

HITACHI

HHAW

NO.0081E-3

SERVICE MANUAL TECHNICAL INFORMATION

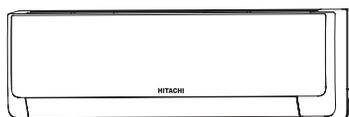
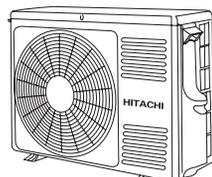
FOR SERVICE PERSONNEL ONLY

RAK-25PXB/RAC-25WXB
RAK-35PXB/RAC-35WXB
RAK-50PXB/RAC-50WXB

REFER TO THE FOUNDATION MANUAL

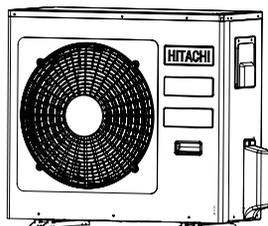
OUTDOOR UNIT

INDOOR UNIT



RAC-25WXB
RAC-35WXB

RAK-25PXB
RAK-35PXB
RAK-50PXB



RAC-50WXB

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SPECIFICATIONS

TYPE	DC INVERTER													
	INDOOR UNIT		OUTDOOR UNIT		INDOOR UNIT		OUTDOOR UNIT							
MODEL	RAK-25PXB		RAC-25WXB		RAK-35PXB		RAC-35WXB		RAK-50PXB		RAC-50WXB			
POWER SOURCE	1 PHASE,50HZ,220-230V				1 PHASE,50HZ,220-230V				1 PHASE,50HZ,220-230V					
COOLING	TOTAL INPUT (W)		545 (250~1,220)				910 (250~1,400)				1,560 (500~2,100)			
	TOTAL AMPERES (A)		3.19-3.05				4.81-4.60				7.30-6.98			
	CAPACITY	(KW)	2.50 (0.90~3.10)				3.50 (0.90~4.00)				5.00 (1.90~5.20)			
		(B.T.U./h)	8,530 (3,070~10,580)				11,940 (3,070~13,650)				17,060 (6,480~17,740)			
HEATING	TOTAL INPUT (W)		700 (250~1,200)				950 (250~1,600)				1,560 (500~2,700)			
	TOTAL AMPERES (A)		3.85-3.68				4.93-4.72				7.45-7.12			
	CAPACITY	(KW)	3.20 (0.90~4.20)				4.00 (0.90~4.80)				5.80 (2.20~7.00)			
		(B.T.U./h)	10,920 (3,070~14,330)				14,330 (3,070~16,380)				20,470 (7,510~24,910)			
DIMENSIONS (mm)	W	900	750(+65)*		900	750(+65)*		900	800(+63)*					
	H	295	548		295	548		295	736					
	D	210	288(+27.5)*		210	288(+27.5)*		210	350(+35.5)*					
NET WEIGHT (Kg)		11	34		11	34		11	49.5					

* After installation

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

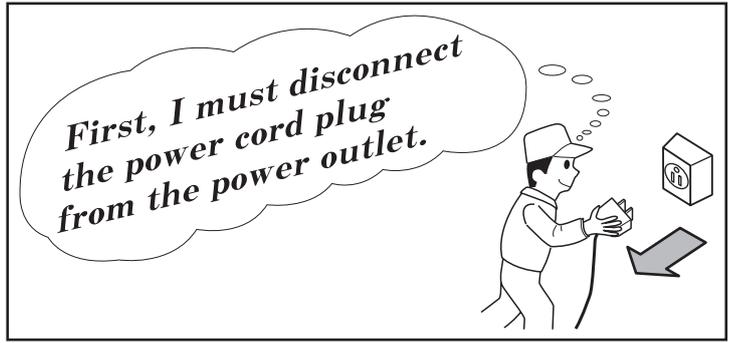
ROOM AIR CONDITIONER

INDOOR UNIT +OUTDOOR UNIT

Hitachi Household Appliances(Wuhu) Co., Ltd.

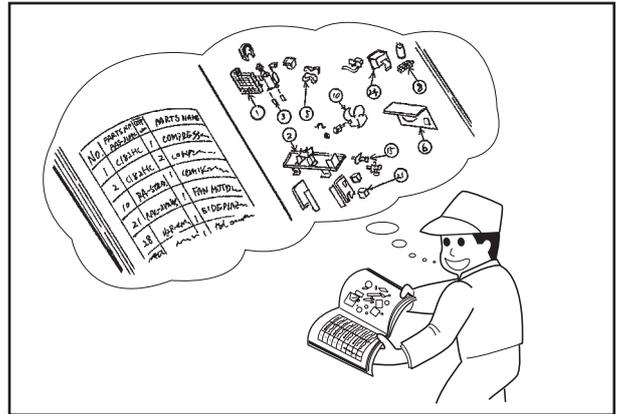
SAFETY DURING REPAIR WORK

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.)

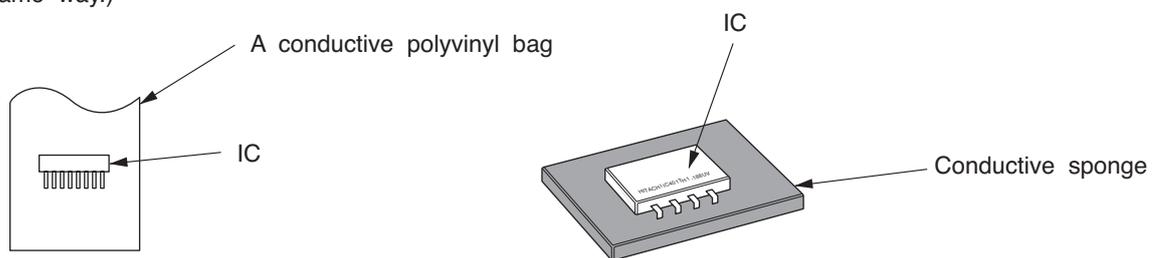


Fig. 1 Conductive container

- (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.

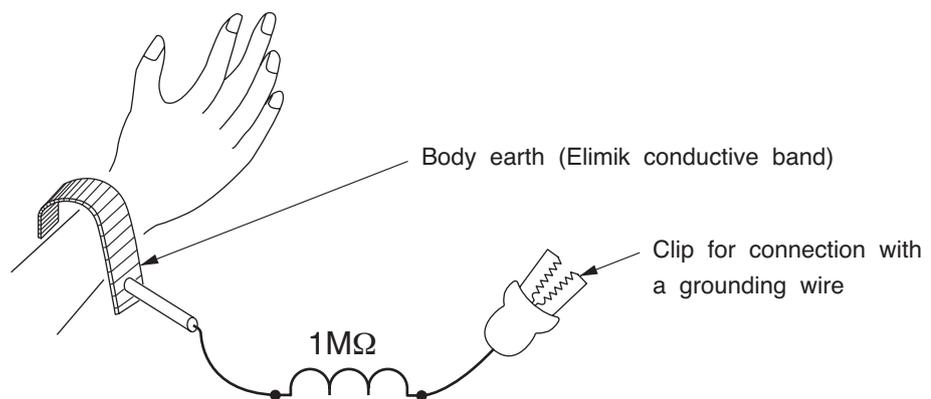


Fig. 2 Body earth

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

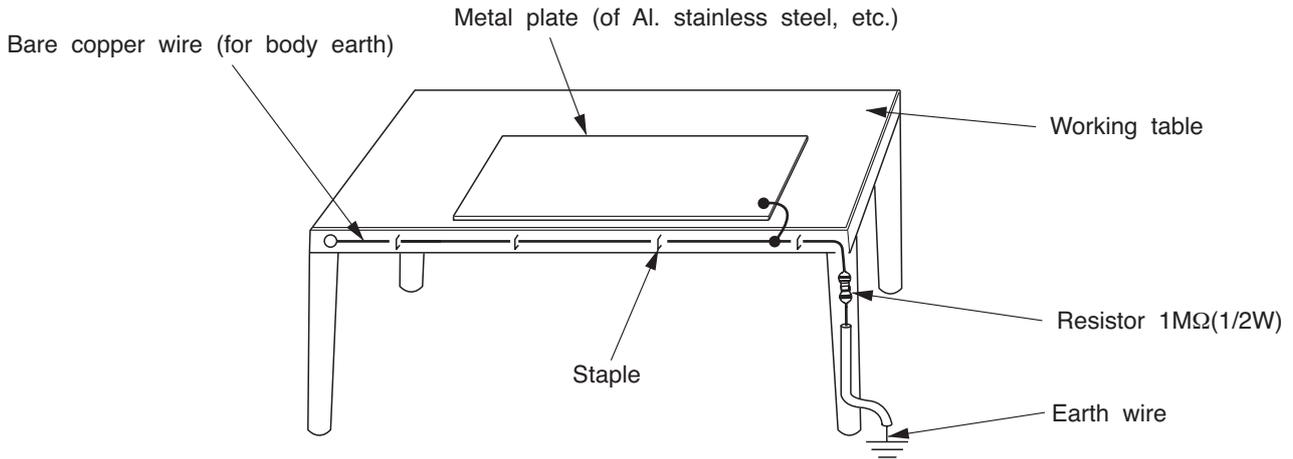


Fig.3 Grounding of the working table

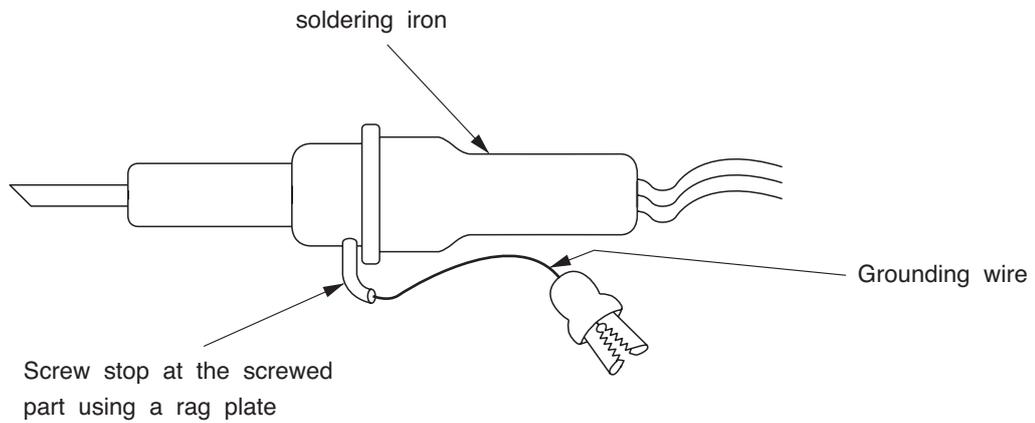


Fig.4 Grounding a solder iron

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 restart automatically in the previously selected mode once the power is restored. In the event of power failure during TIMER operation, the room air conditioner 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.

SPECIFICATIONS

MODEL		RAK-25PXB RAK-35PXB RAK-50PXB	RAC-25WXB	RAC-35WXB	RAC-50WXB
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		YES	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	-----	1080g	1170g	1350g
	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 RAK-25PXB/RAC-25WXB
RAK-35PXB/RAC-35WXB

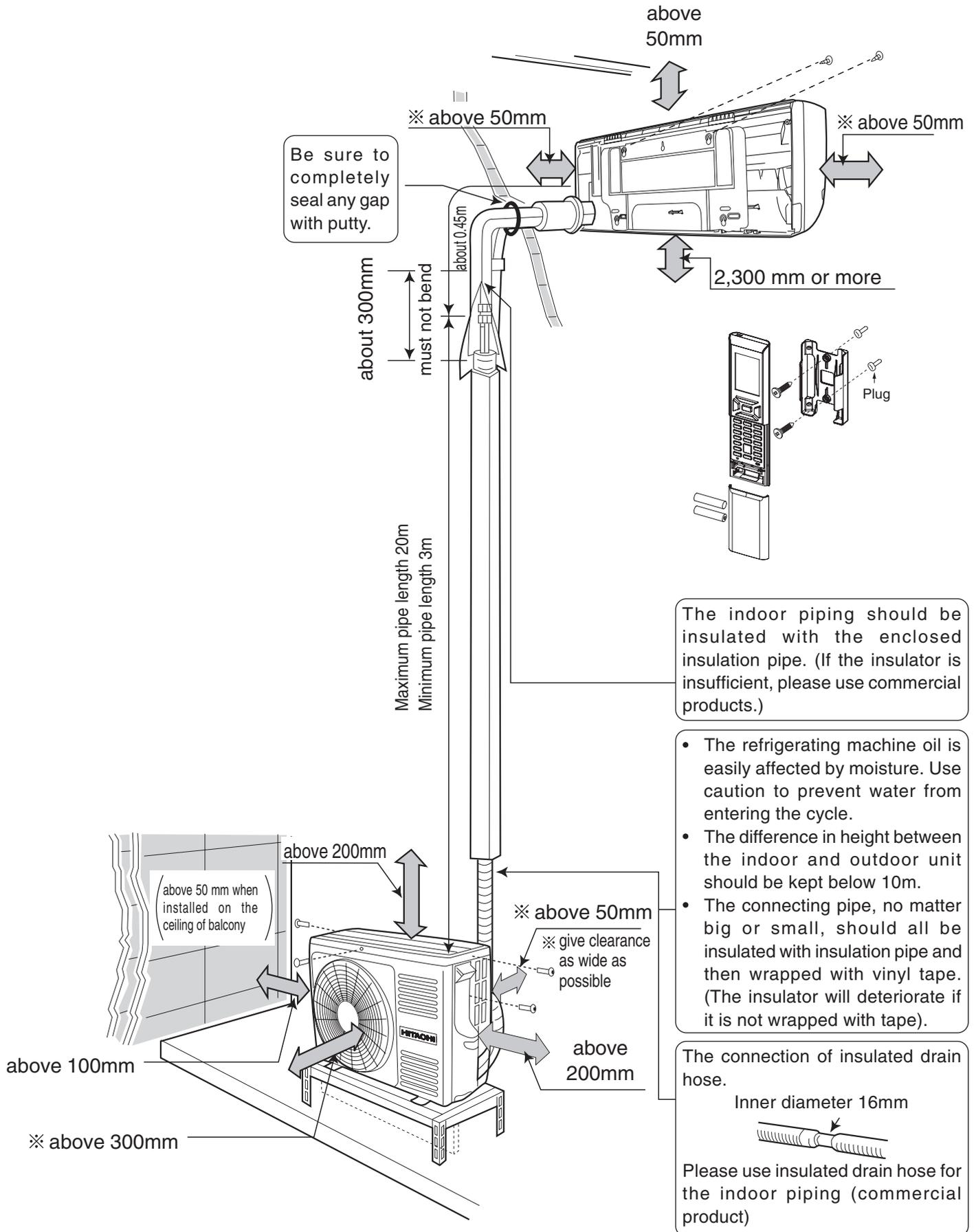
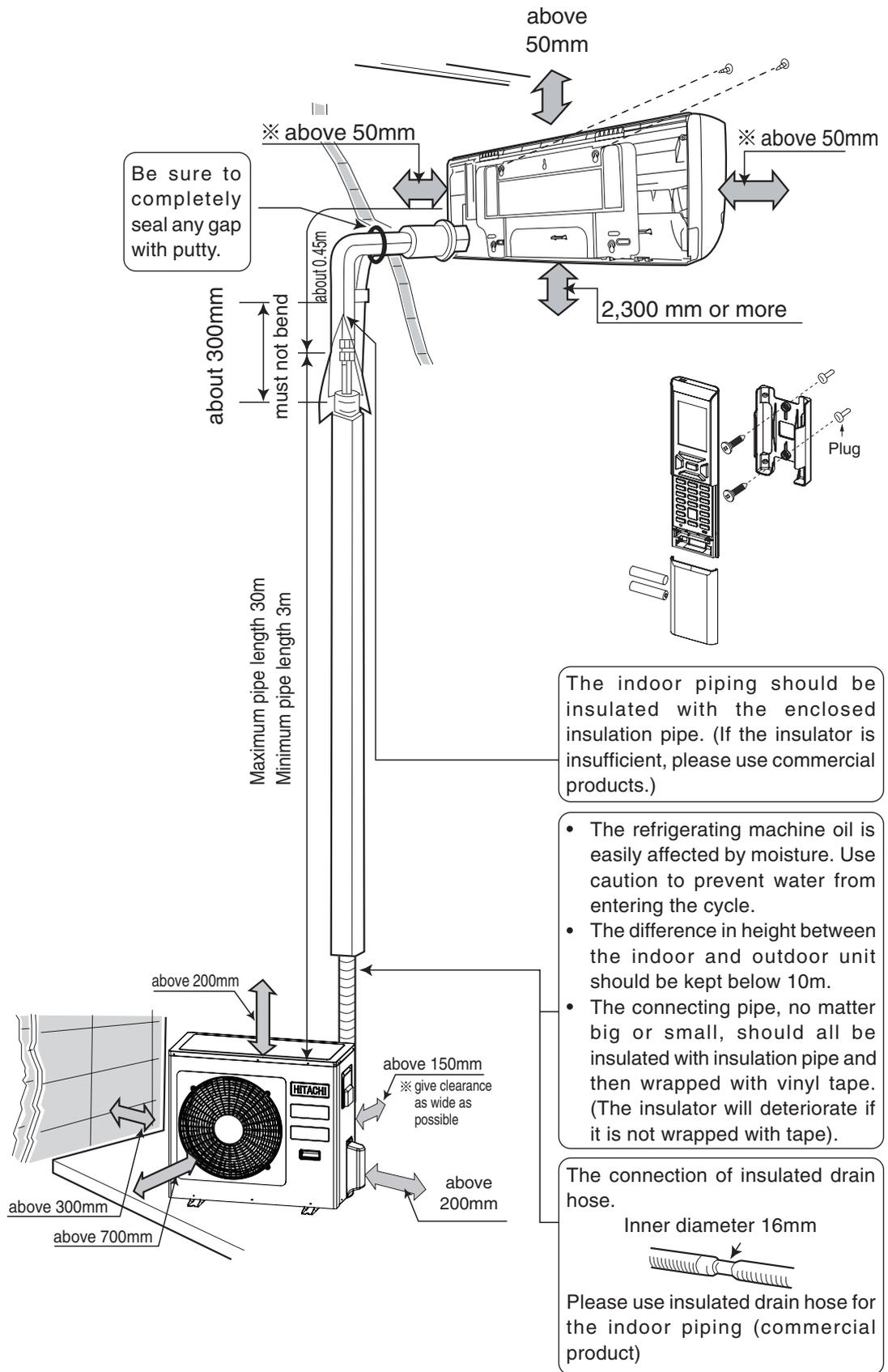
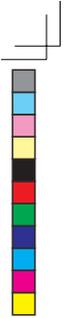


Figure showing the installation of Indoor and Outdoor unit

MODEL RAK-50PXB/RAC-50WXB



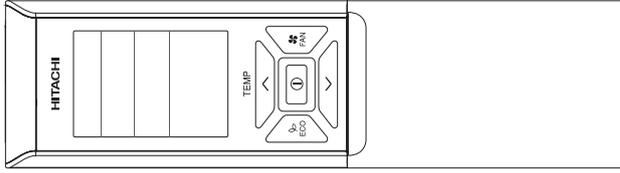


HITACHI

Remote Controller Manual

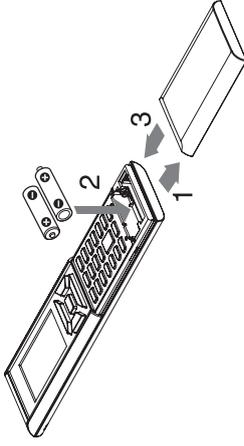
MODEL

RAR-5E1



PREPARATION BEFORE OPERATION

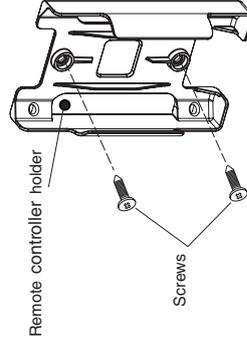
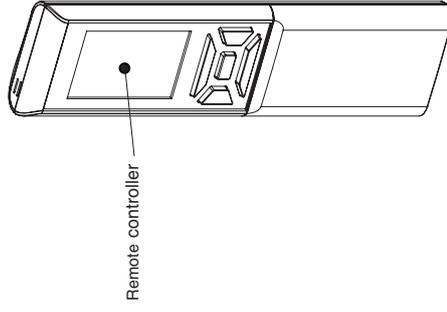
■ To install the batteries



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.

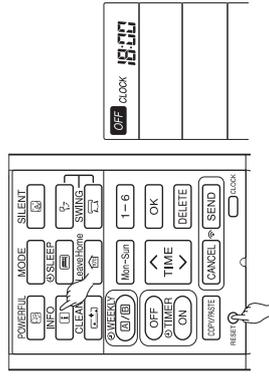
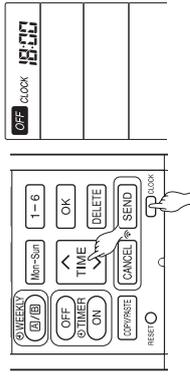
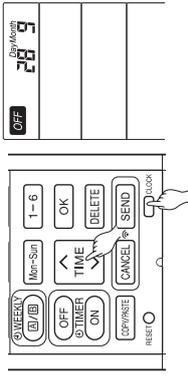
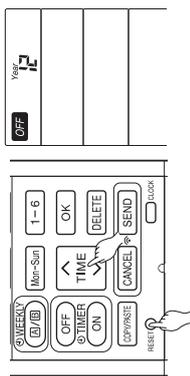
Notes on the remote controller

- 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.

ENGLISH



PREPARATION BEFORE OPERATION



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.

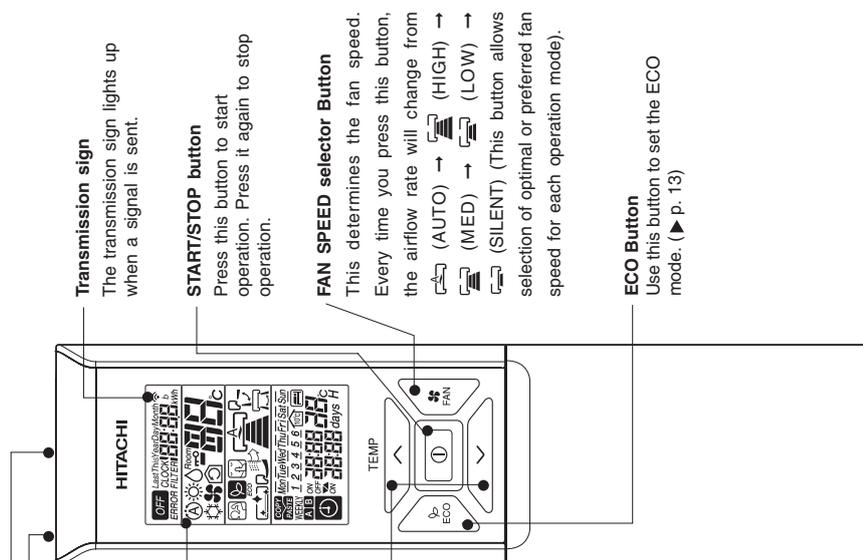
ROOM TEMPERATURE setting Buttons

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)

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,

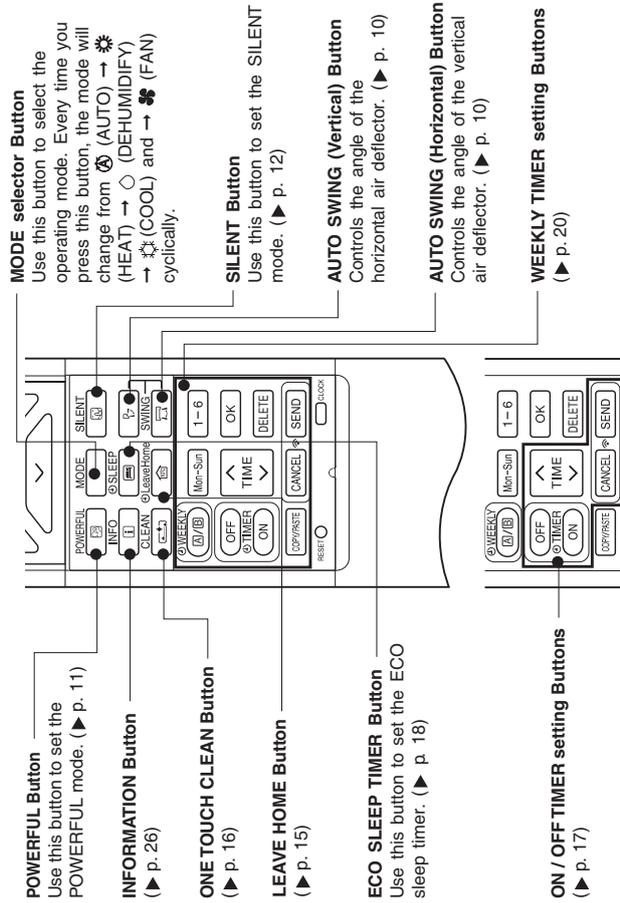
1. Press **RESET** (RESET) button.
2. Direct remote controller towards indoor unit and press **INFO** (INFO) button.
3. The calendar and clock from indoor unit will be transmitted.

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).

NAMES AND FUNCTIONS OF REMOTE CONTROLLER

ENGLISH



MODE SELECTOR	FAN	ON / OFF TIMER
AUTO	POWERFUL	TIME
HEAT	SILENT	OK
DEHUMIDIFY	INFO	DELETE
COOL	SLEEP TIMER	COPY / PASTE
FAN	AUTO SWING (VERTICAL)	CANCEL
FAN SPEED	AUTO SWING (HORIZONTAL)	SEND
AUTO	LEAVE HOME	CLOCK
SILENT	CLEAN	
LOW	Mon-Sun DAY	
MED	1-6 PROGRAM NO.	
HIGH		
START / STOP		
ECO		

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 unplugging 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.

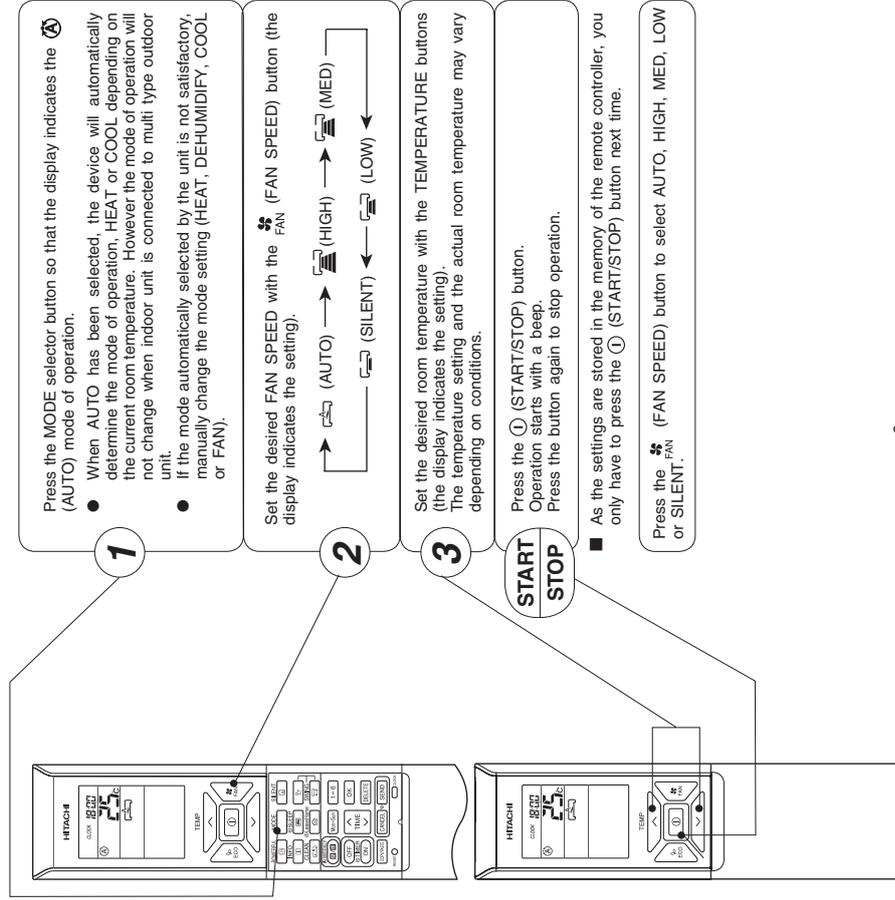
VARIOUS FUNCTIONS

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.

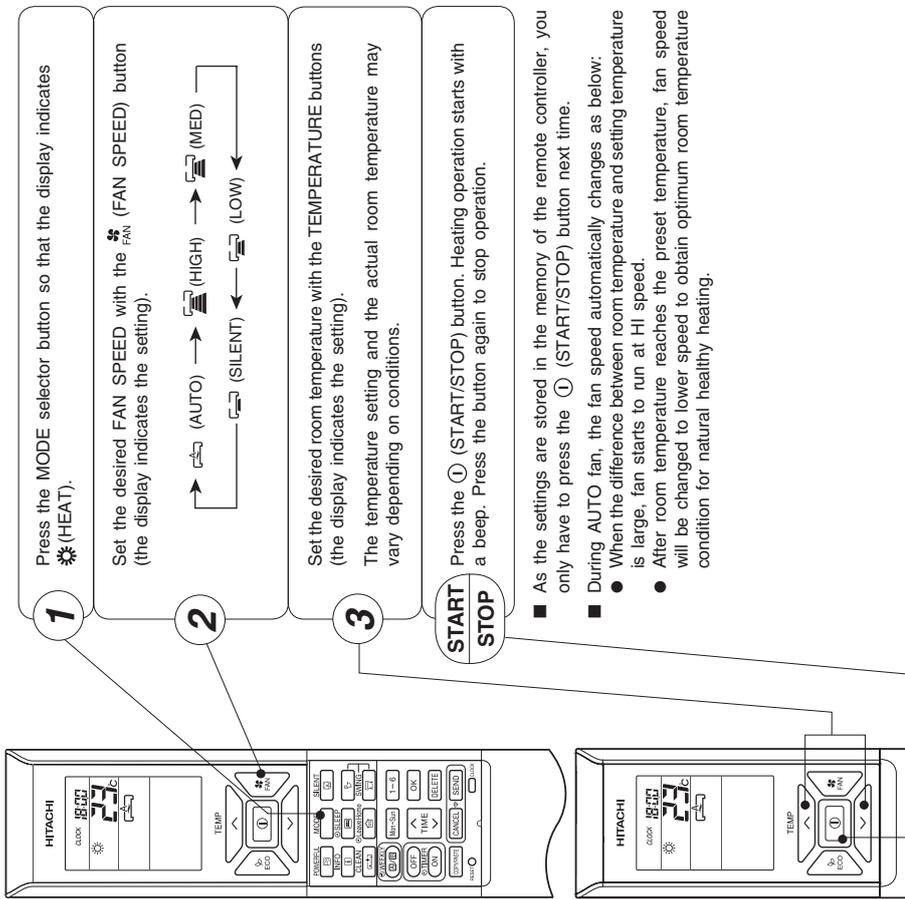
AUTOMATIC OPERATION

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.



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.

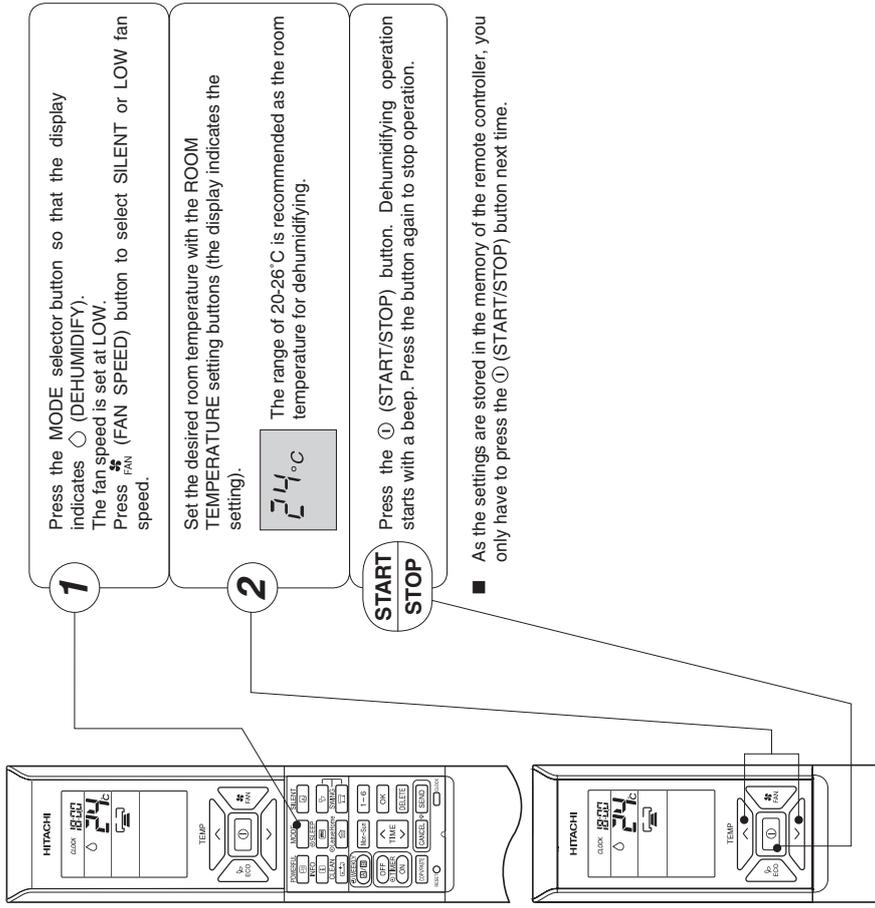


Defrosting

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.



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) → (LOW) → (SILENT) ←

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.

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.

START
STOP

- 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

VERTICAL SWING

■ To start Vertical Auto Swing

- Press **(AUTO SWING (VERTICAL))** button. The deflector(s) will start to swing up and down.
(V) 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.
(V) disappeared from the LCD.

HORIZONTAL SWING

■ To start Horizontal Auto Swing

- Press **(AUTO SWING (HORIZONTAL))** button. The deflectors will start to swing right and left.
(H) is displayed on the LCD.

■ To cancel Horizontal Auto Swing

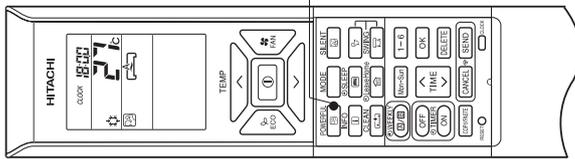
- Press **(AUTO SWING (HORIZONTAL))** button again. The deflectors will stop in the current position.
(H) disappeared from the LCD.

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.

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

- Press **POWERFUL** (POWERFUL) button during operation.
- "**POWERFUL**" 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

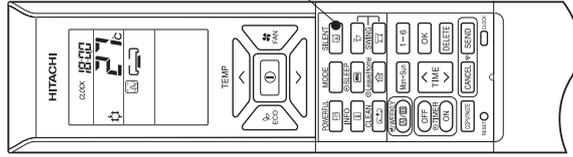
- Press the **START/STOP** button. Or
- Press **POWERFUL** (POWERFUL) button again. POWERFUL operation stops.
- "**POWERFUL**" disappears from the LCD.

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

- Press **SILENT** (SILENT) button during operation.
- "**SILENT**" 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.
- "**SILENT**" 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** (SILENT), if press **SILENT** (SILENT) button, fan speed will not change.

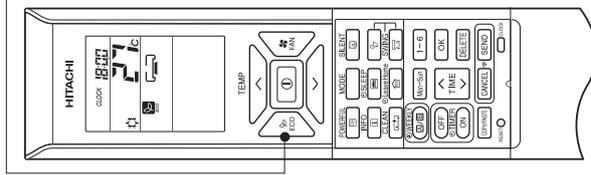


ECO OPERATION

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) button during AUTO, HEATING, DEHUMIDIFYING or COOLING operation, the air conditioner performs the "ECO" operation.

To start ECO operation

- Press (ECO) button during operation.

"" 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) button again.

"" disappears from the LCD.

A beep sound is emitted from indoor unit.

NOTE

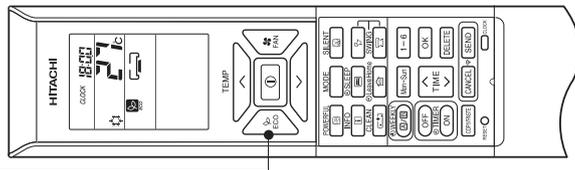
- ECO function will not be effective when power consumption is low.
- By pressing (POWERFUL) button, ECO operation is cancelled.
- After auto restart, ECO operation is cancelled and previous operation mode shall start.
- For multi model connections, energy saving operation shall start only by changing 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 energy saving operation by shifting the set temperature in two steps.



1

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

To start ECO operation

- Press (ECO) button during operation.

"" 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

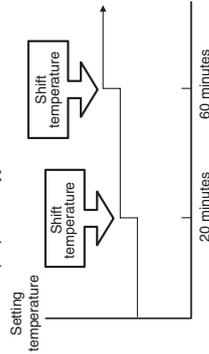
- Press (START/STOP) button. Or
- Press (ECO) button again.

"" disappears from the LCD.

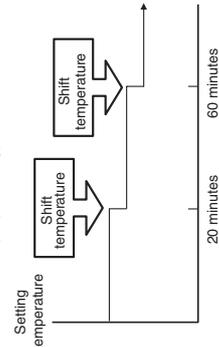
A beep sound is emitted from indoor unit and the (ECO) lamp on the indoor unit turns off.

When the presence of people is not detected for 20 minutes, the set temperature is automatically 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

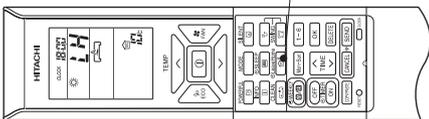
- By pressing (POWERFUL) button, ECO operation is cancelled.
- After auto restart, ECO operation is cancelled and previous operation mode shall start.

LEAVE HOME(LH) OPERATION

Prevent the room temperature from falling too much by setting temperature 10°C automatically when no one is at home. 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

To start LEAVE HOME operation



Option 1. Continuous operation.

- Press **LEAVE HOME** (LEAVE HOME) button during stop or operation. Room temperature is set at 10°C and heating operation starts. "10", "LH", "H", "H", "H" is displayed on the LCD.

Option 2. Day timer operation.

- Press **LEAVE HOME** (LEAVE HOME) button during stop or operation. Room temperature is set at 10°C and heating operation starts. "10", "LH", "H", "H", "H" is displayed on the LCD.
- Set number of operation days (1 to 99 days), if needed.

1

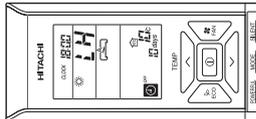
Press **TIME** (TIME) button to select number of days.

Number of days blink.

- Press "**UP**" to set number of days from 1 day, 2 days, 3 days 98 days, 99 days, 1 day and so on.
- Press "**DOWN**" to set number of days from 99 days, 98 days, 97 days 3 days, 2 days, 1 day, 99 days and so on.
- Number of day is counted when clock indicates 0:00.

- 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.

Day timer operation



To cancel LEAVE HOME operation

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

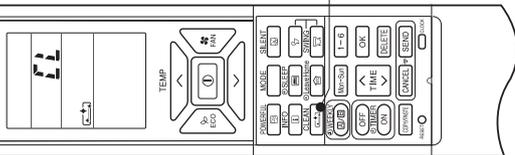
NOTE

- 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.
- For multi connections, when each room is running in different operation modes such as FAN only, COOLING, DEHUMIDIFYING or AUTO mode, Leave Home operation cannot operate even though it is possible to set Leave Home operation.
- In order to start Leave Home operation, all rooms must stop its operation. Then, press (LEAVE HOME) button to operate Leave Home operation.
- For multi connections, when all rooms are running HEATING operation, it is possible to operate Leave Home operation by pressing the (LEAVE HOME) button.
- For multi connections, if two or more rooms are set to operate Leave Home operation, the capability to reach the set temperature at 10°C may not be possible. In addition, this also depends on outdoor temperature.
- POWERFUL, SILENT and ECO operations are not applicable during Leave Home operation.

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.

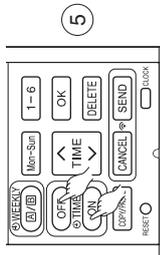
"1", "L", "H", "H", "H" is displayed on the LCD.

To cancel CLEAN operation

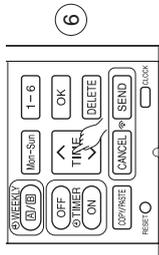
- Press **START/STOP** button. Or
- Press **CLEAN** (CLEAN) button again.

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.



5. Press **ON-OFF TIMER** button to select ON TIMER or OFF TIMER reservation.

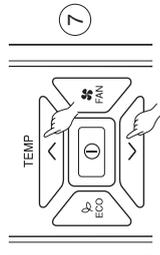


6. Press **TIME** button to set time reservation.

7. Press **TEMP** button to set temperature reservation.

8. Press **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.

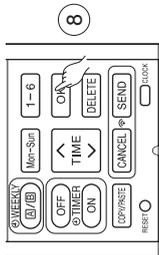
To continue with the reservation, press **Mon-Sun** **1-6** **OFF TIMER ON** buttons. Follow step 3 to 8 for reservation.



9. After all the reservations have been set, press **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.

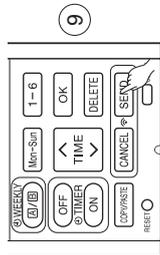
The reservation contents will appear on the remote controller display.



• If **TIMER** lamp on the indoor unit does not light up, press **SEND** button while directing the remote controller towards the indoor unit for about 3 seconds.

• **CAUTION!** Do not press **CANCEL** button during reservation setting because this will result in all reservation contents to be lost.

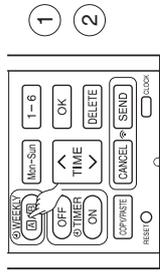
• The reservation contents will not be stored in the indoor unit until **SEND** button has been pressed.



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** 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** button is not pressed within 3 minutes after reservations have been made, all current reservations will be lost.

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



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

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

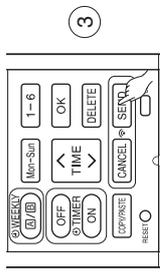
2. Press **WEEKLY** button again. **B** and **A** blink on the display.

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

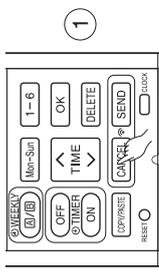
After beep sound emitted from indoor unit, **TIMER** lamp will light up.

Please ensure that the TIMER lamp lights up.

This indicates that Mode A or Mode B selection and active WEEKLY TIMER have been confirmed.



Setting non-active WEEKLY TIMER.



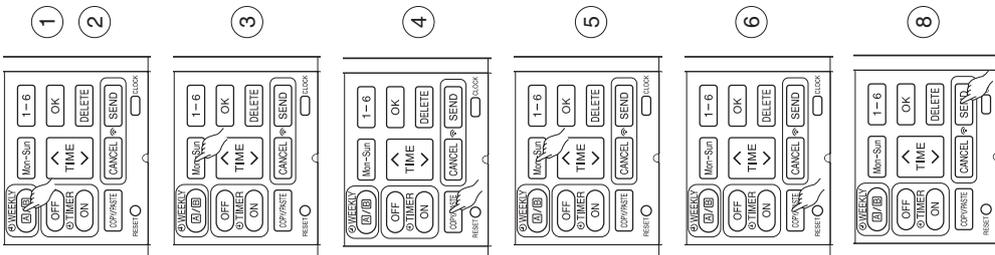
1. Direct the remote controller towards the indoor unit and press **CANCEL** button. Beep sound will be emitted from indoor unit and **TIMER** lamp will be OFF. Reservation indication on remote display will also disappear. This indicates that non-active WEEKLY TIMER has been confirmed.

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.

Step 3: Copy and cancel the reservation schedule.



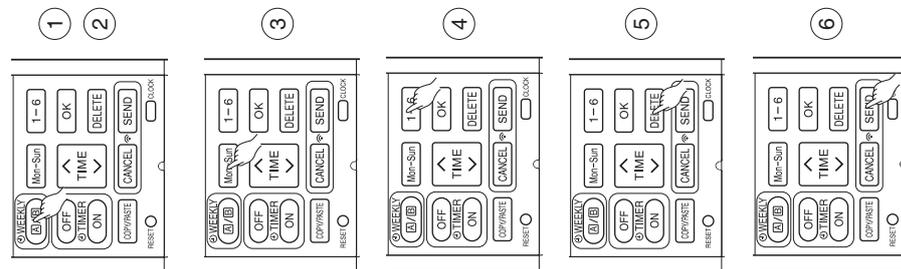
- How to copy and paste.
Editing the reservation schedule is easy by copying data from one day to another day.
- 1. Press **W** (WEEKLY) button to select Mode A or Mode B.
- 2. Press **W** (WEEKLY) button for about 3 seconds to start editing the reservation schedule.
- 3. Press **DAY** button to select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

Step 3: Copy and cancel the reservation schedule.

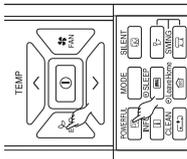


- How to delete WEEKLY TIMER data.
[Delete one program number reservation]
- 1. Press **W** (WEEKLY) button to select Mode A or Mode B.
- 2. Press **W** (WEEKLY) button for 3 seconds to start editing the reservation schedule.
- 3. Press **DAY** button to select a day of the week to edit.
- 4. Press **1-6** to select program number. Selected program number will blink.
- 5. Press **DELETE** 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.

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.

" ECO ", " POWERFUL " and " MODE " will be displayed for about 10 seconds. Later, " ECO " and " POWERFUL " will remain.

This indicates that HEATING mode operation is locked.

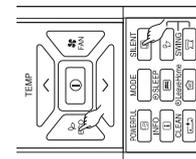


When pressing MODE (MODE) button, " ECO " or " POWERFUL " will be displayed.

- 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.

" ECO ", " SILENT ", " MODE " and " POWERFUL " will be displayed for about 10 seconds. Later, " ECO " and " POWERFUL " will remain.

This indicates that COOLING and DEHUMIDIFYING mode operation is locked.



When pressing MODE (MODE) button, " ECO ", " SILENT " or " POWERFUL " 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 "A Warning" and "A 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.
	Indicates the instructions that must be followed.

Please keep this manual after reading.

PRECAUTIONS DURING INSTALLATION

WARNING	<ul style="list-style-type: none"> • Do not reconstruct the unit. Water leakage, fault, short circuit or fire may occur if you reconstruct the unit by yourself. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Be sure to use the specified piping set for R410A. Otherwise, this may result in broken copper pipes or faults. 	
CAUTION	<ul style="list-style-type: none"> • A circuit breaker should be installed depending on the mounting site of the unit. Without a circuit breaker, the danger of electric shock exists. 	
	<ul style="list-style-type: none"> • 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. 	

PRECAUTIONS DURING SHIFTING OR MAINTENANCE

WARNING	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Please contact your agent for maintenance. Improper self maintenance may cause electric shock and fire. 	
	<ul style="list-style-type: none"> • 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

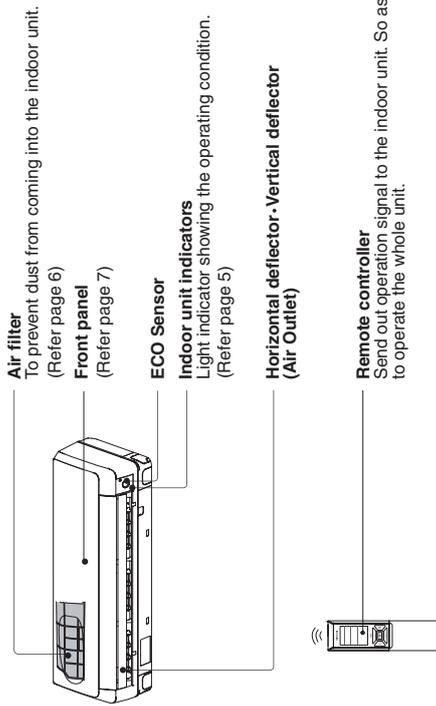
WARNING	<ul style="list-style-type: none"> • Avoid an extended period of direct airflow for your health. 	
	<ul style="list-style-type: none"> • Do not put objects like thin rods into the panel of blower and suction side because the high-speed fan inside may cause danger. 	
	<ul style="list-style-type: none"> • Do not use any conductor as fuse wire, this could cause fatal accident. 	
WARNING	<ul style="list-style-type: none"> • During thunder storm, disconnect the plug top and turn off the circuit breaker. 	
	<ul style="list-style-type: none"> • 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

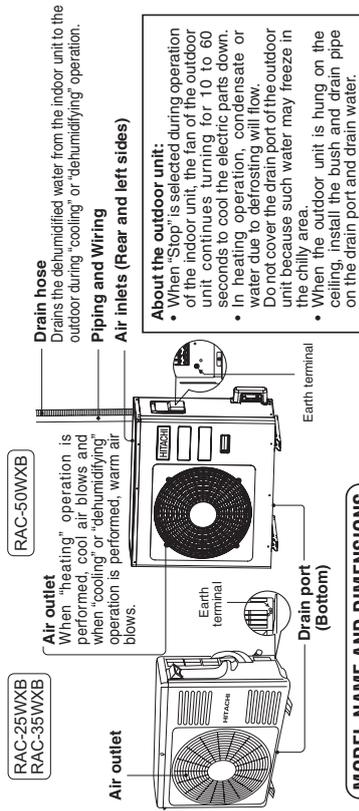
CAUTION	<ul style="list-style-type: none"> • The product shall be operated under the manufacturer specification and not for any other intended use. 	
	<ul style="list-style-type: none"> • Do not attempt to operate the unit with wet hands, this could cause fatal accident. 	
	<ul style="list-style-type: none"> • When operating the unit with burning equipments, regularly ventilate the room to avoid oxygen insufficiency. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Please ensure that outdoor mounting frame is always stable, firm and without defect. If not, the outdoor unit may collapse and cause danger. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Do not place plants directly under the airflow as it is bad for the plants. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • Turn off the circuit breaker if the unit is not operated for a long period. 	
	<ul style="list-style-type: none"> • Do not climb on the outdoor unit or put objects on it. 	
	<ul style="list-style-type: none"> • 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. 	
	<ul style="list-style-type: none"> • 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. 	
<ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • Do not touch the air outlet, bottom surface and aluminium fin of the outdoor unit. You may get hurt. 		
<ul style="list-style-type: none"> • Do not touch the refrigerant pipe and connecting valve. Burns may result. 		
<ul style="list-style-type: none"> • This appliance is not intended for use by young children or infirm persons unless they have been adequately supervised by a responsible person to ensure that they can use this appliance safely. • Young children should be supervised to ensure that they do not play with the appliance. 		

