

Service Manual

Refrigerator-Freezer

Model No. **NR-B30FG1**
NR-B30FX1



Product Color W: White, X: Stainless
Destination E: Europe Continental, B: U.K.

⚠ WARNING

This 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 with in 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 Precautions











The following are instructions that you must follow in order to prevent accidents during work, and to ensure the safety of the repaired product.

Hazard and damages that may result from ignoring instructions are classified and explained, below.














 Danger	This section warns of the urgent danger of death or serious injury.
 Warning	This section warns of the risk of death or serious injury.
 Caution	This section warns of the risk of injury or damage to property.

The following labels describe the types of rules that need to be followed.









	This label shows a “reminder” action to be paid attention to.
	This label shows a “prohibited” action.
	This label shows a “compulsory” action to be followed without fail.

 Danger	
	Be sure to discharge remaining refrigerant from the refrigeration unit.
	Discharge refrigerant outdoors where there is no fire source. Be sure to instruct the customer not to approach the place of discharge, and not to use fire.
	Always use a pipe cutter for removing pipes. If you use a welding machine, the refrigerant remaining in the pipe or compressor could catch fire and explode.
	Pipes must be blown out with nitrogen before welding, to discharge any remaining refrigerant.
	Always use the swage lock for sealing after filing with refrigerant. If you use a welding machine, the refrigerant could catch fire and explode.
	Ventilation close to the floor surface is required, as the refrigerant(R600) is heavier than air. In particular, the basement must be adequately ventilated.
	“Measurement/adjustment of refrigerant refill quantity” in a service must be performed outdoors where there is no fire source. Otherwise, you could run the risk of fire/explosion.
	Use always a gas alarm. If any refrigerant remains in work area, there will be a risk of fire/explosion.
 Prohibited	Never use a naked flame in a place where any refrigerant might remain.

 Prohibited	Do not leave the removed faulty compressor in doors.
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 Warning	
 Remove power plug	Before repair Make sure to cut off the power line before disassembly, parts replacement and assembly. Otherwise, electrical shock or injury may occur.
 Electric shock hazard	Be careful of electrical shocks Be careful of electric shock from live parts or electrical lead terminals when conducting voltage measurement and other electrical servicing. Voltage of the control board is approximately 280V when power is ON. Do not touch live parts. When replacing parts, do not touch live parts for at least 3 minutes after disconnecting the plug the power supply. (A little time is required for electrical discharge of the condenser)
	Use only fuses specified When replacing fuses, use only specified in the circuit diagram. The use of nonspecific fuses may cause fire or malfunction.
	Punch the pipes of the faulty compressor securely. Otherwise, the refrigerant remaining in the compressor oil might leak out during transporting and could catch fire and explode.
	Discharge refrigerant completely from the used service can for disposal in an outdoor place where there is no fire source. Otherwise, you could run the risk of fire/explosion.
 Prohibited	Do not damage the refrigeration circuit (piping) of the refrigerator. As the refrigerant is flammable, any damage could lead to fire/explosion.
	If the refrigeration circuit is damaged, do not touch the refrigerator or use a naked flame. Open windows for Ventilation. As the refrigerant is flammable, any damage could lead to fire/explosion.
	Disposal of a faulty compressor must be performed outdoors where there is no fire source.
	The quantity of refrigerant in a service can carried in the vehicle must be the least possible, and below the [regulation][regulated] limit. Keep the service can upright and below 40°C. (Quantity on board: 1.5kg or below)
	Use a designated part Make sure to use a designated part when the part is marked() in circuit diagrams and parts lists. Otherwise,smoke,fire or failure may occur.
	Always conduct a safety inspection after completing service And check the parts are reassembled correctly. Also confirm other fixings and wiring, for deterioration. Replace as required. Always use a megohmmeter to measure the insulating resistance between both terminals of the power plug and the earth terminal, and plug the power supply in after first confirming 1MΩ or above. When setting, check that the power cord or power plug is not jammed or pushed against the rear of the refrigerator. If the power cord or the power plug is damaged or loose, take appropriate measures such as replacing. If the pins of the plug or the area the pins attach to are dirty, make sure they are cleaned thoroughly.

Caution

	Install and remove glass shelving securely to prevent risk of injury
	When moving, raise the adjustable legs Dragging the refrigerator will damage the floor. For flooring that may become easily damaged put a protective board in place.
	Do not scrape the metal rails
 High temperature hazard	Take care of very hot parts The compressor, pipes etc. can be very hot during operation and directly after stopping. Also, the heater can be very hot during power supply and immediately after power supply is stopped. Be careful not to burn yourself by touching very hot parts.
 High temperature hazard	Take care of very hot parts after welding Pipes etc., are very hot after welding. Be careful not to burn yourself by touching very hot parts.
	Take care when filling/discharging refrigerant Liquid refrigerant directly touching the skin may cause frostbite.
	Take care of burrs Be careful not to cut yourself on metal or plastic burrs.
	Take care of condenser/evaporator fins Be careful not to injure yourself on the fin edges.

2 Specifications

Model		NR-B30FG1	NR-B30FX1	NR-B30FG1	NR-B30FX1
Destination		UK		Europe except UK	
Rating volume capacity	Rating volume capacity	309L			
	Refrigerator compartment (PC)	179L			
	Freezer compartment (FC)	82L			
	Vegetable compartment (VC)	48L			
External dimensions	width/depth/height (mm)	W 600 × D 637 × H 1874			
Internal dimensions	PC: width/depth/height (mm)	W 495 × D 472 × H 741			
	FC: width/depth/height (mm)	W 487 × D 302 × H 564			
	VC: width/depth/height (mm)	W 487 × D 359 × H 275			
	Installation size	Side: 20mm or above Back: 50mm or above Top: 100mm or above			
Power supply plug	Rating	250V / 10A		250V / 16A	
Power supply code	Length	2m			
Interior lamp (LED)	Rating	1W			
IEC protection against electric shock classes		Class I			
Class		T			
Refrigerator compartment sensor	PCC	B=3808k, R(0°C)=6.409k Ω			
Freezer compartment sensor	FCC	B=3850k, R(-20°C)=18.9k Ω			
Vegetable compartment sensor	SCC	B=3808k, R(-3°C)=7.490k Ω			
PC evaporator temperature sensor	PEC	B=3819k, R(10°C)=3.899k Ω			
Ambient temperature sensor	ATC	B=3819k, R(10°C)=3.899k Ω			
Defrost temperature sensor	DFC	B=3819k, R(10°C)=3.899k Ω			
Compressor	Type	Full hermetic reciprocating system			
	Model	ENI100E13DCH-C0ECS	EFI100E13DGH-C0ECS	ENI100E13DCH-C0ECS	EFI100E13DGH-C0ECS
	Rotation speed	25/39/43/59/71(r/s)			
3 Way valve	Model	SDF0.8 3/2-3.2b			
	Rating	240V/50Hz/0.3W			
Overlord relay	Model	MM3-20DCW			
	Operating temperature	105±5°C			
	Return temperature	61±8°C			
	Operating current (A)	2.0±7.5%			
Fan motor (for Deodorizer)	Model/Rating	D08I-14BS3 O1			
Fan motor (for Freezer compartment)	Model/Rating	FBA11J10MH/DC9V 1.53W以下			
Dumper	Model/Rating	NSBC000ZA1/DC12V,300p/s			
VC heater	Rating	220V/6914Ω/7W			
Defrost heater	Rating / Voltage	330.6 Ω /160W(230V)-175W(240V)		302.5 Ω /160W(220V)-175W(230V)	
Thermal fuse	Rating	250V/7A/70°C			
Oil charge		S10/215±5ml			
Ice making ability*1		1.5kg/24h			
Freezing ability*2		14.0kg/24h	15.0kg/24h	14.0kg/24h	15.0kg/24h
Amp.	Rating	0.95A			
Values of the energy consumption*3		270kWh/y	228kWh/y	270kWh/y	228kWh/y
Energy efficiency grade		A+	A++	A+	A++
Refrigerant charge		R600a, 60g			
Measurement of exterior noise emitted*4		37db(A)	36db(A)	37db(A)	36db(A)
Form polyurethane		Cyclo pentane			
Weight (Kg)		80kg	86kg	80kg	86kg

*1 : The amount of Ice Making Ability in 24 hours. Setting temperature, FC : 4°C, VC : 1°C, FC : -25°C.

*2: The Freezing Ability in 24 hours. VC temperature is set to 1°C, and in state of Super Freeze.

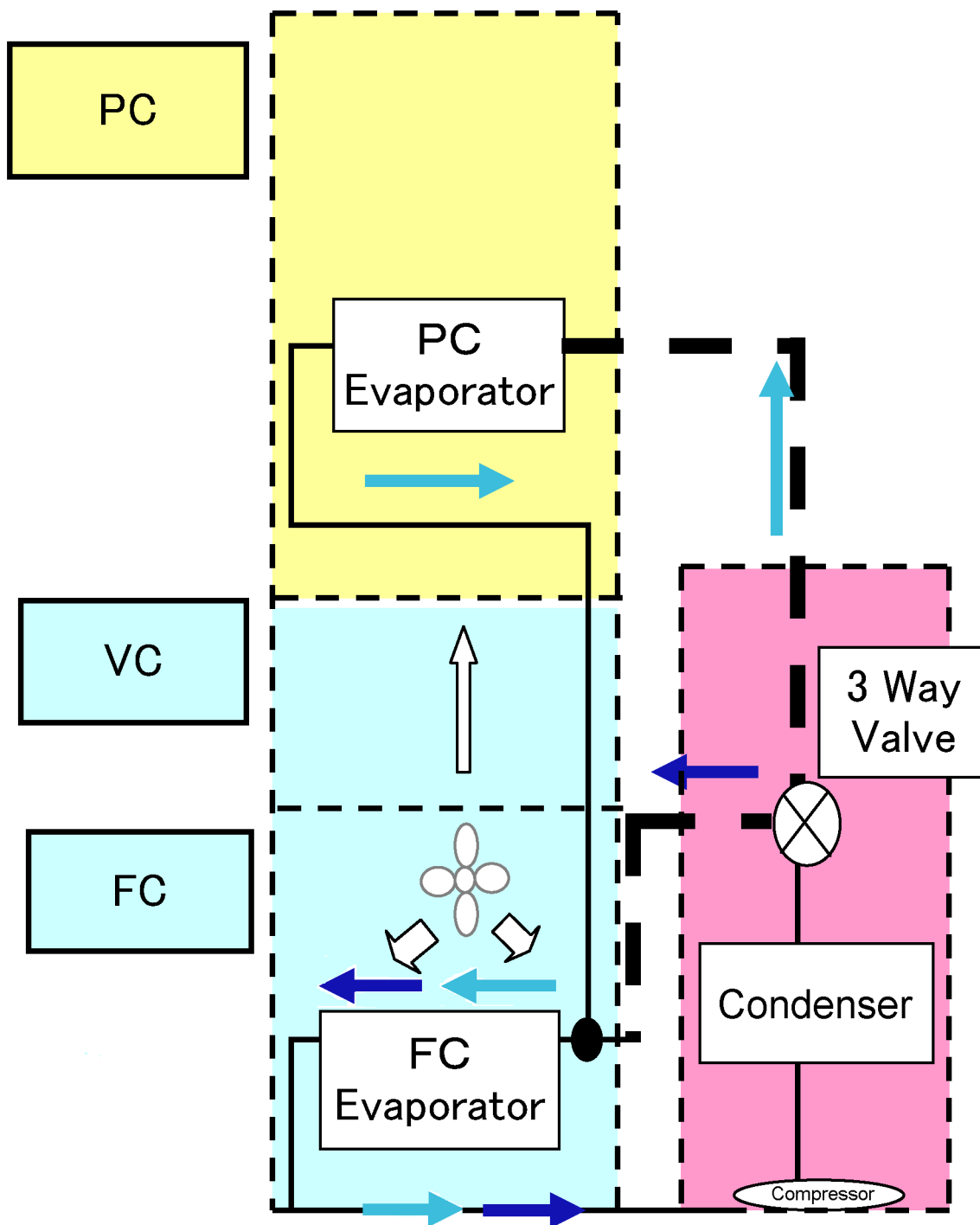
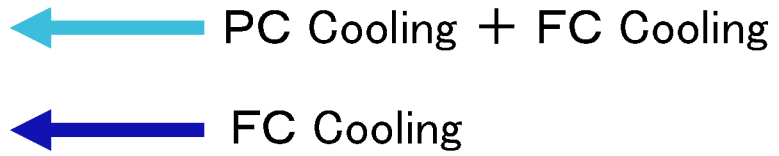
*3: Values of the Energy Consumption in year.

*4: This Measurement of Exterior Noise Emitted is measured by OFF condition of PC Fan Motor for Deodorizer.

3 General/Introduction

3.1. Flow of Refrigerant

Refrigerant Cycle



4 Features and Functions

4.1. Features





4.1.1. Super Energy Saving

- ① Inverter Technology
 Rotation speed can change depending on the load.
 Refrigeration power (output) is also adjustable in 5 stages.

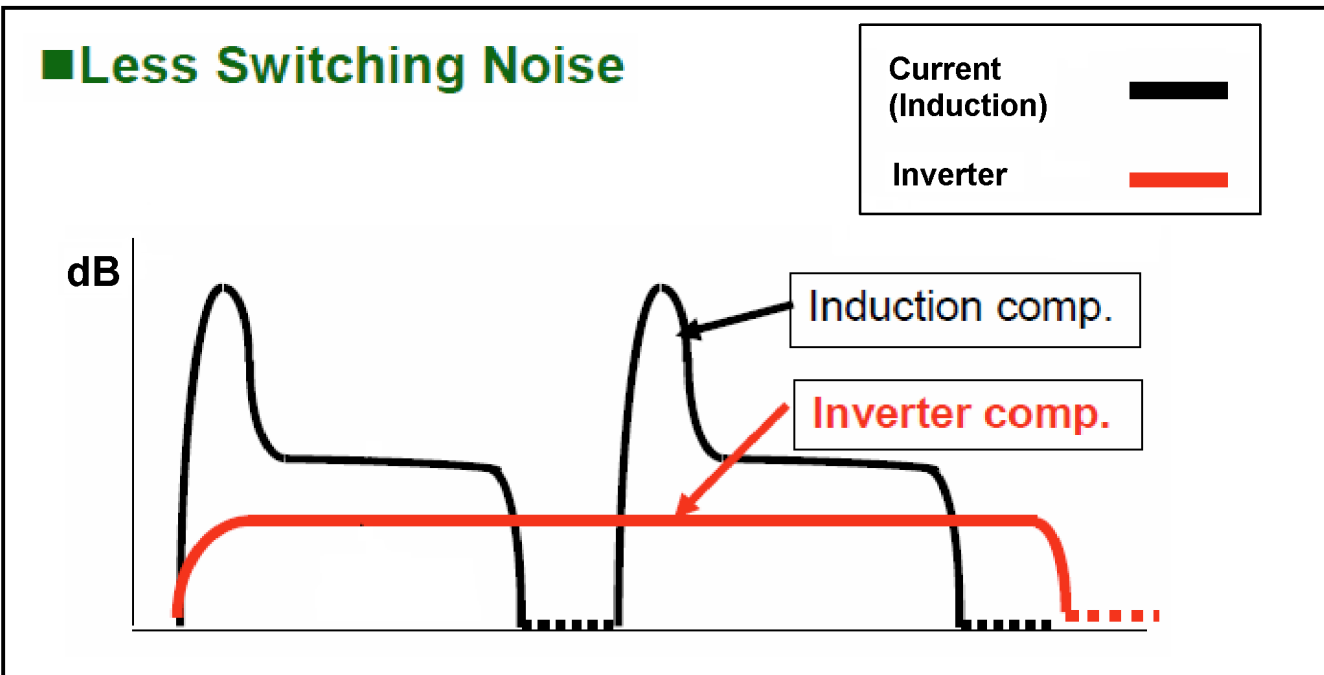
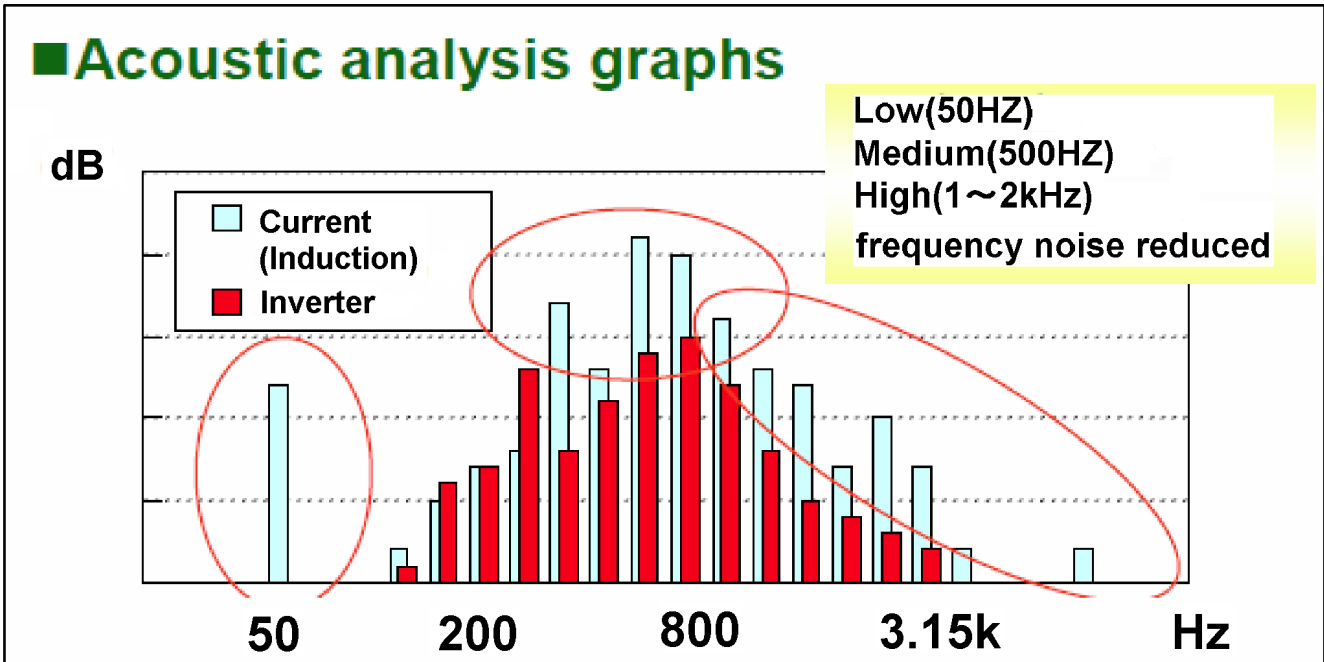


- Power output change to adjust temperature.
 - *Powerful cooling quickly lowers the temperature
 - *At night, the refrigerator also has a rest. Powerful operation is unnecessary.
- Power changes to suit conditions and maintain the optimum temperature.

② Innovative Vacuum insulation panel "U-VACUA"

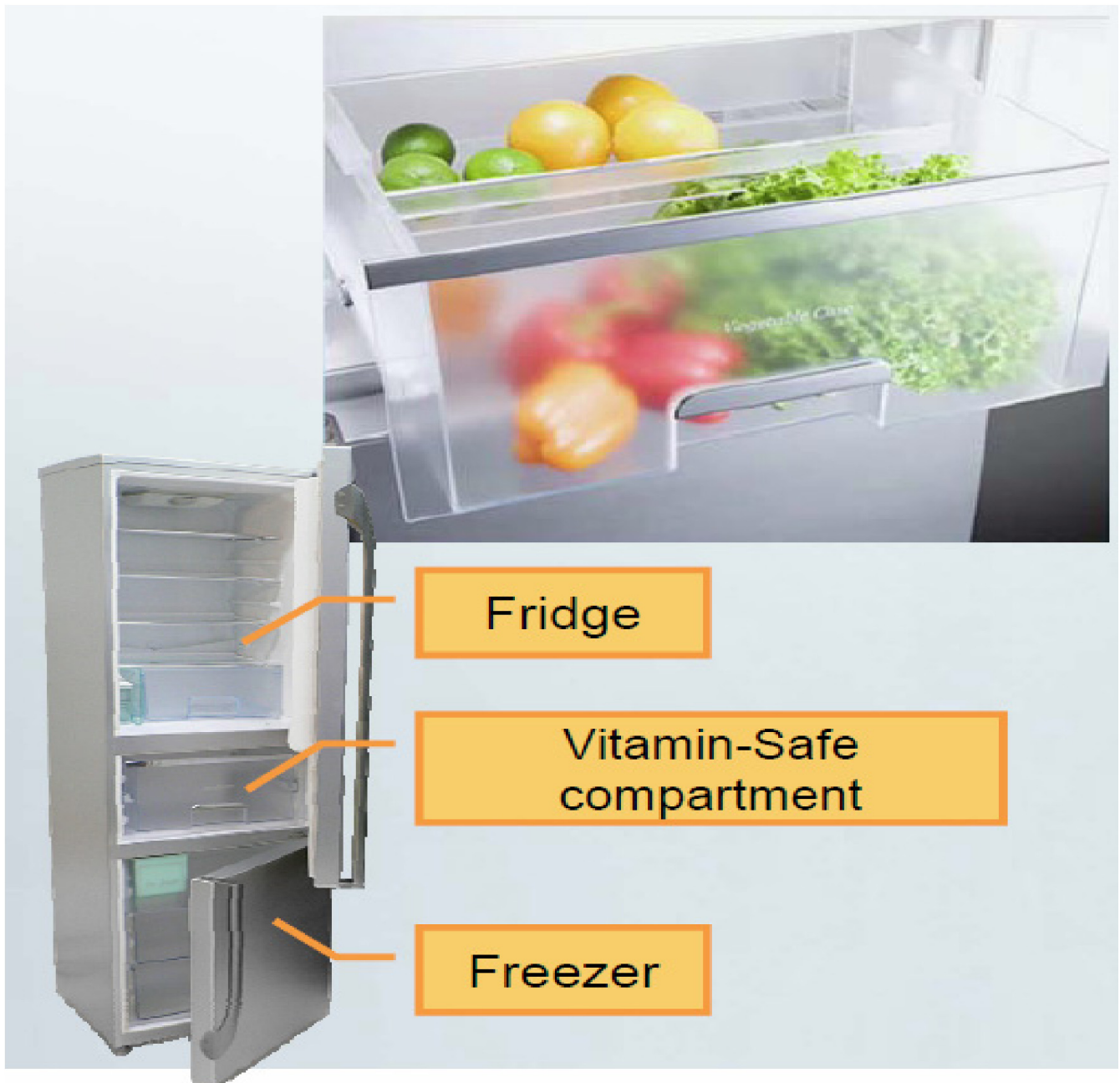
	Urethane (other brands)	U-Vacua Panasonic original
Thickness	50mm 	5mm 
Externals		
Heat transfer × 10 ⁻⁴	240W/mK	25W/mK

③ Super Quite Operation
A Sleep-Easy Level of Quiet



4.1.2. Super Keep-Fresh “Vitamin-Safe”

- ① Optimum cooling control for fruits & Vegetables
Panasonic unique “Vitamin-Safe” compartment



■ **Big storage space & fully-extendable drawer**

■ **Completely independent air circulation**

No smell transferred from other foods

Optimum temperature control

Set at 5°C as a standard temp. for most of the vegetables. Also, temperature can be varied between 0-5°C for different type of vegetable.

Optimum humidity control

95% humidity - ideal for fruits & vegetables

■ **Vitamin-increase by flashing LED light**

Amazingly succeed to increase Vitamin C of fruits & vegetables

② Completely independent air circulation

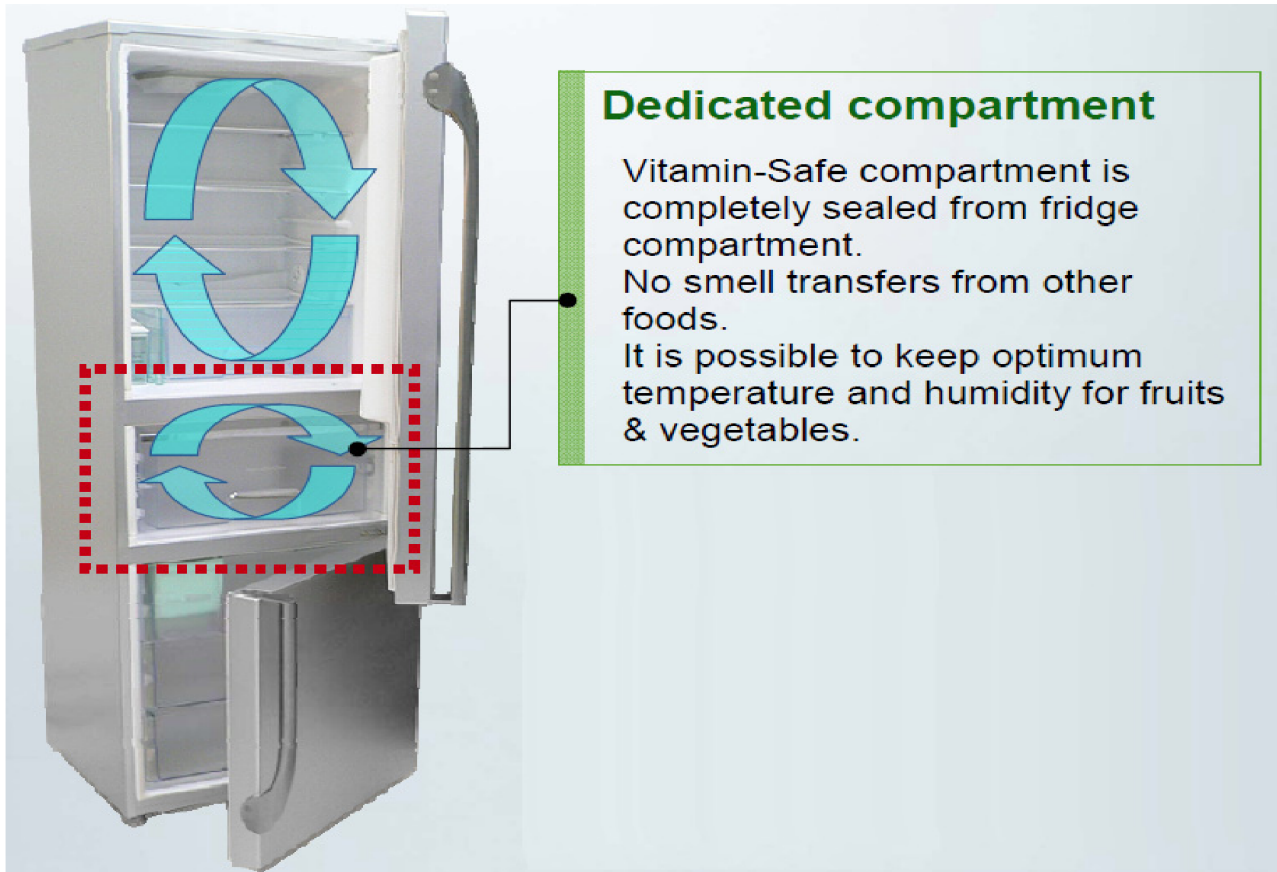
Dedicated compartment

Vitamin-safe compartment is completely sealed from fridge compartment

No smell transfers from other foods.

It is possible to keep optimum temperature and humidity for fruits & vegetables.

③ Optimum Temperature Control for Fruits & Vegetables

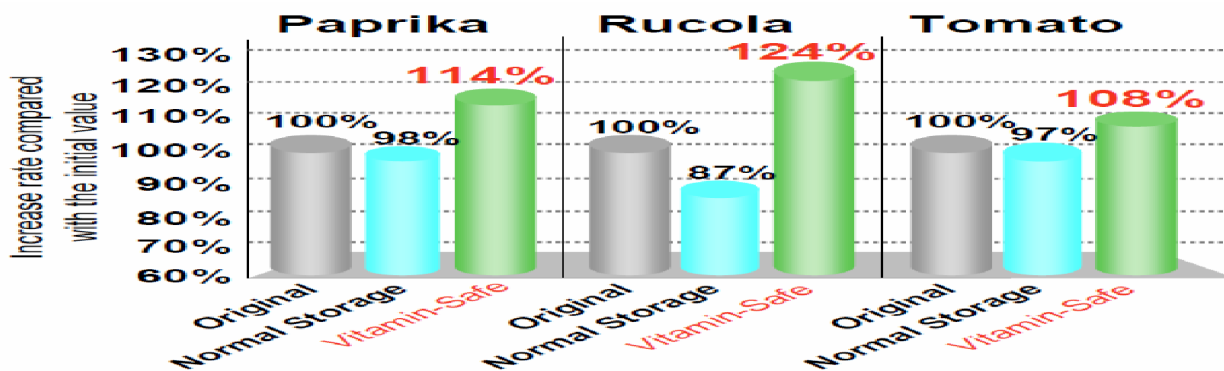


④ Innovative “Vitamin-Safe” LED light

Increase vitamins of fruits and vegetables

Flashing Green (520nm) and Blue (470nm) LED located at vegetable compartment promote photosynthesis and biological defense mechanism

Nutrition such as Vitamin C is increased than before.



Tested by SLG, Germany,
Duration: 3days

Patent applied application No. 2007-282707(Oct.25, '07)

⑤ Super Keep-Fresh “Vitamin-Safe”

Humidity control plate

Compartment is covered by humidity control plate to keep humidity inside 95% which is ideal for vegetable preservation.

Big space

25cm height super big compartment for any big vegetables.



Fully-extendable drawer

Drawer mounted on durable telescopic rails can be fully extended to enable easy access to items placed at the rear side.

