA

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For the latest parts information, Please access to our service web site
(● North America : http://service.samsungportal.com)

WARNING

IMPORTANT SAFETY NOTICE

The service guide is for service men with adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or dealer cannot be responsible for the interpretation of this information.

SAMSUNG ELECTRONICS AMERICA, INC.

Technical Service Guide

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1. PRECAUTIONS(SAFETY WARNINGS)

- Unplug the refrigerator before repairing or replacing any electrical parts.

→ Be aware of electric shock hazards.

- When replacing any parts with new ones, use the proper parts.

→ Check the model name, rated voltage, rated current and operating temperature.

- When troubleshooting, check all harnesses are firmly in place.

→ Make sure they are not dislodged when connecting power.

- Check for any signs of water penetration in electrical parts.

→ If the sign is found, replace the part with a new one or place insulation tape over the part.

- Check the assembly status of parts after troubleshooting.

→ They must be assembled exactly the same way as before.

- Check the installation location of the refrigerator.

→ Do not install the refrigerator in the place where is damp or wet, or can make the product unstable.

- Be sure to electrically ground the refrigerator.

→ To avoid electrical shock, it is required to electrically ground the refrigerator.

- Do not insert several plugs in an outlet receptacle at the same time.
  Check the power cord and the receptacle are damaged, pressed, squeezed, or fired.

→ If either of them is damaged, repair or replace it immediately.

- Do not store anything other than foods.

→ Drugs or chemicals: It is difficult to keep the proper storage temperature for the materials.

→ Flammable materials below have a risk of explosion if they are stored in the refrigerator.
(Alcohol, benzene, ether, LP gas, or butane gas and so on,)

- Do not allow users to repair the refrigerator by themselves.

PRECAUTIONS(SAFETY WARNINGS)

Read all instructions before repairing the product and follow the instructions in order to prevent danger or property damage.
Plug out and remove all the items in regrigerator prior to repair.

CAUTION/WARNING SYMBOLS DISPLAYED

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

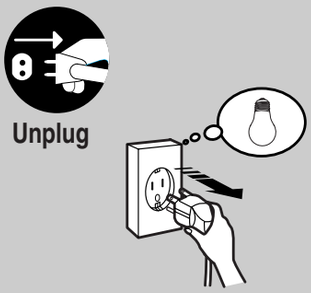
SYMBOLS

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

Warning & Caution

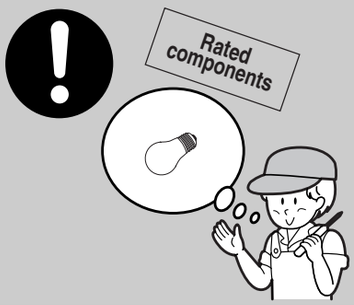
Unplug the refrigerator before replacing the interior lamp.

- *It may cause electric shock.*



For the replacement, use the rated components.

- *Check the model name, rating voltage, rating current and operating temperature and so on.*



When repairing, make sure that the wires such as harness are bundled tightly together.

- *Make the wires bundled tightly together so as not to be detached by the external force, or to be become wet.*

When repairing, completely remove dust or like from housing parts, harness parts, and check parts.

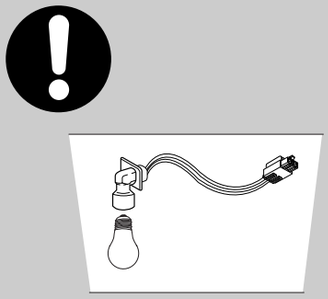
- *Cleaning may prevent a possible fire by tracking or short.*

After repairing, check the assembly state of components.

- *They must be assembled exactly the same way as before.*

Check for any signs of water penetration in electrical parts.

- *If the sign is found, replace the part with a new one or place insulation tape over the part.*



PRECAUTIONS(SAFETY WARNINGS)

※ Please let users know following warnings & cautions in detail.

Warning & Caution

Do not allow users to put bottles or any kind of glass in the freezer.

- *Frozen contents may cause injury.*

Do not allow users to store narrow and lengthy bottles or foods in a small multipurpose bin.

- *When opening the refrigerator, those items may fall down on users. It may cause personal injury.*

Do not allow users to store pharmaceutical products, scientific materials and so forth in the refrigerator.

- *Products which need to keep the proper storage temperature must not be stored in the refrigerator.*

Do not insert several plugs in an outlet receptacle at the same time.

- *This may cause overheat or fire.*

Do not allow users to disassemble, repair or modify the product.

- *This may cause fire, or abnormal operations leading to personal injury*

Do not allow users to excessively bend the power cord or place any heavy object on it.

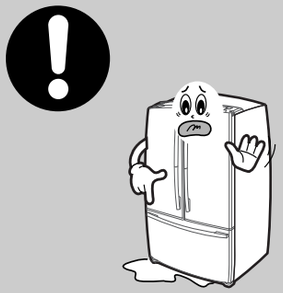
- *This may cause fire.*

Do not allow users to put items on top of the refrigerator.

- *The movement of the door opening and closing may make the items fall down, which may lead to personal injury.*

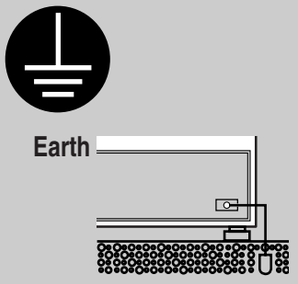
Do not allow users to install the refrigerator in the place where is damp or wet.

- *Insulation deterioration of electrical parts insulation may cause electrical shock or fire.*



Electrically ground the refrigerator.

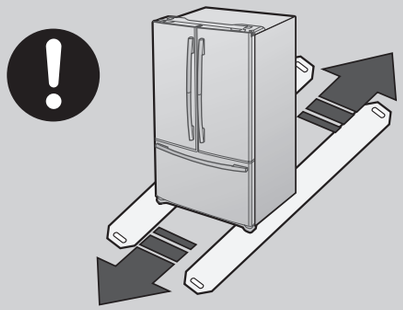
- *Make sure the refrigerator is properly grounded.*



PRECAUTIONS(SAFETY WARNINGS)

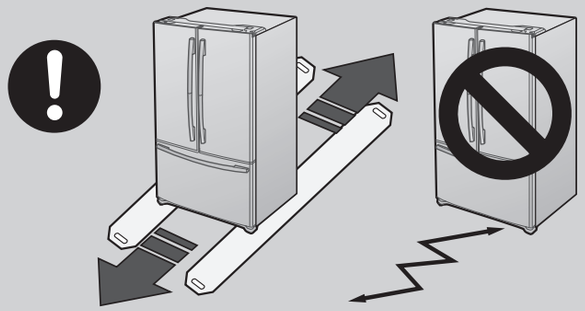
FLOORING

For proper installation, this refrigerator must be placed on a level surface of hard material that is the same height as the rest of the flooring. This surface should be strong enough to support a fully loaded refrigerator, or approximately 660lbs(299kg).



MOVING

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



2. PRODUCT SPECIFICATIONS

2. PRODUCT SPECIFICATIONS

2-1) Introduction of Main Function

- **A newly developed SAMSUNG bottom mount freezer in 2010 has the following characteristics.**

	**Surround Multi Flow** • Uniform cooling for each shelf and even in corner in fresh food compartment by centerpositioned 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.
	**Electronic control from outside of Pantry Cover** • Adjustable temperature control ((around 41℉(5℃) : Deli / around 38℉(3℃) : Fresh / around 34℉(1℃) Chilled) Temperature control from outside of the Pantry : user friendly design helps keep foods fresh for longer
	**16" Pizza Corner** • Can be used for 16" pizza if the flap is turned up
	**Secure Auto Close Door System** • Secure Auto Close Door System • Cool tight doors • Energy saving • Preventing sweat on fridge doors
	**Easy Handle System** • Ez-open Freezer Door • Ergonomic Door Design

PRODUCT SPECIFICATIONS

Slim Water Filtration System

- Slim water filter is place between crispers for changing filter conveniently without removing items from refrigerator.

PRODUCT SPECIFICATIONS

2-2) Specifications

ELECTRICAL SPECIFICATIONS

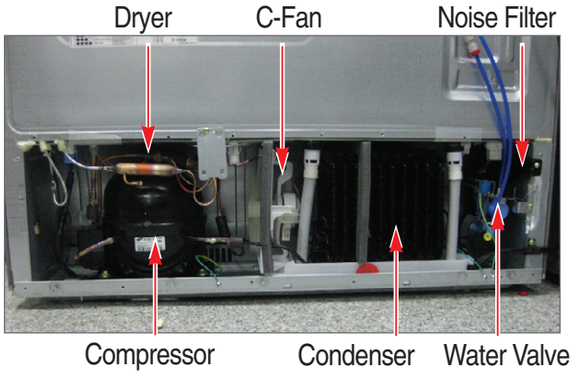
Defrost Control ..... From 6 to 22 hrs
Thermo Bimetal Protector .....140°F(60°C)(off) 104°F(40°C)(on)
Defrost Thermistor(502AT) ..... 59°F(15°C)(off)
Electrical Rating ..... AC115V 60Hz 11.6 Amps
Maximum Current Leakage ..... 0.25 mA
Maximum Ground Path Resistance ..... 0.1 Ohm
Energy Consumption 492KWh/year

NO LOAD PERFORMANCE

Ambient Temperature	70°F(21°C)	90°F(32°C)
Refrigerator,°F	34°F(1°C)~46°F(8°C)	34°F(1°C)~46°F(8°C)
Freezer,°F	-8°F(-22°C)~8°F(-13°C)	-8°F(-22°C)~8°F(-13°C)
Run Time,%	<60	<80

REFRIGERATION SYSTEM

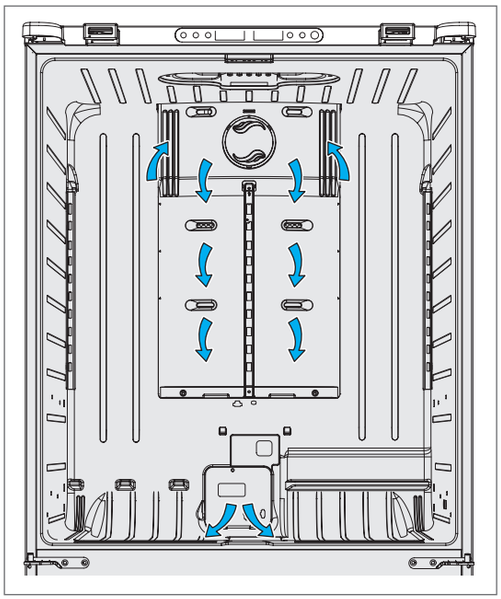
Refrigerant Charge (R134a)..... 5.64 oz(160g)
Compressor(MKV190CL2B/E01) ..... 1314 Btu/hr(0.385kw)
Compressor oil ..... Freol α 15c
R Capillary tube(Dia, Length) ..... 0.032″,118″ (0.82mm,3500mm)
F Capillary tube(Dia, Length) ..... 0.032″,118″ (0.82mm,3500mm)



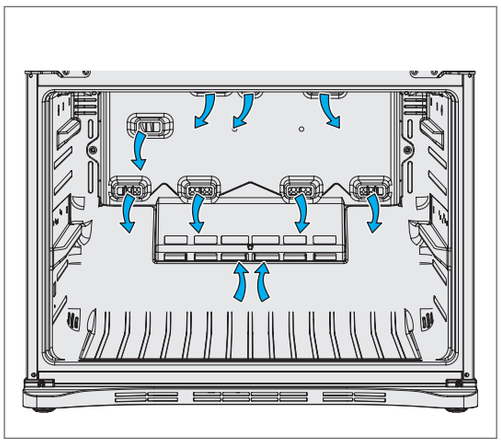
INSTALLATION

Clearance must be provided for air circulation
AT TOP ..... 2″ (50mm)
AT SIDES ..... 3¾″ (95mm)
AT REAR ..... 2″ (50mm)

Refrigerator

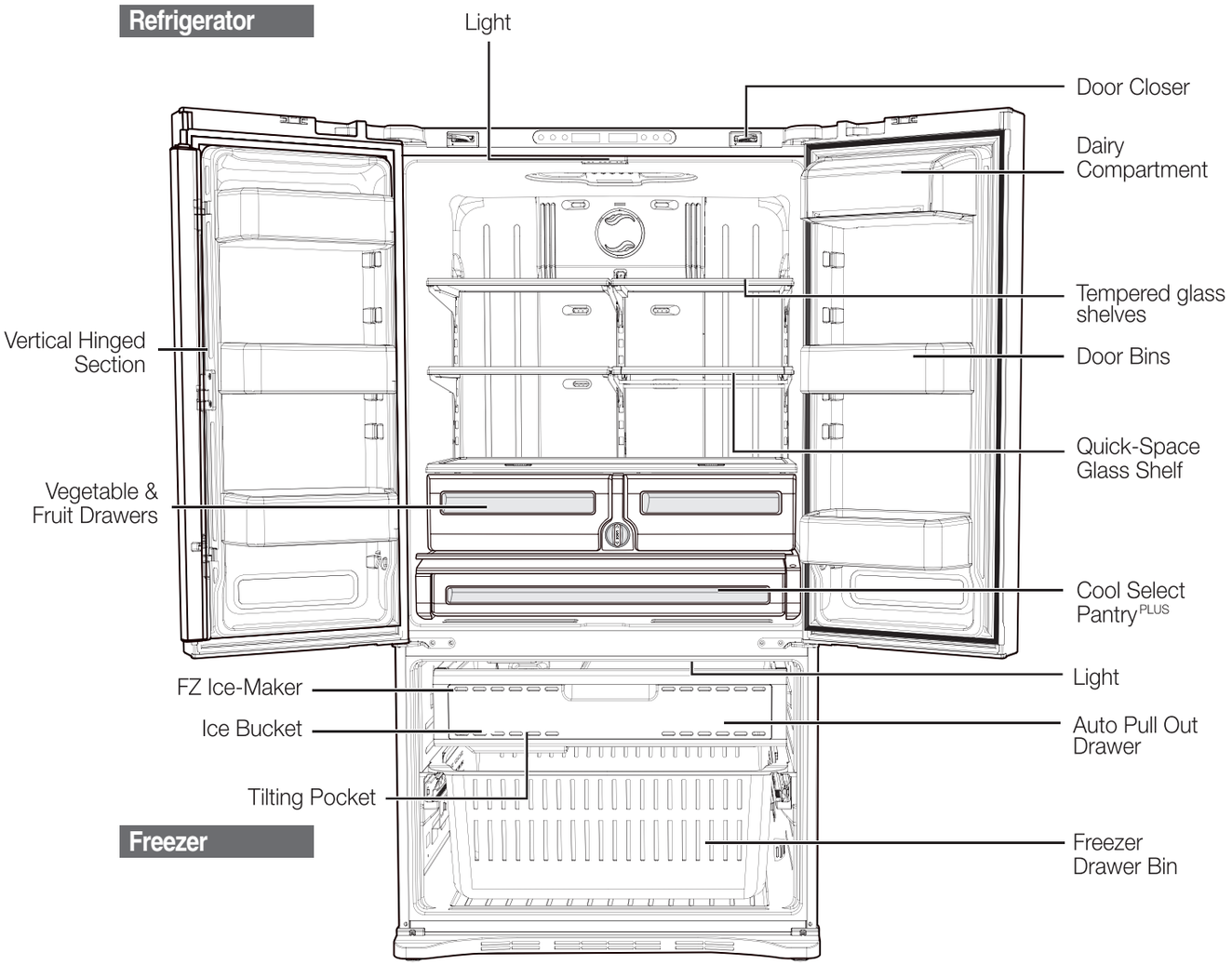


Freezer



PRODUCT SPECIFICATIONS

2-3) Interior Views



PRODUCT SPECIFICATIONS

2-4) Model Specification

ITEM			SPEC	SAMSUNG	
				RFG293HA	RFG297AA
Appearance					
Product Zone			Cooling Tech	Twin Cooling	Twin Cooling
			Door Shape	Contour	Contour
			Special Room	Cool Select Pantry	Cool Select Pantry
Performance	Cooling Speed(Min)	F-Room	250 ↓	196.7	199.2
		R-Room	250 ↓	185.8	197.3
	Forced Operation at 89.6°F(32°C)	F-Room	-26.0 ↓	-32.0	-28.1
		R-Room	2.0 ↓	0.7	0.7
	Forced Operation at 110°F(43°C)	F-Room	-18.0 ↓	-23.6	-21.5
		R-Room	5.0 ↓	1.1	1.3
	Temperature Distribution	F-Room	2.0 ↓	0.5	0.2
		R-Room	2.0 ↓	0.3	0.3
	Running Rate	N-N	80% ↓	65.2	62.5
Noise	Sound power level		46dB ↓	42.8	41
	Sound Pressure level		45dB ↓	44.2	38.6

PRODUCT SPECIFICATIONS

2-5) Model Specification & Specification Chart

ITEM	Model		RFG293HA
			Pantry
External size	W		35 3/4 inch (908mm)
	D	On Cabinet	29 1/8 inch (740mm)
		W/O Handle	32 7/8 inch (836mm)
		With Handle	35 3/4 inch (905mm)
	H	W/O Hinge Cap	69 7/8 inch(1774mm)
		With Hinge Cap	69 7/8 inch(1774mm)
Net Capacity	Total		28.5 Cu.ft (807.3 ℓ)
	Freezer		8.7 Cu.ft(246.8 ℓ)
	Refrigerator		19.8 Cu.ft(560.5 ℓ)
Efficiency of Volume			55.4%
Weight	Set		308.6 Pounds (140kg)
	Packing		343.9 Pounds (156kg)
Packing	Width		38 5/8 Inch (980mm)
	Depth		39 3/8 Inch (1001mm)
	Height		75 5/8 Inch (1923mm)
Compressor			Reciprocate
Rated Frequency 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			165W
Electric Heater Rated Consumption Power			330W

COLOR			
	Cabinet (Both Side)	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

PRODUCT SPECIFICATIONS

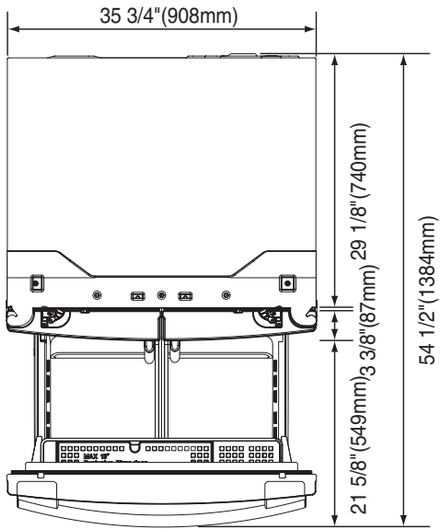
Items				Specification	
Model				RFG293HA	
Components for Freezer	Compressor		Model	MKV190CL2B/E01	
			Starting type	BLDC	
			Oil Charge	FREOL α - 15c	
	Evaporator		Freezer	SPLIT FIN TYPE	
			Refrigerator	SPLIT FIN TYPE	
	Condenser			Forced and Natural Convection Type	
	Dryer			Molecular sieve XH-9	
	Capillary tube(Dia x 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℉(-21℃)	-11℉(-24℃)
			-2℉(-19℃)	1℉(-17℃)	-5℉(-21℃)
			8℉(-13℃)	11℉(-12℃)	5℉(-15℃)
	Refrigerator	Model	Temperature Selection	ON(℉)	OFF(℉)
		THERMISTOR (R-SENSOR) 502AT	34℉(1℃)	36℉(2℃)	32℉(0℃)
			38℉(3℃)	40℉(4℃)	36℉(2℃)
			46℉(8℃)	48℉(9℃)	44℉(7℃)
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		6hr ±10min	
		Defrost Cycle(FRE)		12~22hr(vary according to the conditions used)	
		Defrost Cycle(REF)		6~11hr(vary according to the conditions used)	
		Pause time		15 ±1min	
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0 ㏀ at 77℉(25℃)	
		R Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0 ㏀ at 77℉(25℃)	
	Bimetal	F Bimetal-thermo Protector	Rated	AC 125V 10A	
			Operating temperature	Off : 140℉(60℃) / On : 104℉(40℃)	
		R Bimetal-thermo Protector	Rated	AC 125V 10A	
			Operating temperature	Off : 140℉(60℃) / On : 104℉(40℃)	

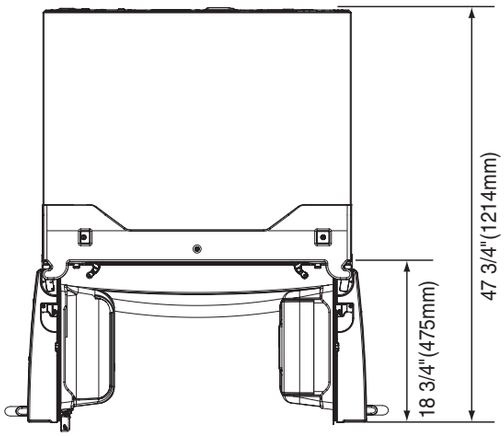
PRODUCT SPECIFICATIONS

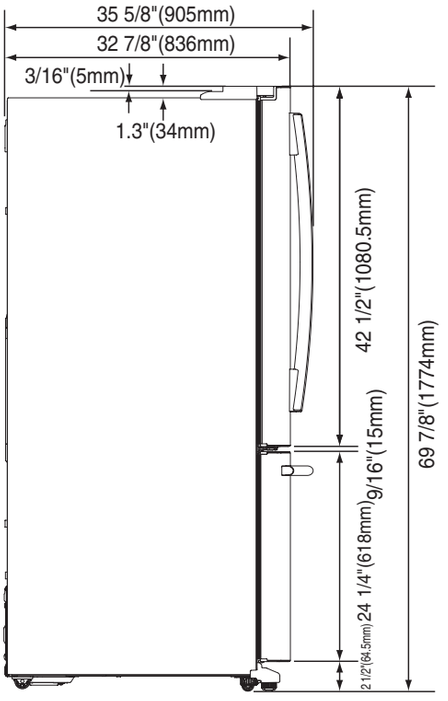
Items			Specification
Model			RFG293HA
Electric Components	Defrost Heater(FRE)	Heated at F Defrost	AC120V, 230W
	Defrost Heater(REF)	Heated at R Defrost	AC120V, 120W
	FRENCH Heater	-	AC115V, 8W
	Water Pipe Heater	-	DC 12V, 2W
	Bimetal thermo for Preventing Overheating of Refrigerator Lamp		AC125V 6A / AC250V 3A Off: 140℉(60℃)/ On : 104℉(40℃)
	Over Load Relay	Model	4TM445PHBYY-82
		Temp.ON	156.2± 16.2℉(69± 9℃)
		Temp.OFF	257± 9℉(125± 5℃)
	Rated Voltage		AC 115V/ 60Hz
	Motor-BLDC(FRE)		DC12V / DREP5020LC
	Motor-BLDC(REF)		DC12V / DREP5020LC
	Motor-BLDC(CIRCUIT)		DC12V / DRCP5030LA
	Motor-DAMPER(PANTRY)		DC12V / NSBY001TD1
	Lamp LED (FRE)		DC 12V 100mA ~ 140mA
	Lamp LED (REF)		DC 12V / 720mA
	Lamp LED (VEG)		DC 12V / 60mA
	Door Switch	FRE	AC 125V 1.5A (1EA)
		REF	DC200V 1.5A / MS-406-SS-01(2EA)
	Power Cord		AC125V 15A
	Earth Screw		BSBN (BRASS SCREW)

PRODUCT SPECIFICATIONS

2-6)Dimensions of Refrigerator (Inches)

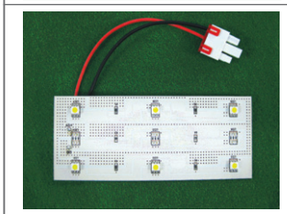






PRODUCT SPECIFICATIONS

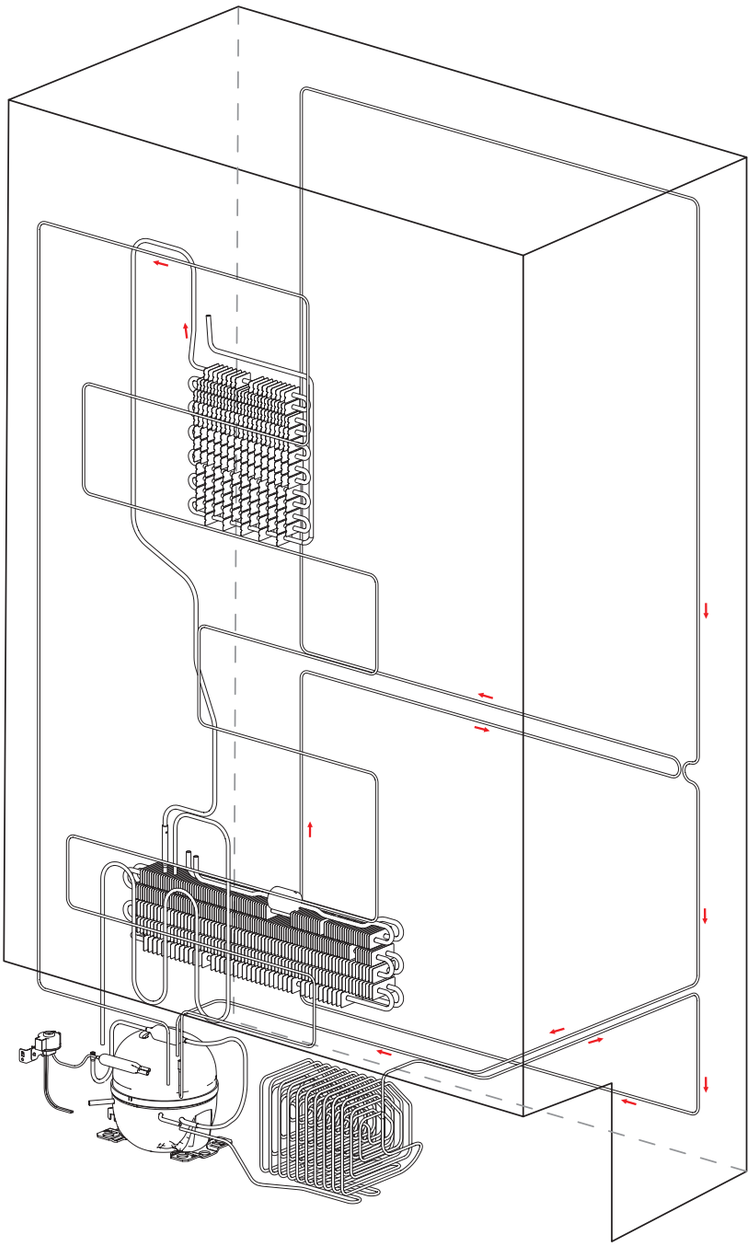
2-7) Optional Material Specification

	Part Name	Part Code	AMOUNT
	FILTER WATER-ASSY	DA29-00020A	1
	ASSY-PACKING SUB	DA99-00240S	1
	LED LAMP (FREEZER)	DA96-00398G	1
	LED LAMP (FRIDGE)	DA96-00398J	1

PRODUCT SPECIFICATIONS

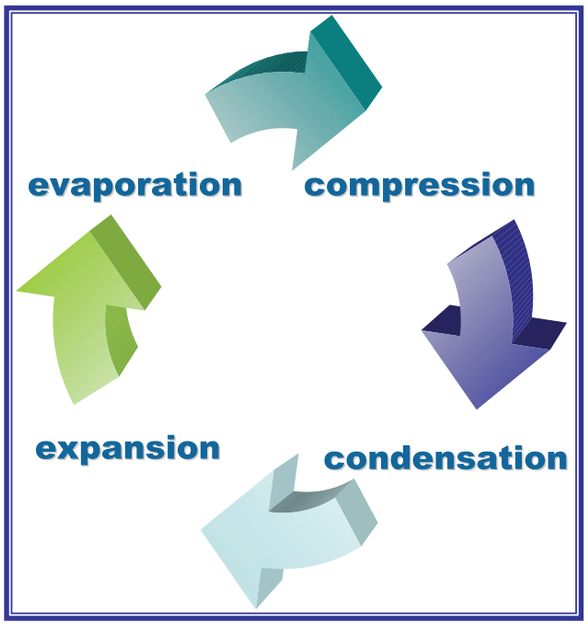
2-8) Refrigerant Route in Refrigeration cycle

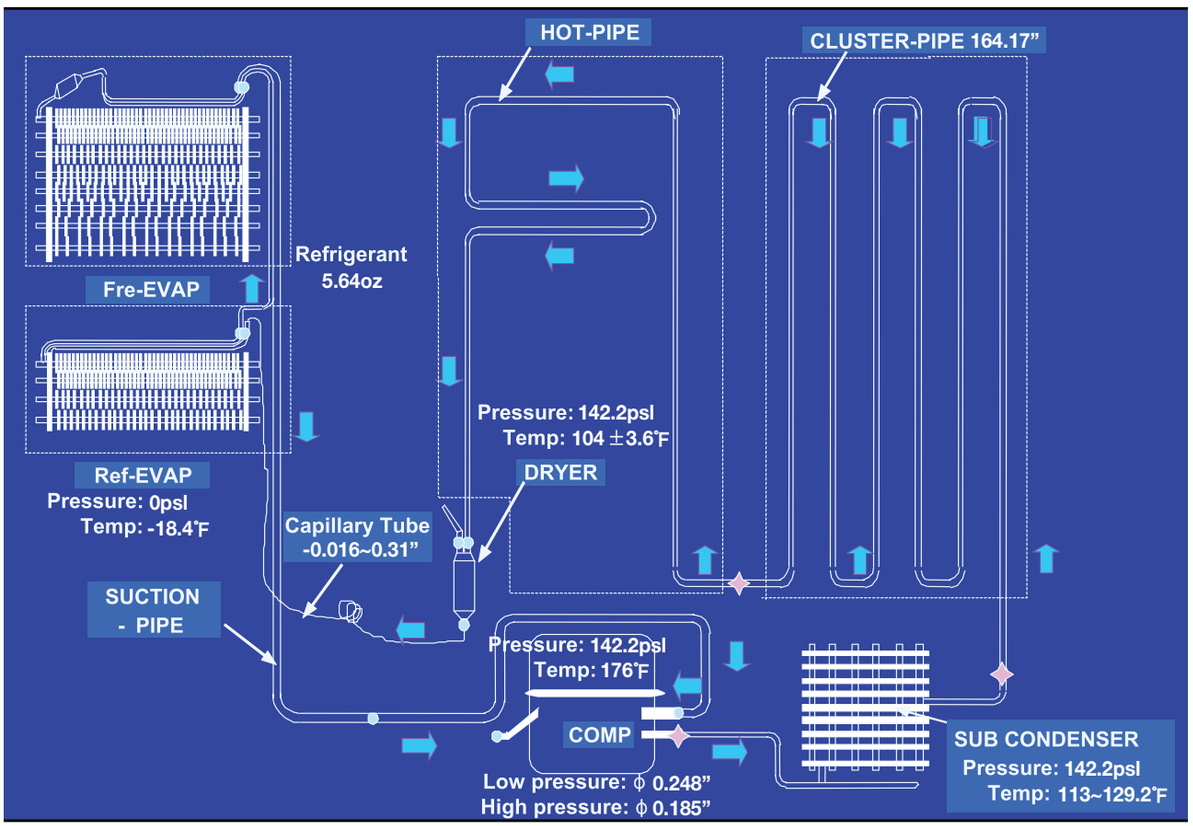
1. Compressor →Sub-condenser →Hot Pipe →Back Cluster Pipe →Dryer →R Capillary Tube →Refrigerator Evaporator →Freezer Evaporator →Suction Pipe →Compressor
2. Compressor → Sub-condenser →Hot Pipe → Back Cluster Pipe → Dryer →F Capillary Tube →Freezer Evaporator →Suction Pipe →Compressor



PRODUCT SPECIFICATIONS

2-8-1. PRINCIPLE OF FREEZEER





2-8-2. 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: 0.248" ② High pressure : 0.185" ③ Capillary : About 0.016-0.315"

※ Condenser length (Based on 300): 1043.3"

① Assistance : 196.85" ② HOT-PIPE: 259.84" ③ CLUSTER-PIPE: 164.17"

■ 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 0.4-0.8㎜

B. Length : It is changeable to low temperature and pressure (10->5㎏/㎠) depends on the 2M of thin and long copper pipe wall resistance.

2-8-3. Operation theory of refrigeration cycle components

■ 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.

■ 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 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.

2-8-4. 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

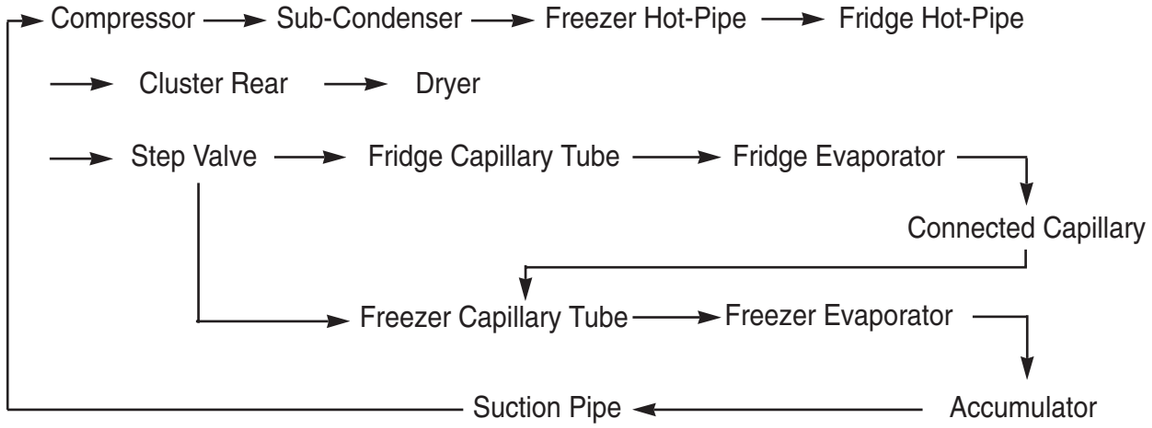
1. Role : To send a pure refrigerant gas to compressor by removing completely the refrigerant liquid from evaporator.

