

Revision A:

• MS-CP30VA - **GU1** has been added.

OBH782 is void.

INDOOR UNIT

SERVICE MANUAL



No. OBH782
REVISED EDITION-A

Models

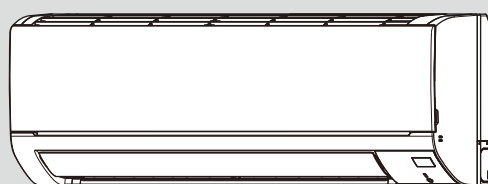
MS-CP13VA - **GU1**

MS-CP18VA - **GU1**

MS-CP24VA - **GU1**

MS-CP30VA - **GU1**

Outdoor unit service manual
MU-CP-VA Series (OBH783)



MS-CP13VA



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PARTS CATALOG (OBB782)

Use the specified refrigerant only

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.

Correct refrigerant is specified in the manuals and on the spec labels provided with our products.

We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

<Preparation before the repair service>

- Prepare the proper tools.
- Prepare the proper protectors.
- Provide adequate ventilation.
- After stopping the operation of the air conditioner, turn off the power-supply breaker and pull the power plug.
- Discharge the capacitor before the work involving the electric parts.

<Precautions during the repair service>

- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigeration cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power, exercise great caution not to touch the live parts.

WARNING

When the refrigeration circuit has a leak, do not execute pump down with the compressor.

When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

Revision A:

- MS-CP30VA -  has been added.

1

TECHNICAL CHANGES

MS-CP13VA - 

MS-CP18VA - 

MS-CP24VA - 

1. New model

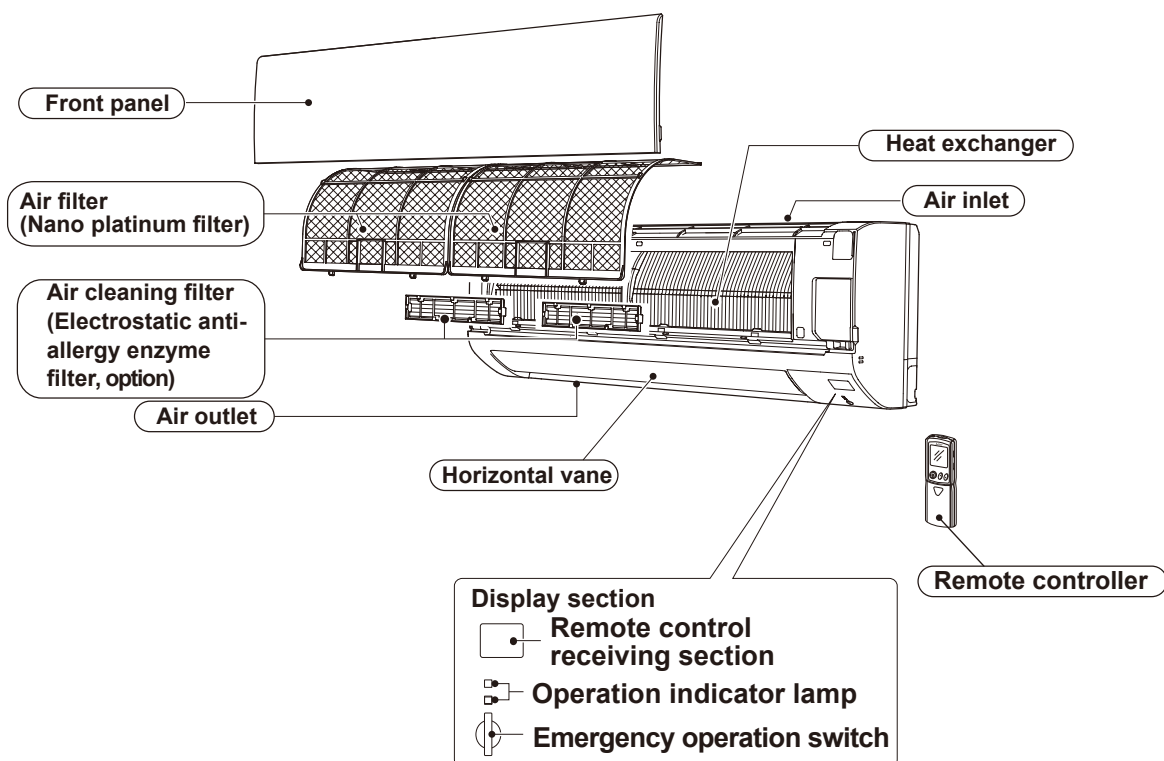
MS-CP30VA - 

1. New model

2

PART NAMES AND FUNCTIONS

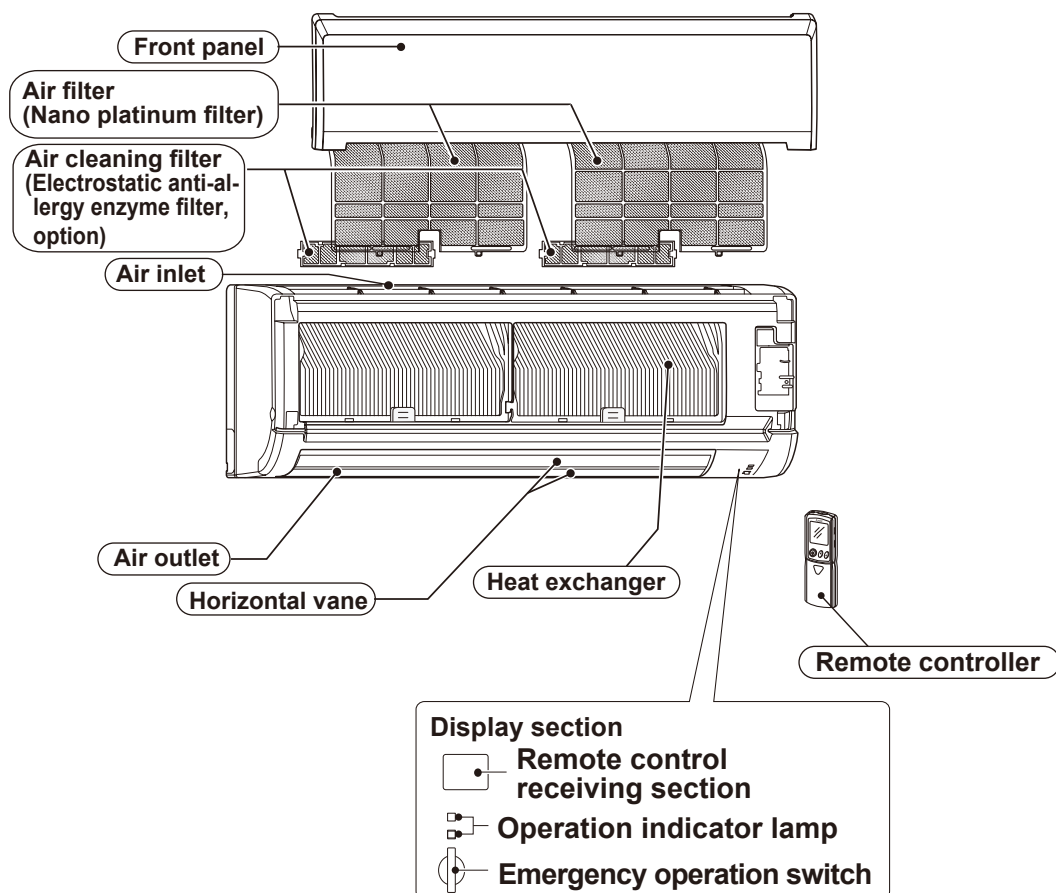
MS-CP13VA



ACCESSORIES

Model	MS-CP13VA
(1) Installation plate	1
(2) Installation plate fixing screw 4 × 25 mm	5
(3) Wireless remote controller	1
(4) Felt tape (For left or left-rear piping)	1
(5) Remote controller holder	1
(6) Fixing screw for remote controller holder 3.5 × 16 mm (Black)	2
(7) Battery (AAA) for wireless remote controller	2

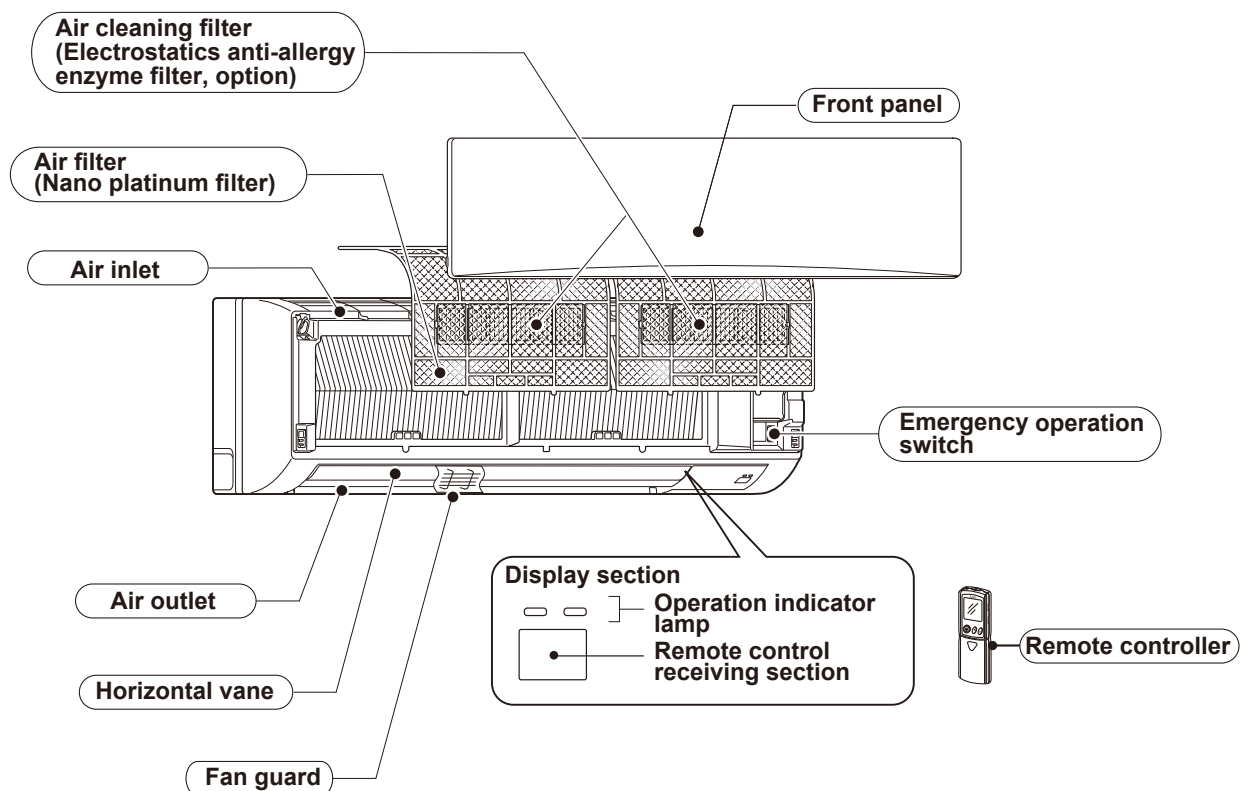
MS-CP18VA MS-CP24VA



ACCESSORIES

Model		MS-CP18VA MS-CP24VA
(1)	Installation plate	1
(2)	Installation plate fixing screw 4 × 25 mm	7
(3)	Wireless remote controller	1
(4)	Felt tape (For left or left-rear piping)	1
(5)	Remote controller holder	1
(6)	Fixing screw for remote controller holder 3.5 × 16 mm (Black)	2
(7)	Battery (AAA) for wireless remote controller	2

MS-CP30VA



ACCESSORIES

Model		MS-CP30VA
(1)	Installation plate	1
(2)	Installation plate fixing screw 4 × 25 mm	7
(3)	Remote controller holder	1
(4)	Screw for (3) 3.5 × 16 mm (Black) 3.5 × 16 mm (Black)	2
(5)	Battery (AAA) for wireless remote controller	2
(6)	Wireless remote controller holder	1
(7)	Felt tape (Used for left or left-rear piping)	2
(8)	Charge nut	1
(9)	L-Joint pipe	1

Indoor model			MS-CP13VA	MS-CP18VA	MS-CP24VA	MS-CP30VA		
Function			Cooling					
Power supply			Single phase 220-230-240 V, 50 Hz					
Electrical data	Running current		A	0.33	0.53	0.58	0.61	
	Power input		W	34	62	70	70	
Fan motor	Model		RC0J40-EF	RC0J56-AF		RC0J56-AJ		
	Current		A	0.33	0.53	0.58	0.61	
Dimensions W × H × D			mm	799 × 290 × 232		1,100 x 325 x 238		1,170 x 365 x 295
Weight			kg	10	16		18	
Special remarks	Air direction			5				
	Airflow	Super High		m ³ /h	828	1,320	1,380	1,549
		High			660	1,110	1,122	1,392
		Med.			522	930	954	1,146
		Low			396	786	822	924
	Sound level	Super High		dB (A)	47	53	53	53
		High			42	46	47	47
		Med.			36	41	42	42
		Low			29	35	37	37
	Fan speed	Super High		rpm	1,270	1,290	1,340	1,200
		High			1,070	1,120	1,130	1,100
		Med.			900	970	990	940
		Low			740	840	870	790
	Fan speed regulator			4				
Remote controller model			KM15D	KM16A				

NOTE: Test conditions are based on ISO 5151.

