

SAMSUNG

Models: RB1844S*,
RB1855B*, RB1855S*
RB1855V*, RB1944S*
RB1955S*, RB1955V*
RB2044S*, RB2055B*
RB2055S*, RB2155B*
RB2155S*

Fast Track Troubleshooting

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# tsRB1844S-WS-Dr

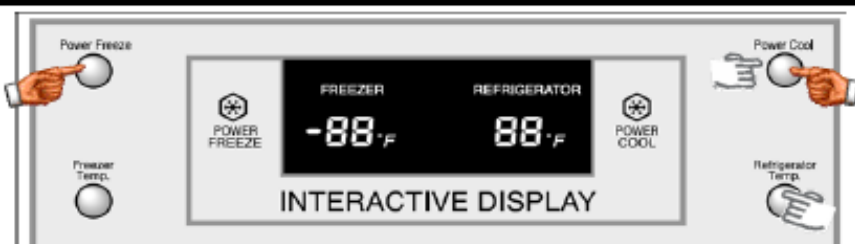
Creation Date 12/5/2011

Self Diagnosis: Press the Power Freeze—Power 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 Power Cool—Refrigerator Temp. 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

Forced Compressor

Forced Defrost for Fridge

Forced Defrost both compartment

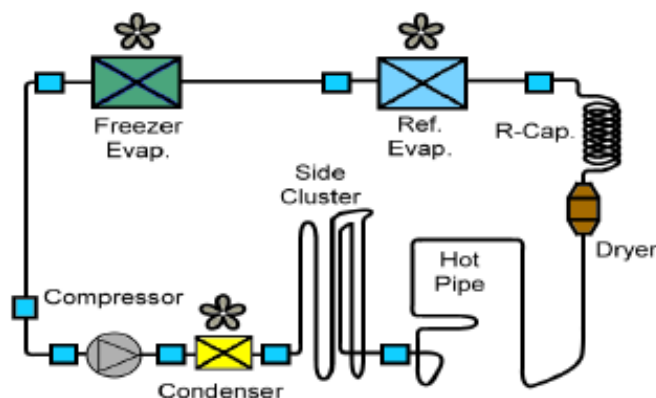
Cancellation, unplug unit

Press the Freezer button one time in the Forced Mode to Force Compressor run. Measure fan and compressor voltage at main PCB.

Press the Freezer button a second time to Force Refrigerator Defrost. Measure defrost voltage at main PCB.

Press Freezer button a third time to Force Defrost for Refrigerator & Freezer. Measure defrost voltages at main PCB

Sealed System



Compressor → Condenser → Side Cluster → Hot Pipe → Dryer → R Capillary → R Evaporator → F Evaporator → Suction Pipe → Compressor

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.

Refrigerant Charge
R134a 5.64 oz.

Component Value Chart

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	60Ω	240	120vac
Fridge Defrost Heater	120Ω	120	120vac
Freezer Drain Heater	277Ω	52	120vac
Fridge Drain Heater	379Ω	38	120vac
Sensors	2.5k-89kΩ	N/A	1~4.5VDC

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

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

DEFROST

This model series uses a Defrost Heater in the Fridge and the Freezer compartment that is part of the Evaporator Coil.

NOTE: Evaporator Covers May Break If Removed While Frozen To Coil. They must be replaced if there is any damage, as this will cause "ice" to form at top or bottom of the evaporator coil or in the drains.



The **Door Switch** must always be on the side the hinge is on. If not, the Fridge door may not always close properly, creating an intermittent Fridge no or poor cooling.

