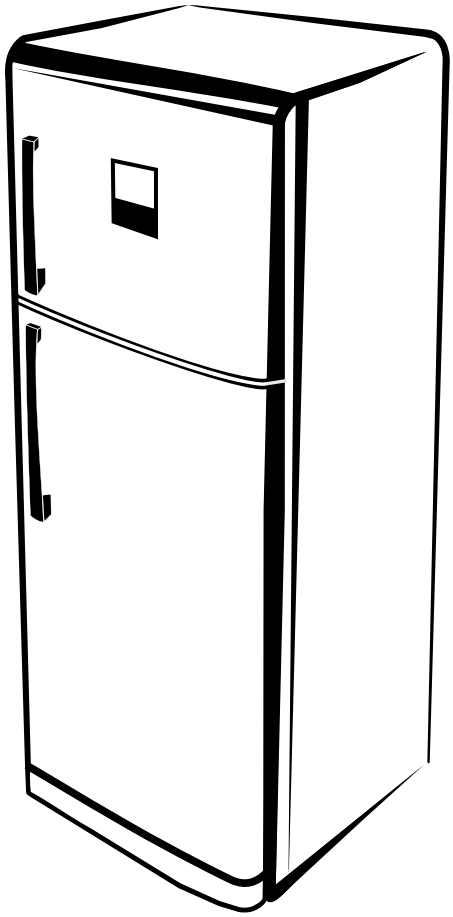
VZ34/VZ29/VZ26

VIDEOCON

Service manual



FROST FREE REFRIGERATOR

Bring Home Innovation
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REFRIGERATOR

Please read this instruction manual carefully before operating your refrigerator. Retain it for future reference. Record model name & serial number of the refrigerator. Please quote this information when you require service.

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CONTENTS

MODEL-VZ26

VIDEOCON REF FF250L

MODEL-VZ29

VIDEOCON REF FF280L

MODEL-VZ34

VIDEOCON REF FF330L

250L Models:

ITEMS		SPECIFICATIONS
DEPTH		723
WIDTH		610
HEIGHT		1450
COOLING SYSTEM		FAN COOLING
TEMPERATURE CONTROL	REFRIGERATOR	PCB CONTROL
	FREEZER	PCB CONTROL
DEFROSTING SYSTEM		AUTOMATIC
		HEATER DEFROST
DOOR FINISH		PCM/ VCM
OUT CASE		TEXTURED PCM
INNER CASE		ABS
INSULATION		PU FOAM (Cyclopentane)
DEFROSTING SERVICE		HEATER
REFRIGERANT		R600a
REFRIGERATOR COMPARTMENT		TRANSPARENT SHELF
		VEGETABLE CRISPER
		CRISPER COVER
		BOTTLE SUPPORTER
		SOFT VEG CRISPER
DOOR POCKETS		DAIRY POCKETS
		EGG TRAY
		BOTTLE SHELF
		CAN SHELF
FREEZER COMPARTMENT		ICE MAKER
		ICE TRAY
		FROZEN TRAY
COMPRESSOR		RELAY START TYPE
EVAPORATOR		FIN TYPE
CONDENSER		SKIN TYPE
FAN MOTOR RATING		12V, 2W, 2500RPM
RELAY RATING	LG 330MD3	33 Ω ± 20%@25C
	JIAXIPERA QP2-15L01/ QPS2-B15MD3	9~19Ω@25C
COMPRESSOR STARTUP RANGE		220-240V, 50 Hz
COMPRESSOR MOTOR RATING	LG CMA089NAEM	14.4 ± 10% Ω (Sub)@25C 20.6 ± 5% Ω (Main)@25C
	JIAXIPERA TX1113Y	19.8±10%Ω (Sub)@25C 16.8±10% (Main)@25C
DAMPER RATING		12V, 100PPS
HEATER RATING		230V, 170W
THERMAL FUSE RATING		73C, 250V

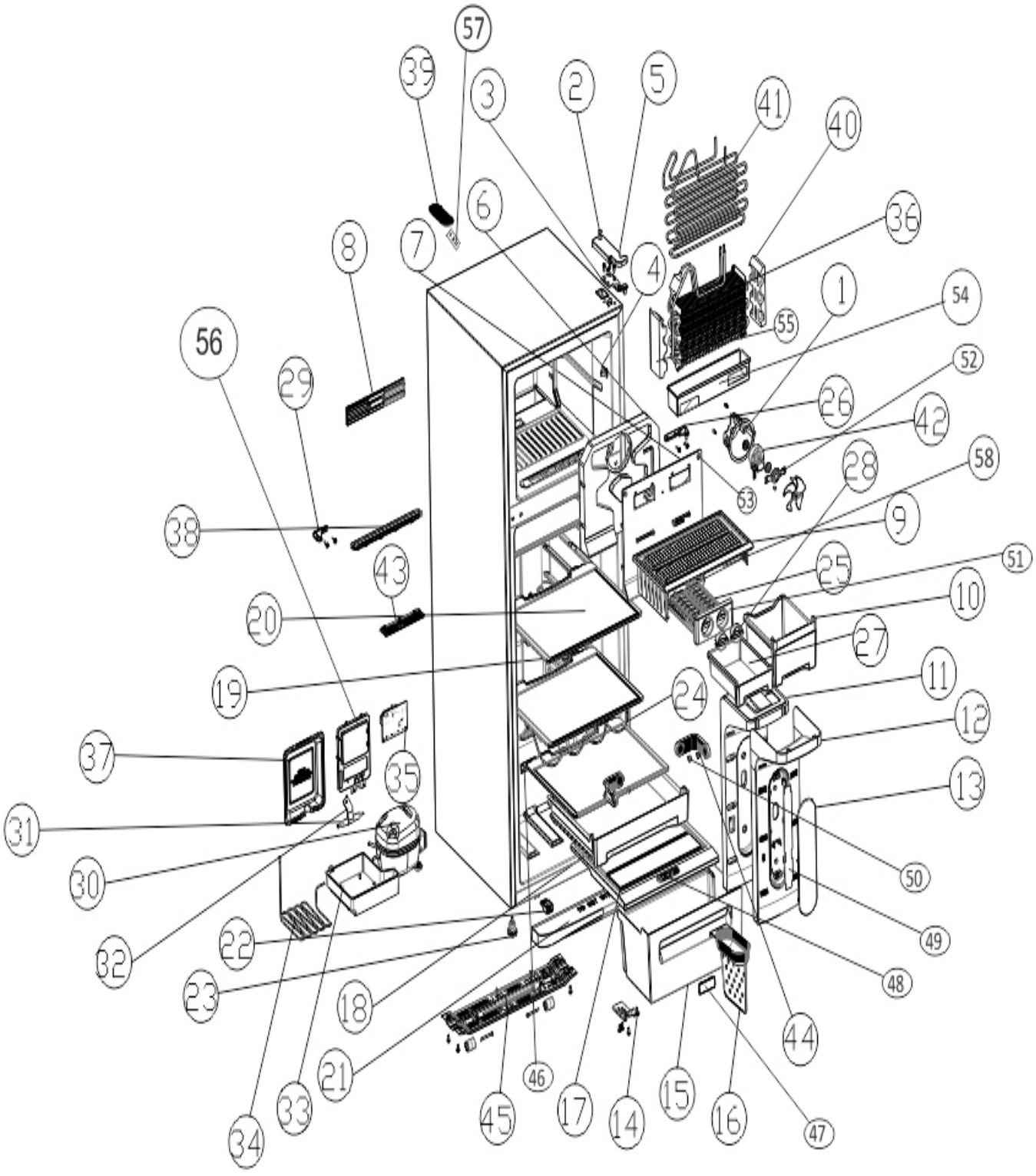
280L Models:

ITEMS		SPECIFICATIONS
DEPTH		723
WIDTH		610
HEIGHT		1560
COOLING SYSTEM		FAN COOLING
TEMPERATURE CONTROL	REFRIGERATOR	PCB CONTROL
	FREEZER	PCB CONTROL
DEFROSTING SYSTEM		AUTOMATIC
		HEATER DEFROST
DOOR FINISH		PCM/ VCM
OUT CASE		TEXTURED PCM
INNER CASE		ABS
INSULATION		PU FOAM (Cyclopentane)
DEFROSTING SERVICE		HEATER
REFRIGERANT		R600a
REFRIGERATOR COMPARTMENT		TRANSPARENT SHELF
		VEGETABLE CRISPER
		CRISPER COVER
		BOTTLE SUPPORTER
		SOFT VEG CRISPER
DOOR POCKETS		DAIRY POCKETS
		EGG TRAY
		BOTTLE SHELF
		CAN SHELF
FREEZER COMPARTMENT		ICE MAKER
		ICE TRAY
		FROZEN TRAY
COMPRESSOR		RELAY START TYPE
EVAPORATOR		FIN TYPE
CONDENSER		SKIN TYPE
FAN MOTOR RATING		12V, 2W, 2500RPM
RELAY RATING	LG 330MD3	33 Ω ± 20%@25C
	JIAXIPERA QP2-15L01/ QPS2-B15MD3	9~19Ω@25C
COMPRESSOR STARTUP RANGE		220-240V, 50 Hz
COMPRESSOR MOTOR RATING	LG CMA089NAEM	14.4 ± 10% Ω (Sub)@25C 20.6 ± 5% Ω (Main)@25C
	JIAXIPERA TX1113Y	19.8±10%Ω (Sub)@25C 16.8±10% (Main)@25C
DAMPER RATING		12V, 100PPS
HEATER RATING		230V, 170W
THERMAL FUSE RATING		73C, 250V

330L Models:

ITEMS		SPECIFICATIONS
DEPTH		723
WIDTH		610
HEIGHT		1760
COOLING SYSTEM		FAN COOLING
TEMPERATURE CONTROL	REFRIGERATOR	PCB CONTROL
	FREEZER	PCB CONTROL
DEFROSTING SYSTEM		AUTOMATIC
		HEATER DEFROST
DOOR FINISH		PCM/ VCM
OUT CASE		TEXTURED PCM
INNER CASE		ABS
INSULATION		PU FOAM (Cyclopentane)
DEFROSTING SERVICE		HEATER
REFRIGERANT		R600a
REFRIGERATOR COMPARTMENT		TRANSPARENT SHELF
		VEGETABLE CRISPER
		CRISPER COVER
		BOTTLE SUPPORTER
		SOFT VEG CRISPER
DOOR POCKETS		DAIRY POCKETS
		EGG TRAY
		BOTTLE SHELF
		CAN SHELF
FREEZER COMPARTMENT		ICE MAKER
		ICE TRAY
		FROZEN TRAY
COMPRESSOR		RELAY START TYPE
EVAPORATOR		FIN TYPE
CONDENSER		SKIN TYPE
FAN MOTOR RATING		12V, 2W, 2500RPM
RELAY RATING	JIAXIPERA TY-QZ-003 JX03	9~19Ω@25C
COMPRESSOR STARTUP RANGE		220-240V, 50 Hz
COMPRESSOR MOTOR RATING	JIAXIPERA NB1116Y	19.6±10%Ω (Sub)@25C 15.7±10% (Main)@25C
DAMPER RATING		12V, 100PPS
HEATER RATING		230V, 170W
THERMAL FUSE RATING		73C, 250V

EXPLODED VIEW AND PART DETAILS

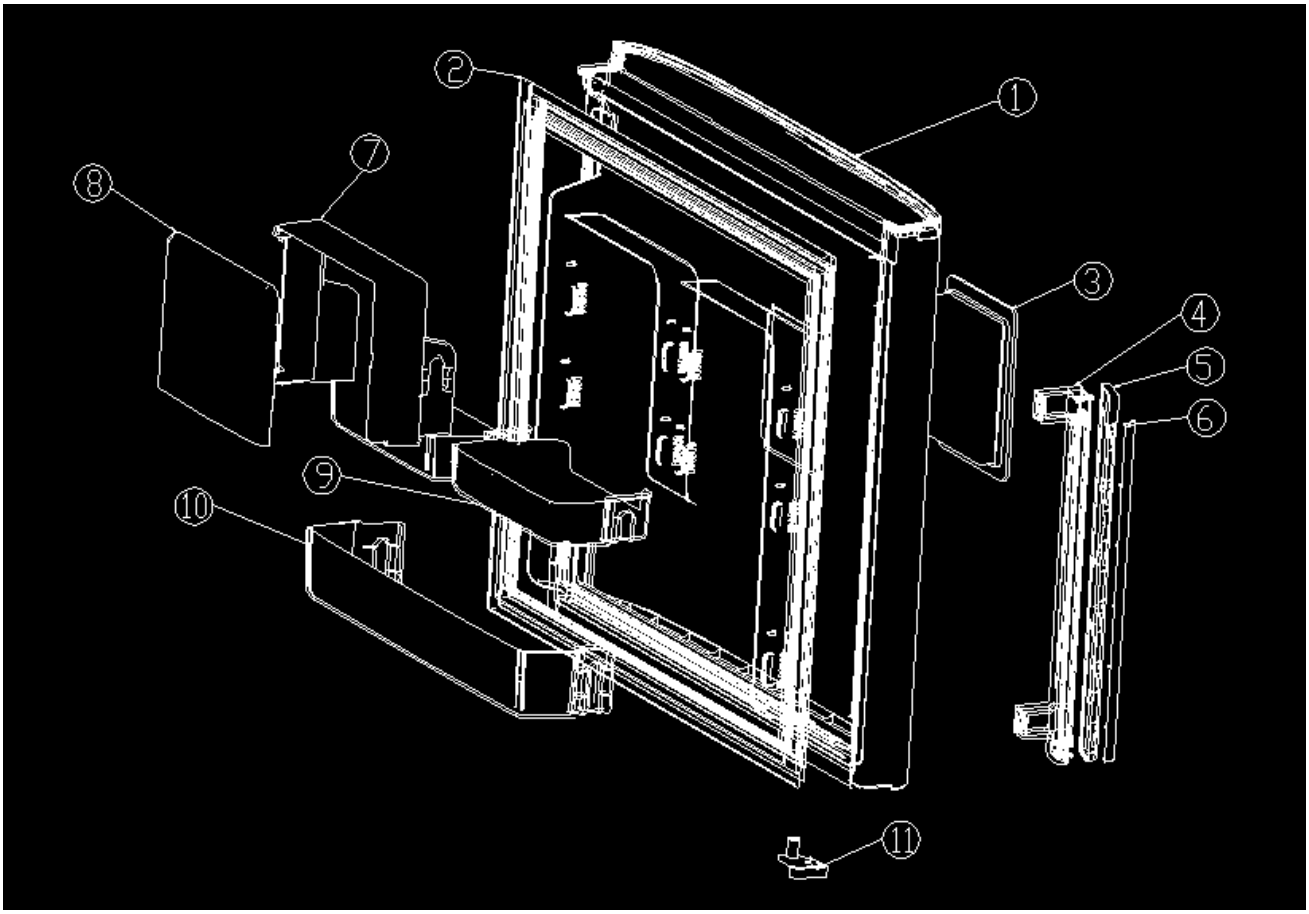


EXPLODED VIEW AND PART DETAILS (CABINET)

