



Fast Track Troubleshooting

Model:
RF263BE**
RF263TE**



Notice Check Service Bulletin

IMPORTANT SAFETY NOTICE – “For Technicians Only” This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

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Support Information:

HELP: 1-888-751-4086 (Tech Sup. – ASC/SSD)

1-866-894-0637 (Tech Sup. - FE/ME)

GSPN: http://service.samsungportal.com/EP/web/portal/jsp/EP_Default1.jsp

PLUS ONE: <http://my.plus1solutions.net/clientPortals/samsung>

Diagnostic Mode



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

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)

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

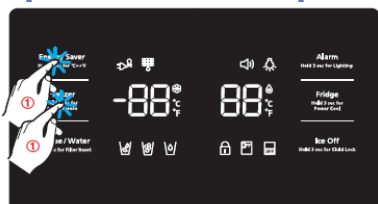
Force Mode



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

- The following will run during each mode:
1. FF - Compressor and Fan will run
 2. OF r - Compressor will run but no fan
 3. Rd will put the Fresh food area of your fridge into Defrost
 4. FD will put the full fridge into defrost and all heaters will be on.
 5. Blank Screen wait 30 seconds to exit

Demo Mode



- 1) If Energy Saver Key + Freezer 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°F(65°C). 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.

Component Value Chart

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	62.6Ω	230	120vac
Fridge Defrost Heater	120Ω	120	120vac
French Mullion Heater	2057Ω	7	120vac
Ice Duct Heater	2057Ω	7	120vac
Dispenser Heater	9000Ω	1.6	120vac
Damper	144Ω	1	12vdc
Sensors	2.5kΩ-89kΩ	N/A	1~4.5vdc
Fans	N/A	N/A	7~12vdc

DC FAN MOTORS

Brushless DC Fan motors are used to save energy. The fans operate at two speeds. Fan speed information is read by the Main PCB. If the fan speed exceeds 600 RPM or the speed is too slow, or stopped the fan drive circuit is disabled. After 10 seconds the circuit tries again with 3 seconds of DC voltage. If the fan continues this activity for 5 cycles, 10 seconds off 3 seconds on, the fan drive circuit is disabled for 10 minutes.

TO TEST THE FAN CIRCUIT VOLTAGE.

Power off and back on to check the DC voltage to the motor, wait from 10 to 60 seconds for the fan voltage to kick in, and then check fan voltage, the average reading is 9 VDC. If you get 3 seconds of voltage every 10 seconds for the 5 fan power up cycles, then the Main PCB is good.

NOTE: You may need to put unit in FORCED FREEZE mode to activate the fans/compressor.

If the fan blade is blocked by ice, then defrost and check the motor again, after removing power from the unit.

If the evaporator is ice blocked and thus blocking the air flow, the fan will over RPM and is stopped. Remove ice and check the motor again. If everything is clear around the fan blade then the motor would be at fault. Continuous fan errors will be displayed on the front panel display. **PLEASE NOTE:** The door switches control the evaporator fan motors. Have them closed to test the motors. Delay time 10 – 60 seconds.

Heat Release Ice Makers

Heat Release Ice production Explanation

38 minutes after the water fill is complete, the control board will check the temperature of the eject Thermistor on the Ice Maker Head. If the Thermistor reads a temperature lower than 18.5°F for more than 5 seconds, the ice production process is complete. The Ice Maker will harvest if the ice bucket is not sensed as full. If a Fault Mode is detected with the Ice Maker operation, the Ice Maker stops working for 3 hours, which means that the Ice Maker checks the operation every 3 hours until it works properly.

Heat Release I/M Test Mode

Press and hold the ICE TEST Switch for at least 1.5 sec. and the harvest function will start. If the Ice Maker thermistor is below 0°F, the Ice Maker heater turns on for about two minutes. If the temperature exceeds 0°F, the Ice Maker heater turns on for 30 seconds. After the Ice Maker heater turns on for 30 seconds, the heater turns off and the Ice Maker harvest motor turns on. The motor will rotate in right direction for about 3 minutes, then the water supply valve is energized and then de-energized and the test mode is complete. If the above operation is not carried out within 6 minutes, the Ice Maker will go into a fault mode.

