Fast Track Troubleshooting

Models Covered:
RF266AZBP/XAA
RF266AZPN/XAA
RF266AZRS/XAA
RF266AZWP/XAA

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.

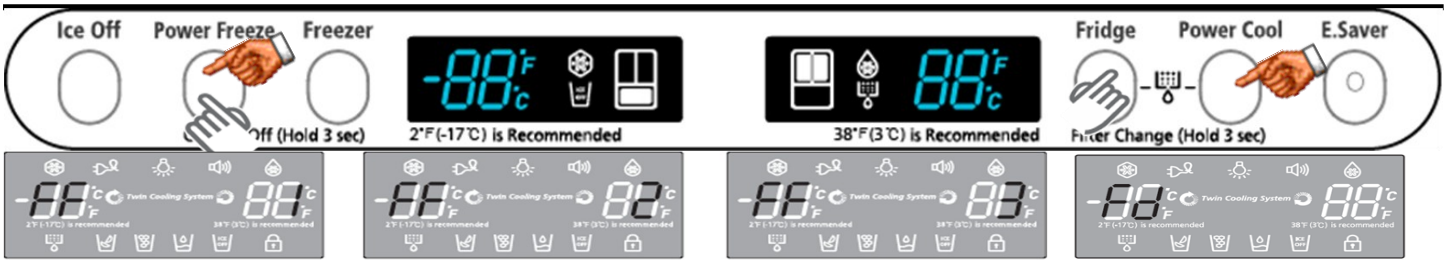
Publication # tsRF266AZ Revision Date 03/30/2011

SUBJECT: Parts Change

The interior lighting has been changed from incandescent lighting to LED lighting. The new parts are NOT interchangeable with the old parts. See page 4

Self Diagnosis: Press the Pwr Freeze—Pwr Cool buttons simultaneously for 8-12 seconds (No sound when both buttons are pressed at the same time) until the display quits blinking. Release the buttons and read Fault Codes. This will also cancel the Fault Mode created by self-diagnosis at power up.

Forced Mode: Press the Pwr Freeze– Fridge buttons simultaneously for 8-12 seconds (No sound when both buttons are pressed at the same time) until the display beeps and goes blank.



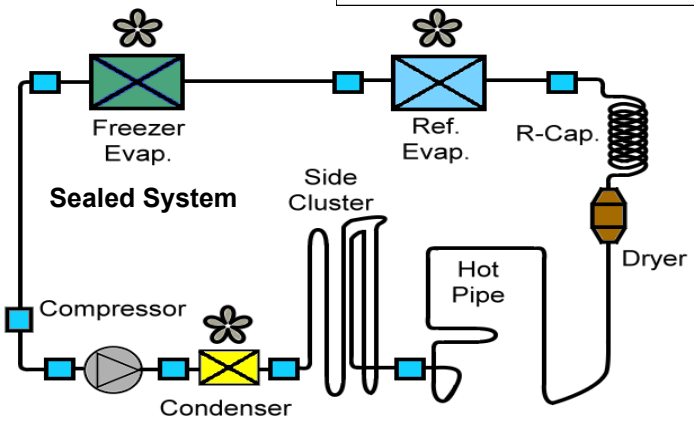
Press Freezer button one time at the Test Mode to Force Compressor High Speed Run, measure fan and Compressor voltages at main PCB

Press Freezer button a second time to Force Mid Speed Run

Press Freezer button a third time to Force Low Speed Run

Press Freezer button a forth time to Force Defrost of Fridge & Freezer, measure defrost voltage at main PCB

Refrigerant Charge
R134a 5.64 oz.



Sales Mode, No Compressor Operation

Press Power Freeze & Freezer temp buttons simultaneously for 3 sec (you will hear a "Ding Dong") to remove or put into Sales Mode. When in the Sales Mode the Display will show "OF" "OF"

Removing power will not cancel this mode.

