

HITACHI RAS-07CH1 SERVICE MANUAL



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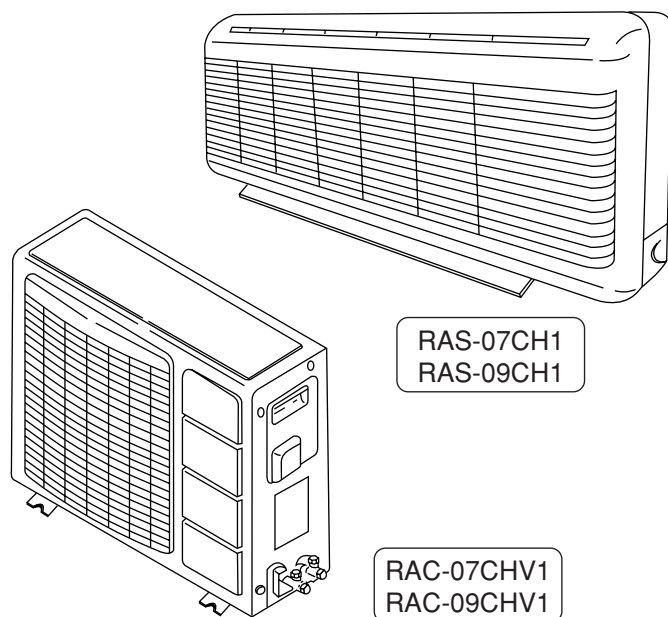
HITACHI

PM**NO. 0079E**

SERVICE MANUAL

TECHNICAL INFORMATION**RAS-07CH1/RAC-07CHV1
RAS-09CH1/RAC-09CHV1****REFER TO THE FOUNDATION MANUAL****FOR SERVICE PERSONNEL ONLY****CONTENTS**

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**SPECIFICATIONS**

TYPE			WALL TYPE				
			COOLING UNIT		CONDENSING UNIT	COOLING UNIT	CONDENSING UNIT
MODEL			RAS-07CH1		RAC-07CHV1	RAS-09CH1	RAC-09CHV1
POWER SOURCE			1 Ø, 220 – 240 V, 50 Hz				
COOLING	TOTAL INPUT	(W)	680 – 730		870 – 925		
	TOTAL AMPERES	(A)	3.2 – 3.1		4.1 – 4.1		
	CAPACITY	(kW)	2.05 – 2.05		2.50 – 2.50		
		(B.T.U./h)	7,000 – 7,000		8,500 – 8,500		
HEATING	TOTAL INPUT	(W)	630 – 685		860 – 920		
	TOTAL AMPERES	(A)	3.0 – 2.9		4.0 – 4.0		
	CAPACITY	(KW)	2.30 – 2.30		2.94 – 3.00		
		(BTU/H)	7,850 – 7,850		10,000 – 10,200		
DIMENSIONS (mm)		W	785	700	785	700	
		H	265	570	265	570	
		D	168	210	168	210	
NET WEIGHT (kg)			7	26	7	26	

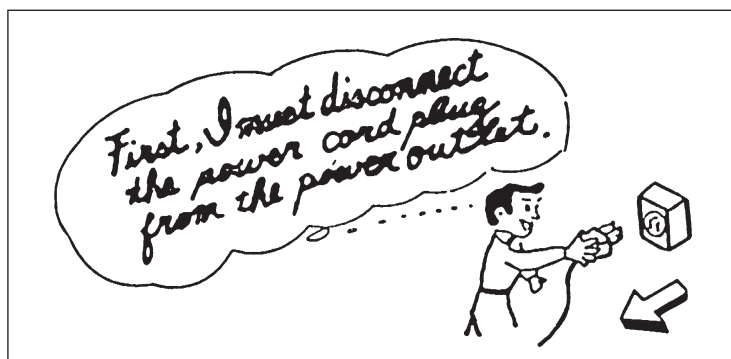
SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

ROOM AIR CONDITIONER

COOLING UNIT + CONDENSING UNIT**NOVEMBER 1997****H.A.P.M.**

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 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 $1\text{M}\Omega$ 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 and 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 reinforced or at a new location.
10. Any inflammable thing should never 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 manufacturers during maintenance and handling thereof. (They apply the same to handling of abnormal goods such as rejected goods being returned).

2. Object parts

- (1) Micro computer
- (2) Integrated circuits (IC)
- (3) Field-effect transistors (FET)
- (4) P.C. boards or the like on 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).

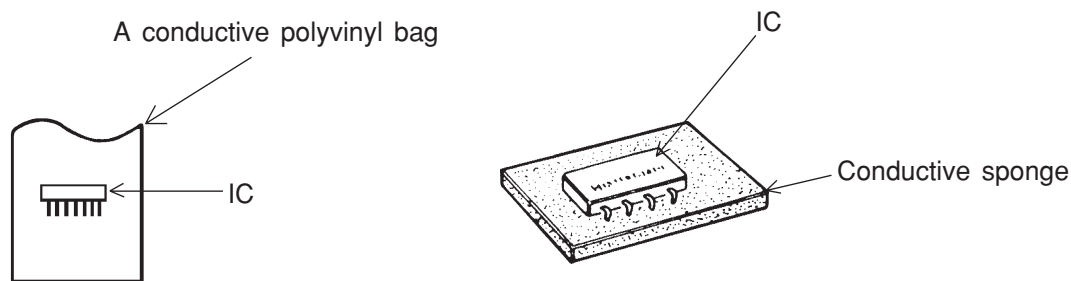


Fig. 1. Conductive Container

- (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.

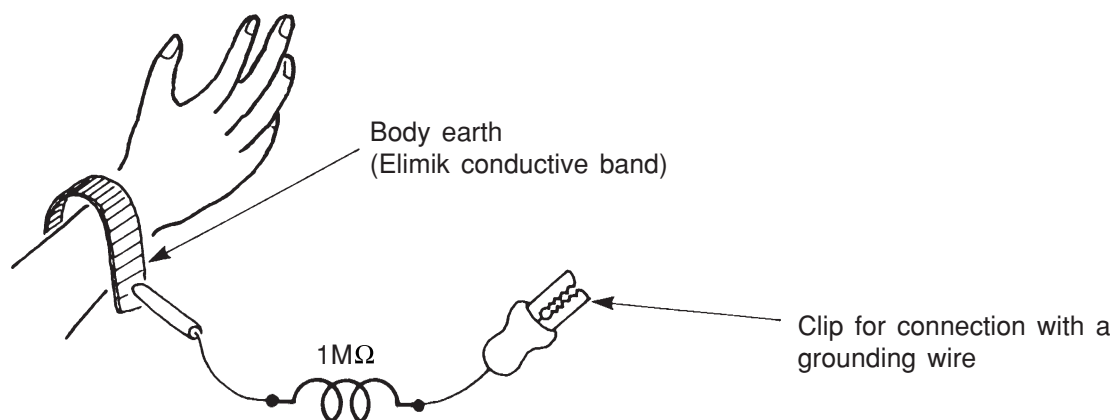


Fig. 2. Body Earth

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

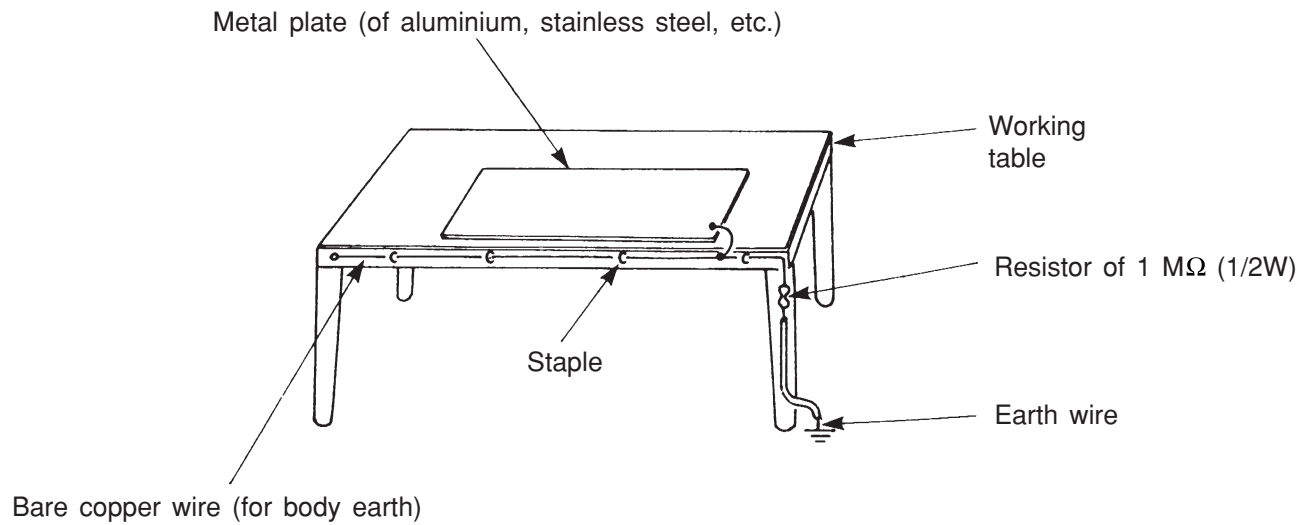


Fig. 3. Grounding of the working table

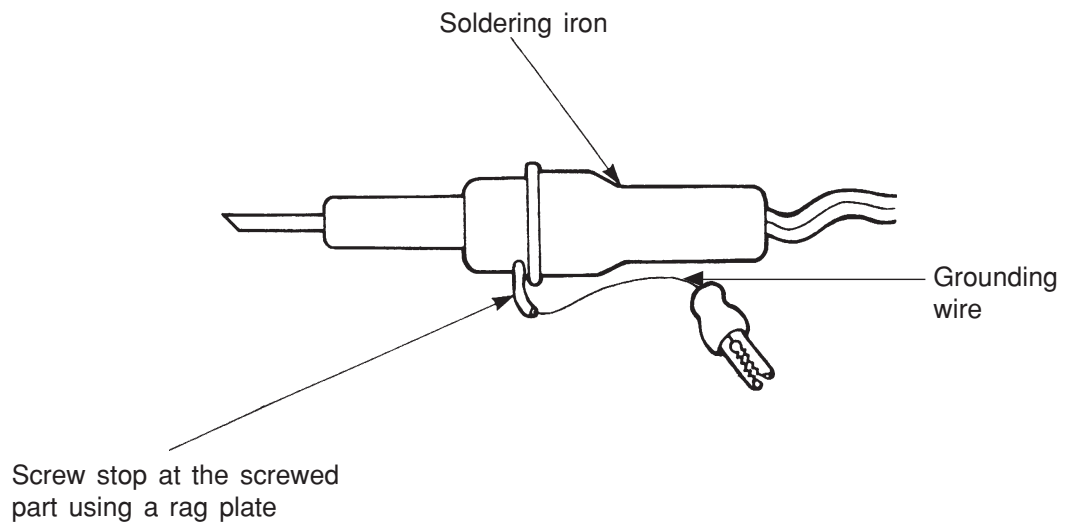


Fig. 4. Grounding a soldering iron

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 shortcircuit a load circuit or the like.

⚠ CAUTION

1. In quiet operation or stopping the running, 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 to disconnect the power cord plug from the power outlet for safety.
3. If the room air conditioner is stopped by setting the temperature or mis-operation, and then re-started in a moment, cooling 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.
4. This room air conditioner should not be used at the cooling operation when the outside temperature is below 20°C.
5. When the operation knob is set to “COOL” from another position, IC delay circuit functions and stops the compressor for the first 3 minutes, which is not an abnormal phenomenon.

SPECIFICATIONS

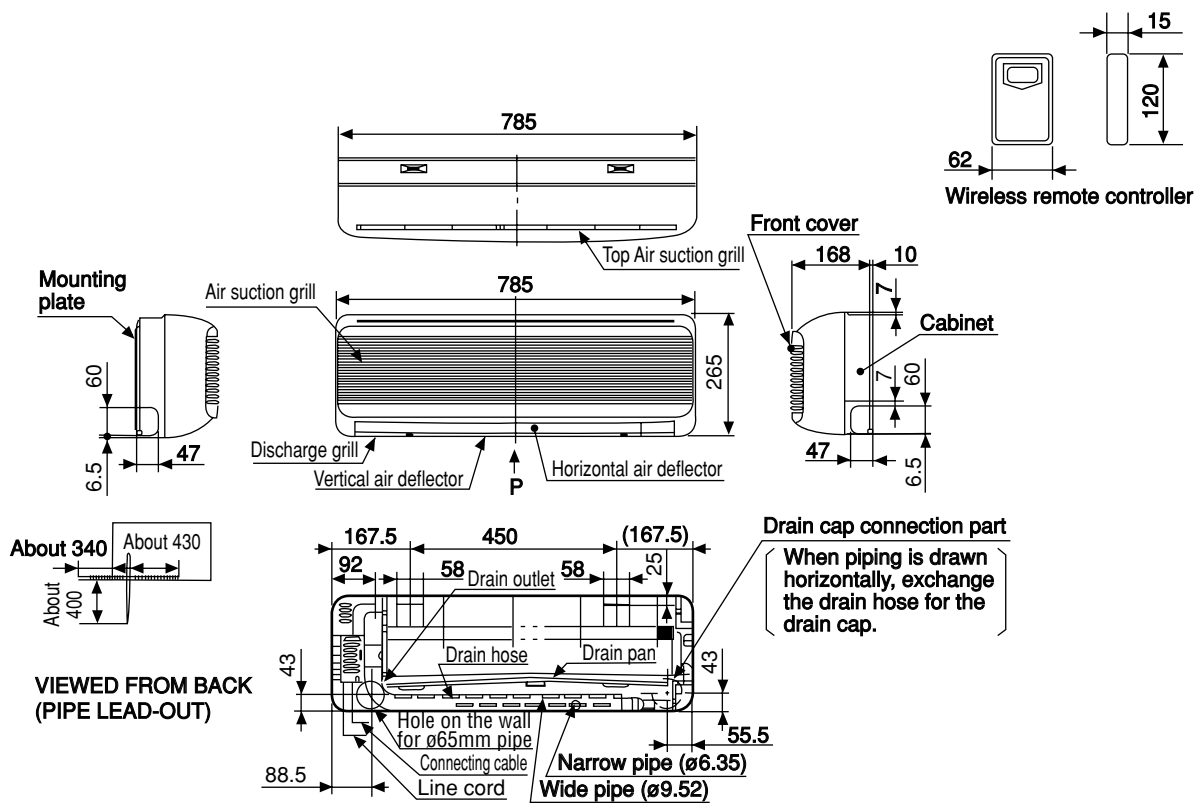
MODEL		RAS-07CH1	RAC-07CHV1	RAS-09CH1	RAC-09CHV1
FAN MOTOR		20 W	20 W	20 W	20 W
FAN MOTOR CAPACITOR		NO	1.5 μ F, 400 V	NO	1.5 μ F, 400 V
FAN MOTOR PROTECTOR		NO	YES (INTERNAL)	NO	YES (INTERNAL)
COMPRESSOR		NO	G333DB2Z	NO	G533QB9Z
COMPRESSOR MOTOR CAPACITOR		NO	30 μ F, 400 V	NO	30 μ F, 400 V
OVERLOAD PROTECTOR		NO	YES	NO	YES
OVERHEAT PROTECTOR		NO	YES	NO	YES
FUSE (for MICRO COMPUTER)		NO	3.15A	NO	3.15A
POWER RELAY, STICK RELAY		NO	G4A	NO	G4A
POWER SWITCH		YES	NO	YES	NO
TEMPORARY SWITCH		YES	NO	YES	NO
SERVICE SWITCH		NO	YES	NO	YES
TRANSFORMER		NO	NO	NO	NO
VARISTOR		NO	450NR	NO	450NR
NOISE SUPPRESSOR		NO	NO	NO	NO
REMOTE CONTROL SWITCH (LIQUID CRYSTAL)		YES	NO	YES	NO
THERMOSTAT		YES (IC)	NO	YES (IC)	NO
FUSE CAPACITY		10 A TIME DELAY FUSE			
REFRIGERANT CHARGING VOLUME (Refrigerant 22)	UNIT	-----	* 630g	-----	* 670g
	PIPES	WITHOUT REFRIGERANT BECAUSE COUPLING IS FLARE TYPE. P - 105 VK1 (5m), P - 108 VK1 (8m)			

* 630g for piping set of 5~8m.

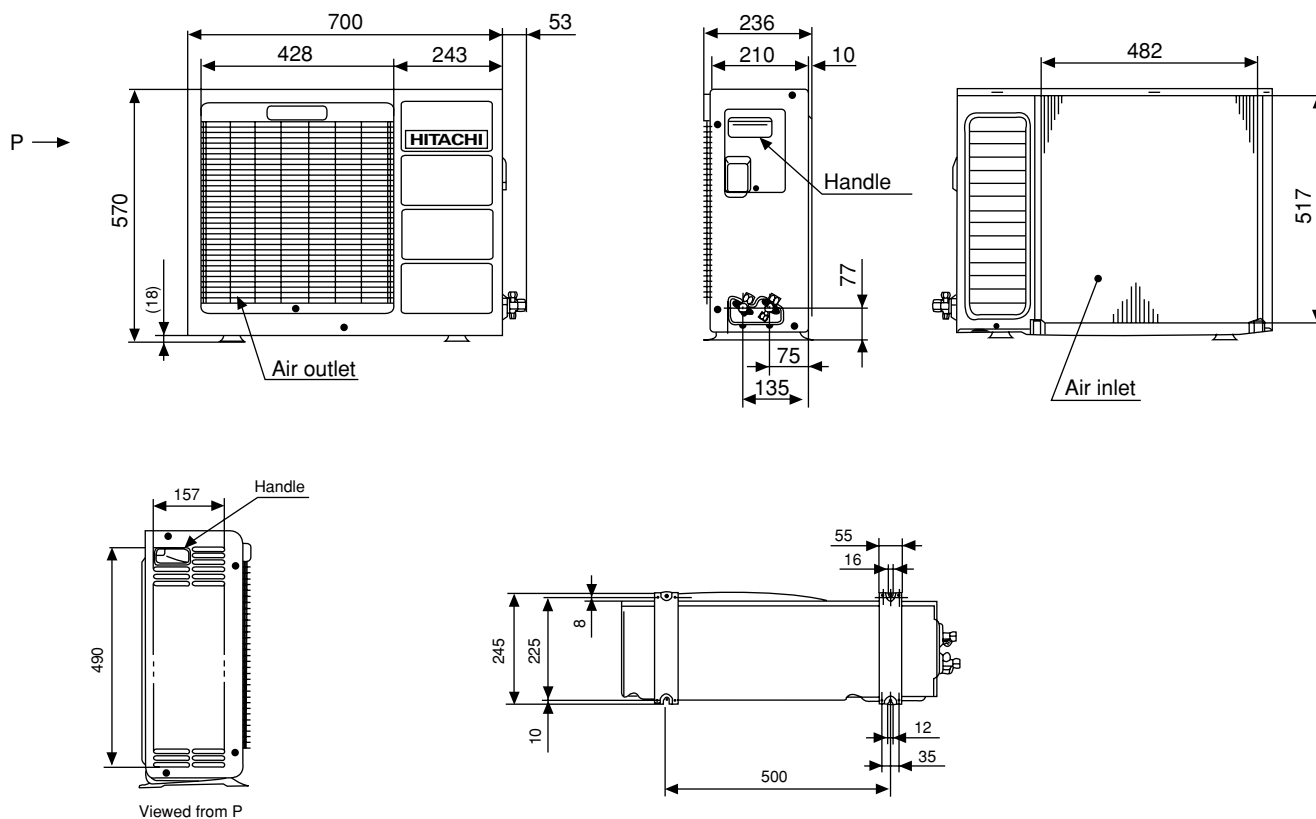
* 670g for piping set of 5~8m.

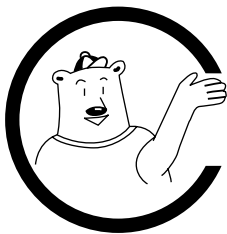
CONSTRUCTION AND DIMENSIONAL DIAGRAM

MODEL RAS-07CH1, RAS-09CH1



MODEL RAC-07CHV1, RAC-09CHV1

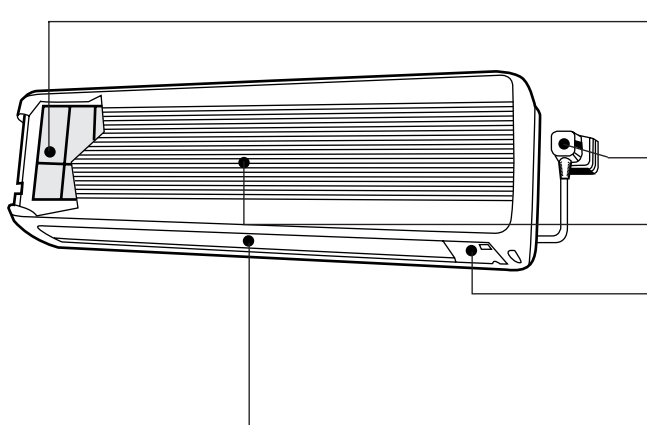




NAMES AND FUNCTIONS OF EACH PART

COOLING UNIT

RAS-07CH1, RAS-09CH1



AIR FILTER

To prevent dust from coming into the indoor unit.
(Refer page 17)

POWER PLUG (NOT PROVIDED)

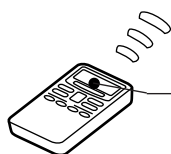
SUCTION GRILL (AIR INLET).

COOLING UNIT INDICATORS

Light indicator showing the operating condition.
(Refer page 8)

HORIZONTAL DEFLECTOR • VERTICAL DEFLECTOR (AIR OUTLET)

(Refer page 14)

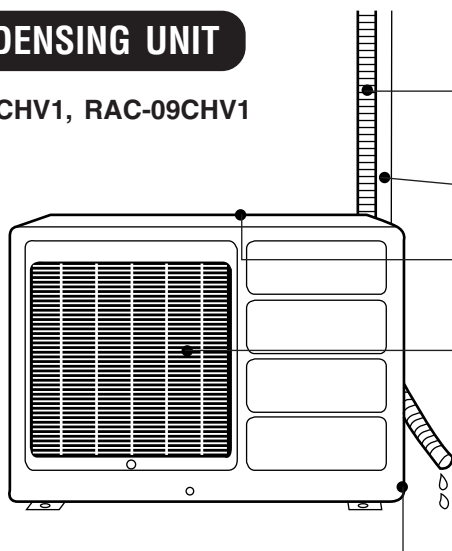


REMOTE CONTROL

Send out operation signal to the indoor unit. So as to operate the whole unit.
(Refer page 9)

CONDENSING UNIT

RAC-07CHV1, RAC-09CHV1



DRAIN PIPE

Condensed water drain to outside.

CONNECTING CORD

AIR INLET (BACK, LEFT SIDE)

AIR OUTLET

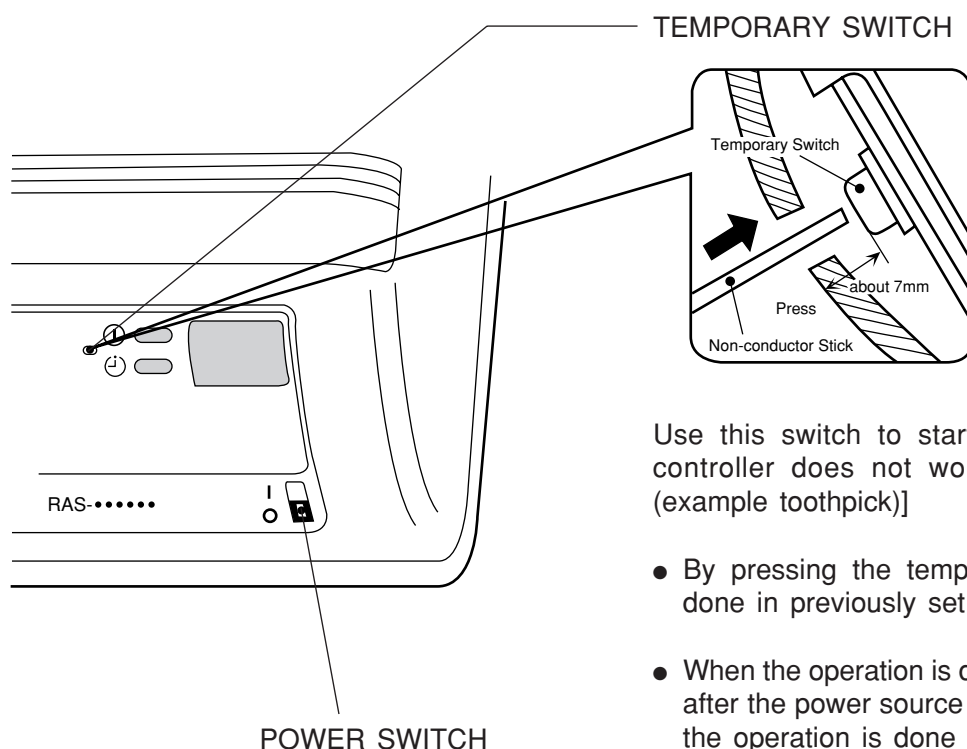
Blow out warm air.

