

11. Diagnostics

11-1) If power is not ON

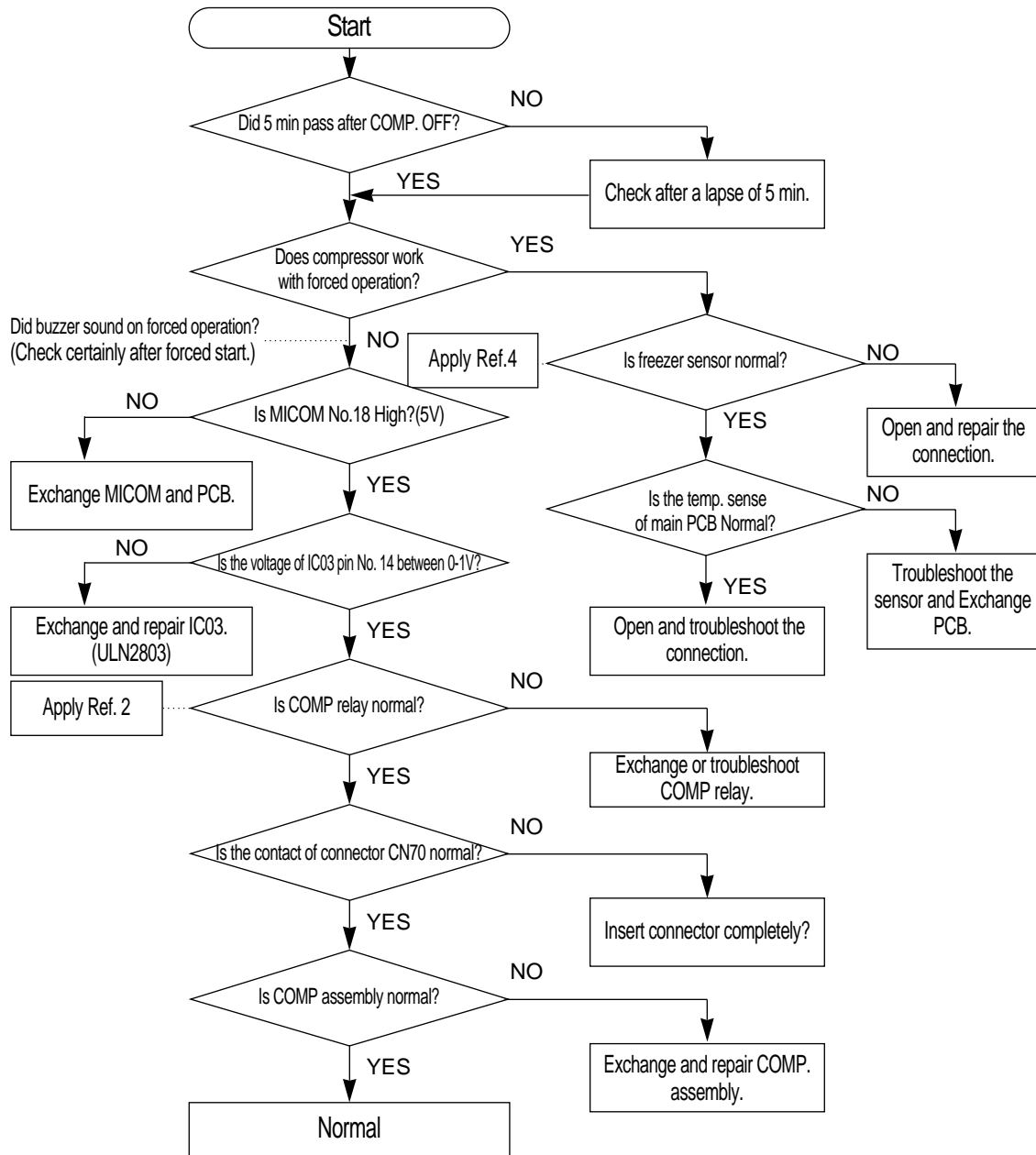
Caution!

At the power of main PCB, the 115V power and a high-voltage over DC 170V occur. Please take care of yourself on repair and measurement.

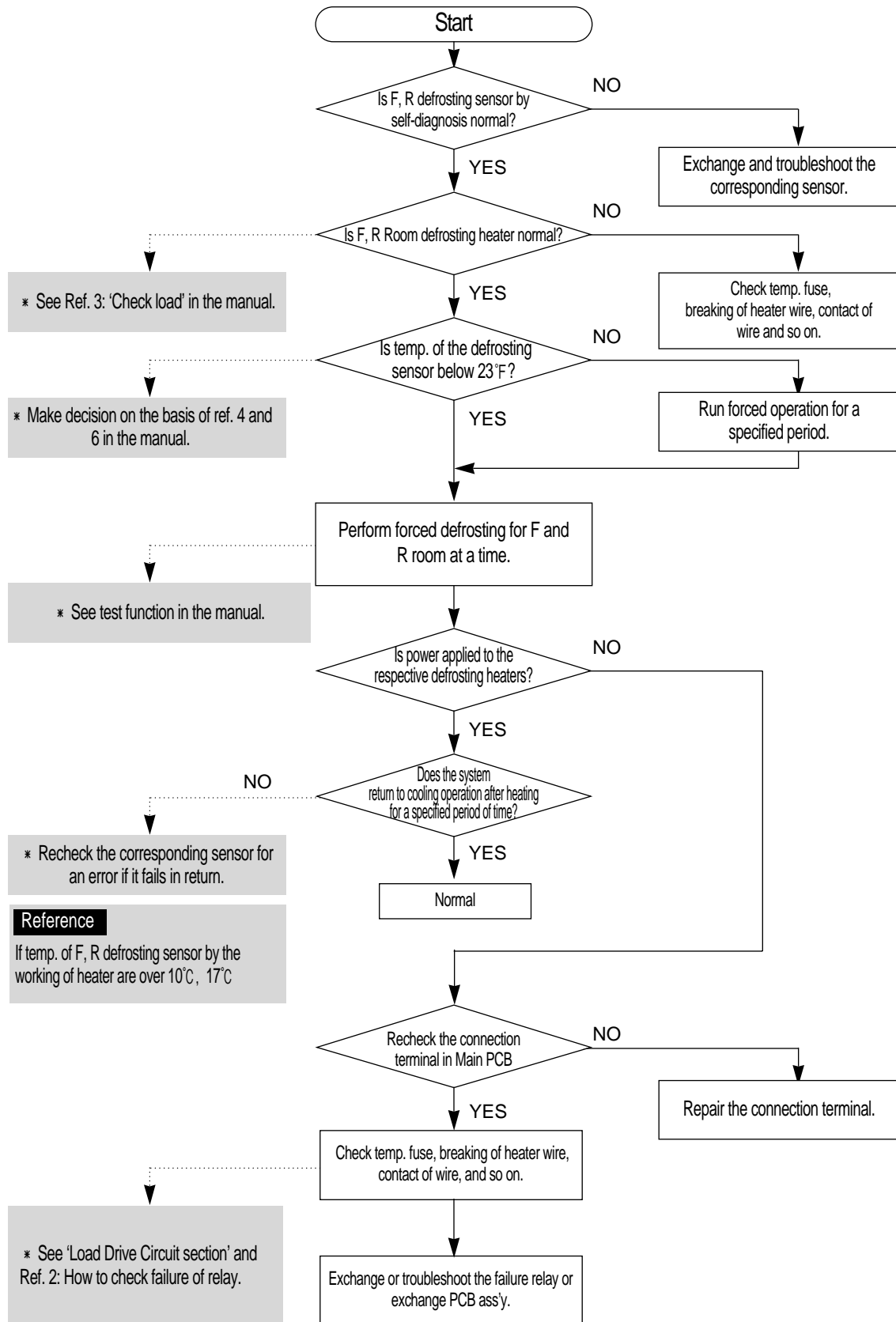
To check the main PCB, please apply descriptions of operation and references in the manual.



