

SAMSUNG REFRIGERATOR TRAINING

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Presented by: Rick Kuemin, MSA Training Director

Cool Refrigerators





Refrigerator Model Number Nomenclature

- RF = French Door
- RS = Side by Side
- RB = Bottom Mount Freezer
- RM = Four Door Questions or comments? Please e-mail richard.kuemin@marcone.com

MSA Marcone Servicers Association

Samsung HA Warranty

- ALL Warranties are subject to change, always verify.
 - 1 Year Parts & Labor Base Warranty, Labor may not apply over 1 year
- Some items may have longer Warranties, Check Owners Manual or 800-SAMSUNG
 - Refrigerator Sealed System Five Years Parts & Labor
 - Laundry 2 years on Control Boards, 3 years on Stainless tubs, 10 years on DD washer motors
 - M/W oven 10 years on Magnetron Tubes
 - Range 5 years on Glass Cooktop and Radiant Surface Units
 - D/W 5 years Printed Circuit Board, Racking and Lifetime Stainless Door Liner & Tub for leakage.
- No Damage Warranty, Consumer or Stock
- One Year, One Call for Consumer Education
- Stock Repair, 24 months from date of manufacture
- Two Stock Repairs allowed under Warranty
- Refurbished Anoder Heas-noil Wardranty @marcone.com







- Talk to the Consumer, don't trust the work order
- Talk to the Fridge, the Diagnostic Mode is the most valuable troubleshooting tool you have for troubleshooting a refrigerator. <u>When</u> <u>you are at the product this MUST be the first test you should do.</u>
- Removing power will erase Defrost Fault Codes, for 4-6 hours.
- When a Samsung refrigerator is powered up it performs a Self Diagnosis, if an **open or shorted sensor** is detected it will **lock the display** and **flash the code** in the display. The refrigerator may have **no operation**, or operate in the **emergency mode**. Other faults detected will usually not lock the display or stop operation. To restart operation put into Manual Diagnostic Mode. Sensors that are off value, but not shorted or open, will not bring up a fault code.



Samsung Technology

Refrigeration

- Twin Cooling
- Temperature/Humidity Control with Stepper Valve
- Sensors Control Everything
- Computer Controlled DC Fan Motors
- LED Lighting (changing over quickly)



Twin Cooling Design

French Door Internal cool air circulation path



Advantages

•More accurate control of temperatures

- •No air exchange between compartments
- •Energy efficiency

•Fresh Food Humidity

Freezer



Compartment Temperature Sensor TESTING

To show actual Temps, on older models, after checking Fault Codes (Why), power off & on. The display will show actual compartment temperature for a short time, check the actual temperature at the top rear of the compartment and compare readings. Newer models, press TEMP pad, set temp displays, then actual displays before going blank. Why could actual temp be different? (power freeze/cool, before defrost, or plugged in only a short time).



[©] Refrigeration Troubleshooting

- The Forced Operation Mode is a valuable troubleshooting tool for testing compressor operation & some fan operation.
- Forced Freeze (FF) Mode
 - The **compressor is started** without the 5-7 minute delay
 - You can accurately check defrost sensor voltages in this mode with the cold evaporators.
 - You can check the compressor current draw or check voltage at the main PCB in this mode.
 - Some fans will be turned on in this mode, to allow voltage testing. The door switches still control the fan operation. (Fridge fan is still controlled by the compartment sensor, Cond fan by the ambient sensor)
 - Inverter Compressors (most models), 3 speeds (FF1, FF2, FF3) can be selected and check some fans, current draw or compressor control voltage in the Forced Operation. (Fridge fan is still controlled by the compartment sensor, Cond fan by the ambient sensor)



Refrigeration Troubleshooting



- The Forced Operation Mode is a valuable troubleshooting tool for testing defrost operation.
- Forced Defrost Mode
 - The Fridge (RD) defrost function can be activated (Some Models).
 - You can check the Fridge defrost current draw or defrost voltage at the main PCB in this mode.
 - All defrost function & Inverter Compressors
 - You can check All (FD) defrost current draw or All defrost voltages in this mode (All Models).
- Forced Defrost will warm the evap coil and defrost sensor.
 You must run the compressor after to get an accurate defrost sensor voltage test.

Refrigeration Troubleshooting

The Forced Operation Mode "Display"

- Inverter compressor models will show the forced function in the display FF1, FF2, FF3, FD (all defrost).
- Most standard compressor models manufactured after 2007 will show the forced function in the display FF, RD, FD
- Most models 2006 and older will have a blank display during the forced mode, wait <u>5 seconds</u> between button pushes so you know what mode you are in (FF, RD, FD). If in doubt, unplug unit and start over.



Forced Operation- Standard

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Water

Power Cool

Child Lock (Hold 3 secs.)

Compressors

Digital Digitally Controlled Display

·88,

Power

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Ice

Forced

Compressor

Powe



Filter Indicator Ice Type + Child Lock (Hold 3 secs.)









88.

Cancellation, unplug unit

Press Freezer button a third time to Force Defrost for Fridge & Freezer

Forced Defrost for both compartment

Wait 5 seconds between button pushes

Press Freezer button One time at the Test Mode to Force Compressor

Press Freezer button Second time for Forced Defrost of Fridge

Forced Defrost

for Fridge

comments? Please e-mail richard kuemin@marcone.com

Inverter Compressor Forced Mode



Simultaneous manual defrost (fresh food and freezer compartments) function



Press Freezer button a 4th time to Force Defrost for ALL Compartments

Questions or comments? Please e-mail richard.kuemin@marcone.com

Forced Defrost for ALL compartments

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Forced Mode for Single Evap units

Use Freezer Key as a Test Key

Wait 5 seconds between button pushes

7-11) TEST (FORCED OPERATION / FORCED DEFROST)

- When pressing Refrigerator temp set KEY and ice selection KEY in PANEL PCB simultaneously for more than 8 sec. PANEL DISPLAY will go off and it moves onto TEST MODE. At this point, although Freezer/Refrigerator temp set KEY, quick freezing KEY, and ice selection KEY are pressed, it operates by TEST KEY.
- When pressing TEST KEY, Test function shall be changed in the order as Forced Operation ---> Forced Freezer Defrost---> Cancellation(normal operation)---> Forced Operation. If functions are canceled during the operation of TEST function, it is most desirable to turn off the power and turn it on again.

RS2630SW/XAA (for Best Buy)



Questions or comments? Please e-mail richard.kuemin



Forced Mode for 2010 units

RS261MD, RS263TD



RS263TD is an inverter compressor, but will only do **FF, RD, FD**



How to Read PCBs





CFAN MOTORS



DC Fan Motors

Brushless DC Fan motors are used to save energy. The fans operate at two speeds. High when the ambient temperature is high and Low when the temperature is low. Generally, it is operated in the High mode during the day and in the Low at night.

