

Samsung Refrigeration Training Support

Revised 1/15/09

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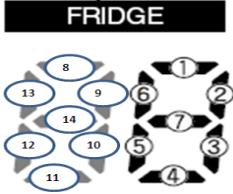
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Samsung 'Refrigerator' Diagnostic Code Quick Guide

No	<u>Error Items</u>	<u>LED</u>		<u>TROUBLE</u>
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	Fridge 		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.
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.
7	R-DEFROSTING ERROR	Fridge 		Refrigerator Room defrost heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes
8	PANTRY-DAMPER-HEATER ERROR	Fridge 		Sensor system in Pantry Room errors
9	CR-SENSOR 4-Door	Fridge 		CR 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.
9	PANTRY-SENSOR ERROR	Fridge 		CR 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.
10	DEFROST SENSOR OF CR ROOM 4-Door	Fridge 		CR Compartment 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 > 122° or < -58 ° F.
11	DEFROST SENSOR OF CF ROOM 4-Door	Fridge 		CF Compartment 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 > 122° or < -58 ° F.
12	CR-DEFROSTING ERROR 4-Door	Fridge 		CR Compartment Defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes
13	CF-DEFROSTING ERROR 4-Door	Fridge 		CF Compartment defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes
14	WATER HEATER ERROR	Fridge 		Error is displayed when the water reservoir tank heater is open or shorted

Samsung 'Refrigerator' Diagnostic Code Quick Guide

<u>No</u>	<u>Error Items</u>	<u>LED</u>		<u>TROUBLE</u>
15	EXT-SENSOR	Freezer 		Ambient Temp. 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.
16	F-SENSOR	Freezer 		Freezer Compartment Sensor Error- This can be an wire cut, short-circuit, contact failure, or missing sensor. This can also be caused by a temperature reading > 122° or < -58 ° F.
17	F-DEF-SENSOR	Freezer 		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 > 122° or < -58 ° F.
18	F-FAN ERROR	Freezer 		This error indicates the Freezer Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.
19	C-FAN ERROR	Freezer 		This error indicates the Condenser Fan is not spinning at the correct RPM or the fan feedback line is open.
20	CF-SENSOR 4-Door	Freezer 		CF Room Sensor Error- This can be a wire cut, short-circuit, contact failure, or missing sensor housing. This can also be caused by a temperature reading > 122° or < -58 ° F.
20	FRENCH DOOR ICE ROOM SENSOR	Freezer 		Ice Room Compartment Sensor Error- This can be an Electric wire cut, short-circuit, contact failure, or missing sensor housing. Cause is also a temperature reading > 122° or < -58 ° F.
21	F-DEFROSTING ERROR	Freezer 		Freezer Compartment defrosting heater- wire cut, short-circuit, contact failure, missing sensor housing, or defective temperature fuse/bi-metal. Defrost on for over 80 minutes
22	CF-FAN ERROR 4-Door	Freezer 		This error indicates the CF Compartment Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.
23	CR-FAN ERROR 4-Door	Freezer 		This error indicates the CR Compartment Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.
23	FRENCH DOOR ICE ROOM FAN ERROR	Freezer 		This error indicates the Ice Room Compartment Evap. Fan is not spinning at the correct RPM or the fan feedback line is open.
25	ICE PIPE HEATER ERROR	Freezer 		Error is displayed when the ice maker fill pipe heater is open or shorted.
26	Uart ERROR COMMUNICATION	Freezer 		This error is not applicable, if the error is detected during diagnostic testing please ignore it.
27	L↔M ERROR COMMUNICATION	Freezer 		Communication error within the Main PCB
28	P↔M ERROR COMMUNICATION	Freezer 		Communication between the Main PCB and Keypad

Samsung 'Refrigerator' Diagnostic Code Quick Guide

Samsung Single Evaporator 'Refrigerator' Diagnostic Code Quick Guide

<u>No</u>	<u>Error Items</u>	<u>Display LED</u>	<u>TROUBLE</u>
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/M Sensor Error	Cubed Ice	Ice Maker 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.

Samsung Older "RB" Series 'Refrigerator' Diagnostic Code Quick Guide

<u>No</u>	<u>Error Items</u>	<u>Display LED</u>	<u>TROUBLE</u>
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
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.

No Cool, New Purchase

Unit in Sales (Exhibition) Mode

Background



1. Exhibition Mode which is also called Cooling off is only for sales floor use. These display models are being sold to customers without being removed from this mode. The consumer will complain of a No Cool because of this mode
2. There is no information about Cooling off mode in Owners manual (Since it is not for users) but some models have a label attached on display. So if cooling off is performed and the label is detached, No one knows about this function.

Symptom



1. When door is open, internal Lights are on but no cool

Operation



1. In this mode, Display and fan motor operate normally except compressor
2. No Defrosting cycle is performed

Model	Operation way	As Power off	Display	Remark
RF265** RF266**	Press Power Freeze & Freezer temp buttons simultaneously for 3 sec	Even though power off and on again, it remains exhibition mode	Display “ OF OF” 	When pressing any button, It will display setting temp for 5 sec
RF267**	Press Energy Saving & Freezer temp buttons simultaneously for 3 sec	Even though power off and on again, it remains exhibition mode	Display “ OF OF” 	When pressing any button, It will display setting temp for 5 sec
RS263B** RS265B** RS267B** RS265L** RS267L** RS269L**	Press Power Freeze & Freezer temp buttons simultaneously for 3 sec	Even though power off and on again, it remains exhibition mode	Display “ OF OF” 	When pressing any button, It will display setting temp for 5 sec
RB19** RB21**	Press Power Freeze & Freezer temp buttons simultaneously for 5 sec	In case of Power off, it will be dismissed	No Change (Display setting temp) 	When pressing any button, It will display setting temp for 5 sec
RS2630**	Press Ice mode & Freezer Keys simultaneously for 8 sec	In case of Power off, it will be dismissed	No Change (Display setting temp) 	LED type
RS2530B**	Press Power Freeze & Freezer temp buttons simultaneously for 3 sec	Even though power off and on again, it remains exhibition mode	Cooling OFF LED Turned on 	LED type
RM25**	Press Artic Select Zone & Freezer Keys simultaneously for 8 sec	In case of Power off, it will be dismissed	No Change (Display setting temp) 	When pressing any button, It will display setting temp for 5 sec
RS2544** RS2545**	Press Power Freeze & Freezer temp buttons simultaneously for 8 sec	In case of Power off, it will be dismissed	No Change (Display setting temp) 	When pressing any button, It will display setting temp for 5 sec

Sensors Control Everything

Do Not Change A Sensor Without Testing It First

Test By DC Voltage only, at the Main PCB, with power on.