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

PRODUCT SPECIFICATIONS

2-8-5. Refrigeration Cycle Type

TDM Cycle



HM Cycle

Compressor → Sub-Condenser → Hot Pipe

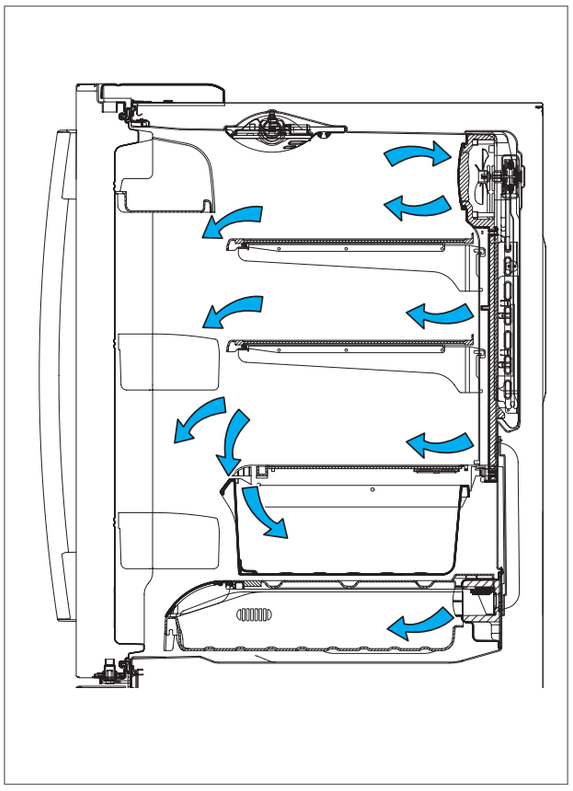
Dryer → Capillary Tube → Refrigerator Evaporator

Freezer Evaporator → Suction Pipe → Compressor

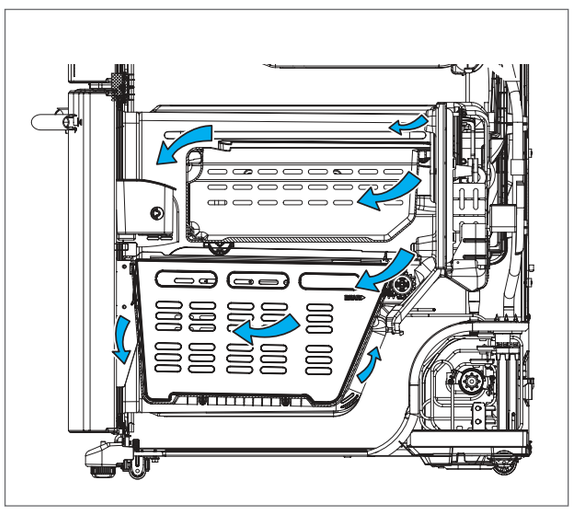
PRODUCT SPECIFICATIONS

2-9) Cooling Air Circulation

Refrigerator



Freezer



3. DISASSEMBLY AND REASSEMBLY

DISASSEMBLY AND REASSEMBLY

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.

- Required Tools

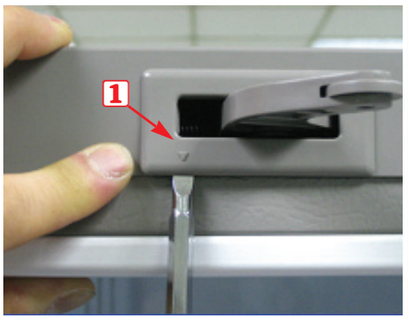
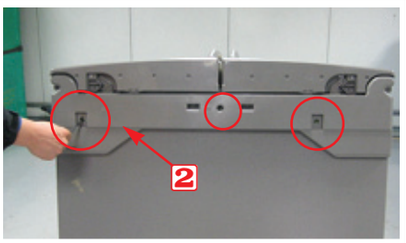
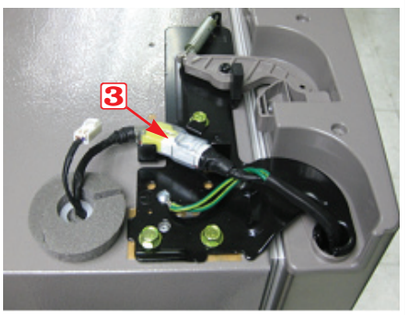
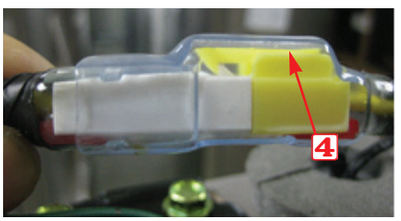
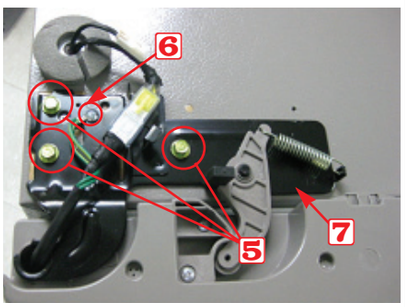
IMAGE	ITEM	USE
	Phillips Head Driver	Use for assembling and disassembling of screw
	Flat Head Driver	Use for assembling and disassembling of HomeBar, Dispenser, Main PBA etc...
	Hex Wrench ø3/16"(5mm)	Use for assembling and disassembling of Handle
	Socket Wrench ø3/8"(10mm)	Use for assembling and disassembling of door hinge

- Water whitening phenomenon

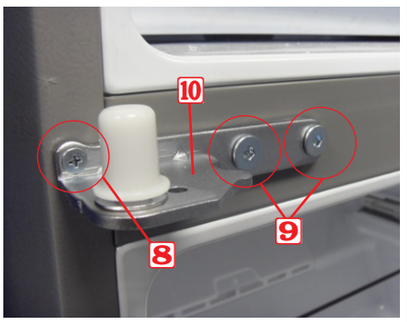
All water provided to refrigerators flows through the core filter which is an alkaline water filter. In this process, the pressure in the water that has flowed out of the filter gets increased, and massive oxygen and nitrogen become saturated. When this water flows out in the air, the pressure plummets and the oxygen and nitrogen get supersaturated so that they turn into gas bubbles. The water could look misty due to these oxygen bubbles. It is not because dust or chemicals, just a few seconds later, it will be clean again.

DISASSEMBLY AND REASSEMBLY

3-2) Refrigerator Door

Part Name	How To Do	Descriptive Picture
Refrigerator Door	1. With the door opened, remove the Cap Top Table(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. CAUTION Before doing the above, make sure that the unit is plugged out.	 
	4. Remove the 3 hex head bolts(5) attached to the upper left and right door hinges with a Wrench(3/8"). With a Phillips head screwdriver, remove the ground screw(6) attached to the upper left and right door hinges. Remove the upper left and right door hinges(7).	

DISASSEMBLY AND REASSEMBLY

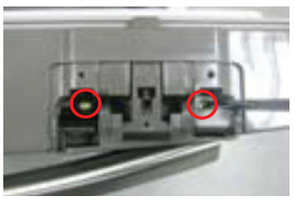
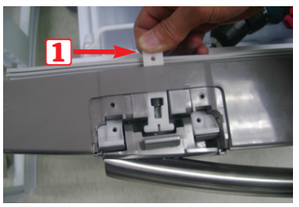
Part Name	How To Do	Descriptive Picture
Refrigerator Door	5. Lift the door straightly up to remove. CAUTION Be careful not to drop the door	
	6. With a Phillips head screwdriver, remove the one screw (8) attached to the lower left and right door hinges. With a wrench(3/8''), remove the 2 flat head screws (9) attached to the lower left and right door hinges. Remove the lower left and right door hinges (10).	

3-3) Door Handle Fridge

Part Name	How To Do	Descriptive Picture
Door Handle Fridge	1. Using a wrench, unscrew the two screws. And disassemble the door handle.	
	2. Remove the cover vinyl of door.	

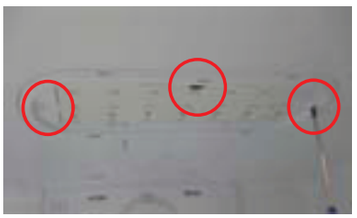
DISASSEMBLY AND REASSEMBLY

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.	
	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.	

DISASSEMBLY AND REASSEMBLY

3-5) Refrigerator Light

Part Name	How To Do	Descriptive Picture
Refrigerator Light	1. Remove the lamp cover using the flat-blad(-) screwdriver. (Refer to picture) 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 the 3 screws. And separate LED panel.	
	3. Disengage the connector.	

3-6) Glass Shelf

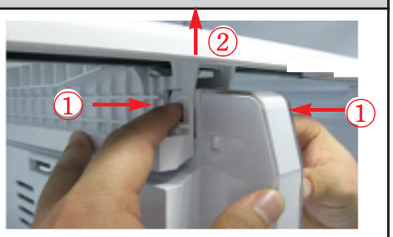
Part Name	How To Do	Descriptive Picture
Glass Shelf	Remove the shelf by lifting the front part of the shelf up and pulling it out.	

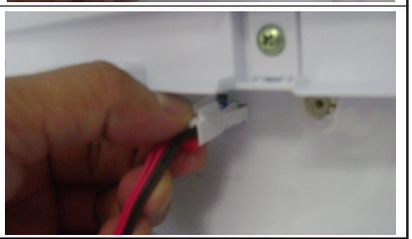
DISASSEMBLY AND REASSEMBLY

3-7) Vegetable & Fruit Drawers

Part Name	How To Do	Descriptive Picture
Vegetable & Fruit Drawers	1. Remove the vegetable & fruit drawer by pulling the roller part and lifting it up.	

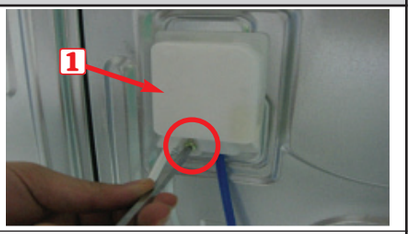
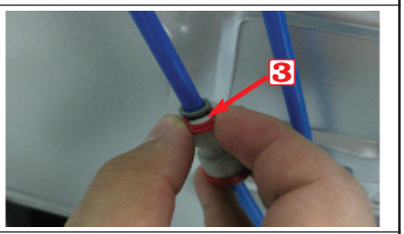
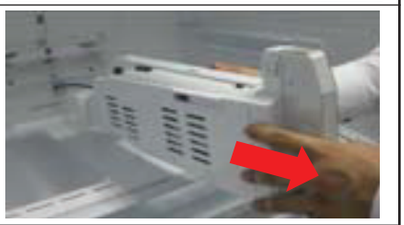
3-8) Vegetable & Fruit Shelf

Part Name	How To Do	Descriptive Picture
Vegetable & Fruit Shelf	1. 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)	

Part Name	How To Do	Descriptive Picture
Vegetable & Fruit LED LAMP	1. Remove 1 screw	
	2. Disengage the housing connector.	

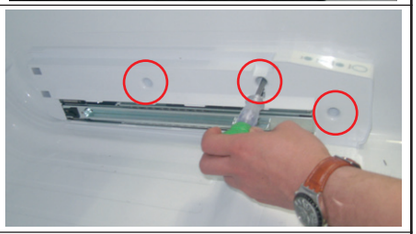
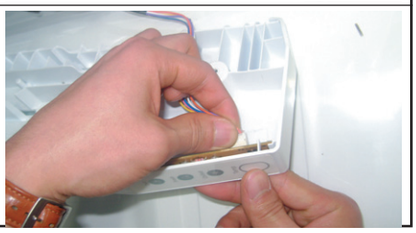
DISASSEMBLY AND REASSEMBLY

3-9) Case Water Filter

Part Name	How To Do	Descriptive Picture
Case Water Filter	1. Remove the Cover fixer tube(1) by unscrewing the screw.	
	2. Remove the fixer tube(2) by unscrewing the screw.	
	3. Remove the tube clip(3) by pulling it.	
	4. Disconnect the water tube by pushing the tube fiting apart (4)as shown in the picture.	
	5. Remove the case water filter by pulling it out.	

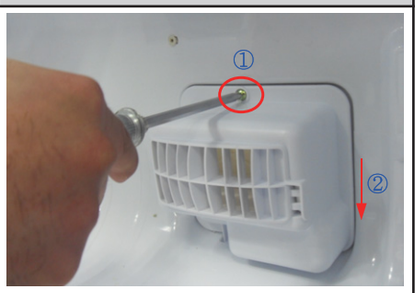
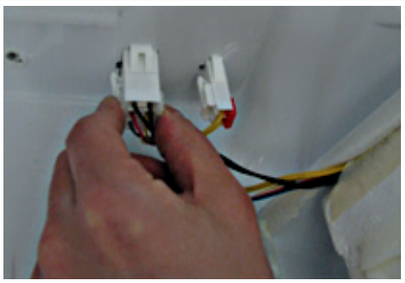
DISASSEMBLY AND REASSEMBLY

3-10) Cool Select Pantry

Part Name	How To Do	Descriptive Picture
Cool Select Pantry	1. Remove the cool select pantry by pulling the roller part and lifting it up.	
Cool Select Pantry Cover	1. Remove the cool select pantry cover by lifting the central part of the cover while pushing it to the left.	
Cool Select Pantry Shelf	1. Remove the cool select pantry shelf by lifting the front part of the shelf while pulling it.	
Cool Select Pantry Rail	1. Remove the cool select pantry rail by unscrewing the 3 screws and pulling the rail.	
	2. Disconnect the housing connector from the internal rail part. (Refer to the picture)	

DISASSEMBLY AND REASSEMBLY

3-11) Motor Damper

Part Name	How To Do	Descriptive Picture
Motor Damper	1. Remove the cool select pantry. Remove the screw of motor damper part and than push the motor damper down. CAUTION Before doing the above, make sure that the unit is plugged out.	
	2. Disengage 2 housing connectors from the rear motor damper. (Refer to the picture)	

3-12) Water Filter (Disassembly)

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

DISASSEMBLY AND REASSEMBLY

3-13) Water Filter (Reassembly)

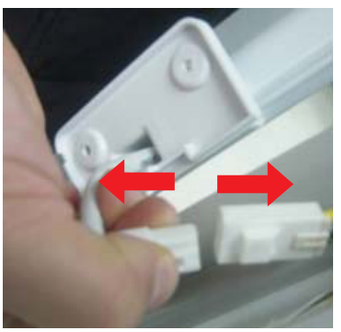
Part Name	How To Do	Descriptive Picture
Water Filter	1. Push the water filter directly.	
	2. Turn the water filter clockwise until it locked.	

3-14) Gallon Door Bin

Part Name	How To Do	Descriptive Picture
Gallon Door Bin	1. Remove the gallon door bin by lifting it up. (Refer to the picture)	

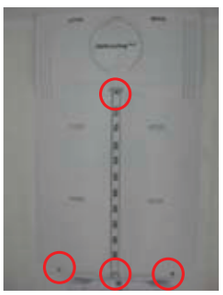
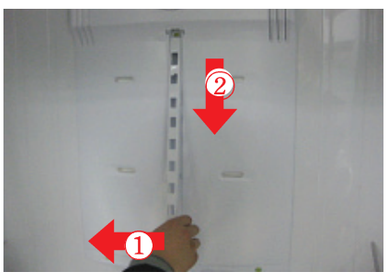
DISASSEMBLY AND REASSEMBLY

3-15) 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)	

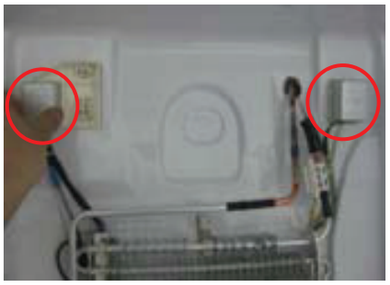
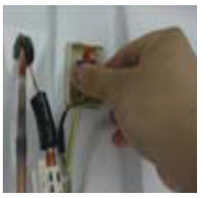
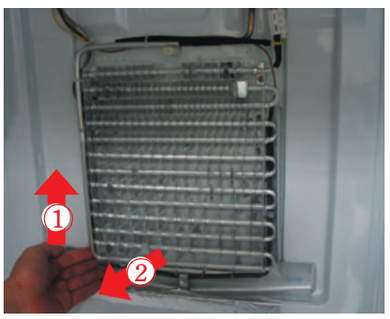
DISASSEMBLY AND REASSEMBLY

3-16) 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)	
	4. Remove the hook by pulling it from the lower part and pushing the cover down. (Refer to the picture)	
	5. Disconnect the housing connector of the rear plane. (Refer to the picture)	

DISASSEMBLY AND REASSEMBLY

3-17) Evaporator in Refrigerator

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

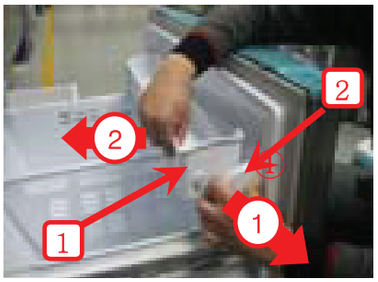
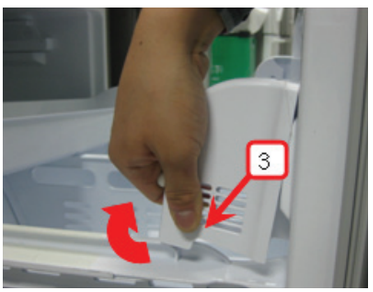
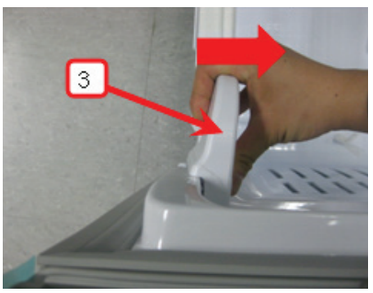
DISASSEMBLY AND REASSEMBLY

3-18) Pull Out Drawer

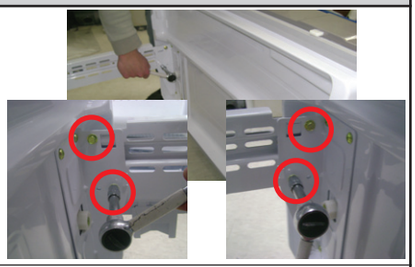
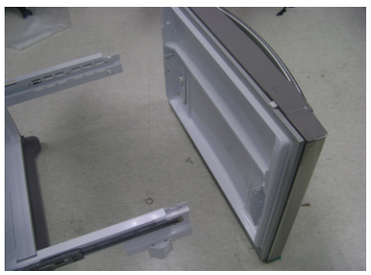
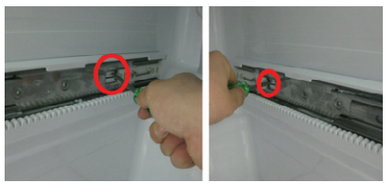
Part Name	How To Do	Descriptive Picture
Door Handle Freezer	1. Slide the drawer in as much as possible.	
	2. Lift the drawer up.	
	3. Remove the pull out drawer by lifting the bottom part of drawer bin and pulling it out.	

DISASSEMBLY AND REASSEMBLY

3-19) Freezer Door

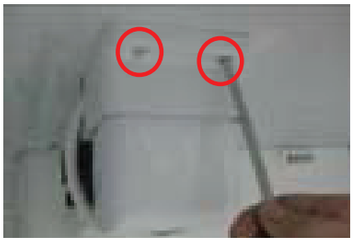
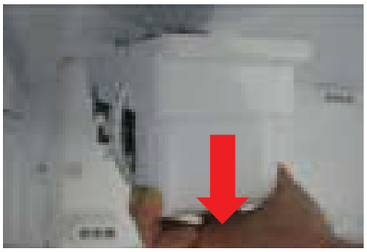
Part Name	How To Do	Descriptive Picture
Freezer Door	1. Pull the drawer open to full extension.	
	2. Remove the Pizza Pocket(①) by pulling it Pizza Pocket guard (②) bended side.	
	3. Lift up the bottom of support guard (③)	
	4. Remove the support guard (③) by pulling it inside. CAUTION Be careful not to scratch or break the parts	
	5. Take out the lower basket(③) by lifting the basket up from rail system.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Freezer Door	6. Unscrew 4 bolts. (2 bolts each on the both sides)	
	7. Lifting up the freezer door, remove the freezer door from the rail. CAUTION Be careful not to drop the door	
	8. Press the both side hooks with flat-blade(-) screwdriver. (Refer to picture)	
	9. Remove the Freezer Rail by pulling it.	
	<Tip> To disassemble the freezer door more easily, follow the above steps, except step 6, 7. Then remove the freezer door by pulling it. (Refer to picture)	

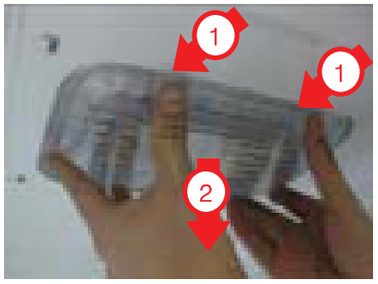
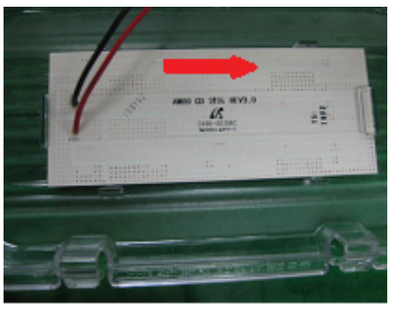
DISASSEMBLY AND REASSEMBLY

3-20) Ice Maker

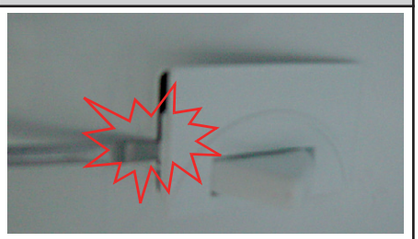
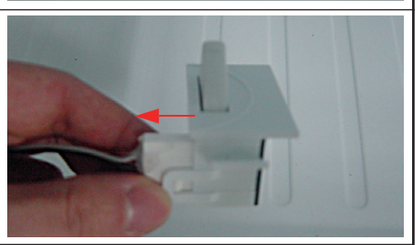
Part Name	How To Do	Descriptive Picture
Ice Maker	1. Remove 2 screws on the ice maker.	
	2. Pull down the Ice Maker	
	3. Disengage the housing connector.	

DISASSEMBLY AND REASSEMBLY

3-21) Freezer Light

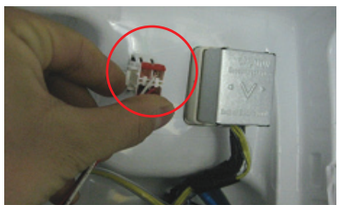
Part Name	How To Do	Descriptive Picture
Freezer Light	1. Remove the lamp cover by pushing the hook of lamp cover.	
	1. Remove the LED panel by lifting the left part of LED panel while pushing it to right. (Refer to picture)	

3-22) Door Switch In Freezer

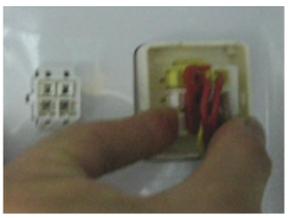
Part Name	How To Do	Descriptive Picture
Door Switch In Freezer	1. Remove the freezer drawer bin by using a flat-blade(-) screwdriver.(Refer to the picture)	
	2. Disconnect the housing connector part.	

DISASSEMBLY AND REASSEMBLY

3-23) Evaporator Cover In Freezer

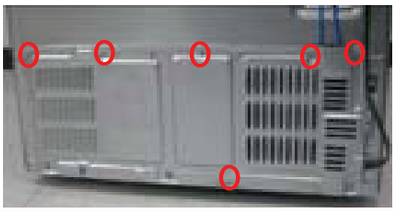
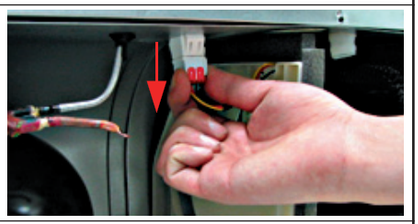
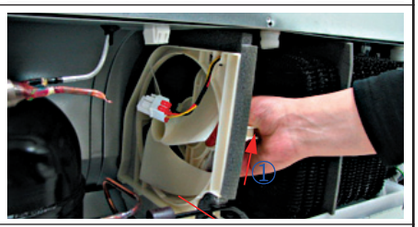
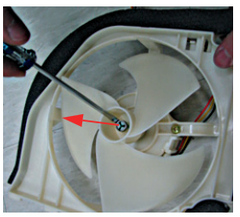
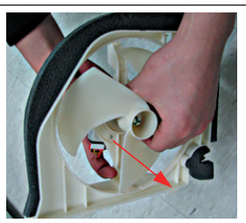
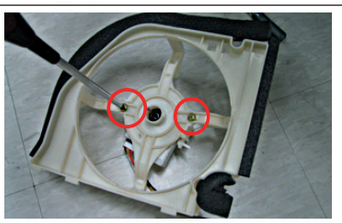
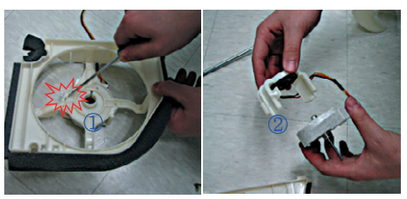
Part Name	How To Do	Descriptive Picture
Evaporator Cover In Freezer	1. Remove the freezer door and freezer drawer by pulling out the drawer and then unscrewing 2 screws.	
	2. Lift up the evaporator cover.	
	3. Disengage the 1 housing connectors and remove the evaporator cover.	

3-24) Evaporator In Freezer

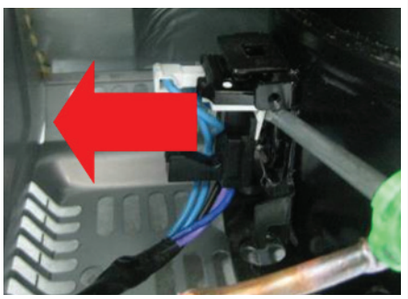
Part Name	How To Do	Descriptive Picture
Evaporator In Freezer	1. Remove the housing cover by pushing both lateral sides of housing cover part and pulling it out.	
	2. Remove the housing connector part	
	3. Remove the evaporator by pulling the lower part of the evaporator while lifting it up.	

DISASSEMBLY AND REASSEMBLY

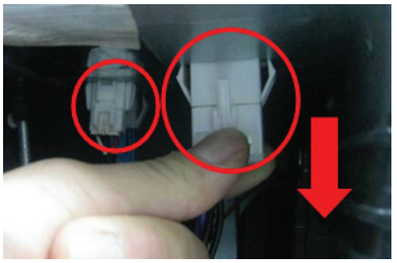
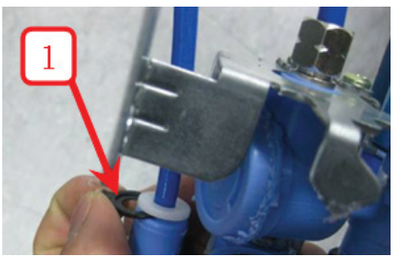
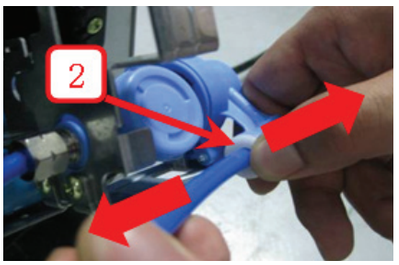
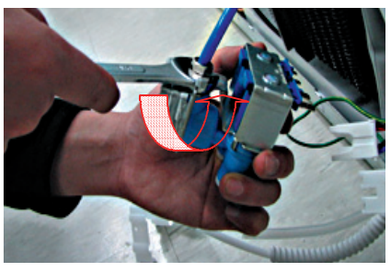
3-25) Machine Compartment

Part Name	How To Do	Descriptive Picture
Motor Fan	1. Unscrew 6 screws of cover compressor.	
	2. Disengage the housing connector. (Refer to the picture)	
	3. Remove the hook of support circuit motor by lifting the hook up and pulling it out.	
	4. Remove the screw with a flat-blade screwdriver. (Refer to the picture)	
	5. Remove the motor fan by pulling the fan out while holding 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.	

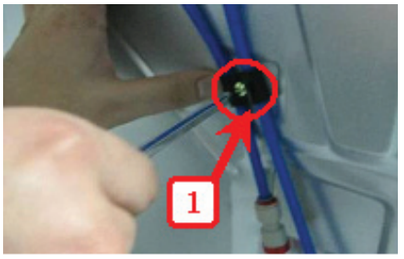
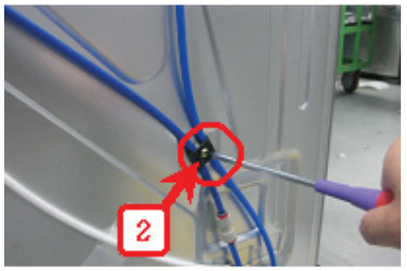
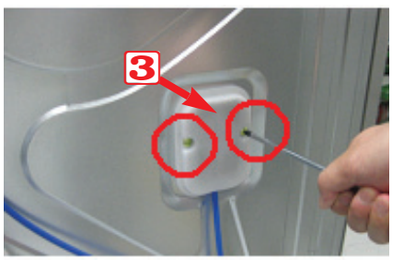
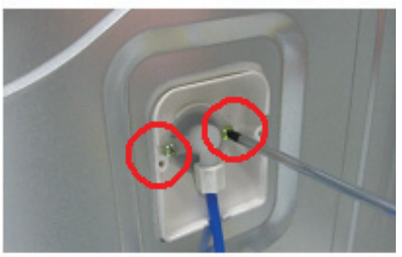
DISASSEMBLY AND REASSEMBLY

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

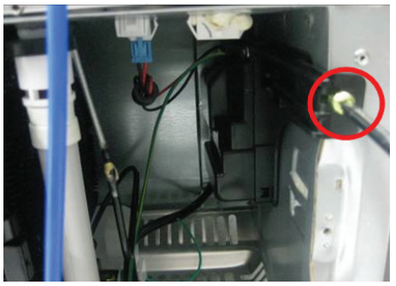
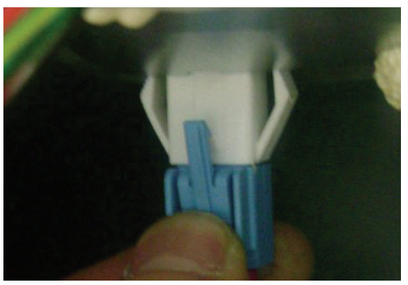
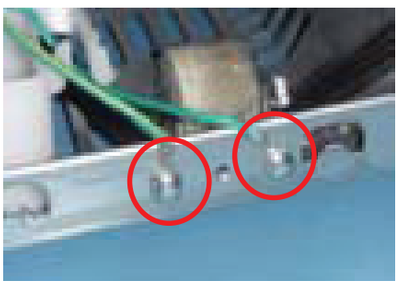
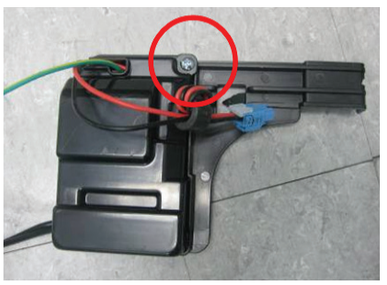
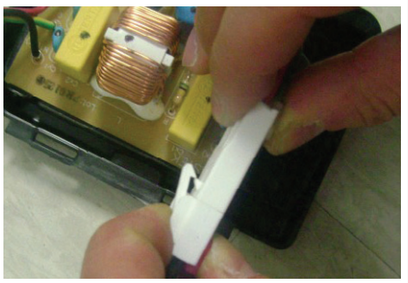
DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Water Valve	1. Unscrew the screw which is fixing the Water Valve	
	2. Disengage two housing connectors.	
	3. Remove the clip(1) by pulling it.	
	4. Remove the water hose part while pushing the upper part (2). (Refer to the picture)	
	5. Remove the hose connected by the nut with a wrench (8mm or 5/16")	

DISASSEMBLY AND REASSEMBLY

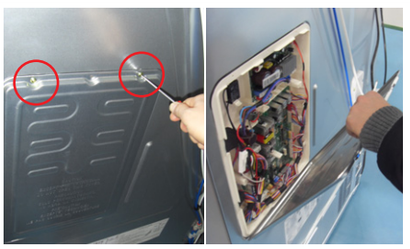
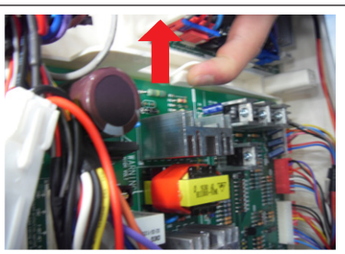
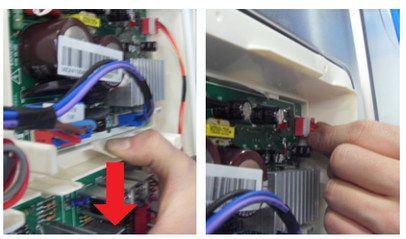
Part Name	How To Do	Descriptive Picture
Water Pipe	1. Remove the fixer tube (1) by unscrewing the screw.	
	2. Remove the fixer tube (2) by unscrewing the screw.	
	3. Remove the Cover Water Pipe (3) by unscrewing the screws.	
	4. Unscrewing the two screws.	
	5. Remove the Water Pipe by pulling it.	

DISASSEMBLY AND REASSEMBLY

Part Name	How To Do	Descriptive Picture
Power Cord & Noise Filter	1. Unscrew 1 screws.	
	2. Disengage the housing connector.	
	3. Unscrew 2 earth screws.	
	4. Remove the cover by pushing the hook up using a flat-blade(-) screwdriver. (Refer to the picture)	
	5. Disengage the housing connector to separate the power cord and noise filter.	

DISASSEMBLY AND REASSEMBLY

3-26) Electric Box

Part Name	How To Do	Descriptive Picture
PBA Main	1. Pull the refrigerator forward to have enough space to work at the rear side of the appliance.	
	2. Unscrew 2 screws of the PCB cover.	
	3. Disengage all housing connectors from the main PCB.	
	4. Remove the main PCB by lifting the upper part of the hook up. (Refer to the picture)	
PBA SMPS	1. Remove the cover PCB and then disengage the housing connector connected with main PCB. Remove the SMPS PCB by pushing the lower part of the hook down.	

4. TROUBLESHOOTING

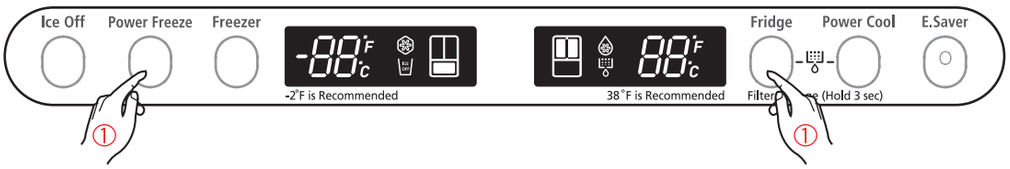
TROUBLESHOOTING

4-1) Function for failure diagnosis

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

- If Power Freeze + Fridge 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 operation(FF 1)→manual operation(FF 2)→manual operation(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.
- If the test mode is canceled, Recommend the power off and reactivate the refrigerator.

1) Manual operation function



① If Power Freeze + Fridge 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

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

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.

TROUBLESHOOTING

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


2-1) If any key is pressed one more time during manual operation(FF3), "Fd" shows in the display and then manual operation will be canceled at once and fresh food and freezer 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 OFF and ON.