11-2) If the compressor and cooling fan motor don't work normally



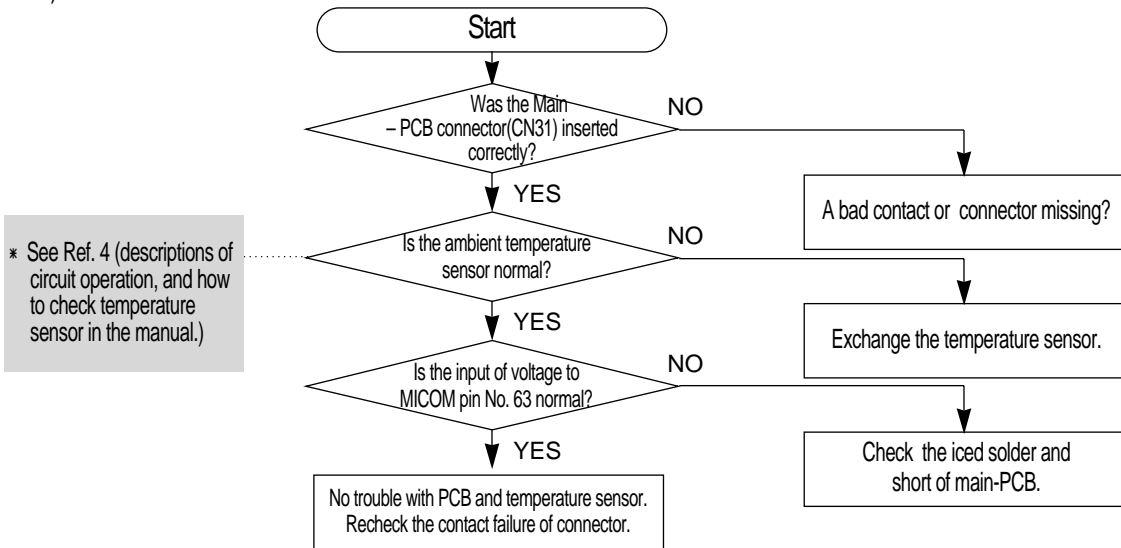
11-3) If defrost function



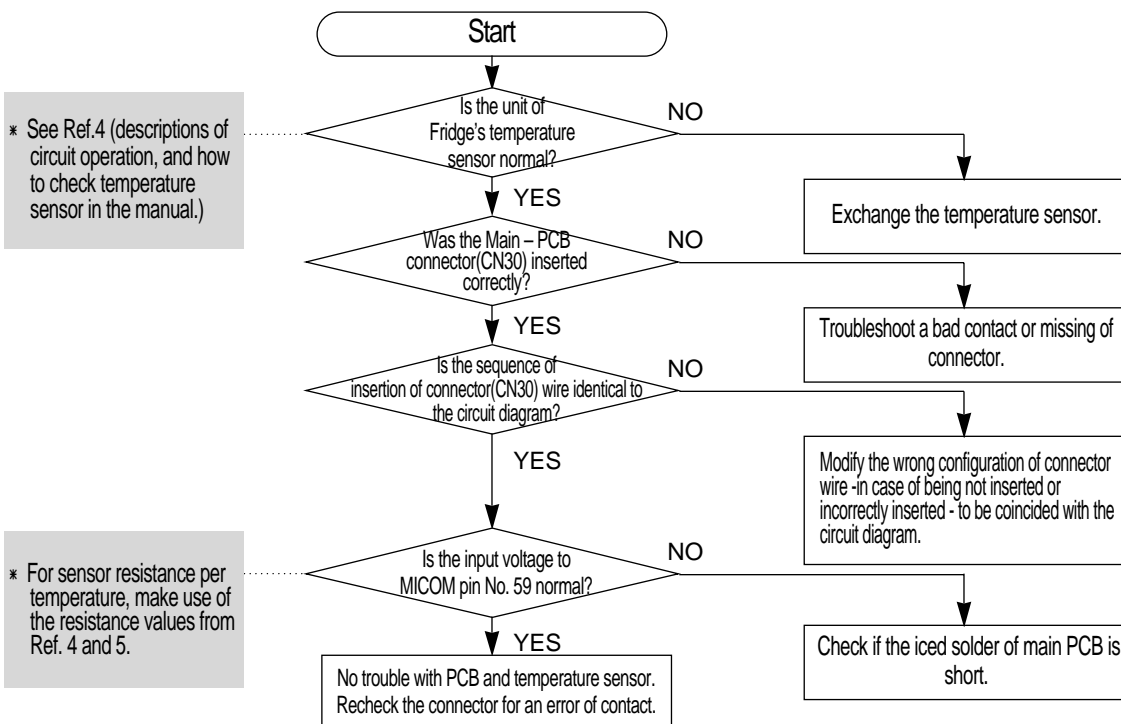
11-4) If there is a trouble with self-diagnosis

- Error of sensor can be seen on the front display of refrigerator. If power is impressed to refrigerator first, an failure of sensor is found. The refrigerator will stop working and display(blink) the region of trouble-occurred sensor repetitively.
- Even if sensor has failure during the operation, the refrigerator will not stop working but can run the normal cooling operation because of being operated in the Emergency Operation mode. Therefore you're requested to use how to check self-diagnosis in the manual.

