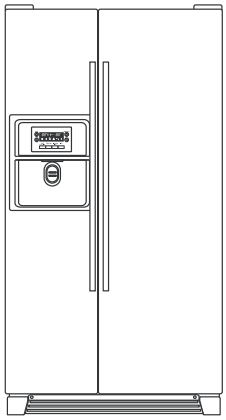
S/M No :

Service Manual



B20CS50... (FRU-546D...)
B20CS80... (FRU-546E...)

✔ Caution

: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information,please refer to PPL(Parts Price List) in Service Information Center (http://svc.dwe.co.kr).

http://svc.dwe.co.kr

June. 2006

CONTENTS

1. WARNINGS AND PRECAUTIONS FOR SAFETY

Please observe the following safety precautions in order to use safely and correctly the refrigerator and to prevent accident and danger during repair.

1. Be care of an electric shock. Disconnect power cord from wall outlet and wait for more than three minutes before replacing PCB parts.
   Shut off the power whenever replacing and repairing electric components.

2. When connecting power cord, please wait for more than five minutes after power cord was disconnected from the wall outlet.

3. Please check if the power plug is pressed down by the refrigerator against the wall.
   If the power plug was damaged, it may cause fire or electric shock.

4. If the wall outlet is over loaded, it may cause fire.
   Please use its own individual electrical outlet for the refrigerator.

5. Please make sure the outlet is properly earthed, particularly in wet or damp area.

6. Use standard electrical components when replacing them.

7. Make sure the hook is correctly engaged.
   Remove dust and foreign materials from the housing and connecting parts.

8. Do not fray, damage, machine, heavily bend, pull out or twist the power cord.

9. Please check the evidence of moisture intrusion in the electrical components.
   Replace the parts or mask it with insulation tapes if moisture intrusion was confirmed.

10. Do not touch the icemaker with hands or tools to confirm the operation of geared motor.

11. Do not let the customers repair, disassemble and reconstruct the refrigerator for them selves.
    It may cause accident, electric shock, or fire.

12. Do not store flammable materials such as ether, benzene, alcohol, chemicals, gas, or medicine in the refrigerator.

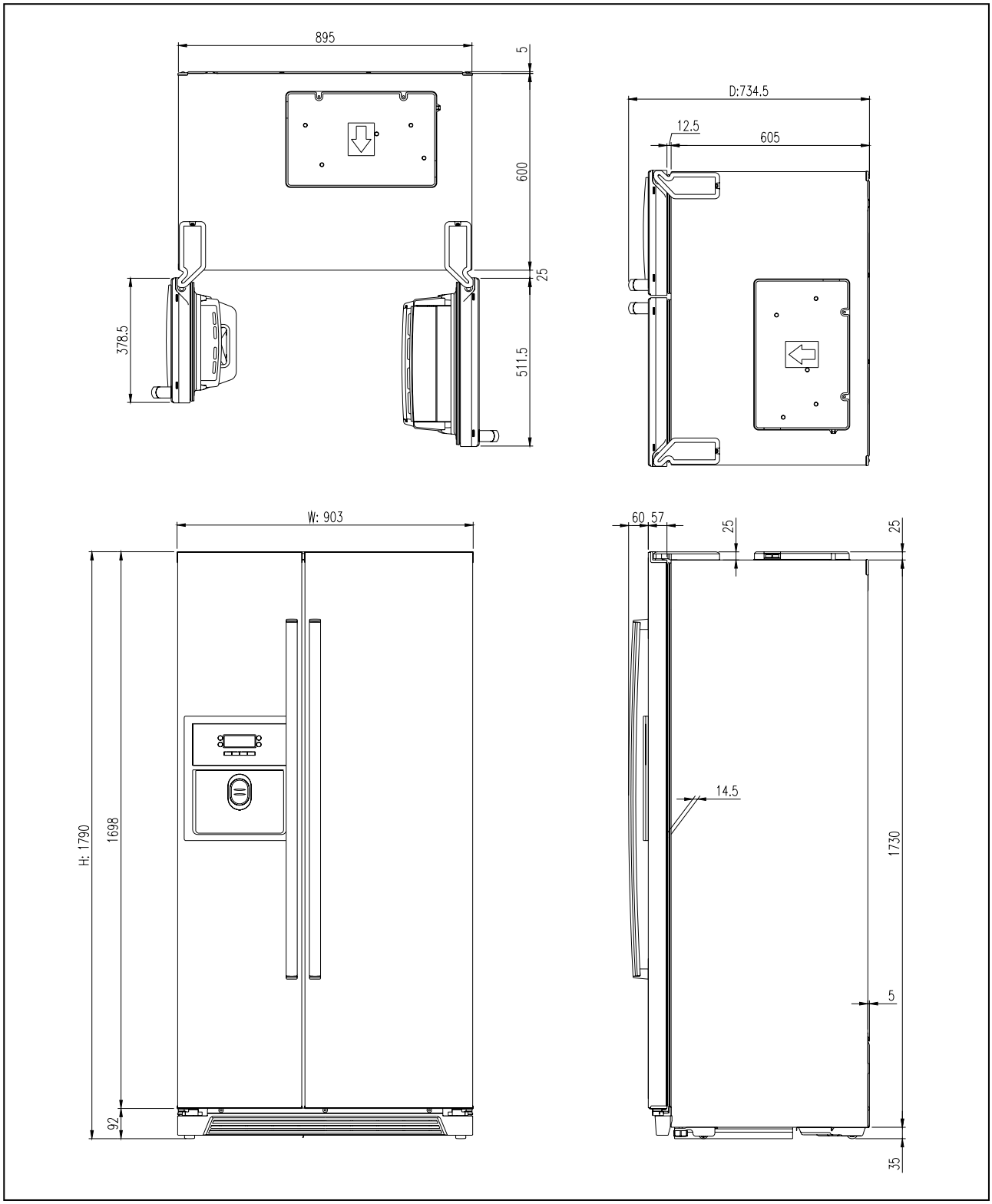
13. Do not put flower vase, cup, cosmetics, chemicals, etc., or container with full of water on the top of the refrigerator.

14. Do not put glass bottles with full of water into the freezer.
    The contents shall freeze and break the glass bottles.

15. When you scrap the refrigerator, please disconnect the door gasket first and scrap it where children are not accessible.

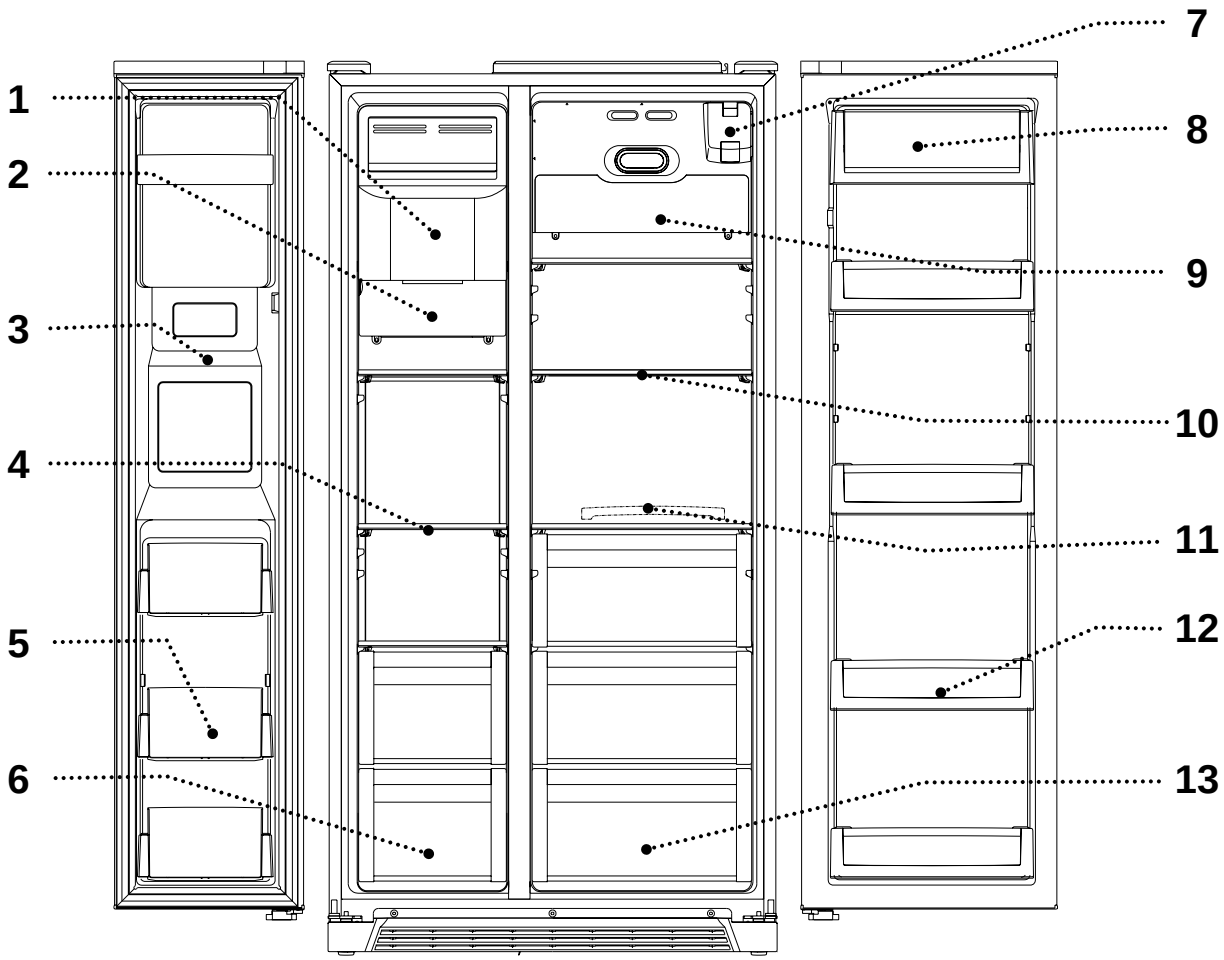
2. EXTERNAL VIEWS

2-1. External Size



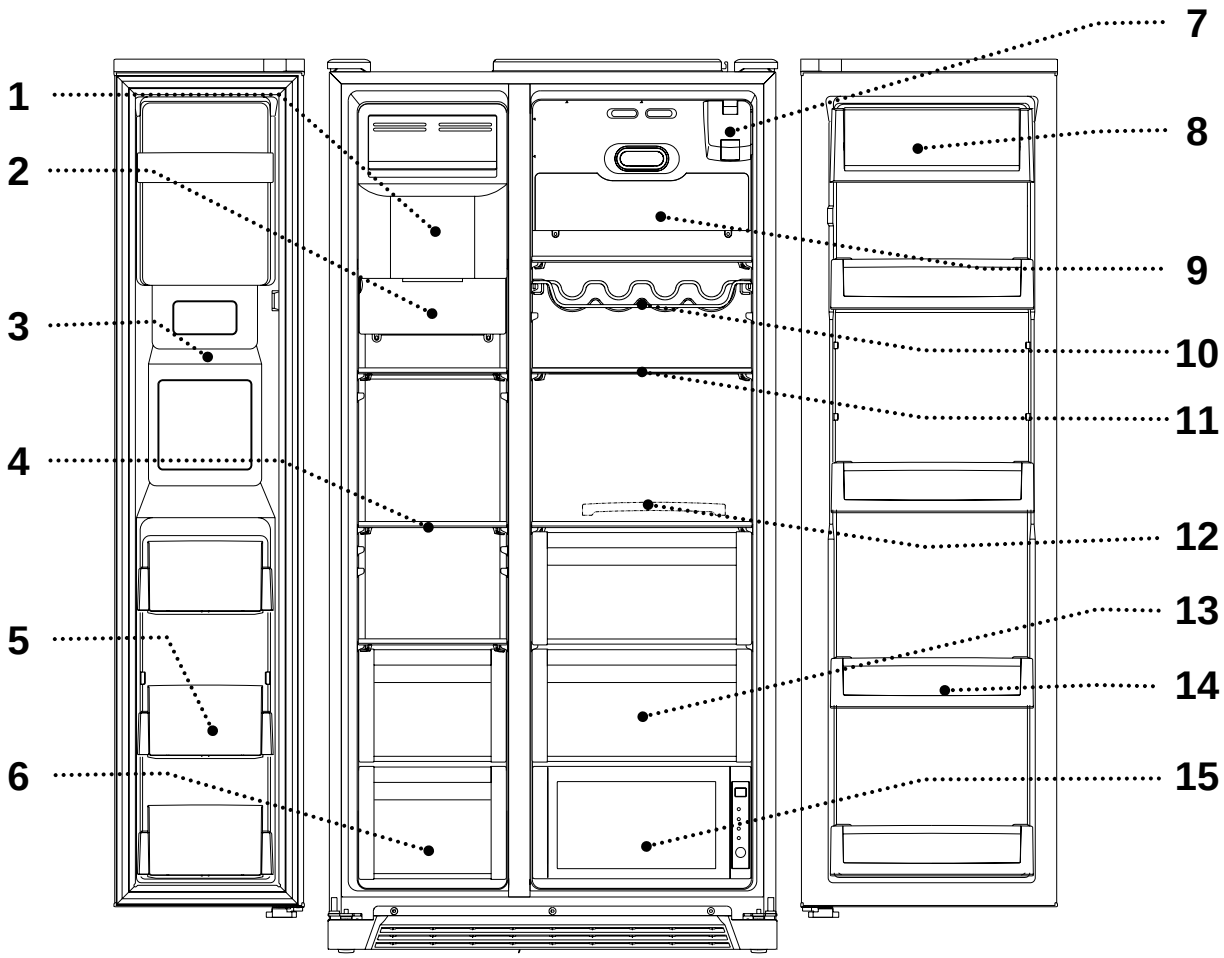
2-2. Name of Each Parts

(Model : B20CS50SN*)



Freezer Compartment	Refrigerator Compartment
1. Ice cubes storage case	7. Water Filter
2. Freezer light	8. Dairy pocket
3. Water/Ice Dispenser	9. Refrigerator light
4. Freezer shelf	10. Refrigerator shelf
5. Freezer pocket	11. Movable Egg case
6. Freezer case	12. Refrigerator pocket
	13. Refrigerator case

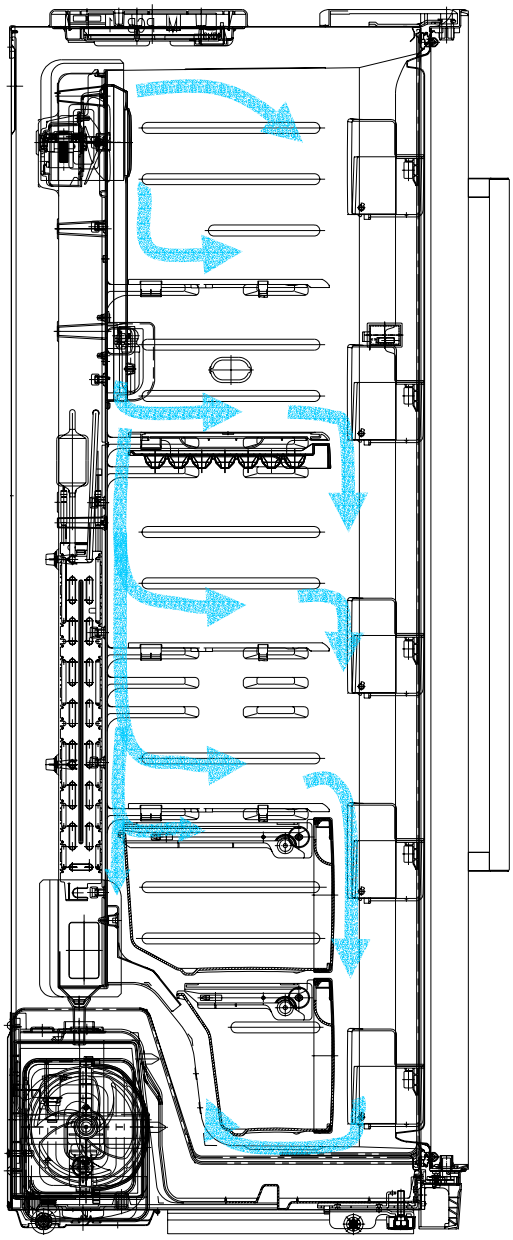
(Model : B20CS80SN*)



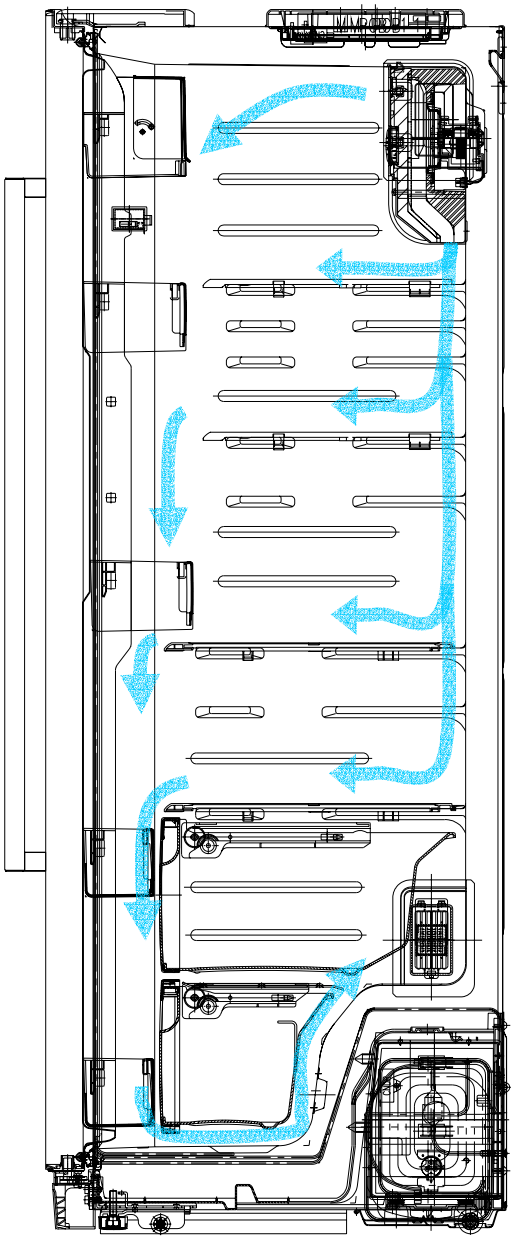
Freezer Compartment	Refrigerator Compartment
1. Ice cubes storage case	7. Water Filter
2. Freezer light	8. Dairy pocket
3. Water/Ice Dispenser	9. Refrigerator light
4. Freezer shelf	10. Shelf wire
5. Freezer pocket	11. Refrigerator shelf
6. Freezer case	12. Movable egg Tray
	13. Refrigerator case
	14. Refrigerator pocket
	15. Magic cool zone

2-3. Cold Air Circulation

Freezer Compartment



Refrigerator Compartment



3. SPECIFICATION

Item				Specification	
Model Name				B20CS50SN*	B20CS80SN*
Gross Volume (Li)	Total			572Li (20.19 ft^3)	567 Li (20.01 ft^3)
	Freezer			212 Li (7.48 ft^3)	212 Li (7.48 ft^3)
	Refrigerator			360 Li (12.71 ft^3)	355 Li (12.53 ft^3)
External Dimension (Width * Depth * Height)				903mm * 734.5mm *1790mm	
Rated Voltage				115~120V (60Hz)	
Weight				113kg	115kg
COOLING	Comp	Model		EGZS80HLP	
		Motor Type		RSCR	
		Running Capacitor		250VAC / 12uF	
		PTC	Model Name	8EA14C3 (Texas Instruments)	
			Spec	Resistance :4.7Ω Vmax / Imax : 180V / 12A	
		O.L.P	Model Name	4TM445KFBYY-53	
			Close/Open Temp	61℃ / 105℃	
	Refrigerant			R-134a	
	Quantity			190g	
	Evaporator			Fin Type	
	Condenser			Fan Cooling System	
	Dryer			Molecular Sieve XH-9	
	Capillary Tube			ID0.7 * T0.55 * L2200	

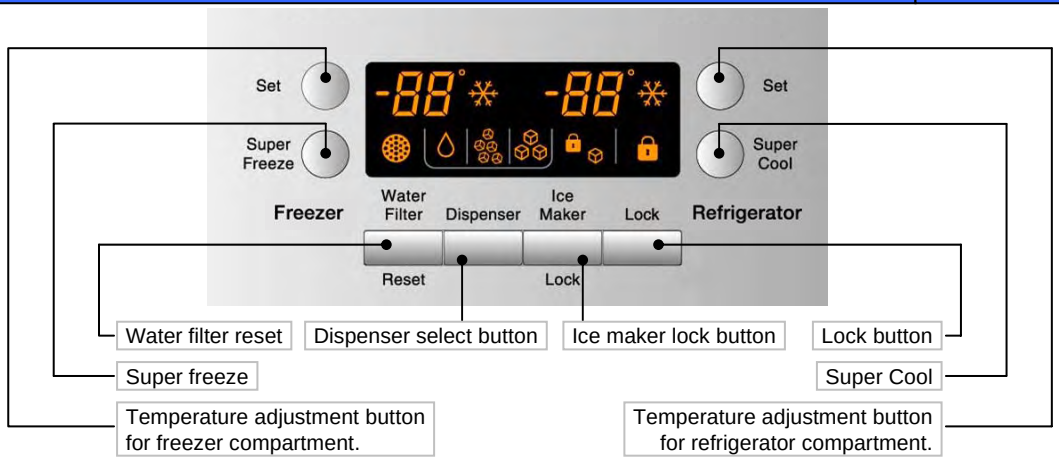
Item		Specification	
Model Name		B20CS50SN*	B20CS80SN*
SENSOR	Defrost	PBN-43	
	Freezer	PT-38	
	Refrigerator	PBN-43B	
	Magic Cool Zone	-	PBN-43B
HEATER	Defrost	AC115V / 192W	
	Main Duct	AC110V / 7W	
	Dispenser Box	AC110V / 5W	
	Water Pipe	AC110V / 5W	
ELECTRICAL PARTS	Power cord	AC125V 15A	
	Fuse Temp (Defrost)	AC250V , 10A , 77℃	
	Freezer -Fan Motor	D4612AAA21 / DC13V / 2050±100 rpm	
	Refrigerator -Fan Motor	D4612AAA20 / DC13V / 1850±100 rpm	
	Condenser -Fan Motor	D4612AAA22 / DC13V / 1100±100 rpm	
	Freezer -Lamp	AC125V / 25W (2EA)	
	Refrigerator -Lamp	AC125V / 25W (2EA)	
	Dispenser -Lamp	AC120V / 15W (1EA)	
	Door Switch (Freezer / Refrigerator)	SP201R-7DL / SP201R-7DR	

4. OPERATION AND FUNCTIONS

4-1. Display

INPUT	CONTROL OBJECT
Front PCB button Freezer Set , Refrigerator Set Super Freeze , Super Cool Water Filter Reset , Dispenser , Ice Maker Lock ,Lock	FCP C-LED

CONTENTS	REMARKS



1. Display control

FCP-LED	Control		
88 Display (Set Temp.)	Initial mode (Normal)	Freezer	Refrigerator
		-18℃ / 0°F	4℃ / 39°F
Super Freeze , Super Cool Icon	Dial		
Water / Cubed Ice / Crushed Ice Icon	Dial		
Lock Icon	Dial		
Ice Maker Lock Icon	Dial		
Water Filter Change Icon	After six month, LED ON		

2. “Freezer Set” Button
 1) Temperature control of freezer compartment
 2) 7 step mode of successive temperature mode.
 3) Initial mode by power input : “0°F”
  ※Whenever pressing button, setting is repeated in the order of (0°F) → (-2°F) → (-4°F) → (-6) → (6°F) → (4°F) → (2°F).

Reference
※Initial power input display
 ⇒ Fahrenheit degree “ °F”
※To change display for Celsius degree (℃) or Fahrenheit degree (°F)
 ⇒ Push “Water Filter Reset” button 15 seconds, in “Lock” condition

Letters are indicated on 88 Display LED

Temperature Change	power input (normal)	1st Press	2nd Press	3th Press (max)	4th Press (min)	5th Press	6th Press
Temp indication	0°F	-2°F	-4°F	-6°F	6°F	4°F	2°F
	-18℃	-19℃	-20℃	-21℃	-15℃	-16℃	-17℃

3. “Super Freeze” Button
 When this mode is chosen, the icon (Super Freeze) is ON.

CONTENTS	REMARKS

4. “Refrigerator Set” button.
   1) Temperature control of Refrigerator compartment
   2) 7 step mode of successive temperature mode.
   3) Initial mode by power input : “39˚F”
   ※Whenever pressing button, setting is repeated in the order of (39˚F) → (37˚F) → (35˚F) → (33˚F) → (45˚F) → (43˚F) → (41˚F).

   Letters are indicated on 88 Display LED

Temperature Change	power input (normal)	1st Press	2nd Press	3th Press (max)	4th Press (min)	5th Press	6th Press
Temp indication	39˚F	37˚F	35˚F	33˚F	45˚F	43˚F	41˚F
	4℃	3℃	2℃	1℃	7℃	6℃	5℃

5. “Super Cool” button.
   When this mode is chosen, the icon (Super Cool) is ON.

6. “Dispenser” button

   1) Select Water  / Crushed Ice  / Cubed Ice  .
   2) Icon lights up to show your selection is on.
      Initial mode by power input : “Water” mode.
   3) The mode of Crushed Ice or Cubed Ice continues for 1 hour and then changes to Water. (Water icon turns ON)

7. “Ice Maker Lock” button
   1) Start by pushing “Ice Maker Lock” button

      ① “Ice Maker Lock” icon  is on
      ② “Water” icon is always on
   2) Stop by pushing “Ice Maker Lock” button again
      ① “Ice Maker Lock” icon is off
      ② “Water” icon is on

8. “Water Filter Reset” button

   1) The normal (Icon  OFF) is on for 6 month after are first power input.
   2) After six months, icon is ON.
   3) How to reset Filter information
      ① Push the “Water Filter Reset” button for 3 seconds after change.

9. “Lock” button
   1) This button stops operation of different button.

      ① “Lock” icon  is on
      ② Press this button to lock out this case and to keep temperature and function setting.
   2) Push “Lock” button again for more than a second to stop it.

※ The actual inner temperature varies depending on the food status, as the indicated setting temperature is a target temperature, not actual temperature within refrigerator.
※ Refrigeration function is weak in the initial time.
Please adjust temperature as above after using refrigerator for minimum2~3 days.

