4. TROUBLESHOOTING

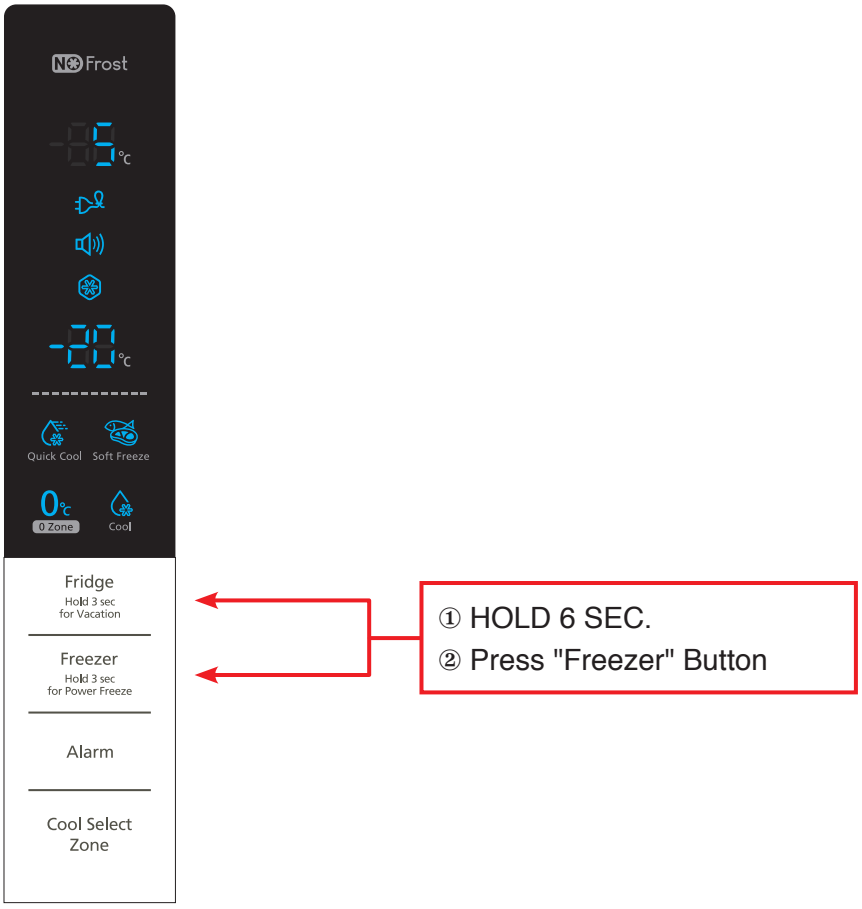
4. TROUBLESHOOTING

4-1) Check-List before Trouble-Shooting

4-1-1) Test Function (Forced Operation / Forced Defrost)

1. When the Freezer and the Fridge buttons on the display panel are held down for more than 6 seconds, the Panel Display will blink at an interval of 0.5 second for 4 seconds.
   At this time, release both of the Freezer and the Fridge buttons and press the Freezer button to enter the Test Mode.
2. When entering the Test Mode, it works as the Test button whatever button on the display panel is pressed.
3. Each time the Test button is pressed, it will change in the following order.
   Forced Operation → Forced F-Defrost → Cancellation (Normal Operation) → Forced Operation.
4. It is recommended that the unit be re-plugged in to terminate the operation of the Test function.

1) Test Mode Entering Process



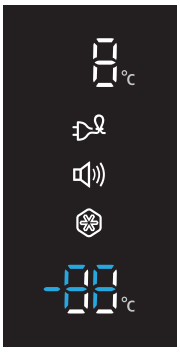
① Press for 6 seconds at the same time.

② When pressing the Freezer button, it will go into the Test Mode.

4. TROUBLESHOOTING

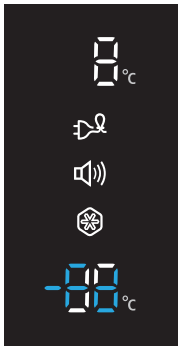
2) Test Mode Description

1. Forced Operation Function



1-1) Any button is pressed during the Test Mode, "FF" lights up on the display panel indicating that it is in the Forced Operation.
At this time, it starts alarming with “Beep” sounds.
1-2) When the Forced Operation is selected, the compressor starts without a 7-minute delay in any operation mode.
At this time, when it is in a Defrost mode, it stops defrosting and the Forced Operation begins.
(If the Forced Operation begins as soon as the compressor stops, it may cause the overload. So, take care when entering into the Forced Operation.)
1-3) When the Forced operation is selected, the compressor and the F-Fan operate for 24 hours without stopping and the Fridge compartment will operate according to the set temperature.
1-4) When the unit is shifted to the Forced Operation, the Freezer and the Fridge temperatures will be set to -25℃ and 1℃.
1-5) When the Forced Operation is selected, the Power Freeze function won't work.
And, when the Power Freeze function is selected, the Power Freeze LED will go off in 10 seconds.
1-6) When the Forced Operation or the Test function is cancelled within one minute after the Forced Operation being selected, the set temperature will automatically change to the previously set temperature.
1-7) The alarm sound during the Forced Operation (0.25 sec On and 0.75 sec Off) keeps on until the Forced Operation completes and there is no cancellation function.

2. Forced Defrost Function



2-1) When any button is pressed once at the Forced Operation (FF), “Fd”lights up on the Display Panel and the Forced Operation will be cancelled and the Freezer compartment starts defrosting.
2-2) At this time, it sends out "Beeping" sound for 3 seconds.
This alarm sound repeats 0.5 sec On and 0.5 sec Off which keeps on until the Forced F-Defrost finishes.

3. Test Cancellation Mode

3-1) When turning the display panel into the Test mode and pressing the TEST button once more during the Forced F-Defrost, the Forced F-Defrost will be cancelled and it will go back to the normal operation.
Also, when the unit is plugged out and in again, the Test mode is to be deactivated.

4. TROUBLESHOOTING

4-1-2) Self-Diagnosis Function

1) Self-Diagnosis Function upon Initial Power-On

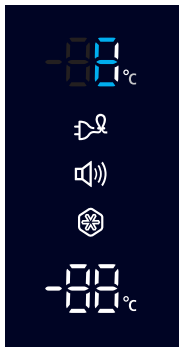
1-1) When the unit is plugged into the power, MICOM diagnoses the status of the temperature sensors in a few minutes.
1-2) If defective sensor is found after Self-Diagnosis, relevant Display LEDs will blink at an interval of 0.5 sec. and there will be no beeping sound.
(Refer to the Self-Diagnosis Check List)
1-3) When there is a defective sensor found and its relevant LED blinks, it will only recognize the Self-Diagnosis button combination and it doesn't do the normal display.
But, the temperature will be controlled with the Emergency Operation.
1-4) To cancel the error code, fix the failure of the defective sensor or cancel the Initial Self-Diagnosis Function by pressing the Freezer and the Fridge button for 10 seconds.

2) Self-Diagnosis Function during Normal Operation

2-1) During the Normal Operation, press the Freezer + Fridge buttons for 6 seconds.
Then, the entire Display Panel blinks at intervals of 0.5 seconds for 4 seconds.
When pressing the Freezer + Fridge buttons for 10 seconds including the 4-second blinking time,it sends out“Ding Dong” sound and it goes into the Self-Diagnosis function.
2-2) When it goes into the Self-Diagnosis, the entire display panel goes off and when there is an error occurred, it will last for 60 seconds continuously and go to the normal operation whether or not the error is fixed.
(It sends out "Ding-Dong" sound)
(Refer to the Self-Diagnosis Check List below)
2-3) Buttons won't work during Self-Diagnosis.

① HOLD 6 SEC.
② HOLD 10 (Including the 4-second LED

4. TROUBLESHOOTING



ERROR MODE Display

ERROR Item Display
(Refer to Self-Diagnosis Check List)

✻ Self-Diagnosis Check List

NO	Category	Defect Description	ERROR CODE (FREEZER LED)	
1	F - SENSOR	Defects in Parts related to F-SENSOR		1
2	R - SENSOR	Defects in Parts related to R-SENSOR		2
3	F - DEF - SENSOR	Defects in Parts related to F-DEF-SENSOR		4
4	EXT - SENSOR	Defects in Parts related to EXT-SENSOR		6
5	CSZ-SENSOR	Defects in Parts related to CSZ-SENSOR		7
6	F-FAN ERROR	Defects in Parts related to F-FAN MOTOR		21
7	F-DEF ERROR	Defects in Parts related to F-DEF HEATER		24
8	CSZ Damper Heater ERROR	CSZ Damper Heater open / Wire Defects		27

4. TROUBLESHOOTING

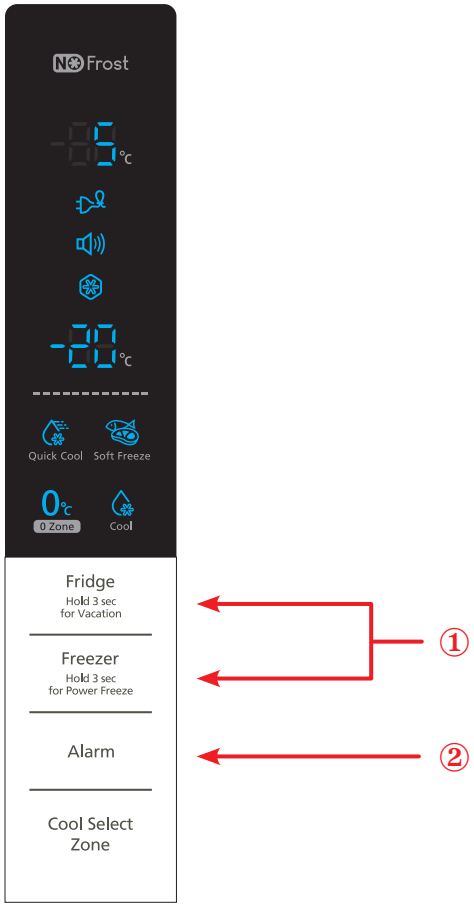
✻ Self-Diagnosis Error Description

NO	Error Code	Item	Description	Trouble Shooting
1		F - SENSOR	Connector Slipped-Out or Open-Contact, Wire Cut or Short-Circuited, Abnormal Sensing Temp (higher than +65°C or lower than -50°C)	The voltage should be within the range of 4.5V~0.5V between MAIN PCB CN31 #5(PNK) and #6(Gray).
2		R - SENSOR	Same as the above	The voltage should be within the range of 4.5V~0.5V between MAIN PCB CN31 #3(Red) and #6(Gray).
3		F - DEF - SENSOR	Same as the above	The voltage should be within the range of 4.5V~0.5V between MAIN PCB CN31 #4(Org) and #6(Gray).
4		EXT - SENSOR	Same as the above	The voltage should be within the range of 4 5V~0 5V 4.5V~0.5V between MAIN PCB CN30 #1(Yel) and #3(Yel).
5		CSZ-SENSOR	Same as the above	The voltage should be within the range of 4.5V~0.5V between MAIN PCB CN31 #2(W/Blu) and #6(Gray).
6		F-FAN ERROR	When the related Fan Motor operates, it occurs if the contact of the Feed Back Signal Wire is defective, the Motor Wire is slipped out or the Motor is defective.	The voltage between MAIN PCB CN72-"4(S/BLU)↔5(GRY)" should be within 7V~12V
7		F-DEF ERROR	When the F-DEF HEATER is related to the followings ; Connector Slipped-Out or Open-Contact, Wire Cut or Short-Circuited, Defective Thermistor When the Fridge does not complete defrosting even after it does defrosting for more than 70 minutes.	After plugging out MAIN PCB CN71 from PCB, check the resistance between White and Red. 0 Ohm → Heater Short ∞ Ohm → Wire Cut or check the Thermal Fuse,Bimetal Open
8		CSZ Damper Heater ERROR	It occurs when the Damper Heater is detected as open due to the slipped-out connector, the open contact or the open wire of the Damper Heater.	After plugging out MAIN PCB CN75 from PCB, check the resistance between #1(BLACK) and #2 (BROWN) → it should read 140 ~160 Ohm. 0 Ohm → Heater Short ∞ Ohm → Wire Cut or Connector Slipped-Out

4. TROUBLESHOOTING

4-1-3) Load Status Display Function

1) At the normal operation, press the Freezer + Fridge buttons for 6 seconds.
   Then, the Freezer and Freezer Temperature Display will blink in an interval of 0.5 second for 4 seconds.
2) At this time, release the Freezer + Fridge buttons and press the Alarm button (it sends out "Ding Dong" sound.) Then, it shifts to the Load Display mode.
3) The Load Display function shows what MICOM signals come out from MAIN PCB.
   But, it just indicates that there are MICOM signals coming out.
   It does not necessarily mean that the related parts (Loads) are operating.
   In other word, even though it shows a certain load working, the related part may not operate due to such as a defective PCB relay or the defective part itself (it needs a confirmation).
4) The Load Display function lasts for 30 seconds and then it goes back to the normal operation.
5) The following image shows load locations.