FREEZER TEMPERATURE CONTROL BY THE ICE MAKER

Interior Temperature of the freezer will be set to -14°F until the ice bucket is full. When the ice bucket is full, the freezer will maintain original set temperature. Also, whenever some ice is used, the freezer will again set to -14°F. Selecting "Ice Off" will allow the freezer to be controlled by the set temperature. *****NOTE***** If water is not hooked up, the freezer will always be at -14°F unless "Ice Off" is selected.

Temperature/Resistance/Voltage Chart for Samsung Refrigerators Sensors

Temp.	(Ω)	Volts	Temp.	(Ω)	Volts	Temp.	(Ω)	Volts	Temp.	(Ω)	Volts
-29.2°F	64227	4.326	1.4°F	28021	3.685	32.0°F	13290	2.853	62.6°F	6771	2.019
-27.4°F	61012	4.296	3.2°F	26760	3.64	33.8°F	12749	2.802	64.4°F	6521	1.974
-25.6°F	57977	4.264	5.0°F	25562	3.594	35.6°F	12233	2.751	66.2°F	6281	1.929
-23.8°F	55112	4.232	6.8°F	24425	3.548	37.4°F	11741	2.7	68.0°F	6052	1.885
-22.0°F	52406	4.199	8.6°F	23345	3.501	39.2°F	11271	2.649	69.8°F	5832	1.842
-20.2°F	49848	4.165	10.4°F	22320	3.453	41.0°F	10823	2.599	71.6°F	5621	1.799
-18.4°F	47431	4.129	12.2°F	21345	3.405	42.8°F	10395	2.548	75.2°F	5225	1.716
-16.6°F	45146	4.093	14.0°F	20418	3.356	44.6°F	9986	2.498	77.0°F	5000	1.675
-14.8°F	42984	4.056	15.8°F	19537	3.307	46.4°F	9596	2.449	78.8°F	4861	1.636
-13.0°F	40938	4.018	17.6°F	18698	3.258	48.2°F	9223	2.399	80.6°F	4690	1.596
-11.2°F	39002	3.98	19.4°F	17901	3.208	50.0°F	8867	2.35	86.0°F	4218	1.483
-9.4°F	37169	3.94	21.2°F	17142	3.158	51.8°F	8526	2.301	87.8°F	4072	1.447
-7.6°F	35433	3.899	23.0°F	16419	3.107	53.6°F	8200	2.253	89.6°F	3933	1.412
-5.8°F	33788	3.858	24.8°F	15731	3.057	55.4°F	7888	2.205	91.4°F	3799	1.377
-4.0°F	32230	3.816	26.6°F	15076	3.006	57.2°F	7590	2.158	95.0°F	3547	1.309
-2.2°F	30752	3.773	28.4°F	14452	2.955	59.0°F	7305	2.111	96.8°F	3428	1.277
-0.4°F	29350	3.729	30.2°F	13857	2.904	60.8°F	7032	2.064	100.4°F	3204	1.213

