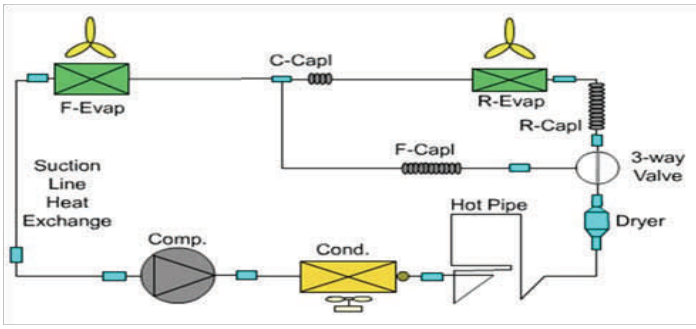
Fast Track Troubleshooting

Publication # tsRFG299AA Revision Date 11/05/2009

Models Covered:
RFG299AA/XAA**
French Door Refrigeration

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.

Sealed System | **Refrigerant Charge R134a 5.64 oz.**



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

Component Value Chart

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	60Ω	240	120vac
Fridge Defrost Heater	120Ω	120	120vac
French Mullion Heater	1800Ω	8	120vac
Ice Duct Heater	3600Ω	4	120vac
Dispenser Heater	7200Ω	2	120vac
Water Tank Heater	72Ω	2	12vdc
Sensors	2.5kΩ-89kΩ	N/A	1~4.5vdc
Fans	N/A	N/A	7~12vdc

REMOVAL OF DISPLAY
Hold the Ice & Water select tab and pull it forward to take off the Display Panel.

WHEN ASSEMBLING COVER DISPLAY
First insert it from the left side, then assemble to the right side. Otherwise the hook can break.

How to Check Sensor Resistances Make ice slurry. To do this, fill a cup with ice (preferably crushed), then add water and a teaspoon of salt to make a slush. Mix thoroughly and allow to sit for 2 to 3 minutes. This will give you a 32*F reference. Now, lower the sensor into the mixture and leave for about 1 minute, then check the resistance. It should be very close to 13,300 ohms. Before reinstalling the sensor, be sure to rinse it with fresh water and dry it.

Sensors
Defrost – The sensor voltage tells the Main PCB to turn off the Defrost Heater At 50° in Freezer, 63° in Fridge
Compartment Temp – The sensor controls fan/compressor on/off to maintain temp
Ambient Sensor
Fan Speeds – Below 60 degrees condenser fan is off
Defrost Timing – The warmer the room the more often the defrost

Changing to and from **C** and **F** temperature readings: Press the Ice Type and Water buttons ***simultaneously*** **(No sound when both buttons are pressed at the same time)** for 8 seconds.

Defrost Cycle Timing

First Defrost Cycle, Both	**Defrost Cycle Fridge only**	**Defrost Cycle Fridge & Freezer**
6 hrs, Pause Time 10 minutes	6~11 hrs (varies according to conditions)	12~23 hrs (varies according to conditions)

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 degrees for more than 5 seconds, then the ice production process is completed. 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, 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 S/W for at least 1.5sec, the harvest function will start. If the ice maker Thermistor is below 0 degrees the Ice maker heater turns on for about 2 minutes. If the temperature exceeds 0 degrees, Ice maker heater turns on for 30 seconds. After the Ice maker heater turns on for 30 seconds, the heater turns off and then Ice maker harvest motor turns on. The motor will rotate in right direction for about 3 minutes, after this, water supply valve is turned on, then the valve is turned off, the test mode is completed. If the above operation is not carried out within 6 minutes, it will go into a fault mode.

FREEZER TEMPERATURE CONTROL BY THE ICE MAKER

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

Temperature/Resistance/Voltage Chart for Samsung Refrigerators Sensors

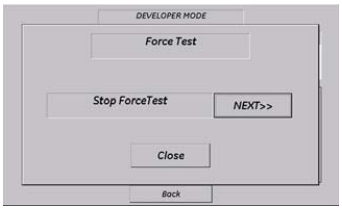
Temp.	(Ω)	Volts		Temp.	(Ω)	Volts		Temp.	(Ω)	Volts		Temp.	(Ω)	Volts
-29.2°F	64227	4.326		1.4°F	28021	3.685		32.0°F	13290	2.853		62.6°F	6771	2.019
-27.4°F	61012	4.296		3.2°F	26760	3.64		33.8°F	12749	2.802		64.4°F	6521	1.974
-25.6°F	57977	4.264		5.0°F	25562	3.594		35.6 °F	12233	2.751		66.2°F	6281	1.929
-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

