MITSUBISHI ELECTRIC

Changes for the Better

HOME REFRIGERATOR

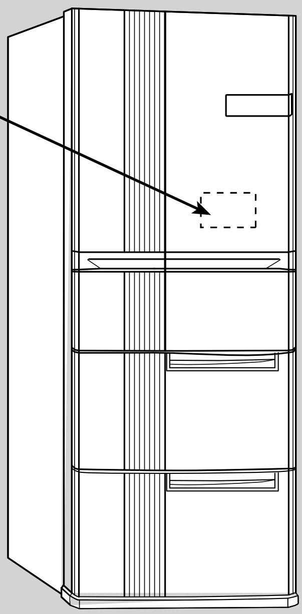
No. OAH094

SERVICE MANUAL

Model

MR-G50M-T-C
MR-G50M-W-C

Model name
indication
(Inside this door)



C •••• Taiwan

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NOTE:
• RoHS compliant products have <G> mark on the spec name plate.

1 FEATURES

MR-G50M-C

1. AUTO-shelf

The shelves can be adjusted freely, even with food items placed on them.

Before...
There was unused space when big items were stored. (Conventional models)

From now on...
Space-efficient storing allows two dozen 350 ml cans to be stored additionally. *1

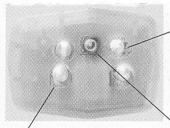
Refrigeration compartment with large 239 L capacity.

*1 Comparison of 2006 MITSUBISHI refrigerator MR-G40J and 2007 new model MR-G45M.

2. Vegetable compartment

"Reducing sugar" extends shelf life of vegetables.

Tricolor LEDs



Blue
Increases vitality of vegetables together with the orange LED.

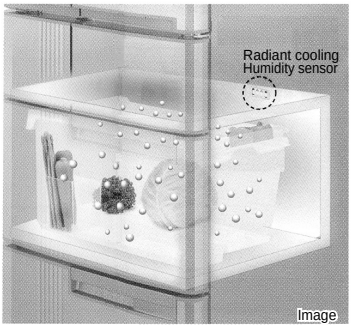
Orange
Forms reducing sugars, which become the source of vital energy of vegetables.

UV
Stimulates vegetables and increases polyphenol.

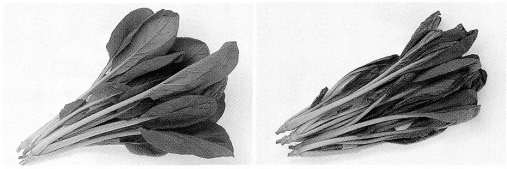
About 3 times more water retention *2

90% high humidity storage *3

Direct air to vegetables is avoided.
The vegetable case is cooled from the surface of three walls, and pleasant humidity is maintained by the humidity sensor mounted just for the vegetable compartment.



Comparison of weight changes (Spinach stored for 2.5 days)



New vegetable compartment 2001 model MR-S45A

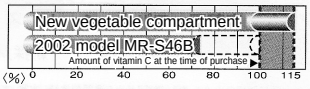
*2 Number of days it took for the weight of spinach to decrease by 10 percent. Compared between 2001 model MR-S45A, about 2.5 days, and 2007 new model MR-G45M, about 7.5 days. (With vegetables fully loaded)

*3 Moisture evaporated from vegetables are retained in the compartment, maintaining high humidity. Plastic wraps may be needed according to the amount of vegetables, vegetable condition, length of storage, or in case the item to be stored emits strong smell.

Vitamin C increased by approximately 15% *5

Irradiation of LED lights activates vital activity of vegetables, and increases Vitamin C

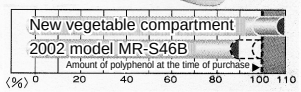
Rate of change in amount of vitamin C
(Broccoli sprout stored for three days)



Polyphenol increased by approximately 10% *5

The UV-LED stimulates vegetables and increases polyphenol.

Rate of change in amount of polyphenol
(Cress stored for three days)



*4 Vegetable compartments, which stimulate synthesis of vitamins in leaf vegetables. As of Aug. 24, 2004. (Research by MITSUBISHI)

*5 Vegetable was wrapped and stored under the LED light. Condition: temperature 5 ℃, humidity 90%. Effect may change due to factors such as position of vegetables, so the other vegetables block the light, or stored amount.

2 SPECIFICATIONS

SPECIFICATIONS
MR-G50M-C

Power supply			V,Hz	110V,60Hz
Total capacity			L	495 (R:263 F:90 V:95 I:16 S:31)
Dimensions (H x W x D)			mm	1811 x 685 x 709
Cabinet				Acrylic resin coated steel
Food liner				ABS resin
Insulation	Cabinet			Foamed polyurethane (Cyclopentane)
	Freezer door			Foamed polyurethane (Cyclopentane)
	Refrigerator door			Foamed polyurethane (Cyclopentane)
Cooling system	Freezer			Forced air convection
	Refrigerator			Forced air convection
Evaporator				Fin and tube type
Condenser				Cabinet, cabinet ceiling, sides, back and front flange
Defrost system				Automatic heater defrost
Drain				Automatic drainage, Forced evaporation method
Temperature control system				Automatic control
Refrigerator compartment room light				110V,10W (E12)
Accessories				Free pocket (L) 2pcs.
				Free pocket (S) 2pcs.
				Bottle pocket (S) 1pc.
				Bottle pocket (L) 1pc.
				Tube stand 1pc.
				AUTO-shelf 2pcs.
				Two-way flexishelf 1pc.
				Small item case 2pcs.
				Free egg shelf 2pcs.
				Slide chilled case 1pc.
				Slide chilled case lid 1pc.
				Versa case 1pc.
				Aluminum tray (Versa case) 1pc.
				Water tank (With light-type bacteria removing filter) 1pc.
				Freezing case (upper) 1pc.
				Freezing case (lower) 1pc.
				Ice server 1pc.
				Two-layer soundproof mat 1pc.
				Ice storage bin 1pc.
				Vegetable case 1pc.
				Vegetable stand 1pc.
				Sliding case (Vegetable case) 1pc.
				Drain pan 1pc.
				Toe grille 1pc.
Weight	Unit		kg	97
	Shipping		kg	104
Capillary tube			mm	ϕ1.8 x ϕ0.82 x 2700
Desiccant (molecular sieve)			g	9
Refrigerant filling capacity R600a			g	72
Refrigerating oil (Model)			g	187 (FREOL S10)

ELECTRICAL PARTS SPECIFICATIONS
MR-G50M-C

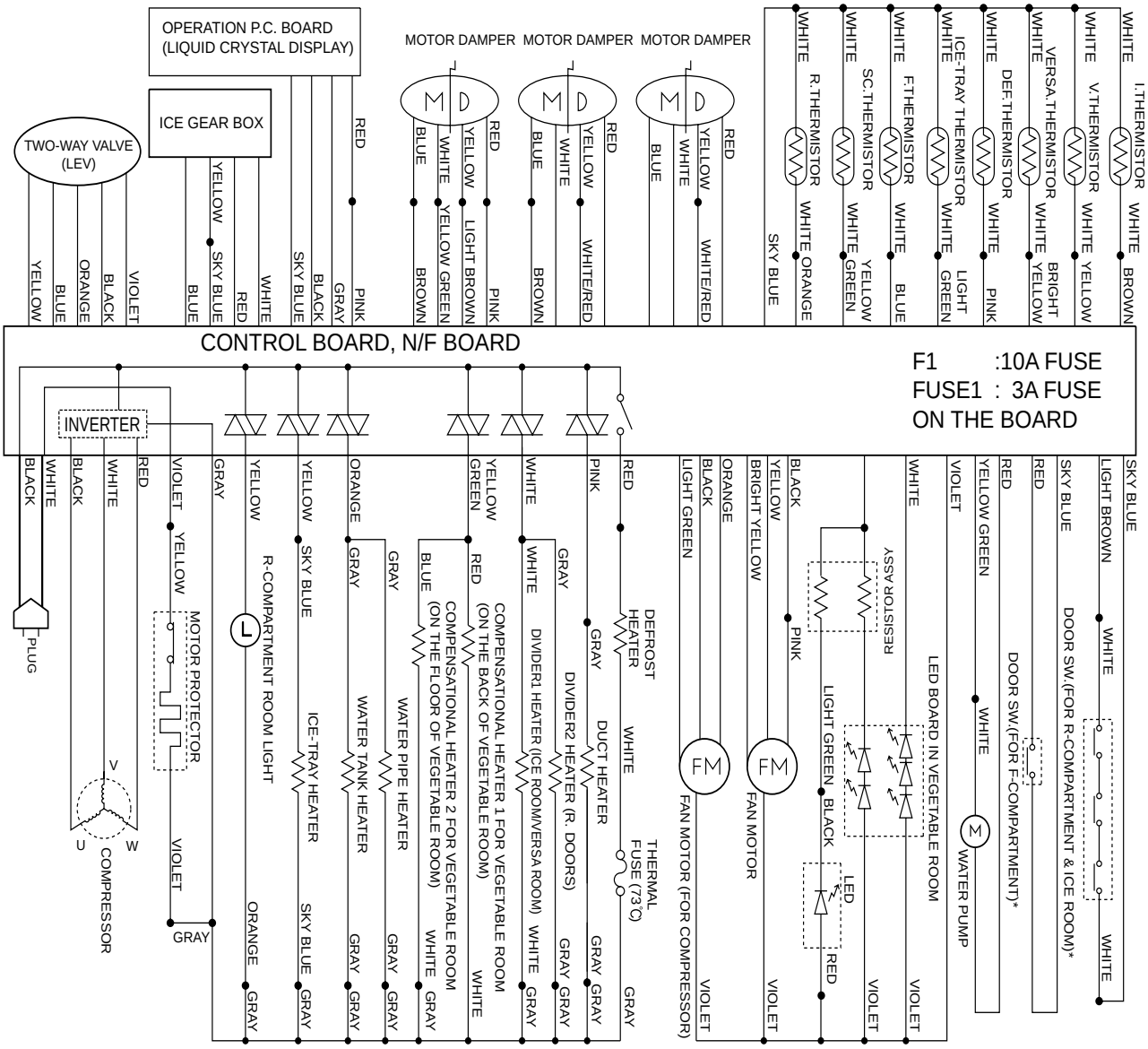
Compressor		Model		EFI100E 13DAH
		Power supply		110V,60Hz
		Rated input	W	45/159 (1620/4800rpm)
		Starting current	A	2.0 (Current limiter)
		Running current	A	0.63/2.19 (1620/4800rpm)
		Winding resistance (A.T.20℃)		9.27Ω
Motor protector		Model		MM3-71CCV
		Ambient temperature	℃	25
		Time	Sec.	16 or less
		Current	A	17.0
Two-way valve		Model		NSCE000DA1
		Type		4-phase stepping motor drive voltage DC12V
Defrosting control	Defrosting timer	Model		Control board
		Specification		Microcomputer
	Freezer compartment	Defrost finish	℃	Thermistor 14±1.5
		Thermal fuse	℃	70±2
		Defrost heater		80.7Ω (110V,150W)
		Deodorizing function of defrost heater		Not equipped
Fan motor	Refrigerator	Model		UDQM002B3
		Type		DC brushless motor
		Input	W	2.4 (12V DC)
		Revolution	rpm	1520 (12V DC)
		Number of poles		10P
	Machine Chamber	Model		UDQM004B3
		Type		DC brushless motor
		Input	W	1 (12V DC)
		Revolution	rpm	1200 (12V DC)
		Number of poles		10P
Heater (Rating)		Water pipe heater		110V-5.7W
		Rotational heater board		110V-8.0W
		Divider heater (I/S)		110V-3.1W
		Vegetable compartment heater 1		110V-6.0W
		Vegetable compartment heater 2		110V-3.1W
		Ice making tray heater		110V-10.0W
		Tank heater		110V-3.1W
		Duct heater		110V-3.1W
Ice maker temperature			℃	-11.6

Temperature control	Model		NTC thermistor											
			Freezer		Refrigerator		Versa		Slide chilled		Ice making		Vegetable	
			Compressor		Motor damper								Heater	
	Dial position		ON	OFF	OPEN	SHUT	OPEN	SHUT	OPEN	SHUT	OPEN	SHUT	ON	OFF
	HI	℃	-20.3	-24.1	-0.6	-1.8	–	–	–	–	–	–	2.3	3.5
	MID	℃	-17.6	-21.4	1.6	0.4	–	–	–	–	–	–	3.2	4.5
	LOW	℃	-14.9	-18.7	4.8	3.5	–	–	–	–	–	–	4.2	5.4
	REFRIGERATOR	℃	–	–	–	–	4.4	2.4	–	–	1.2	-0.1	–	–
	CHILLED	℃	–	–	–	–	1.8	-0.1	-1.0	-2.3	–	–	–	–
	LOW (Soft freezing)	℃	–	–	–	–	-2.3	-4.0	–	–	–	–	–	–
	MID (Soft freezing)	℃	–	–	–	–	-4.0	-5.9	–	–	–	–	–	–
	HI (Soft freezing)	℃	–	–	–	–	-5.9	-7.7	–	–	–	–	–	–
	FREEZER	℃	–	–	–	–	-17.1	-20.4	–	–	–	–	–	–
	ICE MAKING	℃	–	–	–	–	–	–	–	–	-20.2	-23.1	–	–
	ICE MAKING STOP	℃	–	–	–	–	–	–	–	–	-20.2	-23.1	–	–
	CRYSTAL ICE MAKING	℃	–	–	–	–	–	–	–	–	-20.2	-23.1	–	–

3 WIRING DIAGRAM

MR-G50M-C

(SKELETON WIRING DIAGRAM)

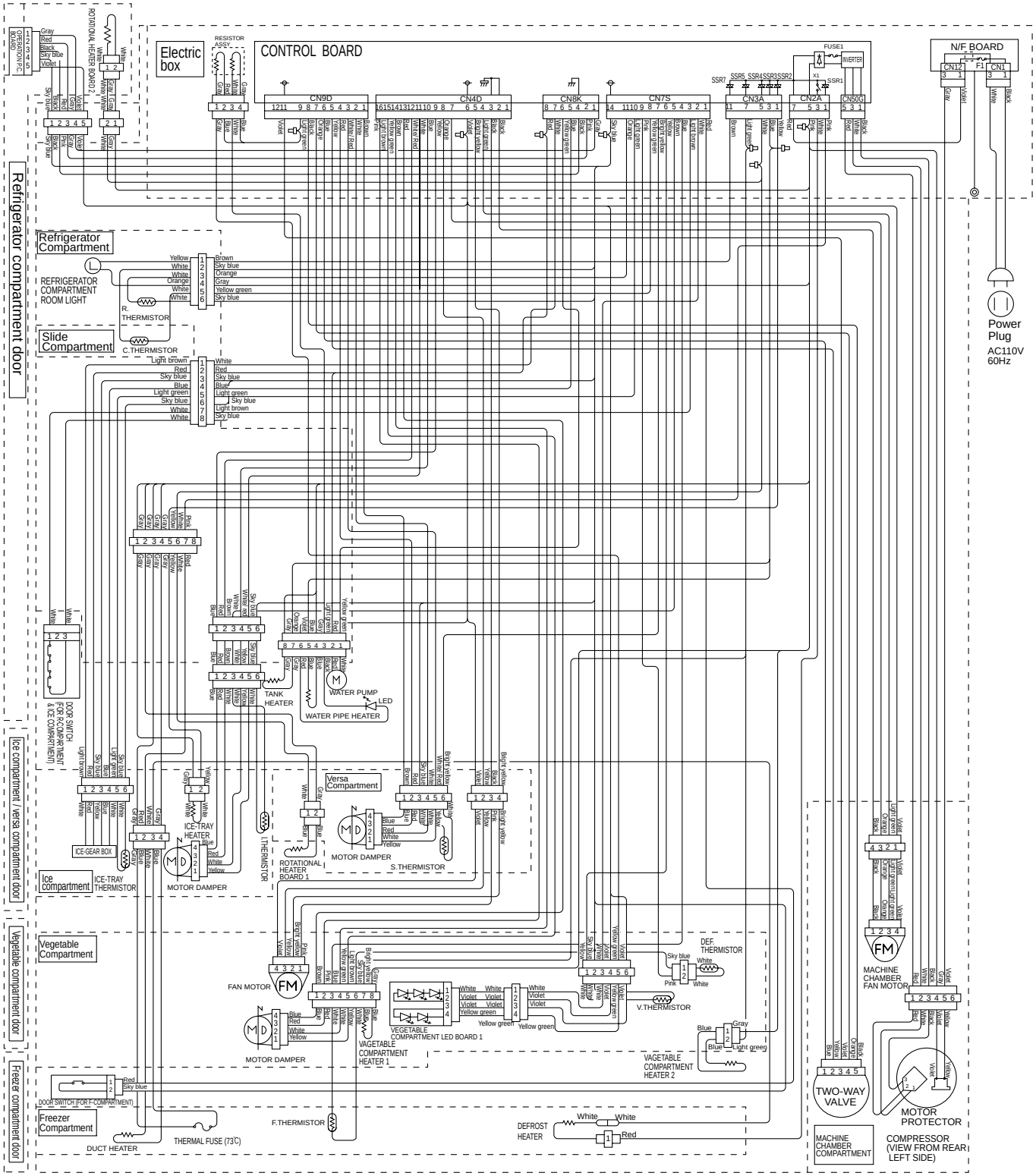


✻ WHEN THE DOORS ARE CLOSED.

I.THERMISTOR (Ice making compartment thermistor)
V.THERMISTOR (Vegetable compartment thermistor)
VERSA.THERMISTOR (Versa compartment thermistor)
DEF.THERMISTOR (Defrost thermistor)
ICE-TRAY THERMISTOR (Ice making tray thermistor)
F.THERMISTOR (Freezer compartment thermistor)
C.THERMISTOR (Slide chilled compartment thermistor)
R.THERMISTOR (Refrigerator compartment thermistor)

MR-G50M-C

(ACTUAL WIRING DIAGRAM)



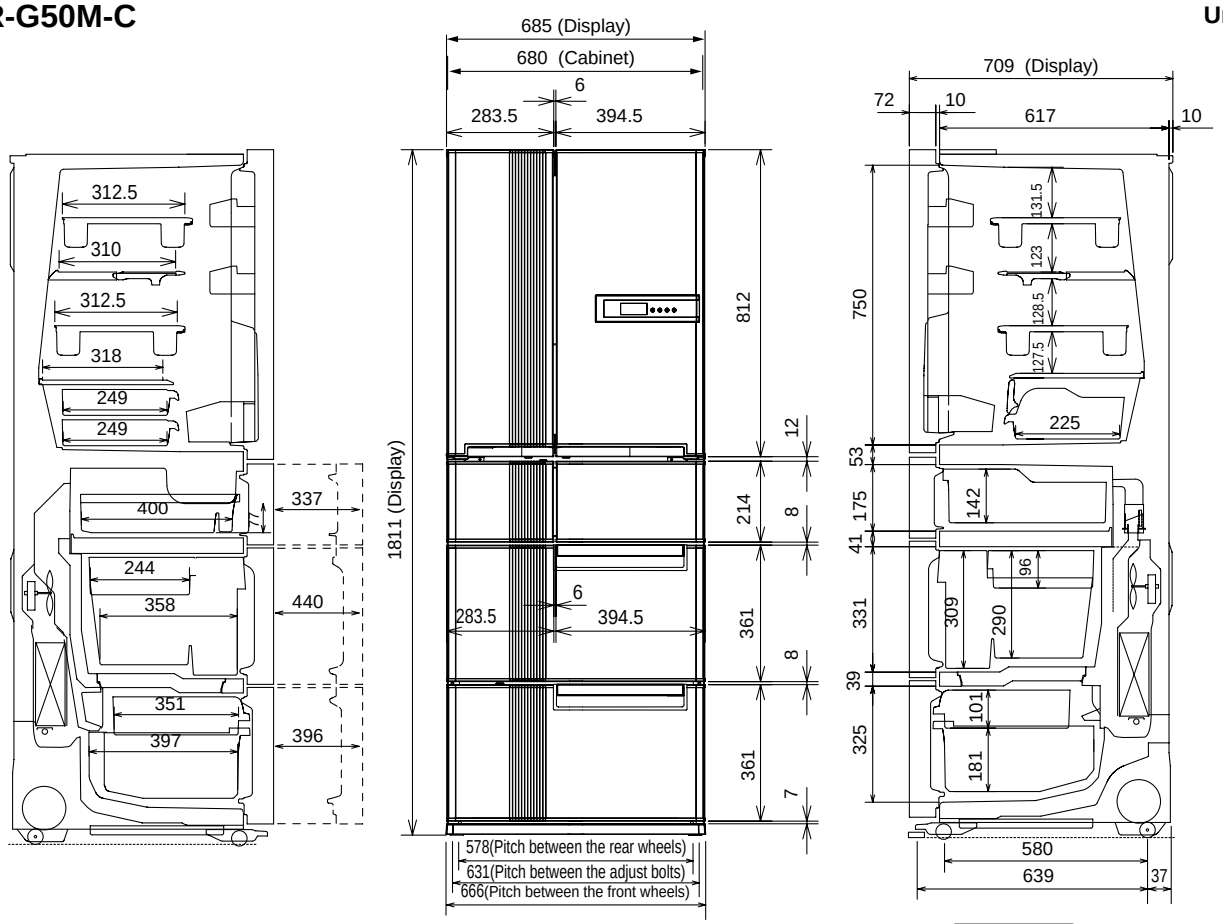
I.THERMISTOR (Ice making compartment thermistor)
V.THERMISTOR (Vegetable compartment thermistor)
S.THERMISTOR (Versa compartment thermistor)
DEF.THERMISTOR (Defrost thermistor)
ICE-TRAY THERMISTOR (Ice making tray thermistor)
F.THERMISTOR (Freezer compartment thermistor)
C.THERMISTOR (Slide chilled compartment thermistor)
R.THERMISTOR (Refrigerator compartment thermistor)

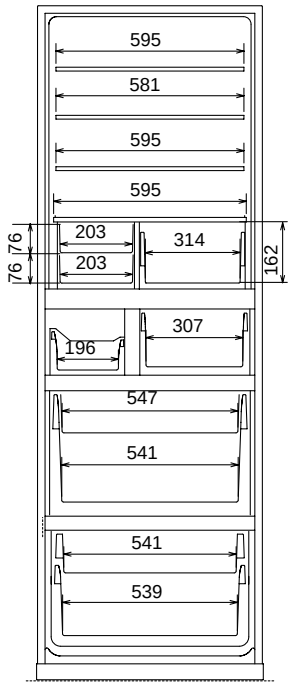
(When the doors are closed.)