VIDEOCON
Frost Free Refrigerator

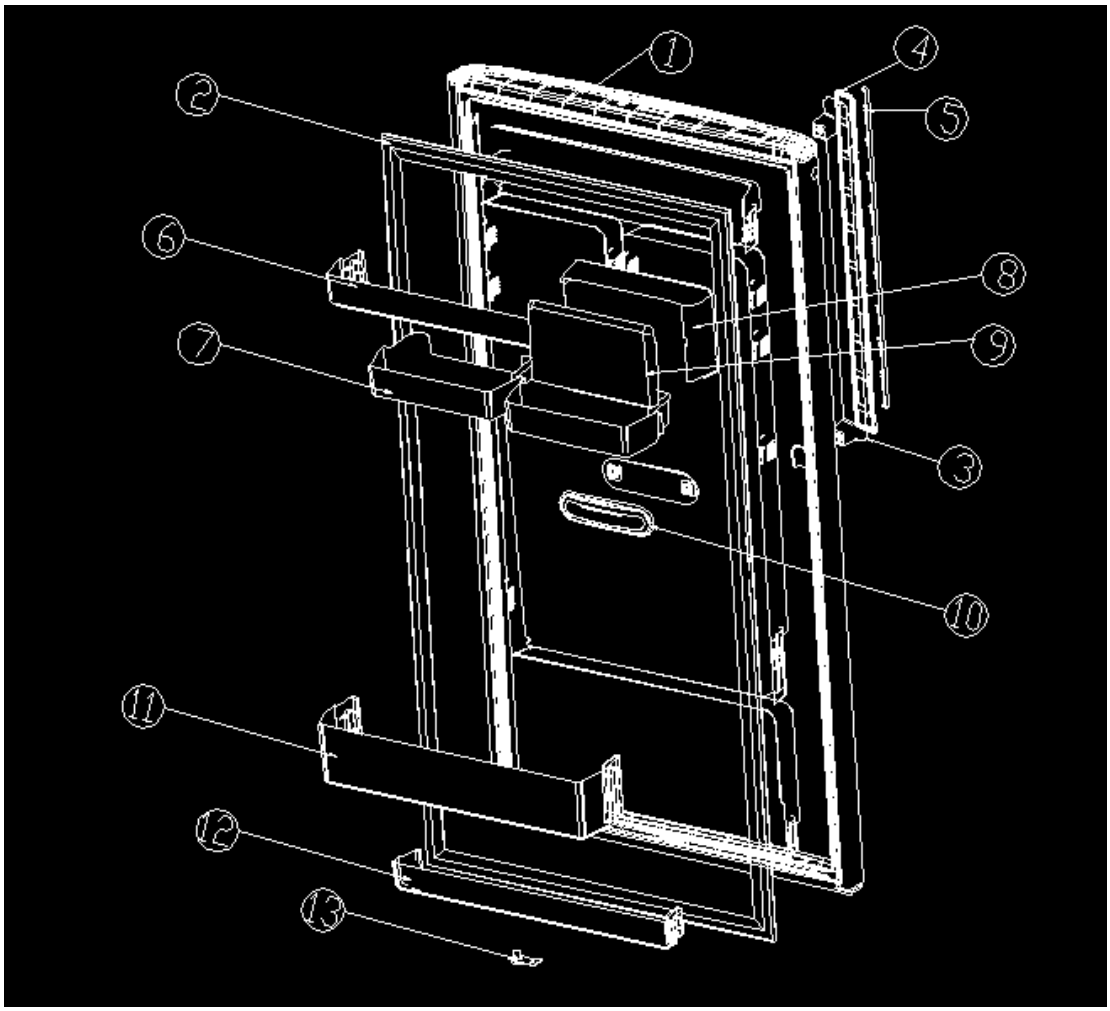
S.No.	Part Code	Object description	Quantity	Unit
1	1100118360	HOLDER,FAN MOTOR,ABS-FR,FF-Z330L	1	PC
2	1100118108	CAP,TOP HINGE COVER,ABS,VZ330L,SIL.GREY	1	PC
3	1100118145	HINGE,TOP,FF-Z330L	1	PC
4	1100118111	SWITCH,DOOR,2 POLE,FF-Z330L	2	PC
5	1100118107	COVER,HINGE,TOP,ABS,FF-VZ330L,SILKY GREY	1	PC
6	1300015474	EPS,INSULATION,DUCT,FC,FF-Z330L	1	PC
7	1100118155	F-LOUVER,FREEZER,HIPS-WHITE,FF-VZ330L	1	PC
8	1100118157	DECO,F-LOUVER,HIPS-WHITE,FF-Z330L	1	PC
9	1100118113	SHELF,FC, WITH RAIL,GPPS,PURPLE BL,VZ330	1	PC
10	1100118117	CASE,FREEZER,GPPS,PURPLE BLUE,FF-VZ330L	1	PC
11	1300015475	EPS,INSULATION,DUCT,RC,FF-Z330/280L	1	PC
12	1100118156	R-LOUVER,REF,HIPS-WHITE,FF-VZ330/280L	1	PC
13	1100118158	COVER,LED,R-LOUVER,GPPS,TRANS,FF-VZ330L	1	PC
14	1100118147	HINGE,BOTTOM,FF-Z330L	1	PC
15	1100118120	VEG CRISPER,GPPS,PURPLE BLUE,FF-VZ330L	1	PC
16	1100118123	SEPARATOR,VEG CRISPER,PP-WHITE,FF-VZ330L	1	PC
17	1100118121	COVER,VEG CRISPER,GPPS,PURPLE BL,VZ330L	1	PC
18	1100118119	SOFT,VEG CRISPER,GPPS,PURPLE BL,FF-VZ330	1	PC
19	1100118190	SHELF,OUTER FRAME,HIPS,TG,FF-Z330L	3	PC
20	1100118189	SHELF,GLASS,TOUGHENED,462X332X3.5,Z330L	3	PC
21	1100118143	DECO,BOTTOM,ABS,FF-Z330L,SILKY GREY	1	PC
22	1100118144	SOCKET,DECO,BOTTOM,HIPS-WHITE,FF-VZ330L	2	PC
23	1100074662	BOLT,ADJUSTER,40MM,ROHS,SILKY GREY	2	PC
24	1100118179	WIRE,BOTTLE SHELF,FF-Z330L	2	PC
25	1100118115	TRAY,ICE,CUBE,PP-WHITE,FF-Z330L	2	PC
26	1100118146	HINGE,CENTRE,FF-Z330L	1	PC
27	1100118114	BOX, ICE CUBE,GPPS,PURPLE BLUE,FF-VZ330L	1	PC
28	1100118116	KNOB,ICE,CUBE,HIPS-WHITE,FF-Z330L	2	PC
29	1100118151	HOLDER,LOCK,POM-WHITE,FF-Z330L	1	PC
30	1100122466	COMPRESSOR,WITH ACCESORI,LG-CMA089,R600a	1	PC
31	1100118182	DRYER 10GM(DOUBLE ENTRY-LOCK RING),Z330L	1	PC
32	1100118183	CLAMP,DRYER,FF-Z330L	1	PC
33	1100118167	PAN,WATER EVAPORATOR,PP-WHITE,FF-VZ330L	1	PC
34	1100118398	CONDENSER WITH HEAT SHRINK TUBE	1	PC
35	1100118106	ASSY,PCB,MAIN,FF-Z330L	1	PC
36	1100118152	COIL,EVAPORATER,FF-Z330L	1	PC
37	1100118169	COVER,ELECTRIC BOX,FF-Z330L	1	PC
38	1100118112	DECO,RETURN AIR,FC,ABS-SKY BLUE,FF-330L	1	PC
39	1100118110	COVER,LED FREEZER ,GPPS,TRANS,FF-VZ330L	1	PC
40	1100124019	EPS,RIGHT,EVAP,COIL,FF-VZ330L	1	PC
41	1100118153	HEATER,DEFROST,FF-Z330L	1	PC
42	1100118166	MOTOR,FAN,DC12 W,FF-Z330L	1	PC
43	1100118126	DECO,RETURN AIR,RC,HIPS-WHITE,FF-Z330L	1	PC
44	1100118180	DECO,CORNER COOLING,ABS-SKY BLUE,VZ330L	2	PC
45	1200074727	ASSY,CROSS RAIL,REAR,FF-Z330L	1	PC
46	1100118124	LED,NUTRI LIGHT,FF-Z330L	1	PC
47	1100118125	COVER,LED,NUTRI LIGHT,TRANS,FF-VZ330L	1	PC
48	1100118122	KNOB,HUMIDITY,PP-WHITE,FF-Z330L	1	PC
49	1100118412	LED,MAIN,REF,RC,FF-Z330L	1	PC
50	1100118181	CAP,DECO,CORNER COOLING,ABS-SKY BL,VZ330	4	PC
51	1100118150	HOLDER, ICE TRAY,HIPS-WHITE,FF-Z330L	1	PC
52	1100118361	COVER,FAN MOTOR,FF-Z330L	1	PC
53	1100118159	CAP,SCREW,F-LOUVER,ABS-WHITE,FF-Z330L	2	PC
54	1100118154	TROUGH,DRAIN,FF-Z330L	1	PC
55	1100124018	EPS,LEFT,EVAP,COIL,FF-VZ330L	1	PC
56	1100118168	BASE,SUPPORT,ELECTRIC BOX,ABS-FR,FF-Z330	1	PC
57	1100118109	LED,FREEZER,FC,FF-Z330L	1	PC
58	1100118118	COOLPACK,JAR,FF-Z330L	1	PC

EXPLODED VIEW AND PART DETAILS (F-DDOR)



S.No.	Part Code	Object description	Quantity	Unit
1	1200077833	DOOR,FOAMED,FC,Z280,BROKEN H.L PCB DSPLY	1	PC
2	1100113361	GASKET,DOOR,FC,FF-Z330/280/250L	1	PC
3	1100118127	LCD,DISPLAY BOARD,FF-Z330L	1	PC
	1100118128	COVER,LCD,DISPLAY BOARD,ABS-FR,FF-Z330L	1	PC
4	1100118173	HANDLE,BASE,FC,ABS,FF-VZ330L,SILKY GREY	1	PC
5	1100118174	HANDLE,COVER,FC,ABS,FF-VZ330L,SILKY GREY	1	PC
6	1100118175	HANDLE,COVER STRIP,FC,ABS,VZ330L,CHROME	1	PC
7	1100118132	MEDIBOX,HIPS-WHITE,FC,FF-VZ330L	1	PC
8	1100118131	COVER,MEDIBOX,GPPS,FC,PURPLE BL,FF-VZ330	1	PC
9	1100118130	DAIRY BIN,GPPS,FC,PURPLE BLUE,FF-VZ330L	2	PC
10	1100118129	SUPPORT,UTILITY,GPPS,FC,PURPLE BL,VZ330L	1	PC
11	1100039985	LATCH,DOOR,FC,D202	1	PC

EXPLODED VIEW AND PART DETAILS (R-DOOR)



S.No.	Part Code	Object description	Quantity	Unit
1	1200075125	DOOR,FOAMED,RC,FF-Z280L,BROKEN HAIRLINE	1	PC
2	1100113363	GASKET,DOOR,RC,FF-Z280L	1	PC
3	1100118176	HANDLE,BASE,RC,ABS,FF-VZ330L,,SILKY GREY	1	PC
4	1100118177	HANDLE,COVER,RC,ABS,FF-VZ330L,SILKY GREY	1	PC
5	1100118178	HANDLE,COVER STRIP,RC,ABS,VZ330L,CHROME	1	PC
6	1100118134	SUPPORT,UTILITY,GPPS,RCT,PURPLE BL,VZ330	1	PC
7	1100118136	DAIRY BIN,GPPS,RC,PURPLE BLUE,FF-VZ330L	2	PC
8	1100118138	COSMETIC BOX,HIPS-WHIET,RC,FF-VZ330L	1	PC
9	1100118137	COVER,COSMETIC BOX,GPPS,RC,PURPLE BL,VZ	1	PC
10	1100118139	COVER,DEODORIZER,RC,ABS-SKY BLUE,VZ330L	1	PC
11	1100118133	SUPPORT,BOTTLE,GPPS,RC,PURPLE BL,VZ330L	1	PC
12	1100118135	SUPPORT,UTILITY,GPPS,RCB,PURPLE BL,VZ330	1	PC
13	1100118224	STOPPER,DOOR,RC,METAL,FF-Z330L	1	PC

SAFETY PRECAUTIONS

• Unplug prior to servicing to prevent electric shock.
• Whenever testing with the power on, wear rubber gloves to prevent electric shock.
• If you use any kind of appliance, check regular current, voltage and capacity.
• Don't touch metal products in the freezer with wet hands. This may cause frostbite.
• Prevent water from following onto electric elements in the mechanical parts.
• When standing up after having checked the lower section of the refrigerator with the upper door open, move with care to avoid hitting the upper door.
• When tilting the set, remove any materials on the set, especially the thin plates (ex. Glass shelf or books).
• When servicing the evaporators, wear cotton gloves. This is to prevent injuries from sharp evaporator fins.
• Leave the disassembly of the refrigerating cycle to a specialized service center. The gas inside the circuit may pollute the environment.
• When you discharge the refrigerant, wear the protective safety glasses or goggle for eye safety.
• When you repair the cycle system in refrigerator, the work area is well ventilated. Especially if the refrigerant is R600a, there are no fire or heat sources. (No Smoking).

DISASSEMBLY

FREEZER DOOR

• Open the hinge cover with a '-' type driver.
• Loosen all 4 hexagonal bolts with a hexagonal screw driver.
• Take the upper hinge out.
• Lift the freezer door up and remove it.

REFRIGERATOR DOOR

• Remove the freezer door as per instructed in above section.
• Loosen the hexagonal bolts of middle hinge.
• Take the middle hinge out.
• Lift the refrigerator door out of bottom hinge and remove it.

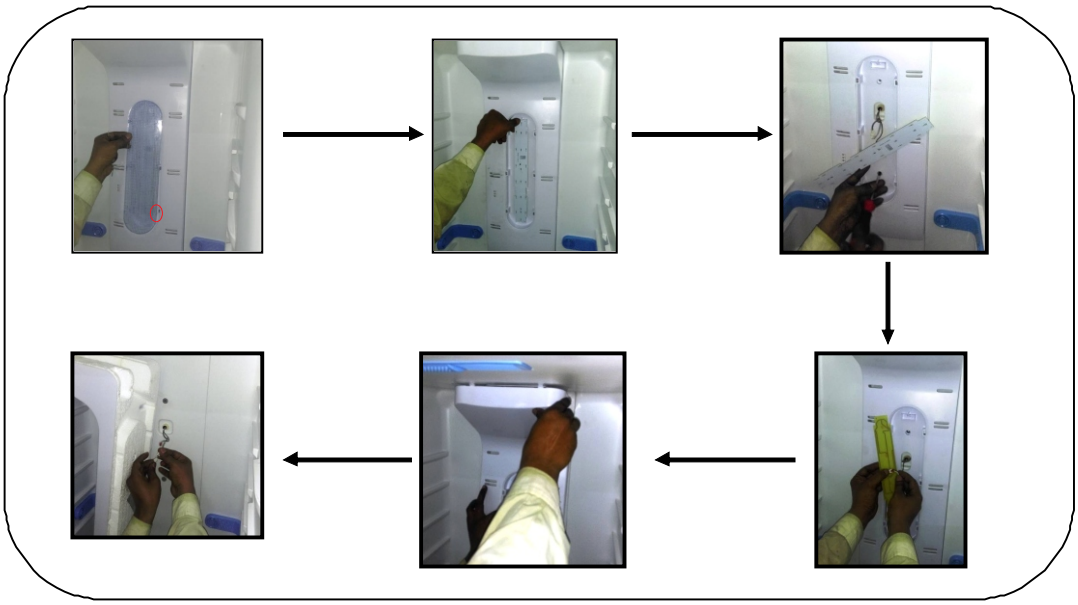
F-LOUVER

• First, remove the screw cover from both the top corners of F-Louver.
• Then remove both the screws with help of a suitable '+' type screw driver.
• Disconnect both the connectors (One white & One Blue) given in top left corner behind F-louver.
• Evaporators can be serviced after opening the F-louvers only.

DISASSEMBLY

R-LOUVER & REF LED

First of all, remove the LED PCB Cover which is snap fitted in R-Louver itself with "-" type driver after putting it comfortably in given slot on lower right side.
Remove the LED PCB mounted in snaps on R-louver.
Remove the screws from R-Louver with '+' type driver.
Disconnect the PCB from connector in Main Wiring Harness.
Dislodge the R-Louver from snaps in the upper side.
Remove the connection between auxiliary harness and main harness.



