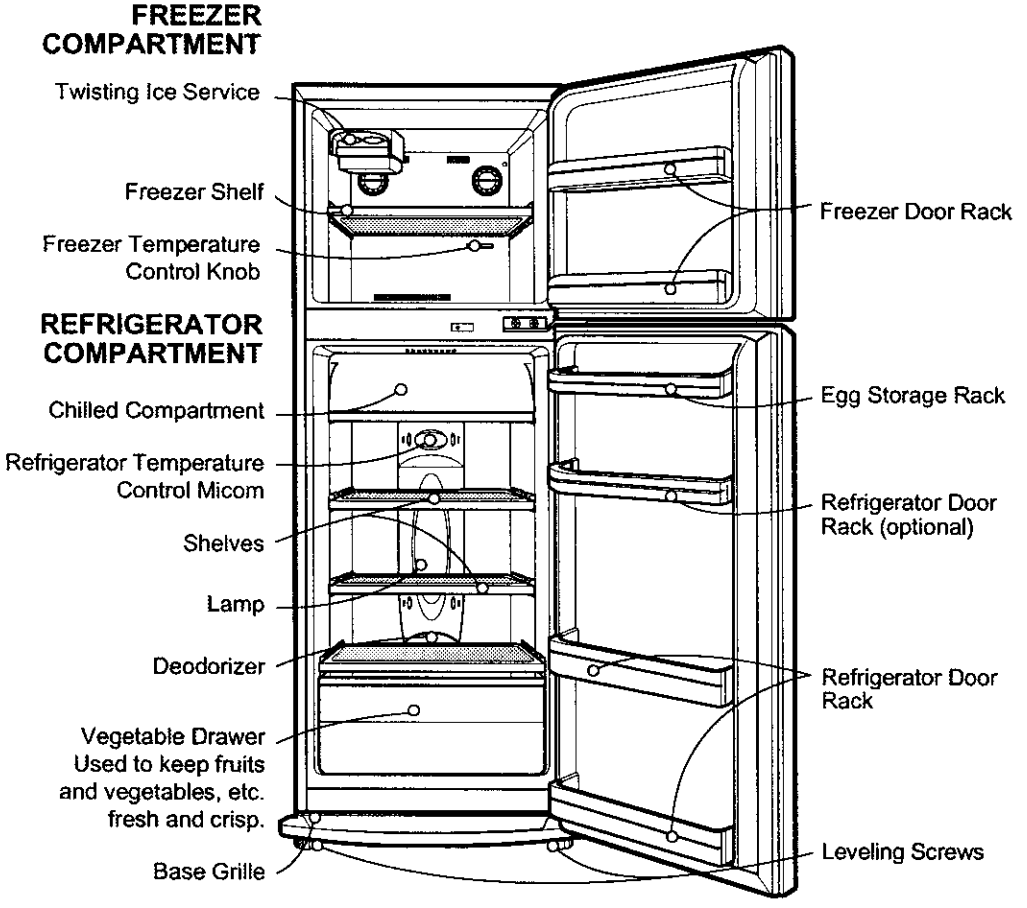
2. PARTS IDENTIFICATION



3. DISASSEMBLY

3-1. DOOR

● Freezer Door

1. Remove the hinge cover by pulling it upwards.
2. Loosen hexagonal bolts attaching the upper hinge to the body and lift the freezer door.

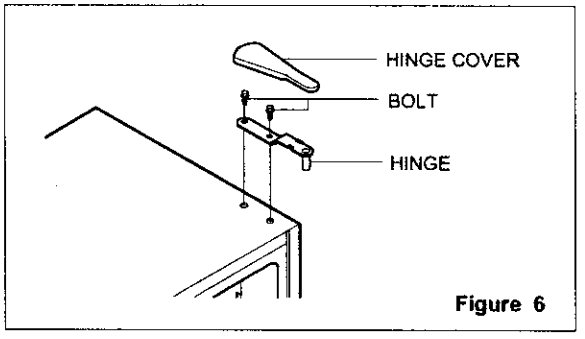


Figure 6

3. Pull out the door gasket to remove from the door foam assembly.

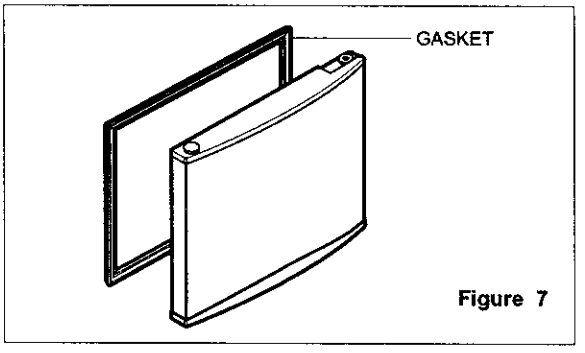


Figure 7

● Refrigerator Door

1. Loosen hexagonal bolts attaching the lower hinge to the body to remove the refrigerator door only.

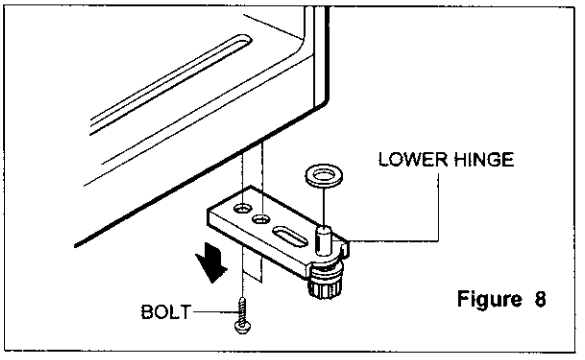


Figure 8

2. Pull out the door gasket to remove from the door foam assembly.

3-2. DOOR SWITCH

1. To remove the door switch, pull out it with a slotted type driver as shown in (figure 9.)
2. Disconnect the lead wire from the switch.

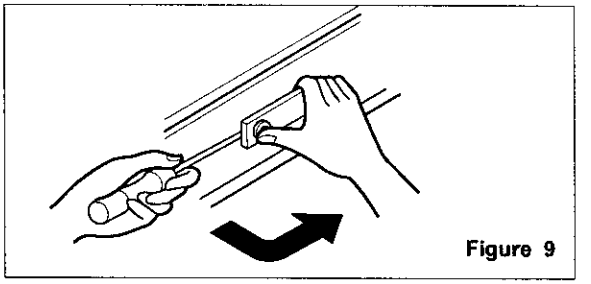


Figure 9

3-3. THERMISTOR

1. Remove the Cover Lamp-R by the use of slotted type driver inserting in the low holes of the cover.
2. Loose 2 screw.
3. Pull the Control Box-Refrigerator.
4. Disconnect the Housing of lead wire.
5. Separate the INSU'Multi Duct and Control Box-Refrigerator.
6. Separate the Thermistor and Control Box-Refrigerator.
7. Separate the Thermistor and Display PCB.

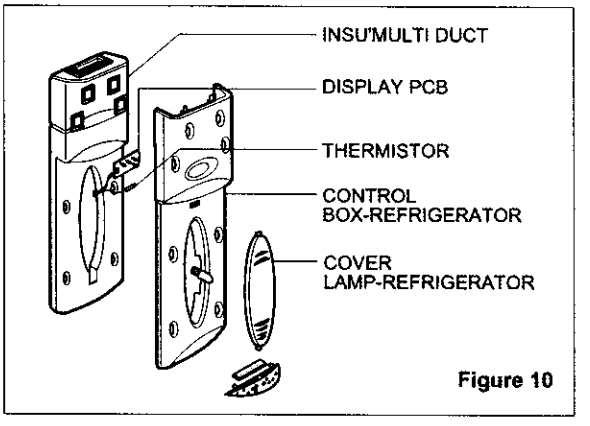


Figure 10

3-4. FAN AND FAN MOTOR

1. Remove the freezer shelf.
2. Separate the twist by pulling right.
3. Loose 1 screw.
4. Pull out the Grille Fan and Shroud-Freezer.

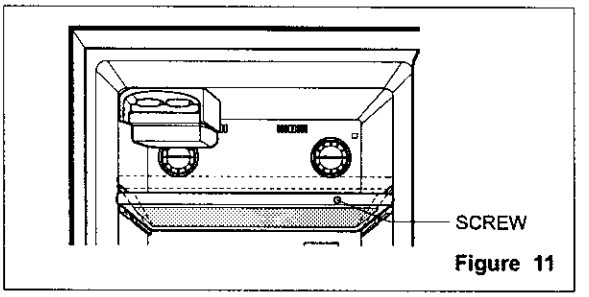


Figure 11

5. Disconnect the housing of lead wire.
6. Separate the Fan assembly.
7. Loose 2 screw attached to the Bracket.
8. Pull out Shroud-F remove the Fan Motor assembly.
9. Separate the Motor Bracket and bushing.

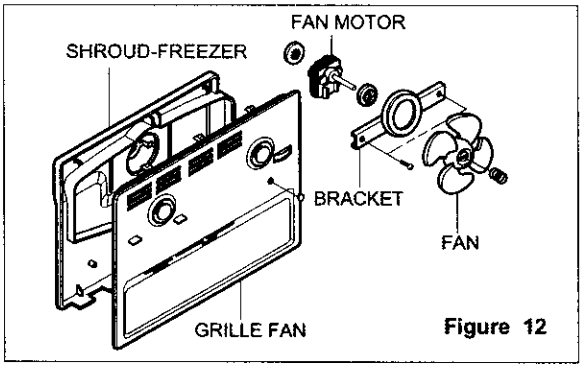


Figure 12

3-5. DEFROST CONTROL ASSEMBLY

Defrost Control Assembly consists of Defrost Sensor and FUSE–M.

Defrost Sensor functions to defrost automatically and it is attached to the Evaporator and the metal side of the case senses Temp.

Fuse-M is a kind of safety device for preventing over-heating of the Heater when defrosting.

At the temperature of 72°C, it turns the Defrost Heater off.

