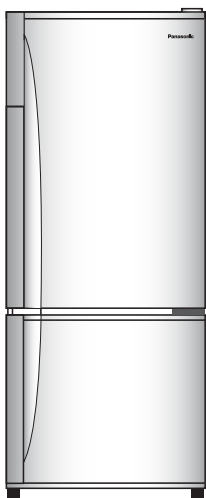


Service Manual

Refrigerator

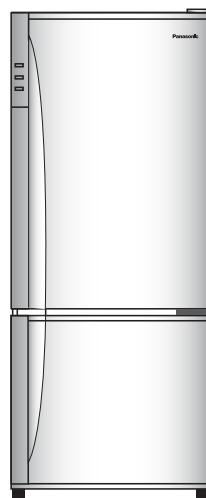
**NR-BW414MN, NR-BW414SS, NR-BW414SN, NR-BW414SW
NR-BW414VS, NR-BW414XN / NR-BW464VS, NR-BW464XN**



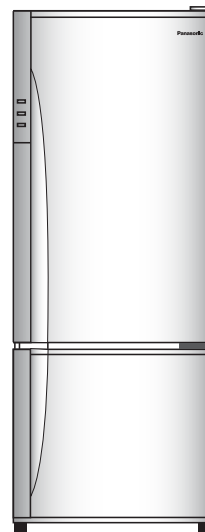
**NR-BW414MN
NR-BW414SS
NR-BW414SN**



**NR-BW414SS
NR-BW414SW
(WG, AE)**



**NR-BW414VS
NR-BW414XN**



**NR-BW464VS
NR-BW464XN**

Product Colour

Silver (SL)
Champagne (SN)
Stainless (ST)

Destination

Malaysia, Hong Kong
Singapore, India, Vietnam
RBD, Indonesia, Philippines
PGF, GULF (Gen)



CFCs have been used in refrigerant as refrigerator and the insulation materials for many years. But it is now known that these compounds which once seemed so ideal for use as cleaning agents and in refrigeration systems, destroy the earth's ozone layer as a result, an international body decided on a total worldwide ban of harmful CFCs by the end of 1995.

⚠ WARNING

The service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

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1. SAFETY CAUTIONS FOR REPAIRING

When you repair the refrigerator, please kindly take care for the following cautions.

1.1 Warning

	<p>Before repairing unit, unplug supply cord</p> <ul style="list-style-type: none"> • Before you repair the refrigerator, please unplug the supply cord.
	<p>Use authentic parts when repairing</p> <ul style="list-style-type: none"> • When you replace the parts, please use authentic parts to replace defective parts.
	<p>Caution during brazing</p> <ul style="list-style-type: none"> • When you use touch for brazing, please ensure ventilation. Otherwise, you will be poisoned by carbon monoxide.
	<p>Pay attention to using refrigerant</p> <ul style="list-style-type: none"> • If refrigerant touches fire, the gas becomes poisonous gas.
	<p>Pay attention to getting electricity shock</p> <ul style="list-style-type: none"> • When you check the voltage of terminal, please do not touch the electricity part terminal. • When you replace the parts, please wait for 3 minutes at least for discharging capacitor.
	<p>Check safety after repairing</p> <ul style="list-style-type: none"> • Check the screws, parts, lead wires to take in place. • Check the repairing portion whether circumferential parts are damaged or not. • Check insulation resistance between supply plug and earth. • When install refrigerator, check condition of supply cord and plug. • Wipe off the dust on plug. • Cutting and seal the electric device carefully.

1.2 Caution

	<p>Watch the hot parts</p> <ul style="list-style-type: none"> • During operation and after operation, compressor and pipes are hot. • Also, under these condition, heater are hot. • Do not burn your fingers when you touch it.
	<p>Pay attention to refrigerant</p> <ul style="list-style-type: none"> • Do not touch liquid refrigerant. Otherwise your hands may be burnt.
	<p>Pay attention to edge of parts</p> <ul style="list-style-type: none"> • Otherwise, your fingers may be cut.
	<p>Pay attention to fins of evaporator and condenser</p> <ul style="list-style-type: none"> • Otherwise, your fingers may be cut.
	<p>Before transportation, adjust the bolt</p> <ul style="list-style-type: none"> • Otherwise, the floor may be damaged.
	<p>Do not touch the pipe after brazing</p> <ul style="list-style-type: none"> • Otherwise, your hands may be burnt.

2.2 NR-BW464VS, NR-BW464XN

MODEL	NR-BW464VS							NR-BW464XN				
	Destination	Malaysia	Hong Kong	India	Vietnam	RBD	Philippines	Indonesia	Malaysia	Hong Kong	Singapore	Vietnam
Code Attached Model	MY	HK	1N	VN	WA	PH	1D	MY	HK	SG	VN	1D
Material Spec.	PCM							Stainless				
Plug	S3P	S3P	B3P	C2P	C2P	A2P	C2P	S3P	S3P	S3P	C2P	C2P
Power Source	240V	220V	230V	220V	220~240V	230V	220~240V	240V	220V	230V	220~240V	220~240V

Specification

Capacity (Total Gross Volume)	463L (FC : 130L, PC : 333L)
Capacity (Total Storage Volume)	372L (FC : 81L, PC : 291L)
External Dimension	675 x 695 x 1769 (mm.) [W x D x H]
Net Weight (Kg.)	67 Kg.
Temperature Control	FC : Electronic control (PCB) PC : Baffle damper thermostat
Defrosting	Full-automatic heater defrost with a timer
Freezer Star Rating	3 stars
Exterior Finish (Cabinet / Door)	PCM colour (Polyester paint coating) Stainless Steel
Inner Liner	Vacuum Formed ABS resin
Insulation	Polyurethane foam (cabinet and door)

Sealed Unit

Compressor (Winding resistance at 20°C)	EFI100E13DGH-CO ECS
Evaporator	Fin Tube Type
Condenser	Wrapper Type (Concealed condenser)
Refrigerant	Type R600a
	Charge 60 ± 5g
Oil Charge	215 ± 5ml (freol S - 10)

Electric Part

Door Switch	Type	D3D-121 (S.P. - S.T.)
	Rating	250V / 0.5A
Fan Motor	Type	Ø 90 mm. prop fan (Box Type)
	Rating	DC 14V / 1.54W
Fan Blade		E14 / 22, 240V / 10W
PTC Relay		No use
Control Board	Type	PAS - B41MV4
Defrost Timer (Electronic PCB Control)		(1) Ambient Temp. over 34°C 8h
		(2) Ambient Temp. 23°C ~ 33°C 8h
		(3) Ambient Temp. under 22°C 13h
		(4) Power ON 4h add
Defrost Heater		MM6-8V34, 230V / 176W
Motor Protector		MM3-20DCW
Running Capacitor		No use
Defrost Sensor (DFC)	Type	NTC
	Rating	B = 3819K ± 2%
		R10 = 3.899KΩ ± 3%
FC Sensor (FCC)	Type	NTC
	Rating	B = 3850K ± 2%
		R20 = 18.9KΩ ± 1.8%
Defrost Thermal Fuse		250V / 10A / 73°C

3. PERFORMANCE DATA

3.1 NR-BW414MN, NR-BW414SS, SN, SW

Thermostat Dial Setting		“ 3 ”	“ 2 ”	“ 1 ”
Mean Fresh Food Compartment Temperature	t3 (°C)	1.0 ± 2.5	4.0 ± 2.5	7.0 ± 2.5
Mean Freezer Load Temperature	(°C)	-23.5 ± 2.5	-20.0 ± 2.5	-15.0 ± 2.5
Vegetable Crisper Temperature	(°C)	-	5.5 ± 2.5	-
PC Door Shelf Upper Temperature	(°C)	-	-	-
Egg Tray Temperature	(°C)	-	7.0 ± 2.5	-
PC Door Shelf Bottom Temperature	(°C)	-	6.0 ± 2.5	-
Running Ratio	(%)	75 ± 15	60 ± 15	45 ± 15
Power Consumption	(KWh/Day)	2.1		

3.2 NR-BW414VS, NR-BW414XN

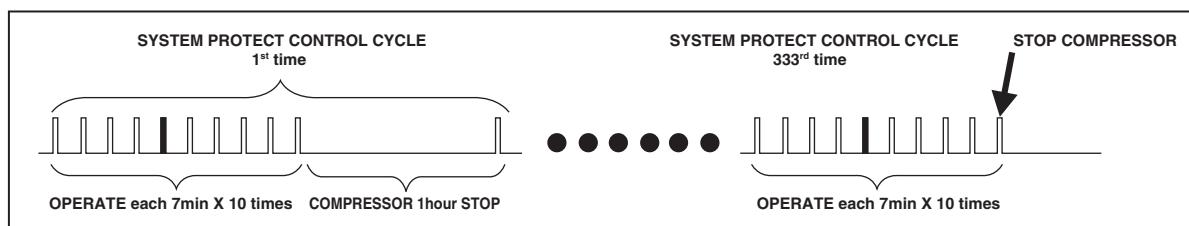
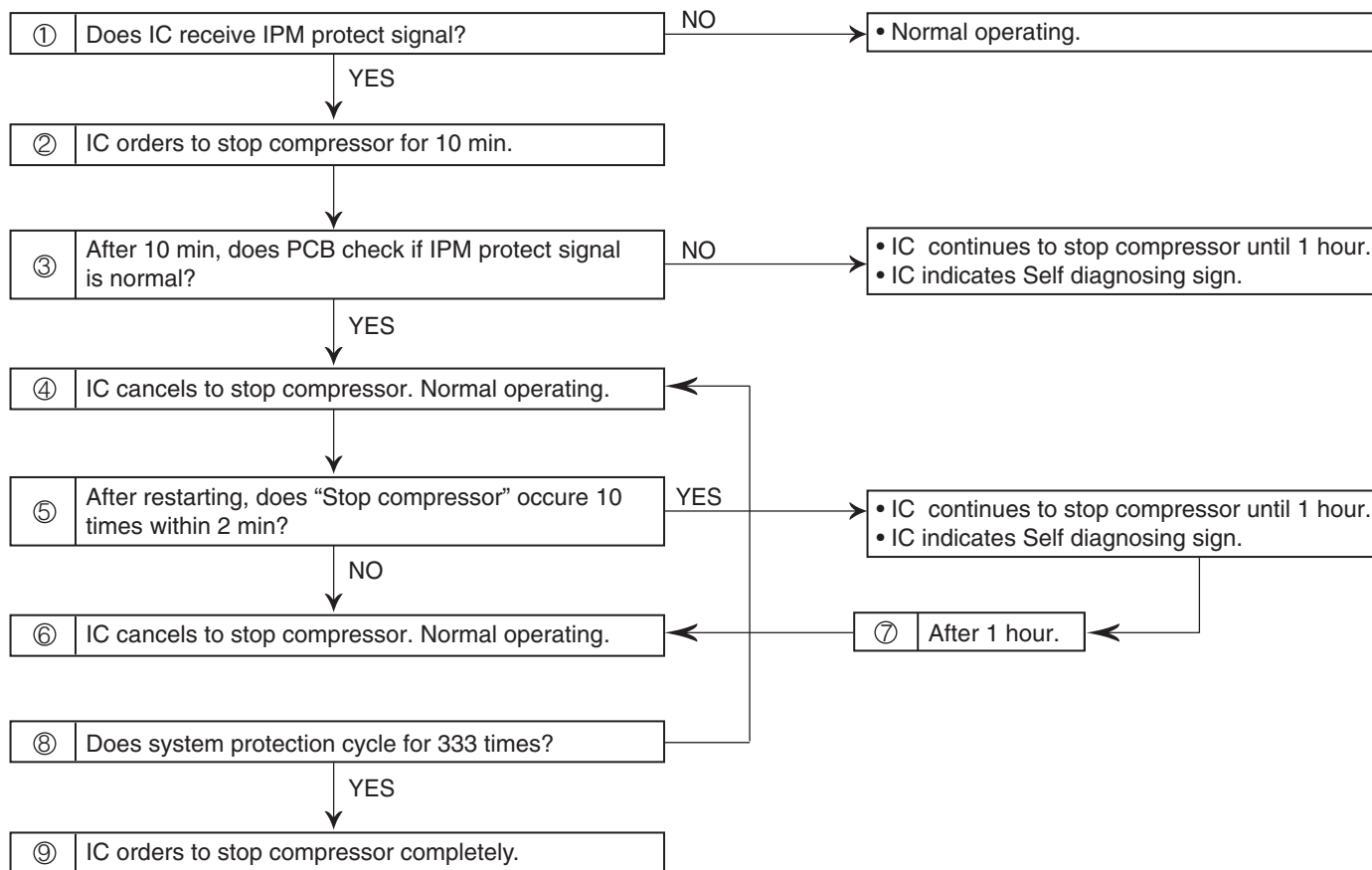
Thermostat Dial Setting		“ 3 ”	“ 2 ”	“ 1 ”
Mean Fresh Food Compartment Temperature	t3 (°C)	1.0 ± 2.5	3.5 ± 2.5	7.0 ± 2.5
Mean Freezer Load Temperature	(°C)	-22.0 ± 2.5	-19.5 ± 2.5	-15.0 ± 2.5
Vegetable Crisper Temperature	(°C)	-	4.5 ± 2.5	-
PC Door Shelf Upper Temperature	(°C)	-	-	-
Egg Tray Temperature	(°C)	-	7.0 ± 2.5	-
PC Door Shelf Bottom Temperature	(°C)	-	5.0 ± 2.5	-
Running Ratio	(%)	85 ± 15	75 ± 15	60 ± 15
Power Consumption	(KWh/Day)	1.8		

