

DAEWOO

Service Manual

Split System Air Conditioner

Model: DSB-090L/DSB-120L
DSA-100L/DSA-120L



DAEWOO ELECTRONICS CO., LTD.

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1. SPECIFICATIONS

i DSB-090L

| ITEM | | MODEL | DSB-090L | |
|------------------------|---------------------|--------------------|--------------------|--------------------|
| Function | | Cooling | | |
| Class | | T | | |
| Power | | AC 220-240V / 50Hz | | |
| Capacity | | W | 2,770 | |
| | | Btu/h | 9,500 | |
| Dehumidification | | l/h | 2.1 | |
| Electrical Data | Running Current | A | 4.5A | |
| | Power Input | W | 950W | |
| | Starting Current | A | 24A | |
| Compressor | Type | | Rotary | |
| | Model | | RCB 090A001 | |
| | Capacitor | | 25 μ F/400VAC | |
| Fan | Division | | Indoor Unit | Outdoor Unit |
| | Type | | Cross flow fan | Propeller fan |
| | Capacitor | | 1.0 μ F 400VAC | 1.8 μ F 400VAC |
| | Motor Model Number | | IC-8428DWKG7A | IC-9630DWLC5A |
| Refrigerant (R-22) | Control | | Capillary | |
| | Charge Q'ty | g | 1,170 | |
| Connection | Type | | Flare | |
| | OD (Liquid/Suction) | in(mm) | 1/4 (6.35) | 1/2 (12.7) |
| Dimensions (W x H x D) | | mm | 925 x 285 x 194 | 666 x 552 x 264 |
| Net Weight | | kg | 9.7 | 34 |

i DSB-120L

| ITEM | | MODEL | DSB-120L | |
|------------------------|---------------------|--------|---------------------|--------------------|
| Function | | | Cooling | |
| Class | | | T | |
| Power | | | AC 220-240V / 50Hz | |
| Capacity | | W | 3,507 | |
| | | Btu/h | 12,000 | |
| Dehumidification | | l/h | 2.1 | |
| Electrical Data | Running Current | A | 5.7A | |
| | Power Input | W | 1,250A | |
| | Starting Current | A | 34A | |
| Compressor | Type | | Rotary | |
| | Model | | RCB 120A001 | |
| | Capacitor | | 25 μ F / 400VAC | |
| Fan | Division | | Indoor Unit | Outdoor Unit |
| | Type | | Cross flow fan | Propeller fan |
| | Capacitor | | 1.0 μ F 400VAC | 3.5 μ F 400VAC |
| | Motor Model Number | | IC-8428DWKG7A | IC-9430DWLC5A |
| Refrigerant (R-22) | Control | | Capillary | |
| | Charge Q'ty | g | 1,300 | |
| Connection | Type | | Flare | |
| | OD (Liquid/Suction) | in(mm) | 1/4 (6.35) | 1/2 (12.7) |
| Dimensions (W x H x D) | | mm | 925 x 285 x 194 | 666 x 552 x 264 |
| Net Weight | | kg | 9.7 | 34 |

i DSA-100L

| ITEM | | MODEL | DSA-100L | |
|------------------------|---------------------|--------|--------------------|--------------------|
| Function | | | Cooling | |
| Class | | | T | |
| Power | | | AC 208-230V / 60Hz | |
| Capacity | | W | 2,923 | |
| | | Btu/h | 10,000 | |
| Dehumidification | | l/h | 2.1 | |
| Electrical Data | Running Current | A | 5.1A | |
| | Power Input | W | 1,115W | |
| | Starting Current | A | 27A | |
| Compressor | Type | | Rotary | |
| | Model | | RCA 100A001 | |
| | Capacitor | | 25 μ F/400VAC | |
| Fan | Division | | Indoor Unit | Outdoor Unit |
| | Type | | Cross flow fan | Propeller fan |
| | Capacitor | | 1.0 μ F 400VAC | 1.8 μ F 400VAC |
| | Motor Model Number | | IC-8428DWKG7A | IC-9630DWLA6A |
| Refrigerant (R-22) | Control | | Capillary | |
| | Charge Q'ty | g | 1,150 | |
| Connection | Type | | Flare | |
| | OD (Liquid/Suction) | in(mm) | 1/4 (6.35) | 1/2 (12.7) |
| Dimensions (W x H x D) | | mm | 925 x 285 x 194 | 666 x 552 x 264 |
| Net Weight | | kg | 9.7 | 34 |

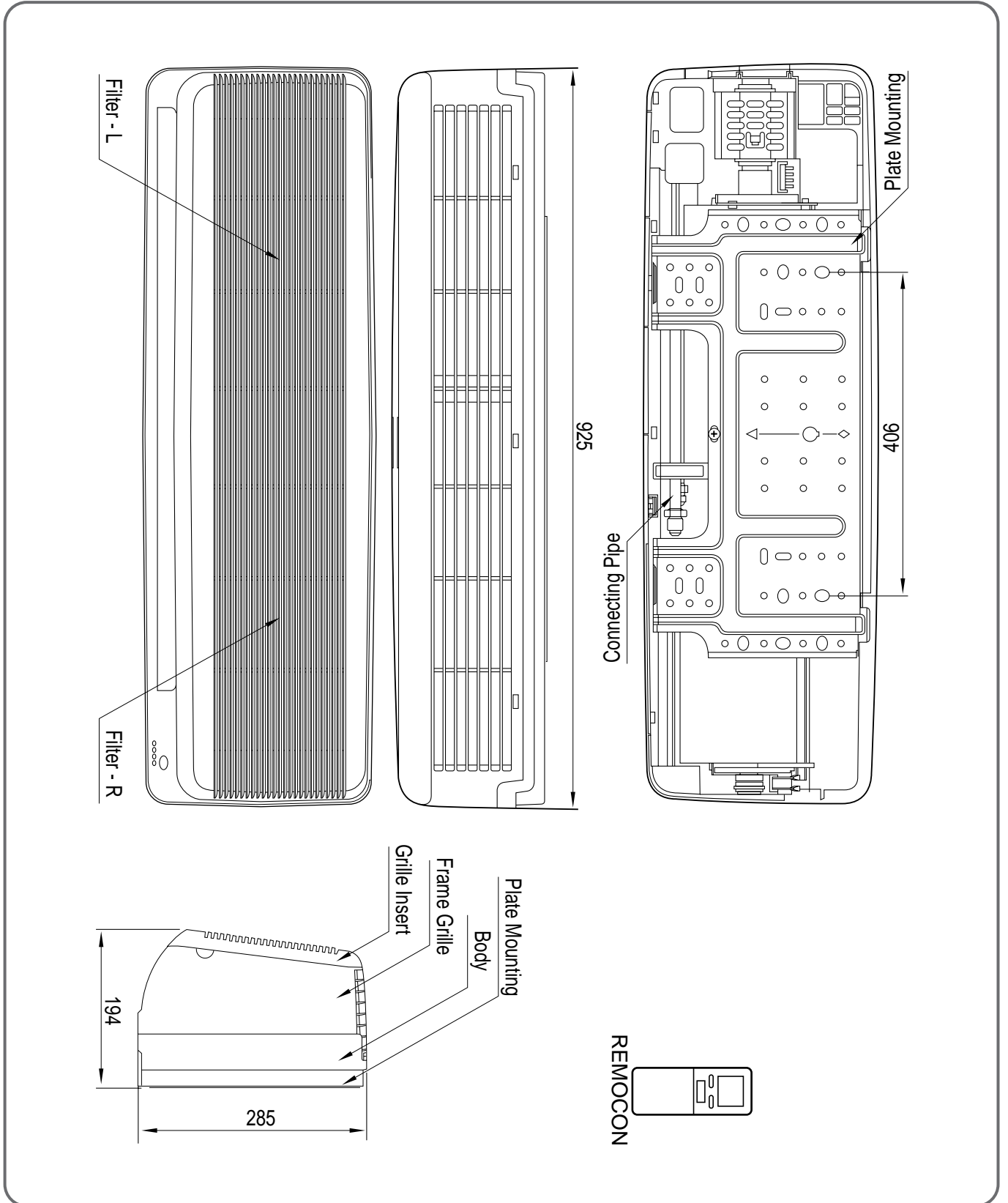
i DSA-120L

| ITEM | | MODEL | DSA-120L | |
|------------------------|---------------------|--------------------|---------------------|--------------------|
| Function | | Cooling | | |
| Class | | T | | |
| Power | | AC 208-230V / 60Hz | | |
| Capacity | | W | 3,507 | |
| | | Btu/h | 12,000 | |
| Dehumidification | | l/h | 2.1 | |
| Electrical Data | Running Current | A | 5.7A | |
| | Power Input | W | 1,250W | |
| | Starting Current | A | 34A | |
| Compressor | Type | | Rotary | |
| | Model | | RCA 120A001 | |
| | Capacitor | | 30 μ F / 400VAC | |
| Fan | Division | | Indoor Unit | Outdoor Unit |
| | Type | | Cross flow fan | Propeller fan |
| | Capacitor | | 1.0 μ F 400VAC | 2.0 μ F 400VAC |
| | Motor Model Number | | IC-8428DWKG7A | IC-9630DWLA6A |
| Refrigerant (R-22) | Control | | Capillary | |
| | Charge Q'ty | g | 1,200 | |
| Connection | Type | | Flare | |
| | OD (Liquid/Suction) | in(mm) | 1/4 (6.35) | 1/2 (12.7) |
| Dimensions (W x H x D) | | mm | 925 x 285 x 194 | 666 x 552 x 264 |
| Net Weight | | kg | 9.7 | 34 |

2. OUTLINE AND DIMENSIONS

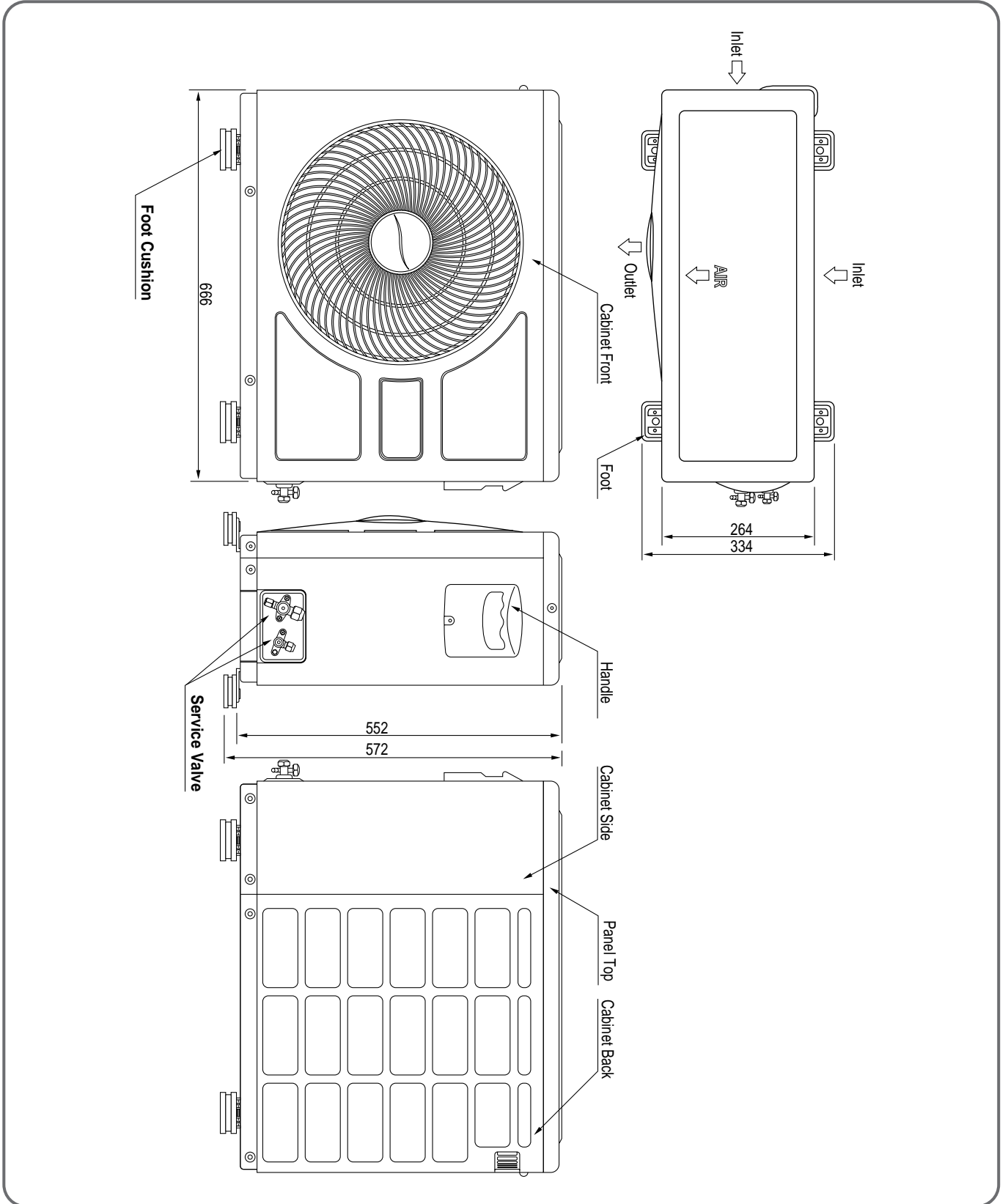
1 INDOOR UNIT

i DSB-090L/DSB-120L/DSA-100L/DSA-120L



2 OUTDOOR UNIT

i DSB-090L/DSB-120L/DSA-100L/DSA-120L

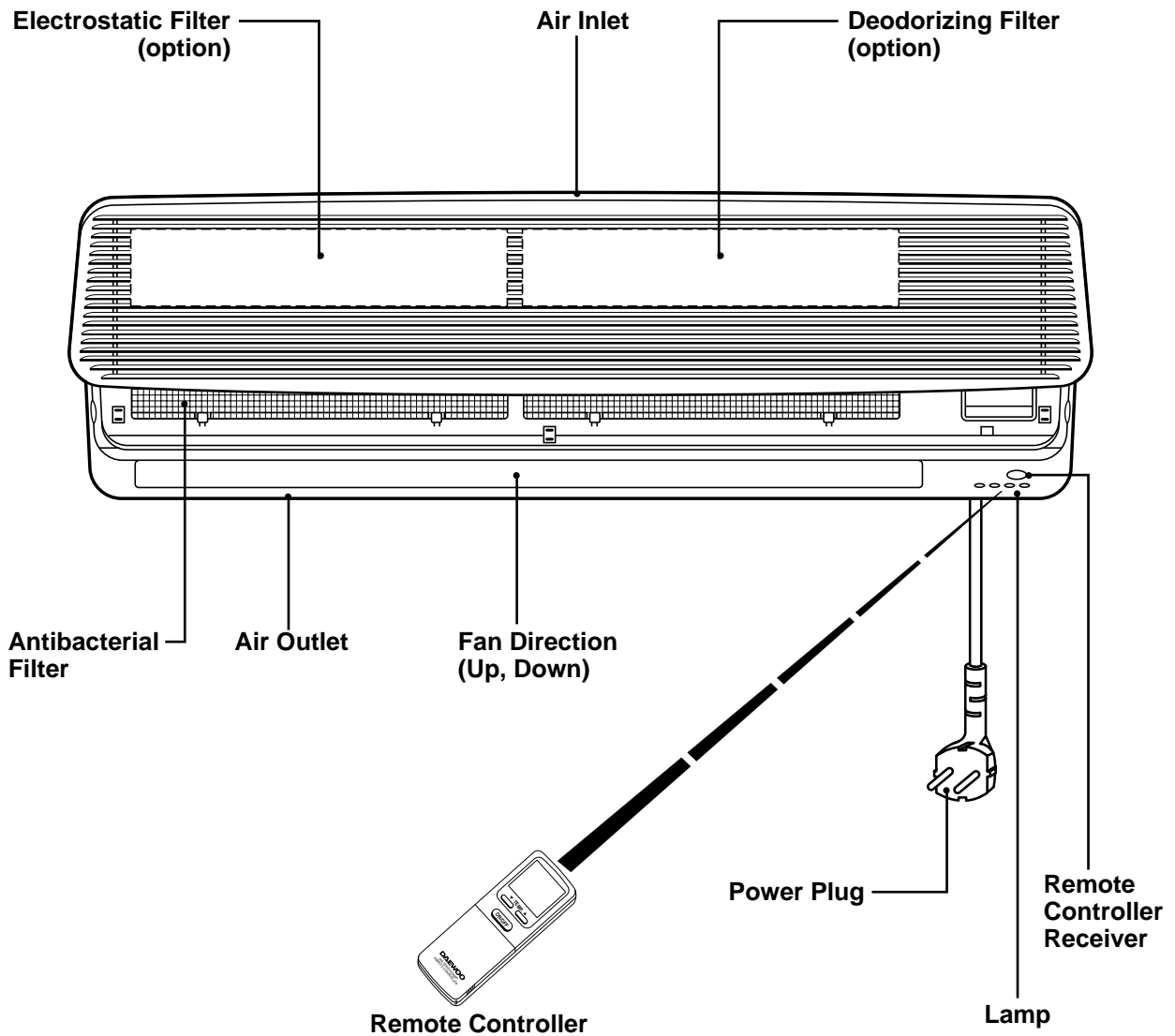


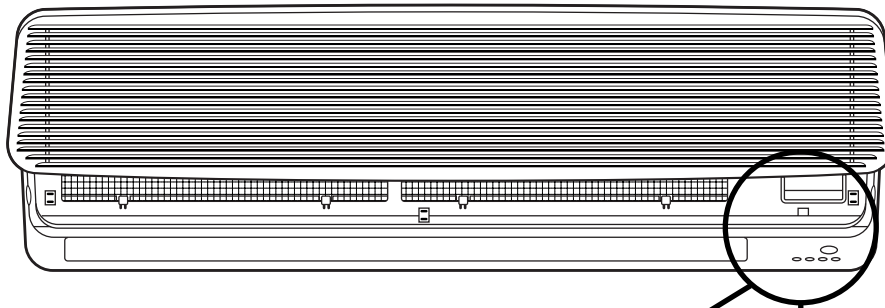
3. OPERATION

1 PARTS OF NAME AND FUNCTION

i DSB-090L/DSB-120L/DSA-100L/DSA-120L

Indoor Unit

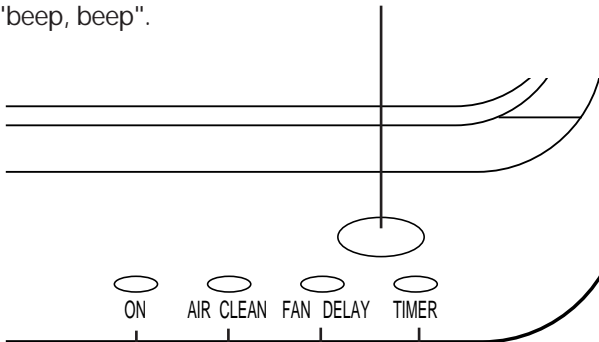




Indoor Unit Display

Remote Control Signal Receiver

This place is the part to receive the signal if it receive the signal, you can hear the signal "beep, beep".



ON (Red)

Lights when the operation is going on.

Air clean (Green)

Timer (Green)

Lights during the time reservation mode.

FAN DELAY (Green)

Lights during the time Fan delay mode

Switch Panel

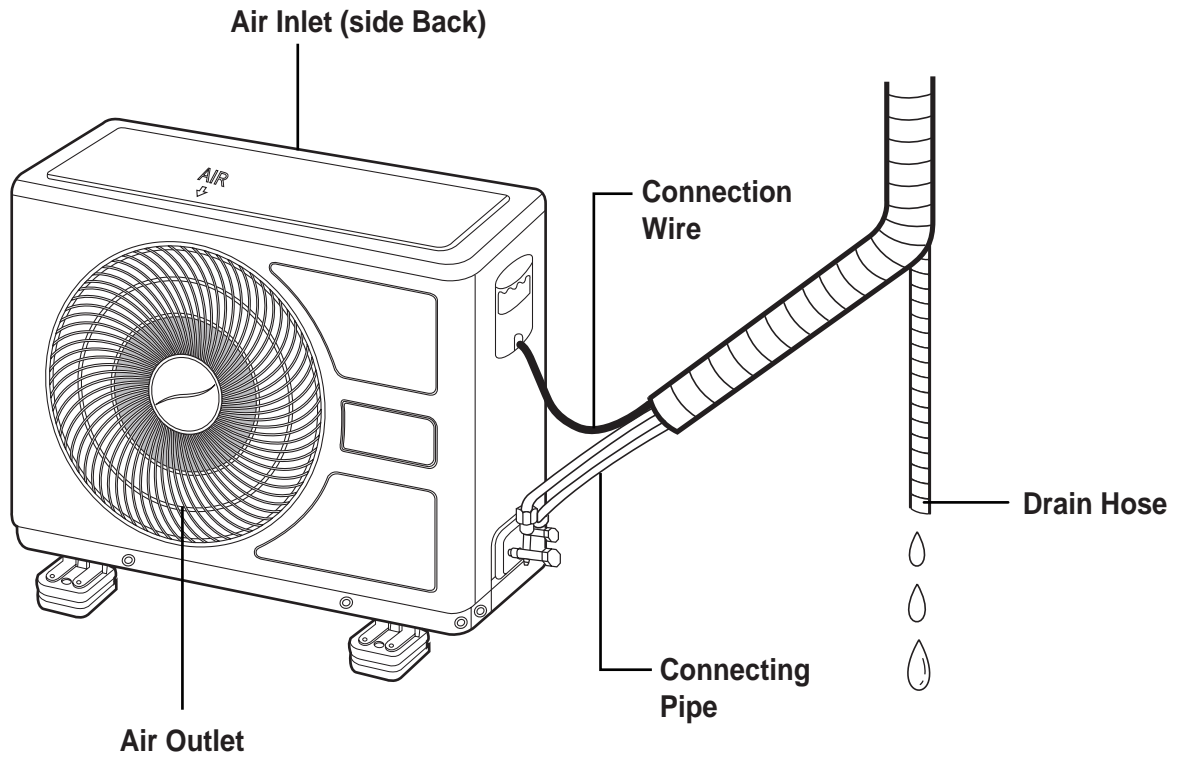
EMERGENCY REMOTE

§ There is a switch panel at inside of Front Panel. At the time of operating, open the Front Panel.

Emergency switch can be used when the remote controller is lost or testing.

Remote switch is usually used by Remote Controller.