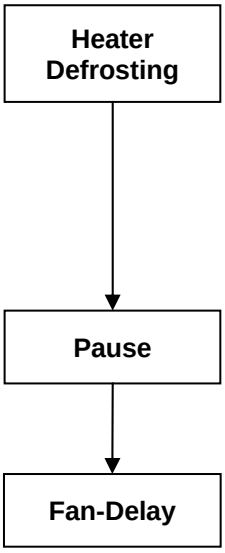
Reference : Please wait for 2-3 seconds in order to take final ice or drops of water when taking out cup from the pressing switches after taking ice or water.

4-2. Defrost Mode

INPUT	CONTROL OBJECT
1. Defrosting Cycle	1. Comp 2. F-Fan 3. R-Fan 4. D-Heater

CONTENTS	REMARKS

1. Defrost Mode



Heater Defrosting
1) Comp, F-fan, R-fan : OFF
Defrost-Heater : ON
2) Time limit
30 seconds : Heater is ON regardless of D-sensor temperature right after defrosting start
30 minutes : in case of D1- Error
80 minutes : in normal control state
3) If D-sensor ≥13℃, Heater Defrosting is OFF

Pause
Time : 7 minutes
Comp, F-fan, R-fan, Heater etc. : OFF

Fan-Delay
1) Time : 5 minutes
Comp : ON and F-fan, R-fan, Heater : OFF

2.The defrost mode start with the following conditions

1) Total operation time of comp. becomes : 6,8,10,……,12 hours.
① Room Temperature ＜ 35℃ & Comp. operating rate ≥ 85%
② Total door open time : 2 minutes
(Any door, F or R open time is over 2 minutes.)
③ Any error mode : R1, F1, D1, F3, RT/S, Door-switch etc.)

2) Defrosting mode starts unconditionally as long as total comp. work time is 12 hours, even if the above conditions 1) are not satisfied.

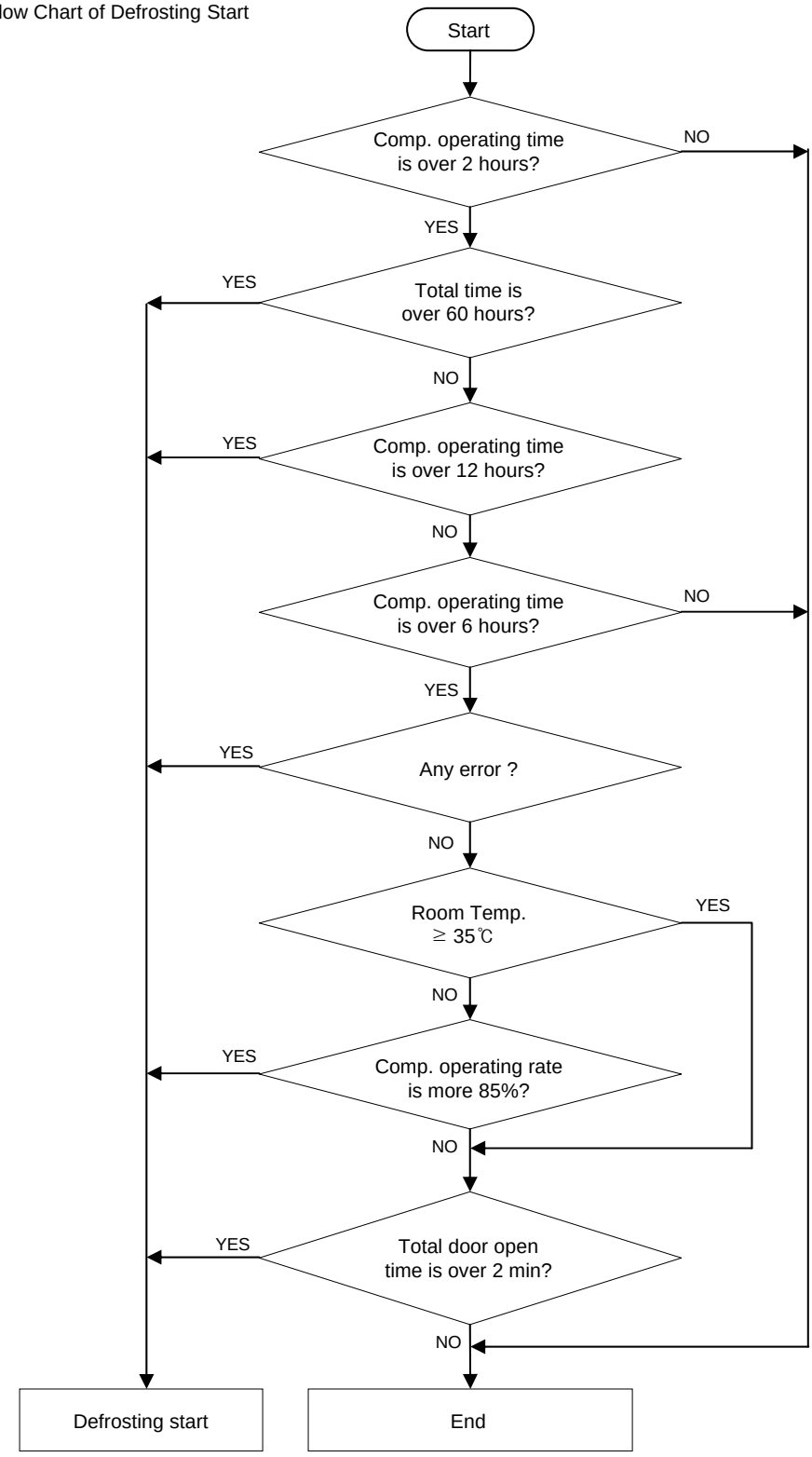
3) Defrosting mode starts immediately as long as total time of [comp. ON + comp. OFF] is over 60 hours, even if the above 1) and 2) conditions are not satisfied.

3. In providing initial power (or returning power failure)

If D-sensor temp. ≤ 3.5℃, defrosting mode starts .

CONTENTS	REMARKS

4. Flow Chart of Defrosting Start



4-3. Forced Defrosting Mode

INPUT	CONTROL OBJECT
1. Defrosting Cycle	1. Comp 2. F-Fan 3. R-Fan 4. D-Heater

CONTENTS	REMARKS

1. A/S Defrosting Mode (Heater defrost → Pause → Fan Delay)

Heater Defrosting

Heater Defrosting
1) Comp, F-fan, R-fan : OFF
D-Heater : ON
2) Time limit
30 seconds : Heater is ON regardless of D-sensor temperature right after defrosting start
30 minutes : in case of D1-Error
80 minutes : in normal control state
3) If D-sensor ≥13℃, Heater Defrosting is OFF

Pause

Pause
Time : 7 minutes
Comp, F-fan, R-fan, Heater etc. : OFF

Fan-Delay

Fan-Delay
1) Time : 5 minutes
Comp : ON
F-fan, R-fan, Heater : OFF

2. How to start
; In “Lock” mode, push “Refrigerator Set” button 5 times while pushing “Freezer Set” button simultaneously.
3. How to proceed
1) same as normal defrosting
2) Heater is ON regardless of D-sensor temp. at first 30 seconds.
(Check of defrosting current)

4-4. Fan Voltage of Control Mode

INPUT	CONTROL OBJECT
1. F-Sensor 2. R-Sensor	1. F-FAN, R-FAN, C-FAN

CONTENTS	REMARKS

1. Fan voltage of control mode

FAN	Freezer	Refrigerator	Condenser
Voltage	13 V	13 V	13 V

4-5. Dispenser and Flap Heater Control

INPUT	CONTROL OBJECT
1. Comp	Dispenser Heater Ice Flap Heater

CONTENTS	REMARKS
It is linked with comp.	

4-6. Buzzer or Alarm Control

INPUT	CONTROL OBJECT
1. Control Front-PCB buttons 2. Door Switch 3. Initial Power Input	Buzzer

CONTENTS	REMARKS
1. Buzzer sounds if any button of Front-PCB button is pushed. 2. Buzzer sounds 4 times 3 seconds after initial power input. 3. Buzzer sounds for 3 or 1 times in case of A/S Forced Defrosting and Short (pull down) Operation or explanation mode. 4. If door is open, buzzer sounds after every 1 minutes for 5 minutes (Door open alarm)	

4-7. Control of Interior Lights

INPUT	CONTROL OBJECT
1. Refrigerator door switch 2. Freezer door switch 3. Dispenser switch	Lamp

CONTENTS	REMARKS
1. Control Refrigerator Compartment Lights. R-Lights turn ON/OFF by R-door switch ON/OFF (※ For 10 minutes after sensing door open, the lights turn off automatically through door close is not sensed.) 2. Control of Freezer Compartment Lights. F-Light turn ON/OFF by F-door switch ON/OFF 3. Dispenser lamp control Dispenser lamp turns ON/OFF by Dispenser switch. Dispenser lamp turns ON for 5 seconds after sensing switch close.	

4-8. Demonstration

INPUT	CONTROL OBJECT
1. “Freezer Set , Dispenser” button	Comp F/R-Fan Heater

CONTENTS	REMARKS
1. Start Push “Dispenser” button 5 times while pushing “Freezer Set” button simultaneously. 2. Control 1) All other electrical components are OFF except for F-Fan / R-Fan 2) Fan Control Door open → Fan ON / Door close → Fan OFF. 3. Stop or termination 1) During Demo mode, push “Dispenser” button 5 times while pushing “Freezer Set” button simultaneously. 2) Power in again	

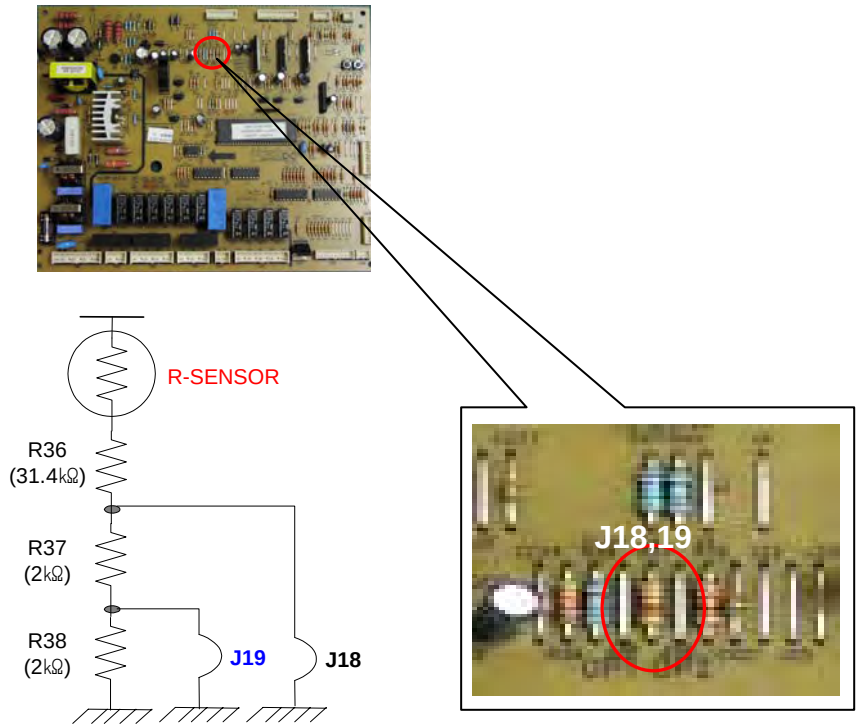
4-9. Compensation of R-sensor ON/OFF Temp.

INPUT	CONTROL OBJECT
Main PCB	Resistance of R-sensor ON/OFF Temp. of Refrigerator

CONTENTS	REMARKS

Compensation of R-sensor ON/OFF temp. (down)

In case temperature of refrigerator compartment is weak or insufficient,
take the following action.



R36 : R-SENSOR standard resistance in normal mode (31.4kΩ)
In case of weak ref.
1) Cut **J18** to increase the standard resistance by **2kΩ ⇒ 1.5℃ down**
2) Cut **J18** & **J19** to increase the standard resistance by **4kΩ ⇒ 3℃ down**

J18	-	cut	-	cut
J19	-	-	cut	cut
Temperature compensation	0℃	-1.5℃	0℃	3℃
Resistance	R36	R36+R37	R36	R36+R37+R38
	31.4kΩ	(31.4+2)kΩ	31.4kΩ	(31.4+2+2)kΩ

4-10. Error Display

INPUT	CONTROL OBJECT
Temperature Control Buttons	88 Display CLED

CONTENTS | **REMARKS**

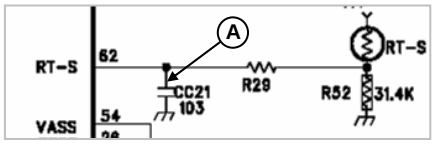
1. How to start
 1) Under “Lock” mode, press “Super Freeze” button 5 times while pressing “Freezer Set” button at the same time.
 2) The front C-LED displays as the right diagram shows
 ([Ex.] Time Display of 0003 signifies 3 minutes of power on time.)
 3) Press “Freezer Set” button and the following value is displayed successively.
 ① Time
 ② F-Sensor temperature
 ③ D-Sensor temperature
 ④ R-Sensor temperature
 ⑤ RT-Sensor temperature
 ⑥ P Factor display (Refer to water supply mode of automatic icemaker)
 ⑦ Filter remaining time until change (First check ; 4,320Hr)
 Refer to Filter Information Reset of C-LED of front control panel.
 4) Error is displayed only if there is any ; it is skipped if no error.

2. How to stop
 1) Push “Lock” button 1 time.
 2) It stops automatically in 4 minutes from the start.

3. All the error codes are reset if they turn to be normal.

4. Error code

ERROR CODE	CONTENTS
F1	F-sensor : disconnection (“Lo”), short (“Hi”)
r1	R-sensor : disconnection (“Lo”), short (“Hi”)
rt	RT-sensor : disconnection (“Lo”), short (“Hi”)
d1	D-sensor : disconnection (“Lo”), short (“Hi”)
dr	R-Door Switch : defective
dF	F-Door Switch : defective
dH	Home bar Door Switch : defective
EI	I-sensor : disconnection (“Lo”), short (“Hi”)
EF	Flow sensor : defective
Et	Horizontal switch : error
Eg	Water supply : error
ES	Micro switch : error
EA	Drop the ice while Et
Eu	Full ice switch : error
C1	Cycle : abnormal or defective
F3	Return after defrosting : abnormal or defective
Co	Display Full Down mode
D2	Display forced defrost mode for A/S

CONTENTS	REMARKS
5. Control way of Error (if any) 1) “F1” error Cause : F-sensor disconnection or short Check point : Measure the resistance between both terminals after separating CN8 (or CN15) of the Main PCB. If F-sensor is disconnected or shorted , change the F-sensor in the freezer compartment. How to reset : If F-sensor is normal, the error is terminal temperature. 2) “R1” error Cause : R-sensor disconnection or short Check point : Measure the resistance between both terminals after separating CN7 (or CN14) of the Main PCB. If R-sensor is disconnected or shorted , change the F-sensor in the refrigerator compartment. How to reset : If R-sensor is normal, the error is terminal temperature. 3) “rt” error Cause : RT-sensor disconnection or short (full down) Check point : Measure the voltage of “A” part on the Main PCB. If the voltage is 0.5V~4.5V, it is normal. If the voltage is 0V (short) or 5V (disconnected), change the RT-sensor on the Main PCB How to reset : If RT-sensor is normal, the error is terminated automatically.  4) “d1” error Cause : D-sensor disconnection or short (full down) Check point : Measure the resistance between both terminals after separating CN8 (or CN15) of the Main PCB. If D-sensor is disconnected or shorted , change the D-sensor on the evaporator. How to reset : If D-sensor is normal, the error is terminated automatically. 5) Door error (“dF” “dR” “dH” on display) Cause : in case it senses that door is open for more than 1 hour. Check point : F/R door is opened or not. 6) “C1” error Cause : in case comp. works for over 3 hours when D-sensor temp. is over -5℃ Check point : Refrigerant leakage. 7) “F3” error Cause : in case defrosting return is done by time limit of 80 min Check point : Measure the resistance between both terminals of the defrost heater. (Assembled with evaporator) If the resistance is ∞Ω (disconnected) or 0Ω (short) change the 8) “d2” mode (A/S forced defrosting mode) Push “Refrigerator Set” button 5 times while pushing “Freezer Set” button simultaneously. Control : A/S forced defrosting control (Pre-cool is deleted) If D-sensor temp. is over 13℃, the mode is terminated automatically. Refer to the 4-3. .	

CONTENTS	REMARKS
9) “EI”ERROR Cause : I-SENSOR disconnection / short Check point : Measure the resistance between both terminals after separating CN11 of the Main PCB. If F-sensor is disconnected or shorted , change the I-sensor in the automatic ice maker. 10) “EF” ERROR Cause : When Flow-sensor ERROR (There is no Pulse during some time) The number of pulse signal is below 10 by 1 sec during water supply. Check point : Water supply line 11) “Eg” ERROR Cause : I-sensor temp (5min after water supply) doesn’t go up. Check the I-sensor or water supply line. 12) “ES” error (Micro switch error) Cause : When it senses 1min continuously Check the Micro switch of the dispenser. 13) “Ea” error Cause : Malfunction of ice drop motor. Check the motor by pushing test switch. 14) “Eu” error Cause : Switch (which senses if the ice is full or not) is in error. Control : When dropping the ice, the motor just rotates 90 degree. Termination : When the switch is in normal. 15)“EA“ ERROR Cause : When sensing Ice dropping by time 3 times in level sensor SW Error. Control : Stop of Ice Maker Termination : With normal level switch. Re-input of power or push if icemaker test switch. 16)“Et” ERROR Cause : Level switch error (No pulse is sensed for some time) Control : By time (Supply mode is skipped) Termination : Normal condition. * When all ERROR CODE is normal, the Refrigerator reset	

4-11. Summary of Function

INPUT	CONTROL OBJECT
Each button	

CONTENTS	REMARKS

1. All the modes are started “Lock” mode (except “Water Filter Reset” mode)

2. Element A/S Function

Temp Display change	“Water Filter Reset” button for 15 seconds
Forced Defrosting	“Freezer Set” + “Refrigerator Set” 5 times
Reset water filter	“Water Filter Reset” for 3 seconds
Demo function	“Refrigerator Set” + “Dispenser” 5 times
Pull Down	“Refrigerator Set” + “Freezer Set” + “Dispenser” 5 times
Error display	“Freezer Set”+ “Super Freeze” 5 times
EEPROM clear	“Dispenser” + “Water Filter Reset” 5 times
Ice maker test	“Dispenser” + “Ice Maker Lock” 5 times

4-12. Filter information & Function to adjust the amount of water

INPUT	CONTROL OBJECT
Temperature Control Buttons	88 Display CLED

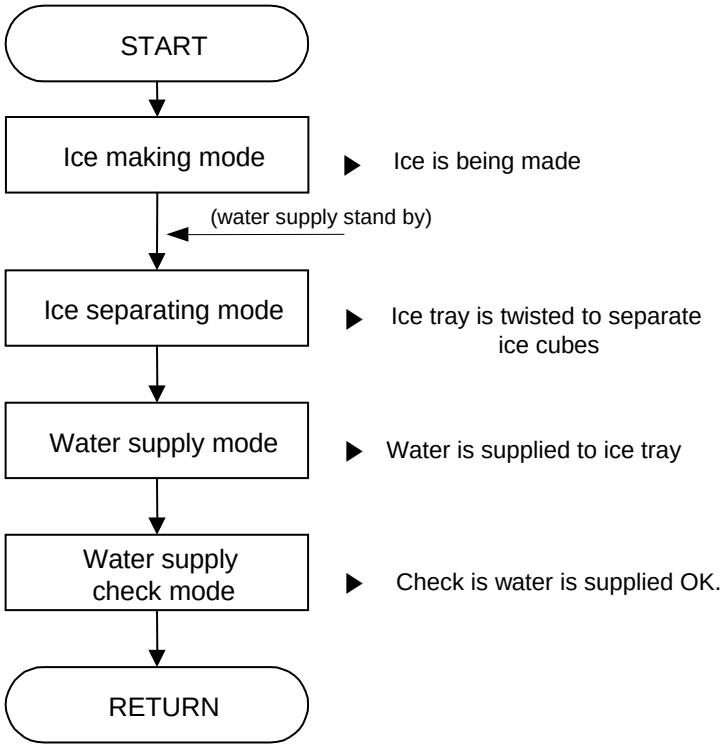
CONTENTS	REMARKS
Filter information 1. Filter Exchange Information : Record a real-time from the point of power input. - The filter is normal for 6 months after the first installation. - When the time comes to change or reset, press the **Water Filter Reset** button for 3 seconds. 2. Function of display of filter change time [step1] Press the **Lock** button (not '**ice maker lock**' button). [step2] Press **Super Freeze** button 5 times while pressing **Freezer Set** button. [step3] Press **Freezer Set** button 6 times successively. (**Fi – Lt** is display) [step4] Remaining time is display if **Dispenser** button press. (ex. 40 : 12 means that 4012 minutes remains until the filter exchange. [step5] Reset : Push **Lock** button or it is automatically reset after 4 minutes.	
Adjust the amount of water Function to adjust the amount of water supply. [step1] Press the **Lock** button (not '**ice maker lock**' button). [step2] Press **Super Freeze** button 5 times while pressing **Freezer Set** button. [step3] Press **Freezer Set** button 5 times successively. (**P100** is display) (Initial setting **P100** means **86cc** water supply.) [step4] Adjust the amount of water. - If the amount is less than P100, press **Super Cool** button. ; P101 (87cc) , P102 (88cc), P103 (89cc) …… - If the amount is more than P100, press **Refrigerator Set** button. ; P99 (85cc), P98 (84cc), P97 (83cc) …… [step5] Reset : Push **Lock** button or it is automatically reset after 4 minutes.	

4-13. Automatic Icemaker

INPUT	CONTROL OBJECT
Full ice sensing switch Ice Maker Lock Sensors	Ice separating motor

CONTENTS	REMARKS

1. Flow of ice making



1) Press test switch under the Icemaker for more than 1 second and test starts.
   * Test mode starts from ice separating mode.
   * In case test switch has an error of short, test is done only once.

CONTENTS	REMARKS

2) With the initial power input, Ice tray turns to be horizontal and ice making mode starts.

3) Control of water hose heater

* Heater is always ON if RT-sensor has an error or RT is below 15 degree.
* Heater is always ON for 60 minutes (max. Limit time) if Flow-sensor has an error

4) Water supply stand-by

Condition : if ice is sensed full

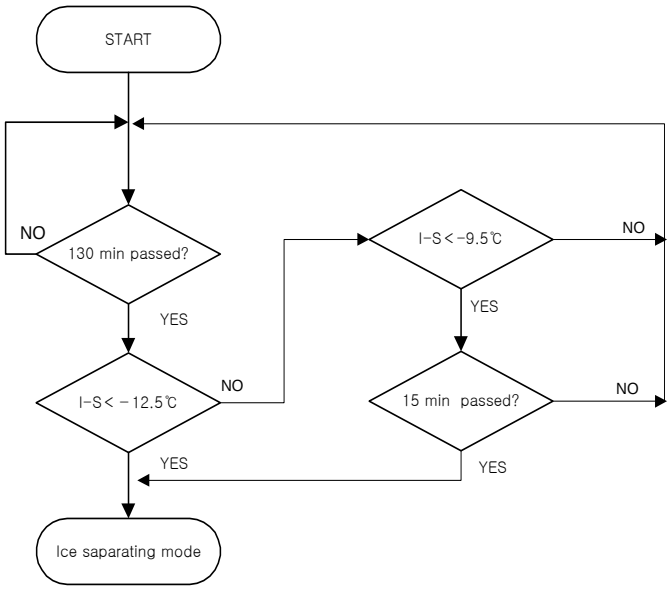
Operation : proceeds to Ice making mode (Ice separating and water supply Modes stop)

5) Crusher Function

It stops operation when freezer door is open

It operates if freezer door is closed.

2 Ice making mode



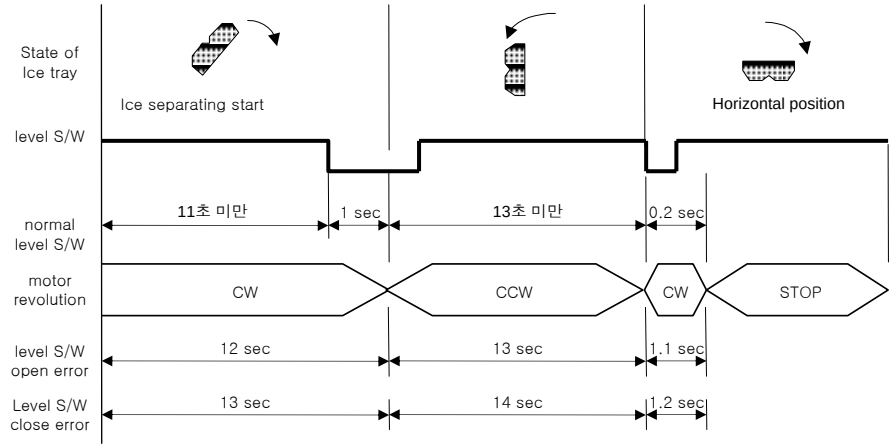
1) Ice making stops if ice-sensor is below -12.5℃ after 130 minutes.

2) Ice making also stops if ice-sensor is below -9.5℃ for 15 minutes, though ice-sensor is not below -12.5℃ after 130 minutes.

3) In case of ice sensor, ice making stops after 4.8 hours.