LED		Item	Trouble contents	Diagnostic method
F	R			
1	E	FZ-Sensor Error	Display error : separation of sensor housing part, contact error, disconnection, short circuit. Display error of detecting temperature of sensor : more than 149°F(+65°C) or less than -58°F(-50°C)	When measuring the voltage between the Main PCB CN30-"4" ↔ CN76-"1", it should read between 4.5V~1.0V.
2		FF-Sensor Error		When measuring the voltage between the Main PCB CN30-"5" ↔ CN76-"1", it should read between 4.5V~1.0V.
4		FZ-DEF-Sensor Error		The voltage of MAIN PCB CN30- "5" ↔ N76-"1": shall be between 4.5V~1.0V
5		FF-DEF-Sensor Error		When measuring the voltage between the Main PCB CN30-"8" ↔ CN76-"1", it should read between 4.5V~1.0V.
6		Ambient-Sensor Error		The voltage of MAIN PCB CN78- "8" ↔ CN78-"12": shall be between 4.5V~1.0V
7		Flex room-Sensor Error		The voltage of MAIN PCB CN78- "9" ↔ CN76-"1": shall be between 4.5V~1.0V
13		Humidity-Sensor Error	Separation of sensor housing part, contact error, disconnection, short circuit	When measuring the voltage between the Main PCB CN30-"3" ↔ CN76-"1", it should read between 4.5V~1.0V.
14	E	Ice Maker(FF) Sensor Error	Display error : separation of sensor housing part, contact error, disconnection, short circuit.	The voltage of MAIN PCB CN90- "1" ↔ CN90-"7": shall be between 4.5V~1.0V
15		Ice Room Sensor Error	Display error of detecting temperature of sensor : more than 149°F(+65°C) or less than -58°F(-50°C)	When measuring the voltage between the Main PCB CN78-"10" ↔ CN78-"12", it should read between 4.5V~1.0V.
21		FZ-FAN Error	Display error during operation of applicable fan motor : Feed back signal line contact error, motor wire separation, motor error	The voltage of MAIN PCB CN76- "3" (Yellow) ↔ CN76-"1"(Gray): shall be between 7V~12V
22		FF-FAN Error	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
23		FZ-DEF 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
24	E	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 freezer compartment defrost is heating continuously for more than 80 minutes.	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 Brown ↔ CN70 Gray shall be 63(230) ohm ± 7%.(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)
25		FF-DEF Error	Separation of 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 wire from PCB, resistance value between CN70 White ↔ CN70 Gray shall be 120(440) ohm ± 7%.(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off)

LED		Item	Trouble contents	Diagnostic method
F	R			
26	E	Ice Maker(FZ) Function Error	When the Freezer Ice Maker error occurs more than 3 times, the error will be displayed.	After replacing the Ice Maker, check if it operates normal.
27		"Flex Zone-Damper-Heater Error"	Display error when open error is detected by damper heater : separation of Damper Heater housing part, contact error, disconnection, short circuit.	After separating MAIN PCB CN77 wire from PCB, resistance value between Black ↔ Brown wire shall be 135 ohm ± 7%. 0 ohm : heater short, ∞ Ohm : wire / bimetal Open.
33		FZ-Ice Pipe Heater Error	The error occurs when there is a wire connector slip-out of the Water Supply Pipe Heater, a contact error or a breakage in the wiring.	When measuring the resistance of the Main PCB CN79 Yellow-Pink wires, it should be within 102Ω ± 7%. 0Ω : heater short, ∞Ω : Check for Wire Open or onnector Slip-out
39		Ice Maker(FF) Function Error	Display error when open error is detected by Heater : separation of Ice Pipe Heater housing part, contact error, disconnection, short circuit.	After changing the Ice Maker(R), plug the refrigerator power code again, and check the operation.
40		Ice Room-FAN Error	Display error during operation of applicable fan motor : Feed back signal line contact error rmotor wire separation motor error.	When measuring the voltage between the Main PCB CN76-"5" ↔ CN76-"1", it should read between 7.0V~12V.
41		Panel ↔ Main Communication Error	Display pc - Er in the panel with alarm : MICOM MAIN ↔ PANEL communication error.	Actually, If there is not a problem, it is desirable to replace Main and Panel PCB With the oscilloscope after a cable problem confirming.
81		Comp starting Failure	When the Compressor fails starting	Check if there is a short between compressor terminals. Check IPM Voltage [Under 13.5V] Check if there is a short between IPM Pins [#1~33] Check the Compressor and the Cycle
82		IPM Fault	When there is a IPM Fault error	
83		Comp Abnormal current Detection	When ther is abnormal crrent detected at the Compressor	Check the Compressor connections Check the voltage of Resistance of R308 [0.090hm] Check the Compressor and the Cycle
84		Motor Locked Over RPM	When there is a Compressor restriction error	Check the voltage of Resistance of R308 [Short/Open] Check the voltage of both of C103 terminals [Unstable Voltage] Check the Compressor and the Cycle
85		Comp under voltage	When there is a low voltage error	Check the voltage of Resistance of R513 [Short/Open]
86		Comp over voltage	When there is a over voltage error	Check the voltage of Resistance of R501, R505, R509 [Short/Open]