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 Pantry Room Display 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

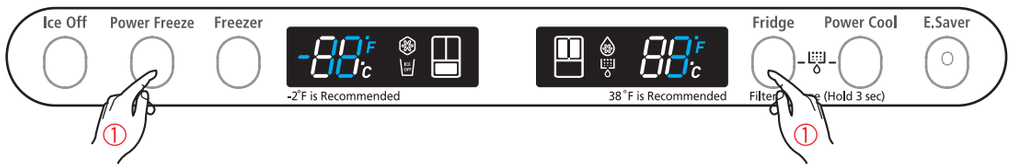
2-1) "OP - Er" code is repeatedly ON/OFF until Option error settles down.

TROUBLESHOOTING

4-1-3. Self-diagnostic function

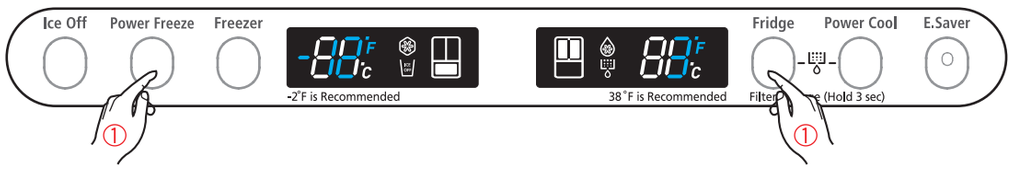
1) Self-diagnostic function in the Initial power ON

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 0.5 sec.
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 (Power Freeze key+Power Cool Key) are pressed simultaneously for 8 seconds.
(Return to normal display mode)



① If Power Freeze key+Power Cool Key are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

2) Self-diagnostic function during normal operation



① If Power Freeze key+Power Cool Key are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

2-1) If Power Freeze key+Power Cool 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 Power Freeze key+Power Cool 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.

TROUBLESHOOTING

∗ Self-diagnosis CHECK LIST

Display		Trouble item	Trouble contents	Solution
F	R			
01		FZ-Sensor Error	Sensor system in FZ compartment errors	Refer to 62 page
02		FF-Sensor Error	Sensor system in FF compartment errors	Refer to 63 page
04		FZ-DEF-Sensor Error	Defrost Sensor system in FZ compartment errors	Refer to 64 page
05		FF-DEF-Sensor Error	Defrost Sensor system in FF compartment errors	Refer to 65 page
06		Ambient-Sensor Error	Sensor external system errors	Refer to 66 page
09		Mid Pantry-Sensor Error	Sensor system in Pantry Room compartment errors	Refer to 67 page
08		I/M-Sensor Error(FZ)	Sensor system in ICE maker(FZ) errors	Refer to 68 page
13		HUMIDITY-Sensor Error	Sensor system in Humidity Sensor error	Refer to 69 page
21	0E	FZ-FAN Error	Fan motor system in FZ compartment errors	Refer to 70 page
22		FF-FAN Error	Fan motor system in FF compartment errors	Refer to 70 page
23		C-FAN Error	Fan motor system in machinery room errors	Refer to 70 page
24		FZ-DEF-HEATER Error	Defrost system in FZ compartment errors	Refer to 71 page
25		FF-DEF-HEATER Error	Defrost system in FF compartment errors	Refer to 71 page
26		ICE/MAKER FUNCTION Error	Ice Maker in FZ function errors	Refer to 72 page
29		Pantry Room DAMPER HEATER Error	Damper Heater open/ Bad wire	Refer to 73 page
33		ICE PIPE HEATER Error(FZ)	ICE PIPE HEATER in FZ compartment errors	Refer to 74 page
41		PANEL ↔MAIN MICOM COMMUNICATION Error	Panel↔MAIN MICOM Communication errors	

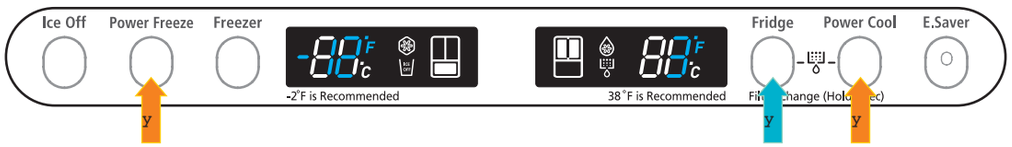
TROUBLESHOOTING

∗ Self-diagnostics check list

Display F	Display R	Item	Trouble item	Diagnostic method
		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 ℉(+65℃) or less than -58 ℉(-50℃)	The voltage of MAIN PCB CN30-"3"↔ CN76-"1": shall be between 4.5V~1.0V
		FZ-Sensor Error		The voltage of MAIN PCB CN30- "6"↔CN76-"1": shall be between 4.5V~1.0V
		FZ-DEF-Sensor Error		The voltage of MAIN PCB CN30- "4"↔CN76-"1": shall be between 4.5V~1.0V
		FF-DEF-Sensor Error		The voltage of MAIN PCB CN30- "8"↔CN76-"1": shall be between 4.5V~1.0V
		Ambient-Sensor Error		The voltage of MAIN PCB CN31- "1"↔CN31-"4": shall be between 4.5V~1.0V
		Pantry-Sensor Error		The voltage of MAIN PCB CN30- "9"↔CN76-"1": shall be between 4.5V~1.0V
		Ice Maker Sensor Error		The voltage of MAIN PCB CN90- "8"↔CN90-"4": shall be between 4.5V~1.0V
		Humidity-Sensor Error	Separation of sensor housing part, contact error, disconnection, short	The voltage of MAIN PCB CN30- "7"↔CN50-"7": shall be between 4.5V~1.0V
		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
		FF-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- "4"(Orange)↔ CN76-"1"(Gray): shall be between 7V~12V
		C-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- "5"(Sky-blue)↔ CN76-"1"(Gray): shall be between 7V~12V
		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, CN71 from PCB, resistance value between CN70 White ↔ CN71 Orange shall be 63(230) ohm ± 7%(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)
		FF-DEF Error	Separation of fresh food 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, CN71 from PCB, resistance value between CN70 White ↔ CN71 Orange shall be 63(230) ohm ± 7%(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)
		Ice Maker(FZ)Function Error	Display error when the Ice Maker(FZ) kit operate moving ice over 3 times or it is not leveled.	After changing the Ice Maker(FZ), plug the refrigerator power code again, and check the operation.
		Pantry-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 CN91 from PCB, the resistant value between Black ↔brown wire shall be 145 ohm ± 7%. 0 Ohm : heater short, ∞ Ohm : wire / bimetal Open.
		Ice Pipe-Heater Error	Display error when open error is detected by Heater : separation of Ice Pipe Heater housing part, contact error, disconnection, short circuit.	After separating MAIN PCB CN79 from PCB, the resistant value between Blue ↔White shall be 72 ohm ± 7%. 0 Ohm : heater short, ∞Ohm : wire / bimetal Open.
		Panel↔Main Communication Error	Display ¡°41 - Ej± in the panel with alarm : MICOM MAIN°I 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.

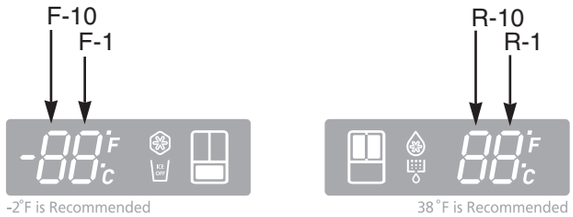
TROUBLESHOOTING

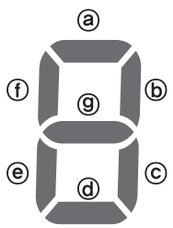
4-1-4. Display function of Load condition



① If Power Freeze key+Power Cool 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 Fridge, load condition mode will be started.

1) If Power Freeze key+Power Cool 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 Freeze key+Power Cool Key is pressed, load condition display mode will be returned with alarm. At LED all on state, only load condition display will blink ON/OFF with 0.5 seconds interval.
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.



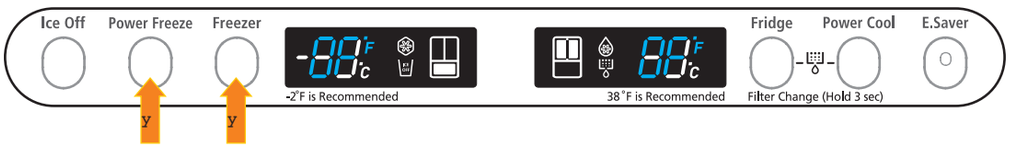


TROUBLESHOOTING

∗ Load mode Check list

Display LED	Display contents	Operation contents
R-1-ⓐ	FF-FAN High	When FF compartment FAN operates with high speed, applicable LED ON
R-1-ⓑ	FF-FAN Low	When FF compartment FAN operates with low speed, applicable LED ON
R-1-ⓒ	FF-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℃)
R1-ⓖ	Exhibition Mode	LED ON at the display mode.
F-1-ⓐ	Comp.	When COMP operates, applicable LED ON.
F-1-ⓑ	FZ-FAN High	When FZ compartment FAN operates with high speed, applicable LED ON.
F-1-ⓒ	FZ-FAN Low	When FZ compartment FAN operates with low speed, applicable LED ON.
F-1-ⓓ	FZ-DEF Heater	When FZ compartment defrost heater operates, LED ON
R-10-ⓔ	C-FAN High	When compressor FAN operates with high speed, applicable LED ON.
R-10-ⓕ	C-FAN Low	When compressor FAN operates with low speed, applicable LED ON.
R-10-ⓖ	French Heater	When French heater operates, applicable LED ON
R-10-ⓐ	Pantry Room Damper Open	When damper open, applicable LED ON
F-10-ⓑ	F-Valve Open	When the F-valve open, LED ON
R-10-ⓑ	R-Valve Open	When the R-valve open, LED ON
R-10-ⓕ	Ice Pipe Heater	When the Ice Pipe Heater operates, LED ON

4-1-5. Exhibition mode setting function



① If Power Freezer Key + Freezer Key are pressed for 3 seconds, Exhibition mode will be started.

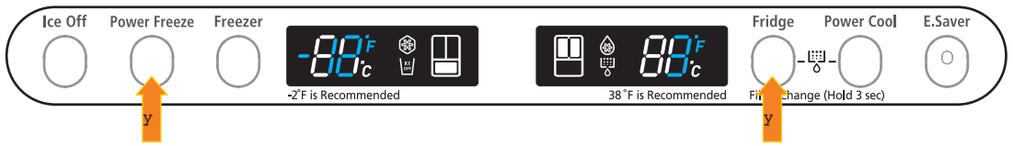
1) If Power Freezer Key + Freezer Key are pressed simultaneously for 3 seconds during normal operation, Exhibition mode will be started with buzzer sound(ding-dong).
2) If above Energy Saver Key + Freezer Key are pressed one more time, Exhibition mode will be canceled.
3) If Exhibition mode is selected, blinks "OF-OF" on the temperature setting display of . The panel and it indicates the refrigerator has entered the Cooling Off mode.
4) During Exhibition mode, if fresh food and freezer compartments sensors are higher than 149℉(65℃). Exhibition will be canceled automatically and freezing operation will be returned.
   (There is no buzzer sound when the Exhibition mode is canceled by the temperature.)
5) Operation contents of Exhibition 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 Exhibition mode, Exhibition mode will be operated when Power On after Power OFF.

TROUBLESHOOTING

4-1-6. Option setting function

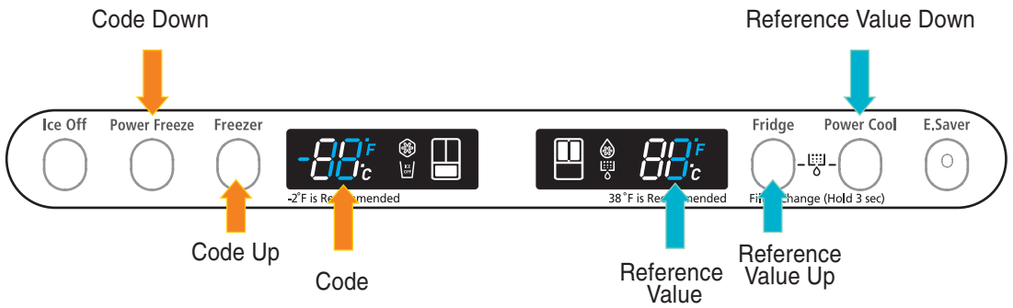
- If Freezer Key + Fridge Key are pressed simultaneously for 12 seconds during normal operation, fresh food and freezer compartments temperature display will be changed to option setting mode.

KEY operation method for changing to option mode



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

KEY control method after converting to option mode



∗ Key control in option mode

Power Freeze Key	Code Down key
Freezer Key	Code Up key
Power Cool Key	Reference Value down key
Fridge key	Reference Value Up key

- 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.)

TROUBLESHOOTING

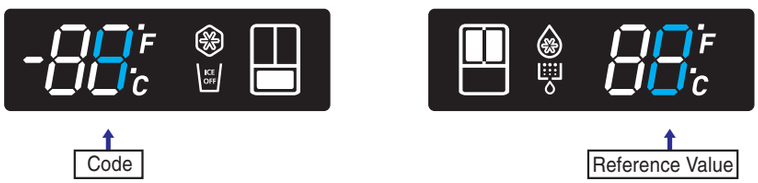
1) For example, if you want to change freezer compartment standard temperature to -4℉(-2℃) by operating option, do as below. This function is for changing the standard temperature.
In -2℉(-19℃) of current temperature of freezer compartment, if you make the temperature lower to -4℉(-2℃) by the option, 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 performance
You need to check the product manual and/or specification.

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) Option changing method as above is the same as all RFG265/266** 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.)

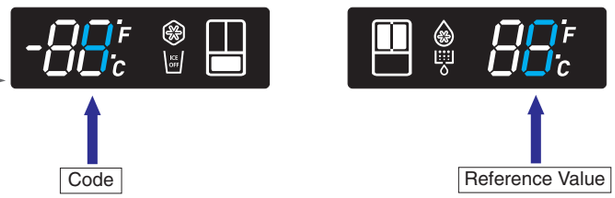
TROUBLESHOOTING

4-1-7. Option TABLE

1) Temperature changing table of freezer compartment

Set item	Freezer Temp Shift
MODEL	RFG293**
Reference Value	Fridge Room 7-SEG
	0

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



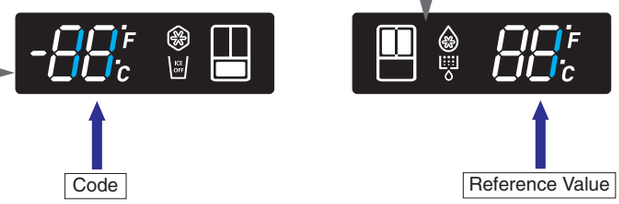
ex) If you want to change the freezer standard temperature to -4℉(-2℃)

2) Temperature changing table of fresh food compartment

Set item	Freezer Temp Shift
MODEL	RFG293**
Reference Value	Fridge Room 7-SEG
	1

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

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



TROUBLESHOOTING

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 : PX41C, 502AT// 103**(ICE MAKER SENSOR(MOLD))//FULL UP ,20K ohm used.
(The survey of resistance is nearly twice than below data.)

˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance
-50	-58	4.694	153319	-5	23	3.107	16419	40	104	1.153	2997
-49	-56.2	4.677	144794	-4	24.8	3.057	15731	41	105.8	1.124	2899
-48	-54.4	4.659	136798	-3	26.6	3.006	15076	42	107.6	1.095	2805
-47	-52.6	4.641	129294	-2	28.4	2.955	14452	43	109.4	1.068	2714
-46	-50.8	4.622	122248	-1	30.2	2.904	13857	44	111.2	1.040	2627
-45	-49	4.602	115631	0	32	2.853	13290	45	113	1.014	2543
-44	-47.2	4.581	109413	1	33.8	2.802	12749	46	114.8	0.988	2462
-43	-45.4	4.560	103569	2	35.6	2.751	12233	47	116.6	0.963	2384
-42	-43.6	4.537	98073	3	37.4	2.700	11741	48	118.4	0.938	2309
-41	-41.8	4.514	92903	4	39.2	2.649	11271	49	120.2	0.914	2237
-40	-40	4.490	88037	5	41	2.599	10823	50	122	0.891	2167
-39	-38.2	4.465	83456	6	42.8	2.548	10395	51	123.8	0.868	2100
-38	-36.4	4.439	79142	7	44.6	2.498	9986	52	125.6	0.846	2036
-37	-34.6	4.412	75077	8	46.4	2.449	9596	53	127.4	0.824	1973
-36	-32.8	4.385	71246	9	48.2	2.399	9223	54	129.2	0.803	1913
-35	-31	4.356	67634	10	50	2.350	8867	55	131	0.783	1855
-34	-29.2	4.326	64227	11	51.8	2.301	8526	56	132.8	0.762	1799
-33	-27.4	4.296	61012	12	53.6	2.253	8200	57	134.6	0.743	1745
-32	-25.6	4.264	57977	13	55.4	2.205	7888	58	136.4	0.724	1693
-31	-23.8	4.232	55112	14	57.2	2.158	7590	59	138.2	0.706	1642
-30	-22	4.199	52406	15	59	2.111	7305	60	140	0.688	1594
-29	-20.2	4.165	49848	16	60.8	2.064	7032	61	141.8	0.670	1547
-28	-18.4	4.129	47431	17	62.6	2.019	6771	62	143.6	0.653	1502
-27	-16.6	4.093	45146	18	64.4	1.974	6521	63	145.4	0.636	1458
-26	-14.8	4.056	42984	19	66.2	1.929	6281	64	147.2	0.620	1416
-25	-13	4.018	40938	20	68	1.885	6052	65	149	0.604	1375
-24	-11.2	3.980	39002	21	69.8	1.842	5832	66	150.8	0.589	1335
-23	-9.4	3.940	37169	22	71.6	1.799	5621	67	152.6	0.574	1297
-22	-7.6	3.899	35433	23	73.4	1.757	5419	68	154.4	0.560	1260
-21	-5.8	3.858	33788	24	75.2	1.716	5225	69	156.2	0.546	1225
-20	-4	3.816	32230	25	77	1.675	5039	70	158	0.532	1190
-19	-2.2	3.773	30752	26	78.8	1.636	4861	71	159.8	0.519	1157
-18	-0.4	3.729	29350	27	80.6	1.596	4690	72	161.6	0.506	1125
-17	1.4	3.685	28021	28	82.4	1.558	4526	73	163.4	0.493	1093
-16	3.2	3.640	26760	29	84.2	1.520	4369	74	165.2	0.481	1063
-15	5	3.594	25562	30	86	1.483	4218	75	167	0.469	1034
-14	6.8	3.548	24425	31	87.8	1.447	4072	76	168.8	0.457	1006
-13	8.6	3.501	23345	32	89.6	1.412	3933	77	170.6	0.446	978
-12	10.4	3.453	22320	33	91.4	1.377	3799	78	172.4	0.435	952
-11	12.2	3.405	21345	34	93.2	1.343	3670	79	174.2	0.424	926
-10	14	3.356	20418	35	95	1.309	3547	80	176	0.414	902
-9	15.8	3.307	19537	36	96.8	1.277	3428	81	177.8	0.404	877
-8	17.6	3.258	18698	37	98.6	1.253	3344	82	179.6	0.394	854
-7	19.4	3.208	17901	38	100.4	1.213	3204	83	181.4	0.384	832
-6	21.2	3.158	17142	39	102.2	1.183	3098	84	183.2	0.375	810

TROUBLESHOOTING

DATA2. Humidity sensor table
- Voltage output table @23℃, 5Vdc --- HTG3515CH/HTG3535CH
  RH (Temperature reward value) =
  RH (measurement value) + (Temperature measurement value℃ - 23℃)*0.05

RH(%)	Output(mV)	A/D(10bit)	A/D(12bit)
0	909	186	744
1	943	193	772
2	977	200	800
3	1010	207	827
4	1043	213	854
5	1076	220	881
6	1109	227	908
7	1141	233	935
8	1173	240	961
9	1205	247	987
10	1235	253	1011
11	1266	259	1037
12	1297	265	1062
13	1328	272	1088
14	1359	278	1113
15	1390	284	1138
16	1420	291	1163
17	1450	297	1188
18	1480	303	1212
19	1510	309	1237
20	1540	315	1261
21	1569	321	1285
22	1598	327	1309
23	1627	333	1333
24	1656	339	1356
25	1685	345	1380
26	1713	350	1403
27	1741	356	1426
28	1769	362	1449
29	1797	368	1472
30	1825	373	1495
31	1852	379	1517
32	1879	384	1539
33	1906	390	1561
34	1933	395	1583
35	1960	401	1605
36	1986	406	1627
37	2012	412	1648
38	2038	417	1669
39	2064	422	1690
40	2090	428	1712
41	2116	433	1733
42	2142	438	1754
43	2168	444	1776
44	2194	449	1797
45	2220	454	1818
46	2246	460	1839
47	2272	465	1861
48	2298	470	1882
49	2324	475	1903
50	2350	481	1925

RH(%)	Output(mV)	A/D(10bit)	A/D(12bit)
51	2376	486	1946
52	2402	491	1967
53	2428	497	1989
54	2454	502	2010
55	2480	507	2031
56	2505	513	2052
57	2530	518	2072
58	2555	523	2093
59	2580	528	2113
60	2605	533	2133
61	2630	538	2154
62	2655	543	2174
63	2680	548	2195
64	2705	553	2215
65	2730	559	2236
66	2756	564	2257
67	2782	569	2278
68	2808	575	2300
69	2834	580	2321
70	2860	585	2342
71	2886	590	2364
72	2912	596	2385
73	2938	601	2406
74	2964	606	2428
75	2990	612	2449
76	3017	617	2471
77	3044	623	2493
78	3071	628	2515
79	3098	634	2537
80	3125	639	2559
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
88	3344	684	2739
89	3372	690	2762
90	3400	696	2785
91	3426	701	2806
92	3452	706	2827
93	3478	712	2848
94	3504	717	2870
95	3530	722	2891
96	3566	730	2920
97	3595	735	2944
98	3624	741	2968
99	3653	747	2992
100	3683	754	3016

TROUBLESHOOTING

4-2) Diagnostic method according to the trouble symptom(flow chart)

1) If F Sensor has trouble

ERROR Code

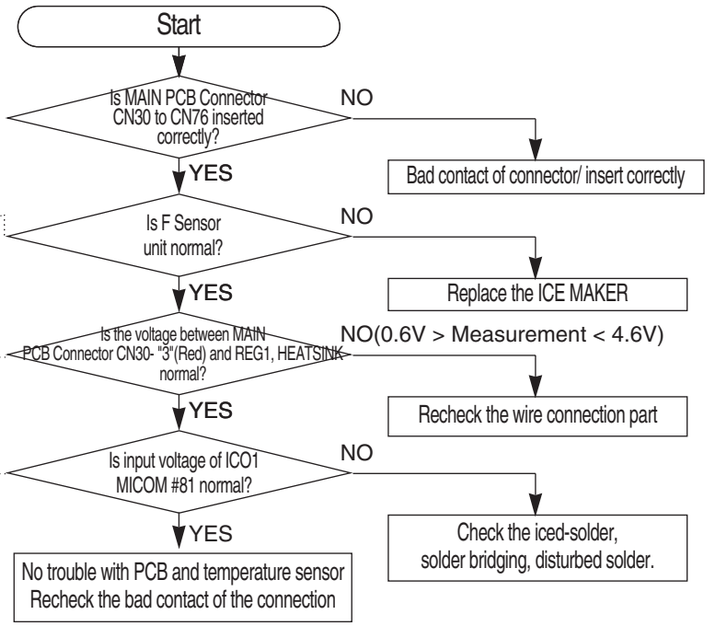
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor"
F : CN33-"3" ↔CN76-"1" measuring resistance valve.
** 0 Ω : Short trouble / ∞ Ω : Open trouble

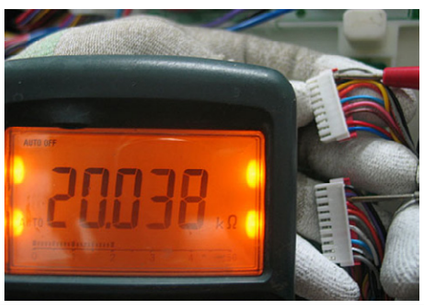
Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
F	Connector CN30-"3"(Red) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

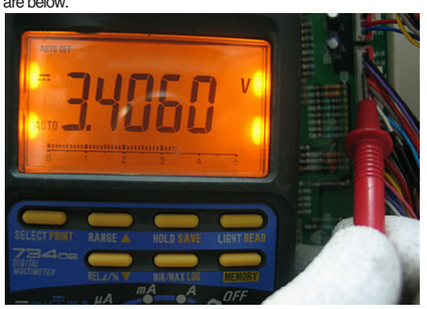
Measuring voltage of ICO1 MICOM#81,
CN30-"3"(Red) and REG1, HEAT-SINK from
PCB typical Ground part are similar.
→Check the SENSOR MARKING #1(R309)



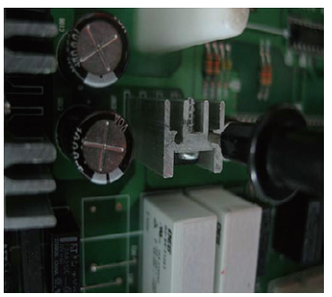
☞ Checking method of F Sensor resistance
CN30-"3"(Red)↔CN76-"1"(Gray)
- Compare the temperature table after the measure.



☞ Checking method of F Sensor voltage
- Measure the voltage of Sensor Check Point #1(ICO1 MICOM #81) on PCB or CN30-"3"(Red), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN30-"3"(Red)←REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

2) If R Sensor has trouble

ERROR Code

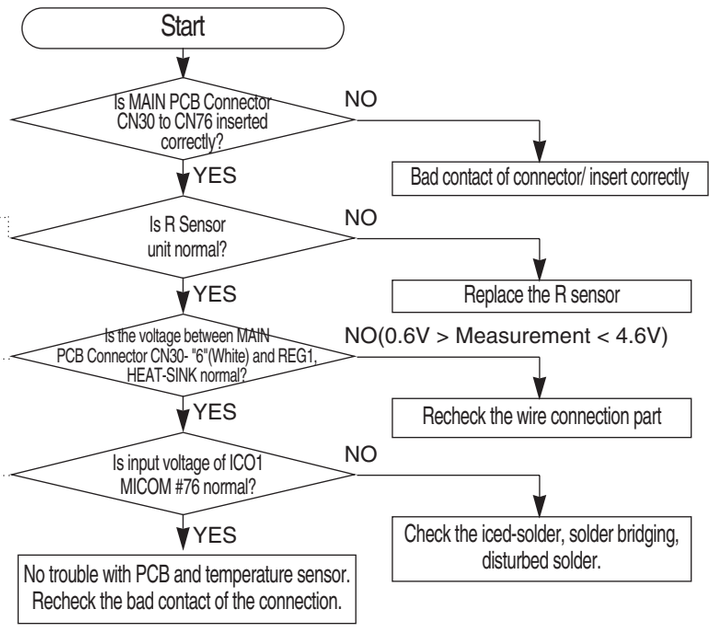
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor"
R : CN30-"6" ↔ CN76-"1" measuring resistance valve.
** 0∞ : Short troble / ∞ Ω : Open troble

Refer to circuit diagram in the manual

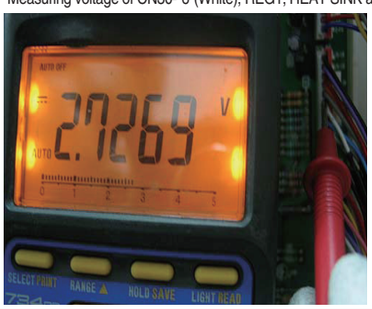
Sensor MICOM/Connector number	
R	Connector CN30-"6"(White) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

Measuring voltage of ICO1 MICOM#76, CN30-"6"(White) and REG1, HEAT-SINK from PCB typical Ground part are similar.
→Check the SENSOR MARKING #3(R311)

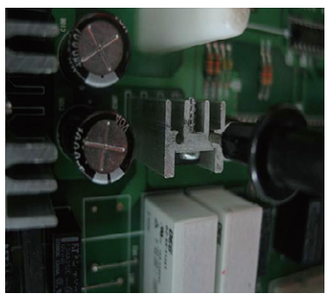


☞ Checking method of R(FF) Sensor resistance
CN30-"6"(White)↔CN76-"1"(Gray) Compare the temperature table after the measure.

☞ Checking method of R(FF) Sensor voltage
- Measure the voltage of Sensor Check Point #3(ICO1 MICOM #76) on PCB or CN30-"6"(White)↔REG1, HEAT-SINK
- Compare the temperature table after the measure.
Measuring voltage of CN30-"6"(White), REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

3) If F DEF Sensor has trouble

ERROR Code

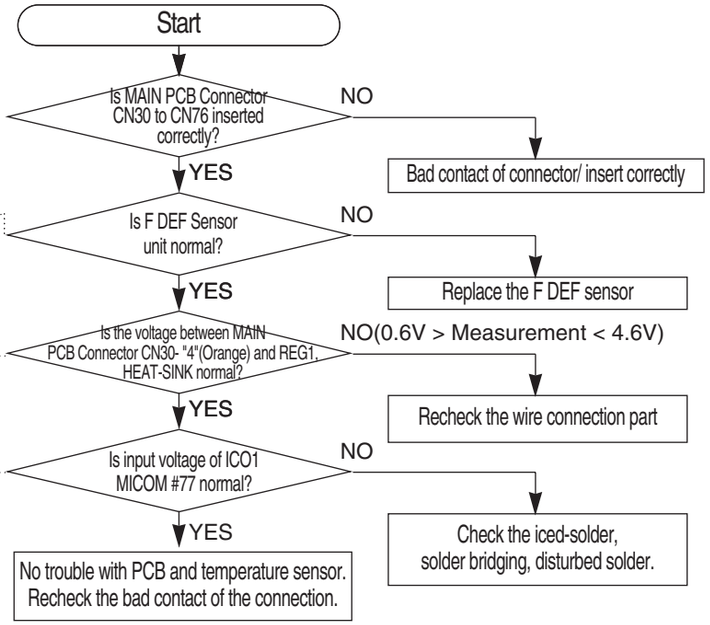
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor"
F-DEF: CN30-"4" ↔ CN76-"1" measuring resistance valve.
** 0 Ω : Short trouble / ∞ Ω : Open trouble

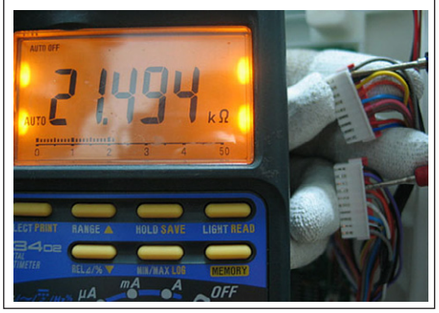
Refer to circuit diagram in the manual

Sensor MICOM/Connector number	
F DEF	Connector CN30-"4"(Orange) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

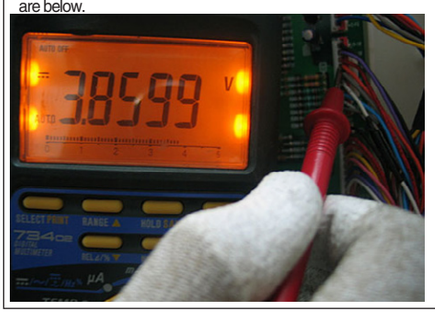
Measuring voltage of ICO1 MICOM#77,
CN30-"4"(Orange) and REG1, HEAT-SINK from
PCB typical Ground part are similar.
→Check the SENSOR MARKING #2(R310)



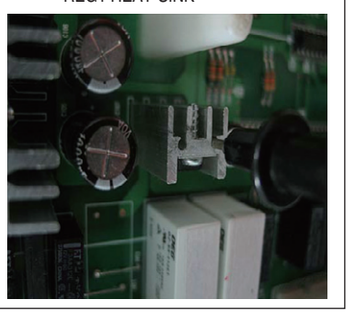
☞ Checking method of F DEF Sensor resistance
CN30-"4"(Orange)↔CN76-"1"(Gray)
- Compare the temperature table after the measure.



☞ Checking method of F DEF Sensor voltage
- Measure the voltage of Sensor Check Point #2(ICO1 MICOM #77) on PCB or CN30-"4"(Orange), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN30-"4"(Orange)↔REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

4) If R DEF Sensor has trouble

ERROR Code

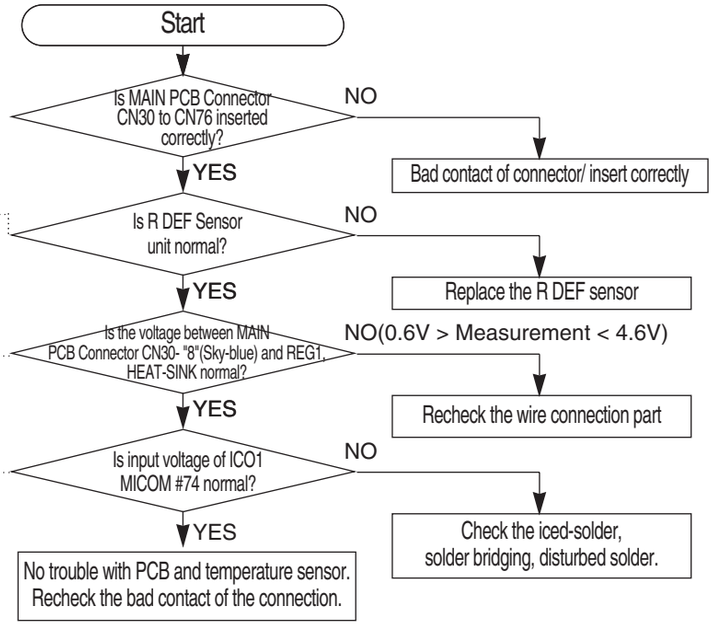
DATA1.
Temperature table

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

Refer to circuit diagram in the manual

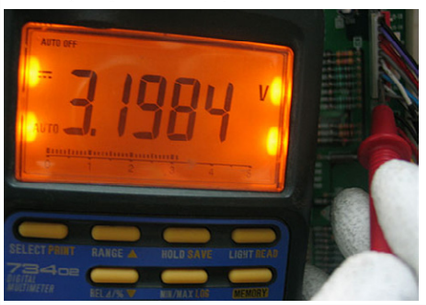
Sensor MICOM/Connector Number	
R DEF	Connector CN30-"8"(Sky-blue) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

Measuring voltage of ICO1 MICOM#74,
CN30-"8"(Sky-blue) and REG1, HEAT-SINK from
PCB typical Ground part are similar.
→Check the SENSOR MARKING #5(R313)

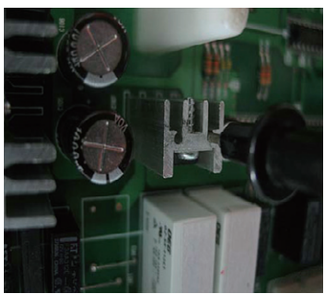


☞ Checking method of R DEF Sensor resistance
CN30-"8"(Sky-blue)↔CN76-"1"(Gray)
Compare the temperature table after the measure.

