



Fast Track Troubleshooting

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Models Covered:
 RF4287HABP/XAA
 RF4287HAPN/XAA
 RF4287HARS/XAA
 RF4287HAWP/XAA
 French Door Refrigeration

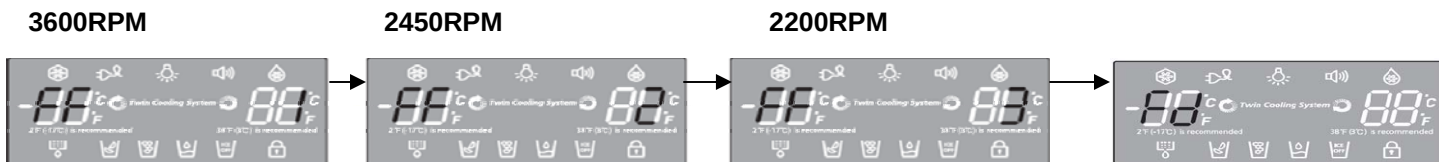
IMPORTANT SAFETY NOTICE – “For Technicians Only” This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in 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.

Self Diagnosis: Press Energy Saver and Lighting buttons *simultaneously* for 8-12 seconds, (No sound when both buttons are pressed at the same time) until the display quits blinking and beeps, then release the buttons and read Fault Codes. This will also cancel the Fault Mode created by self-diagnosis at power up.

Forced Mode: Press Energy Saver and Power Cool buttons *simultaneously* for 8-12 seconds, (No sound when both buttons are pressed at the same time) until the display beeps and goes blank.



Wait 5 seconds between button pushes



Press Power Freeze button one time at the Forced Mode to Force Compressor High Speed Run. Measure fan and compressor voltages at main PCB.

Press Power Freeze button a second time to Force Mid Speed Run.

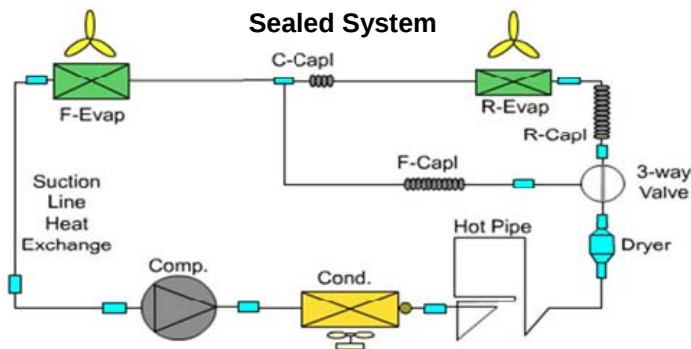
Press Power Freeze button a third time to Force Low Speed Run.

Press Power Freeze button a fourth 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 Energy Saver and Power Freeze buttons *simultaneously* for 3 seconds (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.



SUPPORT INFORMATION

Training — Plus One
<http://my.plus1solutions.net/clientPortals/samsung/>
 Help — GSPN
<http://service.samsungportal.com/>

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	2.5k-89kΩ	N/A	1~4.5vdc
Fans	N/A	N/A	7~12vdc

Sensors

Defrost The sensor voltage tells the Main PCB to turn off the Defrost Heater at 50°F in Freezer, 63°F in Refrigerator Section

Compartment Temp The sensor controls fan/compressor on/off to maintain temperature.

Ice Production Ice maker harvests when the I/M sensor reads 1.5°F for 5 minutes (Flex Tray Only). If the door is opened during that 5 minutes, harvest is delayed.

Ambient Sensor

Fan Speeds – Below 60 degrees, condenser fan is off.

How to Check Sensor Resistances Accurately

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 13,300Ω. Before reinstalling the sensor, be sure to rinse it with fresh water and dry it.

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, located 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 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. This means the Ice Maker will check 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 seconds. The harvest function will start. If the Ice Maker Thermistor is below 0°F, the Ice Maker heater turns on for about 2 minutes. If the temperature exceeds 0°F, the Ice maker heater turns on for 30 seconds, then turns off and the Ice maker harvest motor turns on. The motor will rotate in a clockwise direction for about 3 minutes, the water supply valve is turned on then off and the test mode is completed. If this operation is not carried out within 6 minutes, it will go into a fault mode.