EARTH WIRE SCREW

MODEL NAME AND DIMENSIONS

MODEL	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
RAS-07CH1, RAS-09CH1	785	265	168
RAC-07CHV1, RAC-09CHV1	700	570	210

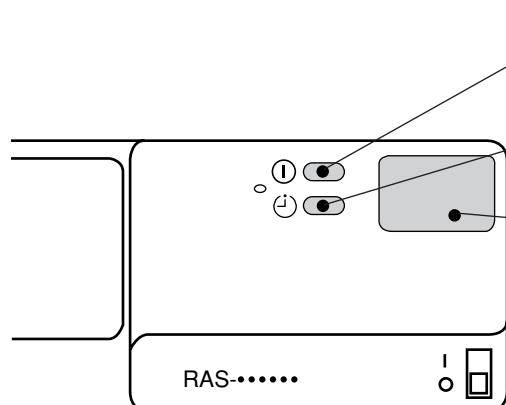
OPERATION INDICATOR



Use this switch to start and stop when the remote controller does not work. [Use non-conductor stick (example toothpick)]

- By pressing the temporary switch, the operation is done in previously set operation 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.

COOLING UNIT INDICATORS



OPERATION LAMP

This lamp lights during operation.

TIMER LAMP

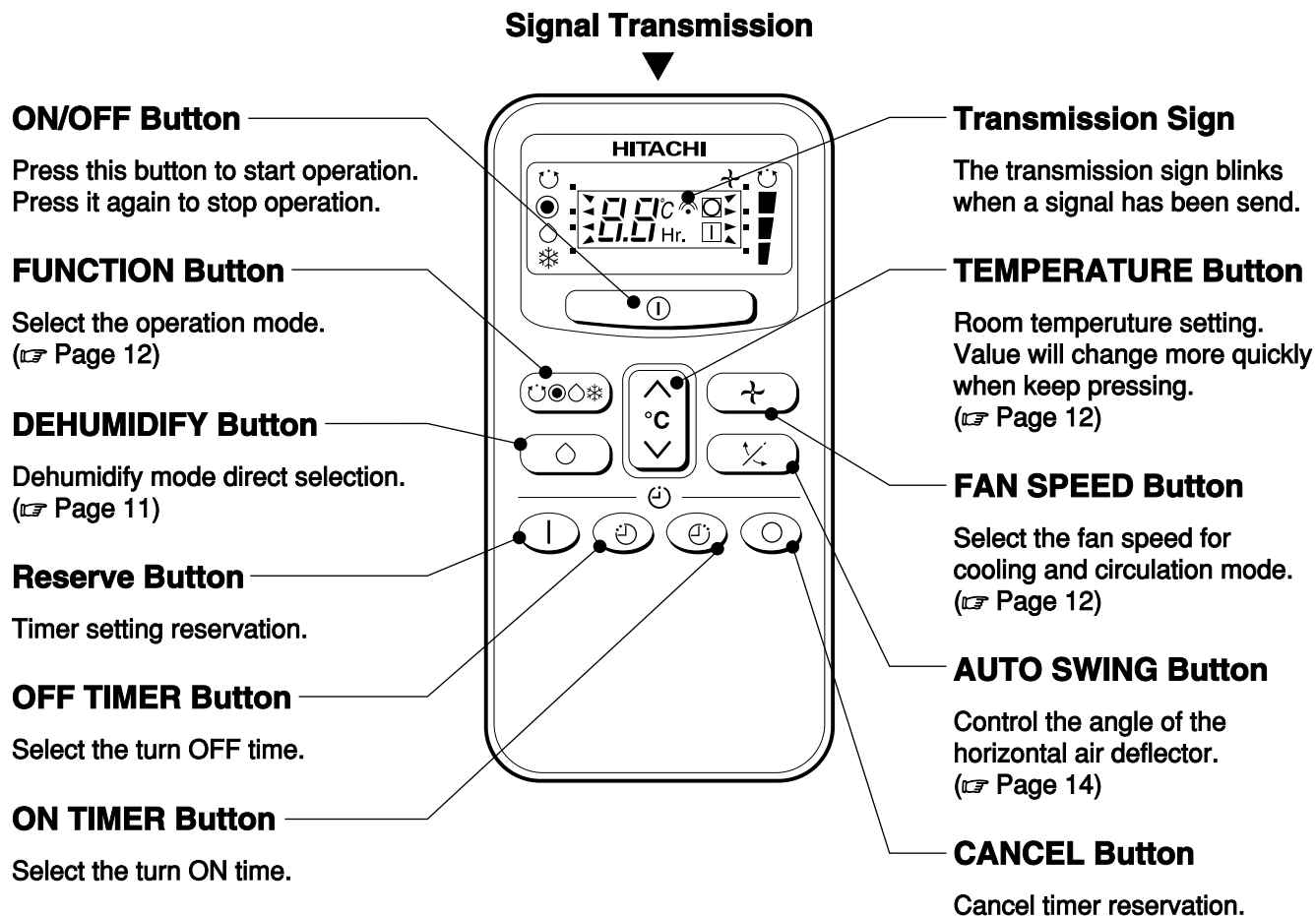
This lamp lights when the timer is working.

SIGNAL RECEIVER

There will be a beep sound when this receiver receive signal from remote controller.

NAMES AND FUNCTIONS OF REMOTE CONTROL UNIT

- This controls the operation function and timer setting of the room air conditioner. The range of control is about 4 meters. If indoor lighting is controlled electronically, the range of control may be shorter.

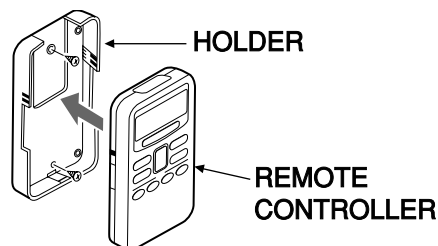


Precautions for Use

- Do not put the remote controller in direct sunlight and high temperature.
- Do not drop it on the floor, and protect it from water.
- If you press the FUNCTION selector button during operation, the air conditioner may stop for about 3 minutes for protection before you can start it again. (unless you turn off and on again the power source)

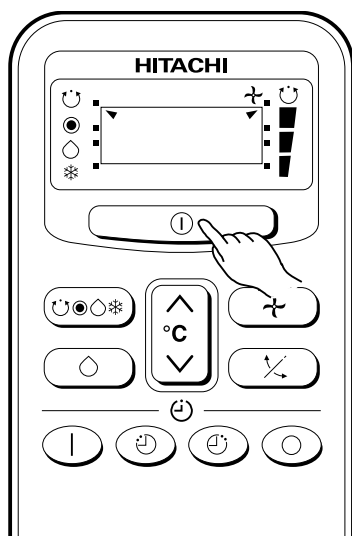
You can use the remote controller by fixing it on the wall with the accessory parts.

- Before fixing it, make sure the unit can be controlled by the remote control unit at the fixing position.



AUTOMATIC OPERATION

- The device will automatically determine the operation mode either HEAT, COOL or DEHUMIDIFY, depending on the initial room temperature.



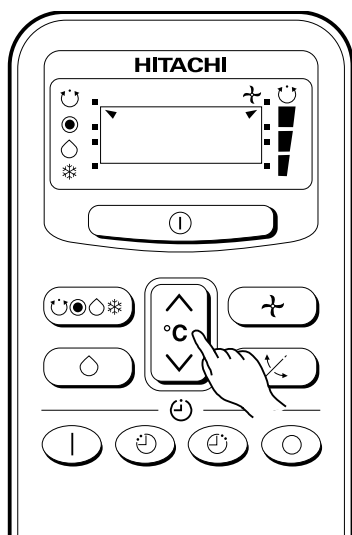
1 Press the (START/STOP) button

- Operation start with a “beep”.

STOP Press the (START/STOP) button

- Please make sure you have been selected the  (Automatic) mode by use the  (FUNCTION) Button.
- The fan speed selector does not work at this operation.

- You can slightly adjust the room temperature.



1 Press the (ROOM TEMPERATURE) button

- Temperature setting change by 1°C for each 1 time press.



- You can raise or lower the temperature setting by a maximum of 3°C.
- The display does not indicate the preset temperature in the Automatic mode. Device will receive the setting by a “beep”.

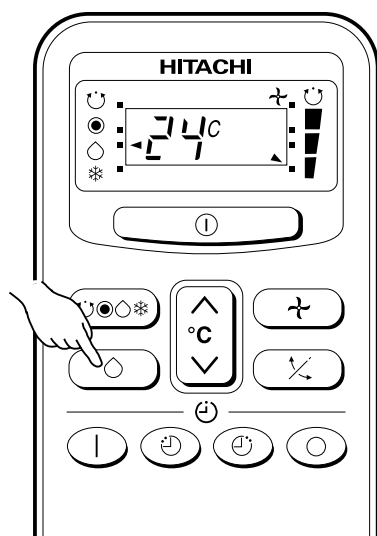
■ CONDITION OF AUTOMATIC OPERATION

- The selected mode of operation will not change during the operation even though the room temperature change.

INITIAL ROOM TEMPERATURE (APPROX.)	FUNCTION	TEMPERATURE SETTING	FAN SPEED
Over 27°C	COOL	27°C	HIGH at start, LOW after the preset temperature is reached
23 ~ 27°C	DEHUMIDIFY	Slightly lower than the room temperature	LOW
Under 23°C	HEAT	23°C	HIGH at start, MED or LOW after the preset temperature is reached

ENERGY SAVE DEHUMIDIFYING OPERATION

■ Use the device for dehumidifying when the room temperature is over 16°C.



1 Press the (1) (DEHUMIDIFY) button

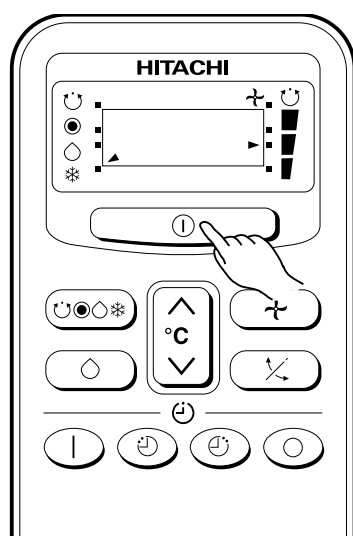
- Operation start with a “beep” sound.

STOP Press the (1) (START/STOP) button

- When you want to change the operation mode, please use the (FUNCTION) Button.
- Set the desired temperature is available.
- You also can use the function mode button to select this operation.

HEATING OPERATION

■ Use the device for heating when the outdoor temperature is under 21°C.



1 Press the (1) (START/STOP) button

- Operation start with a “beep” sound.

STOP Press the (1) (START/STOP) button

- Make sure the (Heat) mode have been selected by using the (FUNCTION) button.
- You can select the fan speed and desired temperature.
- The range of 18-20°C is recommended as the room temperature for heating. If the temperature setting is 20°C, the room temperature will be controlled at around 20°C.
- The temperature setting and the actual room temperature may vary somewhat depending on conditions.
- As the settings are stored in memory of the remote controller, you only have to press the (1) (START/STOP) button next time.

Auto Fresh Defrosting will work in the following cases:

Auto Fresh Defrosting will start when even heating operation has stopped with the (1) (START/STOP) button pressed, during the off-timer operates or when the outdoor heat exchanger is cold. This defrosting will last for 5-10 minutes.

MANUAL OPERATION [Heating • Dehumidify • Cooling]

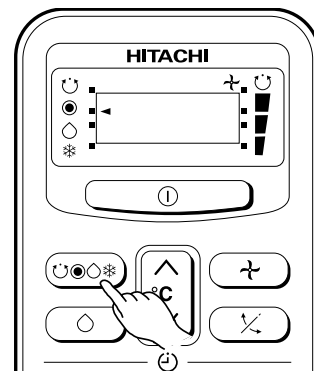
- Please use under below condition when you want to set the function mode, room temperature and fan speed by manually.

HEATING	DEHUMIDIFYING	COOLING
Outdoor Temperature 21°C below	Room Temperature 16°C above	Outdoor Temperature 22-42°C

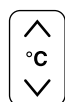
1 OPERATION MODE SELECTION

- Every time you press the button, the mode will change as the below sequence

☺ (Auto) → ● (Heat) → ○ (Dehumidify) → ❄ (Cool)



2 ROOM TEMPERATURE SETTING

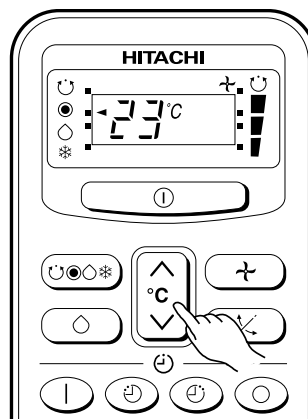


◀ Up
◀ Down

■ Recommend Temperature

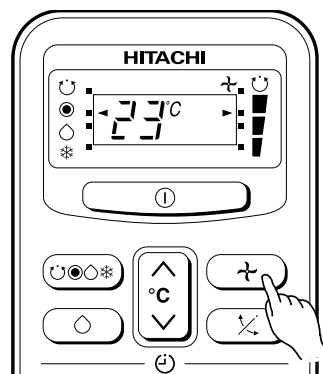
Heating	18~20°C
Dehumidify	16~26°C
Cooling	25~28°C

- The cooling operation does not start if the temperature setting is higher than the current room temperature.



3 FAN SPEED SETTING

- Every time you press the button, fan speed will change as the below sequence.
- **HEATING & COOLING } : AUTO → HIGH → LOW → QUIET**
CIRCULATION
- **DEHUMIDIFY : QUIET (FIXED)**

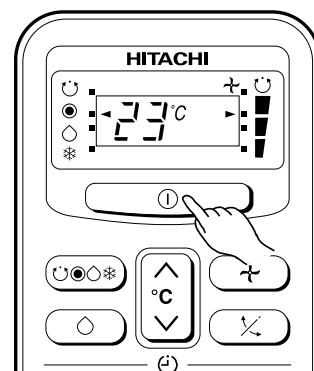


4 Press the ① (START/STOP) button

- Operation start with a signal received sound "beep".

STOP Press the ① (START/STOP) button

- As the settings are stored in memory in the remote control unit, you only have to press the ① (Start/Stop) button next time.



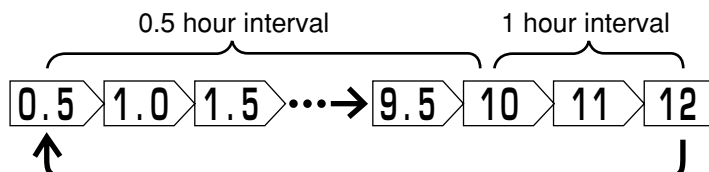
TIMER RESERVATION

■ ON Timer and OFF Timer are available.

OFF Timer Reservation

1 OFF TIME setting

- Select the OFF TIME by pressing the  (OFF) Button.
- Setting time will change according to the below sequence when you press the button.



- The value change more quickly if you keep pressing the button.

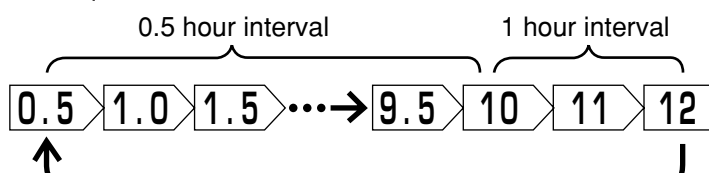
2 Press the (Reserve) button

- OFF TIMER reserved with a signal received sound "beep".
- The  (OFF) Mark starts lighting instead of blinding.

ON Timer Reservation

1 ON TIME setting

- Select the ON TIMER by pressing the  (ON) Button.
- At the beginning of setting, time 6 hours was set.
- Setting time will change according to the below sequence.



- The value change more quickly if you keep pressing the button.

2 Press the (Reserve) button

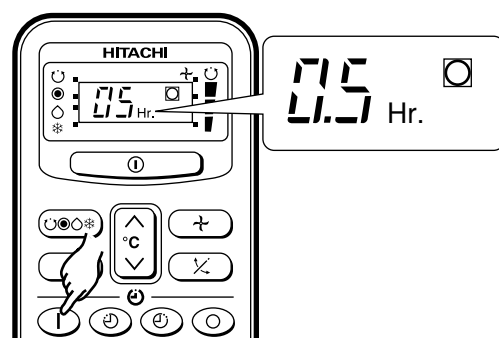
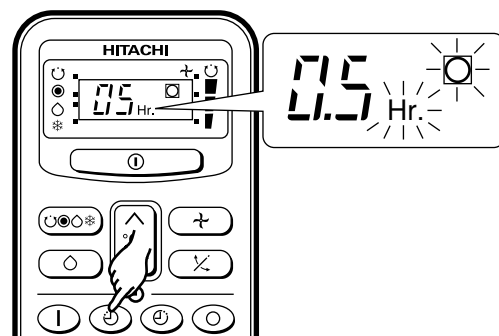
- ON TIMER reserved with a signal received sound "beep".
- The  (ON) Mark starts lighting instead of blinding.

CANCELLATION of Timer Reservation

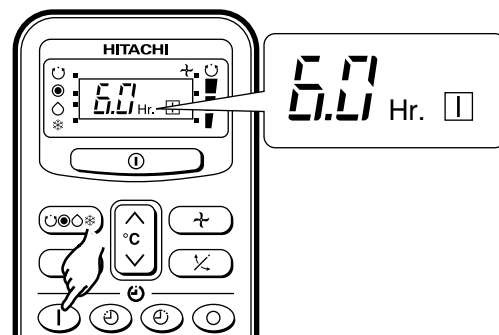
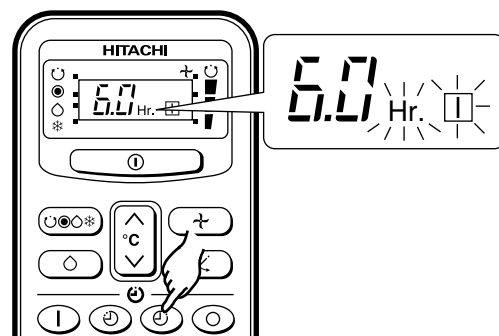
1 Press the (Cancel) button

- As the time settings are stored in remote controller memory, you only have to press the  (Reserve) button in order to use the same setting next time.

■ Operation stop at setting time



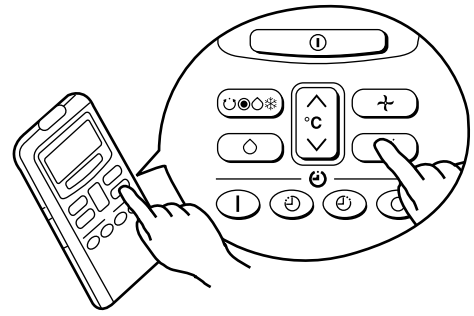
■ Operation will start for setting temperature at setting time (The starting time may different depend on the room temperature and set temperature).



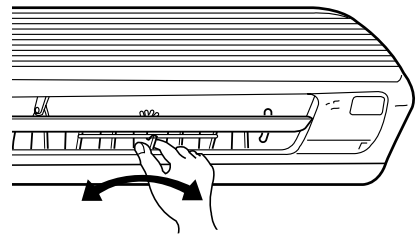
ADJUSTING THE AIR DEFLECTOR

- 1** Adjustment of the conditioned air in the upward and downward directions.

According to “Dehumidifying” or “Cooling” operation, the horizontal air deflector is automatically set to the proper angle suitable for each operation. The deflector can be swung up and down and also set to the desired angle using the “ (AUTO SWING)” button. (If the angle of the deflector is changed, it will not return to the auto-set position after operations start unless the operation mode is switched.)



- If the “ (AUTO SWING)” button is pressed once, the horizontal air deflector swings up and down. If the button is pressed again, the deflector stops in its current position. Several seconds (about 12 seconds) may be required before the deflector starts to move.
- In “Cooling” operation, do not keep the horizontal air deflector swinging for a long time. Some dew may form on the horizontal air deflector and some dew drops may fall from it.



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

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

HOW TO EXCHANGE THE BATTERIES IN THE REMOTE CONTROLLER

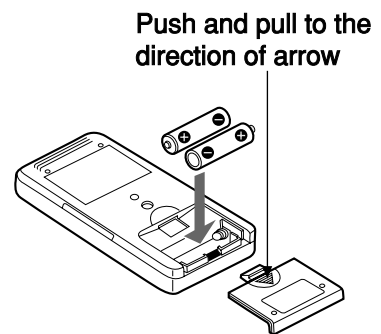
- 1** Remove the cover as shown in the figure and take out the old batteries.



- 2** Install the new batteries.
The direction of the batteries should match the marks in the case.

CAUTION

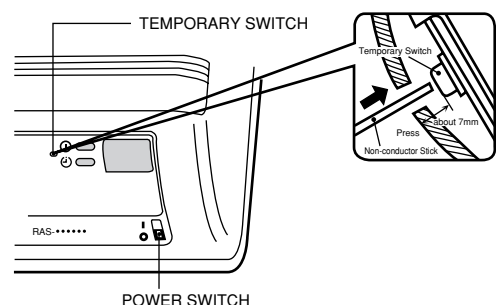
1. Do not use new and old batteries, or different kinds of batteries together.
2. Take out the batteries when you do not use the remote controller for 2 or 3 months.



TEMPORARY SWITCH

Use the temporary switch when operation can not be done with the remote controller.

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





THE IDEAL WAYS OF OPERATION

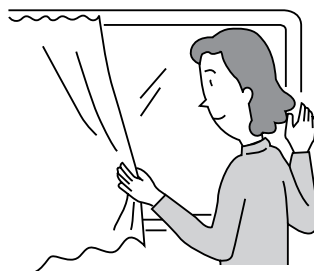
Suitable Room Temperature



Warning

Freezing temperature is bad for health and a waste of electric power.

Install curtain or blinds



It is possible to reduce heat entering the room through windows.

Ventilation



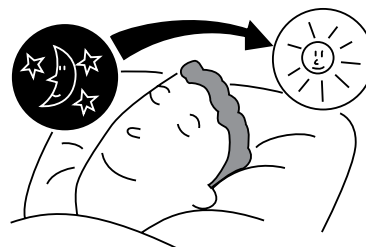
Caution

Do not close the room for a long period of time. Occasionally open the door and windows to allow the entrance of fresh air.



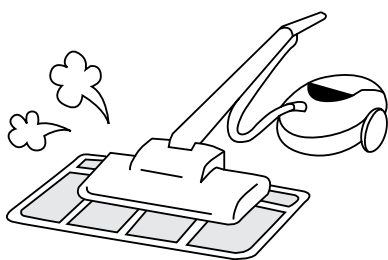
Effective Usage Of Timer

At night, please use the “sleep timer operation mode”, together with your wake up time in the morning. This will enable you to enjoy a comfortable room temperature. Please use the timer effectively.



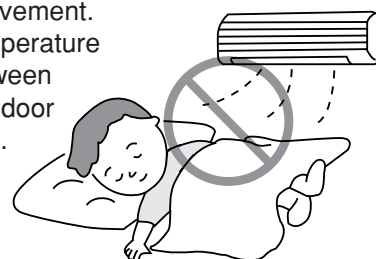
Do Not Forget To Clean The Air Filter

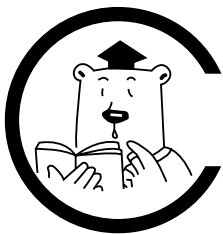
Dusty air filter will reduce the air volume and the cooling efficiency. To prevent from wasting electric energy, please clean the filter every 2 weeks.



Please Adjust Suitable Temperature For Baby And Children

Please pay attention to the room temperature and air flow direction when operating the unit for baby, children and old folks who have difficulty in movement. (The ideal temperature difference between outdoor and indoor is about $\pm 5^{\circ}\text{C}$).



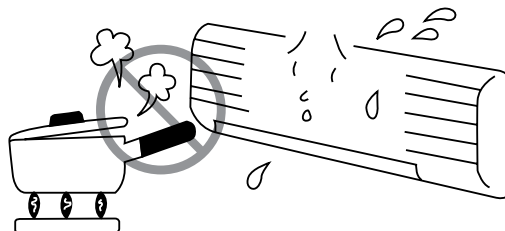


FOR USER'S INFORMATION

The Air Conditioner And The Heat Source In The Room

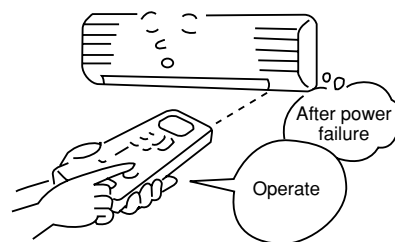
⚠ Caution

If the amount of heat in the room is above the cooling capability of the air conditioner (for example: more people entering the room, using heating equipments and etc.), the preset room temperature cannot be achieved.



