



Fast Track Troubleshooting

Publication # tsRF4289HA Revision Date XX/XX/XXXX

Models Covered:
RF4289HARS/XAA

French Door Refrigeration

Refrigerant Charge
R134a 5.64 oz.

Installation Note:

2" space required top and rear and 3 3/4" space required on sides

Sales Mode

No Compressor Operation

Press the Settings Icon on the screen, scroll to the second page of the menu and toggle the setting "Cooling Off"

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Forced Mode and Diagnostic Mode Operation: Press the upper left and upper right corners alternately (A-B-A-B-A-B) until "Engineer Mode Enabled" is displayed on screen. Engineer Mode allows you to access both Diagnostic and Forced operation Modes. Press the settings icon then scroll through the menus to the Engineer Mode sub menu. Then select the Fridge Function Test ,press the Test button. Press the NEXT button to cycle through the different modes.

Forced Mode Operating Sequence -

- 1) Force Run 1 (RPM 3600) →
- 2) Force Run 2 (RPM 3600):(TDM F valve Fixed) →
- 3) Force R Defrost → Refrigerator Defrost Heater on
- 4) Force F/R Defrost → All heaters on
- 5) Test Cancel

In Force Run Mode the compressor will run at once cancelling defrost mode where applicable. Use care, as this can cause the compressor to overload.

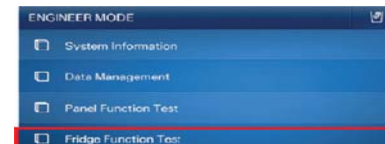
Step 1



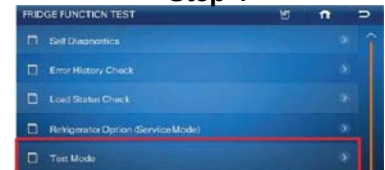
Step 2



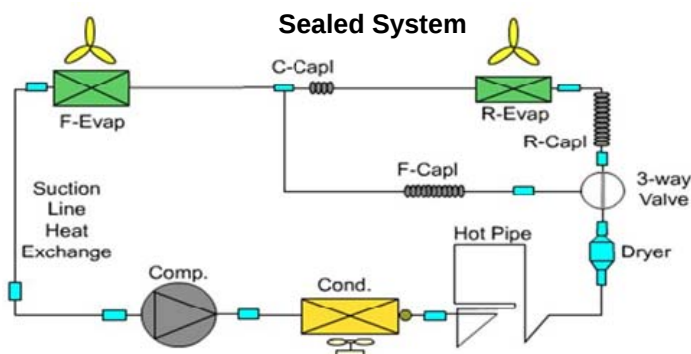
Step 3



Step 4



Step 5



SUPPORT INFORMATION

Training — Plus One

<http://my.plus1solutions.net/clientPortals/samsung/>

Help — GSPN

<http://service.samsungportal.com/>

Component Value Chart

Component	Resistance	Wattage	Voltage
Freezer Defrost Heater	62.6Ω	230	120vac
Fridge Defrost Heater	120Ω	120	120vac
French Mullion Heater	2057Ω	7	120vac
Ice Duct Heater	2057Ω	7	120vac
Dispenser Heater	9000Ω	1.6	120vac
Damper	144Ω	1	12vdc
Sensors	2.5kΩ-89kΩ	N/A	1~4.5vdc
Fans	N/A	N/A	7~12vdc

DC FAN MOTORS

Brushless DC Fan motors are used to save energy. The fans operate at two speeds. 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 and back 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 evaporator 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 evaporator fan motors. Have them closed to test the motors. Delay time 10 – 60 seconds.

Heat Release Ice Makers

Heat Release Ice production Explanation

38 minutes after the water fill is complete, the control board will check the temperature of the eject Thermistor, on the Ice Maker Head, 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 sensed as full. If a Fault Mode is detected with the Ice Maker operation, the Ice Maker stops working for 3 hours. Which means, the Ice Maker checks the operation every 3 hours until it works properly.

Heat Release I/M 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 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. The motor will rotate in right direction for about 3 minutes, after this, water supply valve is turned on, then the valve is turned off, the test mode is completed. If the above operation is not carried out within 6 minutes, it will go into a fault mode.

FREEZER TEMPERATURE CONTROL BY THE ICE MAKER

Interior Temperature of the freezer will be set to -14 degrees Fahrenheit until the ice bucket is full. When the ice bucket is full, the freezer will maintain original set temperature. Also, whenever the ice is used, the freezer will again set to -14 degrees Fahrenheit. Selecting "Ice Off" will allow the freezer to be controlled by the set temperature. If water is not hooked up, the freezer will always be at -14 unless "Ice Off" is selected.