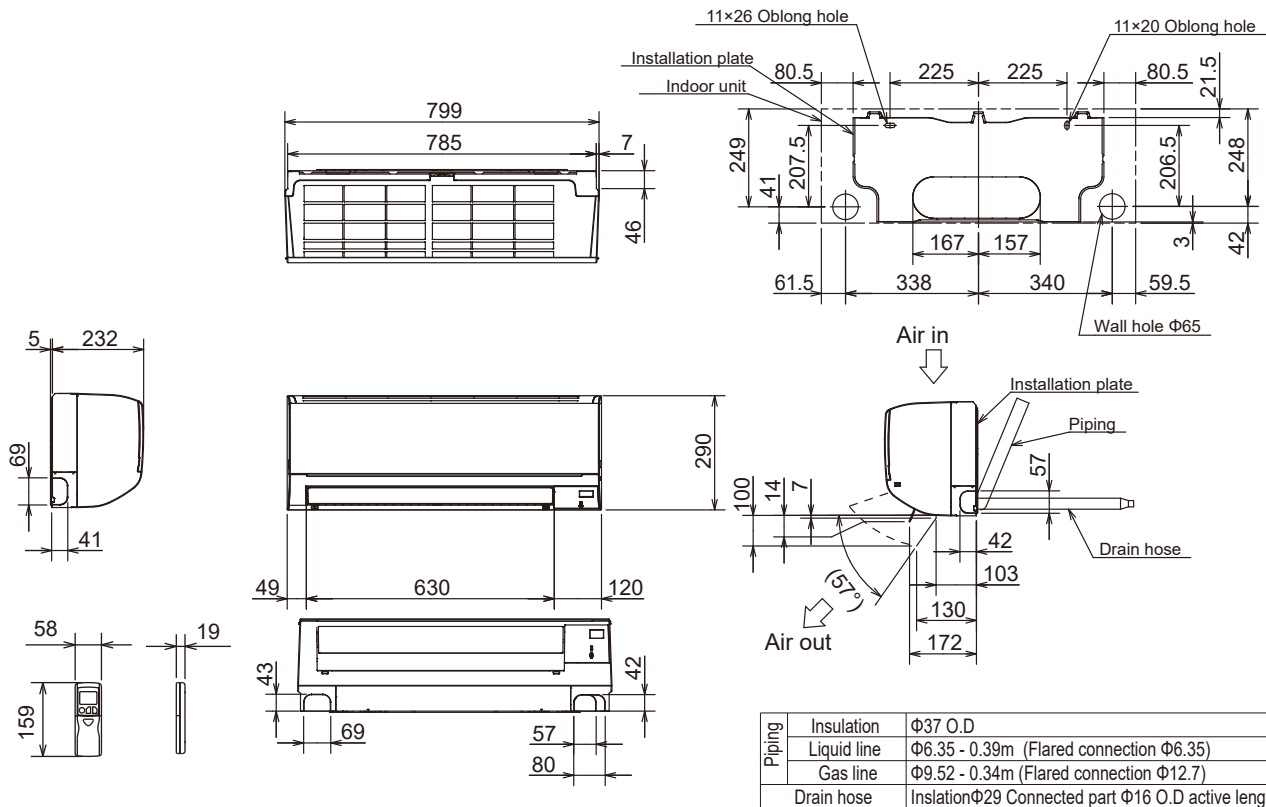
Cooling: Indoor Dry-bulb temperature 27 °C Wet-bulb temperature 19 °C

Outdoor Dry-bulb temperature 35 °C Wet-bulb temperature 24 °C

Indoor-Outdoor piping length: 7.5 m

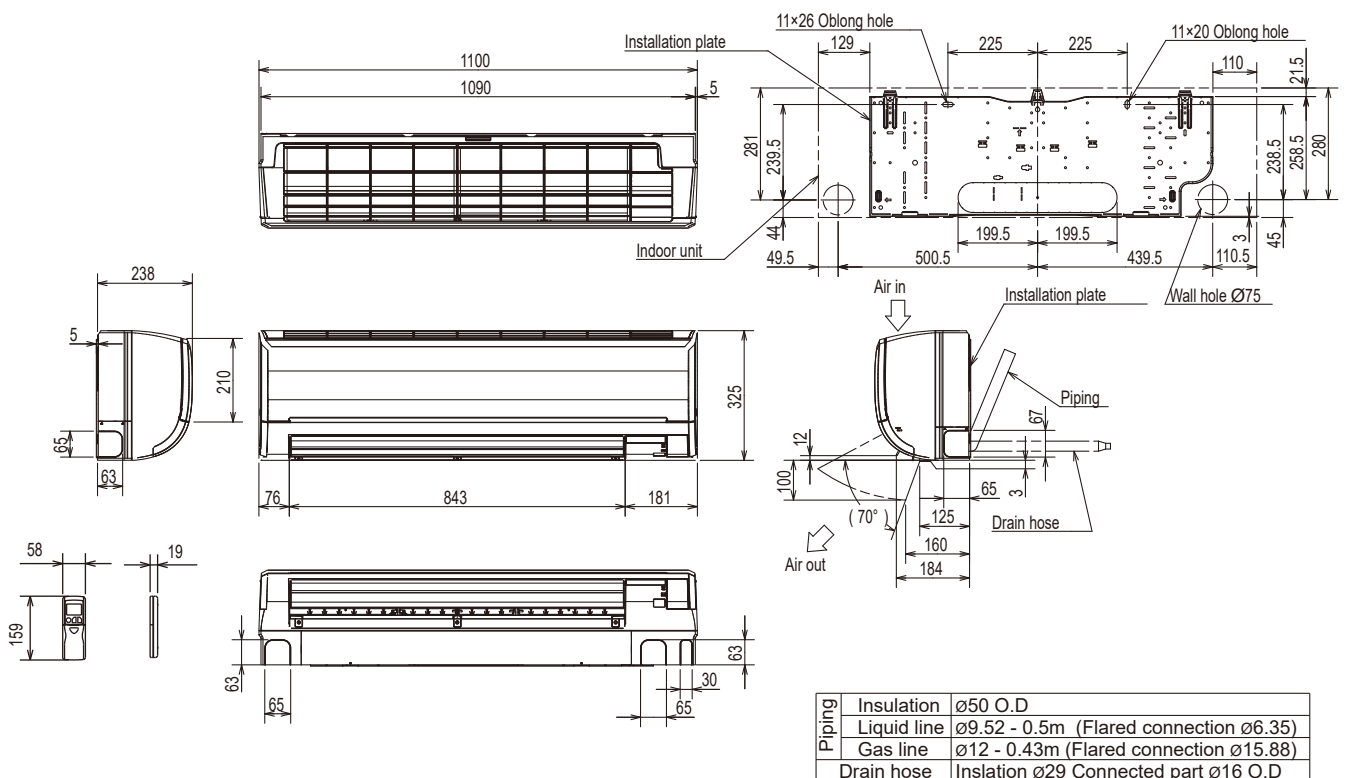
MS-CP13VA

Unit: mm



MS-CP18VA MS-CP24VA

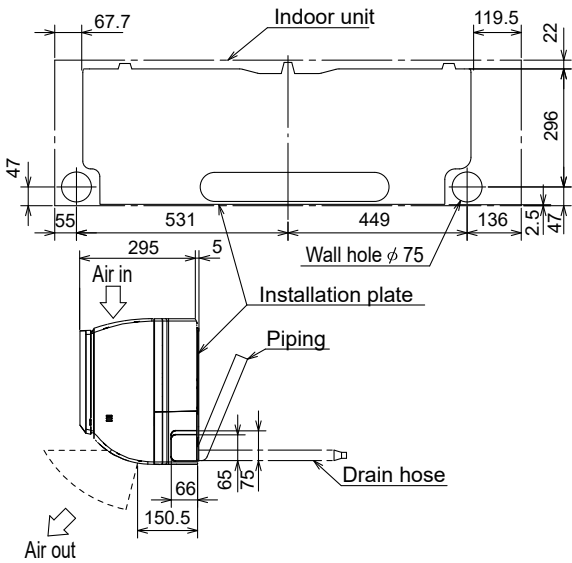
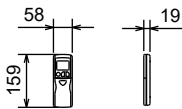
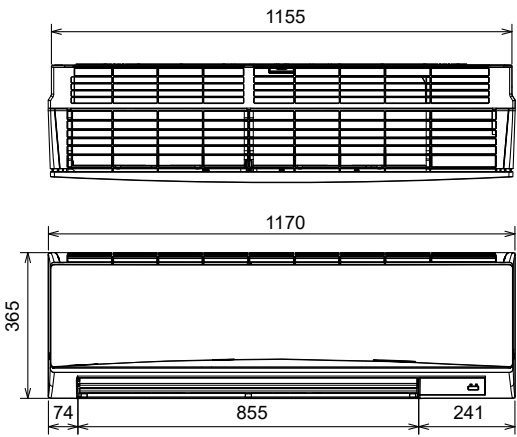
Unit: mm





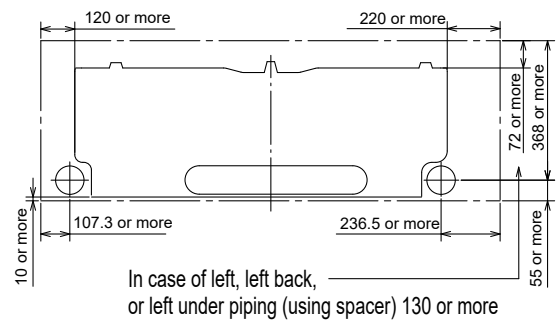
MS-CP30VA

Unit: mm



	Piping	Insulation
Liquid line	φ9.52 - 0.5m (Flared connection φ9.52)	φ31 O.D φ15 I.D
Gas line	φ15.88 - 0.4m (Joint connection φ15.88-0.4m) (Flared connection φ19.05)	φ50 O.D φ32 I.D
Drain hose	Insulation φ29 Connected part φ16 O.D	

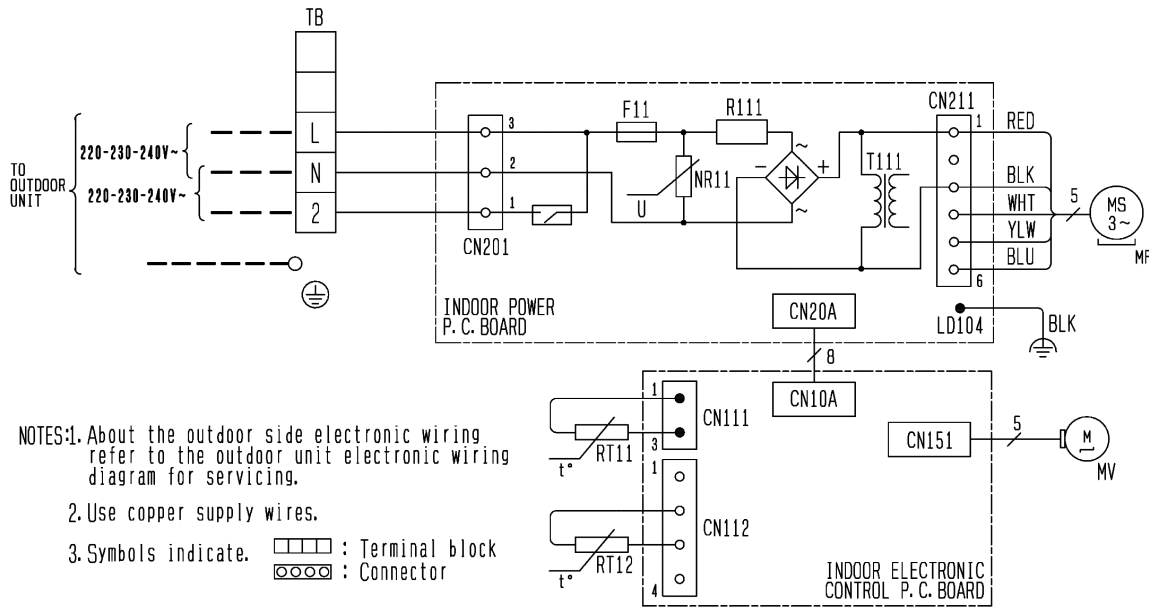
Required Space (Indoor Unit)