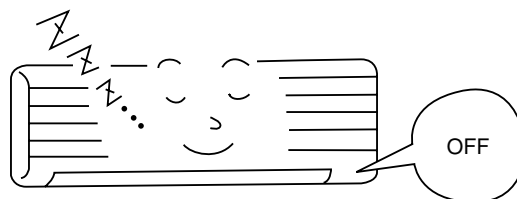
After Power Failure

When the power is resumed after a power failure, the indoor unit will still remain "OFF". To operate the unit, please press the "ON/OFF" button again.



Not Operating For A Long Time

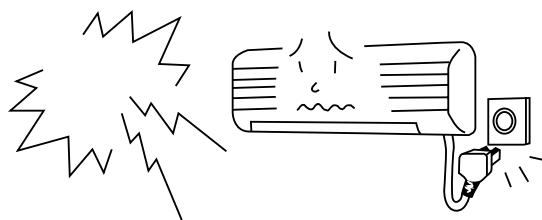
When the indoor unit is not to be used for a long period of time, please switch off the power from the mains. If the power from mains remains "ON", the indoor unit still consumes about 4W in the operation control circuit even if it is in "OFF" mode.

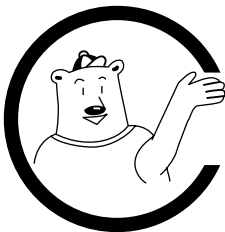


When Lightning Occurs

⚠ Warning

To protect the whole unit during lightning, please stop operating the unit and remove the plug from the socket.





MAINTENANCE

CAUTION

Before the cleaning, stop operation and disconnect the power supply.

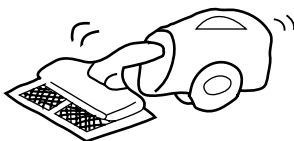
1. AIR FILTER

Clean the air filter, as it removes dust inside the room. 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. Remove dust from the filter using a vacuum cleaner. If there is too much dust, use neutral detergent. After using neutral detergent, wash with clean water and dry in the shade.

2. Install the filters.
(Set them with "FRONT" mark facing front.)
Slot in the filter to the original state.



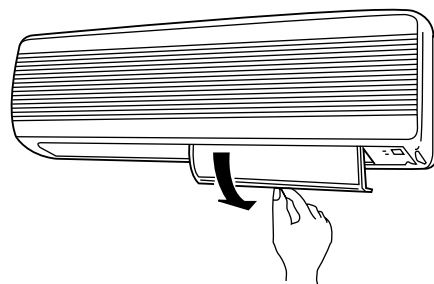
CAUTION

- 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.
- Do not operate the air conditioner with the filter removed. Dust may enter the air conditioner and cause trouble.

NOTE:

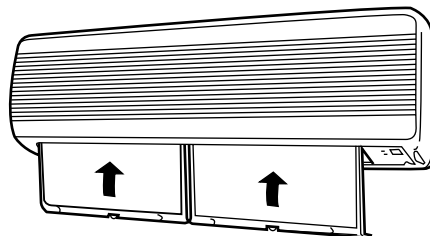
- This model has an air cleaning filter. The cooling capacity is slightly weakened and the cooling speed becomes slower when the air cleaning filter is used. So, set the fan speed to "HIGH" when using it in this condition.
- Recommended to replace the air cleaning filter after every 3 months for normal usage. Type number for this air cleaning filter is <SPX-CFH3>. Please use this number for ordering when you want to renew it.

REMOVING METHOD



1. Press the "  (AUTO SWING)" button, let the deflector facing downward.
2. Remove the filter from the lower side as the arrow shown.

INSTALLATION METHOD



Set the filter with "FRONT" mark facing front, and slot in them to the original state.

2. CLEANING OF FRONT COVER, ETC.

- Wipe it with a soft dry cloth.
- When it is excessively dirty, wipe with a soft cloth soaked in lukewarm water or neutral detergent. Then wipe thoroughly with a soft dry cloth.
- Wipe the remote controller thoroughly with a soft dry cloth.



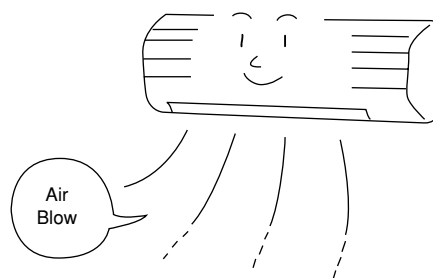
CAUTION

- 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

- Running the unit 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.
- Disconnect the power plug.



REGULAR INSPECTION

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

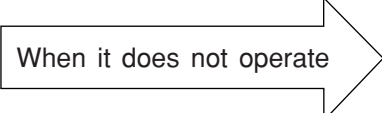
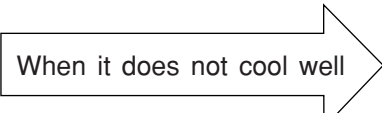
1		Is the plug of power line firmly plugged into the socket? (Please ensure no loose contact between them).
2		Is the earth line disconnected or broken?
3		Is the mounting frame seriously affected by rust and is the outdoor unit tilted or unstable?



AFTER SALE SERVICE AND WARRANTY

1

WHEN ASKING FOR SERVICE, CHECK THE FOLLOWING POINTS.

CONDITION	CHECK THE FOLLOWING POINTS
 When it does not operate	● Is the fuse all right? ● Is the voltage extremely high or low? ● Is the power switch "ON"?
 When it does not cool well	● Is the air filter blocked with dust? ● Does sunlight fall directly on the condensing unit? ● Is the air flow of the condensing unit obstructed? ● Are the doors or windows opened, or is there any source of heat in the room? ● Is the set temperature suitable?



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.

MAIN PARTS COMPONENT

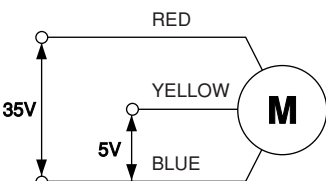
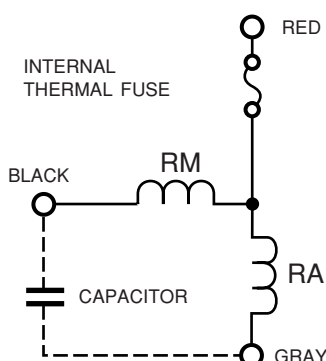
THERMOSTAT

Thermostat Specifications

MODEL			RAS-07CH1, RAS-09CH1
THERMOSTAT MODEL			IC
TEMPERATURE °C (°F)	INDICATION 16	ON	17.6 (63.7)
		OFF	16.6 (61.8)
	INDICATION 24	ON	25.6 (78.1)
		OFF	24.6 (76.3)
	INDICATION 32	ON	33.6 (92.5)
		OFF	32.6 (90.7)

FAN MOTOR

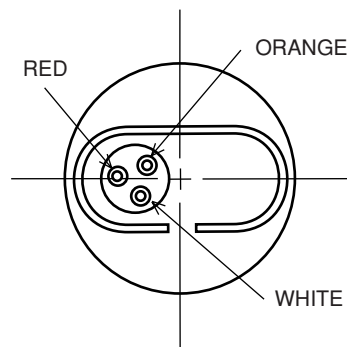
Fan Motor Specifications

MODEL		RAS-07CH1 RAS-09CH1	RAC-07CHV1 RAC-09CHV1
PHASE		————	SINGLE
RATED VOLTAGE		DC0 – 35 V	220 – 240 V
RATED FREQUENCY		————	50 Hz
OUTPUT		20 W	20 W
POLE NUMBER		————	6
CONNECTION			
RESISTANCE VALUE (Ω)	20°C (68°F)	————	RA = 348.16 RM = 284.61
	75°C (167°F)	————	RA = 423.40 RM = 346.12

COMPRESSOR MOTOR

Compressor Motor Specifications

MODEL		RAC-07CHV1	RAC-09CHV1
COMPRESSOR MODEL		G333DB2Z	G533QB9Z
PHASE		SINGLE	SINGLE
RATED VOLTAGE		220 – 240 V	220 – 240 V
RATED FREQUENCY		50 Hz	50 Hz
LOCKED ROTOR CURRENT		22 A	22 A
POLE NUMBER		2	2
CONNECTION			
RESISTANCE VALUE (Ω)	20°C (68°F)	RA = 4.027 RM = 3.938	RA = 4.372 RM = 3.154
	75°C (167°F)	RA = 4.896 RM = 4.787	RA = 5.315 RM = 3.834



CAUTION

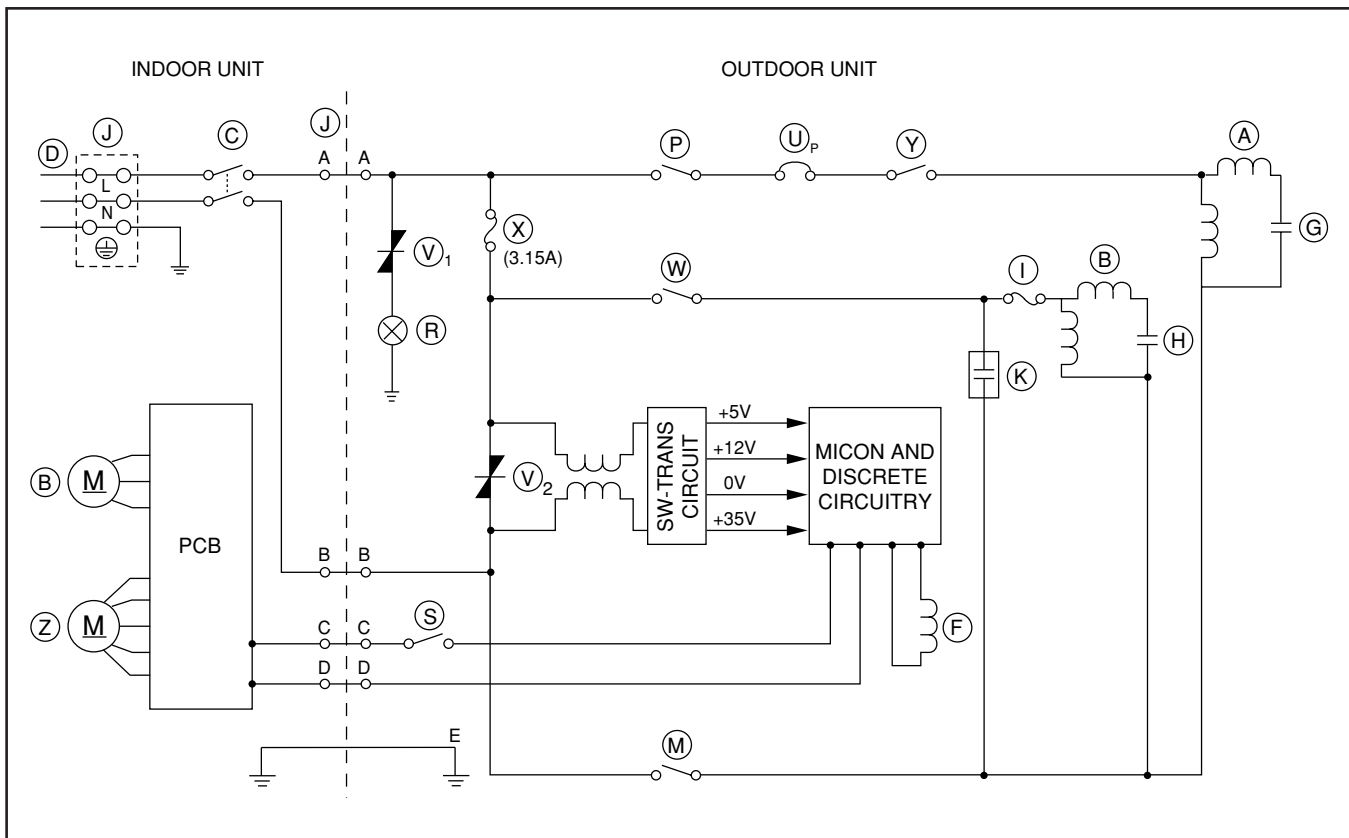
When the refrigerating cycle has been operated for a long time with the capillary tubes clogged or crushed or with too little refrigerant, check the color of the refrigerating machine oil inside the compressor. If the color has been changed conspicuously, replace the compressor.

WIRING DIAGRAM

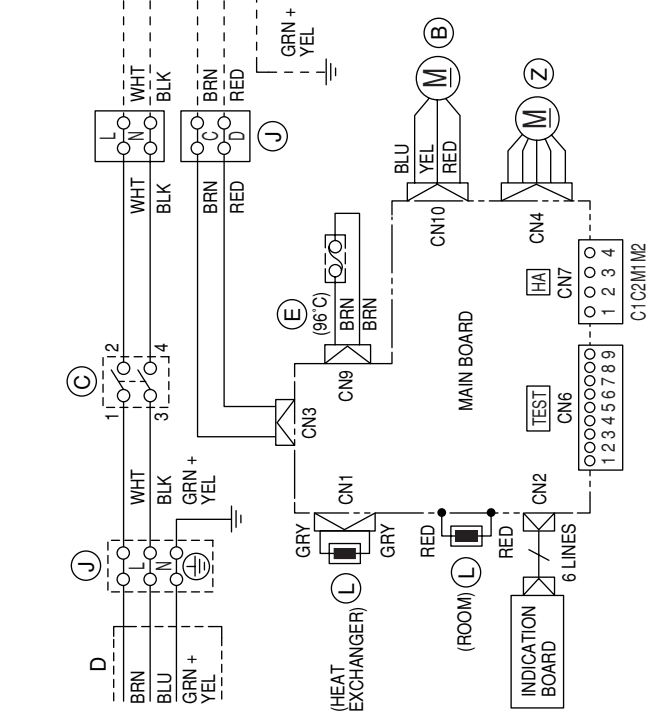
MODEL RAS-07CH1 / RAC-07CHV1
RAS-09CH1 / RAC-09CHV1

- | | |
|---|------------------------------------|
| (A) : COMPRESSOR | (L) : THERMISTOR |
| (B) : FAN MOTOR | (M) : STICK RELAY |
| (C) : POWER SWITCH | (N) : NOISE FILTER |
| (D) : LINE-CORD | (P) : POWER RELAY |
| (E) : THERMAL FUSE (FOR TERMINAL BOARD) | (R) : SURGE ASSORBER |
| (F) : REVERSING VALVE | (S) : INTERFACE RELAY |
| (G) : 30 μ F CAPACITOR | (U _p) : OVERLOAD RELAY |
| (H) : 1.5 μ F CAPACITOR | (V) : VARISTOR |
| (I) : FAN MOTOR PROTECTOR | (W) : OUTDOOR FAN RELAY |
| (J) : TERMINAL BOARD | (X) : FUSE |
| (K) : SPARK KILLER | (Y) : OVERHEAT RELAY |
| | (Z) : AUTO SWEEP MOTOR |

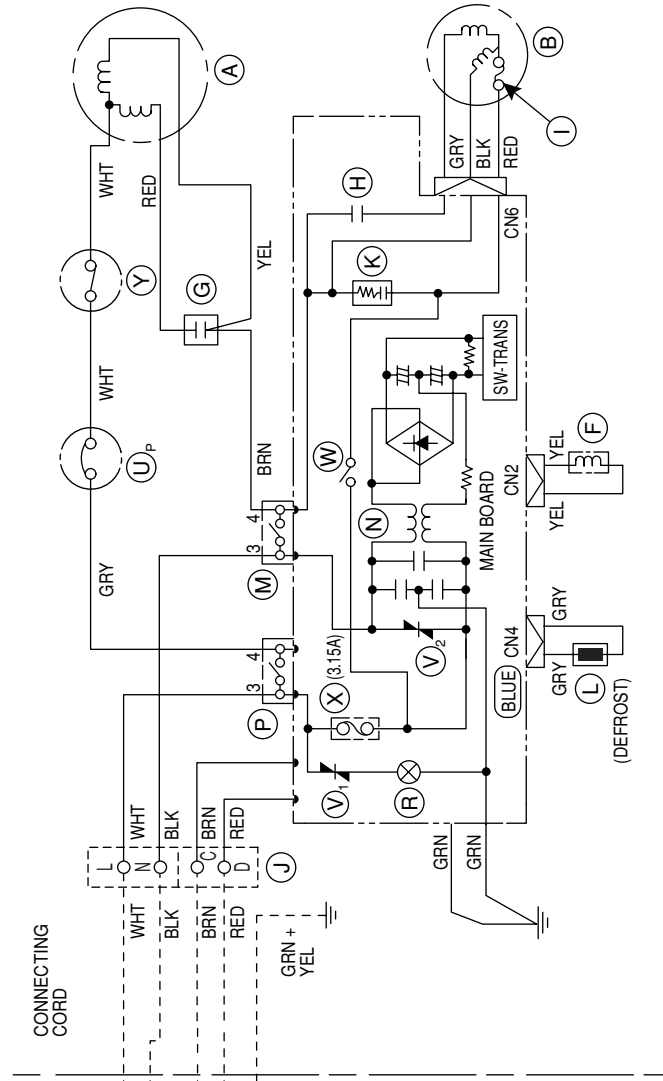
BLU : BLUE	YEL : YELLOW	BRN : BROWN	WHT : WHITE
GRY : GRAY	ORN : ORANGE	GRN : GREEN	RED : RED
BLK : BLACK	PNK : PINK	VIO : VIOLET	



COOLING UNIT



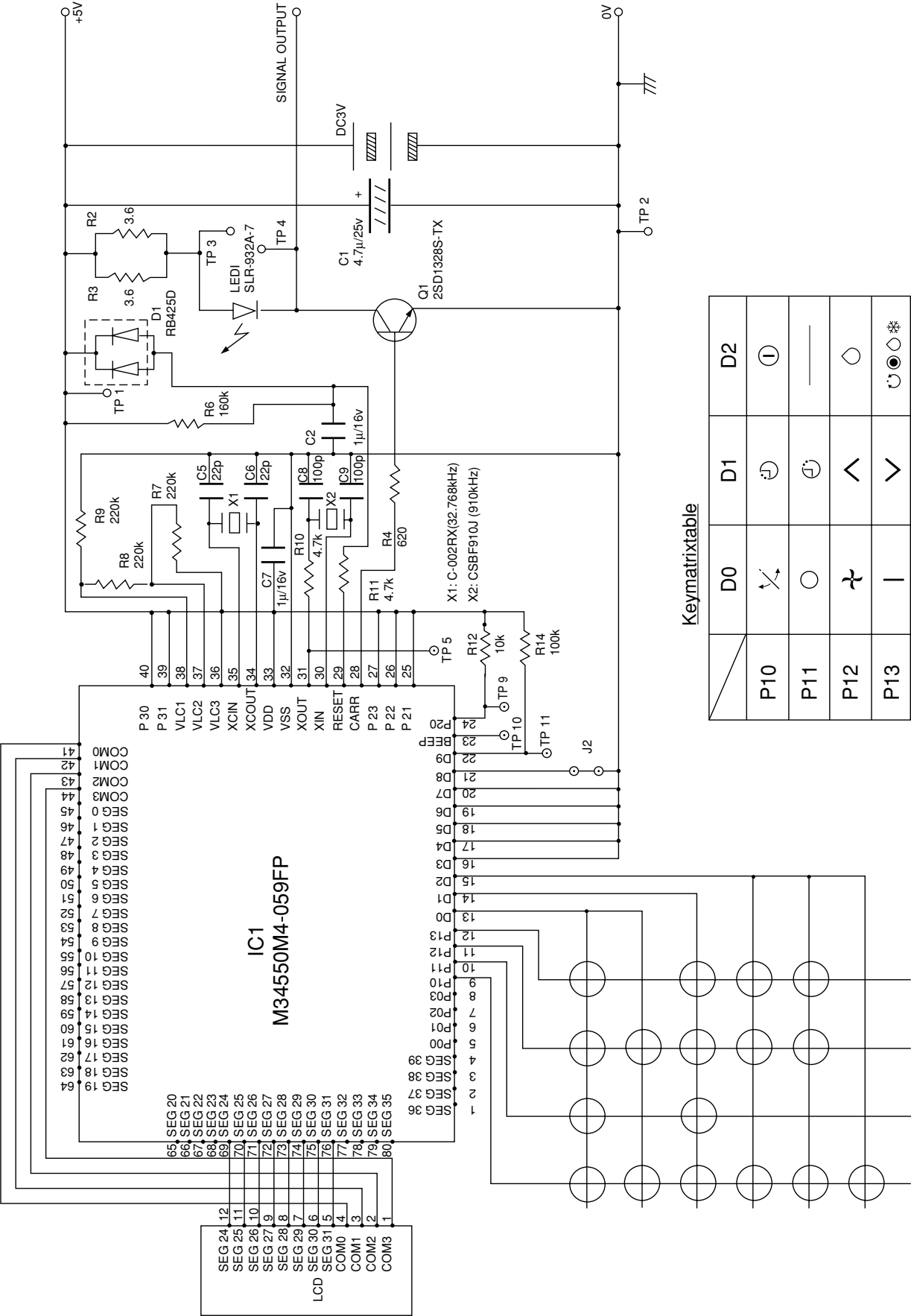
CONDENSING UNIT



WIRING DIAGRAM OF THE PRINTED WIRING BOARD

MODEL RAS-07CH1, RAS-09CH1

Remote control switch (RAR-M0Z)



MODEL RAS-07CH1, RAS-09CH1

RESISTOR (Ω)

J ... $\pm 5\%$, G ... $\pm 2\%$, F ... $\pm 1\%$,

SIGN	RATING VALUE		
	RESISTANCE (Ω)	TOLERANCE	POWER (W)
R101	1.0	J	1/4
R102	10K	G	1/10
R103	1.2K	G	1/10
R104	1.0	J	1/4
R201	10K	J	1/10
R202	10K	J	1/10
R203	2.7K	J	1/10
R204	5.1K	J	1/10
R205	1M	J	1/10
R206	10K	J	1/10
R208	5.1K	J	1/10
R209	10K	J	1/10
R210	12K	J	1/10
R211	12K	J	1/10
R302	1K	J	1/10
R303	10K	J	1/10
R304	62K	J	1/10
R305	27K	J	1/10
R306	15K	J	1/10
R307	1K	J	1/10
R308	12.7K	F	1/10
R309	1K	J	1/10
R310	12.7K	F	1/10
R311	1K	J	1/10
R312	10K	J	1/10
R401	390	J	1/10
R402	390	J	1/10
R403	390	J	1/10
R404	390	J	1/10
R405	5.1K	J	1/10
R406	5.1K	J	1/10
R407	10K	J	1/10
R408	10K	J	1/10
R409	10K	J	1/10
R410	10K	J	1/10
R601	10K	J	1/10
R603	10K	J	1/10
R606	10K	J	1/10
R607	10K	J	1/10
R608	1K	J	1/10
R609	1K	J	1/10
R610	1K	J	1/10
R611	10K	J	1/10
R702	390	J	1/10
R703	200	J	1/10
R705	1K	J	1/10
R709	1K	J	1/4
R710	1K	J	1/4
R801	3.3K	J	1/10
R802	1K	J	1/10
R810	5.1K	J	1/10
R811	5.1K	J	1/10

R812	20	J	1/4
R813	20	J	1/4
R901	20K	F	1/10
R902	300	J	1/10
R903	2.21K	F	1/10
R904	2K	J	2
R905	2K	J	2
R906	1.5	J	1/4
R909	1.5	J	1/4
R910	1.5	J	1/4
R911	1.5	J	1/4
R915	1.5	J	1/4
R920	3.3K	J	1/10
R921	3.3K	J	1/10
R930	1K	F	1/10
R931	8.25K	F	1/10
R932	5.1K	J	1/10

CAPACITOR

TYPE C ... CERAMIC CAPACITOR
D ... ELECTROLYTIC CAPACITOR
F ... FILM CAPACITOR

SIGN	RATING VALUE		
	CAPACITANCE (F)	VOLTAGE (V)	TYPE
C101	470 μ	50	D
C102	150 μ	35	D
C103	100 μ	10	D
C104	0.1 μ	25	C
C105	220P	50	C
C107	0.47 μ	25	C
C108	0.022 μ	50	C
C201	33 μ	10	D
C202	0.047 μ	25	C
C205	0.1 μ	25	C
C206	0.1 μ	25	C
C301	0.047 μ	25	C
C302	0.047 μ	25	C
C303	0.047 μ	25	C
C401	0.047 μ	25	C
C601	0.047 μ	25	C
C701	33 μ	10	C
C702	1000P	50	C
C801	3300P	50	F
C802	30P	50	C
C803	0.022 μ	50	C
C804	0.01 μ	50	C
C805	0.22 μ	50	F
C806	150P	50	C
C807	0.22 μ	50	F
C901	220 μ	50	D
C933	10 μ	16	C
C940	10 μ	16	C
C942	0.1 μ	25	C