1. Pull out the shroud-Freezer after removing the Grille Fan. (Figure 13)
2. Separate the connectors connected with the Defrost Control Assembly and replace the Defrost Control Assembly after cutting the Tie Wrap. (Figure 14)

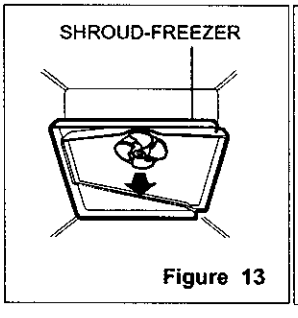


Figure 13

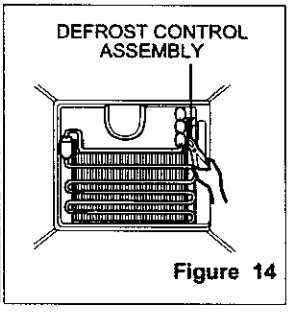


Figure 14

3-6. REFRIGERATOR ROOM LAMP

1. Remove the cover lamp-Refrigerator by pulling with a slotted type driver.
2. Remove the lamp-Refrigerator by turning.

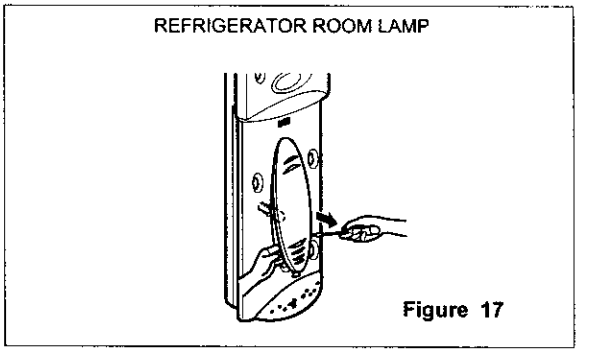


Figure 17

3-7. CONTROL BOX-REFRIGERATOR

1. Remove the Cover lamp-Refrigerator.

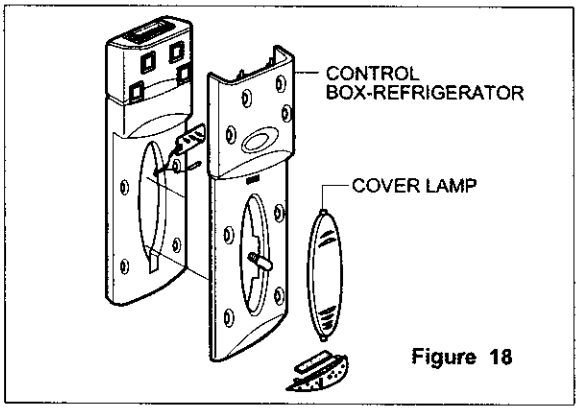


Figure 18

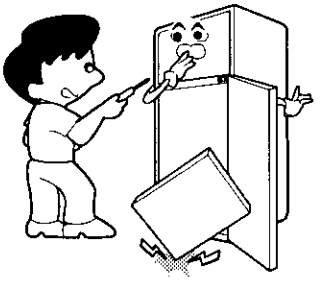
2. Loosen 2 screws.
3. Full the Control Box-Refrigerator.
4. Separate the lead wire Housing.

3-8. REVERSING THE DOOR

- Converting Door is Optional

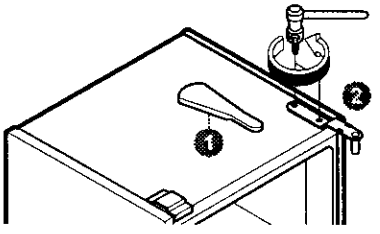
● Precaution

1. Before reversing the door, remove all foods, shelves, etc. from the refrigerator.
2. Use the phillips Driver, Bolt Driver, Torque Wrench, or Spanner to fix or remove the bolt.
3. Be sure not to drop the refrigerator or the doors while reversing the hinges. Don't lay the refrigerator on its side while working on it; it will malfunction.
4. Be careful not to drop the door in disassembling or assembling the freezer or the refrigerator door.

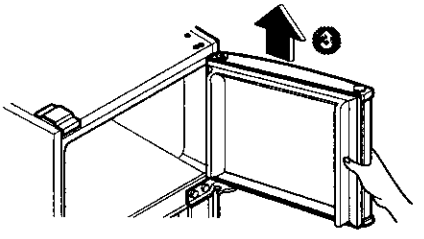


■ HOW TO REPLACE THE DOOR OPENING TYPE

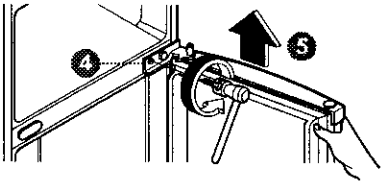
1 **Separate the cap ❶ and upper hinge ❷.**



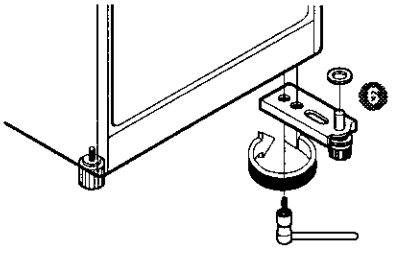
2 **Removing the freezer door ❸.**



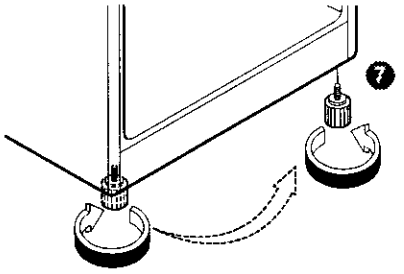
3 **Separating the center hinge ❹ and the refrigerator door ❺.**



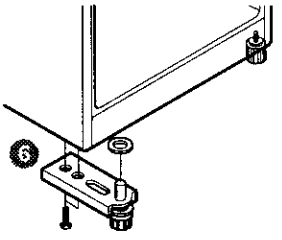
4 **Separating the lower hinge ❻.**



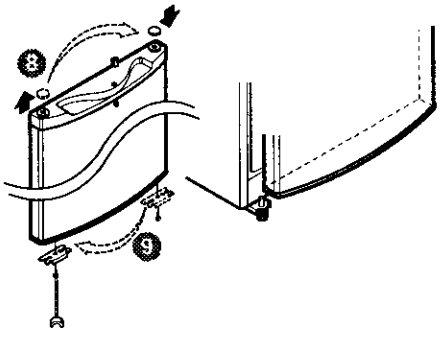
5 Reposition the adjustable screw assembly ❼.



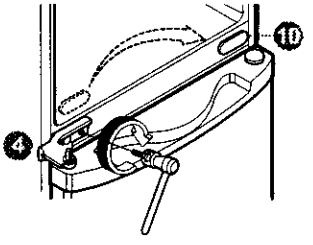
6 Reassemble the lower hinge ❻.



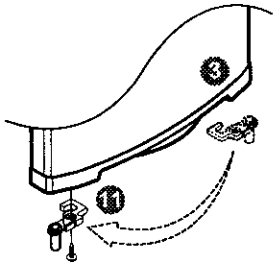
7 Move the cap ❽ and bracket ❾ of the refrigerator door.



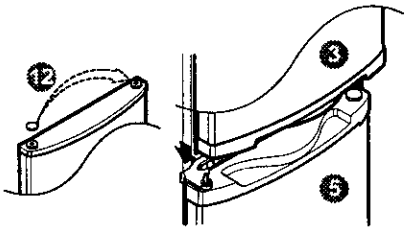
8 Move the cap ❿ and reassemble the center hinge ❹ after removing the washer.



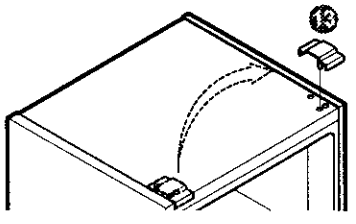
9 Reassemble the refrigerator door stopper ⓫.



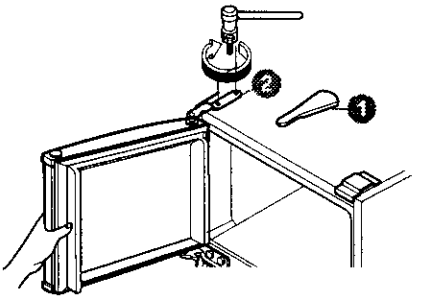
10 Move the cap ⓬ and replace the freezer door ❸.



11 Move the pin position ⓭ of the upper hinge.



12 Assemble the upper hinge ❷ and the cap ❶.



4. ADJUSTMENT

4-1. COMPRESSOR

4-1-1. Role

The compressor intakes low temperature and low pressure gas evaporated from Evaporator of the Refrigerator, and condenses this gas to high temperature and high pressure gas, and then delivers it to the condenser.

4-1-2. Composition

The Compressor Assembly consists of a hermetically sealed unit containing an electric motor, a compressor, and their case. The PTC (Positive Temperature Coefficient) and OLP (Overload Protector) are mounted outside the case. The case is sealed to protect parts machined to one micron (0.001 mm) and should not be opened.

4-1-3. Note to Use

(1) Be careful not to allow over-voltage and over-current.

(2) Do not strike!
If applying force or pressure (dropping or careless handling,) poor operation may result.

(3) Use proper electric components appropriate to the Compressor.

(4) Note to Keep Compressor.
If the compressor is wet and the terminal pins rust, poor contact and poor operation may result.

(5) Be careful that dust, moisture, and welding flux don't get into the refrigeration system during service. These could cause leakage and noise.

4-2. PTC-STARTER

4-2-1. Composition of PTC-Starter

(1) PTC (Positive Temperature Coefficient) is no-contact semiconductor starting device which uses ceramic material consisting of $BaTiO_3$.

(2) The higher the temperature is, the higher resistance value becomes . These features are used as starting device of Motor.

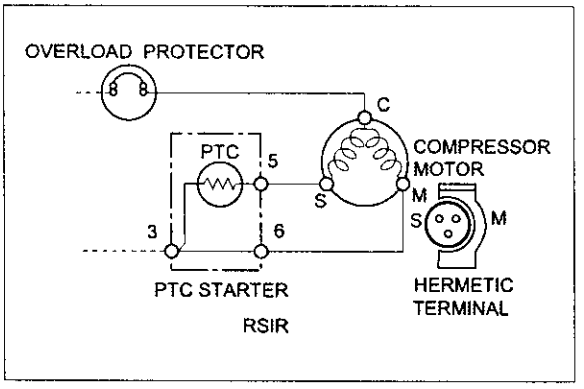
4-2-2. Role of PTC-Starter

(1) The PTC is attached to the compressor and is used to start the motor.

(2) The compressor in this refrigerator is a single-phase induction motor.
For normal operation of a single-phase induction motor, in the starting operation, current flows in both the main coil and the sub-coil. After starting, the current in the sub coil is cut off. The PTC performs all these roles; therefore it functions as a motor starting device.

4-2-3. PTC-Applied Circuit Diagram

● According to Starting Method of Motor



4-2-4. Motor Restarting and PTC Cooling

(1) For restarting after power off during normal Compressor Motor operation, plug the power cord after 5 min. for pressure balance of Refrigerating Cycle and PTC cooling.

(2) During normal operation of Compressor Motor, PTC elements generate heat continuously. Therefore, if PTC isn't cooled for a while after power off, Motor can't operate again.

4-2-5. Relation of PTC-Starter and OLP

(1) If power off during operation of Compressor and power on before PTC is cooled, (instant shut-off within 2 min. or reconnect a power plug due to misconnecting), PTC isn't cooled and a resistance value grows. As a result, current can't flow to the sub-coil and Motor can't operate and OLP operates by flowing over current in only main coil.

(2) While the OLP repeats on and off operation about 3-5 times, PTC is cooled and Compressor Motor performs normal operation.
If the OLP doesn't operate when the PTC is not cooled, the compressor motor wears away, causing a short and fire. Therefore; always use a properly attached OLP.

4-2-6. Note to Use PTC-Starter

(1) Be careful not to allow over-voltage and over-current.

(2) Do not strike!
If applying force or pressure (dropping or careless handling,) poor operation may result.

(3) Keep apart from any liquid.
If liquid such as oil or water inflows into PTC, PTC materials it may break due to insulation breakdown of material itself.

(4) Use ONLY the correct PTC for this operation. Purchase part by part number, model number, and serial number. Many PTCs may look and fit the same, but the electrical characteristics may not match.

(5) Use a properly attached PTC.

4-3. OLP (OVERLOAD PROTECTOR)

4-3-1. Definition of OLP

(1) OLP (Overload Protector) is attached to the compressor and protects the motor by cutting off current to the motor when the bimetallic strip opens the circuit when it overheats.