Component Value Chart

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	60Ω	240	120vac
Fridge Defrost Heater	120Ω	120	120vac
French Mullion Heater	1323Ω	10	120vac
Fill Tube Heater	1323Ω	10	120vac
Sensors	2.5kΩ-89kΩ	N/A	1~4.5vdc
Fans	N/A	N/A	7~12vdc

SUPPORT INFORMATION
Training — Plus One **http://my.plus1solutions.net/clientPortals/samsung/**
Help — GSPN **http://service.samsungportal.com/**
Samsung Product Support TV **http://support-us.samsung.com/spstv/howto.jsp**
Customer information videos and chat programs. Programs for Fridges, Laundry, Ranges & D/W

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 will be 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.

FLEX TRAY Ice Makers

When the initial power is applied, the ice tray will stand by for 2 hours. After the 2-hour standby time, the Ice Maker Sensor will check the temperature , when it is lower than 1.5°F for more than 5 minutes, it will do a harvest, with or without ice in the tray, then fill with water. 58 minutes after water is supplied to the Ice Tray, the Ice Maker Sensor temperature will be checked. When the Ice Maker Sensor maintains lower than 1.5°F for 5 minutes, it completes the harvest (if the ice bin is not sensed as full).

Filling the tray

After the water fill is completed, the ice maker sensor will evaluate the water volume one and a half minutes later. When it detects no or low water level, it will add more water. First supply time will be 1.5 sec, next one will be 1 sec and the last will be 2 sec.

FREEZER TEMPERATURE CONTROL BY THE ICE MAKER

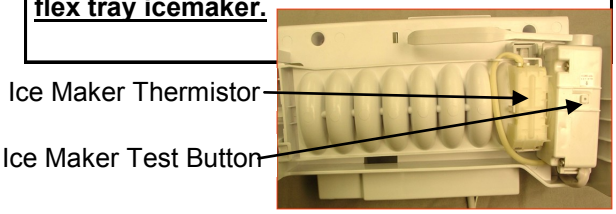
Interior Temperature of the freezer will be set to -14 degrees Fahrenheit until the ice bucket is full. When the ice bucket is full, the freezer will maintain original set temperature. Also, whenever the ice is used, the freezer will again set to -14 degrees Fahrenheit. Selecting "Ice Off" will allow 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.

Shattered Ice – Flex Tray

When all ice shatters, it's because of a bad tray or ice cube temp that is too cold (lower than -5 degrees). In some areas, there are water issues that can also cause shattered cubes. The temp in the freezer should not have any effect on this issue, as long as it's below 1.5 degrees F, as a properly installed sensor will not read the freezer temp, only the water/ice temp.

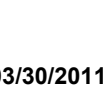
Check the Ice tray for defects in the plastic. Ice that is too cold will shatter during harvest. This can be from the (1) sensor not reading the correct temp (2) or the sensor not mounted correctly (3). By programming the icemaker offset value to a lower number (4), the board not understanding the reading.

Please note, some shattering is normal for a flex tray icemaker.



