HITACHI

TC | NO. 0842E

SERVICE MANUAL

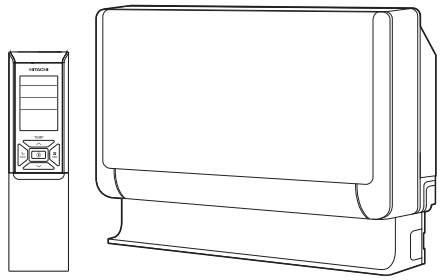
TECHNICAL INFORMATION

RAF-25RXB/RAC-25FXB
RAF-35RXB/RAC-35FXB
RAF-50RXB/RAC-50FXB

REFER TO THE FOUNDATION MANUAL

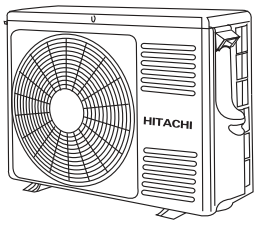
FOR SERVICE PERSONNEL ONLY

INDOOR UNIT

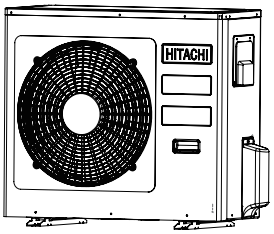


RAF-25RXB
RAF-35RXB
RAF-50RXB

OUTDOOR UNIT



RAC-25FXB
RAC-35FXB



RAC-50FXB

CONTENTS

SPECIFICATIONS

TYPE			DC INVERTER					
			INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR UNIT
MODEL			RAF-25RXB	RAC-25FXB	RAF-35RXB	RAC-35FXB	RAF-50RXB	RAC-50FXB
POWER SOURCE			1 PHASE, 50HZ, 220-230V		1 PHASE, 50HZ, 220-230V		1 PHASE, 50HZ, 220-230V	
COOLING	TOTAL INPUT (W)		580(155-1,180)		1,020(155-1,300)		1,560(155-1,950)	
	TOTAL AMPERES (A)		3.11-2.97		4.80-4.67		7.16-6.85	
	CAPACITY	(KW)	2.50(0.90-3.10)		3.50(0.90-4.00)		5.00(0.90-5.20)	
		(B.T.U./h)	8,530(3,070-10,580)		11,940(3,070-13,650)		17,060(3,070-17,740)	
HEATING	TOTAL INPUT (W)		790(115-1,120)		1,220(115-1,300)		1,780(115-2,100)	
	TOTAL AMPERES (A)		3.99-3.82		5.84-5.58		8.17-7.82	
	CAPACITY	(KW)	3.4(0.9-4.4)		4.5(0.9-5.0)		6.5(0.9-8.1)	
		(B.T.U./h)	11,600(3,070-15,010)		15,350(3,070-17,060)		22,180(3,070-27,640)	
DIMENSIONS (mm)		W	750	750(+65)※	750	750(+65)※	750	800(+63)※
		H	590	548	590	548	590	736
		D	215	288(+27.5)※	215	288(+27.5)※	215	350(+35.5)※
NET WEIGHT (Kg)			15	34	15	34	15	49.5

※After installation

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

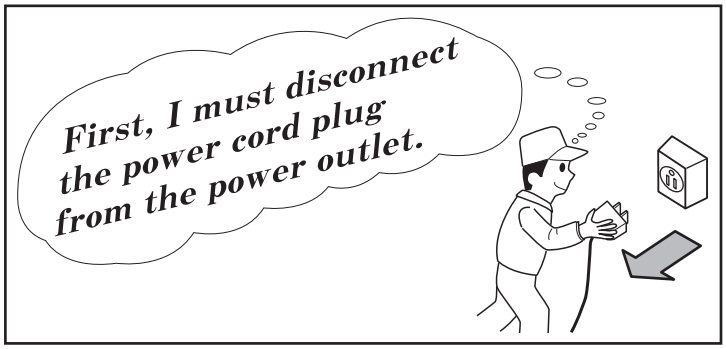
ROOM AIR CONDITIONER

INDOOR UNIT + OUTDOOR UNIT

FEBRUARY 2015 **Hitachi Appliances, Inc.**

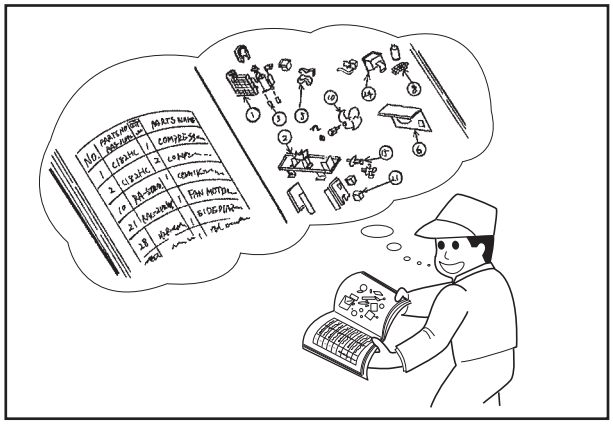
1. SAFETY DURING REPAIR WORK

1. In order to disassemble and repair the unit in question, be sure to disconnect the power cord plug from the power outlet before starting the work.



2. If it is necessary to replace any parts, they should be replaced with respective genuine parts for the unit, and the replacement must be effected in correct manner according to the instructions in the Service Manual of the unit.

   If the contacts of electrical parts are defective, replace the electrical parts without trying to repair them



3. After completion of repairs, the initial state should be restored.

4. Lead wires should be connected and laid as in the initial state.

5. Modification of the unit by the user himself should absolutely be prohibited.

6. Tools and measuring instruments for use in repairs or inspection should be accurately calibrated in advance.

7. In installing the unit having been repaired, be careful to prevent the occurrence of any accident such as electrical shock, leak of current, or bodily injury due to the drop of any part.

8. To check the insulation of the unit, measure the insulation resistance between the power cord plug and grounding terminal of the unit.
   The insulation resistance should be 1MΩ or more as measured by a 500V DC megger.

9. The initial location of installation such as window, floor or the other should be checked for being safe enough to support the repaired unit again.
   If it is found not so strong and safe, the unit should be installed at the initial location after reinforced or at a new location.

10. Any inflammable object must not be placed about the location of installation.

11. Check the grounding to see whether it is proper or not, and if it is found improper, connect the grounding terminal to the earth.

WORKING STANDARDS FOR PREVENTING BREAKAGE OF SEMICONDUCTORS

1. Scope

The standards provide for items to be generally observed in carrying and handling semiconductors in relative manufactures during maintenance and handling thereof. (They apply the same to handling of abnormal goods such as rejected goods being returned.)

2. Object parts

(1) Microcomputer

(2) Integrated circuits (I.C.)

(3) Field effective transistor (F.E.T.)

(4) P.C. boards or the like to which the parts mentioned in (1) and (2) of this paragraph are equipped.

3. Items to be observed in handling

(1) Use a conductive container for carrying and storing of parts. (Even rejected goods should be handled in the same way.)

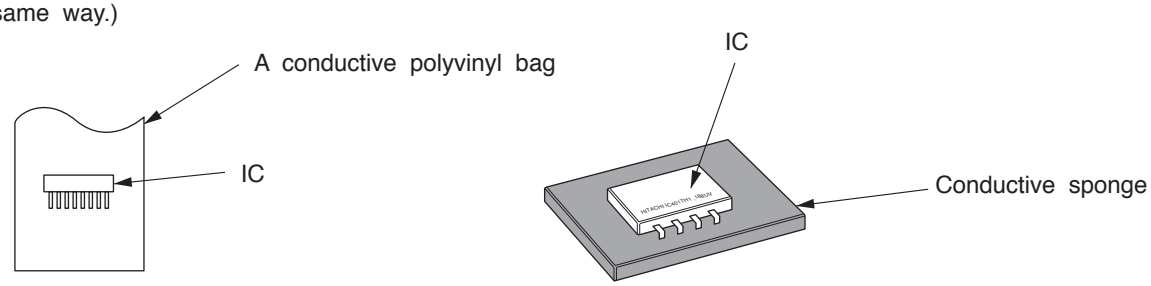


Fig. 1 Conductive container

(2) When any part is handled uncovered (in counting, packing and the like), the handling person must always use himself as a body earth. (Make yourself a body earth by passing one M ohm earth resistance through a ring or bracelet.)

(3) Be careful not to touch the parts with your clothing when you hold a part even if a body earth is being taken.

(4) Be sure to place a part on a metal plate with grounding.

(5) Be careful not to fail to turn off power when you repair the printed circuit board. At the same time, try to repair the printed circuit board on a grounded metal plate.

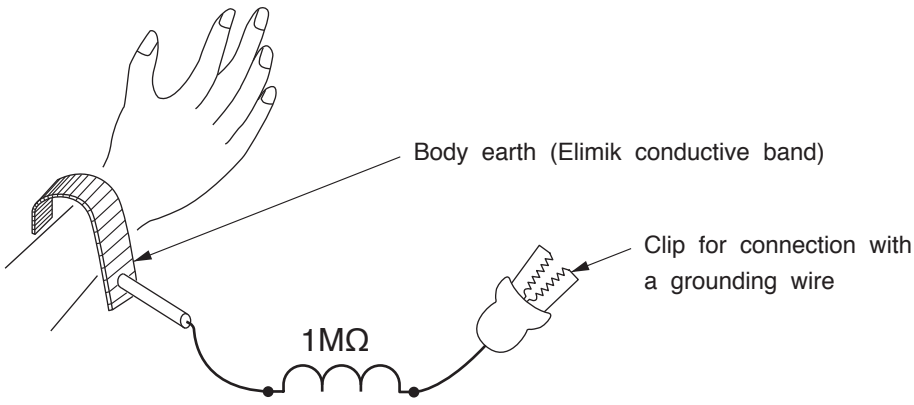


Fig. 2 Body earth

(6) Use a three wire type soldering iron including a grounding wire.

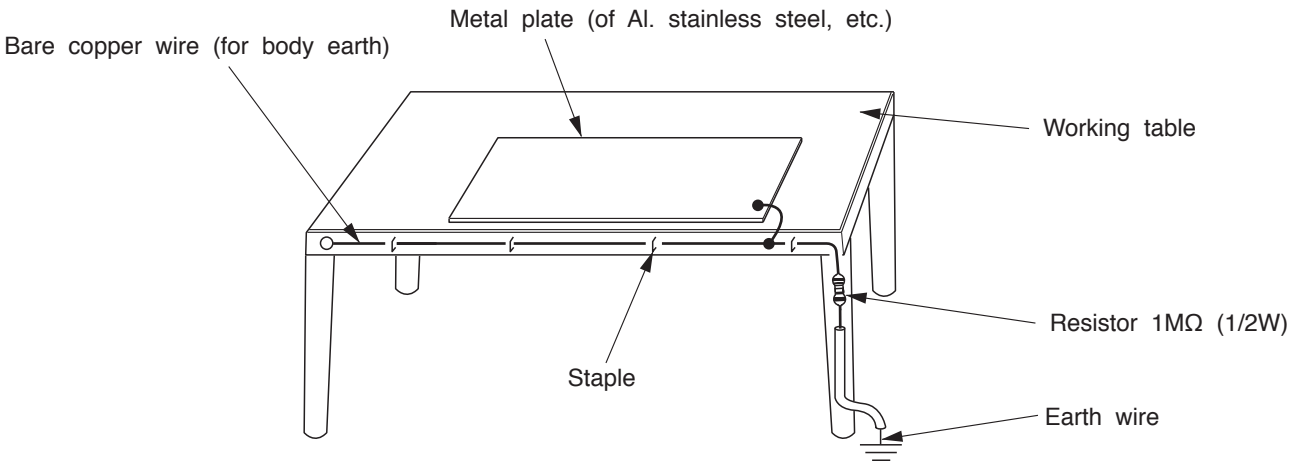


Fig.3 Grounding of the working table

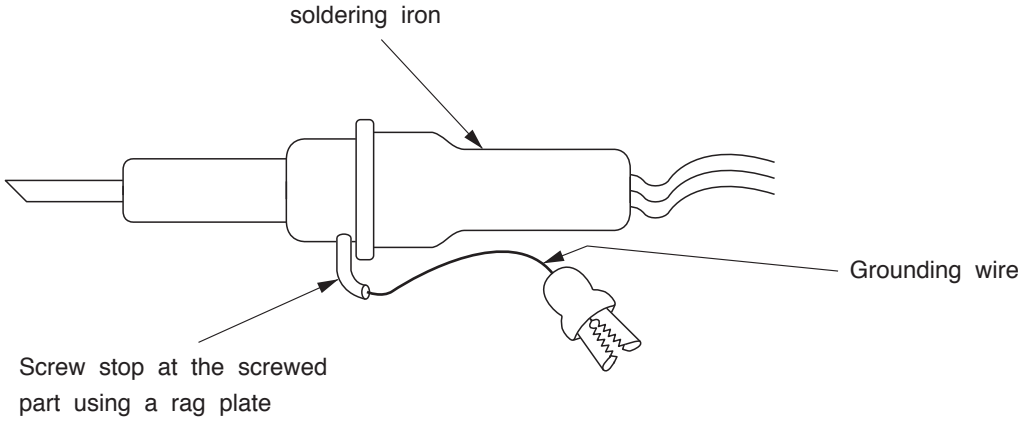


Fig.4 Grounding a solder iron

Use a high insulation mode (100V, 10MΩ or higher) when ordinary iron is to be used.

(7) In checking circuits for maintenance, inspection, or some others, be careful not to have the test probes of the measuring instrument short circuit a load circuit or the like.

⚠ CAUTION

1. In quiet or stop operation, slight flowing noise of refrigerant in the refrigerating cycle is heard occasionally, but this noise is not abnormal for the operation.

2. When it thunders near by, it is recommend to stop the operation and turn off the circuit breaker for safety.

3. In the event of power failure,the room air conditioner will restare automatically in the previously selected mode once the power is restored. In the event of power failure during TIMER operation, the room air comditioner will not start automatically. Re-press ON/OFF button after 3 minutes from when the unit off or power recovery.

4. If the room air conditioner is stopped by adjusting thermostat, or missoperation, and re-start in a moment, there is occasion that the cooling and heating operation does not start for 3 minutes, it is not abnormal and this is the result of the operation of IC delay circuit. This IC delay circuit ensures that there is no danger of blowing fuse or damaging parts even if operation is restarted accidentally.

5. This room air conditioner should not be used at the cooling operation when the outside temperature is below -10°C (14°F).

6. This room air conditioner (the reverse cycle) should not be used when the outside temperature is below –15°C (5°F).
   If the reverse cycle is used under this condition, the outside heat exchanger is frosted and efficiency falls.

7. When the outside heat exchanger is frosted, the frost is melted by operating the hot gas system, it is not trouble that at this time fan stops and the vapour may rise from the outside heat exchanger.

This manual describes only points that differ from
RAM-33NP2B(PM No. 0581E)
RAM-40NP2B(PM No. 0582E)
RAM-53NP2B, RAM-53NP3B(PM No. 0583E)
RAM-68NP3B(PM No. 0584E)
RAM-70NP4B(PM No. 0585E)
RAM-90NP5B(PM No. 0586E)
RAM-110NP6B(PM No. 0587E)
for items not described in this manual.

Combination table

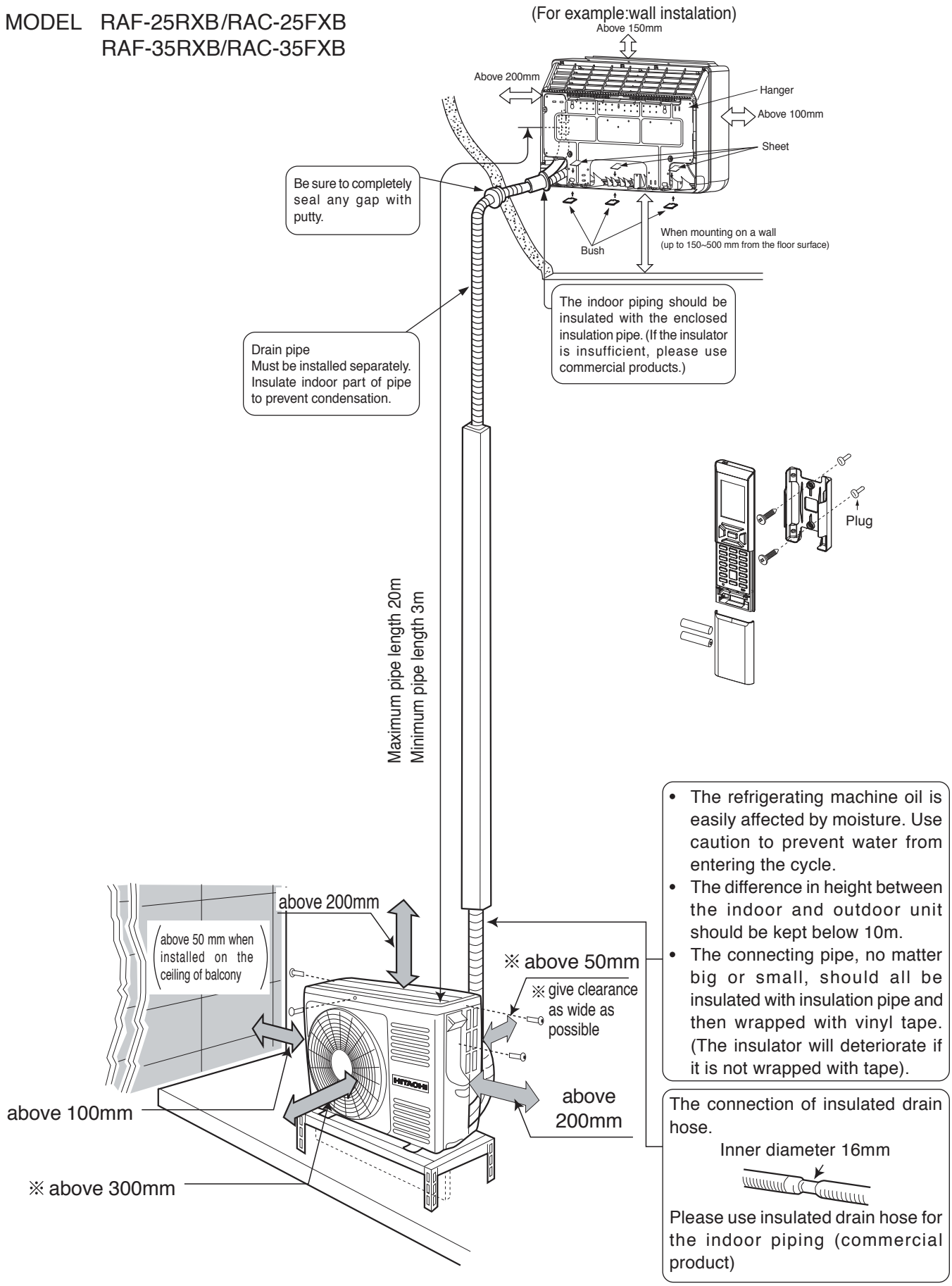
Indoor unit		RAF-25RXB	RAF-35RXB	RAF-50RXB
Single outdoor unit		RAC-25FXB	RAC-35FXB	RAC-50FXB
Multi outdoor unit	RAM-33NP2B	o	-	-
	RAM-40NP2B	o	o	-
	RAM-53NP2B	o	o	o
	RAM-53NP3B	o	o	o
	RAM-68NP3B	o	o	o
	RAM-70NP4B	o	o	o
	RAM-90NP5B	o	o	o
	RAM-110NP6B	o	o	o

SPECIFICATIONS

MODEL		RAF-25RXB RAF-35RXB RAF-50RXB	RAC-25FXB	RAC-35FXB	RAC-50FXB
FAN MOTOR		30W (DC325V)	47W (DC120~380V)		
FAN MOTOR CAPACITOR		NO	NO		
FAN MOTOR PROTECTOR		NO	NO		
COMPRESSOR		–	ASD084SFNA7JK1		ASG133CDNB7AT
COMPRESSOR MOTOR CAPACITOR		NO	NO		
OVERLOAD PROTECTOR		NO	YES(INTERNAL)		
OVERHEAT PROTECTOR		NO	YES		
FUSE (for MICROPROCESSOR)		3.15A	15A, 2A, 3A, 3.15A		25A, 2A, 3A, 3.15A
POWER RELAY		NO	G4A-1A		
POWER SWITCH		NO	NO		
TEMPORARY SWITCH		YES	NO		
SERVICE SWITCH		NO	YES		
TRANSFORMER		YES	YES		
VARISTOR		450NR	450NR, ERZVA431		
NOISE SUPPRESSOR		NO	YES		
THERMOSTAT		YES(IC)	YES(IC)		
REMOTE CONTROL SWITCH (LIQUID CRYSTAL)		YES	NO		
REFRIGERANT CHARGING VOLUME (Refrigerant R410A)	UNIT	----------	870g	870g	1400g
	PIPES	MAX. 20m MIN.3m			MAX. 30m MIN.3m
		WITHOUT REFRIGERANT BECAUSE COUPLING IS FLARE TYPE.			

Figure showing the installation of Indoor and Outdoor unit

MODEL RAF-25RXB/RAC-25FXB
RAF-35RXB/RAC-35FXB



- The refrigerating machine oil is easily affected by moisture. Use caution to prevent water from entering the cycle.
- The difference in height between the indoor and outdoor unit should be kept below 10m.
- The connecting pipe, no matter big or small, should all be insulated with insulation pipe and then wrapped with vinyl tape. (The insulator will deteriorate if it is not wrapped with tape).

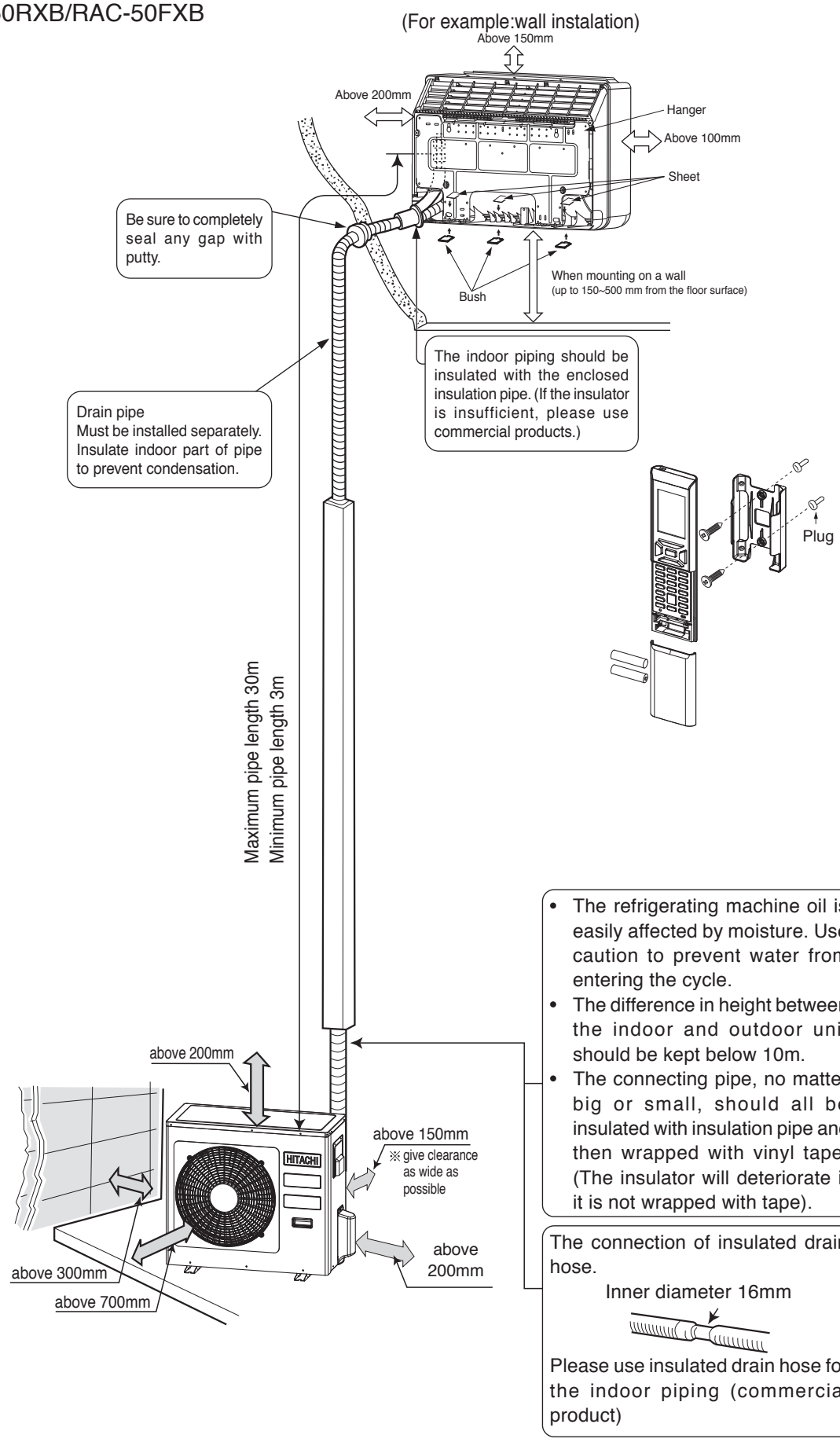
The connection of insulated drain hose.

Inner diameter 16mm

Please use insulated drain hose for the indoor piping (commercial product)

Figure showing the installation of Indoor and Outdoor unit

MODEL RAF-50RXB/RAC-50FXB



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The connection of insulated drain hose.

Inner diameter 16mm

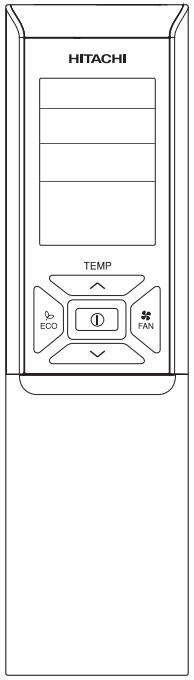
Please use insulated drain hose for the indoor piping (commercial product)

HITACHI
Inspire the Next

Remote Controller Manual

MODEL

RAR-6N4

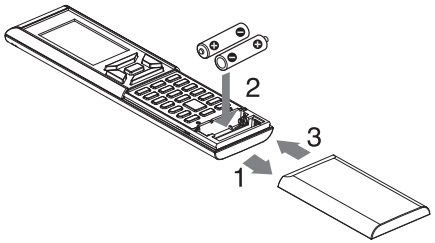


Remote Controller manual Page 1~28
To obtain the best performance and ensure years of trouble free use, please read this instruction manual completely.

PREPARATION BEFORE OPERATION

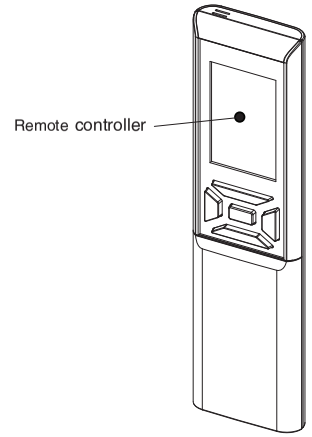
■ To install the batteries

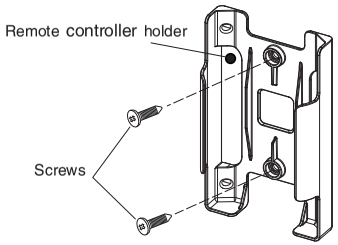
1. Slide the cover to take it off.
2. Install two dry batteries AAA.LR03 (alkaline). The direction of the batteries should match the marks in the case.
3. Replace the cover at its original position.



■ To fix the remote controller holder to the wall

1. Choose a place from where the signals can reach the unit.
2. Fix the remote controller holder to a wall, a pillar or similar location with the provided screws.
3. Place the remote controller in the remote controller holder.





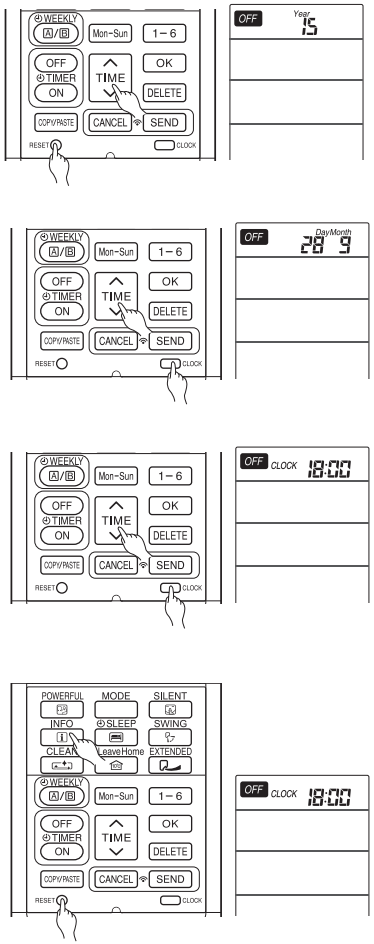
NOTE

Notes on batteries
- When replacing the batteries, use batteries of the same type, and replace both old batteries together.
- When the system is not used for a long time, take the batteries out.
- The batteries will last for approximately 1 year. However, if the remote controller display begins to fade and degradation of reception performance occurs within a year, replace both batteries with new size AAA.LR03 (alkaline).
- The attached batteries are provided for the initial use of the system.
  The usable period of the batteries may be short depending on the manufactured date of the air conditioner.

Notes on the remote controller
- Never expose the remote controller to direct sunlight.
- Dust on the signal transmitter or receiver will reduce the sensitivity. Wipe off dust with soft cloth.
- Signal communication may be disabled if an electronic-starter-type fluorescent lamp (such as inverter-type lamps) is in the room. Consult the shop if that is the case.
- If the remote controller signals happen to operate another appliance, move that appliance to somewhere else, or consult the service shop.
- When the remote controller is not in use, please close the slide cover to prevent failure.

PREPARATION BEFORE OPERATION

ENGLISH



■ To set calendar and clock

1. Press RESET (RESET) button when first time setting. "Year" blinks.
2. Press TIME (TIME) button to set the current year.
3. Press CLOCK (CLOCK) button. "Day" and "Month" blink.
4. Press TIME (TIME) button to set the current day and month.
5. Press CLOCK (CLOCK) button. "CLOCK" blinks.
6. Press TIME (TIME) button to set the clock to the current time.
7. Press CLOCK (CLOCK) button.

   Calendar and clock are set.

To modify the calendar and clock, press CLOCK (CLOCK) button.
Then follow steps 1 to 7.

Calendar and clock need to be set again after changing batteries.

After changing the batteries,
1. Press RESET (RESET) button.
2. Direct remote controller towards indoor unit and press INFO (INFO) button.
3. The calendar and clock from indoor unit will be transmitted.

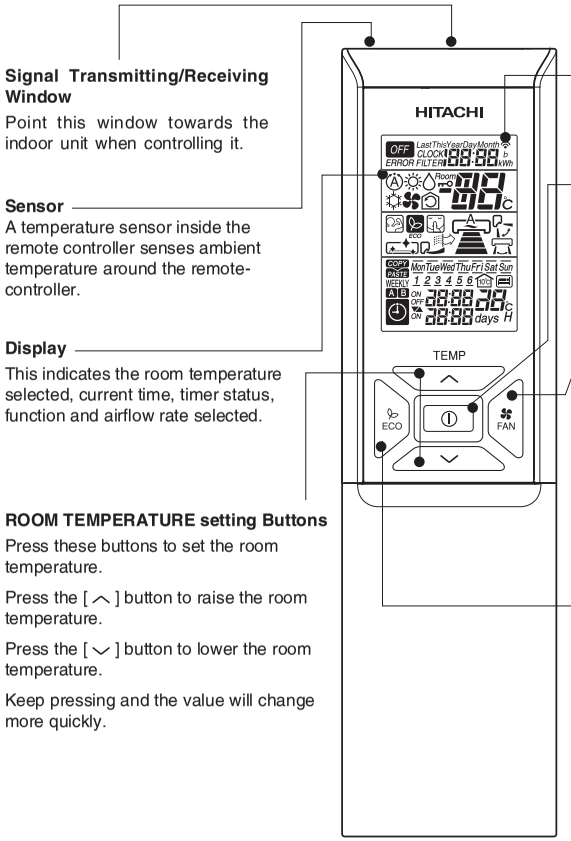
■ Calendar and clock will not be transmitted from indoor unit when the following occurs:
- When there is a power failure.
- When breaker is OFF by user (unit is not in STANDBY MODE).

NOTE

Note on setting the calendar and clock.
- If the calendar and clock are not set, the ON-timer, OFF-timer and Weekly Timer cannot be set.
- If the calendar and clock are not set correctly, the ON-timer, OFF-timer and Weekly Timer will not operate correctly.
- When the ON-timer, OFF-timer and Weekly Timer are set, the calendar and clock cannot be changed. If there is a need to change the calendar and clock, ON-timer, OFF-timer and Weekly Timer need to be cancelled.

NAMES AND FUNCTIONS OF REMOTE CONTROLLER

REMOTE CONTROLLER
- This controls the operation of the indoor unit. The range of control is about 7 meters. If indoor lighting is controlled electronically, the range of control may be shorter.
  This unit can be fixed on a wall using the fixture provided. Before fixing it, make sure the indoor unit can be controlled from the remote controller.
- Handle the remote controller with care. Dropping it or getting it wet may compromise its signal transmission capability.
- After new batteries are inserted into the remote controller, the unit will initially require approximately 10 seconds to respond to commands and operate.
- When remote controller is not in use for about 3 minutes during OFF condition, indicated by OFF on the display, the LCD will turn off.
- During clock setting, the LCD will turn off about 10 minutes later if the remote controller is not in use.
- When pressing any button, the LCD will turn on.
- The LCD will not turn off during TIMER setting.



Signal Transmitting/Receiving Window
Point this window towards the indoor unit when controlling it.

Sensor
A temperature sensor inside the remote controller senses ambient temperature around the remote-controller.

Display
This indicates the room temperature selected, current time, timer status, function and airflow rate selected.

ROOM TEMPERATURE setting Buttons
Press these buttons to set the room temperature.

Press the [∧] button to raise the room temperature.

Press the [∨] button to lower the room temperature.

Keep pressing and the value will change more quickly.

Transmission sign
The transmission sign lights up when a signal is sent.

START/STOP button
Press this button to start operation. Press it again to stop operation.

FAN SPEED selector Button
This determines the fan speed. Every time you press this button, the airflow rate will change from (AUTO) → (HIGH) → (MED) → (LOW) → (SILENT) (This button allows selection of optimal or preferred fan speed for each operation mode).

ECO Button
Use this button to set the ECO mode. (▶ p. 13)

NAMES AND FUNCTIONS OF REMOTE CONTROLLER

POWERFUL Button
Use this button to set the POWERFUL mode. (▶ p. 11)

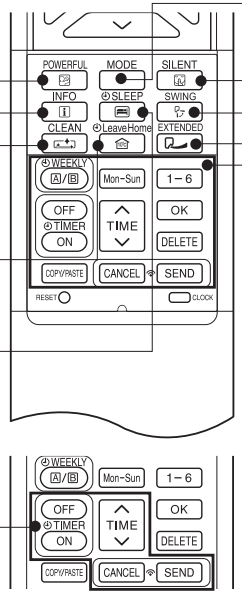
INFORMATION Button
(▶ p. 26)

ONE TOUCH CLEAN Button
(▶ p. 16)

LEAVE HOME Button
(▶ p. 15)

ECO SLEEP TIMER Button
Use this button to set the ECO sleep timer. (▶ p. 18)

ON / OFF TIMER setting Buttons
(▶ p. 17)



MODE selector Button
Use this button to select the operating mode. Every time you press this button, the mode will change from Ⓐ (AUTO) → ☼ (HEAT) → ◇ (DEHUMIDIFY) → ☼ (COOL) and → ✻ (FAN) cyclically.

SILENT Button
Use this button to set the SILENT mode. (▶ p. 12)

AUTO SWING (Vertical) Button
Controls the angle of the horizontal air deflector. (▶ p. 10)

EXTENDED AIRFLOW button
Pushes air out further for an extended airflow. (▶ p. 10)

WEEKLY TIMER setting Buttons
(▶ p. 20)

MODE	MODE SELECTOR
Ⓐ	AUTO
☼	HEAT
◇	DEHUMIDIFY
☼	COOL
✻	FAN
A	FAN SPEED AUTO SILENT LOW MED HIGH
⏻	START / STOP
ECO	ECO

FAN	FAN
	POWERFUL
	SILENT
	INFO
	SLEEP TIMER
	AUTO SWING (VERTICAL)
	EXTENDED AIRFLOW button
	LEAVE HOME
	CLEAN
Mon-Sun	DAY
1–6	PROGRAM NO.

OFF TIMER ON	ON / OFF TIMER
TIME	TIME
OK	OK
DELETE	DELETE
COPY/PASTE	COPY / PASTE
CANCEL	CANCEL
SEND	SEND
CLOCK	CLOCK

Precautions for Use

- Do not put the remote controller in the following places.
  - Under direct sunlight.
  - In the vicinity of a heater.
- Handle the remote controller carefully. Do not drop it on the floor, and protect it from water.
- Once the outdoor unit stops, it will not restart for about 3 minutes (unless you turn the power switch off and on or unplug the power cord and plug it in again).
  This is to protect the device and does not indicate a failure.
- If you press the MODE selector button during operation, the device may stop for about 3 minutes for protection.

VARIOUS FUNCTIONS

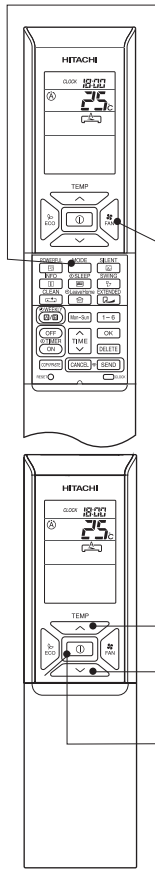
■ Auto Restart Control

- If there is a power failure, operation will be automatically restarted when the power is resumed with previous operation mode and airflow direction.
  (As the operation is not stopped by remote controller.)
- If you intend not to continue the operation when the power is resumed, switch off the power supply.
  When you switch on the circuit breaker, the operation will be automatically restarted with previous operation mode and airflow direction.

Note: 1. If you do not require Auto Restart Control, please consult your sales agent.
2. Auto Restart Control is not available when Timer or Sleep Timer mode is set.

AUTOMATIC OPERATION

The device will automatically determine the mode of operation, HEAT or COOL depending on the current room temperature. The selected mode of operation will change when the room temperature varies. However, the mode of operation will not change when indoor unit is connected to multi type outdoor unit.



1 Press the MODE selector button so that the display indicates the Ⓐ (AUTO) mode of operation.

- When AUTO has been selected, the device will automatically determine the mode of operation, HEAT or COOL depending on the current room temperature. However the mode of operation will not change when indoor unit is connected to multi type outdoor unit.
- If the mode automatically selected by the unit is not satisfactory, manually change the mode setting (HEAT, DEHUMIDIFY, COOL or FAN).

2 Set the desired FAN SPEED with the ✻ FAN (FAN SPEED) button (the display indicates the setting).

(AUTO) → (HIGH) → (MED) → (SILENT) ← (LOW) ←

3 Set the desired room temperature with the TEMPERATURE buttons (the display indicates the setting).
The temperature setting and the actual room temperature may vary depending on conditions.
Temperature range can be set between 16°C and 32°C.

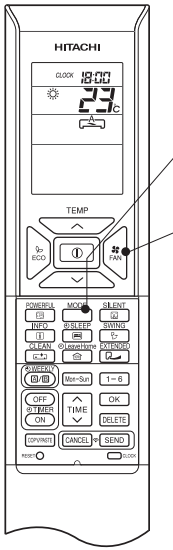
START / STOP Press the ⏻ (START/STOP) button.
Operation starts with a beep.
Press the button again to stop operation.

■ As the settings are stored in the memory of the remote controller, you only have to press the ⏻ (START/STOP) button next time.

Press the ✻ FAN (FAN SPEED) button to select AUTO, HIGH, MED, LOW or SILENT.

HEATING OPERATION

- Use the device for heating when the outdoor temperature is under 21°C.
  When it is too warm (over 21°C), the heating function may not work in order to protect the device.
- In order to maintain reliability of the device, please use this device when outdoor temperature is above –15°C.



1 Press the MODE selector button so that the display indicates ☼(HEAT).

2 Set the desired FAN SPEED with the FAN (FAN SPEED) button (the display indicates the setting).

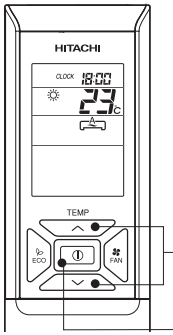
(AUTO) → (HIGH) → (MED) → (SILENT) ← (LOW) ←

3 Set the desired room temperature with the TEMPERATURE buttons (the display indicates the setting).

The temperature setting and the actual room temperature may vary depending on conditions.

Temperature range can be set between 16°C and 32°C.

START / STOP Press the ⏻ (START/STOP) button. Heating operation starts with a beep. Press the button again to stop operation.



■ As the settings are stored in the memory of the remote controller, you only have to press the ⏻ (START/STOP) button next time.

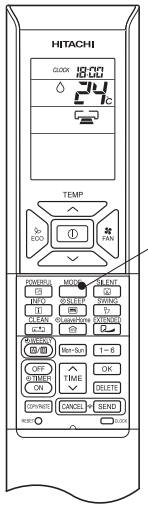
■ During AUTO fan, the fan speed automatically changes as below:
- When the difference between room temperature and setting temperature is large, fan starts to run at HI speed.
- After room temperature reaches the preset temperature, fan speed will be changed to lower speed to obtain optimum room temperature condition for natural healthy heating.

Defrosting

Defrosting will be performed about once an hour when frost forms on the heat exchange of the outdoor unit, for 5~10 minutes each time.
During defrosting operation, the operation lamp blinks in a cycle of 3 seconds on and 0.5 second off.
The maximum time for defrosting is 20 minutes.
However, if the indoor unit is connected to multi type outdoor unit, the maximum time for defrosting is 15 minutes.
(If the piping length used is longer than usual, frost is likely to form.)

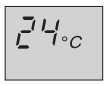
DEHUMIDIFYING OPERATION

Use the device for dehumidifying when the room temperature is over 16°C.
When it is under 15°C, the dehumidifying function will not work.



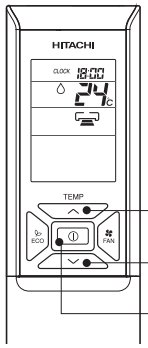
1 Press the MODE selector button so that the display indicates ♢ (DEHUMIDIFY).
The fan speed is set at LOW.
Press FAN (FAN SPEED) button to select SILENT or LOW fan speed.

2 Set the desired room temperature with the ROOM TEMPERATURE setting buttons (the display indicates the setting).



The range of 20-26˚C is recommended as the room temperature for dehumidifying.
Temperature range can be set between 16°C and 32°C.

START / STOP Press the ⏻ (START/STOP) button. Dehumidifying operation starts with a beep. Press the button again to stop operation.



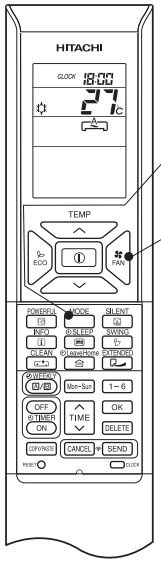
■ As the settings are stored in the memory of the remote controller, you only have to press the ⏻ (START/STOP) button next time.

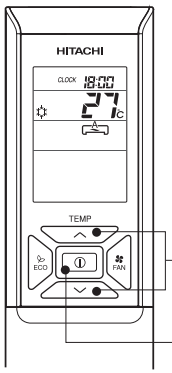
■ Dehumidifying Function

- When the room temperature is higher than the temperature setting: The device will dehumidify the room, reducing the room temperature to the preset level.
  When the room temperature is lower than the temperature setting: Dehumidifying will be performed at the temperature setting slightly lower than the current room temperature, regardless of the temperature setting.
- The preset room temperature may not be reached depending on the number of people present in the room or other room conditions.

COOLING OPERATION

Use the device for cooling when the outdoor temperature is -10~43°C.
If indoors humidity is very high (80%), some dew may form on the air outlet grille of the indoor unit.





1 Press the MODE selector button so that the display indicates ☼ (COOL).

2 Set the desired FAN SPEED with the FAN (FAN SPEED) button (the display indicates the setting).

(AUTO) → (HIGH) → (MED) → (SILENT) ← (LOW) ←

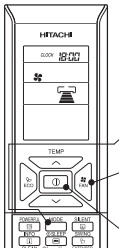
3 Set the desired room temperature with the TEMPERATURE buttons (the display indicates the setting).
The temperature setting and the actual room temperature may vary depending on conditions.
Temperature range can be set between 16°C and 32°C

START / STOP Press the ⏻ (START/STOP) button. Cooling operation starts with a beep. Press the button again to stop operation. The cooling function does not start if the temperature setting is higher than the current room temperature (even though the ⏻ (OPERATION) lamp lights). The cooling function will start as soon as user set the temperature below the current room temperature.

- As the settings are stored in the memory of the remote controller, you only have to press the ⏻ (START/STOP) button next time.
- During AUTO fan, the fan speed automatically changes as below:
  - When the difference between room temperature and setting temperature is large, fan starts to run at HI speed.
  - After room temperature reaches the preset temperature, fan speed will be changed to lower speed to obtain optimum room temperature condition for natural healthy cooling.

FAN OPERATION

User can use the device simply as an air circulator.



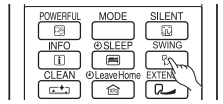
1 Press the MODE selector so that the display indicates ✿ (FAN).

2 Set the desired FAN SPEED with the FAN (FAN SPEED) button (the display indicates the setting).

→ (HIGH) → (MED) → (LOW) → (SILENT)

START / STOP Press the ⏻ (START/STOP) button. Fan operation starts with a beep. Press the button again to stop operation.

AUTO SWING OPERATION



NOTE

- During cooling and dehumidifying operation, do not keep the deflectors swinging or in the lower position (in the case of vertical auto swing) for a long time. It may cause dew condensation on the deflectors.

VERTICAL SWING

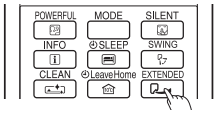
■ To start Vertical Auto Swing

- Press (AUTO SWING (VERTICAL)) button. The deflector(s) will start to swing up and down.
  is displayed on the LCD.

■ To cancel Vertical Auto Swing

- Press (AUTO SWING (VERTICAL)) button again. The deflector(s) will stop in the current position.
  disappeared from the LCD.

EXTENDED AIRFLOW OPERATION



■ To start Extended Airflow operation

- Press EXTENDED (EXTENDED AIRFLOW) button during operation.
  "" is displayed on the LCD.

The airflow direction will automatically set according to the type of operation and the fan speed will change to allow air to blow further. (During cooling operation, fan speed will return to the original position after 3 hours.)

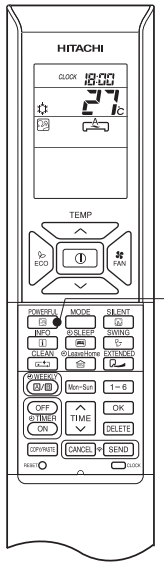
- If the (EXTENDED AIRFLOW) button is pressed while the AUTO SWING mode is set, the AUTO SWING mode is cancelled and the EXTENDED AIRFLOW mode is set.
- If the (AUTO SWING) button is pressed while the EXTENDED AIRFLOW mode is set, the EXTENDED AIRFLOW mode is cancelled and the AUTO SWING mode is set.
- If the (EXTENDED AIRFLOW) button is pressed when the horizontal air deflector stops at your preferred angle, the deflector will change to EXTENED AIRFLOW.
- Press (EXTENDED AIRFLOW) button to lower the room temperature quickly when the temperature is high during the cooling operation.

■ To cancel Extended Airflow operation

- Press EXTENDED (EXTENDED AIRFLOW) button again.
  EXTENDED AIRFLOW operation stops.
  "" disappears from LCD.

POWERFUL OPERATION

- By pressing POWERFUL (POWERFUL) button during AUTO, HEATING, DEHUMIDIFYING, COOLING or FAN operation, the air conditioner performs at the maximum power.
- During POWERFUL operation, cooler or warmer air will be blown out from indoor unit for COOLING or HEATING operation respectively.



To start POWERFUL operation

1

- Press POWERFUL (POWERFUL) button during operation.

  " " is displayed on the LCD.

  POWERFUL operation ends in 20 minutes. Then the system automatically operates with the previous settings used before POWERFUL operation.

To cancel POWERFUL operation

- Press the ⏻ (START/STOP) button. Or
- Press POWERFUL (POWERFUL) button again.

  POWERFUL operation stops.

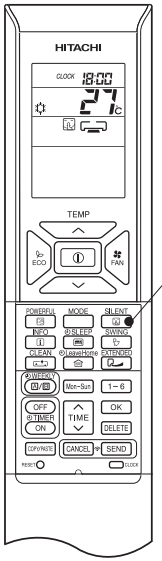
  " " disappears from the LCD.

NOTE

- When SLEEP mode, ECO mode, SILENT mode or LEAVE HOME mode is selected, POWERFUL operation is cancelled.
- During POWERFUL operation, capacity of the air conditioner will not increase
  – if the air conditioner is already running at maximum capacity.
  – just before defrost operation (when the air conditioner is running in HEATING operation).
- After auto restart, POWERFUL operation is cancelled and previous operation shall start.
- For multi model connections, POWERFUL operation may not function depending on operation conditions.

SILENT OPERATION

- By pressing SILENT (SILENT) button during AUTO, HEATING, DEHUMIDIFYING, COOLING or FAN operation, the fan speed will change to ultra slow.



To start SILENT operation

1

- Press SILENT (SILENT) button during operation.

  " " is displayed on the LCD. Fan speed will be ultra slow.

To cancel SILENT operation

- Press ⏻ (START/STOP) button. Or
- Press SILENT (SILENT) button again or FAN (FAN SPEED) button.

  Fan speed will return to previous fan speed before SILENT operation starts.

  SILENT operation stops.

  " " disappears from the LCD.

NOTE

- When POWERFUL operation is selected, SILENT operation is cancelled. Fan speed will return to previous fan speed before SILENT operation.
- After auto restart, SILENT operation is cancelled. Fan speed will return to previous fan speed before SILENT operation.
- During any operation with fan speed (SILENT), if press SILENT (SILENT) button, fan speed will not change.

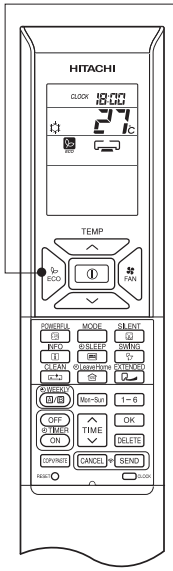
ECO OPERATION

ENGLISH

There are two kinds of ECO OPERATION with sensor or without sensor, depending on models.
Please refer to [Names and Functions of each part] in the unit instruction manual to verify if your unit is equipped with a sensor and read the following instruction on ECO Operation accordingly.

■ ECO OPERATION

ECO operation is an energy saving function by changing set temperature automatically and by limiting the maximum power consumption value.



1 ● By pressing the ECO (ECO) button during AUTO, HEATING, DEHUMIDIFYING or COOLING operation, the air conditioner performs the "ECO" operation.

■ To start ECO operation

● Press ECO (ECO) button during operation.

" ECO " is displayed on the LCD.

A beep sound is emitted from indoor unit.

Energy saving operation will start by changing the set temperature higher or lower automatically and reducing operation power consumption. This function may vary based on the connected outdoor unit.

■ To cancel ECO operation

● Press ⏻ (START/STOP) button. Or

● Press ECO (ECO) button again.

" ECO " disappears from the LCD.

A beep sound is emitted from indoor unit.

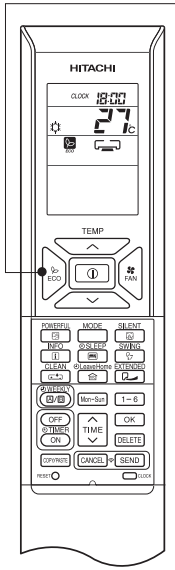
NOTE

- ECO function will not be effective when power consumption is low.
- By pressing (POWERFUL) button, ECO operation is cancelled.
- After auto restart, ECO operation is cancelled and previous operation mode shall start.
- For multi model connections, energy saving operation shall start only by changing set temperature higher or lower automatically. However, effectiveness of ECO depends on operation conditions.

ECO OPERATION

■ ECO OPERATION with sensor

The sensor detects the presence of people in the room. When nobody is detected, the unit automatically starts enegy saving operation by shifting the set temperature in two steps.



1 ● By pressing the ECO (ECO) button during AUTO, HEATING, DEHUMIDIFYING or COOLING operation, the air conditioner performs the "ECO" operation.

■ To start ECO operation

● Press ECO (ECO) button during operation.

" ECO " is displayed on the LCD.

A beep sound is emitted from indoor unit and the (ECO) lamp on the indoor unit lights up.

The sensor starts to detect the presence of people in the room.

■ To cancel ECO operation

● Press ⏻ (START/STOP) button. Or

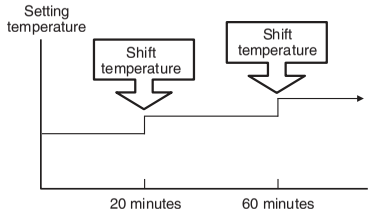
● Press ECO (ECO) button again.

" ECO " disappears from the LCD.

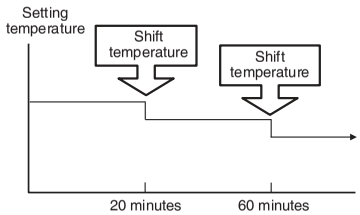
A beep sound is emitted from indoor unit and the (ECO) lamp on the indoor unit turns off.

When the presence of people is not detected for 20 minutes, the set temperature is automtatically shifted for energy saving. If nobody is in the room for 60 minutes, the set temperature is shifted further.

Cooling operation [diagram representation for illustrative purpose only]



Heating operation [diagram representation for illustrative purpose only]



The unit returns to normal operation when the sensor detects human movement.

NOTE

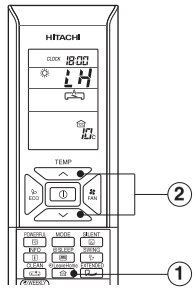
- By pressing (POWERFUL) button, ECO operation is cancelled.
- After auto restart, ECO operation is cancelled and previous operation mode shall start.

LEAVE HOME (LH) OPERATION

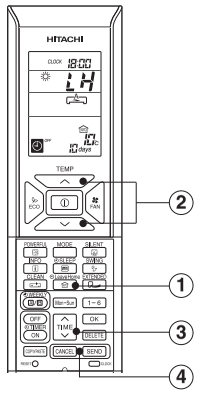
Prevent the room temperature from falling too much when no one is at home. The initial setting temperature is 10°C and the temperature range can be set between 10°C and 16°C.

This operation is able to operate by "Continuous operation" or "Day timer operation". Please use "Day timer operation" to set the number of days up to 99 days.

Continuous operation



Day timer operation



■ To start LEAVE HOME operation

Option 1. Continuous operation.

1. Press (LEAVE HOME) button during stop or operation. Room temperature is set at 10°C and heating operation starts.
2. Set the desired room temperature with the TEMPERATURE buttons. Temperature range can be set between 10°C and 16°C.

   "☀", "LH", "A", "10°C", "SET TEMPERATURE" is displayed on the LCD.

Option 2. Day timer operation.

Press (LEAVE HOME) button during stop or operation. Room temperature is set at 10°C and heating operation starts.

Set the desired room temperature with the TEMPERATURE buttons. Temperature range can be set between 10°C and 16°C.

"☀", "LH", "A", "10°C", "SET TEMPERATURE" is displayed on the LCD.

3. Set number of operation days (1 to 99 days), if needed.

   Press TIME (TIME) button to select number of days.

   Number of days blink.
   * Press " ∧ (UP)" or " ∨ (DOWN)" to set number of days from 1 day to 99 days.
   * Number of day is counted when clock indicates 0:00.
4. Press SEND (SEND) button to confirm number of operation days. Display for number of operation days will stop blinking.

   Press CANCEL (CANCEL) button to reset number of operation days or to have continuous operation.

To cancel LEAVE HOME operation

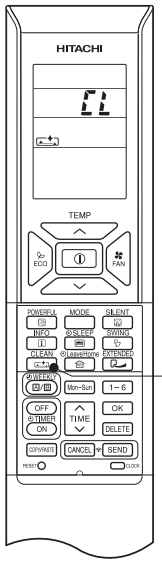
- Press ⏻ (START/STOP) button. Or
- Press (LEAVE HOME) button again. Return to previous operation mode. Or
- Change to other operation mode by pressing MODE (MODE) button.

NOTE

- After reaching the set number of operation days for Leave Home or by pressing the (Leave Home) button again, the unit will operate in previous mode.
- During Leave Home operation, fan speed and horizontal air deflector position cannot be changed.
- By pressing (Leave Home) button, implementation of Weekly Timer or Once Timer is cancelled.
- In case of power supply shut down, after autorestart, all setting for number of days operation will be reset and unit shall be in continuous operation.
- POWERFUL, SILENT and ECO operations are not applicable during Leave Home operation.
- For multi connection
  - FAN/COOLING/DEHUMIDIFYING and Leave Home cannot operate at the same time. The first-run unit has a priority and other units in different mode will be in standby mode.
  - Heating operation can be used with Leave Home.
  - When two or more rooms are set to operate Leave Home, the temperature set by Leave Home may not be reached. It also depends on outdoor temperature.

CLEAN (ONE TOUCH CLEAN) OPERATION

Drying indoor heat exchanger after cooling operation to prevent mildew.



■ To start CLEAN operation

- Press CLEAN (CLEAN) button when unit is OFF.

  Total time taken for One Touch Clean operation is 60 minutes. During this operation, HEATING or FAN operation shall operate.

  During one touch clean, operation lamp is blinking.

  "CL", " " is displayed on the LCD.

■ To cancel CLEAN operation

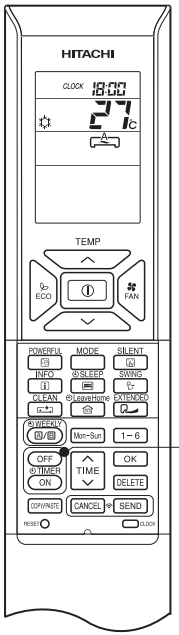
- Press ⏻ (START/STOP) button. Or
- Press CLEAN (CLEAN) button again.

NOTE

- When CLEAN operation finish, unit will switch OFF automatically.
- If Weekly Timer or Once Timer is set, there is a need to cancel those timer before operating CLEAN function.
- For multi connections, when pressing CLEAN (CLEAN) button, operation is limited to FAN operation.
- For multi connections, when one room operates CLEAN operation first, other rooms can operate COOLING, DEHUMIDIFYING or FAN operation. However, when other rooms need to operate HEATING operation, air conditioner will be in STANDBY mode. After CLEAN operation finish, HEATING operation will start.

ONCE TIMER (ON/OFF TIMER) OPERATION

ENGLISH



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OFF TIMER

The device can be set to turn off at a preset time.

1. Press OFF TIMER (OFF-TIMER) button. OFF and 0:00 blink on the display.
2. Set the "turn-off time" with TIME (TIME) button.
3. After setting, direct the remote controller towards the indoor and press SEND (SEND) button.

   OFF and "set time" lights up instead of blinking.

   A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit lights up.

ON TIMER

The device will turn on at a designated time.

1. Press TIMER ON (ON-TIMER) button. ON and 0:00 blink on the display.
2. Set the "turn-on time" with TIME (TIME) button.
3. After setting, direct the remote controller towards the indoor and press SEND (SEND) button.

   ON and "set time" light up instead of blinking.

   A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit lights up.

ON/OFF TIMER

- The device will turn on (off) and off (on) at the designated time.
- The switching occurs first at the preset time that comes earlier.
- The arrow mark appears on the display to indicate the sequence of switching operations.

1. Press OFF TIMER (OFF-TIMER) button so that OFF and 0:00 blink on the display.
2. Set the "turn-off" time with TIME (TIME) button. After setting, direct the remote controller towards the indoor and press SEND (SEND) button.
3. Press TIMER ON (ON-TIMER) button so that OFF and set "turn-off" time light up. The ON and 0:00 blink.
4. Set the "turn-on" time with TIME (TIME) button.
5. After setting, direct the remote controller towards the indoor and press SEND (SEND) button

   ON and set "turn-on" time light up instead of blinking.

   A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit lights up.

■ The timer may be used in three ways: OFF-timer, ON-timer and ON/OFF (OFF/ON)-timer. Set the current time first because it serves as a reference.

■ To cancel Reservation

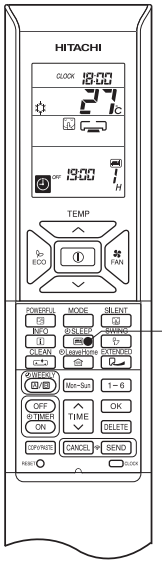
- Point the signal window of the remote controller towards the indoor unit and press CANCEL (CANCEL) button.
  and "ON or OFF set time" goes out with a beep and the (TIMER) lamp on the indoor unit turns off.

NOTE

- User can set only one of the OFF-timer, ON-timer or ON/OFF-timer.
- If WEEKLY TIMER already set, by setting the ONCE TIMER, ONCE TIMER operation is prioritized. When ONCE TIMER operation is complete, WEEKLY TIMER operation will be activated.

ECO SLEEP TIMER OPERATION

The timer can be set up to a duration of 7 hours.
By pressing SLEEP (SLEEP) button during AUTO, HEATING, DEHUMIDIFYING, COOLING or FAN operation, the unit shifts the room temperature and reduces the fan speed. It results in energy saving.
Set the current time first before operating the ECO SLEEP TIMER operation.



1

■ To start ECO SLEEP TIMER operation

Press SLEEP (SLEEP) button during operation.

- " ", " ", " ", "OFF", off time, " " and number of hour are displayed on the remote controller display.
- During ECO SLEEP TIMER operation, fan speed will be ultra slow.
- A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit lights up.

Pressing SLEEP (SLEEP) button repeatedly, the number of hours will change as below:

1 H → 2 H → 3 H → 7 H → SLEEP TIMER off

- During ECO SLEEP TIMER operation, air conditioner will continue to operate for the designated number of hours and then turn off.
- When the ECO SLEEP TIMER has been set, the display on the remote controller indicates the turn off time.

Example: If ECO SLEEP TIMER is set for 1 hour at 18:00, the switch off time will be at 19:00.

■ To cancel ECO SLEEP TIMER operation

Press (START/STOP) button.

- Room air conditioner will switch off.

Press SLEEP (SLEEP) button again until " ", " ", " ", off time, " " and number of hour disappear from the remote controller display.

Press CANCEL (CANCEL) button.

- A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit turns off.
- SLEEP TIMER operation is cancelled.

SLEEP ECO SLEEP TIMER OPERATION

■ To set ECO SLEEP TIMER and ON TIMER

The air conditioner will be turned off by ECO SLEEP TIMER and turned on by ON TIMER.

1. Set the ON TIMER.
2. Press SLEEP (SLEEP) button and set ECO SLEEP TIMER.

Example:
In this case, air conditioner will turn off in 2 hours (at 1:38) and it will be turned on at 6:00 the next morning.

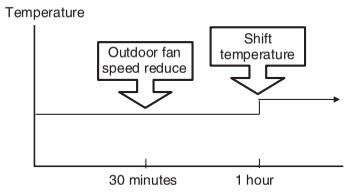
■ To cancel ECO SLEEP TIMER and ON TIMER operation

Direct the remote controller towards the indoor unit and press CANCEL (CANCEL) button.

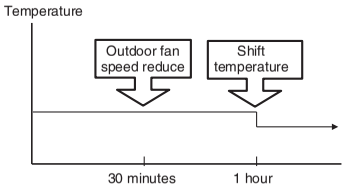
- " ", " ", " ", "OFF", off time, " ", number of hour, "ON" and ON TIMER set time disappear from the remote controller display.
- A beep sound emitted from indoor unit and the (TIMER) lamp on the indoor unit turns off.
- ECO SLEEP TIMER and ON TIMER reservations are cancelled.

30 minutes after setting ECO SLEEP TIMER, outdoor fan speed will be reduced to lower the noise level and to have comfort operation.
1 hour after setting ECO SLEEP TIMER, set temperature will be slightly shifted. Amount of temperature shifted depends on type of air conditioner.
These automatic operation changes contribute to energy saving without losing comfort.
The level of energy consumption depends on outside temperature, room temperature, set temperature or air conditioner type.

Cooling operation [diagram representation for illustrative purpose only]



Heating operation [diagram representation for illustrative purpose only]



NOTE

- If ECO SLEEP TIMER is set when OFF TIMER or ON/OFF TIMER has been set earlier, the ECO SLEEP TIMER becomes effective instead of the OFF TIMER or ON/OFF TIMER.

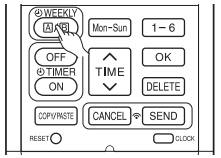
ENGLISH

WEEKLY WEEKLY TIMER OPERATION

- It is possible to select Mode A or Mode B. For each mode, up to 6 programs can be set per day. In total, a maximum of 42 programs can be set for a week for each mode.
- If calendar and clock are not set, the reservation setting for WEEKLY TIMER cannot be set.
- If calendar and clock are not set correctly, WEEKLY TIMER will not operate correctly.
- Reservation for calendar and clock shall be set first before operating WEEKLY TIMER.

Step 1: Set the reservation schedule to the remote controller. Send the registered reservation to indoor unit and then operate.
Step 2: Select Mode A or Mode B and activate or deactivate WEEKLY TIMER .
Step 3: Copy and cancel the reservation schedule.

Step 1 : Set reservation schedule to the remote controller. Send the registered reservation to indoor unit and then operate.



① ②

■ How to set a WEEKLY TIMER.

1. Select Mode A or Mode B

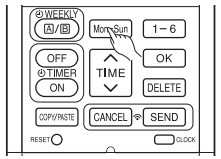
Press WEEKLY (WEEKLY) button. WEEKLY lights up. A and blink on the display. (Mode A is selected).

Press WEEKLY (WEEKLY) button again, B and blink on the display. (Mode B is selected).

- If no reservation has been made, ON/OFF, --:-- , --°C appear.
- If reservation has been made, ON/OFF, --:-- , --°C will not appear.

2. Set a program

Press WEEKLY (WEEKLY) button for about 3 seconds. The selection mode can be changed.
, day: Mon, program no. : 1, ON/OFF, setting time and setting temperature blink on the display.



③

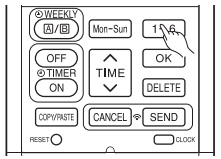
3. Select the desired day of the week

Press Mon-Sun (DAY) button.

The day changes from Mon → Tue → Wed → Thu → Fri → Sat → Sun → Mon, Tue, Wed, Thu, Fri, Sat, Sun [Full days] → Mon, Tue, Wed, Thu, Fri [weekday] → Sat, Sun [weekend] → Mon → Tue .....

Select [Full days] for daily reservation.
Select [weekday] for Monday to Friday reservation.
Select [weekend] for Saturday and Sunday reservation.

- After reservation has been set, it is easy to check and edit at the same time.



④

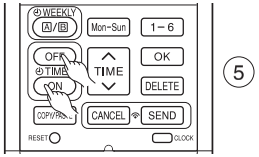
4. Press 1–6 button to select a program number.

The number changes from 1 → 2 → 3 → 4 → 5 → 6 → 1 → 2 .....

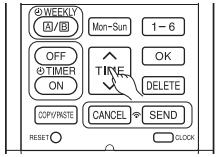
- If program number has been set, follow above in order to make changes.

WEEKLY TIMER OPERATION

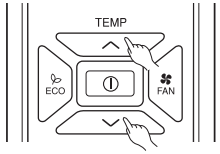
ENGLISH



5



6



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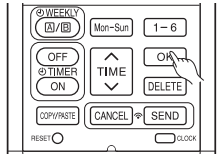

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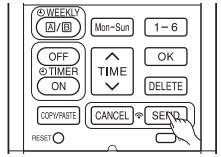


9

5. Press OFF TIMER ON (ON-OFF TIMER) button to select ON TIMER or OFF TIMER reservation.
6. Press TIME (TIME) button to set time reservation.
7. Press (TEMP ∧ or ∨) button to set temperature reservation.
8. Press OK (OK) button. The reservations are set. Day, program number, ON reservation, setting temperature will light up. ⏲ will be continuously blinks. If reservation is not complete, settings will not be stored in memory.

To continue with the reservation, press Mon-Sun 1 – 6 TIME OFF TIMER ON buttons. Follow step 3 to 8 for reservation.

9. After all the reservations have been set, press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds. Timer lamp on the indoor unit will blink rapidly.
   After beep sound emitted from indoor unit, TIMER lamp will light up.
   Please ensure that the TIMER lamp lights up.
   This indicates that the reservation has been stored in the indoor unit and Timer function has been completed.
   The reservation contents will appear on the remote controller display.

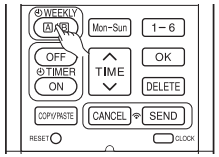
- If TIMER lamp on the indoor unit does not light up, press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds.
- **CAUTION !** Do not press CANCEL (CANCEL) button during reservation setting because this will result in all reservation contents to be lost.
- The reservation contents will not stored in the indoor unit until SEND (SEND) button has been pressed.

NOTE

- Up to 6 programs can be set per day. Setting ON TIMER or OFF TIMER for each program number can be at random. When pressing SEND (SEND) button, the set ON TIMER or OFF TIMER for each program number will automatically arranged so that program number 1 shall have the earliest time and program number 6 shall have the latest time.
  If the setting time is the same, Priority will be given to the latest reservation contents.
- **CAUTION !** If the remote controller is left idle and SEND (SEND) button is not pressed within 3 minutes after reservations have been made , all current reservations will be lost.

WEEKLY TIMER OPERATION

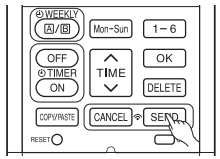
Step 2: Select Mode A or Mode B and activate or deactivate WEEKLY TIMER.



1
2

■ How to select Mode A or Mode B of WEEKLY TIMER setting.

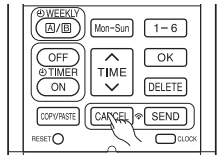
1. Press WEEKLY A/B (WEEKLY) button. **A** and ⏲ blink on the display. (Normally Mode A will blink first).
2. Press WEEKLY A/B (WEEKLY) button again. **B** and ⏲ blink on the display.



3

3. Select Mode A or Mode B. Press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds. Timer lamp on the indoor unit will blink rapidly.

   After beep sound emitted from indoor unit, TIMER lamp will light up.
   Please ensure that the TIMER lamp lights up.
   This indicates that Mode A or Mode B selection and active WEEKLY TIMER have been confirmed.



1

■ Setting non-active WEEKLY TIMER .

1. Direct the remote controller towards the indoor unit and press CANCEL (CANCEL) button.
   Beep sound will be emitted from indoor unit and TIMER lamp will be OFF. Reservation indication on remote display will also disappear.
   This indicates that non-active WEEKLY TIMER has been confirmed.

- To activate back the setting of WEEKLY TIMER , repeat the steps for "How to select Mode A or Mode B of WEEKLY TIMER setting".

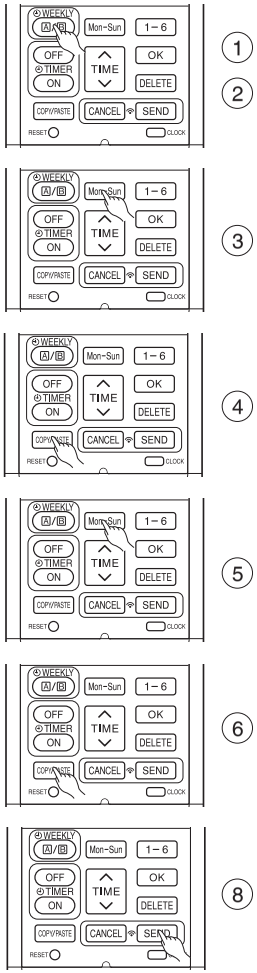
NOTE

- When setting ONCE TIMER, operation of WEEKLY TIMER is interrupted. After ONCE TIMER operation is complete, WEEKLY TIMER operation will be activated.
- When ONCE TIMER is cancelled, operation of WEEKLY TIMER is also cancelled. Need to set WEEKLY TIMER operation for activation.
- After auto restart, WEEKLY TIMER operation is cancelled. Need to set WEEKLY TIMER operation for activation.

WEEKLY TIMER OPERATION

ENGLISH

Step 3: Copy and cancel the reservation schedule.



■ How to copy and paste.

Editing the reservation schedule is easy by copying data from one day to another day.