5

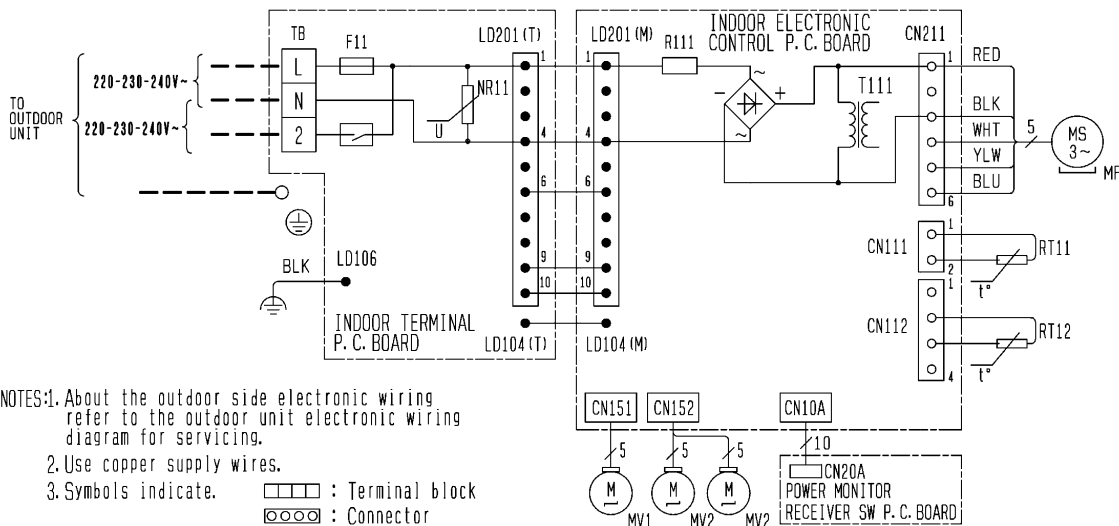
WIRING DIAGRAM

MS-CP13VA



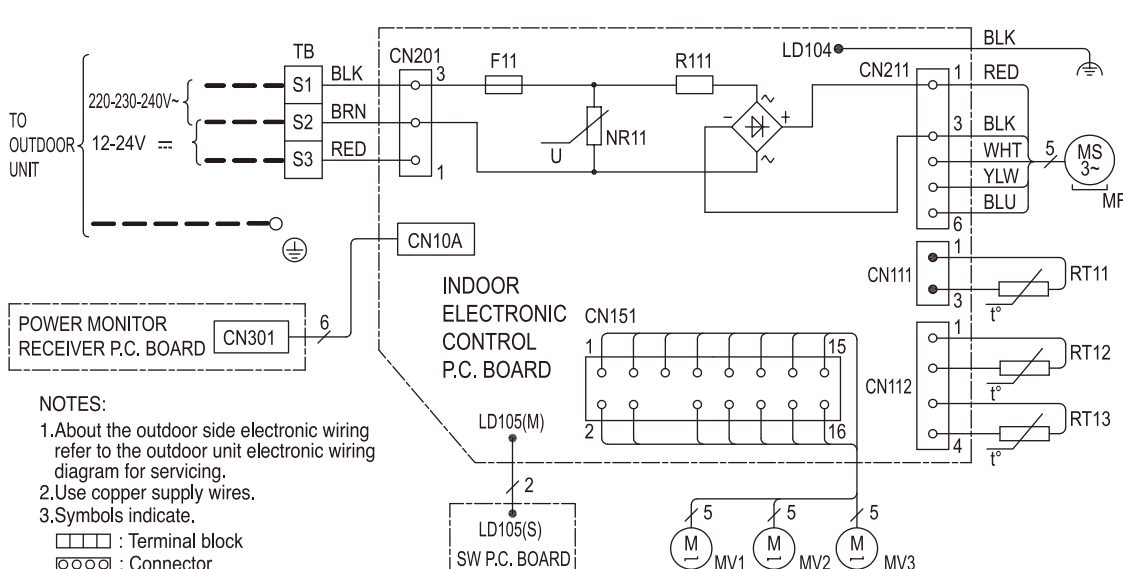
SYMBOL	NAME
F11	FUSE (T3.15A/250V)
MF	FAN MOTOR
MV	VANE MOTOR (HORIZONTAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR
T111	TRANSFORMER
TB	TERMINAL BLOCK

MS-CP18VA MS-CP24VA



SYMBOL	NAME
F11	FUSE (T3.15A/250V)
MF	FAN MOTOR
MV1	VANE MOTOR (HORIZONTAL)
MV2	VANE MOTOR (VERTICAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR
T111	TRANSFORMER
TB	TERMINAL BLOCK

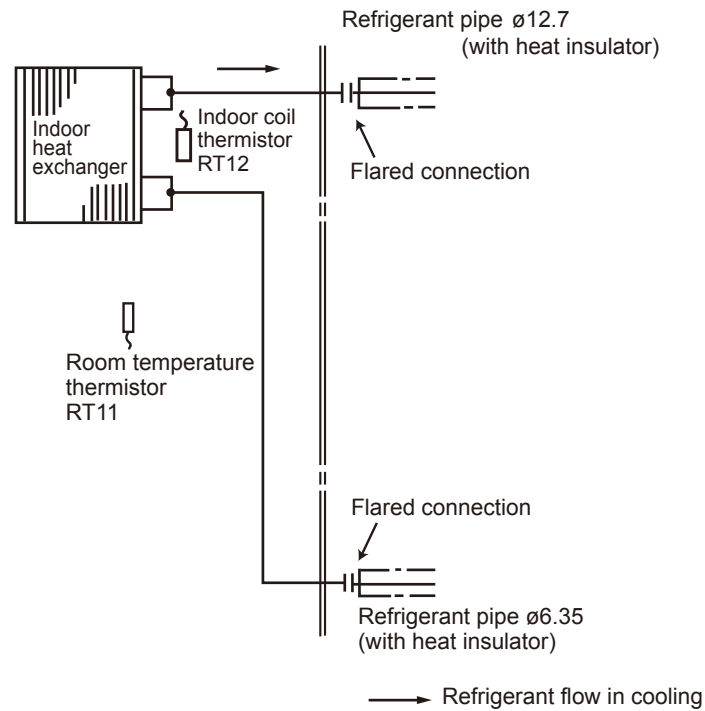
MS-CP30VA



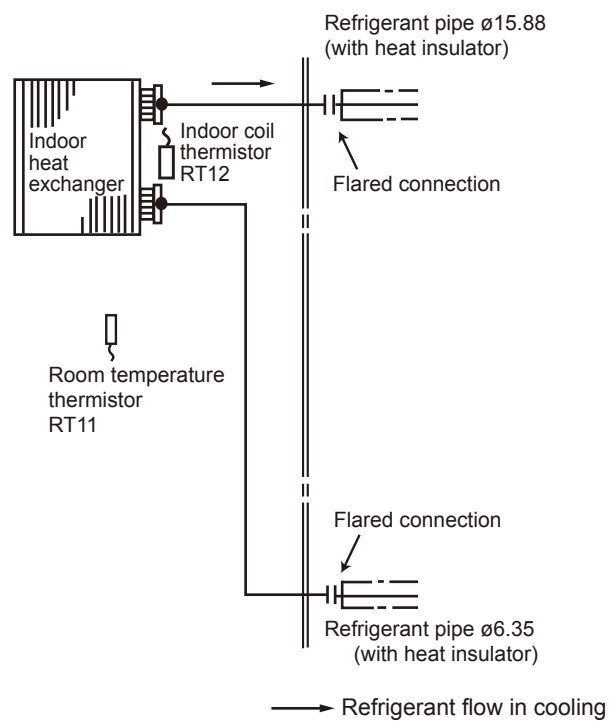
SYMBOL	NAME
F11	FUSE (T3.15A/250V)
MF	FAN MOTOR
MV1	VANE MOTOR (HORIZONTAL)
MV2	VANE MOTOR (VERTICAL RIGHT)
MV3	VANE MOTOR (VERTICAL LEFT)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
TB	TERMINAL BLOCK

MS-CP13VA

Unit: mm

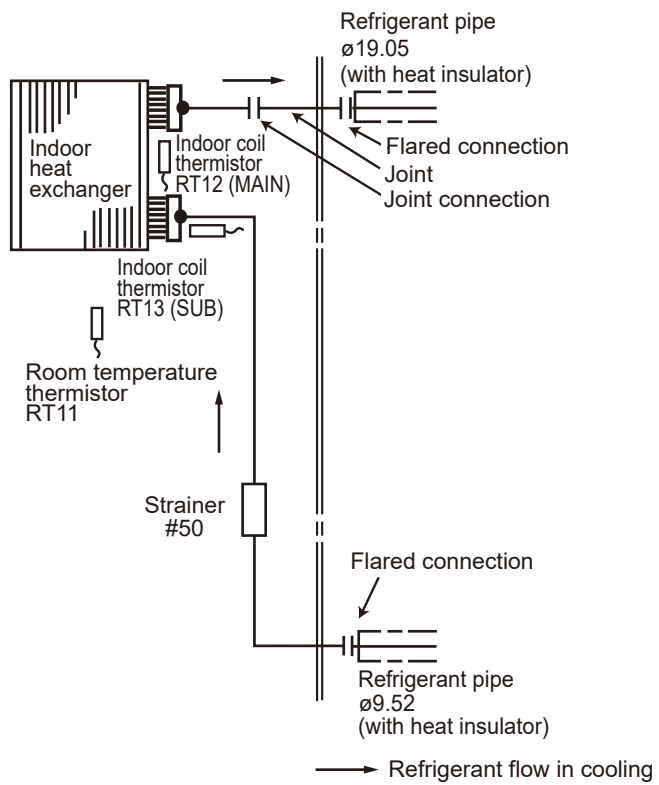


MS-CP18VA MS-CP24VA



MS-CP30VA

Unit: mm



MS-CP13VA MS-CP18VA MS-CP24VA MS-CP30VA**7-1. TIMER SHORT MODE**

For service, the following set time can be shortened by bridging the timer short mode point on the electronic control P.C. board. (Refer to 9-7.)

Set time: 3 minutes → 3 seconds (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by bridging the timer short mode.)

7-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

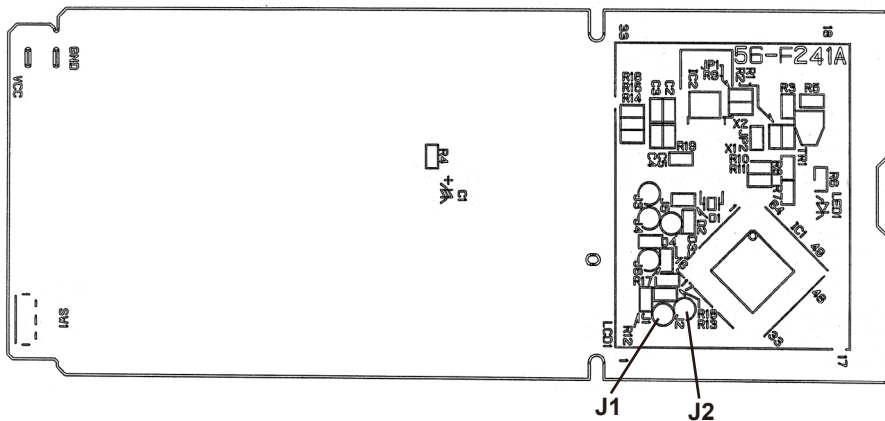
A maximum of 4 indoor units with wireless remote controllers can be used in a room.

In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.

The board has a print as shown below:



NOTE: For modification, take out the batteries and press the OFF/ON (stop/operate) button 2 or 3 times at first. After modification, put back the batteries then press the RESET button.

The P.C. board has the print "J1" and "J2". Solder "J1" and "J2" according to the number of indoor unit as shown in Table 1. After modification, press the RESET button.

Table 1

	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	—	Solder J1	Same as at left	Same as at left
No. 3 unit	—	—	Solder J2	Same as at left
No. 4 unit	—	—	—	Solder both J1 and J2

How to set the remote controller exclusively for particular indoor unit

After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.

The indoor unit will only accept the signal from the remote controller that has been assigned to the indoor unit once they are set. The setting will be cancelled if the breaker is turned OFF, or the power supply is shut down.

Please conduct the above setting once again after the power has been restored.

7-3. AUTO RESTART FUNCTION

When the indoor unit is controlled with the remote controller, the operation mode, the set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. "AUTO RESTART FUNCTION" automatically starts operation in the same mode just before the shutoff of the main power.