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

Samsung 'Refrigerator' Diagnostic Code Quick Guide			
Error Items	**LED**	**TROUBLE**	**TESTING**
I/M-SENSOR (R on Twin I/M units)		Ice Maker Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
R-SENSOR		Refrigerator Room Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F.	The voltage at MAIN PCB Sensor between 4.5V~1.0V
DEFROST SENSOR OF R ROOM		Ref. Defrost Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
R-FAN ERROR		This error indicates the Refrigerator Evap Fan is not spinning at the correct RPM or the fan feedback line is open.	Fan voltage at MAIN PCB shall be between 7V~12V
I/M FUNCTION ERROR(R on Twin I/M)		This error indicates the Ice tray has not returned to level after an ice harvest. The error is displayed after three failed attempts.	Replace I/M
R-DEFROSTING ERROR		Refrigerator Room defrost heater- open or short-circuit, connector failure, or defective temperature fuse/bi-metal. Defrost on over 80 minutes	Disconnect defrost connector from PCB, check resistance
PANTRY-DAMPER-HEATER ERROR		Sensor system in Pantry Room errors	Disconnect heater connector from PCB, check resistance
PANTRY-SENSOR ERROR		CR Room Sensor Error- This can be an open or short-circuit, contact failure. Cause is also a temperature reading > 122°or < -58 ° F.	The voltage of MAIN PCB Sensor between 4.5V~1.0V
WATER HEATER ERROR		Error is displayed when the water reservoir tank heater is open or shorted	Disconnect heater connector from PCB, check resistance
EXT-SENSOR		Ambient Temp. Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
F-SENSOR		Freezer Compartment Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
F-DEF-SENSOR		Freezer Room Defrost Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
F-FAN ERROR		This error indicates the Freezer Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.	Fan voltage at MAIN PCB shall be between 7V~12V
C-FAN ERROR		This error indicates the Condenser Fan is not spinning at the correct RPM or the fan feedback line is open.	Fan voltage at MAIN PCB shall be between 7V~12V
FRENCH DOOR ICE ROOM SENSOR		Ice Room Sensor Error- open or short-circuit, connector failure. Cause is also a temperature reading > 122°or < -58 ° F	The voltage at MAIN PCB Sensor between 4.5V~1.0V
F-DEFROSTING ERROR		Freezer defrosting heater- open or short-circuit, connector failure, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes	Disconnect defrost connector from PCB, check resistance
FRENCH DOOR ICE ROOM FAN ERROR		This error indicates the Ice Room Compartment Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.	Fan voltage at MAIN PCB shall be between 7V~12V
Uart ERROR COMMUNICATION		This error is not applicable, if the error is detected during diagnostic testing please ignore it.	No Repair Necessary
L↔M ERROR COMMUNICATION		Communication error within the Main PCB	Replace main PCB
P↔M ERROR COMMUNICATION		Communication between the Main PCB and Keypad	Check wiring in door & cabinet, Panel PCB, Main PCB