This circuit design is to protect the Main PCB from a failed fan motor. 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) then fan drive circuit is disabled for 10 minutes.

A/C Fan Motors

These motors operate on 120 vac from a relay on the main PCB. A 5 dc voltage is switched on and off by the door switch for the main PCB to activate the fan relays

Compartment Fan

- A/C fan motors. With a closed door switch the sensor calls for cold and activates the relay, (delayed from 10 60 seconds).
- DC fan motors. With a closed door switch the sensor calls for cold and the main PCB activates the DC voltage to the motor, (delayed from 10 60 seconds).



Defrost Cycle Timing

	Timer Defrost	Adaptive Defrost	Adaptive Defrost
Model Series	<u>First Defrost</u> <u>Cycle,</u> Both Fridge & Freezer	Defrost Cycle Fridge only	Defrost Cycle Fridge & Freezer
RSG	6 hrs, Pause Time 10 minutes	6~12 hrs (varies according to conditions)	12~24 hrs (varies according to conditions)
RS	4 hrs, Pause Time 10 minutes	6~12 hrs (varies according to conditions)	12~24 hrs (varies according to conditions)
RF	6 hrs, Pause Time 12 minutes	6~17 hrs (varies according to conditions)	12~34 hrs (varies according to conditions)
RFG	6 hrs, Pause Time 12 minute	6~11 hrs (varies according to conditions)	12~23 hrs (varies according to conditions)
RB 2009	6 hrs, Pause Time 12 minutes	6~11 hrs (varies according to conditions)	12~23 hrs (varies according to conditions)
RB Pre 2009	4 hrs, Pause Time 10 minutes	6~11 hrs (varies according to conditions)	12~22 hrs (varies according to conditions)
RS2630 RS2530	4 hrs, Pause Time 7 minutes	N/A	6~11 hrs (varies according to conditions) * Single Evaporator in Freezer





Defrost Operation

All new production (except RB series) uses Sheath Heaters

Defrost cycle is init by the main PCB.

- 120vac is supplied to the defrost heater circuits, for the Fridge and/or for the Freezer
- After 90 seconds, the heaters remain on until the defrost sensor voltage tells the PCB to terminate the cycle.
 - The PCB shuts off the heater at Sensor temps 50F in Freezer, and 63F in Fridge, after the main PCB initiates the cycle.
- The Thermal Fuse and/or Bi-Metal is the fail safe for this circuit
 - The Thermal Fuse or Bi-Metal is in series with the defrost heater for protection (140 degree) for failure.



Sensor Common



Sensor Common



Temperature/Resistance/Voltage Chart - ALL Fridge Sensors

	— ~ —			— ~ —			— V —	
						Temp.		
<u>Temp. (°F)</u>	Resistance(kΩ)	Voltage (V)	Temp. (°F)	Resistance (k Ω)	Voltage (V)	(°F)	Resistance ($k\Omega$)	Voltage (V)
-43.6	98.9	4.54	12.2	21.4	3.41	68.0	6.01	1.88
-41.8	93.7	4.52	14.0	20.5	3.36	69.8	5.79	1.83
-40.0	88.9	4.49	15.8	19.6	3.31	71.6	5.58	1.79
-38.2	84.2	4.47	17.6	18.7	3.26	73.4	5.38	1.75
-36.4	79.8	4.44	19.4	17.9	3.21	75.2	5.19	1.71
-34.6	75.7	4.42	21.2	17.2	3.16	77.0	5.00	1.67
-32.8	71.8	4.39	23.0	16.4	3.11	78.8	4.82	1.63
-31.0	68.2	4.36	24.8	15.7	3.06	80.6	4.65	159
-29.2	64.7	4.33	26.6	15.1	3.01	82.4	4.49	1.55
-27.4	61.5	4.30	28.4	14.5	2.96	84.2	4.33	1.51
-25.6	58.4	4.27	30.2	13.9	2.90	86.0	4.18	1.47
-23.8	55.6	4.24	32.0	13.3	2.85	87.8	4.03	1.44
-22.0	<u>50 8</u>	1 20	33 5	107	0 R C	89.6	3.89	1.40
-20.2	L A sei	nsor re	eading (0.98 wher	n cold	91.4	3.76	1.37
-18.4			C7 at m			93.2	3.63	1.33
16.6		read 1	.67 at r	oom temp).	95.0	3.51	1.30
-14.8	Test	VDC w	vith con	n <mark>o runni</mark> n	a	96.8	3.39	1.27
-13.0						98.6	3.28	1.23
-11.2	39.2	3.99	44.6	10.0	2.50	100.4	3.17	1.20
-9.40	37.4	3.95	46.4	9.60	2.45	102.2	3.06	1.17
-7.60	35.7	3.91	48.2	9.20	2.40	104.0	2.96	1.14
-5.80	34.0	3.86	50.0	8.80	2.35	105.8	2.86	1.11
-4.00	32.4	3.82	51.8	8.50	2.30	107.6	2.77	1.09
-2.20	30.9	3.78	53.6	8.20	2.25	109.4	2.68	1.06
-0.40	29.5	3.73	55.4	7.90	2.20	111.2	2.59	1.03
1.40	28.1	3.69	57.2	7.60	2.15	113.0	2.51	1.00
3.20	26.9	3.64	59.0	7.30	2.10	114.8	2.43	0.98
5.00	25.7	3.60	60.8	7.00	2.06	116.6	2.35	0.95
6.80	24.5	3.55	62.6	6.70	2.01	118.4	2.28	0.93
8.60	23.4	3.50	64.4	6.50	1.97	120.2	2.21	0.90
Questio	ns or220mmen	ts? 8. 46 se	e-m66iPrick	ard.l&@min@	matcone.a	om		
				Table A			·	





Testing Defrost Circuits – Always test <u>all</u> compartments, even if only one is bad.

- 1. Access main PCB for voltage/resistance testing
- 2. With the compressor running, test the defrost sensors (vdc)
- 3. Enter Forced Mode Defrost
- 4. Measure heater voltage
- 5. Remove power and heater connector and check heater circuit resistance

Defrost Sensor

- After 90 seconds, the sensor voltage shuts off heater, at 50 in Freezer, 63 in Fridge
- If the sensor is bad it may shut off the defrost circuit in a few minutes, after the initial 90 seconds, causing frost build-up, <u>or it</u> <u>could lock up in defrost and become a total no cool</u>.

Note: A defective sensor may check OK at room temperature, test at operating temperature only.





