

SAMSUNG Side by Side Refrigerator

A-TOP-PJT

New product training for refrigerator

SIDE BY SIDE

BASIC : RS277ACPN

MODEL NAME : RS275ACWP RS277ACWP RS275ACBP
RS277ACBP RS275ACPN RS277ACPN
RS275ACRS RS277ACRS



RS277 RS275

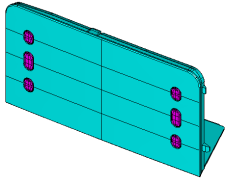

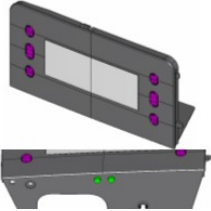

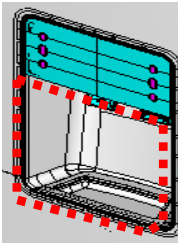
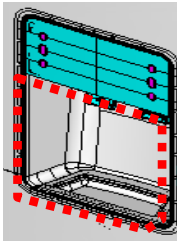


- 1. Product information**
- 2. Product function**
- 3. Full disassembly and assembly**
- 4. Troubleshooting and major adjustment**
- 5. Circuit Descriptions**
- 6. Reference Information**



1. Product Information

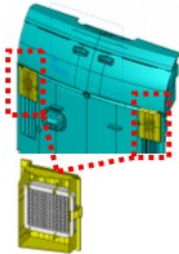
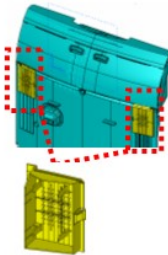
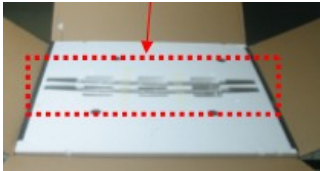

1-1. New feature

NO	ITEM	BASICE MODEL(A-TOP06)	NEW MODEL(A-T0P08)	CHANGE	RISK FACTOR
1	ASSY COVER DISP	- 1 Piece  	- 2 Piece Window Design - High Brightness Led(2ea)  	- New Design	- PLP - Waterproof
2	CASE DISPENSER	- Outer Spray → Application : RS267 RS 	- Stainless Platinum Spray → Application : RS267ACSH ,RS267ACRS 	- New Design	- Cost



1. Product Information

1-1. New feature



NO	ITEM	BASICE MODEL(A-TOP06)	NEW MODEL(A-T0P08)	CHANGE	RISK FACTOR
3	ASSY-EVAP REF	<ul style="list-style-type: none"> - Deodorizer - Printing : Deodorizer 	<ul style="list-style-type: none"> - Remove Deodorizer - Printing is deleted - Single Body 	<ul style="list-style-type: none"> - New Design - Cost Cut Production 	<ul style="list-style-type: none"> - Quality
4	ASSY-PACKING HANDLE	<ul style="list-style-type: none"> - Packing in CUSHION-UPP 	<ul style="list-style-type: none"> - Packing in R room DOOR-PANEL - Packing GUARD between Shelf 	<ul style="list-style-type: none"> - Cost Cut Production 	<ul style="list-style-type: none"> - Shipping



1. Product Information



1-2. Comparison of functionality vs competitor

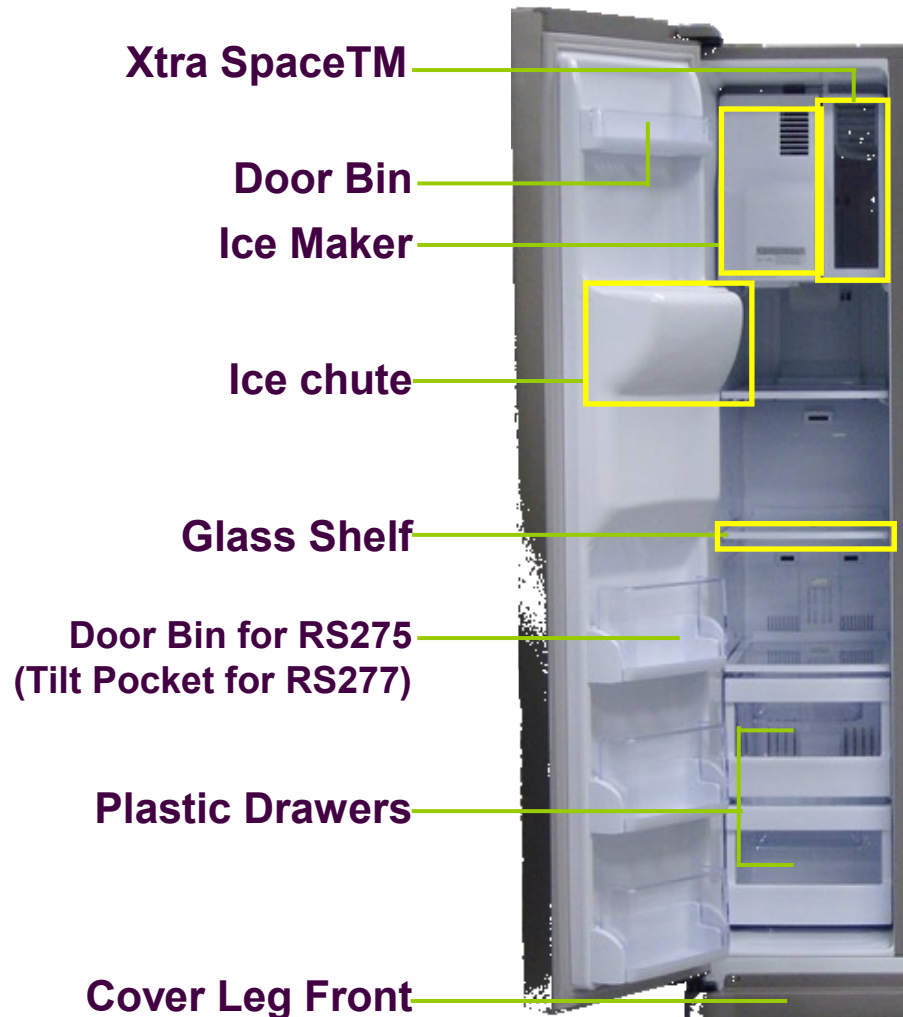
ITEM			SPEC	A-TOP06	A-TOP08
Appearance					
Product Zone			Cooling Tech	Twin Cooling	Twin Cooling
			Door Shape	Contour	Contour
			Special Room	Coolselect Zone or Chilled Bin	Coolselect Zone or Chilled Bin
Performance	Cooling Speed(Min)	F-Room	220 ↓	159.3	177.8
		R-Room	150 ↓	104.2	115.0
	32°C	F-Room	-26 ↓	-30.0	-28.6
		R-Room	1.5 ↓	-1.0	-0.4
	43°C	F-Room	-18 ↓	-23.7	-22.3
		R-Room	5 ↓	-0.3	1.2
	Temperature Distribution (Fridge)	F-Room	2.0 ↓	0.9	1.0
		R-Room	2.0 ↓	1.2	1.3
	Operation rate	N-N	65% ↓	55.5	56.4
Noise	Sound power level		45dB ↓	43.3	42.7
	Sound pressure level		43dB ↓	41.1	39.6



1. Product Information

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1-3. Parts Name

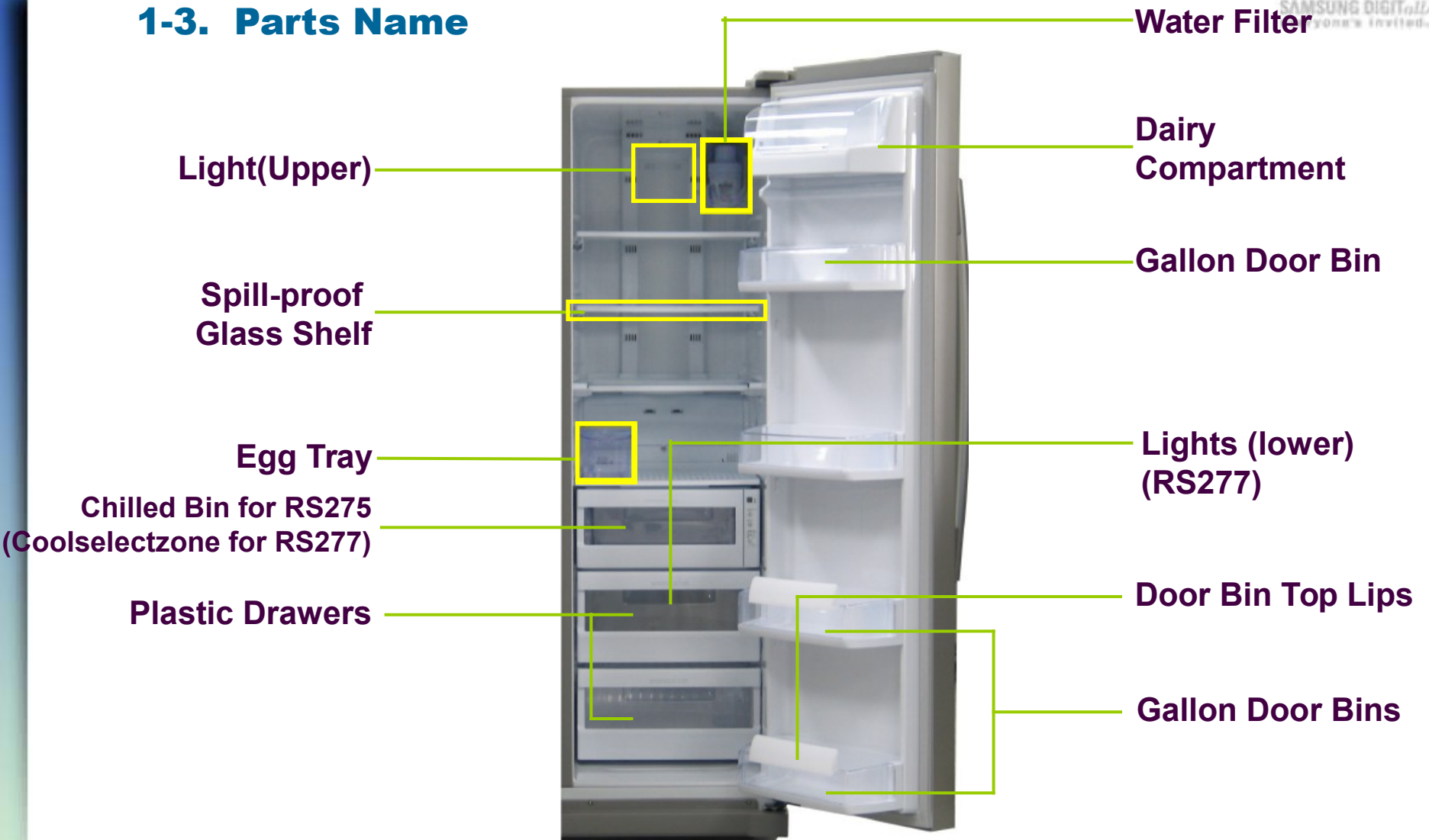




1. Product Information

1-3. Parts Name

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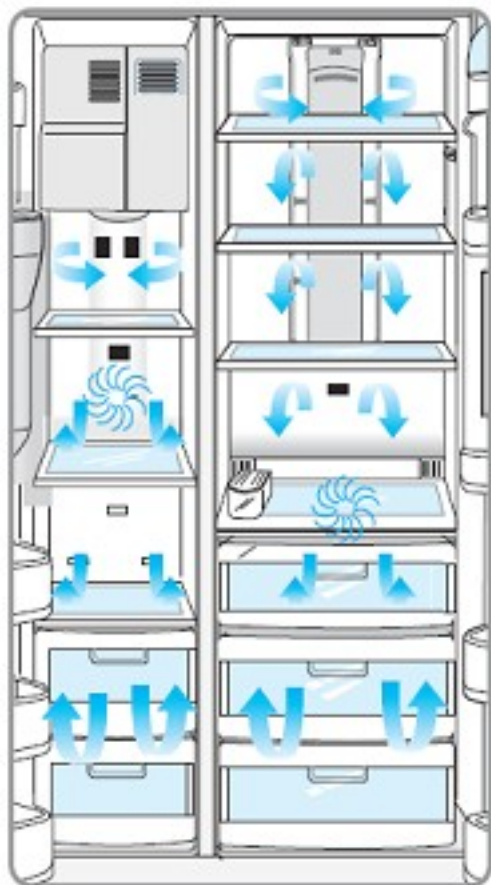




1. Product Information

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1-4. Product feature



Twin Cooling System

Multi-Flow System

Xtra Space™

Door Alarm

CoolSelectZone™



1. Product Information



1-5. Model Specification & Specification Chart

Item		Specification	
Model		RS275	RS277
		Dispenser	Dispenser with Coolselect Zone
Net Capacity	Total	26.5 cu.ft	
	Refrigerator	16.1 cu.ft	
	Freezer	10.4 cu.ft	
Net Dimension(W×D×H)		35.9inch x 33.8inch x 70inch	
Rated Frequency and Frequency		AC 115V/60Hz	
Motor Rated Consumption Power		160W	
Electric Heater Rated Consumption Power		415W	
Kind of Refrigerator		Indirect Cooling Method Refrigerator	
Refrigerant		R134a	
Refrigerant Input Amount		7.76oz	
Product Weight		309 Pounds	



1. Product Information



1-6. Electric Parts Specification

Items				Specification	
Models				RS275/RS277	
Components for Freezer	Compressor		Model	MK172D-R2U/E09	
			Starting type	R.S.C.R	
			Oil Charge	FREOL α-10	
	Evaporator		Freezer	SPLIT FIN TYPE	
			Refrigerator	SPLIT FIN TYPE	
	Condenser			Forced and natural convection type	
	Dryer			Molecular sieve XH-9	
	Capillary tube(Dia×Length)			0.033 ”×130 ”	
	Refrigerant			R134a	
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(°F)	OFF(°F)
		THERMISTOR (F-SENSOR) 502AT	-25℃	-23℃	-27℃
			-20℃	-18℃	-22℃
			-14℃	-12℃	-16℃
	Refrigerator	Model	Temperature Selection	ON(°F)	OFF(°F)
		THERMISTOR (R-ENSOR) 502AT	1℃	2℃	0℃
			3℃	4℃	2℃
			6℃	7℃	5℃



1. Product Information



1-6. Electric Parts Specification

Items				Specification
Models				RS275/RS277
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		4 hr ± 10 min
		Defrost Cycle(FRE)		12~24hr(vary according to the conditions used)
		Defrost Cycle(REF)		6~12hr(vary according to the conditions used)
		Pause time		10 ± 2 min
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)
			SPEC	5.0 kΩ at 25°F
		R Defrost-Sensor	Model	THERMISTOR (502AT)
			SPEC	5.0 kΩ at 25°F
	Bimetal	Rated		250V/60Hz, 10A
		Operating temperature		Off : 60± 5°C, On : 40± 10°C



1. Product Information



1-6. Electric Parts Specification

Items			Specification	
Models			RS275	RS277
Model			115V 60HZ	
Electric Components	Defrost Heater(FRE)	Conducting at F Defrosting	AC 120V,250W	
	Defrost Heater(REF)	Conducting at R Defrosting	AC 120V,140W	
	DISPENSER Heater	Interlock with F-FAN	AC 115V, 5W	
	WATER PIPE Heater	-	AC 115V,5W	
	WATER TANK- Heater	-	AC 115V,4W	
	Damper Heater		DC12V, 1W	
	Thermal Fuse for preventing Overheating of Refrigerator Defrost-Heater		AC 250V 10A 77±5°C	
	Condenser for COMP (Package type)	Running	12μF,250V	
		Starting	-	
	Starting-Relay	Model	PTHTM100MD3	
		Operation	10Ω±20%	
	Over load Relay	Model	4TM435RFBYY-53	
		Temp. ON	130 ± 5°C	
		Temp. OFF	61 ± 9°C	



1. Product Information



1-6. Electric Parts Specification

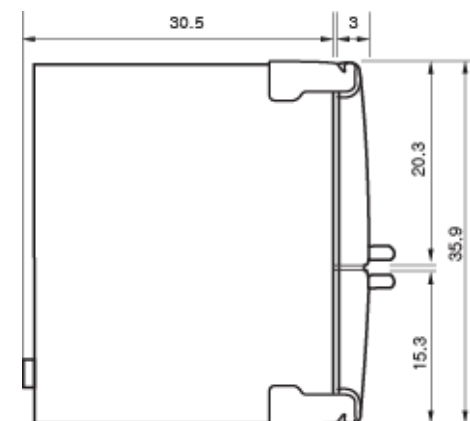
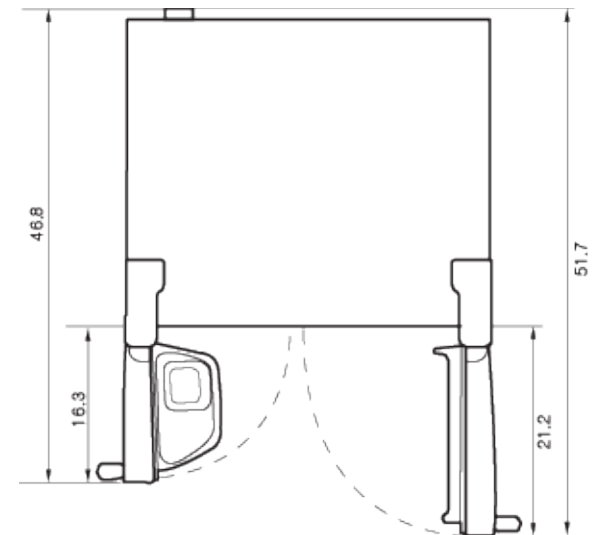
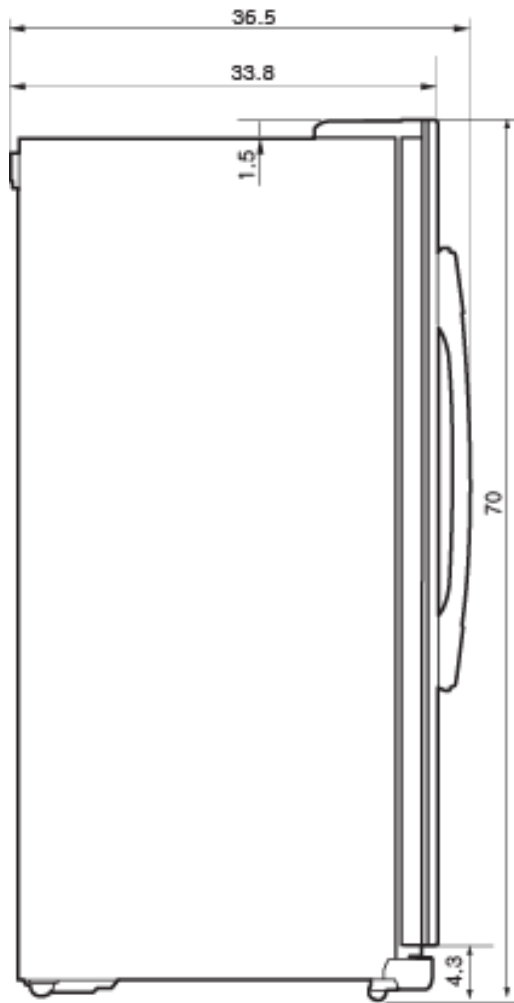
Items		Specification	
Models		RS275	RS277
Electric Components	Rated Voltage	AC 115V/60Hz	
	MOTOR-BLDC(FRE)	DC12V/DREP3030 LA	
	MOTOR-BLDC(REF)	DC12V/DREP3020 LA	
	MOTOR-BLDC (Circuit)	DC12V/DRCP3030 LA	
	Lamp(FRE)	AC120V/40W(1EA)	
	Lamp(REF)	UPPER	AC120V/40W(3EA)
		LOWER	- AC130V/30W(1EA)
	Door Switch	AC 250V 0.5A	
	Power cord	AC125V 15A	
	Earth Screw	BSBN (BRASS SCREW)	



1. Product Information

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1-7. Dimensions of Refrigerator (inches)