1) If the ambient sensor has trouble

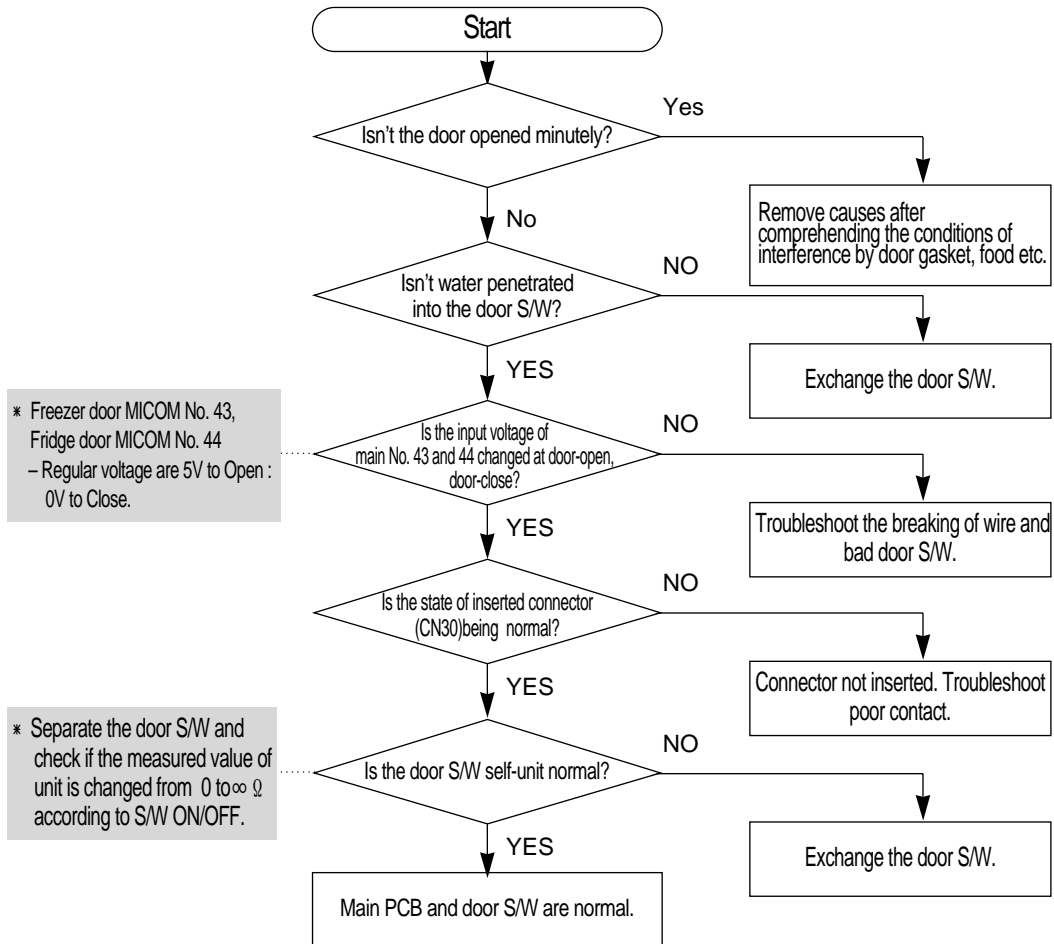


2) If the temperature sensor of F and R room has trouble

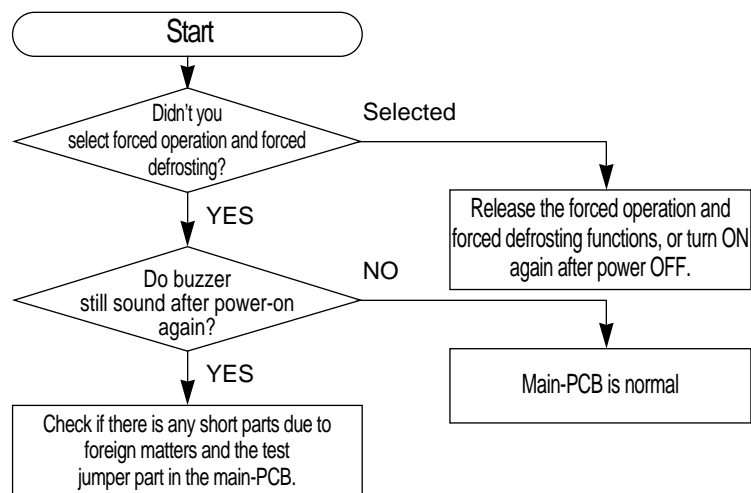


11-5) If alarm sound

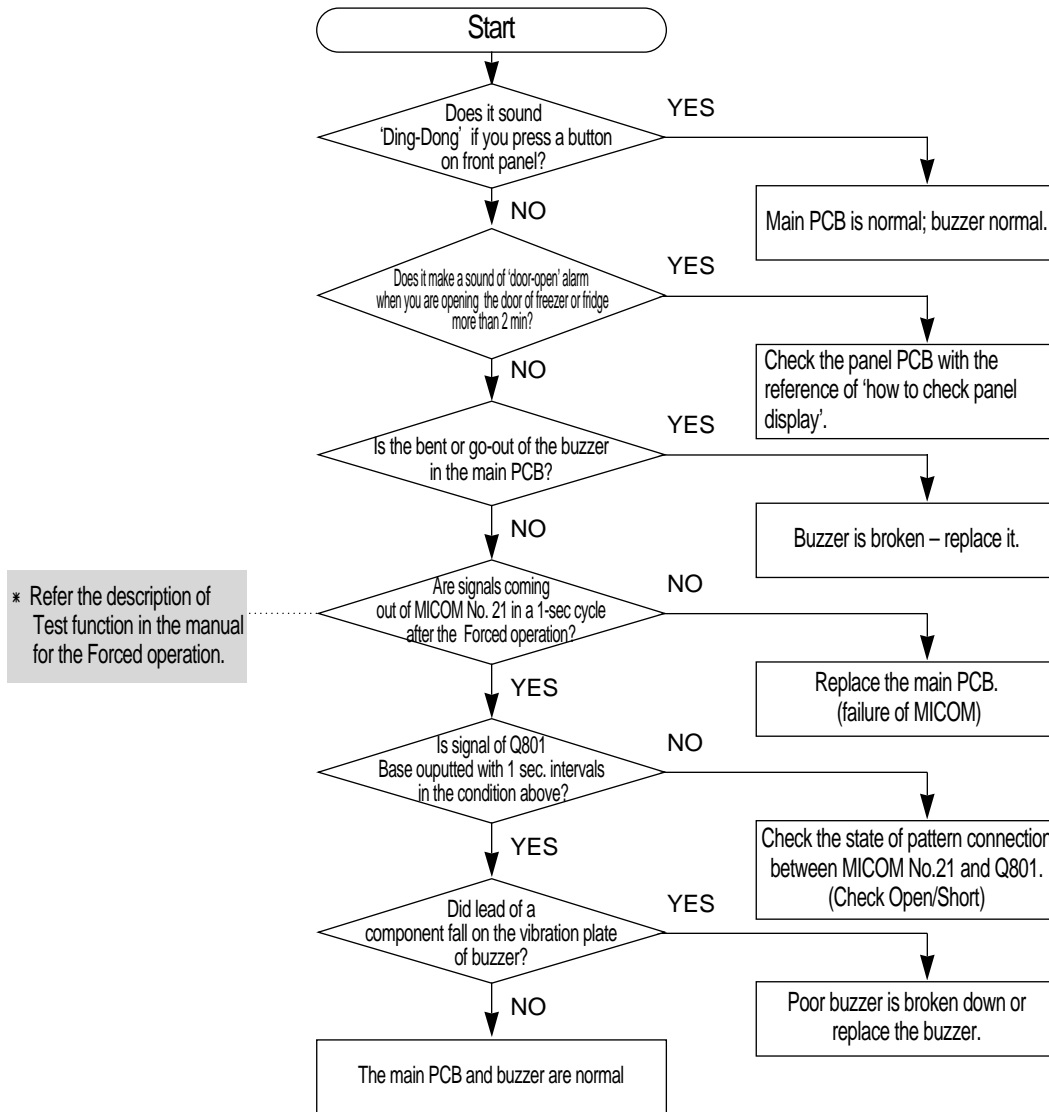
1) If "Ding-Dong" sounds continuously



2) If "Beep" sounds continuously

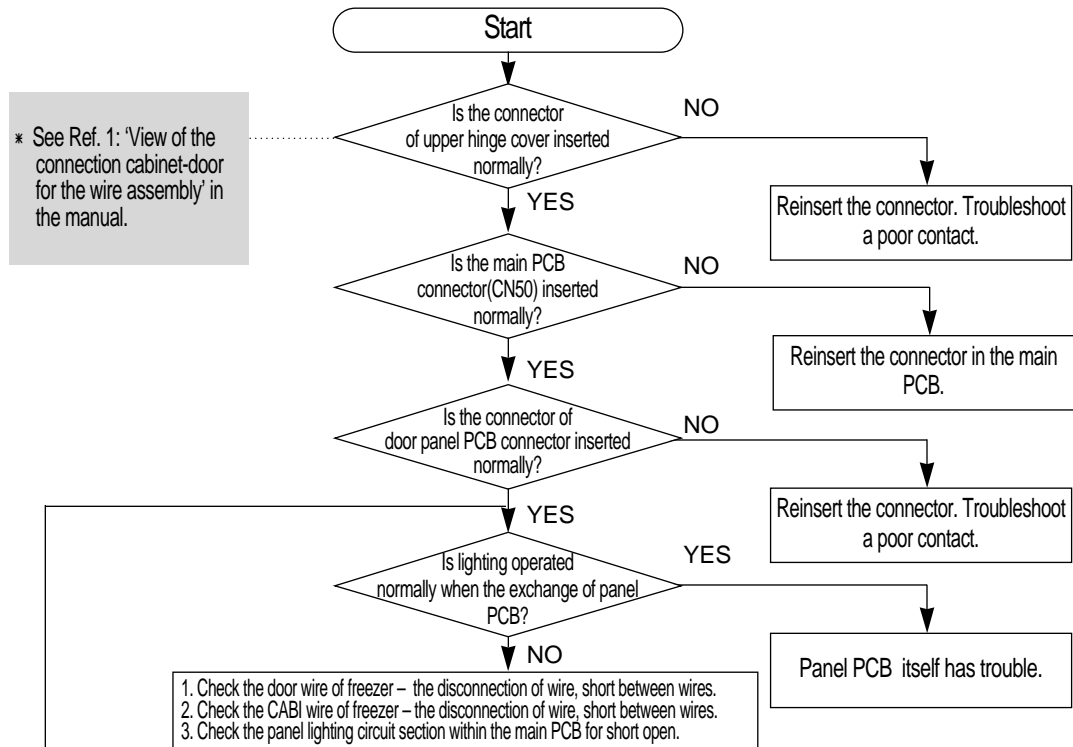


3) Without sound of buzzer operation



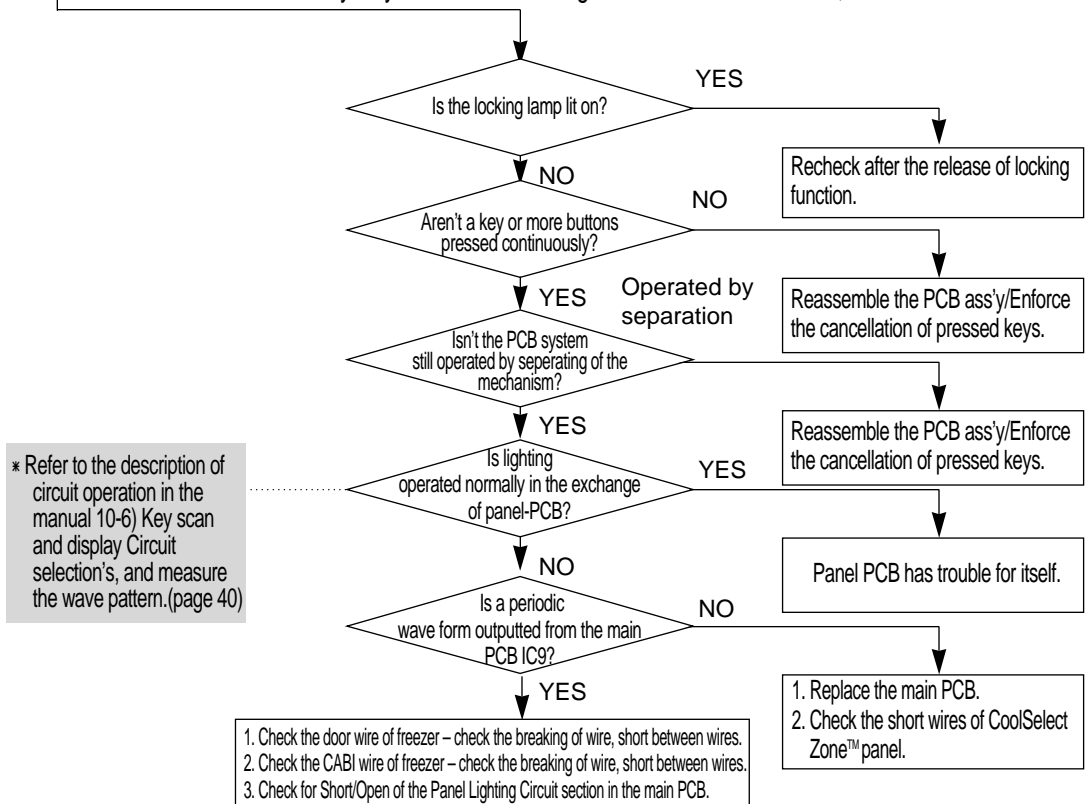
11-6) If the panel PCB is not working normally:

1) Where lighting of the panel PCB is disabled, or only some lamps are disabled.



2) Where the Panel PCB key isn't selected:

- The basic check way : If you is troubleshooting in the basic check method, then

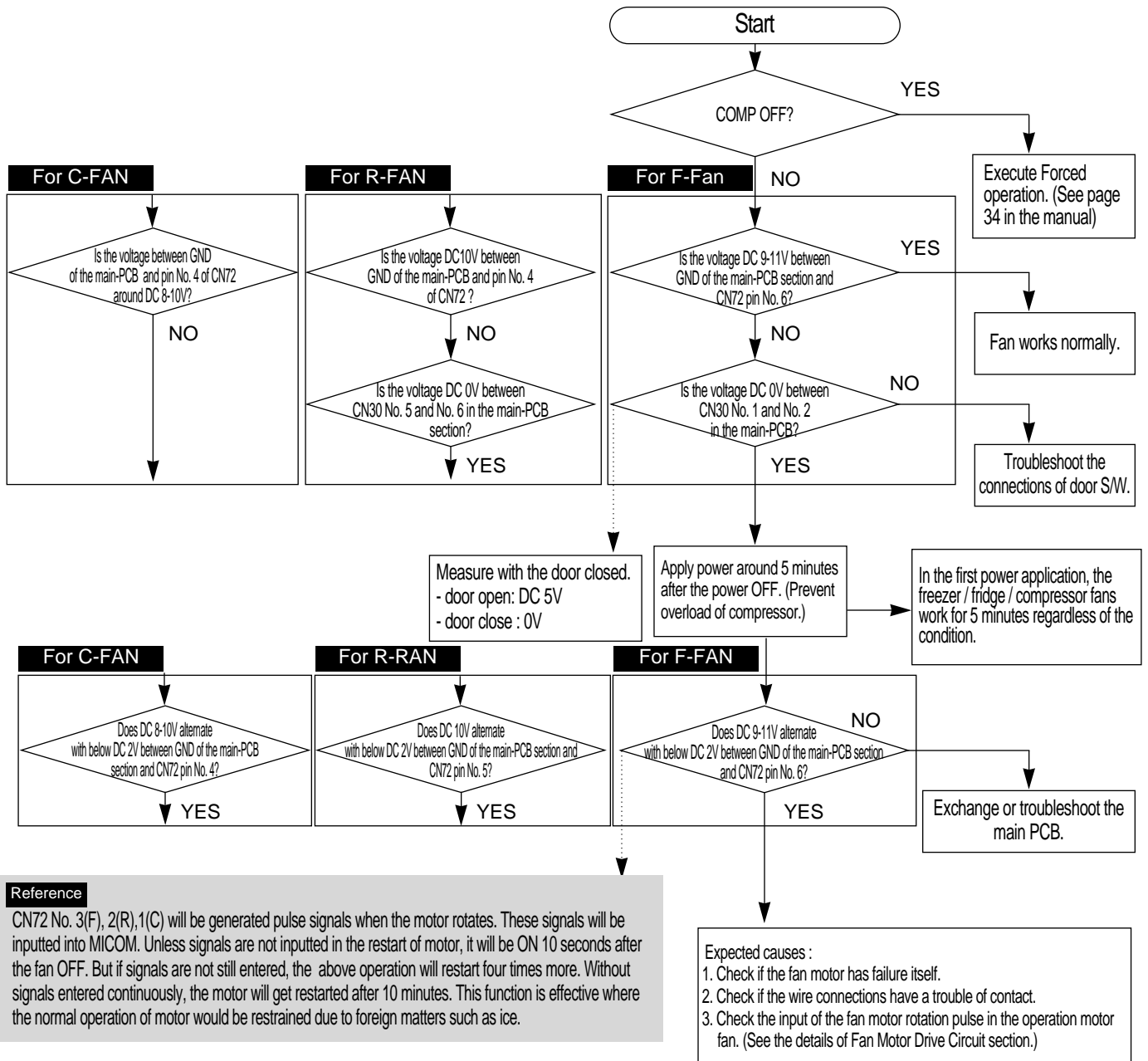


Diagnosics

11-7) If fan doesn't work:

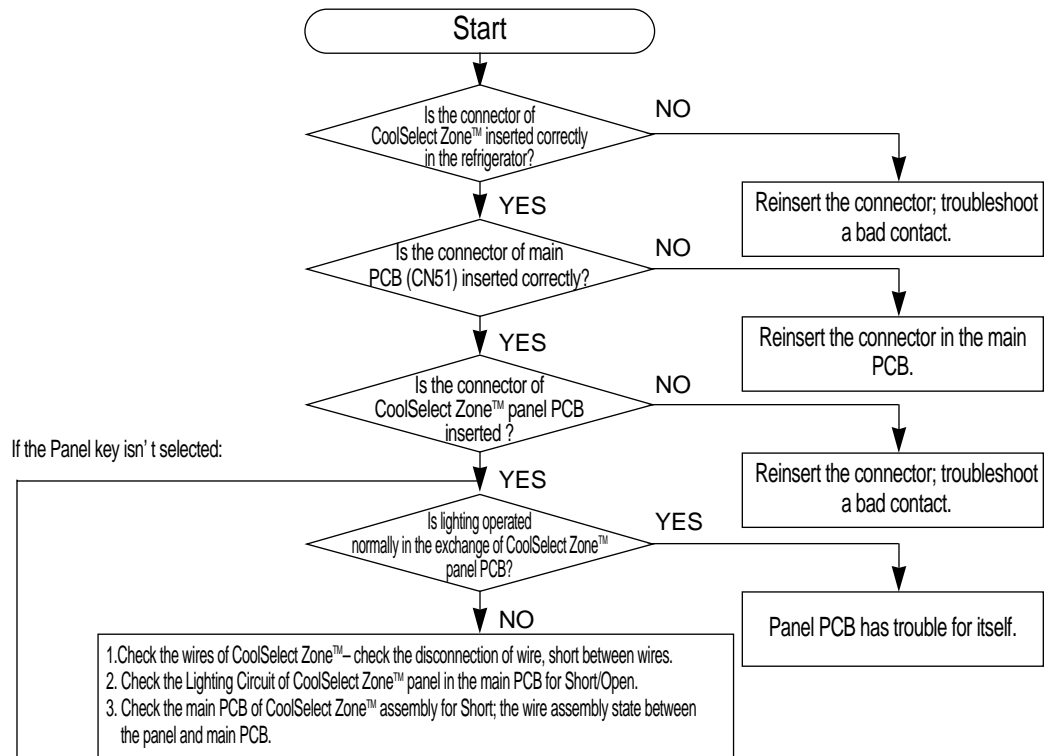
Reference

- The refrigerator has been applied with the BLDC fan motor. For RS2533, R room Fan is AC motor used. The BLDC motor is driven by DC 8-12V.
- Under the normal condition of COMP ON, it is operated together with F-FAN motor. With operation of the CoolSelect Zone™ function, the F-Fan motor may do not work. If the door is opened and closed once at a high ambient temperature, the BLDC motor would be operated after a 1-minute or longer delay. Therefore, you're advised not to take it for an error.
- When the refrigerator is open, the freezer fan motor will also stop working simultaneously with the fan motor. (for the purpose of performance improvement).



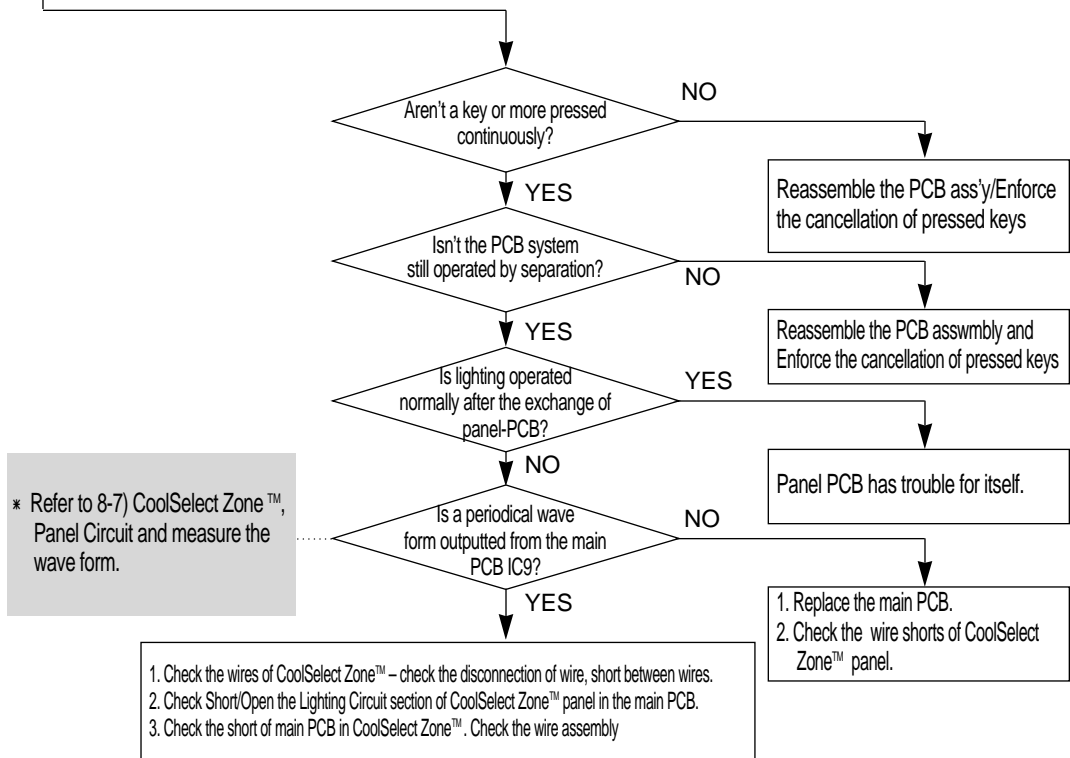
11-8) If CoolSelect Zone™ isn't operated normally

1) If the lamp of CoolSelect Zone™ is not lit.



2) If the Panel PCB key isn't selected:

- The basic method is applied to check – if you fail in troubleshooting after above the execution, then

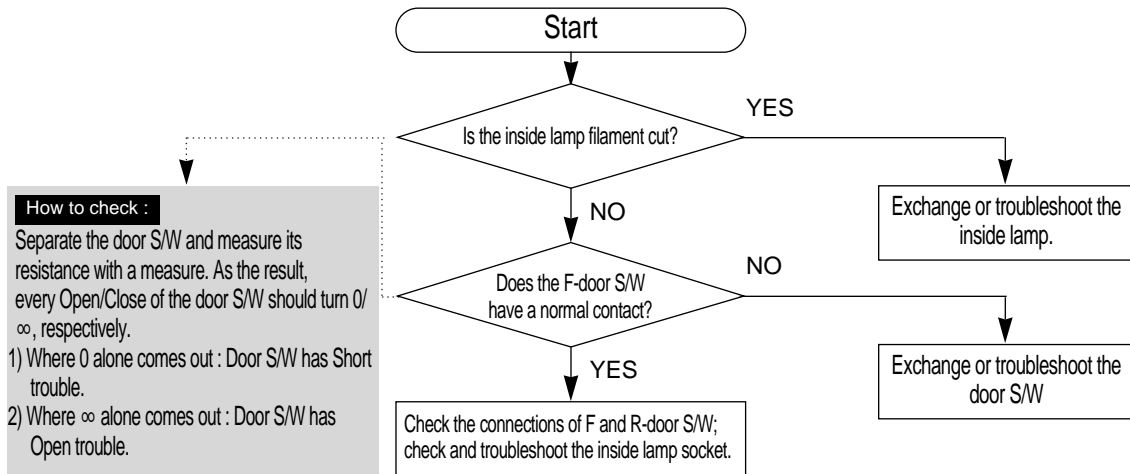


Diagnosics

11-9) If the lamps of freezer / refrigerator does not light.

⚠ Caution!

1. When you are exchanging the lamp of freezer, please exchange or troubleshoot it with the power OFF to avoid an electric shock.
2. Please keep in mind you do not get burnt by the excessive heating of an incandescent light bulb.