FREEZER TEMPERATURE CONTROLLED 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 the ice bucket is not full, the freezer will again set to -14°F.

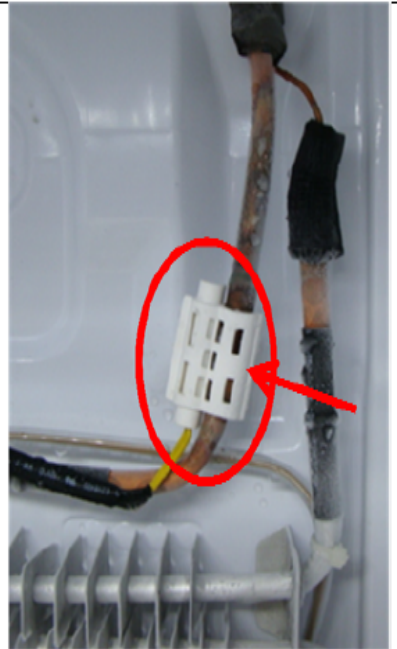
Selecting "Ice Off" will allow the freezer to be controlled by the set temperature.

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

Refrigerator Evaporator Ice Build-up

Symptom:	Ice buildup on the Refrigerator Evaporator			
Solution:				
Step 1 of 5	Defrost the unit			
Step 2 of 5	Verify the refrigerator defrost sensor is not open or shorted, also measure the voltage at the main PCB. The voltage should be between 2.3V and 2.8V (assuming room temperature).			
Step 3 of 5	Move the defrost sensor	Original location: inlet line to the evaporator	New location: outlet side of the evaporator	
	from the inlet side of the refrigerator evaporator to the outlet side.			
Step 4 of 5	Make sure the wiring is routed properly and the sensor is firmly adhered to the evaporator line.			
Step 5 of 5	If the evaporator cover has been cracked or split by the ice buildup the cover must be replaced. If it is not damaged, make sure to firmly seat the cover against the rear wall with no gaps.			

LED		Item	LED		Item
F	R		F	R	
88	88	FZ-Sensor Error	88	88	FF-DEF Error
82		FF-Sensor Error			
84		FZ-DEF-Sensor Error			
89		FF-DEF-Sensor Error			
86		Ambient-Sensor Error	89		Ice Maker(FF) Function Error
87		PANTRY-Sensor Error			
83		Humidity-Sensor Error	80		Ice Room- FAN Error
84		Ice Maker(FF) Sensor Error			
85		Ice Room Sensor Error	48		Panel ↔ Main Communication Error
88		FZ-FAN Error			
82		FF-FAN Error	88		Comp starting Failure
83		C-FAN Error	82		IPM FanIt
84		FZ-DEF Error	83		Comp Abnormal current Detection
			84		Motor Locked Over RPM
		85	Comp under voltage		
		86	Comp over voltage		

Display Cover Removal/Install

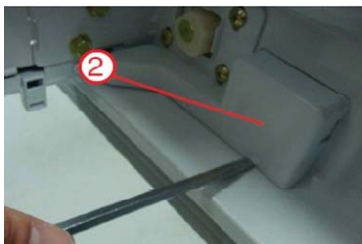
Remove a screw under the display cover.



Remove the display cover by pushing it to the right side and pulling it up.



When assembling Cover-Display, first insert it from leftside and then assemble to rightside.(Check the wire inside.) and knock the display into the Case dispenser.



Mid-Drawer Removal

Remove the cover housing (②) with a flat-blade screwdriver.