NAMES AND FUNCTIONS OF EACH PART

INDOOR UNIT



OUTDOOR UNIT

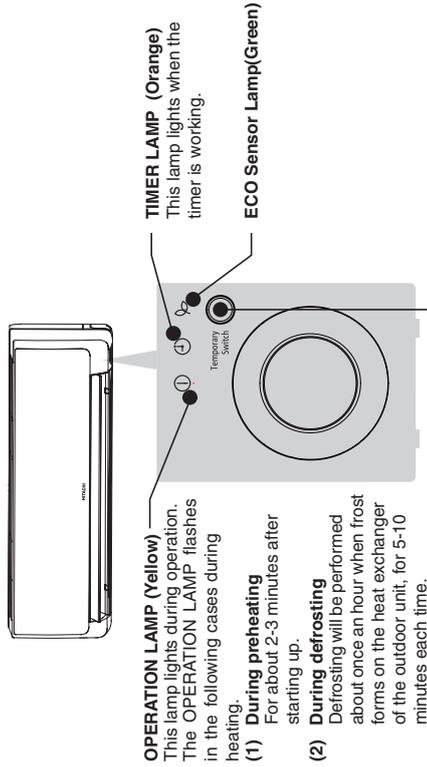


MODEL NAME AND DIMENSIONS

MODEL	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
RAK-25PXB,RAK-35PXB,RAK-50PXB	900	295	210
RAK-25WXB,RAK-35WXB	750	548	288
RAK-50WXB	800	736	350

NAMES AND FUNCTIONS OF EACH PART

INDOOR UNIT INDICATIONS



CAUTION

Turn off the circuit breaker if the unit is not operated for a long period.

TEMPORARY SWITCH

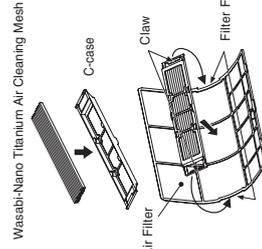
Use this switch to start and stop when the remote controller does not work.

- 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.

☆ If the power stays on and the unit is not operated, power is slightly consumed in the control circuit. The power is saved by turning off the power switch (or the circuit breaker when the power is supplied from the outdoor unit).

Attaching the Wasabi-Nano Titanium Air Cleaning Mesh (Accessories) to the filter frame.

- Attach the Wasabi-Nano Titanium Air Cleaning Mesh to the C-case by gently compress its both sides and release after insertion into filter frame.
- The cooling capacity is slightly weakened and the cooling speed becomes slower when the Wasabi-Nano Titanium Air Cleaning Mesh are used.
- Wasabi-Nano Titanium Air Cleaning Mesh are washable and reusable up to 20 times by using vacuum cleaner or water rinse under running tap water. When you want to renew it, please ask your sales agent. Optional air cleansing and deodorizing filters.



MAINTENANCE

▲ CAUTION

Cleaning and maintenance must be carried out only by qualified service personnel. Before cleaning, stop operation and switch off the power supply.

1. AIR FILTER

Please clean the filter once about every two weeks. By doing so, the power rates are saved. In case the air filter is full of dust, the air flow will decrease and the cooling capacity will be reduced. Further, noise may occur. Be sure to clean the filter following the procedure below.

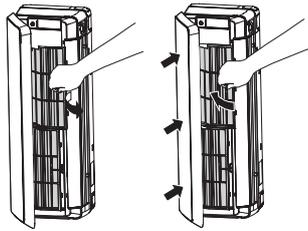
PROCEDURE

- 1 Open the front panel carefully and remove the filter.

- 2 Vacuum dust from the air filter using vacuum cleaner. If there is too much dust, wash the filter with a detergent and rinse it thoroughly. After that, dry it in the shade.



- 3 • Set the filter with "FRONT" mark facing front, and slot them into the original state.
• After attaching the filters, push the front panel at three arrow portions as shown in figure and close it.

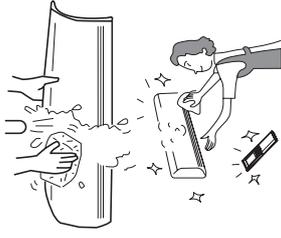


▲ CAUTION

- 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.
- Don't operate the unit without filter. Fault may occur if you continue.

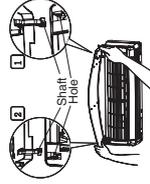
2. CLEANING OF FRONT PANEL

- Remove the front panel and wash with clean water. Wash it with a soft sponge. After using neutral detergent, wash thoroughly with clean water.
- When front panel is not removed, wipe it with a soft dry cloth. Wipe the remote controller thoroughly with a soft dry cloth.
- Wipe the water thoroughly. If water remains at indicators or signal receiver of indoor unit, it causes trouble.

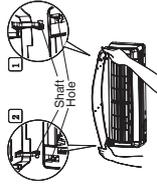


Method of removing the front panel.
Be sure to hold the front panel with both hands to detach and attach it.

Removing the Front Panel



Attaching the Front Panel



- When the front panel is fully opened with both hands, push the right arm to the inside to release it, and while closing the front panel slightly, put it out forward.
- Move the shafts of the left and right arms into the steps in the unit and securely insert them into the holes.

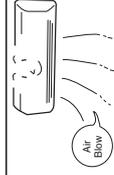
▲ CAUTION

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



3. MAINTENANCE AT BEGINNING OF LONG OFF PERIOD

- Run the unit by setting the operation mode to * (FAN) and the fan speed to HI for about half a day on a fine day, and dry the whole of the unit.
- Turn off the circuit breaker.



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 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.

- 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.

CAUTION

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



PROHIBITION

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.

<p>1</p>	<p>WARNING</p>	<p>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.</p>
<p>2</p>	<p>WARNING</p>	<p>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.</p>

AFTER SALES SERVICE AND WARRANTY

WHEN ASKING FOR SERVICE, CHECK THE FOLLOWING POINTS.

CONDITION	CHECK THE FOLLOWING POINTS
<p>If the remote controller is not transmitting a signal. (Remote controller display is dim or blank.)</p>	<ul style="list-style-type: none"> Do the batteries need replacement? Is the polarity of the inserted batteries correct?
<p>When it does not operate.</p>	<ul style="list-style-type: none"> Is the fuse all right? Is the voltage extremely high or low? Is the circuit breaker "ON"? Is the power plug inserted? Do you have any power cut?
<p>When it does not cool well. When it does not heat well.</p>	<ul style="list-style-type: none"> Is the air filter blocked with dust? Is the set temperature suitable? Have horizontal air defectors 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.

<p>During heating, the operation indicator blinks and air blow stops</p>	<p><Operation start> The unit is preparing to blow warm air. Please wait. <In operation> The outdoor unit is defrosting. Please wait.</p>
<p>Hissing or fizzy sounds</p>	<p>Refrigerant flow noise in the pipe or valve sound generated when flow rate is adjusted.</p>
<p>Squeaking noise</p>	<p>Noise generated when the unit expands or contracts due to temperature changes.</p>
<p>Rustling noise</p>	<p>Noise generated with the indoor unit fan's rpm changing such as operation start times.</p>
<p>Clicking noise</p>	<p>Noise of the motorized valve when the unit is switched on.</p>

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 to 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 outdoor 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.

- 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.

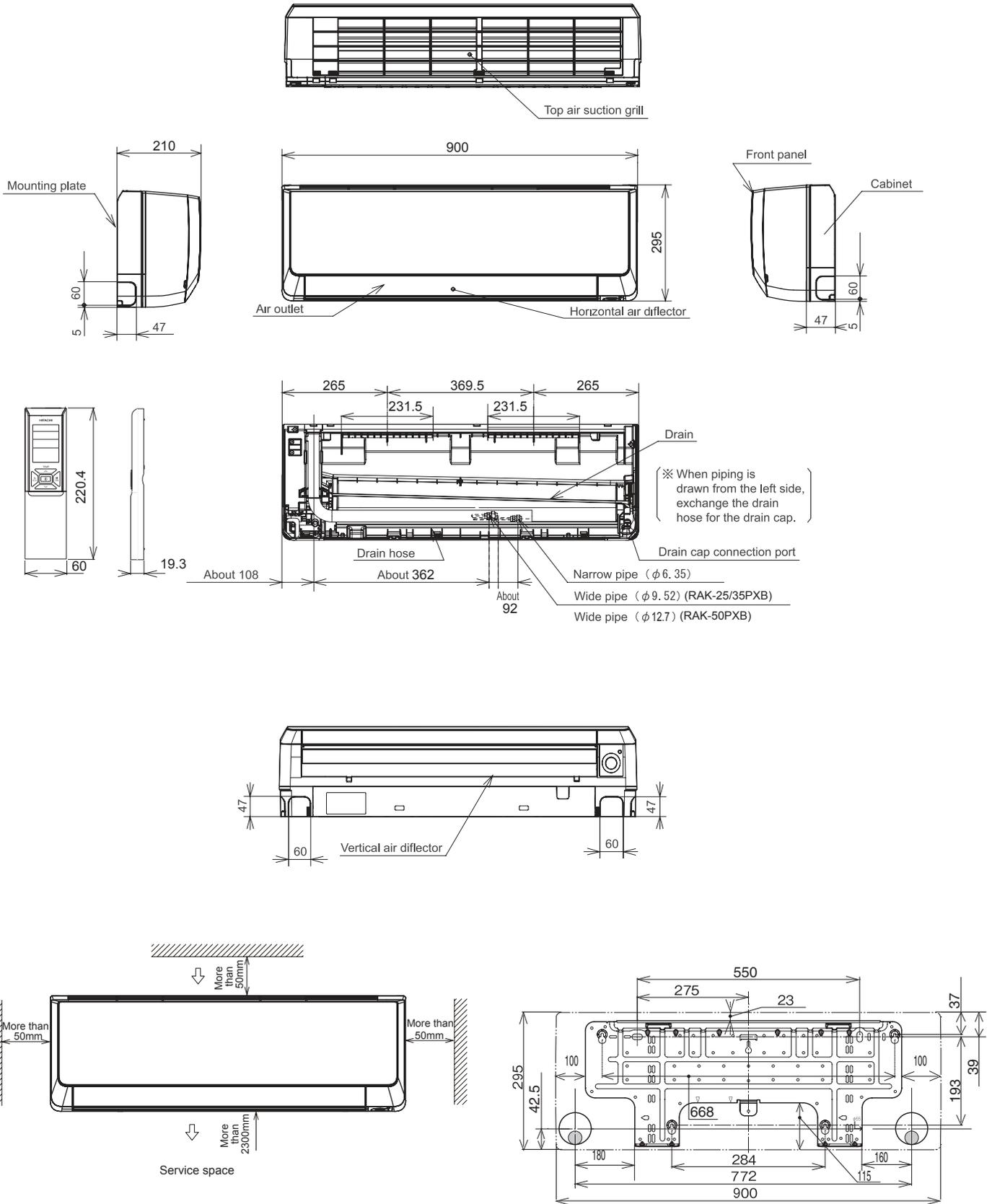
Please note:
On switching on the equipment, particularly when the room light is dimmed, a slight brightness fluctuation may occur. This is of no consequence.
The conditions of the local Power Supply Companies are to be observed.

CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAK-25PXB,RAK-35PXB,50PXB

INDOOR UNIT

Unit : mm

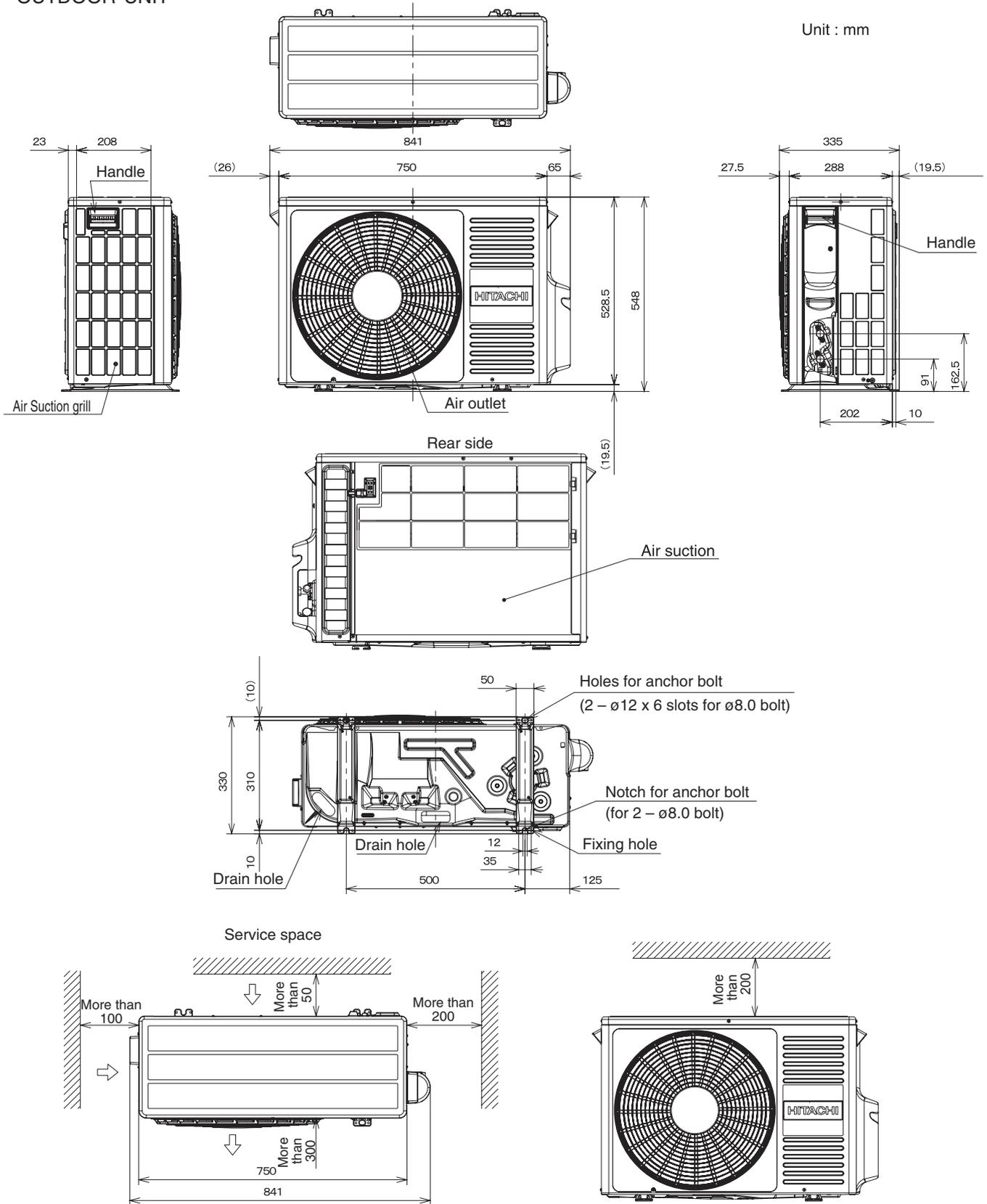


CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAC-25WXB, RAC-35WXB

OUTDOOR UNIT

Unit : mm



NOTE:

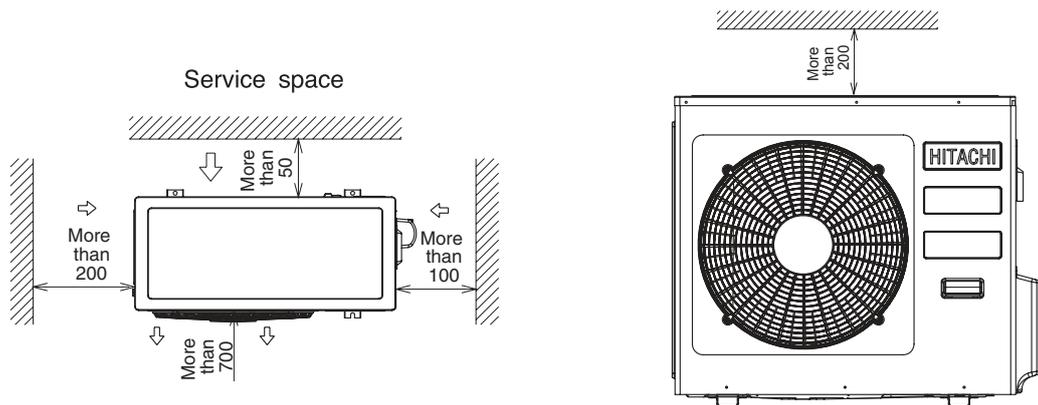
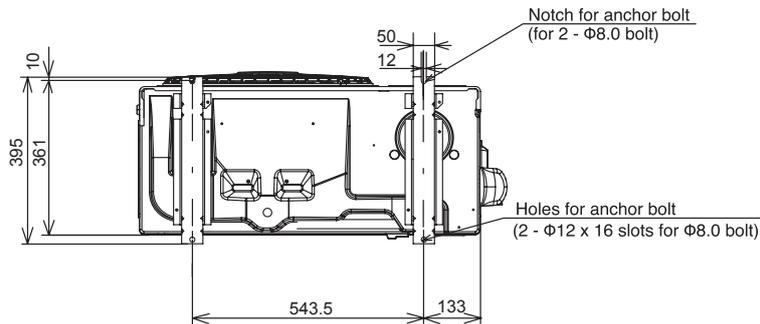
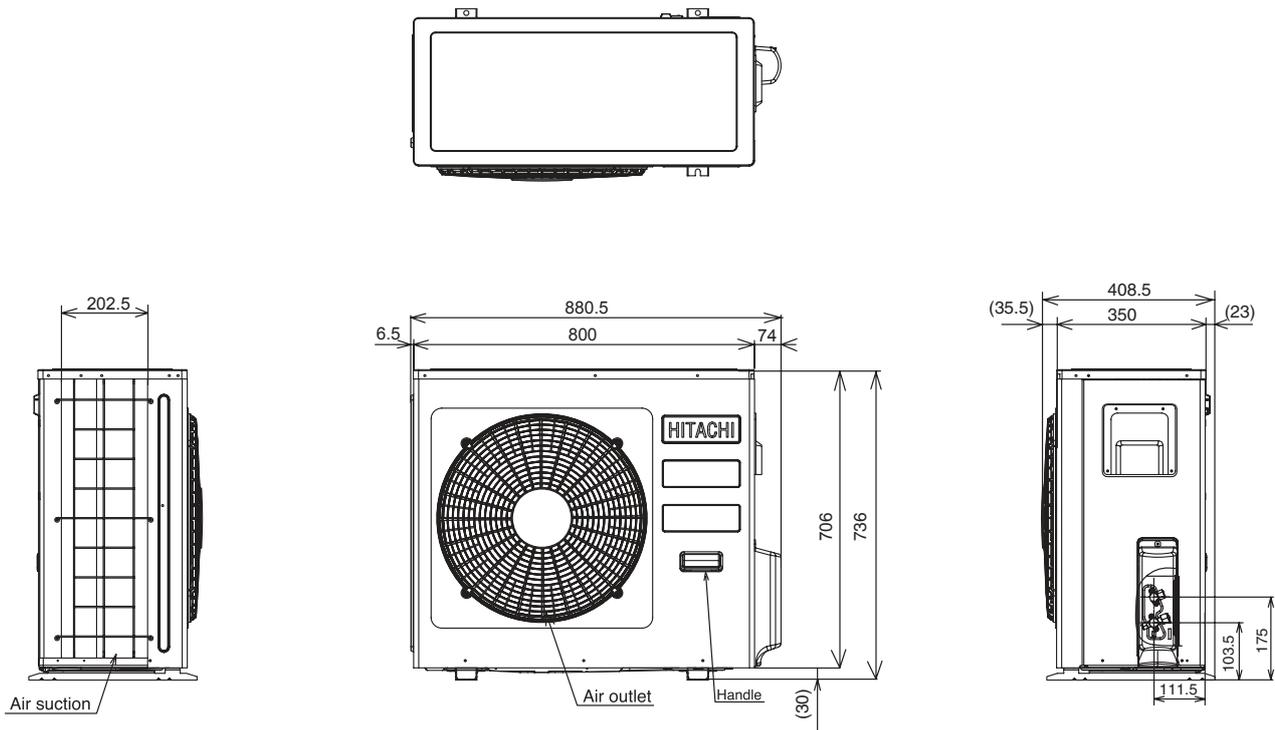
1. For outdoor unit installation, allow at least 2 sides of space around the unit ensure ventilation flue.
2. The connecting pipe, should all the insulated with insulation pipe.
3. Piping length is within 20m.
4. Height different of the piping between the indoor unit and outdoor unit should be within 10m.

CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAC-50WXB

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

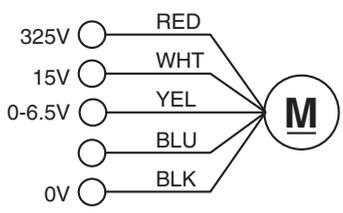
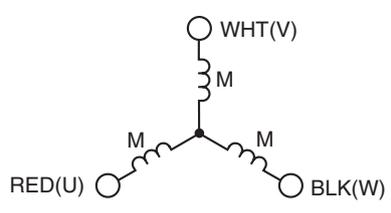
THERMOSTAT (Room temperature Thermistor)

Thermostat Specifications

MODEL			RAK-25PXB RAK-35PXB,RAK-50PXB			
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	RAK-25/35/50PXB	RAC-25/35/50WXB
POWER SOURCE	DC : 325V	DC : 120 - 380V
OUTPUT	30W	47W
CONNECTION	 <p>(Control circuit built in)</p>	

BLU : BLUE
GRY : GRAY
BLK : BLACK

YEL : YELLOW
ORN : ORANGE
PNK : PINK

BRN : BROWN
GRN : GREEN
VIO : VIOLET

WHT : WHITE
RED : RED

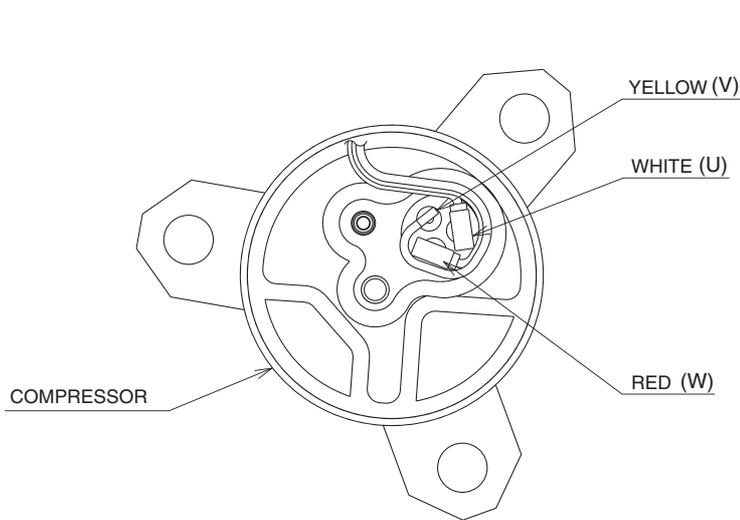
MAIN ELECTRIC COMPONENTS FOR OUTDOOR UNIT

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

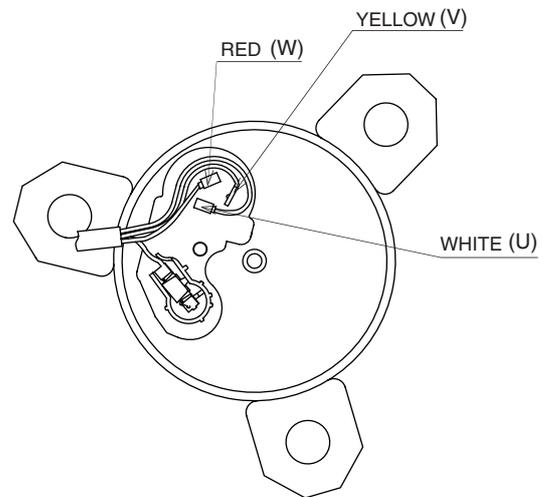
COMPRESSOR MOTOR

Compressor Motor Specifications

MODEL		RAC-25/35WXB	RAC-50WXB
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



RAC-25/35WXB



RAC-50WXB

CAUTION

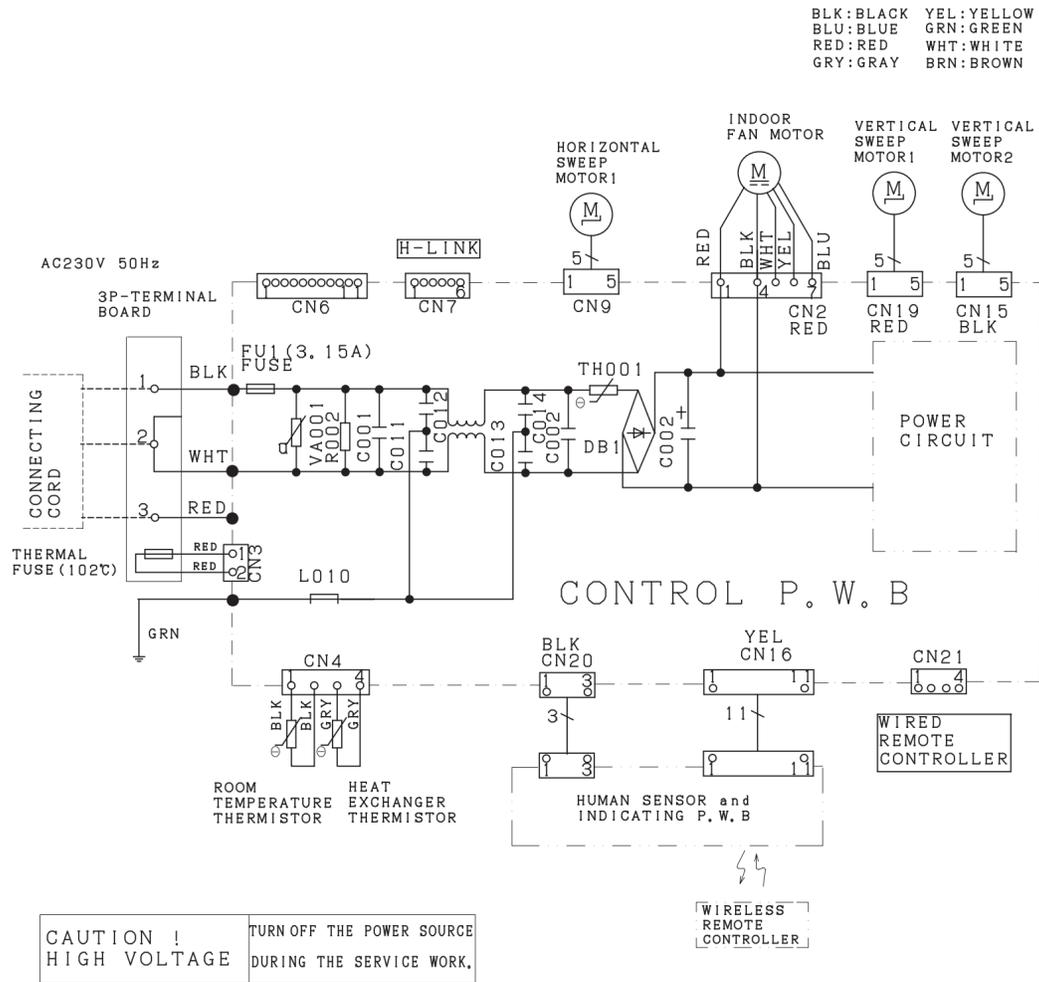
When the refrigerating cycle has been operated for a long time with the capillary tubes clogged or crushed or with too little refrigerant, check the color of the refrigerating machine oil inside the compressor. If the color has been changed conspicuously, replace the compressor.

