

The Samsung logo, consisting of the word "SAMSUNG" in white, bold, sans-serif capital letters, centered within a dark blue, horizontally-oriented oval.

2015 Refrigerator

Training Course



www.LCDRepairGuide.com

www.LCD-Television-Repair.com

Repair Preparations

- Go to **GSPN** & download:
 - Fast Track Manual
 - Bulletins / Tech Tips that might help in the repair
 - Visit our SPSN repair video website and review any repair video that may assist with the repair

- Basic Tools a tech should have:
 - Sensor should always be part of your parts tool kit.
 - Voltage meter to check and confirm voltage / resistance of components.
 - Hand tools, Screw Gun , Level , tool mat



Ordering Parts

Refrigerators



MODEL:
RS25H5111SR

POWER:
115V/
60Hz

COMPRESSOR:
DPVR

MODEL CODE:
RS25H5111SR/AA

SER. NO :
0AC64BBF905476L

- Always get the **BOM Name** on Refrigerators, DO NOT use the Model Number
- 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, you should verify "Serial Number"

MODEL:
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0AC64BBF905476L

Model Code
or
BOM Name

0 A C 6 4 B B F 9 0 5 4 7 6 L

Product Type
4: REF
5: W/M
7: MW / Oven
G: Dishwasher

Pro. Month
1~9 : Jan~Sep
A : October
B : November
C : December

Production
Country and line
Korea 1 - 4
China A
Thailand D
Mexico - G, W , B
India Z
Malaysia, M
USA ???

Production Year

R : 2001	T : 2002	W : 2003
X : 2004	Y : 2005	A : 2006 Jan
L : From 02/2006	P : 2007	Q : 2008
S : 2009	Z : 2010	B:2011
C:2012	D:2013	F:2014
G:2015	H:2016	J:2017
K:2018	M:2019	N:2020

Will allow you to turn on compressor, fans, TDM and activate Defrost

- **Force Mode**

Stops Heating / Cooling
Lights remain on

Check Error codes

- **Demo Mode**

- **Diagnostic Mode**

- **Load Mode**

Allows you to see what component are running.

1. Function IR Transmitter and Receiver
2. Ambient Temp if Too High or Low
3. Fans running High or Low speed
4. All other components

Force Mode – How to Enter



Step 1



Step 2



Meaning: Force Freeze

- ❑ Compressor and Fans will Operate during this mode

Meaning: Refrigerator Off (Off Ref)

- ❑ Units with Step Valves when entering this mode the Fresh Food section will be Switched off.

Meaning: Refrigerator Defrost

- ❑ The Refrigerator section will be put into defrost.

Meaning: Full Defrost

- ❑ The heater in all sections Will be turned on and all sections will Enter defrost

If no step valve this feature may operate The same as FF. On some units the Fans will be turned off but condenser fan Will still operate.



Force Mode – How to Enter



Fast Track Troubleshooting

Publication # APRF260BEAE Revision Date 6/25/13 or

Model Codes:
 RF260BEAESR/AA
 RF260BEAEB/AA
 RF260BEAESP/AA
 RF260BEAEWW/AA

IMPORTANT SAFETY NOTICE – “For Technicians Only” This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

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

Forced Mode: Press both buttons (Power Freeze & Fridge) *simultaneously* until unit beeps and display goes blank, 8-12 seconds. Then, press any button to cycle through the modes shown below. NOTE: Wait 5 sec. between presses. To cancel, press the button a “fifth” time.

Forced On: Freezer & Fridge	Forced On: Fridge Off (??)	Fridge Defrost	Full Defrost

(NOTE: These 2 modes, Compressor only runs High speed)

Sealed System: Refrigerant Charge: R134a, 5.29oz., 160g

Compressor → Conden → Hot Pipe → Dryer → Capillary Tube → Refrigerator Evaporator
 → Freezer Evaporator → Suction Pipe → Compressor

Sales Mode: (No Compressor Operation)
 Press **Power Freeze & Freezer** buttons *simultaneously* for 3 sec (“Ding Dong” is heard) to enter/exit Sales Mode. When in the Sales Mode the Display will show “OF- OF”. Removing power will not cancel this mode.

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	60Ω	220	115Vac
Fridge Defrost Heater	120Ω	110	115Vac
French Mullion Heater	1447Ω	9	115Vac
Ice Pipe Heater	75Ω	2	12Vdc
Damper Heater	678Ω	0.25	12Vdc
Sensors	2.5kΩ-89kΩ	N/A	1-4.5Vdc
Fans	N/A	N/A	7-12Vdc

Warranty Period:
 Parts & Labor (Non-sealed system) - 1 Year
 Parts & Labor (Sealed system only) - 5 Yrs. (Call 1-800 Samsung when in doubt.)

Check your service manual or fast track for other model types with different style displays

Search Force Mode

DEMO MODE – Heating and Cooling Off



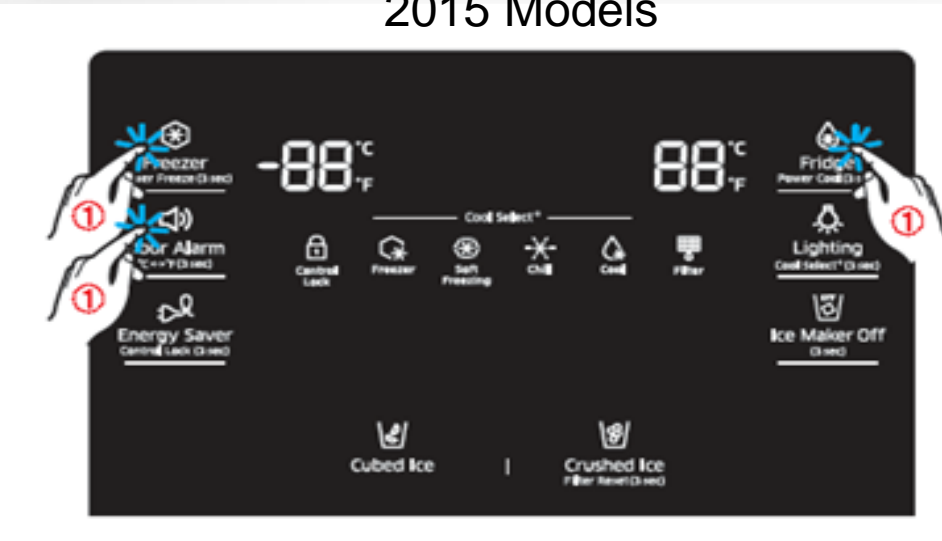
Past Models



=



2015 Models



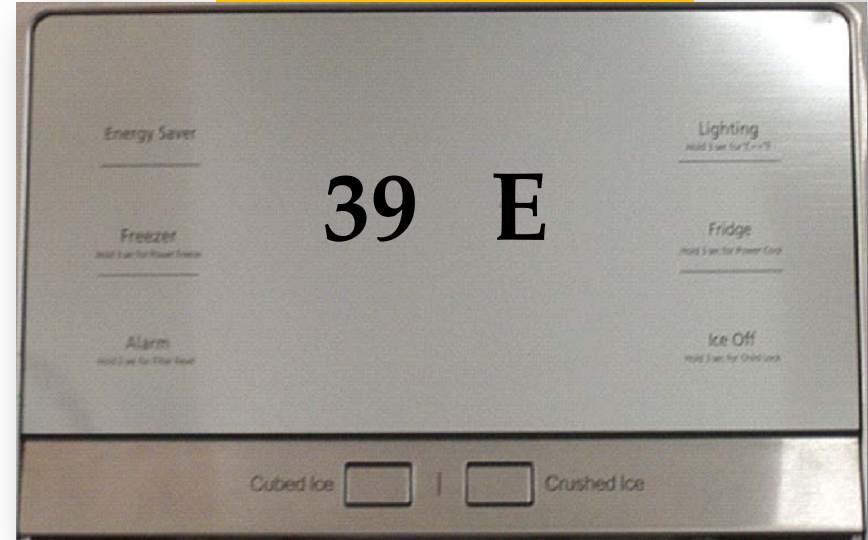
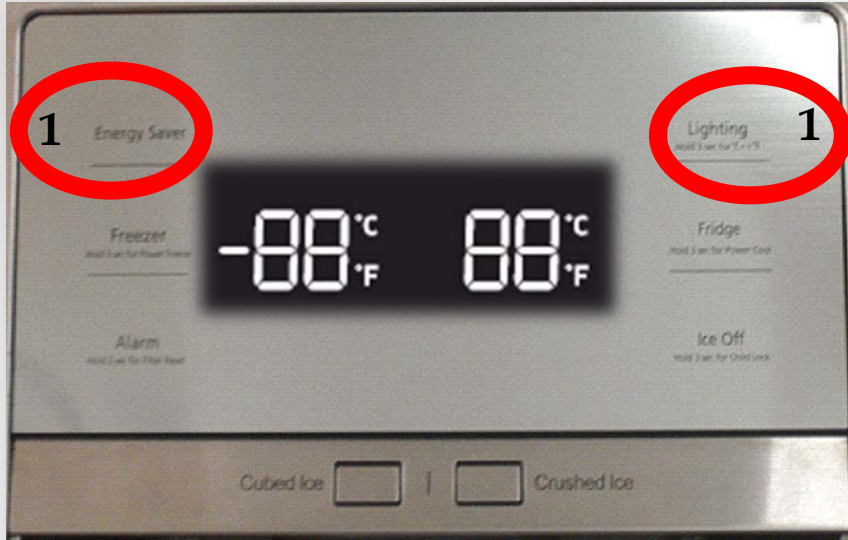
Lights ON ✓



Diagnostic Mode – Used to check for errors



Example Error Code



Press the top two buttons of the display, the four eights will blink on the display, keep holding until they disappear. After they disappear the error codes will be displayed if any were recorded.