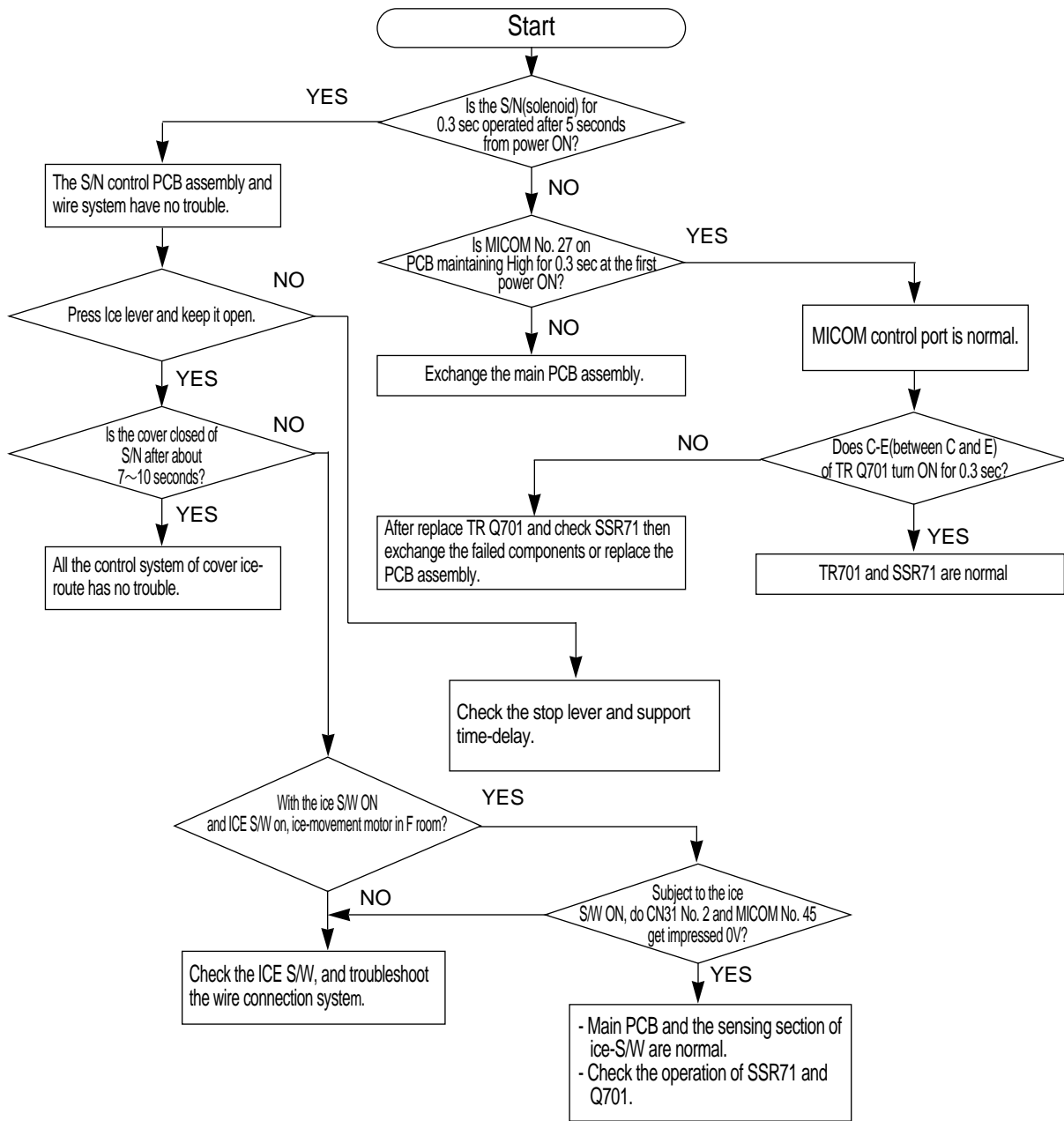
Reference

If the door is opened, then the contact of door S/W is opened and MICOM gets applied 5V to finally sense Open. If 5V has been sensed over two minutes afterwards, then an Door-Open alarm will sound 'Ding-Dong' for 10 seconds in a one-minute cycle. For that reason, if the door S/W has failure, the refrigerator can make a "Ding-Dong" sound per a one-minute cycle. Please note step for its service!

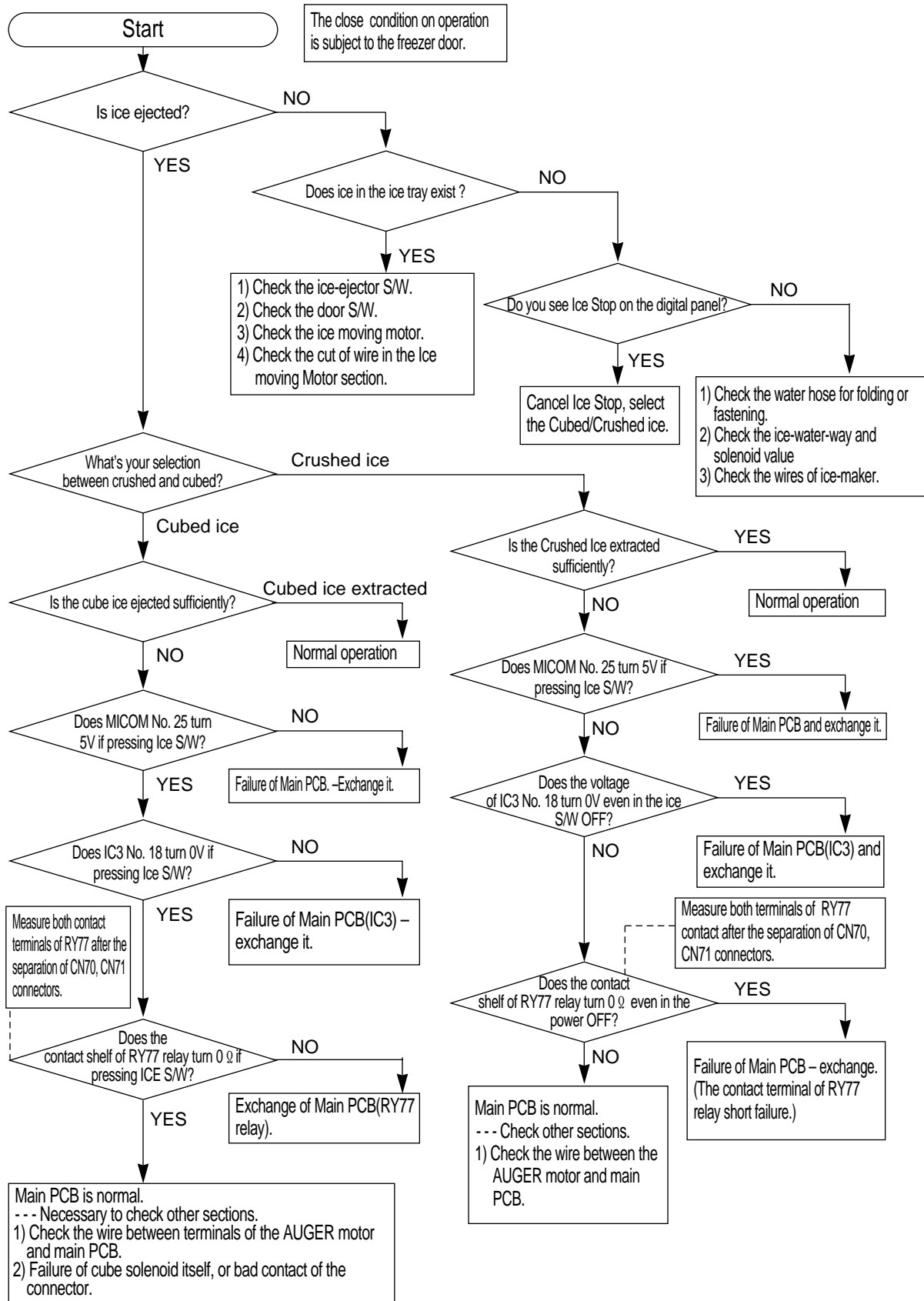
11-10) If the solenoid in the ice-chute cover doesn't work :

Preliminary check

- 1) Check if the solenoid is unconditionally operated for 0.3 sec, independent of the Open/Close condition of cover ice-route, after a lapse of about 5 seconds from power ON. (Before installation, the cancellation of cover ice-route open is enabled.)
- 2) Check if the connector in upper hinge section is hook-up correctly.

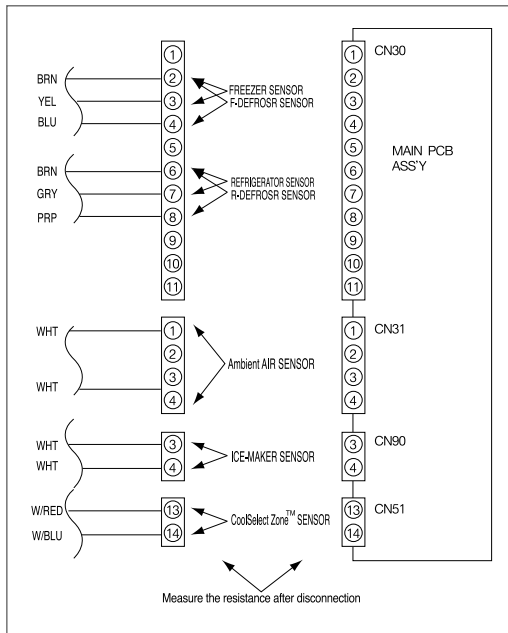


11-11) If Crushed Ice/Cubed Ice doesn't work properly:



Appendix I (Reference for circuit diagnostics)

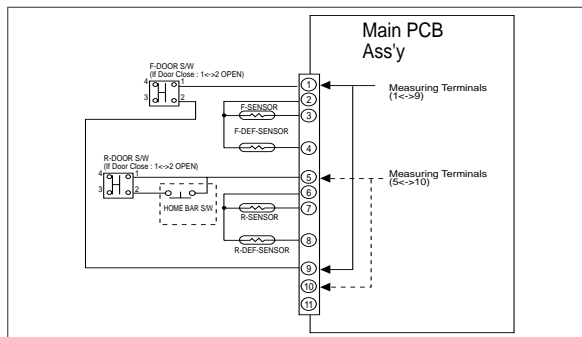
Ref. 1) Check sensors



Disconnect the connector from the Main PCB, then measure the resistance of the following sensors.