1. Product Information

1-8. Optional Material Specification

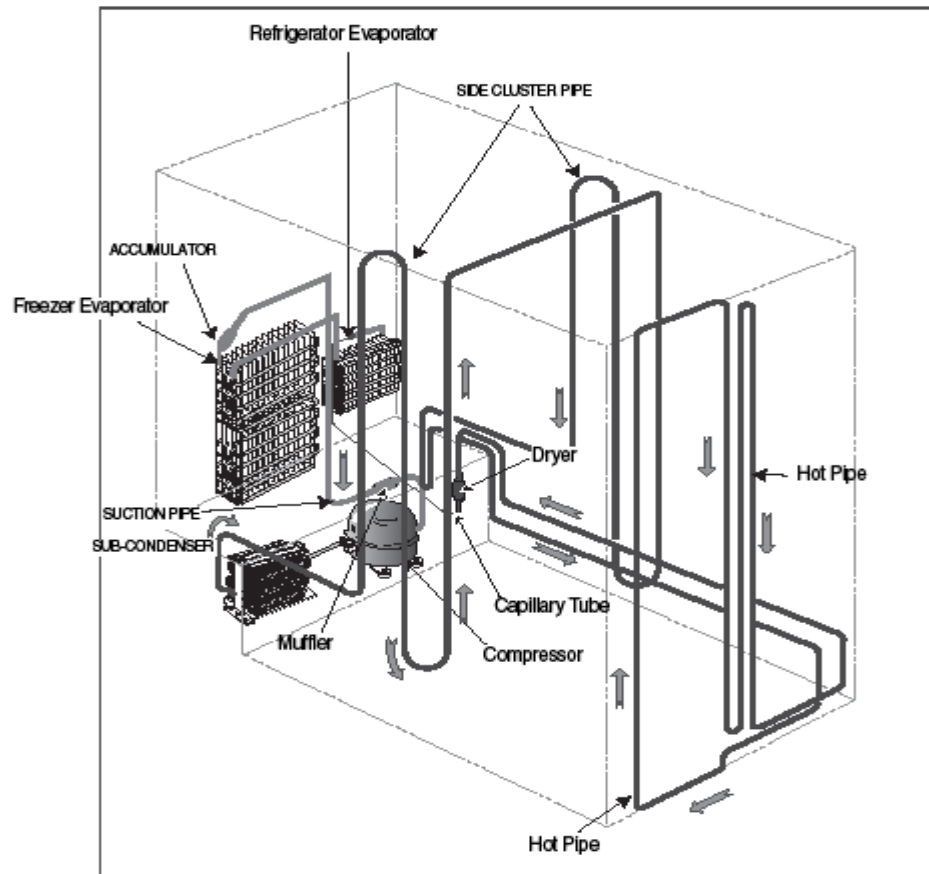
Photograph	Part Name	Part Code
	FILTER WATER-ASSY	DA29-00003B
	ASSY-PACKING SUB	DA99-00240N
	LAMP INCANDENT / 40W	4713-001206
	LAMP INCANDENT / 30W	4713-001197



1. Product Information

1-9. Cool cycle

Compressor → Sub-condenser → Side Cluster Pipe(FRE) → Side Cluster Pipe(REF) → Hot Pipe → Dryer → Capillary Tube → Refrigerator Evaporator → Freezer Evaporator → Suction Pipe → Compressor



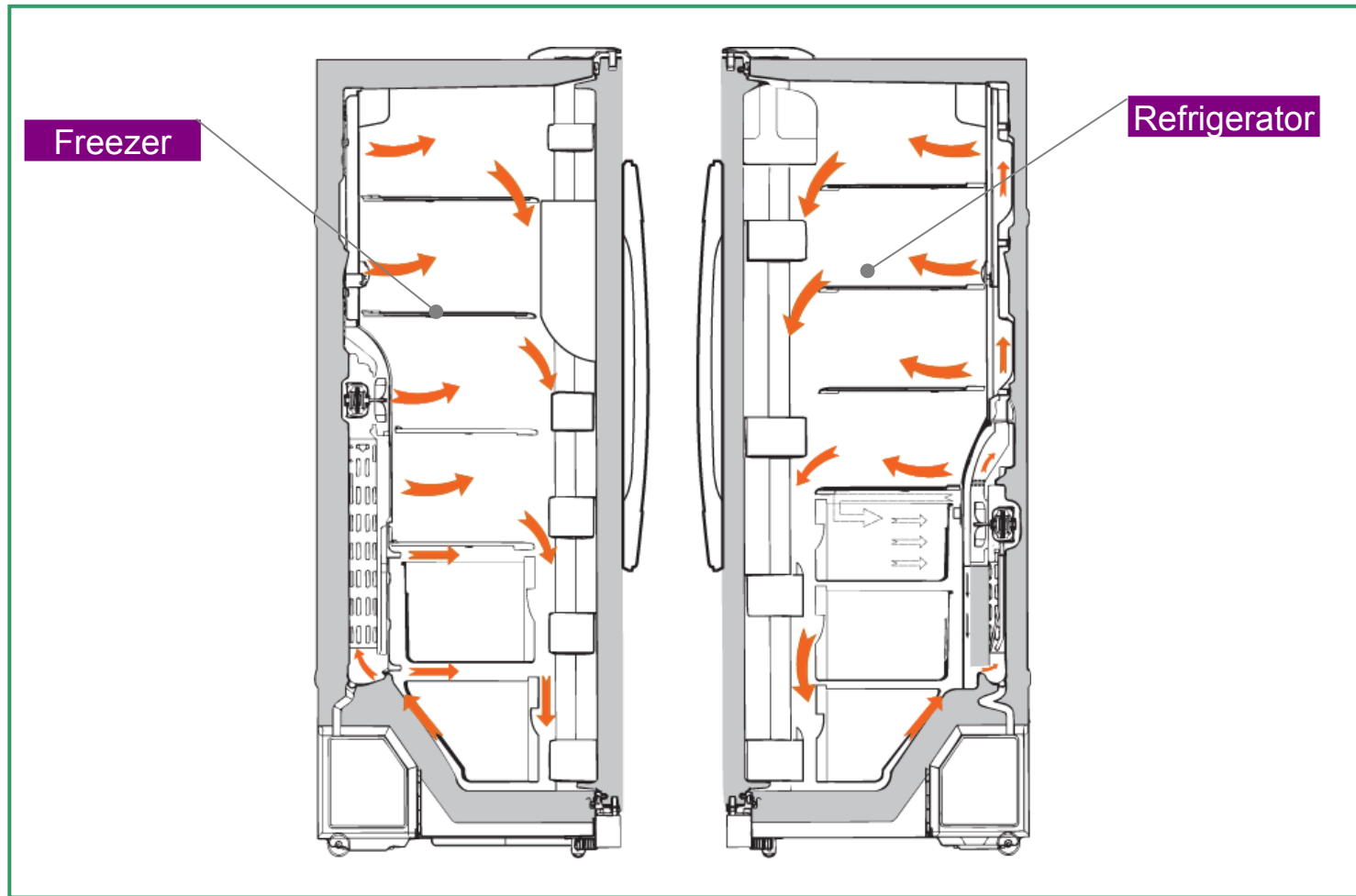
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1. Product Information

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1-10. Cooling Air Circulation



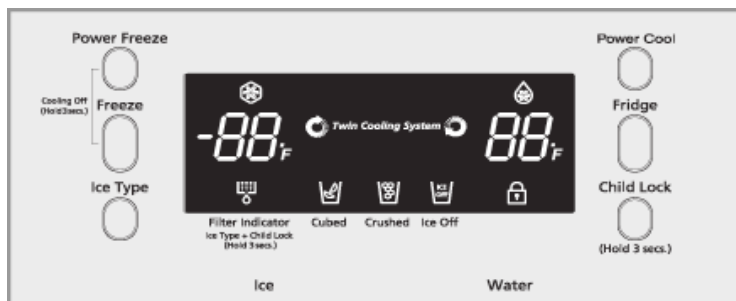


1. Product Information

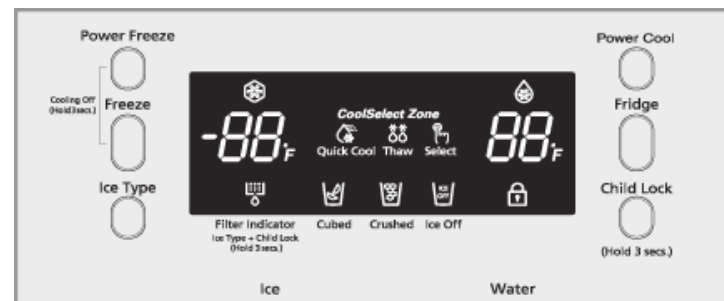
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1-11. Digital panel

For RS275



For RS277



FREEZER BUTTON

To set the freezer temperature, press the button repeatedly to change the set temperature in sequence between 8°F and 14°F.

FRIDGE BUTTON

To set the fridge temperature, press the button repeatedly to change the set temperature in sequence between 34 °F and 46°F.

COOLING OFF

Cooling off stops cooling in both the freezer and refrigerator compartments but does not shut off electrical power to the refrigerator. To use this feature, press freeze and power freeze buttons simultaneously for 3 seconds until the "Ding-Dong" sounds. To cancel this mode, press the same buttons again for 3 seconds. Even though power off and on again, it remains exhibition mode.

POWER FREEZE BUTTON

Speeds up the freezing process in the freezer.

POWER COOL

Speeds up the cooling process in the refrigerator

ICE TYPE BUTTON

Use this button to choose Cubed or Crushed Ice or Ice off. When this button is pressed for 3 sec., the Filter Reset will be on.

LIGHTING & CHILD LOCK BUTTON

When this button is pressed just one time, the dispenser light(under the display) will be on constantly. If you would like the dispenser light to come on only when using the dispenser, turn the "Light" feature off.

When this button is pressed for 3 sec., the Power Freeze, Power Cool, Freezer Temp. and Fridge Temp. are locked and can not be modified. The Water and Ice dispensers are not locked and can still be used. To cancel this function, press Child Lock button again.



2-1. Temperature Control Operation

2-1-1. Temperature Control Function

When the system power is initially engaged, the default set temperature are $-4^{\circ}\text{F}(-20^{\circ}\text{C})$ for the freezer and $38^{\circ}\text{F}(3^{\circ}\text{C})$ for the set refrigerator, respectively. The numbers shown on the digital display panel stand for the actual compartments temperatures. When the compartment temperatures go down, so do the numbers on the display panel, and finally they reach the set temperatures. Once the system is stabilized, the display temperatures are the set temperature.

1) Freezer Temperature Control.

To select a set temperature, press the Freezer Temp. button. The display shows the set temperature from $-14^{\circ}\text{F}(-25^{\circ}\text{C})$ to $-8^{\circ}\text{F}(-14^{\circ}\text{C})$ in sequence.

2) Quick Ice Freezer Temperature Control

Interior Temperature of the freezer will be controlled with $-14^{\circ}\text{F}(-25^{\circ}\text{C})$ until the ice bucket is filled up with ice cubes. When the ice bucket is filled up with ice cubes, the freezer will run with original set temperature. Also, whenever the ice bucket is released from being filled with ice cube, the freezer will repeat to be controlled with $-14^{\circ}\text{F}(-25^{\circ}\text{C})$ degrees Celsius. But if you select "Ice Off, the freezer always will be controlled with original set temperature.

3) Refrigerator Temperature Control.

To select a set temperature, press the Fridge Temp. button. The display shown the set temperature from $34^{\circ}\text{F}(1^{\circ}\text{C})$ to $46^{\circ}\text{F}(7^{\circ}\text{C})$ in sequence.



2-1. Temperature Control Operation

2-1-2. Power Freeze and Power Cool Functions

- ❖ Select the Power Freeze or Power Cool buttons separately.
- ❖ These buttons are toggled ON and OFF and the indicators as well.
- ❖ Although you select Power Freeze or Power Cool, the set temperatures in the freezer and refrigerator are not changed.
- ❖ The set temperatures for the compartments can be changed while these functions are in use.

1) Power Freeze function

- 1-1) When you press the Power Freeze button, the LED indicator lights right away, but there is 10 seconds lag time to an actual operation. When this button is pressed again, the Power Freeze function stops and the indicator is off immediately.
- 1-2) If you select Power Freeze, both the compressor and the freezer fan run for 2.5 hours continuously.
- 1-3) During Power Freeze, the freezer retains the current settings.
- 1-4) When Power Freeze expires, the indicator goes off and the freezer set temperature will be restored.

2) Power Cool function

- 2-1) Power Cool operation and the indicator work exactly same as the Power Freeze function.
- 2-2) When Power Cool is selected, COMP and Refrigerator Fan operate continuously until the refrigerator reaches -24°F (-4°C). This function will be terminated after 2 ½ hr running.



2. Product function



2-1. Temperature Control Operation

2-1-2. Power Freeze and Power Cool Functions

3) When you select Power Freeze and Power Cool together

Each function works at the same time. The COMP and Freezer Fan run continuously and the Refrigerator Fan runs until -24°F(-4°C) in the refrigerator.

4) Initial Power-On

4-1) When the freezer and the refrigerator temperatures are higher than 14°F~50°F (-10°C~10°C), respectively, if Power Freeze is selected, then the Refrigerator Fan will be off. If Power Cool is selected, then the Freezer Fan will be off.

4-2) When both functions are selected, there is no benefit of fast cooling for each compartment.

2-1-3. CHILD LOCK FUNCTION

When the child lock button is pressed for 3 seconds, the child lock indicator is on with an audible tone.

- When it is locked, no function commands.
- This function will prevent accidental setting that may be caused by children or pets.
- To unlock the setting functions, press this button for 3 seconds again.



2. Product function



2-2. Ice Dispenser and Water Dispenser

- ❖ Among several ice-maker functions, the ice extraction function is performed by mechanical system. Only the relay control for a cubed-ice dispensing and the SSR control for the ice chute door are performed electronically.

1) Select Cubed/Crushed/Ice-off function

- 1-1) The Ice Type button selects Cubed/Crushed/Ice-off options in sequence.
- 1-2) A default setting is Cubed option.
- 1-3) If Cubed ice is selected, the Crushed ice bypass solenoid and the geared motor will allow Cubed ice to by pass the ice Crusher.
- 1-4) If Ice-off is selected, the ice maker will stop working. This option will be terminated when Cubed and Crushed options are selected.

Note

When the Ice-off indicator is on, only Cubed ice will be dispensed from the ice bucket.

- 1-5) The ice chute door must remain open for 5 seconds after dispensing ceases. After this 5 seconds delay, SSR will be controlled to shut the ice chute door.

Caution

Do not force to close the ice chute door. Try to dispense some more ice again to work it automatically.

2) Water Dispenser function

- 2-1) To dispense water, depress the water dispenser lever located in the dispenser recess.
- 2-2) When the lever is depressed, the water solenoid valve located in the machine compartment is open to flow water.



2. Product function



2-3. C-Fan Motor Delay Function of the Machine Compartment

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

	Ranges of ambient temp.	Operation
Condenser Fan Delay function	Above 66°F(19°C)	Condenser-Fan is ON as soon as the compressor is on.
	60°F ~ 65°F(16°C~18°C)	Condenser-Fan is ON with 5 minutes delay from the compressor on.
	Below 59°F(15°C)	Condenser-Fan is OFF regardless of the compressor operation.



2-4. COOLSELECT ZONE FUNCTION

- ❖ To select this function, open the refrigerator door and press the button on the control panel of CoolSelect Zone™ drawer.
- ❖ When the CoolSelect Zone™ function is selected, the damper inside fan ductwork is open. So the refrigerator cooling is performed first, then the damper is closed to control the CoolSelect Zone™ temperature.

1) Select function

- 1-1) Using Select button, Cool, Chill(30°F(-1°C)), and Soft Freeze(23°F(-5°C)) options can be selected in sequence. Cool option maintains a set temperature of the refrigerator.

2) Quick Cool function

- 2-1) If the Quick Cool is selected, LEDs will flash 60 and Min. The count will be decreased in every minute.
- 2-2) To cancel this function, press Quick Cool button again or Thaw button or Select button. Otherwise, it will be terminated 60 minutes later automatically.
- 2-3) After this function ends, this drawer will come back to Cool option.
- 2-4) A defrost cycle will be postponed until Quick Cool option is finished.

3) Thaw function

- 3-1) When the thaw button is pressed, LEDs will flash 4, 6, 10, and 12 in sequence and Hr.
- 3-2) The count will be decreased in every hour.
- 3-3) A cancellation of this function is the same as Quick Cool function.
- 3-4) After this function ends, this drawer will be maintained with 30°F(-1°C).
- 3-5) While the compressor is on, this drawer retains a certain temperature and while the compressor is off, the defrost heater is activated and Refrigerator Fan is on with a closed position of the damper.



2. Product function



2-5. WATER FILTER INDICATOR FUNCTION

1) Filter Indicator

- 1-1) This indicator initially lights in green. The light color will be changed to orange after 5 month operation then to red at the 6th month. The EEPROM in the control board counts a period of time regardless of a power failure.
- 1-2) Press Ice Type button for 3 seconds
- 1-3) If Ice Type button and Child lock button for 5 seconds simultaneously, this function will cease.
- 1-4) To restore this function, press Ice type button again for 3 seconds.

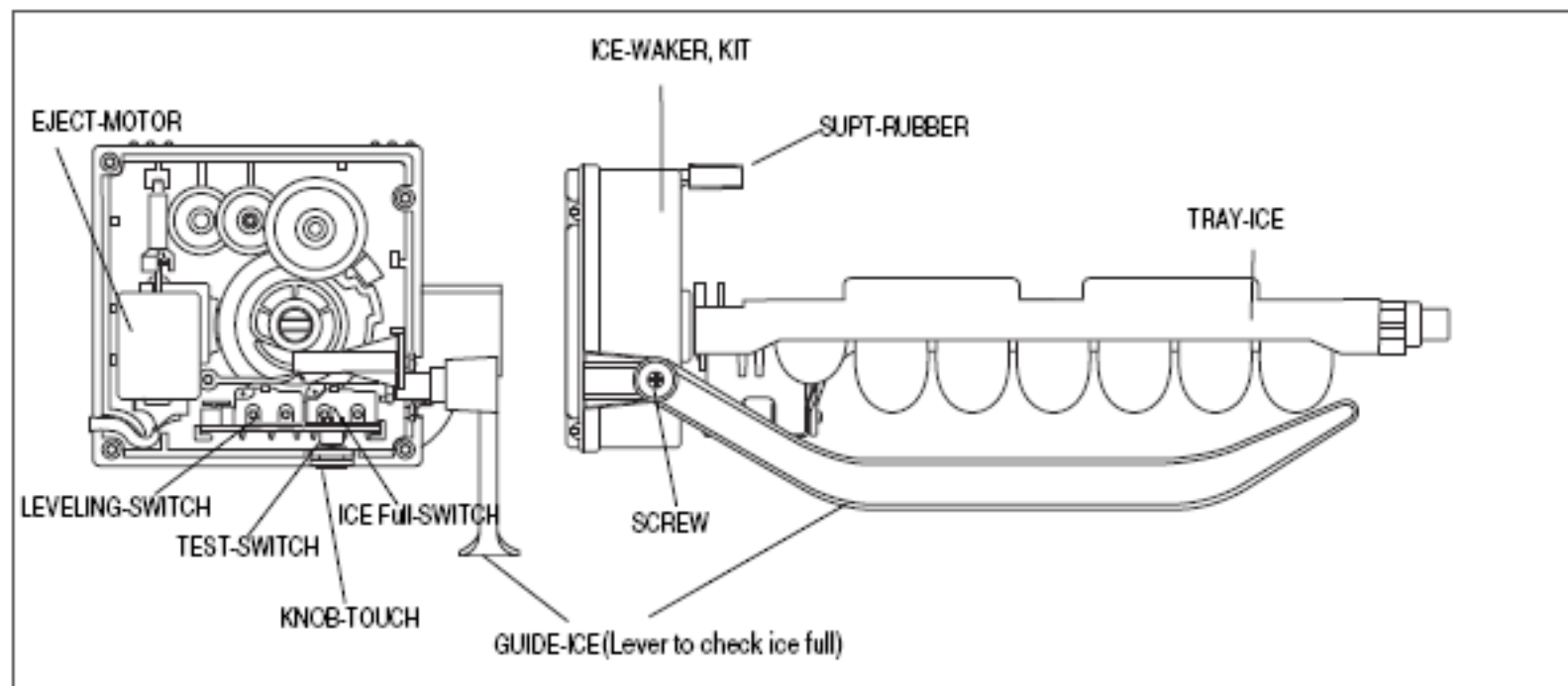


2. Product function

2-6. Ice-Maker Function

- ❖ The Ice-maker is referred to the device with an automatic ice production, storage in the ice bucket and dispensing through the ice chute.

1) Ice-maker parts





2. Product function

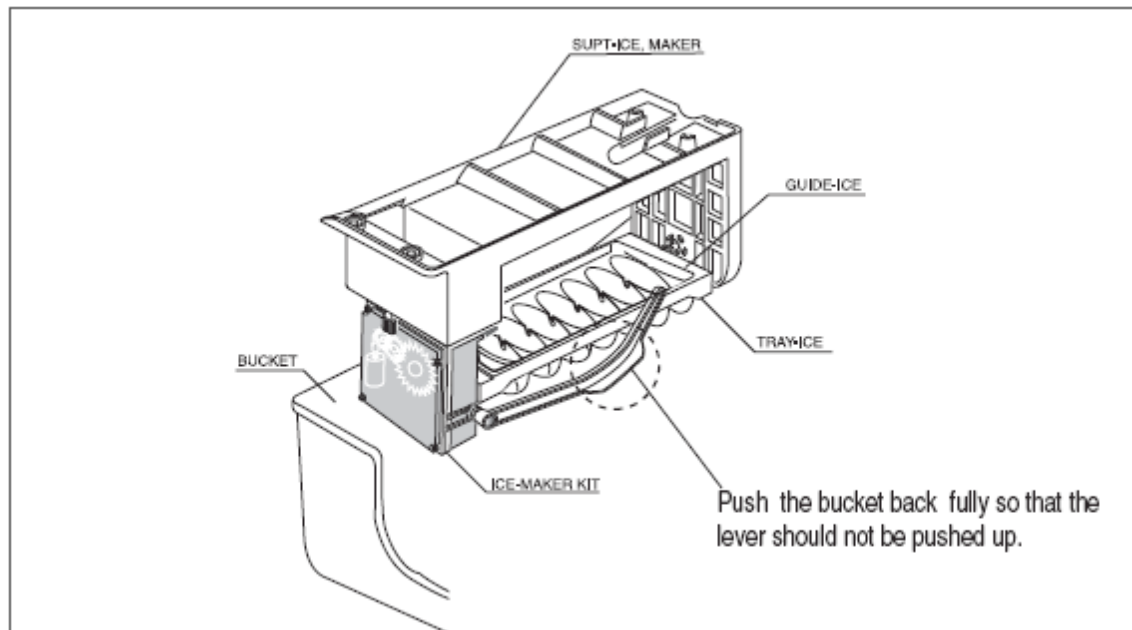
2-6. Ice-Maker Function

2) Preparation of Ice-maker

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

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

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





2. Product function



2-6. Ice-Maker Function

3) Initial Operation function

- 1-1) Whenever the power is on, the control board checks the ice tray leveling with the leveling switch within 2 seconds.
- 1-2) If the leveling switch is not off position, the geared motor will turn to the initial position to make the ice tray leveled.
- 1-3) When the ice tray is leveled, it will remain this position for 2 hours (1 cycle time for ice production).
- 1-4) After 2 hours, the sensor located under the ice tray will measure the tray temperature. If the temperature is maintained lower than 1°F(-17°C) for 5 minutes, and the ice full switch is off position, the ice tray twisting process will begin.

