

# LG LBC22520SB Owner's Manual

# **Shop genuine replacement parts for LG LBC22520SB**



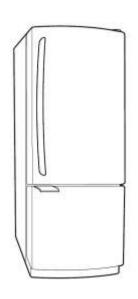
Find Your LG Refrigerator Parts - Select From 834 Models

----- Manual continues below -----



# REFRIGERATOR SERVICE MANUAL

CAUTION
BEFORE SERVICING THE UNIT,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



MODELS: LBC22520SB LBC22520ST LBC22520SW LBC22520TT

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# **SAFETY PRECAUTIONS**

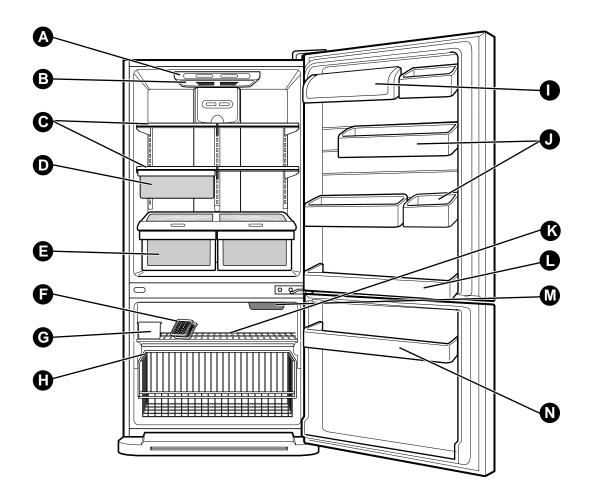
Please read the following instructions before servicing your refrigerator.

- 1. Check the refrigerator for current leakage.
- 2.To prevent electric shock,unplug before servicing.
- 3. Always check line voltage and amperage.
- 4.Use standard electrical components.
- 5.Don't touch metal products in the freezer with wet hands. This may cause frost bite.
- Prevent water from spiling on to electric elements or the Machine parts.
- 7.Before tilting the refrigerator, remove all materials from on or in the refrigerator.
- 8. When servicing the evaporator, wear gloves to prevent injuries from the sharp evaporator fins.
- 9.Service on the refrigerator should be performed by a qualified technician. Sealed system repair must be performed by a CFC certified technician.

# 1. SPECIFICATIONS

SPE	S J J J J J J J J J J J J J J J J J J J	LBC22520SW	LBC22520ST	LBC22520SB	LBC22520TT						
	Color	Super White	Stainless/Light Noble Gray	Black	Titanium/Light Noble Gray						
	Dimensions	32.8 (W) x 32.2 (D) x 68.5 (H) in.									
	Net Weight	125kg									
	Capacity	22 cuft									
	Refrigerant	R134a (120g)									
	Climate class	Temperate (N)									
	Rated Rating		115V~/	<sup>/</sup> 60Hz							
	Cooling System		Fan Co	ooling							
ES	Temperature Control		MICOM	control							
Ę	Defending Outland		Full Aut	omatic							
GENERAL FEATURES	Defrosting System		Heater I	Defrost							
	Insulation		Cyclo, Pentane								
	Compressor	MC57LAUM PTC Starting Type									
	Evaporator		Fin Tub	е Туре							
	Condenser		Wire Cor	ndenser							
	Lubricanting Oil	Polyol Ester ISO 10 220±cc									
	Drier	MOLECULAR SIEVE XH-7									
	Capillary Tube	ID Ø0.75									
	First Defrost	4 Hours									
	Defrost Cycle	7 - 40 Hours									
	Desfrosting Device		Heater,	Sheath							
	Anti-freezing Heater		Water Tan	k Heater							
	Case Material		Embo (r	normal)							
	Door Material	PCM	Stainless	VCM	VCM						
	Handle Type		Vis	ta							
œ	Display Graphic		ICE P	LUS							
GERATOR	Basket, Quantity		2 1/3 + 2 2								
ER/	Ice Tray & Bank	1B/(1EA)									
	Cover, T/V	Optibin Crisper + Humidity Ctl									
REFRI	Tray Drawer-F/L	Yes (Wire)									
	Lamp		Yes (2) 40								
	Shelf	4EA (FIXED)									
	Tray meat	Yes									
	Egg Bank	No									
2	Basket, Quantity		Plasti	c (1)							
FREEZER	Lamp		Yes (1) 40	OW/Blue							
世	Shelf		Wil	re							

# 2. PARTS IDENTIFICATION



Use this section to become more familiar with the parts and features.

NOTE: This guide covers several different models. The refrigerator you have purchased may have some or all of the items listed below. The locations of the features shown below may not match your model.

- A Digital Sensor Control
- B Refrigerator Light
- **C** Shelves
- Snack Pan
- Optibin Crisper
  Keeps fruits and vegetable fresh and crisp
- ☐ Ice Trays\*
- G Ice Bin
- H Wire Durabase

- Dairy Bin
- J Design-A-Door
- Wire Freezer Shelf
- Refrigerator Door Rack
- M Freezer Light
- N Freezer Door Rack

\*on some models

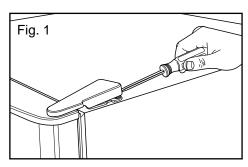
# 3. DISASSEMBLY

#### 3-1. REFRIGERATOR DOOR

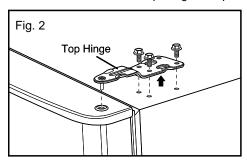
#### 3-1-1. REMOVE REFRIGERATOR DOOR

Before removing the doors, remove the Base Grille.

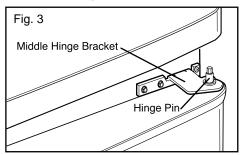
 Gently pry off the Top Hinge Cover with a flat head screwdriver and remove.



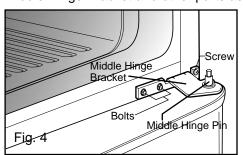
• Using 10mm or 13/32-inch socket wrench, remove the 3 bolts and lift off the Top Hinge. Set parts aside.



 Lift up door slightly and remove it. Place door on a non scratching surface.

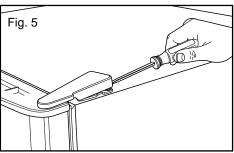


 Using a 1/4 socket wrench, loosen and remove Hinge Pin from the Middle Hinge Bracket. Use a 10mm or 13/32 inch socket wrench to remove the 2 bolts in Middle Hinge Bracket. Remove screw. Set Middle Hinge Bracket and other parts aside.

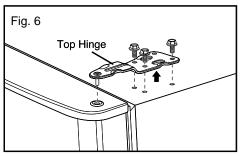


#### 3-1-2. REVERSE REFRIGERATOR DOOR

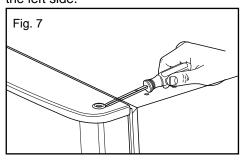
 Gently pry off the Top Hinge Cover with a flat head screwdriver and remove.



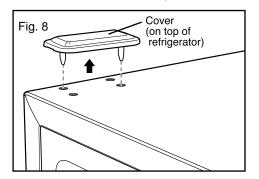
• Using 10mm or 13/32-inch socket wrench, remove the 3 bolts and lift off the Top Hinge. Set parts aside.



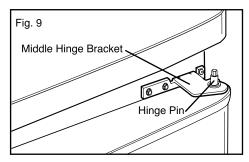
 Remove the right upper cap and place it on the left side.



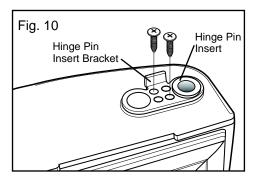
 Pry off cover on top of refrigerator on left side to uncover screw holes and place ir on the right side.



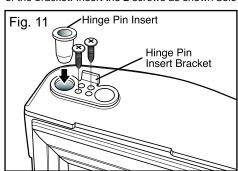
Lift up door slightly and remove it.



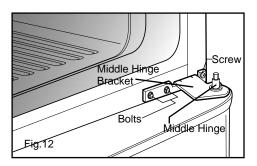
 Turn freezer door upside down on a non-scratch surface and remove the 2 screws and Hinge Pin Insert.



- Remove the 2 screw on the opposite side of the door.
- Move the Hinge Pin Insert Bracket to the other side of the door, keeping the same orientation, and move the Hinge Pin Insert into the hole on the left side of the bracket. Insert the 2 screws as shown below.



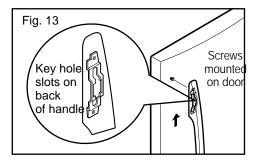
 Using a 1/4 socket wrench, loosen and remove Hinge Pin from the Middle Hinge Bracket. Use a 10mm or 13/32 inch socket wrench to remove the 2 bolts in Middle Hinge Bracket. Remove screw. Set Middle Hinge Bracket and other parts aside.



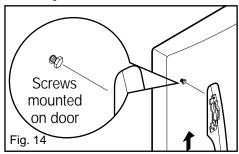
#### 3-1-3. HOW TO REVERSE DOOR HANDLE

**NOTE**: To assist in installing the handle on the right side, place a small piece of masking tape near the top of the handle before removing.

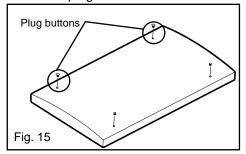
- Grasp the handle tightly with both hands and slide the handle up (this may require some force).
- The keyhole slots on the back of the handle allow the handle to separate from the mounting screws.



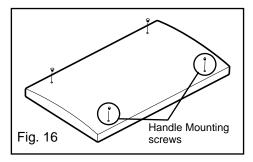
 Use an adjustable wrench to remove the 2 handle mounting screws.



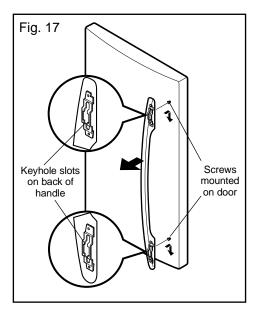
- Carefully loosen the plug buttons with your fingers.
   The buttons can be unscrewed with your fingers, rotating the pieces counter clockwise, and then the piece will be loose and fall. The buttons were installed little pressure, for this reason the action can be done with your forefinger or thumb finger or with both.
- Install the plug buttons on the left side.



Install the handle mounting screws on the right side.



- · Hold the handle so the masking tape is at the bottom.
- Align keyhole slots on the top and bottom of the back of the handle with the screws mounted on the front of the door.
- Press the handle against the door front, making sure that the screws go into the keyhole slots.
- Grasping the handle with both hands, press it firmly against the front of the door and slide the handle down. This may require some force.

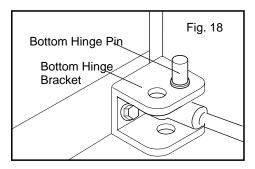


#### 3-2. FREEZER DOOR

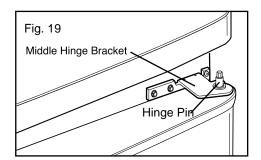
#### 3-2-1. REMOVE FREEZER DOOR

**IMPORTANT:** To avoid possible injury, product or property damage, you will need two people to perform the following instructions.

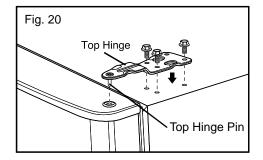
- Carefully lift up the door. Remove and place it on a non scratching surface.
- Using a 13/32" 10mm socket wrench with 2"extension, loosen the 2 bolts and remove bottom hinge from right side.



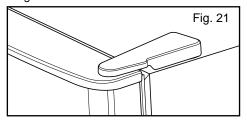
 Put refrigerator door down over the Hinge Pin on the Middle Hinge Pin Bracket.



• Line up Top Hinge with holes in top of refrigerator. Use the 3 bolts to replace the Hinge.



Tighten Bolts. Force-fit Top Hinge Cover over top Hinge.

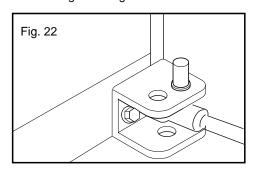


#### 3-2-2 REVERSE FREEZER DOOR

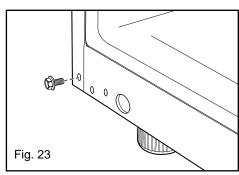
**IMPORTANT:** To avoid possible injury, product or property damage, you will need two people to perform the following instructions.

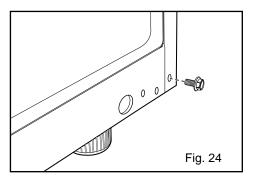
Carefully lift up the door. Remove and place it on a non scratching surface.

 Using a 13/32" 10mm socket wrench with 2"extension, loosen the 2 bolts and remove bottom hinge from right side.

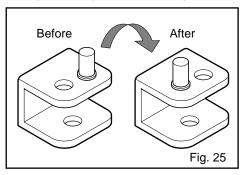


Remove the bolt on bottom of refrigerator from the left side and insert it on the right side. You will need this hole for the Bottom Hinge.

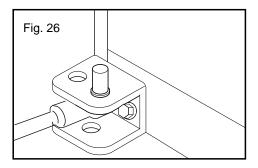




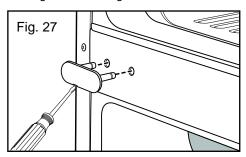
• Change the Hinge Pin from the right side to left side.



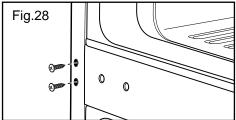
 Move the Bottom Hinge to the left side keeping the same orientation and attach 2 bolts.



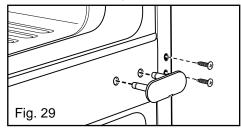
 With a flat-head screwdriver, carefully pry off and remove the cover over the screw holes on the left side of refrigerator housing.



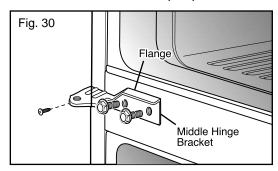
 Remove the 2 outer screws from cabinet at area between refrigerator and freezer doors.
 (You will need these holes for the Middle Hinge Bracket.)



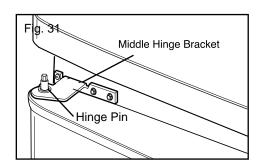
Place screws into outer hole on right side of cabinet.
 Attach cover on the right side. Cover is force-filted.



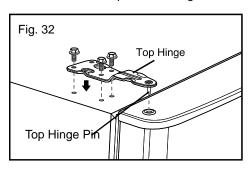
 Flip the middle hinge bracket (flange now will be on top) and position on left side of refrigerator and re-attach with two bolts and a phillips screw.



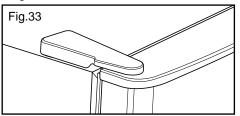
- Put freezer door down over the Bottom Hinge Pin on the Bottom Hinge Bracket.
- Attach Middle Hinge Pin.
- Put refrigerator door down over the Hinge Pin on the Middle Hinge Pin Bracket.



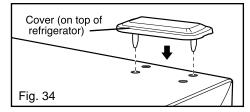
Line up Top Hinge with holes in top of refrigerator.
 Use the 3 bolts to replace the Hinge.



• Tighten Bolts. Force-fit Top Hinge Cover over top Hinge.

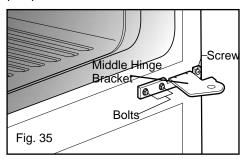


 Replace cover from left side of refrigerator top onto the right of top to cover holes. Cover is also force-fitted.

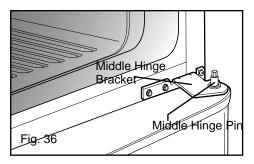


# 3-2-3. HOW TO REPLACE FREEZER AND REFRIGERATOR DOORS

- · Reattach Bottom Hinge attaching the 2 bolts
- Reattach Middle Hinge Bracket with two bolts and a phillips screw.

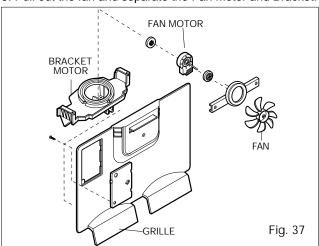


- . Place freezer door down on Bottom Hinge Pin.
- Using a 1/4 socket wrench install Hinge Pin to Middle Hinge Bracket.



#### 3-3. FAN AND FAN MOTOR

- 1. Remove the freezer shelf. (If your refrigerator has an icemaker, remove the icemaker first).
- 2. Remove the plastic guide for slides on left side by unscrewing phillips head screws.
- 3. Remove the grille by removing one screw and pulling the grille forward.
- 4. Remove the Fan Motor assembly by loosening 2 screw and disassemble the shroud.
- 5. Pull out the fan and separate the Fan Motor and Bracket.



#### 3-4. DEFROST CONTROL ASSEMBLY

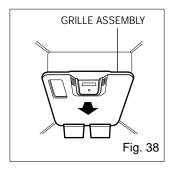
Defrost Control assembly consist of Drefrost Sensor and FUSE-M.