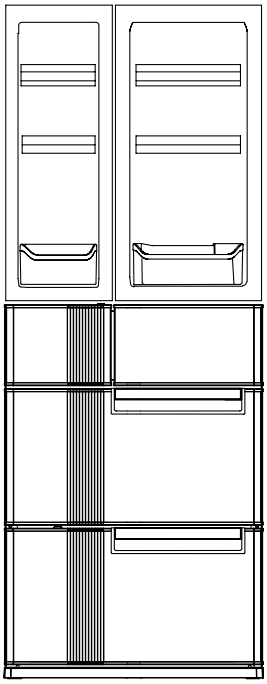
4 OUTLINES AND DIMENSIONS

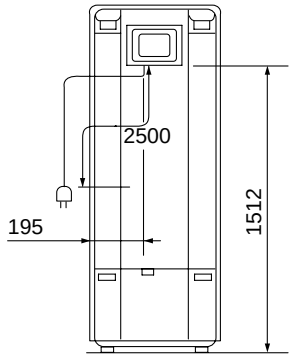
MR-G50M-C

Unit : mm

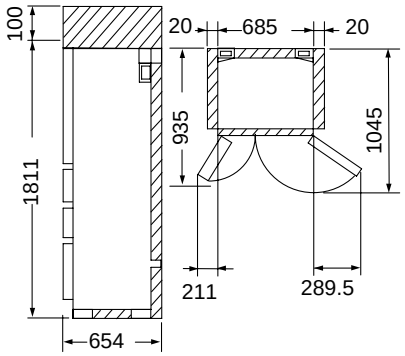








REQUIRED SPACE FOR INSTALLATION



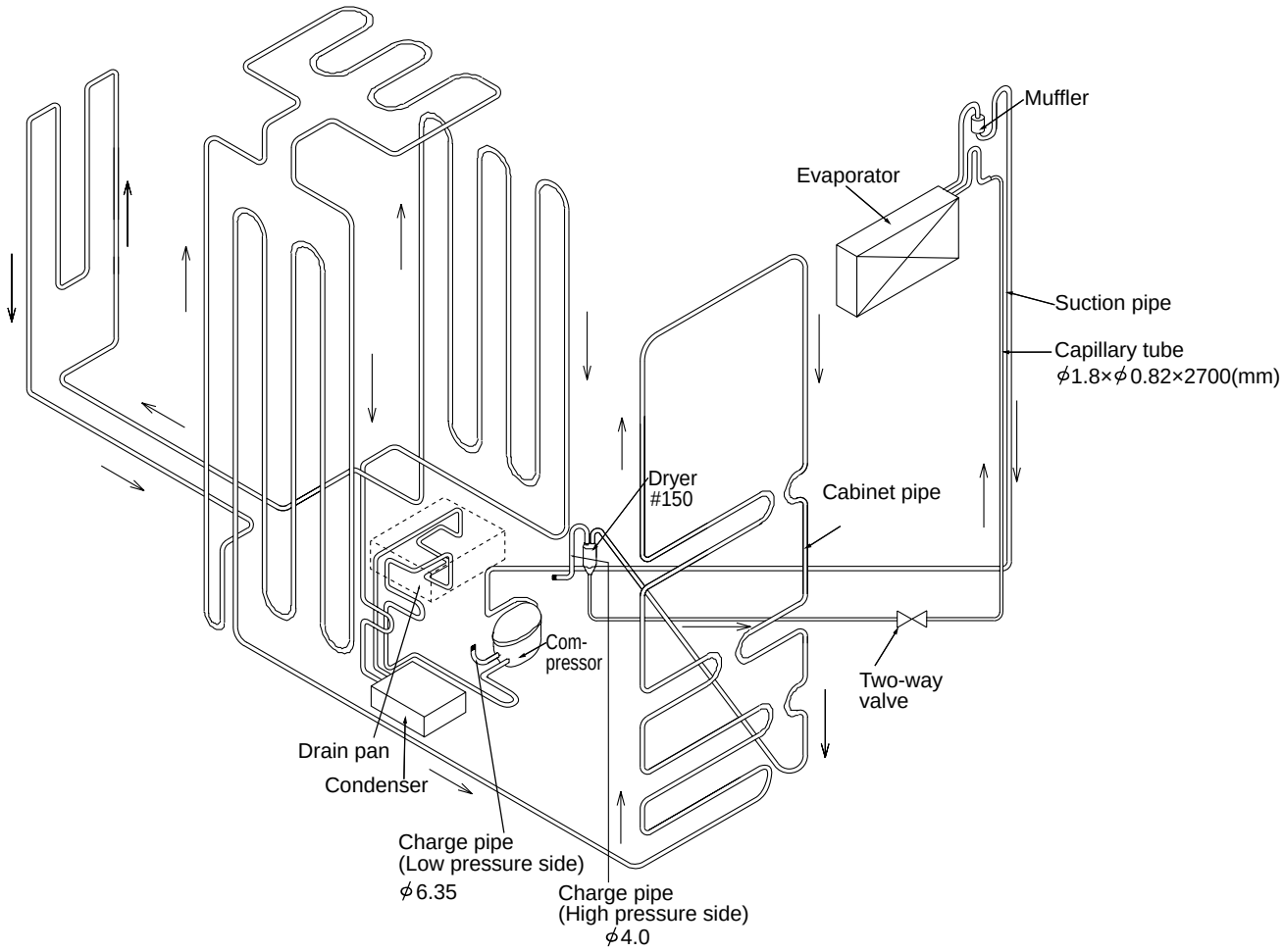
DOOR DIMENSION

	L(R)	R(R)	I	S	V	F
Hight	812	812	214	214	361	361
Width	283.5	349.5	283.5	394.5	684	684

R(L) : Refrigerator compartment (Left)
R(R) : Refrigerator compartment (Right)
I : Ice making compartment
S : Select compartment [Versa compartment]
V : Vegetable compartment
F : Freezer compartment

5 REFRIGERANT CIRCUIT

MR-G50M-C

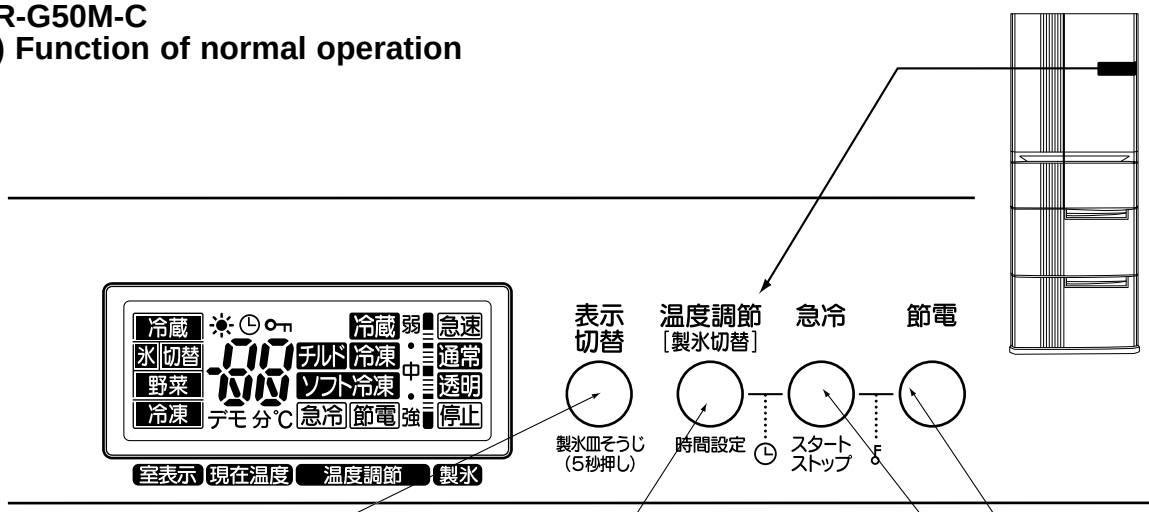


6 TROUBLESHOOTING

6-1 FUNCTION OF OPERATION PANEL

MR-G50M-C

(1) Function of normal operation



MODE switch

The switch functions to select the required compartment.

Press 表示切替 switch and display the required compartment to apply the function of temperature adjustment or quick mode.

SELECTION switch

The switch functions to set the operation mode or temperature of compartments individually.

When setting the operation mode of refrigerator, vegetable, and freezer compartment to "Middle" at the same time.

Press 急冷 switch for about 3 seconds until a "beep" sound is heard.

QUICK MODE switch

Each compartment can be cooled rapidly.

Quick mode is finished automatically.

It automatically finishes about 2 hours later.

When stopping quick mode halfway

Press 急冷 switch again.

When stopping quick mode of all compartments at once

Press 急冷 ※ switch for about 3 seconds against one of the compartments which is in QUICK MODE.

※ To reset the unit to the initial setting, press 急冷 for 3 seconds. The setting of the refrigerator compartment, vegetable compartment, and the freezer compartment will be set to "Middle", and fast cooling operation, energy-saving operation, and cooking timer setting for all compartments will be canceled.

ECO MODE switch

Each compartment can be operated with energy saved.

Convenient function

1 **Cooking timer**

Press 温度調節 [製氷切替] switch and 急冷 switch for 1 second at the same time. (◷ is displayed.)

(Cooking timer can be released in the same way.)

Cooking timer mode is set and "0" blinks.

Set the time with 温度調節 [製氷切替] switch. ? Press 急冷 to start ? Alarm sound will annonce the completion of cooking period.

(1~99 minutes)

(To stop the timer halfway through the operation, press 急冷 again).

2 **Child lock**

Press 急冷 switch and 節電 switch for 3 seconds at the same time. (🔒 is displayed.)

(Child lock can be released in the same way.)

3 **Ice making stop**

Press 表示切替 to select "ice making compartment".

? Select 製氷停止 with 温度調節 [製氷切替] switch.

4 **ON / OFF of LED for bacteria removal from water tank**

表示切替 to select "vegetable compartment".

Press 温度調節 [製氷切替] switch and 節電 switch for 3 seconds at the same time. (☀ is displayed.)

To use "ice making compartment" as "refrigerator compartment"

①Press 表示切替 to select "ice making compartment."

②Press 温度調節 [製氷切替] for about 3 seconds and let 冷蔵 flash.

③After ice-making compartment is set to function as refrigerator, take ice or water out of the ice tray which are automatically dropped into ice storage bin. When ice-making function will not be used for a while, wash the water tank well with water and place it back after drying thoroughly.

④To get back to "ice making", just change the temperature setting.

Operating mode and Temperature range

Compartment	Mode	Temp range
Refrigerator compartment	Middle	Approx. 0 to 6℃
Versa compartment	Refrigerator	Approx. 0 to 6℃
	Chilled	Approx. -2 to 2℃
	Soft freezing (Middle)	Approx. -9 to -5℃
	Freezer	Approx. -18 to -16℃
Ice making compartment	Refrigerator	Approx. 0 to 6℃
	Ice making	Approx. -21 to -17℃
	Ice making stop	Approx. -21 to -17℃
Vegetable compartment	Middle	Approx. 3 to 9℃
Freezer compartment	Middle	Approx. -21 to -17℃

※ The temp. range left is based on the data measured at the center of each compartment with the door closed and with no food inside under the condition of ambient temperature 30℃. The range varies depending on circumstances.

(2) Demonstration mode for shop display

Demonstration mode is not available when the temperature of freezer compartment is -7℃ or less even if 温度調節 [製氷切替], 急冷 and 節電 are simultaneously pressed for about 5 seconds and a “beep” sound is heard. Cooling operation starts instead.

① **Setting**

● Within 1 minute after power supply is turned on, simultaneously press 温度調節 [製氷切替], 急冷, and 節電 switch for about 5 seconds with the door of ice making compartment left open. When the setting is complete, a “beep” sound is heard and “デモ” is displayed.

② **Panel operation mode during demonstration mode**

The panel operation mode changes to “manual” if any of the switches is pressed and it changes to “auto” if none of the switches is pressed within 3 minutes after demonstration mode is set.

Manual mode: Panel indication changes according to switch operation.

Auto mode: Panel indication is automatically changed.

③ **Release**

● Simultaneously press 温度調節 [製氷切替], 急冷 and 節電 switch for about 5 seconds with the door of ice making compartment left open. When the function is released, a “beep” sound is heard. “デモ” disappears and the panel indication gets back to normal.

Note: Follow the procedure above to release demonstration mode as it cannot be released by simply turning on/off the power supply.

(3) Fine adjustment of temperature

Fine adjustment of temperature is available for refrigerator compartment, freezer compartment and versa compartment.

As for versa compartment, however, it is only available when the compartment is set to 冷蔵 or 冷凍 .

① **Setting**

● Press 表示切替 switch to select refrigerator compartment, freezer compartment or versa compartment.

● Simultaneously press 温度調節 [製氷切替] and 節電 for about 3 seconds until a “beep” sound is heard.

● The indication changes as show in the right.

② **Fine adjustments of temperature**

Temperature adjustment is made by approximately 0.3-0.5℃ by pressing 温度調節 [製氷切替] and it is indicated with 15-steps bars on the panel. The temperature displayed on the panel, however, changes by 1℃ and might not change according to fine adjustment.

Example of display:

In case of versa compartment

● Press 温度調節 [製氷切替] to make versa compartment function as refrigerator or freezer .

When the blinking marks on the display, 冷蔵 or 冷凍, are lit in 3 seconds, apply fine adjustment of temperature.

③ **Release**

Follow the same procedure as setting and the finely-adjusted temperatures are reset for refrigerator compartment, freezer compartment and versa compartment at once.

(4) Ice making test / Self-check

This function is not available during the following modes: Child lock, Demonstration, Cooking timer, Changing the rotational speed of compressor, and Error code display.

① **Setting**

● Press 表示切替 for about 5 seconds.

② **Operation and its display**

● While automatic ice making is testing, the indication of ice making compartment setting blinks on LCD.

● When something is faulty, the error code is indicated.

③ **Release**

The test automatically finishes in 10 minutes and the error code changes to temperature display.

(5) Thermistor temperature check mode

① **Setting**

● With the door of ice making compartment left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a “beep” sound is heard and “*88*” blinks.

● Press 節電 with the door left open.

② **Display**

After the setting is complete, the kinds of thermistor and its temperature are alternately shown on the panel. In case of abnormality, the display returns to current temperature**.** Please note that the temperature detected by thermistor may be a little different from the real one due to the influence of refrigerator temperature.

Kind of thermistor	Defrosting	Refrigerator compartment	Slide chilled compartment	Ice making compartment	Versa compartment	Ice making tray	Vegetable compartment	Freezer compartment	Outside air
Display	(d)	(R)	(C)	(K)	(S)	(I)	(V)	(F)	(O)

③ **Change of display**

● While thermistor temperature check mode is set, press 温度調節 [製氷切替]. A short beep sound is heard at each press and the thermistor is changed in the order below.

(Ex.) When defrost thermistor reads -28℃.

Defrosting → Refrigerator compartment → Slide chilled compartment → Ice making compartment → Versa compartment → Ice making tray → Vegetable compartment → Freezer compartment → Outside air

※ The defrosting thermistor is always selected first at the beginning of the setting.

④ **Release**

● With the door of ice making compartment left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a beep sound is heard. The temperature of thermistor disappears and the display gets back to current temperature.

●The function is automatically released one-hour later.

●Follow the procedure above to release this mode. For the protection of the compressor, avoid releasing it by plugging and unplugging the power cord.

(6) Change mode of compressor rotational speed

Operation sound can be checked by changing the rotational speed of compressor. Always conduct a check while the compressor is operating and the "-" mark is not on the display, which shows the compressor stops. If the "-" mark is on the display, unplug the power cord and then plug it in a few seconds to operate the compressor. Also, this function is not available during the following modes: Child lock, Demonstration, Cooking timer, Thermistor temperature check and error code display.

① **Setting**

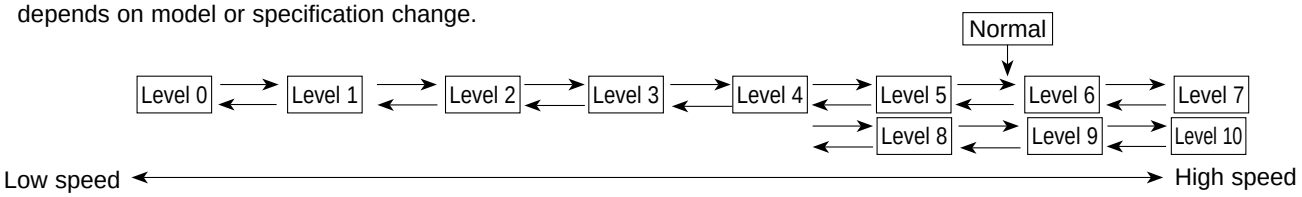
●With the door of ice making compartment left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a "beep" sound is heard, and "88" blinks.

●Press 急冷 with the door left open.

(Ex.) When the rotational speed is 56 rps

② **Changing the rotational speed**

●After the setting is complete, press 温度調節 [製氷切替] and the rotational speed of compressor alternately changes in 10 steps. The rotational speed (rps) is shown on the panel. Basically the compressor starts operating at level 10, however, it depends on model or specification change.



※ Note: Operation sound may get increased in the process of changing the speed, but that does not mean any problem. Check the operation sound when the rotation is stabilized.

③ **ON and OFF of machine chamber fan motor**

Under this function, fan motor in machine chamber can be switched on and off at each press of 表示切替 switch. The on/off state is shown with ㊡ mark on the panel.

Machine chamber fan motor	Display of ㊡
ON	Displayed ㊡
OFF	Not displayed

④ **Release**

●With the door of ice making compartment left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a "beep" sound is heard. The screen returns to the temperature display.

●The function is automatically released one-hour later.

●Follow the procedure above to release this function. For the protection of the compressor, avoid releasing it by plugging and unplugging the power cord.

(7) Damper Operation Mode

During damper operation mode, the damper is forcibly opened and closed and the state of damper is shown on the panel.

① **Setting**

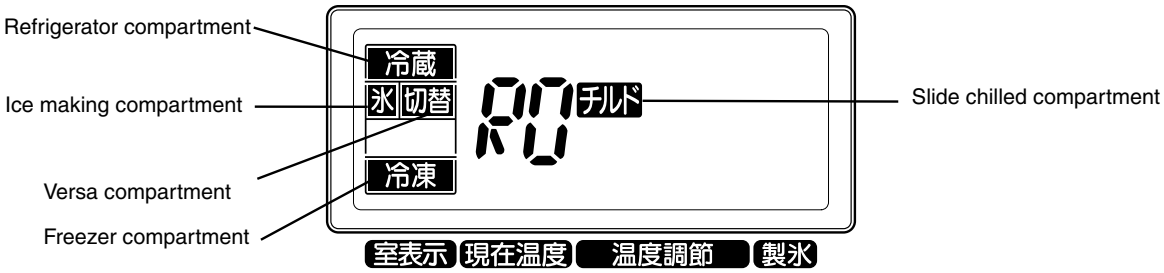
● With the ice making compartment door left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a “beep” sound is heard, and “88” blinks.

● With the door left open, simultaneously press 表示切替 and 温度調節 [製氷切替] for about 3 seconds until a “beep” sound is heard.

② **Status display of each damper**

Each compartment display turns on when each damper is open and turns off when each damper is closed.

Ex.) When all dampers are open;



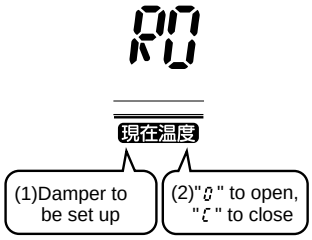
③ **How to make each damper open or close**

Although the state is shown on the panel, check airflow and confirm the damper is really opened or closed. However, air does not come out when the door is closed, so put a magnet on the door switch to simulate the condition of the door closed.

●Change of display

Kind of damper	Refrigerator compartment	Slide chilled compartment	Ice making compartment	Versa compartment	Freezer compartment
Display	R	C	I	S	F
	(R)	(C)	(I)	(S)	(F)

(Ex.) When making the damper of refrigerator compartment open



(1) Press 温度調節 [製氷切替] to select the damper to be set up.
A “beep” sound is heard and the kind of damper is changed every time 温度調節 [製氷切替] is pressed.

→ Refrigerator compartment ⟶ Slide chilled compartment ⟶ Ice making compartment ⟶
Versa compartment ⟶ Freezer compartment ┐

(2) Press 急冷 to “0” to open the damper or “C” to close the damper.