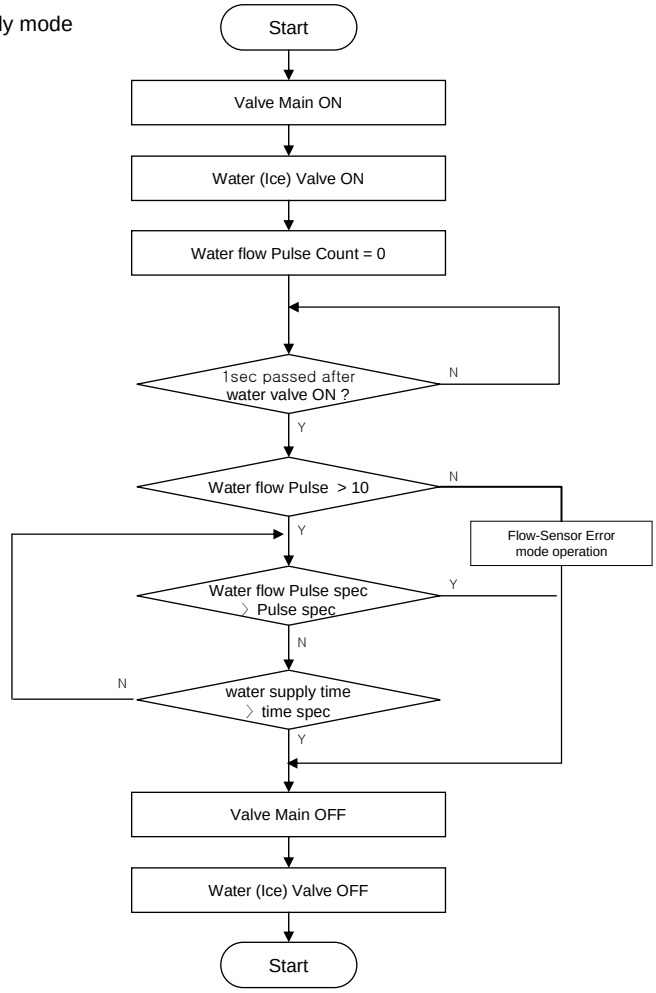
CONTENTS	REMARKS

3. Ice separating (drop) mode



1) Time of each zone used to verify level switch error
2) The rotation of motor is sensed at each zone
3) In case of level switch error, ice separation is done by time.
4) If ice separating motor has error, the mode stop.

4. Water supply mode

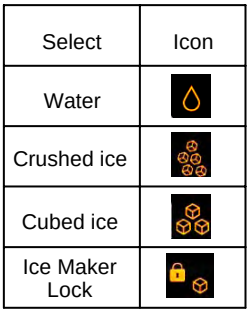


CONTENTS	REMARKS
1) Water supply valve is open when water supply mode starts after separation of ices. 2) Water is supplied by time in case sensor has error. 3) Factor valve is variable which can be useful in AS action ① Water flow pulse is set to 238 if flow sensor is in normal condition. (If water is supplied by time, maximum water supply time 165 seconds) ② In case water flow sensor has error, water time is 5.5 seconds. 5. Water supply check mode 5 minutes after water supply the status can be checked by RT-sensor and increase of temp. Ice sensor.	

RT-S	9℃↓	~15℃	~21℃	~31℃	~41℃	41℃↑
I-S	-10℃	-9℃	-8℃	-7℃	-6℃	-5℃

4-14. Dispenser Control Function

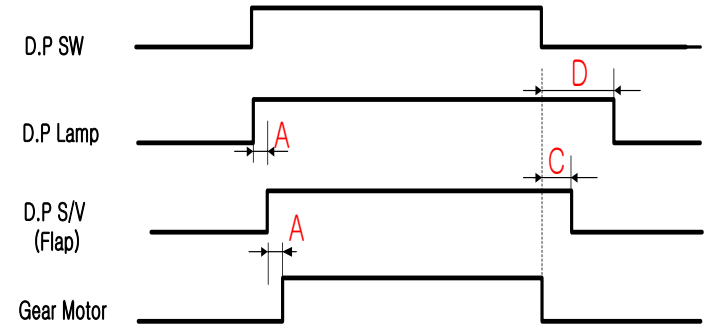
INPUT	CONTROL OBJECT
Dispenser switch “Dispenser” button “Ice Maker Lock” button Freezer door switch	Dispenser lamp Crusher motor Flap solenoid Crusher solenoid Dispenser water valve

CONTENTS	REMARKS
1) Initial mode : water (Mode change : Water → Crushed ice → Cubed ice → Water) - Selected icon turns ON and others are OFF. 2) “Ice Maker Lock” button “Ice Maker Lock” function and its icon turn ON/OFF by pressing the button. 3) Display ① Water icon turns ON as default mode. ② The icon of each mode turns ON by pressing its button. (If dispenser switch makes error during operation of each mode, its icon flickering) ③ When “Ice Maker Lock” button push. - “Ice Maker Lock” icon turns ON. - If it is in the mode of cubed ice or crushed ice, the mode change to water and water icon turns ON. - If there is no button input for 1 hour after selecting cubed Ice or crushed ice, the mode turns to water (default).	※ **Dispenser selection**  Select / Icon Water Crushed ice Cubed ice Ice Maker Lock

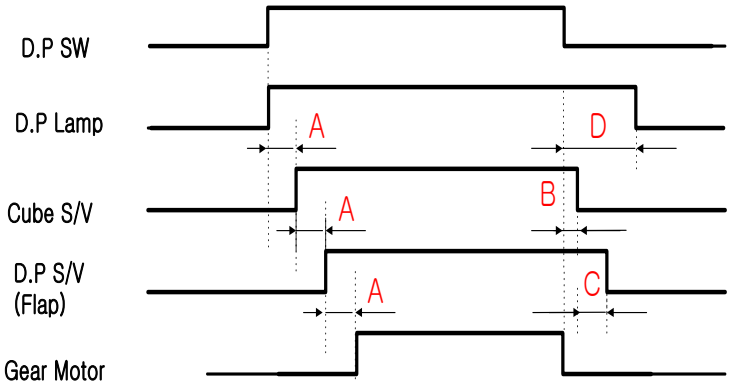
CONTENTS	REMARKS

4) Control flow & time chart

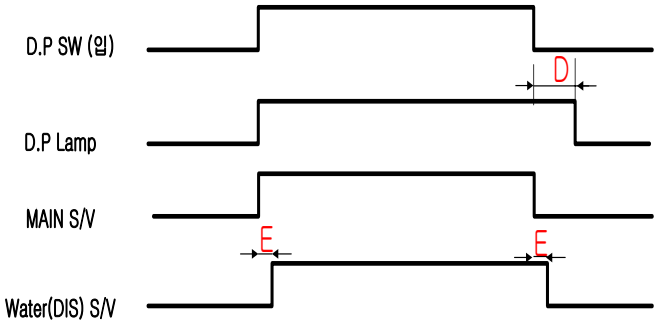
① Crushed Ice



② Cubed Ice



③ Water



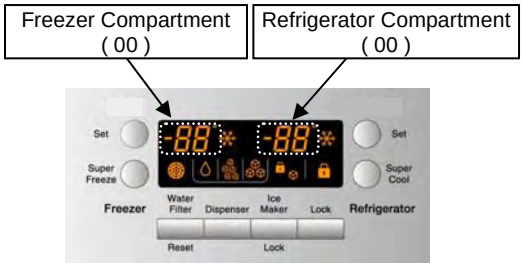
Delay time : A = 0.5sec , B =0. 5sec , C = 2.0sec , D = 5.0sec , E=0.3sec

4-15. Compensation of F/R-Compartment temperature.

INPUT	CONTROL OBJECT
Front PCB button Freezer Set , Refrigerator Set Super Freeze , Super Cool Dispenser , Lock	ON/OFF Temp. of Freezer & Refrigerator Compartment

CONTENTS	REMARKS

1. How to start
   1) **Freezer Compartment** : Under “Lock” mode, press “Freeze Set” button 5 times while pressing “Dispenser” button at the same time.
   2) **Refrigerator Compartment** : Under “Lock” mode, press “Refrigerator Set” button 5 times while pressing “Dispenser” button at the same time.
   3) Initial setting



2. In case change of “**Freezer Compartment**” ON/OFF temperature

ON/OFF temp.	down(-)	up(+)
button	Freezer Set	Super Freeze
Range of setting Value	"00" ~ "-30"	"00" ~ "+30"
Range of Temp. Change	0 ~ -2℃	0 ~ +2℃
“Temp. Change” = “Setting Value” × “0.072℃”		

3. In case change of “**Refrigerator Compartment**” ON/OFF temperature

ON/OFF temp.	down(-)	up(+)
button	Refrigerator Set	Super Cool
Range of setting Value	"00" ~ "-30"	"00" ~ "+30"
Range of Temp. Change	0 ~ -3℃	0 ~ +3℃
“Temp. Change” = “Setting Value” × “0.1℃”		

※ If 10 days passes from initial power on,
the “setting value” is memorized in the EEPROM automatically.
※ In order to clear this “setting value” ,
it is needs “EEPROM clear” (“Dispenser” + “Water Filter Reset” 5 times)

4-16. Temperature control of “Magic Cool Zone” compartment

INPUT	CONTROL OBJECT
1. R-Fan 2. “Magic Cool Zone” sensor 3. “SELECT” button	1. “Magic Cool Zone” damper 2. Damper heater

CONTENTS | **REMARKS**

1. “Select” button
   1) Temperature control of “Magic Cool Zone” compartment
   2) 4 step mode of successive temperature mode.
      Initial mode by power input : “OFF”
      (“Off” → “Produce” → “Meat”→ “Fish”→ “Off”)
      Letters are indicated on “88” display LED

Mode		Display ℉ (℃)	Damper Open/Close point	
			Open	Close
			Temp (℃)	Temp (℃)
Power input	Off	-	-	-
1’st Press	Produce	38 (3)	7	6
2’nd Press	Meat	35 (2)	6	5
3’rd Press	Fish	32 (0)	4	3

Reference
※Initial power input display ⇒ Fahrenheit degree “ ℉”
※To change display for Celsius degree (℃) or Fahrenheit degree (℉)
⇒ Push “select” button 15 seconds

2. Normal Stepping motor Control (It is linked with Refrigerator Fan (R-Fan))

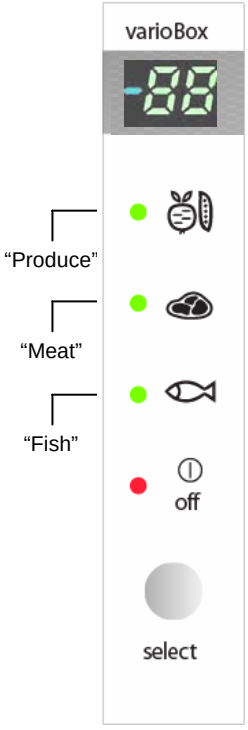
R-Fan	“Magic Cool Zone” damper	Remark
ON	Always close	
OFF	Each mode ON/OFF Control	

3. Damper heater control
   1) Damper open → Damper heater OFF
   2) Damper close → Damper heater ON

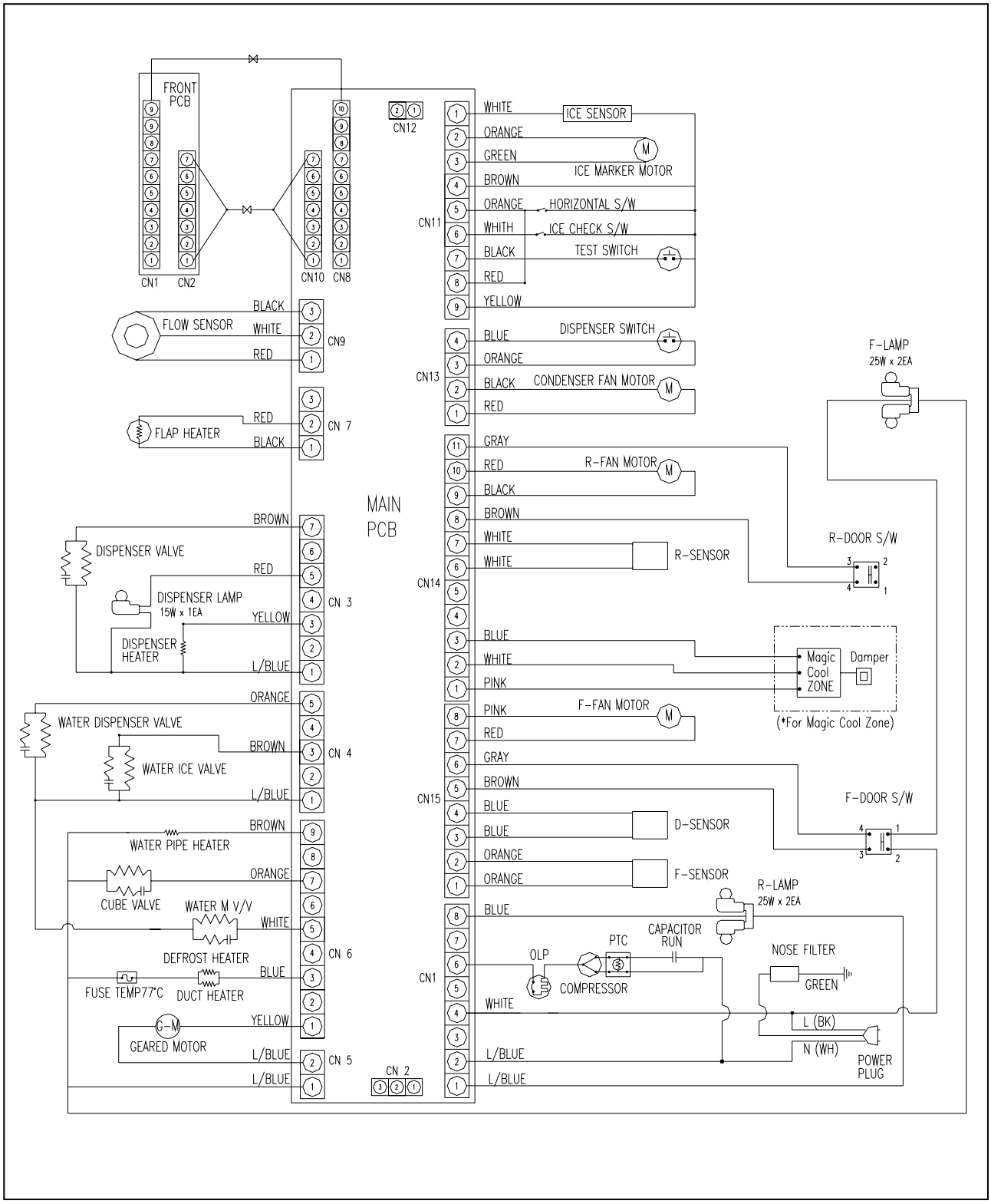
4. How to check error mode (Temp. display and forced damper Open/Close)
   1) How to start
      Push “Select” button for 3~6 seconds.
      ① Initial display : “sensor temp.” display. (if sensor is normal)
      “Er” display. (if sensor is disconnected or short)
      ② Press “Select” button 1 time : “OP” display. (forced damper open)
      ③ Press “Select” button 2 time : “CL” display. (forced damper close)
   2) How to stop
      It stops automatically in 20 sec. from the start.

5. Control way for “Magic Cool Zone” sensor error.
   1) If “Magic Cool Zone” sensor is disconnected or short.
   2) Damper open and close by below table. Control (Condition of “Select” button)

Condition		“Select”			
		“Off”	“Vegetable”	“Fish”	“Meat”
R-Fan	ON	Close	Close	Close	Close
	OFF	Close	Close	After 2min open from R-Fan off, and then close	Open



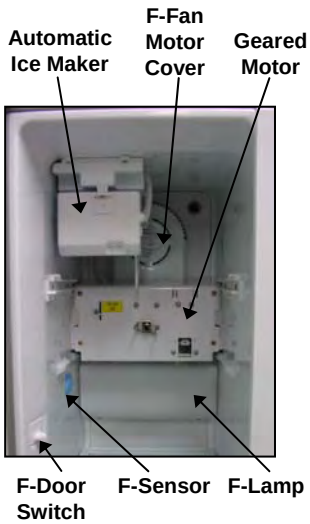
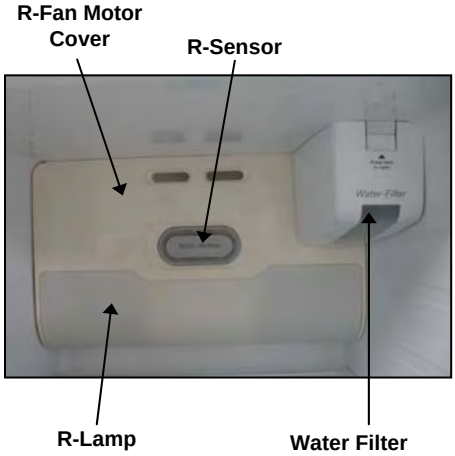
5. WIRING DIAGRAM



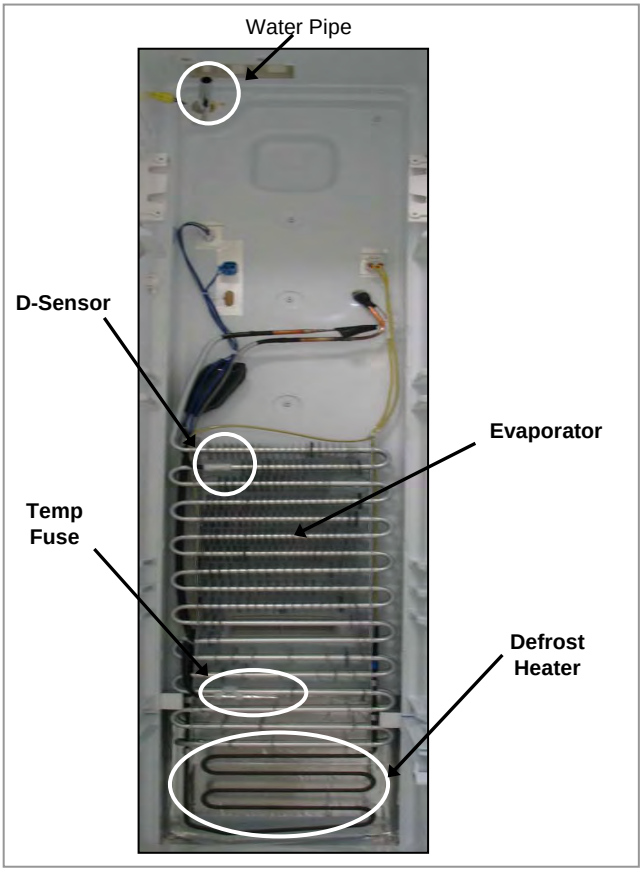
6. COMPONENT LOCATE VIEW

6-1. Front View

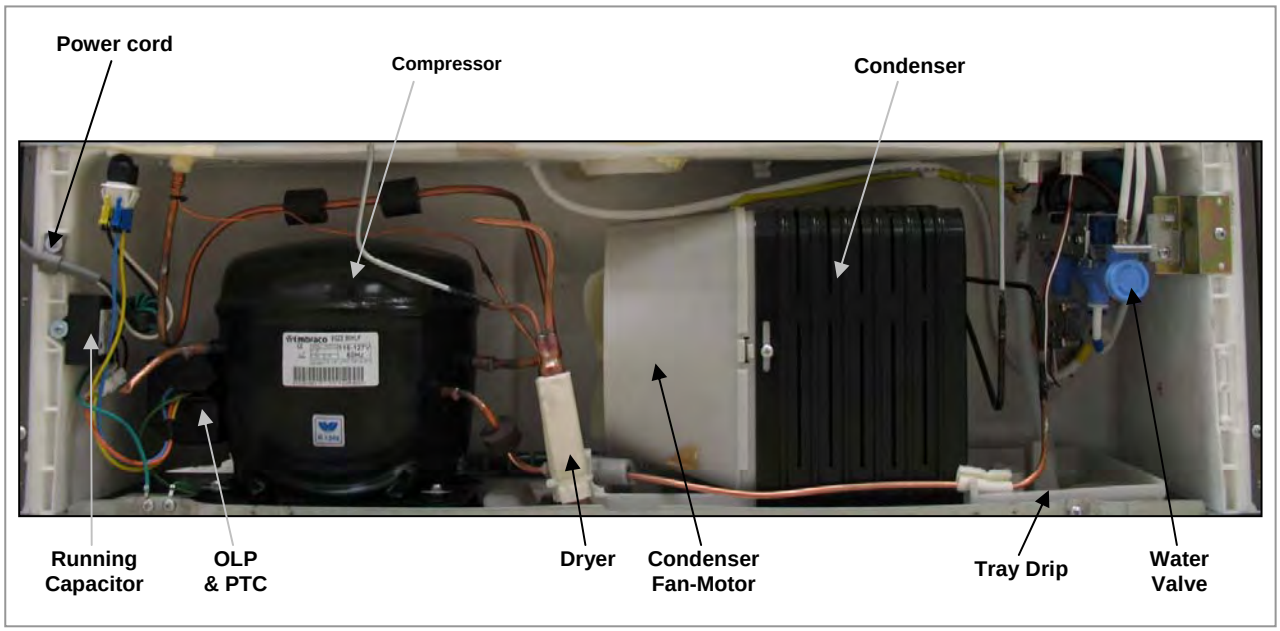
6-2. Inner View

Freezer Compartment	Refrigerator Compartment
	

6-3. Evaporator



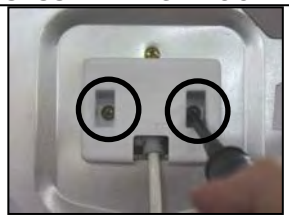
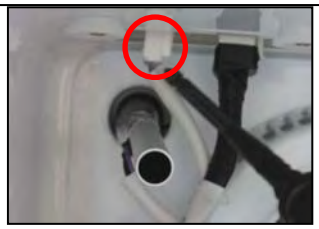
6-4. Machine Compartment



7. HOW TO CHECK EACH PARTS

7-1. Hose Ice Maker Tube Assembly

1) Disassembling Procedure

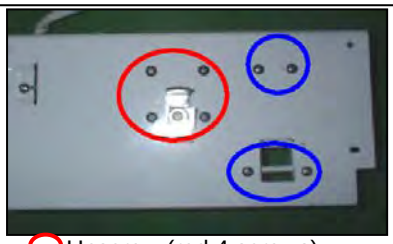
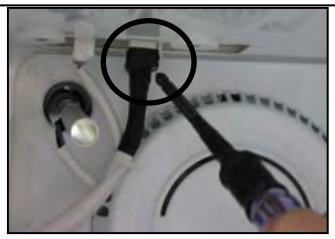
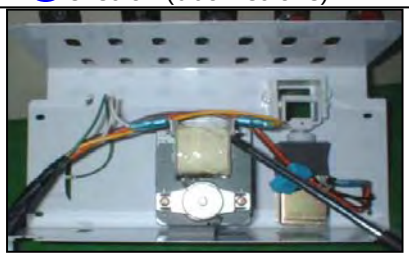
NO	DISASSEMBLING PROCEDURE	NO	DISASSEMBLING PROCEDURE
1	 ▷Pull forward Ice Storage Case	5	 ▷Remove 2 screws at the Cove Guide Cab W/Tube A.
2	 ▷Remove 2 screws.	6	 ▷Disassemble Cover Guide Cab W/Tube A
3	 ▷Pull forward Ice Maker.	7	 ▷Pull forward Hose Ice Maker Tube As.
4	 ▷Remove Water Hose Heater's 2P housing.	8	 ▷Check Hose Ice Maker Tube As.

2) How to check Hose Ice Maker Tube As.

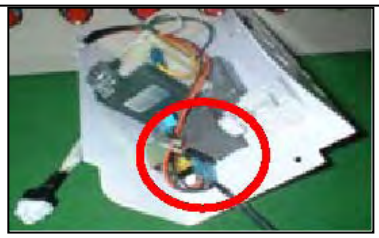
How to check	CRITERION
 ▷Measure the resistance of two wire	▷Good: 2420Ω(±8%) (2226 ~ 2614Ω) ▷If defective, change

7-2. Bracket Geared Motor Assembly

1) Disassembling Procedure

NO	DISASSEMBLING PROCEDURE	NO	DISASSEMBLING PROCEDURE
1	 ▷Remove 2 screws.	4	 ▷Pull forward Bracket Geared Motor.
2	 ▷Unscrew (4 points).	5	 Unscrew (red 4 screws). Unscrew (blue 4 screws).
3	 ▷Separate 6 pin housing of Bracket Geared Motor from the top connector.	6	 ▷Check Solenoid Valve and Geared Motor.

2) How to Check Hose Ice Maker Tube Assembly

PARTS	SPEC.	HOW TO CHECK	CRITERION
Geared Motor	▷SPEC. NAME :DAG-6502DEB ▷VOLTAGE :120V,60Hz	 ▷Check resistance value of 2 terminals with a Multi Tester.	▷GOOD : 2.2Ω(±5%) (2.1 ~ 2.3Ω) ▷DEFECTIVE ; Change the Geared Motor.
Cube Sol Valve	▷SPEC. NAME :Cube SN9 ▷VOLTAGE :110/127V,60Hz	 ▷Check resistance value of 2 terminals with a Multi Tester.	▷GOOD : 42Ω(±5%) (39.9 ~ 44.1Ω) ▷DEFECTIVE ; Change the Cube Sol Valve.

7-3. Dispenser Micro Switch

1) Disassembling Procedure

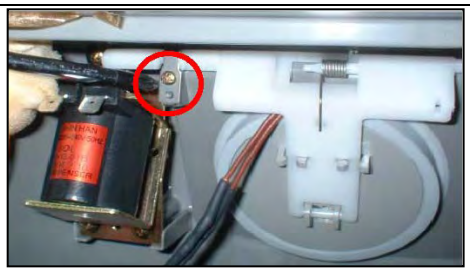
NO	DISASSEMBLING PROCEDURE	NO	DISASSEMBLING PROCEDURE
1	 ▷ Insert (-) screw driver into bottom hole of Dispenser Button Guide. Pull up forward to remove the guide. (Be careful not to damage guide surface.)	3	 ▷Separate wire connectors from Micro Switch.
2	 ▷ Remove Micro switch.	4	 ▷Check Micro Switch.

2) How to Check Micro Switch

PARTS	HOW TO CHECK	CRITERION
SPEC. NAME : VP333A-OD-8 VOLTAGE :125V,3A	 ▷Check both terminals (red circle) with a Multi Tester (Tester Mode : Resistance (Ω).	▷GOOD : Tact Switch (Blue Circle) / Terminals (Red circle) / Tester Result (Resistance Mode) ON (Close) / Connected / Some Value OFF (Open) / Disconnected / No value (0) ▷DEFECTIVE : Change Micro Switch.