SERVICE BULLETIN

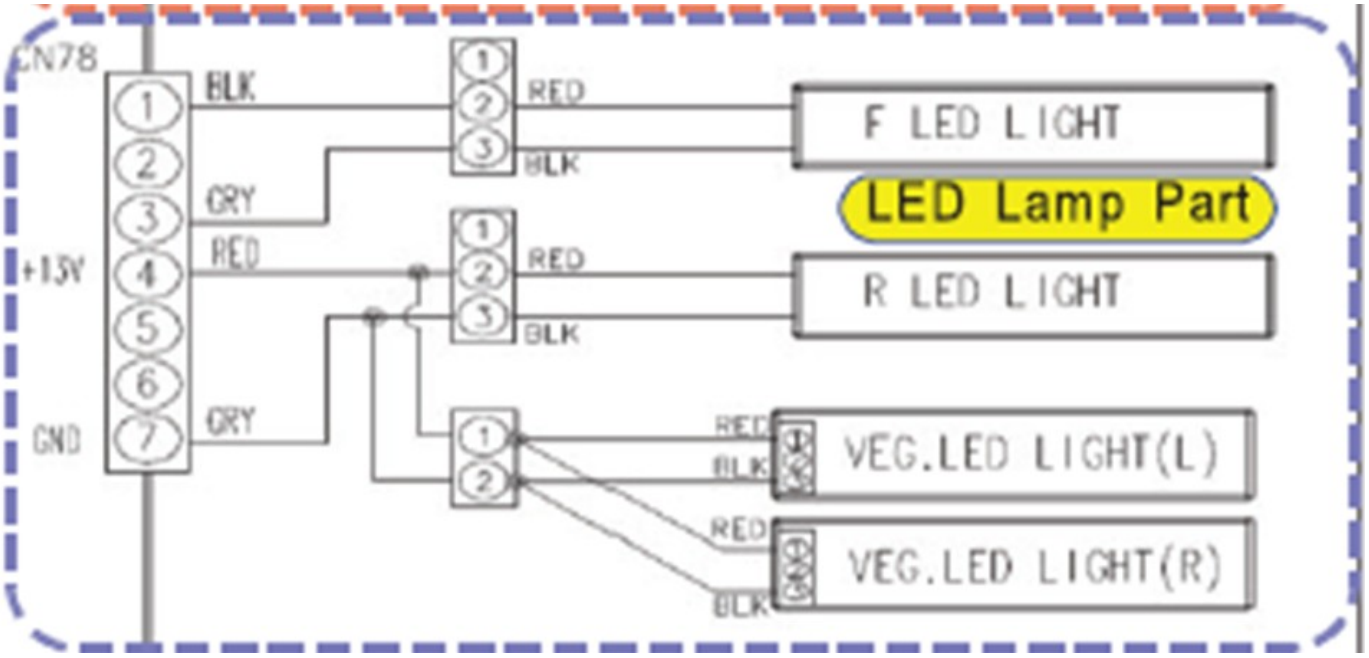
PRODUCT: Refrigerator

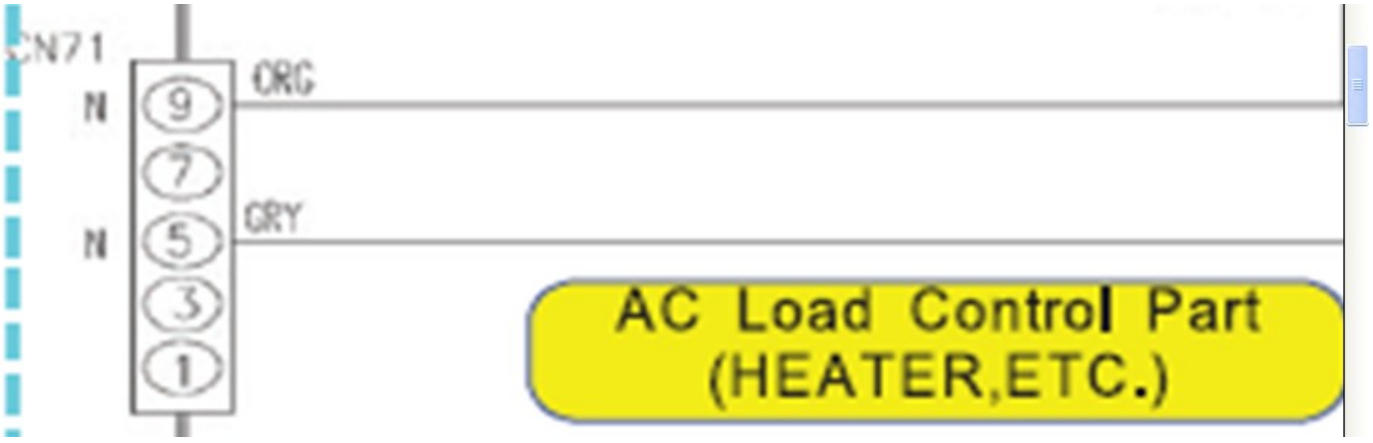
BULLETIN NUMBER: ASC20100714001

DATE:

07/14/2010

Please review before ordering any parts.





CN78
1-3 Fz LED (Blk-Gry)
4-7-FF LED (Red-Gry)

CN71 All 120vac
5-N (Gry)
9-Def Htr Common (Org)