① Press the Freezer and Fridge buttons for 6 seconds at the same time.
Then, the Display LEDs will blink for 4 seconds.
At this time, release the buttons

② and press the Alarm button once.

4. TROUBLESHOOTING

✻ Load Mode Check List

NO	Category	Defect Description	ERROR CODE (FREEZER LED)
1	Overload	Fridge Digit "e" 	LED On when the ambient temperature is over 34°C
2	Low Temperature	Fridge Digit "f" 	LED On when the ambient temperature is lower than 21°C
3	Normal Operation	Fridge Digit "e","f" LED all Off 	When the ambient temperature is between 22°C~33°C
4	Demo Mode	Fridge Digit "g" 	LED On when the unit is on Demo Mode
5	COMP	Freezer 2nd Digit "a" 	LED On when Comp is running
6	F FAN HIGH	Freezer 2nd Digit "b" 	LED On when the F-Fan runs High
7	F FAN LOW	Freezer 2nd Digit "c" 	LED On when the F-Fan runs Low
8	F-DEF HEATER	Freezer 2nd Digit "d" 	LED On when the Freezer Defrost Heater is on
9	CSZ Room Damper Open	Freezer 1st Digit "f" 	CSZ Room Damper Open (OPTION)

4. TROUBLESHOOTING

4-1-4) Restoration of Previous Settings upon Instant Power Outage

1) If the Display Panel is initialized by the instant power outage, it will cause customer inquiries.
   To prevent this, when the power is restored, the previous settings will be restored or reset based on the inside temperature of the unit.
2) Upon the initial power on, it checks its Freezer temperature. When it is lower than +5°C, it is to be considered as an instant power failure and it brings back all its previous operation functions (Power Freeze, Vacation, Fridge, Freezer, Alarm On, etc) related to the panel display.
3) When it is higher than +5°C, it is to be considered as a long-period power failure and it will initialize the panel display. (Freezer: -20°C, Fridge: 3°C)

4-1-5) Demo Mode Function for Store Display

1) At the normal operation, press the Freezer + Alam buttons for 8 seconds.
   Then, the Freezer and Fridge Temperature Display will blink in an interval of 0.5 second for 4 sec.
2) At this time, release the Freezer + Alam buttons and press the Fridge button (it sends out "Ding Dong" sound.) Then, it shifts to the Demo Display mode.
   Compression just does not work.
3) When the unit is in Demo Mode, all the functions including the Display Panel works normal.
   But, the Compressor does not operate.
4) To cancel the Demo Mode, Do the entering Demo mode again or turn off the power.
5) Aso, when the Freezer or Fridge room temperature goes over 65°C during the Demo Mode, the Demo Mode will be cancelled and the unit will shift to the normal operation mode.
6) The initial real temperature display function will end.

① Press the Freezer and Alam buttons for 8 seconds at the same time.
Then, the Display LEDs will blink for 4 seconds.
At this time, release the buttons

② and press the Fridge button once.

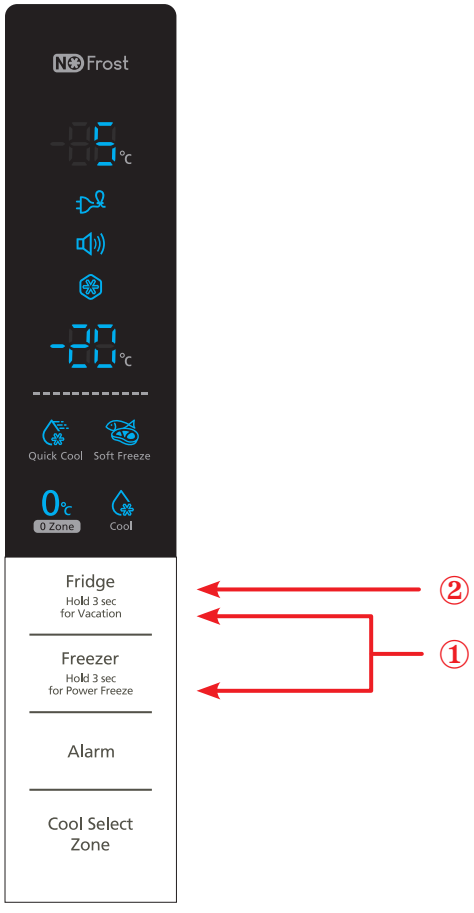
4. TROUBLESHOOTING

4-1-6) Option Setting Function

1) At the normal operation, press the Freezer + Fridge buttons for 6 seconds.
   Then, the Freezer and Freezer Temperature Display will blink in an interval of 0.5 second for 4 sec.
2) At this time, release the Freezer + Fridge buttons and press the Fridge button (it sends out "Ding Dong" sound.) Then, it shifts to the Option Setting Mode.

● When there is no button press for 20 seconds at the Option Setting Mode, it will go back to the normal display mode.

How to Shift to Option Setting Mode

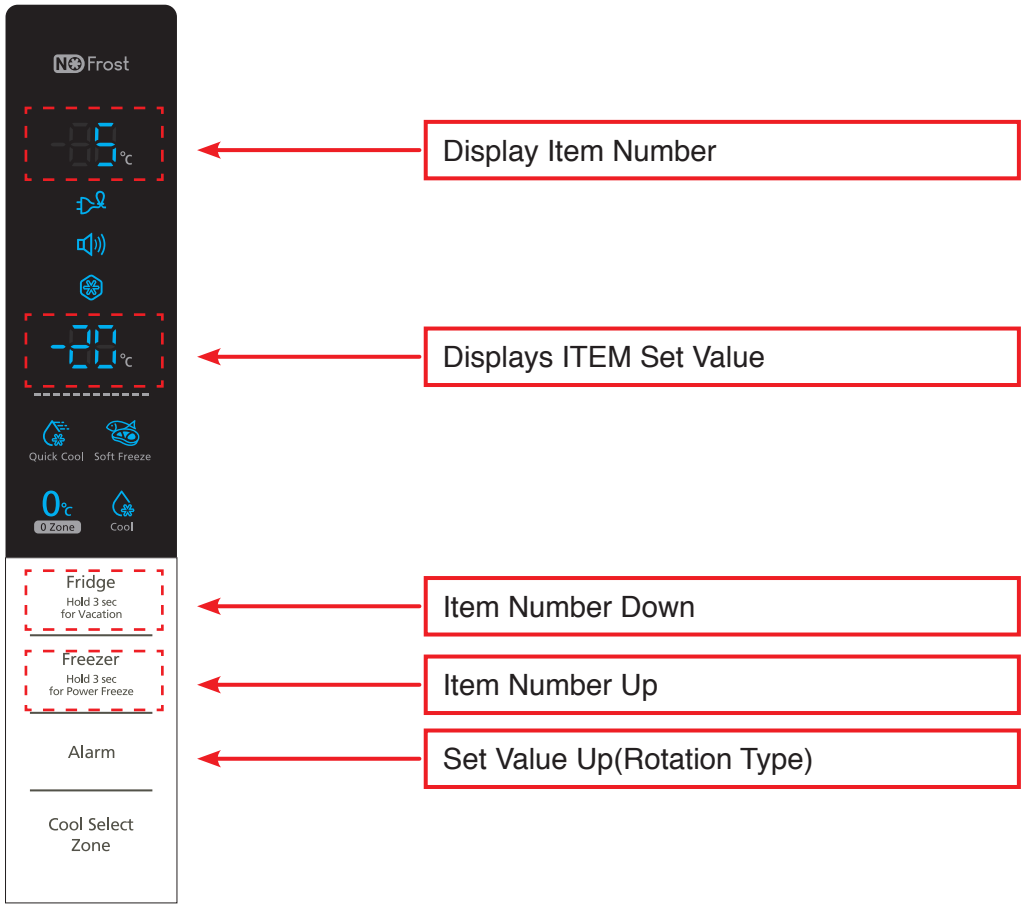


① Press the Freezer and Fridge buttons for 6 seconds at the same time. Then, the Display LEDs will blink for 4 seconds. At this time, release the buttons

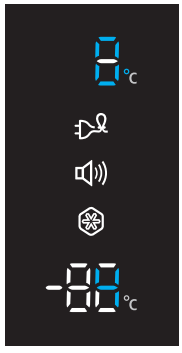
② and press the Fridge button once.

4. TROUBLESHOOTING

Option Mode & Button Description



● When the Display Panel converts to the Option Setting mode, the entire Display except the Fridge as shown below Temp LED goes off.



Freezer Temp Setting

Fridge Temp Setting

1) For example, if you want to shift the standard temp of the Freezer compartment by -2°C, follow the steps below. This function is to change the default temperature and when the default temperature of the Freezer compartment is -20°C and the default setting is lowered by -2°C with the Option function, the default temperature will be controlled at -22°C. That is, when changing temperature options, the Freezer compartment will operate at -22°C internally even if it shows -20°C on the display panel. Therefore, the temperature will be controlled by -2°C lower than the set temperature on the display panel.

4. TROUBLESHOOTING

Note Basically, when units being shipped out, all the data in the Option function are cleared. That is, the Default settings are “0”. However, for the purpose of quality improvement during mass production, the Default values may change. Therefore, be sure to check quality information, such as SVC bulletins.

2) After changing into the Option mode, “0"s on both of the Fridge and Freezer compartments lights up on the display panel. (when units being shipped out, the unit will be shipped out with "0"s set on both of the Fridge and Freezer compartments. However, for the purpose of quality improvement during mass production, the Default values may change.)

- When only “0” lights up on the Fridge compartment, the Freezer temperature option can be set and the current set Freezer temperature will show on the display panel.

3) If the Freezer temp code is set to "4" as the following table after setting the Fridge section to "0", the Freezer base temperature is to be lowered by -2°C (Refer to the Freezer temperature setting image.)
:In 15 seconds after completing the adjustment, MICOM is to store the setting value in EEPROM and it goes back to the normal display mode, deactivating the Option Setting mode.

4) The Fridge temperature can be adjusted with the same method.

5) Make sure not to change the factory-set default values otherwise exception cases.
Also, the Option Setting is to be completed when it goes back to the normal display mode in 15 seconds. So, do not turn off the unit before it goes back to the normal display mode.