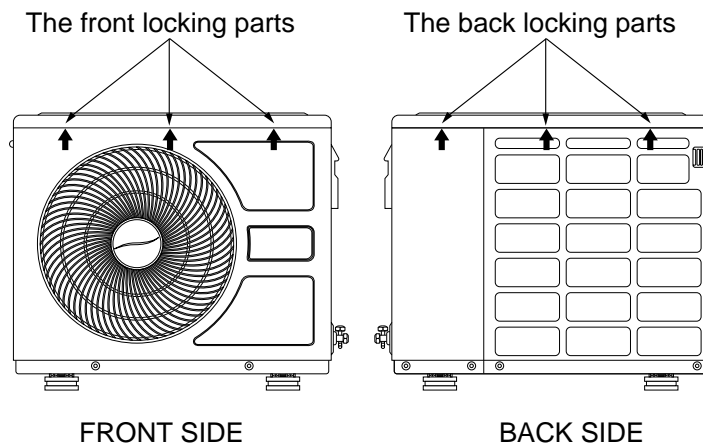
Outdoor Unit



NOTE:

How to remove Top Panel

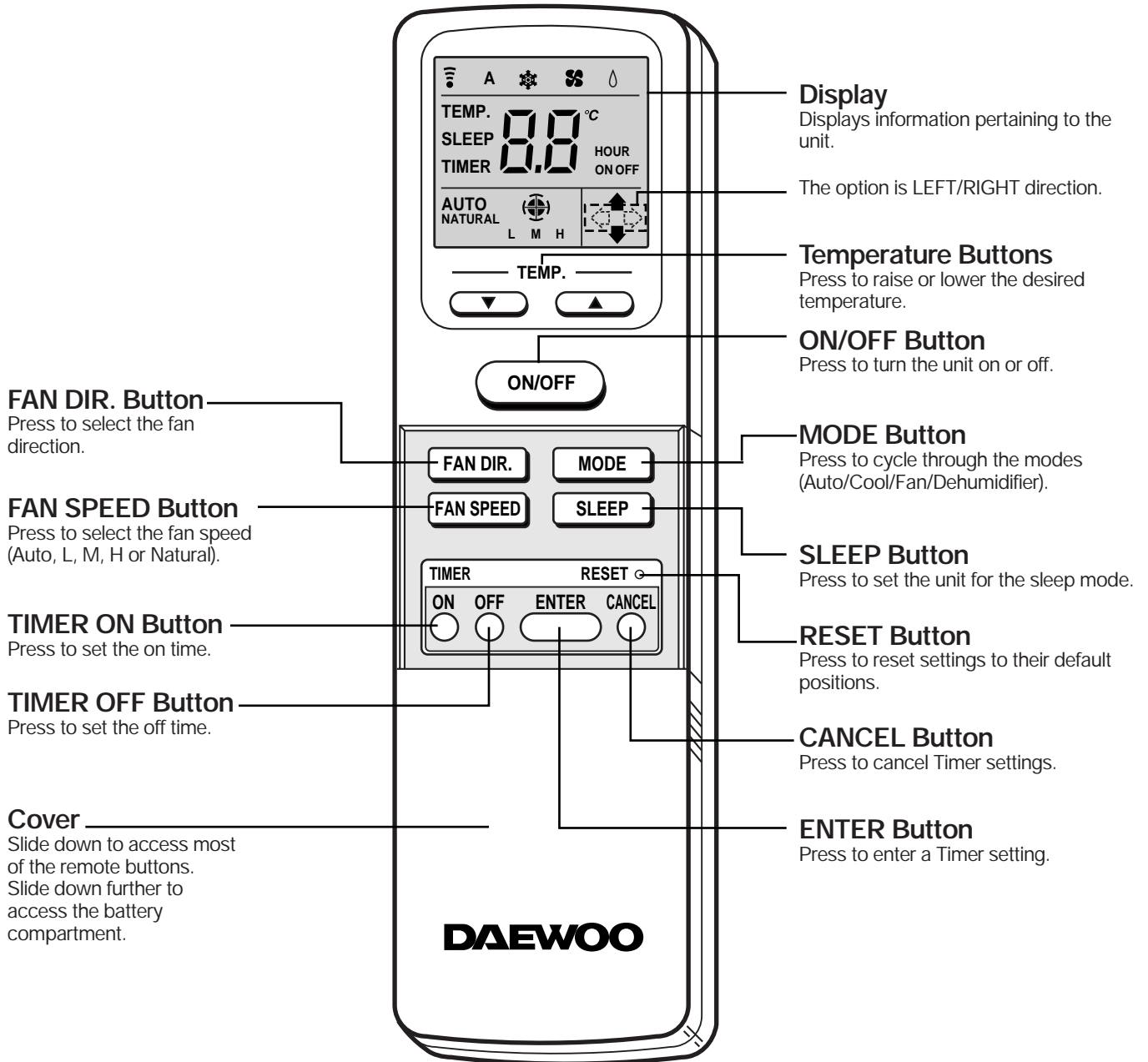
1. Loosen the screw at left and right side.
2. Push the three parts up Front and Back sides like figure orderly.
3. Unhook the locking parts of Top Panel.



2 REMOTE CONTROLLER

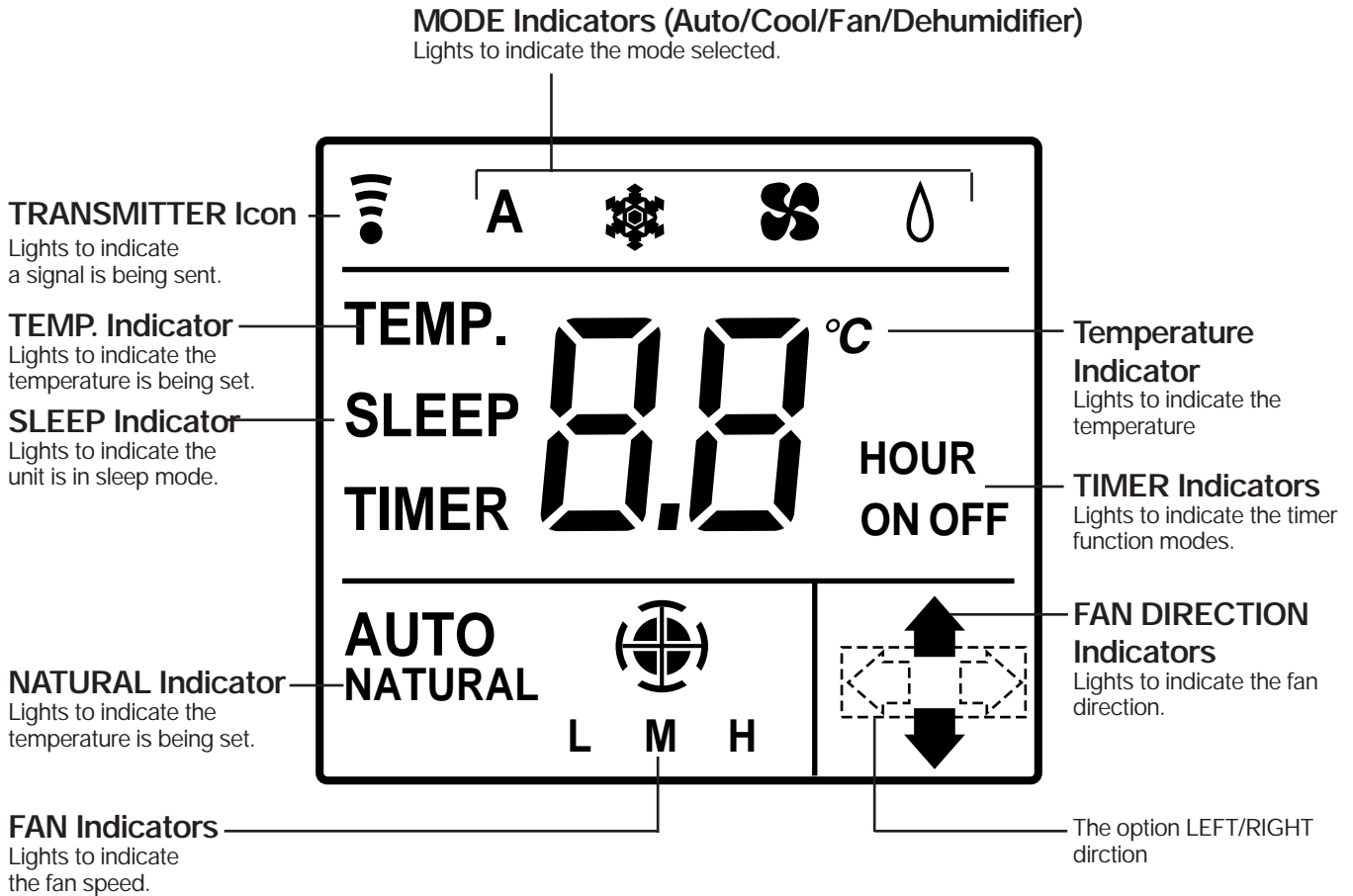
i DSB-090L/DSB-120L/DSA-100L/DSA-120L

Name of Each Button

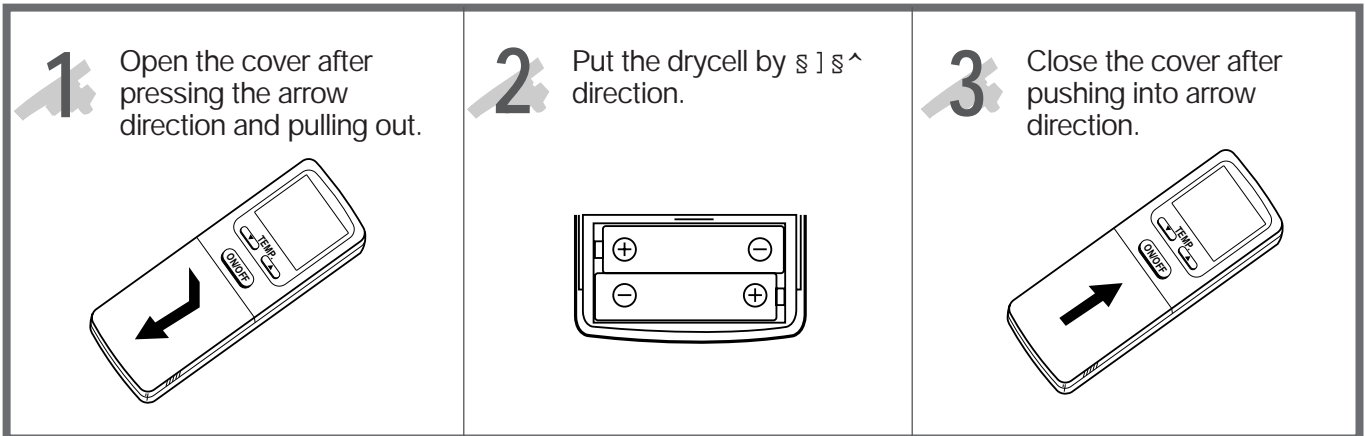


3 REMOTE CONTROLLER DISPLAY

i DSB-090L/DSB-120L/DSA-100L/DSA-120L



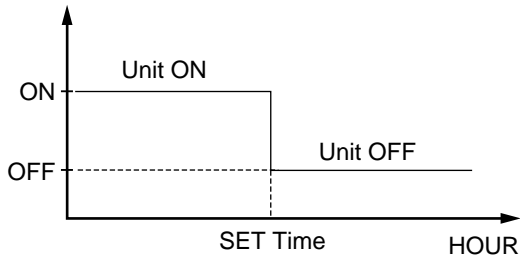
Replacing Batteries



4 DESCRIPTION OF FUNCTIONS

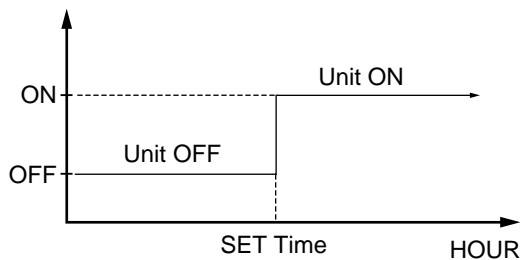
OFF-Timer

If you set time in OFF-Timer Mode, the unit will stop at the set time.



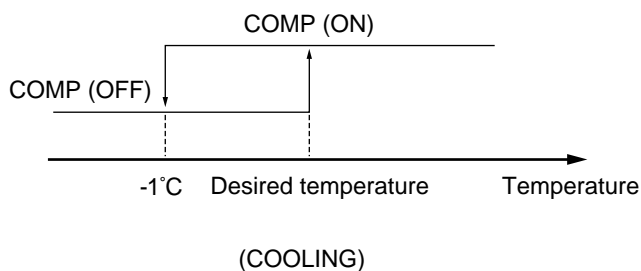
ON-Timer

If you set time in ON-Timer Mode, the unit will run at the set time.



Control of Room Temperature

- (1) Range of setting temperature: 18~32°C
- (2) Setting temperature: Operating temperature of compressor



- i (Room temperature < setting temperature
Compressor OFF
- (Room temperature > setting temperature
Compressor ON

Buzzer

If the Indoor Unit Display receive the signal of Remote Controller, you can hear the signal "beep -" or "beep, beep".

- (1) In the case of receiving ON/OFF signal- "beep""beep"
- (2) And so on- "beep"

Fan Speed (Indoor Unit)

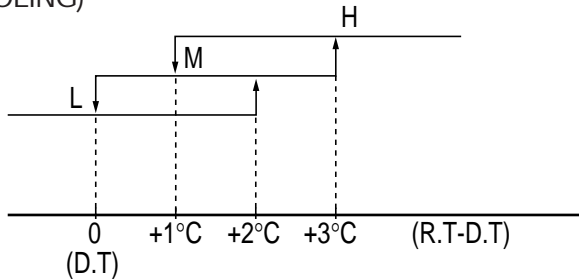
- (1) Motor speed (Super high speed, high speed, normal speed, low speed, ultra low speed).
- (2) Remote controller setting fan speed. (Auto, L, M, H, Natural)
- (3) Relation of operating mode between fan speed.

| | FAN ONLY | COOL | DEHUMI-DIFICATION | AUTO | AUTO II |
|------------|----------|---------|-------------------|---------|------------|
| Super high | X | X | X | X | Super high |
| H | H | H | X | H | X |
| M | M | M | X | M | X |
| L | L | L | X | L | X |
| Auto | X | Auto | Auto | Auto | X |
| Natural | Natural | Natural | X | Natural | X |

(4) Automatic Operation

If the unit is set in 'AUTO' mode, the unit operates automatically according to the room temperature to keep the room temperature comfortable.

(COOLING)

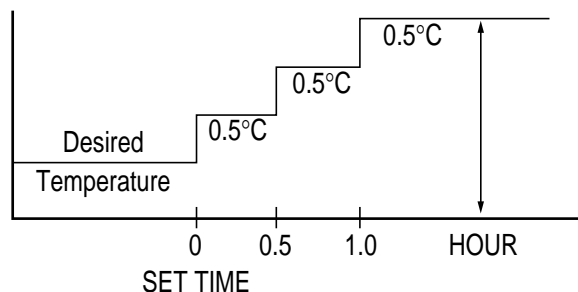


R.T=Room temperature
D.T=Desired temperature

Sleep Mode

- (1) When you are going to sleep, select sleep switch and the unit controls the room to the desired temperature. (The unit will not operate after 4 hour)
- (2) For changing the temperature.

Difference
desired temperature
between room
temperature (°C)



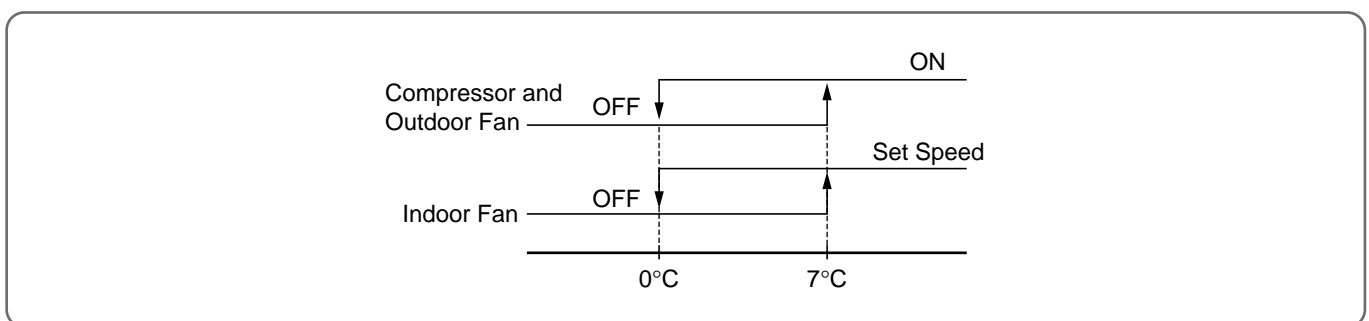
Emergency Operation

- (1) When the remote controller is lost, damaged or the battery is discharged, the Emergency operation can be used to run the unit.
- (2) The setting conditions of Emergency operation are as follows.
 - Operation mode: AUTO
 - Preset temperature: 26°C
 - Discharge Air Direction: SWING (up and down)
 - Fan speed: AUTO; You cannot operate with remote controller.

Frost Prevention of Indoor Unit

When the unit operates at low ambient temperature, frost may appear on the Evaporator. When the indoor coil temperature is lower than 0°C at the end of 10 minutes of continuous compressor operation from the start, the microcomputer of the unit stops the compressor to protect the unit from the frost. The control procedure for indoor coil freeze protection.

- 1) The compressor and outdoor fan turn off.
- 2) Indoor fan operates according to user set speed.
- 3) The normal operation returns when the indoor coil temperature is higher than 7°C or equal to 7°C.



(Indoor coil temperature)

3 min. Time Delay of Compressor

In normal operation, there is a time delay of three minutes between turn off and turning back on including initial power up.

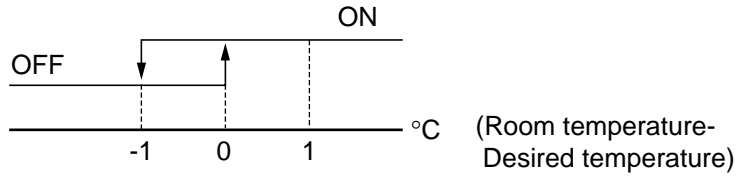
Indoor Fan Motor Starting

When indoor fan motor is on, it always starts at normal speed and then it operates desired speed.

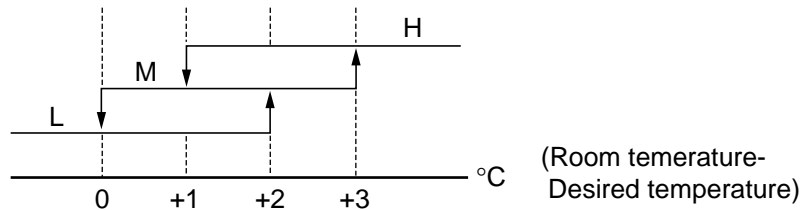
Auto Mode I

(1) When the room temperature is higher than 28 °C (Cooling Mode)

!Compressor and Indoor Fan



@ The fan will automatically operate as following Figure



Dehumidification Mode

!Desired temperature < Room temperature

Outdoor Fan, Compressor : ON

Indoor Fan : Low speed

@ Desired temperature ; ^ Room temperature

Compressor : 3 min/ON, 5 min/OFF

Indoor Fan : 3 min 30 second/ON, 4 min 30 second/OFF

Fan Speed : Ultra low speed

Room temperature ; ^ 18°C

Compressor : OFF

Indoor Fan : 1 min/ON, 7 min/OFF

Air Discharge Direction(only remocon operation)

The air discharge direction procedure is below.



Auto Mode II(Powerful Cooling)

!Fan Speed: Super high speed

@ Air discharge direction: Fixed

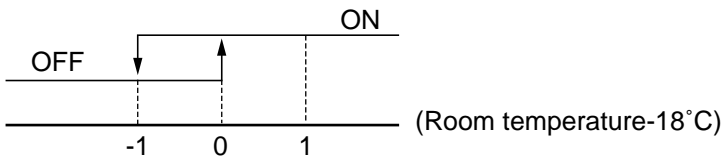
Set temperature: 18°C (Fixed)

\$ Compressor and Outdoor Fan

The air discharge direction procedure is below



fRThe option is LEFT/RIGHT direction.



Self-Diagnostic Function

The control will contain diagnostic test to verify the integrity of the system.

(1) Error Code Display Pattern

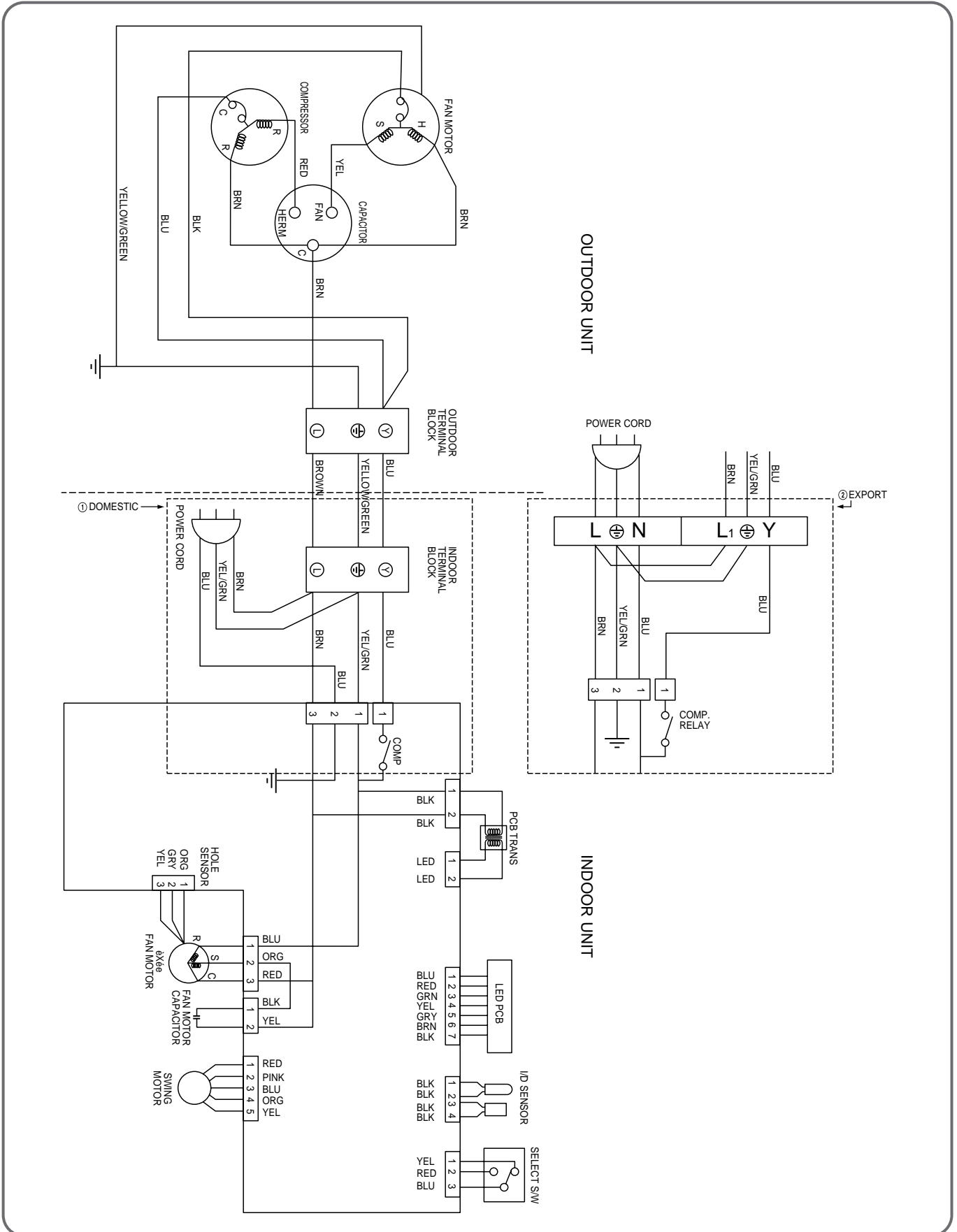
! ON LAMP: ON (Red) LED ON/OFF

@ Error Code

| ERROR CODE | DIDSPLAY PATTEN | ERROR CONTENTS |
|------------|-----------------|--|
| 1 | | Romm air thermistor, connector |
| 2 | | Indoor coil thermistor, connector |
| 3 | | Compressor, Electrical parts of comp. Gas leak |
| 4 | | Motor, Conector, P.C.B. |