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Sample Heater Resistances

Older RB Models

Component	Resistance	Wattage	Voltage		
Freezer Defrost Heater	600	242	120vac		
Fridge Defrost Heater	(120Ω)	120	120vac		
Freezer Drain Heater	277Ω	52	120vac		
Fridge Drain Heater	379Ω	38	120vac		
Fill Tube Heater	1100Ω	10	120vac		
New RB Models					
Component	Resistance	Wattage	Voltage		
Fridge Defrost Heater	120Ω	120	120vac		
Freezer Defrost Heater	60Ω	240	120vac		
Fill Tube	1108Ω	13	120vac		

Older RS Models

Component	Resistance	Wattage	Voltage	1
Freezer Defrost Heater	58Ω	215	120vac	1
Fridge Defrost Heater	103Ω	140	120vac	
Freezer Drain Heater	320	45	120vac	I
Dispenser Heater	2880Ω	5	120vac	
Water Tank Quatertions o	r co ssae @ts? P	leasete-ma	il ritzłowaci.ku	em
Fill Tube Heater	2880Ω	5	120vac	1

Go to Fridge Fast

Tracks for each Model

RF & RFG Models					
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	9000Ω	1.6	120vac		
Water Tank Heater	72Ω	2	12vdc		
Fill Tube Heater	72Ω	2	12vdc		

RM Models

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	720	200	120vac
Fridge Defrost Heater	(180Ω)	80	120vac
CF Defrost Heater	144Ω	100	120vac
CR Defrost Heater	(180Ω)	80	120vac
F Drain Tube/Heater	2880Ω	5	120vac
R Drain Tube/Heater	2880Ω	5	120vac
Dispenser Heater	2880Ω	5	120vac
in@WateroTankoHeater	29Ω	5	
Fill Tube Heater	29Ω	5	cone ser 2vo cociatio

Defrosting Troubleshooting Heater is part of Evap Coil (RB & older production) **Resistance and use vary by Model (See Fast Track)** 2800 to 120 ohm heaters – 380 ohm heater TH**erna**l fuse KI K ₩I) It HALL TH**erva**l fuse

New Defrost Circuits 2010



Inverter Compressors on new units



Max Cool

this mode is accessed very rarely



Inverter Compressors

Samsung Refrigerators

All use the same code!!

Please remember, **DO NOT** use this information until you do the following compressor voltage/resistance checks at the Main/Inverter PCBs

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	$\bigcirc \bigcirc $	Compressor Locking, check input voltage	Replace Inverter PCB, if same, replace Compressor



Inverter Compressor & System Operation Testing

TEST BEFORE INTERPRETING LED BLINKING FREQUENCY

Compressor not running, LED is out

1. Activate Forced Compressor Operation, wait 3 minutes (in

case of high head pressure)

2. If **compressor doesn't start, and LED is out,** check Compressor Control pin for about 2.0-2.7vdc (if not there replace Main PCB)

CN75 To Comp Inverter Board 2- (CN76-1) (Brn-Gry) 5vdc 4- (CN76-1) Comp control (Org-Gry) 2.5vdc **DO NOT touch the meter probe as it will cause voltage error due to body impedance.** Cuestions or comments? Please e-mail rich



Inverter Compressor & System Operation Testing

TEST BEFORE INTERPRETING LED BLINKING FREQUENCY

- 1) Compressor not running--LED Blinking
- 2) Activate Forced Compressor operation, wait 3 min. (in case of high head pressure)
- 3) Check for 120vac at CN02 Red and Gray wires.
- 4) If voltage is OK, remove power, disconnect CN03 (Inverter PCB) and check resistance to the windings. Aproxametly 10 ohms. If not correct, inspect wire harness, if OK replace compressor.
- 5) Disconnect CN02 (Inverter PCB), check resistance to Overload , if open replace overload.







Inverter Compressors

All Samsung Refrigerators use the same code!

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

Note: Failure rate for inverter compressors is very very low, also the failure rate for a new PCB is very low.





SPEEDY DEFROST





Defrost Troubleshooting

<u>NOTE: Evaporator Covers May Break</u> or Crack if Removed <u>While Frozen To Coil,</u> replace if damaged.

- Ice build up in either the freezer or refrigerator compartment can be caused by a blocked drain. It is possible that the drain is not being defrosted by the heaters enough to properly clear the drain and pass the melted water into the catch pan.
- In the Freezer compartment this may be caused by an open defrost foil drain heater
- In the Fridge compartment this may be caused by a bowed or damaged evaporator cover ass'y. Any cracks in Styrofoam or breaks in the foil will cause ice buildup.
- Check drain tubes next to condenser coil.



Defrost Troubleshooting



- Metal clips "A" and "C" can be placed on both the evaporator cover and the evaporator. The metal clips will touch and transfer heat more efficiently from the defrost heaters to the drain preventing ice build up. Due to the low current draw of this heater, the foil is critical for heat transfer.
- Part numbers for these parts are as follows:
- A: DA61-03502A PLATE-DRAIN INS EVAP, REF
- C: DA61-03585A FIXER-EVAP REF



Defrost Heater Replacement Out of Warranty Only

Current RS & RF Production use Sheath Heaters

The Heater Tubing is the front pass on the evaporator ass'y, it can be removed from the new ass'y and reinstalled on the one in the refrigerator compartment, after removal of the defective heater. This is for the Refrigerator side only.

Extreme Caution must be used

The Evaporator ass'y is very sharp and can cause injury.

Note the position of the foil tape, sensor, thermal fuse, and each zip tie.

The tabs holding the heater tubing must be twisted with care to avoid breakage.

Reinstallation of the heater on the refrigerator evaporator must be done with care to prevent defrost drain freezing issues. Lock each tab properly to assist in heat transfer and position the foil tape, sensor, thermal fuse, and each zip tie exactly as removed. Straighten all fins

Refrigerator Evaporator Ass'y


Tools required Kevlar Gloves Foil Tape Zip Ties Long Nose Pliers Cutter Drill Pop Rivet tool



Heater aluminum tube is locked to the evaporator frame with two tabs on each pass. Twist each tab carefully to avoid breakage and lift up heater tubing.









Drain Tray is riveted to the evaporator frame Drill out rivet to separate heater/tray ass'y from the evaporator coil. Use Pop Rivet tool to reinstall on evaporator ass'y in the refrigerator.



Heater Ass'y after separation from the evaporator coil

Questions or commented Please e-mail richard.kuemin@marcone.com

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Questions or comments? Please e-mail richard.kuem	marcone.com		

Troubleshoot Diverter Valve

- If it fails in the all evap mode, it should work properly using slightly more energy, (possibly cooling fridge a little too much).
- For testing, set fridge temp warmer than the actual temp, monitor the defrost sensor(s) to see if voltage drops/temp rises.
- If it fails in the Freezer evap only mode, there will be a Fridge no cool

Force on the Fridge with the "Pwr Cool" option. Monitor the Fridge evap(s) temp by using the Defrost Sensor(s). If the temp doesn't decrease/voltage increase to proper level, then suspect the Main PCB is not supplying signal to switch the diverter value.