Use your Fast Track or Service Manual

39E	Ice Maker (Fridge) Function Error	It occurs when there is a defect in removing ice cubes or in making it move [When there is an error while doing self-diagnosis of the Initial Motor Rotation.]	After replacing the Ice Maker (Fridge), plug in the Fridge and check if the Ice Maker operates normally
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LOAD MODE- Used to check what is on



This mode will indicate the operational status on different functions of a Fridge.

- This mode allows you to check functions such as fridge , freezer, fan operation and RPM, Temperature sensor, Compressor operation, defrost Heaters , damper , Ice maker and other.

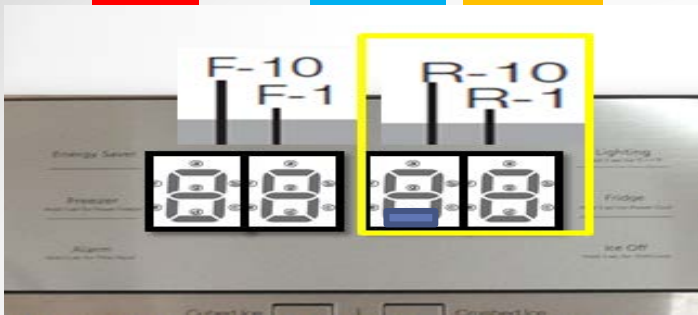
- THE MODE WILL INDICATE WHICH COMPONENTS ARE ON



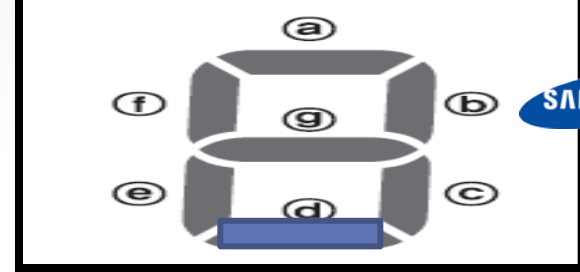
Step 1. Hold the top two buttons together until the display blinks.



Step 2. while the display is *blinking* let go of the top two buttons. After doing so tap on the Fridge button. Load Mode will start



a



Load Mode Check List

Display LED	Location	Operation
R-1	a	Fresh Food Fan High speed
R-1	b	Fresh Food Fan Low speed
R-1	c	Fresh Food Defrost Heater
R-1	d	When 1 st plugged in
R-1	e	High Temp Condition Ambient Over 93F degrees
R-1	f	Low Temp condition Ambient Under 72F degrees
R-1	e - f	Normal condition Ambient (Between 73F – 91F)
All LED Off		
R-1	g	Demo Mode
F-1	a	Compressor On
F-1	b	Freezer Fan on high
F-1	c	Freezer Fan on low
F-1	d	Freezer Defrost Heater on
F-1	e	Compressor Fan on high
F-1	f	Compressor Fan on Low
F-1	g	When the Sparkling water to Dispenser valve operates
R-10	a	Damper Open
R-10	c	Ice Maker heater operates
R-10	d	Full Ice (2013 ICE Maker)
R-10	e	(Sensor detects) Sparkling Water tank full
R-10	f	(Sensor detects) Sparkling Water tank low
R-10	e - f	(Sensor detects) Sparkling water tank empty
All LED Off		
F-10	c	Sparkling Water Dispenser valve operates
F-10	d	Ice Room Fan - High Speed
F-10	e	Ice Room Fan - Low Speed
F-10	f	Water to Dispenser valve operates - Sparkling only
F-10	g	French Heater Operates



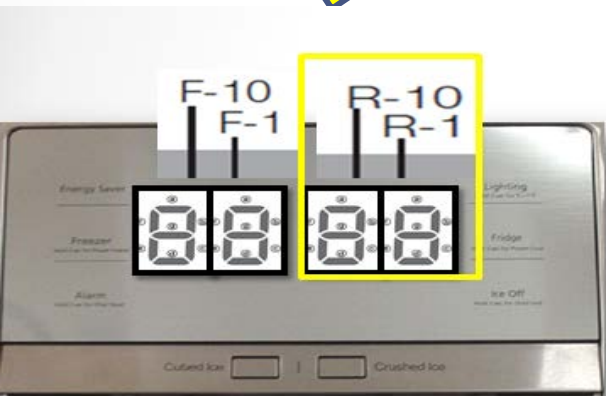
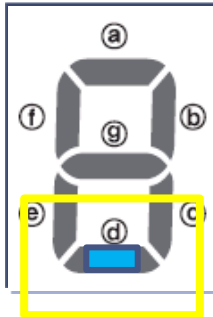
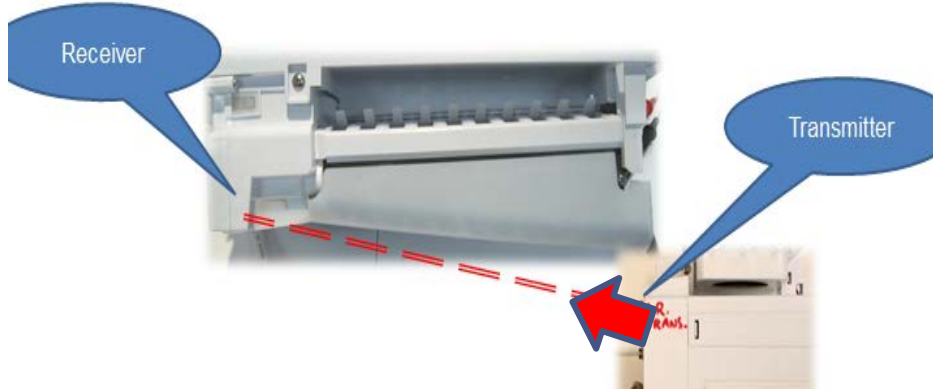
LOAD MODE- Used to check what is on



Checking the IR receiver and transmitter on Headed Mold Ice Makers

If a customer has a complaint of no ice, remove the ice bucket and place your finger on the receiver of the ice maker. If blocked the R-10 - D will begin to blink. Doing this will test the receiver and transmitter operation.

If the LED does not blink when you place your finger on it, test transmitter with you non UV filtered camera.



Ice Maker

Diagnostic & Troubleshooting



Verify the Issue



- What is the customer complaint? Do not count on the work order for correct symptom.
- Paraphrase what customer describes so there is agreement on symptom.
- Some possible symptoms:
 - No Ice
 - Slow Ice
 - Not dispensing ice
 - Wrong type cubes dispensing

What is Normal?



- **Customer Complaint: Crushed, not Cubes**
 - Normal to have some broken ice with cubes.
 - Demonstrate difference between cubes and crushed



- **Slow Ice, Ice Recovery Time**
 - Depends on customer usage, temperatures, etc.
 - Empty ice bucket can take over 24 hours to refill
- **Ice Quality**
 - Direct contact ice makers produce white, brittle cubes. This is a result of quick freezing.



This happens when the Ice has been sitting for a long time



Ice Making Requirements

DO NOT JUST OPEN THE DOOR AND PRESS THE TEST SWITCH

YOU MAY ACTUALLY SEE A HARVEST OCCURING AND ASSUME PROBLEM SOLVED

THIS ISNT A FIX & DOESN'T MEAN THAT IT IS NOW WORKING. DOING JUST THIS WILL MOST LIKELY RESULT IN A REDO!



- First thing we need to make ice is to have a supply of water.
- The second thing we need is the ability to achieve a temperature low enough to at the very least freeze water.
- Third we need a monitoring system to convert temperature to voltage then action a physical movement to remove ice from their tray and into the storage bin.
- Fourth we need a source to deliver the ice cubes from the storage bin and into our glass at our command.