(2) When over-voltage flows to Compressor motor, Bimetal works by heating the heater inside OLP, and OLP protects Motor by cutting off current which flows to Compressor Motor.

4-3-2. Role of OLP

(1) OLP is attached to Hermetic Compressor used to Refrigerator and Show Case and prevents Motor Coil from being started in the Compressor.

(2) Do not turn the Adjust Screw of OLP in any way for normal operation of OLP.
(Composition and connection Diagram of OLP

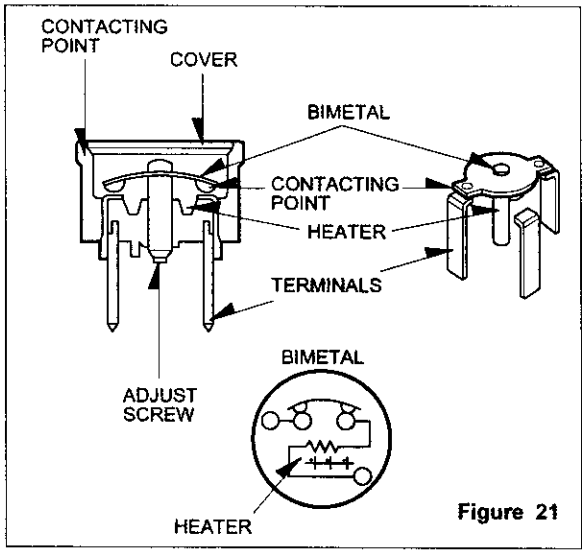
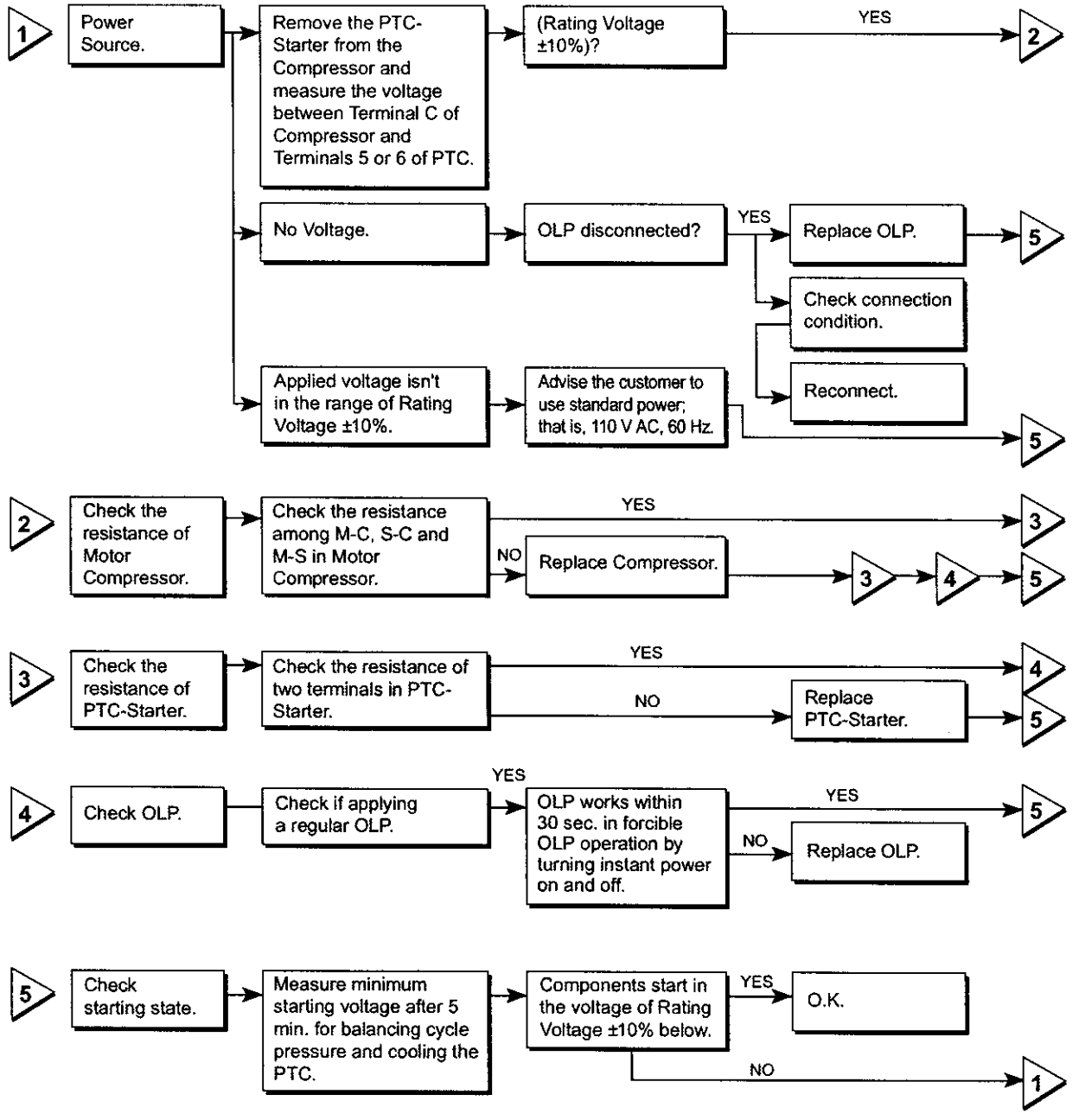


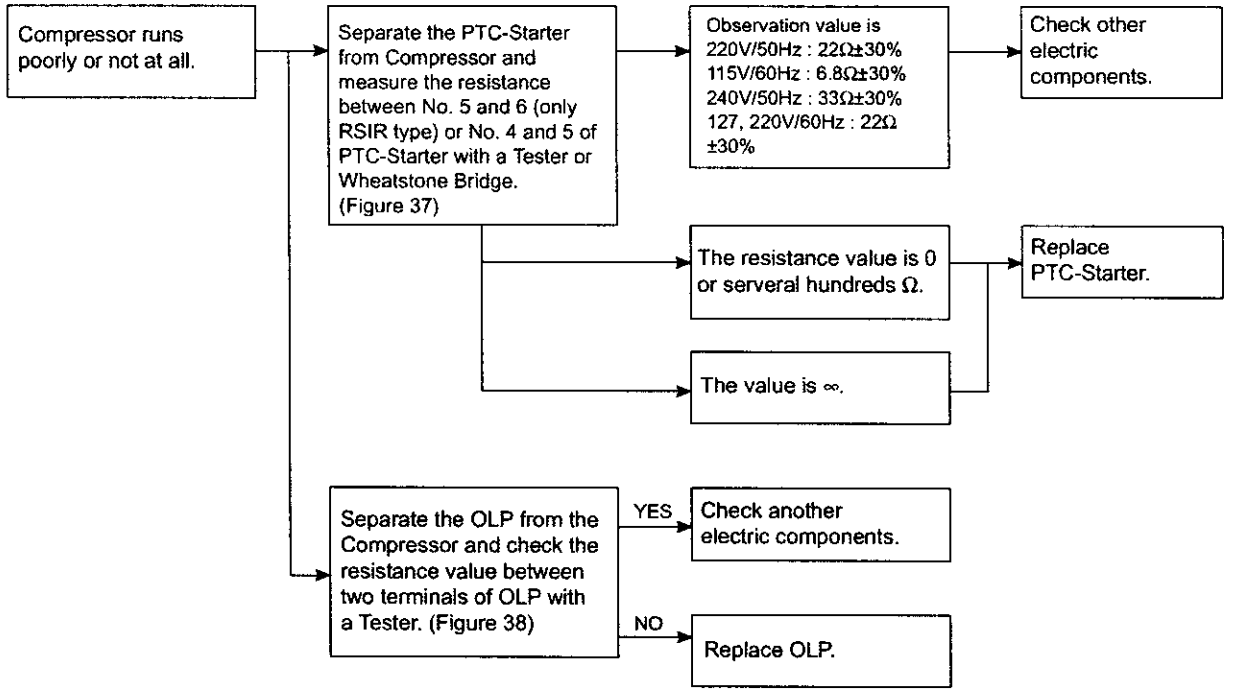
Figure 21

6. TROUBLESHOOTING

6-1. COMPRESSOR AND ELECTRIC COMPONENTS



6-2. PTC AND OLP



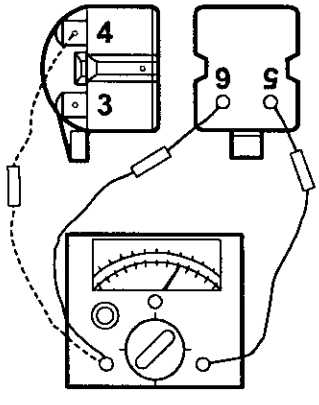


Figure 37

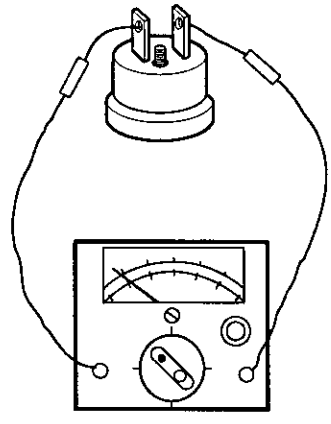
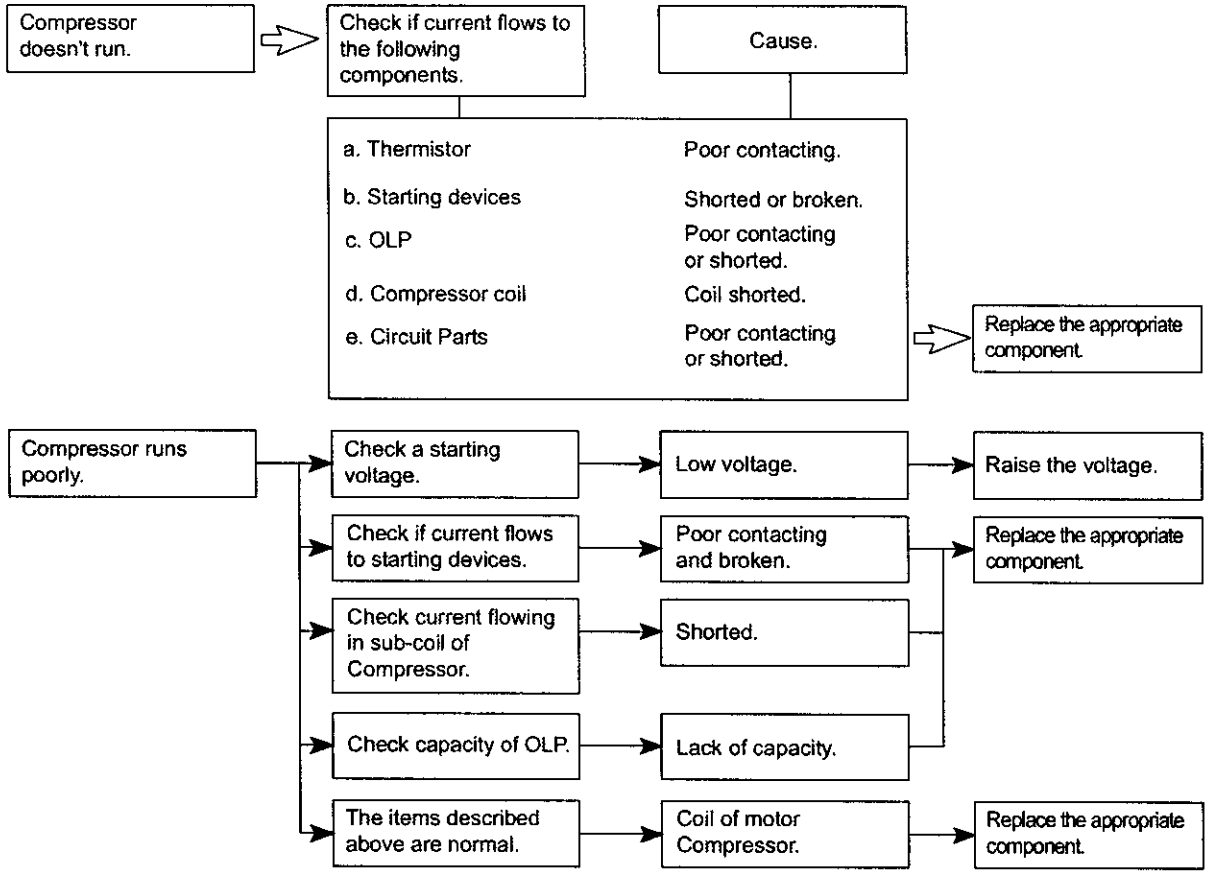