Remove sensor from unit to Resistance test

Use the Temperature Resistance, DC Voltage Chart on the following page to test

Functions

Defrost – The sensor shuts off heater At 50 in Freezer, 63 in Fridge

Compartment Temp – The sensor controls fan/compressor on/off to maintain temp

Ice Production – harvests when the I/M sensor reads 1.5 degrees for 5 minutes, Flex Tray Only.

If the door is opened during that 5 minutes harvest is delayed.

Cool Zone Drawer -- Temp control by a sensor that opens or closes an air damper to allow cool air into the drawer, a heater is built in to the damper to prevent frost.

Ambient Sensor

Fan Speeds – Below 60 degrees condenser fan is off

Defrost Timing – The warmer the room the more often the defrost

Failures

Any Sensor Failure will cause the display to come up with a fault code after a power interruption.

Some units will not start up when this happens, others lock the display. To start, put in diagnostics mode.

Defrost

If the sensor is bad it will shut off the defrost circuit in a few minutes or not start, causing ice build-up. This sensor may also cause the unit to shut down totally at defrost, it will restart after removing power and restarting unit

Testing: Check the DC voltage across both evap defrost sensors at the Main PCB, with the compressor running. They should read less than a tenth of a volt difference, as they are both on the same refrigerant line. They usually read around 3.7 VDC to 3.8 VDC, after the compressor has been running for about 10 minutes, with the doors closed.

Compartment Temp

After checking for fault codes, unplug unit and plug in after a few seconds. The display will now show actual compartment temps. Check the actual temps in the top of the compartment and compare to the display reading. If you are within 2 or 3 degrees the sensors are good.

Ice Production

Off value sensor will cause I/M to harvest before water is frozen or delay harvest for an extended time

Cool Zone Drawer No/poor temp control

Ambient Sensor

This will fail in the “safe mode” causing the main PCB to think the room is hot. Short time between defrosts, fans at high speed, and slower ice production.

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.

Samsung Sensor Temperature/Resistance/Voltage Chart

Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)	Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)	Temp. (°F)	Temp. (°C)	Resistance (kΩ)	Voltage (V)
-43.6	-42	98.9	4.54	12.2	-11	21.4	3.41	68.0	20	6.01	1.88
-41.8	-41	93.7	4.52	14.0	-10	20.5	3.36	69.8	21	5.79	1.83
-40.0	-40	88.9	4.49	15.8	-9	19.6	3.31	71.6	22	5.58	1.79
-38.2	-39	84.2	4.47	17.6	-8	18.7	3.26	73.4	23	5.38	1.75
-36.4	-38	79.8	4.44	19.4	-7	17.9	3.21	75.2	24	5.19	1.71
-34.6	-37	75.7	4.42	21.2	-6	17.2	3.16	77.0	25	5.00	1.67
-32.8	-36	71.8	4.39	23.0	-5	16.4	3.11	78.8	26	4.82	1.63
-31.0	-35	68.2	4.36	24.8	-4	15.7	3.06	80.6	27	4.65	1.59
-29.2	-34	64.7	4.33	26.6	-3	15.1	3.01	82.4	28	4.49	1.55
-27.4	-33	61.5	4.30	28.4	-2	14.5	2.96	84.2	29	4.33	1.51
-25.6	-32	58.4	4.27	30.2	-1	13.9	2.90	86.0	30	4.18	1.47
-23.8	-31	55.6	4.24	32.0	0	13.3	2.85	87.8	31	4.03	1.44
-22.0	-30	52.8	4.20	33.8	1	12.7	2.80	89.6	32	3.89	1.40
-20.2	-29	50.2	4.17	35.6	2	12.2	2.75	91.4	33	3.76	1.37
-18.4	-28	47.8	4.13	37.4	3	11.7	2.70	93.2	34	3.63	1.33
16.6	-27	45.5	4.10	39.2	4	11.3	2.65	95.0	35	3.51	1.30
-14.8	-26	43.3	4.06	41.0	5	10.8	2.60	96.8	36	3.39	1.27
-13.0	-25	41.2	4.02	42.8	6	10.4	2.55	98.6	37	3.28	1.23
-11.2	-24	39.2	3.99	44.6	7	10.0	2.50	100.4	38	3.17	1.20
-9.4	-23	37.4	3.95	46.4	8	9.6	2.45	102.2	39	3.06	1.17
-7.6	-22	35.7	3.91	48.2	9	9.2	2.40	104.0	40	2.96	1.14
-5.8	-21	34.0	3.86	50.0	10	8.8	2.35	105.8	41	2.86	1.11
-4.0	-20	32.4	3.82	51.8	11	8.5	2.30	107.6	42	2.77	1.09
-2.2	-19	30.9	3.78	53.6	12	8.2	2.25	109.4	43	2.68	1.06
-0.4	-18	29.5	3.73	55.4	13	7.9	2.20	111.2	44	2.59	1.03
1.4	-17	28.1	3.69	57.2	14	7.6	2.15	113.0	45	2.51	1.00
3.2	-16	26.9	3.64	59.0	15	7.3	2.10	114.8	46	2.43	0.98
5.0	-15	25.7	3.60	60.8	16	7.0	2.06	116.6	47	2.35	0.95
6.8	-14	24.5	3.55	62.6	17	6.7	2.01	118.4	48	2.28	0.93
8.6	-13	23.4	3.50	64.4	18	6.5	1.97	120.2	49	2.21	0.90
10.4	-12	22.4	3.46	66.2	19	6.2	1.92				

DEFROST ISSUES – FRIDGE & FREEZER

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

Frozen Evaporator

Ask Consumer if there has been water on the bottom of the Fridge compartment or ice on the bottom of the Freezer compartment