TRANSISTOR

SIGN	MODEL
Q201	2SC2462LC
Q202	2SA1121SC
Q903	2SA1469S
Q904	2SC3624

DIODE

SIGN	MODEL
D101	G4DL-6140
D102	D1FS6
D201	HSM2838C
D401	HSM2838C
D403	HSM2836C
D901	D1FL20U
D902	LFB01

LED

SIGN	MODEL	COLOUR
LD702	SLR-332DC3F	ORANGE
LD703	SLR-332YC3F	YELLOW

ZENER DIODE

SIGN	MODEL
ZD201	RLZ24
ZD202	RLZ10
ZD701	RD5.1UJN2

INDUCTOR

SIGN	MODEL
L101	82 μ H, 1.3A
L102	560 μ H, 0.6A
L901	450 μ H, 1.5A

IC

SIGN	MODEL
REG1	IR3M03AN
REG2	MC7805CT
IC1	HD6433714
IC401	X24C01SI
IC501	ULN2003ANS
ICP	ICP-S0.5

OSCILLATOR

MODEL	EF0EC8004A4
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MODEL RAC-07CHV1, RAC-09CHV1

RESISTOR (Ω)

J ... ±5%, G ... ±2%, F ... ±1%,

SIGN	RATING VALUE		
	RESISTANCE (Ω)	TOLERANCE	POWER (W)
R100	—	—	—
R201	470K	J	1/4
R202	470K	J	1/4
R203	100K	J	2
R205	47	J	2
R206	47	J	2
R207	—	—	—
R209	33	J	2
R210	430	J	1/4
R211	—	—	—
R212	100	J	1/6
R213	330	J	1/6
R214	4.7K	J	1/6
R215	5.76K	F	1/6
R216	1.47K	F	1/6
R217	1.3K	J	2
R218	1.3K	J	2
R219	1.3K	J	2
R220	1.3K	J	2
R301	3.6K	J	1/6
R302	10K	J	1/6
R303	—	—	—
R304	100	J	1/6
R305	10K	J	1/6
R306	4.7K	J	1/6
R307	—	—	—
R308	5.9K	F	1/6
R309	10K	J	1/6
R310	5.1K	J	1/6
R311	100K	J	1/6
R312	1K	J	1/6
R313	1M	J	1/6
R314	680	J	1/6
R315	10K	J	1/6
R316	10K	J	1/6
R317	10K	J	1/6
R401	390	J	1/6
R402	390	J	1/6
R403	5.1K	J	1/6
R404	5.1K	J	1/6
R405	390	J	1/6
R406	390	J	1/6
R501	5.1K	J	1/6
R502	20	J	1/4
R503	20	J	1/4
R504	1K	J	1/6
R505	—	—	—
R601	2K	J	1/6
R602	10K	J	1/6

R701	3K	J	1/6
R702	10K	J	1/6
R703	5.1K	J	1/6
R704	2.7K	J	1/6
R705	5.1K	J	1/6
R802	2.2	J	5
R803	470K	J	1/2
R804	2.7K	J	1/6

CAPACITOR

TYPE C ... CERAMIC CAPACITOR
D ... ELECTROLYTIC CAPACITOR
F ... FILM CAPACITOR

SIGN	RATING VALUE		
	CAPACITANCE (F)	VOLTAGE (V)	TYPE
C201	4700P	1K	C
C202	—	—	—
C203	220P	1K	C
C204	0.056	50	F
C205	0.0047	50	F
C206	0.056	50	F
C207	2200P	250	C
C208	330	25	D
C209	100	10	D
C210	220	63	D
C211	4.7	50	D
C213	—	—	—
C301	0.047	25	C
C302	0.047	25	C
C303	0.047	25	C
C304	0.1	50	C
C305	0.1	50	C
C306	0.1	50	C
C307	0.01	25	C
C308	0.1	50	C
C401	0.1	50	C
C501	0.22	50	F
C502	0.022	50	F
C503	150P	50	C
C504	0.068	50	F
C505	0.22	50	F
C506	0.01	AC250	C
C507	0.01	AC250	C
C508	4700P	50	C
C509	0.0047	50	F
C701	33	6.3	D
C801	0.56	AC250	F
C802	0.01	AC400	C
C803	0.01	AC400	C
C804	100	450	D
C806	—	—	—
C807	—	—	—
C901	1.5	400	F

TRANSISTOR

SIGN	MODEL
Q201	2SC4300
Q202	2SC2655
Q601	2SD2019
Q701	2SC458
Q702	2SA673

DIODE

SIGN	MODEL
D201	ERB4408
D202	1SS120
D203	1SS120
D204	—
D205	RMPG06G
D206	—
D207	YG902C2
D401	1SS120
D402	1SS120
D403	1SS120
D404	1SS120
D601	1SS120

LED

SIGN	MODEL
LD801	RED

ZENER DIODE

SIGN	MODEL
ZD201	HZS2B2TA
ZD701	HZ7B2

INDUCTOR

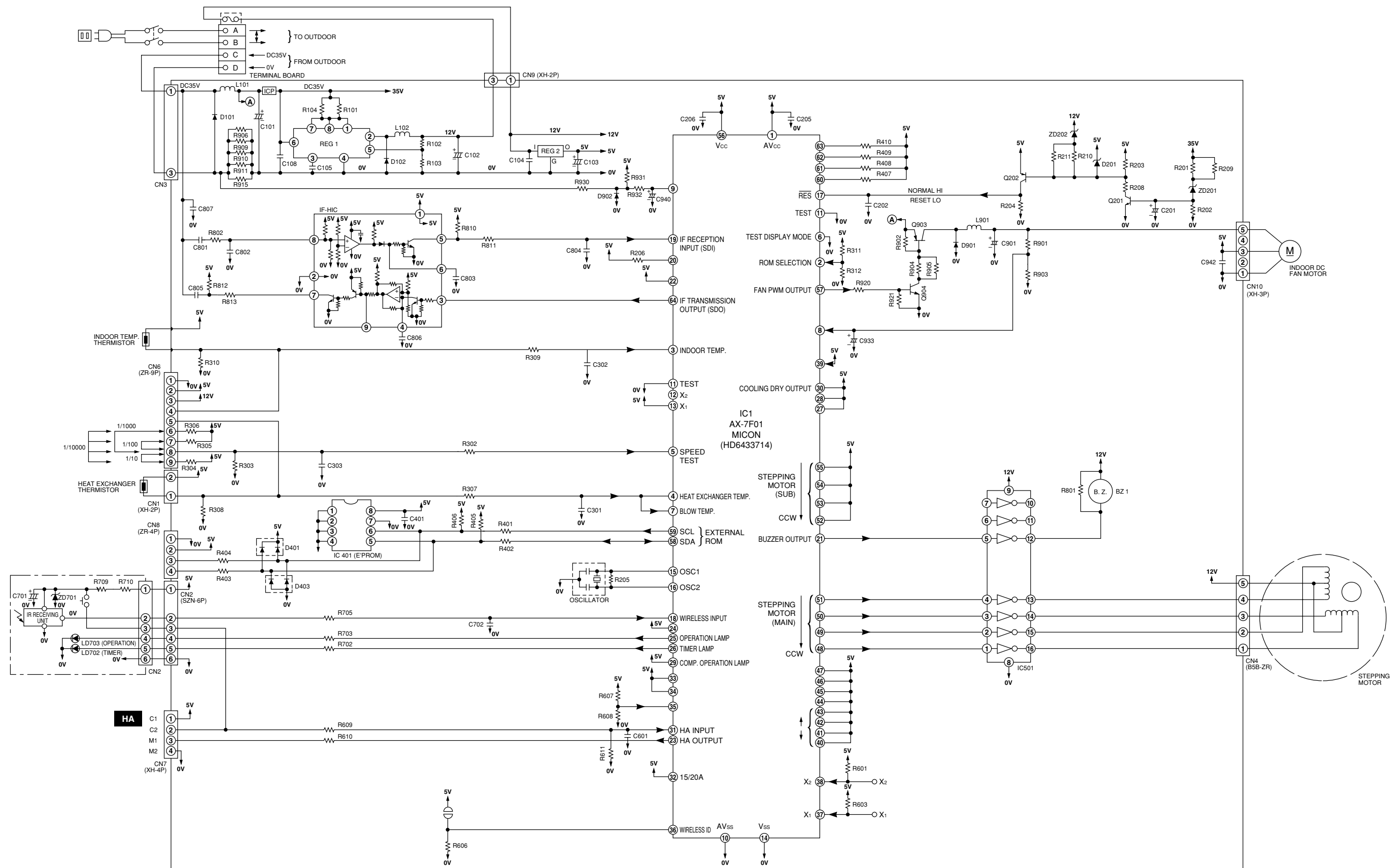
SIGN	MODEL
L501	82μH
L801	EXCELSA35V

IC

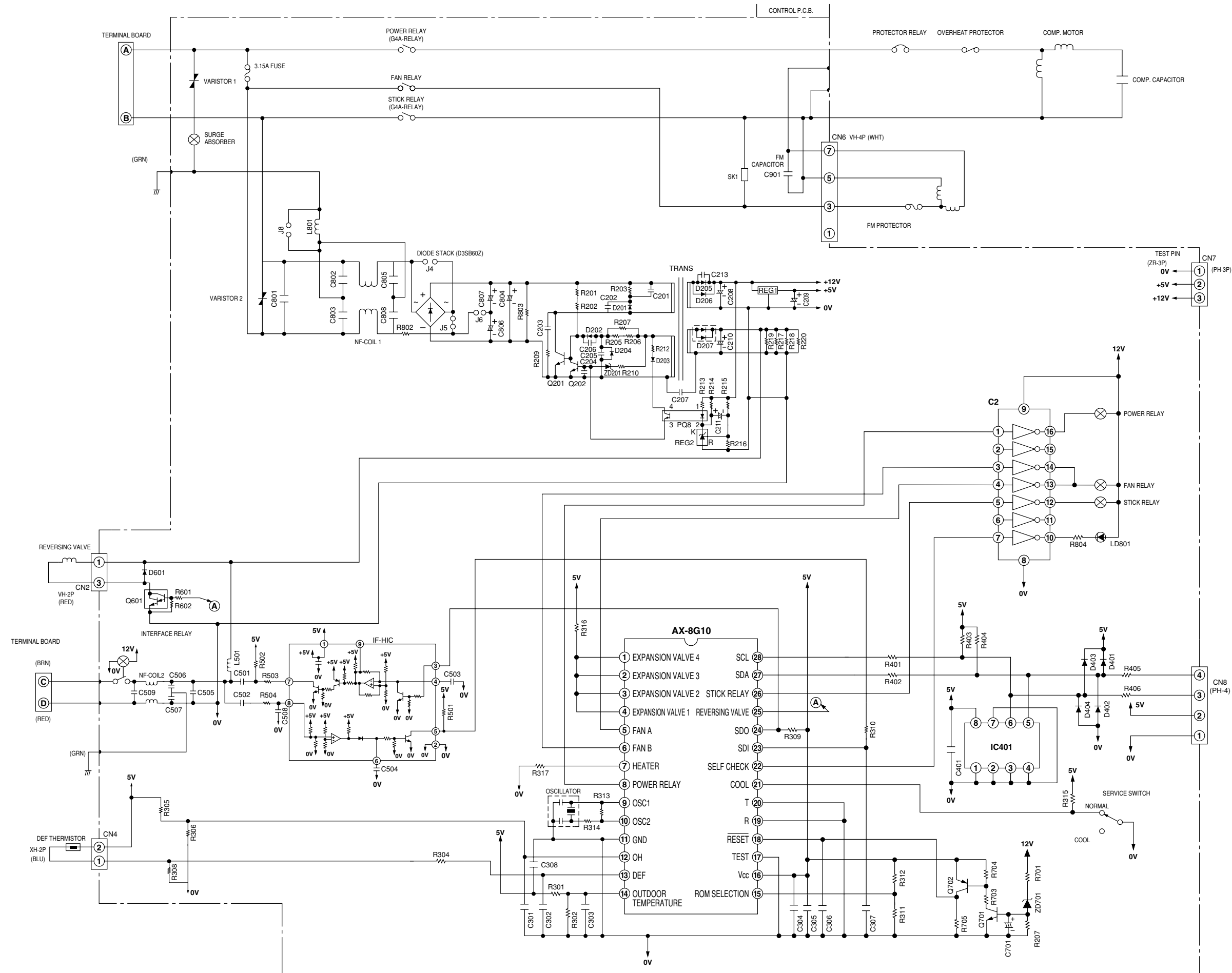
SIGN	MODEL
REG1	MC7805CT
IF-HIC	IF-MODULE
MICON	AX-8G10
REG2	HA17431PA
IC2	ULN2003A
PQ8	PC817C
IC401	EEPROM

OSCILLATOR

FREQUENCY	4MHz
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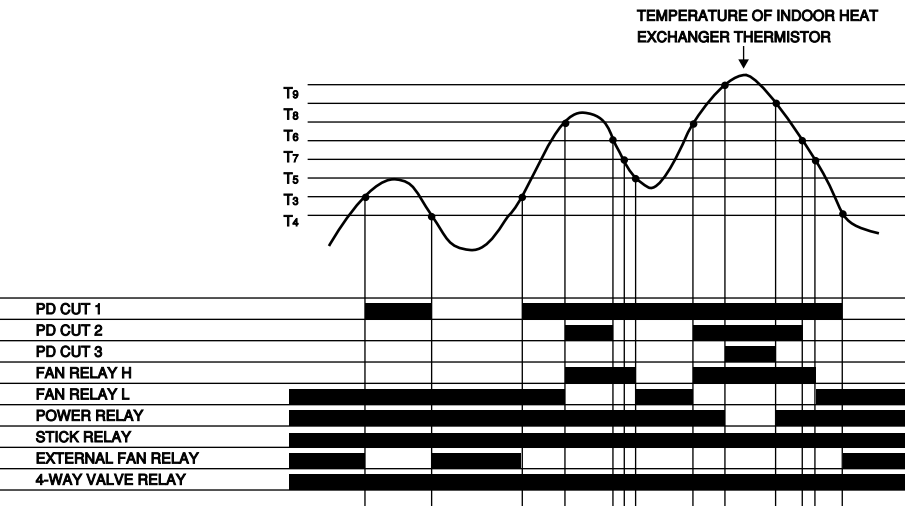
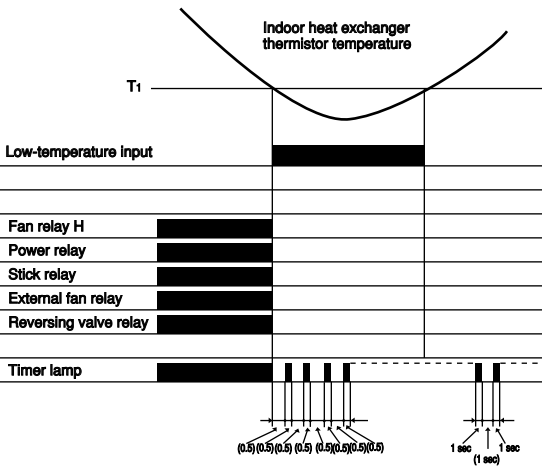


MODEL RAC-07CHV1, RAC-09CHV1



BASIC MODE

Operation mode			Fan	Cooling	Sensor dehumidification	Heating	Automatic
1	Control function		Start/stop button operation lamp Operation and stop are repeated independent of timer reservations				
2	Timer operation	OFF timer	Start/stop button Reservation Cancel Operation lamp Timer lamp Timer memory (OFF timer during stop) (Cancel) (Change of the reservation time)				
		ON timer	Start/stop button Reservation Cancel Operation lamp Timer lamp Timer memory (ON timer during operation) (Cancel) (Change of the reservation time)				
3	Circulation mode	Automatic	• Operation in the previous circulation mode	• “HI”, “MED”, or “LO” operation is executed according to the thermostat signal. (Refer to “Thermostat operation”).	• “LO” and “Stop” are repeated according to the thermostat signal, independent of the setting.	• “HI”, “MED”, “LO”, and “Stop” are repeated according to the thermostat signal and time.	• The “Automatic” speed mode for each operation mode is used independent of the setting. (“Week” at the time of “Sensor dehumidification”).
		HI	• Operation in “HI” mode	• Same as on the left.		• “HI”, “MED”, “LO”, and “Stop” are repeated according to the thermostat signal and time.	
		MED	• Operation in “MED” mode	• Same as on the left.		• “MED”, “LO”, and “Stop” are repeated according to the thermostat signal and time.	
		LO	• Operation in “LO” mode	• Same as on the left.		• “LO” and “Stop” are repeated according to the thermostat signal and time.	
4	Thermostat operation	• Only circulation with cut velocity is executed, independent of the thermostat signal.	(1) In case of “Automatic” mode		(1) When the set temperature is lower than the room temperature	Example for “HI” circulation mode	• The operation mode at the start of operation differs as shown below according to the room temperature.
		(1) Strong	Start/stop button Fan relay H Stick relay Set temperature Start/stop button Fan relay H Fan relay L Fan relay S Power relay 2 sec Stick relay External fan relay Operation lamp Note: • The min. ON time of the power relay is 3 minutes, and the min. OFF time also is 3 minutes. (2) In other modes than “Automatic” Same as above (but operation is made with the velocity set at the time of operation start).	Set temperature Start/stop button Fan relay S Power relay 2 sec Stick relay External fan relay Operation lamp • The min. ON time of the power relay is 3 minutes, and the min. OFF time also is 3 minutes. • The indoor fan is not delayed with operation start by start/stop button ON. • The indoor fan is delayed by 5 sec with operation start by thermostat operation.	(Set temperature)+ (Temperature shift amount) Start/stop switch Fan relay H Fan relay L Fan relay S Power relay 2 sec Stick relay External fan relay 4 way valve relay Pilot lamp Hot keep lamp Air-blow mode (A) (B) Notes: • The min. ON time of the power relay is 3 minutes, and the min. OFF time also is 3 minutes. • In automatic circulation mode, “HI” in section (B) occurs only the first time.		

5	Heating load reduction and Pd cut	 ● AIR BLOW CHANGE TO "H" FORCILY BY INPUTING "PD CUT 2" AIR BLOW MAKE A POSSIBLE TO CHANGE AIR BLOW AT TEMP. T₇. AIR BLOW RETURN TO THE ORIGINAL SETTED TEMP. AT TEMP T₅.
6	Reversing valve lock protection	 All relays are stopped by low-temperature input. Not accepted during hot keep, during compressor stop, during defrosting and during forced 3 minutes. Accepted only during heating operation. Recovery at the time of stop by low-temperature input is reset recovery. The timer lamp flashes at the time of stop.

Operation mode		Fan	Cooling	Sensor dehumidification	Heating	Automatic							
Control function													
7	Preheating operation				"Strong" circulation 30 sec 30 sec 15sec 30 sec 30 sec Start/stop switch Thermostat signal Preheating signal Fan relay H Fan relay L Fan relay S Power relay 2 sec Hot keep lamp T 3 minutes Notes: - Even when the preheating signal is not given as input, heating operation is started when 3 minutes have passed for T. - Preheating operation is executed at the time of operation start and after completion of defrosting, and at all other times, there is no operation, independent of the preheating signal.	At the time of heating operation mode, the same operation as for heating is executed.							
8	Defrosting (including automatic fresh defrosting).		Indoor heat exchanger thermistor temperature T₁ Fan relay H Power relay Stick relay Outside fan relay Operation lamp Min. 3 minutes Cooling strong Fan relay S Power relay Stick relay Outside fan relay Operation lamp Sensor dehumidification	Defrosting start Completion 15 minutes-TE 30 sec 30 sec 30 sec 30 sec Start/stop switch Defrosting signal Preheating signal Fan relay H Fan relay L Fan relay S Power relay 2 sec Stick relay Outside fan relay Reversing valve relay Heater relay 10 sec Operation lamp Hot keep lamp TA TB TC 30 sec 60 sec 30 sec 60 sec 3 minutes <table><tr><td>TA (Reverse cycle defrosting)</td><td>10 min. 1/2 min.</td></tr><tr><td>TB (Silencing period)</td><td>30 sec</td></tr><tr><td>TC (Cycle balancing time)</td><td>30 sec</td></tr><tr><td>TE (Defrosting prohibition time)</td><td>60 min. 1/2 min.</td></tr></table> - For the time TE after start of heating operation, defrosting will not be executed even when the defrosting signal is given as input. - When the reserve cycle defrosting TA has continued for the time shown in the table on the left, the operation advances to TB and TC independent of the defrosting signal. - When the power relay becomes ON after expiration of the time TE, defrosting will be started immediately with input of the defrosting signal. - Once defrosting has been completed, the defrosting signal is not accepted for the time TE. - When a defrosting signal has been given as input at the time of stop by means of the start/stop switch or at the time of OFF timer count-up, defrosting is executed before operation stop. - The defrosting signal is not accepted at the time of overload input.	TA (Reverse cycle defrosting)	10 min. 1/2 min.	TB (Silencing period)	30 sec	TC (Cycle balancing time)	30 sec	TE (Defrosting prohibition time)	60 min. 1/2 min.	Defrosting of each operation mode is executed.
TA (Reverse cycle defrosting)	10 min. 1/2 min.												
TB (Silencing period)	30 sec												
TC (Cycle balancing time)	30 sec												
TE (Defrosting prohibition time)	60 min. 1/2 min.												

Table 1 Specifications

Item		
Operation switching	Automatic	Yes
	Heating	Yes
	Fan	Yes
	Sensor dehumidification	Yes
	Cooling	Yes
Temporary switch		Yes (automatic)
Service switch	Heating	Yes
	Cooling	Yes
Nice temperature reservation		Yes
Automatic fresh defrosting		Yes
Defrosting		Yes
Pd cut 1		Yes
Pd cut 2		Yes
Pd cut 3		Yes
Heating load reduction		Yes
External fan relay		Yes
Reversing valve relay		Yes
Reversing valve lock protection		Yes
Sleep circuit		No
Heater operation at the time of sensor dehumidification		No
Automatic blowing direction		Yes
Filter sign		No
Wireless mode		Heating wireless

Table 2 Sensor operation values

Item				
Thermostat operation	ON temperature (Thermostat relay) power relay (°C)	Cooling, Sensor dehumidification	16	17.6
			24	25.6
		Heating	32	33.6
			16	19.6
			24	27.6
			32	35.6
	Differential (°C)			0.33
				—
Low-temperature defrosting	(T1)	ON (°C)	5.0	—
		Reset (°C)	9.0	—
Preheating	(T2)	Reset (°C)	17.0	—
		ON (°C)	15.0	—
				—
				—
Pd cut 1	(T3)	ON (°C)	48.66	—
		Reset (°C)	45.66	—
Pd cut 2	(T6)	ON (°C)	55.0	—
		Reset (°C)	49.0	—
	(T5) Fan Relay H →	Original (°C)	35.0	—
Pd cut 3	(T8)	ON (°C)	63.0	—
		Reset (°C)	55.0	—

Other detailed specifications

1.

When the room temperature rises within 3 minutes after thermostat OFF during cooling operation with automatic velocity, the blowing velocity changes in the order of S → L → H in the same way as at the time of thermostat ON.
2.

In case of Tele. control input during stopped ON timer, operation will be started at that time and the timer will be cleared.
3.

In case of Tele. control input during operation of the OFF timer, the operation will be stopped at that time and the timer will be cleared.
4.

Even when operation stop is executed at the time of outside fan OFF by overload, automatic fresh defrosting will not be executed.
5.

In case of switching to "Heating" during "Automatic" heating operation, the operation will be continued as it is when the thermostat is ON. 3 min delay will not be entered. However, the set room temperature and the blowing velocity will be according to the remote control signal. The same applies for switching from "Heating" to "Automatic" heating.
6.

In case of switching from "Sensor dehumidification" operation to "Cooling", as it is when the thermostat is ON. 3 min delay will not be entered. However, the set room temperature and the blowing velocity will be according to the remote control signal. The same applies for switching from "Cooling" to "Sensor dehumidification". The same also applies for "Automatic" sensor dehumidification, cooling "Sensor dehumidification", "Cooling".
7.

The filter sign lights after operation of the indoor fan for 100 hours. The time is cleared by the filter switch.
8.

After entry into trouble mode (when the indication lamp is flashing), the rapid feed mode can not be changed.
9.