[Reference table]

Leveling S/W	Ice full S/W	Judgement	Remark
ON("LOW")	ON("LOW")	Not ready	·MICOM Port PIN #51: Leveling PIN #51: Ice full ·Port level OFF : 4.5V ↑ ON : 0.5V ↓
ON("LOW")	OFF("HIGH")	Not ready	
OFF("HIGH")	ON("LOW")	Not ready(Ice bucket with full of ice)	
OFF("HIGH")	OFF("HIGH")	Ready	

4) Water Supply function

- 4-1) When the ice tray is levelled again after ejecting ice, the water solenoid value will be controlled to supply water by time check basis. (See the "Time to supply water" Table)



2. Product function



2-6. Ice-Maker Function

5) Ice production

- 3-1) After 60 minutes pass from the water supply, the control board will check the temperature.
- 3-2) If the sensor reads the temperature lower than 1°F(-17°C) for more than 5 minutes, than the ice production process is completed.

6) Test function

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

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

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

7) Ice off function

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

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

5-3) When Cubed or Crushed option is selected again, the control board will check an accumulated time period. After making it 60 minutes and when the ice tray temperature is acceptable, ice ejection process will begin.

8) Functions when the freezer door is open

- When the freeze door is open, all ice maker related processes will cease in order to minimize noise and to prevent ice from dispensing.

6-1) The ice tray stops moving regardless of the position.

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

6-3) If the ice tray is in the middle of ice ejecting process, close the freezer for 30 seconds and check if the tray is leveled. If it is not leveled, it must be out of order.



2. Product function



2-7. Defrosting Function

- 1) A defrost is determined based on the accumulated compressor on-time.
- 2) When the power is engaged for the first time, the defrost cycle for the freezer and the refrigerator will begin after 4 hours of the accumulated compressor on-time.
- 3) A defrost interval depends on the ambient temperature, the number of door openings, and the door open time.
- 4) A minimum interval is 6 hours and a maximum is 8 hours for the refrigerator, and 12 hours and 16 hours for the freezer, respectively.
- 5) The defrost heater on-time is determined by the defrost sensors as follow :

	Refrigerator	Freezer
Heater ON	Below 50°F(10°C)	-
Heater OFF	62°F(17°C)	50°F(10°C)

3. Full disassembly and assembly



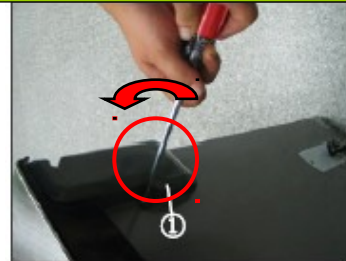

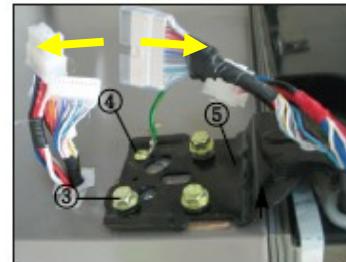
Be careful not to scratch

Part name	Work order	Remarks
FREEZER DOOR	Removing the Front leg cover. 1. Open the freezer and refrigerator doors.	
	2. Take off the front leg cover by turning the three screw counter-clockwise.	
	Removing the Water supply line. Separating the Water Supply Line from the Refrigerator by pressing the coupler(②) and pulling the water tube(①) away.	

3. Full disassembly and assembly




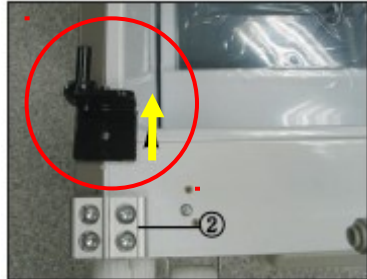
Be careful not to scratch

Part name	Work order	Remarks
FREEZER DOOR	Removing the Upper hinge 1. With the door closed, remove the upper Hinge cover(①) using a screwdriver.	
	2. Disconnect the wires(②).	
	3. Remove hinge screws(③) and ground screw(④) counter-clockwise and take off the upper hinge(⑤) along the arrow.	

3. Full disassembly and assembly



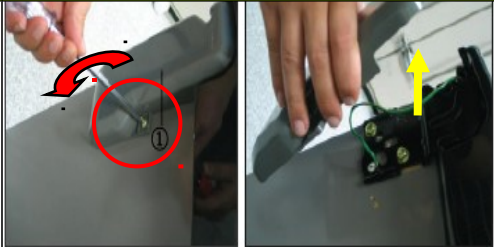
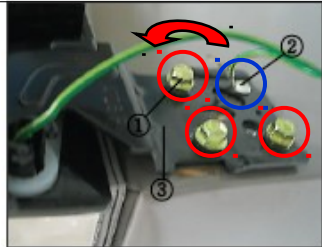


Be careful of injury

Part name	Work order	Remarks
FREEZER DOOR	Removing the Lower hinge. 1. Remove the door from the lower hinge(①) by carefully lifting the door.	
	2. Remove the lower hinge from the bracket hinge(②) by lifting the lower hinge in the direction of the arrow.	

3. Full disassembly and assembly



When disassembling, make sure the unit turned off

Part name	Work order	Remarks
REFRIGERATOR DOOR	Removing the Upper hinge. 1. With the door closed,remove the upper hinge cover(①)using a screwdriver.	
	2. Remove hinge screws(①)and ground screw(②) counter-clockwise and take off the upper hinge(③)along the arrow	
	Removing the Lower hinge. 1. With the door closed,remove the upper hinge cover(①)using a screwdriver.	
	2. Remove hinge screws(①)and ground screw(②) counter-clockwise and take off the upper hinge(③)along the arrow	

3. Full disassembly and assembly



Be careful of injury

Part name	Work order	Remarks
CONTROL PANEL	<ol style="list-style-type: none"> 1. Remove the screw under the cover 2. Insert a hand on the slot as shown, and unlock the tabs. 	
	<ol style="list-style-type: none"> 3. Disconnect the wire connector in the direction of the arrow. 	
DOOR GASKET	<p>The door gasket is a molded gasket set into a channel located in the door liner.</p> <ol style="list-style-type: none"> 1. Open the door 2. Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner. 	
DOOR HANDLE	<p>The door handles allow access into the refrigerator and freezer. They are front mounted with screws. Lift the handle upward motion with on.</p>	

3. Full disassembly and assembly





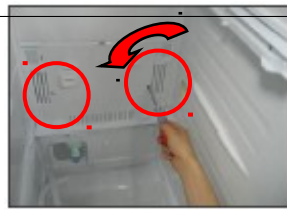



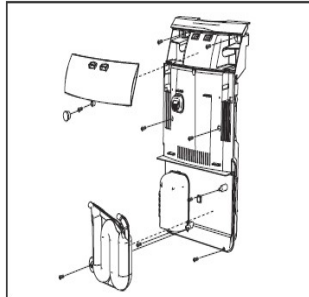
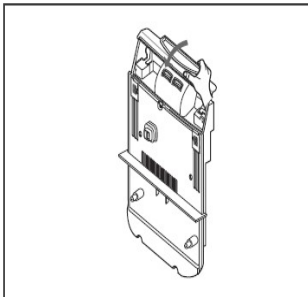

Be careful not to scratch

Part name	Work order	Remarks
DOOR LIGHT SWITCH	<p>The refrigerator has a door light switch located in the upper right corner for the refrigerator.</p> <ol style="list-style-type: none"> 1. Use a small flat blade screwdriver to unlock the locking tab and pull the switch out until the wire connector is visible. 	
TEMPERED GLASS SHELF	<p>This shelves allow the storage of larger items and pull out for easy access.</p> <ol style="list-style-type: none"> 1. Pull the shelf out as far as it goes. 2. Lift it up and remove it. 	
DRAWER IN REFRIGERATOR	<p>The door gasket is a molded gasket set into a channel located in the door liner.</p> <ol style="list-style-type: none"> 1. Open the door 2. Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner. 	
GALLON DOOR BIN	<p>The door bins allow storage of perishable items.</p> <ol style="list-style-type: none"> 1. Push the bin up and slide it out. 	

3. Full disassembly and assembly



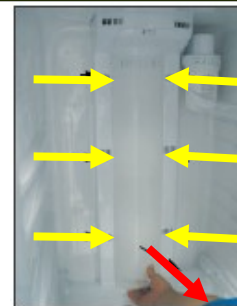


Be careful of injury

Part name	Work order			Remarks
WATER FILTER	<p>The water filter is located in the upper right-hand corner of the refrigerator. The water filter filters water for the ice maker and the water dispenser.</p> <p>1.Turn the water filter 1/2 turn counterclockwise and pull it down.</p> <p>2.To install the filter, align the indication mark(unlock position) and push it up while turning 1/2 turn clockwise until the lock position is aligned. Do not over tighten.</p>			
EVAPORATOR COVER	<p>Pull out the screw cap and remove the screw.</p>		<p>Take off motor and lamp wire connector located on the upper liner</p>	
	<p>Remove the lamp cover by unlocking the tabs and pulling the cover down.</p>		<p>Remove the Evaporator cover in the direction of the arrow as shown.</p>	
	<p>Remove the water tank from the evaporator cover by unscrewing the screws.</p>		 	
	<p>Remove the screws at the evaporator cover and disconnect the wire connector</p>			

3. Full disassembly and assembly



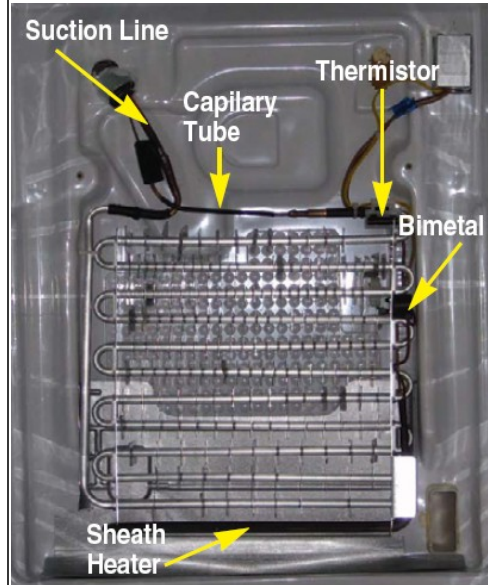
Be careful of injury

Part name	Work order	Remarks
UPPER DUCTWORK	Remove the lamp cover by unlocking the tabs and pulling out the cover.	
	Remove the screws(2) and upper fan ductwork while disconnecting the wire connector. (lamp and thermistor)	
EVAPORATOR FAN MOTOR	<p>The evaporator fan is located in the middle rear of the refrigerator. This fan circulates cold air in the refrigerator.</p> <ol style="list-style-type: none"> 1. Remove screws (4) located at the four corners of the fan bracket. 2. Take the fan motor assembly off. 	

3. Full disassembly and assembly







When disassembling, make sure the unit turned off

Part name	Work order	Remarks
EVAPORATOR IN REFRIGERATOR	<p>Evaporator is located in the bottom of refrigerator.</p> <ol style="list-style-type: none">1. Take off the ductwork in refrigerator.2. Disconnect the wire connector. (Heater and Thermistor)3. Desolder the capillary tube and the suction line from the evaporator.4. Remove the evaporator.5. With a file, score the capillary tube just upstream of the soldered point. Break off the soldered section to help prevent solder from plugging the tube during soldering.6. Place a new evaporator and braze the suction and capillary tube to evaporator using silver solder.7. Install a replacement dryer.8. Evacuate and recharge the system using reasonable procedures.	

3. Full disassembly and assembly




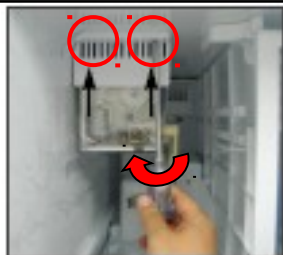



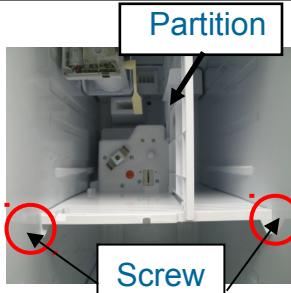
Be careful not to scratch

Part name	Work order	Remarks
DOOR BIN IN FREEZER	The door bins allow storage of perishable items. 1. Push the bin up and slide it out.	
FREEZER DOOR LIGHT SWITCH	The switch is located in the left-hand portion of the freezer and sends a signal to the processor. 1. With a small flat-blade screwdriver, unlock the locking tabs and pull the switch out until the wire connector is visible. 2. Disconnect the wire connector and remove the switch.	
DRAWER IN FREEZER	The switch is located in the left-hand portion of the freezer and sends a signal to the processor. 1. With a small flat-blade screwdriver, unlock the locking tabs and pull the switch out until the wire connector is visible. 2. Disconnect the wire connector and remove the switch.	
FREEZER SHELF	The shelves slide out for easy access for frozen items. 1. Slide the shelf out until it reaches its stop. 2. Tilt down and slide it out of the compartment.	

3. Full disassembly and assembly



When disassembling, make sure the unit turned off

Part name	Work order			Remarks
ICE DISPENSER & ICE MAKER	The ice dispenser is located in the upper portion of the freezer. This assembly stores ice made by the icemaker and dispenses ice. 1. Lift the ice bucket up ① and slide out the ice dispenser assembly ②.			
ICE MAKER KIT	1. Remove the screws.		3. Unlock the locking tabs to separate the ice maker kit.	
	2. Disconnect the ice maker wire connector.			
AUGER MOTOR CASE	This shelf is designed to support the ice maker & ice dispensed and Xtra Space TM. 1. Remove the Xtra Space TM cover to push it down and pull front. 2. Slide the partition out. 3. Remove the screws (2) on the bottom front of the case. 4. Slide out the case while disconnecting the wire connect.			

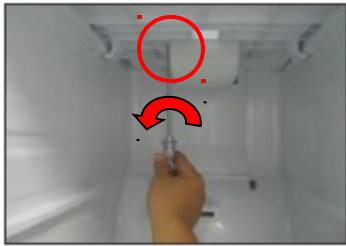
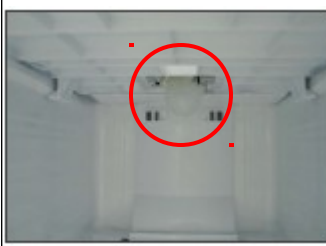


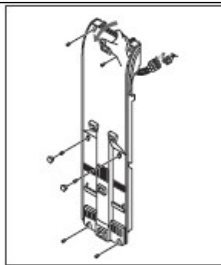

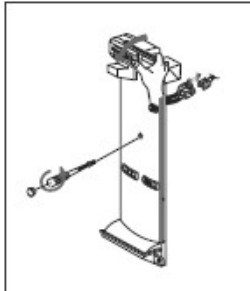
If you want to reassemble, follow the reverse order

3. Full disassembly and assembly



When disassembling, make sure the unit turned off

SAMSUNG DIGITell

Part name	Work order		Remarks	
FREEZER LIGHT	<p>The freezer light is located in the bottom of the auger motor case. The light is covered by an opaque cover.</p> <p>1. Remove the screw and the light cover.</p>			
EVAPORATOR COVER IN FREEZER	<p>1. Pull out the screw caps and remove screws (6).</p>			
	<p>2. Remove the evaporator cover in the direction of the arrow as shown</p>			
UPPER DUCT	<p>1. Remove the screw cap and screw.</p>		<p>2. Slide the upper fan ductwork out while disconnecting the wire connector. (Lamp and Thermistor)</p>	

3. Full disassembly and assembly



When disassembling, make sure the unit turned off



Part name	Work order	Remarks
EVAPORATOR FAN MOTOR	<p>The evaporator fan is located in the lower rear of freezer. This fan circulates cold air in the freezer.</p> <ol style="list-style-type: none"> 1. Remove screw(4) located at the four corners of the fan bracket. 2. Take the fan motor assembly off. 	
EVAPORATOR IN FREEZER	<p>Evaporator is located in the bottom of freezer to produce cold air driven across the evaporator coils.</p> <ol style="list-style-type: none"> 1. Take off the ductwork in Freezer. 2. Disconnect the wire connector (Heater, Bimetal, and Thermistor). 3. Desolder the inlet and outlet tubes. 4. Remove the evaporator. 5. Take the same steps to seal the system as mentioned earlier. 	

3. Full disassembly and assembly



When disassembling, make sure the unit turned off

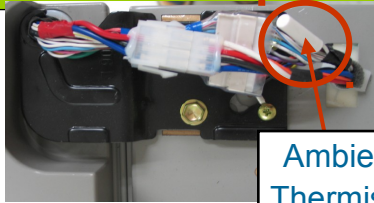

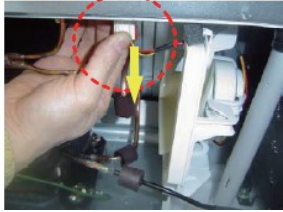
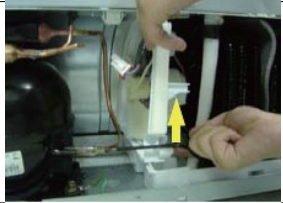
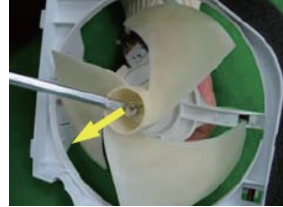
SAMSUNG DIGITall
everyone's invited.

Part name	Work order	Remarks
FREEZER THERMISTOR	The freezer thermistor is located at the top left of freezer vent. It sends temperature signals to the micro-processor.	 Freezer Thermistor
ICEMAKER THERMISTOR	The Ice-Maker thermistor is located in its bottom. The temperature signal sends the microprocessor.	

3. Full disassembly and assembly



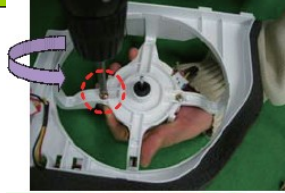


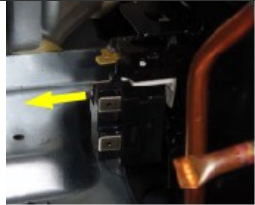
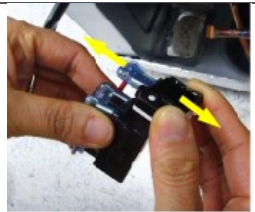
When disassembling, make sure the unit turned off

Part name	Work order	Remarks
AMBIENT THERMISTOR	The ambient thermistor is located inside the upper hinge cover. Fre. it sends temperature signals to the micro-processor.	 Ambient Thermistor
FAN MOTOR	1. Take off the cover comp by turning the eight screws counter-clock wise.	
	2. Disconnect the wire connector.	
	3. Remove the assy-support circuit motor by unlocking the tabs and lifting it up.	
	4. Insert the flat-tip screw driver into the fan, and removing the fan spring along the arrow.	

3. Full disassembly and assembly



When disassembling, make sure the unit turned off

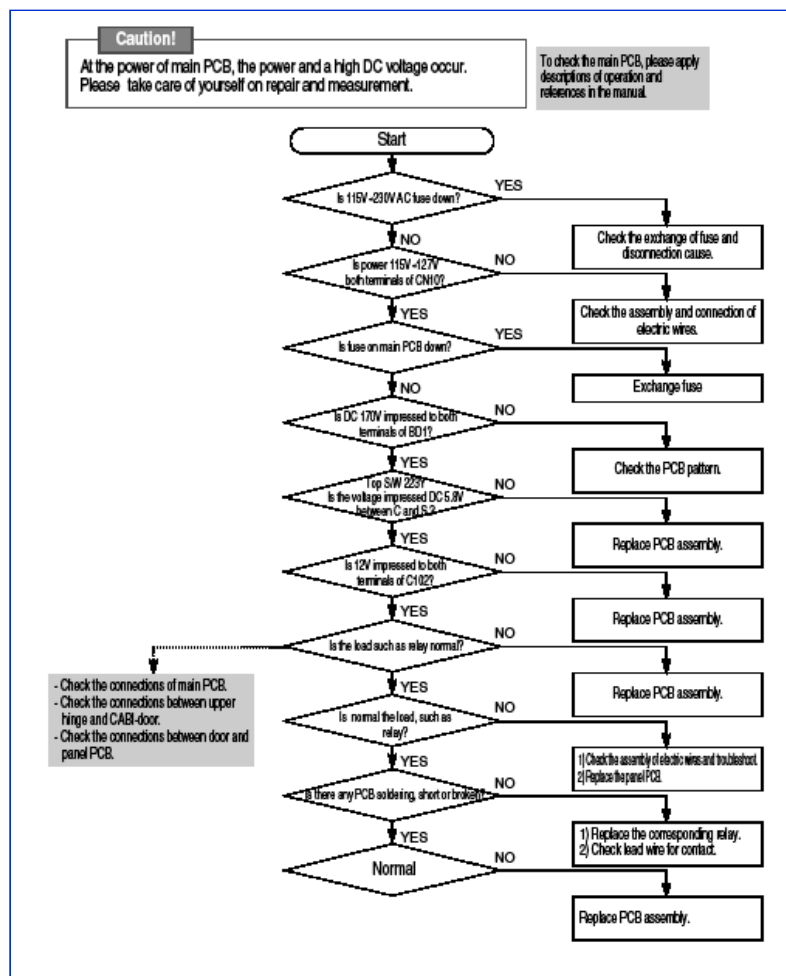
Part name	Work order	Remarks
FAN MOTOR	5. Turning the two screws counter-clockwise.	
	6. Remove the motor.	
PROTECTOR O/L, PTC	Insert the flat-tip screwdriver into the fan, and removing the cover relay along the arrow.	
	Remove the OLP or PTC along the arrow.	
	Remove the OLP or PTC along the arrow.	