SENSORS LOCATION

REF SENSOR

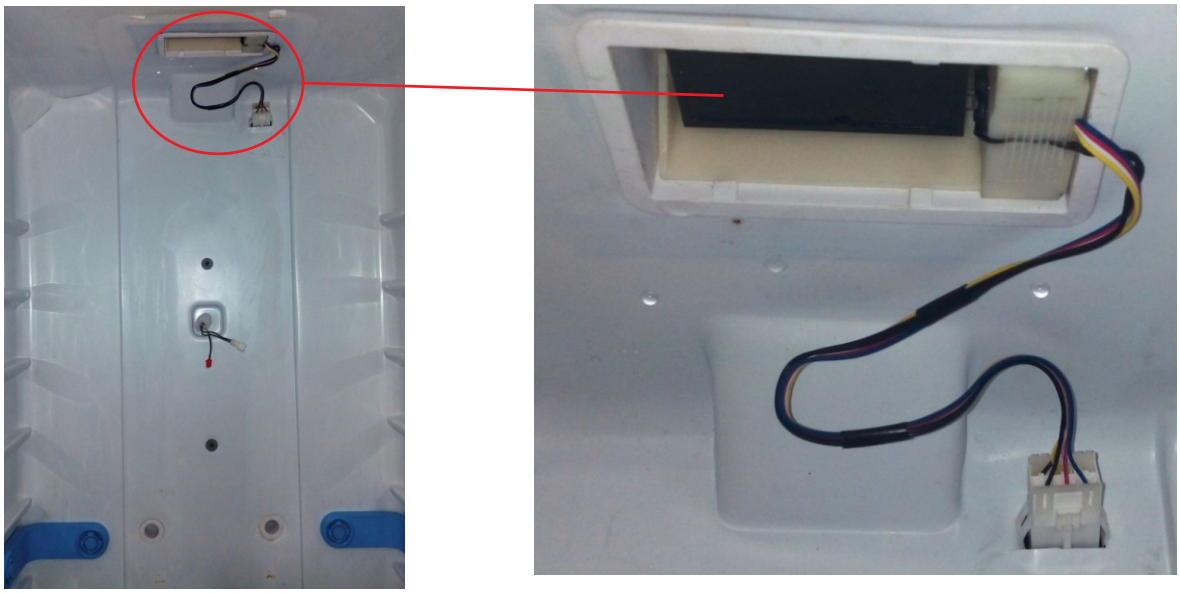
FREEZER SENSOR

DEFROST SENSOR

To change or disassemble the sensors, they should be properly removed from their respective locations.

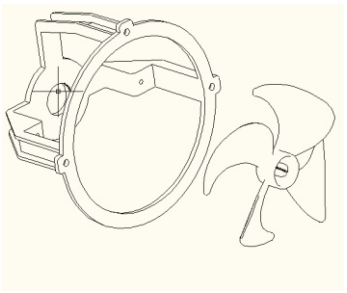
1. Refrigerator sensors are located behind R-Louvers as marked in the picture. Please disassemble the R-Louver as mentioned earlier and then remove the sensor.
2. Freezer sensor is fixed between F-Louver Cover and F-Louver EPS as shown in the above image. Please disassemble the F-Louver properly then remove the F-Louver EPS gently without breaking it and then remove the sensor.
3. Defrost Sensor is located in evaporator assembly area as shown in the picture above. Open the F-Louver assembly and disengage the holder for removing the sensor.

DISASSEMBLY



Damper is located over the R-Louver assembly and is snap fitted in Return duct piece which is fitted in cabinet through foam. For uninstalling the damper, first disconnect the connectors which are mounted in back side behind the R-Louver assembly. Then, push the snaps with help of "-" type driver and pull the damper assembly outward very carefully so that snaps are not broken.

FAN & FAN MOTOR



- Remove the freezer accessories.
- Remove two caps of screws and loosen screws of F-Louver.
- Disengage F-Louver cover and F-Louver EPS parts.
- Disconnect the connectors connecting Fan.
- Separate the fan assembly from EPS.
- Loose the screws holding Socket of fan motor.
- Disengage F-Louver part and Fan motor socket.
- Separate the motor socket and motor.

AUTO DEFROST ASSEMBLY

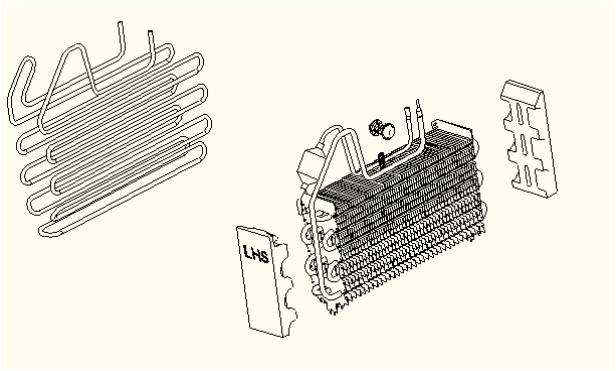
- Auto Defrost Assembly consists of D-Sensor and Temperature fuse.
- D-Sensor functions to terminate the defrost operation automatically and it is attached to metal surface of Evaporator and senses temperature.
- Temperature fuse is a kind of safety device for preventing overheating of the heater when defrosting.
- At the temperature of 72°C, it stops the emission of heat from the heater.
- Pull out the F-Louver EPS after removing the F-Louver cover.
- Separate the connector connected with the Auto Defrost Assembly and replace new one.

DISASSEMBLY

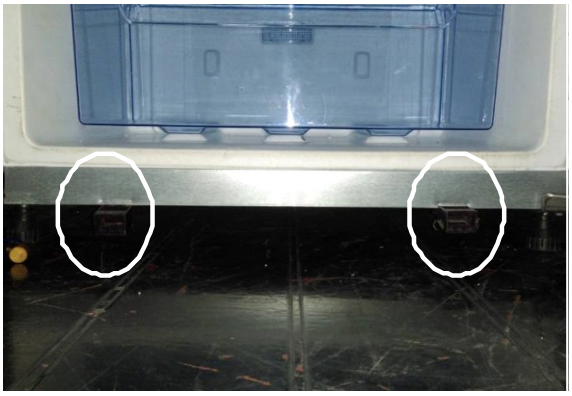
HEATER & HEATER CORD

In this refrigerator, Heater coil are used for defrosting heater. During heating, the temperature of heater very high Therefore, be careful not to burn while servicing.

• After removing the F-Louver, separate the heater coil by disconnecting the connectors.
• Exchanged Heater coil and connected the housing.
• If the Heater Cord is defected, disconnect the connectors, and separate the Heater Cord with long Nose.
• Replace and assembly the Heater Cord-L and connect the connectors.



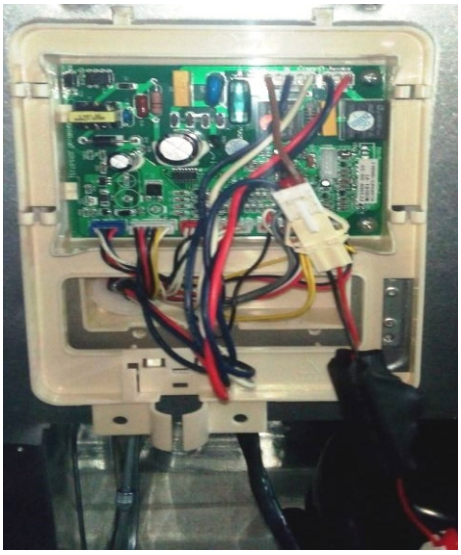
BOTTOM CAP

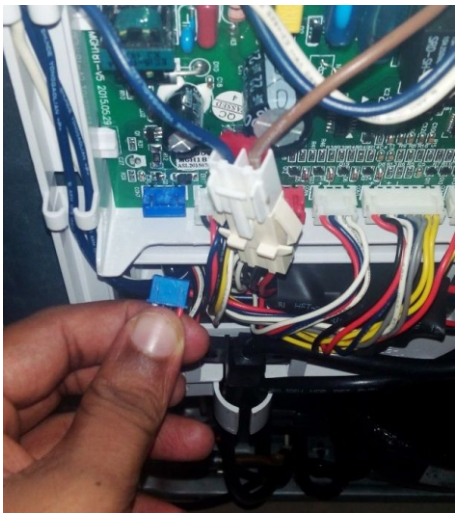


- Bottom cap is given in bottom of front side of refrigerator.
- It is mounted on two small re-enforcement pieces, as marked in the image, added just below the front bottom panel.
- Carefully, put the snaps of bottom cap on the re-enforcement pieces and push it towards the refrigerator in order to attach the bottom cap.

DISASSEMBLY

MAIN PCB



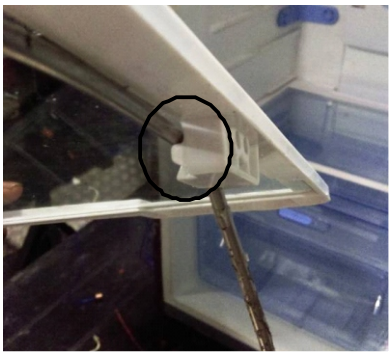


- Main PCB cover is located on back side of refrigerator in lower left corner.
- Open all the mounting screws with help of a suitable '+' type screw driver to open the PCB cover.
- Take out the back plate carefully from the snaps given in back panel.
- Disconnect all the connectors.
- Remove the main power line and EMC filter
- Take the PCB out with the Back plate for required servicing.

DISASSEMBLY

BOTTLE SUPPORT





- Bottle racks are given in glass shelf for holding the bottles kept on these shelves.
- They may create problems in putting containers above a certain height in daily use.
- To adjust them, first of all take the shelf out in which these bottle racks are mounted.
- Take out the bottle rack from the groove in which it is located.
- Place it in the groove given above the previous groove as shown in picture.

COMPRESSOR ADJUSTMENT

COMPRESSOR

ROLE

The compressor intakes low temperature and low pressure gas evaporated from Evaporator of the Refrigerator, and condenses this gas to high temperature and high pressure gas, and then plays delivering role to Condenser.

COMPOSITION

The Compressor is Composed of Compressor Apparatus compressing gas, Compressor Motor moving Compressor Apparatus and Case protecting Compressor Apparatus and Motor. There is Relay Assy (one set of PTC-Starter and Over Load Protector (OLP)) in Compressor. On the other hand, because the Compressor consists of 1/1000mm processing precision components and is sealed after production in absence of dust or humidity, deal and repair with care.

NOTE FOR USAGE

- Be careful not to allow over-voltage and over-current.
- No Strike. If applying forcible power or strike (dropping or careless dealing), poor operation and noise may occur.
- Use proper electric components appropriate to the Compressor.
- Note to Keep Compressor. If Compressor gets wet in the rain and rust in the pin of Hermetic Terminal, the result may be poor operation and poor contact may cause.
- Be careful that dust, humidity, and flux welding don't inflow in the Compressor inside in replacing the Compressor. Dust, humidity, and flux due to welding which inflows to Cylinder may cause lockage and noise.

1) FUNCTION

(1) After being powered on, the system will start initial self-check each time. In normal condition, the buzzer will ring for 0.5s and all the contents will be displayed for 2s. If there is any fault found during the initial self-check, the fault code will be disposed.

(2) After self-check the refrigerator enters in to running status and operating load. After being powered on in each time, the display screen will in unlocked state.

2) FAST ICE MODE

(1) Press FAST ICE key to enter into this mode. It will show the pattern of FAST ICE. The setting temperature of freezing chamber is -22℃ and that of refrigerating chamber is 10℃ The setting temperature can not be adjusted
.
(2) In this mode, the compressor operates upon setting time. The running time is related to real time temperature of freezing chamber in this stage.

(3) Press FAST ICE key to exit this mode manually. The system will automatically exit this mode when the running time of the compressor arrives. During the exiting, FAST ICE pattern blinks, and the buzzer rings. The blinking and buzzing will be stopped when you press FAST ICE key or the time reaches 5min. After exiting this mode, the previous setting will be restored.

(4) In this mode, the VACATION and ENERGY SAVING keys are invalid. If the electricity is turned off in midway, the system will enter into fast ice mode again after the electricity is turned on (Power down memory function).

3) DEEP FREEZER MODE

(1) Press and hold FAST ICE key for over 5s to enter into this mode. It will show the pattern of FAST ICE. The setting temperature of freezing chamber is -30℃, and that of refrigerating chamber is 8℃. The setting temperature cannot be adjusted.

(2) In this mode, the compressor and power-driven air door operate upon setting temperature.

(3) In this mode, the compressor will run continuously until reach the halting temperature(cancel the program of automatic defrosting and the 5 min downtime when the continuous running time is 3 hours)

(4) Press FAST ICE key to exit this mode manually. After exiting this mode, the previous setting will be restored.

(5) In this mode, the VACATION and ENERGY SAVING keys are invalid. If the electricity is turned off in midway, the system will enter into fast ice + mode again after the electricity is turned on (Power down memory function).

4) SUPER CHILL MODE

(1) Press SUPER CHILL key to enter into this mode. It will show the pattern of SUPER CHILL. The setting temperature of freezing chamber is -17deg, and that of refrigerating chamber is 1deg. The setting temperature cannot be adjusted.

(2) In this mode, the compressor operates upon setting time. The running time is related to real time temperature of freezing chamber in this stage. When the compressor runs, the power-driven air door keeps open.

(3) Press SUPER CHILL key to exit this mode manually. The system will automatically exit this mode when the running time of the compressor arrives. After exiting this mode, the previous setting will be restored.

5) VACATION MODE

(1) Press VACATION key to enter into this mode. It will show the pattern of VACATION. The setting temperature of freezing chamber is -11deg, and the temperature of refrigerating chamber will not be displayed (The refrigerating chamber will not be used). The setting temperature cannot be adjusted.
(

(2) Press VACATION key to exit this mode manually. After exiting this mode, the previous setting will be restored.

(3) The system will automatically exit this mode and restore previous setting if the door of freezing chamber or refrigerating chamber opens.

(4) In this mode, the ENERGY SAVING key is invalid. If the electricity is turned off in midway, the system will enter into vocation mode again after the electricity is turned on (Power down memory function).

6) ENERGY SAVING MODE

(1) Press ENERGY SAVING key to enter into this mode. It will show the pattern of ENERGY SAVING. The setting temperature of freezing chamber is -12℃, and that of refrigerating chamber is 8℃. The setting temperature cannot be adjusted.

(2) In this mode, the compressor and power-driven air door operate upon setting temperature.

(4) Press ENERGY SAVING key to exit this mode manually. After exiting this mode, the previous setting will be restored.

(5) The system will automatically exit this mode and restore previous setting if the door of freezing chamber or refrigerating chamber satisfies “open time ≥2” within 60min.

(6) In this mode, the VACATION key is invalid. If the electricity is turned off in midway, the system will enter into energy saving mode again after the electricity is turned on (Power down memory function).

7) SCREEN LOCKING KEY

(1) The system will automatically confirm and lock the screen 30s after the completion of key operation. Simultaneously press and hold and for 3s to manually lock the screen. In screen locked state, except the unlocking combination keys, other keys are all invalid when being pressed, and the lock pattern will blink for three times when you press invalid keys.

(2) Simultaneously press and hold and for 3s to manually unlock the screen. All the keys are available after being unlocked.

(3) When simultaneously pressing and holding and , the other key signals should be ignored if detected.

8) COMBINATION KEYS

.

(1) Within 30min after powering on, simultaneously press and hold “FAST ICE” and “VACATION” keys for over 5s to enter into hardware self-check program.

(2) Press and hold UP key and do not leave your finger from this key, then press and hold “TIME”key for over 5s to enter into temperature sensor parameter query program.

(4) Press DOWN and hold “MODE”key for over 5s to restore factory settings. The timer and counter-reset will be reset. All the adjustable parameters will be restored.
After that need to power off and re-insert the Display jumper for proper time setting

(5) Press “DOWN KEY” and hold “TIME”key for over 5s to enter into manual defrosting program;
Then press and hold key and do not leave your finger from this key ,
To quit Manual defrost with same way Press “DOWN” and hold “TIME”key for over 5s again.

MICOM FEATURE CONTROLS

9) BUZZER CONTROL
(1) When effective key is pressed, the back light will be light, and the buzzer will ring once (the voice will last for 0.2s, f=4.0kHz).
(2) If invalid key is pressed, there will be no buzzer ringing.

10) LIGHT CONTROL
(1) The refrigerator light will be on when the door of the refrigerating chamber opens. The light will be forcefully closed if the door does not close within 10min. The light will be closed when the door of the refrigerating chamber closes.
(2) The freezer light will be on when the door of the freezing chamber opens. The light will be forcefully closed if the door does not close within 10min. The light will be closed when the door of the freezing chamber closes.
(3) The photo-synthetic fresh keeping light will be on when the door of the refrigerating chamber opens. The light will be closed when the door closes. The timing will be reset to count from start.

11) DOOR OPENING ALARM
(1) According to the switching signals from door of refrigerating/freezing chamber, if the door is open for over 1 min, the buzzer will ring to remind users to close the door. For every 15s, the buzzer gives three alarm sounds with the time interval of ringing for 0.5s and suspending for 0.5s.
(2) The lamp of the refrigerating chamber will be automatically closed when the door of the refrigerating chamber is open for over 10min. The lamp of the freezing chamber will be automatically closed when the door of the freezing chamber is open for over 10min. The compressor stops running. The buzzer rings continuously until door closing signal is detected.