Questions or comments? Please e-mail richard.kuemin@marcone.com





RB, RF and RS units, non Diverter



Standard Compressor Operation

Special Note:

0 0

When ordering compressors, they

are not shipped with a PTC Relay,

Overload Protector, or Drier.

REMEMBER TO ORDER!

Neutral is switched to power compressor, measuring voltage from chassis ground will show voltage at PTC Relay if compressor is not turned on or PCB is defective.

Use Forced Compressor Mode to test.

Use L1 Common for measurements, tap compressor relay on Main PCB when checkings voltage to finde-mail richard.kuemin@marcone.com intermittent problems.





Refrigeration Troubleshooting

Fridge

 A Sample fault code would be Ice Maker Sensor failure. lis is an example of an

- Things that can happen with this fault.
 - After a power failure the unit would be "dead", lights work and blinking sensor code, 2006 and older products
 - Display could be "locked-up", 2007 and newer products
 - The Ice Maker is not making any ice
 - The Ice Maker is dumping partially frozen cubes
- Another sample fault code, if you see this fault, ignore it. This is a modem communication error not applicable in the US, found on units 2006 and older.



Questions or comments? Please e-mail richard.kuemin@marcone.com

Manual Diagnostic Mode

When two buttons are pushed simultaneously there will be no sound, if you hear a sound stop and start over.

Press and hold the two Buttons *simultaneously* until display quits blinking and beeps, then release and read fault codes, about 8-10 seconds.



Manual Diagnostic Mode

When two buttons are pushed simultaneously there will

be no sound, if you hear a sound stop and start over.

Press and hold the two Buttons *simultaneously* until display quits blinking and beeps, then release and read fault codes, about 8-10 seconds.

Single Evaporator Models





Manual Diagnostic Mode 2010 Models

RS261MD, RS263TD



RS265TD, **RS267TD**



RF4287HA





	Samsung 'Refrigerator' Diagnostic Code Quick Guide						
	<u>No</u>	<u>Error Items</u>	<u>LED</u>	FRIDGE TROUBLE			
Faults possible when working on	1	I/M-SENSOR	Fridge	Ice Maker Sensor Error- This can be an Electric wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 122° or < -58 ° F.			
	2	R-SENSOR		Refrigerator Compartment Sensor Error- This can be an Electric wire cut, short-circuit, contact failure, or missing sensor. Cause is also a temperature reading > 122°or < -58 ° F.			
	3	DEFROST SENSOR OF R ROOM	Fridge	Ref. Defrost Sensor Error- This can be an Electric wire cut, short-circuit, contact failure, or missing sensor. Cause is also a temperature reading > 122°or < -58 ° F.			
WHY?	4	R-FAN ERROR	Fridge	This error indicates the Refrigerator Evap Fan is not spinning at the correct RPM or the fan feedback line is open.			
	5	I/M FUNCTION ERROR	Fridge	This error indicates the Ice tray has not returned to level after an ice harvest. The error is displayed after three failed attempts.			
	6	COOL SELECT ZONE SENSOR	Fridge	Cool Select Zone Sensor Error- This can be an Electric wire cut, short- circuit, contact failure, or missing sensor. Cause is also a temperature reading > 122°or < -58 ° F.			
Quest	ions o 7	R-DEFROSTINGse ERROR	e-mail ric	Refrigerator Room defrost heater- wire cut, short-circuit, contact failure, nard Roemin Omorcone.com missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes			

Master fault code sheet Duplications are always RM 4door units

Fault Codes









Samsung 'Refrigerator' Diagnostic Code Quick Guide					
	<u>Sam</u>	<u>sung Single Ev</u>	aporator 'Refrigerator' Diagnostic Code Quick Guide]	
<u>No</u>	<u>Error Items</u>	<u>Display LED</u>	TROUBLE		
1	Fridge Sensor	Fridge ''Mid''	Fridge Room Sensor Error- This can be an wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 149° or < -58 ° F.		
2	Peripheral Temp Sensor	Fridge ''Min''	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 > 149° or < -58 ° F.		
3	Freezer Sensor	Freezer "Max"	Freezer Room Sensor Error- This can be an wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 149° or < -58 ° F.		
4	Freezer Defrost Sensor	Freezer "Mid"	Freezer Room Defrost Sensor Error- This can be a wire cut, short- circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 149° or < -58 ° F.		
5	Freezer Defrost Error	Freezer "Min"	Freezer Room defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 90 minutes		
6	I/M Function Error	No Ice	This error indicates the Ice tray has not returned to level after an ice harvest. The error is displayed after three failed attempts.		
7	I/Musetiers Ei-for	mertifed see	Ice Maker Sensor Error- This can be a wire cut, short-circuit, contact e-mailurie, or missing sensor. This can also be caused by a temperature reading > 149° or < -58 ° F.	SA icers Associati	

	Samsung Older "RB" Series 'Refrigerator' Diagnostic Code Quick Guide					
<u>No</u>	Error Items	<u>Display LED</u>	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 an 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.			

* Self-diagnosis CHECK LIST

Display		Translate items	Trankla santanta		
F	R	I rouble item	I rouble contents		
EE		FZ-Sensor Error	Senser system in FZ compartment errors		
88		FF-Sensor Error	Sensor system in FF compartment errors		
88		FZ-DEF-Sensor Error	Defrost Sensor system in FZ compartment errors		
88		FF-DEF-Sensor Error	Defrost Sensor system in FF compartment errors		
88		Ambient-Sensor Error	Snesor external system errors		
88	88	Flex room Error	Sensor system in Pantry Room compartment errors		
88		I/M-Sensor Error(R)	Sensor system in ICE maker(R) errors		
88		HUMIDITY-Sensor Error	Sensor system in Humidity Sensor error		
88		I/M-Sensor Error(FF)	Sensor system in Ice maker(FF) errors		
88			Sensor system in Ice Room errors		
88	Questions or	FZ-FAN Error	Fan motor system in FZ compartment errors		

* Self-diagnosis CHECK LIST

		Display	Trouble item	Trouble contents			
]	F	R	Trouble item	in ouble contents			
Ξ			FZ-DEF-HEATER ERROR	DEFROST SYSTEM IN FZ COMPARTMENT ERRORS			
Ξ	B		FF-DEF-HEATER ERROR	DEFROST SYSTEM IN FF COMPARTMENT ERRORS			
E	Η		ICE/MAKER FUNCTION ERROR	ICE MAKER IN FZ FUNCTION ERRORS			
8	8		FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE			
8	8		ICE/MAKER FUNCTION ERROR(FZ)	ICE MAKER IN FZ FUNCTION ERRORS			
E	H	88	FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE			
E			ICE PIPE HEATER ERROR(FZ)	ICE PIPE HEATER IN FZ COMPARTMENT ERRORS			
B	B		ICE MAKER FUNCTION ERROR(FF)	SENSOR SYSTEM IN HUMIDITY SENSOR ERRORS			
Ξ			ICE ROOM-FAN ERROR	FAN MOTOR SYSTEM IN ICE ROOM ERRORS			
Β	B		PANEL ↔ MAIN MICOM COMMUNICATION ERROR				
8	B	Questions or	CORECTION CONTRACTOR I FICHARD. KUEN ERROR(FF)	nin@marcone.com HEATER SYSTEM IN ICE DUCT(FF) ERRORS			