4. WIRING DIAGRAM

i DSB-090L/DSB-120L/DSA-100L/DSA-120L



1 MAIN ELECTRIC PARTS

i DSB-090L

| | PART NAME | PART CODE | SPEC. | QUANTITY | REMARK |
|-----------------|---------------------|------------|------------------|----------|--------|
| Indoor Unit | Fan Motor | 3108001200 | IC-8428DWKG7A | 1 | |
| | Fan Motor Capacitor | 3106900300 | 1.0uF 400VAC | 1 | |
| | Fuse | 5FVLB3152L | 250V 3.15A | 1 | |
| | Transformer | 5EPV050100 | 220V/18V | 1 | |
| | Stepping Motor | 3108000100 | MP28GA (L=400mm) | 1 | |
| | Terminal Block | 3108901120 | 323-HDS106 | 1 | |
| Outdoor Unit | Compressor | 3100030FE0 | RCB090A001 | 1 | |
| | Fan Motor | 3108001300 | IC-9630DWLC5A | 1 | |
| | Dual Capacitor | 3109501201 | 1.8+25μF 400VAC | 1 | |
| | Terminal Block | 3108900900 | 323-HDS103 | 1 | |

i DSB-120L

| | PART NAME | PART CODE | SPEC. | QUANTITY | REMARK |
|-----------------|---------------------|------------|------------------|----------|--------|
| Indoor Unit | Fan Motor | 3108001200 | IC-8428DWKG7A | 1 | |
| | Fan Motor Capacitor | 3106900300 | 1.0uF 400VAC | 1 | |
| | Fuse | 5FVLB3152L | 250V 3.15A | 1 | |
| | Transformer | 5EPV050100 | 220V/18V | 1 | |
| | Stepping Motor | 3108000100 | MP28GA (L=400mm) | 1 | |
| | Terminal Block | 3108901120 | 323-HDS106 | 1 | |
| Outdoor Unit | Compressor | 3100030CE0 | RCB120A001 | 1 | |
| | Fan Motor | 3108000800 | IC-9430DWLC5A | 1 | |
| | Dual Capacitor | 3109500701 | 3.5+25μF 400VAC | 1 | |
| | Terminal Block | 3108900900 | 323-HDS103 | 1 | |

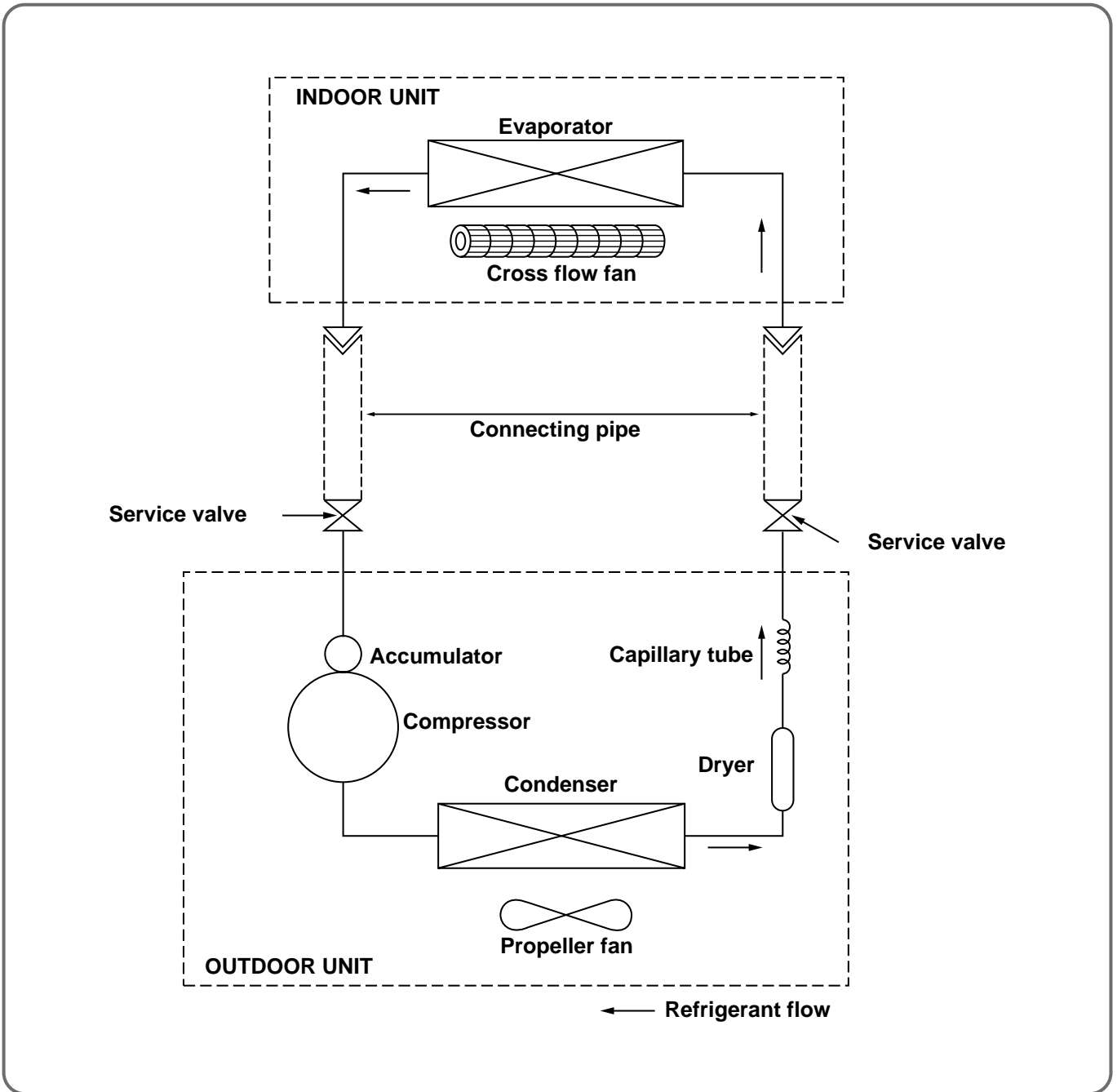
i **DSA-100L**

| | PART NAME | PART CODE | SPEC. | QUANTITY | REMARK |
|---------------------|---------------------|------------|------------------|----------|--------|
| Indoor Unit | Fan Motor | 3108001200 | IC-8428DWKG7A | 1 | |
| | Fan Motor Capacitor | 3106900300 | 1.0uF 400VAC | 1 | |
| | Fuse | 5FVLB3152L | 250V 3.15A | 1 | |
| | Transformer | 5EPV050100 | 220V/18V | 1 | |
| | Stepping Motor | 3108000100 | MP28GA (L=400mm) | 1 | |
| | Terminal Block | 3108901120 | 323-HDS106 | 1 | |
| | Compressor | 3100030EE0 | RCA100A001 | 1 | |
| Outdoor Unit | Fan Motor | 3108003000 | IC-9630DWLA6A | 1 | |
| | Dual Capacitor | 3109501201 | 1.8+25μF 400VAC | 1 | |
| | Terminal Block | 3108900900 | 323-HDS103 | 1 | |

i **DSA-120L**

| | PART NAME | PART CODE | SPEC. | QUANTITY | REMARK |
|---------------------|---------------------|------------|------------------|----------|--------|
| Indoor Unit | Fan Motor | 3108001200 | IC-8428DWKG7A | 1 | |
| | Fan Motor Capacitor | 3106900300 | 1.0uF 400VAC | 1 | |
| | Fuse | 5FVLB3152L | 250V 3.15A | 1 | |
| | Transformer | 5EPV050100 | 220V/18V | 1 | |
| | Stepping Motor | 3108000100 | MP28GA (L=400mm) | 1 | |
| | Terminal Block | 3108901120 | 323-HDS106 | 1 | |
| | Compressor | 3100030DE0 | RCA120A001 | 1 | |
| Outdoor Unit | Fan Motor | 3108003000 | IC-9630DWLA6A | 1 | |
| | Dual Capacitor | 3109502000 | 2.0+30μF 400VAC | 1 | |
| | Terminal Block | 3108900900 | 323-HDS103 | 1 | |

5. REFRIGERANT CYCLE

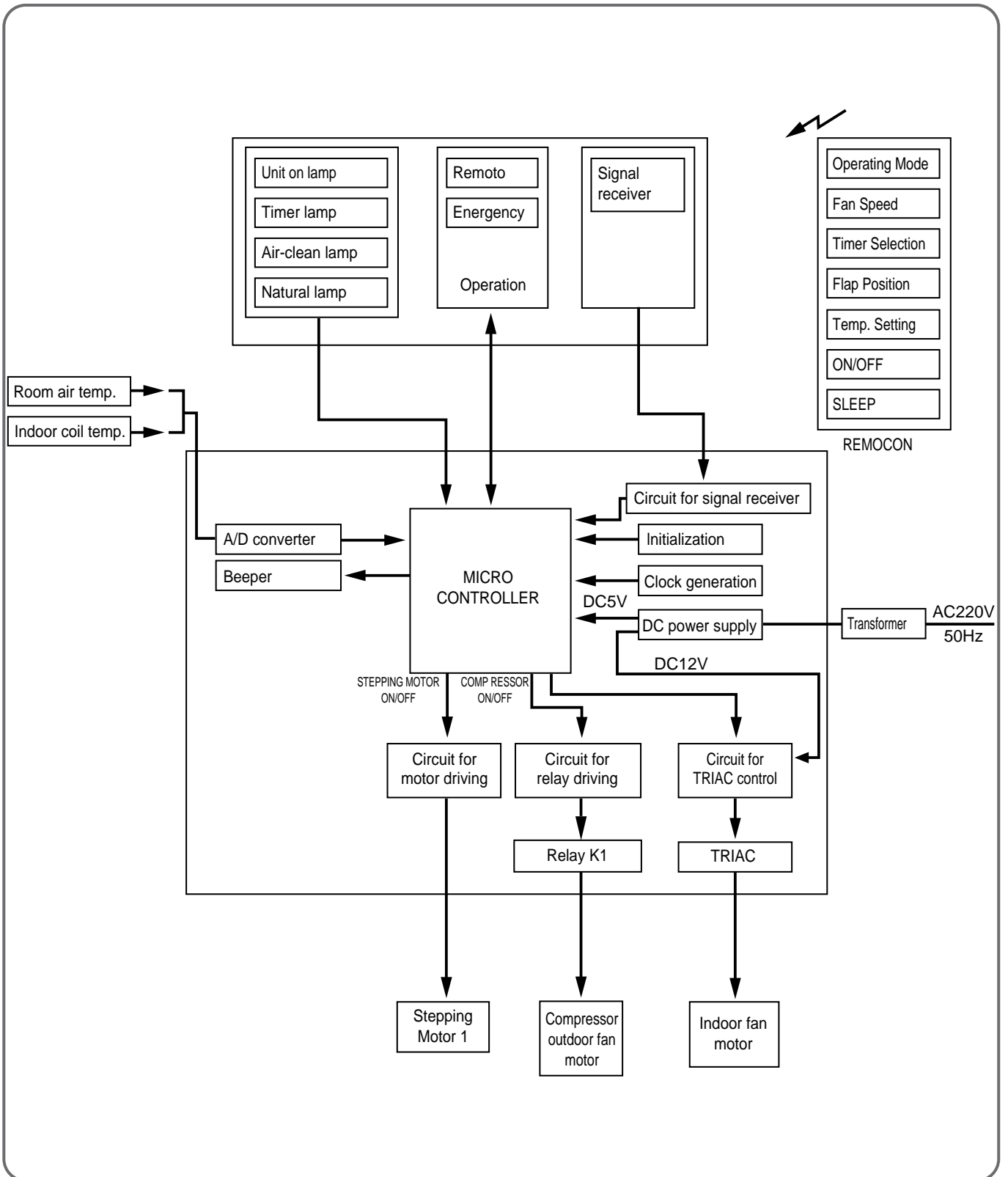


Note) If the pipe length exceeds the standard length, add 30g of refrigerant per extra meter.

| Model Name | DSB-090L | DSB-120L |
|-----------------|------------------------|------------------------|
| Contents | | |
| Capillary tube | ID1.6Ø x OD3.2Ø x L600 | ID1.6Ø x OD3.2Ø x L600 |
| Charge Quantity | 1170g | 1300g |

| Model Name | DSA-100L | DSA-120L |
|-----------------|------------------------|------------------------|
| Contents | | |
| Capillary tube | ID1.6Ø x OD3.2Ø x L600 | ID1.6Ø x OD3.2Ø x L600 |
| Charge Quantity | 1150g | 1200g |

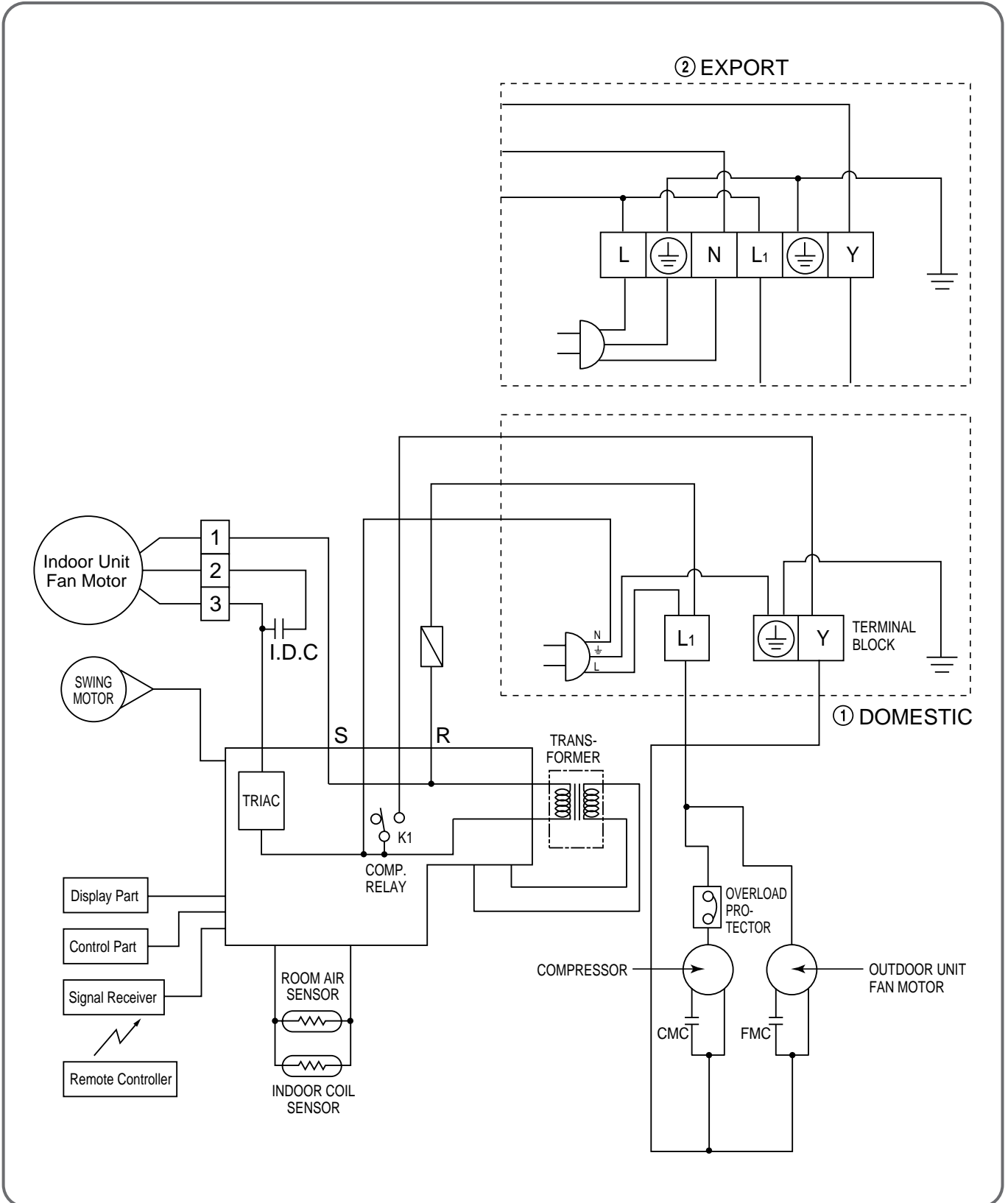
6. CONTROL BLOCK DIAGRAM



7. ELECTRIC CIRCUIT DIAGRAM

1 ELECTRIC CIRCUIT DIAGRAM

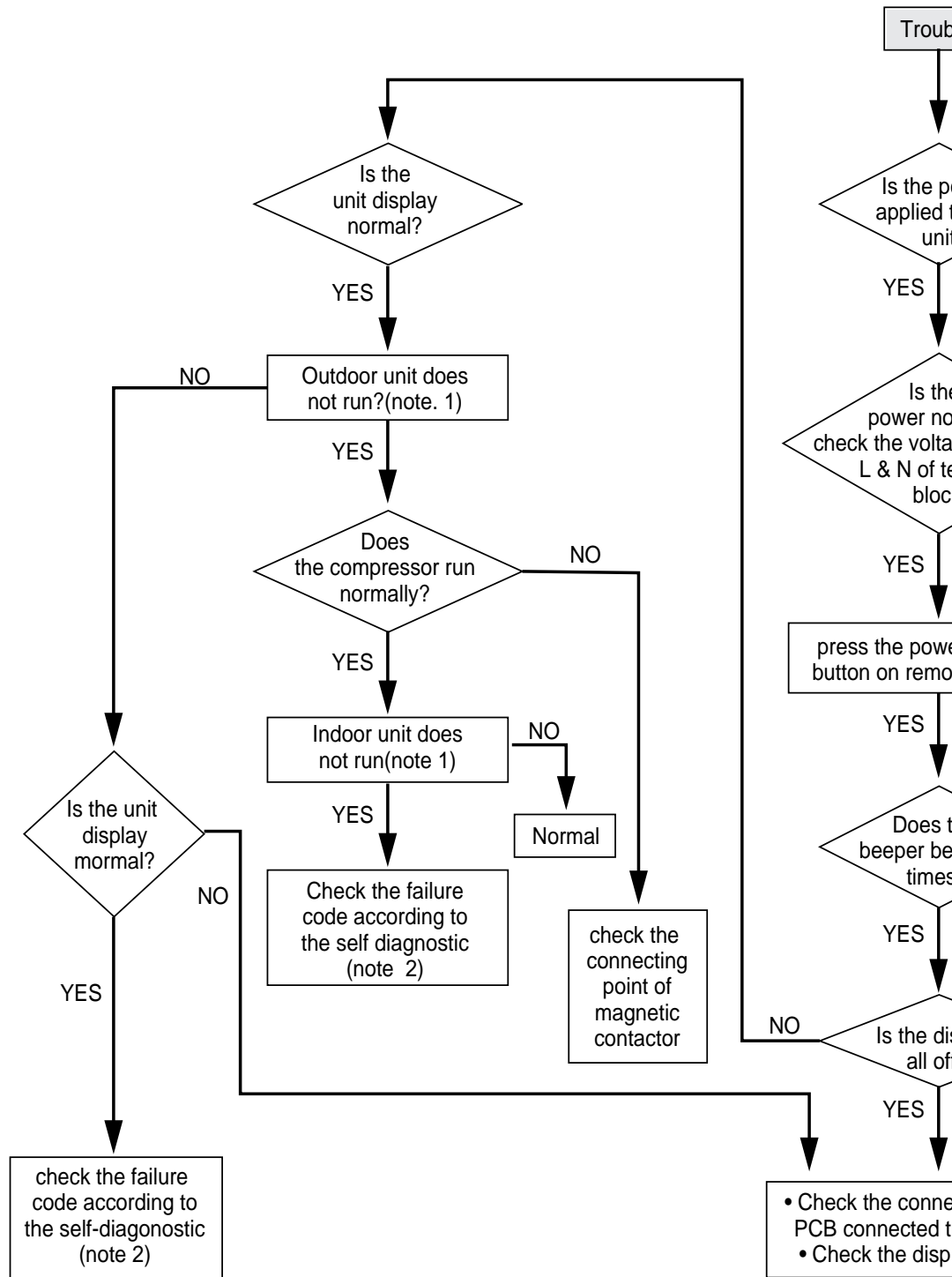
i DSB-090L/DSB-120L/DSA-100L/DSA-120L



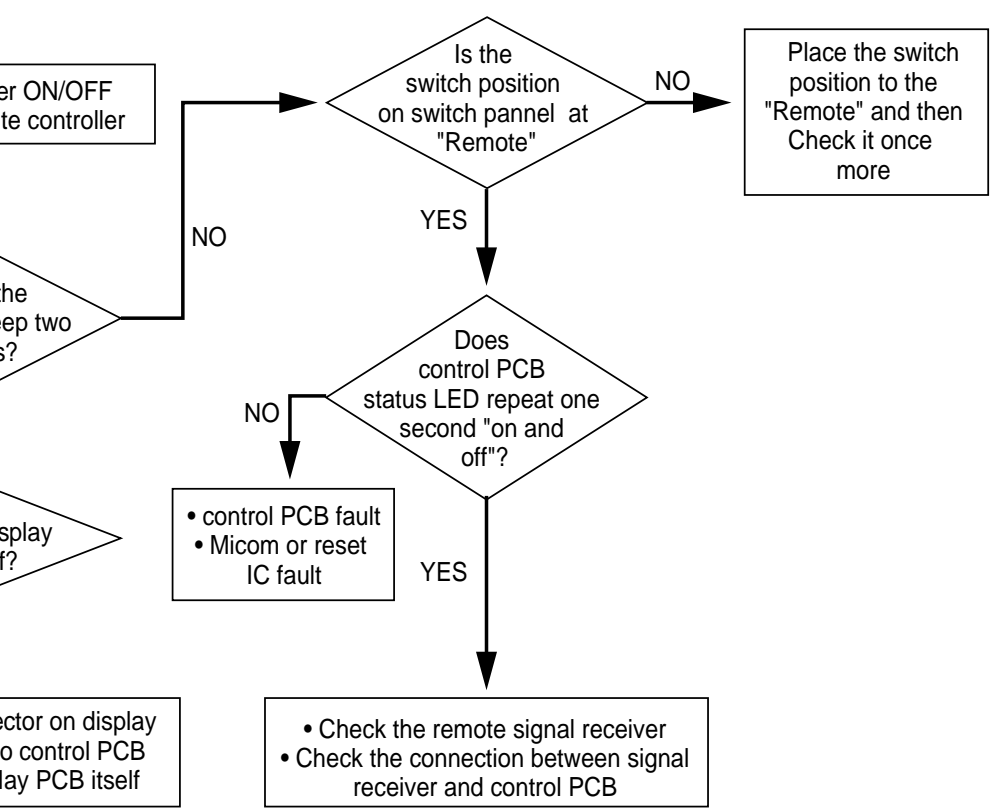
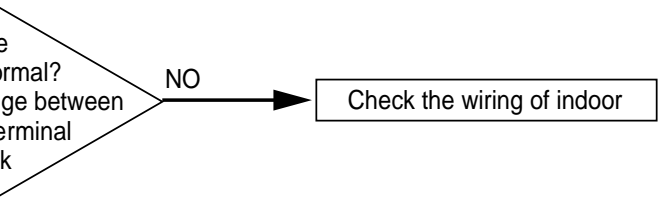
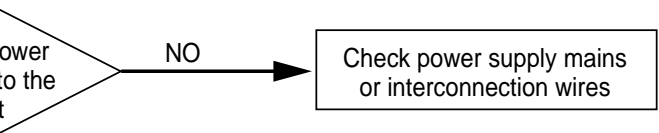
Description

1. After the power ON/OFF button is pressed once, the relay and triac are turned ON or OFF per the remote control setpoint.
 - TRIAC is controlled per the fan speed selection.
 - RELAY is controlled per the operation mode selection.
2. If the power ON/OFF button is pressed once more, the relay and triac are turn off and the unit stops operation.
3. The unit turns on or off according to the temperature setpoint by sensing the room air temperature through thermistor.
4. If the fan speed selection is set to the auto position, the fan speed is automatically controlled according to the temperature difference between room temperature and temperature setpoint.
5. If you press the ON/OFF button during operating the unit, Relay and LED is OFF and the unit is OFF.

8. TROUBLE SHOOTING



le



Note 1)

!Neither indoor unit nor outdoor unit runs.