Ice Making Requirements



Water supply

- Minimum 20 PSI
- No piercing type valves (advise customer)

- A clean water filter, replace if needed (customer purchase)
- If Reverse Osmosis system is used, remove filter



Water Filter

Removing & Installing



Tip: If you are having trouble getting the filter out of the fridge, turn off water supply valve to the refrigerator and dispense water from the water dispenser until it runs out completely. This will lower the amount of pressure in the filter housing, and allow you to remove the filter easily. Just remember turn the water supply valve on once the new filter has been installed

Things to know about Filters

- ✓ The Filter should be changed every 6 months.
- ✓ Some areas have large amounts of lime in their water, which causes the water filter to clog more quickly.
- ✓ If water is not dispensing or dispensing slowly, you need to replace the water filter because the water filter is clogged.
- ✓ **ONLY USE SAMSUNG filters**, non Samsung or Generic Brands may leak. Such repairs should not be covered



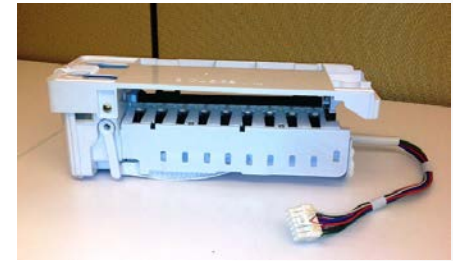
Replacement filters are available at SamsungParts.com

Ice Making Requirements



Harvesting Temperatures

- Freezer :
Main PCB looks for below -13°C (8.6°F) for 5 seconds after a stand time of 23-43 minutes
- Ice Room (old style ice maker):
Main PCB looks for below -17°C (1.4°F) for 5 MINUTES after stand time of 58-110 minutes
- Ice Room (Heated Mold):
Main PCB looks for below -7.5°C (18.5°F) for 5 seconds after a stand time of 50-60 minutes.



Ice Making Requirements

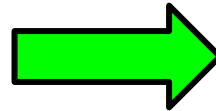


ICE MAKER EJECT SENSOR

It is important to note you can only check **VOLTAGE** on the **ICE MAKER EJECT** sensor. The **RESISTANCE** chart will not work.



A HARVEST WILL OCCUR



17.6

~~18.7~~

3.26

A HARVEST WILL NOT OCCUR



19.4

~~17.9~~

3.21

17.6	18.7	3.26
19.4	17.9	3.21

Dispensing Issues



No ice dispensed

- Check for auger operation, you should hear auger motor when you press lever.
- If no motor operation, check the plunger switch first, then ice route switches then auger motor
- Check for a clogged ice bucket opening



Dispensing Issues



All crushed ice, no cubes

- Ice door not sealing,
- Frost in chute and ice bucket
- Ice clumped in opening of bucket
- Ice bucket properly in place, flapper moves freely

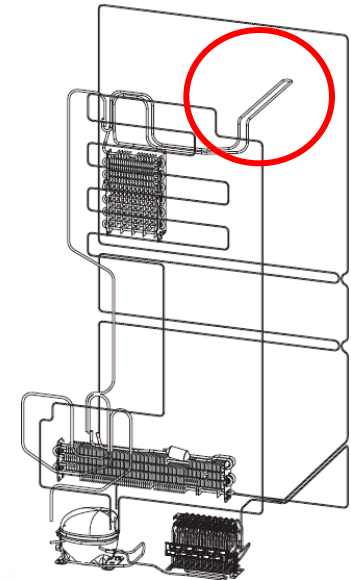
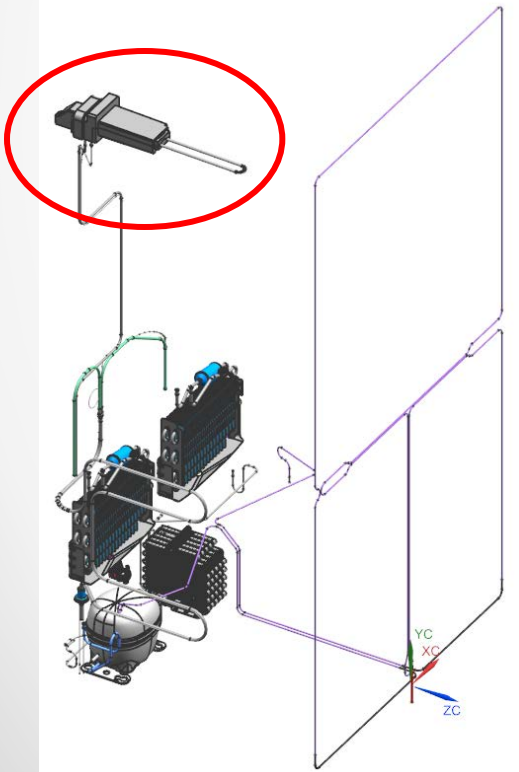


- Check Cubed Solenoid operation
- Verify easy up and down movement

Direct Contact Ice Maker



- Sealed system loop runs through the ice maker
- Faster freezing and replenishment
- Follow steps carefully when removing

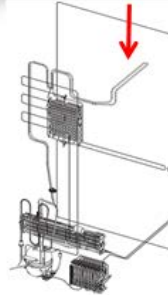


1.



Wait about 3 minutes before turning defrost off

Cooling Tube



2.

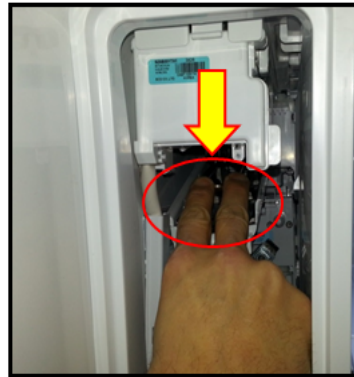


Remember to shut off the Defrost before removing Ice Maker and enter Demo to keep the lights on

3.

CAREFULLY pull down on the icemaker to position the cooling tube into the pull down position.
pull down with your finger or fingers until the ICE maker is able to be pulled out.

•Make sure not to pull the tube to far down because the tube will break **



While pressing the latch on the I/M, pull out and down to remove the Ice Maker.



Replace the Correct Parts



- If the unit ever made ice correctly, the problem is probably not the main PCB.
- Ice Maker should never be replaced for dispensing issues or no water issues.
- Replace Ice Maker for bad sensor, bad motor, bad heater, bad internal switches.
- Before replacing main PCB, unplug the refrigerator, then remove all wiring harness connectors and reinstall them. This will solve many ice related issues, as sometimes the connectors are just loose.



Troubleshooting the Refrigerator Fans

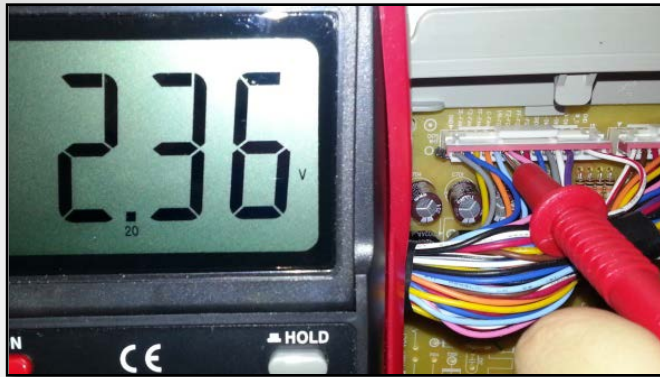
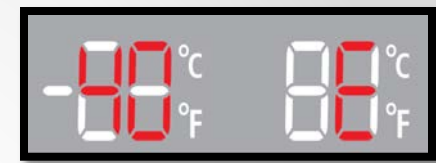




- ❑ Fans are DC motors, normally operating depending on speed between **7-11Vdc**.
- ❑ Our fans normally have 3 wires:
V+ (Red), V- (Black), FG (White)
- ❑ **FG line** is a feed back signal from the fan monitored by Main Board **2.0 to 2.5 VDC**



Ice Room Fan Error



1.

- **Feedback (FG) Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 6** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **2.5V_{DC}**

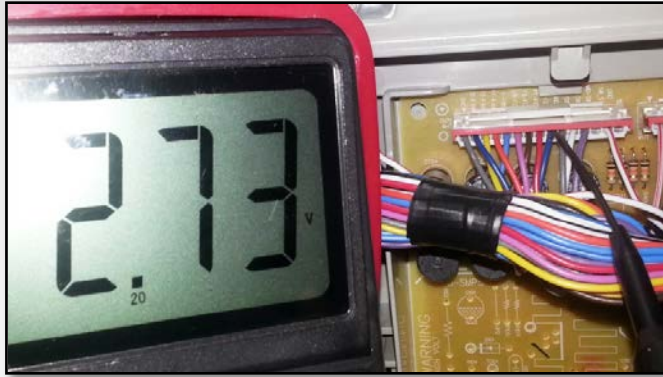
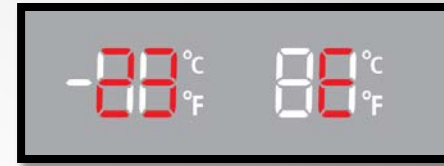
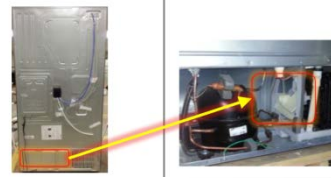
2.