Duplication

	<u>RS261MD** - RS263TD**/XAA Samsung 'Refrigerator' Diagnostic Code Quick Guide</u>						
N	o <u>Error Items</u>	<u>Display LED</u>	TROUBLE				
1	ICE MAKER SENSOR	Right-(1) LED ON	ke Maker sensor connector loose; contact failure, electric wire cut, short-circuit; ke Maker sensor failure				
2	R-DEF SENSOR	Right- ③ LED ON	Refrigerator evaporator defrosting sensor connector loose; contact failed, electric wire cut, short circuit; sensor itself failure				
3	REFRIGERATOR SENSOR	Right-④ LED ON	Refrigerator sensor connector loose; contact failure, electric wire cut, short- circuit; Refrigerator sensor itself failure				
4	R-FAN ERROR RS263TD	Right-(5) LED ON	R-Fan motor operation failure; feedback signal line contact failure, motor's electric wire loose				
4	DAMPER HIR ERROR RS261MD	Right-(5) LED ON	Damper Heater is sensed as open error due to Connector Slipped-Out or Open- Contact, Wire Cut				
5	R-DEF ERROR	Right (6) LED ON	Connector Slipped-Out or OpenContact, Wire Cut or Short Circuited, Defective Thermistor, or Defrost time over 80 minutes.				
6	I/M FUNCTION ERROR	Right-(7) LED ON	ke-ejector and level failed three times or more				
7	EXIT-SENSOR	Left-① LED ON	Air sensor connector loose; contact failure, electric wire cut, short-circuit; open air sensor itself failure				
8	FREZER SENSOR Questions or comr	Left- ② LeftSONe a	Freezer sensor connector loose; contact failed, electric wire cut, short-circuit;				

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RFG299***

Function for failure diagnosis



Function for operational diagnosis For details download complete Service Manual

Functions	How to operate)	Use this functions			
Functions	Keys Tim					
Forced Operation	"Lighting" + "Ice Off"		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			To check the failure modes			
Load Operation Check	-	8 sec	To check the present operating load of regrigerator.			
Set Point Shift Mode	"Slide Show" + "Home"		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 Questions or com	ments? Please e-mail richard	d.kuemin	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			

Sensors Control Everything The Sensors provide accurate control of the temperatures at

various locations in the refrigerator. (up to 11).

Samsung Refrigerators always do a Self Diagnostic on power up, Open/Short Sensor will lock the unit!

- Compartment (Room) Temperature Sensor 2 or 4
- Cool Zone Drawer/Cool select Pantry
- Ice Production I/M Sensor
- Ice Room Sensor
- Humidity Sensor



Ambient Sensor – Condenser Fan control, under hinge cover Defrost Sensors on each evaporator in Samsung Refrigerators

Questions or comments? Please e-mail richard.kuemin@marcone.com



How to Read PCBs



Questions or comments? Please e-mail richard.kuemin@marcone.com



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

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 heater (Brn-Gry) 11- L1 (Red) 13- N (Gry)

RF4287HA

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/MMotoriscow (Ro) (Whte Red) Please e-mail richard kuemin@marcone.com

CN78

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 (Ora-Grv) 3~3.8vdc

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 +5vdc (Yel-Gry) **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



CN77 Stepper Motor 1-2 Damper Heater (Blk-Brn) 12vdc 7-(CN76-1) Diverter Valve (Org-Gry) 12vdc

AW3("F) AMERICA(XAA)

CN71 All 120vac

3 Neutral (Gray)

CN30 Sensors & Switches

2-1 +5vdc (Blk-Gry) 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



Auger Failure

Installer may have damaged/not connected connector





Temperature/Resistance/Voltage Chart - ALL Fridge Sensors

						Temp.		
Temp. (°F)	Resistance(kΩ)	Voltage (V)	Temp. (°F)	Resistance (k Ω)	Voltage (V)	(°F)	Resistance ($k\Omega$)	Voltage (V)
-43.6	98.9	4.54	12.2	21.4	3.41	68.0	6.01	1.88
-41.8	93.7	4.52	14.0	20.5	3.36	69.8	5.79	1.83
-40.0	88.9	4.49	15.8	19.6	3.31	71.6	5.58	1.79
-38.2	84.2	4.47	17.6	18.7	3.26	73.4	5.38	1.75
-36.4	79.8	4.44	19.4	17.9	3.21	75.2	5.19	1.71
-34.6	75.7	4.42	21.2	17.2	3.16	77.0	5.00	1.67
-32.8	71.8	4.39	23.0	16.4	3.11	78.8	4.82	1.63
-31.0	68.2	4.36	24.8	15.7	3.06	80.6	4.65	1.59
-29.2	64.7	4.33	26.6	15.1	3.01	82.4	4.49	1.55
-27.4	61.5	4.30	28.4	14.5	2.96	84.2	4.33	1.51
-25.6	58.4	4.27	30.2	13.9	2.90	86.0	4.18	1.47
-23.8	55.6	4.24	32.0	13.3	2.85	> 87.8	4.03	1.44
-22.0	52.8	4.20	33.8	12.7	2.80	89.6	3.89	1.40
-20.2	50.2	4.17	35.6	12.2	2.75	91.4	3.76	1.37
-18.4	47.8	4.13	37.4	11.7	2.70	93.2	3.63	1.33
16.6	45.5	4.10	39.2	11.3	2.65	95.0	3.51	1.30
-14.8	43.3	4.06	41.0	10.8	2.60	96.8	3.39	1.27
-13.0	41.2	4.02	42.8	10.4	2.55	98.6	3.28	1.23
-11.2	39.2	3.99	44.6	10.0	2.50	100.4	3.17	1.20
-9.40	37 4	3.95	46.4	9.60	2.45	102.2	3.06	1.17
-7.60	35.7	3.91	4 8.2	9.20	2.40	104.0	2.96	1.14
-5.80	34.0	3.86	50.0	8.80	2.35	105.8	2.86	1.11
-4.00	32.4	3.82	51.8	8.50	2.30	107.6	2.77	1.09
-2.20	30.9	3.78	53.6	8.20	2.25	109.4	2.68	1.06
-0.40	29.5	3.73	55.4	7.90	2.20	111.2	2.59	1.03
1.40	28.1	3.69	57.2	7.60	2.15	113.0	2.51	1.00
3.20	26.9	3.64	59.0	7.30	2.10 <	114.8	2.43	0.98
5.00	25.7	3.60	60.8	7.00	2.06	116.6	2.35	0.95
6.80	24.5	3.55	62.6	6.70	2.01	118.4	2.28	0.93
8.60	23.4	3.50	64.4	6.50	1.97	120.2	2.21	0.90
Questio	ns or220mmen	ts? Ble6ase	e-mââiPrick	ard.l@@min@	matcone.c	om		
				Table A				A