Check the following points first. (There are following case in normal operation)

- a. Is the timer mode set the "timer ON".
- b. Is the timer mode set the "timer-OFF" and the time had passed?

@ Neither outdoor fan nor compressor runs while indoor fan runs.

Check following points first. (There are following cases in normal operation)

- a. Is the temperature set point suitable?
- b. Has the 3 minutes time guard for compressor operated?

Self-Diagnostic Function

1) Error Code 1

- !Check the connector of room air thermistor. (or connecting wire)
- @ Check soldering of connecting on control P.C.B. (Error of soldering or short)
- # Check the resistance of room air thermistor.

2) Error Code 2

- !Check the connector of indoor coil thermistor. (or connecting wire)
- @ Check soldering of connecting on control P.C.B.
- # Check the resistance of indoor coil thermistor.

3) Error Code 3

- !When the compressor do not run.
 - i) Check the voltage between **L** and **Y** of terminal block.
(Indoor Unit, Outdoor Unit)
 - ii) Check connecting wire of indoor unit and outdoor unit.
 - iii) Check relay KI, IC-U4 on power P.C.B
- @ Check fixing of indoor coil thermistor.
- # Check the GAS LEAKAGE of the pipe.

4) Error Code 4.

- !Check the circuit of Motor Control.
- @ Check wiring of Motor
- # Check the Motor
 - i) Sensor of Motor
 - ii) Motor Winding.

Neither Indoor Unit nor Outdoor Unit Runs

Confirm following statement.

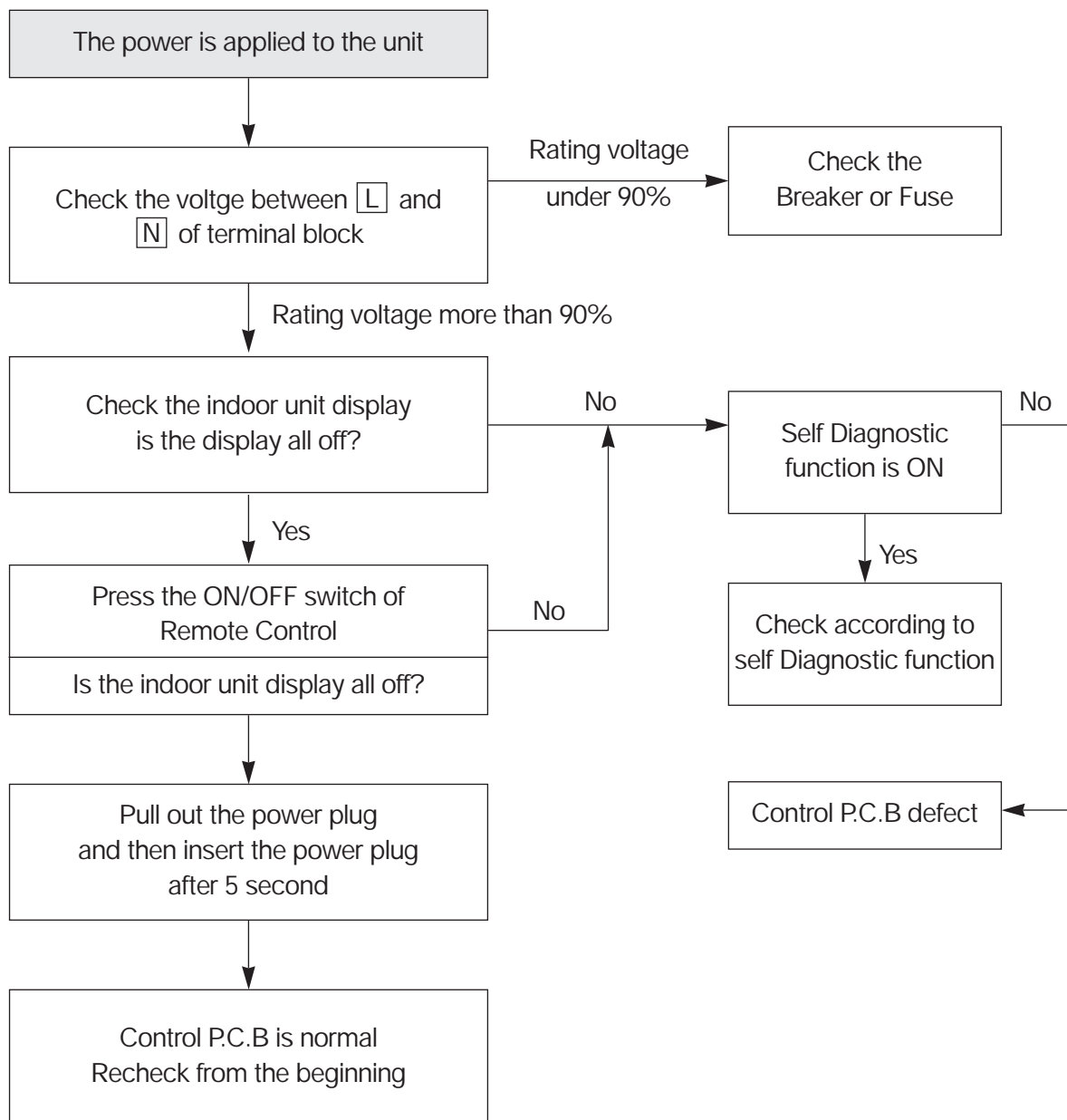
When the unit operate normally, Sometimes the outdoor unit and indoor unit cannot operate.

! Check the function select switch. Is it timer mode?

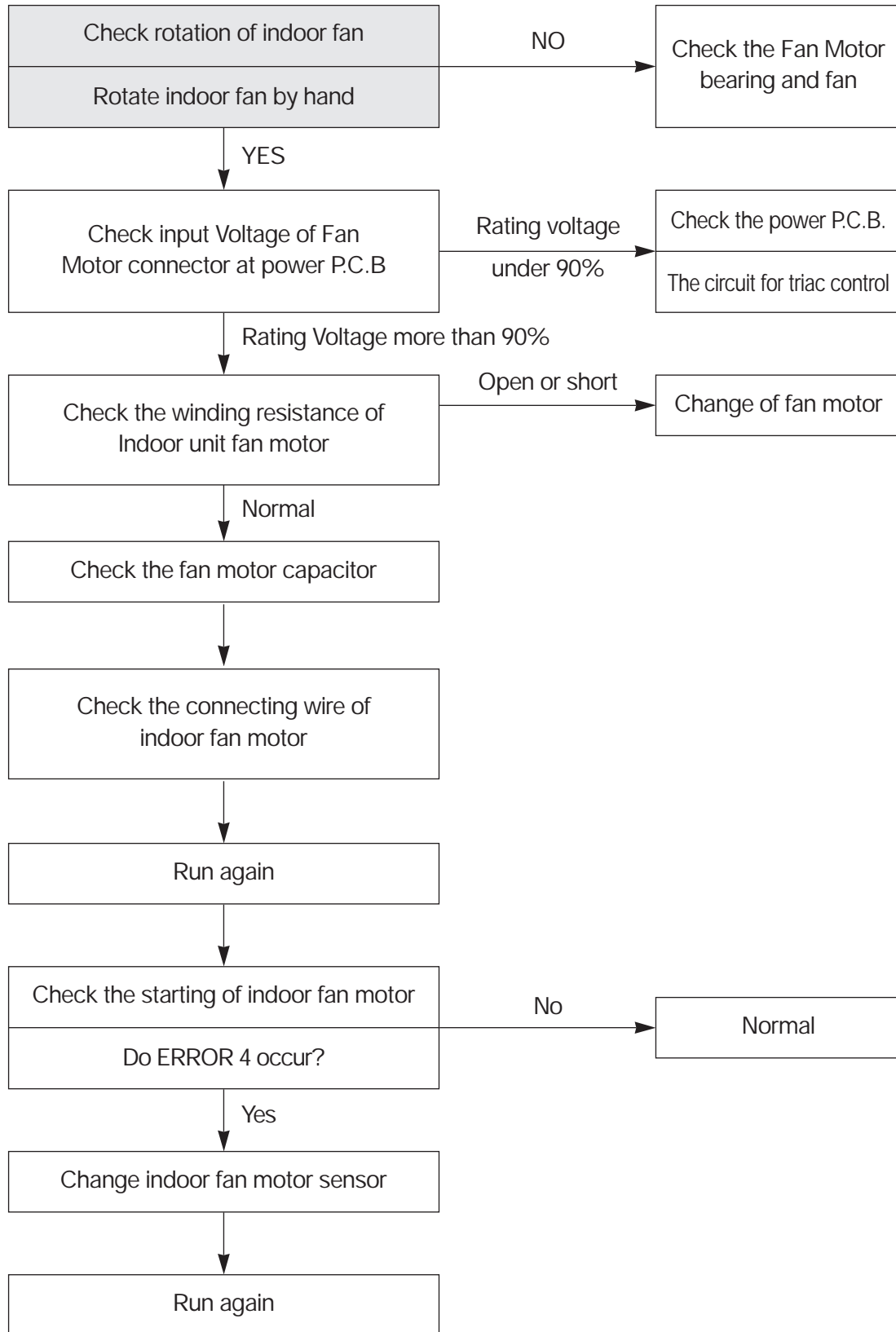
@ The function select switch locafe the sleep mode and is the setting time over?

Is the setting mode DEHUMIDIFIER mode?

§ When the unit is DEHUMIDIFIER mode while in the auto mode, the outdoor unit and indoor unit does not run.



Outdoor Unit Runs but Indoor Fan Do Not Run



Outdoor Fan and Compressor Do Not Run

Confirm following statement.

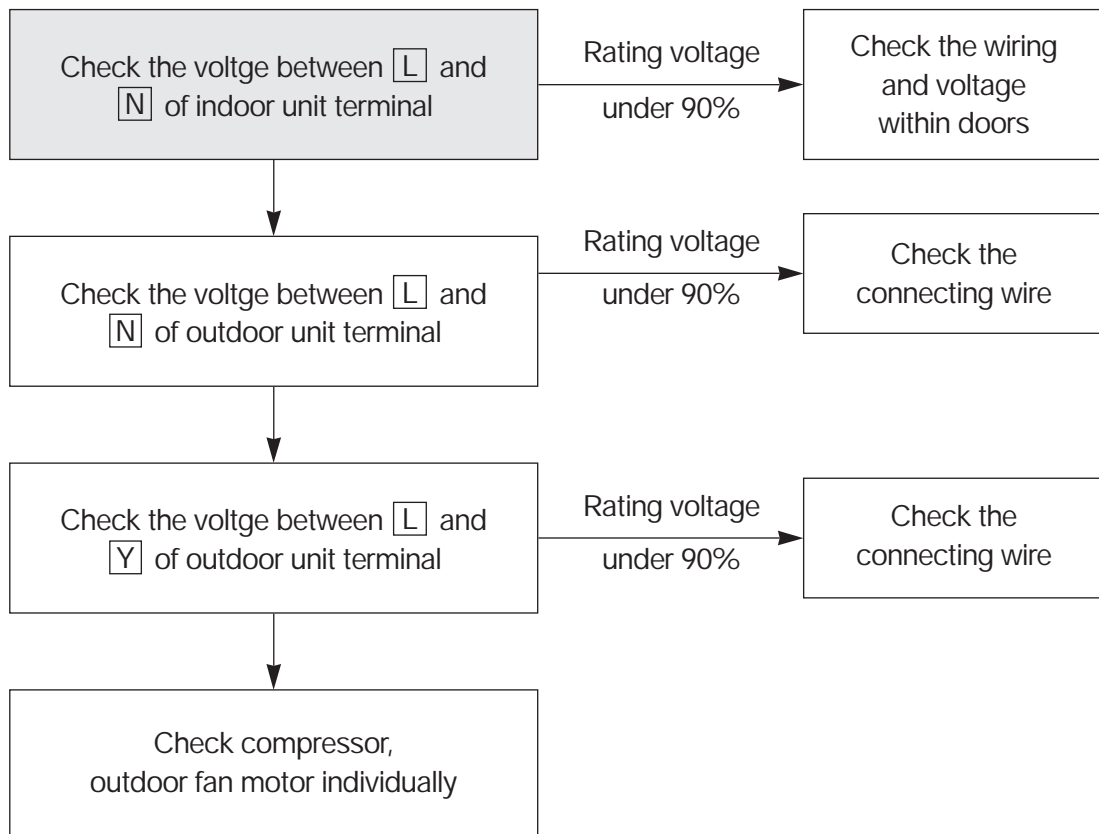
When the unit operate normally, Sometimes the outdoor unit and indoor unit cannot operate.

! Is the setting temperature proper?

@ Is the unit during 3min. Time delay of compressor.

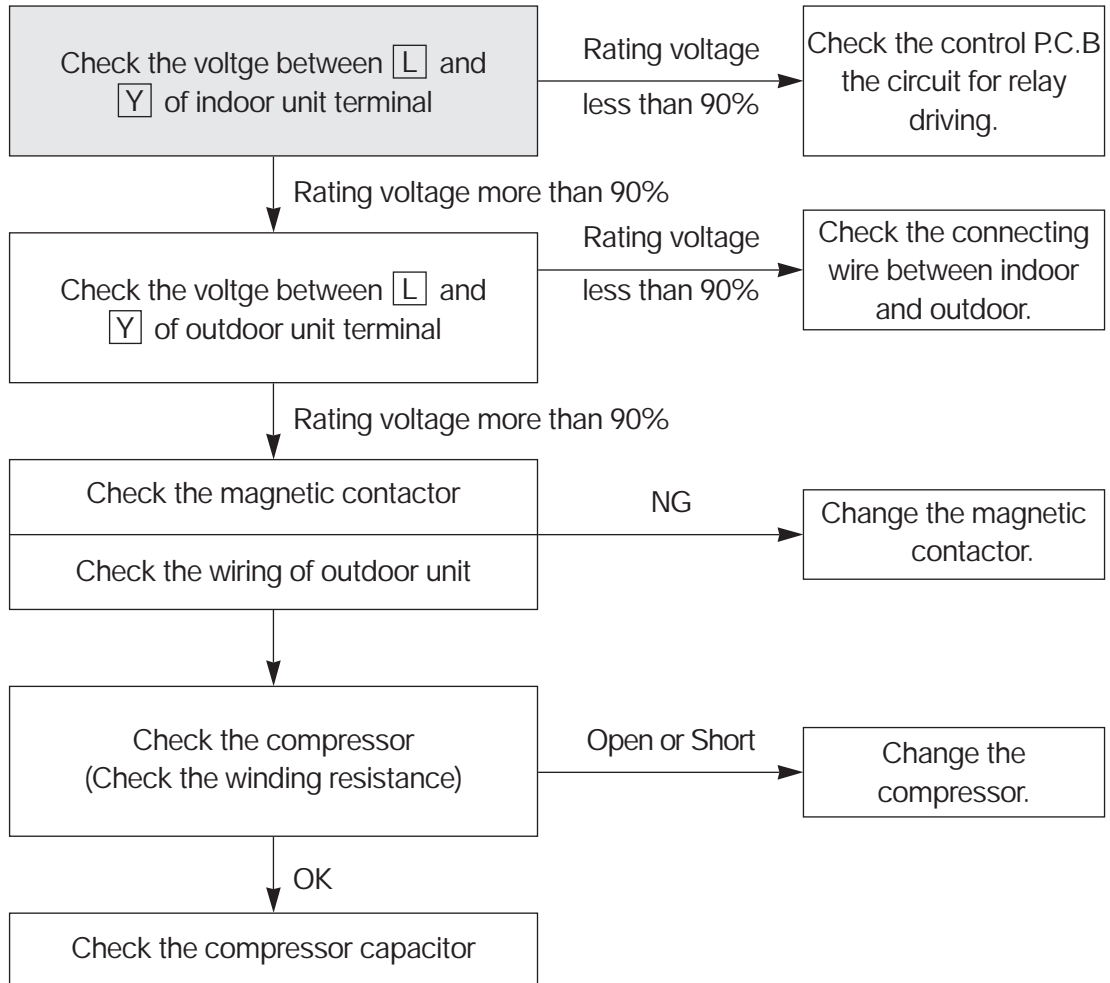
During frost prevention of Indoor unit.

§ During dehumidifier mode.



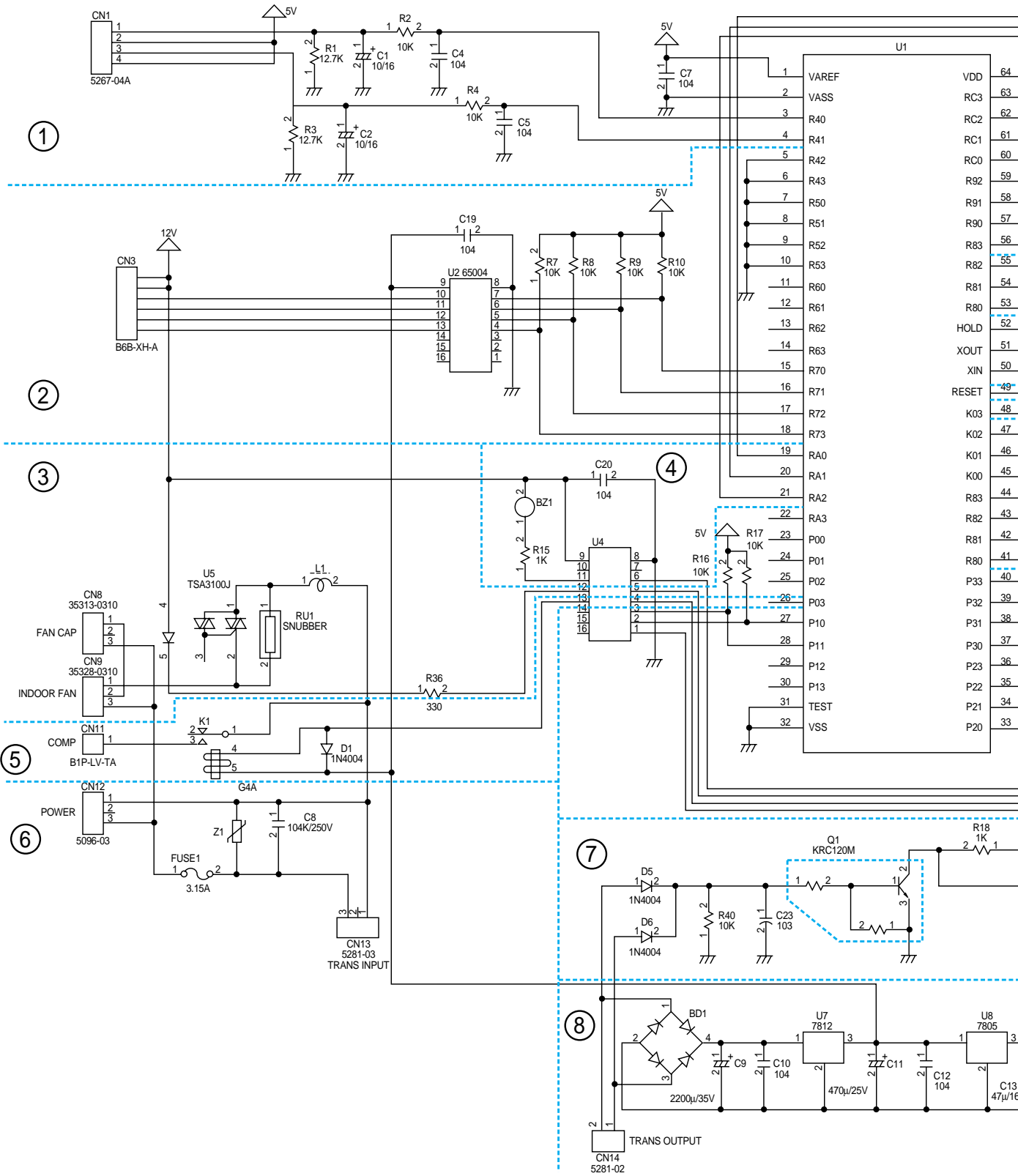
Only Compressor Do not Run

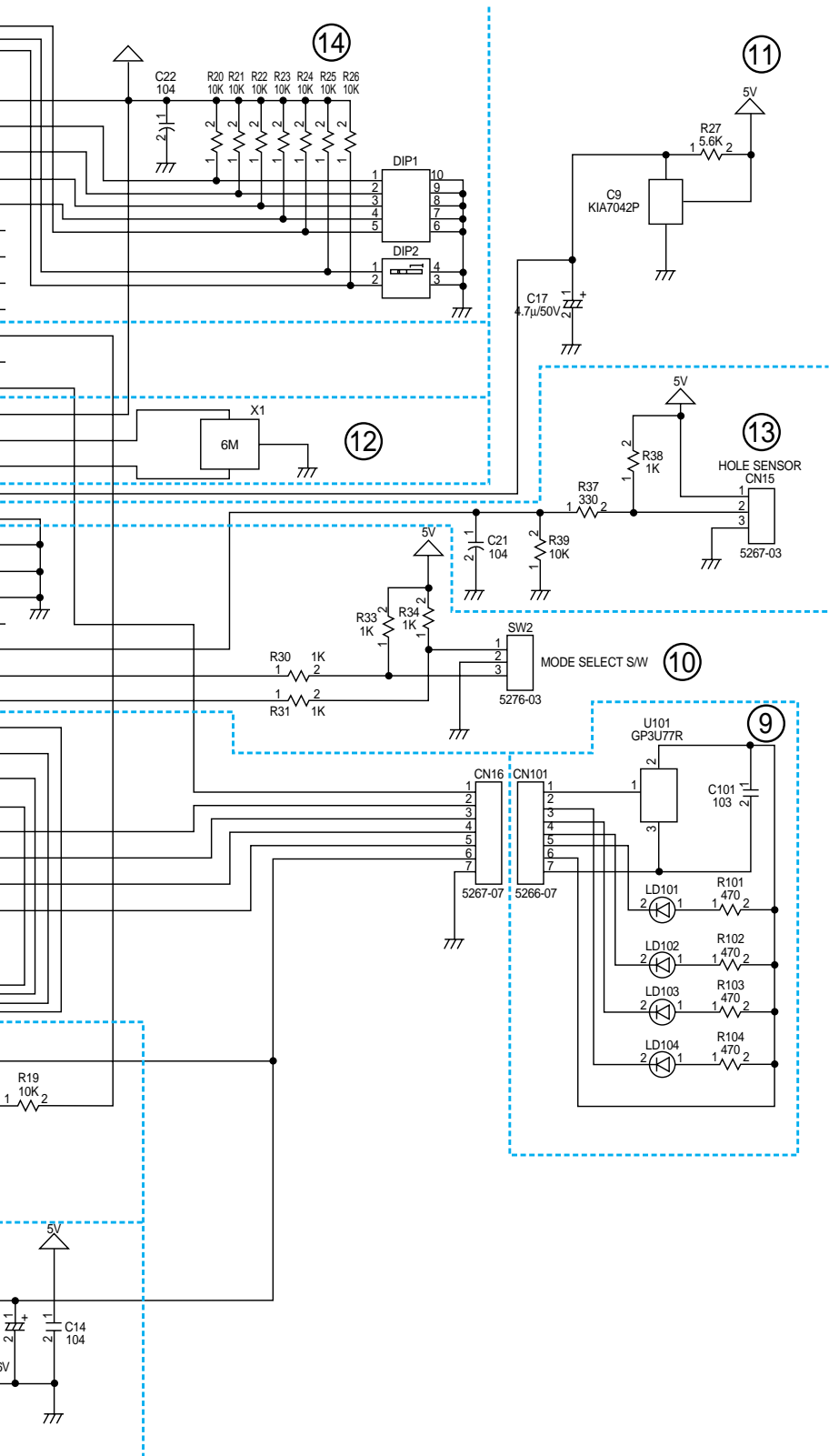
- Check the following at cooling mode



PCB DRIVING DESCRIPTION

1 PCB CIRCUIT DIAGRAM

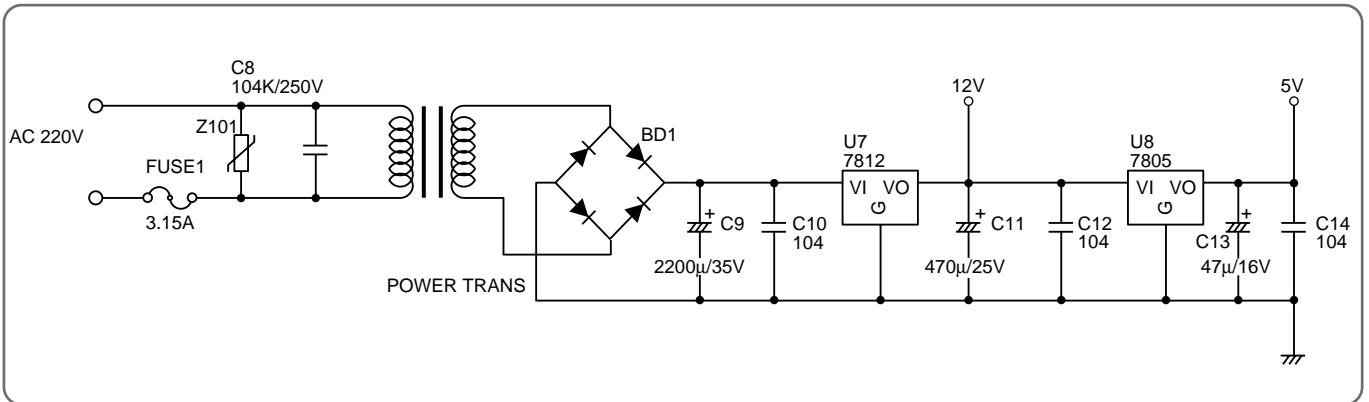




• Circuit Description

- ! TEMPERATURE SENSING
- @ STEPPING MOTOR DRIVING
- # TRIAC DRIVING FOR DIF
- \$ BUZZER DRIVING
- % COMPRESSOR RELAY DRIVING
- ^ AC POWER SUPPLY
- & POWER LINE FREQUENCY MONITORING INPUT
- * DC POWER SUPPLY
- (LED DRIVING
-) SELECT SWITCH INPUT
- 1 RESET CIRCUIT
- 2 CLOCK GENERATION
- 3 RPM SENSOR INPUT
- 4 MODE SELECT SWITCH