Service Functions

Functions	How to operate		Use this functions...
	Keys	Time	
Forced Operation	“Lighting” + “Ice Off”	8 sec	To set the forced operation and forced defrost.
Cooling Off	"Slide Show" + "Lighting"		To set Display Mode at the shop
Touch screen Calibrations	“Lighting” + “Home”		To calibrate the stylus pen touch point of LCD Touch Screen
Self-Diagnostics	“Slide Show” + “Home”		To check the failure modes
Load Operation Check			To check the present operating load of regrigerator.
Set Point Shift Mode			To change the setting options about the regrigerator operating status. Need careful decision for the option change.
Error History			To check the latest 5 errors.
Check LCD Pixel			To check the LCD Pixel failures.
S/W Upgrade			To upgrade the Software on the Panel.
User Data Back up/Restoration			To back up & restoration the user’s data when update software and/or replace PBA panel.
OS Upgrade	Reset as pressing the “Ice Off” button	Reset	To update OS on the Panel

4-1-1. Forced Operations (Pull-down / Refrigerator Defrost / Refrigerator. Freezer-Defrost / Cancellation)

1) Forced Operation settings

Sequence	Note
① To display the test mode, press and hold the “Lighting” button and “Ice Off” button for 8sec simulataneously.	
② Choose the “NEXT>>” button. When “NEXT” button is selected, the next displayed mode is automatically run. ※ Operationg Sequence of the NEXT button Stop Force Test -> ForceRun1(RPM 3600) -> ForceRun2(RPM 2450) -> ForceRun3(RPM 2050) ->Force FZ,FF Defrost -> Stop Force Test -> ...	

2) Force Test (Pull-down)

2-1) At the Force Test mode, press "NEXT>>" button once then the buzzer will beep until this mode is cancelled.

2-2) At this Force Test(pull-down) mode, the compressor will start immediately and if the system is in the defrost cycle, defrost cycle will be cancelled right away.

NOTE) If this Force Test(pull-down) mode begins right after the compressor was off, the compressor may not start running due to an overload condition.

2-3) 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.

2-4) When Force Test(pull-down) mode is selected, FZ compartment temperature will be set as -14℉(-25℃) and FF compartment temperature will be set as 34℉(1℃).

2-5) Power Freeze and Power Cool is not available during Force Test(pull-down) mode.

2-6) In order to cancel this mode at any time, choose the next mode on the Force Test mode or power off the system.

3) Force FZ,FF Defrost (Refrigerator, Freezer-Defrost operation)

3-1) At the ForceRun3(RPM2050) mode, press "NEXT>>" button again on the Force Test mode to begin the defrost cycle for the refrigerator.

3-2) The beep sound continues for 3 seconds at the beginning, then ON for 1/2 seconds and OFF for 1/2 seconds until this mode is ceased.

4) Cancellation

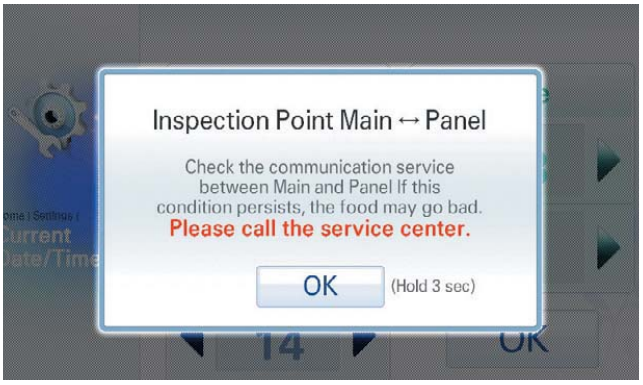
4-1) To return to a normal operation during Force FZ,FF Defros mode, turn the DISPLAY PANEL into Forced Operation mode and select "NEXT>>" button. Then Stop Force Test message will show up.

4-2) Otherwise, simply unplug the power cord, then plug it again to return to a normal operation.

4-1-2. Communication Error Displays

1) Displays when Panel ↔ MAIN MICOM communication has error

1-1) If there is no answer for 10 seconds after the panel MICOM received the requirement of communication, the following error message pops up on the display panel.