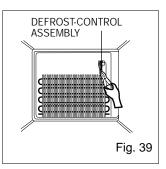
The Defrost Sensor works to defrost automatically. It is attached to the metal side of the Evaporator and senses its temperature.

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

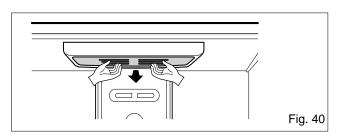
At 72°C, it turns the Defrost Heater off.

- 1. Pull out the grille assembly. (Figure 46)
- 2. Separate the connector with the Defrost Control assembly and replace the Defrost Control assembly after cutting the Tie Wrap. (Figure 47)



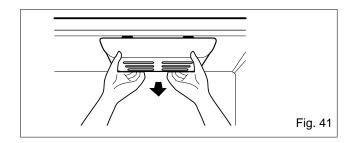


#### 3-5. LAMP



#### 3-5-1. REFRIGERATOR COMPARTMENT LAMP

- 1. Unplug the power cord from the outlet.
- 2. Remove Refrigerator shelves.
- 3. Release the hooks on both ends of the lamp shield and pull the shield downward to remove it.
- 4. Turn the lamp counterclockwise.
- 5. Assemble in reverse order of disassembly.
- 6. Replacement bulb must be the same specification as the original (Max. 60 W-2EA).

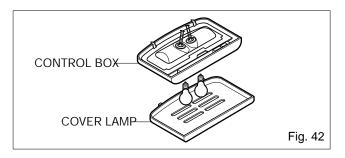


#### 3-5-2. FREEZER COMPARTMENT LAMP

- 1. Unplug refrigerator or disconnect power.
- 2. Reach behind light to remove bulb.
- 3. Replace bulb with a 60W appliance bulb.
- 4. Plug in refrigerator or reconnect power.

#### 3-6. CONTROL BOX-REFRIGERATOR

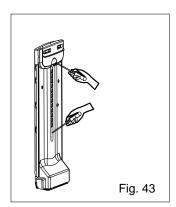
1. First, remove all shelves in the refrigerator, than remove the Refrigerator control Box by loosening 2 screws.



- 2. Remove the Refrigerator Control Box by pulling it downward.
- 3. Disconnect the lead wire on the right position and separate the lamp sockets.

#### 3-7. MULTI DUCT

- 1. Remove an upper and lower Cap by using a flat screwdriver, and loosen 2 screws. (Figure 43)
- 2. Disconnect the lead wire on the botton position.



#### 3-8. COVER VALVE

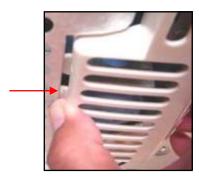
#### 3-8-1. DISASSEMBLE

1. Push to inside the cover valve.





2. Push to the right and release.



3. Release hook@&b





4. Turn the cover valve 120° as shown in the picture, then release it.

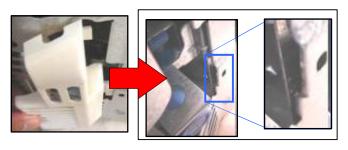






#### 3-8-2. ASSEMBLE

1. Insert the cover valve as shown in the picture, push to insert (may need force).



2. Insert hook@&b





3. Push to the right to insert the cover valve.



4. Then push to inside to assembly.





### 4. ADJUSTMENT

#### 4-1 COMPRESSOR

#### 4-1-1 Role

The compressor intakes low temperature and low pressure gas from the evaporator of the refrigerator and compresses this gas to high-temperature and high-pressure gas. It then delivers the gas to the condenser.

#### 4-1-2 Composition

The compressor includes overload protection. The PTC starter and OLP (overload protector) are attached to the outside of the compressor. Since the compressor is manufactured to tolerances of 1 micron and is hermetically sealed in a dust and moisture-free environment, use extreme caution when repairing it.

#### 4-1-3 Note for Usage

- (1) Be careful not to allow over-voltage and over-current.
- (2) If compressor is dropped or handled carelessly, poor operation and noise may result.
- (3) Use proper electric components appropriate to the Particular Compressor in your product.
- (4) Keep Compressor dry.
  If the Compressor gets wet (in the rain or a damp environment) and rust forms in the pin of the Hermetic Terminal, poor operation and contact may result.
- (5) When replacing the Compressor, be careful that dust, humidity, and soldering flux don't contaminate the inside of the compressor. Dust, humidity, and solder flux contaminate the cylinder and may cause noise, improper operation or even cause it to lock up.

#### 4-2 PTC-STARTER

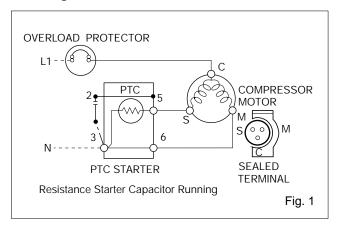
#### 4-2-1 Composition of PTC-Starter

- PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO3.
- (2) The higher the temperature is, the higher the resistance value. These features are used as a starting device for the Motor.

#### 4-2-2 Role of PTC-Starter

- (1) The PTC is attached to the Sealed Compressor and is used for starting the Motor.
- (2) The compressor is a single-phase induction motor. Durign the starting operation, the PTC allows current flow to both the start winding and main winding.

# 4-2-3 PTC-Applied Circuit Diagram Starting Method for the Motor



#### 4-2-4 Motor Restarting and PTC Cooling

- (1) It requires approximately 5 minutes for the pressure to equalize before the compressor can restart.
- (2) The PTC device generates heat during operation. Therefore, it must be allowed to cool before the compressor can restart.

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

- (1) If the compressor attempts to restart before the PTC device is cooled, the PTC device will allow current to flow only to the main winding.
- (2) The OLP will open because of the over current condition. This same process will continue (3 to 5 times) when the compressor attempts to restart until the PTC device has cooled. The correct OLP must be properly attached to prevent damage to the compressor.
  - Parts may appear physically identical but could have different electrical ratings. Replace parts by part number and model number. Using an incorrect part could result in damage to the product, fire, injury, or possibly death.

#### 4-2-6 Note for Using the PTC-Starter

- (1) Be careful not to allow over-voltage and over-current.
- (2) Do not drop or handle carelessly.
- (3) Keep away from any liquid.
  If liquid such as oil or water enters the PTC,
  PTC materials may fail due to breakdown of their insulating capabilities.
- (4) If the exterior of the PTC is damaged, the resistance value may be altered. This can cause damage to the compressor and result in a no-start or hard-to-start condition.
- (5) Always use the PTC designed for the compressor and make sure it is properly attached to the compressor. Parts may appear physically identical but could have different electrical ratings. Replace parts by part number and model number. Using an incorrect part could result in damage to the product, fire, injury, or possibly death.

#### 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 opening the circuit to the Motor if the temperature rises and activating the bimetal spring in the OLP.
- (2) When high current flows to the Compressor motor, the Bimetal works by heating the heater inside the OLP, and the OLP protects the Motor by cutting off the current flowing to the Compressor Motor.

#### 4-3-2 Role of the OLP

- (1) The OLP is attached to the Sealed Compressor used for the Refrigerator. It prevents the Motor Coil from being started in the Compressor.
- (2) For normal operation of the OLP do not turn the Adjust Screw of the OLP in any way.

# (OVERLOAD PROTECTOR cross section) Customer part number Lot code/date code Physical termination part number and the code of the code of

- Part No. Name
- Base, phenolic (UL 94 V-0 rated)
- ② Movable arm support, plated steel.
- Stationary contact support, plated steel
- ④ Heater support, plated steel
- Heater, resistance alloy
- 6 Disc, thermostatic alloy
- Movable arm, spring temper copper alloy
- ® Contact, movable, silver on copper
- Contact, stationary, silver on copper
- Slug, plated steel Cover, polyester
  - (UL 94 V-0 rated)
- Pin connector, plated copper alloy (To engage 2.33/2.66 mm dia. pin)

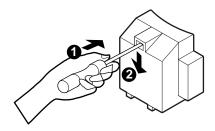
Fig. 2

#### 4-4 TO REMOVE THE COVER PTC

- (1) Remove the screws on the Cover Back and take it out.
- (2) Remove the screw on Cover PTC.



(3) Insert a screwdriver into the Cover PTC hole and pull it down.



(4) Remove the Cover PTC.

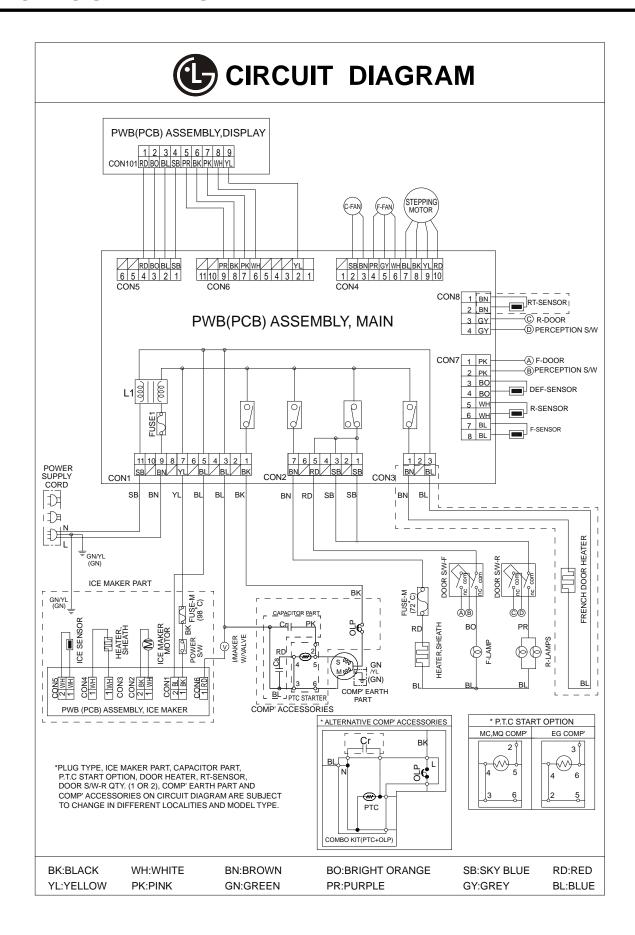


(5) Remove PTC carefully pulling the edges.



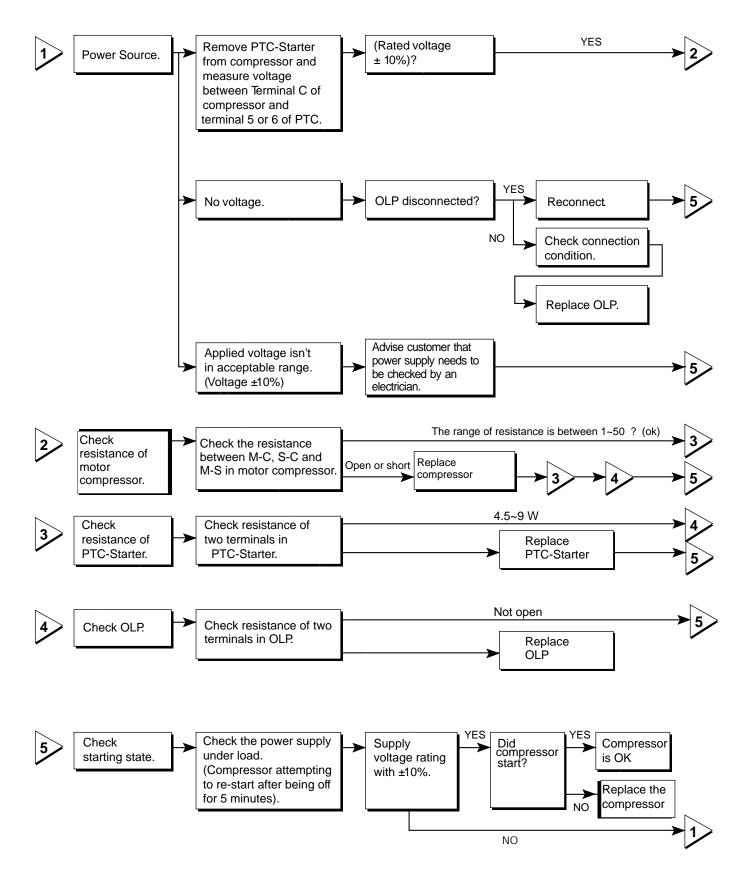
(6) Assembly in reverse order of disassembly.

# 5. CIRCUIT DIAGRAM

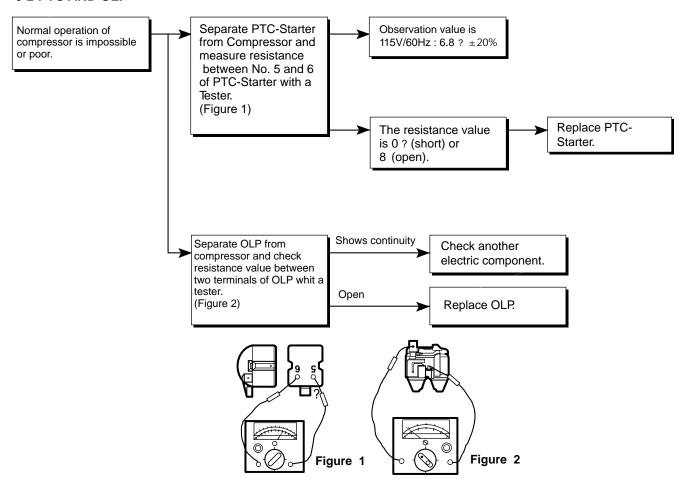


# 6. TROUBLESHOOTING

#### 6-1 COMPRESSOR AND ELECTRIC COMPONENTS

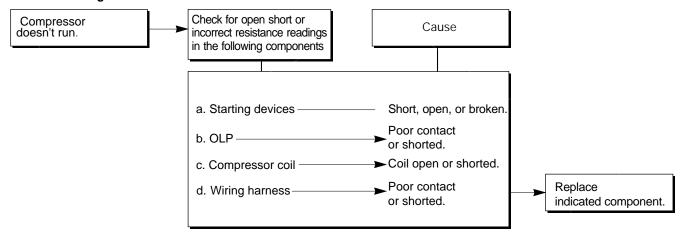


#### 6-2 PTC AND OLP

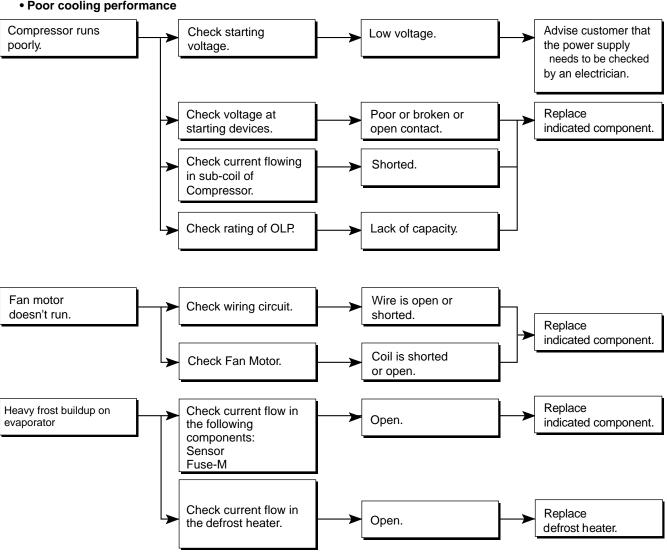


#### 6-3 OTHER ELECTRICAL COMPONENTS

#### · Not cooling at all



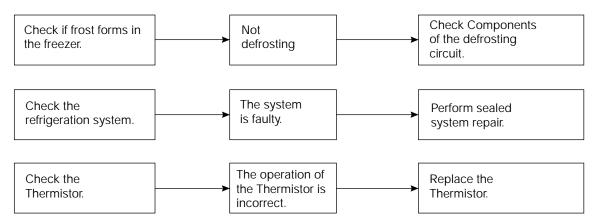
#### Poor cooling performance



#### 6-4 SERVICE DIAGNOSIS CHART

COMPLAINT	POINTS TO BE CHECKED	REMEDY
No Cooling.	<ul> <li>Is the power cord unplugged from the outlet?</li> <li>Check if the power switch is set to OFF.</li> <li>Check if the fuse of the power switch is shorted.</li> <li>Measure the voltage of the power outlet.</li> </ul>	Plug into the outlet. Set the switch to ON. Replace the fuse. If the voltage is low, correct the wiring.
Cools poorly.	<ul> <li>Check if the unit is placed too close to the wall.</li> <li>Check if the unit is placed too close to the stove, gas cooker, or in direct sunlight.</li> <li>Is the ambient temperature too high or the room door closed?</li> <li>Check if food put in the refrigerator is hot.</li> <li>Did you open the door of the unit too often or check if the door is sealed properly?</li> <li>Check if the Control is set to Warm position.</li> </ul>	<ul> <li>Place the unit about 4 inches (10 cm) from the wall.</li> <li>Place the unit away from these heat sources.</li> <li>Lower the ambient temperature.</li> <li>Put in foods after they have cooled down.</li> <li>Don't open the door too often and close it firmly.</li> <li>Set the control to Recommended position.</li> </ul>
Foods in the Refrigerator are frozen.	<ul> <li>Is food placed in the cooling air outlet?</li> <li>Check if the control is set to colder position.</li> <li>Is the ambient temperature below 41°F(5° C)?</li> </ul>	<ul> <li>Place foods in the high-temperature section. (front part)</li> <li>Set the control to Recommended position.</li> <li>Set the control to Warm position.</li> </ul>
Condensartion or ice forms inside the unit.	<ul> <li>Is liquid food sealed?</li> <li>Check if food put in the refrigerator is hot.</li> <li>Did you open the door of the unit too often or check if the door is sealed properly?</li> </ul>	<ul> <li>Seal liquid foods with wrap.</li> <li>Put in foods after they have cooled down.</li> <li>Don't open the door too often and close it firmly.</li> </ul>
Condensartion forms in the Exterior Case.	Check if the ambient temperature and humidity of the surrounding air are high. Is there a gap in the door gasket?	Wipe moisture with a dry cloth. It will disappear in low temperature and humidity.     Fill up the gap.
There is abnormal noise.	<ul> <li>Is the unit positioned in a firm and even place?</li> <li>Are any unnecessary objects placed in the back side of the unit?</li> <li>Check if the Tray Drip is not firmly fixed.</li> <li>Check if the cover of the compressor enclosure in the front lower side is taken out.</li> </ul>	<ul> <li>Adjust the Leveling Screw, and position the refrigerator in a firm place.</li> <li>Remove the objects.</li> <li>Fix the Tray Drip firmly in the original position.</li> <li>Place the cover in its original position.</li> </ul>
Door does not close well.	Check if the door gasket is dirty with an item like juice. Is the refrigerator level?  Is there too much food in the refrigerator?	Clean the door gasket.  Position in the firm place and level the Leveling Screw.  Make sure food stored in shelves does not prevent the door from closing.
Ice and foods smell unpleasant.	Check if the inside of the unit is dirty. Are foods with a strong odor unwrapped? The unit smells of plastic.	<ul> <li>Clean the inside of the unit.</li> <li>Wrap foods that have a strong odor.</li> <li>New products smell of plastic, but this will go away after 1-2 weeks.</li> </ul>