Proper Splicing, when necessary





Fridge Cooling Issues Freezer OK

No Cool

- Single Evaporator Models
 - Auto Damper Ass'y
 - Frost in air duct to fridge
 - Door seal
 - Defrost Failure
 - Main PCB
 - Compressor/Sealed System





Fridge Cooling Issues Freezer OK

No Cool

- Twin & Quattro Evaporator Models
 - Door seal
 - Defrost Failure
 - Defrost Drain Failure
 - Main PCB
 - Evap Fan
 - Compressor/Sealed System (diverter models only)



Freezer Cooling Issues No Cool

- Single Evaporator Models
 - Frost build up stopping evaporator fan
 - Evap Fan
 - Door seal
 - Defrost Failure
 - Compartment Sensor
 - Main PCB
 - Compressor/Sealed System





Freezer Cooling Issues Fresh Food OK

No Cool

- Twin & Quattro Evaporator Models
 - Door seal
 - Defrost Failure
 - Defrost Drain Failure
 - Compartment Sensor
 - Evap Fan
 - Main PCB
 - Compressor/Sealed System

Questions or comments? Please e-mail richard.kuemin@marcone.com



Fridge Cooling Issues Poor Cooling

Single Evaporator Models

- Auto Damper Ass'y
- Frost in air duct to fridge
- No or very small food load
- Door seal
- Defrost Failure
- Main PCB
- Compressor/Sealed System





Fridge Cooling Issues Poor Cooling

- Twin & Quattro Evaporator Models
 - Door seal
 - Defrost Failure
 - Defrost Drain Failure
 - Main PCB
 - Compressor/Sealed System (diverter model only)



Freezer Cooling Issues Poor Cooling

Single Evaporator Models

- Frost build up blocking evaporator fan
- Door seal
- Defrost Failure
- Compartment Sensor
- Main PCB
- Evap Fan
- Compressor/Sealed System



Freezer Cooling Issues Poor Cooling

- Twin & Quattro Evaporator Models
 - Frost build up blocking evaporator fan
 - Door seal
 - Defrost Failure
 - Compartment Sensor
 - Main PCB
 - Compressor/Sealed System


Fridge Cooling Issues Too Cold

What's the most important question to ask? (where and what shelf is freezing?) Single Evaporator Models

- Auto Damper Ass'y
- Twin & Quattro Evaporator Models
 - Failure on Main PCB causing evaporator fan to stay on.
 - Failure of Compartment Sensor.
 - Evaporator Cover Ass'y not properly installed or damaged.
 - Rantry or Cool Zone auto damper stuck open



Freezer Cooling Issues Too Cold

- Single Evaporator Models
 - Failure of Compartment Sensor.
 - Failure on Main PCB causing evaporator fan to stay on.
 - Using large amounts of ice or water not hooked up.
- Twin & Quattro Evaporator Models
 - Failure on Main PCB causing evaporator fan to stay on.
 - Failure of Compartment Sensor.
 - Using large amounts of ice or water not hooked up.

Frost in Freezer Most Models

FREEZER TEMPERATURE CONTROL BY THE ICE MAKER

Very cold temps will cause frost in the freezer with door openings

- Interior Temperature of the freezer MAY be set to a much colder temp 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 a much colder temp.
- 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 a much colder temp unless "Ice Off" is selected.



Ice Makers □Heat Release (7 & 9 Cube I/M)



Ice Maker Sensor / Ice Room Sensor





Ice/Auger Harness



Pull out harness to remove I/M

Align to allow bucket fit

Cover Screw

Questions or comments? Please e-mail richard.kuemin@marcone.com

Ice Room temp with an accurate temp gun, metal heat sink will hold temp for a short time.

Ice/Auger Harness Cover







RFG293HA French Door has the I/M in the freezer. It's now a Heat Release I/M



Heat Release **Ice Maker**

Ice Production & Test 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, the Ice maker will harvest if the ice bucket is not sensed as full.
- Press and hold the ICE TEST S/W for at least 1.5sec, the harvest function will start. The Ice maker heater turns on for 30 seconds to 2 minutes. After the Ice maker heater turns off, the 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.
- You must have patience, this is not as fast as the flex tray test cycle.



Heat Release I/M French Door Ice Room Fan Operation

Making Ice

- □ Fan Off at 3.68vdc Ice Room Sensor 1.5F
- Fan On at 3.54vdc Ice Room Sensor 7F

Full bucket, or ice off

Fan Off at about 3.35vdc Ice Room Sensor 14.5F
 Fan On at about 2.91vdc Ice Room Sensor 29F



Heat Release I/M Testing



All Tests must be done before the Ice Bucket is removed and

with the compressor running.

- Ice Room Sensor record voltage and convert to temp.
- Ice Maker Eject Sensor record voltage and convert to temp.
- Ice Room Fan 7-11 vdc is it OK?

proper voltage means motor speed is correct.

- Freezer Defrost Sensor record voltage and convert to temp.
 - If Ice Bucket is full, fan may be off, Ice Room and I/M Sensor may be around 23°.
- When making ice, the Ice Room should be around 6°. The I/M Sensor will be above 18°. The Ice Room Fan may be running. With the compressor running the Freezer Defrost Sensor should be around -10°.



No, Slow and/or "wet" ice

Door adjust is too low or bent hinge. itil hearing itting it back.

> Consumer could get water in the glass when getting ice from condensation in chute.

Carefully inspect hinge for damage (bending) before adjusting door, replace if necessary.

What if consumer uses only Crushed Ice? Water in the chute from melting "snow".



Use this part # to raise door height DA60-00143B Description : FASTENER-RING INSERT

Service Concerns

Heat Release I/M Troubleshooting Observations

- Is there any frost in the freezer compartment?
- Excessive frost on the evaporator coil will either coat the coil enough to warm the air to 32 degrees to supply the ice room or block the air duct completely to the ice room. Make sure the Freezer defrost circuit is working properly and the freezer and ice room compartments are sealed properly
- The Ice-Duct Heater is a foil heater the keeps the duct, on the evaporator cover, from frosting up and blocking air flow to the I/M. If this heater fails there will be low or no ice production.



Removal of Freezer Drawer

Possible breakage if drawer pulled too hard





To Remove Drawer Rail/Door Ass'y

Push Plastic Locking Tab on each side to

Questions or an angle ase e-mail richard.kuemin@marcone.com



Freezer Drawer Reasons for Frost Buildup



Water not hooked up, I/M is on

Gear alignment off, drawer pulled open from one side of the handle too hard.