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-1. If power is not ON



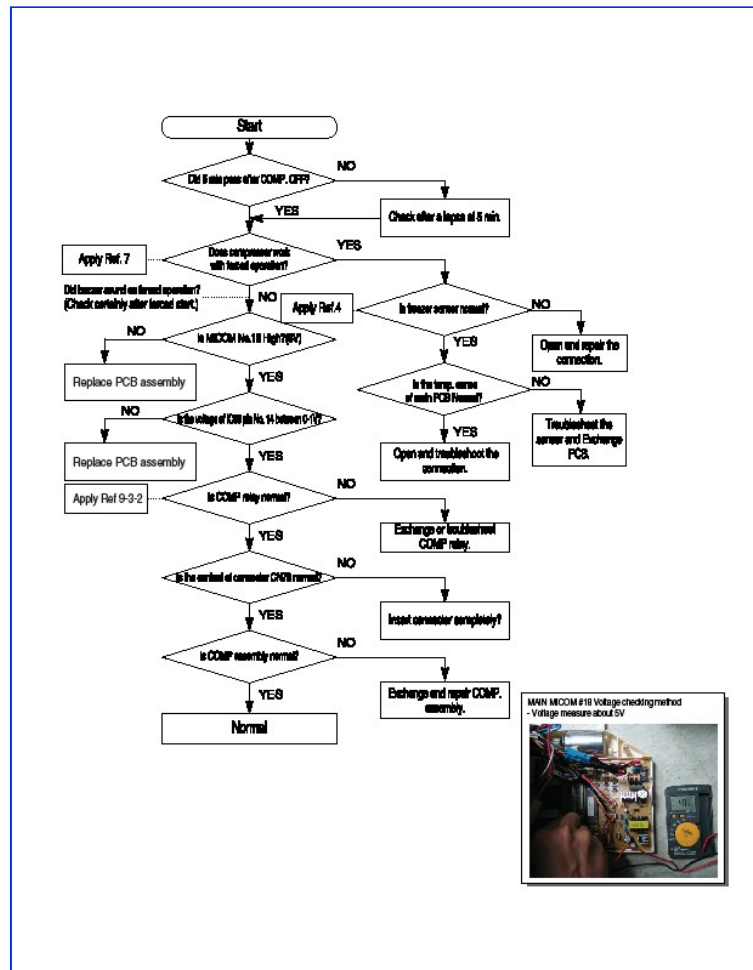
Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-2. If the compressor and cooling fan motor don't work normally



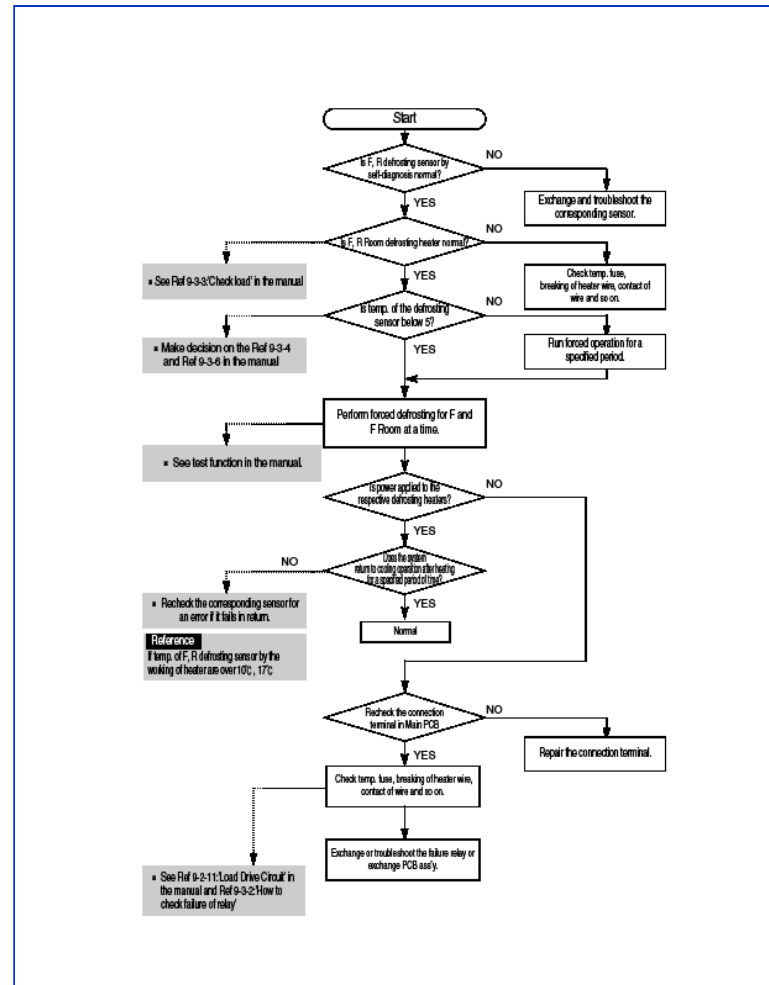
Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-3. If defrost function don't work normally



□ Double Click



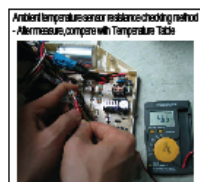
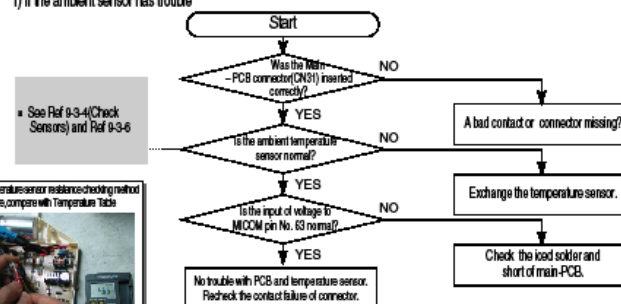
4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-4. If there is a trouble with self-diagnosis

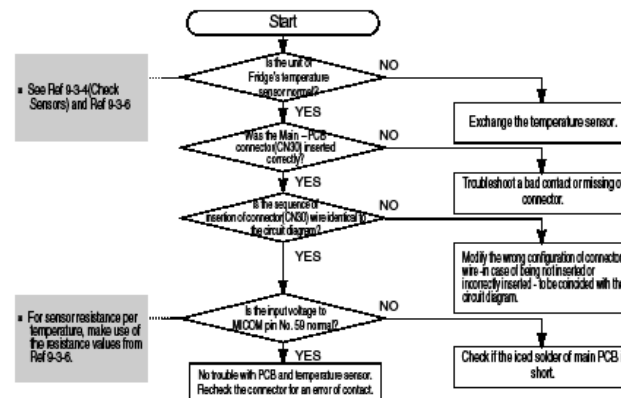
- Error of sensor can be seen on the front display of refrigerator. If power is impressed to refrigerator first, an failure of sensor is found. The refrigerator will stop working and display (blink) the region of trouble occurred sensor repeatedly.
- Even if sensor has failure during the operation, the refrigerator will not stop working but can run the normal cooling operation because of being operated in the Emergency Operation mode. Therefore you're requested to use how to check self-diagnosis (at page 39) in the manual.

1) If the ambient sensor has trouble



2) If the temperature sensor of R room has trouble

- The sensor of freezer is connected in parallel with Bimetal. See the contents of Temperature Sensing Circuit section in the description of circuit operation.



Double Click

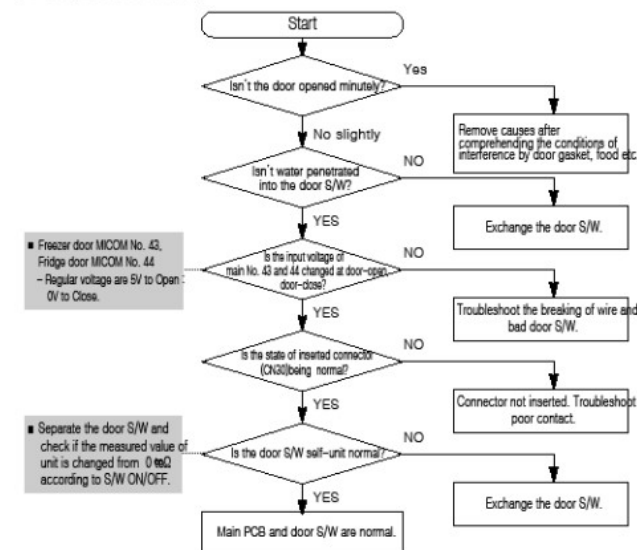


4. Troubleshooting and major adjustment

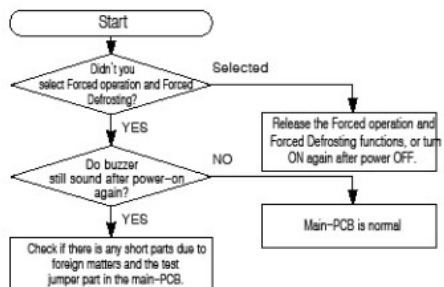
4-1. Troubleshooting

4-1-5. If alarm sound

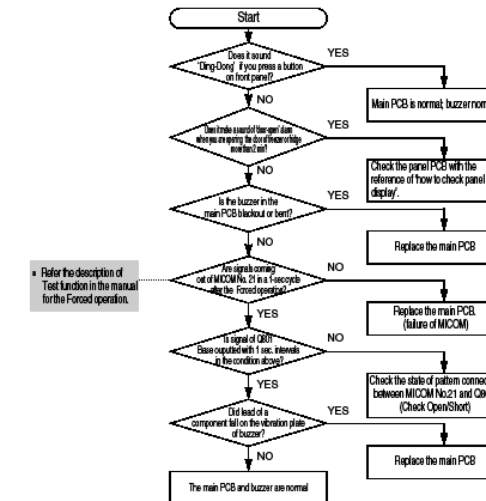
1) If "Beep" sounds continuously



2) If "Beep" sounds continuously



3) Without sound of buzzer operation



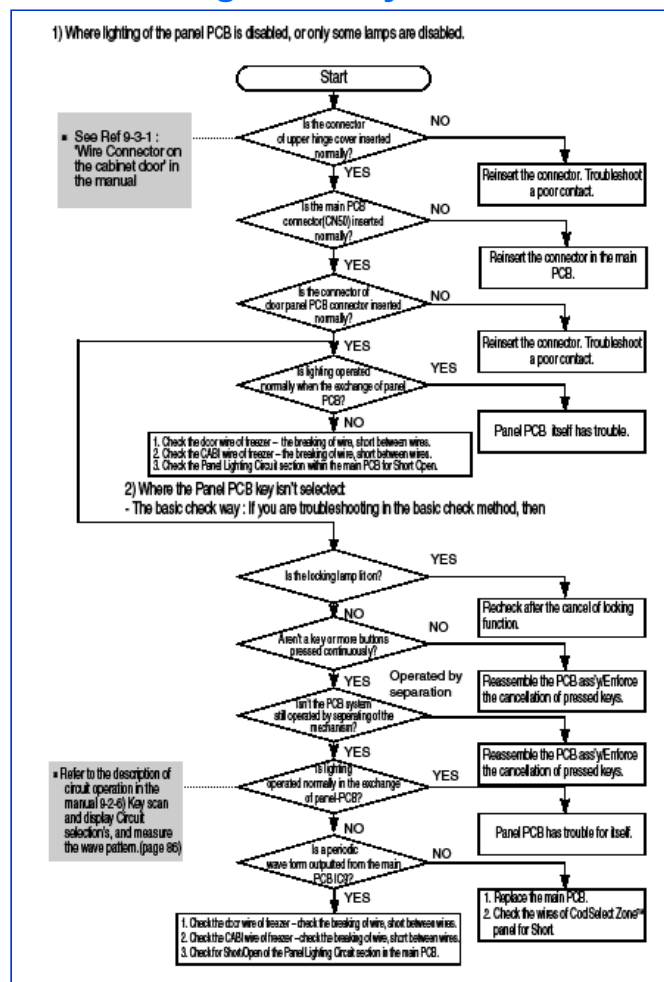
Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-6. If the panel PCB is not working normally



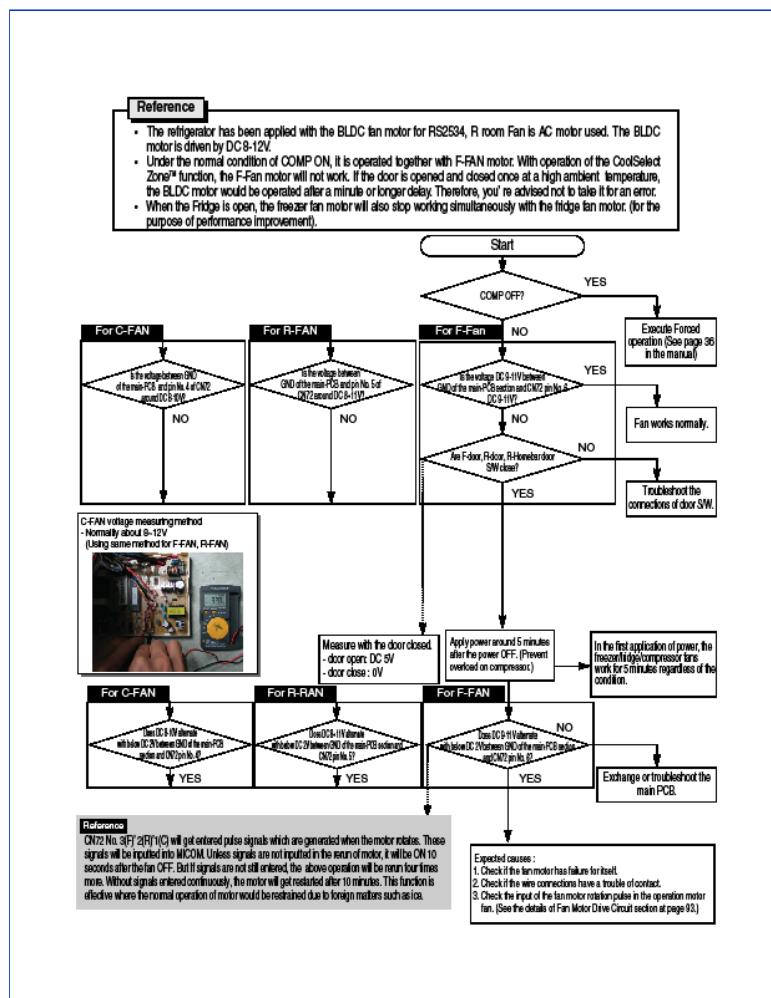
□ Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-7. If fan doesn't work



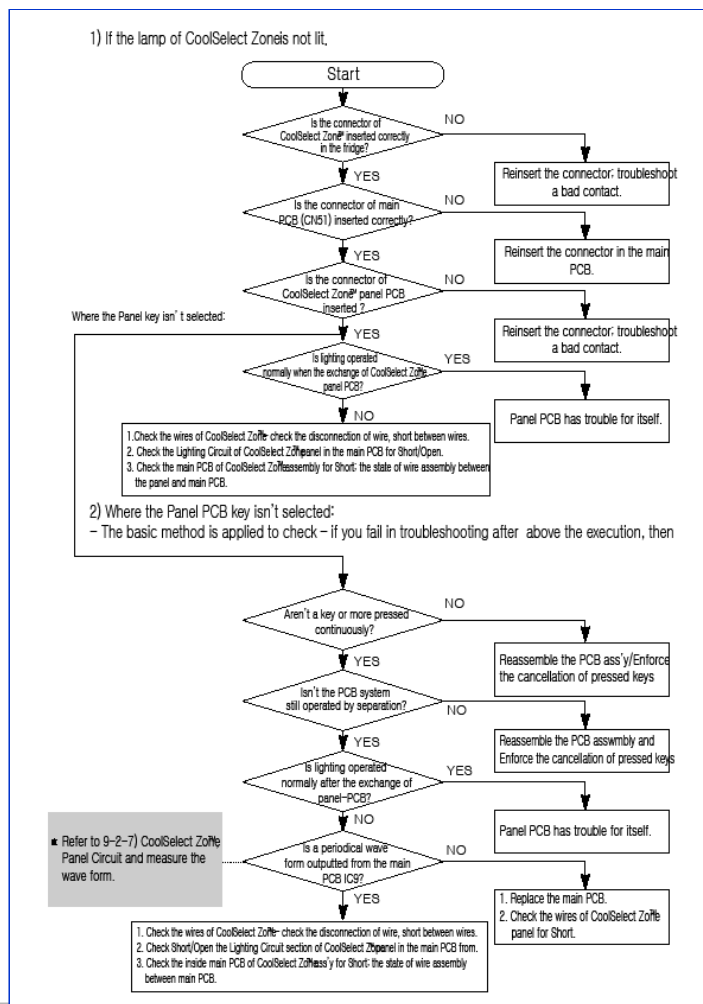
Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-8. If Cool Select Zone isn't operated normally



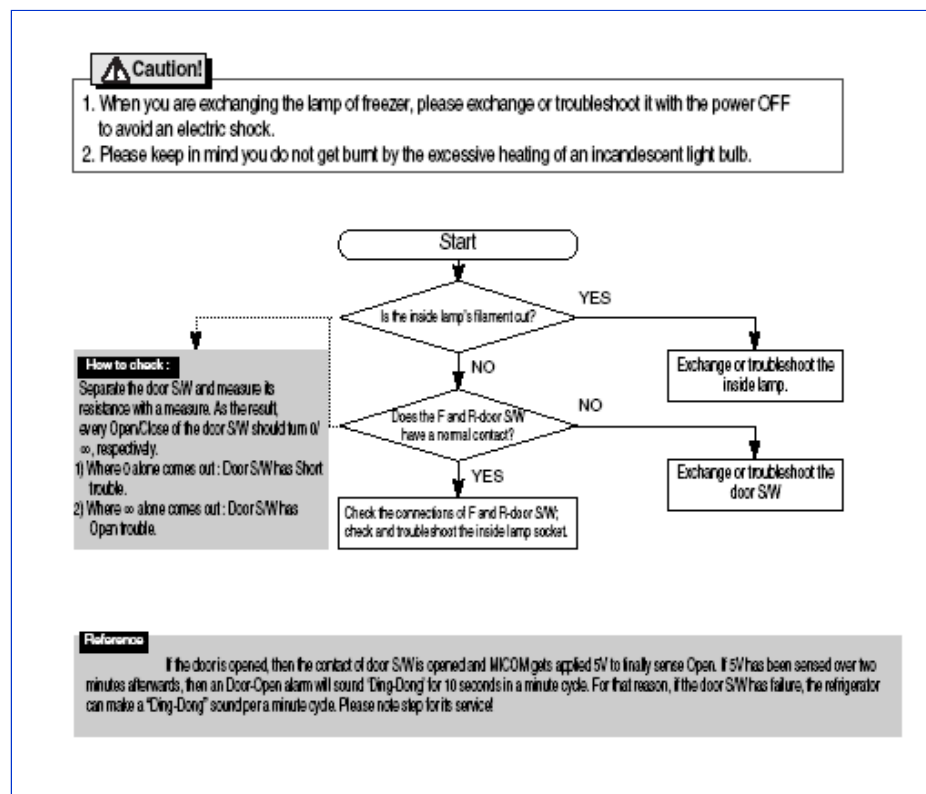
□ Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-9. If the lamps of freezer / refrigerator fail in lighting



□ Double Click



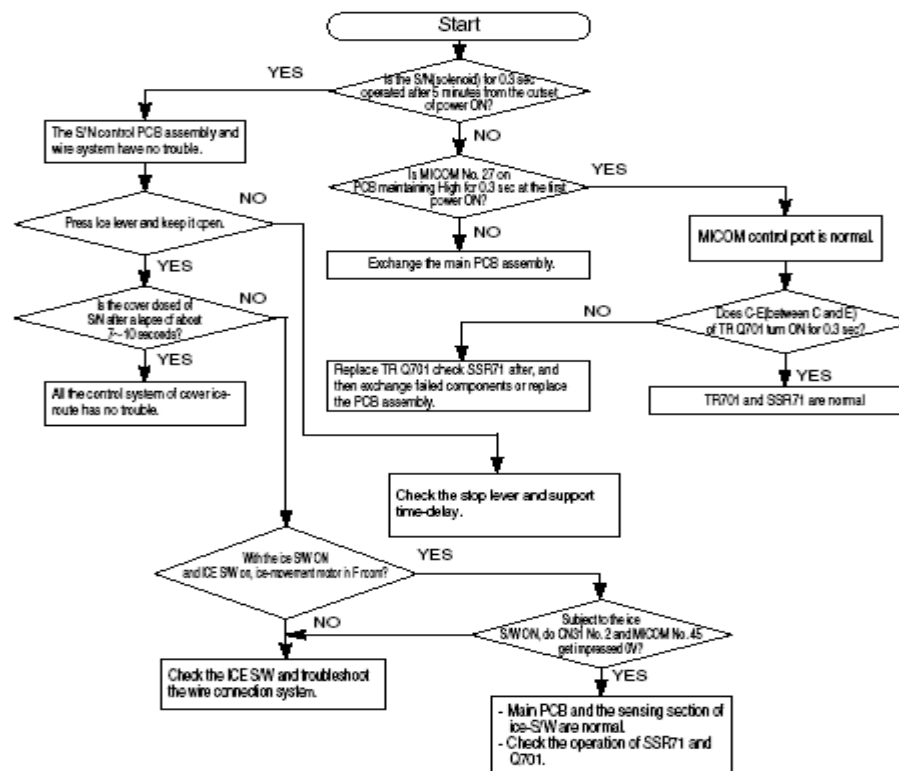
4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-10. If the ice chute cover solenoid doesn't work

Preliminary check

- 1) Check if the solenoid is operated unconditionally for 0.3 sec, independent of the Open/Close condition of cover ice-route, after a lapse of about 5 seconds from the outset of power ON. (Before installation, the cancellation of cover ice-route Open is enabled.)
- 2) Check if the connector of upper hinge section is hook-up correctly.