- **Voltage Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 2** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **7V_{DC}** and **12V_{DC}**

3.

- **Ice Room Fan Operation**
- When Compressor is ON, the Ice Room Fan motor is ON
- When Compressor is Off, the Ice Room Fan motor is OFF
- When Fridge Room door is open, the Ice Room Fan motor will turn OFF
- When Fridge Room door is closed, the Ice Room Fan will turn back on after a 12 second delay
- When the Ice Maker Heater turns On, the Ice Room Fan turns OFF

Condenser Fan Error



1.

- **Feedback (FG) Check**

- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 9** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **2.5V_{DC}**

2.

- **Voltage Check**

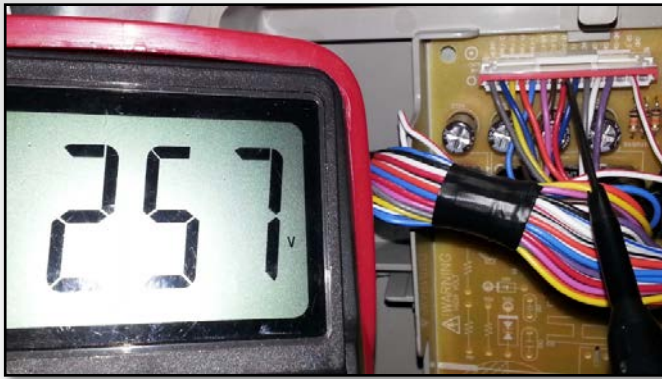
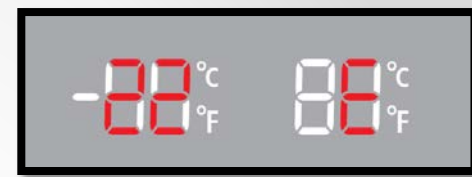
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 5** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **7V_{DC}** and **12V_{DC}**

3.

- **Compressor Fan Operation**

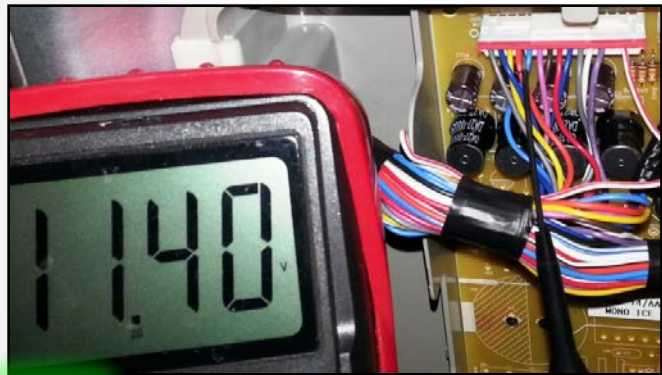
- When Compressor is ON, the Compressor Fan motor is ON
- When Compressor is Off, the Compressor Fan motor is OFF
- Ambient temperature must be above 66°F for the Compressor Fan Motor to turn ON
- If compressor run time is high, the Compressor Fan motor will turn ON
- There may be a 7 minute operation delay to prevent overloading the compressor

Refrigerator (FF) Fan Error



1.

- **Feedback (FG) Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 8** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **2.5V_{DC}**



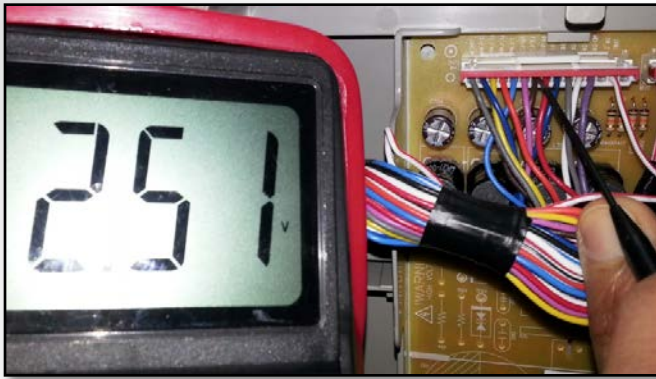
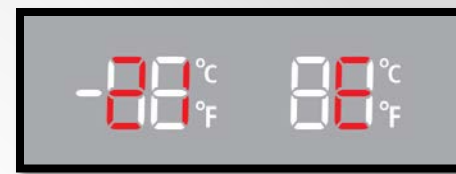
2.

- **Voltage Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 4** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **7V_{DC}** and **12V_{DC}**

3.

- **Refrigerator Fan Operation**
- If the actual refrigerator compartment temperature is above the target temperature, the Refrigerator Fan motor is ON
- When the refrigerator target temperature is reached, the Refrigerator Fan motor will turn OFF
- When the refrigerator door is open, the Refrigerator Fan motor will turn OFF
- When the refrigerator door is closed, the Refrigerator Fan motor will turn on after a 10 second delay

Freezer (FZ) Fan Error



1.

- **Feedback (FG) Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 7** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **2.5V_{DC}**

2.

- **Voltage Check**
- Activate Forced Mode (FF)
- Measure voltage between **CN76 Pin 3** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **7V_{DC}** and **12V_{DC}**

3.

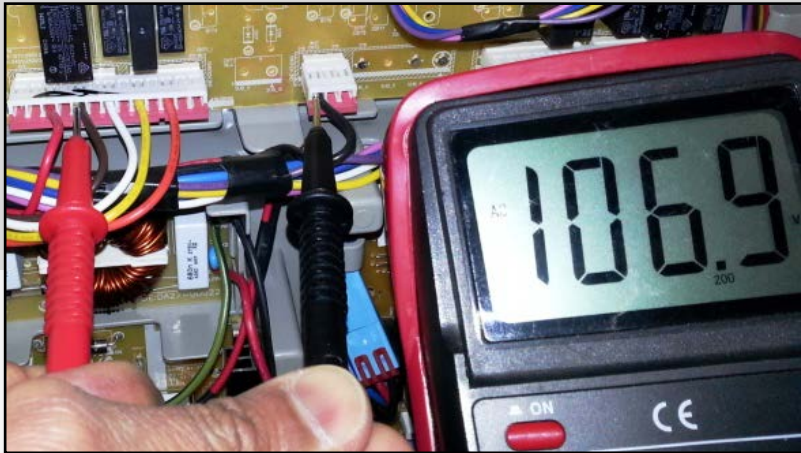
- **Refrigerator Fan Operation**
- When Compressor is ON, the Freezer Fan motor is ON
- When the Freezer compartment target temperature is reached the compressor will turn OFF, and the Freezer Fan motor will turn OFF
- When the freezer door is open, the Freezer Fan motor will turn OFF