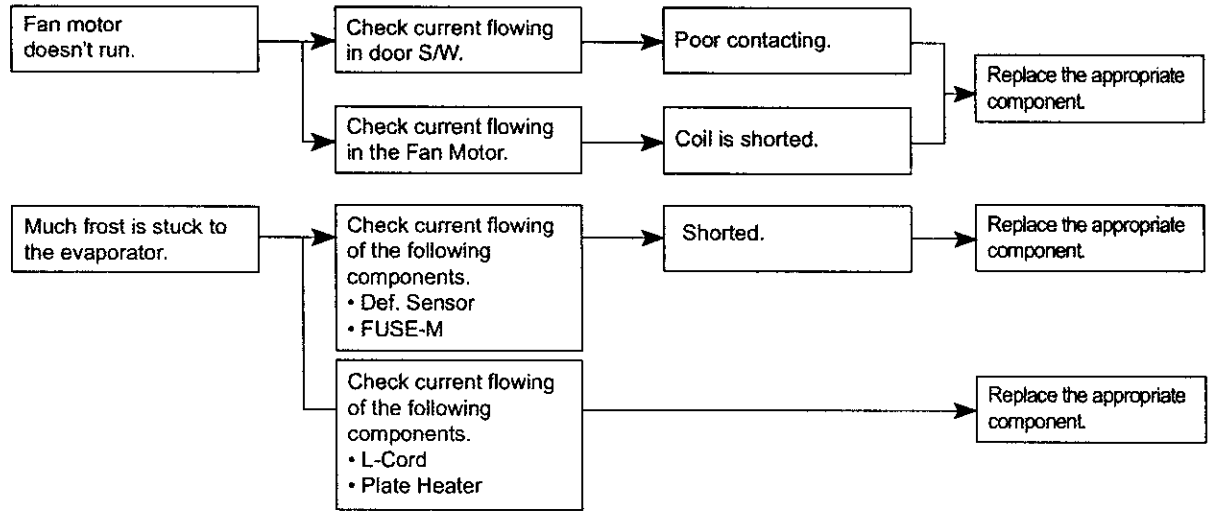
Figure 38

6-3. OTHER ELECTRIC COMPONENTS

▼ Cooling is impossible



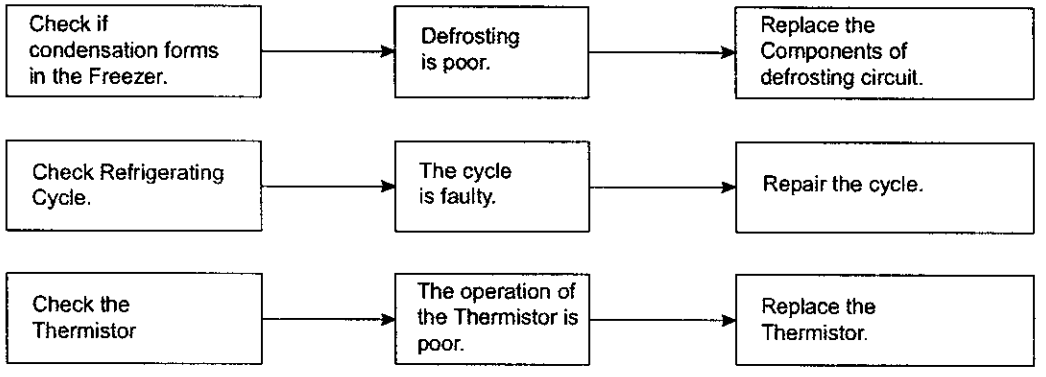
▼ Cooling ability is poor



6-4. SERVICE DIAGNOSIS CHART

COMPLAINT	POINTS TO BE CHECKED	REMEDY
Cooling is impossible.	• Is the power cord unplugged from the outlet? • Check if the power S/W is set to OFF. • Check if the fuse of power S/W is shorted. • Measure the voltage of power outlet.	• Plug to the outlet. • Set the switch to ON. • Replace a regular fuse. • If voltage is low, check wiring.
Cooling ability is poor.	• Check if the set is placed close to wall. • Be sure the refrigerator is not too close to a stove or cooker or in direct sunlight. • Is the ambient temperature high or the room door closed? • Check if putting in hot foods. • Did you open the door of the set too often or check if the door is closed? • Verify control is set to **MIN**.	• Be sure there is a space of at least 4 inches (10 cm) on all sides of the refrigerator. • Place the set apart from these heat appliances. • Make the ambient temperature below. • Put foods in after they are cool. • Don't open the door too often and close it firmly. • Set the control to mid-position.
Foods in the Refrigerator are frozen.	• Are foods placed in cooling air outlet? • Verify display LED is set to **MAX**. • Is the ambient temperature below 5°C?	• Place foods in high temperature section. (Front Part) • Set the display to **MID**. • Set the display to **MIN**.
Condensation or ice forms in the chamber of the set.	• Is watery foods kept? • Check if putting in hot foods. • Did you open the door of the set too often or check if the door is closed up.	• Seal up watery foods with wrap. • Put in foods after they get cold. • Don't open the door too often and close it firmly.
Condensation forms on the exterior.	• Check if ambient temperature and humidity of surroumcling air are high. • Is the gap in the door packed?	• Wipe condensation with a dry cloth. This happening is solved in low temperature and humidity naturally. • Fill up the gap.
Abnormal noise generates.	• Is the refrigerator positioned in a firm and even place? • Does any unnecessary objects exist in the back side of the set? • Check if the Drip Tray is not firmly fixed. • Verify the cover of the compressor area is in place.	• Adjust the Adjust Screw, and position in the firm place. • Remove the objects. • Fix it firmly on an original position. • Place the cover at an original position.
The door doesn't close or seal.	• Check if the door packing becomes dirty by filth such as juice. • Is the set positioned in a firm and even place? • Is too much food putted in the set?	• Clean the door packing. • Position in the firm place and adjust the Adjust Screw. • Keep foods away from the door.
Ice and foods smell unpleasant.	• Check if the inside of the refrigerator becomes dirty. • Did you keep smelly foods without wraping? • It smells plastic.	• Clean the inside of the set. • Wrap smelly foods. • The new products smells of plastic, but it goes away after a couple of weeks.

• In addition to the items described left, refer to the followings to solve the complaint.



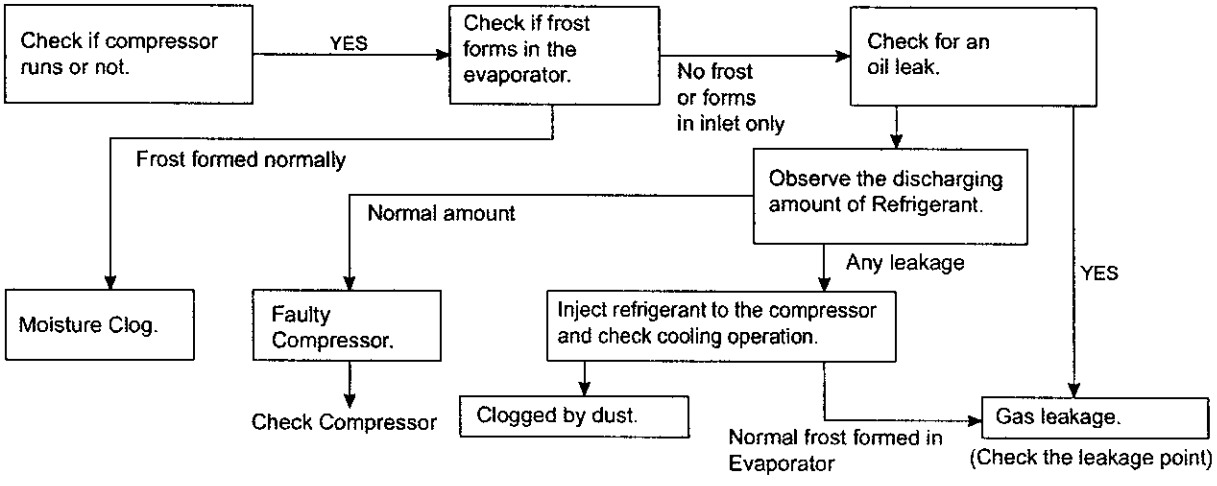
6-5. REFRIGERATING CYCLE

▼ Troubleshooting Chart

CAUSE		CONDITION OF THE SET	CONDITION OF THE EVAPORATOR	TEMPERATURE OF THE COMPRESSOR	REMARKS
LEAKAGE	PARTIAL LEAKAGE	Freezer and refrigerator do not get as cold as they should.	Low flowing sound of Refrigerant is heard and frost forms in inlet only.	A little higher than ambient.	• A little refrigerant has leaked. • Normal cooling is possible when injecting the regular amount of refrigerant.
	WHOLE LEAKAGE	Freezer and refrigerator do not get as cold as they should.	Flowing sound of Refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	• No refrigerant leak. • Normal cooling is possible when injecting the regular amount of refrigerant.
CLOGGED BY DUST	PARTIAL CLOG	Freezer and refrigerator do not get as cold as they should.	Flowing sound of Refrigerant is heard and frost forms in inlet only.	A little high more than ambient temperature.	• Normal refrigerant leak. • The capillary tube is faulty.
	WHOLE CLOG	Freezer room and refrigerator do not get cold at all.	Flowing sound of Refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	• Normal refrigerant leak.
MOISTURE CLOG		Cooling operation stops periodically.	Flowing sound of Refrigerant is not heard and frost melts.	Low than ambient temperature.	• Cooling operation restarts when heating the inlet of capillary tube.
DEFECTIVE COMPRESSION	COMP-RESSION	Freezer and Refrigerator don't get cold.	Low flowing sound of Refrigerant is heard and frost forms in inlet only.	A little high than ambient temperature.	• Low pressure on the high pressure side.
	NO COMP-RESSION	No compressing operation.	Flowing sound of Refrigerant is not heard and no frost.	Equal to ambient temperature.	• No pressure on the high pressure side of the compressor.