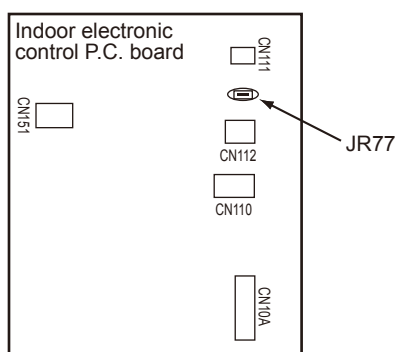
Operation

- ① If the main power has been cut, the operation settings remain.
- ② After the power is restored, the unit restarts automatically according to the memory.
(However, it takes at least 3 minutes for the compressor to start running.)

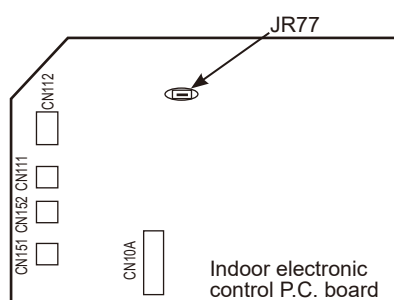
How to disable "AUTO RESTART FUNCTION"

- ① Turn OFF the main power for the unit.
- ② Cut the jumper wire to JR77 on the indoor electronic control P.C. board. (Refer to 9-7.)

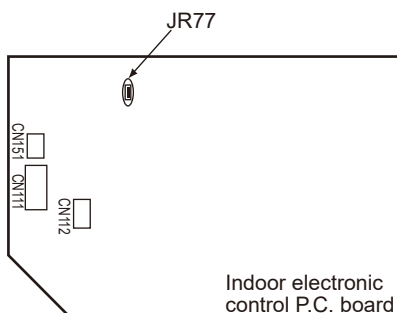
MS-CP13VA



MS-CP18/24VA



MS-CP30VA



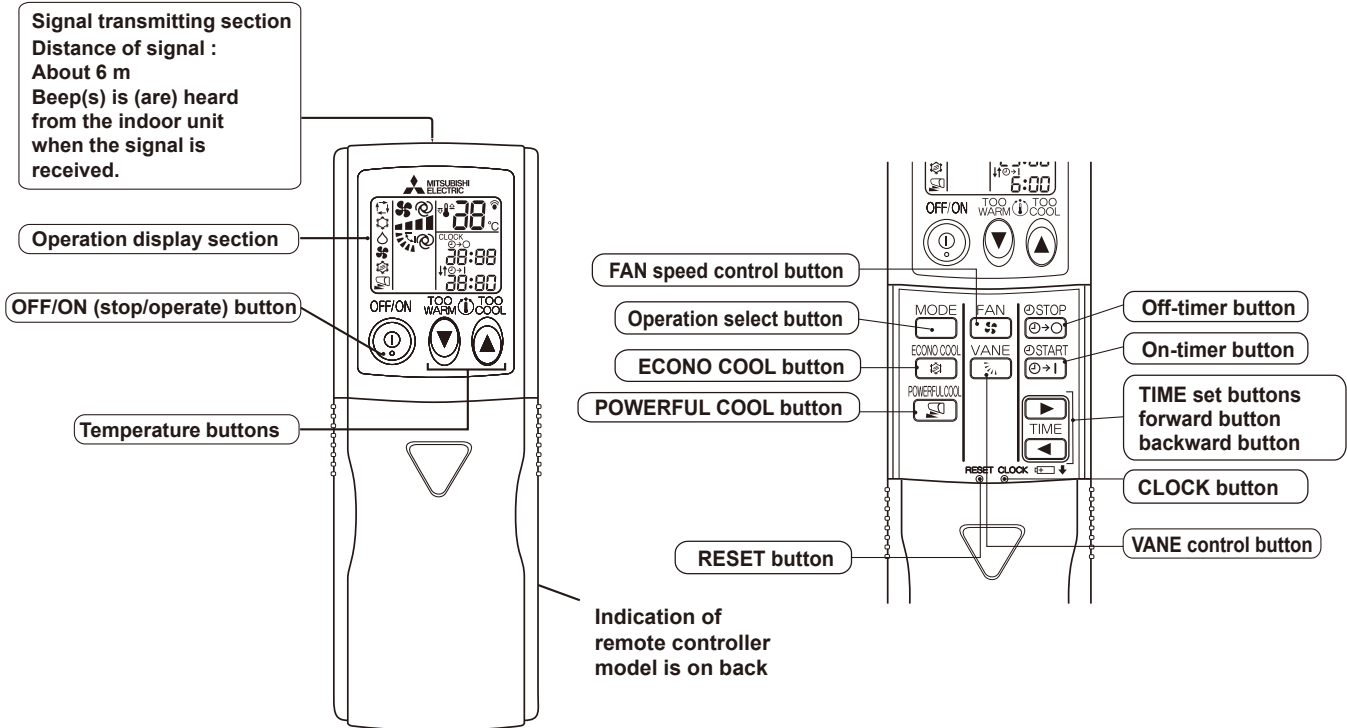
NOTE:

- The operation settings are memorized when 10 seconds have passed after the indoor unit was operated with the remote controller.
- If main power is turned OFF or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled.
- If the unit has been OFF with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is OFF.
- To prevent breaker OFF due to the rush of starting current, systematize other home appliance not to turn ON at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

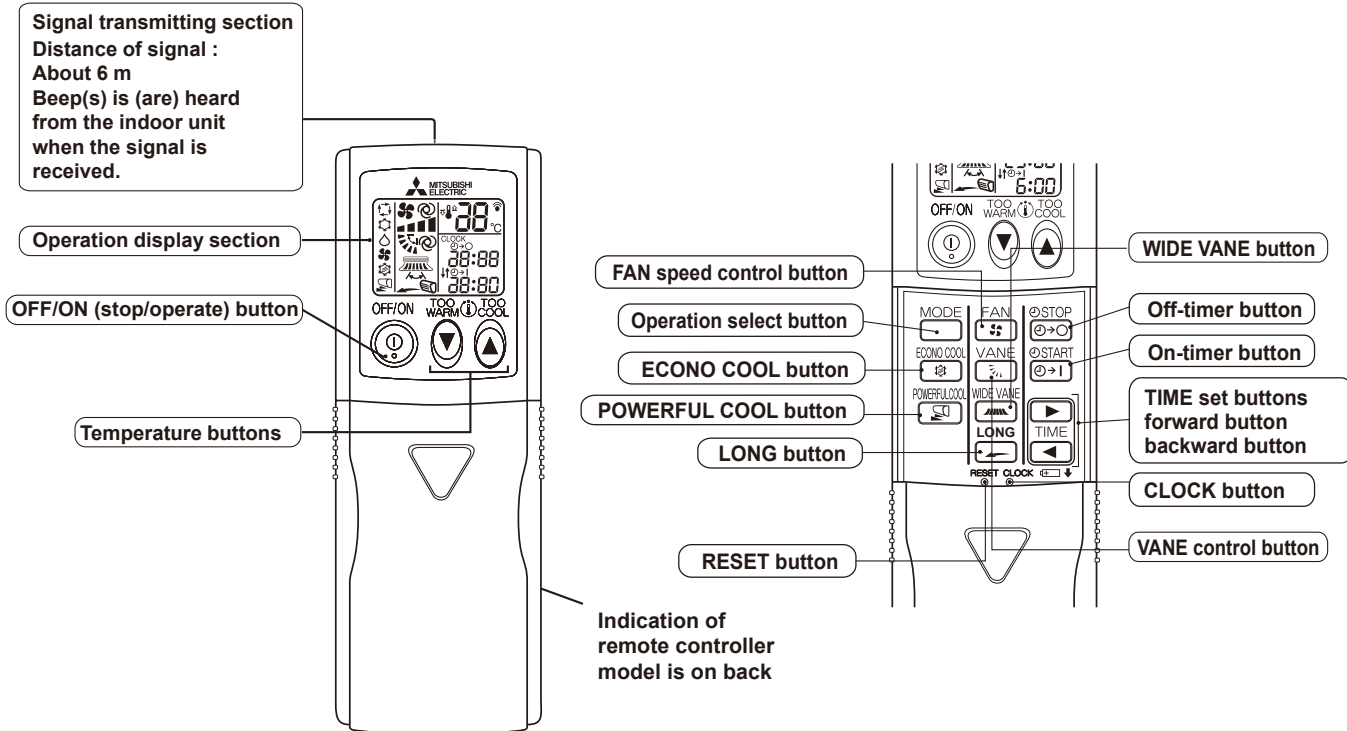
MS-CP13VA MS-CP18VA MS-CP24VA MS-CP30VA

WIRELESS REMOTE CONTROLLER

MS-CP13VA



MS-CP18VA MS-CP24VA MS-CP30VA



NOTE: Last setting will be stored after the unit is turned OFF with the remote controller. Indoor unit receives the signal of the remote controller with beeps.

INDOOR UNIT DISPLAY SECTION

Operation Indicator lamp

The operation indicator at the right side of the indoor unit indicates the operation state.

- The following indication applies regardless of shape of the indication.

Indication		Operation state	Room temperature
MS-CP13/18/24VA	MS-CP30VA		
		The unit is operating to reach the set temperature	About 2°C or more away from set temperature
		The room temperature is approaching the set temperature	About 1 to 2°C from set temperature

 Lit
 Not lit

8-1. COOL (❄️) OPERATION

- (1) Press OFF/ON (stop/operate) button.
OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select COOL mode with Operation select button.
- (3) Press Temperature buttons (TOO WARM or TOO COOL button) to select the desired temperature. The setting range is 16 - 31°C.

1. Coil frost prevention

When the temperature of indoor heat exchanger becomes too low, the coil frost prevention mode works.
The indoor fan operates at the set speed and the compressor stops. This mode continues until the temperature of indoor heat exchanger rises.

8-2. DRY (△) OPERATION

- (1) Press OFF/ON (stop/operate) button.
OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select DRY mode with Operation select button.
- (3) The set temperature is determined from the initial room temperature.

1. Coil frost prevention

Coil frost prevention works the same way as that in the COOL mode. (8-1.1.)

8-3. FAN (♂️) OPERATION

- (1) Press OFF/ON (stop/operate) button. OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select FAN mode with Operation select button.
- (3) Select the desired fan speed. When AUTO, it becomes Low. Only indoor fan operates. Outdoor unit does not operate.

8-4. "I FEEL CONTROL" (☐) OPERATION

- (1) Press OFF/ON (stop/operate) button on the remote controller. OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select "I FEEL CONTROL" mode with the Operation select button.
- (3) The operation mode is determined by the room temperature at start-up of the operation.

Initial room temperature	Mode
25°C or more	COOL mode of "I FEEL CONTROL"
more than 13°C, less than 25°C	DRY mode of "I FEEL CONTROL"

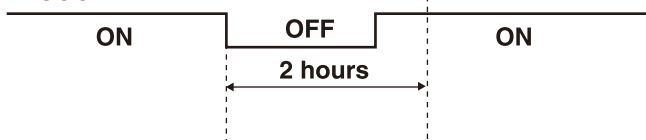
- Once the mode is fixed, the mode does not change by the room temperature afterwards.
- Under ON-TIMER (⌚→|) operation, mode is determined as follows:
When the system is stopped by the remote controller, and restarted within 2 hours in "I FEEL CONTROL" (☐) mode, the system operates in previous mode automatically regardless of the room temperature.

Operation timer chart

Example

Previous operation
COOL mode of
"I FEEL CONTROL"
or COOL mode

Restart
COOL mode of
"I FEEL CONTROL"

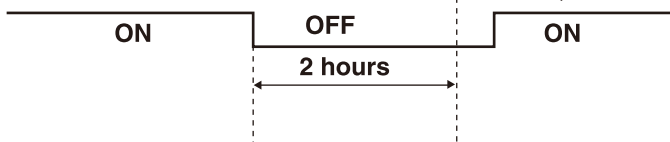


When the system is restarted after 2 hours and more, the operation mode is determined by the room temperature at start-up of the operation.

Operation time chart

Example

Previous operation
COOL mode of
"I FEEL CONTROL"
or COOL mode



Restart

COOL or DRY mode of
"I FEEL CONTROL" that
determined by room
temperature at start-up
of the operation.

(4) The initial set temperature is decided by the initial room temperature.

Mode	Initial room temperature	Initial set temperature	
COOL mode of “I FEEL CONTROL”	26 °C or more	24 °C	*1
	25 °C to 26 °C	Initial room temperature minus 2 °C	
DRY mode of “I FEEL CONTROL”	more than 13 °C, less than 25 °C	Initial room temperature minus 2 °C	

*1 When the system is restarted with the remote controller, the system operates with the previous set temperature regardless of the room temperature at restart.

The set temperature is calculated by the previous set temperature.

(5) Temperature buttons

In "I FEEL CONTROL" mode, set temperature is decided by the microprocessor based on the room temperature.

In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too cool or too warm. Each time TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

● Fuzzy control

When TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cold. So this is called "Fuzzy control" and it works only in "I FEEL CONTROL" mode.