4. TROUBLESHOOTING

4-1-7) Option Table

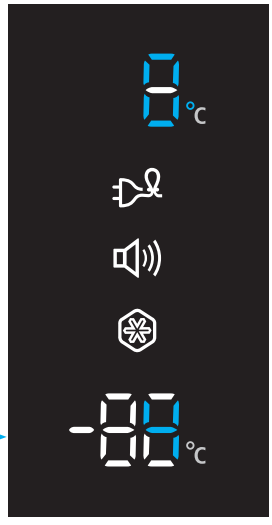
Note There are other option setting functions. But, it's got to do with the performance of the unit, not for repair purposes. So, they are not handled in this manual.
(Except those described in this manual, do not change other values.)

1) Freezer Temp Shift Table

Setting Item	Freezer Temp Shift
Option Item	Location : Fridge Temp LED
	0

Setting Value Freezer Temp	Option Value
0	0
1	-0.5°C
2	-1.0°C
3	-1.5°C
4	-2.0°C
5	-2.5°C
6	-3.0°C
7	-3.5°C
8	+0.5°C
9	+1.0°C
10	+1.5°C
11	+2.0°C
12	+2.5°C
13	+3.0°C
14	+3.5°C
15	+4.0°C

Ex) When shifting the Freezer default temp by -2.0°C



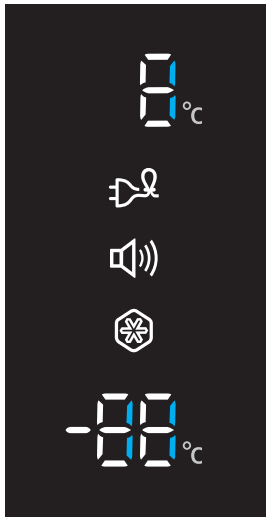
4. TROUBLESHOOTING

2) Fridge Temp Shift Table

Setting Item	Fridge Temp Shift
Option Item	Location : Fridge Temp LED
	1

Setting Value R Temp	Option Value
0	0
1	-0.5℃
2	-1.0℃
3	-1.5℃
4	-2.0℃
5	-2.5℃
6	-3.0℃
7	-3.5℃
8	+0.5℃
9	+1.0℃
10	+1.5℃
11	+2.0℃
12	+2.5℃
13	+3.0℃
14	+3.5℃
15	+4.0℃

Ex) When shifting the Fridge default temp by +2.0℃



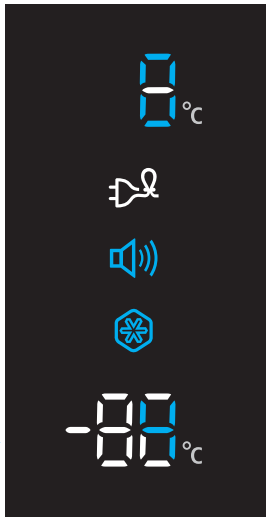
4. TROUBLESHOOTING

3) Cool Select Zone Temp Shift Table

Setting Item	Cool Select Zone Temp Shift
Option Item	20

Setting Value Freezer Temp	Option Value
0	0
1	-0.5℃
2	-1.0℃
3	-1.5℃
4	-2.0℃
5	-2.5℃
6	-3.0℃
7	-3.5℃

Ex) When shifting the Cool Select Zone default temp by +0.5℃



4. TROUBLESHOOTING

4. TROUBLESHOOTING

4-2) Troubleshooting Flow-Chart by Symptoms

DATA1.Temp Table
Conversion Table - Temperature/MICOM PORT Voltage/Resistance
SENSOR CHIP : PX41C

℃	℉	Voltage	Ω	℃	℉	Voltage	Ω	℃	℉	Voltage	Ω
-50	-58	4.694	153319	-5	23	3.107	16419	40	104	1.153	2997
-49	-56.2	4.677	144794	-4	24.8	3.057	15731	41	105.8	1.124	2899
-48	-54.4	4.659	136798	-3	26.6	3.006	15076	42	107.6	1.095	2805
-47	-52.6	4.641	129294	-2	28.4	2.955	14452	43	109.4	1.068	2714
-46	-50.8	4.622	122248	-1	30.2	2.904	13857	44	111.2	1.040	2627
-45	-49	4.602	115631	0	32	2.853	13290	45	113	1.014	2543
-44	-47.2	4.581	109413	1	33.8	2.802	12749	46	114.8	0.988	2462
-43	-45.4	4.560	103569	2	35.6	2.751	12233	47	116.6	0.963	2384
-42	-43.6	4.537	98073	3	37.4	2.700	11741	48	118.4	0.938	2309
-41	-41.8	4.514	92903	4	39.2	2.649	11271	49	120.2	0.914	2237
-40	-40	4.490	88037	5	41	2.599	10823	50	122	0.891	2167
-39	-38.2	4.465	83456	6	42.8	2.548	10395	51	123.8	0.868	2100
-38	-36.4	4.439	79142	7	44.6	2.498	9986	52	125.6	0.846	2036
-37	-34.6	4.412	75077	8	46.4	2.449	9596	53	127.4	0.824	1973
-36	-32.8	4.385	71246	9	48.2	2.399	9223	54	129.2	0.803	1913
-35	-31	4.356	67634	10	50	2.350	8867	55	131	0.783	1855
-34	-29.2	4.326	64227	11	51.8	2.301	8526	56	132.8	0.762	1799
-33	-27.4	4.296	61012	12	53.6	2.253	8200	57	134.6	0.743	1745
-32	-25.6	4.264	57977	13	55.4	2.205	7888	58	136.4	0.724	1693
-31	-23.8	4.232	55112	14	57.2	2.158	7590	59	138.2	0.706	1642
-30	-22	4.199	52406	15	59	2.111	7305	60	140	0.688	1594
-29	-20.2	4.165	49848	16	60.8	2.064	7032	61	141.8	0.670	1547
-28	-18.4	4.129	47431	17	62.6	2.019	6771	62	143.6	0.653	1502
-27	-16.6	4.093	45146	18	64.4	1.974	6521	63	145.4	0.636	1458
-26	-14.8	4.056	42984	19	66.2	1.929	6281	64	147.2	0.620	1416
-25	-13	4.018	40938	20	68	1.885	6052	65	149	0.604	1375
-24	-11.2	3.980	39002	21	69.8	1.842	5832	66	150.8	0.589	1335
-23	-9.4	3.940	37169	22	71.6	1.799	5621	67	152.6	0.574	1297
-22	-7.6	3.899	35433	23	73.4	1.757	5419	68	154.4	0.560	1260
-21	-5.8	3.858	33788	24	75.2	1.716	5225	69	156.2	0.546	1225
-20	-4	3.816	32230	25	77	1.675	5039	70	158	0.532	1190
-19	-2.2	3.773	30752	26	78.8	1.636	4861	71	159.8	0.519	1157
-18	-0.4	3.729	29350	27	80.6	1.596	4690	72	161.6	0.506	1125
-17	1.4	3.685	28021	28	82.4	1.558	4526	73	163.4	0.493	1093
-16	3.2	3.640	26760	29	84.2	1.520	4369	74	165.2	0.481	1063
-15	5	3.594	25562	30	86	1.483	4218	75	167	0.469	1034
-14	6.8	3.548	24425	31	87.8	1.447	4072	76	168.8	0.457	1006
-13	8.6	3.501	23345	32	89.6	1.412	3933	77	170.6	0.446	978
-12	10.4	3.453	22320	33	91.4	1.377	3799	78	172.4	0.435	952
-11	12.2	3.405	21345	34	93.2	1.343	3670	79	174.2	0.424	926
-10	14	3.356	20418	35	95	1.309	3547	80	176	0.414	902
-9	15.8	3.307	19537	36	96.8	1.277	3428	81	177.8	0.404	877
-8	17.6	3.258	18698	37	98.6	1.253	3344	82	179.6	0.394	854
-7	19.4	3.208	17901	38	100.4	1.213	3204	83	181.4	0.384	832
-6	21.2	3.158	17142	39	102.2	1.183	3098	84	183.2	0.375	810

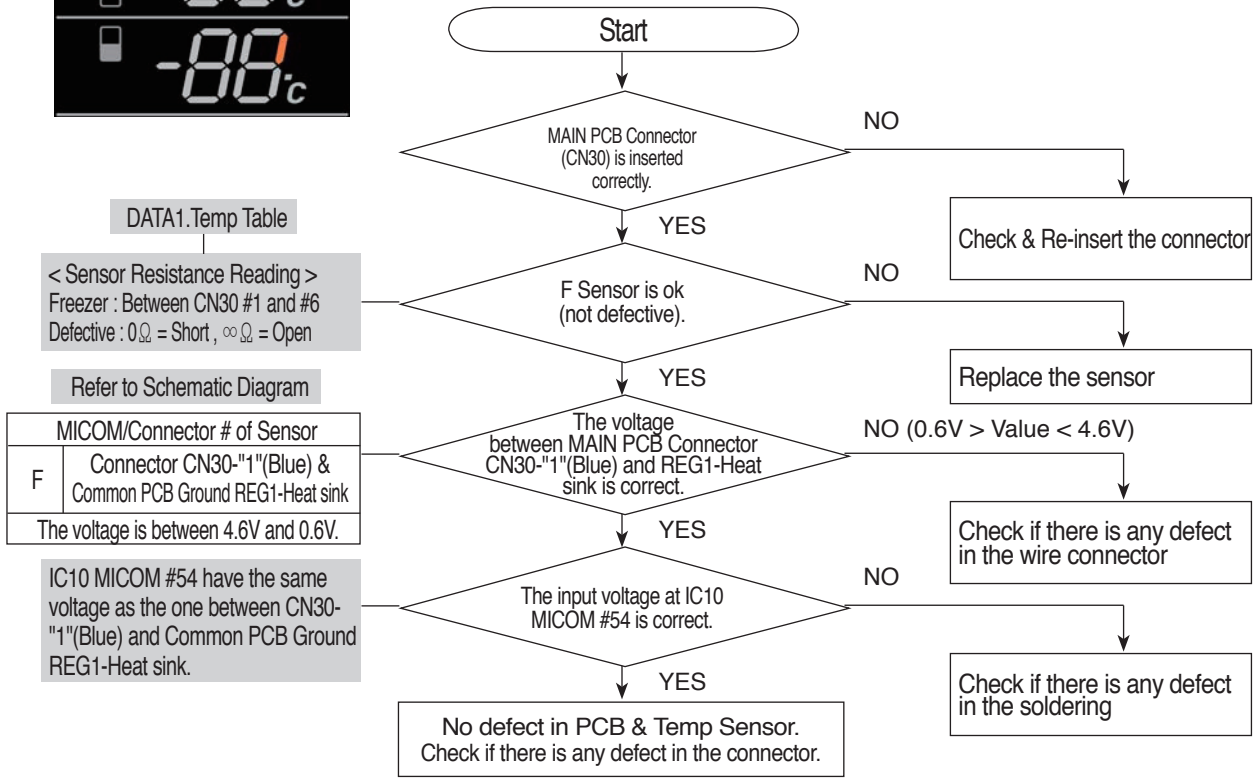
4. TROUBLESHOOTING

4-2-1) Troubleshooting for Self-Diagnosis Errors

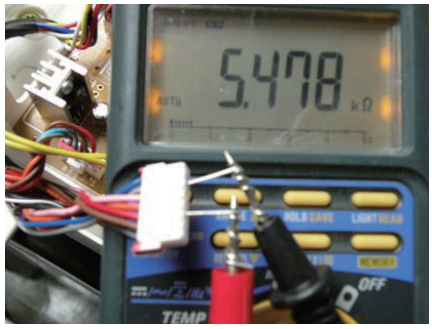
- When there is a sensor error, it will light up on the display panel. And, when there is a sensor error upon the initial power on, the unit does not operate blinking the relevant section in the 7-SEG.
- The refrigerator does not stop when there are sensor errors during the operation, but it goes into the emergency operation mode, which is not able to do the normal operation. So, do the double check with the Self Diagnosis in this manual.