(3) Press 節電 for about 3 seconds to convey the setting to the damper.
A "beep" sound is heard if the setting has been conveyed.
After the setting is conveyed, the damper starts operating and the display blinks. It stops blinking and starts to light when the operation stops automatically. Please note that the setting cannot be changed when the damper is operating.

Slide chilled compartment damper is not mounted on this refrigerator. Although slide chilled compartment is displayed and can be set, the setting is invalid.

④ **Release**

● With the door of ice making compartment left open, simultaneously press 表示切替 and 急冷 for about 3 seconds until a “beep” sound is heard. The screen returns to the temperature display.

● This function is not automatically released.

● Follow the procedure above to release this function. For the protection of the compressor, avoid releasing it by plugging and unplugging the power cord.

(8) Error history display mode

Error history can be observed in the error history display mode.
Use this mode when the actual problem of the refrigerator is different from the error which was displayed at the service-call received.

① **Setting**

● Open the door of the ice making compartment, and press 表示切替 and 急冷 together for 3 seconds until a “beep” is heard and “88” blinks.

● With the door left open, press 急冷 and 節電 together for 3 seconds until a “beep” is heard.

② **Display details**

● Same as the error display and trouble locating. (Refer to 6.2(3))
● When there is no recorded error, “ — ” will be displayed.
● When several errors have occurred, error will be displayed in the increasing numerical order, as in the error display and trouble locating.
(Ex.) In case errors in the ice tray thermistor (E10), refrigerator thermistor (E13) and refrigerator fan motor (E31) have occurred:
E → 10 → 13 → 31 → E → 10 → 13 → 31 .....

(Ex.) When there is problem with the ice maker gear box.

③ **Check points and resetting the error history**

● Follow the procedures for self-check, and take the appropriate measures.
● After the self-check is completed and measures are taken, perform self-check to confirm there is no dysfunction.
(Make sure all connectors are connected properly and there are no loose connections.)
● Refer to above ① Setting, and activate error history display mode again.
Open the ice making compartment door, and press 節電 for 3 seconds to reset error history.
When error history is reset, "-" is displayed.

④ **Release**

● Open the door of the ice making compartment, and press 表示切替 and 急冷 together for 3 seconds until a “beep” is heard.
The display will return to the normal temperature display.
● Function is automatically released in an hour.
● Follow the procedure above to release this function. For the protection of the compressor, avoid releasing it by plugging and unplugging the power cord.

Door Buzzer System :

Door buzzer has been installed so that one will not forget to close the door.
•The buzzer rings in the following conditions:
1. When door is left open.
2. When refrigerator fan motor or machine chamber fan motor is abnormal.
3. When there is possibility that the door of freezer compartment is not closed securely.

		Buzzer
1. When door is left open	Every 1 minute, for 4 minutes	"Beep beep" 4 times
	After 5 minutes	""Beep beep" continuously
2. Refrigerator fan motor or machine chamber fan motor is abnormal		"Beep beep" 2 times
3. When there is possibility that the door of freezer compartment is not closed securely		"Beep beep" 3 times

1. The buzzer rings to inform the open door when the door of ice making compartment, refrigerator compartment, or freezer compartment is left open for more than one minute.
•The buzzer rings every minute. After 5 minutes, the buzzer rings continuously.
•The buzzer will stop ringing as soon as the door is closed.
•When the buzzer does not stop even if all the doors are closed, door switch may be abnormal.
•The buzzer can be stopped by the following operations.
① Perform the ice making test operation.
(Note: If the test is conducted with water in the ice tray, water may fall into the ice storage bin because the tray is rolled over in the ice making operation.)
2. Buzzer sounds when a trouble is found in refrigerator fan motor or in machine chamber fan motor. The buzzer sounds every time the door is closed until normal operation is obtained.
(Check the error code by following the steps in Specification of display in self-check result on page 14.)
3. Buzzer sounds when there is possibility that the door of freezer compartment is not closed securely. The assumption is made in either of the following conditions.
① When the door of freezer compartment is closed, and the temperature inside did not lower after a predetermined time.
② The temperature of freezer compartment is abnormally high, and the temperature of evaporator is abnormally low continuously for a long time.

Room light :

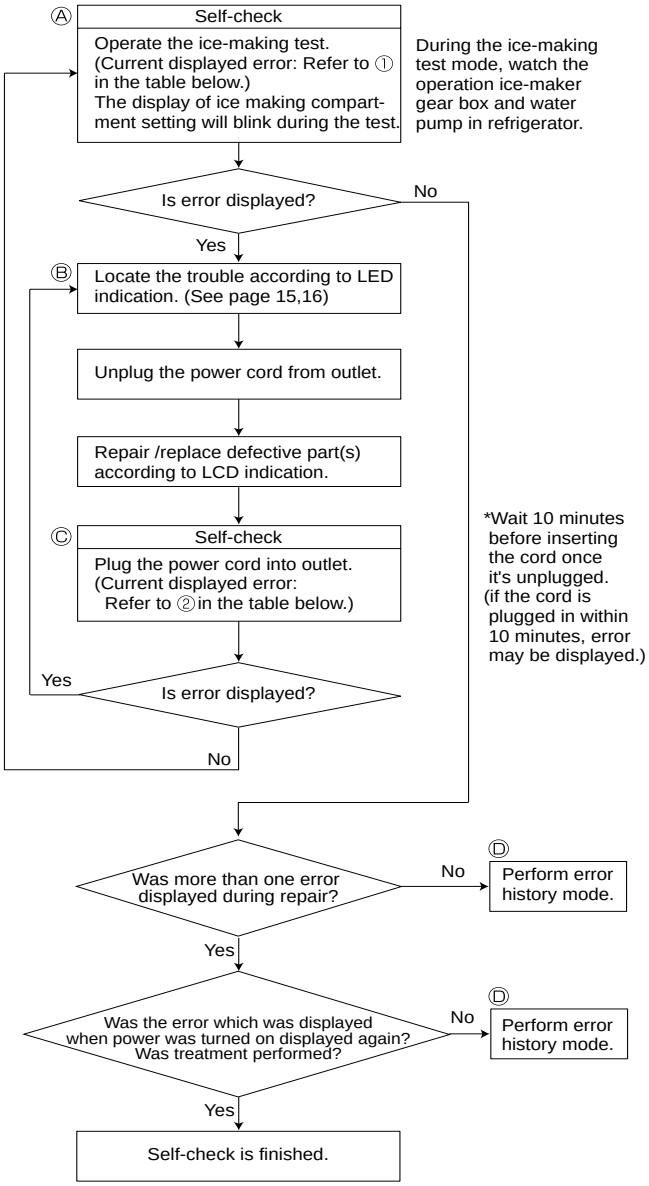
• Room light inside the refrigerator compartment lights when the door of refrigerator compartment or ice making compartment is open.
• When room light is lighted continuously for more than 60 minutes, it is turned off to prevent heating.
• The protection is released when doors of refrigerator compartment and ice making compartment are closed. Then, room light is lighted the next time at normal timing.

6-2 FLOWCHART OF SELF-CHECK

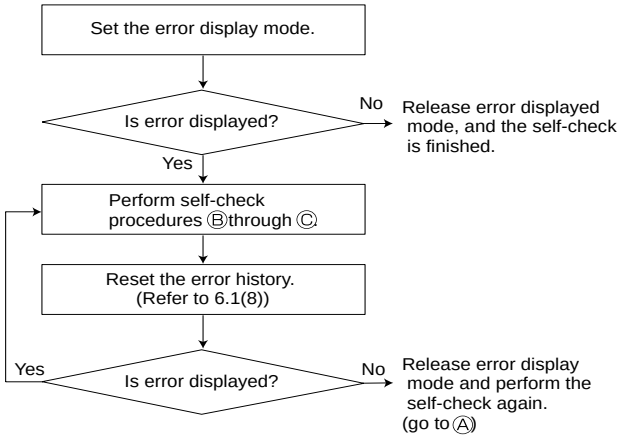
MR-G50M-C

(1) Troubleshooting with self-check

This refrigerator has self-check feature to clarify and indicate where & what the trouble is.
You can perform operation checks and identify malfunction of electric or electronic parts.
Error history is recorded and can be displayed by the refrigerator.



Ⓓ Error history mode (Refer to 6.1(8))
Problem may recover automatically.
Perform the following if error is not displayed before treatment or the error which was displayed at the time power of the unit was turned on is not displayed.



Note1: Self-check cannot detect abnormalities in the following parts.
See page 19-31 for troubleshooting.
Door switch
Motor damper
Heater (Water pipe / Vegetable compartment heater, etc.)
Water pump motor

Note2: If any abnormality is found when switch is turned on, compressor and fan motor are suspended for 10 minutes.

Note3: The alarm beeps when some abnormalities (motor-locked) have occurred at the refrigerator fan motor restarts its normal operation.

Note4: If any abnormality occurs in compressor's inverter circuit, the compressor and the refrigerator fan motor stop for 10 minutes (not only when plugging the power cord).

● Self-check and error display method and operation

	Item	Operation method	Display or self-check operation	Display time	Others
Self-check (current displayed error)	①Ice making test operation. All items except (*6) listed up on the table at page 16 will be checked.	Press the 表示切替 switch. for 5 seconds. ("beep" is heard)	1.Conduct the automatic ice making test. (The display of ice making compartment setting is blinked) 2.When trouble is found, all error codes except E50-E55 are displayed. 3.When error is not found, nothing is displayed.	For 10 minutes after setting.	Self-check is not available during child lock, cooking timer, changing the rotational speed of compressor, checking the temperature of thermistor, damper operation and demonstration modes.
	②Power input. All items except (*6) listed up on the table at page 16 will be checked.	Plug the power cord into outlet.	1.When trouble is found, all trouble except E50-E55 and displayed. 2.When error is not found, nothing is displayed.	For 10 minutes after power is supplied.	Self-check is not available during demonstration mode.
Display error history.	③Error history	Refer to 6.2(3) Error history display mode.	1.When trouble is found, all trouble except E50-E55 and displayed. 2.When error is not found, nothing is displayed.	For one hour after setting, or until mode is released.	Self-check is not available during child lock, cooking timer, changing the rotational speed of compressor, checking the temperature of thermistor, damper operation and demonstration modes.

● **Release of self-check display mode**

Self-check finishes automatically. Error cord display is automatically released 10 minutes later.

(2) Timing in self-check

Trouble of Defrost heater : Self-check is conducted after defrosting.
(Make sure to confirm the display before unplugging the power cord because it is automatically reset once the power cord is pulled out.)

Trouble of Ice maker : Press the 表示切替 switch on the panel for 5 seconds. (Ice making test mode.)
The setting of ice making compartment blinks on LCD during the test operation.

Trouble of Fan motor : Open the door and then closed it.
When abnormality is found in fan motor, buzzer sound is heard every time the door is closed.

Trouble of Inverter : Check the error when compressor starts up or is operating.

Trouble of Thermistor : Self-check is continuously working

(3) Error display and trouble locating

1. Display details

After conducting the self-check by referring to 6-2(1), error codes are displayed in the temperature display section. "E" and two digit error code flashes alternately as shown in the right figure.

When several errors occur, they are displayed alternately. However, the error whose code has a smaller number has priority to be displayed first.

(Ex.) In case the errors of ice tray thermistor (E10), refrigerator thermistor (E13) and refrigerator fan motor (E31) are happening simultaneously;
E → 10 → 13 → 31 → E → 10 → 13 → 31 .....

✻ For 2 minutes in self-check, a high-tone sound is heard due to the operation check of damper.

(Ex.) When ice maker gear box is defective.

2. Check point and treatment

Display		Error code		Trouble	Detecting method (*3)	Check point	Treatment	Control
Self-check	Testing	(*1)		Ice maker is under testing				
	LCD	E	01	(*5) Communication error of operation panel	When the following communication errors occur between control board and operation P.C. board: •They transmit and receive data that has nothing to do with settings. •They cannot transmit and receive data each other for about 2 seconds.	1. Connector CN8K, CN7S, CN4D on control board 4-pin relay connector (hinge) 4-pin connector on operation P.C. board	Repair the contact failure.	Keep the same operation as the one before the communication error has occurred.
						2. Trouble of control board and operation P.C. board	Replace	
		E	02	Communication error of inverter	When abnormality is found in the communication between refrigerator control circuit and inverter control circuit in control board. (When they do not transmit and receive data for 10 seconds.)		Replace the control board.	Compressor OFF.
		E	03	Trouble of model judgement	When the model of control board is different from the one of operation P.C. board.	1. Check the model name of control board	Replace	Keep operating the unit, and conduct error code indication only.
						2. Check the operation P.C. board.	Replace	
		E	10	Trouble of ice making tray thermistor	When there is a short or open circuit in the ice making tray thermistor.	1. Connector CN7S on control board, Ice gear box 6-pin relay connector, 8-pin relay connector	Repair the contact failure.	When the compartment door has been closed for 3 hours and when freezer compartment thermistor is -10℃ or less, ice-detecting operation starts.
						2. Check the resistance of thermistor.	Replace	
		E	11	Trouble of freezer compartment thermistor	When there is a short or open circuit in the freezer compartment thermistor.	1. Connector CN7S on control board, 6-pin relay connector	Repair the contact failure.	After 10 minutes off, the compressor repeats 30-minute ON and 20-minute OFF.
						2. Check the resistance of thermistor.	Replace	
		E	12	Trouble of defrost thermistor	When there is a short or open circuit in the defrost thermistor.	1. Connector CN7S on control board, 2-pin relay connector	Repair the contact failure.	The defrost heater won't be turned ON.
						2. Check the resistance of thermistor.	Replace	
		E	13	Trouble of refrigerator thermistor	When there is a short or open circuit in the refrigerator compartment thermistor.	1. Connector CN7S on control board, 6-pin relay connector	Repair the contact failure.	Synchronize the open/close status of R damper with that of C damper. (See page 13.)
						2. Check the resistance of thermistor.	Replace	
		E	14	Trouble of chilled compartment thermistor	When there is a short or open circuit in the chilled compartment thermistor.	1. Connector CN7S, on control board, 6-pin relay connector	Repair the contact failure.	Synchronize the open/close status of C damper with that of R damper. (See page 13.)
						2. Check the resistance of thermistor.	Replace	
		E	15	Trouble of versa compartment thermistor	When there is a short or open circuit in the versa compartment thermistor.	1. Connector CN7S on control board, 6-pin relay connector	Repair the contact failure.	•When S-compartment is used as "freezer": S-damper is open when compressor is turned on, S-damper is closed when compressor is turned off. •When S-compartment is used other than "freezer": S-damper remains open for the first 3 minutes and then closed for the rest of time. S-compartment: Versa (select) compartment.
						2. Check the resistance of thermistor.	Replace	
		E	16	Trouble of vegetable compartment thermistor	When there is a short or open circuit in the vegetable compartment thermistor .	1. Connector CN7S on control board, 4-pin relay connector	Repair the contact failure.	•When R-damper is open, V-heater is turned on. •When R-damper is closed, V-heater is turned off.
						2. Check the resistance of thermistor.	Replace	

Display		Error code		Trouble	Detecting method (*3)	Check point	Treatment	Control
Self-check	LCD	E	17	Trouble of ice making compartment thermistor	When there is a short or open circuit in the ice making compartment thermistor.	1. Connector CN7S on control board, 6-pin, 9-pin relay connector	Repair the contact failure.	•When ice making compartment is used as "refrigerator", synchronize I-damper with R-damper. •When ice making compartment is used as "ice making", synchronize I-damper with F-damper.
						2. Check the resistance of thermistor.	Replace	
		E	18	Trouble of outside air thermistor	When there is a short or open circuit in the outside air thermistor.		Replace the operation P.C. board.	Compressor is activated at "Speed-level 2."
		E	30	Trouble of defrost heater (*6)	When defrosting is not finished in 2 hours.	1. Connector CN2A on control board Defrost heater plug and receptacle, 1-pin relay connector Thermal fuse 4-pin, 8-pin relay connector	Repair the contact failure.	The defrost heater is stopped and if the next defrosting finishes in 2 hours, the error code will disappear .
						2. Check the resistance of defrost heater.	Replace	
						3. Check the continuity of thermal fuse.	Replace	
		E	31	Trouble of refrigerator fan motor	•When motor doesn't rotate even though power is on. •When the waveform, which indicates the rotation times of motor, cannot be detected.	1. Connector CN4D on control board, Refrigerator fan motor 4-pin relay connector	Repair the contact failure.	•3 minutes later, the refrigerator fan motor is reactivated to be checked. •Until the fan motor gets to operate correctly, the buzzer sounds every time the door is closed.
						2. Check refrigerator fan motor operation.	Replace	
		E	32	Trouble of machine chamber fan motor	•When motor doesn't rotate even though power is on. •When the waveform, which indicates the rotation times of motor, can not be detected.	1. Connector CN4D on control board, 4-pin connector, 4-pin relay connector	Repair the contact failure.	•3 minutes later, the machine chamber fan motor is reactivated to be checked. •Until the fan motor gets to operate correctly, the buzzer sounds every time the door is closed.
						2. Check machine chamber fan motor operation.	Replace	
		E	33	Trouble of ice maker gear box	When the gear box operation is not finished in 30 seconds.	1. Connector CN8K, CN7S on control board, Ice gear box 6-pin relay connector, 8-pin relay connector	Repair the contact failure.	100 minutes later, the gear box is reactivated to be checked again.
						2. Ice gear box frozen point	Replace	
						3. Check the trouble of the ice gear box with the ice making test operation.	Replace	
		E	34	Clogging of refrigerant pipe or trouble related to compressor	(T0: Defrost thermistor temperature at power input, T1: Defrost thermistor temperature when 15 minutes have passed from the power input) •When the difference between T0 and T1 is T0≦T1. (*5)	Check the compressor and the pipe.		When cooling operation returns to normal condition, the display of error code disappears.
		E	41	Trouble of electromagnetic two-way valve	When defrost thermistor reads -10 ℃ or above in five minutes after the compressor's startup. (*5)	Connector CN9D on control board 5-pin connector in machine chamber	Repair the contact failure.	Check the operation of electromagnetic two-way valve and then open the valve.
		E	50	Trouble of inverter circuit (*6)	•When there is any trouble in the circuit which detects current of compressor.	Refer to "Compressor does not operate" at page 21.		The compressor is suspended and reactivated 10 minutes later.
		E	51	Trouble of bus- bar voltage (*6)	•When the range of bus-bar voltage is not approx. DC 260-390V.			
		E	52	Trouble of inverter software reset function	•When the inverter driving software malfunctions.			
		E	53	Trouble of startup , synchronization or overcurrent detection (*6)	•When there is no current at compressor startup. •When phase current exceeds 5.5A at compressor startup. •When phase current exceeds 3.3A during compressor operation. •When current of 5.3A or more runs into the bus-bar of control board.			
		E	54	Trouble of power supply voltage (*6)	When bus-bar voltage (full wave voltage) is DC 390V or above in power input.	1. Different voltage of power supply outlet	Replace the control board.	Refrigerator compartment room light OFF Heaters. OFF
						2. Trouble of relay in the circuit on the control board		
		E	55	Trouble of control board (EEPROM related trouble) (*6)	EEPROM (IC11M) accumulates data necessary for control. •When the data are not input accurately. •When microcomputer cannot read the data.		Replace the control board.	When abnormality occurs in power input, the compressor is suspended for 10 minutes. When abnormality occurs in normal operation, the compressor keeps operating.
		E	56	Defective wiring continuity or trouble of control board	The errors 50 to 53 keep occurring over one and a half hour. (the situation, which compressor cannot be operated, continues.) Overcurrent detection error occurred before the compressor is activated.	Refer to "Compressor does not operate" at page.22.		•Error display starts after it is regarded as E56. •Error display continues until defrosting starts or cooling operation gets back to normal. (Error display doesn't disappear by unplugging and plugging the power cord. *7) •Try to restart compressor every 3 minutes.

*1 : The setting of ice making compartment will be displayed and blinks during or after ice making test operation.
*2 : This operation is called the recovery operation:
If the damper has not operated ever once during the compressor operation, make the damper operate when the compressor stops.
*3 : When the resistance is ∞Ω, the circuit is deemed open-circuitted.
When the resistance is 0Ω, the circuit is deemed short-circuited.
*4 : Once E01 is detected, other errors would be ignored and not displayed on the panel.
*5 : Characteristic value may change in order to improve the product.
*6 : The error codes E50 to E55 are not displayed even if those abnormalities occur at power input.
Therefore, be sure to perform ice making test operation in order to check if any abnormality indicated by these error codes occurs. (See page 14.)
*7 : If those errors still continue for 1 minute after the restart, E56 will be displayed again.

6-3 BLOCK DIAGRAM OF PRINTED CIRCUIT BOARD

MR-G50M-C

Operation P.C. board

- Setting up temperature, feature, quick mode and eco mode for each compartment
- Display of self-check
- Outside air thermistor
- Buzzer

Control board

Control circuit of refrigerator
- Read/control each compartment temperature (Neuro-fuzzy)
- Control on timers
- Operation control of the parts such as fan motor or heater, etc. equipped inside/outside

Inverter control circuit of compressor
- Inverter control of compressor
- Inverter-drive power module
- Detection of bus-bar voltage

Parts outside/inside of refrigerator

For 311V system
- Compressor

For 110V system
- Defrost heater
- Vegetable compartment heater 1&2
- Rotational heater board
- Divider heater (I/S)
- Water pipe heater
- Refrigerator compartment room light
- Ice making tray heater
- Tank heater
- Duct heater

For 12V DC system
- Refrigerator fan motor
- Machine chamber fan motor
- Motor damper
- Ice maker gear box
- Two-way valve
- Photosynthesis LED
  UV LED
  Blue LED
- LED for bacteria removal from water tank

For 5V DC system
- Freezer compartment thermistor
- Refrigerator compartment thermistor
- Defrost thermistor
- Slide chilled compartment thermistor
- Door switch (For refrigerator compartment & ice compartment & freezer compartment)
- Ice tray thermistor
- Ice making compartment thermistor
- Vegetable compartment thermistor
- Position-specifying switch in ice maker gear box
- Versa compartment thermistor

6-4 AUTO ICE-MAKER

MR-G50M-C

(1) Ice making cycle

Water supply

The ice tray is filled with water from the water tank.