#### • Other possible problems:



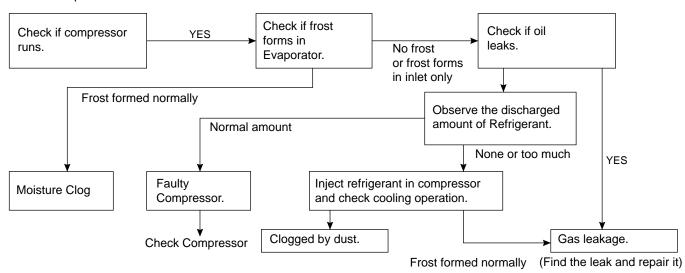
#### 6-5 REFRIGERATION CYCLE

#### • Troubleshooting Chart

	CAUSE	STATE OF THE UNIT	STATE OF THE EVAPORATOR	TEMPERATURE OF THE COMPRESSOR	REMARKS
LEAKAGE	PARTIAL LEAKAGE	Freezer compartment and refrigerator don't cool normally	Low flowing sound of refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	<ul> <li>Refrigerant level is low due to a leak.</li> <li>Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.</li> </ul>
	COMPLETE LEAKAGE	Freezer compartment and refrigerator don't cool normally	is not heard and frost isn't formed.		<ul> <li>No discharging of refrigerant.</li> <li>Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.</li> </ul>
CLOGGED	PARTIAL CLOG	Freezer compartment and refrigerator don't cool normally	Flowing sound of refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	Normal discharging of the refrigerant.     The capillary tube is faulty.
1 .	WHOLE CLOG	Freezer compartment and refrigerator don't cool.	Flowing sound of refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	- Normal discharging of the refrigerant.
MO CL0	ISTURE OG	Cooling operation stops periodically.	Flowing sound of refrigerant is not heard and frost melts.	Lower than ambient temperature.	- Cooling operation restarts when heating the inlet of the capillary tube.
COMPRESS	COMPRE- SSION	Freezer and refrigerator don't cool.	Low flowing sound of refrigerant is heard and frost forms in inlet only.	A little higher than ambient temperature.	- Low pressure at high side of compressor due to low refrigerant level.
	NO COMPRE-SSION No compressing operation.		Flowing sound of refrigerant is not heard and there is no frost.	Equal to ambient temperature	- No pressure in the high pressure part of the compressor.

#### **Leakage Detection**

Observe the discharging point of the refrigerant, which may be in the oil discharging part of the compressor and in a hole in the evaporator.



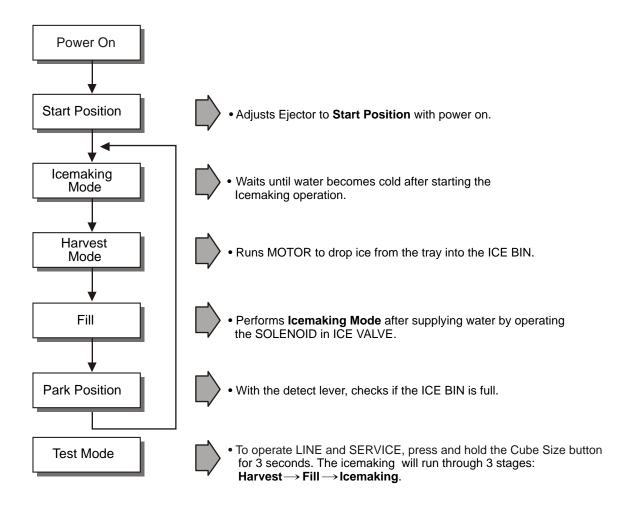
#### **General Control of Refrigerating Cycle**

NO.	ITE	EMS	UNIT	STANDARDS	PURPOSES	REMARKS		
1	Pipe and piping system opening time		piping system Comp: within 10 minutes.		To protect moisture penetration.	The opening time should be reduced to a half of the standards during rain and rainy seasons (the penetration of water into the pipe is dangerous).		
2	Welding				Nitrogen pressure	Weld under Nitrogen atmosphere. (N <sub>2</sub> pressure: 0.1~0.2 kg/cm <sup>2</sup> )	To protect oxide scale formation.	<ul> <li>Refer to repair note in each part.</li> <li>R-134a refrigerant is more susceptible to leaks than R-12 and requires more care during welding.</li> <li>Do not apply force to pipes before and after welding to protect pipe from cracking.</li> </ul>
3	N₂ sea parts	ıled	Confirm N₂ leak	Confirm the sound of pressure relief when removing the rubber cap. Sound: usable No sound: not usable	To protect moisture penetration.	<ul> <li>In case of evaporator parts, if it doesn't make sound when removing rubber cap, blow dry air or N₂ gas for more than 1 min. and than use the parts.</li> </ul>		
4	Refrige- ration	Evacuation time	Min.	More than 40 minutes	To remove moisture.			
	Cycle	Vacuum degree	Torr	Below 0.03 (ref)		Note: Only applicable to the model equipped with reverse flow protect plate.		
			Vacuum	EA	High and low pressure sides are evacuated at the same time for models above 200 l.		Vacuum efficiency can be improved by operating compressor during evacuation.	
		Vacuum piping	EA	Use R-134a manifold exclusively.	To protect mixing of mineral and ester oils.	The rubber pipes for R-12 refrigerant will be melted when they are used for R-134a refrigerant (causes of leak.)		
		Pipe coupler	EA	Use R-134a manifold exclusively.	To protect R-12 refrigerant mixing.			
		Outlet (Socket)		R-134a manifold exclusively.	To protect R-12 refrigerant mixing.			
		Plug		R-134a manifold exclusively.	To protect R-12 refrigerant mixing.			
5	Refrigerant weighing		EA	Use R-134a exclusively. Weighing allowance: 5g Note: Winter: -5g Summer: +5g	Do not mix with R-12 refrigerant.	<ul> <li>Do not weigh the refrigerant at too hot or too cold an area.</li> <li>(77°F [25°C] is adequate.)</li> <li>Make Copper charging canister (Device filling refrigerant)</li> <li>Socket: 2SV Plug: 2PV R-134a</li> <li>Note: Do not burn O-ring (bushing) during welding.</li> </ul>		
6	Drier replacement			<ul> <li>Use R-134a exclusively for R-134a refrigerator.</li> <li>Replace drier whenever repairing refrigerator cycle piping.</li> </ul>	To remove the moisture from pipe inside.			
7	Leak check			- Do not use soapy water for check. It may be sucked into the pipe by a vacuum.	Defect in refrigerant leak area.	<ul> <li>Check for an oil leak at the refrigerant leak area. Use an electronic leak detector if an oil leak is not found.</li> <li>The electronic leak detector is very sensitive to halogen gas in the air. It also can detect R-141b in urethane. Practice many times before using this type of detector to avoid false readings.</li> </ul>		

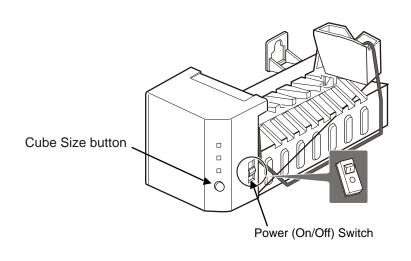
# 7. OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER

#### 7-1 OPERATION PRINCIPLE

#### 7-1-1 Operation Principle of Icemaker



- 1. Turning the Icemaker stop switch off (O) stops the icemaking function.
- 2. Setting the Icemaker switch to OFF and then turning it back on will reset the icemaker control.



#### 7-2 ICE MAKER FUNCTIONS

#### 7-2-1 Ice Making Mode

- 1. Icemaking refers to the freezing of supplied water in the ice trays. Complete freezing is assured by measuring the temperature of the Tray with icemaking SENSOR.
- 2. Icemaking starts after completion of the water fill operation.
- 3. The icemaking function is completed when the sensor reaches -7°C, 60 to 240 minutes after starting.

NOTE: After icemaker power is ON, the icemaker heater will be on for test for 9 sec.

#### 7-2-2 Harvest Mode

- Harvest (Ice removing) refers to the operation of dropping ices into the ice bin from the tray when icemaking has completed.
- 2. Harvest mode:
  - (1) The Heater is ON for 30 seconds, then the motor starts.
  - (2) Harvest mode is completed if it reaches start position again while Heater & Motor are on at the same time. A. ice bin is full: The EJECTOR stops (heater off).
    - B. ice bin is not full: The EJECTOR rotates twice to open for ice.

**NOTE**: If the EJECTOR does not rotate once within 5 minutes in status (2), separate heater control mode starts operating to prevent the EJECTOR from being constrained. (It is recommended that the user open for ice to return to normal mode.)

#### 7-2-3 Fill/Park Position

- 1. Once a normal harvest mode has been completed, the water solenoid will be activated.
- 2. The amount of water is adjusted by pressing the fill key repeatedly. This changes the time allowed for fill as illustrated in the table below.

#### Water supply amount table

STAGE	TIME TO SUPPLY	INDICATIONS	REMARKS
1	6 sec.		The victor amount will you depending
2	7 sec.		The water amount will vary depending on the water control switch setting, as well as the water pressure of the connected water line.
3	8 sec.		

#### 7-2-4 Function TEST

- 1. This is a compulsory operation for test, service, cleaning, etc. It is operated by pressing and holding the Cube Size button for 3 seconds.
- 2. The test works only in the Icemaking Mode. It cannot be entered from the Harvest or Fill mode. (If there is an ERROR, it can only be checked in the TEST mode.)
- 3. **Caution!** If the test is performed before water in the icemaker is frozen, the ejector will pass through the water. When the fill mode begins (Stage 4), unless the water supply has been shut off, added water will overflow into the ice bin. If the control Doesn't operate normally in the TEST mode, check and repair as needed.
- 4. After water is supplied, the normal CYCLE is followed: icemaking ⇒ Harvest ⇒ Fill ⇒ Park Position.
- 5. Five seconds after Stage 5 is completed, the icemaker returns to MICOM control. The time needed to supply water resets to the pre- test setting.

#### **Diagnosis TABLE**

STAGE	ITEMS	INDICATOR (*)	REMARKS
1	HEATER		Five seconds after heater starts, heater will go off if temperature recorded by sensor is 10°C (50°F)or lever is in up position.
2	MOTOR		Five seconds after heater starts, you can confirm that motor is moving.
3	HALL IC (TRAY)		You can confirm Hall IC detection of position.
4	SOLENOID VALVE		Two seconds after detection of initial position, you can confirm that valve is on.
5	HALL IC (LEVER)		You can check when the Hall IC is sensing a full ice condition. (If there is a water fill error, the fifth LED is not on.)
6	Reset	Return to Status prior to TEST MODE	Five seconds after fifth stage is completed, the icemaker resets to initial status.

#### 7-3 DEFECT DIAGNOSIS FUNCTION

#### 7-3-1 ERROR CODES shown on Ice Maker water supply control panel

NO	DIVISION	INDICATOR	INDICATOR PROBLEM	
1	Normal	Note fill times (see previous page)	None	Display switch operates properly
2	Icemaking Sensor malfunction	Sensor Open or shorted wire or sensor		Make sure that the wire on each sensor is connected.
3	Icemaker Kit malfunction		Ejector blades have not reached the park position after 18 minutes from start of harvest mode	Check HALL IC/MOTOR/ HEATER/RELAY

(\*)ERROR indicators in table can be checked only in TEST mode.

## 8. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

#### 8-1 FUNCTION

#### 8-1-1 Function

- 1. When the appliance is plugged in, it is set to "4" for Refrigerator and "4" for freezer.
  You can adjust the Refrigerator and the Freezer control temperature by pressing the ADJUST button,
- 2. When the power is initially applied or restored after a power failure, it is automatically set to "4" & "4".



#### 8-1-2 Control of freezer fan motor

- 1. Freezer fan motor has high and standard RPMs.
- 2. High RPM is used when electricity is first on, for ICE PLUS, and when refrigerator is overloaded. But standard RPM is used for general purposes.
- 3. To improve cooling speed and load corresponding speed, the RPM of freezer fan motor shall change from normal speed to high speed.
- High speed (2500RPM): initial power on or load corresponding operation, ICE PLUS. Normal speed (2200 RPM): general working conditions.
- 5. Fan motor is stopped when Refrigerator Door is opened.
- 6. The fan motor is stopped when Freezer Door is opened (only if compressor status is OFF)

#### 8-1-3 Ice Plus

- 1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
- 2. Whenever selection switch is pressed, selection/release, the LED will turn ON or OFF.
- 3. If there is a power cut and the refrigerator is power on again, ICE PLUS function will be canceled.
- 4. To activate these function you need to press the ICE PLUS key and the LED will turn ON. This function will remain activated for 24 hrs. The first three hours the compressor and ICE PLUS will be ON. The next 21 hours the freezer will be controlled at the lowest temperature. After 24 hours or if the ICE PLUS key is pressed again, the freezer will return to its previous temperature.
- 5. For the first three hours notice the following cases:
  - (1) Compressor and freezer fan (HIGH RPM) continuously operate for three hours.
- (2) If defrost starts during ICE PLUS, ICE PLUS operates for the rest of time after defrost is completed, when ICE PLUS operation time is less than 90 minutes.
- (3) If ICE PLUS is pressed during defrost, ICE PLUS LED is on but this function will start seven minutes after defrost is completed and it shall operate for three hours.
- (4) If ICE PLUS is selected within seven minutes after compressor has stopped, the compressor (compressor delays seven minutes) shall start after the balance of the delay time.
- (5) The fan motor in the freezer cmpartment rotates at high speed during ICE PLUS.

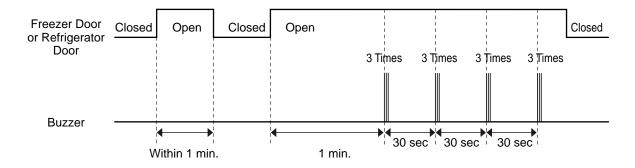
For the rest of 21 hours, the freezer will be controlled at the lowest temperature.

#### 8-1-4 Refrigerator Lamp Auto OFF

To protect the risk of lamp heat, when Refrigerator door opens for 7 min., Refrigerator lamp is auto off.

#### 8-1-5 Alarm for Open Door

- 1. This feature sounds a buzzer when the freezer or refrigerator door is not closed within 1 minute after it is opened.
- 2. One minute after the door is opened, the buzzer sounds three times each for  $\frac{1}{2}$  seconds. These tones repeat every 30 seconds.
- 3. The alarm is cancelled when the freezer or the refrigerator is closed while the buzzer sounds.