☞ Checking method of R DEF Sensor voltage
- Measure the voltage of Sensor Check Point #5(ICO1 MICOM #74) on PCB or CN30-"8"(Sky-blue), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN30-"8"(Sky-blue)↔REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

5) If Ambient Sensor has trouble

ERROR Code

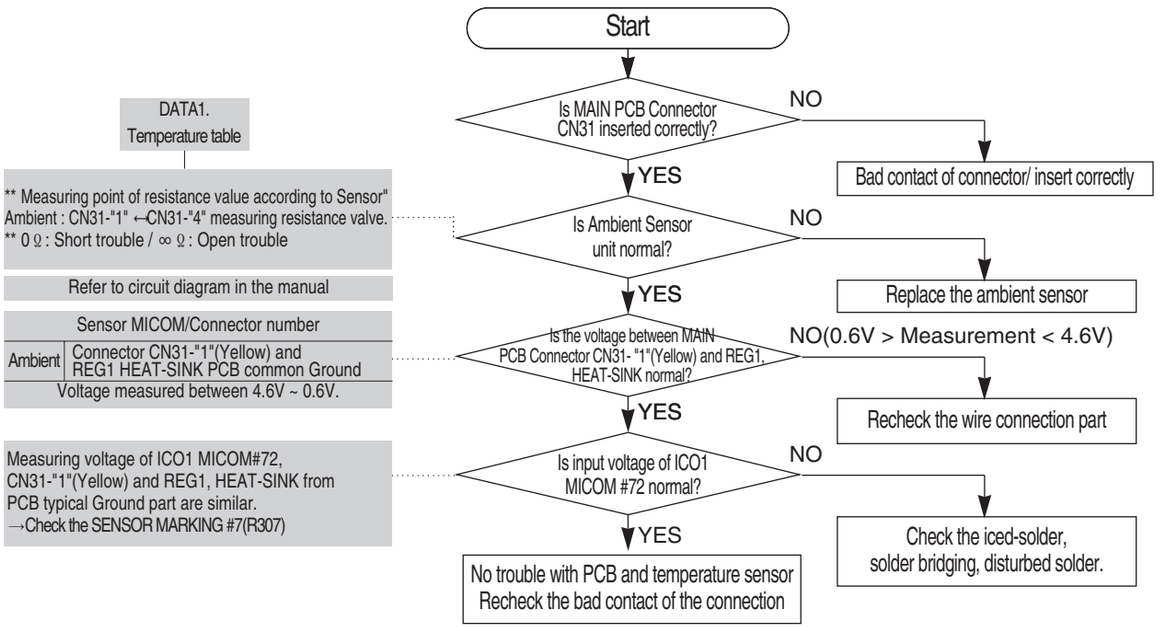
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor"
Ambient : CN31-"1" ↔CN31-"4" measuring resistance valve.
** 0 Ω : Short trouble / ∞ Ω : Open trouble

Refer to circuit diagram in the manual

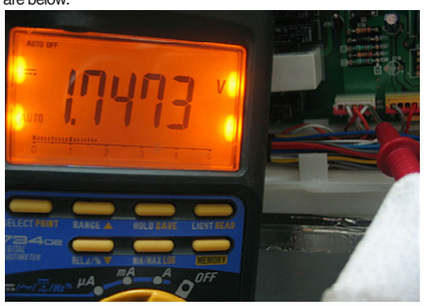
Sensor MICOM/Connector number	
Ambient	Connector CN31-"1"(Yellow) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

Measuring voltage of ICO1 MICOM#72,
CN31-"1"(Yellow) and REG1, HEAT-SINK from
PCB typical Ground part are similar.
→Check the SENSOR MARKING #7(R307)

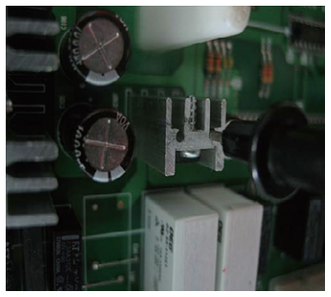


☞ Checking method of Ambient Sensor resistance
CN31-"1"(Yellow)↔CN31-"4"(Yellow)
- Compare the temperature table after the measure.

☞ Checking method of Ambient Sensor voltage
- Measure the voltage of Sensor Check Point #7(ICO1 MICOM #72) on PCB or CN31-"1"(Yellow), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN31-"1"(Yellow)↔REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

6) If Pantry Sensor has trouble

ERROR Code

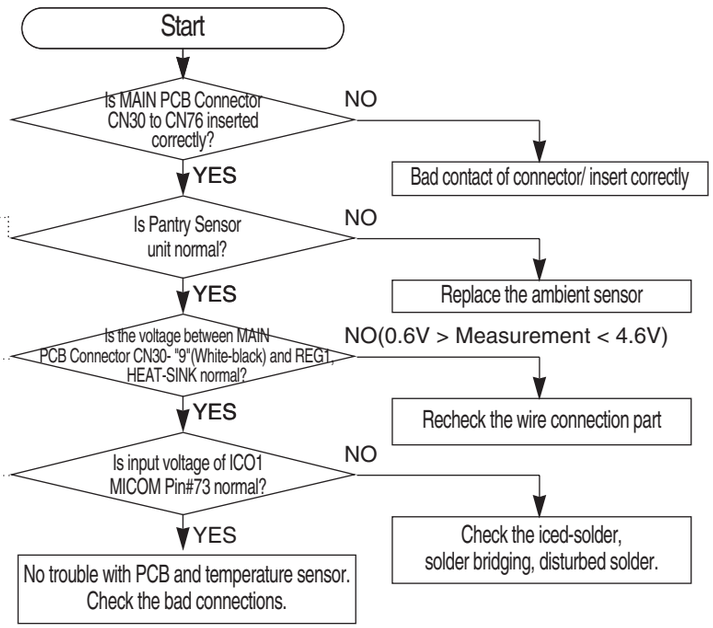
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor"
Pantry : CN30-"9"↔CN76-"1" measuring resistance valve.
** 0 Ω : Short trouble / ∞ Ω : Open trouble

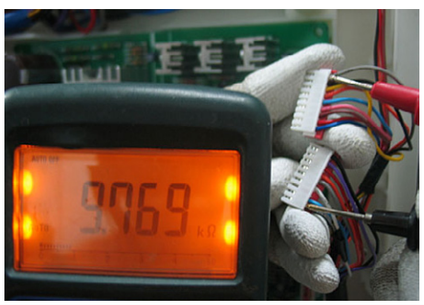
Refer to the circuit diagram in this manual

Sensor MICOM/Connector number	
Ice Room	Connector CN30-"9"(White-black) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

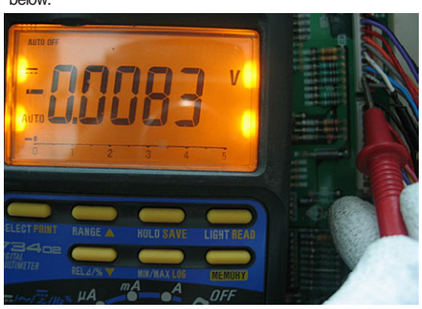
Measuring voltage of ICO1 MICOM#73, CN30-"9"(White-black) and REG1, HEAT-SINK from PCB typical Ground part are similar.
→Check the SENSOR MARKING #6(R314)



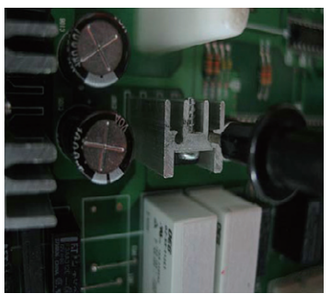
☞ Checking method of Pantry Sensor resistance
CN30-"9"(White-black)↔CN76-"1"(Gray)
- Compare the temperature table after the measure.



☞ Checking method of Pantry Sensor voltage
- Measure the voltage of Sensor Check Point #6(ICO1 MICOM #73) on PCB or CN30-"9"(White-black), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN30-"9"(White-black)←REG1, HEAT SINK are below.



Typical PCB Ground
REG1 HEAT-SINK



TROUBLESHOOTING

4-2-1. 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 operated by the emergency mode 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.

7) If ICE Maker(R) Sensor has troubled

ERROR Code

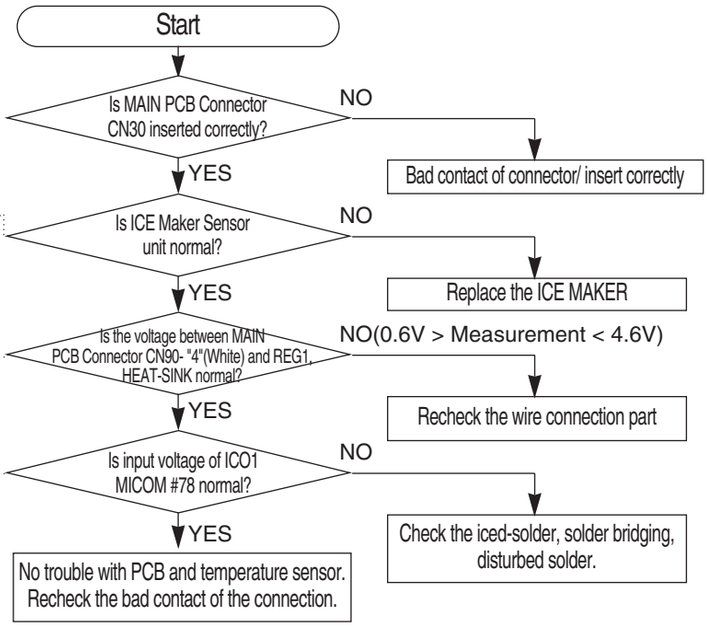
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor" ICE MAKER : CN90-"8" ↔"4" measuring resistance valve.
** 0Ω : Short troble / ∞Ω : Open troble

Refer to circuit diagram in the manual

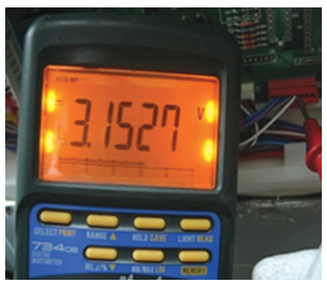
Sensor MICOM/Connector number	
ICE Maker(R)	Connector CN90-"4"(White) and REG1 HEAT-SINK PCB common Ground
Voltage measured between 4.6V ~ 0.6V.	

Measuring voltage of ICO1 MICOM#78, CN90-"4"(White) and REG1, HEAT-SINK from PCB typical Ground part are similar.

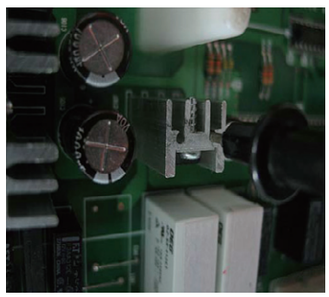


☞ Checking method of ICE Maker Sensor resistance
CN90-"8"(Sky-blue)↔CN90-"4"(White)
- Compare the temperature table after the measure.

☞ Checking method of ICE Maker Sensor voltage
- Measure the voltage of Sensor Check Point #6(ICO1 MICOM #78) on PCB or CN90-"4"(White), REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage of CN90-"4"(White), REG1, HEAT SINK are below.



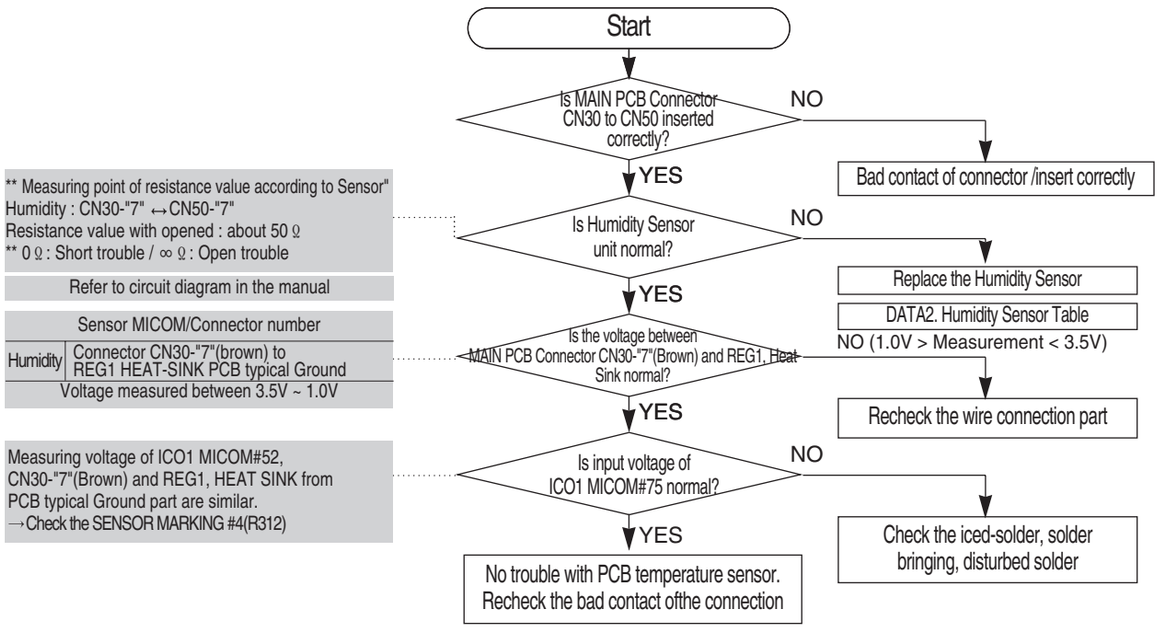
Typical PCB Ground
REG1 HEAT-SINK



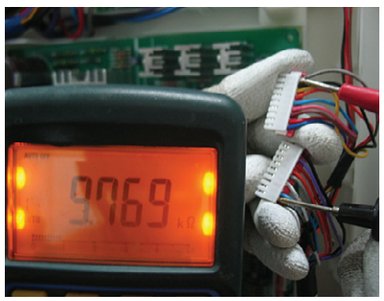
TROUBLESHOOTING

1) Humidity Sensor has trouble

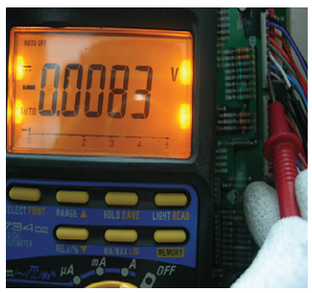
ERROR Code



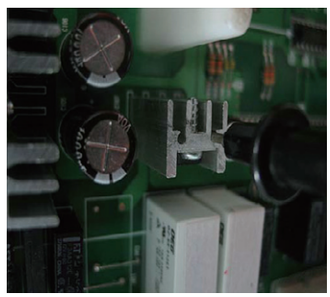
☞ Checking method ofHumidity Sensor resistance
CN30-"7"(Brown)↔CN50-"7"(Gray)
- Compare the temperature table after the measure.



☞ Checking method ofHumidity Sensor voltage.
- Measure the voltage of Sensor Check Point #4(IC01 MICOM #75) on PCB or CN30-"7"(Brown)↔REG1, HEAT SINK
- Compare the temperature table after the measure.
Measuring voltage ofCN30-"7"(Brown)↔REG1, HEAT SINK are below



Typical PCB Ground
REG1 HEAT-SINK



4-2-2. 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.

TROUBLESHOOTING

4-2-3. 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

Measuring point of resistance value according to heater
F-DEF(Ice Duct parallel) : CN70#7(Brown) ↔ CN71#9 (Orange) measuring resistance value 63(220)ohm ±7%
R-DEF : CN70#5(White)↔CN71#9(Orange) measuring resistance value 120(440)ohm ±7%
** 0 Ω : Short trouble / ∞ Ω : Open(bimetal, heater) trouble

**Measuring point of resistance value according to sensor **
F-DEF : CN30#4 ↔ CN76#1 measuring resistance value
R-DEF : CN30#8 ↔ CN76#1 measuring resistance value
** 0 Ω : Short trouble / ∞ Ω : Open trouble

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

**Measuring point of resistance value according to sensor **
F-DEF : CN30#4 ↔ CN76#1 measuring resistance value
R-DEF : CN30#8 ↔ CN76#1 measuring resistance value
** 0V: Short trouble / 5V: Open trouble

Start

Are the all deforst heater normal?
- No → Check the bimetal, heater disconnection, wiring connection etc.
- Yes ↓

Is defrost sensor by self-diagnostic normal?
- No → Refer to self-diagnostic function in the manual → Replace the applicable sensor
- Yes ↓

Is the temperature of defrost sensor lower than 53.6°F (12°)?
- No → manual operation for a certain time
- Yes ↓

Manual defrosting of fresh food and freezer compartments operate simultaneously.

If Power Freezer Key + Fridge key are pressed simultaneously for 8 seconds and select any key. 4thtest mode(manual defrosting will be operated).

Is power applied to each defrost heaters?
- No → Is connection terminal of MAIN PCB part normal?
- 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°F (10°C), 53.6°F (12°C) by the heating from heater, heating would be finished and will return to cooling operation after a pause.

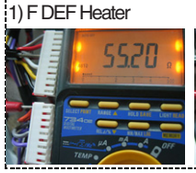
Is connection terminal of MAIN PCB part normal?
- No → Repair connection terminal
- Yes ↓

Check bimetal, heater itself, disconnection etc.

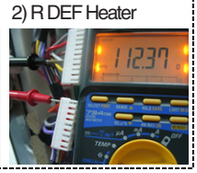
Replace failure Relay or replace PCB ASS'Y

☞ Checking method of F,R DEF Heater resistance value
F DEF ; CN70#7(Brown) ↔ CN71#9(Orange)
R DEF ; CN70#5(White) ↔ CN71#9(Orange)
- Recheck if resistance values are different after the test

1) F DEF Heater



2) R DEF Heater



TROUBLESHOOTING

4-2-4. If Ice Maker does not operate

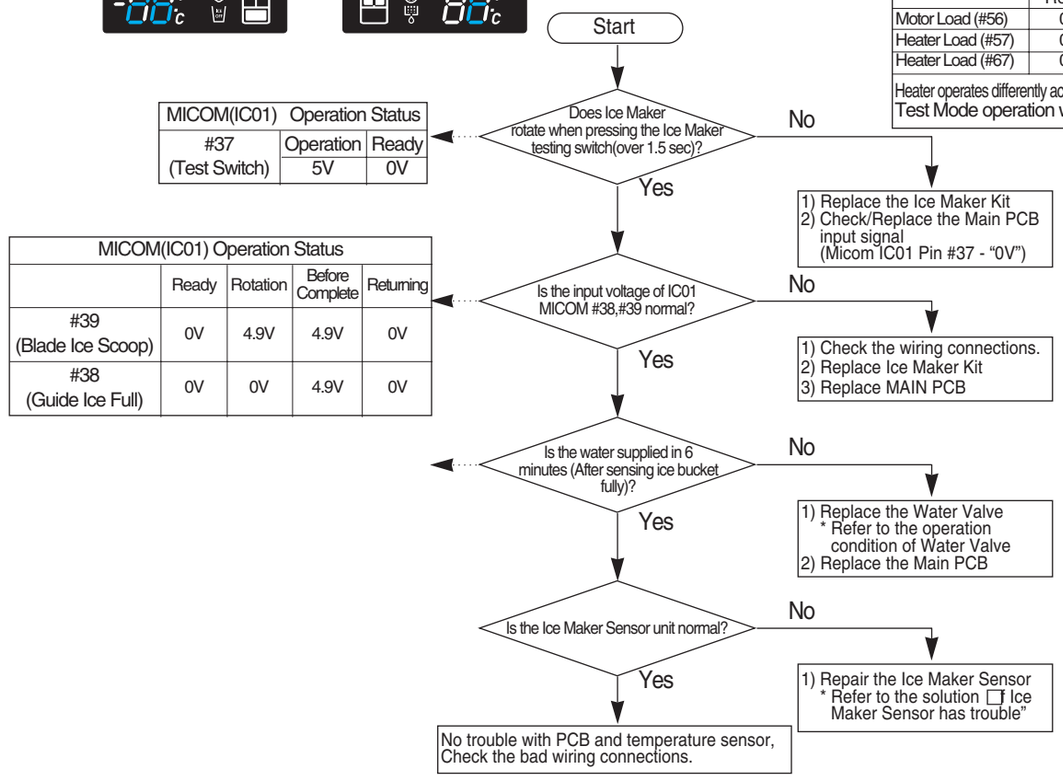
1. Water is automatically supplied to the Ice Maker depending on temperature & time condition and Ice Maker Dispenses cubed or crushed ice.
2. Power is applied to the one end of wires. Be careful when disassembling and shall refer to its exploded diagram in any case.
3. Ice Maker operation shall be checked after pressing the Ice Maker testing switch.
   (Freezer 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.
6. Ice maker could operate not only genuine rotate but also reverse rotate, so it is not out of order that reverse rotate.

Displays ERROR Code

Operating Condition when motor rotates
Operating Status of Micom(IC01)

	Ready	Operation
Motor Load (#56)	0V	5V
Heater Load (#57)	0V	5V
Heater Load (#67)	0V	5V

Heater operates differently according to the conditions.
Test Mode operation will be 30 sec.



MICOM(IC01) Operation Status

	Operation	Ready
#37 (Test Switch)	5V	0V

MICOM(IC01) Operation Status

	Ready	Rotation	Before Complete	Returning
#39 (Blade Ice Scoop)	0V	4.9V	4.9V	0V
#38 (Guide Ice Full)	0V	0V	4.9V	0V

☞ Checking Method of ICE Maker Voltage
With typical PCB Ground REG1 Heater Sink and
1) Test Switch operation (press selected) : CN90-"5"(Gray) shall be DC 0V.
   Test Switch ready ; CN75-"5" (Black) shall be less than DC 5V.

a)Test Switch operating
- When the refrigerator operate, the voltage is 0V.

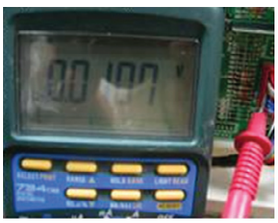
b)Test Switch ready

Typical PCB Ground REG1 Heater Sink

☞ Checking Method of ICE Maker Voltage
With typical PCB Ground REG1 Heater Sink and
2) IC01 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 Resistance

1) Measuring the Ice Maker Heater resistance values
   CN70-"11"(Gray) -"1"(Black)



Resistance value : 91(365)Ohm± 10%

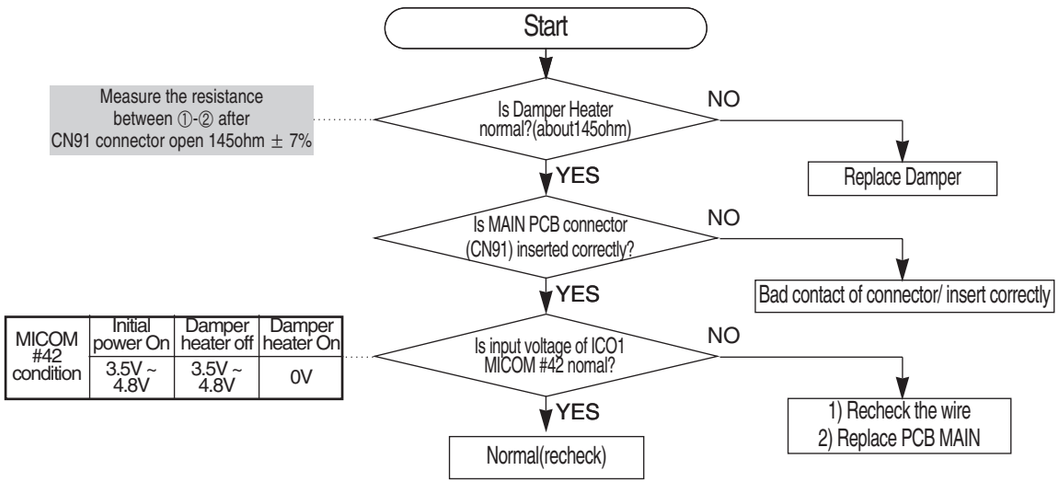
2) Measuring the Ice Maker Motor resistance values
   CW: 13P-"11"(White) and CN70-"9"(Red)
   CCW: 13P-"13"(Pink) and CN70-"9"(Red)

Resistance value : 200KOhm± 30%

TROUBLESHOOTING

12) If Pantry Room Damper Heater has trouble

ERROR Code

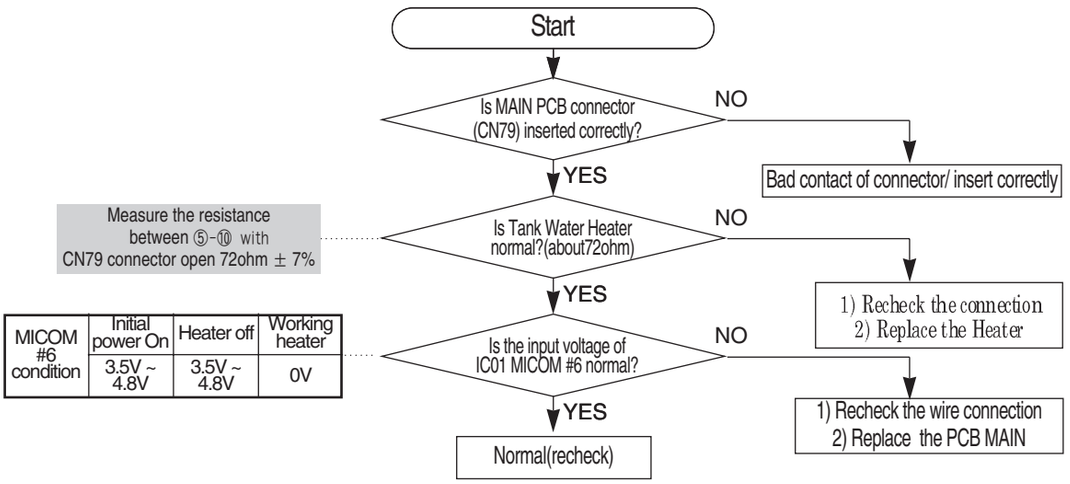


☞ Checking method of Pantry Room Damper resistance CN91-"1"(Black)°ICN91-"2"(Brown)
** ∞ Ω : Open(wire disconnection, heater disconnection) trouble / 0 Ω : Short trouble

TROUBLESHOOTING

13) If Ice Pipe Heater has trouble

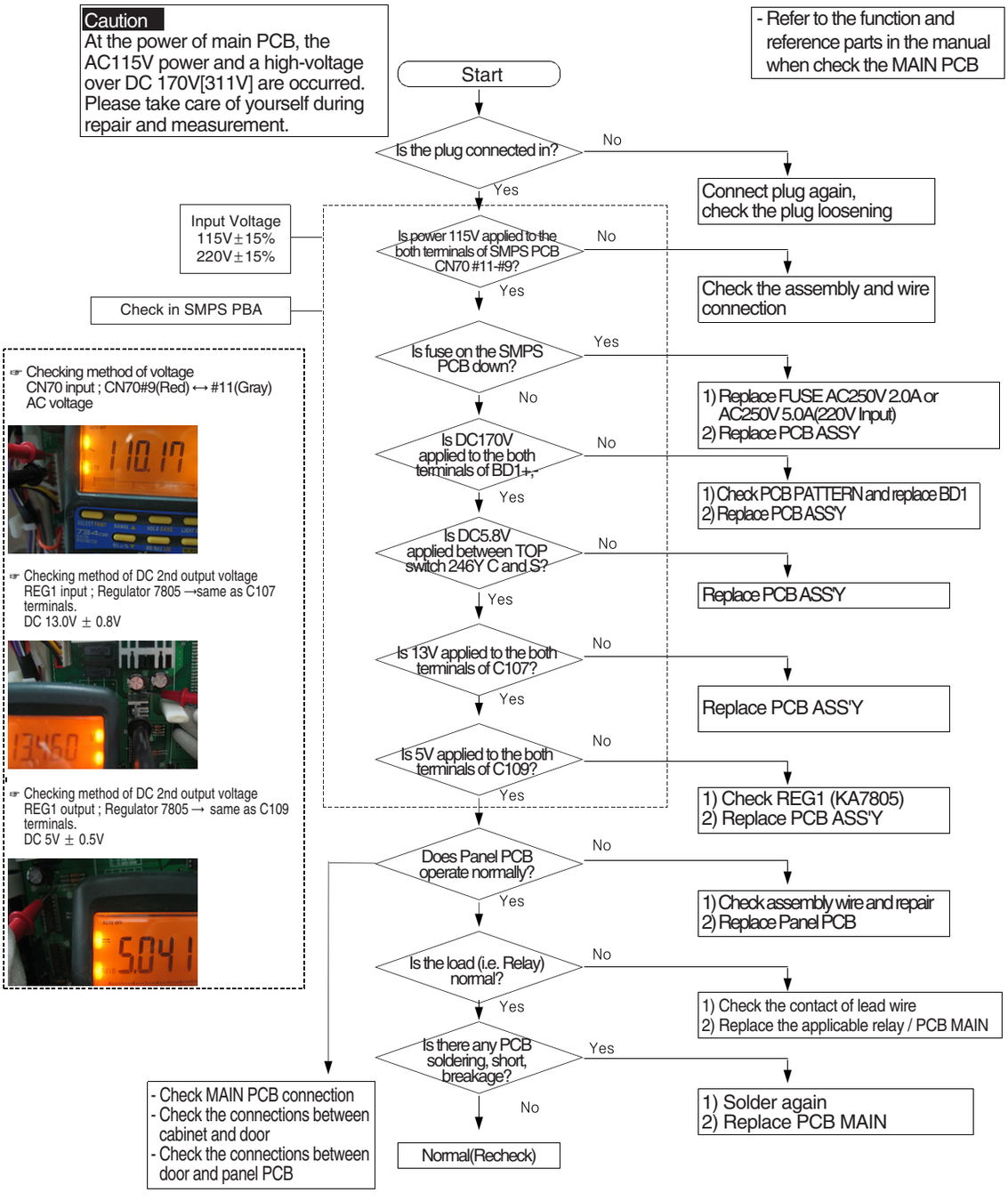
ERROR Code



☞ Checking method of Ice Pipe Heater resistance
CN79#5(Blue) ↔ CN79#10(White)
(Reter to measuring method.)
** ∞ Ω : Short trouble / 0 Ω : Open(wire disconnection, heater disconnection) trouble

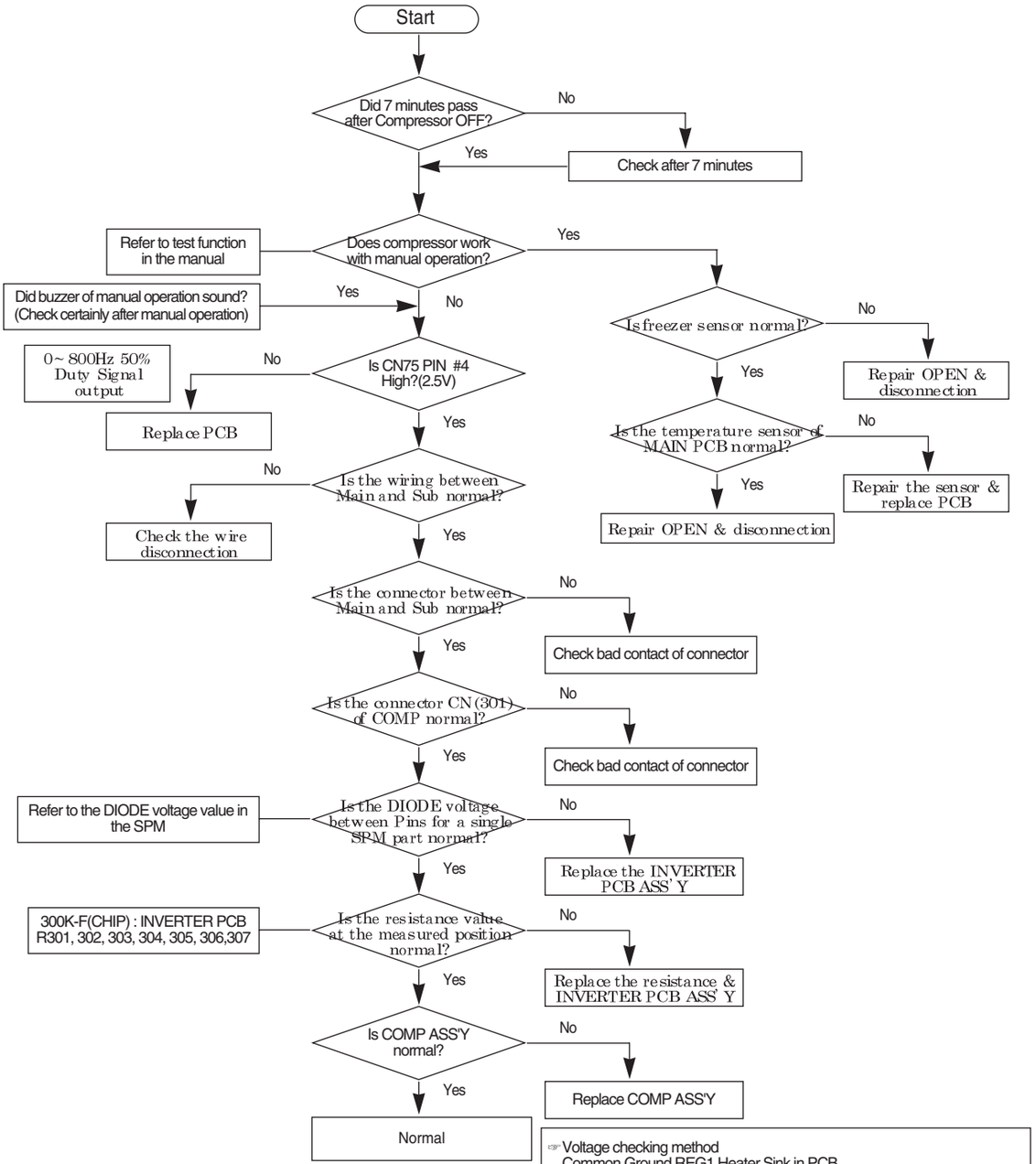
TROUBLESHOOTING

4-2-5. If Power is not supplied

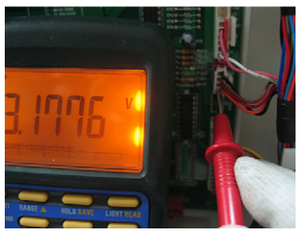


TROUBLESHOOTING

4-2-6. If compressor does not operate



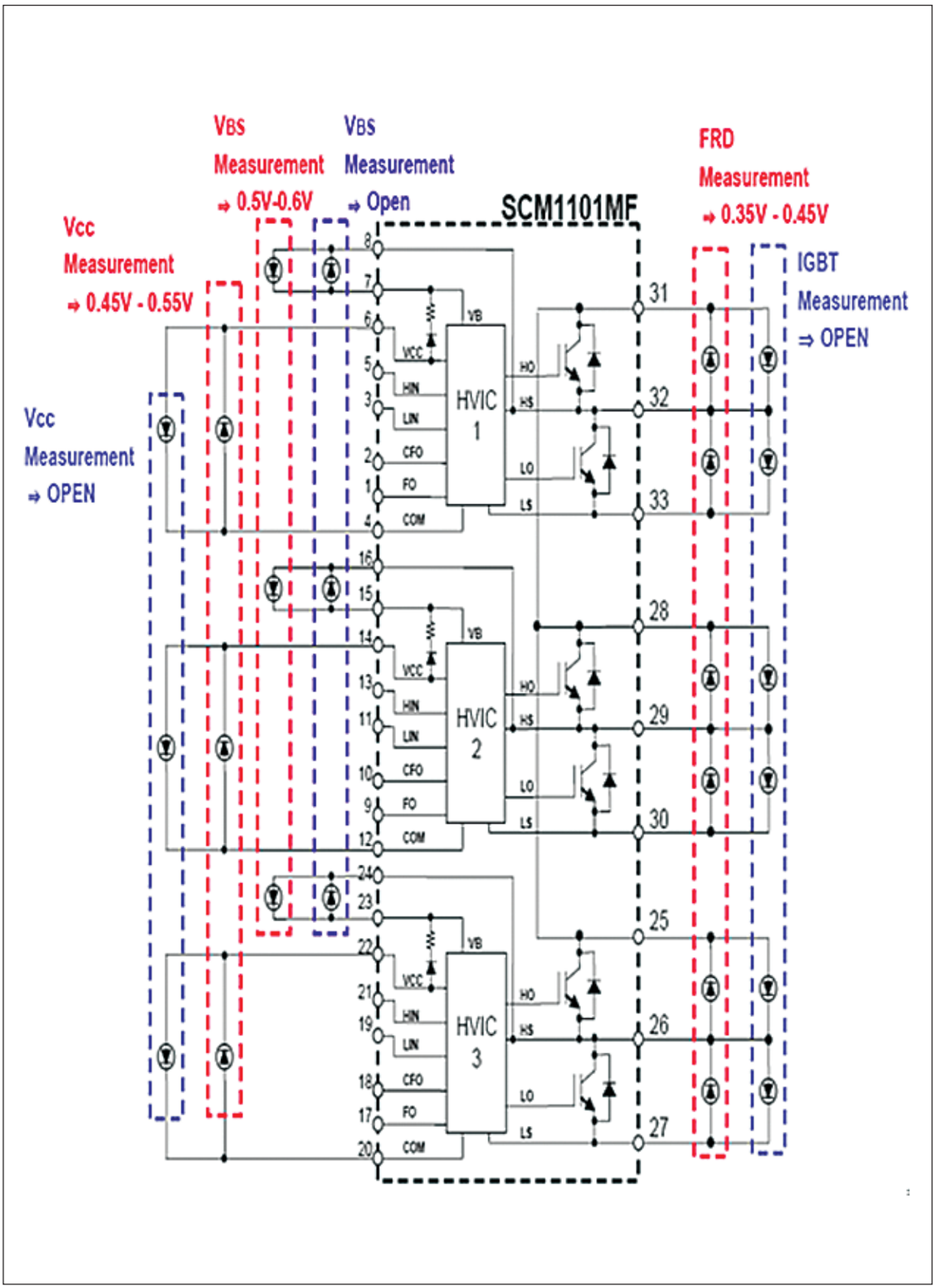
☞ Voltage checking method
Common Ground REG1 Heater Sink in PCB and 1) IC01 MICOM #4 ; Square wave voltage →2~3V measured after MULTI TEST IC01 MICOM #4, COMP operates