12) HARDWARE SELF-CHECK
(1) The buzzer rings twice, and all the lights of the LED panel are opened;
(2) All the lights of LED panel are closed after 2S.
(3) The circulating fan works for 5s after being opened every time.
(4) The lamp of the freezing chamber keeps light for 5s after being opened every time.
(5) The power-driven air door restore once.
(6) The lamp of the refrigerating chamber is opened, and closed after lasting for 5S.
(7) The photo-synthetic fresh keeping lamp is opened, and closed after lasting for 5S.
(8) The evaporator heater strip opens (230V) and lasts for 5S.
(9) The compressor (230V) works for 5S.
(10) Test the communication interface. The refrigerating temperature is “P0” in normal condition, and the refrigerating temperature is “P9” when there is fault.
(11) Test the sensor interface of the refrigerating chamber. The refrigerating temperature is “P0” in normal condition, and the refrigerating temperature is “E1” when there is fault. No words will be displayed.
(12) Test the sensor interface of the freezing chamber. The refrigerating temperature is “P0” in normal condition, and the refrigerating temperature is “E2” when there is fault.
(13) Test the interface of defrosting sensor. The refrigerating temperature is “P0” in normal condition, and the refrigerating temperature is “E3” when there is fault.
(14) “P0” will be showed in “Time-minute” when the door of the refrigerating chamber closes, and “P1” when it opens. No alarm will be given when the door opens at this moment.
(15) “P0” will be showed in “Time-minute” when the door of the freezing chamber closes, and “P1” when it opens. No alarm will be given when the door opens at this moment.
(16) Press “MODE” key, the freezing temperature is “11” and the buzzer will ring in normal condition. No display will be given when there is fault.
(17) Press key, the freezing temperature is “22” and the buzzer will ring in normal condition. No display will be given when there is fault.

(19) Press “TIME” key, the freezing temperature is “44” and the buzzer will ring in normal condition. No display will be given when there is fault.
(20) Press FAST ICE key, the freezing temperature is “55” and the buzzer will ring in normal condition. No display will be given when there is fault.
(21) Press VACATION key, the freezing temperature is “66” and the buzzer will ring in normal condition. No display will be given when there is fault.
(22) Press ENERGY SAVING key, the freezing temperature is “77” and the buzzer will ring in normal condition. No display will be given when there is fault.
(23) Press SUPER CHILL key, the freezing temperature is “88” and the buzzer will ring in normal condition. No display will be given when there is fault.

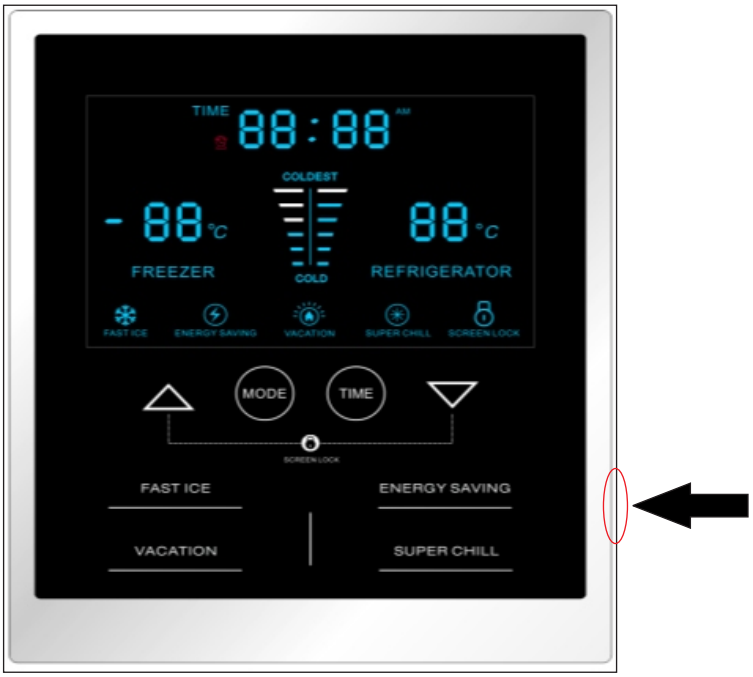
13) FAULT ITEMS

S.N	Fault Type	Display Information	General information
1	Fault of Ref-Sensor	Error Code “E1”	Alarm
2	Fault of Freezer-Sensor	Error Code “E2”	Alarm
3	Fault of Defrost -Sensor	Error Code “E3”	Alarm
4	Communication Fault	Error Code “E9”	Alarm
5	Software (Read/Write) Problem	Error Code “E7”	Alarm

NOTE: After being powered on, there will be “E7” fault, which is normal phenomenon and restart will be able to eliminate this fault.

14) DISSEMBLING THE PCB

(1) Place a point sharp pin in the right of Energy Saving key as shown in the picture.
(2) Gently insert it behind the PCB cover.
(3) Pull the PCB cover with the help of inserted pin outward to open the Front PCB cover.



RELAY ADJUSTMENT

PTC-RELAY

ROLE

- PTC is attached to Hermetic Compressor used for Refrigerator, Show Case and starts Motor.
- Compressor for household refrigerator applies to single - phase induction Motor. device.

For normal operation of the single-phase induction motor, in the starting operation flows in both main coil and sub-coil. After the starting is over, the current in sub-coil is cut off. The proper features of PTC play all the above roles. So, PTC is used as a motor starting

COMPOSITION

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

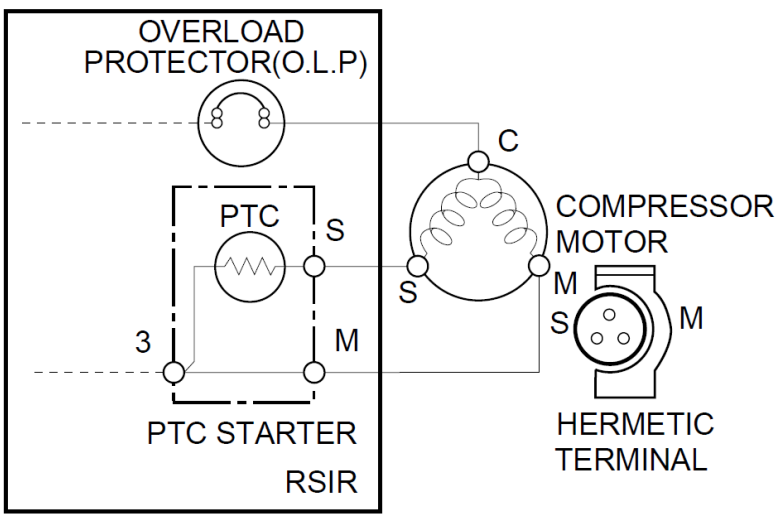
NOTE FOR USAGE

- Be careful not to allow over-voltage and over-current.
- No Strike. If applying forcible power or strike (dropping or careless dealing), poor operation and noise may occur.
- (3) Use proper electric components appropriate to the Compressor.
- (4) Note to Keep Compressor. If Compressor gets wet in the rain and rust in the pin of Hermetic Terminal, the result may be poor operation and poor contact may cause.
- (5) Be careful that dust, humidity, and flux welding don't inflow in the Compressor inside in replacing the Compressor. Dust, humidity, and flux due to welding which inflows to Cylinder may cause lockage and noise.

NOTE TO USE PTC-RELAY

- Be careful not to allow over-voltage and over-current.
- No Strike, Don't apply a forcible power or strike.
- Keep apart from any liquid. If liquid such as oil or water away enter the PTC, PTC materials it may break due to insulation breakdown of the material itself.
- Don't change PTC at your convenience. Don't disassemble PTC and mold. If the exterior to the PTC-starter is damaged, resistance value is altered and it may cause poor starting of the compressor motor may cause.
- Use a properly fixed PTC.

PTC APPLIED CIRCUIT DIAGRAM



RELAY ADJUSTMENT

PTC-RELAY

MOTOR RESTARTING & PTC COOLING

(1) For restarting after power off during normal Compressor Motor operation, plug the power cord after 5 min. for pressure balance of Refrigerating Cycle and PTC cooling.
(2) During normal operation of the Compressor Motor, PTC elements generate heat continuously. Therefore, if PTC isn't cooled for a while after the power has been shut off, Motor can't operate again.

RELATION BETWEEN OLP & PTC RELAY

• If the power is off during operation of Compressor and the power is on before the PTC is cooled, (instant shutoff within 2 min. or reconnect a power plug due to disconnecting), the PTC isn't cooled and a resistance value grows. As a result, current can't flow to the sub-coil and the Motor can't operate and the OLP operates by flowing over current in only in the main-coil.
• While the OLP repeats on and off operation about 3-5 times, PTC is cooled and Compressor Motor performs normal operation. If OLP doesn't operate when PTC is not cooled, Compressor Motor is worn away and causes short circuit and fire. Therefore, use a properly fixed OLP without fail.

SERVICE PRECAUTIONS

Features of Refrigerant (R600a)

- Achromatic and odor less gas.
- Flammable gas and ignition (explosion) at 494 Degree Celsius.
- Upper/ lower explosion limit: 1.8%~8.4%/Vol.

Features of R600a Refrigerator

- Charging of 60% refrigerant compared with a R134a model.
- The suction pressure is below 1bar (absolute) during the operation.
- Because of its low suction pressure, the external air may flow in the cycle system when the refrigerant leak, and it causes malfunction in the compressor.
- The displacement of compressor using R600a must be at least 1.7 times larger than that of R134a.
- XH-9 type dryer is applicable for this product.
- The compressor has a label of refrigerant R600a.
- Only SVC man must have an access to the system.

SERVICE PRECAUTIONS

Installation Place

- Must be well ventilated.
- Must be 20 cubic meter or larger.
- Must be no-smoking area.
- No ignitable factors must be present.

Make sure before Servicing

- Confirm the refrigerant by checking Name Plate and the label on the compressor, after opening the back cover.
- If the refrigerant is R600a, you must not weld or apply a heat source.

Utilities

- Refrigerant Cylinder (MAX NET 300g).
- Manometer
- Vacuum pump (600 l/min)
- Piercing Clamp
- Quick coupler
- Hoses (5m – 1EA, 1m – 3EA)
- Lokring
- Potable leakage detector (3g/ year)
- Nitrogen Cylinder (for leakage test)
- Concentration gauge

Air Recharging in Compressor

Before refilling the refrigerant, you must perform the test according to Troubleshooting Chart. When the defects are found, you must discharge the residual refrigerant (R600a) in the outdoor. For discharging the refrigerant R600a, break the narrow portion of tube extension by hand or with a pipe cutter as shown in Figure 1. Leave it for 30min in outside to stabilize the pressure with ambient. Then, check the pressure by piercing the dryer part with piercing pliers. If the refrigerant is not completely discharged, let the refrigerator alone for more 30mins in outside.

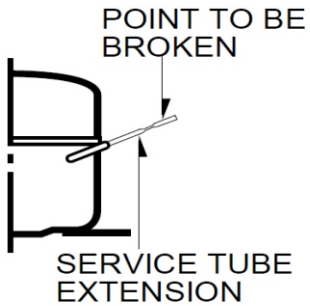


Figure 1

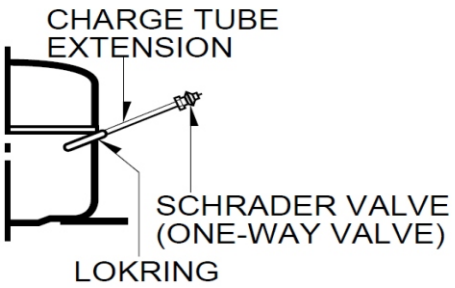


Figure 2

Air Recharging in Compressor

Attach the service tube installed with a Schrader valve (one-way valve) by using the Lokring (Figure 2). Then, connect the Schrander valve (one-way valve) to the pump that is connected to the discharging hose leading to the outside. When discharging the residual refrigerant, repeat 3 cycle that includes 3min of pump running->pump off->30sec of the compressor running.
After the refrigerant (R600a) is completely discharged, repair any defective parts and replace the dryer. At any case you must use the LOKRING for connecting or replacing any part in the cycle (No Fire, No Welding). Connect the Schrader valve to pump with the coupler. And then turn the pump on for vacuum state (Figure 3). Let the pump run until the low-pressure gauge indicates the vacuum (gauge pressure 0, absolute pressure -1atm or -760mmHg). Recommended vacuum time is 30 min. Charge the N2 gas in order to check for leakage from welding points and the LOKRING. If leakages are found, repair the defects and repeat the vacuum process.

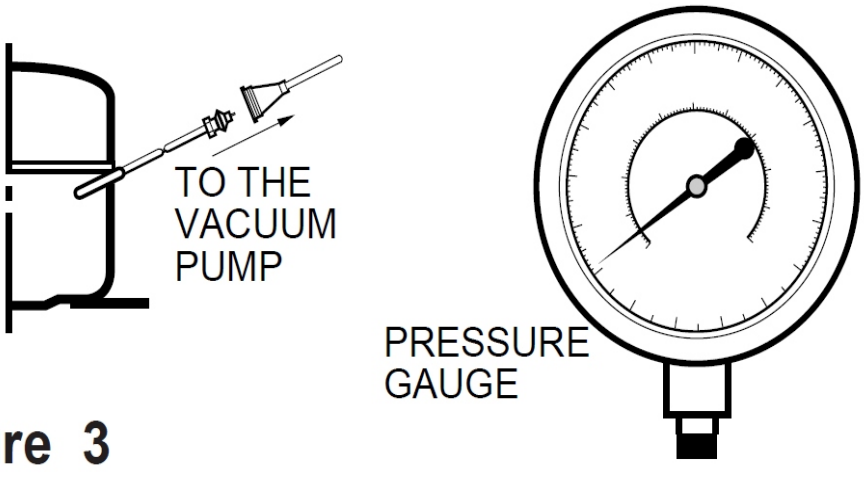


Figure 3

After the system is completely vacuumed, fill it with the refrigerant R600a up to what has been specified at your refrigerator Name Plate. The amount of refrigerant (R600a) must be precisely measured within the error of ±2g by an electron scale (Figure 4).
If you use the manifold connected with both the refrigerant (R600a) cylinder and the vacuum pump simultaneously, make sure the pump valve is closed (Figure 5).