When operation by nice temperature reservation is executed during sleep operation, normal operation will be continued, and the advance time becomes the temperature difference between the set temperature without sleep shift and the room temperature.
10.

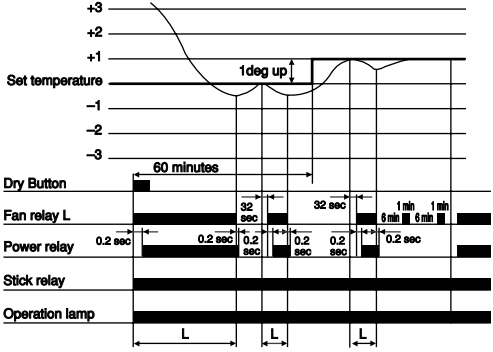
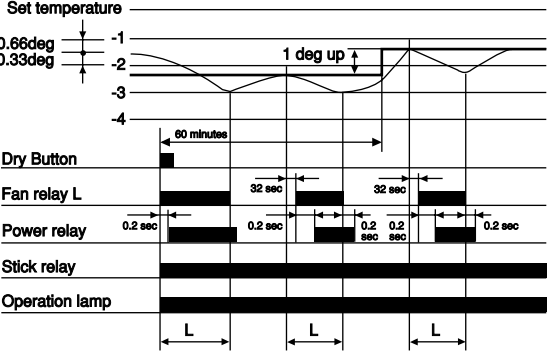
The 60 minutes of defrosting prohibition are counted from Thermostat ON after start/stop switch ON. When the thermostat is OFF at the time of start/stop switch ON, the 60 minutes will be counted from the time of thermostat ON. The initial OFF time is not counted. Counting starts when the thermostat becomes ON, and the count then continues even if the thermostat becomes OFF.
11.

In case of switching from "Heating" the reversing valve is held for 3 minutes.
12.

The defrosting signal is not accepted with overload input, and the operation becomes as shown below when the overload input disappears.
- (1)

When previously the defrosting signal existed without overload input, defrosting will start immediately.
- (2)

In cases other than the above, defrosting will be executed with a defrosting signal in the condition without overload input.

Low Power Dehumidification	(1) When the set temperature is lower than the room temperature.  - The min. ON time of the power relay is 3 minutes, and the min. OFF time is also 3 minutes. - The indoor fan is not delayed in operation when the Dry button is pressed ON.
	(2) Set temperature higher than room temperature.  Notes: - Forced operation by Dry button ON is executed even with thermostat OFF. - The room temperature 30 sec after operation start minus 0.33 deg., becomes the set temperature. - When the room temperature is 16°C or lower, 16°C becomes the set temperature. - The other operation are the same as for (1). - The indoor fan is not delayed in operation when the Dry button is pressed ON.

DESCRIPTION OF MAIN CIRCUIT OPERATION

1. ON / OFF

The “ON / OFF” and “Timer reserve button” and “Sleeping” function independently. Their operations are shown in Fig. 1-1.

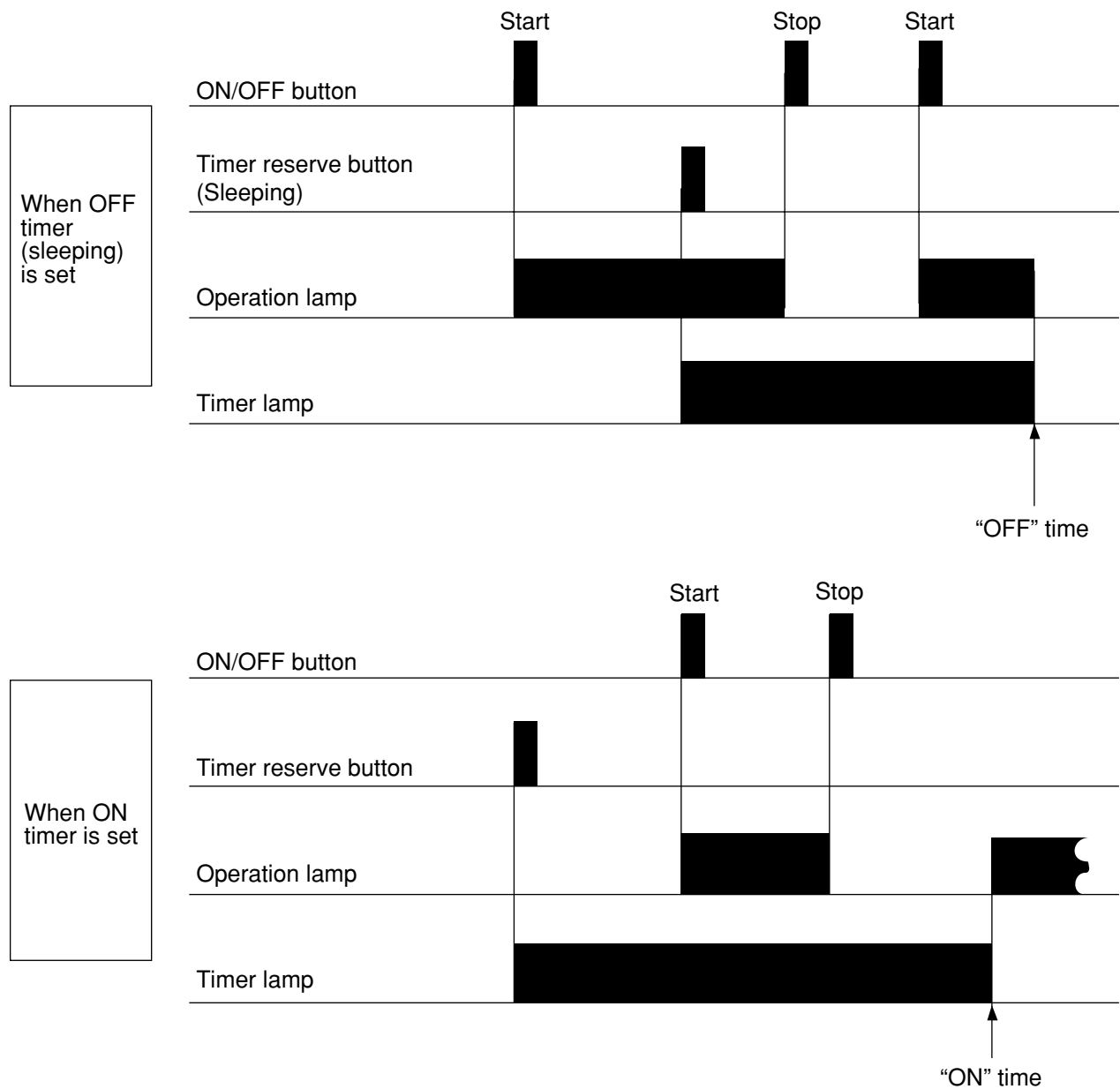


Fig. 1-1 Timer operation

2. Reset Circuit

Model RAS-07CH1, RAS-09CH1

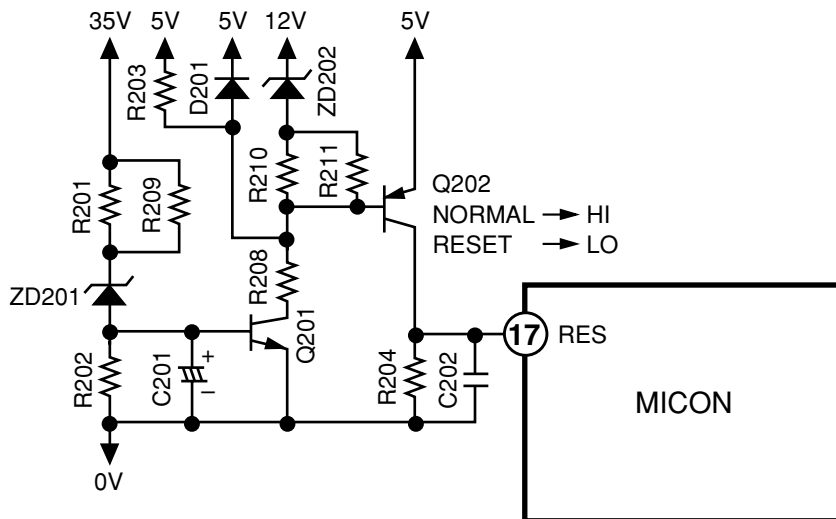


Fig. 2-1 Reset Circuit

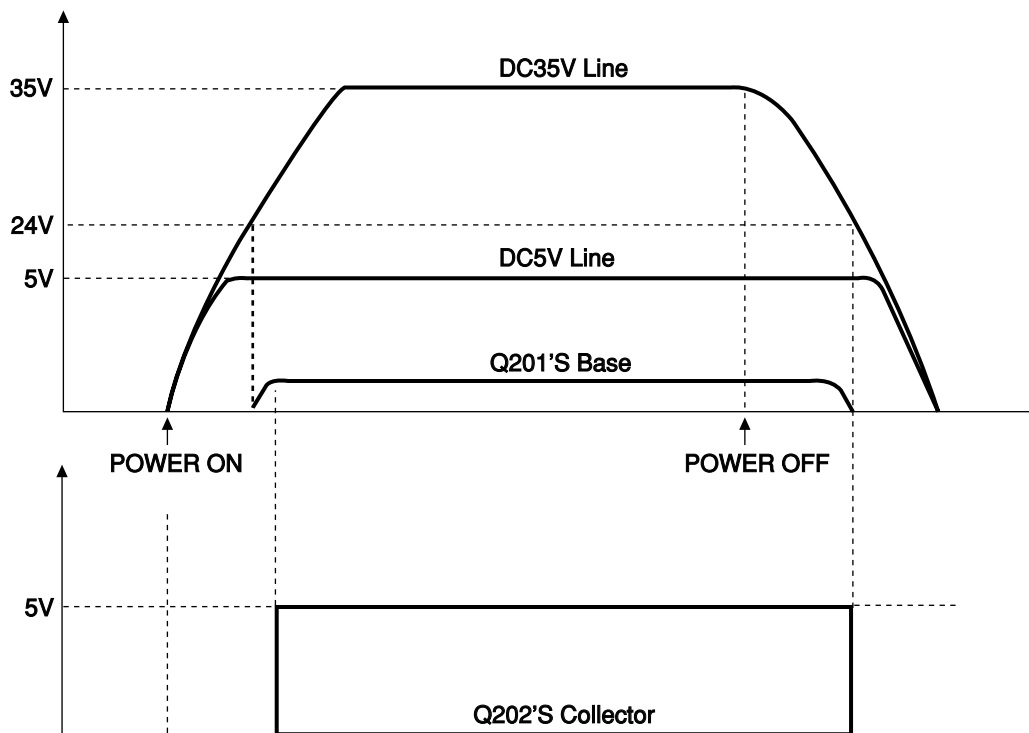


Fig. 2-2

- The reset circuit is used to reset the program to its initial settings when the power is turned on or when the power is recovered after a power failure.
- The micro computer is reset when the reset input is "Hi", and reset operation is possible when the reset input is "Lo".
- The waveforms at each point when the power is turned on and off are shown in the Fig. 2-2.
- When the power is turned on, the voltages of the DC 35V line and DC 5V line are increased. When the voltage of DC 35V line reaches about 24V, ZD201 is turned ON, the potential of Q201's base rises and Q201 is turned ON. At this time the collector of Q201 is set to "LO" and cause Q202 to conduct. The collector of Q202 is set to "HI" and the reset input of the micro computer is set to "HI" also. The DC 5V voltage has already become 5V at this time and the micro computer starts operate.
- When the power is turned OFF, the voltage of the DC 35V line decreases. When it drops about 24V, ZD201 is turned OFF, and this will turn Q201 and Q202 OFF rapidly. The reset input of the micro computer is set to "LO" and the micro computer is set to reset mode.

3. Buzzer Circuit

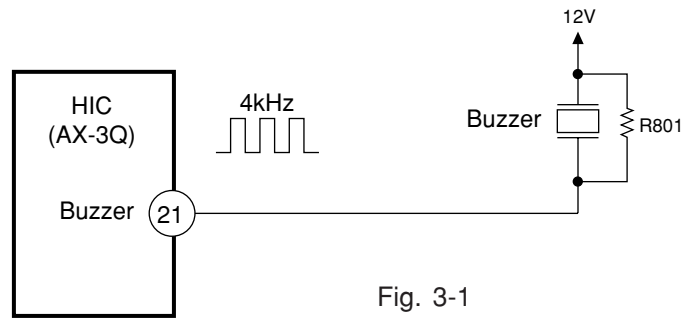


Fig. 3-1

When the buzzer is to be activated, buzzer output pin ②① of the HIC alternates between ON and OFF repeatedly at 4kHz. And a 4kHz voltage is applied to the buzzer and the diaphragm of the buzzer vibrates to output 4kHz sound.

4. Initial Setting (IC401)

Initial setting of microcomputer, wind direction control and, etc.

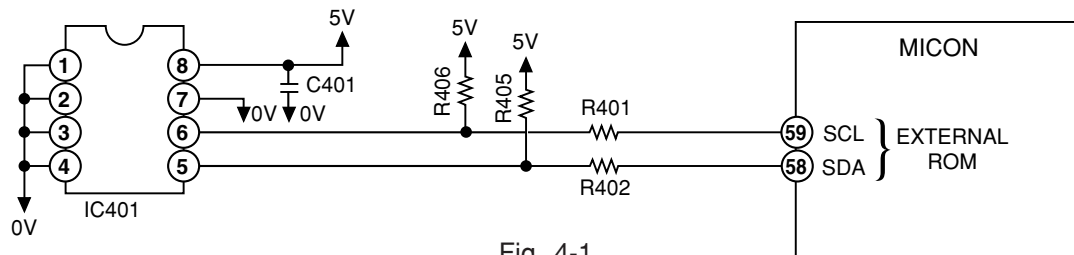
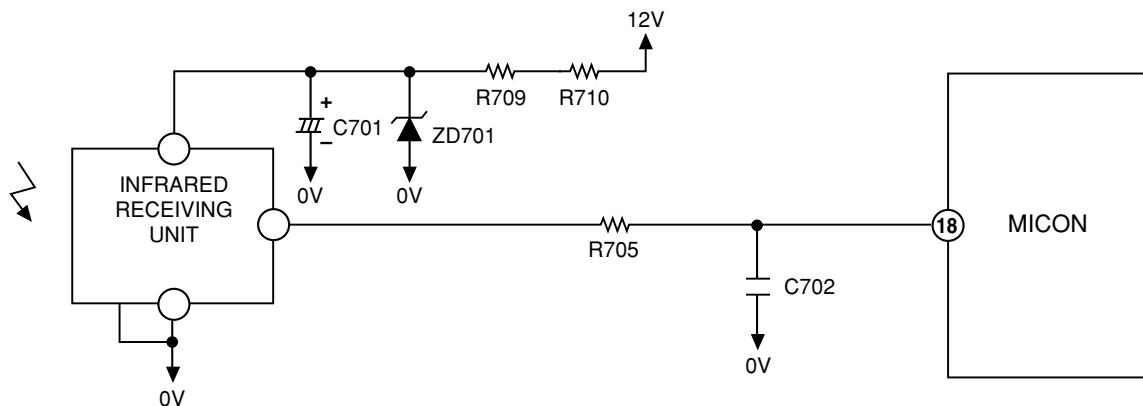


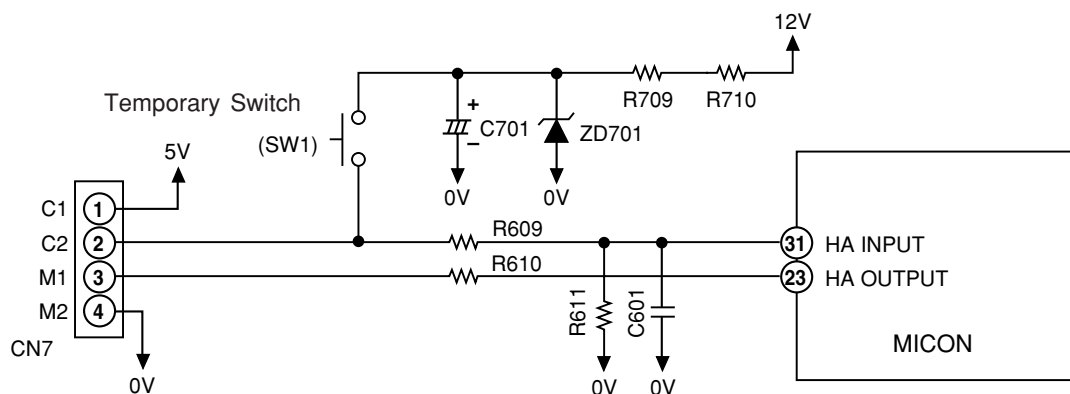
Fig. 4-1

5. Receive circuit



Infrared signals from the wireless remote controller are received by the light receiving unit and output after being amplified and shaped.

6. Temporary Switch Circuit



- The temporary switch is used when the wireless remote controller is lost or troubled.
- Last operation mode and last set temperature are selected or, once the power switch is turned off, an automatic operation is selected.

1. Reset Circuit

Model RAC-07CHV1, RAC-09CHV1

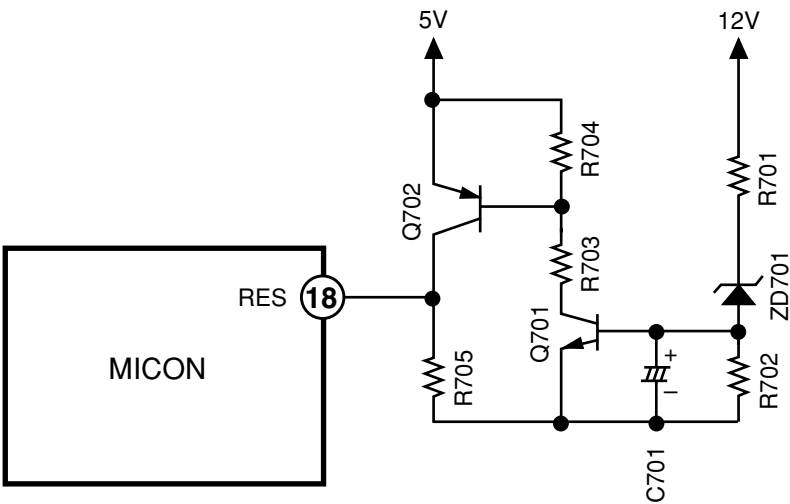


Fig. 1-1 Reset Circuit

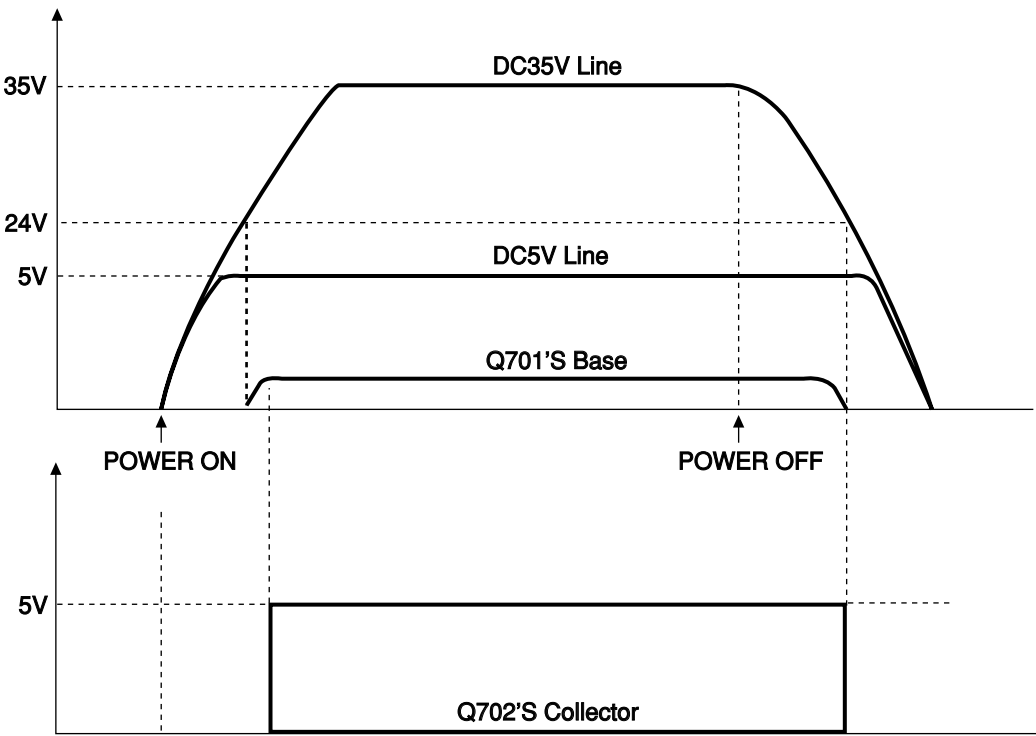
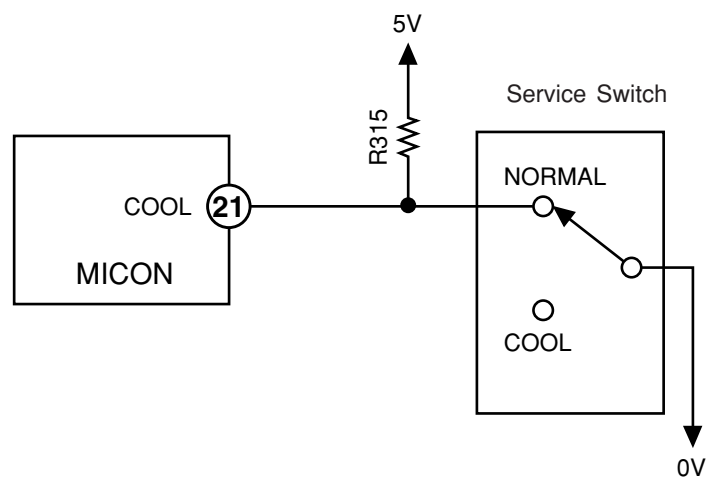


Fig. 1-2

- The reset circuit is used to reset the program to its initial settings when the power is turned on or when the power is recovered after a power failure.
- The micro computer is reset when the reset input is “Hi”, and reset operation is possible when the reset input is “Lo”.
- The waveforms at each point when the power is turned on and off are shown in the Fig. 2-2.
- When the power is turned on, the voltages of the DC 12V line and DC 5V line are increased. When the voltage of DC 12V line reaches about 7V, ZD701 is turned ON, the potential of Q701's base rises and Q701 is turned ON. At this time the collector of Q701 is set to “LO” and cause Q702 to conduct. The collector of Q702 is set to “HI” and the reset input of the micro computer is set to “HI” also. The DC 5V voltage has already become 5V at this time and the micro computer starts operate.
- When the power is turned OFF, the voltage of the DC 12V line decreases. When it drops about 7V, ZD701 is turned OFF, and this will turn Q701 and Q702 OFF rapidly. The reset input of the micro computer is set to “LO” and the micro computer is set to reset mode.

2. Service Switch Circuit



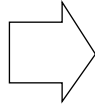
AUTO SWING FUNCTION

INPUT SIGNAL	PRESENT CONDITION			OPERATING SPECIFICATION	REFERENCE
	OPERATION	OPERATION MODE	AIR DEFLECTOR		
KEY INPUT	STOP	EACH MODE	STOP	ONE SWING (CLOSING AIR DEFLECTOR) ① DOWNWARD ② UPWARD	INITIALIZE AT NEXT OPERATION.
			DURING ONE SWING	STOP AT THE MOMENT.	
	DURING OPERATION	AUTO COOL COOL FAN AUTO DRY DRY	STOP	START SWINGING ① DOWNWARD ② UPWARD ③ DOWNWARD	
			DURING SWINGING	STOP AT THE MOMENT.	
		AUTO HEAT HEAT	STOP	START SWINGING ① DOWNWARD ② UPWARD ③ DOWNWARD	
			DURING SWINGING	STOP AT THE MOMENT.	
INTERNAL FAN ON (THERMO. ON)	DURING OPERATION	AUTO DRY DRY AUTO HEAT HEAT	TEMPORARY STOP	START SWING AGAIN.	
INTERNAL FAN OFF (THERMO. OFF)			DURING SWINGING	STOP SWINGING TEMPORARILY. (SWING MODE IS CLEARED IF SWING COMMAND IS TRANSMITTED DURING TEMPORARY STOP.)	
MAIN SWITCH ON	STOP	COOL FAN DRY	STOP DURING ONE SWING	INITIALIZE ① DOWNWARD ② UPWARD	
		CIRCULATOR	STOP DURING ONE SWING	INITIALIZE ① DOWNWARD	
MAIN SWITCH OFF	DURING OPERATION	EACH MODE	STOP DURING SWINGING	ONE SWING (CLOSING AIR DEFLECTOR) ① DOWNWARD ② UPWARD	INITIALIZE AT NEXT OPERATION.
			DURING INITIALIZING		
CHANGE OF OPERATION	DURING OPERATION	EACH MODE	STOP	INITIALIZING CONDITION OF EACH MODE.	
			DURING SWINGING	STOP SWINGING AND MODE BECOMES INITIALIZING CONDITION.	