Temperature/Resistance/Voltage Chart for Samsung Refrigerators Sensors

Temp.	(Ω)	Volts	Temp.	(Ω)	Volts	Temp.	(Ω)	Volts	Temp.	(Ω)	Volts
-29.2°F	64227	4.326	1.4°F	28021	3.685	32.0°F	13290	2.853	62.6°F	6771	2.019
-27.4°F	61012	4.296	3.2°F	26760	3.64	33.8°F	12749	2.802	64.4°F	6521	1.974
-25.6°F	57977	4.264	5.0°F	25562	3.594	35.6 °F	12233	2.751	66.2°F	6281	1.929
-23.8°F	55112	4.232	6.8°F	24425	3.548	37.4 °F	11741	2.7	68.0°F	6052	1.885
-22.0°F	52406	4.199	8.6°F	23345	3.501	39.2 °F	11271	2.649	69.8°F	5832	1.842
-20.2°F	49848	4.165	10.4°F	22320	3.453	41.0°F	10823	2.599	71.6°F	5621	1.799
-18.4°F	47431	4.129	12.2°F	21345	3.405	42.8°F	10395	2.548	75.2°F	5225	1.716
-16.6°F	45146	4.093	14.0°F	20418	3.356	44.6°F	9986	2.498	77.0°F	5000	1.675
-14.8°F	42984	4.056	15.8°F	19537	3.307	46.4°F	9596	2.449	78.8°F	4861	1.636
-13.0°F	40938	4.018	17.6°F	18698	3.258	48.2°F	9223	2.399	80.6°F	4690	1.596
-11.2°F	39002	3.98	19.4°F	17901	3.208	50.0°F	8867	2.35	86.0°F	4218	1.483
-9.4°F	37169	3.94	21.2°F	17142	3.158	51.8°F	8526	2.301	87.8°F	4072	1.447
-7.6°F	35433	3.899	23.0°F	16419	3.107	53.6°F	8200	2.253	89.6°F	3933	1.412
-5.8°F	33788	3.858	24.8°F	15731	3.057	55.4°F	7888	2.205	91.4°F	3799	1.377
-4.0°F	32230	3.816	26.6°F	15076	3.006	57.2°F	7590	2.158	95.0°F	3547	1.309
-2.2°F	30752	3.773	28.4°F	14452	2.955	59.0°F	7305	2.111	96.8°F	3428	1.277
-0.4°F	29350	3.729	30.2°F	13857	2.904	60.8°F	7032	2.064	100.4°F	3204	1.213

Accessing Self Diagnostic Mode: Press the upper left and upper right corners alternately (A-B-A-B-A-B) until "Engineer Mode Enabled" is displayed on screen. Press the "Self Diagnostics" button on the screen. The display will show the currently detected errors on the left side of the display panel. Use the onscreen scroll buttons to access all the information

*** Self-diagnosis CHECK LIST**

Display		Trouble item	Trouble contents
F	R		
88	88	FZ-Sensor Error	Senser system in FZ compartment errors
82		FF-Sensor Error	Sensor system in FF compartment errors
84		FZ-DEF-Sensor Error	Defrost Sensor system in FZ compartment errors
85		FF-DEF-Sensor Error	Defrost Sensor system in FF compartment errors
86		Ambient-Sensor Error	Snesor external system errors
87		Flex room Error	Sensor system in Pantry Room compartment errors
88		I/M-Sensor Error(R)	Sensor system in ICE maker(R) errors
89		HUMIDITY-Sensor Error	Sensor system in Humidity Sensor error
8A		I/M-Sensor Error(FF)	Sensor system in Ice maker(FF) errors
8B		ICE ROOM-SENSOR ERROR	Sensor system in Ice Room errors
8C		FZ-FAN Error	Fan motor system in FZ compartment errors
8D	8E	FZ-DEF-HEATER ERROR	DEFROST SYSTEM IN FZ COMPARTMENT ERRORS
8E		FF-DEF-HEATER ERROR	DEFROST SYSTEM IN FF COMPARTMENT ERRORS
8F		ICE/MAKER FUNCTION ERROR	ICE MAKER IN FZ FUNCTION ERRORS
89		FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE
8B		ICE/MAKER FUNCTION ERROR(FZ)	ICE MAKER IN FZ FUNCTION ERRORS
8C		FLEX ZONE DAMPER HEATER ERROR	DAMPER HEATER OPEN/ BAD WIRE
8D		ICE PIPE HEATER ERROR(FZ)	ICE PIPE HEATER IN FZ COMPARTMENT ERRORS
8E		ICE MAKER FUNCTION ERROR(FF)	SENSOR SYSTEM IN HUMIDITY SENSOR ERRORS
8F		ICE ROOM-FAN ERROR	FAN MOTOR SYSTEM IN ICE ROOM ERRORS
89		PANEL ↔ MAIN MICOM COMMUNICATION ERROR	PANEL < > MAIN MICOM COMMUNICATION ERRORS
8A		ICE DUCT-HEATER ERROR(FF)	HEATER SYSTEM IN ICE DUCT(FF) ERRORS