Yes – Check for frozen drain and/or open drain heater

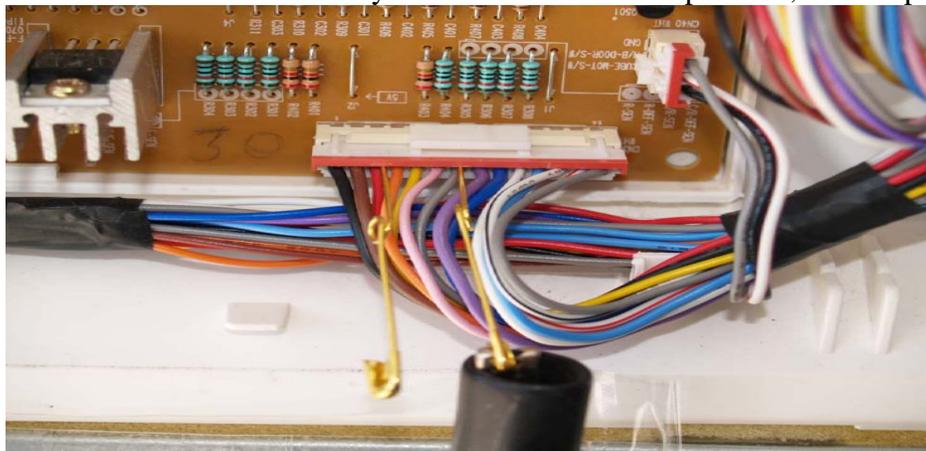
Ice/Frost on Evaporator

While checking Main PCB always check both Freezer & Fridge components

Testing: Use Safety Pin to prevent connector damage per following picture

Check the DC voltage across both evaporator defrost sensors at the Main PCB, with the compressor running. They should read less than a tenth of a volt difference, as they are both on the same refrigerant line. They usually read around 3.7 VDC to 3.8 VDC, after the compressor has been running for about 10 minutes, with the doors closed. You may find one reading about 20 to 50 degrees off (lower VDC - higher temp), if so, replace it.

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



Defrost AC voltage tests

Note: The Defrost Sensors are in the circuit during forced defrost, if compartment is over sensor cutout temp Forced Defrost will cut off within about 2 minutes.

Plug in CN70. Plug in unit. Force Defrost per instructions

Check heater circuit voltage at the Main PCB; look for 120 VAC for Freezer and Fridge

Freezer, See circuit diagrams usually Orange to Brown on CN70

Fridge, See circuit diagrams usually Orange to White on CN70,

No AC Voltage? Change Main PCB

Defrost Resistance tests

Freezer – Unplug unit. Remove defrost connector from PCB

Check heater circuit resistance at the Main PCB connector; look for 35-50 Ohms average

See circuit diagrams usually Orange to Brown on CN70,

Fridge – Unplug unit. Remove defrost connector from PCB

Check heater circuit resistance at the Main PCB connector; look for 60-95 Ohms average

See circuit diagrams usually Orange to White on CN70,

If resistance is around 2600 ohms, Thermo-Fuse/Bimetal is good, Defrost heater is open.

Open Circuit? Check Thermal Fuse, Heater and Connectors

Fast Defrost Check Force defrost on both, Amp probe on Freezer wire about 2.2 amps, see circuit diagrams usually Brown on CN70.

Amp probe on Fridge wire about 1.2 amp, see circuit diagrams usually White on CN70.

No/Low amp reading, do resistance/voltage tests above.

RM255* & RM257*** Heater Resistance Readings**

Readings at CN70

Black to CN72 Orange - Fresh Zone Defrost Heater 160 ohms

Yellow to CN72 Orange - Arctic Zone Defrost Heater 131 ohms

White to CN72 Orange - Refrigerator Defrost/Drain Heater 152 ohms

Brown to CN72 Orange - Freezer Defrost/Drain Heater 64 ohms

Reading at CN76

White to Sky Blue - Water Tank Heater 49 ohms

Orange to Black - Fill Tube Heater 29 ohms

Reading at Arctic Zone back wall connector

Freezer Defrost Drain Heater 2600 ohms

Reading at Fresh Zone back wall connector

Refrigerator Defrost Drain Heater 2600 ohms

RF26* Heater Resistance Readings**

Readings at CN70

Yellow to CN71 Orange - French Heater (on Left Fridge Door) 1356 ohms

White to CN71 Orange - Refrigerator Defrost Heater 110 ohms

Brown to CN71 Orange - Freezer Defrost Heater 55 ohms

Reading at Ice Pipe Heater in Freezer Compartment

Ice Maker Fill Tube heater 1336 Ohms

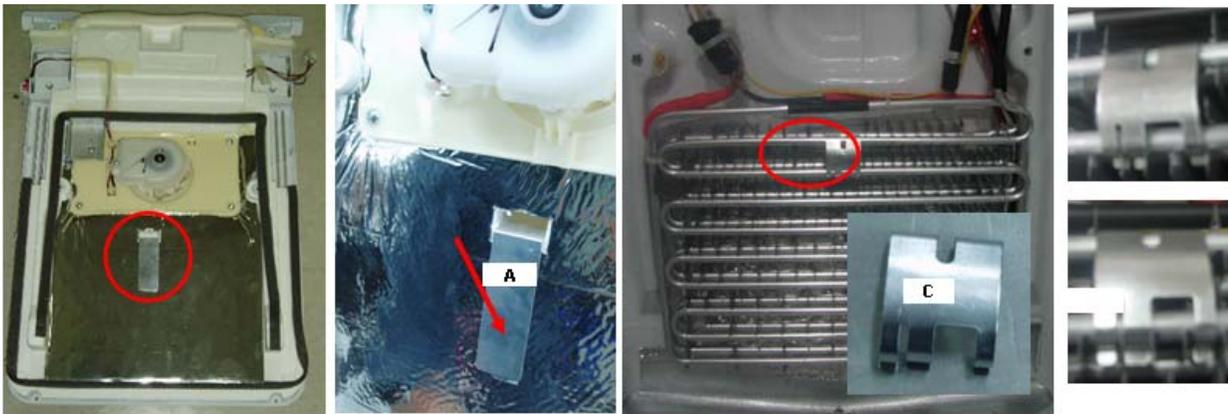
Frost and Ice Buildup

- 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.
- Other Symptoms- Noise from the refrigerator or freezer fan or weak cooling.
Noise disappears when the customer opens door.
The defrost sensor, heater, thermal fuse/bimetal device are OK but ice is built up in the drain hole of evaporator cover.

Explanation

- The heat from the defrost heater does not transfer heat to the drain hole through the evaporator cover.
- The Styrofoam around the fan absorbs moisture and frost begins to form on the evaporator.
- During the defrost cycle, the frost melts and drips down to the drain where it becomes frozen again.
- Ice blockage in the drain grows larger with every defrost cycle.
- Because of the growing ice block, cooling efficiency diminishes at a growing rate and eventually blocks the fan blades.
- Self diagnostics will eventually show a fan error.