SERVICE CALL Q & A

Cooling operation

Q1 While cooling, the compressor sometimes stops abruptly.

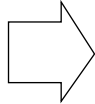


A1 Check whether frost sticks on the heat exchanger of indoor unit or not.
Wait for 3-4 minutes until the frost melts.

If cooling is performed when the room temperature is low, frost may stick on the heat exchanger of indoor unit.

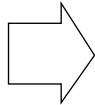
Dehumidifying operation

Q2 The fan speed does not change during a dehumidifying operation.



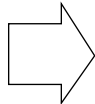
A2 The fan speed is always LO at a dehumidifying operation.

Q3 Cold air comes out during a dehumidifying operation.



A3 To improve the dehumidification efficiency, LO fan speed operation is performed. Therefore the air is cold. This is not a trouble.

Q4 The operation does not stop even by raising the room temperature setting of remote control at a dehumidifying operation.



A4 At a dehumidifying operation, the actual room temperature is compared with the room temperature setting when starting the operation and the operation is as follows.

1) When actual room temperature > room temperature setting.

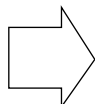
The operation is according to the room temperature setting on the remote controller.

2) * When actual room temperature < room temperature setting

Regardless of the room temperature setting, the temperature is automatically set slightly lower than the room temperature.

In this case, the status is as 2) and, therefore, the operation by the room temperature control is impossible. Turn off the On / OFF switch, set the room temperature to a new value and turn on the operation by the On / Off button.

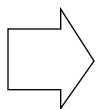
Q5 In the dehumidifying mode, the temperature set by remote controller is set slightly higher than the room temperature but the operation starts.



A5 This is the status in 2) of (A4). The temperature is set a little lower than the room temperature to carry out a dehumidifying operation as far as possible.

Heating operation

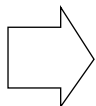
Q6 Air does not come out when starting a heating operation.



A6 It is not a trouble. The fan is stopped to avoid cold wind.

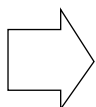
When starting the operation, the heat exchanger is cold and, therefore, the fan is stopped. Wait for 2-3 minutes.

Q7 Air does not come out sometimes while in a heating operation.



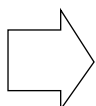
A7 Defrosting is on. Wait for 5-10 minutes until the outdoor unit is defrosted.

Q8 The fan speed is set to "HI" or "MED" but the heating operation starts with a LO fan speed.



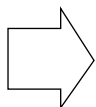
A8 The heating operation starts with a LO fan speed for 30 seconds. If the fan speed is set to HI, the operation starts with LO fan speed, followed by MED fan speed for 30 seconds and then by HI fan speed.

Q9 The operation stops during a heating operation while the room temperature is set at "30".



A9 If a heating operation is performed when the exterior temperature is high, the operation may stop to protect the equipment.

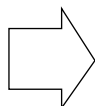
Q10 The outdoor fan does not move at a heating operation by the service switch.



A10 It is not a trouble. When heating, the outdoor fan is stopped to avoid excessive pressure rise.

Auto fresh defrosting

Q11 Heating has been turned off by the main operation but the "Hot keep lamp" lights and the outdoor unit operates.



A11 "Auto fresh defrosting" operates. When stopping the operation, whether the outdoor unit is frosted or not is checked and, if in the affirmative, defrosting is performed before stopping the operation.

Automatic operation

Q12 How is the automatic operation mode determined?

A12 According to the room temperature, cooling or dehumidifying operation is automatically selected.

Cooling:

When room temperature is approx. 27°C or higher.

Dehumidifying:

When room temperature is between approx. 23°C and 27°C.

Heating:

When room temperature is approx. 23°C or lower.

Q13 At an automatic operation, changing the fan speed change switch does not vary the fan speed.

A13 The fan speed is automatically determined.

Q14 The room temperature cannot be controlled at an automatic operation.

A14 It is automatically set as follows.

At cooling: Set at 27°C

At dehumidifying:

Set slightly lower than room temperature

The room temperature setting can be raised 3°C by “Λ” or lowered 3°C by “V”.

When changing the room temperature setting in an automatic operation, the next automatic operation mode is determined by new room temperature setting. If, for example, the room temperature setting is 2°C lowered for example, the operation mode is as follows.

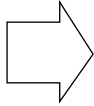
Cooling : When room temperature is approx. 25°C or higher

Dehumidifying : When room temperature is between approx. 21°C and 25°C

Common, etc.

Q15

There is a difference between the room temperature setting and actual room temperature.

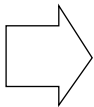


A15

There may be a difference between the room temperature setting and actual room temperature on account of the room structure, air flow, etc.
If there is a difference from the room temperature, adjust the set temperature to keep living space at a comfortable temperature.

Q16

What will happen if the time setting is changed while in a timer operation?



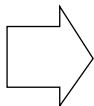
A16

A timer operation is performed until the time after changing the time setting.

Wireless remote controller

Q17

- 1) When the "Automatic" operation mode is selected, "Automatic" does not change by pressing the fan speed select button.
- 2) The room temperature setting is not displayed.
- 3) Pressing the room temperature control button develops transmit mark "☺" and sounds a receive sound but does not display the room temperature setting.



A17

- 1) When the operation mode is "Automatic", the fan speed is automatically fixed to "Automatic".
- 2) At an "Automatic" operation, the room temperature setting is not displayed.
The room temperature is automatically set as follows.

At cooling

Set at 27°C.

At dehumidifying

Set to a temperature slightly lower than the room temperature.

At heating

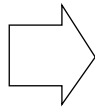
Set at 23°C.
- 3) At an "Automatic" operation, the room temperature setting is not displayed.
However, every pressing "Λ" or "V" button changes 1°C within the range of:
27±3°C when cooling
23±3°C when heating

The room temperature sensing thermistor in the indoor unit detects the room temperature and, according to the particular temperature, automatically performs "Cooling" or "Dehumidifying" operation.
The value indicated not at an "Automatic" but manual operation is not the actual room temperature but the room temperature setting.

Wireless remote controller

Q18

When the room temperature setting is "16", pressing the room temperature control button " V " causes no transmission. At "32", pressing " Λ " causes no transmission either.

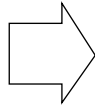


A18

The room temperature is settable within the range of 16 - 32 and not beyond.

Q19

The timer cannot be set.

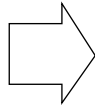


A19

Is the current time set?
The time cannot be set unless the clock is adjusted correctly.

Q20

The current time disappears soon.



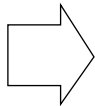
A20

The current time disappears soon and the timer setting indication takes a precedence.

When setting the current time, its indication blinks for approximately 3 minutes.

Q21

In spite of timer "Preprogram", the time setting is extinguished.

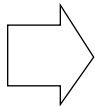


A21

Isn't the time over the preprogrammed time?
As soon as the preprogrammed time is reached, the time setting disappears.

Q22

After selecting a "Dehumidifying" operation mode, the fan speed mode remains "LO" fan speed".

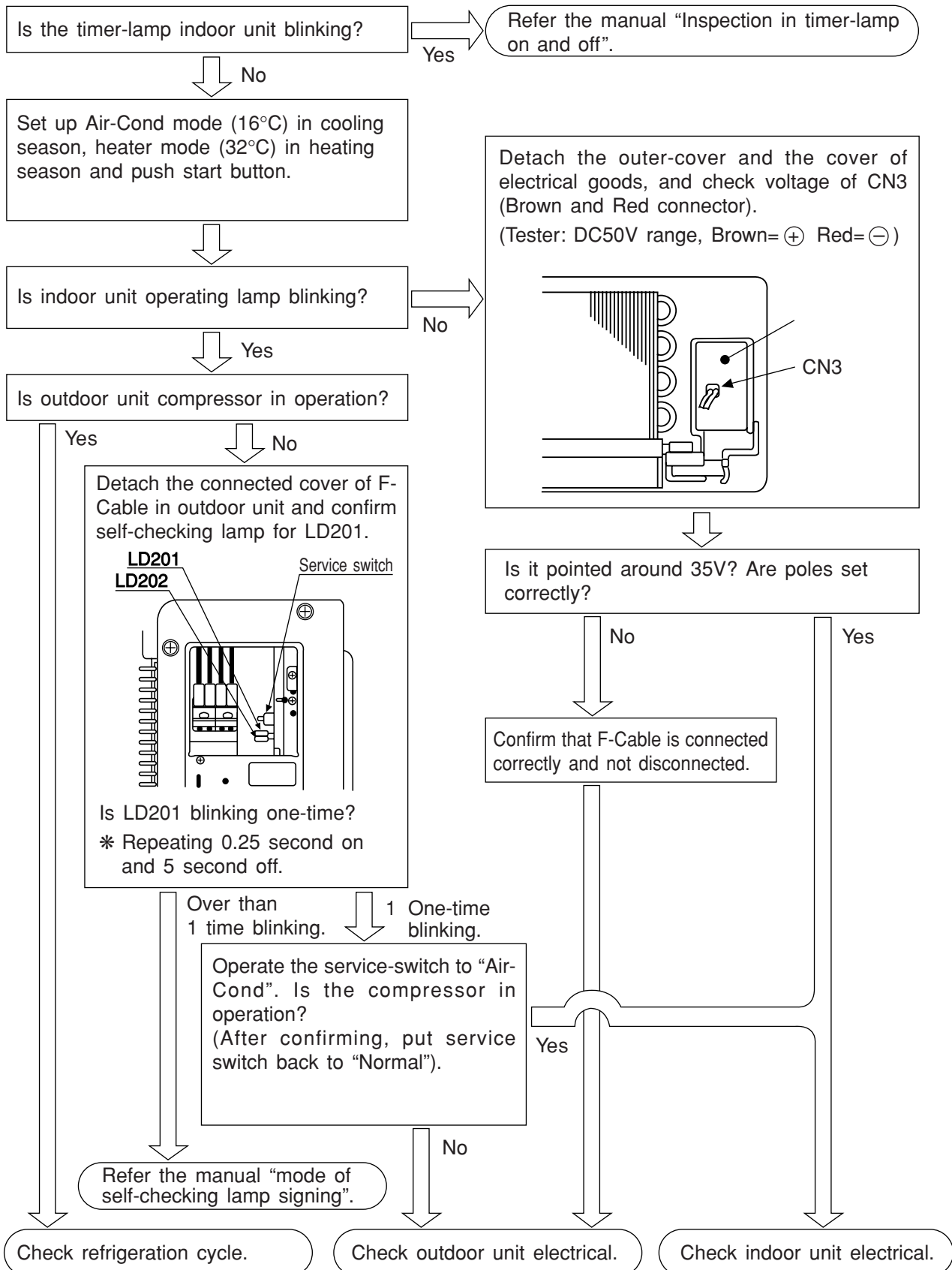


A22

At a "Dehumidifying" operation, the "LO" fan speed" is forcibly selected.

Diagnosis Chart for Break-Down

Which has problem? Indoor Unit or Outdoor Unit?



Timer-Lamp, break-down checking in blinking sign.

Check the break-down factor from the frequency of timer-lamp blinking.

No.	Mode of Timer-Lamp blinking	Indication Factor	Estimated Break-Down Part
1	 1 time	<u>4-way valve not working</u> Inside temperature is low in heating operation time or inside temperature is high in cooling operation time.	(1) 4-way valve is not working. (2) Heat-barter thermistor is in disconnection. (Only heating time)
2	 2 times	<u>Outdoor unit operating by compulsion</u> Out-door unit is under forcible operation or under balancing after forcible operation.	Outdoor electrical goods.
3	 3 times	<u>Outdoor, Indoor inter-face is not working</u> In case of the interception of inter-face signal from outdoor unit.	(1) Indoor inter-face circuit. (2) Outdoor inter-face circuit.
4	 4 times	<u>Indication of outdoor unit break-down</u> Outdoor unit heat-barter (DEF) thermistor is disconnected or there is a short-circuit.	Outdoor unit heat-barter (DEF) thermistor.
5	 10 times	<u>DC Fan motor — over flow of electricity</u> Indoor - DC Fan motor has over flow of electricity.	(1) Indoor - Fan is locked. (2) Indoor - Fan motor. (3) Indoor - control circuit board.
6	 13 times	<u>IC 401 Data read wrongly</u> In case that data read from IC401 is wrong.	IC401 is not in order.

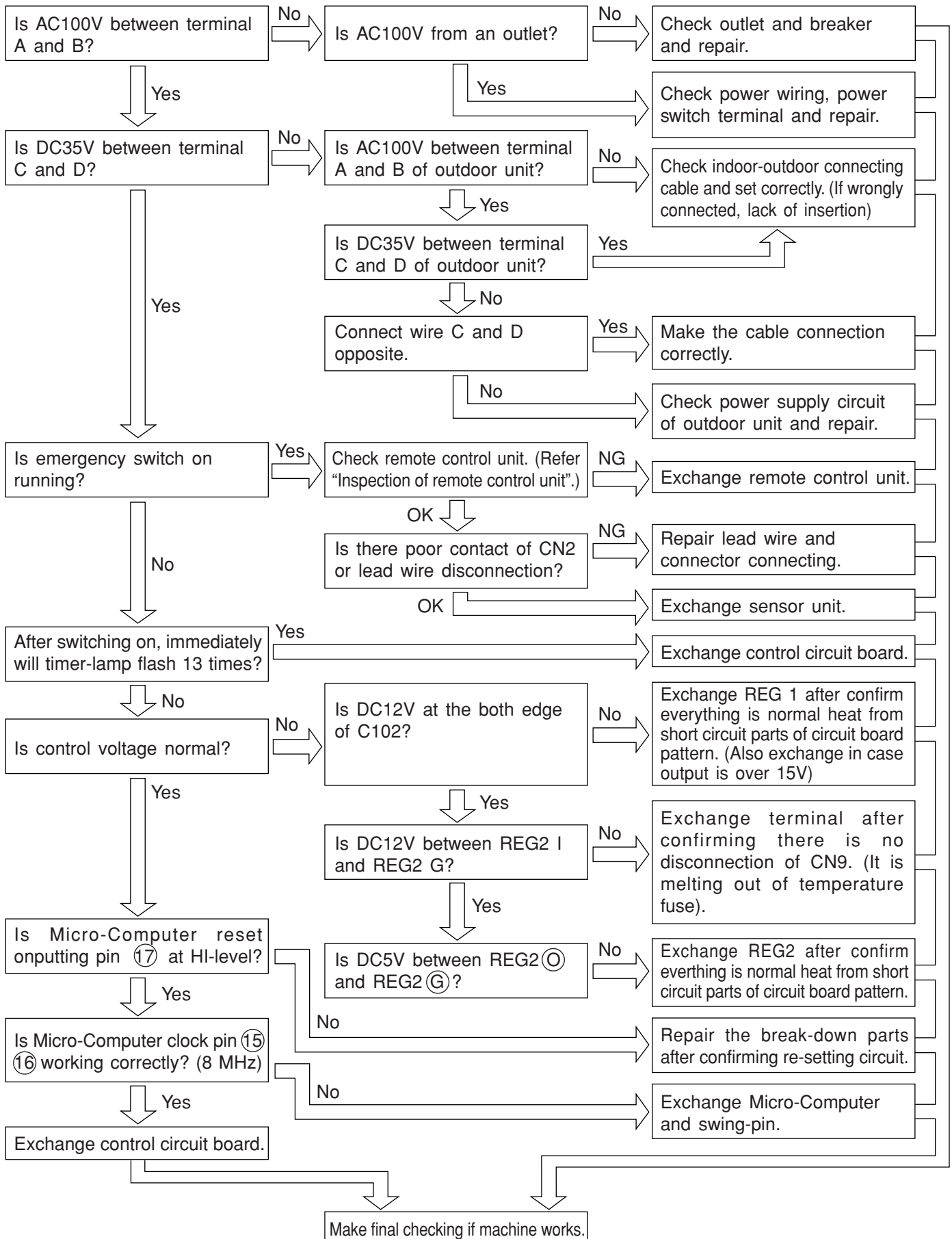
( — 0.5 second on, 0.5 second off.)

Note

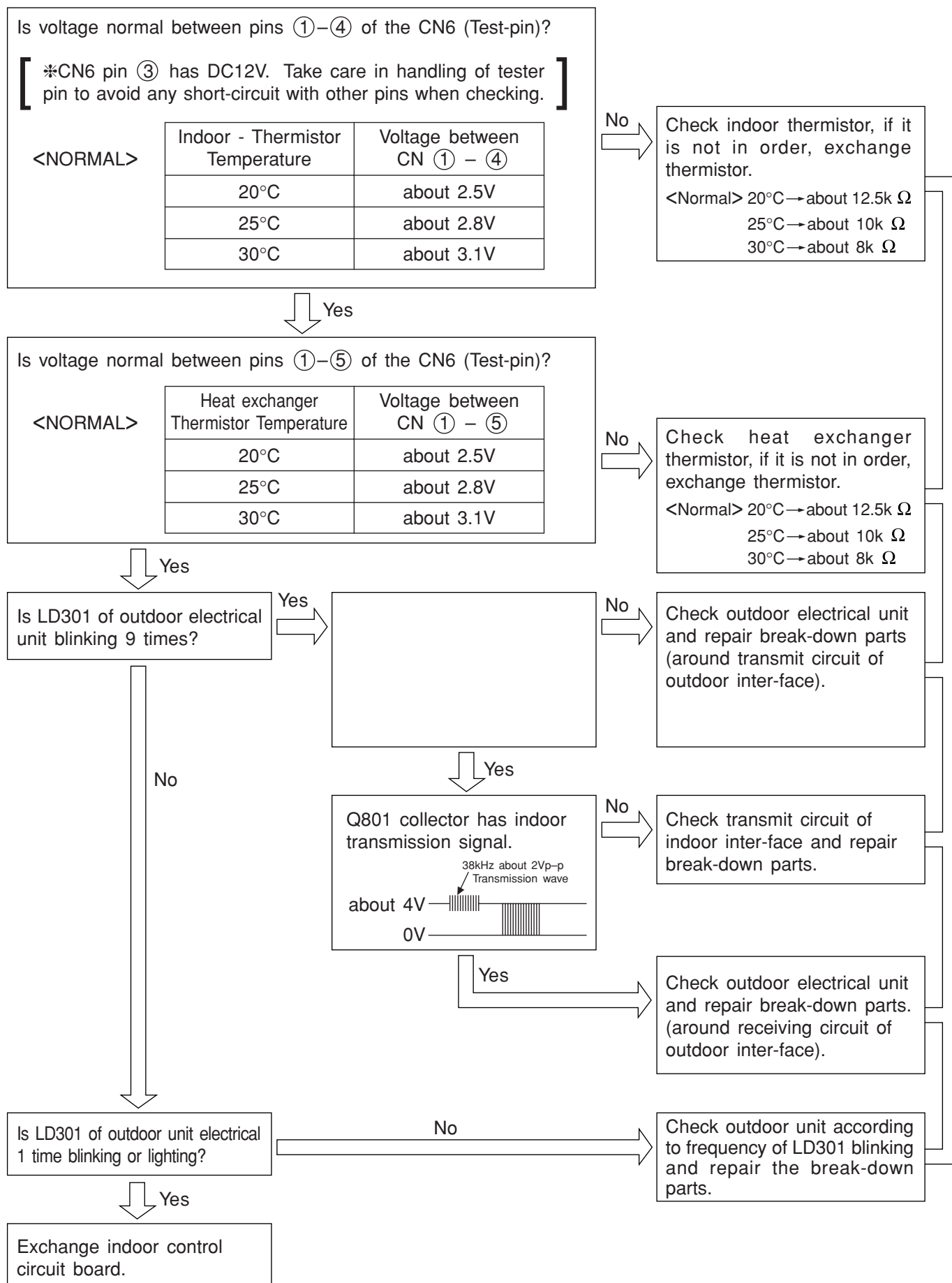
- (1) No indication for self-checking in case the inter-face circuit is already out of order from the time machine power inputting.
- (2) Self-checking lamp of outdoor unit is going 9 times on and off when the Indoor unit is in the above mentioned self-checking.
- (3) Recheck whether opposite connection or disconnection of F-cable, when there is no reaction in the indoor unit.
- (4) It is able to be operated by remote control unit, for re-confirming the operation under timer-lamp blinking.

INSPECTION OF INDOOR UNIT ELECTRICAL

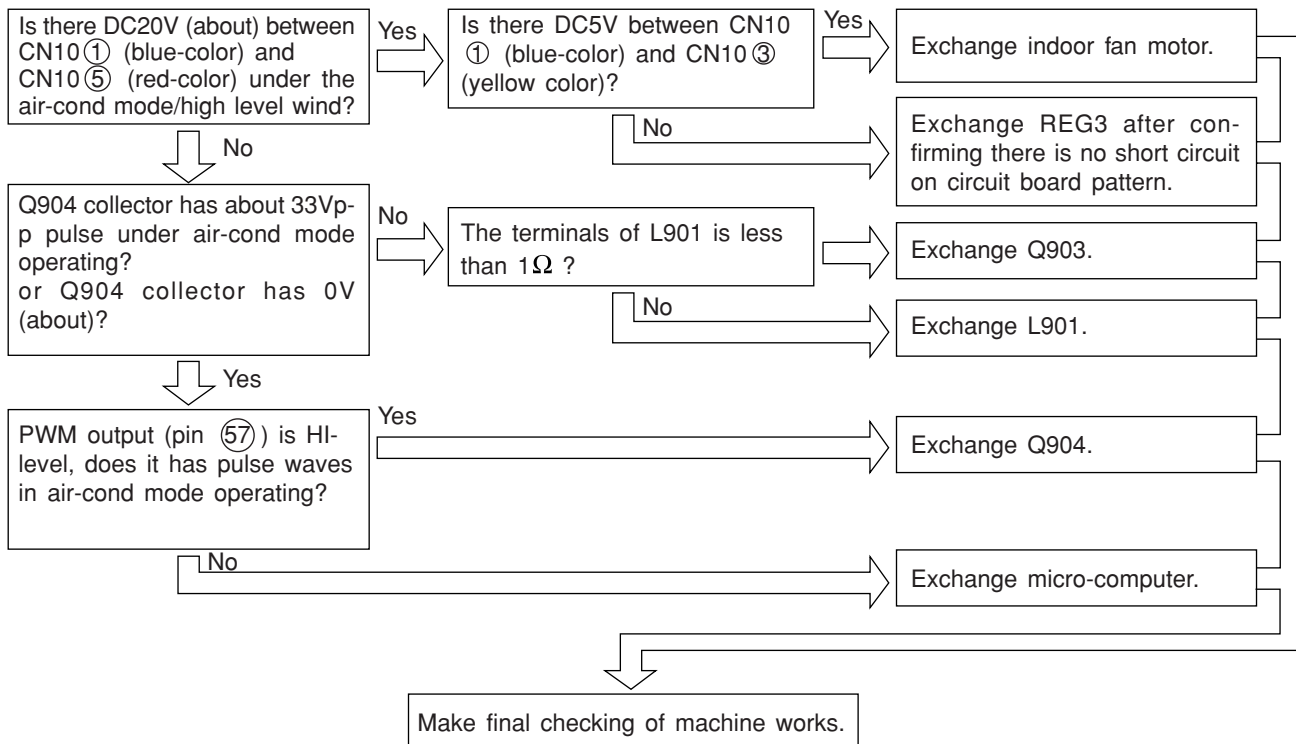
1. Unable to put power on. (Nothing is working)



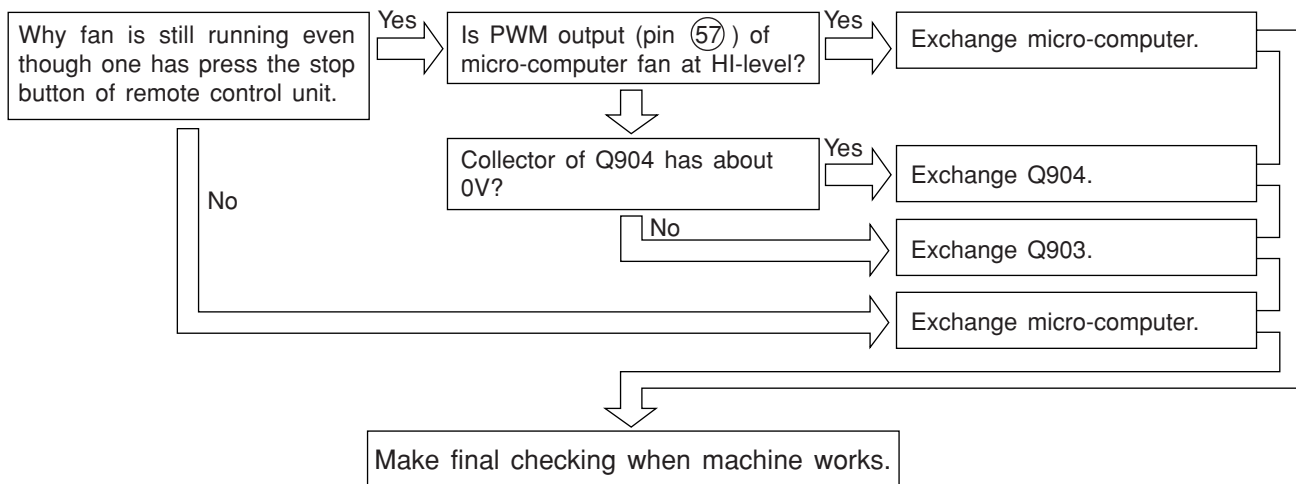
2. Outdoor unit is not working (but can receive signal from the remote controller).