WIRING DIAGRAM

INDOOR UNIT

MODEL RAK-25/35/50PXB

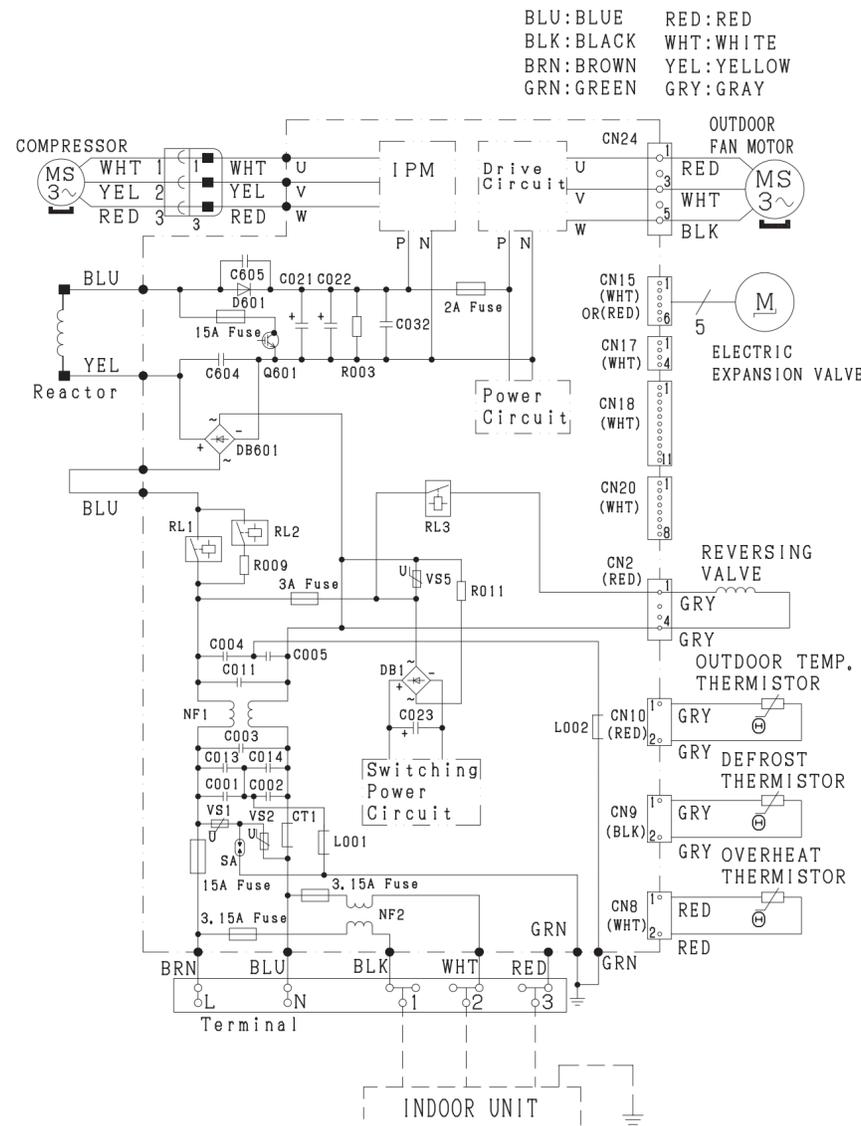
WIRING DIAGRAM



OUTDOOR UNIT

MODEL RAC-25/35WXB

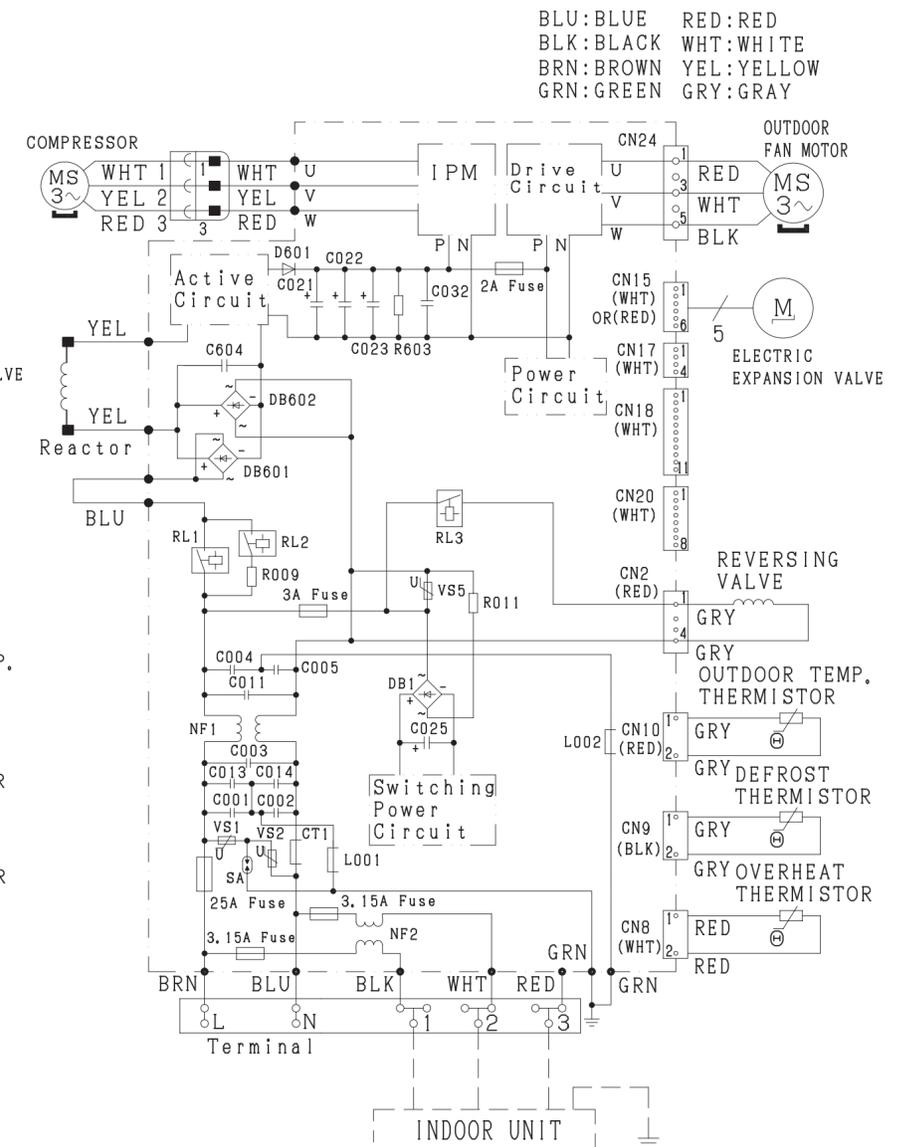
WIRING DIAGRAM



OUTDOOR UNIT

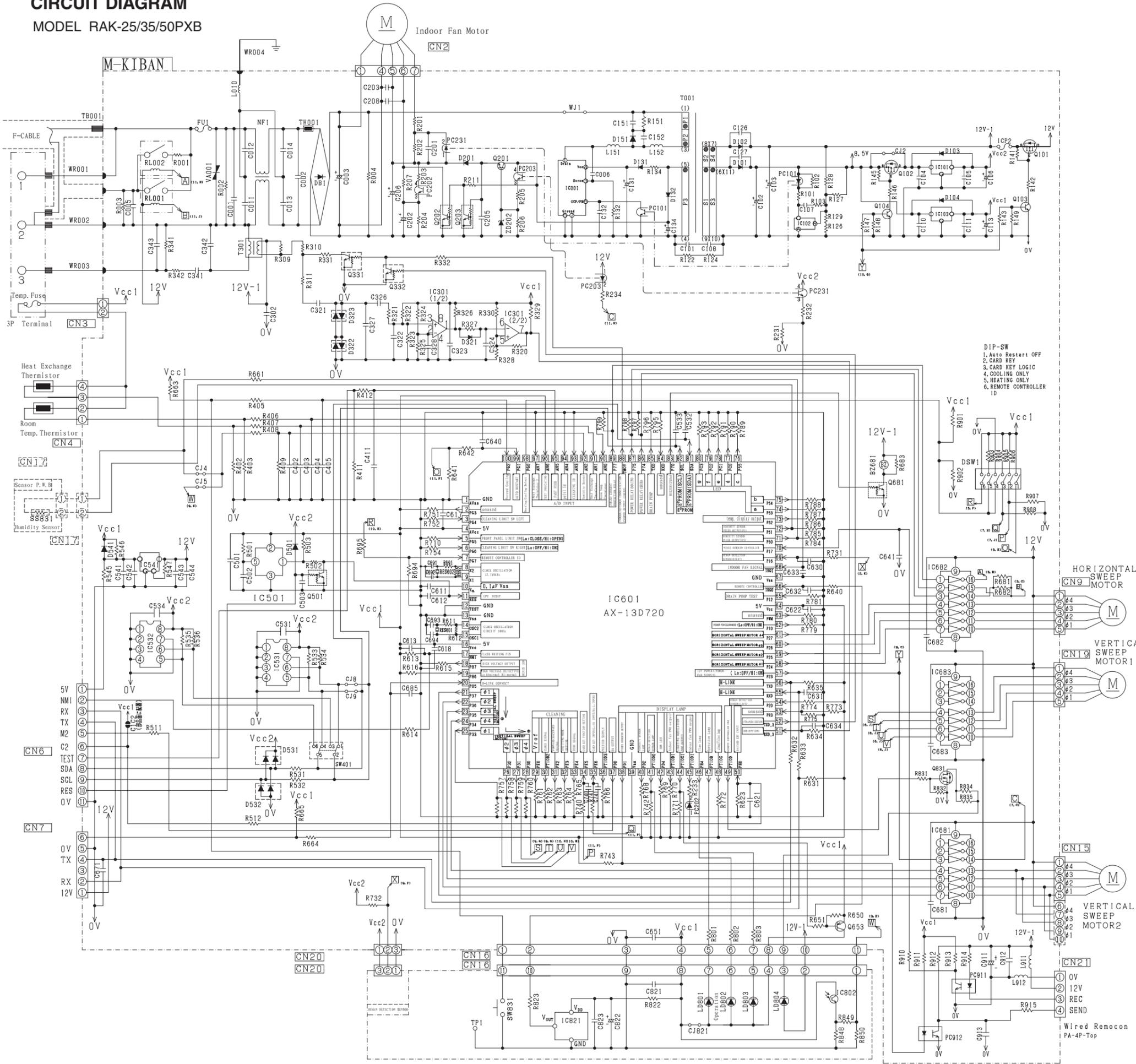
MODEL RAC-50WXB

WIRING DIAGRAM

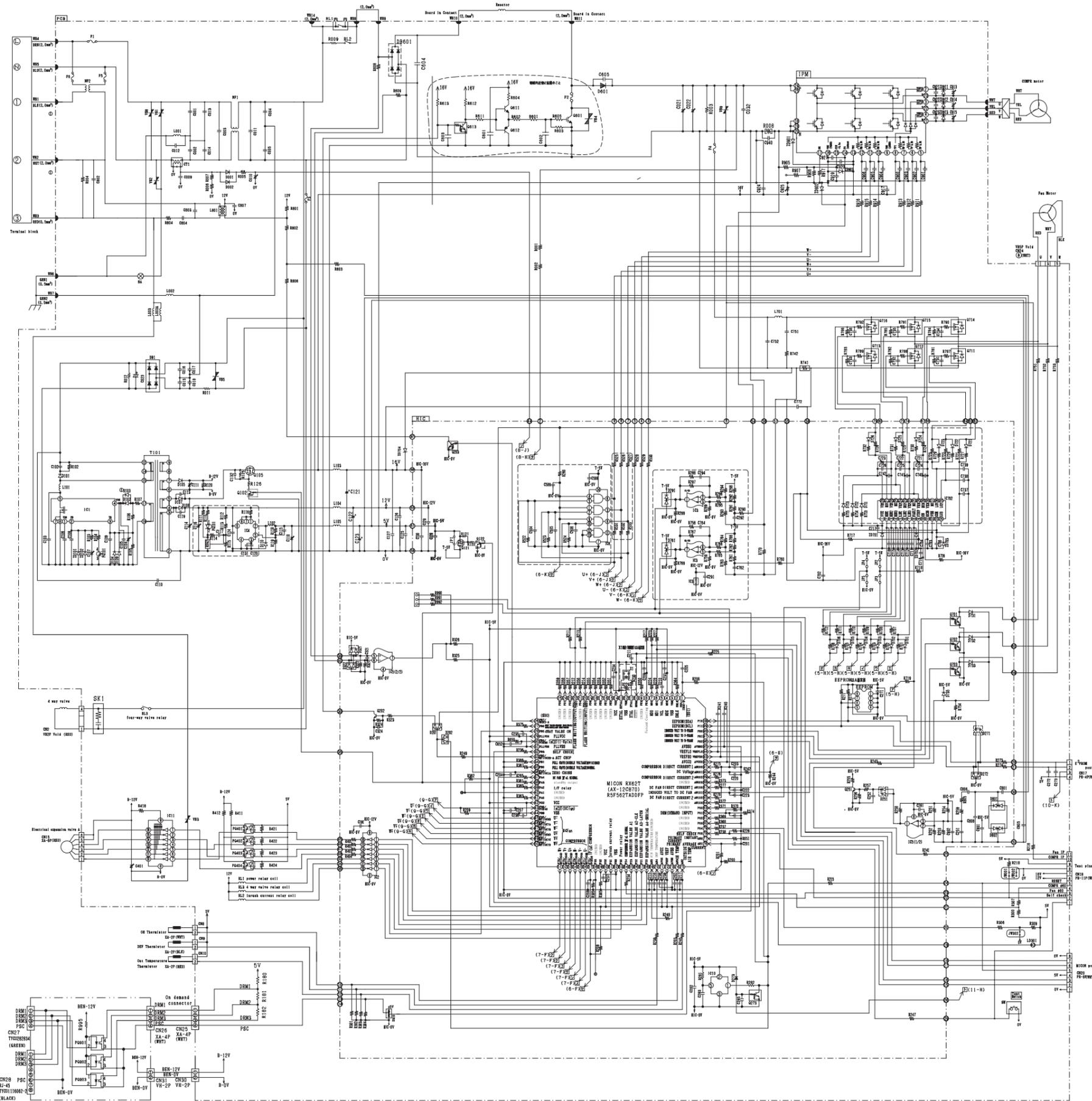


CIRCUIT DIAGRAM

MODEL RAK-25/35/50PXB



RESISTOR		RESISTOR		Capacitor		WIRE	
Value	Model	Value	Model	Value	Model	Value	Model
R001 500K 5% 1/4 W	M 17	R758 10K 5% 1/16 W	M 68	C618 0.1 25 C	M 107	WR001 0.5mm	H M 70
R002 10K 5% 1/16 W	M 68	R759 10K 5% 1/16 W	M 68	C619 0.1 25 C	M 107	WR002 0.5mm	H M 71
R003 10K 5% 1/16 W	M 68	R760 10K 5% 1/16 W	M 68	C620 0.1 25 C	M 107	WR003 0.5mm	H M 72
R004 1M 5% 1/4 W	M 17	R761 10K 5% 1/16 W	M 68	C621 0.1 16 C	M 109	WR004 0.5mm	H M 73
R101 1K 5% 1/4 W	M 21	R762 10K 5% 1/16 W	M 68	C622 0.1 25 C	M 107	WR005 0.5mm	H M 74
R102 1.5K 5% 1/16 W	M 36	R763 10K 5% 1/16 W	M 68	C623 0.1 25 C	M 107	WR006 0.5mm	H M 75
R103 10K 5% 1/16 W	M 68	R764 10K 5% 1/16 W	M 68	C624 0.22 50 C	M 105	WR007 0.5mm	H M 76
R122 10K 5% 1/2 W	M 8	R765 10K 5% 1/16 W	M 68	C625 1000P 50 C	M 103		
R123 1.5K 5% 1/16 W	M 36	R766 10K 5% 1/16 W	M 68	C626 0.1 25 C	M 107		
R124 10K 5% 1/16 W	M 68	R767 10K 5% 1/16 W	M 68	C627 1000P 50 C	M 103		
R125 10K 5% 1/16 W	M 68	R768 10K 5% 1/16 W	M 68	C628 0.1 25 C	M 107		
R126 10K 5% 1/16 W	M 68	R769 10K 5% 1/16 W	M 68	C629 0.1 25 C	M 107		
R127 300K 1K 1/10 W	M 44	R770 10K 5% 1/16 W	M 68	C630 0.1 25 C	M 107		
R128 100K 1K 1/10 W	M 46	R771 10K 5% 1/16 W	M 68	C631 0.22 50 C	M 105		
R129 6.2K 1K 1/10 W	M 47	R772 10K 5% 1/16 W	M 68	C632 0.1 25 C	M 107		
R141 100K 5% 1/10 W	M 63	R773 10K 5% 1/16 W	M 68	C633 1000P 50 C	M 103		
R142 100K 5% 1/10 W	M 63	R774 10K 5% 1/16 W	M 68	C634 0.22 50 C	M 105		
R143 3.3K 5% 1/10 W	M 58	R775 10K 5% 1/16 W	M 68	C635 1000P 50 C	M 103		
R144 4.3K 5% 1/10 W	M 59	R776 10K 5% 1/16 W	M 68	C636 0.1 25 C	M 107		
R145 5.1K 5% 1/10 W	M 60	R777 10K 5% 1/16 W	M 68	C637 0.1 25 C	M 107		
R146 4.3K 5% 1/10 W	M 59	R778 10K 5% 1/16 W	M 68	C638 0.1 25 C	M 107		
R147 3.3K 5% 1/10 W	M 58	R779 10K 5% 1/16 W	M 68	C639 1.2 50 C	M 99		
R148 3.3K 5% 1/10 W	M 58	R780 10K 5% 1/16 W	M 68	C640 0.1 25 C	M 107		
R149 3.3K 5% 1/10 W	M 58	R781 10K 5% 1/16 W	M 68	C641 0.1 25 C	M 107		
R151 390K 5% 2 W	M 9	R782 10K 5% 1/16 W	M 68	C642 0.1 25 C	M 107		
R201 4.3K 5% 1/4 W	M 28	R783 10K 5% 1/16 W	M 68	C643 0.1 25 C	M 107		
R202 4.3K 5% 1/10 W	M 39	R784 10K 5% 1/16 W	M 68	C644 0.1 25 C	M 107		
R203 4.7K 5% 1/8 W	M 36	R785 10K 5% 1/16 W	M 68	C645 0.1 25 C	M 107		
R204 3.3K 5% 1/10 W	M 58	R786 10K 5% 1/16 W	M 68	C646 0.1 25 C	M 107		
R205 402 1K 1/8 W	M 31	R787 10K 5% 1/16 W	M 68	C647 0.1 25 C	M 107		
R206 33K 5% 1/4 W	M 42	R788 10K 5% 1/16 W	M 68	C648 0.1 25 C	M 107		
R207 100 5% 1/10 W	M 52	R789 10K 5% 1/16 W	M 68	C649 0.1 25 C	M 107		
R211 15K 5% 1/10 W	M 65	R790 10K 5% 1/16 W	M 68	C650 0.1 25 C	M 107		
R231 10K 5% 1/10 W	M 68	R791 10K 5% 1/16 W	M 68	C651 0.1 25 C	M 107		
R232 1K 5% 1/16 W	M 81	R792 10K 5% 1/16 W	M 68	C652 0.1 25 C	M 107		
R233 390 5% 1/8 W	M 34	R793 10K 5% 1/16 W	M 68	C653 0.1 25 C	M 107		
R234 1.5K 5% 1/10 W	M 20	R794 10K 5% 1/16 W	M 68	C654 0.1 25 C	M 107		
R309 680 5% 1/4 W	M 34	R795 10K 5% 1/16 W	M 68	C655 0.1 25 C	M 107		
R310 180 5% 1/8 W	M 33	R796 10K 5% 1/16 W	M 68	C656 0.1 25 C	M 107		
R311 820 5% 1/10 W	M 51	R797 10K 5% 1/16 W	M 68	C657 0.1 25 C	M 107		
R320 51K 1K 1/16 W	M 70	R798 10K 5% 1/16 W	M 68	C658 0.1 25 C	M 107		
R321 1K 5% 1/16 W	M 81	R799 10K 5% 1/16 W	M 68	C659 0.1 25 C	M 107		
R322 10K 1K 1/16 W	M 73	R800 10K 5% 1/16 W	M 68	C660 0.1 25 C	M 107		
R323 10K 1K 1/16 W	M 73	R801 300 5% 1/10 W	M 53	C661 0.1 25 C	M 107		
R324 7.5K 1K 1/16 W	M 76	R802 390 5% 1/10 W	M 54	C662 0.1 25 C	M 107		
R325 10K 1K 1/16 W	M 73	R803 390 5% 1/10 W	M 54	C663 0.1 25 C	M 107		
R326 5.1K 5% 1/16 W	M 83	R804 51 5% 1/2 W	M 38	C664 0.1 25 C	M 107		
R327 51K 5% 1/16 W	M 81	R805 51 5% 1/2 W	M 38	C665 0.1 25 C	M 107		
R328 10K 5% 1/16 W	M 68	R806 1K 5% 1/16 W	M 81	C666 0.1 25 C	M 107		
R329 10K 5% 1/16 W	M 68	R807 30K 5% 1/16 W	M 66	C667 0.1 25 C	M 107		
R330 10K 5% 1/16 W	M 68	R808 30K 5% 1/16 W	M 66	C668 0.1 25 C	M 107		
R331 510 5% 1/4 W	M 31	R809 1K 5% 1/16 W	M 81	C669 0.1 25 C	M 107		
R332 5.6K 1K 1/16 W	M 71	R810 1K 5% 1/16 W	M 81	C670 0.1 25 C	M 107		
R341 470K 5% 1/4 W	M 16	R811 560 5% 1/10 W	M 41	C671 0.1 25 C	M 107		
R342 47 5% 1/2 W	M 10	R812 2K 5% 1/4 W	M 26	C672 0.1 25 C	M 107		
R402 12.7K 1K 1/16 W	M 74	R813 2K 5% 1/4 W	M 26	C673 0.1 25 C	M 107		
R403 12.7K 1K 1/16 W	M 74	R814 1.2K 5% 1/4 W	M 28	C674 0.1 25 C	M 107		
R404 1K 5% 1/16 W	M 81	R815 2K 5% 1/4 W	M 26	C675 0.1 25 C	M 107		
R405 1K 5% 1/16 W	M 81	R816 420 5% 1/10 W	M 50	C676 0.1 25 C	M 107		
R406 1K 5% 1/16 W	M 81	R817 12.7K 1K 1/16 W	M 74	C677 0.1 25 C	M 107		
R407 1K 5% 1/16 W	M 81	R818 12.7K 1K 1/16 W	M 74	C678 0.1 25 C	M 107		
R408 1K 5% 1/16 W	M 81	R819 12.7K 1K 1/16 W	M 74	C679 0.1 25 C	M 107		
R409 1M 5% 1/16 W	M 84	R820 12.7K 1K 1/16 W	M 74	C680 0.1 25 C	M 107		
R410 10K 5% 1/16 W	M 68	R821 12.7K 1K 1/16 W	M 74	C681 0.1 25 C	M 107		
R411 10K 5% 1/16 W	M 68	R822 12.7K 1K 1/16 W	M 74	C682 0.1 25 C	M 107		
R412 1K 5% 1/16 W	M 81	R823 12.7K 1K 1/16 W	M 74	C683 0.1 25 C	M 107		
R502 1K 5% 1/16 W	M 81	R824 12.7K 1K 1/16 W	M 74	C684 0.1 25 C	M 107		
R503 300 5% 1/10 W	M 36	R825 12.7K 1K 1/16 W	M 74	C685 0.1 25 C	M 107		
R504 300 5% 1/10 W	M 36	R826 12.7K 1K 1/16 W	M 74	C686 0.1 25 C	M 107		
R505 5.1K 5% 1/16 W	M 83	R827 12.7K 1K 1/16 W	M 74	C687 0.1 25 C	M 107		
R506 5.1K 5% 1/16 W	M 83	R828 12.7K 1K 1/16 W	M 74	C688 0.1 25 C	M 107		
R507 5.1K 5% 1/16 W	M 83	R829 12.7K 1K 1/16 W	M 74	C689 0.1 25 C	M 107		
R508 5.1K 5% 1/16 W	M 83	R830 12.7K 1K 1/16 W	M 74	C690 0.1 25 C	M 107		
R509 5.1K 5% 1/16 W	M 83	R831 12.7K 1K 1/16 W	M 74	C691 0.1 25 C	M 107		
R510 5.1K 5% 1/16 W	M 83	R832 12.7K 1K 1/16 W	M 74	C692 0.1 25 C	M 107		
R511 1K 5% 1/16 W	M 81	R833 12.7K 1K 1/16 W	M 74	C693 0.1 25 C	M 107		
R512 1K 5% 1/16 W	M 81	R834 12.7K 1K 1/16 W	M 74	C694 0.1 25 C	M 107		
R601 10K 5% 1/16 W	M 68	R835 12.7K 1K 1/16 W	M 74	C695 0.1 25 C	M 107		
R602 10K 5% 1/16 W	M 68	R836 12.7K 1K 1/16 W	M 74	C696 0.1 25 C	M 107		
R603 10K 5% 1/16 W	M 68	R837 12.7K 1K 1/16 W	M 74	C697 0.1 25 C	M 107		
R604 10K 5% 1/16 W	M 68	R838 12.7K 1K 1/16 W	M 74	C698 0.1 25 C	M 107		
R605 10K 5% 1/16 W	M 68	R839 12.7K 1K 1/16 W	M 74	C699 0.1 25 C	M 107		
R606 10K 5% 1/16 W	M 68	R840 12.7K 1K 1/16 W	M 74	C700 0.1 25 C	M 107		
R607 10K 5% 1/16 W	M 68	R841 12.7K 1K 1/16 W	M 74	C701 0.1 25 C	M 107		
R608 10K 5% 1/16 W	M 68	R842 12.7K 1K 1/16 W	M 74	C702 0.1 25 C	M 107		
R609 10K 5% 1/16 W	M 68	R843 12.7K 1K 1/16 W	M 74	C703 0.1 25 C	M 107		
R610 10K 5% 1/16 W	M 68	R844 12.7K 1K 1/16 W	M 74	C704 0.1 25 C	M 107		
R611 10K 5% 1/16 W	M 68	R845 12.7K 1K 1/16 W	M 74	C705 0.1 25 C	M 107		
R612 10K 5% 1/16 W	M 68	R846 12.7K 1K 1/16 W	M 74	C706 0.1 25 C	M 107		
R613 10K 5% 1/16 W	M 68	R847 12.7K 1K 1/16 W	M 74	C707 0.1 25 C	M 107		
R614 10K 5% 1/16 W	M 68	R848 12.7K 1K 1/16 W	M 74	C708 0.1 25 C	M 107		
R615 10K 5% 1/16 W	M 68	R849 12.7K 1K 1/16 W	M 74	C709 0.1 25 C	M 107		
R616 10K 5% 1/16 W	M 68	R850 12.7K 1K 1/16 W	M 74	C710 0.1 25 C	M 107		
R617 10K 5% 1/16 W	M 68	R851 12.7K 1K 1/16 W	M 74	C711 0.1 25 C	M 107		
R618 10K 5% 1/16 W	M 68	R852 12.7K 1K 1/16 W	M 74	C712 0.1 25 C	M 107		
R619 10K 5% 1/16 W	M 68	R853 12.7K 1K 1/16 W	M 74	C713 0.1 25 C	M 107		
R620 10K 5% 1/16 W	M 68	R854 12.7K 1K 1/16 W	M 74	C714 0.1 25 C	M 107		
R621 10K 5% 1/16 W	M 68	R855 12.7K 1K 1/16 W	M 74	C715 0.1 25 C	M 107		
R622 10K 5% 1/16 W	M 68	R856 12.7K 1K 1/16 W	M 74	C716 0.1 25 C	M 107		
R623 10K 5% 1/16 W	M 68	R857 12.7K 1K 1/16 W	M 74	C717 0.1 25 C	M 107		
R624 10K 5% 1/16 W	M 68	R858 12.7K 1K 1/16 W	M 74	C718 0.1 25 C	M 107		
R625 10K 5% 1/16 W	M 68	R859 12.7K 1K 1/16 W	M 74	C719 0.1 25 C	M 107		
R626 10K 5% 1/16 W	M 68	R860 12.7K 1K 1/16 W	M 74	C720 0.1 25 C	M 107		
R627 10K 5% 1/16 W	M 68	R861 12.7K 1K 1/16 W	M 74	C721 0.1 25 C	M 107		
R628 10K 5% 1/16 W	M 68	R862 12.7K 1K 1/16 W	M 74	C722 0.1 25 C	M 107		
R629 10K 5% 1/16 W	M 68	R863 12.7K 1K 1/16 W	M 74	C723 0.1 25 C	M 107		
R630 10K 5% 1/16 W	M 68	R864 12.7K 1K 1/16 W	M 74	C724 0.1 25 C	M 107		
R631 10K 5% 1/16 W	M 68	R865 12.7K 1K 1/16 W	M 74	C725 0.1 25 C	M 107		
R632 10K 5% 1/16 W	M 68	R866 12.7K 1K 1/16 W	M 74	C726 0.1 25 C	M 107		
R633 10K 5% 1/16 W	M 68	R867 12.7K 1K 1/16 W	M 74	C727 0.1 25 C	M 107		
R634 10K 5% 1/16 W	M 68	R868 12.7K 1K 1/16 W	M 74	C728 0.1 25 C	M 107		
R635 10K 5% 1/16 W	M 68	R869 12.7K 1K 1/16 W	M 74	C729 0.1 25 C	M 107		
R636 10K 5% 1/16 W	M 68	R870 12.7K 1K 1/16 W	M 74	C730 0.1 25 C	M 107		
R637 10K 5% 1/16 W	M 68	R871 12.7K 1K 1/16 W	M 74	C731 0.1 25 C	M 107		
R638 10K 5% 1/16 W	M 68	R872 12.7K 1K 1/16 W	M 74	C732 0.1 25 C	M 107		
R639 10K 5% 1/16 W	M 68	R873 12.7K 1K 1/16 W	M 74	C733 0.1 25 C	M 107		
R640 10K 5% 1/16 W	M 68	R874 12.7K 1K 1/16 W	M 74	C734 0.1 25 C	M 107		
R641 10K 5% 1/16 W	M 68	R875 12.7K 1K 1/16 W	M 74	C735 0.1 25 C	M 107		
R642 10K 5% 1/16 W	M 68	R876 12.7K 1K 1/16 W	M 74	C736 0.1 25 C	M 107		
R643 10K 5% 1/16 W	M 68	R877 12.7K 1K 1/16 W	M 74	C737 0.1 25 C	M 107		
R644 10K 5% 1/16 W	M 68	R878 12.7K 1K 1/16 W	M 74	C738 0.1 25 C	M 107		
R645 10K 5% 1/16 W	M 68	R879 12.7K 1K 1/16 W	M 74	C739 0.1 25 C	M 107		



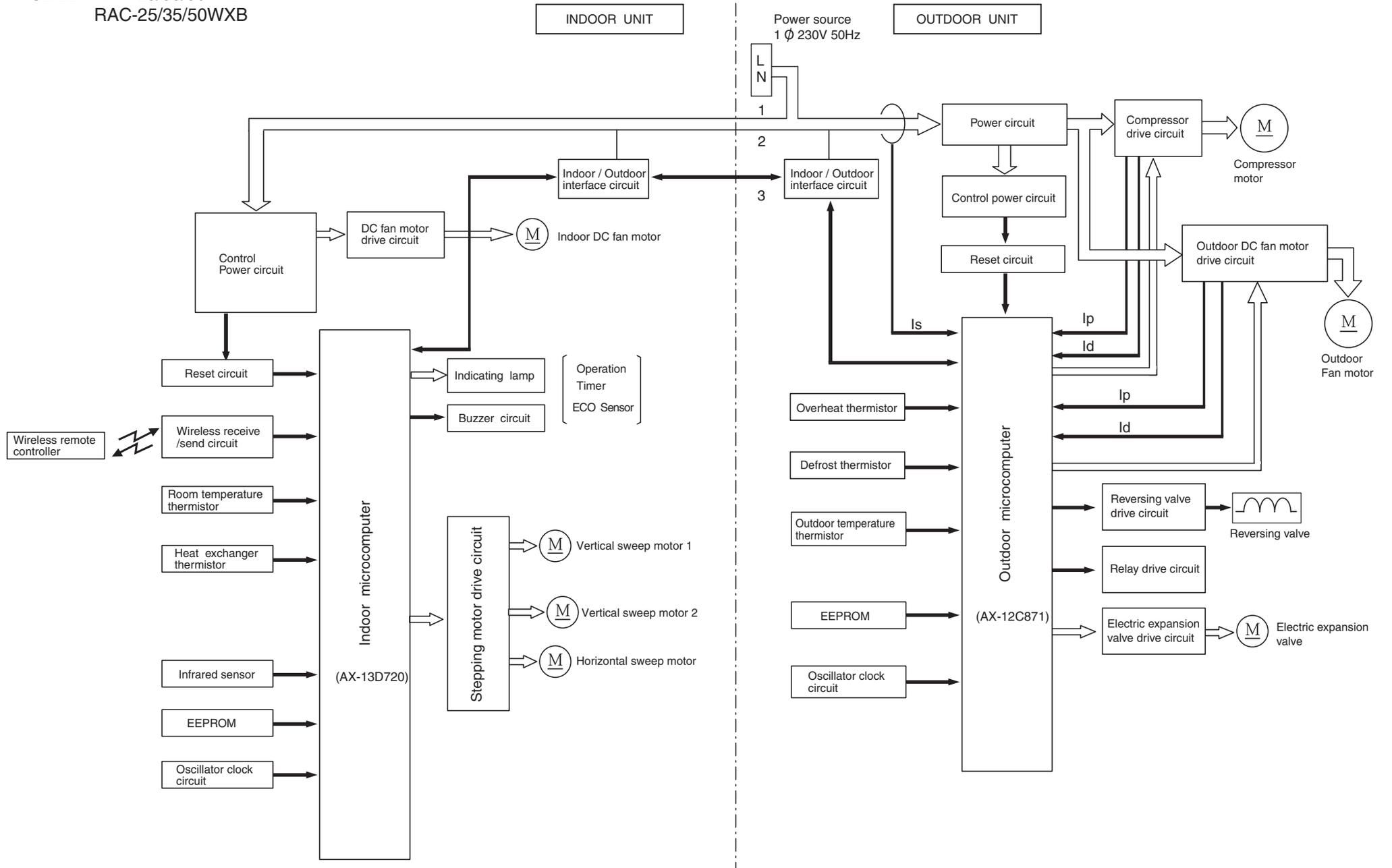
Mounting PCB
M: Main PCB (R400ARD-AS)
Way of mount mark:
A: Axial Insertion
R: Radial Insertion
N: Radial Insertion (7.5mm pitch)
B: Radial Insertion
C: Dip

Resistor	Value	Resistor	Value
R001	100kΩ	R117	10kΩ
R002	100kΩ	R118	10kΩ
R003	100kΩ	R119	10kΩ
R004	100kΩ	R120	10kΩ
R005	100kΩ	R121	10kΩ
R006	100kΩ	R122	10kΩ
R007	100kΩ	R123	10kΩ
R008	100kΩ	R124	10kΩ
R009	100kΩ	R125	10kΩ
R010	100kΩ	R126	10kΩ
R011	100kΩ	R127	10kΩ
R012	100kΩ	R128	10kΩ
R013	100kΩ	R129	10kΩ
R014	100kΩ	R130	10kΩ
R015	100kΩ	R131	10kΩ
R016	100kΩ	R132	10kΩ
R017	100kΩ	R133	10kΩ
R018	100kΩ	R134	10kΩ
R019	100kΩ	R135	10kΩ
R020	100kΩ	R136	10kΩ
R021	100kΩ	R137	10kΩ
R022	100kΩ	R138	10kΩ
R023	100kΩ	R139	10kΩ
R024	100kΩ	R140	10kΩ
R025	100kΩ	R141	10kΩ
R026	100kΩ	R142	10kΩ
R027	100kΩ	R143	10kΩ
R028	100kΩ	R144	10kΩ
R029	100kΩ	R145	10kΩ
R030	100kΩ	R146	10kΩ
R031	100kΩ	R147	10kΩ
R032	100kΩ	R148	10kΩ
R033	100kΩ	R149	10kΩ
R034	100kΩ	R150	10kΩ
R035	100kΩ	R151	10kΩ
R036	100kΩ	R152	10kΩ
R037	100kΩ	R153	10kΩ
R038	100kΩ	R154	10kΩ
R039	100kΩ	R155	10kΩ
R040	100kΩ	R156	10kΩ
R041	100kΩ	R157	10kΩ
R042	100kΩ	R158	10kΩ
R043	100kΩ	R159	10kΩ
R044	100kΩ	R160	10kΩ
R045	100kΩ	R161	10kΩ
R046	100kΩ	R162	10kΩ
R047	100kΩ	R163	10kΩ
R048	100kΩ	R164	10kΩ
R049	100kΩ	R165	10kΩ
R050	100kΩ	R166	10kΩ
R051	100kΩ	R167	10kΩ
R052	100kΩ	R168	10kΩ
R053	100kΩ	R169	10kΩ
R054	100kΩ	R170	10kΩ
R055	100kΩ	R171	10kΩ
R056	100kΩ	R172	10kΩ
R057	100kΩ	R173	10kΩ
R058	100kΩ	R174	10kΩ
R059	100kΩ	R175	10kΩ
R060	100kΩ	R176	10kΩ
R061	100kΩ	R177	10kΩ
R062	100kΩ	R178	10kΩ
R063	100kΩ	R179	10kΩ
R064	100kΩ	R180	10kΩ
R065	100kΩ	R181	10kΩ
R066	100kΩ	R182	10kΩ
R067	100kΩ	R183	10kΩ
R068	100kΩ	R184	10kΩ
R069	100kΩ	R185	10kΩ
R070	100kΩ	R186	10kΩ
R071	100kΩ	R187	10kΩ
R072	100kΩ	R188	10kΩ
R073	100kΩ	R189	10kΩ
R074	100kΩ	R190	10kΩ
R075	100kΩ	R191	10kΩ
R076	100kΩ	R192	10kΩ
R077	100kΩ	R193	10kΩ
R078	100kΩ	R194	10kΩ
R079	100kΩ	R195	10kΩ
R080	100kΩ	R196	10kΩ
R081	100kΩ	R197	10kΩ
R082	100kΩ	R198	10kΩ
R083	100kΩ	R199	10kΩ
R084	100kΩ	R200	10kΩ
R085	100kΩ	R201	10kΩ
R086	100kΩ	R202	10kΩ
R087	100kΩ	R203	10kΩ
R088	100kΩ	R204	10kΩ
R089	100kΩ	R205	10kΩ
R090	100kΩ	R206	10kΩ
R091	100kΩ	R207	10kΩ
R092	100kΩ	R208	10kΩ
R093	100kΩ	R209	10kΩ
R094	100kΩ	R210	10kΩ
R095	100kΩ	R211	10kΩ
R096	100kΩ	R212	10kΩ
R097	100kΩ	R213	10kΩ
R098	100kΩ	R214	10kΩ
R099	100kΩ	R215	10kΩ
R100	100kΩ	R216	10kΩ
R101	100kΩ	R217	10kΩ
R102	100kΩ	R218	10kΩ
R103	100kΩ	R219	10kΩ
R104	100kΩ	R220	10kΩ
R105	100kΩ	R221	10kΩ
R106	100kΩ	R222	10kΩ
R107	100kΩ	R223	10kΩ
R108	100kΩ	R224	10kΩ
R109	100kΩ	R225	10kΩ
R110	100kΩ	R226	10kΩ
R111	100kΩ	R227	10kΩ
R112	100kΩ	R228	10kΩ
R113	100kΩ	R229	10kΩ
R114	100kΩ	R230	10kΩ
R115	100kΩ	R231	10kΩ
R116	100kΩ	R232	10kΩ
R117	100kΩ	R233	10kΩ
R118	100kΩ	R234	10kΩ
R119	100kΩ	R235	10kΩ
R120	100kΩ	R236	10kΩ
R121	100kΩ	R237	10kΩ
R122	100kΩ	R238	10kΩ
R123	100kΩ	R239	10kΩ
R124	100kΩ	R240	10kΩ
R125	100kΩ	R241	10kΩ
R126	100kΩ	R242	10kΩ
R127	100kΩ	R243	10kΩ
R128	100kΩ	R244	10kΩ
R129	100kΩ	R245	10kΩ
R130	100kΩ	R246	10kΩ
R131	100kΩ	R247	10kΩ
R132	100kΩ	R248	10kΩ
R133	100kΩ	R249	10kΩ
R134	100kΩ	R250	10kΩ
R135	100kΩ	R251	10kΩ
R136	100kΩ	R252	10kΩ
R137	100kΩ	R253	10kΩ
R138	100kΩ	R254	10kΩ
R139	100kΩ	R255	10kΩ
R140	100kΩ	R256	10kΩ
R141	100kΩ	R257	10kΩ
R142	100kΩ	R258	10kΩ
R143	100kΩ	R259	10kΩ
R144	100kΩ	R260	10kΩ
R145	100kΩ	R261	10kΩ
R146	100kΩ	R262	10kΩ
R147	100kΩ	R263	10kΩ
R148	100kΩ	R264	10kΩ
R149	100kΩ	R265	10kΩ
R150	100kΩ	R266	10kΩ
R151	100kΩ	R267	10kΩ
R152	100kΩ	R268	10kΩ
R153	100kΩ	R269	10kΩ
R154	100kΩ	R270	10kΩ
R155	100kΩ	R271	10kΩ
R156	100kΩ	R272	10kΩ
R157	100kΩ	R273	10kΩ
R158	100kΩ	R274	10kΩ
R159	100kΩ	R275	10kΩ
R160	100kΩ	R276	10kΩ
R161	100kΩ	R277	10kΩ
R162	100kΩ	R278	10kΩ
R163	100kΩ	R279	10kΩ
R164	100kΩ	R280	10kΩ
R165	100kΩ	R281	10kΩ
R166	100kΩ	R282	10kΩ
R167	100kΩ	R283	10kΩ
R168	100kΩ	R284	10kΩ
R169	100kΩ	R285	10kΩ
R170	100kΩ	R286	10kΩ
R171	100kΩ	R287	10kΩ
R172	100kΩ	R288	10kΩ
R173	100kΩ	R289	10kΩ
R174	100kΩ	R290	10kΩ
R175	100kΩ	R291	10kΩ
R176	100kΩ	R292	10kΩ
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R179	100kΩ	R295	10kΩ
R180	100kΩ	R296	10kΩ
R181	100kΩ	R297	10kΩ
R182	100kΩ	R298	10kΩ
R183	100kΩ	R299	10kΩ
R184	100kΩ	R300	10kΩ
R185	100kΩ	R301	10kΩ
R186	100kΩ	R302	10kΩ
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R189	100kΩ	R305	10kΩ
R190	100kΩ	R306	10kΩ
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R192	100kΩ	R308	10kΩ
R193	100kΩ	R309	10kΩ
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R195	100kΩ	R311	10kΩ
R196	100kΩ	R312	10kΩ
R197	100kΩ	R313	10kΩ
R198	100kΩ	R314	10kΩ
R199	100kΩ	R315	10kΩ
R200	100kΩ	R316	10kΩ
R201	100kΩ	R317	10kΩ
R202	100kΩ	R318	10kΩ
R203	100kΩ	R319	10kΩ
R204	100kΩ	R320	10kΩ
R205	100kΩ	R321	10kΩ
R206	100kΩ	R322	10kΩ
R207	100kΩ	R323	10kΩ
R208	100kΩ	R324	10kΩ
R209	100kΩ	R325	10kΩ
R210	100kΩ	R326	10kΩ
R211	100kΩ	R327	10kΩ
R212	100kΩ	R328	10kΩ
R213	100kΩ	R329	10kΩ
R214	100kΩ	R330	10kΩ
R215	100kΩ	R331	10kΩ
R216	100kΩ	R332	10kΩ
R217	100kΩ	R333	10kΩ
R218	100kΩ	R334	10kΩ
R219	100kΩ	R335	10kΩ
R220	100kΩ	R336	10kΩ
R221	100kΩ	R337	10kΩ
R222	100kΩ	R338	10kΩ
R223	100kΩ	R339	10kΩ
R224	100kΩ	R340	10kΩ
R225	100kΩ	R341	10kΩ
R226	100kΩ	R342	10kΩ
R227	100kΩ	R343	10kΩ
R228	100kΩ	R344	10kΩ
R229	100kΩ	R345	10kΩ
R230	100kΩ	R346	10kΩ
R231	100kΩ	R347	10kΩ
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R240	100kΩ	R356	10kΩ
R241	100kΩ	R357	10kΩ
R242	100kΩ	R358	10kΩ
R243	100kΩ	R359	10kΩ
R244	100kΩ	R360	10kΩ
R245	100kΩ	R361	10kΩ
R246	100kΩ	R362	10kΩ
R247	100kΩ	R363	10kΩ
R248	100kΩ	R364	10kΩ
R249	100kΩ	R365	10kΩ
R250	100kΩ	R366	10kΩ
R251	100kΩ	R367	10kΩ
R252	100kΩ	R368	10kΩ
R253	100kΩ	R369	10kΩ
R254	100kΩ	R370	10kΩ
R255	100kΩ	R371	10kΩ
R256	100kΩ	R372	10kΩ
R257	100kΩ	R373	10kΩ
R258	100kΩ	R374	10kΩ
R259	100kΩ	R375	10kΩ
R260	100kΩ	R376	10kΩ
R261	100kΩ	R377	10kΩ
R262	100kΩ	R378	10kΩ
R263	100kΩ	R379	10kΩ
R264	100kΩ	R380	10kΩ
R265	100kΩ	R381	10kΩ
R266	100kΩ	R382	10kΩ
R267	100kΩ	R383	10kΩ
R268	100kΩ	R384	10kΩ
R269	100kΩ	R385	10kΩ
R270	100kΩ	R386	10kΩ
R271	100kΩ	R387	10kΩ
R272	100kΩ	R388	10kΩ
R273	100kΩ	R389	10kΩ
R274	100kΩ	R390	10kΩ
R275	100kΩ	R391	10kΩ
R276	100kΩ	R392	10kΩ
R277	100kΩ	R393	10kΩ
R278	100kΩ	R394	10kΩ
R279	100kΩ	R395	10kΩ
R280	100kΩ	R396	10kΩ
R281	100kΩ	R397	10kΩ
R282	100kΩ	R398	10kΩ
R283	100kΩ	R399	10kΩ
R284	100kΩ	R400	10kΩ

Capacitor	Value	Capacitor	Value
C001	100μF	C101	100μF
C002	100μF	C102	100μF
C003	100μF	C103	100μF
C004	100μF	C104	100μF
C005	100μF	C105	100μF
C006	100μF	C106	100μF
C007	100μF	C107	100μF
C008	100μF	C108	100μF
C009	100μF	C109	100μF
C010	100μF	C110	100μF
C011	100μF	C111	100μF
C012	100μF	C112	100μF
C013	100μF	C113	100μF
C014	100μF	C114	

BLOCK DIAGRAM

MODEL RAK-25/35/50PXB
 RAC-25/35/50WXB



BASIC MODE

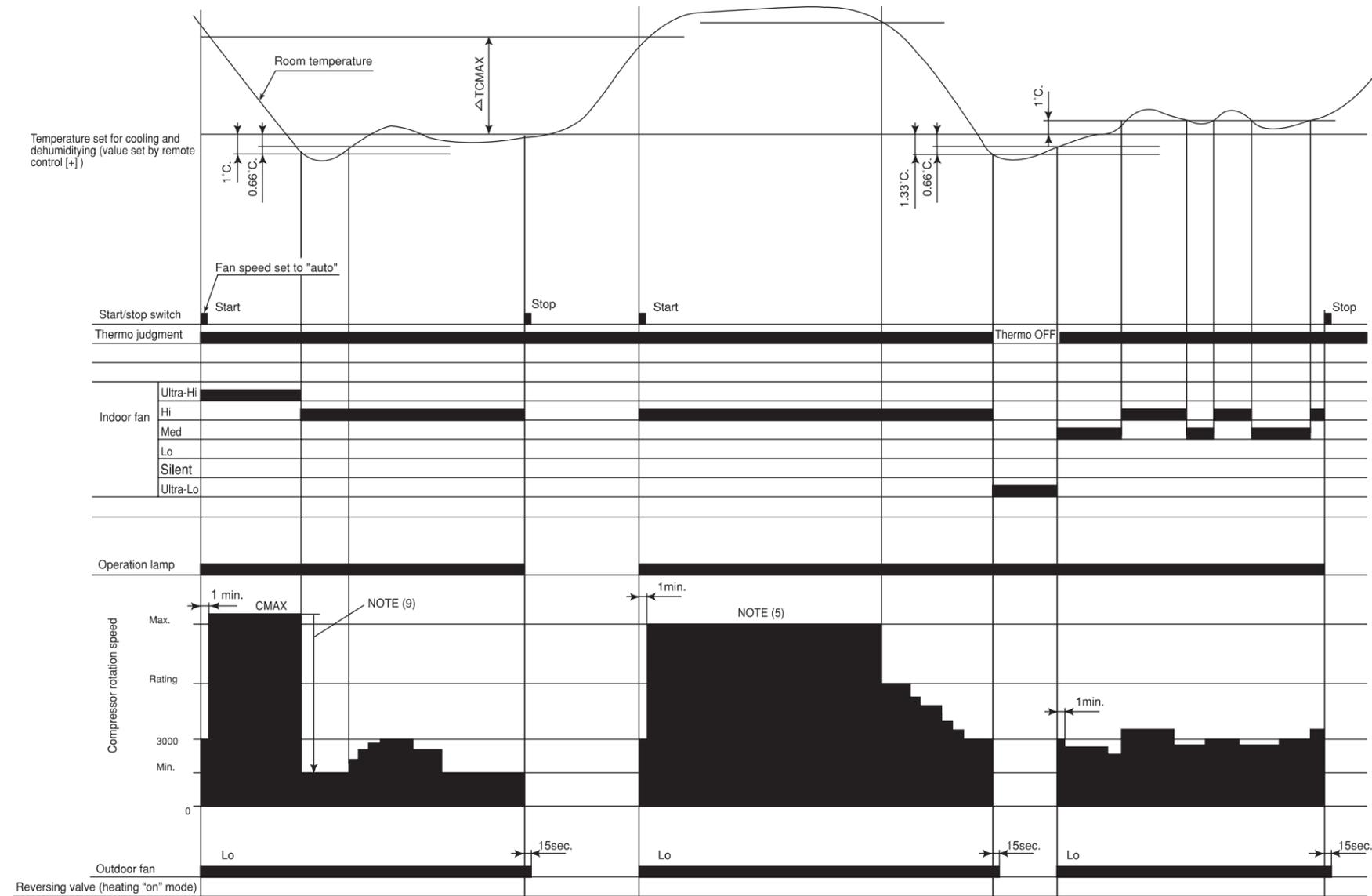
MODEL RAK-25/35/50PXB

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	<p>Changes from "Hi" to "Med" or "Lo" depending on room temperature.</p> <ol style="list-style-type: none"> Runs at "Hi" until room temperature reaches to "setting temperature-SFTDSC" after operation is started. Runs at "ultra-Lo" when thermo is off. 		<p>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.)</p> <p>In modes other than left</p>	<p>Operating mode is judged by room temperature.</p> <p>(1) Judging by room temperature</p> <ul style="list-style-type: none"> Operating mode at start up is judged (initial judgment). (a) Conditions for judgment (any of the followings). <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> [Cooling] : Room temperature \geq Remote controller setting [Heating] : Room temperature $<$ Remote controller setting 	
	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 41.	See page 43.	See page 45.		
Sleep operation (with sleep button ON)	<ul style="list-style-type: none"> Enters sleep operation after set as on the left. Action during sleep operation Lo (sleep) operation 	<ul style="list-style-type: none"> Same as at left See page 42. 	<ul style="list-style-type: none"> Same as at left See page 44. 	<ul style="list-style-type: none"> Same as at left See page 46. 	<ul style="list-style-type: none"> Same as at left. Performs the sleep operation of each operation mode. 	

Table 1 Mode data file

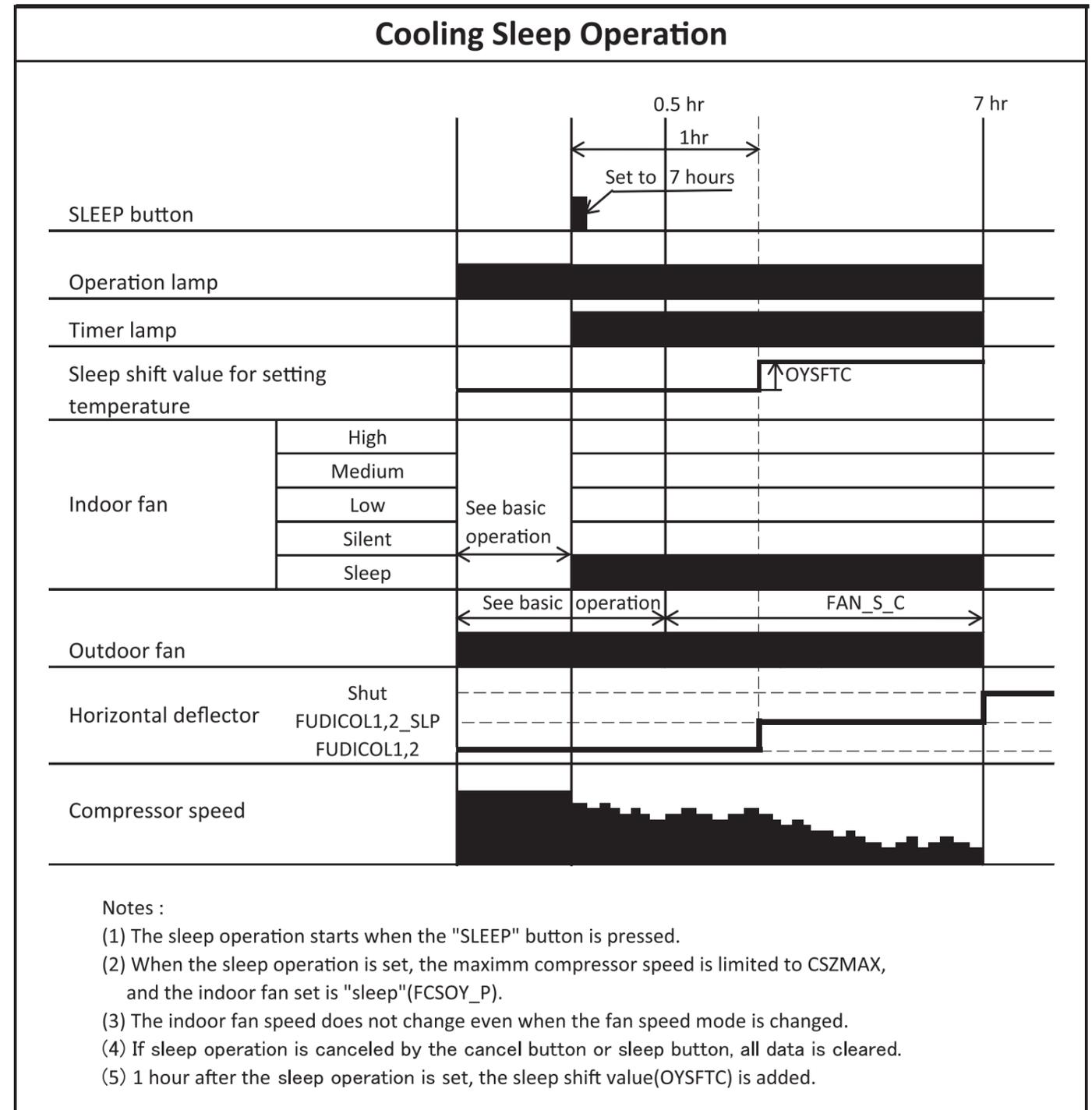
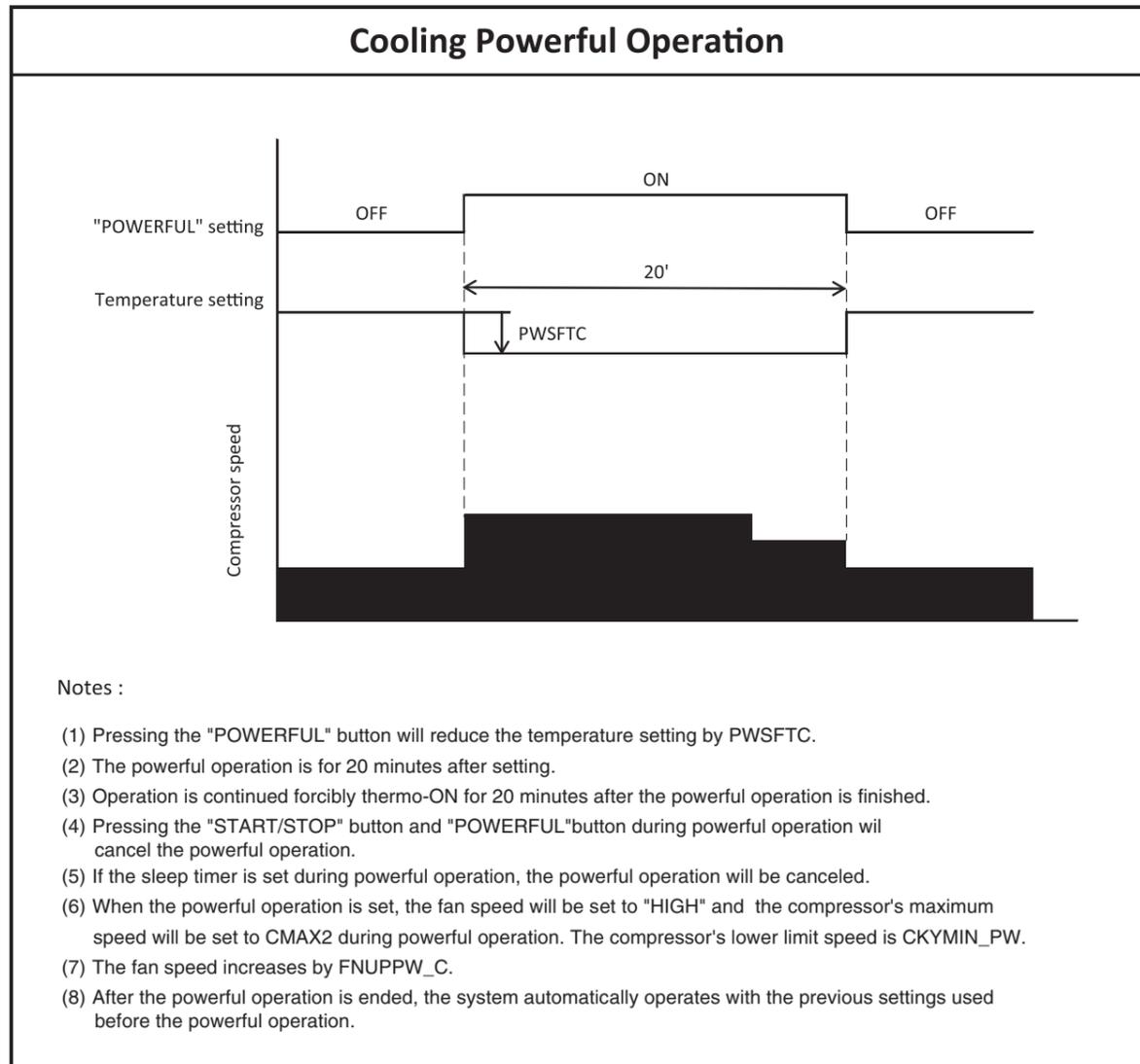
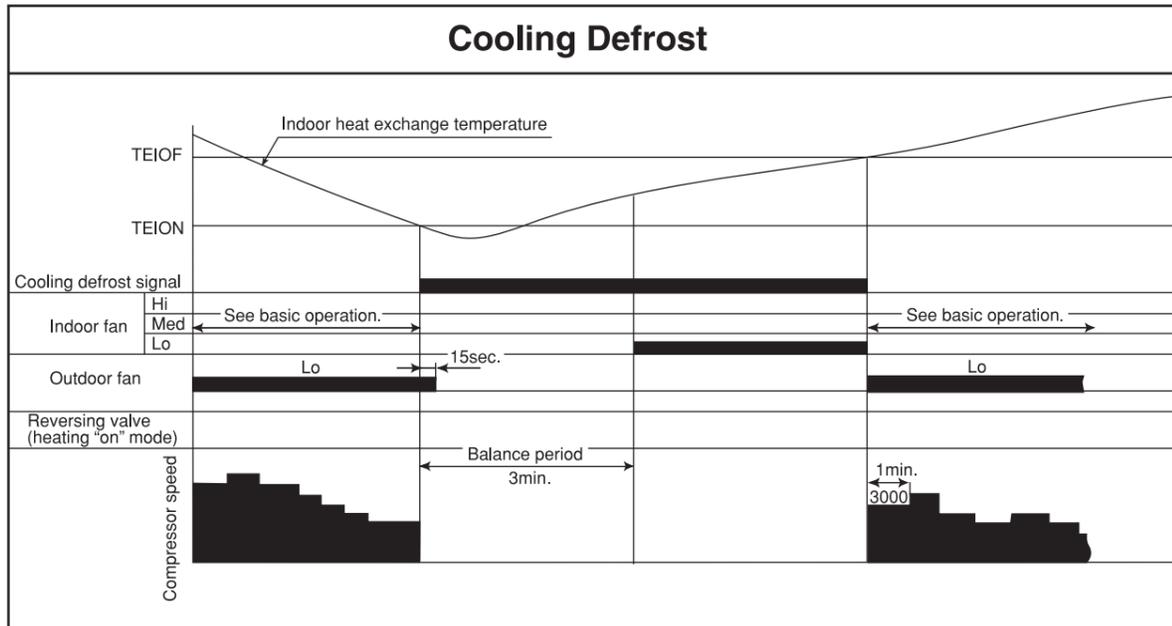
MODEL	RAK-25PXB	RAK-35PXB	RAK-50PXB
LABEL NAME	VALUE		
WMAX	5100 min-1	6700 min-1	5500 min-1
WMAX2	5100 min-1	6700 min-1	5500 min-1
WSTD	4300 min-1	5700 min-1	4800 min-1
WJKMAX	3600 min-1	5500 min-1	4100 min-1
WBEMAX	3100 min-1	5000 min-1	3500 min-1
WSZMAX	2600 min-1	4000 min-1	3200 min-1
CMAX	4000 min-1	6000 min-1	5500 min-1
CMAX2	4000 min-1	6000 min-1	5500 min-1
CSTD	3100 min-1	4800 min-1	4750 min-1
CJKMAX	2800 min-1	4700 min-1	4100 min-1
CBEMAX	2700 min-1	4000 min-1	2800 min-1
CSZMAX	2300 min-1	3400 min-1	2500 min-1
WIN-CMPH	2000 min-1	2000 min-1	2400 min-1
WIN-CMPL	2000 min-1	2000 min-1	2400 min-1
CMIN	2000 min-1	2000 min-1	1700 min-1
STARTMC	90 Seconds	90 Seconds	90 Seconds
DWNRATEW	80%	80%	80%
DWNRATEC	60%	60%	70%
SHIFTW	1.00°C	1.00°C	1.00°C
SHIFTC	0.00°C	0.00°C	1.33°C
CLMXTP	30.00°C	30.00°C	30.00°C
TEION	2.00°C	2.00°C	2.00°C
TEIOF	6.00°C	6.00°C	6.00°C
SFTDSW	0.66°C	0.66°C	0.66°C
DFTIM-OTPO	43 Minutes	40 Minutes	43 Minutes
DFTIM-OTP5	43 Minutes	40 Minutes	43 Minutes
DFTIM-OTP10	43 Minutes	40 Minutes	43 Minutes
FCAUT-L	0.66°C	0.66°C	0.66°C
FCAUT-H	2.00°C	2.00°C	2.00°C
SFTDSC	0.66°C	0.66°C	0.66°C
OFTMPC	1.00°C	1.00°C	1.00°C
DASUPHH	45.00	45.00	39.00
DASDNHH	41.00	41.00	36.00
DASUPH	40.00	40.00	34.66
DASDNH	35.33	35.33	32.00
DASUPL	35.00	35.00	31.00
DASDNL	28.00	28.00	29.00
DASUPS	28.00	28.00	28.00
DASDNS	27.00	27.00	26.00
NORUPH	44.00	44.00	44.66
NORDNH	40.00	40.00	38.00
NORUPL	39.00	39.00	37.66
NORDNL	35.00	35.00	33.66
NORUPS	35.00	35.00	33.00
NORDNS	34.00	34.00	30.66
PDCIN2	50.00	54.00	50.00
PDCOF2	45.00	48.00	48.00
DNZKON	15.00	15.00	15.00
DNZKOF	13.00	13.00	13.00
FNUPPW-C	30 min-1	30 min-1	30 min-1
DFMAX-STD	5500 min-1	5500 min-1	4000 min-1
DFMAX-ATF	5500 min-1	5500 min-1	4000 min-1

Basic Cooling Operation

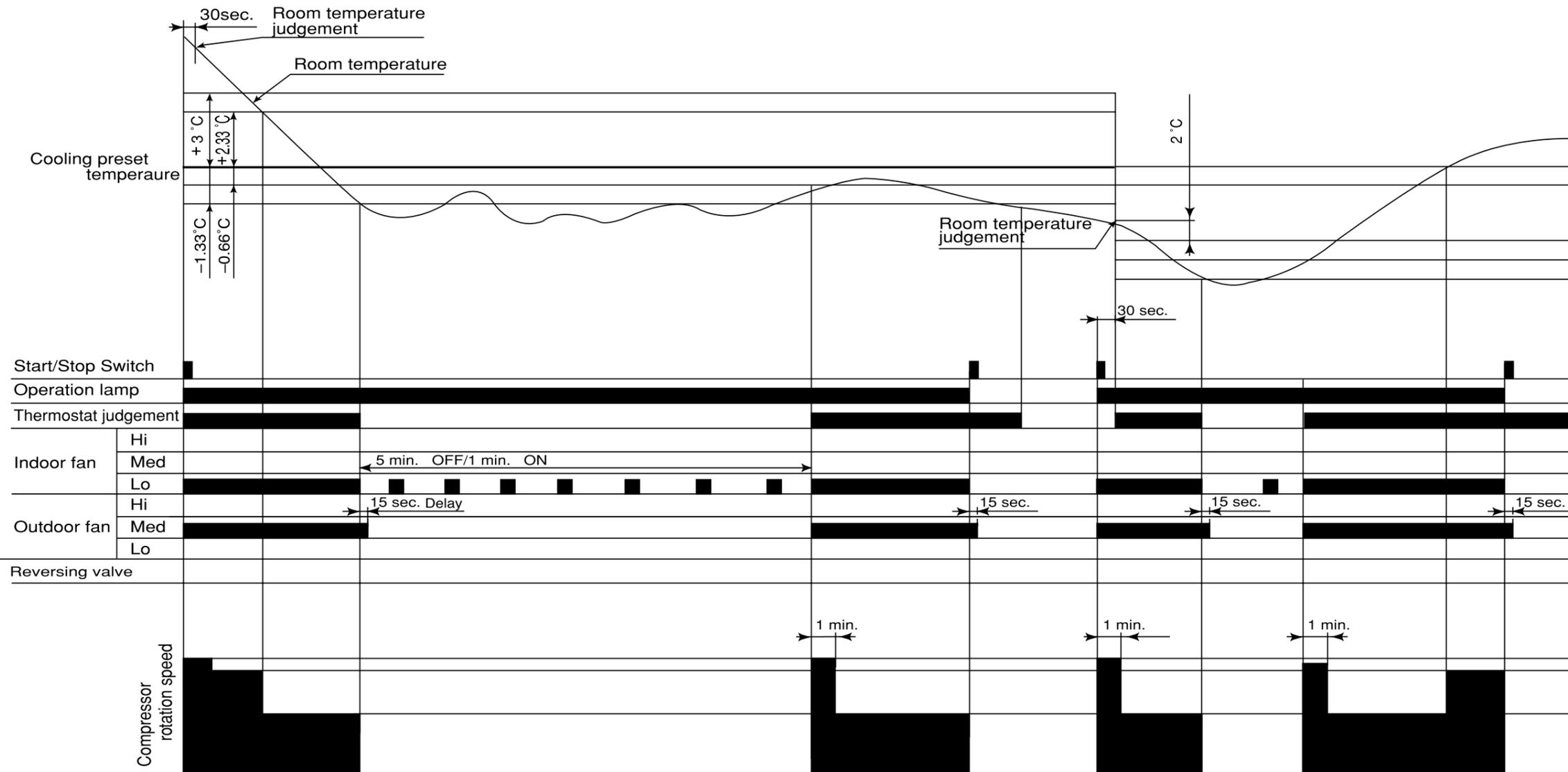


Notes:

- (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.



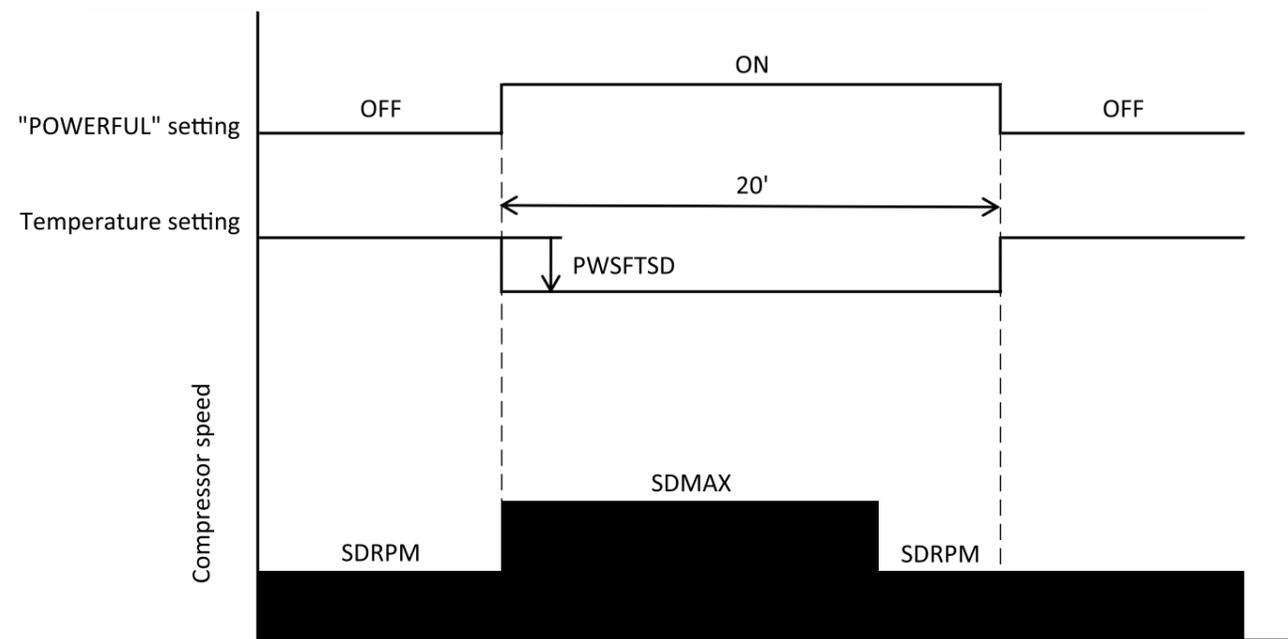
Dehumidifying



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 thermostat 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.