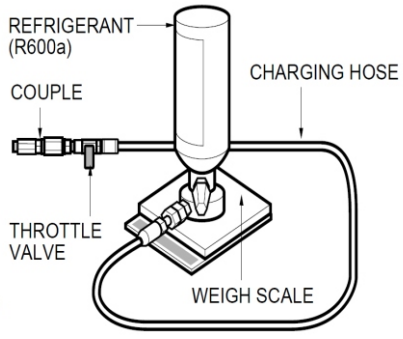


Figure 4

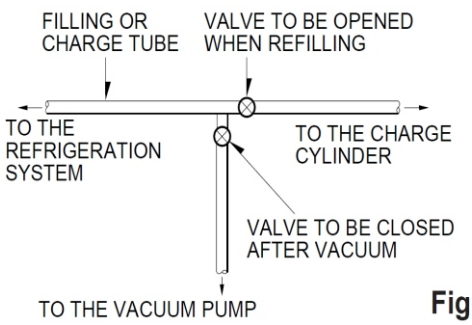


Figure 5

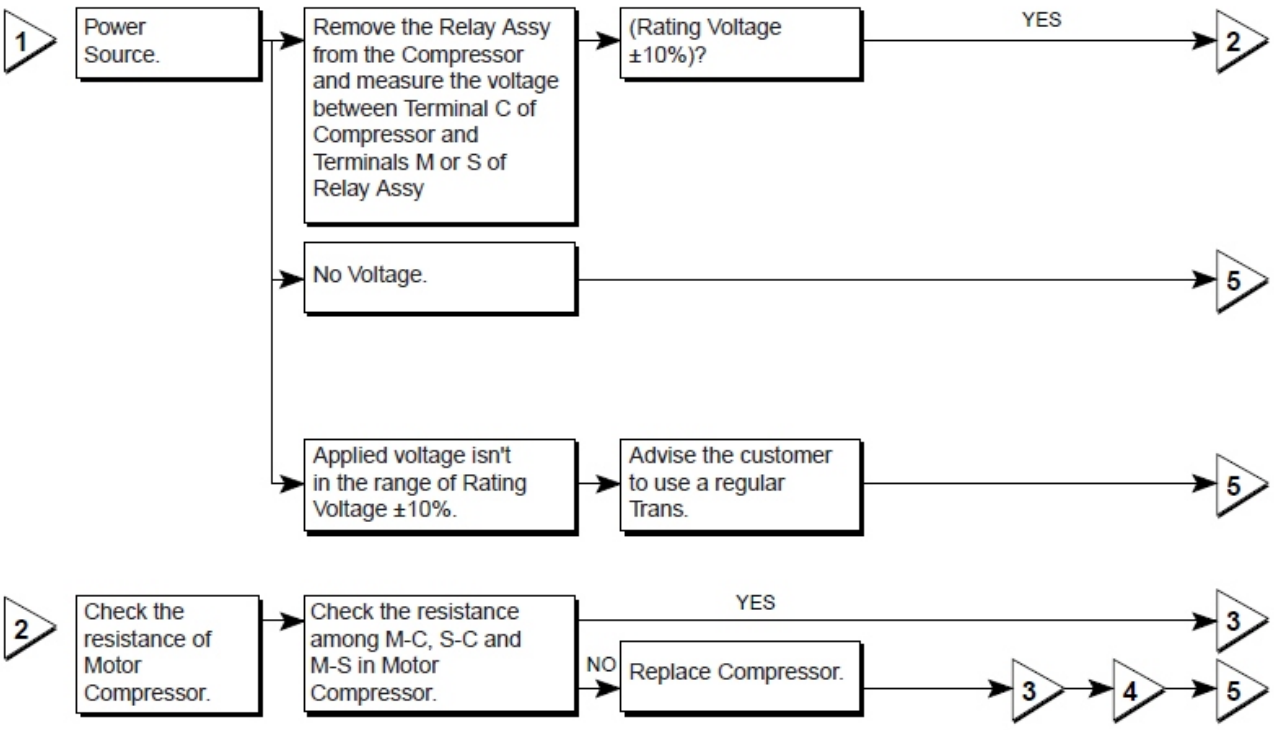
SERVICE PRECAUTIONS

Air Recharging in Compressor

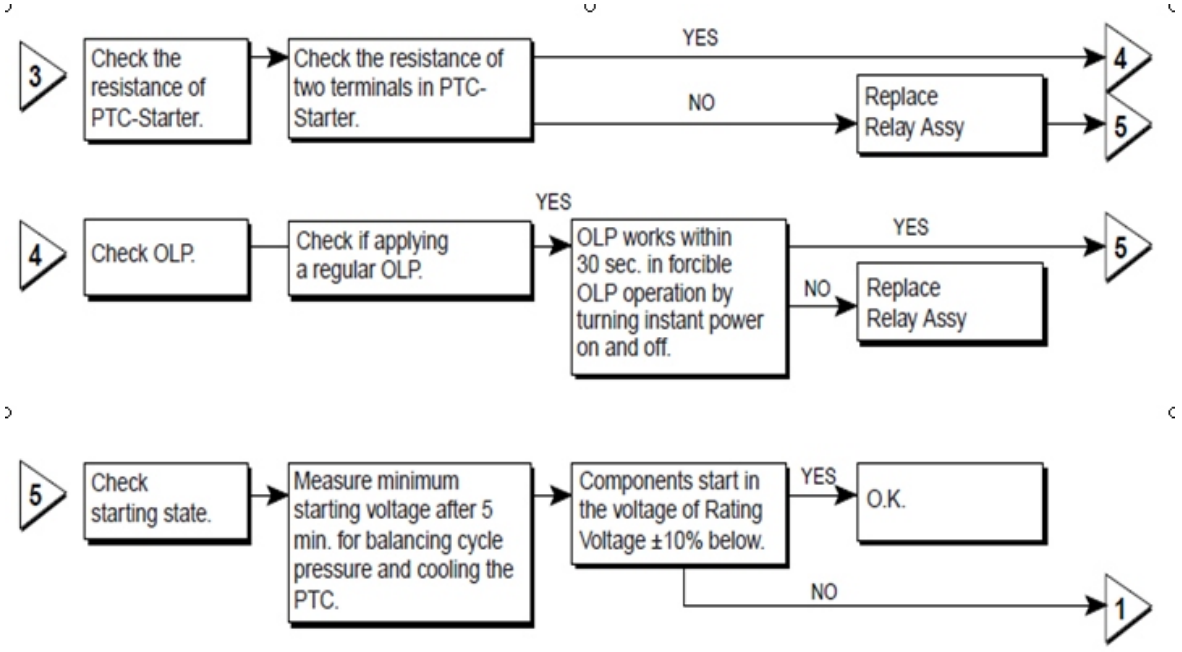
Connect the charging hose (that is connected to the refrigerant(R600a) cylinder) to the Schrader valve installed on the service tube. Then, charge the refrigerant (R600a) by controlling the Throttle valve. When you do so, do not fully open the Throttle valve because it may make damage to the compressor. Gradually charge the refrigerant (R600a) by changing open and close the Throttle Valve (5g at each time). The charging hose must use a one-way
valve to prevent the refrigerant re-fluency. Close the Schrader valve cap after the refrigerant (R600a) is completely recharged.
After you completely recharge the refrigerant (R600a), perform the leakage test by using a portable leakage detector or soapy water. Test the low pressure (suction) parts in compressor off time and high pressure parts in compressor on time. If the leakages are found, restart from the refrigerant (R600a) discharging process and repairs defects of leaks.
After the leakage test, check the temperature of each parts of the cycle. Check with hands if the CONDENSER and the case (HOTLINE pipe) that is contacted to the door gasket are warm. Confirm that frost is uniform distributed on the surface of the EVAPORATOR.

TROUBLESHOOTING

1 COMPRESSOR AND ELECTRIC COMPONENTS

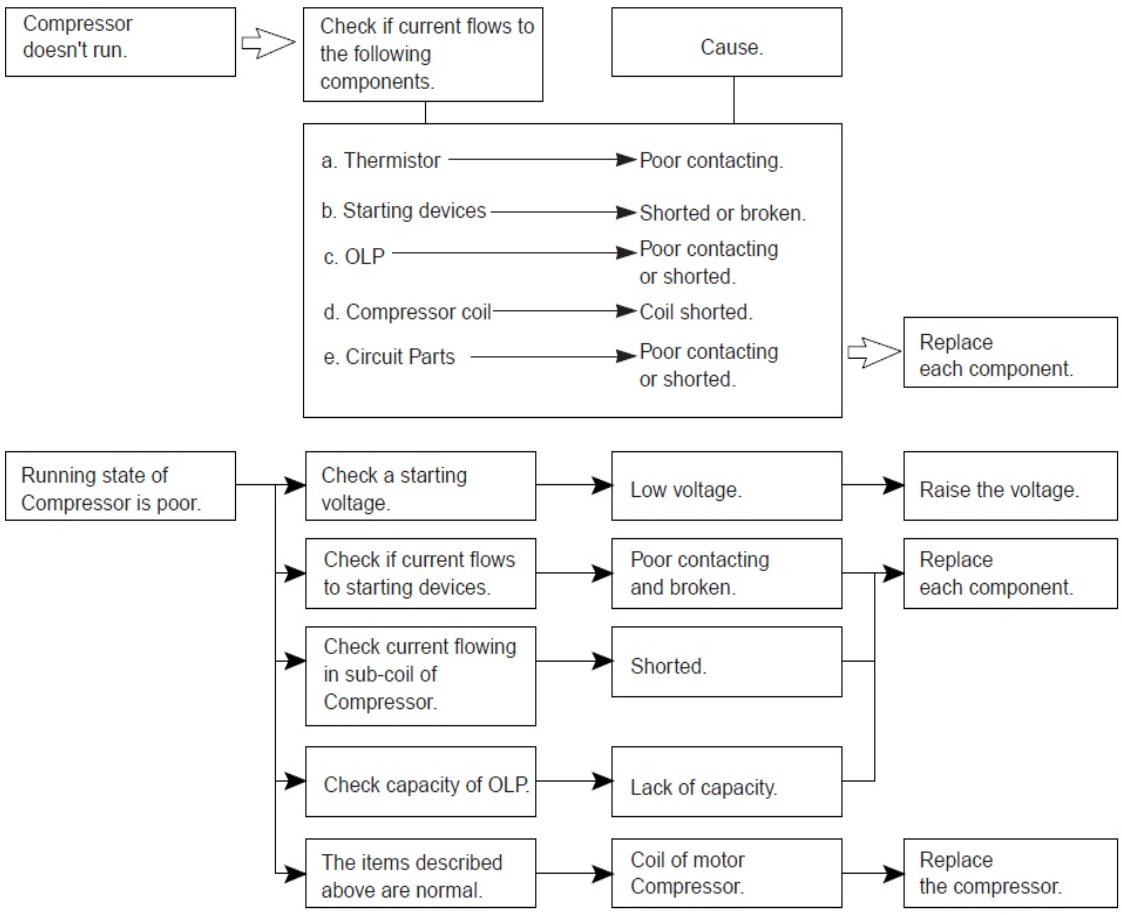


TROUBLESHOOTING

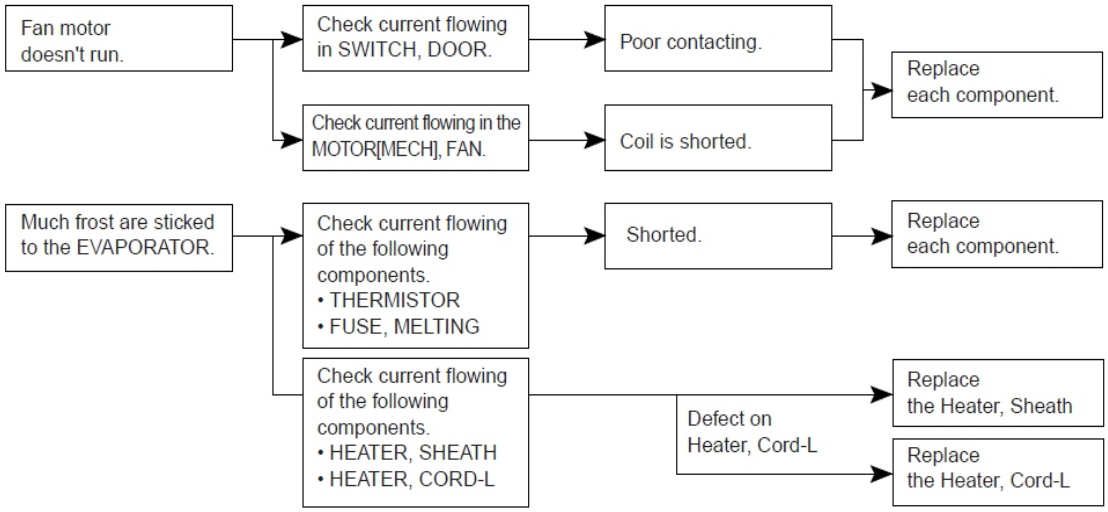


OTHER ELECTRIC COMPONENTS

▼ **Cooling is impossible**

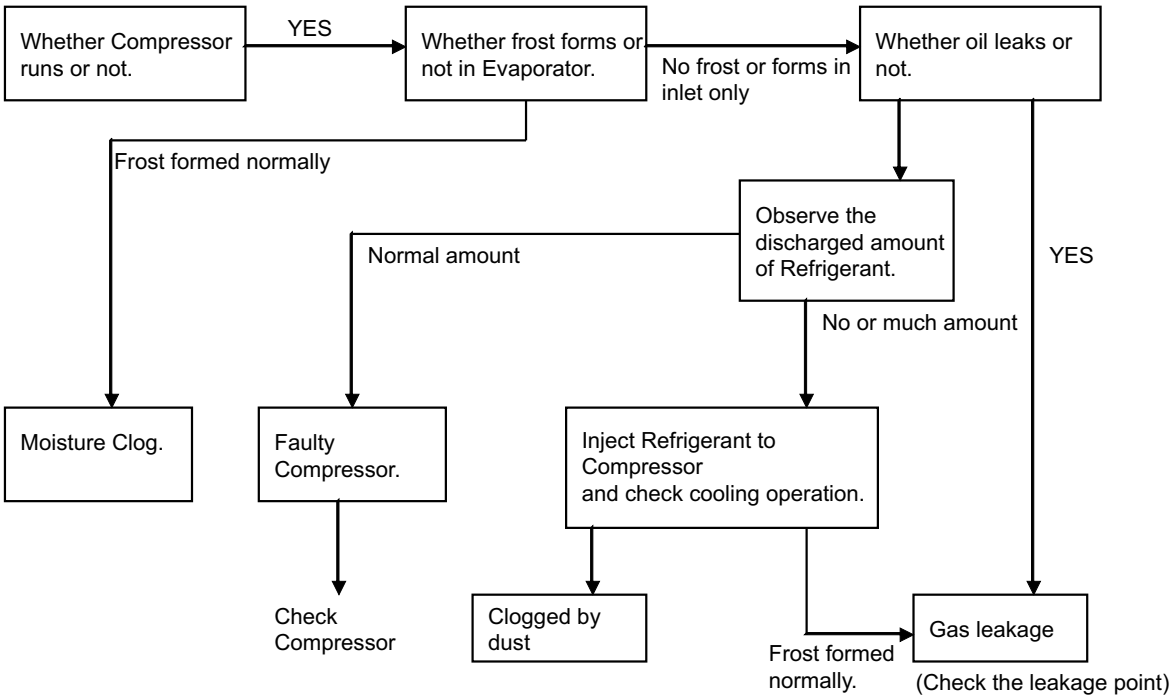


▼ Cooling ability is poor



LEAKAGE DETECTION

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



TROUBLESHOOTING

COMPLAINT	POINTS TO BE CHECKED	REMEDY
Cooling is impossible.	•Is the power cord unplugged from the outlet? •Check if the power switch is set to OFF. •Check if the fuse of power switch is shorted. •Measure the voltage of power outlet.	•Plug to the outlet. •Set the switch to ON. •Replace a regular fuse. •If voltage is low, wire newly.
Cooling ability is poor.	•Check if the set is placed close to wall. •Check if the set is placed close to stove, gas cooker and direct rays. •Is the ambient temperature high or the room door closed? •Check if put in is hot. •Did you open the door of the set too often or check if the door is closed up? •Check if the Damper Control is set to "cold-position".	•Place the set with the space of about 10cm. •Place the set apart from these heat appliances. •Make the ambient temperature below. •Put in foods after cooled down. •Don't open the door too often and close it firmly. •Set the control to mid-position.
Foods in the refrigerator are frozen.	•Is foods placed in cooling air outlet? •Check if the control is set to "cold-position". •Is the ambient temperature below 5°C?	•Place foods in high temperature section. (Front Part) •Set the control to "mid-position". •Set the control to "warm-position".
Dews or ice forms in the chamber of the set.	•Is liquid food stored? •Check if put in is hot. •Did you open the door of the set too often or check if the door is closed up.	•Seal up liquid foods with wrap. •Put in foods after cooled down. •Don't open the door too often and close it firmly.
Dew forms in exterior case.	•Check if ambient temperature and humidity of surrounding air are high. •Is there gap in the door packed?	•Wipe dew with a dry cloth. This occurrence is solved naturally in low temperature and humidity. •Fill up the gap.
Abnormal noise generates.	•Are the set positioned in a firm and even place? •Are any unnecessary objects set in the back side of the set? •Check if the Tray Drip is not firmly fixed. •Check if the cover of mechanical room in below and front side is taken out.	•Adjust the Adjust Screw, and position in the firm place. •Remove the objects. •Fix it firmly on the original position. •Place the cover at the original position.
To close the door is not handy.	•Check if the door packing is dirty with filth such as juice. •Is the set positioned in a firm and even place? •Is too much food putted in the set?	•Clean the door packing. •Position in the firm place and adjust the Adjust Screw. •Keep foods not to reach the door.
Ice and foods smell unpleasant.	•Check if the inside of the set is dirty. •Did you keep smelly foods without wrapping? •It smells of plastic.	•Clean the inside of the set. •Wrap smelly foods. •The new products smells of plastic, but it is eliminated after 1-2 weeks.