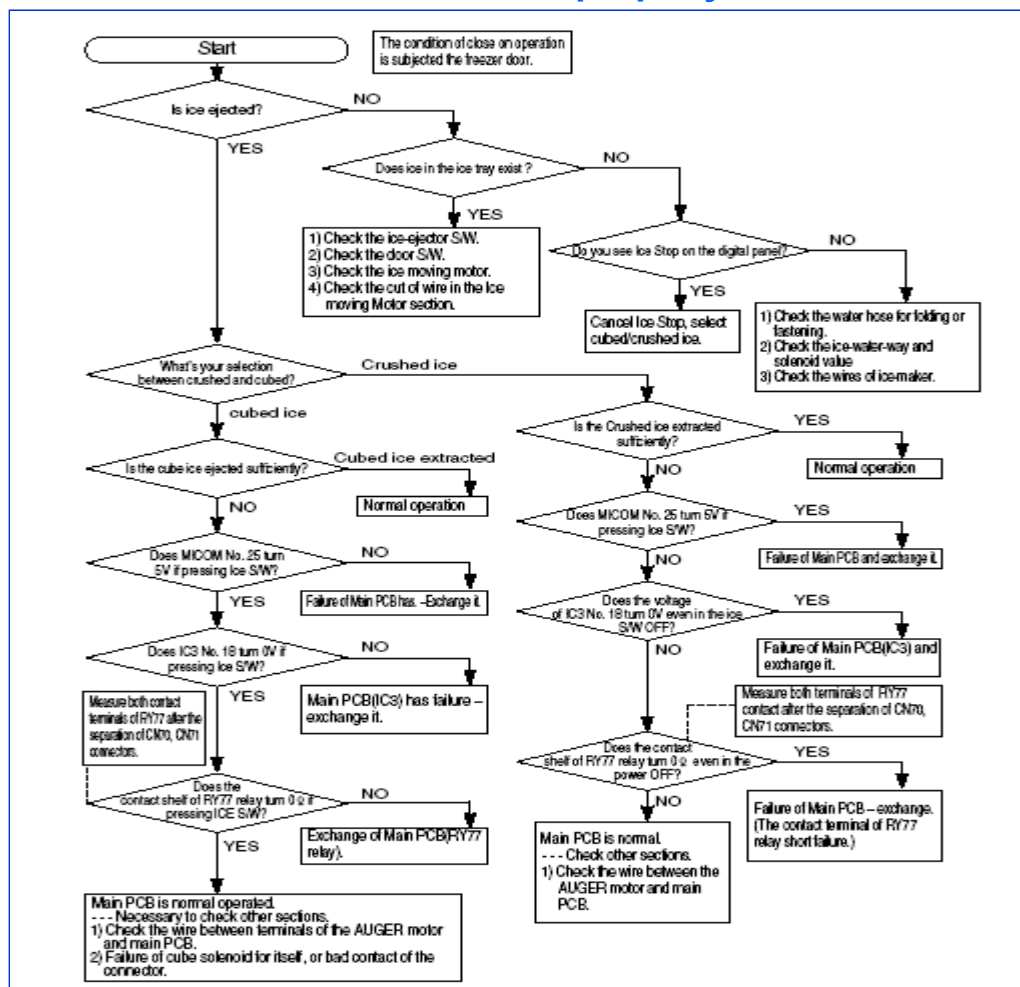
Double Click



4. Troubleshooting and major adjustment

4-1. Troubleshooting

4-1-11. If Crushed Ice/Cubed Ice doesn't work properly



Double Click

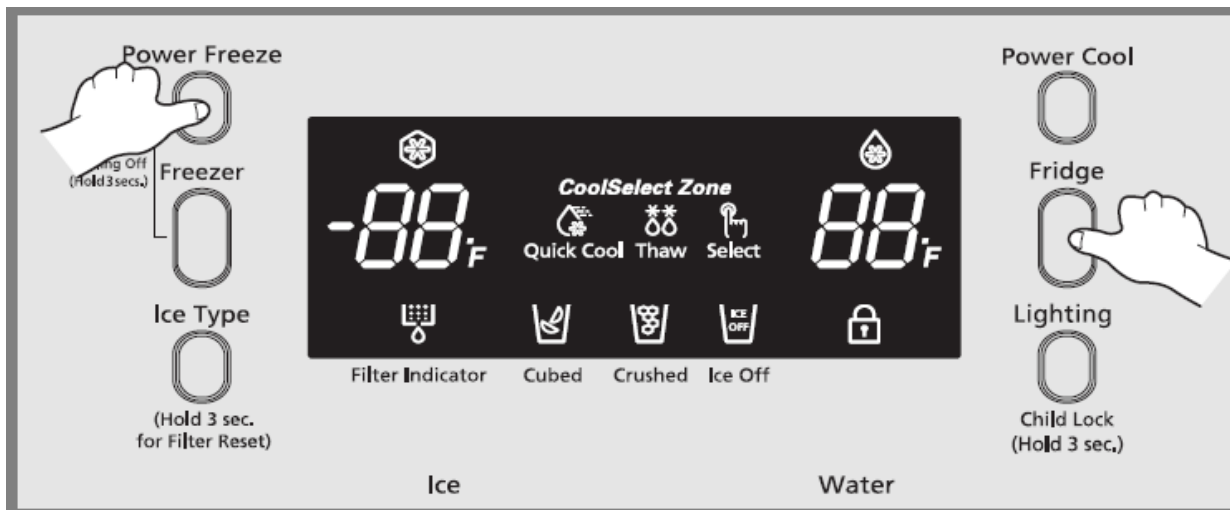


4. Troubleshooting and major adjustment

4-2. Forced Operation Function (Pull-down / Refrigerator Defrost / Refrigerator . Freezer-Defrost / Cancellation)

- ❖ This function enables a pull-down mode, a defrost mode for the refrigerator only, a defrost mode for the freezer and the refrigerator at the same time, and a cancellation of this function.
- ❖ Press Power Freeze and Fridge Temp. buttons for 8 seconds simultaneously to get in the ready mode for a forced operation.
- ❖ The display panel will return to normal after 20 seconds in the ready mode.
- ❖ At the ready mode, press any button(except Ice Type and Child Lock) once to start a pull-down operation, twice for a defrost cycle for the refrigerator, three times for a defrost cycle for the freezer and the refrigerator, and finally four times for cancellation of this function.
- ❖ Another way to cancel this function is to simply plug out and in the power cord.

❖ Press both buttons for 8 seconds at the same time





4. Troubleshooting and major adjustment

4-2. Forced Operation Function (Pull-down / Refrigerator Defrost / Refrigerator . Freezer-Defrost / Cancellation)

1) Pull-down

- 1-1) At the ready mode, press any button once then the buzzer will beep (ON for 1/2 second and OFF for 1/2 second) until this mode is cancelled.
- 1-2) At this pull-down mode, the compressor will start immediately (No 5 minute delay) and if the system is in the defrost cycle, it will be cancelled right away.
note) If this pull-down mode begins right after the compressor was off, the compressor may not start to run due to an overload condition.
- 1-3) At this mode, the compressor and freezer fan will operate continuously for 24 hours and the refrigerator fan will be on and off according to the set temperature 34°F(1°C).
- 1-4) After 24 hour operation, the system will be cycled at -14°F(-25°C) for the freezer and 34°F(1°C) for the refrigerator.
- 1-5) In order to cancel this mode at any time, select the next mode on the ready mode or power of the system.

2) Refrigerator Defrost / Refrigerator . Freezer-Defrost operation

- 2-1) At the pull-down mode, press any button again on the ready mode to begin the defrost cycle for the refrigerator.
- 2-2) The beep sound continues for 3 second at the beginning, then ON for 3/4 seconds and OFF for 1/4 second until this mode ceases.
- 2-3) After this operation, the system will come back to normal operation.
- 2-4) At this mode, press any button again on the ready mode to operate the defrost cycles for both compartments.
- 2-5) The beep sound continues for 3 seconds at that time, then ON for 1/4 second and OFF for 3/4 seconds until the defrost operation ceases.

3) Cancellation

- 3-1) At the R,F-Defrost mode, press any button again on the ready mode to return to a normal operation.
- 3-2) Simply unplug the power cord, then plug it again to return to a normal operation.



4. Troubleshooting and major adjustment



4-3. Sound function

1) Sound function

- 1-1) To make sure a command input, whenever a button is pressed, a “Beep” sounds.
- 1-2) When two or more buttons are pressed simultaneously or if a wrong button is pressed, there is no sound.

2) Door Open Alarm

- 2-1) When the doors remain open for 2 minutes, there are 10 times beeps.
- 2-2) If the doors continue to remain open more than 2 minutes, the additional 10 beeps interval will change to 1 minute.
- 2-3) The beeps will cease immediately when the doors are closed.

4-4. Cooling Off Function

This function is for a display purpose on the floor of show room or store.

1) Mode ON/OFF

- 1-1) For the Cooling Off mode, press Power Freeze and Freezer Temp, buttons simultaneously for 3 seconds until a “ding-dong” sounds.
- 1-2) Press the same time buttons again for 3 seconds to cancel this mode put with a “ding-dong” sound.

2) Operation

- 2-1) Most of the system function except the compressor operation are working properly.
- 2-2) There is no defrost cycle in this mode.
- 2-3) “OF” is displayed on F, R Display.
- 2-4) Cooling Off mode is not cleared even if power is reset.



4. Troubleshooting and major adjustment



4-5. Self-Diagnostics Function

1) Self-Diagnostics in the initial Power ON

- 1-1) The control board performs a self diagnostics test within 1 second and check out the temperature sensors abilities.
- 1-2) If a sensor failure occurs, a corresponding LED segment will blink with a beep.
- 1-3) When a LED segment blinks, only the cancellation function (Press Power Freeze and Power Cool buttons simultaneously for 8 seconds) is acceptable.
- 1-4) After a replacement of bad sensor or a cancellation of this function, this self diagnostics will end.

2) Self-Diagnostics in the normal operation

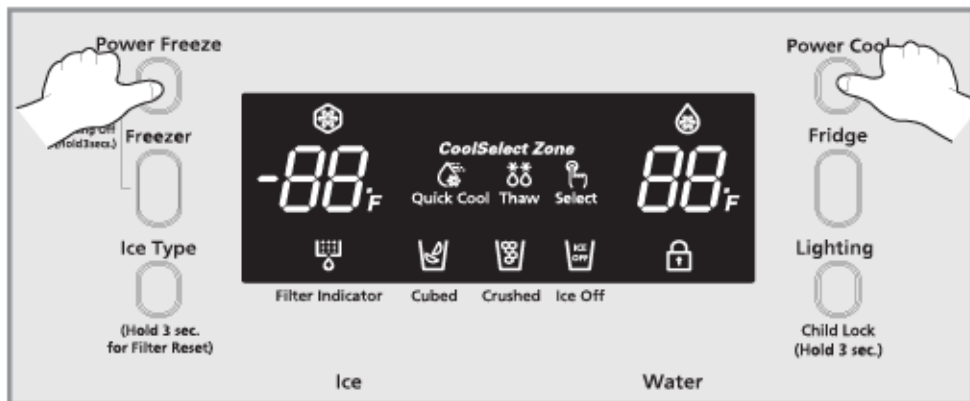
- 2-1) To select this function, press Power Freeze and Power Cool buttons simultaneously for 8 seconds with an audible tone.
- 2-2) In the self diagnostic mode, only corresponding LED segments will be illuminated (see the check list on the next page)
- 2-3) After a 30 second illumination of error signal, the system will return to the normal operation.



4. Troubleshooting and major adjustment

4-5. Self-Diagnostics Function

❖ Press both buttons simultaneously for 8 seconds



If any LEDs blink, the corresponding sensors and components must be checked for an error.



❖ Self-diagnostics check list

NO	Error
①	ICE MAKER SENSOR
②	REFRIGERATOR SENSOR
③	REFRIGERATOR DEFROST SENSOR
④	REFRIGERATOR FAN ERROR
⑤	ICE MAKER function error
⑥	CoolSelect Zone™ SENSOR
⑦	REFRIGERATOR DEFROST ERROR
⑧	EXIT-SENSOR
⑨	FREEZER SENSOR
⑩	FREEZER DEFROST ERROR
□	FREEZER FAN ERROR
□	COMP FAN ERROR
□	FREEZER DEFROST ERROR



4. Troubleshooting and major adjustment



4-5. Self-Diagnostics Function

❖ Error items of self-diagnostics

NO	Error items	LED Display	Details	Remarks
01	ICE MAKER SENSOR	REF. SEGMENT 	Ice Maker sensor connector missing; contact failure, electric wire cut, short-circuit; Ice Maker sensor failure; and so on	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN90 # 3 and # 4.
02	REFRIGERATOR SENSOR	REF. SEGMENT 	Refrigerator sensor connector missing; contact failure, electric wire cut, short-circuit; Refrigerator sensor itself failure; and so on	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN30 # 6 and # 7.
03	REFRIGERATOR DEFROST SENSOR	REF. SEGMENT 	Refrigerator evaporator internal defrosting sensor connector missing; contact failure, electric wire cut, short-circuit; sensor itself failure; and so on	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN30 # 6 and # 8. Indicate Error when the temperature sensed by Refrigerator defrosting sensor is higher than 65.5°C or lower than -58°C
04	REFRIGERATOR FAN ERROR	REF. SEGMENT 	Refrigerator Fan motor operation failure; feedback signal line contact failed, electric wire cut, short-circuit; and so on	The voltage should be 7V~12V between MAIN PCB CN72 #5(ORANGE) and #7(GRAY).
05	ICE MAKER function ERROR	FREEZER SEGMENT 	Ice-ejector and level failed three times or more	Push the test button, Ice Maker should work.
06	CoolSelect Zone™ sensor	REF. SEGMENT 	CoolSelect Zone™ sensor connector missing; contact failed, electric wire cut, short-circuit; CoolSelect Zone™ sensor itself failed; and so on.	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN51 # 13 and # 14.



4. Troubleshooting and major adjustment

4-5. Self-Diagnostics Function

❖ Error items of self-diagnostics

NO	Error items	LED Display	Details	Remarks
07	REFRIGERATOR DEFROST ERROR	REF. SEGMENT 88	In the refrigerator room, if frost removal mode is finished due to limited time of 80 minutes. Error is displayed.	Read the resistance between the brown and the orange wire terminals(the reading varies according to the basic Power Consumption. 0 Ohm→Heater Short, ∞Ohm→Wire Cut or Blown Bimetal Thermo
08	Ambient Air SENSOR	FREEZER SEGMENT 88	Air sensor connector missing; contact failure, electric wire cut, short-circuit; open air sensor itself failure; and so on	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN31 # 1 and # 4.
09	FREEZER SENSOR	FREEZER SEGMENT 88	Freezer sensor connector missing; contact failed, electric wire cut, short circuit;Freezer Room sensor itself failure.	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN30 # 2 and # 3.
10	FREEZER DEFROST SENSOR	FREEZER SEGMENT 88	Freezer evaporator defrosting sensor connector missing; contact failed, electric wire cut, short circuit; sensor itself failure; and so on	The voltage should be within the range of 4.5V~1.0V between MAIN PCB CN30 # 2 and # 4.
11	FREEZER FAN ERROR	FREEZER SEGMENT 88	Freezer Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	The voltage should be 7V~12V between MAIN PCB CN72 # 6(YELLOW) and # 7(GRAY).
12	CONDENSER FAN ERROR (COMP-FAN)	FREEZER SEGMENT 88	Condenser Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	The voltage should be 7V~12V between MAIN PCB CN72 # 4(S/BLUE) and # 7(GRAY).
13	FREEZER DEFROST ERROR	FREEZER SEGMENT 88	In the freezer room, if frost removal mode is finished due to limited time of 70 minutes. Error is displayed	Read the resistance between the white and the orange wire terminals(the reading varies according to the basic Power Consumption. 0 Ohm→Heater Short, ∞Ohm→Wire Cut or Blown Thermo Fuse

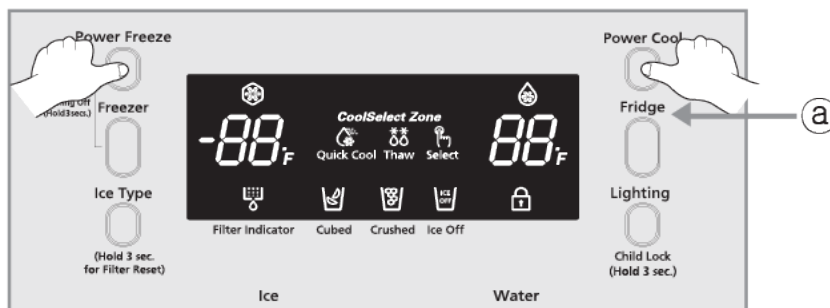


4. Troubleshooting and major adjustment

4-6. Load Operation Check Function

- 1) In the normal operation, press Power Freeze and Power Cool buttons simultaneously for 6 seconds, then the display panel will blink for 2 seconds.
- 2) Press Fridge Temp. button (a) to get into this check mode with an audible tone.
- 3) Each illuminating LED segment stands for the component which has an output signal from the control board.
- 4) This mode will terminate automatically after 30 seconds.

❖ Press both buttons simultaneously for 6 seconds, all LED lights will be turned off. At this time press button (a)



- ❖ For the REFRIGERATOR FAN, only one rpm is applied for the current models, so that □ and □ show REFRIGERATOR FAN operation only.
- ❖ The FREEZER FAN and CONDENSER FAN are operated to High/Low rpm automatically according to the operational condition.
- ❖ □□ and □ only explain the system operation state according to the ambient condition

❖ Table of Load Mode Check List

NO	Contents
①	REFRIGERATOR FAN High or AC motor operation
②	REFRIGERATOR FAN Low
③	REFRIGERATOR DEFROST heater
④	Start mode
⑤	Overload mode
⑥	Low-temperature mode
⑦	Exhibition mode
⑧	COMPRESSOR
⑨	FREEZER FAN High
⑩	FREEZER FAN Low
⑪	FREEZER DEFROST Heater
⑫	CONDENSER FAN High
⑬	CONDENSER FAN Low
⑭	Dispenser-Heater
⑮	Damper
-	Normal condition



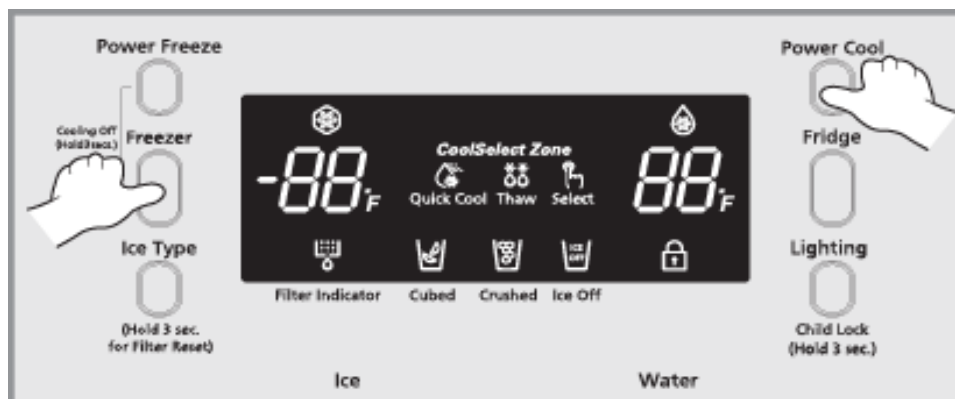
4. Troubleshooting and major adjustment

SAMSUNG DIGITall
everyone's invited.

4-7. Set Point Shift Function

- ❖ Press Freezer Temp. and Power Cool buttons simultaneously for 12 seconds to get into this mode.
- ❖ In this mode, only the display LED for temperature will be ON.