Common PCB Ground
REG1 Heater Sink

TROUBLESHOOTING

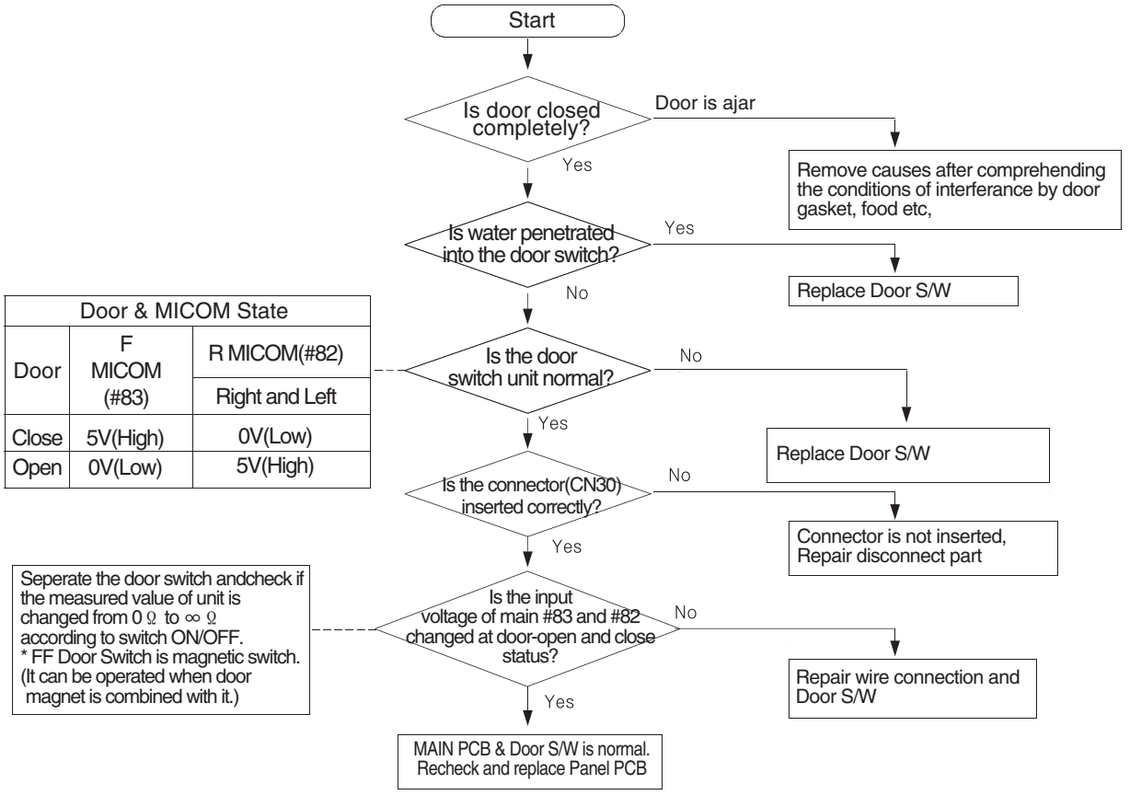
IPM FREEWHEELING DIODE VOLTAGE VALUE



TROUBLESHOOTING

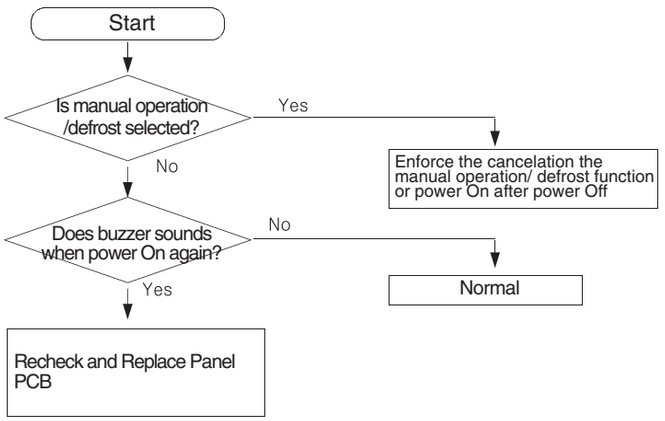
4-2-7. When alarm sounds continuously without stop(related with buzzer sound)

① If 'ding-dong'sound continuously



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

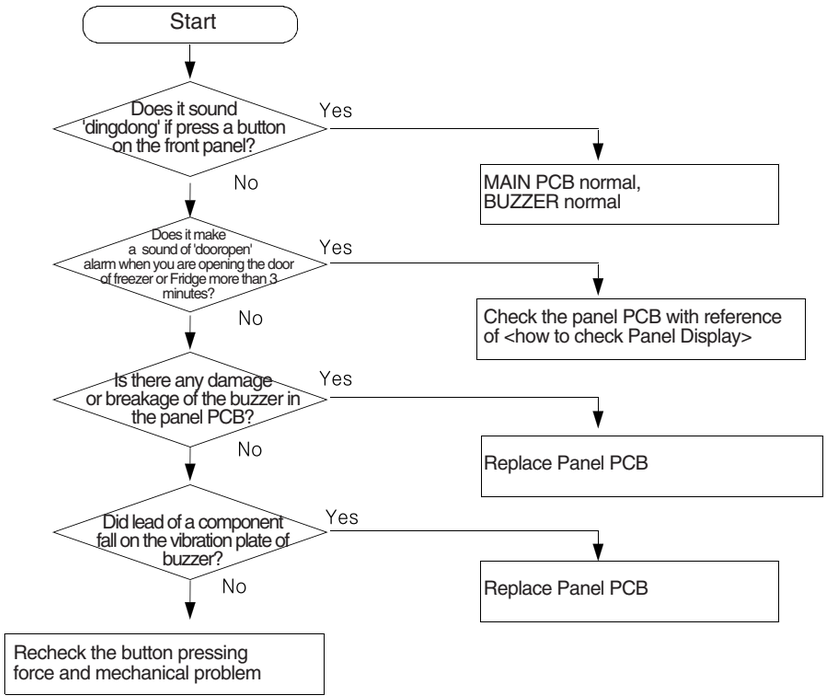
② If 'beep-beep' sounds continuously



TROUBLESHOOTING

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.

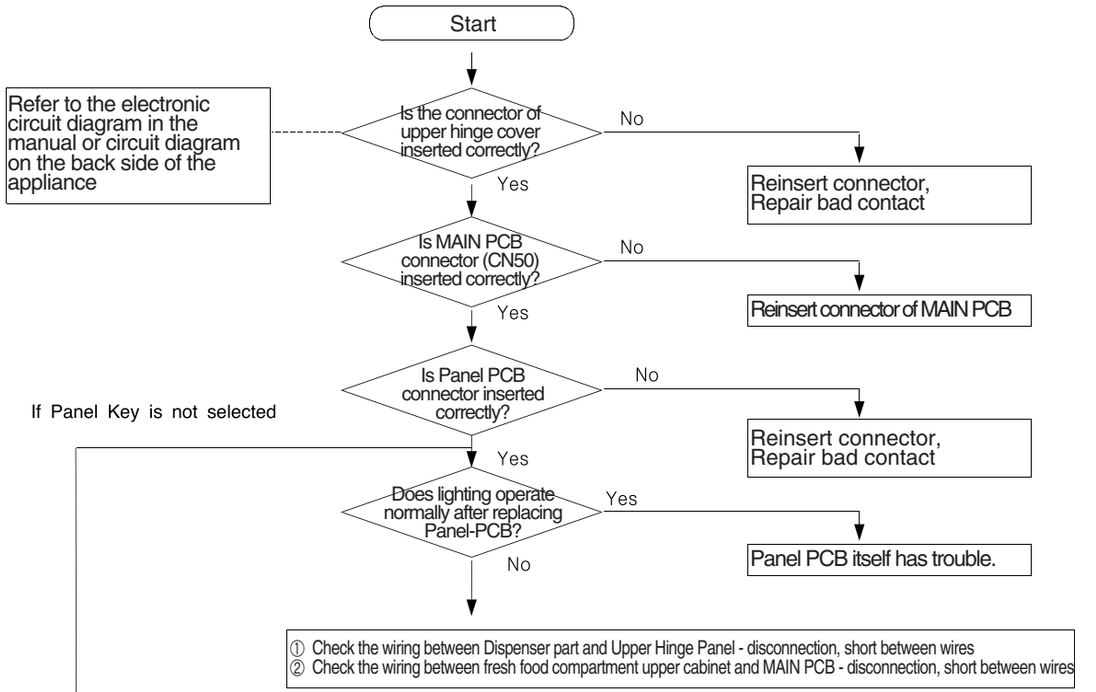


TROUBLESHOOTING

4-2-8. If Panel PCB does not work normally

① When lighting of Panel PCB is disabled or only some LED Lamp are disabled

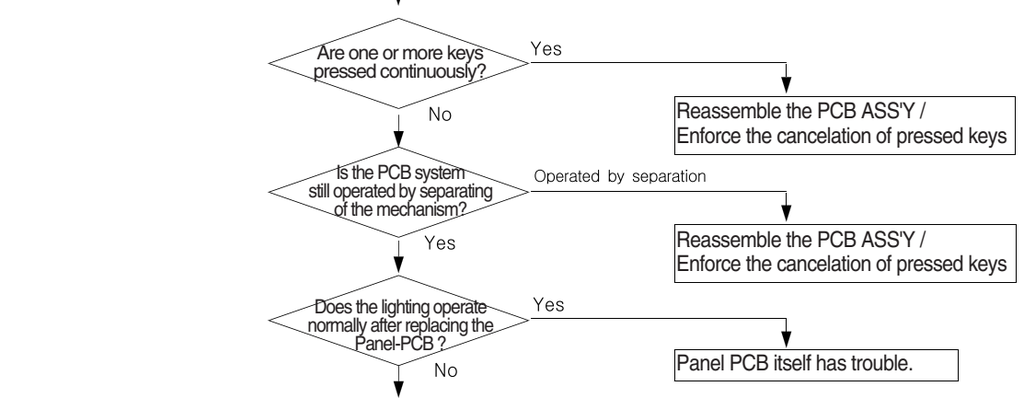
Be careful to repair because display of this model is installed in the MICOM of internal PCB.
It is recommended to replace PCB MAIN after checking except specified solder touch.



If Panel Key is not selected

② If Panel PCB KEY is not selected

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

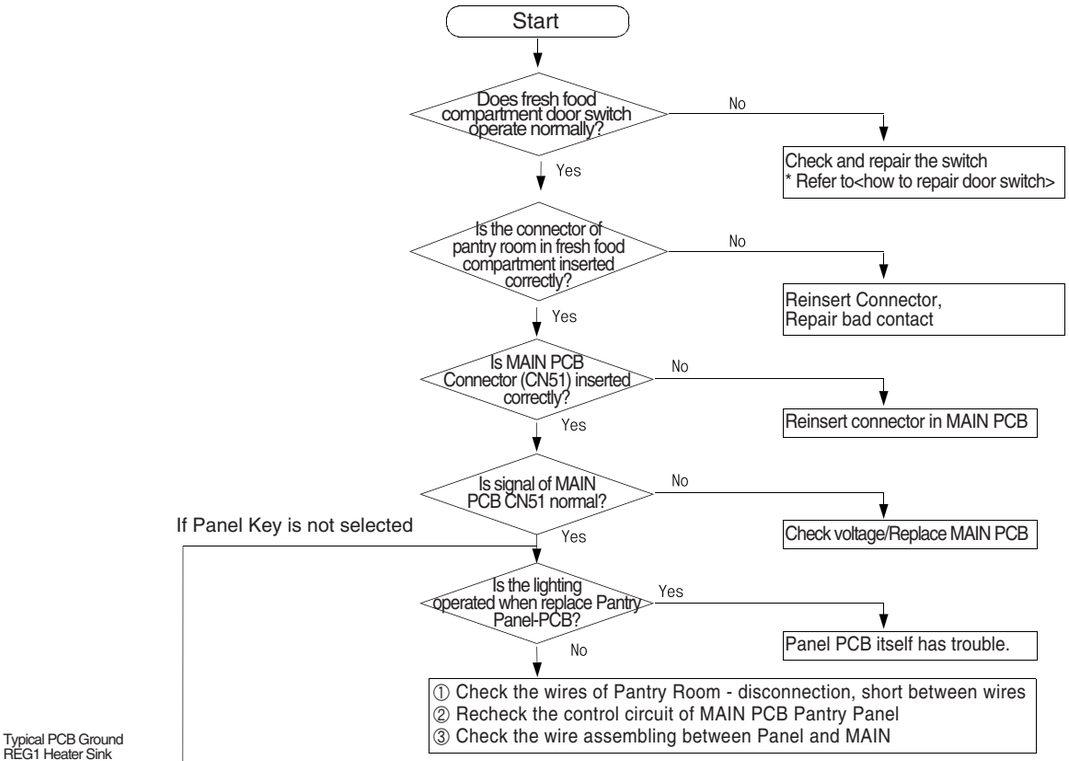


①Check the wiring betwwen Dispenser part and Uper Hinge Panel- disconnection, short between wires.
②Check the wiring of the fresh food compartment upper cabinet - disconnection, short between wires.
③Check the short/open of the panel communication and power supply circuit in MAIN PCB.

TROUBLESHOOTING

4-2-9. If Pantry Panel PCB is not working 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.



Typical PCB Ground
REG1 Heater Sink

← ② If Panel PCB Key is not selected

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

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

1) Key voltage ; CN51#6"(Purple)

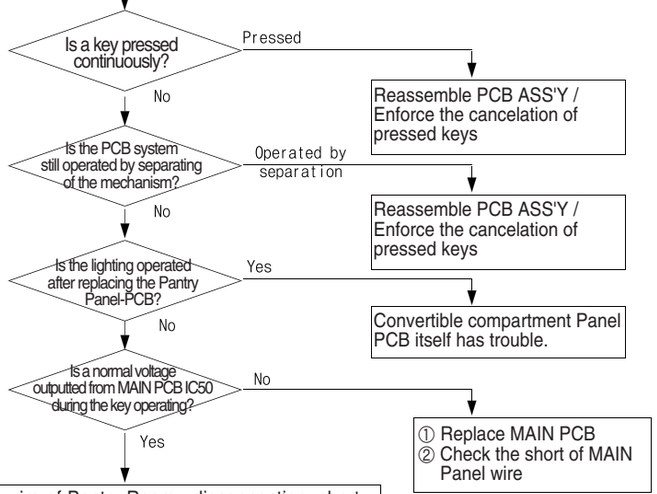
1) select(operating) (0V)

2) normal(about5.0V ±0.5V)

2) LED part voltage ; CN51-"1"(Yellow), "2"(Pink),"3"(Orange) → Voltage of CN51 is same as IC50 #14,#13,#12 voltage.

- Display On (0.7V±0.5V)

- Display Off (11V±1V)



TROUBLESHOOTING

4-2-10. When refrigerator LED Lamp does not light up.

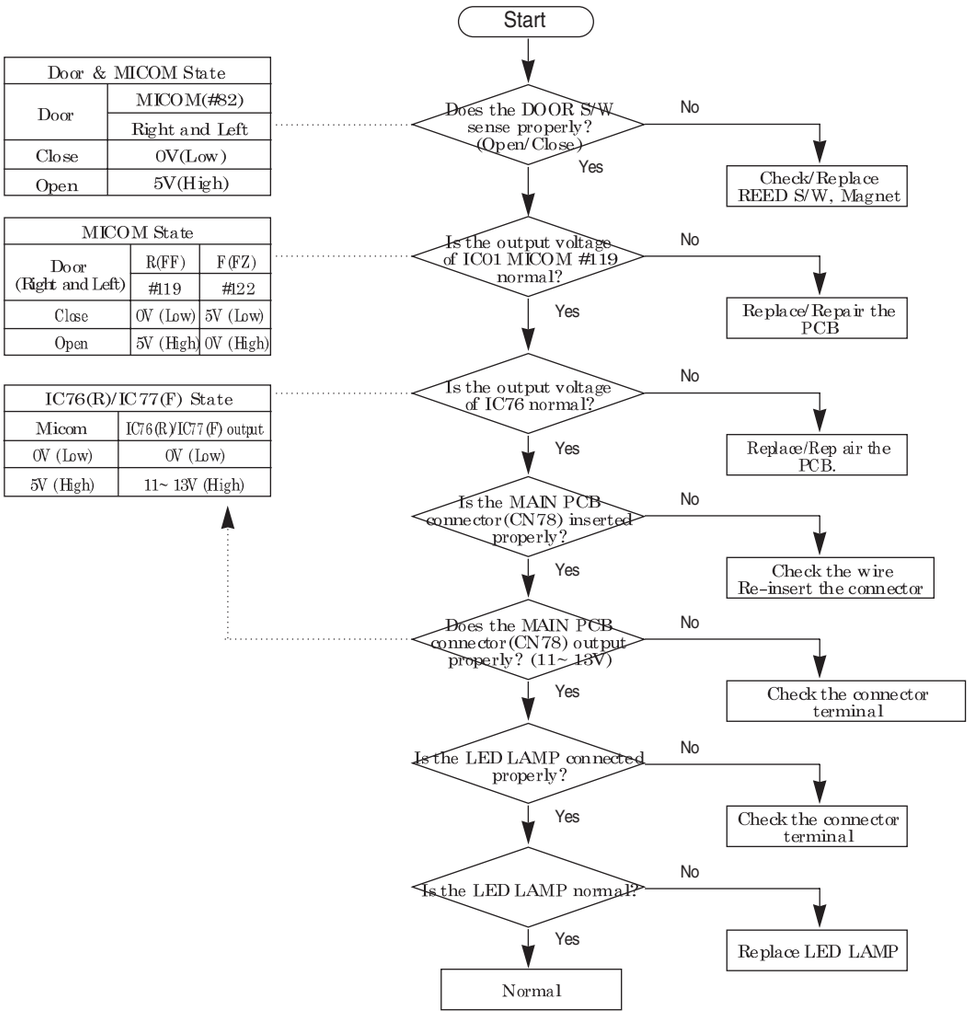
When controlling the regrigerator light with Regulator(12V) : LED LAMP
→Applying to the R & FF compartment (Option)

* 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(#82)
	Right and Left
Close	0V(Low)
Open	5V(High)

MICOM State		
Door (Right and Left)	R(FF)	F(FZ)
	#119	#122
Close	0V (Low)	5V (Low)
Open	5V (High)	0V (High)

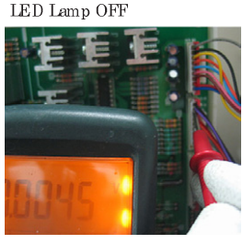
IC76(R)/IC77(F) State	
Micom	IC76(R)/IC77(F) output
0V (Low)	0V (Low)
5V (High)	11~ 13V (High)



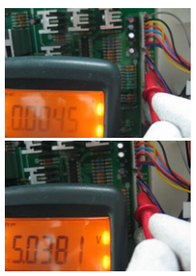
☞ Output Voltage Checking Method
- Common Ground REG1 Heater Sink in PCB and
1) Measuring IC76 voltage (CN78-"4"(Red) / R ROOM LED)
Measuring IC77 voltage (CN78-"1"(Black) / F ROOM LED)

LED Lamp ON

LED Lamp OFF



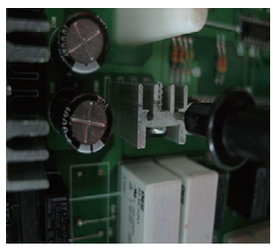
☞ Door Switch voltage Checking Method
- Measuring common Ground REG1 Heater Sink in PCB and CN30- "2" (Purple) (R Door Switch)



Close

Open

Typical PCB Ground REG1 Heater Sink



TROUBLESHOOTING

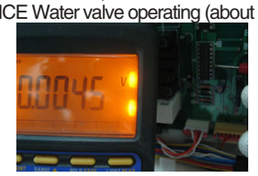
4-2-11. If ICE Water is not supplied

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

Typical PCB Ground REG1 Heater Sink

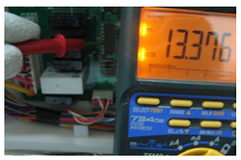
☞ Checking method of voltage Based on PCB typical Ground REG1 Heater Sink

1) Check the voltage of IC73#4(same voltage as IC01 #54)
- ICE Water valve operating (about 5V±0.5V)

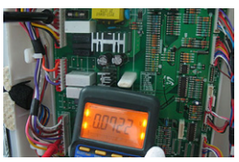


Based on PCB typical Ground REG1 Heater Sink

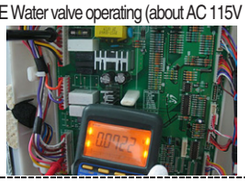
2) IC73 #15 voltage
- ICE Water valve Waiting (about 13V±0.8V)
- ICE Water valve operating (about 0.7V±0.5V)

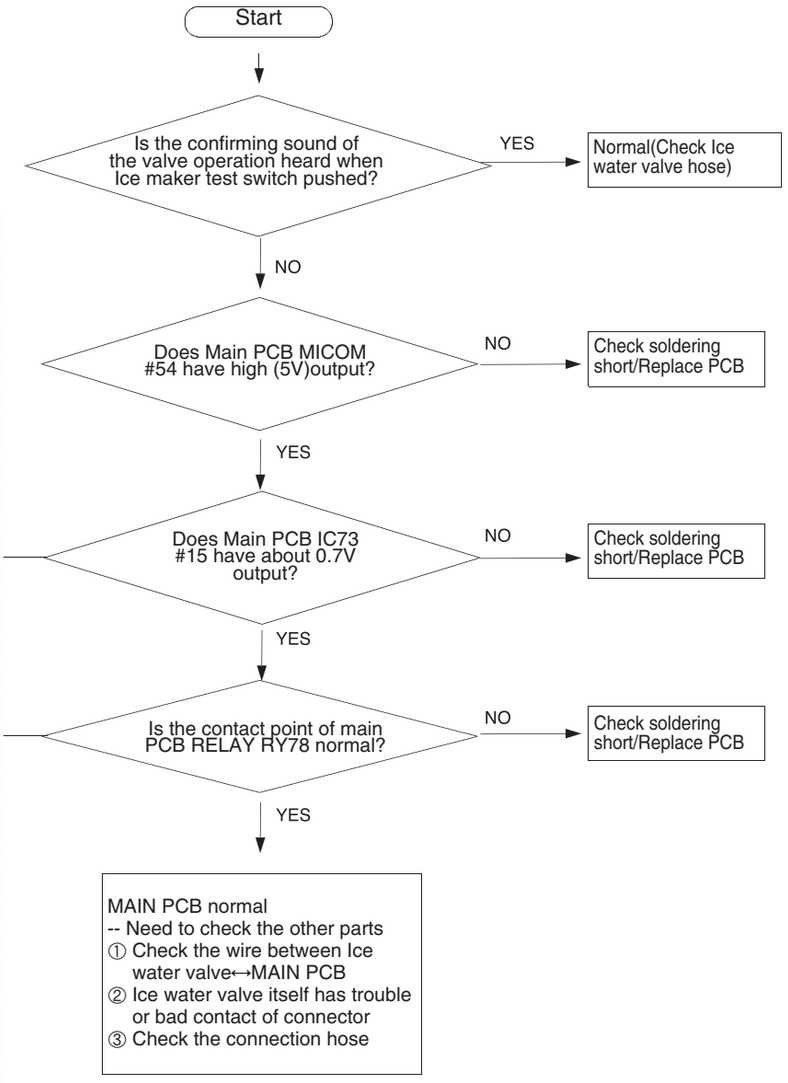


3) Check the voltage of Water Valve operating(AC voltage)
=> For checking the Relay RY78 operating.
CN73 and CN74 combined and use same connector(13p)
CN70#9(Red) ↔ 9P#7(Purple)
- ICE Water valve waiting (about AC 0V)



- ICE Water valve operating (about AC 115V ± 20%)

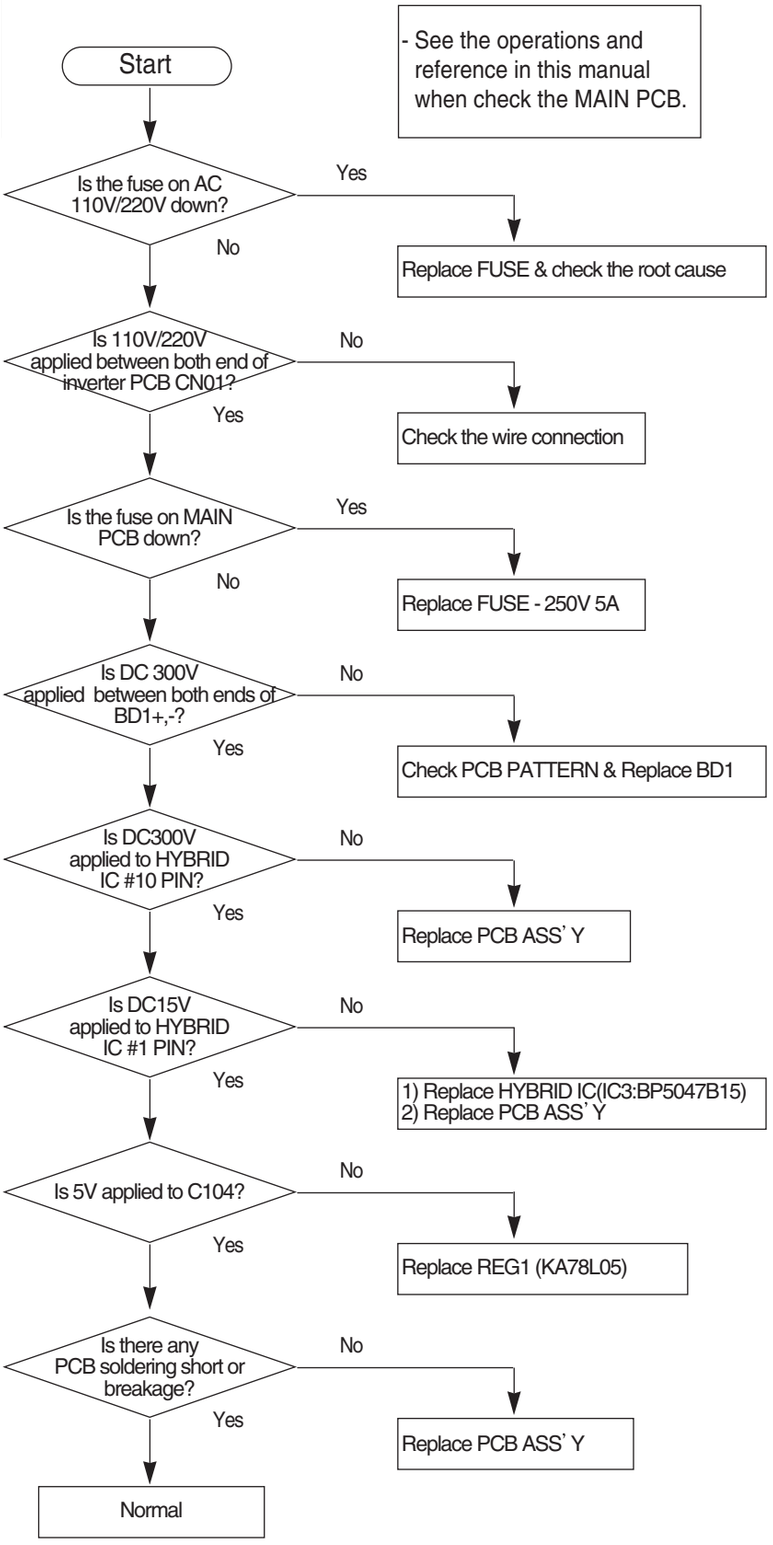




4-2-12. If Inverter PCB Power is not supplied

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.



TROUBLESHOOTING

4-2-13. 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.

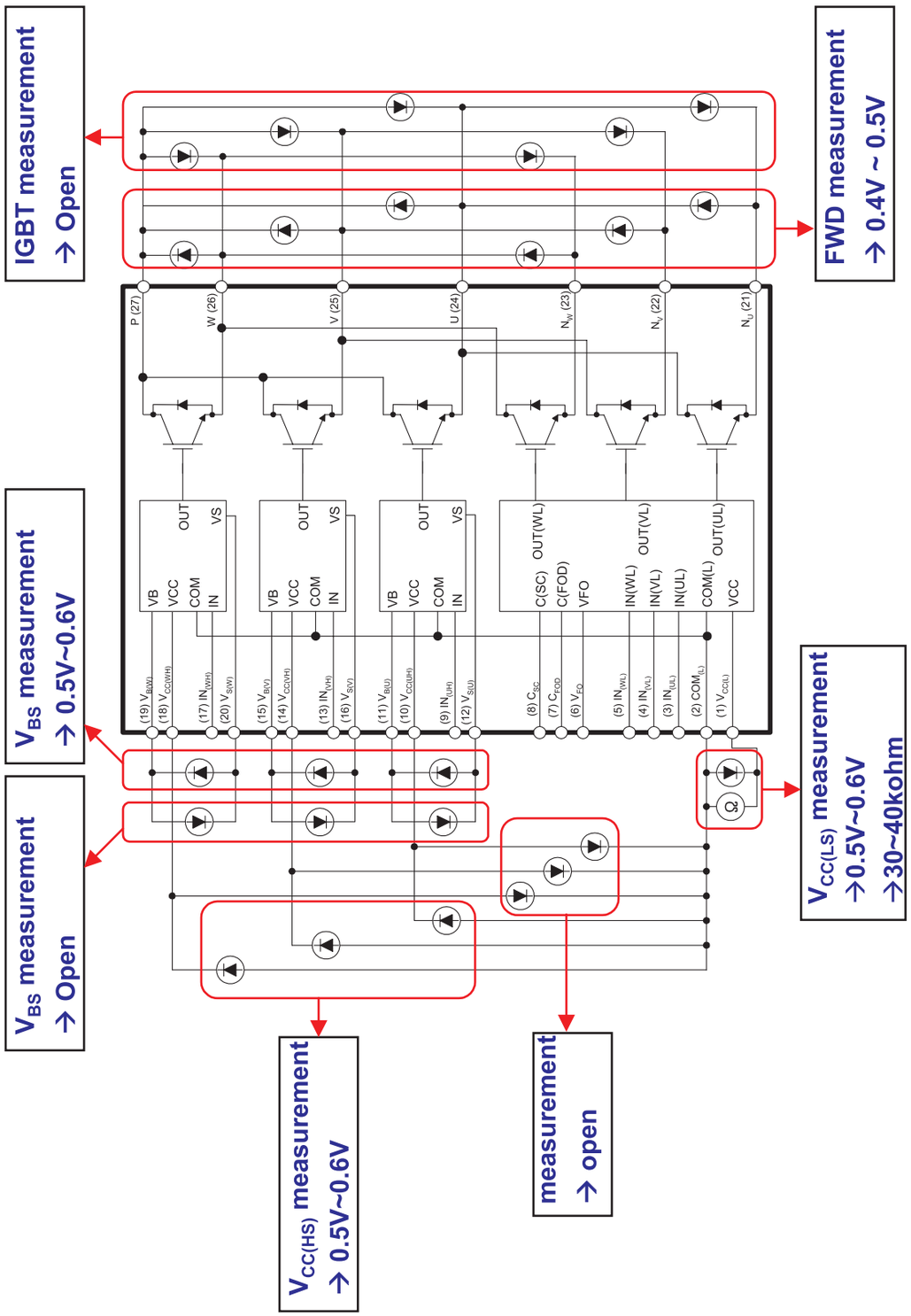
Blinking time is 1 second and dwell time is 2 seconds.