3.3 NR-BW464VS, NR-BW464XN

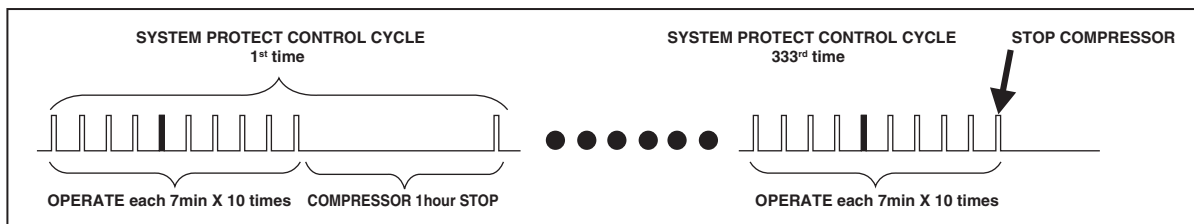
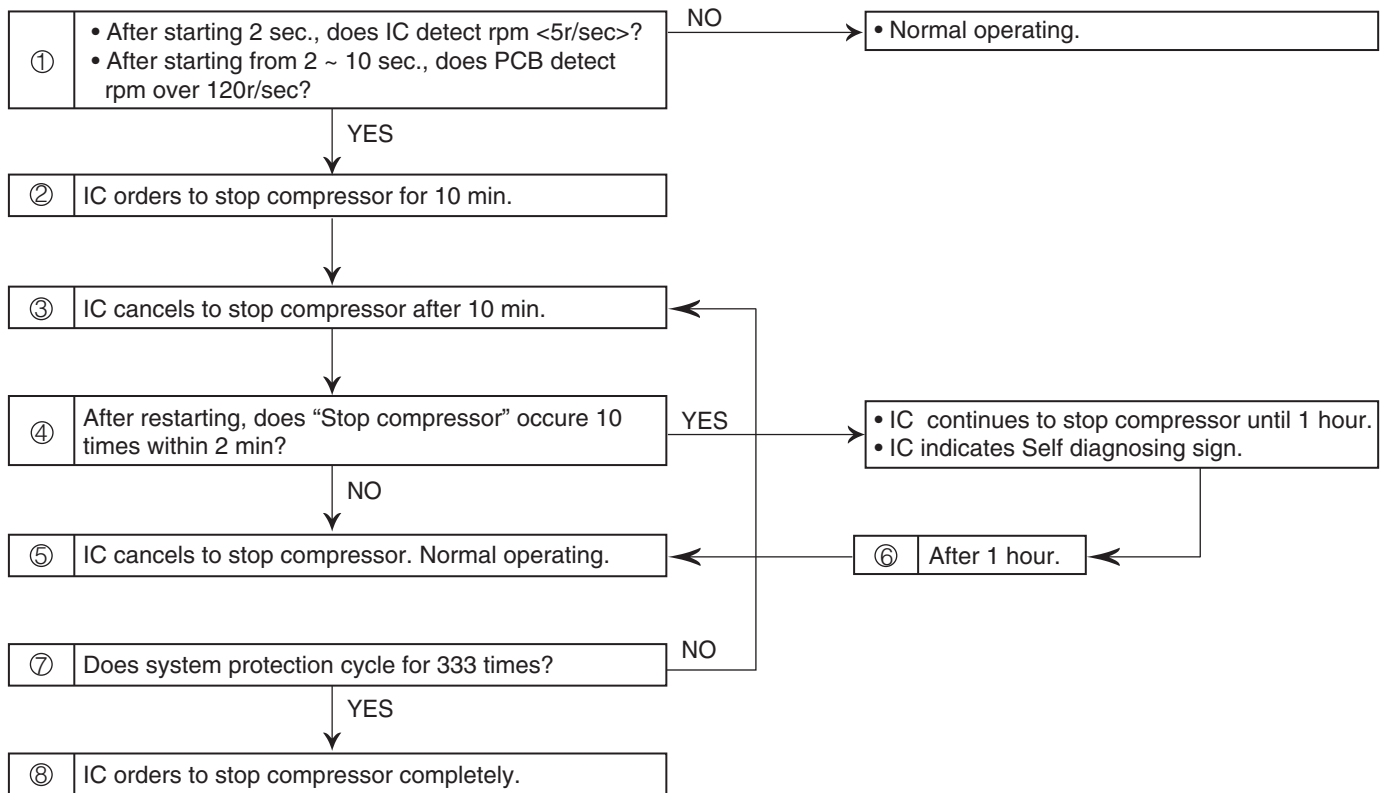
Thermostat Dial Setting		“ 3 ”	“ 2 ”	“ 1 ”
Mean Fresh Food Compartment Temperature	t3 (°C)	1.0 ± 2.5	4.0 ± 2.5	7.0 ± 2.5
Mean Freezer Load Temperature	(°C)	-22.0 ± 2.5	-19.5 ± 2.5	-16.0 ± 2.5
Vegetable Crisper Temperature	(°C)	-	4.5 ± 2.5	-
PC Door Shelf Upper Temperature	(°C)	-	8.0 ± 2.5	-
Egg Tray Temperature	(°C)	-	4.0 ± 2.5	-
PC Door Shelf Bottom Temperature	(°C)	-	5.0 ± 2.5	-
Running Ratio	(%)	85 ± 15	75 ± 15	65 ± 15
Power Consumption	(KWh/Day)	1.8		

4. SELF PROTECTING FUNCTION

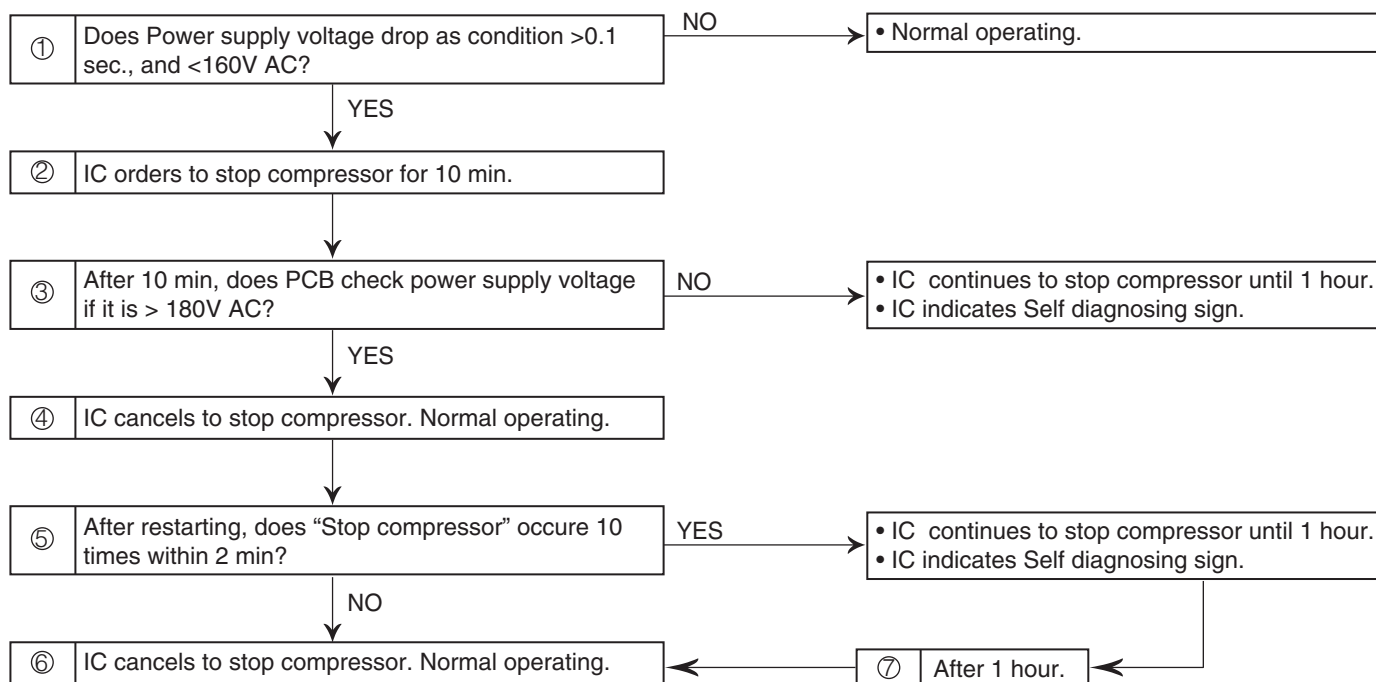
4.1 Protection for IC



4.2 Protection for compressor locked



4.3 Protection for power supply dropping

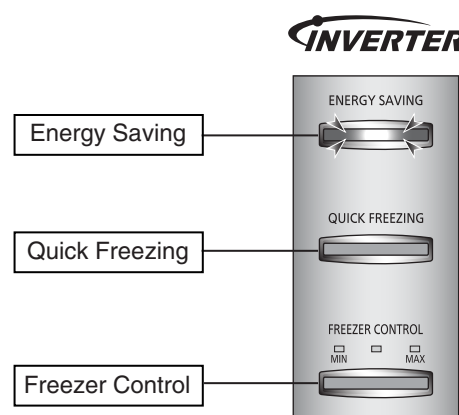


5. SELF DIAGNOSING FUNCTION

When abnormalist is cased in the refrigerator, the sign is display on LED as below chart.

How to use “Self diagnosing function”

1. Opening PC door and FC door, push “Quick Freezing” bottom more than 5 sec.
2. Blinking LED of “Energy Saving” and “Quick Freezing” during 3 sec.
3. After blinking at 3 sec., each LED show as below.
4. “Self diagnosing function” will automatically cancel after 7 min., from start operation.



Symptom	Details of symptom	Energy Saving LED	Quick Freezing LED	Freezer Control LED
Normal		None	None	None
Abnormal of FCC thermistor	Break/short of FCC thermistor	None	Blinking	None
Abnormal of DFC thermistor	Break/short of DFC thermistor	None	Turn on	None
Abnormal of ATC thermistor	Break/short of ATC thermistor	Blinking	Turn on	None
Abnormal of FC fan motor	Break/lock of FC fan motor Abnormal revolution of FC fan motor	Turn on	Turn on	None
Abnormal of Defrost heater in FC	Break/short of Defrost heater	Turn on	None	None
Abnormal of INV compressor	Operate protector of IPM lock Operate protector of voltage dropping Operate protector of over voltage	Turn on	Blinking	None
Abnormal of PCB	Error of communication Error of EEPROM	Blinking	Blinking	None
Refrigerating unit trouble	Gas leakage at high pressure side poor compression	None	None	MAX blinking
Refrigerating unit trouble	Gas leakage at low pressure side	None	None	MIN blinking

6. TEMPERATURE CONTROL

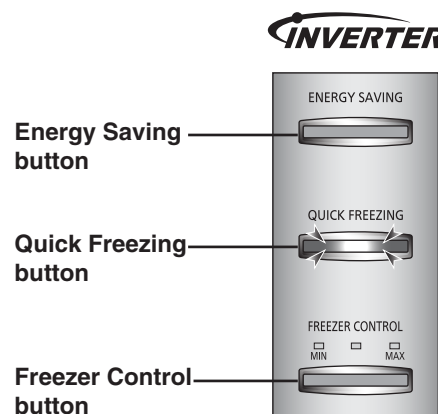
6.1 How to operate “QUICK FREEZING” (Quick cool button)

If you want the refrigerator to freeze quickly in order to preserve the food, press the “Quick Freezing” button (Green light LED turns ON).

The system will operate immediately and will stop operating automatically (Green light LED turns OFF), when it runs for 150 minutes. And the operation will return to normal mode.

Remark

- If you want to stop the operation, press the “Quick Freezing” button (Green light LED turns OFF).
The system will return to normal mode.
- If the green light LED is flashing, it means that the defrosting system is now working. The quick freezing system will start the operation right after the defrosting operation is finished.



6.2 How to use the “ENERGY-SAVING” operation

When food storage is small, or during nighttime and people out of home (when door opening frequency is low), the “ENERGY-SAVING” operation saves electricity consumption by operating the compressor at a lower speed than the normal operation.

6.3 How to save energy

- Press the “ENERGY SAVING” button. (Green light turns ON)
- Press the “ENERGY SAVING” button again to stop the operation. (Green light turns OFF)

6.4 About energy saving

- Deodorizing function reduces.
- Interior temperature gets slightly higher.
- Frequent opening of the doors raise the interior temperature.
(Higher interior temperature automatically activates normal operation on a temporary basis).
- When the “ENERGY SAVING” is activated during “QUICK FREEZING”, the “ENERGY SAVING” starts after completing the “QUICK FREEZING”.
- The “ENERGY SAVING” operation stops when the power cord is reconnected or after recovering from a power failure.

7. REFRIGERATOR INSTRUCTION GUIDELINES

1. Do not open the refrigerator frequently or leave it opened for a long time. This is to prevent water dipping inside the refrigerator which will cause the waste of coolness and consuming of energy.
2. Do not refrigerate unnecessary items or hard-to-rot foodstuff such as pumpkin, shallot, garlic, potato as it will make the refrigerator to work overload and waste the storage space without necessity.
3. Adjust the temperature according to the actual operating condition for energy saving.
4. Do not refrigerate the bottle bigger than the door shelf or the tray as the door will not close completely causing the coolness leakage.
5. Frequently check the door opening seal, it must be closed to the refrigerator's body completely.
Do not leave the seal dirty or damaged or deteriorated as the coolness will leak and will cause the consuming of the energy without necessity.
6. If you will not be at home for several days or there are nothing refrigerated in the refrigerator, the plug should be disconnected for energy saving. In this case, clean the refrigerator and leave it half-open to prevent bad odor.
7. Clean the drain tray located over the compressor at the back of the refrigerator every three months to prevent the odor generated from humidity.
8. Energy saving dryer pipes and heating pipes embedded around the refrigerator cabinet are helping to prevent "Sweating" on the outer surface of the cabinet without consuming the energy.
This will make the outer wall of the refrigerator gets warm and is not a malfunction.
9. Drinking water bottles, beverage bottles such as soft drink and fruit juice should be seal closely to prevent odor gets into the bottles.

Before calling for servicing, please check as follows.

The refrigerator does not operate.

- * Check to be sure that the plug and its socket are in good conditions.
- * Check to see if there is any problem on main fuse and electricity system in the house or not.

The cooling does not function properly.

- * Check to be sure that the temperature control button is at the proper position.
- * Check to see if the refrigerator is overloaded with stuff or there is any hot foodstuff refrigerated in it or not.
- * Is the refrigerator located exposing directly to sunlight or heat source?
- * Is the refrigerator door closed completely? Is the refrigerator opened frequently?