TROUBLESHOOTING

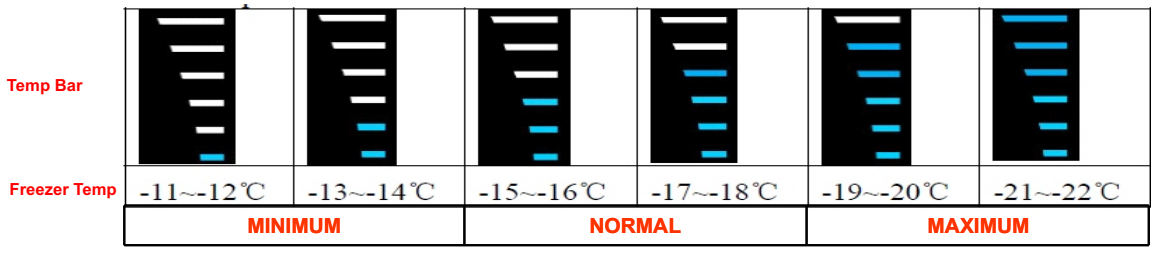
REFRIGERATING CYCLE

CAUSE		STATE OF THE SET	STATE OF THE EVAPORATOR	TEMPERATURE OF THE COMPRESSOR	REMARKS
LEAKAGE	PARTIAL LEAKAGE	Freezer room and Refrigerator don't cool normally.	Low flowing sound of Refrigerant is heard and frost forms in inlet only	A little high more than ambient temperature.	• A little Refrigerant discharges. • Normal cooling is possible when injecting of Refrigerant the regular amount.
	WHOLE LEAKAGE	Freezer room and Refrigerator don't cool normally.	Flowing sound of Refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	• No discharging of Refrigerant. • Normal cooling is possible when injecting of Refrigerant the regular amount.
CLOGGED BY DUST	PARTIAL CLOG	Freeze room and Refrigerator don't cool normally.	Flowing sound of Refrigerant is heard and frost forms in inlet only.	A little high more than ambient temperature.	• Normal discharging of refrigerant. • The capillary tube is faulty.
	WHOLE CLOG	Freezer room and Refrigerator don't cool.	Flowing sound of Refrigerant is not heard and frost isn't formed.	Equal to ambient temperature.	• Normal discharging of Refrigerant.
MOISTURE CLOG		Cooling operation stops periodically.	Flowing sound of Refrigerant is not heard and frost melts.	Low than ambient temperature	• Cooling operation restarts when heating the inlet of capillary tube.
DEFECTIVE COMPRESSION	COMP-RESSION	Freezer and Refrigerator don't cool.	Low flowing sound of Refrigerant is heard and frost forms in inlet only.	A little high than ambient temperature.	• The pressure of high pressure part in compressor is low.
	NO COMP-RESSION	No compressing operation.	Flowing sound of Refrigerant is not heard and no frost.	Equal to ambient temperature.	• No pressure of high pressure part in the compressor.

TEMPERATURE CONTROLS (With Buttons)

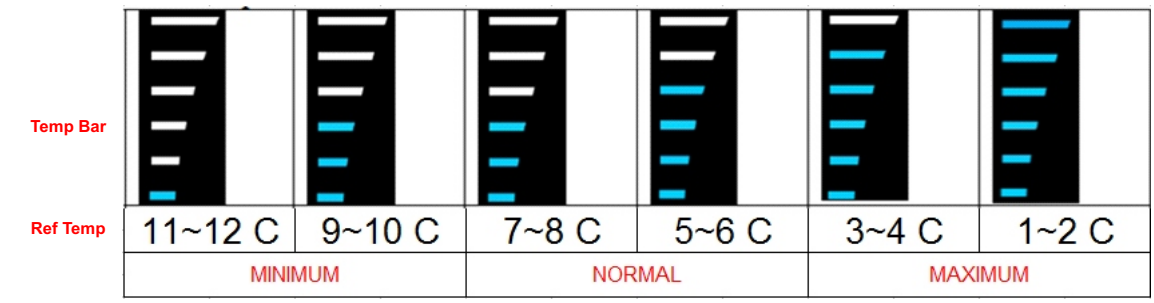
For Freezer Compartment

In this mode you can select between 6 different preset cooling level (which appear in the form of a bar graph from 1 to 6)
Using Bottom to UP arrow keys . The LCD screen will display "Min" for 1st and 2nd levels. "Normal" for level 3 &4 "Max" for 5 and 6 . The default cooling level is level 4 which is Normal mode,
The Freezer and Refrigerator temperature is based on the amount of food stored as well as climate condition
Refer the following recommended setting for best usage

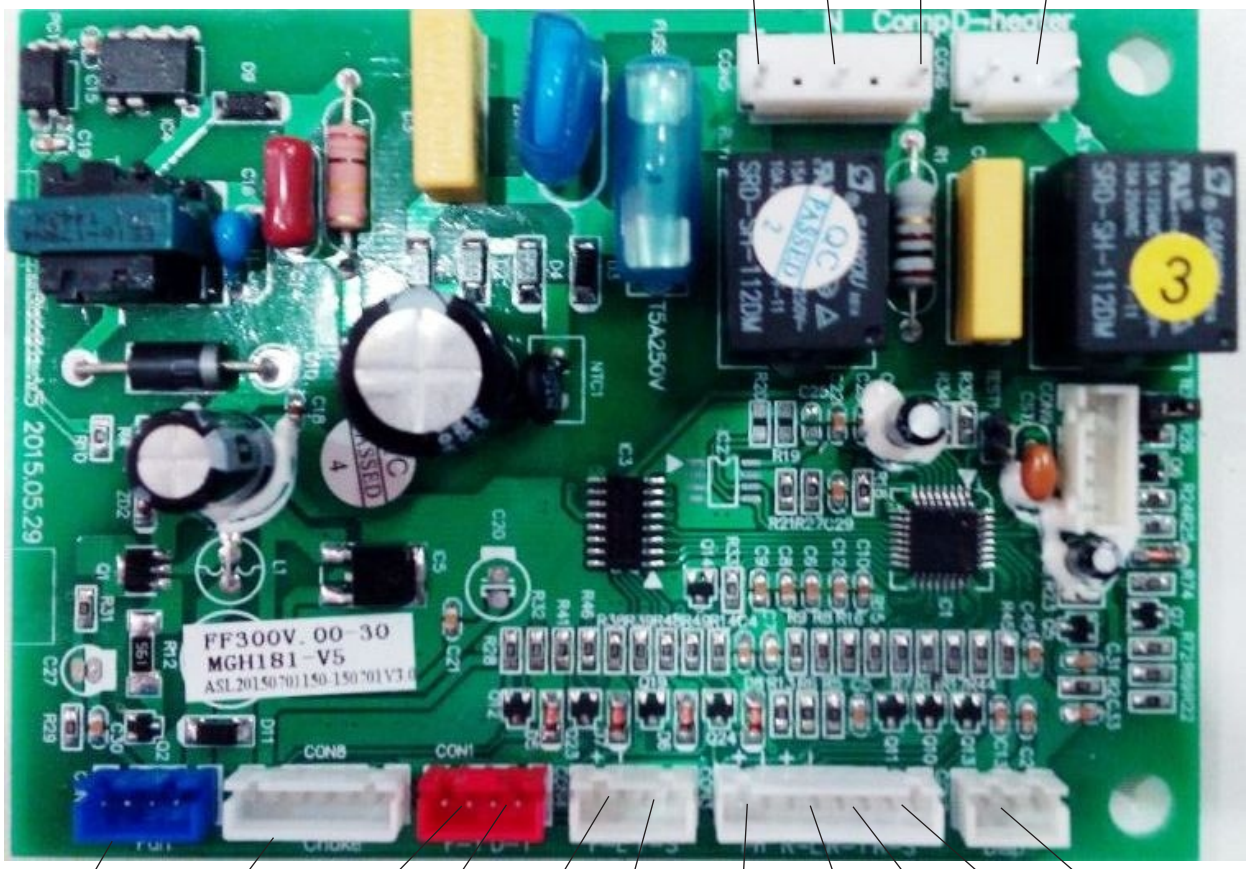


For Ref Compartment

In this mode you can select between 6 different preset cooling level (which appear in the form of a bar graph from 1 to 6)
Using Bottom to UP arrow keys . The LCD screen will display "Min" for 1st and 2nd levels. "Normal" for level 3 &4 "Max" for 5 and 6 . The default cooling level is level 4 which is Normal mode,
The Freezer and Refrigerator temperature is based on the amount of food stored as well as climate condition
Refer the following recommended setting for best usage



PCB DETAILS

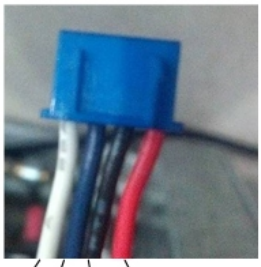

Live
Neutral
Compressor Control
Defrost Heater Control
FF300V.00-30
MGH181-V5
15A250V
CON8
CON1
Fan Control
Damper
Freezer Sensor
Defrost Sensor
Freezer Lamp
Freezer Switch
Photosynthatic Light
Ref Lamp
Ref Sensor
Ref Switch
Display

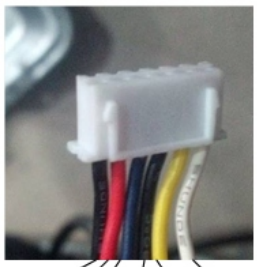
CONNECTOR'S WIRE COLOR SEQUENCE

CON7 & CON8 (Refer Wiring Diagram)

Fan Motor Control

Damper Control

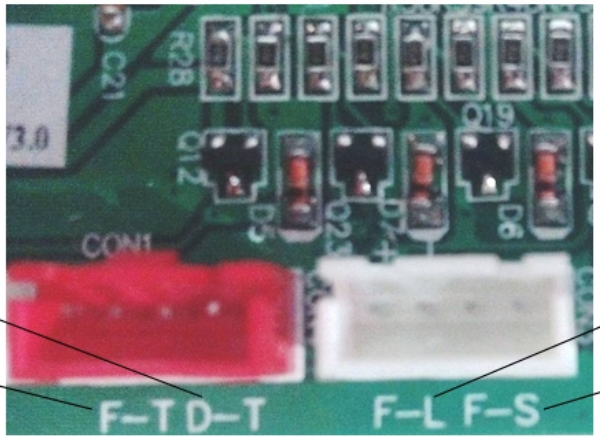




White Blue Black Red

Black Red Blue Black Yellow White

CON1 & CON4 (REFER WIRING DIAGRAM)