In DRY mode of "I FEEL CONTROL", the set temperature does not change.



... To raise the set temperature 1 ~ 2 °C



... To lower the set temperature 1 ~ 2 °C

8-5. AUTO VANE OPERATION

1. Horizontal vane

(1) Vane motor drive

These models are equipped with a stepping motor for the horizontal vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12 V) transmitted from indoor microprocessor.

(2) The horizontal vane angle and mode change as follows by pressing VANE control button.



(3) Positioning

To confirm the standard position, the vane moves until it touches the vane stopper. Then the vane is set to the selected angle.

Confirming of standard position is performed in the following cases:

- (a) When the operation starts or finishes (including timer operation).
- (b) When the test run starts.

(4) VANE AUTO (@) mode

In VANE AUTO mode, the microprocessor automatically determines the vane angle to make the optimum room temperature distribution.

Vane angle is fixed to Angle 1.



(5) STOP (operation OFF) and ON TIMER standby

In the following cases, the horizontal vane returns to the closed position.

- (a) When OFF/ON (stop/operate) button is pressed (POWER OFF).
- (b) When the operation is stopped by the emergency operation.
- (c) When ON TIMER is ON standby.

(6) Dew prevention

During COOL or DRY operation with the vane angle at Angle 3 to 5 (**CP13**) 4 or 5 (**CP18/24/30VA**) when the compressor cumulative operation time exceeds 1 hour, the vane angle automatically changes to Angle 2 for dew prevention.

(7) SWING (↕) mode

By selecting SWING mode with VANE control button, the horizontal vane swings vertically.

(8) ECONO COOL (⌘) operation (ECONOMical operation)

When ECONO COOL button is pressed in COOL mode, the set temperature is automatically set 2°C higher.

Also the horizontal vane swings in various cycles.

SWING operation makes you feel cooler than the set temperature. So, even though the set temperature is higher, the air conditioner can keep comfort. As a result, energy can be saved.

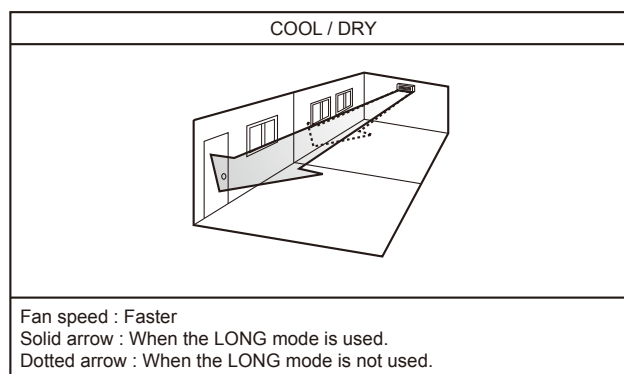
To cancel this operation, select a different mode or press one of the following buttons in ECONO COOL operation: ECONO COOL, VANE control, LONG (**MS-CP18/24/30VA**) or POWERFUL button.

(9) POWERFUL COOL (⚡) operation

The air conditioner automatically adjusts the fan speed and the set temperature, and operates the POWERFUL COOL mode. The POWERFUL COOL mode is cancelled automatically 15 minutes after operation starts. To cancel this operation manually, select a different mode or press one of the following buttons: POWERFUL COOL, OFF/ON (stop/operate), ECONO COOL, or FAN speed control button.

(10) LONG MODE (⏮) (**MS-CP18/24/30VA**)

By pressing LONG button indoor fan speed becomes faster than setting fan speed on the remote controller, and the horizontal vane moves to the position for LONG mode. The remote controller displays "⏮". To cancel this operation, press one of the following buttons: LONG, VANE control, or ECONO COOL (during cool mode). In the following example, the vertical vane is set to "⏮" (front.).



2. Vertical vane (MS-CP18/24/30VA)

(1) Vane motor drive

These models are equipped with a stepping motor for the vertical vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12 V) transmitted from microprocessor.

(2) The vertical vane angle and mode change as follows by pressing WIDE VANE button.

(3) Positioning

To confirm the standard position, the vane moves until it touches the vane stopper. Then the vane is set to the selected angle.



Confirming of standard position is performed in the following cases:

- (a) OFF/ON (stop/operate) button is pressed (POWER ON).
- (b) SWING is started.

(4) SWING (SWING) MODE

By selecting SWING mode with WIDE VANE button, the vertical vane swings horizontally. The remote controller displays "SWING". Swing mode is cancelled when WIDE VANE button is pressed once again.

(5) WIDE MODE (WIDE) MODE

By selecting WIDE mode with WIDE VANE button, indoor fan speed becomes faster than setting fan speed on the remote controller (*). The remote controller displays "WIDE".

*Indoor fan speed becomes faster than setting fan speed on the remote controller even when "SWING" or "WIDE" is selected.

8-6. TIMER OPERATION

1. How to set the time

(1) Check that the current time is set correctly.

NOTE: Timer operation will not work without setting the current time. Initially "0:00" blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK button.

How to set the current time

- (a) Press the CLOCK button.
- (b) Press the TIME set buttons (▶ and ◀) to set the current time.
 - Each time forward button (▶) is pressed, the set time increases by 1 minute, and each time backward button (◀) is pressed, the set time decreases by 1 minute.
 - Pressing those buttons longer, the set time increases/decreases by 10 minutes.
- (c) Press the CLOCK button.
- (2) Press OFF/ON (stop/operate) button to start the air conditioner.
- (3) Set the time of timer.

ON timer setting

- (a) Press On-timer button (START) during operation.
- (b) Set the time of the timer using TIME set buttons (▶ and ◀). *

OFF timer setting

- (a) Press Off-timer button (STOP) during operation.
 - (b) Set the time of the timer using TIME set buttons (▶ and ◀). *
- *Each time forward button (▶) is pressed, the set time increases by 10 minutes: each time backward button (◀) is pressed, the set time decreases by 10 minutes.

2. To release the timer

To release ON timer, press On-timer button (START).

To release OFF timer, press Off-timer button (STOP).

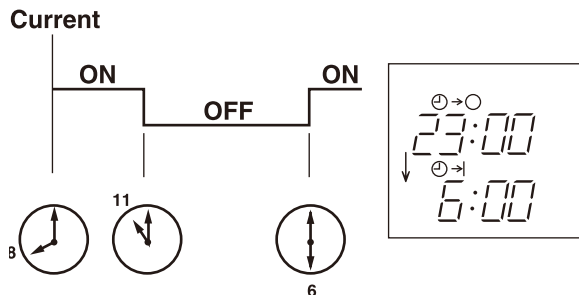
TIMER is cancelled and the display of set time disappears.

PROGRAM TIMER

- OFF timer and ON timer can be used in combination. The set time that is reached first will operate first.
- “↓” and “↑” display shows the order of OFF timer and ON timer operation.

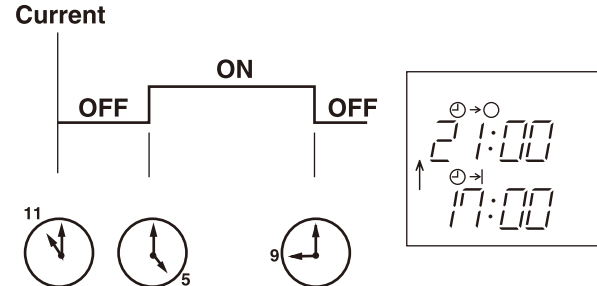
(Example 1) The current time is 8:00 PM.

The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.

The unit turns on at 5:00 PM, and off at 9:00 PM.



NOTE: If the main power is turned OFF or a power failure occurs while ON/OFF timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled when power is restored.

8-7. EMERGENCY/TEST OPERATION

In the case of test run operation or emergency operation, use Emergency operation switch on the right side of the indoor unit. Emergency operation is available when the remote controller is missing or has failed, or when the batteries in the remote controller are running down. The unit will start and OPERATION INDICATOR lamp will light up.

The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan runs at High speed and the temperature control does not work.

After 30 minutes of test run operation, the system shifts to EMERGENCY COOL MODE with a set temperature of 24°C. The fan speed shifts to Med.

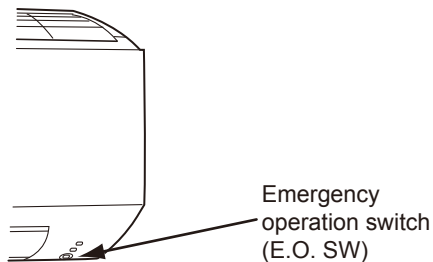
The coil frost prevention works even in the test run or the emergency operation.

In the test run or emergency operation, the horizontal vane operates in VANE AUTO (@) mode.

Emergency operation continues until Emergency operation switch is pressed again or the unit receives any signal from the remote controller. In the latter case normal operation will start.

NOTE: Do not press Emergency operation switch during normal operation.

MS-CP13/18/24VA

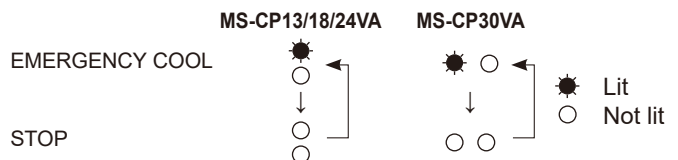
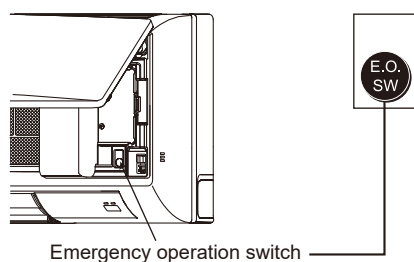


Operation mode	COOL
Set temperature	24°C
Fan speed	Med.
Horizontal vane	Auto

The operation mode is indicated by the Operation Indicator lamp as following

Operation Indicator lamp

MS-CP30VA



8-8. 3-MINUTE TIME DELAY OPERATION

When the system turns OFF, compressor will not restart for 3 minutes as 3-minute time delay function operates to protect compressor from overload.

MS-CP13VA MS-CP18VA MS-CP24VA MS-CP30VA**9-1. CAUTIONS ON TROUBLESHOOTING****1. Before troubleshooting, check the following**

- 1) Check the power supply voltage.
- 2) Check the indoor/outdoor connecting wire for miswiring.

2. Take care of the following during servicing

- 1) Before servicing the air conditioner, be sure to turn OFF the main unit first with the remote controller, and then after confirming the horizontal vane is closed, turn OFF the breaker and/or disconnect the power plug.
- 2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the P.C. board.
- 3) When removing the P.C. board, hold the edge of the board with care NOT to apply stress on the components.
- 4) When connecting or disconnecting the connectors, hold the connector housing. DO NOT pull the lead wires.

<Incorrect>

**Lead wiring**

<Correct>

**Connector housing****3. Troubleshooting procedure**

- 1) Check if the OPERATION INDICATOR lamp on the indoor unit is blinking ON and OFF to indicate an abnormality. To make sure, check how many times the OPERATION INDICATOR lamp is blinking ON and OFF before starting service work.
- 2) Before servicing, verify that all connectors and terminals are connected properly.
- 3) When the electronic control P.C. board seems to be defective, check for disconnection of the copper foil pattern and burnt or discolored components.
- 4) When troubleshooting, Refer to 9-2, 9-3 and 9-4.

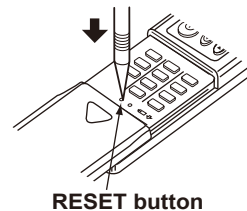
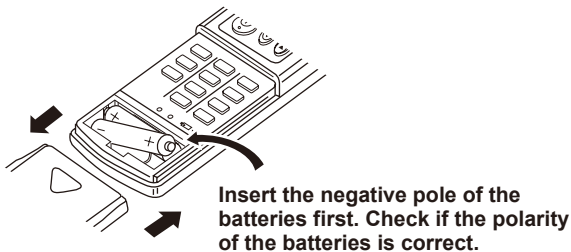
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.

In this case, replace the batteries to operate the remote controller normally.

- ① Remove the front lid and insert batteries. Then reattach the front lid.

- ② Press RESET button with a thin instrument, and then use the remote controller.



NOTE: 1. If RESET button is not pressed, the remote controller may not operate correctly.

2. This remote controller has a circuit to automatically reset the microprocessor when batteries are replaced.

This function is equipped to prevent the microprocessor from malfunctioning due to the voltage drop caused by the battery replacement.