Ice stock

Ice tray thermistor watches and controls the ice making operation

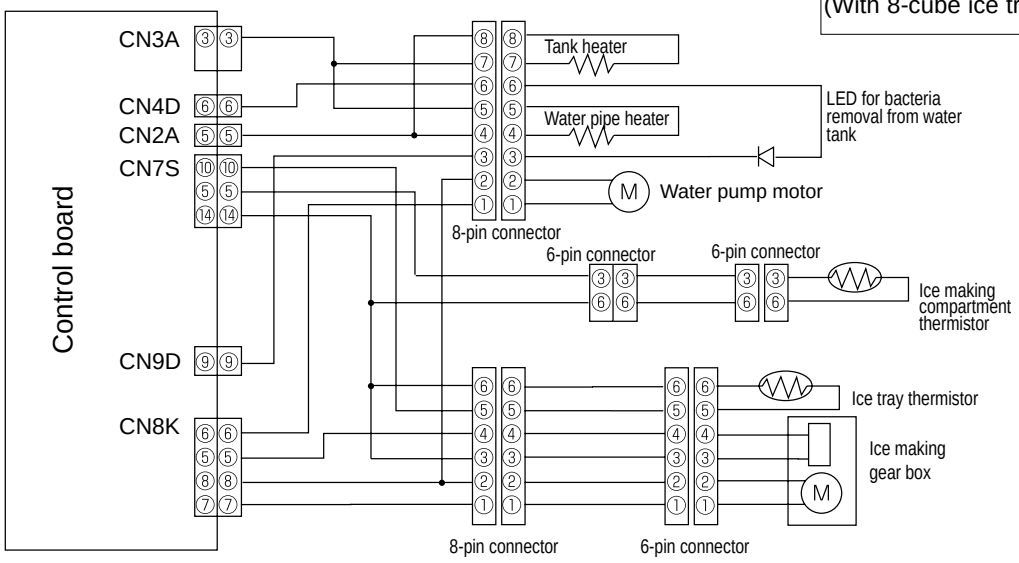
Ice ejection

After the detection lever checks the amount of ice, the ice tray is rolled over for ice ejection.

Ice stock

Ice is stocked in the ice server.
Ice making capacity is about 100 - 120 cubes a day.
Stock capacity of Ice cubes is about 100 cubes.
(With 8-cube ice tray)

(2) Automatic ice maker circuit



(3) Operation by ice making test

Press the 表示切替 switch for 5 seconds or more.
(See "• Self-check and error display method and operation, ① Ice making test operation" at page 14.)

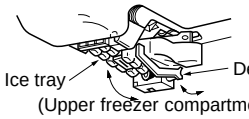
→ Ice stock detective lever detects the amount of ice.
Detective lever once come down to detection point then return to the original position.

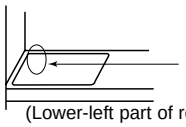
→ The ice tray is rolled over and the system is reset.
The ice tray rolls over once to drop the ice, then return to the original position.

→ Water pump motor is operates.
Remove the lid of the water tank then check the sounds of water running.

→ Completion
When abnormality occurs, the error code is displayed on the panel.
Inspect the abnormal points by referring to page 15, 16.

Ice making test completes about 20 seconds later.





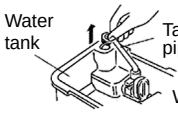
[Check point of automatic ice maker operation]

*Never touch the automatic ice maker while it is operating.
After the operational test, a popping sound is heard several times because the operation of two-way valve is checked automatically. During the operation, do not insert a hand into the automatic ice maker.

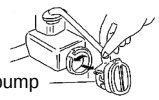
(4) Maintenance for water pump and water pipe

Water pump & Light-type bacteria removing filter

1. Pull out the pipe.

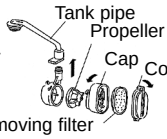


2. Turn the tank pump to detach.



3. Pull out the tank pipe, turn the cap to remove, and then wash the propeller with water.

•The propeller is made of the magnet. Wash it well with water so that no alien substance remains on it.



4. Remove the light-type bacteria removing filter and wash it in water.

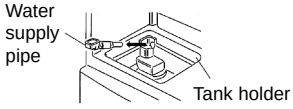
Normally the filter need not be replaced. However, replace it in the following condition:
•When the filter is clogged by passing something other than water through the filter.
•When the filter is broken.
In such a case, contact the dealer that you purchased this refrigerator.

5. Put the parts back in the reverse order of disassembly.

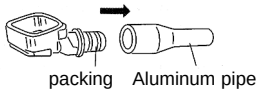
Water pipe · Tank holder

1. Pull out water supply pipe. Wipe the tank holder with clean cloth.

•Do not let water flow into the tank holder.

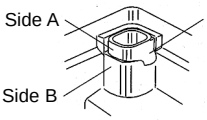


2. Separate pieces and wash with water.



•Twist the aluminum pipe to replace it.

3. Reverse steps to replace the pipe.



•Replace the water pipe.
Be sure that sides A and B fit flush to each other.

(5) Troubleshooting for automatic ice-maker

Trouble with ice-making	Water or ice is on the ice tray		The ice-maker gear box may be defective, cooling may be poor or ice cubes may be full in the server.		
		The ice does not come out from the tray	1. Check inside of the ice server.	•Ice cubes are not stored flatly and the amount is detected as full. •Food inside the ice server	➔Inspection
			2. Measure the resistance of ice tray thermistor circuit.	•Open circuit (∞Ω) or short circuit (0Ω)	➔Replace the ice tray thermistor.
			3. Check if the temperature of the freezer compartment is cool enough. (It takes longer to make ice during summer time or if the door is frequently opened.)	•Not enough	➔Poor cooling
	No water or ice in the ice tray		The water saucer may be defective, or the ice tray may get cracked.		
		Water in water saucer	4. Check the water pipe between the refrigerator compartment and freezer compartment for dirt, and foreign objects.	•Clogging •Freezing (For freezing, check installation and measure the resistance of water pipe heater and tank heater.)	➔Clean the water pipe. ➔Defrost ➔Check continuity of water pipe heater and tank heater.
		No waterdrops in water saucer	5. Check the condition of ice tray.	•Broken or cracked •Not placed properly	➔Replace the tray. ➔Reinstall it properly.
			6. Disassemble the water pump and check the inside of the pipe.	•Dirt or foreign objects	➔Repair and explain to the user for proper usage.
			7. Tank pipe is clogged , has a hole or is not properly installed.	•Clogging, disconnecting •Hole or crack	➔Clean / Reinstall it properly. ➔Change the tank pipe.
			8. Check the motor coil resistance.	•Open or short circuit	➔Check the water pump.
			9. Check if there are any dirt or foreign object which are difficult to remove in the water tank. Also, check if there is any crack or deformation on the tank.	•Crack or deformation	➔Change the water tank.
Water in the tank holder			10. Check the water pipe for dirt, and foreign objects. Also, check the water pipe position and connection.	•Clogging, disconnecting •Hole or crack	➔Clean / Reinstall it properly. ➔Replace the pipe.
			11. Check the water pipe (between F.compartment and R.compartment) for clogging.	•Clogging	➔Clean / Remove the dirt.
Chained ice, water leaking from the ice server			12. Check the water pump operation by the ice-making test	•Water filling time is longer than 9 seconds.	➔Replace the control board.
			13. Water spill at the installation of water tank or more water over the full water level may cause to from chained ice.		
			14. Measure the water pump coil resistance.	•Open or short circuit	➔Change the water pump motor.

6-5 FLOWCHART OF TROUBLE CRITERION

MR-G50M-C

[1] Refrigerator compartment/ Slide chilled compartment

Excessive cooling

Are the temperatures of refrigerator compartment/ set to “Low”?
- No → Set the temperatures to “Low”.
- Yes → Only food around the air blowing part get frozen
  - Yes → Keep the food away from the blowing part
  - No ↓

No cooling, poor cooling

Are the temperature of refrigerator compartment/ set to “High”?
- No → Set the temperatures to “High”.
- Yes → Open the refrigerator compartment door with a magnet on the door switch to check that cold air blows from the outlet. (See ※1)
  - No → Proceed to [5] at page 23.
  - Yes ↓

Expose the damper (for refrigerator compartment/ slide compartment) so that its operation can be visibly checked and conduct an ice-making test. Does the baffle open/close ? (Wait 1 minute for self-check).
(See “Self check method and its operation, ① Ice making test operation” at page 14.)
- The baffle does not operate → Replace the motor damper (for refrigerator compartment/ slide chilled compartment)
  ※Motor damper is combined with control panel assembly.
- Normal ↓

Is the motor damper (for refrigerator compartment/ slide compartment) covered with frost?
- Yes → Repair the frosted part.
- No ↓

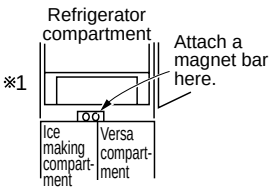
Check the refrigerator compartment thermistor

Put refrigerator compartment thermistor into ice water (0℃), disconnect the 4-pin connector, and measure resistance between ③ (white) and ④ (white). •Resistance at 0℃ :approx. 6-7kΩ.
- Refrigerator compartment thermistor abnormal → Replace the refrigerator compartment thermistor

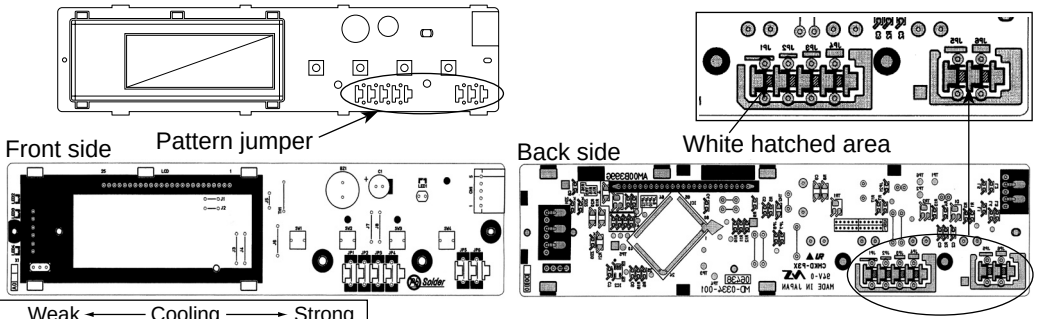
Check the chilled compartment thermistor

Put chilled compartment thermistor into ice water (0℃), disconnect the 6-pin connector, and measure resistance between ③ (white) and ⑥ (white). •Resistance at 0℃ :approx. 6-7kΩ.
- Chilled compartment thermistor abnormal → Replace the slide chilled compartment thermistor

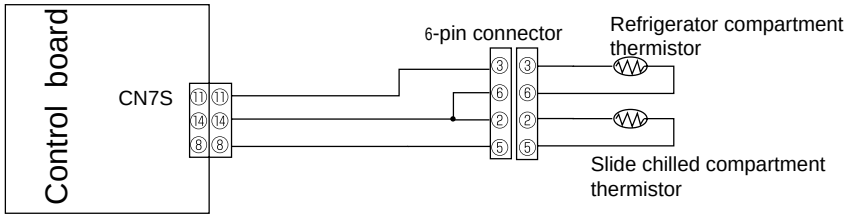
Adjusting set temperature by cutting pattern jumpers
- By cutting the pattern jumper of temp. control board, set temperature for each compartment can be changed.
- Pattern jumper is located at the position indicated in the figure below, on the temp. control board. To change the set temperature, **cut out the corresponding pattern together with the board.**



Caution
- Make sure to unscrew the back of operation panel and remove the decoration panel before cutting the pattern jumper.
- To cut the board, use a nipper or a cutter. Be careful not to damage the surrounding patterns.
- When cutting out the pattern jumper, cut so that the white hatched area behind the board is cut out.
- After cutting, remove the cut out board pieces, and install it to the control panel.



	Weak ← Cooling → Strong
Refrigerator compartment	Low – Middle – High – Chilled
Slide chilled compartment	Refrigerator — Chilled



[2] Freezer compartment

Poor cooling

1 Is the set temperature of freezer compartment set to “High”?
- No → Set the temperature to “High”.
- Yes ↓

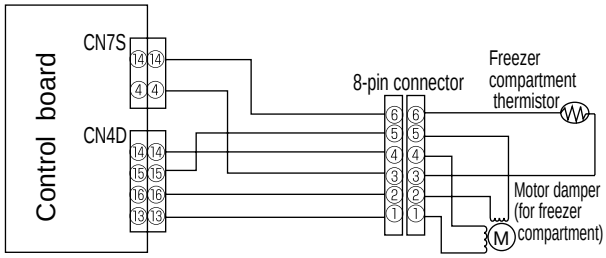
2 Does cool air come out of air outlet when opening the refrigerator compartment door and attaching a magnet bar on the door switch ?
- No → Proceed to “The refrigerator fan motor does not work.”
- Yes ↓

3 Operate the ice-making test at the place where the operation of dampers (Refrigerator compartment and slide compartment thermistor) is visible. Does the baffle open / close? (Wait 1 minute for self-check).
(See “Serf-check and error display method and operation, ① Ice making test operation” at page 14.)
- The baffles do not function. → Replace the motor damper (for freezer compartment).
  ※Replace the fan grille as well as the motor damper since they are combined together.
- Normal ↓

4 Check freezer compartment thermistor.

Dip freezer compartment thermistor into ice water (0℃), and measure the resistance between terminal ③ (white) and ⑥ (white) by detaching 6-pin connector at the left-back bottom of vegetable compartment.
•Resistance at 0℃ :approx. 6~7kΩ.

- Normal → When compressor operates, LCD indicates E41 as a result of self-check. → Exchange the unit
- Defective thermistor → Replace freezer compartment thermistor



[3] Compressor does not operate

Not cooling at all (In case any error codes doesn't appear as shown in page 21,22 even though mode switch is pressed for 5 seconds)

Is refrigerator in the demonstration mode?
- Yes → Release the demonstration mode. (See page 10.)
- No ↓

Does AC 110V run between ① and ③, terminals of CN1 on filter board?
- No → Inspect power-supply wiring such as power cord and breaker etc.
- Yes ↓

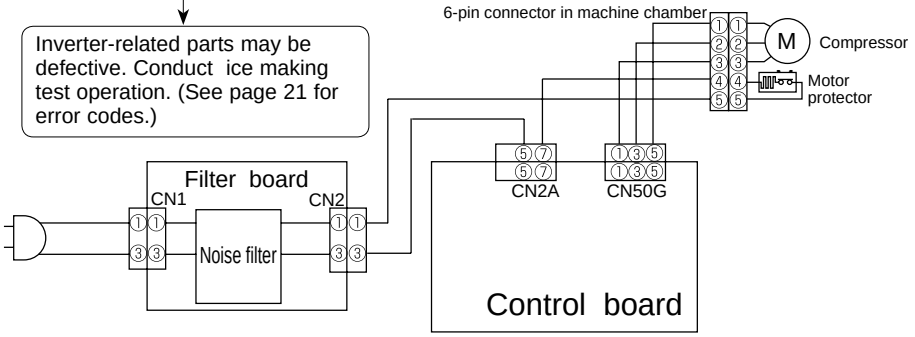
Does AC 110V run between ③ and ⑤, terminals of CN2 on filter board?
- No → Replace the filter board.
- Yes ↓

Detach each connector CN2A on control board check the continuity between terminals ⑤ and ⑦ respectively.
(Check if there is a short or open circuit in the motor protector.)
- No continuity → Motor protector (open circuit)
  ※By measuring the resistance, ensure that the circuit is open.
- Continuity detected ↓

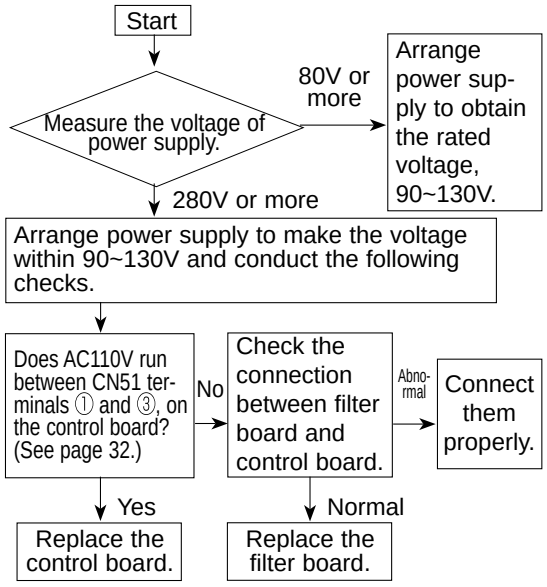
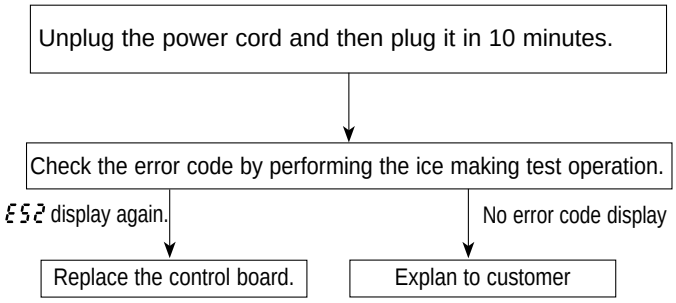
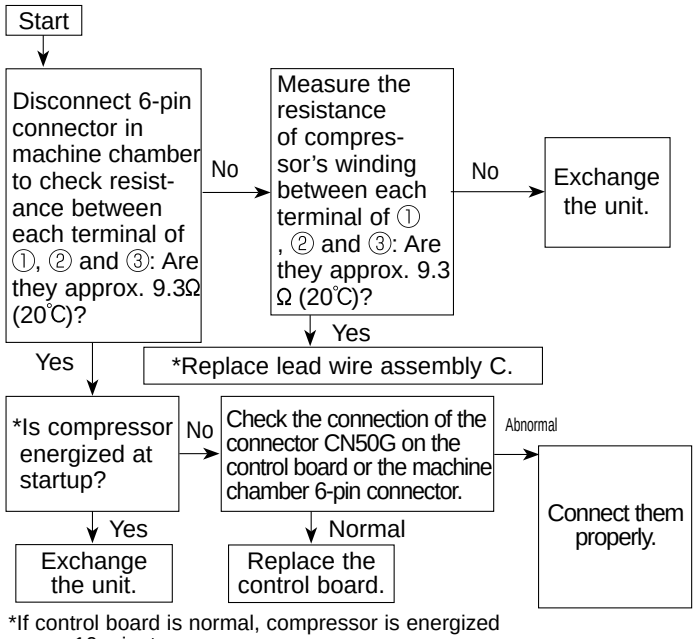
Detach connector CN50G on control board and check the resistance respectively between terminals of ①,③ and ⑤ :approx. 9.3Ω
- No continuity → Disconnect 6-pin connector in machine chamber to check resistance between terminals of ①, ② and ③: approx. 9.3Ω
  - Normal → Check connector contact.
  - Abnormal → Measure the resistance of compressor's winding between terminals of black, white, and red : approx. 9.3Ω
    - Abnormal → Exchange the unit
    - Normal → Replace the lead wire assembly (Lead wire of compressor)
- Continuity detected ↓

Check the error display of self-check after turning on and off the power supply.
※With all the connectors connected.
- Abnormal ↓

Inverter-related parts may be defective. Conduct ice making test operation. (See page 21 for error codes.)