Power Supply(1)



DESCRIPTION

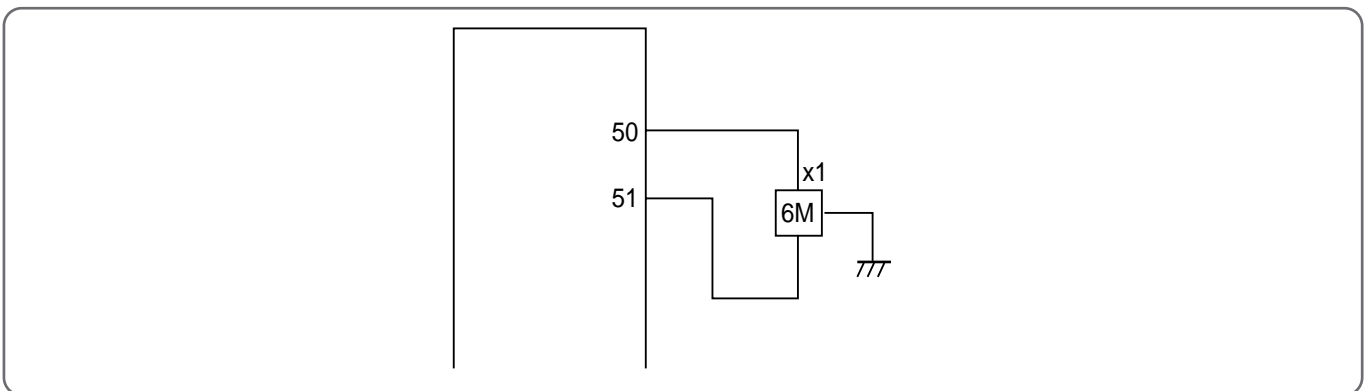
DC Power Supply in circuit needs +12V and +5V. +12V is used for Compressor Driving Relay, Triac Driving Photo Triac, Buzzer Driving Swing, Sweep Motor. AC voltage of secondary Power Transformer is rectified by Bridge Diode, and it is filtering by Main Condensor C9.

Filtered DC voltage is about +18V, is regulated +12V DC by Regulator IC7812.

And it is regulated +5V DC by Regulator IC7805.

Z101 is surge filter and C10, C12, C14 is Noise filter.

Oscillator(2)



DESCRIPTION

Oscillatory Frequency drive Micom, it is made up 6MHz resonator oscillatory Frequency.

Ocillatory wave is as following Fig 2-1.

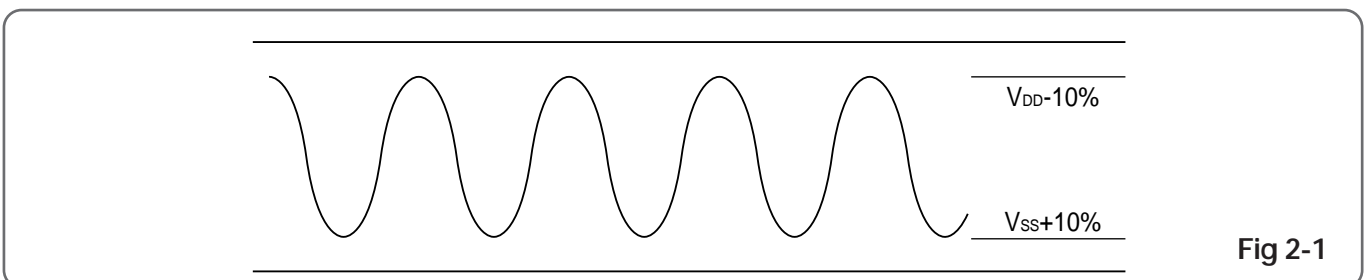
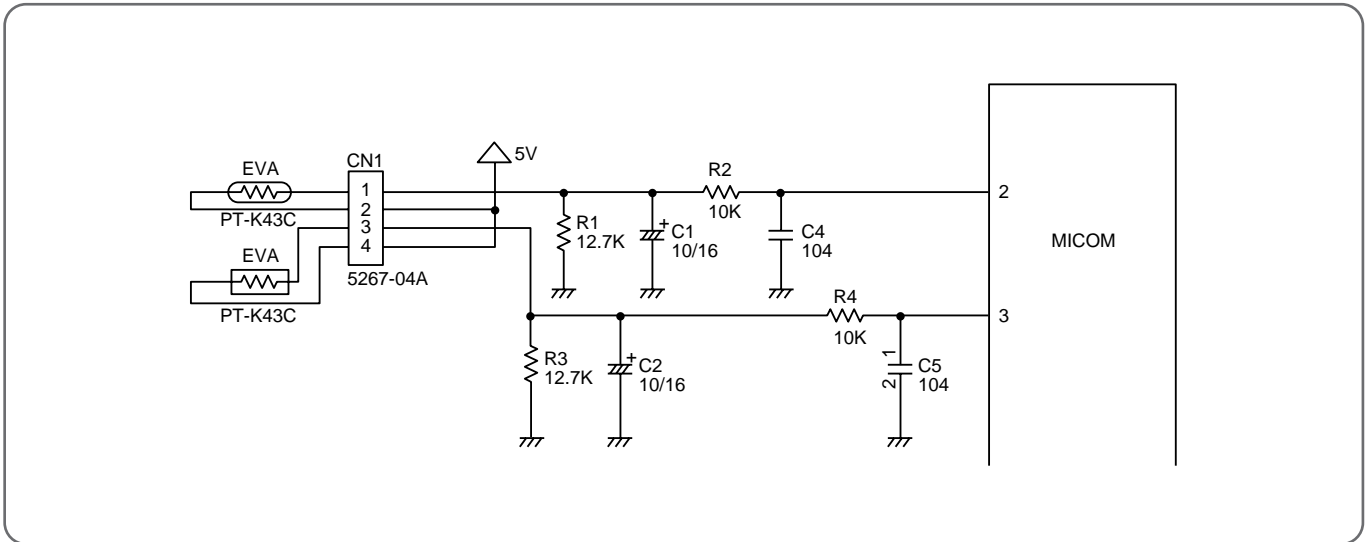


Fig 2-1

Sensor(3)

Room temperature and Evaporator temperature Sensor Input



DESCRIPTION

Number 2, 3 of Micom is Terminal of A/D converter Input.

Room temperature and Evaporator temperature is sensing by change of Thermister Resistance, Micom is put in 5V by ratio between R1 (12.7K Ω) and R2 (12.7K Ω).

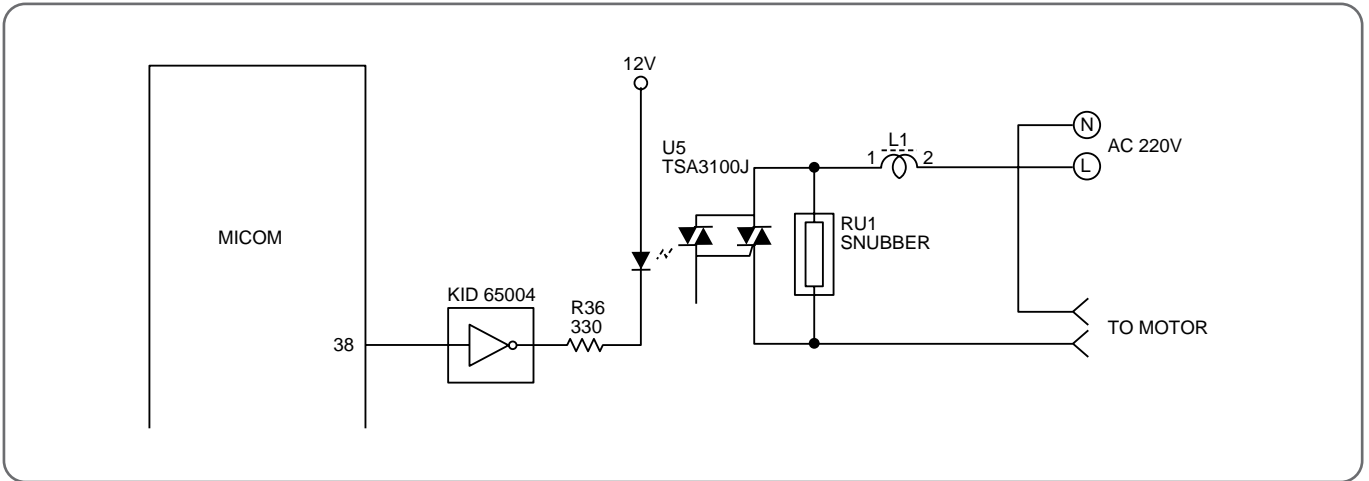
Relation between temperature and voltage is following Table 3-1.

C1,2,3,4 is Noise filter.

| Temperature (°C) | Voltage (V) | |
|---------------------|-------------|-------|
| | No. 1 | No. 3 |
| -10 | 0.21 | 0.21 |
| 0 | 1.40 | 1.40 |
| 15 | 2.24 | 2.24 |
| 25 | 2.80 | 2.80 |
| 40 | 3.52 | 3.52 |

Table 3-1

Triac Driving(4)



DESCRIPTION

Number 38 Terminal of Micom is put out Pulse Output, by way of Buffer it is driving Photo Triac TSA3100J is supplied Trigger Signal.

Trigger Test of Triac is detected Zero Cross Part of AC input and it is triggered from Zero Cross part to Time delay part according to Fan Speed. (Ref. Fig 4-1) RU1 is Snubber.

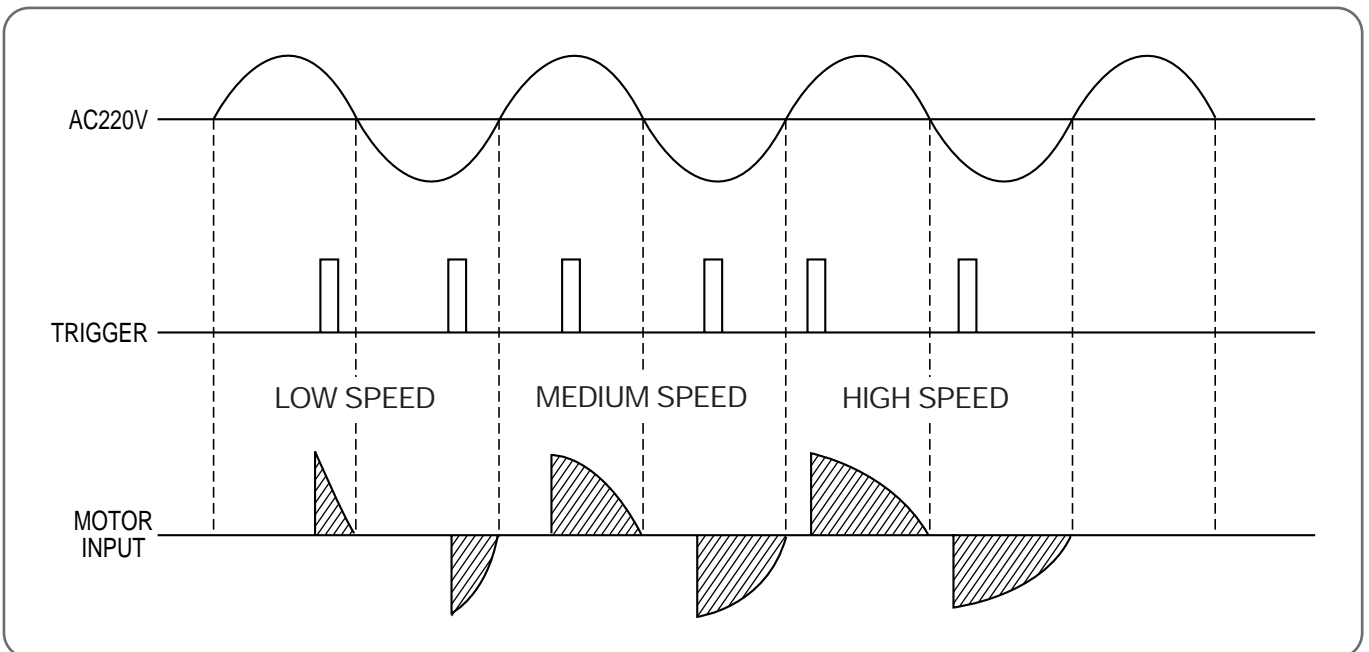


Fig 4-1

Remote Controller(5)

DESCRIPTION

Signal from Remote Controller put in only Control Data Signal at Micom Terminal of Number 44, which is gotten from Carrier (38KHz) from Receive Module (GP3U77R). Signal Wave repeat third as following Fig 5-1. But in Secondary Wave Custom Code is Reversed Face.

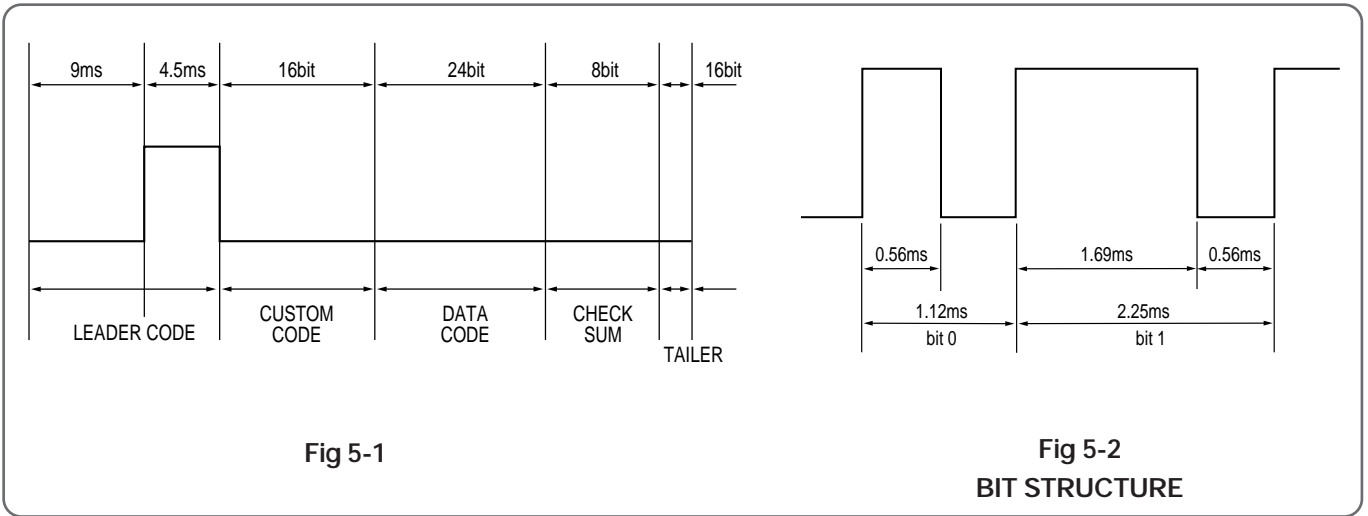
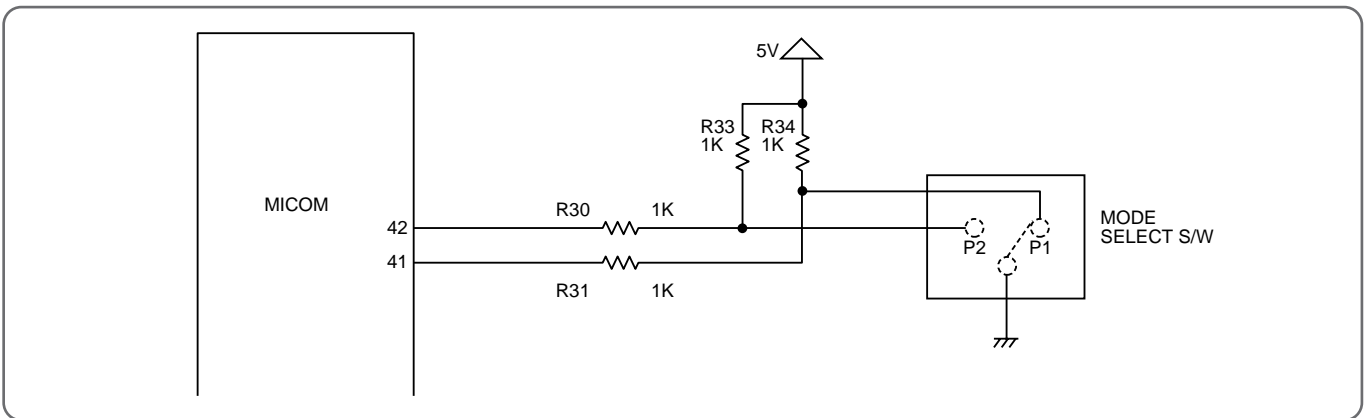


Fig 5-1

Fig 5-2
BIT STRUCTURE

Selecting Mode(6)

(SELECT S/W INPUT, OUTPUT)



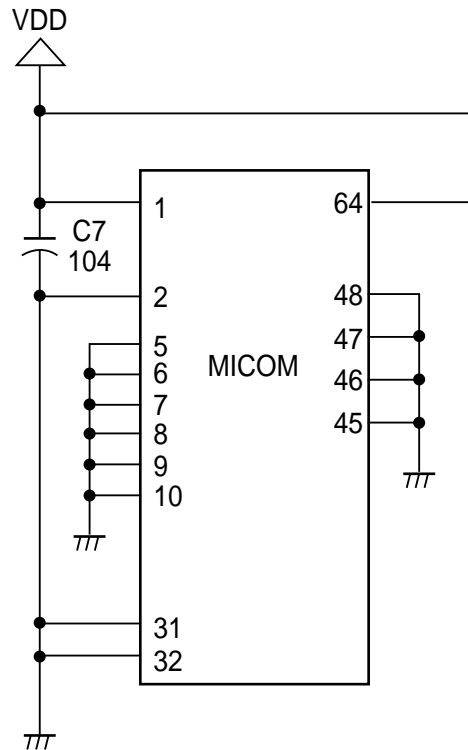
DESCRIPTION

There are Mode according to SW position as following Table 6-1. According as port of fixed Micom is Low, the unit is operating as following Table 6-1.

| POSITION | MODE |
|----------|-----------|
| P 1 | REMOCON |
| P 2 | EMERGENCY |

Table 6-1

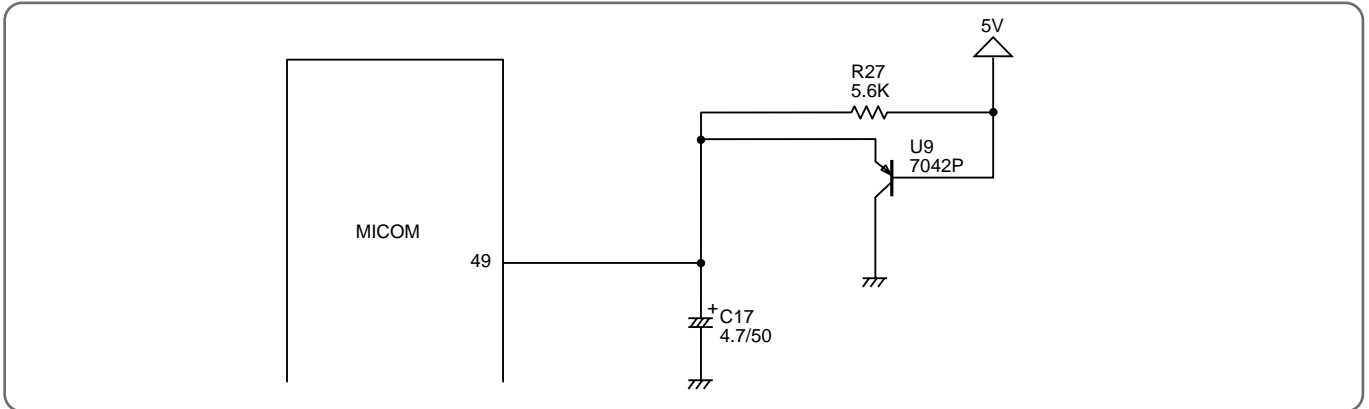
Micom Power Supply(7)