Tab Broken, handle pulled way too hard

Bar Missing, from plastic rivet not installed



Ice Duct Heater





Twin I/M Models



A Heat Release I/M is used in the Ice Room A Flex Tray I/M is used in the Freezer



Model : RFG298AA**/XAA Dual Ice Maker



French Door Freezer Flex Tray I/M

Ice Bucket Cut Out slides under head

Corrected in new production

Backwards Ice Bucket No Cut Out hits head & slides under

Questions or comments? Please e-mail richard.kuemin@marcone.com

Backwards Ice Bucket No Cut Out hits head & slides under , tears off Sensor



Flex Tray <u>Ice Maker</u> Ice production Explanation

- □ 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 <u>1.5°F</u> for more than 5 minutes, it will 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 <u>1.5°F</u> for 5 minutes, it will 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 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.
Wind the last will be 2 sec.

Flex Tray Ice Maker



No Ice Production

- #1Confirm Consumer Complaint
- #2 Check Fault Codes
- \square #3 Check temperature at the I/M
- #4 Run a test harvest

If the Freezer temperature at the I/M is above 1.5° will it make ice? Verify the I/M works with a test harvest, then troubleshoot the temperature issue.



Flex Tray Ice Maker



No Ice Production

- If a test harvest doesn't work.
 - Check for 5vdc at the I/M connector, Test Button to DC common on connector.
 - If not there unplug connector and check the PCB I/M connector pins for 5vdc, if there-- I/M is bad. If no 5vdc PCB is bad
 - If 5vdc at test button, activate test, check across I/M motor for approximately 10vdc, polarity should change half way through the cycle. If no voltage, replace PCB.





Flex Tray Ice Maker

No Ice Production

- If a test harvest doesn't work.
 - Check for 5vdc at the I/M connector, Test Button to DC common on connector.
 - If not there unplug connector and check the pcb I/M connector pins for 5vdc, if there I/M is bad. If no 5vdc PCB is bad



Shattered Ice cubes



Marcone Servicers Association

Service Concerns

Flex Tray I/M Shattered Ice Cubes

When all ice shatters it's because of a **bad tray** or harvesting at a **temp that is too**

cold (lower than 1.5 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, as a properly installed sensor will not read the freezer temp, only the water/ice temp.

- Check the lce tray for defects in the plastic. Impurities or hard water can cause the plastic to become rough and inhibit the ice falling from the tray during the twisting. If this is the case, replace the tray assembly.
- It is possible to get ice too cold. Ice that is too cold will shatter during harvest. This can be from the (1) sensor not reading the correct temp (2) the sensor not mounted correctly (3) by programming the icemaker offset value to a lower number (4) the board not understanding the reading.
- To check the sensor you must check the tray temp (not air temp) and compare it to the sensor reading. The sensor should read about 3.7 volts at the main board connector when the cube temperature is 1.5 degrees. After the fill the sensor will read water temp 1.5 to 2.2 volts.
- To clear offsets, put unit into Diagnostics mode.
- Pleasetinote, comets hattering is risbandule for @nflexet.asynicemaker.



Unique Disassembly Procedures Service Concerns

- Water Pressure
- RM Series
- French Door
- Single Evaporator SxS
- RB Series
- RS Series



Checking Water Pressure



65 PSI

SI	Seconds	fill 8 oz	oz per second
65	8 sec. (8.25 sec.)		1 oz per sec
56	10 sec. (1	0.01 sec)	1.25 oz per sec

dropped to 56 PSI



Water pressure set at 40 PSI

PSI		Seconds	fill 8 oz	oz per second
	40	11 sec. (10).51 sec.)	1.4 oz per sec
	32	12 sec. (12	2.35 sec)	1.5 oz per sec

Bathroom shower on water pressure dropped to 32 PSI



Checking Water Pressure



1.9 oz per sec

2.1 oz per sec

3.3 oz per sec

22 15 sec. (14.57 sec)

15 17 sec. (17.33 sec.)

5 26 sec. (26.24 sec)



Washing machine filling water pressure dropped to 5 PSI

Checking Water Pressure

PSI	Seconds fill 8 oz	oz per second
65	8 sec. (8.25 sec.)	1 oz per sec
56	10 sec. (10.01 sec)	0.8 oz per sec
40	11 sec. (10.51 sec.)	0.76 oz per sec
32	12 sec. (12.35 sec)	0.65 oz per sec
30	13 sec. (12.83 sec.)	0.62 oz per sec
22	15 sec. (14.57 sec)	0.55 oz per sec
15	17 sec. (17.33 sec.)	0.46 oz per sec
5	26 sec. (26.24 sec)	0.31 oz per sec

Howedo we check pressure in the home MSA

Quattro Series RM257 (Inverter Comp) RM255****

SAMSUNG Convertible Refrigerator "free yourself from the restrictions of conventional refrigerators"









Why have a 4-door Fridge





Disassembly of Quatro Cool Evaporator Covers, both access the same





Freezing in Arctic Zone

2005 & 2006 design freezer evap cover for the RM255. 2 connectors: Fan, ______ Sensor ______ Dry connector completely, replace Sensor, wrap in foil tape after connecting





New design freezer evap cover for the RM255/RM257. 1 connector: Fan



Accessing Freezer Evaporator

Failure of the Defrost Drain Hose Heater could cause ice build up on freezer floor and cooling issues in Freezer and/or Arctic Zone.

Order evap ass'y to get drain hose with heater







Service Concerns French Door

Frozen Water Tank Early 2010

- Water Heater Bad or unplugged
- Fridge Evap Cover Loose at bottom
- Auto Damper Cool Zone or Pantry failure
- □ RF26X***, RF267AE***, RF267AZ***

See service bulletin, PCB change required

Heater no longer used in 2010 French Door



Water Tanks & Heaters




Water Tank-- French 4 door



Water Tank between crispers, no tank heater





Water Filter/Tank Ass'y SxS

No tank heaters in new models, energy savings



Marcone Servicers Associatio

Critical Parts Look-up Information

- Always get the Serial Number on all products. There are "Running Changes" that have "Bulletins" referring to part number changes at a production Serial Number. If you are looking up parts, ask tech to verify "Serial Number".
- > Always get the BOM Name on Refrigerators, DO NOT use the Model Number.
- > Any Doubt Call Marcone Parts



French Door Water Tank/Dispenser

SUBJECT: New Water tank and Water outlet position Parts Change





Changes some models 12/1/2008 and others 1/1/2009



French Door Bulletin

SUBJECT: Parts change for the Freezer Door and Handle and Caps. The freezer door and latch assembly has been modified with a rocker handle to improve performance. The new design uses a new door, and two new caps for either side.