Solution



- 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.
- **Part numbers for these parts are as follows:**
- **A: DA61-03502A PLATE-DRAIN INS EVAP, REF**
- **C: DA61-03585A FIXER-EVAP REF**

Ice Production and Water issues

No Ice Production – Flex Tray

For the ice maker to operate properly, water pressure between 20 and 125 psi is required. A quick test of water pressure would be filling a 6 oz paper cup in less than 10 seconds. If the internal water filter is clogged, the water pressure to the icemaker will be reduced. The foreign matter at the water supply valve near the icemaker can also reduce the water pressure. Additionally, low water pressure at the fill tube can be caused by a defective fill tube heater.

If the tray seems to be filling completely but the unit never harvests, verify the operation of the Icemaker sensor in the tray. Normally the unit harvests when the sensor reads approximately 1.5 degrees Fahrenheit for 5 minutes. The sensor should read 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. Remember, using frame ground might produce inaccurate values; instead use the DC ground on the PC board. If this value is incorrect the sensor is suspected to be defective.

You can also verify the operation of the harvest motor by pressing the black test unit on the motor housing near the back of the assembly.

Slow Ice production – Flex Tray

This problem is usually caused by a defective sensor or low water pressure. Use the procedure described above to test the sensor operation. The I/M sensor will delay the time by adding extra fills if the water pressure is low. Also check the operation of the freezer, if the freezer temperature is above 1.5 degrees, ice production will be delayed. This can also be caused by a problem with the freezer air vent, make sure the air duct near the ice maker is not restricted. Look for frost in the ice maker and ice bucket area, if any is found there could be an air leak through the ice chute flapper. If the unit is on an R/O water system, water pressure may be too low for consistent ice production. Finally make sure the most updated version of Ice maker kit has been installed. The ice maker designs in many models have been updated for better performance. Check GSPN for any related service bulletins regarding Ice-maker changes.

Shattered Ice – Flex Tray

When all ice shatters it's because of a bad tray or harvesting at a 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, 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. 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.

Strangely enough, 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 3.7 volts at the main board connector when the cube temperature is 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.

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

Ice Production and Water issues

Overfilling the Ice tray

This can be caused by installing the refrigerator on a non-level floor. Usually the door will not auto-close properly as well. Another issue that causes this is the fill valve not shutting off. This can be foreign matter in the valve or insufficient water pressure.

Check the Ice 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, leaving some cubes, causing an over fill. If this is the case, replace the tray assembly.

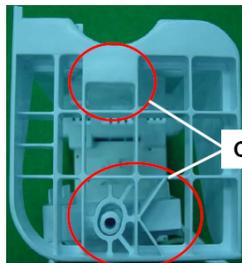
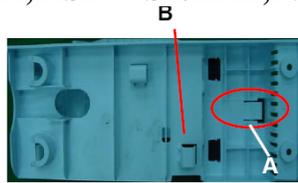
This can also be caused by a crack in the icemaker support (on some models) which will prevent the cube harvest and may allow more water to be dumped over the existing cubes.

Bulletin # ASC20041012002. **Ice Harvest Failure RS2533SW/XAA,RS2544SL/XAA, RS2555SL/XAA,RS2555SW/XAA, RS2577SL/XAA,RS2577SW/XAA**

SUBJECT: Icemaker support change

SYMPTOM: Icemaker support is broken

REPAIR: A new design has been implemented to strengthen the icemaker assembly. Additional ribs have been added and the mounting tabs have been reinforced.



Part Used	Part Number
Ice Maker Support	DA61-00244

Overfilling the Ice Bucket

If the bucket overfills, do a test harvest and put your hand under the full bucket sensor arm to simulate a full bucket. If it still completes the harvest, replace the ice-maker ass'y.

Ice-Maker not harvesting or stalling during harvest (test and operation)

At the main PCB connector CN90 check motor voltage at pins 1 & 2 (red & black wires) it should be about 10vdc when you activate the test by shorting pins 5 & 8 (gray & sky blue wires). You will read a +10vdc at the start of the flex, when the tray reaches max flex, the voltage switches to -10vdc.

If you don't have the 10vdc replace the Main PCB, if voltage is proper replace ice-maker ass'y.

Ice Production and Water issues

Ice Bucket – Crushed/Cube issues

Check the ice bucket is it properly inserted; check the solenoid lever of ice bucket, is it operating freely, if not check for ice/frost build-up in the auger motor area.

Please Note, on most older models:

When the unit is making ice, and the ice bucket is not full, the freezer will be in continuous Power Freeze. This can create very cold temps in the freezer compartment, down to -12. Also if there is no water hooked up to the ice maker it will try to make ice and never fill the bucket. This is normal operation. Some models after 2007 will not do this

To turn off the icemaker on Samsung Refrigerators use the “Ice Off” button on the front display panel. Always turn off the ice function if water is not hooked up to the unit.

No water from Dispenser

NOTE: Filter or bypass must be in place

Disconnect water line from door, push water dispenser.

If you have water, check for a frozen line in the door, replace door

No water, check for frozen water tank

If frozen, check water tank heater (Evaporator Cover) and/or check for defrost problem, ice build up could freeze the tank.

If the tank is OK, check the output of the water valve

Water Valve: If low or no output, check input before replacing. Remove the water filter then remove the input line to the water valve, put the line in a bucket and install filter then check water flow, if good replace valve.

If you still have poor water flow, check house supply, if that’s good then replace filter

Water leaks on the floor

You first have to determine if it’s from the defrost system or water dispensing plumbing.

To check defrost system, you must put water into the defrost heater drain in each compartment and check for any leaks after each test.

To check the cube water fill system, do a test harvest of the ice-maker two or three times and look for any leaks. Fill two or three glasses from the door dispenser and check for any leaks.

Water dispenser leaks at fountain

Check output of dispenser water valve for any leakage, if leaking, check for low water pressure or a bad valve. If it is not leaking, the water line fitting at the door hinge may be letting air in, check this fitting. The water in the dispenser tank may have air in it, it will slowly bubble out and force water out the dispenser in the door, creating drips and consumer complaints.

Every time the consumer uses the dispenser there is more air/water put into the tank and it keeps dripping. This is from well water, or city water systems that force air into the water. See Bulletin on following page.