Fruits tray

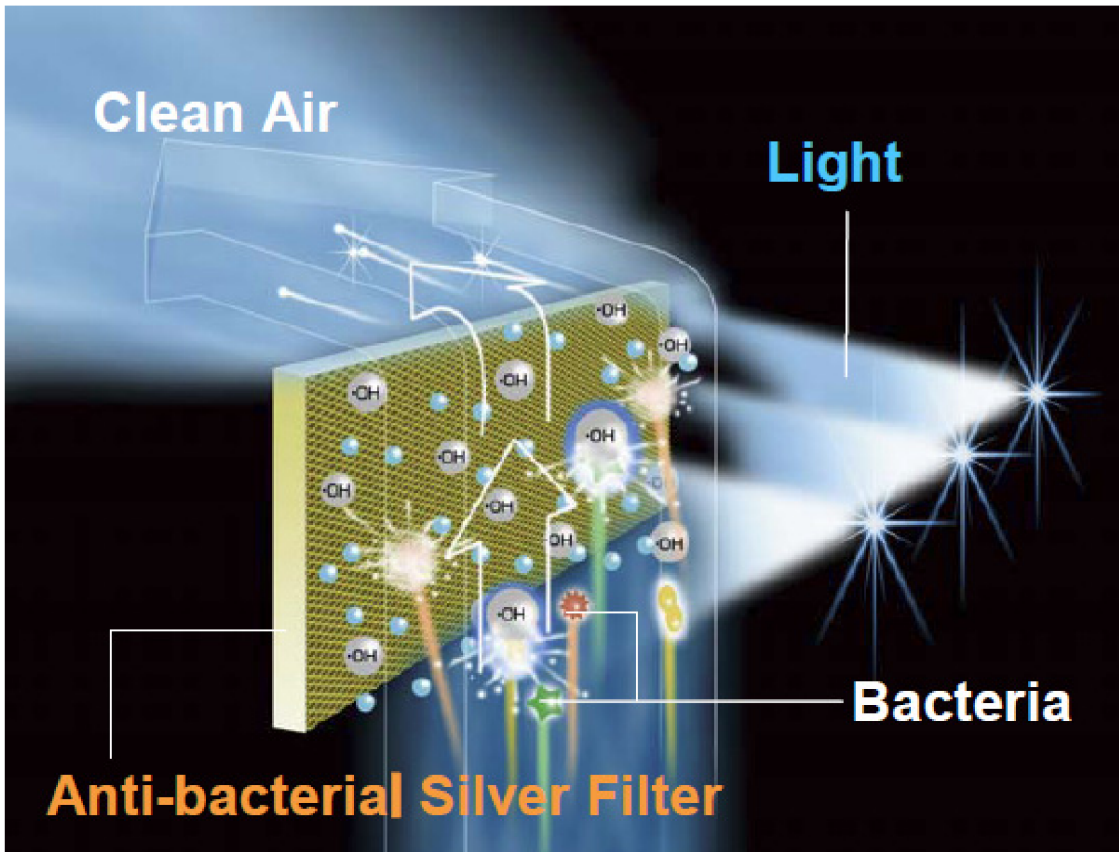
Additional tray for small items such as berries.

4.1.3. Super Hygienic

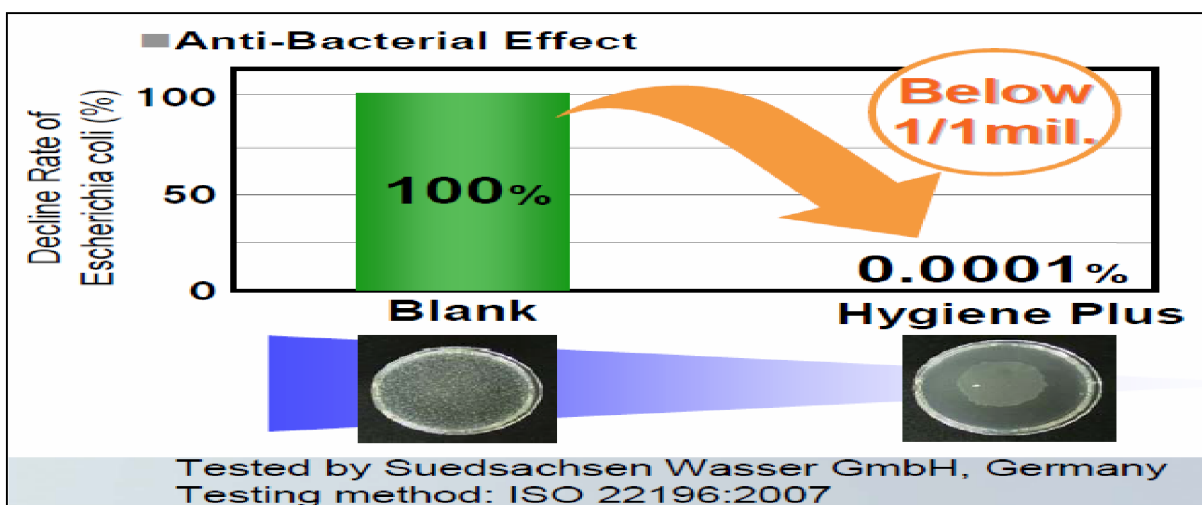
Photo catalytic anti-bacterial system – “Hygiene Plus”

Always keeps the air inside fresh and clean

Hydroxyl Radical (OH) is created by blue LED light which activates the silver surface of Silver-contained air filter (photo-catalytic effect).
Achieved 99.9999% disinfectant rate in fridge compartment.









23 Patents were applied
ex: application No. 2007-118692




4.2. Functions


1.

Inverter Level Indicator		The compressor has stopped running.		The compressor is running at the lowest speed.
		The compressor is running at low speed.		The compressor is running at medium speed.
		The compressor is running at high speed.		The compressor is running at the highest speed.


2.

Super Freeze Super Freeze 	<p>The Super Freeze function allows you to freeze fresh food quickly, or make ice cubes.</p> <p>➤ To activate: Press the Super Freeze button and the Super indicator light will come on.</p> <p>In Super Freeze mode:</p> <ul style="list-style-type: none"> • the compressor runs continuously; • the freezer temperature can drop, as is it not being controlled by the temperature you set. So the temperature displayed may be different from the temperature you set. • the refrigerator may keep running for a long time, or pause occasionally, but its temperature is still controlled by the temperature you've set. <p>➤ To deactivate: When the temperature of the freezer is low enough, you can cancel the Super Freeze mode by pressing the Super Freeze button again. The Super indicator light will then switch off.</p> <p>Note: If you don't deactivate the Super Freeze mode manually, it will automatically switch off after 50 hours.</p>
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3.

Holiday Fridge Set 	<p>To disable the refrigerator compartment function for a long period, for example during a holiday, you can use Holiday Mode.</p> <p>Before using this mode, empty the refrigerator, clean it and shut the door.</p> <p>➤ To activate: Press and hold the Fridge Set button for three seconds. The Holiday indicator will light up. Meanwhile, the Fridge temperature will not display. The LED lamp will also switch off during Holiday mode.</p> <p>➤ To deactivate: Press and hold the Fridge Set button for three seconds. The Holiday indicator will switch off and the Fridge temperature will display.</p> <p>Note: For hygiene reasons, the refrigerator compartment temperature stays at around 14°C during Holiday Mode operation.</p>
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4.

Energy Saving Energy Saving 	<p>You can use this mode to save electricity when you're not using the fridge as much, For example, overnight or throughout the winter.</p> <p>➤ To activate: Press the Energy Saving button. The eco indicator will come on.</p> <p>➤ To deactivate: Press the Energy Saving button. The eco indicator will go off.</p> <p>Note: You cannot activate Super Freeze mode while this mode is activated.</p>
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5.

Hygiene Active

Hygiene Active



You can use this to operate the antibacterial function.

- **To activate:** Press the Hygiene Active button and the Hygiene indicator will light up.
- **To deactivate:** Press the Hygiene Active button. The Hygiene indicator will switch off.

Tips for use:

- Once you've pressed the Hygiene Active button, you may hear the deodorising fan running. If you open the refrigerator door while the Hygiene Active function is on, the fan stops.
- When storing food with a strong odour, wrap it in cling film or put it in a sealed container. Otherwise, even with the Hygiene Active function on, the odour may linger.
- Once you have pressed the Hygiene Active button, try not to open the fridge door.

6.

Vitamin-Safe

Vitamin-Safe



The 'keep fresh' feature helps preserve the Vitamin C in fruit and vegetables, and is activated by the blue and green LED lights.

- **To activate:** Press the Vitamin-Safe button. The Vitamin indicator will light up, and blue and green LED lights will flash at the same time.
- **To deactivate:** Press the Vitamin-Safe button. The Vitamin indicator will switch off.

7.

Alarm Off

Alarm/Child Lock



This lets you know when the refrigerator or freezer door isn't closed. It also tells you if the refrigerator or freezer temperature is too high.

Door open time	Buzzer
After one minute	Beep beep
After three minutes	Beep beep, beep beep
After five minutes	Beep continuously

Temperature is too high	Beep continuously
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- **To activate:** Press the Alarm/Child Lock button. The buzzer will stop.

Note: When the buzzer function starts, the temperature display will flash.

8.

Child Lock

Alarm/Child Lock



Use this mode to lock all buttons without the Alarm off function.

- **To activate:** Press and hold the Alarm/Child Lock button for 3 seconds. The Lock indicator will light up and all buttons are locked.
- **To deactivate:** Press and hold the Alarm/Child Lock button for 3 seconds. The Lock indicator will switch off and the lock is released.

5 Technical Descriptions

5.1. Temperature control for each compartment

5.1.1. FC temperature control

The compressor is turned on and off detecting the FC temperature.

Operation: The setting temperature “-25°C” to “-17°C”, 9 levels change

Detection: FCC, ATC sensor

1. When power supply is turned on, FC temperature is displayed on the panel PCB by reading FC setting data of micro-computer memories. The data is written in memory area of microcomputer, 5 seconds after FC setting change. After that, FC temperature is controlled by setting FC temperature of the panel PCB.

The FC setting data is memorized, though the power supply of this product is turned off. The setting temperature is fixed, after the time to have set temperature change passed more than 5 seconds.

2. The setting temperature

The temperature, when it set on -21°C

The OFF/ON temperature value corresponding to each ATC temperature is as shown in the next table.

ATC correction temperature	Turning off temperature (OFF temperature)	Turning on temperature (ON temperature)
34°C or above	-24.0°C	-16.0°C
11°C to 33°C	$(-23.5)+$ $\{(-23.5)-(-24.0)\} \times$ (ATC correction temperature-10)/ (34-10)	$(-15.6)+$ $\{(-15.6)-(-16.0)\} \times$ (ATC correction temperature-10)/ (34-10)
10°C or below	-23.5	-15.6

3. OFF/ON temperature according to FC temperature setting

The OFF/ON temperature corresponding to each FC temperature setting is as shown in the following tables.

ATC correction temperature	Turning off temperature (OFF temperature)	Turning on temperature (ON temperature)
(-17°C) setting	TFOFF + 4°C	TFON + 4°C
(-18°C) setting	TFOFF + 4°C × (3 / 4)	TFON + 4°C × (3 / 4)
(-19°C) setting	TFOFF + 4°C × (2 / 4)	TFON + 4°C × (2 / 4)
(-20°C) setting	TFOFF + 4°C × (1 / 4)	TFON + 4°C × (1 / 4)
(-21°C) setting	TFOFF	TFON
(-22°C) setting	TFOFF - 3.9°C × (1 / 4)	TFON - 3.9°C × (1 / 4)
(-23°C) setting	TFOFF - 3.9°C × (2 / 4)	TFON - 3.9°C × (2 / 4)
(-24°C) setting	TFOFF - 3.9°C × (3 / 4)	TFON - 3.9°C × (3 / 4)
(-25°C) setting	TFOFF - 3.9°C	TFON - 3.9°C

*: TFOFF and TFON that exist in the following table are considered the temperature calculated by the OFF/ON temperature value at -21°C setting.

5.1.2. PC temperature control

The compressor and 3 way valve are turned on and off detecting the FC temperature.

Operation: The setting temperature “1°C” to “7°C”, 7 levels change

Detection: FCC, ATC sensor

1. When power supply is turned on, PC temperature is displayed on the panel PCB by reading PC setting data of micro-computer memories.

The data is written in memory area of microcomputer, 5 seconds after PC setting change. After that, PC temperature is controlled by setting PC temperature of the panel PCB. The PC setting data is memorized though the power supply of this appliance is turned off.

2. The setting temperature

The temperature, when it set on 4°C.

The OFF/ON temperature value corresponding to each ATC temperature is as shown in the next table.

ATC correction temperature	Turning off temperature (OFF temperature)	Turning on temperature (ON temperature)
34°C or above	8.5°C	10.2°C
11°C to 33°C	6.1 + (8.5 - 6.1) × (ATC correction temperature - 10) / (34-10)	7.7 - (10.2 - 7.7) × (ATC correction temperature-10) / (34-10)
10°C or below	6.1	7.7

3. OFF/ON temperature according to PC temperature setting

The OFF/ON temperature corresponding to each PC temperature setting is as shown in the following tables. Moreover TPOFF and TPON that exist in the following table are considered the temperature calculated by the OFF/ON temperature value at 4°C setting.

ATC correction temperature	Turning off temperature (OFF temperature)	Turning on temperature (ON temperature)
(7°C) setting	TPOFF + 3.3°C	TPON + 3.3°C
(6°C) setting	TPOFF + 3.3°C × (2 / 3)	TPON + 3.3°C × (2 / 3)
(5°C) setting	TPOFF + 3.3°C × (1 / 3)	TPON + 3.3°C × (1 / 3)
(4°C) setting	TPOFF	TPON
(3°C) setting	TPOFF - 3.5°C × (1 / 3)	TPON - 3.5°C × (1 / 3)
(2°C) setting	TPOFF - 3.5°C × (2 / 3)	TPON - 3.5°C × (2 / 3)
(1°C) setting	TPOFF - 3.5°C	TPON - 3.5°C

*: TPOFF and TPON that exist in the following table are considered the temperature calculated by the OFF/ON temperature value at 4°C setting.

5.1.3. VC temperature control

The single damper motor is turned on and off detecting the VC temperature.driving time.

Operation: The setting temperature “5°C” to “0°C”, 6 levels change

Detection: SCC, ATC sensor

1. When power supply is turned on, VC temperature is displayed on the panel PCB by reading VC setting data of micro-computer memories. The data is written in memory area of microcomputer, 5 seconds after VC setting change.
2. According to input of SCC temperature variation, the single damper motor is actuated (normal rotation/reversion). Then the motor is stopped on number of step that set previously.
3. When power supply is turned on, necessarily for getting rid of condition of half opened damper flap, it is closed by 1,850 steps reversion of the single damper motor.
4. After the motor stopped, if there is no variation of input temperature for 60 minutes, the motor is actuated forcibly. When damper flap is opened, it is closed forcibly(1,850 steps reversion). When it is closed, it is opened forcibly (1,850 steps normal rotation). After that, according to the condition of input temperature, the single damper motor is actuated.
5. The damper flap is closed forcibly, during turning on electricity on the heater, during waiting condition after defrosting, during delay of FC fan after defrosting.
6. During compressor stopping, damper flap is closed.
7. The single damper motor wait for 1 second, after its output is stopped.
8. VC temperature adjustment
According to VC temperature setting, the single damper flap is opened and closed.

5.2. FC Defrost Control

Cumulating the compressor running time of certain period or time after defrosting according to room temperature and ATC temperature, defrosting cycle starts.

Cumulating time for defrosting		
4 hours	Initially started	Cumulating compressor running time
8 hours	When room and ATC temp. is 25°C or above	
12 hours	When room temp. is 19°C or above	Cumulating time after defrosting
28 hours	When room temp. is 18°C or below	

Maximum defrosting time is 60 minutes.

5.3. 3Way Valve Control

Cooling Mode Change Control is controlled by detected temperature of PEC, FCC, PCC, SCC.

5.3.1. Operation condition of 3 Way Valve

- In case PEC sensor temperature is 4°C or above
 - PEC sensor temperature is Turning on temperature (ON temperature) or above----- PC cooling mode
 - PEC sensor temperature is Turning off temperature (OFF temperature) or below----- FC cooling mode
- In case PEC sensor temperature is less than 4°C FC Cooling Mode is set.
However, PC Cooling Mode is set, until PCC sensor temperature is become OFF temperature during PC Cooling Mode.
- During FC Cooling Mode
FCC sensor temperature is OFF temperature or below ----- Compressor off mode
- However, during FC Cooling Mode, though FCC sensor temperature is OFF temper below, there is a case not to become Compressor OFF Mode, according to VC setting.
- However, PC Cooling Mode is forcibly ended when reaching at time PC Cooling Mode below.(Forcible OFF Cycle Defrost)
When condition of PC Cooling Mode is satisfied as above mentioned, it is shifted to PC Cooling Mode.

When power is turned on: Forcible OFF Cycle Defrost is started from Defrost stopping.

Normal Time:

- PC Cooling Mode is continuously for 10 hours.
- PC Cooling Mode is reset at the same time with Time Rest

5.3.2. 3 Way Valve Control when power is turned on

It is FC Cooling Mode from power turning on to 15 minutes, PC Cooling Mode from 15 minutes to 40 minutes, to be normal 3 Way Valve Control after 40 minutes.

5.3.3. Setting operation: Refrigerant Cycle pattern is changed by 3 Way Valve position

Basically 3 Way Valve operation of each Mode as shown below.

Basic Mode	3Way Valve condition	Compressor
PC Cooling Mode	PC side open	ON
FC Cooling Mode	FC side open	ON
Compressor OFF Mode	PC side open	OFF
FC Defrost Mode	FC side open	OFF
During waiting after FC Defrost	FC side open	OFF
During Precool Control	FC side open	ON

5.3.4. Initial Control of 3 Way Valve

When power is turned on, Initial Control of 3 Way Valve is done.

Initial Control: 3 Way Valve is opened toward PC side (Positive pulse 5 time), then 1 second after that, it is opened toward FC side (Negative pulse 5 time).

5.3.5. Evacuation Mode

When power is turned on, Initial Control of 3 Way Valve is done.

Starting: The valve is opened toward PC side of 3way valve when "Freezer compartment button" is pressed on Self Diagnosis Mode*. And "P" "FU" characters are displayed on the control panel.

- Self Diagnosis Mode can be started when "Super Freeze button" on the control panel is pressed more than 5 seconds.

Ending: Press "Freezer compartment button" again, then Evacuation Mode is ended and Self Diagnosis Mode appear again.

During Evacuation Mode, to press "Super Freeze button" the Mode is ended.

Or 7 minutes after starting the Self Diagnosis Display Control, at the same time Self Diagnosis Mode is ended too.

5.4. Antibacterial deodorant control (Deodorizing fan control, Antibacterial PC-LED control)

5.4.1. ON/OFF control of Deodorizing fan

Press and hold the Hygiene Plus button for 0.5 second. “Hygiene Plus” indicator lights up and Antibacterial deodorant control starts.

Press and hold the Hygiene Plus button for 0.5 second “Hygiene Plus” indicator lights off and Antibacterial deodorant control stops.

ON/OFF of Deodorizing fan is controlled by ATC sensor, FCC sensor, PCC sensor and PC door open or close.

5.4.2. Operation control of Deodorizing fan

1. Press and hold the Hygiene Plus button for 0.5 second.

First of all, it enters A mode that is rapid deodorization driving, the deodorizing fan drives for 120 minutes continuously.

After starting B mode that is normal deodorization driving, the deodorizing fan control starts.

	AT	10°C or below	11°C to 21°C	22°C to 28°C	29°C or above
When compressor ON	When PC is cooled	ON	ON	ON	ON
	When FC is cooled	ON	ON	ON	ON
When Compressor OFF		The fan drive for 30 minutes after compressor OFF	The fan drive for 10 minutes after compressor OFF	The fan OFF	The fan OFF

2. Press and hold the Hygiene Plus button for 0.5 second when antibacterial deodorant control starts.

When the antibacterial deodorant control stops (C mode), the deodorizing fan stops.

3. When power supply is turned on.

The deodorizing fan stops, even if A, B or C mode, when ATC is 34°C or above and while FCC is 27°C or above.

4. When PC door open.

The deodorizing fan stop forcibly even if A, B or C mode, While PC door opens. (To be dewy prevention, frost prevention)

5.4.3. Antibacterial PC-LED control

1. Basic operation

In A or B mode of the deodorizing fan control, antibacterial PC-LED turn on while the deodorizing fan drives. (If the fan stops, the LED is turned off.)

2. Exceptional control

In A or B mode of the deodorizing fan control, antibacterial PC-LED is turned on forcibly while PC door opens.

5.5. Photosynthesis-freshness-improving effect control

Input: To press and hold the Vitamin-Safe button for 0.5 second.

Output: LED of VC (Green LED, Blue LED)

Content of processing: Press and hold the Vitamin-Safe button for 0.5 second, Vitamin-Safe indicator lights up and both the blue LED and the green LED blink at the same time. It is operating a photosynthesis-freshness-improving effect control. While operating the control, press and hold the Vitamin-Safe button for 0.5 second, the control stops and “Vitamin-Safe” indicator lights and LED of VC are turned off.

Photosynthesis-freshness-improving effect control	While operating the control	While stop
Blue LED	40Hz flashing (ON/OFF: at each of 9.1msec)	OFF
Green LED		OFF

5.6. FC Fan Control

FCDC Fan Motor (FC fan) operation is controlled, to prevent a trip of compressor when initial pull down, for making properly the temperature in the FC and the control of a power consumption increase.

Detection: ATC sensor

- **Control of starting**
FC fan motor is rotated of high speed, for 10 seconds after starting.
- **Synchronous control of compressor**
FC fan is operated, while compressor is operated.
FC fan is operated, while FC Cooling Mode.
- **Control of Door Open/Close**
FC fan is stopped while FC door is opened.
- **FC fan delay control, when FC defrost is stopped**
When Defrost ends, three minutes pass after compressor works, the FC fan does the forcibly stop for six minutes.
- **Control of FC Fan rotational speed**
High speed drive: DC 12V
Common drive: DC 10V
Stop: 0V

In case normal control	ATC correction temperature is 21°C or below	PC Cooling Mode	Common
		FC Cooling Mode	Common
	ATC correction temperature is 22°C or above, 28°C or below	PC Cooling Mode	Low speed
		FC Cooling Mode	High speed
	ATC correction temperature is 29°C or above, 33°C or below	PC Cooling Mode	Low speed
		FC Cooling Mode	High speed

5.7. Compressor Rotational Speed Control

For securing the amount of cooling according to the overload at a high ambient temperature, the rotational speed of the compressor is changed by difference of temperature between FCC and FC Control setting, PCC and PC Control setting.

Detection : FCC, PCC, ATC sensor

5.7.1. Normal time

- The judgment of compressor ON: FCC is ON temperature or above
or
PC and FC Cooling Mode
- The judgment of compressor OFF: While FC is cooling FCC is OFF temperature OFF or above
While power is turning on of FC Defrost Heater,
While waiting of compressor start.

5.7.2. The use rotational speed

- The rotational speed of compressor is changed by deference between FCC temperature standard value (ON temperature) and FCC temperature, PCC temperature standard value and PCC temperature.
The rotational speed according to ambient temperature is as follows, it doesn't drive in other rotational speeds.
- The use rotational speed

Setting rotational speed of compressor					
Rotational speed	R1	R2	R3	R4	R5
Setting value r/s	25	39	43	59	71

- The use rotational speed according to ambient temperature is as follows

	Ambient temperature	Rotational speed of compressor
A	21°C or below	25/39/43 r/s
B	22°C to 28°C	25/39/43/59 r/s
C	29°C to 33°C	43/59/71 r/s
D	34°C or above	59/71 r/s

- **In case Super Freeze**
Ambient temperature is 21°C or below 43 / 59 r/s
Ambient temperature is 22°C or above, 33°C or below 59 / 71 r/s
Ambient temperature is 34°C or above 59 / 71 r/s

***Notes**

In case of A and B, the rotational speed is 43r/s from when power is turning on to compressor OFF.
However in case of setting of “Super Freeze”, the rotational speed of “Super Freeze” take precedence

5.8. Compressor starting control

The compressor is not start while waiting timer is operating.

And when power is turned on, compressor starting control is not available.

After power turning on	0 minute
After FC Defrost stopping (Improvement of start after defrost)	3 minutes
After compressor stopping (Prevention of trip when re-starting)	10 minutes
Sequence protection	10 minutes
Under voltage protection, DIP-IPM protection	10 minutes

5.9. Holiday Control

To activate:

Press and hold the Fridge Set button for 3 seconds. The “Fridge” temperature is not displayed while “Holiday” indicator lights up. The LED lamp will not light up during Holiday mode

To deactivate:

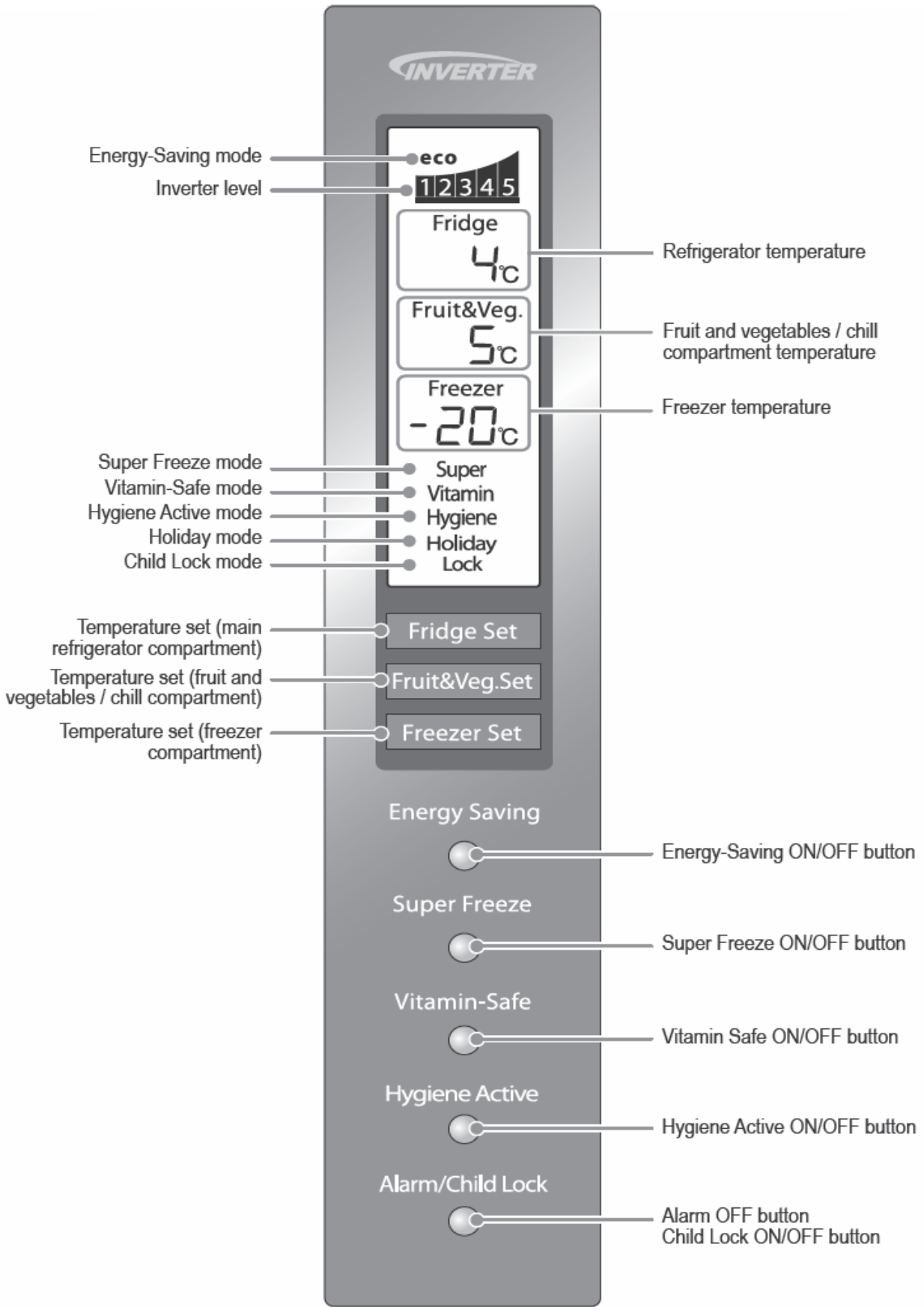
Press and hold the Fridge Set button for 3 seconds. The “Fridge” temperature is displayed while “Holiday” indicator lights off.

For the OFF/ON temperature of PC “4” setting, corresponding to each ATC correction temperature. PC temperature is adjusted to add 10°C to each OFF or ON temperature.

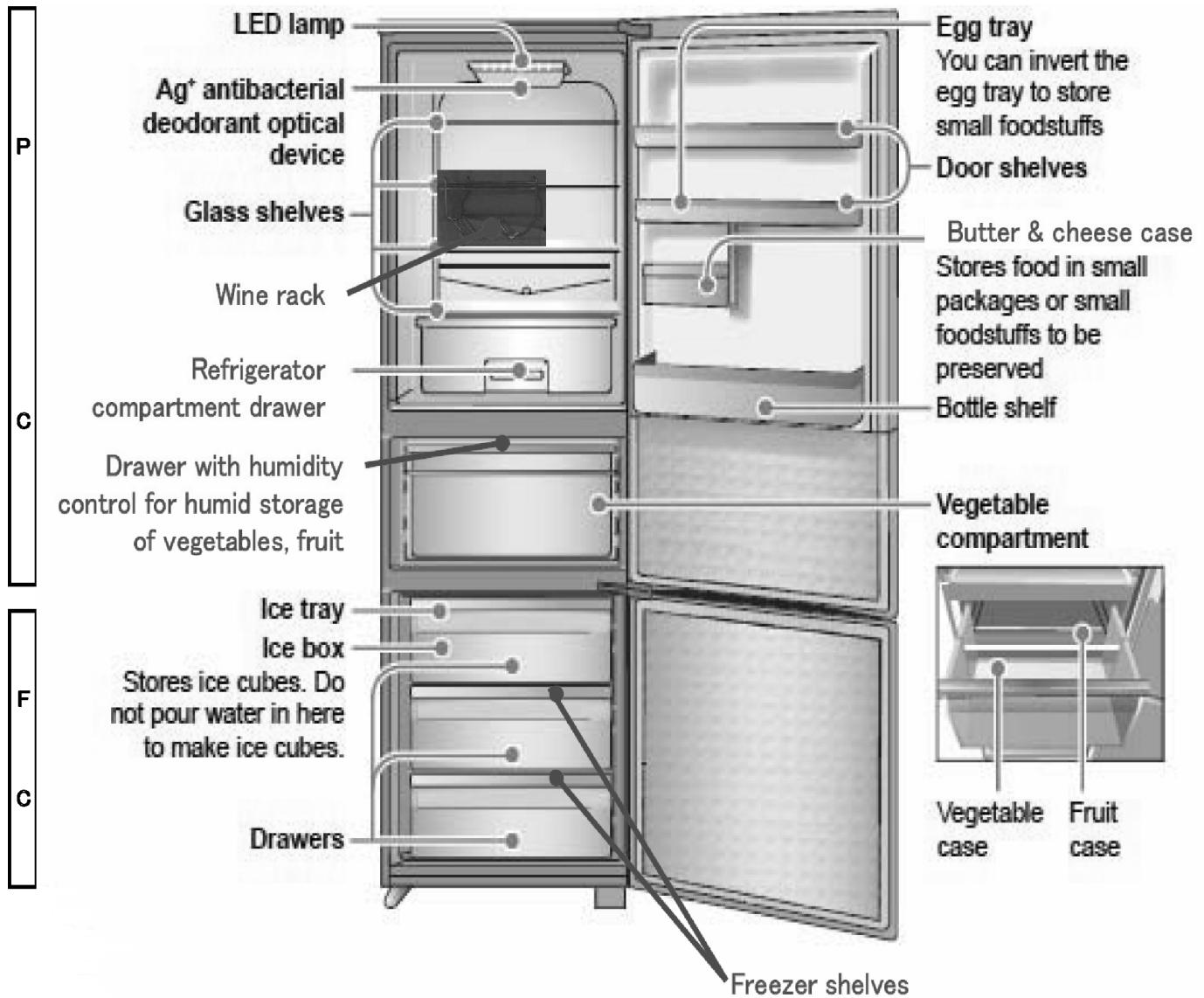
The acceptance of the refrigeration setting by to press “Fridge Set button” becomes to be invalid during Holiday Control. The room lamp is turned off when PC Door is opened, during Holiday Control.