1. Press WEEKLY (WEEKLY) button to select Mode A or Mode B.
2. Press WEEKLY (WEEKLY) button for about 3 seconds to start editing the reservation schedule.
3. Press Mon-Sun (DAY) button to select a day of the week to copy.
4. Press COPY/PASTE (COPY/PASTE) button. Then "PASTE" blinks on the display.
   * Press CANCEL (CANCEL) button to cancel the COPY mode. Normal setting mode is activated.
5. Press Mon-Sun (DAY) button to select a day of the week to paste.
6. Press COPY/PASTE (COPY/PASTE) button one more time to paste. ⏲ only blinks on the display.
7. To continue copying to other days, press Mon-Sun or 1–6 or TIME or OFF TIMER ON .

   Then start from step 3.
8. After copy and paste completed, press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds. Timer lamp on the indoor unit will blink rapidly.
   After beep sound emitted from indoor unit, TIMER lamp will light up.
   Please ensure that the TIMER lamp lights up.
   If TIMER lamp does not light up, Press SEND (SEND) button again.

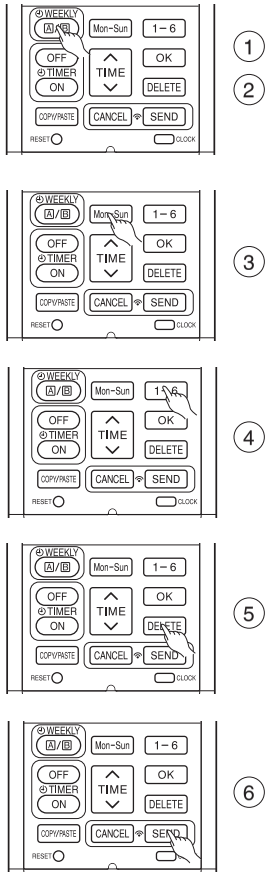
● Reservation data will not change if SEND (SEND) button is not pressed.

NOTE

● If there is no reservation data, copying data from one day to another day cannot be done.

WEEKLY TIMER OPERATION

Step 3: Copy and cancel the reservation schedule.



■ How to delete WEEKLY TIMER data.

[Delete one program number reservation]

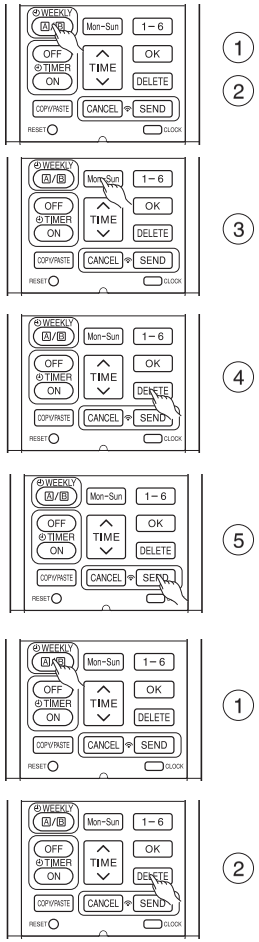
1. Press WEEKLY (WEEKLY) button to select Mode A or Mode B.
2. Press WEEKLY (WEEKLY) button for 3 seconds to start editing the reservation schedule.
3. Press Mon-Sun (DAY) button to select a day of the week to edit.
4. Press 1–6 to select program number. Selected program number will blink.
5. Press DELETE (DELETE) button. Reservation of selected program number is deleted.
6. After deleting, press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds. Timer lamp on the indoor unit will blink rapidly.
   After beep sound emitted from indoor unit, TIMER lamp will light up.
   Please ensure that the TIMER lamp lights up.

● Reservation will not change if SEND (SEND) button is not pressed.

WEEKLY TIMER OPERATION

ENGLISH

Step 3: Copy and cancel the reservation schedule.



1
2

[Delete one day reservation]

1. Press WEEKLY (A/B) (WEEKLY) button to select Mode A or Mode B.
2. Press WEEKLY (A/B) (WEEKLY) button for 3 seconds to start editing the reservation schedule.
3. Press Mon-Sun (DAY) button to select a day of the week to edit.

3

4. Press DELETE (DELETE) button for about 10 seconds. Reservations for all program numbers will be deleted.
   - If press for a short time, reservation for one program number will be deleted.

4

5. After deleting, press SEND (SEND) button while directing the remote controller towards the indoor unit for about 3 seconds. Timer lamp on the indoor unit will blink rapidly.
   After beep sound emitted from indoor unit, TIMER lamp will light up.
   Please ensure that the TIMER lamp lights up.
   - Reservation will not change if SEND (SEND) button is not pressed.

5

1

[Delete Mode A or Mode B]

1. Press WEEKLY (A/B) (WEEKLY) button to select Mode A or Mode B.
2. Direct the remote controller towards the indoor unit and press DELETE (DELETE) button for about 10 seconds while Mode A or Mode B display blinks.
   After beep sound emitted from indoor unit, reservations for Mode A or Mode B will disappear.

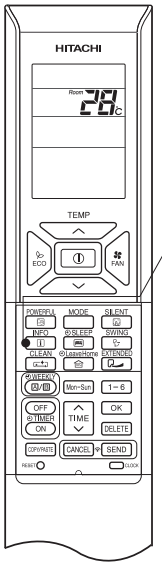
2

NOTE

- If all reservations in the remote controller were deleted and pressed SEND (SEND) button, no signal will be transmitted to indoor unit. TIMER lamp will remain off and no changes will be done to the reservations stored in the indoor unit.

INFO FUNCTION

- By pressing INFO (INFO) button, temperature around remote controller and monthly power consumption will be displayed on the remote controller.
- After changing the batteries, direct the remote controller towards the indoor unit and press INFO (INFO) button. Current calendar and clock will be transmitted from indoor unit.
- In order to receive information from indoor unit, the distance between remote controller and receiver of indoor units is within 2 meters.



■ To check temperature around remote controller

1 Press INFO (INFO) button.
Temperature will be displayed for 10 seconds.

■ To check monthly power consumption

Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press INFO (INFO) button. Wait for 2 seconds for signal transmission.

While temperature around remote controller is displayed, press INFO (INFO) button repeatedly. The display will show as below:

this month power consumption amount for heating → last month power consumption amount for heating → this month power consumption amount for cooling → last month power consumption amount for cooling → temperature around remote controller → this month power consumption amount for heating ..... cyclically.

- If indication is not given, bring remote controller closer to the receiver of the indoor unit.
- Indicated value shall be regarded as a guide only.

■ Current calendar and clock can be retrieved from indoor unit

Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press INFO (INFO) button. Wait for 2 seconds for signal transmission.

Once received the current calendar and clock, check whether they are correct or not by pressing CLOCK (CLOCK) button.

- If there is no power supply to indoor unit or calendar and clock have not been set, INFO function cannot be used for sending or receiving information.

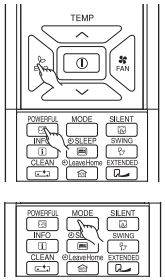
NOTE

- In case failure occurs to the air conditioner, by pressing INFO (INFO) button, an error code will be displayed. Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press INFO (INFO) button. Wait for 2 seconds for signal transmission.
  An error code will be displayed.
  Call service center and inform the error code.
- Information of "Monthly power consumption" is not available for 6 rooms multi system.
- Info Function to check monthly power consumption.
  During installation, in case of power failure or breaker ON / OFF, ensure to set the clock and calendar for each indoor unit (unit in standby mode or auto restart), for single or multi connection, by pressing ⏻ (START / STOP) button.
  Failure to do the above,monthly power consumption amount will not be displayed on the remote controller.

OPERATION MODE LOCK

ENGLISH

The remote controller can be set to fix the HEATING mode (including FAN), COOLING mode (including FAN) and DEHUMIDIFYING mode (including FAN) operations.



■ Method to lock HEATING mode (including FAN) operation.

Press ECO (ECO) and POWERFUL (POWERFUL) buttons simultaneously for about 5 seconds when the remote controller is OFF.

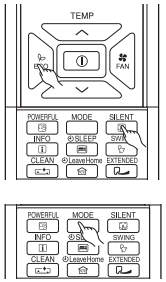
" ☼ ", " ✤ " and " 🔑 " will be displayed for about 10 seconds. Later, " ☼ " and " 🔑 " will remain.

This indicates that HEATING mode operation is locked.

When pressing MODE (MODE) button, " ☼ " or " ✤ " will be displayed.

■ Method to unlock HEATING mode (including FAN) operation.

Press ECO (ECO) and POWERFUL (POWERFUL) buttons simultaneously for about 5 seconds when the remote controller is OFF.
All operation mode symbols will appear on the display for about 10 seconds. After that, operation mode symbol before cancellation will be displayed.
This indicates that HEATING mode operation is unlocked.



■ Method to lock COOLING and DEHUMIDIFYING modes (including FAN) operations.

Press ECO (ECO) and SILENT (SILENT) buttons simultaneously for about 5 seconds when the remote controller is OFF.

" ☼ ", "◇", " ✤ " and " 🔑 " will be displayed for about 10 seconds. Later, " ☼ " and " 🔑 " will remain.

This indicates that COOLING and DEHUMIDIFYING mode operation is locked.

When pressing MODE (MODE) button, " ☼ ", " ✤ " or " ◇ " will be displayed.

■ Method to unlock COOLING and DEHUMIDIFYING modes (including FAN) operations.

Press ECO (ECO) and SILENT (SILENT) buttons simultaneously for about 5 seconds when the remote controller is OFF.
All operation mode symbols will appear on the display for about 10 seconds. After that, operation mode symbol before cancellation will be displayed.
This indicates that COOLING and DEHUMIDIFYING modes operation is unlocked.

NOTE

- Operation Mode Lock function will not activate if TIMER reservations activate.
  TIMER reservations shall be deactivated first. Then, Operation Mode Lock function can be activated.
- HEATING, COOLING and DEHUMIDIFYING mode (including FAN) operations can be unlocked by pressing the RESET◯ (RESET) button. However, by pressing the RESET◯ (RESET) button, all the information stored in the remote controller will disappear. You may need to set the necessary information again.
- For multi connections, unit and mode which is set to lock HEATING and switched on first shall have higher priority. Other units which are chosen to operate at different modes shall be in STANDBY until either the first unit operation is switched off or the mode is selected to be same as the first unit.

SAFETY PRECAUTION

- Please read the "Safety Precaution" carefully before operating the unit to ensure correct usage of the unit.
- Pay special attention to signs of "⚠ **Warning**" and "⚠ **Caution**". The "Warning" section contains matters which, if not observed strictly, may cause death or serious injury. The "Caution" section contains matters which may result in serious consequences if not observed properly. Please observe all instructions strictly to ensure safety.
- The signs indicate the following meanings. (The following are examples of signs.)

Make sure to connect earth line.	This sign in the figure indicates prohibition.
Indicates the instructions that must be followed.	

- Please keep this manual after reading.

PRECAUTIONS DURING INSTALLATION

WARNING

- Do not reconstruct the unit.
  Water leakage, fault, short circuit or fire may occur if you reconstruct the unit by yourself.

- Please ask your sales agent or qualified technician for the installation of your unit.
  Water leakage, short circuit or fire may occur if you install the unit by yourself.
- Please use earth line.
  Do not place the earth line near water or gas pipes, lightning-conductor, or the earth line of telephone. Improper installation of earth line may cause electric shock or fire.

- Be sure to use the specified piping set for R410A. Otherwise, this may result in broken copper pipes or faults.

CAUTION

- A circuit breaker should be installed depending on the mounting site of the unit.
  Without a circuit breaker, the danger of electric shock exists.
- Do not install the unit near a location where there is flammable gas.
  The outdoor unit may catch fire if flammable gas leaks around it.

- Please ensure smooth flow of water when installing the drain hose.
- Make sure that a single phase 220V-230V power source is used.
  The use of other power sources may cause electrical components to overheat and lead to fire.

PRECAUTIONS DURING SHIFTING OR MAINTENANCE

WARNING

- Should abnormal situation arise (like burning smell), please stop operating the unit and turn off the circuit breaker. Contact your agent. Fault, short circuit or fire may occur if you continue to operate the unit under abnormal situation.

- Please contact your agent for maintenance. Improper self maintenance may cause electric shock and fire.
- Please contact your agent if you need to remove and reinstall the unit. Electric shock or fire may occur if you remove and reinstall the unit yourself improperly.

PRECAUTIONS DURING OPERATION

WARNING

- Avoid an extended period of direct airflow for your health.

- Do not put objects like thin rods into the panel of blower and suction side because the high-speed fan inside may cause danger.
- Do not use any conductor as fuse wire, this could cause fatal accident.

- During thunder storm, disconnect the plug top and turn off the circuit breaker.
- Spray cans and other combustibles should not be located within a meter of the air outlets of both indoor and outdoor units.
  As a spray can's internal pressure can be increased by hot air, a rupture may result.

PRECAUTIONS DURING OPERATION

CAUTION

- The product shall be operated under the manufacturer specification and not for any other intended use.

- Do not attempt to operate the unit with wet hands, this could cause fatal accident.
- When operating the unit with burning equipments, regularly ventilate the room to avoid oxygen insufficiency.

- Do not direct the cool air coming out from the air-conditioner panel to face household heating apparatus as this may affect the working of apparatus such as the electric kettle, oven etc.
- Please ensure that outdoor mounting frame is always stable, firm and without defect. If not, the outdoor unit may collapse and cause danger.

- Do not wash the unit with water or place a water container such as a vase on the indoor unit.
  Electrical leakage could be present and cause electric shock.
- Do not place plants directly under the airflow as it is bad for the plants.

- Be sure to stop the operation by using the remote controller and turn off the circuit breaker during cleaning, the high-speed fan inside the unit may cause danger.
- Turn off the circuit breaker if the unit is not be operated for a long period.

- Do not climb on the outdoor unit or put objects on it.
- When operating the unit with the door and windows opened, (the room humidity is always above 80%) and with the air deflector facing down or moving automatically for a long period of time, water will condense on the air deflector and drips down occasionally. This will wet your furniture. Therefore, do not operate under such condition for a long time.

- If the amount of heat in the room is above the cooling or heating capability of the unit (for example: more people entering the room, using heating equipments and etc.), the preset room temperature cannot be achieved.
- Indoor unit cleaning must be performed by authorized personnel only. Consult your sales agent.
  Using a commercially available detergent or similar can damage the plastic parts or clog the drain pipe, causing water to drip with potential electric shock hazard.

- Do not touch the air outlet, bottom surface and aluminium fin of the outdoor unit.
  You may get hurt.
- Do not touch the refrigerant pipe and connecting valve.
  Burns may result.

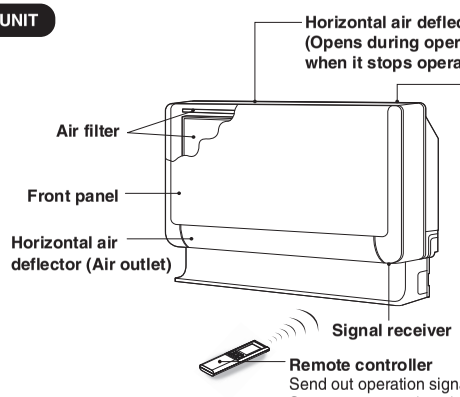
- This appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children must be supervised not to play with the appliance.

OPERATING RANGE

Operation mode	Cooling / Dehumidifying	Heating
Outdoor temperature	–10 to 43°C	–15 to 21°C

NAMES AND FUNCTIONS OF EACH PART

INDOOR UNIT



Send out operation signal to the indoor unit.
So as to operate the whole unit.
(Refer Remote control manual)

⚠ CAUTION

- Do not put anything in front of the signal receiver. Or else, it may not receive the signal properly.

MODEL NAME AND DIMENSIONS

MODEL	WIDTH	HEIGHT	DEPTH
RAF-25RXB, RAF-35RXB, RAF-50RXB	750mm (29-17/32")	590mm (23-6/25")	215mm (8-15/32")

NOTE FOR MULTI SYSTEM

Several indoor units can be connected to one outdoor unit.
You can operate only one unit or several units according to your needs.

Combination of operations:

When operation mode is selected:

- You cannot operate the indoor units in the following combinations.

One unit	Other unit
Heating	Cooling
	Dehumidifying
	Fan

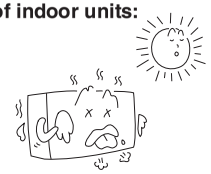
- The indoor unit which is turned on first continues to operate. Other indoor units which are turned on later go into standby mode and the operation lamp lights.
- To operate the indoor units turned on later, set the operation mode as same as the indoor unit turned on first.

During automatic operation:

- When heating operation is automatically selected for the first indoor unit, the next indoor unit will then start to heat. Also, if cooling or dehumidifying is automatically selected for the first indoor unit, the next indoor unit will also start to cool or dehumidify.

Adjusting the number of indoor units:

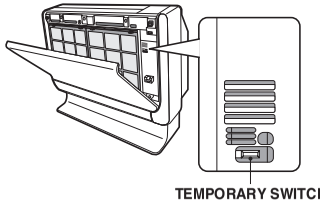
Decrease the number of indoor units to be operated especially when it is very hot or very cold or when you want to reach the preset temperature quickly.



Stopped indoor units:

When an indoor unit is operated in the cooling, heating or dehumidifying mode in one room, the sound of refrigerant flow may be heard from a stopped indoor unit or a stopped indoor unit may become warm. This is because the indoor unit returns refrigerant to the outdoor unit to be ready for operation.

TEMPORARY SWITCH

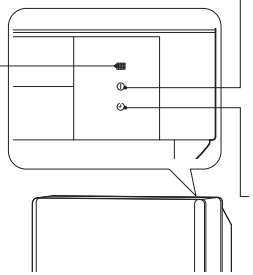


TEMPORARY SWITCH
Use this switch to start and stop when the remote controller does not work.

- By pressing the temporary switch, the operation is done in automatic mode.
- When the operation is done using the temporary switch after the power source is turned off and turn on again, the operation is done in automatic mode.

INDOOR UNIT INDICATORS

FILTER lamp
This lamp lights when the device is operated for a total of about 200 hours, it is time to clean the filter. The lamp goes out when the "(AUTO SWING)" button is pressed while the operation is stopped.



OPERATION lamp
This lamp lights during operation.
During heating, the operation indicator may blink, blowing very lightly or totally stopping under the following conditions:
(1) **During preheating (heating operation)**
For about 2~3 minutes after start up.
(2) **During defrosting (heating operation)**
Defrosting will be performed about once an hour when frost forms on the heat exchanger of the outdoor unit, for 5~10 minutes each time. (If the piping length used is longer than usual, frost will likely to form.)

TIMER lamp
This lamp lights when the timer is working.

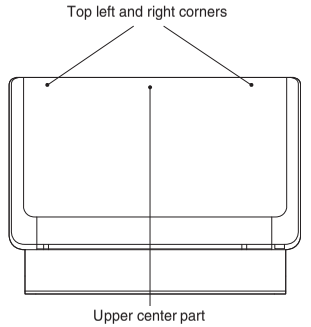
HOW TO OPEN OR CLOSE THE FRONT PANEL

Open the front panel

- To open the front panel, use the remote controller to stop unit operation. Then press at the top left and right corners of the front panel.
- Grasp the left and right sides of the front panel and open it toward you.

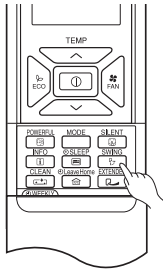
Close the front panel

- To close the front panel, press at the top left and right corners of the front panel.
- Press the upper center part of the front panel to close properly.

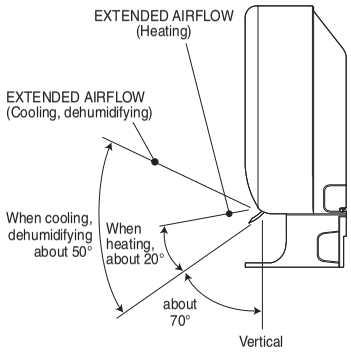


ADJUSTING THE AIR DEFLECTORS

1 Adjustment of the conditioned air in the upward and downward directions.
The horizontal air deflector is automatically set to the proper angle suitable for each operation. The deflector can be swung up and down continuously and also set to the desired angle using the " (AUTO SWING)" button.

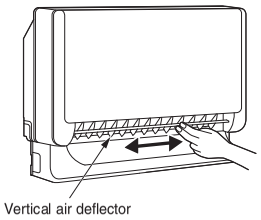


- If the " (AUTO SWING)" button is pressed once, the horizontal air deflector swings up and down. If the button is pressed again, the deflector stops in its current position.
- Use the horizontal air deflector within the adjusting range shown in the right figure.
- When the " (AUTO SWING)" button is pressed while the operation is stopped, the horizontal air deflector moves and stops at the position where the air outlet closes.
- When the auto swing operation is performed, if the horizontal air deflector is moved manually, the swinging range may drift. However, it will return to the original operation range after a short time.
- When the humid in the room is high during cooling or dehumidifying operation, the horizontal air deflector may automatically change to the straight direction to prevent dew (except during auto swing operation).
- For a certain period of time (about 30 minutes) after starting the cooling operation, it operates to cool the room quickly. During this operation, if the horizontal air deflector is adjusted to your preferred angle by " (AUTO SWING)" button, it returns to the proper angle automatically after a certain period of time. In this case, press " (AUTO SWING)" button to adjust the deflector to your preferred angle again.



2 Adjustment of the conditioned air to the left and right.

Hold the vertical air deflector as shown in the figure and adjust the conditioned air to the left and right.



⚠ CAUTION

- When operating the unit in cooling operation with the air deflector facing down and moving for a long period of time, water will be condensed on the air deflector and drips down occasionally. will wet your furniture.

CIRCUIT BREAKER

When you do not use the room air conditioner, set the circuit breaker to "OFF".

HOW TO USE THE AIR CONDITIONER EFFECTIVELY

1. An average room temperature setting is probably the best for you as well as being economical.
- Excessive cooling or heating is not recommended for health reasons. High electricity bills may also result.
- Close the curtains or blinds to prevent heat from flowing into or escaping the room as well as to make more effective use of electricity.

2. At intervals, the doors and windows should be opened to let fresh air in.

⚠ CAUTION Make sure the room is ventilated when operating the air conditioner at the same time as other heating appliances.

3. Using the timer is recommended before going to sleep or going out.

4. The following must never be used for cleaning the indoor and outdoor units:
- Benzine, thinner and scrub can damage plastic surfaces or coating.
- Hot water above 40°C can shrink the filter and deform plastic parts.

5. Do not block the air intake and air outlet.
- Do not block the air outlets and intakes of the indoor and outdoor units with curtains or other obstacles which could degrade air conditioner performance and cause unit failure.

MAINTENANCE

⚠ WARNING

- Before cleaning, stop unit operation with the remote controller and turn off the circuit breaker.

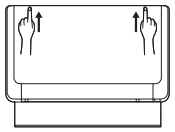
⚠ CAUTION

- Do not expose the unit to water as it may cause an electric shock.
- For cleaning inside the air conditioner, consult your sales agent.
- Avoid using detergent when cleaning the heat exchanger of the indoor unit. Unit failure may result.
- When cleaning the heat exchanger with a vacuum cleaner, make sure to wear gloves so as not to injure your hands on the heat exchanger fins.

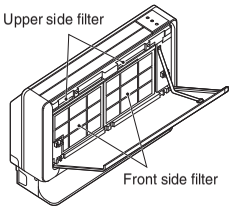
1. AIR FILTER

Clean the air filter, as it removes dust inside the room.
Be sure to clean the filter once every two weeks so as not to consume electricity unnecessarily.

PROCEDURE



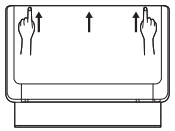
1 Open the front panel.
- To open the front panel, use the remote controller to stop unit operation. Then press at the top left and right corners of the front panel.
- Grasp the left and right sides of the front panel and open it toward you.



2 Remove the filters.
(Front side 2 pieces, upper side 2 pieces, total 4 pieces.)

3 Remove dust of the filters using a vacuum cleaner.
- After using neutral detergent, wash with clean water and dry in shade.

4 Attach the filters.
- Attaching the filters.
(Front side 2 pieces, upper side 2 pieces, total 4 pieces.)



5 Close the front panel.
- To close the front panel, press at the top left and right corners of the front panel.
- Press the upper center part of the front panel to close properly.

⚠ CAUTION

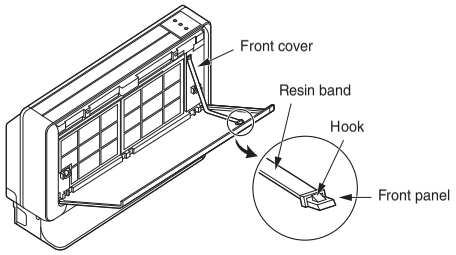
- Do not wash with hot water at more than 40°C. The filter may shrink.
- When washing it, shake off moisture completely and dry it in the shade; do not expose it directly to the sun. The filter may shrink. And also use a soft sponge to wash. Using a scrubber or brush cause the metal film on the surface to come off.
- Don't operate the unit without filter. Fault may occur if you continue.

2. HOW TO INSTALL AND REMOVE THE FRONT PANEL

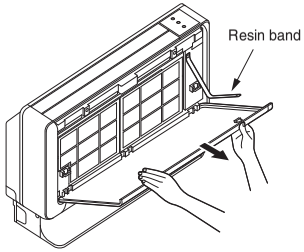
- Be sure to use both hands to grasp the front panel when removing it or attaching it.
- The front panel may be installed up or down to suit user preference.

Removing

① Press the hook found at the tip of the resin band installed inside the front panel's right section to remove the resin band.



② Pull the front panel down toward you and once fully open, pull it to remove.



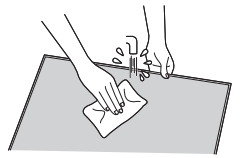
Attaching

① Attach three front panel bearings to the axis of the front cover. (Set the hook to face up.)

② Insert the tip of the resin band into the hole of the protrusion inside the right section of the front panel.

3. CLEANING OF FRONT PANEL

The front panel can be washed in water. It can be kept clean at all times.
- Front panel can be removed and washed in water. Gently clean the front panel using a soft sponge.
- When the air conditioner is to be cleaned without removing the front panel, clean both the body and remote controller with a dry soft cloth.
- Wipe off water completely. If water remains on the display section or light receiver section, this could cause a malfunction.

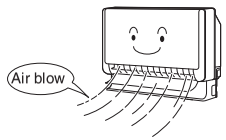


⚠ CAUTION

- Do not splash or direct water to the body of the unit when cleaning it as this may cause short circuit.
- Never clean with hot water (above 40°C), benzine, gasoline, acid, thinner or a brush, because it will damage the plastic surface and the coating.

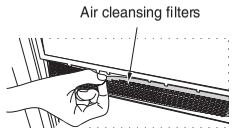
4. MAINTENANCE AT BEGINNING OF LONG OFF PERIOD

- Activating air conditioner drying will keep the interior of the indoor unit dry and prevent mold formation.
- Turn off the circuit breaker.



5. AIR CLEANSING FILTERS (SPX-CFH15)

- When installing the air cleansing filters, remove the air filters and attach them onto the hooks of the front cover frame.
- The cooling capacity is slightly weakened and the cooling speed becomes slower when the air cleansing filters are used. So, set the fan speed to "HIGH" when using it in this condition.
- The air cleansing filters can be used for 2 years.



INFORMATION

CAPABILITIES

Heating Capability

- This room air conditioner utilizes a heat pump system that absorbs exterior heat and brings it into a room to be heated. As the ambient temperature gets lower, heating capability will also lower. In such a situation, the PAM and inverter work to increase compressor rpm to keep the unit's heating capability from decreasing. If the unit's heating performance is still unsatisfactory, other heating appliances should be used to augment this unit's performance.

CAUTION
Do not use a stove or any other high-temperature devices in proximity to the indoor unit.

- The air conditioner is designed to heat an entire room so that it may take some time before you feel warm. Timer operation is recommended for effective preheating ahead of the desired time.

Cooling and Dehumidifying Capabilities

- If the heat present in a room exceeds the unit's cooling capacity (for example, if there are many people in the room or other heating appliances are used), the preset room temperature may not be reached.

REGULAR INSPECTION

PLEASE CHECK THE FOLLOWING POINTS EVERY EITHER HALF YEARLY OR YEARLY. CONTACT YOUR SALES AGENT SHOULD YOU NEED ANY HELP.

1		⚠ WARNING	**Check to see if the unit's earth line has been connected correctly.** If the earth line is disconnected or faulty, unit failure or electric shock hazard may result.
2		⚠ WARNING	**Check to see if the mounting frame has rusted excessively or if the outdoor unit has tilted or become unstable.** It could collapse or fall, causing injury.

AFTER SALES SERVICE AND WARRANTY

WHEN ASKING FOR SERVICE, CHECK THE FOLLOWING

CONDITION	CHECK THE FOLLOWING POINTS
If the remote controller is not transmitting a signal. (Remote controller display is dim or blank.)	• Do the batteries need replacement? • Is the polarity of the inserted batteries correct?
When it does not operate.	• Is the fuse all right? • Is the voltage extremely high or low? • Is the circuit breaker "ON"? • Is the setting of operation mode different from other indoor units?
When it does not cool well. When it does not heat well.	• Is the air filter blocked with dust? • Is the set temperature suitable? • Have the top and bottom air deflectors been adjusted to their correct positions according to the operation mode selected? • Are the air inlets or air outlets of indoor and outdoor units blocked? • Is the fan speed "LOW" or "SILENT"?

■ The following phenomena do not indicate unit failure.

During heating, the operation indicator blinks and air blow stops	<Operation start> The unit is preparing to blow warm air. Please wait. <In operation> The outdoor unit is defrosting. Please wait.
Hissing or fizzy sounds	Refrigerant flow noise in the pipe or valve sound generated when flow rate is adjusted.
Squeaking noise	Noise generated when the unit expands or contracts due to temperature changes.
Rustling noise	Noise generated with the indoor unit fan's rpm changing such as operation start times.
Clicking noise	Noise of the motorized valve when the unit is switched on.
Perking noise	Noise of the ventilation fan sucking in air present in the drain hose and blowing out dehumidifying water that had accumulated in the condensed water collector. For details, consult your sales agent.
Changing operation noise	Operation noise changes due to power variations according to room temperature changes.
Mist emission	Mist is generated as the air within the room is suddenly cooled by conditioned air.

Steam emitted from the outdoor unit	Water generated during defrosting operation evaporates and steam is emitted.
Odors	Caused as the smells and particles of smoke, food, cosmetics, etc. present in room air become attached the unit and blown off into the room again.
The outdoor unit continues to operate even if operation is stopped	Defrosting is underway (as the heating operation is stopped, the microcomputer checks frost accumulated in the indoor unit and instructs the unit to perform automatic defrosting if necessary).
The OPERATION lamp is blinking	Shows preheating or defrosting operation is underway. As the protective circuit or preheat sensor operates when unit operation is stopped during preheating and then restarted, or when operation mode is switched from cooling to heating, the lamp continues to blink.
Does not reach the temperature setting	Actual room temperature may deviate slightly from the remote controller's temperature setting depending on the number of people in the room, indoor or outdoor conditions when the air conditioner is used for more than one room at the same time.

- If the unit still fails to operate normally after performing the above inspections, turn the circuit breaker off and contact your sales agent immediately.

Contact your sales agent immediately if the following phenomena should occur:

- The circuit breaker switches off or the fuse blows frequently.
- The switch operation is not stable.
- Foreign matter or water accidentally enters the unit interior.
- The power cord gets excessively hot or its insulation is torn or stripped.
- TIMER lamp on the indoor unit display blinks.

(As the nature of the failure can be identified by the blinking cycle, check the blinking cycle before turning off the circuit breaker.)

Notes

- In quiet operation or stopping the running, the following phenomena may occasionally occur, but they are not abnormal for the operation.
  (1) Slight flowing noise of refrigerant in the refrigerating cycle.
  (2) Slight rubbing noise from the fan casing which is cooled and then gradually warmed as operation stops.
- The odor will possibly be emitted from the room air conditioner because the various odor, emitted by smoke, foodstuffs, cosmetics and so on, sticks to it. So please clean the air filter and the evaporator regularly to reduce the odor.

- Please contact your sales agent immediately if the air conditioner still fails to operate normally after the above inspections. Inform your agent of the model of your unit, production number, date of installation. Please also inform him regarding the fault.

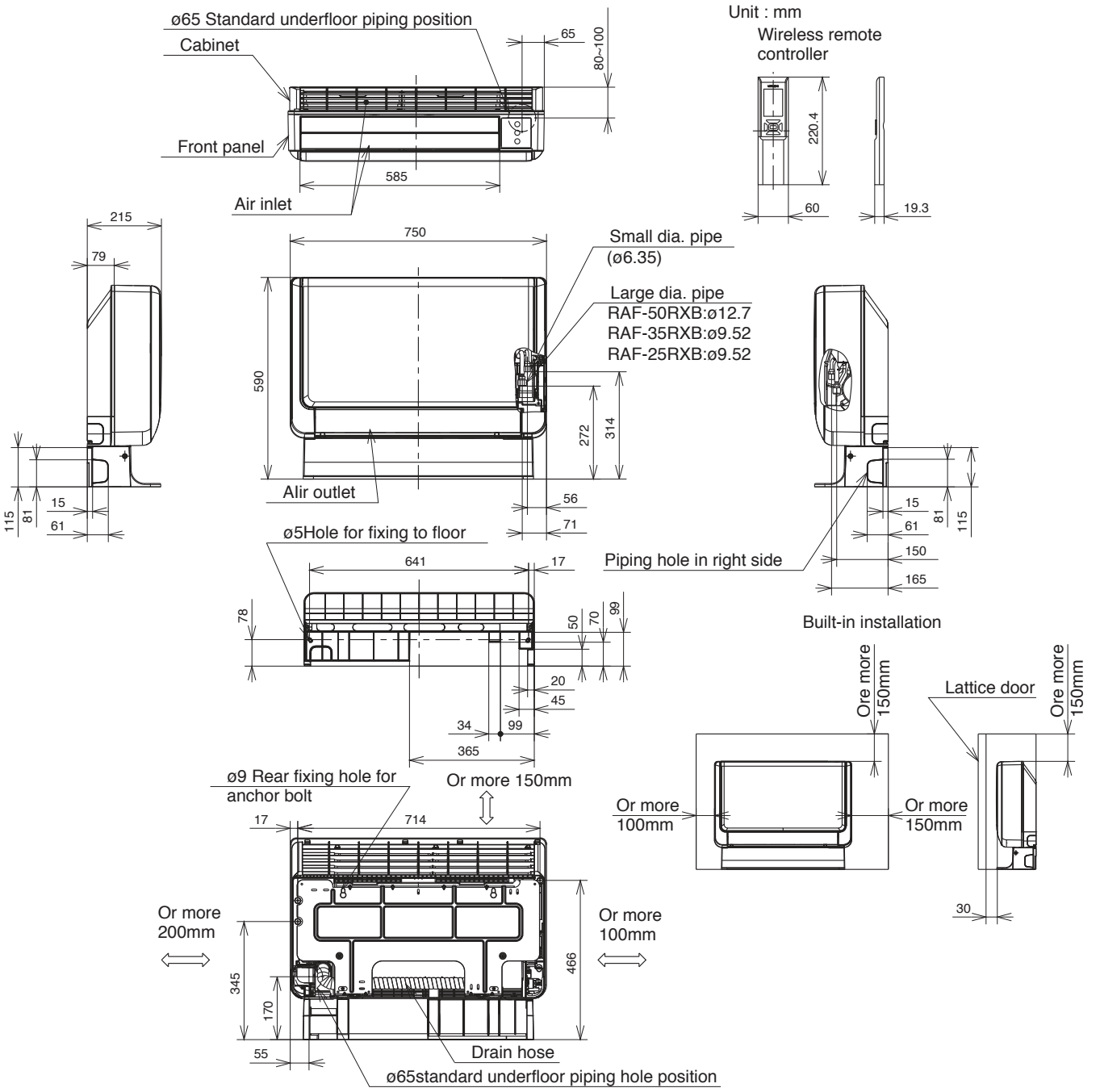
Please note:
On switching on the equipment, particularly when the room light is dimmed, a slight brightness fluctuation may occur. This is of no consequence.
The conditions of the local Power Supply Companies are to be observed.

CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAF-25RXB,RAF-35RXB,RAF-50RXB

INDOOR UNIT

Unit : mm

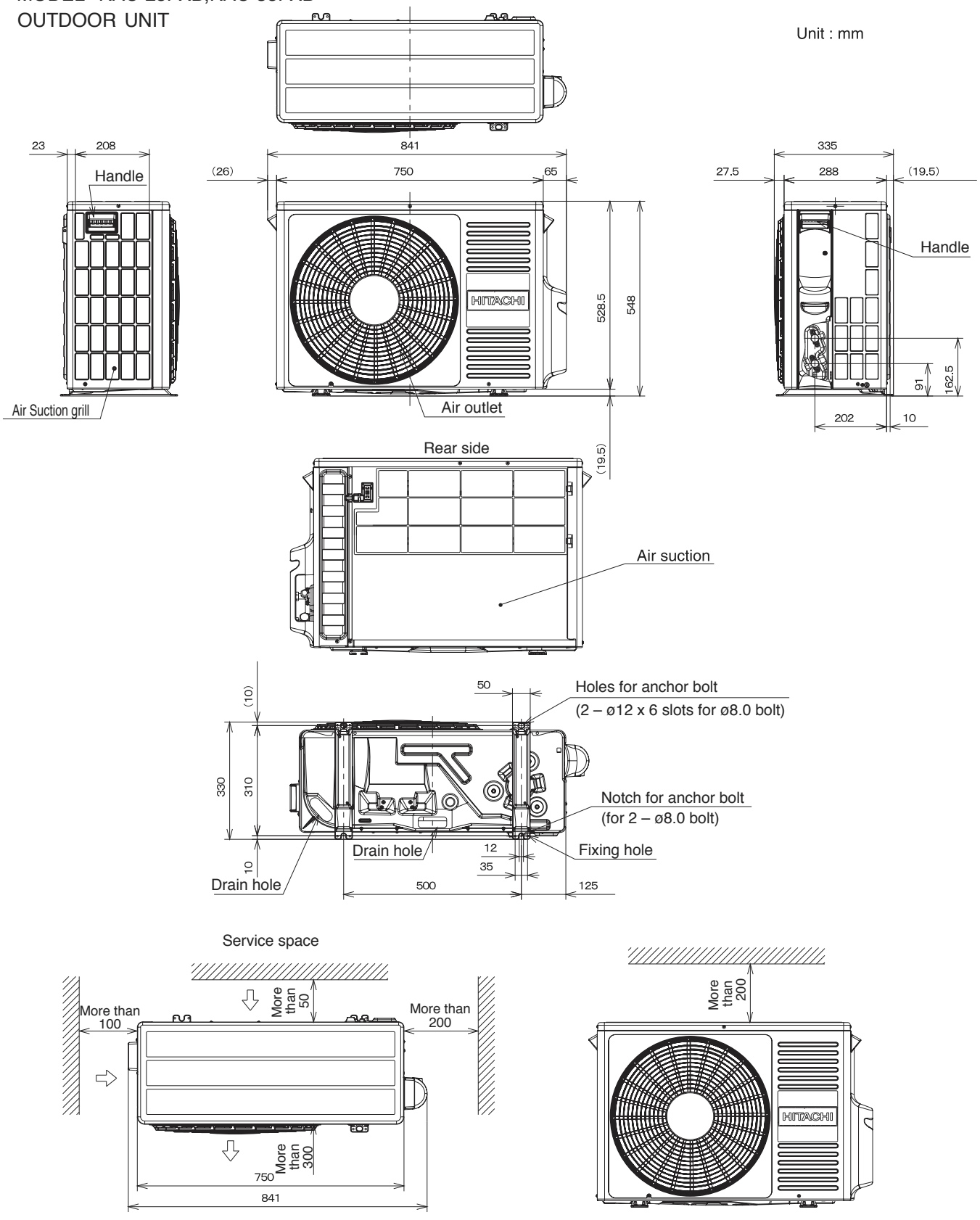


CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAC-25FXB,RAC-35FXB

OUTDOOR UNIT

Unit : mm



NOTE:

1.For outdoor unit installation , allow at least 2 sides of space around the unit ensure ventilation flue.

2.The connecting pipe , should all the insulated with insulation pipe.

3.Piping length is within 20m.

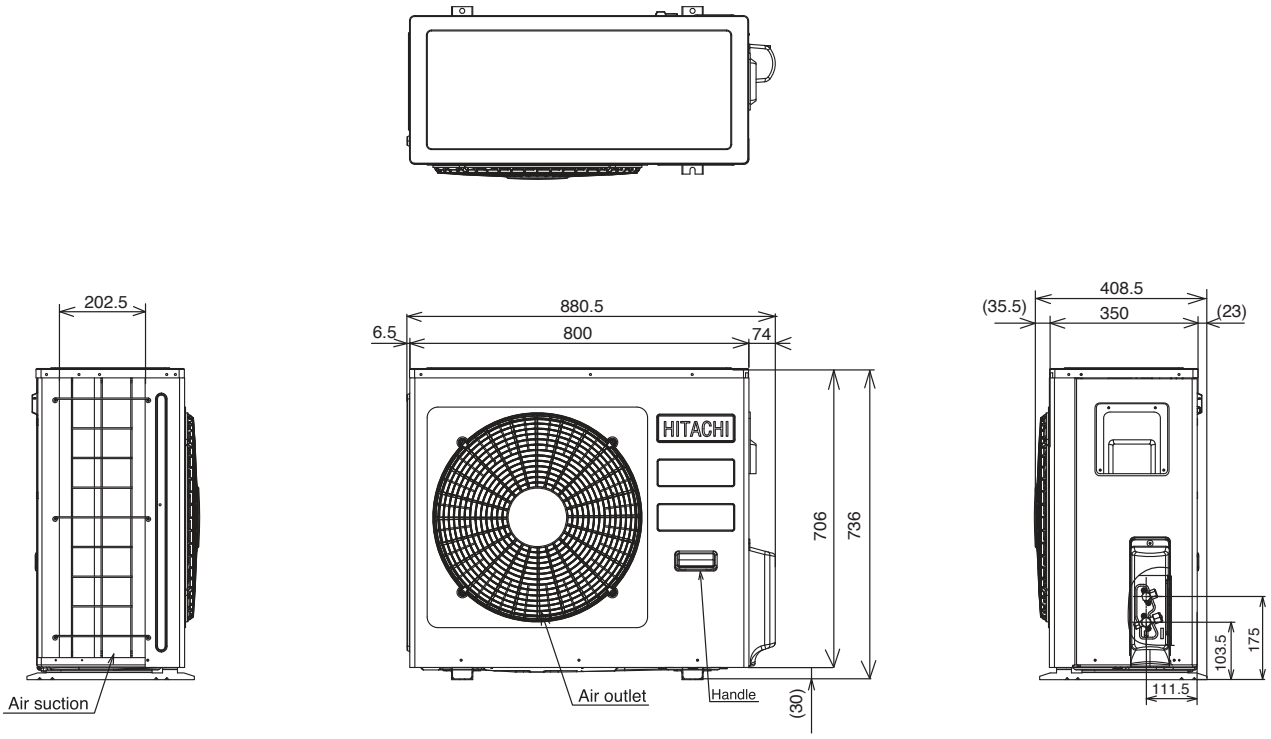
4.Height different of the piping between the indoor unit and outdoor unit should be within 10m.

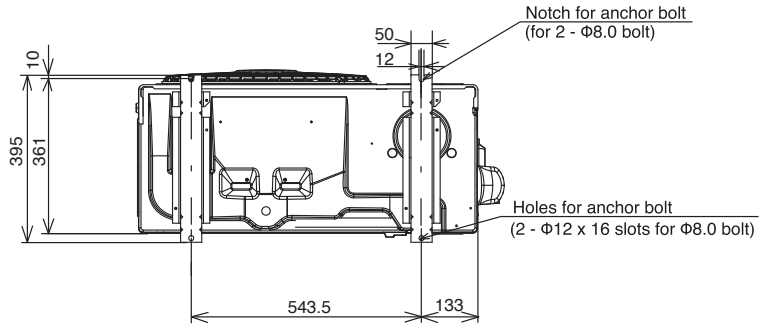
CONSTRUCTION AND DIMENSIONAL DIAGRAM

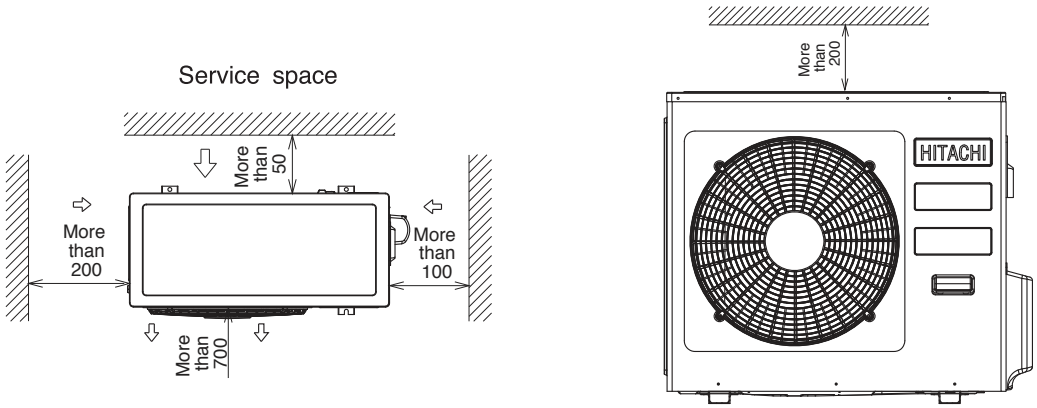
MODEL RAC-50FXB

OUTDOOR UNIT

Unit : mm







NOTE:

1.For outdoor unit installation , allow at least 2 sides of space around the unit ensure ventilation flue.

2.The connecting pipe , should all the insulated with insulation pipe.

3.Piping length is within 20m.

4.Height different of the piping between the indoor unit and outdoor unit should be within 10m.

MAIN PARTS COMPONENT

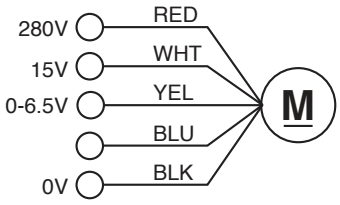
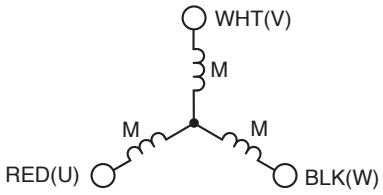
THERMOSTAT (Room temperature Thermistor)

Thermostat Specifications

MODEL			RAF-25RXB,RAF-35RXB,RAF-50RXB	
THERMOSTAT MODEL			IC	
OPERATION MODE			COOL	HEAT
TEMPERATURE ˚C (˚F)	INDICATION 16	ON	15.3 (59.54)	16.7 (62.06)
		OFF	15.0 (59.00)	16.7 (62.06)
	INDICATION 24	ON	23.3 (73.94)	24.7 (76.46)
		OFF	23.0 (73.40)	24.7 (76.46)
	INDICATION 32	ON	31.3 (88.34)	32.7 (90.86)
		OFF	31.0 (87.80)	32.7 (90.86)

FAN MOTOR

Fan Motor Specifications

MODEL	RAF-25/35/50RXB	RAC-25/35/50FXB
POWER SOURCE	DC : 280V	DC : 120 - 380V
OUTPUT	38W	47W
CONNECTION	 (Control circuit built in)	

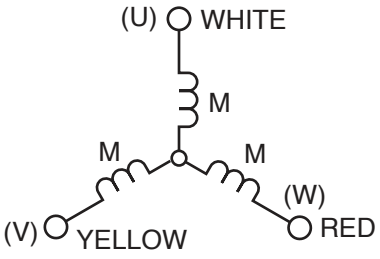
BLU : BLUE YEL : YELLOW BRN : BROWN WHT : WHITE
GRY : GRAY ORN : ORANGE GRN : GREEN RED : RED
BLK : BLACK PNK : PINK VIO : VIOLET

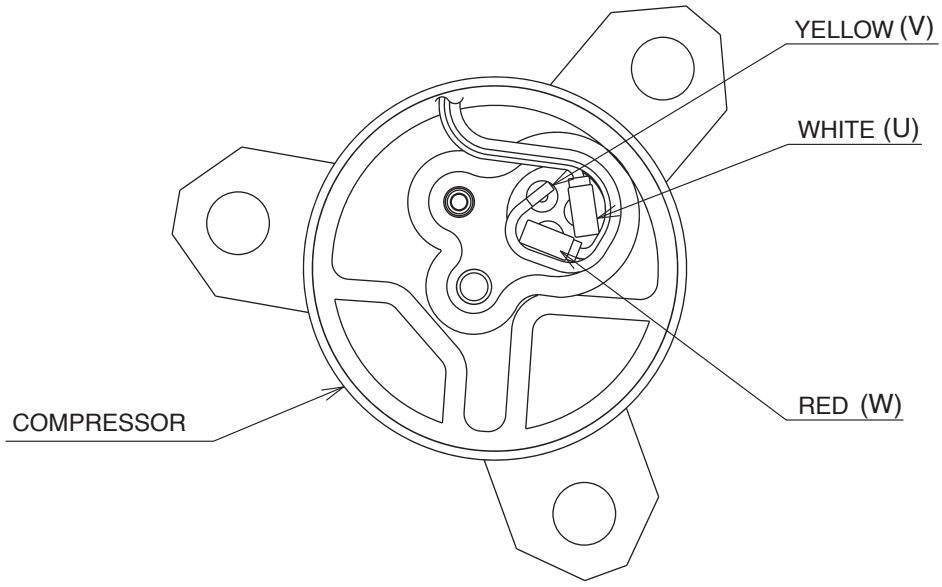
MAIN ELECTRIC COMPONENTS FOR OUTDOOR UNIT

NAME	RATING	APPLICABLE MODELS
REACTOR	15 (mH) 230 mΩ MAX (20 ˚C)	RAC-25/35FXB
	5.3 (mH), 67mΩ	RAC-50FXB

COMPRESSOR MOTOR

Compressor Motor Specifications

MODEL		RAC-25/35FXB	RAC-50FXB
COMPRESSOR TYPE		ASD084SFNA7JK1	ASG133CDNB7AT
POWER SOURCE		100 - 240 V	220 - 350 V
CONNECTION			
RESISTANCE VALUE (Ω)	25˚C	2M= 0.74	2M= 2.4
	75˚C	2M= 0.88	2M= 2.0



FRONT SIDE OF OUTDOOR UNIT

⚠CAUTION

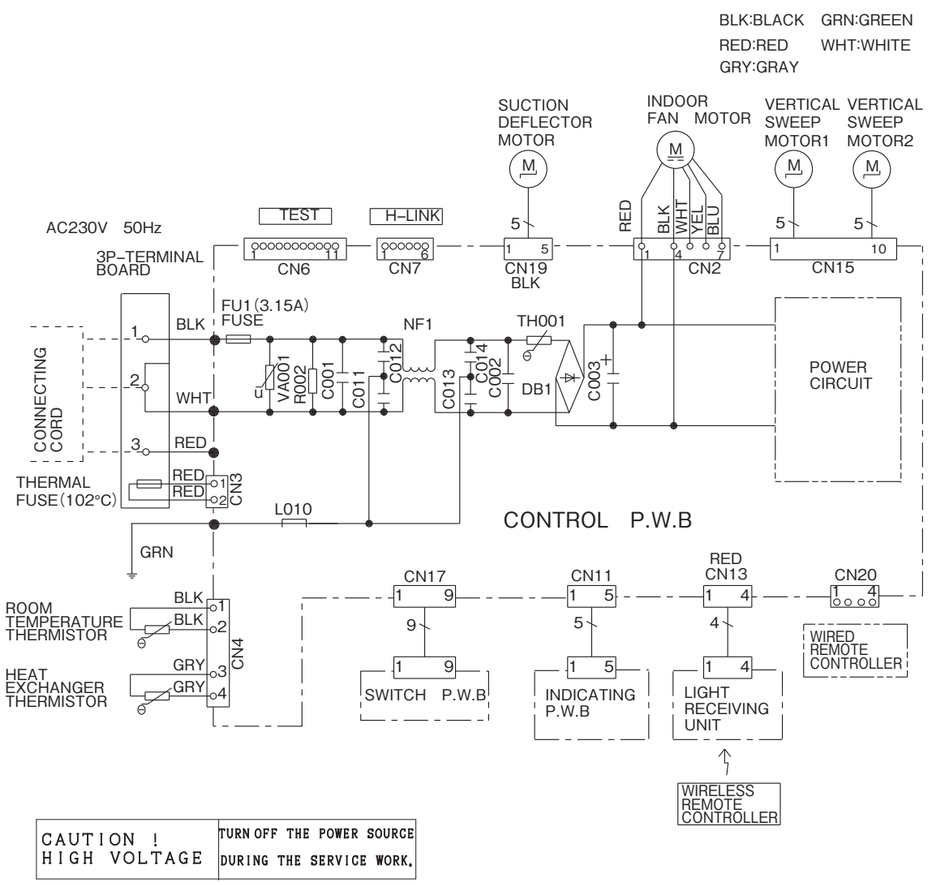
When the refrigerating cycle has been operated for a long time with the capillary tubes clogged or crushed or with too little refrigerant, check the color of the refrigerating machine oil inside the compressor. If the color has been changed conspicuously, replace the compressor.

WIRING DIAGRAM

INDOOR UNIT

MODEL RAF-25/35/50RXB

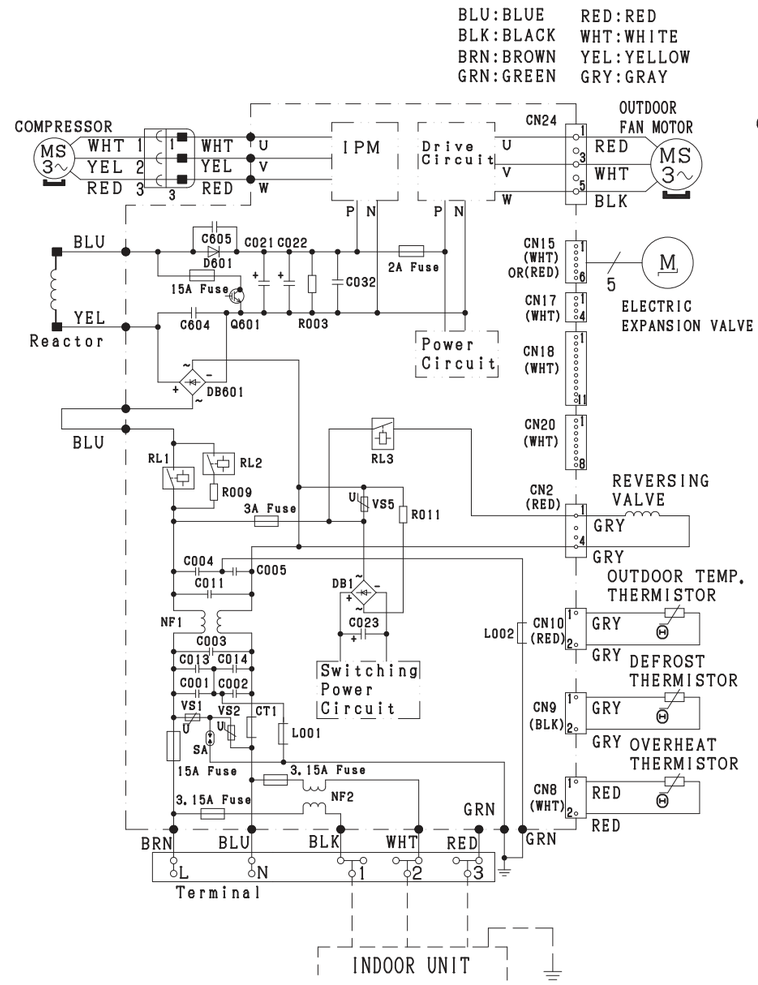
WIRING DIAGRAM



OUTDOOR UNIT

MODEL RAC-25/35FXB

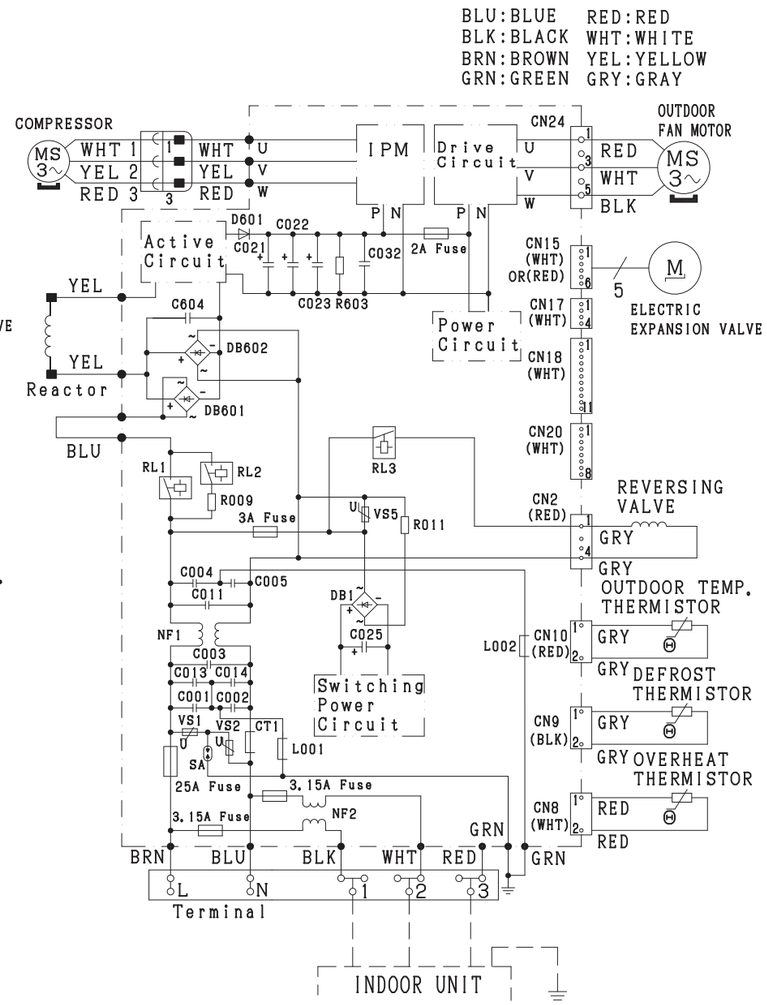
WIRING DIAGRAM



OUTDOOR UNIT

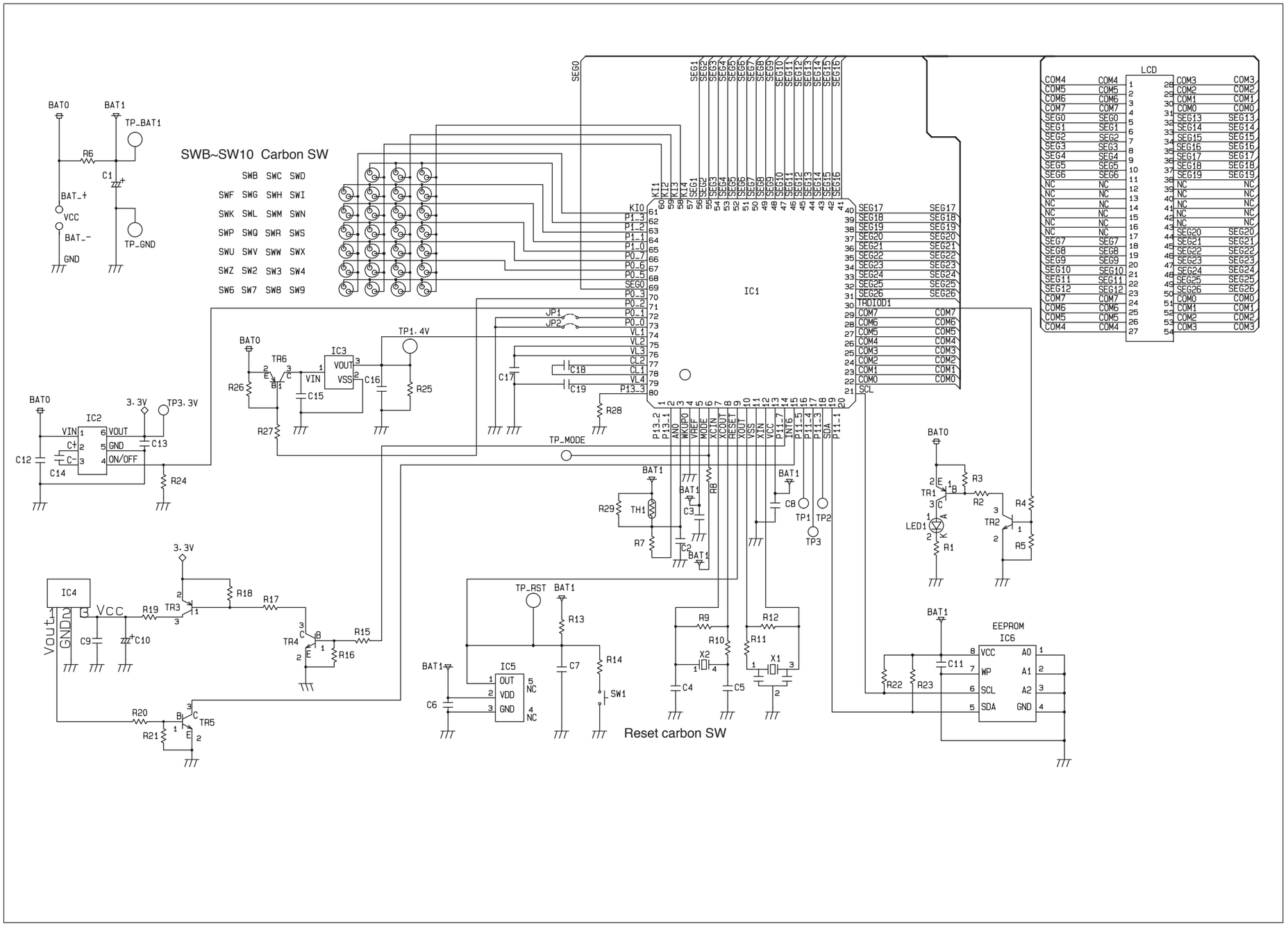
MODEL RAC-50FXB

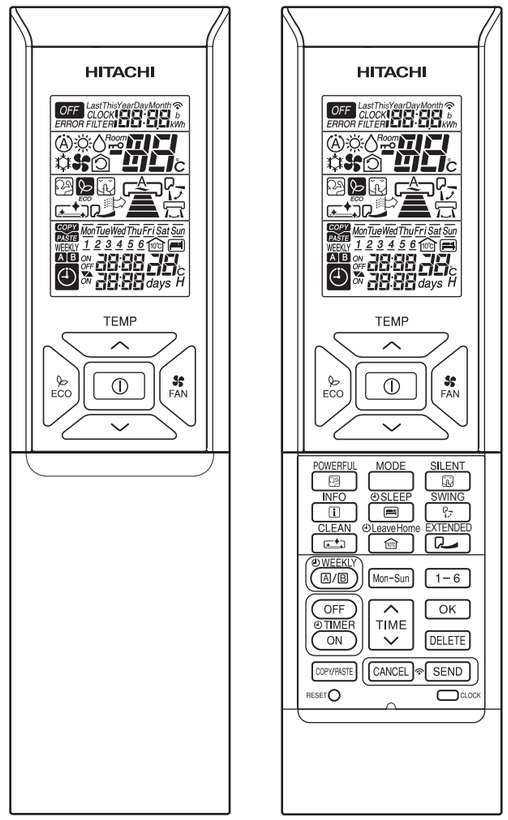
WIRING DIAGRAM



WIRING DIAGRAM OF THE PRINTED WIRING BOARD

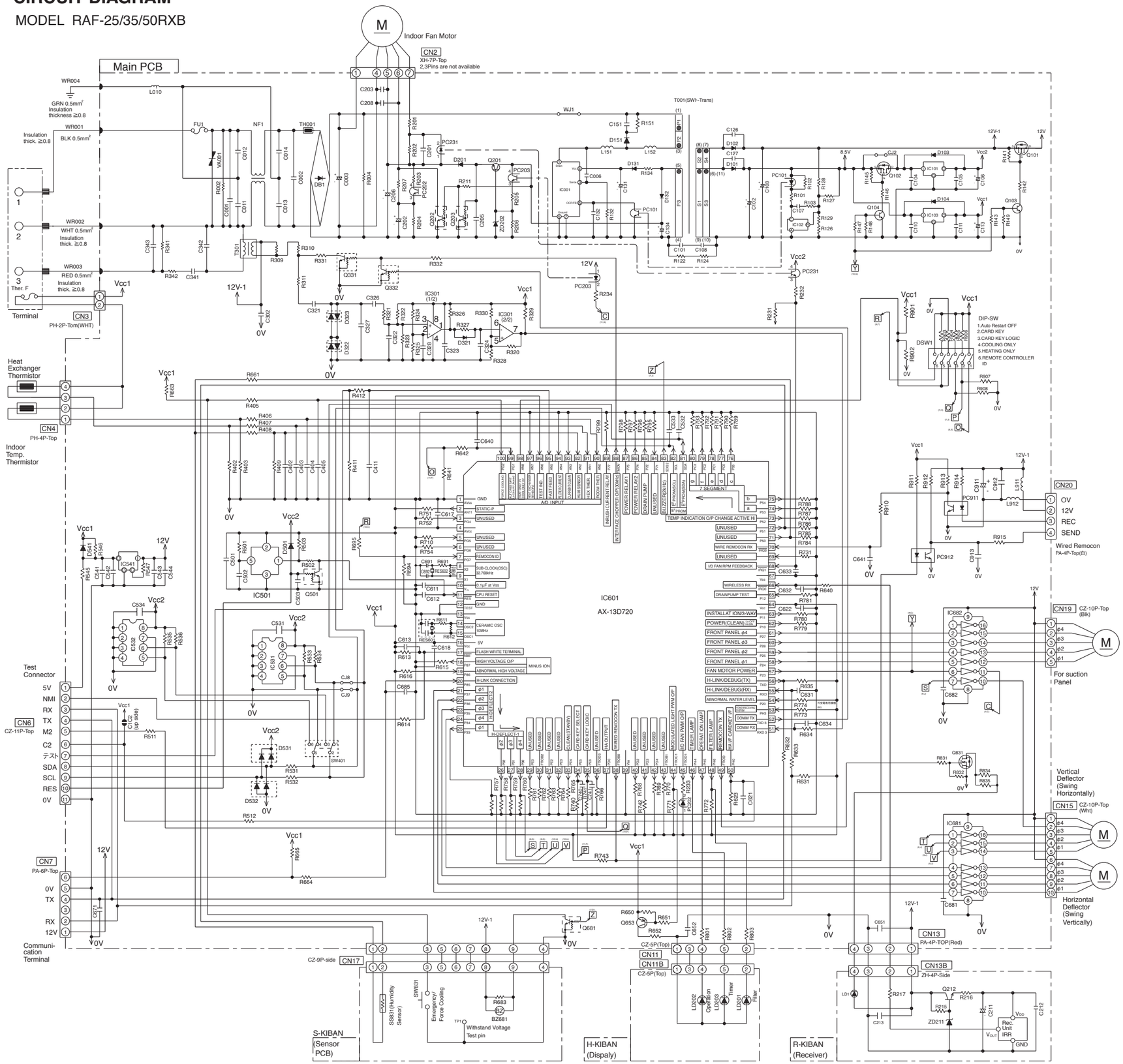
[Remote controller] RAR-6N4





CIRCUIT DIAGRAM

MODEL RAF-25/35/50RXB



Resistor

SYMBOL	VALUE(Ω)	TOL	POWER (W)	FORM	MOUNT PCB	ASSY PART#	REMARK
R002	680k	5%	1/2	A	M	15	
R004	1M	5%	1/4	A	M	17	WL
R101	1k	5%	1/4	C	M	21	3226
R102	1.5k	5%	1/10	C	M	56	1608
R103	10k	5%	1/10	C	M	61	1608
R122	16M	5%	1/2	A	M	8	RCR
R124	16M	5%	1/2	A	M	8	RCR
R126	16k	1%	1/10	C	M	43	1608
R127	330k	1%	1/10	C	M	44	1608
R128	100k	1%	1/10	C	M	46	1608
R129	6.2k	1%	1/10	C	M	47	1608
R132	0.82	5%	1	H	M	7	MOS
R134	22	5%	1/2	A	M	12	MOS
R141	100K	5%	1/10	C	M	63	1608
R142	100K	5%	1/10	C	M	63	1608
R143	3.3K	5%	1/10	C	M	58	1608
R145	5.1K	5%	1/10	C	M	60	1608
R146	4.3K	5%	1/10	C	M	59	1608
R147	3.3K	5%	1/10	C	M	58	1608
R148	3.3K	5%	1/10	C	M	58	1608
R149	3.3K	5%	1/10	C	M	58	1608
R151	390k	5%	2	H	M	9	
R201	4.3k	5%	1/4	C	M	28	3216
R202	4.3k	5%	1/10	C	M	59	1608
R203	4.7k	5%	1/8	C	M	36	2125
R204	3.3k	5%	1/10	C	M	58	1608
R205	402	1%	1/8	C	M	31	2125
R206	33k	5%	1/10	C	M	62	1608
R207	100	5%	1/10	C	M	52	1608
R211	15k	5%	1/10	C	M	65	1608
R215	2.7k	5%	1/10	C	R	187	1608
R216	47	5%	1/10	C	R	185	1608
R217	1k	5%	1/8	C	R	186	2125
R231	10k	5%	1/16	C	M	68	1005
R232	1k	5%	1/16	C	M	81	1005
R233	390	5%	1/8	C	M	34	2125
R234	1.5k	5%	1/4	C	M	20	3226
R309	680	5%	1/4	C	M	24	3216
R310	180	5%	1/8	C	M	33	2125
R311	820	5%	1/10	C	M	51	1608
R320	51k	1%	1/16	C	M	70	1005
R321	1k	5%	1/16	C	M	81	1005
R322	10k	1%	1/16	C	M	73	1005
R323	10k	1%	1/16	C	M	73	1005
R324	7.15k	1%	1/16	C	M	76	1005
R325	10k	1%	1/16	C	M	73	1005
R326	5.1k	5%	1/16	C	M	83	1005
R327	51k	5%	1/16	C	M	85	1005
R328	10k	5%	1/16	C	M	68	1005
R329	1k	5%	1/16	C	M	81	1005
R330	10k	5%	1/16	C	M	68	1005
R331	510	5%	1/4	C	M	23	3216
R332	5.6k	1%	1/16	C	M	71	1005
R341	470k	5%	1/4	A	M	16	
R342	47	5%	1/2	A	M	10	
R402	12.7k	1%	1/16	C	M	74	1005
R403	12.7k	1%	1/16	C	M	74	1005
R405	1k	5%	1/16	C	M	81	1005
R406	1k	5%	1/16	C	M	81	1005
R407	1k	5%	1/16	C	M	81	1005
R408	1k	5%	1/16	C	M	81	1005
R409		5%	1/16	C	M		1005
R411	10k	5%	1/16	C	M	68	1005
R412	1k	5%	1/16	C	M	81	1005
R501		5%	1/16	C	M	81	1005
R502	1k	5%	1/16	C	M	81	1005
R503	300k	5%	1/16	C	M	86	1005
R511	1k	5%	1/16	C	M	81	1005
R512	1k	5%	1/16	C	M	81	1005
R531	390	5%	1/16	C	M	80	1005
R532	390	5%	1/16	C	M	80	1005
R533	5.1k	5%	1/16	C	M	83	1005
R534	5.1k	5%	1/16	C	M	83	1005
R535	5.1k	5%	1/16	C	M	83	1005
R536	5.1k	5%	1/16	C	M	83	1005
R545	0	5%	1/10	C	M	48	1608
R546	0	5%	1/10	C	M	48	1608
R547		5%	1/16	C	M		1005
R611	0	5%	1/16	C	M	79	1005
R612		5%	1/16	C	M		1005
R613	10k	5%	1/16	C	M	68	1005
R614	100	5%	1/10	C	M	52	1608
R615	10k	5%	1/16	C	M	68	1005
R616	10k	5%	1/10	C	M	61	1608
R623	10k	5%	1/16	C	M	68	1005
R631	10k	5%	1/16	C	M	68	1005
R632	1k	5%	1/16	C	M	81	1005
R633	1k	5%	1/16	C	M	81	1005
R634	10k	5%	1/16	C	M	68	1005
R635	10k	5%	1/16	C	M	68	1005
R640	1k	5%	1/16	C	M	81	1005
R641	10k	5%	1/16	C	M	68	1005
R642	1k	5%	1/16	C	M	81	1005
R650	2.2k	5%	1/16	C	M	87	1005
R651	4.3k	5%	1/16	C	M	88	1005
R652	0	5%	1/10	C	M	48	1608
R661	47k	1%	1/16	C	M	72	1005
R663	10k	5%	1/16	C	M	68	1005
R664	1k	5%	1/16	C	M	81	1005
R665	10k	5%	1/16	C	M	68	1005
R683	3.3k	5%	1/6	A	S	58	
R691	1M	5%	1/16	C	M	84	1005
R692			1/16	C	M		1005
R694	10k	5%	1/16	C	M	68	1005
R695	1k	5%	1/16	C	M	81	1005
R710	10k	5%	1/16	C	M	68	1005
R731	10k	5%	1/16	C	M	68	1005
R740	100	5%	1/16	C	M	78	1005
R741	100	5%	1/16	C	M	78	1005
R742	10k	5%	1/16	C	M	68	1005
R743	10k	5%	1/16	C	M	68	1005
R751	10k	5%	1/16	C	M	68	1005
R752	10k	5%	1/16	C	M	68	1005
R754	10k	5%	1/16	C	M	68	1005
R757	10k	5%	1/16	C	M	68	1005
R758	10k	5%	1/16	C	M	68	1005
R759	10k	5%	1/16	C	M	68	1005
R760	10k	5%	1/16	C	M	68	1005
R761	10k	5%	1/16	C	M	68	1005
R762	10k	5%	1/16	C	M	68	1005