Samsung French Door Refrigerator

Ice Making Characteristics

IMPORTANT ! Procedure required to initialize a new French Door Refrigerator or whenever the ice bucket is emptied.

French Door Refrigerator (FDR) designs require a compact designed ice maker; therefore, initial setup of the ice maker is critical to sufficient ice production. Samsung FDR uses a solid blade auger to allow smooth transport of ice cubes. Ice buildup will occur if the ice is not dispensed during the initial setup, or when the ice bucket is fully emptied. Instruct the customer to follow the procedure below for proper initialization. **Remember; always discard the first bucket of ice.**

Key Point;



The FDR ice making process drops the cubes into the same area, making a pile under the ice maker. The Ice Level sensor "sees" the pile of ice and stops production. During the first 24-36 hours, or after emptying the ice bucket, if you do not follow the procedure below, the ice maker remains off.

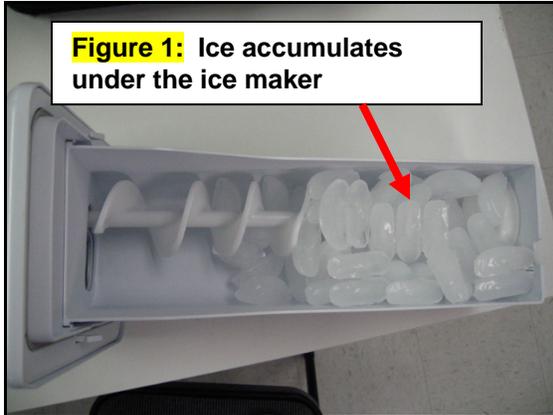
Dispensing the ice will cause the auger to evenly distribute the ice cubes. This is key to achieving normal ice production on a French Door Refrigerator.

Procedure to Initialize the Ice Maker

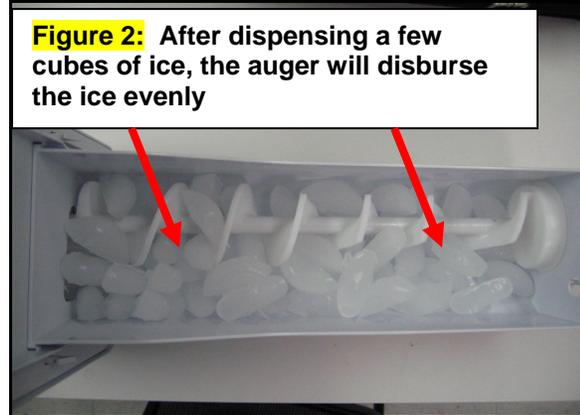
To maximize ice cube production, follow these steps:

Make sure the water line is connected and the water valve is fully open.

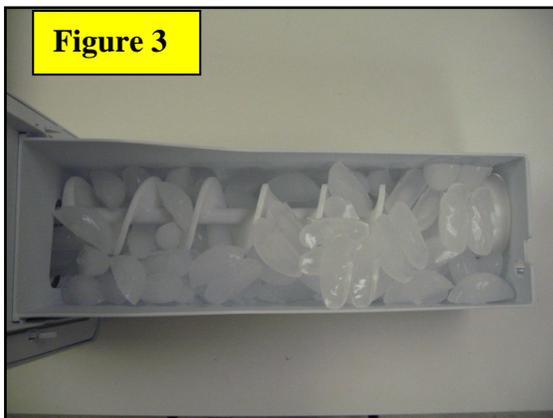
1. Allow the refrigerator to cool for 24 hours before dispensing ice for the first time.
2. Ice is accumulated under the ice maker as in **Figure 1** on the next page. If not, allow 6 hours more then dispense a few cubes of ice. This causes the auger in the ice bucket to distribute the cubes evenly in the ice bucket as in **Figure 2**. The ice maker then detects a "low ice condition" and resumes making ice.
3. After an additional 6 hours, cubes will accumulate in the rear of the icemaker as in **Figure 3**. Dispense a few more cubes of ice again. This causes the auger in the ice bucket to distribute the cubes evenly in the ice bucket as in **Figure 4** below. From this point on, ice cubes will be evenly dispersed within the ice bucket. Ice production will start whenever the icemaker senses a "low ice condition".



In the initial ice making process, the cubes accumulate at the rear of the ice bucket, under the ice maker as shown above.



After the initial ice making process, dispensing a few cubes will allow the auger to disburse the cubes evenly.



After an additional 6 hours, cubes once again accumulate at the rear of the ice bucket.



Dispense a full glass of cubes. This will allow the auger to disburse the cubes evenly.

Note 1: For additional ice, empty the full ice bucket into another container. The ice maker will sense a low ice condition and produce more ice.

Note 2: For your refrigerator to dispense ice, you must have:

- The refrigerator doors closed.
- The ice maker selector on Cubed or Crushed.

Slow Ice Production

Heat Release I/M (Models RF267**, RF26V**, RFG***)

Normal Ice Production, after first day, is 50 to 90 cubes in 24 hours

Ice production

38 minutes after the water fill is complete, the control board will check the temperature of the eject Thermistor, if the Thermistor reads a temperature lower than 18.5 degrees for more than 5 seconds, then the ice production process is completed. The Ice maker will harvest if the ice bucket is not full.

Test Mode

Press and hold the ICE TEST S/W for at least 1.5sec, the harvest function will start. If the ice maker Thermistor is below 0 degrees the Ice maker heater turns on for an about 2 minutes. If the temperature exceeds 0 degrees, Ice maker heater turns on for 30 seconds. After the Ice maker heater turns on for 30 seconds, the heater turns off and then Ice maker harvest motor turns on.

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 heater is working properly and the freezer and ice room compartments are sealed properly

The consumer complaint could be "it only makes ice once or twice a day" The Ice maker will harvest within a few hours of the freezer defrost cycle, when the evaporator is frost free. As the frost builds up on the evaporator again the ice maker will stop as the temperature is too warm. Ice making will stop until the next defrost cycle completes which will be 12 to 23 hours later. This is a defrost error not an icemaker error. Check the freezer door seal, ice room door seal and the freezer defrost heater.

Is the Ice Bucket locked firmly in position?

Try to move the bucket, when locked in place, any movement would mean that one of the locks is not latched. This will cause warm fridge air to enter the ice room and stop ice production.

Temperature checks (Actual) These values are approximate

The Back of Ice Room should measure 0 to 6 degrees when making ice

The Back of Freezer compartment should measure -4 to +3 degrees

Voltage tests

The Ice Room Sensor voltage should match the actual ice room temperature; refer to the sensor voltage/ temperature chart in the service manual.