1) When the Freezer Sensor is defective

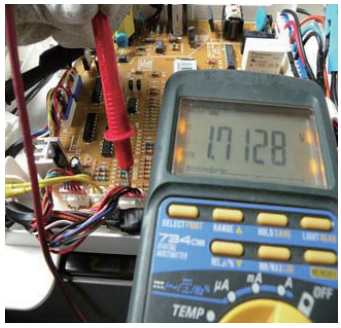
Error Display



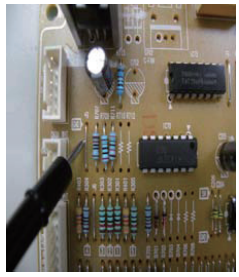
☞ How to measure the Freezer Sensor Resistance
- Measure CN31-"3"(Red) ↔ "6"(Gray) and compare with the value at the temp table.



☞ How to measure the Freezer Sensor Voltage
- Measure IC10 MICOM #52 or CN31- "3"(Red) ↔ REG1-Heat Sink and compare with the value at the temp table.
- Measure between CN31-"3"(Red) ↔ Common PCB Ground Voltage

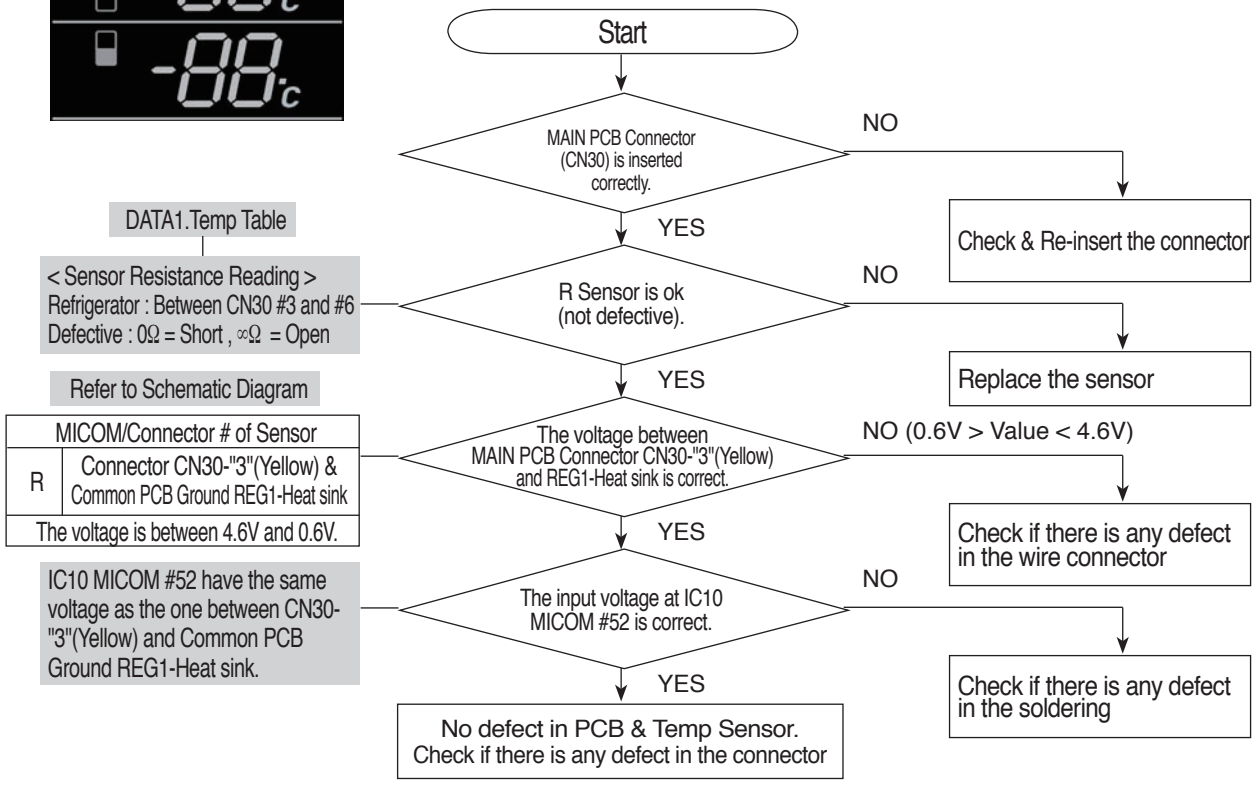


Common PCB Ground
REG1-Heat sink



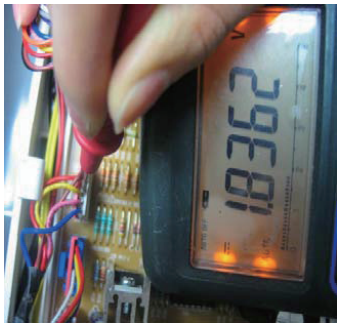
2) When the Refrigerator Sensor is defective

Error Display

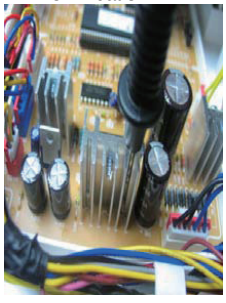


☞ How to measure the R-Sensor Resistance
- Measure CN30-"3"(Yellow) ↔ "6"(Brown) and compare with the value at the temp table.

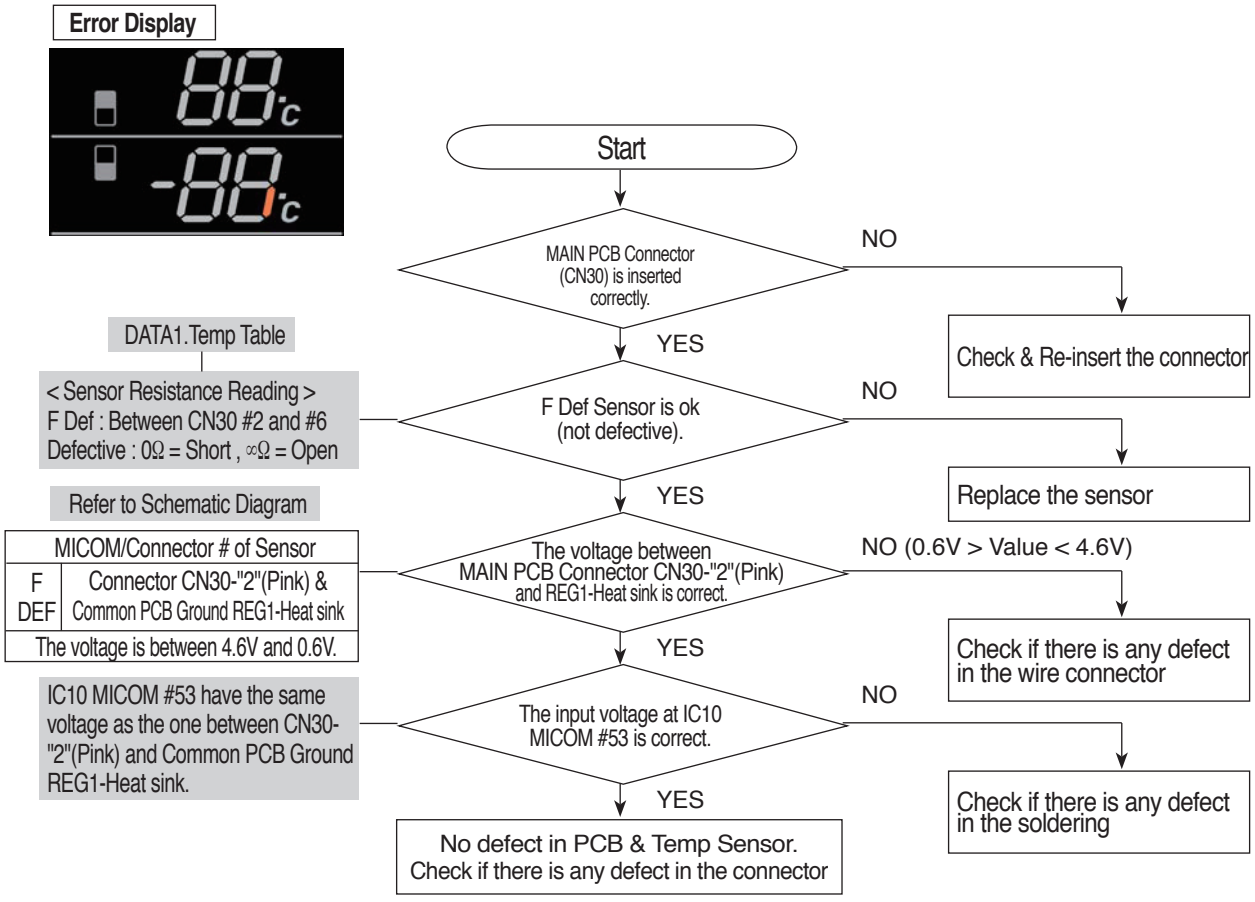
☞ How to measure the R-Sensor Voltage
- Measure IC10 MICOM #52 or CN30-"3"(Yellow) ↔ REG1-Heat Sink and compare with the value at the temp table. Measure between CN30-"3"(Yellow) ↔ Common PCB Ground Voltage



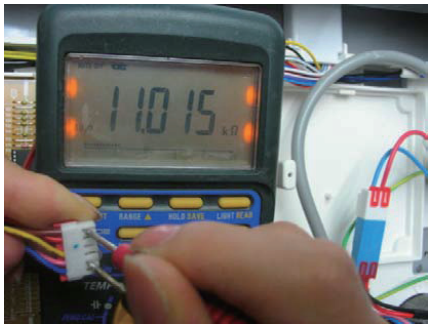
Common PCB Ground
REG1-Heat sink



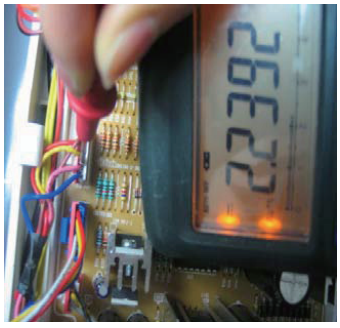
3) When the Defrost Sensor is defective



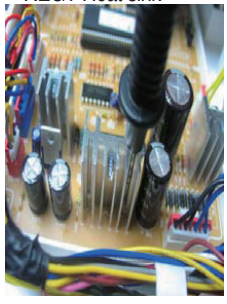
☞ How to measure the Def-Sensor Resistance
- Measure CN30-"2"(Pink)) ↔ "6"(Brown) and compare with the value at the temp table.