LED Blinking Frequency	Protecting Functions	Remarks
	Normal Operation	
	Starting Failure	Check the Inverter PCB.
	SPM Fault	Check the Inverter PCB, COMP, Cycle.
	Detecting Position Failure	Check the COMP, Cycle, Inverter PCB.
	Motor Locked / Over RPM	Check the COMP.
	Under Voltage	Check the Input Voltage.
	Over Voltage	Check the Input Voltage.

LED blinking frequency depending on protecting functions

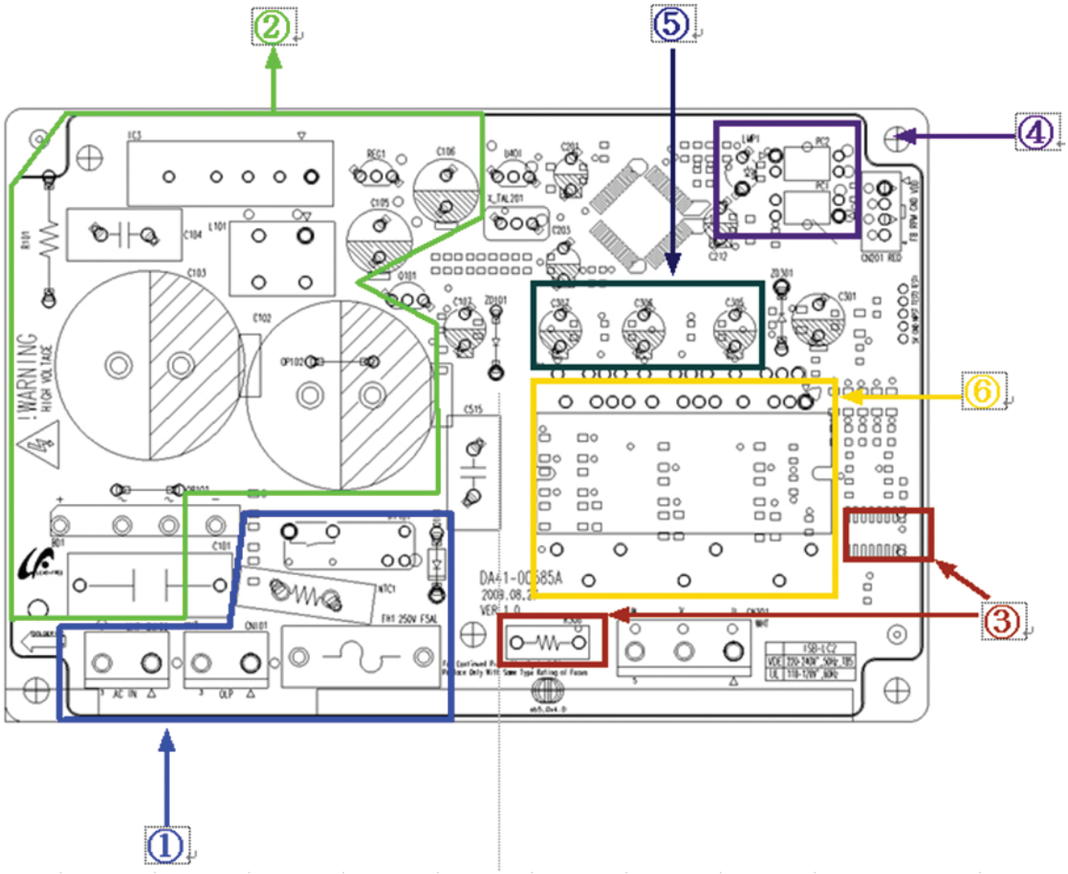
TROUBLESHOOTING

SPM Internal DIODE Voltage



TROUBLESHOOTING

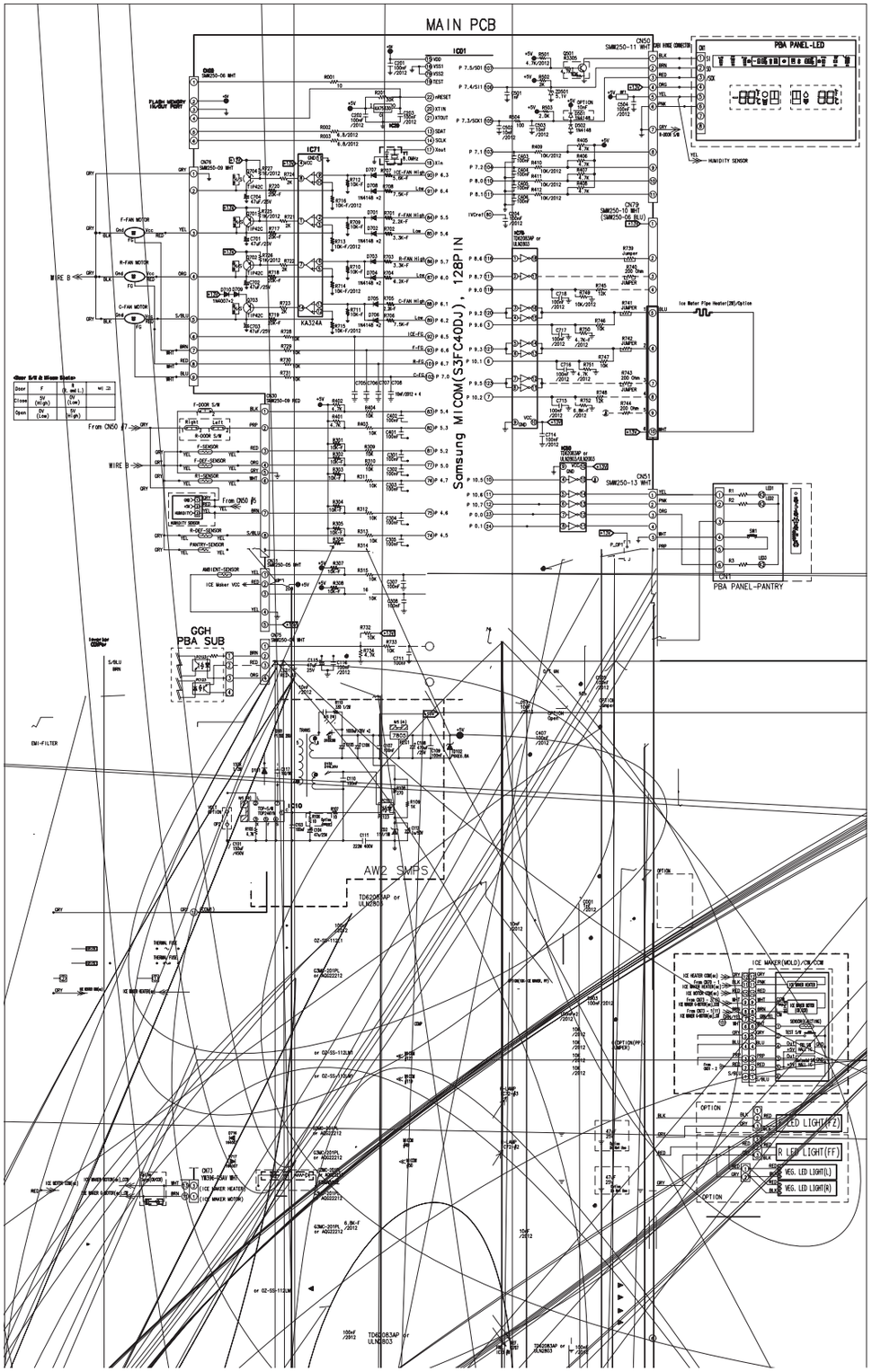
INVERTER CONTROLLER BOARD Connector Location



1. Inrush Corrent 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 DC 15V and 5V to MICOM.
3. Current sensing area : It senses the current from the SHUNT resistance and controls PWM DUTY.
4. COMP. operation 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 part : Output circuit which operates comp of refrigerator.

TROUBLESHOOTING

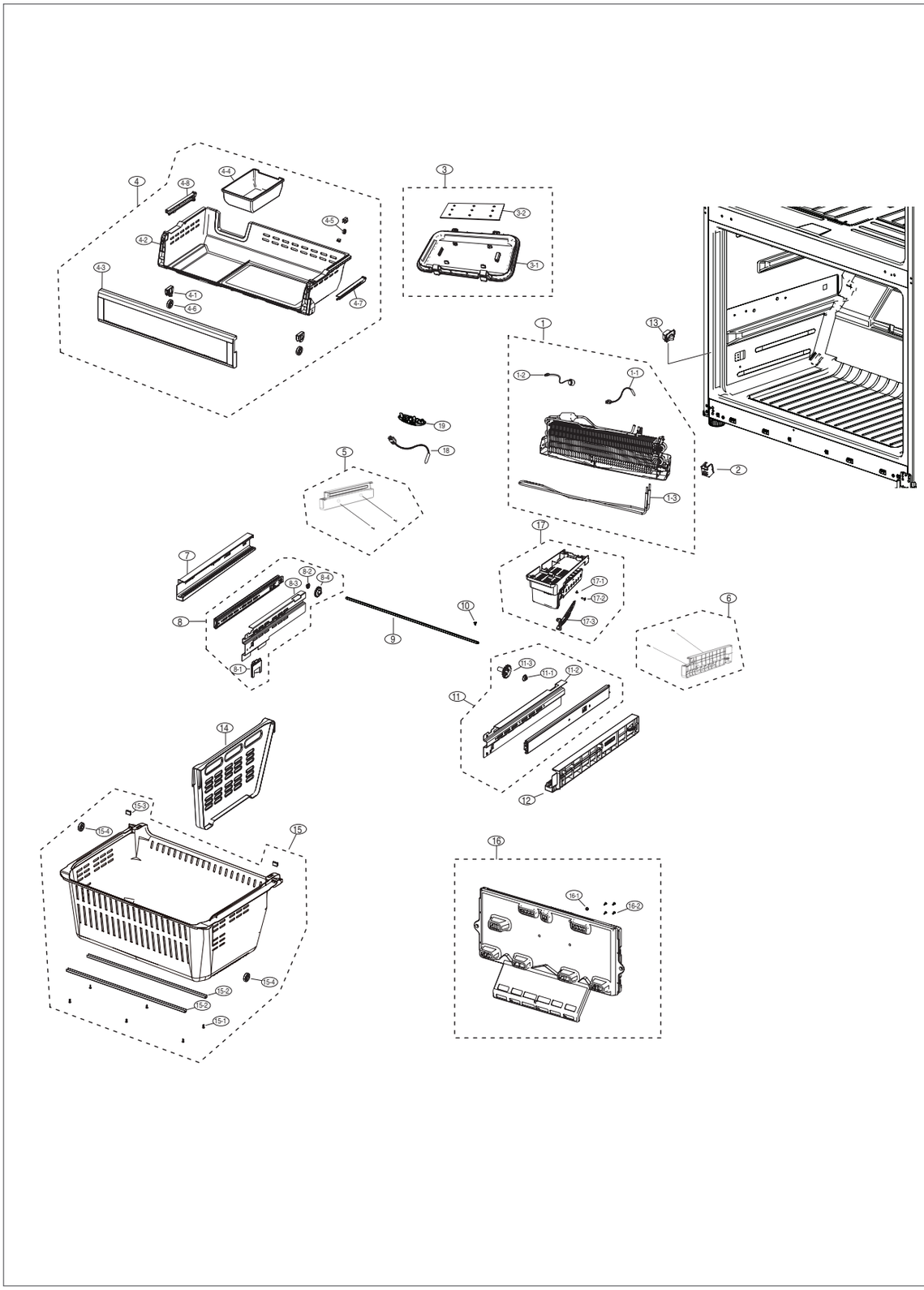
INVERTER PCB Circuit Diagram



5 . EXPLODED VIEW& PARTS LIST

EXPLODED VIEW& PARTS LIST

5-1) Freezer



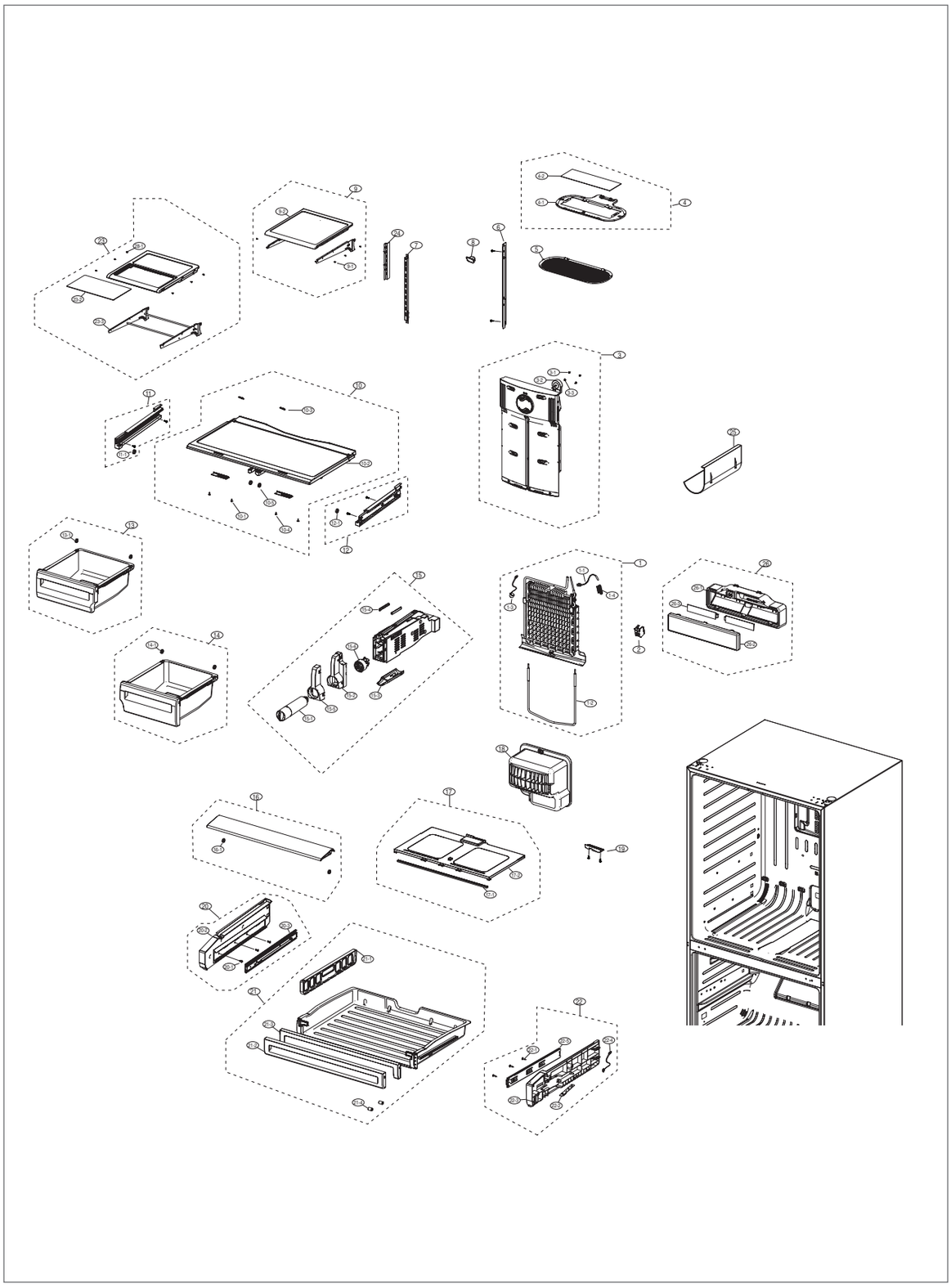
EXPLODED VIEW& PARTS LIST

■ Parts List of Freezer

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
1	DA96-00632A	ASSY EVAP FRE	AW2 ND-PJT,PIN,120V/180W	1	
1-1	DA32-10104N	SENSOR TEMP	PX-41C,AW3,-40~110°...,5V,R-DEF SENSOR, PVC TUBE,YEL,200mm	1	
1-2	DA47-00301B	THERMO FUSE-ASSY	HERMES,120V/250V,15A/10A,109~110°...,100mm	1	
1-3	DA47-00318B	HEATER-METAL SHEATH	AW2-ND(F),230W,120V	1	
2	DA63-02902B	COVER-FIXER HOUSING V	NEXT-PJT,GALVA,T0.3,W31,L42,-,-,-	3	
3	DA97-07569B	ASSY COVER-LAMP FRE	AW2-ND PJT	1	
3-1	DA63-04955A	COVER-LAMP FRE	AW2 CD,PC,-,-,-,-,-,NTR,-	1	
3-2	DA96-00398G	ASSY-LAMP LED	NW2 FDR,3chip 6EA	1	
4	DA97-07638G	ASSY TRAY-FRE UPP	AW2-ND,COOL WHITE	1	
4-1	DA61-04154A	FIXER-ROLLER TRAY FRE UPP	AW-PJT,POM,1.8,NATURAL,-	2	
4-2	DA63-05038A	TRAY-FRE UPP	AW2 TIM,ABS,COOL WHITE(SC-02740R),Extended	1	
4-3	DA63-04252D	COVER-TRAY FRE UPP A	AW2,ABS,COOL WHITE	1	
4-4	DA61-05905A	CASE-ICE CUBE	AW2 ND,PP,COOL WHITE(SC-02740R)	1	
4-5	DA66-00554A	ROLLER-TRAY FRE UPP	AW-PJT,POM,42.2,-,NATURAL,-,PVC COATING	2	
4-6	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
4-7	DA61-05185A	GUIDE-TRAY FRE UPP R	AW2 CD,PA+ABS,COOL WHITE(SC-02740R)	1	
4-8	DA61-05186A	GUIDE-TRAY FRE UPP L	AW2 CD,PA+ABS,COOL WHITE(SC-02740R)	1	
5	DA61-04259A	RAIL-FRE UPP R	AW2,ABS,-,-,-,COOL WHITE,-	1	
6	DA61-04260A	RAIL-FRE UPP L	AW2,ABS,-,-,-,COOL WHITE,-	1	
7	DA63-03414A	COVER-RAIL LOW L	AW-PJT,ABS,-,-,-,-,-,COOL WHITE,-	1	
8	DA97-08450A	ASSY RAIL-SLIDE LOW L	AW2 ND-PJT,STS430	1	
8-1	DA34-00047B	SWITCH PRESSURE	AW-PJT,ABS,COOL WHITE	1	
8-2	DA61-03154A	FIXER-GEAR	AW-PJT,POM,-,NTR,-	1	
8-3	DA61-04437A	HANGER-RAIL LOW L	AW-PJT,SECC1,T1.6,COOL WHITE,-,-,Powder Coating	1	
8-4	DA66-00436A	GEAR-L	AW-PJT,POM,-,-,-,NTR,-,-,-	1	
9	DA66-00437B	SHAFT-GEAR	AW2,SM25C,715.1,-,-,-,BLACK Electro-deposition Coating	1	
10	DA67-00859E	CAP-DOOR HANDLE	CORE,ABS,-,-,-,SNOW WHITE,SC-97527R	2	
11	DA97-08451A	ASSY RAIL-SLIDE LOW R	AW2 ND-PJT,STS430	1	
11-1	DA61-03154A	FIXER-GEAR	AW-PJT,POM,-,NTR,-	1	
11-2	DA61-04439A	HANGER-RAIL LOW R	AW-PJT,SECC1,T1.6,COOL WHITE,-,-,Powder Coating	1	
11-3	DA66-00435A	GEAR-R	AW-PJT,POM,-,-,-,NTR,-,-,-	1	
12	DA63-03415A	COVER-RAIL LOW R	AW-PJT,ABS,-,-,-,-,-,COOL WHITE,-	1	
13	DA34-10120E	SWITCH DOOR-F	-,slide,-,-,250V,-,0.5A,-,-,-,-,-,-,cool white,-,-,-,-	1	
14	DA61-04253A	GUIDE-DRAWER BOX	AW2,PP,2.8,-,-,WHITE,-	1	
15	DA97-06276B	ASSY TRAY-DRAWER BOX	AW2 TIM,COOL WHITE,Extended Box	1	
15-1	6002-000213	SCREW-TAPPING	TH,+,-,1,M4,L12,ZPC(WHT),SWRCH18A,-	10	
15-2	DA61-03160A	REINF-DRAWER BOX	AW-PJT,SHP1,T2.0,BLACK	2	
15-3	DA63-04313A	GROMMET-TRAY DRAWER BOX	AW2,SILICON,-,-,-,-,-,WHT,-	2	
15-4	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
16	DA97-08541A	ASSY COVER EVAP-FRE	AW2-ND	1	
16-1	6002-000213	SCREW-TAPPING	TH,+,-,1,M4,L12,ZPC(WHT),SWRCH18A,-	3	
16-2	DA61-20128A	SPRING ETC-FAN	-,STS304,PI7.8,-,OD1.0,-,-,-,-,-,FD	1	
17	DA97-07938B	ASSY ICE MAKER	AW2-ND,FRE,115V,60Hz	1	
17-1	6002-000473	SCREW-TAPPING	TH,+,NO,1,M4,L14,PASS,STS304	1	
17-2	6002-001320	SCREW-TAPPING	TH,+,2S,M4,L8,PASS,STS304,-	1	
17-3	DA61-05023A	GUIDE-ICE FULL	AW-PJT,PC-ABS,COOL-WHITE	1	
18	DA32-10105B	SENSOR TEMP	-,-,-,-,-,-,TEMP CAP TYPE,-,-	1	
19	DA63-10467B	COVER-SENSOR	COMBI-PJT,HIPS,COOL WHITE,SC-02740R	1	

EXPLODED VIEW& PARTS LIST

5-2) Refrigerator



EXPLODED VIEW& PARTS LIST

■ Parts List of Refrigerator

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
1	DA96-00660A	ASSY EVAP REF	AW2 ND,PIN,120V/120W	1	
1-1	DA32-10104N	SENSOR TEMP	PX-41C,AW3,-40~110°...,5V,R-DEF SENSOR, PVC TUBE,YEL,200mm	1	
1-2	DA47-00244W	HEATER-METAL SHEATH	AW3(R),120W,120V	1	
1-3	DA47-00301D	THERMO FUSE-ASSY	ARAM,120V/250V,15A/10A,109~110°...,150mm	1	
1-4	DA61-03683A	FIXER-SENSER	AW-PJT,PP,-,NTR,FH-44N	1	
2	DA63-02902B	COVER-FIXER HOUSING V	NEXT-PJT,GALVA,T0.3,W31,L42,-,-,-,-	3	
3	DA97-08540B	ASSY COVER EVAP-REF	AW2-ND	1	
3-1	6002-000213	SCREW-TAPPING	TH,+,-,1,M4,L12,ZPC(WHT),SWRCH18A,-	3	
3-2	DA31-00146H	MOTOR BLDC	-,2950,-,DC12V,150mA,-,-,2.1W,-,-,-,-,-,-	1	
3-3	DA61-20128A	SPRING ETC-FAN	-,STS304,PI7.8,-,OD1.0,-,-,-,-,FD	1	
4	DA97-08783A	ASSY CASE LAMP-REF	AW2,LED 21EA	1	
4-1	DA61-06190A	CASE LAMP-REF	AW2,ABS,COOL WHITE(SC-02740R)	1	
4-2	DA96-00398J	ASSY-LAMP LED	AW2-ND,3chip 24EA	1	
5	DA63-05612A	COVER LAMP-REF	AW2,SAN,NTR	1	
6	DA61-04329A	ANGLE-SHELF REF SIDE R	AW2(PANTRY),SECC1,T2.0,-,-,COOL WHITE,Powder Coating	1	
7	DA61-04322B	ANGLE-SHELF REF MID	AW2(PANTRY),SECC1,T2.0,COOL WHITE,Powder Coating	1	
8	DA97-07046A	ASSY CAP-ANGLE	NW2,ASSY,-,-,-,-,HIPS,COOL WHITE	1	
9	DA97-06391B	ASSY SHELF-INSERT REF FIX	AW2-ND	3	
9-1	6002-001397	SCREW-TAPPING	TH,+,-,B,M4,L8,ZPC(WHT),SWRCH18A,HD6.5,HT2	6	
9-2	DA67-02014B	SHELF-INSERT REF FIX	AW2-ND,PP,COOL WHITE	1	
10	DA97-08511A	ASSY COVER VEG-REF	AW2-ND	1	
10-1	6002-000213	SCREW-TAPPING	TH,+,-,1,M4,L12,ZPC(WHT),SWRCH18A,-	4	
10-2	DA63-05511A	COVER-VEG REF	AW2-ND,ABS,COOL WHITE(SC-02740R)	1	
10-3	DA64-00817A	KNOB-HUMIDITY	QUEEN,ABS,-,-,-,-,-,-	2	
10-4	DA66-00438A	LEVER-HUMIDITY	AW,ABS,COOL WHITE	2	
10-5	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
11	DA97-04839A	ASSY RAIL-VEG L	AW-PJT,-,-,-,-,-	1	
11-1	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	1	
12	DA97-04840A	ASSY RAIL-VEG R	AW-PJT,-,-,-,-,-	1	
12-1	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	1	
13	DA97-08438A	ASSY CASE-VEG L	AW3,New Filter	1	
13-1	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
14	DA97-08437A	ASSY CASE-VEG R	AW3,New Filter	1	
14-1	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
15	DA97-08530A	ASSY CASE-WATER FILTER	AW2-ND,WHITE,ASSY	1	
15-1	DA29-00019A	FILTER WATER	SSEDA	1	
15-2	DA63-05406A	COVER-FILTER TANK	AW3,ABS,COOL WHITE(SC-02740R)	1	
15-3	DA63-05407A	TRAY-WATER FILTER	AW3,HIPS,DA WHITE(W92151)	1	
15-4	DA63-05408A	COVER-LED FILTER	AW3,SAN,NTR	2	
15-5	DA67-02505A	CAP-FILTER TANK	AW3,SAN,NTR	1	
15-6	DA97-08006C	ASSY CASE-FILTER	AW2-ND,WHITE	1	
15-7	DA61-04522A	CLIP-FITTING LOCK	AW,POM,-,-,1/4inch	2	
16	DA97-06327A	ASSY COVER-SLIDE PANTRY	AW2-PJT,-,-,-,-,-,-,-	1	
16-1	DA66-10104A	ROLLER-FRE	POM,-,-,D22,-,-	2	
17	DA97-08417A	ASSY SHELF-PANTRY	AW2-ND	1	
17-1	DA61-03174A	REINF-SHELF PANTRY	AW-PJT,SECC1,T1.2,Black	1	
17-2	DA67-02519A	SHELF-PANTRY	AW2-ND PJT,HIPS,COOL-WHITE(SC-03084R)	1	
18	DA97-06324B	ASSY COVER-MOTOR DAMPER	AW2-PJT,COOL-WHITE,0.5W	1	
19	DA61-04285A	GUIDE-FRENCH	AW2-PJT,PC-ABS,-,-,-,COOL-WHITE(SC-02740R),-	1	
20	DA97-06399A	ASSY COVER-RAIL PANTRY L	AW2,-,-,-,-,-,-,-	1	
20-1	6002-000458	SCREW-TAPPING	FH,+,-,2,M4.0,L14,PASS,STS304,-	3	
20-2	DA63-04277A	COVER-RAIL PANTRY L	AW2-PJT,HIPS,-,-,-,-,-,COOL-WHITE(SC-02740R),-	1	

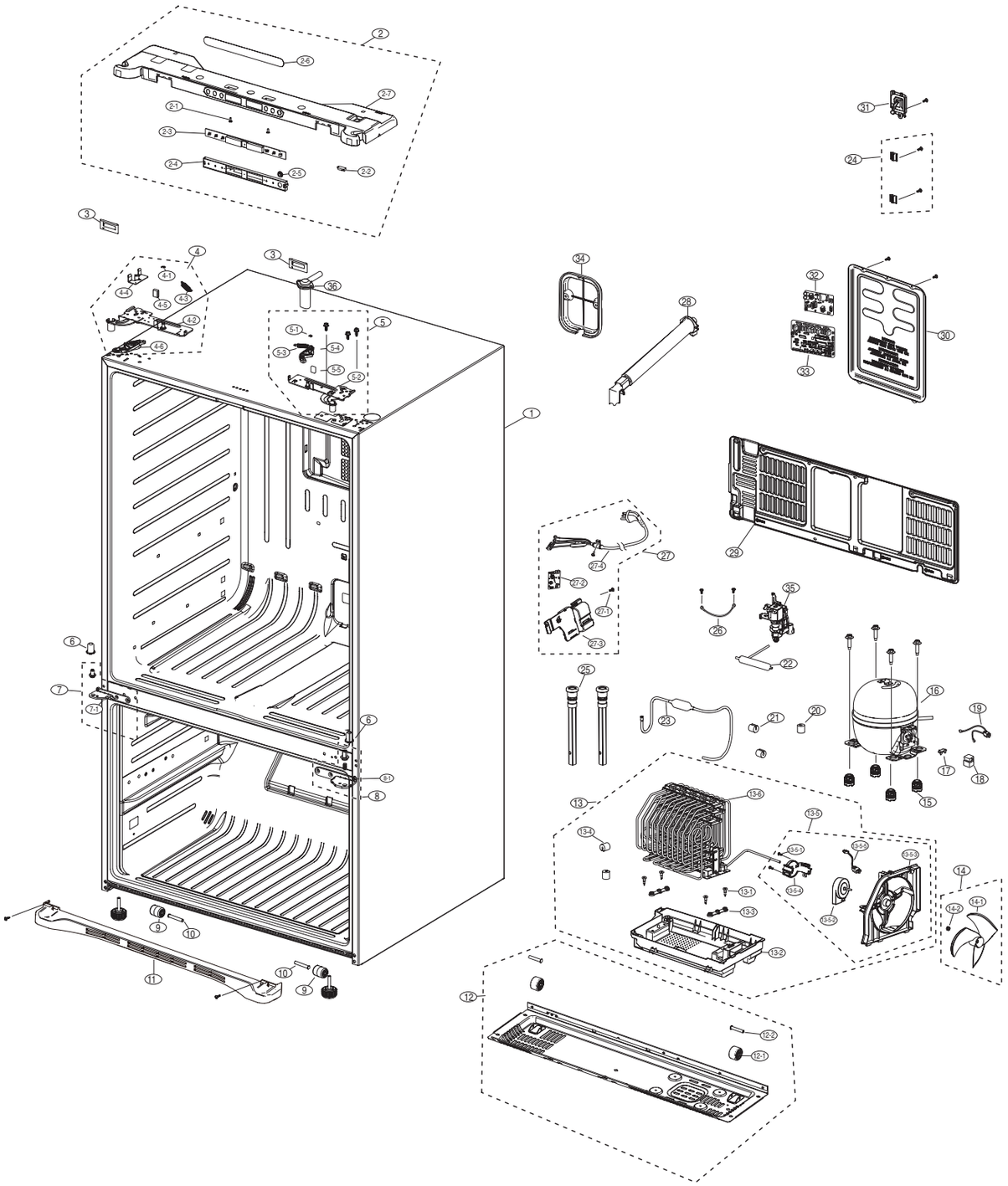
EXPLODED VIEW& PARTS LIST

■ Parts List of Refrigerator

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
20-3	DA97-06447B	ASSY RAIL-SLIDE PANTRY L	AW2,-,-,-,-,STS	1	
21	DA97-06325B	ASSY CASE-PANTRY	AW2 ND	1	
21-1	DA61-04290A	GUIDE-PANTRY	AW2-PJT,HIPS,COOL WHITE(SC-02740R)	1	
21-2	DA63-04275B	COVER-PANTRY FRONT	AW2-PJT,SAN,NTR	1	
21-3	DA63-04276B	COVER-PANTRY TRIM	AW2-PJT,HIPS,COOL-WHITE(SC-02740R),print	1	
21-4	DA66-00580A	ROLLER-PANTRY	AW2-PJT,POM,-,-,NTR,-,-	2	
22	DA97-06401C	ASSY COVER-RAIL PANTRY R	AW2-ND,ASSY	1	
22-1	6002-000458	SCREW-TAPPING	FH,+,-,2,M4.0,L14,PASS,STS304,-	3	
22-2	DA41-00423C	PBA PANEL-PANTRY	AW-PJT,PANTRY ROOM BLUE WIN,FR-1,96*14.6*1.6T,WINE ZONE BLUE,12V,-	1	
22-3	DA63-04278A	COVER-RAIL PANTRY R	AW2-PJT,HIPS,-,-,-,-,-,COOL-WHITE(SC-02740R),-	1	
22-4	DA96-00581F	ASSY W/HARNESS-DISPLAY	AW2-ND,PANTRY-DISPLAY	1	
22-5	DA97-06448B	ASSY RAIL-SLIDE PANTRY R	AW2,-,-,-,-,STS	1	
23	DA97-06416C	ASSY SHELF-QUICK SPACE	AW2-ND	1	
23-1	6002-001397	SCREW-TAPPING	TH,+,-,B,M4,L8,ZPC(WHT),SWRCH18A,HD6.5,HT2	6	
23-2	DA01-00465B	GLASS-SHELF QUICK SPACE FRONT	377*197.6,T3.2	1	
23-3	DA91-02721A	ASSY-HANGER QUICK SPACE	AW2,COOL WHITE	1	
24	DA61-05906A	ANGLE-SHELF REF SIDE L	AW2-ND,EGI-SECC,T2.0,COOL WHITE,Powder Coating	1	
25	DA67-01030A	SHELF-WINE	QUEEN,HIPS,T3.0	1	
26	DA97-06337B	ASSY-LED LAMP	AW2-PJT,2 LED	1	
26-1	DA61-04237A	CASE-LED	AW2-PJT,HIPS,-,-,-,COOL-WHITE(SC-02740R),-	1	
26-2	DA63-04234A	COVER-LED	AW2-PJT,GPPS,-,-,-,-,-,-,SE1016	1	
26-3	DA96-00392C	ASSY-LAMP LED	AW CD,3chip 2EA	2	
26-4	DA96-00424D	ASSY W/HARNESS-LED LAMP	AW2-PJT,W/H LED LAMP	1	