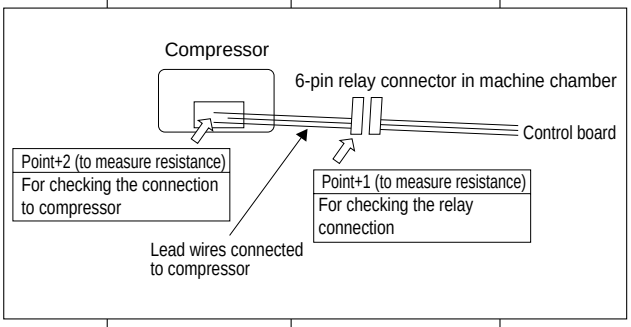


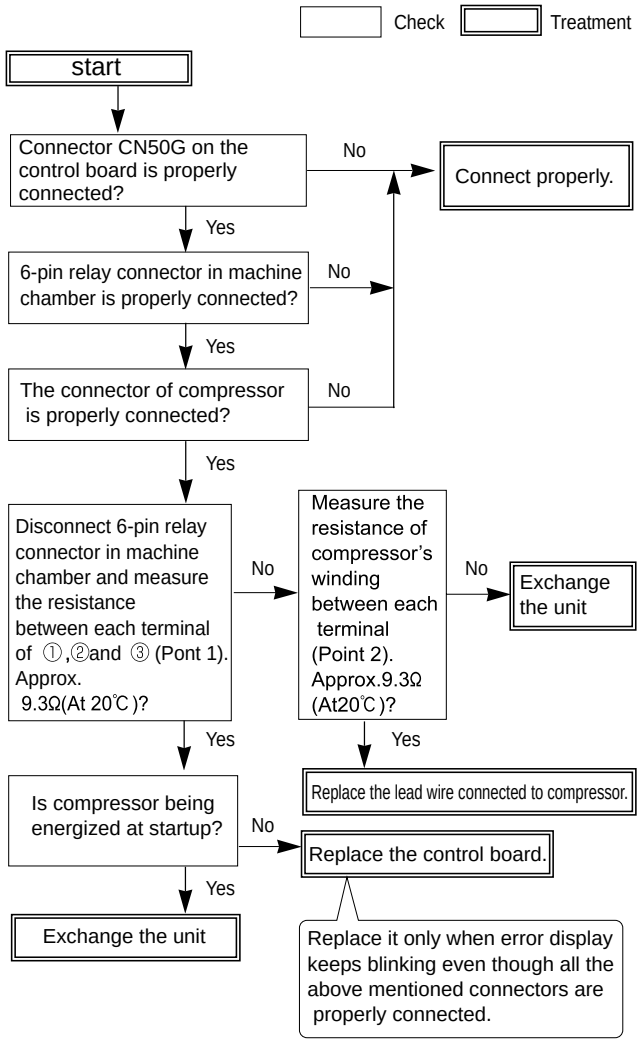
Inverter-related indication “Compressor does not operate”

Error code	Abnormality	Possible cause	Symptom	Treatment
E50	Trouble of inverter circuit	•When there is any trouble in the circuit which detects phase current of compressor.	Compressor does not rotate.	Replace the control board.
E51	Bus-bar voltage is abnormal.	•Power supply voltage is abnormal. •Defective reactor on the N/F board	Compressor does not rotate.	
E52	Trouble of inverter software reset function	•When the inverter driving software malfunctions.	Compressor does not rotate.	
E53	•Abnormal start-up •Abnormal synchronization •Trouble of overcurrent detection	•Compressor motor gets locked. •Defective circuit on control board •Defective contact of CN50G on control board •Defective contact of machine chamber 6-pin connector	Compressor does not rotate.	 *If control board is normal, compressor is energized every 10 minutes. Compressor vibrates at startup when it is being energized. Touch it with your hand to check.

Inverter-related indication “Compressor does not operate”

Error code	Abnormality	Possible cause	Symptom	Treatment
E56	•Defective wiring continuity •Trouble of the control board	•Defective connection of connectors related to compressor (board-side,relay, comp-side) •Defective wiring continuity of the compressor •Trouble of control board •Trouble of compressor	(1) or (2) (1) Compressor cannot be activeted for more than 1.5 hours (2) Overcurrent detection error occurred before the compressor is actived.	1. Locate the trouble and decide the treatment •Decide the treatment by checking the followings. (1) Defective connector connections. (board-side, relay, comp-side) (2) Resistance of compressor’s winding 2. Flowchart of troubleshooting 3. Recheck after treatment •After any treatment is tried, unplug and plug power cord again to check if the compressor operates properly. •If the compressor can operate properly for more than 1 minute after power cord is plugged again, it’s presumed that the cause of trouble is eliminated. *If the cause of trouble cannot be eliminated,"E56" will be displayed again 1 minute later after the power cord is plugged again. *If the control board has been replaced, E56 won’t be displayed even though the cause of trouble is still not eliminated. In such a case, perform the ice making test operation to check what the error is. At the same time, also confirm that the compressor is operating for more than 3 minutes and each compartment is getting cooled.





Poor cooling

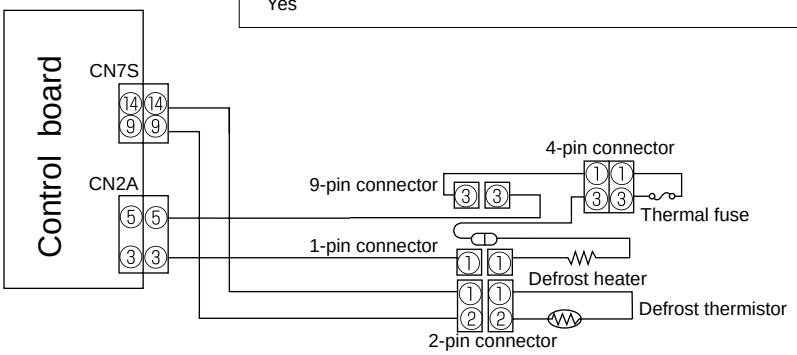
[4] Poor defrosting

1 Short-circuit the terminal ① and ② of the compulsory defrosting terminals (CN1M) of the filter board to actuate the compulsory defrosting function and check whether the defrost heater is working properly. *1

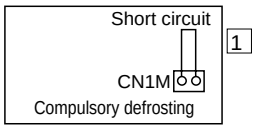
- Yes (heats up) → Check the following: half-open door, space between gaskets, the amount of ice.
- No ↓

2 Check if there is continuity between thermal fuse and defrost heater.

- No → Replace the defrost heater and the thermal fuse.
- Yes → Check the resistance of the defrost thermistor.



<Control board>



*1 The compulsory defrosting will not work when the temperature of the defrost thermistor is 14: or more.

[5] The refrigerator fan motor does not work

1 Plug and unplug the power cord to perform self-check on refrigerator fan motor. Is the lamp indicating abnormality?

- Yes → Replace refrigerator fan motor.
  Note: Refrigerator fan motor is combined with fan grille.
- No ↓

2 Plug and unplug the power cord to check if machine chamber fan motor is rotating.

- Not rotating → Check if CN4D connector on control board is connected properly. If it is, replace the control board.
- Room light is not turned on and off.
- Running ↓

3 Check the door switch for continuity.
•Open and close the refrigerator door ⓑ several times and check if the room light will be turned on and off (Room light should get turned off when the door comes 10mm close to the refrigerator body ⓐ.)
•Close the refrigerator compartment door until the light is turned off ⓐ. Open and close the ice-making-compartment door ⓒ, and from the space of refrigerator compartment door, check that the room light is turned on and off.

4 Check the continuity by disconnecting the CN7S on the control board. (See figure below.)

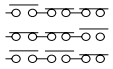
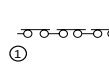
- Abnormal → Contact failure of connector. Connect it properly.
- Normal → Check if the connector on the door switch is connected properly. If it is, replace the door switch.

Room light is turned on and off properly. ↓

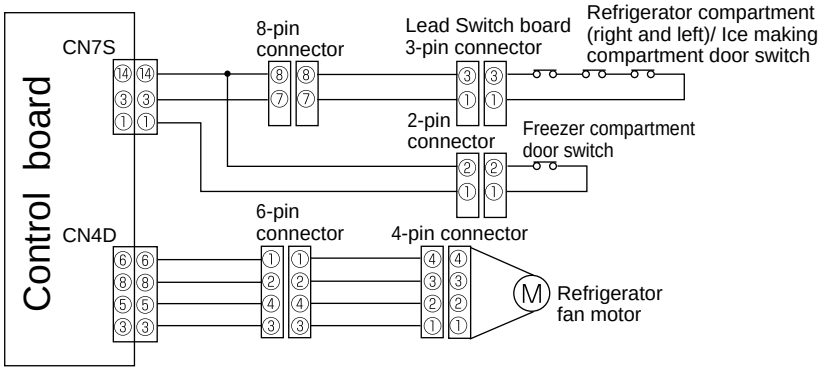
5 Check if there is continuity in 6-pin fan motor connector in versa compartment.

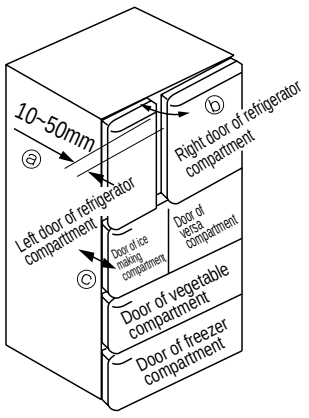
- No continuity → Connect the connectors properly.
- Continuity detected → Replace refrigerator fan motor.
  Note: Refrigerator fan motor is combined with fan grille.

Door switch for refrigerator compartment (right and left) and ice making compartment.

Doors	Any one of the doors are open	R-door (right, left): closed Door of the ice making compartment : closed
	 etc	 ① ②
2-Pin connector Between ①and②	OFF	ON

※If any one of those doors are open, the switch between ① and ②, terminals of 2-pin connector, will be OFF)





[6] Vegetable compartment

Excessive cooling

Is the temperature of vegetable compartment set to “Low”?

No → Set the temperature to “Low”.

Yes (Go to ① or ②)

① Check the thermistor, vegetable compartment heater, and control board.

Is 1 of these error codes indicated when conducting self-check of operation P.C. board?

Refrigerator compartment thermistor: E13
Slide chilled compartment thermistor: E14
Vegetable compartment thermistor: E16
Outside air thermistor: E18

E18 is indicated. → Replace the Filter board.

No error code is indicated.

E13, E14 or E16 is indicated. → Is there a short or open circuit in each thermistor and is the resistance 0Ω or ∞Ω?

Yes → Replace the defective thermistor.

No → Check the contact of connector connecting each thermistor and connector CN7S on control board. Fix the incomplete contact.

Is there resistance of 2kΩ on the wiring side (resistance of vegetable compartment heater 1) between connector CN3A ⑦ and CN2A ⑤ on control board with 2-pin connector disconnected?

0Ω or ∞Ω → Is there a resistance of approx. 2kΩ between ⑦ and ⑧, terminals of 8-pin connector which is located at the right top of fan grille?

0Ω or ∞Ω → Yes → Replace the vegetable compartment heater 1.

Note: Vegetable compartment heater 1 is combined with fan grille.

Yes

It may have contact failure of connector.
Recheck the contact after the 8-pin connector is connected.

Is there resistance of 1kΩ on the wiring side (resistance of vegetable compartment heater 2) between connector CN3A ⑦ and CN2A ⑤ on control board with 8-pin connector disconnected?

0Ω or ∞Ω → Is there a resistance of approx. 1kΩ between ① and ②, terminals of 2-pin connector which is located at the left-back bottom of vegetable compartment?

0Ω or ∞Ω → Replace the vegetable compartment heater 2.

Note: Vegetable compartment heater 2 is combined with partition V/ F.

When the vegetable compartment is cooled excessively.
Is there voltage AC110V between connector CN2A ⑤ (Gray) and CN3A ⑦ (Yellow green) on control board? Measure the voltage for over 10 seconds. When an analog tester detects 110V, consider the control board normal. (110V is outputted every 10 seconds.)

Yes → Check if doors are hermetically closed.

No → Replace the control board.

② Check refrigerator / slide chilled compartment is excessively cooled (poorly cooled).

Follow the refrigerator / slide chilled compartment flowchart on page 19.

OK → Explain proper usage to customer

poor cooling

Is the temperature of vegetable compartment set to “High”?

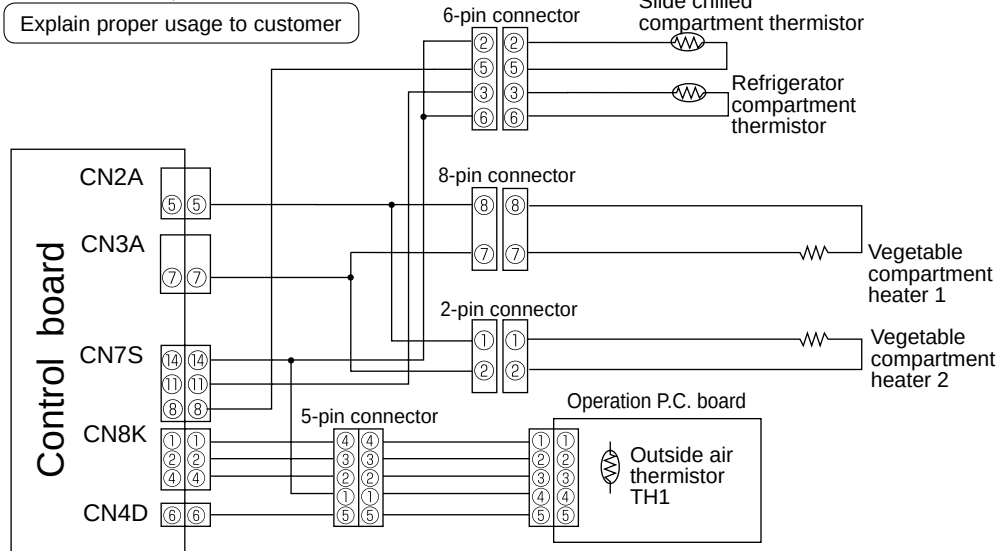
No → Set the temperature to “High”.

Yes

Are the temperatures of refrigerator compartment/ freezer compartment set to “Low”?

Yes → Set the temperatures to “Middle” or “High”.

No (Go to ① or ②)



[7] Versa compartment/ Ice making compartment

only applies to versa compartment.

Excessive cooling

Which operation mode is versa compartment set to?

It is set to "Vegetable • Refrigerator" or "Chilled".

It is set to "Soft freezing".

Is the temperature set to "Low"?

No → Set the temperature to "Low".

Yes

Only the food around cool-air outlet is excessively cooled.

Yes → Keep food away from air outlet in storing food.

No

No cooling; poor cooling

Which operation mode is versa compartment set to?

It is set to , "Vegetable • Refrigerator" or "Chilled".

It is set to "Soft freezing".

It is set to "Freezer".

Is the temperature set to "High".

No → Set the temperature to "High".

Yes

Check the set temperature in freezer compartment. Is the temperature set to "High"?

※1

No → Set the temperature to "High".

Yes

Does cool air come out of air outlet when opening the refrigerator-compartment door and attaching a magnet bar on the door switch?

No → Refer to the section: "The refrigerator fan motor does not work".

Yes

Make the operation of motor damper (for ice making compartment/ refrigerator compartment) visible, and conduct ice making test. Check that the baffles open and close.
(Wait 1 minute for self-check.)
(See "• Self-check and error display method and operation, ① Ice making test operation" on page 14.)

The baffles do not function

Is connector CN9D on control board connected properly?

No → Connect the connector properly.

Yes

Disconnect CN9D and measure the resistance between ① and ②, and between ③ and ④. Check that the winding of motor damper (for ice making compartment/ versa compartment) has a resistance of approx. 415Ω

0Ω or ∞Ω

Is 6-pin connector which is in connector cover on the back of versa compartment connected properly?
(6-pin connector is connected to motor damper. Refer to the figure below.)

No

Yes

Normal → Replace the motor damper (for ice making compartment/ versa compartment)
※Replace the fan grille as well as the motor damper because they are combined together.

Normal

Is the motor damper covered with frost?

Frosted → Repair the frosted part.

Not frosted

Check the versa compartment thermistor.

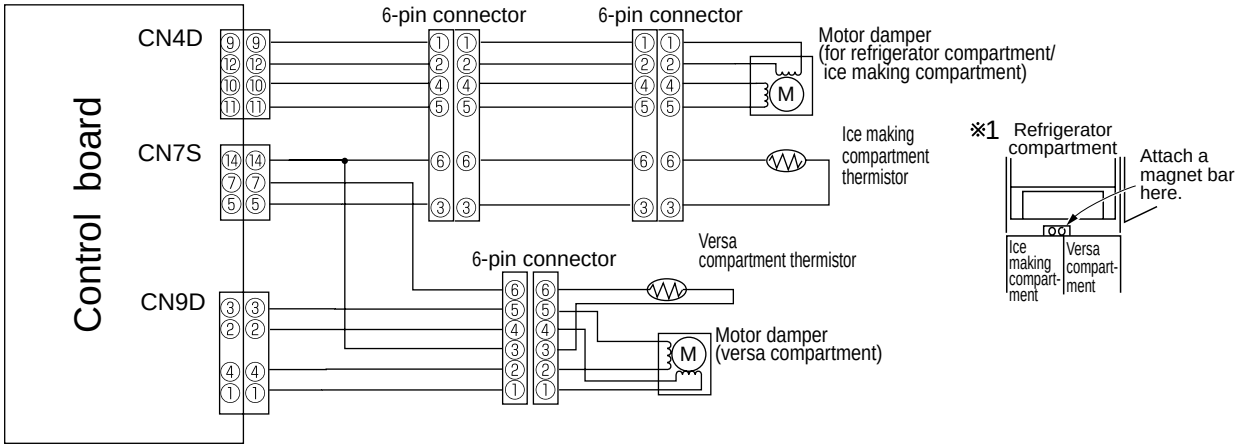
Dip the versa compartment thermistor into the ice water (0℃) and disconnect 6-pin connector for fan grille at the back of versa compartment. Measure the resistance between terminal ③ (white) and ⑥ (white).
•Resistance at 0℃: Approx. 6~7kΩ

Defective thermistor → Replace the versa compartment thermistor.

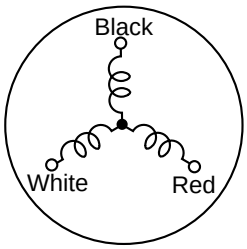
Check the ice making compartment thermistor.

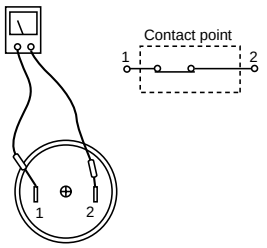
Dip the ice making compartment thermistor into the ice water (0℃) and disconnect 6-pin connector of fan grille at the back of ice making compartment. Measure the resistance between terminal ③ (white) and ⑥ (white).
•Resistance at 0℃: Approx. 6~7kΩ

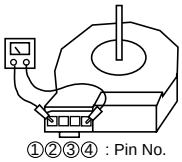
Defective thermistor → Replace the ice making compartment thermistor.

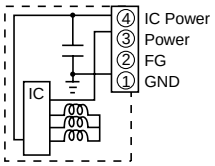


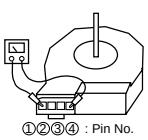
6-6 TROUBLE CRITERION OF MAIN PARTS
MR-G50M-C

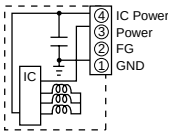
<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>Compressor</td><td>


Measure the resistance with a tester.
<table>
<tr><td>Model</td><td></td><td>EFI100E13DAH</td></tr>
<tr><td>Rated input</td><td>W</td><td>45/159 (1620/4800rpm)</td></tr>
<tr><td>Starting current</td><td>A</td><td>2.0</td></tr>
<tr><td>Running current</td><td>A</td><td>0.63/2.19 (1620/4800rpm)</td></tr>
</table>
<table>
<tr><td></td><td>Normal</td><td>Abnormal
(faulty)</td></tr>
<tr><td>Winding
(Black-White)
(White-Red)
(Red-Black)</td><td>9.3 Ω
(20℃)</td><td>Open (∞Ω)
or
short circuit (0Ω)</td></tr>
</table>
</td><td>In the machine chamber at the rear side of the frame.</td></tr>
<tr><td>Motor
protector</td><td>
<table>
<tr><td>Model</td><td></td><td>MM3-71CCV</td></tr>
<tr><td rowspan="2">Connected point</td><td>Open</td><td>100 ± 50 ℃ or more
Energize it at 17.0A, 25℃ for 16 seconds at the longest.</td></tr>
<tr><td>Close</td><td>61±8℃ or less</td></tr>
</table>
Measure the resistance with a tester. (Ambient temperature : Room temperature)


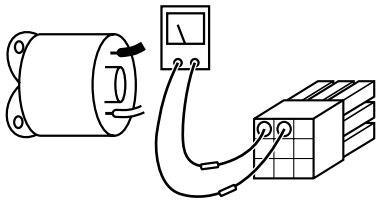
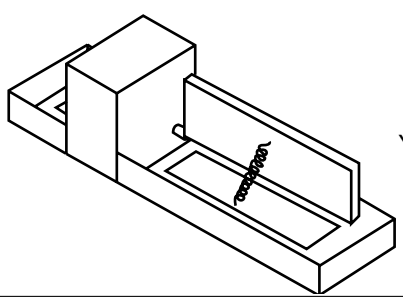
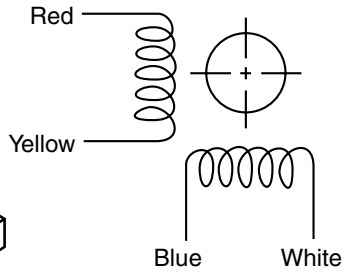
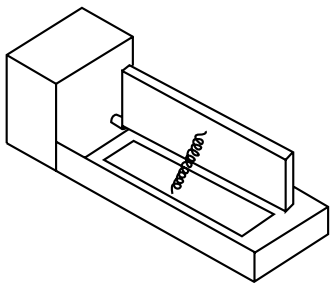
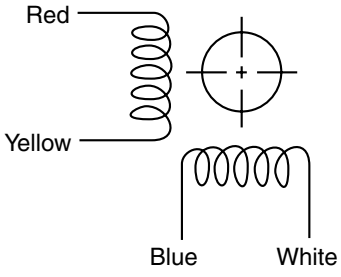
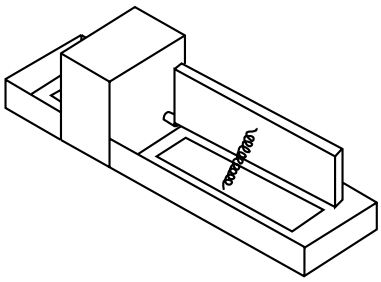
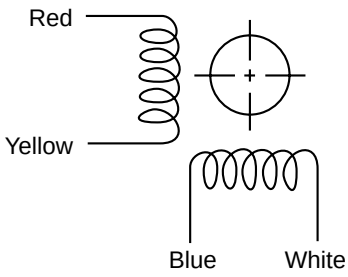
<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>Less than 1Ω</td><td>Open circuit (0Ω)</td></tr>
</table>
</td><td>In the machine chamber at the rear side of the frame.</td></tr>
<tr><td>Refrigerator
fan motor</td><td>
<table>
<tr><td rowspan="2">Model</td><td>UDQM002B3</td></tr>
<tr><td>DC brushless</td></tr>
<tr><td>Number of pole</td><td>10</td></tr>
<tr><td>Diameter</td><td>ϕ150 (Mixed flow fan)</td></tr>
</table>
Measure the resistance with a tester. (Ambient temperature : Room temperature)
<table>
<tr><th>Normal</th><th>Abnormal
(faulty)</th></tr>
<tr><td>Between ① and ④ (GND and IC Power): About 12kΩ</td><td>Between ① and ④
: open circuit (∞Ω)</td></tr>
<tr><td>Between ③ and ④ (Power and IC Power): ∞Ω</td><td>Between ③ and ④
:short circuit (0Ω)</td></tr>
</table>