6 Location of Controls and Components

6.1. Display and Control Panel



6.2. Components



7 Installation Instructions

7.1. Installation Instructions

This section explains how to install your appliance for the most energy-efficient, safe and quiet operation.

Unpacking your appliance

Remove all packaging and tape.

Choosing the right location

Ventilation

As the appliance gives off heat during operation, it should be installed in a well-ventilated, dry room with plenty of space above and behind it, as shown in Figure 1.

If you can hear it vibrating, it needs more space.

Temperature

The room temperature affects the refrigerator's energy-efficiency, i.e. how much electricity it uses to chill and freeze foods.

For the best results, install your refrigerator:

- away from direct sunlight
- away from radiators, cookers or other heat sources
- where the room temperature corresponds to the climate classification for which the appliance is designed. Refer to the Specifications Section for your appliance's climate classification.

Level

Install on a level floor that's strong enough to support a fully loaded refrigerator.

You can adjust the level of the refrigerator by screwing or unscrewing the two adjustable front legs as shown in Figure 2. This prevents vibration and noise.

If the appliance is to stand on a carpeted or vinyl floor, put a solid board underneath it first. This will protect your floor against possible colour change due to heat given off by the appliance.

Refrigerator door

The refrigerator's door hinges can be swapped over, from the right side to the left, so that the doors open in the opposite direction. If this is more convenient in your home, please consult authorized service centre, ask a qualified technician to do it for you.

Cleaning

After installation, wipe the appliance clean with warm water.

Plugging in

You can connect the power plug immediately after installation.

Room temperature

You'll find your refrigerator's climate classification on the rating plate in the left side of the refrigerator compartment. It shows the room temperature the appliance is designed to work in.

Climate classification	Permitted ambient temperature
SN (Extended Temperate)	+10°C to 32°C
N (Temperate)	+16°C to 32°C
ST (Subtropical)	+18°C to 38°C
T (Tropical)	+18°C to 43°C

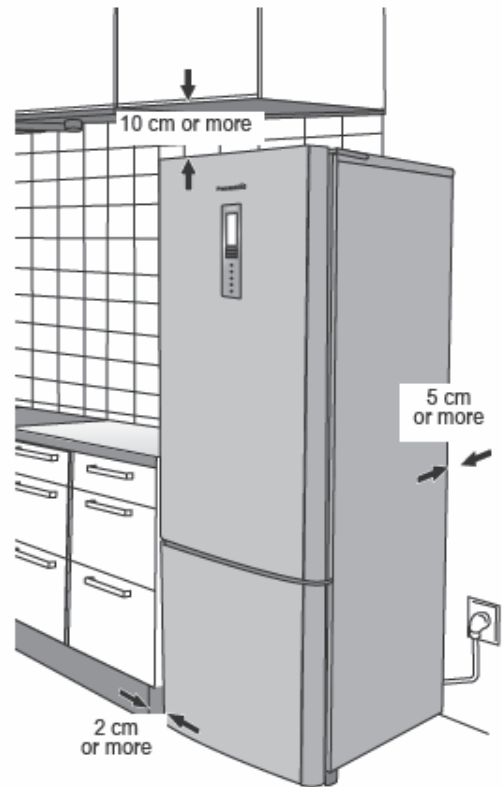


Figure 1

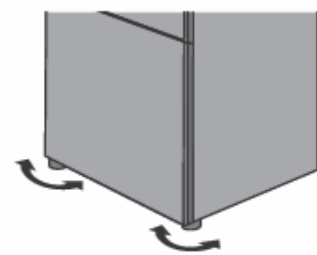


Figure 2

7.2. Getting started

Switching the appliance on



Figure 3

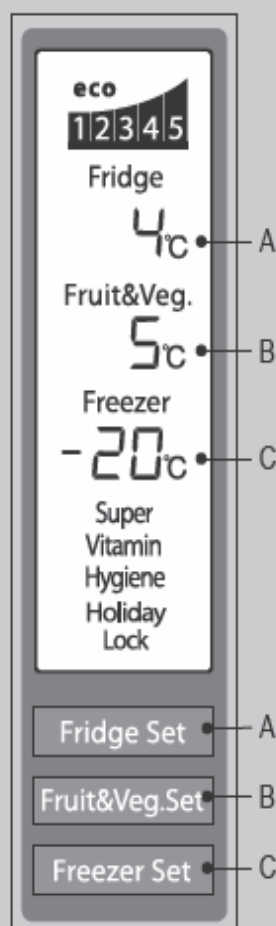
As soon as the machine has been installed, you can plug it into the power socket.

When connected, the light behind the display panel will come on. After about five seconds, the temperatures of the refrigerator, fruit and vegetables / chill compartment and freezer will start flashing "8°C", "8°C" and "-12°C" (figure 3).

- These aren't the actual temperatures. Because the appliance has just been turned on, the refrigerator, fruit and vegetables / chill compartment and freezer have not yet cooled down.
- When each compartment reaches the set temperature, the display stops flashing and shows the actual temperature. Assuming the room temperature is about 32°C, no food is stored, the door is closed and the appliance runs properly, this should take three to four hours.

Note: In higher room temperatures, it may take longer for each compartment to cool down.

Selecting the temperature



(A) Setting the main refrigerator temperature

Default temperature: 4°C

Setting range: 7°C to 1°C

To change the temperature:



① Press once.

② While it is flashing, press until the desired temperature is shown.

③ After five seconds, the display reverts to the actual temperature. The unit will then adjust to the new temperature.

(B) Setting the vegetable compartment temperature

Default temperature: 5°C

Setting range: 5°C to 0°C

To change the temperature:



① Press once.

② While it is flashing, press until the desired temperature is shown.

③ After five seconds, the display reverts to the actual temperature. The unit will then adjust to the new temperature.

(C) Setting the freezer temperature

Default temperature: -20°C

Setting range: -17°C to -25°C

To change the temperature:



① Press once.

② While it is flashing, press until the desired temperature is shown.

③ After five seconds, the display reverts to the actual temperature. The unit will then adjust to the new temperature.

Setting the right temperature

- If the refrigerator operates at 1°C for too long, some foods may freeze.
- The temperature in the refrigerator compartment drawer will automatically change according to the temperature set for the refrigerator.
- When the fruit and vegetables / chill compartment is set between 5°C and 2°C, the compartment is suitable for vegetables and fruit.
Try to keep fruit and vegetables separate.
- When the fruit and vegetables / chill compartment is set between 1°C and 0°C, it's suitable for chilled foods (meat, fish, precooked meals).
Note: The temperature can drop below 0°C, and some food may become partially frozen. Vegetables, fruit and any produce sensitive to lower temperatures should not be stored within this temperature range.
- Temperatures inside the refrigerator vary according to the room temperature, the setting, how you use the refrigerator, and the amount of food you store in it.
- The tested temperature may differ slightly from the temperature shown. This is due to different testing methods and tools.
- In the Super Freeze mode, the tested temperature of the freezer may differ from the temperature shown.
- This refrigerator controls the inside temperature using a micro processor. The temperature fluctuates along with changes in room temperature, how fast the compressor is running and how often the door is opened and closed. As a result, the temperature shown may be different from the temperature you've set.

8 Test Control

8.1. Compulsion Defrost

Defrost start forcibly, to make TEST Connector terminal 1 and 2 touch for an instant. (See the following picture of PCB (CONTROL))

After Defrost starting, it is operated normally of Defrost Control.

8.2. Compulsion FC Fan start

Compulsion FC Fan drive high speed, to be making short-circuit* of TEST Connector terminal 1 and 3. (See the following picture of PCB (CONTROL))

Compulsion FC Fan drive is ended when the short-circuit is released.

8.3. To change the rotation speed of compressor

Starting: To be making short-circuit of TEST0 terminal and GND on the PCB (CONTROL). (See the following picture of PCB (CONTROL))

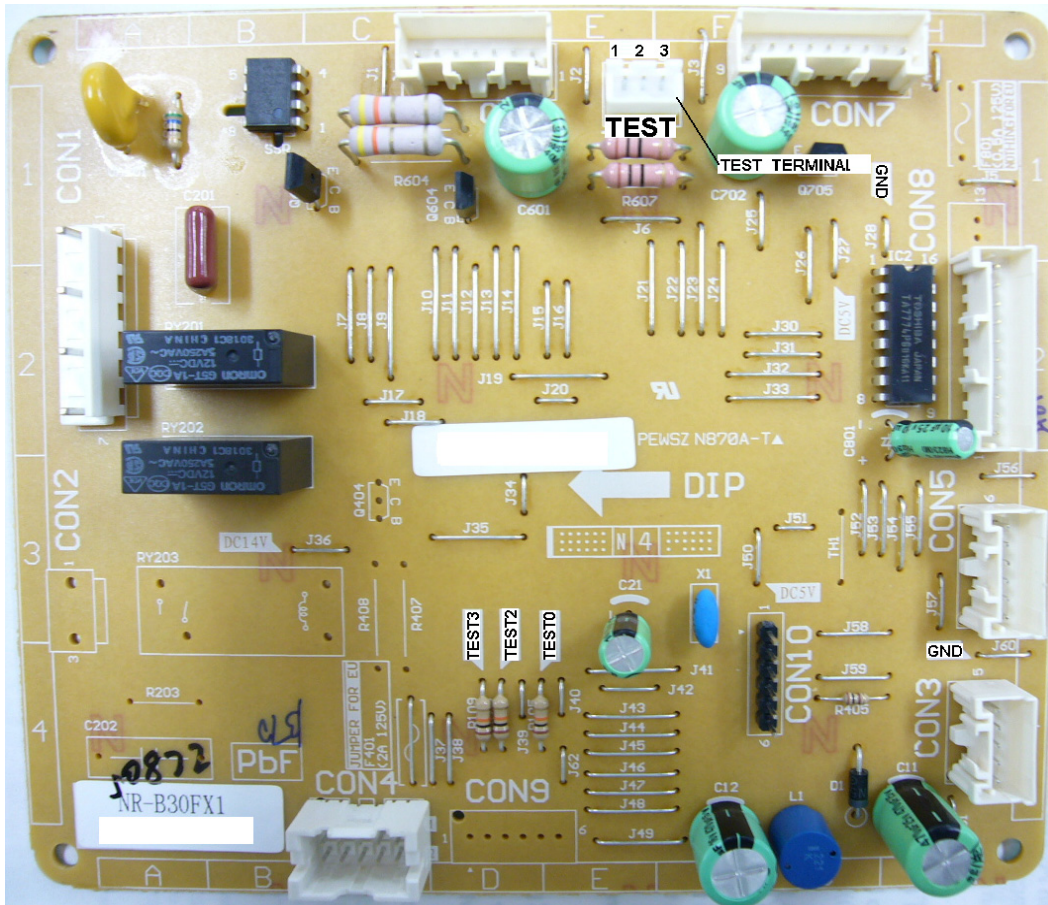
- To press 1 time "Super Freeze" : Value of compressor rotation 25 r/s
- To press 2 times "Super Freeze" :Value of compressor rotation 39 r/s
- To press 3 times "Super Freeze" :Value of compressor rotation 43 r/s
- To press 4 times "Super Freeze" :Value of compressor rotation 59 r/s
- To press 5 times "Super Freeze" :Value of compressor rotation 71 r/s

Ending: To release short-circuit of TEST0 terminal and GND.

8.4. Cut of waiting compressor start

Compressor start waiting is not operated, when to be making short-circuit* of TEST2 terminal and GND. It is ended when the short-circuit is released. (See the following picture of PCB (CONTROL))

*: Use short-circuit tool



Picture of PCB (CONTROL)

9 Service Mode

9.1. Self Diagnosis Display Mode

Self Diagnosis Function is available on the model and Self Diagnosis Mode is displayed on the display and control panel at the front center of PC Door, when trouble and/or failure happens.

A : How to start

When “Super Freeze button” on the control panel is pressed more than 5 seconds, Self Diagnosis display mode appeared.

The sign is displayed at center of Fridge temperature display area and Freezer area.

And when there are more than two signs, those are appeared continuously every 1second. Then finally “-”is displayed at Fridge area and “--” is displayed at Freezer area.

When there is not any trouble/failure, “-” is displayed at Fridge temperature area and “--” is displayed at Freezer area.

<u>In Normal Operation</u>	<u>In Trouble / Failure State</u>	
	ex : U10	ex : H01
Fridge 4 °C	U	H
Fruit&Veg. 5 °C		
Freezer -20°C	10	01

B : How to end

Self Diagnosis mode ends When “Super Freeze button” is pressed for less than 1 second while Self Diagnosis display mode.

9.2. Trouble / Failure history display mode

A : How to start

Trouble / Failure sign is displayed when “Super Freeze button” is pressed for more than 1 second while Self Diagnosis display mode.

When the sign is displayed, “ - ” is displayed at left side of Fridge temperature display area.

For example: When there is a trouble of FC temperature sensor.

Fridge temperature display area: H, Freezer area: 01

When there is not trouble/failure history.

Fridge temperature display area: H, Freezer area: ---

B : How to end

Trouble / failure history display mode ends when "Super Freeze button" is pressed for more than 1 second while that mode.

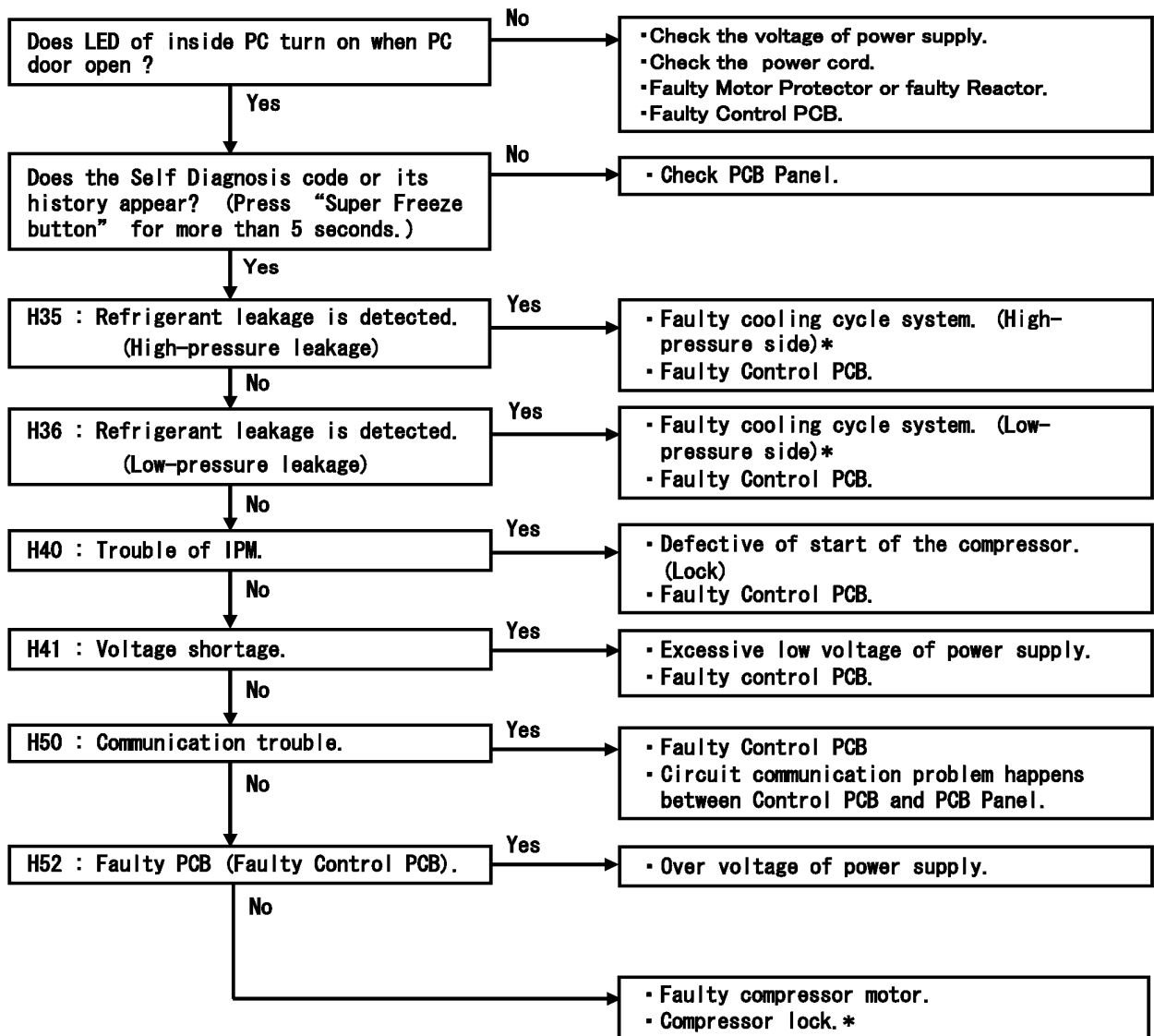
Or 7 minutes after starting the Self Diagnosis Display mode, Self Diagnosis Mode is ended automatically.

9.3. The display sign list of self diagnosis code.

Signal	Symptom	Check point	Condition	Display release
U10	Warning that door is kept open.	1.Close compartment door completely 2.Door SW PCB 3. Door aliment 4.Control PCB	The sign is displayed when PC / FC door is kept open for more than 1 minute.	Close the door, Adjust the door, Replace the door SW PCB, Replace control PCB
H01	FC temperature sensor circuit has trouble.	1.SensorFC 2.Sensor FC circuit 3.Control PCB	Open or short	Replace parts
H02	PC temperature sensor circuit has trouble.	1.Sensor PC 2.Sensor PC sircuit 3.Control PCB	Open or short	Replace parts
H05	Sensor DEFROST circuit has trouble.	1.Sensor DEFROST 2.Sensor DEFROST circuit 3.Control PCB 4.Thermal fuse*	Open or short (Note) When DFC is opened, thermal fuse is blown because of too long defrosting time.	Replace parts
H07	Sensor ATC circuit has trouble.	1.Sensor ATC 2.Sensor ATC circuit 3.Control PCB	Open or short	Replace parts
H10	SSC, Vegetable compartment sensor circuit has trouble.	1.Sensor SC circuit 2.Control PCB	Open or short	Replace parts
H12	PEC, PC sensor circuit has trouble.	1.Sensor PEC 2.Sensor PEC circuit 3.Control PCB	Open or short	Replace parts
H31	FC defrost heater circuit has trouble.	1.FC defrost heater 2.Thermal fuse 3.Control PCB	Temperature of defrost Sensor does not reach cut-off temperature.	Replace parts
H35	Refrigerating unit has trouble. (3 way valve / Gas leakage at high pressure side / Poor compression)	1.3 way valve 2.Gas leakage at high pressure side 3.Poor compression	Even if compressor runs, FC temperature and PC temperature would not be below 0°C continuously.	Replace parts
H36	Refrigerating unit has trouble. (Gas leakage at low pressure side)	1.Gas leakage at low pressure side	"H40"and "H36" display repeatedly.	Replace parts
H40	IPM & Compressor Protection Control has trouble.	1.Control PCB 2.Compressor(Lock)	Over current flow into IPM for a long time.	Replace parts
H41	Under voltage protection has trouble.	1.Power supply voltage 2.Control PCB	Low voltage add to unit for a long time.	Replace parts
H50	Communication error	1.Control PCB 2.Operation PCB 3.Wire circuit between control PCB and operation PCB	Micro- computer can not read or write the data.	Replace parts
H51	Control PCB has trouble.	1.Control PCB	Emulation initialization judgment error when power supply is turned on.	Replace parts
H52	Control PCB has trouble.(Voltage to compressor)	1.Control PCB	Inverter voltage is too high. Inverter voltage is too low.	Replace parts

10 Troubleshooting Guide

10.1. FC and PC not cooling at all. [Compressor does not run.]



* : The repair of the cooling system should make a special repair engineer who attended HC service seminar do because it uses refrigerant (R600a) that could catch fire and explode in this refrigerator.

Method of checking compressor

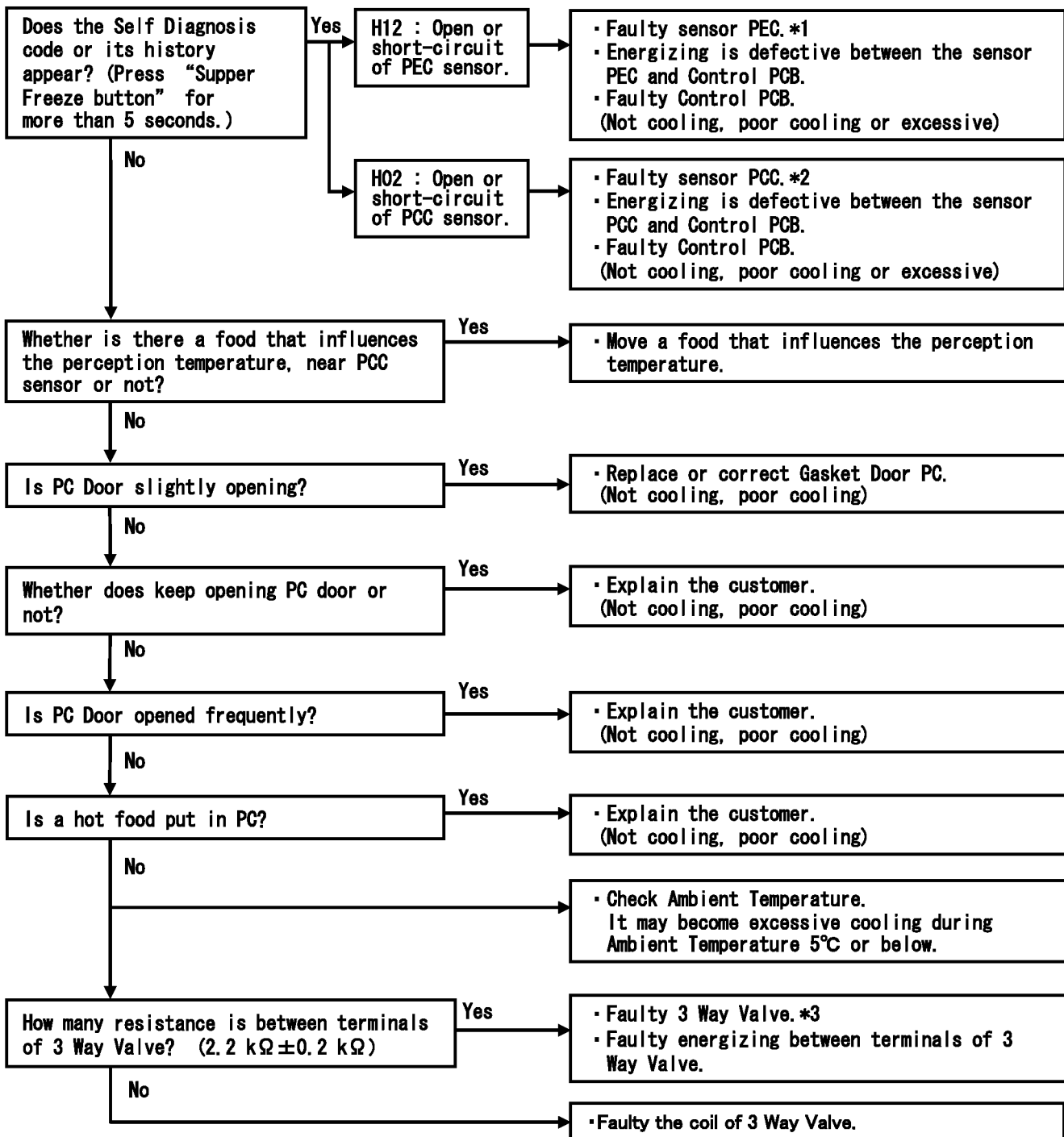
U - V : $5.79\Omega \pm 5\%$

U - W : $5.79\Omega \pm 5\%$

V - W : $5.79\Omega \pm 5\%$

(Ambient Temperature : 20°C)

10.2. PC is not cooling or poor cooling. [FC cooling condition is normal.]



*1 When PEC (sensor PE) short, the back side of PC inner liner does not defrost.

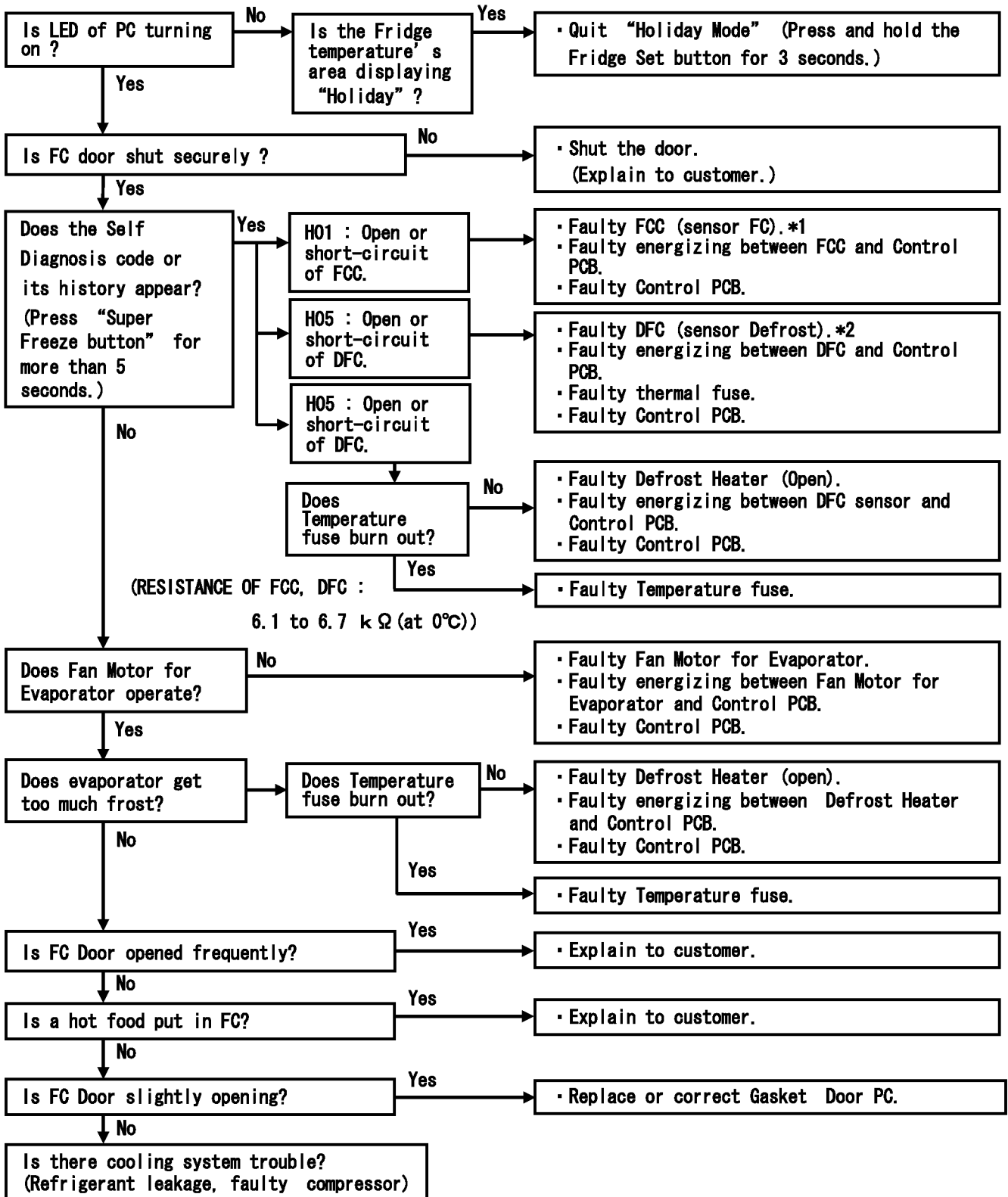
When PEC (sensor PE) open, PC is not cooled.

*2 When PCC (sensor PC) short, PC not cooled though PC temperature is high excessively.

When PCC (sensor PC) open, PC is cooled though PC temperature is low excessively.

*3 The repair of the cooling system should make a special repair engineer who attended HC service seminar do because it uses refrigerant (R600a) that could catch fire and explode in this refrigerator.