CN70 - AC LOAD

- ① : FF-DEF-HEATER
- ③ : FZ-DEF-HEATER
- ICE DUCT HEATER
- ⑤ : COMMON2 LINE(L)
- ⑦ : COMMON1 LINE(N)

CN70_1 - AC LOAD

- ① : Open
- ③ : ICE MAKER HEATER(FF)
- ⑤ : FRENCH-HEATER
- DISPENSER-HEATER

CN72 - AC LOAD

- ① : ICE WATER
- SOLENOIDE VALVE(FZ)
- ③ : COMMON1 LINE(N)

CN73_1 - AC LOAD

- ① : ICE WATER
- SOLENOIDE VALVE(FF)
- ③ : ICE COVER ROUTE
- ⑤ : Open
- ⑦ : Open

CN73 - AC LOAD

- ① : CUBE SOLENOIDE VALVE
- ③ : AUGER MOTOR
- ⑤ : WATER SOLENOIDE VALVE

CN78 - LAMP(LED)/Sensor

- ① : FZ LAMP(LED)
- ② : GND
- ③ : FF LAMP(LED)
- ④ : Open
- ⑤ : GND
- ⑥ : Open
- ⑦ : Open
- ⑧ : AMBIENT Sensor
- ⑨ : Open
- ⑩ : ICE ROOM Sensor
- ⑪ : +5V
- ⑫ : GND
- ⑬ : +12V

CN75 - Inverter

- ① : COMP. SIGNAL INPUT
- ② : +5V
- ③ : GND
- ④ : COMP. SIGNAL OUTPUT

CN50

- ① : LED PANEL TX
- ② : LED PANEL RX
- ③ : +12V
- ④ : +5V
- ⑤, ⑥ : GND
- ⑦ : ICE Switch
- ⑧ : WATER Switch
- ⑨ : ICE Route Switch 1
- ⑩ : ICE Route Switch 2

CN30 - Sensor

- ① : GND
- ② : +5V
- ③ : Humidity
- ④ : FZ-Sensor
- ⑤ : FZ-DEF-Sensor
- ⑥ : FF-Sensor
- ⑦ : IR-Sensor
- ⑧ : FF-DEF-Sensor
- ⑨ : Pantry Room-Sensor

CN76 - BLDC Motor & door Switch

- ① : GND
- ② : Ice Room-FAN operation signal
- ③ : FZ-FAN operation signal
- ④ : FF-FAN operation signal
- ⑤ : C-FAN operation signal
- ⑥ : Ice Room-FAN signal input volt
- ⑦ : FZ-FAN signal input volt
- ⑧ : FF-FAN signal input volt
- ⑨ : C-FAN signal input volt
- ⑩ : GND
- ⑪ : FZ-Door Switch
- ⑫ : FF-Door Switch
- ⑬ : Open
- ⑭ : Open
- ⑮ : Open

CN51 - PANTRY ROOM Display

- ① : Open
- ② : Ice Water Pipe Heater(FF)
- ③~⑦ : Pantry Room LED Driver
- ⑧~⑩ : Open
- ⑪ : Pantry Room Switch
- ⑫ : ICE MAKER(FZ) MOTOR CCW
- ⑬ : ICE MAKER(FZ) MOTOR CW