7-4. Dispenser Solenoid Valve

1) Disassembling Procedure

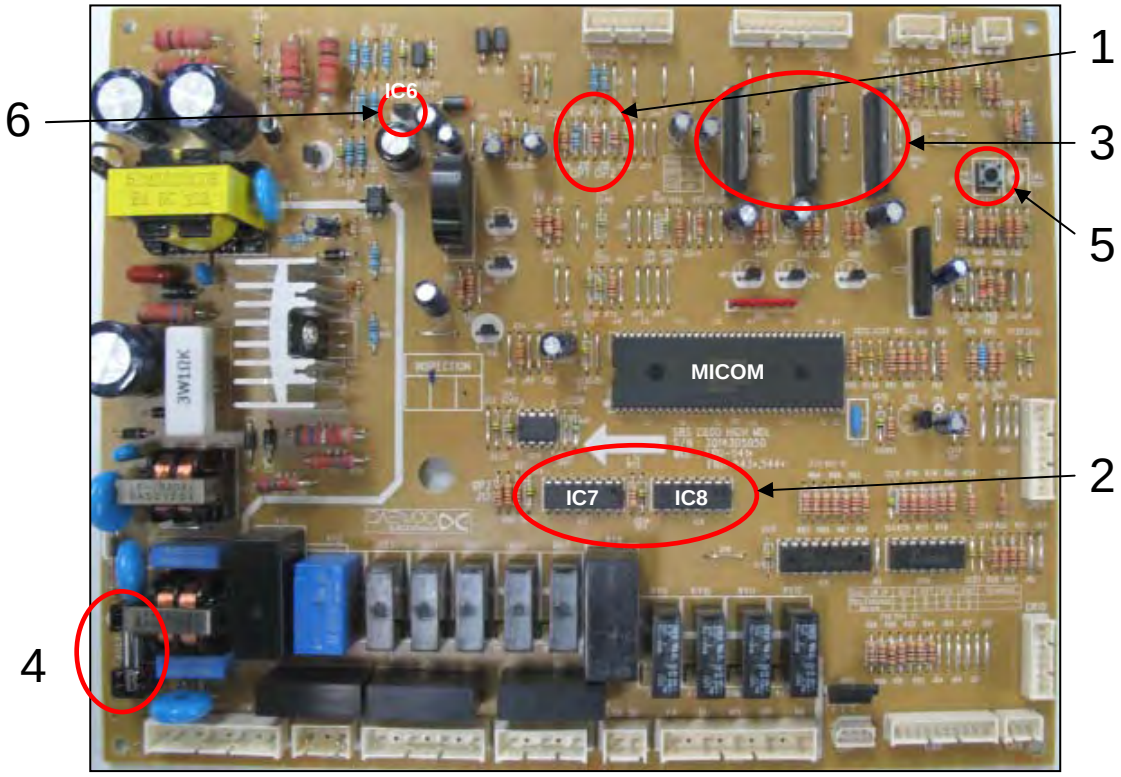
NO	DISASSEMBLING PROCEDURE	NO	DISASSEMBLING PROCEDURE
1	 ▷ Insert (-) screw driver into bottom left groove of Cover Dispenser Box. Pull forward with a snap.(Be careful not to damage cover and door surface.)	4	  ▷Separate 2 terminals from Sol Valve and 2P Housings from Cover Ice Flap.
2	 ▷ Separate 2 housings of 10P / 7P from Front PCB. (Do not hold only wires to pull out.)	5	 ▷Unscrew (3 points) to remove Sol Valve.
3	 ▷Unscrew (2 points) to remove Box Dispenser Shut.	6	 ▷Unscrew (1 point) to remove Cover Ice Flap.

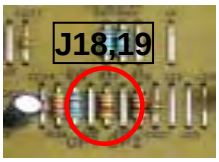
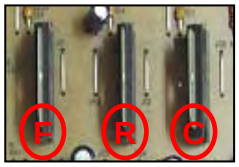
2) How to Check Micro Switch

PARTS	SPEC.	HOW TO CHECK	CRITERION
Dispenser Sol Valve	▷SPEC. NAME :SOL2003-02D ▷VOLTAGE :110/115V,60Hz	 ▷Check resistance value of both terminals with a tester.	▷ Good : 58Ω(±10%) (52.2 ~ 63.8Ω) ▷DEFECTIVE : 0 Change Sol Valve.
Flap Heater Assembly	▷VOLTAGE :DC 12V, 2W	 ▷Check resistance value of both terminals with a tester.	▷GOOD : 72Ω(±8%) (66.2 ~ 77.8Ω) ▷DEFECTIVE ; Change Flap Heater AS.

7-5. Main PCB

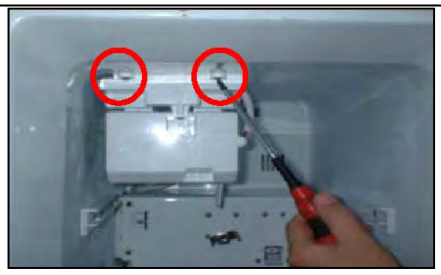
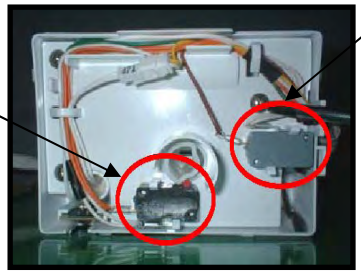
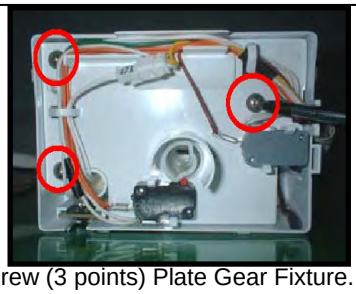
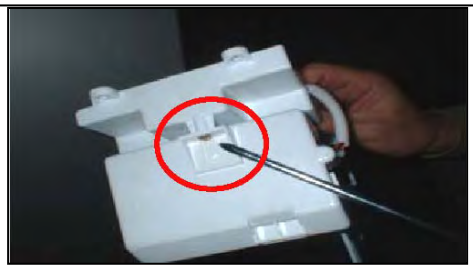
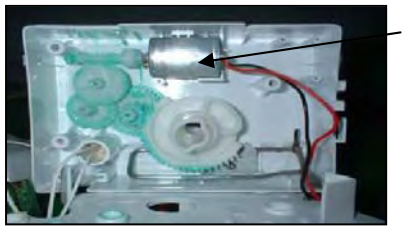
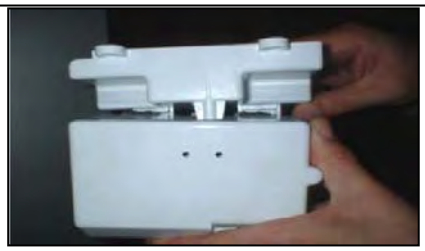
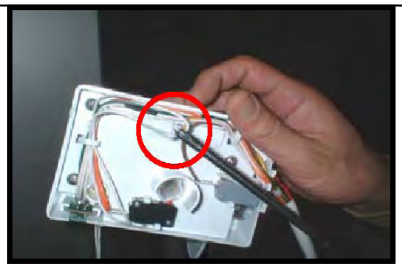
■ Model : FRU-546D,FRU-546E



No	Item	Check Point	Remark
1	Compensation for weak refrigeration →Making R-temp cooler	 * Used when making R-temp. down to compensate for weak refrigeration without changing FCP temp. setting. ※Cutting of J18 ⇒ down by 1.5 ℃ ※Cutting of J18, J19 ⇒ down by 3℃	
2	Relay Power Controller	* To check normal voltage of each electrical devices to & from MICOM. ▷Check input & output voltage of MICOM and IC7, 8.	
3	Fan Power Controller	 * To check input & output voltage of Fan  ▷#2 : Input ▷#5 : Output	
4	Electric Current Fuse	* To check when each device does not work (250V,3.15A)	
5	Time Shortening Switch	* To shorten time in PCB checkup (Pressing 1 time is regarded as 1 minute has passed.)	
6	Regulator IC(5V)	* To check voltage of MICOM and IC Voltage check of IC6 (Input :12V,Output : 5V)	

7-6. Ice Maker ; Disassembling & Check

1) Disassembling procedure

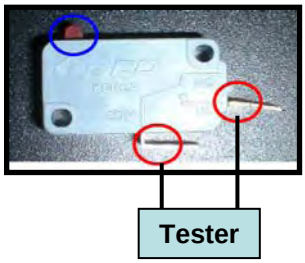
No	Disassembling procedure	NO	Disassembling procedure
1	 ▷ Remove 2 screws on top front of ice maker.	6	 ▷Remove full ice sensing switch and level switch.
2	 ▷ Pull forward ice maker.	7	 ▷Unscrew (3 points) Plate Gear Fixture.
3	 ▷Unscrew Fixture of Frame Ice Maker.	8	 ▷ Check if ice dropping motor is normal.
4	 ▷Separate Ice Maker Assembly from Frame Ice Maker.	9	 ▷Remove 2 pin housing (ice sensor)
5	 ▷ Separate Cover I/M (A) from Cover I/M (B) with a (-) screw driver.	10	 ▷ Remove I-sensor (ice sensor) from Case Icing Assembly.

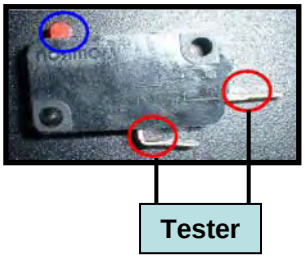
* Follow the reverse order when assembling.

2) How to check ice maker

<table>
<tr><th>Parts</th><th>How to check</th><th>Criterion</th></tr>
<tr><td>Ice dropping motor</td><td> 
▷ Check resistance between 2 wires with tester.</td><td>▷ GOOD : RS-360RH-14250
: 6 ~ 14Ω

▷ DEFECTIVE :
Change the motor.</td></tr>
<tr><td>I-Sensor
(Ice Sensor)</td><td> 
▷ Check resistance between 2 terminals with tester.</td><td>▷ GOOD : 4.4 ~ 50kΩ
(It depends on ambient temperature)

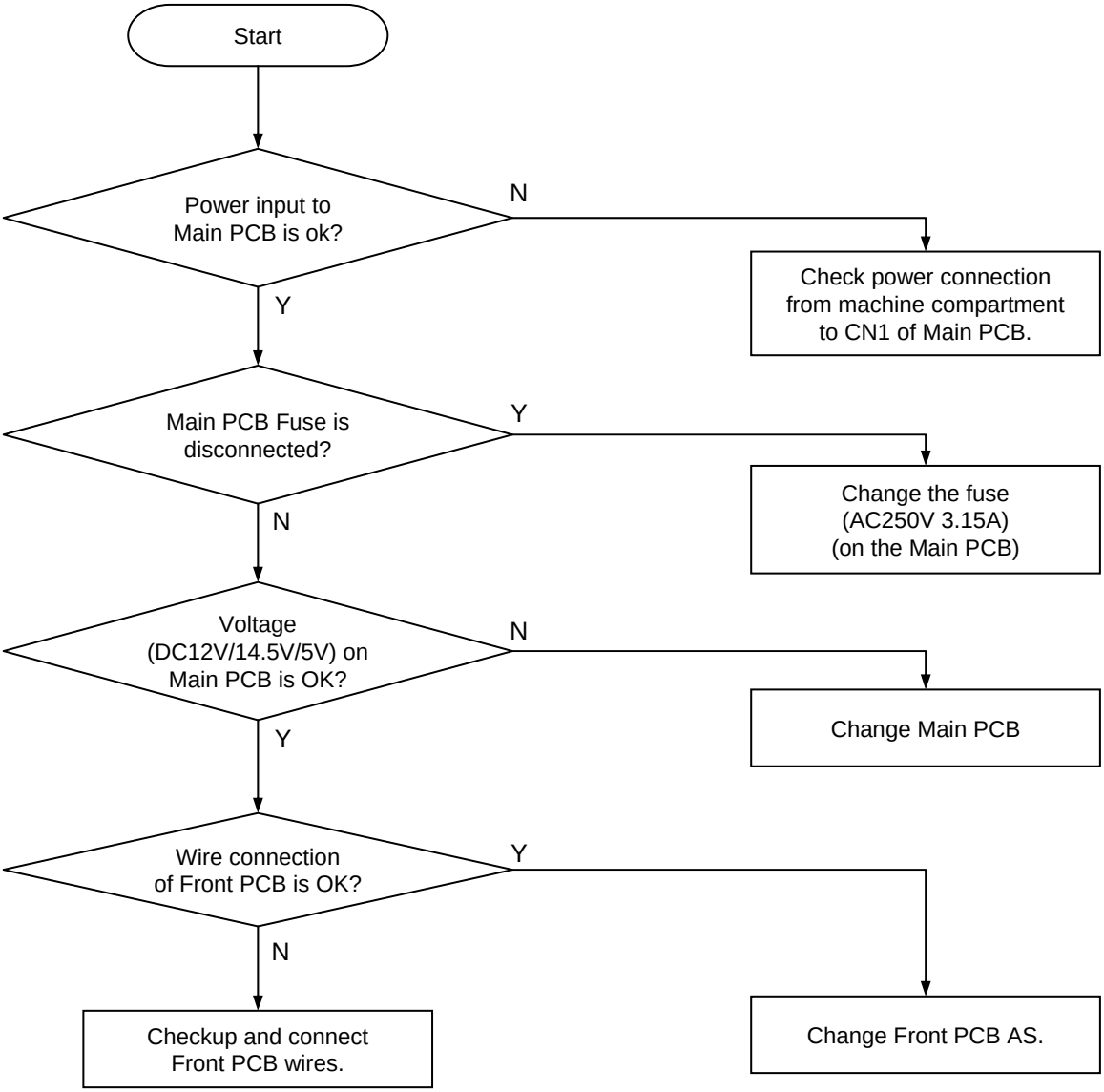
▷ DEFECTIVE :
Change the sensor.</td></tr>
<tr><td>Full ice
sensing switch</td><td> 

▷ Check resistance value of 2 terminals with a Multi Tester.</td><td rowspan="2">▷ GOOD :
<table><tr><th>Tact Switch
(Blue Circle)</th><th>Terminals
(Red Circle)</th><th>Tester Result
(Resistance Mode)</th></tr><tr><td>Push</td><td>Connected
(Close)</td><td>0Ω</td></tr><tr><td>Normal</td><td>Disconnected
(Open)</td><td>∞Ω</td></tr></table>
▷ DEFECTIVE :
Change the switch.</td></tr>
<tr><td>Level Switch</td><td> 

▷ Check resistance value of 2 terminals with a Multi Tester.</td></tr>
</table>

8. TROUBLE DIAGNOSIS

8-1. Faulty Start (F/R lights OFF , F-PCB Power OFF)

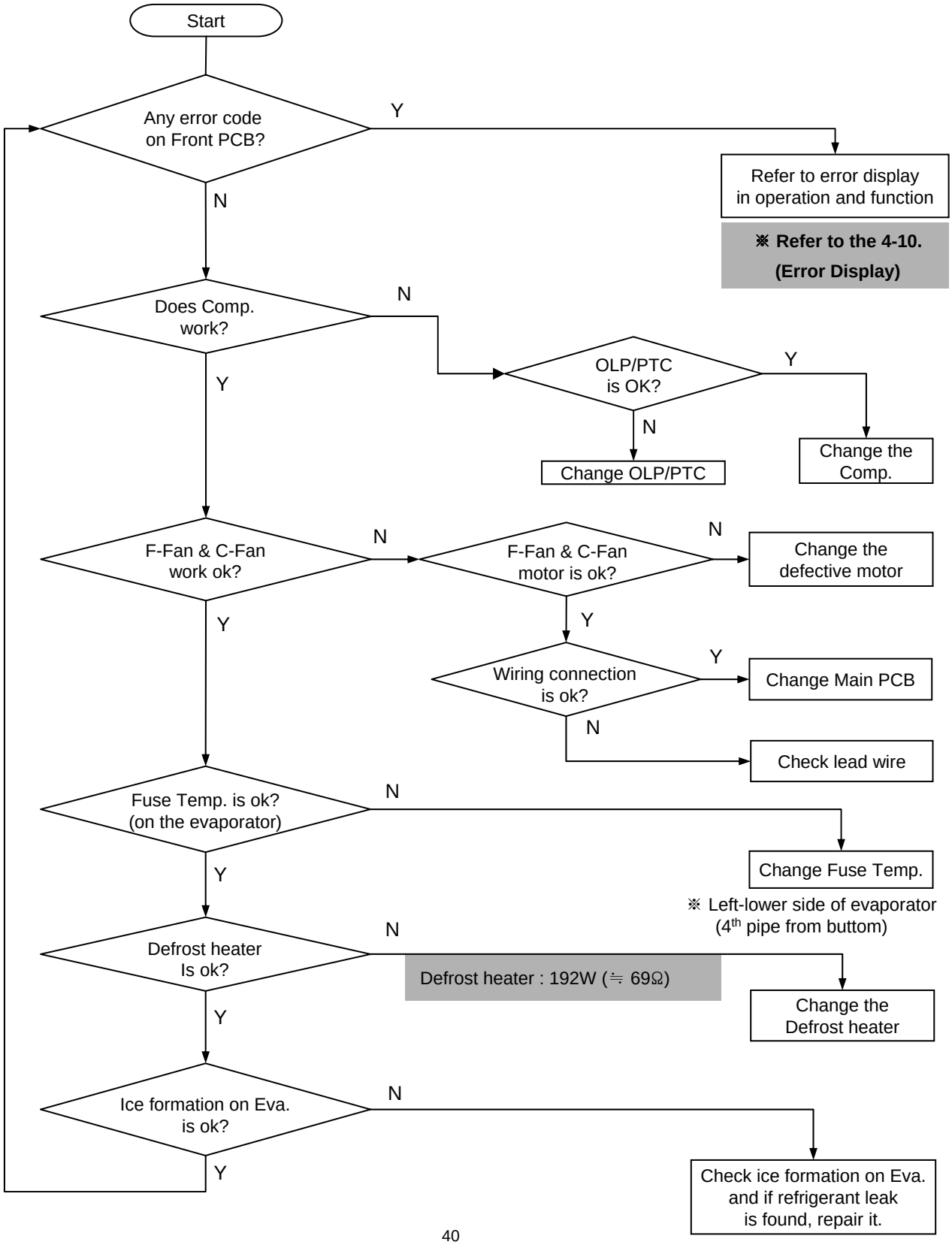


※ How to replace Front PCB

1) Insert a flat tip driver into the left down groove of panel frame and snap it out smoothly.
2) Separate 2 housings (10pin & 7pin) from Front PCB. (Do not hold only wires to pull out.)
3) Unscrew (7 points) to remove Front PCB.
   * Follow the reverse order when assembling.

8-2. Freezer Compartment

8-2-1. Freezing failure . (Foods are not frozen / cold.)

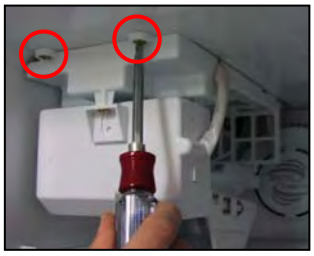


Removing and replacing Freezer parts

(1)

1) Remove foods.
2) Remove Ice bucket, shelves and cases in freezer compartment.

(2)



* Remove 2 screws of ice maker.

(4)

* Remove 4 screws of geared motor.

(3)

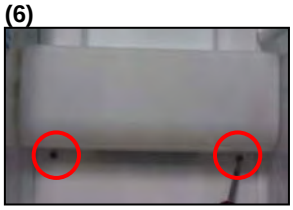
* Remove the housing of ice maker AS. (Right side)

(5)

* Remove the housing of geared motor AS. (Center)

Removing and replacing Freezer parts

(6)



* Remove light cover screws.

(7)

* Pull down smoothly the bottom of light cover to remove.

(8)

* Remove the screw of bracket F-Lamp.

(9)

* Remove the left housing.

(10)

* Pull out smoothly the bracket F-Lamp AS. to remove.

(11)

* Hold the end of F-Fan cover and pull forward slowly.

(12)

* Remove the screw cap on the F-Louver A with a flat tip driver.

(13)

* Remove 3 screws of F-Louver A.

(14)

* Hold the end of F-Louver A and pull forward slowly.

(15)

* Remove the housing.

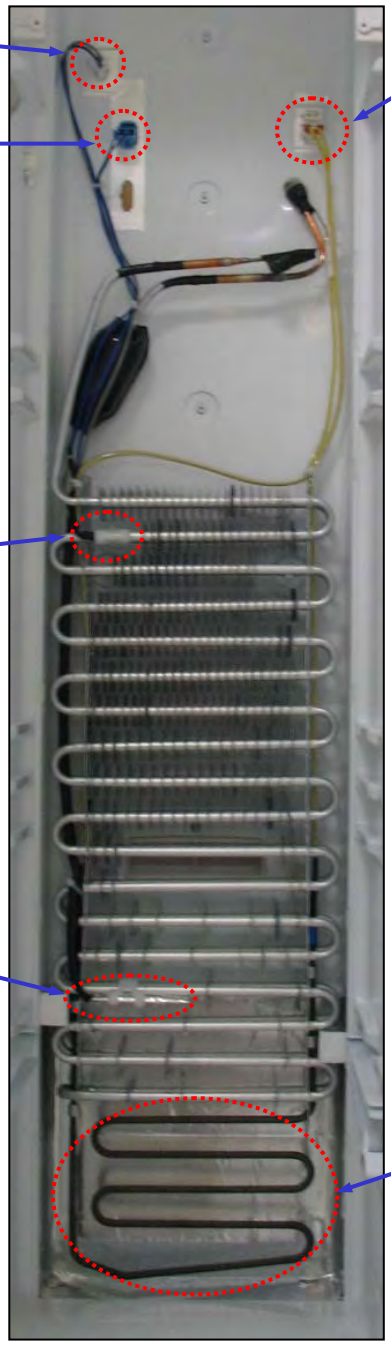
(16)

* Remove the screw of F-Return cover and pull out cover.

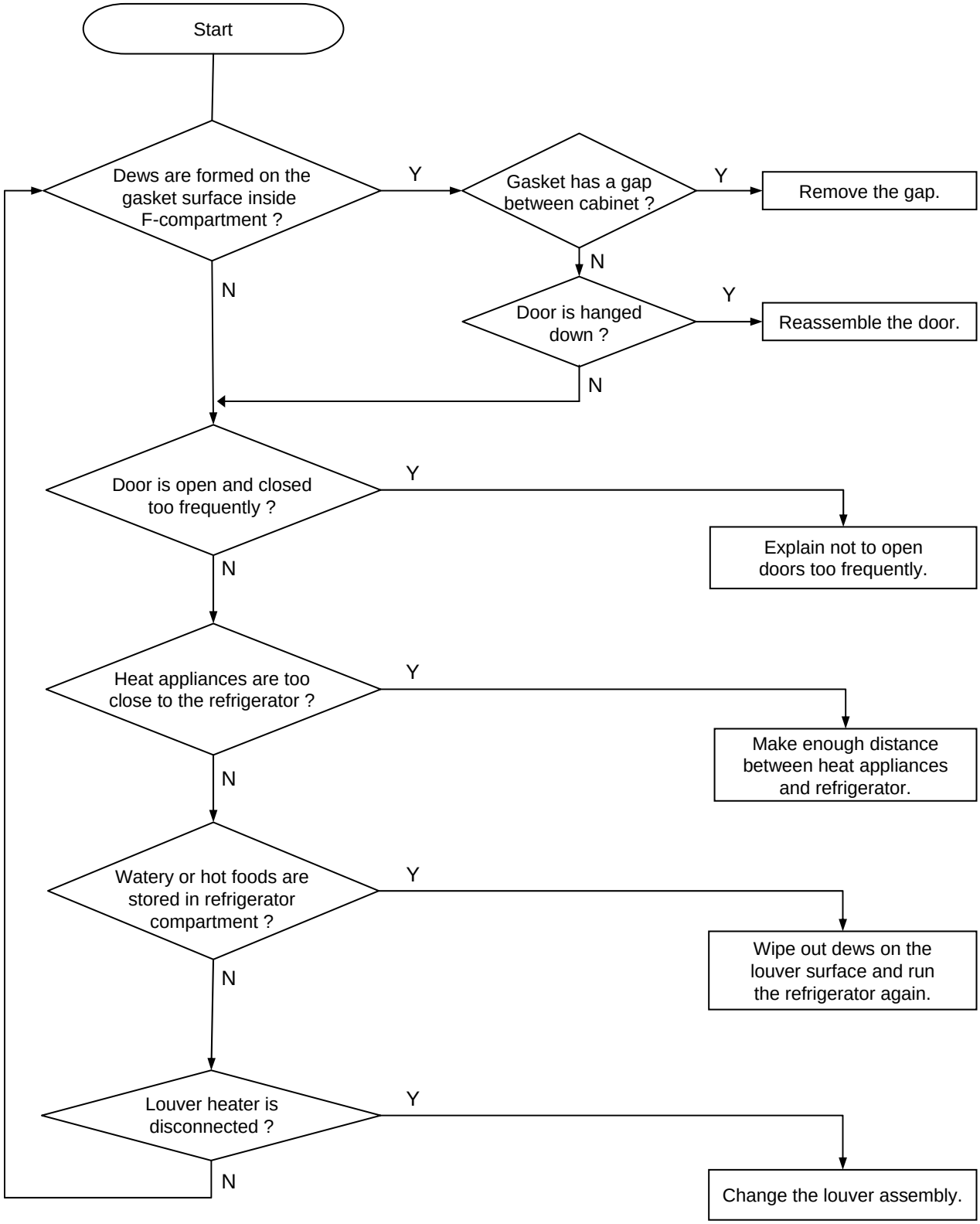
(17

* Hold the end of F-Louver B and pull forward slowly.

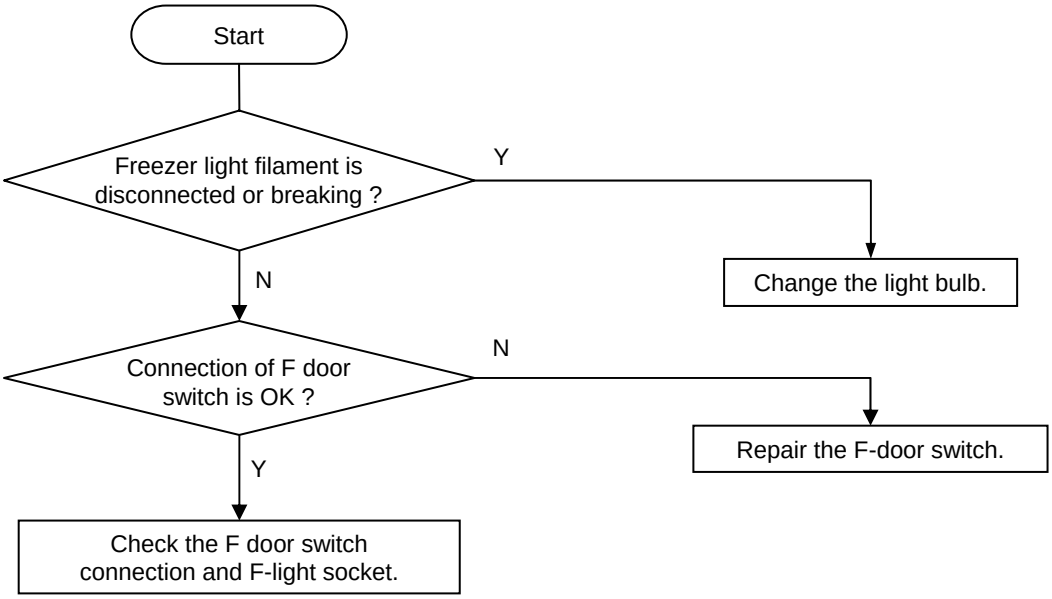
Removing and replacing Freezer parts



8-2-2. Ice Formation on F-Louver



8-2-3. Disconnection / breaking of Freezer Lights Wires



Change of F Lights

* Remove 2 screws of light cover.