1-2) Pantry Room Display will be alternately ON/OFF until the communication error is canceled. (0.5sec ALL ON, 1.5sec ALL OFF alternately)

4-1-3. Self-Diagnostics

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.

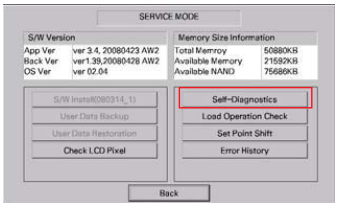
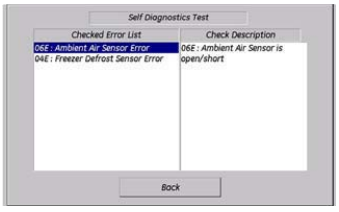
1-2) If a sensor failure occurs, sensor failure message shows on the display panel.

1-3) If "OK" button is selected on the sensor error message box, the box will be disappeared. But it can be checked at the Self-Diagnostics mode.

1-4) If any error occurs during initial Power ON, refrigerator will be controlled by the emergency operation.

1-5) When the errors are detected by self-diagnosis and all troubled sensors are corrected, the sensor errors can be canceled automatically.

2) Self-Diagnostics in the normal operation

Sequence	Note
① To display the service mode, press and hold the "Slide Show" button and "Home" button simultaneously for 8sec.	
② Choose the "Self-Diagnostics" button.	
③ Current errors will be shown on the Check Error List column. When the error on the Check Error List is selected, the detailed failure mode is displayed on the Check Description column.	
④ Repair the errors referring to How to Self-Diagnose on the Error items of selfdiagnostics pages of this manual. And restart the Self-Diagnostics to check all the errors have been corrected.	

* Self-diagnosis CHECK LIST

NO	Troubled Items	Troubles
1	IceMaker Sensor Error	Sensor system in ICE MAKER errors
2	FreshFood Room Sensor Error	Sensor system in FF compartment errors
3	FreshFood Defrost Sensor Error	Defrost Sensor system in FF compartment errors
4	FreshFood Room Fan Error	Fan motor system in FF compartment errors
5	IceMaker Function Error	ICE MAKER operation system errors
6	FreshFood Defrost Function Error	Defrost system in FF compartment errors
7	Ambient Air Sensor Error	Sensor external system errors
8	Freezer Room Sensor Error	Sensor system in FZ compartment error
9	Freezer Defrost Sensor Error	Defrost Sensor system in FZ compartment errors
10	Freezer Room Fan Error	Fan motor system in FZ compartment errors
11	Compressor Fan Error	Fan motor system in machinery room errors
12	Ice Room Sensor Error	Sensor system in ICE ROOM errors
13	Freezer Defrost Function Error	Defrost system in FZ compartment errors
14	Ice Room Fan Error	Fan motor system in ICE ROOM errors
15	Damper Heater Error	Damper Heater open/wire connection errors
16	Pantry Room Sensor Error	Sensor system in Pantry Room errors
17	Main<->LCD Communication Error	Communication between Panel↔MAIN MICOM error
18	Water Tank Heater Error	Water Tank Heater open/wire connection errors