Vapor generated inside and outside the cabinet

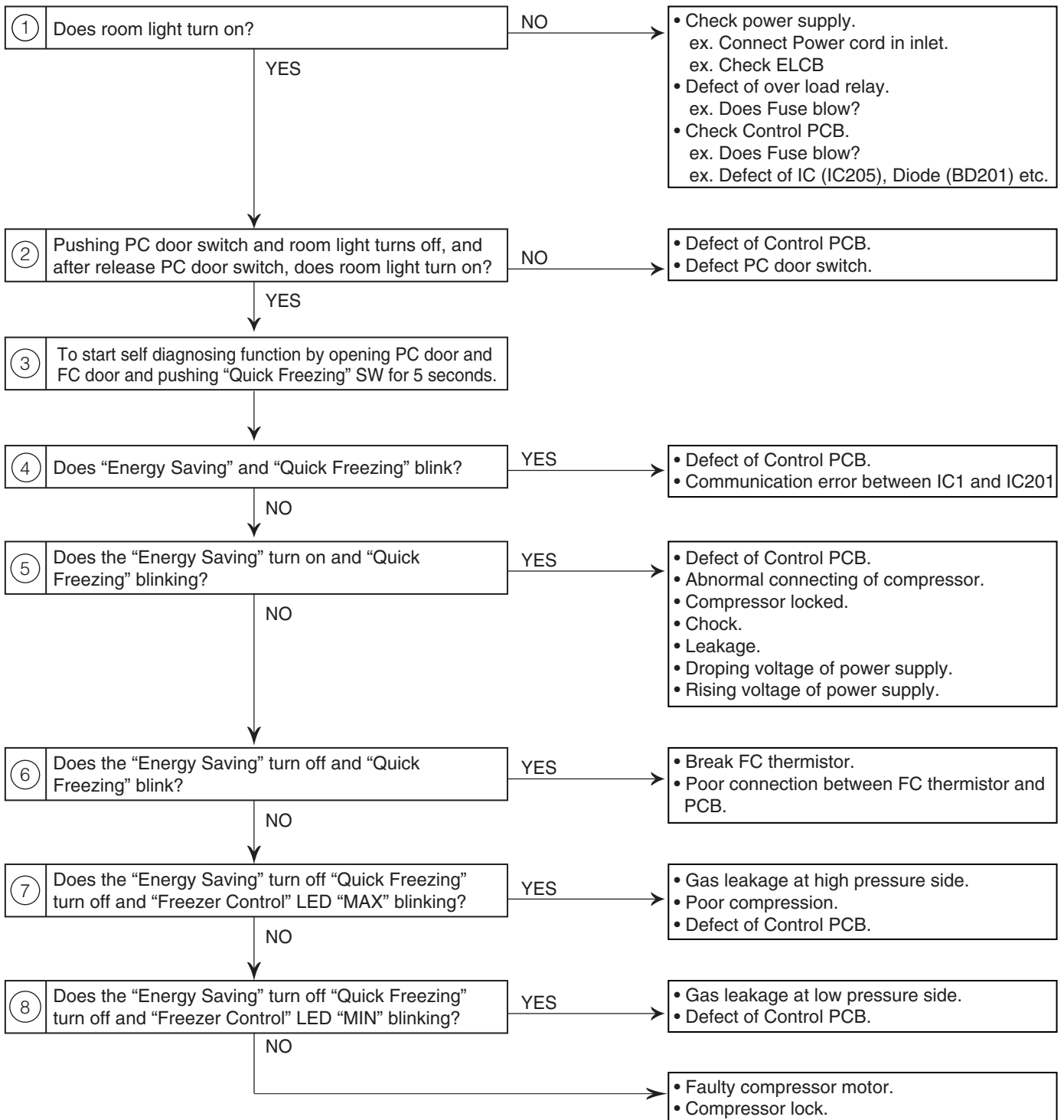
- * There could be the vapor outside the cabinet if the weather is humid as it is in rainy season or the air circulation is not good.
- * If there is vapor in the refrigerator, check to see that the door is completely closed or not. Is the refrigerator frequently opened or left opened for a long time? Is there any hot foodstuff refrigerated in it?

The refrigerator generates noise.

- * Check to see if the refrigerator is located on stable floor or is located evenly.
- * Check to see if there is any object contact with the refrigerator.

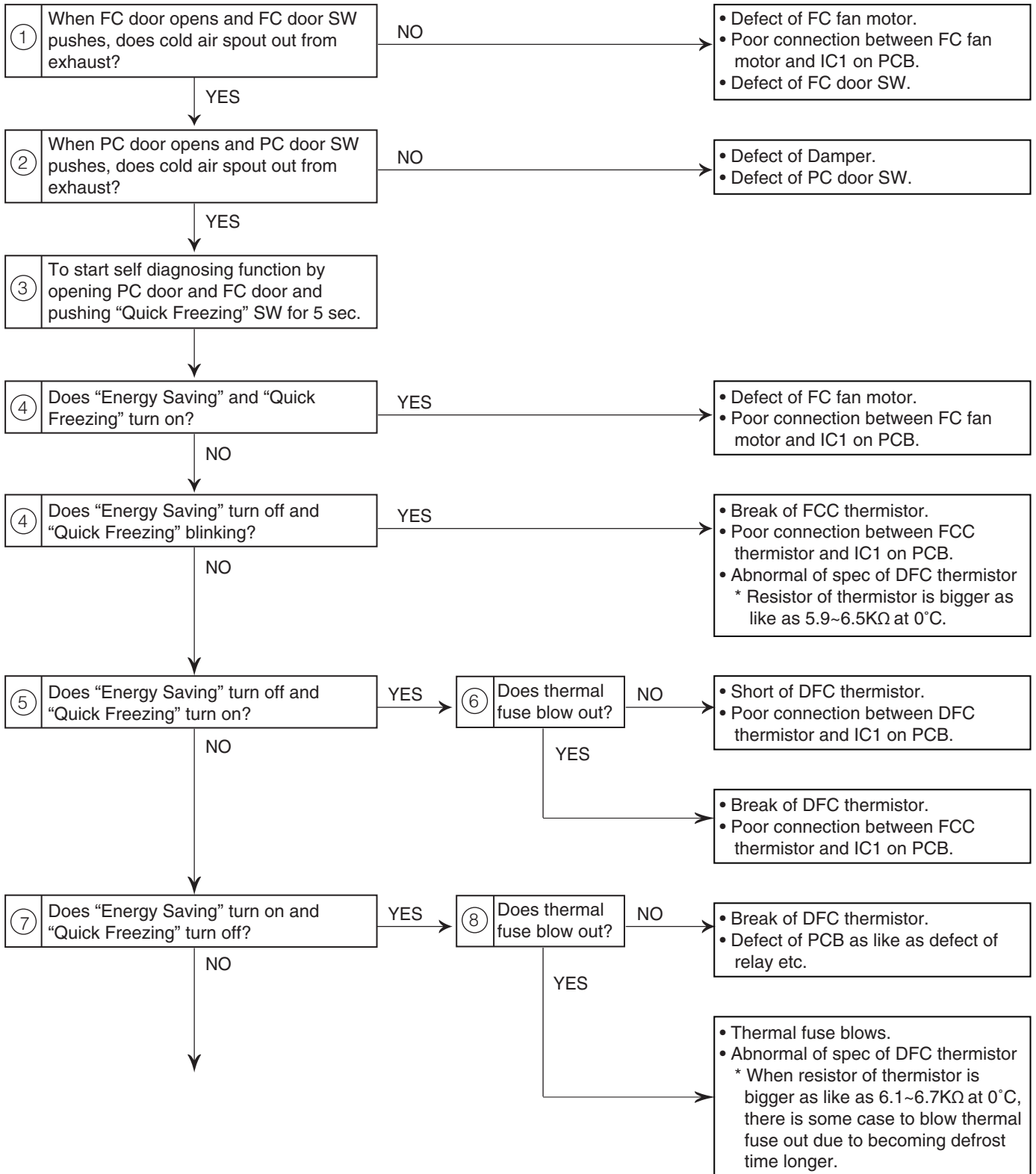
8. TROUBLESHOOTING GUIDE

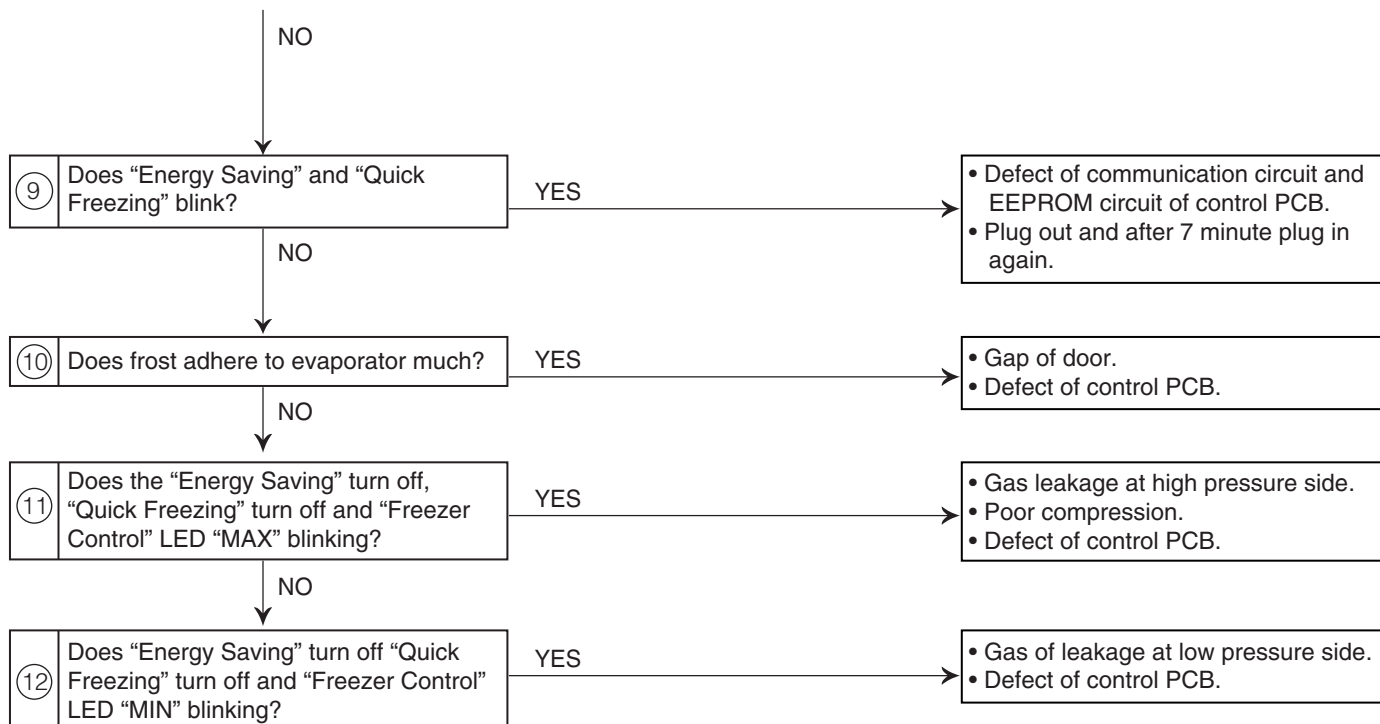
8.1 Not cool at all. [Both PC and FC (compressor does not operate)]



8.2 Cool, not enough. [Both PC and FC (compressor operates)]

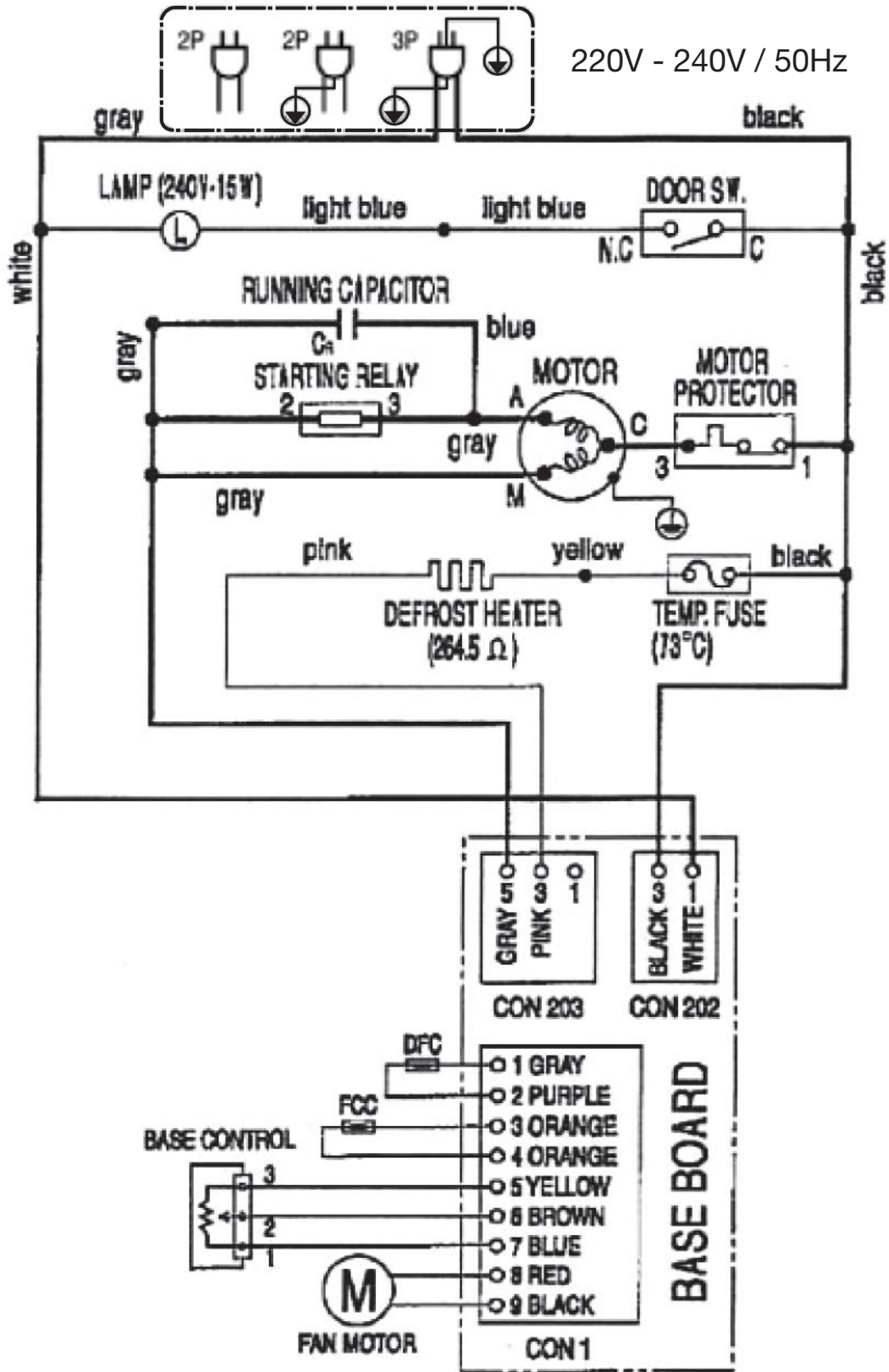
To confirm when compressor is operating.