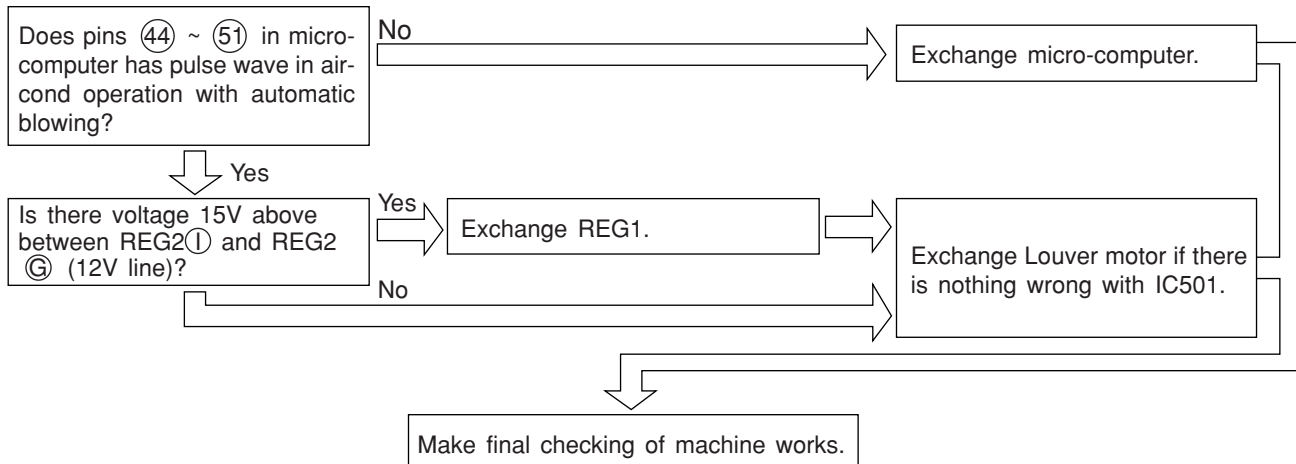
3. Only indoor fan is not working (others are normal).



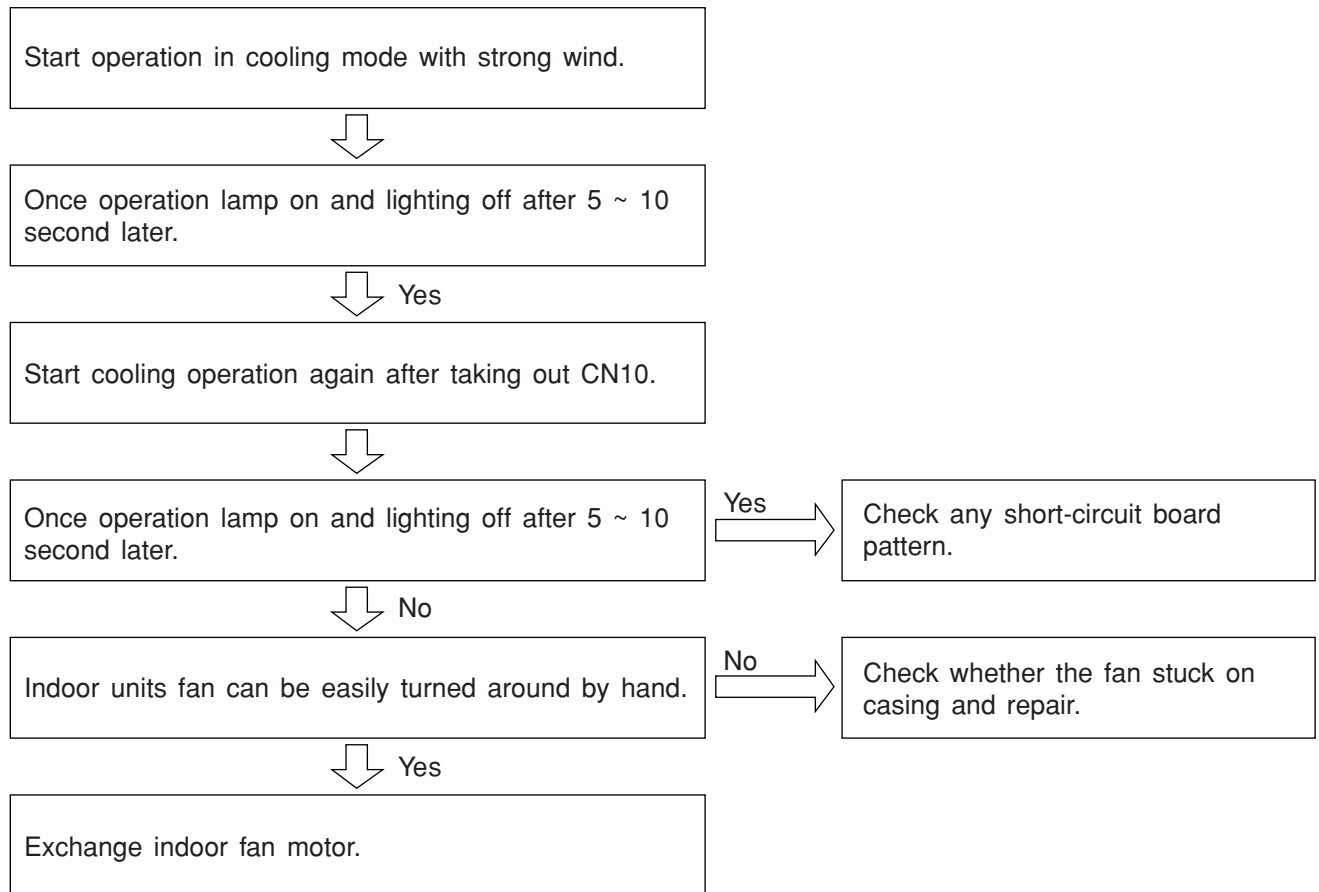
4. Unable to change the wind level of indoor fan (others are normal).



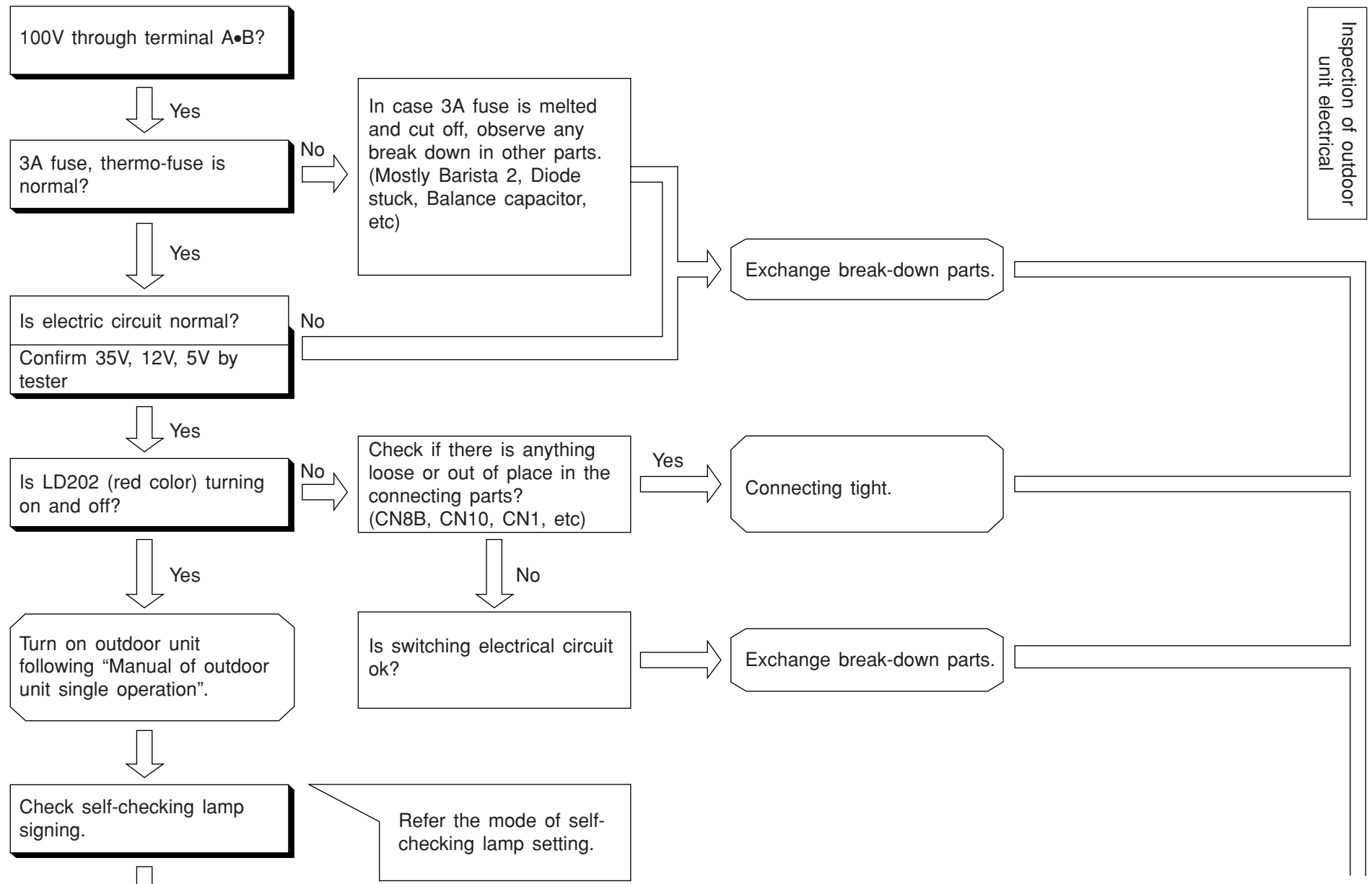
5. Louver is not working (others are normal).

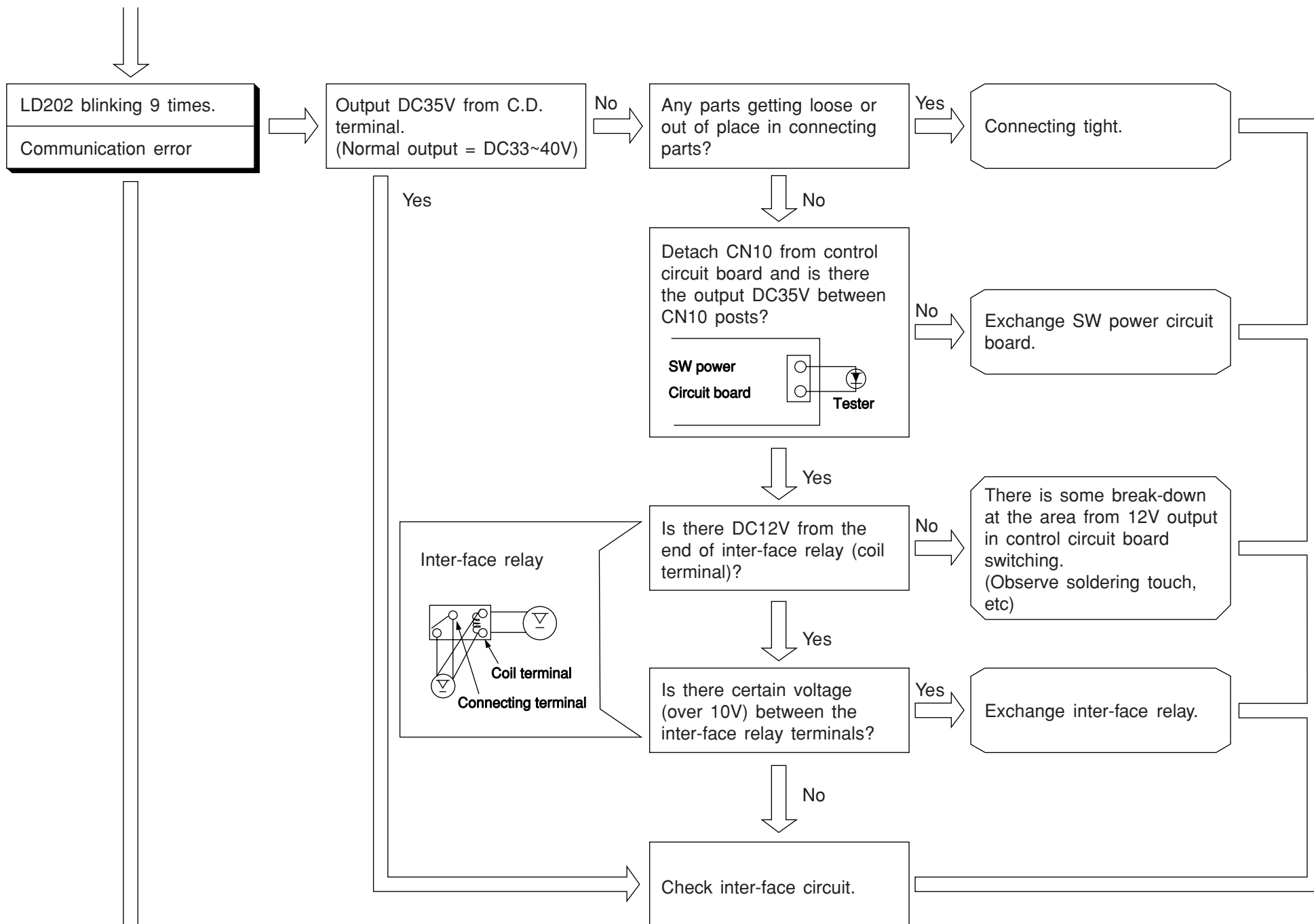


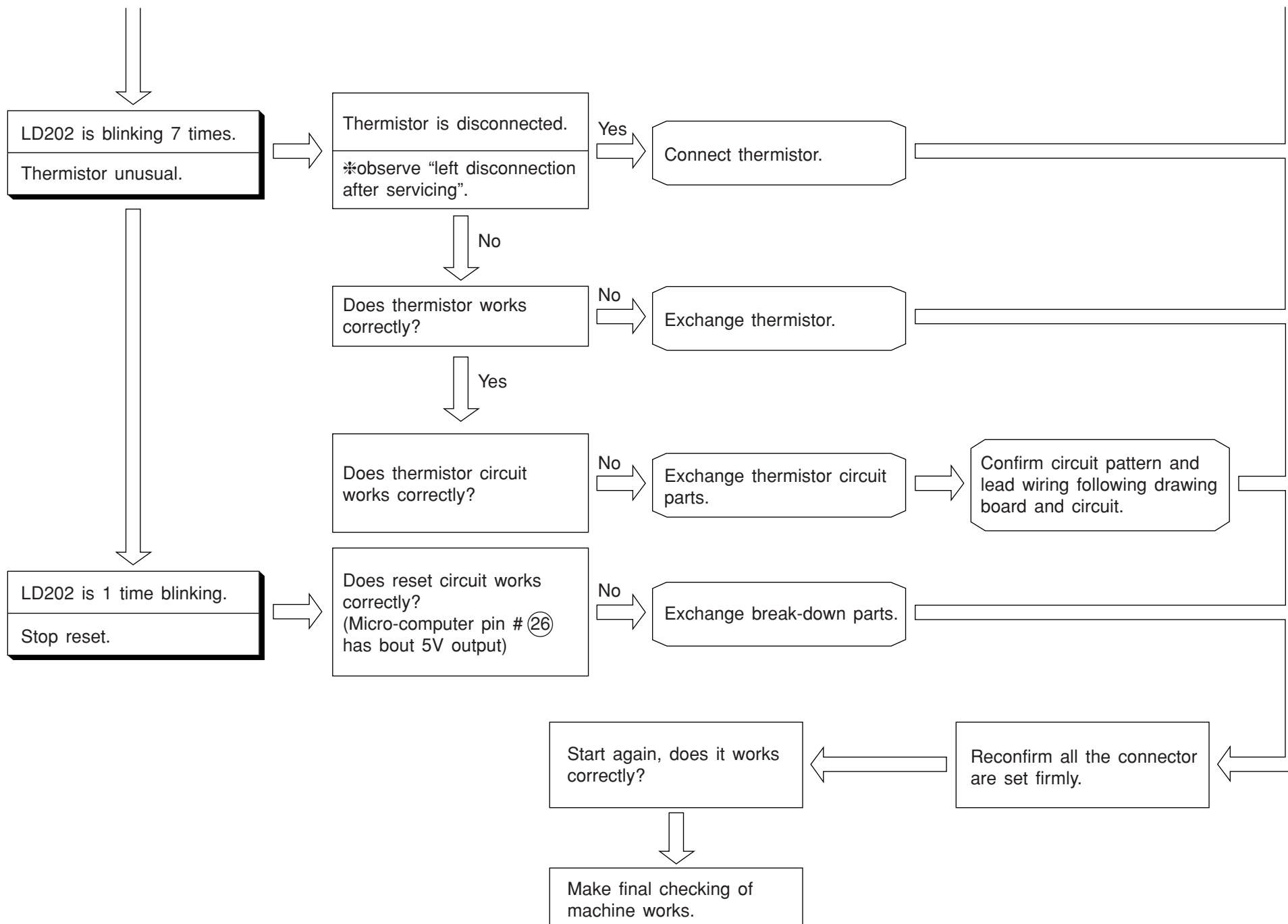
6. All operations suspended after a few second ~ a few minutes running (including all indications).



[No working • Not working correctly]







The lightening mode of self-checking lamp.

■ : Lighting

▨ : Blinking

□ : OFF

L D 2 0 2 (red color)	L D 2 0 1 (red color)	The term of self-checking	The matter (Contents)	Major check point
□	□	Normal operation or normal stop.	Main operation is on or off. Indoor thermo switch off.	Nothing wrong. (No break-down)
▨	□	Reset function is suspended.	Resetting of main power is not working. (Main power switch is normal)	Control circuit board. (Power supply circuit, micro- computer, etc)
1 time on and off				
▨	□	Thermistor having problem.	Thermistor open or short circuit.	① Thermistor ② Thermistor unconnected ③ Thermistor circuit (only heat pump type is blinking)
7 times on and off				
▨	□	Communication error.	Communication is interrupted.	① Cable wrongly connected ② Cable is cut-off ③ Indoor/Outdoor – inter-face circuit
9 times on and off				

*Indication instance of
lighting on and off (7 times)



(■ ... 0.25 second lighting on and
at 0.25 second is interval)

SERVICE OPERATION

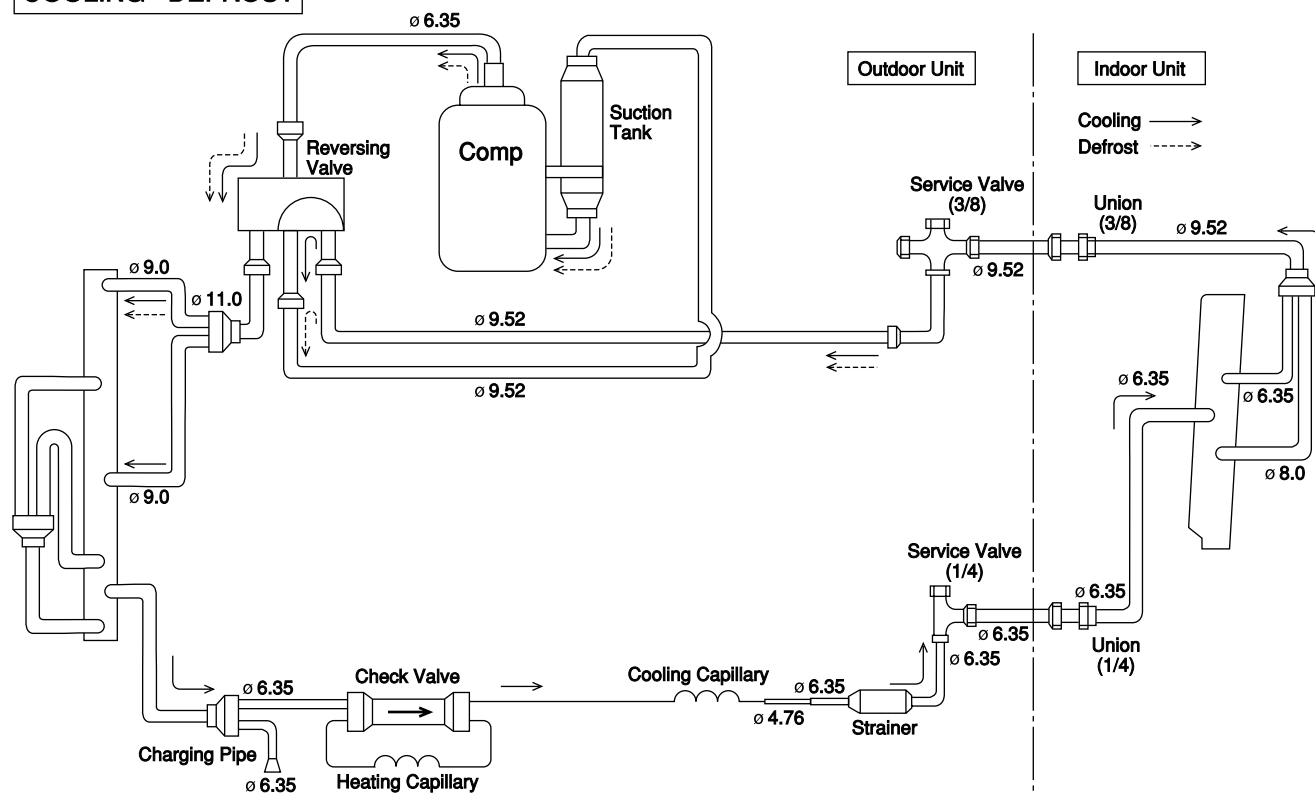
In case of collecting coolant medium and operating outdoor unit alone,
set the service switch of main circuit board to cooling after indoor unit
power is switched off and switched on again.
(It will be cooling cycle).
Make sure to put the service switch to normal and power switch off and
on again.

NOTE

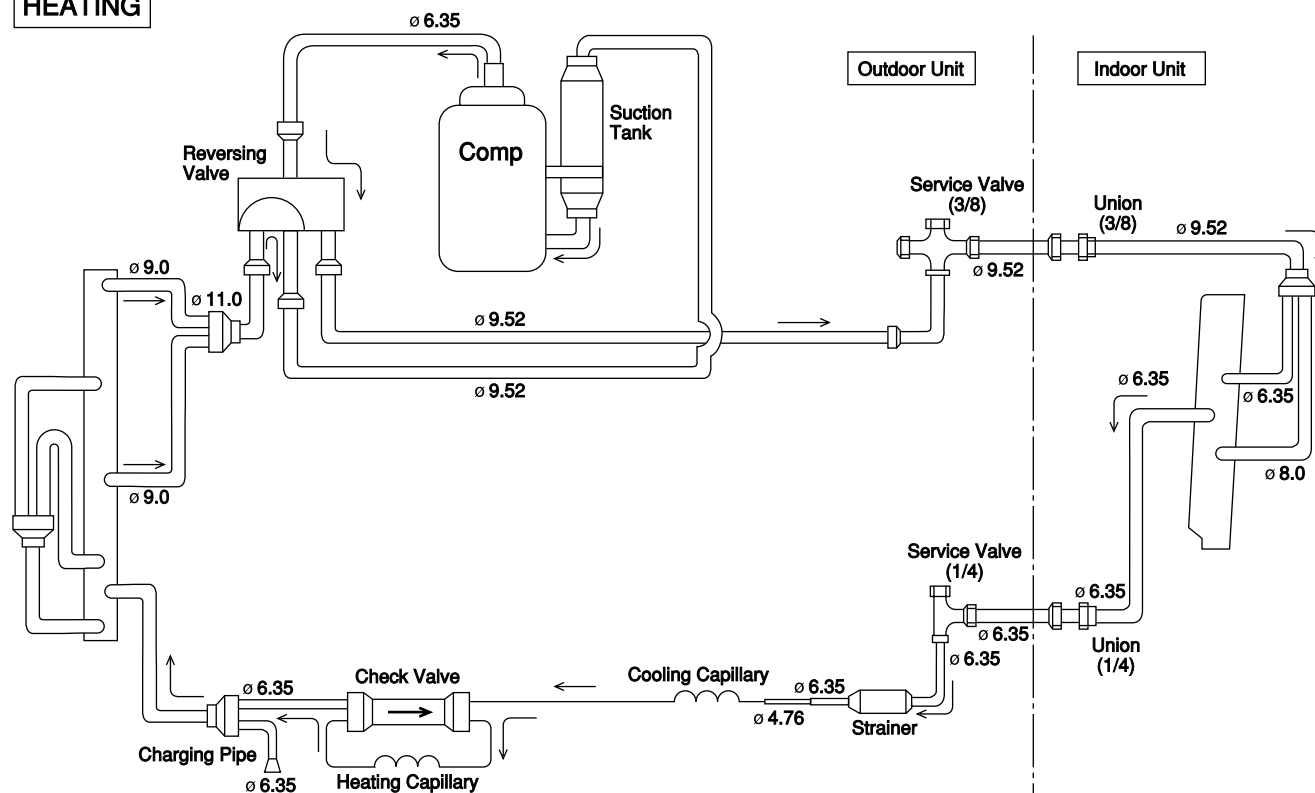
Confirm the power switch is off before operating.