▼ Leakage Detection

• Check for the discharge point of refrigerant, which may be in the oil inside the compressor or a hole in the tubing, evaporator, or condenser.



▼ **General Control of Refrigerating Cycle**

NO.	ITEMS	CONTENTS AND SPECIFICATIONS	REMARKS
1	WELDING ROD	(1) H 30 • Chemical Ingredients Ag: 30%, Cu: 27%, Zn: 23%, Cd: 20% • Brazing Temperature: 710~840°C (2) Bcup-2 • Chemical Ingredients Cu: About 93% P: 6.8~7.5% The rest: within 0.2% • Brazing Temperature: 735~840°C	• Recommend H34 containing 34% Ag in the Service Center.
2	FLUX	• Ingredients and how to make Borax 30% Borax 35% Fluoridation kalium: 35% Water: 4% Mix the above ingredients and boil until they are transformed into liquid.	• Make amount for only a day. Holding period: 1 day • Keep the flux in a closed container to eliminate contamination by dust. • Keep it in a stainless steel container.
3	DRIER ASM	(1) Do not unpack the drier until you are ready to install it. Install it as soon as possible after the package is unsealed. (2) Keep the unpacked drier at the temperature of 80~100°C.	• Don't keep the drier in a outdoor because humidity damages to it.
4	VACUUM	(1) When measuring with pirant Vacuum gauge of charging M/C, vacuum degree is within 1 Torr. (2) If the vacuum degree of the cycle inside is 10 Torr. below for low pressure and 20 Torr. for high pressure, it says no vacuum leakage state. (3) Vacuum degree of vacuum pump must be 0.05 Torr. below after 5 min. (4) Vacuum degree must be same to the value described item (2) above for more than 20 min.	• Apply M/C Vacuum Gauge without fail. • Perform vacuum operation until a proper vacuum degree is built up. • If a proper vacuum degree isn't built up, check the leakage from the Cycle Pipe line part and Quick Coupler Connecting part.
5	DRY AND AIR NITROGEN GAS	(1) The pressure of dry air must be more than 12~16Kg/cm^2. (2) Temperature must be more than -20~-70°C. (3) Keep the pressure to 12~6Kg/cm^2 also when substituting dry air for Nitrogen Gas.	
6	NIPPLE AND COUPLER	(1) Check if gas leaks with soapy water. (2) Replace Quick Coupler in case of leakage.	• Check if gas leaks from connecting part of Coupler.
7	PIPE	• Store parts carefully! Keep all pipes, fittings, and parts in a clean box to protect them from air, oxidation, and contamination.	

7. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

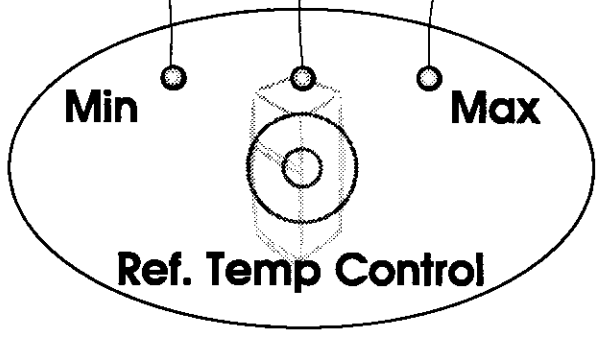
The following description is for GR-262/GR-292.

7-1. FUNCTION

7-1-1. FUNCTION

1. When the refrigerator is plugged in, it is set to Medium. Each time the button is pushed, it cycles through (in this order) **Medium → Medium High → High → Low → Medium Low → Medium.**
2. When the power is initially turned on or restored after an outage, the refrigerator automatically defaults to **Medium**.

	Low	Medium/ Low	Medium	Medium/ High	High
Temp Control	☼ ○ ○	☼ ☼ ○	○ ☼ ○	○ ☼ ☼	○ ○ ☼
TEMP(°C)	6	4.5	3	1	-1
ROOM	REFRIGERATOR				



7-1-2. DEFROSTING

1. The defrosting is performed each time when the total running time of the compressor reaches 7 hours.
2. After the power is turned on (or restored after a power failure), the defrosting starts when the total running time of the compressor reaches 4 hours.
3. When the temperature of the defrosting sensor reaches 13 °C or above, the defrosting stops. If the temperature does not reach 13 °C in 2 hours after the defrosting starts, the defrosting error code is displayed. (Refer to 7-1-4 Error Diagnostic Mode.)
4. If the defrost sensor is defective (wires cut or shorted,) defrosting will not occur.

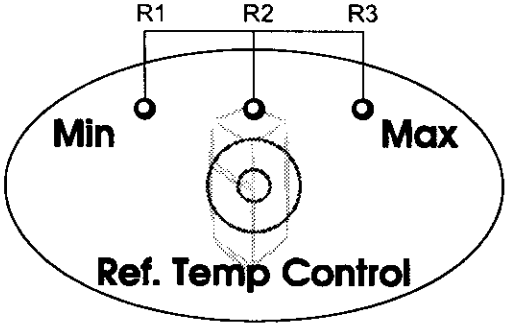
7-1-3. SEQUENTIAL OPERATION OF ELECTRIC COMPONENTS

The electric components (compressor, defrosting heater, and cooling fan) start sequentially for quieter operation and to avoid damage, which may result from the surge of starting everything simultaneously at power-on or after testing.

Condition of Operation		Operating Sequence
When the power is turned on	If the temp of the defrosting sensor is 25 °C or above (For the initial use after the purchase or grounding)	**POWER ON** → (in 0.5 sec) **COMPRESSOR & COOLING FAN ON**
	If the temp of the defrosting sensor is below 25 °C (After a power failure or SVC)	**POWER ON** → (in 0.5 sec) **DEFROSTING HEATER ON** → (in 10 sec) **DEFROSTING HEATER OFF** → (in 0.5 sec) **COMPRESSOR & COOLING FAN ON**

7-1-4. ERROR DIAGNOSTIC MODE

1. The error diagnostic mode allows the servicer to locate a fault without having to disassemble the refrigerator.
2. If the refrigerator goes into error mode, the buttons cease to function.
3. After the error mode is cleared, the refrigerator defaults to the normal setting.
4. The error code is displayed by the refrigerator temp indication LED on the display of the refrigerator while the remaining LEDs are off.

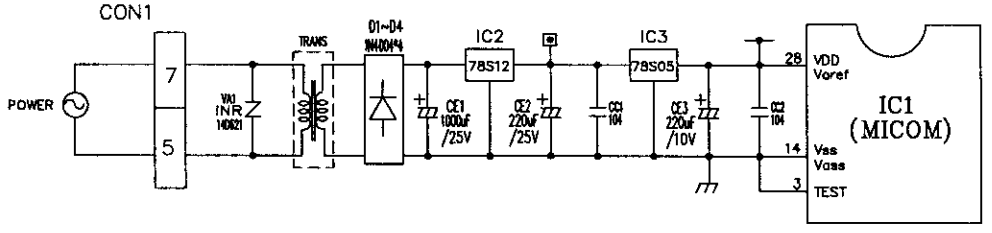


⊹ : BLINK(1sec on/1sec off) ● : OFF ○ : ON

NO	Error	Error Code Display			Cause	Default state during error mode	
		R1	R2	R3		Compressor / Cooling fan	Defrosting heater
1.	Faulty refrigerator (R) sensor (on the control box of the refrigerator)	⊹	⊹	●	Cut or short-circuited wire of refrigerator sensor	15 min ON/ 15 min OFF	○
2.	Faulty defrosting sensor	●	⊹	⊹	Cut or short-circuited wire of defrosting sensor	○	No defrosting
3.	Defrosting failure	⊹	⊹	⊹	Cut or disconnected wire of defrosting heater or temperature fuse (indicated at least 2 hours later after the error occurs)	○	○

7-2. PCB FUNCTION

7-2-1. POWER CIRCUIT



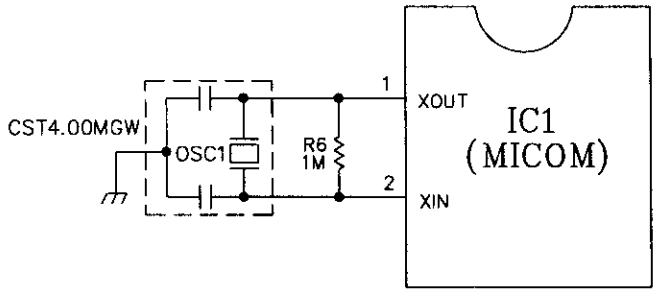
The secondary part of the TRANSFORMER includes the power supply for the display and the relay drive (12 Vdc) and the power supply for the microprocessor and IC (5 Vdc.)

The voltage for each part is as follows.

PART	VA 1	CE 2	CE3
VOLTAGE	220 Vac	12 Vdc	5 Vdc

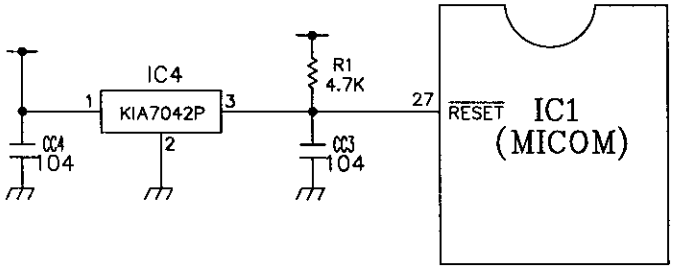
VA1 prevents overvoltage and noise. If the voltage exceeds 385 Vac, the internal elements are shorted, blowing the fuse to protect the parts attached to the secondary side of the transformer.

7-2-2. OSCILLATION CIRCUIT



This circuit generate the base clock for calculating time and the synchro clock for transmitting data from and to the inside logic elements of the IC1(MICOM). Be sure to use the exact replacements parts since the calculating time by the IC1 may be changed or it will not work if the OSC1 SPEC is changed.

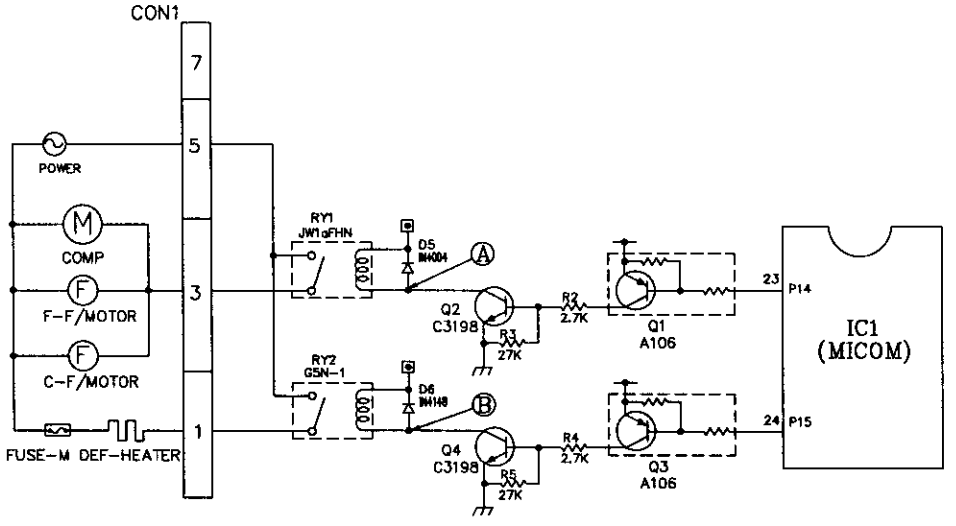
7-2-3. RESET CIRCUIT



The RESET circuit is for allowing all the functions to start at the initial conditions by initializing various parts including the RAM inside the MICOM (IC1) when the power is initially supplied or the power supply to the MICOM is restored after a momentary power failure. For the initial 10ms of power supply, LOW voltage is applied to the MICOM RESET terminal. During a normal operation, 5V is applied to the RESET terminal. (If trouble occurs in the RESET IC, the MICOM will not work.)