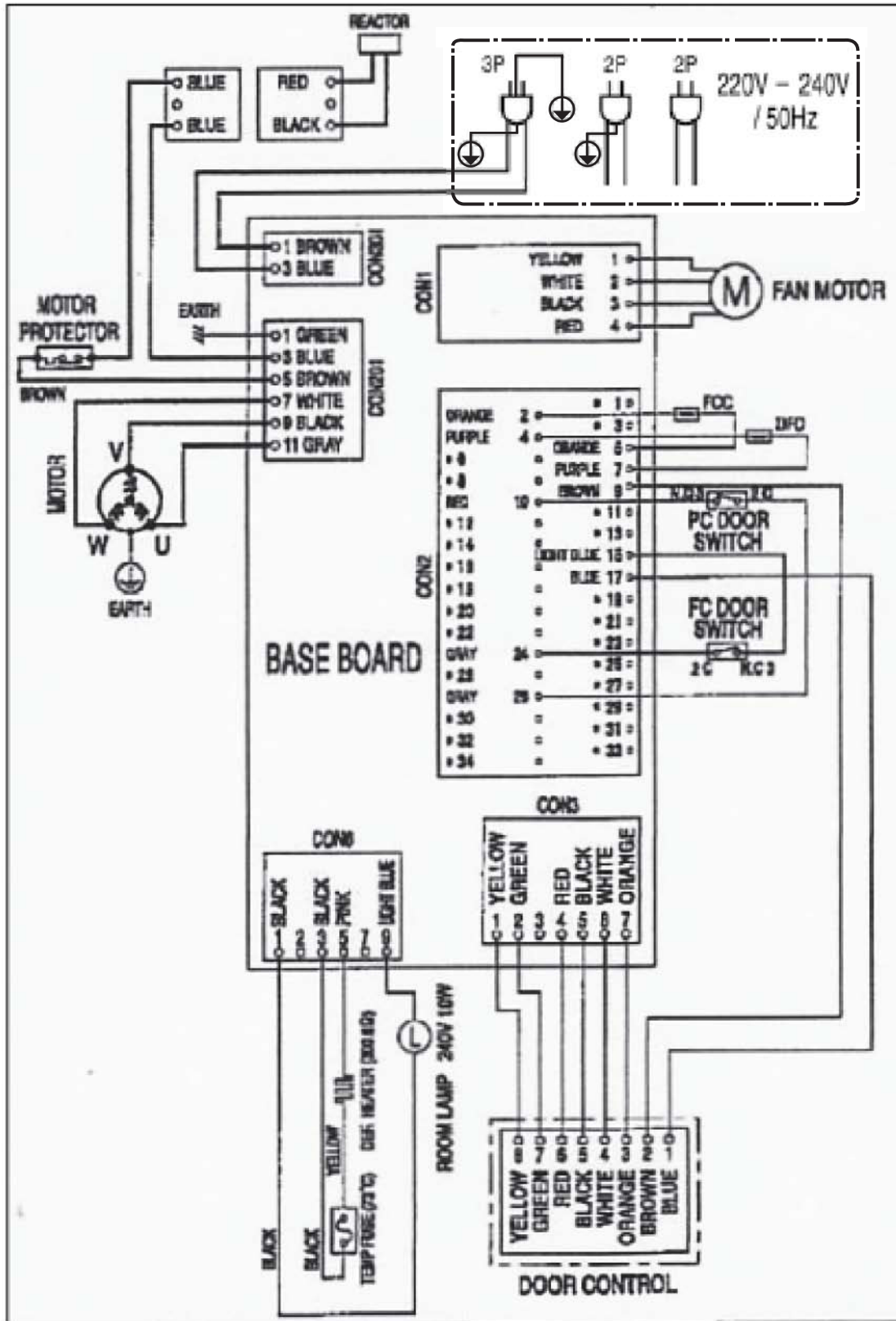


9. SCHEMATIC DIAGRAM

9.1 Wiring Connection : NR-BW414MN, NR-BW414SS, SN, SW



9.2 Wiring Connection : NR-BW414VS, NR-BW414XN, NR-BW464VS, NR-BW464XN



10. DISASSEMBLY INSTRUCTION

10.1 Cover Control



Fig. 1



Fig. 2

- Take out by use screwdriver put at hole of lock between PC Door Complete with Cover Control and push it loose. (as Fig. 1)
- Then use another hand lift it up slowly. (as Fig. 2)

10.2 PAS Control



Fig. 3



Fig. 4

- Take out PAS Control by use screwdriver put at hook of Cover Control and push it up. (as Fig. 3)
- After take out PAS Control loose at the first hook use screwdriver push at next hook. (as Fig. 4)
- While push the hook, have to use another hand pull PAS Control up.

11. REPAIRING PROCEDURE

Solving FC door over lab



Fig. 1

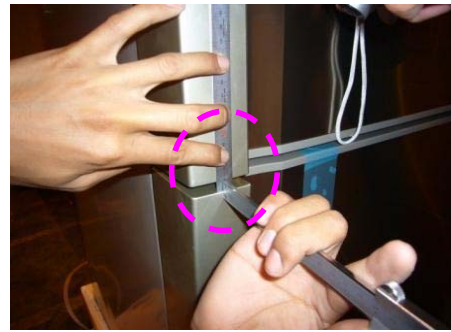


Fig. 2

- To check FC door protruded out with PC door. (Spec : Not more than 1.0 mm.)

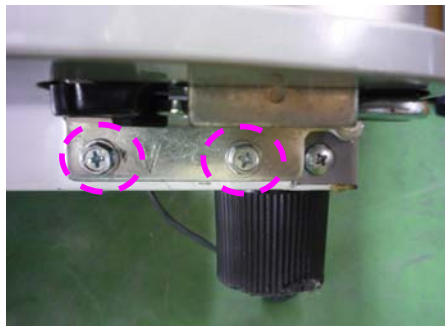


Fig. 3

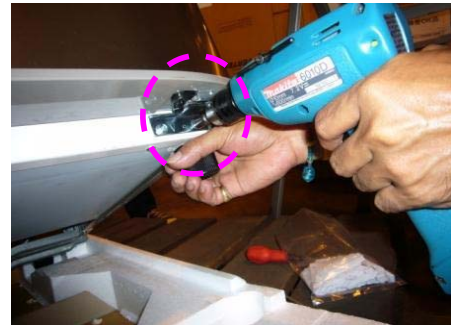


Fig. 4

- To take off the 2 screws of hinge bottom.

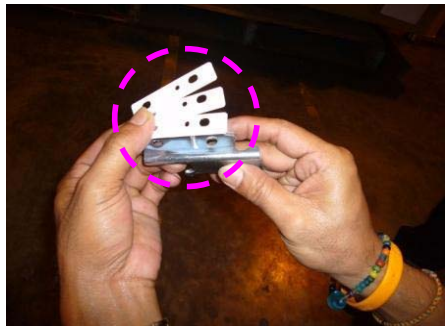


Fig. 5



Fig. 6

- To add shim size 1 mm., with hinge bottom and re-ass'y to FC Door.
 Note : 1) Add shim 2 pcs, Condition FC Door over lab actual 1.5~3.0 mm.
 2) Add shim 3 pcs, Condition FC Door over lab actual more 3.0 mm.



Fig. 7



Fig. 8

- To checking both PC and FC door alignment "OK".

12. TECHNICAL INFORMATION

12.1 NR-BW414MN, NR-BW414SS, SN, SW (Non Inverter)

• PC Cooling not enough / Ice forming

1. Symptom of the problem

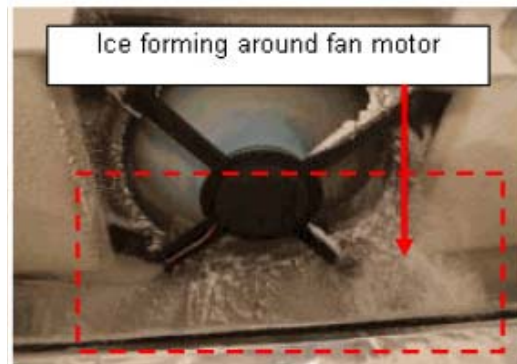
PC cooling not enough by ice forming.

2. Cause

Fan motor does not work due to ice forming,
stuck to fan motor area.

Fan motor can't blow cold air.

Then PC temperature is insufficient.



3. Detail of countermeasure / TI No. : REF 12-01

Protect ice-forming to fan motor areas.

1) Add new insulation plate : Kit Part No. WS-08x100x250MM 1 pcs. to INS rear of cover coil.

2) Add new insulation plate : Kit Part No. WS-08x100x250MM 1 pcs. to rear side of coil EVP.

3) Add deflector Part No. BF161020 1 pcs to tube of coil EVP.

4) Replace Pas-control Part No. CNRBG-166465.

** Refer to page 21-22 for how to modify countermeasure in your field.

4. Description part addition / compatibility

Status	Ref.	Part Name	Description	Q'ty
New		Countermeasure kit	CNRBG166465KT	1 Unit
	1	Insulation plate	WS-08x100x250MM	2 Pcs
	2	Cable tie	N/A	1 Pcs
	3	Deflector	BF161020	1 Pcs
Replace	4	PAS-B37M4 (control)	CNRBG-166465	1 Pcs

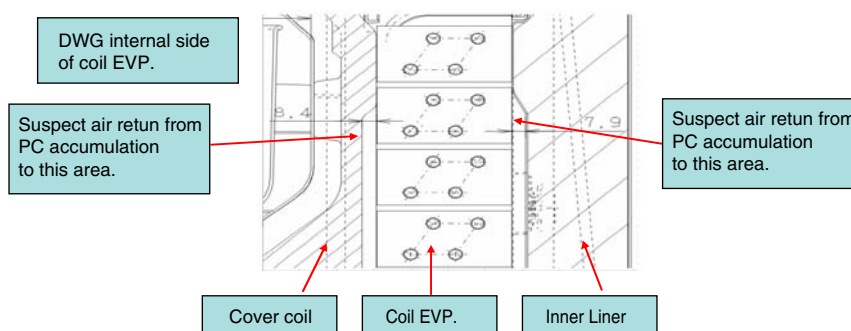
5. Instruction of the modification in your field

• Estimate cause

Circulated air from PC doesn't pass into evaporator, pass on only surface.

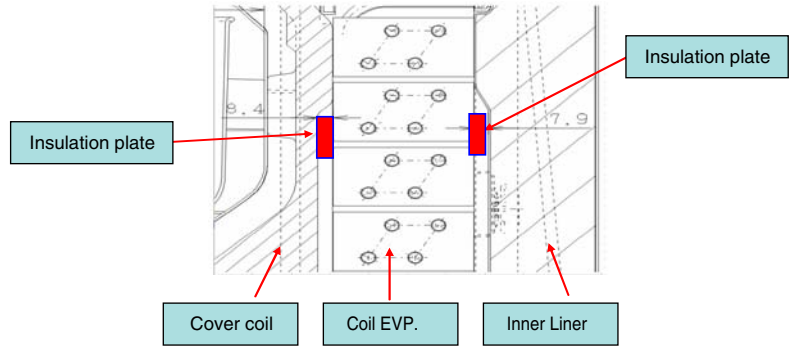
Therefore circulated air doesn't become to be dried, then circulated air form FC is provided with humidity and comes out in fan motor area.

This area temperature is very cold,
so that humidity in circulated air
will become ice and ice forming.