Troubleshooting the Defrost Circuit

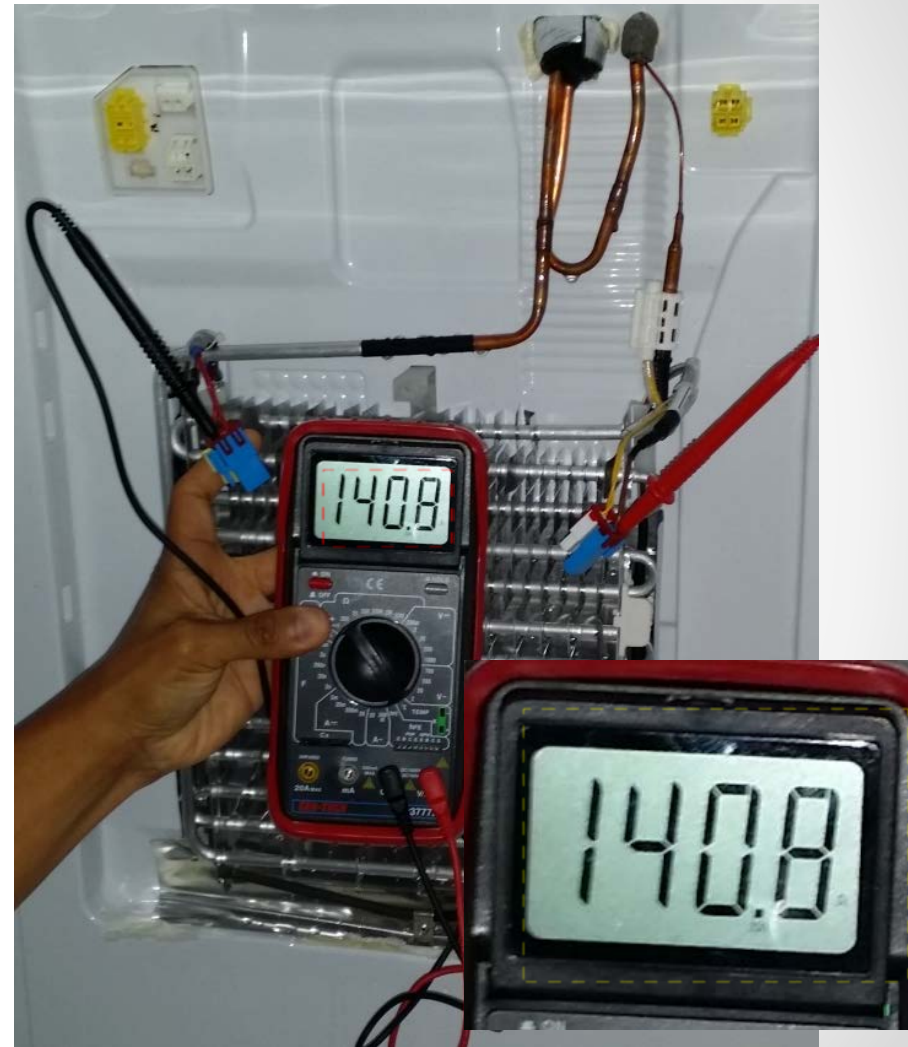


Checking Voltage of Defrost Heater at the PCB!



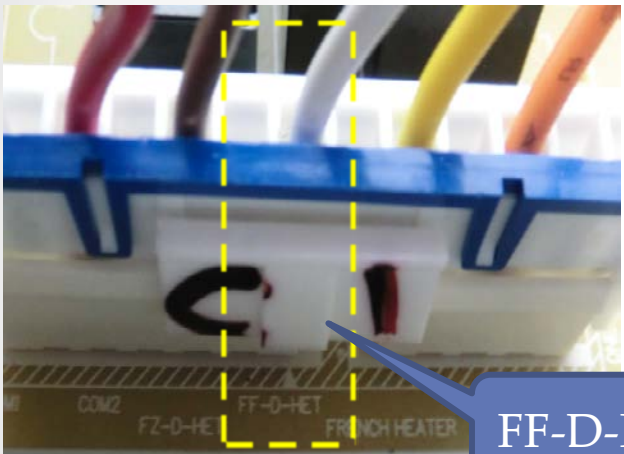
Check Voltage in forced defrost mode
※ 105~132V

Checking Resistance of Defrost Heater!

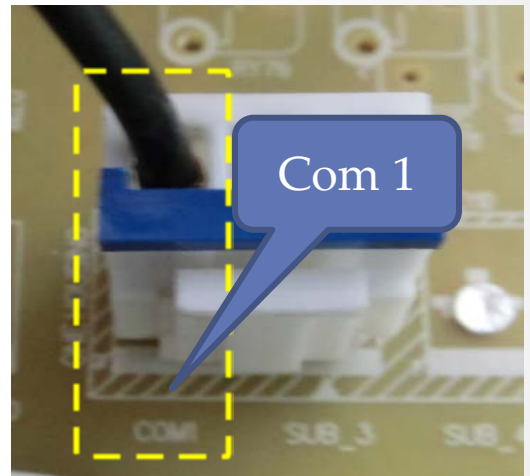
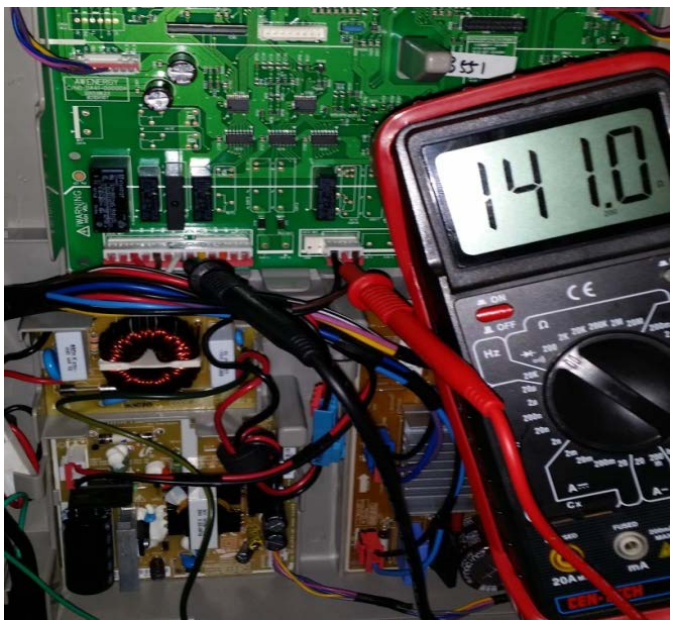


Defrost heater of fridge room
Approx 120~150Ω

Checking Resistance of Defrost Heater at the PCB!



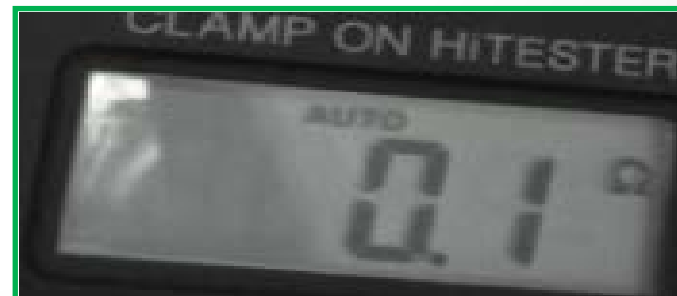
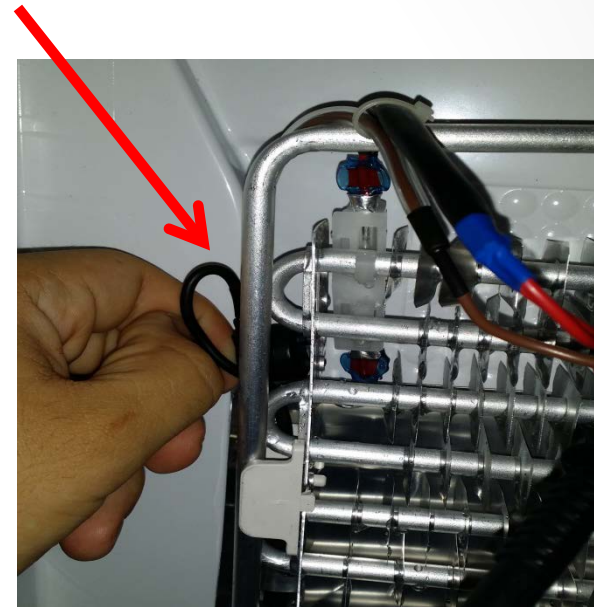
FF-D-HET



Defrost heater of fridge room

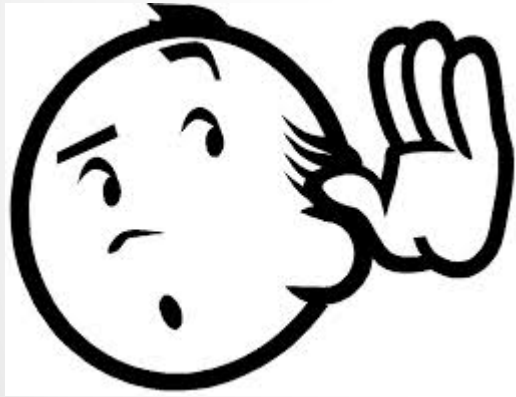
Approx 130~150Ω

Checking Resistance of Bi-Metal!