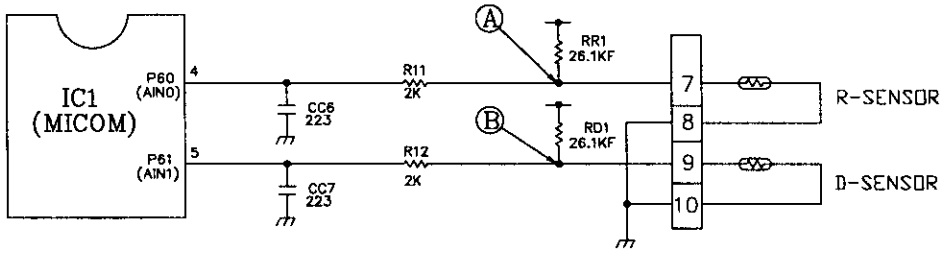
7-2-4. LOAD DRIVE CIRCUIT

1. Load Drive Condition Check



Load Type		Compressor, Freezer Fan Motor	Defrosting Heater
Measurement Location		Ⓐ	Ⓑ
Condition	ON	1V or below	
	OFF	12V	

7-2-5. TEMPERATURE SENSOR CIRCUIT

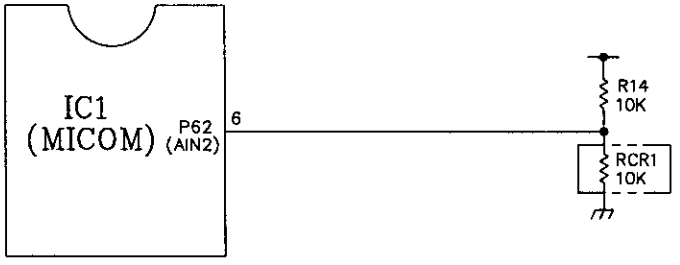


The upper CIRCUIT reads REFRIGERATOR temperature and Defrost-Sensor temperature for defrosting into MICOM.
OPENING or SHORT state of each TEMPERATURE SENSOR are as follows.

SENSOR	CHECK POINT	NORMAL(-30 °C ~ 50 °C)	SHORT-CIRCUITED	OPEN
Refrigerator Sensor	POINT Ⓐ Voltage	0.5 V ~ 4.5 V	0 V	5 V
Defrosting Sensor	POINT Ⓑ Voltage			

7-2-6. TEMPERATURE COMPENSATION & OVERCOOLING/UNDERCOOLING COMPENSATION CIRCUIT

1. Refrigerator Temperature Compensation

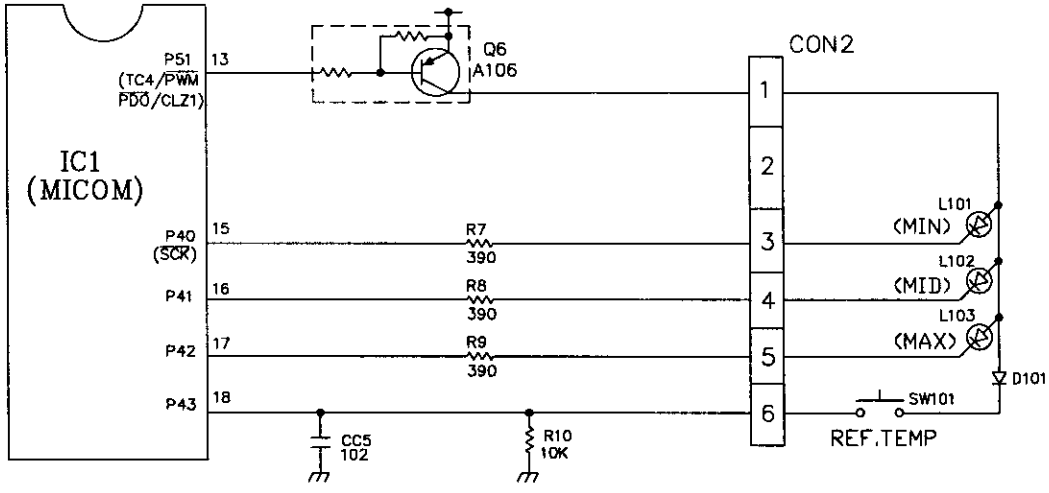


Refrigerator		Remark
Resistance (RCR1)	Temperature Compensation	
180 KΩ	+5.0 °C	Compensation by raising the temperature ↑
56 KΩ	+4.0 °C	
33 KΩ	+3.0 °C	
18 KΩ	+2.0 °C	
12 KΩ	+1.0 °C	
10 KΩ	0 °C	Standard Temperature
8.2 KΩ	-1.0 °C	Compensation by lowering the temperature ↓
5.6 KΩ	-2.0 °C	
3.3 KΩ	-3.0 °C	
2 KΩ	-4.0 °C	
470 Ω	-5.0 °C	

◗ Table of Temperature Compensation by adjusting the resistance (Difference with the current temperature)

E.g.) If the refrigerator compensation resistance (RCR1) is changed from 10K (the current resistance) to 18K (the adjustment resistance), the temperature of the refrigerator rises +2 °C.

7-2-7. KEY BUTTON INPUT & DISPLAY LIGHT ON CIRCUIT



◗ The circuit shown above is to determine whether a function control key on the operation display is pushed and to turn on the corresponding function indication LED. The drive type is the scan type.

7-3. RESISTANCE SPECIFICATION OF SENSOR

TEMPERATURE SENSOR	RESISTANCE OF REFRIGERATOR (DEFROST) SENSOR
- 20 °C	77 KΩ
- 15 °C	60 KΩ
- 10 °C	47.3 KΩ
- 5 °C	38.4 KΩ
0 °C	30 KΩ
+ 5 °C	24.1 KΩ
+ 10 °C	19.5 KΩ
+ 15 °C	15.9 KΩ
+ 20 °C	13 KΩ
+ 25 °C	11 KΩ
+ 30 °C	8.9 KΩ
+ 40 °C	6.2 KΩ
+ 50 °C	4.3 KΩ

- The resistance of SENSOR has ±5% common difference.
- Measure the resistance of SENSOR after leaving it over 3 minutes in measuring temperature. This postponing is necessary because of perceiving speed.

7-4. TROUBLESHOOTING

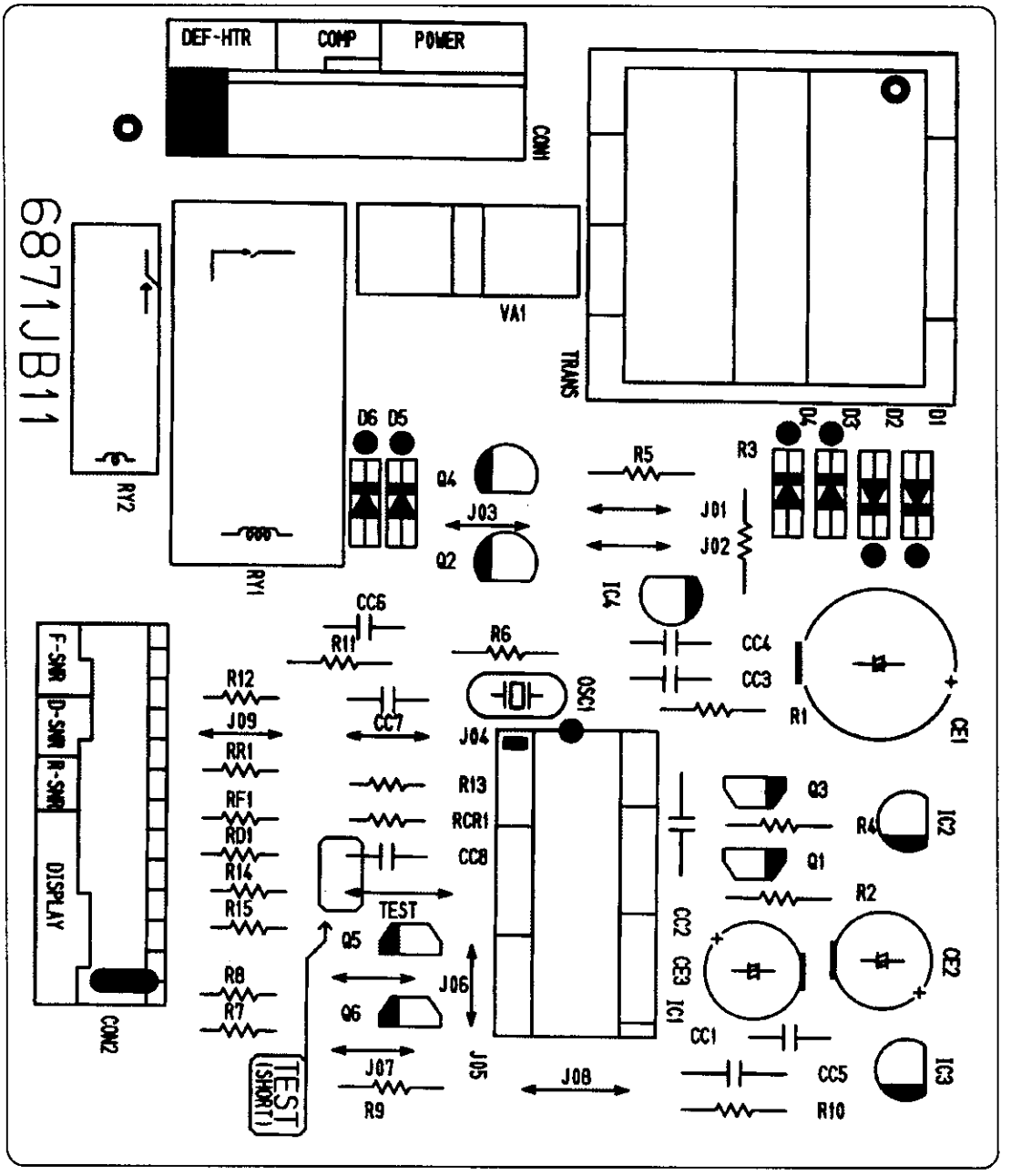
• If you can't find the trouble after using the troubleshooting chart, replace the PCB.