Resistor

SYMBOL	VALUE(Ω)	TOL	POWER (W)	FORM	MOUNT PCB	ASSY PART#	REMARK
R763	10k	5%	1/16	C	M	68	1005
R764	10k	5%	1/16	C	M	68	1005
R765	10k	5%	1/16	C	M	68	1005
R766	10k	5%	1/16	C	M	68	1005
R768	10k	5%	1/16	C	M	68	1005
R769	10k	5%	1/16	C	M	68	1005
R770	10k	5%	1/16	C	M	68	1005
R771	10k	5%	1/16	C	M	68	1005
R772	10k	5%	1/16	C	M	68	1005
R773	10k	5%	1/16	C	M	68	1005
R774	10k	5%	1/16	C	M	68	1005
R779	10k	5%	1/16	C	M	68	1005
R780	10k	5%	1/16	C	M	68	1005
R781	10k	5%	1/16	C	M	68	1005
R784	10k	5%	1/16	C	M	68	1005
R785	10k	5%	1/16	C	M	68	1005
R786	10k	5%	1/16	C	M	68	1005
R787	10k	5%	1/16	C	M	68	1005
R788	10k	5%	1/16	C	M	68	1005
R789	10k	5%	1/16	C	M	68	1005
R790	10k	5%	1/16	C	M	68	1005
R791	10k	5%	1/16	C	M	68	1005
R792	10k	5%	1/16	C	M	68	1005
R793	10k	5%	1/16	C	M	68	1005
R795	10k	5%	1/16	C	M	68	1005
R796	10k	5%	1/16	C	M	68	1005
R797	10k	5%	1/16	C	M	68	1005
R798	10k	5%	1/16	C	M	68	1005
R799	10k	5%	1/16	C	M	68	1005
R801	300	5%	1/10	C	M	53	1608
R802	390	5%	1/10	C	M	54	1608
R803	390	5%	1/10	C	M	54	1608
R831	10k	5%	1/10	C	M	61	1608
R832	10k	5%	1/10	C	M	61	1608
R834	51	5%	1/2	C	M	38	5025
R835	51	5%	1/2	C	M	38	5025
R901	10k	5%	1/16	C	M	68	1005
R902	10k	5%	1/16	C	M	68	1005
R903	1k	5%	1/16	C	M	81	1005
R904	1k	5%	1/16	C	M	81	1005
R905	1k	5%	1/16	C	M	81	1005
R906	1k	5%	1/16	C	M	81	1005
R907	30k	5%	1/16	C	M	66	1005
R908	30k	5%	1/16	C	M	66	1005
R910	1k	5%	1/16	C	M	81	1005
R911	560	5%	1/10	C	M	41	1608
R912	2k	5%	1/4	C	M	25	3216
R913	2k	5%	1/16	C	M	82	1005
R914	1.2k	5%	1/4	C	M	26	3216
R915	620	5%	1/10	C	M	50	1608

Capacitor

SYMBOL	VALUE (uF)	VOLT (V)	TYPE	FORM	MOUNT PCB	ASSY PART#	TEMP CHAR.
C001	0.33u	AC310	F	H	M	16	益
C002	0.47u	AC275	F	H	M	LE	益
C003	82u	450	D	H	M	12	CY
C006	22p	3.15k	C	H	M	21	SL
C011	0.01u	AC250	C	H	M	19	F
C012	0.01u	AC250	C	H	M	19	F
C013	0.047u	AC250	C	H	M	24	E
C014	0.047u	AC250	C	H	M	24	E
C101	4700p	AC250	C	H	M	18	B
C102	680p	16	D	R	M	123	ZLH
C103	1500p	16	D	H	M	13	YXH
C104	0.1u	25	C	C	M	107	1608
C105	0.1u	25	C	C	M	107	1608
C106	220p	10	D	R	M	120	YXA
C107	0.1u	16	C	C	M	100	1608
C108	4700p	AC250	C	H	M	18	B
C110	1u	25	C	C	M	109	1608
C111	1u	25	C	C	M	109	1608
C113	100p	10	D	R	M	127	YXA
C126	2200p	1k	C	H	M	22	R
C127	1000p	1k	C	H	M	23	R
C131	22u	35	D	R	M	125	ML
C132	2200p	50	C	C	M	104	1608
C134	100u	50	D	R	M	122	YXG
C151	2200p	1k	C	H	M	22	R
C201	1000p	50	C	C	M	103	1608
C202	10p	16	D	R	M	121	VR
C203	0.1u	25	C	C	M	107	1608
C205	1000p	50	C	C	M	103	1608
C206	4.7u	25	D	R	M	124	VR
C208	0.1u	25	C	C	M	107	1608
C211	47u	16	D	R	R	191	MF
C212	0.1u	25	C	C	R	107	1608
C213	0.1u	25	C	C	R	107	1608
C302	0.1u	25	C	C	M	107	1608
C321	0.022u	50	C	C	M	105	1608
C322	2200p	50	C	C	M	104	1608
C323	0.1u	16	C	C	M	108	1005
C324	0.01u	16	C	C	M	97	1608
C326	0.022u	50	C	C	M	105	1608
C327	47p	50	C	C	M	68	1005
C328	0.1u	16	C	C	M	108	1005
C341	0.1u	AC310	F	H	M	15	益
C342	0.022u	50	F	R	M	131	FZD
C343	4700p	AC250	C	H	M	20	F
C402	0.01u	16	C	C	M	97	1608
C403	0.1u	25	C	C	M	107	1608
C404	0.1u	25	C	C	M	107	1608
C405	0.1u	16	C	C	M	108	1005
C411	0.1u	16	C	C	M	108	1005
C501	0.1u	16	C	C	M	108	1005
C502	0.01u	16	C	C	M	97	1608
C503	0.1u	16	C	C	M	108	1005
C531	0.1u	16	C	C	M	108	1005
C532	100p	50	C	C	M	93	1608
C533	100p	50	C	C	M	93	1608
C534	0.1u	16	C	C	M	108	1005
C541		16	C	C	M		1608
C542	47u	16	C	C	M	125	3125
C543		25	C	C	M		1608
C544	0.1u	25	C	C	M	107	1608
C611	0.1u	16	C	C	M	108	1005
C612	0.1u	16	C	C	M	108	1005
C613	0.1u	16	C	C	M	108	1005
C617	0.1u	25	C	C	M	107	1608

CAPACITOR

SYMBOL	VALUE (uF)	VOLT (V)	TYPE	FORM	MOUNT PCB	ASSY PART#	TEMP CHAR.
C618	0.1μ	25	C	C	M	107	1608
C621	0.1μ	16	C	C	M	108	1005
C622	0.1μ	25	C	C	M	107	1608
C631	1000p	50	C	C	M	91	1608
C632	1000p	50	C	C	M	103	1608
C633	1000p	50	C	C	M	103	1608
C634	0.022μ	50	C	C	M	105	1608
C640	0.1μ	16	C	C	M	108	1005
C641	1000p	50	C	C	M	103	1608
C651	0.1μ	16	C	C	M	108	1005
C652	0.1μ	25	C	C	M	107	1608
C671	1000p	50	C	C	M	91	1608
C681	0.1μ	25	C	C	M	107	1608
C682	0.1μ	25	C	C	M	107	1608
C685	0.1μ	25	C	C	M	107	1608
C691	15p	50	C	C	M	111	1608
C692	12p	50	C	C	M	112	1608
C740	0.1μ	25	C	C	M	107	1608
C741	0.1μ	25	C	C	M	107	1608
C911	100μ	25	D	R	M	128	LXZ
C912	0.1μ	25	C	C	M	107	1608
C913	1000p	50	C	C	M	103	1608

DIODE

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
D101	S2L20U	H	M	
D102	S3L20U	H	M	27
D103	KDS4148U	C	M	161
D104	KDS4148U	C	M	161
D131	D1NL40U	A	M	168
D132	D1NL20U	A	M	169
D151	EG01CV1	A	M	160
D201	KDS4148U	C	M	161
D321	KDS4148U	C	M	161
D322	KDS226	C	M	162
D323	KDS226	C	M	162
D501	KDS4148U	C	M	161
D531	KDS184	C	M	164
D532	KDS181	C	M	165
D541	KDS4148U	C	M	161
DB1	DSB60	H	M	28

ZENER DIODE

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
ZD202	RK216CKU	C	M	159
ZD211	RD5.6UJN2	C	R	193

Transistor

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
Q101	RRR4DP03	C	M	155
Q102	SSM3J314T	C	M	156
Q103	KTC3875S-GR-RTK	C	M	157
Q104	KTC3875S-GR-RTK	C	M	157
Q201	2SC5810	C	M	135
Q202	RN1102TE85L	C	M	136
Q203	RN1402TE85L	C	M	139
Q212	2SC2462LC	C	R	139
Q331	RN1115TE85L	C	M	138
Q332	RN1106TE85L	C	M	137
Q501	RN1102TE85L	C	M	136
Q653	KTA2012E	C	M	140
Q681	RN1102TE85L	C	M	136
Q831	SCH1430	C	M	158

IC

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
IC001	STR-W6051S	H	M	25
IC101	NJM7805DL1	S	M	146
IC102	KIA431A	S	M	145
IC103	S812CS0AUA	S	M	152
IC301	KIA393F-ELP	S	M	147
IC501	S808H2CNMC-G8CT2G	S	M	148
IC531	S24C16C-T8	S	M	149
IC532	S24C16C-TA	S	M	149
IC541	NJM2931	S	M	145
IC601	HD64F36109HV	S	M	150
IC681	ULN2003ANSR	S	M	151
IC682	ULN2003ANSR	S	M	151

PHOTO COUPLER

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
PC101	PS2501AL-1	S	M	173
PC202	PS2501AL-1	S	M	173
PC203	PS2501AL-1	S	M	173
PC231	PS2501AL-1	S	M	173
PC911	PS2501AL-1	S	M	173
PC912	PS2501AL-1	S	M	173

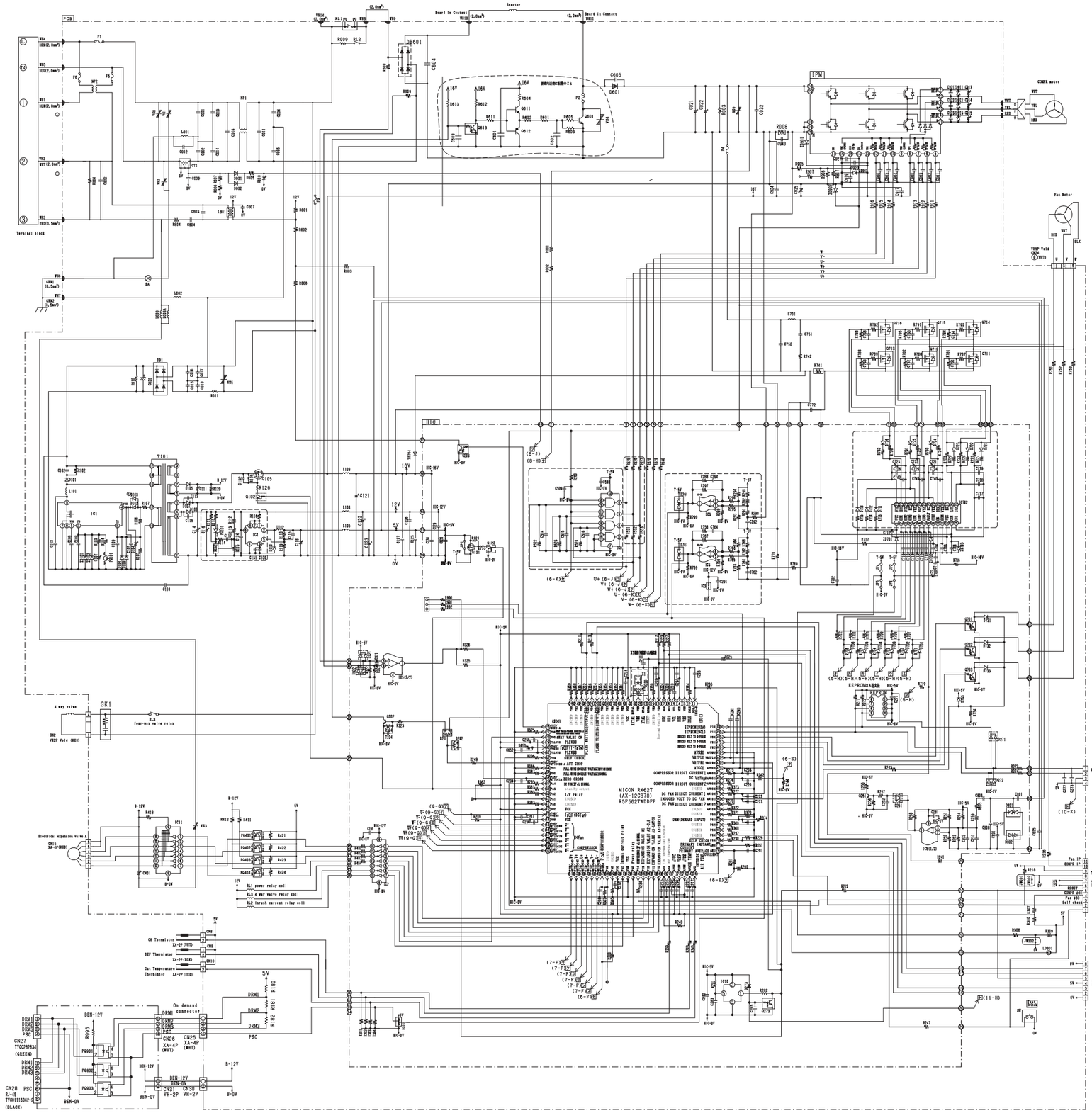
WIRE

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#	REMARK
WR001	0.5mm²(BLK)	H	M	70	
WR002	0.5mm²(WHT)	H	M	71	
WR003	0.5mm²(RED)	H	M	72	
WR004	0.5mm²(GRN)	H	M	73	
WJ1	WIRE JUMPER 0.5mm²(BLU)	H	M	75	WIRE

COIL

SYMBOL	MODEL NAME	FORM	MOUNT PCB	ASSY PART#
L010	FBA04HA600BB-00	A	M	170
L151	FBA04HA600BB-00	A	M	170
L152	FBA04HA600BB-00	A	M	170
L911	BL01RN1	A	M	171
L

MODEL RAC-25/35FXB



Resistance

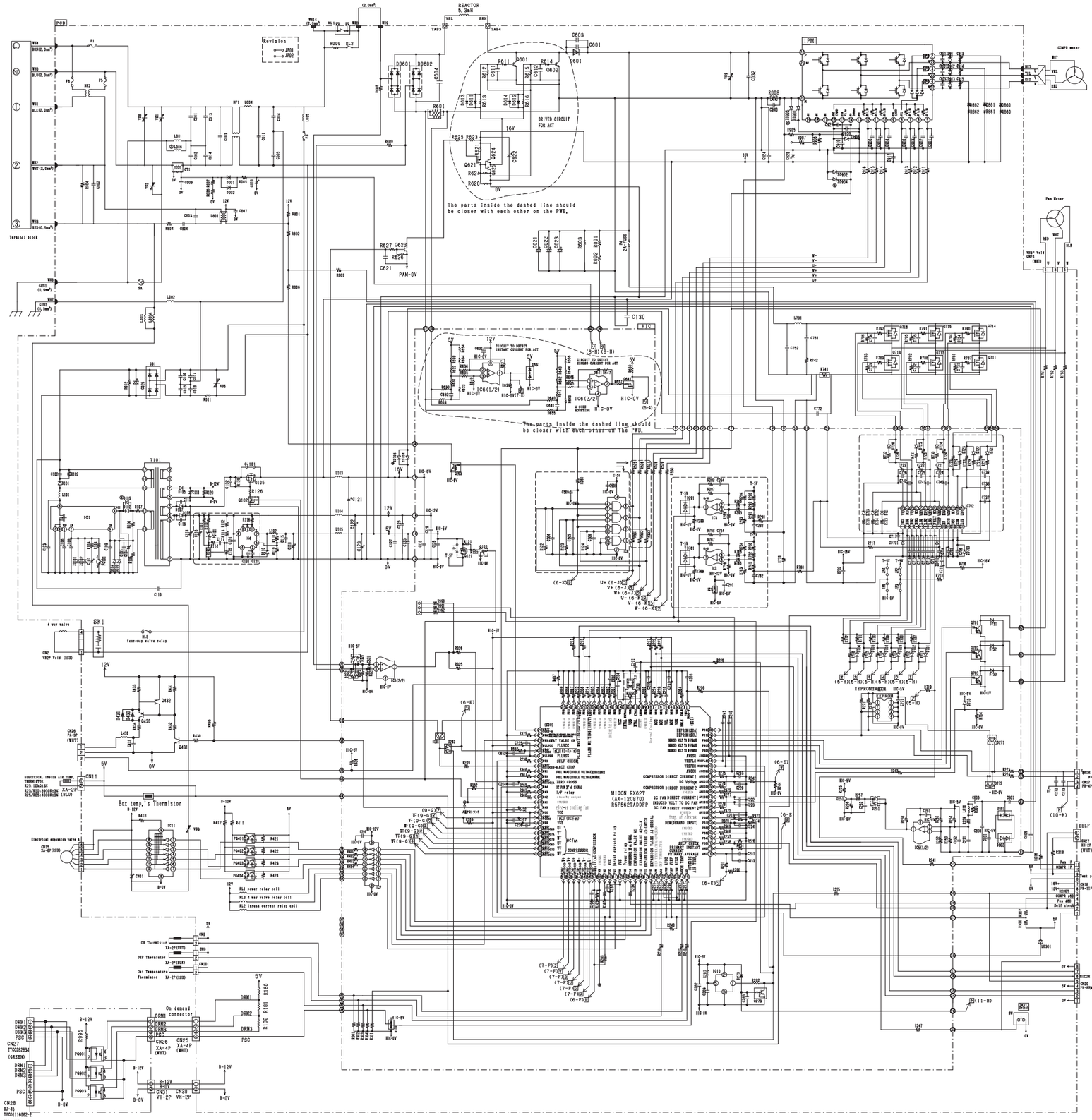
Symbol	Rating							Remarks
R001	100K	5%	1/4	C	M	B	14	
R003	100K	5%	1/4	C	M	B	14	
R004	470K	5%	1/4	C	M	B	11	
R005	470K	5%	1/4	C	M	B	24	
R006	1.96K	1%	1/4	C	M	B	50	
R007	1K	1%	1/4	C	M	B	49	
R007	2K	1%	1/4	C	M	B	46	
R008	2MΩ	5%	1/4	C	M	B	17	
R009	100Ω	5%	1/2	C	M	H	6	
R011	2.2MΩ	5%	1/2	C	M	H	9	
R012	1M	5%	1/4	C	M	A	1	
R101	100K	5%	1/4	C	M	A	10	
R103	1K	5%	1/4	C	M	A	38	
R104	1.1M	5%	1/4	C	M	A	19	
R105	47K	5%	1/4	C	M	A	20	
R106	68K	5%	1/4	C	M	A	21	
R107	2MΩ		1/4	C	M	A	1	
R110	1K	5%	1/4	C	M	A	38	
R111	2.2K	5%	1/4	C	M	A	22	
R113	33K	1%	1/4	C	M	A	23	
R113	3.1K	1%	1/4	C	M	A	24	
R114	470	5%	1/4	C	M	A	26	
R115	10K	1%	1/4	C	M	A	27	
R116	6.2K	1%	1/4	C	M	A	28	
R119	8.2K	1%	1/4	C	M	A	29	
R119	2.7K	1%	1/4	C	M	A	30	
R120	20K	1%	1/4	C	M	A	121	
R121	10K	5%	1/4	C	RIC	A	120	
R122	5.1K	5%	1/4	C	RIC	A	160	
R124	100K	5%	1/4	C	M	B	145	
R125	100K	5%	1/4	C	M	B	145	
R180				C	M	B	1	
R181				C	M	B	1	
R201	510	5%	1/4	C	RIC	B	17	
R202	100	5%	1/4	C	RIC	B	8	
R203	5.1K	5%	1/4	C	RIC	B	16	
R205	10K	5%	1/4	C	RIC	B	112	
R208	10K	5%	1/4	C	RIC	A	112	
R209	10K	5%	1/4	C	RIC	A	112	
R211	10K	5%	1/4	C	RIC	A	112	
R212	390	5%	1/4	C	RIC	A	112	
R213	10K	5%	1/4	C	RIC	A	112	
R214	390	5%	1/4	C	RIC	A	112	
R215	10K	5%	1/4	C	RIC	B	8	
R216	10K	5%	1/4	C	RIC	B	112	
R217	10K	5%	1/4	C	RIC	A	112	
R218	1K	5%	1/4	C	M	A	38	
R219	10K	5%	1/4	C	RIC	A	112	
R224	390	5%	1/4	C	RIC	A	112	
R225	5.1K	5%	1/4	C	RIC	B	16	
R226	10K	5%	1/4	C	RIC	A	112	
R227	10K	5%	1/4	C	RIC	A	112	
R228	10K	5%	1/4	C	RIC	A	112	
R229	330	5%	1/4	C	RIC	A	48	
R230	330	5%	1/4	C	RIC	A	48	
R234	100	5%	1/4	C	RIC	A	112	
R235	2.2K	5%	1/4	C	RIC	A	112	
R236	2.2K	5%	1/4	C	RIC	A	112	
R238	100	5%	1/4	C	RIC	A	112	
R239	100	5%	1/4	C	RIC	A	112	
R240	100	5%	1/4	C	RIC	A	112	
R241	100	5%	1/4	C	RIC	A	112	
R242	100	5%	1/4	C	RIC	A	112	
R243	100	5%	1/4	C	RIC	A	112	
R244	3.32K	1%	1/4	C	RIC	A	25	
R246	100	5%	1/4	C	RIC	A	112	
R247	100	5%	1/4	C	RIC	A	112	
R248	10K	5%	1/4	C	RIC	A	112	
R249	3.9K	5%	1/4	C	RIC	A	26	
R251	7.5K	1%	1/4	C	RIC	A	27	
R253	10K	1%	1/4	C	RIC	A	130	
R254	10K	1%	1/4	C	RIC	A	130	
R255	2K	5%	1/4	C	RIC	A	20	
R256	2K	5%	1/4	C	RIC	A	20	
R257	3K	5%	1/4	C	RIC	A	28	
R258	2.2K	5%	1/4	C	RIC	A	22	
R259	1K	5%	1/4	C	RIC	B	21	
R260	510	5%	1/4	C	RIC	B	7	
R265	100	5%	1/4	C	RIC	B	8	
R271	5.1K	5%	1/4	C	RIC	A	16	
R272	5.1K	5%	1/4	C	RIC	A	16	
R273	390	5%	1/4	C	RIC	A	117	
R274	390	5%	1/4	C	RIC	A	117	
R275	100	5%	1/4	C	RIC	A	8	
R276	100	5%	1/4	C	RIC	A	8	
R277	100	5%	1/4	C	RIC	A	8	
R278	100	5%	1/4	C	RIC	A	8	
R281	510K	5%	1/4	C	RIC	B	40	
R282	1K	5%	1/4	C	RIC	B	21	
R288				C	RIC	A	1	
R289				C	RIC	A	1	
R290	24	5%	1/4	C	RIC	A	35	
R291	5.1K	1%	1/4	C	RIC	A	36	
R292	5.1K	1%	1/4	C	RIC	A	36	
R293	5.1K	1%	1/4	C	RIC	A	36	
R294	5.1K	1%	1/4	C	RIC	A	36	
R295	24	5%	1/4	C	RIC	A	35	
R296	24	5%	1/4	C	RIC	A	35	
R297	10K	5%	1/4	C	RIC	A	112	
R298	24	5%	1/4	C	RIC	A	35	
R299	10K	5%	1/4	C	RIC	A	112	
R300	5.1K	5%	1/4	C	RIC	B	16	
R302	5.6K	1%	1/4	C	RIC	B	43	
R303	5.6K	1%	1/4	C	RIC	B	43	
R304				C	RIC	A	1	
R305	10K	5%	1/4	C	RIC	B	112	
R306	10K	5%	1/4	C	RIC	B	112	
R307	1K	5%	1/4	C	RIC	B	38	
R309	10K	5%	1/4	C	RIC	B	112	
R321	11.8K	1%	1/4	C	RIC	A	44	
R322	11.8K	1%	1/4	C	RIC	A	44	
R323	3.3K	5%	1/4	C	RIC	A	24	
R324	5K	1%	1/4	C	RIC	B	42	
R325	10K	1%	1/4	C	RIC	A	112	
R326	5.1K	1%	1/4	C	RIC	A	38	
R350	10K	5%	1/4	C	RIC	A	112	
R351	10K	5%	1/4	C	RIC	A	112	
R352	10K	5%	1/4	C	RIC	A	112	
R353	10K	5%	1/4	C	RIC	A	112	
R354	10K	5%	1/4	C	RIC	A	112	
R355	10K	5%	1/4	C	RIC	A	112	
R356	10K	5%	1/4	C	RIC	A	112	
R357	10K	5%	1/4	C	RIC	A	112	
R358	10K	5%	1/4	C	RIC	A	112	
R359	10K	5%	1/4	C	RIC	A	112	
R360	10K	5%	1/4	C	RIC	A	112	
R361	10K	5%	1/4	C	RIC	A	112	
R362	10K	5%	1/4	C	RIC	A	112	
R363	10K	5%	1/4	C	RIC	A	112	
R364	10K	5%	1/4	C	RIC	A	112	
R365	10K	5%	1/4	C	RIC	A	112	
R366	10K	5%	1/4	C	RIC	A	112	
R367	10K	5%	1/4	C	RIC	A	112	
R368	10K	5%	1/4	C	RIC	A	112	
R369	10K	5%	1/4	C	RIC	A	112	
R370	10K	5%	1/4	C	RIC	A	112	
R371	10K	5%	1/4	C	RIC	B	112	
R372	10K	5%	1/4	C	RIC	B	112	
R373	10K	5%	1/4	C	RIC	A	112	
R374	1K	5%	1/4	C	RIC	A	21	
R375	10K	5%	1/4	C	RIC	A	112	
R401	1K	5%	1/4	C	RIC	B	21	
R402	1K	5%	1/4	C	RIC	B	21	
R403	1K	5%	1/4	C	RIC	B	21	
R404	1K	5%	1/4	C	RIC	B	21	

Resistance

Symbol	Rating							Remarks
R411	7.5K	5%	1/4	C	M	B	41	
R412	7.5K	5%	1/4	C	M	B	41	
R418	JUMPER			A	M			
R421	47K	5%	1/4	C	M	B	54	
R422	47K	5%	1/4	C	M	B	54	
R423	47K	5%	1/4	C	M	B	54	
R424	47K	5%	1/4	C	M	B	54	
R520	10K	5%	1/4	C	RIC	B	12	
R523	10K	5%	1/4	C	RIC	B	12	
R524	10K	5%	1/4	C	RIC	B	12	
R525	430	5%	1/4	C	RIC	B	45	
R526	430	5%	1/4	C	RIC	B	45	
R527	430	5%	1/4	C	RIC	B	45	
R528	430	5%	1/4	C	RIC	B	45	
R529	430	5%	1/4	C	RIC	A	45	
R530	430	5%	1/4	C	RIC	A	45	
R531	0Ω	5%	1/4	C	RIC	B	1	
R532	0Ω	5%	1/4	C	RIC	B	1	
R533	0Ω	5%	1/4	C	RIC	B	1	
R601	20	5%	1/4	A	M		33	
R602	20	5%	1/4	A	M		33	
R603	20K	5%	1/4	C	M	B	45	
R604	510	5%	1/4	A	M		37	
R605	2.4M	5%	1/4	C	M	B	54	
R608	360K	1%	1/4	A	M		13	
R609	360K	1%	1/4	A	M		13	
R611	100	5%	1/2	C	M	B	35	
R612	5.1K	5%	1/2	C	M	B	40	
R613	10K	5%	1/2	C	M	B	40	
R650	10K	5%	1/4	C	RIC	A	12	
R651	10K	5%	1/4	C	RIC	A	12	
R702	11.5K	5%	1/4	C	RIC	B	41	
R703	11.5K	5%	1/4	C	RIC	B	41	
R704	11.5K	5%	1/4	C	RIC	B	41	
R705	11.5K	5%	1/4	C	RIC	B	41	
R706	11.5K	5%	1/4	C	RIC	B	41	
R707	200K	5%	1/4	C	RIC	B	109	
R708	200K	5%	1/4	C	RIC	B	109	
R709	200K	5%	1/4	C	RIC	B	109	
R710	200K	5%	1/4	C	RIC	B	109	
R711	200K	5%	1/4	C	RIC	B	109	
R712	200K	5%	1/4	C	RIC	B	109	
R713	0Ω	5%	1/4	C	RIC	B	109	
R714	0Ω	5%	1/4	C	RIC	B	109	
R715	0Ω	5%	1/4	C	RIC	B	109	
R716	1M	5%	1/4	C	RIC	B	21	
R717	1K	5%	1/4	C	RIC	A	21	
R719	0Ω	5%	1/4	C	RIC	A	38	
R721	2K	5%	1/4	C	RIC	A	20	
R723	2K	5%	1/4	C	RIC	A	20	
R724	2K	5%	1/4	C	RIC	A	20	
R725	2K	5%	1/4	C	RIC	A	20	
R726	2K	5%	1/4	C	RIC	A	20	
R727	100	5%	1/4	C	RIC	A	8	
R728	100	5%	1/4	C	RIC	A	8	
R729	100	5%	1/4	C	RIC	A	8	
R730	100	5%	1/4	C	RIC	A	8	
R731	100	5%	1/4	C	RIC	A	8	
R732	100	5%	1/4	C	RIC	A	8	
R740	10.2K	1%	1/4	R	M		8	
R742	JUMPER			A	M			
R751	430K	1%	1/4	A	M		16	
R754	430K	1%	1/4	A	M		16	
R753	430K	1%	1/4	A	M		16	
R754	11.8K	1%	1/4	C	RIC	A	44	
R758				C	RIC	A	1	
R759				C	RIC	A	1	
R760	24.5K	1%	1/4	C	RIC	A	45	
R761	5.11K	1%	1/4	C	RIC	A	36	
R762	5.11K	1%	1/4	C	RIC	A	36	
R763	5.11K	1%	1/4	C	RIC	A	36	
R764	5.11K	1%	1/4	C	RIC	A	36	
R765	0Ω	5%	1/4	C	RIC	A	38	
R766	0Ω	5%	1/4	C	RIC	A	38	
R767	18.7K	1%	1/4	C	RIC	A	46	
R768	24.5K	1%	1/4	C	RIC	A	45	
R769	10K	1%	1/4	C	RIC	A	112	
R770				C	RIC	A	1	
R781	10K	5%	1/4	C	M	B	42	
R782	10K	5%	1/4	C	M	B	42	
R783	10K	5%	1/4	C	M	B	42	
R784	10K	5%	1/4	C	M	B	42	
R785	10K	5%	1/4	C	M	B	42	
R786	10K	5%	1/4	C	M	B	42	
R787	100	5%	1/4	C	M	B	35	
R788	100	5%	1/4	C	M	B	35	
R789	100	5%	1/4	C	M	B	35	
R790	100	5%	1/4	C	M	B	35	
R791	100	5%	1/4	C	M	B	35	
R792	100	5%	1/4	C	M	B	35	
R801	680	5%	1/4	A	M		18	
R802	180	5%	1/4	A	M		36	
R803	820	1%	1/4	A	M		15	
R804	47	5%	1/4	A	M		15	
R805	0Ω	5%	1/4	C	M	A	38	
R806	510	5%	1/4	A	M		37	
R905	100	1%	1/4	A	M		47	
R906	8.45K	1%	1/4	A	M		51	
R907	2K	5%	1/4	A	M		99	
R911	10K	5%	1/2	C	M	B	31	
R912	10K	5%	1/2	C	M	B	31	
R913	10K	5%	1/2	C	M	B	31	
R914	10K	5%	1/2	C	M	B	31	
R915	10K	5%	1/2	C	M	B	31	
R916	10K	5%	1/2	C	M	B	31	
R917	5.1K	5%	1/2	C	M	B	40	
R990	100	5%	1/4	C	RIC	A	8	
R991	100	5%	1/4	C	RIC	A	8	
R992	100	5%	1/4	C	RIC	A	8	

Capacitor

Symbol	Rating							Remarks
C001	0.01	400	E	C	P	M	53	
C002	0.01	400	E	C	P	M	53	
C003	0.01	400	E	C	P	M	53	
C004	0.01	400	E	C	P	M	53	
C005	0.01	400	E	C	P	M	53	
C006	0.01	400	E	C	P	M	53	
C010	1000	50	E	M		M	76	
C011	0.01	400	E	C	P	M	53	
C014	0.01	400	E	C	P	M	53	
C015	0.01	400	E	C	P	M	53	
C016	4.7	400	E	M		M	76	
C017	4.7	400	E	M		M	76	
C018	4.7	400	E	M		M	76	
C021	375	400	E	M		M	58	
C022	375	400	E	M		M	58	
C023	68	400	E	M		M	76	
C032	0.1	450	F	M		M	72	
C102	2200	25	T	C	P	M	53	
C103	220	25	T	C	P	M	52	
C104	10	50	T	C	M	B	66	
C105	0.1	50	C	C	M	B	81	
C106	1	50	T	C	M	B	63	
C108	22	35	T	C	M	B	66	
C109	0.047	50	C	C	M	B	81	
C109	15	25	T	C	A	M	66	
C110	0.1	50	C	C	M	B	81	
C111	470	25	T	B	A	M	74	
C113				C	B	M		
C114	470	25	T	B	A	M	74	
C115	470	25	T	B	A	M	74	
C116	470	35	T	B	A	M	75	
C118	0.1	50	C	C	M	B	81	
C119	330	16	T	B	A	M	76	
C120	330	50	C	A	M		79	
C121	1000	25	T	B	R	M	69	
C122	100	25	T	B	R	M	68	
C123	1000	25	T	B	R	M	69	
C124	0.1	50	C	C	M	B	81	
C125	0.1	50	C	C	M	B	81	
C126	0.1	50	C	C	M	B	81	
C127	0.1	50	C	C	M	B	81	
C128	0.1	50	C	C	M	B	81	
C129	0.1	50	C	C	M	B	81	
C130	0.1	25	C	C	M	B	81	
C132	0.1	50	C	C	M	B	81	
C191	0.1	25	C	C	M	B	83	
C201	0.1	50	C	C	M	A	55	
C202	0.1	50	C	C	M	A	55	
C203	0.1	50	C	C	M	A	55	
C204	470	50	C	C	M	A	55	
C205	0.1	50	C	C	M	A	55	
C206	470	50	C	C	M	A	55	
C208	0.1	50	C	C	M	A	55	
C209	0.1	50	C	C	M	A	55	
C211	0.1	50	C	C	M	A	55	
C220	0.01	25	C	C	E	B	70	
C222				C				
C223	1000	25	T	C	R	B	68	
C224	0.1	16	C	C	M	B	55	
C231	0.1	16	C	C	M	B	55	
C234	0.1	16	C	C	M	B	55	
C235	0.1	16	C	C	M	B	55	
C236	0.1	16	C	C	M	B	55	
C238	0.1	16	C	C	M	B	55	
C239	0.1	16	C	C	M	B	55	
C240	0.1	16	C	C	M	B	55	
C241	0.1	16	C	C	M	B	55	
C251	2200	25	C	C	E	B	81	
C252	0.68	25	C	C	E	A	82	
C273	0.1	16	C	C	M	A	55	
C272	100	50	C	A	M		82	



Mounting PCB
M: Main PCB(#MBOARD-AS)

Way of mount mark
A: Axial inserter
R: Radial inserter
R: Radial inserter(7.5mm pitch)
H: Hand insertion
C: Chip

Resistance

Symbol	Resistance(Ω)	Tolerance	Power (W)	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
R001	180K	0.5%	1/2	A	M		14	
R002	180K	0.5%	1/2	A	M		14	
R004	470K	5%	1/4	A	M		24	
R005	1.96K	1%	1/6	A	M		50	
R006	1K	1%	1/6	A	M		49	
R007	20	1%	1/6	A	M		46	
R008	25m	5%	10	H	M		7	
R009	100	5%	10	H	M		6	
R011	2.2	5%	5	H	M		9	
R012	1M	5%	1/4	A	M			
R102	100K	5%	2	R	M		10	SPR
R103	1K	5%	1/6	A	M		38	
R104	1.8K	5%	1/6	A	M		19	
R105	47K	5%	1/6	A	M		20	
R106	68K	5%	1/6	A	M		21	
R107	JUMPER			A	M			
R110	1K	5%	1/6	A	M		38	
R111	2.2K	5%	1/6	A	M		22	
R112	33K	1%	1/6	A	M		23	
R113	5.1K	1%	1/6	A	M		25	
R114	470	5%	1/2	A	M		26	
R115	10K	1%	1/6	A	M		27	
R116	0.62	2%	1/4	A	M		28	
R118	8.2K	0.5%	1/6	A	M		29	
R119	2.7K	0.5%	1/6	A	M		30	
R120	20K	5%	1/6	A	M		12	
R121	10K	5%	1/16	C	HIC	B	12	1005
R122	5.1K	5%	1/16	C	HIC	B	16	1005
R125	100K	5%	1/10	C	M	B	62	1608
R126	100K	5%	1/10	C	M	B	62	1608
R180		5%	1/10	C	M	B		1608
R181		5%	1/10	C	M	B		1608
R182		5%	1/10	C	M	B		1608
R200	10K	1%	1/16	C	HIC	A	13	1005
R201	510	5%	1/16	C	HIC	A	7	1005
R203	100	5%	1/16	C	HIC	B	8	1005
R206	5.1K	5%	1/16	C	HIC	B	16	1005
R208	10K	5%	1/16	C	HIC	B	12	1005
R209	10K	5%	1/16	C	HIC	B	12	1005
R211	10K	5%	1/16	C	HIC	A	12	1005
R212	390	5%	1/16	C	HIC	A	17	1005
R213	10K	5%	1/16	C	HIC	A	12	1005
R214	390	5%	1/16	C	HIC	A	17	1005
R215	100	5%	1/16	C	HIC	B	8	1005
R216	100	5%	1/6	A	M		54	
R217	10K	5%	1/16	C	HIC	A	12	1005
R218	1K	5%	1/6	A	M		38	
R223	10K	5%	1/16	C	HIC	A	12	1005
R224	390	5%	1/16	C	HIC	A	17	1005
R225	5.1K	5%	1/16	C	HIC	B	16	1005
R226	10K	5%	1/16	C	HIC	B	12	1005
R227	10K	5%	1/16	C	HIC	A	12	1005
R228	390	5%	1/16	C	HIC	A	17	1005
R229				C	HIC	A		1005
R230	330	5%	1/16	C	HIC	A	48	1005
R234	100	5%	1/16	C	HIC	B	8	1005
R236	2.2K	5%	1/16	C	HIC	B	18	1005
R237	2.2K	5%	1/16	C	HIC	B	18	1005
R238	1K	5%	1/16	C	HIC	B	21	1005
R239	100	5%	1/16	C	HIC	B	8	1005
R240	100	5%	1/16	C	HIC	B	8	1005
R241	100	5%	1/16	C	HIC	B	8	1005
R242	160	5%	1/16	C	HIC	B	24	1005
R243	100	5%	1/16	C	HIC	B	8	1005
R244	3.32K	1%	1/16	C	HIC	B	25	1005
R247	100	5%	1/16	C	HIC	A	8	1005
R248	10K	5%	1/16	C	HIC	A	12	1005
R249	2.2K ~~3.9K~~	5%	1/16	C	HIC	A	18 ~~26~~	1005
R251	7.15K	1%	1/16	C	HIC	A	27	1005
R252	10K	1%	1/16	C	HIC	A	13	1005
R253	10K	1%	1/16	C	HIC	A	13	1005
R254	10K	1%	1/16	C	HIC	A	13	1005
R255	2K	5%	1/16	C	HIC	B	20	1005
R256	10K	5%	1/16	C	HIC	B	12	1005
R257	3K	5%	1/16	C	HIC	B	28	1005
R258	2.2K	1%	1/16	C	HIC	B	29	1005
R259	1K	5%	1/16	C	HIC	A	21	1005
R260	510	5%	1/16	C	HIC	B	7	1005
R265	100	5%	1/16	C	HIC	B	8	1005
R271	5.1K	5%	1/16	C	HIC	A	16	1005
R272	5.1K	5%	1/16	C	HIC	A	16	1005
R273	390	5%	1/16	C	HIC	A	17	1005
R274	390	5%	1/16	C	HIC	A	17	1005
R275	100	5%	1/16	C	HIC	A	8	1005
R276	100	5%	1/16	C	HIC	A	8	1005
R277	100	5%	1/16	C	HIC	A	8	1005
R278	100	5%	1/16	C	HIC	A	8	1005
R281	510K	5%	1/16	C	HIC	B	40	1005
R282	1K	5%	1/16	C	HIC	B	21	1005
R288				C	HIC	A		1005
R289				C	HIC	A		1005
R290	24	5%	1/16	C	HIC	A	35	1005
R291	5.11K	1%	1/16	C	HIC	A	36	1005
R292	5.11K	1%	1/16	C	HIC	A	36	1005
R293	5.11K	1%	1/16	C	HIC	A	36	1005
R294	5.11K	1%	1/16	C	HIC	A	36	1005
R295	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R296	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R297	8.45K	1%	1/16	C	HIC	A	51	1005
R298	24	5%	1/16	C	HIC	A	35	1005
R299	10K	1%	1/16	C	HIC	A	13	1005
R300	5.1K	5%	1/6	A	M		40	
R301	3.74K	0.5%	1/16	C	HIC	B	42	1005
R302	3.01K	0.5%	1/16	C	HIC	B	43	1005
R303	3.01K	0.5%	1/16	C	HIC	B	43	1005
R304				C	HIC	B		1005
R305	10K	5%	1/16	C	HIC	A	12	1005
R307	1K	5%	1/6	A	M		38	
R311	12.7K	1.0%	1/16	C	HIC	B	52	1005
R321	1.8K	1%	1/16	C	HIC	B	44	1005
R322	1.8K	1%	1/16	C	HIC	B	44	1005
R325	10K	5%	1/16	C	HIC	A	12	1005
R326	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R350	10K	5%	1/16	C	HIC	A	12	1005
R351	10K	5%	1/16	C	HIC	A	12	1005
R352	10K	5%	1/16	C	HIC	A	12	1005
R353	10K	5%	1/16	C	HIC	A	12	1005
R354	10K	5%	1/16	C	HIC	A	12	1005
R355	10K	5%	1/16	C	HIC	A	12	1005
R356	10K	5%	1/16	C	HIC	A	12	1005
R357	10K	5%	1/16	C	HIC	A	12	1005
R358	10K	5%	1/16	C	HIC	A	12	1005
R359	10K	5%	1/16	C	HIC	A	12	1005
R360	10K	5%	1/16	C	HIC	B	12	1005
R361	10K	5%	1/16	C	HIC	A	12	1005
R362	10K	5%	1/16	C	HIC	A	12	1005
R364	10K	5%	1/16	C	HIC	B	12	1005
R365	10K	5%	1/16	C	HIC	B	12	1005
R366	10K	5%	1/16	C	HIC	B	12	1005
R367	10K	5%	1/16	C	HIC	B	12	1005
R368	10K	5%	1/16	C	HIC	B	12	1005
R369	10K	5%	1/16	C	HIC	B	12	1005
R370	10K	5%	1/16	C	HIC	B	12	1005

Resistance

Symbol	Resistance(Ω)	Tolerance	Power (W)	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
R371	10K	5%	1/16	C	HIC	B	12	1005
R372	10K	5%	1/16	C	HIC	B	12	1005
R373	10K	5%	1/16	C	HIC	A	12	1005
R374	1K	5%	1/16	C	HIC	B	21	1005
R375	10K	5%	1/16	C	HIC	B	12	1005
R401	1K	5%	1/16	C	HIC	B	21	1005
R402	1K	5%	1/16	C	HIC	B	21	1005
R403	1K	5%	1/16	C	HIC	B	21	1005
R404	1K	5%	1/16	C	HIC	B	21	1005
R411	7.5K	5%	1/8	C	M	B	41	2012
R412	7.5K	5%	1/8	C	M	B	41	2012
R418	JUMPER			A	M			
R421	47K	5%	1/10	C	M	B	44	1608
R422	47K	5%	1/10	C	M	B	44	1608
R423	47K	5%	1/10	C	M	B	44	1608
R424	47K	5%	1/10	C	M	B	44	1608
R430	5.1K	5%	1/4	A	M		59	
R431	10K	5%	1/6	A	M		60	
R432	3K	5%	1/4	A	M		58	
R433	4.7	5%	1/4	A	M		53	
R434	JUMPER	5%	1/6	A	M			
R435	15K	5%	1/6	A	M		61	
R436	5.1K	5%	1/16	C	HIC	A	16	1005
R437	10K	5%	1/16	C	HIC	A	12	1005
R522	10K	5%	1/16	C	HIC	B	12	1005
R523	10K	5%	1/16	C	HIC	B	12	1005
R524	10K	5%	1/16	C	HIC	B	12	1005
R525	430	5%	1/16	C	HIC	B	45	1005
R526	430	5%	1/16	C	HIC	B	45	1005
R527	430	5%	1/16	C	HIC	B	45	1005
R528	430	5%	1/16	C	HIC	A	45	1005
R529	430	5%	1/16	C	HIC	A	45	1005
R530	430	5%	1/16	C	HIC	A	45	1005
R531	Chip JUMPER	5%	1/16	C	HIC	B	38	1005
R532	Chip JUMPER	5%	1/16	C	HIC	B	38	1005
R533	Chip JUMPER	5%	1/16	C	HIC	B	38	1005
R601	12.5m	5%	10	H	M		33	
R603	470K	5%	1/2	A	M		11	
R608	360K	1%	1/4	A	M		13	
R609	360K	1%	1/4	A	M		13	
R611	5.1	5%	1/4	A	M		37	
R612	20K	5%	1/6	A	M		12	
R613	75	5%	1/4	A	M		43	
R614	5.1	5%	1/4	A	M		37	
R615	20K	5%	1/6	A	M		12	
R616	75	5%	1/4	A	M		43	
R620	1.5K	5%	1/2	A	M		34	
R621	JUMPER			A	M			
R623	820	5%	1/6	A	M		56	
R624	1.5K	5%	1/2	A	M		34	
R625	1.2K	5%	1/6	A	M		57	
R626	1.2K	5%	1/10	C	M	B	206	1608
R627	330	5%	1/4	A	M		55	
R630	24	5%	1/16	C	HIC	A	35	1005
R631	5.11K	1%	1/16	C	HIC	A	36	1005
R632	5.11K	1%	1/16	C	HIC	A	36	1005
R633	5.11K	1%	1/16	C	HIC	A	36	1005
R634	5.76K	1%	1/16	C	HIC	A	31	1005
R635	24	5%	1/16	C	HIC	A	35	1005
R636	24	5%	1/16	C	HIC	A	35	1005
R637	21.5K	1%	1/16	C	HIC	A	32	1005
R638	24	5%	1/16	C	HIC	A	35	1005
R639	10K	1%	1/16	C	HIC	A	13	1005
R640	24	5%	1/16	C	HIC	A	35	1005
R641	3.3K	1%	1/16	C	HIC	A	33	1005
R642	5.11K	1%	1/16	C	HIC	A	36	1005
R643	5.11K	1%	1/16	C	HIC	A	36	1005
R644	5.11K	1%	1/16	C	HIC	A	36	1005
R645	CHIP JUMPER	5%	1/16	C	HIC	A	38	1005
R646	CHIP JUMPER	5%	1/16	C	HIC	A	38	1005
R647	51K	1%	1/16	C	HIC	A	34	1005
R648	24	5%	1/16	C	HIC	A	35	1005
R649	43.2k	1%	1/16	C	HIC	A	47	1005
R650	5.1K	1%	1/16	C	HIC	A	22	1005
R651	1K	5%	1/16	C	HIC	B	21	1005
R652	510	5%	1/16	C	HIC	A	7	1005
R653	24	5%	1/16	C	HIC	A	35	1005
R654	24	5%	1/16	C	HIC	A	35	1005
R655	24	5%	1/16	C	HIC	A	35	1005
R656	24	5%	1/16	C	HIC	A	35	1005
R657	20K	5%	1/16	C	HIC	A	19	1005
R701	1.5K	5%	1/16	C	HIC	B	41	1005
R702	1.5K	5%	1/16	C	HIC	B	41	1005
R703	1.5K	5%	1/16	C	HIC	B	41	1005
R704	1.5K	5%	1/16	C	HIC	B	41	1005
R705	1.5K	5%	1/16	C	HIC	B	41	1005
R706	1.5K	5%	1/16	C	HIC	B	41	1005
R707	20K	5%	1/16	C	HIC	B	19	1005
R708	20K	5%	1/16	C	HIC	B	19	1005
R709	20K	5%	1/16	C	HIC	B	19	1005
R710	20K	5%	1/16	C	HIC	B	19	1005
R711	20K	5%	1/16	C	HIC	B	19	1005
R712	20K	5%	1/16	C	HIC	B	19	1005
R713	10	5%	1/4	C	HIC	B	49	3216
R714	10	5%	1/4	C	HIC	B	49	3216
R715	10	5%	1/4	C	HIC	B	49	3216
R716	1M	5%	1/10	C	HIC	B	50	1608
R717	1K	5%	1/16	C	HIC	A	21	1005
R718	Chip JUMPER	5%	1/16	C	HIC	B	38	1005
R719	Chip JUMPER	5%	1/16	C	HIC	B	38	1005
R721	2K	5%	1/16	C	HIC	A	20	1005
R722	2K	5%	1/16	C	HIC	A	20	1005
R723	2K	5%	1/16	C	HIC	A	20	1005
R724	2K	5%	1/16	C	HIC	A	20	1005
R725	2K	5%	1/16	C	HIC	A	20	1005
R726	2K	5%	1/16	C	HIC	A	20	1005
R727	100	5%	1/16	C	HIC	A	8	1005
R728	100	5%	1/16	C	HIC	A	8	1005
R729	100	5%	1/16	C	HIC	A	8	1005
R730	100	5%	1/16	C	HIC	A	8	1005
R731	100	5%	1/16	C	HIC	A	8	1005
R732	100	5%	1/16	C	HIC	A	8	1005
R741	0.24	2%	1	R	M		8	
R742	JUMPER			A	M			
R751	430K	1%	1/2	A	M		16	
R752	430K	1%	1/2	A	M		16	
R753	430K	1%	1/2	A	M		16	
R754	11K	1%	1/16	C	HIC	B	30	1005
R758				C	HIC	A		1005
R759				C	HIC	A		1005
R760	24	5%	1/16	C	HIC	A	35	1005
R761	5.11K	1%	1/16	C	HIC	A	36	1005
R762	5.11K	1%	1/16	C	HIC	A	36	1005
R763	5.11K	1%	1/16	C	HIC	A	36	1005
R764	5.11K	1%	1/16	C	HIC	A	36	1005
R765	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R766	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R767	18.7K	1%	1/16	C	HIC	A	46	1005
R768	24	5%	1/16	C	HIC	A	35	1005
R769	10K	1%	1/16	C	HIC	A	13	1005
R770				C	HIC	A		1005

Resistance

Symbol	Resistance(Ω)	Tolerance	Power (W)	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
R781	10K	5%	1/10	C	M	B	42	1608
R782	10K	5%	1/10	C	M	B	42	1608
R783	10K	5%	1/10	C	M	B	42	1608
R784	10K	5%	1/10	C	M	B	42	1608
R785	10K	5%	1/10	C	M	B	42	1608
R786	10K	5%	1/10	C	M	B	42	1608
R787	100	5%	1/10	C	M	B	35	1608
R788	100	5%	1/10	C	M	B	35	1608
R789	100	5%	1/10	C	M	B	35	1608
R790	100	5%	1/10	C	M	B	35	1608
R791	100	5%	1/10	C	M	B	35	1608
R792	100	5%	1/10	C	M	B	35	1608
R801	680	5%	1/4	A	M		18	
R802	180	5%	1/6	A	M		36	
R803	820	1%	1/6	A	M		48	
R804	47	5%	1/2	A	M		15	
R805	Chip JUMPER	5%	1/16	C	HIC	A	38	1005
R806	510	5%	1/4	A	M		17	
R860	22	5%	1/4	C	M	B	52	3216
R861	22	5%	1/4	C	M	B	52	3216
R862	22	5%	1/4	C	M	B	52	3216
R905	100	1%	1/10	C	M	B	205	1608
R906	402 ~~3.65K~~	1%	1/8	C	M	B	208	2125
R907	2K	5%	1/10	C	M	B	207	1608
R911	51 ~~10~~	5%	1/10	C	M	B	31	1608
R912	51 ~~10~~	5%	1/10	C	M	B	31	1608
R913	51 ~~10~~	5%	1/10	C	M	B	31	1608
R914	51 ~~10~~	5%	1/10	C	M	B	31	1608
R915	51 ~~10~~	5%	1/10	C	M	B	31	1608
R916	51 ~~10~~	5%	1/10	C	M	B	31	1608
R990	100	5%	1/16	C	HIC	A	8	1005
R991	100	5%	1/16	C	HIC	A	8	1005
R992	100	5%	1/16	C	HIC	A	8	1005

Capacitor

Symbol	Capacity (μF)	Voltage (V)	Assortment	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
C001	0.01	AC250	C	R	M		71	Murata KH
C002	0.01	AC250	C	R	M		71	Murata KH
C003	0.68	AC310	F	H	M		84	OKAYA LE-MX
C004	0.01	AC250	C	R	M		71	Murata KH
C005	0.01	AC250	C	R	M		71	Murata KH
C009	0.1	50	C	A	M		94	
C010	100	50	D	R	M		76	NICHICON VR
C011	3.3	AC310	F	H	M		85	OKAYA LE-MX
C012			~~C~~	~~R~~	M			
C013	0.01	AC250	C	R	M		71	Murata KH
C014	0.01	AC250	C	R	M		71	Murata KH
C015	4700p	AC250	C	R	M		74	Murata KH
C016	4700p	AC250	C	R	M		74	Murata KH
C017	4700p	AC250	C	R	M		74	Murata KH
C018	4700p	AC250	C	R	M		74	Murata KH
C021	500	450	D	H	M		72	
C022	500	450	D	H	M		72	
C023	500	450	D	H	M		72	
C025	68	450	D	H	M		87	KXG φ18X31.5
C032	0.1	450	F	H	M		86	OKAYA AFP
C102	1000p	1k	C	P	M		67	
C103	220p	2k	C	P	M		66	
C104	100	50	D	R	M		69	
C105	0.1	50	C	A	M		94	
C106	1	50	C	A	M		77	
C107	22	25	D	R	M		80	
C108	0.047	50	C	A	M		81	
C109	15p	50	C	A	M		82	
C110		AC250V	C	R	M			
C111	470	25	D	R	M		88	
C113			C	R	M			
C114	470	25	D	R	M		88	
C115	470p	50	C	A	M		91	
C116	470	50	D	R ~~H~~	M		89	
C117	0.1	50	C	A	M		94	
C118	330	16	D	R	M		92	
C119			C	R	M			
C120	330p	50	C	A	M		93	
C121	100	25	D	R	M		102	
C122		25	D	R	M			
C123	100	10	D	R	M		103	
C124	0.1	50	C	A	M		94	
C125	0.1	50	C	C	M	B	95	1608
C126	0.1	50	C	C	M	B	95	1608
C127	0.1	50	C	C	M	B	95	1608
C128	0.1	16	C	C	HIC	B	55	1005
C129	0.1	25	C	C	HIC	B	59	1608
C130		50	C	A	M			
C131		50	C	A	M			
C132	~~0.1~~	~~50~~	C	C	M	B		1608
C133	0.1	25	C	C	HIC	B	59	1608
C191	0.1	25	C	C	HIC	B	63	1608
C201	0.1	16	C	C	HIC	A	55	1005
C202	0.1	16	C	C	HIC	B	55	1005
C203			~~C~~	~~C~~	HIC	~~A~~		1005
C204	470p	50	C	C	HIC	A	60	1005
C205	0.047	25	C	C	HIC	B	54	1005
C206	470p	50	C	C	HIC	B	60	1005
C207	470p	50	C	C	HIC	A	60	1005
C209	0.1	16	C	C	HIC	A	55	1005
C210	0.1	16	C	C	HIC	B	55	1005
C211	0.047	25	C	C	HIC	B	54	1005
C215			C	C	HIC	A		1005
C216	0.1	16	C	C	HIC	B	55	1005
C217	0.1	16	C	C	HIC	B	55	1005
C218	0.1	16	C	C	HIC	B	55	1005
C220	0.01	25	C	C	HIC	B	70	1005
C222			~~C~~	~~C~~	HIC	~~A~~		1005
C223	1000p	50	C	C	HIC	B	68	1005
C224	0.1	16	C	C	HIC	B	55	1005
C231	0.1	16	C	C	HIC	B	55	1005
C234	0.1	16	C	C	HIC	B	55	1005
C235	0.1	16	C	C	HIC	B	55	1005
C236	0.1	16	C	C	HIC	B	55	1005
C237	0.1	16	C	C	HIC	B	55	1005
C238	0.1	16	C	C	HIC	B	55	1005
C239	0.1	16	C	C	HIC	B	55	1005
C240	0.1	16	C	C	HIC	B	55	1005
C241	0.1	16	C	C	HIC	B	55	1005
C251	2200p	50	C	C	HIC	A	61	1608
C252	0.068	25	C	C	HIC	B	62	1608
C271	0.1	16	C	C	HIC	A	55	1005
C272	100p	50	C	A	M		96	
C273	100p	50	C	A	M		96	
C281	0.1	16	C	C	HIC	B	55	1005
C282	0.1	16	C	C	HIC	A	55	1005
C283	0.22	16	C	C	HIC	B	57	1608
C285	0.1	16	C	C	HIC	A	55	1005
C291	0.1	25	C	C	HIC	A	59	1608
C292	0.047	25	C	C	HIC	A	54	1005
C294			~~C~~	~~C~~	HIC	~~A~~		1005
C321	0.033	50	C	C	HIC	B	65	1608
C401	100	25	D	R	M		78	NICHICON VR
C430	0.1	16	C	C	HIC	A	55	1005
C431		25	C	A	M			
C432	0.1	16	C	C	HIC	B	55	1005
C504	100p	50	C	C	HIC	B	76	1005
C505	100p	50	C	C	HIC	B	76	1005
C506	100p	50	C	C	HIC	B	76	1005
C508	0.1	16	C	C	HIC	B	55	1005
C509	220p	50	C	C	HIC	B	67	1005

Capacitor

Symbol	Capacity (μF)	Voltage (V)	Assortment	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
C601	4700p	DC1KV	C	R	M		73	
C603	~~2200p~~	DC1KV	C	R	M			
C604	0.01	DC1KV	C	R	M		68	
C611		50	C	A	M			
C612		50	C	A	M			
C621	100p	50	C	C	M	B	64	1608
C622	47	25	D	R ~~H~~	M		65	
C631	0.047	25	C	C	HIC	A	54	1005
C632	0.047	25	C	C	HIC	A	54	1005
C641	0.047	25	C	C	HIC	A	54	1005
C652		~~50~~	~~C~~	~~C~~	HIC	A		1005
C653	0.1	16	C	C	HIC	B	55	1005
C702	0.33	25	C	C	HIC	B	74	2125
C703	2200p	50	C	C	HIC	B	75	1005
C704	1000p	50	C	C	HIC	A	66	1005
C706	0.1	16	C	C	HIC	B	55	1005
C711	100p	50	C	C	HIC	A	73	1608
C712	100p	50	C	C	HIC	A	73	1608
C713	100p	50	C	C	HIC	A	73	1608
C714	100p	50	C	C	HIC	A	73	1608
C715	100p	50	C	C	HIC	A	73	1608
C716	100p	50	C	C	HIC	A	73	1608
C717			~~C~~	~~C~~	HIC	B		2125
C718			~~C~~	~~C~~	HIC	B		1608
C721	10	25	D	C	HIC	A	72	WR
C722	10	25	D	C	HIC	A	72	WR
C723	10	25	D	C	HIC	A	72	WR
C724	0.1	25	C	C	HIC	A	63	R特 1608
C725	0.1	25	C	C	HIC	A	63	R特 1608
C726	0.1	25	C	C	HIC	A	63	R特 1608
C731	220p	50	C	C	M	B	101	1608
C732	220p	50	C	C	M	B	101	1608
C733	220p	50	C	C	M	B	101	1608
C734	220p	50	C	C	M	B	101	1608
C735	220p	50	C	C	M	B	101	1608
C736	220p	50	C	C	M	B	101	1608
C737	100p	50	C	C	HIC	B	73	1608
C738	100p	50	C	C	HIC	B	73	1608
C739	100p	50	C	C	HIC	B	73	1608
C740	100p	50	C	C	HIC	A	73	1608
C741	100p	50	C	C	HIC	A	73	1608
C742	100p	50	C	C	HIC	A	73	1608
C751	0.01	DC1KV	C	R	M		68	
C752			~~C~~	~~R~~	M			
C762	0.01	25	C	C	HIC	A	70	1005
C764			~~C~~	~~C~~	HIC	A		1005
C772	0.1	50	C	C	M	B	95	1608
C801	0.022	50	C	C	HIC	A	69	1608
C802	4700p	AC250	C	R	M		70	
C803	0.022	50	F	R	M		90	
C804	0.1	AC310	F	H	M		83	OKAYA LE-MX
C805	0.1	50	C	C	M	B	95	1608
C806	0.022	50	C	C	HIC	A	69	1608
C807	0.1	50	C	C	M	B	95	1608
C808	47p	50	C	C	HIC	A	66	1005
C900	0.1	50	C	C	M	B	95	1608
C901	680p	50	C	C	M	B	98	1608
C902	680p	50	C	C	M	B	98	1608
C903	680p	50	C	C	M	B	98	1608
C904	680p	50	C	C	M	B	98	1608
C905	680p	50	C	C	M	B	98	1608
C906	680p	50	C	C	M	B	98	1608
C913	33	25	D	R	M		75	NICHICON SY(105℃)
C914	33	25	D	R	M		75	NICHICON SY(105℃)
C915	33	25	D	R	M		75	NICHICON SY(105℃)
C917			R	A	M			
C919	0.022	50	C	C	M		100	
C920	0.1	50	C	C	M	B	95	1608
C921	0.1	50	C	C	M	B	95	1608
C922	0.1	50	C	C	M	B	95	1608
C923	0.1	50	C	C	M	B	95	1608
C924	0.1	50	C	C	M	B	95	1608
C925	220	25	D	R	M		79	NICHICON RZ
C927	220p	50	C	C	M	B	101	1608
C931	0.1	16	C	C	HIC	A	55	1005
C932	0.1	16	C	C	HIC	A	55	1005
C940	~~0.1~~	~~50~~	~~C~~	~~C~~	M	~~B~~		1608

Diode

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
D101	SARS01	A	M		110	
D102	~~DA2JF23~~	C	M	B		
D103	D1NL20U	A	M		109	
D104	RB721Q	A	M		122	
D105	RL2Z	H	M		115	
D107	D1NL20U	A	M		109	
D108	EL1Z	A	M		121	
D109	~~DB2J314~~	C	M	B	~~186~~	
D110	AK04	A	M		123	
D001	1SS120	A	M		108	
D002	~~DA3X101K~~	C	M	B		1SS120
D201	KDS181-RTK/P	C	HIC	B	79	
D202	KDS181-RTK/P	C	HIC	B	79	
D251	KDS184-RTK/P	C	HIC	B	82	
D271	KDS184-RTK/P	C	HIC	B	82	
D272	KDS181-RTK/P	C	HIC	B	79	
D273	1SS352TPH3F	C	HIC	A	85	
D291	KDS226-RTK/P	C	HIC	A	83	
D310	KDS226-RTK/P	C	HIC	B	83	
D321	KDS184-RTK/P	C	HIC	B	82	
D322	KDS181-RTK/P	C	HIC	B	79	
D430	1SS120	A	M		108	
D431	~~DA3X101K~~	C	M	B		1SS120
D601	D30L60	H	M		113	RREB 5186
D611	1SS120	A ~~H~~	M	B	108	
D612	1SS120	A ~~H~~	M	B	108	
D613	~~DA3X101K~~	C	M	B		1SS120
D614	~~DA3X101K~~	C	M	B		1SS120
D631	KDS226-RTK/P	C	HIC	A	83	DAN217
D641	1SS352TPH3F	C	HIC	A	85	DAN217
D701		~~C~~	HIC	~~B~~		
D702		~~C~~	HIC	~~B~~		
D703		~~C~~	HIC	~~B~~		
D704		~~C~~	HIC	~~B~~		
D705		~~C~~	HIC	~~B~~		
D706		~~C~~	HIC	~~B~~		
D711	D1FK60	C	HIC	A	84	
D712	D1FK60	C	HIC	A	84	
D713	D1FK60	C	HIC	A	84	
D721	1SS355VM	C	HIC	B	80	
D722	1SS355VM	C	HIC	B	80	
D723	1SS355VM	C	HIC	B	80	
D724	1SS355VM	C	HIC	A	80	
D725	1SS355VM	C	HIC	A	80	
D726	1SS355VM	C	HIC	A	80	
D731	1SS355VM	C	HIC	B	80	
D732	1SS355VM	C	HIC	B	80	
D733	1SS355VM	C	HIC	B	80	
D735	1SS355VM	C	HIC	B	80	
D761	KDS226-RTK/P	C	HIC	A	83	
D801	KDS226-RTK/P	C	HIC	A	83	
D802	KDS226-RTK/P	C	HIC	A	83	
D860	D1NK60	A	M		118	
D861	D1NK60	A	M		118	
D862	D1NK60	A	M		118	
DB1	D2SB60A	H	M		111	
DB601	D25XB60	H	M		112	
DB602	D25XB60	H	M		112	

Zener diode

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
ZD101	HZS5A1	A	M		116	
ZD102		C	M			
ZD701		~~C~~	HIC	~~A~~		
ZD702		~~C~~	HIC	~~B~~		
ZD703		~~C~~	HIC	~~B~~		
ZD704	~~TFZ-22B~~	C	M	B		
ZD705	HZ22-1TA-E	A	M		117	
ZD901	~~TFZ-22B~~	C	M	B		
ZD902	~~TFZ-22B~~	C	M	B		
ZD903		C	M			
ZD904	HZ22-1TA-E	A	M		117	
ZD905	HZ22-1TA-E	A	M		117	
ZD911		C	M			
ZD912		C	M			
ZD913		C	M			

IC

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
IC1	MIP4140S	H	M		141	
IC2	TD62003AFG	S	HIC	B	101	
IC3	NJM2742M	S	HIC	A	102	
IC4	NJM2392D	H	M		140	
IC5	NJM2903E	S	HIC	A	105	
IC6	μPC4742G2	S	HIC	A	104	
IC8	74AHC08PW	S	HIC	A	106	
IC10	R3112N421C-TR	S	HIC	B	100	
IC11	TD62003AP	H	M		142	
IC702	6ED003L06	S	HIC	A	103	
E²PROM	S-24C32CI-T8T1U3	S	HIC	A	99	
MICON	RX62T	S	HIC	A	97	
REG2	KIA431-A-AT/PC	R	M		143	
IPM	PS21965-4W	H	M		137	

Transistor

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
Q102	DTC123YK ~~RN1115TE85L~~	C	M	B	125	
Q105	RRR040P03TL	C	M	B	124	
Q121	SSM3J314T	C	HIC	B	92	
Q122	RN1115TE85L	C	HIC	B	93	
Q203	DTC143EEBTL	C	HIC	B	90	
Q251	KTC3875SGR	C	HIC	B	88	
Q273	RN1102TE	C	HIC	A	91	
Q430	KTA200-Y-A	R	M		130	
Q431	KTC3198-GR ~~2SC1815GR~~	R	M		132	
Q432	KTA200-Y-A	R	M		130	
Q601	GT30J126	H	M		128	
Q602	GT30J126	H	M		128	
Q621	2SJ167	R	M		133	
Q623	KTC200-Y ~~2SC2058S~~	R	M		134	
Q624	2SC1214CTZ	R	M		135	
Q625	2SA673CTZ	R	M		136	
Q641	RN1102TE	C	HIC	A	91	DTC114EEの代替
Q701	DTC114EEBTL	C	HIC	A	89	
Q702	DTC114EEBTL	C	HIC	A	89	
Q703	DTC114EEBTL	C	HIC	A	89	
Q711	P5F50NP2F	H	M		138	
Q712	P5F50NP2F	H	M		138	
Q713	P5F50NP2F	H	M		138	
Q714	P5F50NP2F	H	M		138	
Q715	P5F50NP2F	H	M		138	
Q716	P5F50NP2F	H	M		138	

Inductor

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
L001	JUMPER ~~FBA04HA600BB-00~~	A	M		~~191~~	
L002	JUMPER	A	M			
L003	JUMPER	A	M			
L003A	NLCV32T4R7	C	M	B	152	3225
L004	NORMAL COIL	H	M		189	
L005	JUMPER ~~3mH 2A~~	A ~~H~~	M		~~190~~	
L006	FBA04HA600BB-00	A	M		~~191~~	
L101	JUMPER	A	M			
L102	RCH108NP-331K	H	M		153	SUMIDA RRMH9411
L103	JUMPER	A	M			
L104	JUMPER	A	M			
L105	JUMPER	A	M			
L430	JUMPER	A	M			
L701	JUMPER	A	M			
L801	IF-TRANS	H	M		148	
L810		~~C~~	HIC	~~A~~		
T101	RRMF4331	H	M		146	
CT1	S19-J299CT	H	M		147	
NF1	RRMH3835	H	M		150	
NF2	RRMH3900	H	M		151	

Jumper

Symbol	Exist/No	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
JP01	No	~~A~~	M			
JP02	No	~~A~~	M			
CJ101	No	A	M	B		
JP1	No	~~C~~	~~HIC~~	~~A~~		1005
JP2	No	~~C~~	HIC	~~A~~		1005
JP3	Exist	C	HIC	A	38	1005
JP4	Exist	C	HIC	A	38	1005
JP5	No	C	HIC	A		1005

Oscillator

Symbol	Type	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
X1	CSTCE12M5G	C	HIC	A	96	12.5MHZ

LED

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
LD301	SLR-342VC	R	M	114	RED

Photo coupler

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
PQ101	PS2501-A	H	M	119	
PQ401	LTV-817CHA ~~EL816D~~	H	M	120	
PQ402	LTV-817CHA ~~EL816D~~	H	M	120	
PQ403	LTV-817CHA ~~EL816D~~	H	M	120	
PQ404	LTV-817CHA ~~EL816D~~	H	M	120	

Relay

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
RL1	G4A-1A-PE	H	M	105	
RL2	ALD112B01	H	M	106	
RL3	ALD112B01	H	M	106	

Fuse

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
F1	25Aヒューズ	H	M	163	HOLDER TYPE
F3	3A ~~1A~~-FUSE-WE	H	M	165	READ TYPE
F4	2A-FUSE-WE	H	M	166	READ TYPE
F5	3.15A-FUSE	H	M	164	HOLDER TYPE
F6	3.15A-FUSE	H	M	164	HOLDER TYPE

Fuse Clip

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
F5, F6用	RRPM3094	R	M	168	φ5.2X20mm用
F1用	RRPM1075	H	M	167	φ5.2X20mm用

Connector

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
CN2	VH 2P(/4)	H	M	170	赤
CN8	XA 2P	H	M	171	白
CN9	XA 2P	H	M	172	黒
CN10	XA 2P	H	M	173	赤
CN11	XA 2P	H	M	179	青
CN15	XA 6P	H	M	174	白
CN17	PH 4P	H	M	175	白
CN18	PH 11P	H	M	177	白
CN20	PH 8P	H	M	176	白
CN24	VH 3P(/5)	H	M	178	白
CN25	XA 4P	H	M		白
CN26	PA 3P	H	M	180	白
CN27	XH 2P	H	M	181	白
CN30	VH 2P	H	M		白