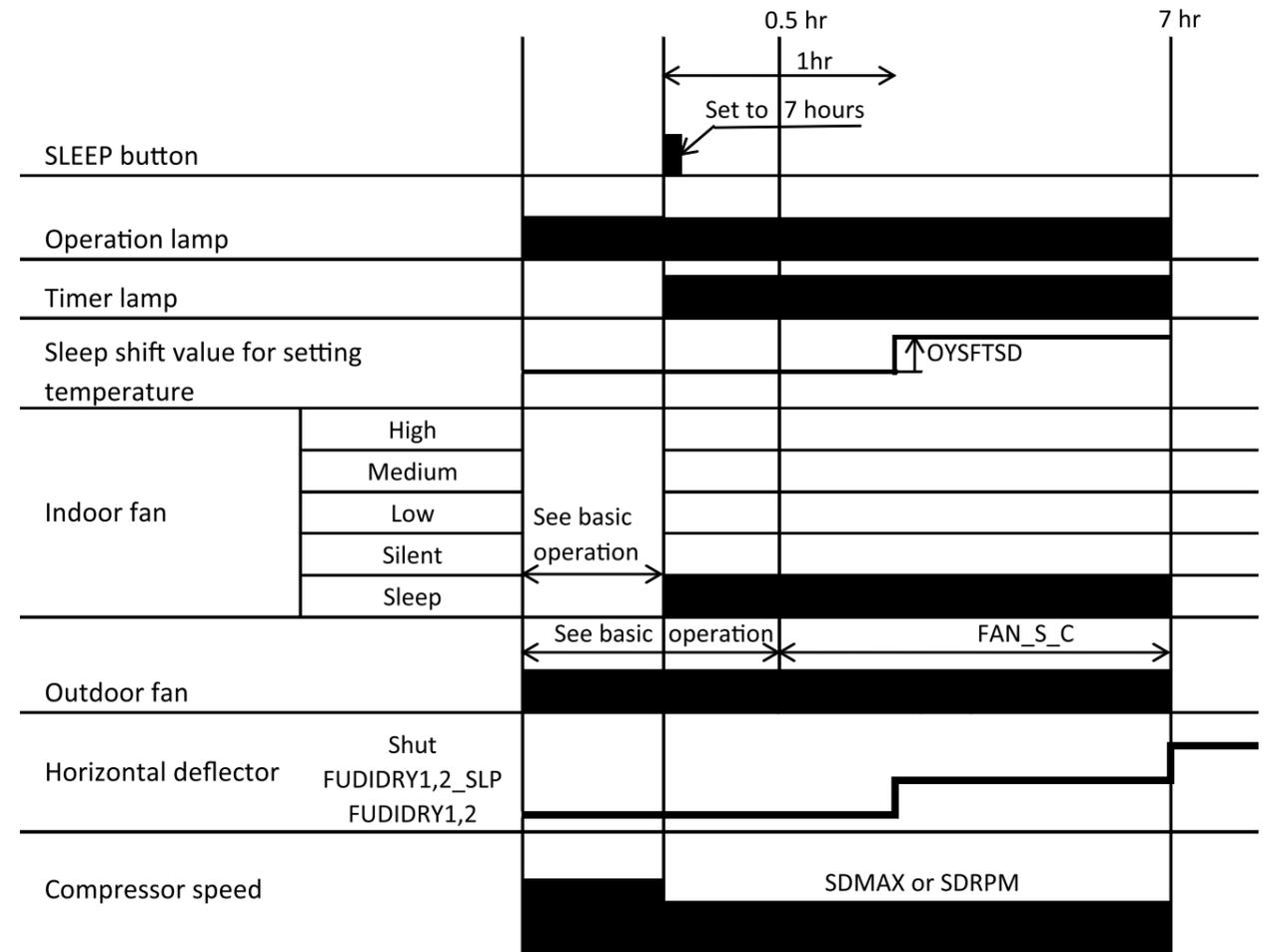
Dehumidifying Powerful Operation



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 will 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.

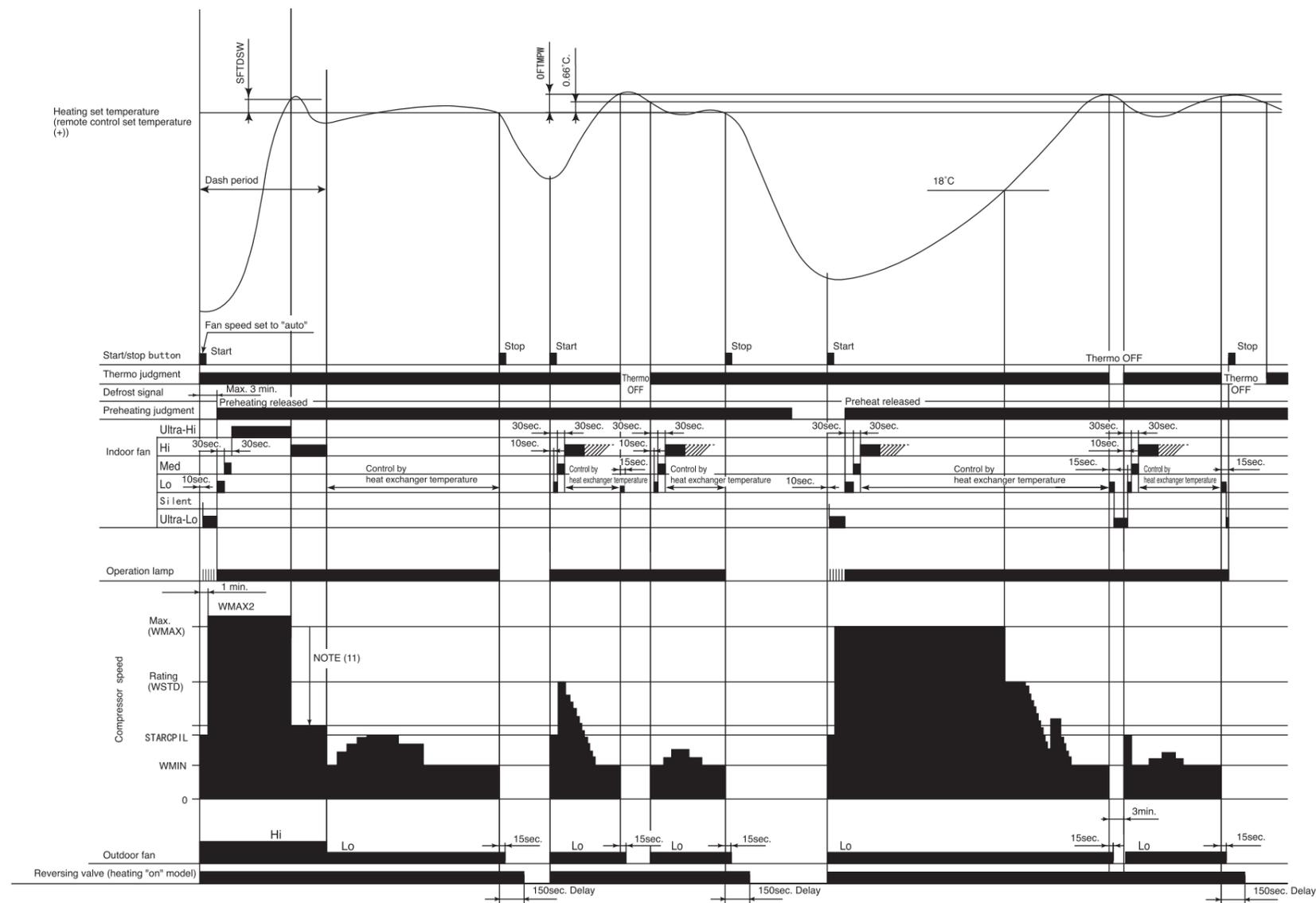
Dehumidifying Sleep Operation



Notes :

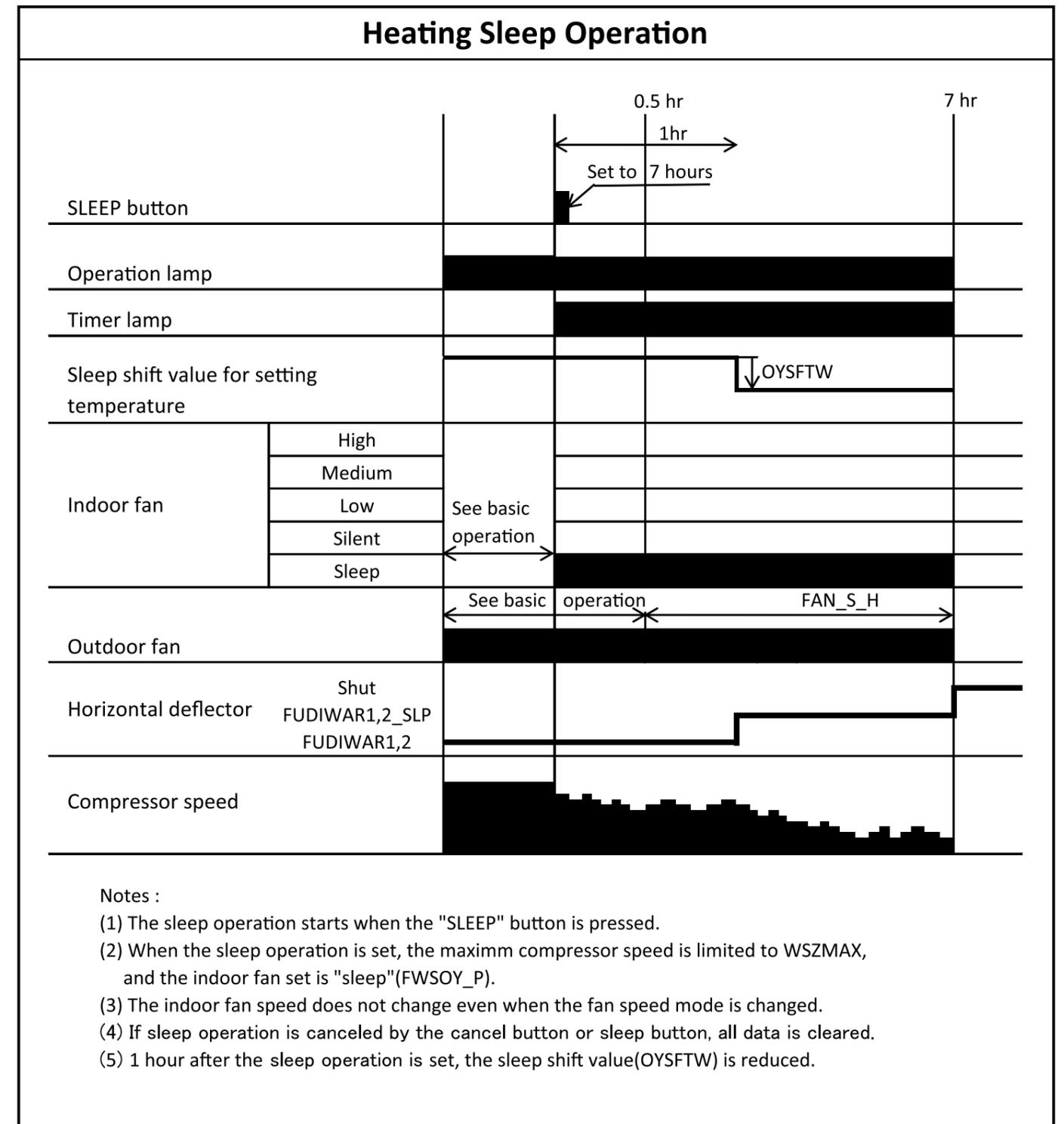
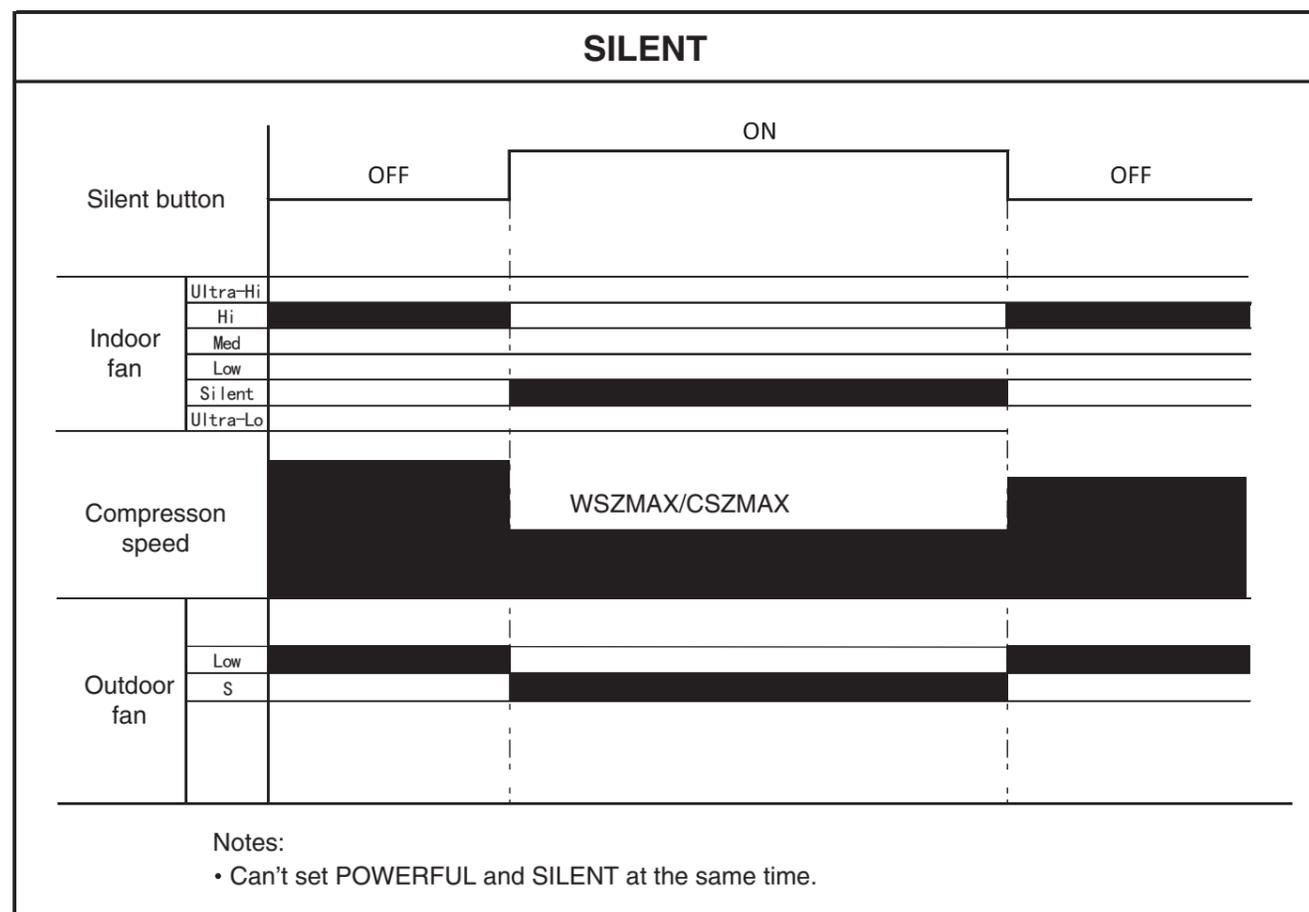
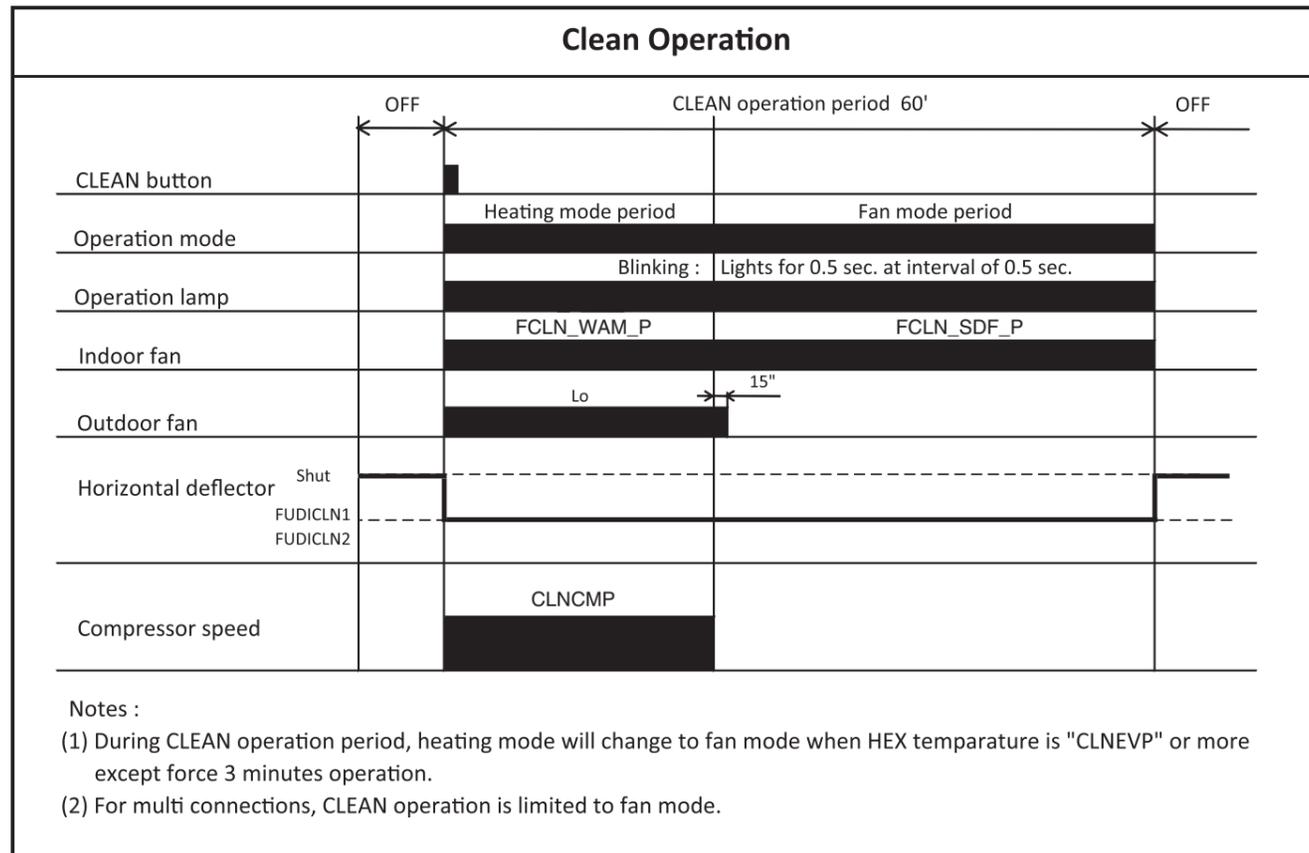
- (1) The sleep operation starts when the "SLEEP" button is pressed.
- (2) When the sleep operation is set, the indoor fan set is "sleep"(FDOY_P).
- (3) The indoor fan speed does not change even when the fan speed mode is changed.
- (4) If sleep operation is canceled by the cancel button or sleep button,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

Basic Heating Operation

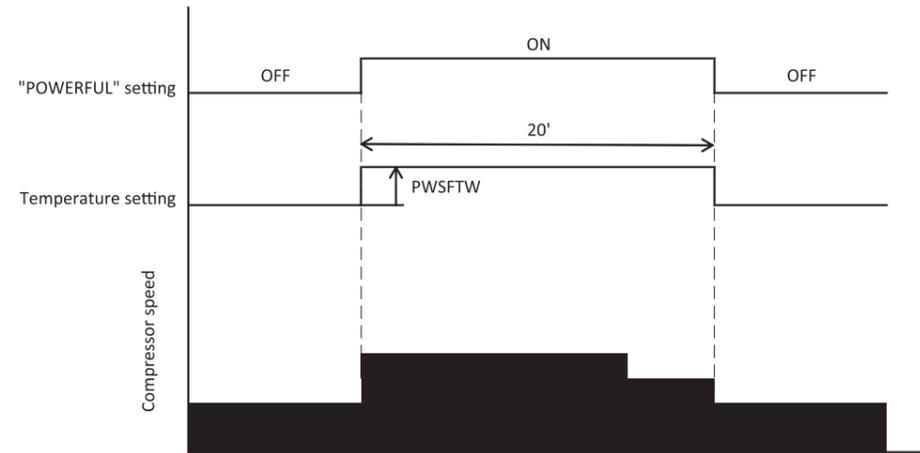


Notes:

- (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, "Ultra-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.



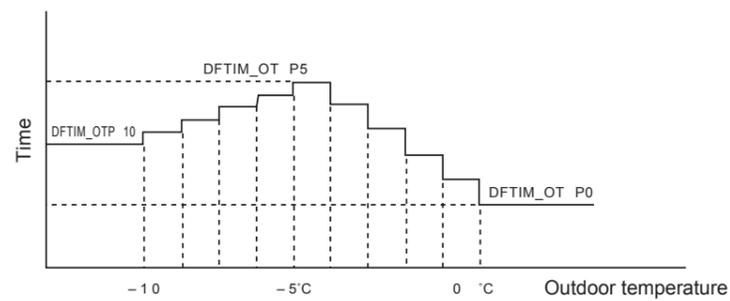
Heating Powerful Operation



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 will 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.

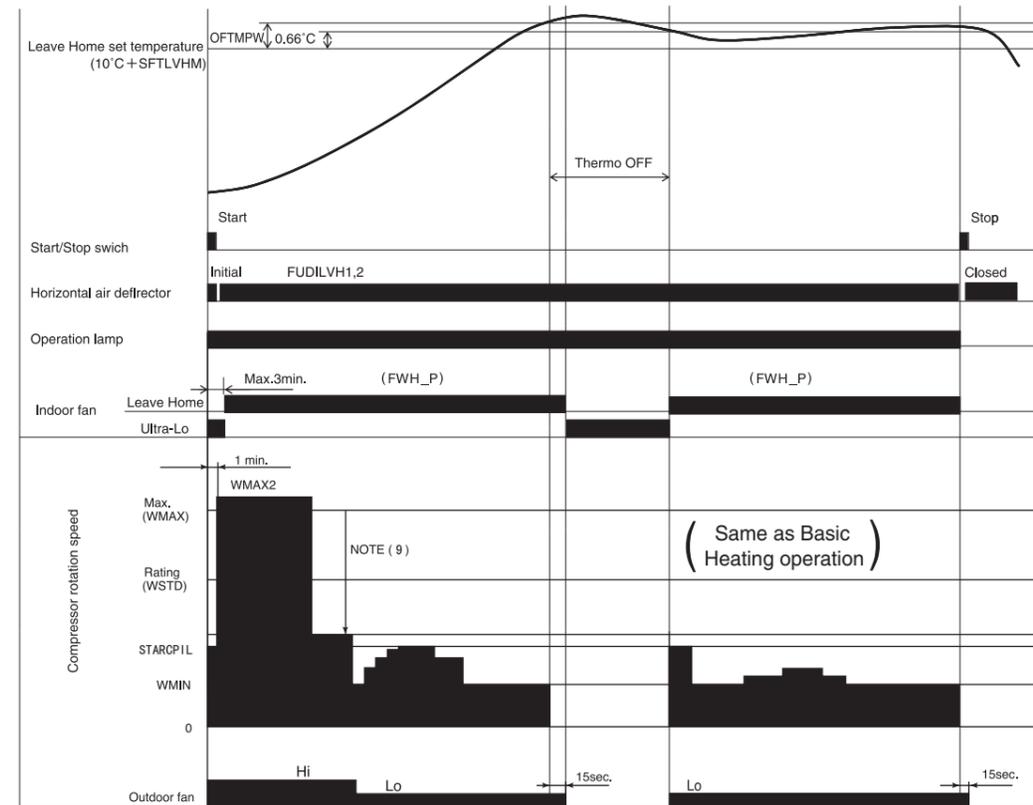
Setting Defrosting Inhibit Period



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 \geq [DEFCOL] : DEFTIM_COL is set.
Reverse cycle operation time $<$ [DEFCOL] : The time corresponding to outdoor temperature is set.

Leave Home



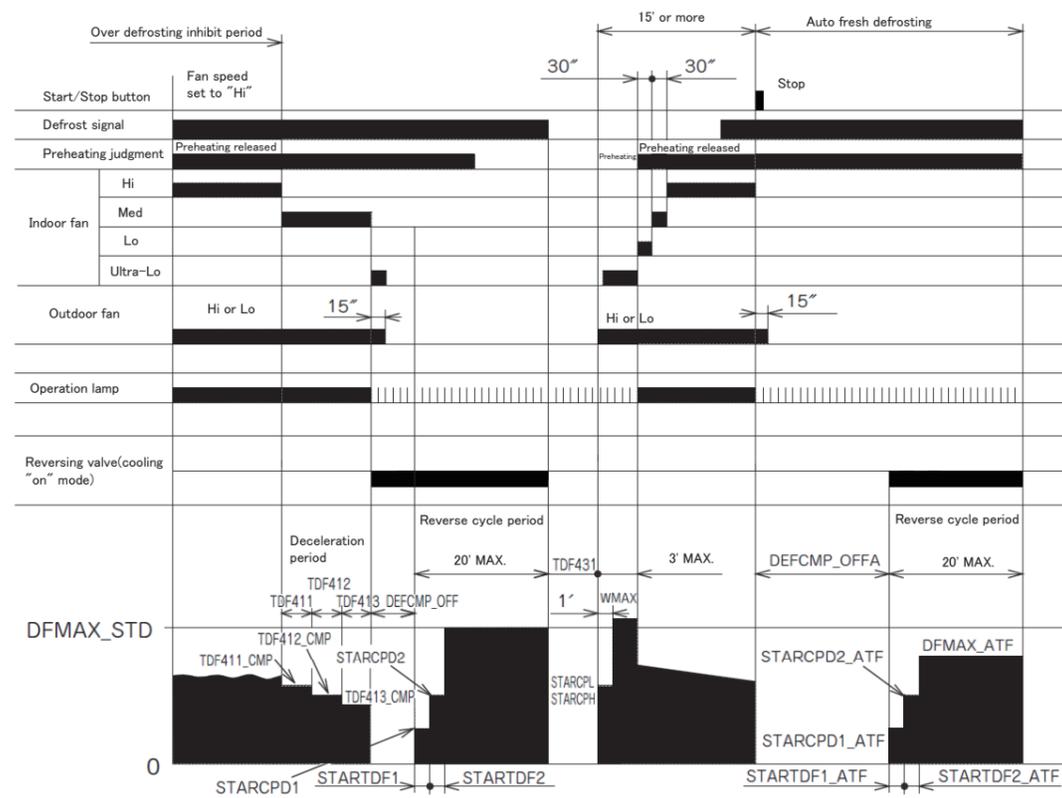
Notes:

Perform Leave Home operation according to the following control contents.

- (1) Operation mode : Heating
- (2) Temperature set : 10°C
- (3) Temperature setting correction shift : + 『SFTLVHM』
- (4) Indoor fan : 『FWH_P』
- (5) Outdoor fan speed :
- (6) Compressor start control : } Same as Basic Heating operation
- (7) Compressor speed : }
- (8) Lamp indication : i) Operation lamp : ON
ii) Timer lamp : OFF(Continuous operation) ; ON(Day timer operation)

RAK/C-25P/WXB RAK/C-35P/WXB

Reversing valve defrosting

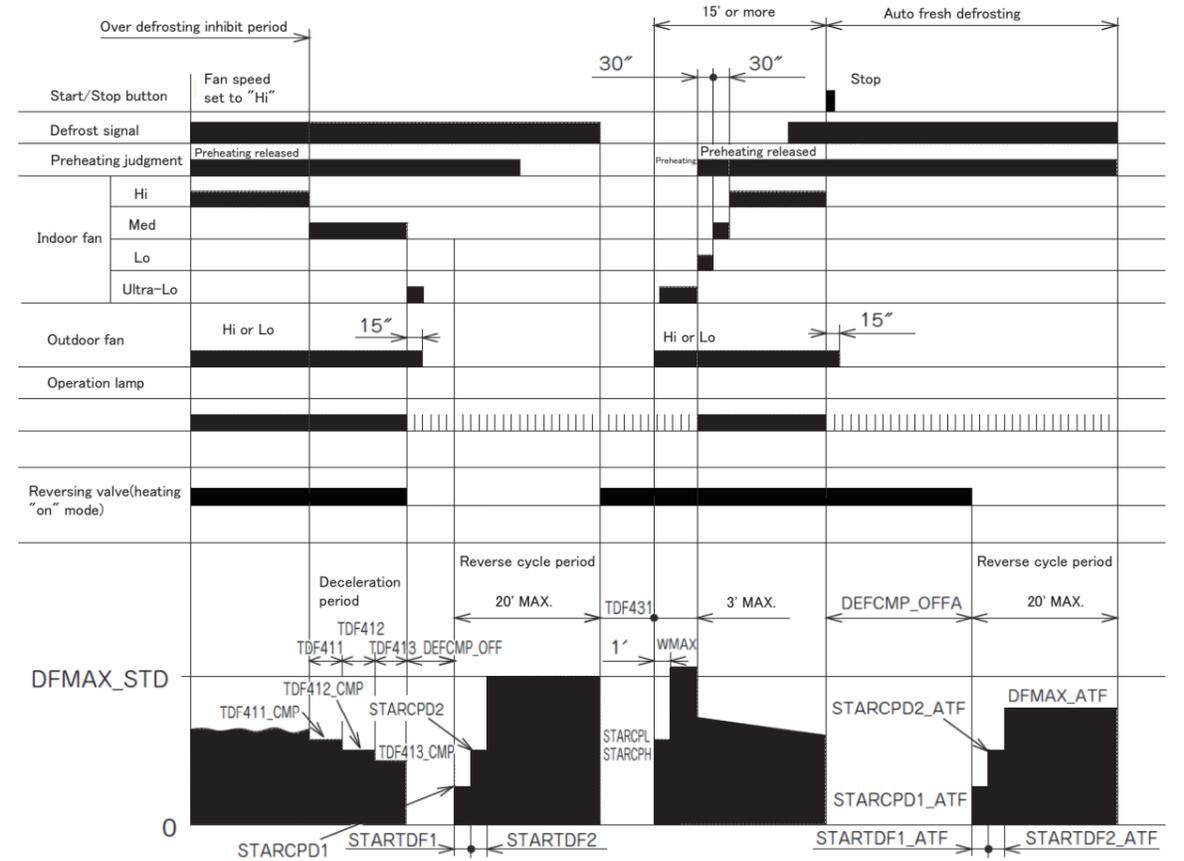


Notes:

- (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.

RAK/C-50P/WXB

Reversing valve defrosting

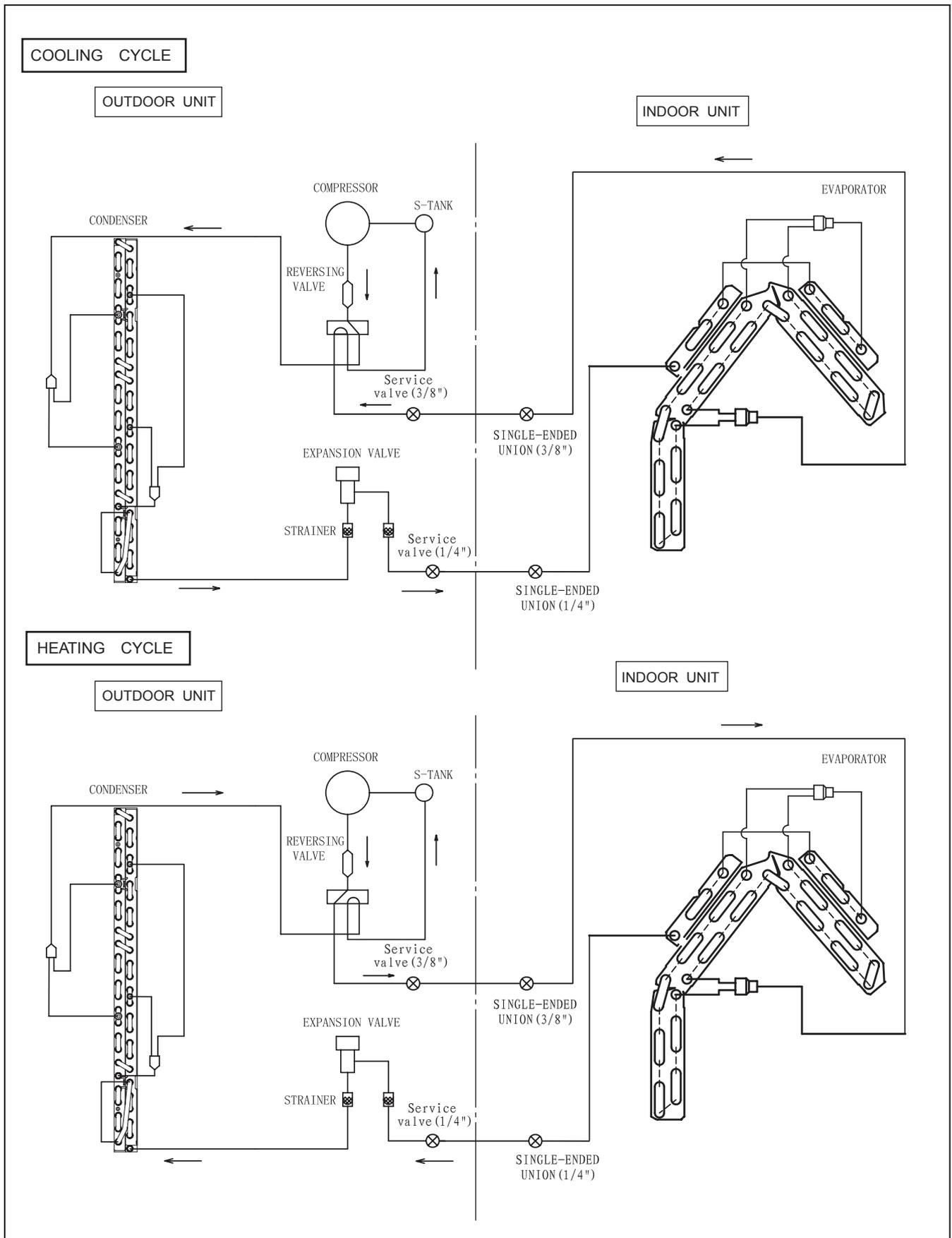


Notes:

- (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.

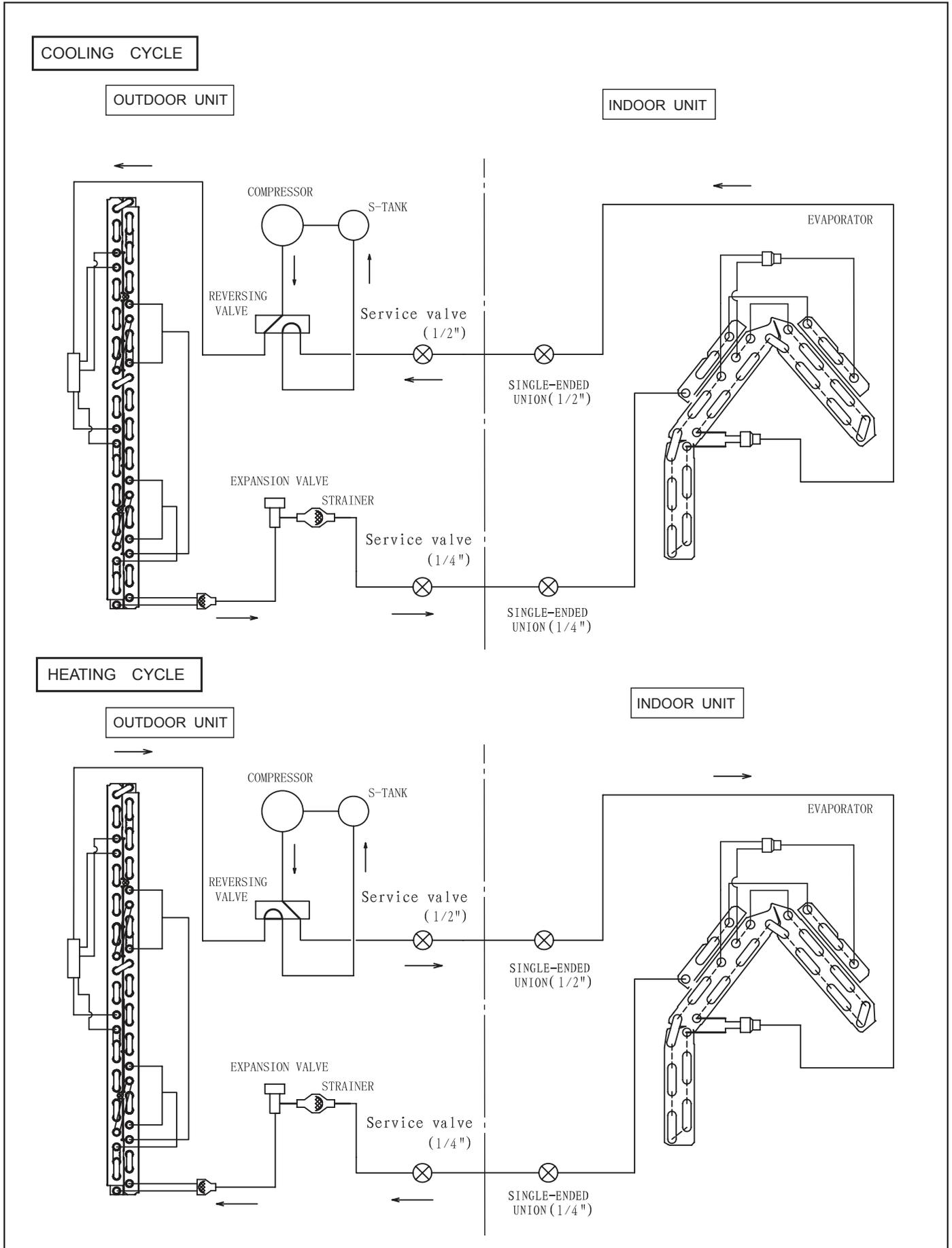
REFRIGERATING CYCLE DIAGRAM

MODEL RAK-25/35PXB
RAC-25/35WXB



REFRIGERATING CYCLE DIAGRAM

MODEL RAK-50PXB
RAC-50WXB



Procedure for Disassembly and Reassembly

INDOOR UNIT RAK-25/35/50PXB

1. Front Panel

- (1) Be sure to hold the front panel with both hands to detach and attach it.

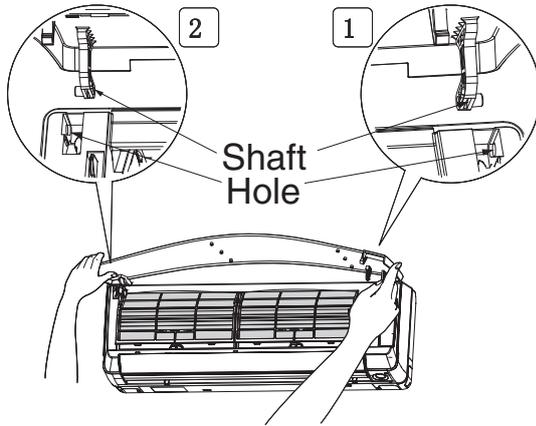
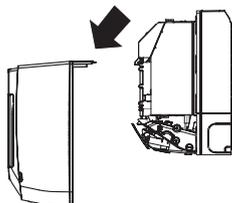
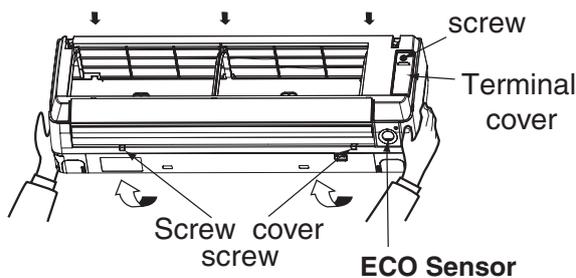


Fig. 1

When the front panel is fully opened with both hands, push the right arm to the inside to release it, and while closing the front panel slightly, put it out forward.

2. Front cover

- (1) After removing the screw of fixing the terminal cover, hold the handle of terminal cover and remove it.
- (2) After removing two screws, pull the center of the front cover and release the claws.
- (3) Pull the side faces (lower sections) of the front cover as shown in the figure and remove the cover.



CAUTION

- Remove and attach the front cover to the direction as shown in the figure to ensure no damage occurs to the ECO sensor.

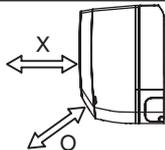


Fig. 2

3. Control P.W.B. and Indicating P.W.B.

- (1) Remove each connector from the lead wire.
- (2) Remove the four P.W.B. supports from the control P.W.B.
- (3) Pull the support hook at the upper side of the indication lamp of the indicating P.W.B. and pull out the P.W.B. forward.

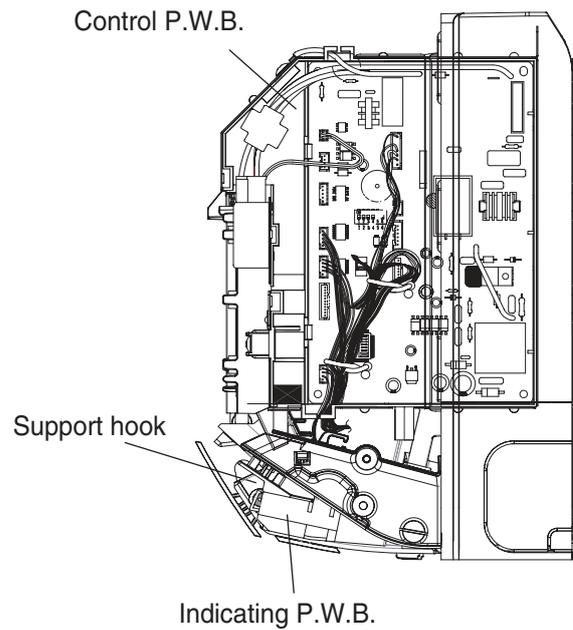


Fig. 3

4. Tangential air flow fan and fan motor

- (1) Press to lower the hook at the center of the unit a little and pull the claw forward to remove the drain pan.

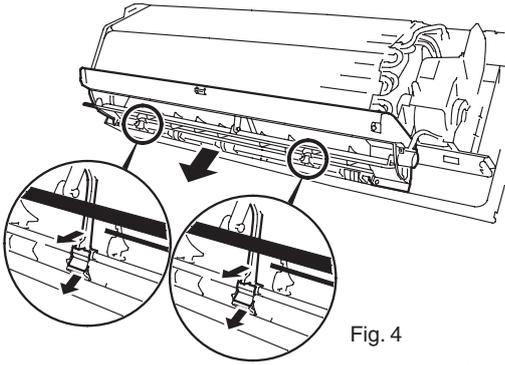


Fig. 4

- (2) Remove the screws from the upper and lower bearing covers.
- (3) Remove the locking hook of the lower bearing cover from the Cabinet.

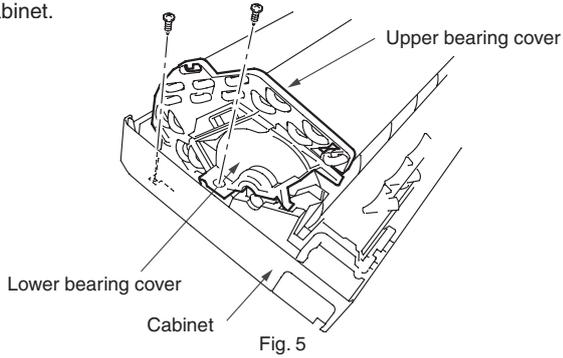


Fig. 5

- (4) Remove two lock screws from the fan motorholder.
- (5) Pull up the evaporator by holding it at the lower side. Insert a screwdriver through the space between the evaporator and drain chute and loosen the fan lock screw to remove the fan and fan motor.

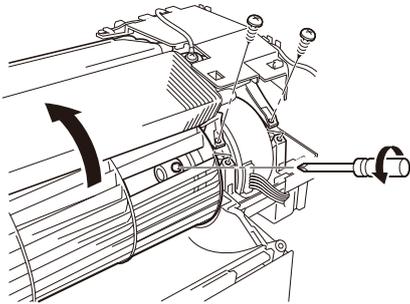


Fig. 6

<OUTDOOR UNIT> MODEL RAC-25/35WXB

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.

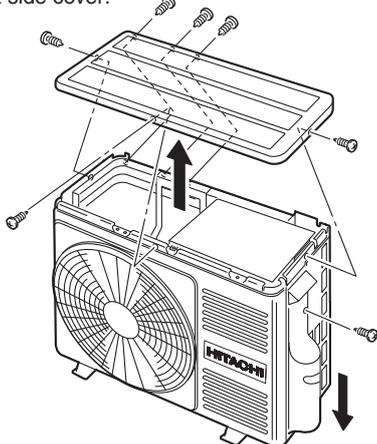


Fig. 7

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

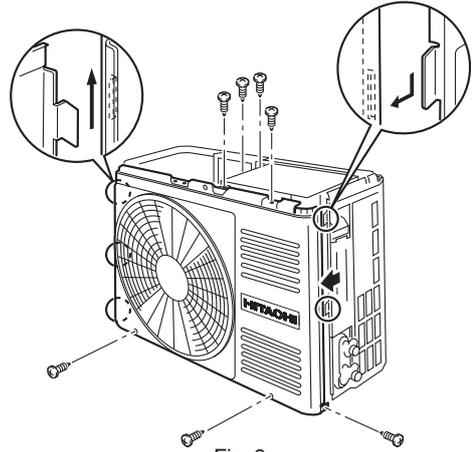


Fig. 8

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

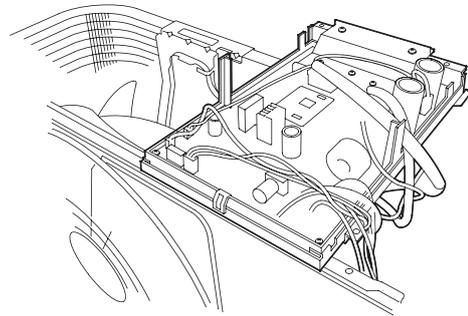


Fig. 9

- (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.

Radiation fin fixing screw

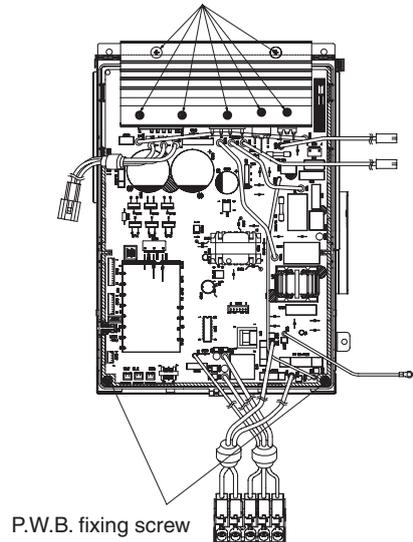


Fig. 10

OUTDOOR UNIT MODEL RAC-50WXB

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.

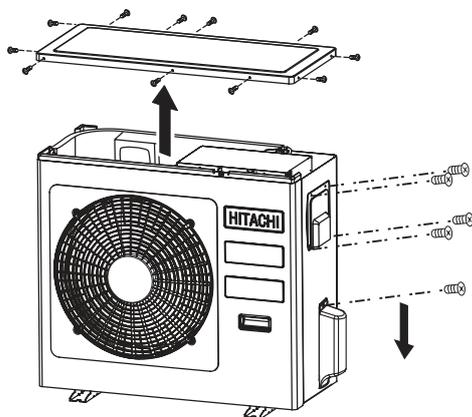


Fig. 12

- (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.