☞ How to measure the Def-Sensor Voltage
- Measure IC10 MICOM #53 or CN30-"2"(Pink) ↔ REG1-Heat Sink and compare with the value at the temp table. Measure between CN30-"2"(Pink) ↔ Common PCB Ground Voltage

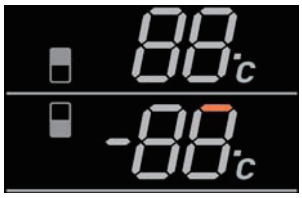


Common PCB Ground
REG1-Heat sink



4) When the Ambient Sensor is defective

Error Display



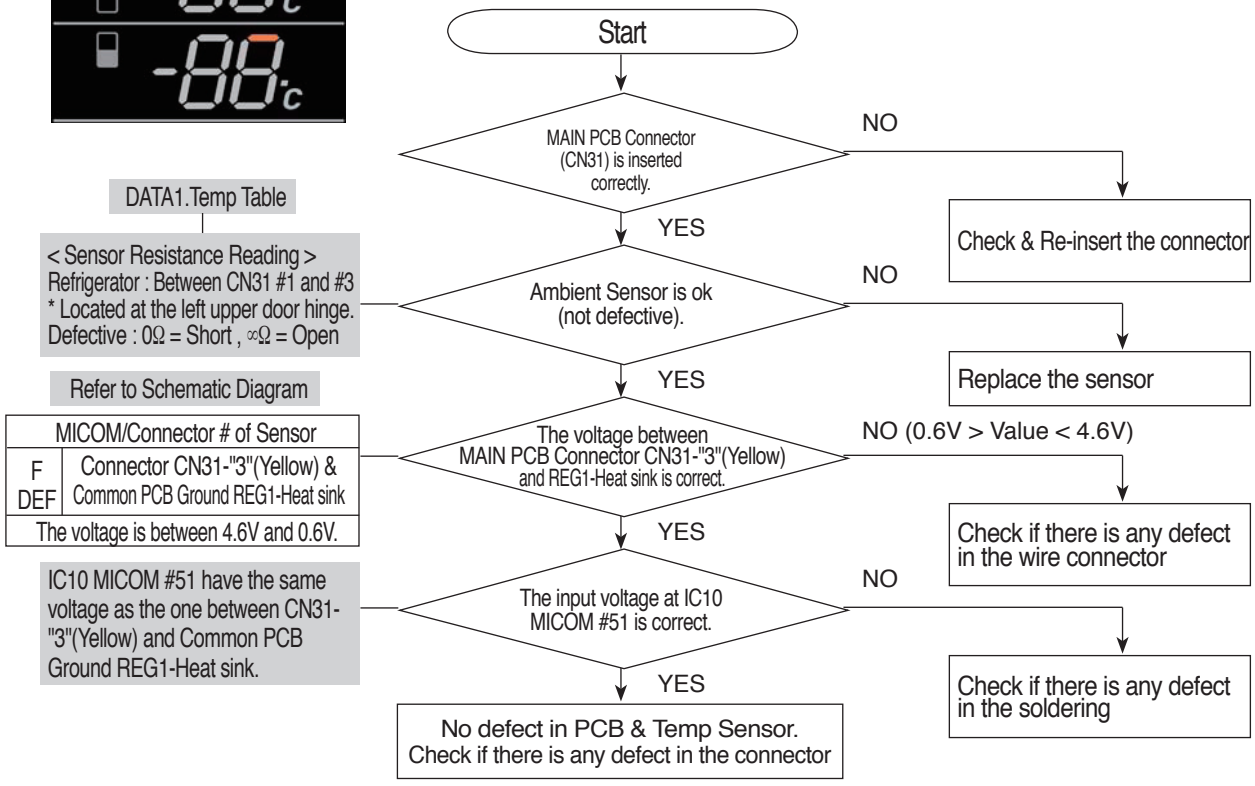
DATA1.Temp Table

< Sensor Resistance Reading >
Refrigerator : Between CN31 #1 and #3
* Located at the left upper door hinge.
Defective : 0Ω = Short , ∝Ω = Open

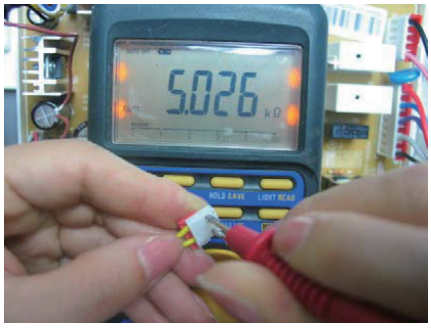
Refer to Schematic Diagram

MICOM/Connector # of Sensor	
F DEF	Connector CN31-"3"(Yellow) & Common PCB Ground REG1-Heat sink
The voltage is between 4.6V and 0.6V.	

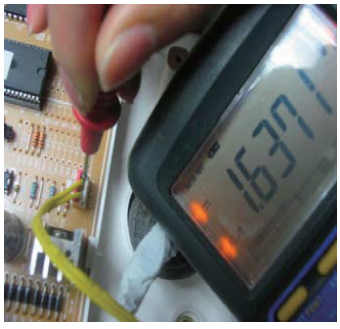
IC10 MICOM #51 have the same voltage as the one between CN31-"3"(Yellow) and Common PCB Ground REG1-Heat sink.



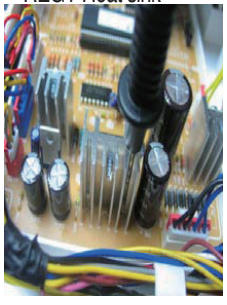
☞ How to measure the Amb-Sensor Resistance
- Measure CN31-"1"(Yellow) ↔ "3"(Yellow) and compare with the value at the temp table.



☞ How to measure the Amb-Sensor Voltage
- Measure IC10 MICOM #51 or CN31-"3"(Yellow) ↔ REG1-Heat Sink and compare with the value at the temp table. Measure between CN31-"3"(Yellow) ↔ Common PCB Ground Voltage



Common PCB Ground
REG1-Heat sink



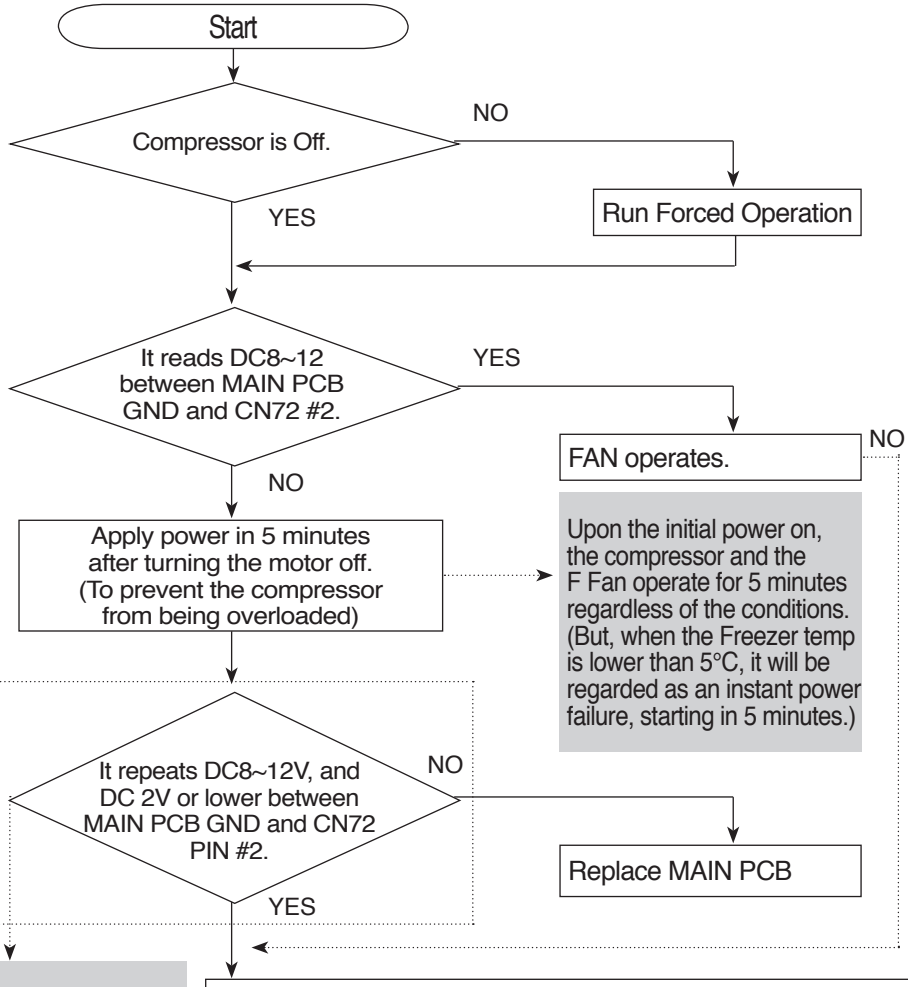
4. TROUBLESHOOTING

4-2-2) When the Freezer Fan does not operate

- A BLDC Fan Motor is applied to this refrigerator and it runs on DC 8~12V.
- The F-Fan motor runs together with the compressor.

☞ **Self-Diagnosis Error Display**

F FAN ERROR



<Note>

Pulse signals being generated when the motor is rotating are to be input to CN72 #3 (F).
These will be input to MICOM and when there are no input signals with the motor rotating, the fan will be turned off and then be turned on in 10 seconds.
If there are still no input signals, it keeps trying the above 4 times. And, if it still fails, it runs the motor in 10 minutes. It is implemented to prevent the motor from being overloaded due to restrictions by foreign substances such as ice built up around the motor.

◆ Possible Causes
① Defective FAN-MOTOR
② Contact problem at the terminal (MAIN PCB CONNECTOR -TERMINAL (CN72, ①, ②, ④), Contact problem at Freezer Fan Motor Connector, Defective Motor Wire)
③ Check the motor rotating pulse input upon Fan Motor operation. (Refer to Fan-Motor Circuit in this manual)

It is pulse signal. So, the voltage keeps changing. But, when it is measured with the Multi-Meter, it reads about 2~3V.

☞ How to measure voltage for the F-Fan Motor
- The voltage between the Common PCB Ground and the FFan CN75-"3" (Orange) is DC7~12V.
- When the measurement is different, it needs additional checking.

1) F-Fan

Common PCB Ground
REG1-Heat sink

4. TROUBLESHOOTING

4-2-3) When it (F DEF Heater) does not Defrost

- When there is a Defrost error, check if there is a Defrost Heater error with the Self-Diagnosis before turning off the unit. And then, turn off the unit and do the trouble shooting. (Check with the Self-Diagnosis.)