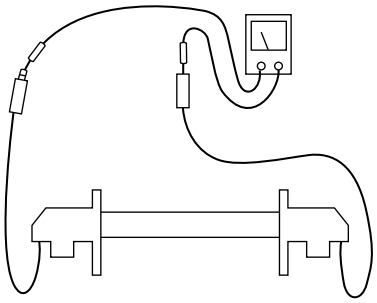
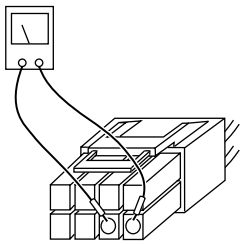
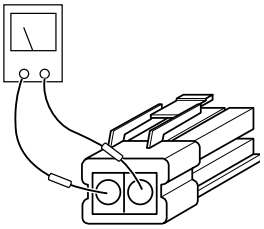
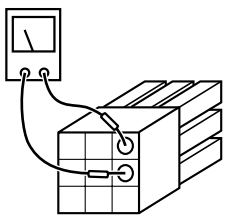


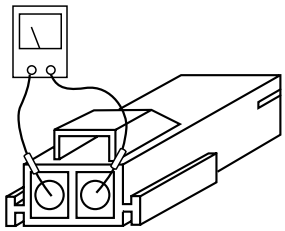
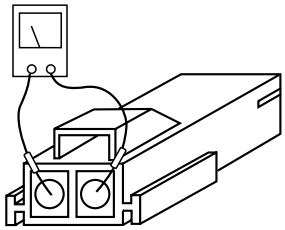
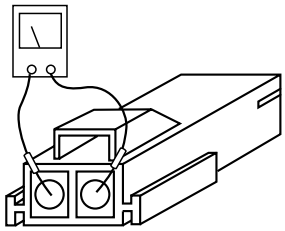
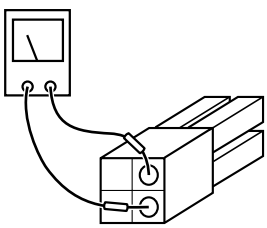
</td><td>In the fan grille of the freezer compartment.</td></tr>
<tr><td>Machine
chamber fan
motor</td><td>
<table>
<tr><td rowspan="2">Model</td><td>UDQM004B3</td></tr>
<tr><td>DC brushless</td></tr>
<tr><td>Number of pole</td><td>10</td></tr>
<tr><td>Diameter</td><td>ϕ140 (Extra fan)</td></tr>
<tr><td>Operation method</td><td>During compressor operation</td></tr>
</table>
Measure the resistance with a tester. (Ambient temperature : Room temperature)


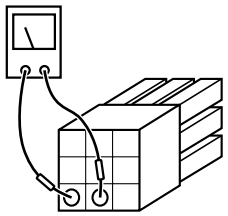


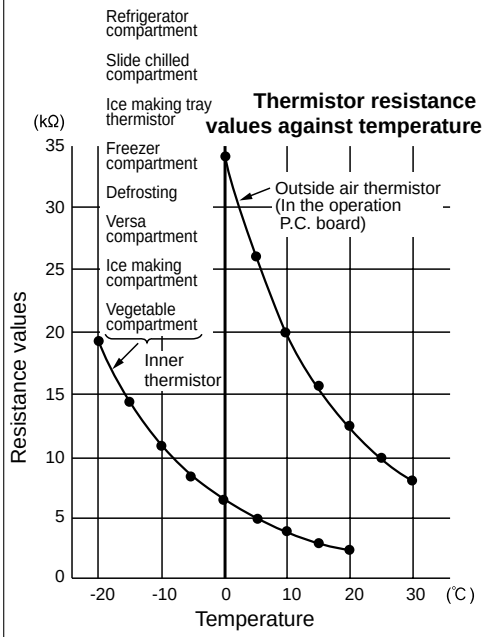
<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>Between ① and ④ (GND and IC Power): About 9kΩ</td><td>Between ① and ④
: open circuit (∞Ω)</td></tr>
<tr><td>Between ③ and ④ (Power and IC Power): ∞Ω</td><td>Between ③ and ④
:short circuit (0Ω)</td></tr>
</table>
</td><td>In the machine chamber at the rear side of the frame.</td></tr>
</table>

<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>Water pump motor</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>16Ω (Approx.)</td><td>Open (∞Ω) or
short circuit
(0Ω)</td></tr></table></td><td>Under the water tank holder in refrigerator compartment.</td></tr>
<tr><td>Motor damper for refrigerator compartment/ ice making compartment</td><td>Measure the winding resistance.
<table><tr><th></th><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>Winding
(Blue-White
Red-Yellow)</td><td>415Ω
(Approx.)</td><td>Open (∞Ω) or
short circuit
(0Ω)</td></tr></table> 
  </td><td>In the fan grille for freezer compartment. Connector is at the left-back bottom of refrigerator compartment.</td></tr>
<tr><td>Motor damper for versa compartment</td><td>Measure the winding resistance.
<table><tr><th></th><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>Winding
(Blue-White
Red-Yellow)</td><td>415Ω
(Approx.)</td><td>Open (∞Ω) or
short circuit
(0Ω)</td></tr></table> 
  </td><td>In the fan grille for freezer compartment. Connector is at the back of versa compartment.</td></tr>
<tr><td>Motor damper for freezer compartment</td><td>Measure the winding resistance.
<table><tr><th></th><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>Winding
(Blue-White
Red-Yellow)</td><td>415Ω
(Approx.)</td><td>Open (∞Ω) or
short circuit
(0Ω)</td></tr></table> 
  </td><td>In the fan grille for freezer compartment. Connector is at the left-back bottom of vegetable compartment.</td></tr>
</table>

<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>Defrost heater</td><td>
<table>
<tr><td>Rated input</td><td>W</td><td>150</td></tr>
<tr><td colspan="2">Operation method</td><td>The heater is energized while defrosting.
(Defrosting is finished when the evaporator is 14± 1.5℃ or more)</td></tr>
</table>
Measure the resistance with a tester. (Ambient temperature : Room temperature)

<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>81Ω
(Approx.)</td><td>Open circuit (∞Ω)</td></tr>
</table>
</td><td>At the drip tray under the evaporator of the freezer compartment.</td></tr>
<tr><td>Vegetable compartment heater 1</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)

<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>2kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr>
</table>
<table>
<tr><td>Operation method</td><td>The heater is turned on when vegetable compartment thermistor has reached a lower temperature than the set temperature for vegetable compartment.</td></tr>
</table>
</td><td>In the fan grille at the back of vegetable compartment.</td></tr>
<tr><td>Vegetable compartment heater 2</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)

<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>1kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr>
</table>
<table>
<tr><td>Operation method</td><td>The heater is turned on when vegetable compartment thermistor has reached a lower temperature than the set temperature for vegetable compartment.</td></tr>
</table>
</td><td>In partition V/F.</td></tr>
<tr><td>Water pipe heater</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)

<table>
<tr><th>Normal</th><th>Abnormal (faulty)</th></tr>
<tr><td>2.1kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr>
</table>
<table>
<tr><td>Operation method</td><td>When ice-making thermistor has reached approx. 10℃ or below, the heater is turned on with energizing rate adjusted by the set temperature of refrigerator compartment and freezer compartment.</td></tr>
</table>
</td><td>Under the water tank holder.</td></tr>
</table>

<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>Divider
heater (I/S)</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>3.9kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr></table>
<table><tr><td>Operation method</td><td>While compressor is operating, the heater is turned on.
When compressor stops, the heater is suspended for the first 20 minutes and then reactivated.</td></tr></table></td><td>In partition I/S</td></tr>
<tr><td>Rotational
heater board 1</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>1.5kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr></table>
<table><tr><td>Operation method</td><td>While compressor is operating, the heater is turned on.
When compressor stops, the heater is suspended for the first 20 minutes and then reactivated.</td></tr></table></td><td>In the rotational heater board of refrigerator compartment</td></tr>
<tr><td>Ice making
tray heater</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>1.2kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr></table>
<table><tr><td>Operation method</td><td>During CRYSTAL ICE mode
(The heater is turned on 5 minutes after water is supplied, until 4 hours.)</td></tr></table></td><td>Lower part
of ice tray</td></tr>
<tr><td>Duct heater</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>3.9kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr></table>
<table><tr><td>Operation method</td><td>Synchronised to defrost heater operation. (The heater is turned on during defrost operation.)
(The heater is energized while defrosting.)</td></tr></table></td><td>In the fan grille
for freezer com-
partment</td></tr>
</table>

<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>Tank heater</td><td>Measure the resistance with a tester. (Ambient temperature : Room temperature)
 
<table><tr><th>Normal</th><th>Abnormal (faulty)</th></tr><tr><td>3.9kΩ (Approx.)</td><td>Open circuit (∞Ω)</td></tr></table>
<table><tr><td>Operation method</td><td>The heater is controlled by duty factor increase/ decrease.</td></tr></table></td><td>Under the water tank holder.</td></tr>
<tr><td>Thermistor</td><td>Measure the resistance with a tester according to the following graph.
(Thermistor resistance values against temperature)

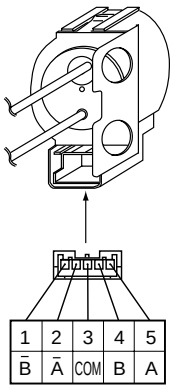
•Resistance measured under the ambient temperature from -50℃ to +50℃
1. 200Ω to 500kΩ ••••••••••••••••••Normal
2. Out of the above range•••••••••Abnormal
 

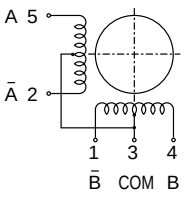
Thermistor Check Procedure
•Thermistor resistance value will vary with the change of temperature.
•Take the temperature around the thermistor, and then measure thermistor resistance using a tester.
The relation between resistance and temperature is as shown on the left side.

Troubleshooting with self-check
(1) If the self-check indicates the abnormality of thermistor when the power is turned on, measure the resistance of the thermistor.
•If there is a short circuit in the thermistor, there may be a defect in the contact of the connector or the element of the thermistor.
(2) When the self-check indicates the abnormality of thermistor a few seconds after the power is turned on, check the contact of the connector.</td><td>Defrost thermistor
Evaporator

Ice making thermistor, Versa compartment thermistor, Vegetable compartment thermistor and Freezer compartment thermistor
In the fan grille of each compartments.

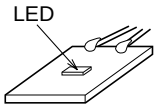
Ice making tray thermistor
In the ice making compartment.

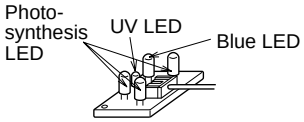
Outside air thermistor
In the operation P.C. board.</td></tr>
<tr><td>Two-way valve</td><td> 

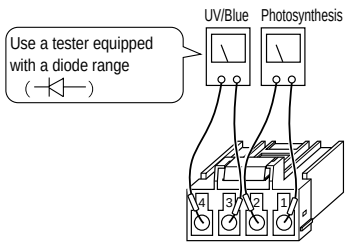
 

<table><tr><td>Model</td><td>NSCE000DA1</td></tr></table>
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>54~56Ω (Gray [common]—Ā/ A/ B̄/ B each phase)</td><td>Open (∞Ω) or short circuit (0Ω)</td></tr></table>
Check the operation of two-way valve

Check the operation by following either (1) or (2) below. When a popping sound is heard 1 to 25 times, it is considered that the valve is operating normally. The sound is clearly heard around the back of the product.
(1) Reset the power supply. Check the operation right after this.
(2) Ice making test. Check the operation right after the test is over.</td><td>In the machine chamber at the rear side of the frame.</td></tr>
</table>

<table>
<tr><th>Components/
Part Name</th><th>Check Method and Criterion</th><th>Parts Mounted
Position</th></tr>
<tr><td>LED for bacteria removal from water tank
(12V DC)</td><td>
<table>
<tr><td>Timing in making contact</td><td>•After water is supplied to the ice tray.
•After the ice level sensor lever detects that ice storage becomes full.
•While the door is kept open for maximum of 5 minutes.</td></tr>
<tr><td>Abnormal condition</td><td>When the door is opened, LED goes out within 5 minutes.
※ Make sure if the connector is securely connected.</td></tr>
</table>


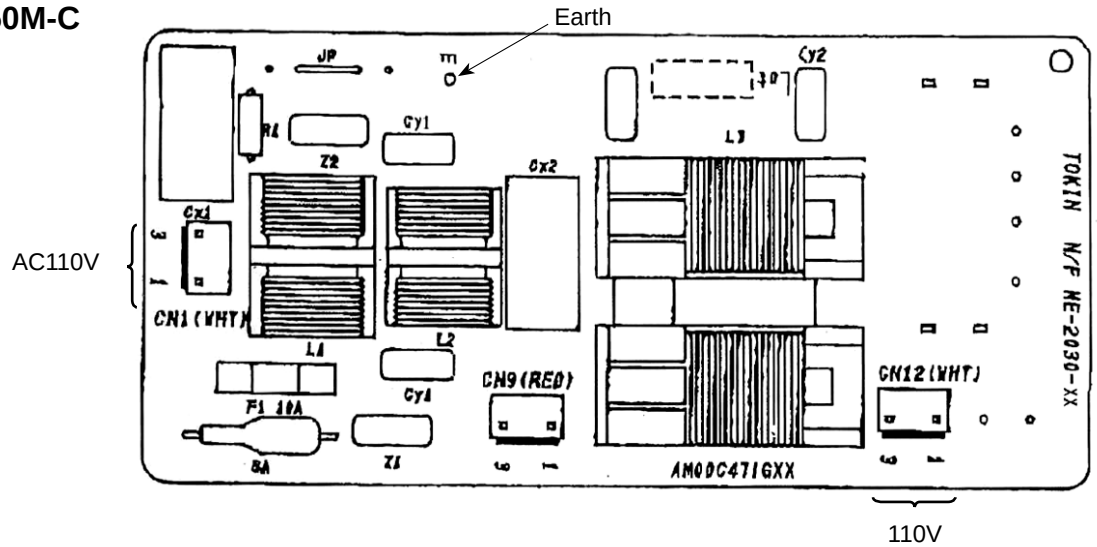
Note: LED cannot be replaced individually because it is embedded in the tank holder.
</td><td>On the external surface of the tank holder</td></tr>
<tr><td>Vegetable compartment photosynthesis, UV LED, Blue LED
(12V DC)</td><td>
<table>
<tr><td></td><td colspan="2">Photosynthesis LED 3 pieces + UV LED 1 piece + Blue LED 1 piece</td></tr>
<tr><td rowspan="2">Timing in making contact</td><td>Photosynthesis LED</td><td>Always</td></tr>
<tr><td>UV LED
Blue LED</td><td>After water is supplied, and full ice is detected; When the door of refrigeration compartment, ice making compartment, or freezer compartment is open. (5 minutes maximum)</td></tr>
<tr><td rowspan="3">Abnormal condition</td><td>Means</td><td>Check with the diode range(⊣◁—) of tester. (Use a tester equipped with diode range.)</td></tr>
<tr><td>Photosynthesis LED</td><td>The pointer of the tester does not shake when measuring between 4-pin connector No.1 (-) and No.2 (+). Make sure the pointer of the tester does not shake even if the polarities are reversed. Resistance: Short-circuited (0)</td></tr>
<tr><td>UV LED
Blue LED</td><td>The pointer of the tester does not shake when measuring between 4-pin connector No.3 (+) and No.4 (-). Make sure the pointer of the tester does not shake even if the polarities are reversed. Resistance: Short-circuited (0Ω)</td></tr>
</table>
LEDs light in following colors at the above timing.
Photosynthesis LED: Orange
UV LED: Bluish white
Blue LED: Blue
Note: LED cannot be replaced individually because it is combined with the fan grille and partition V/F.




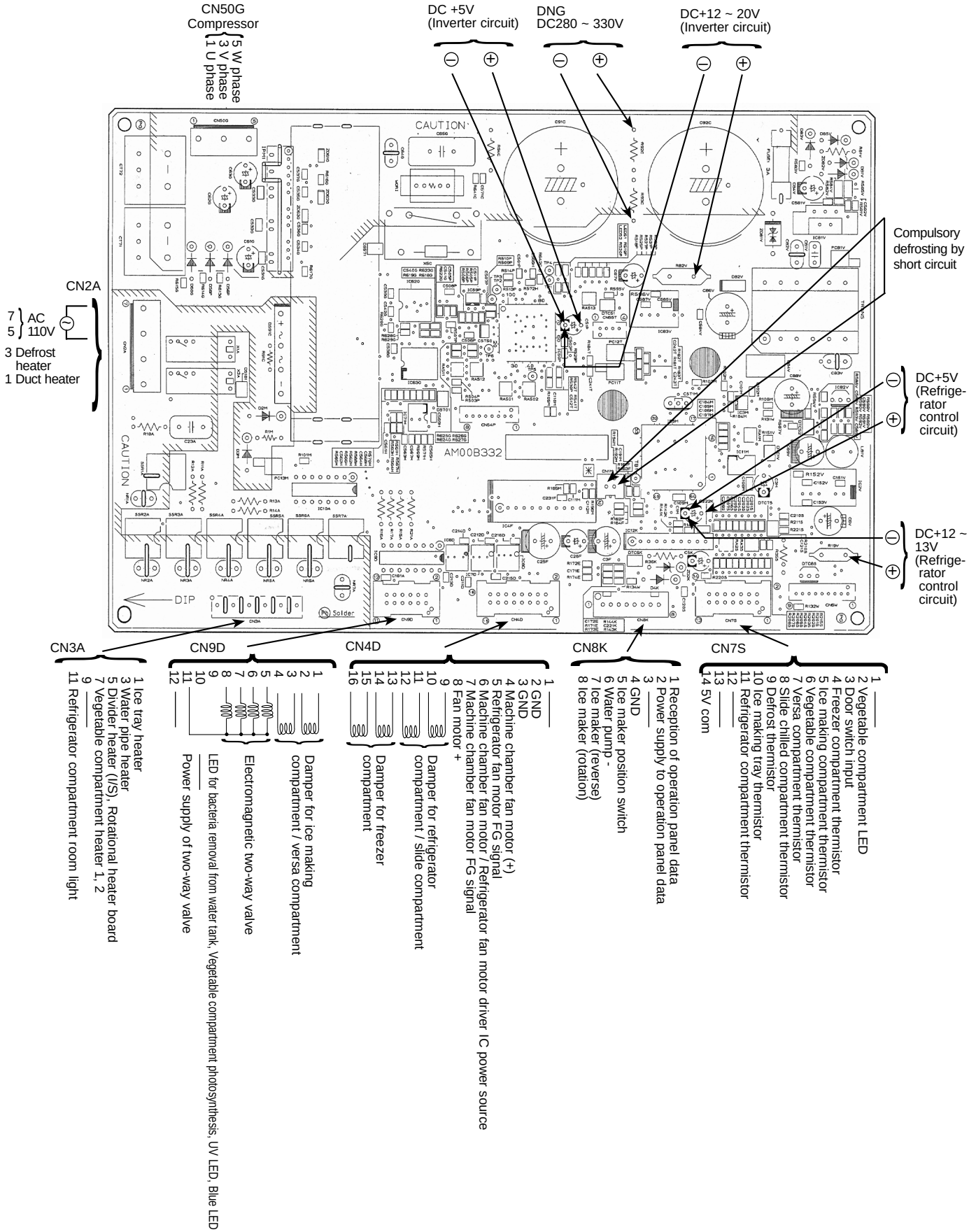
</td><td>On the ceiling vegetable compartment (Vegetable compartment LED board)</td></tr>
</table>