1. Check the resistance the Freezer sensor cn30 between the no. 2 and 3.
 2. Check the resistance the Fridge Room sensor cn30 between the no. 6 and 7.
 3. Check the resistance the F Defrosting sensor cn30 between the no. 2 and 4.
 4. Check the resistance the R Defrosting sensor cn30 between the no. 6 and 8.
 5. Check the resistance between the no. ① and ④ the ambient Air sensor cn31.
 6. Check the resistance between the no. ③ and ④ of the Ice-Maker sensor cn90.
 7. Check the resistance between the no. ⑬ and ⑭ of the CoolSelect Zone™ sensor cn51.
 8. Decide the sensor by comparing above resistances to the temperature of each sensor with the conversion table of sensor resistance and voltage from the reference temperature of Ref. 6 on this manual.
- ※ When the resistance is $\infty \Omega$ or 0Ω , check the connection of electric wire and sensorconnector.

Ref. 2) Check Door S/W



Check with power applied.

The Door S/W is a two-contact switch. One detects Door Open/Close with DC 5V at the PCB and the other one turns on/off the room light.

(R-Room Light)

1. Check if the light comes on by opening the R-Door. If it lights up, check if the light goes off by pressing down the Door S/W with the door open.
If there is any problem, check the R-Door S/W.

(R-Door Open Sensing Part of MAIN PCB)

1. Place the positive(+) terminal on CN30 No.⑤ and the negative(-) on No.⑩. And, check the voltage.
2. When the voltage is DC 5V with the door open, it is normal.
3. When the voltage is DC 0V with the door closed, it is normal. If there is any problem, check the Door S/W and the wire connections.

(F-Room Light)

1. Check if the light comes on by opening the F-Door. If it lights up, check if the light goes off by pressing down the Door S/W with the door open.
If there is any problem, check the F-Door S/W.

(F-Door Open Sensing Part of MAIN PCB)

1. Place the positive(+) terminal on CN30 No.① and the negative(-) on No.⑨. And, check the voltage.
2. When the voltage is DC 5V with the door open, it is normal.
3. When the voltage is DC 0V with the door closed, it is normal. If there is any problem, check the Door S/W and the wire connections.

Appendix I (Reference for circuit diagnostics)

Ref. 3) Table of temperature sensor according to resistance and voltage conversion.

The input voltage to the MICOM PORT could be different by a hardware. This is a table based on the voltage using the 10kohm-F.

MICOM PORT voltage when the sensor is open: about DC 5V(Vcc LEVEL)

MICOM PORT voltage when the sensor is shorted: about DC 0V(Ground LEVEL)

Temp.(°F)	Resistance(kΩ)	Voltage(V)
-43.6	98.870	4.541
-41.8	93.700	4.518
-40.0	88.850	4.494
-38.2	84.150	4.469
-36.4	79.800	4.443
-34.6	75.670	4.416
-32.8	71.800	4.389
-31	68.150	4.360
-29.2	64.710	4.331
-27.4	61.480	4.301
-25.6	58.430	4.269
-23.8	55.550	4.237
-22.0	52.840	4.204
-20.2	50.230	4.170
-18.4	47.770	4.134
16.6	45.450	4.098
-14.8	43.260	4.061
-13.0	41.190	4.023
-11.2	39.240	3.985
-9.4	37.390	3.945
-7.6	35.650	3.905
-5.8	33.990	3.863
-4.0	32.430	3.822
-2.2	30.920	3.778
-0.4	29.500	3.734
1.4	28.140	3.689
3.2	26.870	3.644
5.0	25.650	3.597
6.8	24.510	3.551
8.6	23.420	3.504
10.4	22.390	3.456

Temp.(°F)	Resistance(kΩ)	Voltage(V)
12.2	21.410	3.408
14.0	20.480	3.360
15.8	19.580	3.310
17.6	18.730	3.260
19.4	17.920	3.209
21.2	17.160	3.159
23.0	16.430	3.108
24.8	15.740	3.057
26.6	15.080	3.006
28.4	14.450	2.955
30.2	13.860	2.904
32.0	13.290	2.853
33.8	12.740	2.801
35.6	12.220	2.750
37.4	11.720	2.698
39.2	11.250	2.647
41.0	10.800	2.596
42.8	10.370	2.545
44.6	9.959	2.495
46.4	9.569	2.445
48.2	9.195	2.395
50.0	8.839	2.346
51.8	8.494	2.296
53.6	8.166	2.248
55.4	7.852	2.199
57.2	7.552	2.151
59.0	7.266	2.104
60.8	6.992	2.057
62.6	6.731	2.012
64.4	6.481	1.966
66.2	6.242	1.922

Temp.(°F)	Resistance(kΩ)	Voltage(V)
68.0	6.013	1.878
69.8	5.792	1.834
71.6	5.581	1.791
73.4	5.379	1.749
75.2	5.185	1.707
77.0	5.000	1.667
78.8	4.821	1.626
80.6	4.650	1.587
82.4	4.487	1.549
84.2	4.329	1.511
86.0	4.179	1.474
87.8	4.033	1.437
89.6	3.894	1.401
91.4	3.760	1.366
93.2	3.631	1.332
95.0	3.508	1.298
96.8	3.390	1.266
98.6	3.276	1.234
100.4	3.167	1.203
102.2	3.062	1.172
104.0	2.962	1.143
105.8	2.864	1.113
107.6	2.770	1.085
109.4	2.680	1.057
111.2	2.593	1.030
113.0	2.510	1.003
114.8	2.429	0.977
116.6	2.352	0.952
118.4	2.278	0.928
120.2	2.206	0.904

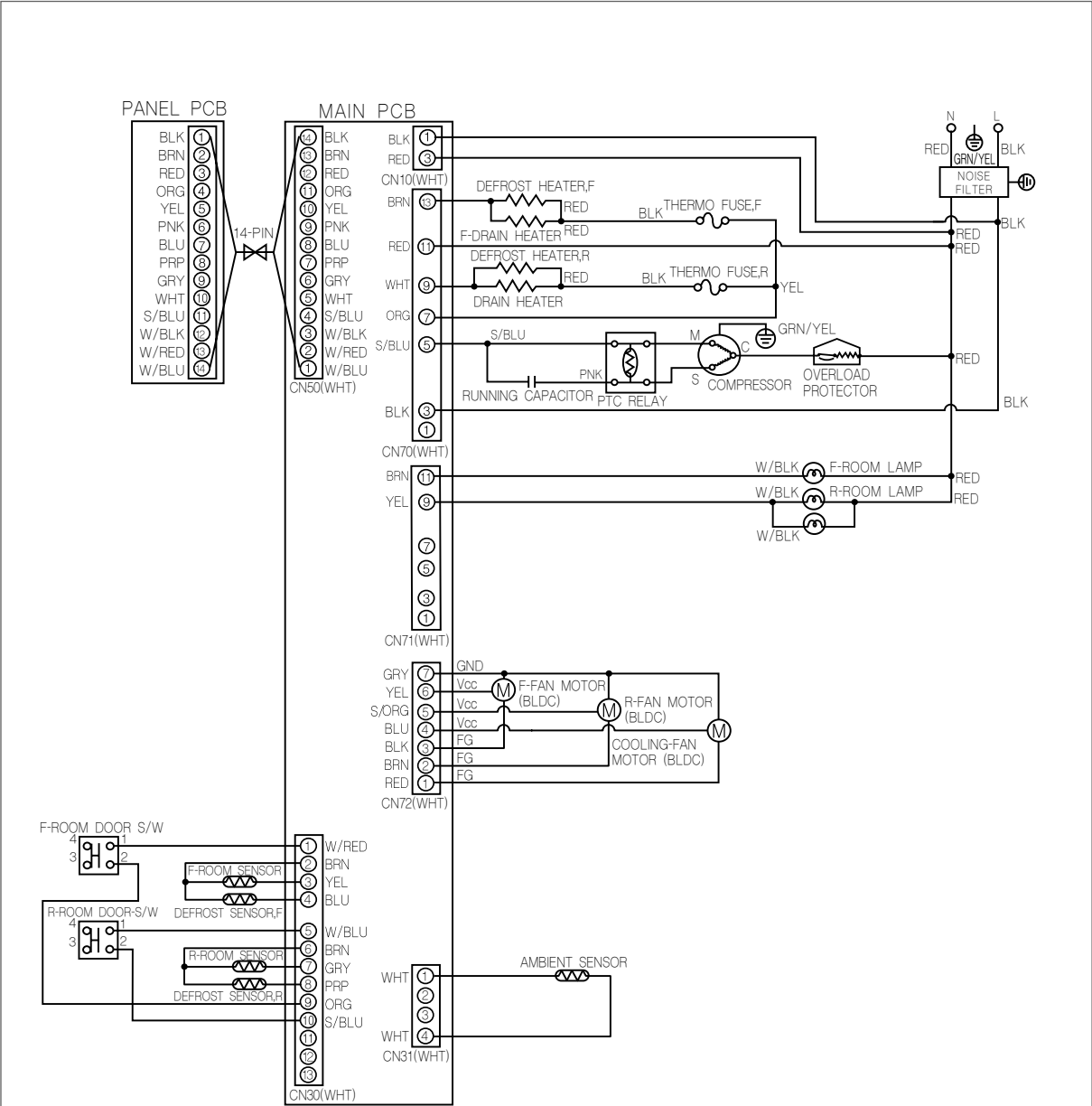
Appendix I (Reference for circuit diagnostics)

Ref. 4) Service part lists of each circuit board.