Unscrew 4 bolts.
(2 bolts each on the both sides)



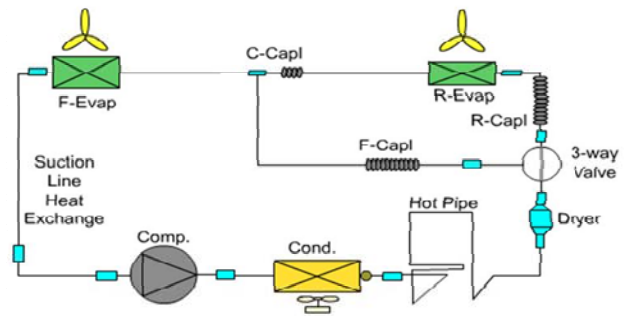
Lifting up the convertible door.
remove the convertible door
from the rail.



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 falls in the all evaporator mode, it should work properly, using slightly more energy. If it falls 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.



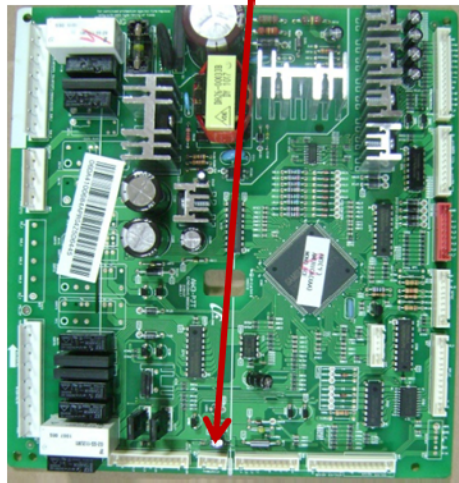
TEST BEFORE INTERPRETING LED BLINKING FREQUENCY

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. Aproximately 10 ohms. If not correct, inspect wire harness. If OK replace compressor.
4. Disconnect CN02 (SMPS PCB), check resistance to Overload. If open replace overload.



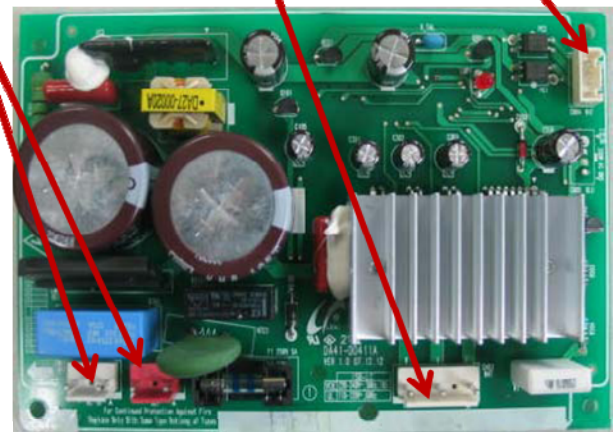
CN75 To Comp Inverter Board
2- (CN76-1) (Brn-Gry) 5vdc
4- (CN76-1) Comp control (Org-Gry) 2.5vdc



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

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CN76 F, R, C Fans & Door Sws

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)
 11- Fz Door Sw
 12- FF Door Sw
 13- Mid Drawer door Sw

CN77 Stepper Motor

1-2 Damper Heater (Blk-Brn) **12vdc**
 7-(CN76-1) Diverter Valve (Org-Gry) **12vdc**

CN30 Sensors & Switches

2-1 (Blk-Gry) **5vdc**
 3 Humidity Sensor (Brn)
 4-(CN76-1)Fz Sensor (Red-Gry) **3.5-4.2vdc**
 5-(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) Mid Drawer Sensor (W/Blk-Gry) **2.6-2.8vdc**

CN79 Flow Sensor

7-Flow Sensor Out (Wht)
 9-8 **+5vdc** (Red-Blk)

CN51 Mid Drawer Display

CN90 Ice Maker

1-7 Sensor I/M eject (Brn-Gry)
 2-7 Test Sw (Blk-Gry) **5vdc**
 3 Full Hall IC out (Blu)
 4 Horiz Hall IC out (S/Blu)
 5-7 (Yel-Gry) **5vdc**

CN50 Display

3-5 (Org-Yel) **13vdc**
 4-5 (Yel-Yel) **5vdc**
 7-5 Ice Sw (Blu-Yel) **5vdc**
 8-5 Water Sw (Pnk-Yel) **5vdc**
 9-5 Ice Rte Sw 1(Prp-Yel) **5vdc**
 10-5 Ice Rte Sw 2 (Wht-Yel) **5vdc**