CN79

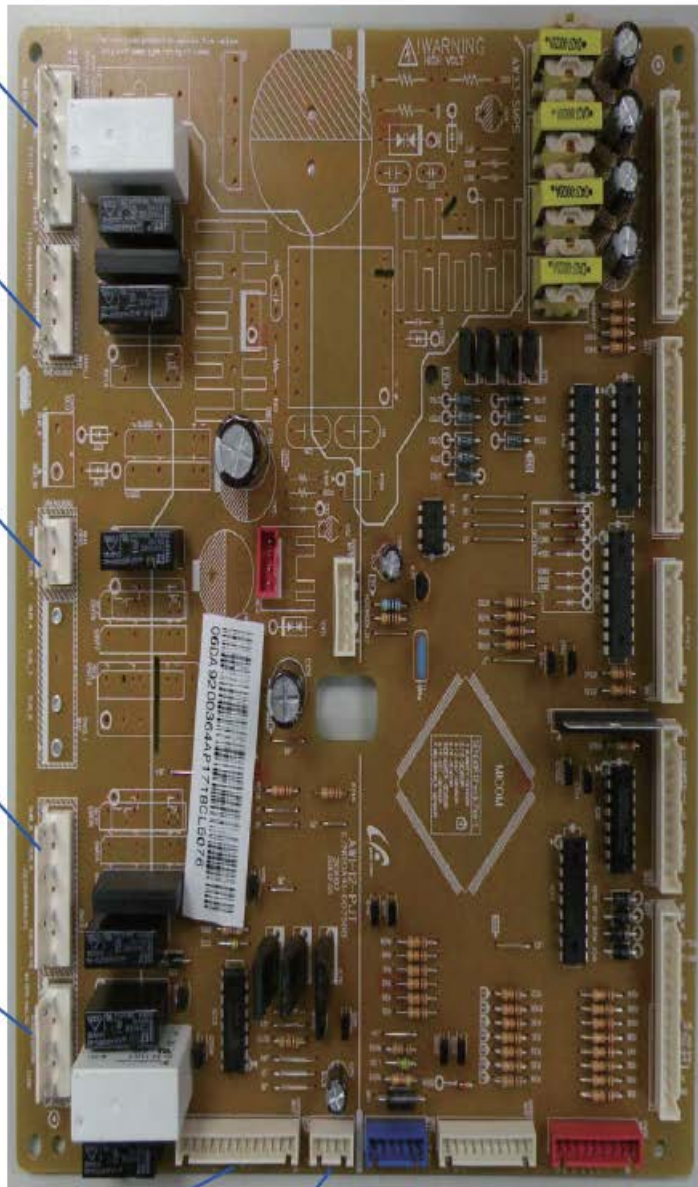
- ① : +5V
- ② : GND
- ③ : Flow Sensor Out
- ④ : Test Switch(FF)
- ⑤ : Ice Water Pipe Heater(FZ)
- ⑥ : Open
- ⑦ : Open
- ⑧ : +12V
- ⑨ : +12V