CN70 - AC LOAD

- ① : FF-DEF-HEATER
- ② : FZ-DEF-HEATER
- ③ : ICE DUCT HEATER
- ④ : COMMON2 LINE(L)
- ⑤ : COMMON1 LINE(N)

CN70_1 - AC LOAD

- ① : Open
- ② : ICE MAKER HEATER(FF)
- ③ : FRENCH-HEATER
- ④ : DISPENSER HEATER

CN72 - AC LOAD

- ① : Open
- ② : COMMON1 LINE(N)

CN73_1 - AC LOAD

- ① : ICE WATER SOLENOIDE VALVE(FF)
- ② : ICE COVER ROUTE
- ③ : ICE MAKER MOTOR(CW)
- ④ : ICE MAKER MOTOR(CCW)

CN73 - AC LOAD

- ① : CUBE SOLENOIDE VALVE
- ② : AUGER MOTOR
- ③ : WATER SOLENOIDE VALVE

CN78 - LAMP(LED)/Sensor

- ① : FZ LAMP(LED)
- ② : GND
- ③ : FF LAMP(LED)
- ④ : Open
- ⑤ : GND
- ⑥ : Flex Zone Room LED
- ⑦ : GND
- ⑧ : AMBIENT Sensor
- ⑨ : Open
- ⑩ : ICE ROOM Sensor
- ⑪ : +5V
- ⑫ : GND
- ⑬ : +12V

CN75 - Inverter

- ① : COMP. SIGNAL INPUT
- ② : +5V
- ③ : GND
- ④ : COMP. SIGNAL OUTPUT

CN50

- ① : LED PANEL TX
- ② : LED PANEL RX
- ③ : +12V
- ④ : +5V
- ⑤, ⑥ : GND
- ⑦ : ICE&WATER Switch
- ⑧ : Open
- ⑨ : ICE Route Switch 1
- ⑩ : ICE Route Switch 2

CN30 - Sensor

- ① : GND
- ② : +5V
- ③ : Humidity
- ④ : FZ-Sensor
- ⑤ : FZ-DEF-Sensor
- ⑥ : FF-Sensor
- ⑦ : ICE MAKER DEF-Sensor
- ⑧ : FF-DEF-Sensor
- ⑨ : Flex Zone-Sensor

CN76 - BLDC Motor & door Switch

- ① : GND
- ② : Ice Room-FAN operation signal
- ③ : FZ-FAN operation signal
- ④ : FF-FAN operation signal
- ⑤ : C-FAN operation signal
- ⑥ : Ice Room-FAN signal input volt
- ⑦ : FZ-FAN signal input volt
- ⑧ : FF-FAN signal input volt
- ⑨ : C-FAN signal input volt
- ⑩ : GND
- ⑪ : FZ-Door Switch
- ⑫ : FF-Door Switch
- ⑬ : Flex Zone Room-Door Switch
- ⑭ : Open
- ⑮ : Open

CN51 - Flex Zone Room Display

- ① : Open
- ② : Open
- ③-⑦ : Flex Zone Room LED Driver
- ⑧-⑩ : Open
- ⑪ : Flex Zone Room Switch
- ⑫ : Open
- ⑬ : Open