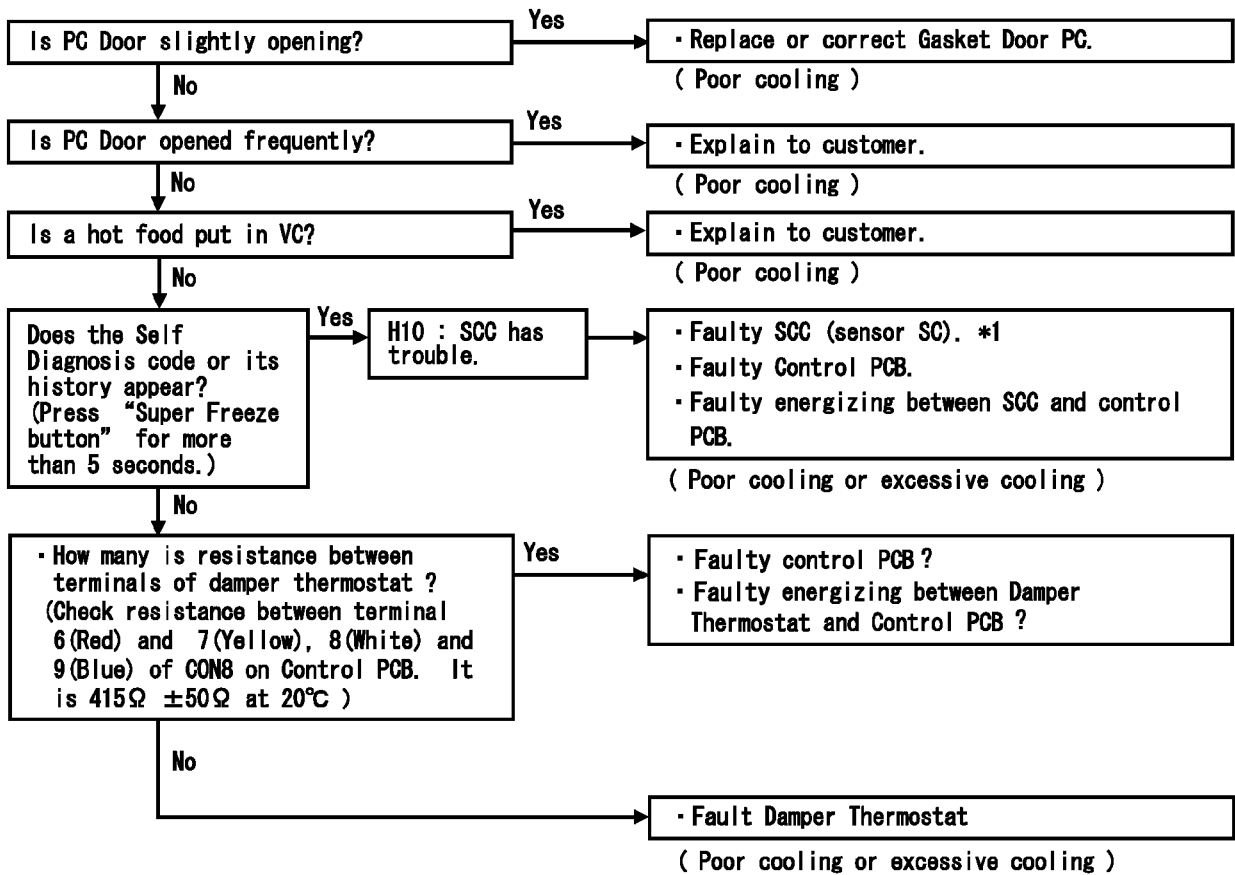
10.3. FC is poor cooling. [Compressor run.]



*1 When FCC (sensor FC) open, FC is not cooled though FC temperature is high excessively.

*2 When DFC (sensor Defrost) short, defrosting does not operate.

10.4. VC is poor cooling or excessive cooling.



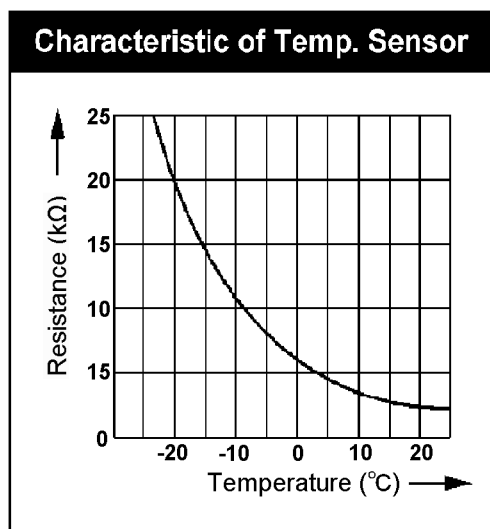
*1 : When SCC (sensor SC) open or short, Damper Thermostat does not operate.

When SCC (sensor SC) short, it energizes to VC heater so VC does not get cold.

When SCC (sensor SC) open, it does not energize to VC heater so VC get excessive cooling .

*2 : Pull the connector (CON501) out on PCB Panel, and check the voltage of input.

(①White - ⑦Gray : 5V, ⑦Gray - ⑨Green : 14V)



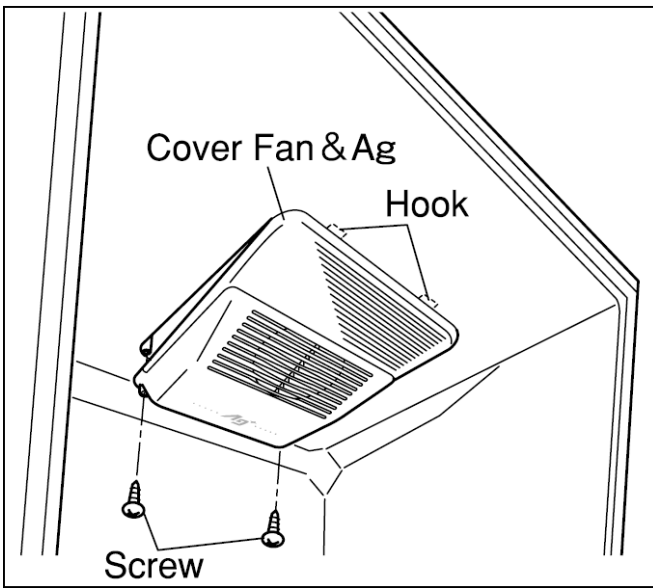
Defective phenomenon	
Sensor defective	Refrigerator Temp.
Open circuit or big resistance	No cooling or poor cooling
Short or small resistance	Excessive cooling

11 Disassembly and Assembly Instructions

11.1. Disassembly of PC (Refrigerator Compartment)

11.1.1. Box Fan, Ag Filter, Low Temp Deodorizer

1. Remove Cover Fan & Ag
 - a. Take Tray PC A'ssy out.
 - b. Remove two screws on Cover Fan & Ag by a screwdriver (+).
 - c. Grab the rear of Cover Fan & Ag, and remove while pulling it down.



2. Remove Holder Fan & Ag
 - a. Remove the screw of upper side of Box Fan.
 - b. Press the hook toward you, and remove Holder Fan & Ag.
 - c. Take the connector out and pull it out while pressing hook.

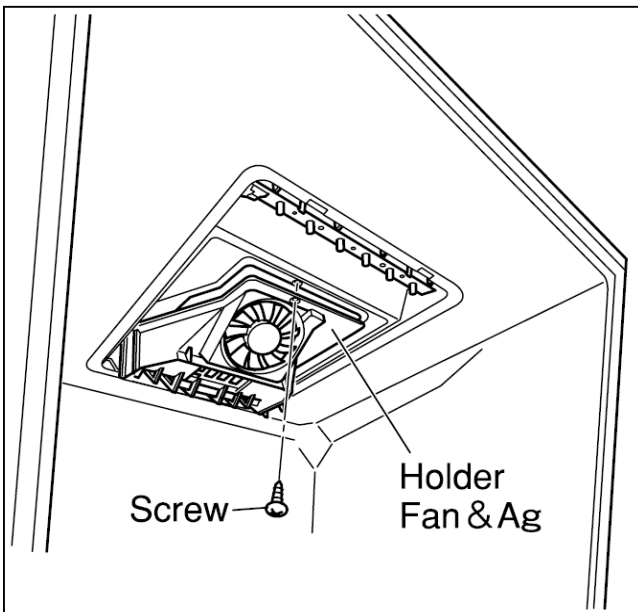
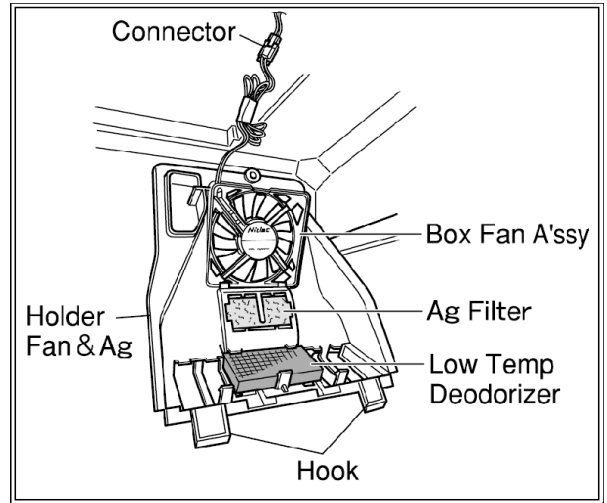
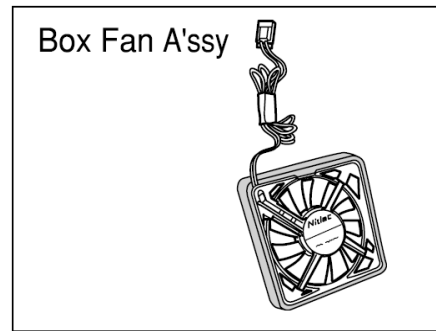


FIGURE OF HOLDER FAN & AG



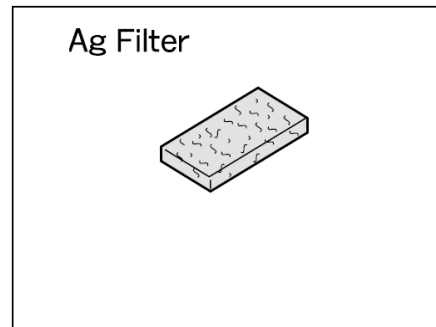
THE POINT OF REPLACEMENT OF BOX FAN A'SSY

- Unhook the hook of upper side of Box Fan A'ssy from reverse side. Then pull Box Fan A'ssy out.



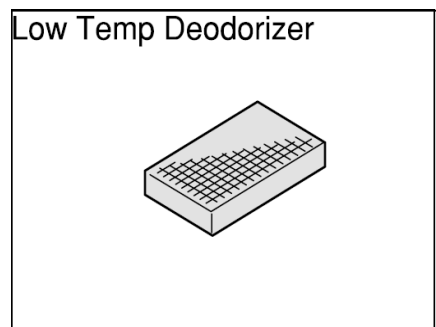
THE POINT OF REPLACEMENT OF AG FILTER

- Pull Ag Filter out from hooks of Holder Fan & Ag.



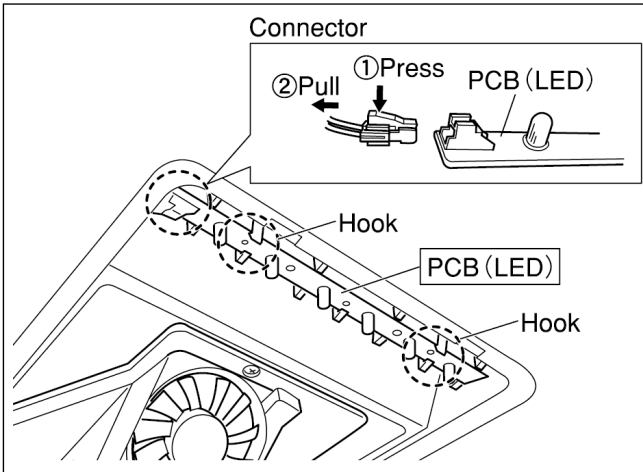
THE POINT OF REPLACEMENT OF LOW TEMP DEODORIZER

- Unhook the hook of Low Temp Deodorizer from reverse side of Holder Fan & Ag. Then pull Low Temp Deodorizer out.



11.1.2. PCB (LED)

1. Unhook hooks of left and right side, and pull PCB (LED) in a direction below.
Pull the connector out, and remove PCB (LED).

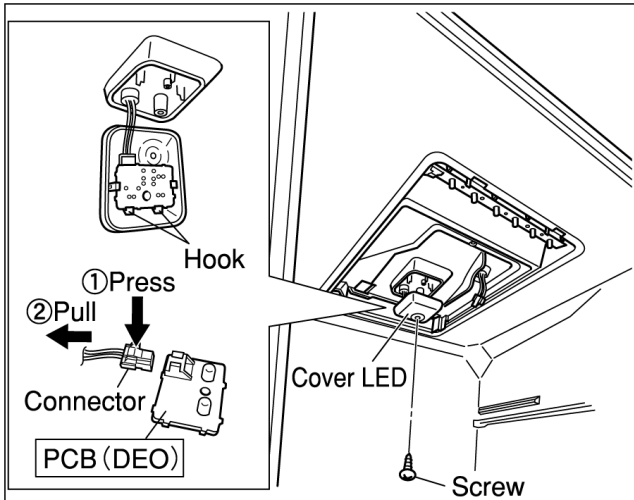


NOTES

- Be careful not to break PCB (LED) when it is removed and installed.

11.1.3. PCB (DEO)

1. Remove the screw that is fixation of Cover LED. Then remove Cover LED out
2. (2)Take PCB (DEO) out from reverse side two Hooks of Cover LED.
3. Pull the connector out while pressing the hook.

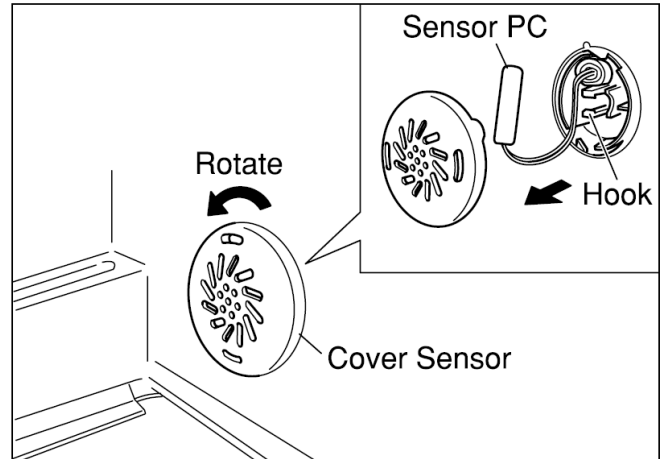


NOTES

- Be careful not to break PCB (DEO) when it is removed and installed.

11.1.4. SENSOR PC

1. Take Tray PC A'ssy out.
2. Rotate Cover Sensor anti-clockwise, and remove it.
3. Pull Sensor PC from inside Inner Liner like the figure.

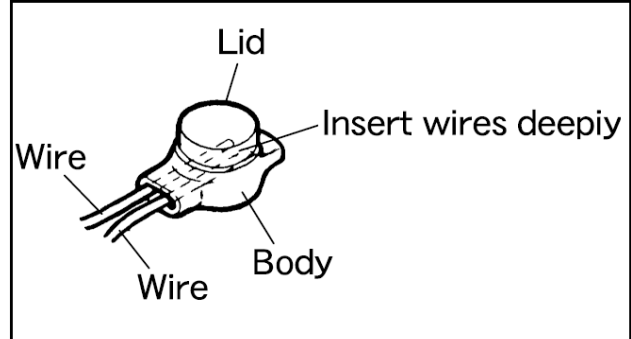


• IN CASE REPLACEMENT SENSOR PC

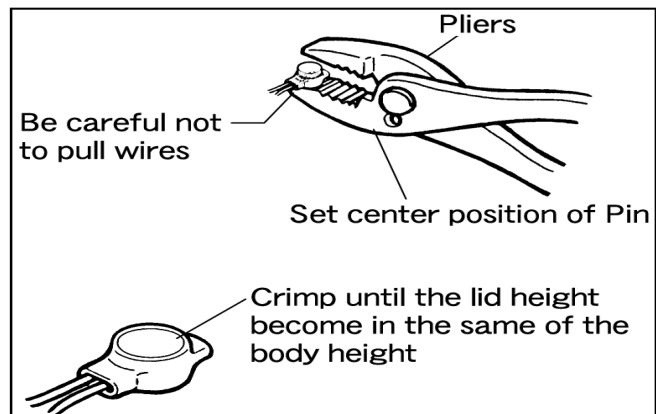
1. Cut the wire at near Sensor PC.
2. Connect new Sensor PC and wire by Scotch Lock.
3. (3)Install Cover Sensor to rotate clockwise.

THE POINT OF WORK

1. Insert deeply each wire one by one in Scotch Lock.
 - The Scotch Lock is the structure that can connect unstripped wires. Then it is unnecessary to use wire stripper. (When you connect wires that was peeled off film, it is easy to come off them.)



2. The lid (color painted) of the Scotch Lock is crimped with pliers. Then the lid height become in the same of the body height of the Scotch Lock.
 - When you crimp the Scotch Lock with pliers, please work while holding these wires to the Scotch Lock side so that these wires should not come off.



3. Check good operation or not those parts after the work.

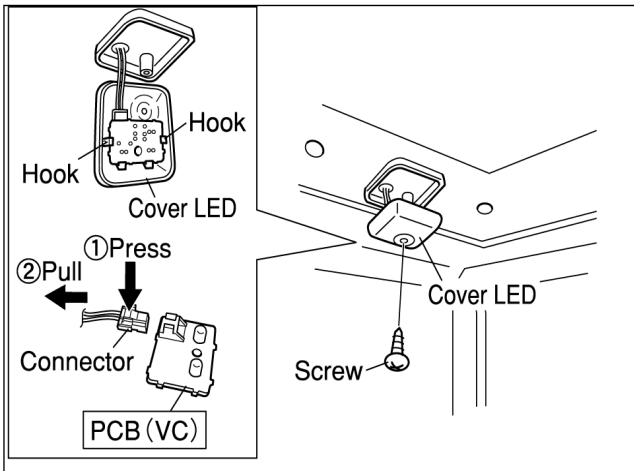
CAUTION

Be careful not to bite the wires by Cover Sensor, when store the wires and the Scotch Lock in Cover Sensor.

11.2. Disassembly of VC (Vegetable Compartment)

11.2.1. PCB (VC)

1. Remove Crisper A'ssy
 - Pull Crisper Case, take it out from each two portions of Rail VC right and left.
 - You can see the figure below (11.2.2.(1)).
2. Remove the screw that is fixation of Cover LED on upper side of VC. Then remove Cover LED.
3. (3)Remove PCB (VC) while pressing left and right hooks of reverse side of Cover LED.
4. (4)Pull the connector out while pressing the hook.

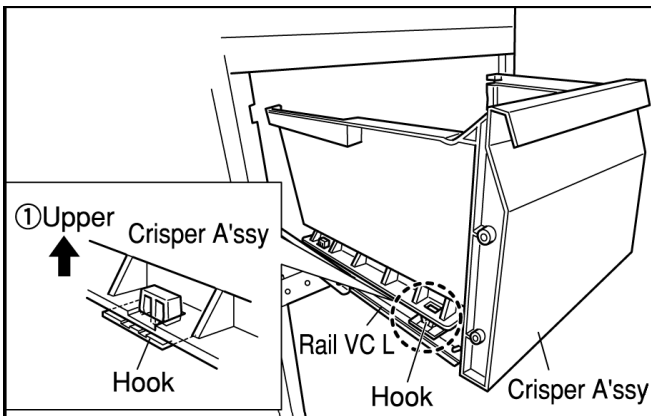


NOTES

- Be careful not to break PCB (VC) when it is removed and installed.

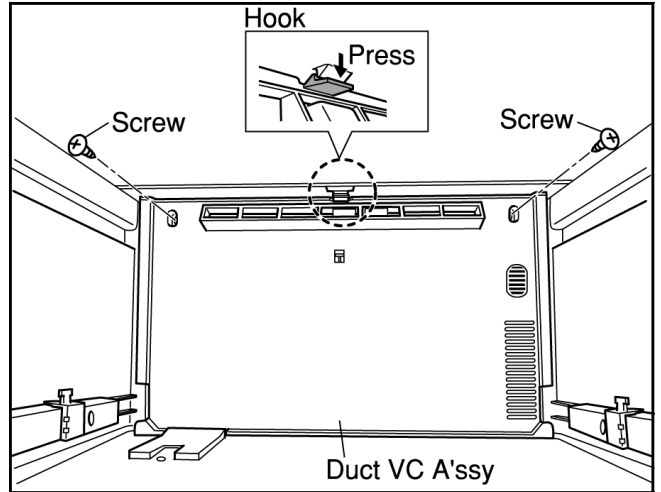
11.2.2. CRISPER A'SSY

1. Remove Crisper A'ssy.
 - Pull Crisper Case, take it out from each two portions of Rail VC right and left.



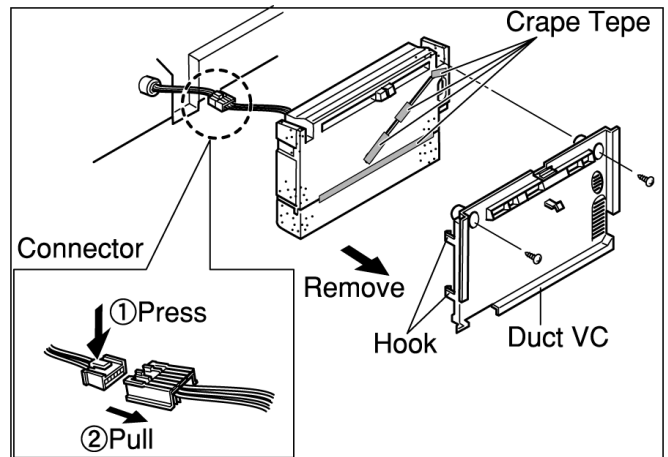
11.2.3. DUCT VC

1. Remove Crisper A'ssy
 - Pull Crisper Case, take it out from each two portions of Rail VC right and left.
 - You can see the figure (11.2.2.(1)).
2. Remove Duct VC A'ssy toward you while pulling the hook of upper side.



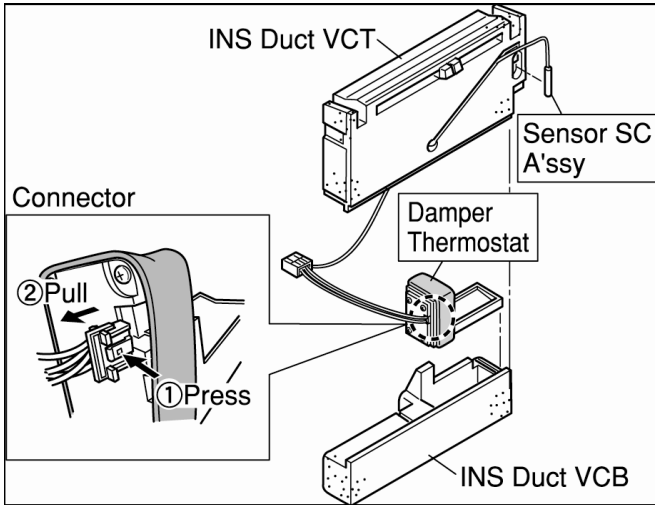
3. Remove Duct VC.

- Remove the connector of Damper Thermostat, then take Duct VC out.
- Take out INS Duct VCT and INS Duct VCB form four hooks of Duct VC.
- Tear off Foam tape, removes Sensor SC from fixation part of INS Duct VCT.



11.2.4. SENSOR SC A'SSY AND DAMPER THERMOSTAT

1. Separate INS Duct VCT and INS Duct VCB
 - Tear off crepe tape, separate INS Duct VCT and INS Duct VCB.



2. Remove each parts
 - The point of replacement of Damper Thermostat.
 - a. Take Damper Thermostat out from INS Duct, pull the connector out.
 - b. Replace Damper Thermostat.
 - The point of replacement of Sensor SC A'ssy.
 - a. Take Damper Thermostat out from INS Duct, pull the connector out.
 - b. Replace Sensor SC A'ssy.

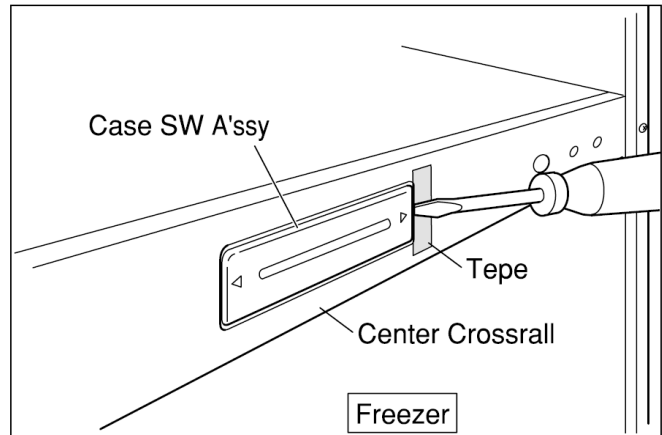
NOTES

1. Put heat insulator on around Damper Thermostat as before, after connect the connector with it
2. Install Damper Thermostat securely. It might become cause of leakage of cooling air.
3. Put crepe tape on joint parts, after assembly INS Duct VCT and INS Duct VCB.
4. Fix Sensor SC A'ssy to the hook of IND Duct VCT as before.

11.3. Disassembly of CASE SW A'SSY

11.3.1. CASE SW A'SSY

1. Insert screwdriver (-) in a gap of the triangle mark portion of Case SW A'ssy then pry off Case SW A'ssy.

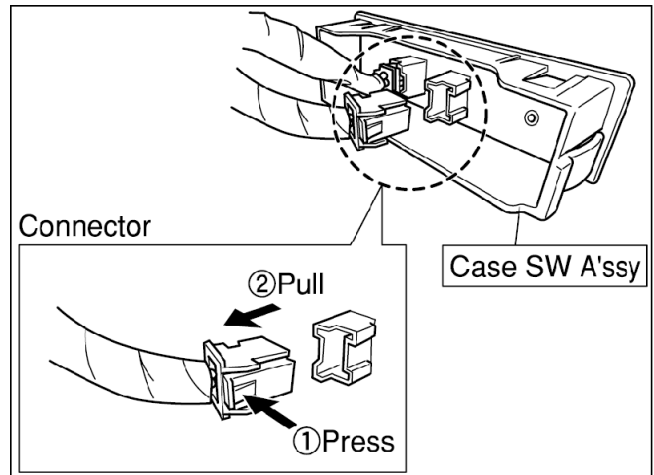


NOTES

- Be careful not to make a scratch by screwdriver (-) to the paint work of Center Crossrail.
- Please put a tape on the part where a screwdriver (-) touch to prevent paintwork in the Center Crossrail being damaged.

2. Remove two connectors.

- Do not pull wire so strongly to remove the connector. The connector can be taken out while pressing the hook.



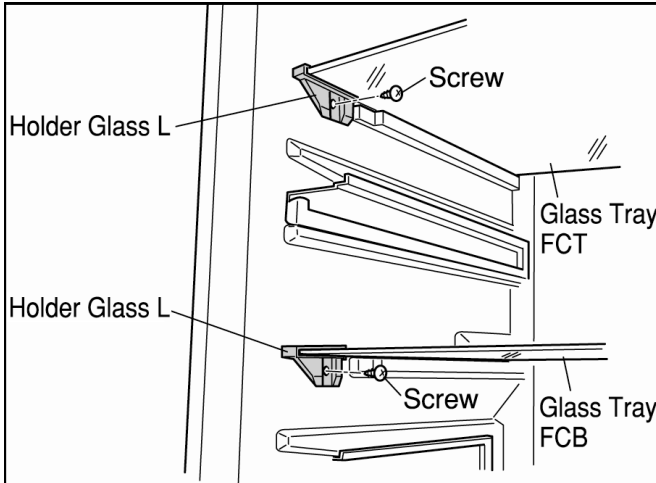
NOTES

- The connector is classified by the color. Connect those connectors as before so as not to make mistake.
- Be careful not to bite wires between Case SW A'ssy and Center Crossrail when you install Case SW A'ssy.

11.4. Disassembly of FC (Freezer Compartment)

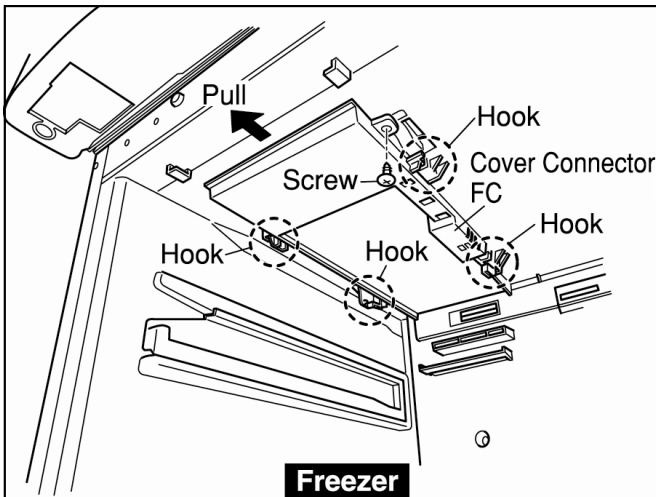
11.4.1. SENSOR FC

1. Take Case FCT A'ssy and Case FCB A'ssy out of FC.
2. Take Glass Tray FCT and Glass Tray FCB out.
 - a. Remove the screws that are fixation of Holder Glass. (Each of two FC right and left)
 - b. Remove Holder Glass and pull Glass Tray FCT and Glass Tray FCB out.

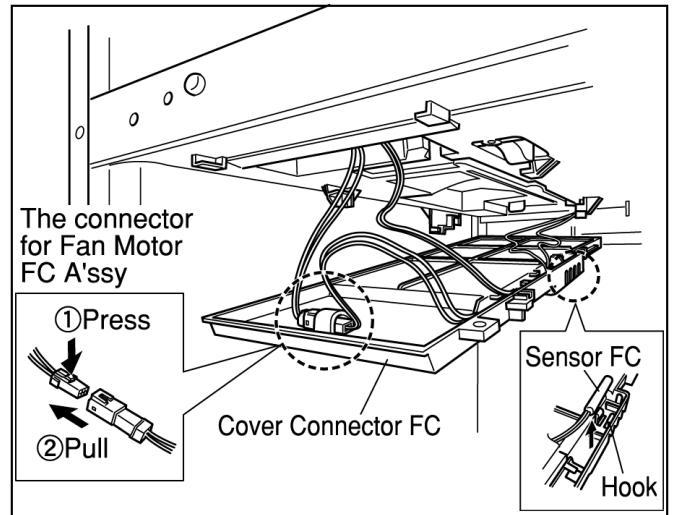


• The figure is left side view also there are Holder Glass R in the right side.