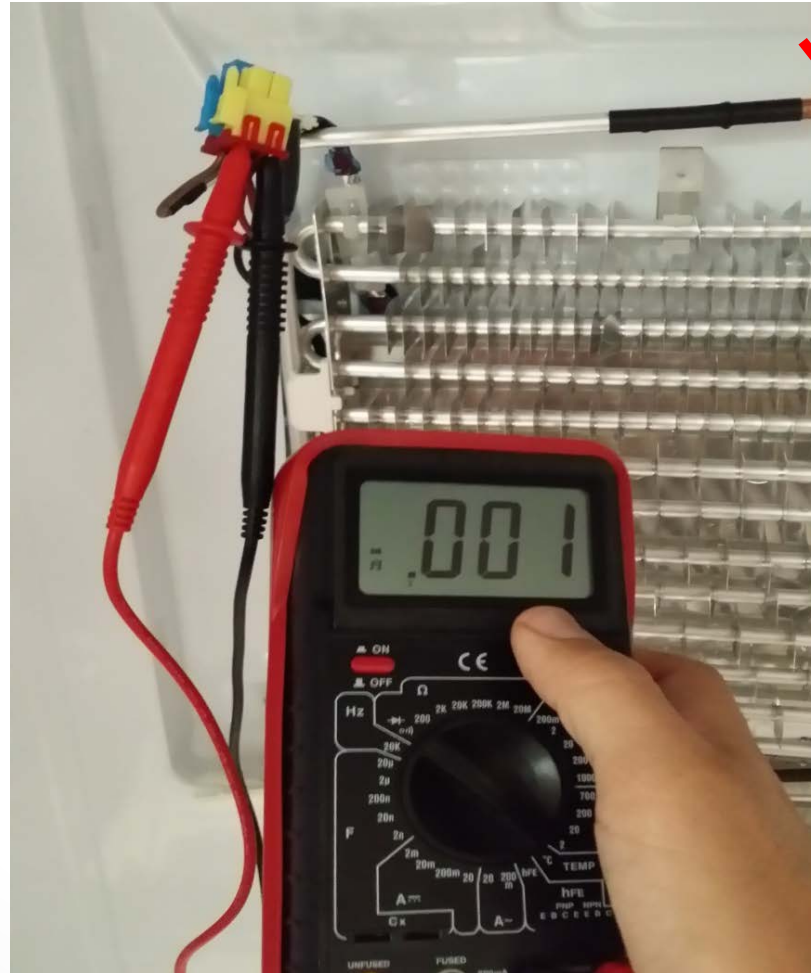


Resistance value of black, red pin of fuse
 ※ 0.1~0.5Ω : good
 ● OL : Bad

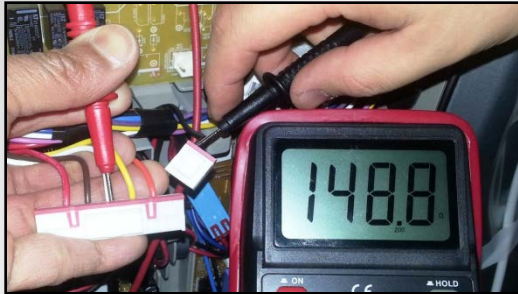
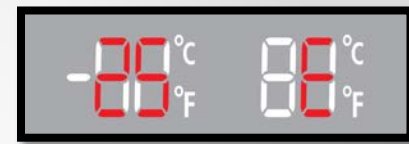
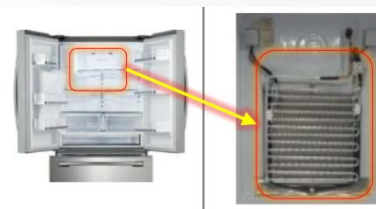
Checking Resistance of Thermal Fuse!



**Continuity beep
if Good !!!**



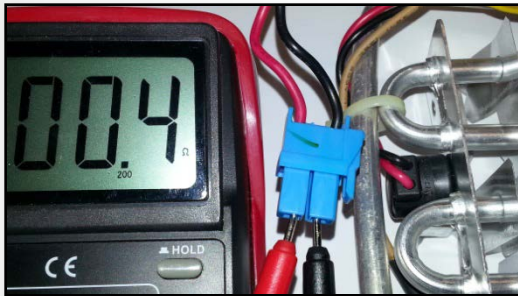
Refrigerator Defrost Error



1.

Heater Resistance Check

- Measure resistance between **CN70 Pin 1** and a **CN72 Pin 3**
- Resistance should read **approximately 120Ω**
- **0Ω** indicates a short
- Infinite resistance indicates an open heater or bi-metal device



2.

Bi-Metal Check

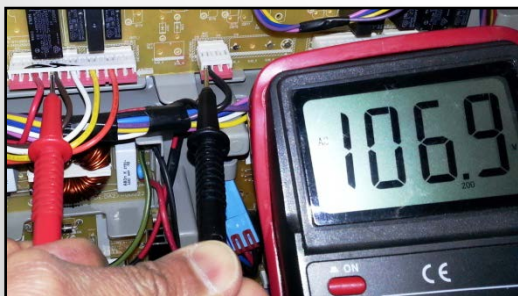
- Remove the fridge evaporator cover, and check the resistance across the Bi-Metal device
- **0Ω** indicates a good Bi-Metal device
- Infinite resistance indicates the Bi-Metal is open and must be replaced



3.

Refrigerator Defrost Sensor Check

- Verify Voltage and Resistance according to **Defrost Sensor** troubleshooting procedure
- Verify values using the Sensor Temperature Chart on the FT manual
- The FF DEF sensor will shut off the heater at approximately 63°F

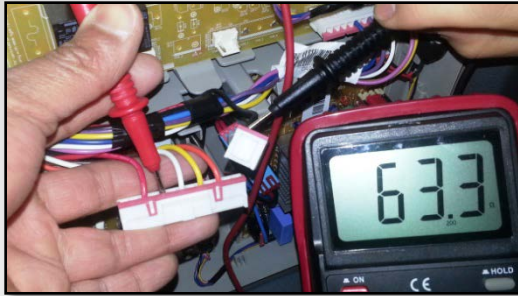


4.

Heater Voltage Check

- Activate Forced Mode (FF)
- Measure voltage between **CN70 Pin 1** and a **CN72 Pin 3**
- Voltage should read **approximately 120V_{AC}**

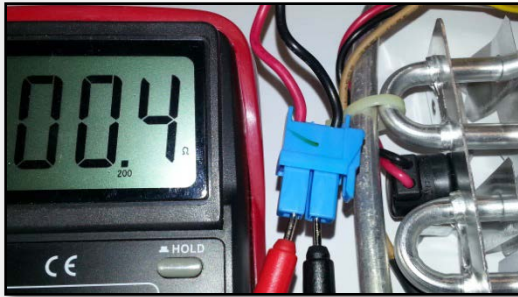
Freezer Defrost Error



1.

Heater Resistance Check

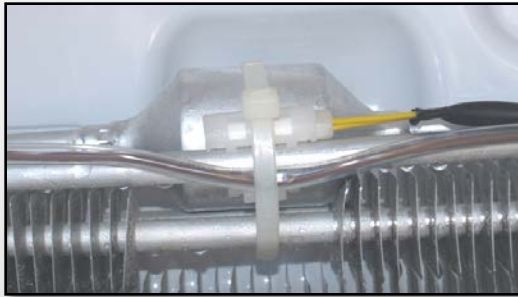
- Measure resistance between **CN70 Pin 3** and a **CN72 Pin 3**
- Resistance should read **approximately 60Ω**
- **0Ω** indicates a short
- Infinite resistance indicates an open heater or bi-metal device



2.

Bi-Metal Check

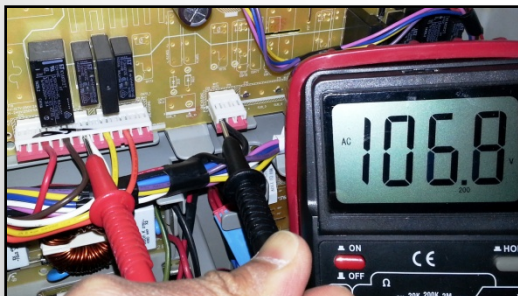
- Remove the freezer evaporator cover, and check the resistance across the Bi-Metal device
- **0Ω** indicates a good Bi-Metal device
- Infinite resistance indicates the Bi-Metal is open and must be replaced



3.

Freezer Defrost Sensor Check

- Verify Voltage and Resistance according to **Defrost Sensor** troubleshooting procedure
- Verify values using the Sensor Temperature Chart on the FT manual
- The FZ DEF sensor will shut off the heater at approximately 50°F



4.