Switch

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
SW	EVQPAE07K	H	M	155	

250TAB

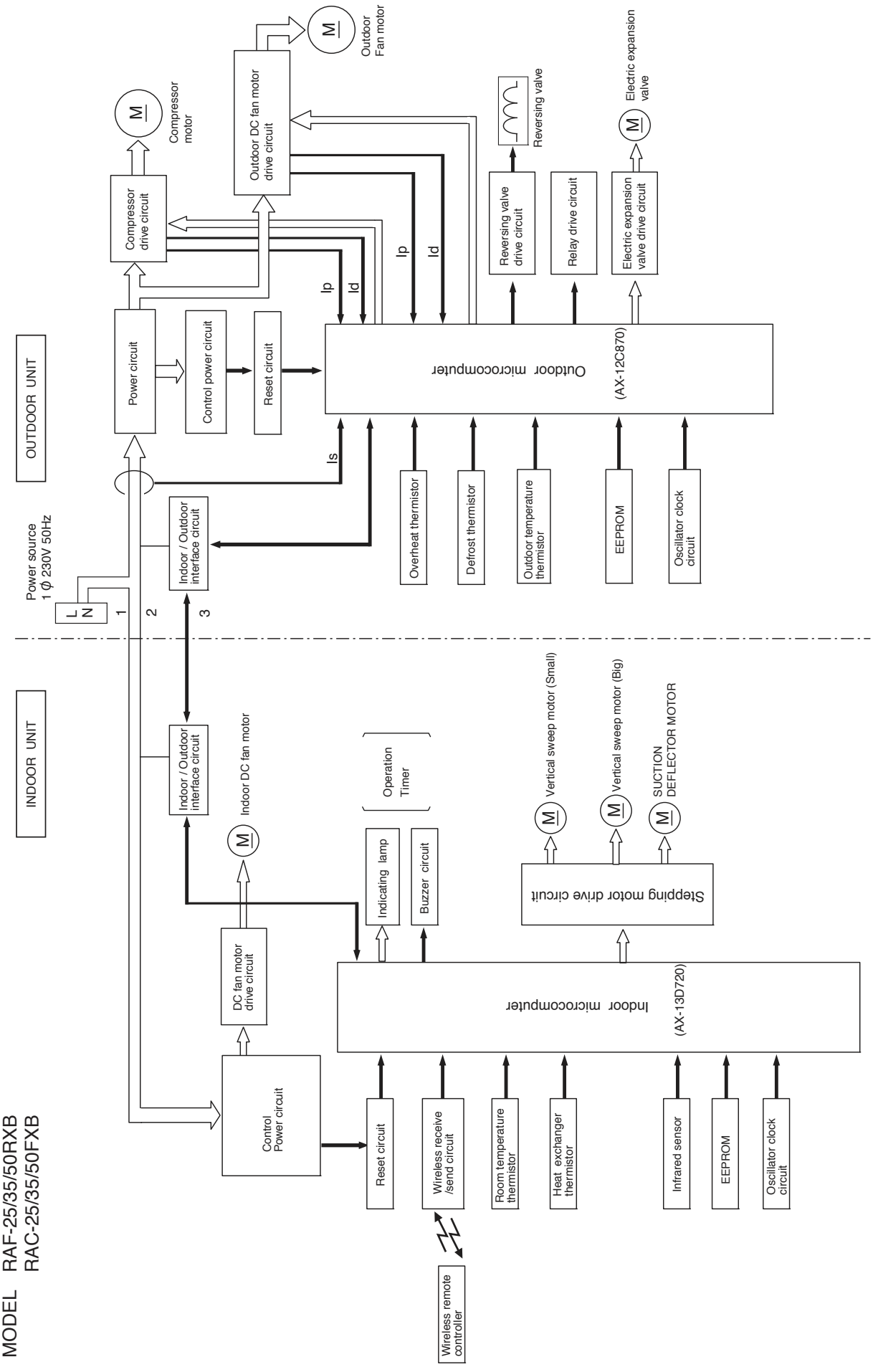
Symbol	Dwg./No	Mounting-forming	Mounting-board	Mounting-surface	Assembly-Part No.	Remarks
TAB3	RRPJ2142	R ~~H~~	M	A	192	
TAB4	RRPJ2142	R ~~H~~	M	A	192	

Surge absorbers

Symbol	Type	Mounting-forming	Mounting-board	Assembly-Part No.	Remarks
VS1	ERZVA9V431	R	M	158	
VS2	ERZVA9V431	R	M	158	
VS3	ERZVA5V471	R	M	159	
VS5	ERZVA9V431	R	M	158	
VS8	450NR-12D	R	M	157	
VS9	~~450NR-12D~~	R	M		
SA	DE37-102MF	R	M	160	
SK1	RE1201-C	H	M	161	

BLOCK DIAGRAM

MODEL RAF-25/35/50RXB
RAC-25/35/50FXB



BASIC MODE

MODEL RAF-25/35/50RXB

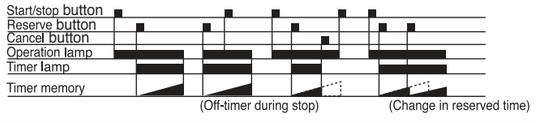
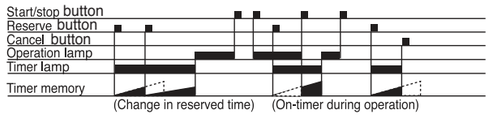
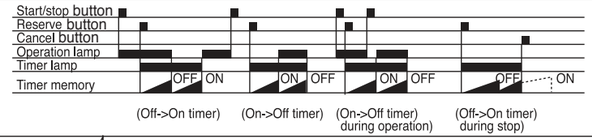
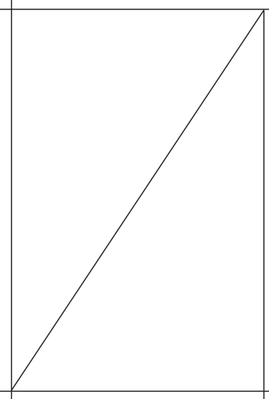
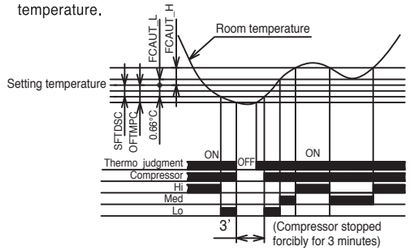
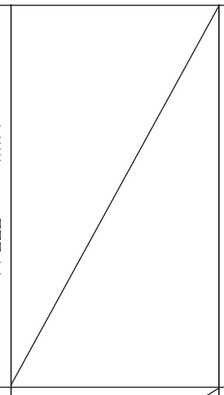
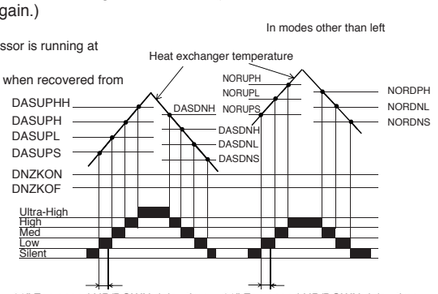
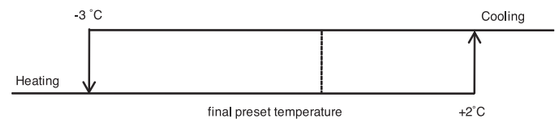
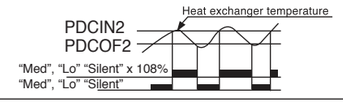
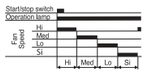
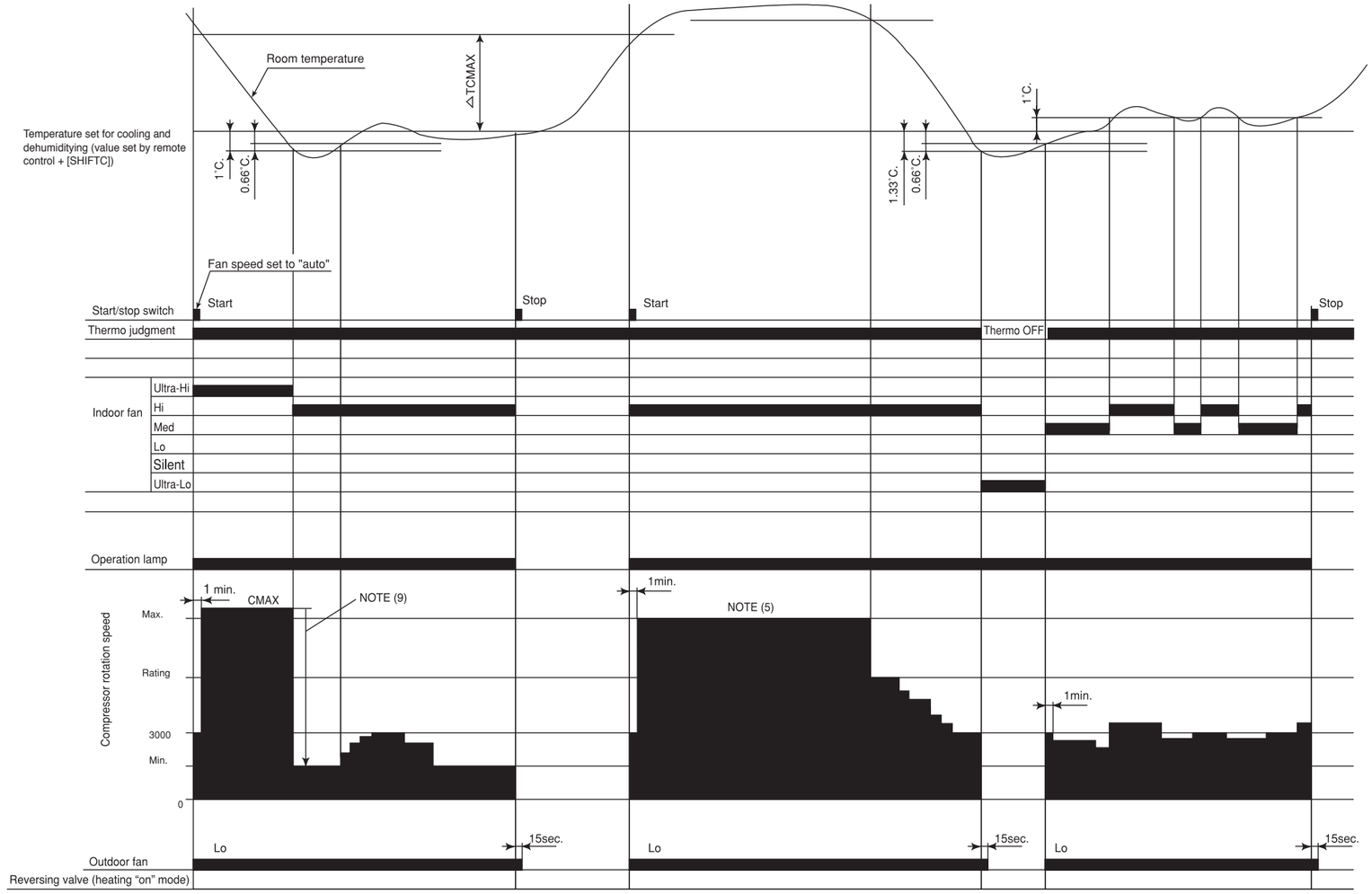
Operation mode		Fan	Cooling	Dehumidifying	Heating	Auto
Basic operation of start/stop button						
Timer functions	Off-timer					
	On-timer					
	Off -> On On -> Off timer					
Fan speed mode (indoor fan)	Auto		Changes from “Hi” to “Med” or “Lo” depending on room temperature.  1. Runs at “Hi” until room temperature reaches to “setting temperature-SFTDSC” after operation is started. 2. Runs at “ultra-Lo” when thermo is off.		Set to “ultra-Lo”, “Silent”, “Lo”, “Med”, “Hi”, “ultra-Hi” or “stop” depending on the room temperature, time and heat exchanger temperature. Set to “stop” if the heat exchanger temperature is “DNZKOF” during Thermo OFF. (When reach at “DNZKON”, fan speed set to “ultra-Lo” again.) When the compressor is running at maximum speed duringhot-dash or when recovered from defrosting. In modes other than left 	Operating mode is judged by room temperature. (1) Judging by room temperature • Operating mode at start up is judged (initial judgment). (a) Conditions for judgment (any of the followings). • When auto operation is started after the previous auto mode operation. • When auto operation is started after the previous manual mode operation. • When the operating mode is switched to auto while operating at manual mode. (b) Judging method • [Cooling] : Room temperature ≧ Remote controller setting • [Heating] : Room temperature < Remote controller setting [Room temperature setting of remote controller] Cooling Heating (2) Judging operating mode change during operation (Continuous judgment). (a) Conditions for judgment • The mode is reviewed at interval time. *Interval time as below • The first interval time : 10 minutes • The second interval time : 15 minutes • On and after the third interval time : 55 minutes (b) Judging method • Judge by setting the hysteresis on the final preset temperature. The final preset temperature is the actually targeted preset temperature which is sum of basic preset temperature and each type of shift value. (e.g. preset temperature correction value, powerful shift value, eco shift value, eco sleep shift value, etc.) [Currently cooling] • Room temperature ≦ Final preset temperature -3°C Change to heating • Room temperature > Final preset temperature -3°C Continue cooling [Currently heating] • Room temperature ≧ Final preset temperature 2°C Change to cooling • Room temperature < Final preset temperature 2°C Continue heating  Note:Single connection only.
	Hi	Operates at “Hi” regardless of the room temperature.	Set to “ultra-Hi” when the compressor runs at cold dash mode speed, and to “Hi” in other modes. Runs at “ultra-Lo” when thermo is off.		Set to “ultra-Lo”, “Silent”, “Lo”, “Med”, “Hi”, “ultra-Hi” or “stop” depending on the room temperature, time and heat exchanger temperature. Set to “stop” if the heat exchanger temperature is “DNZKOF” during Thermo OFF. (When reach at “DNZKON”, fan speed set to “ultra-Lo” again.) Set to “ultra-Hi” when the compressor is running at maximum speed during hot dash or when recovered from defrosting.	
	Med	Operates at “Med” regardless of the room temperature.	Operates at “Med” regardless of the room temperature. Runs at “ultra-Lo” when thermo is off.		Set to “ultra-Lo”, “Silent”, “Lo”, “Med”, “Hi”, “ultra-Hi” or “stop” depending on the room temperature, time and heat exchanger temperature. Set to “stop” if the heat exchanger temperature is “DNZKOF” during Thermo OFF. (When reach at “DNZKON”, fan speed set to “ultra-Lo” again.)	
	Lo	Operates at “Lo” regardless of the room temperature.	Operates at “Lo” regardless of the room temperature. Runs at “ultra-Lo” when thermo is off.	Set to “Lo” in modes other than when the compressor stops.	Set to “ultra-Lo”, “Silent”, “Lo”, “Med”, “Hi”, “ultra-Hi” or “stop” depending on the room temperature, time and heat exchanger temperature. Set to “stop” if the heat exchanger temperature is “DNZKOF” during Thermo OFF. (When reach at “DNZKON”, fan speed set to “ultra-Lo” again.) The fan speed is controlled by the heat exchanger temperature; the overload control is executed as in the following diagram: 	
	Silent	Operates at “Silent” regardless of the room temperature.	Operates at “Silent” regardless of the room temperature. Runs at “ultra-Lo” when thermo is off.	Set to “Silent” in modes other than when the compressor stops.		
Basic operation of temperature controller		Performs only fan operation at the set speed regardless of the room temperature. 	See page 8-3.	See page 8-5.	See page 8-7.	
Sleep operation (with sleep button ON)		• Enters sleep operation after set as on the left. • Action during sleep operation Lo (sleep) operation	• Same as at left • See page 8-4.	• Same as at left • See page 8-6.	• Same as at left • See page 8-8.	• Same as at left. • Performs the sleep operation of each operation mode.

Table 1 Mode data file

MODEL	RAF-25RXB		RAF-35RXB		RAF-50RXB	
LABEL NAME	VALUE					
WMAX	6000	min^{-1}	6000	min^{-1}	6000	min^{-1}
WMAX2	6000	min^{-1}	6000	min^{-1}	6000	min^{-1}
WSTD	4000	min^{-1}	4550	min^{-1}	4800	min^{-1}
WJKMAX	3400	min^{-1}	3400	min^{-1}	4200	min^{-1}
WBEMAX	3200	min^{-1}	3200	min^{-1}	3400	min^{-1}
WSZMAX	3200	min^{-1}	3200	min^{-1}	3400	min^{-1}
CMAX	3600	min^{-1}	3800	min^{-1}	4900	min^{-1}
CMAX2	3600	min^{-1}	3800	min^{-1}	4900	min^{-1}
CLMXTP	30.00	°C	30.00	°C	30.00	°C
CSTD	2800	min^{-1}	3400	min^{-1}	4750	min^{-1}
CJKMAX	2200	min^{-1}	2200	min^{-1}	3200	min^{-1}
CBEMAX	1700	min^{-1}	1700	min^{-1}	2200	min^{-1}
CSZMAX	1700	min^{-1}	1700	min^{-1}	2200	min^{-1}
WMIN_CMPH	2800	min^{-1}	2800	min^{-1}	3200	min^{-1}
WMIN_CMPL	2800	min^{-1}	2800	min^{-1}	3200	min^{-1}
CMIN	1100	min^{-1}	1100	min^{-1}	1800	min^{-1}
STARTMC	60	Seconds	60	Seconds	70	Seconds
DWNRATEW	80	%	80	%	80	%
DWNRATEC	60	%	60	%	60	%
SHIFTW	0.00	°C	0.00	°C	0.00	°C
SHIFTC	0.00	°C	0.00	°C	0.00	°C
OFTMPC	1.00	°C	1.00	°C	1.00	°C
FCAUT_H	2.00	°C	2.00	°C	1.00	°C
FCAUT_L	0.66	°C	0.66	°C	0.00	°C
TEION	2.00	°C	2.00	°C	1.00	°C
TEIOF	9.00	°C	9.00	°C	9.00	°C
PDCIN2	50.00	°C	50.00	°C	50.00	°C
PDCOF2	44.00	°C	44.00	°C	44.00	°C
DNZKON	15.00	°C	15.00	°C	15.00	°C
DNZKOF	13.00	°C	13.00	°C	13.00	°C
DASUPHH	45.00	°C	45.00	°C	45.00	°C
DASDNHH	44.00	°C	44.00	°C	44.00	°C
DASUPH	44.00	°C	44.00	°C	44.00	°C
DASDNH	40.00	°C	40.00	°C	40.00	°C
DASUPL	40.00	°C	40.00	°C	40.00	°C
DASDNL	37.00	°C	37.00	°C	37.00	°C
DASUPS	35.00	°C	35.00	°C	35.00	°C
DASDNS	33.00	°C	33.00	°C	33.00	°C
NORUPH	49.00	°C	49.00	°C	49.00	°C
NORDNH	47.00	°C	47.00	°C	47.00	°C
NORUPL	45.00	°C	45.00	°C	45.00	°C
NORDNL	42.00	°C	42.00	°C	42.00	°C
NORUPS	42.00	°C	42.00	°C	42.00	°C
NORDNS	40.00	°C	40.00	°C	40.00	°C
SFTDSW	0.66	°C	0.66	°C	0.66	°C
SFTDSC	1.00	°C	1.00	°C	1.00	°C
DFTIM_OTP0	43	Minutes	43	Minutes	51	Minutes
DFTIM_OTP5	100	Minutes	115	Minutes	61	Minutes
DFTIM_OTP10	50	Minutes	50	Minutes	120	Minutes
DFMAX_STD	4300	min^{-1}	4550	min^{-1}	5400	min^{-1}
DFMAX_ATF	4000	min^{-1}	4000	min^{-1}	4000	min^{-1}
FNUPPW_C	30	min^{-1}	30	min^{-1}	30	min^{-1}
FUDICOL1_DSH	10	°	10	°	10	°
FUDICOL2_DSH	70	°	70	°	70	°
TYONTM_M	0.0	Hour	0.0	Hour	0.0	Hour

Basic Cooling Operation



Notes:

(1) Condition for entering into Cool Dashed mode. When fan set to “Hi” or “Auto and when the compressor speed (P section) due to temperature difference between setting temperature (including the correction shift only) and room temperature is CMAX or higher.

(2) Cool Dashed will release when i) a maximum 25 minutes is lapsed and ii) room temperature is lower than set temperature –3°C (thermo off) and iii) when room temperature has achieved setting temperature –1°C then maximum Cool Dashed time will be revised to 20 minutes. And iv) indoor fan is set to Lo and Med fan mode and v) change operation mode.

(3) During Cool Dashed operation, thermo off temperature is set temperature (with shift value) –3°C. After thermo off, operation continue in Fuzzy control mode.

(4) Compressor minimum “ON” time and “OFF” time is 3 minutes.

(5) During normal cooling mode, compressor maximum rpm CMAX will maintain for 60 minutes if indoor temperature is lower than CLMXTP. No time constrain if indoor temperature is higher than CLMXTP.

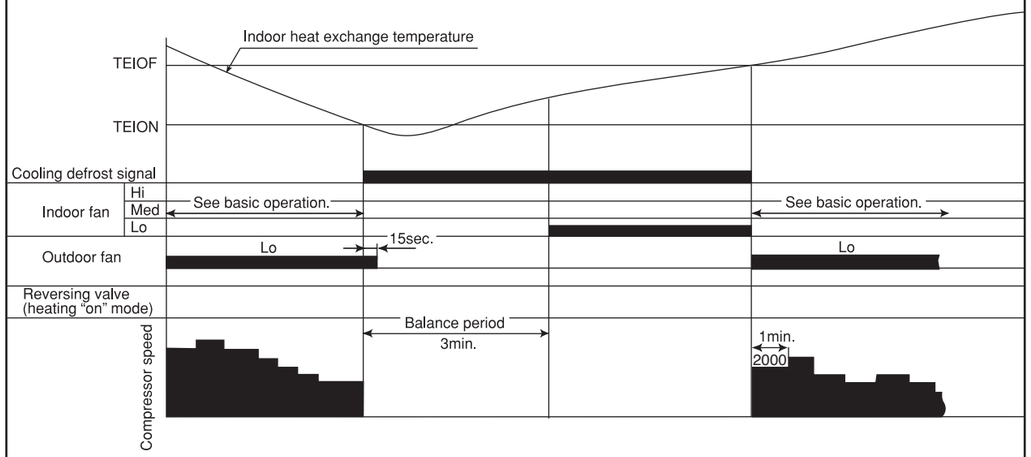
(6) When fan is set to “Hi”, compressor rpm will be limited to CSTD.

(7) When fan is set to “Med”, compressor rpm will be limited to CJKMAX.

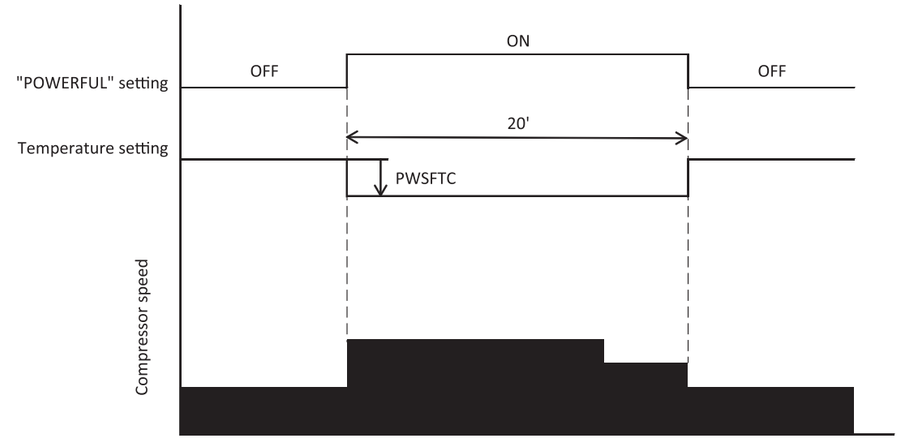
(8) When fan is set to “Lo”, compressor rpm will be limited to CBEMAX.

(9) During Cool Dashed, when room temperature reaches set temperature –1°C compressor rpm is actual rpm x DWNRATEC.

Cooling Defrost



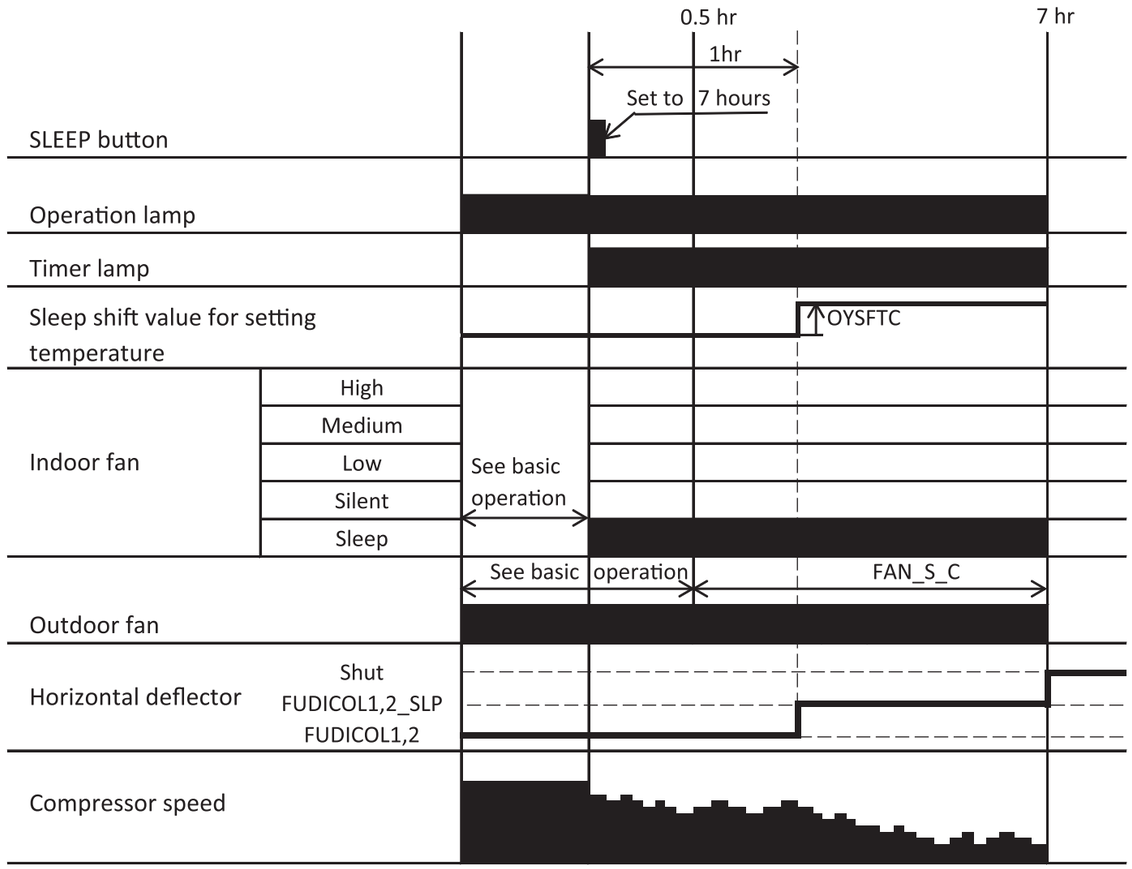
Cooling Powerful Operation



Notes :

(1) Pressing the "POWERFUL" button will reduce the temperature setting by PWSFTC.
(2) The powerful operation is for 20 minutes after setting.
(3) Operation is continued forcibly thermo-ON for 20 minutes after the powerful operation is finished.
(4) Pressing the "START/STOP" button and "POWERFUL"button during powerful operation wil cancel the powerful operation.
(5) If the sleep timer is set during powerful operation, the powerful operation will be canceled.
(6) When the powerful operation is set, the fan speed will be set to "HIGH" and the compressor's maximum speed will be set to CMAX2 during powerful operation. The compressor's lower limit speed is CKYMIN_PW.
(7) The fan speed increases by FNUPPW_C.
(8) After the powerful operation is ended, the system automatically operates with the previous settings used before the powerful operation.

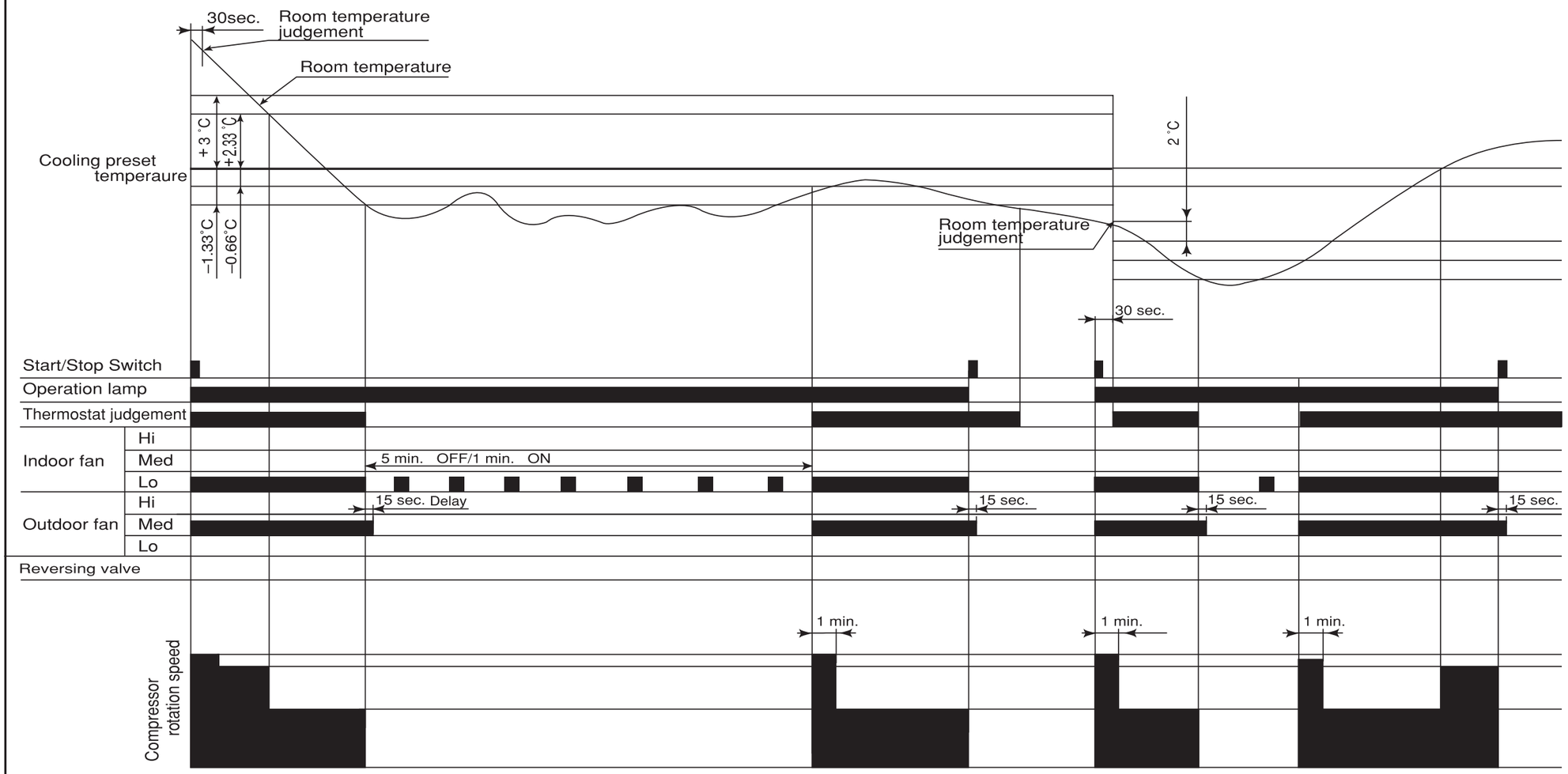
Cooling Sleep Operation



Notes :

(1) The sleep operation starts when the "SLEEP" button is pressed.
(2) When the sleep operation is set, the maximm compressor speed is limited to CSZMAX, and the indoor fan set is "sleep"(FCSOY_P).
(3) The indoor fan speed does not change even when the fan speed mode is changed.
(4) If sleep operation is canceled by the cancel button or sleep button, all data is cleared.
(5) 1 hour after the sleep operation is set, the sleep shift value(OYSFTC) is added.

Dehumidifying



Notes:

(1) If the room temperature is (cooling preset temperature) - (1.33°C) or less after 30 seconds from starting the operation, the operation is done assuming as the preset temperature = (room temperature at the time) - (2°C).

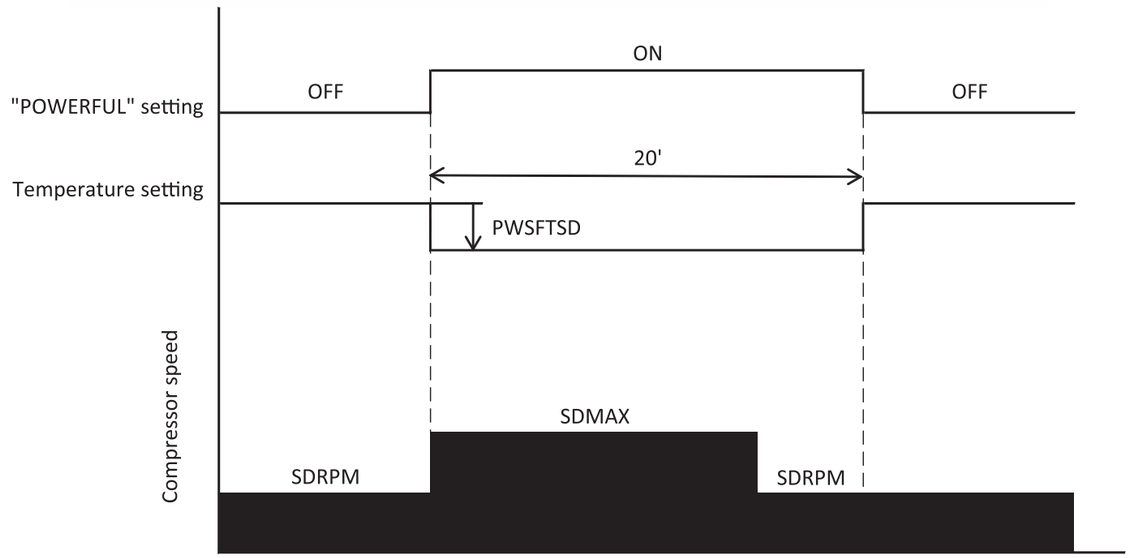
(2) The indoor fan is operated in the “Lo” mode. During thermo OFF indoor fan will be OFF for 5 minutes and ON for 1 minute.

(3) When the operation is started by the themostat turning ON, the start of the indoor fan is delayed 32 seconds after the start of compressor operation.

(4) The compressor is operated forcedly for 3 minutes after operation is started.

(5) The minimum ON time and OFF time of the compressor are 3 minutes.

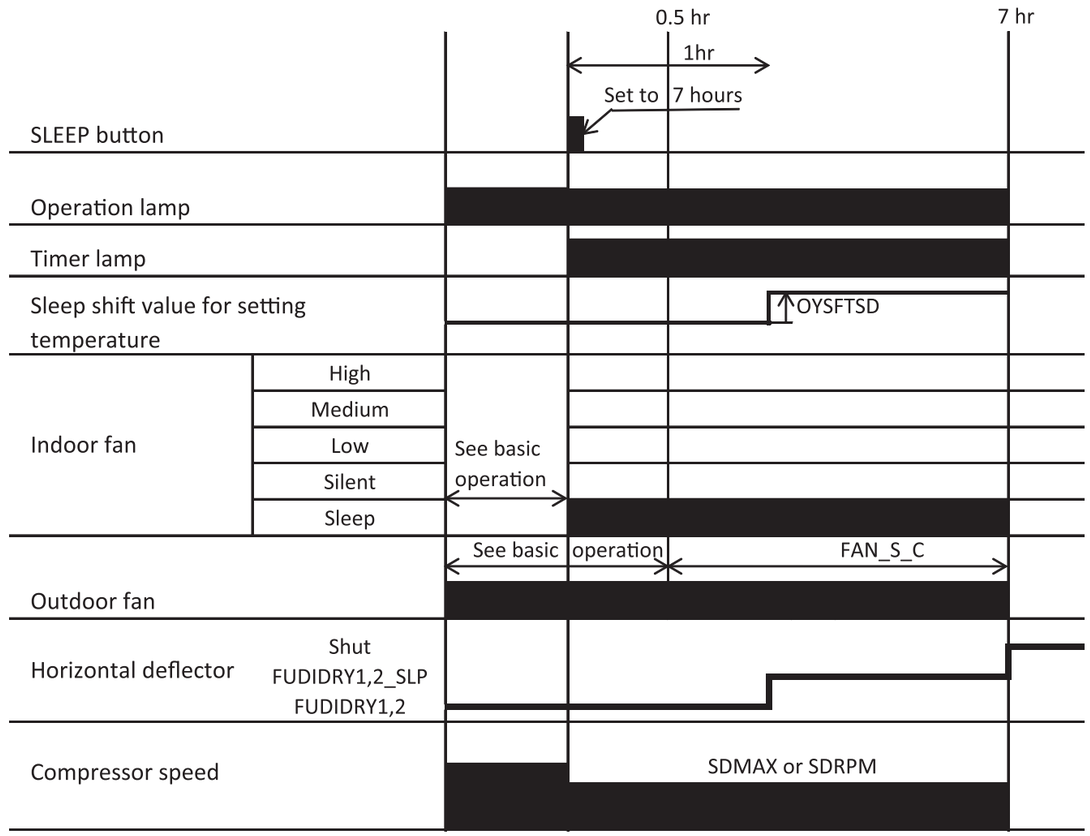
Dehumidifying Powerful Operation



Notes :

(1) Pressing the "POWERFUL" button will reduce the temperature setting by PWSFTSD.
(2) The powerful operation is for 20 minutes after setting.
(3) Operation is continued forcibly thermo-ON for 20 minutes after the powerful operation is finished.
(4) Pressing the "START/STOP" button and "POWERFUL"button during powerful operation wil cancel the powerful operation.
(5) If the sleep timer is set during powerful operation, the powerful operation will be canceled.
(6) If the differential(the room temperature - the temperature setting) is "the differential ≧ 3 °C" after powerful setting , the compressor's maximum speed during powerful operation will be set to SDMAX. Then the differential reduce "the differential ≦ 2.33 °C" during powerful operation,the compressor's speed will be set to SDRPM.
If the differential(the room temperature - the temperature setting) is "the differential ＜ 3 °C" after powerful setting , the compressor's minimum speed during powerful operation will be set to SDRPM.
(7) After the powerful operation is ended, the system automatically operates with the previous settings used before the powerful operation.

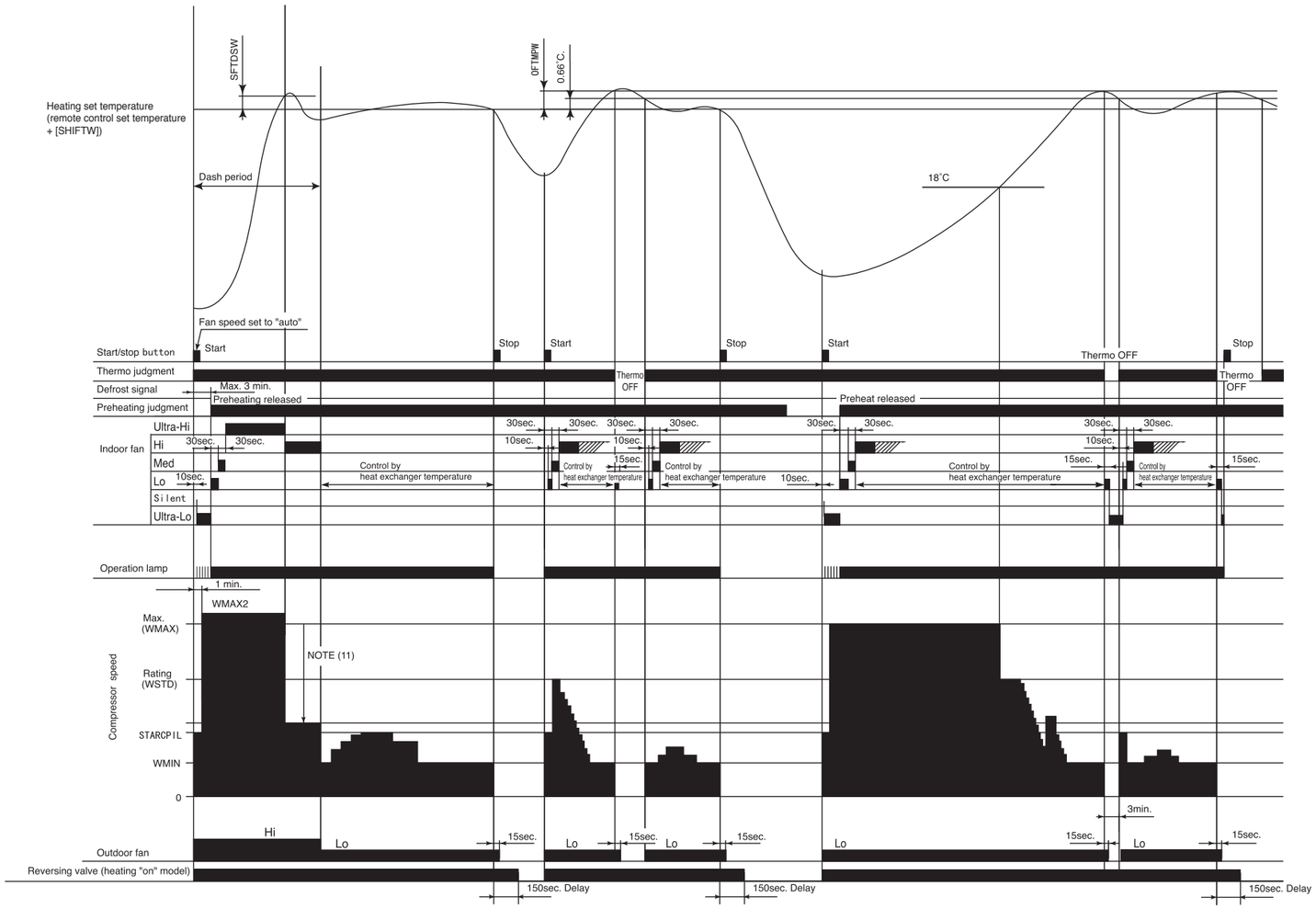
Dehumidifying Sleep Operation



Notes :

(1) The sleep operation starts when the "SLEEP" button is pressed.
(2) When the sleep operation is set, the indoor fan set is "sleep"(FDOY_P).
(3) The indoor fan speed does not change even when the fan speed mode is changed.
(4) If sleep operation is canceled by the cancel button or sleep button, all data is cleared.
(5) 1 hour after the sleep operation is set, the sleep shift value(OYSFTSD) is added.

Basic Heating Operation



Notes:

(1) Condition for entering into hot dashed mode. When fan set to "Hi" or "Auto" and i) room temperature is 18 or less, and ii) outdoor temperature is 10 or less, and iii) compressor speed (P section) due to temperature difference between setting temperature(including shift value only) and room temperature is WMAX or more.

(2) The maximum compressor speed period during hot dash is finished when i) room temperature has reached the setting temperature + SFTDSW. ii) thermo off.

(3) During hot dashed operation, thermo off temperature is setting temperature (with shift value) +3 . After thermo off, operation continue inn Fuzzy control mode.

(4) Minimum "ON" time and minimum "OFF" time of compressor operation is 3 minutes.

(5) During normal heating mode, compressor maximum rpm WMAX will maintain for 120 minutes. No time limit constrain if room temperature is 18 or less and outdoor temperature is 2 or less.

(6) During preheating or defrosting or auto fresh defrosting mode, indoor unit operation lamp will blink at interval of 2 seconds "ON" and 1 second "OFF".

(7) When heating mode starts, it will enter into preheating mode if indoor heat exchanger temperature is less than YNEOF + 0.33 .

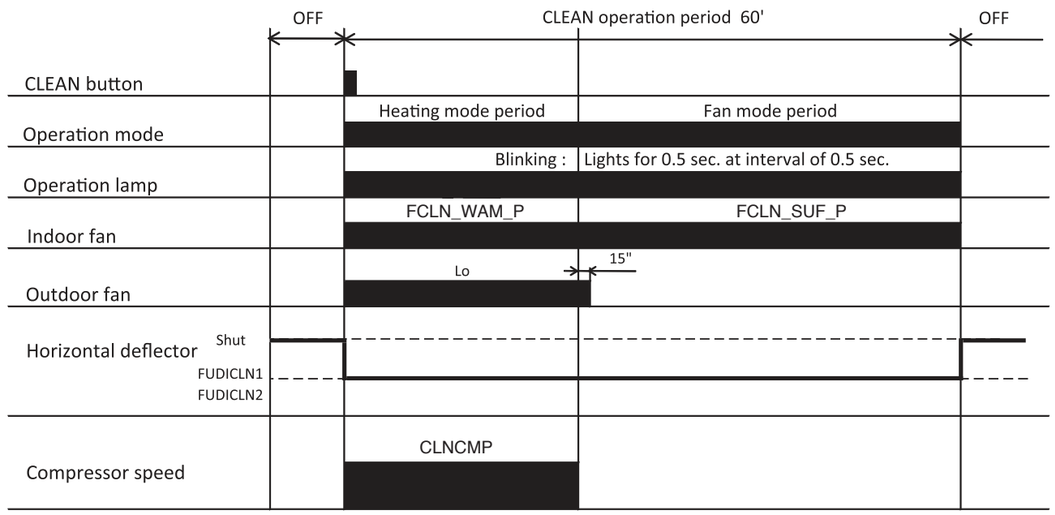
(8) When fan is set to "Med" or "Lo" or "Silent", compressor rpm will be limited to "WJKMAX" or "WBEMAX" or "WSZMAX".

(9) During "Ultra-Lo" mode, if room temperature is 18 or less, indoor fan will stop. If room temperature is 18 + 0.33 or more, fan will continue in "Ultra-Lo" mode. However, "Ulrta-Lo" mode during preheating or preheating after defrosting does not stop if room temperature is 18 or less.

(10) During hot dashed or outdoor temperature is -5 or less, compressor rpm is WMAX2.

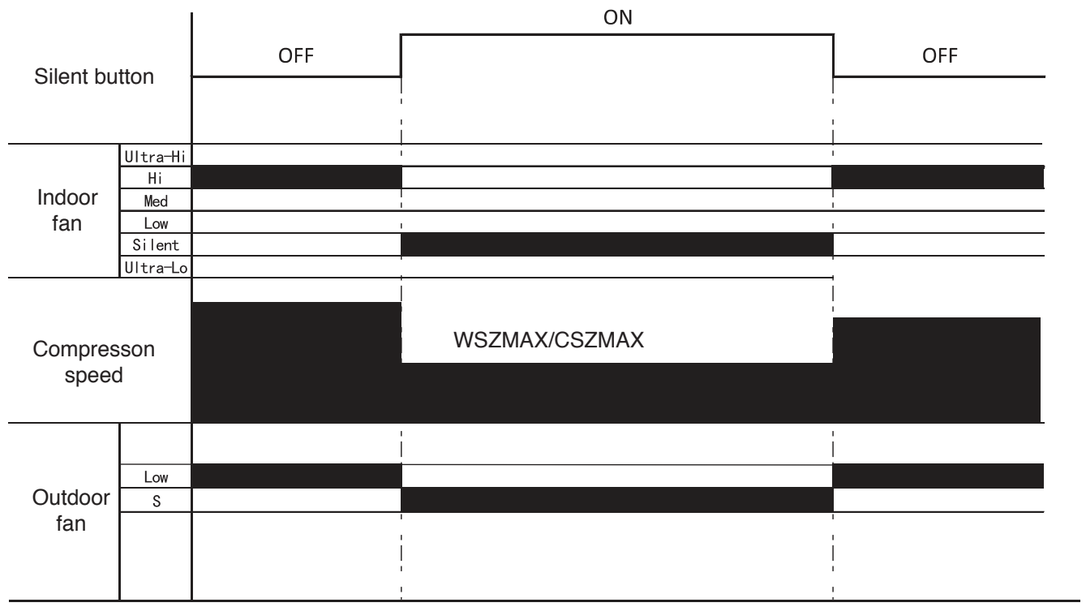
(11) During hot dashed, when room temperature reaches setting temperature + SFTDSW compressor rpm is actual rpm x DWNRATEW.

Clean Operation



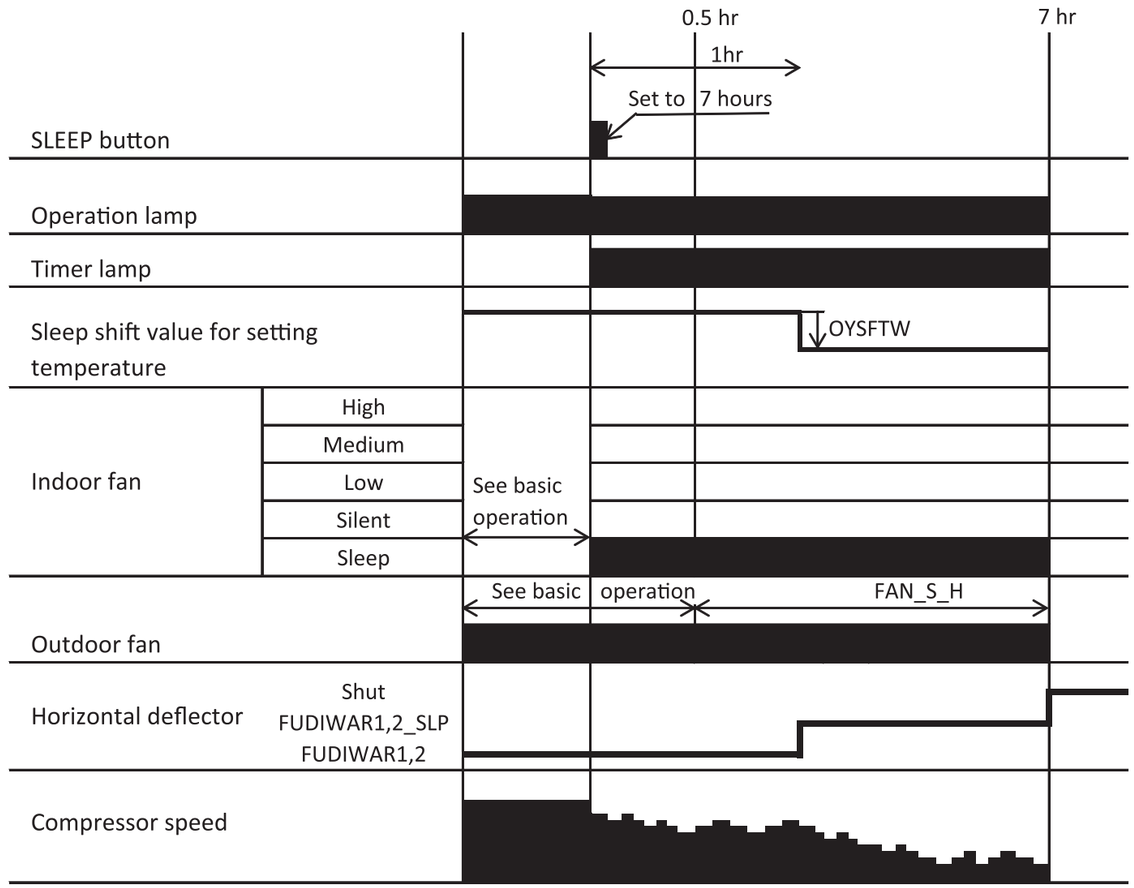
Notes :
(1) During CLEAN operation period, heating mode will change to fan mode when HEX temparature is "CLNEVP" or more except force 3 minutes operation.
(2) For multi connections, CLEAN operation is limited to fan mode.

SILENT



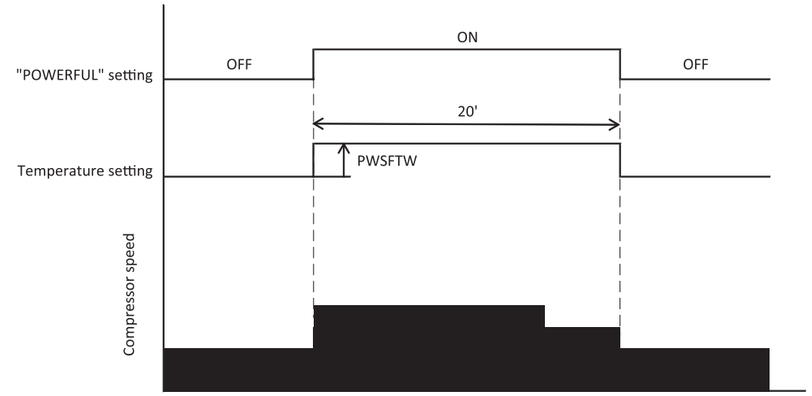
Notes:
• Can't set POWERFUL and SILENT at the same time.

Heating Sleep Operation



Notes :
(1) The sleep operation starts when the "SLEEP" button is pressed.
(2) When the sleep operation is set, the maximm compressor speed is limited to WSZMAX, and the indoor fan set is "sleep"(FWSOY_P).
(3) The indoor fan speed does not change even when the fan speed mode is changed.
(4) If sleep operation is canceled by the cancel button or sleep button, all data is cleared.
(5) 1 hour after the sleep operation is set, the sleep shift value(OYSFTW) is reduced.

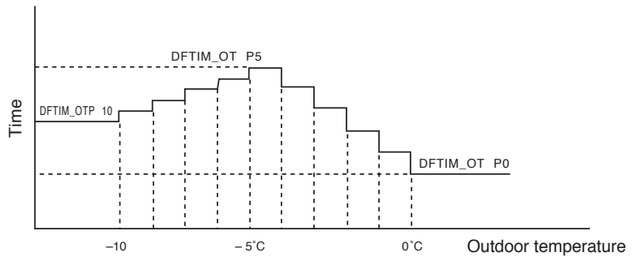
Heating Powerful Operation



Notes :

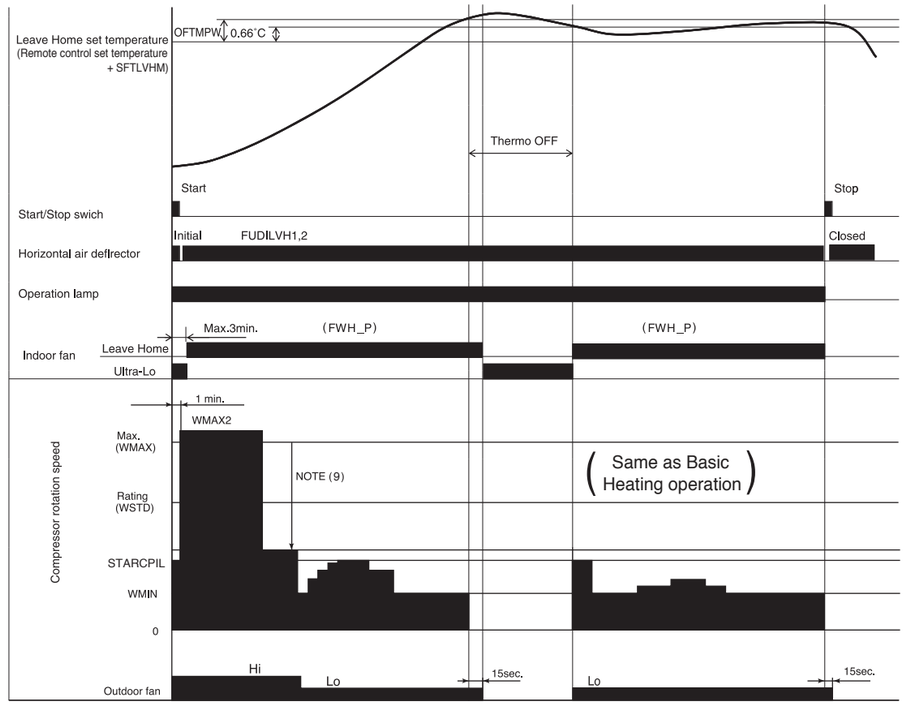
(1) Pressing the "POWERFUL" button will increase the temperature setting by PWSFTW.
(2) The powerful operation is for 20 minutes after setting.
(3) Operation is continued forcibly thermo-ON for 20 minutes after the powerful operation is finished.
(4) Defrost is inhibited for 20 minutes after the start of the powerful operation.
(5) Pressing the "START/STOP" button and "POWERFUL"button during powerful operation wil cancel the powerful operation.
(6) If the sleep timer is set during powerful operation, the powerful operation will be canceled.
(7) When the powerful operation is set, the fan speed will be set to "HIGH" and the compressor's maximum speed will be set to WMAX2 during powerful operation. The compressor's lower limit speed is WKYMIN_PW.
(8) After the powerful operation is ended, the system automatically operates with the previous settings used before the powerful operation.

Setting Defrosting Inhibit Period



Notes:
(1) The first inhibit time after operation start is set to DFTIM_FST.
(2) From the second time onwards, the inhibit time is set according to the time required for defrosting.
Reverse cycle operation time ≧ [DEFCOL] : DEFTIM_COL is set.
Reverse cycle operation time < [DEFCOL] : The time corresponding to outdoor temperature is set.

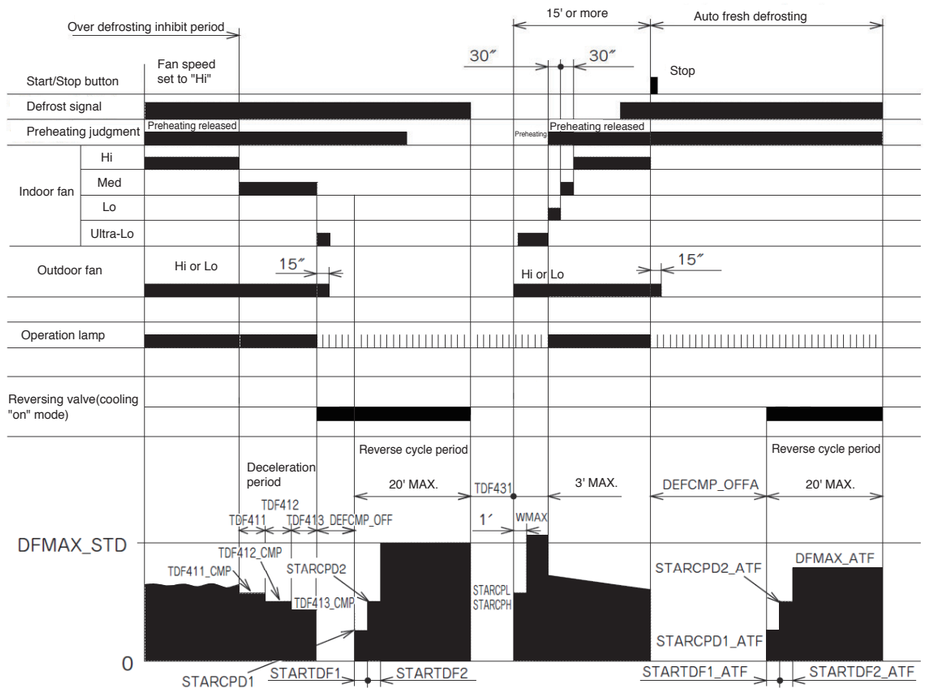
Leave Home



Notes:
Perform Leave Home operation according to the following control contents.
(1) Operation mode : Heating
(2) Temperature setting correction shift : + 『SFTLVHM』
(3) Indoor fan : 『FWH_P』
(4) Outdoor fan speed :
(5) Compressor start control :
(6) Compressor speed :
} Same as Basic Heating operation
(7) Lamp indication : i) Operation lamp : ON
ii) Timer lamp : OFF(Cotinuous operation) ; ON(Day timer operation)

RAF/C-25R/FXB RAF/C-35R/FXB

Reversing valve defrosting



Notes:

(1) The defrosting inhibit period is set as shown in the diagram below. When defrosting has finished once, the inhibit period is newly set, based on the outdoor temperature when the compressor was started. During this period, the defrost signal is not accepted.

(2) If the difference between the room and outdoor temperature is large when defrosting is finished, the maximum compressor speed (WMAX) or (WMAX2) can be continued for 120 minutes maximum.

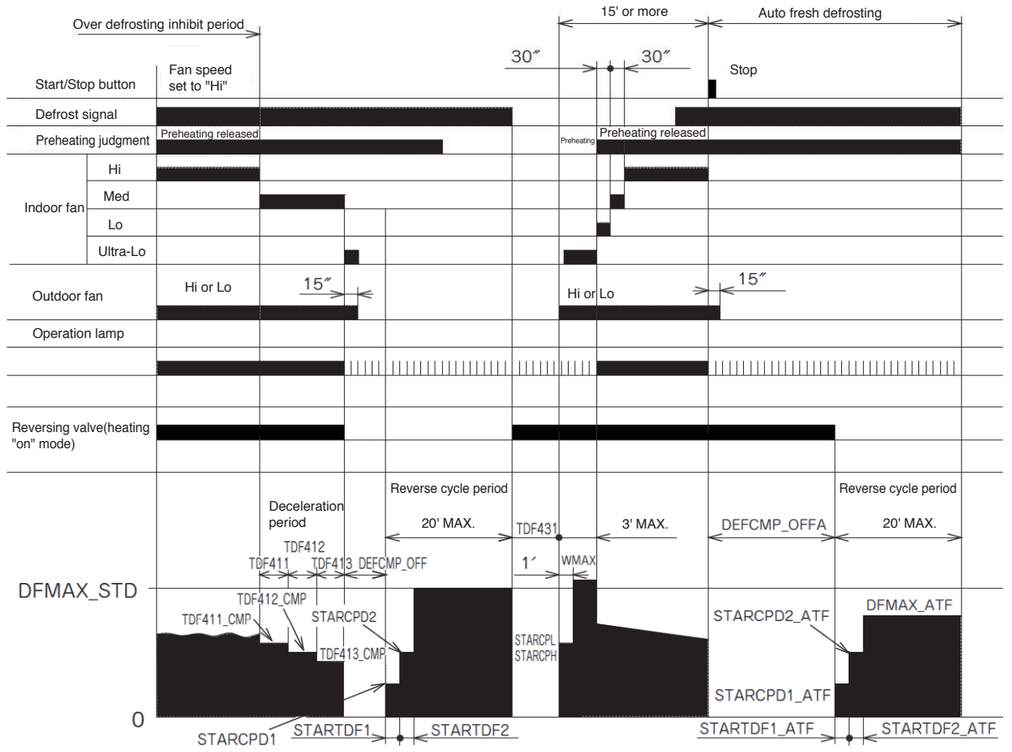
(3) The defrosting period is 20 minutes maximum.

(4) When operation is stopped during defrosting, it is switched to auto refresh defrosting.

(5) Auto refresh defrosting cannot be engaged within 15 minutes after operation is started or defrosting is finished.

RAF/C-50R/FXB

Reversing valve defrosting



Notes:

(1) The defrosting inhibit period is set as shown in the diagram below. When defrosting has finished once, the inhibit period is newly set, based on the outdoor temperature when the compressor was started. During this period, the defrost signal is not accepted.

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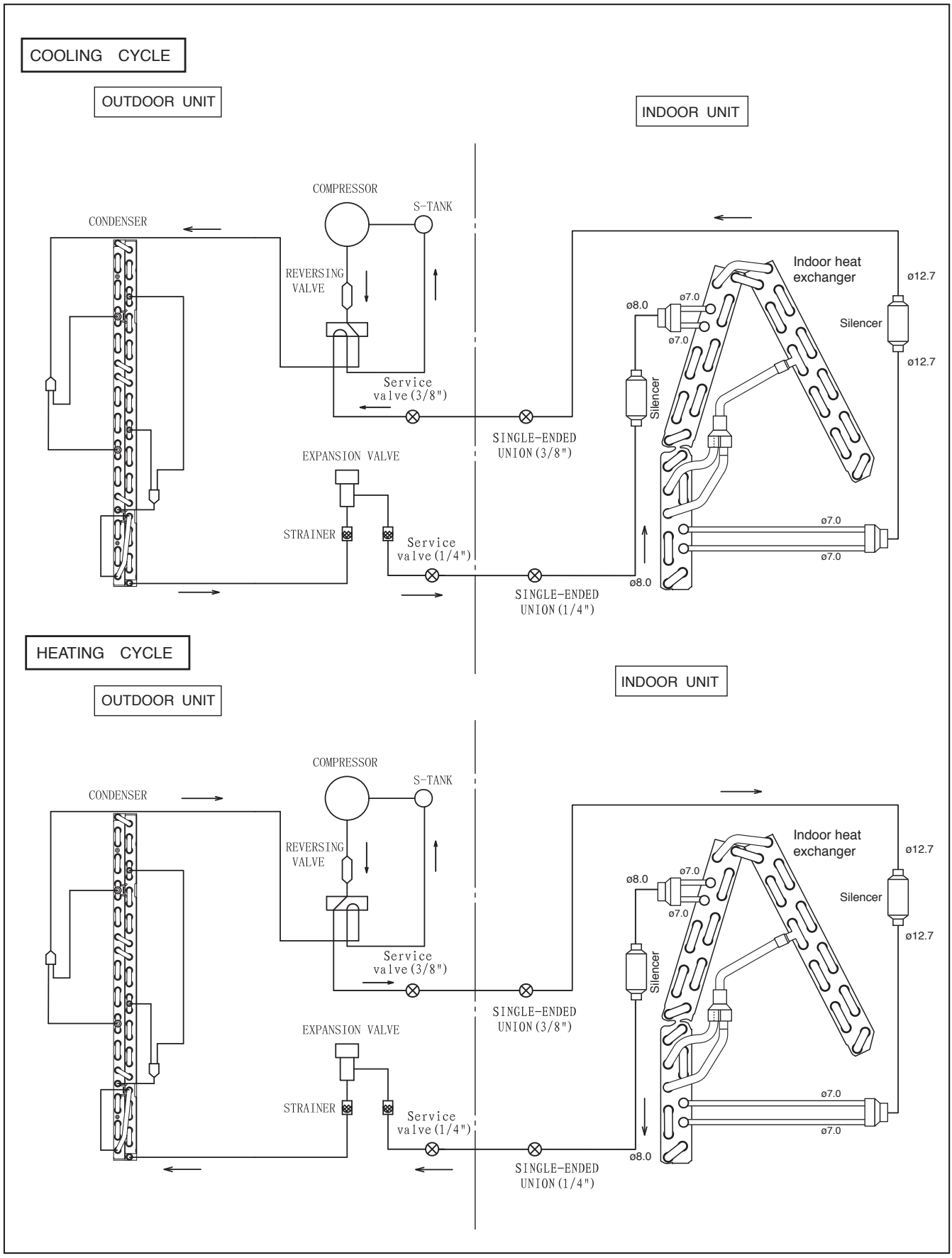
(4) When operation is stopped during defrosting, it is switched to auto refresh defrosting.

(5) Auto refresh defrosting cannot be engaged within 15 minutes after operation is started or defrosting is finished.

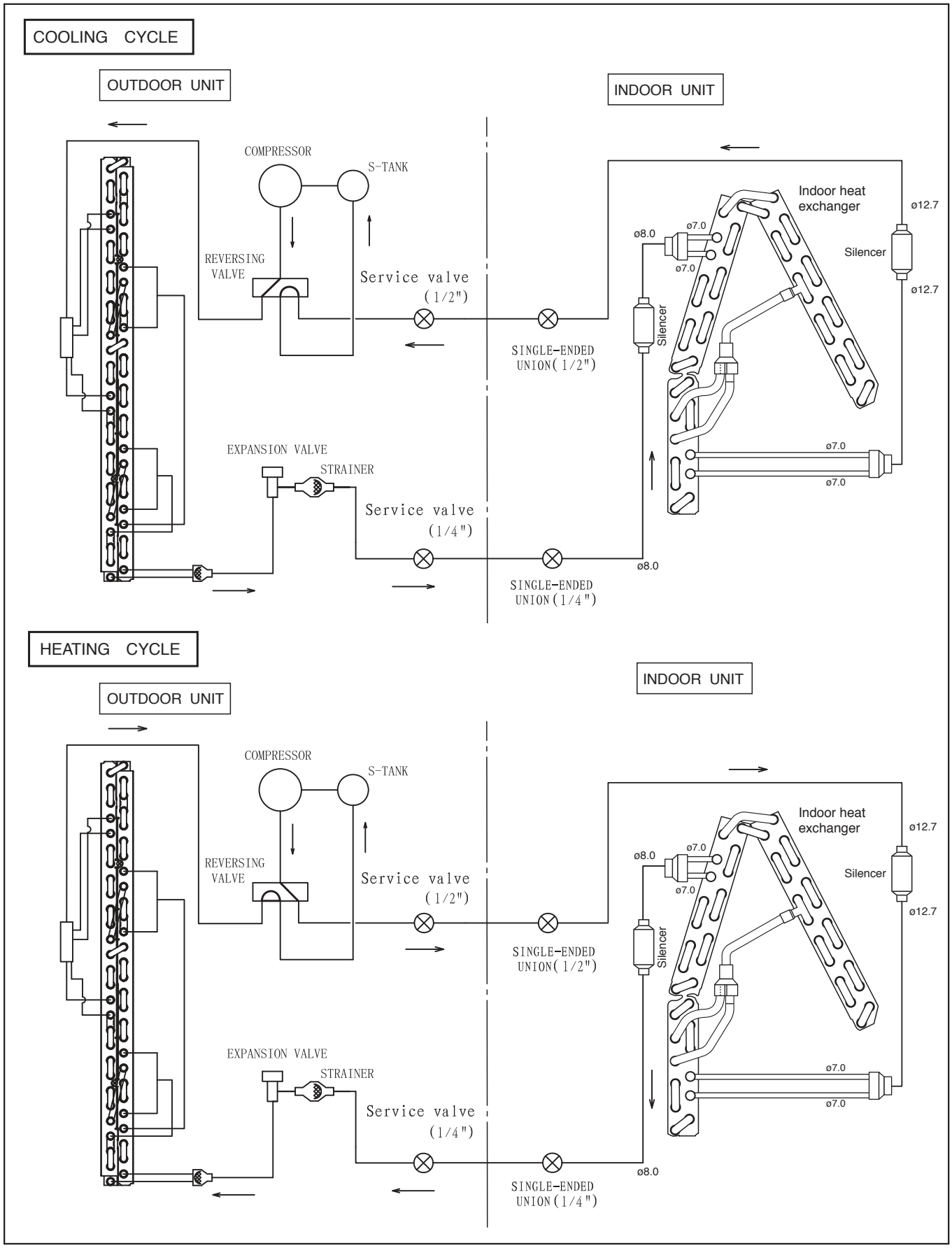
REFRIGERATING CYCLE DIAGRAM

MODEL RAF-25/35RXB
RAC-25/35FXB



REFRIGERATING CYCLE DIAGRAM

MODEL RAF-50RXB
RAC-50FXB

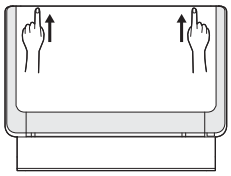


Procedure for Disassembly and Reassembly
<INDOOR UNIT> RAF-25/35/50RXB

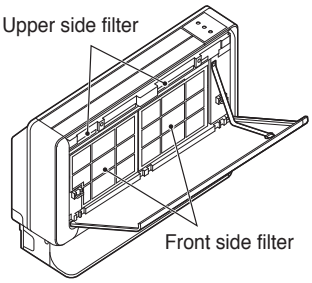
1. AIR FILTER

Clean the air filter, as it removes dust inside the room.
Be sure to clean the filter once every two weeks so as not to consume electricity unnecessarily.

PROCEDURE



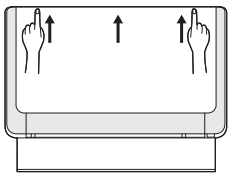
1 **Open the front panel.**
- To open the front panel, use the remote controller to stop unit operation. Then press at the top left and right corners of the front panel.
- Grasp the left and right sides of the front panel and open it toward you.



2 **Remove the filters.**
(Front side 2 pieces, upper side 2 pieces, total 4 pieces.)

3 **Remove dust of the filters using a vacuum cleaner.**
- After using neutral detergent, wash with clean water and dry in shade.

4 **Attach the filters.**
- Attaching the filters.
  (Front side 2 pieces, upper side 2 pieces, total 4 pieces.)



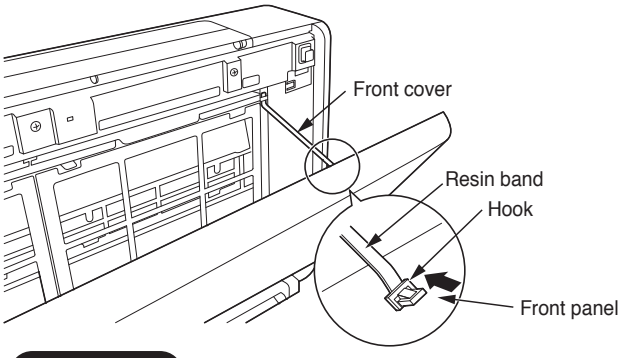
5 **Close the front panel.**
- To close the front panel, press at the top left and right corners of the front panel.
- Press the upper center part of the front panel to close properly.