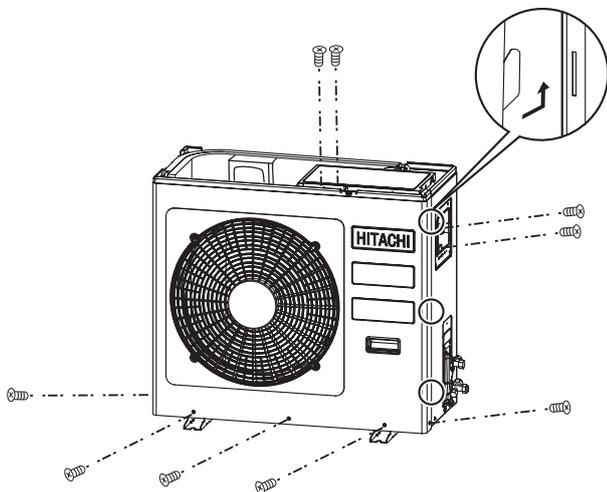


Fig. 13

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

DESCRIPTION OF MAIN CIRCUIT OPERATION

MODEL RAK-25/35/50PXB

1. Control power circuit

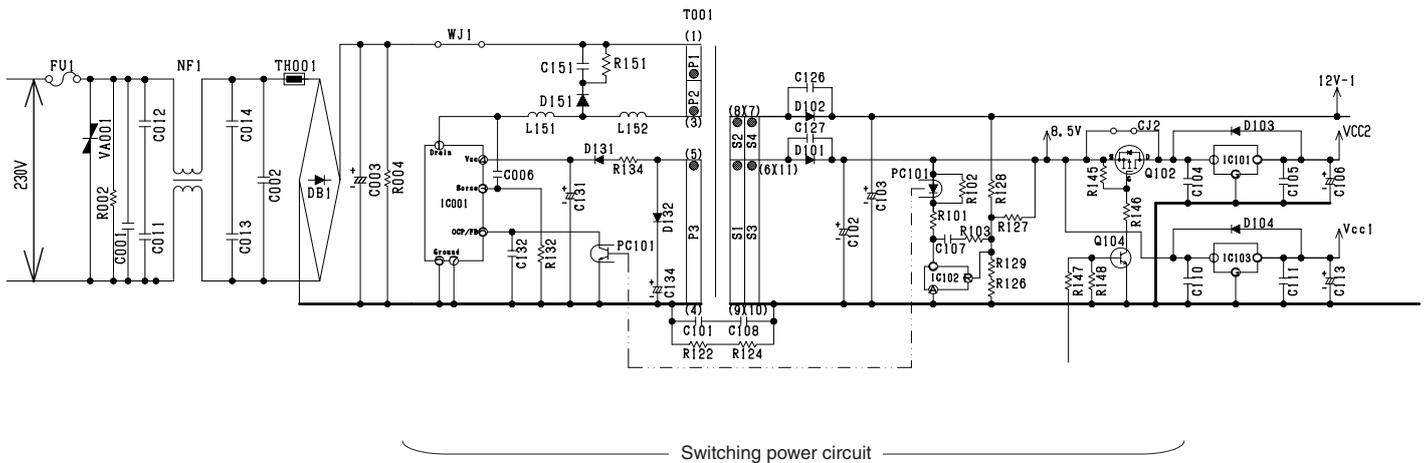


Fig. 1-1

- 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

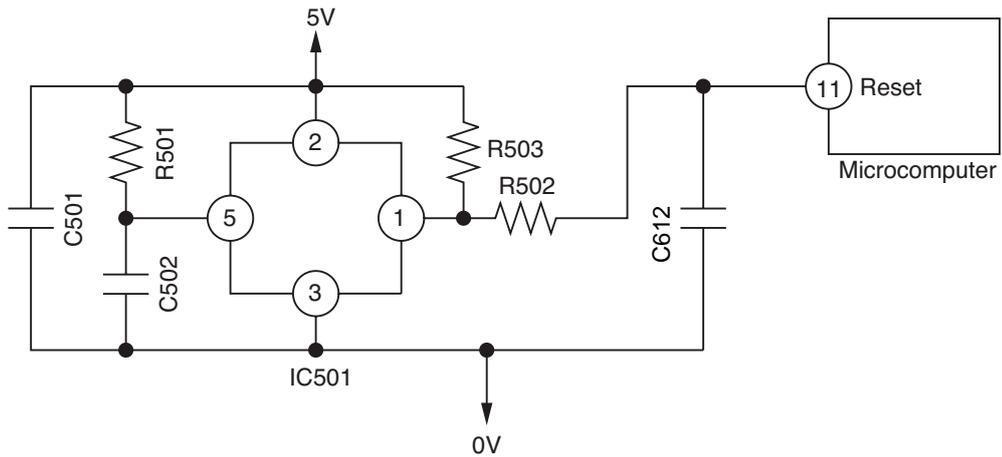


Fig.2-1

Timing chart

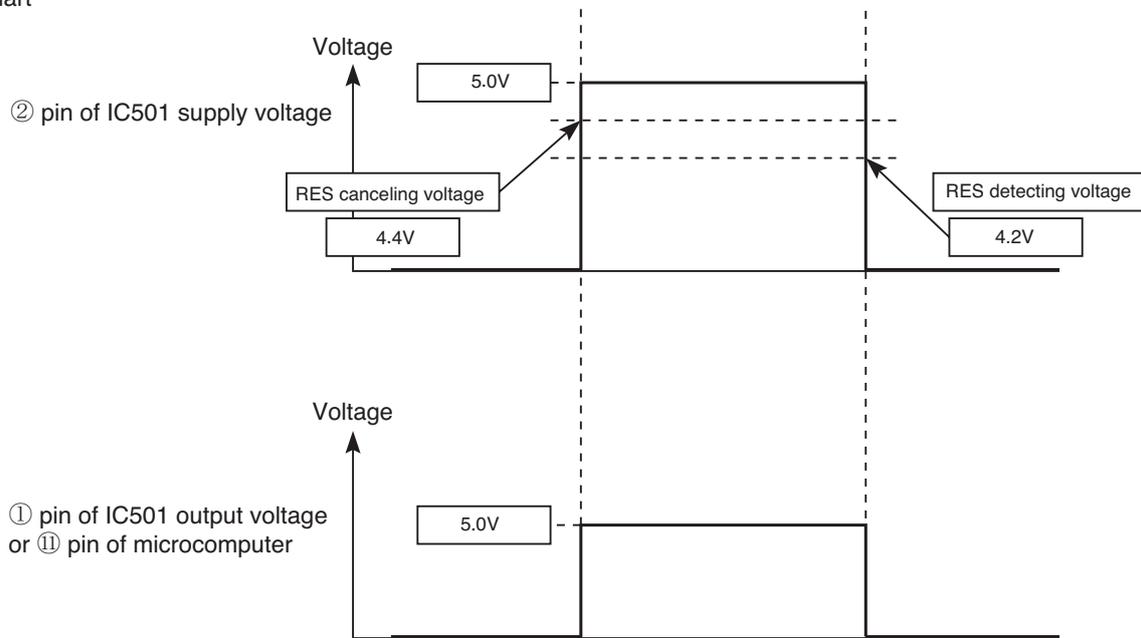


Fig.2-2

- 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

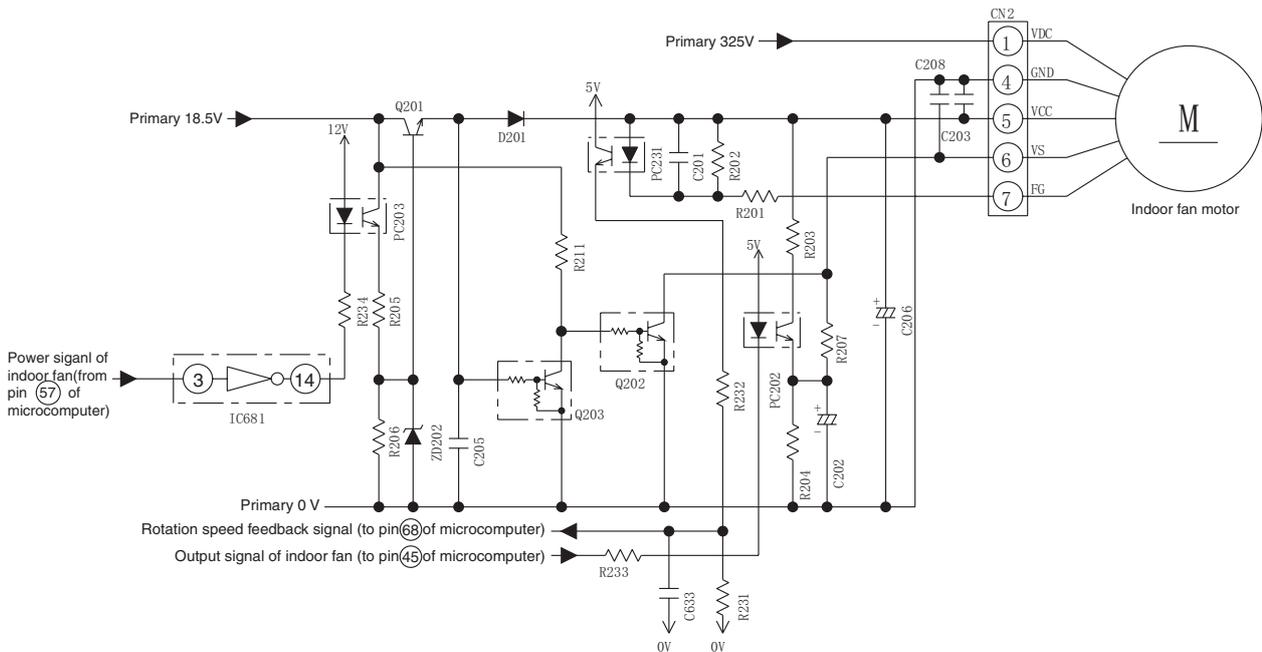
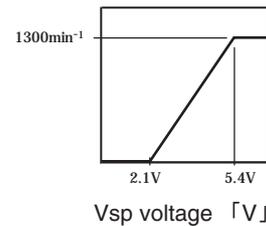


Fig. 3-1

< The circuit check (For test) >

Name	Test point	Test voltage
Motor drive power	CN2 ① pin- ④ pin	About 325V
Motor control 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

< Pin 6 - Pin 4 voltage one example >



- * The voltage above is all motor operation vol. when you 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 different from above.

* The different mode maybe have different FAN rotation speed.

< Typical circuit waveform >

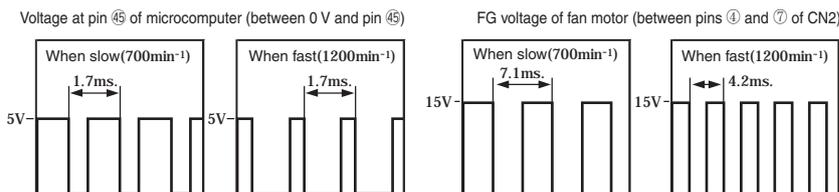


Fig. 3-2

- 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 ④ 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

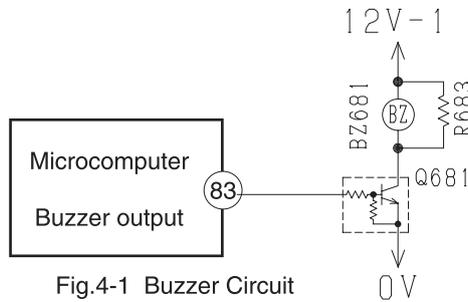


Fig.4-1 Buzzer Circuit

- 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.

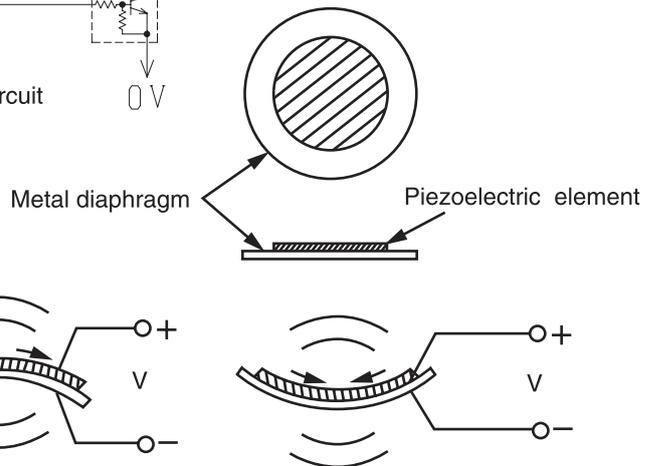


Fig.4-2 Buzzer Operation

5. Remote control reception circuit

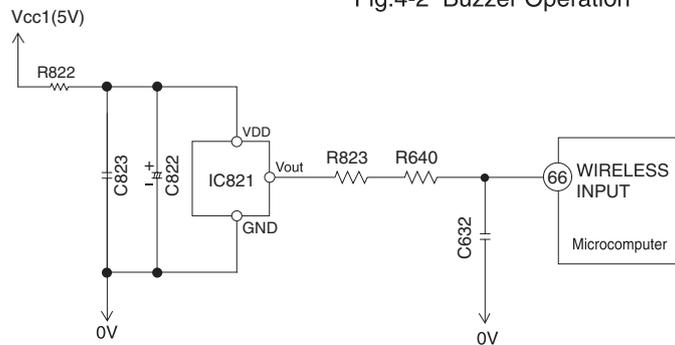


Fig.5-1

[Typical communication waveform]

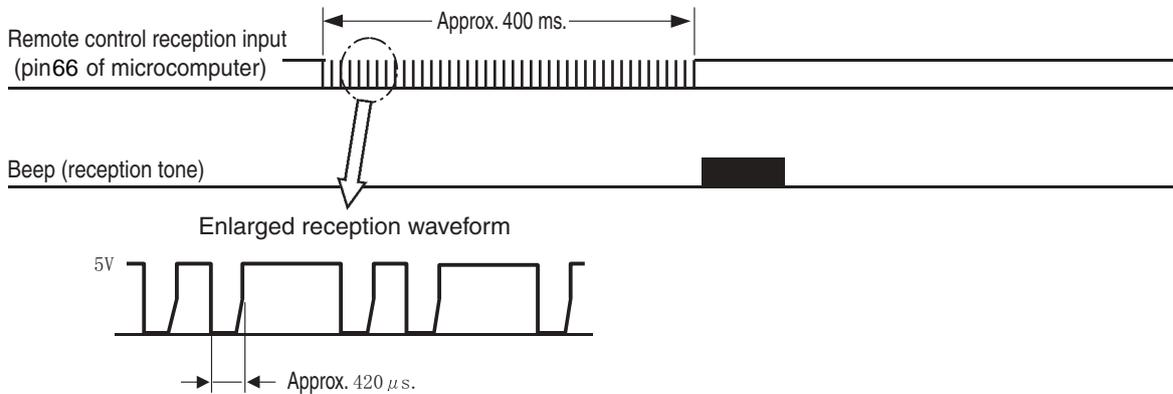
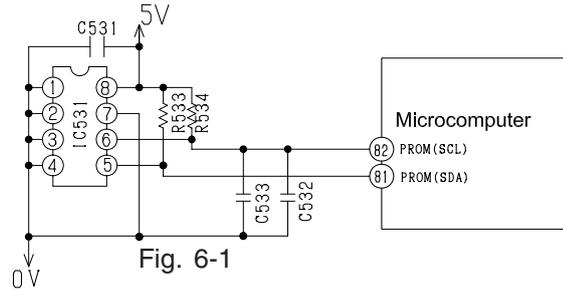


Fig. 5-2

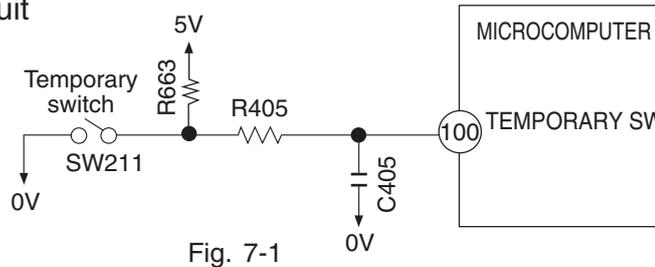
- An infrared signal from the remote control unit is converted to an electrical signal by the remote control light-receiving unit (IC821) and is received by the microcomputer. Data is transmitted as digital data 0 and 1 by changing the interval of the basic pulses at about 420μs.

6. Initial Setting Circuit (IC531)

- When power is supplied, the microcomputer reads the data in IC531 (E²PROM) 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.



7. Temporary Switch Circuit



- 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 (A) becomes as it is shown in Fig.8-2.

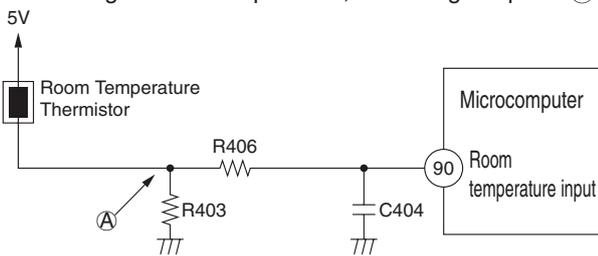


Fig. 8-1

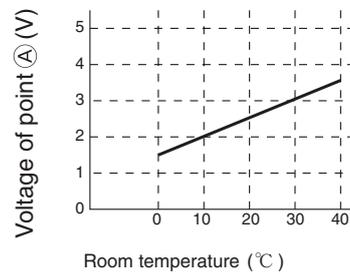


Fig. 8-2

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 (A) becomes as it is shown in Fig. 9-2.

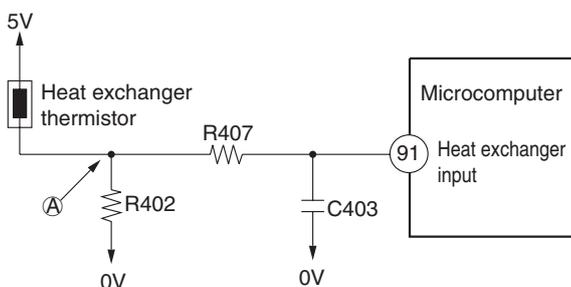


Fig. 9-1

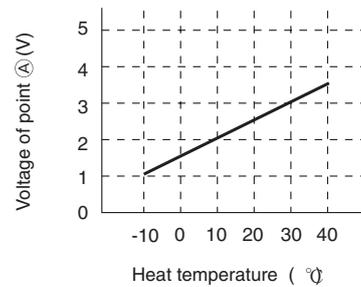


Fig. 9-2

10. Dip-switch

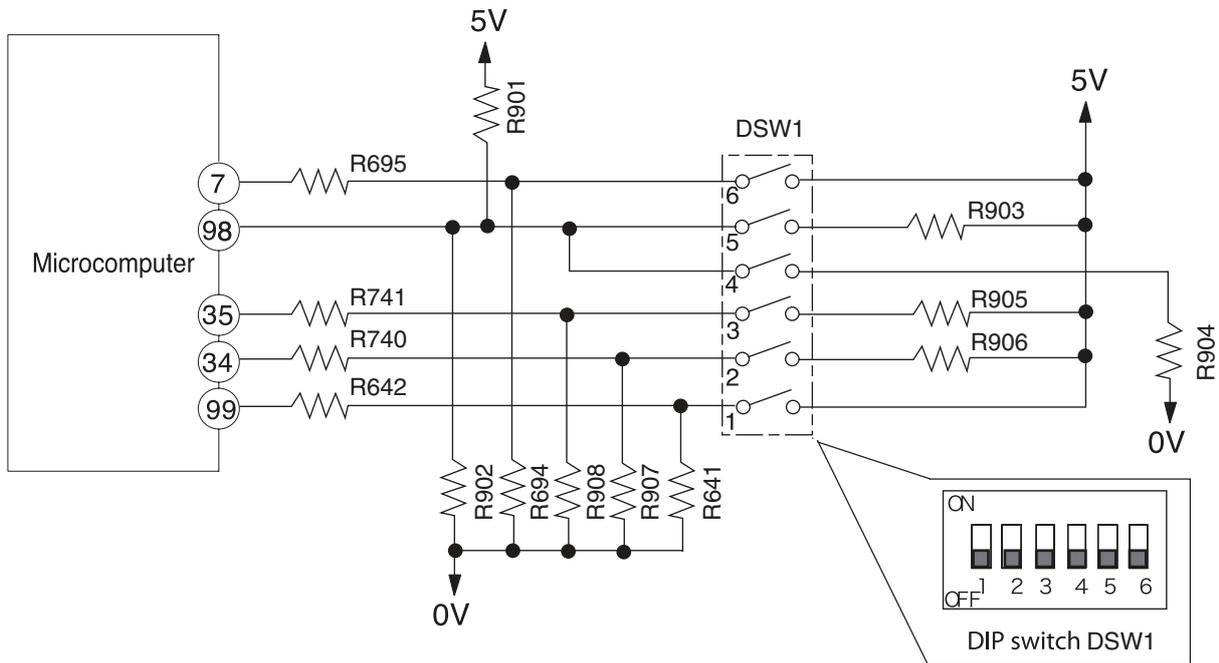


Fig.10-1 Dip switch Circuit

- 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.	ITEM	FUNCTION							
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	
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

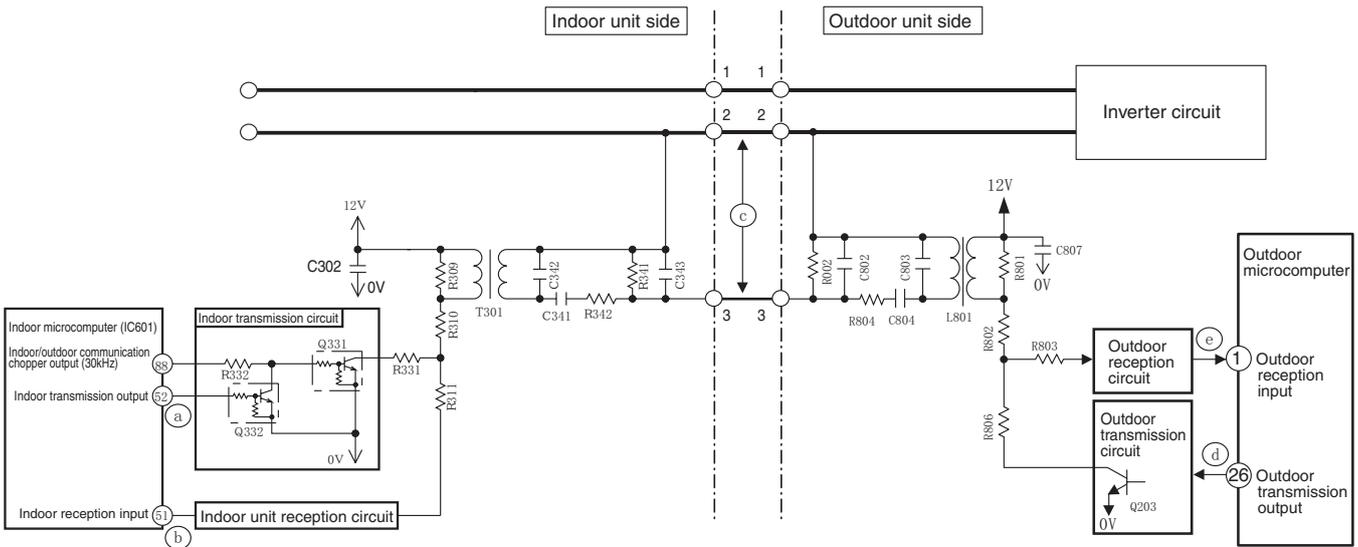
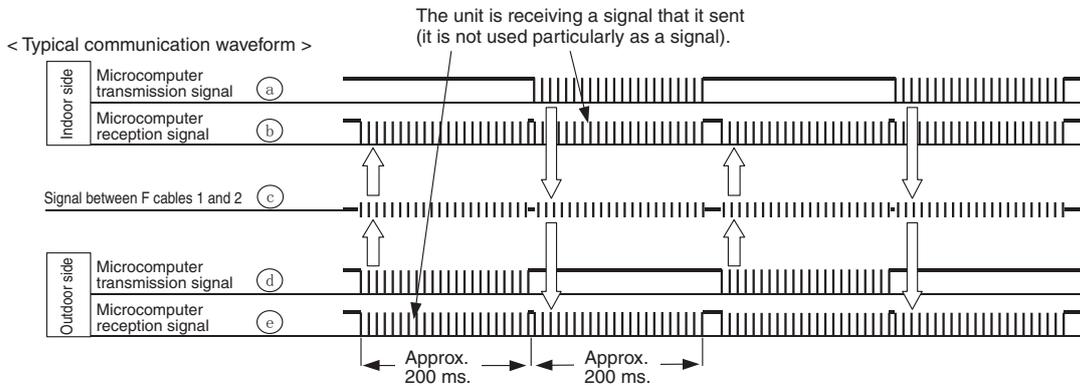


Fig. 11-1



< Enlarged waveform >

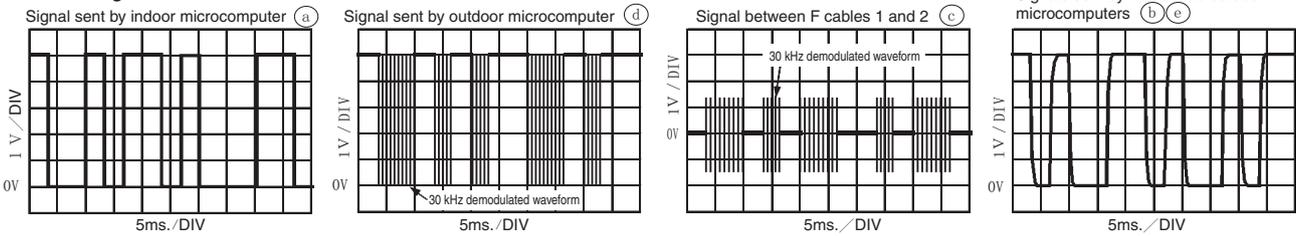


Fig. 11-2

- 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

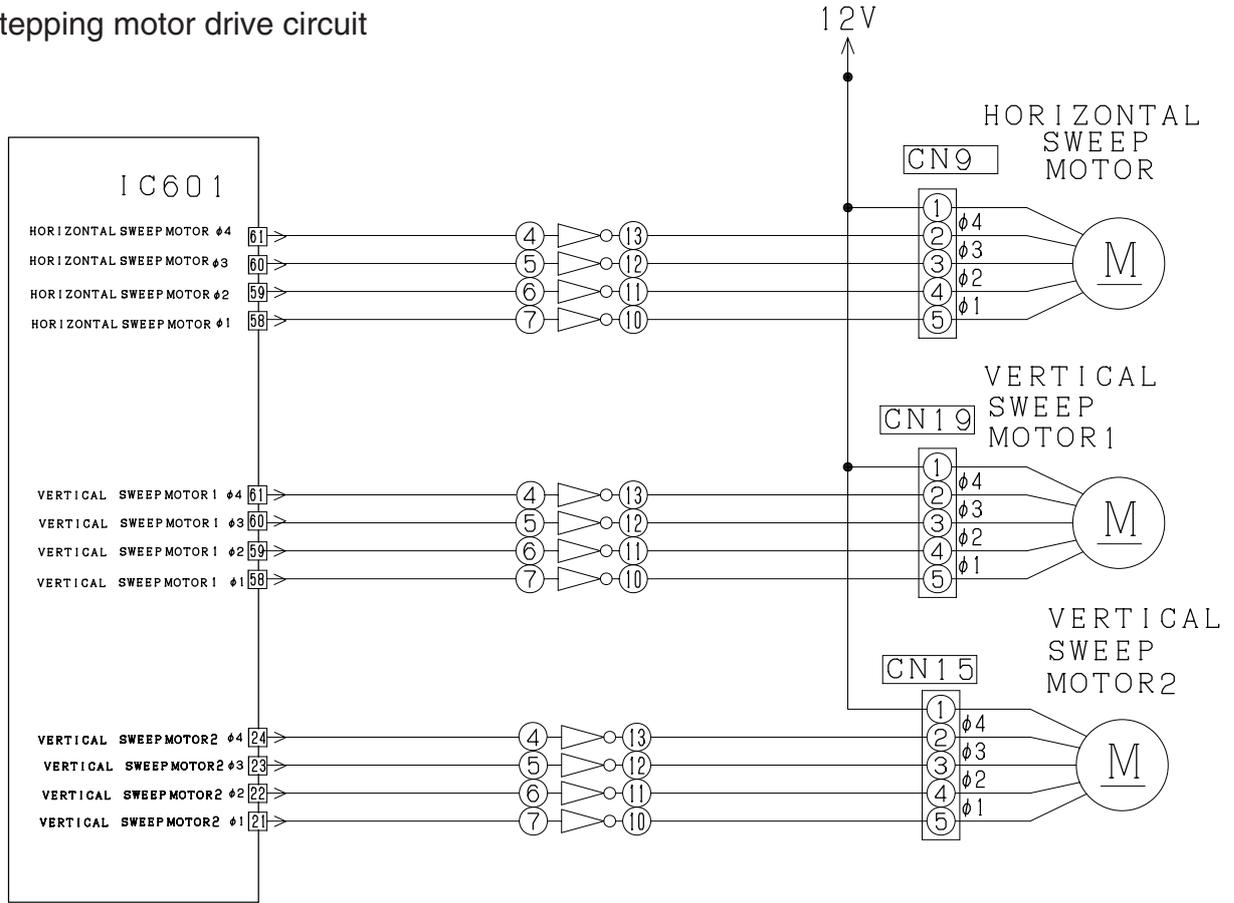


Fig. 12-1

[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

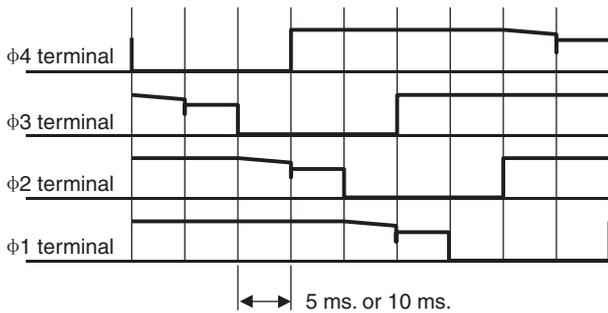


Fig. 12-2

- 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.

13. Infrared human presence sensor circuit

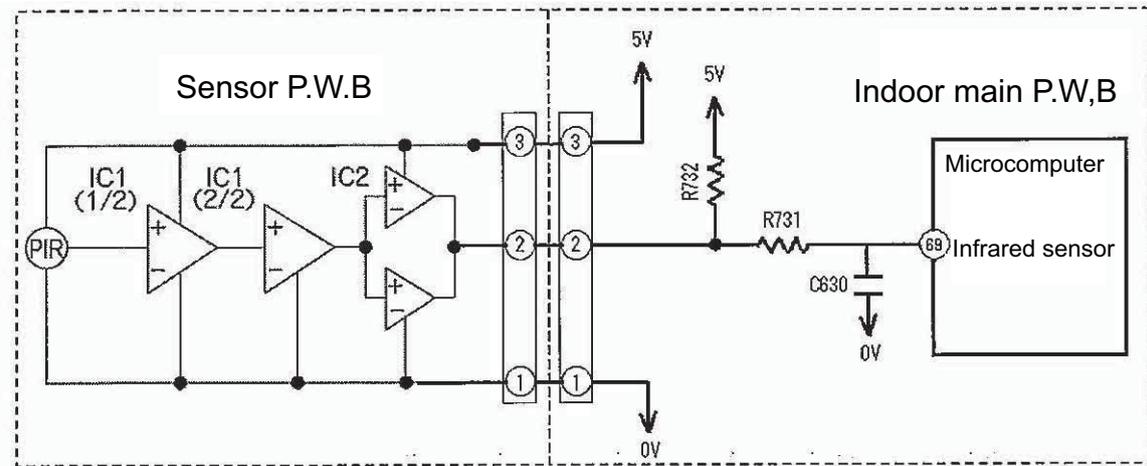


Fig.13—1

- With the infrared sensor, the air conditioner can detect the activity level in a room and adjust the temperature and humidity automatically, thus achieving the purpose of energy saving.
- When the activity level in a room is detected, the infrared sensor will be in operation. And a low-voltage output from the infrared sensor P.W.B. will be magnified by the amplifier comparator and be transformed the digital signal to microcomputer (IC601). (The infrared sensor output is [Hi] when the activity level is not detected. On the contrary, output is [Lo].)

2. Power circuit (Low voltage)

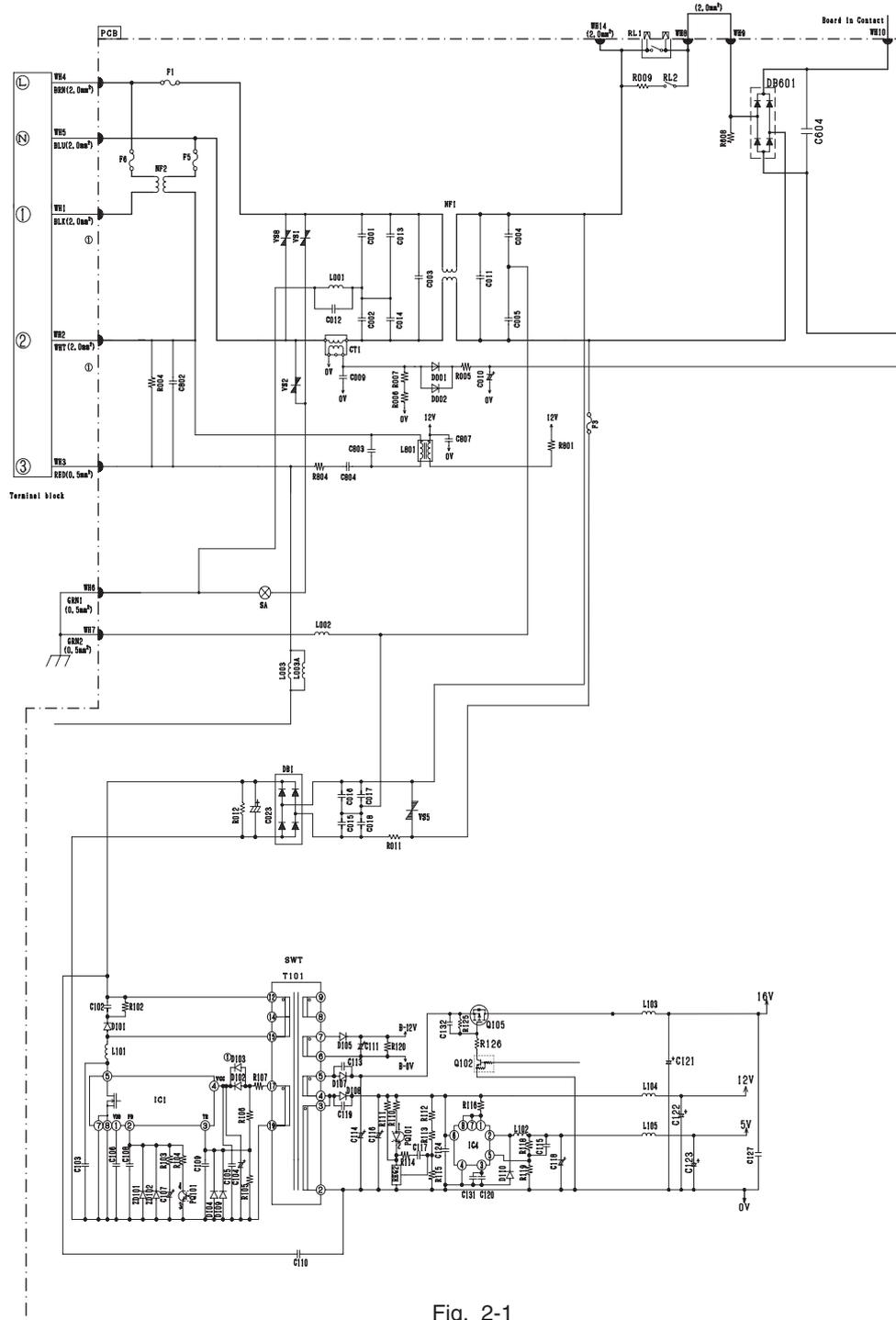


Fig. 2-1

- The 230V AC voltage is rectified to DC voltage (B-12V,16V,12V,5V) pass through switching control IC (IC1), 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	$5 \pm 0.4V$	Micon, Thermistor	Tester \oplus : L105 (JUMPER) Tester \ominus : D110 (EARTH)	Outdoor not operate, no blinking indication
12V O/P	$12 \pm 0.5V$	Micon, IC2, 3, 4 Relay circuit	Tester \oplus : L104 (JUMPER) Tester \ominus : 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 \oplus : L103 (JUMPER) Tester \ominus : D110 (EARTH)	Stop : LD301 3, 4 or 12 times blinking
B-12V O/P	$13^{+2.5V}_{-1.0V}$	Expansion valve	Tester \oplus : R120 (B-12V) Tester \ominus : R120 (B-0V)	Stop : LD301 5 times blinking

※ Power circuit for P.W.B 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 relay ON/OFF of the reversing valve, and also control the coil of the reversing valve ON/OFF.

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

You can see each operation mode as follows. If the reversing 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
	Usual heating	Lo	12V	0V
Heating	Defrost	Hi	0V	AC230V

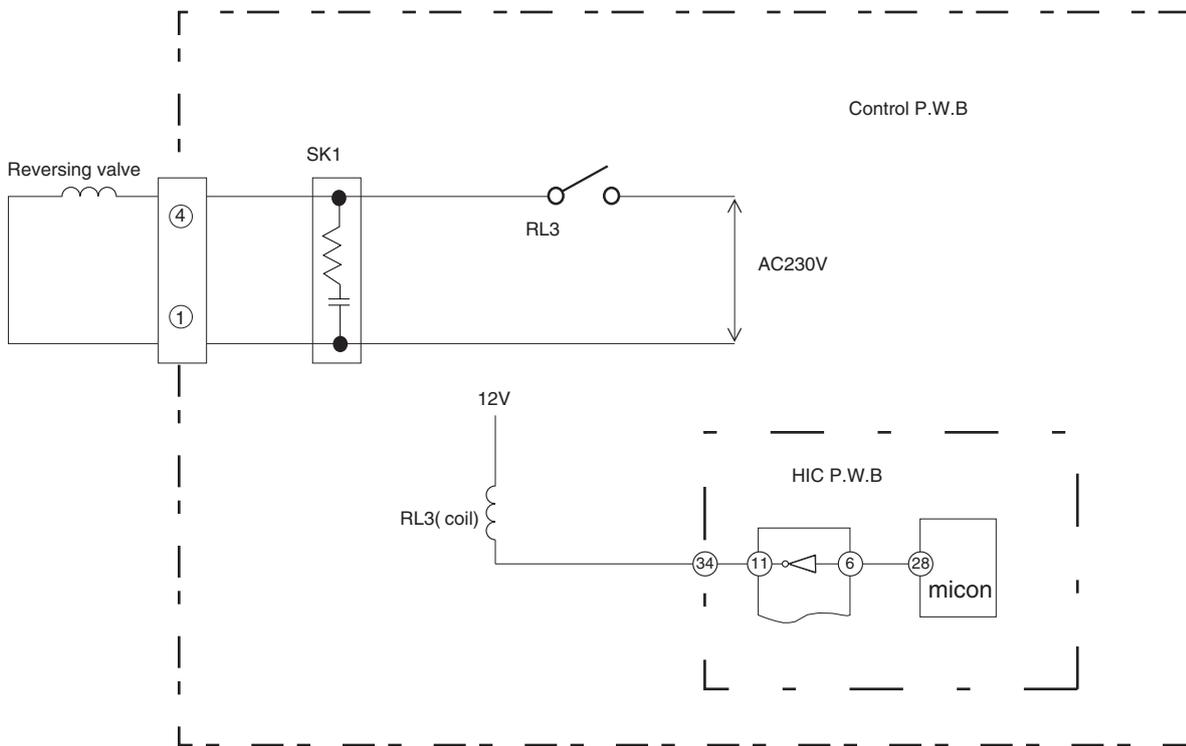


Fig.4-1

5. Temperature Detection Circuit

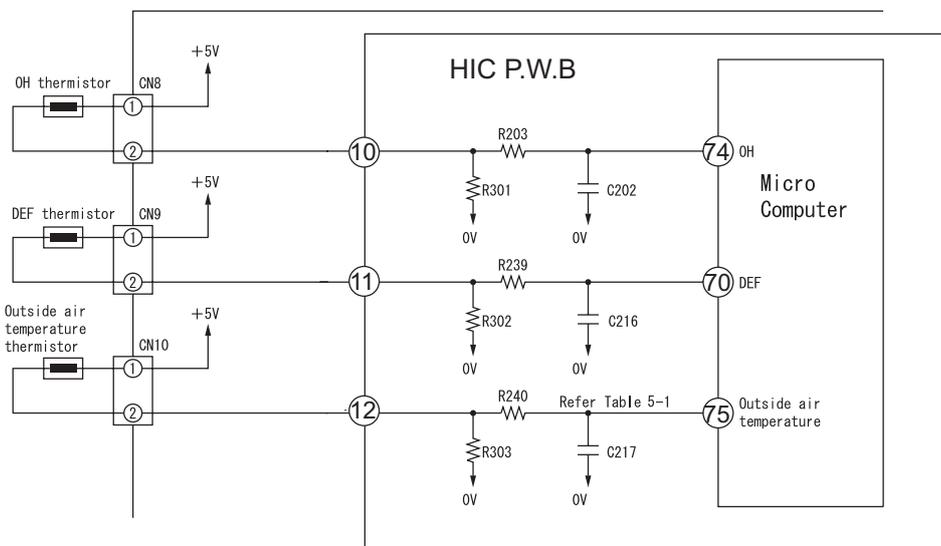


Fig. 5-1

- 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 $\oplus 5V$ 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 (°C)	-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 pin (70)(74)(75) are 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

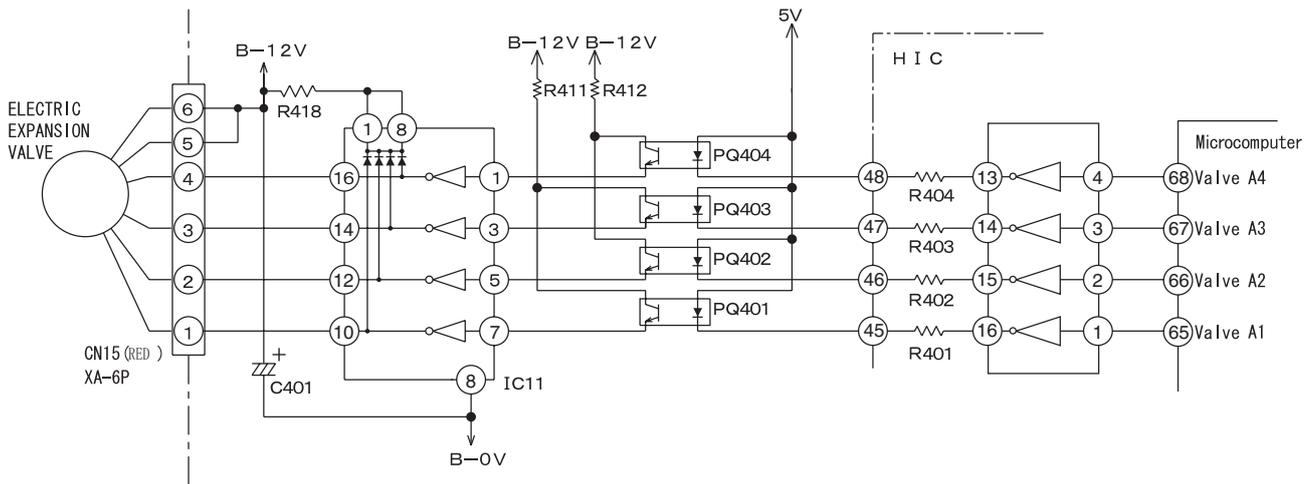


Fig. 6-1

- 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. 6-2 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

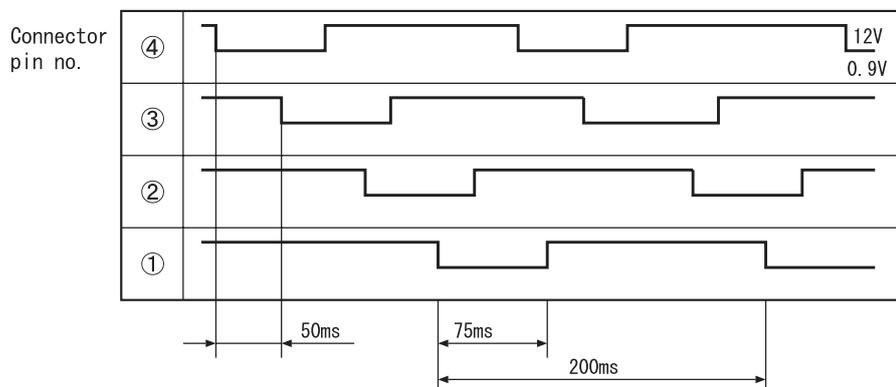


Fig. 6-2

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.

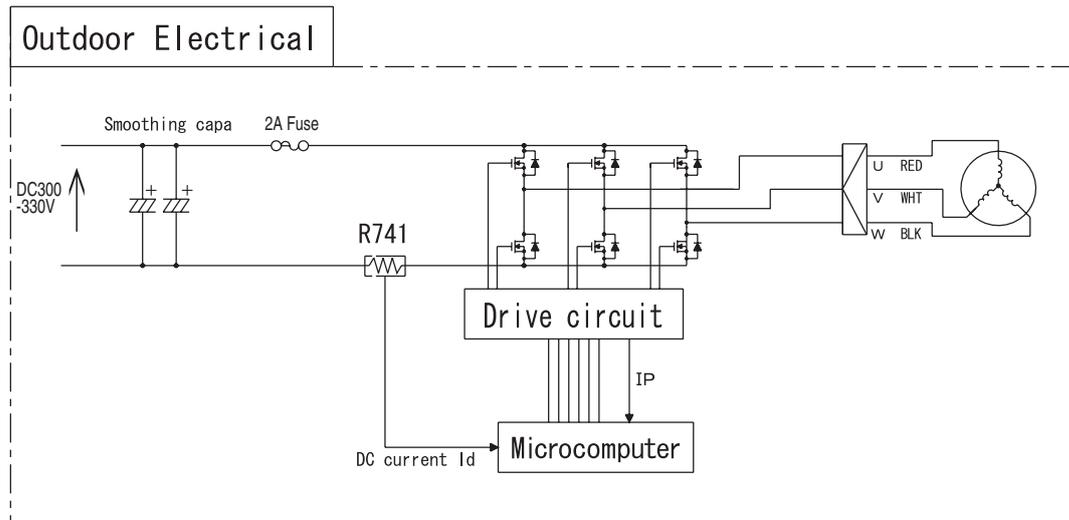


Fig 7-1

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

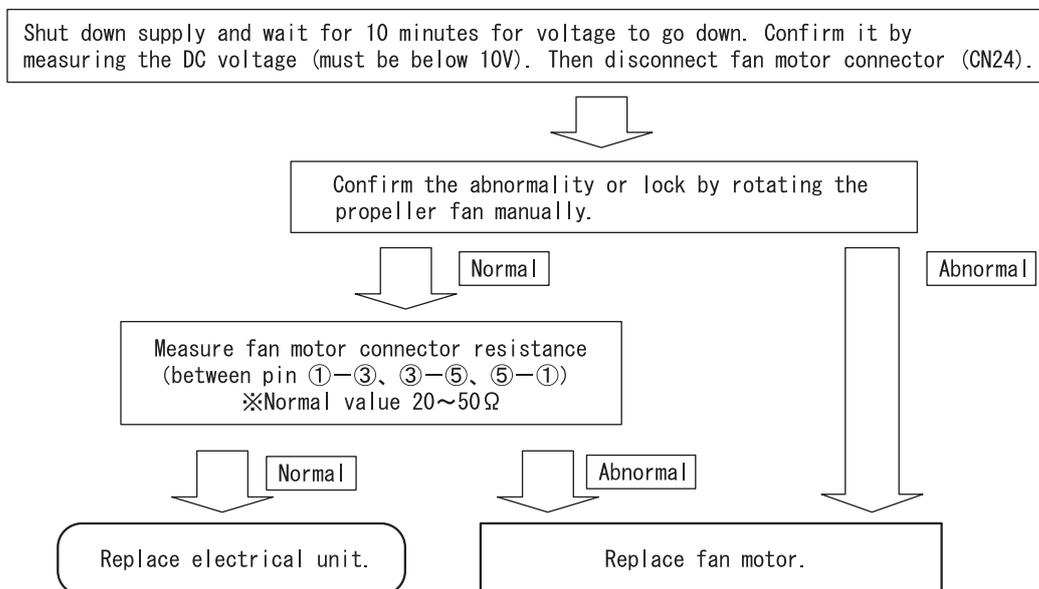
There is a case where fan rpm is reducing during rotating caused by interference of strong wind. If this condition continue in long period, fan will stop rotating. (LD301 : 11 times blinking)
The unit will restart according to control as per during start (1).

(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 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).