3. Do not use the leaking batteries.

9-2. FAILURE MODE RECALL FUNCTION

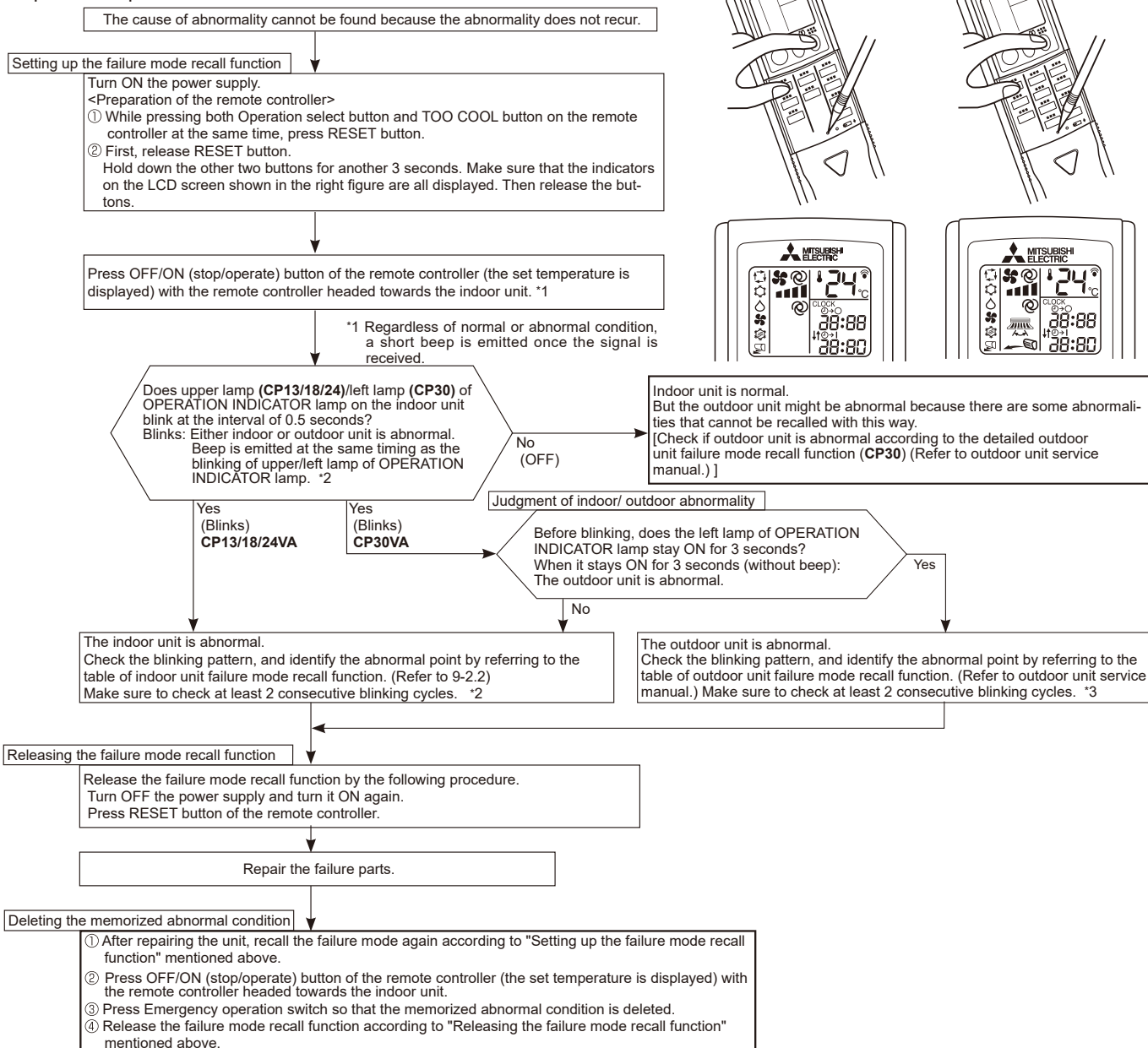
Outline of the function

This air conditioner can memorize the abnormal condition which has occurred once.

Even though LED indication listed on the troubleshooting check table (9-4.) disappears, the memorized failure details can be recalled.

1. Flow chart of failure mode recall function for the indoor unit

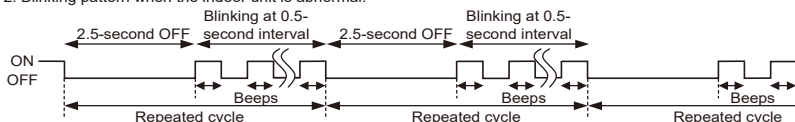
Operational procedure



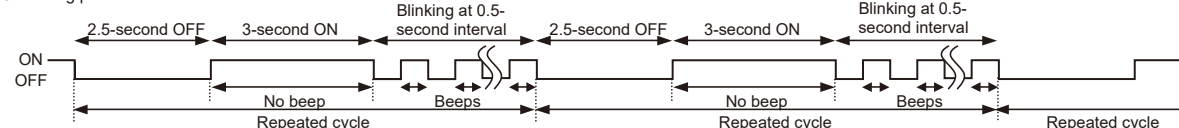
NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.

2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

*2. Blinking pattern when the indoor unit is abnormal:



*3. Blinking pattern when the outdoor unit is abnormal:



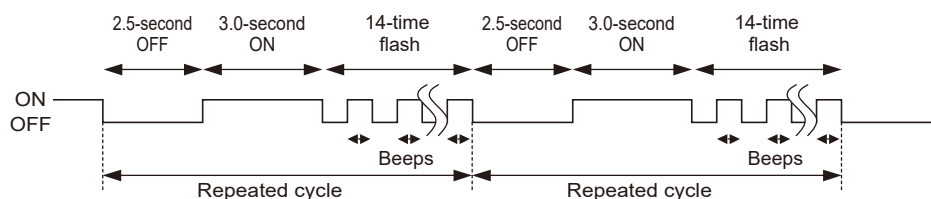
NOTE: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (9-4.).

2. Table of indoor unit failure mode recall function

Upper/left*1 lamp of OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lit	Normal	—	—
1-time blink every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (9-7.).
2-time blink 2.5-second OFF	Indoor coil thermistor	The indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the indoor coil thermistor (9-7.).
3-time blink 2.5-second OFF (CP30)	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 9-6. ㉔ "How to check miswiring and serial signal error".
11-time blink 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emitted for 12 seconds after the indoor fan motor is operated.	Refer to 9-6. ㉕ "Check of indoor fan motor".
12-time blink 2.5-second OFF	Indoor control system	It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.
14-time blink *2 2.5-second OFF	Refrigerant circuit	Refer to 9-4. No.4 "Condition".	Refer to 9-4. No.4 "Remedy".

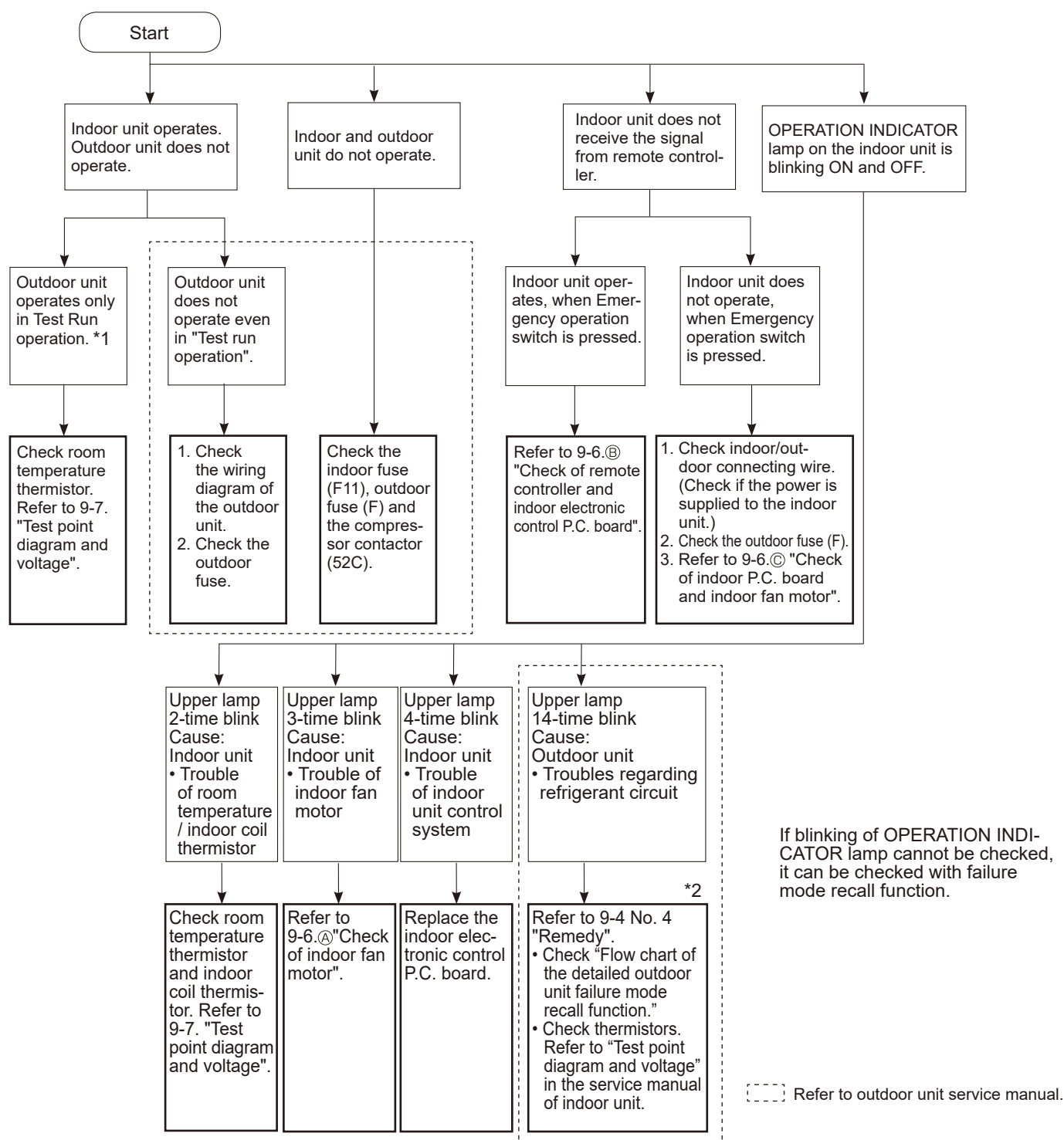
*1 Upper lamp (MS-CP13/18/24VA)
Left lamp (MS-CP30VA)

*2. A blinking pattern when "14-time flash" is displayed :

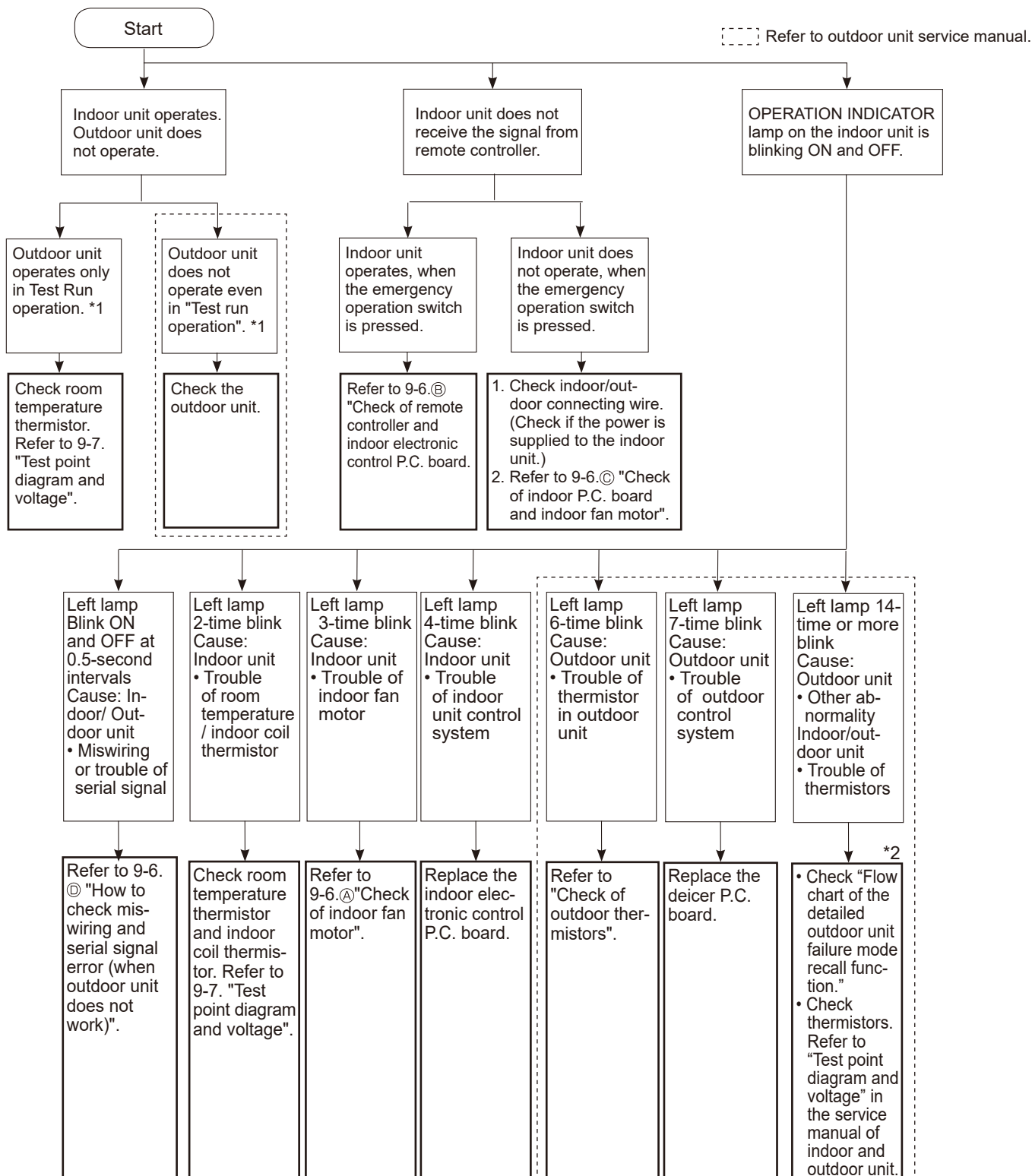


9-3. INSTRUCTION OF TROUBLESHOOTING

MS-CP13VA MS-CP18VA MS-CP24VA



MS-CP30VA



*1 "Test Run operation" means the operation within 30 minutes after the emergency operation switch is pressed.