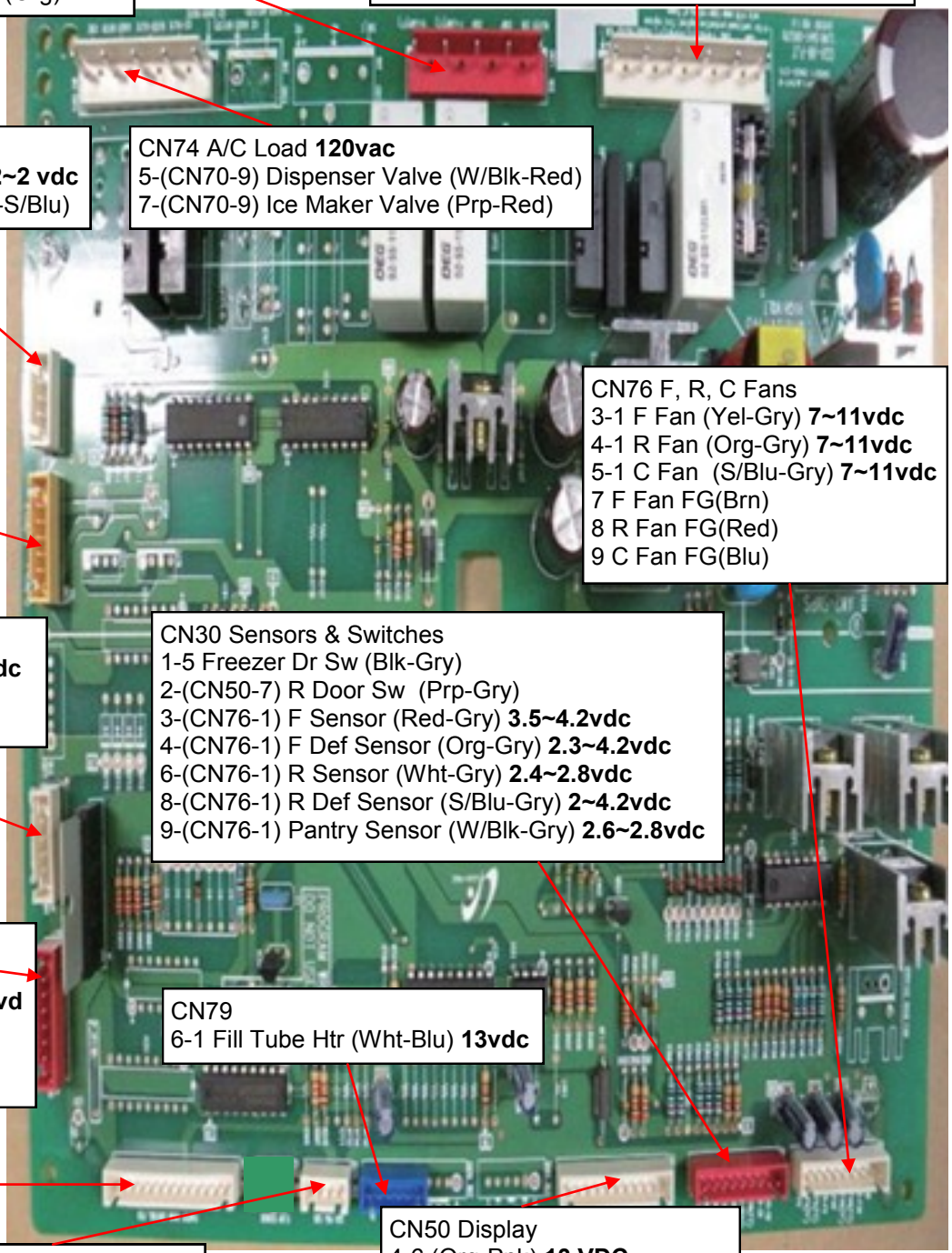
CN= Connector # for measuring voltages; () means go to connector #, pin # shown in () for voltage common.
CN30 Sensors & Switches Component Name
4-(CN76-1) F Def Sensor (Org-Gry) 2.3~4.2vdc
Voltage on operating component
Pin #s & wire colors on each connector to measure voltages

Key To Read PCB Layout

EARLY PRODUCTION PCB Layout

CN70 **120vac**
3- 11 French / Disp Heater (Yel-Gry)
5- (CN71-9) R Defrost/Fill Tube heater (Wht-Org)
7- (CN71-9) F Defrost (Brn-Org)
9- L1 (Red)
11- N (Gry)

CN71 **120vac**
3-(CN70-1) F Lamp (Prp-Red)
5 Common N (Gry)
9 Heater Common (Org)



CN74 A/C Load **120vac**
5-(CN70-9) Dispenser Valve (W/Blk-Red)
7-(CN70-9) Ice Maker Valve (Prp-Red)

CN31 Sensor
1-4 Ambient Sensor (Yel-Yel) **1.2~2 vdc**
2-(CN90-8) **5vdc** to I/M Frz (Blu-S/Blu)

CN76 F, R, C Fans
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**
7 F Fan FG(Brn)
8 R Fan FG(Red)
9 C Fan FG(Blu)