2. HOW TO INSTALL AND REMOVE THE FRONT PANEL

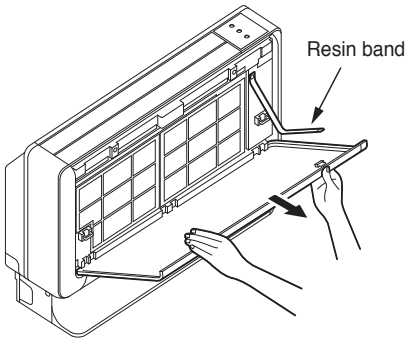
- Be sure to use both hands to grasp the front panel when removing it or attaching it.
- The front panel may be installed up or down to suit user preference.

Removing

① Press the hook found at the tip of the resin band installed inside the front panel's right section to remove the resin band.



② Pull the front panel down toward you and once fully open, pull it to remove.

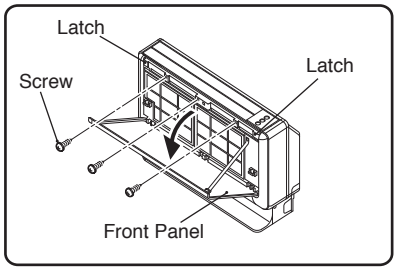


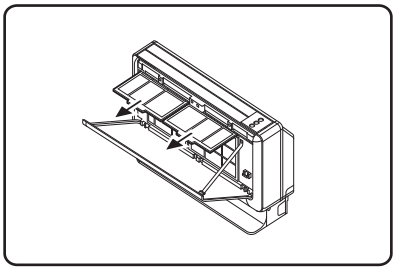
Attaching

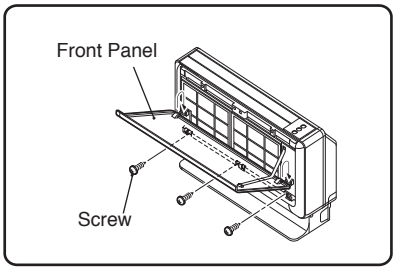
① Attach three front panel bearings to the axis of the front cover. (Set the hook to face up.)

② Insert the tip of the resin band into the hole of the protrusion inside the right section of the front panel.

3. Remove the front cover

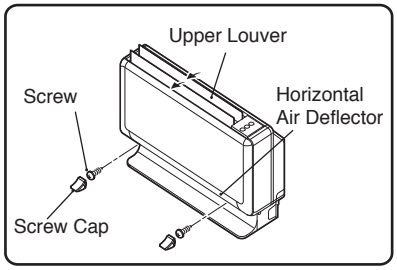


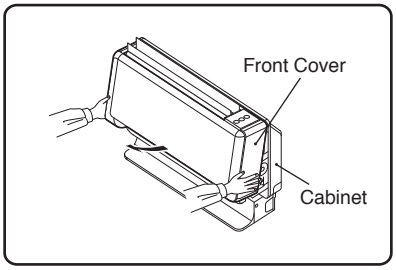




① Push the latch at both sides to open the front panel. Pull out the filter and remove 3 screws.

② Lift up the front panel and latch the claws firmly at the lower part of rear of the front panel.
Then remove 3 screws.

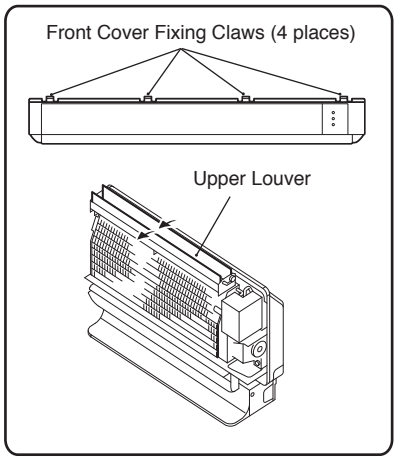


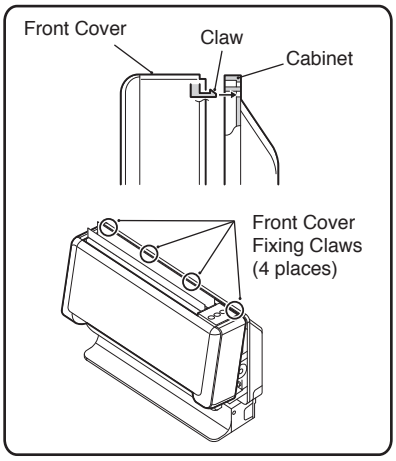


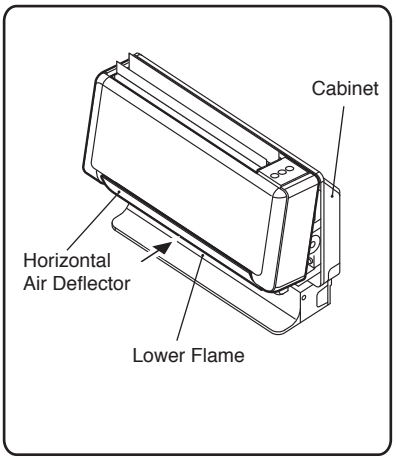
③ Take off 2 screw caps at the lower part of the horizontal air deflector and remove 2 screws. Then leave the upper louver in open position.

④ Hold both sides of the lower part of front cover and pull down towards an oblique direction.

4. Install the front cover







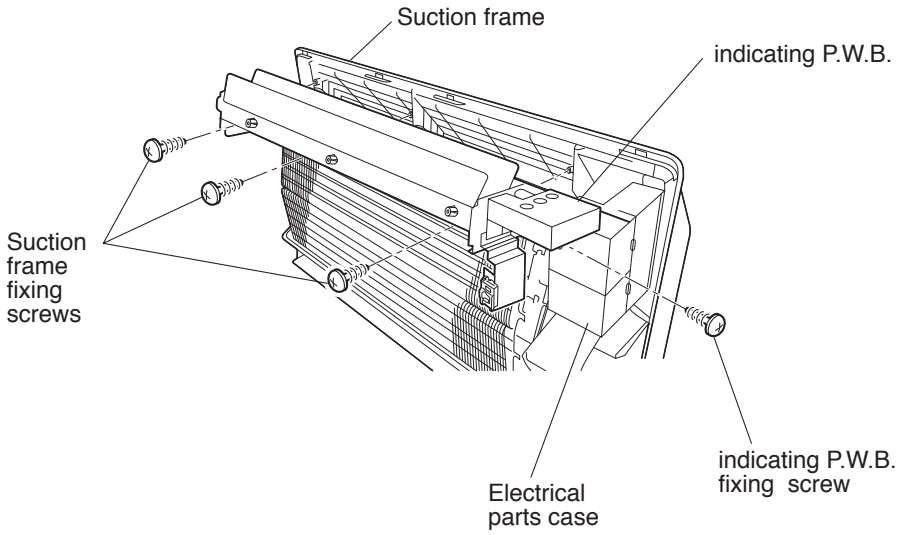
① Set the upper louver in open position.

② Insert the front cover fixing claws (4 places) to the insertion groove of the cabinet and put the upper louver through to the front cover frame.

③ Put the horizontal air deflector to the lower part of front cover frame and insert to the cabinet.
After fixed the front cover, fix back all the screws in order.

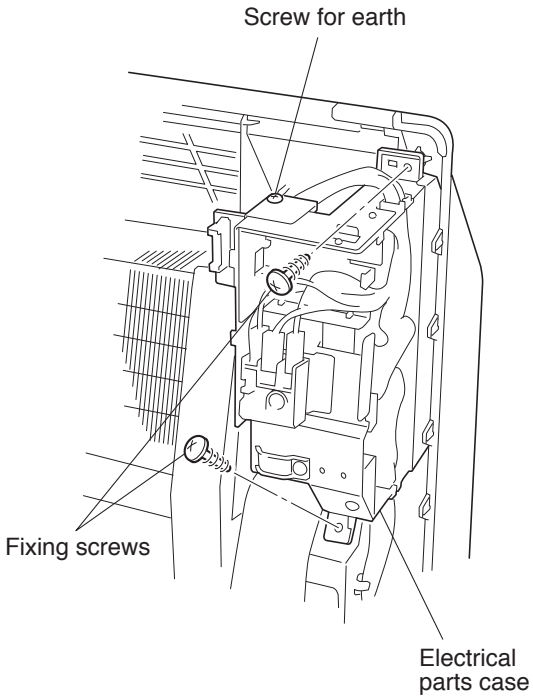
5. INDICATING P.W.B.

(1) Remove the front panel and the front cover.
(2) Remove the three fixing screws of the suction frame.
(3) Remove the one fixing screw of the indicating P.W.B. case.
(4) Slide the indicating P.W.B. case to the right while removing it from the suction frame.



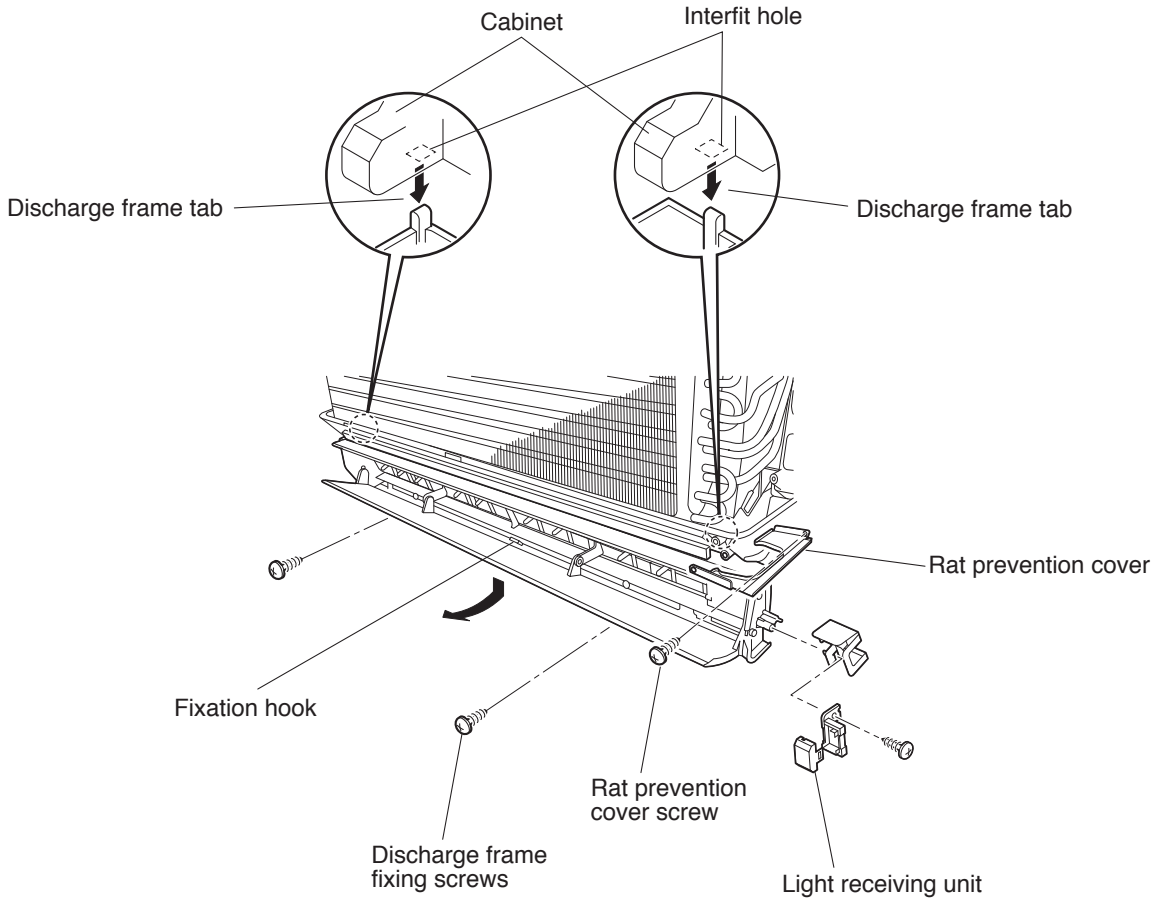
6. ELECTRICAL PARTS CASE

(1) Remove the front panel and the front cover.
(2) Remove the two fixing screws of the electrical parts case.

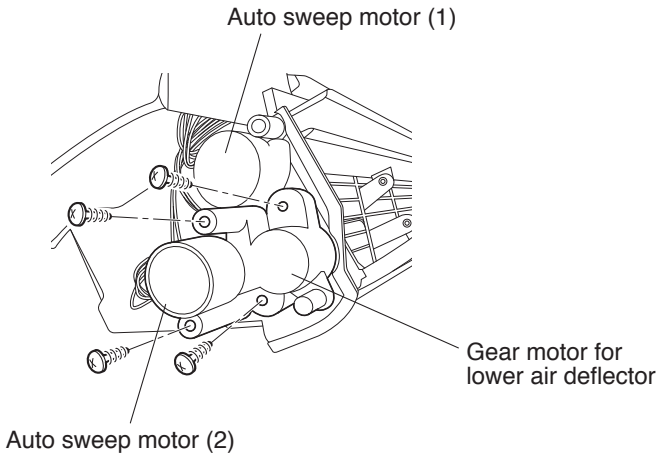


7. DISCHARGE FRAME

(1) Remove the front panel and the front cover.
(2) Remove the two fixing screws of the discharge frame.
(3) Remove the screw on the rat prevention cover.
(4) Remove the hook that is the fixation of a lower center part of Discharge frame.
(5) Lower the rear side of the discharge frame, remove the tab on the interfit section, and then pull out the discharge frame towards you.

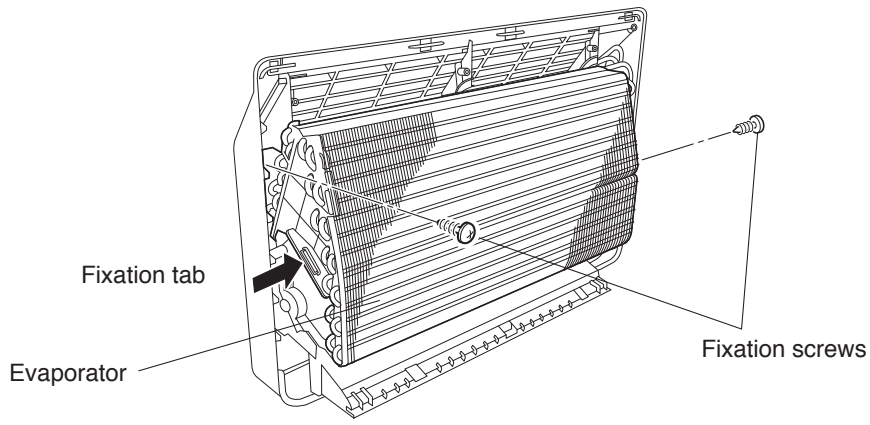


8. DISCHARGE FRAME AUTO SWEEP MOTOR

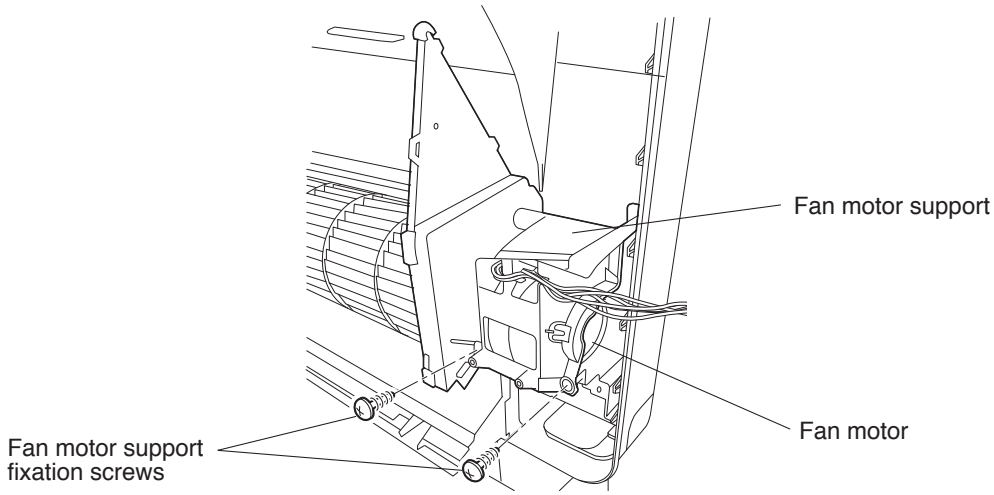


9. FAN MOTOR AND TANGENTIAL AIR FLOW FAN

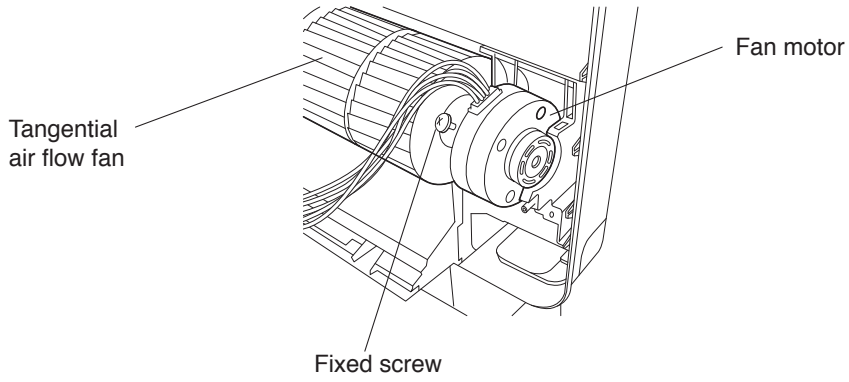
(1) Two screws that are the fixation of evaporator are removed.
(2) The tab where the left side of evaporator is fixed is removed.
(3) Evaporator is lifted up and remove.



(4) Two screws that is the fixation of fan-motor support is removed,
and fan motor support is removed.



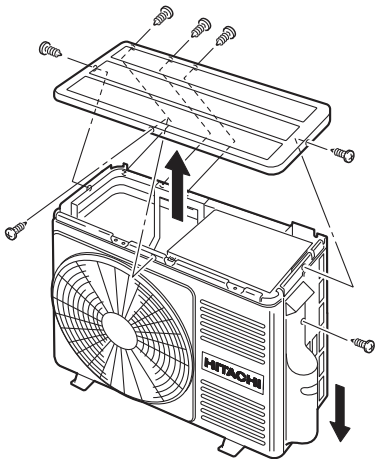
(5) The tangential air flow fan and fan motor are fixed with screw.
Please loosen screw when you remove.



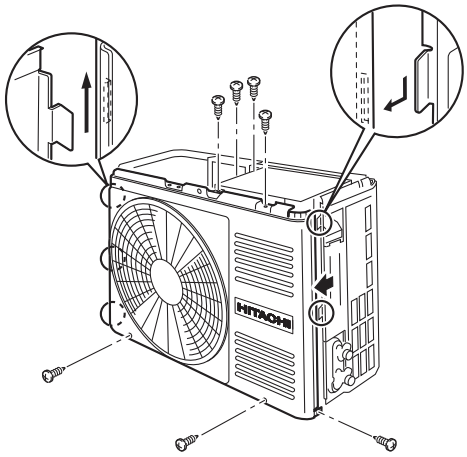
OUTDOOR UNIT MODEL RAC-25FXB, RAC-35FXB

1. Electrical parts

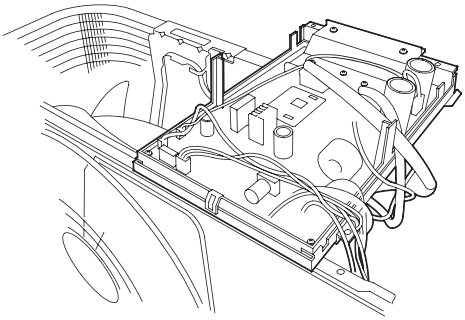
(1) Remove the upper cover fixing screws and lift the cover to remove it.
(2) Remove the service valve cover.
(3) Remove the terminal plate cover.
(4) Remove the right side cover.



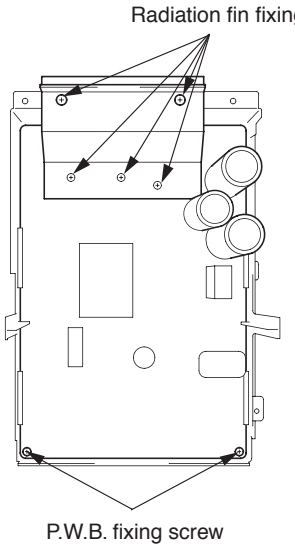
(5) Remove the electrical box fixing screws and GND wire fixing screw.



(6) Remove P lock which binds lead wires.
(7) Set the electrical box upside down.



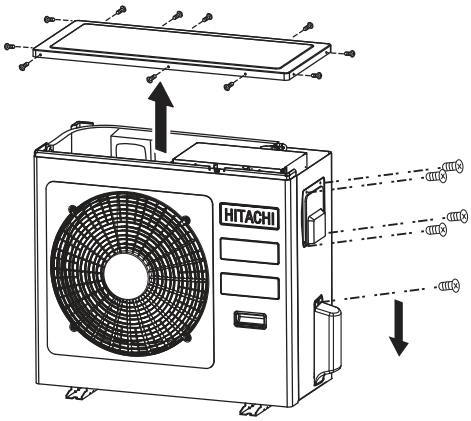
(8) Remove P.W.B. fixing screws (2 locations) and radiation fin fixing screws (5 locations), and remove the P.W.B. from the support.



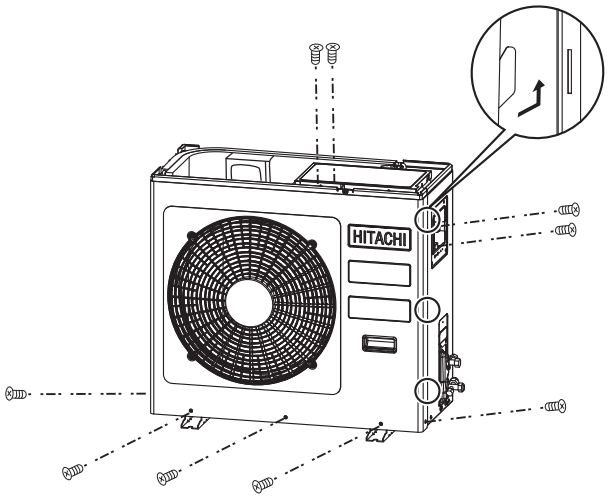
OUTDOOR UNIT MODEL RAC-50FXB

1. Electrical parts

(1) Remove the service value cover lock screws and lower the cover to remove it.
(2) Remove the top cover lock screw and raise the cover to remove it.



(3) Remove the front cover lock screw.
(4) Lower the right side of the front cover and pull it forward. Then, remove the cover from the hook.
(5) Pull the right side of the front cover a little and pull up the left side to remove it from the hook.



(6) Remove each connector and earth cable from the lead wire. Then,remove the electrical box.

DESCRIPTION OF MAIN CIRCUIT OPERATION

MODEL RAF-25/35/50RXB

1. Control power circuit

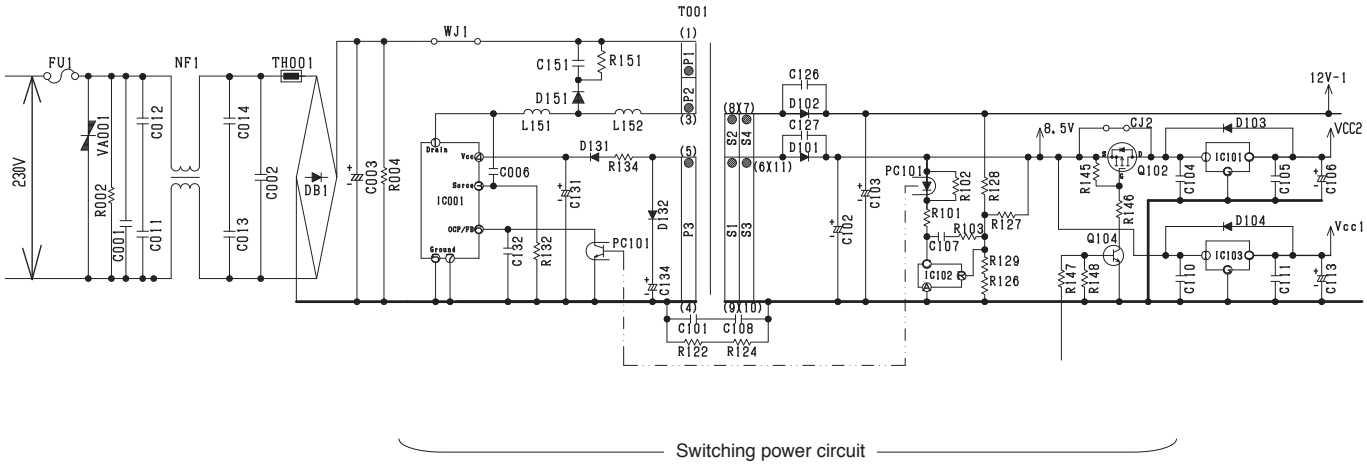


Fig. 1-1

- An AC power supply from outdoor unit passes through the 3.15 A fuse, varistor (VA001), and noise filter circuit and rectified and smoothed by DB1 and C003 to become a DC current 325 V. It is then supplied to indoor fan motor drive circuit,and switching power circuit.
- The switching power circuit, as controlled by IC001, drives the primary winding of the transformer (T001) to produce a specified voltage at the output winding. [The output terminal (pin ①) of IC001 has a switching voltage. But it changes in voltage peak and oscillation period depending on the power load. usually,the oscillation frequency when the air condition operation is about 67 kHz. In the standby state, the oscillation frequency is lowered to a level as low as 20 kHz or so to reduce the standby power.]
- The outputs of the output windings of the transformer is rectified and smoothed to become DC voltages at primary 18.5 V, 12 V, and 8.5 V respectively. The primary 18.5 V is supplied to the drive circuit of the indoor fan motor, the 12 V is supplied to each vane motor and to the drive circuits of the cleaning unit driving motor and other equipment, and the 8.5 V is adjusted to a stable 5 V by the 3-terminal regulator IC (IC101,IC103) and supplied to the microcomputer peripheral circuit.

Check

If a failure in a part or circuit has produced an abnormal current in the power supply, the 3.15 A fuse will melt down to prevent further damage. If the 3.15 A fuse melts down, check the indoor fan motor, switching electrical circuit, and other components and replace any defective part.

Check

If an abnormally high voltage is applied to the power supply, the 3.15 A fuse and varistor (VA001) will prevent further damage. If a high voltage results in the 3.15 A fuse melted down, the varistor (VA001) should have deteriorated and destroyed. Therefore replace it at the same time.

Caution

The primary circuit of the transformer (T001) has a voltage to ground. Guard against electric shocks.

2. Reset Circuit

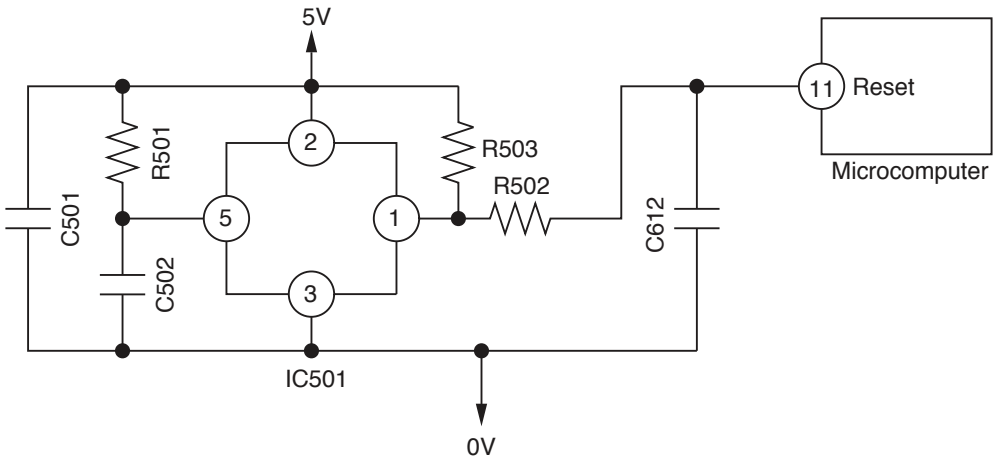


Fig.2-1

Timing chart

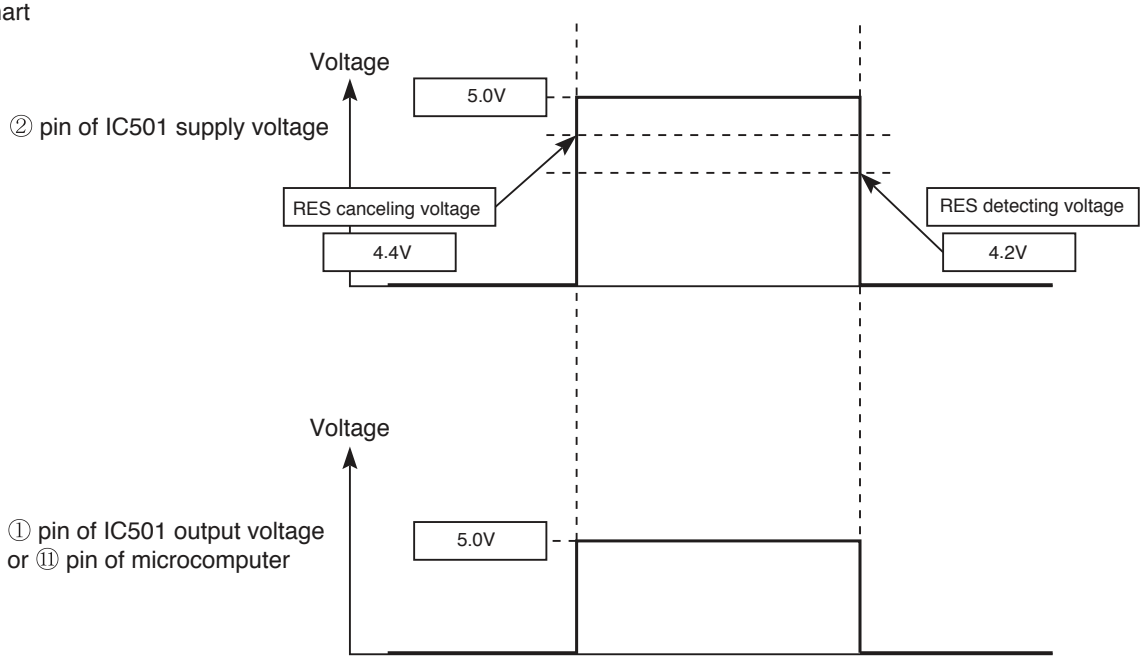


Fig.2-2

- Reset circuit is to initialize the indoor unit microcomputer when switching ON the power or after recovering from power failure.
- Microcomputer operates when ⑪ pin of the indoor unit microcomputer (reset input) is "Lo" for resetting and "Hi" for heating.
- Waveform of each part when switching ON the power and when shutting down is shown in the Fig. 2-2.
- After switching ON the power, ① pin of IC501 supply voltage and ⑪ pin of microcomputer becomes Hi when DC5V line rises and reaches approximately 4.4V or higher.
  Then, resetting will be cancelled and microcomputer starts operating.
- After shutting down the power, ① pin of IC501 supply voltage and ⑪ pin of microcomputer becomes Lo when DC5V line falls and reaches approximately 4.2V or lower.
  Then, the microcomputer will be in reset condition.

3. Drive circuit of the indoor fan motor

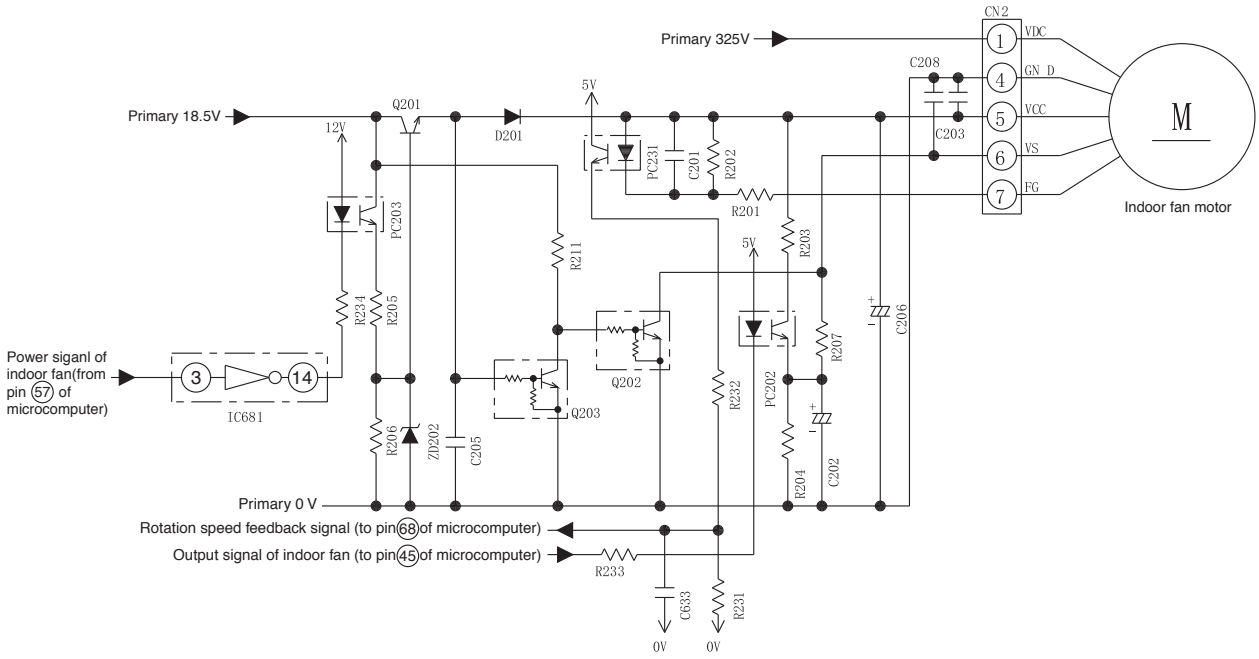


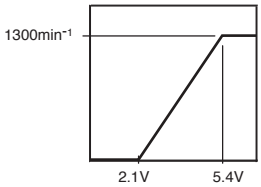
Fig. 3-1

< The circuit check (For test) >

Name	Test point	Test voltage
Motor drive power	CN2 ① pin- ④ pin	About 325V
Motor contorl power	CN2 ⑤ pin- ④ pin	About 15V
Motor speed signal	CN2 ⑥ pin- ④ pin	About 2-6V
Motor rotation speed debug	CN2 ⑦ pin- ④ pin	About 7.5V

* The voltage above is all motor operation vol. when yon start the test, take care of your connector, do not touch the different pin together.
* The voltage of pin ⑥ - pin ④ , pin ⑦ - ④ maybe diffierent from above.

< Pin 6 - Pin 4 voltage one example >



* The different mode maybe have diffevent FAN rotation speed.

< Typical circuit waveform >

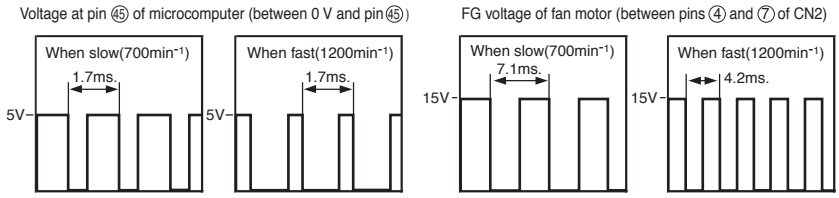


Fig. 3-2

- The indoor fan motor receives VDC (motor drive power supply), VCC (power supply for the control circuit inside the motor), and VS (speed command voltage) from CN2. The indoor fan motor returns an FG signal of a frequency that matches the rotation speed.
- VCC stabilizes the primary 18.5 V power supply into 15 V by using Q201 and supplies it.
- While on standby for a remote control signal, the Q201 shuts down the VCC and reduces the standby power.
- The VS receives a command voltage from the microcomputer (IC601). The VS terminal undergoes an analog voltage that matches the Lo level time ratio of the pulse signal from pin 45 of the microcomputer. (See Fig. 3-2.)
- The FG terminal undergoes a signal of 12 pulses per revolution of the motor shaft. By counting the pulse rate, the microcomputer (IC601) recognizes the motor speed, thereby performing feedback control.

Caution

The indoor fan motor and drive circuit are connected to the primary power supply. They therefore have voltage to ground. Guard against electric shocks.

Caution

While the product is energized, do not under any circumstances detach or reattach a connector. Any such practice would cause a high voltage to run, resulting in the indoor fan motor and board circuit being destroyed. (Check the discharge of the C003 before detaching or reattaching the connectors.)

4. Buzzer Circuit

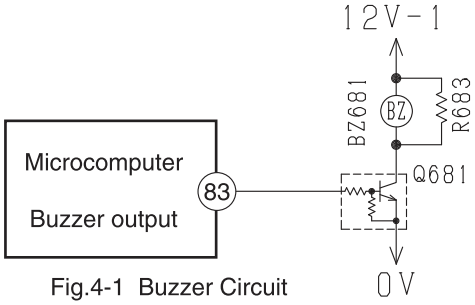
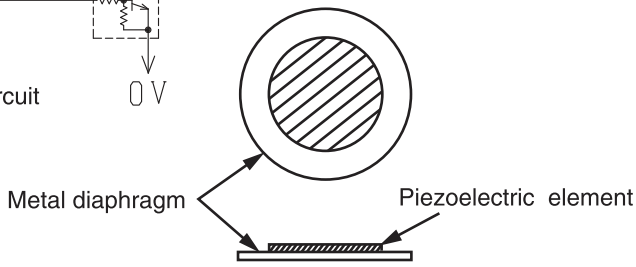


Fig.4-1 Buzzer Circuit

- When the buzzer sounds, an approx. 3.9kHz square signal is output from buzzer output pin (83) of the micro computer. After the amplitude of this signal has been set to 12Vp-p by a transistor, it is applied to the buzzer. The piezoelectric element in the buzzer oscillates to generate the buzzer's sound.



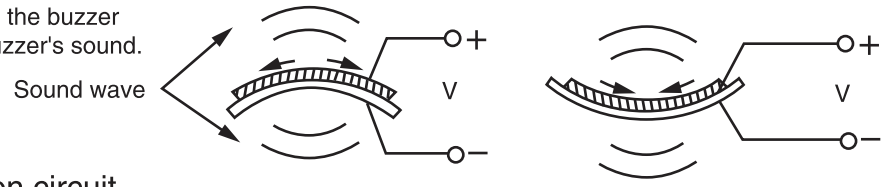


Fig.4-2 Buzzer Operation

5. Remote control reception circuit

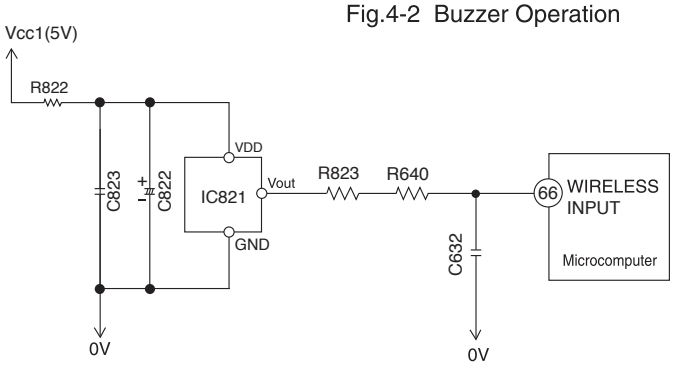


Fig.5-1

[Typical communication waveform]

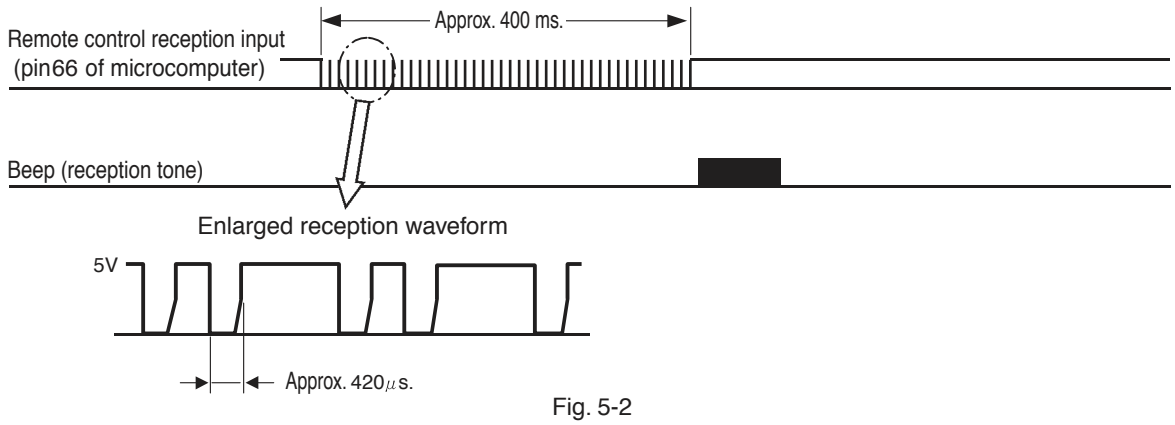


Fig. 5-2

- An infrared signal from the remote control unit is converted to an electrical signal by the remote control light-receiving unit (IRR) and is received by the microcomputer. Data is transmitted as digital data 0 and 1 by changing the interval of the basic pulses at about 420μs.

6. Initial Setting Circuit (IC531)

- When power is supplied, the microcomputer reads the data in IC531 (E^2PROM) and sets the preheating activation value and the rating and maximum speed of the compressor, etc. to their initial values.
- Data of self-diagnosis mode is stored in IC531; data will not be erased even when power is turned off.

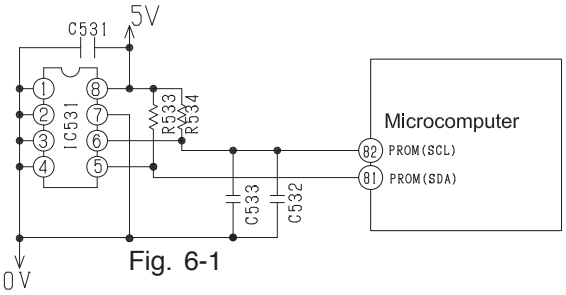


Fig. 6-1

7. Temporary Switch Circuit

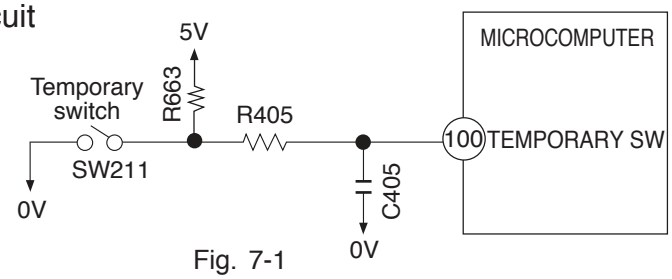


Fig. 7-1

- The temporary switch is used to operate the air conditioner temporarily when the wireless remote control is lost or faulty.
- The air conditioner operates in the previous mode at the previously set temperature. However, when the power switch is set to OFF, it starts automatic operation.

8. Room Temperature Thermistor Circuit

A room temperature thermistor circuit is shown in Fig. 8-1.
According to room temperature, the voltage of point Ⓐ becomes as it is shown in Fig.8-2.

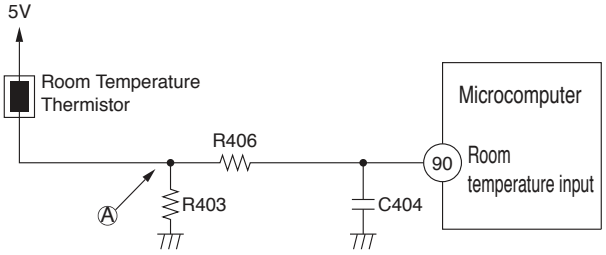


Fig. 8-1

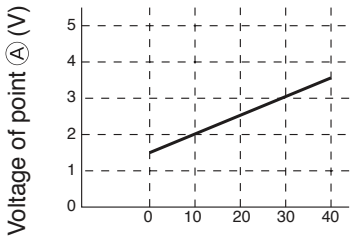


Fig. 8-2

9. Heat Exchanger Thermistor Circuit

Heat exchanger temperature is noticed inside the room
(1) Preheating
(2) Low-temperature defrosts at cooling and dehumidification operation time.
(3) Not working of reversing valve or detection of opening of heat exchange thermistor is controlled.

According to heat exchange temperature, the voltage of point Ⓐ becomes as it is shown in Fig. 9-2.

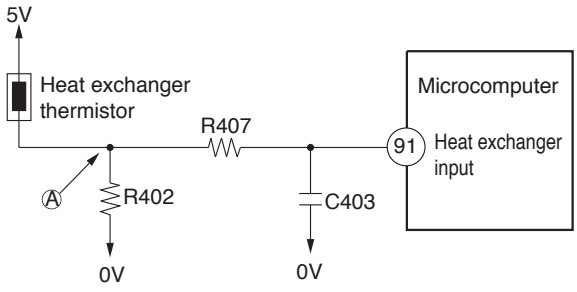


Fig. 9-1

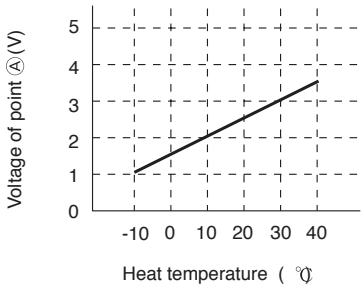


Fig. 9-2

10 . Dip-switch

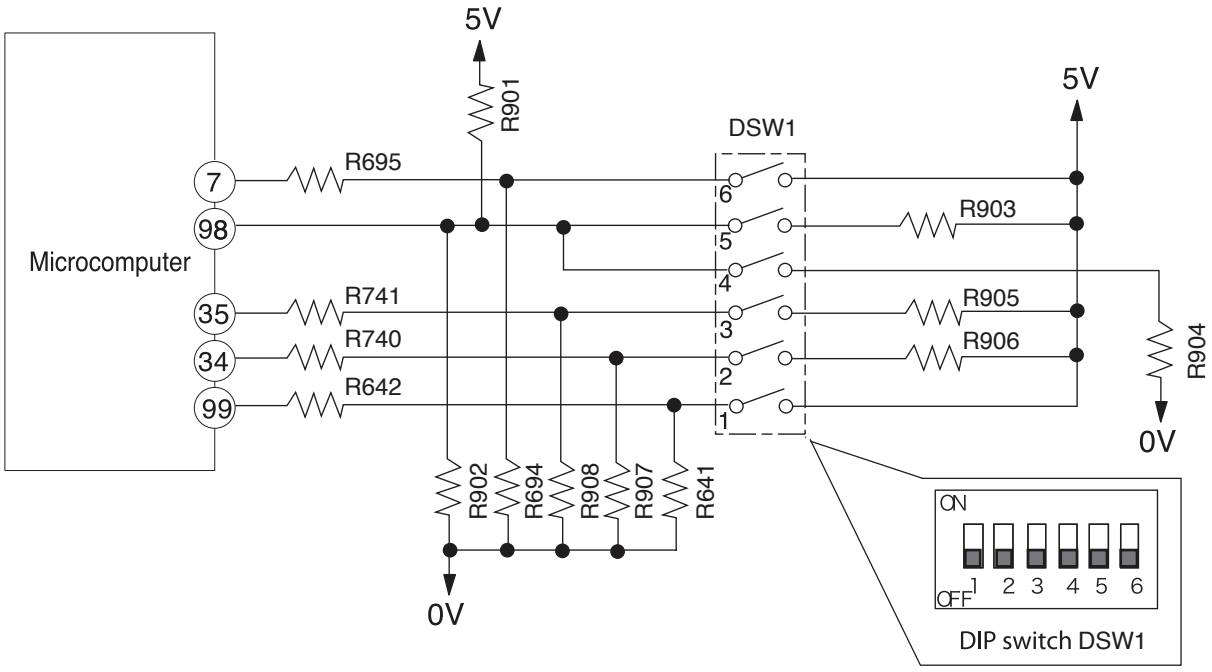


Fig.**10**-1Dip switch Circuit

- Fig.**10**-1 shows the dip switch circuit; the table shown in Fig.**10**-2 are function and setting position from ①–⑥ of the switch no.

SW No.	I T E M	F U N C T I O N								
1	AUTO RESTART	OFF*	ENABLE	ON	DISABLE					
2	CARD KEY MODE	OFF*	DISABLE	ON	ENABLE					
3	CARD KEY LOGIC SELECT	OFF*	INPUT HIGH ACTIVE	ON	INPUT LOW ACTIVE					
4	HEATING/COOLING ONLY MODE SELECT	OFF*	HEATING & COOLING	OFF	HEATING ONLY	ON	COOLING ONLY	ON	HEATING & COOLING	
5	HEATING/COOLING ONLY MODE SELECT	OFF*		ON		OFF		ON		
6	REMOCON ID SELECT	OFF*	SELECT ID : A	ON	SELECT ID : B					

Fig.**10**-2 Functions of Dip switch

NOTE:

* Marking is position of shipping [FACTORY default setting]

11. Indoor/outdoor communication circuits

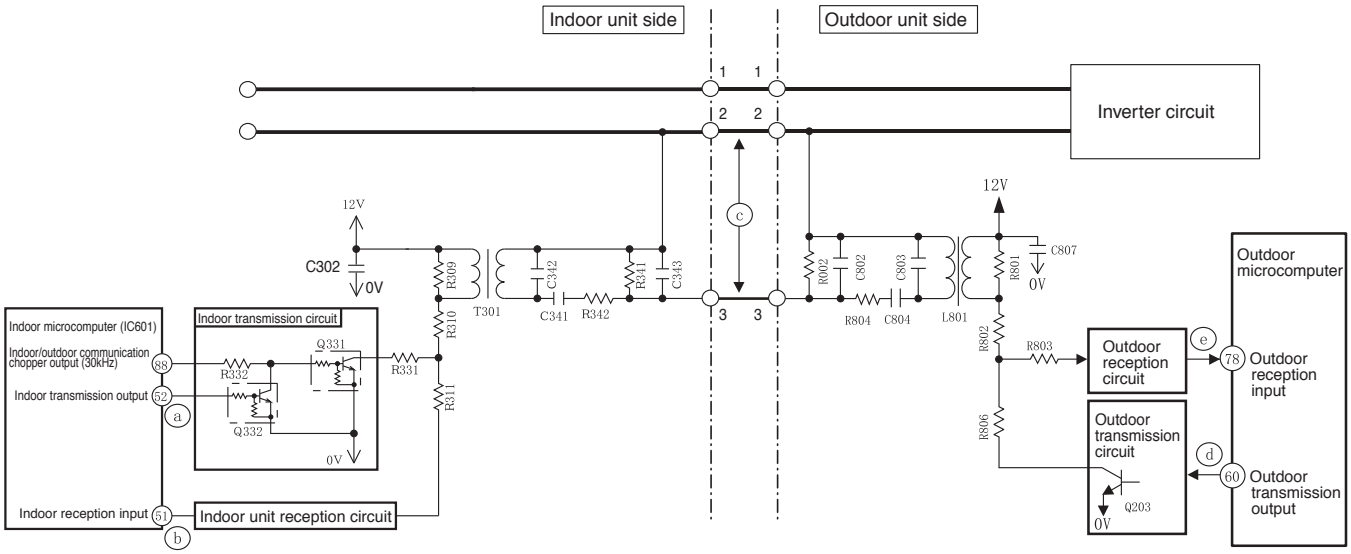


Fig. 11-1

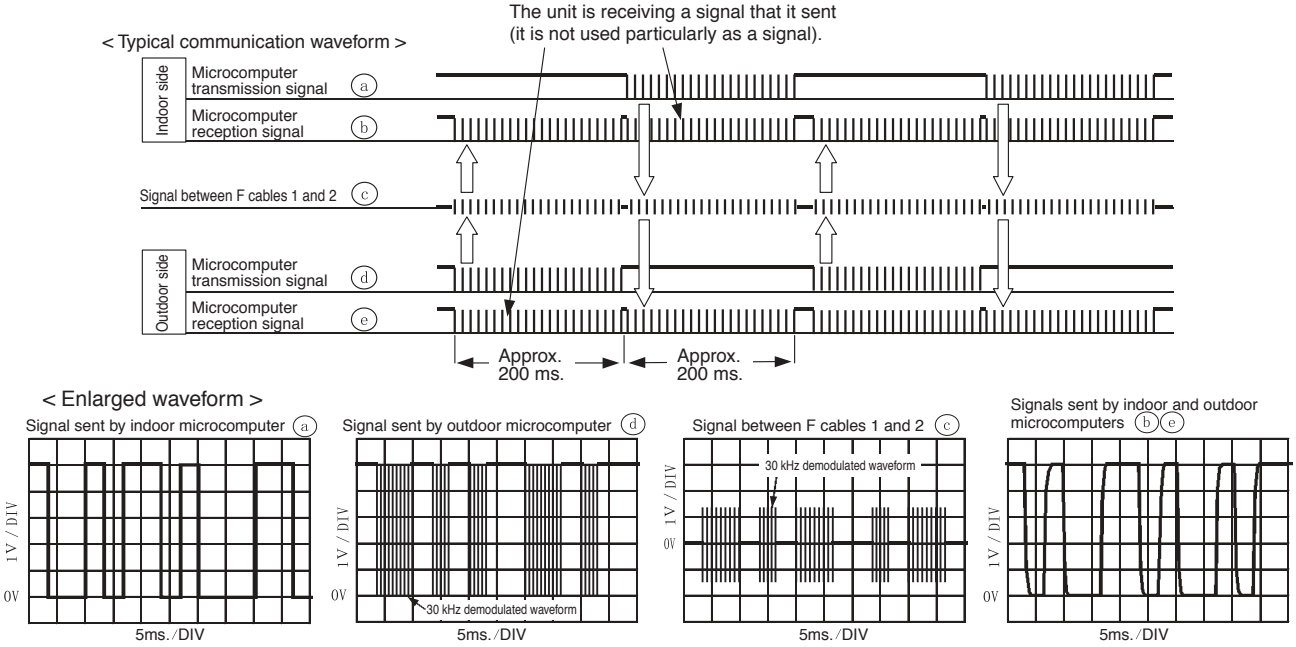


Fig. 11-2

- Indoor and outdoor communications are conducted by using lines 2 and 3 of F cable. Line 2 of F cable is shared with a transmission channel that powers the outdoor unit.
- Data communicated between the indoor and outdoor units are outputted from the microcomputer as serial signals and are transmitted as demodulated by a 30 kHz carrier wave. (Both the indoor and outdoor microcomputers directly output a signal demodulated at 30 kHz.)

Check

If a cable poorly inserted in the indoor terminal board or some other failure overheats the terminal board and the temperature fuse of the terminal board blows out, the power to the indoor communication circuit will be shut down to stop the communications function. (In that case, the failure will be displayed by the timer lamp blinking 3 times.)

Check

If communication fails between the indoor and outdoor units for some reason, the product will give a self-diagnosis display either by "the timer lamp blinking 3 times" or "the timer lamp blinking 12 times" depending on the cause.

12. Stepping motor drive circuit

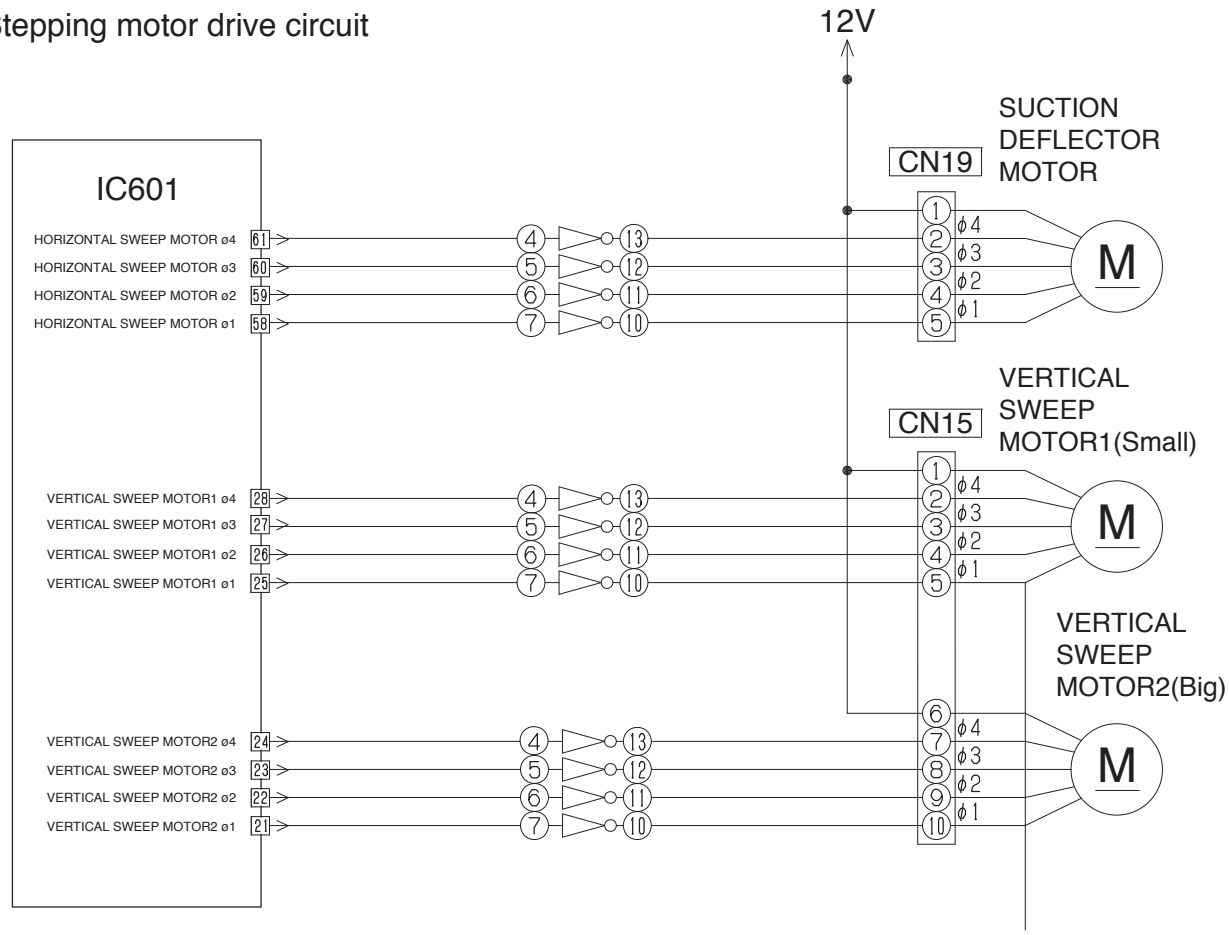


Fig. 12-1

[Connector circuit waveform while the motor runs]
Voltage waveforms of different phases as viewed from the OV line while the motor rotor is turning counterclockwise as viewed from the shaft side

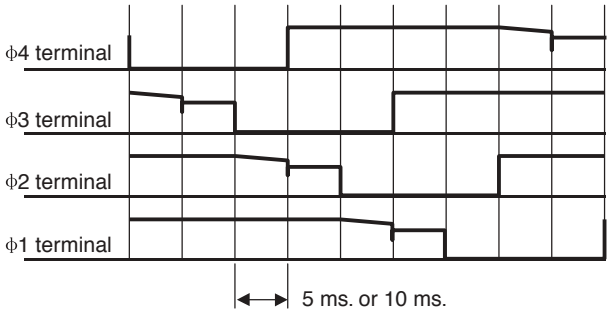


Fig. 12-2

- Each stepping motor runs as excited in 1 or 2 phases at 100 PPS or 200 PPS.
- The excitation pattern passes the microcomputer (IC601) and then the driver IC and excites the coil of each stepping motor.
- Some models not need to install the horizontal sweep motor.

MODEL RAC-25/35FXB

1. Power Circuit

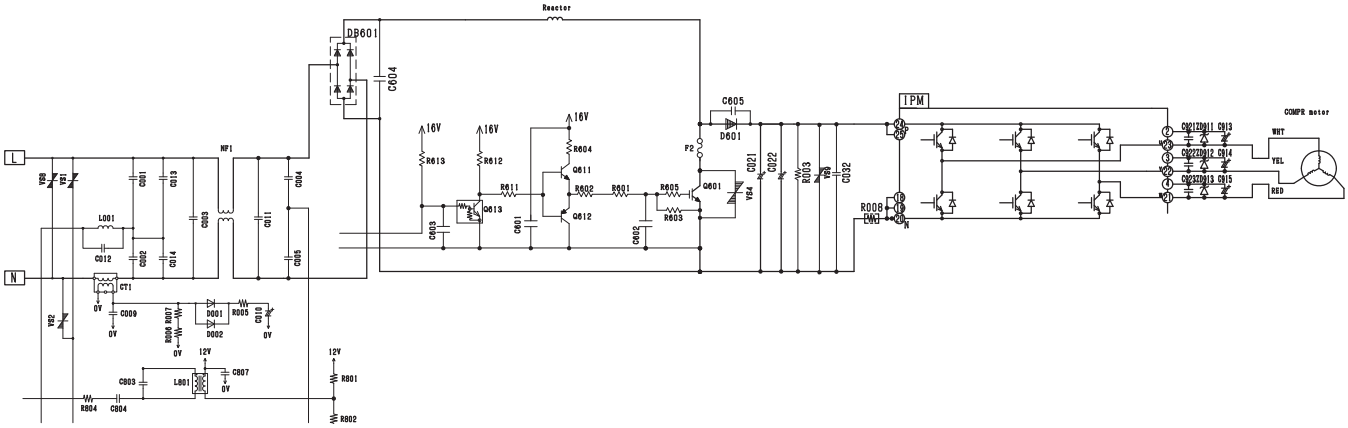


Fig 1-1

※ This circuit full-wave rectifies 230VAC applied between terminals L and N and boosts it to a required voltage with the IPM to create a DC voltage.

The voltage become 300-330V when the compressor is operated.

※ Main parts

（１） Intelligence Power Module (IPM)

A module that constitute by an inverter part.

（２） Diode Stack（DB601）

These rectify the 230VAC from terminal A and B to a DC power supply.

(3) Smoothing capacitors (C021-C023,500μF,450V)

(4) IGBT to improve efficiency (Q601,Q602)

<Reference>

※ In case of Intelligence Power Module malfunction or connection failure immediately after compressor starts, its may stop due to error of [abnormal low speed], [switching failure],[Ip stop] and others.

<Reference>

※ If diode stack (DB601) are faulty, DC voltage may not be generated and the compressor may not operate at all. Also be aware that the 25A fuse might have blown.

※ This smoothes (averages) the voltage rectified by the diode stack.

※ It will improve the efficiency during compressor load become heavy when current flow thru the chopper period of Q601,Q602.

2. Power circuit (Low voltage)

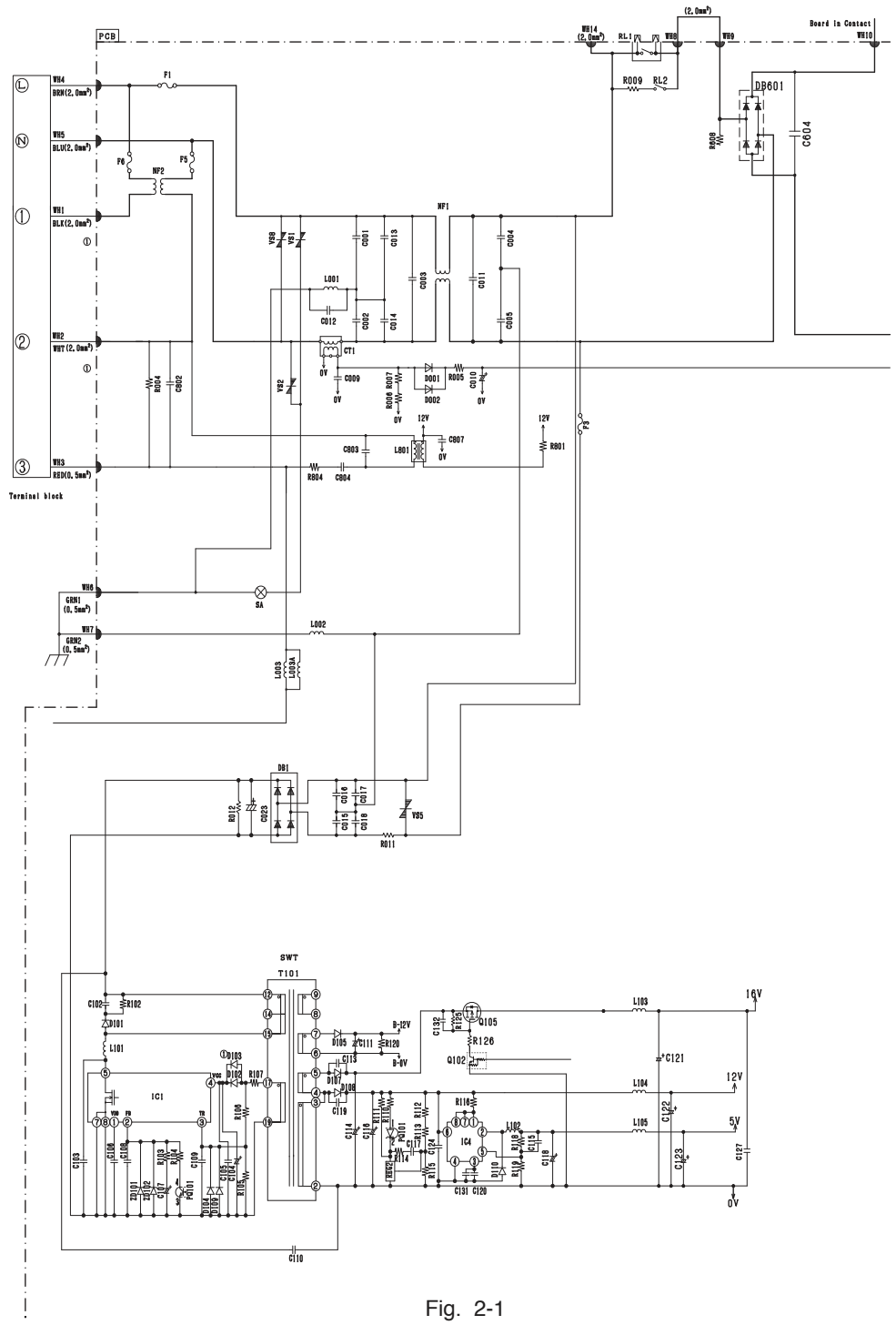


Fig. 2-1

- The 230V AC voltage is rectified to DC voltage (B-12V,16V,12V,5V) pass through switching control IC (ICI), switching transformer.
  (1) B-12V Power supply for electrical expansion valve.
  (2) 16V Power supply for IPM driver circuit of compressor and fan motor, IGBT action.
  (3) 12V Power supply for 4 way valve relay, power relay, inrush current relay,motor current amplification,
  (4) 5V Power supply for microcomputer, peripheral circuits.

Main parts

(1) C001,C002,C003,C004,C005,C011,C013,C014, NF1

These absorb electrical noise generated during operation of compressor and also absorb external noise entering from power line to protect electronic parts.

(2) Surge Absorber, Varistor1,2,5,8.

These absorbs external power surge.

(2) IC4
DC/DC convertor IC (DC12V → DC5V).

3. P.W.B. for power circuit

Voltage specification of power circuit as shown in below table.

〈Checking point〉

Output	Spec	Main load	Measuring point	Example of possible failure mode.
5V O/P	5 ± 0.4V	Micon, Thermistor	Tester⊕ : L105 (JUMPER) Tester⊖ : D110 (EARTH)	Outdoor not operate, no blinking indication
12V O/P	12 ± 0.5V	Micon, IC2, 3, 4 Relay circuit	Tester⊕ : L104 (JUMPER) Tester⊖ : D110 (EARTH)	Outdoor not operate, no blinking indication
16V O/P	$15.5^{+1.5V}_{-1.0V}$	IPM for Comp IPM for DC fan	Tester⊕ : L103 (JUMPER) Tester⊖ : D110 (EARTH)	Stop : LD301 3,4 or 12 times blinking
B-12V O/P	$13^{+2.5V}_{-1.0V}$	Expansion valve	Tester⊕ : R120 (B-12V) Tester⊖ : R120 (B-0V)	Stop : LD301 5 times blinking

※ Power circuit for pwb can consider normal if the result is satisfied with above specification.

4.Reversing valve control circuit

This model reversing valve control used to control the realy ON/OFF of the revesing valve, and also control the coil of the reversing valve ON/OFF.

The realay ON/OFF has different type when in the different operation mode.

You can see each operation mode as fllows. If the reaversing valve not connected or all the condition not the same as follow, it may be something wrong with the reversing valve circuit.

Point / operation mode		micon ㉘pin - 0V	HIC ㉞ pin - 0V	CN2①- CN2④
Cooling	Usual cooling	Hi	0V	AC230V
Heating	Usual heating	Lo	12V	0V
	Defrost	Hi	0V	AC230V

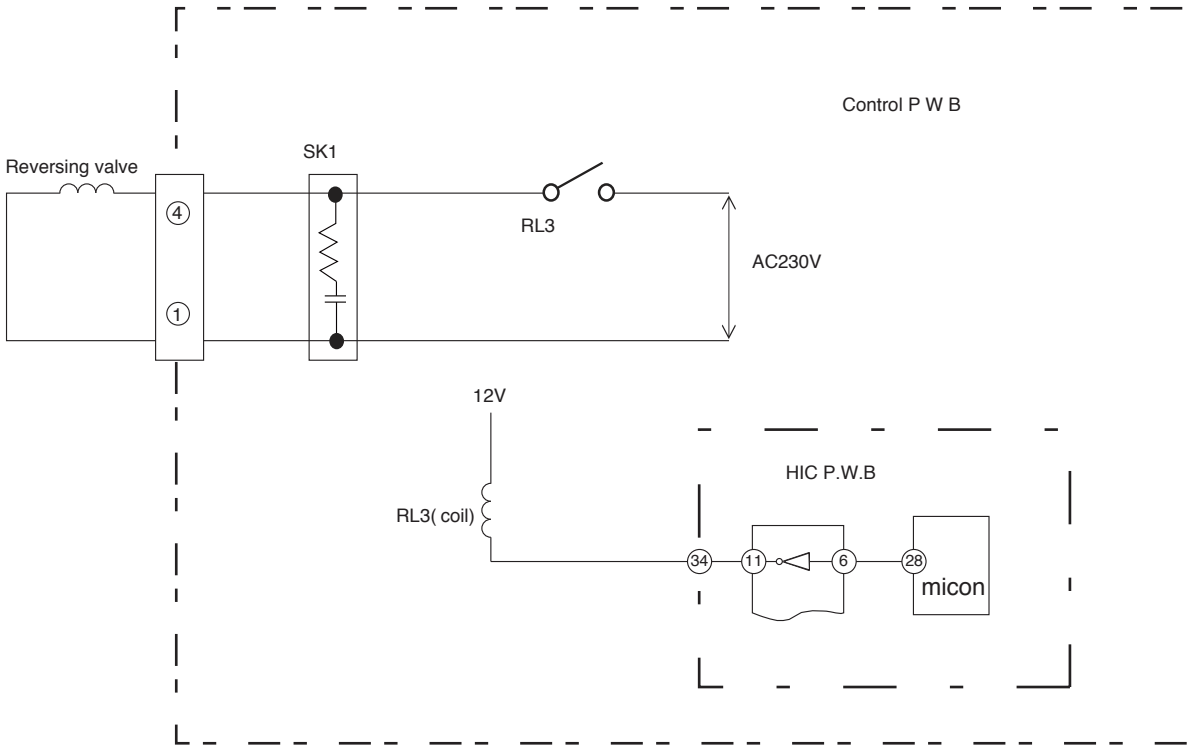


Fig.4-1

5. Temperature Detection Circuit

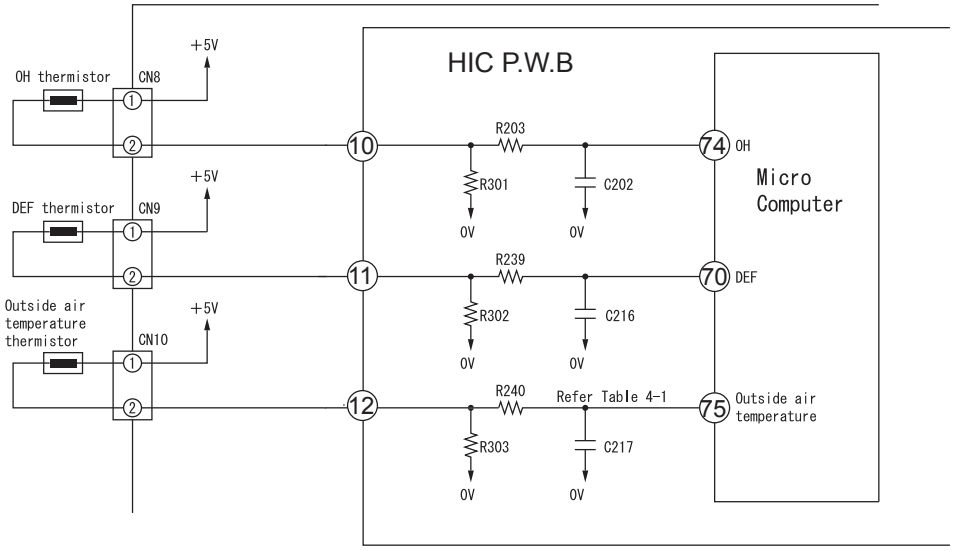


Fig.5-1

- OH thermistor circuit detect the temperature at the surface of compressor head, DEF thermistor circuit detect the defrosting operation temperature.
- A thermistor is a negative resistor element which has characteristics that the higher(lower) the temperature, the lower(higher) the resistance.
- When the compressor is heated, the resistance of the OH thermistor becomes low and ⊕ 5V is divided by OH thermistor and R301 and the voltage at pin ⑦④ of microcomputer.
- Compare the voltage at microcomputer pin ⑦④ and setting value stored inside. If the value exceed the set value, microcomputer will judge that the compressor is overheated and stop the operation.
- When frost is formed on the outdoor heat exchanger, the temperature at the exchanger drops abruptly. Therefore the resistance of the DEF thermistor becomes high and the voltage at pin ⑦⓪ of micro computer drops. If this voltage becomes lower than the set value stored inside, microcomputer will enter the defrost control.
- During defrost operation, the microcomputer will transfer the defrosting condition command to indoor unit via SDO pin of interface of IF transmission output.
- The microcomputer read the outdoor temperature by Outside Air thermistor and transfer it to the indoor unit, thus controlling the compressor rotation speed according to the set value in the EEPROM of indoor unit and switching the operation mode (outdoor fan on/off etc.) to DRY mode.
  Below table show the typical values of outdoor temperature in relation to the voltage.