The Freezer Sensor voltage should match freezer temp and also be close to the actual ice room temperature, refer to the sensor voltage/ temperature chart in the service manual. If the bucket is full the Ice Room temperature should be around 24 degrees.

The Freezer Defrost Sensor Voltage should be 0 to -17 degrees (3.7 – 4.1v), with the compressor running, to show no frost/ice buildup and good operating system, refer to the sensor voltage/temperature chart.

The Ejecting Thermistor should not measure below 17 degrees, unless the bucket is full, as it should harvest at 18 degrees. If Ejecting Thermistor measures actual ice room temperature, and the bucket is not full, it would mean that the I/M is not harvesting. If there has been a recent harvest, the thermistor might measure up to 50 degrees (2.35V) as the mold heater and fresh water has warmed the sensor.

If any of the sensors measure incorrectly replace the defective sensor

The Ice Room Fan should read around 7 to 9 VDC when it is running. Be sure to defeat the door open switch when testing the fans. You can force the fan to turn on by putting unit in Forced Freeze mode.

If the I/M Thermistor reads below 18 degrees (3.2V) after 38 minutes and there is no harvest replace the main PCB

Test Points

Ice Room Sensor - on RF267 & RF26V - CN32 Pin 3 (Orange) to CN75 Pin 1(Gray)

Ice Room Sensor - on RFG – CN31 Pin 3 (Orange) to CN76 Pin 1 (Gray)

Freezer Defrost Sensor - on RF267 & RF26V - CN30 Pin 4 (Orange) to CN75 Pin 1 (Gray)

Freezer Defrost Sensor - on RFG - CN30 Pin 4 (Orange) to CN76 Pin 1 (Gray)

Freezer Room Sensor - on RF267 & RF26V - CN30 Pin 3 (Red) to CN75 Pin 1 (Gray)

Freezer Room Sensor - on RFG - CN30 Pin 3 (Red) to CN76 Pin 1 (Gray)

Ice Maker Eject Sensor - on ALL Models - CN90 Pin 4 (White) to Pin 8 (Sky Blue)

Ice Room Fan – on RF267 & RF26V - CN76 Pin 1 (Black) to CN75 Pin 1 (Gray)

Ice Room Fan – on RFG - CN76 Pin 2 (Black) to Pin 1 (Gray)

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 a day time and in the Low mode 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, the fan drive circuit is disabled for 10 minutes.

TO TEST THE FAN CIRCUIT VOLTAGE.

Power off for 15 seconds, power 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 evap is ice blocked and thus blocking the air flow, the fan will over RPM and is stopped. Remove ice and check the motor again.

If everything is clear around the fan blade then the motor would be at fault.

Continuous fan errors will be displayed on the front panel display.

PLEASE NOTE: The door switches control the evap fan motors. Have them closed to test the motors

An intermittent evap fan door switch could cause an intermittent no cool condition.

Thermo-Fuse Failures

Thermal-Fuse replaced with Bimetal element in Both sections RB***** & RS*****

CRITICAL: Always Replace Defrost Sensor When Thermo-Fuse Fails



DA47-10160H

Water Dripping from Water Dispenser on French Door Models

The main cause for water dispensers dripping are attributed to air getting into the water supply system. Some of the reasons for this are:

- Loose plumbing connections
- Loose water valve connection
- Bad coupling tube connection
(Especially after door removal/replacement)
- Loose water line connection

If the water lines and plumbing are checked and tightened properly, a possible cure to this problem is to replace the water tube connection at the hinge with the new one that contains a check valve.



Water tube
coupling
(DA62-20111B)



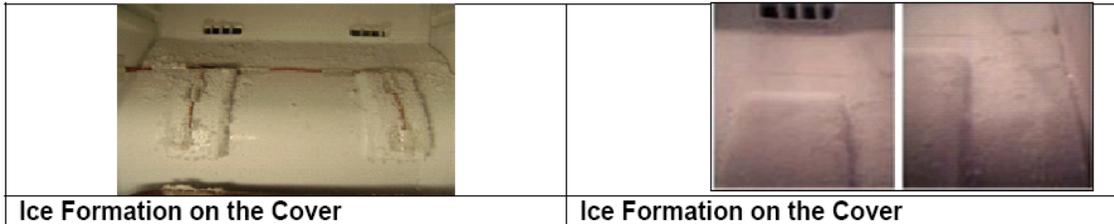
Water tube coupling
with check valve
(DA62-01628A)

Ice/Frost Build Up on Evaporator Cover, Evaporator Coil Clear

RS2621SW,RS2622SW,RS2623BB,RS2623SH,RS2623SL,RS2623VQ, RS2623WW,
 RS2624SW,RS2624WW,RS2625SL,RS2630SH,RS2630SW,RS2630WW, RS2631SL,
 RS2640SW,RS2644SL, RS2644SW, RS265LABB, RS265LABP, RS265LASH, RS265LAWW, RS2666SL,
 RS2666SW,RS267LABB,RS267LABP/SH, RS267LABP,RS267LASH,RS267LAWW,RS269LARS

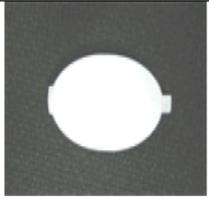
SUBJECT: Ice buildup in the freezer

Problem: Case 1: Ice formation on cover area or Ice formation in fan motor area.



Repair:

Replace the Assembly Cover for the Evaporator with the improved Evaporator Assembly Cover and install the (new part) CAP Screw.
 The cover assembly thickness and insulation have been improved.
 The improved cover assembly has increased EPS insulation and is designed to prevent ice formation on the panel and cover assembly.

ASSY COVER MULTI FRE	ASSY COVER-SUPT MOTOR,FRE	CAP SCREW
		
Thickness : 11m ->19mm	Thickness : 10m ->20mm	NEW PART

Part Name	Part Number
Ass'y Cover Multi FRE	DA97-02045B
Ass'y Cover-SUPT Motor,FRE	DA97-02055B
Cap Screw	DA67-01414A

Repair Kit for Serial Number range: up to **43CL3**, up to **42BL3**** Units manufactured before April of 2006**

For all above models

Inspect for air leaks: Door Seal, Ice Chute, I/M Fill Tube,

Liner cracks around/behind evap coil

Air leak around defrost drain hose at evap coil.