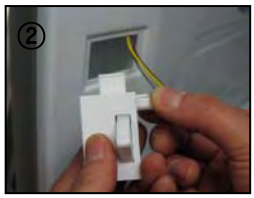
* Hold the bottom of light cover and pull forward to remove.

* Change the light bulb. (AC115V 25W)

※ Follow the reverse order of disassembling after changing the light.

Change of F Door Switch

* Insert a flat tip screw driver Into a gap of door switch to pull forward.



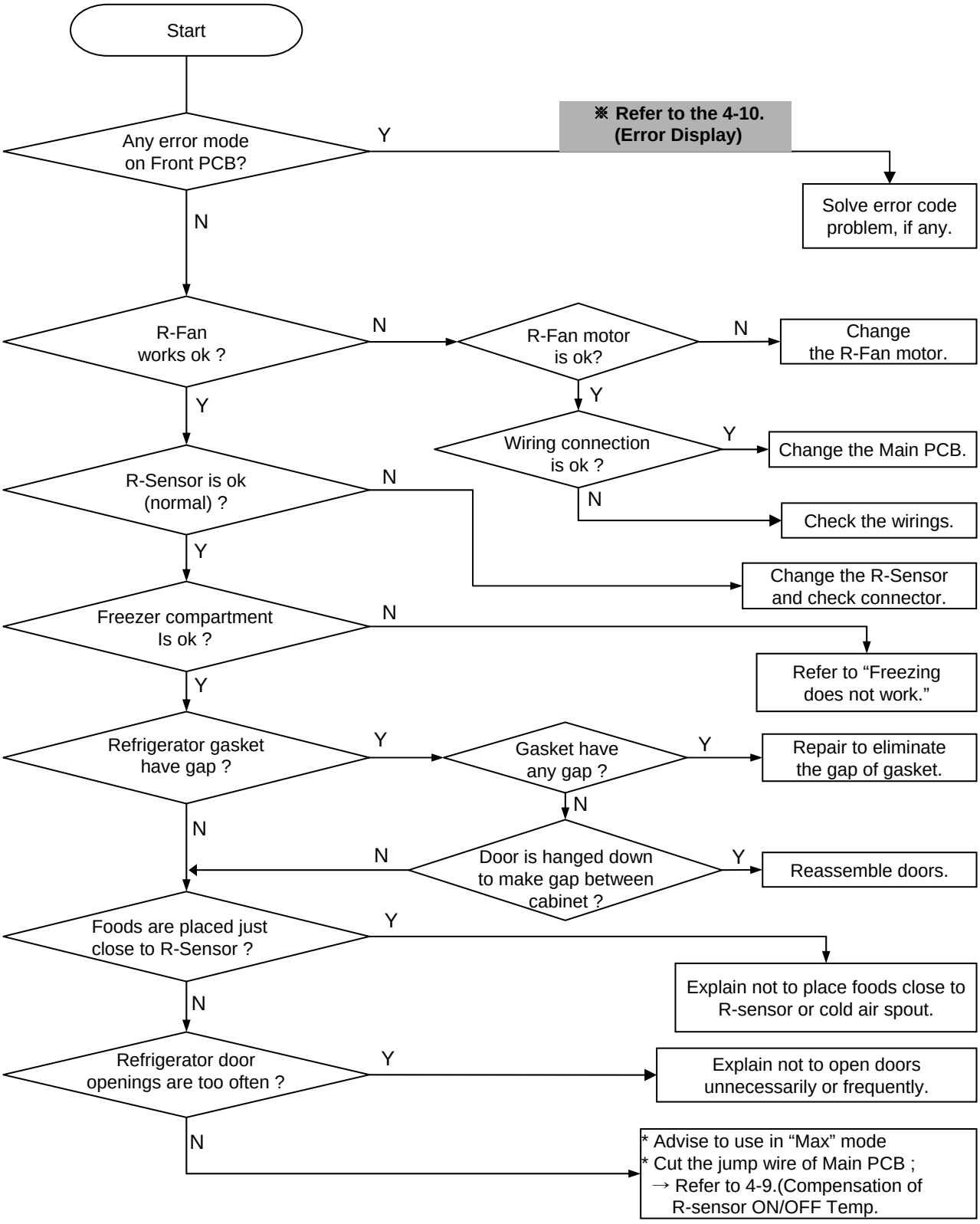
* Disconnect the housing and change the switch for a new one.

※ Be careful when changing the switch. F and R door switch are different in type and shape.

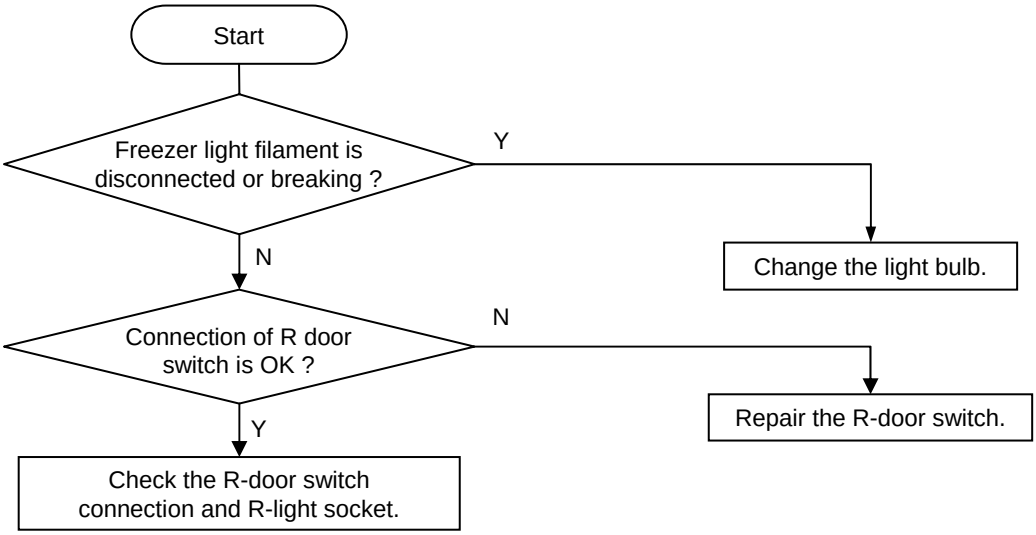
※ Follow the reverse order of disassembling after changing the switch.

8-3. Refrigerator Compartment

8-3-1. Refrigeration failure (Foods does not get cool or cold soon.)

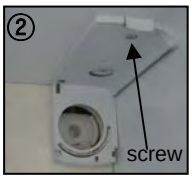


8-3-2. Disconnection / Breaking of Refrigerator Lights Wires



Change of F Lights


* Remove the Water Filter cover



* Unscrew Filter Frame and remove the Filter Frame.

* Remove screws of light cover.

* Hold the bottom of cover and pull forward to remove.

* Change the light bulbs. (AC115V 25W)

Change of F Door Switch

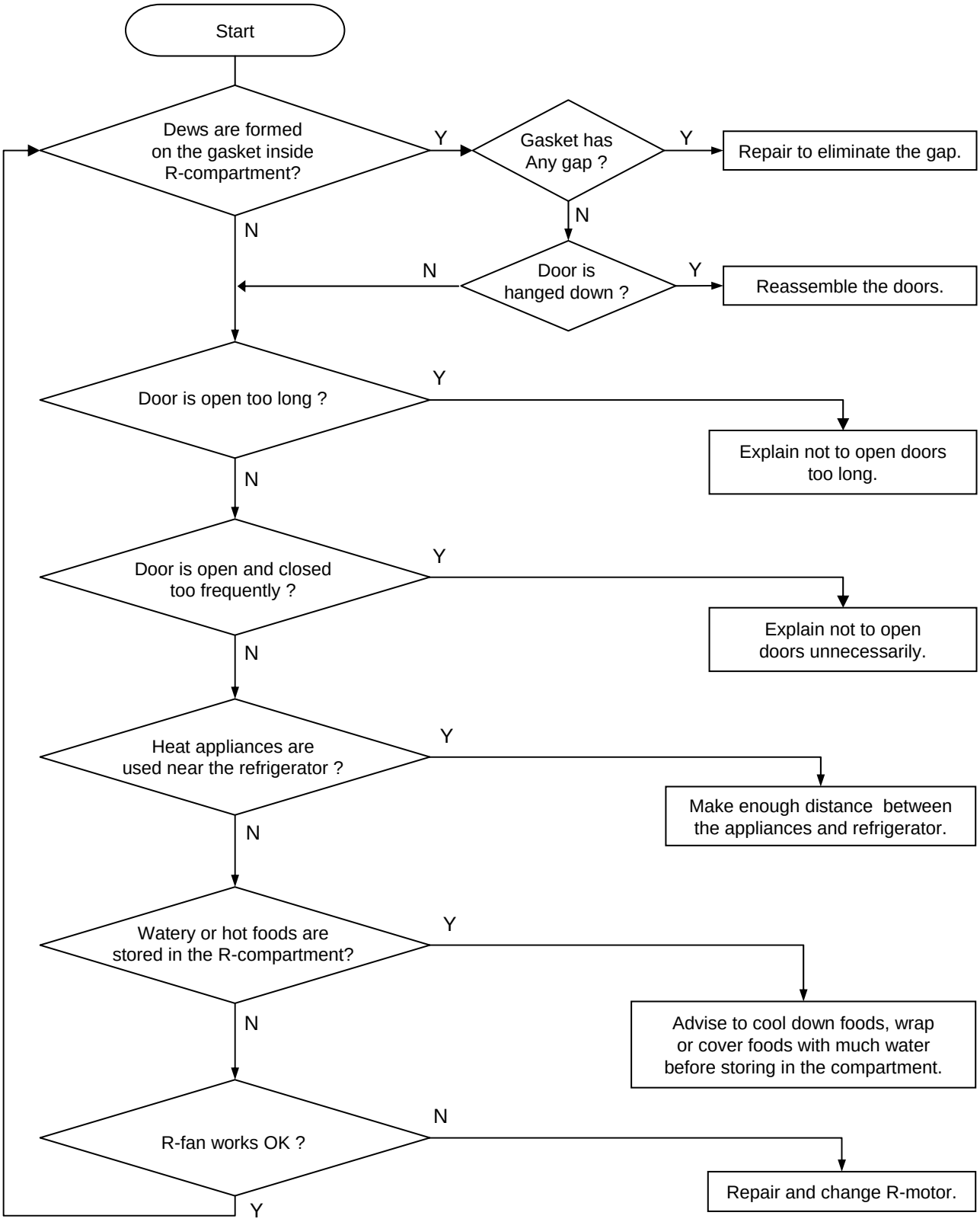
* Insert a flat tip screw driver into a gap of door switch to pull forward.

* Disconnect the housing and change the switch for a new one.

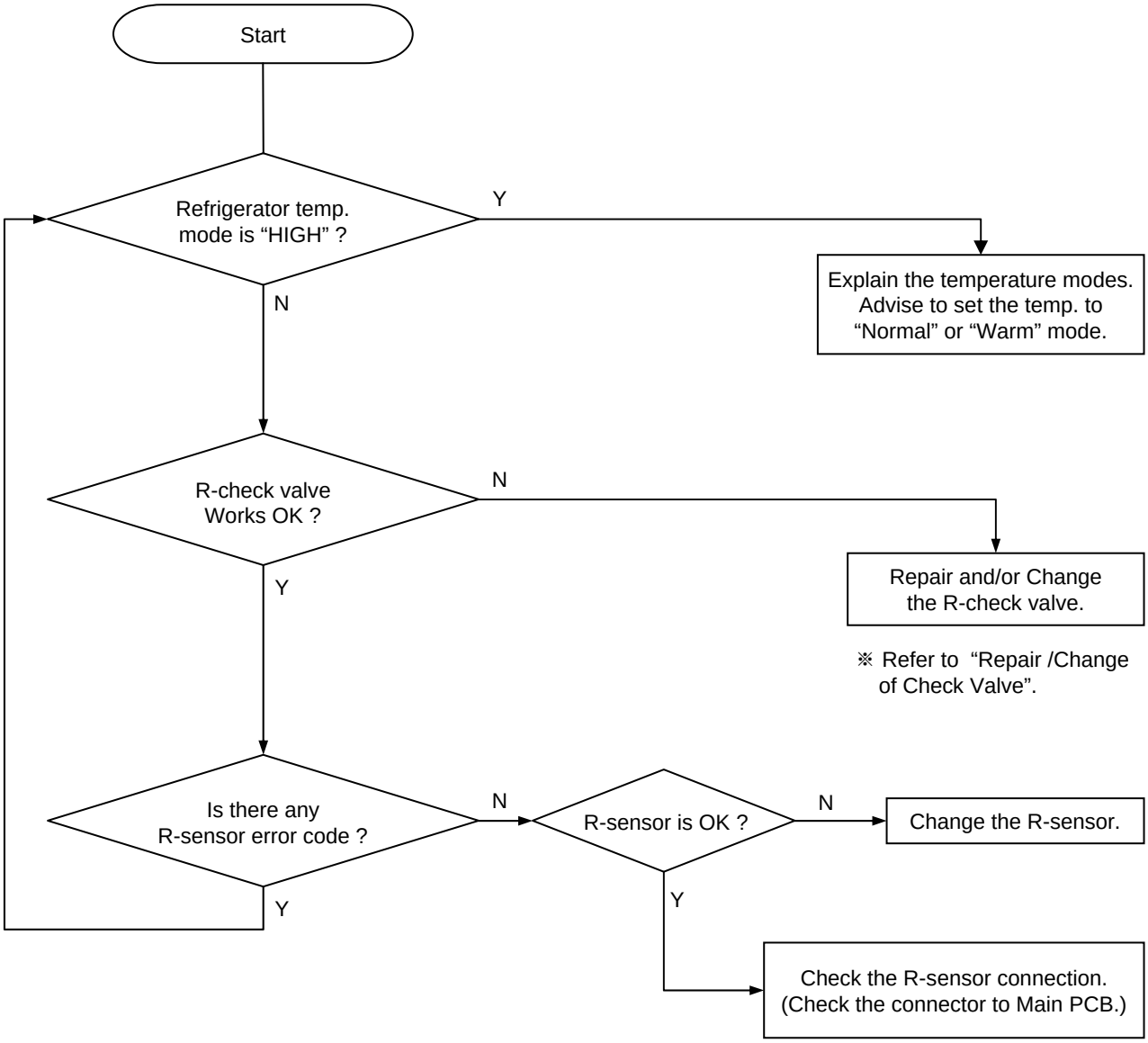
※ Be careful when changing the switch. F and R door switch are different in type and shape.

※ Follow the reverse order of disassembling after changing the switch.

8-3-3. Dews on Refrigerator Compartment



8-3-4. Excessive Refrigeration of Vegetable Case



Removing of Check Valve

* Remove screws of light cover.

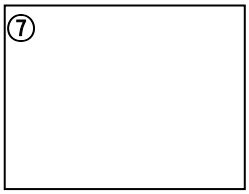
* Hold the bottom of cover and pull forward to remove.

* Remove the screw of connector cover.

* Disconnect light and sensor connector.

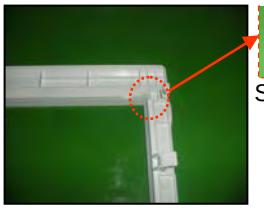
* Remove screws with a (+)screw driver.

* Hold the bottom and right of damper to pull down to remove.



* Lift up a piece of Check Valve Flap and insert a finger to the valve frame to hold out.

Freezer Shelf Disassembly



Shelf fixture

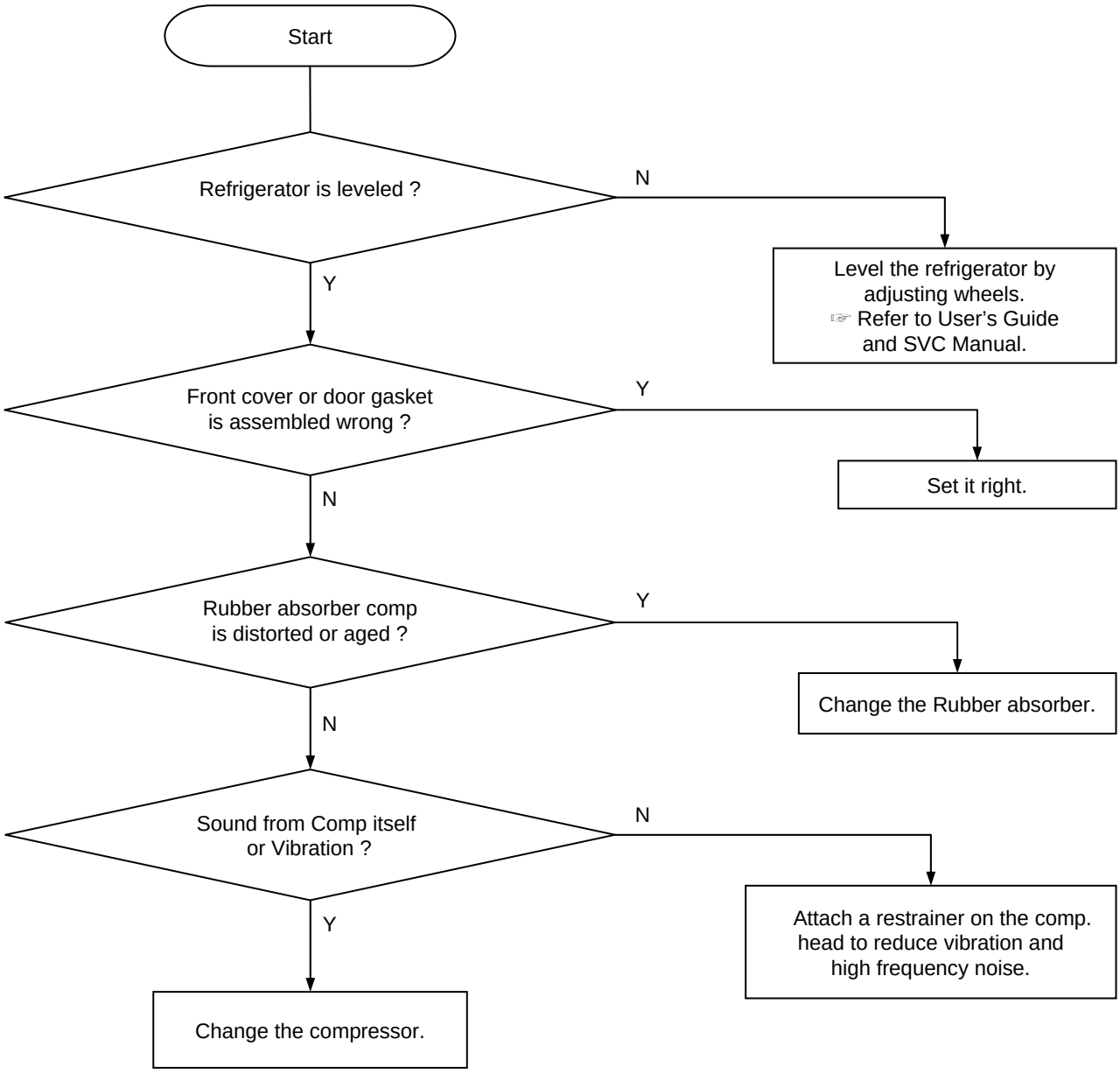
1. Remove 2 fixtures of shelf backside.

2. Leave space between shelf-glass and shelf-frame to disassemble. Be careful the side hook.

3. Disconnect a shelf-glass from the shelf-frame.

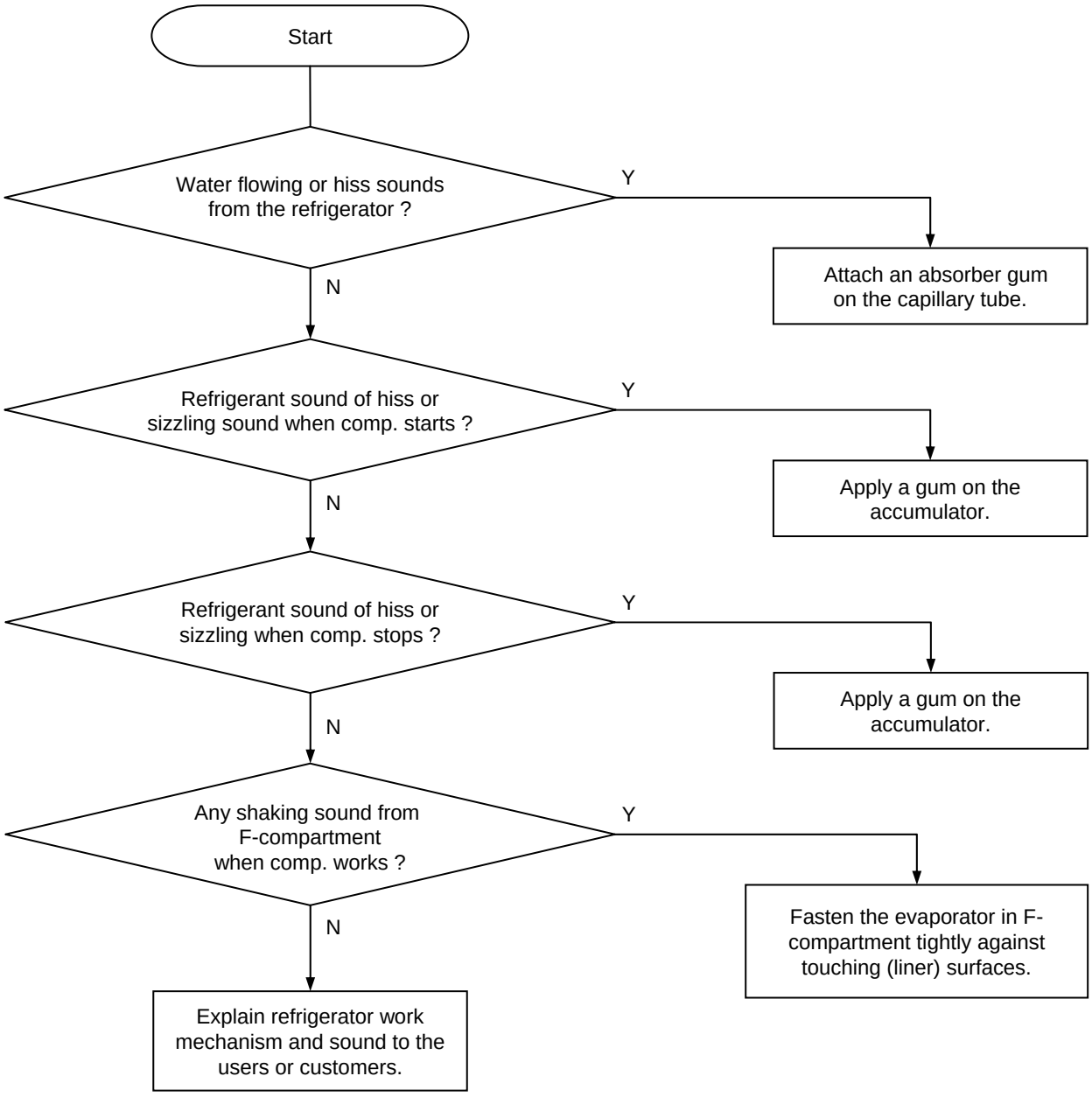
8-4. Operation Noise of Refrigerator

8-4-1. Comp. operation Noise



Remarks
● Compressor sound is somewhat normal because it works like a heart to circulate the refrigerant in the pipes during the refrigerator operation. ● Rattling or metallic touch sound of motor, piston of comp. can be heard when it starts or stops.

8-4-2. Refrigerant Flow Sound

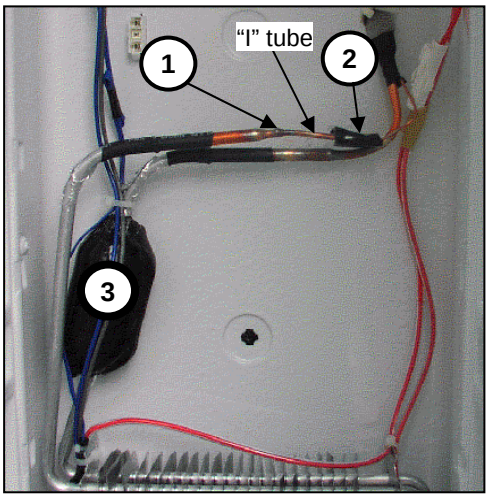


Remarks

● Water flowing sound, hiss or sizzling sound can make while refrigerant in the pipes is changing from liquid to gas state when comp. starts or stops.
It is normal to the refrigerator.

Troubleshooting of Evaporator Sound

1. Hiss Sound from Capillary Tube



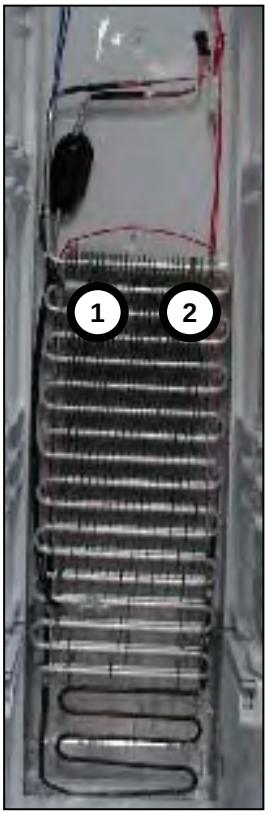
1) "I" tube is used to connect the capillary tube and evaporator. (2 welding points : ①, ②)

2) When such a sound is made, attach a absorber on the tube including 2 welding points.

2. Sizzling Sound from Accumulator

Attach a absorber on point ③ (accumulator).