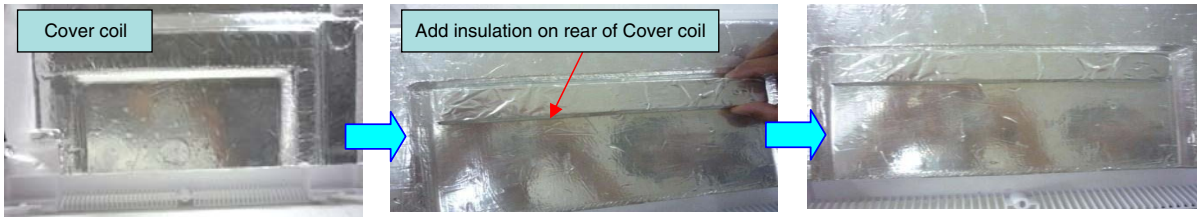


• Countermeasure No. 1

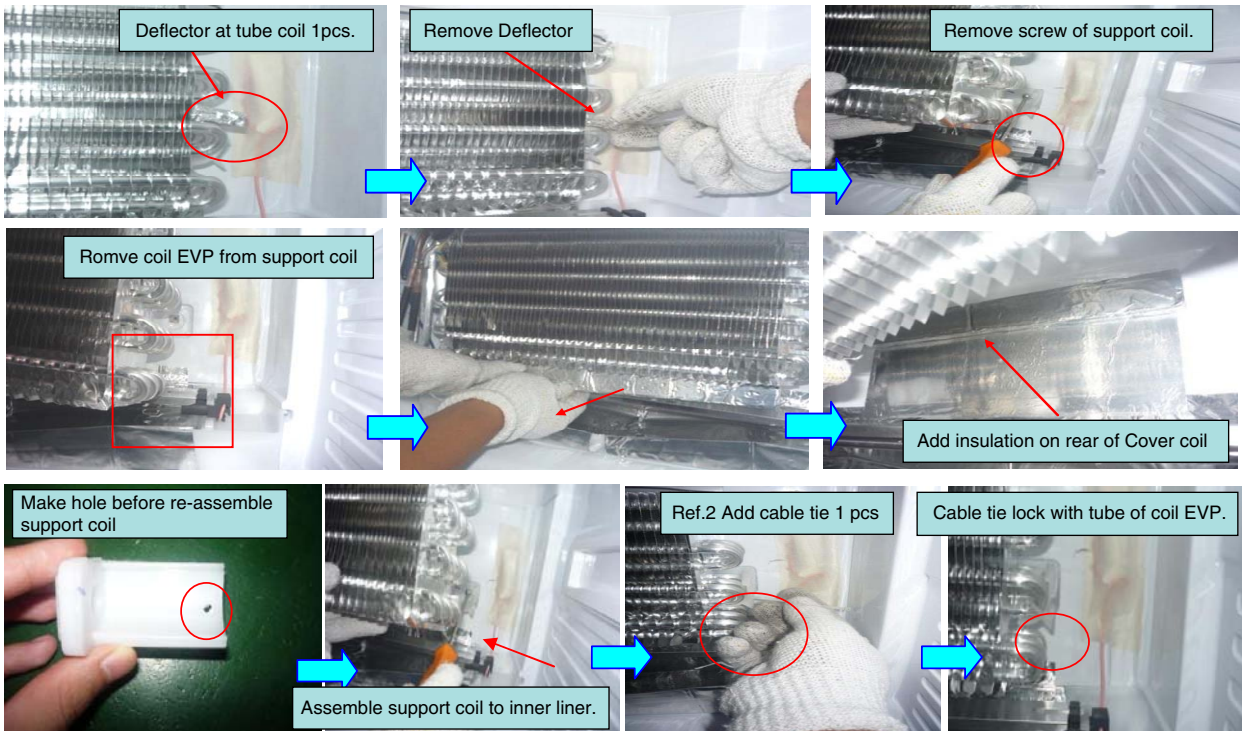
To add insulation plate 2 pcs on cover coil and inner liner as below instruction.



1.1 To add insulation on rear of cover coil.

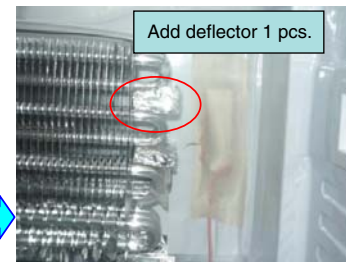
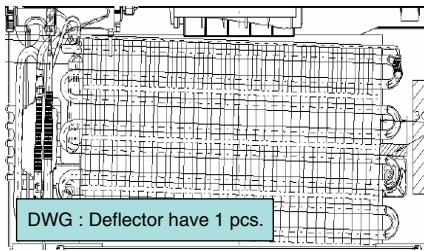


1.2 To add insulation on inner liner.



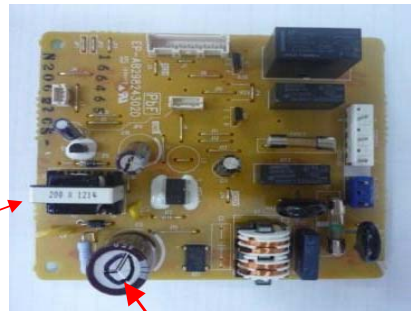
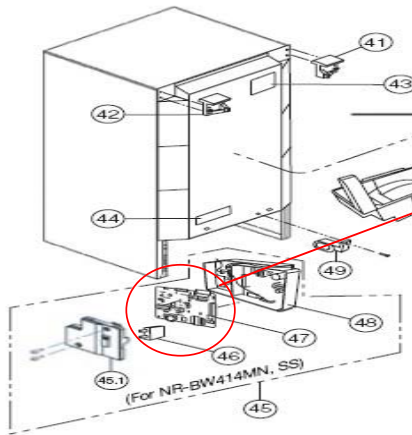
• Countermeasure No. 2

2.1 To add one deflector



• Countermeasure No. 3

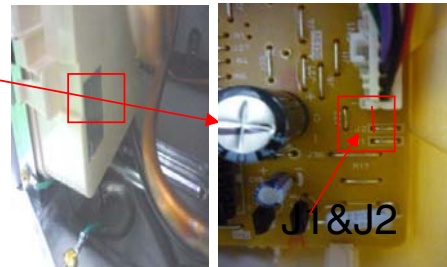
3.1 Pas control CNRBG-166465 replace.



New PCB control have circle marking on top of Capacitor spec 450V.

6. Manual defrosting information

- 1) Remove AL. foil tape.
- 2) Short circuit J1 & J2.
Heater defrost will be on.
- 3) After cleaned ice forming,
compressor and fan motor will be operated.



7. After assemble part to unit completed, please check whether function is OK as follows.

- 1) Lamp is on.
- 2) Compressor is working.
- 3) Fan motor is on and working.

12.2 NR-BW414VS, NR-BW414XN, NR-BW464VS, NR-BW464XN (Inverter)

• PC Cooling not enough / Ice forming

1. Symptom of the problem

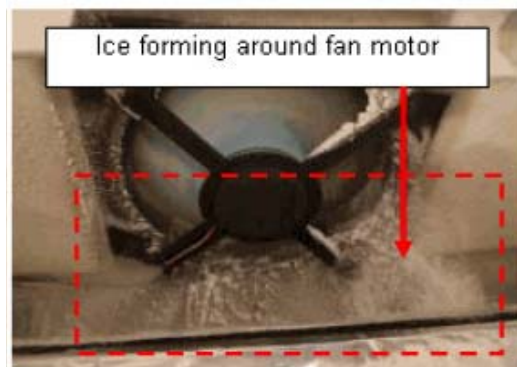
PC less cooling.

2. Cause

Fan motor does not work due to ice forming, stuck to fan motor area.

Fan motor can't blow cold air.

Then PC temperature is insufficient.



3. Detail of countermeasure / TI No. : REF 12-02

Protect ice-forming to fan motor areas.

1) Add new insulation plate : Kit Part No. WS-08x100x250MM 1 pcs. to INS. rear of cover coil.

2) Add new insulation plate : Kit Part No. WS-08x100x250MM 1 pcs. to rear side of coil EVP.

3) Add deflector Part No. BF161020 1 pcs to tube of coil EVP.

4) Replace Pas-control Part No. CNRBG-170061.

** Refer to item instruction of the modification in your field. (Page 24-26)

4. Description part addition / compatibility

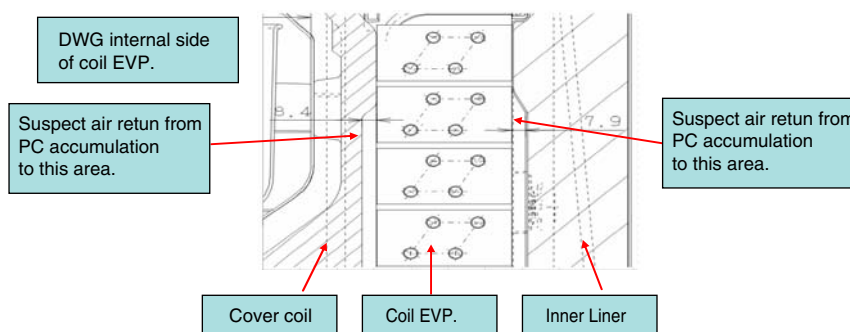
Status	Ref.	Part Name	Description	Q'ty
New		Countermeasure kit	CNRBG170061KT	1 Unit
	1	Insulation plate	WS-08x100x250MM	2 Pcs
	2	Cable tie	N/A	1 Pcs
	3	Deflector	BF161020	1 Pcs
Replace	4	PAS-B41MV4 (control)	CNRBG-170061	1 Pcs

5. Instruction of the modification in your field

• Estimate cause

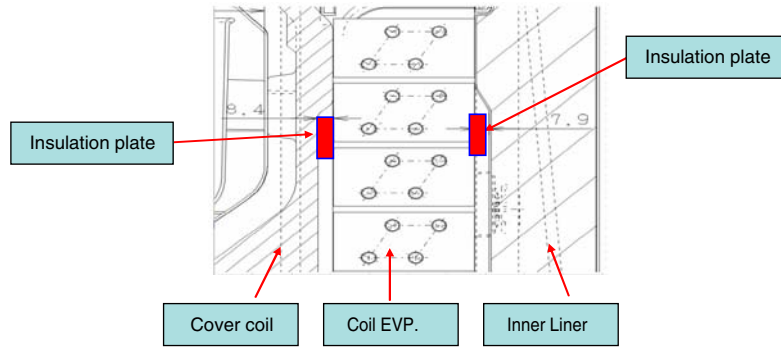
Circulated air from PC doesn't pass into evaporator, pass on only surface.

Therefore circulated air doesn't become to dried, then circulated air form FC is provided with humidity and comes out in fan motor area. This area is very cold, so that humidity in circulated air will become ice and ice forming.

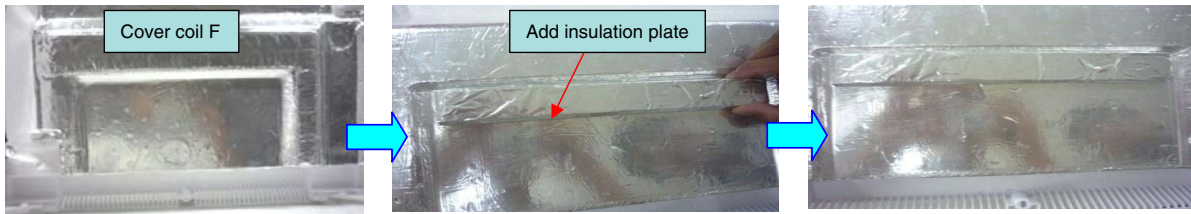


• Countermeasure No. 1

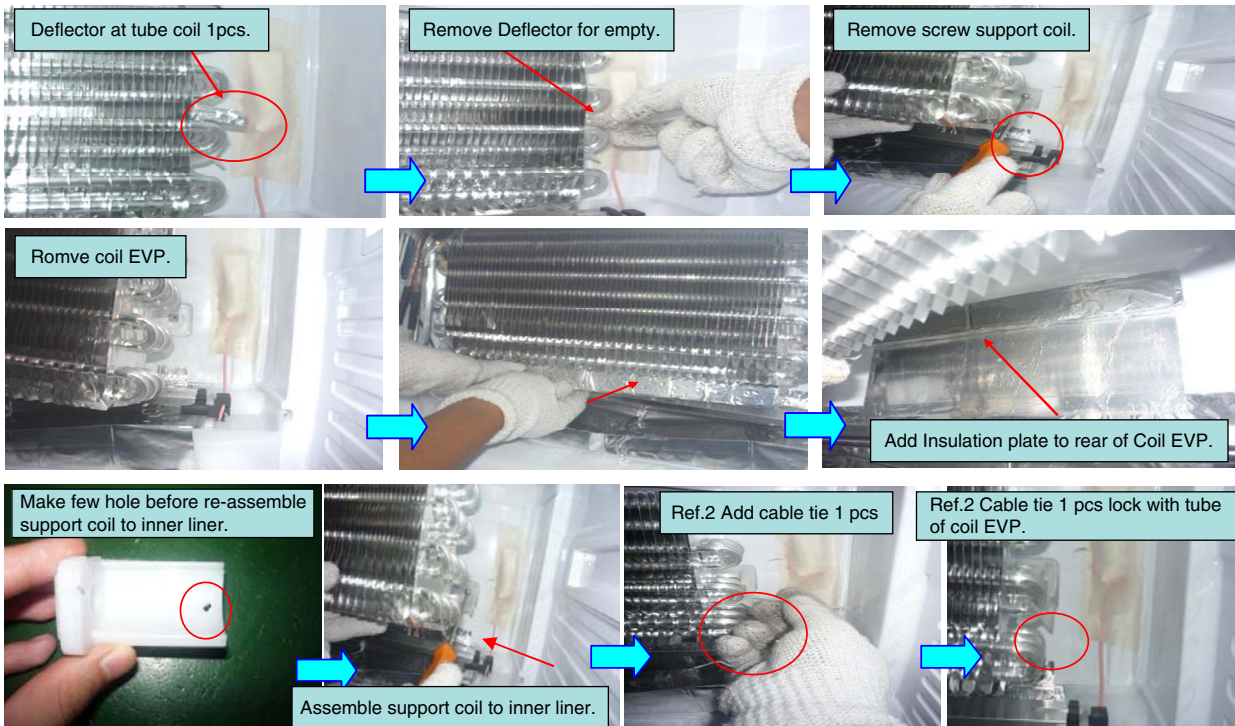
To addition insulation plate 2 pcs on cover coil and inner liner as below instruction.