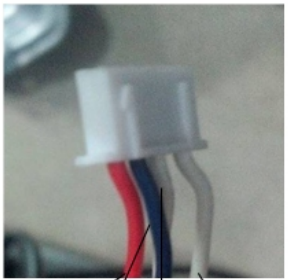


Defrost Temperature Sensor

Freezer Temperature Sensor

Freezer Lamp

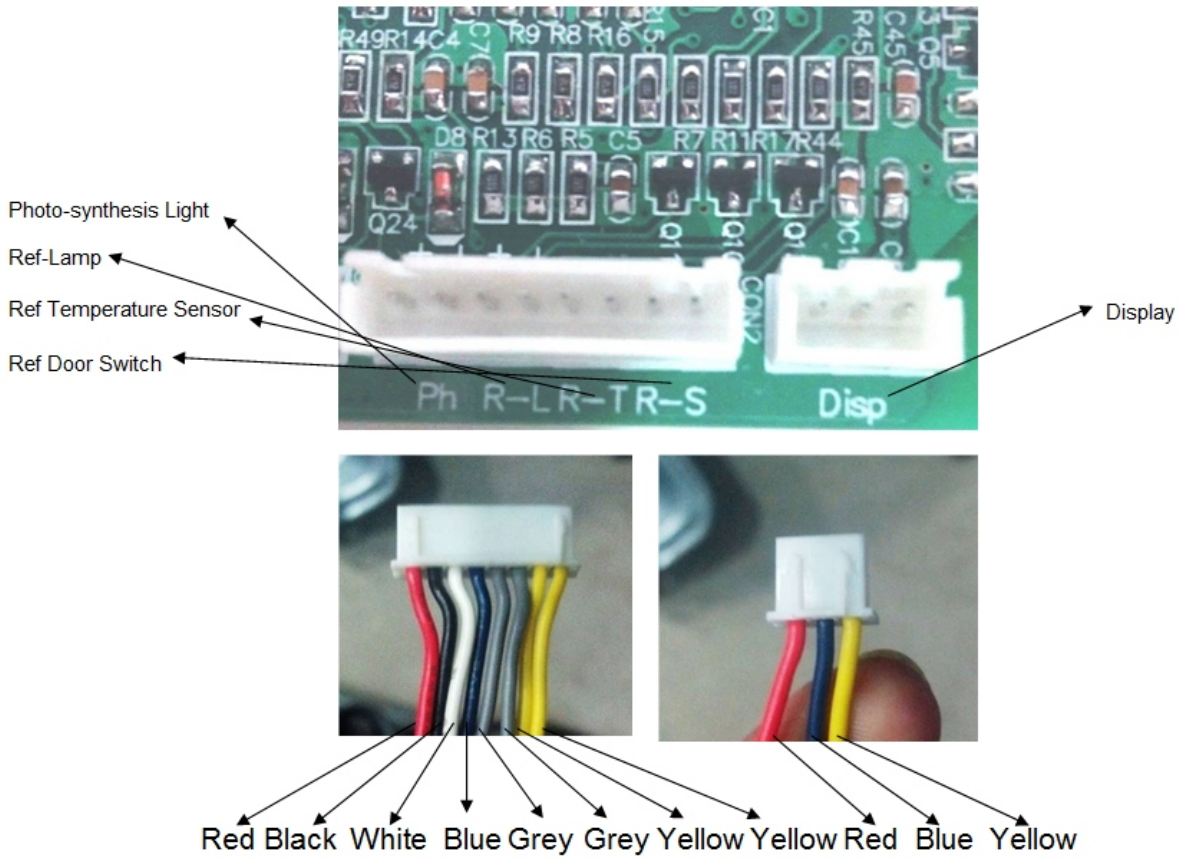
Freezer Door Switch



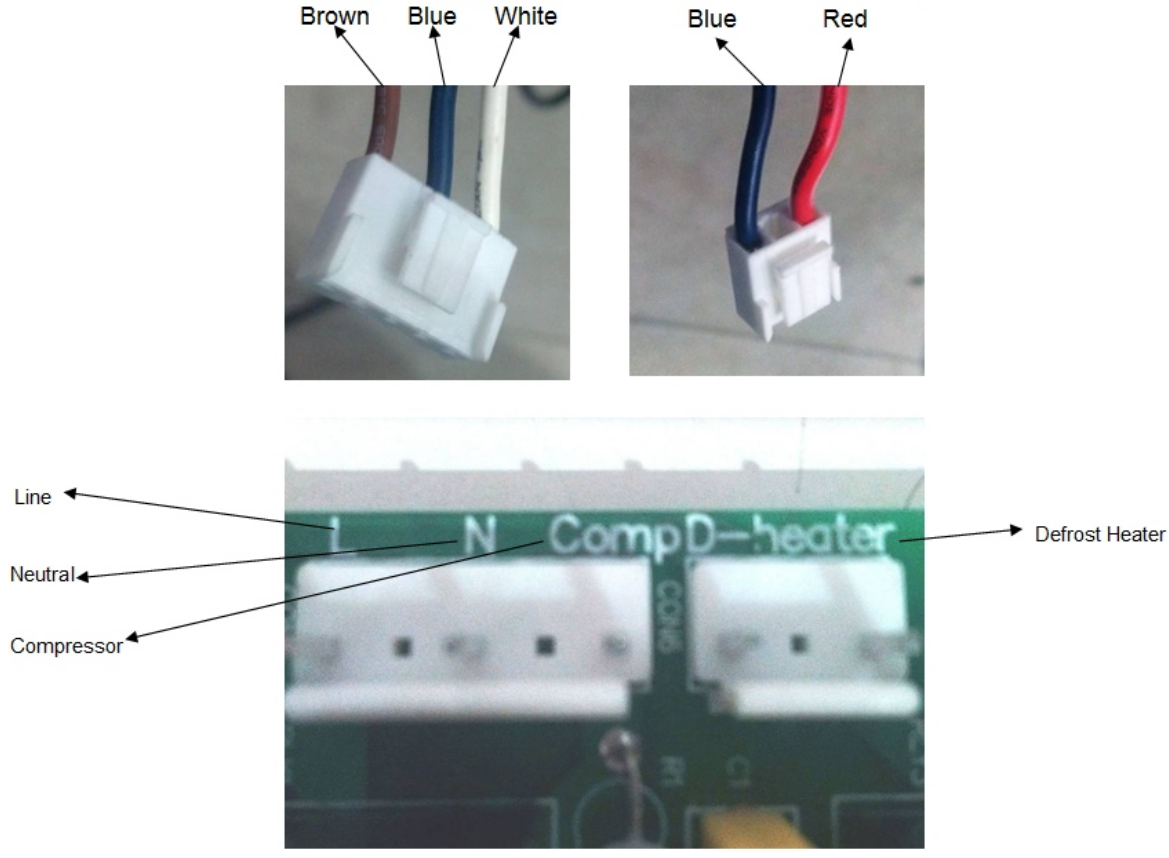
White White Black Black

Red Blue White White

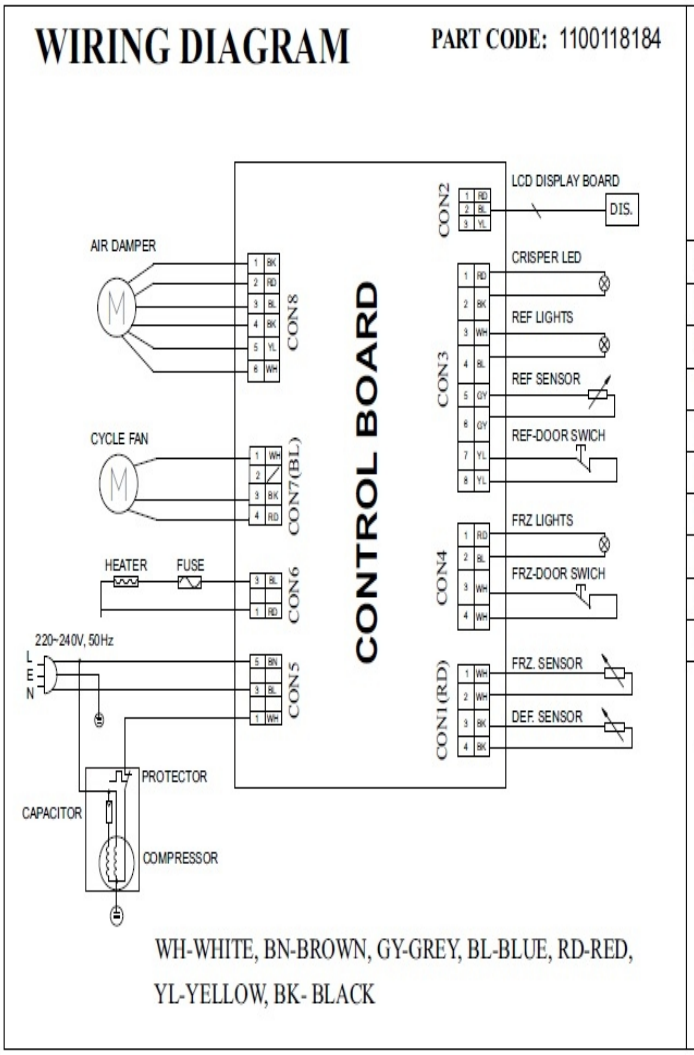
CON3 & CON2 (REFER WIRING DIAGRAM)



CON5 & CON6 (REFER WIRING DIAGRAM)



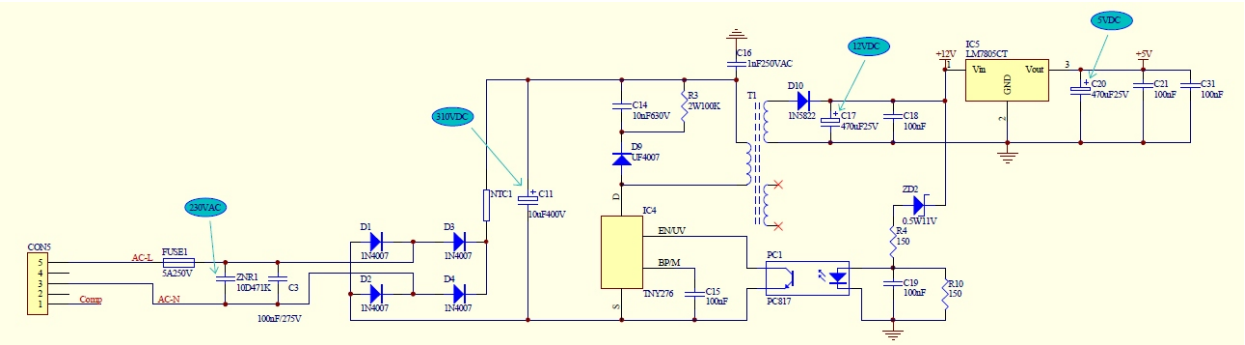
PCB DETAILS



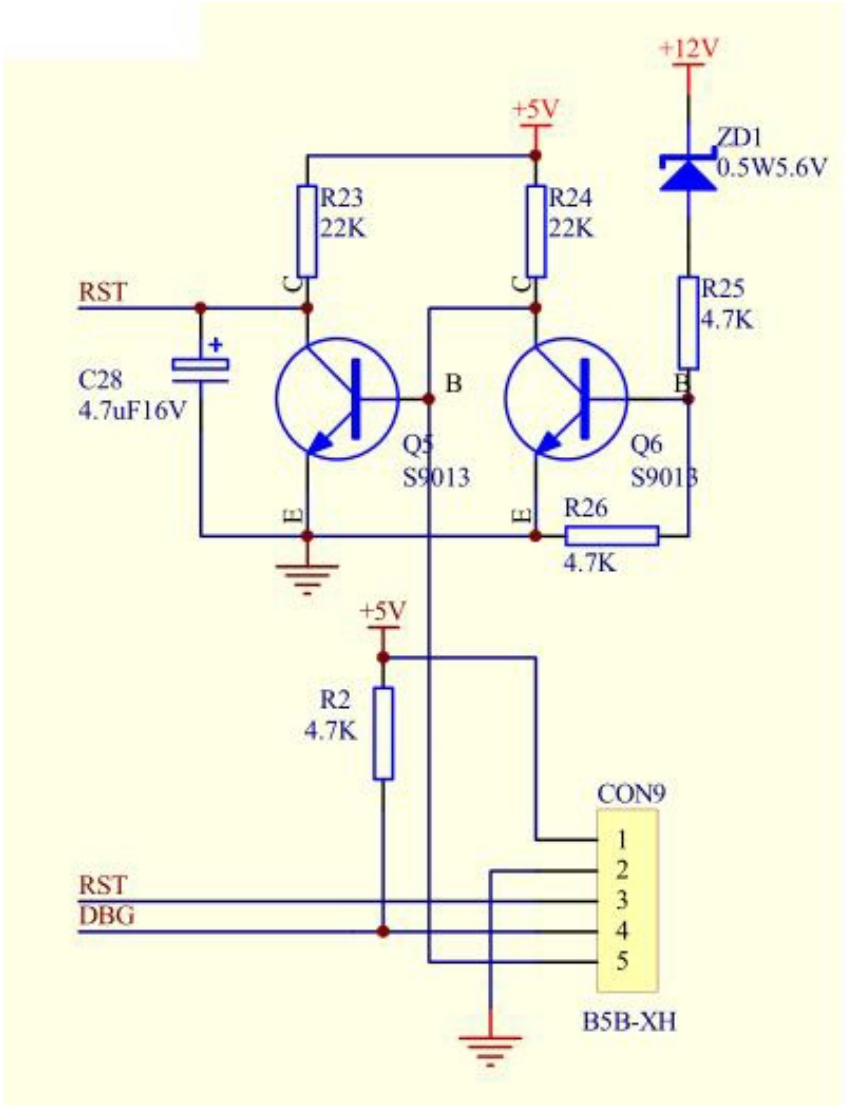
VIDEOCON

MODELS RANGE	VZ34	VZ29	VZ26
GROSS CAPACITY	330L	280L	250L
NET WEIGHT	68 Kg	63 Kg	59 Kg
POWER SOURCE	220V / 50Hz	220V / 50Hz	220V / 50Hz
RATED CURRENT INPUT	0.55 A	0.5 A	0.5 A
RATED POWER INPUT	90 W	85 W	85 W
DEFROSTING INPUT	170 W	170 W	170 W
REFRIGERANT (R600a)	66g	66g	66g
CLIMATE CLASS	T	T	T
BLOWING AGENT	CYCLOPENTANE		