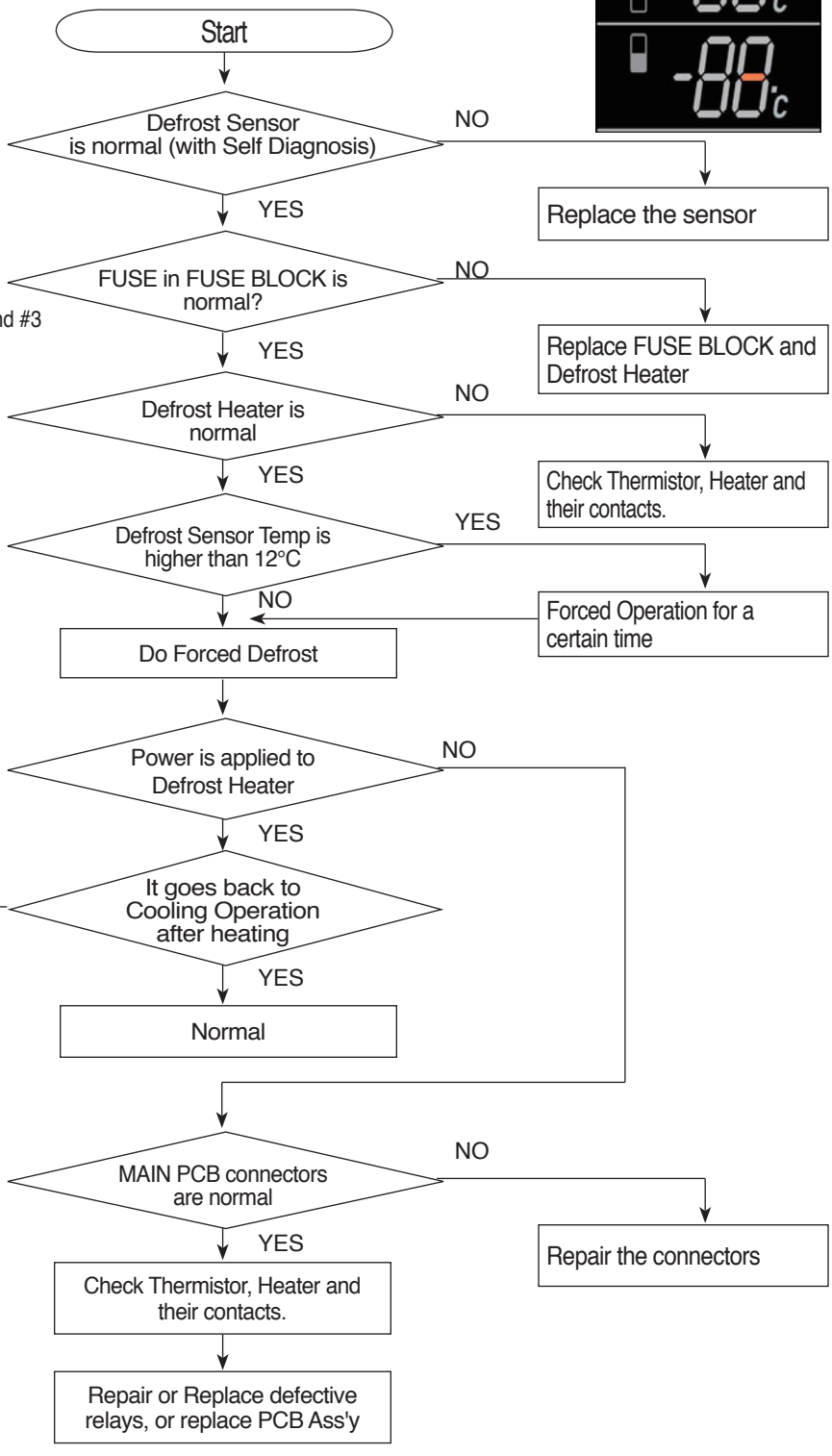
Sensor Resistances by Temp		
30°C	4.22kΩ	Refer to DATA1. Temp Table for detail Temp
20°C	6.05kΩ	
10°C	8.87kΩ	
0°C	13.29kΩ	
-10°C	20.42kΩ	
-20°C	32.23kΩ	
-30°C	52.41kΩ	

F-SEN:Read Resistance between CN30 #1 and #6
R-SEN:Read Resistance between CN30 #3 and #6
D-SEN:Read Resistance between CN30 #2 and #6
AMBIENT-SEN :Read Resistance between CN31 #1 and #3

Defrost: Read Resistance between CN70 #7 and #5
Based on 220V Input Voltage (203ohm ± 7%)

Defrost Sensor Voltage is lower than 2.25V

* LED Segment Type
Press the OPERATION & MENU buttons at the same time for 6 sec and press the MENU button once



<Note>
When Defrost Sensor is higher than +12 ℃, (+10 ℃,+15 ℃, +17 ℃) after heating,it will stop heating and go back to Cooling Operation.

☞ How to measure resistance for the Defrost Heater.
- Measure the resistance between CN70 #7 (White) ↔ #5 (Violet)
- When the measurement is different, it needs additional checking.

1) Defrost Heater

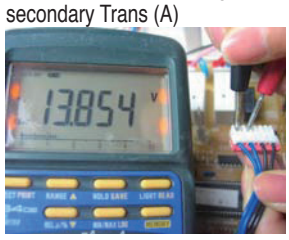
4. TROUBLESHOOTING

4-2-4 When the refrigerator does not turn on

☞ How to measure

1) Measure the input voltage of the primary Trans

2) Measure the output voltage of the secondary Trans (A)

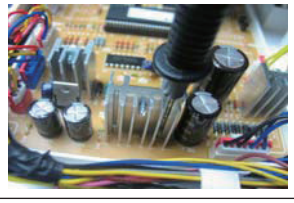


3) Measure the output voltage of the secondary Trans (B)

4) Measure the voltage at the 12V terminal (C103) and. And, by using the Common PCB Ground, measure the voltage at the 5V terminal (C106)

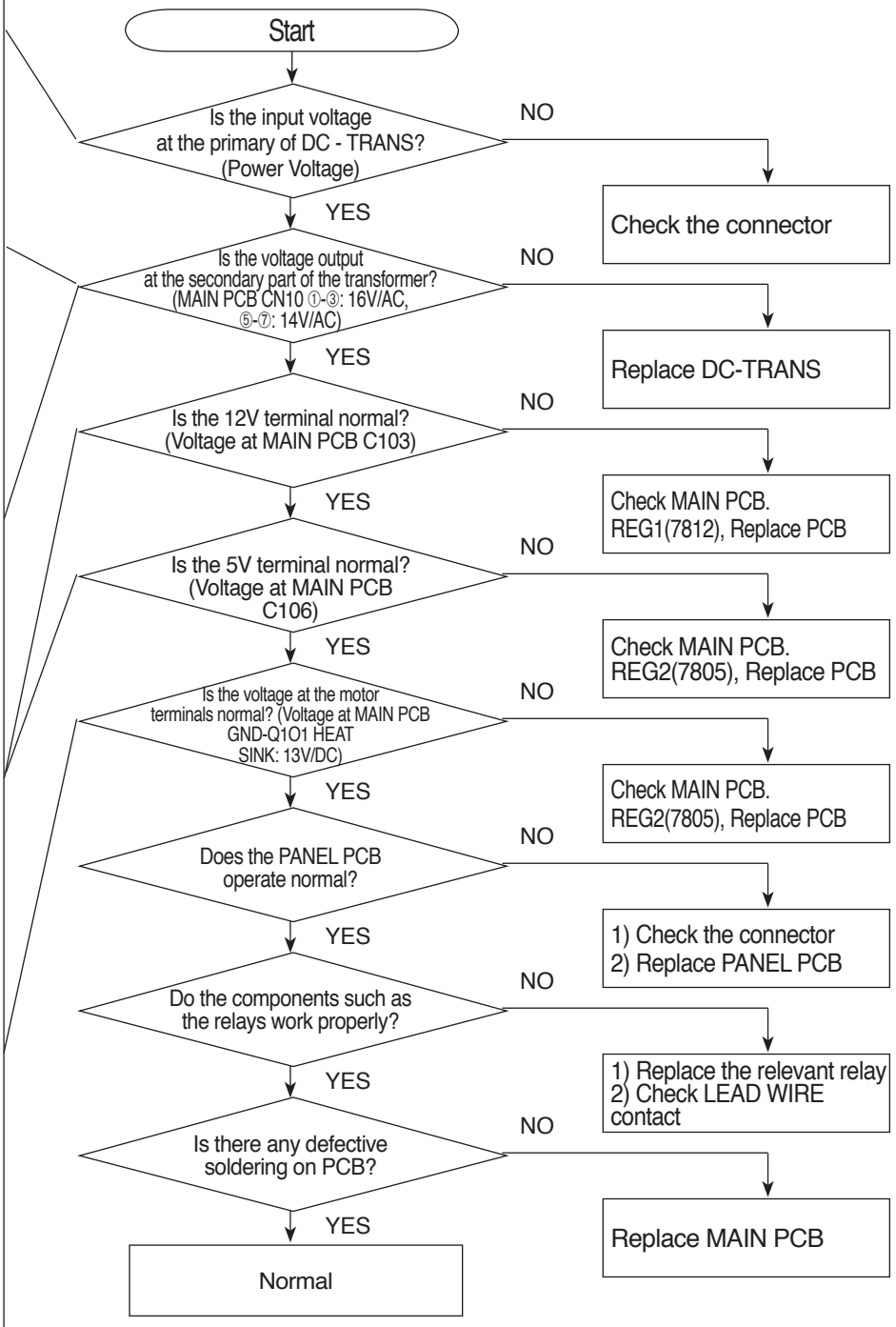
5) Measure the Motor input voltage (Q101-GND)

6) Common PCB Ground



<Note>

There is AC 200~240V flowing at the Main PCB. So, take care when doing a repair or a easurement with a tester.

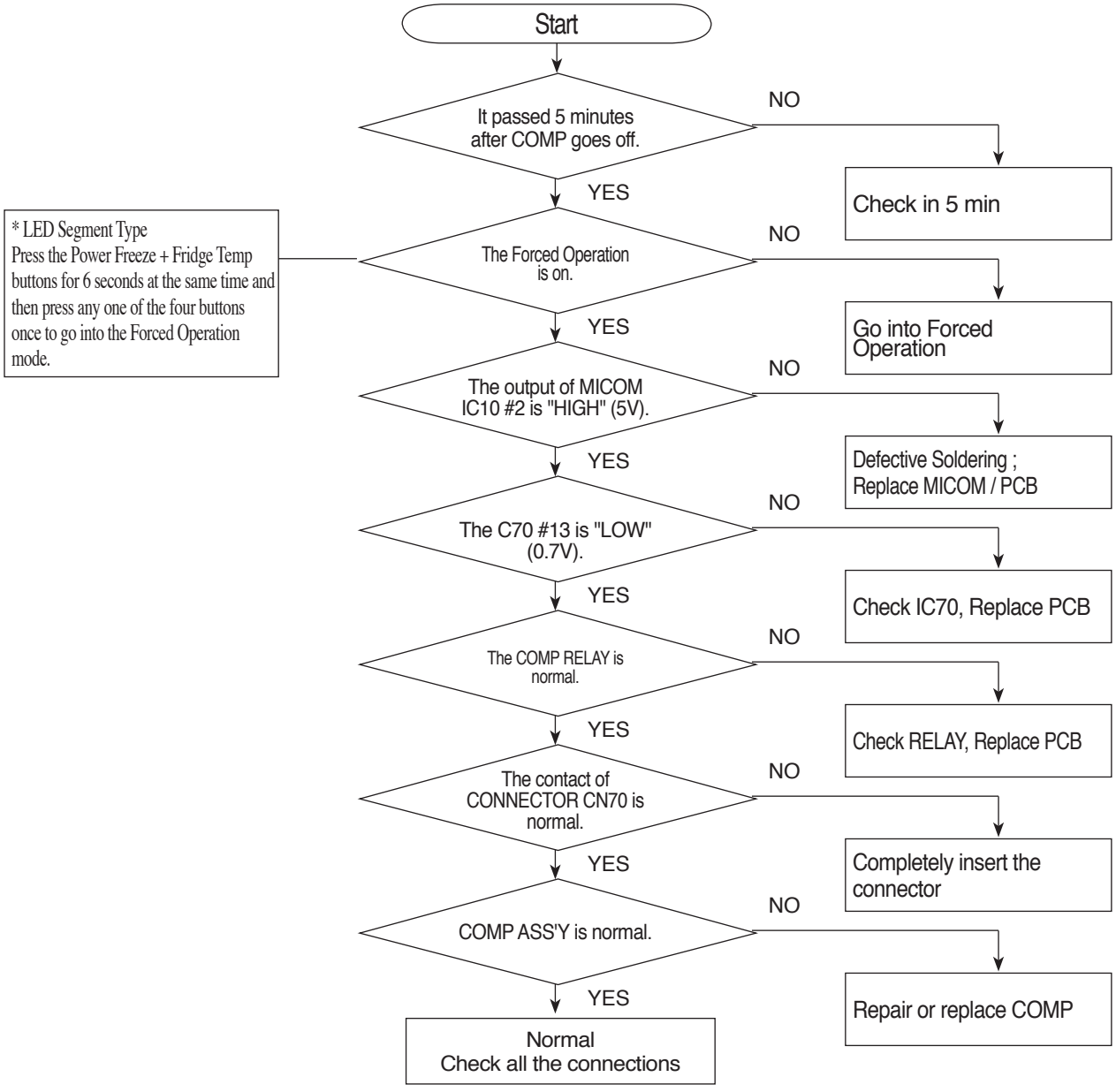


- Check MAIN PCB Connector
- Check the connection at the Upper Hinge Cabi-Door
- Check the Door Panel PCB connections

4. TROUBLESHOOTING

4-2-5) When the compressor does not operate

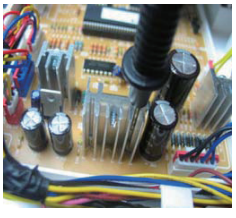
Check the compressor during the Forced Operation
1. It takes more than 5 minutes before the compressor starts operating since it becomes the set temperature.
2. The compressor does not work during the defrost.
3. It also takes more than 5 minutes to run the compressor again when an instant power failure is detected.