#### 8-1-6 Buzzer Sound

When the button on the front Display is pushed, a Ding~ Dong~ sound is produced.

#### 8-1-7 Defrosting (removing frost)

- 1. Defrosting starts each time the accumulated COMPRESSOR running time is between 7:30 and 40 hours. This time is determined by how often and how long the doors are opened.
- 2. For initial power on or for restoring power, defrosting starts when the compressor running time reaches 4 hours.
- 3. Defrosting stops if the sensor temperature reaches 46.4°F(8°C) or more. If the sensor doesn't reach 46.4°F(8°C) in 1 hours, the defrost mode is malfunctioning.
- 4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

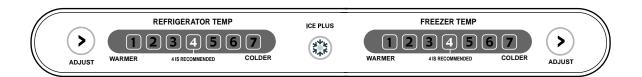
#### 8-1-8 Electrical Parts Are Turned On Sequentially

Electrical parts such as COMP, defrosting heater, freezer FAN, etc. are turned on in the following order to prevent noise and parts damage. Several parts are started at the same time at initial power on and are turned off together when TEST is completed.

	OPERATING	ORDERS				
Initial power on	Temperature of Defrosting Sensor is 45°C or more (when unit is newly purchased or when moved)	POWER In ½ second ON In ½ second ON ON In ½ second ON	Cooling FAN ON			
	Temperature of defrosting sensor is lower than 45 °C (when power cuts, SERVICE)	ON heater ON heater ON heater ON heater ON how heater ON	Defrosting neater OFF ng FAN ON			
Reset to normal operation from TEST MODE		Total Load In 7 minute COMP In ½ second Freezer FAN In ½ second ON ON	Cooling FAN ON			

#### 8-1-9 Defect Diagnosis Function

- 1. Automatic diagnosis makes servicing the refrigerator easy.
- 2. When a defect occurs, the buttons will not operate; but the tones. such as ding. will sound.
- 3. When defect is repaired the defect code is removed and refrigerator returns to normal operation (RESET)
- 4. The Defect code is shown on the Display.



#### ERROR CODE on display panel

● LED OFF LED ON ◎

NO	ITEM		l	ERRO	OR C	ODE				CONTENTS	REMARKS	
1	Failure of freezer sensor	All off	•	0	0	0	0	0	0	Cut or short circuit wire		
2	Failure of Refrigerator sensor	All off	0	•	0	0	0	0	0	Cut or short circuit wire	Inspect Connecting wires on each sensor	
3	Failure of defrost sensor	All off	0	0	•	0	0	0	0	Cut or short circuit wire		
4	Poor of defrost	All off	•	•	•	•	0	0	0	1 hours later after starting defrost, If sensor doesn't be over 46°F (8°C)	Snapping of defrost heater or Temperature fuse, pull-out of Connector (indicated minimum 1 Hours after failure occurs)	
5	Failure of BLDC fan motor at freezing compartment	All off	•	•	•	•	•	0	0	If there is no fan motor signal for more than 115sec in operation	Poor motor, hocking to wires of fan, contact of structures to fan, snapping or short of lead	

#### 8-1-10 TEST Mode

- 1. The Test mode allows checking the PCB and the function of the product as well as finding out the defective part in case of an error.
- 2. The test mode is operated by pressing two buttons at Display panel.
- 3. While in the test mode, the function control button is not recognized, but the recognition tone (beep~) sounds.
- 4. After exiting the test mode, be sure to reset by unplugging and then plugging in the appliance.
- 5. If an error, such as a sensor failure, is detected in the test mode, the test mode is cleared and the error code is displayed.
- 6. While an error code is displayed, the test mode will not be activated.

MODE	MANIPULATION	CONTENTS	REMARKS
TEST1	Push ICEPLUS key and ADJUST key of Freezer temperature at the same time over 3 seconds. Or press TEST S/W one time in the Main PCB board.	1Continuous operation of the COMPRESSOR 2.Continuous operation of the freezer fan 3.Stepping DAMPER OPEN 4.Defrosting Heater OFF 5.Every DISPLAY LED ON	Reset after 5 minutes
TEST2	Push ICEPLUS key and ADJUST key of Freezer temperature at the same time over 3 seconds being in TEST MODE1. Or press TEST S/W one time being in TEST MODE 1.	1.COMP OFF 2.Freezer FAN OFF 3.Stepping DAMPER CLOSE 4.Defrosting Heater ON 5.DISPLAY LED 1,3,5,7 ON	Reset if the temperature of the defrosting sensor is 46°F (8°C) or more
Reset			The Compressor will start after a 7-minute Delay

**NOTE**: LED CHECK MODE: When the refrigerator temperature control and the freezer temperature control button at the same time are hold for 1 second or longer, every LED on the display turns on at the same time. when the button are relesed, the previous mode is restored.

In case the freezer fan is in operation when the ADJUST key in Refrigerator and Freezer Temp. Control are pressed for more than one second at the same time freezer fan RPM changes. (For example if high speed, to normal speed or if normal speed, to high speed for 30 seconds)

After 30 seconds, it turns to its original RPM.

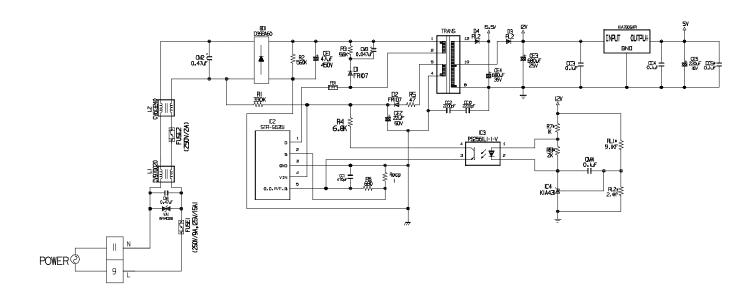
#### \*Demonstration MODE;

- 1. When the ICE PLUS key and ADJUST key of refrigerator temperature control are pressed for more than 3 seconds at the same time temperature's it converts to demonstration mode.
- 2. In this status, each LED is rotated with 1 second interval.
- 3. In this status, all loads are off (Compressor / Fan / Damper / Heater)
  (Even is Demonstration Mode, the refrigerator Lamp automatic off function works normally and can be demonstrated)
- 4. It reset if you do again as clause.

<sup>\*</sup> Freezer Fan RPM Variable Check:

#### **8-2 PCB FUNCTION**

#### 8-2-1 Power Circuit



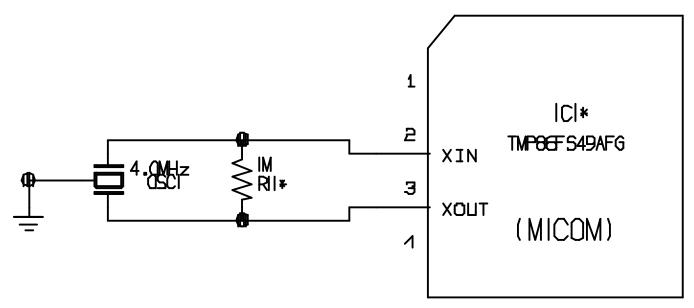
The secondary part of the TRANSFORMER is composed of the power supply for the display, the BLDC FAN Motor drive (15.5 V), the relay drive (12 Vdc) and the MICOM and IC (5 Vdc).

The voltage for each part is as follows:

PART	VA 1	CE 3	CE 4	CE 5
VOLTAGE	115 Vac	12 Vdc	15.5 Vdc	5 V

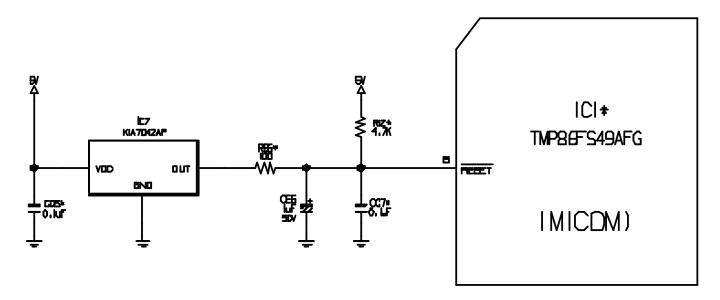
VA1 is a part for preventing over voltage and noise. When 385V or higher power is applied, the inside elements are short-circuited and broken, resulting in blowout of the fuse in order to protect the elements of the secondary part of the TRANSFORMER.

#### 8-2-2 Oscillation Circuit



This circuit generates 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 specific replacement parts, since calculating time by the IC1 may be changed. If changed, the OSC1 SPEC will not work.

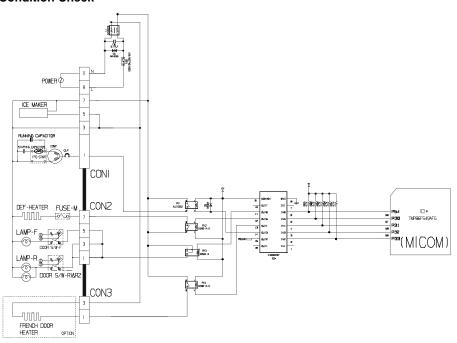
#### 8-2-3 Reset Circuit



The RESET circuit allows 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 a malfunction occurs in the RESET IC, the MICOM will not operate.)

#### 8-2-4 Load / Buzzer Drive & Open Door Detection Circuit

#### 1. Load Drive Condition Check

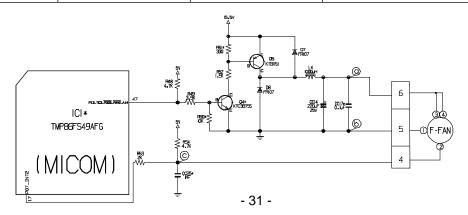


LOAD T	YPE	COMP	DEFROSTING HEATER	LAMP	TCM POWER MODE (OPTIONAL)
Measurement Location (IC6)		NO.14	NO.12	NO.11	NO.12
Condition	ON		1V or below		
Condition	OFF			12V	

#### 2. Fan motor driving circuit (freezing compartment fan)

- 1. This circuit makes standby power **0** by cutting off power supplied to ISs inside of the fan motor in the fan motor OFF.
- 2. This is a circuit to perform a temporary change of speed for the fan motor and applies DC voltage up to 7.5V ~ 16V to motor
- 3. This circuit prevents over-driving the fan motor by cutting off power applied to the fan motor in the lock of fan motor by sensing the operation RPM of the fan motor.

	a part	(b) part	© part
MOTOR OFF	2V or less	0V	5V
MOTOR ON	13V~15V	0V	2V~3V

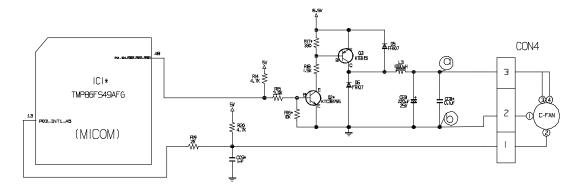


#### 3. Cooling motor driving circuit (machine room)

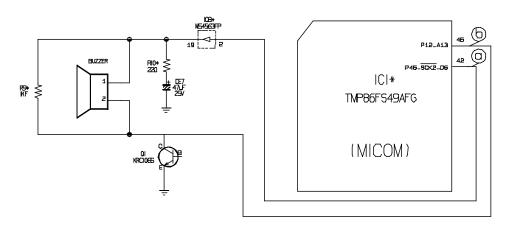
- 1. This circuit makes standby power 0 by cutting off power supplied to Iss inside of the fan motor in the fan motor OFF.

  2. This circuir prevents over-driving the fan motor by cutting off power applied to the fan motor in the lock of fan motor by sensing the operation RPM of the fan motor.

	(a) Part	(b)Part
MOTOR OFF	2V or less	0V
MOTOR ON	13V - 15V	0V

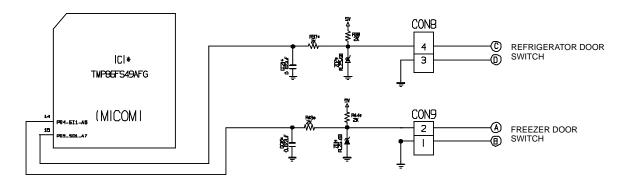


#### 4. Buzzer Drive Condition Check



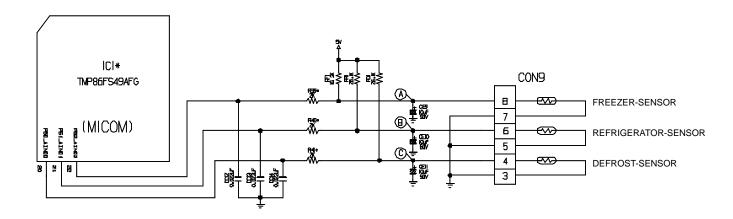
Condition Measure- ment Location	Tone (Ding~Dong~) when the button on the display is pushed.	Alarm for open door (beep-beep-beep)	OFF
IC1 ( <b>(A</b> )	0.05 s 0.2 s 0.1 s 2 s 0.0 v	0.5 s 0.5 s 0.7 s	0 V
IC1 (B)	5 V 0 V 2.63 kz (Ding~) 2.21 kz (Dong~)	5 V 0 V — 2.63 kz(Beep~) OFF	0 V

#### 5. Open Door Detection Circuit Check



Measurement Freezer/ Location Refrigerator Door	(PIN NO.15 & PIN NO.14)
Closed	5 V
Open	0 V

#### 8-2-5 Temperature Sensor Circuit

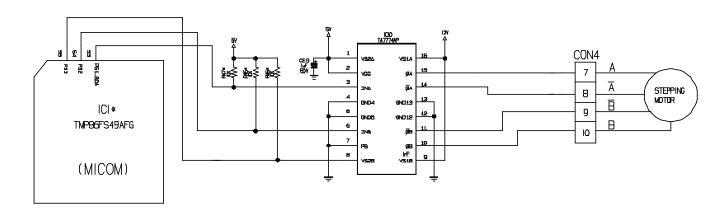


The upper CIRCUIT reads REFRIGERATOR temperature, FREEZER Temperature, and DEFROST-SENSOR temperature for defrosting and the indoor temperature for compensating for the surrounding temperature into MICOM. OPENING or SHORT state of each TEMPERATURE SENSOR are as follows:

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

#### 8-2-6 Refrigeration Compartment Stepping Motor Damper Circuit

\* The circuit shown below is the damper circuit to regulate the refrigerator temperature.



#### 8-2-7 Temperature Compensation & Overcooling/Undercooling Compensation Circuit

#### 1. Refrigerator Temperature Compensation

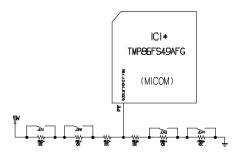
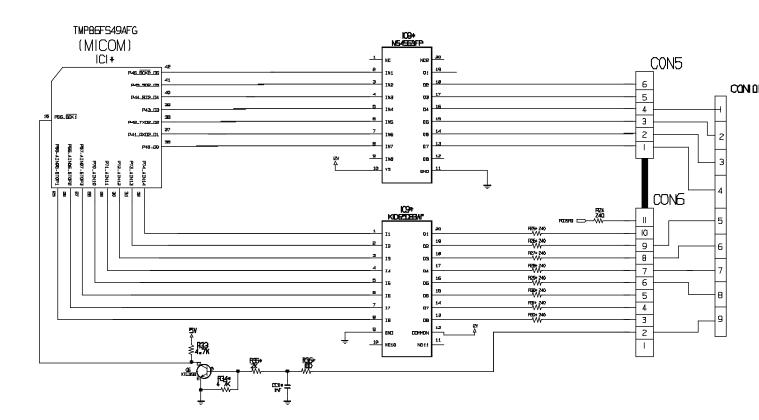


Table of Refrigerator temperature compensation.