Excessive door openings, or doors left open for long periods.

Please use only in the listed Models
 Other Models use a different Main PCB



SERVICE BULLETIN	
PRODUCT:	Refrigerator
BULLETIN NUMBER:	ASC20071012001
BULLETIN DATE:	12-OCT-2007
MODELS:	RF267AABP, RF267AARS, RF267AASH, RF267AAWP
Chassis	AW-PJT

SUBJECT: No Ice Production / Ice Not Available

- SYMPTOM: 1) No or Low Ice Production.
 2) Ice Jamming.
 3) Clicking or Grinding noise from Ice Maker ASSY.**



CAUSE: When the ice tray dumps ice cubes to the ice bucket, ice cubes jam between the ice tray and the liner. The ice maker makes a loud noise and eventually stops working.

REPAIR: Replace Ice Maker Service Kit (Ice Maker and Main PCB).

NAME	ASSY ICE MAKER KIT	PBA MAIN -BEST						
Drawing		<table border="1"> <thead> <tr> <th>AS-IS</th> <th>TO-BE</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>Label color has been changed from white to Red since 12th Oct 2007</p>	AS-IS	TO-BE				
AS-IS	TO-BE							

Part Number: DA81-01421A Description: Ice Maker Service Kit

NOTE: If the service kit is not available. Please order DA97-05422A (Ice Maker ASSY) and DA41-00413C (Main PCB ASSY) separately.

This information is published for experienced repair technicians only and is not intended for use by the public. It does not contain warnings to advise non-technical individuals of possible dangers in attempting to service a product. Only experienced professional technicians should repair products powered by electricity. Any attempt to service or repair the product or products dealt with in this information by anyone else could result in serious injury or death. Information provided in this bulletin is subject to change or update without notice.



SERVICE BULLETIN	
PRODUCT:	Refrigerator
BULLETIN NUMBER:	
BULLETIN DATE:	
MODELS:	RM25**
Chassis	NEXT PJT

SUBJECT: Excessive cooling

NOTE: If Evap coil is frosted/frozen, check Defrost Sensor, it will also cause this symptom.

SYMPTOM: There could be water condensation on sensor housing (connector) of arctic zone when customer switch freeze mode to cool mode frequently.

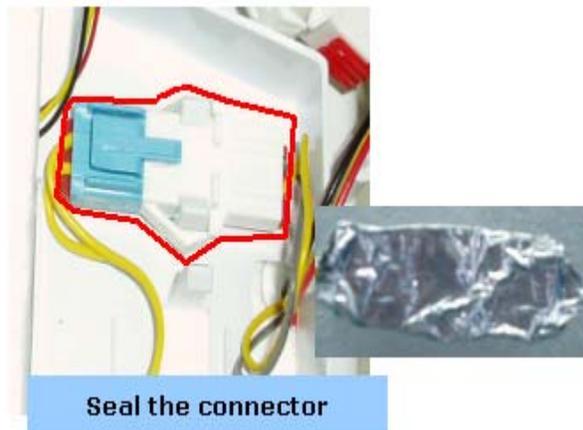
In this case the MICOM recognizes the temp of Arctic Zone is higher than actual temp and excessive cooling occurs.

Note: If it is manufactured before March 2007, please follow below solution

REPAIR: Replace sensor and sealing the connector with insulation tape

Part Used	Part Number
Sensor Temp - R	DA32-00011C

PROCEDURE:



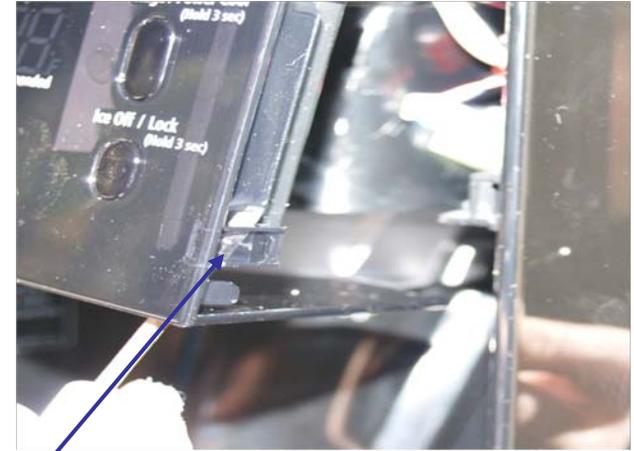
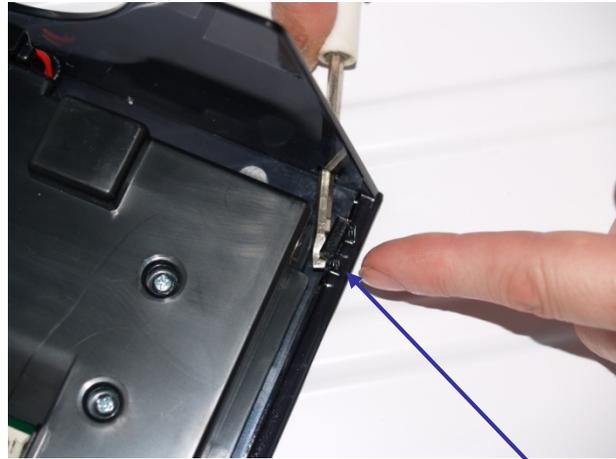
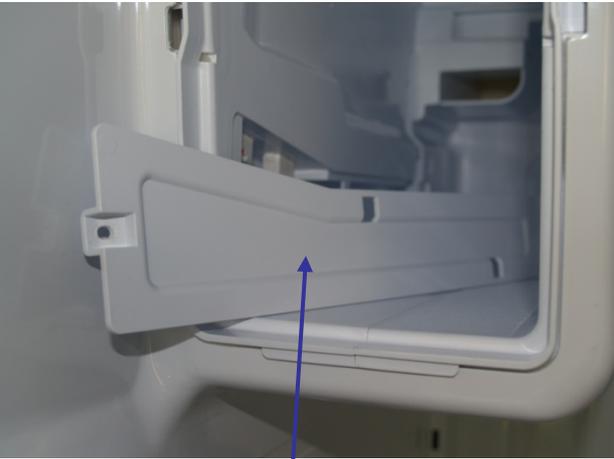
Note: Consult the Samsung Service Website at (service.samsungportal.com) for the Service Manual and other information on this product.