NO	CODE-NO	PART NAME	SPECIFICATION	Q'TY
1	DA41-00195A	MAIN PCB ASS'Y	①Basic ②Basic with H/B	1
2	DA41-00195B	MAIN PCB ASS'Y	①Basic with CoolSelectZone™	1
3	DA41-00185A	MAIN PCB ASS'Y	①Dispenser ②Dispenser with H/B	1
4	DA41-00185B	MAIN PCB ASS'Y	①Dispenser with CoolSelectZone™ ②Dispenser with H/B & CoolSelectZone™	1
5	DA41-00103T	MAIN PCB ASS'Y	①Basic ②Basic with H/B	1
6	DA41-00103U	MAIN PCB ASS'Y	①Basic with CoolSelectZone™	1
7	DA41-00173A	MAIN PCB ASS'Y	①Dispenser ②Dispenser with H/B	1
8	DA41-00173B	PANEL PCB ASS'Y	①Dispenser with CoolSelectZone™ ②Dispenser with H/B & CoolSelectZone™	1
9	DA41-00108A	CoolSelectZone™ PCB ASS'Y	①Basic with CoolSelectZone™ ②Dispenser with CoolSelectZone™ ③Dispenser with H/B & CoolSelectZone™	1
10	DA32-00006B	R-DEFROST Sensor	PX-41C	1
11	DA32-00006A	F-DEFROST Sensor	PX-41C	1
12	DA32-10109V	Ambient Temp.Sensor	PX-41C	1
13	DA32-00105U	R-Temp.Sensor	PX-41C	1
		F-Temp.Sensor	PX-41C (Use Only Basic Models)	
14	DA32-10109W	F-Temp.Sensor	PX-41C (Use Only Dispenser Models)	1
15	DA32-10109X	CoolSelectZone™ PCB ASS'Y	PX-41C	
16	3301-000016	FERRIETE CORE (LOCK TYPE)	-	0
17	DA27-00002A	NOISE FILTER	USE ALL MODEL	1
<p>※ The last no. of the code number such as DA41-xxxx? for the Main PCB-ASS'Y could be changed by MICOM and option.</p>				

CIRCUIT DIAGRAM

For Basic Models

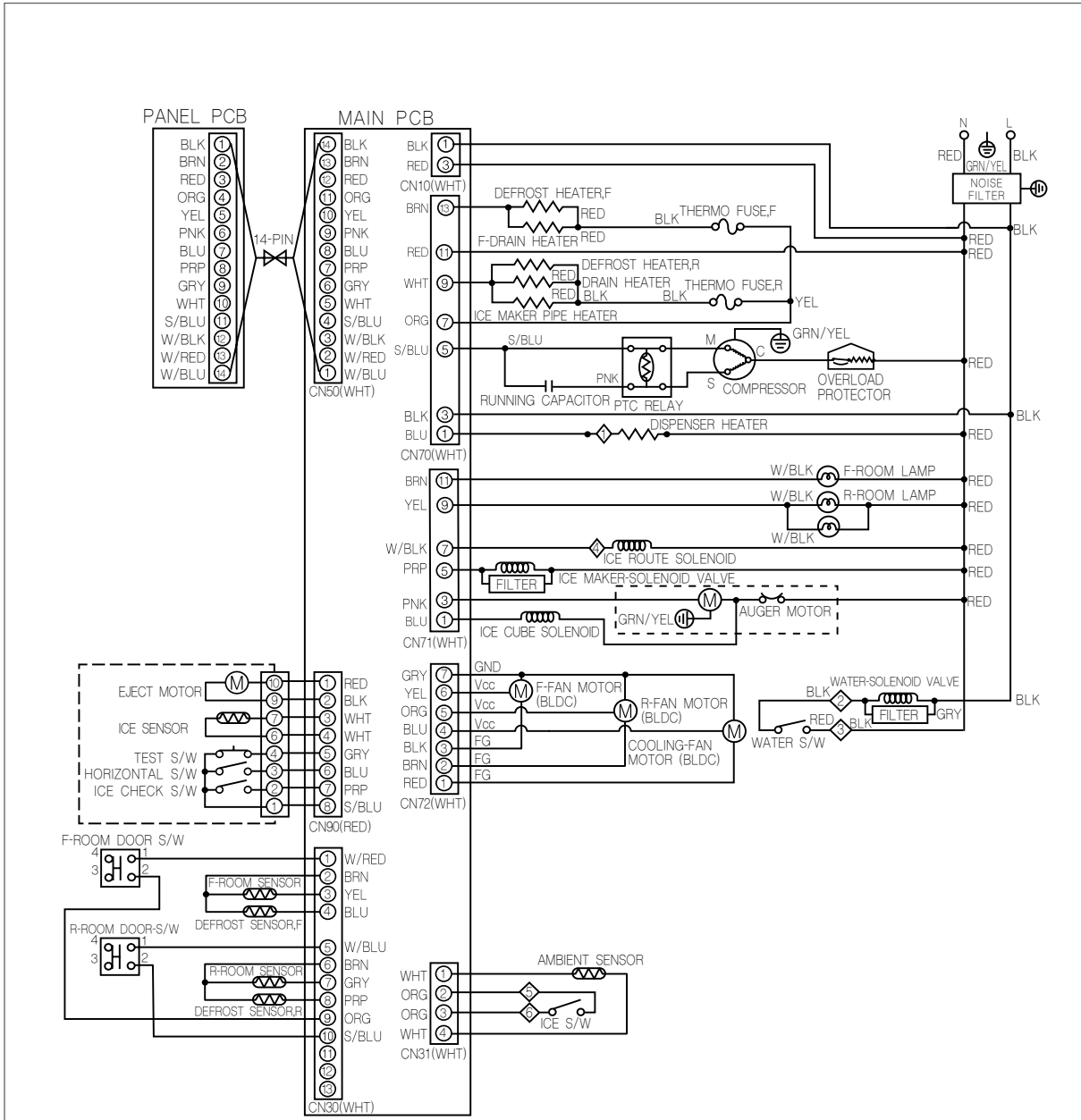


Reference

- | | |
|------------------|-------------------|
| RED-RED | WHT-WHITE |
| BLU-BLUE | YEL-YELLOW |
| ORG-ORANGE | BLK-BLACK |
| P/BLU-PINK/BLUE | PRP-PURPLE |
| BRN-BROWN | W/BLK-WHITE/BLACK |
| PNK-PINK | S/BLU-SKY/BLUE |
| GRY-GRAY | E-EARTH |
| W/BLU-WHITE/BLUE | W/RED-WHITE/RED |

CIRCUIT DIAGRAM

For Dispenser Models

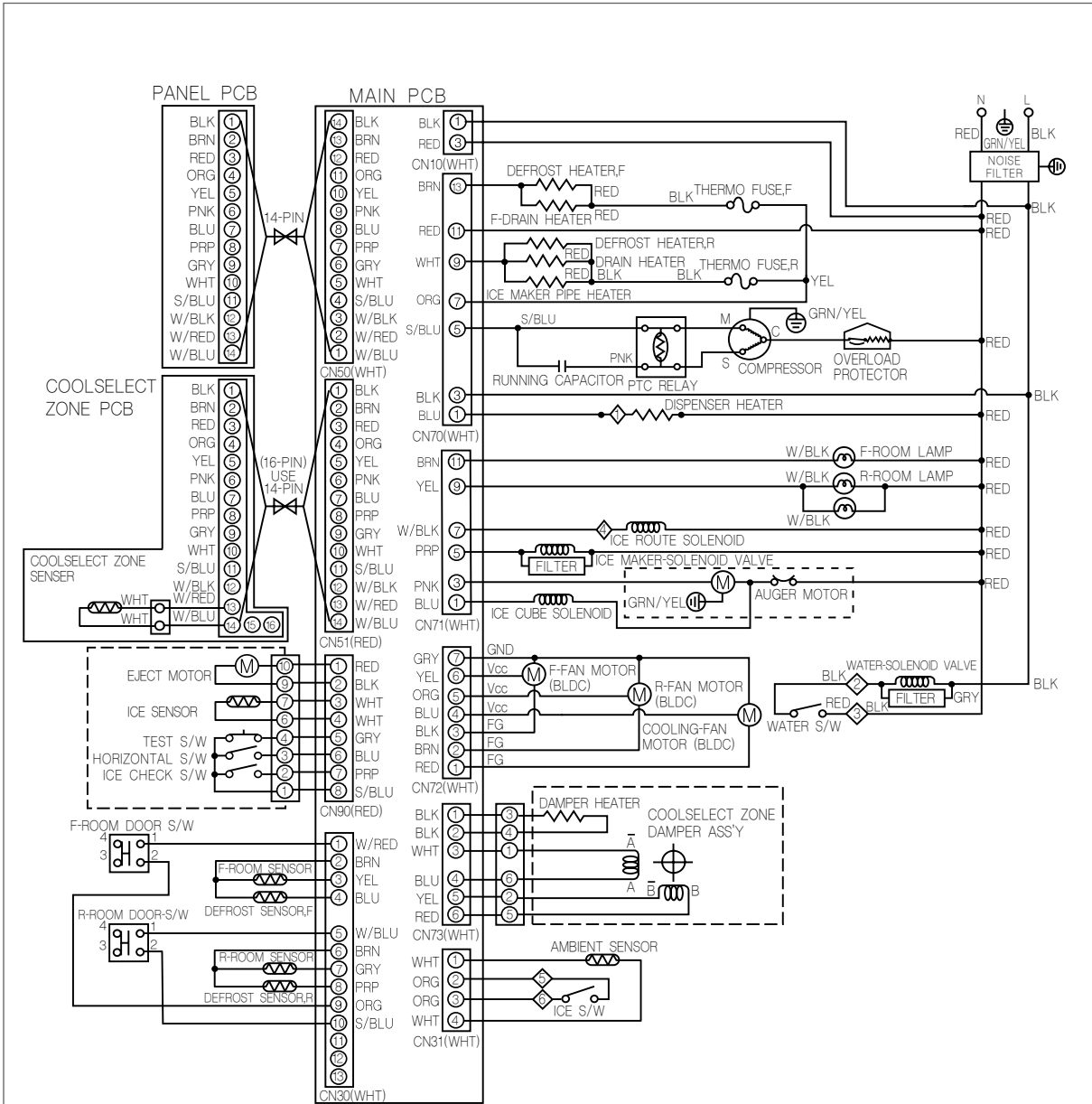


Reference

- | | |
|------------------|-------------------|
| RED-RED | WHT-WHITE |
| BLU-BLUE | YEL-YELLOW |
| ORG-ORANGE | BLK-BLACK |
| P/BLU-PINK/BLUE | PRP-PURPLE |
| BRN-BROWN | W/BLK-WHITE/BLACK |
| PNK-PINK | S/BLU-SKY/BLUE |
| GRY-GRAY | E-EARTH |
| W/BLU-WHITE/BLUE | W/RED-WHITE/RED |