Table 5-1

Outside Air Temperature (℃)	−10	0	10	20	30	40
Voltage at both side of R303 (V)	1.19	1.69	2.23	2.75	3.22	3.62

<Reference>

When the thermistor is open,open condition or disconnect, microcomputer pin⑦⓪⑦④⑦⑤are approx.0V;

When thermistor is shorted, they are approx.5V and LD301 will blink 7 times.

However, an error is detected when only the OH thermistor is shorted and will enter blinking mode after 12 minutes start the compressor operation.

2.Failure phenomenon: The product will not receive a remote control signal.

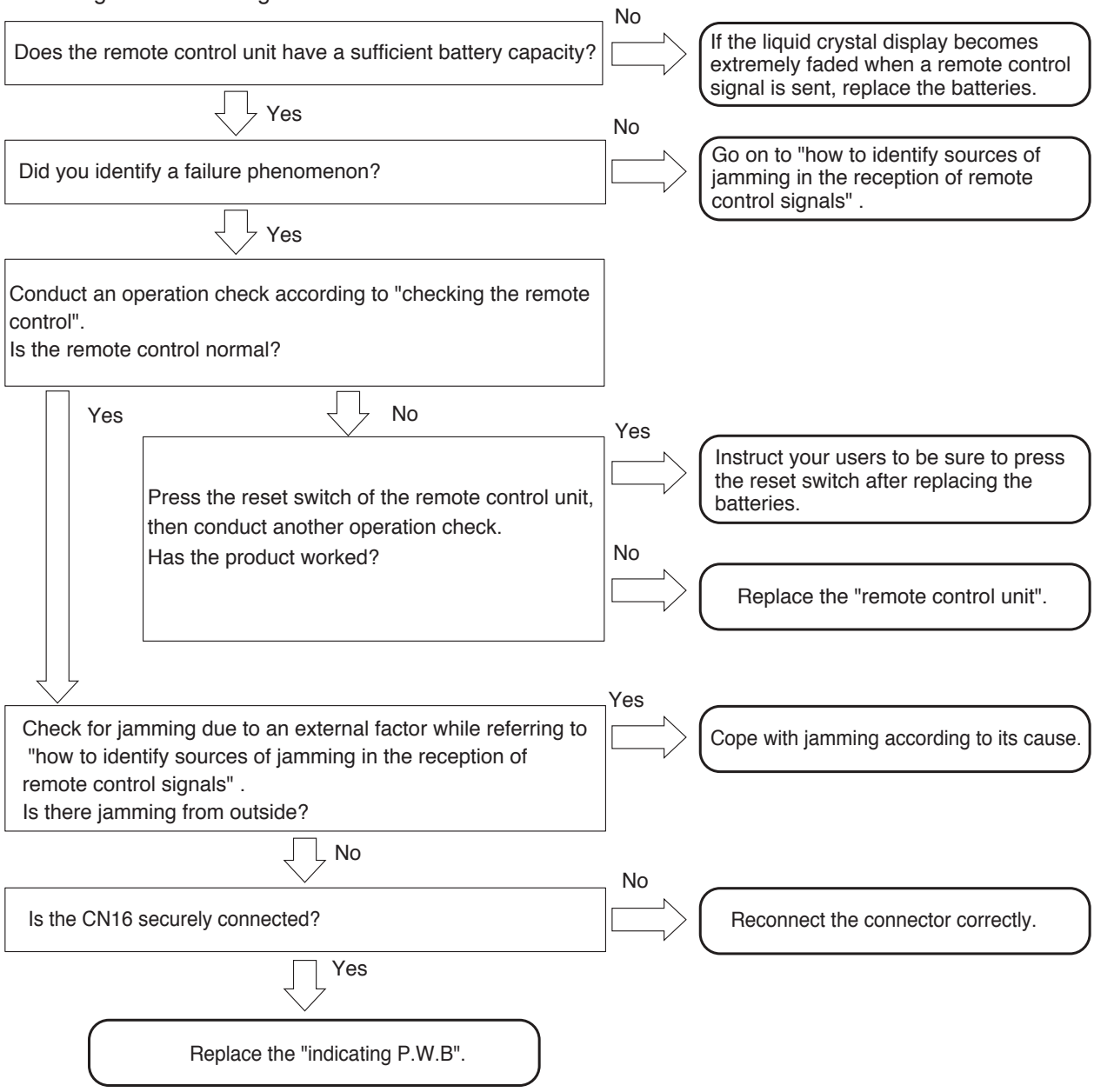
［Situation ］ The product does not receive a remote control signal. It is not very responsive.
(The product does run normally in response to the emergency operation switch.)

［Estimated failure locations ］
- Remote control failure, remote control low battery level, remote control poorly set
- Remote control light-receiving unit
- Connector loose, wire break
- Normal product (external factors: the remote control units for lighting equipment and other equipment, electrical noise, etc.)

［Cautions ］
- Even if the product is trouble-free, a factor coming from outside the product may hamper the reception of signals from the remote control unit.
- Batteries may decline in capacity at low temperatures. Old batteries decline particularly much in voltage in the morning and evening of winter, resulting in the poor arrival of remote control signals. Instruct your users to use new alkaline batteries.

［Diagnosis flow ］

Initiating troubleshooting



［Cautions in replacing the indicating P.W.B］ Be sure to replace the indicating P.W.B. components.

7. Outdoor DC fan motor control circuit

- This model is built with DC fan motor control circuit inside outdoor electrical unit.

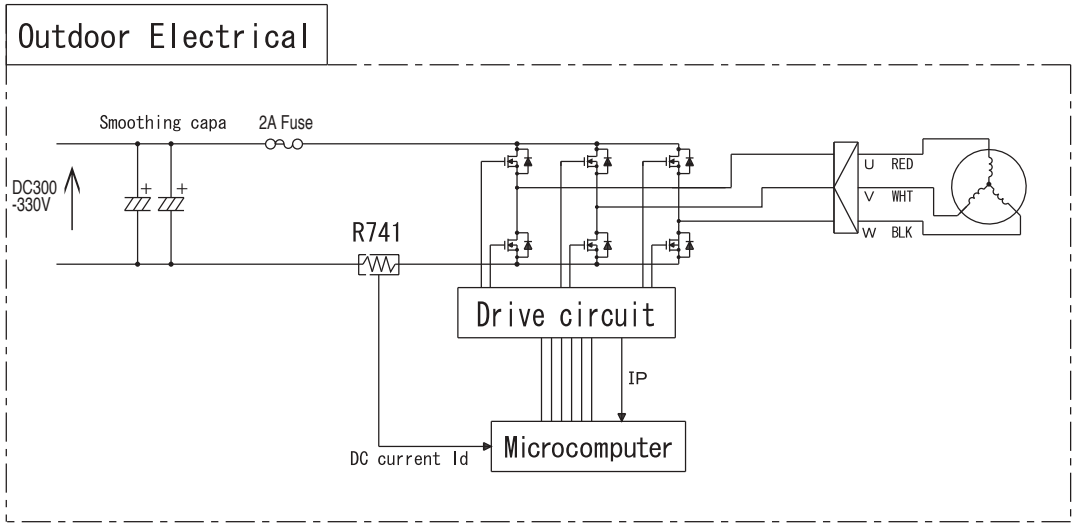


Fig 7-1

This DC fan motor is control by outdoor microcomputer that follow the operating instruction received from indoor microcomputer. The DC current that flow from R741 will presume actual operation speed and control the rotation to follow the operating instruction. Based on this DC current it will detect a over current and other fan motor failure.

(1) Fan motor speed controller during starting

Due to the interference of strong wind etc., operation movement is changed based on fan direction and rotation speed as shown below during starting of operation.

In addition, the fair wind is define as wind that blow to outside direction using Mouth Ring part.

At strong and contrary wind ...The rotational speed is not controlled as to protect the equipment and fan will rotate reversely depend on the wind. Automatically start when wind condition become weak.

At contrary wind ...The rotational speed is controlled in fair wind direction after it slowly reduce the speed and finally stop.

At fair wind ...The rotational speed is controlled as it is.

At strong fair wind ...The rotational speed is not controlled as to protect the equipment and fan will rotate reversely depend on the wind. Automatically start when wind condition become weak.

(2) Fan motor speed controller during unit operating

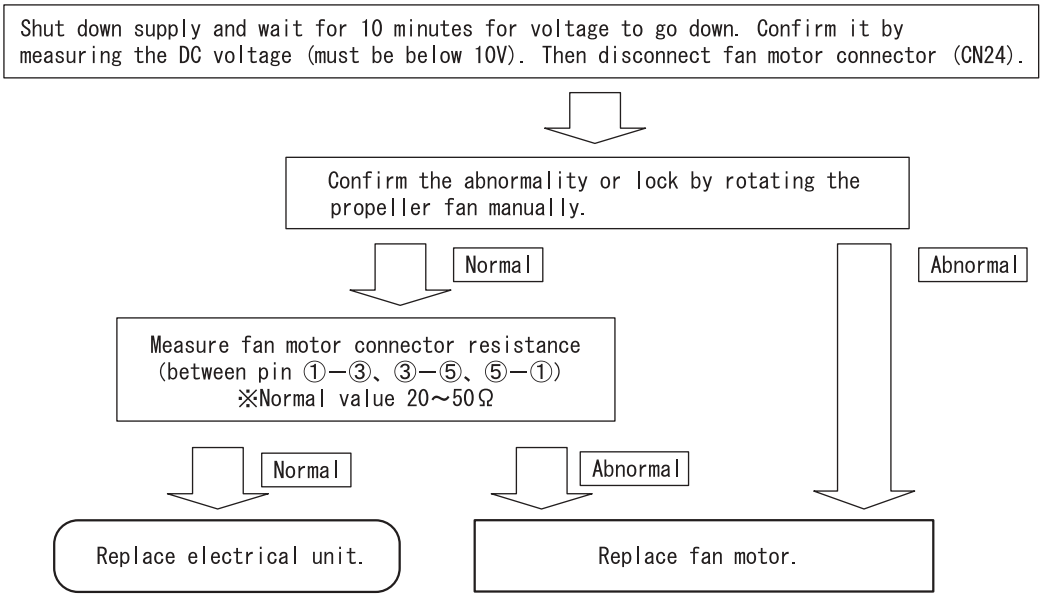
There is a case where fan rpm is reducing during rotating caused by interference of strong wind If this condition continue in long period, fan will stop rotating. (LD301 : 11 times blinking) The unit will restart according to control as per during start (1).

(3) Method of confirming self diagnosis LD301 lamp : 12 times blinking

If the unit stop and LD301 on the pwb blinking 12 times [fan lock stop is detected], follow below steps to confirm it.

1. Fan lock stop is detected when something has disturb the fan rotation by inserting material into propeller fan or ice has growing inside outdoor unit caused by snow.
   Remove it if found something is bloking the fan.
2. Confirmed that CN24 connector is securely inserted. Fan lock stop is detected also when connector is not properly inserted. Please securely insert if found any disconnection.
3. Fan lock stop also can be detected where strong wind blown surrounding the unit.
   Please confirm after restart the unit.(It may take few minutes to operate the compressor)
   It is not a malfunction of electrical unit or fan motor if the unit run continuesly after restart the unit.
4. Check fan motor condition as below procedure.

[Checking Fan Motor] procedure



5. Reconnect again fan motor connector (CN24).

※Please confirm above checking procedure if found 2Afuse blown.
If fan motor is broken, replace both electrical unit and fan motor.

Caution

※Beware of electric shock due to high voltage when conducting an operation check.
Power supply for DC fan motor and compressor is common (DC300-330V).

MODEL RAC-50FXB

1. Power Circuit

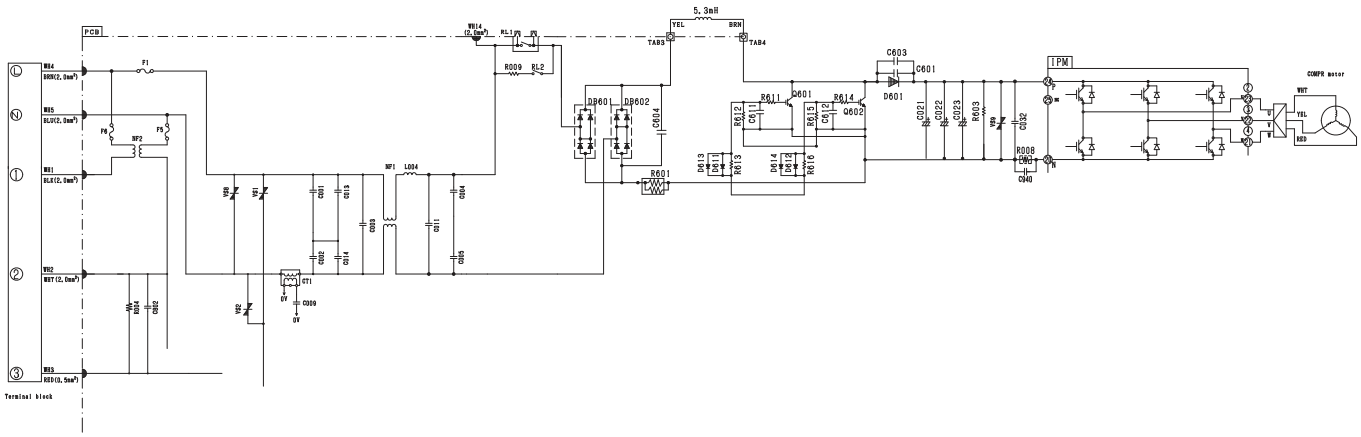


Fig 1-1

※ This circuit full-wave rectifies 230VAC applied between terminals L and N and boosts it to a required voltage with the IPM to create a DC voltage.

The voltage become 300-330V when the compressor is operated.

※ Importance component

（1） Intelligence Power Module (IPM)

A module that constitute by an inverter part.

（2） Diode Stack（DB601, DB602）

These rectify the 230VAC from terminal A and B to a DC power supply.

<Reference>

※ In case of Intelligence Power Module malfunction or connection failure immediately after compressor starts, its may stop due to error of [abnormal low speed], [switching failure],[Ip stop] and others.

<Reference>

※ If diode stack (DB601,DB602) are faulty, DC voltage may not be generated and the compressor may not operate at all. Also be aware that the 25A fuse might have blown.

(3) Smoothing capacitors (C021-C023,500μF,450V)

This smoothes (averages) the voltage rectified by the diode stack.

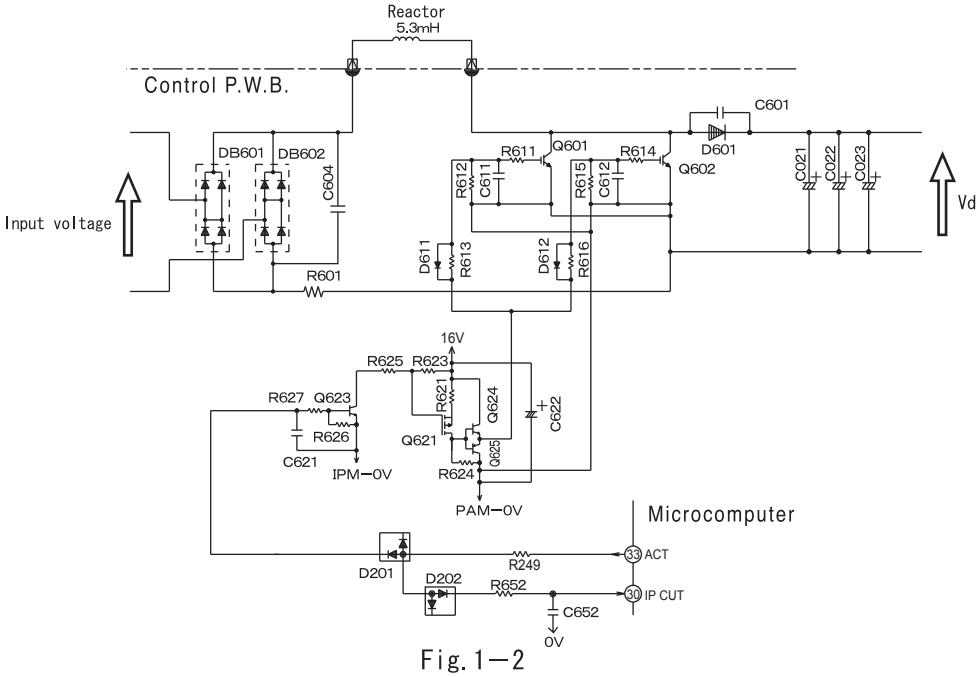


Fig.1—2

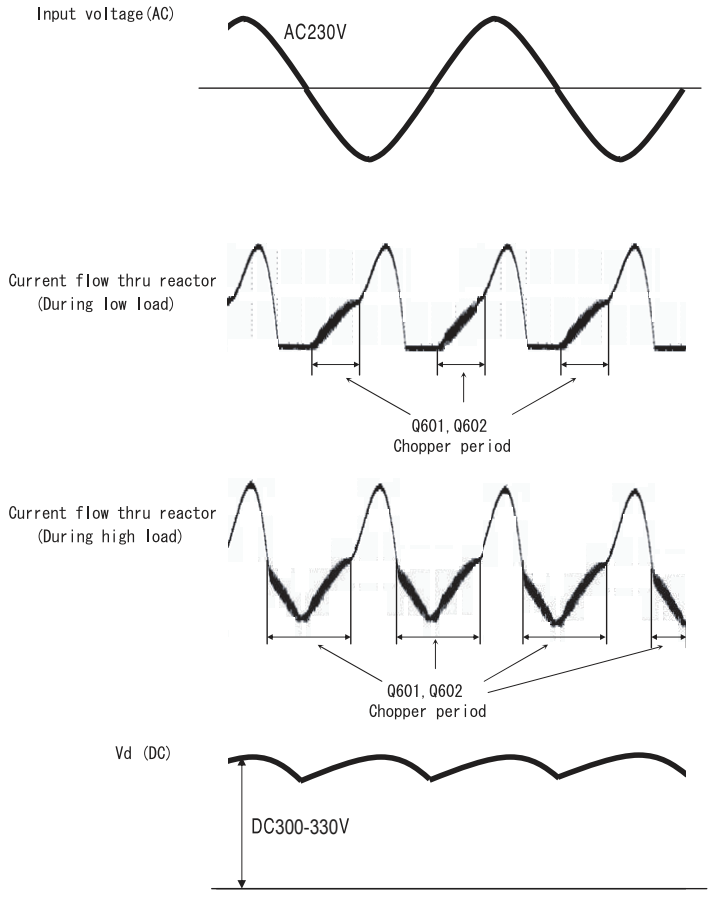


Fig.1—3

(4) IGBT to improve efficiency (Q601,Q602)

It will improve the efficiency during compressor load become heavy when current flow thru the chopper period of Q601,Q602.

2. Power circuit (Low voltage)

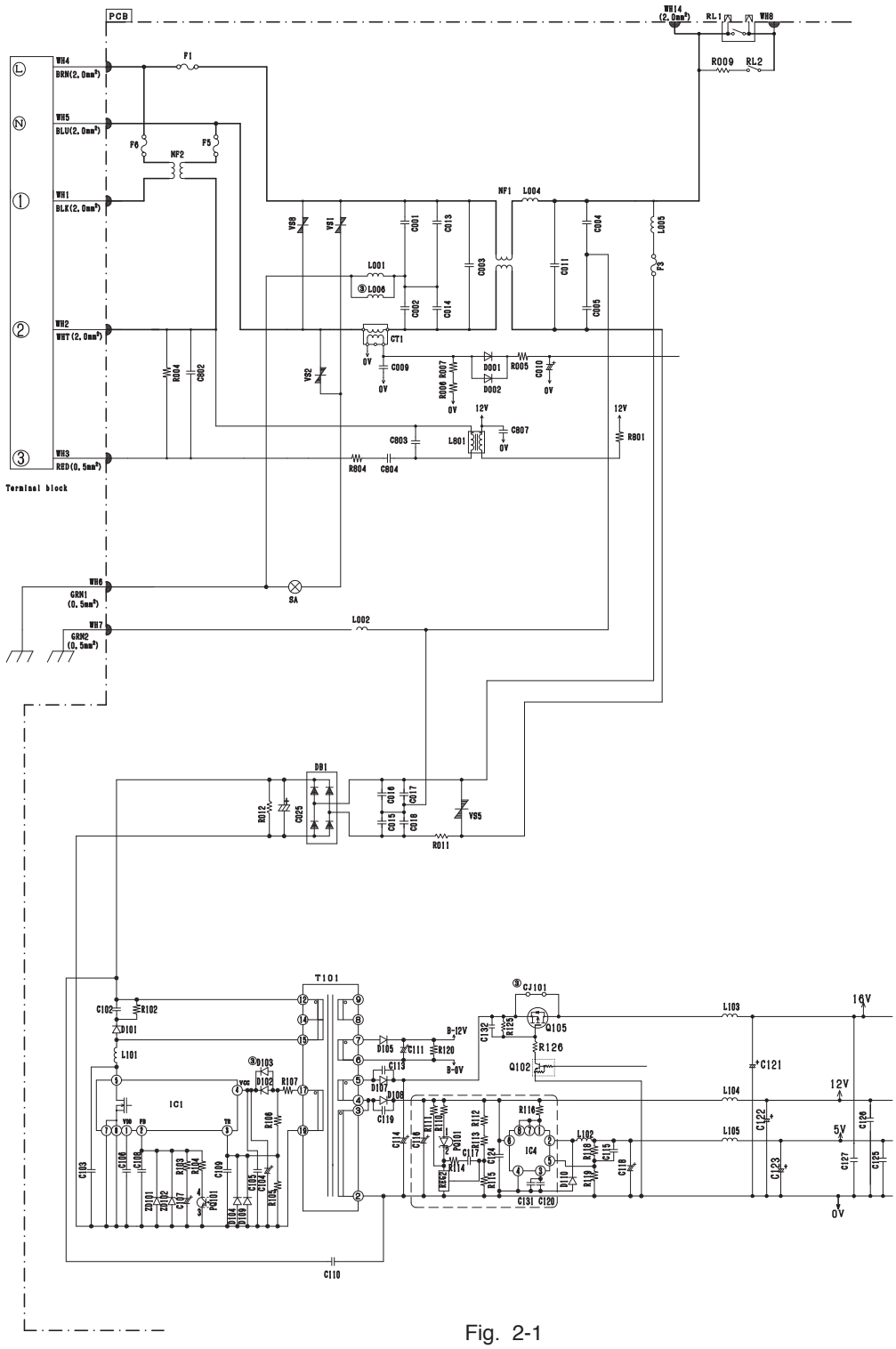


Fig. 2-1

- The 230V AC voltage is rectified to DC voltage (B-12V,16V,12V,5V) pass through switching control IC (ICI), switching transformer.
  (1) B-12V Power supply for electrical expansion valve.
  (2) 16V Power supply for IPM driver circuit of compressor and fan motor, IGBT action.
  (3) 12V Power supply for 4 way valve relay, power relay, inrush current relay,motor current amplification,
  (4) 5V Power supply for microcomputer, peripheral circuits.

Main parts

(1) C001,C002,C003,C004,C005,C011,C013,C014, NF1

These absorb electrical noise generated during operation of compressor and also absorb external noise entering from power line to protect electronic parts.

(2) Surge Absorber, Varistor1,2,5,8.

These absorbs external power surge.

(2) IC4

DC/DC convertor IC (DC12V → DC5V).

3. P.W.B. for power circuit

Voltage specification of power circuit as shown in below table.

〈Checking point〉

Output	Spec	Main load	Measuring point	Example of possible failure mode.
5V O/P	$5^{\pm 0.4}$V	Micon, Thermistor	Tester⊕ : L105 (JUMPER) Tester⊖ : D110 (EARTH)	Outdoor not operate, no blinking indication
12V O/P	$12^{\pm 0.5}$V	Micon, IC2, 3, 4 Relay circuit	Tester⊕ : L104 (JUMPER) Tester⊖ : D110 (EARTH)	Outdoor not operate, no blinking indication
16V O/P	$15.5^{+1.5}_{-1.0}$V	IPM for Comp IPM for DC fan	Tester⊕ : L103 (JUMPER) Tester⊖ : D110 (EARTH)	Stop : LD301 3, 4 or 12 times blinking
B-12V O/P	$13^{+2.5}_{-1.0}$V	Expansion valve	Tester⊕ : R148 (B-12V) Tester⊖ : C401 (“-”)	Stop : LD301 5 times blinking

※ Power circuit for pwb can consider normal if the result is satisfied with above specification.

4.Reversing valve control circuit

This model reversing valve control used to control the realy ON/OFF of the revesing valve, and also control the coil of the reversing valve ON/OFF.

The realay ON/OFF has different type when in the different operation mode.

You can see each operation mode as fllows. If the reaversing valve not connected or all the condition not the same as follow, it may be something wrong with the reversing valve circuit.

Point / operation mode		micon ㉘pin - 0V	HIC ㉘ pin - 0V	CN2①- CN2④
Cooling	Usual cooling	Hi	0V	AC230V
Heating	Usual heating	Lo	12V	0V
	Defrost	Hi	0V	AC230V

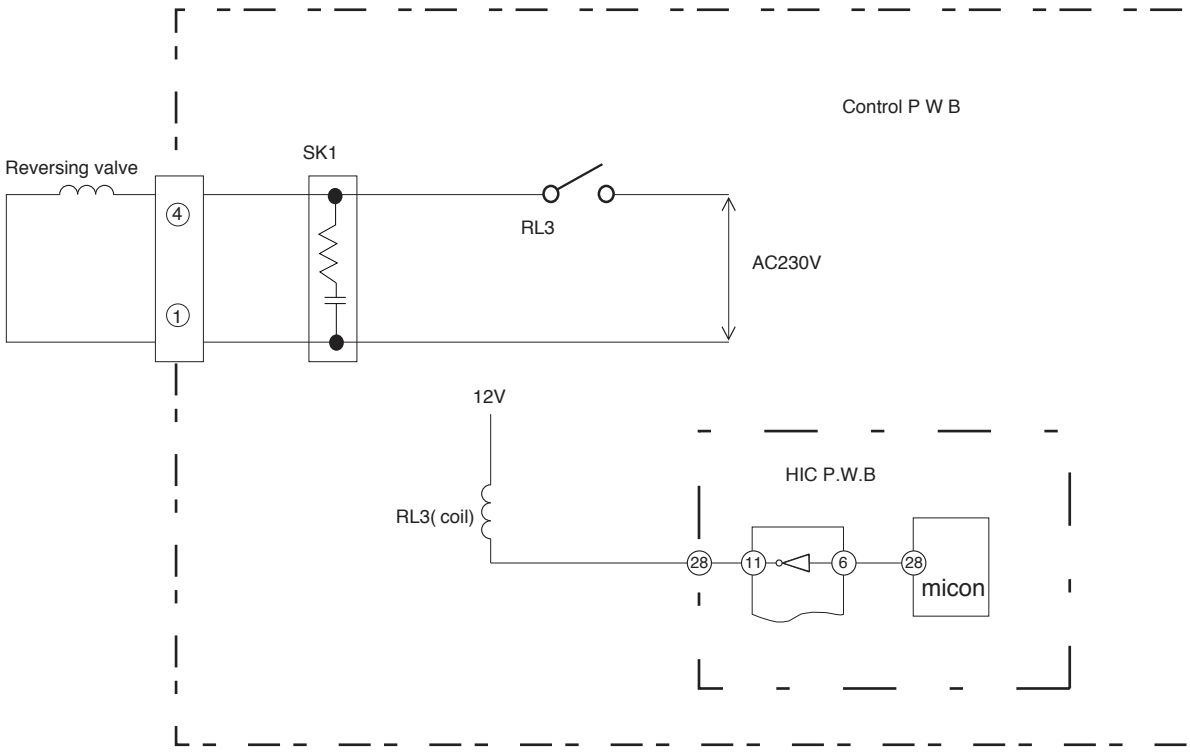


Fig.4-1

5. Temperature Detection Circuit

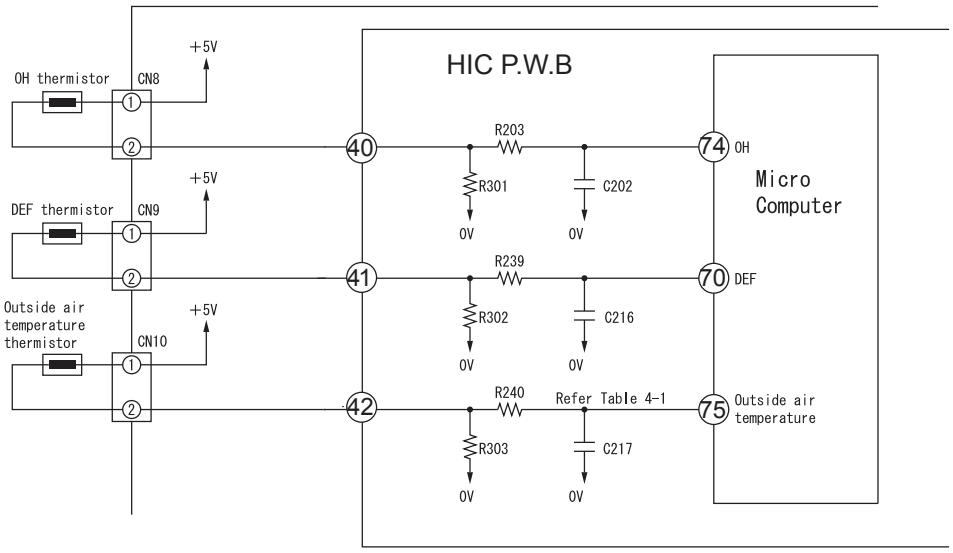


Fig.5-1

- OH thermistor circuit detect the temperature at the surface of compressor head, DEF thermistor circuit detect the defrosting operation temperature.
- A thermistor is a negative resistor element which has characteristics that the higher(lower) the temperature, the lower(higher) the resistance.
- When the compressor is heated, the resistance of the OH thermistor becomes low and ⊕ 5V is divided by OH thermistor and R301 and the voltage at pin ⑦④ of microcomputer.
- Compare the voltage at microcomputer pin ⑦④ and setting value stored inside. If the value exceed the set value, microcomputer will judge that the compressor is overheated and stop the operation.
- When frost is formed on the outdoor heat exchanger, the temperature at the exchanger drops abruptly. Therefore the resistance of the DEF thermistor becomes high and the voltage at pin ⑦⓪ of micro computer drops. If this voltage becomes lower than the set value stored inside, microcomputer will enter the defrost control.
- During defrost operation, the microcomputer will transfer the defrosting condition command to indoor unit via SDO pin of interface of IF transmission output.
- The microcomputer read the outdoor temperature by Outside Air thermistor and transfer it to the indoor unit, thus controlling the compressor rotation speed according to the set value in the EEPROM of indoor unit and switching the operation mode (outdoor fan on/off etc.) to DRY mode.
  Below table show the typical values of outdoor temperature in relation to the voltage.

Table 5-1

Outside Air Temperature (℃)	−10	0	10	20	30	40
Voltage at both side of R303 (V)	1.19	1.69	2.23	2.75	3.22	3.62

<Reference>

When the thermistor is open,open condition or disconnect, microcomputer pin⑦⓪⑦④⑦⑤are approx.0V;

When thermistor is shorted, they are approx.5V and LD301 will blink 7 times.

However, an error is detected when only the OH thermistor is shorted and will enter blinking mode after 12 minutes start the compressor operation.

6. Electric expansion valve circuit

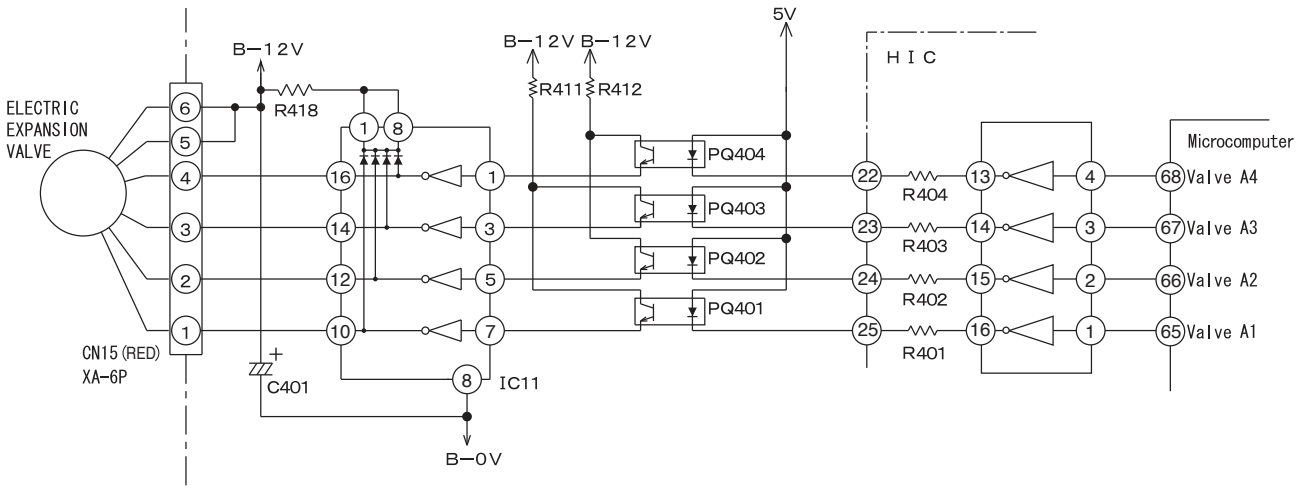


Fig. 6-1

- The electric expansion valve is driven by DC12V. Power is supplied to 1 or 2 phases of 4-phase winding to switch magnetic pole of winding in order to control the opening degree.
- Relationship between power switching direction of phase and open/close direction is shown below. When power is supplied, voltages at pins ④ to ① of CN15 are about 0.9V and 12V when no power is supplied. When power is reset, initial operation is performed for 10 or 20 seconds. During initial operation, measure all voltages at pin ④ to ① of CN15 by using a multimeter. If there is any pin with voltage that has not changed from 0.9V or 12V, expansion valve or microcomputer is broken.
- Fig. 5-2 shows logic waveform when expansion valve is operating.

Table 6-1

CN15 pin no.	Wire	Drive status							
		1	2	3	4	5	6	7	8
①	WHT	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
②	YEL	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
③	ORG	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
④	BLU	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

Operation mode
1→2→3→4→5→6→7→8 VALVE CLOSE
8→7→6→5→4→3→2→1 VALVE OPEN

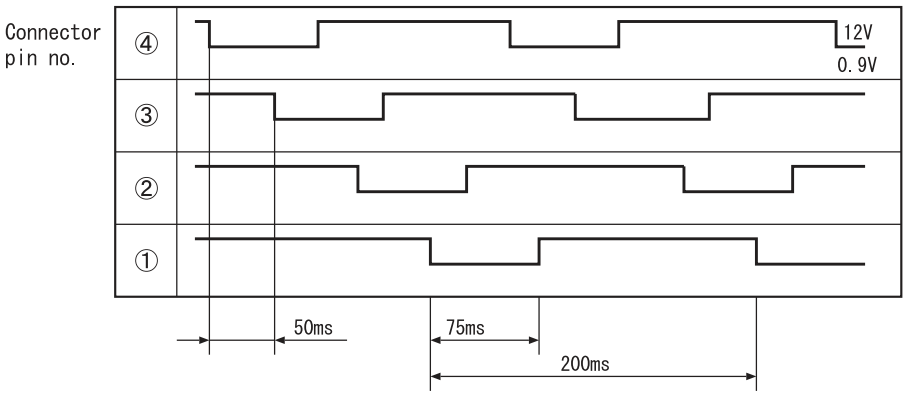


Fig. 6-2

With expansion valve control, opening degree is adjusted to stabilize target temperature by detecting compressor head temperature. The period of control is about once per 20 seconds and output a few pulse.

7. Outdoor DC fan motor control circuit

- This model is built with DC fan motor control circuit inside outdoor electrical unit.

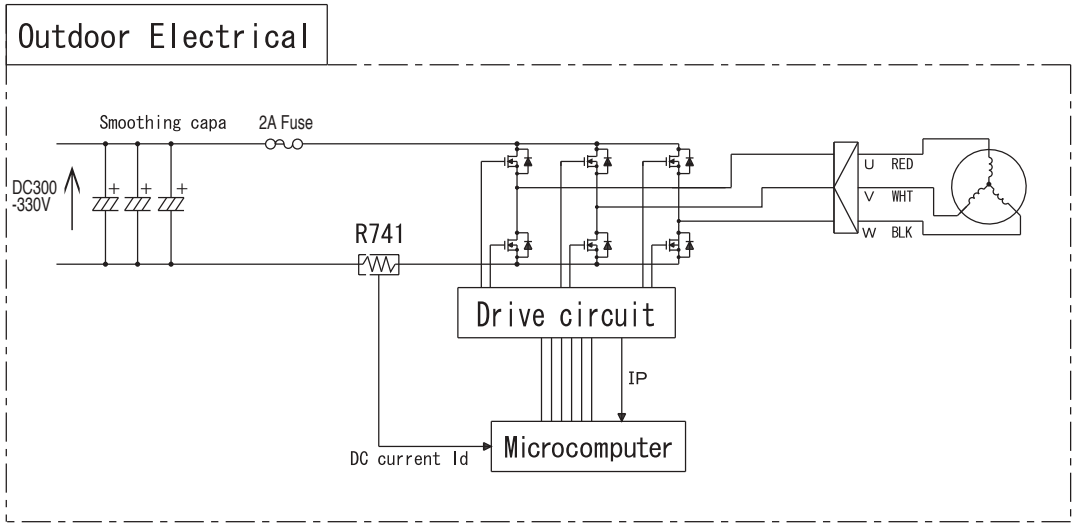


Fig 7-1

This DC fan motor is control by outdoor microcomputer that follow the operating instruction received from indoor microcomputer. The DC current that flow from R741 will presume actual operation speed and control the rotation to follow the operating instruction. Based on this DC current it will detect a over current and other fan motor failure.

(1) Fan motor speed controller during starting

Due to the interference of strong wind etc., operation movement is changed based on fan direction and rotation speed as shown below during starting of operation.

In addition, the fair wind is define as wind that blow to outside direction using Mouth Ring part.

At strong and contrary wind ...The rotational speed is not controlled as to protect the equipment and fan will rotate reversely depend on the wind. Automatically start when wind condition become weak.

At contrary wind ...The rotational speed is controlled in fair wind direction after it slowly reduce the speed and finally stop.

At fair wind ...The rotational speed is controlled as it is.

At strong fair wind ...The rotational speed is not controlled as to protect the equipment and fan will rotate reversely depend on the wind. Automatically start when wind condition become weak.

(2) Fan motor speed controller during unit operating

There is a case where fan rpm is reducing during rotating caused by interference of strong wind If this condition continue in long period, fan will stop rotating. (LD301 : 11 times blinking)

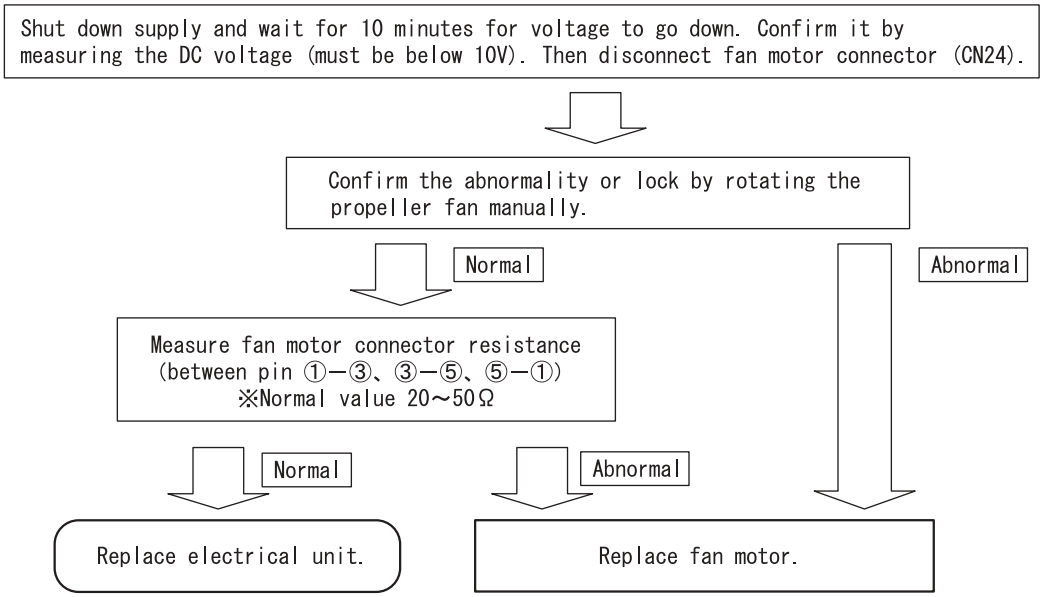
The unit will restart according to control as per during start (1).

(3) Method of confirming self diagnosis LD301 lamp : 12 times blinking

If the unit stop and LD301 on the pwb blinking 12 times [fan lock stop is detected], follow below steps to confirm it.

1. Fan lock stop is detected when something has disturb the fan rotation by inserting material into propeller fan or ice has growing inside outdoor unit caused by snow.
   Remove it if found something is bloking the fan.
2. Confirmed that CN24 connector is securely inserted. Fan lock stop is detected also when connector is not properly inserted. Please securely insert if found any disconnection.
3. Fan lock stop also can be detected where strong wind blown surrounding the unit.
   Please confirm after restart the unit.(It may take few minutes to operate the compressor)
   It is not a malfunction of electrical unit or fan motor if the unit run continuesly after restart the unit.
4. Check fan motor condition as below procedure.

[Checking Fan Motor] procedure



5. Reconnect again fan motor connector (CN24).

※Please confirm above checking procedure if found 2A fuse blown.
If fan motor is broken, replace both electrical unit and fan motor.

Caution

※Beware of electric shock due to high voltage when conducting an operation check.
Power supply for DC fan motor and compressor is common (DC300-330V).

SERVICE CALL Q&A

MODEL RAF-25/35/50RXB

Cooling operation

Q1 The compressor sometimes stops during cooling.

A1 Check if the heat exchanger of the indoor unit is covered with frost. Wait for 3 to 4 minutes until the frost disappears.

Cooling when the room temperature is low may cause the heat exchanger of the indoor unit to gather frost.

Dehumidification

Q1 The indoor unit produces a noise that goes “shaaahhh” during dehumidification.

A1 That is a noise produced by refrigerant flowing through the pipe.

Q2 Cold air comes out during a dehumidifying operation.

A2 To improve the dehumidification efficiency performs quiet fan operation. Therefore the air is cold and it is not a malfunction.

Q3 The operation does not stop even by setting the temperature higher than room temperature on the remote controller.

A3 It sets to perform dehumidifying operation by setting the temperature slightly lower than remote controller setting.

Heating operation

Q1 The product sometimes fails to produce a wind during heating.

A1 Defrosting is in progress. Wait 5 to 10 minutes until the dew on the outdoor unit disappears.

Q2 The product begins with a “Low” during heating even though set to “Hi” or “Med”.

A2 At the first of the heating, the product will run for 30 seconds with a “Low”. When set to “Hi”, the product will begin with a “Low” operation, producing a “Med” for 30 seconds, and then switch to “Hi”.

Q3 The product stops during heating even though it is set to “30℃”.

A3 When heating is conducted despite the high outdoor temperature, the product may stop to protect its equipment.

Auto-fresh defrost

Q1 During heating, I turned off the product by using the START/STOP button. But the “operation lamp” is blinking and the outdoor unit is running.

A1 The “auto-fresh defrost” should be working. When stopped, the product will check its outdoor unit for frost and, if there is any frost, conduct defrosting and then stop operating.

Automatic operation

Q1 How is the automatic operation mode determined?

A1 According to the room temperature, heating or cooling operation is automatically selected. Refer to the basic operation section.

Common, etc.

Q1 In “automatic fan speed” mode, the indoor fan changes from “Hi” to “Med” to “Low”.

A1 This does not abnormal. It is because the cold wind prevention is working.

In fan speed “automatic” mode, the product will sense the heat exchange temperature and, when the temperature goes down, the product will automatically switch to “Hi” to “Med” to “Low”.

Q2 At operation startup, the outdoor unit becomes noisy.

A2 At operation startup, the product will set the rotation speed of the compressor to full power and increase its heating and cooling capacity, resulting in a slightly higher noise level. This is not a sign of a breakdown.

Q3 The outdoor unit sometimes changes in its noise.

A3 The difference between the thermometer temperature setting and room temperature will change the rotation speed of the compressor. This is not a sign of a breakdown.

Q4 There is a difference between the temperature setting and room temperature in room temperature control.

A4 The room structure, air stream, or other factor may cause a gap between the room temperature setting and actual room temperature. If there is any difference between the setting and the room temperature, adjust the temperature setting to match the living space to a comfortable temperature.

Q5 The product will not produce wind right after startup.

A5 After turning ON the power switch or breaker, setting the product to heating or dehumidification will activate a preliminary operation for 1 minute. At that time, heating will cause the operation lamp to blink. This is not a sign of a breakdown.

Q6 I performed internal cleaning, but didn't succeed in controlling the mold in the room.

A6 Internal cleaning will clean the inside of the indoor unit of the air-conditioner, thereby controlling mold generation. This will not control the mold in the room.

Wireless remote control

Q1 The timer will not become set.

A1 Have you set the product to the current time? The timer cannot be set unless it is set to the current time.

Q2 The current time display will disappear at once.

A2 The current time disappears 10 seconds later. The timer set display is given priority.

When set to the current time setting, the reading blinks for about 3 minutes.

Q3 I made a timer “reservation”. But the time setting has disappeared.

A3 Is the time not past the reserved time?
The set time disappears when the current time reaches the reserved time.

Q4 I tried to set the “sleep” timer while the ON timer is reserved. But it will not set itself to a desired time.

A4 The time set in the “sleep” timer can be set with a time up to the time set with the ON timer. If the end time of the “sleep” timer is past the time set with the ON timer, you cannot make that setting.

Q5 I set the “sleep” timer during operation. But
① the indoor fan will not run (it will not produce wind)
② wind intensity will not change.

A5
① This occurs when the room temperature and humidity have reached their settings during dehumidification and the air-conditioner is in a pause. The product will begin again to run within about 3 minutes.
② The product will run with the wind speed set to a “quiet” state.

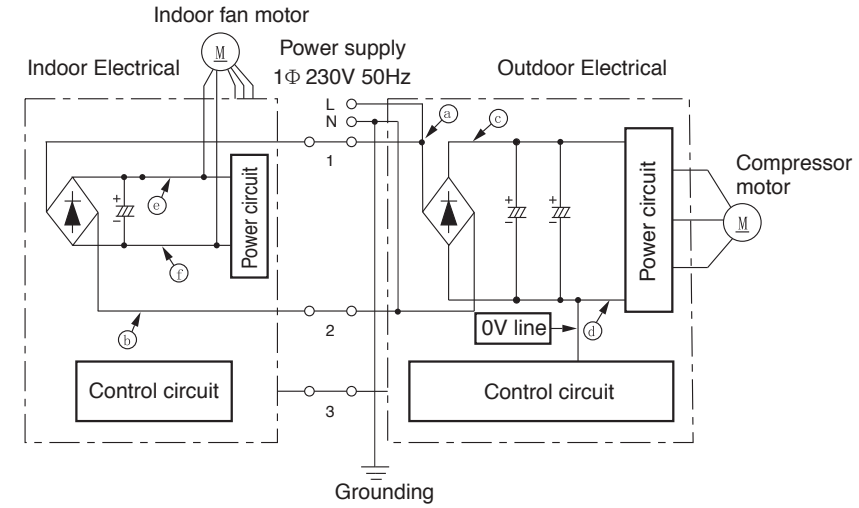
Q6 I tried to change the setting with the “room temperature” button of the remote control unit in vain.

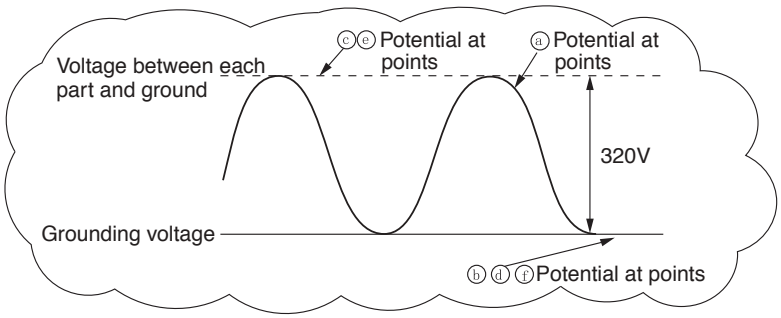
A6 You cannot make this setting when the product is in “air purification” mode. Moreover, you cannot set the product to a desired setting when quick laundry or dew control is being performed with the “auto” or “quick dehumidification” button.

Inspection instructions

Warning

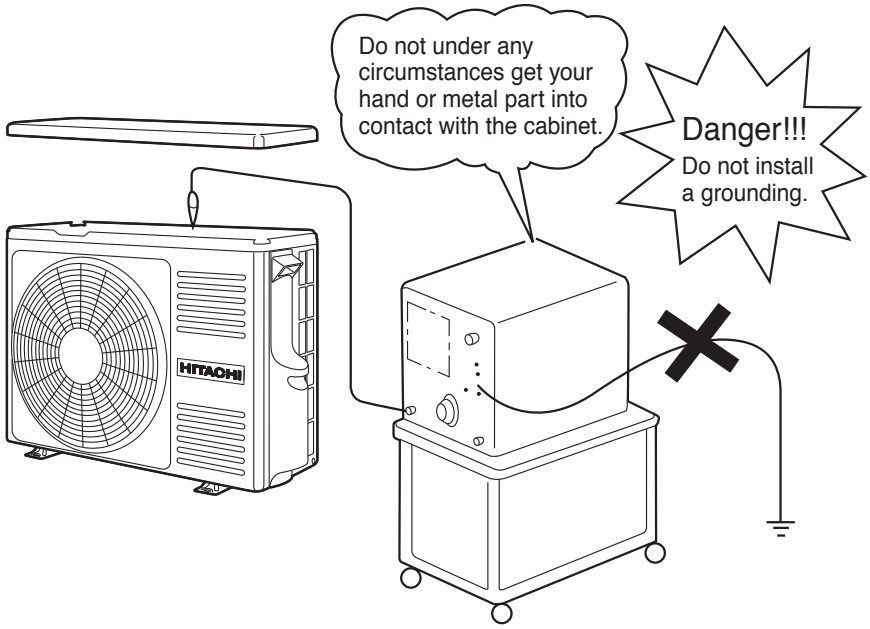
Note that the 0 V line of the outdoor electrical parts and the primary power circuit of the indoor electrical parts have voltages to ground as illustrated in the right-hand figure.





Warning

When conducting a check with an oscilloscope or something similar, do not ground the oscilloscope. Note that the oscilloscope will be subjected to voltages as illustrated in the figure above.



DISCHARGE, PROCEDURE AND POWER SHUT OFF METHOD FOR POWER CIRCUIT

⚠ WARNING

Caution

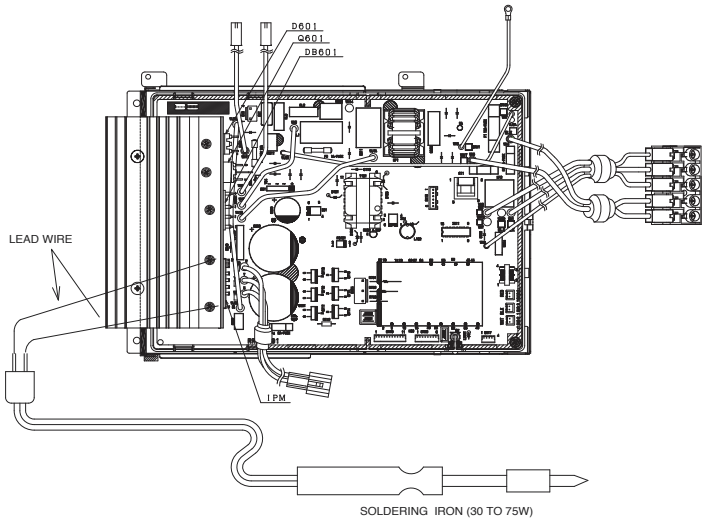
- Voltage of about 350 V is charged between the terminal of smoothing capacitors (375μF x 2).
- During continuity check for each circuit part of the outdoor unit, be sure to discharge the smoothing capacitors.

Discharge Procedure

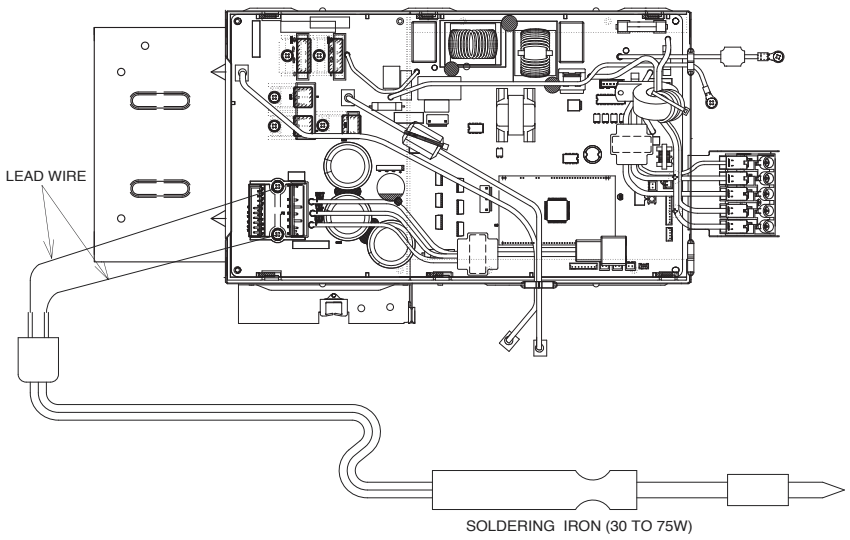
1. Turn off the power.
2. After power is turned off, wait for 10 minutes or more. Then, remove electrical parts cover and apply soldering iron of 30 to 75 W for 15 seconds or more to IPM(25) and IPM(33) terminals on the main P.W.B. as shown in the figure below, in order to discharge voltage in smoothing capacitor.

Do not use a soldering iron with transformer: Otherwise, thermal fuse inside transformer will be blown.

RAC-25FXB, RAC-35FXB

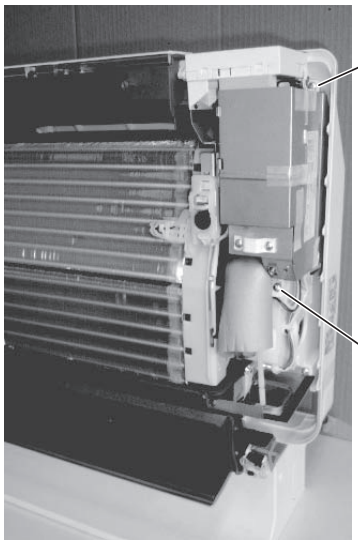


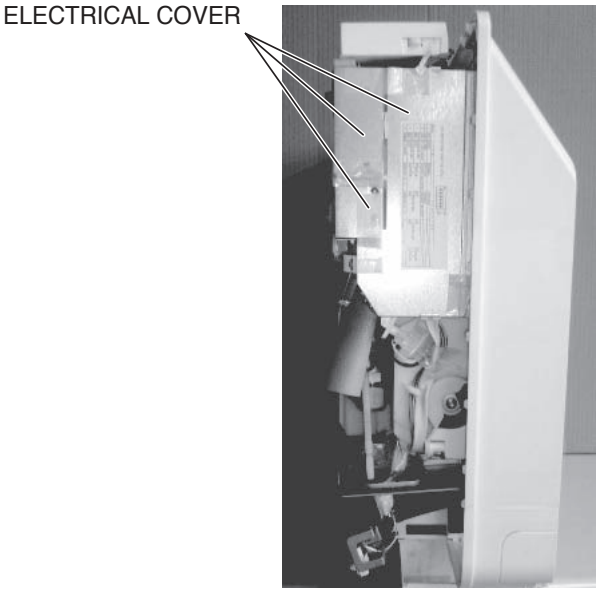
RAC-50FXB



STRUCTURE OF AN INDOOR UNIT ELECTRIC PARTS

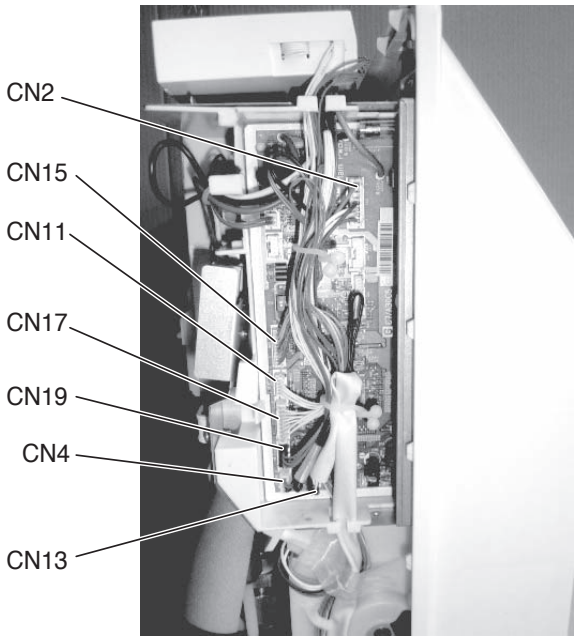
RAF-25/35/50RXB





Removing electrical parts

1. Remove the electrical parts cover.
2. Remove the connectors from the CN4 (heat exchange thermistor), CN15 (stepping motor), CN19 (stepping motor), CN2 (fan motor), and CN17 (humidity thermistor).
3. Remove two lock screws.



Removing receiver

1. Remove the connectors from the CN13.

Removing the indicating P.W.B.

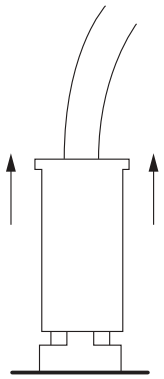
1. Remove the connector from the CN11 on the control P.W.B.

Other instructions

(1) Detaching and reattaching the receptacles for tab terminal

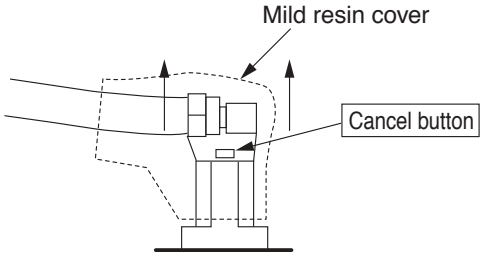
All the receptacles for connecting tab terminals are with a locking mechanism. Forcibly pulling any such receptacle without unlocking it will destroy it. Be on guard.
When reconnecting it, insert it securely all the way home.

· Receptacle types and how to unlock them



Vertical (with a resin case)

Hold the resin case and pull it out.



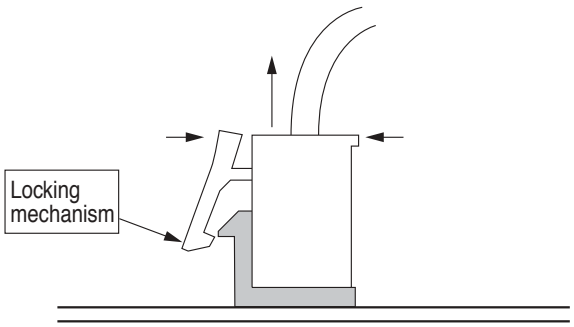
Horizontal (with a mild resin cover)

Hold the cancel button down on the mild resin cover while pulling it out.

(2) Detaching and reattaching the board connector

The product comes equipped with many board connectors provided with lock mechanism. Forcibly pulling any such part without unlocking it will destroy it. Be on guard. When reconnecting it, insert it securely all the way home.

Pinch the locking mechanism with your fingers and pull it out unlocked.



(3) Do not detach or reattach the connectors while energized

Do not under any circumstances detach or reattach the connectors while energized. That would destroy the board components and fan motor. For both the indoor and outdoor boards, ensure that the smoothing capacitor has discharged its electricity fully before you do your work.

Troubleshooting support

№	Function	Description
1	Self-diagnosis display [Display on the indoor unit side]	· The failure mode detected on the indoor unit side is displayed by blinking the "timer lamp". And a failure detected on the outdoor unit side will be indicated by the "time lamp" blinking 4 times. · If the outdoor unit side detects a failure, the product will first conduct several operation retrials. There are some failure modes with no lamp display while retrials are continued. [Failure mode where retrials are continued and the indoor unit lamp does not end up giving a display] OH thermistor heat-up Overload lower limit cut Low-frequency things
	[Display on the outdoor unit side]	· The failure mode detected on the outdoor unit side is displayed by blinking the "LD301". Detecting a failure will stop the outdoor unit and keep blinking the LD301 until it is restarted. (The communication error will persist until the communication is reestablished.)
2	Self-diagnosis memory	· The failure modes detected on the indoor and outdoor unit sides are stored in the nonvolatile memory of the indoor unit and can be read later on. (The memory will remain even after power-off.) · The failure modes detected on the outdoor unit side are written in memory every time any such mode occurs. The failure mode can therefore be detected on the indoor unit side without waiting for the retry frequency to reach the display of the indoor unit lamp. Moreover, the normal self-diagnosis display function which rarely occurs will store and display failure modes that do not end up displaying the indoor unit lamp. (Any such mode may be unable to be stored if indoor or outdoor communications is in a failure.) · The product stores 5 last-stored failure modes. · There is a function for deleting memory. Once you clear the memory and run the product for several days, you can read the failure modes and check them, thereby detecting the less frequent failure phenomena. · Failure modes can be checked by both the blinking of the lamp of the indoor unit and the display of the remote control liquid crystal display.

※The "self-diagnosis function of the communication circuit" available in our conventional models is now incorporated as part of the normal self-diagnosis function. In the case of a failure in the communication circuit, you do not have to conduct a special operation and the operations can be automatically divided into 3 blinking operations and 12 blinking operations of the timer lamp. However, a strong external noise may have resulted in 12 times of blinking.

Self-diagnosis display function (indoor side display)

While the "timer lamp" (orange), of the indoor unit is blinking, troubleshoot the product while referring to the table below.

1. How to count the lamp blinking frequency
   - The product will repeat blinking with 2-second intermissions.
   - The blinking speed is as follows: on for 0.35 seconds and off for 0.35 seconds.

[An example of 5-time blinking]

2. If you wish to try another operation while the lamp is blinking, operate the START/STOP button on the remote control unit twice. The first push will reset the indoor microcomputer, while the second will activate the product

DESCRIPTION OF THE SELF-DIAGNOSIS INDICATION

REFER TO THE TABLE BELOW IF THE TIMER INDICATOR (ORANGE) IS BLINKING.

LAMP BLINKING MODE		MAIN DEFECTIVE
2 sec ----------	ONCE	REFRIGERANT CYCLE DEFECTIVE
2 sec ----------	2 TIMES	FORCED COOLING OPERATION
2 sec ----------	3 TIMES	INTERFACE DEFECTIVE(INDOOR)
2 sec ----------	4 TIMES	OUTDOOR UNIT DEFECTIVE
2 sec ----------	9 TIMES	INDOOR THERMISTOR DEFECTIVE
2 sec ----------	10 TIMES	ABNORMAL ROTATING NUMBERS OF DC FAN MOTOR
2 sec ----------	12 TIMES	INTERFACE DEFECTIVE(OUTDOOR)
2 sec ----------	13 TIMES	IC531 DEFECTIVE

(---------- LIGHTS FOR 0.35 SEC AT INTERVAL OF 0.35 SEC.)

*IF THE INTERFACE CIRCUIT IS DEFECTIVE WHEN THE POWER IS TURNED ON, THE SELF-DIAGNOSIS INDICATION WILL NOT WORK.

*IF THE INDOOR UNIT CAN NOT BE OPERATED AT ALL, REFER TO THE TABLE BELLOW.

CHECK POINT	ACTION/REPLACEMENT PARTS,etc
FU1(3.15A)FUSE BLOWN	REPLACE THE PART WHICH CAUSED BLOWING /DISCONNECTION OF FU1(3.15A)FUSE
COME OFF OR DISCONNECTION OF THE CONNECTOR FOR LIGHT RECEIVING UNIT AND SWITCH P.W.B	FIX CN13 AND CN17 CONNECTOR
FAILURE OF CONTROL P.W.B	REFER TO THE SERVICE GUIDE FOR HOW TO DETERMINE THE FAILED PART

SELF-DIAGNOSIS MEMORY FUNCTION

Failure modes are stored in the nonvolatile memory of indoor unit and shall be redisplayed by remote controller.

This function is useful in checking the failure modes either during switching OFF the power or restarting the device without checking the number of indication lamp blinking . Remote controller can redisplay up to last 5 failure modes from the memory. However, failure modes which are rarely to occur are also stored in the memory which caused the numbers of failure more than 5. Thus, for some failure modes which are unable to retrive because of remote controller limit to redisplay only 5 failure modes, it can be found by clearing up the memory first then recheck the memory content again during the visit at the customer place.

< How to redisplay failure diagnosis >

1. Turn the circuit breaker OFF.
2. Set the remote controller to OFF condition, indicated by OFF on the display.
3. By pressing MODE (MODE) button on the remote controller, set to Cooling operation indicated by (COOL).
4. Turn the circuit breaker ON.
5. Set the room temperature setting on the remote controller to 32˚C by pressing the (TEMP ﹀ or ﹀) button.
6. Set the fan speed with the FAN (FAN SPEED) button according to the desired failure information. (Refer to the corresponding table below)

Fan speed settings for failure data

Fan Speed	Data
AUTO	Newest
HI	Second newest
MED	Third newest
LOW	Fourth newest
SILENT	Oldest

7. While directing the remote controller towards the receiver of the indoor unit, press (TEMP ﹀) button and ⏻ (START/STOP) button simultaneously. (The remote controller perform signal transmission with the device.)
8. The device beeps [Pi-] to indicate that it has just received the signal to redisplays the failure mode.
9. Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press the INFO (INFO) button. Wait for 2 seconds for signal transmission. An error code will be displayed on the remote controller display.

< How to clear the troubleshooting data >

1. Redisplay the troubleshooting status. (See the above procedure.)
2. Turn the circuit breaker OFF.
3. By pressing MODE (MODE) button on the remote controller, set to Heating operation indicated by (HEAT).
4. Turn the circuit breaker ON.
5. Set the room temperature setting on the remote controller to 16˚C by pressing the (TEMP ﹀ or ﹀) button.
6. While directing the remote controller towards the receiver of the indoor unit, press (TEMP ﹀) button and ⏻ (START/STOP) button simultaneously. (The remote controller perform signal transmission with the device.)
7. The product beeps for a second [Pi--] to indicated that it has just received the signal. The data has now been cleared.

< How to display error code in case of failure just occurs>

If timer lamp of the indoor unit blinking and operation stops, please perform below procedures.

1. Direct the remote controller towards the receiver of indoor unit (within 2m in front of the indoor unit) and press INFO (INFO) button.
2. Wait for 2 seconds for signal transmission.
3. Indication of error code will be shown on the remote controller display for 10 seconds.

For example :

For details information regarding error code, please refer to page 91 .

	TIMER LAMP BLINKING	LD301 BLINKING	CODE	MEANING	DETAILS	MAIN CHECK POINT
INDOOR	-	-	000 00	Normal		
	1 time	-	001 00	Refrigerant cycle fault	When the indoor heat exchanger temperature is too low in the heating mode or it is too high in the cooling mode.	1. Reversing valve defective 2. Heat exchanger thermistor disconnected. (only in heating mode)
	2 times	-	-	Outdoor unit is under forced operation.	It is not failure. Outdoor unit is in forced operation or balancing operation after forced operation.	1. Electrical parts in the outdoor unit.
	3 times	-	003 00	Communication error between indoor and outdoor units.	Interface signal from the outdoor unit is interrupted.	1. Indoor interface circuit 2. Outdoor interface circuit
	9 times	-	009 00	Indoor thermistor	Room thermistor or heat exchanger thermistor is opened circuit or short circuit.	1. Room thermistor 2. Heat exchanger thermistor
	10 times	-	010 00	Abnormal rotating numbers of DC fan motor	Overcurrent is detected at the DC fan motor of the indoor unit.	1. Indoor interface circuit 2. Outdoor interface circuit 3. Indoor control P.W.B
	13 times	-	013 00	IC531 data reading error	When data read from IC401 or IC531 is incorrect.	1. IC531 or IC402 abnormal
OUTDOOR	4 times	2 times	002 01	Peak current cut	Over current is detected.	1.Compressor 2. P.W.B.s
	4 times	3 times	003 01	Compressor abnormal low speed rotation	Position detection signal is not input during operation.	1. P.W.B.s 2.Compressor
	4 times	4 times	004 01	Compressor switching failure	Fail to switch from initial low frequency sync to position detection sync.	1. P.W.B.s 2.Compressor
	4 times	5 times	005 01	Overload lower limit cut	Overload condition still persisting even when rotation speed is below the lower rpm limit.	1. Outdoor unit is exposed to direct sunlight or its air flow blocked. 2. Fan motor 3. Fan motor circuit 4. The voltage is extremely low.
	-	6 times	006 01	OH thermistor temperature rise	OH thermistor is operating.	1. Leak of refrigerant 2. Compressor 3. OH thermistor circuit 4. Fan motor 5. Fan motor circuit
	4 times	7 times	007 01	Abnormal outdoor thermistor	Thermistor is opened or shorted.	1. Thermistor 2. Connection of thermistor is faulty 3. Thermistor circuit
	4 times	8 times	008 01	Acceleration defective		
	-	9 times	009 01	Communication error	When indoor unit is not connected, it blinks similarly, not malfunction.	1. Cable is wrong connected 2. Cable is open 3. Interface circuit between indoor and outdoor unit
	-	10 times	010 01	Abnormal power source	Power supply voltage is incorrect.	1. Power supply voltage 2. Receptacle of wire for P.W.B IPM is not properly inserted
	-	11 times	011 01	Fan stop for strong wind	Fan motor load is too heavy or rotation disturbed by wind blow.	1. Fan motor 2. Outdoor condition (wind)
	4 times	12 times	012 01	Fan motor fault	Outdoor fan rpm is not rotate as intended rpm.	1. Fan motor 2. Fan motor circuit
	4 times	13 times	013 01	EEPROM reading error	Microcomputer cannot read the data in EEPROM.	1. P.W.B main
	4 times	14 times	014 01	Active converter defective	Over voltage is detected, compressor abnormal load.	1. P.W.B.s 2. Compressor
	4 times	15 times	015 01	Abnormal PWB circuit	Active circuit abnormal.	1. P.W.B.s
	-	16 times	016 01	Software peak current cut		

< Cautions >

This function is effective only once immediately after the power is turned on. It will not work if you have performed another remote control operation beforehand. Note also that it may not function in response to a procedure other than the above. (If it does not work, turn off the power, turn it back on and repeat the procedure.)

If the memory stores nothing, performing a redisplay operation will not blink the lamp.

For a normal operation, turn off the power and turn it back on. After the above operation, the product will not receive a remote control signal normally.

After clearing the troubleshooting data, turn off the power. (If you do not turn off the power, the product will become unresponsive to remote control signals.)