☞ How to measure the voltage With the compressor on, it is High Voltage (5V ±0.5V) between the Common PCB Ground and IC10 MICOM #2

☞ How to measure the voltage With the compressor on, it is Low Voltage 0.7V °æ0.5V) between the Common PCB Ground and IC70 #13

Common PCB Ground
REG1-Heat sink

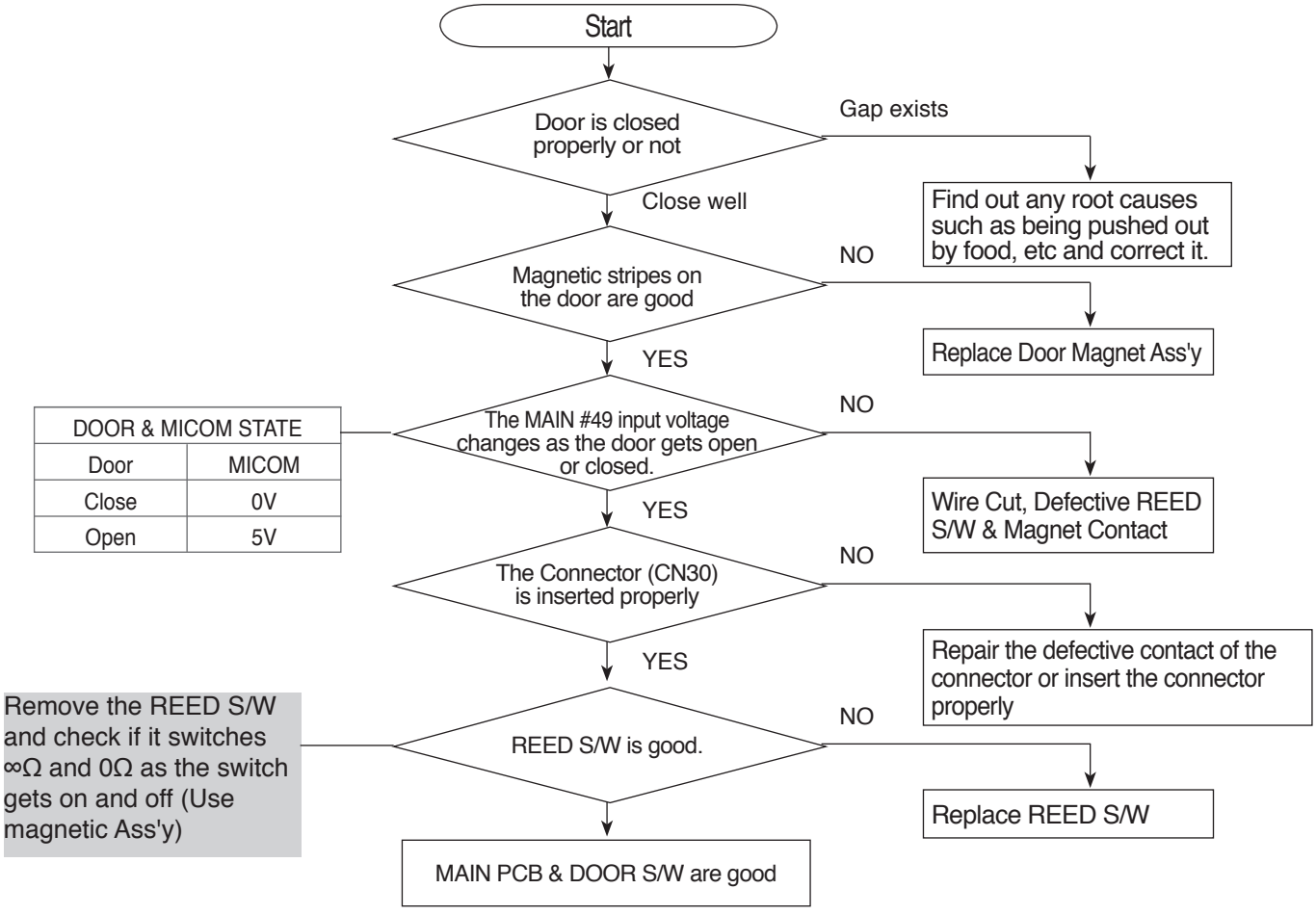


4. TROUBLESHOOTING

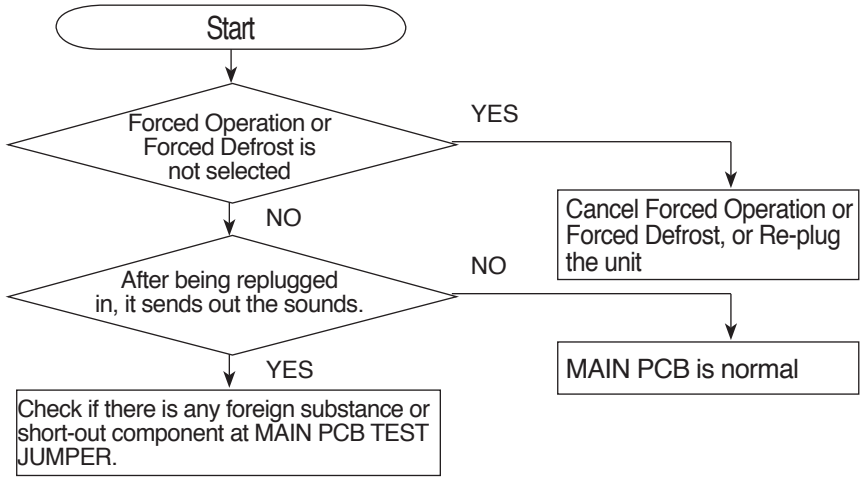
4-2-6) When it keeps alarming (Buzzer Sound)

✻ The DOOR REED SWITCH is a magnetic type.
So, check its open & close with the magnet attached on the Fridge door.
✻ Because there is no buzzer with LED SEMI type, it does not send out alarm sounds (isolated to LED SEG model)

1) When "DingDong" sound continues



2) When it keeps beeping



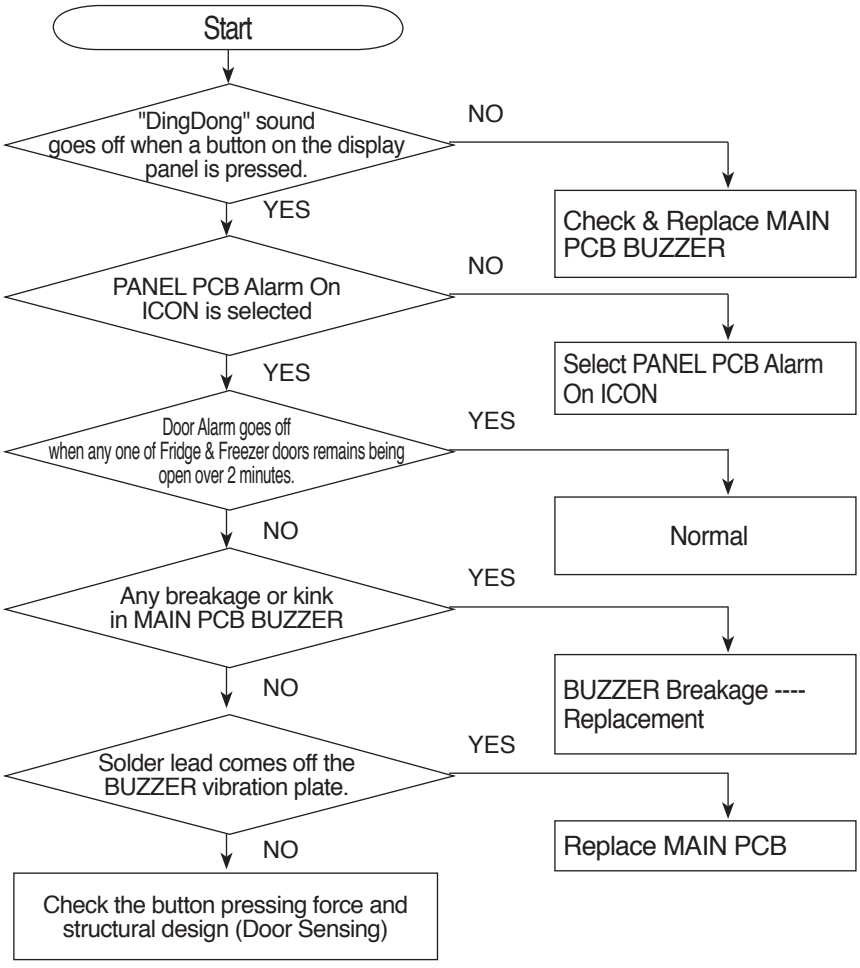
3) No Buzzer Sound

This model has a buzzer affixed on the MAIN PCB.(Except SEMI LED Model)

If there is no buzzer sound upon button press, Forced Operation or Door Open, disconnect MAIN PCB and check if the buzzer is damaged or there is any defective soldering.