∗ Self-Diagnosis Details

Error items	Details	How to Self-Diagnose
Ice Maker Sensor Error	Sensor connector missing; contact failure, electric wire cut, short-circuit; sensor itself failure and so on. Temperature error code displays when the sensing temperature is more than 149℉(+65℃) or less than -58℉(-50℃).	The voltage of MAIN PCB CN90#3 <-> CN90#4 : shall be between 4.5V~1.0V.
R-Sensor Error		The voltage of MAIN PCB CN30#6 <->CN76#1 : shall be between 4.5V~1.0V.
R-DEF-Sensor Error		The voltage of MAIN PCB CN30#8 <-> CN76#1 : shall be between 4.5V~1.0V.
R-FAN Error	Refrigerator Fan motor operation failure; feedback signal line contact failed, electric wire cut, short-circuit and so on	The voltage of MAIN PCB CN76-4 Orange <-> 1 Gray shall be between 7V~12V.
Ice Maker Error	Ice-ejector and level failed three times or more than that.	After replacing ice maker, check the operation by turning the appliance ON again.
R-DEF. Error	Sensor connector missing; contact failed, electric wire cut, short-circuit; temperature fuse failure and so on. In the refrigerator room, if frost removal mode is finished due to limited time of 80 minutes. Error is displayed.	After separating MAIN PCB CN70,CN71 from PCB, the resistance value between CN70 White <-> CN71 Orange shall be 110(441) ohm (+/-) 7%. (Resistant value is varied by the input power) 0 Ohm : heater short, infinite Ohm : wire / bimetal Open.
Ambient-Sensor Error	Sensor connector missing; contact failed, electric wire cut, shortcircuit; sensor itself failure and so on Temperature error code displays when the sensing temperature is more than 149 ℉(+65℃) or less than -58℉(-50℃).	The voltage of MAIN PCB CN31#1 <-> #4 : shall be between 4.5V~1.0V.
F-Sensor Error		The voltage of MAIN PCB CN30#3 <-> CN76#1 : shall be between 4.5V~1.0V.
F-DEF-Sensor Error		The voltage of MAIN PCB CN30#4 <-> CN76#1 : shall be between 4.5V~1.0V.
F-FAN Error	Freezer Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing and so on.	The voltage of MAIN PCB CN76-3 Yellow <-> 1 Gray shall be between 7V~12V.
C-FAN Error	Condenser Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing and so on.	The voltage of MAIN PCB CN76-5 Sky-blue <-> 1 Gray shall be between 7V~12V.
Ice Room Sensor Error	Sensor connector missing; contact failed, electric wire cut, short circuit and so on. Temperature error code displays when the sensing temperature is more than 149℉(+65℃) or less than -58℉(-50℃).	The voltage of MAIN PCB CN31#3 <-> CN76#1 : shall be between 4.5V~1.0V.
F-DEF. Error	Sensor connector missing; contact failed, electric wire cut, short-circuit; temperature fuse failure and so on. In the freezer room, if frost removal mode is finished due to limited time of 70 minutes. Error is displayed.	After separating MAIN PCB CN70,CN71 from PCB, the resistant value between CN70 brown <-> CN71 Orange shall be 55(220) ohm (+/-) 7%. (Resistant value is varied by input power) 0 Ohm : heater short, infinite Ohm : wire / bimetal Open.
Ice Room-FAN Error	Freezer Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing and so on.	The voltage of MAIN PCB CN76-2 Black <-> CN76-1 Gray : shall be between 6V~12V.
Pantry-Damper-Heater Error	Error displays when Damper Heater Open is detected: separation of Damper Heater housing part, bad contact, wire disconnection, short circuit etc.	After separating MAIN PCB CN91 from PCB, the resistant value between Black <-> brown wire shall be 145 ohm (+/-) 7%. 0 Ohm : heater short, infinite Ohm : wire / bimetal Open.
Pantry-Sensor Error	Sensor connector missing; bad contact, electric wire cut, short circuit and so on. Temperature error code displays when the sensing temperature is more than 149℉(+65℃) or less than -58℉(-50℃).	The voltage of MAIN PCB CN30#9 <-> CN76#1 : shall be between 4.5V~1.0V.
Panel ↔ Main Communication Error	Communication error displays with alarm when communication between MICOM MAIN and PANEL is not available for 10sec.	Actually, If there is not a problem, it is desirable to replace Main and Panel PCB with the oscilloscope after a cable problem confirming.
Water Tank-Heater Error	Error displays when Water Tank Heater Open is detected: separation of housing part, bad contact, wire disconnection etc.	After separating MAIN PCB CN79 from PCB, the resistant value between Pink <-> White wire shall be 72 ohm 7%. 0 Ohm : heater short, infinite Ohm : wire / bimetal Open.

4-1-5. Cooling Off

Cooling Off stops cooling in both the freezer and regrigerator compartments but does not shut off electrical power to the refrigerator.

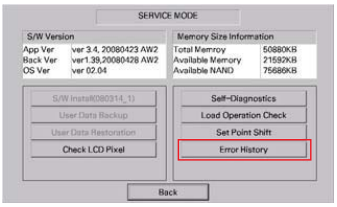
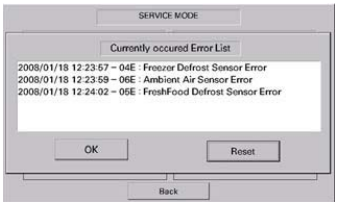
1) Cooling Off Settings

Sequence	Note
① To display the Cooling Off, press and hold the “Slide Show” button and “Lighting” button for 3sec simultaneously.	
② ”Cooling OFF Setup Complete” message pops up on the screen.	
③ To turn off the Cooling Off function, press the “Slide Show” button and “Lighting” button simultaneously for 3 seconds again. “Cooling OFF Deactivated” message pops up on the screen.	