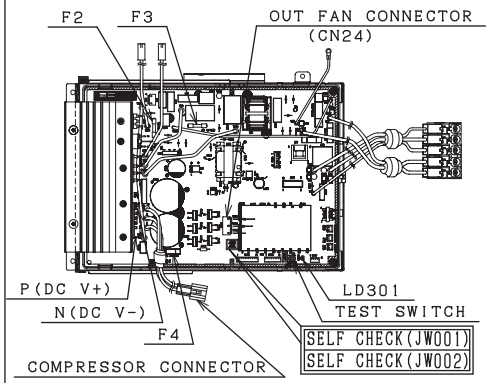
SELF-DIAGNOSIS LIGHTING MODE

MODEL RAC-25/35FXB

⚠⚠ DANGER (DC350V)

- CUT THE POWER SOURCE AND WAIT MORE THAN 10 MINUTES BEFORE SERVICE WORK.

- CONFIRM THE DC VOLTAGE AT THE MEASURING POINT SHOWN IN BELOW FIGURE MUST BE LESS THAN 10V.



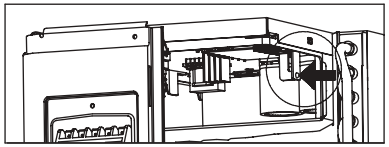
※OTHERS CHECK POINTS

1. DIAGNOSIS FOR 『REVERSING VALVE OPERATION ERROR』 ;
⇒CHECK REVERSING VALVE WIRE CONNECTION EITHER WIRE BROKEN OR NOT. IF OK CHECK 3, 15A FUSE. IF BROKEN REPLACE FUSE.
2. 『WHEN DISPLAY THE COMMUNICATION ERROR OR THE OUTDOOR DO NOT RUN AT ALL』.
⇒PLEASE CHECK THE CONTINUITY OF THE INDOOR⇔OUTDOOR CONNECTING CORD(F CABLE).

『OUTDOOR FAN MOTOR CHECK』DIAGNOSIS METHOD

1. PUT THE POWER OFF.
2. REMOVE THE OUTDOOR FAN MOTOR'S CONNECTOR FROM" CN24
3. ROTATE THE FAN MOTOR BY HAND AND CHECK WHETHER THE FAN MOTOR IS LOCKED OR NOT.
4. MEASURE THE RESISTANCE BETWEEN EACH TERMINAL OF THE FAN MOTOR CONNECTOR. NORMAL RESISTANCE BETWEEN EACH TERMINAL: 20~50Ω

※INSERT THE FAN MOTOR'S CONNECTOR AFTER FINISHING STEPS 1 TO 4.



DURING STOP	
LD301 LIGHT	CONTENTS
2 SEC LIGHTING AND 0.3 SEC LIGHTS OUT REPETITION	NORMAL OPERATION
	OVERLOAD OPERATION (NORMAL OPERATION)

IN CASE OF DIFFICULT TO JUDGE THE ABNORMAL WITH ODU CONTROLLER OR THE COMP., BLINKING IN 2, 3, 4 OR 5 TIMES AT SELF-DIAGNOSIS IN THE STOPPING STATUS, PLEASE PERFORM THE MEGA CHECK AND CONFIRM THE INSULATION WITH THE COMPRESSOR. AS THERE IS NOT ABNORMAL FOR THE INSULATION WITH COMPRESSOR, PLEASE PERFORM 『SELF-CHECK』.

『SELF-CHECK』DIAGNOSIS METHOD

1. PUT THE POWER OFF.
2. CUTTING 『JW001』BY NIPPER OR BEING SHORT CIRCUIT BETWEEN 『JW001』AND『JW002』(FASTEN TOGETHER WITH A CLIP).
3. PUT THE POWER ON AND OPERATE INDOOR UNIT WITH VENTILATION MODE.
4. PRESS TEST/SERVICE SWITCH FOR 1 SECOND OR MORE (WITHIN 3 MINUTES).
5. SELF-CHECK RESULT WILL DISPLAY AT LD301. SEE THE ABOVE TABLE(『SELF-CHECK』DIAGNOSIS RESULT) FOR THE DETAIL.
6. PUT THE POWER OFF, THEN RELEASE BACK JW001 AND JW002 TO ORIGINAL CONDITION (NO SHORT CIRCUIT CONDITION).

※IF FORGET TO RELEASE BACK JW001 AND JW002, THE TIMER LAMP OF THE INDOOR UNIT BLINKS 12 TIMES.

『SELF-CHECK』 DIAGNOSIS RESULT

SELF-DIAGNOSIS BLINKING MODE ▨:BLINK

LD301 (RED)	SELF-DIAGNOSIS CONTENTS	HOW TO REPIAR
▨ ONCE	NOT CONTROLLER DEFECTIVE	·CHANGE THE COMPRESSOR
▨ 2 TIMES	FOUND PEAK CURRENT ERROR	·CHANGE ODU CONTROLLER
▨ 7 TIMES	COMPRESSOR CURRENT ABNORMAL	·CHECK THE COMPRESSOR ·CONNECTOR AND CONNECT IT PROPERLY ·IF ABOVE ARE OK, CHANGE THE ODU CONTROLLER
▨ 10 TIMES	ABNORMAL DC VOLTAGE	·REACTOR IS DISCONNECTION, →CONNECT IT PROPERLY ·IF AC VOLTAGE INPUT ABNORMAL (OVER STANDARD VOLTAGE±10%) →FOLLOW STANDARD AC VOLTAGE INPUT ·IF AC VOLTAGE INPUT IS NORMAL (WITHIN±10%)→CHANGE P.W.B
▨ 13 TIMES	EEPROM READING ERROR	·CHANGE ODU CONTROLLER

RIGHT SIDE ARROW INDICATE THE POSSITION OF TEST SWITCH LEVER ON THE SIDE PANEL (SHOWN IN LEFT FIGURE.)

DURING STOP

SELF-DIAGNOSIS BLINKING MODE ▨:BLINK □:OFF

LD301 (RED)	SELF DIAGNOSIS CONTENTS	MAIN CHECK POINT	HOW TO REPAIR
□ OFF	NORMAL STOP (STOPPED BY INDOOR THERMO-STAT OR MAIN OPERATION OFF)	1. NO NEED TO CHECK ⟹	1. NOT ANY MALFUNCTION
▨ ONCE	FAN MODE OPERATION, RESET STOP	1. INDOOR AIR CLEAN OPERATION ⟹ 2. OTHER CAUSE ⟹	1. NOT ANY MALFUNCTION 2. CHANGE ODU CONTROLLER
▨ 2 TIMES	PEAK CURRENT CUT	1. ODU CONTOROLLER DEFECTIVE ⟹ 2. COMPRESSOR ABNORMAL LOAD ⟹	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 3 TIMES	ABNORMAL LOW SPEED ROTATION	1. ODU CONTROLLER DEFECTIVE ⟹ 2. COMPRESSOR ABNORMAL LOAD ⟹	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 4 TIMES	SWITCHING FAILURE	1. COMPRESSOR CONNECTOR OPEN ⟹ 2. COMPRESSOR ABNORMAL LOAD ⟹ 3. ODU CONTROLLER DEFECTIVE ⟹	1. INSERT THE CONNECTOR 2. CHECK THE COMPRESSOR 3. CHANGE ODU CONTROLLER
▨ 5 TIMES	OVERLOAD LOWER LIMIT CUT	1. OBSTACLE SURROUND ⟹ THE ODU MAY CAUSE 2. OTHER CAUSE ⟹	1. REMOVE THE OBSTRUCTION 2. CHECK CYCLE PIPE
▨ 6 TIMES	OH THERMISTOR TEMPERATURE RISE	1. DUE TO OPEN CONNECTOR ⟹ 2. LEAKAGE OF REFRIGERANT ⟹ 3. OTHER CAUSE ⟹	1. INSERT THE CONNECTOR 2. CHECK THE CYCLE PIPE AND RECHARGE THE REFRIGERANT 3. CHANGE ODU CONTROLLER
▨ 7 TIMES	THERMISTOR ABNORMAL	1. CONNECTOR INSERT MISS ⟹ 2. OPEN CIRCUIT/SHORT CIR-CUIT OF THERMISTOR WIRE ⟹ 3. ODU CONTROLLER DEFECTIVE ⟹	1. INSERT PROPERLY 2. CHANGE THE THERMISTOR 3. CHANGE ODU CONTROLLER
▨ 9 TIMES	COMMUNICATIONS ERROR	1. F CABLE MISS CONNECTION ⟹ 2. F CABLE DISCONNECTION ⟹ 3. ODU CONTROLLER DEFECTIVE ⟹	1. F CABLE CONNECT PROPERLY 2. CHANGE THE F CABLE 3. CHANGE ODU CONTROLLER
▨ 10 TIMES	ABNORMAL POWER SOURCE	1. REACTOR IS UNCONNECTED ⟹ 2. ABNORMAL AC INPUT: ⟹ OUT OF THE RANGE (230±10%) 3. AC INPUT IS NORMAL ⟹	1. CONNECT REACTOR PROPERLY 2. CONNECT TO NORMAL AC POWER SOURCE 3. CHANGE ODU CONTROLLER
▨ 11 TIMES	ODU FAN STOP BY STRONG REVERSE WIND	1. OUTDOOR FAN STOP BY ⟹ STRONG REVERSE WIND	1. IT WILL RE-START AFTER THE WIND BECOME WEAK
▨ 12 TIMES	OUTDOOR FAN LOCK ERROR	1. OUTDOOR FAN STOP BY ⟹ STRONG REVERSE WIND 2. PROPELLER FAN LOCK ⟹ 3. OUTDOOR FAN MOTOR LOCK ⟹ 4. OUTDOOR FAN MOTOR OK ⟹	1. AUTOMATICALLY RE-START AFTER WIND BECOME WEAK 2. REMOVE THE OBSTRUCTION 3. CHANGE THE FAN MOTOR 4. CHANGE ODU CONTROLLER
▨ 13 TIMES	EEPROM READ ERROR	·CHANGE OUTDOOR UNIT CONTROLLER	
▨ 14 TIMES	ACTIVE VOLTAGE ABNORMAL	1. ABNORMAL OUTDOOR CONTROLLER ⟹ 2. ABNORMAL COMPRESSOR LOAD ⟹	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 16 TIMES	HIGH LORD STOP	1. SERVICE VALVE CLOSE ⟹ 2. OBSTACLE SURROUND ⟹ THE ODU UNIT MAY CAUSE 3. CLOGGED FILTER IN INDOOR UNIT CAUSE. ⟹	1. CHECK SURVICE VALVE 2. REMOVE THE OBSTRUCTION 3. CHECK FILTER

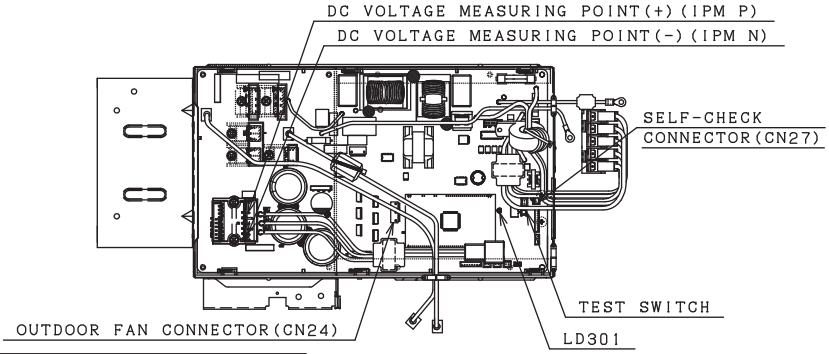
SELF-DIAGNOSIS LIGHTING MODE

MODEL RAC-50FXB

⚠ DANGER(DC350V)

- CUT THE POWER SOURCE AND WAIT MORE THAN 10 MINUTES BEFORE SERVICE WORK.
- CONFIRM THE DC VOLTAGE AT THE MEASURING POINT SHOWN IN BELOW FIGURE MUST BE LESS THAN 10V.

DURING STOP	
LD301	CONTENTS
LIGHT	NORMAL OPERATION
2 SEC LIGHTING AND 0.3 SEC LIGHTS OUT REPETITION	OVERLOAD OPERATION(NORMAL OPERATION)



DURING STOP

SELF-DIAGNOSIS BLINKING MODE ▨:BLINK □:OFF

LD301 (RED)	SELF DIAGNOSIS CONTENTS	MAIN CHECK POINT	HOW TO REPAIR
□ OFF	NORMAL STOP (STOPPED BY INDOOR THERMO-STAT OR MAIN OPERATION OFF)	1. NO NEED TO CHECK	1. NOT ANY MALFUNCTION
▨ ONCE	FAN MODE OPERATION, RESET STOP	1. INDOOR AIR CLEAN OPERATION 2. OTHER CAUSE	1. NOT ANY MALFUNCTION 2. CHANGE ODU CONTROLLER
▨ 2 TIMES	PEAK CURRENT CUT	1. ODU CONTOROLLER DEFECTIVE 2. COMPRESSOR ABNORMAL LOAD	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 3 TIMES	ABNORMAL LOW SPEED ROTATION	1. ODU CONTROLLER DEFECTIVE 2. COMPRESSOR ABNORMAL LOAD	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 4 TIMES	SWITCHING FAILURE	1. COMPRESSOR CONNECTOR OPEN 2. COMPRESSOR ABNORMAL LOAD 3. ODU CONTROLLER DEFECTIVE	1. INSERT THE CONNECTOR 2. CHECK THE COMPRESSOR 3. CHANGE ODU CONTROLLER
▨ 5 TIMES	OVERLOAD LOWER LIMIT CUT	1. OBSTACLE SURROUND THE ODU MAY CAUSE 2. OTHER CAUSE	1. REMOVE THE OBSTRUCTION 2. CHECK CYCLE PIPE
▨ 6 TIMES	OH THERMISTOR TEMPERATURE RISE	1. DUE TO OPEN CONNECTOR 2. LEAKAGE OF REFRIGERANT 3. OTHER CAUSE	1. INSERT THE CONNECTOR 2. CHECK THE CYCLE PIPE AND RECHARGE THE REFRIGERANT 3. CHANGE ODU CONTROLLER
▨ 7 TIMES	THERMISTOR ABNORMAL	1. CONNECTOR INSERT MISS 2. OPEN CIRCUIT/SHORT CIR-CUIT OF THERMISTOR WIRE 3. ODU CONTROLLER DEFECTIVE	1. INSERT PROPERLY 2. CHANGE THE THERMISTOR 3. CHANGE ODU CONTROLLER
▨ 9 TIMES	COMMUNICATIONS ERROR	1. F CABLE MISS CONNECTION 2. F CABLE DISCONNECTION 3. ODU CONTROLLER DEFECTIVE	1. F CABLE CONNECT PROPERLY 2. CHANGE THE F CABLE 3. CHANGE ODU CONTROLLER
▨ 10 TIMES	ABNORMAL POWER SOURCE	1. REACTOR IS UNCONNECTED 2. ABNORMAL AC INPUT: OUT OF THE RANGE (230±10%) 3. AC INPUT IS NORMAL	1. CONNECT REACTOR PROPERLY 2. CONNECT TO NORMAL AC POWER SOURCE 3. CHANGE ODU CONTROLLER
▨ 11 TIMES	ODU FAN STOP BY STRONG REVERSE WIND	1. OUTDOOR FAN STOP BY STRONG REVERSE WIND	1. IT WILL RE-START AFTER THE WIND BECOME WEAK
▨ 12 TIMES	OUTDOOR FAN LOCK ERROR	1. OUTDOOR FAN STOP BY STRONG REVERSE WIND 2. PROPELLER FAN LOCK 3. OUTDOOR FAN MOTOR LOCK 4. OUTDOOR FAN MOTOR OK	1. AUTOMATICALLY RE-START AFTER WIND BECOME WEAK 2. REMOVE THE OBSTRUCTION 3. CHANGE THE FAN MOTOR 4. CHANGE ODU CONTROLLER
▨ 13 TIMES	EEPROM READ ERROR	·CHANGE OUTDOOR UNIT CONTROLLER	
▨ 14 TIMES	ACTIVE VOLTAGE ABNORMAL	1. ABNORMAL OUTDOOR CONTROLLER 2. ABNORMAL COMPRESSOR LOAD	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
▨ 15 TIMES	CIRCUIT ABNORMAL	·CHANGE OUTDOOR UNIT CONTROLLER	
▨ 16 TIMES	HIGH LORD STOP	1. SERVICE VALVE CLOSE 2. OBSTACLE SURROUND THE ODU UNIT MAY CAUSE 3. CLOGGED FILTER IN INDOOR UNIT CAUSE.	1. CHECK SURVICE VALVE 2. REMOVE THE OBSTRUCTION 3. CHECK FILTER

※EXAMPLE OF BLINKING (5TIMES) ▨▨▨▨▨ 2SEC □ (▨··LIGHTS FOR 0.25 SEC AT INTERVAL OF 0.25 SEC.) ODU:OUTDOOR UNIT

※OTHERS CHECK POINTS

1. DIAGNOSIS FOR 『REVERSING VALVE OPERATION ERROR』 ;
⇒CHECK REVERSING VALVE WIRE CONNECTION EITHER WIRE BROKEN OR NOT. IF OK CHECK 3.15A FUSE. IF BROKEN REPLACE FUSE
2. 『WHEN DISPLAY THE COMMUNICATION ERROR OR THE OUTDOOR DO NOT RUN AT ALL』,
⇒PLEASE CHECK THE CONTINUITY OF THE INDOOR ⇔ OUTDOOR CONNECTING CORD(F CABLE).

IN CASE OF DIFFICULT TO JUDGE THE ABNORMAL WITH ODU CONTROLLER OR THE COMP., BLINKING IN 2, 3, 4 OR 5 TIMES AT SELF-DIAGNOSIS IN THE STOPPING STATUS, PLEASE PERFORM THE MEGA CHECK AND CONFIRM THE INSULATION WITH THE COMPRESSOR. AS THERE IS NOT ABNORMAL FOR THE INSULATION WITH COMPRESSOR, PLEASE PERFORM 『SELF-CHECK』.

『SELF-CHECK』DIAGNOSIS METHOD

1. PUT THE POWER OFF.
2. REMOVE THE SELF-CHECK CONNECTOR"CN27".
3. PUT THE POWER ON. (LD301:4 SEC LIGHTING AND 2 SEC LIGHTS OUT).
4. PUSH 『TEST SWITCH』DURING 1 SEC OR MORE.
5. 『SELF-CHECK』DIAGNOSIS RESULT WILL DISPLAY AT LD301. SEE THE BELOW TABLE FOR THE DETAIL.
6. PUT THE POWER OFF AND CONNECT THE SELF-CHECK CONNECTOR"CN27".

※IF FORGET TO CONNECTING THE "CN27", THE TIMER LAMP OF THE INDOOR UNIT BLINKS 12 TIMES.

『SELF-CHECK』 DIAGNOSIS RESULT

SELF-DIAGNOSIS BLINKING MODE ▨:BLINK

LD301 (RED)	SELF-DIAGNOSIS CONTENTS	HOW TO REPIAR
▨ ONCE	NOT CONTROLLER DEFECTIVE	·CHANGE THE COMPRESSOR
▨ 2 TIMES	FOUND PEAK CURRENT ERROR	·CHANGE ODU CONTROLLER
▨ 7 TIMES	COMPRESSOR CURRENT ABNORMAL	·CHECK THE COMPRESSOR ·CONNECTOR AND CONNECT IT PROPERLY ·IF ABOVE ARE OK, CHANGE THE ODU CONTROLLER
▨ 10 TIMES	ABNORMAL DC VOLTAGE	·REACTOR IS DISCONNECTION, →CONNECT IT PROPERLY ·IF AC VOLTAGE INPUT ABNORMAL (OVER STANDARD VOLTAGE±10%) →FOLLOW STANDARD AC VOLTAGE INPUT ·IF AC VOLTAGE INPUT IS NORMAL (WITHIN±10%)→CHANGE P.W.B
▨ 13 TIMES	EEPROM READING ERROR	·CHANGE ODU CONTROLLER

SURVICE OPERATION

PROCEDURE OF COLLECTING REFRIGERANT PUMP DOWN OR INDEPENDENT OPERATION OF OUTDOOR UNIT.

1. CUT OFF THE POWER SOURCE ONCE THEN ON AGAIN.
2. WAIT 1 MINUTE AL LEAST.
3. PRESS THE TEST SWITCH (WHICH IS ON THE P.W.B) MORE THAN 1 SECOND. SERVICE OPERATION WILL BE STARTED. TO STOP THIS OPERATION, PRESS THE TEST SWITCH AGAIN (MORE THAN 1 SECOND).

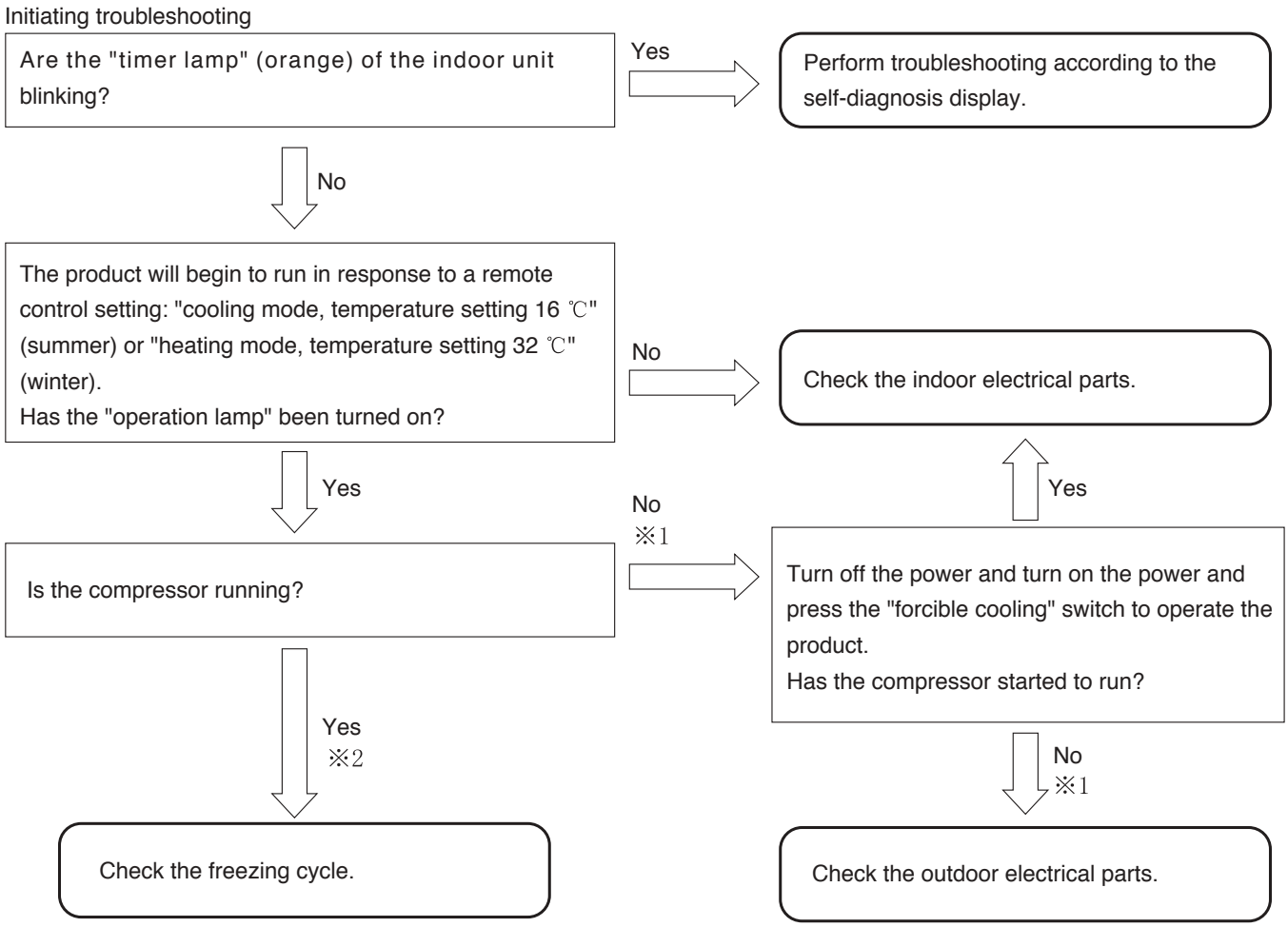
TO RESUME TO NORMAL OPERATION, CUT THE POWER SOUCE ONCE THEN ON AGAIN. IN ORDER TO PROTECT THE DAMAGE OF COMPRESSOR, DO NOT OPERATE MORE THAN 5 MINUTES WITH SERVICE VALVE CLOSE.

『OUTDOOR FAN MOTOR CHECK』DIAGNOSIS METHOD

1. PUT THE POWER OFF.
2. REMOVE THE OUTDOOR FAN MOTOR'S CONNECTOR FROM"CN24".
3. ROTATE THE FAN MOTOR BY HAND AND CHECK WHETHER THE FAN MOTOR IS LOCKED OR NOT.
4. MEASURE THE RESISTANCE BETWEEN EACH TERMINAL OF THE FAN MOTOR CONNECTOR. NORMAL RESISTANCE BETWEEN EACH TERMINAL:20~50Ω

※INSERT THE FAN MOTOR'S CONNECTOR AFTER FINISHING STEPS 1 TO 4.

Diagnosis and troubleshooting of indoor electric parts, outdoor electric parts and refrigerating cycle



< Troubleshooting by using the self-diagnosis memory function>

· By using the self-diagnosis memory function, you can check the failure mode (※1) occurring in the outdoor electrical parts on the indoor unit side.

Steps
1. Clear the troubleshooting data.
2. Run the product for several minutes under the conditions where the compressor runs.
3. Redisplay and check the data written in the self-diagnosis memory.

· The self-diagnosis memory function can also be used to catch sporadic failure phenomena.

Steps
1. Clear the troubleshooting data.
2. Have the user use the product as usual until a failure phenomenon occurs.
   (The period depends on the incidence of the phenomenon.)
3. At a later date, redisplay and check the data written in the self-diagnosis memory.

· For the outdoor self-diagnosis display (OH thermistor heat-up, overload lower limit cut) stemming from the freezing cycle or operating condition, the time lag is long from operation startup to the emergence of the phenomenon. Moreover, it is affected by the temperature, sunshine, operating hours, and other factors of the day, so that the phenomenon may not be able to be identified at the time of a repair service visit. In that case too, use the self-diagnosis memory function (※2).

· The outdoor self-diagnosis display "overload lower limit cut" and "OH thermistor heat-up" can be identified only when you are using the self-diagnosis lamp of the outdoor unit and the self-diagnosis memory function of the indoor unit. Note that this will not be automatically displayed on the indoor unit side.

Checking the indoor unit electrical parts

Introduction

First check the failure phenomenon and status, and then move on to elaborate diagnosis.

Initiating troubleshooting

Is the "timer lamp" (orange) of the indoor unit blinking?

Yes

How many times does the time lamp blinding

not 4 times

time lamp blinking,please see page 103 to 106.

4 times

outdoor ele.unit check, please see page 107 to 112.

No

Turn off the power, wait at least 5 seconds, turn it back on, and observe the way the horizontal vanes move for about 30 seconds.

Check 1: Have the horizontal vanes moved? (Yes/No)

Set the remote control unit to cooling mode, temperature setting 16℃ (summer), heating mode, temperature setting 32℃ (winter) and operate the product.

Check 2: Has the product received the remote control signal and has the "operation lamp" gone on? (Yes/No)

If you responded "Yes" to Check 2:

Check 3: Is the compressor of the outdoor unit running? (Yes/No)

If you responded "No" to Check 2:

Check 4: Does the "emergency operation switch" work? (Yes/No)

Check results and next check items

Check 1	Check 2	Check 3	Check 4	Next check item
No	No	—	No	Go on to "The power will not become turned on".
Yes	No	—	Yes	Go on to "The product will not receive the remote control signal".
Yes	Yes	No	—	Go on to "The compressor will not run".

1. Failure phenomenon: The power will not become turned on.

［Situation ］ Neither initialization, remote control, nor any other step works on the vane position at power-on.

[Estimated failure locations]

- 3.15 A fuse blown out
- Control power circuit
- Connector loose, wire break

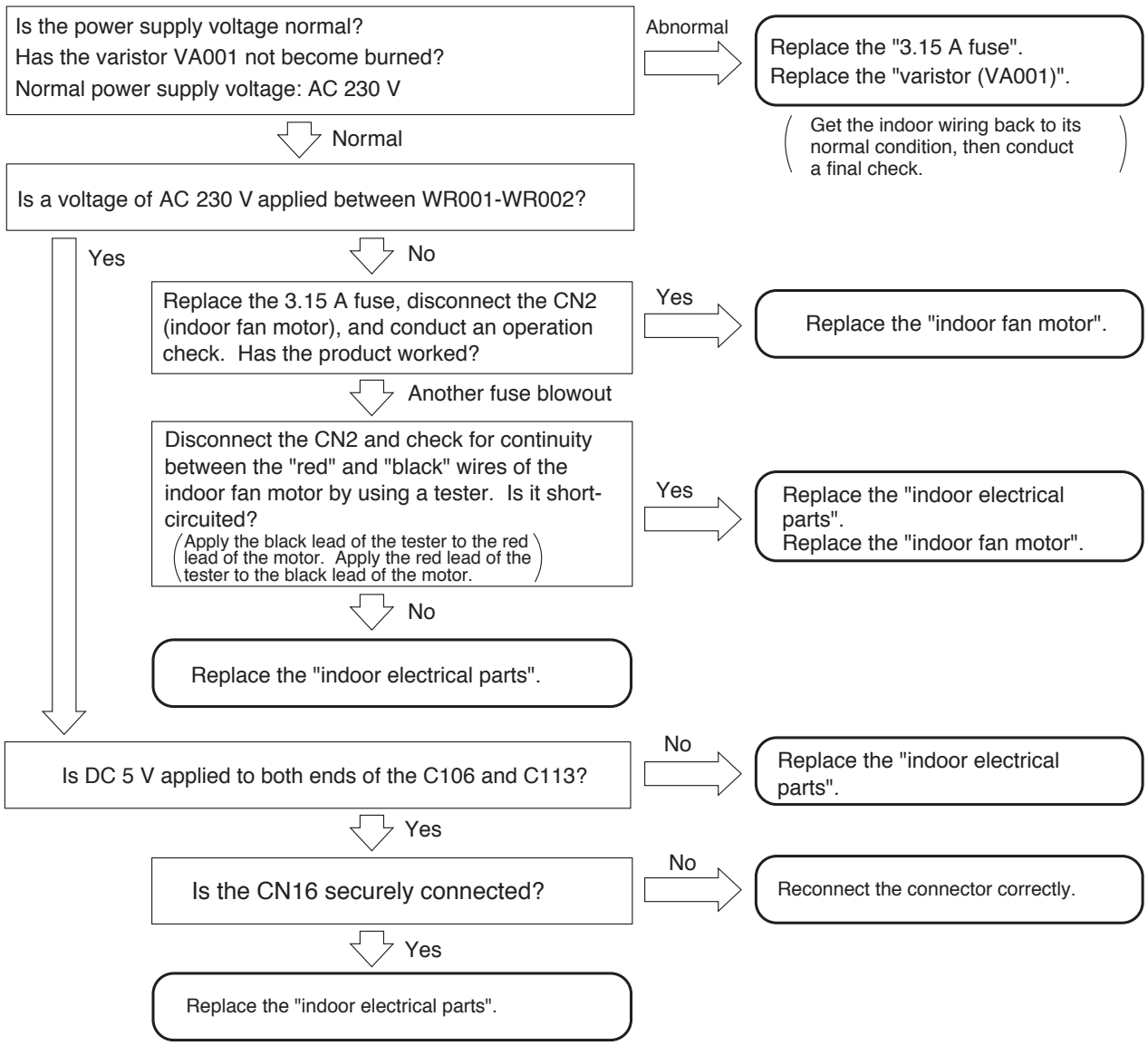
Estimated cause of fuse blowout
· Abnormally high voltage applied to the power supply · Indoor fan motor out of order · Power circuit out of order

［Cautions ］

- Before work, check the power supply voltage. An abnormal voltage may be being supplied in some rare occasions due to a defect in the indoor wiring (a wire break in the neutral wire of the single-phase 3-wire power supply).
- If the 3.15 A fuse has blown out, eliminate the cause of the fuse blowout. Otherwise, there will occur another fuse blowout.
- If the 3.15 A fuse has blown out due to an abnormally high voltage to the power supply, the varistor (VA001) will deteriorate and become destroyed as well.
- On a repair service visit due to the failure phenomenon of "The power will not become turned on", take a "3.15 A fuse" and a "varistor" with you.

［Diagnosis flow ］

Initiating troubleshooting



2.Failure phenomenon: The product will not receive a remote control signal.

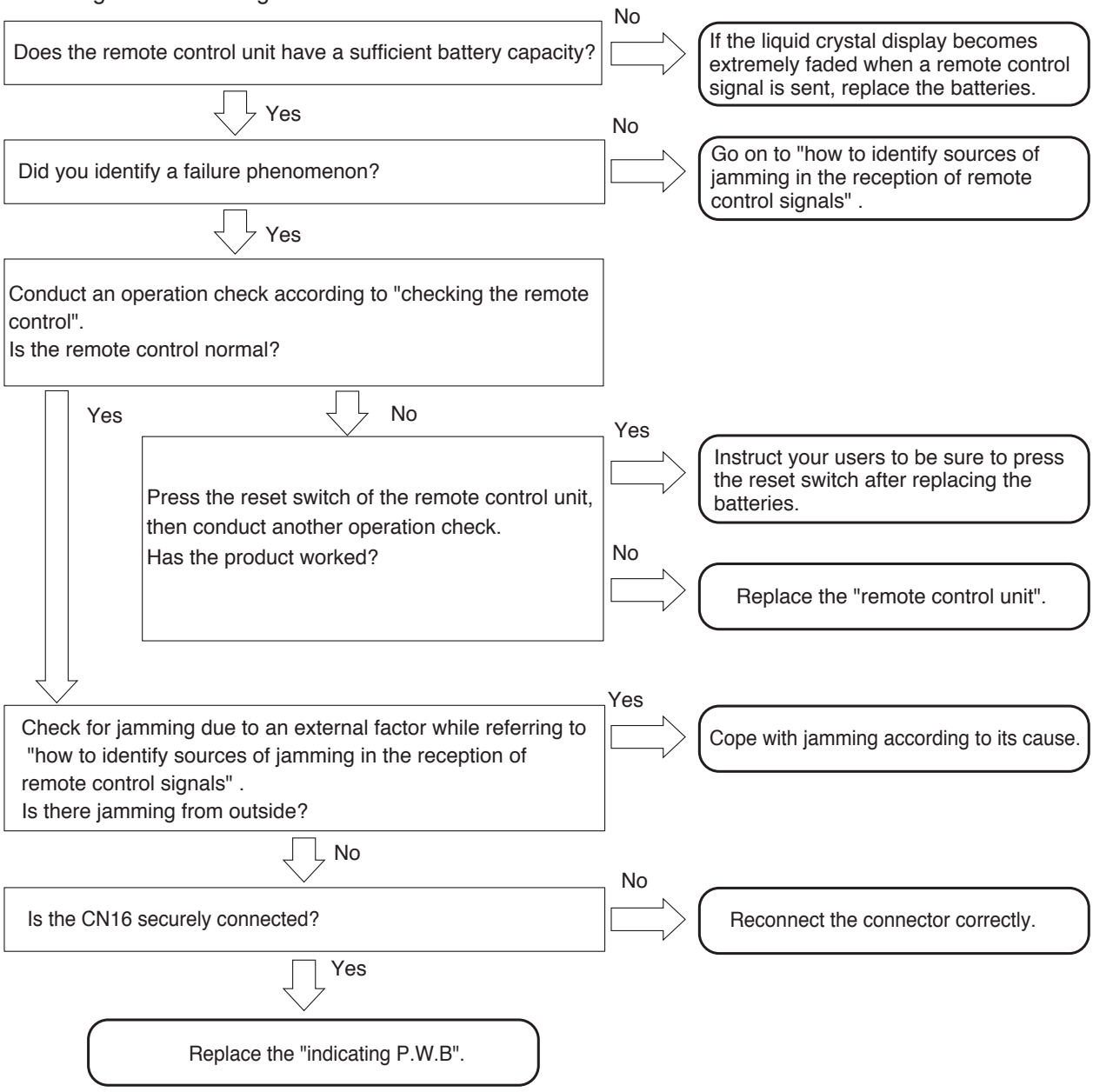
［Situation ］ The product does not receive a remote control signal. It is not very responsive.
(The product does run normally in response to the emergency operation switch.)

［Estimated failure locations ］
- Remote control failure, remote control low battery level, remote control poorly set
- Remote control light-receiving unit
- Connector loose, wire break
- Normal product (external factors: the remote control units for lighting equipment and other equipment, electrical noise, etc.)

［Cautions ］
- Even if the product is trouble-free, a factor coming from outside the product may hamper the reception of signals from the remote control unit.
- Batteries may decline in capacity at low temperatures. Old batteries decline particularly much in voltage in the morning and evening of winter, resulting in the poor arrival of remote control signals. Instruct your users to use new alkaline batteries.

［Diagnosis flow ］

Initiating troubleshooting



［Cautions in replacing the indicating P.W.B］ Be sure to replace the indicating P.W.B. components.

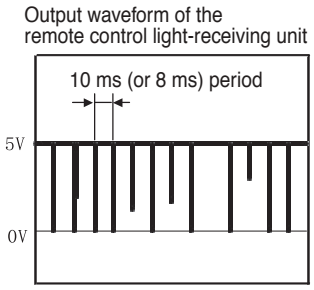
How to identify sources of jamming in the reception of remote control signals

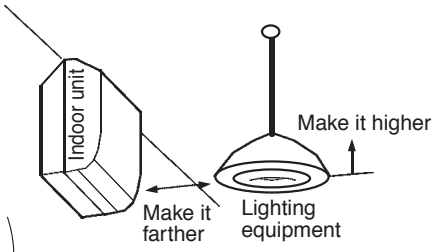
[Situation] The product may become poorly responsive to remote control signals due to external factors even though the product itself is trouble-free.

[Estimating sources of jamming] Identify the installation status of the air-conditioner and the indoor and outdoor environments to identify possible causes of the jamming.

- Indoor lighting equipment (quantity, type, location)
- Remote control units of other electrical products and equipment
- Is the grounding for the air-conditioner shared with other equipment?
- Are the surroundings of the air-conditioner clear of wireless antenna?
- Is the remote control light-receiving unit protected from direct sunlight?

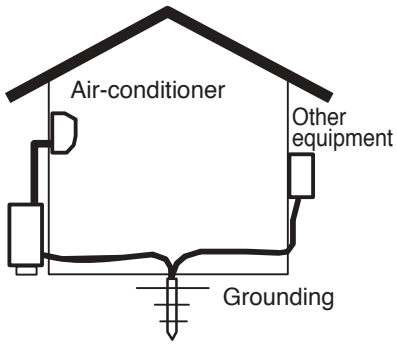
[Checking and actions]

<table>
<tr>
<td>Effects of lighting equipment
(fluorescent lamps)</td>
<td>
Checking points
· Turn on and off the lighting equipment and check for its effects on the reception of remote control signals.
· When cold, the fluorescent lamp tends to emit infrared rays with wavelengths close to those used in remote control.
If you cannot detect the phenomenon about which your user is complaining at the time of your visit, such as "the product sometimes fails to receive remote control signals" and "the product fails to receive remote control signals in the morning alone", then turn off the lighting for about 20-30 minutes and wait for the fluorescent lamps to cool down before conducting another check.
There are even cases where the product fails to receive remote control signals for 1 to 2 minutes only after the lighting equipment is turned on.
· The noise status may vary with the dimming of the lighting equipment. In the case of lighting equipment with a dimmer, therefore, conduct a check with all the light intensities.
· If the lighting equipment is the source of the jamming, the remote control light-receiving unit output usually shows a noise waveform as shown in the right-hand figure. In the case of slight jamming, this kind of waveform will not cause practical problems. However, intense degrees of jamming will disable the reception of remote control signals.
· When the fluorescent lamp is old and is flickering, it may cause disorders in the reception of remote control signals.


Actions proposed
1. Make it hard for light of the lighting equipment to enter the remote control light-receiving unit.
· Separate the lighting equipment from the indoor unit.
· Raise the lighting equipment.
· Cover the upper half of the light-receiving panel from its rear side with aluminum tape or black vinyl tape.


(This will also affect the reception of remote control signals. Therefore, set the range to be covered with tape to a range that is problem-free in practice, while checking the reception status.)
2. Add an interference filter to the front panel of the remote control light-receiving unit.
※ Lighting equipment that produces strong jamming exists although rarely. Some problems may therefore be unsolvable by managing the air-conditioner side alone.
</td>
</tr>
<tr>
<td>Effects of the remote control units of other equipment</td>
<td>
Checking points
· If, on the remote control unit of a TV or audio equipment, its sound volume key or something similar is left pressed, infrared signals become continuously sent, thereby jamming the reception of remote control signals.
· Check how the remote control unit and related components are stored, thereby checking if there is any possibility that a button may be inadvertently left pressed on the remote control unit of other equipment.

Actions proposed
If there is any such possibility, give explanations to your users to that effect and instruct them to exercise caution.
</td>
</tr>
</table>

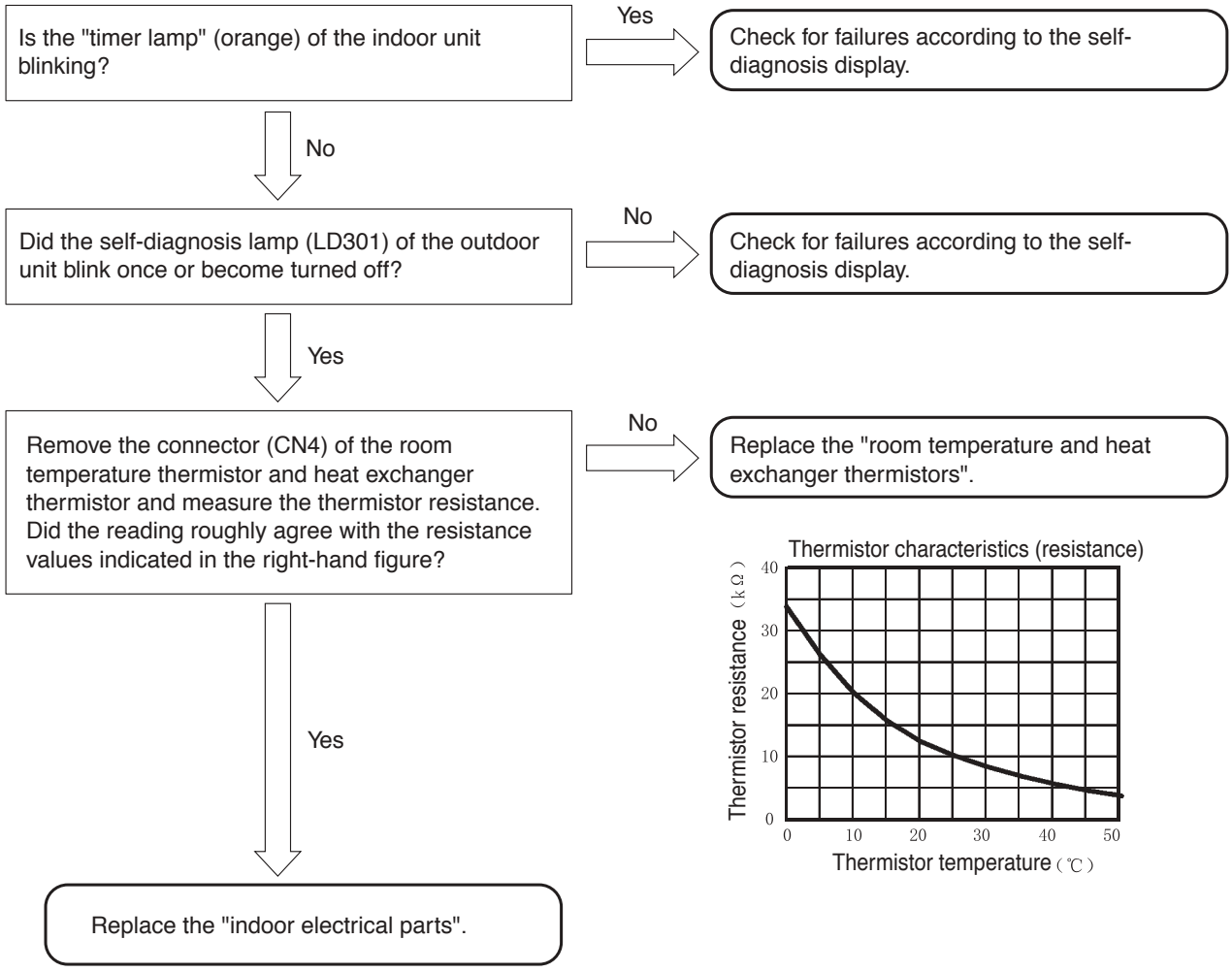
Effects of other electrical products	Checking points · Check the effects of light and power noises coming from other electrical products. · Turn on and off the electrical products, turn off the power and turn on the power, and check their effects on the reception of remote control signals. · For products whose operating states change, check the effects of each state. Actions proposed · Change the location relationship between the air-conditioner and the target products. · Use a different wall outlet for the target products.
Sharing a grounding	Checking points · Check for effects of electrical noises coming into the air-conditioner through grounding wires. · Check if the grounding works is for the air-conditioner alone or shared with other equipment. If there is any equipment that shares it, turn on and off that equipment and detach and reattach the power plugs and examine their effects on the reception of remote control signals. Actions proposed · Establish an independent grounding for the air-conditioner. 
Effects of radio waves	Checking points · Using a wireless transmitter near the air-conditioner may affect the reception of remote control signals. · Have your users try sending signals with a wireless transmitter and examine their effects on the reception of remote control signals. Actions proposed · Add a ferrite core to the power cord and F cable. · Add a ferrite core to the internal wiring of the indoor unit. · Move the wireless antenna.
Effects of direct sunlight	Checking points · Direct sunlight and other intense light make the remote control light-receiving unit less sensitive. · Check for any time zone where the remote control light-receiving unit of the indoor unit is affected by direct sunlight depending on the location of the sun and mirror reflection. Actions proposed · Block the sunlight to protect against direct sunlight.

3. Failure phenomenon: The compressor will not run.

[Situation] The compressor will not run (the same state as the thermometer turned off), the product receives remote control signals normally. The self-diagnosis lamp (LD301) of the outdoor unit blinks once or becomes turned off.

[Estimated failure locations] · Room temperature thermistor, heat exchanger thermistor
· Microcomputer peripheral circuit

[Diagnosis flow]
Initiating troubleshooting



4. Failure phenomenon: The fan motor will not stop.

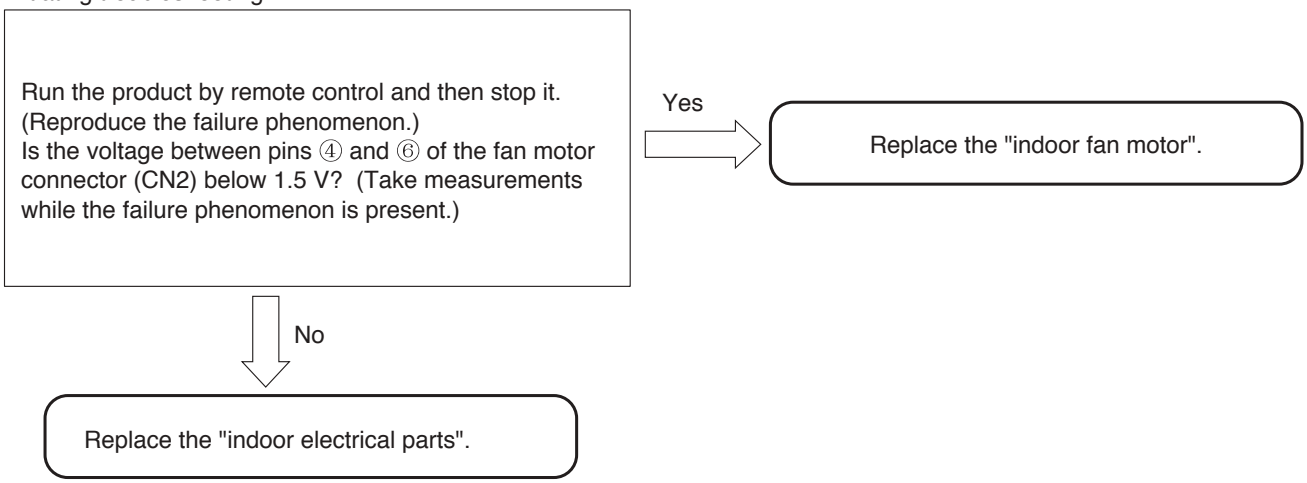
［Situation ］I have conducted the stop operation on the product by remote control, but the indoor fan motor will not stop.
(It stopped about 10 minutes later.)

［Estimated failure locations ］

- Indoor fan motor
- Fan motor drive circuit

［Diagnosis flow ］

Initiating troubleshooting



5. Timer lamp blinking: blinking once

[Situation] The timer lamp blinks one time and the product will not operate.
(This is not a sign of a breakdown.)

[Estimated failure locations] · Reversing valve defective.
· The refrigerating cycle block gas leak.

6. Timer lamp blinking: blinking twice

[Situation] The product is giving a display to indicate that it is performing forcible cooling.
(This is not a sign of a breakdown.)

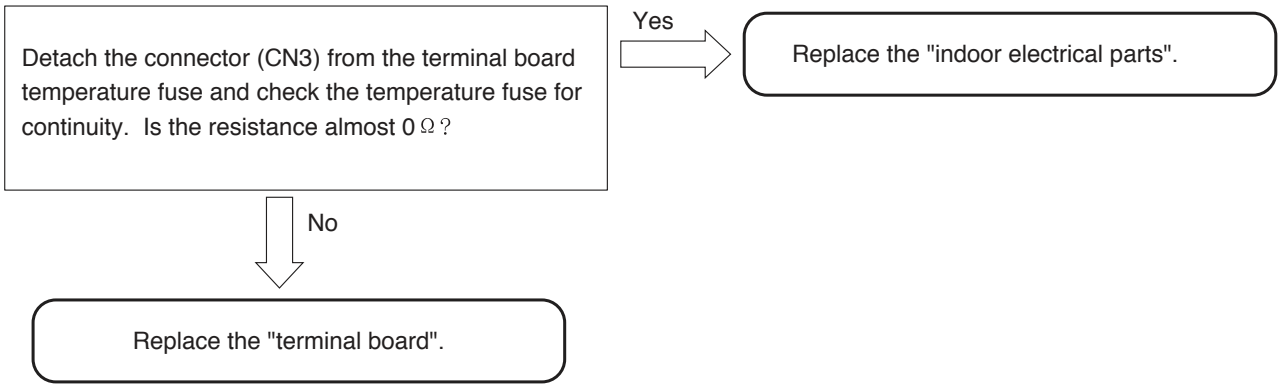
7. Timer lamp blinking: blinking three times

[Situation] The timer lamp blinks three times and the product will not operate.

[Estimated failure locations] · Meltdown of the terminal board temperature fuse (the terminal board poorly inserted into the F cable)
· Outdoor communication circuit out of order

[Cautions] · If a terminal board is replaced to counter the meltdown of the terminal board temperature fuse, ensure that the F cable to be inserted into the terminal board has the appropriate dimension for peeling the insulation sheathing and that the insertion region is unbent before inserting it into the terminal board securely.

[Diagnosis flow]



8. Timer lamp blinking: blinking four times

[Situation] The timer lamp blinks four times and the product will not operate.

[Estimated failure locations] · Outdoor unit error.

· Please confirm the times of the LD301 blinking, and then see the outdoor selfcheck lable.

9. Timer lamp blinking: blinking 9 times

[Situation] The timer lamp blinks 9 times and the product will not run.

[Estimated failure location] ・ Loose connector, wire break, or short-circuit in the room temperature thermistor, heat exchanger thermistor.

[Cautions] ・ Starting the product by remote control will initiate failure detection.
(Merely turning on the power will not activate the failure detection function.)

[Diagnosis flow]
Initiating troubleshooting

Are the room temperature thermistor, heat exchanger thermistor connector (CN4) securely inserted?

No → Correct the connectors.

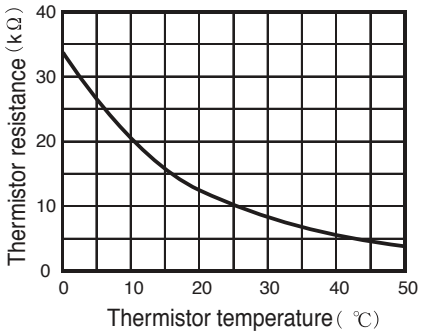
Yes ↓

Detach the connector (CN4) from the room temperature thermistor and heat exchanger thermistor and measure the thermistor resistances. Did the resistances almost agree with those indicated in the right-hand figure?

(The product will begin detecting failures if it is close to a wire break or short-circuit.)

No → Replace the room temperature and heat exchange thermistor.

Thermistor characteristics (resistance)



Yes ↓

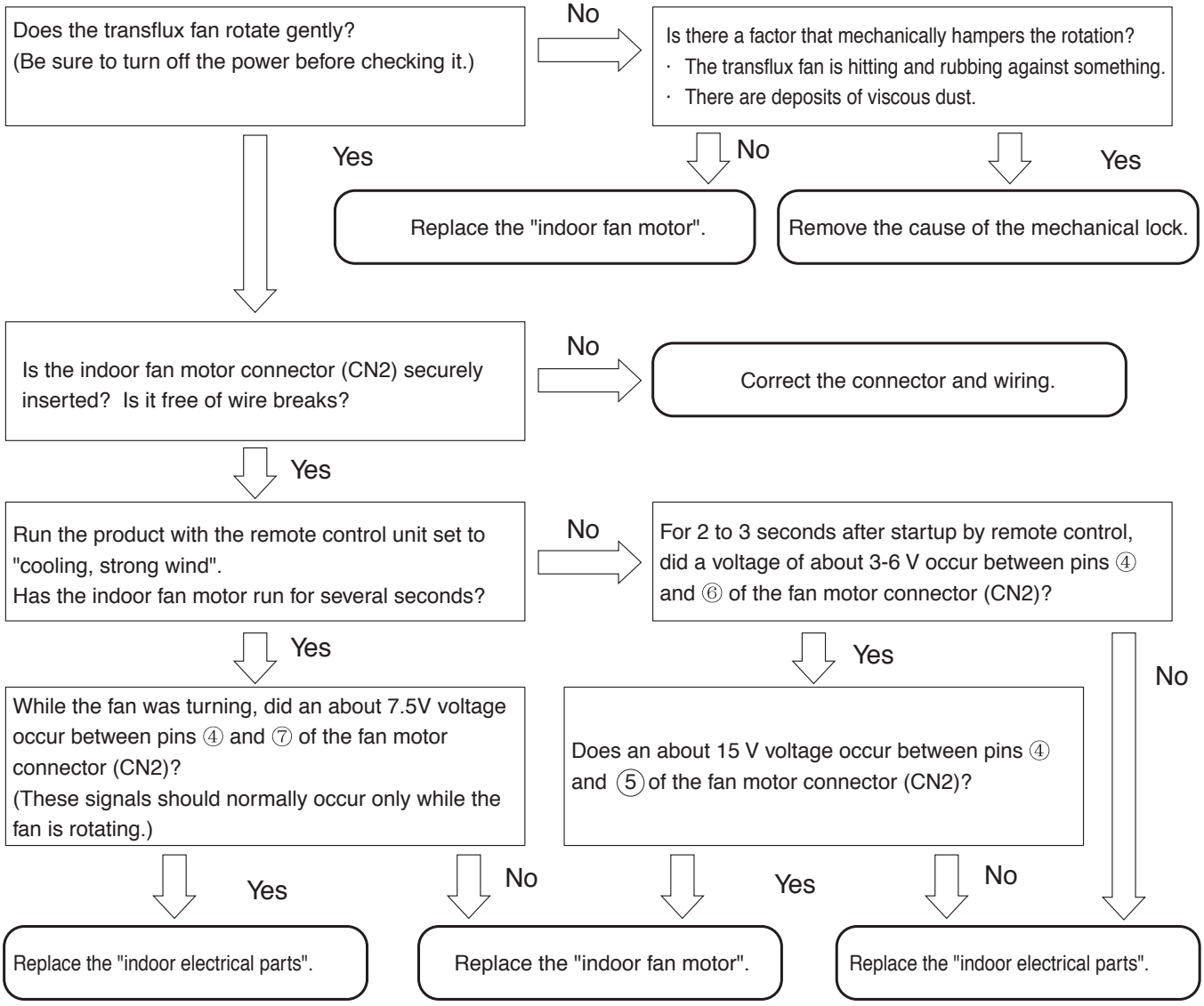
Replace the "indoor control P.W.B".

10. Timer lamp blinking: blinking 10 times

[Situation] The timer lamp blinks 10 times and the product will not run.

[Estimated failure locations]
- Loose connector or wire break in the indoor fan motor
- Indoor fan motor mechanically locked
- Indoor fan motor
- Indoor fan motor drive circuit

[Diagnosis flow]
Initiating troubleshooting



11. Timer lamp blinking: blinking 12 times

[Situation] The timer blinks 12 times and the product will not run.

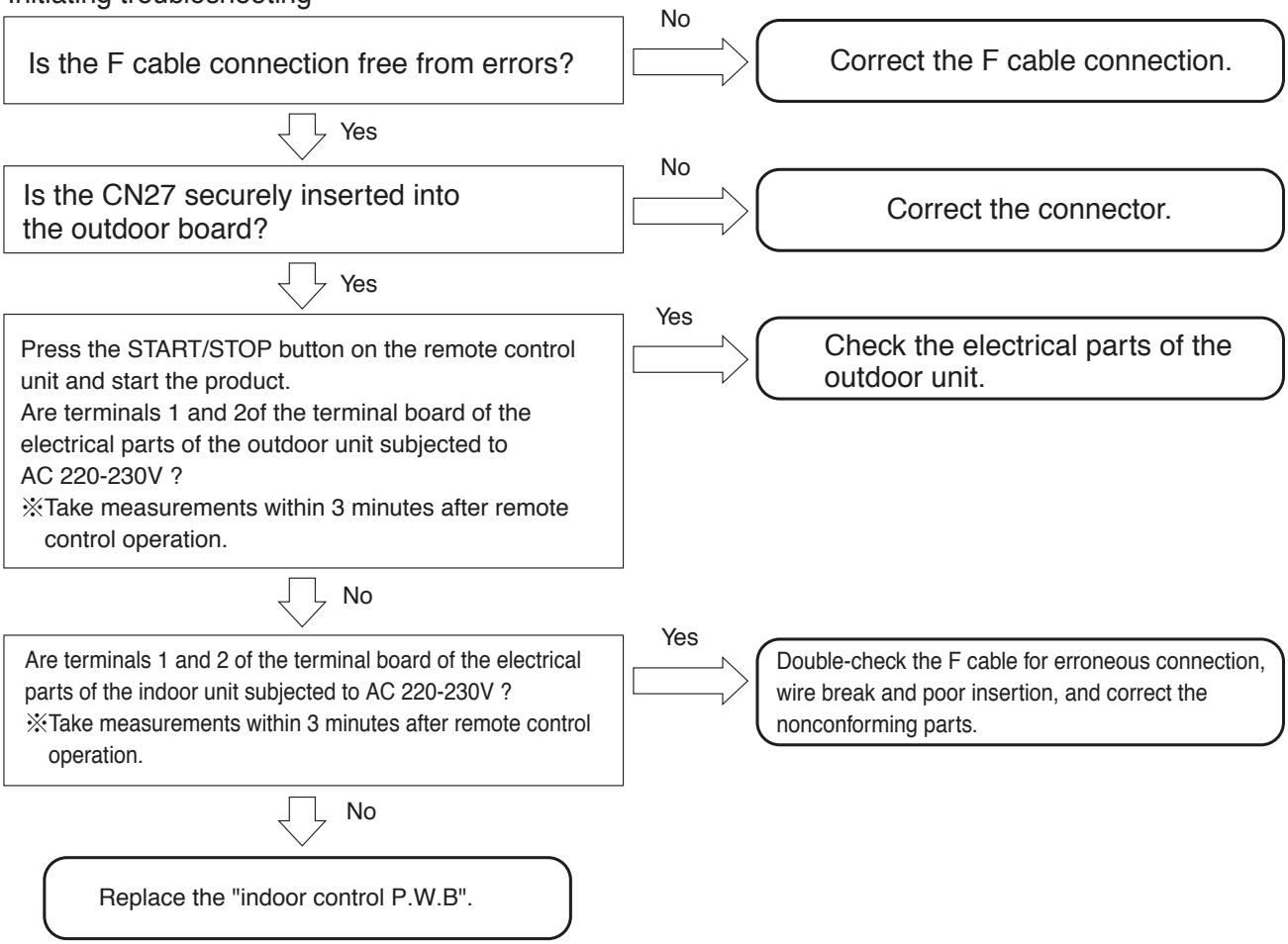
[Estimated failure locations]
- Erroneous connection in the indoor-outdoor connection line (F cable)
- Forget to connect CN27 of outdoor P.W.B
- Wire break or poor insertion of the indoor-outdoor connection line (F cable)
- Electrical parts in the outdoor unit (communication circuit, power circuit error)
- Communication error due to noise in other home electronics

※This does not constitute a failure in the air-conditioner

[Cautions] • When lines 1 and 2 of F cable are erroneously connected (crossed), the product may not enter self-diagnosis display mode. If the self-diagnosis memory stores data about "timer lamp blinked 12 times", then, just in case, check if the F cable is not erroneously connected.

[Diagnosis flow]

Initiating troubleshooting



12. Timer lamp blinking: blinking 13 times

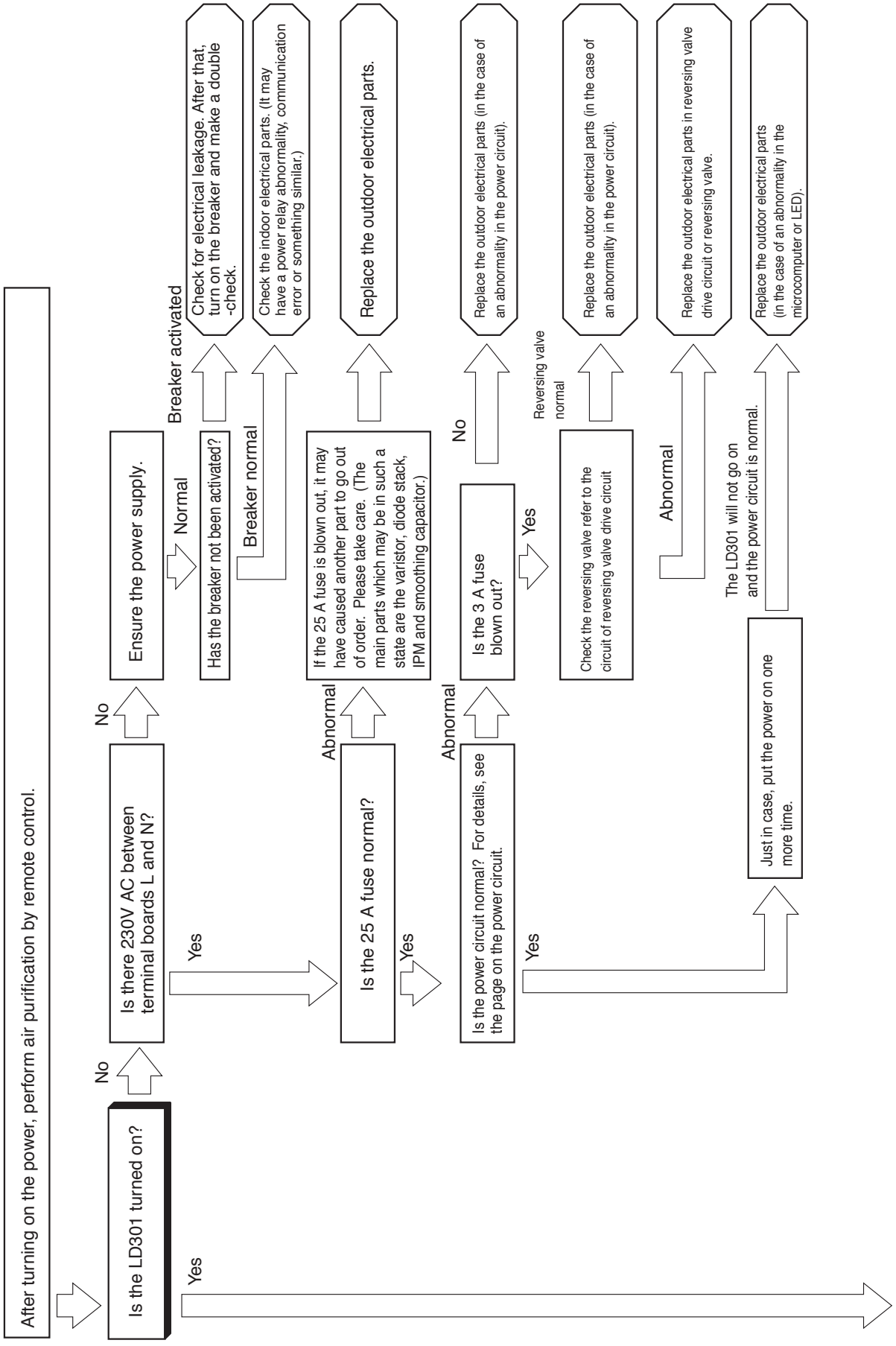
[Situation] The timer lamp blinks 13 times and the product will not run.

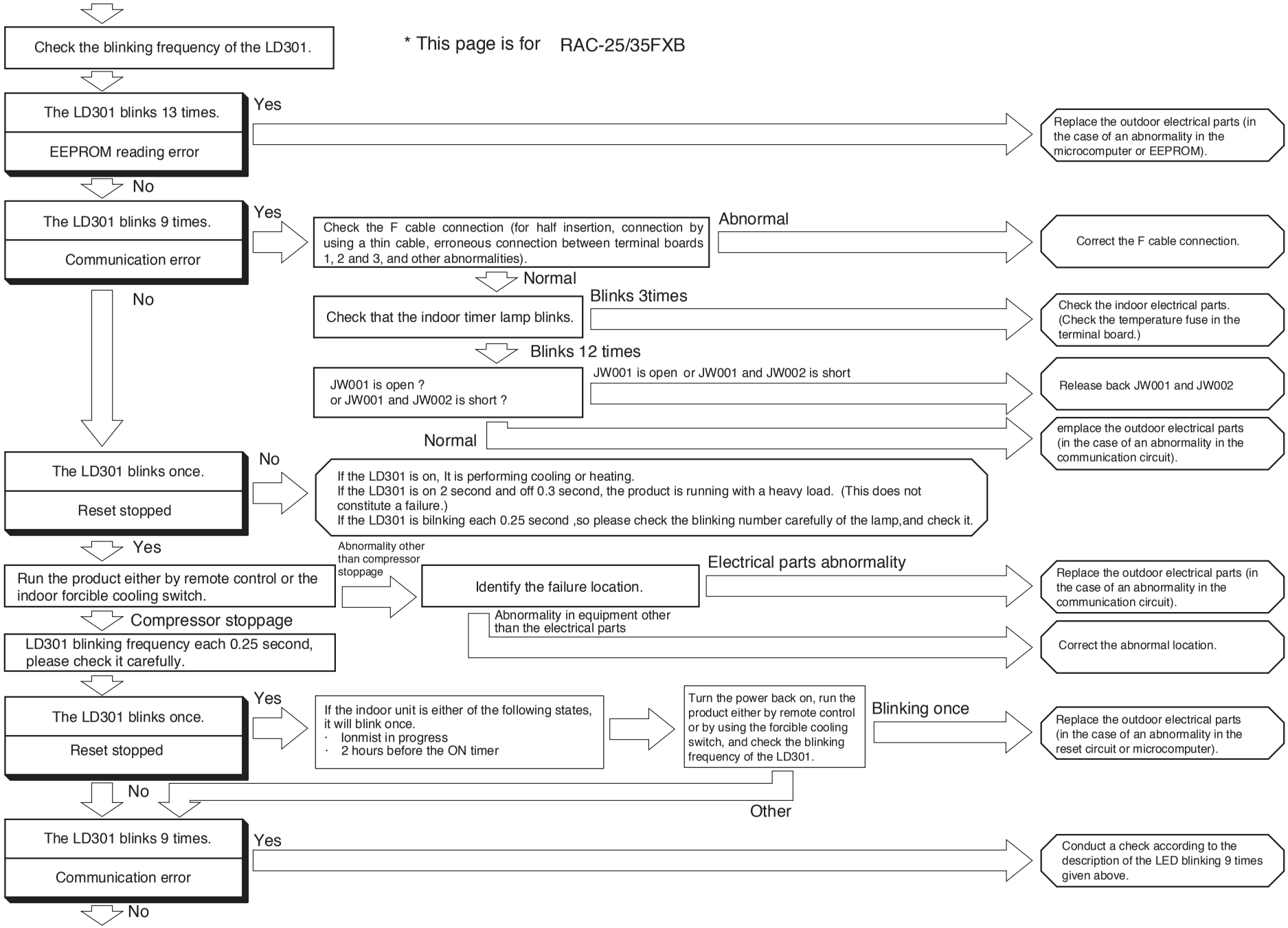
[Estimated failure location] • EEPROM, microcomputer

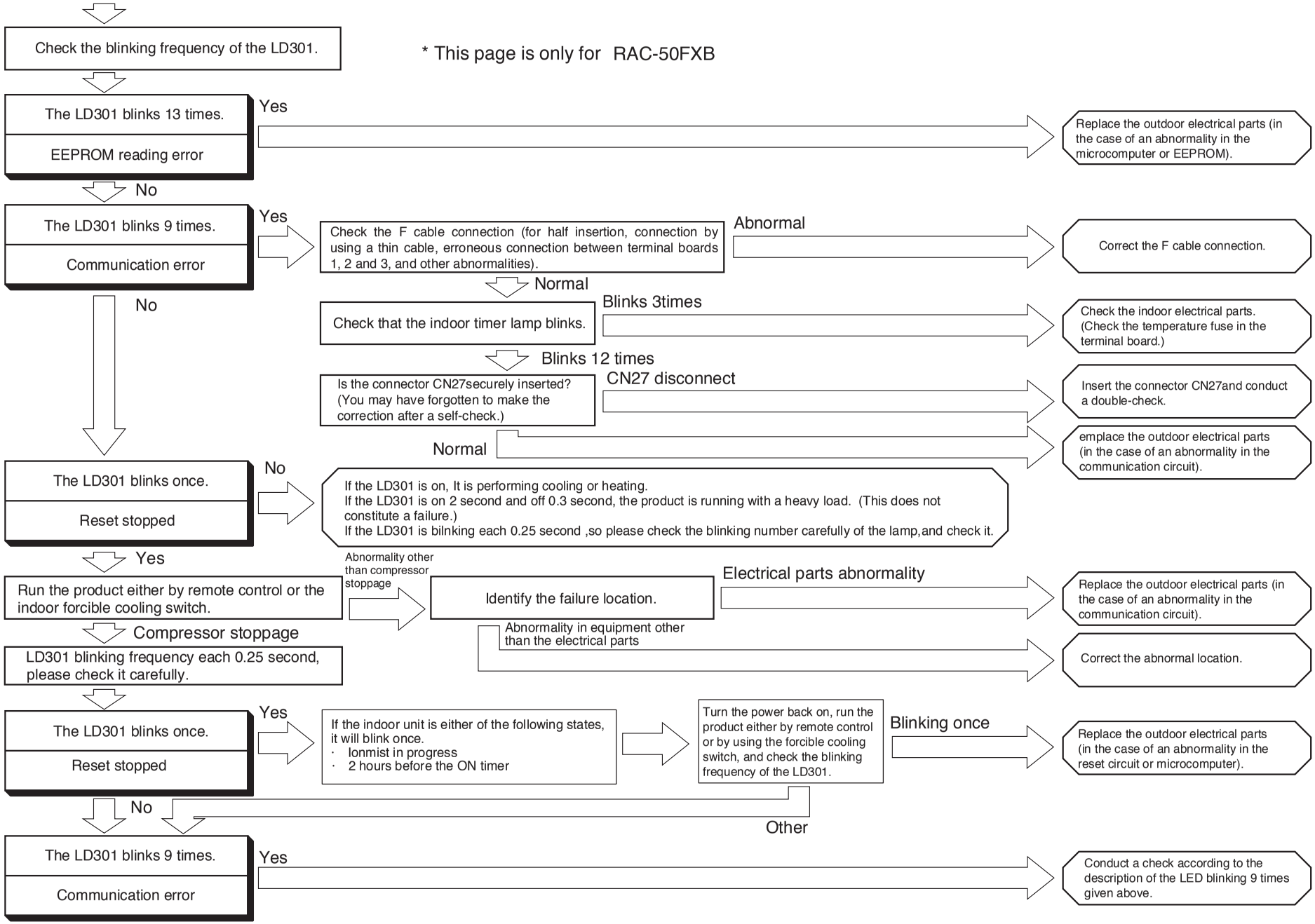
[Diagnosis flow]

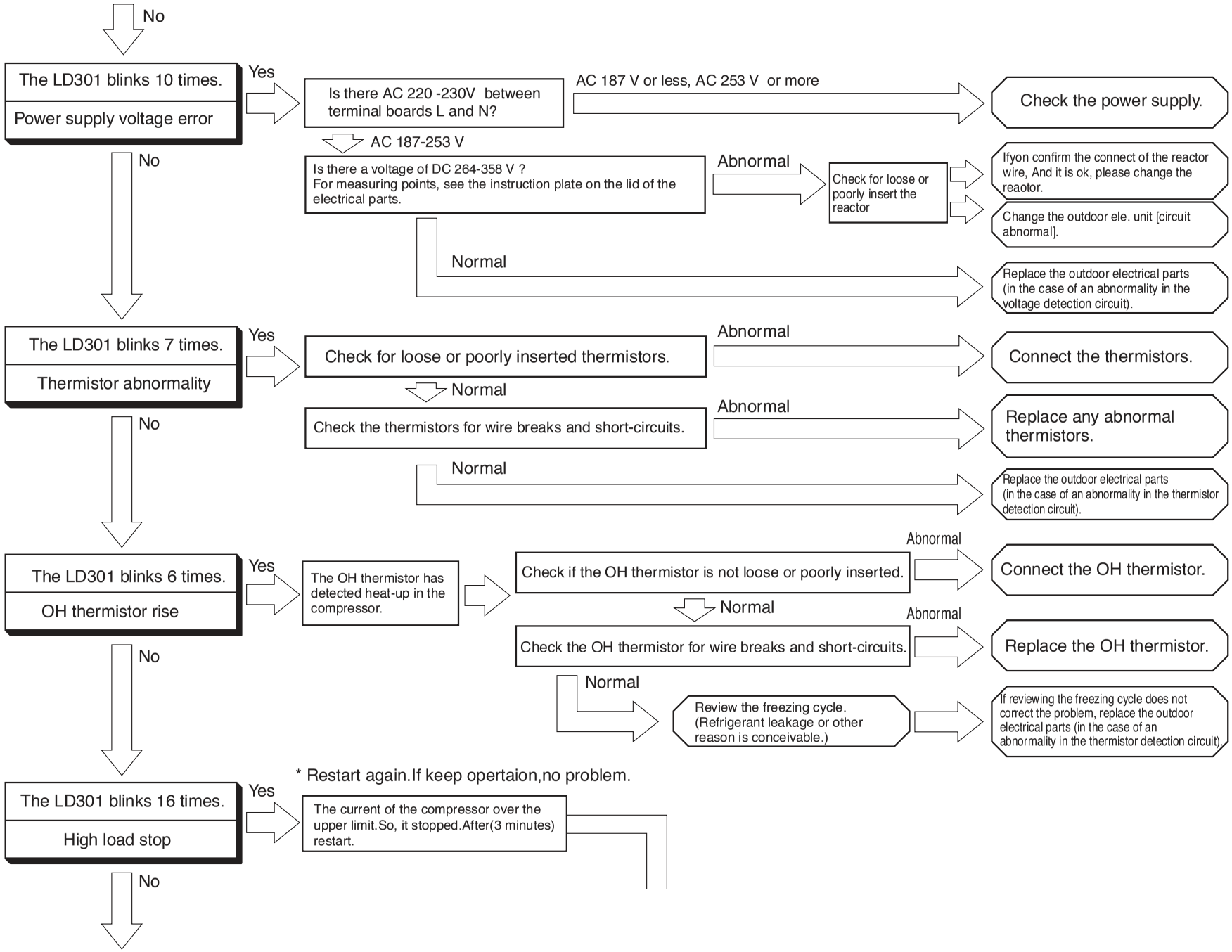
Replace the "indoor control P.W.B".