Heater Voltage Check

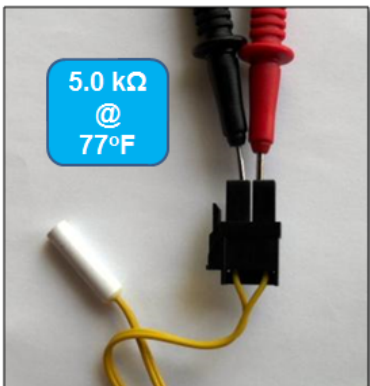
- Activate Forced Mode (**FF**)
- Measure voltage between **CN70 Pin 3** and a **CN72 Pin 3**
- Voltage should read approximately **120V_{AC}**



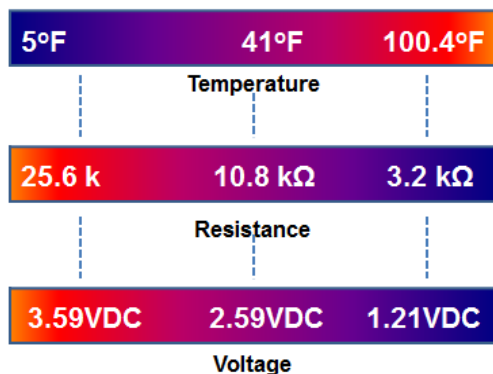
Sensor's & Troubleshooting Sensor Error codes



Temperature Sensor Troubleshooting



Room Temperature Resistance

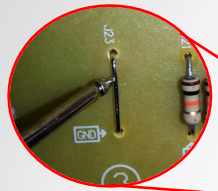
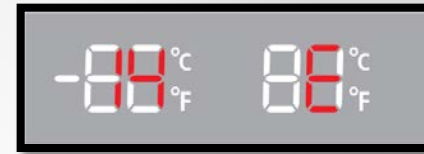


- ❑ Samsung refrigerator temperature sensors will have a resistance of approximately 5kΩ when exposed to a temperature of 77°F (room temperature)
- ❑ A more accurate way of testing a sensor, is to test its voltage right at the Main PCB while the refrigerator is operating (refer to Temp/Resistance/Voltage chart)

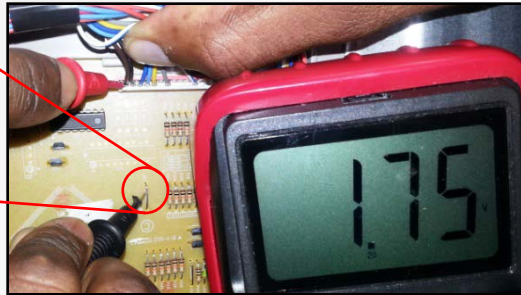


Temp. (°F)	Resistance (kΩ)	Voltage (V)	Temp. (°F)	Resistance (kΩ)	Voltage (V)	Temp. (°F)	Resistance (kΩ)	Voltage (V)
-43.6	98.9	4.54	12.2	21.4	3.41	68.0	6.01	1.88
-41.8	93.7	4.52	14.0	20.5	3.36	69.8	5.79	1.83
-40.0	88.9	4.49	15.8	19.6	3.31	71.6	5.58	1.79
-38.2	84.2	4.47	17.6	18.7	3.26	73.4	5.38	1.75
-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	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
10.4	22.4	3.46	66.2	6.20	1.92			

Ice Maker (FF) Sensor Error



**J23
(GND)**



1.

- **Voltage Check**
- Measure voltage between **CN90 Pin 1** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **0.6V_{DC}** and **4.6V_{DC}**
- Verify values using the Sensor Temperature Chart on the FT manual



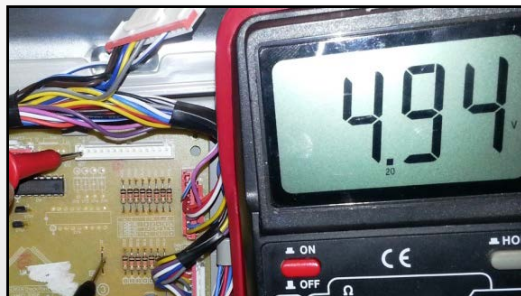
2.

- **Resistance Check**
- Measure resistance on **CN90**, between **Pins 1 (BRN)** and **Pin 7 (GRY)**
- Verify values using the Sensor Temperature Chart on the FT manual
- Error code will only come up if the sensor is **Open** or **Shorted**



3.

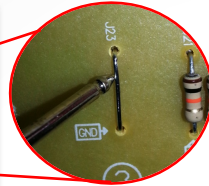
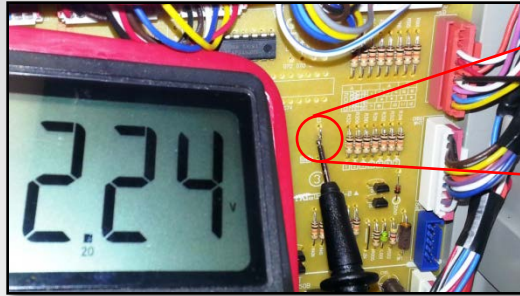
- **Resistance Check (directly from I/M)**
- If necessary, measure resistance between the **Brown** and **Gray** wires on the I/M connector
- If sensor is **Open** or **Shorted**, I/M is defective
- Error code will only come up if the sensor is **Open** or **Shorted**



4.

- **Main PCB Voltage Check**
- Disconnect **CN90**, and measure voltage between **CN90 Pin 1** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **5.0V_{DC}**
- If voltage is abnormal, suspect a defective Main PCB

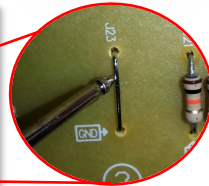
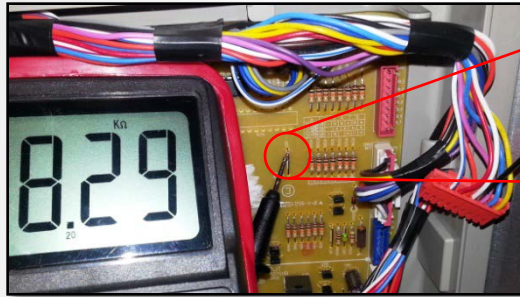
Fridge Room Sensor Error



J23
(GND)

1.

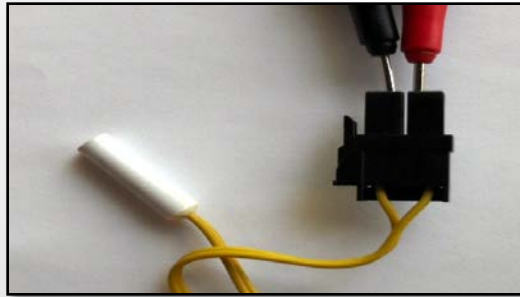
- **Voltage Check**
- Measure voltage between **CN30 Pin 6** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **0.6V_{DC}** and **4.6V_{DC}**
- Verify values using the Sensor Temperature Chart on the FT manual



J23
(GND)

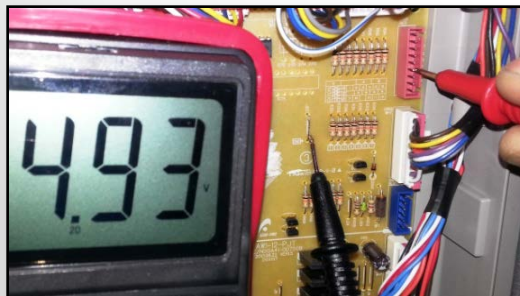
2.

- **Resistance Check**
- Disconnect **CN30**, and measure resistance between **CN30 Pin 6** and a **GND** point on the Main PCB (**J23**)
- Verify values using the Sensor Temperature Chart on the FT manual
- Error code will only come up if the sensor is **Open** or **Shorted**



3.

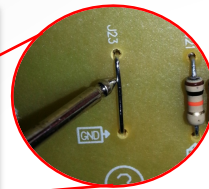
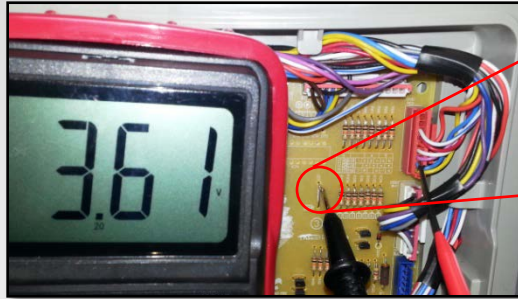
- **Resistance Check (directly at the sensor)**
- If necessary, measure resistance at the sensor terminals
- If sensor is **Open** or **Shorted** it is defective
- Error code will only come up if the sensor is **Open** or **Shorted**



4.

- **Main PCB Voltage Check**
- Disconnect **CN30**, and measure voltage between **CN30 Pin 6** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **5.0V_{DC}**
- If voltage is abnormal, suspect a defective Main PCB

Fridge (FF) Def. Sensor Error

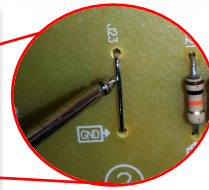
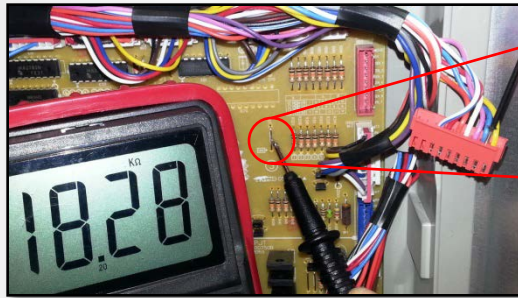


**J23
(GND)**

1.