If blinking of OPERATION INDICATOR lamp cannot be checked, it can be checked with failure mode recall function.

*2 There is possibility that diesel explosion may occur due to the air mixed in the refrigerant circuit.

First, ensure that there are no leakage points on the valves, flare connections, etc. that allow the air to flow into the refrigerant circuit, or no blockage points (e.g. clogged or closed valves) in the refrigerant circuit that cause an increase in pressure.

If there is no abnormal point like above and the system operates cooling mode normally, the indoor thermistor might have a problem, resulting in false detection.

Check both the indoor coil thermistor and the room temperature thermistor, and replace faulty thermistor(s), if any. (Do not start the operation again without repair to prevent hazards.)

9-4. TROUBLESHOOTING CHECK TABLE

Before taking measures, make sure that the symptom reappears for accurate troubleshooting.

When the indoor unit has started operation and detected an abnormality of the following condition (the first detection after the power ON), the indoor fan motor turns OFF and OPERATION INDICATOR lamp blinks.

Operation Indicator lamp

The operation indicator lamp is at the right side of the indoor unit.

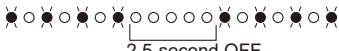
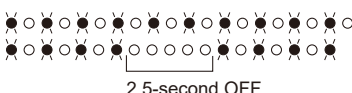
- The following indication applies regardless of shape of the indication.

MS-CP13VA MS-CP18VA MS-CP24VA

OPERATION INDICATOR



- ☀ Blinking
- Not lit

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Indoor coil thermistor Room temperature thermistor	Upper lamp blinks. 2-time blink 	Indoor unit and outdoor unit do not operate.	The indoor coil or the room temperature thermistor is short or open circuit.	• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (9-7.).
2	Indoor fan motor	Upper lamp blinks. 3-time blink 		The rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 9-6. ㉔ "Check of indoor fan motor".
3	Indoor control system	Upper lamp blinks. 4-time blink 		It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Replace the indoor electronic control P.C. board.
4 *1	Refrigerant circuit *2 on 9-3	Upper lamp blinks. 14-time blink 		The unit has been pumped down for a long time.	• Check the stop valve.
				The refrigerant amount is low.	• Check the connections and the refrigerant amount for any leakage.
				The unit is short cycling.	• Check for short cycle. If any problem is found, provide some space for air path around the outdoor unit.
				The outdoor fan motor locks up.	• Check that the connecting cable of the outdoor fan motor is properly connected. • Check the resistance value of the outdoor fan motor. If any problem is found, replace the outdoor fan motor.
			An abnormality of the indoor thermistors is detected.	• Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.)	

*1. When the trouble indicated with 14-time blink occurs, turn off the main power supply. Otherwise, the operation indicator lamp may blink again even if the power is turned off and on using a remote controller.



No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Left lamp blinks. 0.5-second ON  0.5-second OFF	Indoor unit and outdoor unit do not operate.	The serial signal from the outdoor unit is not received for a maximum of 6 minutes.	• Refer to 9-6. ① "How to check miswiring and serial signal error".
2	Outdoor control system	Left lamp lights up 		It cannot properly read data in the nonvolatile memory of the deicer P.C. board.	• Check the blinking pattern of the LED on the deicer P.C. board.
3	Indoor coil thermistor Room temperature thermistor	Left lamp blinks. 2-time blink  2.5-second OFF		The indoor coil or the room temperature thermistor is short or open circuit.	• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (9-7.).
4	Indoor fan motor	Left lamp blinks. 3-time blink  2.5-second OFF		The rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 9-6. ② "Check of indoor fan motor".
5	Indoor control system	Left lamp blinks. 4-time blink  2.5-second OFF		It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Replace the indoor electronic control P.C. board.
6	Outdoor thermistors	Left lamp blinks. 6-time blink  2.5-second OFF		The outdoor thermistors short or open circuit during the compressor operation.	• Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control system	Left lamp blinks. 7-time blink  2.5-second OFF		It cannot properly read data in the nonvolatile memory of the deicer P.C. board.	• Replace the deicer P.C. board. Refer to outdoor unit service manual.
8 *1	Refrigerant circuit *2 on 9-3	Left lamp blinks. 14-time blink or more  2.5-second OFF		The unit has been pumped down for a long time.	• Check the stop valve.
				The refrigerant amount is low.	• Check the connections and the refrigerant amount for any leakage.
			The unit is short cycling.	• Check for short cycle. If any problem is found, provide some space for air path around the outdoor unit.	
			The outdoor fan motor locks up.	• Check that the connecting cable of the outdoor fan motor is properly connected. • Check the resistance value of the outdoor fan motor. If any problem is found, replace the outdoor fan motor.	
			An abnormality of the indoor thermistors or ambient temperature thermistor is detected.	• Refer to "TEST POINT DIAGRAM AND VOLTAGE" on the service manual of indoor and outdoor unit for the characteristics of the thermistors. (Do not start the operation again without repair to prevent hazards.)	

*1. When the trouble indicated with 14-time blink or more occurs, turn off the main power supply.
Otherwise, the operation indicator lamp may blink again even if the power is turned off and on using a remote controller.

9-5. TROUBLE CRITERION OF MAIN PARTS

Part name	Check method and criterion	Figure									
MS-CP13/18/24VA Room temperature thermistor (RT11) Indoor coil thermistor (RT12)	Measure the resistance with a tester. Refer to 9-7. "Test point diagram and voltage", 1. "Indoor electronic control P.C. board" or 3. "Indoor electronic control P.C. board, Indoor terminal P.C. board, Power monitor receiver SW P.C. board", for the chart of thermistor.										
MS-CP30VA Room temperature thermistor (RT11) Indoor coil thermistor (RT12 (MAIN), RT13 (SUB))	Measure the resistance with a tester. Refer to 9-7. "Test point diagram and voltage", "Indoor electronic control P.C. board" for the chart of thermistor.										
MS-CP13/18/24/30VA Indoor fan motor (MF)	Check 9-6.㉔ "Check of indoor fan motor".										
MS-CP13VA Horizontal vane motor (MV)	Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C) <table><tr><td>Color of the lead wire</td><td>Normal</td></tr><tr><td>RED - BLU</td><td>223 Ω ~ 268 Ω</td></tr></table>	Color of the lead wire	Normal	RED - BLU	223 Ω ~ 268 Ω						
Color of the lead wire	Normal										
RED - BLU	223 Ω ~ 268 Ω										
MS-CP18/24VA Horizontal vane motor (MV1) Vertical vane motor (MV2)	Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C) <table><tr><td></td><td>Color of the lead wire</td><td>Normal</td></tr><tr><td>Horizontal vane motor (MV1)</td><td>RED - BLK</td><td>313 ~ 375 Ω</td></tr><tr><td>Vertical vane motor (MV2)</td><td>RED - BLK</td><td>268 ~ 322 Ω</td></tr></table>		Color of the lead wire	Normal	Horizontal vane motor (MV1)	RED - BLK	313 ~ 375 Ω	Vertical vane motor (MV2)	RED - BLK	268 ~ 322 Ω	
	Color of the lead wire	Normal									
Horizontal vane motor (MV1)	RED - BLK	313 ~ 375 Ω									
Vertical vane motor (MV2)	RED - BLK	268 ~ 322 Ω									
MS-CP30VA Horizontal vane motor (MV1) Vertical vane motor (MV2, MV3)	Measure the resistance between the terminals with a tester. (Temperature: 10 - 30°C) <table><tr><td></td><td>Color of the lead wire</td><td>Normal</td></tr><tr><td>Horizontal vane motor (MV1)</td><td rowspan="2">RED - SKY*</td><td>240 - 260 Ω</td></tr><tr><td>Vertical vane motor (MV2, MV3)</td><td>282 - 306 Ω</td></tr></table>		Color of the lead wire	Normal	Horizontal vane motor (MV1)	RED - SKY*	240 - 260 Ω	Vertical vane motor (MV2, MV3)	282 - 306 Ω		
	Color of the lead wire	Normal									
Horizontal vane motor (MV1)	RED - SKY*	240 - 260 Ω									
Vertical vane motor (MV2, MV3)		282 - 306 Ω									

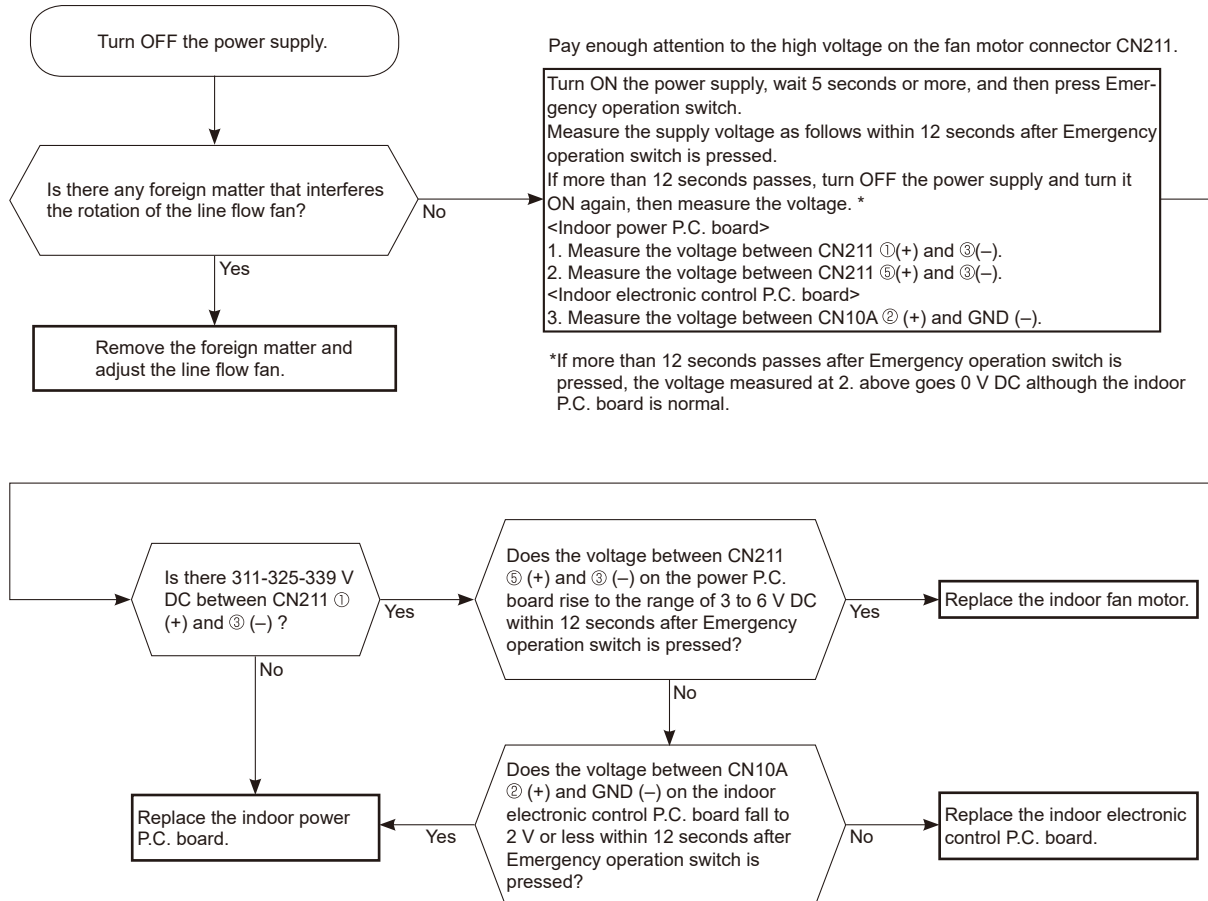
*SKY = SKY BLUE

9-6. TROUBLESHOOTING FLOW

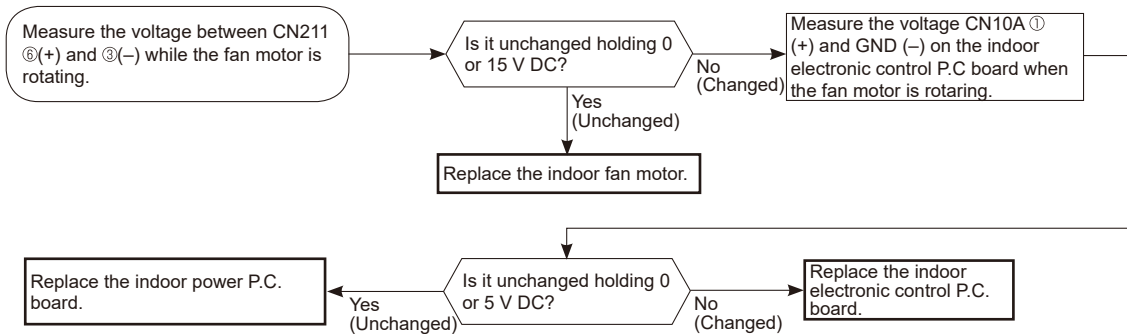
A Check of indoor fan motor

MS-CP13VA

The indoor fan motor error has occurred, and the indoor fan does not operate.