CIRCUIT DIAGRAM

For Dispenser & CoolSelect Zone™ Models



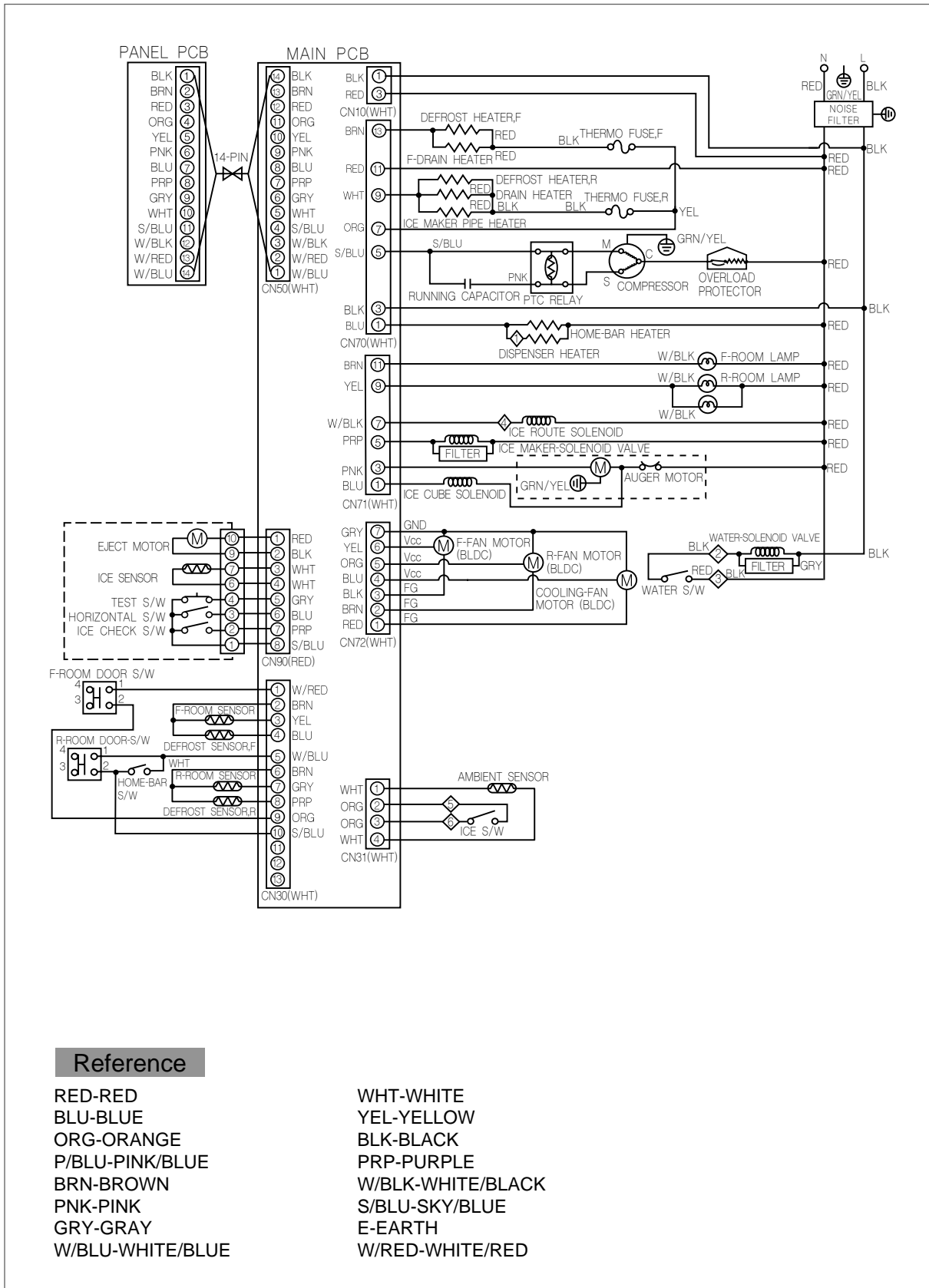
Reference

RED-RED
 BLU-BLUE
 ORG-ORANGE
 P/BLU-PINK/BLUE
 BRN-BROWN
 PNK-PINK
 GRY-GRAY
 W/BLU-WHITE/BLUE

WHT-WHITE
 YEL-YELLOW
 BLK-BLACK
 PRP-PURPLE
 W/BLK-WHITE/BLACK
 S/BLU-SKY/BLUE
 E-EARTH
 W/RED-WHITE/RED

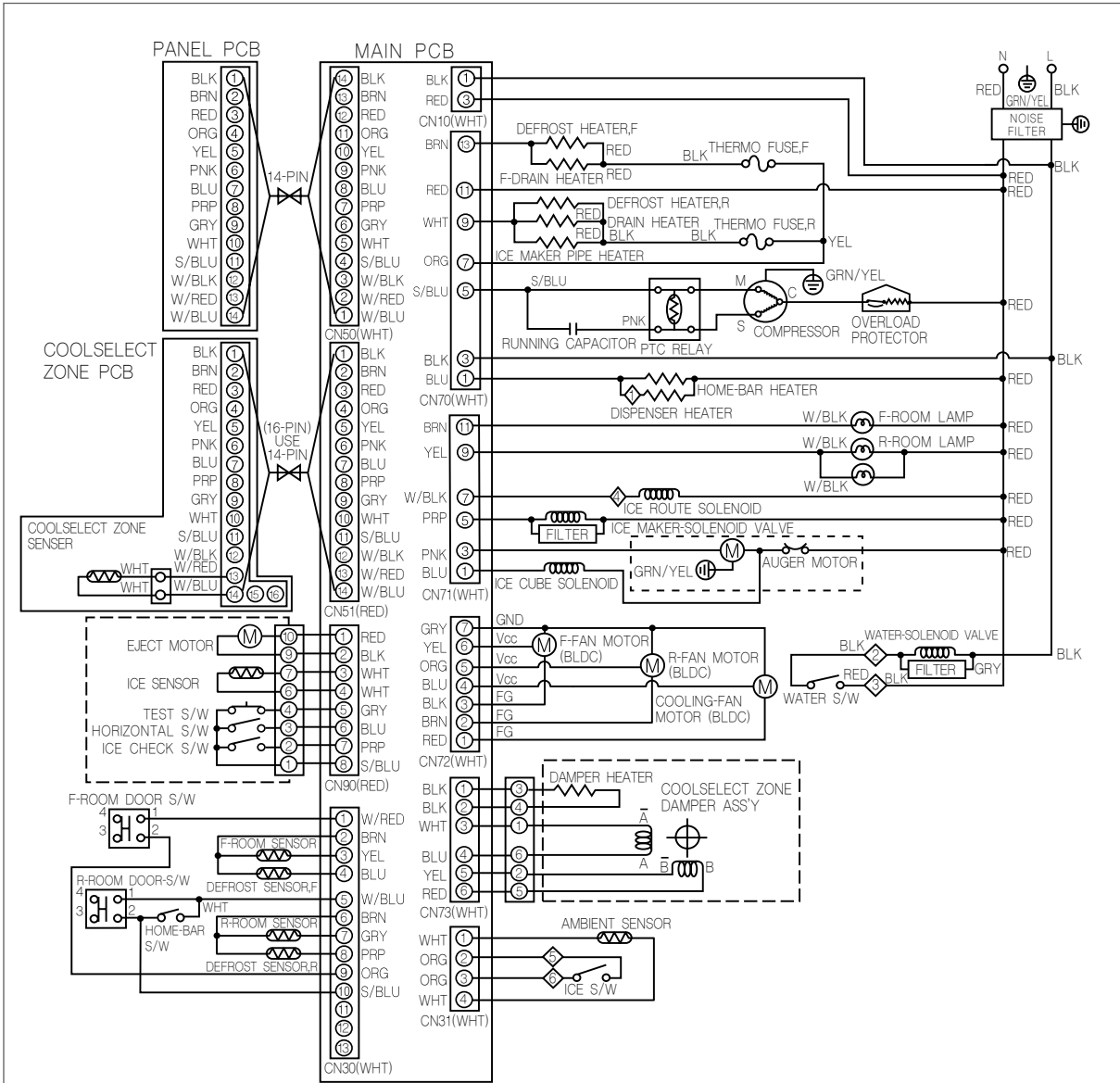
CIRCUIT DIAGRAM

For Dispenser & Home Bar Models



CIRCUIT DIAGRAM

For Dispenser & Home Bar & CoolSelect Zone™ Models



Reference

RED-RED
 BLU-BLUE
 ORG-ORANGE
 P/BLU-PINK/BLUE
 BRN-BROWN
 PNK-PINK
 GRY-GRAY
 W/BLU-WHITE/BLUE

WHT-WHITE
 YEL-YELLOW
 BLK-BLACK
 PRP-PURPLE
 W/BLK-WHITE/BLACK
 S/BLU-SKY/BLUE
 E-EARTH
 W/RED-WHITE/RED