CN78 R LED Light
4-7 (Red-Gry) **13vdc**

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

CN30 Sensors & Switches
1-5 Freezer Dr Sw (Blk-Gry)
2-(CN50-7) R Door Sw (Prp-Gry)
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**

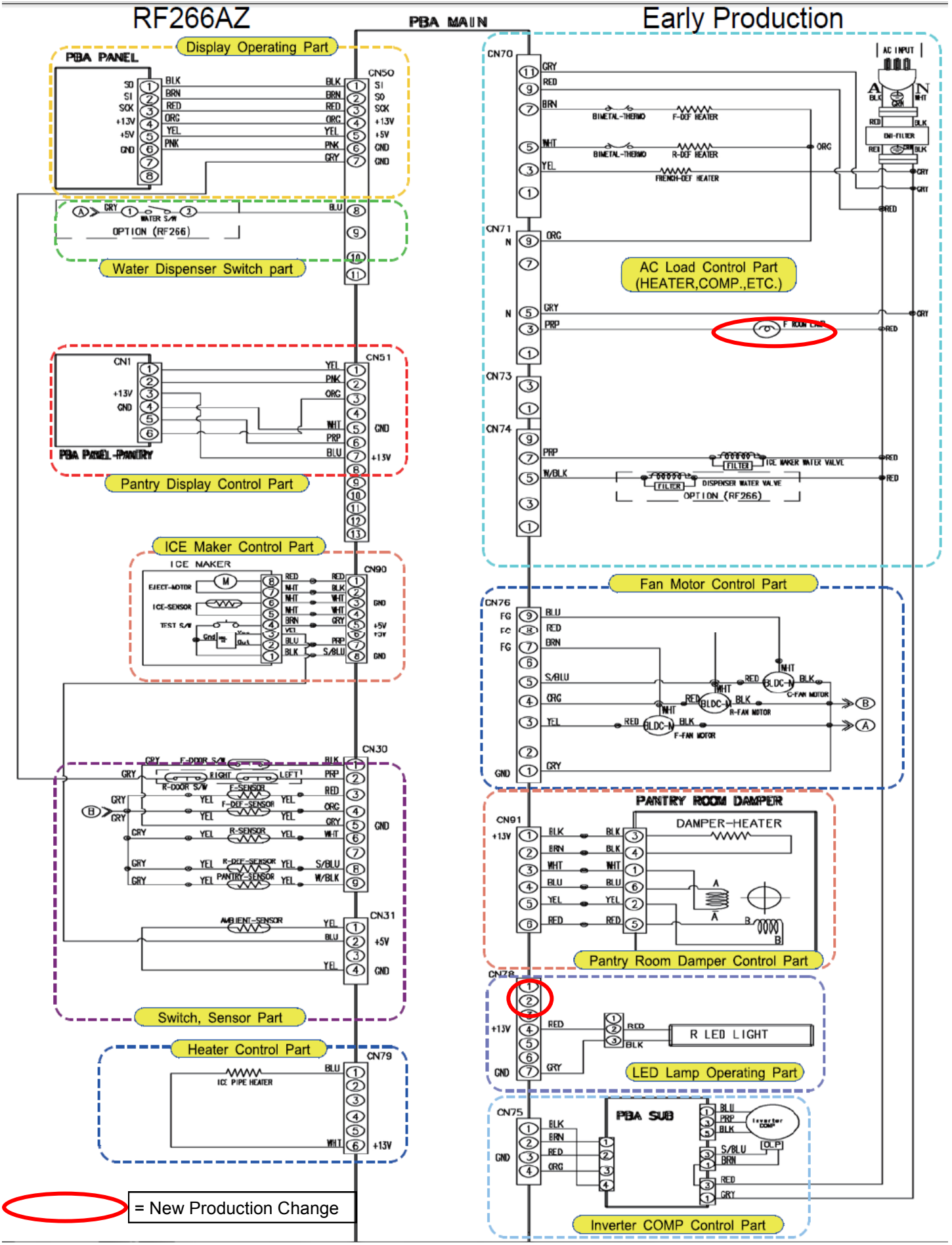
CN90 Ice Maker
1-2 I/M Mtr (Red-Blk) **12vdc**
3-4 Eject Sensor (Wht-Wht) **2.3~3.3vd**
5-8 Test Sw (Gry-S/Blu) **5vdc**
7 Horiz Hall IC Out (Prp)
8 Ground (S/Blu)