CLASSIFICATION	PROBLEM	CHECKPOINT	CHECKING METHOD	CONTENT	REMEDY
Voltage out of specification	1. All LEDs are OFF. 2. DISPLAY LED represents abnormal operation.	1. FREEZER/ REFRIGERATOR	FREEZER/REFRIGERATOR DOOR OPEN	POWER SOURCE is poor.	Check Fuse. Check outlet Voltage.
		2. LAMP is dim.	CHECK with the naked.	Applied voltage mistake.	Use boosting TRANSFORMER.
		3. Check main PCB connector.	Check connection of CONNECTOR.	CONNECTOR connection is poor.	Reconnect CONNECTOR.
				TRANS FUSE open.	Replace TRANSFORMER.
COOLING is poor	NO COOLING	1. Does the compressor run?	Check the MAIN PCB.	Compressor is locked or stopped.	Replace COMPRESSOR.
				OLP, PTC is poor.	Replace OLP, PTC.
				COMPRESSOR RELAY is Defective.	Replace MAIN PWB RY1
				The connecting wire is damaged or broken.	Check the black wire of MAIN PWB CONNECTOR (CON1)
		2. Whether refrigerant leaks or leaks or not.	Measure the amount of frost sticking on EVAPORATOR and the surface temperature of condenser pipe.	Refrigerant leakage.	Repair the leak and recharge the refrigerant.
	FREEZER temperature is not cold enough.	1.Check if FAN MOTOR runs.	Check the MAIN PCB.	The FAN MOTOR is defective.	Replace FAN MOTOR.
				The DOOR SEAL does not close properly.	Replace DOOR LINER.
				The CONNECTING WIRE is damaged or broken.	Check MOTOR and the connection of the black wire of MAIN PWB CONNECTOR. (CON1)
		2. Is DEFROSTING normal?	Check the amount of frost sticking on EVAPORATOR.	DEFROSTING does not occur or is insufficient.	See section on DEFROSTING.
		3. Is SENSOR normal?	Check resistance the SENSOR in the Refrigerator	SENSOR RESISTANCE is incorrect.	Replace SENSOR

CLASSIFICATION	PROBLEM	CHECKPOINT	CHECKING METHOD	CONTENT	REMEDY
COOLING	REFRIGERATOR TEMPERATURE is too cool or too warm.	1. Is the FREEZER TEMPERATURE normal?	See section about FREEZER is not cold enough.		Check the attaching state of DOOR.
		2. Does the FAN MOTOR blow sufficient air?	Use your hand to feel if there is enough cold air blowing into the refrigerator.	FAN MOTOR is defective.	Replace FAN MOTOR.
				Cool air passages are blocked.	Remove impurities.
				EVAPORATOR frozen.	See section about Defrosting.
DEFROSTING	NO DEFROSTING.	1. Does the HEATER work?	Check the MAIN PCB.	Heater wire is broken, loose, or disconnected.	Replace HEATER.
				TEMPERATURE FUSE disconnection.	Replace TEMPERATURE FUSE.
				Connection is broken.	Check evaporator connection and Main PCB connector.
				DEFROST SENSOR is defective.	Replace DEFROST SENSOR.
				HEATER RELAY is defective.	Replace RY2 of MAIN PWB.
		2. Is the DRAIN PIPE blocked?	Check the DRAIN PIPE to see if it is stopped.	DRAIN PIPE is blocked.	Remove ice and impurities.
					Check HEATER PLATE resistance.
		3. Does ice remain after the DEFROST cycle is completed?	Check the attaching of DEFROST SENSOR.	Connection is broken, loose, or defective.	Reassemble DEFROST SENSOR.
			Check the door seals to be sure they close properly.	Door gasket does not seal properly.	Reassemble DOOR.
					Replace GASKET.

7-5. MAIN PWB ASSEMBLY AND PARTS LIST

7-5-1. MAIN PWB ASSEMBLY

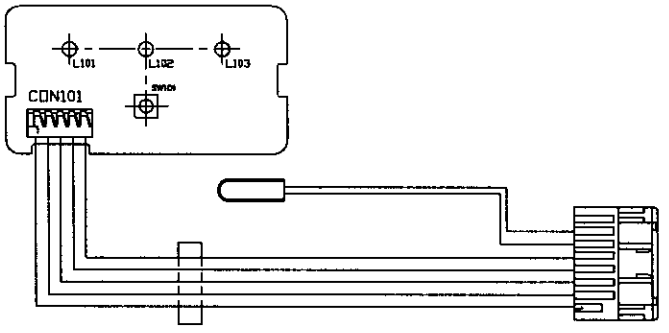


7-5-2. REPLACEMENT PARTS LIST

NO.	DWG. NO.	DESCRIPTION	SPEC'	MAKER	REMARK
1	6870JB2062	PWB,MAIN	FR-1(DS-1107A)	DOO SAN	t=1.6
2	6170JB2014	TRANS PCB	I: 220V,O: 15V	TAE SUNG	TRANS
3	6630JB8001W	WAFER	JE202-1T-04(7P-2,4,6)	JAE EUN	CON1
4					
5	6630JB8007J		917788-1(10P)	AMP	CON2
6					
7	0IZZJB2004G	MICOM CHIP	TMP87C409N	TOSHIBA	IC1(=0IZZJB2004H)
8	0IKE781200A	REGULATOR	KIA78S12P	KEC	IC2
9	0IKE780500A		KIA78S05P	KEC	IC3
10	0IKE704200A	RESET IC	KIA7042P	KEC	IC4
11	0IKD010100A		BMR-0101D	KODENSHI	
12	6920JB2005A	RELAY	JW1aFHN	NAIS	RY1
13	6920JB2003A		G5N-1A	OMRON	RY2
14	J570-00012A	RESONATOR	CSTS4.00MGW	MURATA	OSC1 (=6212JB8001B)
15					
16	6102JB8001B	VARISTOR	INR14D621	IL JIN	VA1
17	0DD400409AA	RECTIFIER DIODE	1N4004	(1)PYUNG CHANG (2)DELTA	D1~5
18	0DD414800AA	SWITCHING DIODE	1N4148	(1)PYUNG CHANG (2)ROHM	D6
19	0CE1081H618	ELE' CAPACITOR (105℃)	1000uF/25V	SAM HWA	CE1
20	0CE227AH638		220uF/25V		CE2
21	0CE2271F638		220uF/16V		CE3
22	0CK1040H908	CER' CAPACITOR	104/50V	TAE YANG	CC1,2,3,4
23	0CK2230H908		223/50V		CC6,7
24	0CK1020H908		102/50V		CC5

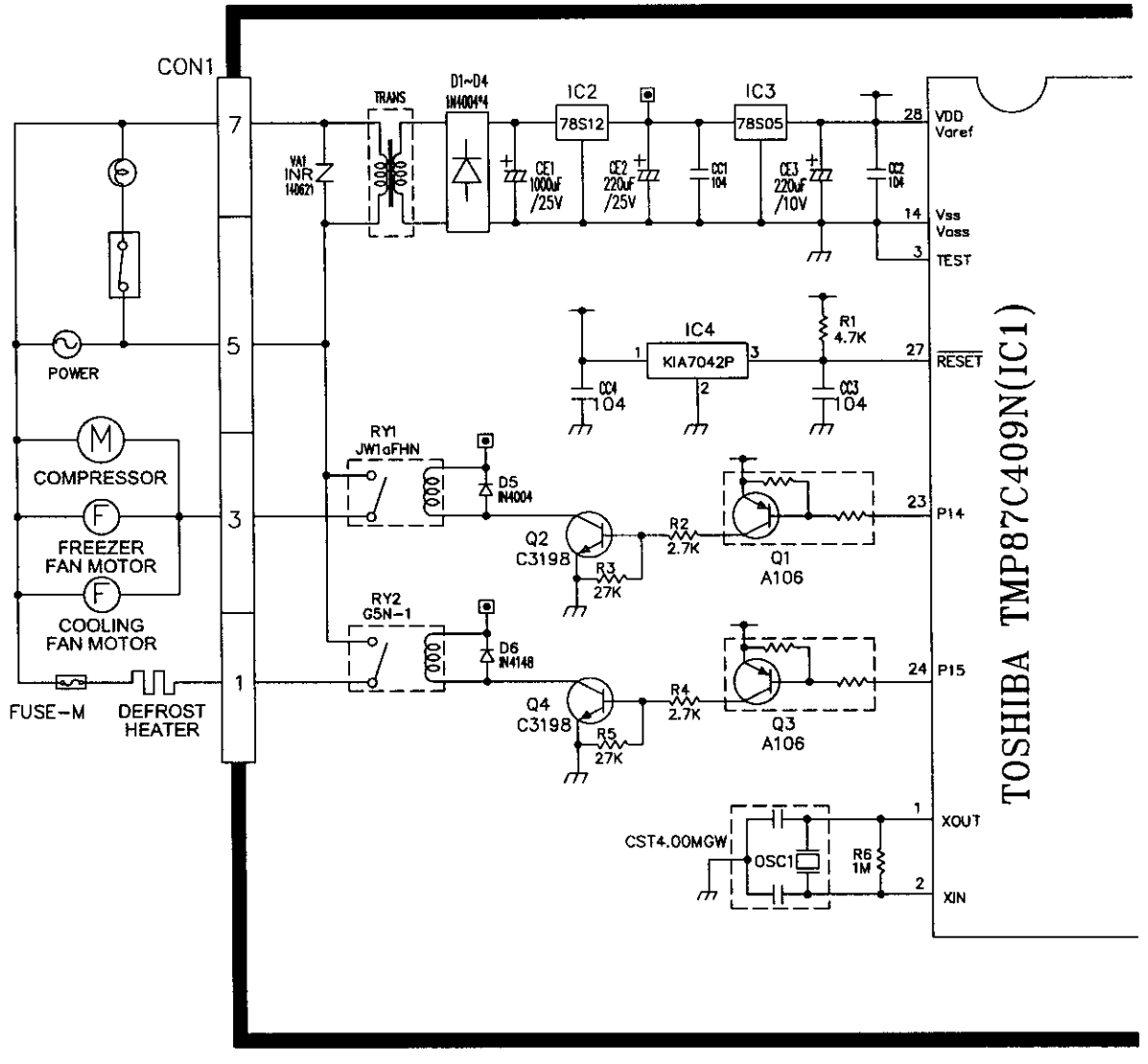
NO.	DWG. NO.	DESCRIPTION	SPEC'	MAKER	REMARK
25	0RD3900F609	RESISTOR,FIXED CARBON FILM	390J 1/6W	(1)CHO YANG (2)K-OHM (3)DONG HO (4)SUNG YO	R7,8
26	0RD3900G609		390J 1/4W		R9
27	0RD2001F609		2KJ 1/6W		R12
28	0RD2001G609		2KJ 1/4W		R11
29	0RD2701G609		2.7KJ 1/4W		R2,4
30	0RD4701F609		4.7KJ 1/6W		R15
31	0RD4701G609		4.7KJ 1/4W		R1
32	0RD1002F609		10KJ 1/6W		R14
33	0RD1002G609		10KJ 1/4W		R10
34	0RD2702G609		27KJ 1/4W		R3,5
35	0RD1803F609		180KJ 1/6W		RCR1
	0RD5602F609		56KJ 1/6W		
	0RD3302F609		33KJ 1/6W		
	0RD1802F609		18KJ 1/6W		
	0RD1202F609		12KJ 1/6W		
	0RD1002F609		10KJ 1/6W		
	0RD8201F609		8.2KJ 1/6W		
	0RD5601F609		5.6KJ 1/6W		
	0RD3301F609		3.3KJ 1/6W		
	0RD2001F609		2KJ 1/6W		
	0RD4700F609		470J 1/6W		
36	0RD1004G609		1MJ 1/4W		R6
37	0RN2612F409	RESISTOR,FIXED METAL FILM	26.1KF 1/6W		RR1
38	0RN2612F409		26.1KF 1/6W		RD1
39	0RN2612G409		26.1KF 1/4W		
40	0RN1622G409		16.2KF 1/4W		
41					
42	0TR106009AC		KRA106M	KEC	Q1,3,6
43	0TR319809CA		KTC3198 TP KEC DIP	KEC	Q2,4
44	43607015	JUMP WIRE	0.6*7.5mm		J1~5,7,CC8
45			0.6*10mm		J8,9,TEST
46					
47	49111001	SOLDER	ALMIT KR-19RMA		
48	49111004	SOLDER LEAD BAR	H63A	HEE SUNG,DAE JIN SOLD'	
49	59333105	FLUX AUTO	JS71	KOKI	
50					