DESCRIPTION

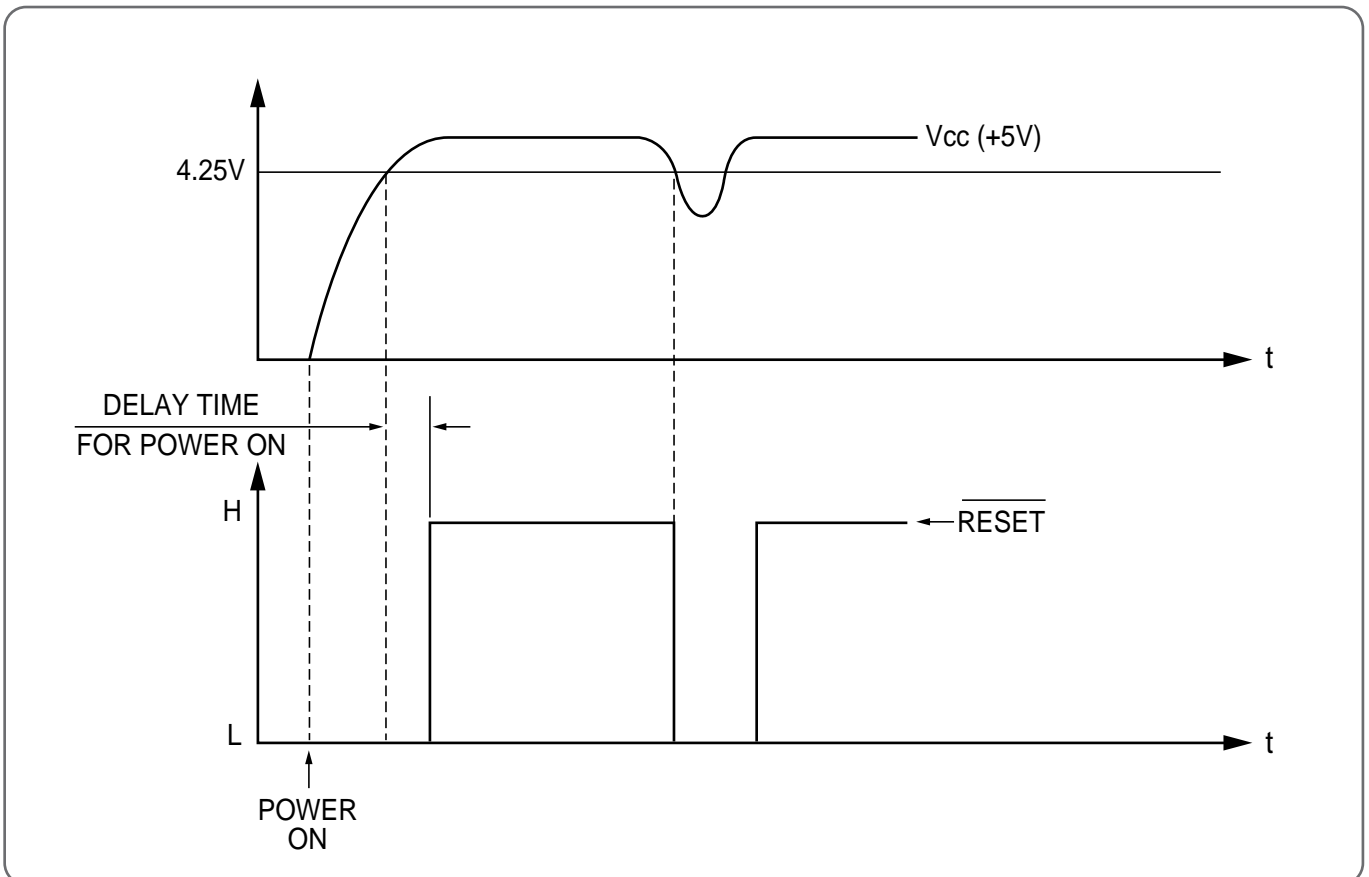
MICOM Power is supplied 5V at Number 1 using VDD, Number 2 using reference of A/D converter Analog and Number 1 using Reference of A/D Converter Analog C7 is noise filter

Reset(8)

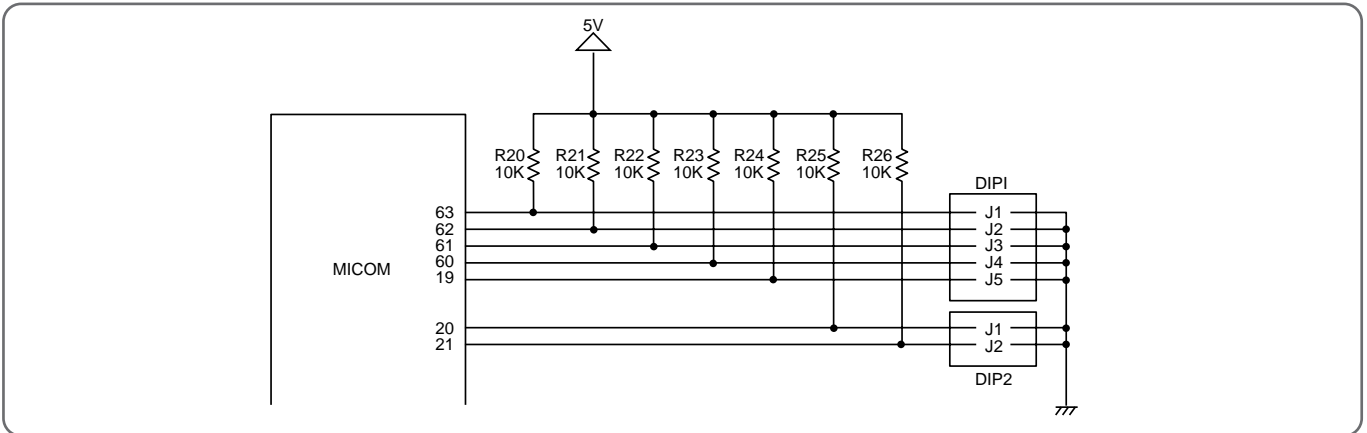


DESCRIPTION

Voltage less than about 0.8V put in Micom Terminal of Number 49 and then Micom reset. Reset IC detect Power ON and Voltage less than 4.25V, and then send Reset Signal.



Function Selecting(9)



DESCRIPTION

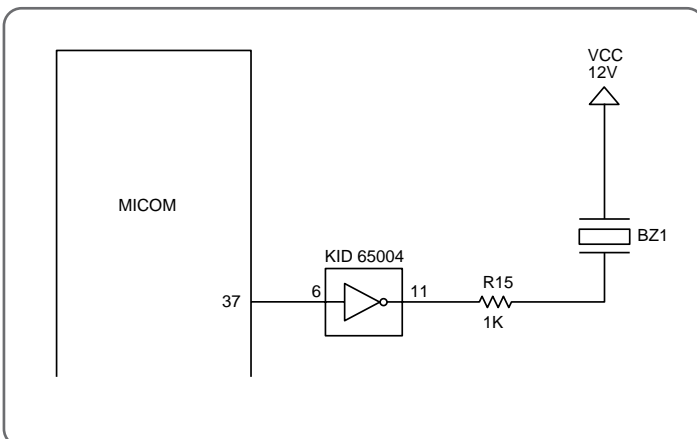
Selecting function is as following table 9-1.

When power source is put at first, Function selection input is recognized.

And when the unit is running the microcomputer ignore variation of function selection input.

| NO | MICOM PORT | FUNTION SELECT | LOGIC=LOW DIP1 - ON | LOGIC=HIGH DIP1 - OFF |
|--------|------------|------------------|--|--------------------------|
| DIP1-1 | P63 | COOLING, HEATING | C/O | H/P |
| DIP1-2 | P62 | POWER FREQUENCY | 50Hz | 60Hz |
| DIP1-3 | P61 | MALCOMP | NO | YES |
| DIP1-4 | P60 | AGING | YES | NO |
| DIP1-5 | P19 | TIMER SHORT | YES | NO |
| DIP2-1 | P21 | TARGET RPM | THE TABLE OF INDOOR FAN RPM IN EATH MODEL | |
| DIP2-2 | P20 | | | |

Buzzer Driving(10)



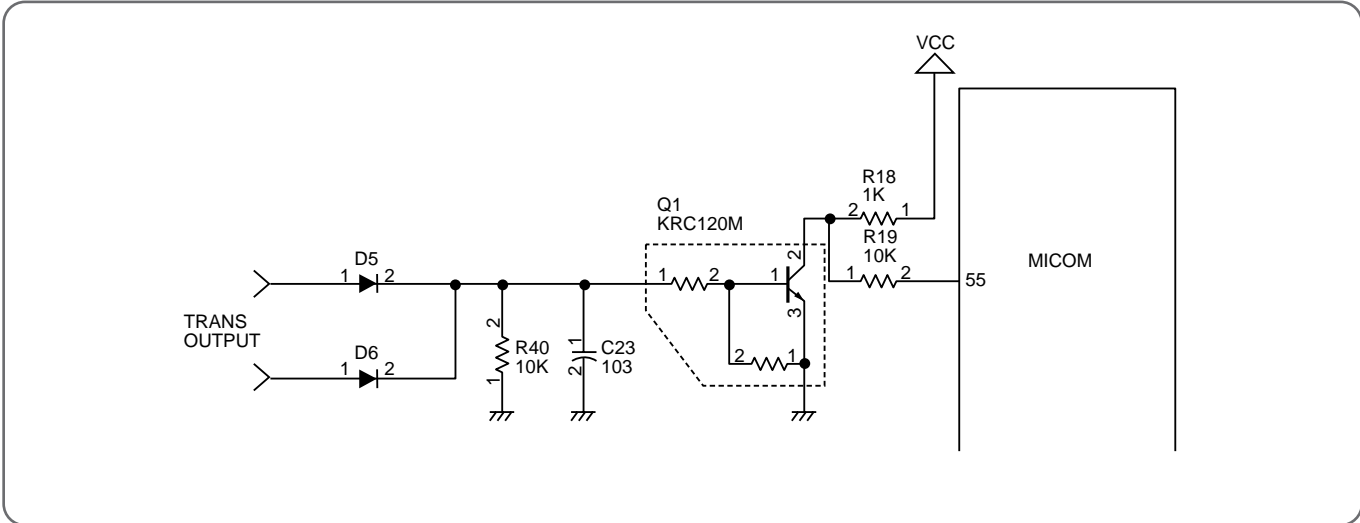
DESCRIPTION

Micom 37 Terminal put out Buzzer Driving Pulse, its output is driving Buzzer through Buffer.

Ocillatory Frequency of buzzer is selected by internal Micom.

This unit is setting at 4.1KHz.

Zero Crossing Detect(11)



DESCRIPTION

It detect Zero Cross part of Trans output voltage, Transistor Q1 is used to put in the Micom.
 Detail Driving is as following Fig 11-1.
 R19 is Resistance to limit current.

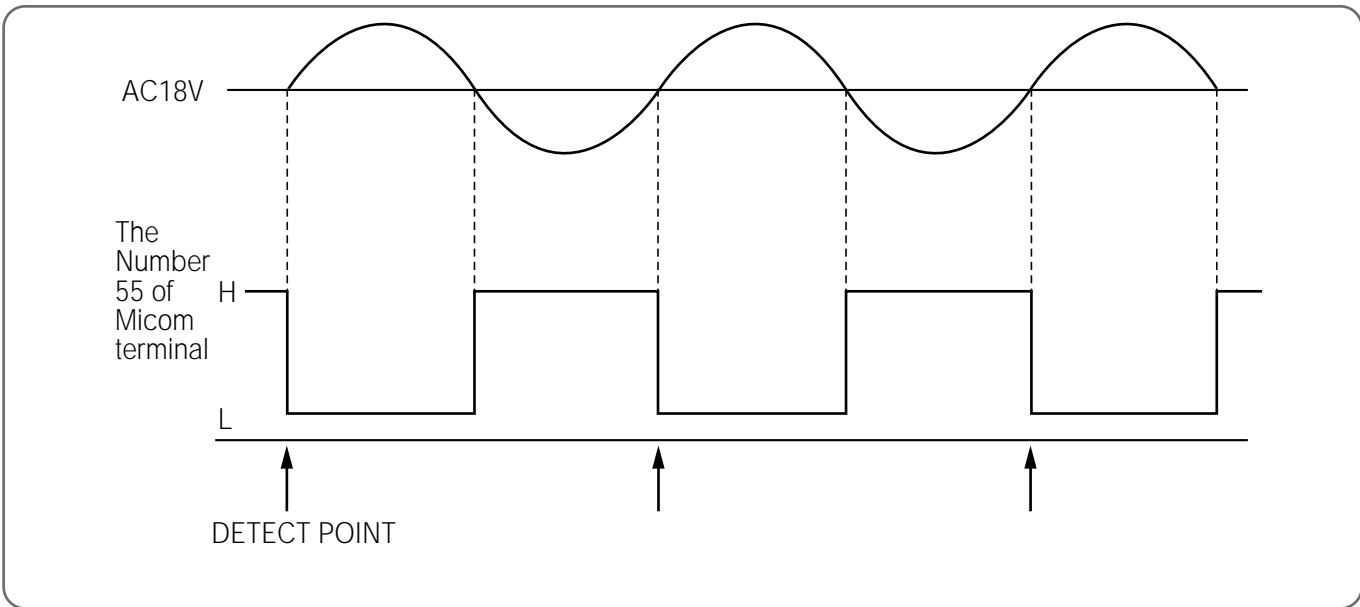
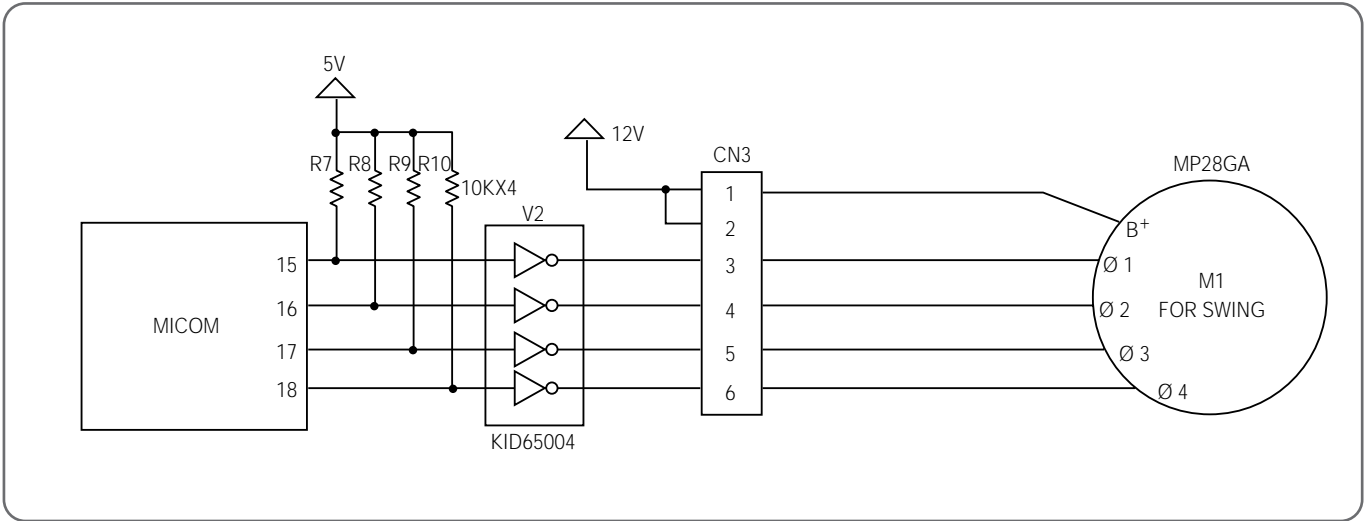


Fig 11-1

Stepping Motor Driving(12)



DESCRIPTION

There are one Stepping Motor for Flap (up and down) and it is used 4 face Drive Method. It is driving as following Fig 12-1. (Ring Count Method of 8 Status)

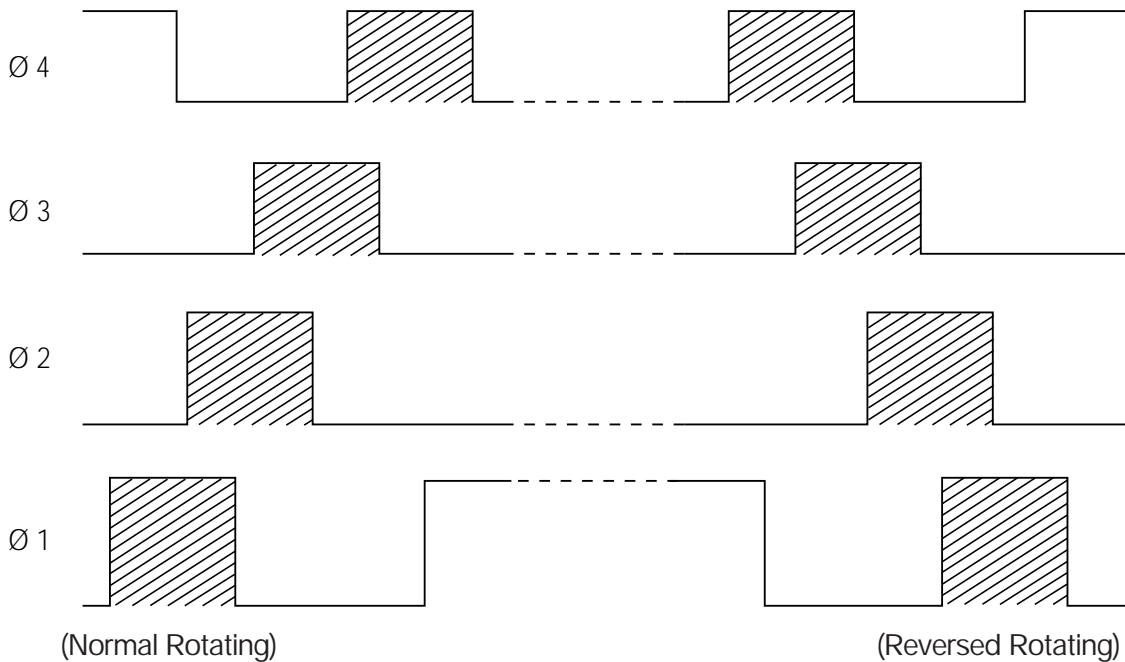


Fig 12-1

2 REMOTE CONTROLLER LCD PANEL TEST

(1) Selecting the test mode

! When is the OFF state.

@ Press the Temperature Buttons (; , ; a) at the same time.

All display is on.

\$ Operating test flow press temperature Button. (; a)

(2) Test mode cancellation

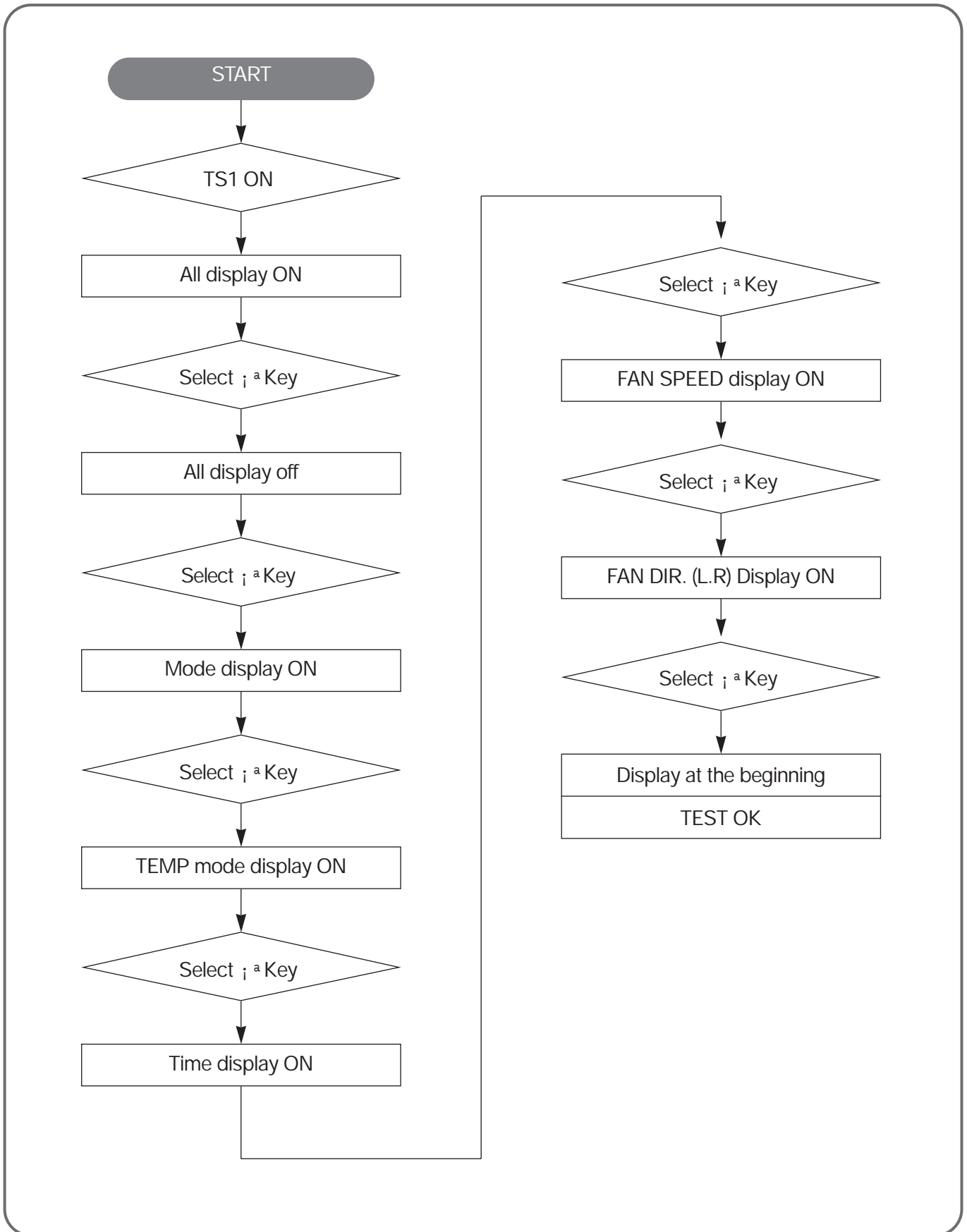
! After test program is completed.

@ If the reset button is pressed.

(3) LCD panel test flow

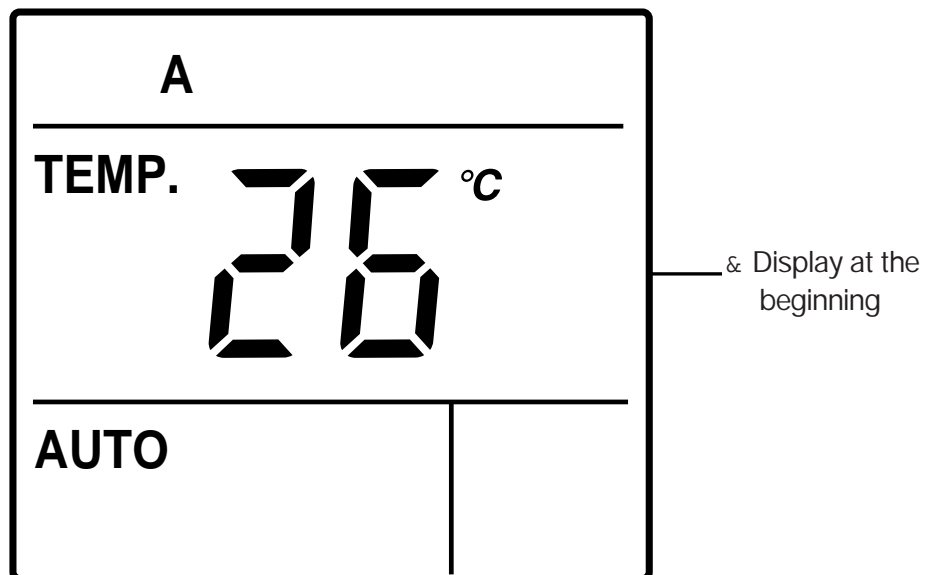
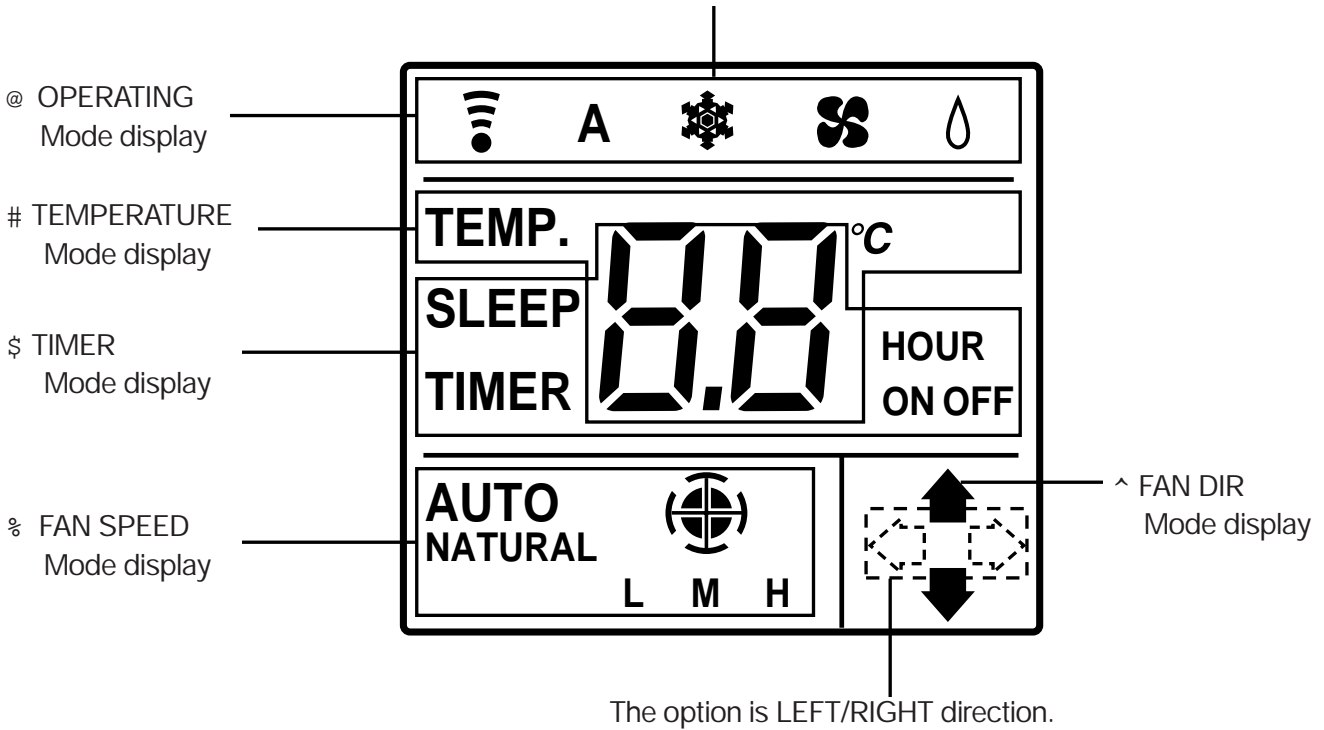
Next page is LCD panel test flow chart.