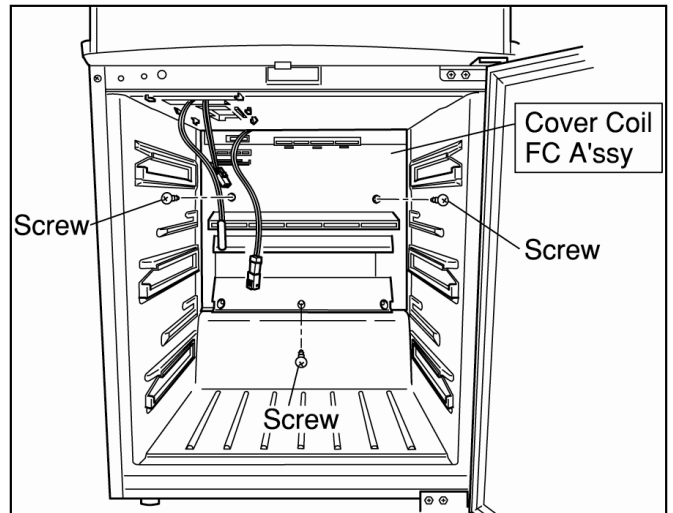
3. Take Cover Connector FC out.
 - a. Remove the screw that is fixation of Cover Connector FC on the left of upper side of FC.



- b. Pull Cover Connector FC toward you, unhook the Hooks(4 portions).
- c. Remove sensor FC from the hook of reverse side of Cover Connector FC, pull out the connector for Fan Motor FC.



4. Cut the wire at near the Sensor FC.



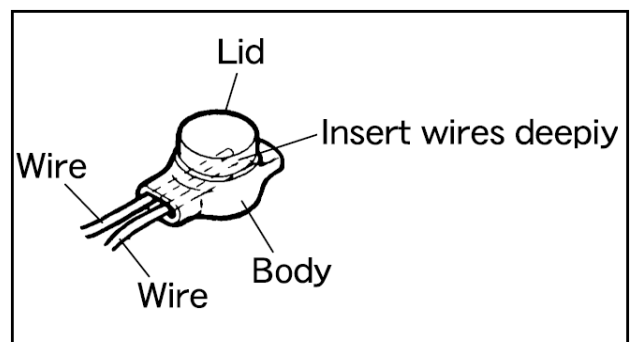
5. Connect new Sensor FC and wires by Scotch Lock.

NOTES ON INSTALLATION

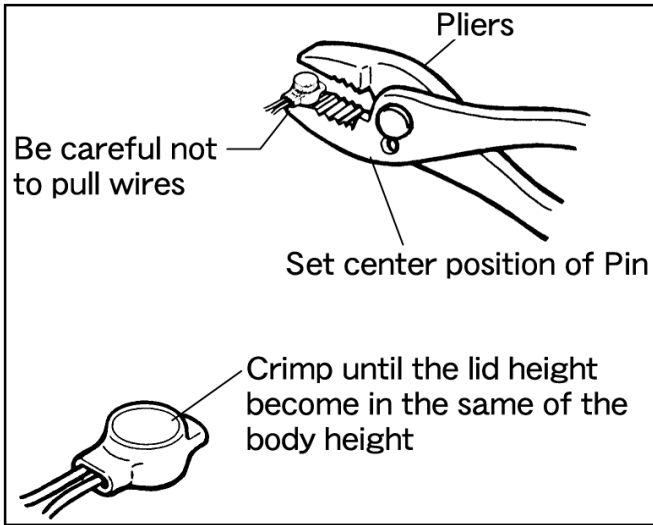
- Hook Sensor FC to the hook of Cover Connector FC as before, store Sensor FC and Scotch Lock reverse side of Cover Connector FC.
- Connect the connector of Fan Motor FC securely, store the connector to the hook reverse side as before.
- Insert Cover Connector FC in upper side of FC as before, screw the screws that are fixation of it.

THE POINT OF WORK

1. Insert deeply each wire one by one in Scotch Lock.
 - The Scotch Lock is the structure that can connect unstripped wires. Then it is unnecessary to use wire stripper. (When you connect wires that was peeled off film, it is easy to come off them.)



2. The lid (color painted) of the Scotch Lock is crimped with pliers. Then the lid height become in the same of the body height of the Scotch Lock
 - When you crimp the Scotch Lock with pliers, please work while holding these wires to the Scotch Lock side so that these wires should not come off.



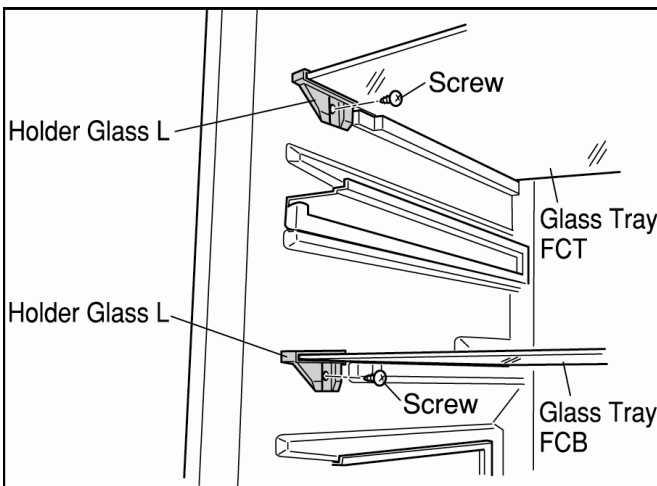
3. Check good operation or not those parts after the work.

CAUTION

Be careful not to bite the wires by Cover Sensor, when store the wires and the Scotch lock in Cover Sensor.

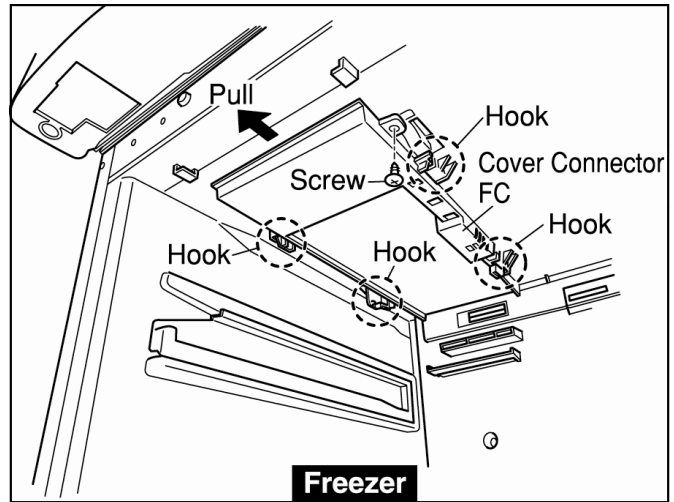
11.4.2. COVER COIL FC

1. Take Case FCT Assy and Case FCB A'ssy out of FC.
2. Take Glass Tray FCT and Glass Tray FCB out.
 - a. Remove the screws that are fixation of Holder Glass FC. (Each of two FC right and left)
 - b. Remove Holder Glass FC and pull Glass Tray FCT and Glass Tray FCB out.

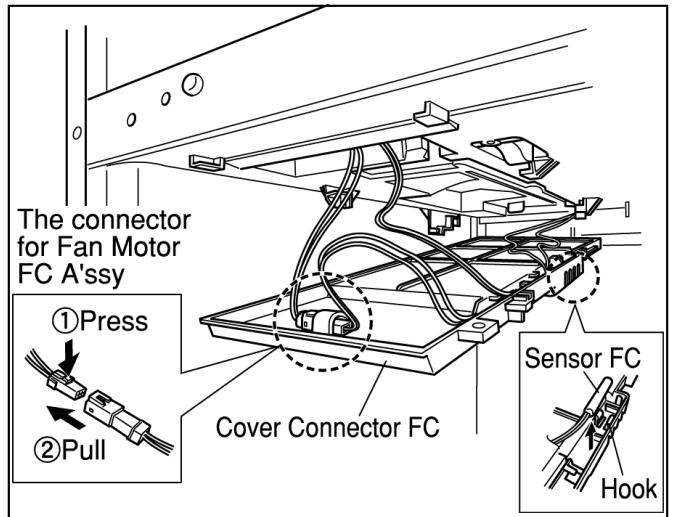


• The figure is left side view also there are Holder Glass R in the right side.

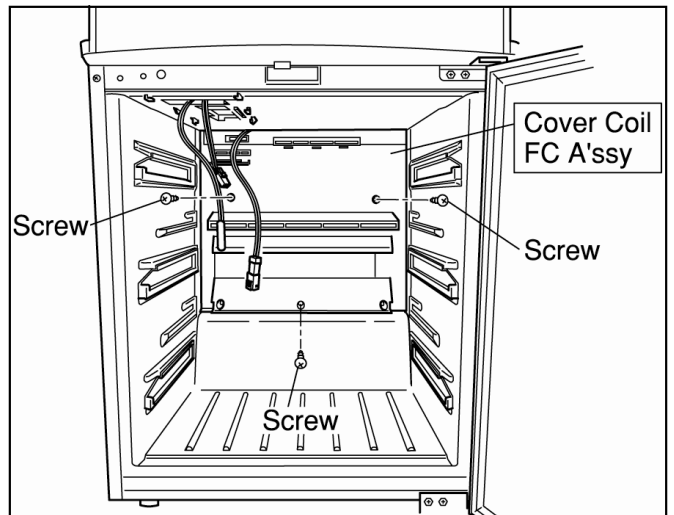
3. Take Cover Connector FC out
 - a. Remove the screw that is fixation of Cover Connector FC on the left of upper side of FC.



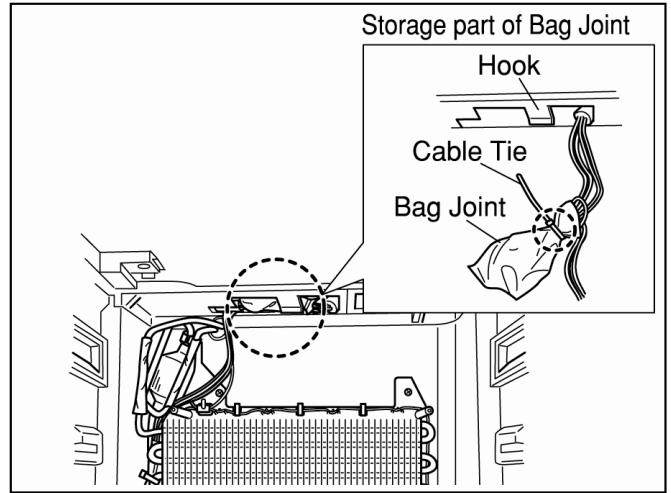
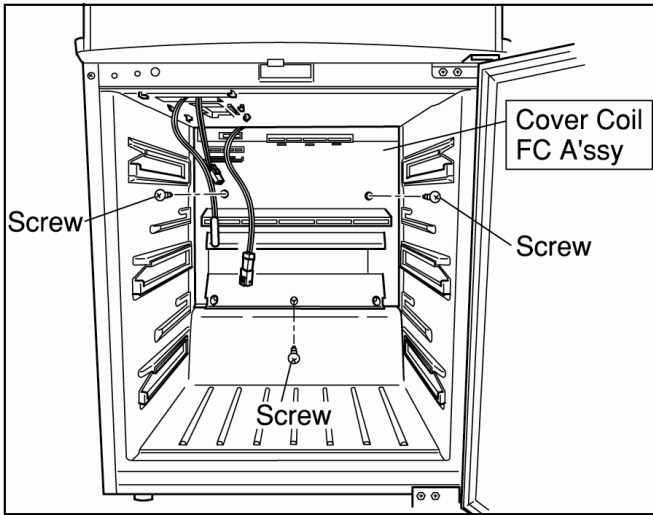
- b. Pull Cover Connector FC toward you, unhook the Hooks(4 portions).
- c. Remove sensor FC from the hook of reverse side of Cover Connector FC, pull out the connector for Fan Motor FC.



4. Remove Cover Coil FC A'ssy
 - a. Remove three screws in front of Cover Coil FC A'ssy.
 - b. Remove Cover Coil FC A'ssy while pulling bottom side.



The figure of after Cover Coil FC A'ssy is removed

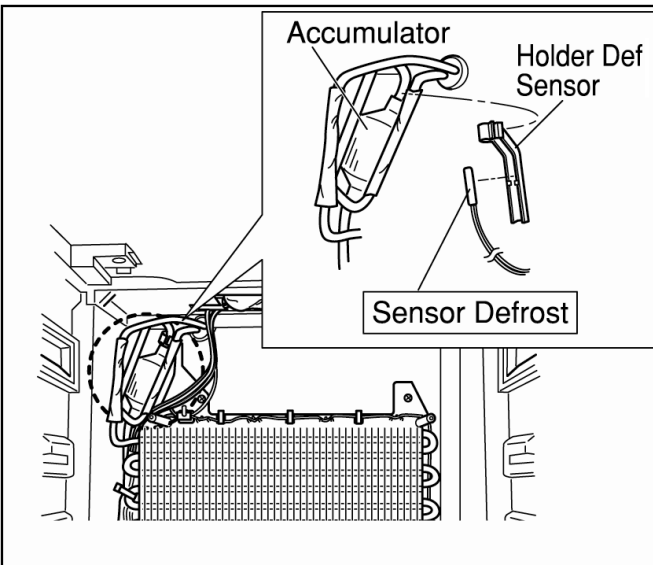


d. Remove the connector of Sensor Defrost, then replace new Sensor Defrost.

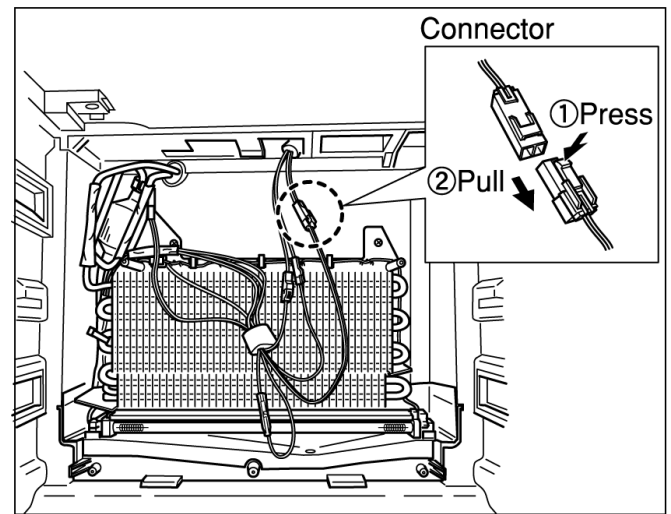
11.4.3. SENSOR DEFROST, TEMPERATURE FUSE A'SSY RADIANT HEATER

1. SENSOR DEFROST

- a. Remove Holder Def Sensor that is installing upper side of Accumulator.
- b. Remove Sensor Defrost from Holder Def Sensor.



c. Pull Bag Joint from storage part of depths of upper side of FC.
Cut Cable Tie of Bag Joint, then take out wires and connectors inside it.

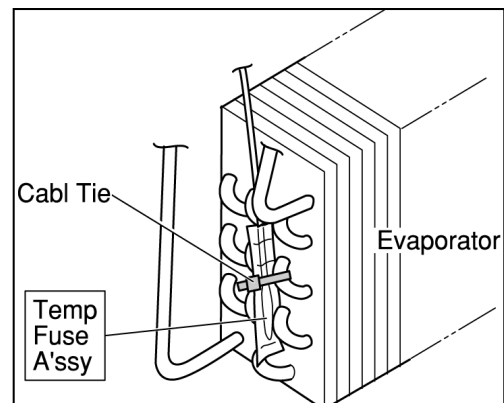


NOTES ON INSTALLATION OF SENSOR DEFROST

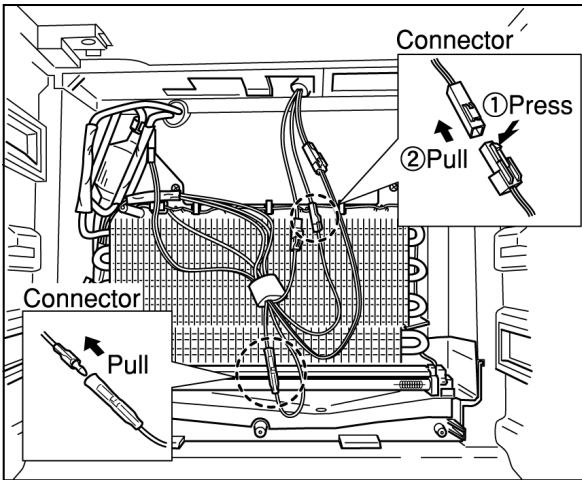
- Install Sensor Defrost in Holder Def Sensor, then install Holder Def Sensor in upper side of Accumulator as before.
- Tighten Bag Joint that is put in the connector of Sensor Defrost with other connectors by Cable Tie as before.
- Store Bag Joint to the place as before.

2. TEMP FUSE A'SSY

- a. Cut Cable Tie that is fixation of Temp Fuse A'ssy in side of Evaporator.



- b. Pull Bag Joint from storage part of depths of upper side of FC.
Cut Cable Tie of Bag Joint, then take Bag Joint.
- c. Remove the connector of Temperature Fuse A'ssy, then replace new Temp Fuse A'ssy.

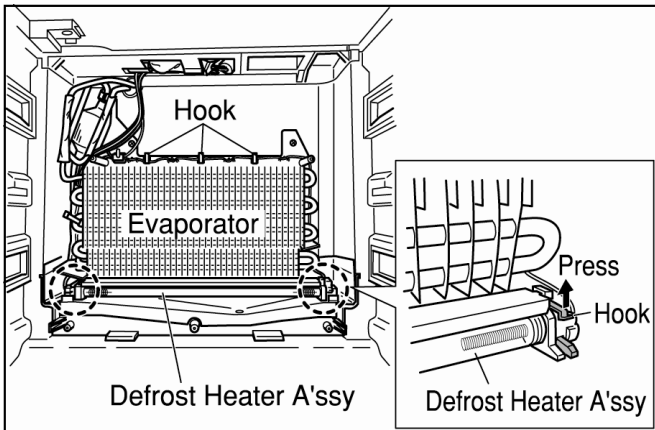


NOTES ON INSTALLATION

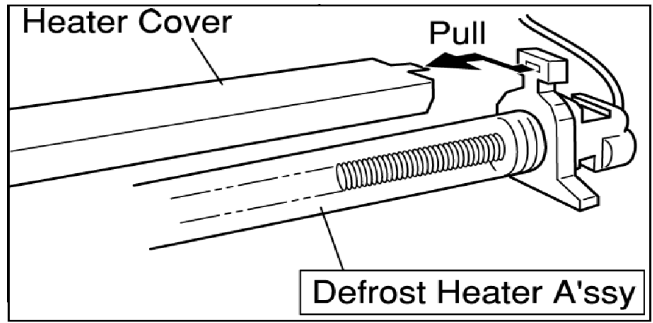
- Tighten Temp Fuse A'ssy by Cable Tie to pipe of Evaporator.
- Tighten Bag Joint that is put in the connector of Temp Fuse A'ssy with other connectors by Cable Tie as before.
- Store Bag Joint to the place as before.

3. DEFROST HEATER A'SSY

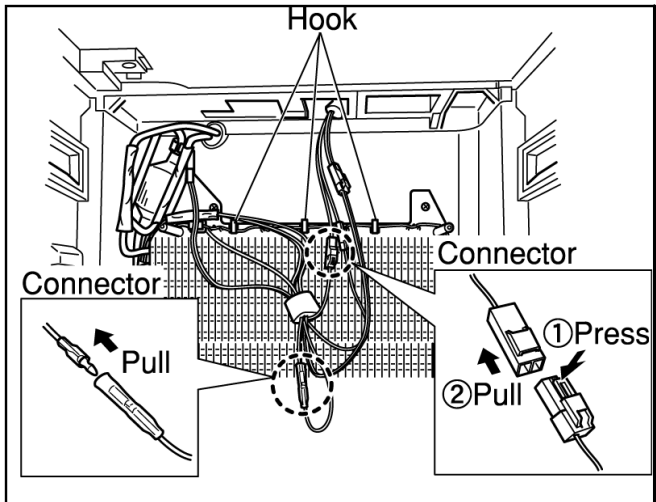
- a. Remove Defrost Heater A'ssy forward from right and left side hooks that are fixation of Defrost Heater A'ssy while pressing up hooks.



- b. Remove Heater Cover of upper side of Defrost Heater A'ssy.



- c. Unhook 10 hooks, then remove the wires of Defrost Heater A'ssy.
- d. Pull Bag Joint from storage part of depths of upper side of FC.
Cut Cable Tie of Bag Joint, then take Bag Joint.
- e. Pull out two connectors of Radiant Heater A'ssy, then replace new Defrost Heater A'ssy.



NOTES ON INSTALLATION

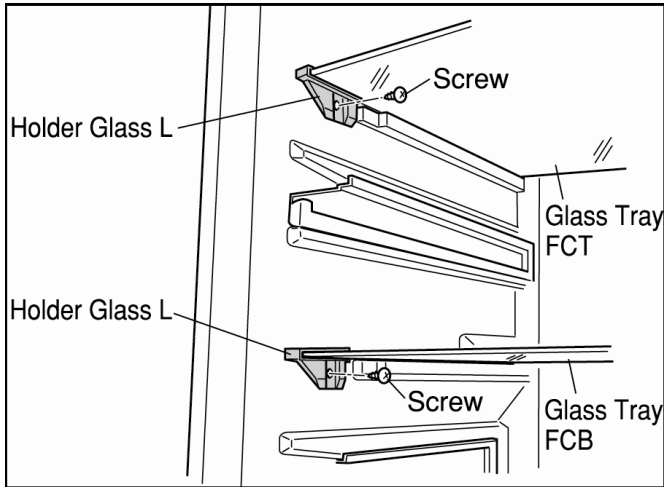
- Install Heater Cover in rubber cap securely.
- Arrange the lead wires, hook them to the wire hooks.
- Tighten Bag Joint that is put in the connector of Defrost Heater A'ssy with other connectors by Cable Tie as before.
- Store Bag Joint to the place as before.

NOTES ON INSTALLATION OF COVER COIL FC A'SSY

- Install Cover Coil FC A'ssy in upper side of depths of FC, then fix it by three screws.
- It might be cause of getting frost, in case of imperfect installation of Cover Coil FC A'ssy.

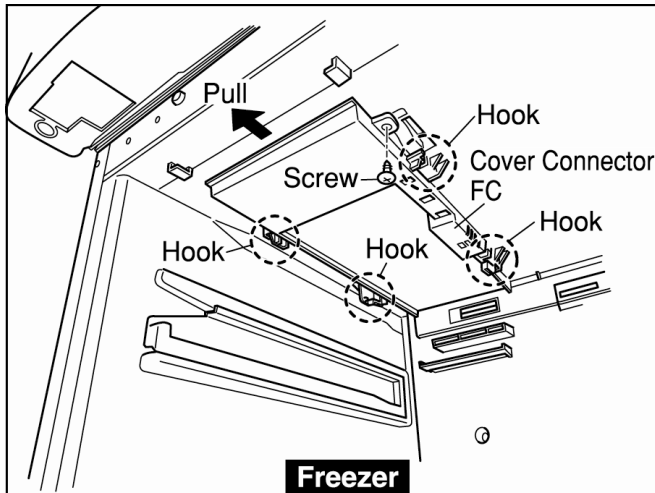
11.4.4. FAN MOTOR FC ASSY

1. Take Case FCT A'ssy and Case FCB A'ssy out of FC.
2. Take Glass Tray FCT and Glass Tray FCB out.
 - a. Remove the screws that are fixation of Holder Glass. (Each of two FC right and left)
 - b. Remove Holder Glass and pull Glass Tray FCT and Glass Tray FCB out.

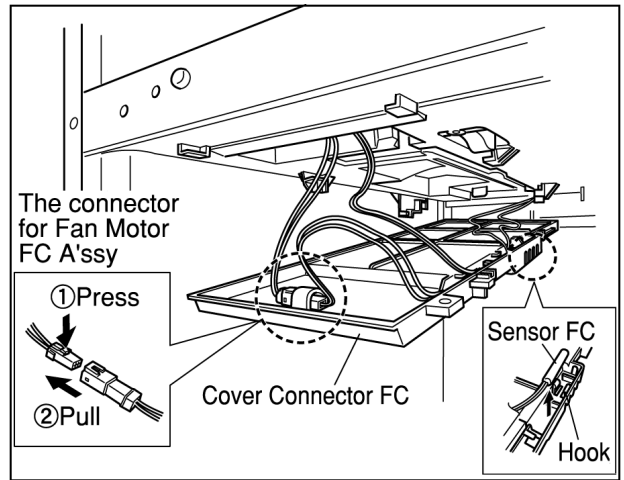


• The figure is left side view also there are Holder Glass R in the right side.

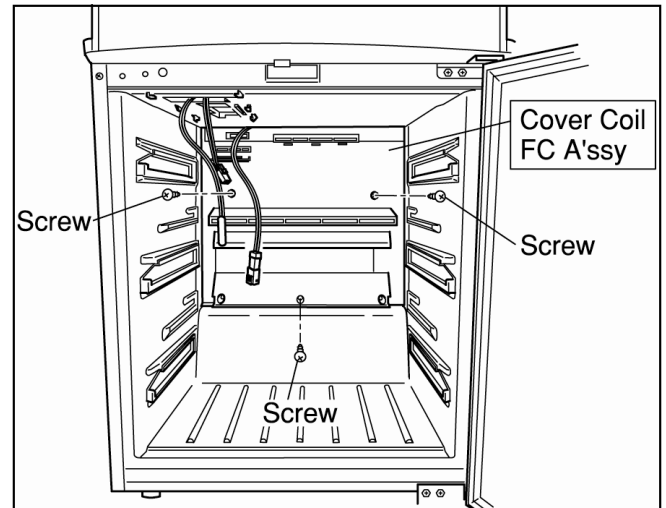
3. Take Cover Connector FC out
 - a. Remove the screw that is fixation of Cover Connector FC on the left of upper side of FC.



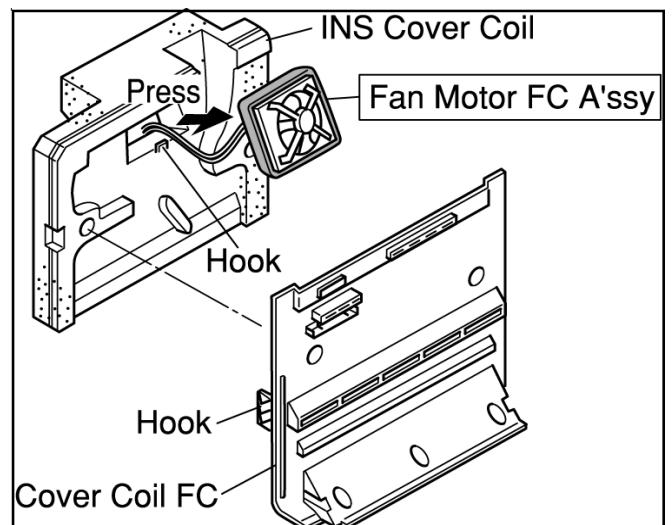
- b. Pull Cover Connector FC toward you, unhook the Hooks(4 portions).
- c. Remove sensor FC from the hook of reverse side of Cover Connector FC, pull out the connector for Fan Motor FC A'ssy.



4. Remove Cover Coil FC A'ssy
 - a. Remove three screws in front of Cover Coil FC A'ssy.
 - b. Remove Cover Coil FC while pulling bottom side.



5. Take Fan Motor FC A'ssy out
 - a. Separate INS Cover Coil from two hooks of right and left side of Coil Cover FC.
 - b. Take Fan Motor FC A'ssy out from INS Cover Coil to press toward the arrow like the figure.



NOTES ON INSTALLATION

- You can see the label of Fan Motor FC form this side

when you install it in INS Cover Coil.

- Install Fan Motor FC A'ssy in INS Cover Coil. It might be cause vibration, abnormal sound, in case of imperfect installation of Fan Motor FC A'ssy.
- Tighten Bag Joint that is put in the connector of Fan Motor FC A'ssy with other connectors by Cable Tie as before.
- Insert Cover Connector FC in upper side of FC as before, screw the screw that is fixation of it.

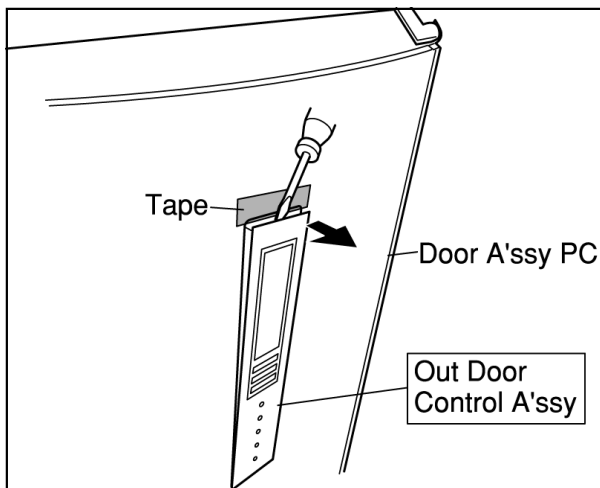
NOTES ON INSTALLATION OF COVER COIL FC A'SSY

- Install Cover Coil FC A'ssy in upper side of depths of FC, then fix it by three screws.
- It might be cause of getting frost, in case of imperfect installation of Cover Coil FC A'ssy.

11.5. Disassembly of PCB (Panel), Button Control Assy

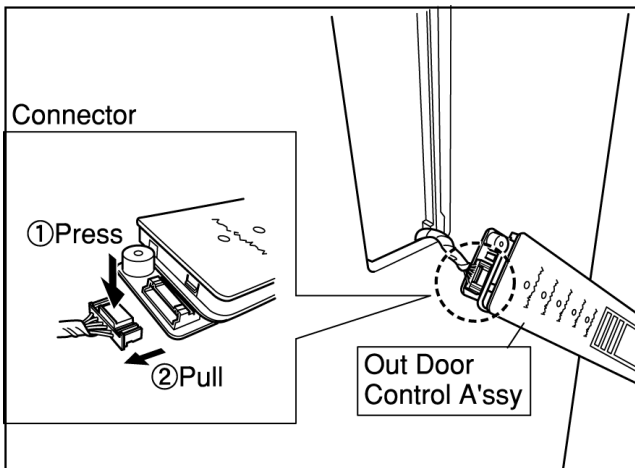
11.5.1. PCB (Panel), Out Door Control A'SSY

1. Insert screwdriver (-) into the gap between Out Door Control A'ssy and Door A'ssy PC. Then pry off Out Door Control A'ssy.