1.1 To addition insulation plate on rear of cover coil.

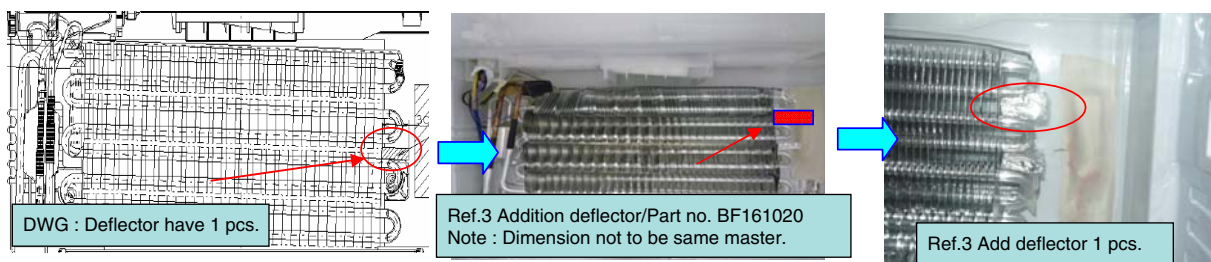


1.2 To addition insulation on inner liner.



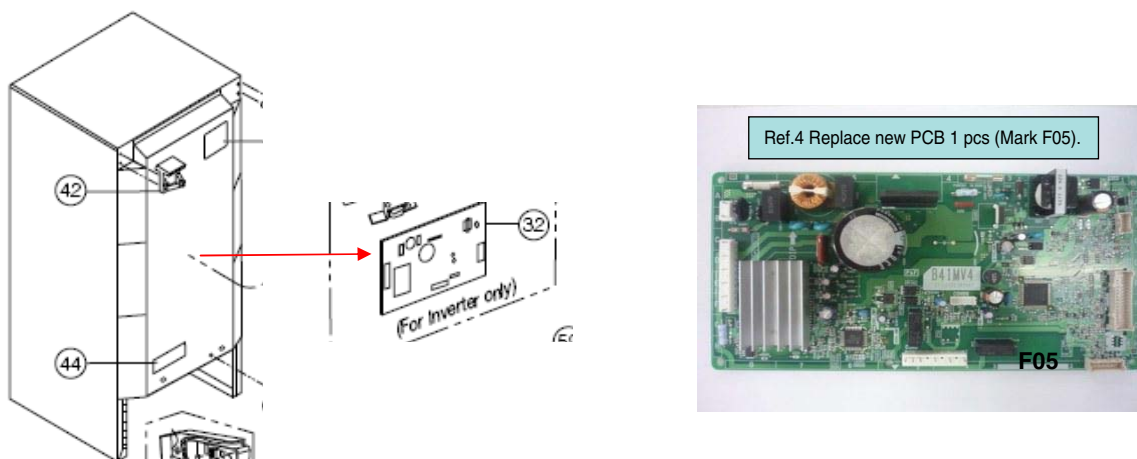
• Countermeasure No. 2

2.1 To add one deflector



• Countermeasure No. 3

3.1 Pas B41MV4 (Control) to replace



6. Manual defrosting information

- 1) Defrost mode base on basic. (Refer to next page 26)
- 2) After cleaned ice forming, compressor and fan motor will be operated.

7. After assemble part to unit completed, please check whether function as follows.

- 1) Lamp is on.
- 2) Compressor is working.
- 3) Fan motor is on and working.

• Defrost mode demo checking guide.

a) Open PC & FC door.

b) Push “Freezer Control” 1 time. Then release your finger



c) Push “Quick Freezing” 1 time. Then release your finger.



d) Push “Freezer Control” 1 time. Then release your finger.



e) Push “Freezer Control” hold to 5 sec. Then release your finger.



f) Close both PC & FC door.

g) Push “Quick Freezing” 1 time. Then release your finger.

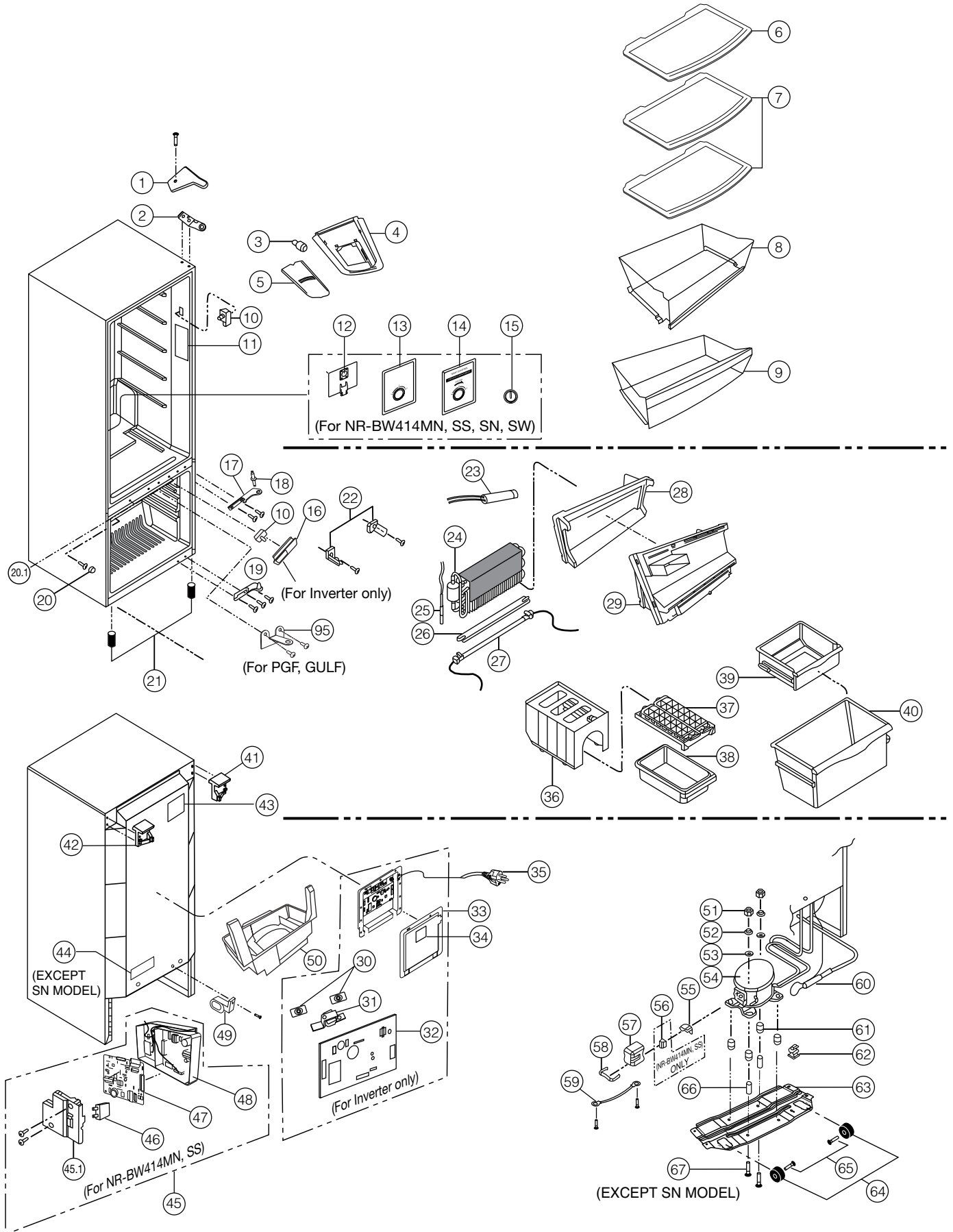


(Blue light LED  turns on)

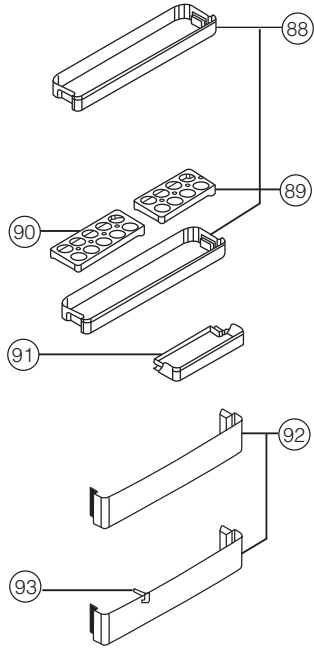
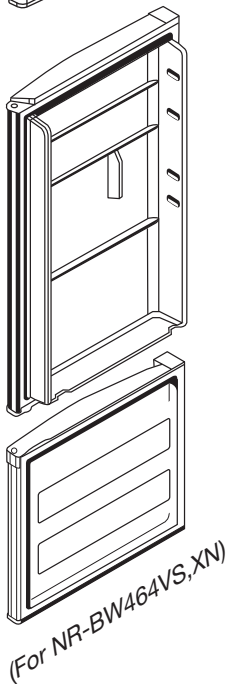
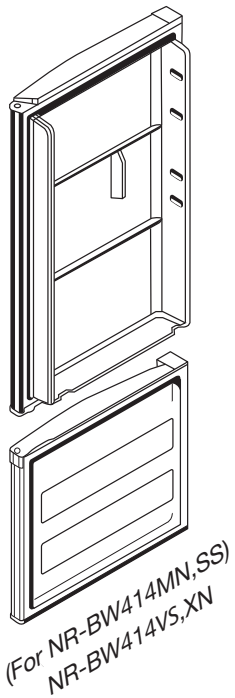
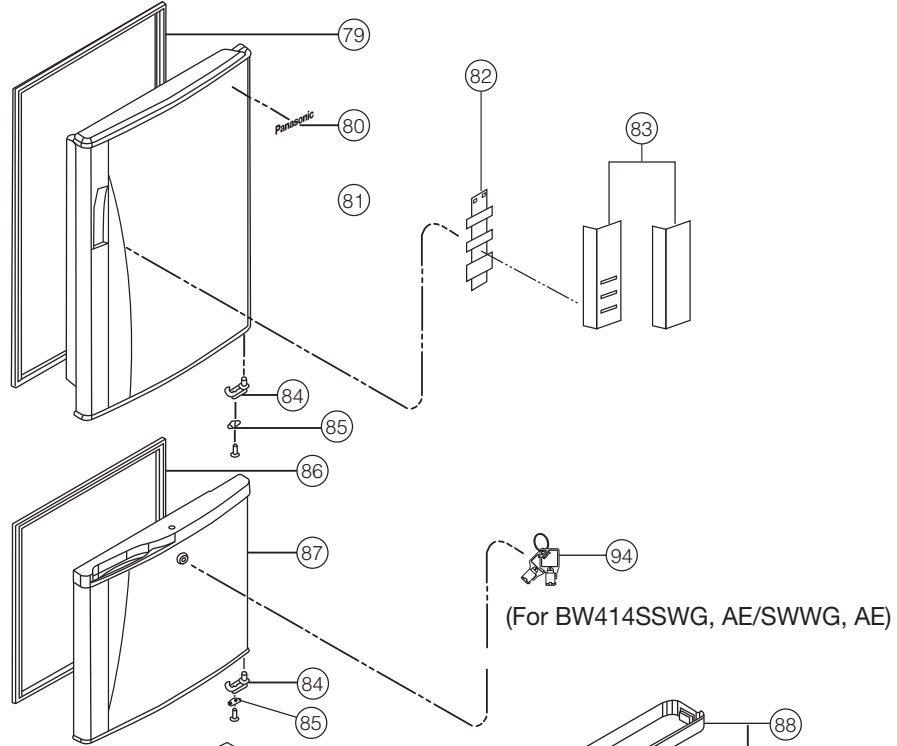
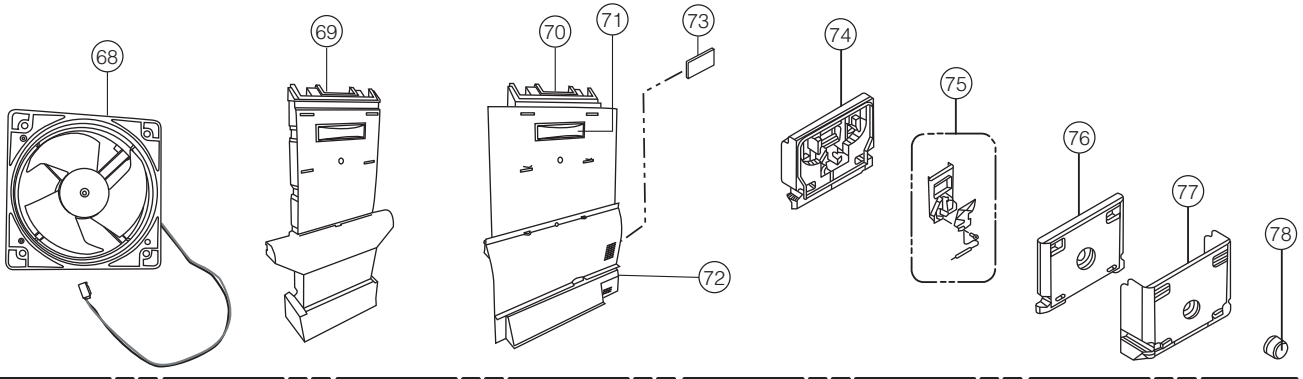
h) Then to check compressor will be stop and heater defrost will be function.

13. PARTS EXPLODED VIEW AND REPLACEMENT PARTS LIST

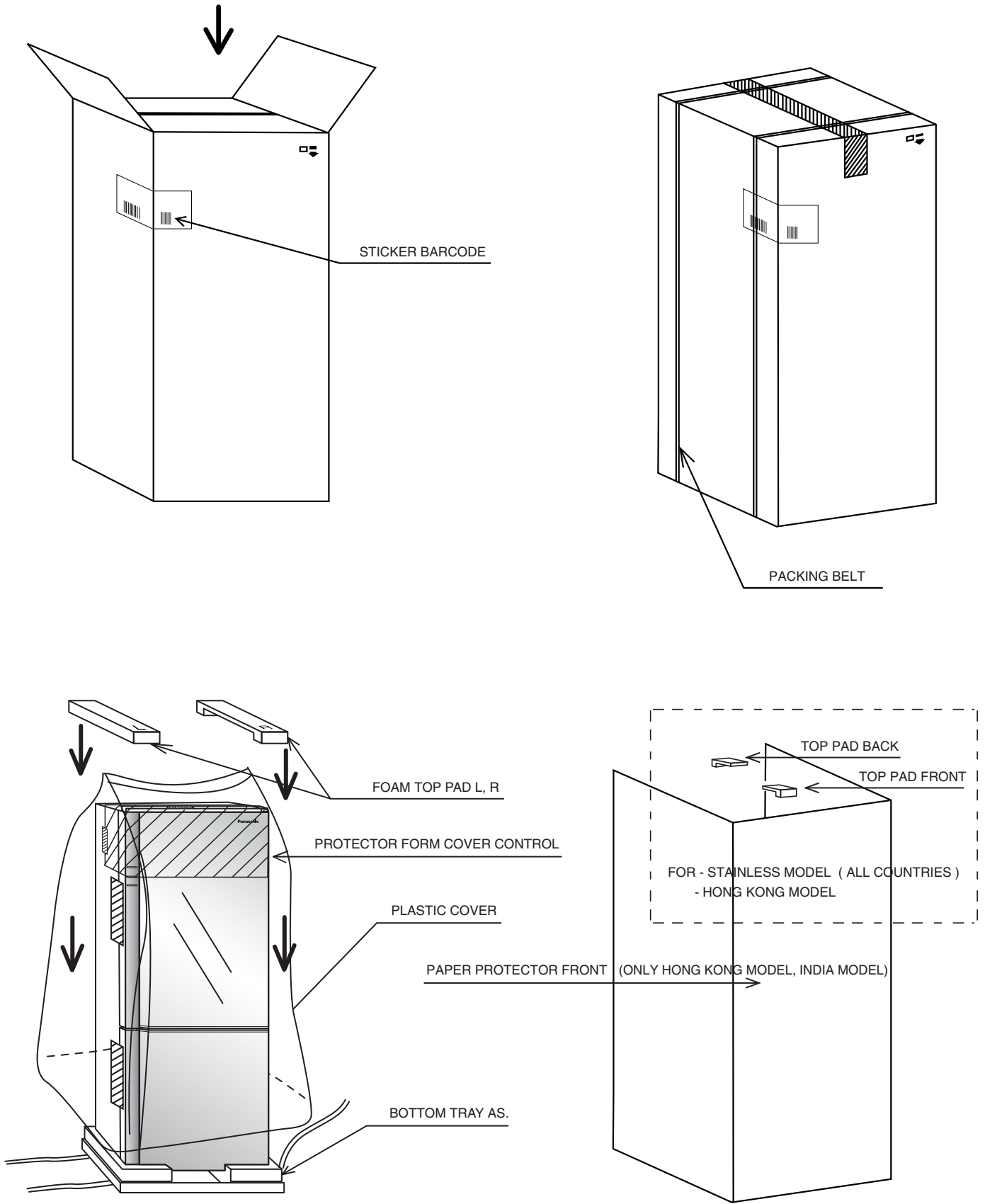
13.1 Parts Exploded View : Body



13.2 Parts Exploded View : Door



13.3 Parts Exploded View : Packing



Important safety notice :

Components identified by mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified part.