EXPLODED VIEW& PARTS LIST

5-3) Cabinet



EXPLODED VIEW& PARTS LIST

■ Parts List of Cabinet

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
1	DA90-05773A	ASSY CABINET FORM	AW2_ND-PJT,29Cu.ft,NO DISPENSER,RS/PN	1	RFG293**RS
	DA90-05773B	ASSY CABINET FORM	AW2_ND-PJT,29Cu.ft,NO DISPENSER,WP	1	RFG293**WP
	DA90-05773C	ASSY CABINET FORM	AW2_ND-PJT,29Cu.ft,NO DISPENSER,BP	1	RFG293**BP
2	DA97-04901V	ASSY-TOP TABLE	AW2-ND,CREANY-STS,BLUE LED,Fahrenheit,HUMIDITY SENSOR	1	RFG293**RS
	DA97-04901X	ASSY-TOP TABLE	AW2-ND,SNOW-WHITE,BLUE LED,Fahrenheit,HUMIDITY SENSOR	1	RFG293**WP
	DA97-04901W	ASSY-TOP TABLE	AW2-ND,i-BLACK,BLUE LED,Fahrenheit,HUMIDITY SENSOR	1	RFG293**BP
2-1	6002-001122	SCREW-TAPPING	FH,+,1,M4,L14,ZPC(WHT),SWRCH18A	2	
2-2	DA32-00034A	SENSOR HUMIDITY	HG3515W10,AW3,5V,3mA,0 to 100%,-40 to +110°...	1	
2-3	DA41-00412M	ASSY PCB KIT	AW2 NO DISPENSER(°...),DOOR REF,FR-4,300*24.5*1.6T,BLUE LED,(cμ),12V, 5V,60Hz,N	1	
2-4	DA61-03194B	CASE-PBA DISPLAY	AW-PJT,HIPS,-,-,-,NTR,-	1	
2-5	DA64-02071A	BUTTON-CONTROL	AW-PJT,GPPS,-,-,NTR,-	1	
2-6	DA64-02076H	INLAY-DISPLAY	AW-PJT,PC,0.25,28,300,CREAMY-STS,-	1	RFG293**RS
	DA64-02076G	INLAY-DISPLAY	AW-PJT,PC,T0.25,299.3,27.8,i-BLACK,-	1	RFG293**BP
	DA64-02076J	INLAY-DISPLAY	AW-PJT,PC,T0.25,299.3,27.8,SNOW-WHITE,-	1	RFG293**WP
2-7	DA64-03237A	TOP TABLE	AW2-ND,ABS,CREAMY-STS(SC-07009R),TEXTURE(SE-8005)	1	
3	DA67-02304A	CAP-TOP TABLE	AW2 CD,ABS,-,-,-,CREAMY STS,-	2	RFG293**RS
	DA67-02304B	CAP-TOP TABLE	AW2 CD,ABS,-,-,-,i-BLACK,-	2	RFG293**BP
	DA67-02304C	CAP-TOP TABLE	AW2 CD,ABS,-,-,-,SNOW-WHITE,-	2	RFG293**WP
4	DA97-07822F	ASSY HINGE-UPP L	AW2 CD,T2.9,CREMMY STS,BEST	1	RFG293**RS
	DA97-07822G	ASSY HINGE-UPP L	AW2 CD,T2.9,i-BLACK,BEST	1	RFG293**BP
	DA97-07822H	ASSY HINGE-UPP L	AW2 CD,T2.9,SNOW-WHITE,BEST	1	RFG293**WP
4-1	DA60-00162A	FASTENER-RING	AW-PJT,STS304,ID5,T0.5,-,OD11,BLACK,-,-	1	
4-2	DA61-03239A	HINGE-UPP L	AW-PJT,SHP1,T2.9,-,-,-,-	1	
4-3	DA61-03301C	SPRING ETC-AUTO CLOSE	AW-PJT,HSWR,1.4,9.2,12,-,17 3/4,-,-,-	1	
4-4	DA61-05401A	FIXER-WATER PIPE HINGE	AW2 CD,SCP1,T1.2	1	
4-5	DA63-03673A	GROMMET-LEVER	AW-PJT,NBR,-,-,-,-,BLACK,-	1	
4-6	DA97-04903B	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,CREAMY STS,-	1	RFG293**RS
	DA97-04903A	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,BLACK,-	1	RFG293**BP
	DA97-04903C	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,SNOW-WHITE,-	1	RFG293**WP
5	DA97-04875G	ASSY HINGE UPP-R	AW2,-,-,-,-,Creamy-STS,SHIM DELETE	1	RFG293**RS
	DA97-04875F	ASSY HINGE UPP-R	AW2,-,-,-,-,i-BLACK,SHIM DELETE	1	RFG293**BP
	DA97-04875H	ASSY HINGE UPP-R	AW2,-,-,-,-,SNOW-WHITE,SHIM DELETE	1	RFG293**WP
5-1	DA60-00162A	FASTENER-RING	AW-PJT,STS304,ID5,T0.5,-,OD11,BLACK,-,-	1	
5-2	DA61-03240A	HINGE-UPP R	AW-PJT,SHP1,T2.9,-,-,-,-	1	
5-3	DA61-03301A	SPRING ETC-AUTO CLOSE	AW-PJT,HSWR,PI 1.4	1	
5-4	DA97-04903B	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,CREAMY STS,-	1	RFG293**RS
	DA97-04903A	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,BLACK,-	1	RFG293**BP
	DA97-04903C	ASSY LEVER-AUTO CLOSE	AW-PJT,-,-,-,-,-,SNOW-WHITE,-	1	RFG293**WP
5-5	DA63-03673A	GROMMET-LEVER	AW-PJT,NBR,-,-,-,-,BLACK,-	1	
6	DA63-02905A	GROMMET HINGE-MID,R	NEXT,POM,T2.0,-,-,-,-,WHITE,-	2	
7	DA97-07514D	ASSY HINGE MID-L	AW2-ND,T4.5,Ni-Cr Plated	1	
7-1	DA61-04916F	HINGE-MID L	AW2,SHP1,T4.5,Ni-Cr+Cu Plating,Heat Treatment,SNC2	1	
8	DA97-07515A	ASSY HINGE MID-R	AW2 CD-PJT,T4.5,-,-,Ni-Cr Plated,-,-	1	
9	DA61-04702A	CASTER-FRONT	AW-PJT,PP,-,35,NTR,35,PP+TPE	2	
10	DA61-01920A	CASTER-RIVET	(ZPC2),MSWR10,OD8.0,L54,-,-,-	2	
11	DA63-04975A	COVER-LEG FRONT	AW2 CD,PP,T2.5,-,-,-,-,CREAMY STS,-	1	RFG293**RS
	DA63-04975B	COVER-LEG FRONT	AW2 CD,PP,T2.5,-,-,-,-,i-BLACK,-	1	RFG293**BP
	DA63-04975C	COVER-LEG FRONT	AW2 CD,PP,T2.5,-,-,-,-,SNOW-WHITE,-	1	RFG293**WP
12	DA97-07547A	ASSY CHASSIS-COMP	AW2-CD,-,-,-,-,-,PP+TP1	1	
12-1	DA61-04703A	CASTER-REAR	AW-PJT,PP,-,35,NTR,35,PP+TPE2	1	
12-2	DA66-00649A	SHAFT-CASTER	AW-PJT,MSWR10,L46,OD8.2,-,2	1	
13	DA97-07756E	ASSY TRAY-DRAIN WATER	AW2-PJT,4.0PITCH	1	

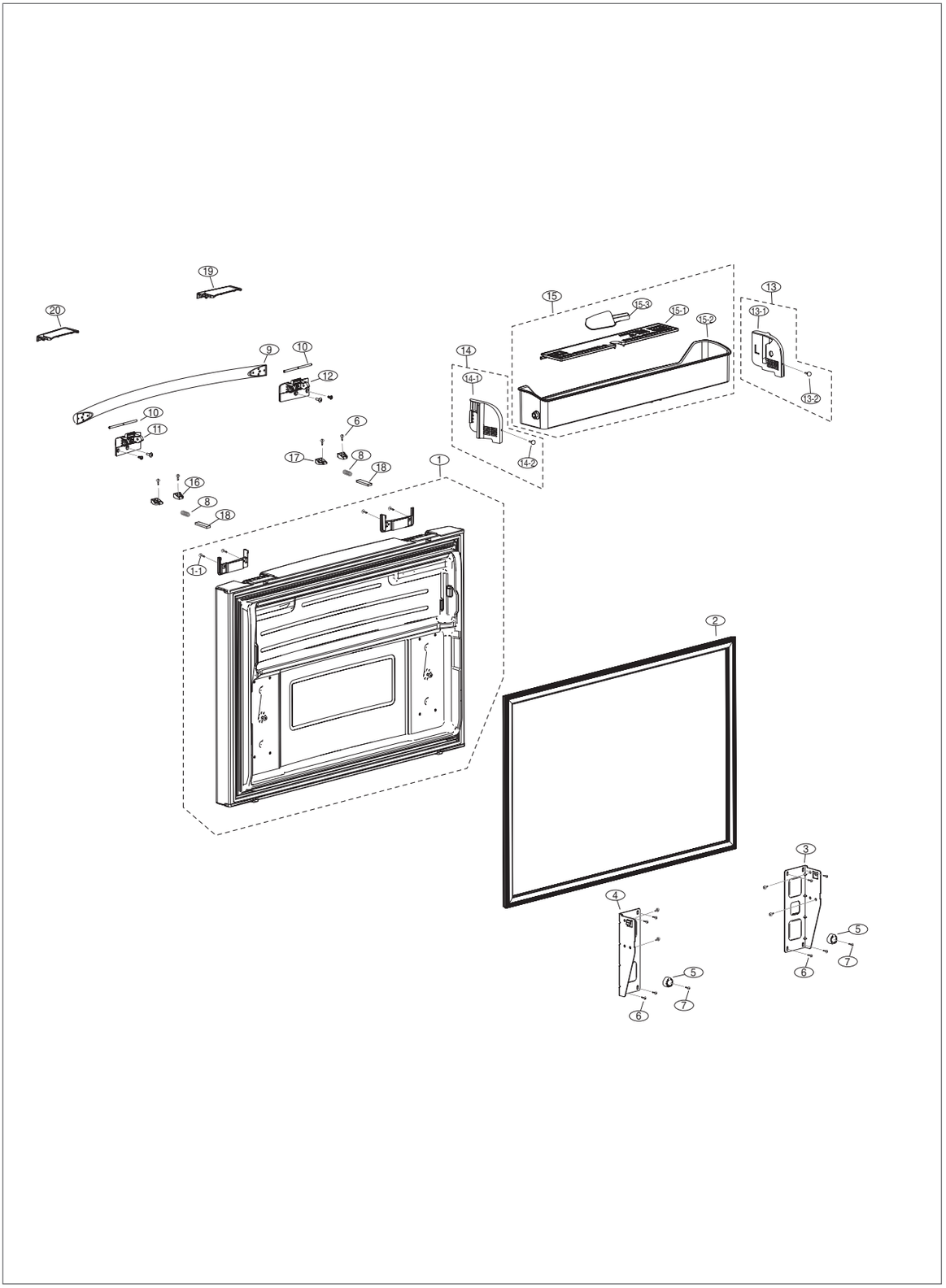
EXPLODED VIEW& PARTS LIST

■ Parts List of Cabinet

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
13-1	6009-001252	SCREW-SPECIAL	PH,+,-,M4.0,L20(12),ZPC(WHT),SWRCH18A,TAPP 1,-	4	
13-2	DA63-05084A	TRAY-DRAIN WATER	AW2-PJT,PP,NTR	1	
13-3	DA63-40128A	GROMMET-SUB COND	-,NBR,-,-,-,-,-,DARK-GRAY	2	
13-4	DA63-40171B	GROMMET-SUCT PIPE A	-,NBR,OD20,ID4,L20,-,-,Brown,-	2	
13-5	DA97-05093C	ASSY PIPE-SPIRAL COND	AW2-PJT,4.0PITCH	1	
13-5-1	6003-000003	SCREW-TAPTYPE	BH,+,-,B,M4,L10,ZPC(BLK),SWRCH18A,-	2	
13-5-2	DA31-00146B	MOTOR BLDC	DRCP5030LA,1560,-,DC12V,230mA,-,-,2.7W,ATOP,-,-,-,-	1	
13-5-3	DA61-05357B	SUPPORT-CIRCUIT MOTOR	AW2,PP,NTR	1	
13-5-4	DA61-02355B	BRACKET-CIRCUIT MOTOR	ABS,NEXT,-,-,-,NTR,-	1	
13-5-5	DA96-00042P	ASSY-HARNESS MOTOR	AW2,C-FAN	1	
13-6	DA97-07754C	ASSY SUPPORT-CIRCUIT MOTOR	AW2-PJT	1	
14	DA31-00010D	FAN-ASS'Y	-,ET,ZIPEL,ASSY,-,UNIT,¨ø150	1	
14-1	DA31-00015C	FAN-TURBO	-,ET-PJT,ABS+GLASS FIBE,-,GR-4010	1	
14-2	DA61-20128A	SPRING ETC-FAN	-,STS304,PI7.8,-,OD1.0,-,-,-,-,FD	1	
15	DA63-02617A	GROMMET COMP	USP05,EPDM,OD18.5,BLACK	4	
16	MKV190CL2B/E01	COMPRESSOR	115V~60HZ,BLDC,FAN,MKV1	1	
17	DA34-00004D	RELAY PROTECTOR O/L	4TM445PHBYY-82,BK190CL2X,S/T_19.0A, U/T_4.76A,125,69	1	
18	DA63-01866A	COVER RELAY	NORYL,T2.0,SSEC,BLACK,HOOK	1	
19	DA39-00154F	WIRE HARNESS-COMP	AW2-CD,35151-0610,UL1015AWG18	1	
20	DA63-40171B	GROMMET-SUCT PIPE A	-,NBR,OD20,ID4,L20,-,-,Brown,-	1	
21	DA63-40171D	GROMMET-SUCT PIPE B	RAIL L19.5,NR,-,OD20,ID6,-,-,Brown,-	1	
22	DA62-02614A	DRYER-SINGLE	HAEMIL_10,C1220T,OD18.85,L120,SINGLE MOUTH,TDM TYPE	1	
23	DA97-08427A	ASSY PIPE-CONNECT	AW2-ND,PI-7.99	1	
24	DA61-03467A	FIXER-HOSE	AW-PJT,NY-66,-,BLACK,-	2	
25	DA97-04049D	ASSY CAP-DRAIN	AW,ASSY,-,-,L224.5,-,FIXER_0.4g	2	
26	DA39-20389L	WIRE HARNESS-EARTH	TMF/LMF,-,-,-,-,-,AWG #18,-,-,-,-,-,150mm,-,-,-	1	
27	DA97-04957F	ASSY COVER-NOISE FILTER	AW2-CD,-,-,-,-,-,-,-,-	1	
27-1	6002-000217	SCREW-TAPPING	TH,+,-,1,M4,L8,ZPC(WHT),SWRCH18A,-	1	
27-2	DA27-00019D	COIL FILTER-EMI	GUGGENHEIM-PJT,20mH,40mßÝ,33°æ1,82*60,-,-,-,-,-25 ~ +85 °...,-	1	
27-3	DA63-03410A	COVER-NOISE,FILTER	NEXT,ABS,NTR,inverter	1	
27-4	3903-000400	CBF-POWER CORD	AT,US,SPT-3,HOUSING(2P)+LUG(1P),250V/10A,10A,BLK,2000mm,330mm,SPT-3 18AWGx3,UL,Y	1	
28	DA97-05070D	ASSY-PIPE WATER FRE	AW2-ND,DC 2W,12V,L225	1	
29	DA97-08447A	ASSY COVER-COMP	AW2-ND,SGCC,0.35,817.3,263.6	1	
30	DA97-06491A	ASSY COVER-PCB PANEL	AW2-PJT,-,-,-,-,-,-,-,-	1	
31	DA97-08413A	ASSY COVER-TUBE FILTER	AW3	1	
32	DA41-00614B	PBA SUB-INVERTER	AW3-PJT,TOP,FR-4,1.6T*11	1	
33	DA41-00703B	PBA MAIN	AW2 ND-PJT,ASSY CYCLE,FR-4,247*1	1	
34	DA97-05029B	ASSY-COVER PIPE WATER	AW-PJT,-,-,-	1	
35	DA62-02623A	VALVE WATER-1WAY	AW2-ND,POM,1.0~8.0K,BLUE,FLOW SENSOR	1	

EXPLODED VIEW& PARTS LIST

5-4) Disassembly of Freezer Door



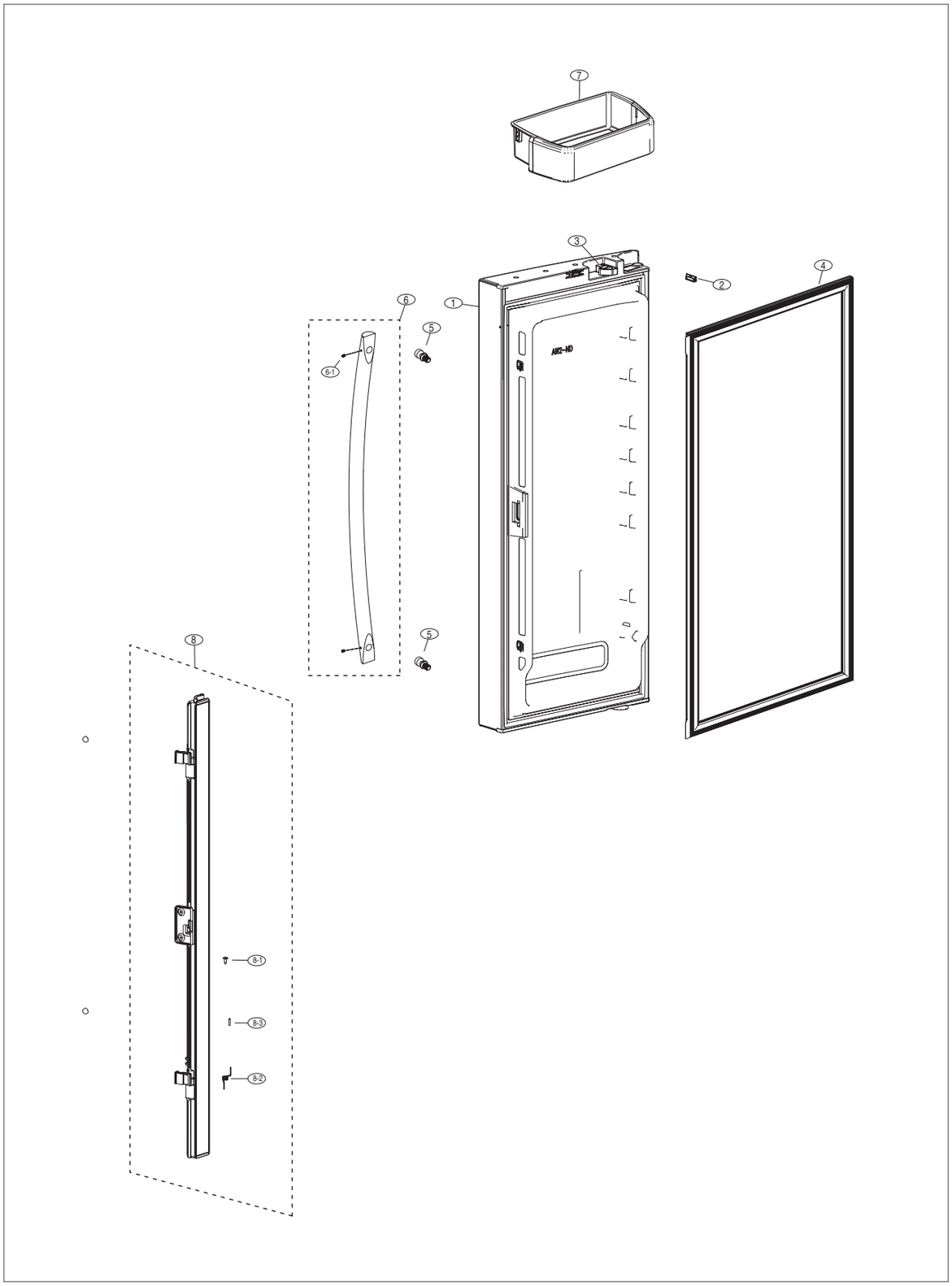
EXPLODED VIEW& PARTS LIST

■ Parts List of Freezer Door

NO	CODE-NO	PART NAME	SPEC	QUAN TITY	REMARK
1	DA91-02705E	ASSY DOOR FOAM FRE	AW2,DAC-GR0803RS(REAL STS),-,-,T0.6,#4,Un-coating,STS201(DY01CU)	1	RFG293**RS
	DA91-02705B	ASSY DOOR FOAM FRE	AW2,EMPIRE-BLACK,-,-,PCM-CLEAR,-	1	RFG293**BP
	DA91-02705L	ASSY DOOR FOAM FRE	AW2,SNOW WHITE,PCM	1	RFG293**WP
1-1	6002-001122	SCREW-TAPPING	FH,+,1,M4,L14,ZPC(WHT),SWRCH18A	4	
2	DA97-05557B	ASSY-GASKET DOOR FRE	AW-PJT,GRAY,NEW SUCTION,-	1	RFG293**RS/WP
	DA97-05557A	ASSY-GASKET DOOR FRE	AW-PJT,BLACK,AW NEW-SECTION,-	1	RFG293**BP
3	DA61-03153B	HANGER-RAIL FRONT L	AW-PJT,SECC1,T2.0,COOL-WHITE,-,-,RESTRIKING	1	
4	DA61-03155B	HANGER-RAIL FRONT R	AW-PJT,SECC1,T2.0,COOL-WHITE,-,-,RESTRIKING	1	
5	DA61-02904B	SUPPORT-DOOR POSITION,IN	AW-PJT,HIPS,-,-,-,NTR,-	2	
6	6002-001122	SCREW-TAPPING	FH,+,1,M4,L14,ZPC(WHT),SWRCH18A	4	
7	6009-001252	SCREW-SPECIAL	PH,+,-,M4.0,L20(12),ZPC(WHT),SWRCH18A,TAPP 1,-	2	
8	DA61-04335B	SPRING ETC-EASY HANDLE	08 AW1,2-PJT,HSWR,1.0,8,10,-,9,-,-,-,-	2	
9	DA64-02550A	HANDLE BAR-FRE	AW2-PJT,STS304,-,-,730,-,REAL-STS HAIR-LINE,EASY-HANDLE	1	RFG293**RS
	DA64-02552A	HANDLE BAR-FRE	AW2-PJT,BMC,-,-,730,-,BLACK,EASY-HANDLE	1	RFG293**BP
	DA64-02552B	HANDLE BAR-FRE	AW2,BMC,-,-,-,-,WHITE,EASY HANDLE	1	RFG293**WP
10	DA66-00579A	SHAFT-CAP HANDLE	AW-PJT,MSWR10,108,5,-,-,ZPC3(Y)	2	
11	DA67-02056A	CAP-HANDLE FRE R	AW2-PJT,PC,-,-,-,VERSAILLES-SILVER,STS-HANDLE	1	RFG293**RS
	DA67-02058A	CAP-HANDLE FRE R	AW2-PJT,PC,-,-,-,I-BLACK,BMC-HANDLE	1	RFG293**BP
	DA67-02058B	CAP-HANDLE FRE R	AW2-PJT,PC,-,-,-,SNOW-WHITE,BMC-HANDLE	1	RFG293**WP
12	DA67-02057A	CAP-HANDLE FRE L	AW2-PJT,PC,-,-,-,VERSAILLES-SILVER,STS-HANDLE	1	RFG293**RS
	DA67-02059A	CAP-HANDLE FRE L	AW2-PJT,PC,-,-,-,I-BLACK,BMC-HANDLE	1	RFG293**BP
	DA67-02059B	CAP-HANDLE FRE L	AW2-PJT,PC,-,-,-,SNOW-WITE,BMC-HANDLE	1	RFG293**WP
13	DA97-06423A	ASSY SUPPORT-GUARD FRE L	AW2,-,-,-,-,-	1	
13-1	DA61-04310A	SUPPORT-GUARD FRE L	AW2,HIPS,-,-,-,-,-	1	
13-2	DA63-02750A	GROMMET-COVER SLIDE	ET05-PJT,RUBBER,-,-,-,-,-,-,-	1	
14	DA97-06424A	ASSY SUPPORT-GUARD FRE R	AW2,-,-,-,-,-	1	
14-1	DA61-04333A	SUPPORT-GUARD FRE R	AW2,HIPS,-,-,-,COOL-WHITE,-	1	
14-2	DA63-02750A	GROMMET-COVER SLIDE	ET05-PJT,RUBBER,-,-,-,-,-,-,-	1	
15	DA97-06421C	ASSY GUARD-FRE	AW2 TIM,ICE SCOOP	1	
15-1	DA63-03459A	GUARD-FRE FLIP	AW-PJT,HIPS(HR-1360),-,-,-,COOL-WHITE,-	1	
15-2	DA63-04321A	GUARD-FRE	AW2,HIPS,-,-,-,COOL WHITE,-	1	
15-3	DA67-01231A	SCOOP ICE	W2-PJT(05),PP(BJ-703T4),-,-,SC-02740R,-	1	
16	DA61-04254A	FIXER-SHAFT HANDLE L	AW-PJT,POM,-,NTR,EASY-HANDLE	2	
17	DA61-04255A	FIXER-SHAFT HANDLE R	AW-PJT,POM,-,NTR,EASY-HANDLE	2	
18	DA61-04258C	SLIDER-HANDLE FRE	AW-PJT,POM,-,-,-,CREAMY-STS,EASY-HANDLE	2	
19	DA63-04247B	COVER-HANDLE FRE L	AW-PJT,ABS,-,-,-,-,-,CREAMY-STAINLESS,EASY-HANDLE	1	RFG293**RS
	DA63-04247A	COVER-HANDLE FRE L	AW-PJT,ABS,-,-,-,-,-,I-BLACK,EASY-HANDLE	1	RFG293**BP
	DA63-04247C	COVER-HANDLE FRE L	FRE L AW-PJT,ABS,-,-,-,-,-,SNOW-WHITE,EASY-HANDLE	1	RFG293**WP
20	DA63-04248B	COVER-HANDLE FRE R	AW-PJT,ABS,-,-,-,-,-,CREAVY-STAINLESS,EASY-HANDLE	1	RFG293**RS
	DA63-04248A	COVER-HANDLE FRE R	AW-PJT,ABS,-,-,-,-,-,I-BLACK,EASY-HANDLE	1	RFG293**BP
	DA63-04248C	COVER-HANDLE FRE R	AW-PJT,ABS,-,-,-,-,-,SNOW-WHITE,EASY-HANDLE	1	RFG293**WP

EXPLODED VIEW& PARTS LIST

5-5) Disassembly of Refrigerator Door Left



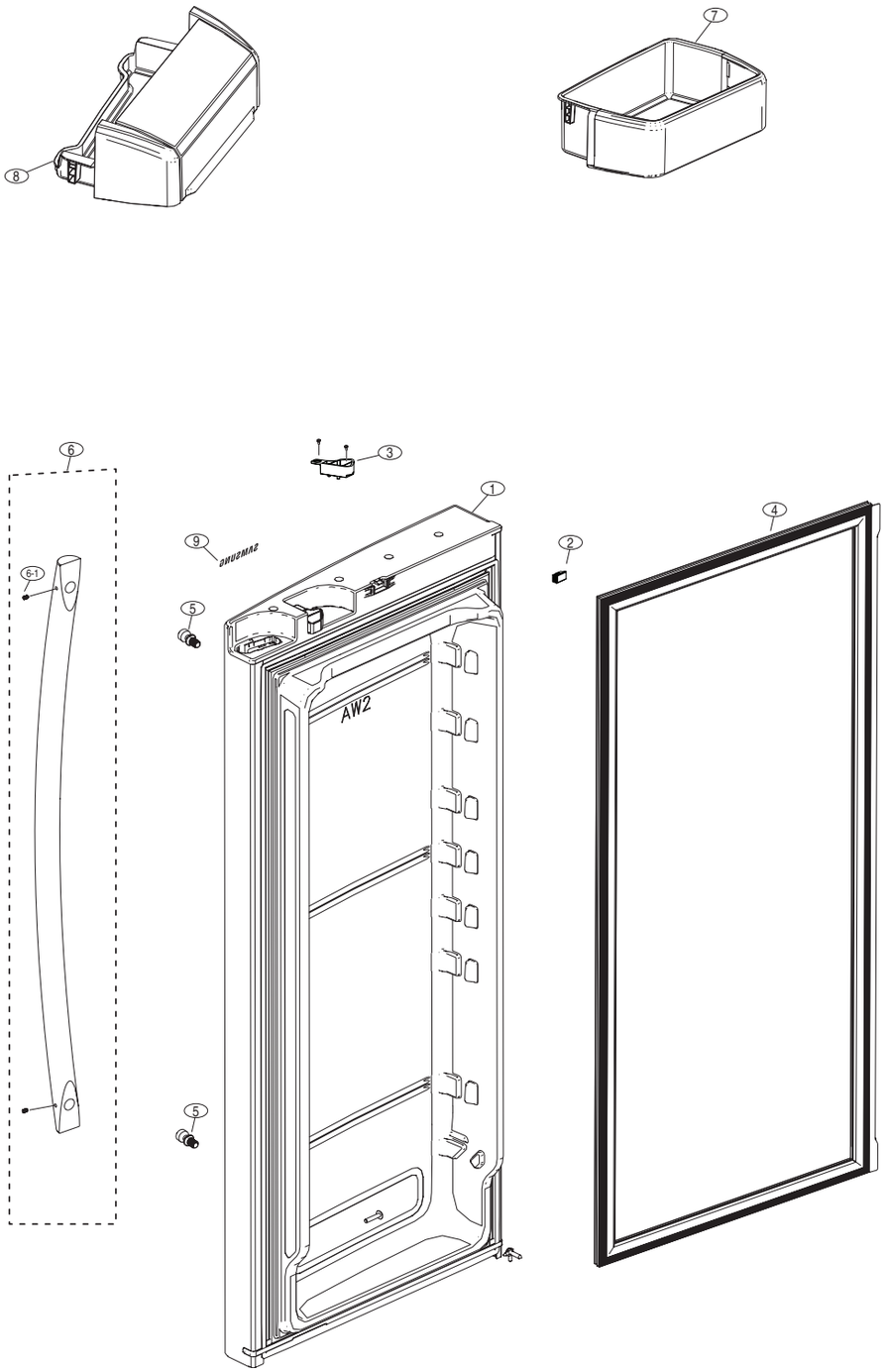
EXPLODED VIEW& PARTS LIST

■ Parts List of Refrigerator Door-Left

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
1	DA91-03006A	ASSY DOOR FOAM-REF-L	AW2-ND,RS	1	RFG293**RS
	DA91-03006D	ASSY DOOR FOAM-REF-L	AW2-ND,BP	1	RFG293**BP
	DA91-03006C	ASSY DOOR FOAM-REF-L	AW2-ND,WP	1	RFG293**WP
2	DA61-02738F	MAGNET-ASSY	AW,ABS,5mm,7mm,18mm,CREAMY-STS	1	RFG293**RS
	DA61-02738E	MAGNET-ASSY	AW,ABS,5mm,7mm,18mm,I-BLACK	1	RFG293**BP
	DA61-02738A	MAGNET-ASSY	CORE-PJT,Strontium ferrite,T5,W7,L18,-	1	RFG293**WP
3	DA66-00442B	CAM-AUTO CLOSE L	AW-PJT,NY6,-,-,CREAMY STS,-,-,-	1	RFG293**RS
	DA66-00442A	CAM-AUTO CLOSE L	AW-PJT,NY6,-,-,BLACK,-,-,-	1	RFG293**BP
	DA66-00442C	CAM-AUTO CLOSE L	AW-PJT,NY6,-,-,SNOW WHITE,-,-,-	1	RFG293**WP
4	DA97-05253E	ASSY-GASKET DOOR REF	AW-PJT,GRAY,-,-	1	RFG293**RS/WP
	DA97-05253D	ASSY-GASKET DOOR REF	AW-PJT,BLACK,-,-	1	RFG293**BP
5	DA61-03734A	FIXER-HANDLE	AW-PJT,SWRCH18A,M8,-,GE	2	
6	DA64-02568A	HANDLE BAR-REF	AW2-PJT,STS304,-,-,784,-,REAL-STS HAIR-LINE,SUS HANDLE	1	RFG293**RS
	DA64-02553A	HANDLE BAR-REF	AW2,BMC,-,-,784,-,BLACK,-	1	RFG293**BP
	DA64-02553B	HANDLE BAR-REF	AW2,BMC,-,-,784,-,SNOW WHITE,-	1	RFG293**WP
6-1	6004-001082	SCREW-SET	-,HT,-,M4,L4,PASS,STS304,-,FP	2	
7	DA97-08440A	ASSY GUARD REF-L	AW2-ND,WINDOW GPPS	3	
8	DA97-06417J	ASSY-FRENCH	AW2,THAI SILVER	1	RFG293**RS
	DA97-06417H	ASSY-FRENCH	AW2,BLACK	1	RFG293**BP
	DA97-06417K	ASSY-FRENCH	AW2,SNOW WHITE	1	RFG293**WP
8-1	6002-000213	SCREW-TAPPING	TH,+,-,1,M4,L12,ZPC(WHT),SWRCH18A,-	1	
8-2	DA81-01345A	SPRING-ETC FRENCH	STS304,PI1.4,-,-,-,-	1	
8-3	DA81-01346A	PIN-FRENCH SPRING	RD-PVC,WHITE,-,-,-,-	1	