CN79

- ① : +5V
- ② : GND
- ③ : Flow Sensor Out
- ④ ~ ⑥ : Open

CN77 - Damper & Valve

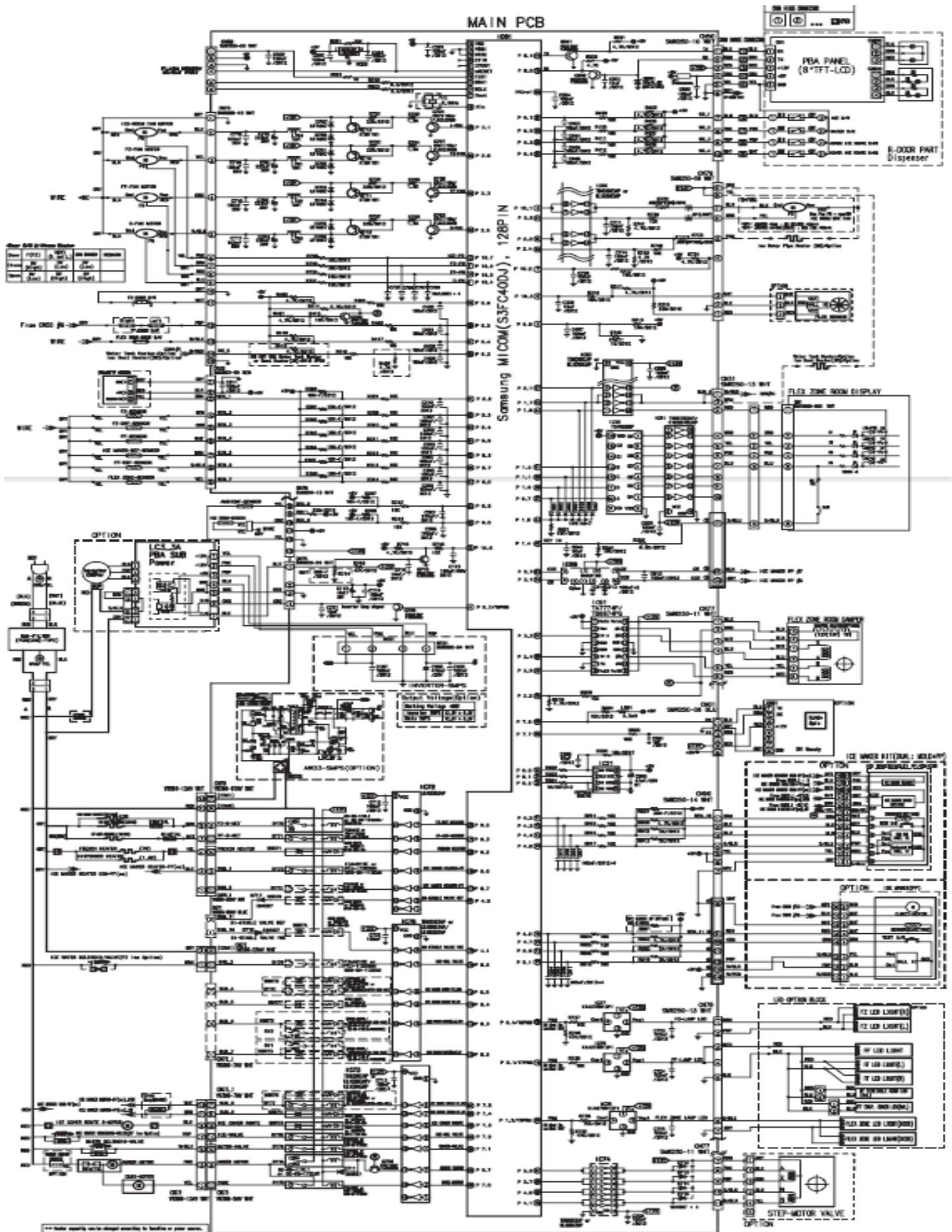
- ①-② : Damper Heater
- ③-⑥ : Damper Motor
- ⑦ : +12V
- ⑧-⑩ : Step Valve

CN59 - Ice Maker

- ① : Sensor(FF)
- ② : Test Switch
- ③ : Full Switch
- ④ : Horizontal Switch
- ⑤ : +5V
- ⑥ : Open
- ⑦ : GND
- ⑧-⑩ : Open



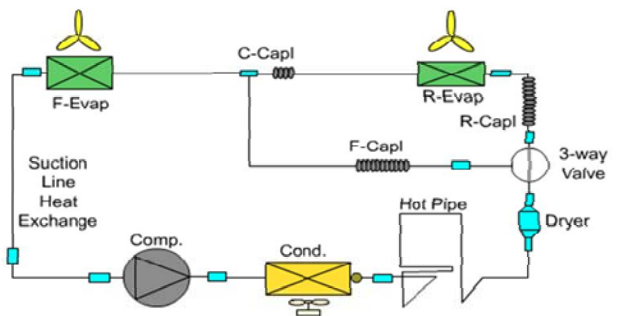
MAIN PCB



Compressor & System Operation Testing

The Time Divided Multi-cycle (TDM) System (Stepper Valve) is used to switch refrigerant flow. This improves temperature control and energy efficiency.