CN79
6-1 Fill Tube Htr (Wht-Blu) **13vdc**

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

CN75 Comp Inverter Board
2-(CN76-1) (Brn-Gry) **5 vdc**
4-(CN76-1) Compressor control (Org-Gry) **2~2.8vdc**

CN50 Display
4-6 (Org-Pnk) **13 VDC**
5-6 (Yel-Pnk) **5 VDC**
7 GND R Door Sw **5vdc**
8- (CN76-1) Water Sw (Blu-Pnk


RF266AZ
PBA MAIN
Early Production
Display Operating Part
PBA PANEL
CN50
OPTION (RF266)
Water Dispenser Switch part
CN1
CN51
PBA PANEL-PANTRY
Pantry Display Control Part
ICE Maker Control Part
ICE MAKER
CN90
EJECT-MOTOR
ICE-SENSOR
TEST S/W
CN30
F-DOOR S/W
R-DOOR S/W
F-SENSOR
F-DEF-SENSOR
R-SENSOR
R-DEF-SENSOR
PANTRY-SENSOR
CN31
AMBIENT-SENSOR
Switch, Sensor Part
Heater Control Part
CN79
ICE PIPE HEATER
CN70
BIMETAL-THERMO
F-DEF HEATER
R-DEF HEATER
FRENCH-DEF HEATER
CN71
CN73
CN74
AC Load Control Part
(HEATER,COMP.,ETC.)
ICE MAKER WATER VALVE
DISPENSER WATER VALVE
OPTION (RF266)
Fan Motor Control Part
CN76
BLDC-N
C-FAN MOTOR
R-FAN MOTOR
F-FAN MOTOR
PANTRY ROOM DAMPER
CN91
DAMPER-HEATER
Pantry Room Damper Control Part
CN78
R LED LIGHT
LED Lamp Operating Part
CN75
PBA SUB
Inverter COMP Control Part
= New Production Change

Compressor Operation Testing

TEST BEFORE INTERPRETING LED BLINKING FREQUENCY

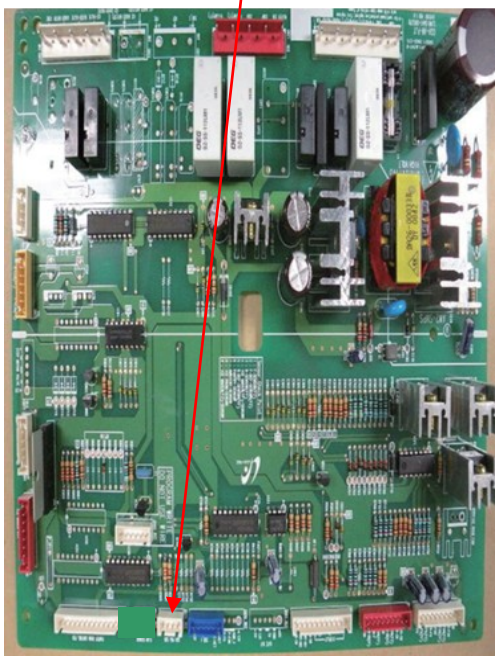
Compressor not running

1. Activate Forced Compressor Operation, wait 2 minutes (in case of high head pressure)
2. If compressor doesn't start, check CN75 for 2~2.8vdc (if not there replace Main PCB)
3. Check for 120vac to inverter PCB CN02 L-N
4. 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.
5. Disconnect CN02 (SMPS PCB), check resistance to Overload , if open replace overload.

CN75 To Comp Inverter Board
4-(CN76-1) Compressor control (Org-Gry) **2~2.8vdc**

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

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



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

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