French Door Bulletin

RF266AZ**/XAA , RF267AZ**/XAA , RF268AB**/XAA, RF26XAZ**/XAA, RFG295AB**/XAA, RFG297AB**/XAA, RFG298AA**/XAA, RFG299ABRS/XAA

SUBJECT: Parts Change

Starting with July Production, the interior lighting for the model listed above has been <u>changed</u> from incandescent lighting to **LED lighting**.

The new parts are **NOT interchangeable** with the old parts. Please refer to the Bulletin to determine what month the product was produced.

> Many parts changed, like Main PCB

Questions or comments? Please e-mail rich





RF4287HA Display

Remove a screw under the display cover.



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







RF4287HA Mid Drawer







RF4287HA Mid Drawer

Accessing alignment rod, gear, & track





Auger/Front Panel Failure Installer may have pulled wires loose in connector









Auger/Front Panel Failure

Installer may have pulled wires loose in connector

Org = 13vdc

Yel = 5vdc

Pink = Gnd

Cut away the plastic cover and black tape from behind Molex connector to free tension on wires Inspect each connector wire to verify contact 2007 & 2008 production

PANTRY DAMPER

Possible "Noise" complaint. Closes when Fridge door is opened. This is "Normal Operating _____





"

Service Concerns RSG SxS



Critical Parts Look-up Information

- Always get the Serial Number on all products. There are "Running Changes" that have "Bulletins" referring to part number changes at a production Serial Number. If you are looking up parts, ask tech to verify "Serial Number".
- > Always get the BOM Name on Refrigerators, DO NOT use the Model Number.
- > Any Doubt Call Marcone Parts



RSG Bulletin



SERVICE BULLETIN				
PRODUCT:	Refrigerator			
BULLETIN NUMBER:			ASC20100621002	
BULLETIN DATE:		June 21, 2010		
MODELS:		RSG257AABP/XAA		
		RSG257AAPN/XAA		
			RSG257AARS/XAA	
			RSG257AAWP/XAA	

SUBJECT: The parts listed below have been changed to improve energy consumption. The new parts are NOT interchangeable with the old parts. This change was introduced with the June 1, 2010 production. When ordering these parts, please refer to the serial number to ensure you have ordered the correct parts for the model you are servicing.

Units produced before June 2010 are not affected by this change.

	Part Name	Before June 2010	June 2010 and later
	Refrigerator Evaporator Assembly	DA96-00440E	DA96-00673B
	Freezer Evaporator Assembly	DA96-00437B	DA96-00672B
	Refrigerator Defrost Heater	DA47-00281B	DA47-00321A
	Freezer Defrost Heater	DA47-00247G	DA47-00320A
	Refrigerator Evaporator Cover	DA97-06097K	DA97-08551E
Questions	Freezer Evaporator Cover	DA97-06098D	DA97-06098G
QUESTIONS	Water Tank	DA97-02650H	DA97-08536B

Parts List



Accessing Ice maker, Auger, Reed Switch-- RSG Models



Ice bucket reed switch, Ice Off LED flashes if bucket/magnet is not in placens or comments? Please e-r

Remove 4 Squeeze in at this screws point and pull out on auger/ice maker ass'y on the left side

> Auger/ice maker ass'y has plastic that locks into the two pieces on the door liner









Same design as the RSG 257







RSG Auger/Ice maker ass'y

Wiring harnesses are behind ass'y





Door & Connector changes by serial #, they will not match. Order by serial number using service bulletin.







Critical Parts Look-up Information

- Always get the Serial Number on all products. There are "Running Changes" that have "Bulletins" referring to part number changes at a production Serial Number. If you are looking up parts, ask tech to verify "Serial Number".
- > Always get the BOM Name on Refrigerators, DO NOT use the Model Number.
- > Any Doubt Call GPCA



RSG I/M Connector Change

New Door, I/M, Auger Case Ass'y

There is no version change, you must order by serial number with the bulletin
Through Jan 2009
(Serial Q1- S1)Starting Feb 1 2009 (Serial
S2 – Current Production)



I/M in Freezer Door







RSG Models REED SWITCH ISSUES

Installers do not seat the hinge cover properly, causing a no cool in the compartment.



RSG257 ASSY HANDLE-BAR, pulls off



The Handle Bars are labeled on the inside "UP" and "LOW". This indicates how the handles should be installed on the refrigerator Fixer-Handles.

Marcone Servicers Association

RS265/267TD

- Display wouldn't change, buttons not working:
- Screws may have been over tightened, activating one function, locking out all others



Questions or comments? Please e-mail richard at emin@



RS261MD RS263TD Dispenser issues

- The models listed above are a new design incorporating a two stage dispenser lever.
- If Water is selected press the lever a short distance
- If Ice is selected press the lever in until the lever is slightly past straight up and down



Water



Marcone Servicers Association

RS265TD, RS267TD Fridge Lighting--Normal



Top and Bottom portions have a dark looking appearance, this is **normal**, nothing is burned out.



arcone.com

Service Concerns Single Evaporator SxS



RS 261MD Leveling issues

- SUBJECT: Difficulty leveling the refrigerator
- SYMPTOM: Front legs are too short to properly level the refrigerator
- REPAIR: Replace the front foot with the part listed below. The part listed below is almost 1 inch longer than the original part.
- Part Number Description
- DA61-04721C FOOT-FRONT



SAMSUNG	PR
	BU
	NU
	BU
	DA
	1

SERVICE BULLETIN				
PRODUCT: R		efrigerator		
BULLETIN NUMBER:		ASC20090218001		
BULLETIN DATE:	02/18/2009			
MODELS:	RS2530, RS2630			



SUBJECT: Frost build up around Frz fan and air outlets SYMPTOM: Insufficient air circulation and heat conduction is causing frost build up around the Freezer Fan & Air Outlet. **SOLUTION:**

Replace with Revised part. The number is the same as before (DA97-01948A ASSY SUPPORT-MOTOR FRE)





RS2630***/XAA



Service Concerns RB Series



RB Series Door Reversal













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



Intermittent No Cool RB Models



The door switch is a 5 vdc switch. A small resistance can cause the circuit not to work.

Test switch with an ohm meter, on low resistance scale. Remove switch, press the switch at least 20 times, if any resistance shows the switch is bad.



Reed Switch on many new products

Installers are not seating cover properly, creating a

no cool





No Cool Freezer


Service Concerns Older RS Series

Questions or comments? Please e-mail richard.kuemin@marcone.com



Lamp Circuits Older models

Failure of interior lamps, test PBA Sub



LV Transformer

Older Models



The Tech is expected to meet higher standards

- What advice would you give to a technician who damages the customer's property by:
 - Gouging their hardwood floor when they pull the appliances out?
 - > Tracking mud onto their carpeting?
 - > Chipping their counter?
 - Scratching their appliance?
 - Gouging walls or furniture with their tool box?
 - > Leaking transmission fluid on their driveway?
 - > Backing over their kid's tricycle?