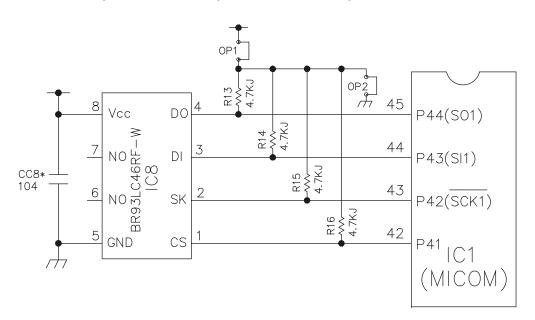
OPTION	CUTTING	REMARK
JCR1	R+ 1.0 deg compensation	Warmer
JCR2	R+ 1.0 deg compensation	
JCR3	R- 1.0 deg compensation	
JCR4	R- 1.0 deg compensation	Colder

#### 8-2-8 Key Button Input & Display Light-On Circuit

? The circuit shown above determines whether a function control key on the operation display is pushed. It also turns on the corresponding function indication LED (LED Module) SEVEN SEGMENT DISPLAY (SEVEN SEGMENT DISPLAY MODULE). The drive type is the scan type



#### 8-2-9 Power Failure Compensation Circuit (DISPENSER MODEL)



#### 8-3 RESISTANCE SPECIFICATION OF SENSOR

TEMPERATURE DETECTED BY SENSOR	RESISTANCE OF FREEZER SENSOR	RESISTANCE OF REFRIGERATOR & DEFROST SENSOR & ROOM SENSOR
-20°C	22.3ΚΩ	77ΚΩ
-15°C	16.9Κ Ω	60ΚΩ
-10°C	13.0ΚΩ	47.3ΚΩ
-5°C	10.1ΚΩ	38.4ΚΩ
0°C	7.8ΚΩ	30ΚΩ
+5°C	6.2ΚΩ	24.1ΚΩ
+10°C	4.9ΚΩ	19.5ΚΩ
+15°C	3.9ΚΩ	15.9ΚΩ
+20°C	3.1ΚΩ	13ΚΩ
+25°C	2.5ΚΩ	11ΚΩ
+30°C	2.0ΚΩ	8.9ΚΩ
+40°C	1.4ΚΩ	6.2ΚΩ
+50°C	0.8ΚΩ	4.3ΚΩ

The resistance of the SENSOR has a ±5% common difference.
 Measure the resistance of the SENSOR after leaving it for over 3 minutes in the measuring temperature.
 This delay is necessary due to sensor response speed.

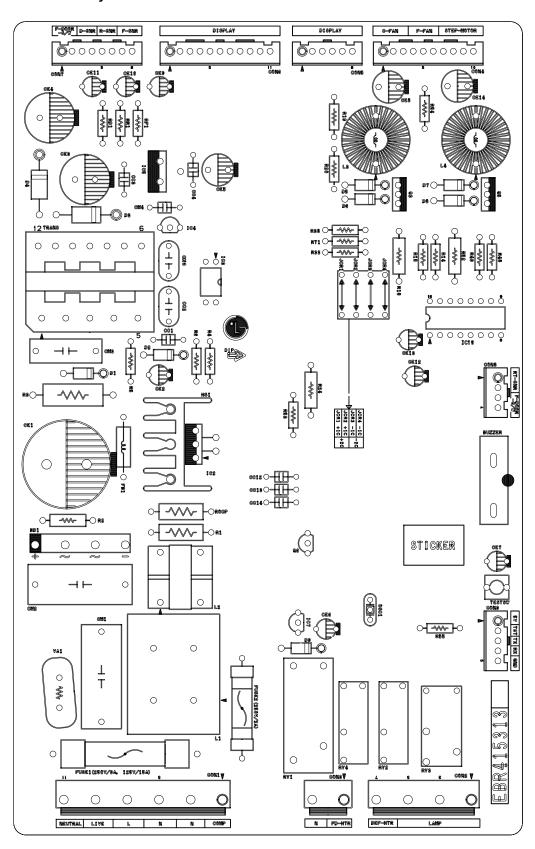
# 8-4 TROUBLESHOOTING

PROBLEM	INDICATED BY	СНЕСК	CHECKING METHOD	CAUSE	SOLUTION
POWER SOURCE is poor.	The whole DISPLAY     LED/SEVEN SEGMENT     DISPLAYIS off.	1. FREEZER/ REFRIGERATOR.	Check if FREEZER/ REFRIGERATOR DOOR IS OPEN and check display.	POWER SOURCE is poor.	Check outlet Voltage.
	2. DISPLAY LED/	2. If LAMP is dim.	Check visually.	Applied voltage error.	Use boosting TRANS.
	SEVEN SEGMENT DISPLAY operates	3. The connection of the MAIN PWB	Check connection of CONNECTOR.	CONNECTOR connection is poor.	Reconnect CONNECTOR.
	abnormally	CONNECTOR.		TRANS FUSE is open.	Replace TRANS.
COOLING is poor.	NO COOLING.	1. If the COMPRESSOR operate.	USE TEST MODE1 (forced COOLING).	COMPRESSOR locked or blocked.	Replace COMPRESSOR.
			If less than 7 minutes pass	OLP, PTC is poor.	Replace OLP, PTC.
			after compressor shuts off, don't press the KEY and	COMPRESSOR RELAY is poor.	Replace MAIN PWB.
			wait.	THE CONNECTING WIRE	Check the connection of the
				is poor.	black wire of the MAIN PWB CONNECTOR (CON2).
		2. If refrigerant is leaking.	Measure the amount of frost	Refrigerant leakage.	Replace the leaking part and
			sticking on EVAPORATOR		replace any lost refrigerant.
			of the condenser pipe.		
	FREEZER TEMPERATURE is	1. If FANMOTOR operates.	USE TEST MODE1 (forced COOLING).	FAN MOTOR is poor.	Replace the FAN MOTOR.
	incorrect			CONNECTING WIRE is poor.	Refer to 8-2-4. 2 and check
		2. If DEFROSTING	Check the amount of frost	DEFROSTING is poor.	See DEFROSTING
		is normal.	sticking on the EVAPORATOR,		is poor.
		3. If SENSOR is normal.	Check the resistance of the Refrigerator	SENSOR RESISTANCE is poor.	Replace SENSOR.
		A Door Lips contact	Chack the seal when	Door liner demonded	Poplace door liner
			the door is closed.	משופת משום משופת משום משופת משופת משופת משופת משופת משום משום משום משום משום משום משום משום	

PROBLEM	INDICATED BY	СНЕСК	CHECKING METHOD	CAUSE	SOLUTION
COOLING is poor.	If REFRIGERATOR TEMPERATURE	1.If FREEZER TEMPERATURE isn ormal.	Check is FREEZER TEMPERATURE ISOO low.		Make sure the DOOR isattached.
	is too low.	2. If amount of cool air from	Make sure that the amount	FAN MOTOR is poor.	Replace FAN MOTOR.
		FAN MOTOR is	and speed of cool air are	Passage of cool air	Remove impurities.
		sufficient.	sufficient by touching the	is blocked.	
			check supplied on the	EVA frozen.	See DEFROSTING is poor.
			REFRIGERATOR.		
		3. Door Line contact.	Check door seal when door is closed.	Door liner damaged.	Replace Door liner.
DEFROSTING is poor.	NO DEFROSTING.	1. If HEATER emits heat.	USE TEST MODE3 (forced DEFROSTING).	HEATER disconnection.	Replace HEATER.
				TEMPERATURE FUSE	Replace TEMPERATURE
				disconnection.	FUSE.
				Connection is poor.	Check EVAPORATOR
					connection and wire of MAIN
					PWB CONNECTOR.
				DEFROST-SENSOR is poor.	Replace DEFROST-SENSOR.
				HEATER RELAY is poor.	Replace RY2 of MAIN PWB.
		2. If DRAIN PIPE is	Check DRAIN PIPE.	DRAIN PIPE is blocked.	Remove ice and impurities.
		blocked.			Check HEATER PLATE
					resistance.
		3. If ice remains after	Make sure that DEFROST	Connection is poor.	Reassemble the
		DEFROSTING.	SENSOR is connected.		DEFROST-SENSOR.
			Make sure that FREEZER /	DOOR does not close	Reassemble DOOR.
			REFRIGERATOR DOOR is closed.	properly.	Replace GASKET.