(If it is not a soldering problem, it is recommended replacing MAIN PCB due to difficulties in repairing)

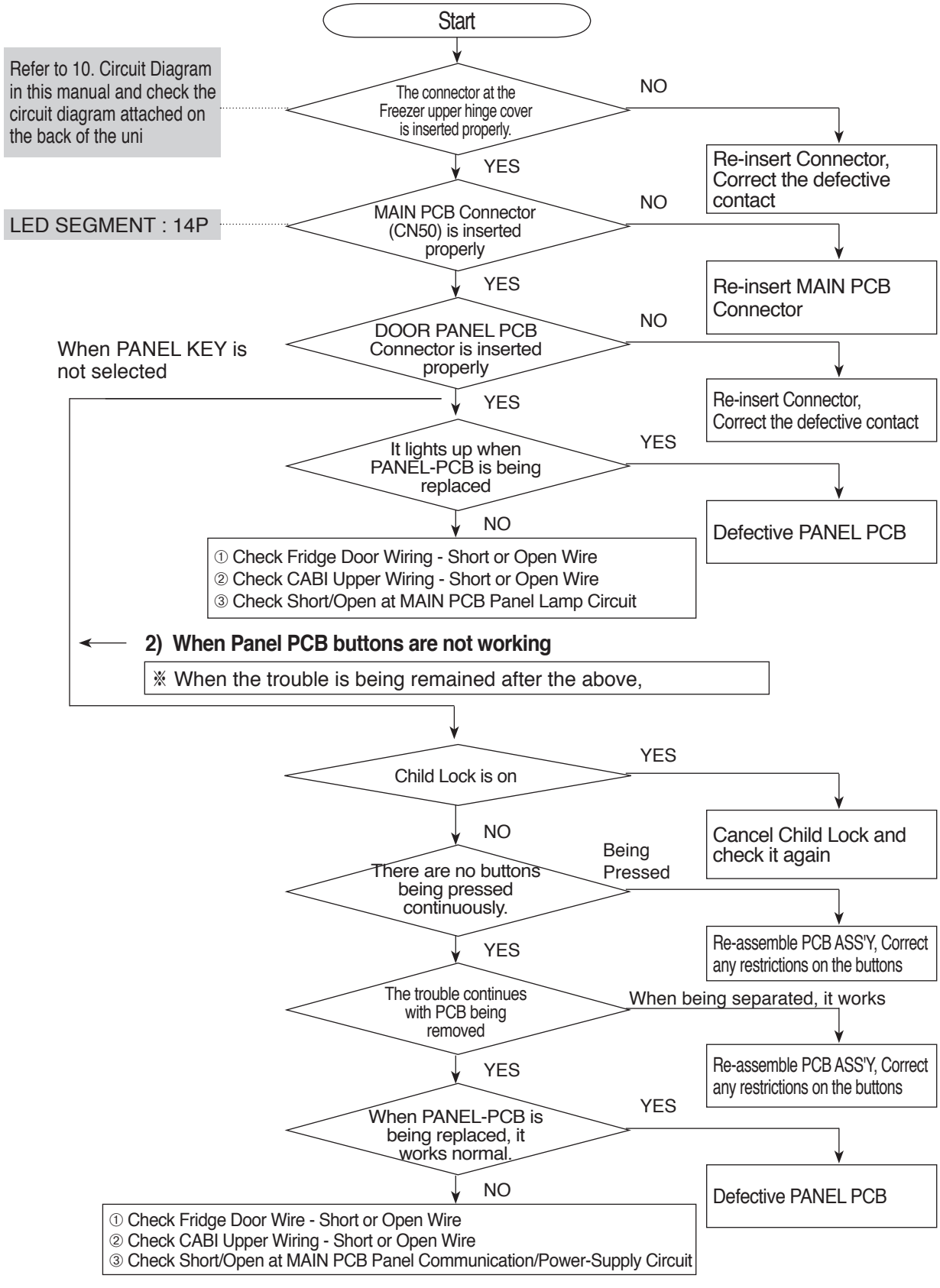
※ It may not be able to check when it is a closed built-in environment and there is lots of noise around.



4. TROUBLESHOOTING

4-2-7) When the Panel PCB does not work properly

1) When PANEL PCB does not light up or partially does



2) When Panel PCB buttons are not working

※ When the trouble is being remained after the above,

4. TROUBLESHOOTING

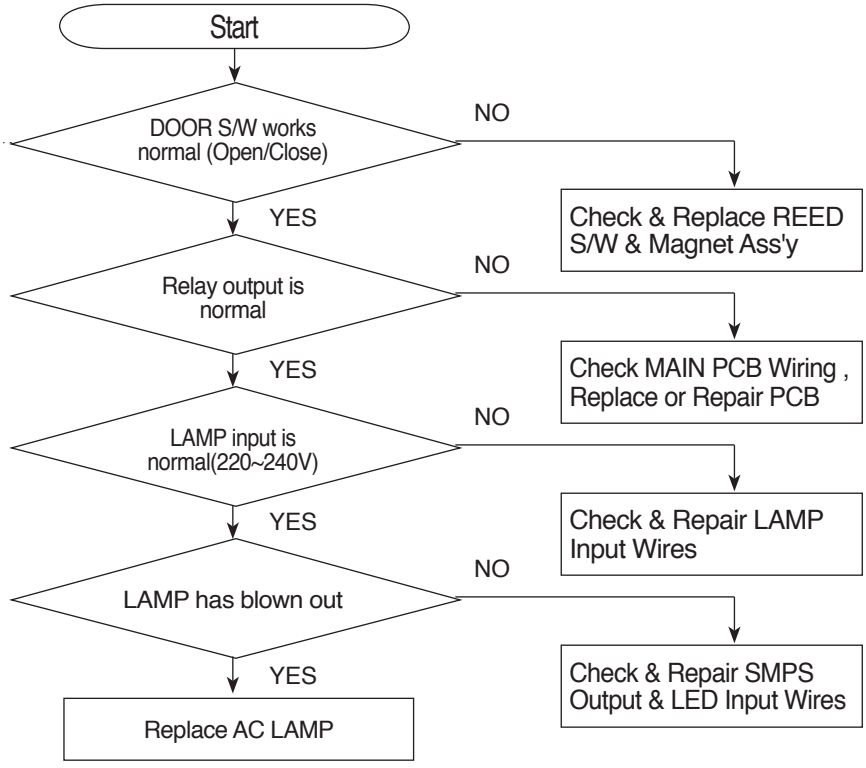
4-2-8) When the fridge lamp does not turn on

Caution
1. When replacing the Fridge Lamp (incandescent lamp), be sure to turn off the power to prevent electric shock.
2. Take care when replacing the incandescent lamp to prevent skin burn.

When the lamp is controlled with Relay + SMPS (LED lamp is used).

DOOR & MICOM STATE	
Door	MICOM(#48)
Close	0V
Open	5V

<Note>
The Room Lamp Relay switches on & off when the door gets opened and closed. When the lamp does not light up, check the relay operation with its switching sounds by opening & closing the door.



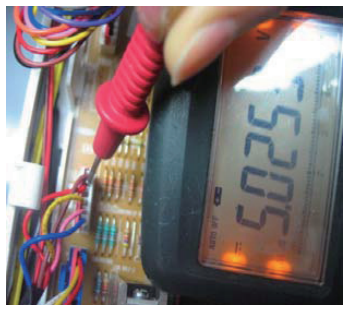
< Lamp Control Process >

DOOR S/W(REED S/W) → PBA MAIN MICOM Input → RELAY Output (LAMP Control) → AC LAMP

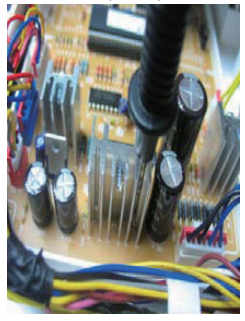
☞ When measuring the lamp resistance, the reading varies depending on the lamp input voltage. (The reading in the photo below is an example.)

☞ Fridge Lamp
CN71-"1"(Black) ↔ "1"(Pink) ; 89Ohm ± 7%
Lamp ; 40W

☞ How to measure Door Switch Voltage
- Measure voltage between the Common PCB Ground and CN30-"5"(Red).
- Open : 5V ± 0.5V , Close : 0V

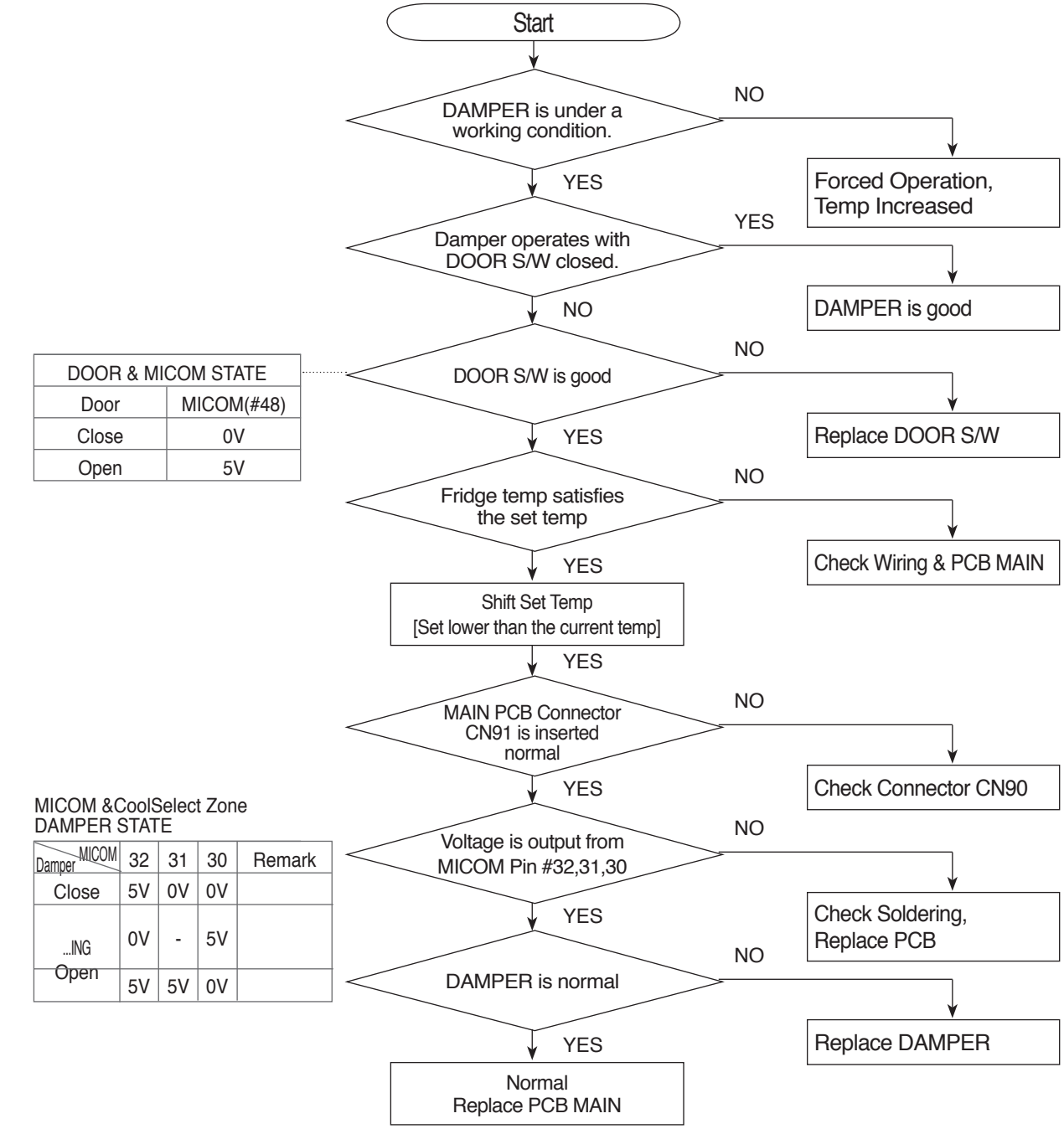


Common PCB Ground
CN10-"3"(Black)



4. TROUBLESHOOTING

4-2-9) Wen the Refrigerator Damper does not work

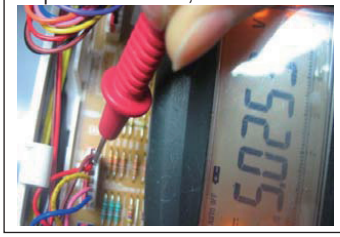


DOOR & MICOM STATE	
Door	MICOM(#48)
Close	0V
Open	5V

MICOM &CoolSelect Zone
DAMPER STATE

Damper \ MICOM	32	31	30	Remark
Close	5V	0V	0V	
...ING	0V	-	5V	
Open	5V	5V	0V	

☞ How to measure Door Switch Voltage
- Measure voltage between the PCB Ground and the CN30-"5"(Red) voltage.
- Open : 5V ± 0.5V , Close : 0V



Common PCB Ground
CN10-"3"(Black)