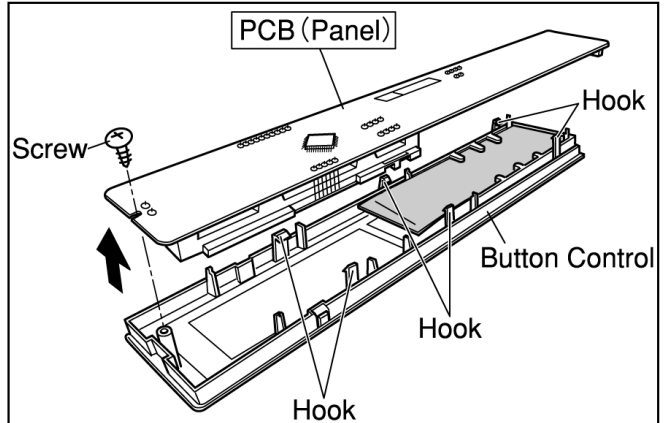


NOTICE

- Please put a tape on the part where a screwdriver (-) touch, to prevent paintwork in the Door A'ssy PC being damaged.
2. Pull the connector of PCB (Panel) out while pressing the hook, and take it out from Door A'ssy PC.



3. Remove the screw that is fixation of PCB (Panel), and unhook six hooks of PCB (Panel). Then take PCB (Panel) out from Button Control.



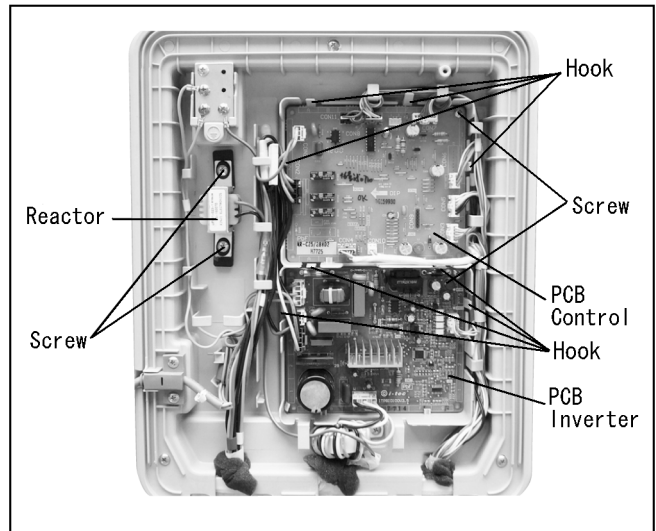
NOTICE

- Be careful not to break PCB (Panel) when it is removed and installed. It might become cause of defective operation.

11.6. Disassembly of PCB Control, PCB Inverter

11.6.1. PCB Control, PCB Inverter

1. Remove + screw and Torx screw, and remove the Cover PCB Assy.
2. Disconnect the connectors, and unscrew the screw of right side of each PCB. Remove each PCB, while unhooking the hooks.



CAUTION

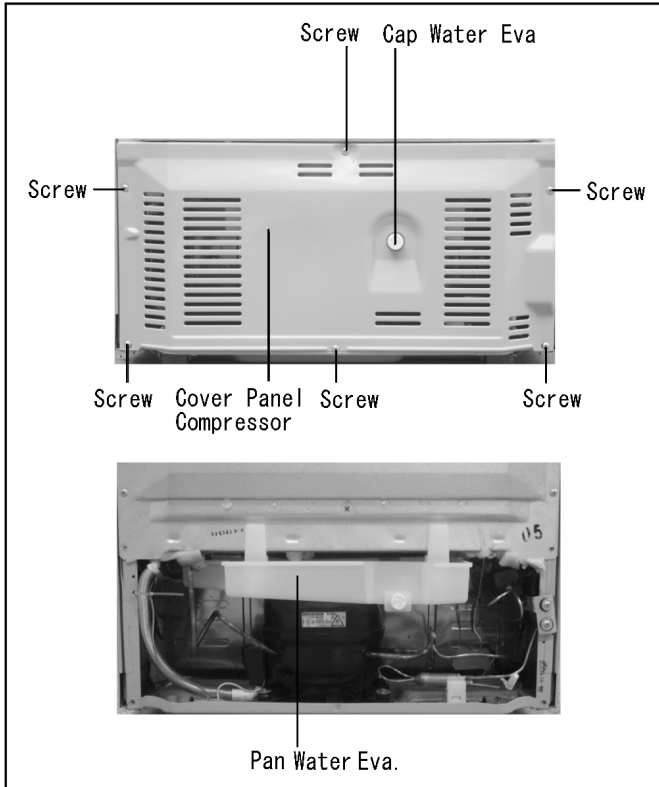
Be careful not to touch directly electric parts on the PCB when you remove and install each PCB.

11.7. Disassembly of Compressor Room

11.7.1. Pan Water EVA., Motor Protector, Cluster Block

1. Pan Water EVA

- a. Pull Power Supply Code out.
- b. Remove the six screws on Cover Panel Compressor.
- c. Pull and remove Cover Panel Compressor Assy toward you from upper side.
- d. Pull Pan Water EVA. toward you while pressing it up.

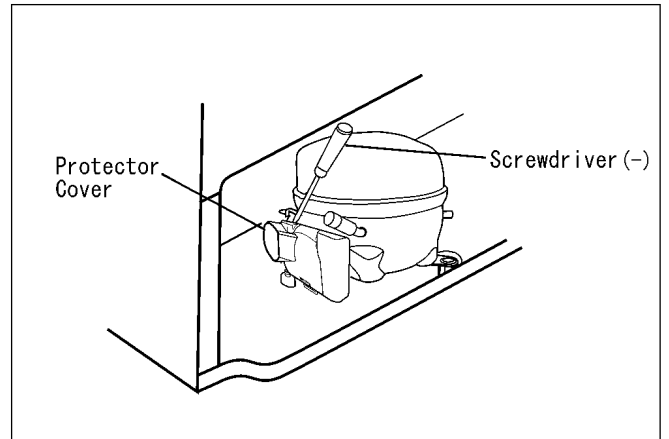


NOTICE

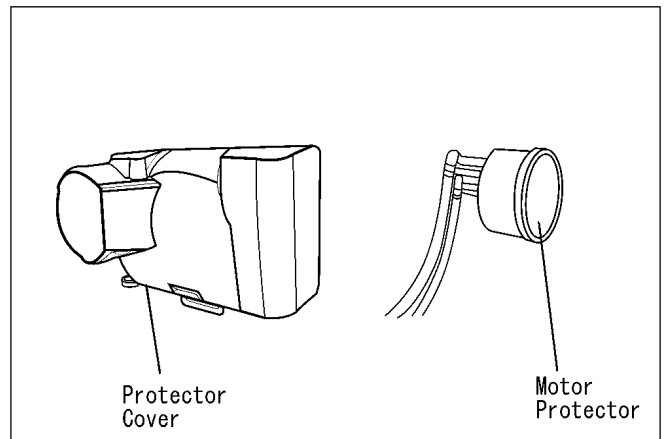
- When you install Cover Panel Compressor Assy, set the holes of the six screws firstly.
- Secondly adjust Cover PCB's position, and screw the six screws.

2. Motor Protector

- a. Insert a screwdriver (-) into the gap between Protector Cover and Compressor like the figure. Pry off Protector Cover in a screwdriver (-). Remove Protector Cover.

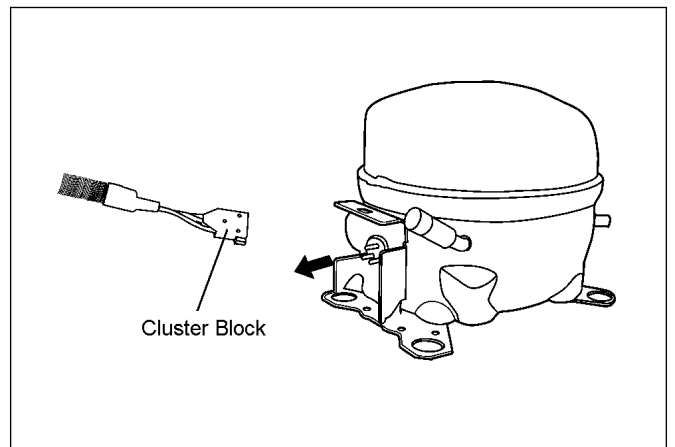


- b. Take Motor Protector out from inside Protector Cover.



3. Cluster Block

- a. Pull Cluster Block out from Compressor like the figure.



NOTICE

- Be careful not to twist when you pull Cluster Block out or install.

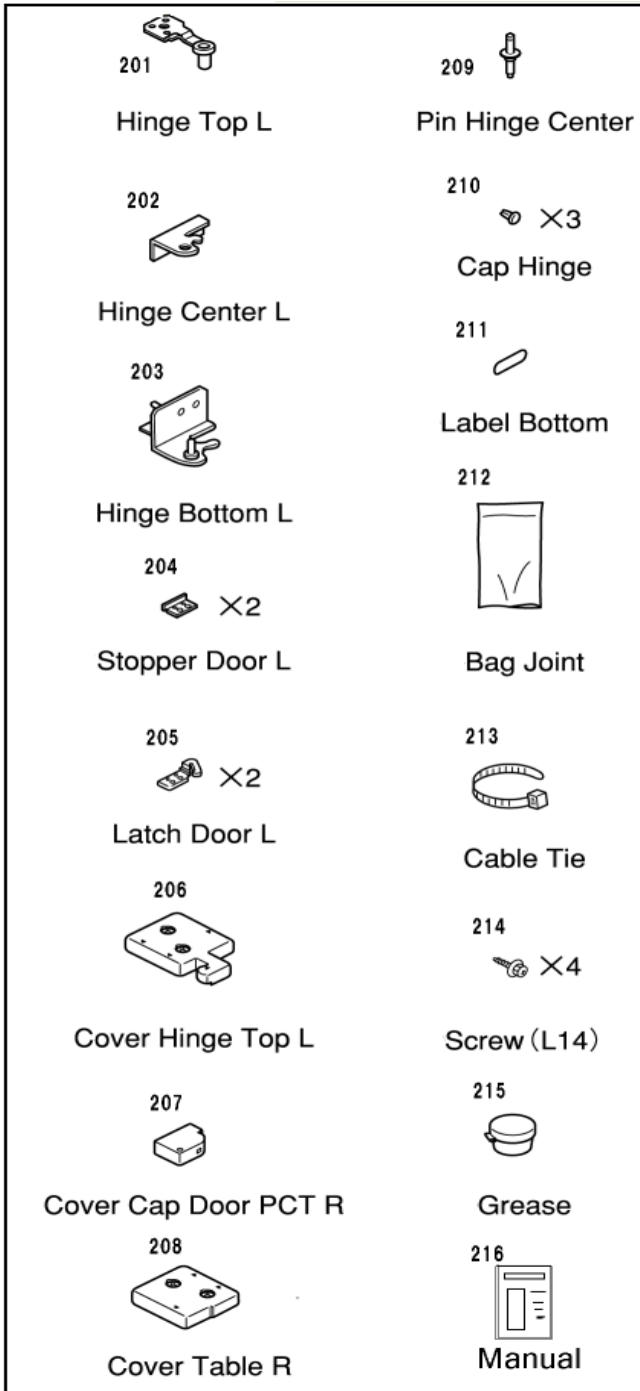
11.8. The Door Setting Exchange Work Manual

This appliance is setting right side opening door when it is shipped from the factory. However you can change the door setting to left side opening to exchange those parts as below. You can exchange those parts to refer to the work manual below.

TO PREPARE AND TO CONFIRM FOR THE WORK

1. Confirm the parts

Confirm whether there are those parts below or not.
(Bundled Parts)



(The matter of importance)

- When you install an important hinge with the torque restriction, tighten by a torque wrench after it fixes with a plus screwdriver temporarily.
- There is a possibility of damaging screw when strongly tightening too much.

2. Remove trays and shelves of reverse side of Door

A'ssy PC.

Remove trays and shelves of reverse side of Door A'ssy PC, to prevent the trays and shelves from cracking and breaking. (When there is some foods on reverse side of the door, it is necessary to take foods out. When you do not take foods out, the floor might be made dirty with the dropping foods.)

3. Unplug the refrigerator

Unplug the refrigerator before work for your safety.

NOTICE

- After the power is turned off, the temperature of each compartments are risen.
There is turn ned off, the temperature of each compartments are risen.

THE POINTS OF WORK

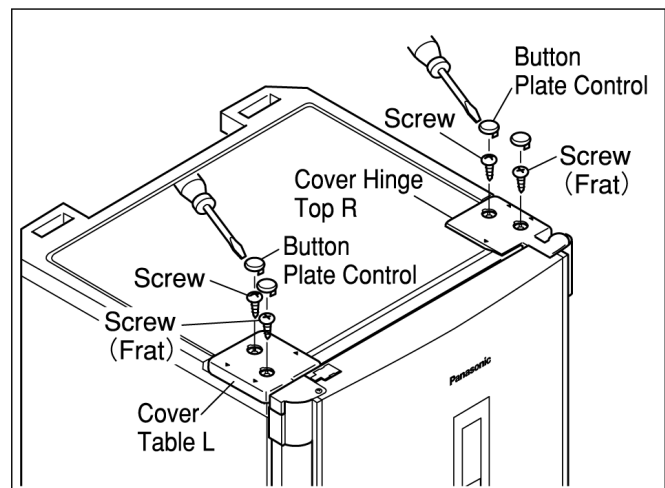
11.8.1. Remove Door A'ssy PC

1. 1. Remove Cover Hinge Top R

- Insert screwdriver (-) to a gap of Button plate control, and pry it off.
- Remove two screws that are fixation of Cover Hinge Top R.
- Pry off three Hooks (triangle mark part) of Cover Hinge Top R by screwdriver (-), then remove Cover Hinge Top R.

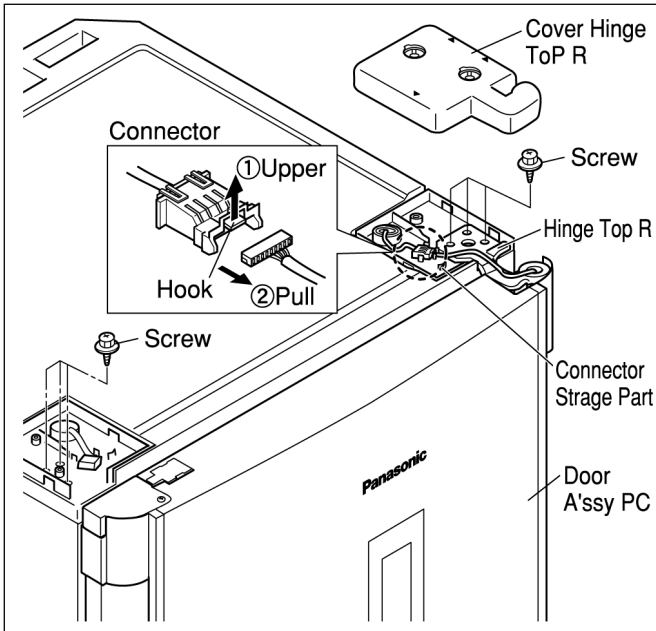
2. Remove Cover Table L.

- Remove Cover Table L in the same way above.



3. Remove Hinge Top R

- Pull the connector from connector storage part, then pull the connector out while pressing the hook to upper side.
- Remove Three screws that are fixation of Hinge Top R, pull the connector out through the hole of Hinge Top R.
- Remove Three screws that are fixation of Hinge Top L.



CAUTION

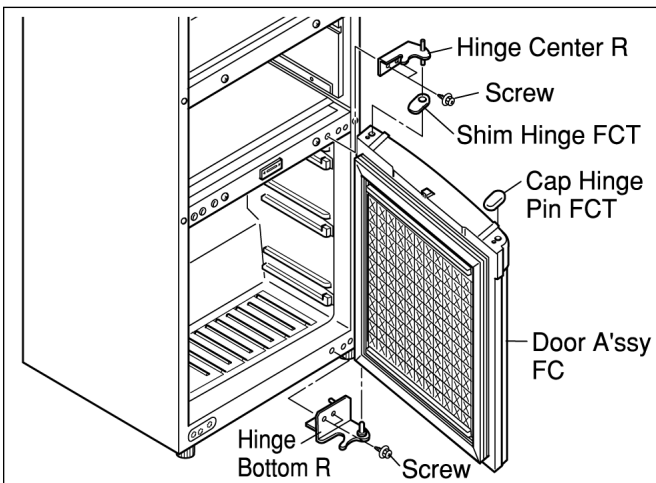
- Be careful not to forcibly bend when the connector is through the hole of Hinge Top R. Because it might be cause to wire cut or connector damage.
- Please do removing and installation work of Hinge Top R by two persons, the person who has Hinge Top R and the person who has Door A'ssy PC, in total. Because it might be cause of dropping accident of Door A'ssy PC.

4. Remove Door A'ssy PC from Hinge Center R while lifting the door.

11.8.2. Remove Door A'SSY FC

1. Remove Hinge Center R

- Open Door A'ssy FC, and remove two screw that are fixation of Hinge Center R.
- Remove Hinge Center R and Shim Hinge FCT.
- Remove Cap Hinge Pin FCT.



2. Remove Door A'ssy FC from Hinge Bottom R while lifting the door

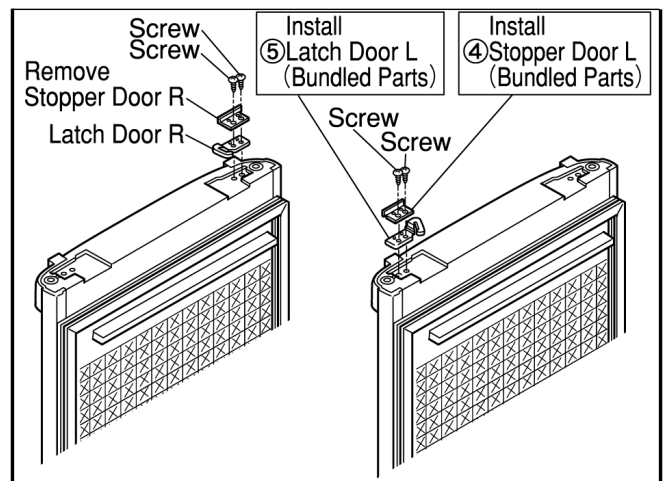
3. Remove Hinge Bottom R

- Remove two screws that are fixation of Hinge Bottom R.
- Remove Hinge Bottom R.

11.8.3. Exchange Stopper Door & Latch Door

1. Exchange Stopper Door & Latch Door of Door A'ssy FC

- Turn the Door A'ssy FC upside down first. Remove the two screws that are fixation of Latch Door R of under side of Door A'ssy FC, then remove Stopper Door and Latch Door R. (Stopper Door and Latch Door R are disused.)
- Put Latch Door L upon Stopper Door L, fix securely on left side of bottom of Door A'ssy FC. by the two screws that were removed above (1).



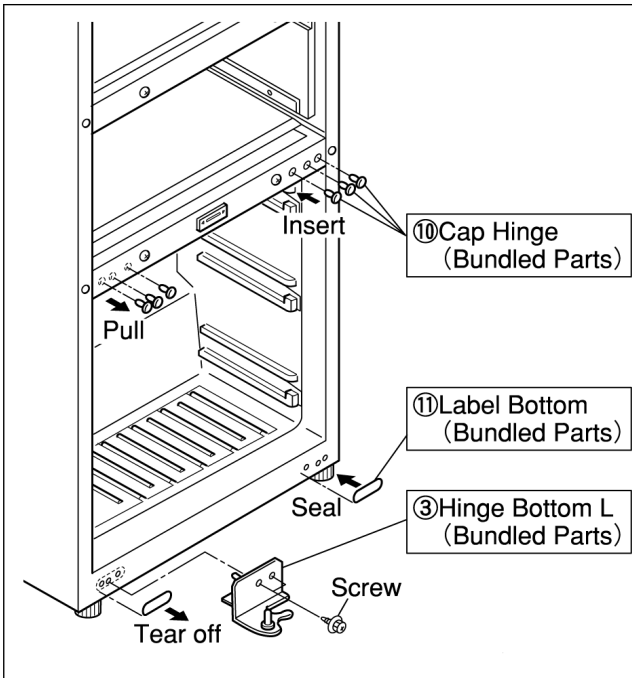
2. Exchange Stopper Door & Latch Door of Door A'ssy PC

- Do in the same work as before "Exchange Stopper Door & Latch Door of Door A'ssy FC".

11.8.4. Install Door A'ssy FC

1. Install Hinge Bottom L

- Tear off the Label Bottom that is sealed at the position of Hinge Bottom L of bottom and left side of the appliance.
- Seal the Label Bottom at the setting position of Hinge Bottom R of bottom and right side of the appliance.
- Pull out the Cap Hinge that is inserted in the setting hole of Hinge Center L of middle height and left side of the appliance.
- Insert the Cap Hinge in the setting hole of the Hinge Center R of middle height and right side of the appliance.



NOTES

- Wipe a grease of around the area with a new or cleaned cloth before installing Label Bottom and the Cap Hinge, because grease might remain.
- Wipe a grease of around gasket touching face of body and the gasket with a new or cleaned cloth.

- Install Hinge Bottom L by bundled screws that are fixation it.
(Torque of screw : $6 \pm 2 \text{ N} \cdot \text{m}$)

CAUTION

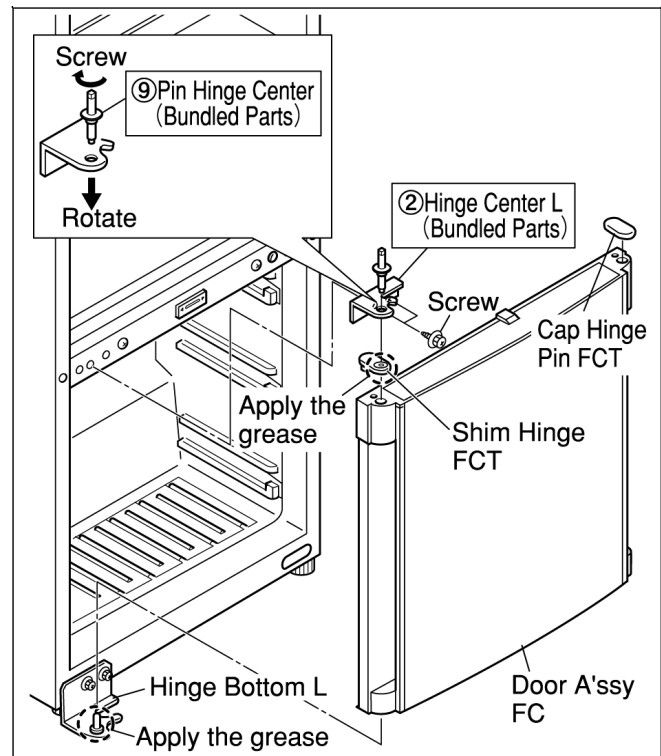
- These screws of Hinge Bottom L are needed to screw to use a torque wrench.

2. Install Door A'ssy FC

- Install Shim Hinge FCT that was removed before (see 11.8.2.1)- in the hole of upper and left side of Door A'ssy FC.
- Install Cap Hinge Pin FCT in upper and right side of Door A'ssy FC.
- (3)First open Door A'ssy FC, install Hinge Center L in the Refrigerator by bundled screws for fixation.
(Torque of screw: $6 \pm 2 \text{ N} \cdot \text{m}$)
- Apply the grease of bundled parts on around pin

of Hinge Bottom L, and insert Door A'ssy FC into Hinge Bottom L.

- Apply the grease of bundled parts on around of Shim Hinge FCT on Door A'ssy FC.



- Shim Hinge FCT and Hinge Center L put together, and screw Pin Hinge Center on Hinge Center L.
(Torque of screw: $6 \pm 2 \text{ N} \cdot \text{m}$)

CAUTION

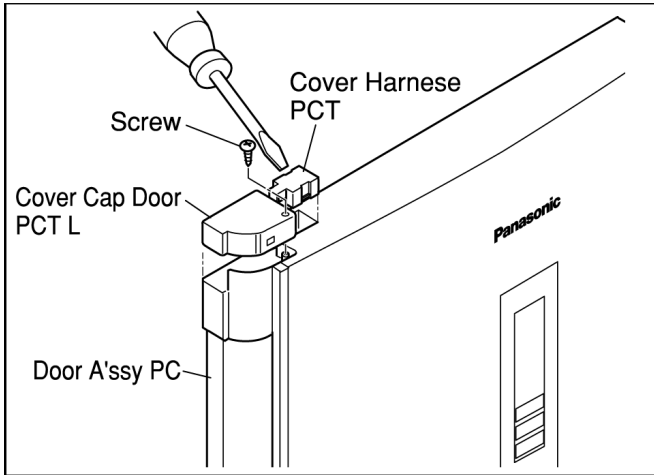
- Pin Hinge Center is screwed on Hinge Center L to use a torque wrench.
- Two screws of Hinge Center L are screwed to use a torque wrench.

CAUTION

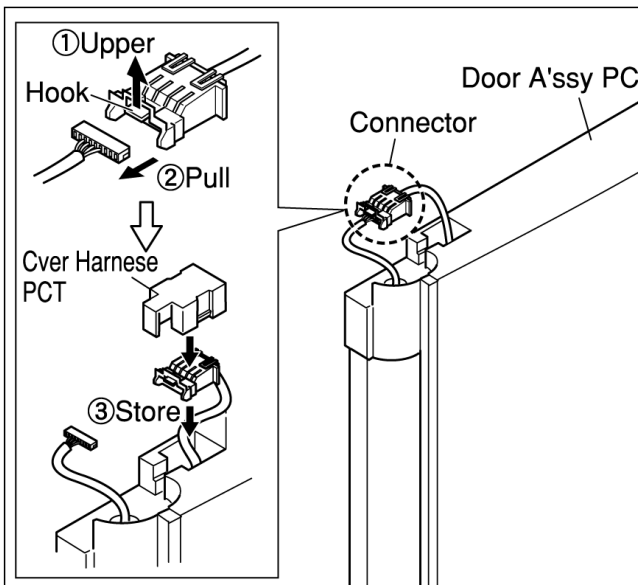
- Screw these screws up Hinge Center L and hinge Bottom L securely, there must not be them loosening. And screw Pin Hinge Center L up Hinge Center L securely too, there must not be it loosening. Because it might become cause of an accident of falling door and there is a possibility that an unexpected serious accident occurs.

11.8.5. Install Door A'ssy PC

1. Remove the connector that connect with Door A'ssy PC
 - a. Remove the screw that is fixation of Cover Cap Door PCT L.
 - b. Insert screwdriver (-) into a gap of Cover Cap Door PCT L, and pry off hooks (2 portions). Remove Cover Cap Door PCT L.
 - c. Insert screwdriver (-) into a gap of Cover Harness PCT, and pry off hooks (2 portions). Remove Cover Harness PCT.



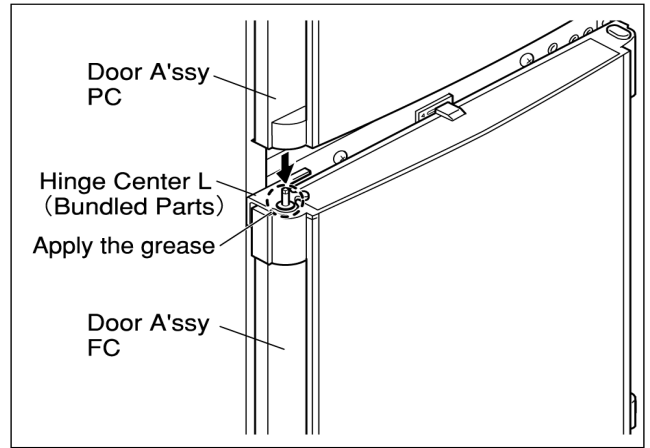
- d. Pull out the connector that is connected with Door A'ssy PC, and remove the connector while pressing toward upper side.



- e. Store the connector in Cover Harness PCT, install Cover Harness PCT in Door A'ssy PC as before.

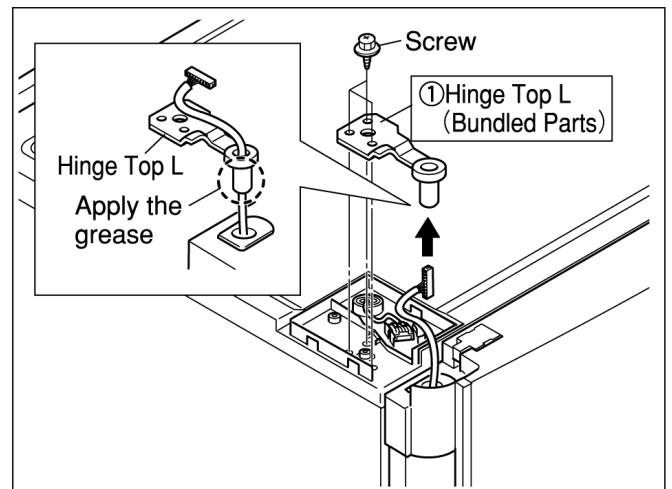
2. Install Door A'ssy PC

- a. Apply the grease on around Pin Hinge Center
- b. Lift Door A'ssy PC, and insert left bottom of Door A'ssy PC into Hinge Center L.



3. Install Hinge Top L

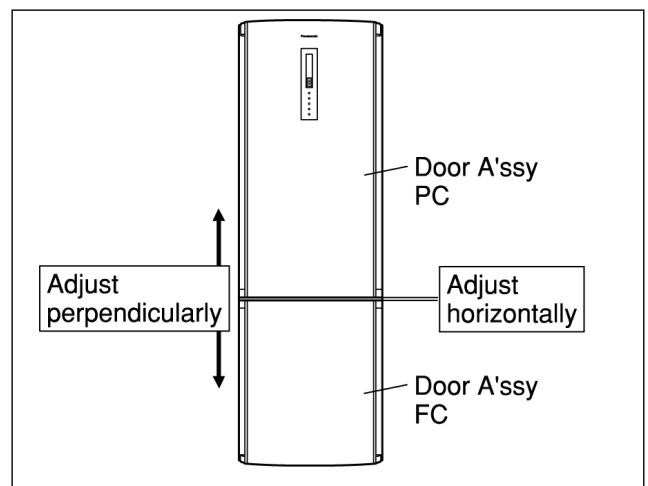
- a. Through the connector to the hole of Hinge Top L.