EXPLODED VIEW& PARTS LIST

5-6) Disassembly of Refrigerator Door Right



EXPLODED VIEW& PARTS LIST

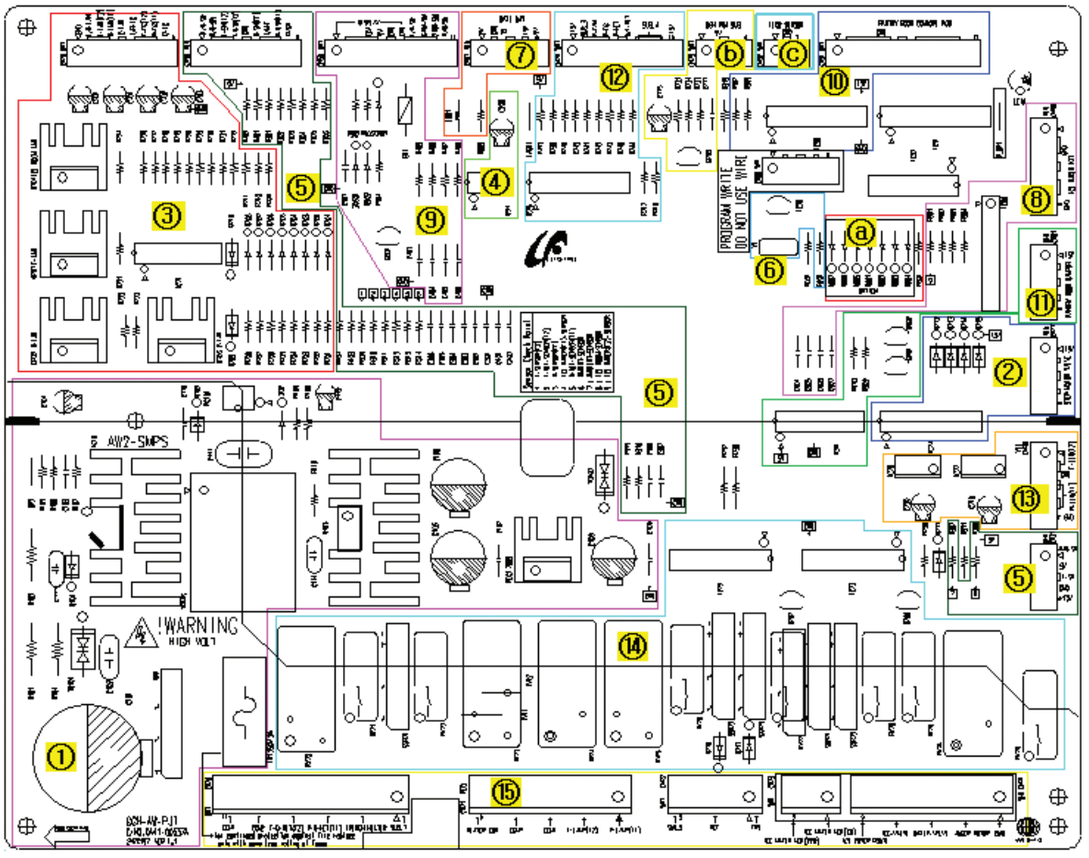
■ Parts List of Refrigerator Door-Right

NO	CODE-NO	PART NAME	SPEC	QUANTITY	REMARK
1	DA91-02704J	ASSY DOOR FOAM-REF-R	AW2-ND,RS	1	RFG293**RS
	DA91-02704M	ASSY DOOR FOAM-REF-R	AW2-ND,BP	1	RFG293**BP
	DA91-02704L	ASSY DOOR FOAM-REF-R	AW2-ND,WP	1	RFG293**WP
2	DA61-02738F	MAGNET-ASSY	AW,ABS,5mm,7mm,18mm,CREAMY-STS	1	RFG293**RS
	DA61-02738E	MAGNET-ASSY	AW,ABS,5mm,7mm,18mm,I-BLACK	1	RFG293**BP
	DA61-02738A	MAGNET-ASSY	CORE-PJT,Strontium ferrite,T5,W7,L18,-	1	RFG293**WP
3	DA66-00441B	CAM-AUTO CLOSE R	AW-PJT,NY6,-,-,CREAMY STS,-,-,-	1	RFG293**RS
	DA66-00441A	CAM-AUTO CLOSE R	AW-PJT,POM,-,-,BLACK,-,-,-,?	1	RFG293**BP
	DA66-00441C	CAM-AUTO CLOSE R	AW-PJT,NY6,-,-,SNOW WHITE,-,-,-	1	RFG293**WP
4	DA97-05253E	ASSY-GASKET DOOR REF	AW-PJT,GRAY,-,-	1	RFG293**RS/WP
	DA97-05253D	ASSY-GASKET DOOR REF	AW-PJT,BLACK,-,-	1	RFG293**BP
5	DA61-03734A	FIXER-HANDLE	AW-PJT,SWRCH18A,M8,-,GE	2	
6	DA64-02568A	HANDLE BAR-REF	AW2-PJT,STS304,-,-,784,-,REAL-STS HAIR-LINE,SUS HANDLE	1	RFG293**RS
	DA64-02553A	HANDLE BAR-REF	AW2,BMC,-,-,784,-,BLACK,-	1	RFG293**BP
	DA64-02553B	HANDLE BAR-REF	AW2,BMC,-,-,784,-,SNOW WHITE,-	1	RFG293**WP
6-1	6004-001082	SCREW-SET	-,HT,-,M4,L4,PASS,STS304,-,FP	2	
7	DA97-06419C	ASSY GUARD REF-R	AW2,NTR,GPPS, NO PRINTING	2	
8	DA97-06426B	ASSY GUARD-DAIRY	AW2,NTR,NO PRINTING	1	
8-1	DA63-04319A	GUARD-DAIRY	AW2,HIPS,-,-,COOL WHITE,-	1	
9	DA64-01985A	MASCOT	SBS,AL,T1.5,L90,Fixing-type,Siver,forging	1	

6. PCB DIAGRAM

PCB DIAGRAM

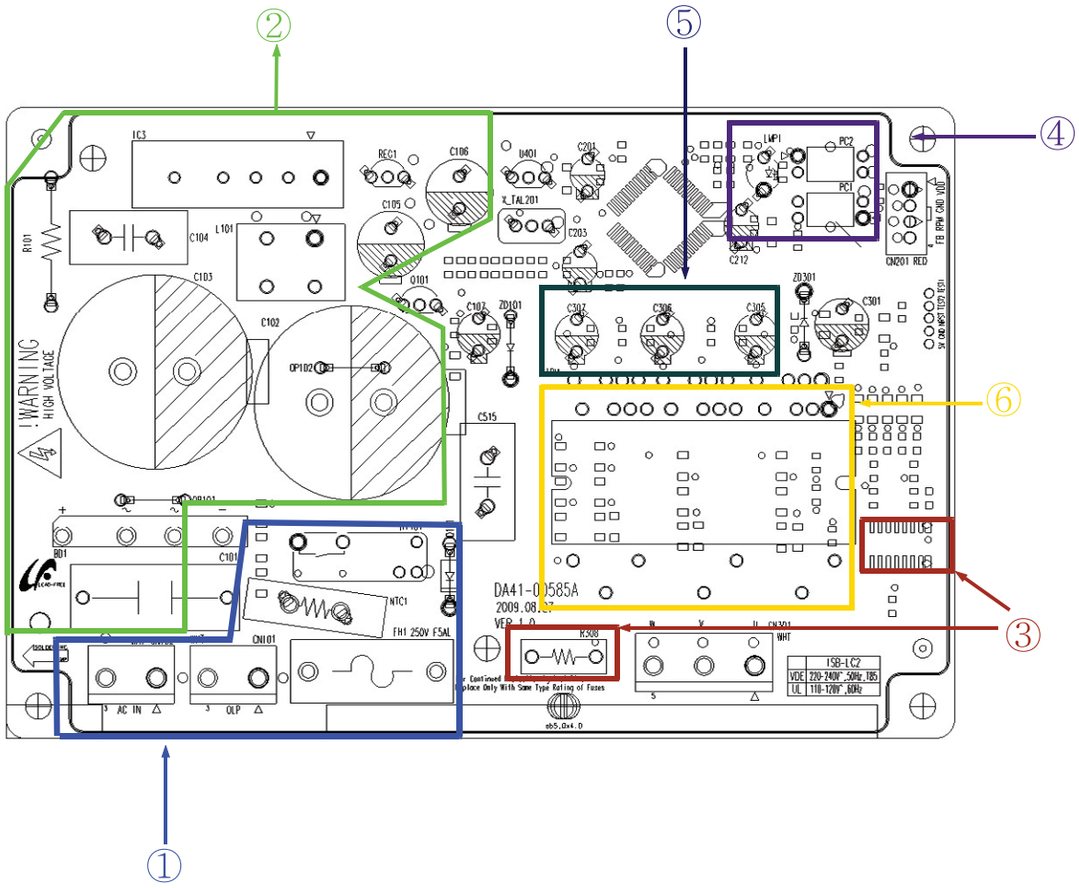
6-1) PCB Layout with part position



1. DC13V, 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. Pantry room display control part : display LED, detect KEY state.
11. Control Pantry room damper & Damper heater
12. Water Tank Heater Controls (also controls other options)
13. LED LAMP Control Circuit (F, R 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. sensing part

PCB DIAGRAM

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

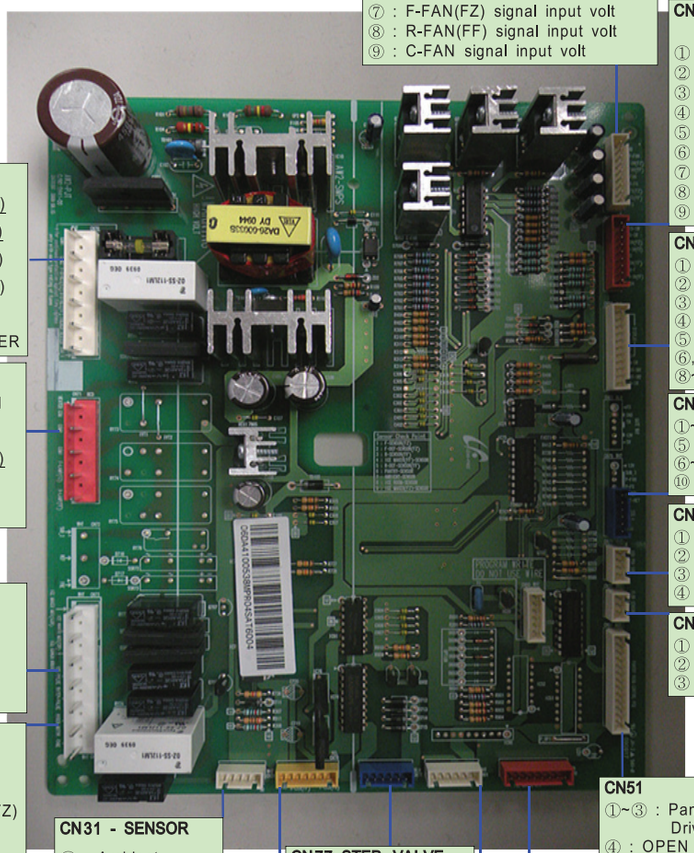


1. Inrush current protecting area : It prevents an instant inrush of current generated in condenser when plug in.
2. PCB Power Bus : power bus (Hybrid IC). It supplies DC15V and 5V to MICOM.
3. Current detecting area : It detects the current from the SHUNT resistance and controls PWM DUTY.
4. COMP operating 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 area : Output circuit of operating compressor.

PCB DIAGRAM

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

6-3-1. RFG293**



CN76 - BLDC Motor
① : GND
② : OPEN
③ : F-FAN(FZ) operation signal
④ : R-FAN(FF) operation signal
⑤ : C-FAN operation signal
⑥ : OPEN
⑦ : F-FAN(FZ) signal input volt
⑧ : R-FAN(FF) signal input volt
⑨ : C-FAN signal input volt

CN30 - Sensor & Switch
① : F-Door Switch(FZ)
② : R-Door Switch(FF)
③ : F-Sensor(FZ)
④ : F-DEF-Sensor(FZ)
⑤ : GND
⑥ : R-Sensor(FF)
⑦ : Humidity
⑧ : R-DEF-Sensor(FF)
⑨ : Pantry-Sensor

CN70 - AC LOAD
⑪ : COMMON1 LINE(N)
⑨ : COMMON2 LINE(L)
⑦ : F-DEF-HEATER(FZ)
⑤ : R-DEF-HEATER(FF)
③ : FRENCH HEATER
① : ICE MAKER HEATER

CN50
① : LCD Panel SO
② : LCD Panel SI
③ : LCD Panel /SCK
④ : +13V
⑤ : +5V
⑥,⑦ : GND
⑧~⑪ : OPEN

CN71 - AC LOAD
⑨ : HEATER COMMON
⑦ : OPEN
⑤ : COMMON1 LINE(N)
③ : OPEN
① : OPEN

CN79
①~④ : OPEN
⑤ : ICE PIPE HEATER
⑥~⑨ : OPEN
⑩ : +13V

CN75
① : OPEN
② : +5V
③ : OPEN
④ : COMP. SIGNAL

CN73 - AC LOAD (13P)
⑬③ : ICE MAKER MOTOR(CCW)
⑪/① : ICE MAKER MOTOR(CW)

CN32- FLOW SENSOR
① : OUT
② : GND
③ : +5V

CN74 - AC LOAD (13P)
⑨ : OPEN
⑦ : ICE WATER SOLENOIDE VALVE(FZ)
⑤ : OPEN
③ : OPEN
① : OPEN

CN51
①~③ : Pantry room LED Driver
④ : OPEN
⑤ : GND
⑥ : Pantry Switch
⑦ : +13V
⑧~⑬ : OPEN

CN31 - SENSOR
① : Ambient
② : +5V(Ice Maker)
③ : Open
④ : GND(Ambient)
⑤ : OPEN

CN77 STEP VALVE
① : +13V
②~⑤ : STEP VALVE
⑥ : OPEN

CN78 - LAMP(LED)
①~② : F LAMP(LED)(FZ)
③ : GND
④ : R LAMP(LED)(FF)
VEG./PANTRY LAMP(LED)
⑤~⑥ : OPEN
⑦ : GND

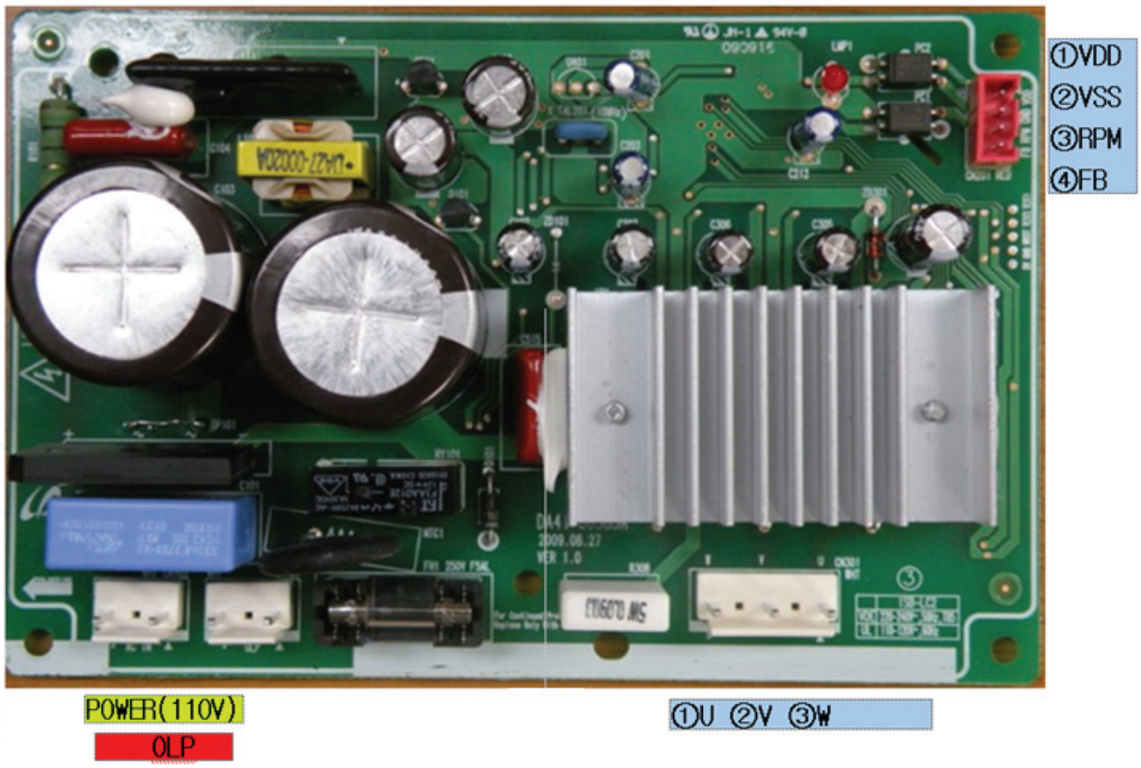
CN91 Pantry Room
①~② : Damper Heater
③ : Damper Motor /A
④ : Damper Motor A
⑤ : Damper Motor /B
⑥ : Damper Motor B

CN90 - Ice Maker
①~ ③ : OPEN
④ : Sensor(FZ)
⑤ : Test Switch
⑥ : Full Switch(FZ)
⑦ : Horizontal Switch
⑧ : GND

PCB DIAGRAM

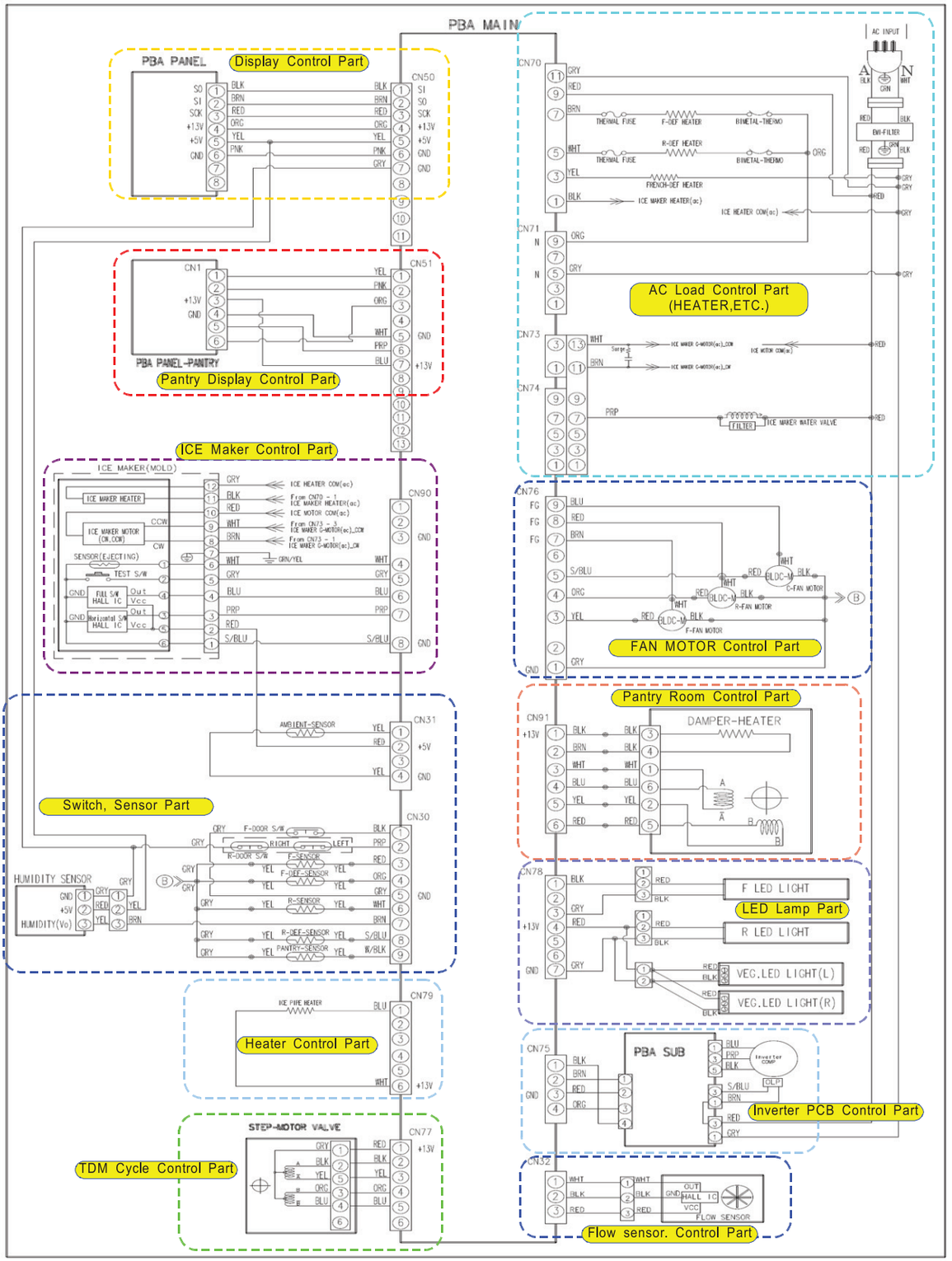
6-4) Connector Layout with part position (SMPS Board)

6-4-1. RFG293**



7. WIRING DIAGRAM

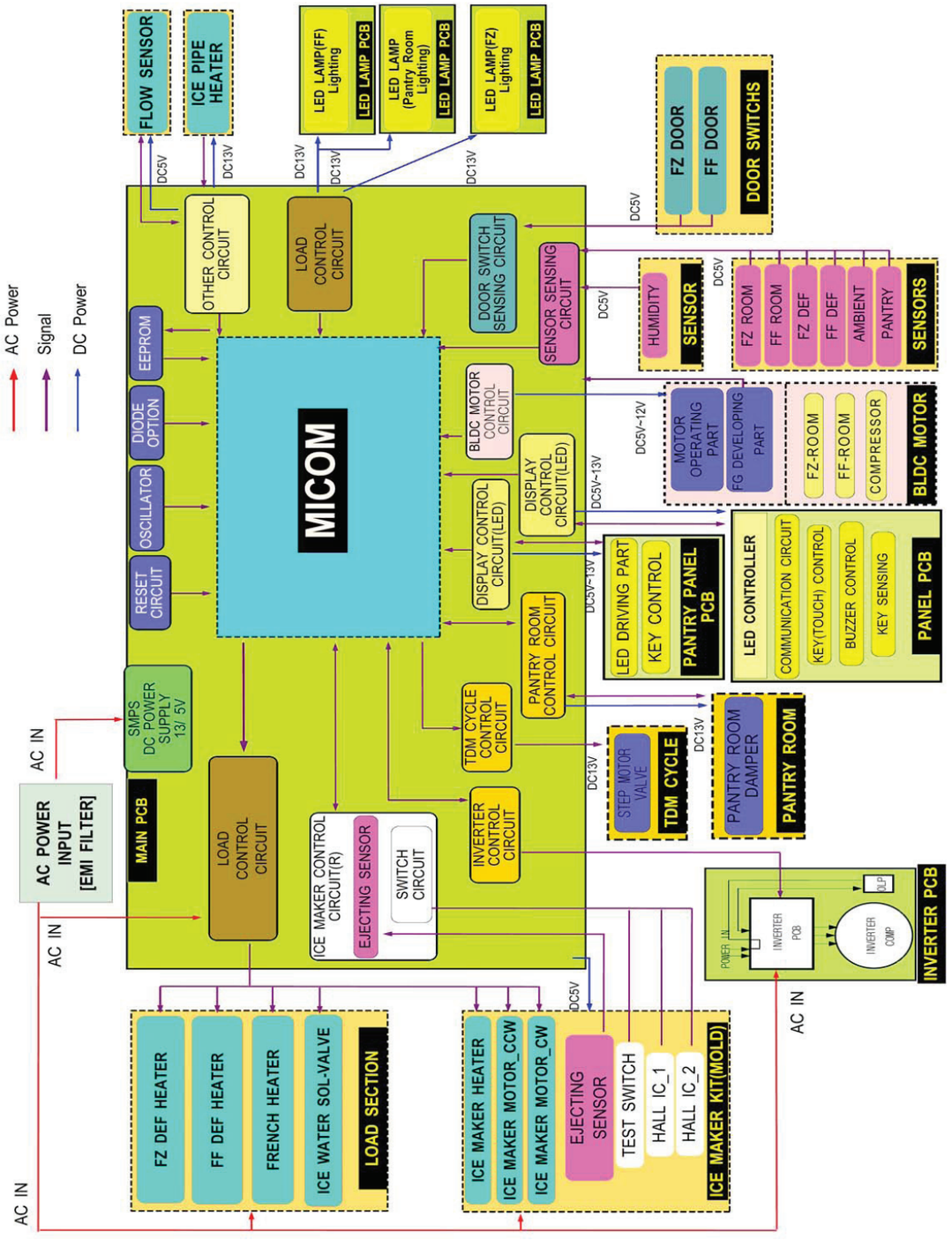
7-1) Model : RFG293**



8. SCHEMATIC DIAGRAM

8-1) Whole block diagram

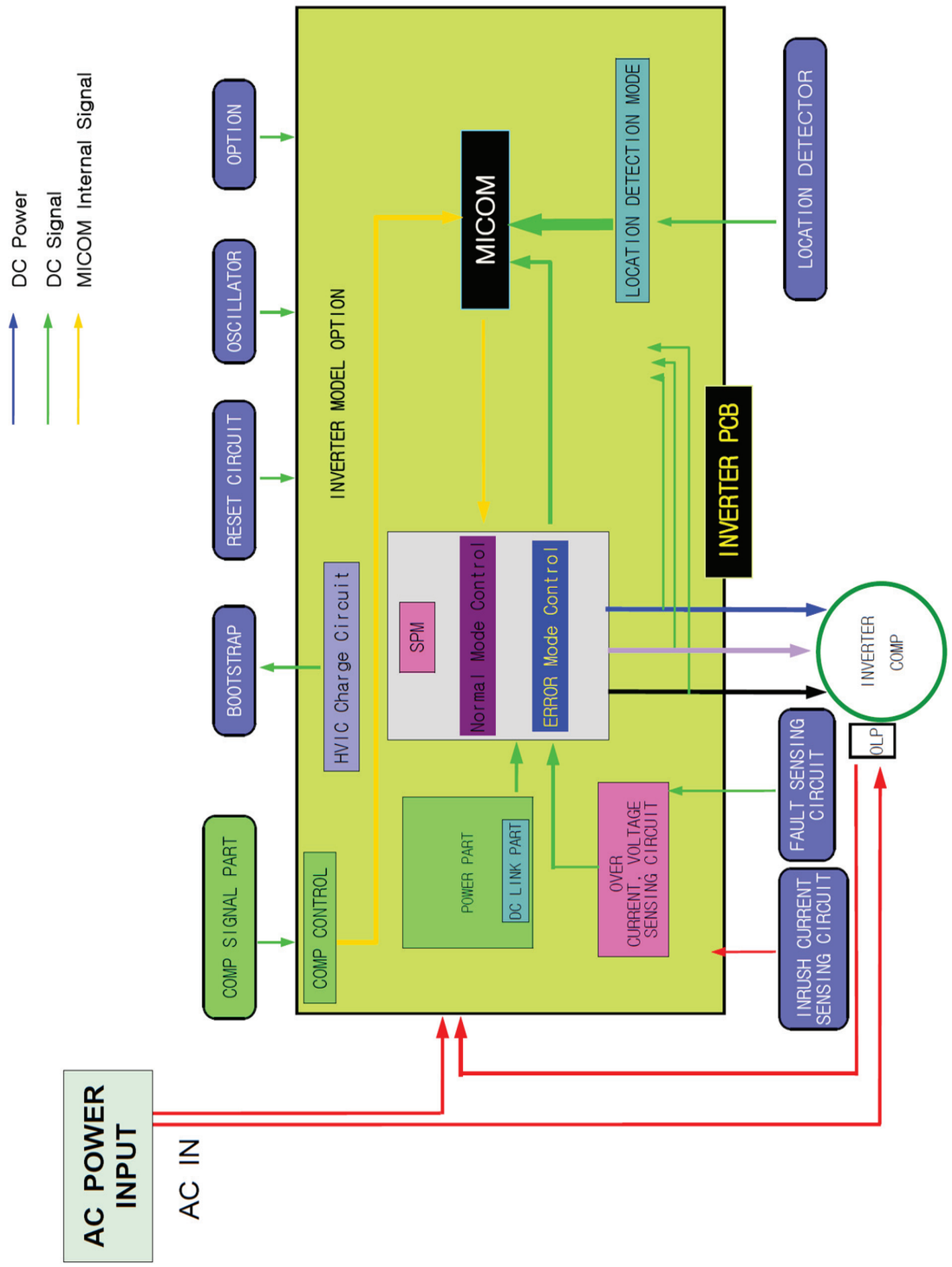
8-1-1. MODEL : RFG293**



8. SCHEMATIC DIAGRAM

8-1) Whole block diagram

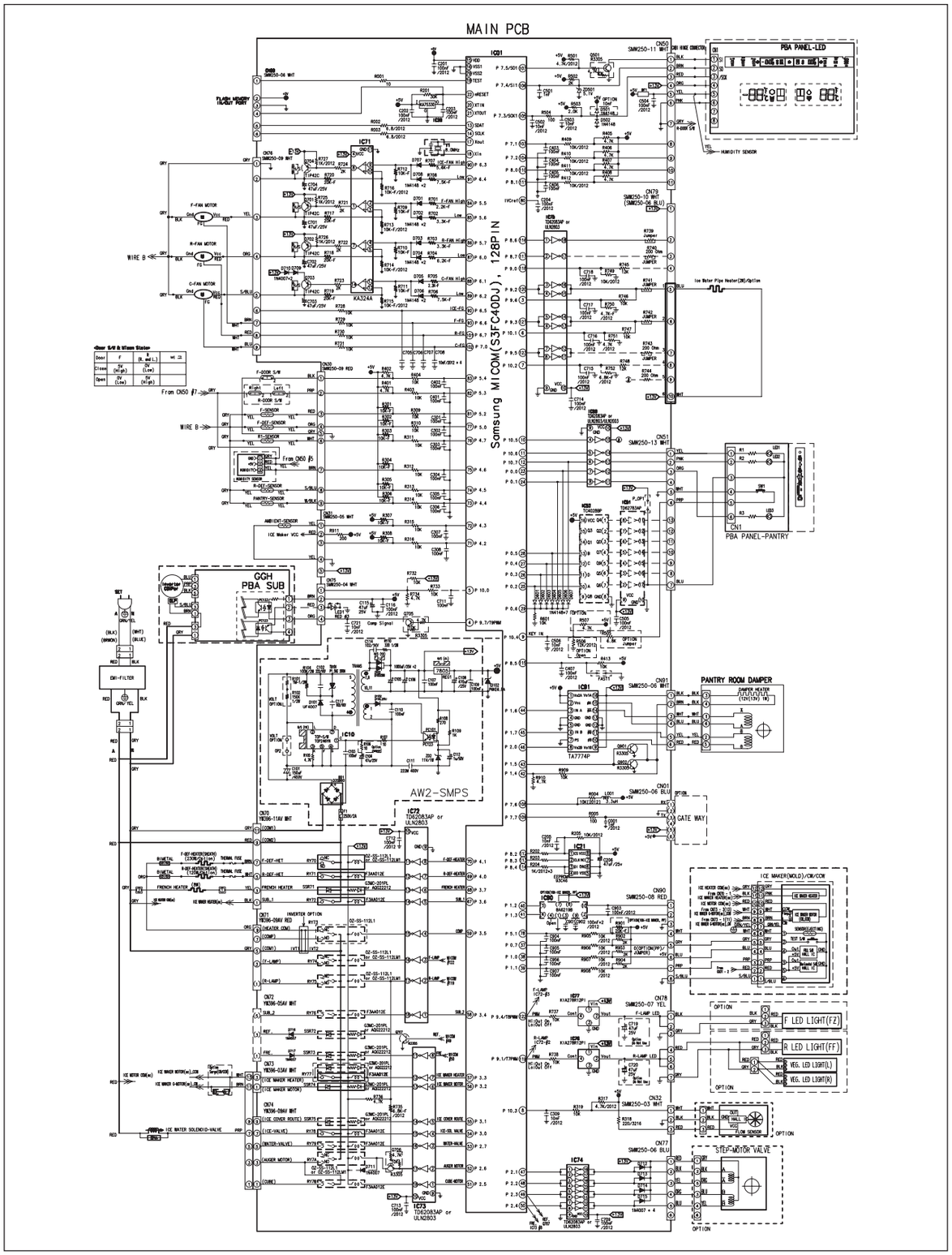
8-1-2. MODEL : RFG293**



SCHEMATIC DIAGRAM

8-2) CIRCUIT DIAGRAM

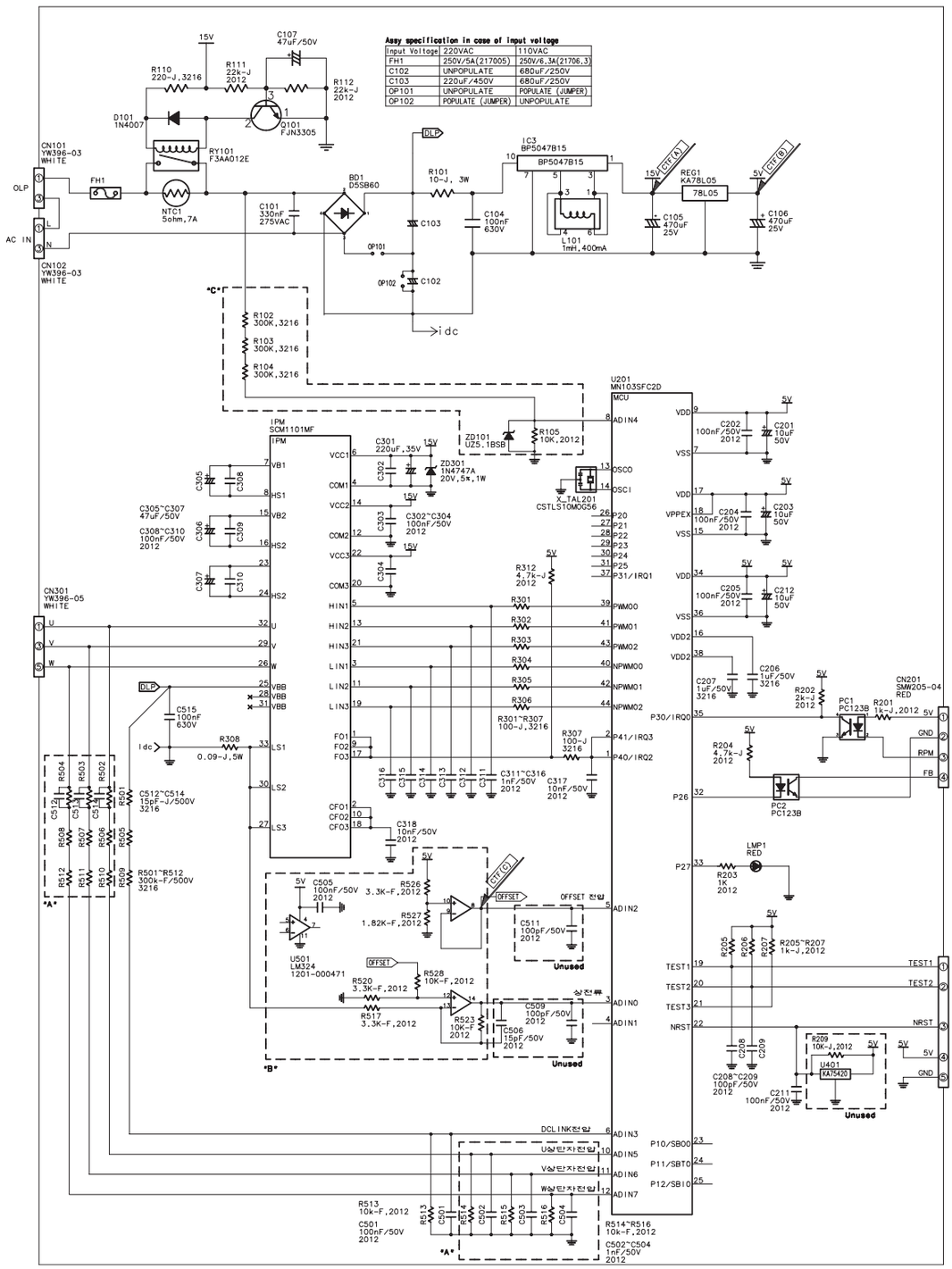
8-2-1. Main



SCHEMATIC DIAGRAM

8-2) CIRCUIT DIAGRAM

8-2-2. INVERTER



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