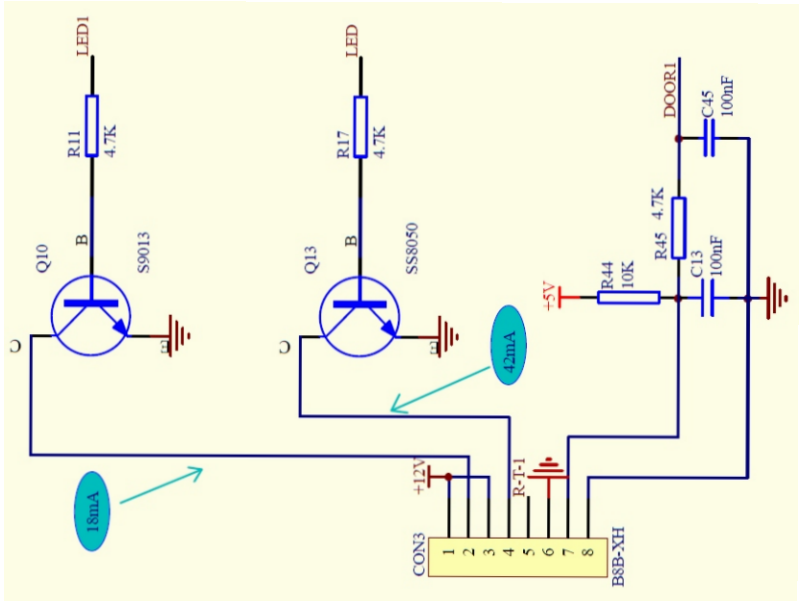
WARNING: DO NOT USE REFRIGERATOR WITHOUT PROPER EARTHING



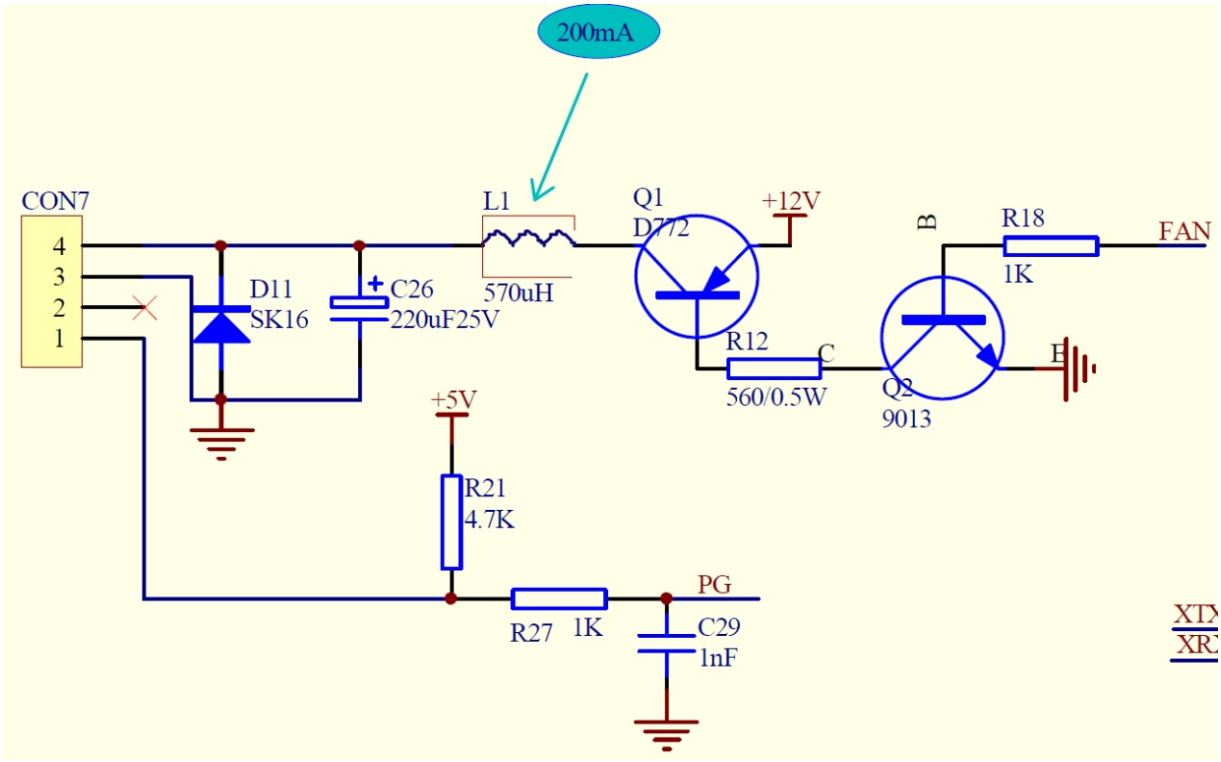
SWITCHING POWER SUPPLY CIRCUIT



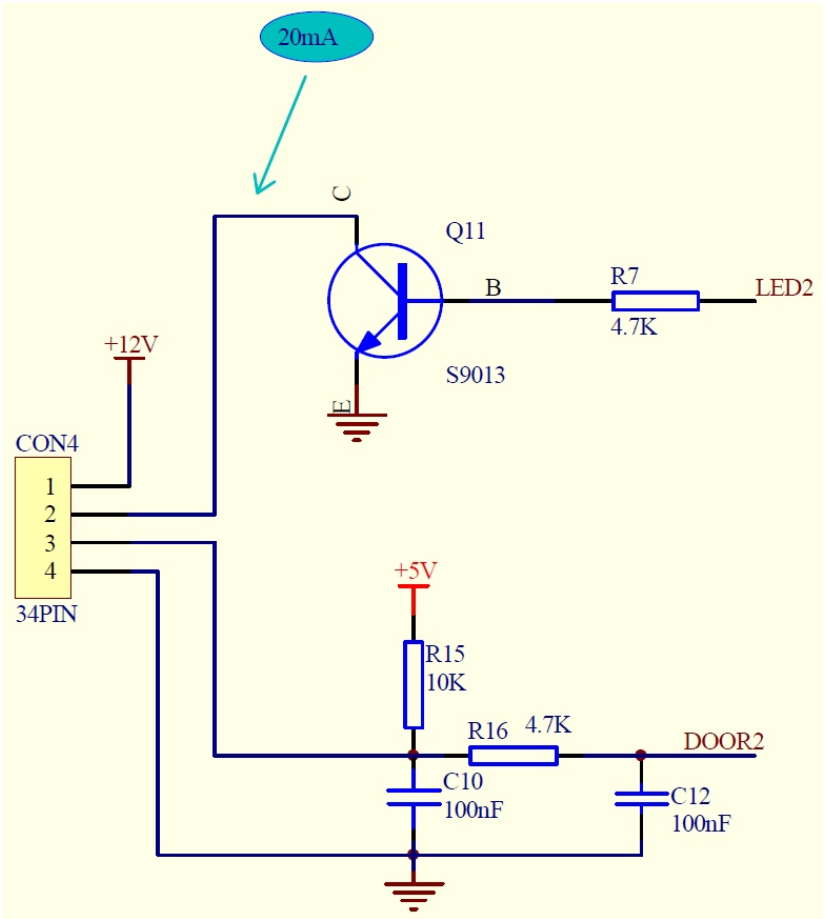
RESET CIRCUIT



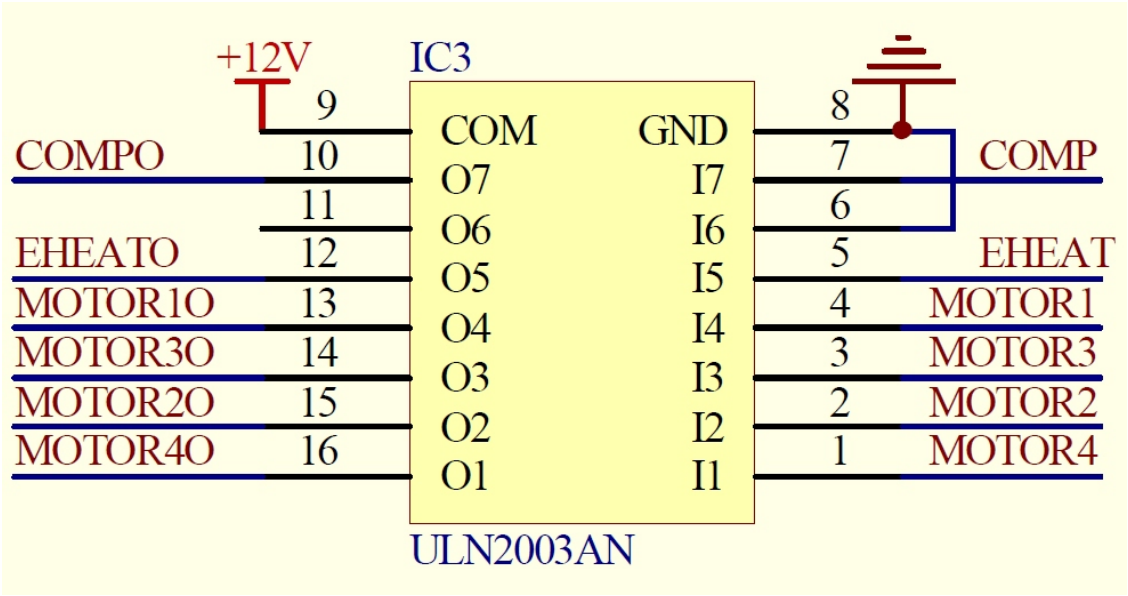
DOOR SWITCH CONTROL CIRCUIT



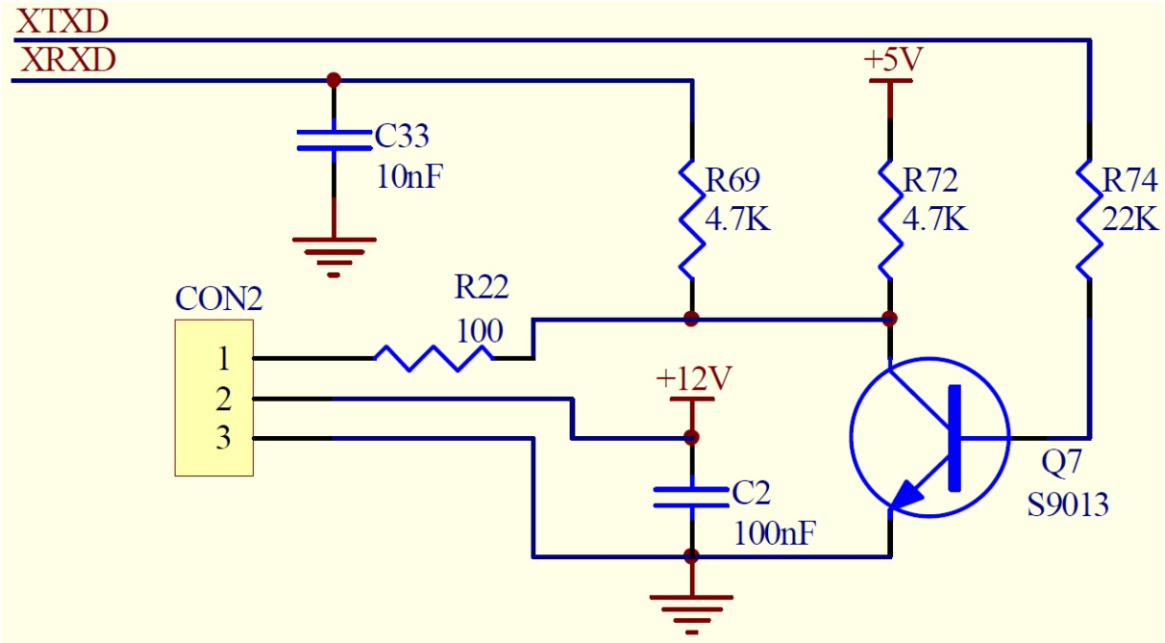
FAN CONTROL CIRCUIT



LIGHTING CIRCUIT

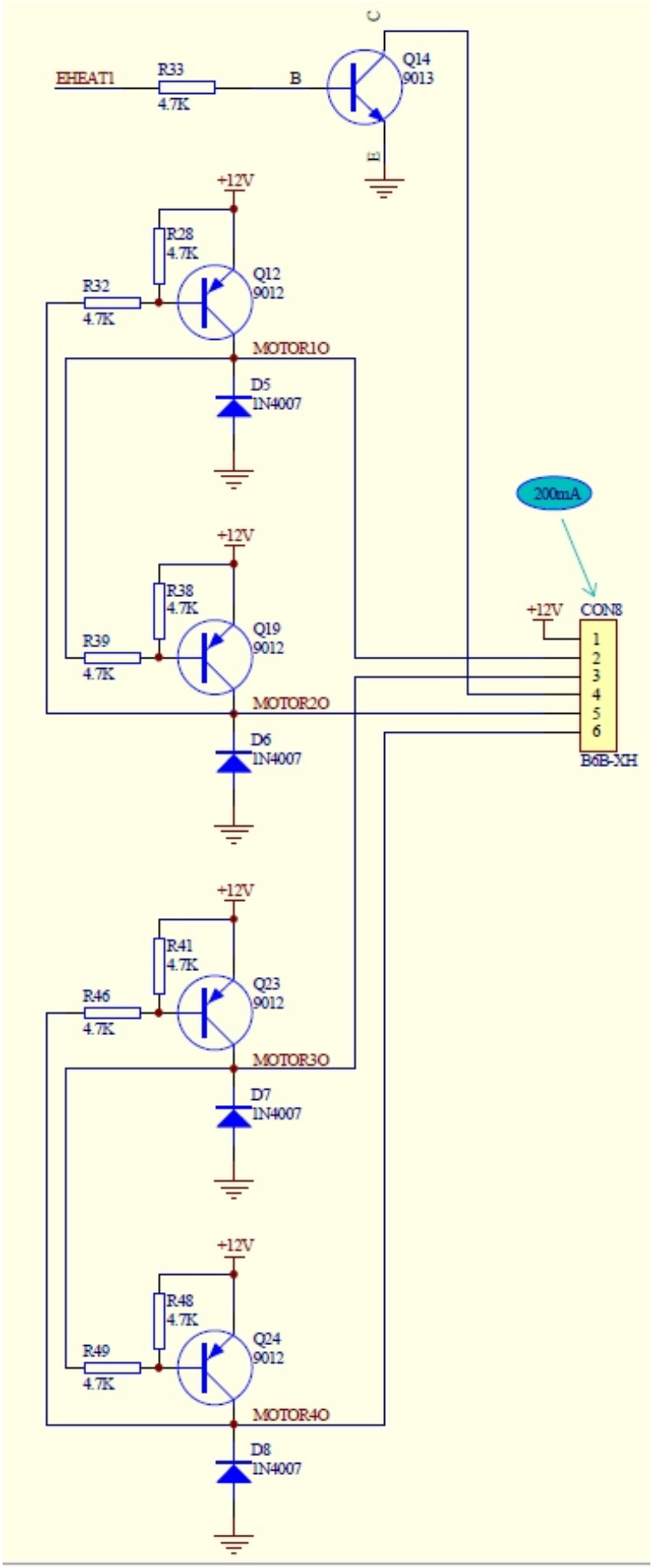


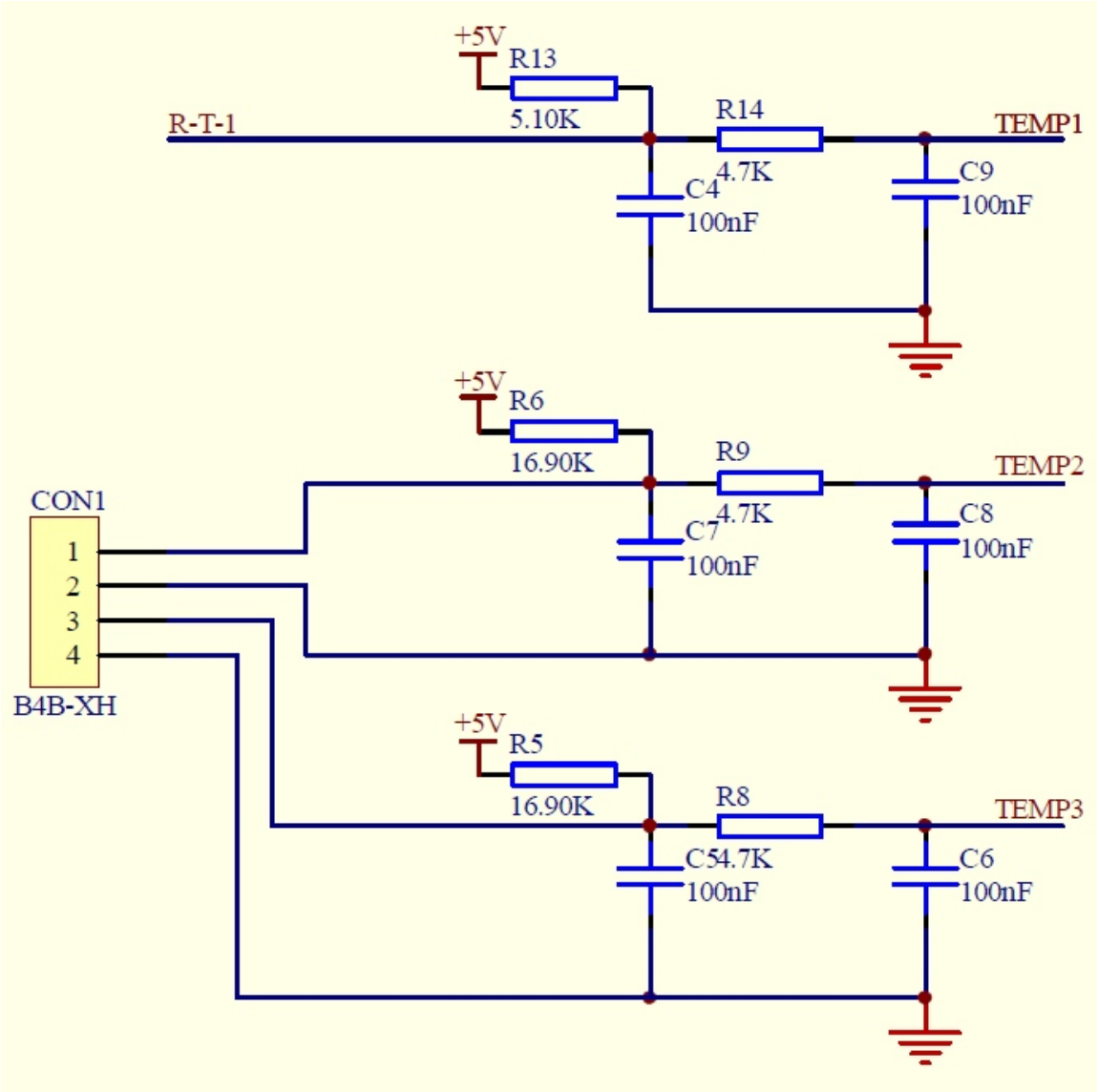
DAMPER CONTROL CIRCUIT



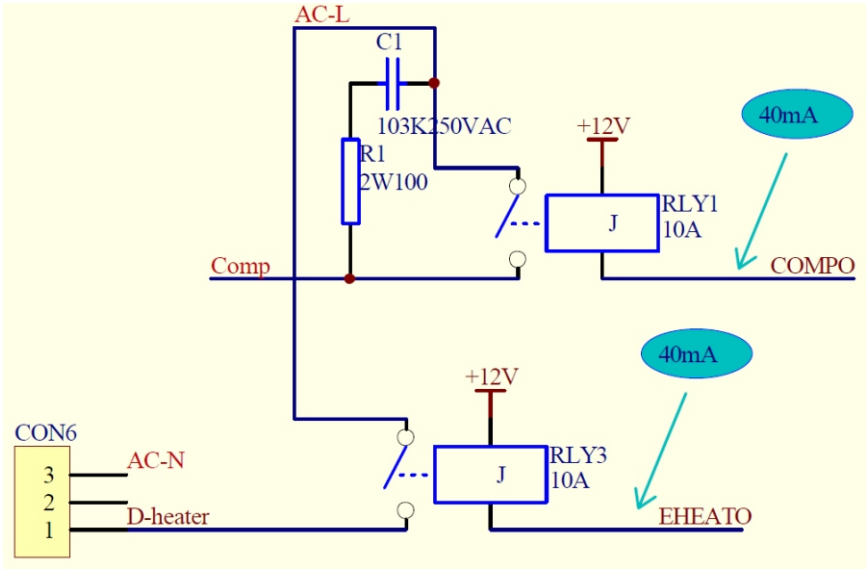
COMMUNICATION CIRCUIT

PCB DETAILS


EHEAT1
R33
4.7K
B
Q14
9013
C
E
+12V
R28
4.7K
R32
4.7K
Q12
9012
MOTOR1O
D5
1N4007
200mA
+12V
CON8
1
2
3
4
5
6
B6B-XH
R38
4.7K
R39
4.7K
Q19
9012
MOTOR2O
D6
1N4007
R41
4.7K
R46
4.7K
Q23
9012
MOTOR3O
D7
1N4007
R48
4.7K
R49
4.7K
Q24
9012
MOTOR4O
D8
1N4007

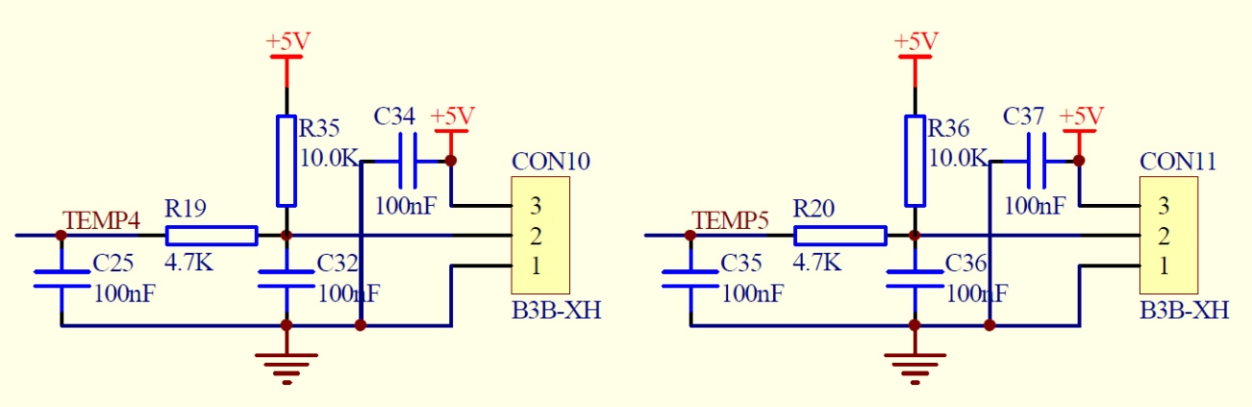


TEMPERATURE CONTROL CIRCUIT



LOAD OUTPUT CIRCUIT

PCB DETAILS



KNOB CONTROL CIRCUIT

RESISTANCE CHARACTERISTICS TABLE OF SENSORS

MEASURED TEMPERATURE	RESISTANCE	
	REFRIGERATOR SENSOR	FREEZER SENSOR,DEFROSTING SENSOR
-40℃	64.069KΩ	63.497KΩ
-35℃	46.732 KΩ	46.315KΩ
-30℃	34.387KΩ	34.080KΩ
-25℃	25.522KΩ	25.294KΩ
-20℃	19.103KΩ	18.932KΩ
-15℃	14.417KΩ	14.288KΩ
-10℃	10.968KΩ	10.870KΩ
-5℃	8.410KΩ	8.335KΩ
0℃	6.499KΩ	6.441KΩ
+5℃	5.060KΩ	5.015KΩ
+10℃	3.969KΩ	3.933KΩ
+15℃	3.135KΩ	3.107KΩ
+20℃	2.494KΩ	2.471KΩ
+25℃	1.997KΩ	1.979KΩ
+30℃	1.610KΩ	1.596KΩ
+35℃	1.306KΩ	1.295KΩ
+40℃	1.067KΩ	1.057KΩ
+45℃	0.876KΩ	0.868KΩ
+50℃	0.724KΩ	0.717KΩ

- The tolerance of sensor resistance is ±2%.
- Be sure to measure the sensor resistance after keeping the sensor more than 3 minutes at a measuring temperature. (It needs delay due to sensor speed.)
- Measure the resistance of the sensors with a digital tester after disconnecting CON1 and CON3 of main PCB.