6-7 TEST POINT DIAGRAM OF FILTER BOARD

MR-G50M-C

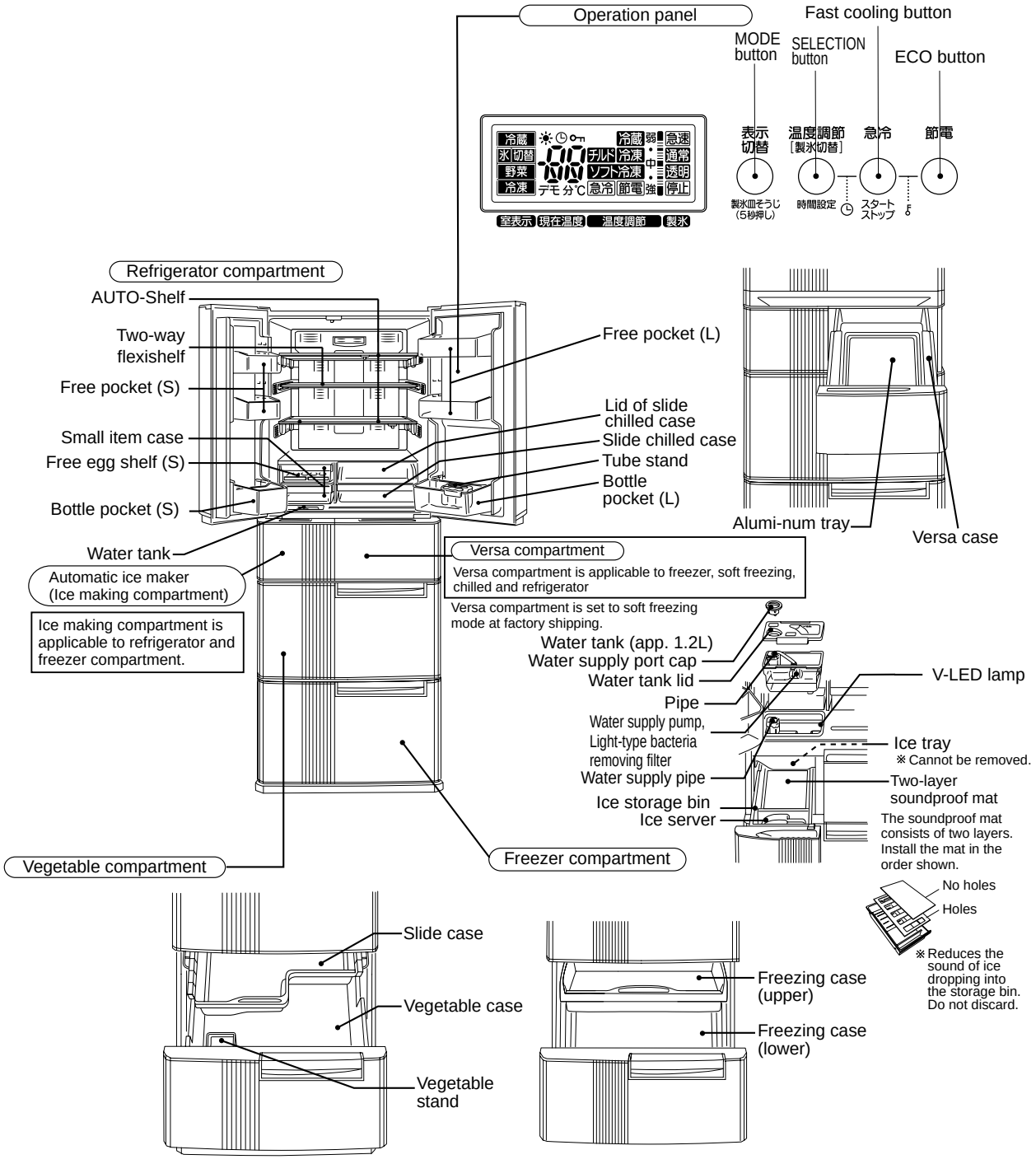


6-8 TEST POINT DIAGRAM OF CONTROL BOARD
MR-G50M-C



7 NAMES OF THE PARTS

MR-G50M-C

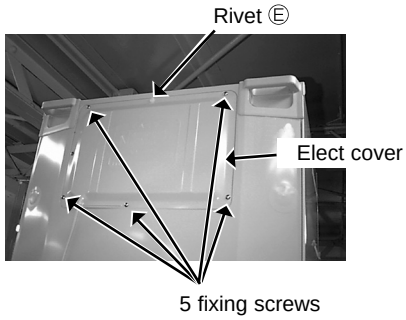
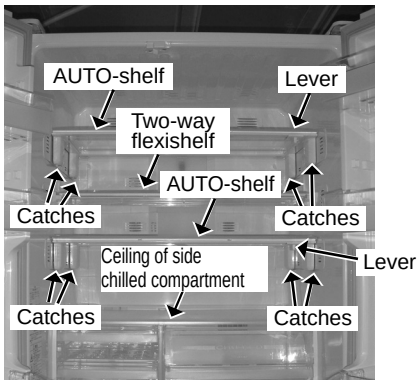
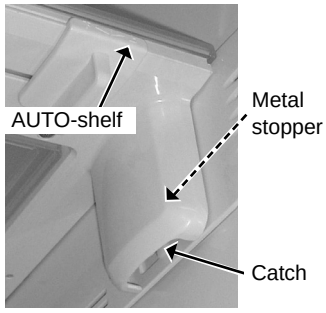
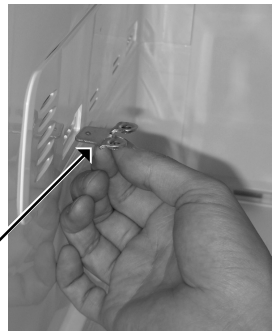


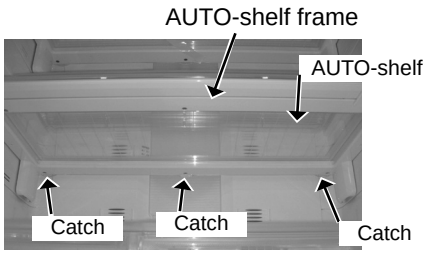
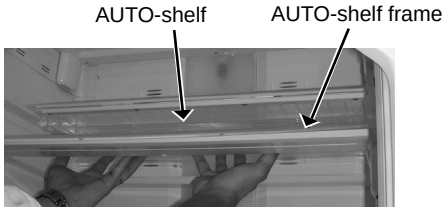
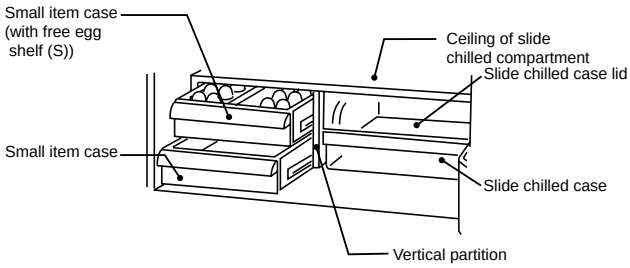
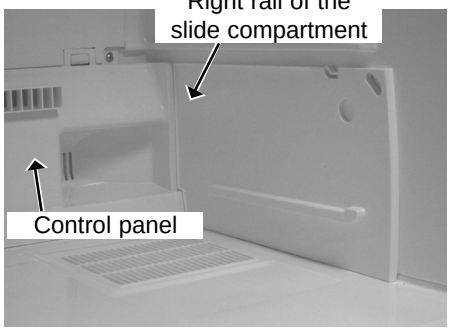
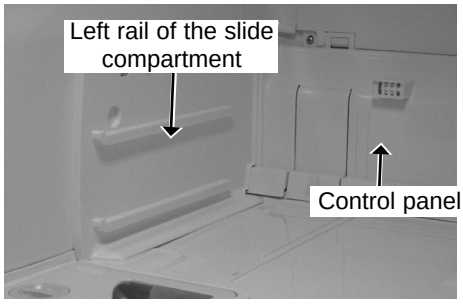
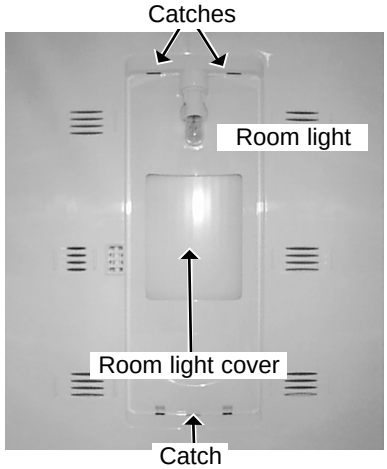
8 DISASSEMBLY INSTRUCTIONS

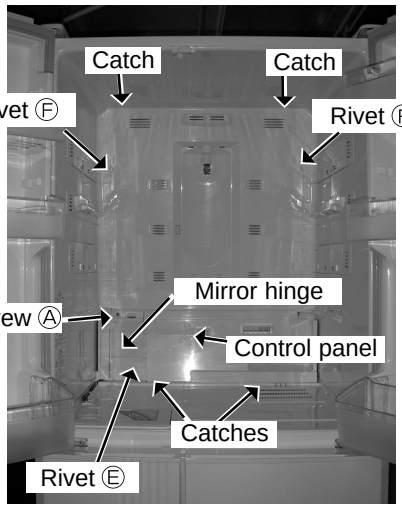
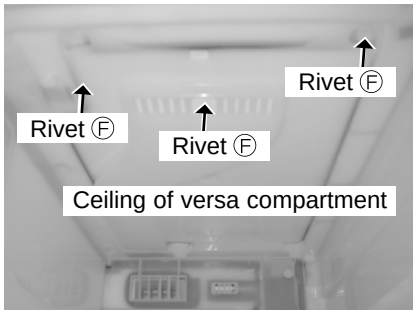
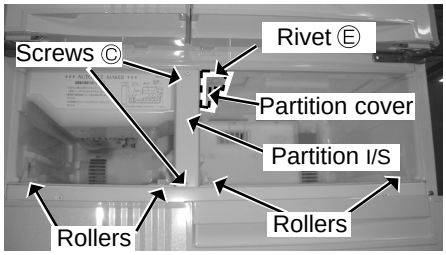
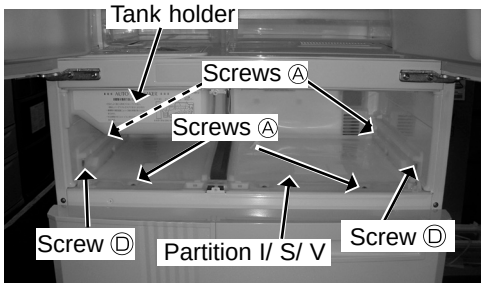
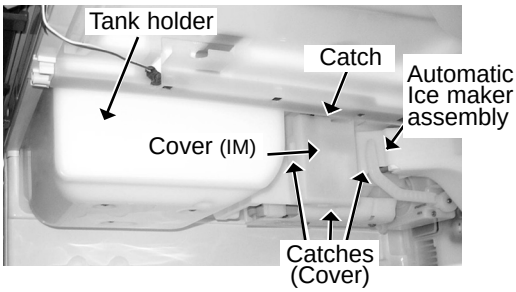
MR-G50M-C

Plug out before work!!
Check the automatic ice-maker pressing ice making stop switch.
In assembling & disassembling parts seven kinds of screws and rivets are used. Do not mistake to use them.

Ⓐ 4×12 Stainless steel
Ⓑ 4×12 (Black) With metal washer
Ⓒ 4×16 (White) With plastic washer
Ⓓ Specified screw
Ⓔ Rivet
Ⓕ Rivet

OPERATING PROCEDURE	PHOTOS
1. Elect cover → Control board (1) Remove 5 screws fixing the elect cover and the rivet Ⓔ on the upper rear side of the refrigerator. (See photo 1) **Control board** (2) Disconnect the connector to remove the control board. **Caution on assembly** Firmly connect the lead wires and the connector. Ensure the wires are not pinched.	Photo 1 
2. Parts inside the refrigerator compartment: AUTO-shelf (1) Remove two-way flexishelf from the refrigerator compartment. **AUTO-shelf** ① Move the lever to the right, and slide the AUTO-shelf to the uppermost position. (See photo 2) ② Push the catches (4 places) inward, and remove the AUTO-shelf from the metal stoppers. Lift up and remove the AUTO-shelf toward you. (See photo 3) ③ Remove the metal stoppers in front, back, left, and right sides of the unit. **Caution on assembly** ① First, install the metal stoppers to the unit. Then, place the AUTO-shelf on top, and push the AUTO-shelf downward until it clicks into place (4 places). Refer to Photo 4 for the direction of the metal stopper installation.	Photo 2  Photo 3  Photo 4 

OPERATING PROCEDURE	PHOTOS
Removing the AUTO-shelf from the AUTO-shelf frame. ① Remove the catches in the back (3 places), and lift up the AUTO-shelf as shown in Photo 6. (See photo 5, 6) ② The catches in front (4 places) will detach. Pull the AUTO-shelf toward you to remove.	Photo 5  Photo 6 
3. Parts inside the refrigerator compartment: Vertical partition ➔ Right rail of the slide compartment ➔ Left rail of the slide compartment ➔ Room light cover ➔ Control panel (Upper/ Lower), Duct R (Upper/ Lower) (1) Remove the slide chilled case, AUTO-shelf and two-way flex-ishelf from the refrigerator compartment. **Vertical partition** ① Remove the small item case and the slide chilled case. ② Pull out the ceiling by unhooking the front catches on both sides. ③ Remove the slide chilled case lid. ④ Remove the vertical partition.  **Right rail of the slide compartment** (2) Slide the right rail out toward you. (See photo 7) **Left rail of the slide compartment** (3) Slide the left rail out toward you. (See photo 8) **Room light cover** ① Push up the lower catch, and pull the room light cover toward you. ② Detach two upper catches to take out the cover. (See photo 9)	Photo 7  Photo 8  Photo 9 

OPERATING PROCEDURE	PHOTOS
Control panel Duct R (4) Remove rivet Ⓔ, and pull out the mirror hinge on the lower left of the control panel to remove the connector. (See photo 10) (5) Remove rivet Ⓕ (2 rivets) in the upper left and right side, screw Ⓐ (1 screw) in the lower left side. Detach catches (7 places). (See photo 10) **Control panel assembly** (The assembly consists of the following: Control panel, refrigerator compartment thermistor, slide chilled compartment thermistor, room light socket, refrigerator compartment room light, and duct R). **Caution on assembly** To prevent poor contact of connectors, connect them properly. Fix the control panel by inserting the lower catches (2 places) into the floor of refrigerator compartment.	Photo 10 
4. Parts inside the versa compartment → Ceiling of versa compartment (1) Take out interior parts of versa compartment. (2) Lift up and pull out the versa-compartment door. **Ceiling of versa compartment** (3) To detach the ceiling, remove rivet Ⓕ (3 rivets) and pull down the ceiling. (See photo 11) **Caution on assembly** ① Be sure that all the parts are fitted securely in place.	Photo 11 
5. Parts inside the ice making compartment, versa compartment, vegetable compartment, and freezer compartment → Partition I/ S → Partition I/ S/ V → Cover (IM) → Automatic ice maker assembly → Cover (lower) → Partition V/ F → Connector cover (right/ left) → Fan grille → Defrost heater, Drip tray, DEF thermistor (1) Remove interior parts out of ice making compartment, versa compartment, vegetable compartment, and freezer compartment. (2) To detach them, pull out the doors of ice making compartment, versa compartment, vegetable compartment, and freezer compartment. **Partition I/ S** (3) Remove rivet Ⓔ (1 rivet), partition cover, and a connector. Remove screw Ⓒ (2 screws) at the front side of refrigerator and four rollers to pull out the partition. (See photo 12) **Caution on assembly** Push up the lead wires so that they will not rub partition I/ S. **Partition I/ S/ V** (4) Remove screw Ⓐ (2 screws) at the front of refrigerator. Remove screw Ⓐ (1 screw each) and screw Ⓓ (1 screw each) at the right and left side of inner wall. Then lift up the partition. (See photo 13) **Cover (IM)** (5) Catches in order to detach the cover. (See photo 14) **Automatic ice maker assembly** (6) Pressing a catch upward, and pull Automatic ice maker assembly to the right side. (See photo 14)	Photo 12  Photo 13  Photo 14 

OPERATING PROCEDURE	PHOTOS

Cover (upper)

(7) Remove rivet Ⓔ (1 rivet) to detach the cover (See photo 15)

Cover (lower)

(8) Remove rivet Ⓔ (1 rivet) to detach the cover (See photo 16)

Partition V/ F

(9) Remove screw Ⓐ (4 screws) on inner wall and screw Ⓐ (2 screws) at the front.
Detach three connectors and lift up the partition. (See photo 15)

Connector cover (right/ left)

(10) To detach connector cover, remove rivet Ⓔ (2 rivets each) and catches (2 places).
(See photo 16)

(11) Detach the connector.

Fan grille

(12) To detach fan grille, remove screw Ⓑ (2 screws) on right and left side, rivet Ⓔ (1 rivet) on left side, and detach upper catches (3 places).
※Fan grille consists of the following: motor dampers (for ice-making compartment/ refrigerator compartment, versa compartment), refrigerator fan motor, fan, thermal fuse, vegetable compartment heater 1, 4 thermistors.
(See photo 16)

Evaporator

(13) Detach catch protruding from drip tray (See Figure 1) to remove evaporator.

Defrost heater, Drip tray

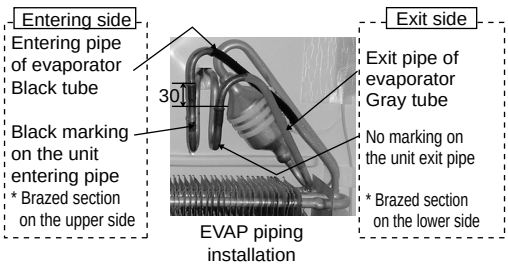
(14) Detach catch on drip tray (See Figure 2), and slide out defrost heater toward you. Remove heater roof and heater cover from defrost heater. Remove the aluminum tape, and then remove drip tray.

Defrost thermistor (DEF thermistor)

(15) Cut the binder and disconnect the connector to remove the DEF thermistor and the thermal fuse. (See photo 17)

Caution on assembly

Attach defrost heater in place and loosen the lead wires in order to prevent water from entering the glass tube.
Attach the drip tray securely to the lower parts.
Attach the DEF thermistor in place. (If they are attached out of place, thermal characteristics will go wrong.)
Attach the lead wires to the fixture.



EVAP piping installation

Photo 15

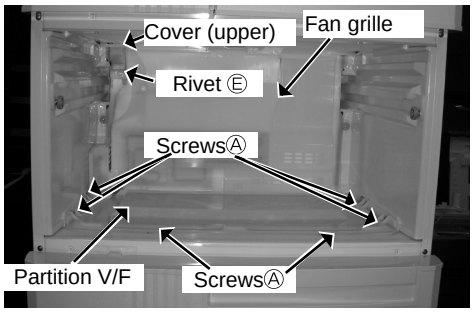
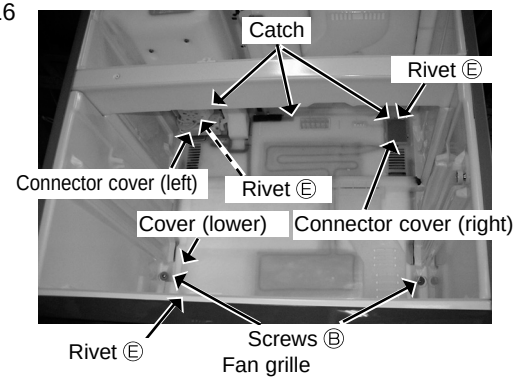


Photo 16



(Fan grille consists of the following: motor dampers (for ice making compartment / refrigerator compartment, versa compartment), refrigerator fan motor, fan, thermal fuse, vegetable compartment heater 1, 4 thermistors).