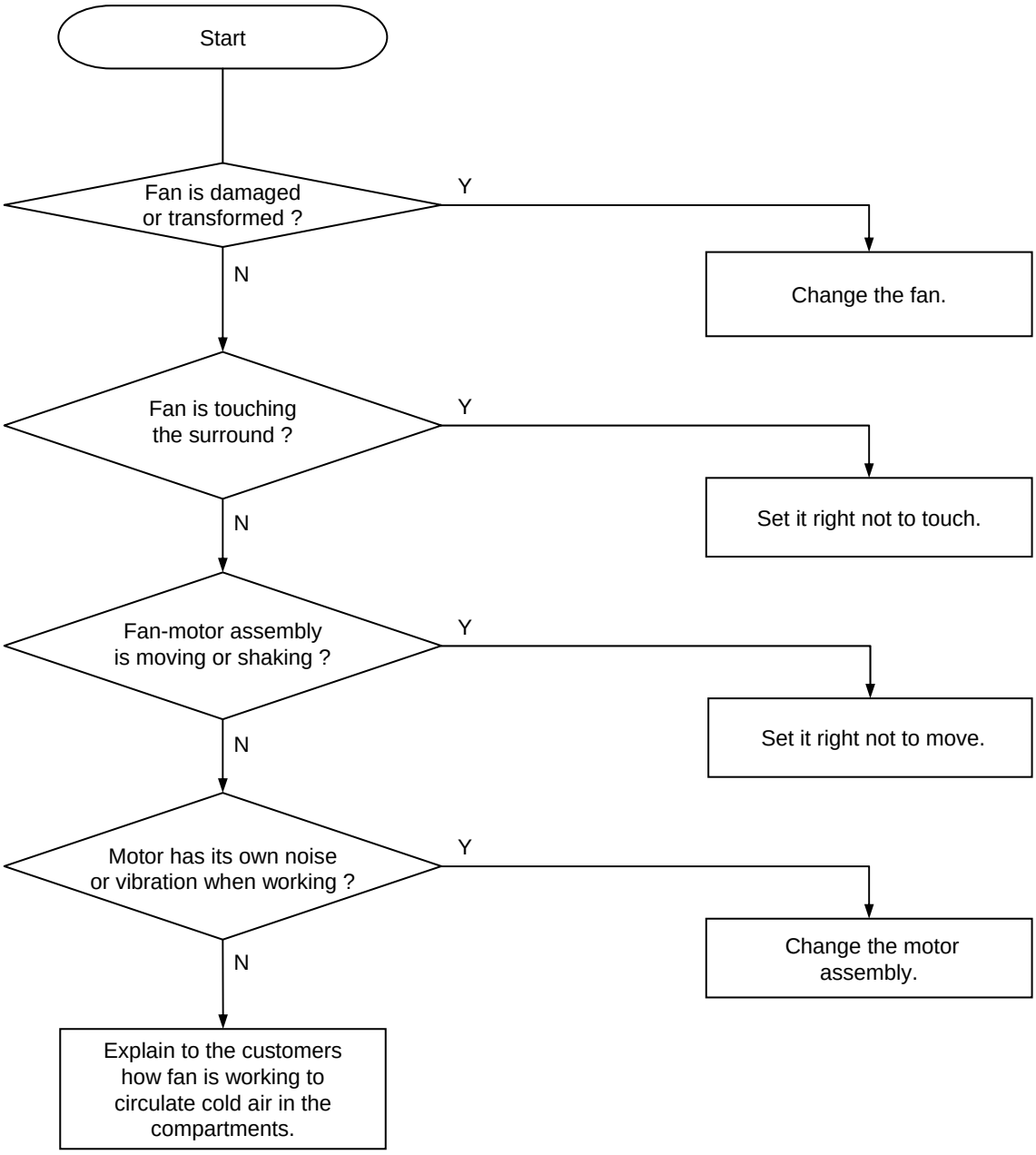
3. Shaking or trembling Sound of Evaporator



1) Check whether evaporator is fastened tight with the fasteners of ①, ②.

2) Insert a soft spacer (EPS) between left and right wall. Evaporator not to be shaken or trembled during refrigerator operation.

8-4-3. Fan Noise



Remarks

● The fan is sending out cold air to circulate it through the compartments.
When the air is touching the surface of louver or liner wall, such sound can make.

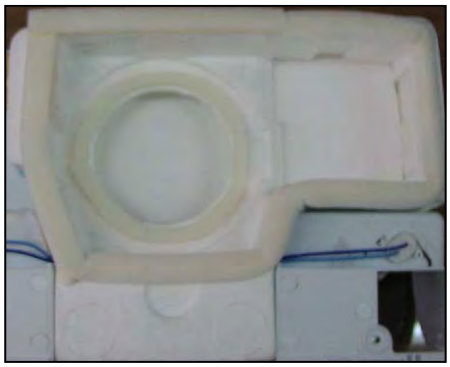
Troubleshooting of Fan Noise

1. Fixing or Fastening of Fan Motor

1) Check if fan motor frame of the assembly is fastened tightly with screws to the liner wall. Unless it is tight, vibration of shaking can make.

2) Check if fan motor and fan are hanged down. Fan working sound can be louder if they are not set right.

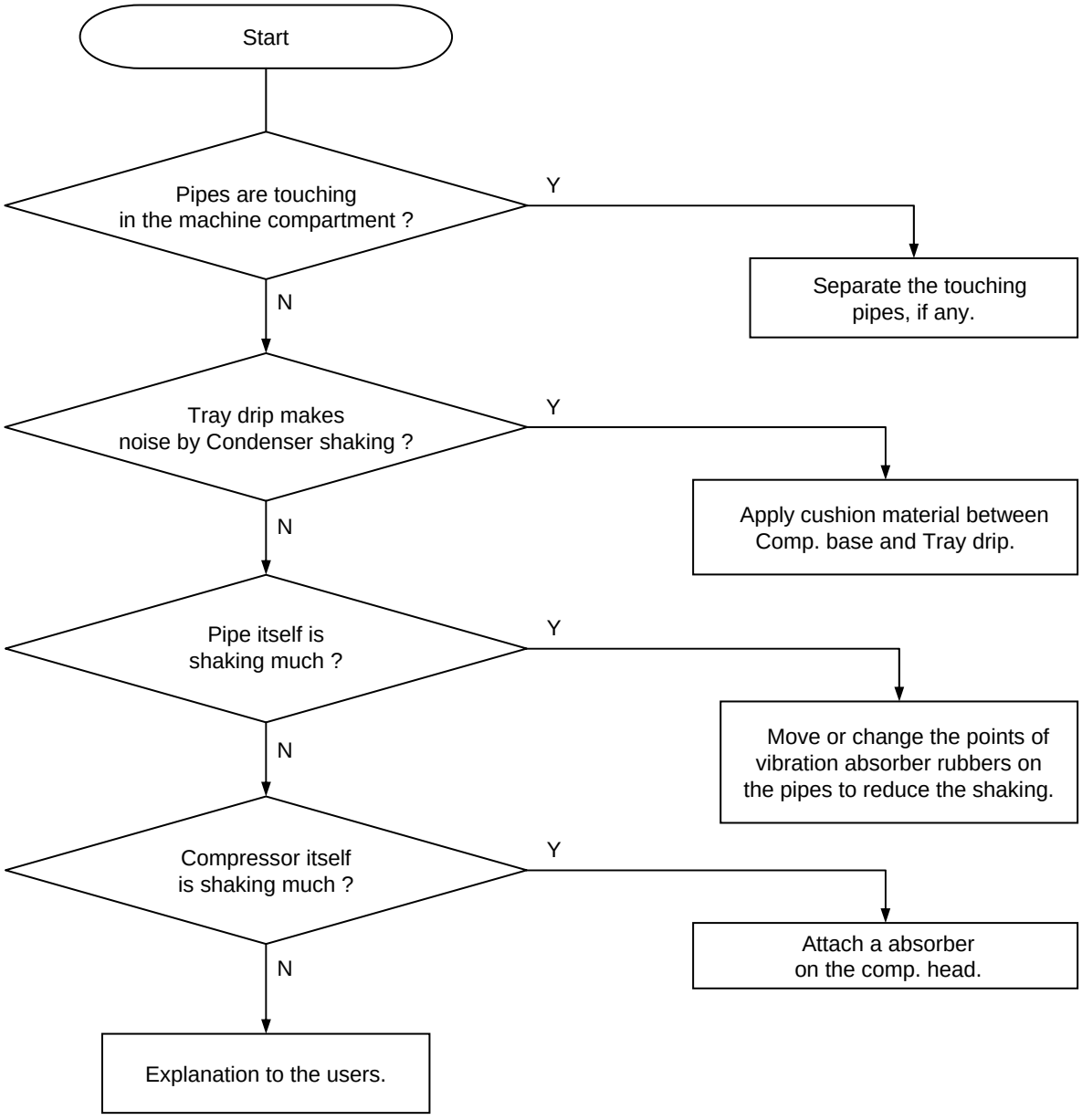
2. Any Touch Sound from Fan



1) Check if sealing sponge on the insulator touches the fan.
If so, set it again not to touch it.

2) If any damage on the insulator around the fan rotation is found, set the fan motor assembly right not to touch it.

8-4-4. Pipe Noise

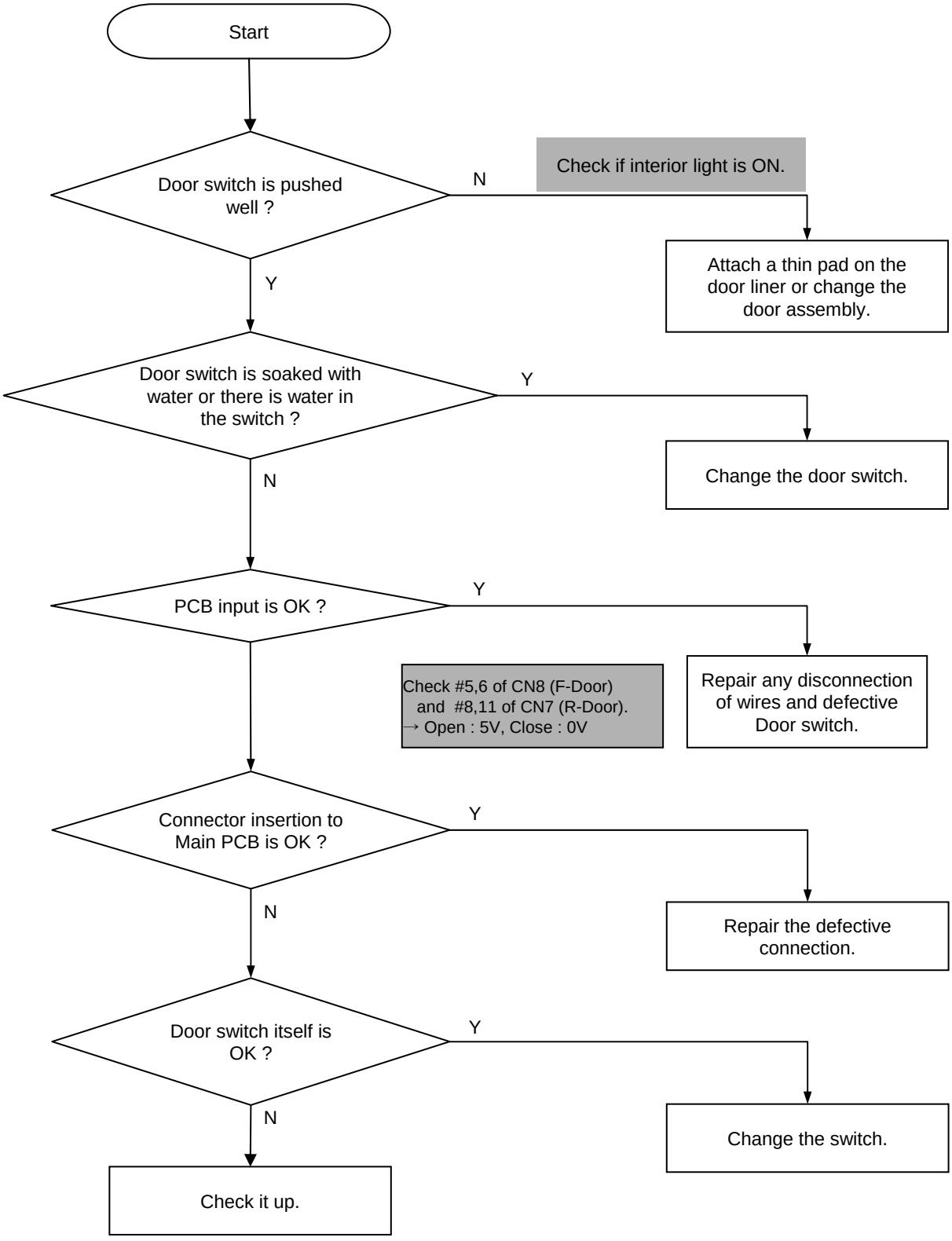


Remarks

- Refrigerant is erupting rapidly from the compressor to circulate pipes, so pipe shaking noise can make to some degree.
- In case compressor vibration is sent to a pipe directly, apply vibration absorber rubbers to welding points of the pipe and comp. or to a much bent point on the pipe.

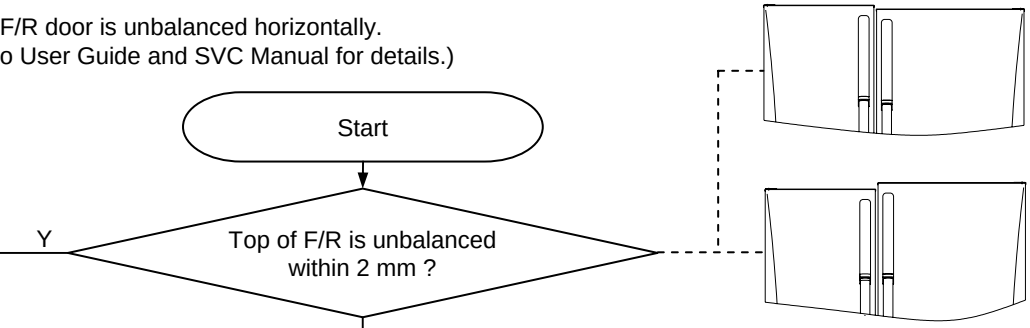
8-5. Door

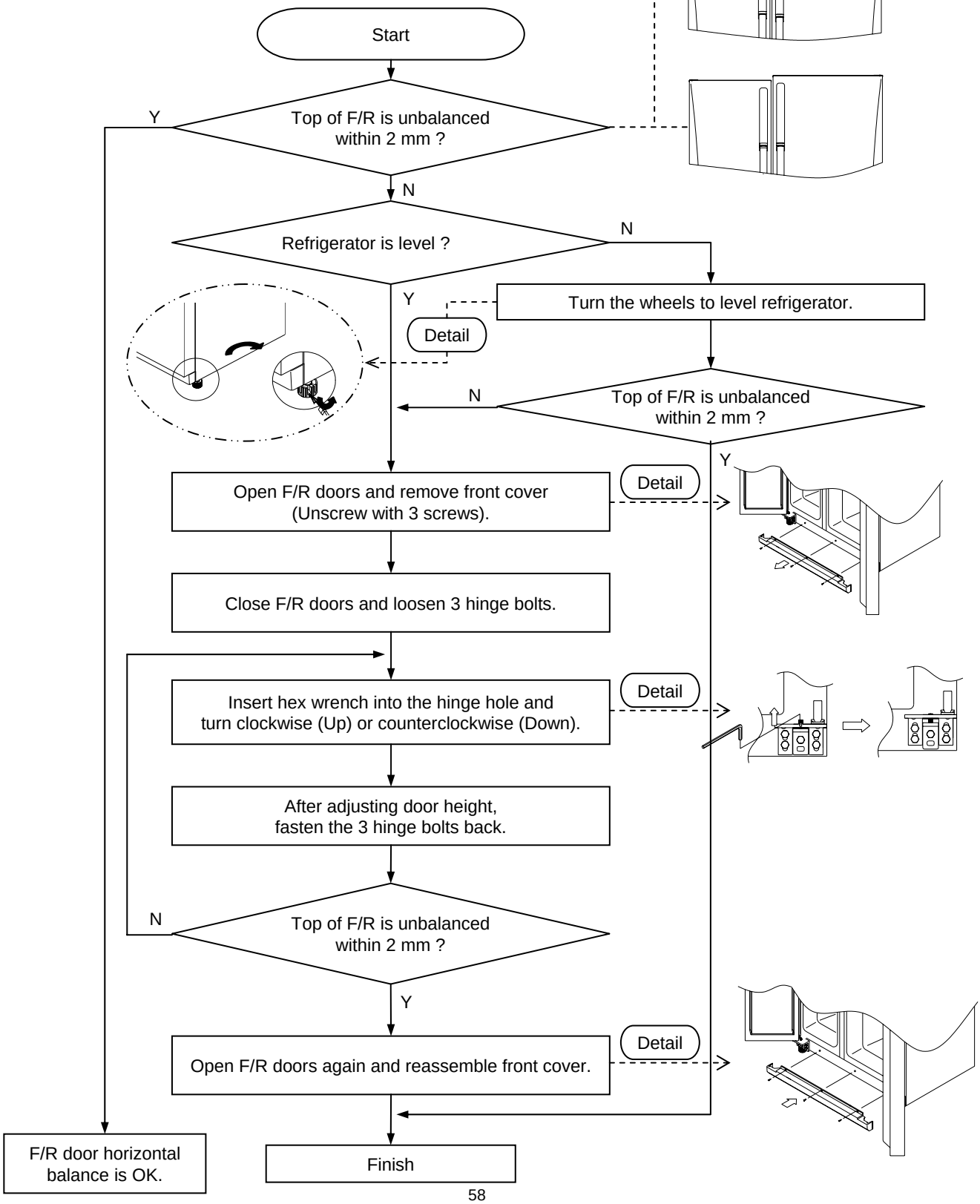
8-5-1. Door Opening Alarm Continues though the door is closed.



8-6. Adjusting F/R Door Balance

※ Top of F/R door is unbalanced horizontally.
(Refer to User Guide and SVC Manual for details.)



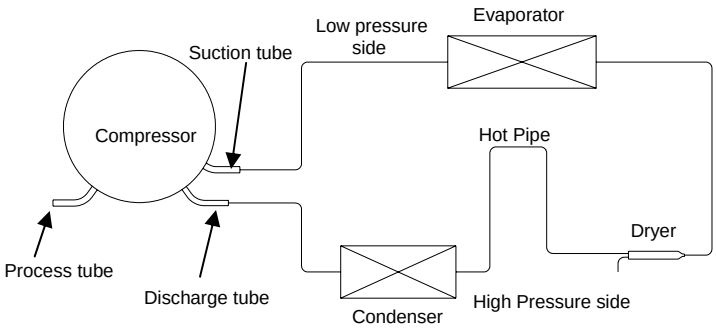


9. COOLING CYCLE HEAVY REPAIR

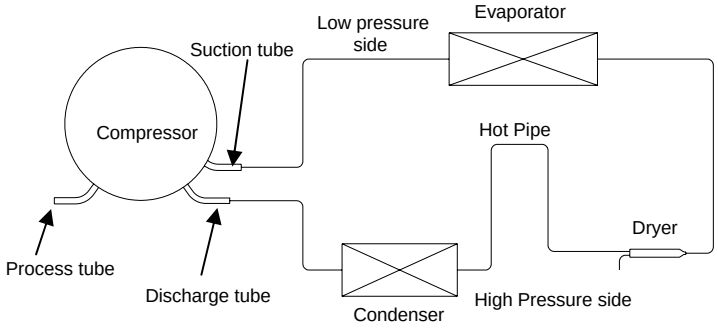
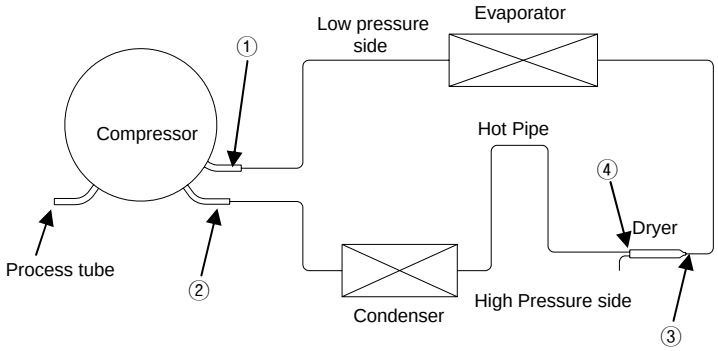
9-1. Summary of Heavy Repair

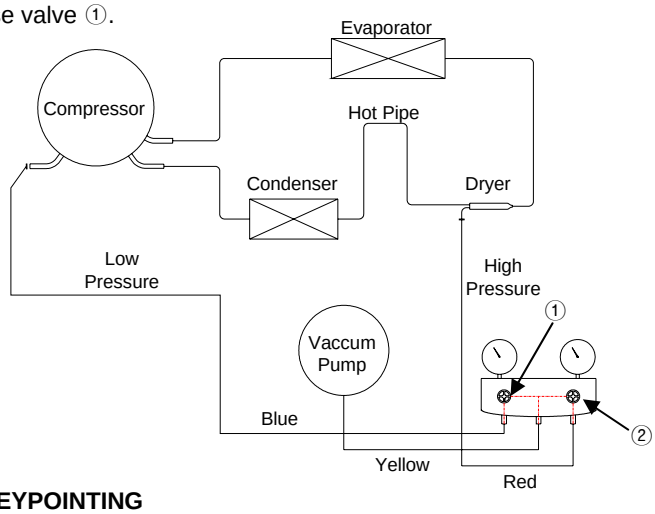
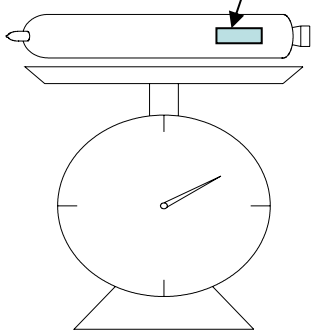
Process	Contents	Tools
Remove refrigerant Residuals	* Cut charging pipe ends (Comp. & Dryer) and discharge refrigerant from drier and compressor.	* Nipper, side cutters
Parts replacement and welding	* Confirm refrigerant (R-134a or R-600a) and oil for compressor and drier. * Confirm N2 sealing and packing conditions before use. Use good one for welding and assembly. * Weld under nitrogen gas atmosphere. * Repair in a clean and dry place.	* Pipe Cutter, Gas welder, N2 gas
Vacuum	* Evacuate for more than forty minutes after connecting manifold gauge hose and vacuum pump to high (drier) and low (compressor) pressure sides.	* Vacuum pump , Manifold gauge.
Refrigerant charging and charging inlet welding	* Weigh and control the bombe in a vacuum conditions with electronic scales and charge through compressor inlet (Process tube). * Charge while refrigerator operates). * Weld carefully after inlet pinching.	* Bombe (mass cylinder), refrigerant manifold gauge, electronic scales, punching off flier, gas welding machine
Check refrigerant leak and cooling capacity	* Check leak at weld joints. Note :Do not use soapy water for check. * Check cooling capacity → Check condenser manually to see if warm. → Check hot pipe manually to see if warm. → Check frost formation on the whole surface of the evaporator.	* Electronic Leak Detector, Driver.
Compressor compartment and tools arrangement	* Remove flux from the silver weld joints with soft brusher wet rag. (Flux may be the cause of corrosion and leaks.) *Clean tools and store them in a clean tool box or in their place.	* Copper brush, Rag, Tool box
Transportation and installation	* Installation should be conducted in accordance with the standard installation procedure. (Leave space of more than 5 cm from the wall for compressor compartment cooling fan mounted model.)	

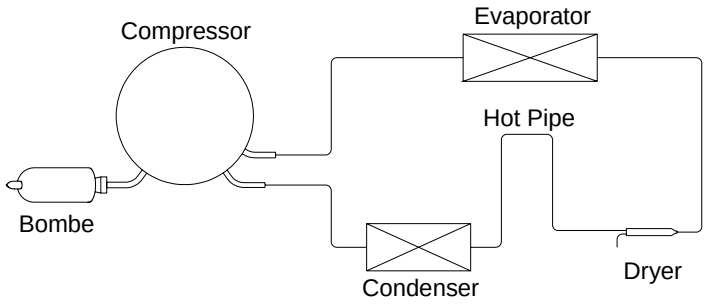
9-2. Precautions During Heavy Repair

Items	Precautions
Use of tools.	1) Use special parts and tools for R-134a or R-600a
Removal of retained refrigerant.	1) Remove retained refrigerant more than 5 minutes after turning off a refrigerator. (If not, oil will leak inside.) 2) Remove retained refrigerant by cutting first high pressure side (drier part) with a nipper and then cut low pressure side. (If the order is not observed, oil leak will happen.) 
Replacement of drier.	1) Be sure to replace drier when repairing pipes and injecting refrigerant.
Nitrogen blowing welding.	1) Weld under nitrogen atmosphere in order to prevent oxidation inside a pipe. (Nitrogen pressure : 0.1~0.2 kg/cm2.)
Others.	1) Nitrogen only should be used when cleaning inside of cycle pipes inside and sealing. 2) Check leakage with an electronic leakage tester. 3) Be sure to use a pipe cutter when cutting pipes. 4) Be careful not the water let intrude into the inside of the cycle.

9-3. Practical Work for Heavy Repair

Items	Precautions
1. Removal of residual refrigerant.	1) Remove residual refrigerant more than 5 minutes later after turning off the refrigerator. (If not, compressor oil may leak inside.) 2) Remove retained refrigerant slowly by cutting first high pressure side (drier part) with a nipper and then cut low pressure side. 
2. Nitrogen blowing welding.	 *** When replacing a drier:** Weld ①and② parts by blowing nitrogen (0.1~0.2kg/cm2) to high pressure side after assembling a drier. *** When replacing a compressor:** Weld ③and④ parts by blowing nitrogen to the low pressure side. Note) For other parts, nitrogen blowing is not necessary because it does not produce oxidized scales inside pipe because of its short welding time. **※ KEYPOINTING** Welding without nitrogen blowing produces oxidized scales inside a pipe, Which affect on performance and reliability of a product.