Defrost
Cycle
Timing

<u>First Defrost Cycle,</u> Both Fridge & Freezer	Defrost Cycle Fridge only	Defrost Cycle Fridge & Freezer
4 hrs, Pause Time 10 minutes	6~11 hrs (varies according to conditions)	12~22 hrs (varies according to conditions)

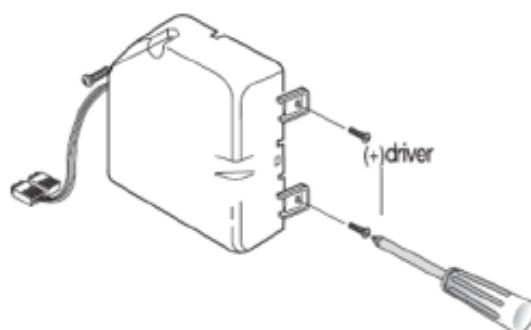
Fridge and Freezer evap fans are 120vac, controlled by a 5vdc door switch, a small resistance in the door switch will cause an intermittent no cool condition.

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

Fault Codes

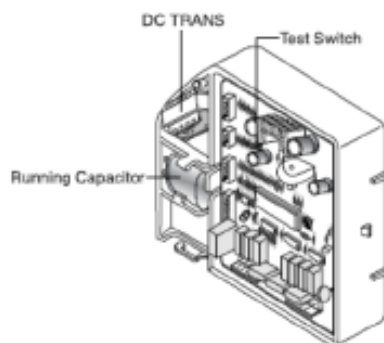
No	Error Items	Display LED	TROUBLE
1	R-SENSOR	Fridge 5	Fridge Compartment Sensor Error- This can be a wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 150° or < -58 ° F.
2	DEFROST SENSOR, R ROOM	Fridge d	Fridge Compartment defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. This can also be caused by a temperature reading > 150° or < -58 ° F.
3	Peripheral Temp Sensor	Freezer E5	Ambient Temp. Sensor Error- This can be a wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 150° or < -58 ° F.
4	F-SENSOR	Freezer F5	Freezer Compartment Sensor Error- This can be a wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 150° or < -58 ° F.
5	F-DEF-SENSOR	Freezer d5	Freezer Compartment defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. This can also be caused by a temperature reading > 150° or < -58 ° F.



(Forced running)

* This function is used to turn on the comp and fan immediately regardless of the temperature of freezer using the test button on the main PCB.

1. Press the TEST button on the PCB after removing the main PCB cover in the machine compartment.
2. Buzzer will sound to indicate the forced running.



PCB-MAIN ASSY

(Forced defrosting)

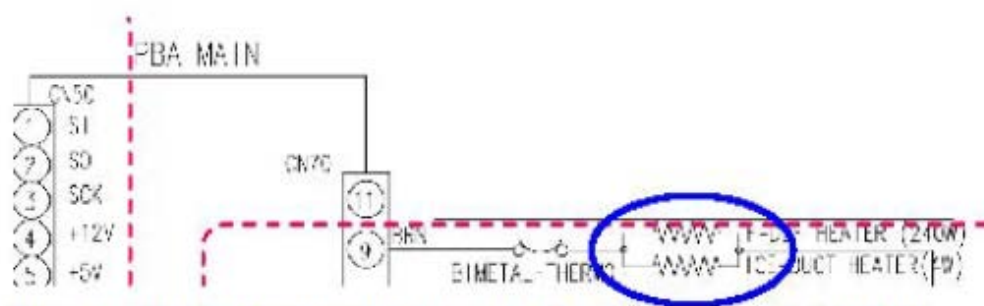
* This function is used to turn on the defrosting regardless of defrost time.

1. Press the button during forced running. Then, R-defrosting is performed.
2. If the button is press during R-defrosting, F-defrosting is also performed at the same time.
3. If the button is pressed during R-F defrosting, test mode is released.

Troubleshooting refrigerator defrost heater problems

The freezer or refrigerator evaporator is not defrosting but measuring the heating element from the main PCB indicates ~2600 Ohms.

The measurement indicates that the Thermo-Fuse (Bi-metal) is good but defrost heating element is open.