4-1-7. Error History Function

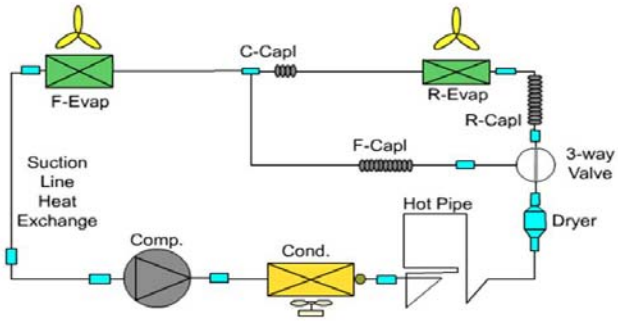
When refrigerator has errors in sensors and/or functions, it automatically stores the time and errors on the list up to 5 events. You can check the errors and remove them.

1) Load Operation Settings

Sequence	Note
① To display the service mode, press and hold the "Slide Show" button and "Home" button simultaneously for 8sec.	
② Choose the "Error History" button.	
③ Error History box shows currently occurred error list up to 5 events. Even if the power turn off, the list is not removed. However, if "Reset" button is pressed, all the list will be removed.	

Compressor & System Operation Testing

The Time Divided Multi-cycle (TDM) System (Stepper Valve) is used to switch refrigerant flow . This improves temperature control and energy efficiency.
If it fails in the all evaporator mode, it should work properly, using slightly more energy. If it fails in the Freezer evaporator only mode, there will be a Fridge no cool Force on the Fridge with the “Power Cool” option. Monitor the Fridge evaporator(s) temp by using the Defrost Sensor(s). If the temp doesn’t decrease, then suspect the Main PCB is not supplying signal to switch the diverter valve.



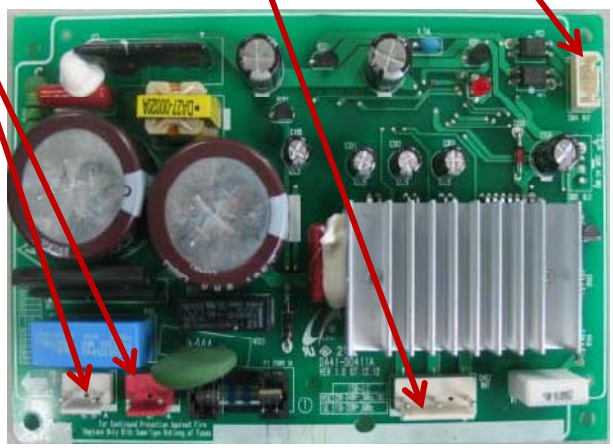
TEST BEFORE INTERPRETING LED BLINKING FREQUENCY
Compressor not running
1. Activate Forced Compressor Operation, wait 2 minutes (in case of high head pressure)
2. If compressor doesn’t start, check CN75 for 2.5vdc (if not there replace Main PCB)
3. If voltage is OK, remove power, disconnect CN03 (Inverter PCB) and check resistance to the windings. Aproxametly10 ohms. If not correct , inspect wire harness, if OK replace compressor.
4. Disconnect CN02 (SMPS PCB), check resistance to Overload , if open replace overload.