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Door Shims Accessory Package

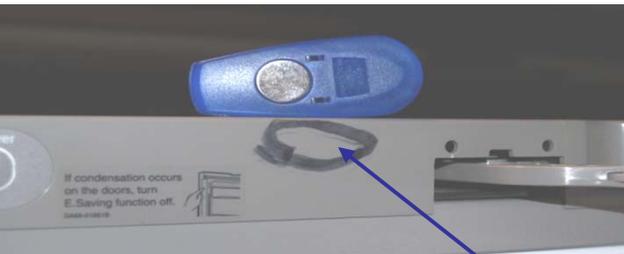
	Part Name	Part Code
	ASSY-PACKING SUB <i>DOOR SHIMS</i>	<i>DA99-00240G</i>

RF Series French Door Fridge

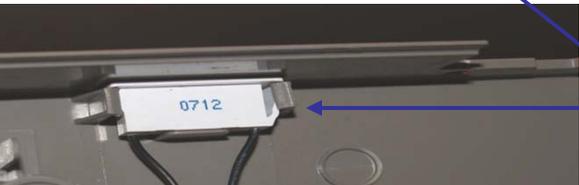


Remove panel to access I/M wire harness

To Remove Panel Insert Small Screwdriver in Square Hole at Bottom Right Corner. Push Screwdriver to Left To Release Tab



Push tab to remove Freezer Drawer



Fridge Door reed switch



Magnet



RFG295/297 Cover - Display Disassembly



Insert a flat-blade screwdriver into slotted area as shown in photo right. After inserting the screwdriver into the slotted area, place one hand underneath the panel, while twisting the screw driver CCW pull the panel out toward the front until the right side pops out. Once the right side pops out the panel is easily removed.



Place screwdriver into slot

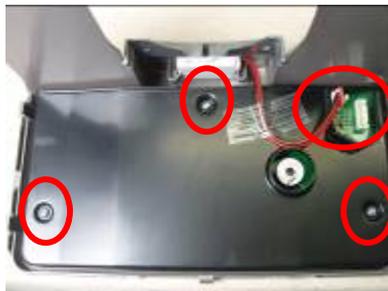


DO NOT try and pry the panel out by pushing, or pulling the screwdriver. This will only damage the slotted area.



Slotted area is cracked

Do go forward, or backward



Once the display panel has been removed disengage the housing connections of display cover. Remove 3 screws of cover display and remove display panel PCB.



RFG295/297 Cover - Display re-assembly



Side clips

When assembling cover display, first insert the rear of the panel until you hear the side clips click into place. Then press the left side and top, you will then hear the left side lock, once that happens push in the right side and the display panel is locked in place.



Push the right side last

DO NOT reassemble the display panel by pushing straight back and then up. The side clips will damage the side walls as shown in the right side photo.



Damage

RSG ice maker in door

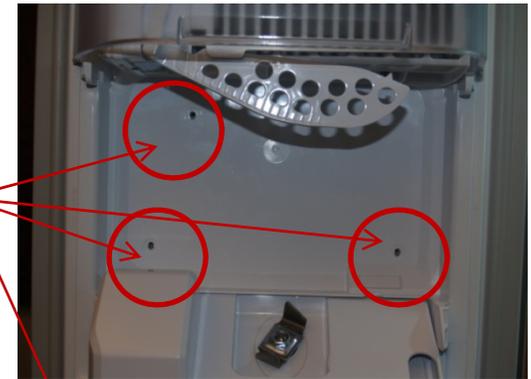
Ice Maker Cover: Pull out on bottom of cover and lift up



Ice bucket ass'y is removed by pulling the locks on both sides of the bin.



Remove I/M Auger Ass'y



Remove 4 screws



Ice bucket reed switch, Ice Off LED flashes if bucket is not in place



RSG Accessing Ice maker, Auger, Reed Switch



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



Wiring harnesses are behind ass'y



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



Room Area	Recommended BTU	Model - Dimension - Weight	Electrical Requirements
10' x 15' 150 sq. ft.	5,050 BTU	AW05NCM7/XAA DIMENSIONS: 16.75" x 12.2" x 13.5" WEIGHT: 37.7 lbs. 9.7 EER Mechanical	115V 15 AMP circuit "parallel" type 
10' x 20' 200 sq. ft.	6,000 Btu.	AW06NCM7/XAA DIMENSIONS: 16.75" x 12.2" x 13.5" WEIGHT: 39.6 lbs. 9.7 EER Mechanical	115V 15 AMP circuit "parallel" type 
10' x 20' 200 sq. ft.	6,000 Btu.	AW06ECB7/XAA DIMENSIONS: 19.3" x 12.6" x 18.1" WEIGHT: 47.4 lbs. 10.7 EER Electronic/Remote Control	115V 15 AMP circuit "parallel" type 
16' - 17' x 20' 300 - 340 sq. ft	7,500 - 8,000 Btu.	AW08ECB7/XAA DIMENSIONS: 19.6" x 14" x 18.1" WEIGHT: 56.5 lbs. 10.8 EER Electronic/Remote Control	115V 15 AMP circuit "parallel" type 
18' x 25' 450 sq. ft.	10,500 Btu.	AW10ECB7/XAA DIMENSIONS: 22" x 15.5" x 22" WEIGHT: 75.6 lbs. 10.8 EER Electronic/Remote Control	115V 15 AMP circuit "parallel" type 
22' x 25' 550 sq. ft.	12,300 Btu.	AW12ECB7/XAA DIMENSIONS: 22" x 15.5" x 22" WEIGHT: 80.9 lbs. 10.8 EER Electronic/Remote Control	115V 15 AMP circuit "parallel" type 
25' x 30' 750 sq. ft.	14,700 Btu.	AW15ECB7/XAA DIMENSIONS: 24.6" x 16.6" x 25.2" WEIGHT: 101 lbs. 10.7 EER Electronic/Remote Control	115V 15 AMP circuit "parallel" type 
25' x 40' 1000 sq. ft.	18,000 Btu.	AW18ECB7/XAA DIMENSIONS: 24.6" x 16.6" x 25.2" WEIGHT: 108.2 lbs. 10.7 EER Electronic/Remote Control	230-208V 15 AMP circuit "tandem" type 
35' x 40' 1400 sq. ft.	25,000 Btu.	AW25ECB7/XAA DIMENSIONS: 26" x 17.6" x 28.1" WEIGHT: 131.4 lbs. 9.4 EER Electronic/Remote Control	230-208V 20 AMP circuit "perpendicular" type 