Voltage Check

- Measure voltage between **CN30 Pin 8** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **0.6V_{DC}** and **4.6V_{DC}**
- Verify values using the Sensor Temperature Chart on the FT manual

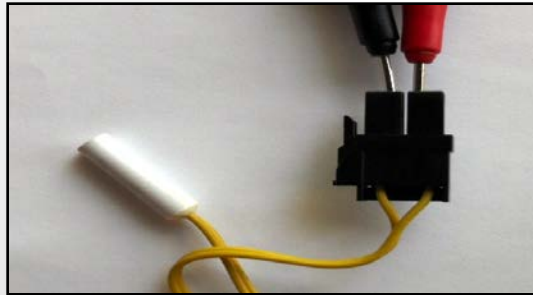


**J23
(GND)**

2.

Resistance Check

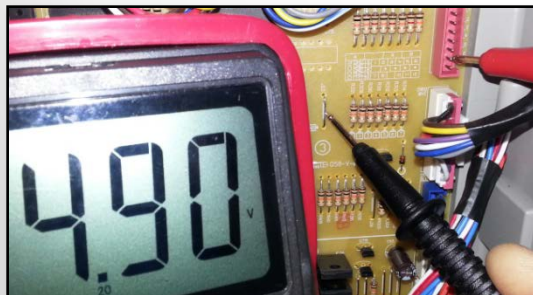
- Disconnect **CN30**, and measure resistance between **CN30 Pin 8** and a **GND** point on the Main PCB (**J23**)
- Verify values using the Sensor Temperature Chart on the FT manual
- Error code will only come up if the sensor is **Open** or **Shorted**



3.

Resistance Check (directly at the sensor)

- If necessary, measure resistance at the sensor terminals
- If sensor is **Open** or **Shorted** it is defective
- Error code will only come up if the sensor is **Open** or **Shorted**

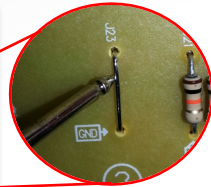
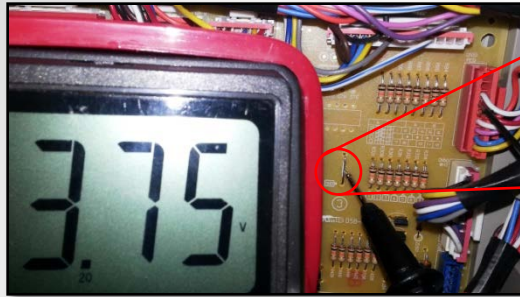


4.

Main PCB Voltage Check

- Disconnect **CN30**, and measure voltage between **CN30 Pin 8** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **5.0V_{DC}**
- If voltage is abnormal, suspect a defective Main PCB

Freezer (FZ) Sensor Error

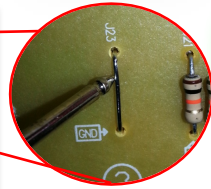
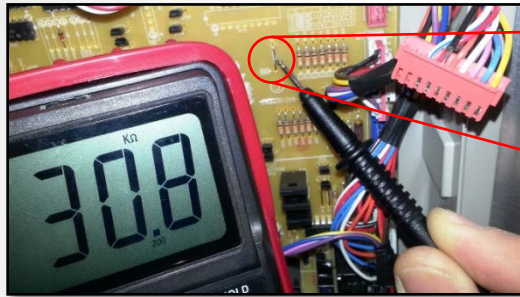


**J23
(GND)**

1.

Voltage Check

- Measure voltage between **CN30 Pin 4** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **0.6V_{DC}** and **4.6V_{DC}**
- Verify values using the Sensor Temperature Chart on the FT manual

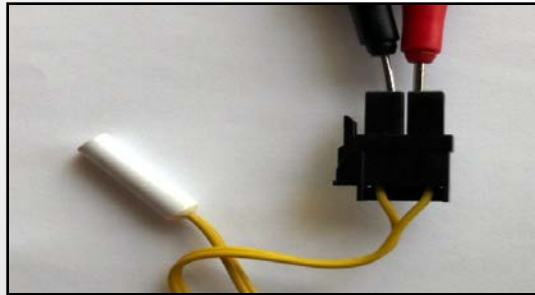


**J23
(GND)**

2.

Resistance Check

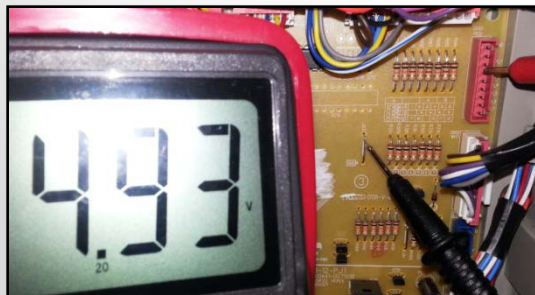
- Disconnect **CN30**, and measure resistance between **CN30 Pin 4** and a **GND** point on the Main PCB (**J23**)
- Verify values using the Sensor Temperature Chart on the FT manual
- Error code will only come up if the sensor is **Open** or **Shorted**



3.

Resistance Check (directly at the sensor)

- If necessary, measure resistance at the sensor terminals
- If sensor is **Open** or **Shorted** it is defective
- Error code will only come up if the sensor is **Open** or **Shorted**

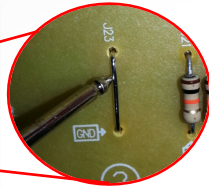
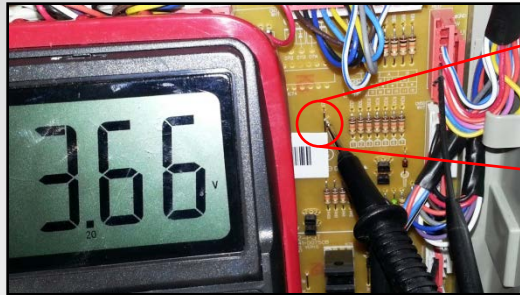


4.

Main PCB Voltage Check

- Disconnect **CN30**, and measure voltage between **CN30 Pin 4** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **5.0V_{DC}**
- If voltage is abnormal, suspect a defective Main PCB

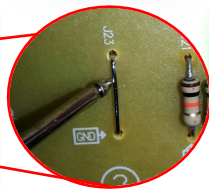
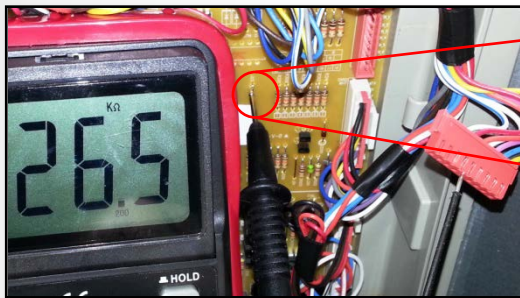
Freezer (FZ) Def. Sensor Error



1.

Voltage Check

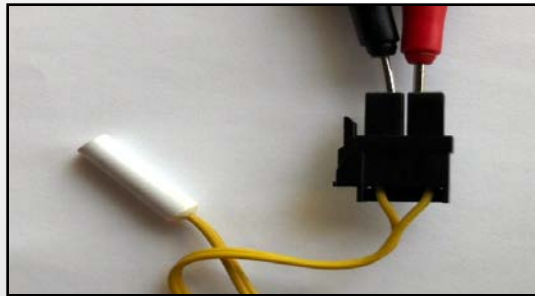
- Measure voltage between **CN30 Pin 5** and a **GND** point on the Main PCB (**J23**)
- Voltage should read between **0.6V_{DC}** and **4.6V_{DC}**
- Verify values using the Sensor Temperature Chart on the FT manual



2.

Resistance Check

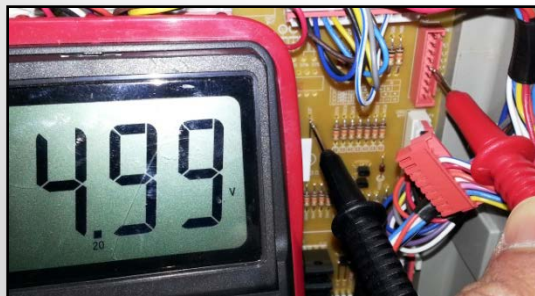
- Disconnect **CN30**, and measure resistance between **CN30 Pin 5** and a **GND** point on the Main PCB (**J23**)
- Verify values using the Sensor Temperature Chart on the FT manual
- Error code will only come up if the sensor is **Open** or **Shorted**



3.

Resistance Check (directly at the sensor)

- If necessary, measure resistance at the sensor terminals
- If sensor is **Open** or **Shorted** it is defective
- Error code will only come up if the sensor is **Open** or **Shorted**



4.

Main PCB Voltage Check

- Disconnect **CN30**, and measure voltage between **CN30 Pin 5** and a **GND** point on the Main PCB (**J23**)
- Voltage should read approximately **5.0V_{DC}**
- If voltage is abnormal, suspect a defective Main PCB

Thank you!