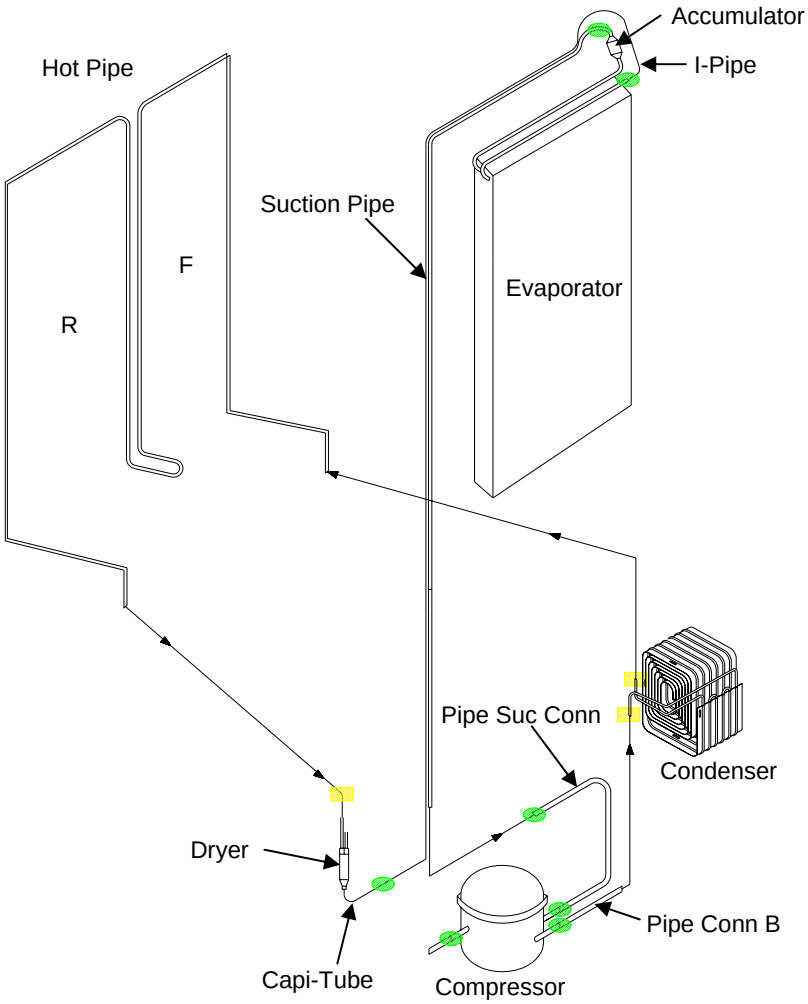
Items	Precautions
3.Vacuum degassing.	*** Pipe Connection** Connect a red hose to the high pressure side and a blue hose to the low pressure side. *** Vacuum Sequence** Open ①,② valves and evacuate for 40 minutes. Close valve ①.  **※ KEYPOINTING** 1) If power is applied during vacuum degassing, vacuum degassing shall be more effective. 2) Operate compressor while charging refrigerant. (It is easier and more certain to do like this.)
4.Refrigerant charging.	*** Charging sequence** 1) Check the amount of refrigerant supplied to each model after completing vacuum degassing. 2) Evacuate bombe with a vacuum pump. 3) Measure the amount of refrigerant charged. - Measure the weight of an evacuated bombe with an electronic scale. - Charge refrigerant into a bombe and measure the weight. Calculate the weight of refrigerant charged into the bombe by subtracting the weight of an evacuated bombe. Indicate the weight of an evacuated bombe  **※ KEYPOINTING** 1) Be sure to charge the refrigerant at around 25˚C. Calculation of amount of refrigerant charged the amount of refrigerant charged = a weight after charging - a weight before charging (a weight of an evacuated cylinder)

Items	Precautions
4.Refrigerant charging.	4) Refrigerant Charging Charge refrigerant while operating a compressor as shown above. 5) Pinch a charging pipe with a pinch-off plier after completion of charging. 6) Braze the end of a pinched charging pipe with copper brazer and take a gas leakage test on the welded parts. 
5. Gas-leakage test	* Take a leakage test on the welded or suspicious area with an electronic leakage tester.
6. Pipe arrangement in each cycle	* Check each pipe is placed in its original place before closing a cover back-M/C after completion of work.

9-4. Standard Regulations for Heavy Repair

1) Observe the safety precautions for gas handling.
2) Use JIG (or wet towel) in order to prevent electric wires from burning during welding.
(In order to prevent insulation break and accident.)
3) The inner case shall be melted and insulation material (polyurethane) shall be burnt if not cared during welding inner case parts.
4) The copper pipe shall be oxidized by overheating if not cared during welding.
5) Not allow the aluminum pipes to contact to copper pipes. (In order to prevent corrosion.)
6) Make sure that the inner diameter should not be distorted while cutting a capillary tube.
7) Be sure that a suction pipe and a filling tube should not be substituted each other during welding.
(High efficiency pump.)

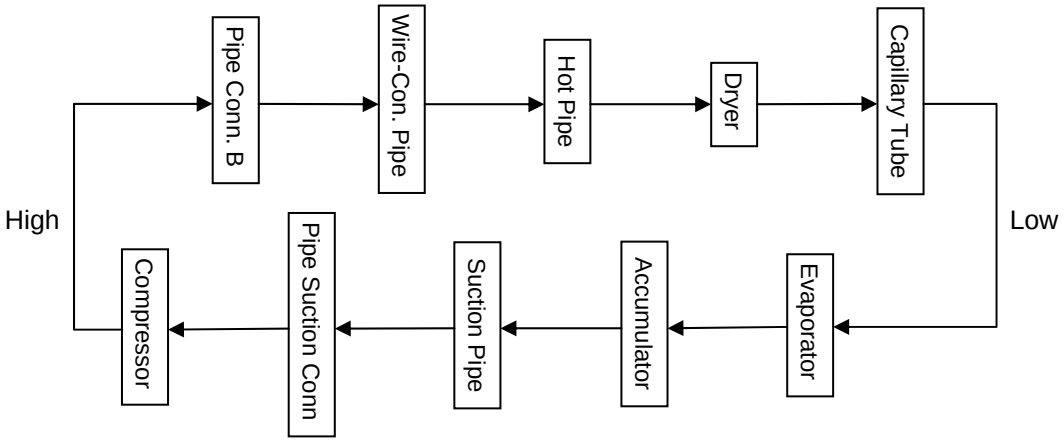
9-5. Brazing Reference Drawings.



▶ Welding Point

●	Copper Welding (Ag 5%)	7 Points
■	Silver Welding (Ag 35%)	3 Points

▶ Flow of Refrigeration Cycle

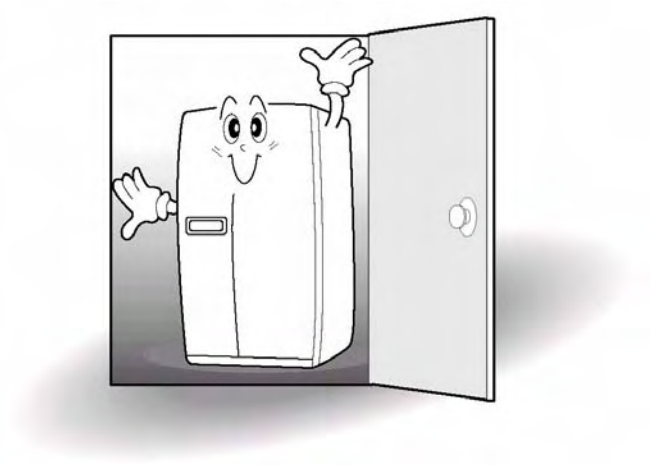


10. INSTALLATION GUIDE

10-1. Installation Preparation

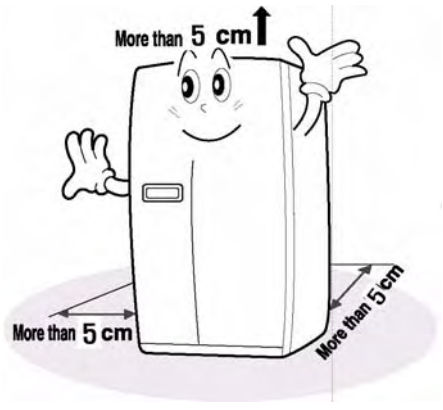
Check if the refrigerator can pass a doorway or enter a door first.

Dimensions(including Door Handles)
(Width*Depth*Height) 903mm X 734..5mm X 1790mm

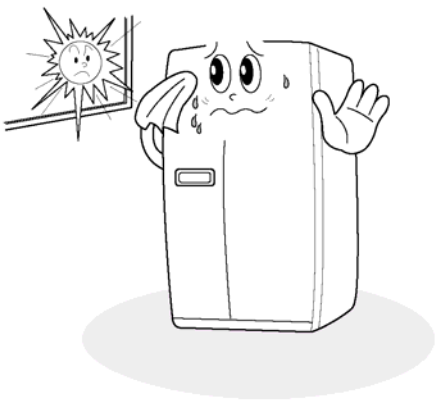


Find a suitable place to install

※Sufficient space from refrigerator back to the wall for free air ventilation



※Avoid direct sunlight.



Note

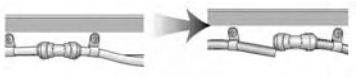
Once the installation place is ready follow the installation instructions.
If surround temperature of refrigerator is low (below 10℃),
foods can be frozen or the refrigerator can work in abnormal way**.**

10-2. If the refrigerator can not enter the door

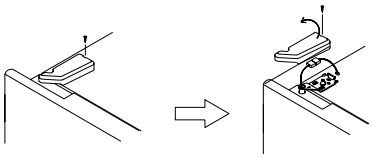
Removing Freezer Door

※Remove front bottom cover first, if it is attached.

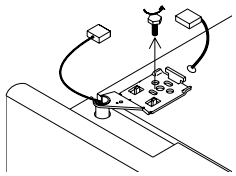
1 Remove front bottom cover first, Pull out the left collar of the coupling first, then hold the coupling and pull out the left water tube.



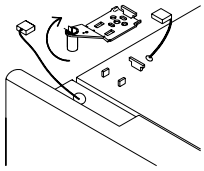
2 Unscrew top hinge cover with a screw driver.
Remove the hinge cover.



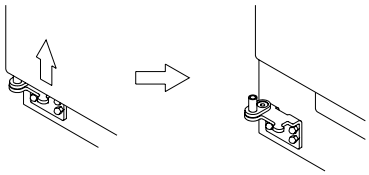
3 Turn top hinge bolt counterclockwise .
Disconnect the harness wires.



4 Lift up the front of hinge to remove.
(After the hinge is removed the door can fall down forward.
Be careful !)

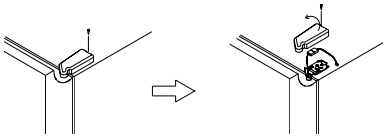


5 Be careful not to damage the water line when removing the door.

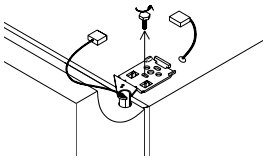


Removing Refrigerator Door

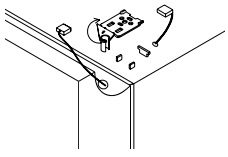
1 Unscrew top hinge cover with a screw driver.
Remove the hinge cover.



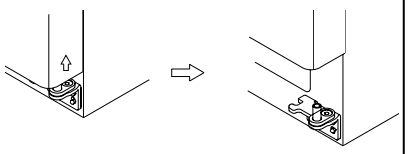
2 Turn top hinge fastener counterclockwise.
Disconnect harness wires.



3 Lift up the front of hinge to remove.
(After the hinge is removed the door can fall down forward.
Be careful !)

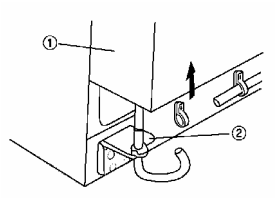


4 Lift the door straight up to remove.

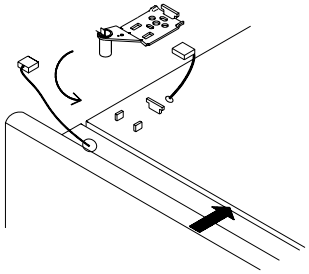


Replacing Freezer Door

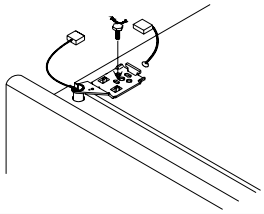
1 Insert the water tube into the hole Of the bottom hinge pin first, then Insert the bottom of freezer door Into the bottom hinge pin.



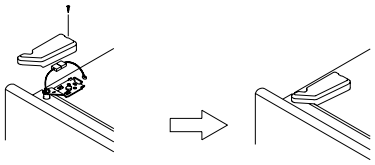
2 Insert the bottom hole of freezer door straight to the bottom hinge pin.



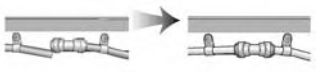
3 Let the top of door close to the cabinet and insert the top hinge pin to the top hole of freezer door. (Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



4 Turn the hinge fastener tightly to The end.
Connect harness wire and screw ground wire.

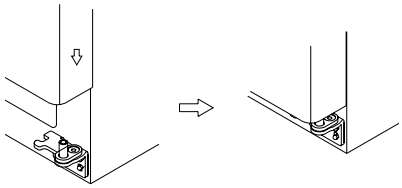


5 Insert the water tube far into the coupling.

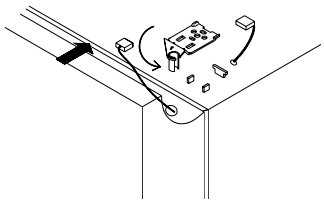


Replacing Refrigerator Door

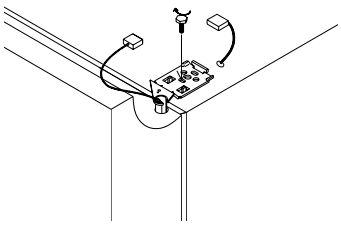
1 Insert the bottom hole of refrigerator door straight to the bottom hinge pin.



2 Let the top of door close to the cabinet and insert the top hinge pin to the top hole of refrigerator door.
(Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



3 Turn the hinge fastener tightly to the end.
Connect harness wirings and screw ground wire.
Click and screw the top hinge cover.

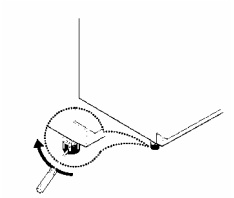


10-3. Refrigerator Leveling & Door Adjustment

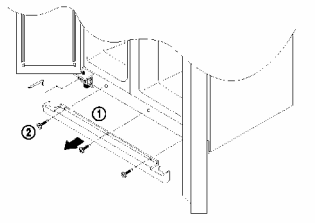
※Refrigerator must be level in order to maintain optimal performance and desirable front appearance.
(If the floor beneath the refrigerator is uneven, freezer and refrigerator doors look unbalanced.)

In case freezer door is lower than refrigerator door

1 Insert a screw driver (flat tip) into a groove of the left wheel (bottom of freezer) and turn it clockwise until the door is balanced.
(clockwise to raise freezer door ; counterclockwise to lower)
Unless the freezer door is balanced by step 1, then follow the next steps.

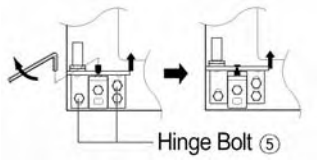


2 Open the doors, unscrew the front cover and remove, if it is attached.



3 Loosen 3 hinge bolts(1 on the left + 2 on the right) a little.
(Do not unfasten them completely.)
Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.

4 Once the door is balanced, fasten the hinge bolts tightly and screw the front cover.



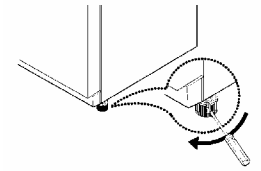
Caution

The front of refrigerator needs to be higher just a little than the back for easy door closing, but if the wheel is raised too much for door balance, i.e. front of refrigerator is too higher than the back, it can be difficult to open the door.

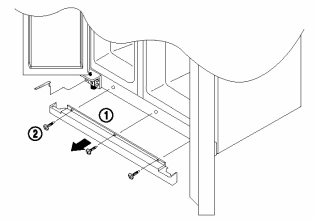
In case refrigerator door is lower than freezer door

1 Insert a screw driver (flat tip) into a groove of the right wheel (bottom of refrigerator) and turn it clockwise until the door is balanced.
(clockwise to raise refrigerator door ; counterclockwise to lower)

※ Unless the refrigerator door is balanced by step 1, then follow the next steps.



2 Loosen 3 hinge bolts(2 on the left + 1 on the right) a little.
(Do not unfasten them completely.)
Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.



3 Once the door is balanced, fasten the hinge bolts tightly.

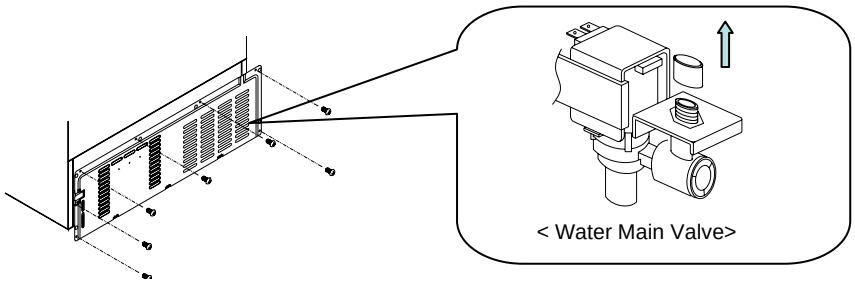
Front Cover

After installation and/or door leveling, fasten front cover with screws. (Remove the screws on the front bottom panel first. Click and screw the cover)

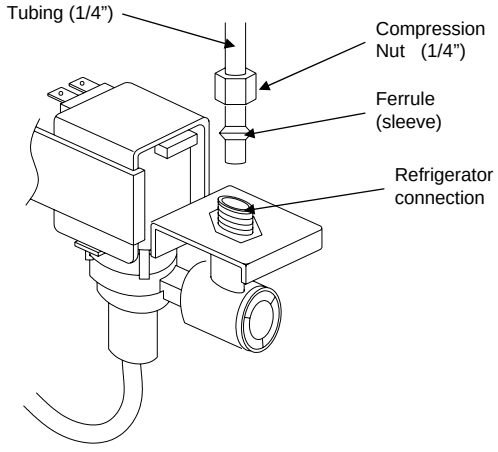
10-4. Connect the Tubing to the Refrigerator

※ Before you begin, make sure the refrigerator power cord is not plugged into the wall outlet. and, shut off the main water supply.
※ Water pressure should be 3kgf/cm2 or more to run the automatic icemaker.

1) The compressor compartment access cover must be removed
and remove the plastic cap of the water main(1-way) valve.

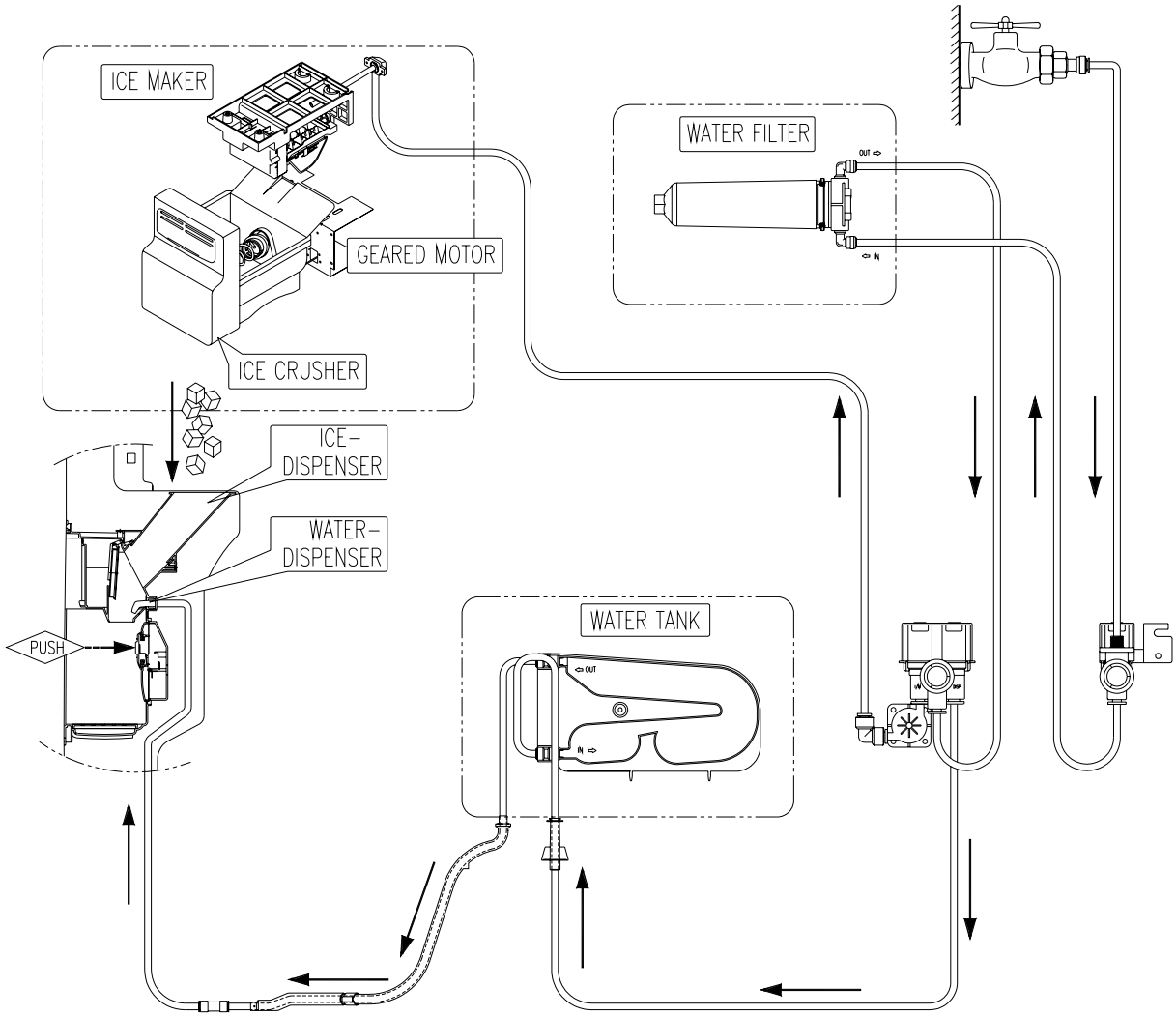


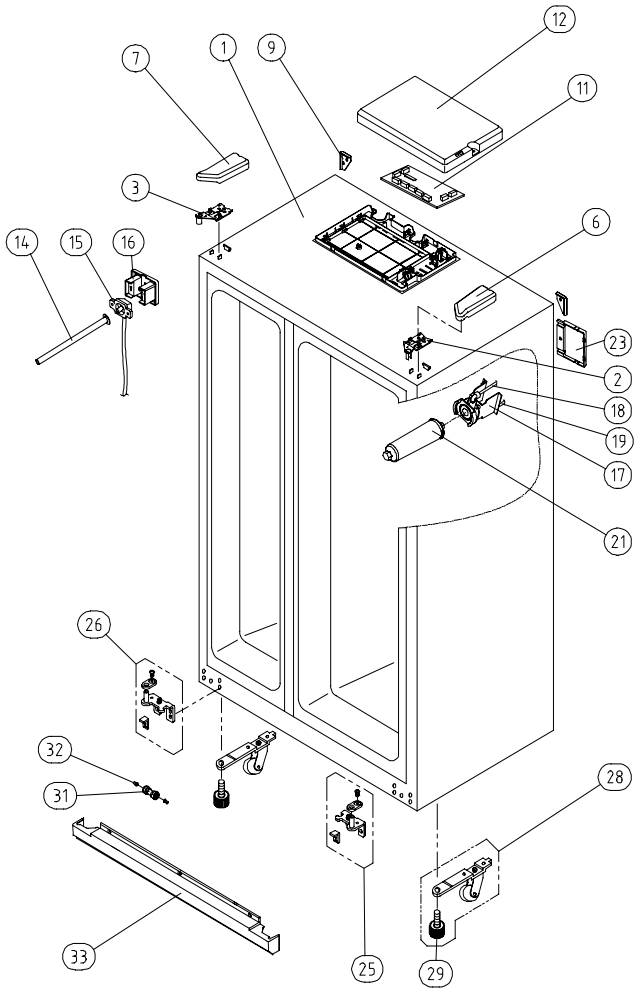
3) Place the compression nut and ferrule (sleeve) onto the end of the tubing as shown.
4) Insert the end of the tubing into the water valve connection as far as possible.
While holding the tubing, tighten the fitting.
5) and, tighten the compression nut until it is hand tight.
then tighten one additional turn with a wrench.
Overtightening may cause leaks.



6) Plug the power cord and press the water dispenser button for 2~3minutes to flush out the tubing.
7) Check the water leak again through the water supply system (tubes, connectors and pipes).