CN75 To Comp Inverter Board

2-(CN76-1) (Brn-Gry) **5vdc**
 4-(CN76-1) Comp control (Org-Red) **2.5vdc**

CN71 All 120vac

CN70 All 120vac

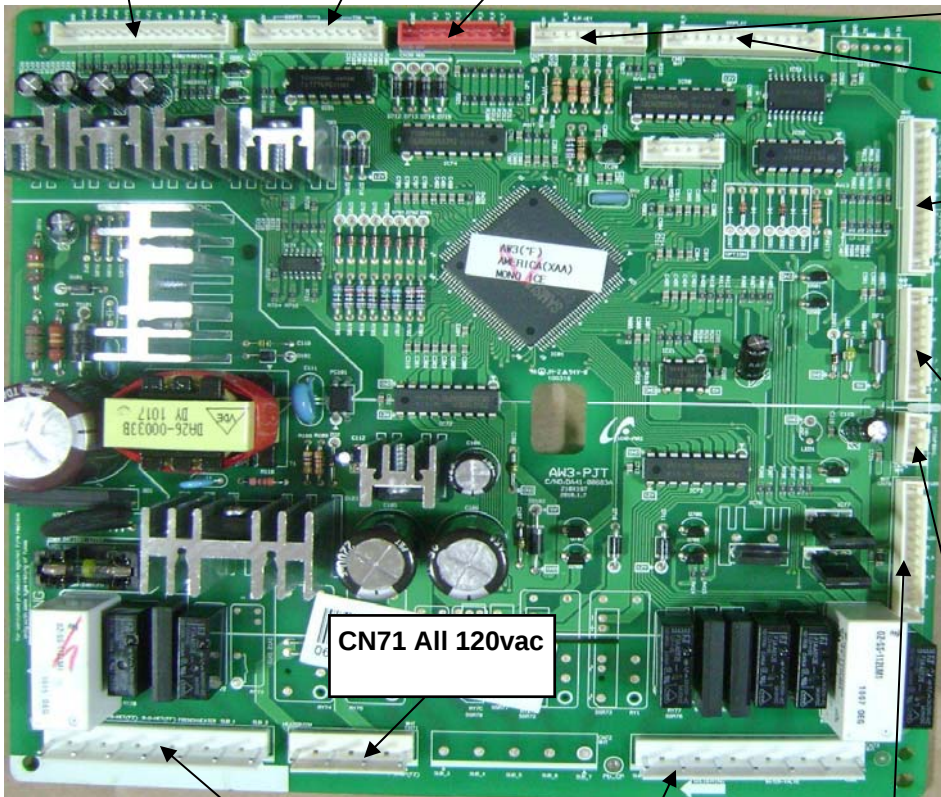
3-13 I/M Heater (Blk-Gry)
 5-13 French & Disp Heater (Yel-Gry)
 7-13 R Defrost (Wht-Org)
 9-13 F Defrost/Ice Duct Htr. (Brn-Gry)
 11- L1 (Red)
 13- N (Gry)

CN73 All 120vac

1-(CN70-11) Cube Solenoid (Yel-Red)
 3-(CN70-11) Auger Motor (Pnk-Red)
 5-(CN70-11) Dispenser Valve (W/Blk-Red)
 7-(CN70-11) I/M Valve Fridge (Prp-Red)
 9-(CN70-11) Ice Cover Route (Blu-Red)
 11-(CN70-11) I/M Motor CW (R) (Brn-Red)
 13-(CN70-11) I/M Motor CCW (R) (Wht-Red)

CN78 Lighting & Sensors

1-2 Fz LEDs (Brn-Prp)
 3-5 FF LEDs (Red-Blk)
 6-7 Mid Drawer LED (W/Blk-Gry)
 8-12 Ambient Sensor (Yel-Yel) **1.2-2 vdc**
 10-(CN76-1) Ice Room Sensor (Org-Gry) **3-3.8vdc**



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