REFRIGERATION CYCLE

COOLING • DEFROST

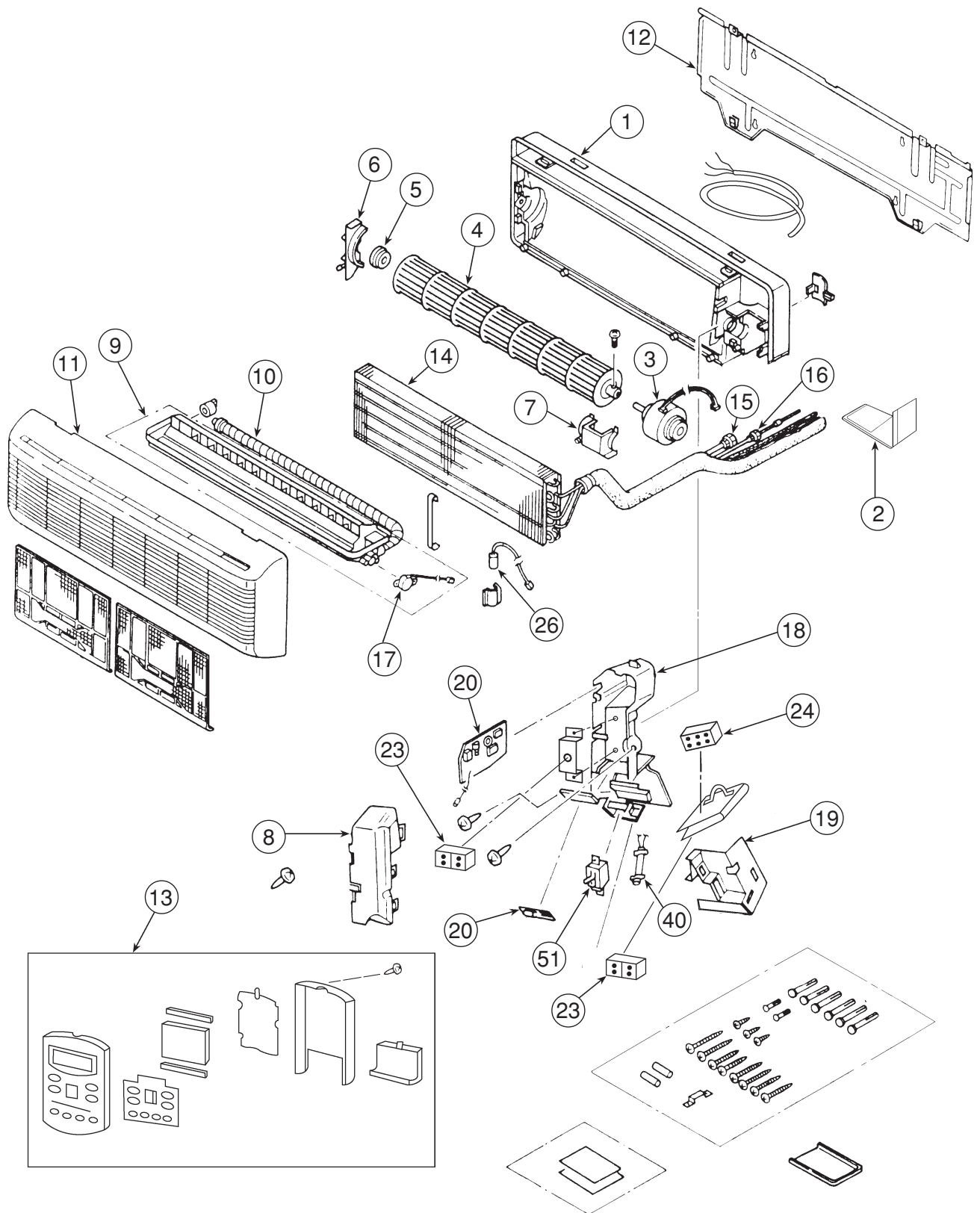


HEATING



PARTS LIST AND DIAGRAM

MODEL RAS-07CH1, RAS-09CH1



MODEL RAS-07CH1

NO.	PART NO. RAS-07CH1		Q'TY / UNIT	PARTS NAME
1	PMRAS-202B	001	1	CABINET
2	PMRAS-07C1	011	1	LOW-COVER
3	PMRAS-07CH1	002	1	20W MOTOR
4	PMRAS-09C1	003	1	TANGENTIAL FLOW FAN
5	PMRAS-05C	013	1	P-BEA ASSEMBLY
6	PMRAS-05C	004	1	BEARING COVER
7	PMRAS-05C	005	1	FAN MOTOR SUPPORT
8	PMRAS-05C	006	1	ELECTRICAL COVER
9	PMRAS-05C	007	1	DRAIN PAN ASSEMBLY
10	PMRAS-252B	014	1	DRAIN HOSE
11	PMRAS-07CH1	005	1	FRONT COVER ASS'Y
12	PMRAS-05C	009	1	MOUNTING PLATE
13	PMRAS-07CH1	001	1	REMOTE CONTROL
14	PMRAS-07CH1	006	1	EVAPORATOR
15	PMRAS-5100C	006	1	UNION (2)
16	PMRAS-5100C	017	1	UNION (3)
17	PMRAS-05C	012	1	STEP MOTOR
18	PMRAS-07CH1	021	1	ELECTRICAL CASE
19	PMRAS-07CH1	22	1	ELECTRICAL COVER
20	PMRAS-07CH1	003	1	PWB (MAIN AND INDICATION)
23	PMRAS-07C1	006	2	TERMINAL (2P)
24	PMRAS-07C1	007	1	TERMINAL BOARD (3P)
26	PMRAS-07CH1	007	1	ZR-POST-5P
27	PMRAS-07CH1	008	1	TRANSISTOR (2SA1121SC)
28	PMRAS-07CH1	09	1	IF-MODULE
29	PMRAS-07CH1	010	1	ZENER DIODE (RLZ10)
30	PMRAS-07CH1	011	1	ZENER DIODE (RZL24)
31	PMRAS-07CH1	012	1	DIODE (DIFL20U)
32	PMRAS-07CH1	013	1	DIODE (G4DL6140)
33	PMRAS-07CH1	014	1	BUZZER (PKM13EPP)
34	PMRAS-07CH1	015	1	COIL (82μH, 1.3A)
35	PMRAS-07CH1	016	1	COIL (450μH, 1.5A)
36	PMRAS-07CH1	017	1	CAPACITOR (470μF, 50V)
37	PMRAS-07CH1	018	1	CAPACITOR (220μF, 50V)

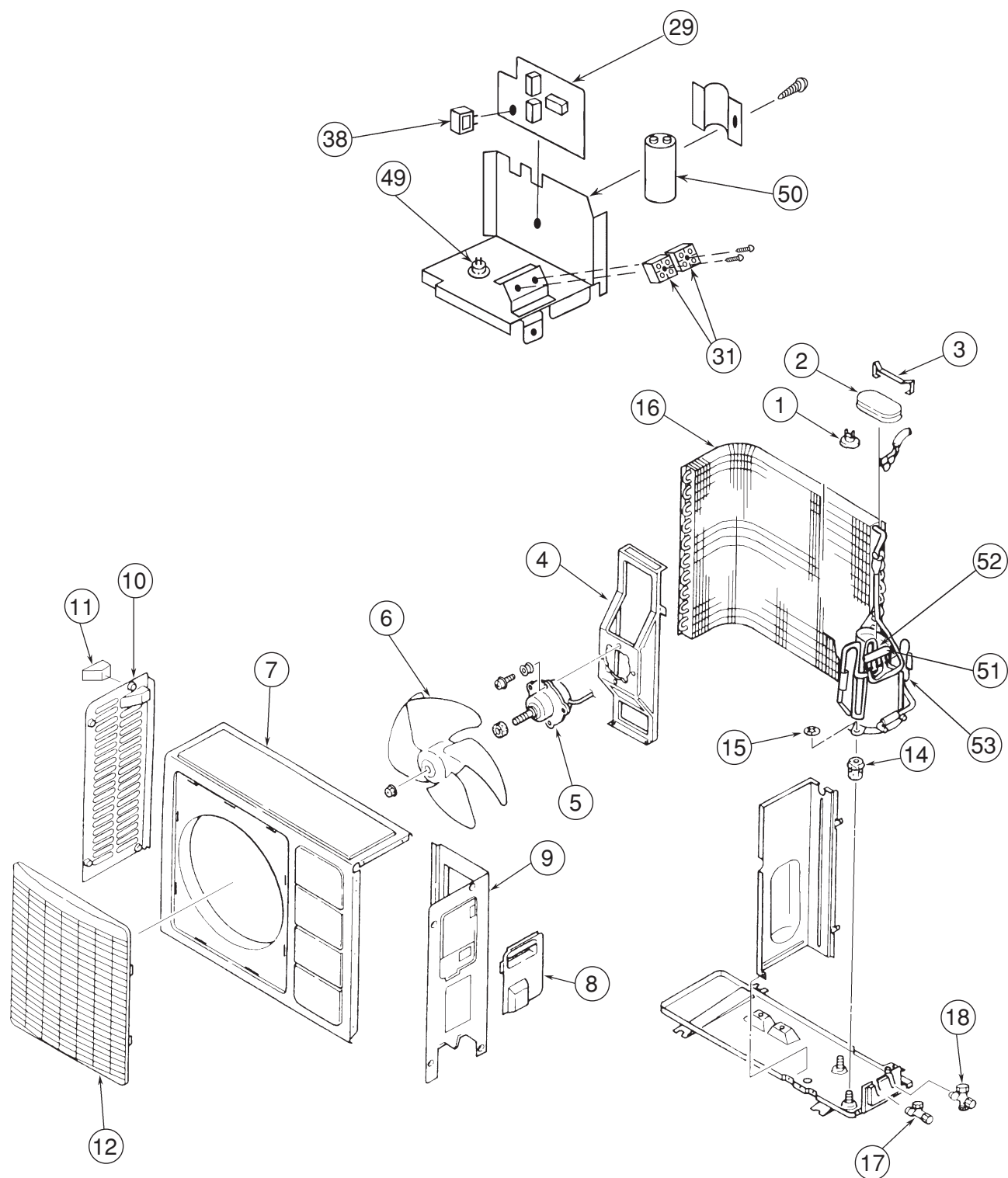
NO.	PART NO. RAS-07CH1		Q'TY / UNIT	PARTS NAME
38	PMRAS-05C	022	1	THERMISTOR (HEAT EXCHANGE)
39	PMRAS-07CH1	019	1	ZENER DIODE (RD 5.1UJN2)
40	PMRAS-07CH1	020	1	THERMAL FUSE (96°C)
41	PMRAS-05C	025	1	LED (ORANGE)
42	PMRAS-05C	026	1	LED (YELLOW)
43	PMRAS-05C	038	1	LIGHT RECEIVING UNIT
44	PMRAS-10ADF	912	1	REGULATOR (MC7805CT)
45	PMRAS-13C1K	007	1	DIODE (HSM2838CTR)
46	PMRAS-05C	039	1	TEMPORARY SWITCH
48	PMRAS-07CH1	007	1	REGULATOR (IR3MO3AN)
50	R-927CXV	034	1	TRANSISTOR (2SC2462LC)
51	RAS-288AX	011	1	SWITCH (POWER)
60	PMRAS-07C1	010	1	REMOTE CONTROL HOLDER

MODEL RAS-09CH1

NO.	PART NO. RAS-09CH1		Q'TY / UNIT	PARTS NAME
1	PMRAS-202B	001	1	CABINET
2	PMRAS-07C1	011	1	LOW-COVER
3	PMRAS-07CH1	002	1	20W MOTOR
4	PMRAS-09C1	003	1	TANGENTIAL FLOW FAN
5	PMRAS-05C	013	1	P-BEA ASSEMBLY
6	PMRAS-05C	004	1	BEARING COVER
7	PMRAS-05C	005	1	FAN MOTOR SUPPORT
8	PMRAS-05C	006	1	ELECTRICAL COVER
9	PMRAS-05C	007	1	DRAIN PAN ASSEMBLY
10	PMRAS-252B	014	1	DRAIN HOSE
11	PMRAS-07CH1	005	1	FRONT COVER ASS'Y
12	PMRAS-05C	009	1	MOUNTING PLATE
13	PMRAS-07CH1	001	1	REMOTE CONTROL
14	PMRAS-09CH1	006	1	EVAPORATOR
15	RAS-5202C1	912	1	UNION (2)
16	PMRAS-5100C	017	1	UNION (3)
17	PMRAS-05C	012	1	STEP MOTOR
18	PMRAS-07CH1	021	1	ELECTRICAL CASE
19	PMRAS-07CH1	22	1	ELECTRICAL COVER
20	PMRAS-09CHA1R	001	1	PWB (MAIN AND INDICATION)
23	PMRAS-07C1	006	2	TERMINAL (2P)
24	PMRAS-07C1	007	1	TERMINAL BOARD (3P)
26	PMRAS-07CH1	007	1	ZR-POST-5P
27	PMRAS-07CH1	008	1	TRANSISTOR (2SA1121SC)
28	PMRAS-07CH1	09	1	IF-MODULE
29	PMRAS-07CH1	010	1	ZENER DIODE (RLZ10)
30	PMRAS-07CH1	011	1	ZENER DIODE (RZL24)
31	PMRAS-07CH1	012	1	DIODE (DIFL20U)
32	PMRAS-07CH1	013	1	DIODE (G4DL6140)
33	PMRAS-07CH1	014	1	BUZZER (PKM13EPP)
34	PMRAS-07CH1	015	1	COIL (82μH, 1.3A)
35	PMRAS-07CH1	016	1	COIL (450μH, 1.5A)
36	PMRAS-07CH1	017	1	CAPACITOR (470μF, 50V)
37	PMRAS-07CH1	018	1	CAPACITOR (220μF, 50V)

NO.	PART NO. RAS-09CH1		Q'TY / UNIT	PARTS NAME
38	PMRAS-05C	022	1	THERMISTOR (HEAT EXCHANGE)
39	PMRAS-07CH1	019	1	ZENER DIODE (RD 5.1UJN2)
40	PMRAS-07CH1	020	1	THERMAL FUSE (96°C)
41	PMRAS-05C	025	1	LED (ORANGE)
42	PMRAS-05C	026	1	LED (YELLOW)
43	PMRAS-05C	038	1	LIGHT RECEIVING UNIT
44	PMRAS-10ADF	912	1	REGULATOR (MC7805CT)
45	PMRAS-13C1K	007	1	DIODE (HSM2838CTR)
46	PMRAS-05C	039	1	TEMPORARY SWITCH
48	PMRAS-07CH1	007	1	REGULATOR (IR3MO3AN)
50	R-927CXV	034	1	TRANSISTOR (2SC2462LC)
51	RAS-288AX	011	1	SWITCH (POWER)
60	PMRAS-07C1	010	1	REMOTE CONTROL HOLDER

MODEL RAC-07CHV1, RAC-09CHV1



MODEL RAC-07CHV1

NO.	PART NO. RAC-07CHV1		Q'TY / UNIT	PARTS NAME
1	RAC-1816S	004	1	OVERHEAT RELAY
2	RA-226	015	1	O.L.R. COVER
3	RA-226	016	1	COVER SUPPORT
4	PMRAC-05CV	901	1	FAN MOTOR SUPPORT
5	PMRAC-07CHV1	901	1	20W MOTOR
6	PMRAC-05CV	903	1	PROPELLER FAN
7	PMRAC-05CV	904	1	CABINET
8	PMRAC-05CV	905	1	ELECTRICAL COVER ASSEMBLY
9	PMRAC-05CV	906	1	SIDE PLATE (R)
10	PMRAC-05CV	907	1	SIDE PLATE (L)
11	PMRAC-05CV	908	1	HANDLE
12	PMRAC-05CV	909	1	GRILL
13	PMRAC-07CHV1	902	1	COMPRESSOR 600W 10KG
14	RAC-2226HV	805	3	COMPRESSOR RUBBER
15	KPNT1	001	3	PUST NUT
16	PMRAC-07CHV1	903	1	CONDENSER
17	PMRAC-07CHV1	904	1	2S-VALVE
18	PMRAC-05CV	914	1	3S-VALVE
19	PMRAC-07CHV1	907	1	MICROCOMPUTER (AX8G10)
20	PMRAC-07CHV1	908	1	LED (RED)
21	PMRAC-07CHV1	909	1	IF-MODULE
22	PMRAC-07CHV1	910	1	RELAY (G4A-RELAY)
23	PMRAC-07CHV1	911	1	NOISE FILTER (NF-COIL 1)
24	PMRAC-07CHV1	912	1	NOISE FILTER (NF-COIL 2)
25	PMRAC-07CHV1	913	1	OSCILLATOR (4MHz)
26	PMRAC-07CHV1	914	1	INTERFACE RELAY
27	PMRAC-07CHV1	915	1	REGULATOR (HA17431PA)
28	PMRAC-07CHV1	916	1	COIL (82μH)
29	PMRAC-07CHV1	917	1	P.W.B. (MAIN)
30	PMRAC-07CHV1	918	2	CAPACITOR (0.01μF, AC400V)
31	PMRAS-07C1	006	2	TERMINAL (2P)
32	PMRAS-10ADF	912	1	REGULATOR (MC7805CT)
33	PMRAS-5100C	013	1	FUSE (3.15A)
34	R-326JIK	093	1	TRANSISTOR (2SA673CTZ)

NO.	PART NO. RAC-07CHV1		Q'TY / UNIT	PARTS NAME
35	R-326JIK	094	1	TRANSISTOR (2SC458)
36	PMRAC-07CHV1	919	1	EEPROM
37	PMRAC-07CHV1	906	1	TRANSISTOR (2SD2019)
38	PMRAC-07CHV1	905	1	CAPACITOR (1.5μF, 400V)
39	PMRA-10ADF	910	1	FAN RELAY
40	RAC-2566THV	002	1	SURGE ABSORBER
41	RAC-289DX2	009	1	DIODE (D601)
42	RAC-505BHM3	014	1	SPARK KILLER (SKI)
43	RAS-2216W1	011	2	FUSE HOLDER
44	RAS-2236W	056	2	CAPACITOR (0.047μF, 25V)
45	RAS-2568W	045	1	DIODE (D3SB60Z)
46	RAS-2568W	053	2	CAPACITOR (0.01μF, AC250V)
47	RAS-329DX	010	1	INDUCTOR (L801)
48	RAS-5101C	916	1	DRIVER IC (ULN2003AN)
49	PMRAC-07CV1	903	1	OVERLOAD RELAY (4.0C36C10L)
50	RAC-3520BHV	003	1	CAPACITOR (30μF, 400V)
51	PMRAC-07CHV1	920	1	REVERSING VALVE
52	PMRAC-07CHV1	921	1	COIL (REVERSING VALVE)
53	PMRAC-07CHV1	922	1	CHECK VALVE

MODEL RAC-09CHV1

NO.	PART NO. RAC-09CHV1		Q'TY / UNIT	PARTS NAME
1	RAC-1816S	004	1	OVERHEAT RELAY
2	RA-226	015	1	O.L.R. COVER
3	RA-226	016	1	COVER SUPPORT
4	PMRAC-05CV	901	1	FAN MOTOR SUPPORT
5	PMRAC-07CHV1	901	1	20W MOTOR
6	PMRAC-05CV	903	1	PROPELLER FAN
7	PMRAC-05CV	904	1	CABINET
8	PMRAC-05CV	905	1	ELECTRICAL COVER ASSEMBLY
9	PMRAC-05CV	906	1	SIDE PLATE (R)
10	PMRAC-05CV	907	1	SIDE PLATE (L)
11	PMRAC-05CV	908	1	HANDLE
12	PMRAC-05CV	909	1	GRILL
13	PMRAC-09CHV1	901	1	COMPRESSOR 750W 10KG
14	RAC-2226HV	805	3	COMPRESSOR RUBBER
15	KPNT1	001	3	PUST NUT
16	PMRAC-07CHV1	903	1	CONDENSER
17	PMRAC-07CHV1	904	1	2S-VALVE
18	PMRAC-05CV	914	1	3S-VALVE
19	PMRAC-07CHV1	907	1	MICROCOMPUTER (AX8G10)
20	PMRAC-07CHV1	908	1	LED (RED)
21	PMRAC-07CHV1	909	1	IF-MODULE
22	PMRAC-07CHV1	910	1	RELAY (G4A-RELAY)
23	PMRAC-07CHV1	911	1	NOISE FILTER (NF-COIL 1)
24	PMRAC-07CHV1	912	1	NOISE FILTER (NF-COIL 2)
25	PMRAC-07CHV1	913	1	OSCILLATOR (4MHz)
26	PMRAC-07CHV1	914	1	INTERFACE RELAY
27	PMRAC-07CHV1	915	1	REGULATOR (HA17431PA)
28	PMRAC-07CHV1	916	1	COIL (82μH)
29	PMRAC-07CHV1	917	1	P.W.B. (MAIN)
30	PMRAC-07CHV1	918	2	CAPACITOR (0.01μF, AC400V)
31	PMRAS-07C1	006	2	TERMINAL (2P)
32	PMRAS-10ADF	912	1	REGULATOR (MC7805CT)
33	PMRAS-5100C	013	1	FUSE (3.15A)
34	R-326JIK	093	1	TRANSISTOR (2SA673CTZ)

NO.	PART NO. RAC-09CHV1		Q'TY / UNIT	PARTS NAME
35	R-326JIK	094	1	TRANSISTOR (2SC458)
36	PMRAC-07CHV1	919	1	EEPROM
37	PMRAC-07CHV1	906	1	TRANSISTOR (2SD2019)
38	PMRAC-07CHV1	905	1	CAPACITOR (1.5μF, 400V)
39	PMRA-10ADF	910	1	FAN RELAY
40	RAC-2566THV	002	1	SURGE ABSORBER
41	RAC-289DX2	009	1	DIODE (D601)
42	RAC-505BHM3	014	1	SPARK KILLER (SKI)
43	RAS-2216W1	011	2	FUSE HOLDER
44	RAS-2236W	056	2	CAPACITOR (0.047μF, 25V)
45	RAS-2568W	045	1	DIODE (D3SB60Z)
46	RAS-2568W	053	2	CAPACITOR (0.01μF, AC250V)
47	RAS-329DX	010	1	INDUCTOR (L801)
48	RAS-5101C	916	1	DRIVER IC (ULN2003AN)
49	PMRAC-5100CV	102	1	OVERLOAD RELAY (5.6C36C10L)
50	RAC-3520BHV	003	1	CAPACITOR (30μF, 400V)
51	PMRAC-07CHV1	920	1	REVERSING VALVE
52	PMRAC-07CHV1	921	1	COIL (REVERSING VALVE)
53	PMRAC-07CHV1	922	1	CHECK VALVE

[illegible]

Dotted lines for writing.

This image shows a full page of a document template designed for writing. It features approximately 30 evenly spaced, thin horizontal grey lines across the entire width of the page. The background is white, and there are no margins, headers, or footers visible. This type of template is commonly used for students to practice handwriting or for anyone needing a simple space to write notes.

[illegible]

HITACHI

RAS-07CH1/RAC-07CHV1
RAS-09CH1/RAC-09CHV1

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