❖ Press both buttons simultaneously for 12 seconds



- 1) Initially, all products set the code, "0"
- 2) After 20 seconds from adjustment, a new setting will be stored in EEPROM and return to the normal display.
- 3) Freezer Temp, Fridge Temp., Ice maker water supply, Ice tray temperature, can be adjusted with this function.



4. Troubleshooting and major adjustment

4-8. Table of Set Point Shift Function

❖ Shift the freezer temperature sensor

Reference Value	0
-----------------	---

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

Example 1)

If you are lowering the current temperature of the freezer by -6°F(-3°C)





4. Troubleshooting and major adjustment

4-8. Table of Set Point Shift Function

❖ Shift the refrigerator temperature sensor

Reference Value	1
-----------------	---

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

Example 1)

If you are raising the current temperature of the refrigerator by +3.0°F(+1.5°C)





4. Troubleshooting and major adjustment

4-9. Option table

❖ Adjust the time to supply water for the ice maker

Reference Value	2
-----------------	---

Code	Volume to supply water
0	85 cc
1	95 cc

❖ Shift the Ice maker temperature sensor

Reference Value	4
-----------------	---

Code	Volume to supply water
0	1°F(-17°C)
1	3°F(-16°C)
2	5°F(-15°C)
3	7°F(-14°C)
4	9°F(-13°C)
5	11°F(-12°C)
6	-1°F(-18°C)
7	-3°F(-19°C)

❖ Shift the Ice maker temperature sensor

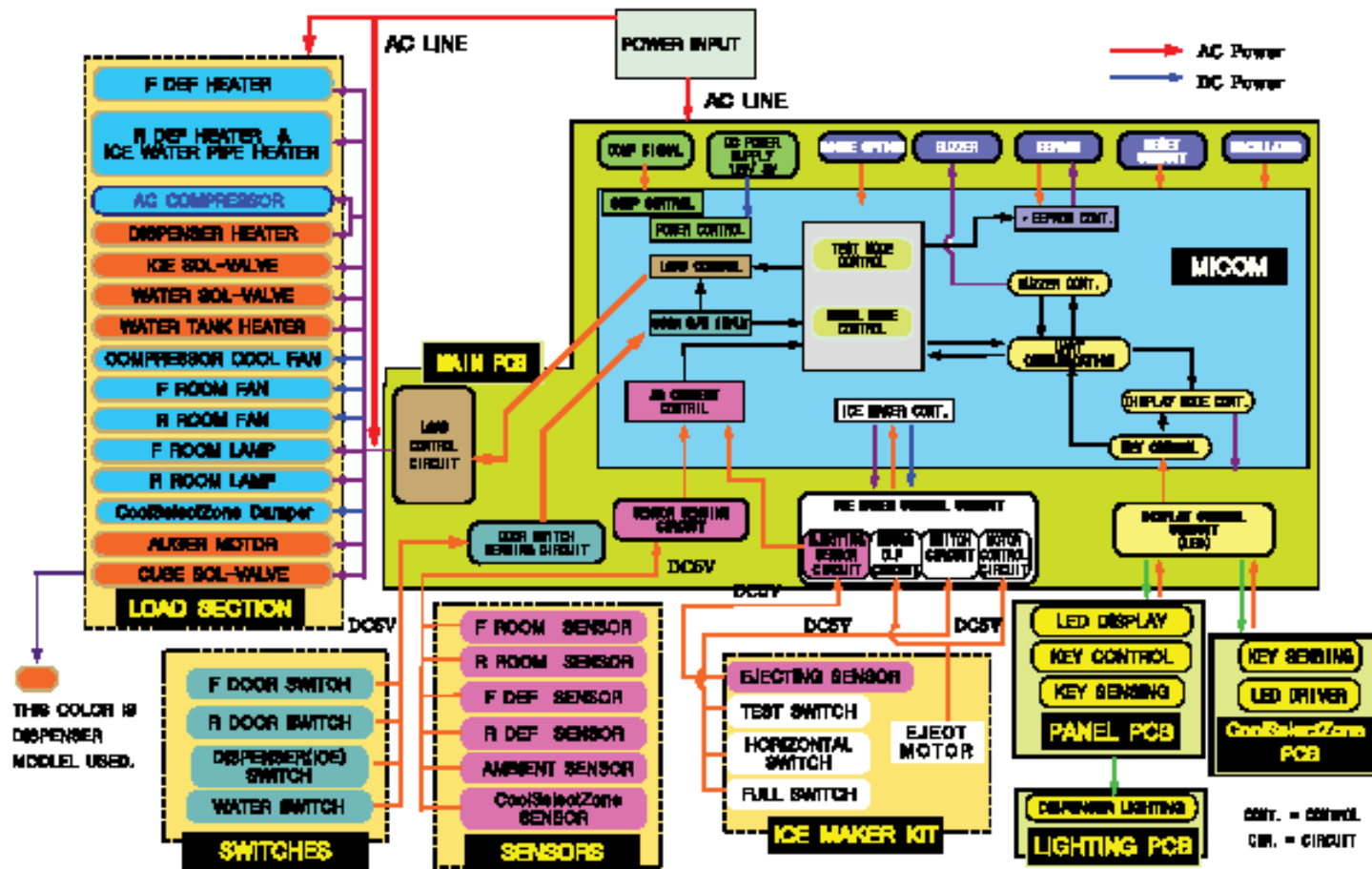
Reference Value	20
-----------------	----

Code	CoolSelect Zone™ temperature sensor
0	0°F
1	-1°F(-0.5°C)
2	-2°F(-1.0°C)
3	-3°F(-1.5°C)
4	+1°F(+0.5°C)
5	+2°F(+1.0°C)
6	+3°F(+1.5°C)
7	+4°F(+2.0°C)



5. Circuit Descriptions

5-1. Block diagram

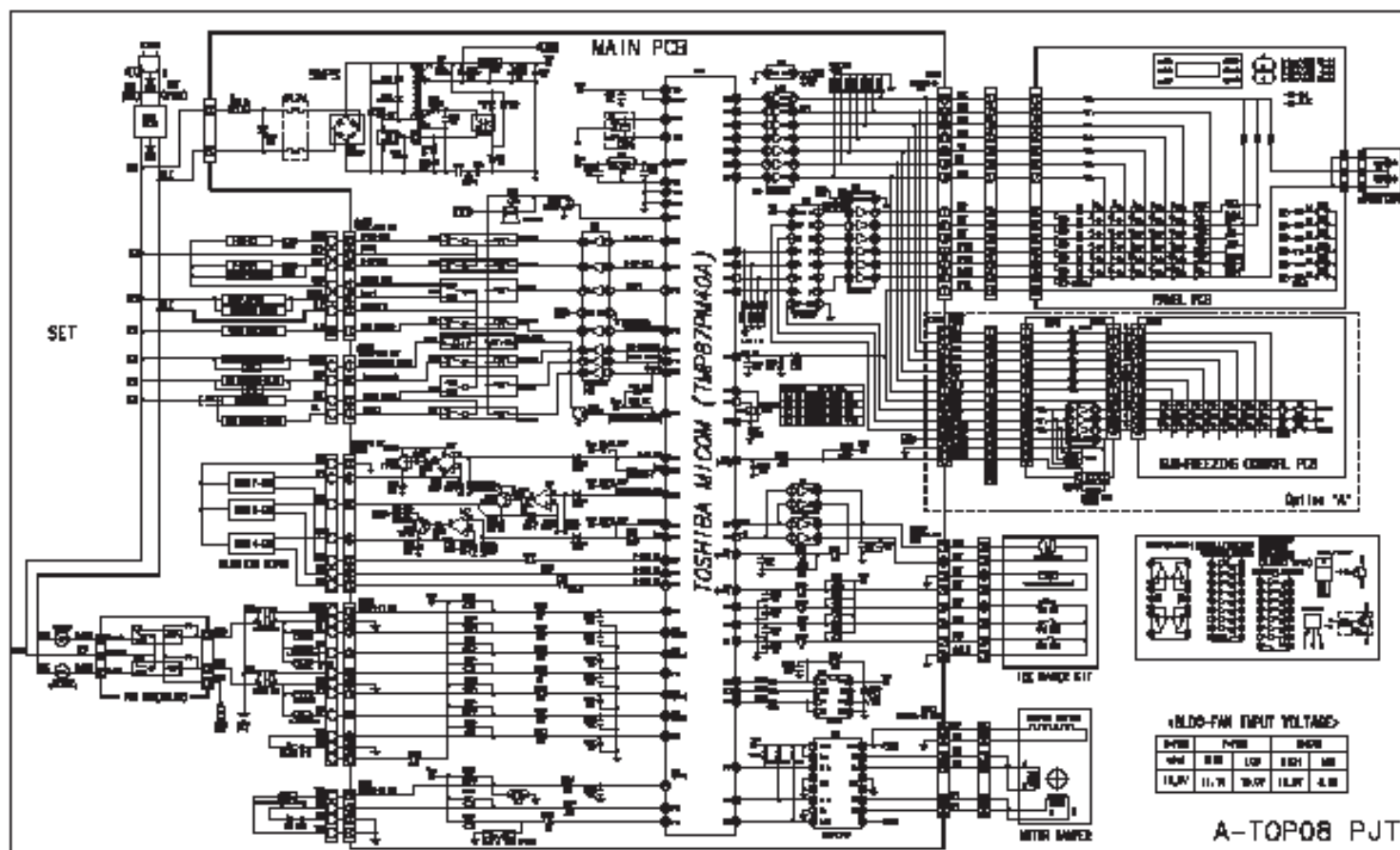


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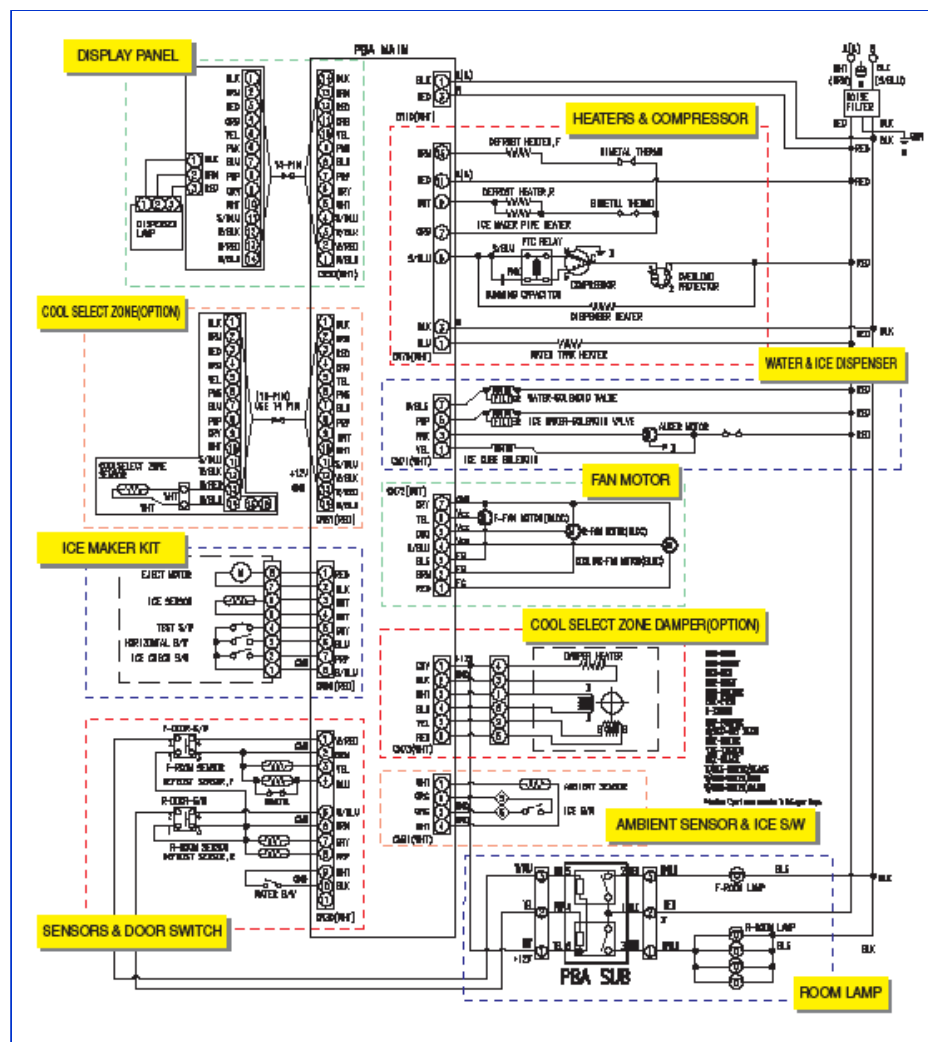
5. Circuit Descriptions

5-2. SCHEMATIC DIAGRAM



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5-3. WIRING DIAGRAM

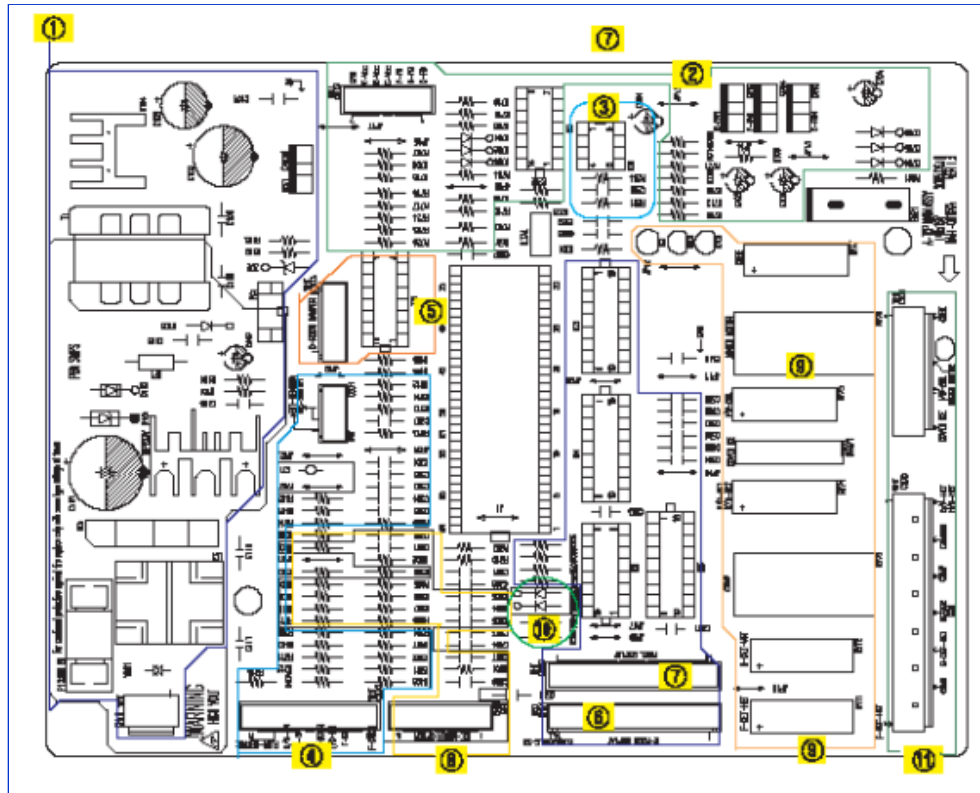


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5. Circuit Descriptions

5-4. PART ARRANGEMENT (Main Board)



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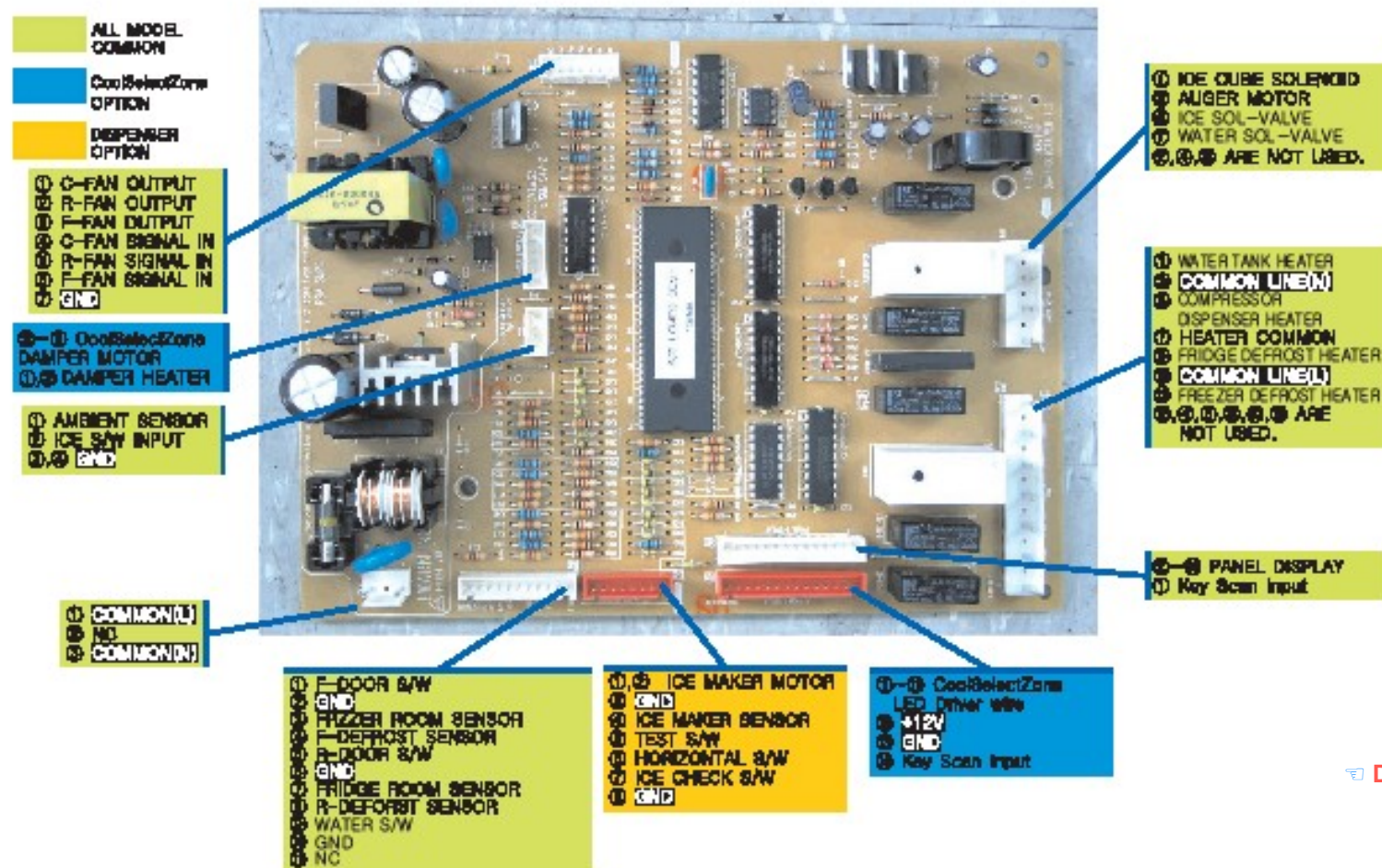
1. AC power on the PCB power part (SMPS) is supplied and converted to DC12V, 5V and GND through SMPS circuits.
2. Power is supplied to the fan motor driving part up to 8.3V ~10V depending on the type of motor.
3. EEPROM: Saves or records various data.
4. Receives various sensor signals and removes noise with MICOM and transfers them again.
5. Plays role of operating the genuine room taste damper and the damper heater.
6. Displays LED to the genuine room taste display driving part, and processes key signals.
7. Displays LED to the panel display driving part, and processes key signals. (Controlled in the link with genuine room taste circuits)

8. Performs ice-maker operation and supplies power of the motor and senses change of switches.
9. Relay part to control AC load.
10. Option setting part for model separation.
11. Connector part to connect AC load.



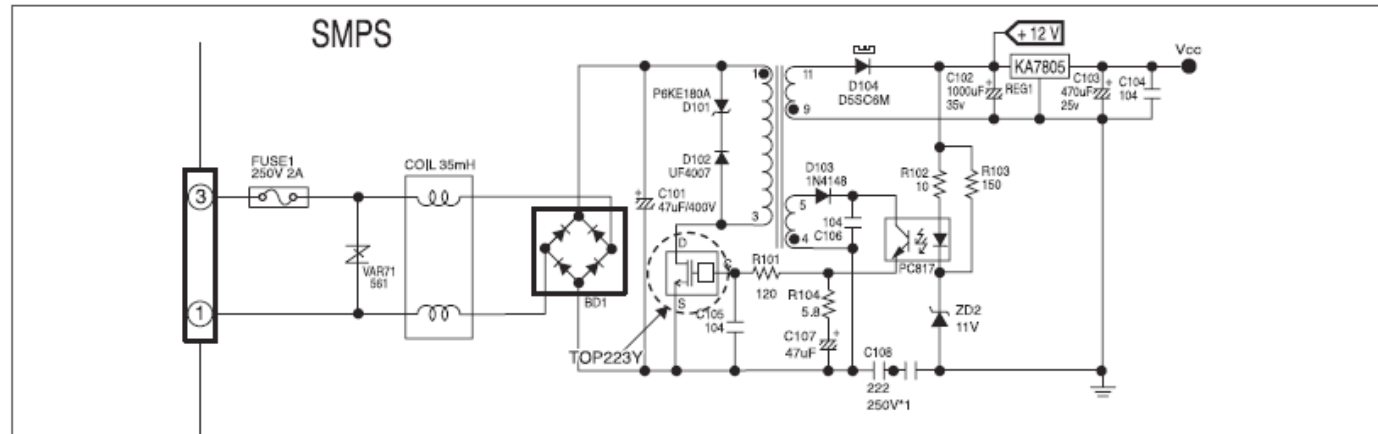
5. Circuit Descriptions

5-5. CONNECTOR ARRANGEMENT (Main Board)



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5-6. Source Power Circuit



This circuit shows SMPS(Switch Mode Power Supply) which converts AC input voltage (115V 50Hz, 127V 60Hz, 220V 50~60Hz, 230V 50Hz) to a high DC voltage.