A. LCD PANEL TEST FLOW CHART

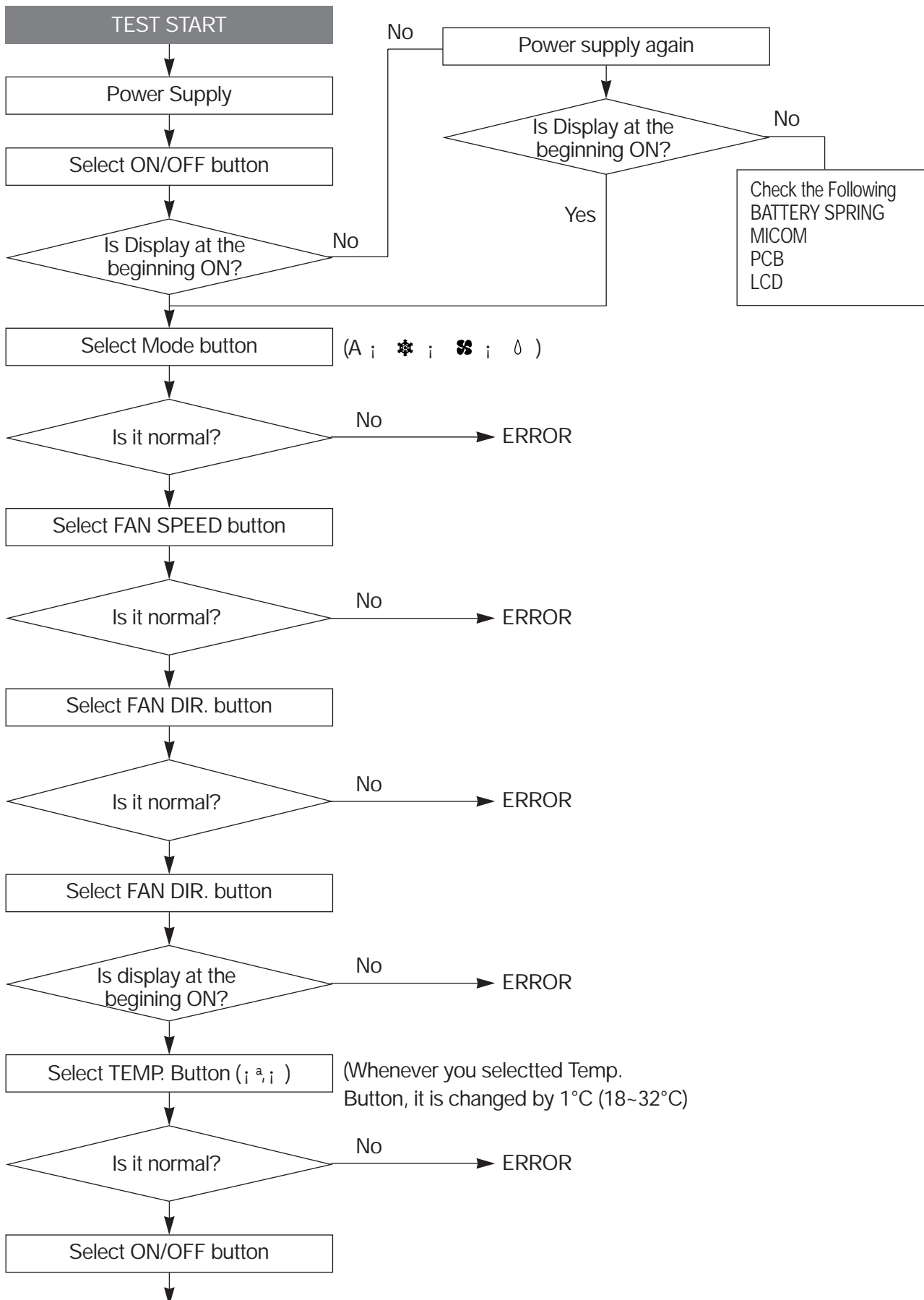


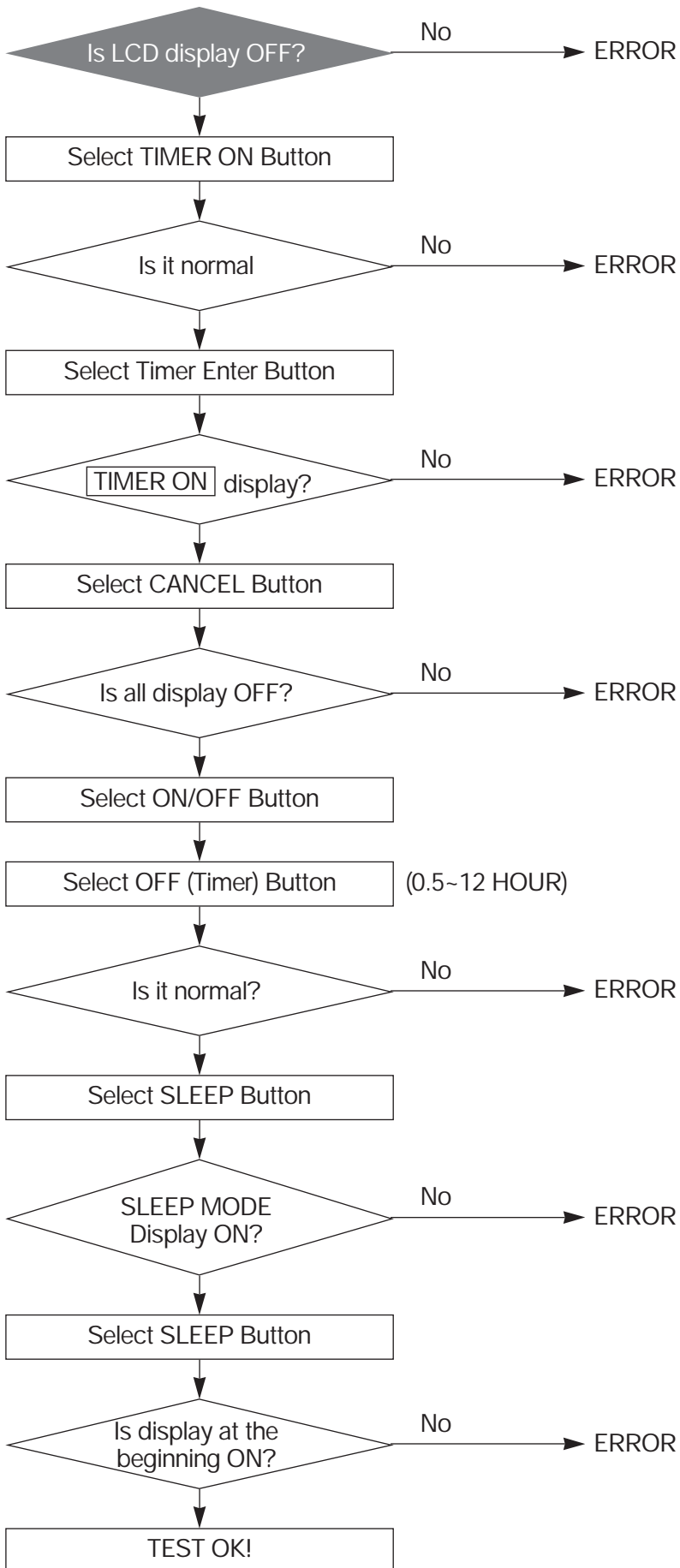
B. LCD PANEL TEST FLOW

!All Display ON/OFF



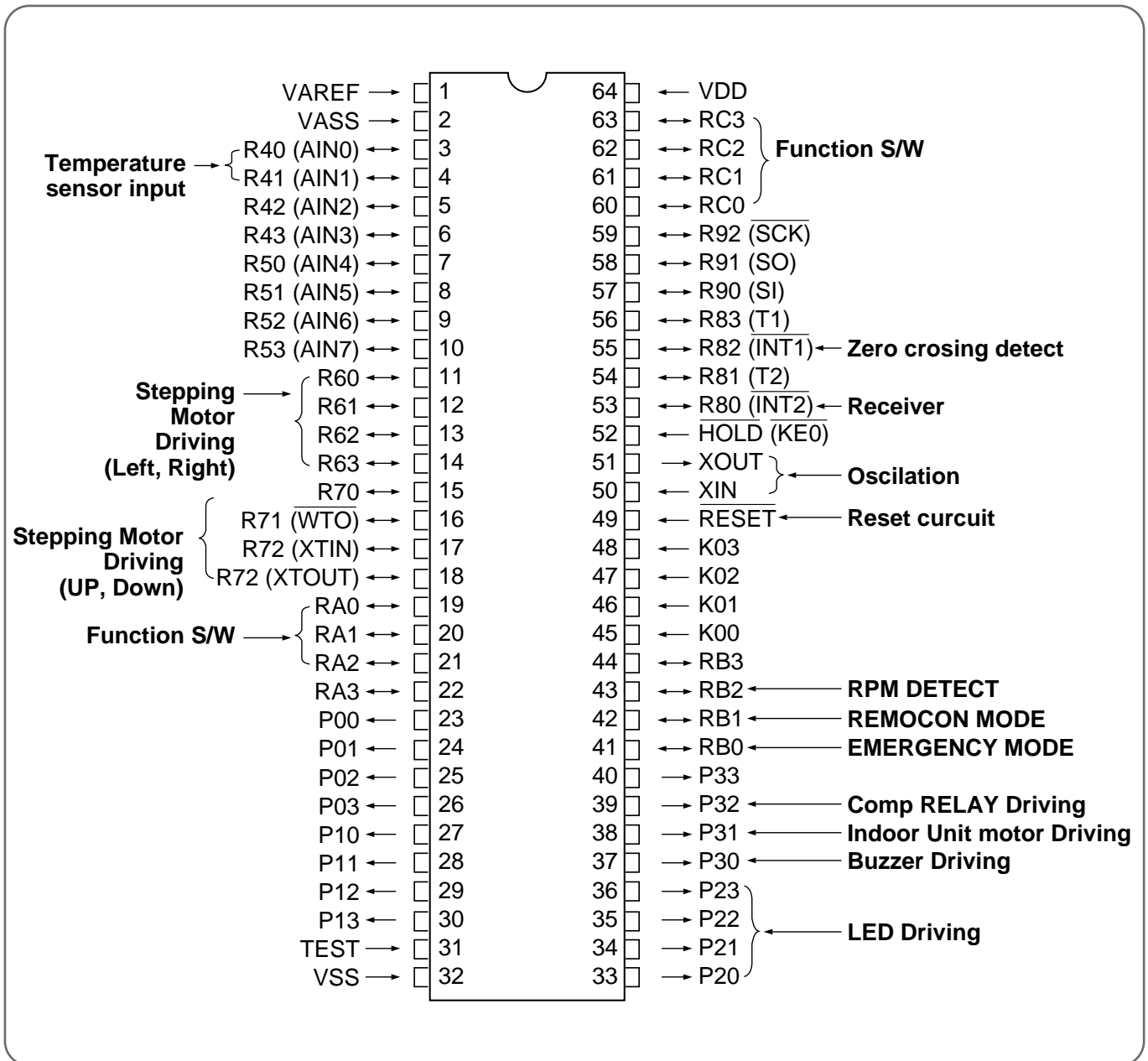
C. REMOTE CONTROLLER ASSEMBLY FUNCTIONAL TEST METHOD



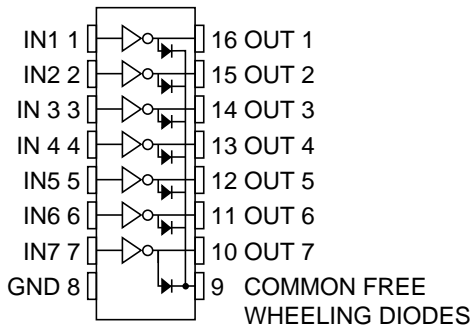


9. KEY COMPONENTS OF ELECTRONIC CIRCUIT

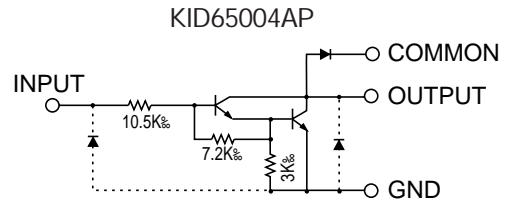
(1) U1 (MICOM)



(2) U2, 4 (KID65004) DARLINGTON ARRAYS

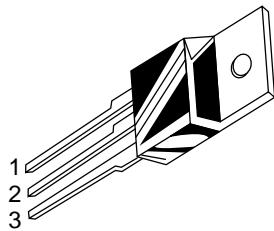


(Top View)

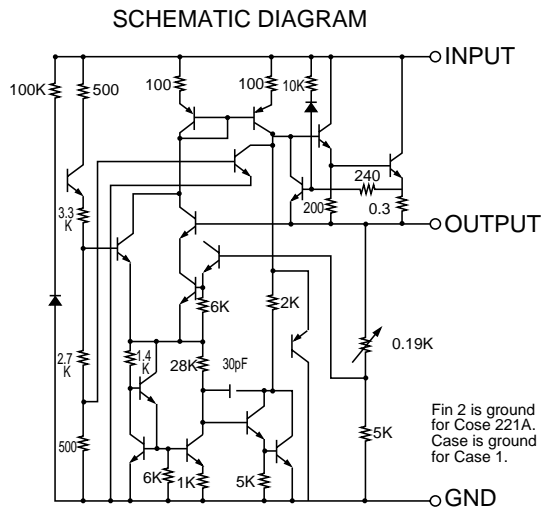


(Equivalent Circuit)

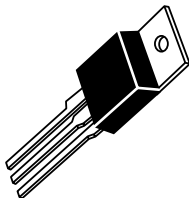
(3) U8 (KIA7805P) : VOLTAGE REGULATOR (5VDC)



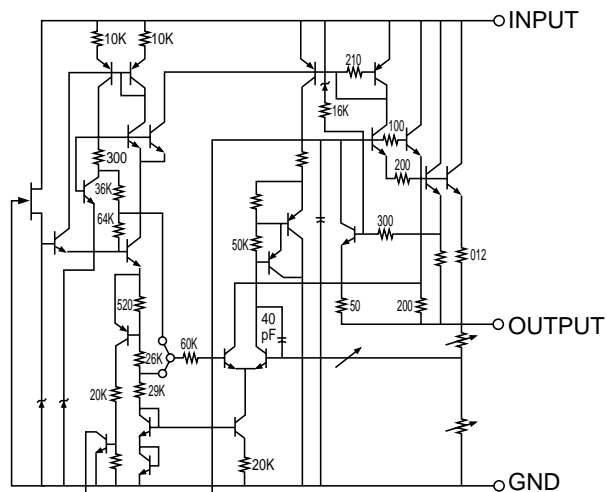
Pin 1. INPUT
 2. GROUND
 3. OUTPUT



(4) U7 (KIA7812P) : VOLTAGE REGULATOR (12VDC)

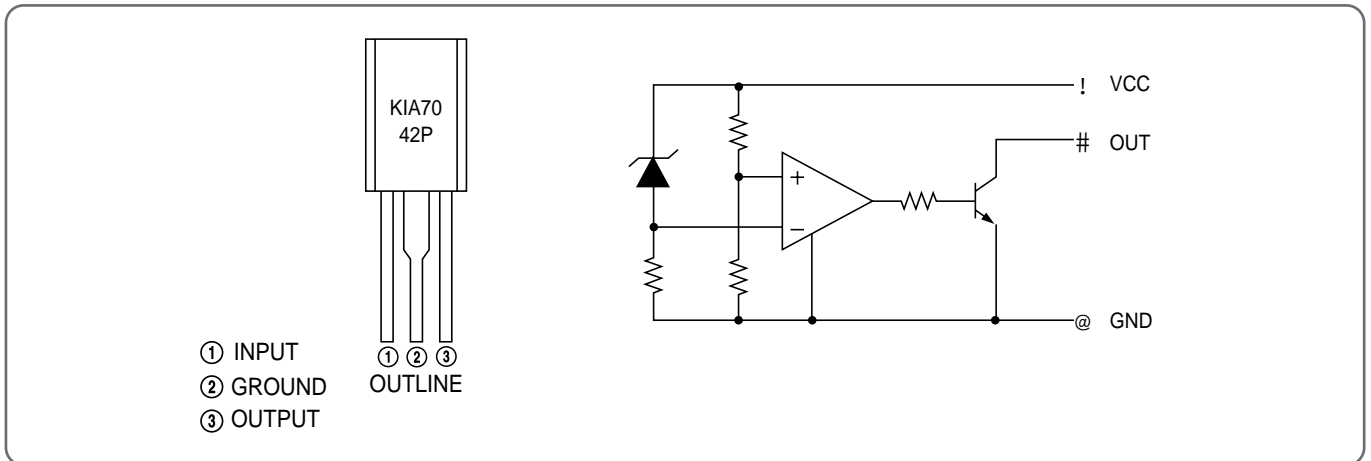


Pin 1. INPUT
 2. GROUND
 3. OUTPUT

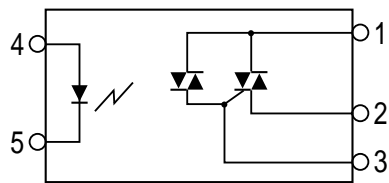


(Equivalent Circuit)

(5) U9 (KIA7042P) : RESET IC



(6) U5 (TSA3100J) : PHOTO TRIAC

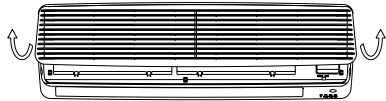
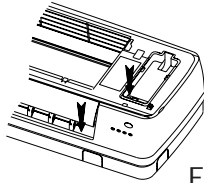
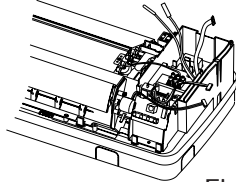
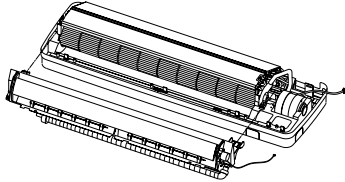
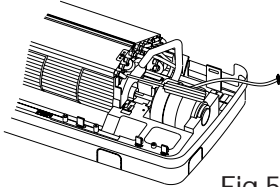
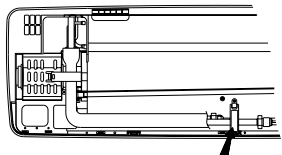
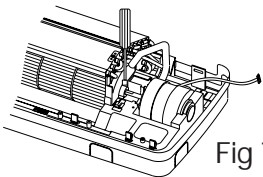


1. AC output (MT2)
2. AC output (MT1)
3. GATE
4. DC input (+)
5. DC input (-)

10. DISASSEMBLY INSTRUCTIONS

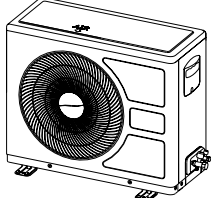
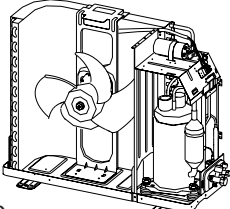
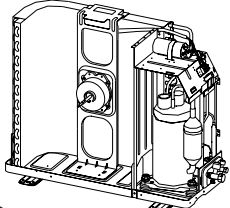
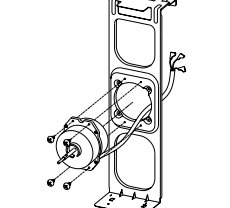
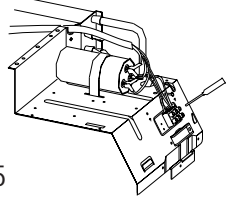
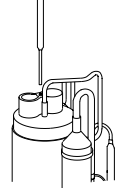
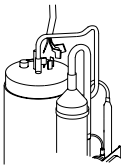
1 INDOOR UNIT

; DSB-090L/DSB-120L/DSA-100L/DSA-120L

| PROCEDURES | PHOTOS |
|---|---|
| <p>1. Stop the Air conditioner and disconnect the power cord from the wall outlet.</p> |  |
| <p>2. Removing the insert Grille and Frame Grille. (Fig 1~2) !Draw up the insert Grille and remove it. @ Loosen two special screw for fixing the Cover Ter-Block. # Loosen three screw at the Body. \$ Remove the Frame.</p> |  |
| <p>3. Removing the Control Box. (Fig 3) !Remove room and coil thermistors. @ Disconnect the fan motor lead wire from connection at the Control PCB. # Disconnect the stepping motor lead wire from connection at the Control PCB. \$ Remove the select switch from connection at the Control PCB. % Loosen a screw for fixing ground wire. ^ Remove the Control Box</p> |  |
| <p>4. Removing the Drain Pan. (Fig 4) !Disconnect the Body drain hole. (left and right Body) @ Disconnect three hook and remove the Drain Pan.</p> |  |
| <p>5. Removing the Indoor Coil. (Fig 5~6) !Remove three screw for fixing indoor Coil at the Body. @ Remove the hook for fixing Bracket Pipe at the Back side Body. # Remove Indoor Coil.</p> |  |
| <p>6. Removing the Cross Flow Fan. (Fig 7) !Remove set screw for fixing Motor shaft. @ Remove Cross Flow Fan.</p> |  |
| <p>7. Remove Motor FCU and Bearing Plastic.</p> |  |