The main defrost heating element is in parallel with a small heater, ~ 4 watts, which measures about 2600 Ohms. This example shows the freezer defrost heater in parallel to the ice duct heater where both come on at the same time. The refrigerator is similar.

RB 1844S*, RB1855B*, RB1855S*, RB1855V*, RB1944S*, RB1955S*, RB1955V*, RB2044S*, RB2055B*,
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CN71 120vac
1 Line N (Red)
3-1 R-Lamp (Pnk-Red)
5-1 F-Fan (Blu-Red)
7-1 R Fan (Org-Red)
9-1 R Lamp (W/Blk-Red)

CN70 120vac
1 (Gry) Line L1
3- (CN71-1) Cond Fan (Yel-Red)
5-1 R Heater (R Drain) (Wht-Gry)
7-1 F Heater (F Drain) (Brn-Gry)
9-1 Compressor (S/Blu-Gry)

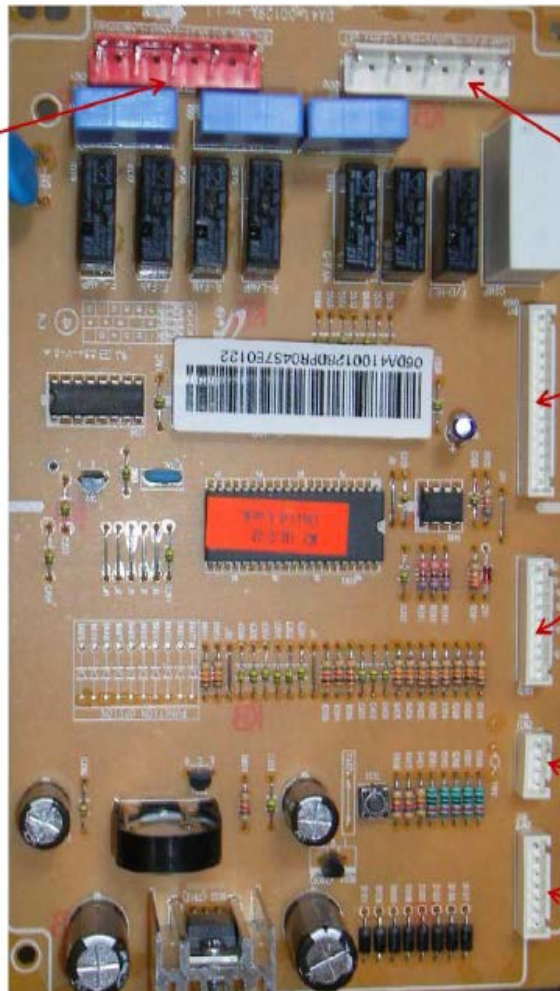
CN50
Display Panel

CN30
1-5 F Room Sensor (Blu-Gry) 3.5 ~ 4.2 vdc
2-5 R Room Sensor (Yel-Gry) 2.4 ~ 2.8 vdc
3-5 F Def Sensor (Org-Gry) 2.3 ~ 4.2 vdc
4-5 R Def Sensor (Prp-Gry) 2 ~ 4.2 vdc
6-7 F Door SW (Blk-Brn)
8-9 R Door Sw (Wht-S/Blu)

CN31 (on some models)
2- 4 Ambient Sensor (Wht-Wht) 1.2 ~ 2 vdc

CN10 A/C Transformer
1-3 A/C Transformer In (Blk-Blk)
5-7 A/C Transformer In (Blu-Blu)

BLU-BLUE
BRN-BROWN
RED-RED
GRY-GRAY
ORG-ORANGE
PNK-PINK
E-EARTH
PRP-PURPLE
S/BLUE-SKY BLUE
WHT-WHITE
YEL-YELLOW
BLK-BLACK
W/BLK-WHITE/BLACK
W/RED-WHITE/RED
W/BLU-WHITE/BLUE
W/YEL-WHITE/YELLOW



MAIN PCB