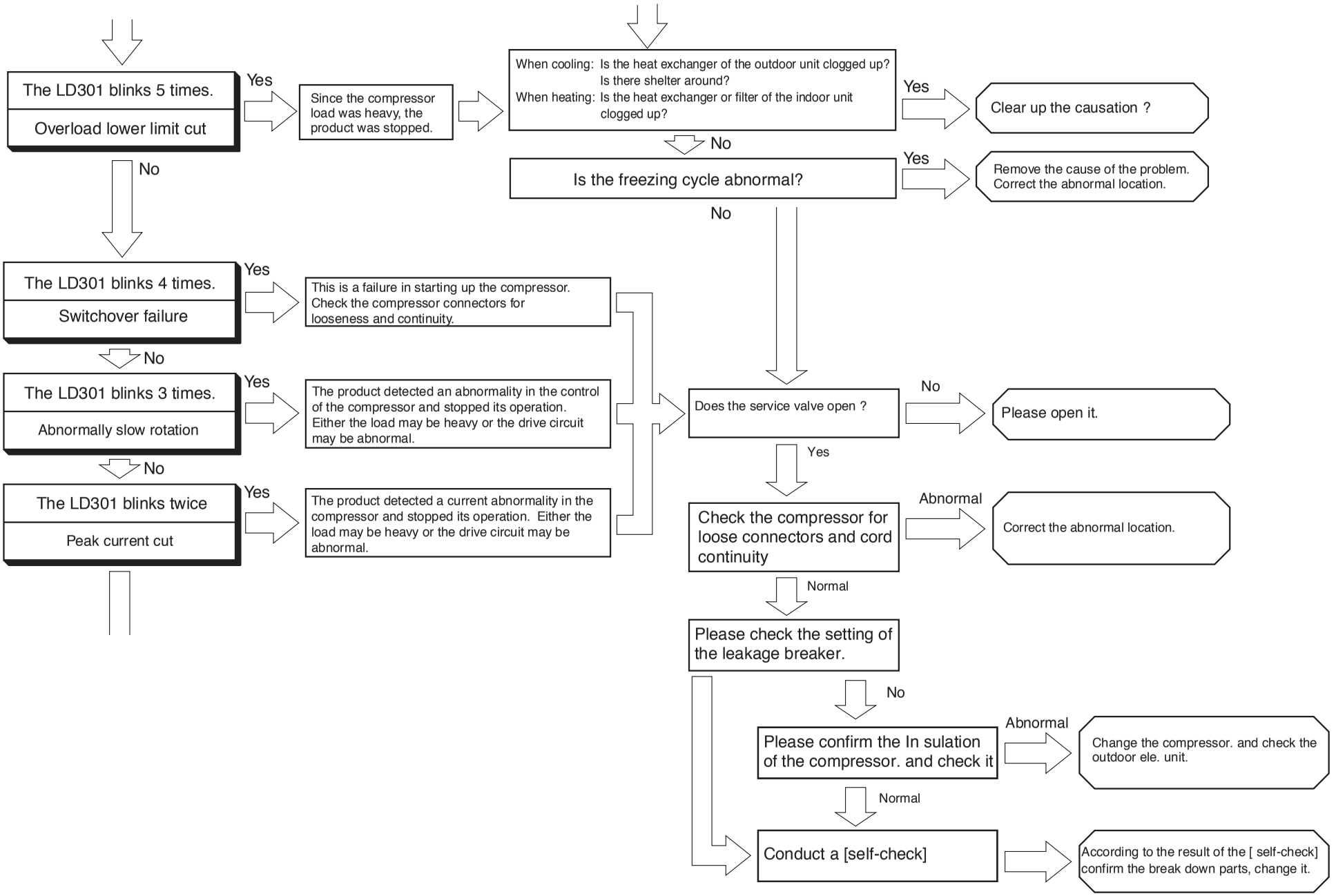
Checking the electrical parts of the outdoor unit

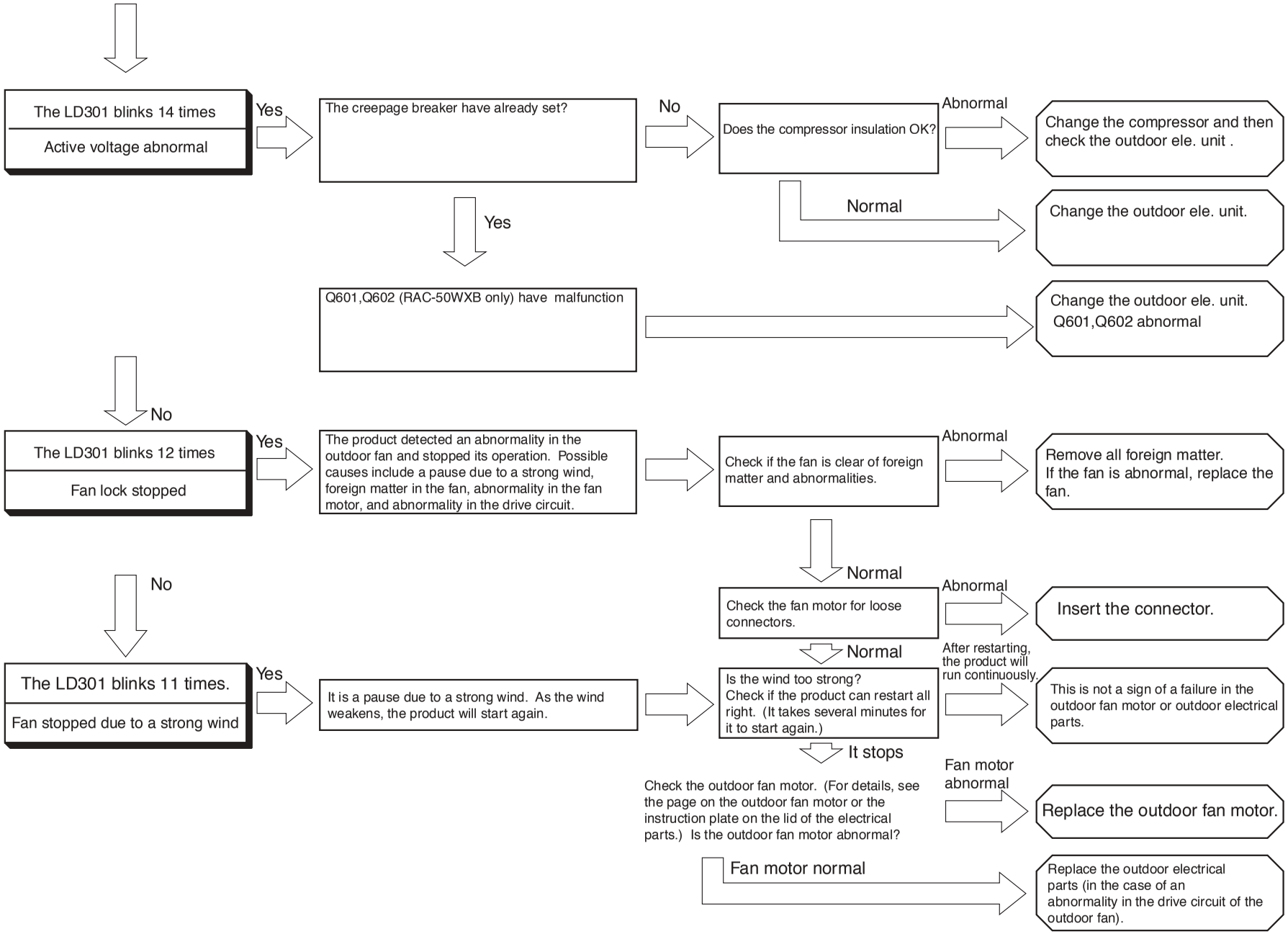



Check the blinking frequency of the LD301.
* This page is for RAC-25/35FXB
The LD301 blinks 13 times.
EEPROM reading error
Yes
Replace the outdoor electrical parts (in the case of an abnormality in the microcomputer or EEPROM).
No
The LD301 blinks 9 times.
Communication error
Yes
Check the F cable connection (for half insertion, connection by using a thin cable, erroneous connection between terminal boards 1, 2 and 3, and other abnormalities).
Abnormal
Correct the F cable connection.
Normal
No
Check that the indoor timer lamp blinks.
Blinks 3times
Check the indoor electrical parts. (Check the temperature fuse in the terminal board.)
Blinks 12 times
JW001 is open ?
or JW001 and JW002 is short ?
JW001 is open or JW001 and JW002 is short
Release back JW001 and JW002
Normal
emplace the outdoor electrical parts (in the case of an abnormality in the communication circuit).
The LD301 blinks once.
Reset stopped
No
If the LD301 is on, It is performing cooling or heating.
If the LD301 is on 2 second and off 0.3 second, the product is running with a heavy load. (This does not constitute a failure.)
If the LD301 is bilnking each 0.25 second ,so please check the blinking number carefully of the lamp,and check it.
Yes
Run the product either by remote control or the indoor forcible cooling switch.
Abnormality other than compressor stoppage
Identify the failure location.
Electrical parts abnormality
Replace the outdoor electrical parts (in the case of an abnormality in the communication circuit).
Abnormality in equipment other than the electrical parts
Correct the abnormal location.
Compressor stoppage
LD301 blinking frequency each 0.25 second, please check it carefully.
The LD301 blinks once.
Reset stopped
Yes
If the indoor unit is either of the following states, it will blink once.
· Ionmist in progress
· 2 hours before the ON timer
Turn the power back on, run the product either by remote control or by using the forcible cooling switch, and check the blinking frequency of the LD301.
Blinking once
Replace the outdoor electrical parts (in the case of an abnormality in the reset circuit or microcomputer).
No
Other
The LD301 blinks 9 times.
Communication error
Yes
Conduct a check according to the description of the LED blinking 9 times given above.
No


Check the blinking frequency of the LD301.
* This page is only for RAC-50FXB
The LD301 blinks 13 times.
EEPROM reading error
Yes
Replace the outdoor electrical parts (in the case of an abnormality in the microcomputer or EEPROM).
No
The LD301 blinks 9 times.
Communication error
Yes
Check the F cable connection (for half insertion, connection by using a thin cable, erroneous connection between terminal boards 1, 2 and 3, and other abnormalities).
Abnormal
Correct the F cable connection.
Normal
No
Check that the indoor timer lamp blinks.
Blinks 3times
Check the indoor electrical parts. (Check the temperature fuse in the terminal board.)
Blinks 12 times
Is the connector CN27securely inserted? (You may have forgotten to make the correction after a self-check.)
CN27 disconnect
Insert the connector CN27and conduct a double-check.
Normal
emplace the outdoor electrical parts (in the case of an abnormality in the communication circuit).
The LD301 blinks once.
Reset stopped
No
If the LD301 is on, It is performing cooling or heating.
If the LD301 is on 2 second and off 0.3 second, the product is running with a heavy load. (This does not constitute a failure.)
If the LD301 is bilnking each 0.25 second ,so please check the blinking number carefully of the lamp,and check it.
Yes
Run the product either by remote control or the indoor forcible cooling switch.
Abnormality other than compressor stoppage
Identify the failure location.
Electrical parts abnormality
Replace the outdoor electrical parts (in the case of an abnormality in the communication circuit).
Abnormality in equipment other than the electrical parts
Correct the abnormal location.
Compressor stoppage
LD301 blinking frequency each 0.25 second, please check it carefully.
The LD301 blinks once.
Reset stopped
Yes
If the indoor unit is either of the following states, it will blink once.
· Ionmist in progress
· 2 hours before the ON timer
Turn the power back on, run the product either by remote control or by using the forcible cooling switch, and check the blinking frequency of the LD301.
Blinking once
Replace the outdoor electrical parts (in the case of an abnormality in the reset circuit or microcomputer).
No
Other
The LD301 blinks 9 times.
Communication error
Yes
Conduct a check according to the description of the LED blinking 9 times given above.


No
The LD301 blinks 10 times.
Power supply voltage error
Yes
Is there AC 220 -230V between terminal boards L and N?
AC 187 V or less, AC 253 V or more
Check the power supply.
AC 187-253 V
No
Is there a voltage of DC 264-358 V ?
For measuring points, see the instruction plate on the lid of the electrical parts.
Abnormal
Check for loose or poorly insert the reactor
Ifyon confirm the connect of the reactor wire, And it is ok, please change the reaotor.
Change the outdoor ele. unit [circuit abnormal].
Normal
Replace the outdoor electrical parts (in the case of an abnormality in the voltage detection circuit).
The LD301 blinks 7 times.
Thermistor abnormality
Yes
Check for loose or poorly inserted thermistors.
Abnormal
Connect the thermistors.
Normal
No
Check the thermistors for wire breaks and short-circuits.
Abnormal
Replace any abnormal thermistors.
Normal
Replace the outdoor electrical parts (in the case of an abnormality in the thermistor detection circuit).
The LD301 blinks 6 times.
OH thermistor rise
Yes
The OH thermistor has detected heat-up in the compressor.
Check if the OH thermistor is not loose or poorly inserted.
Abnormal
Connect the OH thermistor.
Normal
No
Check the OH thermistor for wire breaks and short-circuits.
Abnormal
Replace the OH thermistor.
Normal
Review the freezing cycle. (Refrigerant leakage or other reason is conceivable.)
If reviewing the freezing cycle does not correct the problem, replace the outdoor electrical parts (in the case of an abnormality in the thermistor detection circuit).
* Restart again.If keep opertaion,no problem.
The LD301 blinks 16 times.
High load stop
Yes
The current of the compressor over the upper limit.So, it stopped.After(3 minutes) restart.
No


The LD301 blinks 5 times.
Overload lower limit cut
Yes
Since the compressor load was heavy, the product was stopped.
When cooling: Is the heat exchanger of the outdoor unit clogged up? Is there shelter around?
When heating: Is the heat exchanger or filter of the indoor unit clogged up?
Yes
Clear up the causation ?
No
Is the freezing cycle abnormal?
Yes
Remove the cause of the problem. Correct the abnormal location.
No
No
The LD301 blinks 4 times.
Switchover failure
Yes
This is a failure in starting up the compressor. Check the compressor connectors for looseness and continuity.
No
The LD301 blinks 3 times.
Abnormally slow rotation
Yes
The product detected an abnormality in the control of the compressor and stopped its operation. Either the load may be heavy or the drive circuit may be abnormal.
No
The LD301 blinks twice
Peak current cut
Yes
The product detected a current abnormality in the compressor and stopped its operation. Either the load may be heavy or the drive circuit may be abnormal.
Does the service valve open ?
No
Please open it.
Yes
Check the compressor for loose connectors and cord continuity
Abnormal
Correct the abnormal location.
Normal
Please check the setting of the leakage breaker.
No
Please confirm the In sulation of the compressor. and check it
Abnormal
Change the compressor. and check the outdoor ele. unit.
Normal
Conduct a [self-check]
According to the result of the [self-check] confirm the break down parts, change it.


The LD301 blinks 14 times
Active voltage abnormal
Yes
The creepage breaker have already set?
No
Does the compressor insulation OK?
Abnormal
Change the compressor and then check the outdoor ele. unit .
Normal
Change the outdoor ele. unit.
Yes
Q601,Q602 (RAC-50WXB only) have malfunction
Change the outdoor ele. unit. Q601,Q602 abnormal
No
The LD301 blinks 12 times
Fan lock stopped
Yes
The product detected an abnormality in the outdoor fan and stopped its operation. Possible causes include a pause due to a strong wind, foreign matter in the fan, abnormality in the fan motor, and abnormality in the drive circuit.
Check if the fan is clear of foreign matter and abnormalities.
Abnormal
Remove all foreign matter. If the fan is abnormal, replace the fan.
Normal
No
The LD301 blinks 11 times.
Fan stopped due to a strong wind
Yes
It is a pause due to a strong wind. As the wind weakens, the product will start again.
Check the fan motor for loose connectors.
Abnormal
Insert the connector.
Normal
Is the wind too strong? Check if the product can restart all right. (It takes several minutes for it to start again.)
After restarting, the product will run continuously.
This is not a sign of a failure in the outdoor fan motor or outdoor electrical parts.
It stops
Check the outdoor fan motor. (For details, see the page on the outdoor fan motor or the instruction plate on the lid of the electrical parts.) Is the outdoor fan motor abnormal?
Fan motor abnormal
Replace the outdoor fan motor.
Fan motor normal
Replace the outdoor electrical parts (in the case of an abnormality in the drive circuit of the outdoor fan).

CHECKING THE REFRIGERATING CYCLE (JUDGING BETWEEN GAS LEAKAGE AND COMPRESSOR DEFECTIVE)

1. Troubleshooting procedure (No operation, No heating, No cooling)

Connect U,V,W phase leads to the power module again and operate the air conditioner.

Is the self-diagnosis lamp mode as shown on the right?

Lighting mode / Self-diagnosis lamp	Blinks 2 times	Blinks 3 times	Blinks 4 times	Blinks 5 times	Blinks 6 times	Blinks 8times
LD301	▨	▨	▨	▨	▨	▨
Time until the lamp lights	Approx. 10 seconds			Approx. 10 seconds	Within Approx. 30 seconds	Approx. 10 seconds
Possible malfunctioning part	Compressor				Gas leakage	Compressor

▨ Blinking □ off

YES

Outdoor air temperature (℃)	Charge port pressure MPa(G) {kgf/cm²(G)}
50	2.96 {30.14}
45	2.62 {26.72}
40	2.31 {23.58}
35	2.03 {20.73}
30	1.78 {18.14}
25	1.55 {15.79}
20	1.34 {13.66}
15	1.15 {11.74}
10	0.98 {10.02}
5	0.83 { 8.48}
0	0.70 { 7.10}
−5	0.58 { 5.89}
−10	0.47 { 4.81}

(R410 A)
The values above are the theoretical ones.

Stop to operate and check the gas pressure in balancing mode.

Normal

• Checking the IPM (main P.W.B.)

Error (Gas leaking)

When the self-diagnosis lamp lights in the same condition as above.

Gas leaks.
Repair and seal refrigerant.

The compressor is defective. Replace it and seal refrigerant.
(If the compressor checker for an inverter type air conditioner is available, re-check using it.)

Perform a final check of operation.

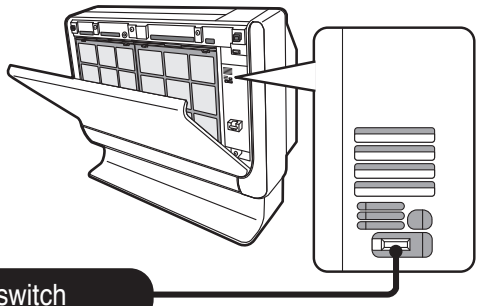
Forced cooling operation (Only single connection)

The cooling operation can be forcibly performed for collecting refrigerant and inspecting failures.
Do not perform the forced cooling operation continuously for long hours,
because the compressor continues to be in operational status, regardless of room temperature.

＜How to start the operation＞
・The operation of the unit should be stopped.
・Open the front panel of the indoor unit and press and hold the "Temporary operation SW" shown in the right figure for 5 sec.

＜How to stop the operation＞
・Press and hold the "Temporary operation SW" again.
Or stop the operation using the remote controller.

※During the forced cooling operation, the "Timer indicator" blinks twice.



When performing the forced cooling operation, turn the power off once. If you press and hold the switch for 5 sec or longer, the forced cooling operation starts. To stop the forced cooling operation, press the switch once again or stop the operation using the remote controller.

When you want to operate the outdoor unit because the indoor unit electrical part has broken down

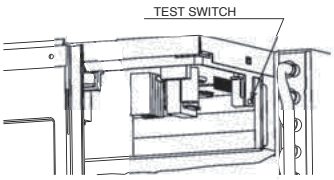
1. Confirm that the "LD301" blinks once from the terminal side of the outdoor unit. Afterwards (when about 30 sec elapses after the power turns on), confirm that the "LD301" changes to blinking 9 times (communication error).
2. When the "LD301" is blinks 9 times, if you press the test switch, the "LD301" lights up.

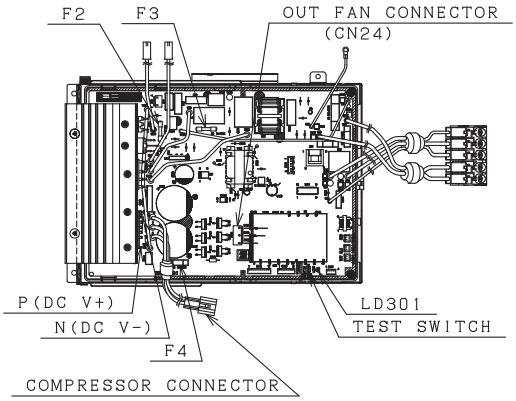
If you release your finger from the test switch within 1 sec to 5 sec after pressing the switch, the forced cooling operation starts.
※(If you press the test switch for 5 sec or longer, the self-check diagnosis starts. In this case, turn the power off and start the procedure from 1 again.)

※(For the initialization of the expansion valve, it may take 1 min until the operation starts.)

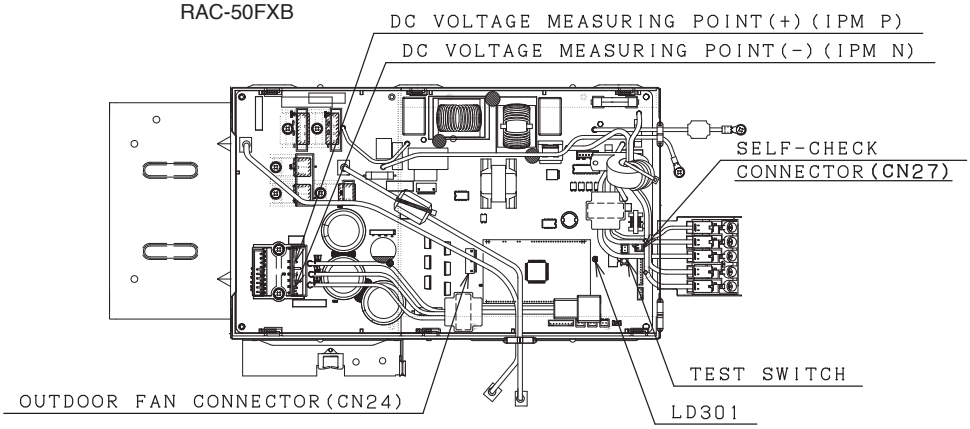
3. When you press the test switch again for 1 sec or longer, the unit stops the operation.

RAC-25/35FXB





RAC-50FXB



※Cautions
1. If power is directly supplied to the outdoor unit, the stress is applied to the outdoor unit due to inrush current. Therefore, unless the indoor unit has broken down, do not use the method.
2. Never operate the unit for 5 min or longer.

※Cautions

1. Applying power directly to the outdoor unit will cause a rush current to stress the outdoor unit. Therefore, if the indoor unit is not out of order, do not use the method descried in 2).
2. Before making the connections, be sure to turn off the breaker.
3. Do not under any circumstances run the product for more than 5 minutes.
4. Doing work with the compressor connector removed will cause the LD301 to blink 4 times. It will not start.
5. For another test run, turn off the breaker and turn it back on. (The test switch is accepted only once after power-on. After operation by remote control, it is not accepted.)
6. When the operation with the test switch is over, turn off the breaker and set the connectors back.

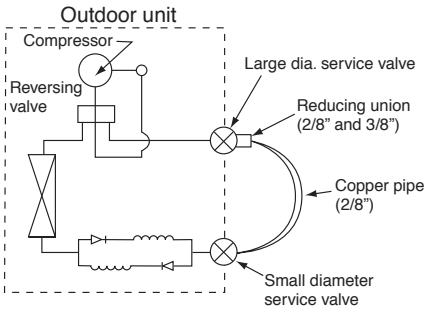
HOW TO OPERATE THE OUTDOOR UNIT INDEPENDENTLY

RAC-25/35FXB

1. Connect the large dia. pipe side and small dia. pipe side service valve using a pipe.

Connect the small diameter service valve and the large diameter service valve using the reducing union and copper pipe as shown on the right.

Charge refrigerant of 300g after vacuuming (※1)



Parts to be prepared

(1) Reducing union
2/8" (6.35 mm)
3/8" (9.52 mm)
(2) Copper pipe (2/8" and 3/8")

Do not operate for more than 5 minutes

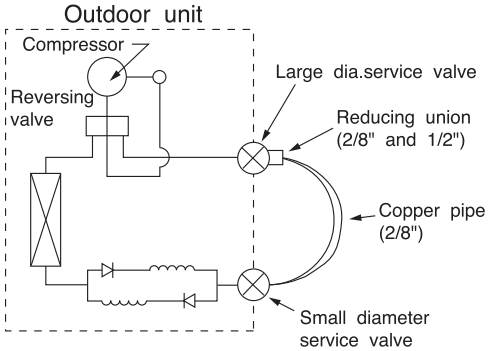
The operation method is the same as "How to operate using the connector to servicing the outdoor unit".
※1 The charging amount of 300g is equivalent to the load in normal operation.

RAC-50FXB

1. Connect the large dia. pipe side and small dia. pipe side service valves using a pipe.

Connect the small diameter service value and the large diameter service valve using the reducing union and copper pipe as shown on the right.

Charge refrigerant of 300g after vacuuming (※1)



Parts to be prepared

(1) Reducing union
2/8" (6.35mm)
1/2" (12.7mm)
(2) Copper pipe (2/8" and 1/2")
(3) Shorting leads
2 leads approx. 10 cm long with alligator clip or IC clip

Do not operate for 5 minutes or more.

The operation method is the same as "How to operate using the connector to servicing the outdoor unit".
※1 The charging amount of 300g is equivalent to the load in normal operation.

HOW TO CHANGE THE SHIFT VALUE SETTING TEMPERATURE

The shift value setting temperature for Cooling and Heating mode operation can be change using remote controller. (This procedure shall be implemented strictly by service personnel only.)

(For initial shift value temperature setting for Cooling mode (SHIFTC) and Heating operation mode (SHIFTW) : Please refer to page 40)

PROCEDURES

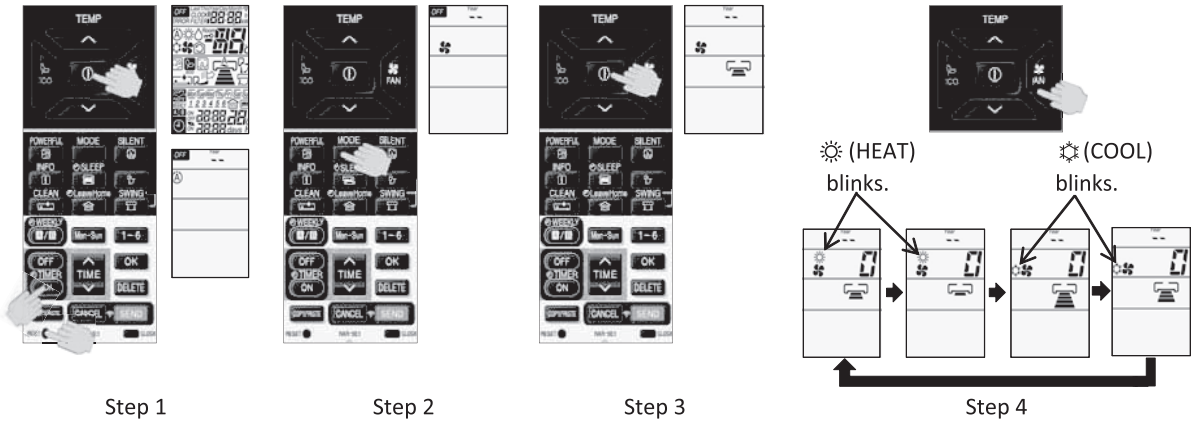
1. While pressing and holding ⏻ (START/STOP) button and TIMER ON (ON) button, press RESET ◯ [RESET] button on the same. Release RESET ◯ [RESET] button only and make sure that all marks on the remote controller display are indicated, then release the ⏻ (START/STOP) button and TIMER ON [ON] button. Remote controller now enters "Shift Value Change Mode".

2. Press the MODE (MODE) selector button so that the display indicates (FAN) mode.

3. Press the ⏻(START/STOP) button and FAN operation will be started.

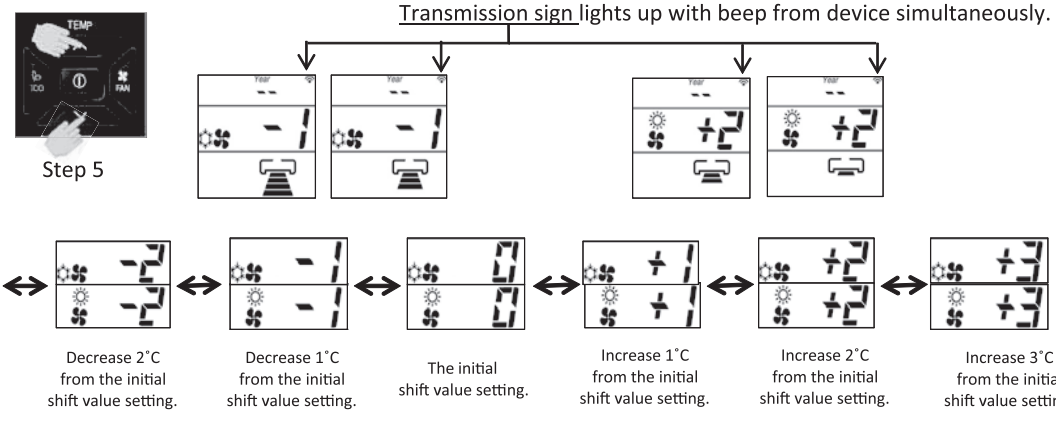
4. Set the FAN SPEED with the FAN (FAN SPEED) button according to the following FAN speed setting in order to choose the desired operation mode that is required for shift value setting temperature modification.

   - To change the shift value for COOLING mode operation, select either (HIGH) or (MED) FAN SPEED.
   - To change the shift value for HEATING mode operation, select either (LOW) or (SILENT) FAN SPEED.



Step 1 Step 2 Step 3 Step 4

5. Press the (TEMP ﹀ or ﹀) button to change the shift value.
   (The shift value changed with device beep sound.)



NOTE :

(1) The displayed shift value, (HEAT) and (COOL) symbol on the remote controller display will be disappear after 10 seconds.

(2) The changed shift value will remain unchanged after turned off the power.

(3) If "0" is displayed on the remote controller display, it indicates the shift value is now at the initial setting.

SETTING THE PREVENTION OF MUTUAL INTERFERENCE FOR REMOTE CONTROLLER

(Applicable for Remote controller model : RAR-5E1, RAR-5E2, RAR-5E3, RAR-5E4 and RAR-5E5)

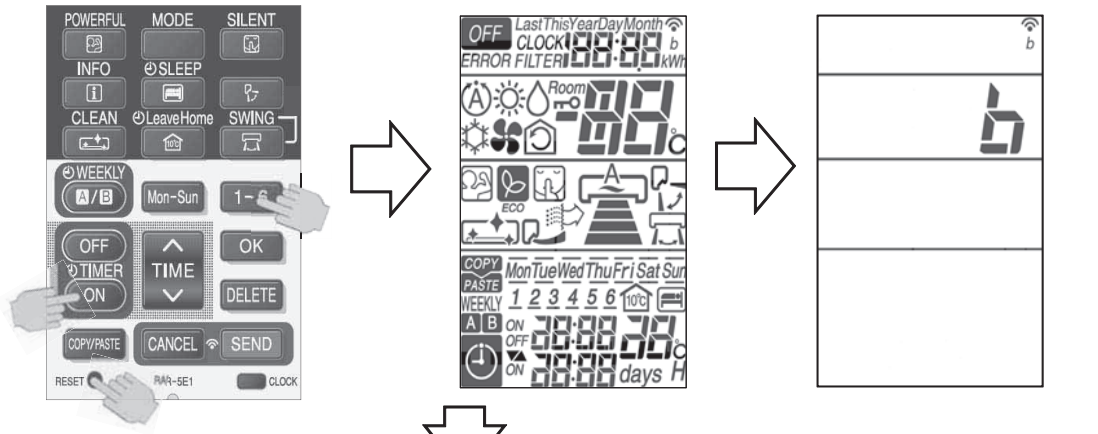
Case : 2 sets of indoor units installed near to each other.
If both indoor units can receive the same remote controller signal, please set the remote controller as below. (This setting will change the signal address of each remote controller.)

Initial remote controller signal address setting is A.
This procedure change the remote controller signal address from A to **B**.

1. The circuit breaker for the other unit shall be OFF.

2. Slide the remote controller cover to take it off.
3. While directing the remote controller towards the receiver of the indoor unit, press 1~6 button, TIMER ON (ON TIMER) button and RESET (RESET) button simultaneously. (The remote controller perform signal transmission with the device.)

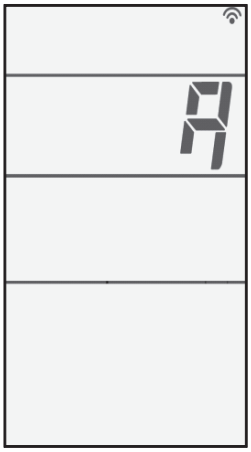
Signal transmission : From A to B



4. The indoor unit beeps [Pip] to indicate that it has just received the signal from remote controller.

5. Please check the usability of each set of indoor unit using its own remote controller.

Signal transmission : From B to A



Note : If indoor unit still not receive the correct signal from the correct remote controller, setting shall be made again.
By setting again for the 2nd time, the signal address will change from B to **A**. Then, if repeat again for the 3rd time, the remote controller signal address will change from A to **B**.
Please set the DIP switch No.6 to ON accordingly (Refer to page 59).

OPERATION MODE LOCK SETTING

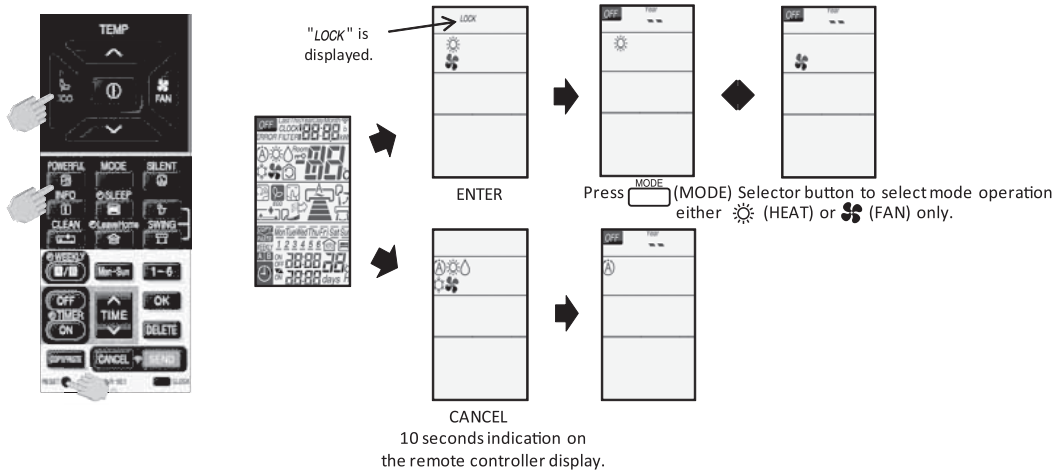
If Dip switch position is set at "Heating mode only" or "Cooling mode only" as mentioned on page 59, it is required to set the remote controller into operation mode lock setting. Without setting the remote controller, it will caused unmatch signal transmission between indoor unit and remote controller.

PROCEDURE

1. Heating operation mode lock setting

(a) While pressing and holding ECO (ECO) button and POWERFUL (POWERFUL) button, press RESET (RESET) button on the same time. Release RESET (RESET) button only and make sure that all marks on the remote controller display are indicated, then release the ECO (ECO) button and POWERFUL (POWERFUL) button.
Remote controller now enters "Heating operation mode lock".

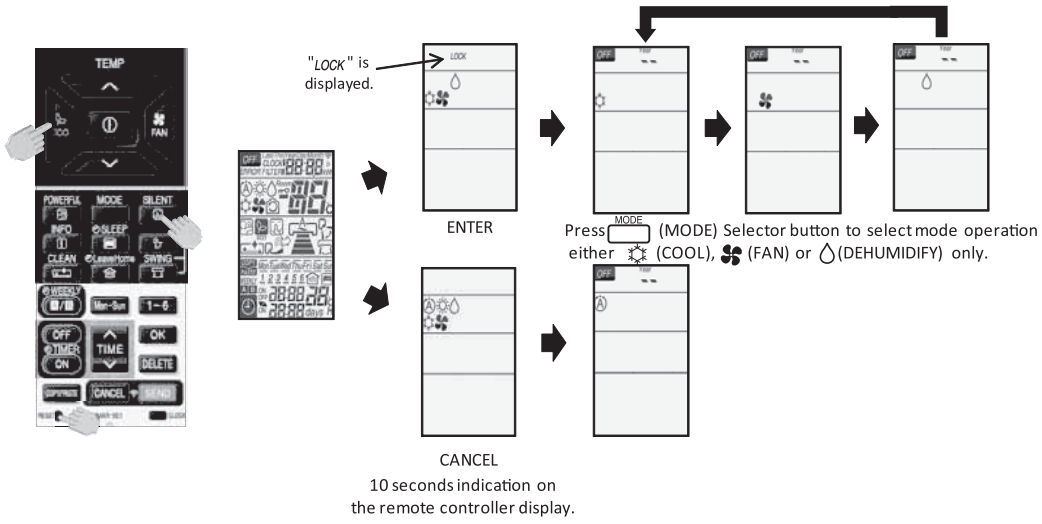
(b) To cancel the "Heating operation mode lock", repeat the above procedure (1(a)).



2. Cooling opearation mode lock setting

(a) While pressing and holding ECO (ECO) button and SILENT (SILENT) button, press RESET (RESET) button on the same time. Release RESET (RESET) button only and make sure that all marks on the remote controller display are indicated, then release the ECO (ECO) button and SILENT (SILENT) button.
Remote controller now enters "Cooling operation mode lock".

(b) To cancel the "Cooling operation mode lock", repeat the above procedure (2(a)).



NOTE :

(1) The indication of " LOCK " and (" "(HEAT), " " (COOL)," " (FAN) or " "(DEHUMIDIFY)) mode operation symbol on the remote controler display will disappear after 10 seconds and it will enters to OFF condition indicated by OFF on the display.

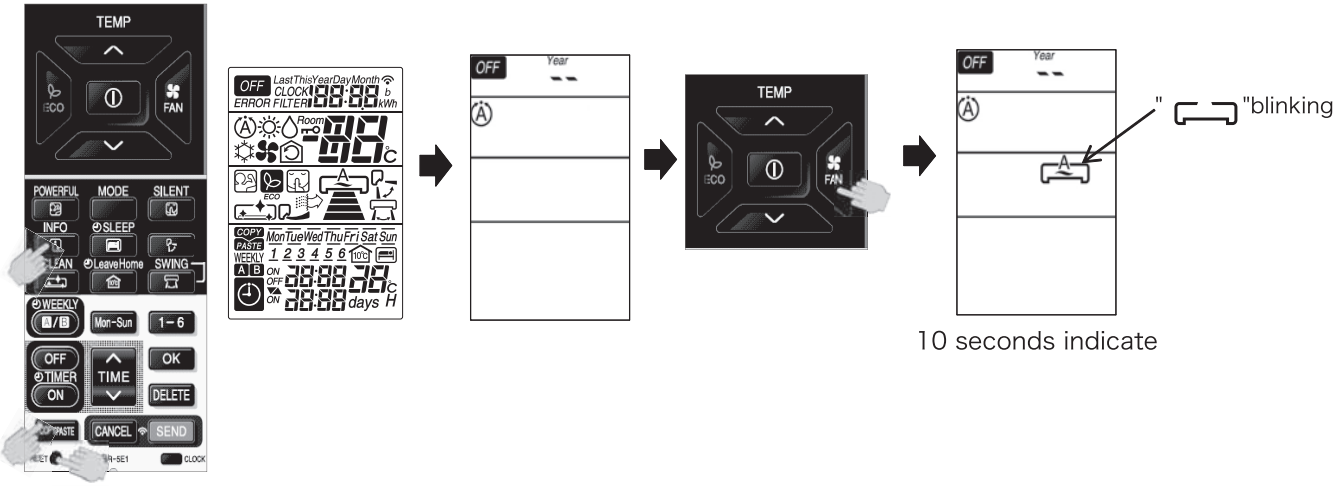
(2) The OPERATION MODE LOCK setting will remain in the remote controller memory eventhough the remote controller is ran out of battery.

DISPLAY OPERATION MODE SETTING

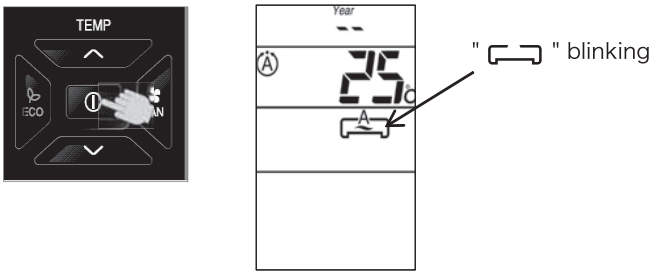
For operating indoor unit independently (without outdoor unit connection), remote controller has to be set according to below procedures before send the signal to the indoor unit. New communication format between indoor and outdoor is required to communicate with outdoor unit.

PROCEDURE

1. While pressing and holding INFO (INFO) button and COPY/PASTE (COPY/PASTE) button, press RESET (RESET) button on the same time. Release RESET (RESET) button only and make sure that all marks on the LCD display are indicated, then release the INFO (INFO) button and COPY/PASTE (COPY/PASTE) button.
   Remote controller now enters "DISPLAY OPERATION MODE" for the indoor unit to run independently.
   Please ensure that when pressing FAN (FAN) button, "⌐¬" will blinking.



2. Press the MODE (MODE) selector button to choose the desired operation mode.
3. Press ⏻ (START/STOP) button.
   Then, the indoor unit will starts to operate independently accoring the selected operation mode.



NOTE :

(1) During "DISPLAY OPERATION MODE", "⌐¬" blinks on LCD of remote controller.

(2) When operation stops, "DISPLAY OPERATION MODE" is canceled.

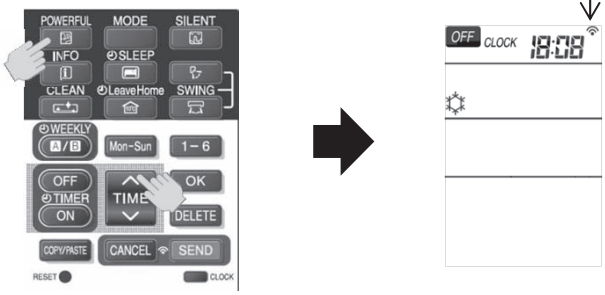
HOW TO CHANGE THE FAN SPEED IN COOLING MODE DURING THERMO OFF

The fan speed in Cooling mode during thermo off can be changed by the remote controller.
(This procedure shall be implemented strictly by service personnel only.)
It is possible to return it to the default setting.

PROCEDURE

Press POWERFUL [POWERFUL] button and TIME [TIME ∧ (UP)]] button simultaneously for about 5 seconds when the remote controller is OFF.

Transmission sign lights up with beep from indoor unit simultaneously.



Beep sound pattern : 1) Default setting : Short beep
2) Changed setting : Double beep

	Fan speed during thermo off
Default setting	Ultra low
Changed setting	Set fan speed (When auto fan speed is set, the fan speed is low.)

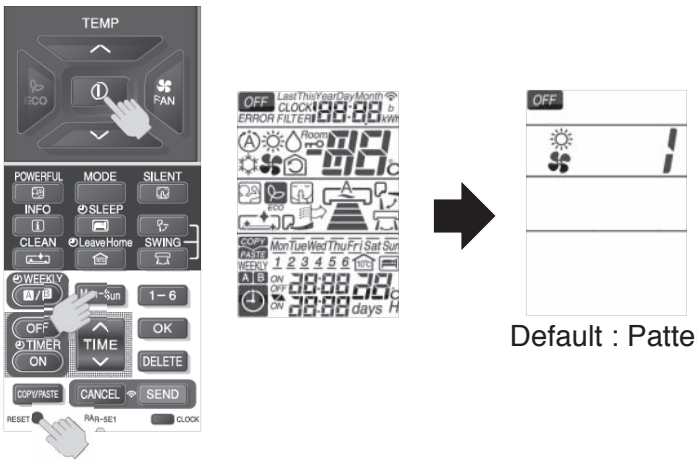
NOTE :
(1) The selected fan speed will remain unchanged after the unit is turned off.
(2) If Timer reservation has been set, it will be canceled.
(3) During time setting and timer setting, this operation cannot be set.

HOW TO CHANGE THE INTERMITTENT FAN CONTROL SETTING

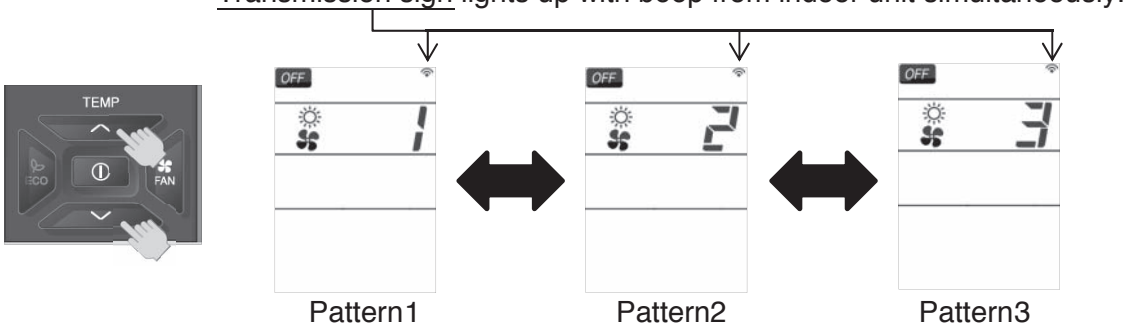
The intermittent fan control during thermo off in Heating mode can be changed by the remote controller.
(This procedure should be done only by service personnel.)
It is possible to select from 3 patterns.

PROCEDURE

1. Press [START/STOP] button, [Mon-Sun] button and press RESET [RESET] button simultaneously.
   Release RESET [RESET] button only and make sure that all marks on the remote controller display are indicated, then release [START/STOP] button and [Mon-Sun] button.
   Remote controller now enters “Intermittent Fan Control Change Mode”.



2. Press [ROOM TEMPERATURE setting] [∧ (UP)]/[∨ (DOWN)] buttons.
   (The intermittent pattern changed with indoor unit beep sound.)

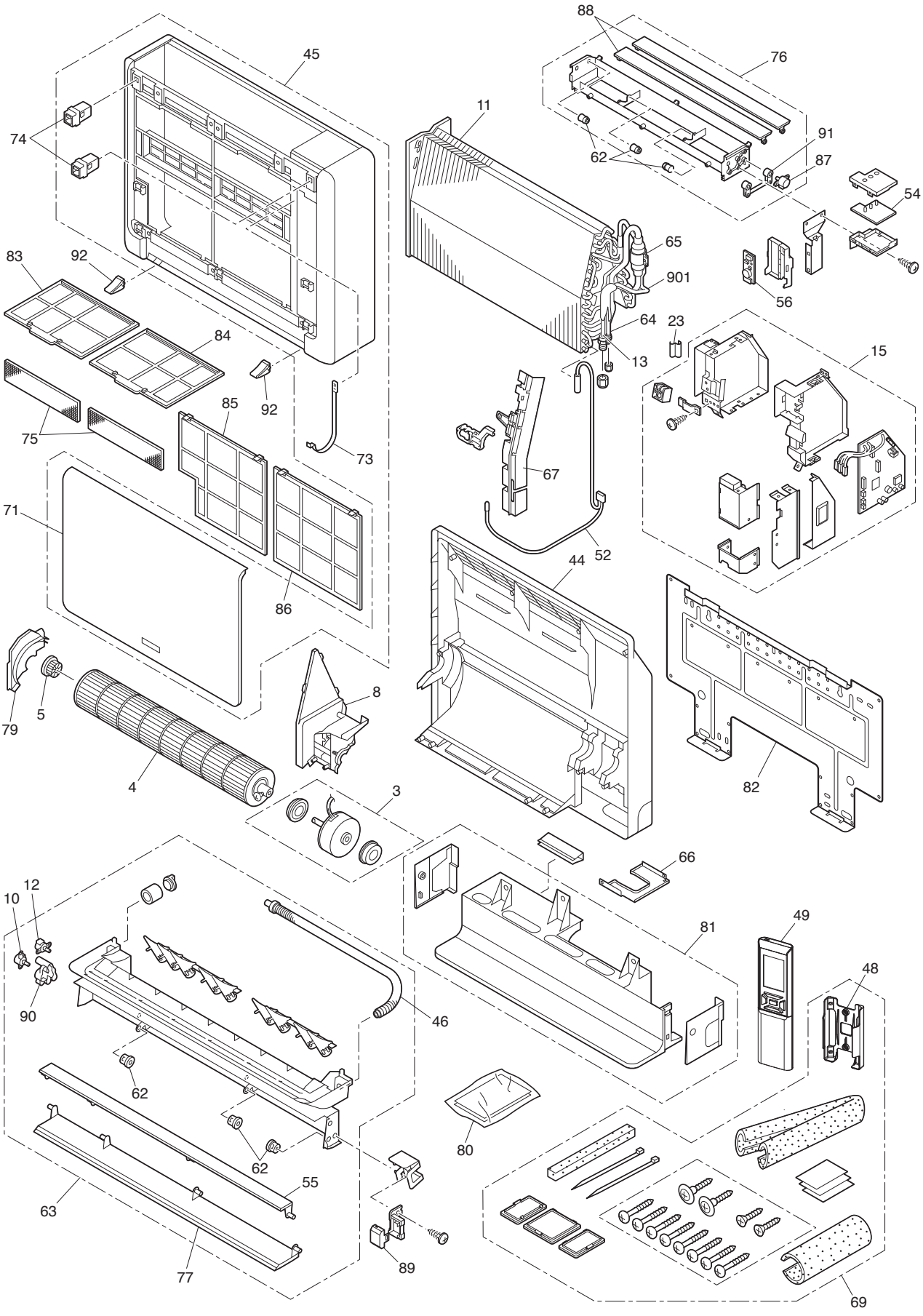


	Pattern 1	Pattern 2	Pattern 3
Single model	Continuous	30sec ON/210sec OFF repeatedly	50sec ON/190sec OFF repeatedly
Multi model	30sec ON/210sec OFF repeatedly	50sec ON/190sec OFF repeatedly	Continuous

NOTE :
(1) The indication of the selected intermittent pattern will disappear after 10 seconds.
(2) The selected intermittent pattern will remain unchanged after the unit is turned off.

PARTS LIST AND DIAGRAM

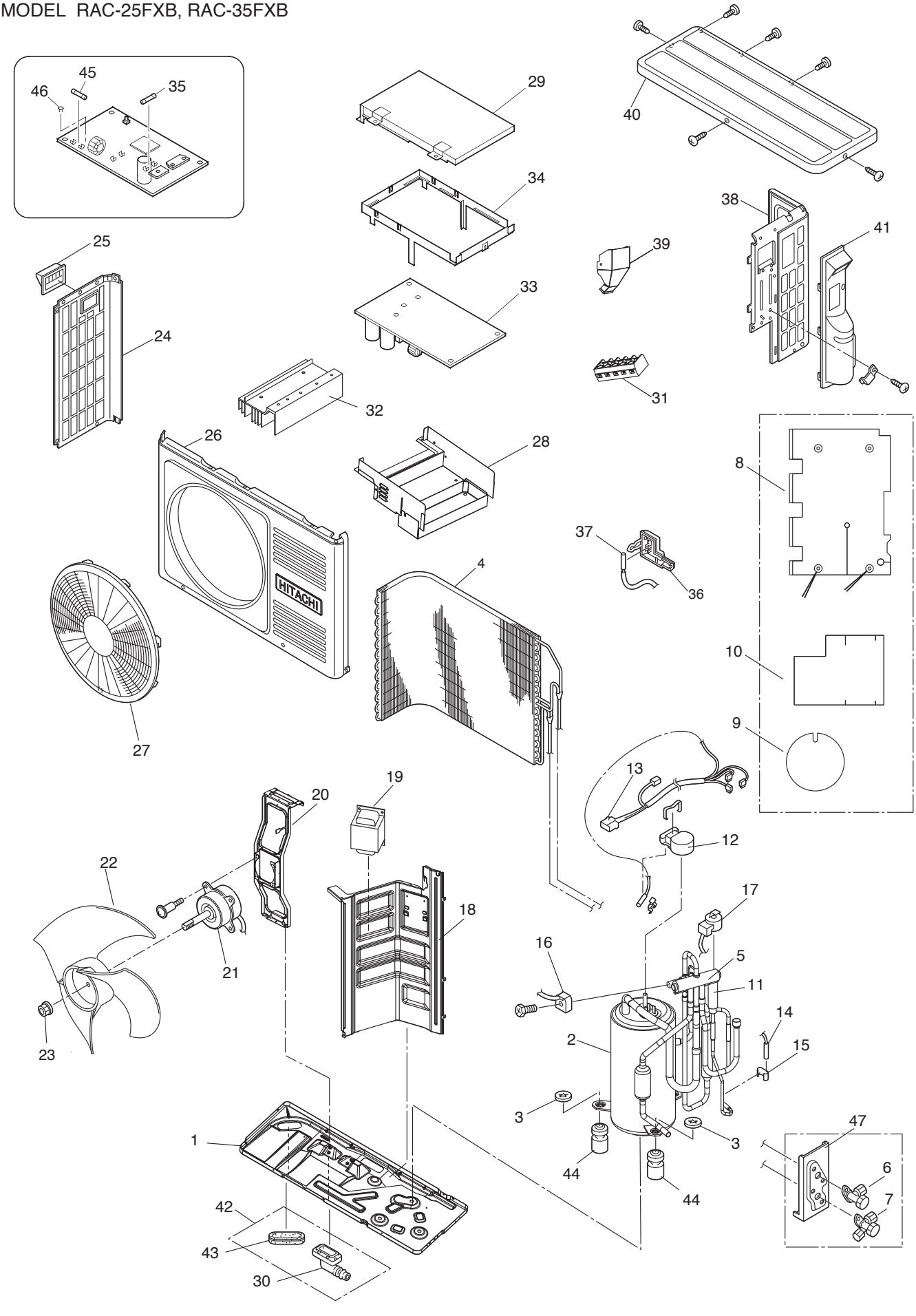
MODEL RAF-25RXB, RAF-35RXB, RAF-50RXB



MODEL RAF-25RXB, RAF-35RXB, RAF-50RXB

NO.	PARTS NO.			Q'TY/ UNIT	PARTS NAME
	RAF-25RXB	RAF-35RXB	RAF-50RXB		
3		RAF-50A2 002		1	FAN MOTOR DC 38W, 1.1kg
4		RAS-N22V 005		1	TANGENTIAL FAN
5		RAS-E40V2 041		1	FAN SUPPORT ASSEMBLY
8		RAF-50A2 028		1	FAN MOTOR SUPPORT
10		RAS-E40V2 268		1	AUTO SWEEP MOTOR
11		RAF-35RXB 902	RAF-50RXB 902	1	HEATEXCHANGER ASSEMBLY
12		RAF-50RXB 916		1	AUTO SWEEP MOTOR
13		RAS-N22V 806	RAF-50RXB 806	1	UNION (3), (4)
15	RAF-25RXB 901	RAF-35RXB 901	RAF-50RXB 901	1	P.W.B. (CONTROL)
23		RAS-LJ22W 004		1	BULB SUPPORT WITH SHEET
44		RAF-50RXB 903		1	CABINET (W)
45		RAF-50RXB 904		1	FRONT COVER ASSEMBLY (W)
46		RAF-50RXB 905		1	DRAIN HOSE
48		RAF-25QXA 903		1	REMOCON SUPPORT
49		RAF-50RXB 906		1	REMOTE CONTROL ASSEMBLY
52		RAS-S40C2 036		1	THERMISTOR ASSEMBLY
54		RAF-50FX8 913		1	P.W.B. (INDICATION)
55		RAF-50Y2 022		1	WIDE DEFLECTOR 2
56		RAMF-36CS 005		1	SENSOR (HUMIDITY)
62		RAF-50W2 038		6	DEFLECTOR SUPPORT
63		RAF-50RXB 907		1	DISCHARGE FRAME (W)
64		RAF-50Y2 805		1	UNION (2)
65		RAF-50RXB 908		1	PIPE BAND
66		RAF-50Y2 029		1	RAT PREVENTION COVER
67		RAF-50Y2 041		1	PIPE COVER
69		RAF-50RXB 909		1	ACCESSARIES ASSEMBLY
71		RAF-50RXB 910		1	FRONT PANEL (W)
73		ATI-0972B 983		1	BAND (FOR FRONT PANEL)
74		RAF-50W2 052		2	LATCH 1 (FRONT COVER)
75		RAF-50FX8 924		1	AIR CLEAN FILTER
76		RAF-50RXB 911		1	SUCTION FRAME (W)
77		RAF-50RXB 912		1	WIDE DEFLECTOR 1 (W)
79		RAF-50Y2 014		1	FAN COVER
80	RAF-25RXB 902	RAF-35RXB 902	RAF-50RXB 913	1	LABEL ASSEMBLY
81		RAF-50RXB 914		1	STAND (W)
82		RAF-36Z 019		1	MOUNTING PLATE
83		RAF-50Y2 057		1	FILTER (UP) (LEFT)
84		RAF-50Y2 058		1	FILTER (UP) (RIGHT)
85		RAF-50Y2 059		1	FILTER (LEFT)
86		RAF-50Y2 060		1	FILTER (RIGHT)
87		RAF-50Y2 006		1	SUC-DEFLECTOR MOTOR
88		RAF-50RXB 915		2	DEFLECTOR (UPPER) (W)
89		RAF-25QXA 901		1	LIGHT RECEIVING UNIT
90		RAF-50Y2 067		1	GEAR MOTOR
91		RAF-50FX8 942		1	CONNECTING ROD
92		RAF-50FX8 943		2	SCREW COVER (W)

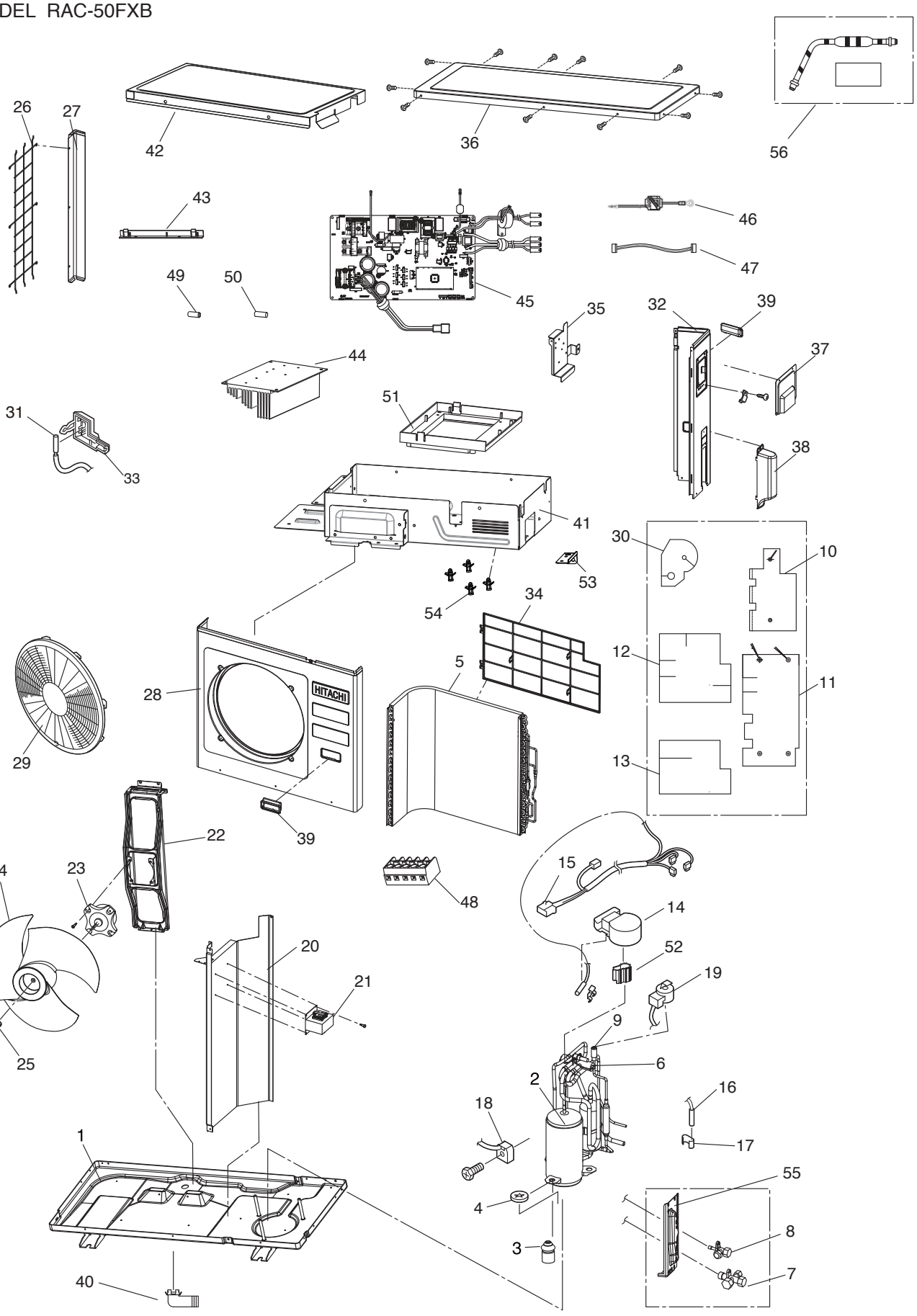
MODEL RAC-25FXB, RAC-35FXB



MODEL RAC-25FXB, RAC-35FXB

NO.	HHAW PARTS NO.		Q'TY/ UNIT	PARTS NAME
	RAC-25FXB	RAC-35FXB		
1	HWRAC-25FXB A01		1	BASE
2	HWRAC-25YH4 A02		1	COMPRESSOR
3	HWRAC-25YH4 A04		3	PUSH NUT
4	HWRAC-25FXA A01		1	CONDENSER
5	HWRAC-25FXB A02		1	REVERSING VALVE
6	HWRAC-25FXB A03		1	2S-VALVE
7	HWRAC-25FXB A04		1	3S-VALVE
8	HWRAC-25FXB A05		1	SOUND PROOF COVER ASSEMBLY
9	HWRAC-18WSA A09		1	SOUND PROOF COVER ASSEMBLY
10	HWRAC-25FXB A06		1	SOUND PROOF COVER ASSEMBLY
11	HWRAC-E08H A05		1	ELECTRIC EXPANSION VALVE
12	HWRAC-18WSA A10		1	O.L.R. COVER
13	HWRAC-18WSA A11		1	CONNECTING CORD (COMPRESSOR)
14	HWRAC-D10EX A08		1	THERMISTOR (DEFROST)
15	HWRAC-25WX8 A02		1	THERMISTOR SUPPORT
16	HWRAC-SX10HAK A20		1	COIL (REVERSING VALVE)
17	HWRAC-D10EX2 A07		1	COIL (EXPANSION VALVE)
18	HWRAC-25FXB A07		1	PARTITION
19	HWRAC-18WEB A10		1	REACTOR 1
20	HWRAC-D10EX A11		1	FAN MOTOR SUPPORT
21	HWRAC-50NX2 A23		1	FAN MOTOR
22	HWRAC-14BH3 914		1	PROPELLER FAN
23	HWRAC-25YH4 A24		1	NUT (PROPELLER FAN)
24	HWRAC-25YH4 A25		1	SIDE COVER (L)
25	HWRAC-25YH4 A26		1	HANDLE
26	HWRAC-25FXB A08		1	FRONT COVER
27	HWRAC-E14H3 909		1	DISCHARGE GRILL
28	HWRAC-25FXB A09		1	ELECTRIC PARTS PLATE
29	HWRAC-35WPB A08		1	ELECTRIC PARTS COVER
30	HWRAC-25YH4 A50		1	DRAIN PIPE
31	HWRAC-18WEB A19		1	TERMINAL BOARD (5P)
32	HWRAC-35WPB A09		1	HEAT SINK (REGURATOR 1)
33	HWRAC-25FXB A10	HWRAC-35FXB A11	1	P.W.B. (POWER)
34	HWRAC-35WPB A11		1	SUPPORT (P.W.B.)
35	HWRAC-18WEB A22		1	FUSE (15A)
36	HWRAC-10EH4 A13		1	COVER (OUT DOOR THERMISTOR)
37	HWRAC-D10EX A17		1	THERMISTOR (OUTDOOR TEMPERATURE)
38	HWRAC-25YH5 A03		1	SIDE COVER (R)
39	HWRAC-35WPB A12		1	TERMINAL COVER
40	HWRAC-25YH4 A46		1	TOP COVER
41	HWRAC-25YH4 A47		1	SERVICE VALVE COVER
42	HWRAC-25YH4 A48		1	BUSH ASSEMBLY
43	HWRAC-25YH4 A49		1	BUSH
44	HWRAC-25YH4 A03		3	COMPRESSOR RUBBER
45	HWRAC-E08H A11		1	FUSE (15A)
46	HWRAC-50NX2 A52		2	FUSE (3.15A)
47	HWRAC-25FXB A12		1	VALVE PLATE

MODEL RAC-50FXB



MODEL RAC-50FXB

NO.	HHAW PARTS NO.		Q'TY/ UNIT	PARTS NAME
1	HWRAC-50WXB	A01	1	BASE
2	HWRAC-50WEA	A02	1	COMPRESSOR
3	HWRAC-50WEA	A03	3	COMPRESSOR RUBBER
4	HWRAC-50NX2	A04	3	PUSH NUT
5	HWRAC-50WXB	A02	1	CONDENSER
6	HWRAC-50FXB	A01	1	REVERSING VALVE
7	HWRAC-50WEA	A05	1	SERVICE VALVE
8	HWRAC-50WEA	A06	1	SERVICE VALVE
9	HWRAC-50NX2	A09	1	ELECTRIC EXPANSION VALVE
10	HWRAC-50FXB	A02	1	SOUND PROOF
11	HWRAC-50FXB	A03	1	SOUND PROOF
12	HWRAC-50FXB	A04	1	SOUND PROOF
13	HWRAC-50FXB	A05	1	SOUND PROOF
14	HWRAC-50WEA	A11	1	O.L.R. COVER
15	HWRAC-50WXB	A04	1	CONNECTING CORD (COMPRESSOR)
16	HWRAC-50WXB	A28	1	THERMISTOR (DEFROST)
17	HWRAC-50NX2	A17	1	THERMISTOR SUPPORT
18	HWRAC-SX10HAK	A20	1	COIL (REVERSING VALVE)
19	HWRAC-E08H	A09	1	COIL (EXPANSION VALVE)
20	HWRAC-50WXB	A05	1	PARTITION
21	HWRAC-18WSPA	A06	1	REACTOR
22	HWRAC-50WXB	A06	1	FAN MOTOR SUPPORT
23	HWRAC-50NX2	A23	1	FAN MOTOR
24	HWRAC-50WXB	A07	1	PROPELLER FAN
25	HWRAC-25YH4	A24	1	NUT (PROPELLER FAN)
26	HWRAC-50WXB	A09	1	NET LEFT
27	HWRAC-50WXB	A10	1	LEFT PLATE
28	HWRAC-50FXB	A06	1	FRONT COVER
29	HWRAC-50WXB	A12	1	DISCHARGE GRILL
30	HWRAC-50FXB	A07	2	SOUND PROOF
31	HWRAC-50WXB	A14	1	THERMI-C
32	HWRAC-50WXB	A15	1	SIDE COVER (R)
33	HWRAC-50WXB	A16	1	TC-COVER
34	HWRAC-50WXB	A17	1	PROTECTIVE NET
35	HWRAC-50WXB	A18	1	TER-PLATE
36	HWRAC-50WXB	A19	1	TOP COVER
37	HWRAC-50WXB	A20	1	TERMINAL-COVERAS
38	HWRAC-50WXB	A21	1	EV-COVER
39	HWRAC-50WXB	A22	2	HANDLE
40	HWRAC-50WXB	A23	1	DRAIN PIPE
41	HWRAC-50WXB	A24	1	ELECTRIC PARTS PLATE
42	HWRAC-50WEB	A06	1	ELECTRIC PARTS COVER
43	HWRAC-50WEB	A07	2	SUPPORT (P.W.B.)
44	HWRAC-50WEB	A08	1	HEAT SINK
45	HWRAC-50FXB	A08	1	P.W.B. (MAIN)
46	HWRAC-50WEB	A10	1	12 CORD ASSEMBLY
47	HWRAC-50WEB	A11	1	CORD ASSEMBLY
48	HWRAC-18WEB	A18	1	TERMINAL BOARD (5P)
49	HWRAC-50NX2	A51	1	FUSE (25A)
50	HWRAC-50NX2	A52	2	FUSE (3.15A)
51	HWRAC-50WEB	A13	1	SUPPORT (P.W.B.)
52	HWRAC-50WEB	A14	1	O.L.R. COVER
53	HWRAC-50WXB	A26	1	FIX-PLATE
54	HWRAC-50WXB	A27	4	PC-SUP
55	HWRAC-50FXB	A09	1	VALVE-ZA
56	HWRAC-50FXB	A10	1	S-PIPEAS

HITACHI

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