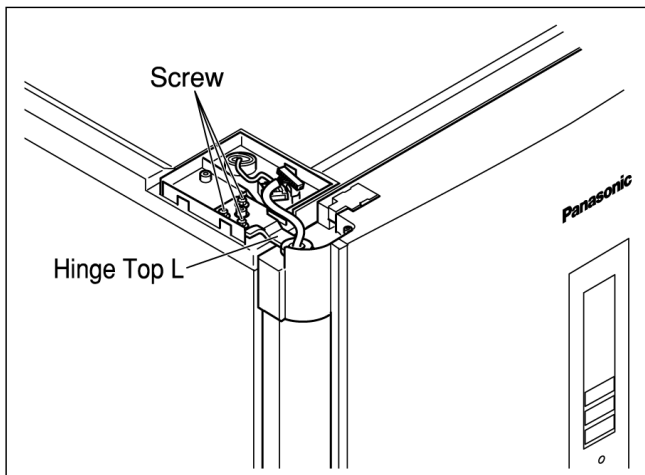
CAUTION

- Be careful not to forcibly bend when the connector is through the hole of Hinge Top L. Because it might be cause to wire cut and connector damage.

- b. Apply the grease on the tongue of Hinge Top L and insert it into Door A'ssy PC.
- c. Three screws that are fixation of Hinge Top L are temporarily screwed.
- d. Adjust Door A'ssy PC perpendicularly and horizontally in the same of Door A'ssy FC.



- e. Install and adjust Hinge Top L on the top table, screw three screws that are fixation of it to use a torque wrench.
(Torque of screw: $6 \pm 2 \text{ N} \cdot \text{m}$)

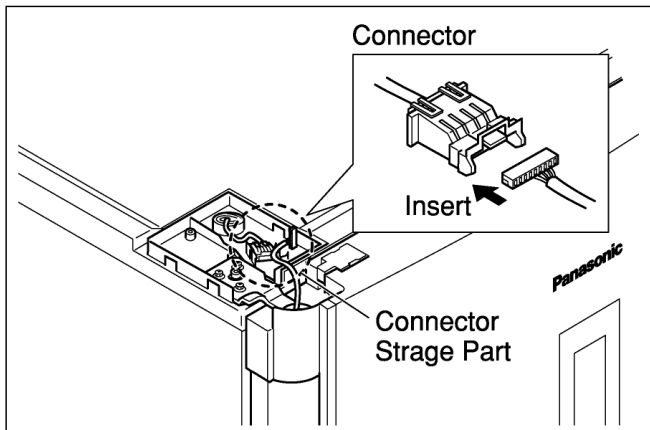


CAUTION

- Fix Hinge Top L securely by three screws for fixation. In case of not enough fixation, it might become cause of an accident of dropping the Door A'ssy PC.
- Three screws of Hinge Top L are screwed to use a torque wrench.

4. Install Cover Hinge Top L

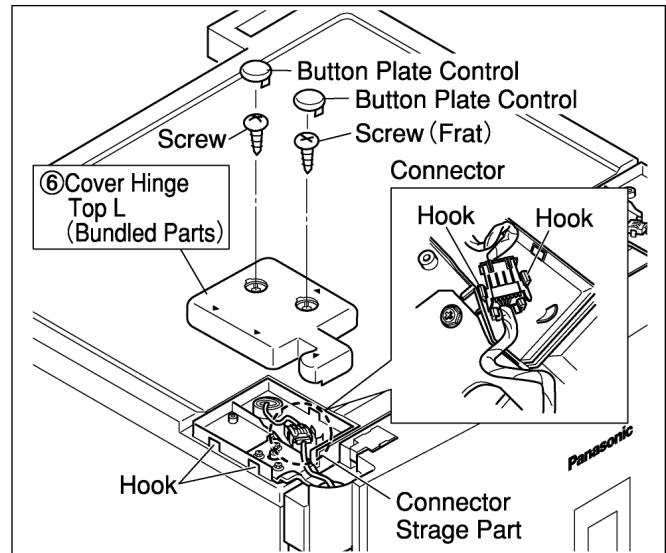
- a. Connect the connector of Door A'ssy PC, fix the connector into storage part.



CAUTION

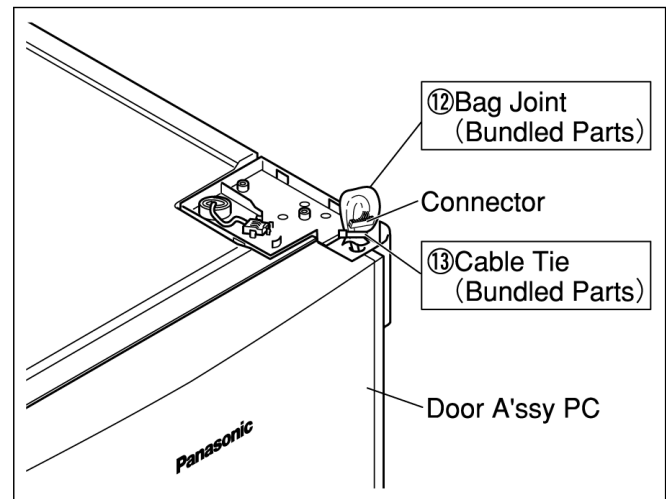
- The wire harness is arranged not to touch Hinge Top L, not to bend it.

- b. Open Door A'ssy PC, put Cover Hinge Top L on this side of the Hinge Top L.
c. Insert hooks (2 portions) of out side to under Hinge Top L, and hook the hooks of inside. (Do not forcibly press Cover Hinge Top L. Because it might cause of damage of hooks.)
d. Screw the screws that are fixation of Cover Hinge Top L.
e. Install Button Plate Control.



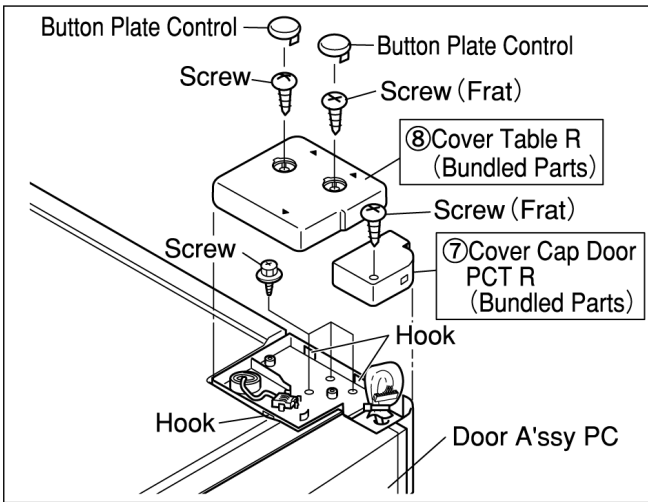
5. Make the connector of Door A'ssy PC waterproof

- Tighten Bag Joint that is put in the connector of upper and right side of Door A'ssy PC by Cable Tie.



6. Install Cover Cap Door PCT R and Cover Table R

- a. Three screws that were removed before (see 11.8.1.3.C) are screwed on the holes of screws that are fixation of Hinge Top R.
b. Install Cover Table R in Hooks of Top Table.
c. Store the connector of right side of Door A'ssy PC in Cover Cap Door PCT R.
d. Store Bag Joint in Cover Cap Door PCT R, put and install hook of Cover Cap Door PCT R into Door A'ssy PC.
e. Screw Cover Cap Door PCT R.



3. Does the Door open and close smoothly?
(Did you apply the grease of bundled parts around driving parts of hinge?)
4. (4)Is there any sound when the Door open and close?
5. Does some character appear on the control display, after turn it on?
6. Can you set a temperature by pressing any button?

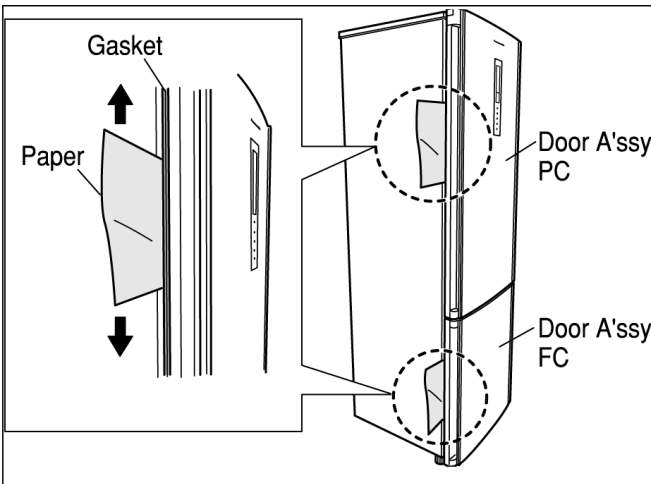
- When there is not any trouble above, you install some trays and shelves in reverse side of Door A'ssy PC as before.

NOTES

- Wipe a grease off with a new or cleaned cloth, after Stopper Door R and Latch Door R are removed.
- Stopper Door R and Latch Door R, Hinge Top R etc. that are removed are needed to return to the Door Setting. Please keep them carefully.

11.8.6. Final check

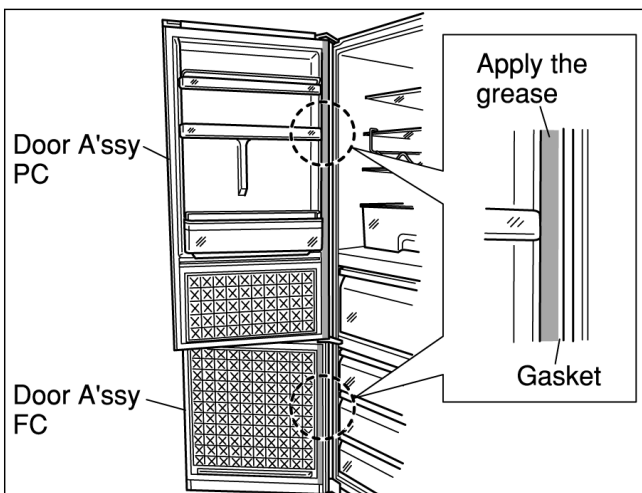
1. Is there a gap between the body and the Door A'ssy PC, when the door is closed? (If there is a gap, it might become cause of leakage of cooling air.)



- Confirm whether there is a gap to put a sheet of paper between the body and gasket like the figure.

2. Is not Gasket Door slid smoothly, nor be bitten it nor come it off?

If there is something wrong like above, apply the grease of bundled parts inside of Gasket Door.

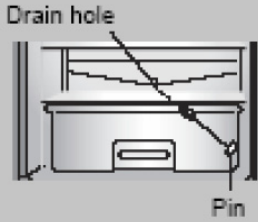


12 Maintenance

12.1. Automatic Defrosting

Automatic defrosting

Refrigerator



The refrigerator has an automatic defrosting function.

The water from the melted frost flows into the evaporation pan on the rear panel in the refrigerator through the drain hole, and evaporates by the heat generated when the compressor runs.

It is normal to find frost and water drops on the rear wall of the refrigerator, which arises from cooling and automatic defrosting.

Make sure the drain hole is not clogged, so the frost water can flow into the evaporation pan smoothly. If it is clogged, clear it with a pin, and then replace the pin.

Freezer

Defrosting is actuated automatically and the frost water will run down to the evaporation pan.

12.2. Removing and attaching shelves

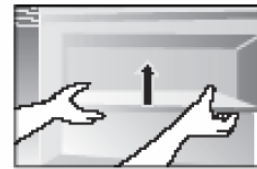
Refrigerator



Glass shelves
Slightly lift the inner side of the shelf, and pull it out.

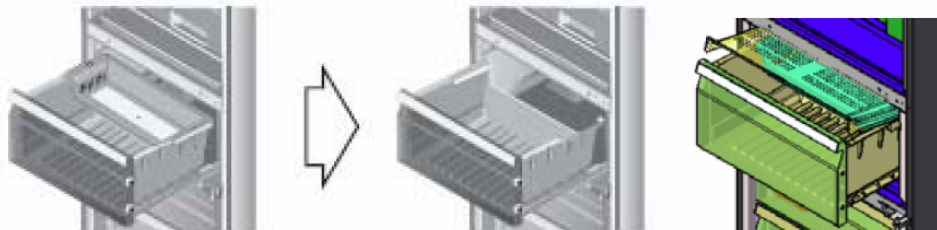


Drawer of refrigerator
Pull the utility case close to you, slightly lift its front part, and pull it out.



Door shelf, seal box and bottle shelf
Slightly lift it and then remove it.

Vegetable compartment



Vegetable case

Pull out the case towards you and lift the front part up until the case comes off from the stopper by the rail, and then pull it up to remove completely.

Drawer with humidity control

Pull out the vegetable case towards you and pull out the drawer with humidity control towards you.

Freezer

Pull the drawer close to you, slightly lift its front part, and pull it out.



12.3. Care and cleaning instructions

Always disconnect the plug before cleaning.

If you have any doubt on care and cleaning, please contact an authorized service center.



Daily cleaning

Wipe the parts with a dry cloth.

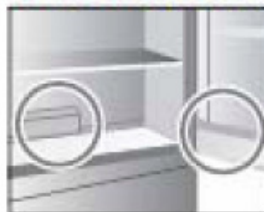
Places that get dirty easily

Door opening seal



When getting dirty, the seal is easily damaged and cold air is likely to leak

Bottle shelf to hold drinks and other liquid



If dirt and liquid are accumulated, wipe them away in time.

On a yearly basis, disconnect the power plug, and remove shelves for cleaning.

Parts that can be washed with water

Refrigerator



- Glass shelves
- Door shelves
- Bottle shelf
- Butter & cheese case
- Egg tray
- Refrigerator drawer
- Pin

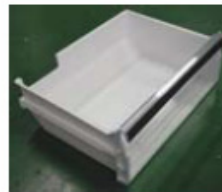


Vegetable compartment



- Vegetable case
- Fruit case
- Drawer with humidity control

Freezer



- Freezer drawers
- Ice box
- Ice tray
- Ice tray cover

Cleaning the display and control panel

The control panel is made of special materials. To protect the surface against damages, do not clean it with chemical solvent. Instead, wipe it with a dry cloth or slightly damp soft cloth.

Cleaning the exterior of the appliance

Clean the exterior of the appliance with a soft cloth dampened with warm water. If stain cannot be removed, apply some neutral kitchen cleansing detergent, and then wipe it away with a soft cloth dampened with warm water. Wipe away any water droplet with a dry cloth.



Maintenance check

- Is the power cord damaged?
- Does the plug get hot?
- Is the plug firmly in the mains socket?

If the power cord or LED lamp are damaged, please consult authorized service centre. DO NOT attempt to replace these items yourself.



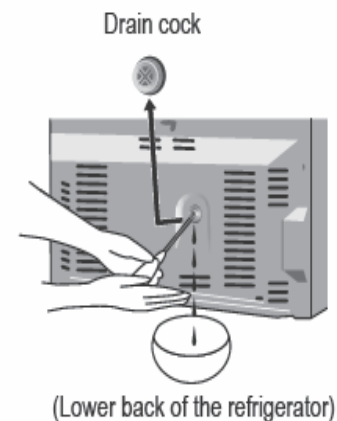
Extended disuse

If you're not going to use the refrigerator for a long time, unplug it and clean the plug as described above. Then leave the doors open for 2-3 days. This lets the interior dry out properly, and prevents odour and the build up of mould.

Do not switch the refrigerator on and off repeatedly. It will last longer if you leave it switched on during normal use.

Before moving or transporting your refrigerator

- ① Remove all items.
- ② Unplug it.
- ③ Raise the adjustable leg.
- ④ Pull, or 'walk' the refrigerator towards you.
- ⑤ Drain the water from the evaporation pan, at the lower back of the refrigerator:
 - Put a container underneath the drain cock, and slowly loosen it.
 - Pierce the film on the outlet with a screwdriver or similar. Then drain the water. (The next time you do this, simply loosen the drain cock.)
 - After draining, make sure you tighten the drain cock to prevent future water leaks.



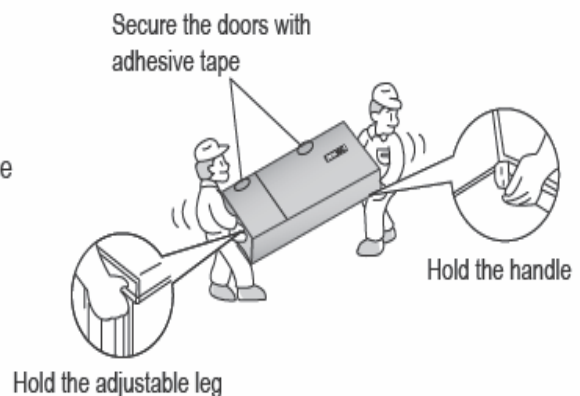
Moving and transporting your refrigerator

At least two people are needed to carry the refrigerator safely.

- ① Tighten the adjustable legs.
- ② Hold the adjustable legs at one end, and the handle at the other, as shown.

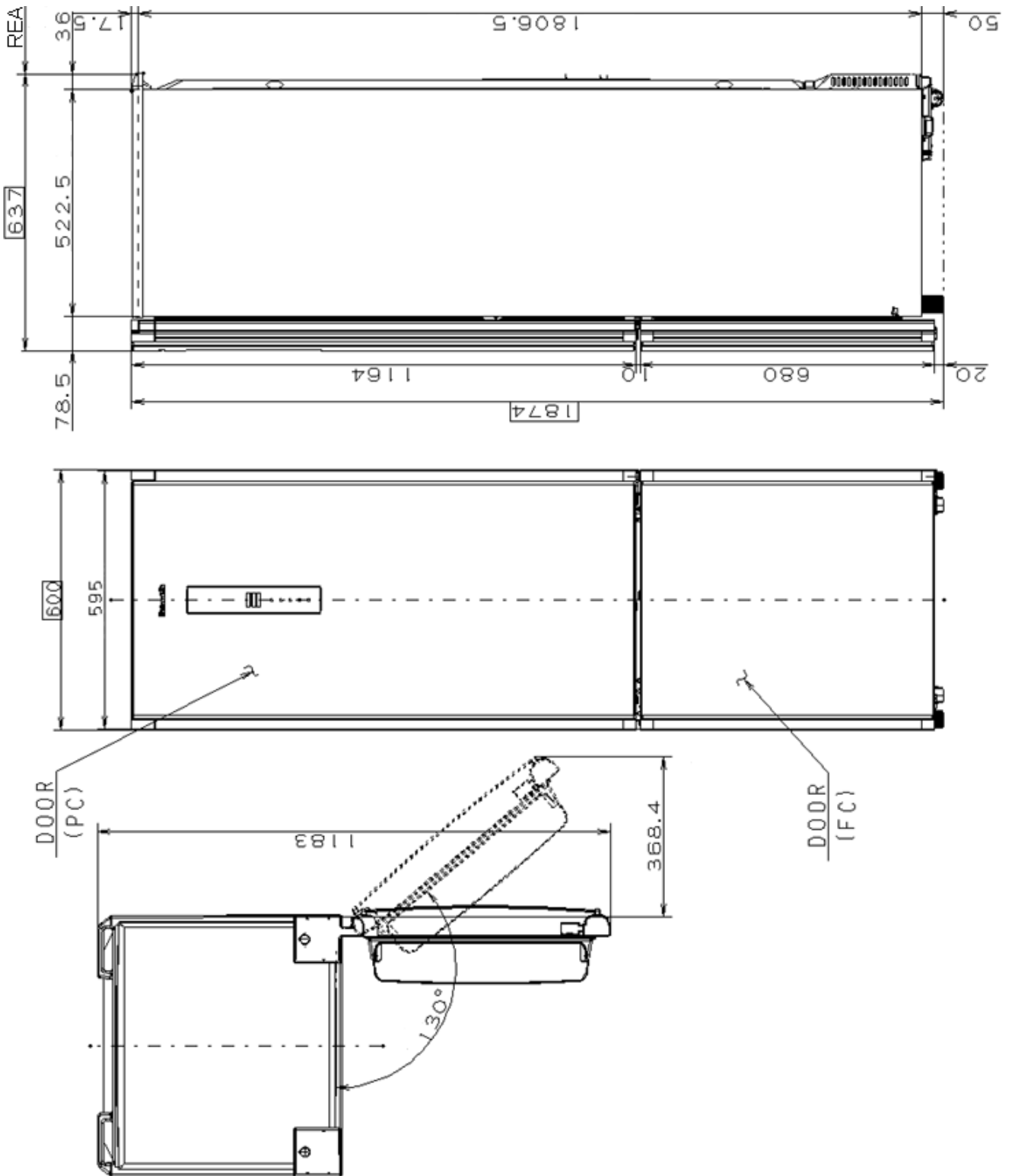
Note: Do not carry the refrigerator by holding its doors.

Always transport the refrigerator in its normal upright position.

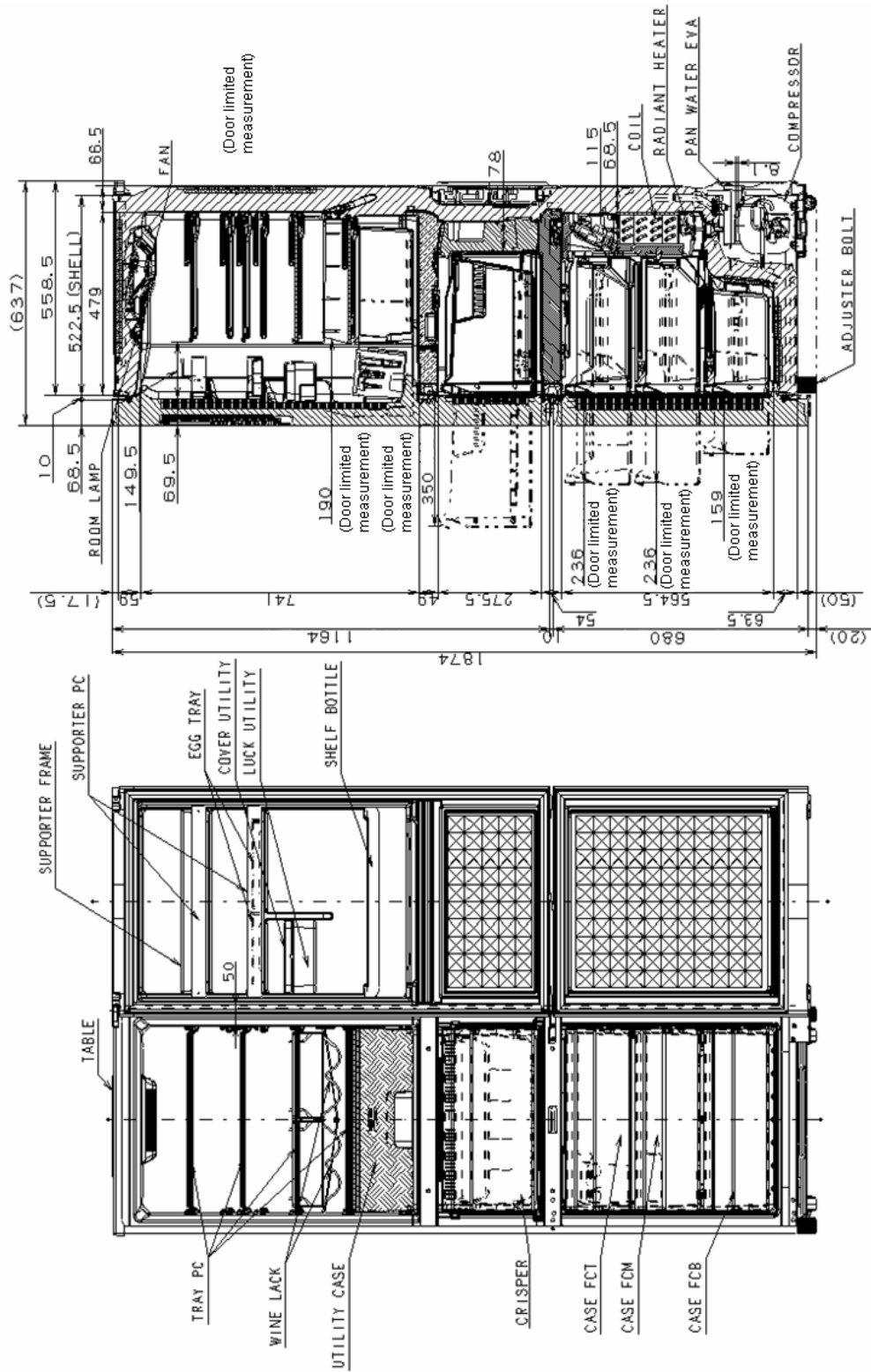


13 Dimensions

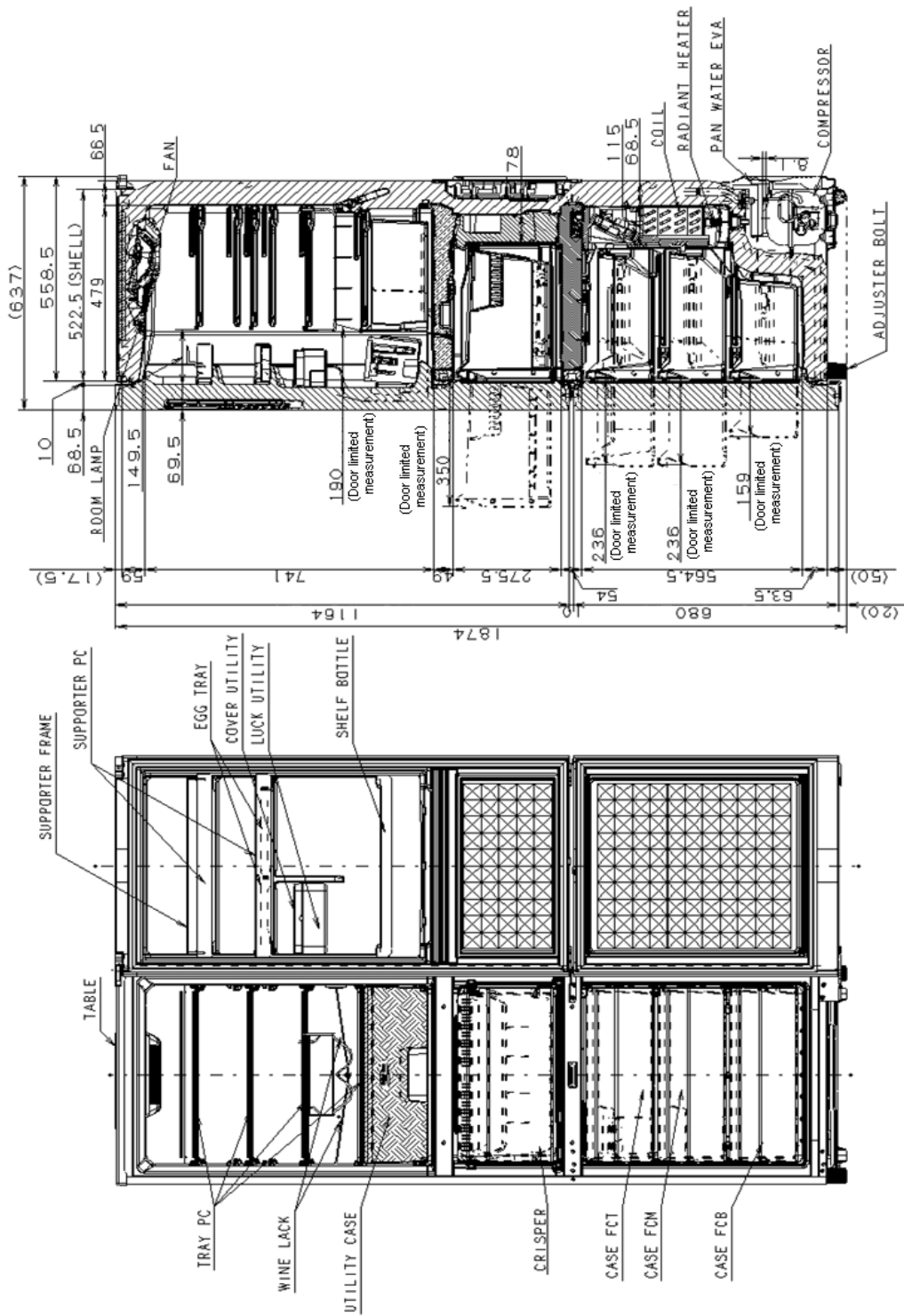
13.1. Outside (NR-B30FX1, NR-B30FG1)