Figure 1

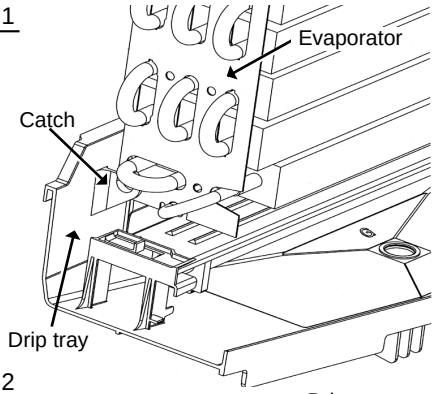


Figure 2

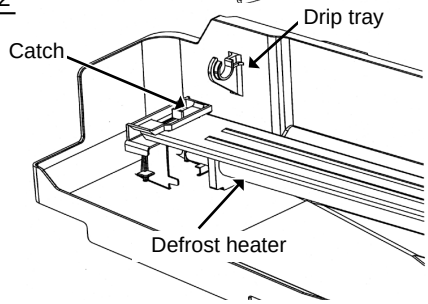
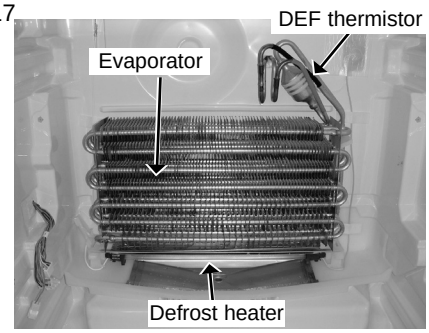


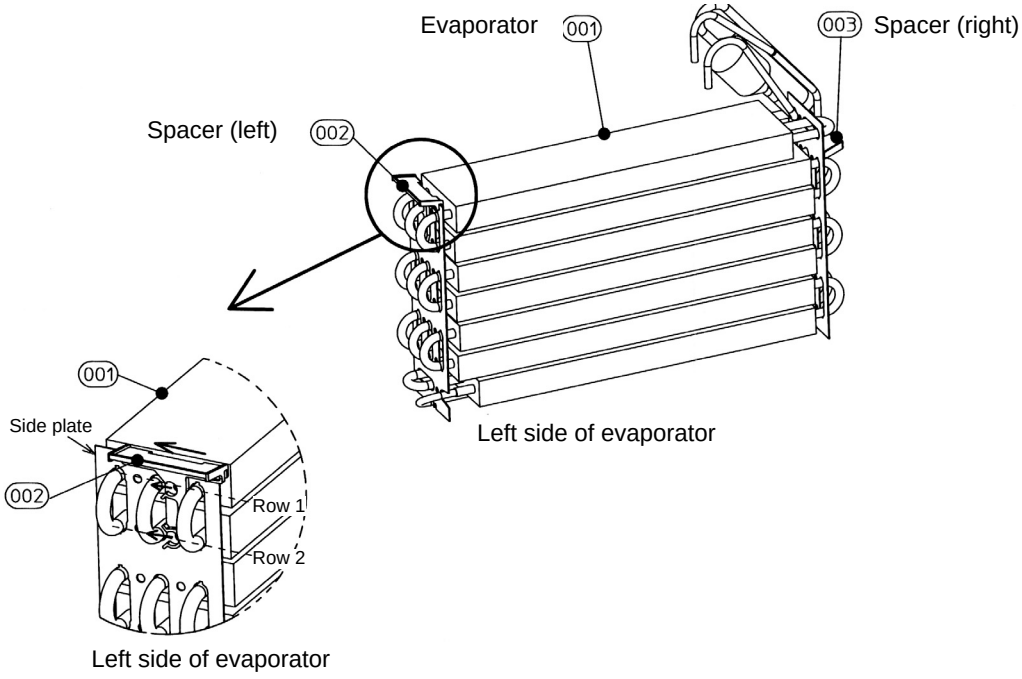
Photo 17



OPERATING PROCEDURE	FIGURE

Spacer (left), spacer (right)

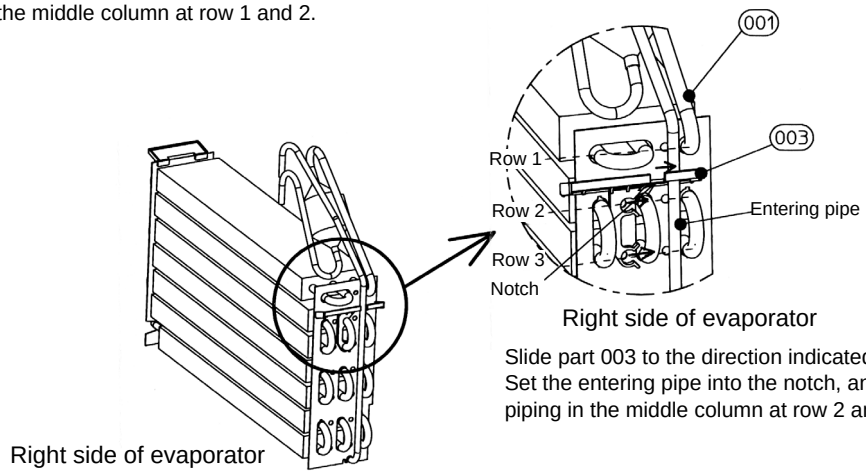
Spacer installation diagram



Left side of evaporator

Left side of evaporator

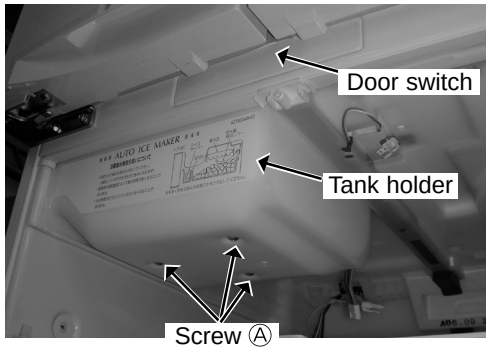
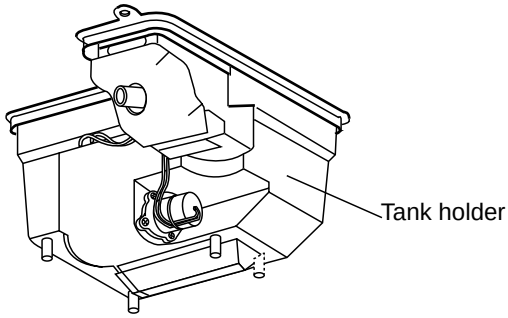
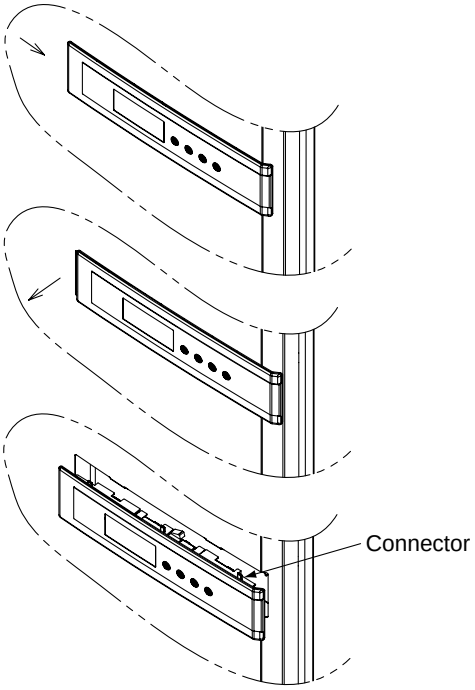
Engage part 002 to the side plate of part 001, and slide it to the direction indicated by the arrows to secure it to the piping in the middle column at row 1 and 2.

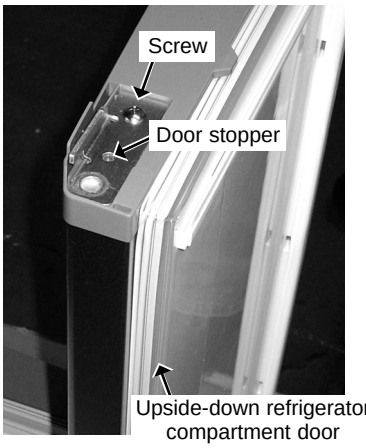
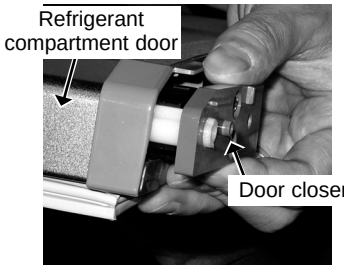
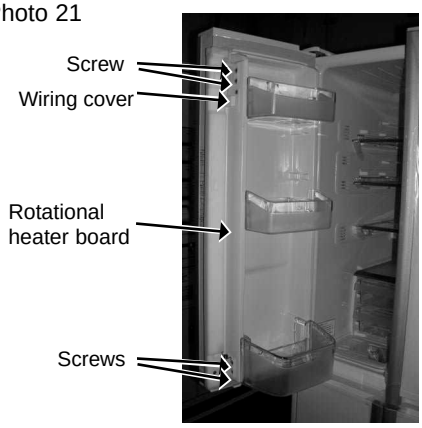
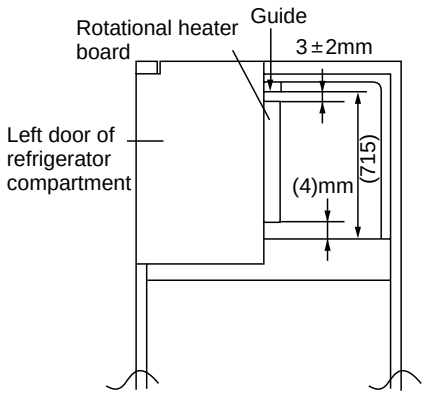


Right side of evaporator

Right side of evaporator

Slide part 003 to the direction indicated by the arrows. Set the entering pipe into the notch, and secure it to the piping in the middle column at row 2 and 3.

OPERATING PROCEDURE	PHOTOS
6. Parts inside the refrigerator compartment → Left rail of the slide compartment → Parts inside the ice making compartment → Ice making compartment door → Tank holder → Door switch (1) Remove the parts inside the refrigerator compartment. (See procedure [2], [3]) (2) Remove the left rail of the slide compartment. (See procedure [3]) (3) Remove the parts inside the ice making compartment. (4) Remove the ice making compartment door. **Tank holder** (5) Remove a screw on the side of the refrigerator compartment. (6) Loosen screw Ⓐ (3 screws) halfway on the side of the ice making compartment. Put a screwdriver on the head of each screw and top the bottom side of the holder softly to detach it. (See photo 18) (7) Lift up the tank holder from the refrigerator compartment to remove it. **Note:** ① Put the lead wires in place so that they do not get caught in water supply channel. ② Put the tank holder in place so that the water does not leak from it. **Door switch** (8) Insert a minus screwdriver between switch and body to remove the door switch.	Photo 18  Figure 3 
7. Operation panel **How to remove** (1) Slide the operation panel in the direction of the arrows, unit it stops. (See figure 4) (2) Pull out the operation panel as shown in a figure 5. (See figure 5) **Note:** ① Please pull it out carefully because it is still wired to the body. (3) Take out the panel by detaching the connector of lead wires from the body. (See figure 6) **Note:** ① If the horizontal slide is hard to remove with hands, put plate on the right edge of the panel (please put protective object such as tapes on the area of contact on the door panel and the operation panel), and gently tap it in the sliding direction. (See figure 4)	Figure 4 Figure 5 Figure 6 

OPERATING PROCEDURE	PHOTOS
8. Door closer (1) Remove refrigerator compartment doors (right and left). (2) Turn the doors upside down, and remove screws (1 screw each) of door stoppers for vegetable compartment door (right) and freezer compartment door (left). (See photo 19) (3) Remove door closer. (See photo 20) **Note:** ① Refrigerator doors should be opened 90 degrees at the time of installation or removal.	Photo 19  Photo 20 
9. Rotational heater board (1) Remove 4 fixing screws to remove the rotational heater board. (See photo 21) (2) Remove a screw on the wiring cover and disconnect the connector in the cover. (See photo 21) **Caution on assembly** When raising the rotational heater board, replace the rotational heater board as it was. if the refrigerator door is closed with the board raised, the rotational heater board may hit against the left door of refrigerator and be damaged. Though heater preventing dewdrop may make rotational heater board hot, it does not affect food inside. Refer to right figure when installing the rotational heater board. (See figure 7) ● Loosen the fixing screw and adjust a vertical (upper and lower) motion. ● After assembling, make sure that the rotational heater board fits the guide properly and works properly.	Photo 21  Figure 7 

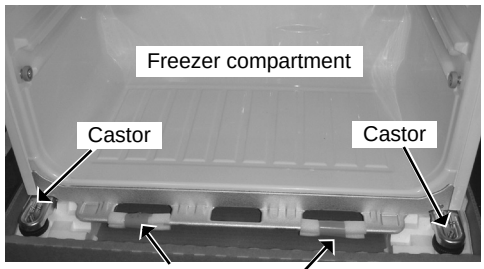
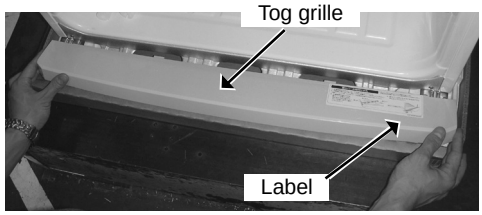
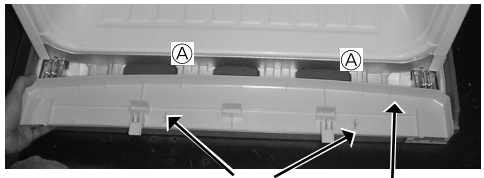
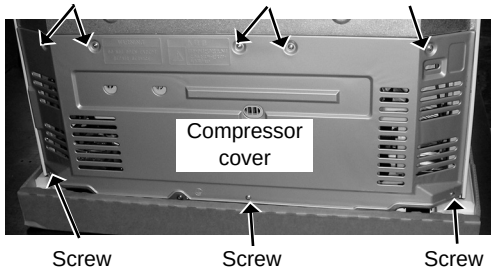
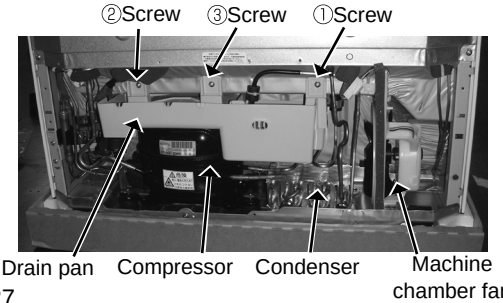
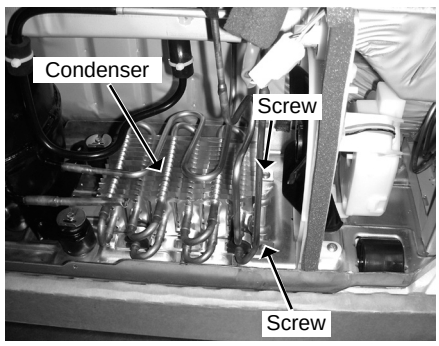
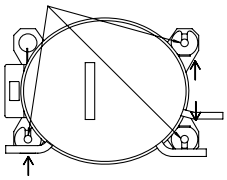
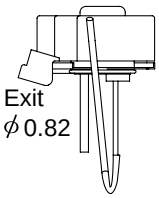
OPERATING PROCEDURE	PHOTOS
10. Toe grille **Detach catch (2 places) and remove toe grille.** **Caution on assembly** ① Remove PE tube (2 places, on right and left side) (See photo 22) ● If PE tube is not removed, toe grille cannot be installed. ② Tilt the toe grille to install, as shown in photo 23. ● Catch (2 places) on the back of toe grille should come to the position indicated Ⓐ. (See photo 24) ● Refer to the label on compressor cover (photo 23) for caution on assembly.	Photo 22  Photo 23  Photo 24 
11. Compressor cover → Drain pan → Machine chamber fan → Condenser **Compressor cover** (1) Remove 7 screws for compressor cover at the back of the refrigerator. (See photo 25) **Drain pan** (2) Remove screw (3 screws). (See photo 26) **Caution on assembly** ① Secure the screws in the following order: ① Right screw, ② Left screw, ③ Center screw. (See photo 26) **Caution** ① Wash the drain pan with water in case it is dirty. **Machine chamber fan** (3) Disconnect connector. (4) Remove screw (1 screw) securing bell mouth, and disconnect connector. Pull out bell mouth. **Condenser** (5) Remove screw (2 screws) and remove condenser. (See photo 27) **Caution** ① Arrange wiring as shown in photo 28 and photo 29. Photo 28  Photo 29 	Photo 25  Photo 26  Photo 27 

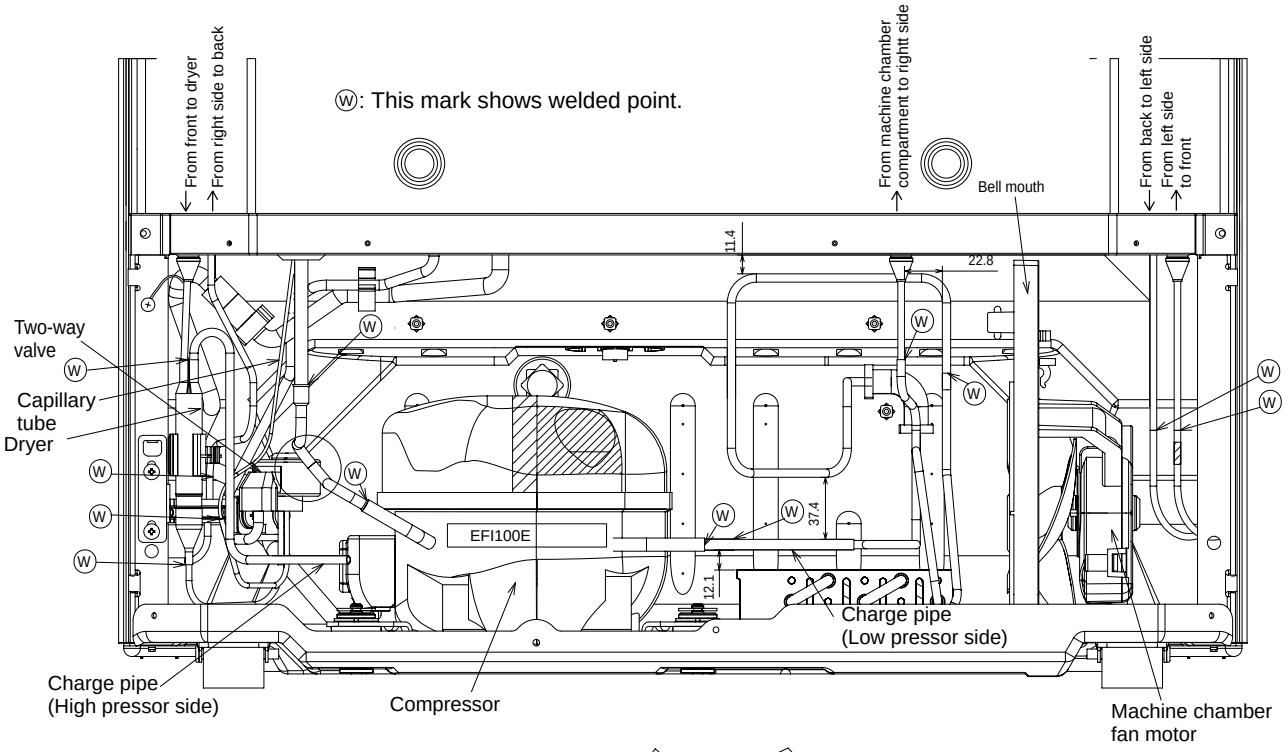
Figure 8

Attach U washer as the figure shown below.



Piping connection of two-way valve





Adjust piping and secure clearance of about 10 to 15 mm around pipes.
Make sure clearance is secured especially between the following parts.

- Between charge pipe and compressor cover, bottom pan, compressor, or discharge pipe.
- Between suction pipe and compressor cover or capillary tube.
- Between capillary tube and two-way valve or lead wires.

Door adjustment

<Adjusting refrigerator compartment doors>

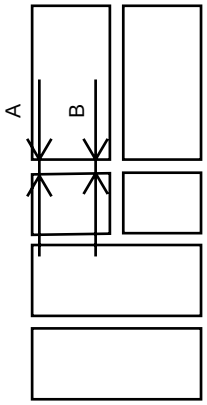
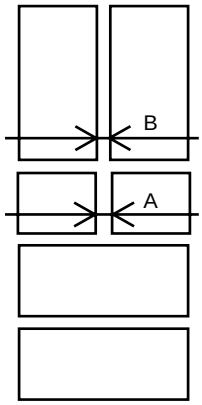
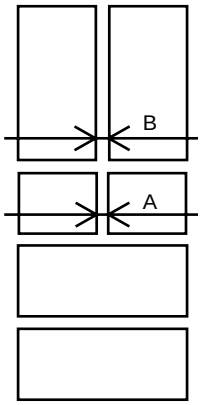
• Common elements

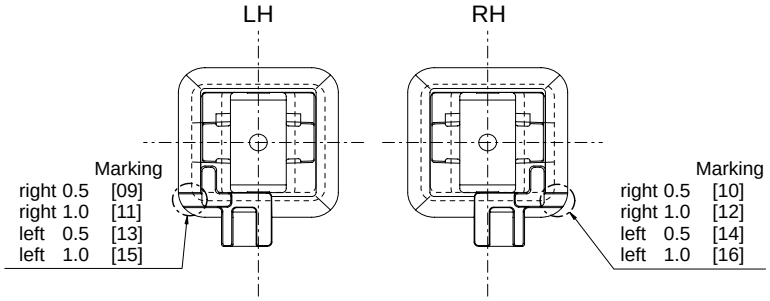
First, check the installation condition.

① If the adjustment bolt is not in contact with the floor, lower the bolt, and adjust it so that the caster is slightly above the floor.
② When the refrigerator is installed in the corner of the room, the bolt of the refrigerator may sink into the floor and cause the refrigerator to tilt. It is recommended to make adjustments by objects like boards beforehand.
③ When the refrigerator bolt is sunk into the floor, and it can be confirmed visually, prevent sinking by using objects like boards.

Note : The refrigerator weighs about 100kg, and is held by four bolts. How far each bolt sinks into the floor depends on factors such as floor pillars. Change in balance due to position of stored food (such as large or small amount of food stored in the door pockets) may also affect sinking.

<Adjusting ice making compartment and versa compartment doors>

	Adjusting doors horizontally	Adjusting vertical space between doors	
		Too much space	Not enough space
Problem	 A>B (More space in outer side) ① Or A<B (More space in inner side) ②	 A>B (Too much space between the ice making compartment and versa compartment doors.) Misaligned versa compartment door ③ Misaligned ice making compartment door ④	 A<B (Small space between the ice making compartment and versa compartment doors.) Misaligned versa compartment door ⑤ Misaligned ice making compartment door ⑥
Solution	① Place spacer set under the outer roller of the tilted door (ice making compartment door in the above illustration) to adjust position. ② Place spacer set under the inner roller of the tilted door (ice making compartment door in the above illustration) to adjust position.	③ Replace roller set of the right and left versa compartment doors. a To adjust about 0.5mm replace with roller set C. b To make large adjustment replace with roller set D. ④ Replace lower roller set of the ice making compartment door. c To adjust about 0.5mm replace with roller set A. d To make large adjustment replace with roller set B.	⑤ Replace roller set of the right and left versa compartment doors. a To adjust about 0.5mm replace with roller set A. b To make large adjustment replace with roller set B. ⑥ Replace lower roller set of the ice making compartment door. c To adjust about 0.5mm replace with roller set C. d To make large adjustment replace with roller set D.



Identifying roller sets (Marking)

	LH	RH
Roller set A (0.5mm to the right)	09	10
Roller set B (0.5mm to the right)	11	12
Roller set C (0.5mm to the right)	13	14
Roller set D (0.5mm to the right)	15	16

Check points after adjustment

- When adjustments such as hinge position have been made without food in the door pockets, confirm the door position again with food stored inside.
- When the refrigerator is moved to make adjustments in the back bolts, floor may be damaged due to objects trapped in the caster. It is recommended to take preventive measures such as cleaning around the refrigerator and covering the floor with boards before moving the refrigerator.
- After adjusting the refrigerator compartment doors, confirm auto closer operation.

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