#### 8-5 MAIN PWB ASSEMBLY AND PARTS LIST

#### 8-5-1 Main PWB Assembly



## 8-5-2 Replacement Parts List

			I	v	
No I	P/N0 EAX4I53I20I	DESCRIPTION PWB (PCB)	SPEC BRAY030 PJT, 2BLDC VER, 2	MAKER DOD SAN	FEMARK T:1.6
2	6170JB2012A	TRANSFORMER, SMPSI COIL I TRANSFORMER, SMPSI COIL I	DL. P.J.T. 2. 9M+V 20W GR-207, BLDC 100V-127Y	SAM IL,SMC	TRANS
4	6170JB2012B 6170JB2012C	TRANSFORMER, SMPSI COIL I	GR-207,BLDC 100V-127V	SAM IL, SMC	
5 6	EAF36838801	PROTECT DEVICE, FUSE	62NR GLASS 250V 9A KS AXIAL BK	ORISEL	FUSEI
7 8	EAF36838802 0FZZJB300IA	PROTECT DEVICE, FUSE PROTECT DEVICE, FUSE PROTECT DEVICE, FUSE	EZHR GLASS ZSOV 9A KS AXIAL BK GENR GLASS ZSOV 15A KS AXIAL BK ZSOV 1ZA 5ZSOZOH(9LOW) -BLOW) LITTLEFUSE TRIAD	ORISEL ORISEL	FUSE2
9	6630VM0IIII	CONNECTOR (CIRC), WAFER	YW396 YEONHO IIP 3.96WM YW396-IIAV (IIP-2,4,6,8,10)	YEON HO	CONI
11	6630A09I06C 6630A09I06A	CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER	LYW396-07AV YEONHO 7PIN 3.949AM STRAIGHT SN	YEON HO YEON HO	CON2 CON3
13	6630JB8004J 6630JB8004E	CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER	W\$96-03AV 3P 3,95M IR STRAIGHT SW(2SO-10P 10P 2,50M IR STRAIGHT SW(2SO-08P 6P 2,50M IR STRAIGHT	YEON HO YEON HO	CON4 CON5
15	6630JB8004K 6630JB8004G	CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER	9M/250-04P 4P 2,50MM IR STRAIGHT 9M/250-04P 4P 2,50MM IR STRAIGHT 9M/250-04P 4P 2,50MM IR STRAIGHT	YEON HO YEON HO	CON6 CON7
16 17	6630JB8004C 6630JB8004D	CONNECTOR (CIRC), WAFER	SW/250-04P 4P 2.500M IR STRAIGHT SW/250-05P 5P 2.500M IR STRAIGHT	YEON HO YEON HO	CONB
1B 19 20	6102W5V007A	CONNECTOR (CIRC), WAFER VARISTOR	INRIAD33IK 330V 10% UL/CSA/VDE BK ILJIN	IL JIN	CON9 VAI
"	BIOZ <b>N</b> SVOU7A	WHISTOR	SVC33ID-14A	SAMWHA	VAI
21	6102JB8001B	VARISTOR	TVRI.4331 SVC62ID-14A SAMMHA UL./VDE BK 620V	THINKING SAMMHA, IL JIN	
22	6920000001A	RELAY	ALEISBIZ MATSUSHITA ZSOVAC IGA IZVDC IA NO VENTING, IPOLE	MATSUSHITA	RYI
	6920JB2005B 6920JB2005C FBB35235(0)		(53.5-1A-NT-12YOC AC250Y DC12Y 16A 1A ULCSA-YOE LEAD DHU II AC250Y DC12Y 16A 1A ULCSA-YOYAYERKO LEAD ONH-55-112A 10G AC250Y DC12Y 16A 1A ULCSA-YOE-55-YOE-55-KNO DIP 06G GSNB-1A-E SYDC AC250Y DC5Y 5A 1A ULCSA-YOE 20.5-77,2-15,3 DIP	OMFON DEC TYCO	
23	6920JB2003H	RELAY	GSNB-IA-E SYDC ACCEON DOCKY A IA UL-CSA/VDE 25-57.2°15.3 DIP	OMRON	RY2,RY4
	6920JB2003D 6920JB2003E		G5NB-IA-E-IZYDC1UPNI AC250Y/DC30V DCI2V 5A IA UL/CSA/VDE G5NB-IA-E-IZYDC1CHNI AC250Y/DC30V DCI2V 5A IA UL/CSA/VDE	OMRON OMRON	
24	6920JB2009B	RELAY	G558-14 ON/RON 250VAC 5A 12VDC IC NO VENTING, IPOLE	OMRON	RY3
25	6212BA3041A	OSCILLATOR, RESONATOR, CERAMIC	CSTLS4M00G53-A0 MURATA 4MHZ +/-0.5% TA 15PF	MURATA	OSCI
26 27	EAN44005901	IC.MICROCONTROLLERS	TWP66F549AFG TOSHIBA 64P BULK FLASH BRAYO30 ENERGY STAR 10B	TOSHIBA	ICI
28 29	EAN44005902 EAN44005903	IC,MICROCONTROLLERS IC,MICROCONTROLLERS	TMP86FS49AFG TOSHIBA 64P BULK FLASH WINNER2 GOOD/BETTER ENERGY STAR 108		
30	EAN44005904 EAN44005905	IC, MICROCONTROLLERS IC, MICROCONTROLLERS	TMP86FS49AFG TOSHIBA 64P BULK FLASH WINNER2 BEST ENERGY STAR '08 TMP86FS49AFG TOSHIBA 64P BULK FLASH BRAVO33 BASIC	TOSHIBA TOSHIBA	
32 33	OIPWGSK00IA	IC.HIC	STR-G6351 15.8T019.4V 9.1T011.1V SWITCHING REGULATOR ZIP ST 5P	SANKEN	IC2
34 35	OIPMGNEOOIA OIKE43IOOOA	PHOTO, COUPLER IC, VOI TAGE REGULATOR	PS256ILI-I-V NEC 4P, DIP BK = TLP7ZIF KIA43I 36V 36V 700MN T092 TP 3P	NEC KEC	IC3 IC4
36 37	OIKE780500# OIKE650030C	IC. VOLTAGE REGULATOR	STR-65591 I.5, BT019, 4V 9. IT01. I.V SHITCHING REGULATOR ZIP ST 5P PS25561-1-1-V NEC 4P, DIP 6V. KIA-31 36V 354V 700Mt 1092 1P 3P KIA-31 36V 354V 700Mt 1092 1P 3P KIA-31054P1 71020V 5V 2W 1022015 ST 3P KIA-30564P1 71020V 5V 2W 1022015 ST 3P KIA-50564P1 50 SV 5W 75 10 PHVE	KEC	105
38 39	OIKE 704200A OISTLMIOOIA	IC,LED DRIVER IC,VOLTAGE DETECTOR IC,LOGIC IC	KIA7042P - 0,3T015Y 4,2Y 400MM T092 TP RESET 3P M54563FP MITSUBISHI 20 RZTP CONVERT	KEC KEC WITSUBISHI	106 107 108
40	01KE650830B EAN34119001	IC,LED DRIVER	IKINGGORRAF - 0.5T030V - 0.5T050V 350MW DIP ST 20P	KEC TOSHIBA	IC9
41 42	01T0777400A 01RH934600D	IC. WOTOR DRIVER IC. EEPROM	ULIVEROSAF OV TO 30V -0.5V TO 30V 460MW 50L R/TP IBP TA7774AP IG.,50P BK CRIVE, C STEPPING MOTOR BP93U.C46FF W BPIN 50P BK CEPPROK, IKBIT	TOSHIBA ROHM	ICIO
43	OISTLKE005A			KEC	OI
45 46	OTRIKE80052A OTRIKE0000BA	TRANSISTOR, BIPOLAR TRANSISTOR, BIPOLAR TRANSISTOR, BIPOLAR	KTC3875S NPN 5V 60V 50V I50MA 100NA 70T0700 I50MM S0T23 R/TP 3P	KEC KEC	02,04 03,05
47 48	OTR319809AA	TRANSISTOR BIPOLAR	KTC3198(KTC18)5) NPN 5V 60V 50V 150MA 100NA 70T0700	KEC	06
49 50	ODB360000AA ODZRIMOOIBBA	DIODE, BRIDGE	D398A60 600V 1.05V 10UA 80A SIP ST 4P 4 RLZ5.68 5.6V 5.45T05.73V 130HM 500MN LL34 RZTP 2P 1	SHINDENGEN ROHM	BDI ZDI, ZD2
51	0DRI07009AA	DIODE, ZENER DIODE, RECTIFIER	FRIO7 TP FECTRON DO41 (000V 1A 30A 500NSEC 5A  PLZ BK SANKEN D041 400V 2.0A 40A 0.6SEC 10UA	DELTA SANKEN	DI,D2,D5-D8
52 53	ODRSA00070A ODD400409AC	DICCE, RECTIFIER DICCE, RECTIFIER	IN4004 (56MM) TP D0204AL 400V IA 30A 30UA	DELTA	D3,D4 D9
	000 100 105110	Drode (red rank)			
54 55	6210JB800IA	FILTER, BEAD	BFS35IOAOL I500HM 3.5XIOMM AXIAL TP	SAM WHA	FBI
54 55 56 57	6210JB9001A 6200JB3004A EAM50202101	FILTER,BEAD FILTER,LINE NOISE FILTER,LINE NOISE	CV970020 7A 2mH   CV613240 TNC BK 1.3A 24mH	SAM WHA TNC TNC	LI L2
54 55 56 57 59	6210_B9001A 6200_B3004A EAM50202101 0LRICOIM4F0	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE INDUCTOR, NIFE NOUND, RADIAL	CY970020 7A 2mH   CY613240 TNC BK 1,34 24mH   N+510A00 1MH 20% 1,5KY 1A 10HM 60HZ 1 NON 9HIELD 18,5MM x17MM 12MM TR	SAM WHA TNC TNC TNC	LI L2 L3,L4
54 55 57 58 59 60 6	6210_89001A 6200_83004A EAM5020210I 0LRICOIM4F0 0C047418670 0CF4731Y470	FILTER, EEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE INDUCTOR, WIFE WOAND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX	[C.1970/C020 7A 2:HH C.VG19240 TNC BR 1, 3A 24mH NH500AO 1MH 2028 1, 15V7 IA 10HM 60HZ 1 NON 9-HELD 1B, 5MM x17MM 12MM TR 0.47LF 207. 275V MPP -4010-HBC NON-IND 25XII.,5X2MM 22, 5MM 12MM TR 0.47LF 207. 275V MPP -4010-HBC NON-IND 25XII.,5X2MM 22, 5MM 12MM TR 0.47LF 0.05PF 630V PP -1010-HBC NON-IND 25XII.,5X2MM 22, 5MM BK	SAM WHA TNC TNC TNC TNC PILKOR PILKOR	L1 L2 L3,L4 OM, CM2 ON3
54 55 57 59 59 60 62 63	6210_B9001A 6200_B3004A EAKE02021DI 0_LRICOIM4F0 0C04741B670 0CF4731Y470 0CK1040K949	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE IND.CTOR, WIFE WOUND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, CERANIC, AXIAL	[CY97020 7A 2:H1 CKY92020 7A 2:H1 CKY92020 7A 2:H1 CKY92020 7A 2:H1 CKY9200 7A	SAM NHA TNC TNC TNC TNC PILKOR PILKOR SAM NHA	LI L2 L3,L4 OM, CM2 OMG OMG
54 55 57 58 59 60 6 62 63 64 65	6210_B9001A 6200_B3004A EAK602021DI OLRICOIM4F0 0C04741B670 OCF4731Y470 OCK1040K949 0CE476ZV6E0 OCE226B4638	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, MIRE WOAD, RADIAL CAPACITOR, FILM BOX CAPACITOR, CERAMIC, AXIAL CAPACITOR, AL, RADIAL CAPACITOR, AL, RADIAL	[CY970202 7A 25H CKY93204 TNC BR 1, 3A 24mH N+50A00 1MH 202K 1,5V(1 A 10AN 60HZ 1 NON 9HELD 18,5MM x17MM 12MM TR N+50A00 1MH 202K 1,5V(1 A 10AN 60HZ 1 NON 9HELD 18,5MM x17MM 12MM TR 0,47LF 202K 275V MPP -40T0-85C NON 10,5SCSMIMM 12,5MM BX 100-F 202K 275V MPP -10T0-85C NO 12,5SCSMIMM 12,5MM BX 100-F 202T0-902 50V YSV -25T0-95C 3,5X1,5MM 1,5MM TAS2 47LF 202T0-902 50V YSV -25T0-95C 3,5X1,5MM 1,5MM TAS2 47LF 202K 450V 550MM -25T0-105C MT 20000H 202KM 10MM SMP IN BK 22LF 202K 50V 75MM -55T0-105C MT 10000H 5X1MM 5MM FORMINS TP	SAM WHA TNC TNC TNC TNC PILKOR PILKOR SAM WHA SAM YOUNG	L1 L2 L3,L4 OM, CM2 ON3
54 55 57 59 59 60 6 62 63 64 65 66 67	6210_BB00IA 6200_B3004A EAME0202101 0LRICOMMF0 0CD4741B670 0CK1731V470 0CK1040K949 0CK24762V6E0 0CE276B46-39 0CE69774-EE0 0CE69774-EE0	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HITE. MOND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CAPACITOR CA	[CY97020 7A 2:H1 CKY93200 TA 2:H1 CKY93200 TAC BR 1, 3A 24m;H N+50A00 1M+ 2024 1, 5V; IA 10-NI 60+Z 1 NON 9-HELD 16, 5M: x1 7Mil 12Mil TR  0, 47.F 207. 275V MPP - 4010-85C NON-IND 25x11, 5x2;Mil 22, 5Mil BK 100-F 2070-850V PP -1070-85C ND 12, 5x55X1MM 12, 5Mil BK 100-F 2070-8072 50V 95V -2570-85C 3, 5X1, 5Mil 1, 5X2;Mil 22, 5Mil BK 47.F 207. 450V 55Mil -2510-105C NT 2000-R 2000-R DAM 10Mil 5MIP IN BK 22.F 207. 50V 75Mil -5510-105C NT 2000-R 2000-R DAM 10Mil 5MIP IN BK 680-F 207. 39V 75Mil -5510-105C NT 2000-R DAM 10Mil 5MIP IN BK 680-F 207. 39V 75Mil -5510-105C NT 2000-R DAM 10Mil 5MIP IN BK 680-F 207. 39V 75Mil -5510-105C NT 2000-R DAM 15X1MIP IN BK 680-F 207. 39V 75Mil -5510-105C NT 2000-R DAM 15X1MIP IN BK 680-F 207. 39V 75Mil -5510-105C NT 2000-R 12, 5X16MIP 5, 5MISMIP 5, 5MISM	SAN IH-IA TINC TINC TINC PILIKOR PILIKOR SAN IH-IA, SAN YOUNG	LI L2 L3,L4 OM, OM2 OM3 OM4 OM4 CE1 CE2 CE3 CE2 CE3
54 55 57 59 60 6 62 63 64 65 66 67 68 69	6210_BB00IA 6200_B3004A 6200_B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HITE. WOAD, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL	[CY97020 7A 2:H1 CKY97020 7A 2:H1 CKY972020 7A 2:H1 CKY972020 7A 2:H1 CKY9720	SAN IH-A TNC TNC TNC TNC TNC TNC TNC SAN IH-A SAN IH-A SAN IH-A SAN IN-A SA	LI L
54 55 56 57 59 60 61 62 63 64 65 66 67 68 69 70	6210_B9001A 6200_B9004A 6200_B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HITEL MOND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL	[CY97020 7A 2:H1 CKY97020 7A 2:H1 CKY972020 7A 2:H1 CKY972020 7A 2:H1 CKY9720	SAN IH-A TNC TNC TNC TNC TNC TNC TNC SAN IH-A SAN IH-A SAN IH-A SAN IN-A SA	LI LZ
54 55 56 57 58 59 60 61 62 63 64 65 66 66 67 68 69 70 71 72 73	6210.E9001A 6200.E3004A 6200.E3004A 6200.E3004A 6200.E3004A 6200.E3004F0 0.R1600M4F0 0.CC47431470 0.C04040649 0.CC47621470 0.CC222B4663 0.CC622786633 0.CC47596633 0.CC4769633 0.CC10528633 0.CC10528633	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, MIRE. MOND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL	CLY97020 7A 2:H1 CKY92020 7A 2:H1 CKY920	SAN WHA TNC TNC TNC TNC TNC TNC TNC SAN WHA SAN YONS SAN WHA, SAN YONS	LI L2 L3,L4 CM, CMP OMP OMP OMP OMP CEI CE2 CE3 CE4 CE5 CE4 CE5 CE7
54 55 56 57 59 59 60 61 62 63 64 66 67 68 69 70 71 72 73 74	6210.EB001A 6200.B3004A 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCOR, MIRE MOND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CARRAIC, RADIAL CAPACITOR, CERRAIC, CADIAL	CLY97020 7A 2:H1 CKY92020 7A 2:H1 CKY920	SAN WHA TNC TNC TNC TNC TNC TNC TNC TNC SAN WHA SAN YOUNG SAN WHA, SAN YOUNG SAN WHA	LI L2 L3,L4 GM, GM2 GM3 GM3 GM4 GM3 GM4
54 55 56 57 58 59 60 60 64 65 64 65 66 67 70 71 72 73 74 75 76	6210.E9001A 6200.E3004A 6200.E3004A 6200.E3004F 0.R1600MF0 0.CR1600MF0 0.CR160	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE INDUCTOR, IFIER MOUNT CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, CAPADIA CAPACITOR, AL, RADIA CAPACITOR, CEPRANIC, RADIAI CAPACITOR, CEPRANIC, RADIAI CAPACITOR, CEPRANIC, RADIAI	[CY97020 7A 2:H1 CKY97020 7A 2:H1 CKY972020 7A 2:H1 CKY972020 7A 2:H1 CKY9720	SAN WHA TNC TNC TNC TNC TNC TNC TNC TNC SAN WHA, SAN YOUNG	LI L2 L3,L4 OM, OME OMS
54 55 56 57 59 59 59 60 62 62 63 64 65 66 66 66 67 68 69 70 71 72 73 74 75 76 77	6210.EB001A 6200.B3004A 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HITEL NOISE NOLCTOR, HITEL NOAD, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CA, RADIAL CAPACITOR, CA, CANAL CAPACITOR, CEPANIC, RADIAL CAPACITOR, CEPANIC, CANAL CAPACITOR, CEPANIC, CHIP	[CY97020 7A 2:H  CY93200 7A 2:H  CY93200 7A 2:H  CY93200 7A 2:H  N=50A00 1M+ 202; 1,59Y 1A 10-N 60+2 1 NON 9-HELD 18,5M x1 XM 12M TR  0,47xF 20X, 275Y MPP -4010-BSC NON-NO 25XH,552M 22,5M BK  0,47xF 20X, 275Y MPP -4010-BSC NON-NO 25XH,552M 22,5M BK  100xF 22010-B0Z,50Y 19Y -2510-BSC 3,5XH,5M 1,5M 1X52  47xF 20X, 450Y 55MA -5510-HDSC 11 2000+R 2X34M 5M 1X52  47xF 20X, 550Y 75MA -5510-HDSC 11 1000+R 5XHM 5M 76XHNS 1P  680xF 20X, 25Y 75MA -5510-HDSC 11 1000+R 5XHM 5M 76XHNS 1P  680xF 20X, 25Y 75MA -5510-HDSC 11 2000+R 2X34M 5M 5M FORNING 1P  10xF 20X, 56Y 174MA -5510-HDSC 11 2000+R 2X34M 5M 5M FORNING 1P  10xF 20X, 56Y 174MA -5510-HDSC 11 2000+R 2X34M 5M 5M FORNING 1P  10xF 20X, 56Y 174MA -5510-HDSC 1P 1000+R 8H 1,5M 5M 5M FORNING 1P  10xF 20X, 56Y 277AM -5510-HDSC 1P 1000+R 8H 1,5M 5M FORNING 1P  10xF 20X 56Y 50Y 5MA -5510-HDSC 1P 1000+R 8H 1,5M 5M FORNING 1P  10xF 20X 56Y 54M 5510-HDSC 1P 1000+R 8H 1,5M 5M FORNING 1P  10xF 20X 56Y 54M 5510-HDSC 1P 1000+R 8H 1,5M 5M 15M FORNING 1P  10xF 20X 56Y 50Y 5MA 5510-HDSC 1P 1000+R 8H 1,5M 5M 1 FORNING 1P  10xF 20X 56Y 50Y 50Y 50Y 50Y 50Y 50Y 50Y 50Y 50Y 50	SAN WHA TNC TNC TNC TNC TNC TNC TNC TNC SAN WHA SAN YONS SAN WHA, SAN YONS SAN WHA SAN WHA SAN WHA SAN WHA SAN WHA SAN WHA	LI LZ L3,L4 GM, GM2 GM
54 55 56 57 59 60 60 62 63 64 65 67 68 69 70 7 7 7 7 7 7 8 8 9 8 9 8 9 8 9 8 9 8 9 8	620.B900IA 620.B300IA 620.B300IA 620.B300IA 620.B300IA 620.B300IA 620.B16670 620.F16670	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOJECTOR, HIRE NOJEC, PADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., PADIAL CAPACITOR, CEPANIC, RADIAL CAPACITOR, CEPANIC, CAPAL CAPACITOR, CAPACITOR CAPACIT	[CY97020 7A 2:HI CY97020 7A 2:	SAN WHA TNC TNC TNC TNC TNC TNC TNC TNC SAN WHA, SAN YO, AG SAN WHA	LI L2 L3, L4 CM, CM2 CM, CM2 CM, CM2 CM, CM2 CM, CM2 CM, CM2 CM, CM3
54 55 56 57 59 60 6 62 63 64 65 66 67 68 70 7 7 7 7 8 8 8 9 80 8 8 9 8 9 8 9 8 9 8 9 8 9 8	6210.B900IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200II 6200III 620	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCOR, MIRE NOUND, RADIAL CAPACITOR, LINE BOX CAPACITOR, LINE BOX CAPACITOR, LINE BOX CAPACITOR, LINE BOX CAPACITOR, A., RADIAL CAPACITOR, CERRALIC, OHP CAPACITOR, CAPACITOR, CERRALIC, OHP CAPACITOR, CERRALIC, OHP CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CA	CY970220 7A 2:HI CY970220 7A 2:HI CY970220 7A 2:HI CY970220 7A 2:HI CY970200 7A 2:HI CY9702	SAM WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI LZ L3,L4 CM, CM2 CM3 CM3 CM3 CM4 CM5 CM2 CM3 CM4 CM5 CM4 CM5 CM4 CM5 CM6 CM6 CM7 CM7 CM7 CM8 CM8 CM9
54 55 57 59 60 62 63 64 65 66 66 67 70 77 78 80 80 80 80 80 80 80 80 80 8	6210.B900IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200II 6200III 620	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCOR, MIRE NOJOC, RADIAL CAPACITOR, LINE NO. CAPACITOR, LINE NO. CAPACITOR, LINE NO. CAPACITOR, LINE NO. CAPACITOR, L., RADIAL CAPACITOR, A., RADIAL CAPACITOR,	CY970220 7A 2:HI CY970220 7A 2:HI CY970220 7A 2:HI CY970220 7A 2:HI CY970200 7A 2:HI CY97020 7A 2:HI CY	SAM WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI LZ L3,L4 GM, GM2 GM3 GM3 GM4 GM3 GM4 GM4 GM5 GM2 GM3 GM4 GM4 GM5 GM4 GM5 GM4 GM5 GM6 GM7 GM7 GM6 GM7 GM7 GM7 GM7 GM7 GM7 GM8
54 55 57 59 60 61 62 63 64 65 66 67 70 77 77 77 78 80 80 80 80 80 80 80 80 80 8	6210.B900IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B460IA 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCOR, MIRE NO. NO. PADIAL CAPACITOR, LINE NO. SC. CAPACITOR, LINE NO. CAPACITOR, LINE NO. CAPACITOR, LINE NO. CAPACITOR, A., RADIAL CAPACITOR, C., R	C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y97020 7A 2:HI C.Y97020 7A 2:HI C.Y97020 7A 2:HI	SAN WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI LZ L3,L4 GM, GM2 GM3 GM3 GM4 GM3 GM4 GM4 GM5 GM2 GM3 GM4 GM4 GM5 GM4 GM5 GM6 GM7 GM7 GM6 GM7 GM7 GM7 GM7 GM7 GM7 GM8
54 55 57 58 59 60 60 62 63 64 65 66 67 68 70 71 72 73 74 75 76 77 77 78 80 80 80 80 80 80 80 80 80 8	6210.B900IA 6220.B300IA 6220.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HIRE NO.DC, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., RADIAL CAPACITOR, CERANIC, CADIAL CAPACITOR, CERANIC, CADIA CAPACITOR, CONTRACTOR CARROLLA CARROLLA CADIA CAPACITOR CARROLLA CARROLLA CADIA CAPACITOR CARROLLA CARROLLA CADIA CARROLLA CARROLLA CARROLLA CARROLLA CARROLLA CARROLLA CARROLLA CARROLLA CARROLLA CA	CLYDYOCO 7 A 2-H  CLYDYOCO 7 A	SAN WHA TNC	LI L2 L3,L4 OM, OME
55. 55. 55. 56. 66. 67. 72. 73. 74. 75. 78. 89. 80. 80. 80. 80. 80. 80. 80. 80. 80. 80	6210.B900IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B300IA 6200.B748670 6004748670 6004748670 6004748670 6004748670 6004748670 6004748760 6004748760 6004748763 600474763 6004	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HIRE NO.DC, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CERNIC, CARIOL CAPACITOR, CERNIC, CARIO CARROLLO CAPACITOR, CARROLLO C	CLYSTOCOZ 7A 2:HI CLYSTOCOZ 7A	SAN WHA TNC	LI L2 L3, L4 OM, OUE O
54 55 55 59 59 59 59 59 60 62 63 64 65 66 66 66 67 77 78 79 80 80 80 80 80 80 80 80 80 80	6210.BB00IA 6200.BB00IA 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HIER NO. LINE NOLCTOR, HIER NO. LINE CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIA CAPACITOR, CERNIC, CARD CAPACITOR, CARDON FILM RESISTOR, CARGON FILM	[CY97020 7 A 2:H1	SAN WHA TNC	LI L2 L3, L4 OM, OUE O
55. 55. 55. 55. 55. 55. 55. 55. 55. 55.	6210.B900IA 6200.B300IA 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HIRE NO. NO., RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., RADIAL CAPACITOR, CEPANIC, CANAL CAPACITOR, CAPACITOR, CANAL CAPACITOR, CAPACITOR, CAPACITOR CAPACITOR, CAPACITOR CAPACIT	C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020000 7A 2:HI C.Y97020000 7A 2:HI C.Y97020000 7A 2:HI C.Y97020000 7A 2:HI C.Y970200000 7A 2:HI C.Y970200000 7A 2:HI C.Y970200000000000000000000000000000000000	SAN WHA TNC	LI L2 L3, L4 CM, OME C
55. 55. 55. 55. 55. 55. 55. 55. 55. 55.	6210.B900IA 6200.B300IA 6200.B	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HIRE NO. NO. PRODUCT. CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., RADIA, CAPACITOR, CEPANIC, CANA, CAPACITOR,	C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020 7A 2:HI	SAN WHA TNC	LI L2 L3, L4 OM, OM2 OM5 OM5 OM6 OM6 OM6 OM6 OM6 CE1 CE2 CE3 CE3 CE5 CE5 CE5 CE5 CE5 CE5 CE5 CE7 CE6 CE7
54 55 56 57 59 59 50 60 60 60 60 60 60 60 60 60 6	620.B900IA 620.B900IA 620.B300IA 620.B300IA 620.B300IA 620.B300IA 620.B300IA 620.B300IA 620.B16670 620.F16970	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLOCIOR, RIFE NOISE, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., RADIAL CAPACITOR, CEPANIC, RADIAL CAPACITOR, CEPANIC, CAPIC CAPACITOR, CAPIC CAPA	CYGYOZO 7A 2:HI CYGYZOZO 7A 2:HI CYGYZOZ	SAN WHA TNC	LI L2 L3, L4 OM, OVE OMS OMS OMS OMS OMS OMS OMS CEI CE2 CE3 CE3 CE3 CE4 CE5, CE13 CE5, CE14 CE5, CE13 CE2 CE3 CE3 CE3 CE3 CE4 CE5, CE14 CE5, CE14 CE5, CE17 CE2 CE3 CE3 CE4 CE5, CE17 CE3 CE3 CE5 CE4 CE5, CE17 CE3 CE3 CE5 CE4 CE5, CE17 CE2 CE3 CE3 CE5 CE17 CE2 CE3 CE3 CE3 CE4 CE5 CE7 CE3 CE3 CE5 CE7 CE3
545 557 599 590 600 600 600 600 600 600 600 6	620.B900IA 620.B900IA 620.B300IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLECTOR, FILM BOX CAPACITOR, A., RADIA, CAPACITOR, CEPANIC, AVIA, CAPACITOR, CEPANIC, CAPIC CAPACITOR, CEPANIC, CHIP	C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2:HI C.Y97020 7A 2:HI C.Y970220 7A 2	SAN WHA TNC	LI L2 L3, L4 OM, OVE OMS OMS OMS OMS OMS OMS CEI CE2 CE3 CE3 CE4 CE5, CE13 CE5, CE14 CE5, CE17 CE2, CE16 CE3 CE4 CE5, CE17 CE2, CE16 CE3 CE4 CE5, CE17 CE2, CE17 CE3, CE17 CE17 CE17 CE17 CE17 CE17 CE17 CE17
54. 55. 55. 56. 57. 58. 59. 59. 59. 59. 59. 59. 59. 59. 59. 59	620.B900IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLECTOR, FILM BOX CAPACITOR, A., RADIA, CAPACITOR, CEPANIC, AVIA, CAPACITOR, CEPANIC, CAIP CAPACITOR, CEPANIC, CAIP CAPACITOR, CEPANIC, CHIP CAPACITOR, CEPANIC, OHP RESISTOR, SARGE RESISTOR, CARRON FILM	CLYDYOZO 7 A 2-H  CKYSIZYO TIKE M. 1-3A 24-H  NESOKO 1MH ZOX 1,55V 1A 10-M 60-Z 1 NON SHELD 18,5MM X/3MM 12MM TR  NESOKO 1MH ZOX 1,55V 1A 10-M 60-Z 1 NON SHELD 18,5MM X/3MM 12MM TR  0.47LF 20X 275V MPP -4010-695C NON NO 26XII,55V MM 22,5MM BK  100-F 2010-60X 50V YSY -2510-695C NON NO 26XII M 12,5MM BK  100-F 2010-60X 50V YSY -2510-695C NON NO 26XII M 12,5MM BK  100-F 2010-60X 50V YSY -2510-695C NON NO 26XII M 12,5MM BK  100-F 20X 50V 75MM -5510-105C M 1200-69 X/20MM 10MM SMP IN BK  127LF 20X 50V 75MM -5510-105C M 1200-69 X/20MM 10MM FP IN BK  120-F 20X 50V 75MM -5510-105C M 1200-69 X/20MM 10MM FP IN BK  160-F 20X 50V 13MM -5510-105C M 1200-69 RV 15MM 5MM FORMING TP  16F 20X 50V 13MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  16F 20X 50V 13MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  10F 20X 50V 13MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  10F 20X 50V 13MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  10F 20X 50V 50MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 250V 50MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 250V 50MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 250V 50MM -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 250V 50M -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 250V 50M -5510-105C M 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 1500-69 RV 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5MM 5MM FORMING TP  2.2-F 20X 50V XXXX -5510-105C N 15MM 5M	SAN WHA TNC	LI L2 L3, L4 OM, OVE OM; OM; OM; OM; OM; OM; OM; CEI CE2 CE3 CE7 CE5 CE6, CE13 CE7 CE5 CE6, CE14 CE9 CE12 CC2, CC10 CC3 CC3 CC3 CC4 CC5 CC6, CC14 CC9 CC12 CC2, CC10 CC1 CC3, CC2 CC3 CC3 CC4 CC2, CC10 CC1 CC3, CC2 CC3 CC4 CC3, CC2 CC3, CC
545 555 557 589 590 60 62 62 63 64 65 67 77 77 77 77 77 78 80 80 80 80 80 80 80 80 80 8	620.B900IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLECTOR, FILM BOX CAPACITOR, A., RADIAL CAPACITOR, CEPANIC, CAVIAL CAPACITOR, CEPANIC, CAVIA CAPACITOR, CAPACITOR CAPACITO	CY970C20 7A 2:HI CY932C0 TAC 2:HI CY932C0 TAC RET 1:3A 24ri-H N+50ACO 1MH 20X 1.5V TA 10-M 50H2 1 NON SHELD 18,5MM x/3MM 12MM TR  0.474 F 20X 275V MPP -40T0-695C NON NO 26XII,55CMM 22,5MM BK  0.474 F 20X 255V MPP -40T0-695C NON NO 26XII,55CMM 22,5MM BK  100-F 20X 50X SPS SPM -25T0-105C NON NO 26XIIM 18,5MM TAS  100-F 20X 50X 50X SPM -25T0-105C NON NO 26XIIM 18,5MM TAS  274 F 20X 50X 50X 50M 55T0-105C NO 20X0-F 20X0-M 10MM 50MP IN BK  274 F 20X 50X 50X 50M -25T0-105C NO 20X0-F 20X0-M 10MM 50MP IN BK  274 F 20X 50X 50X 50M -25T0-105C NO 20X0-F 20X0-M 50M FORMING TP  275 F 20X 50X 13M -55T0-105C NT 50X0-M 50X-M 50M FORMING TP  175 F 20X 50X 13M -55T0-105C NT 50X0-M FORMING TP  176 F 20X 50X 13M -55T0-105C NT 50X0-M FORMING TP  177 F 20X 50X 50X 50X 50X-M 50X0-M 50X	SAN WHA TNC	LI L2 L3, L4 OM, OVE OM; OM; OM; OM; OM; OM; OM; CEI CE2 CE3 CE4 CE5 CE6, CE13 CE7 CE7 CE6, CE14 CE9 CE12 CC2, CC10 CC1 CC3, CC2 CC3, CC4 CC2, CC10 CC1 CC3, CC2 CC3,
54 55 55 56 57 58 59 60 62 63 64 65 66 67 70 77 77 78 80 80 80 80 80 80 80 80 80 8	620. E900IA 620. E900IA 620. E300IA 620. E	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE INDUCTOR, IFILE NOISE INDUCTOR, IFILE NOISE INDUCTOR, IFILE NOISE INDUCTOR, IFILE NOISE CAPACITOR, FILM SIX CAPACITOR, FILM SIX CAPACITOR, AL, PADIAL CAPACITOR, CEPANIC, AVIAL CAPACITOR, CEPANIC, CHIP CAPACITOR, CAPACITOR, CHIP CAPACITOR, CAPACITOR, CHIP CAPACITOR, CAPACITOR, CHIP CA	CYGYOZO 7 A 25H CYGS240 THE R. 1-3A 24mH N+50ACO 1MH 20X 1,5VY 1A 10-M 60+Z 1 NON SHELD 18,5MM x/3MM 12MM TR N+50ACO 1MH 20X 1,5VY 1A 10-M 60+Z 1 NON SHELD 18,5MM x/3MM 12MM TR 0.47AF 20X 275V MPP -40T0-65C NON NO 25X11,552MM 22,5MM BK 100-F -20T0-60X 50Y YSY -25T0-65C NON NO 12,505X1MM 12,5MM BK 100-F -20T0-60X 50Y YSY -25T0-65C NON NO 12,505X1MM 12,5MM BK 100-F -20T0-60X 50Y YSM -25T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 50Y YSMA -55T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 50Y YSMA -55T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 50Y YSMA -55T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 50Y YSMA -55T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 50Y YSMA -55T0-105C MT 2000-FR 2X25MM 10MM SMP IN BK 20AF 20X 25Y 27AM -55T0-105C MT 2000-FR 2X15MM SMP FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 27AM -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y 25Y 25Y -55T0-105C MT 5X1MM SMP IN BM IN BM FORMING IP 2AF 20X 25Y	SAN WHA TNC	LI L2 L3, L4 OM, OVE OM: OM: OM: OM: OM: OM: OM: OM: CEI CE2 CE3 CE3 CE4 CE5 CE6, CE13 CE7 CE6, CE14 CE9 CE12 CC2, CC10 CC1 CC3, CC4 CC5 CC6, CC14 CC9 CC12 CC3, CC4 CC9, CC17 CC9 CC9 CC9, CC17 CC9 CC9 CC9 CC9 CC9 CC9 CC9 CC9 CC9 CC
54 55 56 57 59 60 62 63 64 65 65 66 67 68 69 70 77 78 78 78 79 80 80 80 80 80 80 80 80 80 80	620.B900IA 620.B900IA 620.B300IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLOTOR, HER NOISE, RADIAL CAPACITOR, FLM BOX CAPACITOR, FLM BOX CAPACITOR, FLM BOX CAPACITOR, AL, RADIAL CAPACITOR, CERNIC, CARD CAPACITOR, CARDON FILM RESISTER, CARDON FILM RESIS	CYGYOZO 7 A 29H CYGYZOZO 7 A 20H CYGYZOZ	SAM WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI L2 L3,L4 OM, OUE OM; OUE OM; OUE OM; OUE OM; OW OM
54. 55. 55. 56. 66. 67. 78. 78. 78. 78. 78. 78. 78. 78. 78. 7	620.B900IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, HER NOISE, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CERNIC, CARD CAPACITOR, CARD CAPACITOR, CAPACITOR CAPACITOR, CAPACITOR C	CYGYOCO 7 A 2-H  CYGYZOCO 7 A	SAN WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI L2 L3,L4 OM, OUE OM; OUE OM; OUE OM; OW OM
54 55 56 57 59 60 6 6 6 6 6 6 6 6 6 6 6 6 6	620. E9001A 620. E9001A 620. E3004A 620. E3004A 620. E3004A 620. E3004A 620. E3004F 620. E	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE INDICTOR, IFIEN NOISE INDICTOR, IFIEN BOX OPPORTOR, FILM BOX OPPORTOR, FILM BOX OPPORTOR, AL, RADIAL OPPORTOR, CEPANIC, AXIAL OPPORTOR, CEPANIC, AXIAL OPPORTOR, CEPANIC, OHP OPPORTOR, CEPANIC, OHP RESISTOR, OPPORTOR, OFFI RESISTOR, OPPORTOR, OFFI RESISTOR, CARRON FILM RESISTOR, OHP	CYGYOZO 7 A 2-H  CYGYZOZO 7 A 2-H  CYGYZOZO 7 A 2-H  CYGYZOZO 7 A 2-H  N-50ACO 1M-12X 1,52Y 1A 10-M 60-Z 1 NON SHELD 18,5MM x/13M 12M 1R  N-50ACO 1M-12X 1,52Y 1A 10-M 60-Z 1 NON SHELD 18,5MM x/13M 12M 1R  O.047LF 0.02F 650Y PP -10TO-85C NO 12,55X1M 12,5M BX  O.047LF 0.02F 650Y PP -10TO-85C NO 12,55X1M 12,5M BX  O.047LF 0.02F 650Y PP -10TO-85C NO 12,55X1M 12,5M BX  O.047LF 0.02F 550Y PSMA -55TO-105C N 12,000-R 22/25M (0M) SNAP IN BX  AVE 20X 450Y 75MA -55TO-105C N 12,000-R 22/25M (0M) SNAP IN BX  22.F 20X 50Y 75MA -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 13M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  LIF 20X 50Y 13M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 27MA -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  10.F 20X 50Y 13M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 13M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 13M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 53M -55TO-105C N 12,000-R 12,5X1M 5,00M STARIGHT 1P  20.F 20X 50Y 53M -55TO-105C N 15 X1M 5 SM FORMING 1P  21.F 20X 50Y 53M -55TO-105C N 15 X1M 5 SM FORMING 1P  22.F 20X 250Y 50 -25TO-65C 3,5X1 5M 11,5M 15M FORMING 1P  22.F 20X 50Y 50 -55TO-65C 9X7M SM SM 15M 15M 15A	SAN WHA TNC	LI L2 L3, L4 OM, OVE OMG OMG OMG OMG OMG CEI CE2 CE3 CE3 CE4 CE5 CE4 CE5 CE6, CE13 CE7 CE6, CE14 CE9 CE12 CC2, CC10 CC1 CC3, CC4 CC5 CC6, CC14 CC5 CC7 CC6, CC14 CC9 CC17 CC2, CC10 CC1 CC3, CC4 CC9, CC17 CC2, CC2 CC3, CC4 CC9, CC17 CC2, CC2 CC3, CC17 CC2, CC2 CC3, CC17 CC3, CC2 CC3, CC2 CC3, CC17 CC3, CC2 CC3, CC17 CC3, CC2 CC3, CC17 CC3, CC2 CC3, CC2 CC3, CC17 CC3, CC
54 (55) (56) (57) (59) (50) (60) (77) (78) (78) (78) (78) (78) (78) (78	620.B900IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLE OR, MIRE NOUND, RADIAL OPPOLITOR, FILM BOX CAPACITOR, AL, RADIAL CAPACITOR, CAPACITOR, AL, RADIAL CAPACITOR, AL, RADIAL CAPACITOR, CERANIC, CADIAL CAPACITOR, CERANIC, CADIA CAPACITOR, CERANIC, CADIA CAPACITOR, CERANIC, CADIP CAPACITOR, CARRON FILM RESISTOR, CARRON F	CYGOLOGO 7A 26H CYGO220 7A CYG	SAN WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI L2 L3, L4 OM, OJE OM; OM OM OM OM OM OM CEI
54 (55) (56) (57) (59) (50) (60) (77) (78) (78) (78) (78) (78) (78) (78	620.B900IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, FILM BOX CAPACITOR, A., RADIA, CAPACITOR, CERANIC, RADIA, CAPACITOR, CERANIC, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CAPACITOR, CERANIC, CAPACITOR, CRANIC, CAPACITOR, CERANIC, CAPACITOR, CAP	CYGYOZO 7A 2:HI CYGYZOZO 7A 1:HI CYGYZOZ	SAN WHA TNC	LI L2 L3, L4 OM, OJE OMS OMS OMS OMS OMS CEI CE2 CE3 CE3 CE3 CE4 CE5, CE13 CE5, CE14 CE5, CE17 CE2, CC10 CO1 CO2, CC10 CO2, CC10 CO3, CC14 CO2, CC17 CC2, CC24 CC24 CC24 CC3, CC17 CC24 CC24 CC24 CC3 CC3, CC17 CC25 CC24 CC24 CC24 CC3 CC3, CC17 CC25 CC24 CC24 CC26 CC3, CC17 CC26 CC3, CC17 CC27 CC27 CC27 CC27 CC27 CC27 CC27
54 (55) (56) (57) (58) (57) (58) (57) (58) (59) (59) (50) (50) (50) (50) (50) (50) (50) (50	6210.B9001A 6200.B3004A	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCTOR, FILM BOX NOLCTOR, FILM BOX OPPACITOR, FILM BOX OPPACITOR, FILM BOX OPPACITOR, A., RADIA, OPPACITOR, CEPANIC, CANIA, OPPACITOR, CEPANIC, CANIA, OPPACITOR, CEPANIC, CONIP OPPACITOR, CEPANIC, CONIP OPPACITOR, CEPANIC, ONIP RESISTOR, CARRON FILM RESISTOR,	CYGYOZO 7A 2:HI CYGYZOZO 7A 2:HI CYGYZOZ	SAM WHA TINC TINC TINC TINC TINC TINC TINC TINC	LI L2 L3, L4 OM, OVE OMG OMG OMG OMG OMG CEI CE2 CE3 CE4 CE5 CE4 CE5 CE4 CE5 CE6, CE13 CE7 CE6, CE13 CE7 CE7 CE8, CE14 CE9-CE12 CC2, CC10 CC2, CC10 CC2, CC10 CC3, CC4 CC5-CC12 CC2, CC10 CC3, CC4 CC5-CC7, CC23, CC24 CC3, CC10 CC3, CC16 CC2, CC10 CC3, CC16 CC2, CC10 CC3, CC16 CC2, CC10 CC3, CC16 CC2, CC10 CC2, CC10 CC2, CC10 CC3, CC16 CC2, CC10 CC2, CC10 CC2, CC10 CC2, CC10 CC2, CC10 CC3, CC16 CC2, CC10 CC3, CC16 CC2, CC10 C
54 55 56 57 59 50 60 60 60 60 60 60 60 60 60 6	6210.BB00IA 6220.BB00IA 6220.BB30IA	FILTER, BEAD FILTER, LINE NOISE FILTER, LINE NOISE FILTER, LINE NOISE NOLCOR, MIRE NOND, RADIAL CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, FILM BOX CAPACITOR, A., RADIAL CAPACITOR, CAPACITOR, A., RADIAL CAPACITOR, CAPACITOR	CYGYOZO 7 A 2-H  CYGS220 TA CR. R. 1-3A 24-H  N-50(AO) 1MH ZOX 1,55Y 1A 10-M 50+Z 1 NON SHELD 18,5MM x/3MM 12MM TR  0.47LF 20X 275Y MPP -4010-695C NON-NO 25XII,55XIMA 22,5MM BX  0.47LF 20X 255Y MPP -4010-695C NON-NO 25XII,55XIMA 22,5MM BX  100-FF 20X 50X SP 1-1010-695C NON-NO 25XII,55XIMA 12,5MM BX  100-FF 20X 50X SP 55MX -25510-1055C NON-NO 25XIIMA 13MM TASE  72LF 20X 50X 50X 55MM -25510-1055C MT 2000-FR 2XZ25MM (3MM 50MP IN BX  22LF 20X 50X 75MM -55510-1055C MT 2000-FR 2XZ25MM (3MM 50MP IN BX  22LF 20X 50X 75MM -55510-1055C MT 2000-FR 2XZ5MM 50MM FORMING TP  680LF 20X 50X 75MM -55510-1055C MT 2000-FR 12,5XIMA 15MM FORMING TP  680LF 20X 50X 12MM -55510-1055C MT 2000-FR 12,5XIMA 15MM FORMING TP  680LF 20X 50X 12MM -55510-1055C MT 2000-FR 12,5XIMA 15MM FORMING TP  680LF 20X 50X 12MM -55510-1055C MT 2000-FR 12,5XIMA 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 2000-FR 12,5XIMA 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 2000-FR 12,5XIMA 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 2000-FR 12,5XIMA 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 2000-FR 20XIMA 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C MT 25XIMM 5MM FORMING TP  680LF 20X 50X 50MM -55510-1055C 20X 2TP  68	SAM WHA TINC TINC TINC TINC TINC TINC TINC TINC	L1 L2 L3,L4 OM, OVE OM; OVE OM; OVE OM; OVE OM; OVE OM; OVE OM; OVE CE: CE: CE: CE: CE: CE: CE: CE: CE: CE