CN77 - Damper & Valve

- ①~② : Damper Heater
- ③~⑥ : Damper Motor
- ⑦ : +12V
- ⑧~⑪ : Step Valve

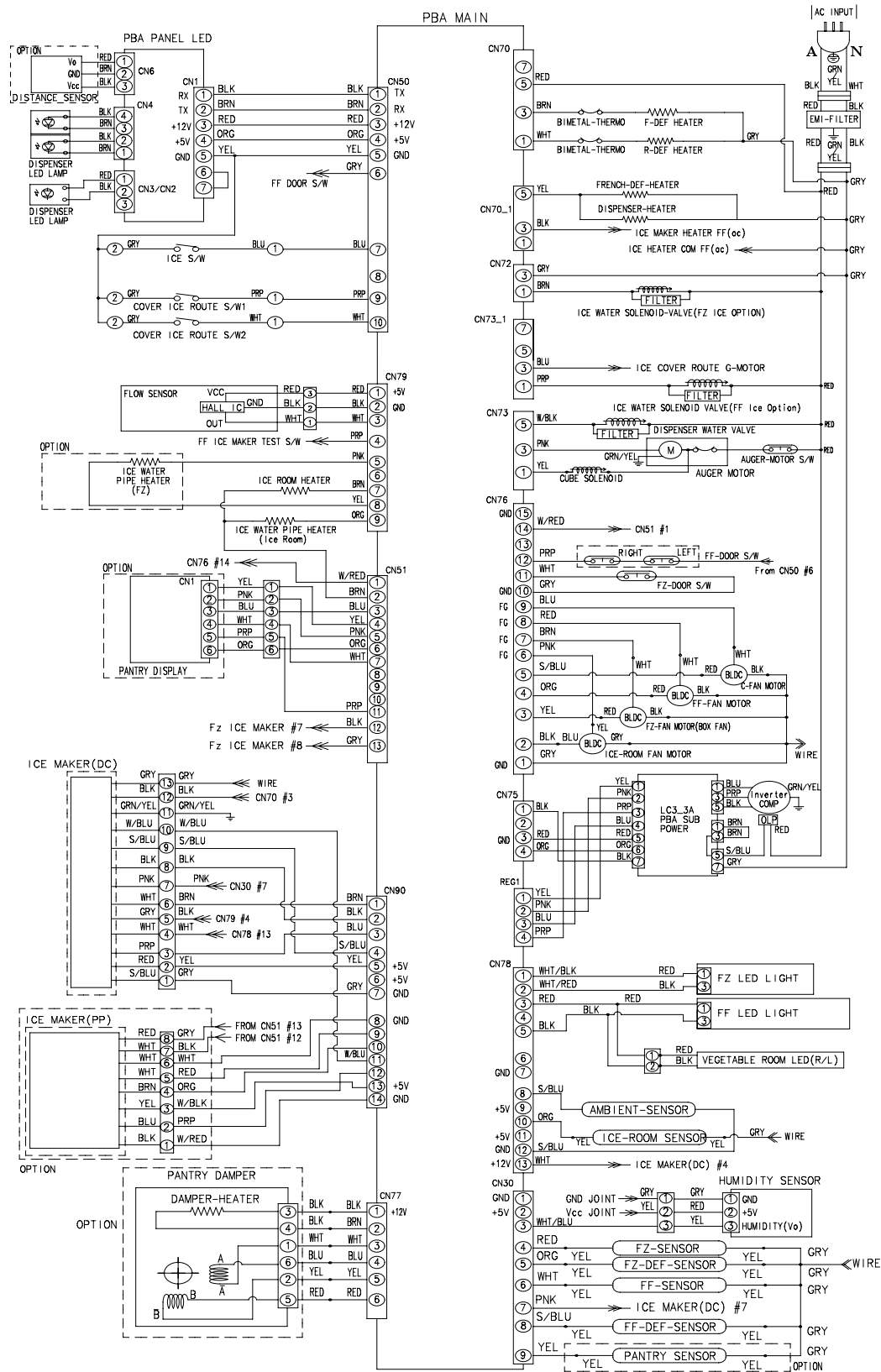
CN90 - Ice Maker

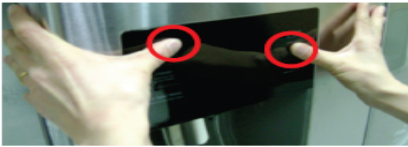
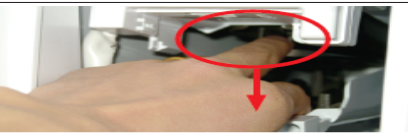
- ① : Sensor(FF)
- ② : Motor Driver INB
- ③ : Horizontal Switch
- ④ : Motor Driver Vs2B
- ⑤ : +5V
- ⑥ : Open
- ⑦ : GND
- ⑧ : GND
- ⑨ : Sensor(FZ)
- ⑩ : Test Switch(FZ)
- ⑪ : Motor Driver INA
- ⑫ : Hall IC Output
- ⑬ : +5V
- ⑭ : GND