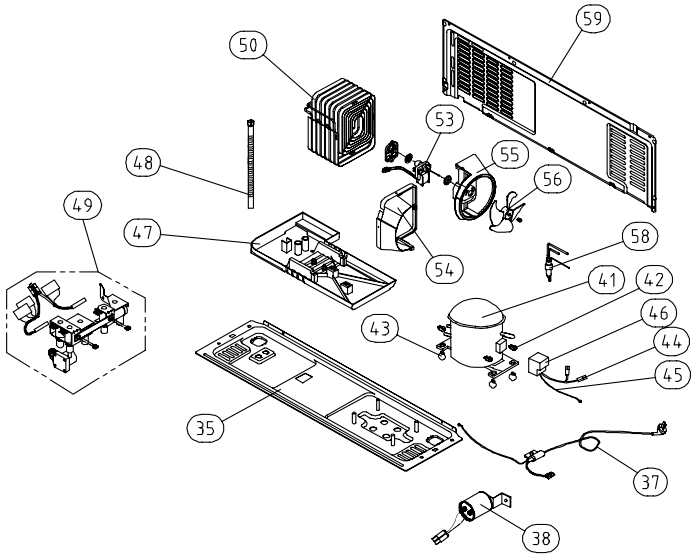
10-5. Dispenser Water Flow

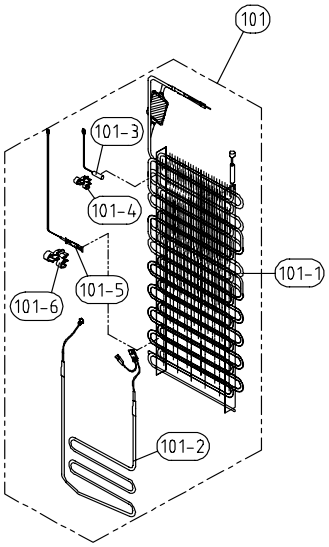




NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
1		ASSY CAB URT		1	1	1	1	1	1	1
2	3012924400	HINGE *T *R AS	PO T3.0+PAINT	1	1	1	1	1	1	1
3	3012924300	HINGE *T *L AS	PO T3.0+PAINT	1	1	1	1	1	1	1
6	3011446210	COVER HI *T *R	PP(GY7501A,BSH)	X	1	1	X	x	1	x
	3011446200		PP	1	X	X	X	1	X	X
	3011446220		PP(BK BSH)	X	X	X	1	X	X	1
7	3011446110	COVER HI *T *L	PP(GY7501A,BSH)	X	1	1	X	x	1	x
	3011446100		PP	1	X	X	X	1	X	X
	3011446120		PP(BK BSH)	X	X	X	1	X	X	1
9	3010968410	CAP CAB COVR	PP TITANIUM	2	2	2	2	2	2	2
11	30143E3080	PCB MAIN AS	BSS-546E	1	1	1	1	1	1	1
12	3011446030	COVER M/PCB	ABS V-0,5VB(7501A)	x	1	1	x	x	1	x
	3011446040		ABS V-0,5VB(WH)	1	X	X	X	1	X	X
	3011446050		ABS V-0,5VB(BK)	X	X	X	1	X	X	1
14	3013224810	HOSE I/MAKER TUBE AS	FRU-546D	1	1	1	1	1	1	1
15	3012519220	GUIDE CAB W/TUBE A AS	FRU-546D, L1720	1	1	1	1	1	1	1
16	3011444100	COVER GUIDE CAB W/TUBE A	PP	1	1	1	1	1	1	1
17	3012026900	FIXTURE WATER FILT *I AS	FRU-546D	1	1	1	1	1	1	1
18	3019504700	TUBE WATER G	LDPE OD1/4XL2000	1	1	1	1	1	1	1
19	3019504800	TUBE WATER H	LDPE OD1/4XL2070	1	1	1	1	1	1	1
21	3019982600	S/PART FILT WATER *I AS	FRU-546D(CS-52)	1	1	1	1	1	1	1
23	3001404900	COVER GUIDE CAB W/TUBE E AS	FRU-546D	1	1	1	1	1	1	1
25	3012924011	HINGE *U *R AS	PO T5 BK PAINT	1	1	1	1	1	1	1
26	3012923912	HINGE *U *L AS	PO T5 BK PAINT	1	1	1	1	1	1	1
28	3010658001	BRACKET ADJ FOOT AS	SPCC T2.6	2	2	2	2	2	2	2
29	3012105100	FOOT ADJ AS	PP	2	2	2	2	2	2	2
31	3013064200	HOLDER TUBE A	A5UC5	1	1	1	1	1	1	1
32	3012019500	FIXTURE TUBE FIT B	PP	2	2	2	2	2	2	2
33	3011447210	COVER CAB BRKT	PP(GY7501A,BSH)	X	1	1	X	x	1	x
	3011447200		PP	1	X	X	X	1	X	X
	3011447220		PP(BK,BSH)	X	X	X	1	X	X	1

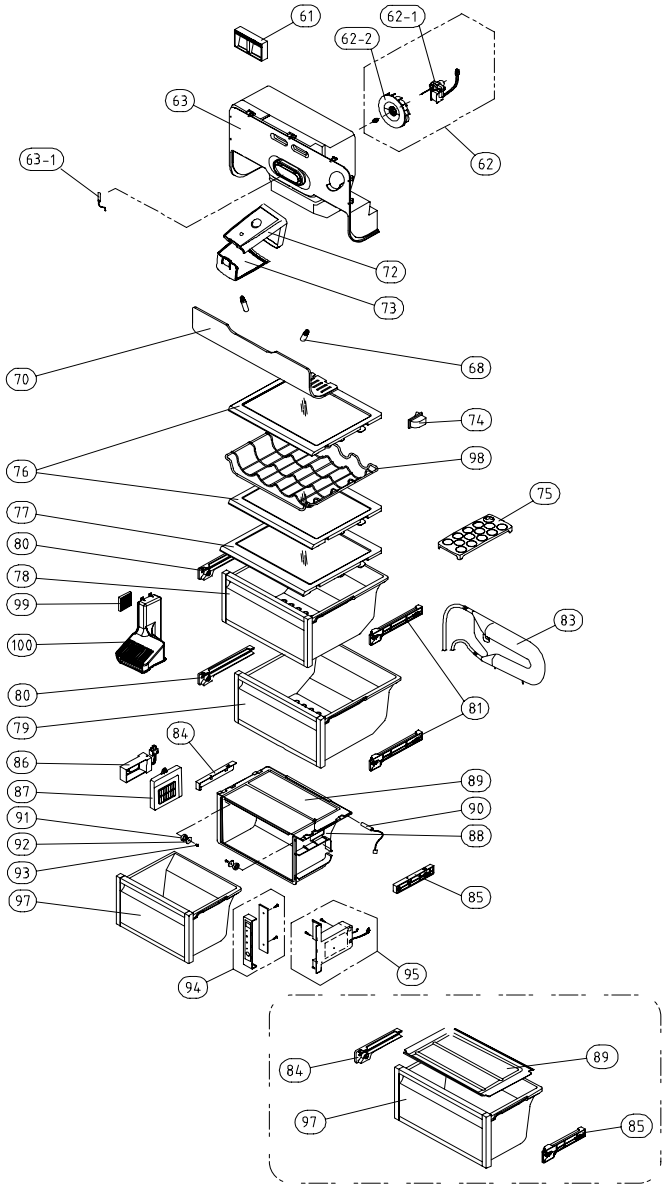
Date	Amendment Note



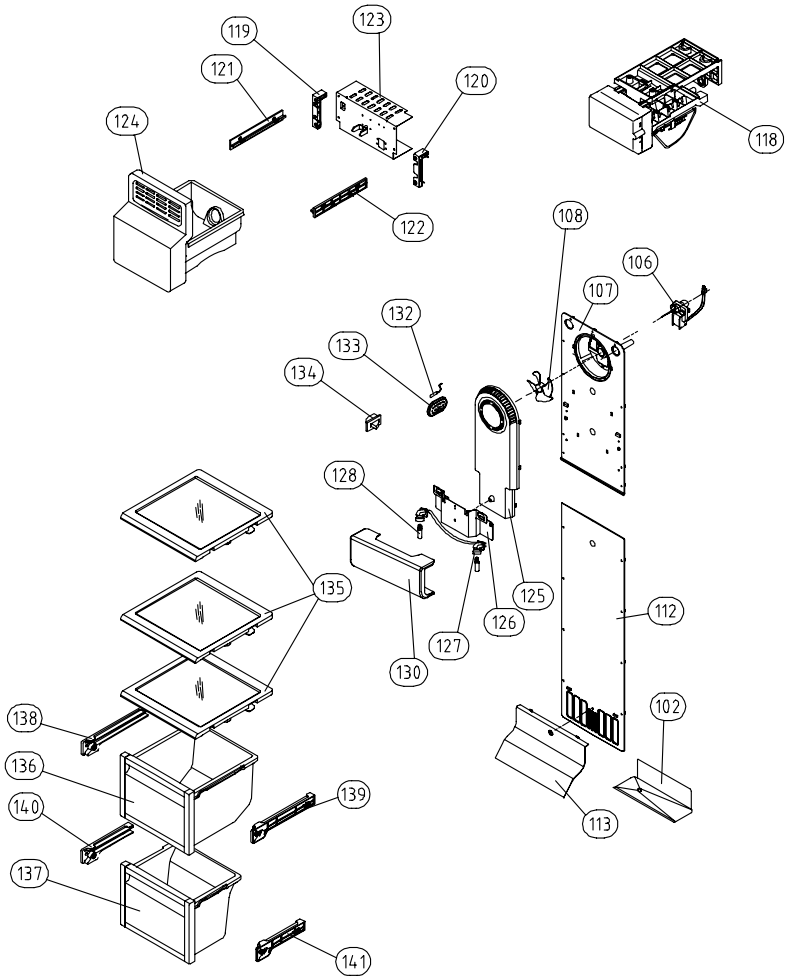


NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
35	3010340410	BASE COMP AS	UL	1	1	1	1	1	1	1
37	3011348300	CORD POWER AS	AC 125V 15A(CSA)	1	1	1	1	1	1	1
38	3016405100	CAPACITOR AS	FRU-546D(250V 12UF)	1	1	1	1	1	1	1
41	3956180D10	COMPRESSOR	EGZS80HLP 115V 60HZ	1	1	1	1	1	1	1
42	3016002500	SPECIAL WASHER	SK-5, T0.8	3	3	3	3	3	3	3
43	3010101600	ABSORBER RUBBER COMP	NBR	4	4	4	4	4	4	4
44	3018130400	SWITCH P RELAY AS	FRU-546D	1	1	1	1	1	1	1
45	3012759900	HARNESS EARTH COMP	FRU-546D	1	1	1	1	1	1	1
46	3001409900	COVER RELAY	EGZS80HLP(EMBRACO)	1	1	1	1	1	1	1
47	3011181300	CASE VAPORI AS	PP	1	1	1	1	1	1	1
48	3013201710	HOSE DRN B	PE FRB-5970NB	1	1	1	1	1	1	1
49	3015404700	VALVE AS	FRU-546D	1	1	1	1	1	1	1
50	3014461510	PIPE WICON AS	TSW OD4.76XT0.7	1	1	1	1	1	1	1
53	3015916100	MOTOR C FAN AS	D4612AAA22	1	1	1	1	1	1	1
54	3018410400	M/BELL B	PP A353(HB)	1	1	1	1	1	1	1
55	3018410300	M/BELL A	PP A353(HB)	1	1	1	1	1	1	1
56	3011834700	FAN	ABS OD3.17XD150	1	1	1	1	1	1	1
58	3016808100	DRYER AS	C1220T-M OD19.05XL135	1	1	1	1	1	1	1
59	3011497000	COVER MACH ROOM AS	SGCC T0.35	1	1	1	1	1	1	1
101	3017053520	EVA AS	FRU-546D	1	1	1	1	1	1	1
101-1	3017053620	EVA SAS	HTR 115V, 192W	1	1	1	1	1	1	1
101-2	3012818400	HEATER SHEATH AS	115V/192W	1	1	1	1	1	1	1
101-3	3014806900	SENSOR D AS	PBN-43	1	1	1	1	1	1	1
101-4	3012023600	FIXTURE D SENS	PP	1	1	1	1	1	1	1
101-5	3017202600	FUSE TEMP AS	250V 10A 77C	1	1	1	1	1	1	1
101-6	4017Z90590	FIXTURE FUSE TEMP	PP	1	1	1	1	1	1	1

Date	Amendment Note



NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
61	3012205001	FRAME CHECK VALVE AS	FR-S580CG	1	1	1	1	1	1	1
62	3012024200	FIXTURE MOTR AS	FRU-571I	1	1	1	1	1	1	1
62-1	3015916000	MOTOR R FAN	D4612AAA20	1	1	1	1	1	1	1
62-2	3011835400	FAN R	ABS OD3.17XD110	1	1	1	1	1	1	1
63	3001405100	COVER DAMP *I AS	FRU-546D	1	1	1	1	1	1	1
63-1	3014807100	SENSOR R AS	PBN-43B	1	1	1	1	1	1	1
68	3013602900	LAMP F/R	AC 125V 25W(B)	2	2	2	2	2	2	2
70	3015510800	WINDOW R LAMP	MIPS	1	1	1	1	1	1	1
72	3012215000	FRAME FILT WATER	HIPS	1	1	1	1	1	1	1
73	3001405000	COVER FILT WATER AS	HIPS	1	1	1	1	1	1	1
74	3018124000	SWITCH DR	SP201R-7DR	1	1	1	1	1	1	1
75	3011161510	CASE EGG	BSH COLOR(BL3502AT)	1	1	1	1	1	1	1
76	3017845600	SHELF R A AS	FRU-546D	2	2	2	2	2	2	2
77	3017845700	SHELF R B AS	FRU-546D	1	1	1	1	1	1	1
78	3011189200	CASE VEGETB A AS	FRU-543D,CASE+FRAME+DECO	1	1	1	1	1	1	1
79	3011189300	CASE VEGETB B AS	FRU-543D,CASE+FRAME+DECO	1	1	1	1	1	1	1
80	3012514511	GUIDE CASE A *L AS	FR-S580EG (HIPS)	2	2	2	2	2	2	2
81	3012514611	GUIDE CASE A *R AS	FR-S580EG (HIPS)	2	2	2	2	2	2	2
83	3018201000	TANK WATER AS	FRU-541D	1	1	1	1	1	1	1
84	3012529500	GUIDE CHANGE RM *L	ABS SCRAP	X	X	X	X	1	1	1
	3012529711	GUIDE CASE C *L AS	HIPS	1	1	1	1	X	X	X
85	3012529600	GUIDE CHANGE RM *R	ABS SCRAP	X	X	X	X	1	1	1
	3012529811	GUIDE CASE C *R AS	HIPS	1	1	1	1	X	X	X
86	3016767100	DAMPER AS	DU24-013	X	X	X	X	1	1	1
87	3011450901	COVER DUCT CHANGE RM AS	FRU-541E	X	X	X	X	1	1	1
88	3010548200	BOX CHANGE RM	HIPS	X	X	X	X	1	1	1
89	3011446800	COVER CHANGE RM	GPPS	X	X	X	X	1	1	1
	3011446700	COVER VEGETB CASE B	GPPS	1	1	1	1	X	X	X
90	3014806800	SENSOR M AS	PBN-43B	X	X	X	X	1	1	1
91	3014700301	ROLLER A	PP(NATURAL)	X	X	X	X	2	2	2
92	3016003700	SPECIAL WASHER	T1.0 OD20	X	X	X	X	2	2	2
93	3016040000	SPECIAL SCREW D	4X8	X	X	X	X	2	2	2
94	3001402510	COVER CONTL CHANGE RM AS	FRU-546E(COVER+FRONT PCB)	X	X	X	X	1	1	1
95	3011115130	CASE CONTL CH RM AS	FRU-546E CASE+COVER+PCB	X	X	X	X	1	1	1
97	3011115000	CASE CHANGE RM AS	CASE+FRAME+GASKET	X	X	X	X	1	1	1
	3011189400	CASE VEGETB C AS	FRU-543D,CASE+FRAME+DECO	1	1	1	1	X	X	X
98	3017844220	SHELF WINE	FRU-54,57 SUS304	X	X	X	X	1	1	1
99	3018701800	DEO ANTI AS	W40XT5XL40	1	1	1	1	1	1	1
100	3011445900	COVER RETURN DUCT	PP	1	1	1	1	1	1	1



NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
102	3012529000	GUIDE DRN	GA	1	1	1	1	1	1	1
106	3015915900	MOTOR F FAN	D4612AAA21	1	1	1	1	1	1	1
107	3018921300	LOUVER F A	ABS	1	1	1	1	1	1	1
108	3011834500	FAN	ABS OD3.17XD130	1	1	1	1	1	1	1
112	3018921501	LOUVER F B AS	HIPS	1	1	1	1	1	1	1
113	3011443200	COVER F RETURN	HIPS	1	1	1	1	1	1	1
118	3012205810	FRAME ICE MAKER AS	FRU-541D	1	1	1	1	1	1	1
119	3012517800	GUIDE G/MOTR BRKT *L	ABS	1	1	1	1	1	1	1
120	3012517900	GUIDE G/MOTR BRKT *R	ABS	1	1	1	1	1	1	1
121	3012520500	GUIDE ICE CRUSHER *L	ABS	1	1	1	1	1	1	1
122	3012517700	GUIDE ICE CRUSHER *R	ABS	1	1	1	1	1	1	1
123	3010663400	BRACKET GEARED MOTR AS	FRU-546D 115V, 60HZ	1	1	1	1	1	1	1
124	3011115260	CASE I/CRUSHER AS	FRU-546D	1	1	1	1	1	1	1
125	3001401711	COVER F FAN AS	HIPS	1	1	1	1	1	1	1
126	3014531901	PLATE F LAMP	SGCC T0.6	1	1	1	1	1	1	1
127	3017907500	SOCKET F LAMP AS	FRU-546D	1	1	1	1	1	1	1
128	3013602900	LAMP F/R	AC 125V 25W(B)	1	1	1	1	1	1	1
130	3015510700	WINDOW F LAMP	MIPS	1	1	1	1	1	1	1
132	3014807000	SENSOR F AS	PT-38	1	1	1	1	1	1	1
133	3011442600	COVER F SENS	ABS	1	1	1	1	1	1	1
134	3018124010	SWITCH DR	SP201R-7DL	1	1	1	1	1	1	1
135	3017842600	SHELF F AS	FRAME+PRINTED GLASS+FIXR	3	3	3	3	3	3	3
136	3011189900	CASE F A AS	FRU-543D, CASE+FRAME+DECO	1	1	1	1	1	1	1
137	3011190000	CASE F B AS	FRU-543D, CASE+FRAME+DECO	1	1	1	1	1	1	1
138	3012514511	GUIDE CASE A *L AS	FR-S580EG (HIPS)	1	1	1	1	1	1	1
139	3012514611	GUIDE CASE A *R AS	FR-S580EG (HIPS)	1	1	1	1	1	1	1
140	3012529711	GUIDE CASE C *L AS	FRU-571I (HIPS)	1	1	1	1	1	1	1
141	3012529811	GUIDE CASE C *R AS	FRU-571I (HIPS)	1	1	1	1	1	1	1

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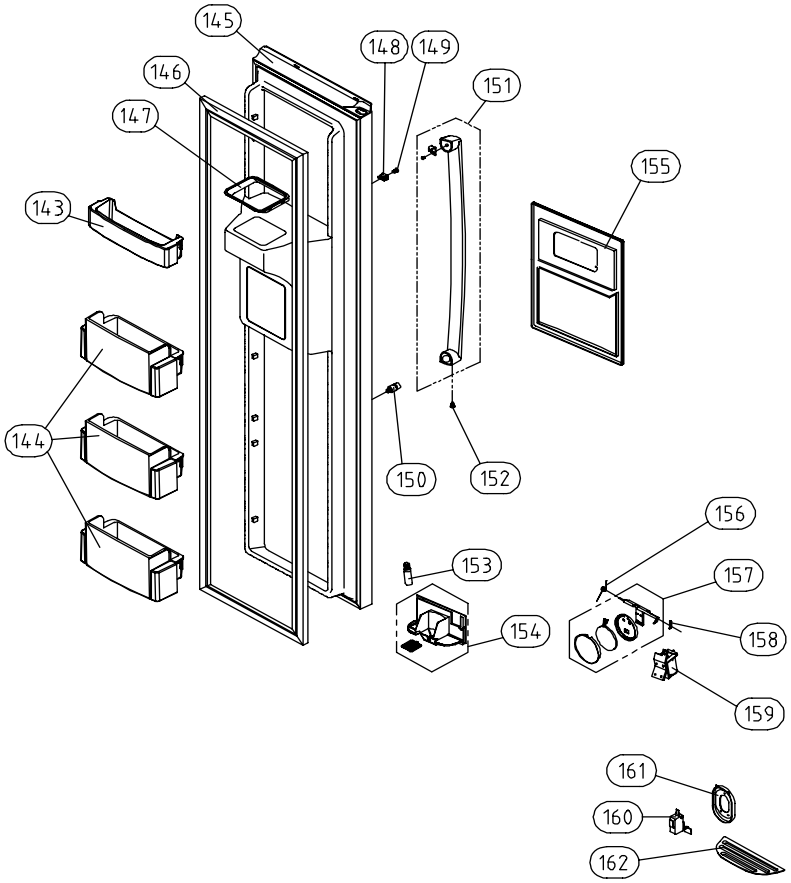

NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
143	3019026710	POCKET F *T	HIPS+NO PRT	1	1	1	1	1	1	1
144	3019029000	POCKET F AS	HIPS+GPPS(BL)	3	3	3	3	3	3	3
145	3000067100	ASSY F DR URT	FRU-546D	X	X	1	X	X	1	X
	3000067120		FRU-546D(TITANIUM)	X	1	X	X	X	X	X
	3000067130		FRU-546D(WH)	1	X	X	X	1	X	X
	3000067140		FRU-546D(BK)	X	X	X	1	X	X	1
146	3012318810	GASKET F DR AS	PVC+MAGNET	1	1	1	X	1	1	X
	3012318820		PVC+MAGNET(BK)	X	X	X	1	X	X	1
147	3010964600	CAP ICE PATH FRAME	HIPS	1	1	1	1	1	1	1
148	3012025000	FIXTURE HNDL SUPORT	FRU-573I, HIPS	1	1	1	1	1	1	1
149	3016040100	SPECIAL SCREW HNDL	M5X20	1	1	1	1	1	1	1
150	3012027100	FIXTURE HNDL A	MFZN M8XL22	1	1	1	1	1	1	1
151	3012645110	HANDLE AS	FRU-546D(TITANIUM)	X	1	1	X	X	1	X
	3012645100		FRU-546D(WHITE)	1	X	X	X	1	X	X
	3012645120		FRU-546D(BLACK)	X	X	X	1	X	X	1
152	3016042800	SPECIAL SCREW *I	SWCH18A, M5 X P0.8	1	1	1	1	1	1	1
153	3013600050	LAMP AS	120V/15W (110V/60HZ)	1	1	1	1	1	1	1
154	3010544010	BOX DISPNS ICE SHUT AS	FRU-543D	X	1	1	X	X	1	X
	3010544020		FRU-543D(WH)	1	X	X	X	1	X	X
	3010544030		FRU-543D(BK)	X	X	X	1	X	X	1
155	3001401800	COVER DISPNS BOX AS	FRU-543(SPRAY)	X	1	1	X	X	1	X
	3001401860		FRU-543(SPRAY X, WH)	1	X	X	X	1	X	X
	3001401910		FRU-546(SPRAY, BK)	X	X	X	1	X	X	1
156	3015102200	SPRING ICE D LEVR	SUS	1	1	1	1	1	1	1
157	3011495300	COVER I/FLAP AS	FRU-541D	1	1	1	1	1	1	1
158	3012019700	FIXTURE ICE SHUT LVR	FR-S650CD	1	1	1	1	1	1	1
159	3015403210	VALVE SOL DISPNS	2003-02D(110~115V 60HZ)	1	1	1	1	1	1	1
160	3018125800	SWITCH MICRO	VP333A-2D	1	1	1	1	1	1	1
161	3016304900	BUTTON DISPNS AS	FRU-541D	X	1	1	X	X	1	X
	3016304910		FRU-541D(WH)	1	X	X	X	1	X	X
	3016304920		FRU-546D(BK)	X	X	X	1	X	X	1
163	3012406910	GRILL DISPENSER	ABS(GY7501A)	X	1	1	X	X	1	X
	3012406900		ABS	1	X	X	X	1	X	X
	3012406920		ABS(BK)	X	X	X	1	X	X	1

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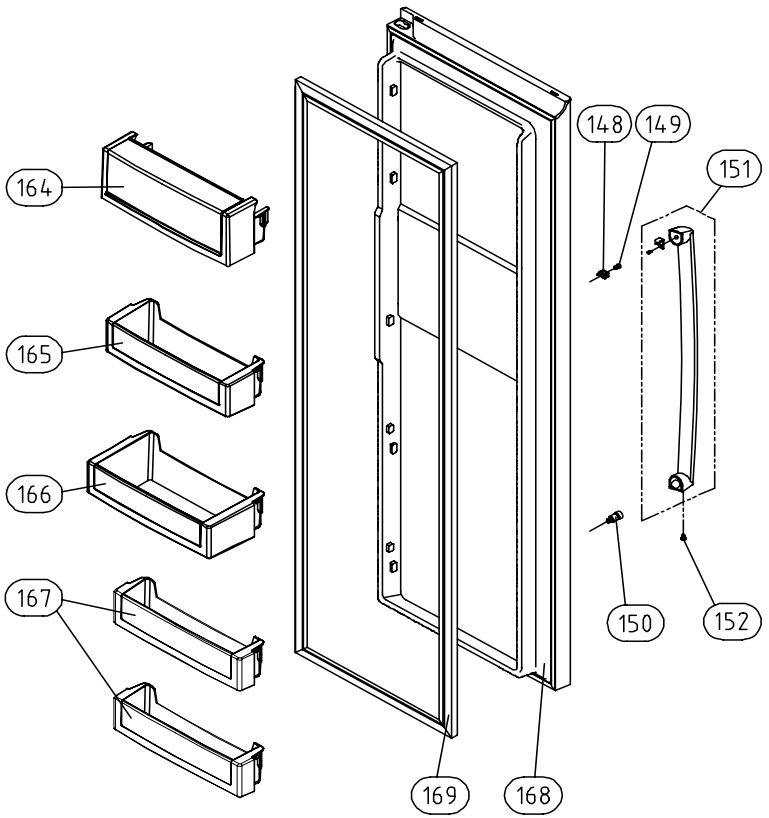

NO	PART-CODE	PART NAME	SPEC.	Q'ty						
				B20CS50SN*				B20CS80SN*		
				W	I	S	B	W	S	B
148	3012025000	FIXTURE HNDL SUPORT	FRU-573I, HIPS	1	1	1	1	1	1	1
149	3016040100	SPECIAL SCREW HNDL	M5X20	1	1	1	1	1	1	1
150	3012027100	FIXTURE HNDL A	MFZN M8XL22	1	1	1	1	1	1	1
151	3012645110	HANDLE AS	FRU-546D(TITANIUM)	X	1	1	X	X	1	X
	3012645100		FRU-546D(WHITE)	1	X	X	X	1	X	X
	3012645120		FRU-546D(BLACK)	X	X	X	1	X	X	1
152	3016042800	SPECIAL SCREW *I	SWCH18A, M5 X P0.8	1	1	1	1	1	1	1
164	3019028810	POCKET DAIRY AS	FRU-546D	1	1	1	1	1	1	1
165	3019028600	POCKET R *M AS	HIPS+GPPS(BL)	1	1	1	1	1	1	1
166	3019029800	POCKET GALLON AS	FRU-546D	1	1	1	1	1	1	1
167	3019028700	POCKET R *S AS	HIPS+GPPS(BL)	2	2	2	2	2	2	2
168	3000063830	ASSY R DR URT	FRU-544D/574B	X	1	1	X	X	1	X
	3000063870		FRU-544D/574B(WH)	1	X	X	X	1	X	X
	3000063880		FRU-546D(BK)	X	X	X	1	X	X	1
169	3012318910	GASKET R DR AS	PVC+MAGNET	1	1	1	X	1	1	X
	3012318920		PVC+MAGNET(BK)	X	X	X	1	X	X	1

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