1. Power Circuit

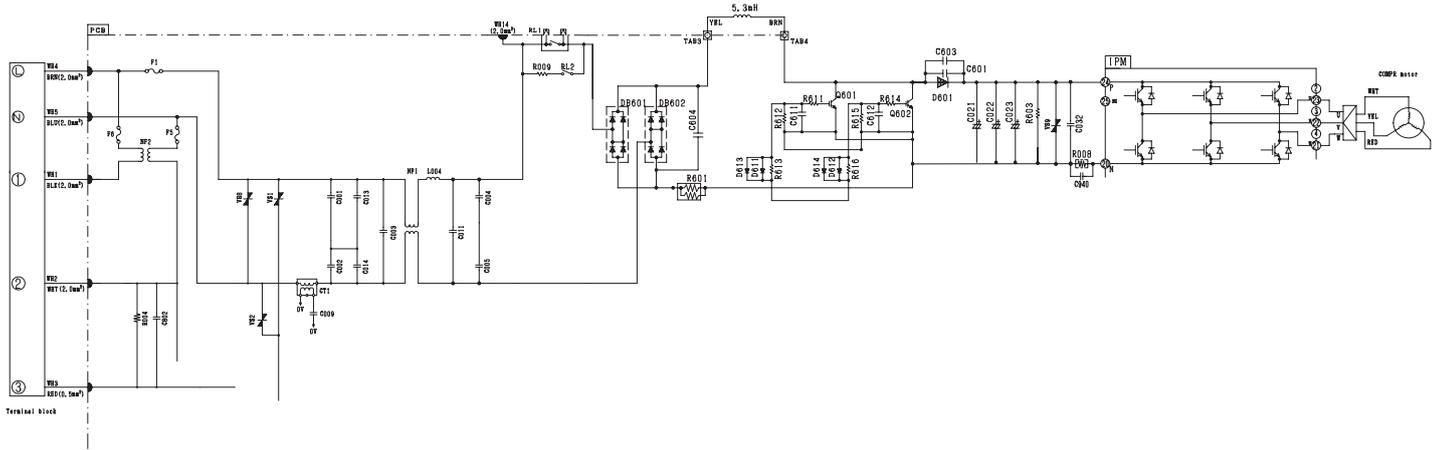


Fig 1-1

※ 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 L and N 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, 500 μ F, 450V)

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

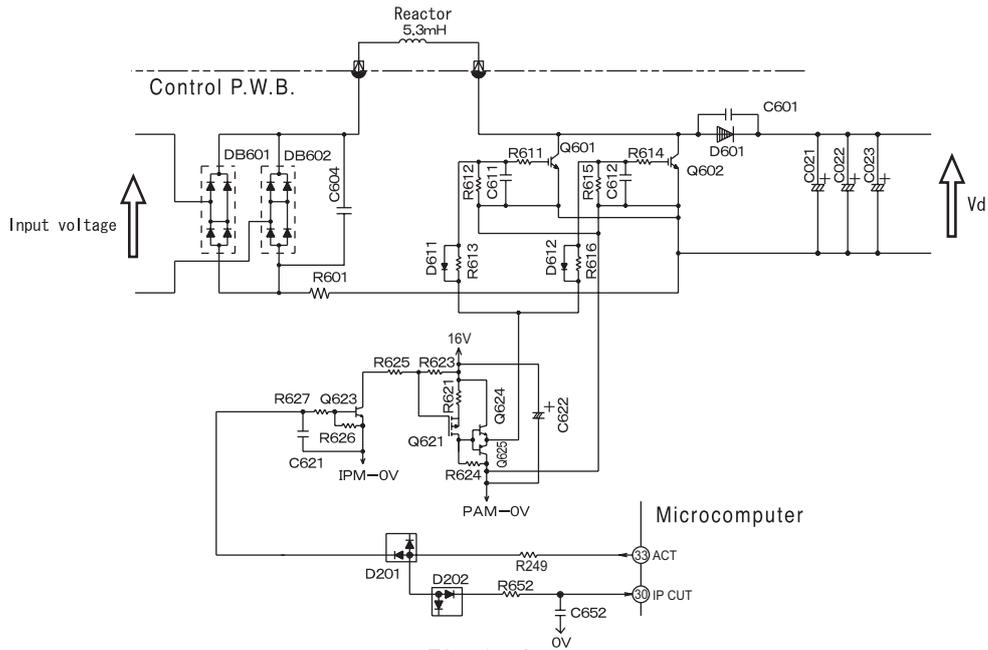


Fig. 1-2

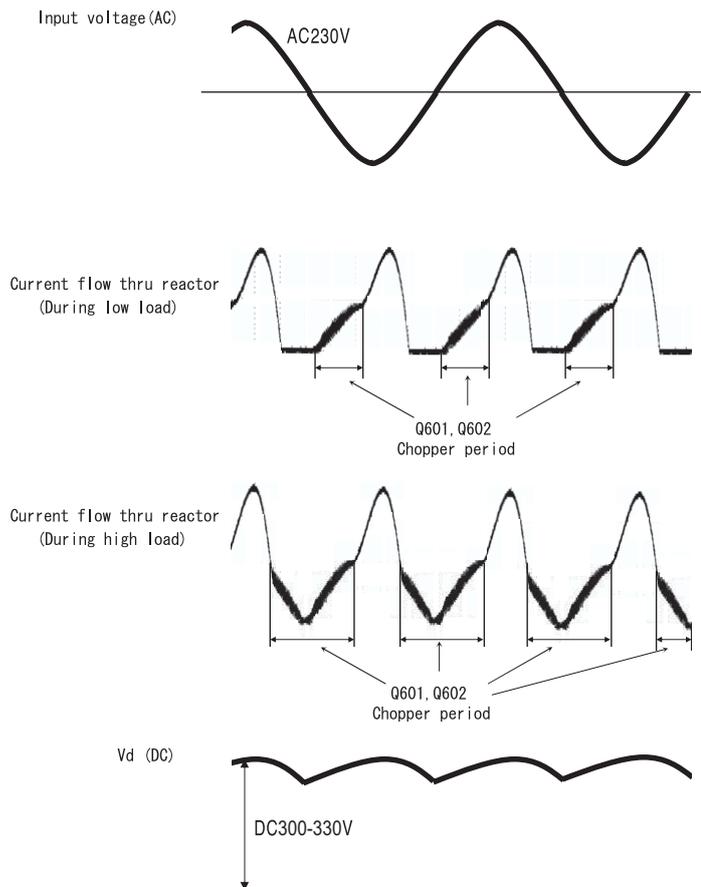


Fig. 1-3

(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)

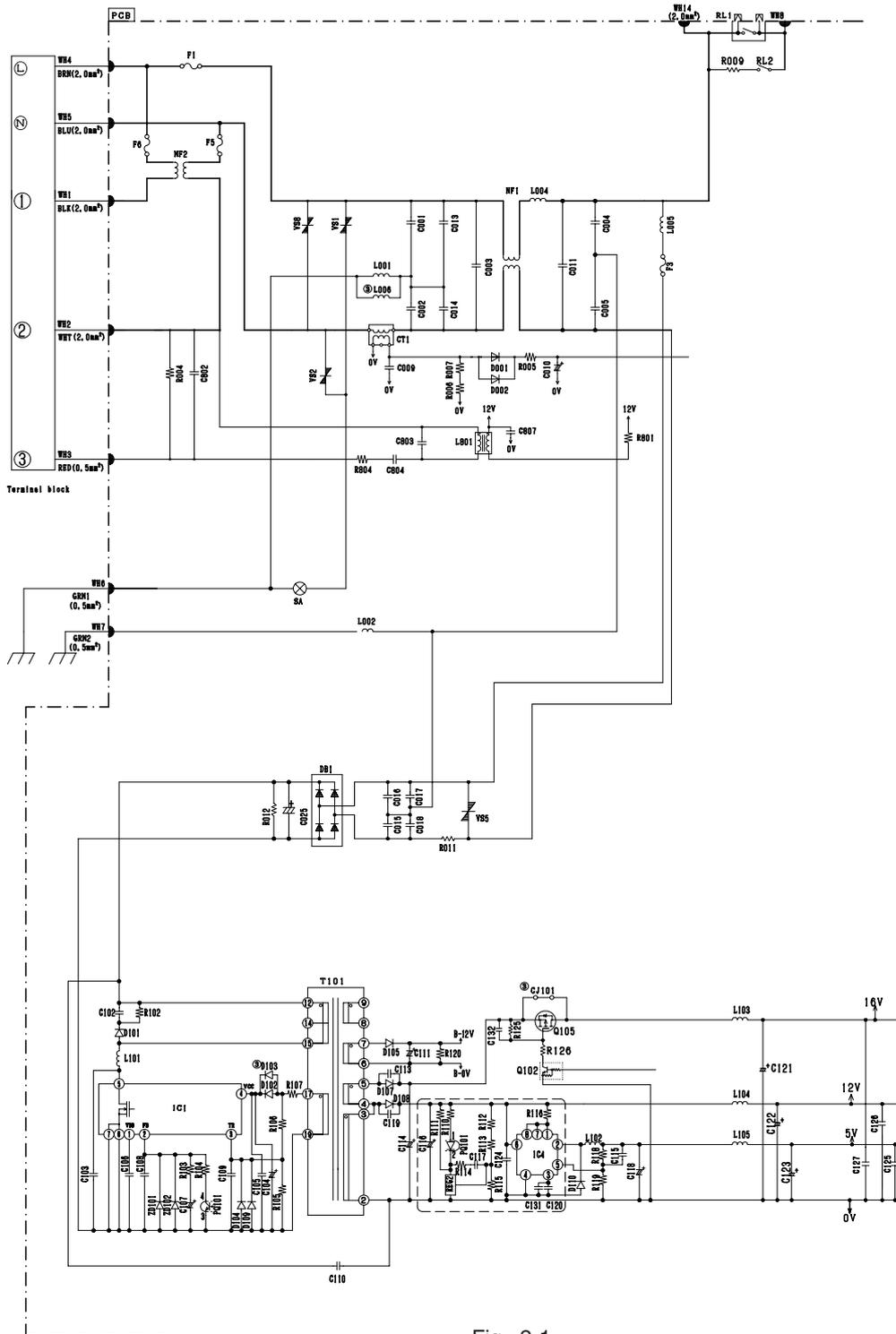


Fig. 2-1

- The 230V AC voltage is rectified to DC voltage (B-12V,16V,12V,5V) pass through switching control IC (IC1), 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 absorb external power surge.

(2) IC4

DC/DC converter 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	$5 \pm 0.4V$	Micon, Thermistor	Tester \oplus : L105 (JUMPER) Tester \ominus : D110 (EARTH)	Outdoor not operate, no blinking indication
12V O/P	$12 \pm 0.5V$	Micon, IC2, 3, 4 Relay circuit	Tester \oplus : L104 (JUMPER) Tester \ominus : 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 \oplus : L103 (JUMPER) Tester \ominus : D110 (EARTH)	Stop : LD301 3,4 or 12 times blinking
B-12V O/P	$13^{+2.5V}_{-1.0V}$	Expansion valve	Tester \oplus : R418 (B-12V) Tester \ominus : C401 (" - ")	Stop : LD301 5 times blinking

※ Power circuit for P.W.B 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 relay ON/OFF of the revesing valve, and also control the coil of the reversing valve ON/OFF.

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

You can see each operation mode as flows. 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 (28)pin - 0V	HIC (28) pin - 0V	CN2(1)- CN2(4)
		Cooling	Usual cooling	Hi
Heating	Usual heating	Lo	12V	0V
	Defrost	Hi	0V	AC230V

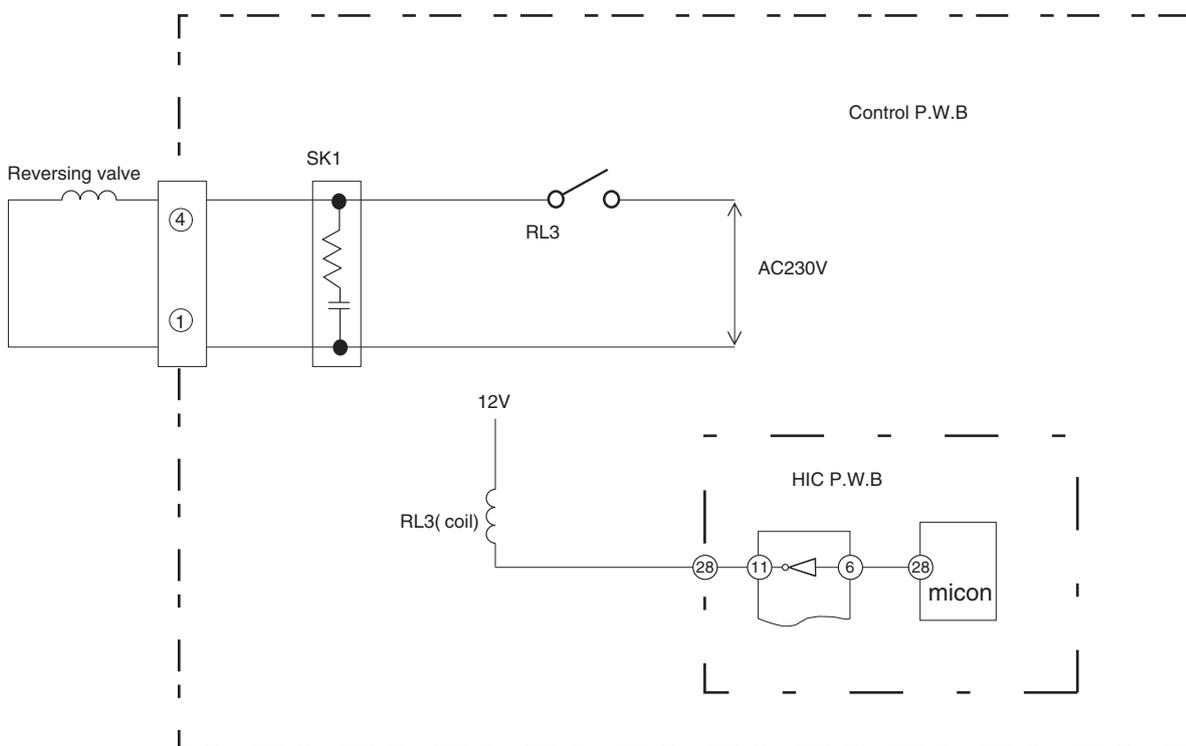


Fig.4-1

5. Temperature Detection Circuit

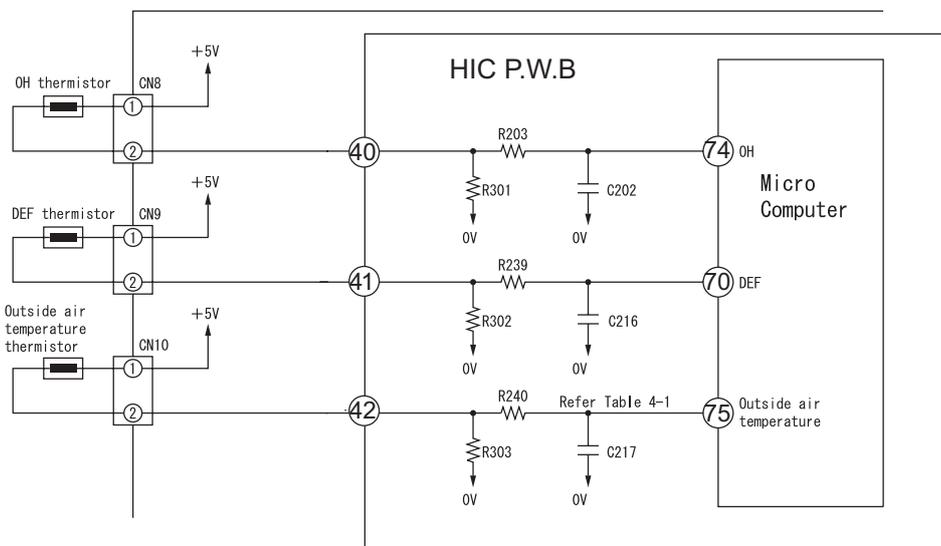


Fig. 5-1

- 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 $\oplus 5V$ 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 (°C)	-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 pin (70)(74)(75) are 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

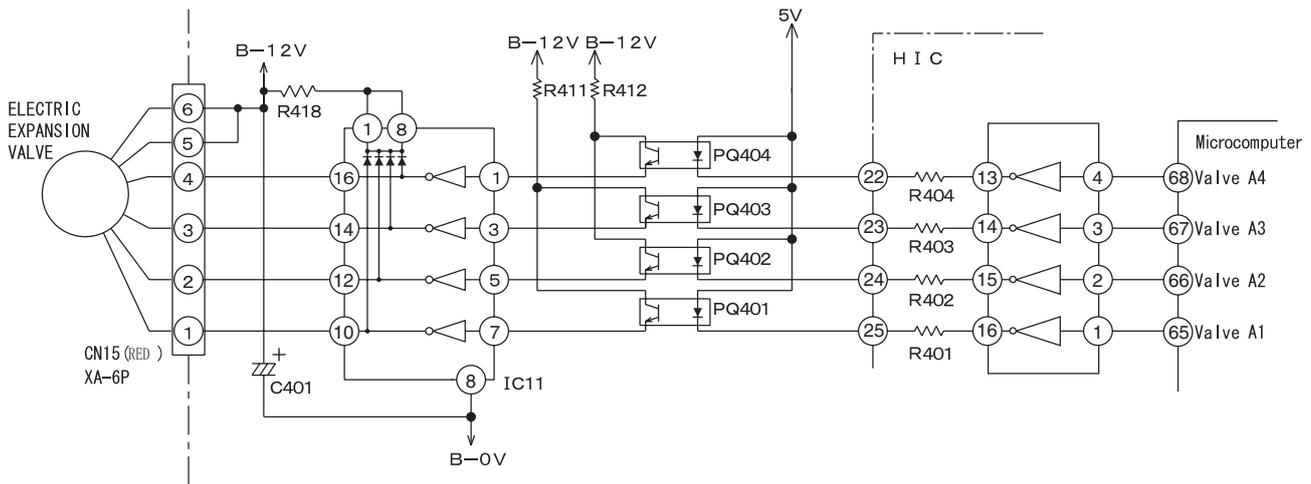


Fig. 6-1

- 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. 6-2 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

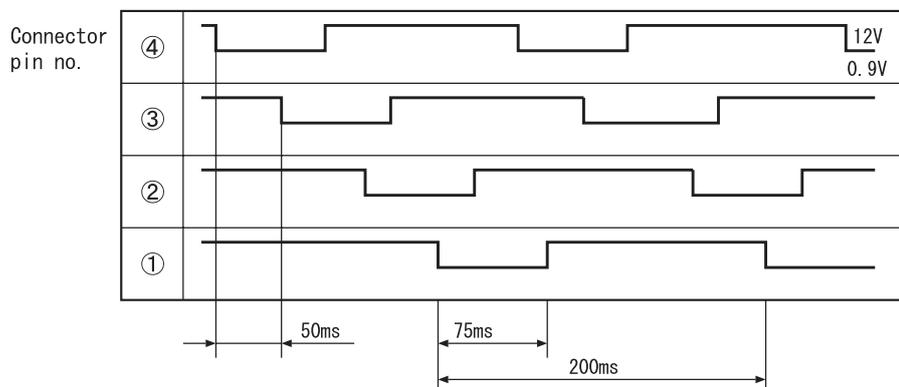


Fig. 6-2

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.

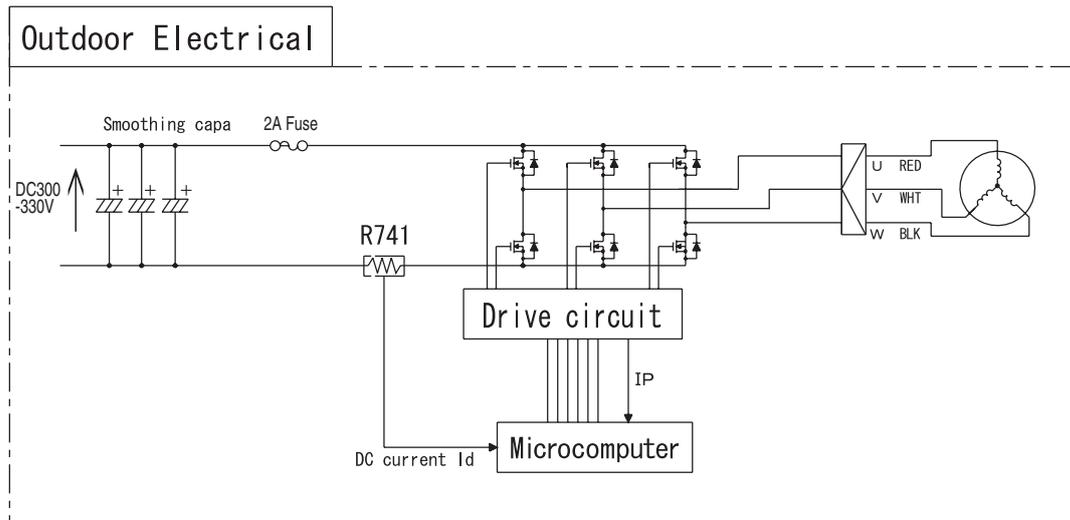


Fig 7-1

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

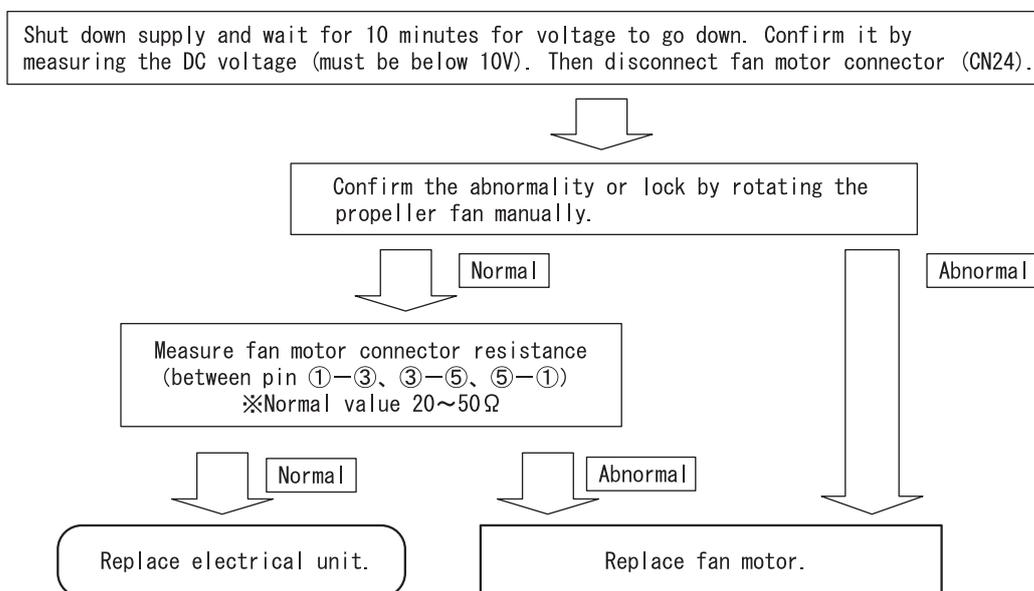
There is a case where fan rpm is reducing during rotating caused by interference of strong wind. If this condition continue in long period, fan will stop rotating. (LD301 : 11 times blinking)
The unit will restart according to control as per during start (1).

(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 RAK-25/35/50PXB

Cooling operation

Q1 The compressor sometimes stops during cooling.



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

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

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 slight wind during heating even though set to "strong wind" or "weak wind."



A2 At the first of the heating, the product will run for 30 seconds with a slight wind. When set to strong wind, the product will begin with a slight wind operation, producing a weak wind for 30 seconds, and then switch to strong wind.

Q3 The product stops during heating even though it is set to "30°C."



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 dew and, if there is any dew, conduct defrosting and then stop operating.

Automatic operation

Q1 During an automatic run, switching the wind speed selector will not change the wind speed.



A1 The product will switch automatically to automatic wind speed. You cannot select strong or weak wind by remote control but you can select wind and quiet.

Q2 How is the automatic operation mode determined?



A2 According to the room temperature, heating or cooling operation is automatically selected. Refer to the basic operation section.

Common, etc.

Q1 In "automatic wind speed" mode, the indoor fan changes from strong wind to weak wind to slight wind.



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

In wind speed "automatic" mode, the product will sense the heat exchange temperature and, when the temperature goes down, the product will automatically switch to strong wind to weak wind to slight wind.

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.

Q7 The temperature setting field on the remote control unit displays $+f^{\circ}\text{C}$ or $-f^{\circ}\text{C}$.



A7 The product will give a display when you operate the product in "auto" using the operation switch button. This can be controlled within the range of $\pm 3^{\circ}\text{C}$.
The product will display $+f^{\circ}\text{C}$ if the temperature is $f^{\circ}\text{C}$ higher than the room temperature in automatic setting.
The product will display $-f^{\circ}\text{C}$ if the temperature is $f^{\circ}\text{C}$ lower than the room temperature in automatic setting.

Q8 The remote control unit will give no display in response to a push of the "vertical vane" button.



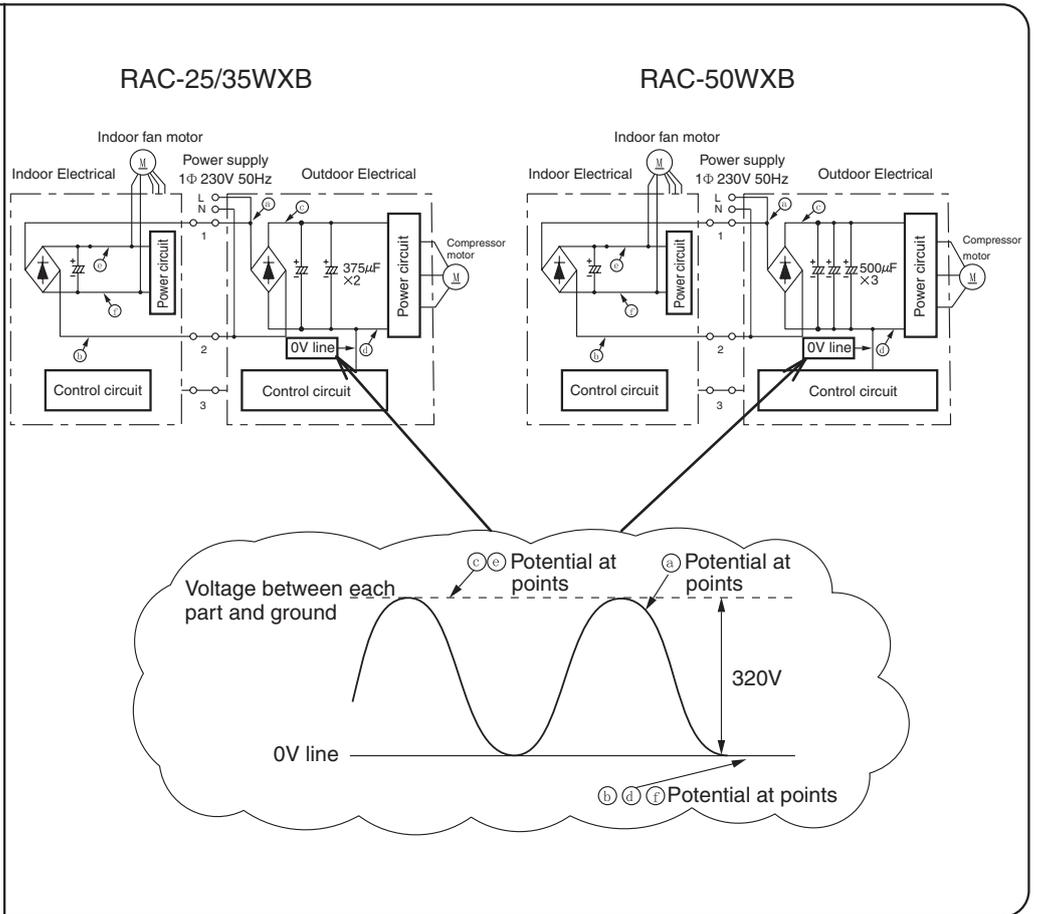
A8 The remote control unit displays nothing.

Inspection instructions



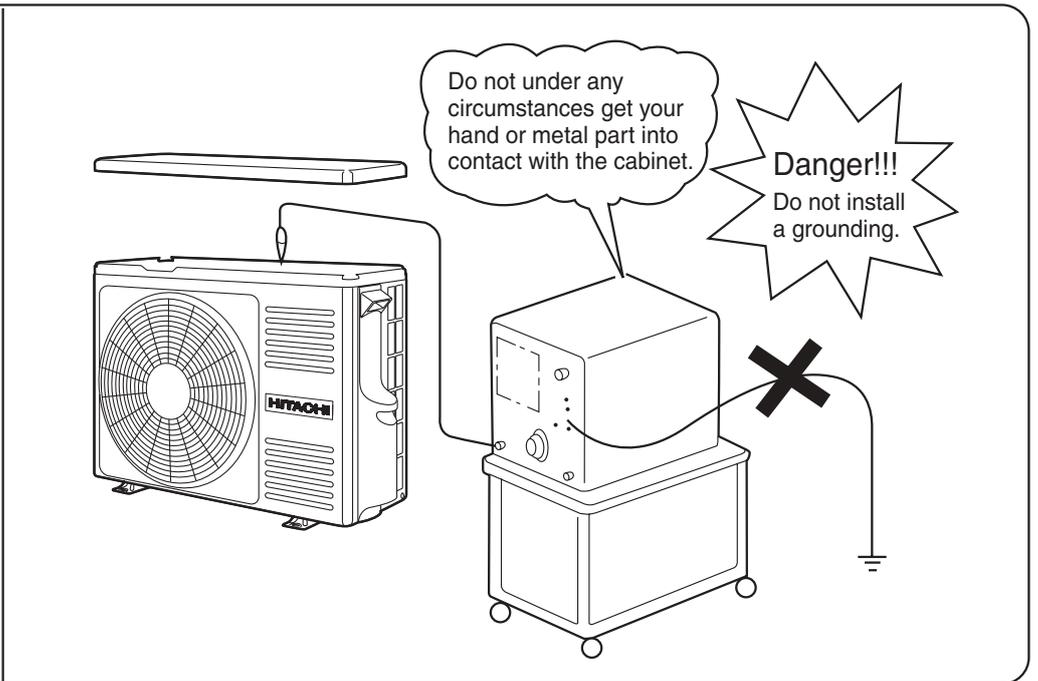
Warning

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



Caution

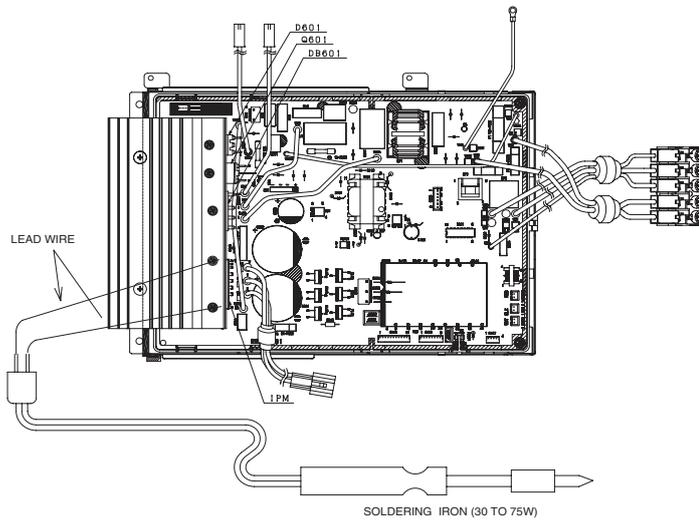
- Voltage of about 350 V is charged between the terminal of smoothing capacitors.
- During continuity check for each circuit part of the outdoor unit, be sure to discharge the smoothing capacitors.

Discharge Procedure

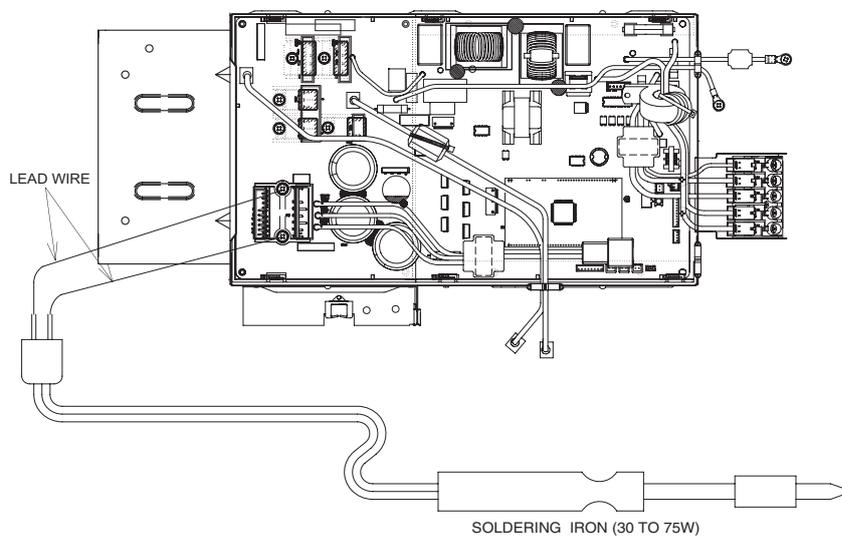
1. Turn off the power.
2. After power is turned off, wait for 10 minutes or more. Then, remove electrical parts cover and apply soldering iron of 30 to 75 W for 15 seconds or more to IPM(24) and IPM(20) terminals on the main PW.B. as shown in the figure below, in order to discharge voltage in smoothing capacitor.

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

RAC-25WXB, RAC-35WXB

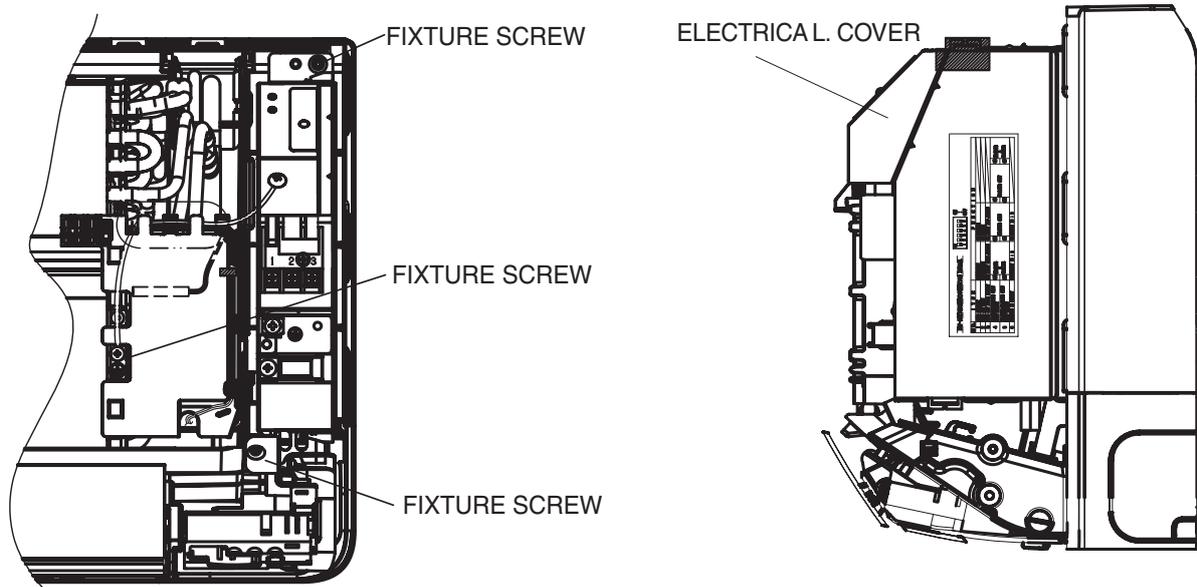


RAC-50WXB



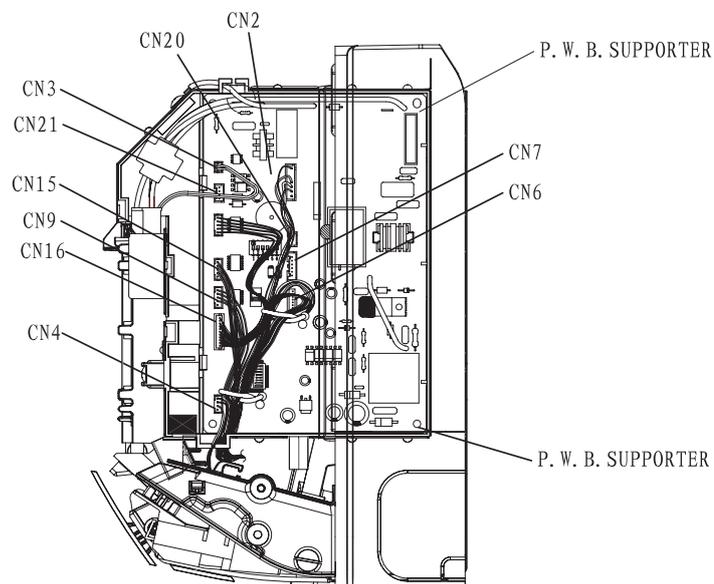
STRUCTURE OF AN INDOOR UNIT ELECTRIC PARTS

RAK-25/35/50PXB



Removing electrical parts

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



Removing control P.W.B.

1. Remove the connectors from the CN3.
2. Remove the P.W.B. from the P.W.B. support.

Removing the indicating P.W.B.

1. Remove the connector from the CN16 on the control P.W.B.
2. Remove the upper hook from the indicating P.W.B. lock resin, pull the P.W.B. forward a little and remove it.

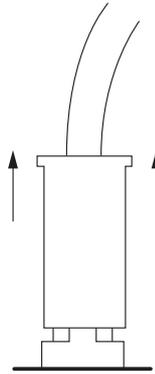
Other instructions

(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.

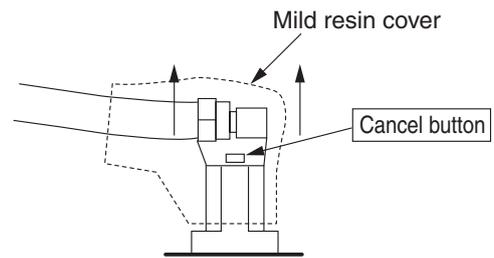
When reconnecting it, insert it securely all the way home.

· Receptacle types and how to unlock them



Vertical (with a resin case)

Hold the resin case and pull it out.



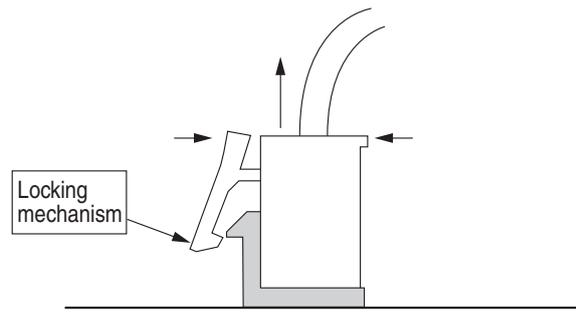
Horizontal (with a mild resin cover)

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

No	Function	Description
1	Self-diagnosis display [Display on the indoor unit side]	<ul style="list-style-type: none"> · 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. <p>[Failure mode where retrials are continued and the indoor unit lamp does not end up giving a display]</p> <ul style="list-style-type: none"> OH thermistor heat-up Overload lower limit cut Low-frequency things
	[Display on the outdoor unit side]	<ul style="list-style-type: none"> · 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	<ul style="list-style-type: none"> · 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.

- 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]



- 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. THE SYMBOL "*" MEANS, USUALLY THERE IS NO INDICATION, BUT IT WILL INDICATE ONLY WHEN REDISPLAY THE FAILURE MODE MANUALLY.

REFER TO THE TABLE BELOW IF THE HUMAN SENSOR INDICATOR (GREEN) 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
■ ■ ≪ ■ ■ ■ 2 sec --- *20 TIMES	HUMAN SENSOR DEFECTIVE

LAMP BLINKING MODE	MAIN DEFECTIVE
■ ≪ ■ --- LIGHTING: 4SEC OFF : 1SEC	• HUMAN SENSOR SIGNAL DEFECTIVE

REFER TO THE TABLE BELOW IF THE INDOOR UNIT DOES NOT WORK AT ALL.

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 INDICATING P. W. B	FIX CN16 CONNECTOR
FAILURE OF CONTROL P. W. B	REFER TO THE SERVICE GUIDE FOR HOW TO DETERMINE THE FAILED PART

(■ --- 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,

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 retrieve 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) 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 \downarrow or \uparrow) button.
6. Set the fan speed with the  (FAN SPEED) button according to the desired failure information. (Refer b the corresponding table below)

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 \uparrow) 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 redisplay 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) 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 >

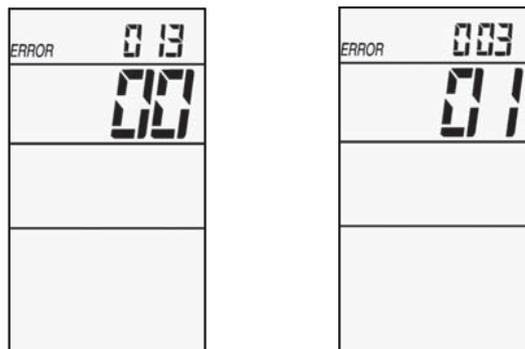
1. Redisplay the troubleshooting status. (See the above procedure.)
2. Turn the circuit breaker OFF.
3. By pressing  (MODE) button on the remote controller, set to Heating operation indicated by  (HEAT).
4. Turn the circuit breaker ON.
5. Set the room temperature setting on the remote controller to 16°C by pressing the (TEMP \downarrow or \uparrow) button.
6. While directing the remote controller towards the receiver of the indoor unit, press (TEMP \downarrow) 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) 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	9 times (single only)	003 00	Communication error between indoor and outdoor units.	Indoor interface circuit broken	1. Indoor 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
	12 times	9 times (single only)	012 00	communication error between indoor and outdoor units	Outdoor interface circuit broken	1. Outdoor interface circuit
	13 times	-	013 00	IC401 data reading error	When data read from IC401 or IC402 is incorrect.	1. IC401 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.)

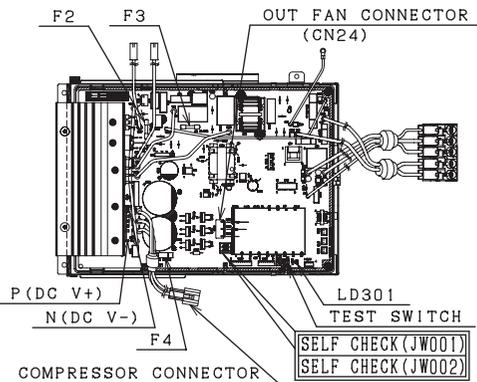
SELF-DIAGNOSIS LIGHTING MODE

MODEL RAC-25/35WXB

⚠ ⚡ 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.

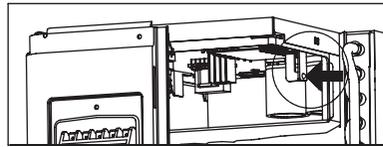


※OTHERS CHECK POINTS

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.



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



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 <input checked="" type="checkbox"/> :BLINK <input type="checkbox"/> :OFF		
LD301 (RED)	SELF-DIAGNOSIS CONTENTS	HOW TO REPIAR
<input checked="" type="checkbox"/>	NOT CONTROLLER DEFECTIVE	•CHANGE THE COMPRESSOR
<input checked="" type="checkbox"/>	FOUND PEAK CURRENT ERROR	•CHANGE ODU CONTROLLER
<input checked="" type="checkbox"/>	COMPRESSOR CURRENT ABNORMAL	•CHECK THE COMPRESSOR CONNECTOR AND CONNECT IT PROPERLY •IF ABOVE ARE OK, CHANGE THE ODU CONTROLLER
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	EEPROM READING ERROR	•CHANGE ODU CONTROLLER

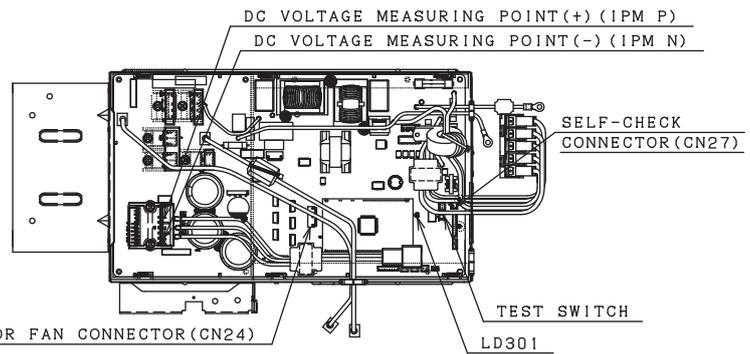
DURING STOP			
SELF-DIAGNOSIS BLINKING MODE <input checked="" type="checkbox"/> :BLINK <input type="checkbox"/> :OFF			
LD301 (RED)	SELF DIAGNOSIS CONTENTS	MAIN CHECK POINT	HOW TO REPAIR
<input type="checkbox"/>	NORMAL STOP (STOPPED BY INDOOR THERMO-STAT OR MAIN OPERATION OFF)	1. NO NEED TO CHECK	1. NOT ANY MALFUNCTION
<input checked="" type="checkbox"/>	FAN MODE OPERATION, RESET STOP	1. INDOOR AIR CLEAN OPERATION	1. NOT ANY MALFUNCTION
<input checked="" type="checkbox"/>	PEAK CURRENT CUT	2. OTHER CAUSE	2. CHANGE ODU CONTROLLER
2 TIMES	ABNORMAL LOW SPEED ROTATION	1. ODU CONTROLLER DEFECTIVE 2. COMPRESSOR ABNORMAL LOAD	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
3 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
4 TIMES	OVERLOAD LOWER LIMIT CUT	1. OBSTACLE SURROUND THE ODU MAY CAUSE 2. OTHER CAUSE	1. REMOVE THE OBSTRUCTION 2. CHECK CYCLE PIPE
5 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
6 TIMES	THERMISTOR ABNORMAL	1. CONNECTOR INSERT MISS 2. OPEN CIRCUIT/SHORT CIRCUIT OF THERMISTOR WIRE 3. ODU CONTROLLER DEFECTIVE	1. INSERT PROPERLY 2. CHANGE THE THERMISTOR 3. CHANGE ODU CONTROLLER
7 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
9 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
10 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
11 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
12 TIMES	EEPROM READ ERROR	•CHANGE OUTDOOR UNIT CONTROLLER	
13 TIMES	ACTIVE VOLTAGE ABNORMAL	1. ABNORMAL OUTDOOR CONTROLLER 2. ABNORMAL COMPRESSOR LOAD	1. CHANGE ODU CONTROLLER 2. CHECK THE COMPRESSOR
14 TIMES	HIGH LOAD STOP	1. SERVICE VALVE CLOSE 2. OBSTACLE SURROUND THE ODU UNIT MAY CAUSE 3. CLOGGED FILTER IN INDOOR UNIT CAUSE.	1. CHECK SURVIVE VALVE 2. REMOVE THE OBSTRUCTION 3. CHECK FILTER
16 TIMES			

SELF-DIAGNOSIS LIGHTING MODE

MODEL RAC-50WXB

⚠ 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
☐	NORMAL STOP (STOPPED BY INDOOR THERMOSTAT OR MAIN OPERATION OFF)	1. NO NEED TO CHECK	1. NOT ANY MALFUNCTION
☑	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 CONTROLLER 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 CIRCUIT 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 LOAD STOP	1. SERVICE VALVE CLOSE 2. OBSTACLE SURROUND THE ODU UNIT MAY CAUSE 3. CLOGGED FILTER IN INDOOR UNIT CAUSE.	1. CHECK SERVICE VALVE 2. REMOVE THE OBSTRUCTION 3. CHECK FILTER

EXAMPLE OF BLINKING (5TIMES) 2SEC (0.25 SEC AT INTERVAL) ODU:OUTDOOR UNIT

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 REPAIR
☑	NOT CONTROLLER DEFECTIVE	• CHANGE THE COMPRESSOR
ONCE	FOUND PEAK	• CHANGE ODU CONTROLLER
2 TIMES	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
13TIMES	EEPROM READING ERROR	• CHANGE ODU CONTROLLER

[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.

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).

Forced cooling operation

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.

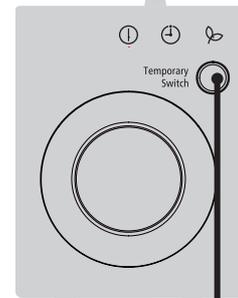
<How to start the operation>

- The operation of the unit should be stopped.
- 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.

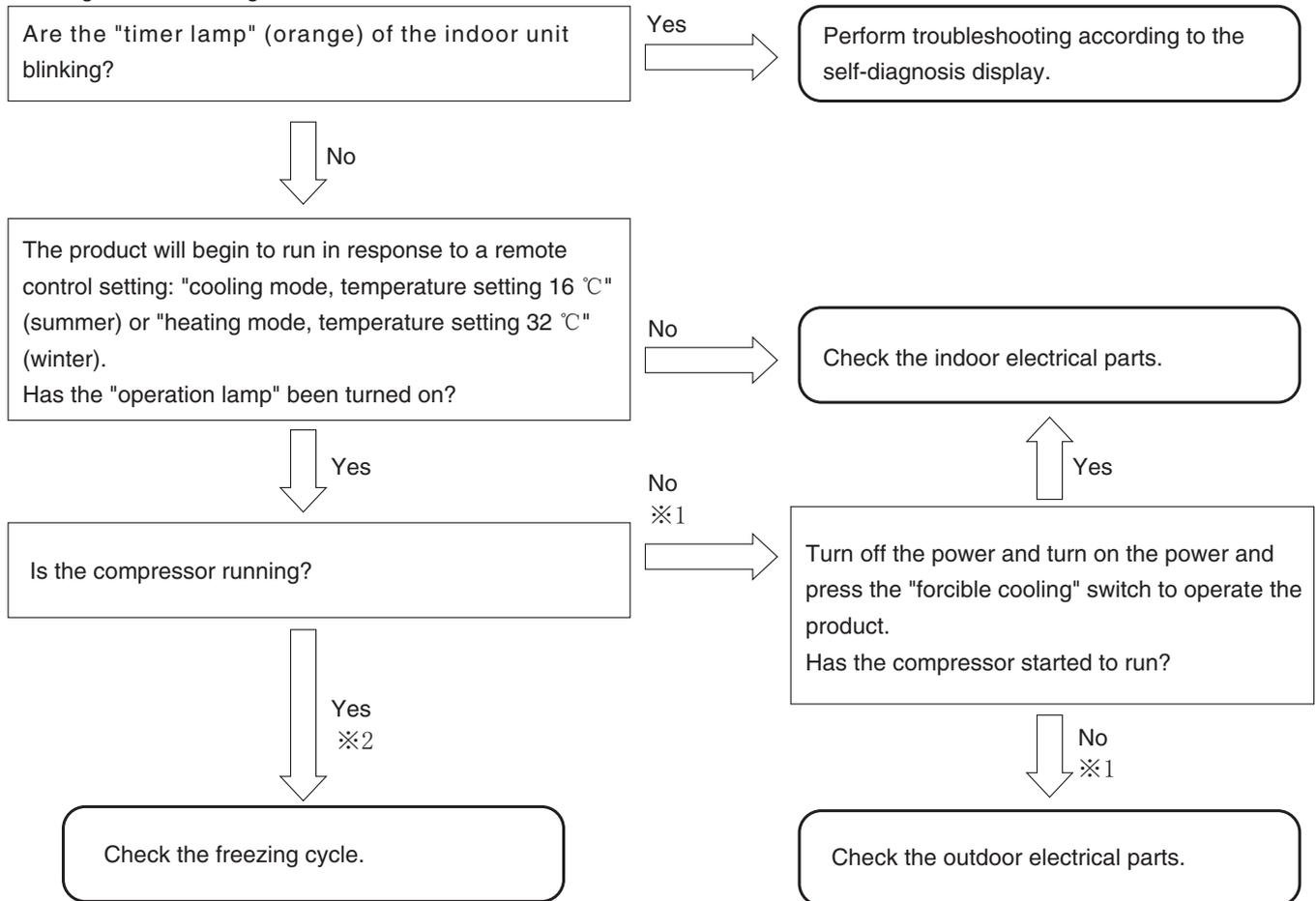


Temporary operation switch

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.

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

Initiating troubleshooting



< 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.

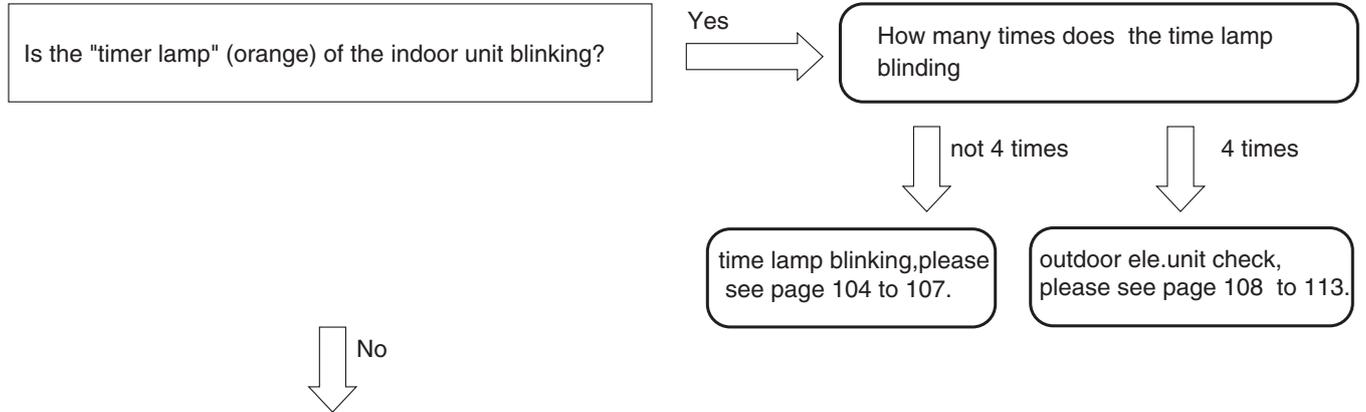
- For the outdoor self-diagnosis display (OH thermistor heat-up, overload lower limit cut) stemming from the freezing cycle or operating condition, the time lag is long from operation startup to the emergence of the phenomenon. Moreover, it is affected by the temperature, sunshine, operating hours, and 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



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°C (summer), heating mode, temperature setting 32°C (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.