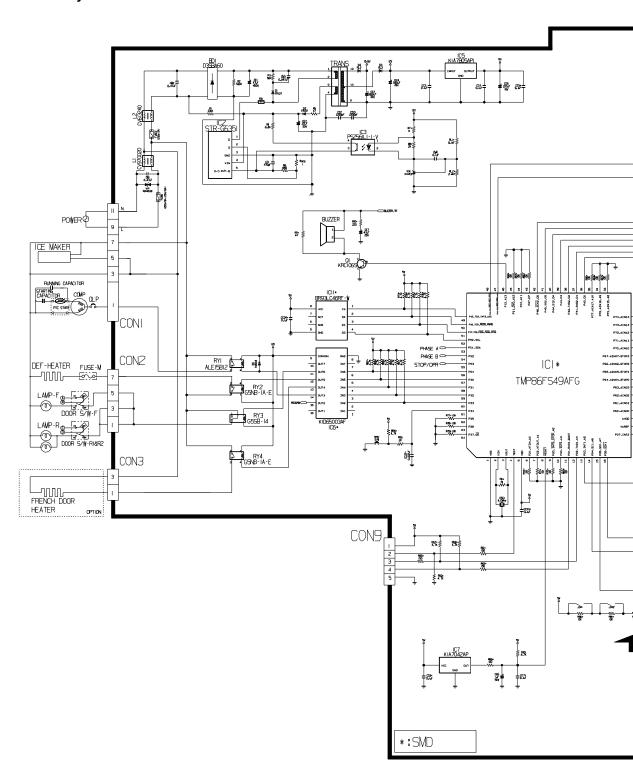
## 8-5-3 PWB Assembly, Display and Parts List