13.2. Inside (NR-B30FX1)

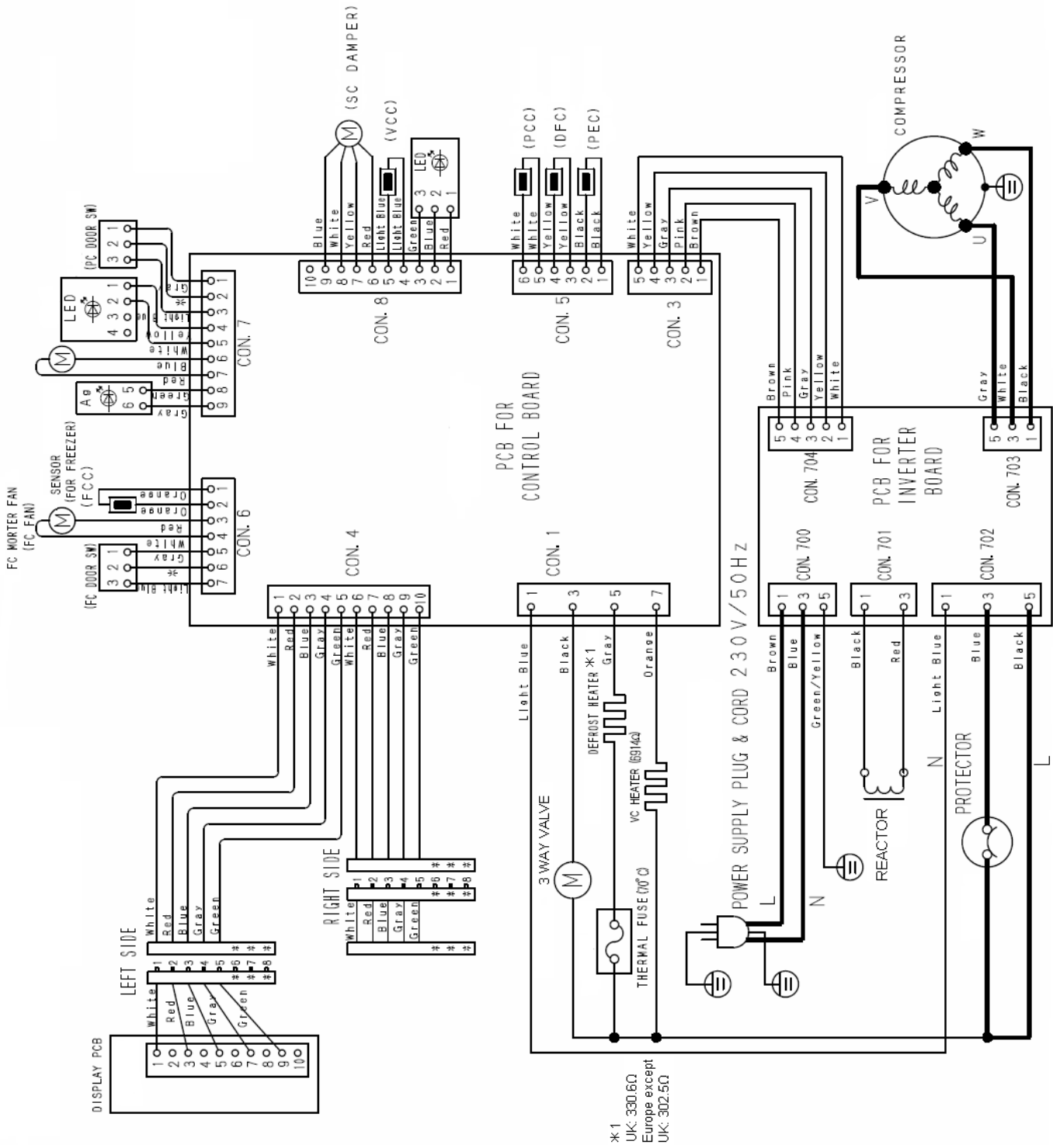


13.3. Inside (NR-B30FG1)

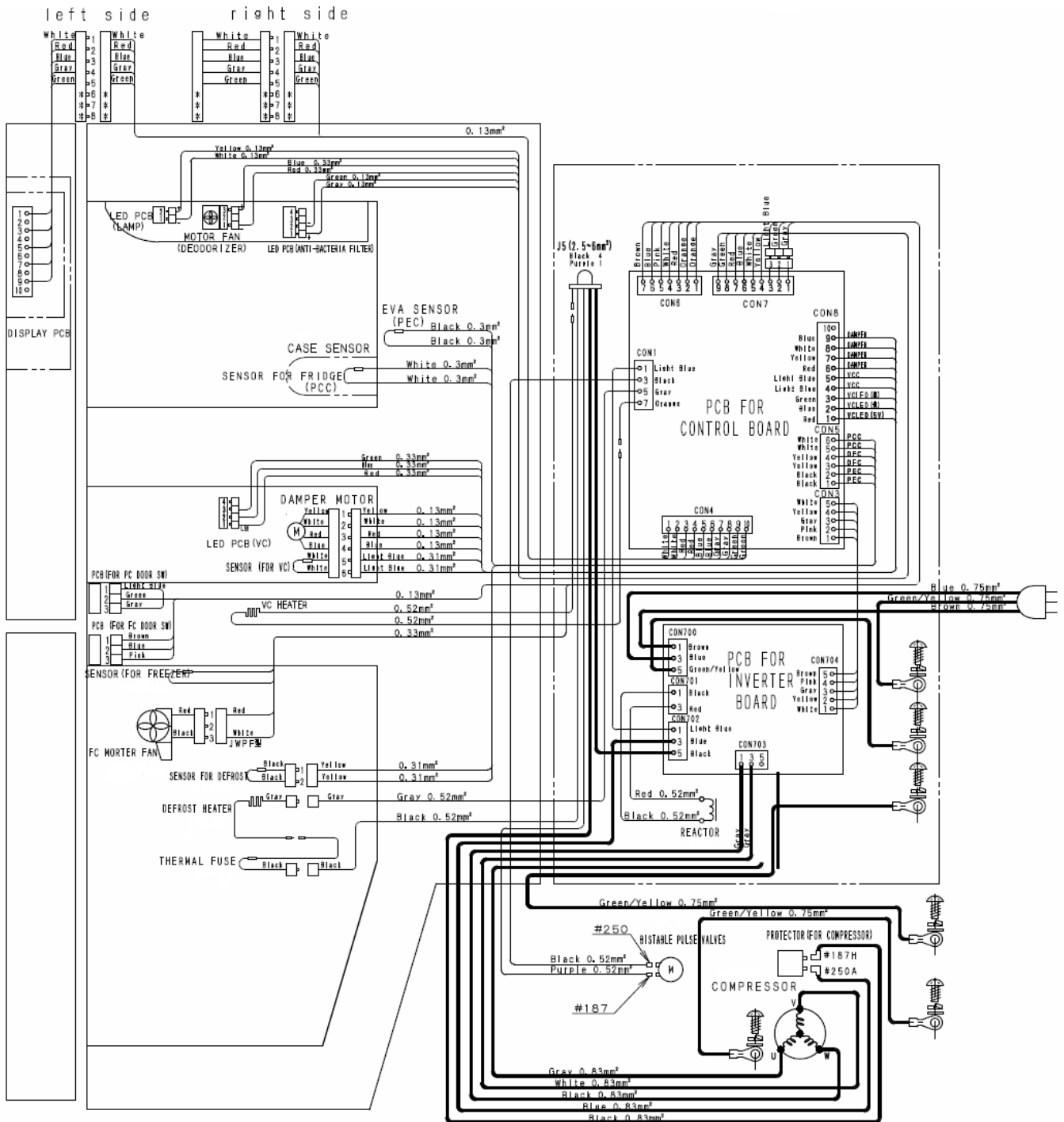


14 Schematic Diagram

14.1. Schematic Diagram (NR-B30FG1, NR-B30FX1)

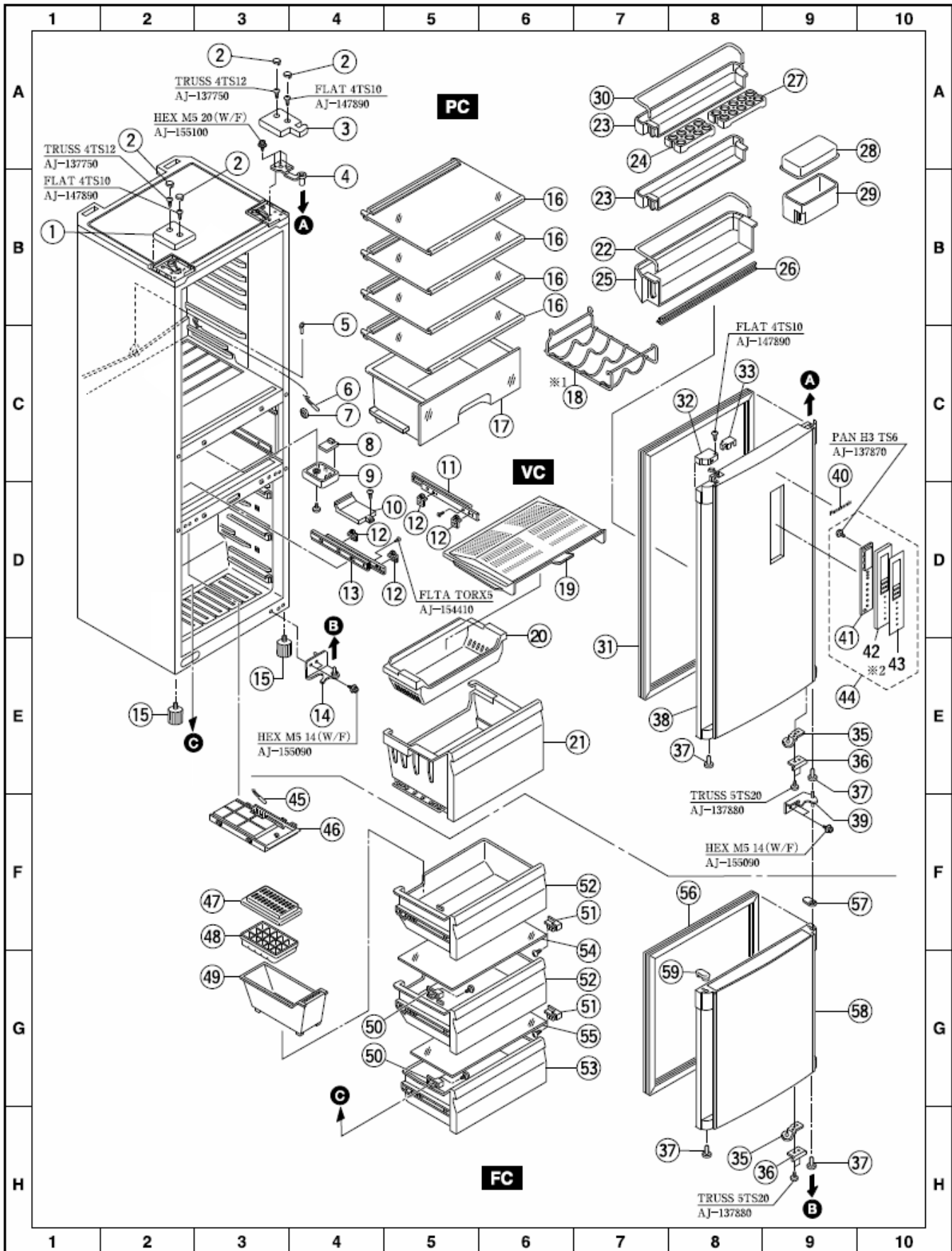


14.2. Wiring Diagram (NR-B30FG1, NR-B30FX1)



15 Exploded View and Replacement Parts List

15.1. Exploded View 1 (NR-B30FG1, NR-B30FX1)



※1. Two 18 Wine Rack are used for NR-B30FX1.

※2. The parts to which the number is not enclosed with ○ is supplied the assembly.

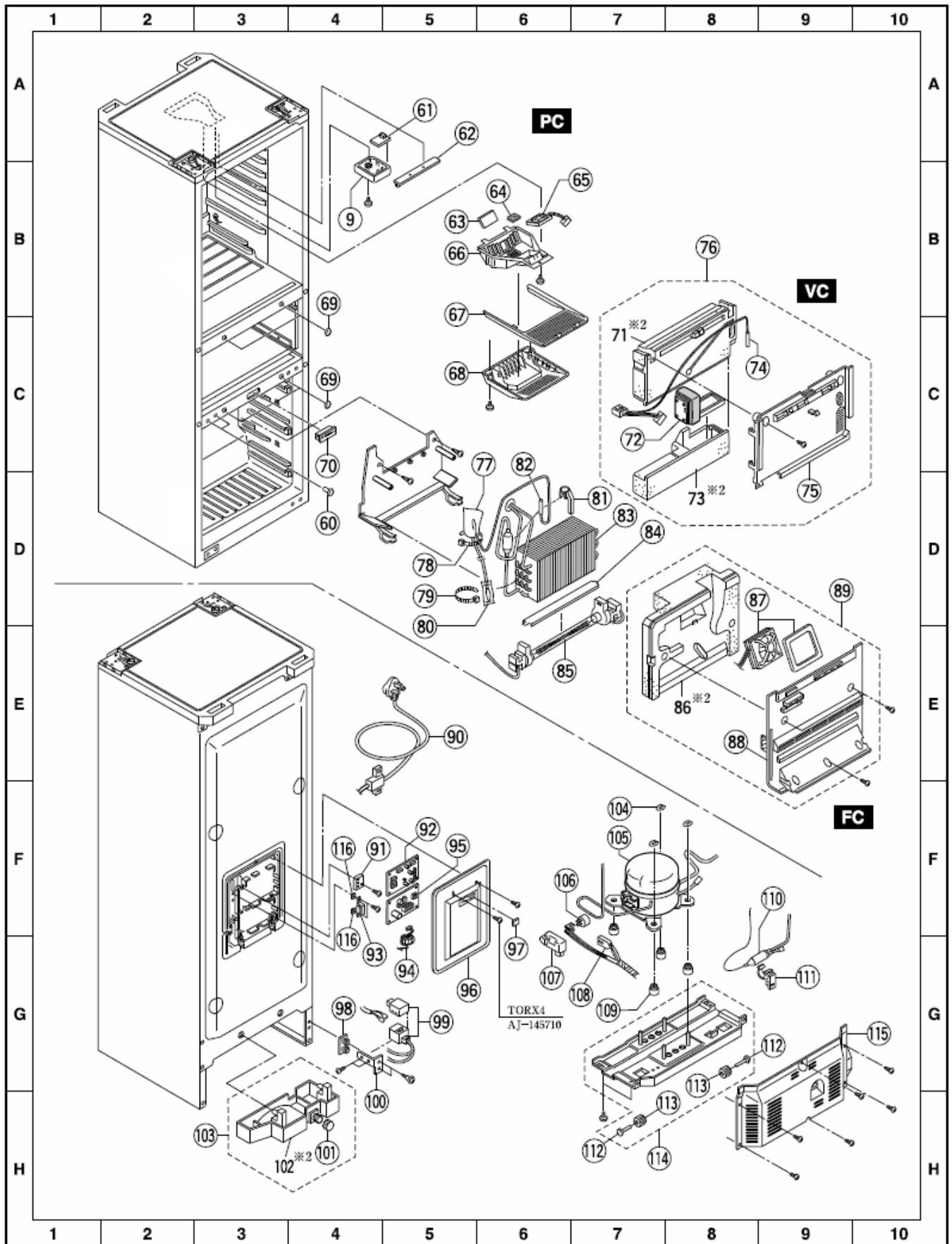
15.2. Replacement Parts List-1 (NR-B30FG1, NR-B30FX1)

Safety	Ref. No	Part No.	Part Name & Description	Pcs. / Model				Remark	U
				NR-B30FG1		NR-B30FX1			
				-WE	-WB	-XE	-XB		
	1	CNRAC-211980	Cover Table L	1	1	—	—		
	1	CNRAC-211970	Cover Table L	—	—	1	1		
	2	CNR39-162240	Botton Plate Control	4	4	—	—		
	2	CNR39-163040	Botton Plate Control	—	—	4	4		
	3	CNRAE-138120	Cover Hinge Top R	1	1	—	—		
	3	CNRAE-138100	Cover Hinge Top R	—	—	1	1		
	4	CNRAE-137790	Hinge Top R	1	1	1	1		
	5	CNRAH-242680	Drain Stopper	1	1	1	1	Pin	U
⚠	6	CNRAG-156650	Sensor PC	1	1	1	1		
	7	CNRAG-156260	Cover Sensor	1	1	1	1		
⚠	8	CNRBG-164990	PCB (VC)	1	1	1	1		
	9	CNRAG-159010	Cover Led	2	2	2	2		
	10	CNRAH-202930	Cover Pipe Inject	1	1	1	1		
	11	CNRAC-197470	Rail VC R	1	1	1	1		
	12	CNRAC-197460	Case Holder	4	4	4	4		
	13	CNRAC-197480	Rail VC L	1	1	1	1		
	14	CNRBE-106810	Hinge Bottom R	1	1	1	1		
	15	CNRAJ-145940	Adjuster Bolt	2	2	2	2		
	16	CNRBH-136840	Tray PC A' ssy	4	4	4	4	Glass Shelves	
	17	CNRAH-242610	Utility Case	1	1	1	1	Refrigerator drawer	U
	18	CNRBH-125500	Wine Rack A' ssy	1	1	2	2		U
	19	CNRAH-245330	Plate Crisper	1	1	1	1		U
	20	CNRAH-245360	Fruit Case	1	1	1	1		U
	21	CNRBH-136850	Crisper A' ssy	1	1	1	1	Vegetable case	U
	22	CNRAD-313850	Supporter Wine	1	1	1	1		U
	23	CNRAD-320930	Supporter PC Top	2	2	2	2	Door Shelves	U
	24	CNRAD-111790	Egg Tray 8	1	1	1	1		U
	25	CNRAD-320950	Shelf Bottle	1	1	1	1		U
	26	CNRAD-323210	Sash Innerdoor PV	1	1	1	1		U
	27	CNRAD-111780	Egg Tray 10	1	1	1	1		U
	28	CNRAD-233860	Cover Utility	1	1	1	1	Butter & cheese case	U
	29	CNRAD-233850	Rack Utility	1	1	1	1	Butter & cheese case	U
	30	CNRAD-323530	Supporter Frame	1	1	1	1		U
	31	CNRAD-323120	Gasket Door PC	1	1	1	1		
	32	CNRAD-307890	Cover Cap Door PCT L	1	1	1	1		
	33	CNRAD-323070	Cover Harness PCT	1	1	—	—		
	33	CNRAD-323140	Cover Harness PCT	—	—	1	1		
	35	CNRAE-137760	Latch Door R	2	2	2	2		
	36	CNRAE-137780	Stopper Door R	2	2	2	2		
	37	CNRAE-135960	Pin Collar Hinge Center	4	4	4	4		

15.3. Replacement Parts List-1 (NR-B30FG1, NR-B30FX1)

Safety	Ref. No	Part No.	Part Name & Description	Pcs. / Model				Remark	U
				NR-B30FG1		NR-B30FX1			
				-WE	-WB	-XE	-XB		
	38	CNRBD-322260	Door A' ssy PC	1	1	—	—	Assembly parts, from 32 to 37	
	38	CNRBD-322270	Door A' ssy PC	—	—	1	1	Assembly parts, from 32 to 37	
	39	CNRAE-137890	Hinge Center R	1	1	1	1		
	40	CNRBD-283080	Emblem A' ssy	1	1	1	1		
⚠	41	CNR7G-165050	PCB (PANEL)	1	1	1	1		
	42	—	Button Controle	1	1	—	—	To supply with assembly	
	42	—	Button Controle	—	—	1	1	To supply with assembly	
	43	—	Escutcheon Lcd A' ssy	1	1	—	—	To supply with assembly	
	43	—	Escutcheon Lcd A' ssy	—	—	1	1	To supply with assembly	
⚠	44	CNRBD-322340	Out door Control A' ssy	1	1	—	—	Assembly parts, from 41 to 43	
⚠	44	CNRBD-316520	Out door Control A' ssy	—	—	1	1	Assembly parts, from 41 to 43	
⚠	45	CNRAG-161450	Sensor FC	1	1	1	1		
	46	CNRAG-149220	Cover Connector FC	1	1	1	1		
	47	CNRAH-149200	Ice Tray Cover	1	1	1	1		U
	48	CNRAH-149190	Ice Tray	1	1	1	1		U
	49	CNRAH-245370	Ice Box	1	1	1	1		U
	50	CNRAC-211900	Holder Glass FC L	2	2	2	2		
	51	CNRAC-211890	Holder Glass FC R	2	2	2	2		
	52	CNRBH-136860	Case FCT A' ssy	2	2	2	2	Freezer drawers	U
	53	CNRBH-136870	Case FCB A' ssy	1	1	1	1	Freezer drawers	U
	54	CNRAH-246180	Glass Tray FCT	1	1	1	1	Freezer Shelves	U
	55	CNRAH-248320	Glass Tray FCB	1	1	1	1	Freezer Shelves	U
	56	CNRAD-293110	Gasket Door FC	1	1	1	1		
	57	CNRAD-323110	Shim Hinge FCT	1	1	1	1		
	58	CNRBD-322140	Door A' ssy FC	1	1	—	—	Assembly parts, from 35 to 37	
	58	CNRBD-322150	Door A' ssy FC	—	—	1	1	Assembly parts, from 35 to 37	
	59	CNRAD-320660	Cap Hinge Pin FCT	1	1	1	1		

15.4. Exploded View 2 (NR-B30FG1, NR-B30FX1)



※2. The parts to which the number is not enclosed with ○ is supplied the assembly.

15.5. Replacement Parts List-2 (NR-B30FG1, NR-B30FX1)

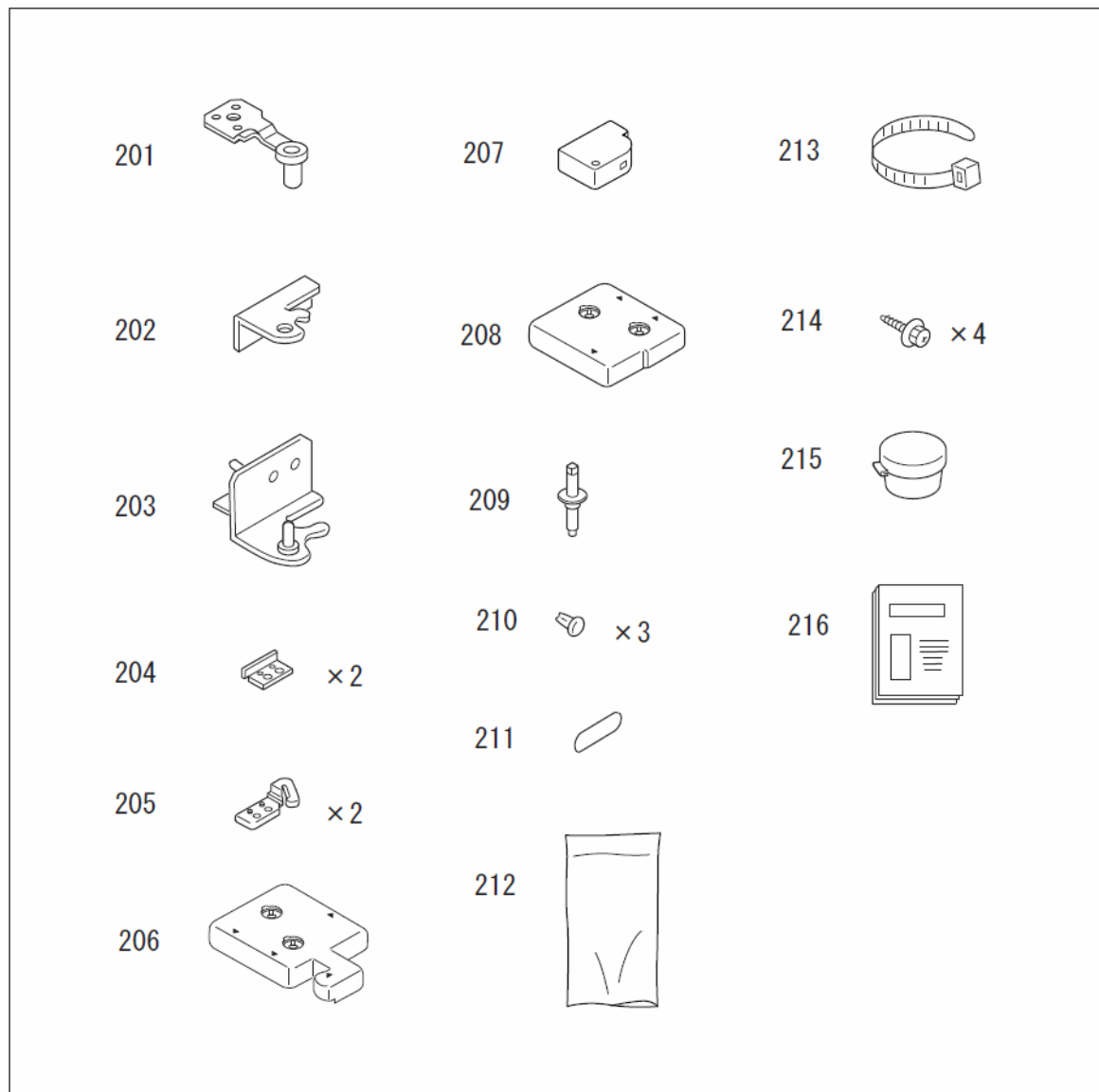
Safety	Ref. No	Part No.	Part Name & Description	Pcs. / Model				Remark	U
				NR-B30FG1		NR-B30FX1			
				-WE	-WB	-XE	-XB		
	60	CNRAJ-154630	Cap Hinge	3	3	3	3		
⚠	61	CNRBG-159960	PCB (DEO)	1	1	1	1		
⚠	62	CNRBG-159900	PCB (LED)	1	1	1	1	Led Lamp	
	63	CNRAG-111630	Low Temp Deodorizer	1	1	1	1		
	64	CNRAJ-152840	Ag Filter	1	1	1	1		
⚠	65	CNRBG-164280	Box Fan A' ssy	1	1	1	1		
	66	CNRAG-158970	Holder Fan & Ag	1	1	1	1		
	67	CNRAH-236080	Cover Room Lamp	1	1	1	1		
	68	CNRAH-252050	Cover Fan & Ag	1	1	1	1		
	69	CNR39-161630	Cap Pan H4TS (WN)	4	4	4	4		
⚠	70	CNRBG-170300	Case SW A' ssy	1	1	1	1		
	71	—	Ins Duct VCT	1	1	1	1	To supply with assembly	
⚠	72	CNRAG-156600	Damper Thermostat	1	1	1	1		
	73	—	Ins Duct VCB	1	1	1	1	To supply with assembly	
⚠	74	CNRBG-159710	Sensor SC A' ssy	1	1	1	1		
	75	CNRAH-245350	Duct VC	1	1	1	1		
⚠	76	CNRBH-136820	Duct VC A' ssy	1	1	1	1	Assembly parts, from 71 to 75	
	77	CNRAG-148930	Bag Joint	1	1	1	1		
	78	CNR39-220120	Tube Binding150	1	1	1	1	Cable Tie	
	79	CNR39-220010	Tube Binding94	1	1	1	1	Cable Tie	
⚠	80	CNRBG-155740	Temp Fuse A' ssy	1	1	1	1		
	81	CNRAG-131070	Holder Def Sensor	1	1	1	1		
⚠	82	CNRAG-148740	Sensor Defrost	1	1	1	1		
	83	CNRBF-148580	Evaporator	1	1	—	—		
	83	CNRBF-140910	Evaporator	—	—	1	1		
	84	CNRAG-156240	Cover Radiant	1	1	1	1		
⚠	85	CNRBG-169170	Defrost Heater A' ssy	1	—	1	—	For EU	
⚠	85	CNRBG-170320	Defrost Heater A' ssy	—	1	—	1	For UK	
	86	—	Ins Cover Coil	1	1	1	1	To supply with assembly	
⚠	87	CNRBG-149420	Fan Motor FC A' ssy	1	1	1	1		
	88	CNRAF-168180	Cover Coil	1	1	1	1		
⚠	89	CNRBF-145240	Cover Coil FC A' ssy	1	1	1	1	Assembly parts, from 86 to 88	
⚠	90	CNRAG-161760	Supply Cord	1	—	1	—	For EU	
⚠	90	CNRAG-161820	Supply Cord	—	1	—	1	For UK	
	91	CNRAJ-150820	Piece Earth Plate	1	1	1	1		
⚠	92	CNRBG-170420	PCB (CONTROL)	1	1	1	1		
⚠	93	CNRBG-160070	Reactor	1	1	1	1		
	94	CNRAG-149090	Ring Core	1	1	1	1		
⚠	95	CNRBG-165020	PCB (INVERTER)	1	1	1	1		

15.6. Replacement Parts List-2 (NR-B30FG1, NR-B30FX1)

Safety	Ref. No	Part No.	Part Name & Description	Pcs. / Model				Remark	U
				NR-B30FG1		NR-B30FX1			
				-WE	-WB	-XE	-XB		
	96	CNRBC-307780	Cover Board A' ssy	1	1	1	1		
	98	CNRAF-153460	Rubber 3Way valve	1	1	1	1		
⚠	99	CNRAG-148610	3Way valve	1	1	1	1		
	100	CNRAF-156810	Holder 3Way valve	1	1	1	1		
	101	CNRAF-119710	Water Cap EVA	1	1	1	1		
	102	————	Water Pan EVA.	1	1	1	1	To supply with assembly	
	103	CNRBF-146670	Water Pan EVA A' ssy	1	1	1	1	Assembly parts, 101 and 102	
	104	CNRAJ-145430	U Ring 7	3	3	3	3		
⚠	105	CNRAB-116440	Compressor ENI	1	1	—	—		
⚠	105	CNRAB-116580	Compressor EFI	—	—	1	1		
⚠	106	CNR06-598070	Motor Protector	1	1	1	1		
	107	CNRAG-156850	Protector Cover	1	1	1	1		
	108	CNR06-302380	Cluster Block	1	1	1	1		
	109	CNR39-941280	Rubber Grommet	4	4	4	4		
	110	CNR39-340890	Dryer	1	1	1	1	5g	
	111	CNR39-162250	Clamper Dryer	1	1	1	1		
	112	CNRAC-186730	Pin Caster	2	2	2	2		
	113	CNRAC-154320	Roller40	2	2	2	2		
	114	CNRBF-149190	Crossrail Rear A' ssy	1	1	1	1	Assembly parts, 112 and 113	
	115	CNRBF-146650	Cover Panel Comp A' ssy	1	1	1	1		
	116	CNRAF-156140	Rubber Reactor	2	2	2	2		

15.7. Exploded View 3 (NR-B30FG1, NR-B30FX1)

Bundled parts (The parts for left opening doors.)



15.8. Bundled Parts List (NR-B30FG1, NR-B30FX1)

(The parts for left opening are not used when the doors made right opening with the appliance.)

Safety	Ref. No	Part No.	Part Name & Description	Pcs. / Model				Remark	U
				NR-B30FG1		NR-B30FX1			
				-WE	-WB	-XE	-XB		
(The parts for left opening are not used when the doors are made right opening with the appliance.)									
	200	CNRBH-137470	PACKING PARTS A' ssy	1	1	—	—	Bundled parts, from 201 to 216	
	200	CNRBH-137480	PACKING PARTS A' ssy	—	—	1	1	Bundled parts, from 201 to 216	
	201	CNRAE-138170	Hinge Top L	1	1	1	1		
	202	CNRAE-138150	Hinge Center L	1	1	1	1		
	203	CNRBE-106820	Hinge Bottom L	1	1	1	1		
	204	CNRAE-138430	Stopper Door L	2	2	2	2		
	205	CNRAE-137770	Latch Door L	2	2	2	2		
	206	CNRAE-138130	Cover Hinge Top L	1	1	—	—		
	206	CNRAE-138110	Cover Hinge Top L	—	—	1	1		
	207	CNRAD-307880	Cover Cap Door PCT R	1	1	1	1		
	208	CNRAC-211950	Cover Table R	1	1	—	—		
	208	CNRAC-211940	Cover Table R	—	—	1	1		
	209	CNRAE-127730	Pin Hinge Center	1	1	1	1		
	210	CNRAJ-154630	Cap Hinge	3	3	3	3		
	211	CNRAH-242670	Ladel Bottom	1	1	1	1		
	212	CNRAG-149250	Bag Joint	1	1	1	1		
	213	CNR39-220010	Cable Tie	1	1	1	1	Tube Binding94	
	214	CNRAJ-155090	Screw (L14)	4	4	4	4	M5 × 14	
	215	CNRBH-125510	Grease	1	1	1	1	3g	
	216	CNRMS-B0801W	Manual	1	1	1	1	B08-01	