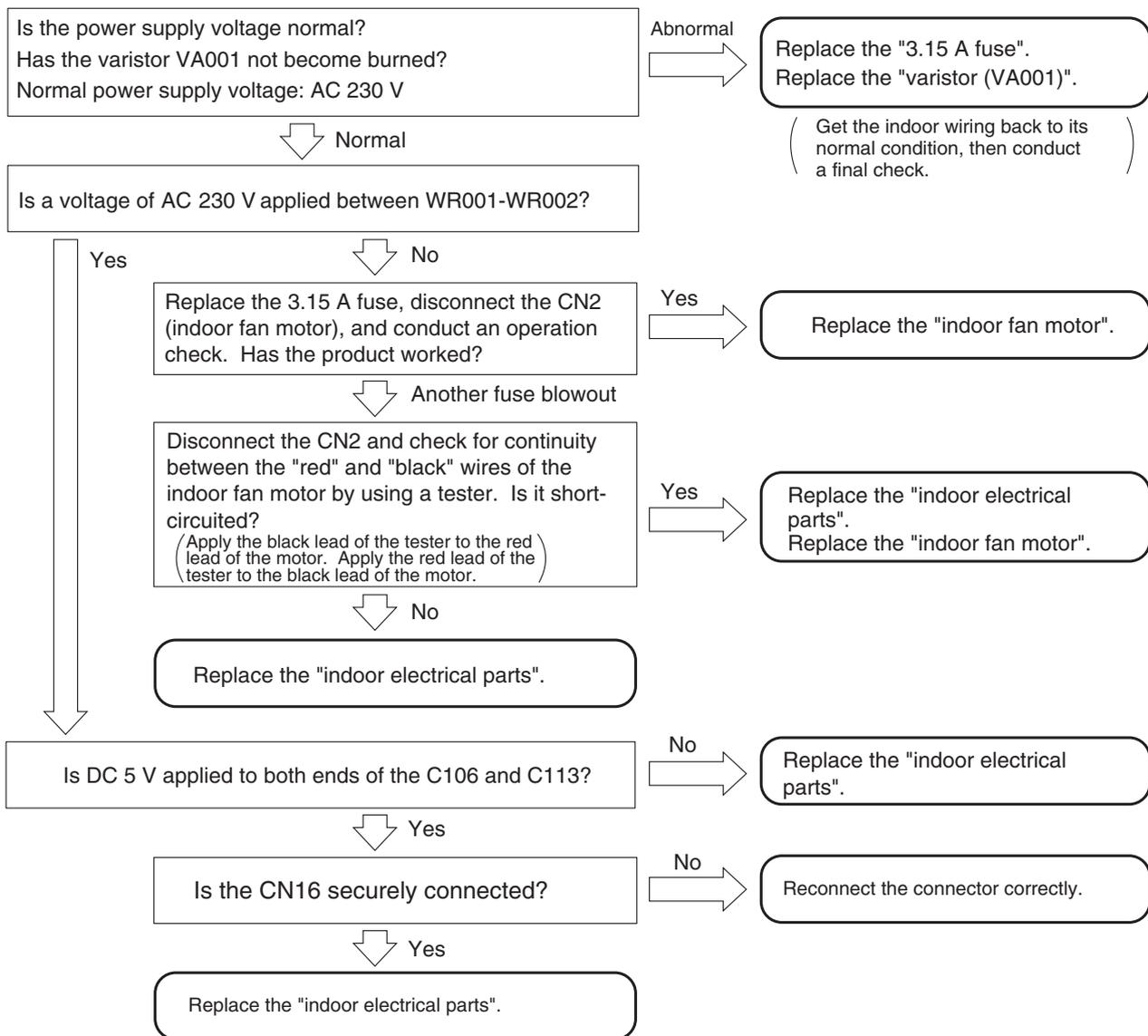
[Situation] Neither initialization, remote control, nor any other step works on the vane position at power-on.

[Estimated failure locations]	<ul style="list-style-type: none"> · 3.15 A fuse blown out · Control power circuit · Connector loose, wire break 	<table border="1"> <tr> <td>Estimated cause of fuse blowout</td> <td> <ul style="list-style-type: none"> · Abnormally high voltage applied to the power supply · Indoor fan motor out of order · Power circuit out of order </td> </tr> </table>	Estimated cause of fuse blowout	<ul style="list-style-type: none"> · Abnormally high voltage applied to the power supply · Indoor fan motor out of order · Power circuit out of order
Estimated cause of fuse blowout	<ul style="list-style-type: none"> · 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

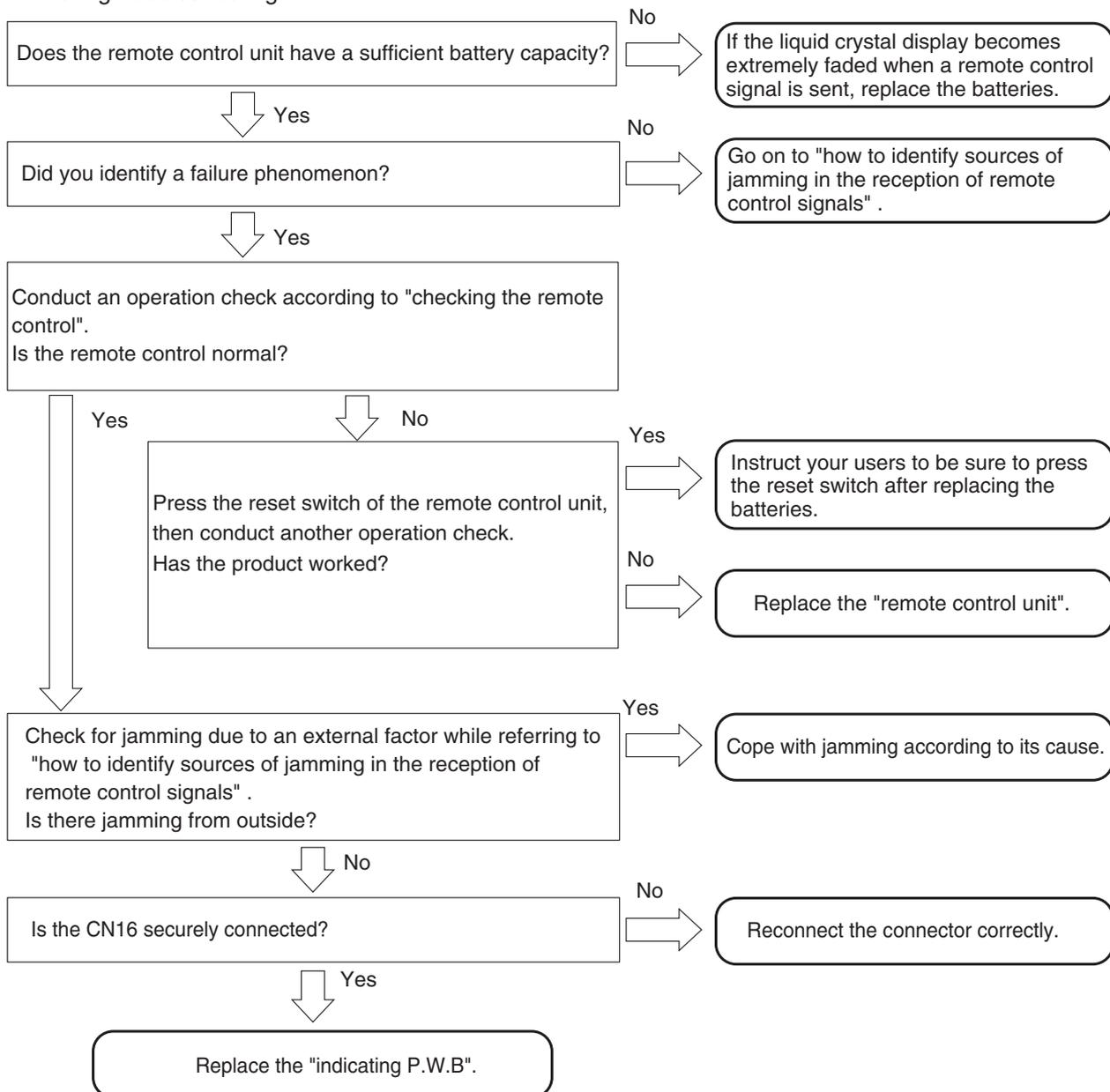


2.Failure phenomenon: The product will not receive a remote control signal.

- [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

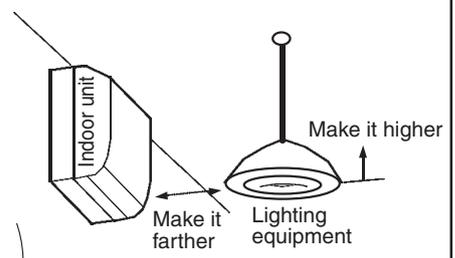
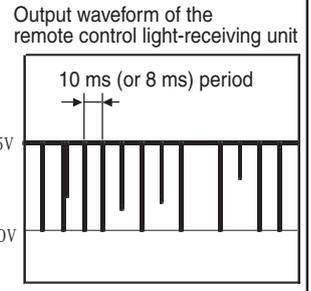
[Situation] The product may become poorly responsive to remote control signals due to external factors even though the product itself is trouble-free.

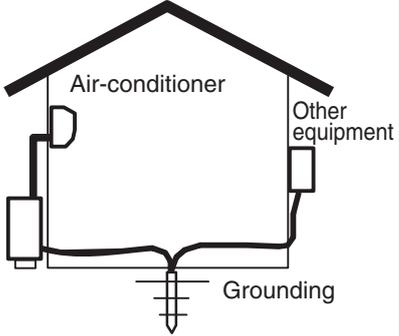
[Estimating sources of jamming] Identify the installation status of the air-conditioner and the indoor and outdoor environments to identify possible causes of the jamming.

- 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]

<p>Effects of lighting equipment (fluorescent lamps)</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · 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. <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> · 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. <p><u>Actions proposed</u></p> <ol style="list-style-type: none"> 1. Make it hard for light of the lighting equipment to enter the remote control light-receiving unit. <ul style="list-style-type: none"> · 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. <p>(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.)</p> 2. Add an interference filter to the front panel of the remote control light-receiving unit. <ul style="list-style-type: none"> ※ Lighting equipment that produces strong jamming exists although rarely. Some problems may therefore be unsolvable by managing the air-conditioner side alone.
<p>Effects of the remote control units of other equipment</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · 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. <p><u>Actions proposed</u></p> <p>If there is any such possibility, give explanations to your users to that effect and instruct them to exercise caution.</p>



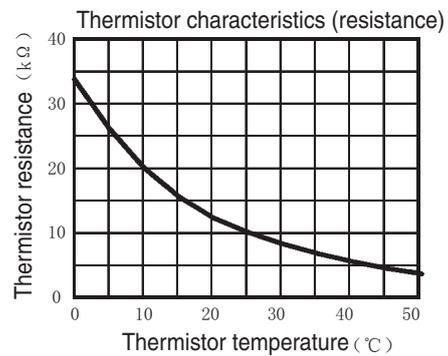
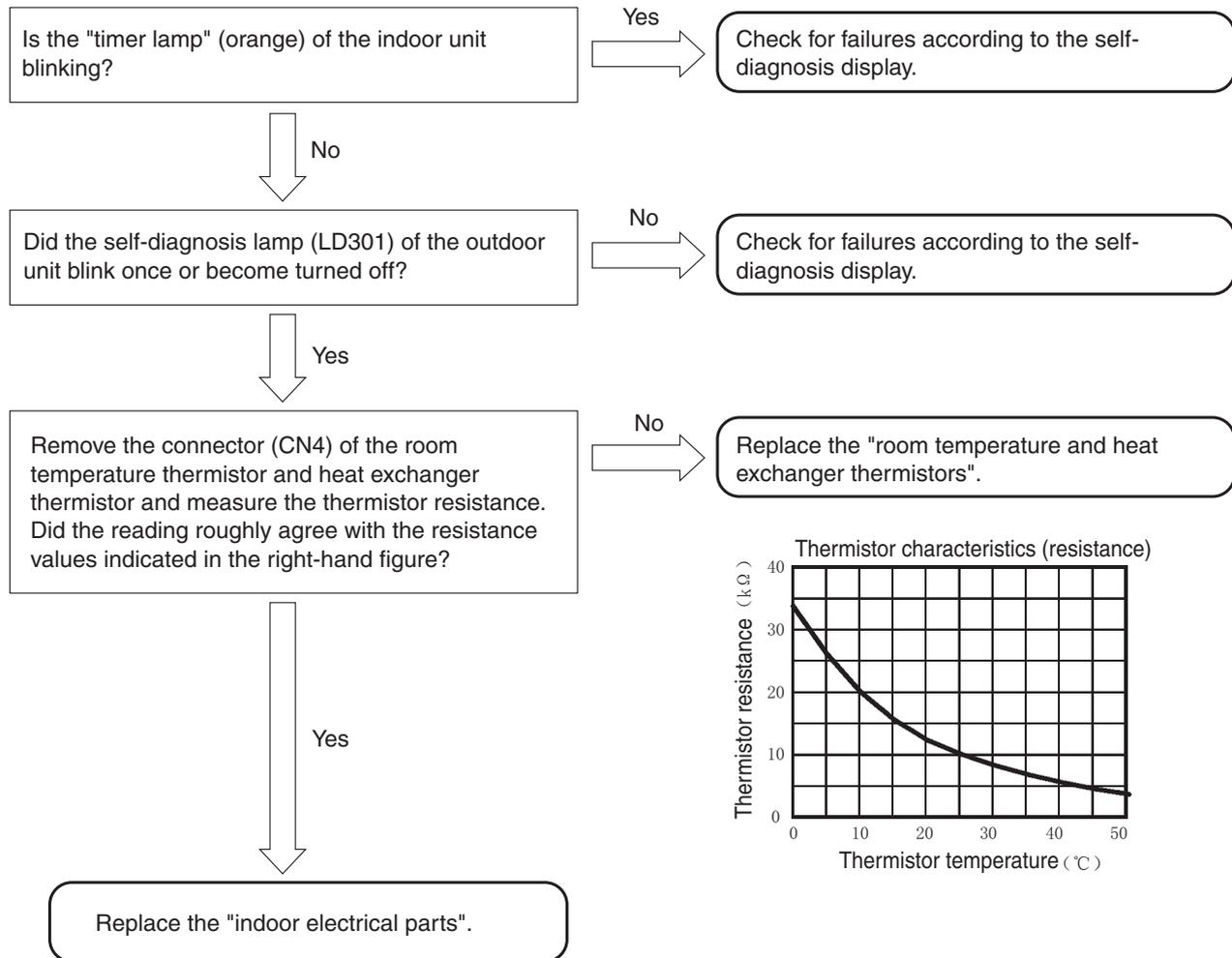
<p>Effects of other electrical products</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · Check the effects of light and power noises coming from other electrical products. · Turn on and off the electrical products, turn off the power and turn on the power, and check their effects on the reception of remote control signals. · For products whose operating states change, check the effects of each state. <p><u>Actions proposed</u></p> <ul style="list-style-type: none"> · Change the location relationship between the air-conditioner and the target products. · Use a different wall outlet for the target products.
<p>Sharing a grounding</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · 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. <p><u>Actions proposed</u></p> <ul style="list-style-type: none"> · Establish an independent grounding for the air-conditioner.  <p>The diagram shows a cross-section of a house with a gabled roof. Inside, there is an 'Air-conditioner' on the left and 'Other equipment' on the right. Both are connected to a common horizontal line representing a shared grounding system. This line is connected to a vertical line labeled 'Grounding' that goes down through the floor to a ground symbol (three horizontal lines of decreasing width).</p>
<p>Effects of radio waves</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · 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. <p><u>Actions proposed</u></p> <ul style="list-style-type: none"> · 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.
<p>Effects of direct sunlight</p>	<p><u>Checking points</u></p> <ul style="list-style-type: none"> · 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. <p><u>Actions proposed</u></p> <ul style="list-style-type: none"> · 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.

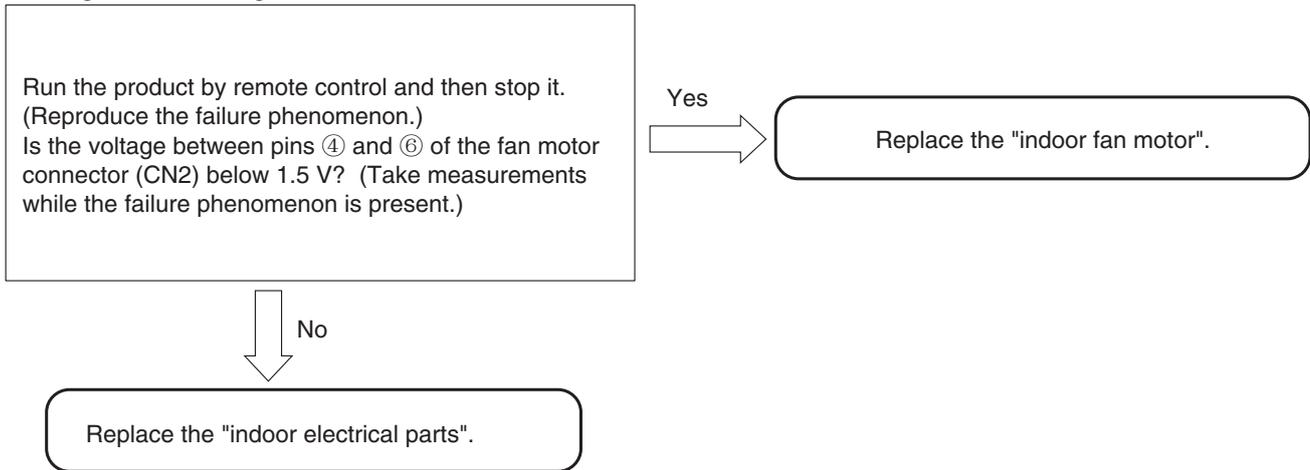
[Situation] I have conducted the stop operation on the product by remote control, but the indoor fan motor will not stop.
(It stopped about 10 minutes later.)

[Estimated failure locations]

- Indoor fan motor
- Fan motor drive circuit

[Diagnosis flow]

Initiating troubleshooting



5.Failure phenomenon:The eco sensor lamp is blinking(on for 4 seconds,off for 1 second)

<Situation> The eco sensor lamp is blinking(on for 4 seconds,off for 1 second)
 The infrared human presence sensing function can not be in operation or the sense is blunt.
 「Timer lamp is blinking for 20 times」 is kept in self-diagnosis memory function.

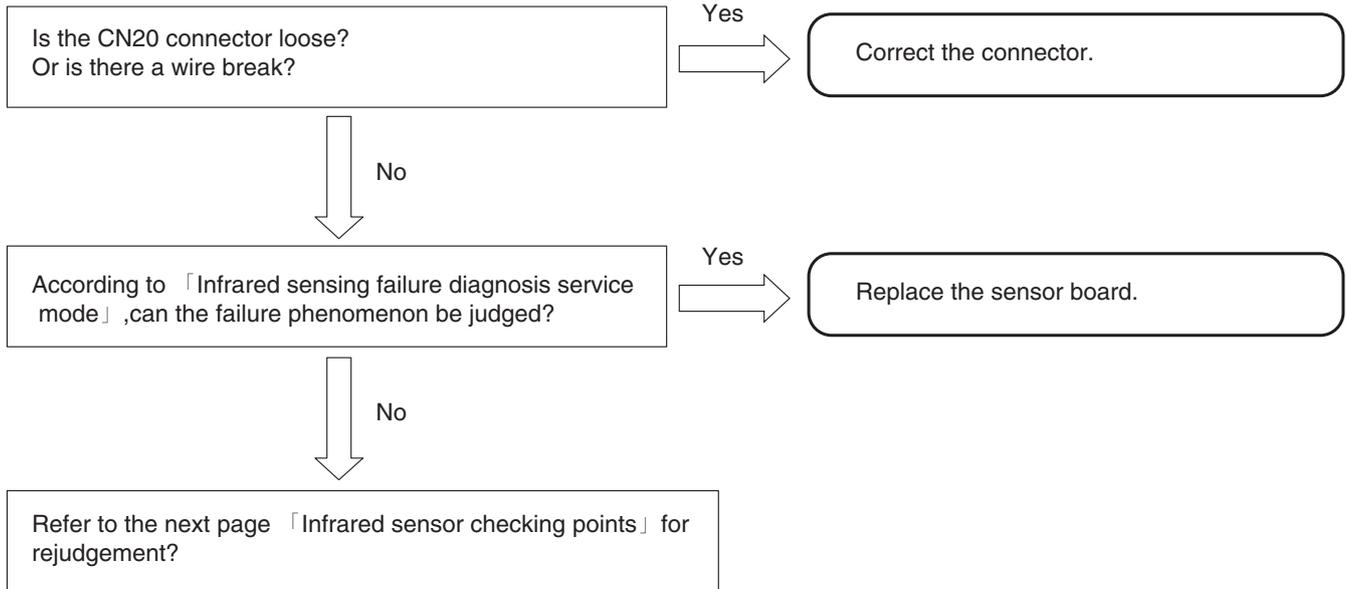
<Estimated failure locations>

- The sensor board break.
- CN20 connector loose,lead wire break.

<Cautions> After pressing the 「eco sensor」 buttons by remote controller,the infrared human presence sensing mode is set.The infrared sensor self-diagnosis usually works 1 minute at least to 1 hour at most to diagnose.Please refer to 「Infrared sensing failure diagnosis service mode」.

<Diagnosis flow>

Initiating troubleshooting



Human infrared sensor checking points

If already used the self-diagnosis way to check out there is no fault but low sensitivity,false action is also occur , please check as follows

Structure confirm

- Is the structure and appearance of fresnel lens ok? Please confirm whether there any dirt or nick on it
Please confirm whether fresnel lens is loose
- Does the structure of the sensor P.W.B have any problem?

Note

- ※ The infrared sensor detects changes to infrared generated by human bodies ,if there is dirt or nick on the surface of the Fresnel lens,it will distube the detection of the infrared sensor.
- ※ If the assembly position is incorrect,the area detected will be incorrect so that it will distube the operation of the dynamic air deflection function.

The surround environment confirm

The infrared sensor detects changes to the infrared generated by human bodies,therefore ,the accuracy of infrared sensor may be affected in the following cases:

- The actibity level is very low or human bodies are locked by a screen, cabinet,or glass board.
- the indoor temperature is very high and exceeds or approaches the human body temperature (when the refrigeration just begins).
- The person wears thick clothes and turns his/her back to the air conditioner.
- curtains or plant leaves swing due to pet movement oe airflow.

6. 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.

7. 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.)

8. Timer lamp blinking: blinking three times

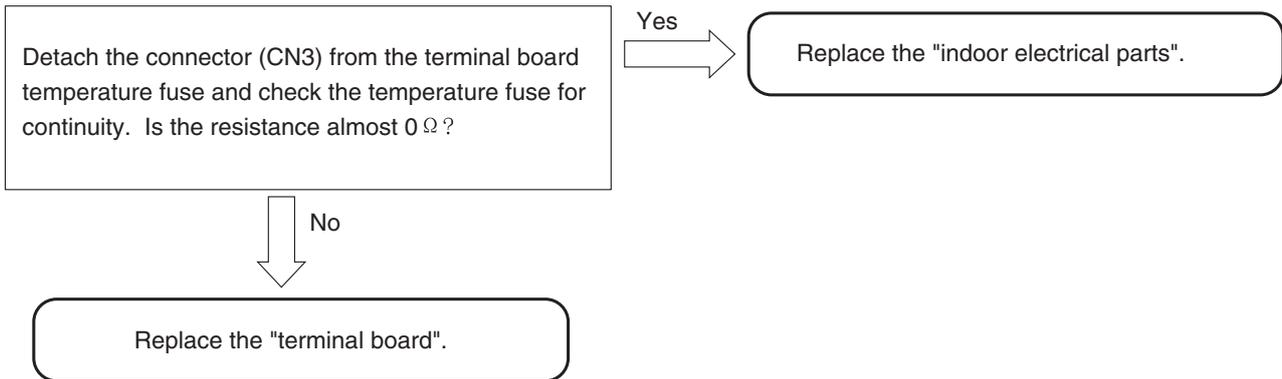
[Situation] The timer lamp blinks three times and the product will not operate.

[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]

Initiating troubleshooting



9. 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 table.

10 . Timer lamp blinking: blinking 9 times

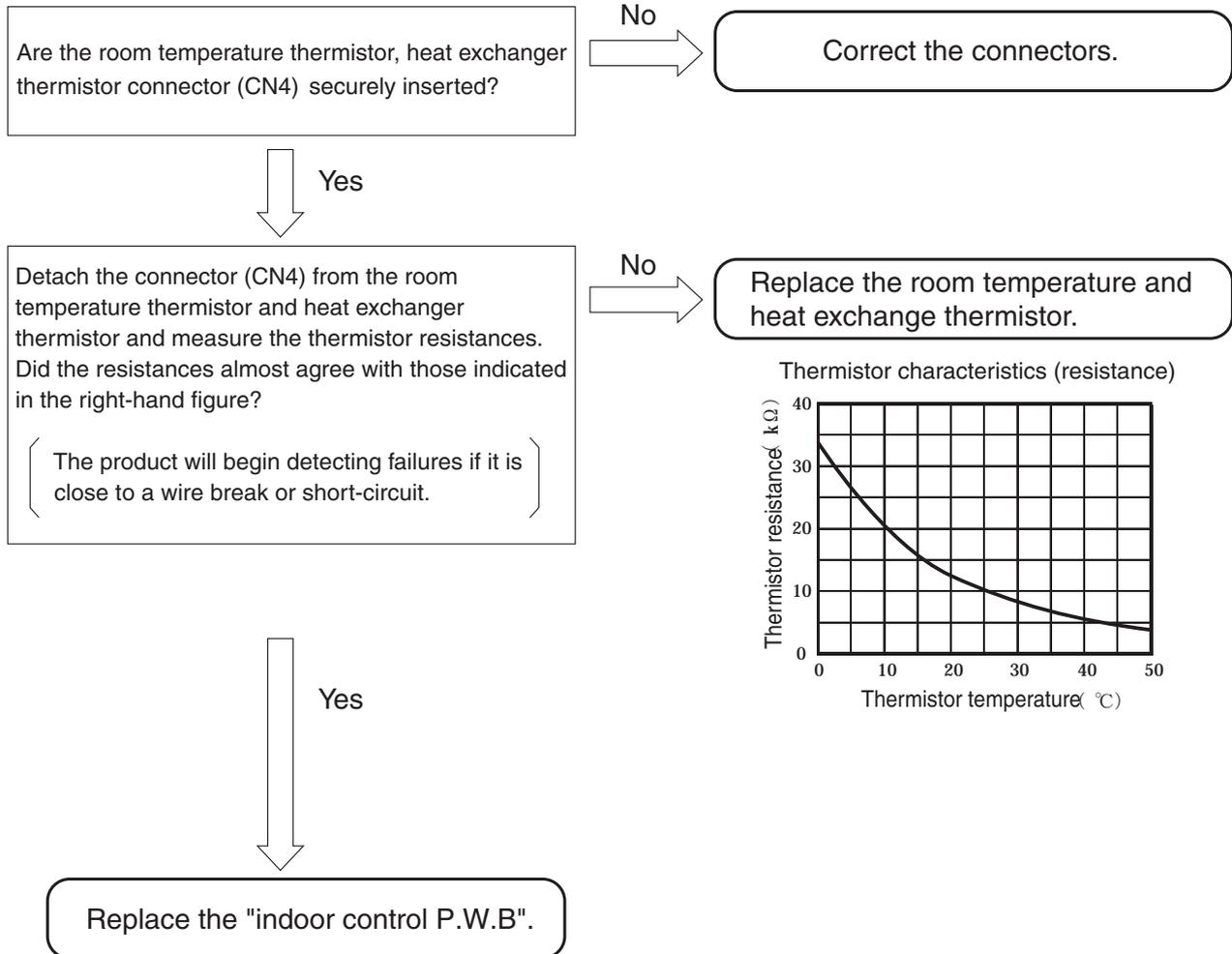
[Situation] The timer lamp blinks 9 times and the product will not run.

[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



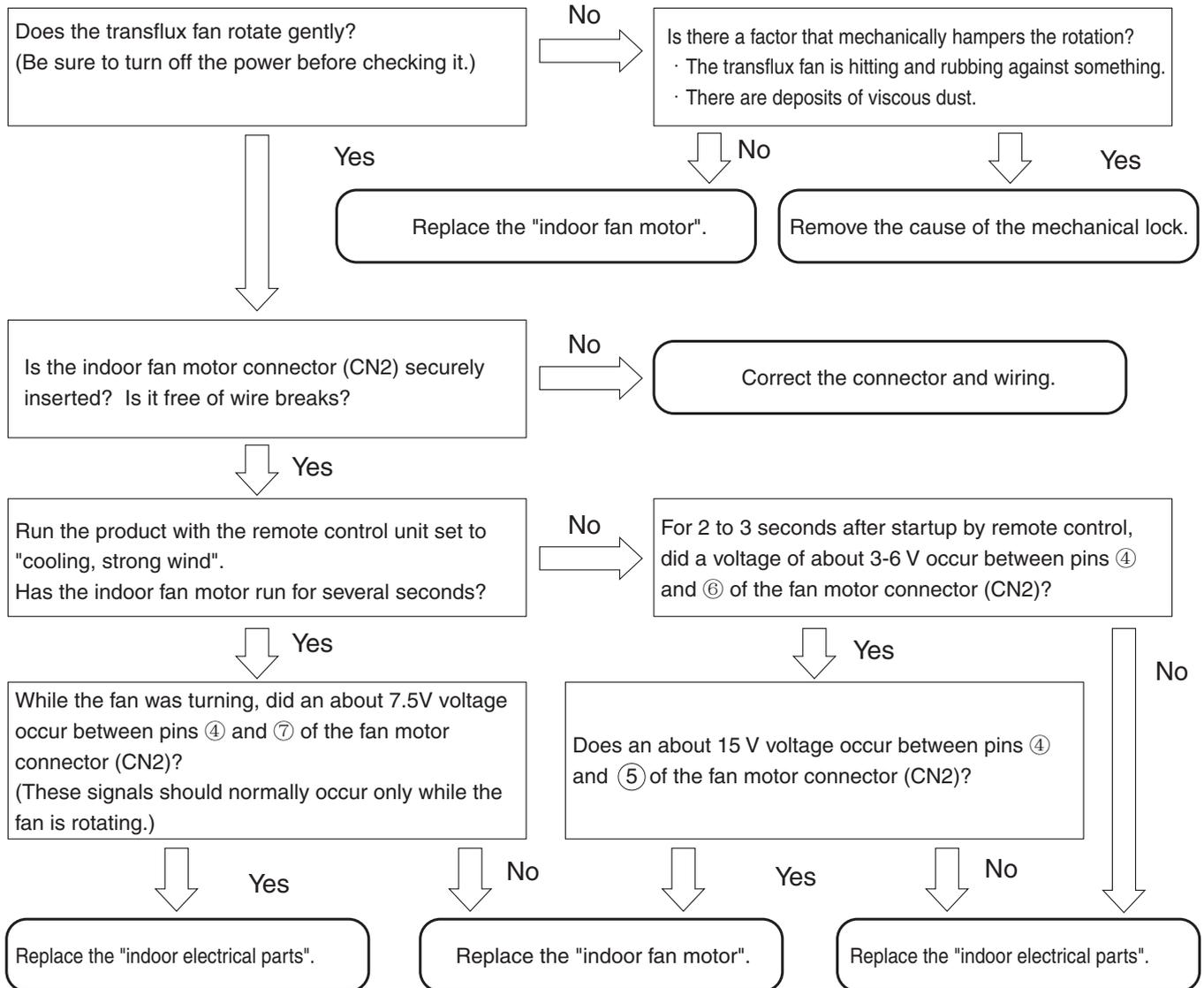
11. Timer lamp blinking: blinking 10 times

[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



12. Timer lamp blinking: blinking 12 times

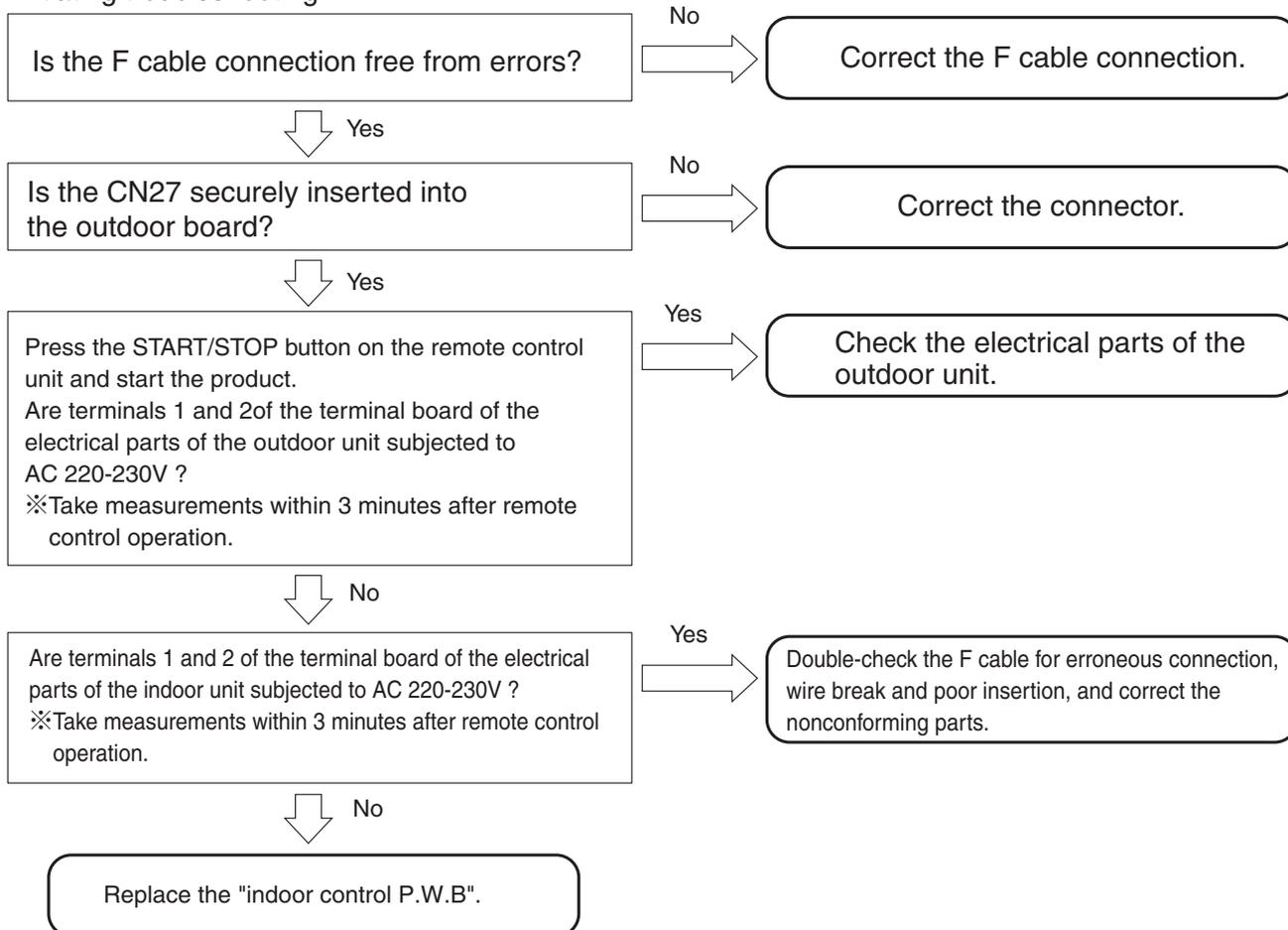
[Situation] The timer blinks 12 times and the product will not run.

- [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



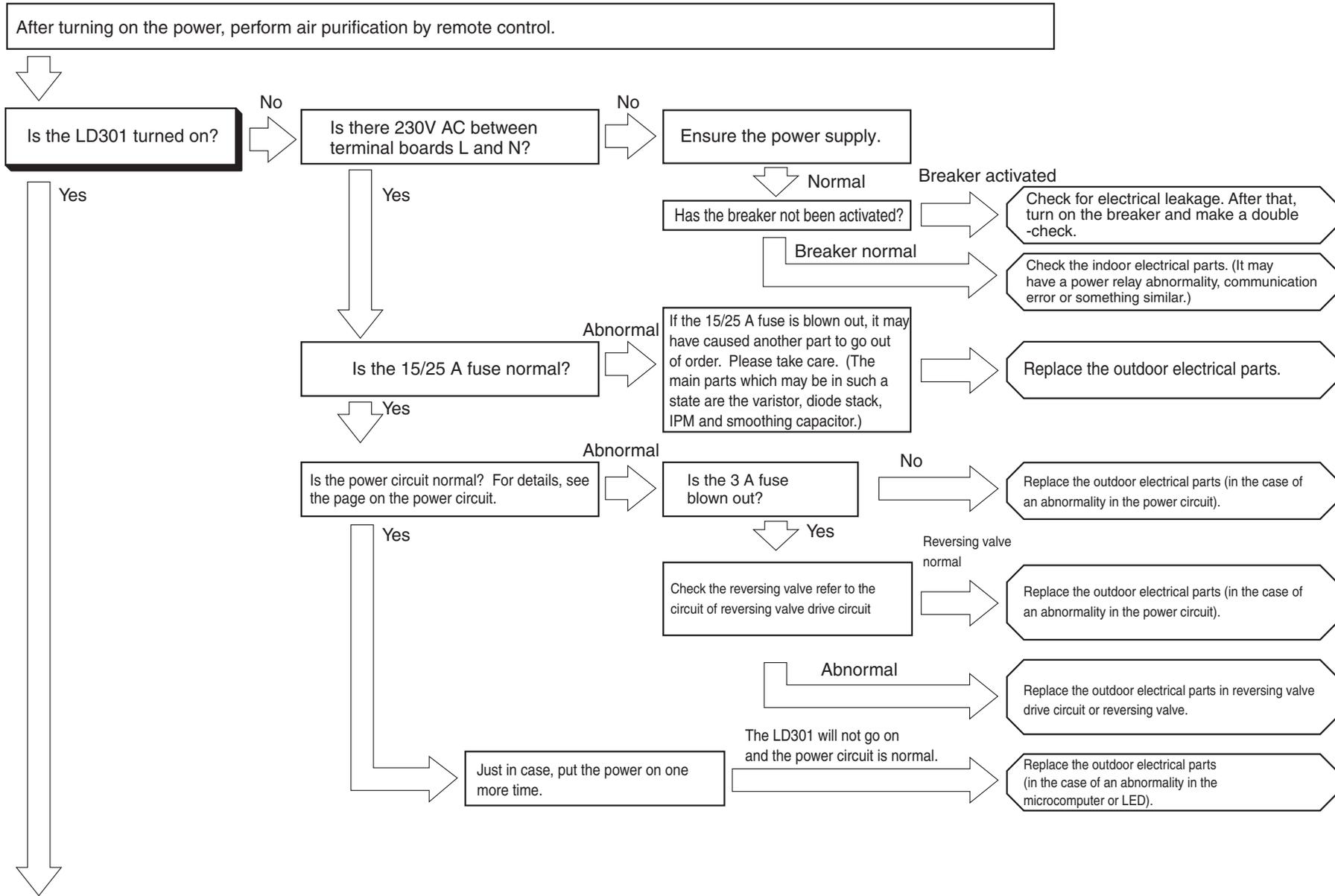
13. Timer lamp blinking: blinking 13 times

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

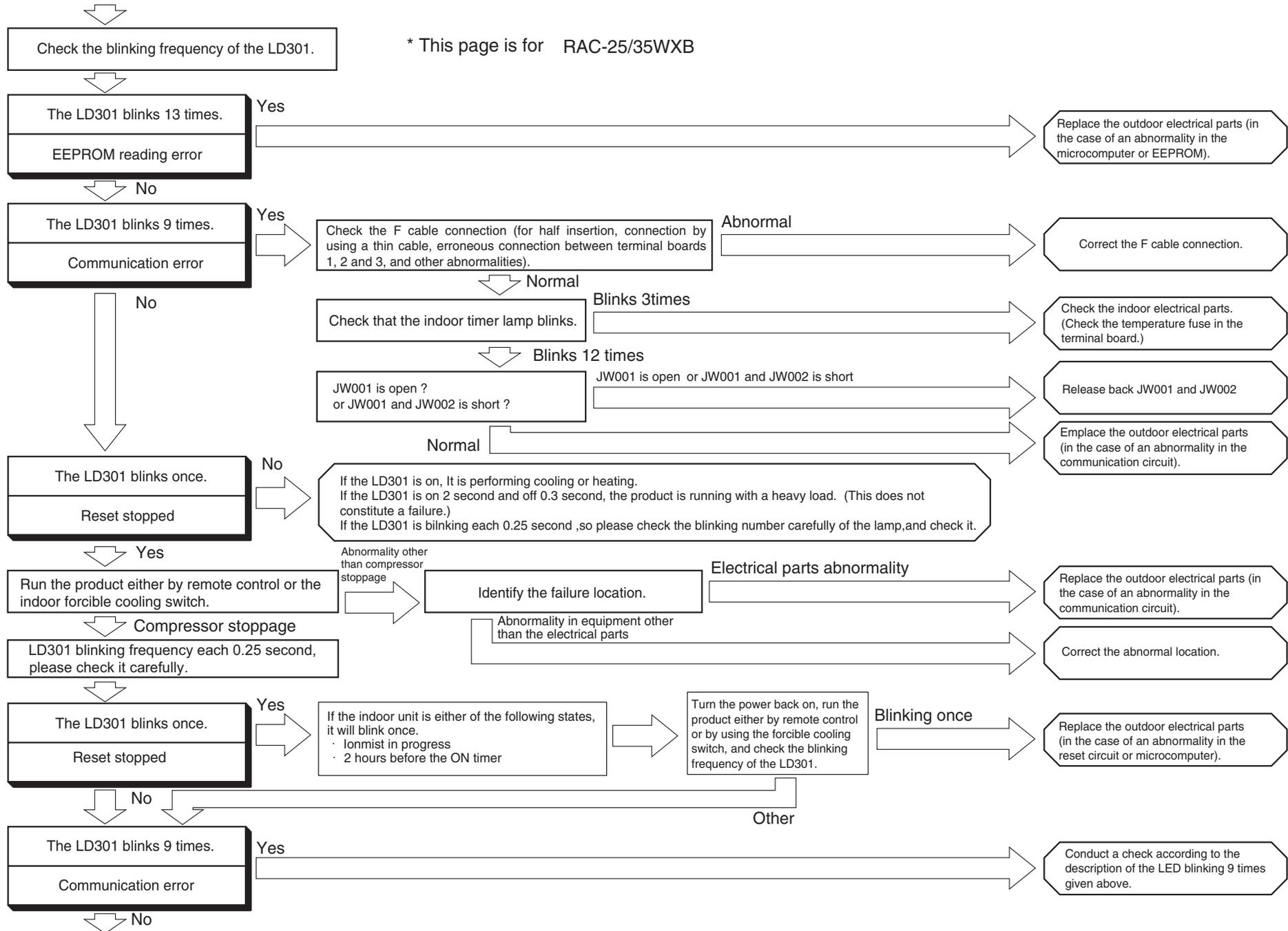
[Estimated failure location] • EEPROM, microcomputer

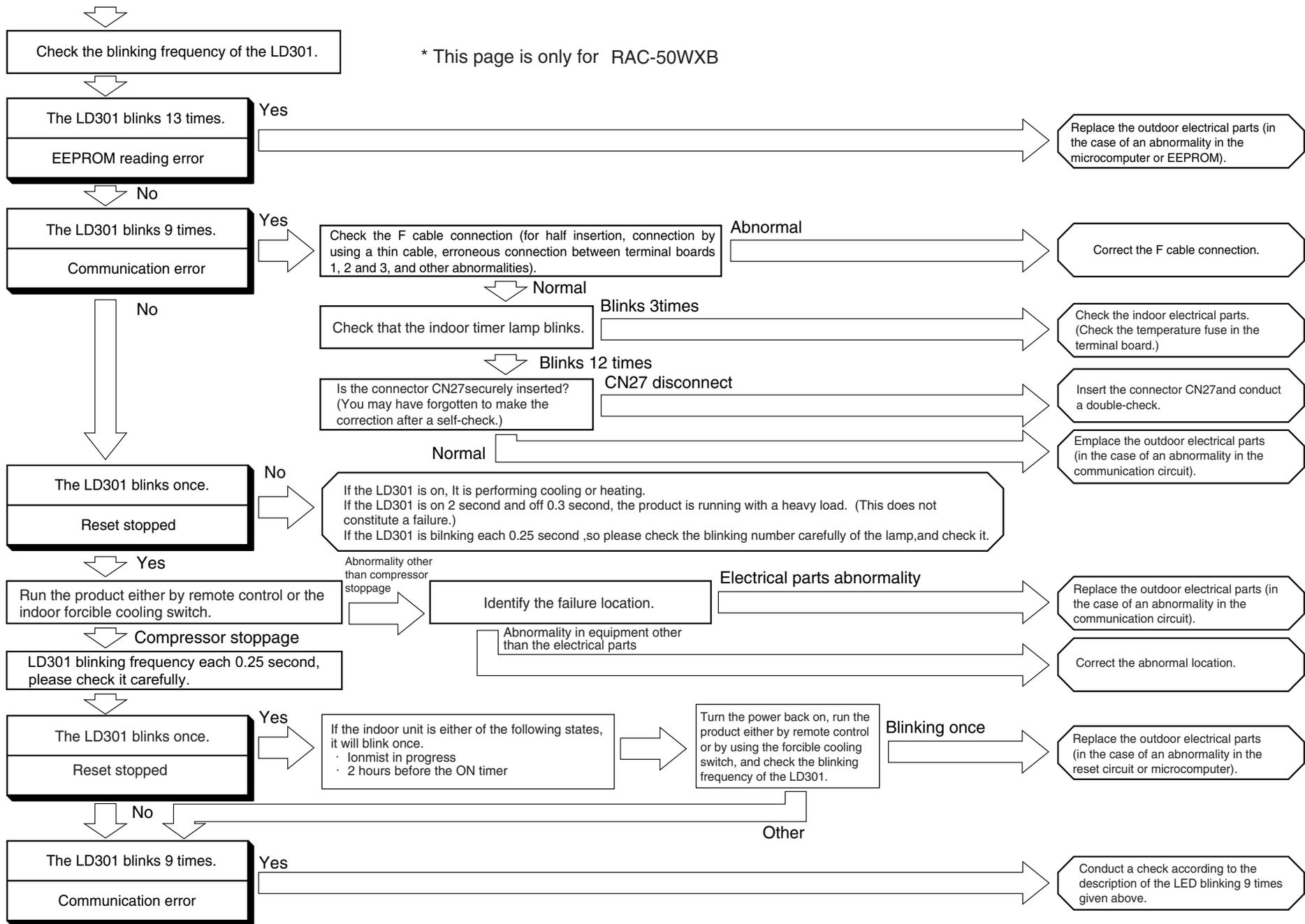
[Diagnosis flow]

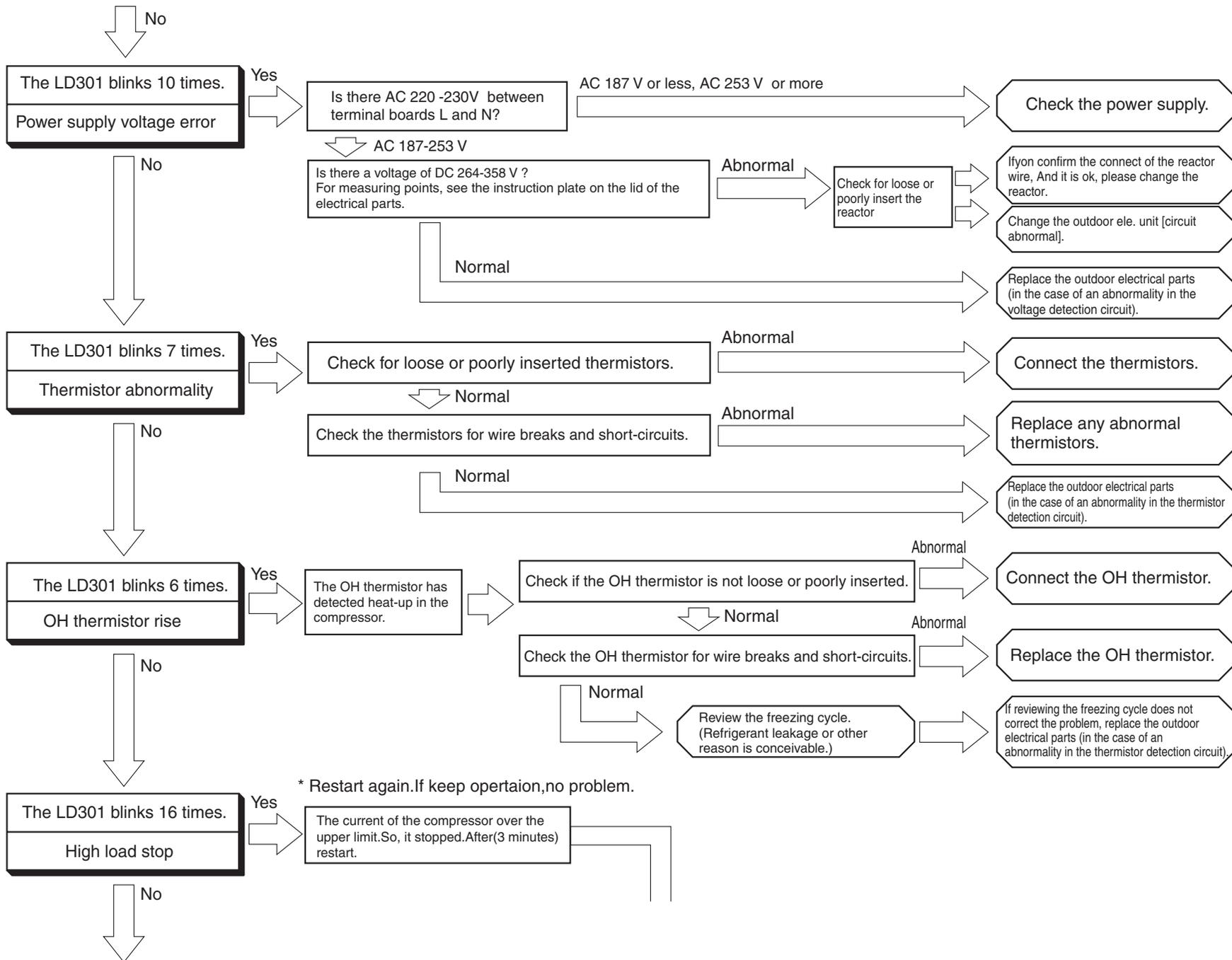
Replace the "indoor control P.W.B".