2 OUTDOOR UNIT

i DSB-090L/DSB-120L/DSA-100L/DSA-120L

| PROCEDURES | PHOTOS |
|--|---|
| <p>1. Stop the air conditioner and disconnect the wire from Indoor Unit to Outdoor Unit.</p> |  |
| <p>2. Disassemble the case. (Fig 1~2) ! Remove the Top Panel. (Loosen two screw and remove six hook) @ Remove the Front Cabinet. (Loosen four screw and four hook) # Remove the Side Cabinet and Back Cabinet. (Loosen eight screw)</p> | <p>Fig 1</p>  |
| <p>3. Removing the Propeller Fan. (Fig 3) ! Loosen the Nut for fixing the propeller Fan. @ Remove the Plain Washer. # Remove the Propeller Fan.</p> | <p>Fig 2</p>  |
| <p>4. Removing the Motor ODU. (Fig 4) ! Loosen four screw at Bracket Motor. @ Disconnect the wire at Control Panel and remove Motor ODU.</p> | <p>Fig 3</p>  |
| <p>5. Removing the Dual Capacitor. (Fig 5) ! Disconnect the wire at Control Panel. @ Loosen a screw at Clamp Capacitor. # Remove the Dual Capacitor.</p> | <p>Fig 4</p>  |
| <p>6. Removing the Over load Protector. (Fig 6~7) ! Loosen a Hex Nut at Terminal Cover. @ Remove the Terminal Cover. # Remove the wire at Over load Protector. \$ Remove the Over load Protector.</p> | <p>Fig 5</p>  <p>Fig 7</p>  |

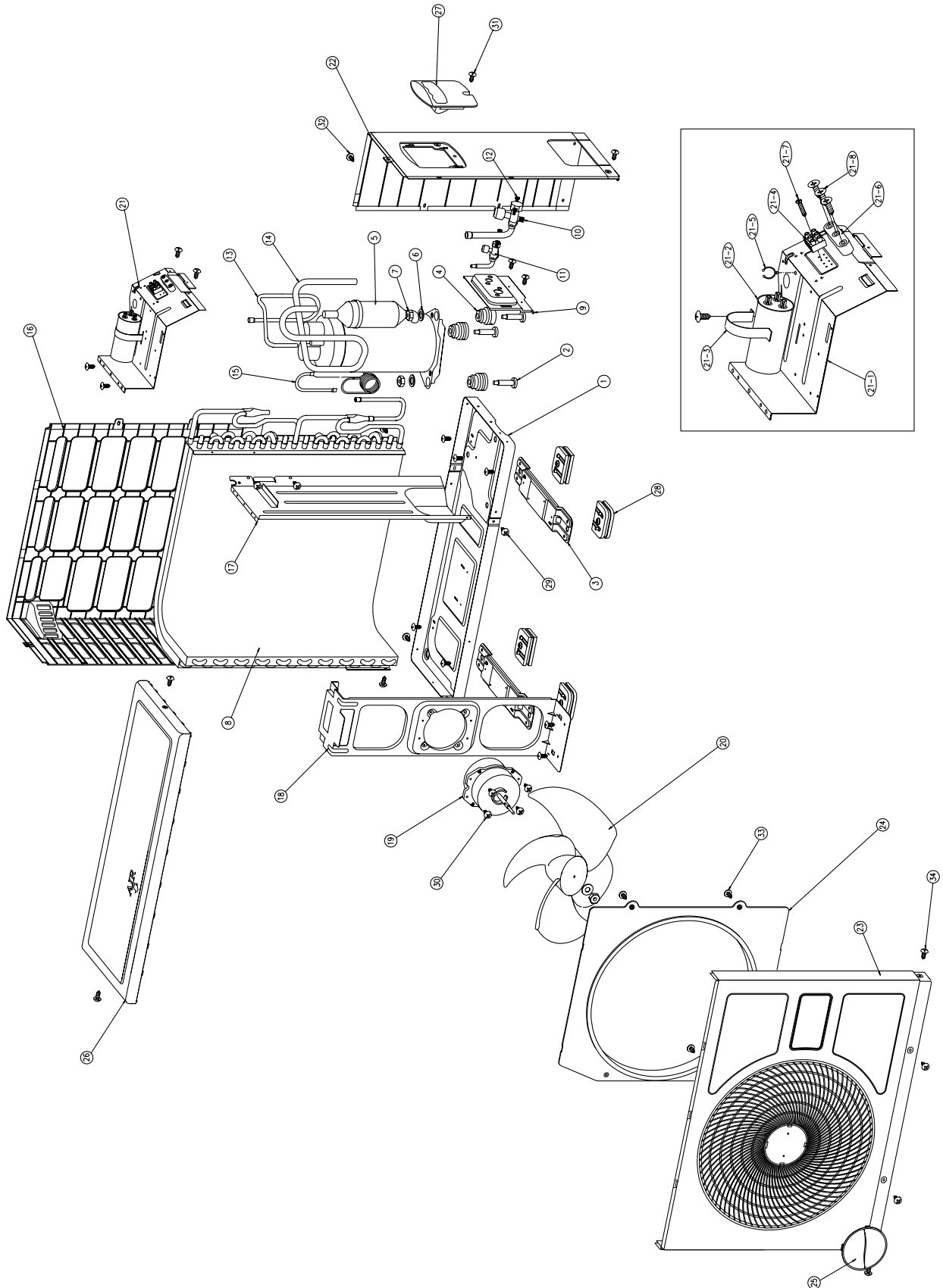
i DSB-090L/DSB-120L/DSA-100L/DSA-120L PARTS LIST(INDOOR UNIT)

| No | PART CODE | PART NAME | Q'TY | SPEC | REMARK |
|-------|--------------|-----------------------|------|------------------------|--------|
| 1 | 3100400201 | BODY | 1 | ABS or HIPS | |
| 2 | 3108001200 | MOTOR FCU | 1 | 220V 50/60Hz | |
| 3 | 3101500400 | CUSHION MOTOR | 2 | CR | |
| 4 | 3106400200 | BEARING PLASTIC ASS'Y | 1 | | |
| 5 | 3100014400 | C.F.F. ASS'Y | 1 | SAN+G. F20% | |
| 6 | 7485401012 | SET SCREW | 1 | 6S-4 X 10-E | |
| 7 | 3100014300 | EVA. ASS'Y | 1 | | |
| 8 | 3108100401 | PAN DRAIN | 1 | ABS | |
| 9 | 3106500800 | BLADE VERTICAL MN | 12 | ABS | |
| 10 | 3106300800 | BAR BLADE | 2 | ABS | |
| 11 | 3100700800 | BUSHING L | 1 | POM | |
| 12 | 3100700700 | BUSHING R | 1 | POM | |
| 13 | 3107600300 | FLAP | 1 | ABS | |
| 14 | 3108000100 | MOTOR STEPPING | 1 | MG28GA | |
| 15 | 3100017500 | CONTROL BOX ASS'Y | 1 | | BUYER |
| 15-1 | 3100503101 | BOX CONTROL | 1 | P.P+G.F20% | |
| 15-2 | 5EPV050100 | TRANS | 1 | DWA220A-50/60Hz | |
| 15-3 | 3106900300 | CAPACITOR SH.M.B | 1 | 1.0μF 400VAC | |
| 15-4 | 3104397100 | CONTROL PCB ASS'Y | 1 | FR-4 | |
| 15-5 | 3104397200 | LED PCB ASS'Y | 1 | FR-4 | |
| 15-6 | 3108901120 | TERMINAL BLOCK | 1 | 323-HDS106 | |
| 15-7 | 3104896300 | SENSOR I.D ASS'Y | 1 | PTM-KD43C-D2 | |
| 15-8 | 3102797900 | HARNESS | 1 | I.D EARTH | |
| 15-9 | 3103400300 | KNOB RESET SWITCH | 1 | ABS | |
| 15-10 | 3100024000 | MODE SELECT ASS'Y | 1 | TS-11 & HARNESS | |
| 15-11 | 3101397130 | POWER CORD ASS'Y | 1 | | BUYER |
| 15-12 | 7111301611 | TAPPING SCREW | 2 | TIS PAN 3 X 16 MFZN | |
| 16 | 3102200401 | FRAME | 1 | ABS | |
| 17 | 3103600300 | LAMP INDICATE | 1 | MIPS | |
| 18 | 3105500500 | WINDOW SENSOR | 1 | ACRIL | |
| 19 | 3100901000 | CAP FRAME L | 1 | ABS | |
| 20 | 3100900900 | CAP FRAME C | 1 | ABS | |
| 21 | 3100900800 | CAP FRAME R | 1 | ABS | |
| 22 | 3101401701 | COVER TER-BLOCK | 1 | ABS | |
| 23 | 3100017800 | FILTER ELECTRO ASS'Y | 1 | | |
| 24 | 3100017900 | FILTER CARBON ASS'Y | 1 | | |
| 25 | 3100017700 | FILTER PRE ASS'Y | 2 | | |
| 26 | 3108400110 | REMOCON ASS'Y | 1 | | BUYER |
| 27 | 3102401500 | INSERT GRILLE | 1 | ABS | |
| 28 | 3107500200 | EMBLEM | 1 | URETANE | |
| 29 | 3100602400 | BRACKET PIPE | 1 | HIPS | |
| 30 | 3101201200 | CLAMP BRACKET PIPE | 1 | HIPS | |
| 31 | 3104503900 | PLATE MOUNTING | 1 | SBHG1 | |
| 32 | 3106001600 | SPECIAL SCREW | 1 | T2 4 X 16 MFNI LOCKING | |
| 33 | 7S422 X 40B1 | SPECIAL SCREW | 13 | TT2 TRS SE 4 X 12 MFZN | |

f NO 15, 15-11, 16, 26, 28 Will be changed depend on export destination & buyer requirements.

4 EXPLODED DIAGRAM (Outdoor Unit)

i DSB-090L/DSB-120L/DSA-100L/DSA-120L



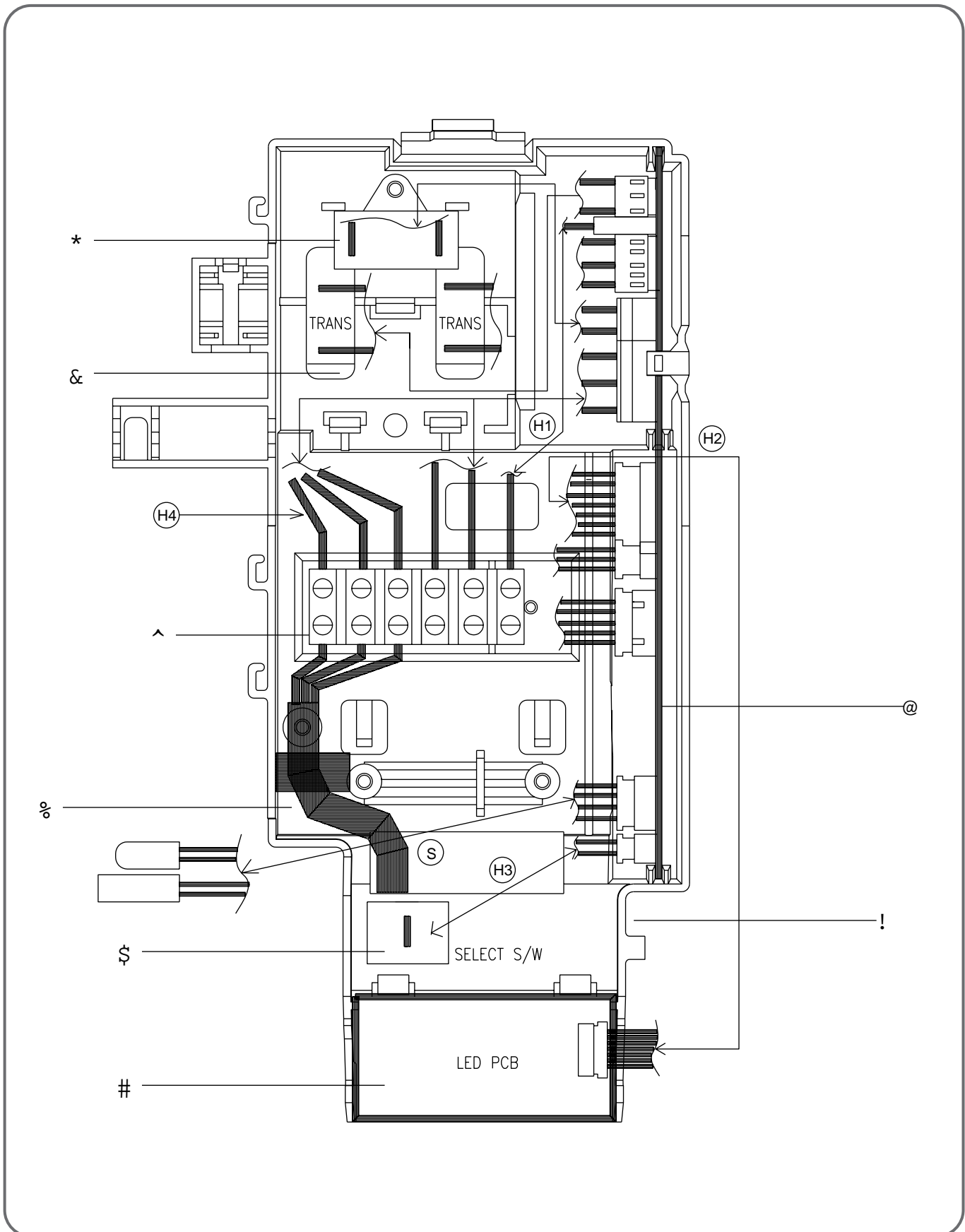
i DSB-090L/DSB-120L PARTS LIST(OUTDOOR UNIT)

| No | PART CODE | PART NAME | Q'TY | SPEC | REMARK |
|------|------------|-----------------------|------|---------------------------|--------|
| 1 | 3100300501 | PAN BASE | 1 | SECC | |
| 2 | 3106000900 | COMP BOLT | 3 | M8 X L46.5 MFZN | |
| 3 | 3102100800 | FOOT | 2 | SECC | |
| 4 | 3108134AE0 | GROMMET | 3 | EPDM | |
| 5 | 3100030CE0 | COMPRESSOR ASS'Y | 1 | RCB120A001 | B-120L |
| | 3100030FE0 | | | RCB090A001 | B-090L |
| 6 | 7400208411 | WASHER PLANE | 4 | M8.4 X 0.D22 X T1.6 | |
| 7 | 7392800011 | NUT LOCK | 4 | M8 X P1.25 MFZN | |
| 8 | 3100014100 | CONDENSER ASS'Y | 1 | | |
| 9 | 3100015100 | BRACKET SERVICE ASS'Y | 1 | | |
| 10 | 3105400700 | SERVICE VALVE | 1 | 1/2" | |
| 11 | 3105400800 | SERVICE VALVE | 1 | 1/4" | |
| 12 | 7347602011 | BOLT HEX | 4 | M6 X L20 MFZN | |
| 13 | 3100020600 | PIPE DISCHARGE ASS'Y | 1 | C1220T | |
| 14 | 3100020700 | PIPE SUCTION ASS'Y | 1 | C1220T | |
| 15 | 3100014200 | FILTER ASS'Y | 1 | C1220T | |
| 16 | 3100800600 | CABINET BACK | 1 | ABS or AES | |
| 17 | 3104503800 | PLATE PARTITION | 1 | SBHG1 | |
| 18 | 3100601901 | BRACKET MOTOR | 1 | SBHG1 | |
| 19 | 3108000800 | MOTOR ODU | 1 | 220-240/50Hz | B-120L |
| | 3108001300 | | | 220-240/50Hz | B-090L |
| 20 | 3101801000 | FAN PROPELLER | 1 | ABS+G.F20% | |
| 21 | 3100015400 | PANEL CONTROL ASS'Y | 1 | | B-120L |
| | 3100029100 | | | | B-090L |
| 21-1 | 3104201301 | PANEL CONTROL | 1 | SBHG1 | |
| 21-2 | 3109500701 | CAPACITOR DUAL | 1 | 3.5+25 μ F 400VAC | B-120L |
| | 3109501201 | | | 1.8+25 μ F 400VAC | B-090L |
| 21-3 | 3101201100 | CLAMP CAPACITOR | 1 | SBHG1 | |
| 21-4 | 3108900900 | TERMINAL BLOCK | 1 | 323-HDS103 | |
| 21-5 | 3103800300 | LOCK TWIST | 1 | DATL-250 | |
| 21-6 | 3101202000 | CLAMP CORD | 1 | NYLON | |
| 21-7 | 7111301611 | TAPPING SCREW | 1 | TIS PAN 3 X 16 MFZN | |
| 21-8 | 7112403011 | TAPPING SCREW | 3 | TIS TRS 4 X 30 MFZN | |
| 22 | 3100800701 | CABINET SIDE | 1 | ABS or AES | |
| 23 | 3100800501 | CABINET FRONT | 1 | ABS or AES | |
| 24 | 3104201201 | PANEL ORIFICE | 1 | P.P | |
| 25 | 3101401900 | COVER GRILLE | 1 | ABS or AES | |
| 26 | 3104201100 | PANEL TOP | 1 | ABS or AES | |
| 27 | 3102600300 | HANDLE | 1 | ABS or AES | |
| 28 | 3102100700 | FOOT CUSHION | 4 | NBR | |
| 29 | 7112401211 | TAPPING SCREW | 19 | T1S TRS 4 X 12 MFZN | |
| 30 | 7112402011 | TAPPING SCREW | 4 | T1S TRS 4 X 20 MFZN | |
| 31 | 3106001600 | SPECIAL SCREW | 1 | T2 4 X 16 MFNI LOCKING | |
| 32 | 7112401614 | TAPPING SCREW | 4 | T1S TRS 4 X 16 MFNI+PVC/W | |
| 33 | 7S422X40B1 | SPECIAL SCREW | 4 | TT2 TRS SE 4 X 12 MFZN | |
| 34 | 7112401214 | TAPPING SCREW | 12 | TIS TRS 4 X 12 MFZN+PVC/W | |

i DSA-100L/DSA-120L PARTS LIST(OUTDOOR UNIT)

| No | PART CODE | PART NAME | Q'TY | SPEC | REMARK |
|------|------------|-----------------------|------|---------------------------|------------|
| 1 | 3100300501 | PAN BASE | 1 | SECC | |
| 2 | 3106000900 | COMP BOLT | 3 | M8 X L46.5 MFZN | |
| 3 | 3102100800 | FOOT | 2 | SECC | |
| 4 | 3108134AE0 | GROMMET | 3 | EPDM | |
| 5 | 3100030DE0 | COMPRESSOR ASS'Y | 1 | RCA120A001 | A-120L |
| | 3100030EE0 | | | RCA100A001 | A-100L |
| 6 | 7400208411 | WASHER PLANE | 4 | M8.4 X 0.D22 X T1.6 | |
| 7 | 7392800011 | NUT LOCK | 4 | M8 X P1.25 MFZN | |
| 8 | 3100014100 | CONDENSER ASS'Y | 1 | | |
| 9 | 3100015100 | BRACKET SERVICE ASS'Y | 1 | | |
| 10 | 3105400700 | SERVICE VALVE | 1 | 1/2" | |
| 11 | 3105400800 | SERVICE VALVE | 1 | 1/4" | |
| 12 | 7347602011 | BOLT HEX | 4 | M6 X L20 MFZN | |
| 13 | 3100020600 | PIPE DISCHARGE ASS'Y | 1 | C1220T | |
| 14 | 3100020700 | PIPE SUCTION ASS'Y | 1 | C1220T | |
| 15 | 3100014200 | FILTER ASS'Y | 1 | C1220T | |
| 16 | 3100800600 | CABINET BACK | 1 | ABS or AES | |
| 17 | 3104503800 | PLATE PARTITION | 1 | SBHG1 | |
| 18 | 3100601901 | BRACKET MOTOR | 1 | SBHG1 | |
| 19 | 3108003000 | MOTOR ODU | 1 | 208-230/60Hz | A-100/120L |
| 20 | 3101801000 | FAN PROPELLER | 1 | ABS+G.F20% | |
| 21 | 3100047900 | PANEL CONTROL ASS'Y | 1 | | A-120L |
| | 3100029100 | | | | A-100L |
| 21-1 | 3104201301 | PANEL CONTROL | 1 | SBHG1 | |
| 21-2 | 3109502000 | CAPACITOR DUAL | 1 | 2.0+30 μ F 400VAC | A-120L |
| | 3109501201 | | | 1.8+25 μ F 400VAC | A-100L |
| 21-3 | 3101201100 | CLAMP CAPACITOR | 1 | SBHG1 | |
| 21-4 | 3108900900 | TERMINAL BLOCK | 1 | 323-HDS103 | |
| 21-5 | 3103800300 | LOCK TWIST | 1 | DATL-250 | |
| 21-6 | 3101202000 | CLAMP CORD | 1 | NYLON | |
| 21-7 | 7111301611 | TAPPING SCREW | 1 | TIS PAN 3 X 16 MFZN | |
| 21-8 | 7112403011 | TAPPING SCREW | 3 | TIS TRS 4 X 30 MFZN | |
| 22 | 3100800701 | CABINET SIDE | 1 | ABS or AES | |
| 23 | 3100800501 | CABINET FRONT | 1 | ABS or AES | |
| 24 | 3104201201 | PANEL ORIFICE | 1 | P.P | |
| 25 | 3101401900 | COVER GRILLE | 1 | ABS or AES | |
| 26 | 3104201100 | PANEL TOP | 1 | ABS or AES | |
| 27 | 3102600300 | HANDLE | 1 | ABS or AES | |
| 28 | 3102100700 | FOOT CUSHION | 4 | NBR | |
| 29 | 7112401211 | TAPPING SCREW | 19 | T1S TRS 4 X 12 MFZN | |
| 30 | 7112402011 | TAPPING SCREW | 4 | T1S TRS 4 X 20 MFZN | |
| 31 | 3106001600 | SPECIAL SCREW | 1 | T2 4 X 16 MFNI LOCKING | |
| 32 | 7112401614 | TAPPING SCREW | 4 | T1S TRS 4 X 16 MFNI+PVC/W | |
| 33 | 7S422X40B1 | SPECIAL SCREW | 4 | TT2 TRS SE 4 X 12 MFZN | |
| 34 | 7112401214 | TAPPING SCREW | 12 | TIS TRS 4 X 12 MFZN+PVC/W | |

5 CONTROL BOX ASSEMBLY



; DSB-090L/DSB-120L/DSA-100L/DSA-120L

| No | PART CODE | PART NAME | Q'TY | SPEC | REMARK |
|----|------------|---------------------|------|-----------------|--------|
| 1 | 3100503101 | CONTROL BOX | 1 | P.P+G.F 20% | |
| 2 | 3104397100 | CONTROL PCB ASS'Y | 1 | FR-4 | |
| 3 | 3104397200 | LED PCB ASS'Y | 1 | FR-4 | |
| 4 | 3103400300 | KNOB RESET SWITCH | 1 | ABS | |
| 5 | 3101395030 | POWER CORD ASS'Y | 1 | | BUYER |
| 6 | 3108901120 | TERMINAL BLOCK | 1 | 323-HDS106 | |
| 7 | 5EPV050100 | TRANS FORMER | 1 | DWA220A-50/60Hz | |
| 8 | 3106900300 | CAPACITOR SH.M.B | 1 | 1.0μF 400VAC | |
| H1 | 3102797600 | HARNESS I/D COMP | 1 | | |
| H2 | 3102797500 | HARNESS LED PCB | 1 | | |
| H3 | 3102797400 | HARNESS MODE SELECT | 1 | | |
| H4 | 3102797900 | HARNESS I/D EARTH | 1 | | |
| S | 3104896300 | SENSOR ID ASS'Y | 1 | PTM-KD-43C-D2 | |
| H5 | 3102797161 | HARHESS POWER | 1 | | |

; POWER CORD ASS'Y

| BUYER | PART CORD | REMARK |
|------------|------------|--------|
| UDECO | 3101395030 | |
| DEMOCO | 3101395030 | |
| DEPCO | 3101395030 | |
| DAECO | 3101395030 | |
| DEK | 3101395030 | |
| SHERKAWI | 3101395030 | |
| UET | 3101395040 | |
| DECA MIAMI | 3101397201 | |

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