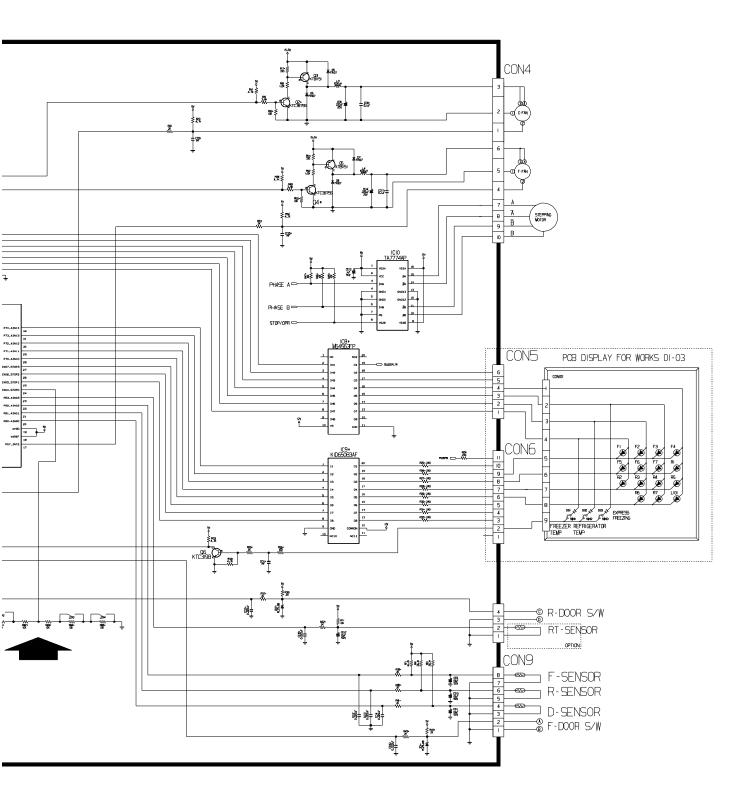


Qty	No	P/NO	DESCRIPTION	SPEC	MAKER	REMARK
1	1	6870JB8091A	PWB(PCB)	KS-PJT GOOD/BETTER DISPLAY	DOO SAN	t=1.6
	2					
1	3	6630AQ9159H	WAFER	SMAW250-09	YEON HO	CDN101
	4					
2	5	6600RRT002K	SWITCH,TACT	JTP1230A JEIL 12V DC 50MA	JEIL	SW101,102
		6600JB8005A	1	KPT-1105A	KYUNG IN	
1	6	-	TACT S/W	KPT-1109G	KYUNG IN	SW103
14	7	ODLLE0019AA	LED	LT1824-81-BCM TP GREEN 2		R1~R7,F1~F7
3	8	0DD414809AA	DIDDE,SWITCHING	1N4148 26MM	PYUNG CHANG	D101,102,103
					DELTA	
12	10	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING SN (10MM)	-	J101~J112
	11					
-	12	9VWF0120000	SOLDER(ROSIN WIRE) RSO	D1.20	HEE SUNG	-
10,0	13	49111004	SOLDER, SOLDERING	H63A	-	-
0.0005	14	59333105	FLUX	SG;0.825-0.830 KOREA F.H-206	KUKI	-

#### 8-6 PWB DIAGRAM

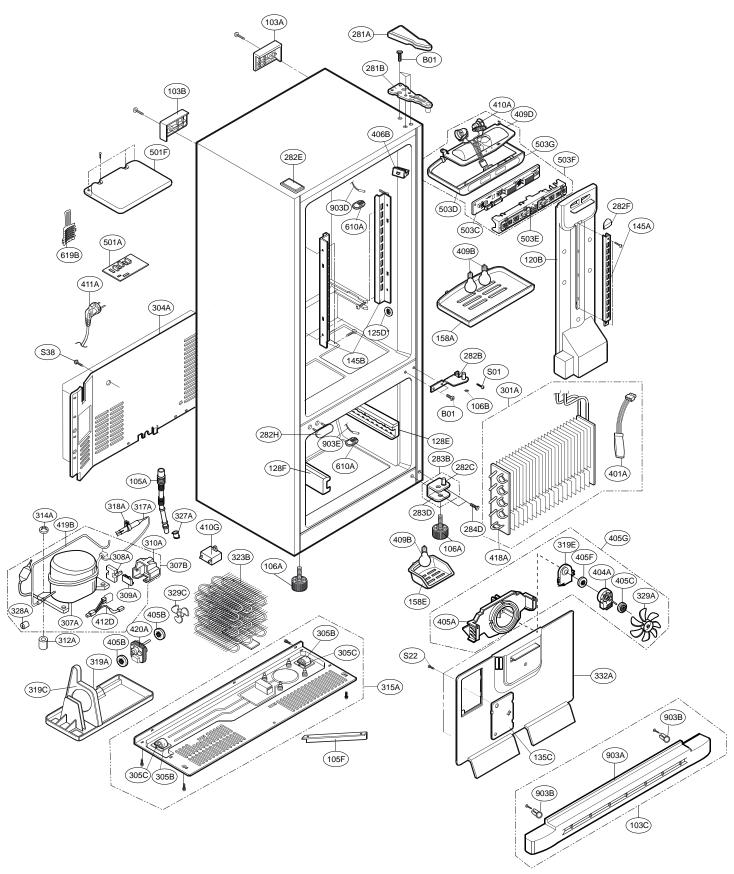
#### 8-6-1 PWB Main Assembly



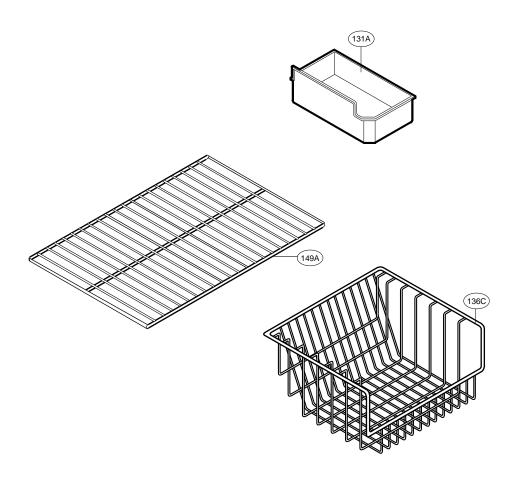


# 10. EXPLODED VIEW

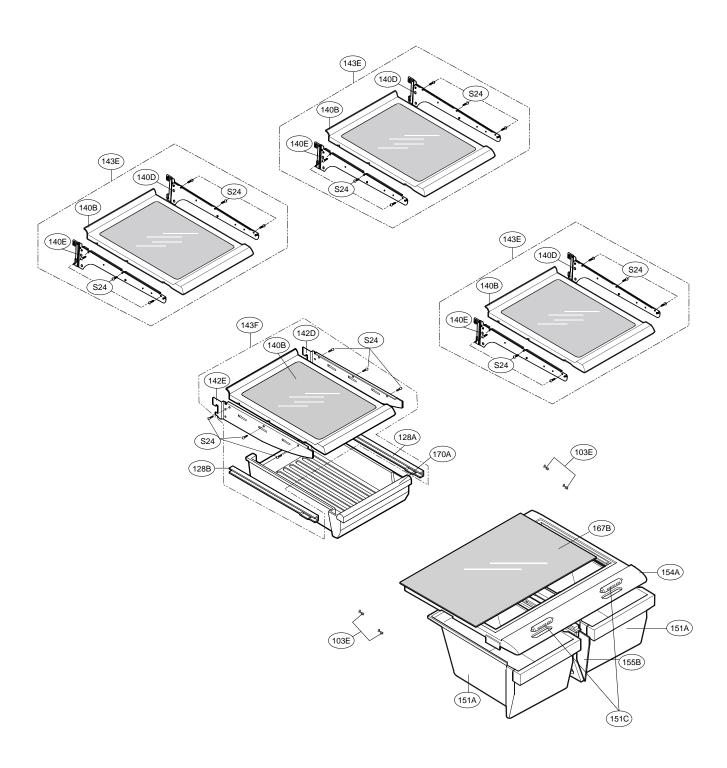
# **CASE PARTS**



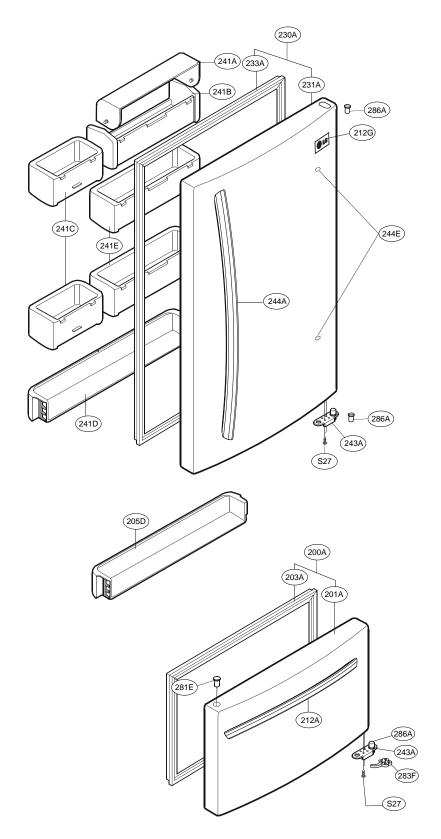
# FREEZER PARTS



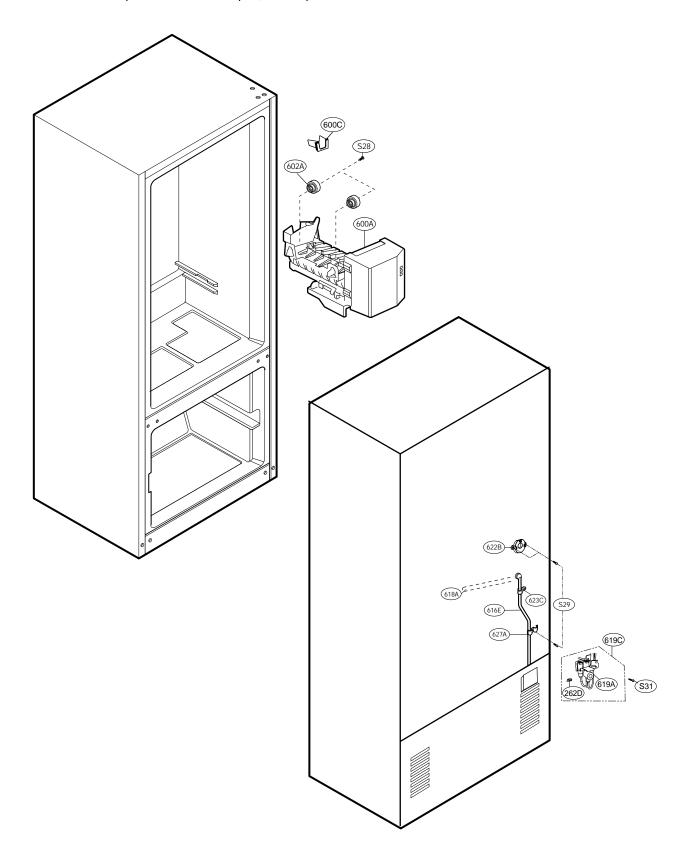
# **REFRIGERATOR PARTS**



# **DOOR PARTS**



# **WATER & ICE MAKER PARTS**





MFL62526004 September, 2009