CN75 To Comp Inverter Board
2- (CN76-1) (Brn-Gry) 5vdc
4- (CN76-1) Comp control (Org-Gry) 2.5vdc

CN02
Overload &
A/C Line
1 OLP (Brn)
3 OLP (S/Blu)
3 L (Red)
1 N (Gry)

CN04 Compressor Control
1-(CN76-1) +13vdc (Blk-Gry)
2-(CN76-1) 5vdc (Brn-Gry)
4 Comp Signal (Org)

CN03 Compressor Windings
1 Compressor (Blue)
3 Compressor (Prp)
5 Compressor (Wht)



Protection Functions	LED Blinking Frequency	Test	Replace
Starting Failure	●	Check the Inverter PCB & Comp Relay Connectors	Connectors OK,replace Inverter PCB, if same, replace compressor
SPM Fault	● ●	If blinking after reset,	Check System for restriction & refrigerant, if OK replace Inverter, if same, replace compressor
Detecting Position Failure	● ● ●	Check Inverter Connectors,	Connectors measure OK, replace compressor, if same, replace Inverter PCB
Motor Locked	● ● ● ●	Compressor Locking	Compressor
Low Voltage	● ● ● ● ●	Compressor Locking, check input voltage	Replace Inverter PCB, if same, replace Compressor
Over Voltage	● ● ● ● ● ●	Compressor Locking, check input voltage	Replace Inverter PCB, if same, replace Compressor

Model : RFG299AA**/XAA
nominal voltages listed

CN74 A/C Load **120vac**
1-(CN70-9) Cube Solenoid (Yel-Red)
3-(CN70-9) Auger Motor (Pnk-Red)
5-(CN70-9) Dispenser Valve (W/Blk-Red)
7-(CN70-9) Ice Maker Valve (Prp-Red)
9-(CN70-9) Ice Cover Route (Blu-Red)

CN71 All **120vac**
3-(CN70-9) F Lamp (Prp-Red)
5 N (Gray)
9 Heater Common (Org)

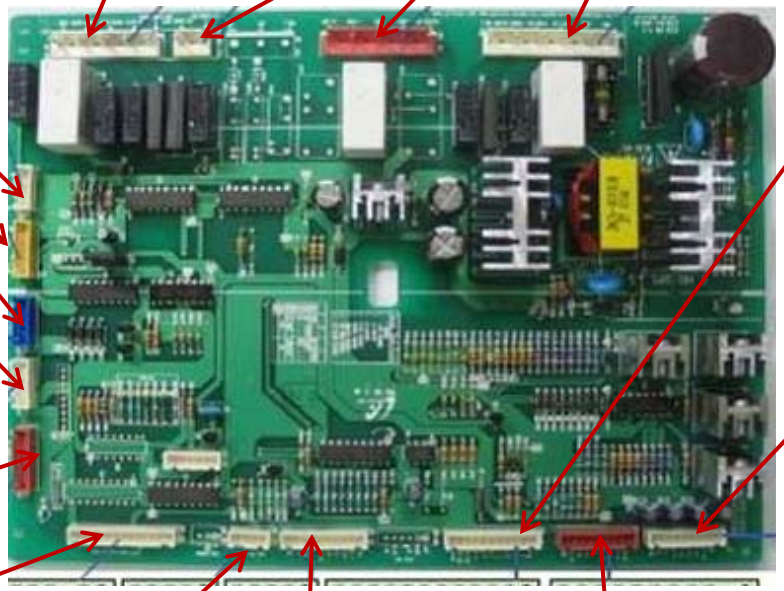
CN31 Sensor
1-4 Ambient Sensor (Wht-Wht) **1.2~2 vdc**
2-(CN90-8) I/M (Red-S/Blu) **5vdc**
3-(CN76-1) Ice Room Sensor (Org-Gry) **3~3.8vdc**

CN73 **120vac**
1-(CN70-9) I/M Heater (Brn-Red)
3-(CN70-9) I/M Motor (Wht-Red)

CN70 All **120vac**
1-11 Disp Heater (Blk-Gry)
3-11 French-Dsp Heaters (Yel-Gry)
5- (CN71-9) R Defrost (Wht-Org)
7- (CN71-9) F Defrost/Ice Duct heater (Brn-Org)
9- L1 (Red)
11- N (Gry)

CN78 Lamp/Veg LED
4-7 (Red-Gry) **13vdc**

CN77 Stepper Motor
1-(CN76-1) (Red-Gry) **13vdc**



CN50 Display
4-6 (Org-Pnk) **13vdc**
5-6 (Yel-Pnk) **5vdc**
8-6 Ice/Water Sw (Blu-Pnk) **5vdc**
9-6 Ice Rte Sw 1(Prp-Gry) **5vdc**
10-6 Ice Rte Sw 2 (Wht-Gry) **5vdc**

CN91 Pantry Room Damper
1-2 Damper Heater (Blk-Brn) **12vdc**
3-4 Damper Motor (Wht-Blu)
5-6 Damper Motor (Yel-Red)