13.4 Replacement Part List : NR-BW414MN, SS, SN, SW / NR-BW414VS, XN / NR-BW464VS, XN

Parts List

REF. NO.	PART NAME	PART NO.	SAFETY	MODEL / Q'TY								REMARK	
				BW414	BW414	BW414	BW414	BW414	BW414	BW464	BW464		
				MN	SS	SN	SW	VS	XN	VS	XN		
1	COVER HINGE TOP - SL	CNRAE-137982			1				1		1		
	COVER HINGE TOP - W	CNRAE-139200					1						FOR NR-BW414SWWG, AE
	COVER HINGE TOP - SN	CNRAE-141400				1							FOR NR-BW414SNMY
	COVER HINGE TOP - ST	CNRAE-138671		1						1		1	FOR NR-BW414MNHK, MY, VN / BW414XNMY, SG / BW464XNVN, MY, HK, SG
2	HINGE TOP	CNRAE-137972	S	1	1	1	1	1	1	1	1	1	
3	15-240 LAMP	CNRAG-156520		1	1	1	1						
	10-240 LAMP	CNRAG-145270						1	1	1	1	1	
4	PLATE DUCT PCT	CNRAH-222602		1	1	1	1	1	1	1	1	1	
5	COVER ROOM LAMP	CNRAH-222721		1	1	1	1	1	1	1	1	1	
6	GLASS TRAY T AS.	CNRBH-134543		1	1		1	1	1	1	1	1	
		CNRBH-146580				1							OMIT SILK SCREEN
7	GLASS TRAY AS.	CNRBH-134531		2	2		2	2	2	2	2	2	
		CNRBH-146590				2							OMIT SILK SCREEN
8	CRISPER	CNRAH-222557		1	1	1	1	1	1	1	1	1	
9	CHILLED CASE	CNRAH-246190		1	1	1	1	1	1	1	1	1	
10	DOOR SWITCH	CNRAG-153290		1	1	1	1	2	2	2	2	2	
11	LABEL NAME	CNRBH-139440	S	1									FOR NR-BW414MNMY
		CNRAH-256830	S	1									FOR NR-BW414MNHK
		CNRAH-256870	S	1									FOR NR-BW414MNVN
		CNRAH-256810	S		1								FOR NR-BW414SSMY
		CNRAH-256820	S		1								FOR NR-BW414SSHK
		CNRAH-256850	S		1								FOR NR-BW414SS1N
		CNRAH-300280	S		1								FOR NR-BW414SS2N
		CNRAH-256860	S		1								FOR NR-BW414SSVN
		CNRAH-256890	S		1								FOR NR-BW414SSWA
		CNRBH-139270	S		1								FOR NR-BW414SSWG
		CNRBH-139290	S		1								FOR NR-BW414SSAE
		CNRBH-146370	S				1						FOR NR-BW414SNMY
		CNRBH-139280	S					1					FOR NR-BW414SWWG
		CNRBH-139300	S					1					FOR NR-BW414SWAE
		CNRAH-255400	S						1				FOR NR-BW414VSMY
		CNRAH-255920	S						1				FOR NR-BW414VSPH
		CNRAH-255930	S						1				FOR NR-BW414VS1N
		CNRBH-140910	S						1				FOR NR-BW414VSVN
		CNRBH-139490	S						1				FOR NR-BW414VSWA
		CNRAH-255410	S							1			FOR NR-BW414XNMY
		CNRAH-255450	S							1			FOR NR-BW414XNSG
		CNRBH-140920	S							1			FOR NR-BW414XNVN
		CNRAH-255330	S								1		FOR NR-BW464VSMY
		CNRAH-255360	S								1		FOR NR-BW464VSHK
		CNRAH-255860	S								1		FOR NR-BW464VS1N
		CNRAH-255870	S								1		FOR NR-BW464VSVN
		CNRAH-255900	S								1		FOR NR-BW464VSWA
		CNRAH-255910	S								1		FOR NR-BW464VSPH
CNRAH-255340	S									1	FOR NR-BW464XNMY		
CNRAH-255370	S									1	FOR NR-BW464XNHK		
CNRAH-255390	S									1	FOR NR-BW464XNSG		
CNRAH-255880	S									1	FOR NR-BW464XNVN		
12	PAS CONTROL (INSIDE)	CNRBG-182561		1	1	1	1						
13	BASE CONTROL	CNRAC-200621		1	1	1	1						
14	LABEL BASE CONTROL	CNRAC-200631		1	1	1	1						

Parts List

REF. NO.	PART NAME	PART NO.	SAFETY	MODEL / Q'TY								REMARK	
				BW414	BW414	BW414	BW414	BW414	BW414	BW464	BW464		
				MN	SS	SN	SW	VS	XN	VS	XN		
15	DIAL CONTROL	CNRAC-200643		1	1		1						
		CNRAH-290912				1							BIG HANDLE
16	CASE SW. FC - W	CNRAC-201540						1	1	1	1	1	
17	HINGE CENTER	CNRAE-137991	S	1	1	1	1	1	1	1	1	1	
18	PIN HINGE CENTER	CNRAE-136583	S	1	1	1	1	1	1	1	1	1	
19	HINGE BOTTOM	CNRAE-138003	S	1	1	1	1	1	1	1	1	1	
20	CAP PAN H. 4TS (DE)	CNR39-162680		1	1			1	1	1	1	1	
	CAP PAN H. 4TS (ST)	CNR39-162720		1		1			1			1	
20.1	CAP PAN H. 4TS (W)	CNR39-162431		2	2	2	3	2	2	2	2	2	
21	ADJUSTER BOLT	CNR38-992470		2	2	2	2	2	2	2	2	2	
22	SUPPORT COIL	CNRAF-163503		2	2	2	2	2	2	2	2	2	
23	SENSOR DEFROST	CNRAG-140111		1	1	1	1	1	1	1	1	1	
24	COIL AS.	CNRBF-147442		1	1	1	1	1	1	1	1	1	
25	TEMPERATOR FUSE AS.	CNRBG-180841	S	1	1	1	1	1	1	1	1	1	
26	COVER RADIANT	CNRAG-154970		1	1	1	1						
		CNRAG-161260						1	1	1	1	1	
27	HEATER AS. DEFROST	CNRAG-160021	S	1	1	1	1						
		CNRAG-161614	S					1	1	1	1	1	
28	INS. COVER COIL F	CNRAF-167314		1	1	1	1	1	1	1	1	1	
29	COVER COIL	CNRAF-175211		1	1	1	1	1	1	1	1	1	
30	RUBBER REACTOR	CNRAF-156140						2	2	2	2	2	
31	REACTOR	CNRBG-165910						1	1	1	1	1	
32	PAS-B41MV4 (CONTROL)	CNRBG-170061						1	1	1	1	1	
	COUNTERMEASURE KIT	CNRBG170061KT						1	1	1	1	1	FOR REPAIR COOLING NOT ENOUGH / ICE FORMING
33	COVER BOARD - (NO PAINT)	CNRAC-214820						1	1	1	1	1	
34	LABEL WARNING (HIGH VOLTAGE)	CNRAH-234201						1	1	1	1	1	
35	SUPPLY CORD AS. - S3P	CNRBG-169231	S	1	1	1	1						
	SUPPLY CORD AS. - B3P	CNRAG-171460	S		1								FOR NR-BW414SS1N, 2N
	SUPPLY CORD AS. - C2P	CNRAG-161470	S	1	1								FOR NR-BW414SSVN, WA /MNVN
	SUPPLY CORD AS. - C2P (SHUKO)	CNRAG-161440	S		1		1						FOR NR-BW414SSWG/ SWWG
	SUPPLY CORD AS. - S3P	CNRBGA172250	S					1	1	1	1	1	FOR NR-BW414VS, XN / BW464VS, XN
	SUPPLY CORD AS. - B3P	CNRBG-172270	S					1		1			FOR NR-BW414VS1N / BW464VS1N
	SUPPLY CORD AS. - C2P	CNRBG-172280	S					1	1	1	1	1	FOR NR-BW414VSVN / XNVN / VSWA, BW464VSVN / XNVN / VSWA
	SUPPLY CORD AS. - A2P	CNRBG-172290	S					1		1			FOR NR-BW414VSPH / BW464VSPH
36	HOLDER ICE TRAY	CNRAH-229894		1	1	1	1	1	1	1	1	1	
37	ICE CUBE TRAY AS.	CNRBH-135250		1	1	1	1	1	1	1	1	1	
38	BOX ICE TRAY	CNRAH-227460		1	1	1	1	1	1	1	1	1	
39	CASE FC TOP	CNRAH-222586		1	1	1	1	1	1	1	1	1	
40	CASE FC BOTTOM	CNRAH-222547		1	1	1	1	1	1	1	1	1	
41	HANGER SHELL R	CNRAC-206002		1	1	1	1	1	1	1	1	1	
42	HANGER SHELL L	CNRAC-206012		1	1	1	1	1	1	1	1	1	
43	WIRING DIAGRAM	CNRBH-139450		1									FOR NR-BW414MNMV
		CNRAH-256960		1									FOR NR-BW414MNHK
		CNRAH-256920		1									FOR NR-BW414MNVN
		CNRAH-256900			1								FOR NR-BW414SSMY
		CNRAH-256950			1								FOR NR-BW414SSHK
		CNRAH-256980			1								FOR NR-BW414SS1N
		CNRAH-300850			1								FOR NR-BW414SS2N
		CNRAH-256910			1								FOR NR-BW414SSVN
		CNRAH-256930			1								FOR NR-BW414SSWA
		CNRBH-139310			1								FOR NR-BW414SSWG
		CNRBH-139330			1								FOR NR-BW414SSAE
		CNRBH-146390					1						FOR NR-BW414SNMY
		CNRBH-139320						1					FOR NR-BW414SWWG
		CNRBH-139340						1					FOR NR-BW414SWAE
		CNRAH-255530							1				FOR NR-BW414VSMY
		CNRAH-255990							1				FOR NR-BW414VSPH
CNRAH-256000							1				FOR NR-BW414VS1N		

Parts List

REF. NO.	PART NAME	PART NO.	SAFETY	MODEL / Q'TY								REMARK	
				BW414	BW414	BW414	BW414	BW414	BW414	BW464	BW464		
				MN	SS	SN	SW	VS	XN	VS	XN		
		CNRBH-140930						1					FOR NR-BW414VSVN
		CNRAH-266780						1					FOR NR-BW414VSWA
		CNRAH-255540							1				FOR NR-BW414XNMY
		CNRAH-255550							1				FOR NR-BW414XNSG
		CNRBH-140940							1				FOR NR-BW414XNVN
		CNRAH-255460								1			FOR NR-BW464VSMY
		CNRAH-255500								1			FOR NR-BW464VSHK
		CNRAH-255940								1			FOR NR-BW464VS1N
		CNRAH-255950								1			FOR NR-BW464VSVN
		CNRAH-255970								1			FOR NR-BW464VSWA
		CNRAH-255980								1			FOR NR-BW464VSPH
		CNRAH-255470									1		FOR NR-BW464XNMY
		CNRAH-255480									1		FOR NR-BW464XNSG
		CNRAH-255510									1		FOR NR-BW464XNHK
		CNRAH-255960									1		FOR NR-BW464XNVN
44	WARNING LABEL (ENG)	CNRAH-239732	S	1	1		1						LANGUAGE : ENGLISH
45	BOX CAPACITOR AS.	CNRBG-176135		1	1	1	1						
		CNRBG-172356			1								FOR NR-BW414SS1N, 2N
		CNRBG-172346		1	1								FOR NR-BW414SSVN, WA / MNVN
		CNRBG-173596			1		1						FOR NR-BW414SSWG / SWWG
45.1	COVER BOX CAPACITOR	CNRAG-159023		1	1	1	1						
46	MF CAPACITOR	CNRAG-153360		1	1	1	1						
47	PAS - B37M4 (CONTROL)	CNRBG-166465		1	1	1	1						
	COUNTERMEASURE KIT	CNRBG166465KT		1	1	1	1						FOR REPAIR COOLING NOT ENOUGH / ICE FORMING
48	BOX CAPACITOR	CNRAG-164560		1	1	1	1						
49	CLAMP PIPE WATER EVA.	CNRAF-175252						1	1	1	1		
50	PAN WATER EVA AS.	CNRBF-150361		1	1	1	1						
		CNRBF-148912						1	1	1	1		
51	HEXAGON NUT 8	CNR38-8170A1		2	2	2	2	2	2	2	2		
52	SPRING WASHER 8	CNR38-4270A0		2	2	2	2	2	2	2	2		
53	WASHER 8	CNR38-4170A0		2	2	2	2	2	2	2	2		
54	COMPRESSOR DG77C14RAW5	CNR91-155930		1	1		1						FOR NR-BW414SSHK, VN, WA, WG, AE / MNHK, VN / SWWG, AE
	COMPRESSOR DHS73C10RAW	CNR91-145590		1	1	1							FOR NR-BW414SSMY, 1N, 2N / MNMY / SNMY
	COMPRESSOR EFI100E13DGH	CNRAB-116580						1	1	1	1		
55	MOTOR PROTECTOR	CNR06-597640	S	1	1		1						FOR NR-BW414SSHK, VN, WA, WG, AE / MNHK, VN / SWWG, AE
		CNR06-598580	S	1	1	1							FOR NR-BW414SSMY, 1N, 2N / MNMY / SNMY
		CNR06-598070	S					1	1	1	1		
56	PTC RELAY	CNR06-592700	S	1	1	1	1						PTH7M330MD2
57	PROTECTOR COVER	CNRAG-170450		1	1	1	1						
		CNRAG-161940						1	1	1	1		
58	CLAMP COVER PROTECTOR	CNRAG-160552		1	1	1	1	1	1	1	1		
59	EARTH WIRE AS. COMP. 150	CNRBG-168610		1	1	1	1	1	1	1	1		
60	5 DRYER W	CNR39-340920		1	1	1	1	1	1	1	1		
61	RUBBER GROMMET	CNR01-249530		4	4	4	4	4	4	4	4		
62	CLAMPER DRYER	CNR39-163082		1	1	1	1	1	1	1	1		
63	CROSSRAIL REAR	CNRAF-174701		1	1	1	1	1	1	1	1		
64	ROLLER 40	CNRAC-116280		2	2	2	2	2	2	2	2		
65	PIN CASTER	CNR02-325701		2	2	2	2	2	2	2	2		
66	SLEEVE COMP.	CNRAJ-112932		2	2	2	2	2	2	2	2		
67	HEXAGON 8 BOLT 40	CNR38-9924A0		2	2		2	2	2	2	2		
68	FAN MOTOR FC	CNRAG-130231		1	1	1	1						
		CNRAG-145641						1	1	1	1		
69	INS. DUCT PC	CNRAH-246060		1	1	1	1	1	1				
		CNRAH-246050								1	1		