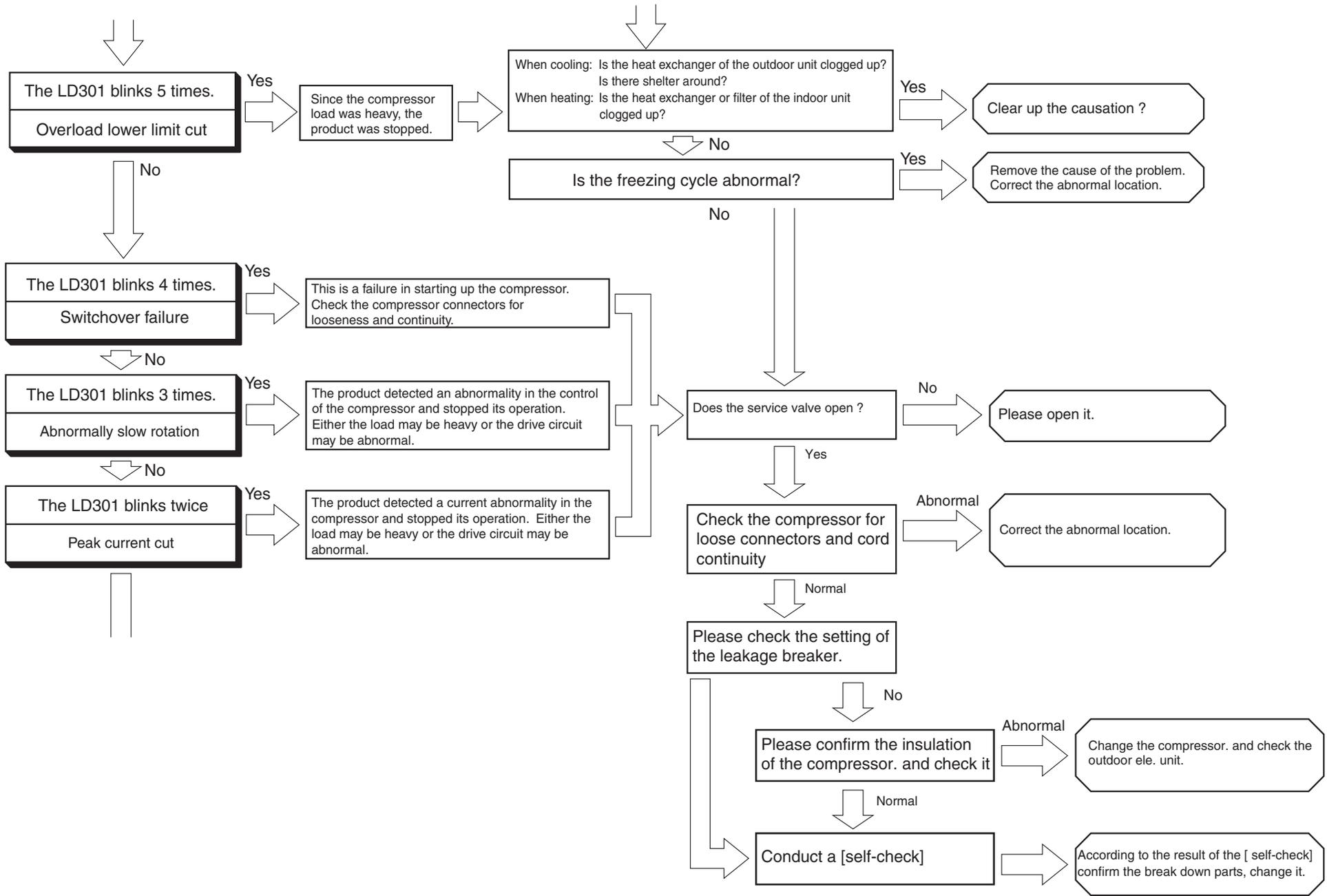


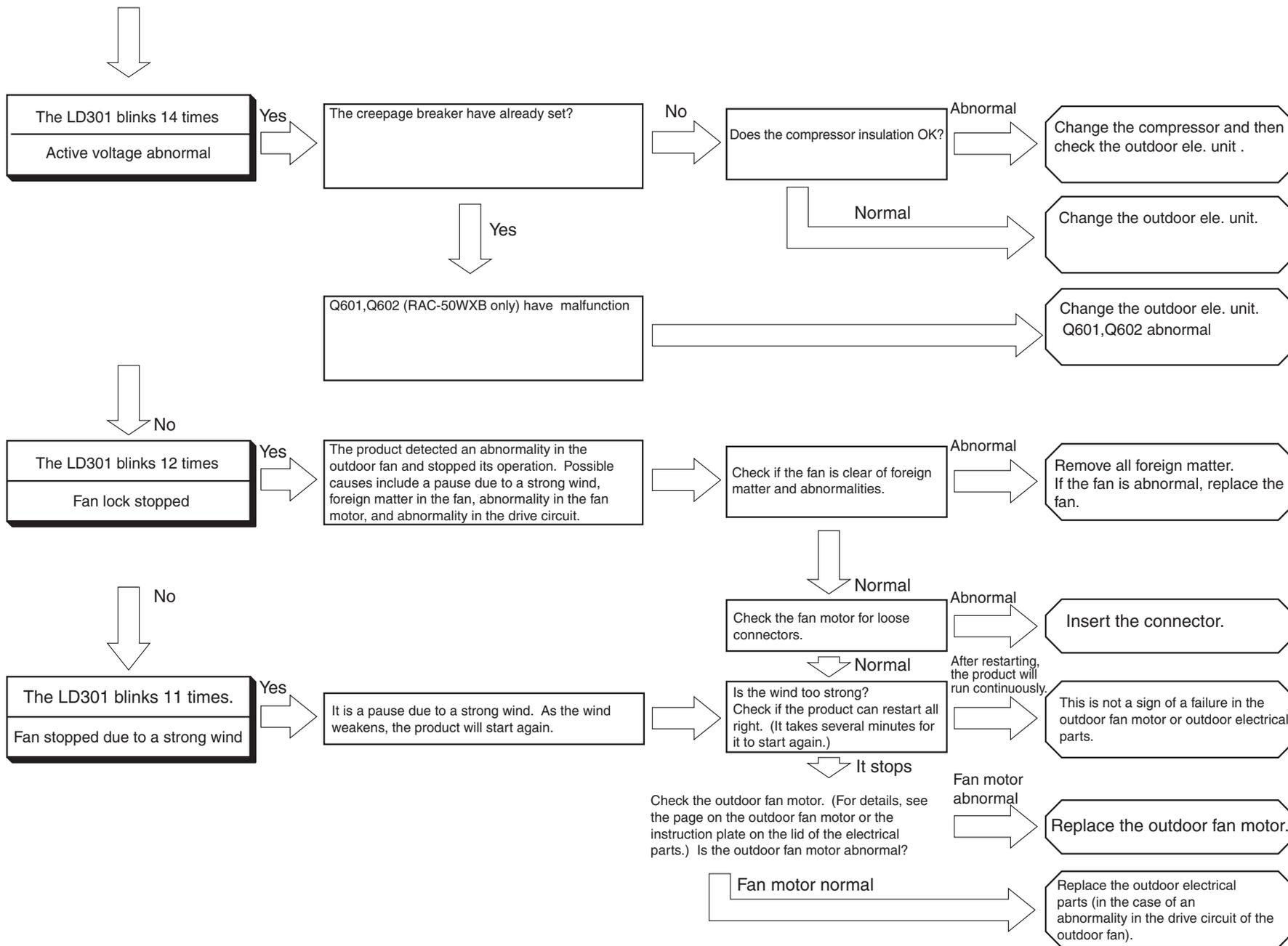
* This page is for RAC-25/35WXB











HOW TO CHANGE THE SHIFT VALUE SETTING TEMPERATURE

The shift value setting temperature for Cooling and Heating mode operation can be changed using a 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

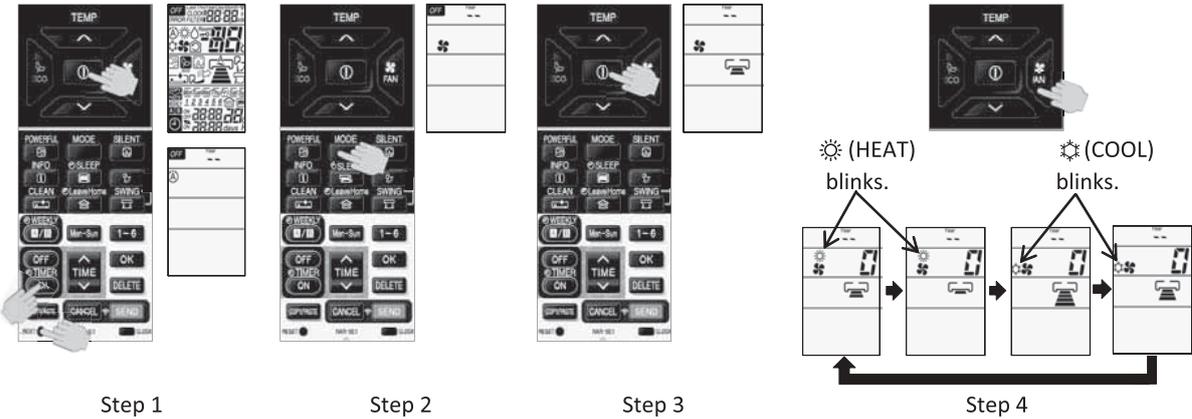
1. While pressing and holding the **⏻** (START/STOP) button and the **⏻** (ON) button, press the **RESET** [RESET] button on the same. Release the **RESET** [RESET] button only and make sure that all marks on the remote controller display are indicated, then release the **⏻** (START/STOP) button and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

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

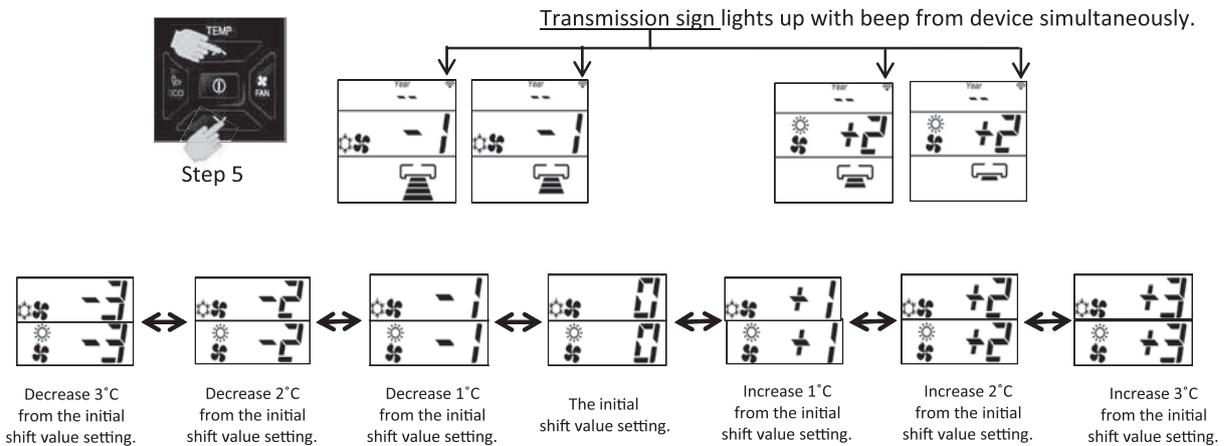
3. Press the **⏻** (START/STOP) button and FAN operation will be started.

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.



5. Press the **TEMP** (down or up) 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 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.

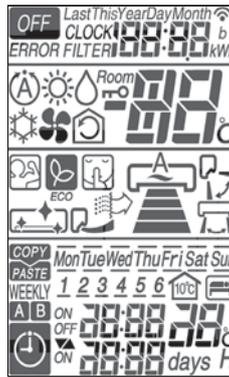
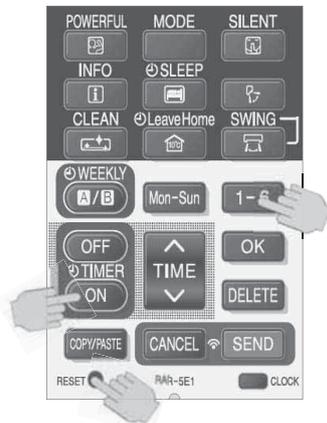
This procedure change the remote controller signal address from A to B.

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, **ON** (ON TIMER) button and **RESET** (RESET) button simultaneously. (The remote controller perform signal transmission with the device.)



Signal transmission : From A to B



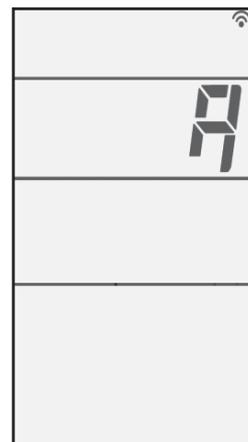
4. The indoor unit beeps [Pip] to indicate that it has just received the signal from remote controller.



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

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).

Signal transmission : From B to A



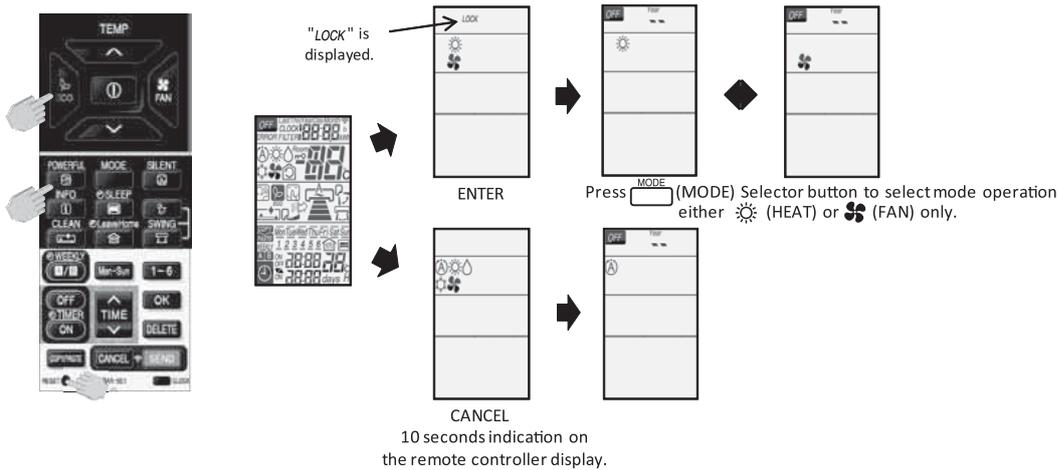
OPERATION MODE LOCK SETTING

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

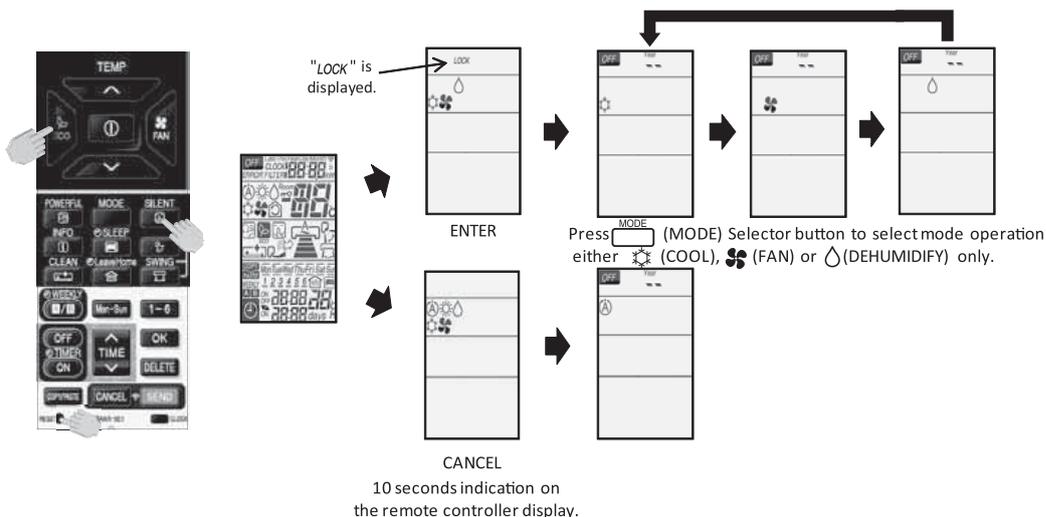
1. Heating operation mode lock setting

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

- (a) While pressing and holding  (ECO) button and  (SILENT) button, press  (RESET) button on the same time. Release  (RESET) button only and make sure that all marks on the remote controller display are indicated, then release the  (ECO) button and  (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 :

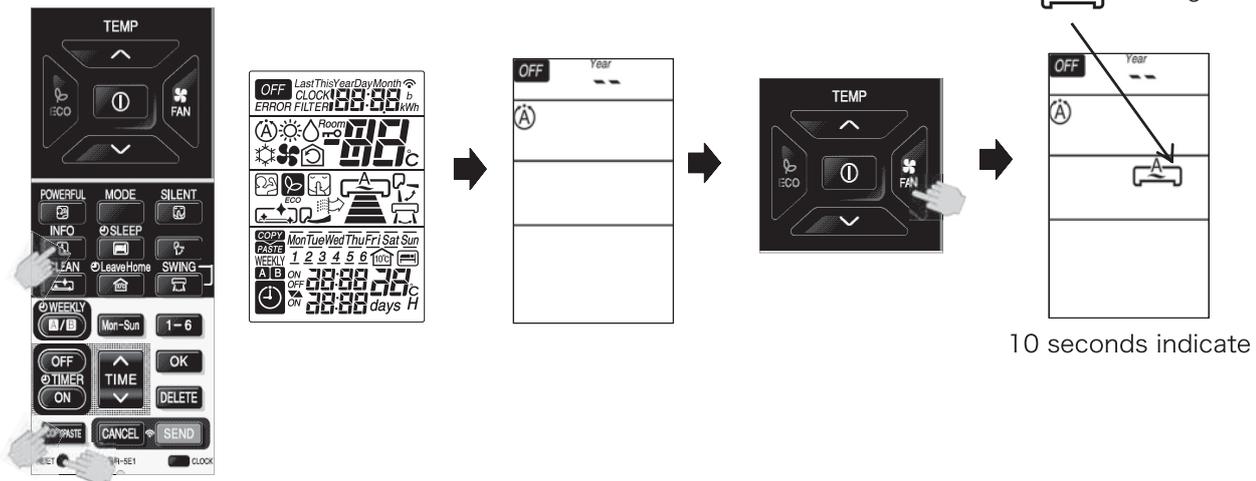
- (1) The indication of " LOCK " and ("  " (HEAT), "  " (COOL), "  " (FAN) or "  " (DEHUMIDIFY)) mode operation symbol on the remote controller display will disappear after 10 seconds and it will enters to OFF condition indicated by  on the display.
- (2) The OPERATION MODE LOCK setting will remain in the remote controller memory even though the remote controller is ran out of battery.

DISPLAY OPERATION MODE SETTING

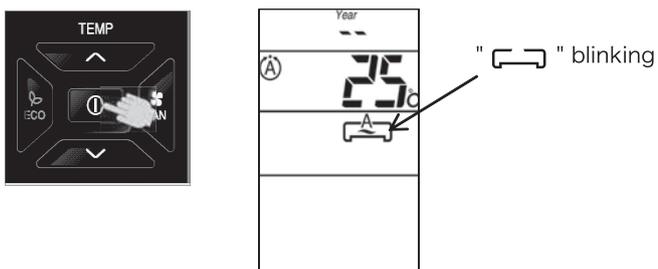
For operating indoor unit independently (without outdoor unit connection), remote controller has to be set according to below procedures before send the signal to the indoor unit. New communication format between indoor and outdoor is required to communicate with outdoor unit.

PROCEDURE

1. While pressing and holding  (INFO) button and  (COPY/PASTE) button, press  (RESET) button on the same time. Release  (RESET) button only and make sure that all marks on the LCD display are indicated, then release the  (INFO) button and  (COPY/PASTE) button. Remote controller now enters "DISPLAY OPERATION MODE" for the indoor unit to run independently. Please ensure that when pressing  (FAN) button, " will blinking.



2. Press the  (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.



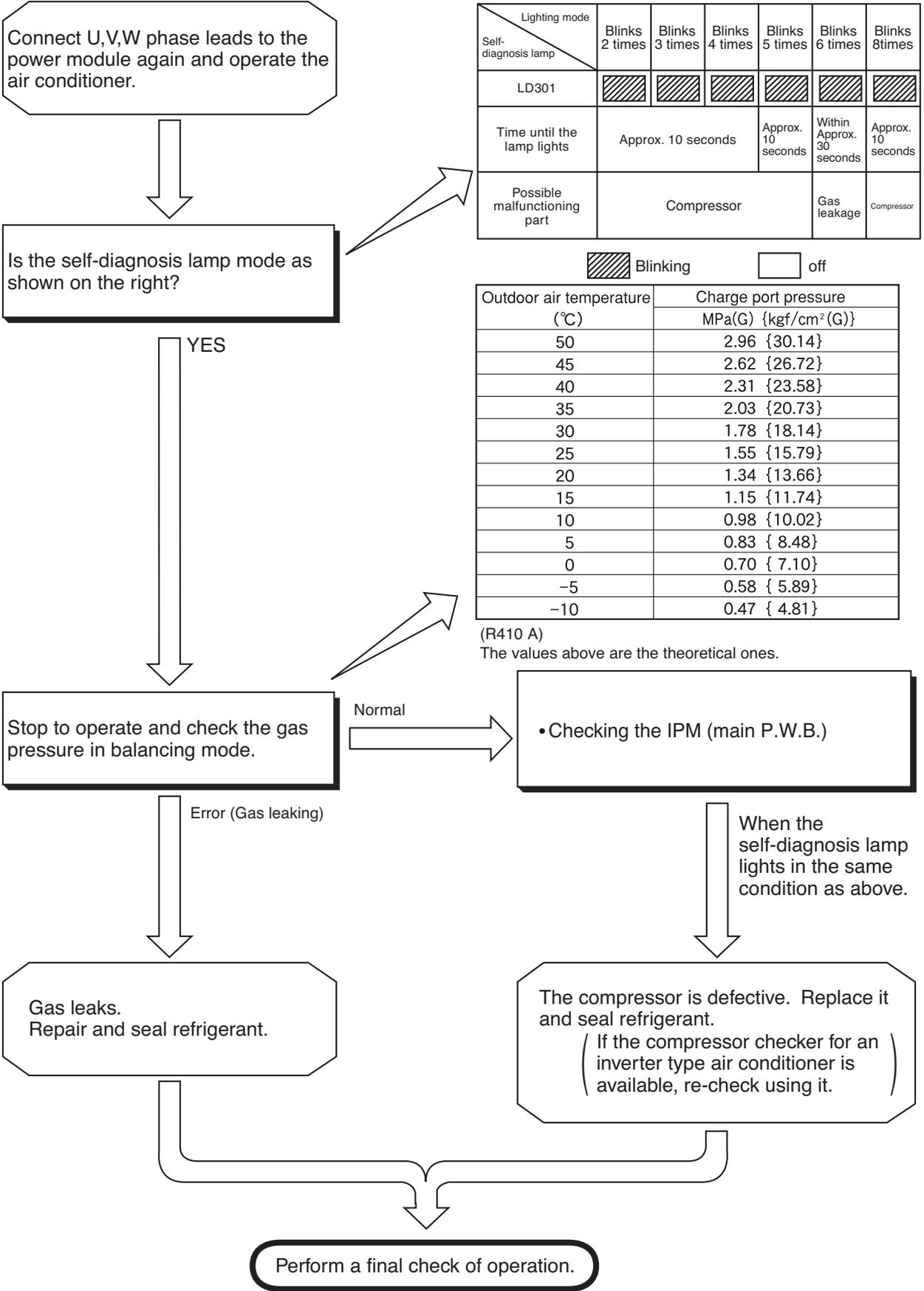
NOTE :

- (1) During "DISPLAY OPERATION MODE", " blinks on LCD of remote controller.
- (2) When operation stops, "DISPLAY OPERATION MODE" is canceled.

CHECKING THE REFRIGERATING CYCLE

(JUDGING BETWEEN GAS LEAKAGE AND COMPRESSOR DEFECTIVE)

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



How to run the product with the outdoor unit test switch

If the indoor electrical parts is out of order and if you wish to run the outdoor unit

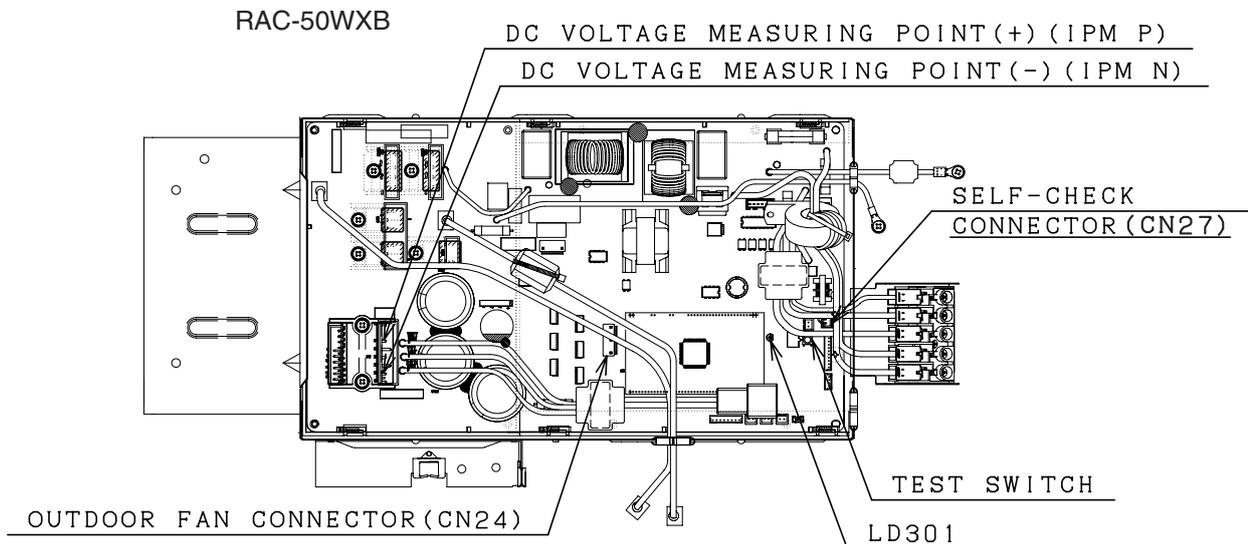
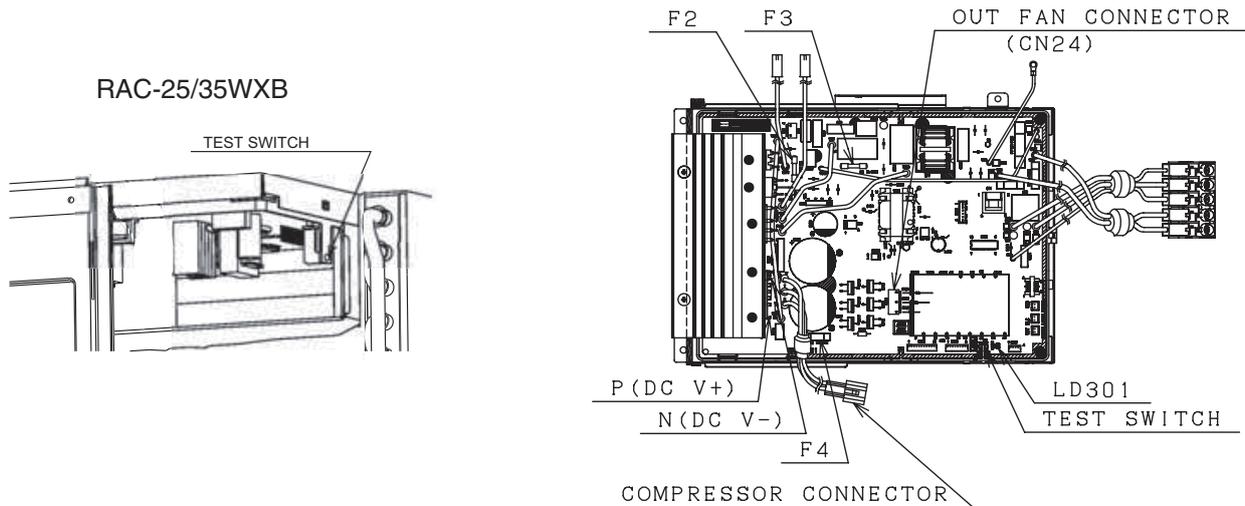
1. Turn on the outdoor terminal boards L and N (220-230 V AC).
2. Confirm that the "LD301" blinks once from the terminal side of the outdoor unit. Afterwards (when about 30 sec elapses after the power turns on), confirm that the "LD301" changes to blinking 9 times (communication error).
3. When the "LD301" 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.)

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



※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 described 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.

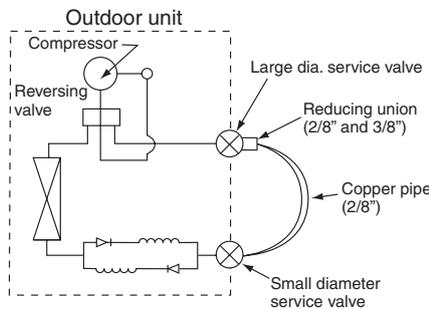
HOW TO OPERATE THE OUTDOOR UNIT INDEPENDENTLY

RAC-25/35WXB

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".

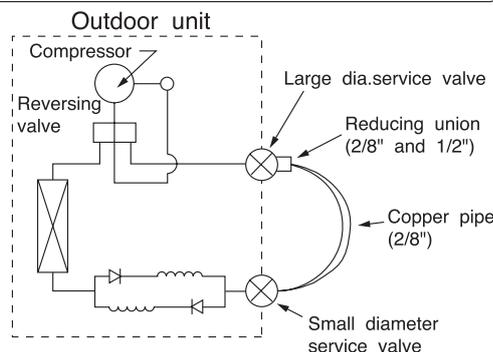
※1 The charging amount of 300g is equivalent to the load in normal operation.

RAC-50WXB

1. Connect the large dia. pipe side and small dia. pipe side service valves 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" (6.35mm)
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.

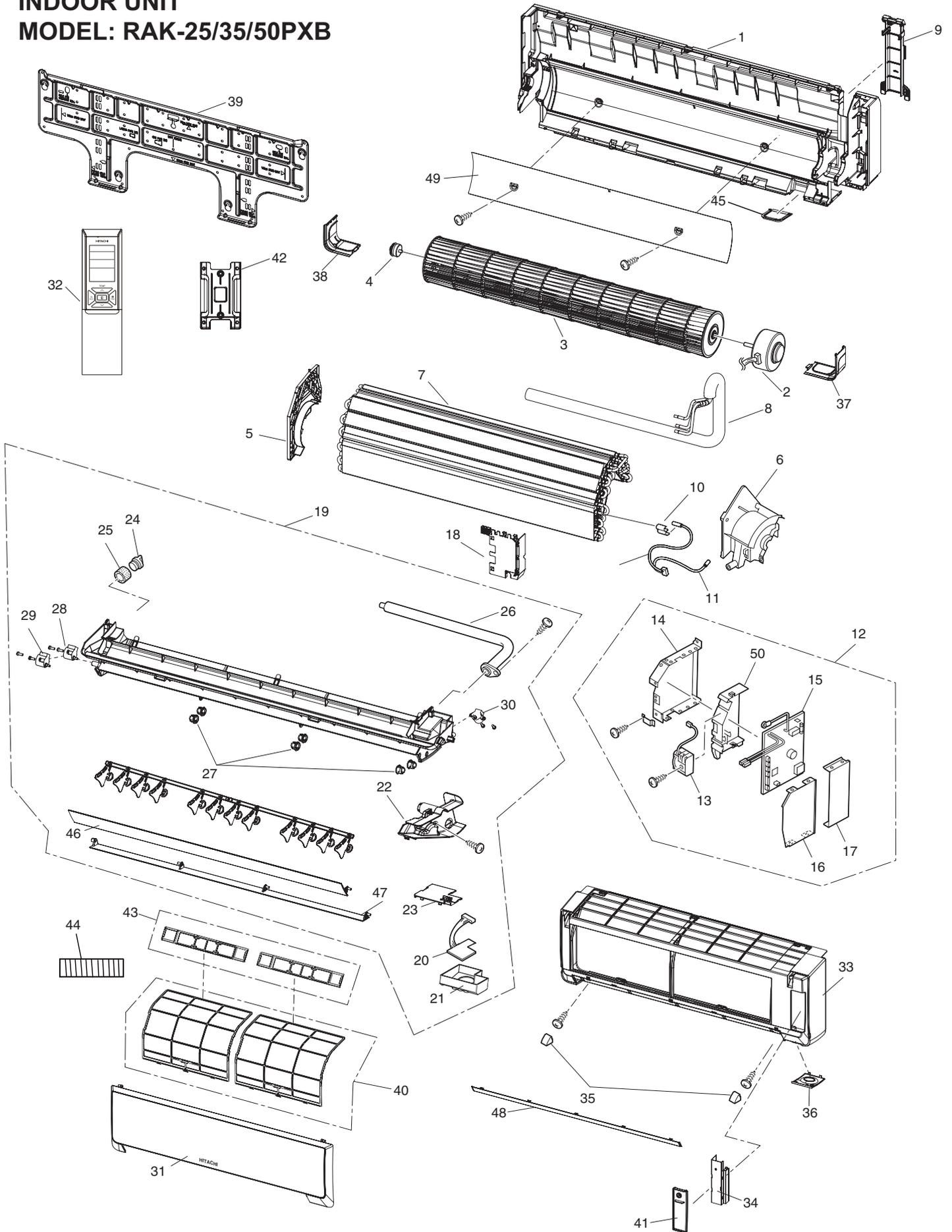
The operation method is the same as "How to operate using the connector to servicing the outdoor unit".

※1 The charging amount of 300g is equivalent to the load in normal operation.

PARTS LIST AND DIAGRAM

INDOOR UNIT

MODEL: RAK-25/35/50PXB

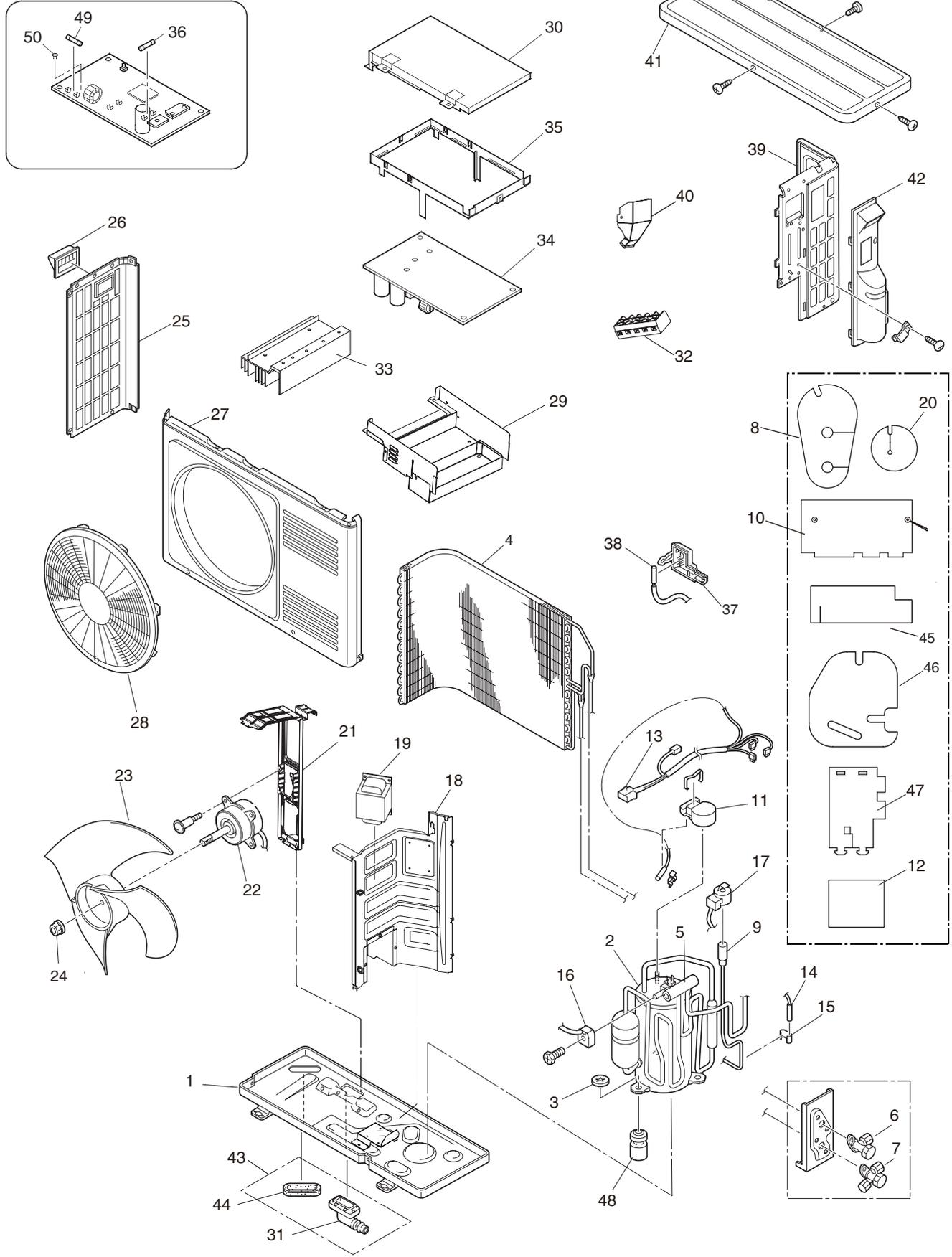


INDOOR UNIT

NO	HHAW PARTS NO			Q' TY/UNIT	PARTS NAME
	RAK-25PXB	RAK-35PXB	RAK-50PXB		
1		HWRAK-35PPB 901		1	CABINET ASS'Y
2		HWRAK-18PEB 901		1	FAN MOTOR
3		HWRAK-35PPB 902		1	TANGENTIAL AIR FLOW FAN
4		HWRAS-25YH4 908		1	FAN SUPPORT ASS'Y
5		HWRAK-35PPB 903		1	FAN COVER
6		HWRAK-35PPB 904		1	FAN MOTOR SUPPORT
7		HWRAK-35PPB 905		1	EVAPORATOR ASS'Y
8		HWRAK-35PPB 906	HWRAK-50PPB 901	1	PIPING ASS'Y
9		HWRAK-35PPB 907		1	UPPER COVER
10		HWRAS-25YH4 A15		1	SPRING
11		HWRAS-E10H3 911		1	THERMISTOR ASS'Y
12	HWRAK-25PXB 901	HWRAK-35PXB 901	HWRAK-50PXB 901	1	ELECTRIC ASSEMBLY
13		HWRAK-25PXB 919		1	TERMINAL BOARD (3P)
14		HWRAK-25PXB 902		1	COVER (ELECTRIC)
15	HWRAK-25PXB 903	HWRAK-35PXB 902	HWRAK-50PXB 902	1	P.W.B.(MAIN)
16		HWRAK-25PXB 904		1	ELEC-COVER-1
17		HWRAK-25PXB 905		1	ELEC-COVER-2
18		HWRAK-35PPB 911		1	PIPE COVER
19		HWRAK-25PXB 906		1	DRAIN PAN ASS'Y
20		HWRAK-25PXB 907		1	P.W.B.(INDICATION)
21		HWRAK-25PXB 908		1	LED-COVER
22		HWRAK-35PPB 913		1	FC-GUIDE
23		HWRAK-25PXB 909		1	K-SUP
24		HWRAS-25YH4 A30		1	DRAIN CAP
25		HWRAS-25YH4 A31		1	FO-PIPE
26		HWRAS-E10H3 921		1	DRAINAGE PIPE
27		HWRAS-25YH4 A28		6	DEFLECTOR SUPPORT
28		HWRAK-25PXB 910		1	STEPPING MOTOR
29		HWRAK-25PXB 911		1	STEPPING MOTOR
30		HWRAK-25PXB 912		1	STEPPING MOTOR (VERTICAL AIR DEFLECTOR)
31		HWRAK-25PXB 913		1	FRONT PANEL ASS'Y
32		HWRAK-35PPB 918		1	REMOTE CONTROL ASS'Y
33		HWRAK-25PXB 914		1	FRONT COVER AS
34		HWRAK-25PXB 915		1	T-COVER ASS'Y
35		HWRAK-35PPB 920		2	CAP
36		HWRAK-25PXB 916		1	SE-COVER
37		HWRAK-25PXB 917		1	S-COVER-R
38		HWRAK-25PXB 918		1	S-COVER-L
39		HWRAK-35PPB 924		1	MOUNTING PLATE
40		HWRAK-25PXB 920		2	AIR FILTER
41		HWRAK-25PXB 921		1	TER-COVER
42		HWRAK-18PPB 902		2	RE-HOLDER
43		HWRAK-35PPB 927		2	F-CASE
44		HWRAK-35PPB 928		1	ACL- FILTER
45		HWRAK-35PPB 929		1	T-PLATE
46		HWRAK-25PXB 922		1	HORIZONTAL AIR DEFLECTOR 1
47		HWRAK-25PXB 923		1	HORIZONTAL AIR DEFLECTOR 2
48		HWRAK-25PXB 924		1	K-PANEL
49		HWRAK-25PXB 925		1	CABI-PLATE
50		HWRAK-25PXB 926		1	SUPPORT (P.W.B.)

OUTDOOR UNIT

MODEL: RAC-25/35WXB

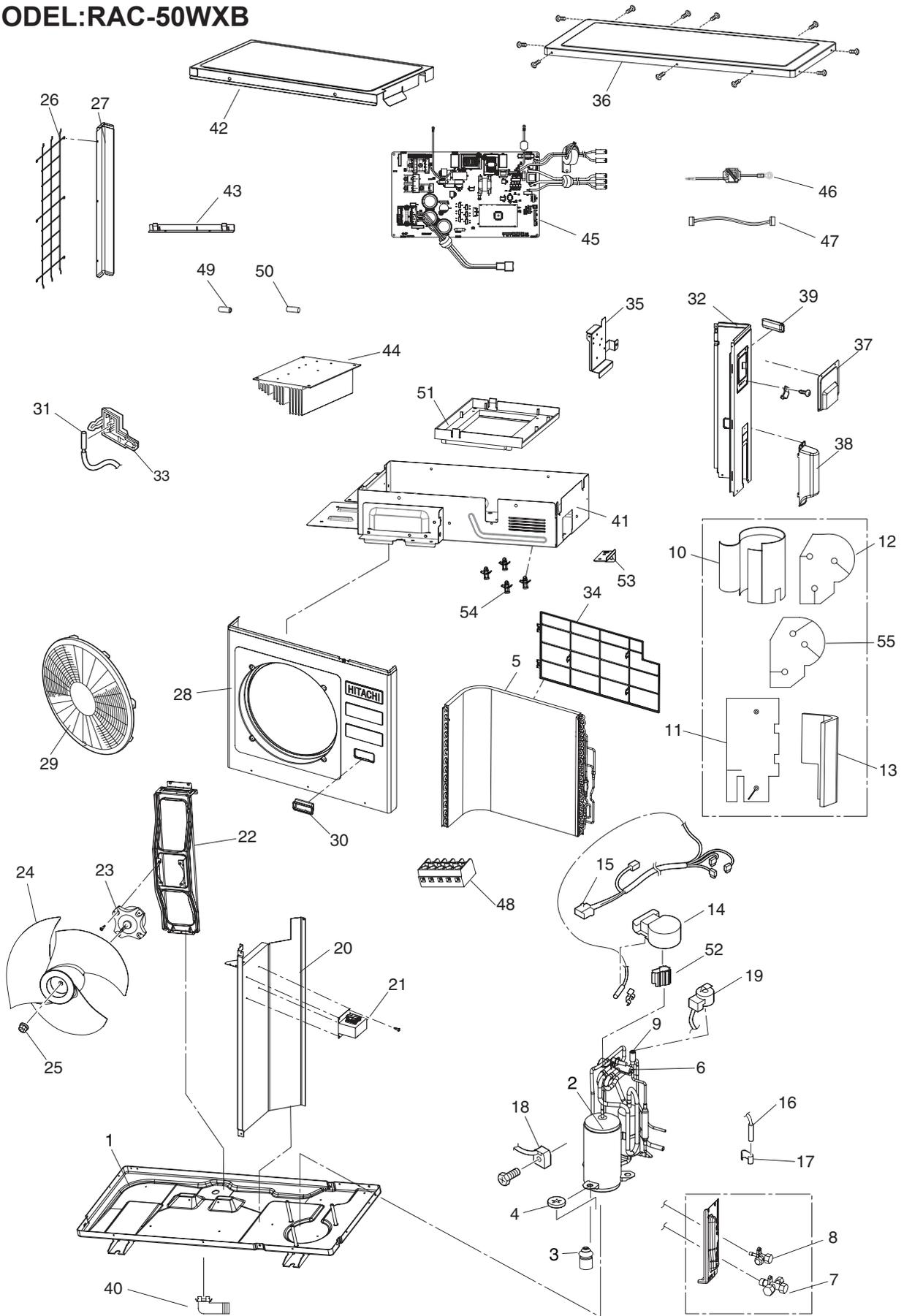


OUTDOOR UNIT

NO	HHAW PARTS NO		Q' TY/UNIT	PARTS NAME
	RAC-25WXB	RAC-35WXB		
1		HWRAC-35WPB A01	1	BASE
2		HWRAC-18WEB A02	1	COMPRESSOR
3		HWRAC-25YH4 A04	3	PUSH NUT
4		HWRAC-35WPB A02	1	CONDENSER
5		HWRAC-35WPB A03	1	REVERSING VALVE
6		HWRAC-50WEA A06	1	2S-VALVE
7		HWRAC-10GH5 A03	1	3S-VALVE
8		HWRAC-SX10HAK A09	1	SOUND PROOF COVER ASSEMBLY
9		HWRAC-35YH4 A03	1	ELECTRIC EXPANSION VALVE
10		HWRAC-SX10HAK A10	1	SOUND PROOF COVER ASSEMBLY
11		HWRAC-18WEB A07	1	O. L. R COVER
12		HWRAC-25WXA A04	1	SOUND PROOF COVER ASSEMBLY
13		HWRAC-18WSA A11	1	CONNECTING CORD (COMP)
14		HWRAC-25WXA A05	1	THERMISTOR (DEFROST)
15		HWRAC-25WX8 A02	1	THERMISTOR SUPPORT
16		HWRAC-SX10HAK A20	1	COIL (REVERSING VALVE)
17		HWRAC-35YHA4 A04	1	COIL (EXPANSION VALVE)
18		HWRAC-35WPB A04	1	PARTITION
19		HWRAC-18WEB A10	1	REACTOR 1
20		HWRAC-35WPB A05	1	SOUND PROOF COVER ASS' Y
21		HWRAC-14EH4 A08	1	FAN MOTOR SUPPORT
22		HWRAC-18WEB A12	1	FAN MOTOR
23		HWRAC-14EH4 A09	1	PROPELLER FAN
24		HWRAC-25YH4 A24	1	NUT (PROPELLER. FAN)
25		HWRAC-25YH4 A25	1	SIDE COVER (L)
26		HWRAC-25YH4 A26	1	HANDLE
27		HWRAC-35WPB A06	1	FRONT COVER
28		HWRAC-E14H3 909	1	DISCHARGE GRILL
29		HWRAC-35WPB A07	1	ELECTRIC PARTS PLATE
30		HWRAC-35WPB A08	1	ELECTRIC PARTS COVER
31		HWRAC-25YH4 A50	1	DRAIN PIPE
32		HWRAC-18WEB A19	1	TERMINAL BOARD (5P)
33		HWRAC-35WPB A09	1	HEAT SINK (REGULATOR 1)
34	HWRAC-25WXB A01	HWRAC-35WXB A01	1	P. W. B. (POWER)
35		HWRAC-35WPB A11	1	SUPPORT (P. W. B.)
36		HWRAC-18WEB A22	1	FUSE (15A)
37		HWRAC-14EH4 A15	1	COVER (OUT DOOR THERMISTOR)
38		HWRAC-E14H3 914	1	THERMISTOR (OUTDOOR TEMPERATURE)
39		HWRAC-E14H3 915	1	SIDE COVER (R)
40		HWRAC-35WPB A12	1	TERMINAL COVER
41		HWRAC-25WXA A09	1	TOP COVER
42		HWRAC-25YH4 A47	1	SERVICE VALVE COVER
43		HWRAC-25YH4 A48	1	BUSH ASSEMBLY
44		HWRAC-25YH4 A49	1	BUSH
45		HWRAC-SX10HAK A11	1	SOUND PROOF COVER ASS' Y
46		HWRAC-SX10HAK A12	1	SOUND PROOF COVER ASS' Y
47		HWRAC-35WPB A13	1	SOUND PROOF COVER ASS' Y
48		HWRAC-18WEB A03	3	COMPRESSOR RUBBER
49		HWRAC-E08H A11	1	FUSE (15A)
50		HWRAC-50NX2 A52	2	FUSE (3. 15A)

OUTDOOR UNIT

MODEL:RAC-50WXB



OUTDOOR UNIT

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-50WXB A03	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-50WEA A07	1	SOUND PROOF
11	HWRAC-50WEA A08	1	SOUND PROOF
12	HWRAC-50WEA A09	1	SOUND PROOF
13	HWRAC-50WEA A10	1	SOUND PROOF
14	HWRAC-50WEA A11	1	O. L. R COVER
15	HWRAC-50WXB A04	1	CONNECTING CORD (COMP)
16	HWRAC-50WXB A28	1	THERMISTOR (DEFROST)
17	HWRAC-50NX2 A17	1	THERMISTOR SUPPORT
18	HWRAC-SX10HAK A20	1	COIL (REVERSING VALVE)
19	HWRAC-50WXB A29	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-50WXB A08	1	NUT (PROPELLER FAN)
26	HWRAC-50WXB A09	1	NET LEFT
27	HWRAC-50WXB A10	1	LEFT PLATE
28	HWRAC-50WXB A11	1	FRONT COVER
29	HWRAC-50WXB A12	1	DISCHARGE GRILL
30	HWRAC-50WXB A13	1	HANDLE
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	TERMRINAL-COVERAS
38	HWRAC-50WXB A21	1	EV-COVER
39	HWRAC-50WXB A22	1	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-50WXB A25	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

HITACHI

RAK-25PXB/RAC-25WXB
RAK-35PXB/RAC-35WXB
RAK-50PXB/RAC-50WXB

HHAW NO. 0081E-3