7-5-3. PWB ASSEMBLY, DISPLAY, AND PARTS LIST

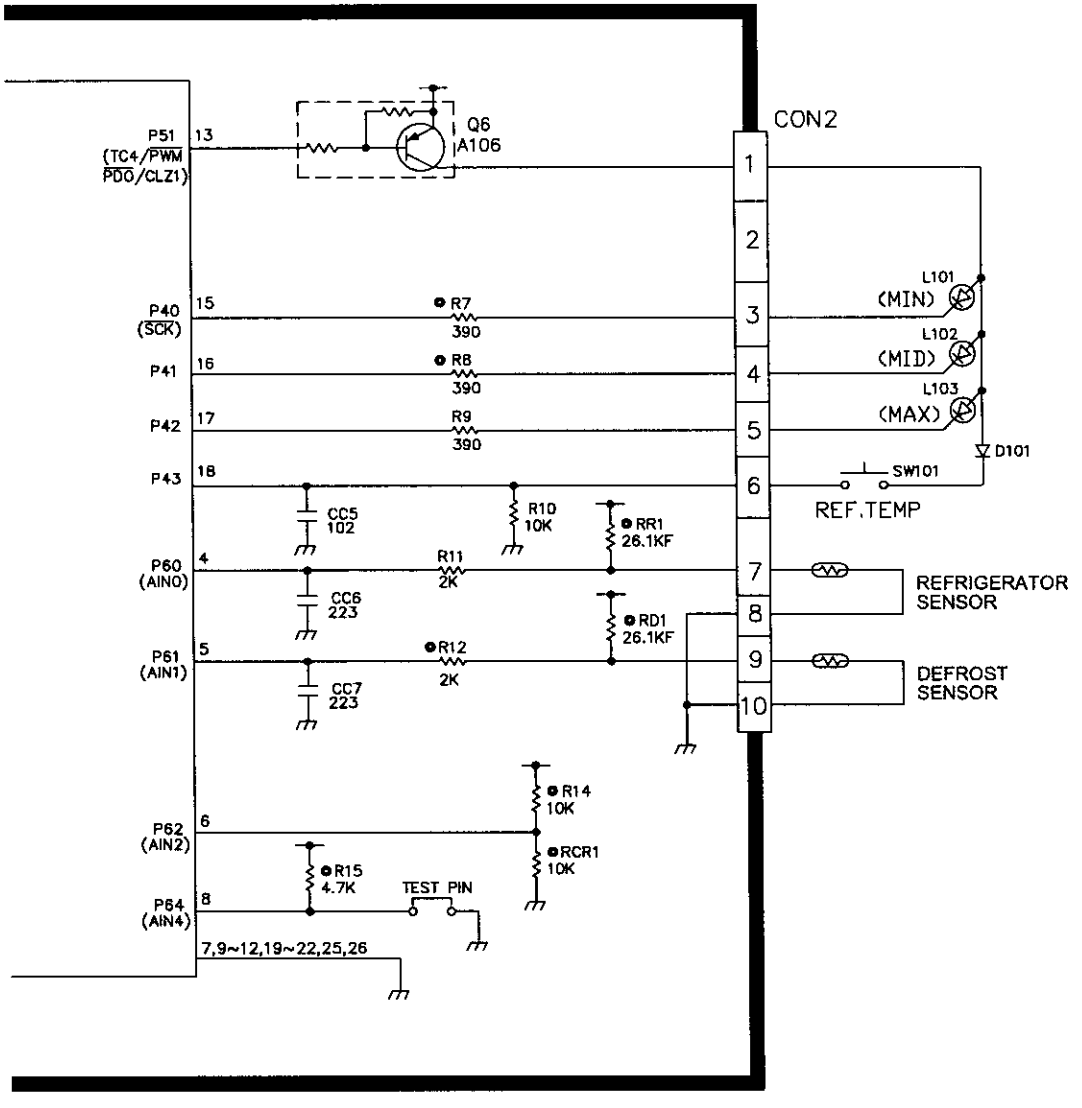


No	P/No	Description	Spec	Maker	Bigo
1	6870JB2061A	PWB(PCB),DISPLAY	R-B29 (HM-PJT)	DOO SAN	-
2	6600JB8005A	SWITCH	KPT-1105A	KYUNG IN	SW101
3	0DL500329AA	LED	SV50-R032BF569GG	SEOUL SEMI.	L101~L103
4	0DD414809AA	DIODE, SWITCHING	1N4148 26MM	-	-
5	-	LEAD WIRE	UL1007 AWG24 (VSF 0.18/12/0.3MM²)		-
6	-	LEAD WIRE	UL1007 AWG24 (VSF 0.18/12/0.3MM²)		-
7	-	LEAD WIRE	UL1007 AWG24 (VSF 0.18/12/0.3MM²)		-
8	-	LEAD WIRE	UL1007 AWG24 (VSF 0.18/12/0.3MM²)		-
9	-	LEAD WIRE	UL1007 AWG24 (VSF 0.18/12/0.3MM²)		-
14	-	HOUSING	#316092-1	AMP	8P
15	-	TAP.	#917764-1	AMP	-
16	-	DOUBLE LOCK PLATE	#917704-1	AMP	8P
17	-	HOUSING	#35022-0006	MOLEX	(WHITE)
18	-	CONTACT	#35021-1101(PBT)	MOLEX	-
19	-	TAPE, VINYL	(W19xL60MM=1)	-	
22	6500JB1001S	SENSOR, TEMPERATURE	K43 PVC R-SENSOR	-	(200MM)
26	49111001	SOLDER, SOLDERING	ALMIT KR-19RMA	HEE SUNG	-
27	49111004	SOLDER, LEAD BAR	S63S-B20	DAE JIN	SOLD'
28	59333105	FLUX	JS71	KOKI	-

7-6. PWB DIAGRAM

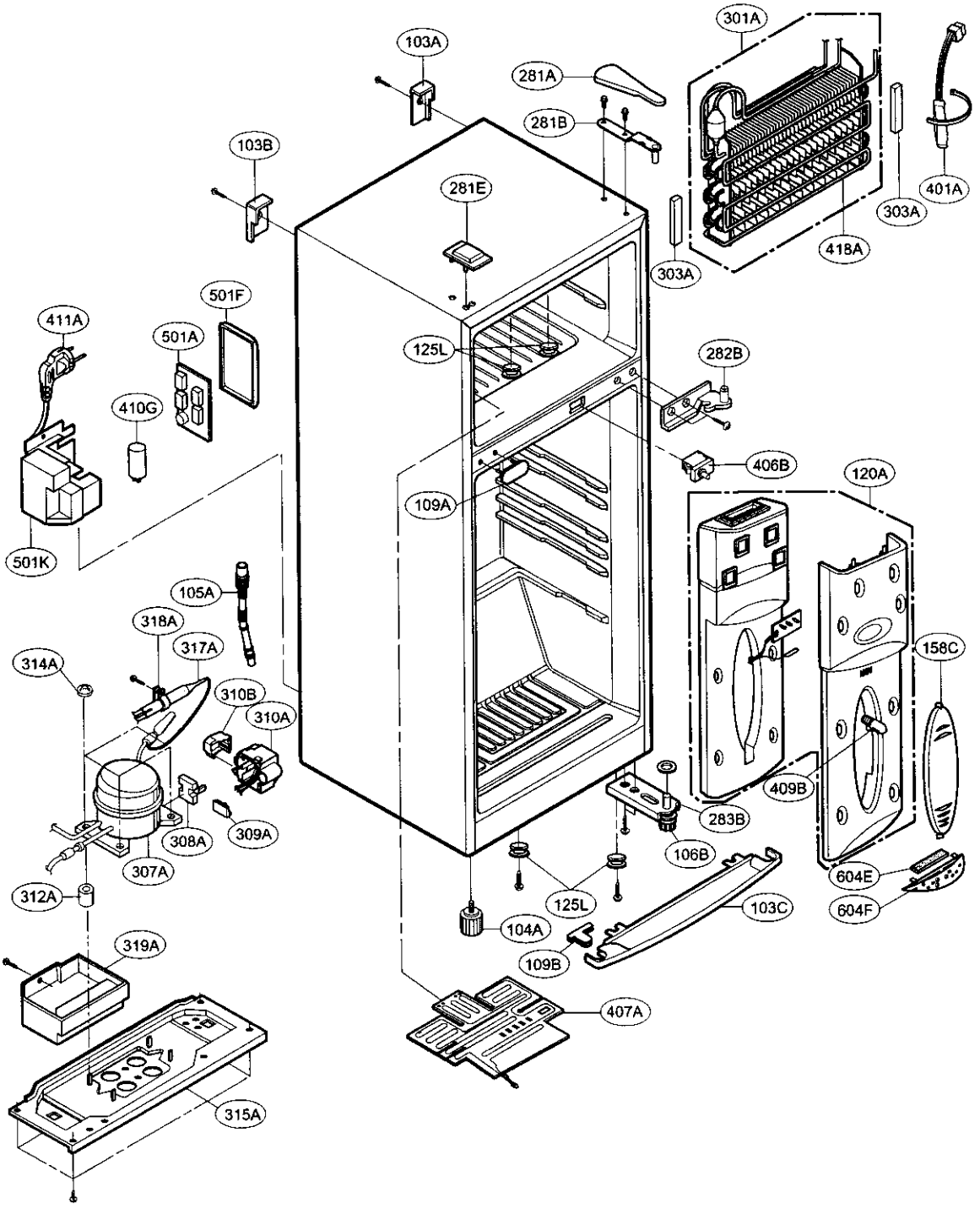


CIRCUIT DIAGRAM


CON2
P51
(TC4/PWM
PDO/CLZ1)
13
Q6
A106
1
2
L101
(MIN)
P40
(SCK)
15
R7
390
3
L102
(MID)
P41
16
R8
390
4
L103
(MAX)
P42
17
R9
390
5
D101
P43
18
6
SW101
REF.TEMP
CC5
102
R10
10K
RR1
26.1KF
P60
(AIN0)
4
R11
2K
7
REFRIGERATOR
SENSOR
CC6
223
RD1
26.1KF
8
P61
(AIN1)
5
R12
2K
9
DEFROST
SENSOR
CC7
223
10
R14
10K
P62
(AIN2)
6
RCR1
10K
R15
4.7K
TEST PIN
P64
(AIN4)
8
7,9~12,19~22,25,26

8. EXPLODED VIEW

▼ Parts and specifications may vary without notice by locality and to allow improvement.



★: optional parts