CN76 F, R, C Fans
2-1 Ice Room Fan (Blk-Gry)**7-11vdc**
3-1 F Fan (Yel-Gry) **7-11vdc**
4-1 R Fan (Org-Gry) **7-11vdc**
5-1 C Fan (S/Blu-Gry) **7-11vdc**
6 Ice Room Fan FG(Pnk)
7 F Fan FG(Brn)
8 R Fan FG(Red)
9 C Fan FG(Blu)

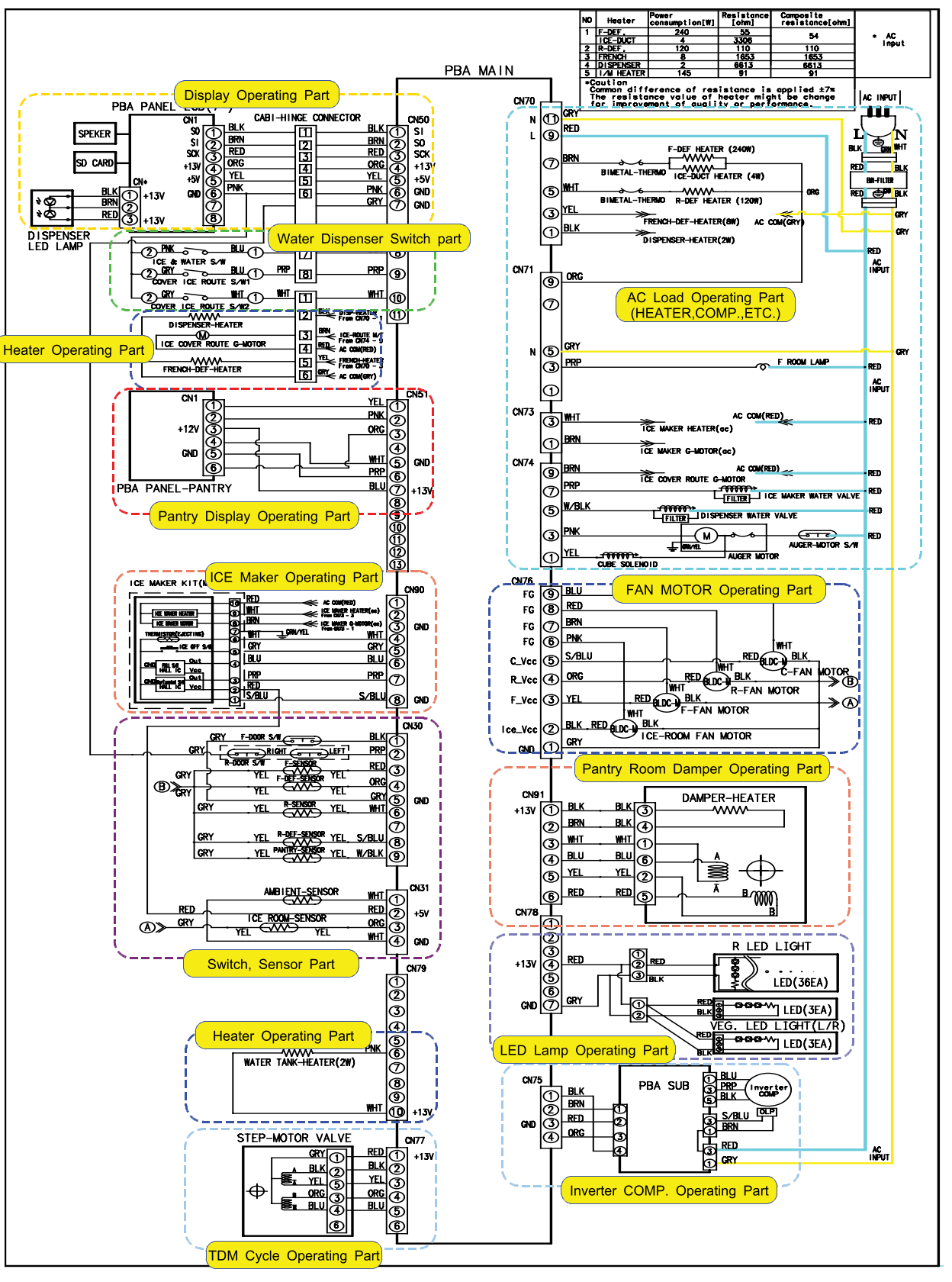
CN90 Ice Maker
4-8 Eject Sensor (Wht-S/Blu) **2.3~3.3vdc**
5-8 Test Sw (Gry-S/Blu) **5vdc**
6 Full Hall IC out (Blu)
7 Horiz Hall IC out (Prp)
8 Ground **vdc** (S/Blu)