Parts List

REF. NO.	PART NAME	PART NO.	SAFETY	MODEL / Q'TY								REMARK
				BW414	BW414	BW414	BW414	BW414	BW414	BW464	BW464	
				MN	SS	SN	SW	VS	XN	VS	XN	
70	PLATE DUCT PC	CNRAH-229920		1	1	1	1	1	1			
		CNRAH-229910								1	1	
71	ESCUTCHEON AG CLEAN	CNRAG-252270		1	1	1	1	1	1	1	1	
72	PLATE DUCT PCB	CNRAH-246041		1	1	1	1	1	1	1	1	
73	AG FILTER BIO	CNRAH-245521		1	1	1	1	1	1	1	1	
74	INS. CONTROL PANEL PCB	CNRAC-194852		1	1	1	1	1	1	1	1	
75	BAFFLE DANPER THERMO AS.	CNRBG-159331		1	1	1	1	1	1	1	1	
76	INS. CONTROL PANEL PCF COVER	CNRAC-194862		1	1	1	1	1	1	1	1	
77	CONTROL PANEL	CNRAH-222596		1	1	1	1	1	1	1	1	
78	DIAL THERMO PC	CNRAH-214822		1	1		1	1	1	1	1	
		CNRAH-224942				1						
79	GASKET DOOR PC	CNRAD-325000		1	1	1	1	1	1			
		CNRAD-324990								1	1	
80	EMBLEM	CNRAD-324230		1	1		1	1	1	1	1	
		CNRAD-339801				1						SEAL TYPE
81	DOOR AS. PC (FOAM) - SL	CNRBD-321544			1							FOR NR-BW414SSMY, HK, 1N, 2N, VN, WA, WG, AE
	DOOR AS. PC (FOAM) - SN	CNRBD-383850				1						FOR NR-BW414SNMY
	DOOR AS. PC (FOAM) - W	CNRBD-334900					1					FOR NR-BW414SWWG, AE
	DOOR AS. PC (FOAM) - SL	CNRBD-321442						1				FOR NR-BW414VSPH, 1N, 2N, MY, VN, WA
	DOOR AS. PC (FOAM) - SL	CNRBD-321432								1		FOR NR-BW464VSMY, HK
	DOOR AS. PC (FOAM) - ST	CNRBD-327551		1								FOR NR-BW414MNHK, VN, MY
	DOOR AS. PC (FOAM) - ST	CNRBD-326990								1		FOR NR-BW414XNMY, SG, VN
82	DOOR AS. PC (FOAM) - ST	CNRBD-326980									1	FOR NR-BW414XNMY, HK, SG
82	BUTTON CONTROL AS.	CNRBD-321452						1	1	1	1	
83	COVER CONTROL - SL	CNRAD-320335			1	1	1					FOR NR-BW414SSMY, HK, 1N, 2N, VN, WA, WG, AE / SWWG, AE / SNMY
	COVER CONTROL - SL	CNRAD-320324						1				FOR NR-BW414VSPH, 1N, 2N, MY, VN, WA
	COVER CONTROL - SL	CNRAD-320203								1		FOR NR-BW464VSMY, HK, 1N, VN, WA, PH
	COVER CONTROL - ST	CNRAD-326470									1	FOR NR-BW464XNMY, HK, SG, VN
	COVER CONTROL - ST	CNRAD-326480							1			FOR NR-BW414XNMY, SG, VN
	COVER CONTROL - ST	CNRAD-327640		1								
84	LATCH DOOR	CNRAE-136513		1	1	1	1	1	1	1	1	
85	STOPPER DOOR	CNRAD-305832		1	1	1	1	1	1	1	1	
86	GASKET DOOR FC	CNRAD-290823		1	1	1	1	1	1	1	1	
87	DOOR AS. FC (FOAM) - SL	CNRBD-321411			1			1		1		FOR NR-BW414SS / BW414VS / BW464VS
	DOOR AS. FC (FOAM) - SL (KEY)	CNRBD-321870			1							FOR NR-BW414SSWG, AE
	DOOR AS. FC (FOAM) - SN	CNRBD-383870				1						FOR NR-BW414SNMY
	DOOR AS. FC (FOAM) - W (KEY)	CNRBD-334880					1					FOR NR-BW414SWWG, AE
	DOOR AS. FC (FOAM) - ST	CNRBD-326950		1					1		1	FOR NR-BW414MNHK, VN, MY / BW414XNMY, SG, VN / BW464XNVN, MY, HK, SG
88	SHELF EGG	CNRAD-290763		1	1		1	1	1	2	2	
		CNRAD-354391				1						OMIT SILK SCREEN
89	TRAY EGG 8	CNRAD-350530		1	1	1	1	1	1	1	1	
90	TRAY EGG 10	CNRAD-338111		1	1	1	1	1	1	1	1	
91	TURN RACK	CNRAD-309360		1	1	1	1	1	1	1	1	
92	SHELF BOTTLE	CNRAD-309351		2	2		2	2	2	2	2	
		CNRAD-354412				2						OMIT SILK SCREEN
93	SLIDE STOPPER	CNRAD-302730			1			1		1		FOR INDIA (SS1N, 2N, VS1N)
94	KEY ASSEMBLY	CNRAE-116751			2		2					FOR NR-BW414SSWG, AE / SWWG, AE
95	STOPPER KEY	CNRAE-134260			1		1					FOR NR-BW414SSWG, AE / SWWG, AE

Packing

REF. NO.	PART NAME	PART NO.	SAFETY	MODEL / Q'TY								REMARK		
				BW414	BW414	BW414	BW414	BW414	BW414	BW464	BW464			
				MN	SS	SN	SW	VS	XN	VS	XN			
	PACKING AS.	CNRBK-118960		1										FOR NR-BW414MNMY
		CNRBK-116120		1										FOR NR-BW414MNHK
		CNRBK-116150		1										FOR NR-BW414MNVN
		CNRBK-116100			1									FOR NR-BW414SSMY
		CNRBK-116110			1									FOR NR-BW414SSHK
		CNRBK-116130			1									FOR NR-BW414SS1N
		CNRBK-131141			1									FOR NR-BW414SS2N
		CNRBK-116140			1									FOR NR-BW414SSVN
		CNRBK-116160			1									FOR NR-BW414SSWA
		CNRBK-118600			1									FOR NR-BW414SSWG
		CNRBK-118620			1									FOR NR-BW414SSAE
		CNRBK-132420				1								FOR NR-BW414SNMY
		CNRBK-118610					1							FOR NR-BW414SWWG
		CNRBK-118630					1							FOR NR-BW414SWAE
		CNRBK-115990						1						FOR NR-BW414VSPH
		CNRBK-116000						1						FOR NR-BW414VS1N
		CNRBK-115810						1						FOR NR-BW414VSMY
		CNRBK-120850						1						FOR NR-BW414VSVN
		CNRBK-118550						1						FOR NR-BW414VSWA
		CNRBK-115820							1					FOR NR-BW414XNMY
		CNRBK-115840							1					FOR NR-BW414XNSG
		CNRBK-120860							1					FOR NR-BW414XNVN
		CNRBK-115760								1				FOR NR-BW464VSMY
		CNRBK-115780								1				FOR NR-BW464VSHK
		CNRBK-115940								1				FOR NR-BW464VS1N
		CNRBK-115950								1				FOR NR-BW464VSVN
		CNRBK-115970								1				FOR NR-BW464VSWA
		CNRBK-115980								1				FOR NR-BW464VSPH
		CNRBK-115770									1			FOR NR-BW464XNMY
		CNRBK-115790									1			FOR NR-BW464XNHK
		CNRBK-115800									1			FOR NR-BW464XNSG
		CNRBK-115960									1			FOR NR-BW464XNVN
	BOTTOM TRAY AS.	CNRBK-119710		1	1	1	1	1	1	1	1	1	1	
	PLASTIC COVER	CNRAJ-162090		1	1	1	1	1	1	1	1	1	1	
	TOP PAD L	CNRAK-138070		1	1	1	1	1	1	1	1	1	1	
	TOP PAD R	CNRAK-138080		1	1	1	1	1	1	1	1	1	1	
	TOP PAD FRONT	CNRAK-136180		1	1			1	1	1	1	1	1	FOR NR-BW414SSHK, 1N, 2N / MNHK, VN, MY / VS1N NR-BW464VS1N, VSHK / XNHK
	TOP PAD BACK	CNRAK-136190		1	1			1	1	1	1	1	1	FOR NR-BW414SSHK, 1N, 2N / MNHK, VN, MY / VS1N NR-BW464VS1N, VSHK / XNHK
	PAPER PROTECTOR FRONT	CNRAK-133890		1	1			1						FOR NR-BW414SSHK, 1N / MNHK / VS1N
		CNRAK-133900								1	1			FOR NR-BW464VS1N, VSHK, XNHK
	INSTRUCTION BOOK	CNRAK-141132		1	1	1								FOR NR-BW414SSMY / MNMY / SNMY
		CNRAK-144201		1	1									FOR NR-BW414SSHK / MNHK
		CNRAK-141212			1			1		1				FOR NR-BW414SS1N, 2N / VS1N / BW464VS1N
		CNRAK-143640						1						FOR NR-BW414VSWA
		CNRAK-146640		1	1			1	1	1	1	1	1	FOR NR-BW414SSVN / MNVN / VSVN / XNVN / BW464VSVN / XNVN
		CNRAK-141231			1		1	1		1				FOR NR-BW414SSWA, WG, AE / SWWG, AE / VSPH / BW464VSWA, PH
		CNRAK-141130						1	1	1	1	1	1	FOR NR-BW414VSMY / XNMY / BW464VSMY / XNMY
		CNRAK-141140								1	1	1	1	FOR NR-BW414XNSG, BW464VSHK, XNHK, SG

DETAIL CHANGE NOTICE

REVISION	ITEM NO.	PAGE	DETAIL	REMARK
DEC. 2009	1	21	COMPRESSOR NEW PART NO. CNR91-236420	CHANGE PART NO. WHICH COMMON CHINA
JAN. 2010	1	1	ADD PICTURE AND MODEL OF NR-BW414SS-SW/WG, AE AND VSVN, XNVN	ADD MODEL OF PGF, GULF (GEN.) AND VIETNAM
	2	3	ADD PRODUCT SPEC.	FOR NR-BW414SS-SWWG, AE AND VSVN, XNVN
	3	19	ADD KEY PICTURE AT DOOR AS. FC	FOR MODEL NR-BW414SS-SWWG, AE
	4	20~23	ADD PART NAME AND PART NO.	FOR NR-BW414SS-SWWG, AE AND VSVN, XNVN
JUN. 2010	1	3	ADD MODEL NR-BW414VSWA / VS1D, BW414XN1D	ADD SINGAPORE (RBD), INDONESIA
	2	4	ADD MODEL NR-BW464VS1D, BW464XN1D	ADD INDONESIA
	3	20~23	ADD PART NAME AND PART NO.	REF. NO. 1, 11, 43, 81, 87 AND PACKING PARTS
JUL. 2010	1	18	SOLVING FC DOOR OVER LAB	ADD PROCEDURE FOR REPAIR
SEP. 2012	1	2	ADD CONTENT PAGE	IT'S PAGE NO. 2
	2	2~28	REVISE RUNNING PAGE NO.	REVISE FROM P. 2~26 TO P. 2~28
	3	4	ADD DETAIL SPEC. OF NEW MODEL	ADD MODEL NO-BW414SS2N, NR-BW414SNMY
	4	23~27	ADD AND REVISE PART NAME / NO.	FOR NEW MODELS AND UPDATE PARTS
NOV. 2012	1	2, 20~26	ADD TECHNICAL INFORMATION	FOR COUNTERMEASURE COOLING NOT ENOUGH / ICE FORMING OF NON INVERTER / INVERTER
	2	31~32	ADD COUNTERMEASURE KIT	FOR REPAIR COOLING NOT ENOUGH / ICE FORMING