If it falls in the all evaporator mode, it should work properly, using slightly more energy. If it falls in the Freezer evaporator only mode, there will be a Fridge no cool Force on the Fridge with the "Power Cool" option. Monitor the Fridge evaporator(s) temp by using the Defrost Sensor(s). If the temp doesn't decrease, then suspect the Main PCB is not supplying signal to switch the diverter valve.



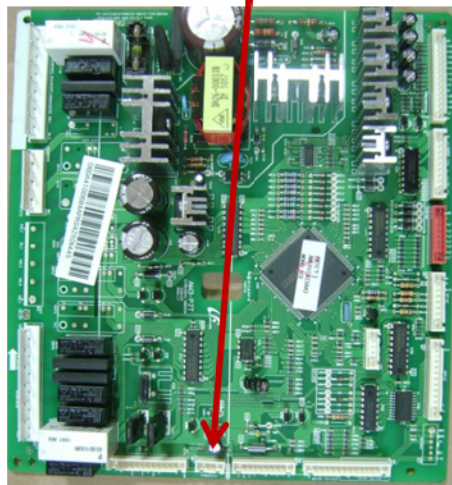
TEST BEFORE INTERPRETING LED BLINKING FREQUENCY

Compressor not running

1. Activate Forced Compressor Operation, wait 2 minutes (In case of high head pressure)
2. If compressor doesn't start, check CN75 for 2.5vdc (If not there replace Main PCB)
3. If voltage is OK, remove power, disconnect CN03 (Inverter PCB) and check resistance to the windings. Approximately 10 ohms. If not correct, inspect wire harness, if OK replace compressor.
4. Disconnect CN02 (SMPS PCB), check resistance to Overload. If open replace overload.



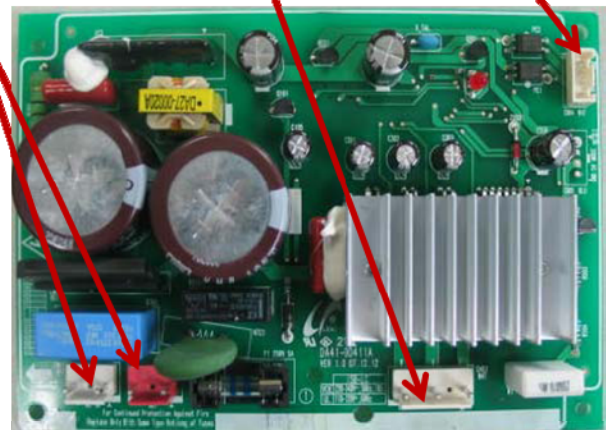
CN75 To Comp Inverter Board
2- (CN76-1) (Brn-Gry) 5vdc
4- (CN76-1) Comp control (Org-Gry) 2.5vdc



CN02
Overload &
A/C Line
1 OLP (Brn)
3 OLP (S/Blu)
3 L (Red)
1 N (Gry)

CN04 Compressor Control
1-(CN76-1) +13vdc (Blk-Gry)
2-(CN76-1) 5vdc (Brn-Gry)
4 Comp Signal (Org)

CN03 Compressor Windings
1 Compressor (Blue)
3 Compressor (Prp)
5 Compressor (Wht)



Protection Functions	LED Blinking Frequency	Test	Replace
Starting Failure	●	Check the Inverter PCB & Comp Relay Connectors	Connectors OK, replace Inverter PCB, if same, replace compressor
SPM Fault	● ●	If blinking after reset,	Check System for restriction & refrigerant, if OK replace inverter, if same, replace compressor
Detecting Position Failure	● ● ●	Check Inverter Connectors,	Connectors measure OK, replace compressor, if same, replace Inverter PCB
Motor Locked	● ● ● ●	Compressor Locking	Compressor
Low Voltage	● ● ● ● ●	Compressor Locking, check input voltage	Replace Inverter PCB, if same, replace Compressor
Over Voltage	● ● ● ● ● ●	Compressor Locking, check input voltage	Replace Inverter PCB, if same, replace Compressor

Display Cover Removal/Install

Remove a screw under the display cover.



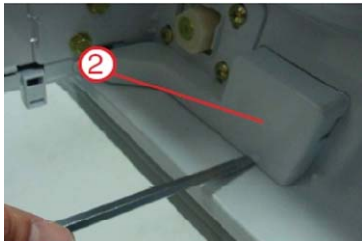
Remove the display cover by pushing it to the right side and pulling it up.



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



Mid-Drawer Removal



Remove the cover housing ((2)) by a flat-Blade screwdriver.
Disengage the housing (lamp).



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



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