The input AC source power is converted to DC through a wave rectifier (BD1) and the converted DC power will generate a constant waveform on the switching transformer using a high speed (100KHz) switching motion of TOP223Y.

The D104 will rectify the generated voltage and transform into a steady 12V DC source power used for the digital display panel and relays. The regulator (KA7805) finally transforms into 5V DC source power for the control board and sensor's circuits.

Caution

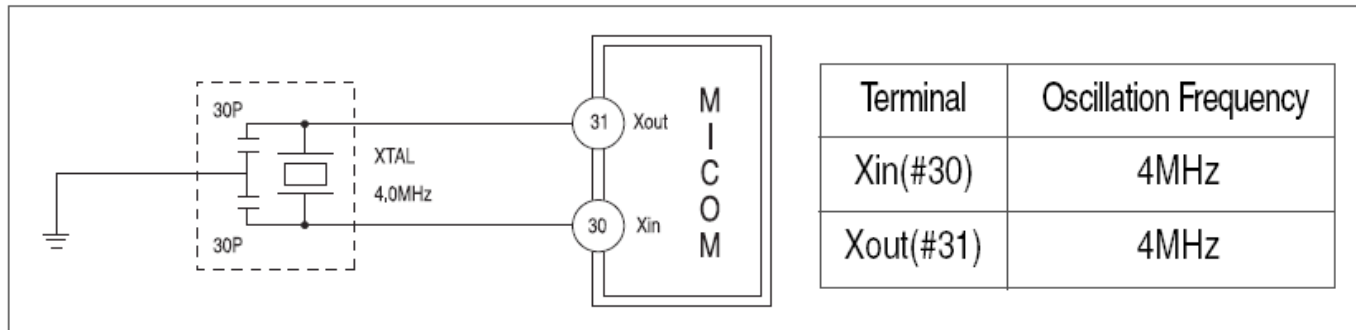
Be careful to handle this circuit due to high voltages

(AC 115V 50Hz, 127V 60Hz, 220V 50~60Hz, 230V 50Hz)



5. Circuit Descriptions

5-7. Oscillator Circuit

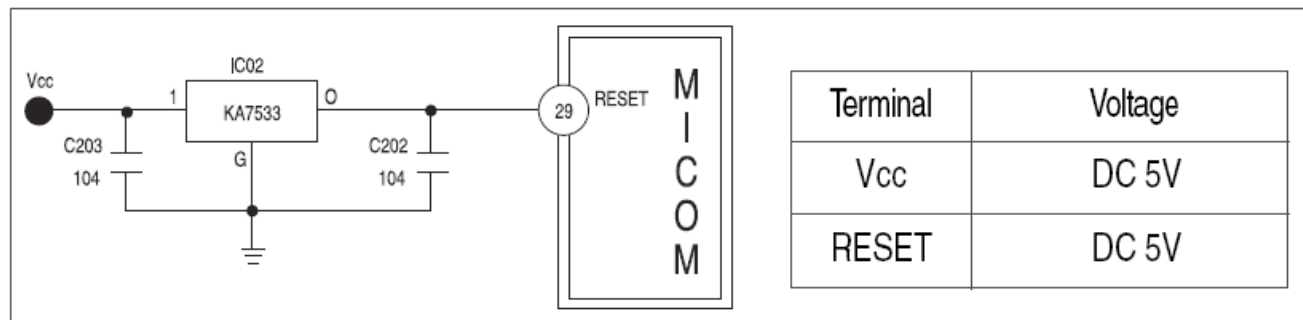


This is oscillator circuit to generate synchronous clocks used to calculate the time for the microprocessor operation.

Note

If the specification of resonator changes, micro-processor can not work properly.

5-8. Reset Circuit

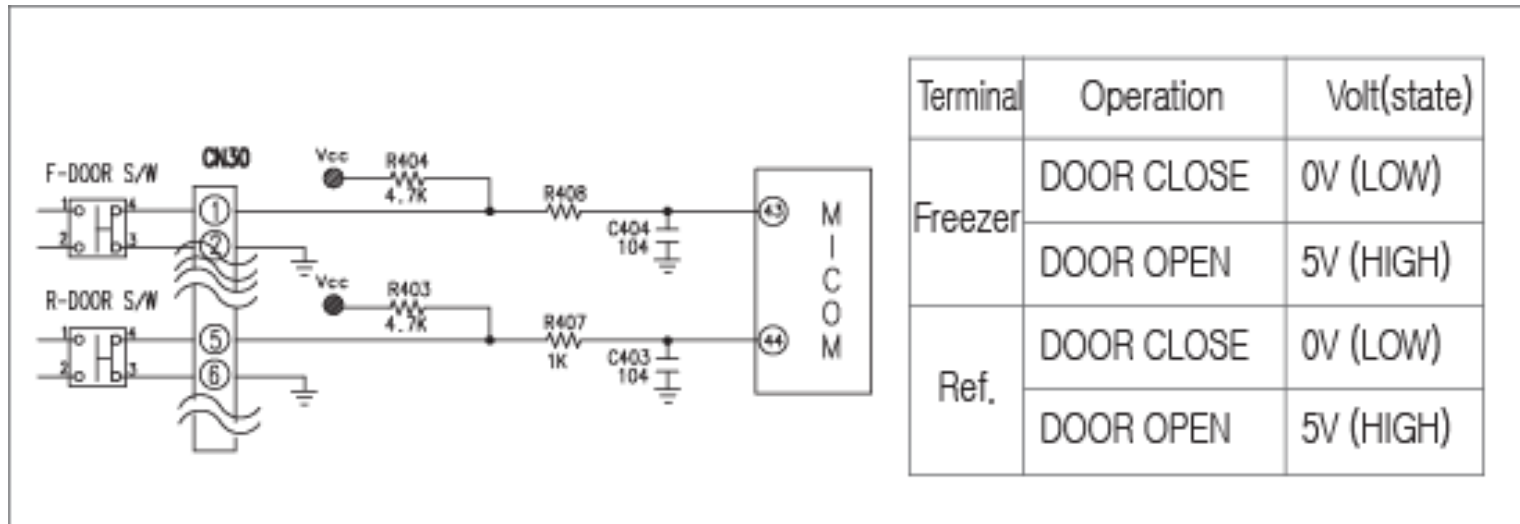


The reset circuit is to initialize the values RAM & other sectors of micro-processor. When the power is engaged initially, the reset voltage becomes “Low,” and it keeps “High” in the normal operation.



5. Circuit Descriptions

5-9. Door S/W Sensing Circuit



- 1) The terminals, ② and ⑥ of the connector (CN30) are grounded, and DC5V (Vcc) is supplied to the terminals, ⑤ and ⑥ through the resistors, R404 and R403 for the freezer and the refrigerator door, respectively.
- 2) The micro-processor senses the door's open and close based on engaged voltages, "Low(0V)" and "High(5V)," respectively.

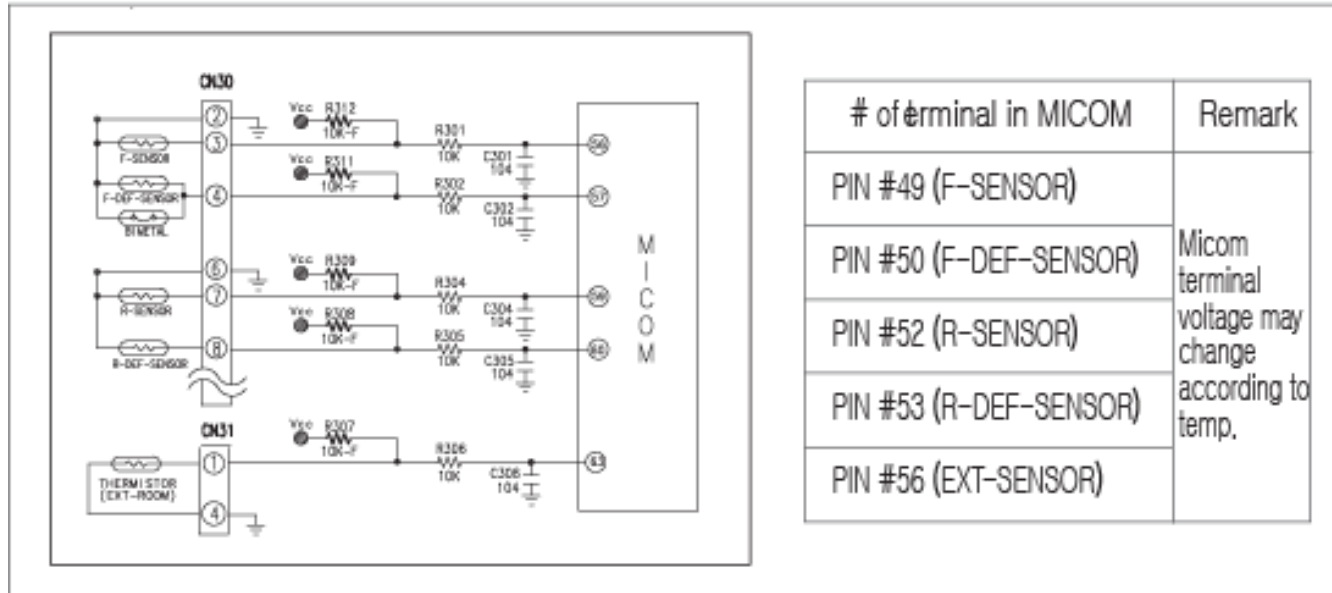
Note

The door switch always should be checked when the evaporator fan is not running while the door is closed.



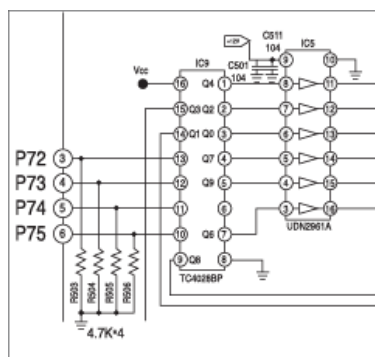
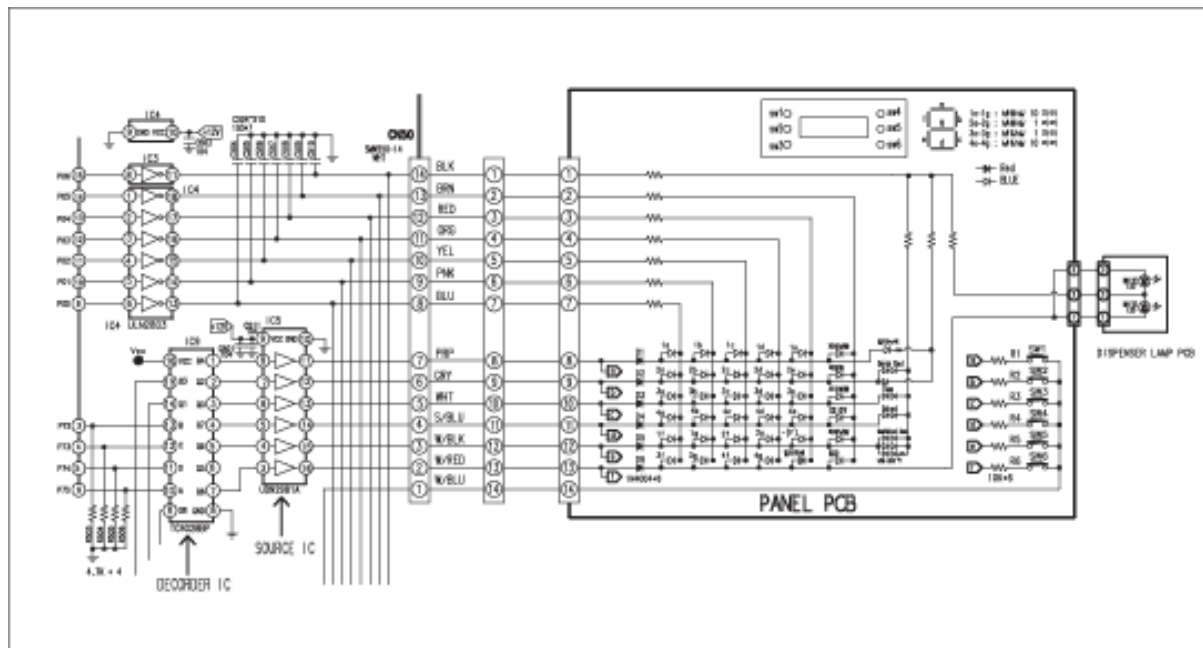
5. Circuit Descriptions

5-10. Temperature Sensing Circuit



- 1) A thermistor with a negative temperature coefficient (NTC) is used for a temperature sensor.
- 2) Resistors, R 306 ~ R310 and capacitors, C 301 ~ C 305 are used for a noise protection purpose.
- 3) For the F-sensor, the input voltage into the micro processor (MICOM), VF is calculated by $(R_{th} \times V_{cc}) / (R_{303} + R_{th})$, where Rth is a corresponding resistance to the thermistor's output (See Ref. 6 in Appendix).

5-11. Key Scan and Display Circuit



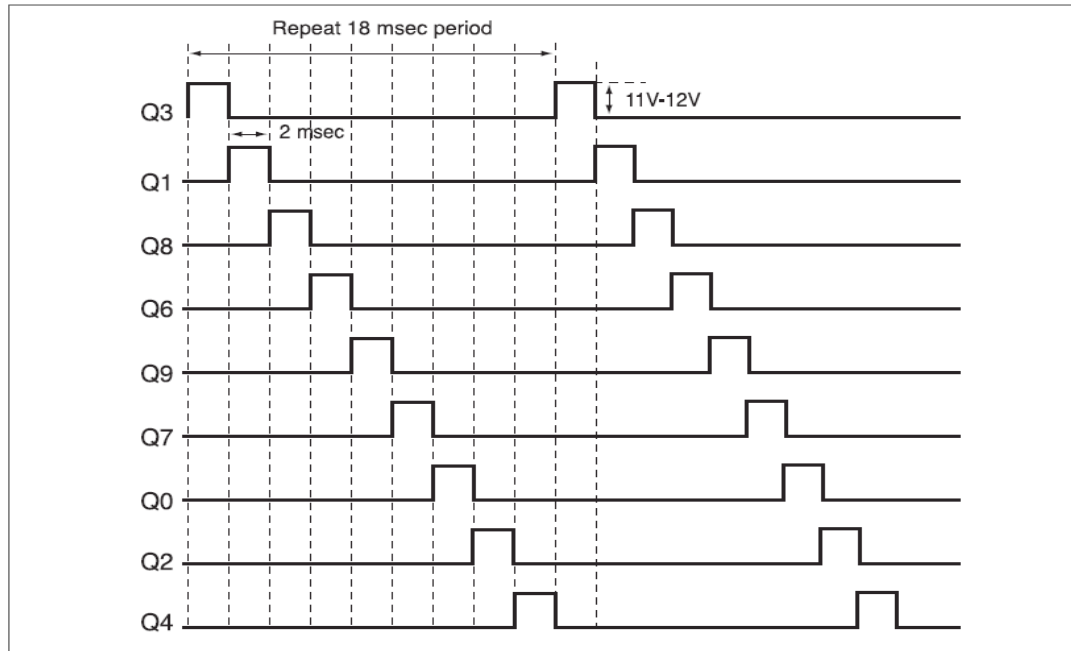
1) Key Scan and display operation.

The model uses a decoder IC which 4 inputs and 9 outputs. If the IC 9 decoder (TC4028BP) received signals from MICOM pins (3~6), an output signal per 2 milliseconds comes out from Q3, Q41, Q8, Q6, Q9, Q7, Q0, Q2, and Q4 pin in sequence. This signal enters to a driver IC input terminal of the CoolSelect Zone™ PCB and IC5 (TD 62783AP), then approximate 11V peaks will generate from an output terminal as shown on the next page.



5. Circuit Descriptions

5-11. Key Scan and Display Circuit



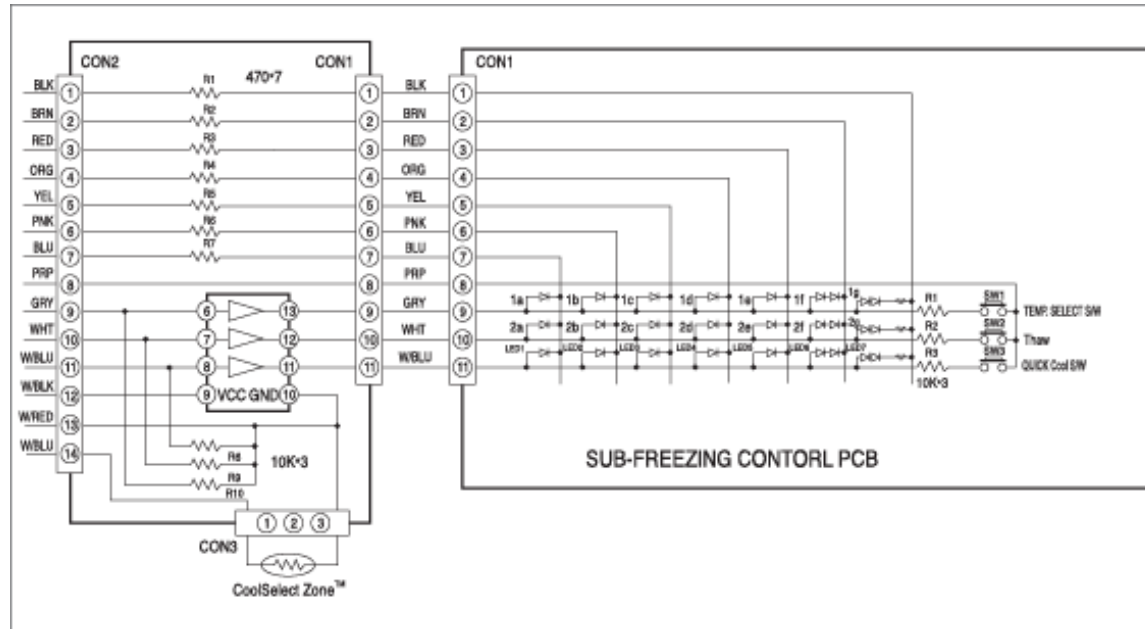
The step signals of DC 11~ 12V will be generated periodically. If a sink signal outputs from IC4, DC 11-12V will be applied to the LED input terminal and sink the LED output terminal to 0V. Therefore, LED will be ON for 2 milliseconds.

2) Key Scan

The 6 step signals, Q6~Q4 are applied to scan the 6 keys (buttons). When SW6 is pressed, the step signal from Q6 will be reduced to 5V and entered to the MICOM, then MICOM will match a corresponding function for SW6 key.

5-12. CoolSelect Zone Panel Circuit

1) CoolSelect Zone display panel and temperature sensor



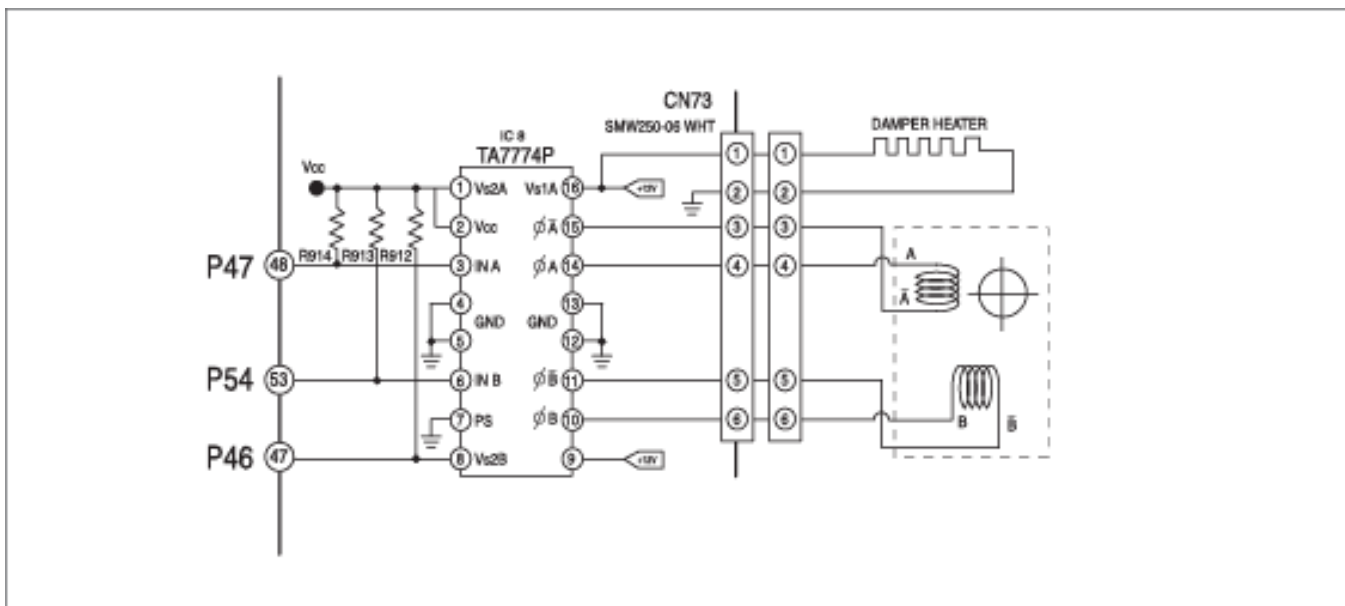
- 1-1) CoolSelect Zone is referred to as a storage drawer to implement features of Quick cool, Thaw, and Select(Soft Freeze, Chill, and Cool).
- 1-2) CoolSelect Zone has an additional display panel. Panel LEDs are off white the doors are closed. When a door is open, micro-processor senses its signal and LEDs will be on.
- 1-3) The basic operational principle is the same as the key scan process.
- 1-4) The additional sensor can measure the temperature of CoolSelect Zone. This sensor enables to control the features of CoolSelect Zone.