6. WIRING DIAGRAM

6-1) Model : RF263TEAE**, RF263BEAE**, RF263NEAE**

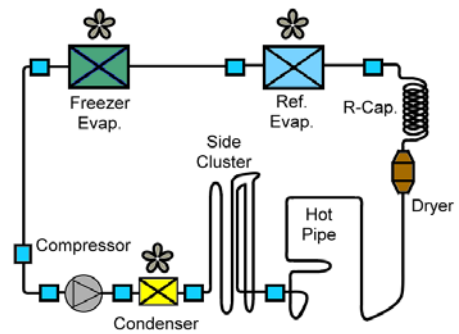


Part Name	How To Do	Descriptive Picture
I/M Removal Ice Maker	When pressing the Energy-Saver and the Fridge buttons on the Display together for 8 seconds at the same time, it will convert to the Test Mode and the entire Display function will be off.	
		
	- When pressing any button within 15 seconds after it is shifted to the Test Mode, its function will change in the following order, Manual operation1(Ff) Manual operation2(OF-r) → manual defrost of fresh food compartments(rd) → manual defrost of fresh and freezer compartments(fd) → cancel(Display all off). - Set unit to Fd for 5 minutes. This will allow for easy removal of the ice maker.	
	While pressing the tab on the top right side, lift up the Ice Bucket and pull it out	
	Remove the screw from the Wire Housing Cover.	
	Remove the Wire Housing Cover.	
Ice Maker	Disconnect the Ice Maker Housing Connector.	
	Remove the screw from the Duct Tray-ice.	
	With a flat blade screwdriver, push the duct to the right and remove it from the locking tab. (Refer to the image.)	
	With a flat blade screwdriver, pry down on the refrigerant tube to separate it from the bottom of the ice maker. (Refer to the image.)	
	Push down the refrigerant pipe slightly and separate the refrigerant pipe and the Ice Maker Assembly completely.	
	While pressing the Hook, pull out the Ice Maker.	
	While pushing down the Duct-Tray-Ice, pull out the Ice Maker carefully and remove it. ※ When removing the Ice Maker, When removing the ice maker, be careful not to damage the grommets on the tray or the refrigerant tube. (Refer to the dotted parts on the right side photo.)	

Sealed System

REFRIGERATION SYSTEM

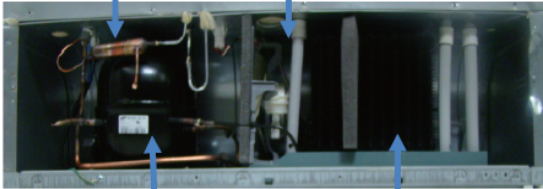
Refrigerant Charge (R134a).....5.64 oz(160g)
 Compressor(MKV190C-L2J).....1314 Btu/hr(0.385kw)
 Compressor oilFreol 5 $\propto$ 15c
 R Capillary tube(Dia, Length)..... 0.032",118"(0.82mm,3500mm)



Compressor → Conden → Hot Pipe → Dryer → Capillary Tube → Refrigerator Evaporator
 → Pipe Direct Ice → Freezer Evaporator → Suction Pipe → Compressor

DRYER-Single

C-fan



Compressor

Condensor

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

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

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. This means, even if available RPM command signal is applied to the compressor, it does not work and keep standing by.

AC 115V



① ② 13.2V ③ 5V
④ ⑤ GND ⑥ RPM ⑦ FB

POWER(115V)

5W 3V 0.1

LED blinking frequency depending on protecting functions
 If the same blinking, After 5 minutes, Follow the Remarks