CN51 Pantry Room
7-5 (Blu-Wht) **13vdc**

CN75 To Comp Inverter Board
1- (CN76-1) (Blk-Gry) **13vdc**
2- (CN76-1) (Brn-Gry) **5vdc**
4-3 Compressor control (Org-Red) **2.5vdc**

CN79
10-6 Water Tank Htr (Wht-Pnk) **13vdc**

CN30 Sensors & Switches
1-5 Freezer Dr Sw (Blk-Gry) **5vdc**
2-(CN50-7) R Door Sw (Prp-Gry) **5vdc**
3-(CN76-1) F Sensor (Red-Gry) **3.5~4.2vdc**
4-(CN76-1) F Def Sensor (Org-Gry) **2.3~4.2vdc**
6-(CN76-1) R Sensor (Wht-Gry) **2.4~2.8vdc**
8-(CN76-1) R Def Sensor (S/Blu-Gry) **2~4.2vdc**
9- (CN76-1) Pantry Sensor (W/Blk-Gry) **2.6~2.8vdc**


NO | Heater | Power consumption[W] | Resistance [ohm] | Composite resistance[ohm]
1 | F-DEF. | 240 | 55 | 54
ICE-DUCT | 4 | 3306
2 | R-DEF. | 120 | 110 | 110
3 | FRENCH | 8 | 1653 | 1653
4 | DISPENSER | 2 | 6613 | 6613
5 | I/M HEATER | 145 | 91 | 91
*Caution
Common difference of resistance is applied ±7%
The resistance value of heater might be change
for improvement of quality or performance.
* AC Input
PBA MAIN
Display Operating Part
PBA PANEL
SPEKER
SD CARD
DISPENSER LED LAMP
CABI-HINGE CONNECTOR
CN1
CN50
Water Dispenser Switch part
ICE & WATER S/W
COVER ICE ROUTE S/W1
COVER ICE ROUTE S/W2
Heater Operating Part
DISPENSER-HEATER
ICE COVER ROUTE G-MOTOR
FRENCH-DEF-HEATER
PBA PANEL-PANTRY
CN51
Pantry Display Operating Part
ICE MAKER KIT
CN90
ICE MAKER Operating Part
CN30
Switch, Sensor Part
F-DOOR S/W
R-DOOR S/W
F-SENSOR
F-DEF-SENSOR
R-SENSOR
R-DEF-SENSOR
PANTRY-SENSOR
AMBIENT-SENSOR
ICE ROOM-SENSOR
CN31
CN79
Heater Operating Part
WATER TANK-HEATER(2W)
STEP-MOTOR VALVE
CN77
TDM Cycle Operating Part
CN70
AC INPUT
F-DEF HEATER (240W)
ICE-DUCT HEATER (4W)
R-DEF HEATER (120W)
FRENCH-DEF-HEATER(8W)
DISPENSER-HEATER(2W)
BIMETAL-THERMO
AC LOAD Operating Part
(HEATER,COMP.,ETC.)
CN71
F ROOM LAMP
CN73
ICE MAKER HEATER(ac)
ICE MAKER G-MOTOR(ac)
CN74
ICE COVER ROUTE G-MOTOR
ICE MAKER WATER VALVE
DISPENSER WATER VALVE
AUGER MOTOR
AUGER-MOTOR S/W
CUBE SOLENOID
CN76
FAN MOTOR Operating Part
C-FAN MOTOR
R-FAN MOTOR
F-FAN MOTOR
ICE-ROOM FAN MOTOR
Pantry Room Damper Operating Part
CN91
DAMPER-HEATER
CN78
R LED LIGHT
LED(36EA)
LED(3EA)
VEG. LED LIGHT(L/R)
LED Lamp Operating Part
CN75
PBA SUB
Inverter COMP
OLP
Inverter COMP. Operating Part