5. Circuit Descriptions

5-12. CoolSelect Zone Panel Circuit

2) Damper drive circuit

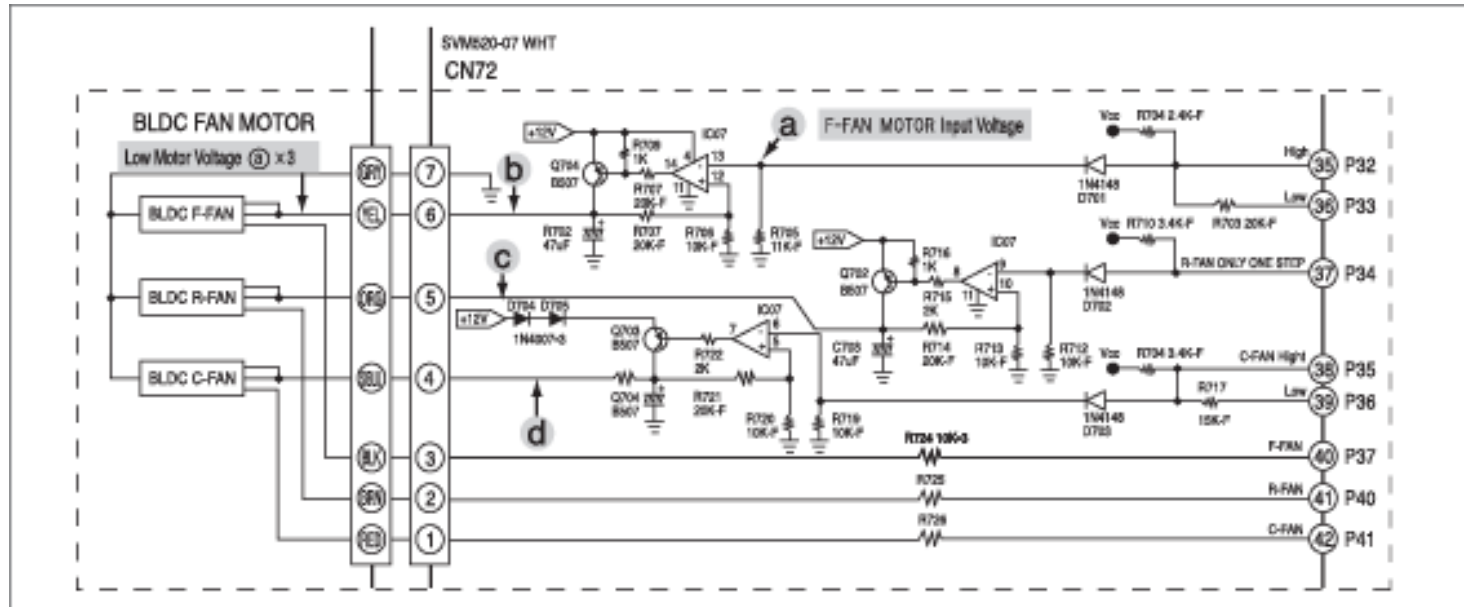


- 2-1) CoolSelet Zone Drawer is controlled by a damper to supply or block cold air. For Quick Cool, the damper will be close. So cold air is supplied only to CoolSelect Zone Drawer. For Thaw, the evaporator heater of refrigerator is ON and the damper is controlled by the refrigerator temperature.
- 2-2) The stepping motor controlled by a Driver IC TA7774P(IC8) operates the damper. The stepping motor uses 4 combined signals to open and close the damper.

Note

To prevent the malfunction from a high humidity, a DC12V, 1W heater is mounted and activated continuously.

5-13. Fan Motor (BLDC) Drive Circuit



1) Motor drive circuit

1-1) This refrigerator adopts a BLDC motor produces energy consumption, Motors of the freezer, refrigerator and the machine compartment are composed of the BLDC. For RS2534, R-fan is operated by AC 115~230V Motor.

1-2) Voltages between high-speed and low-speed



5. Circuit Descriptions

5-13. Fan Motor (BLDC) Drive Circuit

	Voltage of motor			Remark
	Measure b (F-FAN)	Measure C (R-FAN)	Measure d (C-FAN)	
High	11.1V	10V	10V	In the normal operation, MICOM No. 40, 41 and 42 applies a constant frequency; and MICOM defects the signal to check the failure of motor. (frequency(Hz)×12 = motor rpm)
Low	10V	10V	8.3V	

Note

Under the conditions, the fans will be operated in 2 options, such as High and Low mode. Generally, it is operated in the High mode during a day time and in the Low mode at night.

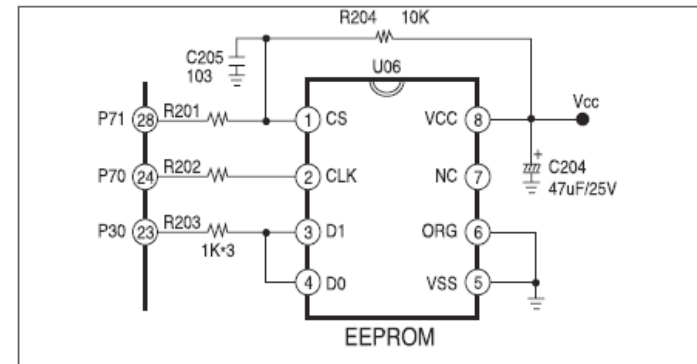
- 1-3) When the motor rpm is in 600~700, it will stop automatically and it tries to resume after 10 seconds. If the motor is not working properly after 5 time trials, it will rest for 10 minutes, then try to resume again. This process will be done continuously.



5. Circuit Descriptions

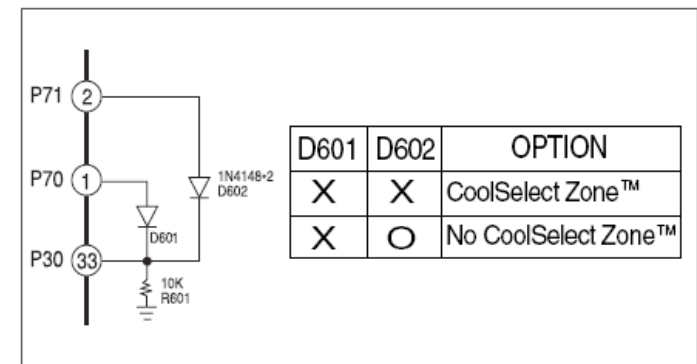
5-14. EEPROM Circuit

EEPROM is semiconductor memory not to be erased. It can be used in the area of unstable electric power.



5-15. Option Circuit

There are a variety of models that have a different function. A different model can set up to use option circuit as shown.





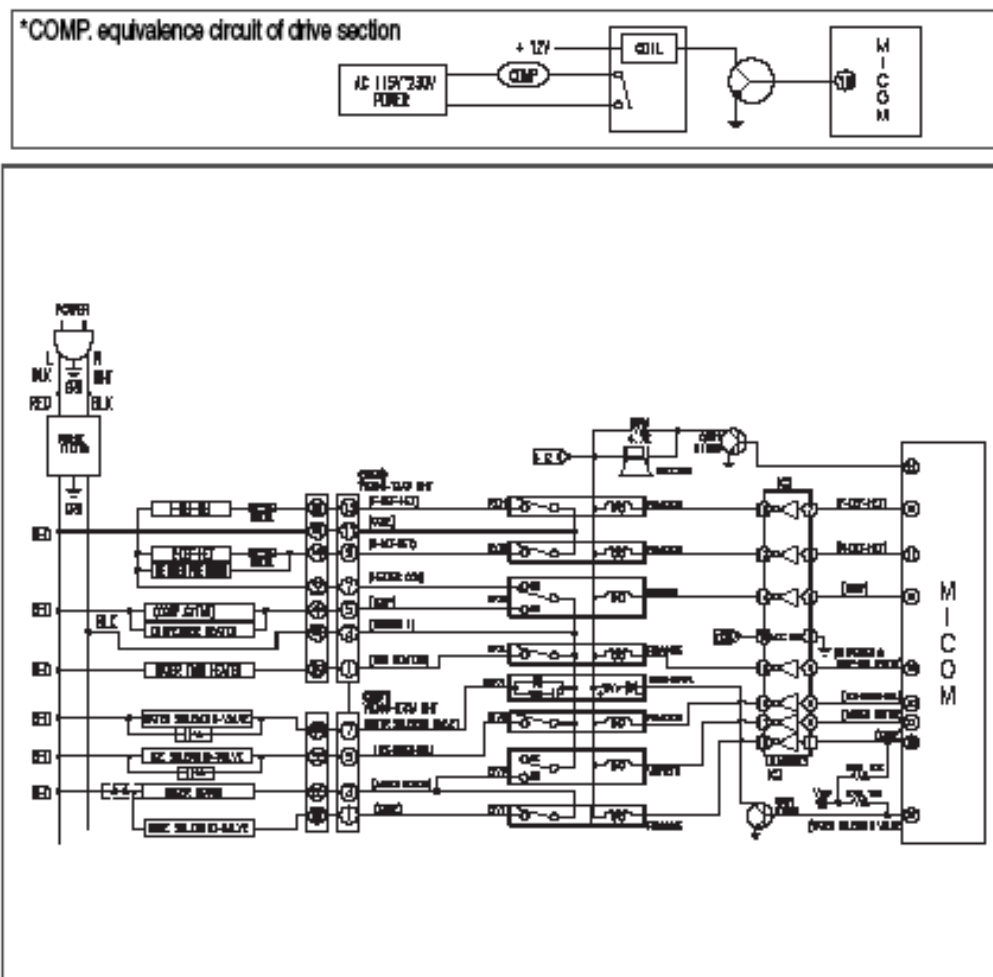
5-16. Load Drive Circuit

- 1) The control of load in the system is accomplished by the main PCB.
- 2) Most of relays or SSRs can control compressor, refrigerator/freezer defrost heater, and several option functions.
- 3) For compressor, #18 pin of micro processor signals High (5V). This signal inputs #5 pin of IC3 and #14 of output terminal which have base and collector functions of IC3 turns on and connects the GND. Relay 73 will be grounded through #14 of IC. Magnetic lines will generate so that the second side of RY73 is activated and 115~230V is supplied to the compressor. On the other hands, if #18 of micro processor turns Low(0V), #5 of IC3, the current of RY 73 relay, and magnetic line will shut down in sequence. A contact point in secondary side of Relay 73 is off. Finally compressor will stop.
- 4) The principles of other loads are the same as 3) item described.

Note

SSR(Solid State Relay) is a kind of Relay.

5-17. Load Drive Circuit



👉 **Double Click**



6. Reference Information

6-1. Q&A

Problem	Possible Causes	What To Do
The refrigerator does not work sufficiently or at all	<ol style="list-style-type: none"> 1. Disconnected power plug 2. Is the temperature control on the display panel set to the correct temperature? 3. Is the refrigerator in direct sunlight or located near a heat source? 4. Is the back of the refrigerator too close to the wall? 	<ol style="list-style-type: none"> 1. Check that the power plug is properly connected. 2. Try setting it to a lower temperature. 3. Move the refrigerator to the proper location.
The food in the refrigerator is frozen	<ol style="list-style-type: none"> 1. Is the temperature control on the display panel set to the correct temperature? 2. Is the temperature in the room too low? 3. Did you store the food with a high water content in the coldest part of the refrigerator. 	<ol style="list-style-type: none"> 1. Try setting it to a warmer temperature.
Unusual noises or sounds are heard	<ol style="list-style-type: none"> 1. Is the back of the refrigerator too near to the wall? 2. Was anything dropped behind or under the refrigerator? 3. A "ticking" sound may be heard from inside the refrigerator. This is normal and occurs because various accessories contract or expand. 	<ul style="list-style-type: none"> • Check that the floor is levelled and stable. <ol style="list-style-type: none"> 1. Move the refrigerator to the proper location. 2. Remove the foreign thing.
The front corners and sides of the cabinet are hot; condensation occurs	<ol style="list-style-type: none"> 1. HOT-PIPE is installed in the front corners of refrigerator. That makes refrigerator's temperature low quickly and save the power consumption. 2. Condensation can occur when you leave the door open for a long time. 	<ol style="list-style-type: none"> 1. Normal state 2. Normal state
Ice is not dispensed	<ol style="list-style-type: none"> 1. Did you stop the ice making function? 2. Is there any ice in the storage unit? 3. Is the water pipe connected and the shut-off valve open? 4. Is the freezer temperature too warm? 5. Did you wait for 12 hours after installation of the water supply line before making ice? 	<ol style="list-style-type: none"> 1. See the control panel. 2. See the ice container. 3. See the valve. 4. Set the temperature lower.



6. Reference Information

6-1. Q&A

Problem	Possible Causes	What To Do
You can hear water bubbling in the refrigerator	1. The bubbling comes from the refrigerant circulating in the refrigerator and is normal.	1. Normal state
There is a bad smell in the refrigerator	1. Wrap strong smelling food so that it is airtight. Throw away any rotten food.	
Frost forms on the wall of the freezer	1. Is the air vent blocked? 2. Is the door closed properly?	• Allow sufficient space between stored food for efficient air circulation.
No water is supplied	1. Is the water pipe connected and the shut-off valve open? 2. Is the water supply pipe crushed? 3. Is the water tank frozen because the refrigerator temperature is too low? Select a warmer setting on the display panel.	
Small or hollow cubes	Water filter clogged.	Replace filter cartridge with new cartridge or with plug.
Slow ice cube freezing	• Door left open. • Temperature control not set cold enough.	• Check to see if package is holding door open. • See about the controls.
Orange glow in the freezer	• Defrost heater is on.	• This is normal.



6. Reference Information



6-1. Q&A

Problem	Possible Causes	What To Do
Cube dispenser does not work(on some models)	1.Icemaker turned off or water supply turned off. 2.Ice cubes are frozen to icemaker feeler arm. 3.Irregular ice clumps in storage container. 4.Dispenser is LOCKED.	1. Turn on icemaker or water supply. 2. Remove cubes and move the feeler arm to the ON position. 3-1. Break up with fingertip pressure and discard remaining clumps. 3-2 Freezer may be too warm. Adjust the freezer control to a colder setting, one position at a time, until clumps do not form. 4. Press and hold the CHILD LOCK for 3 seconds.
Water has poor taste/odor (on some models)	Water dispenser has not been used for a long time.	<ul style="list-style-type: none"> • Dispense water until all water in system is replenished.
Water in first glass is warm (on some models)	1.Normal when refrigerator is first installed. 2.Water dispenser has not been used for a long time. 3.Water system has been drained.	1.Wait 24 hours for the refrigerator to completely cool down. 2.Dispense water until all water in system is replenished. 3.Allow several hours for replenished supply to chill.
Water dispenser does not work(on some models)	1.Water supply line turned off or not connected. 2.Water filter clogged. 3.Air may be trapped in the water system. 4.Dispenser is LOCKED.	1.See Installing the water line. 2.Replace filter cartridge or remove filter and install plug. 3.Press the dispenser arm for at least two minutes. 4.Press and hold the CHILD LOCK pad for 3 seconds.



6. Reference Information



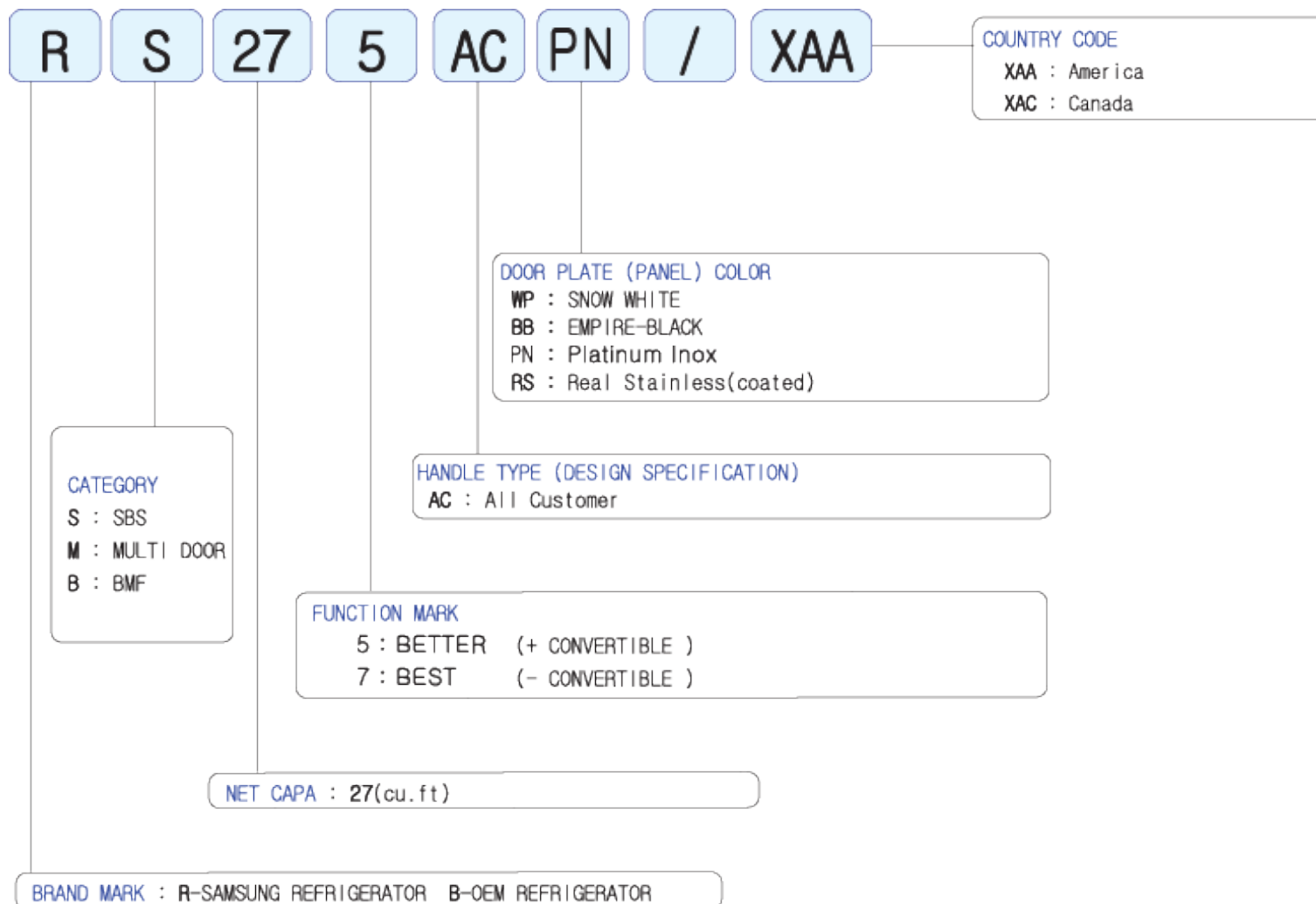
6-1. Q&A

Problem	Possible Causes	What To Do
Water spurting from dispenser (on some models) Water is not dispensed (on some models) but icemaker is working	<ul style="list-style-type: none">1.Newly-installed filter cartridge.2.Water in reservoir is frozen.3.Refrigerator control setting is too cold.4.Ice cubes stuck in icemaker. (Green power light on icemaker blinking)	<ul style="list-style-type: none">1.Run water from the dispenser for 3 minutes (about one and a half gallons).2.Call for service.3.Set to a warmer setting.4.Turn off the icemaker, remove cubes, and turn the icemaker back on.
Water on kitchen floor or on bottom of freezer	<ul style="list-style-type: none">1.Drain in the bottom of the freezer clogged.2.Cubes jammed in chute.	<ul style="list-style-type: none">1-1See Care and cleaning.1-2Check the lock of filter.2.Poke ice through with a wooden spoon.
No water or ice cube production	<ul style="list-style-type: none">1.Supply line or shutoff valve is clogged.2.Water filter clogged.3.Dispenser is LOCKED.	<ul style="list-style-type: none">1.Call a plumber.2.Replace filter cartridge or remove filter and install plug.3.Press and hold the CHILD LOCK pad for 3 seconds.



6. Reference Information

6-2. Model name (nomenclature)



The Samsung logo, consisting of the word "SAMSUNG" in a bold, blue, sans-serif font, is centered within a white, horizontally-oriented oval. The oval is slightly tilted and has a soft drop shadow, giving it a three-dimensional appearance against the blue background.

SAMSUNG

Thank you

The End