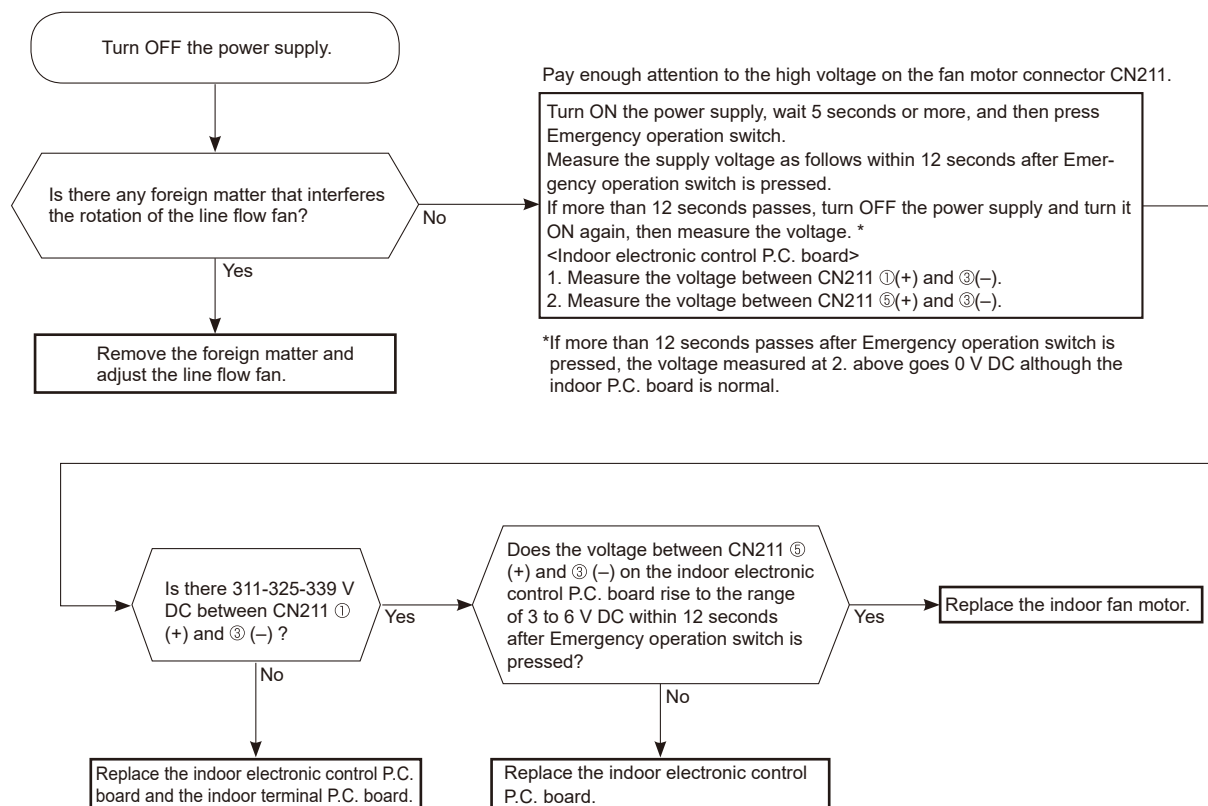


The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.

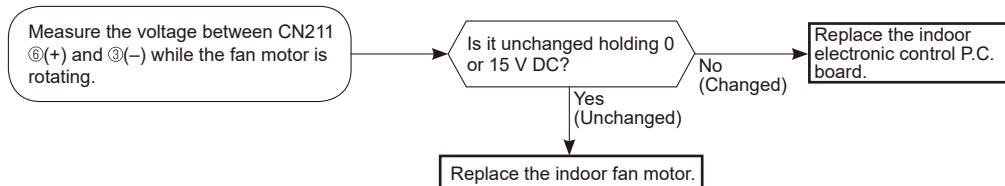


MS-CP18VA MS-CP24VA

The indoor fan motor error has occurred, and the indoor fan does not operate.

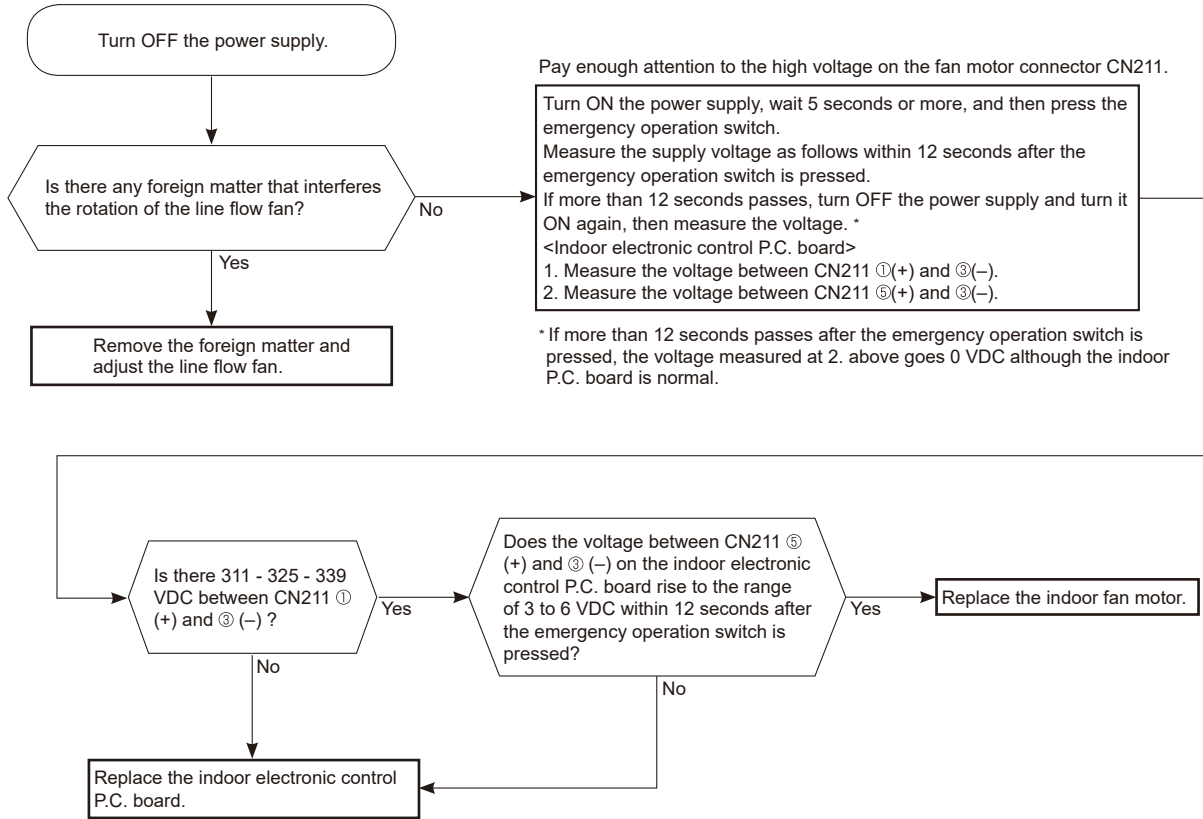


The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.

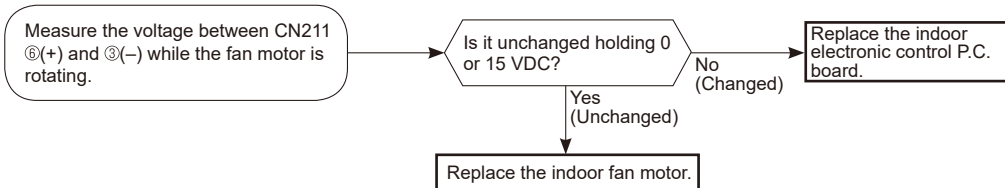


MS-CP30VA

The indoor fan motor error has occurred, and the indoor fan does not operate.



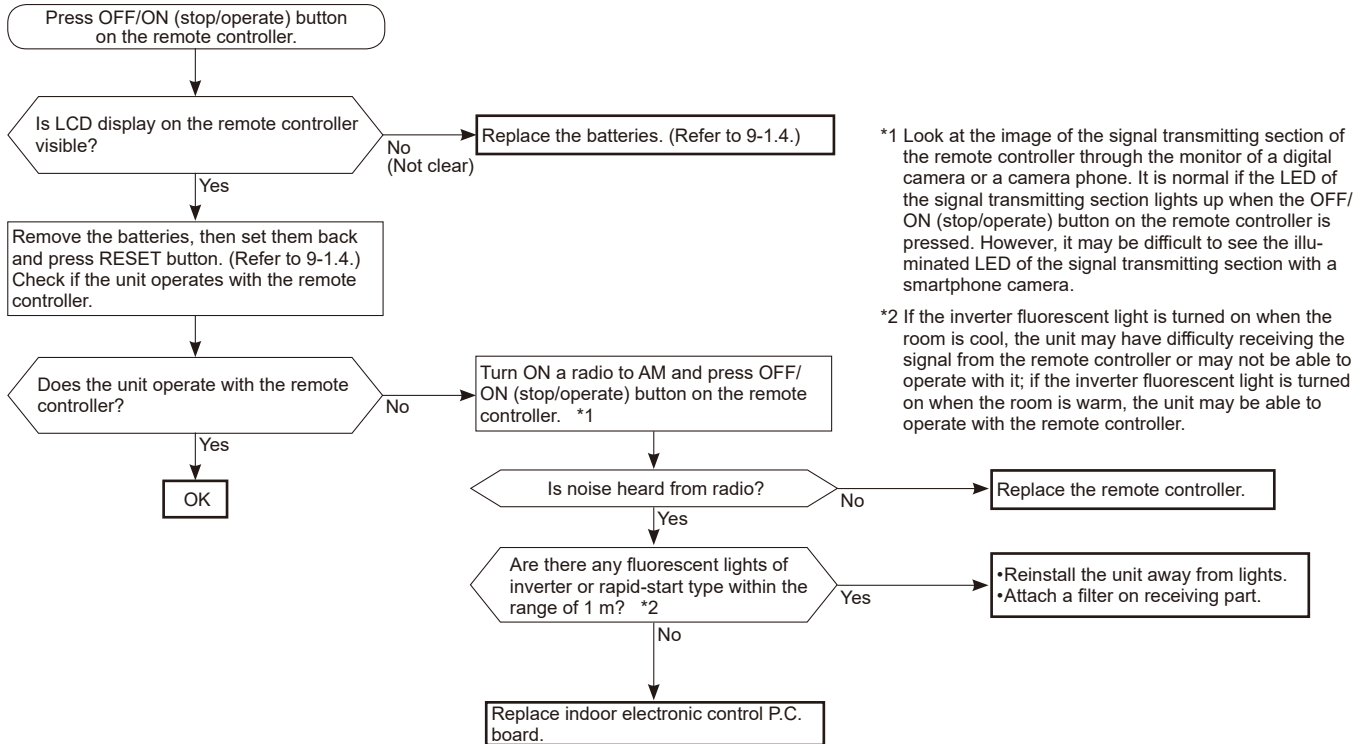
The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.



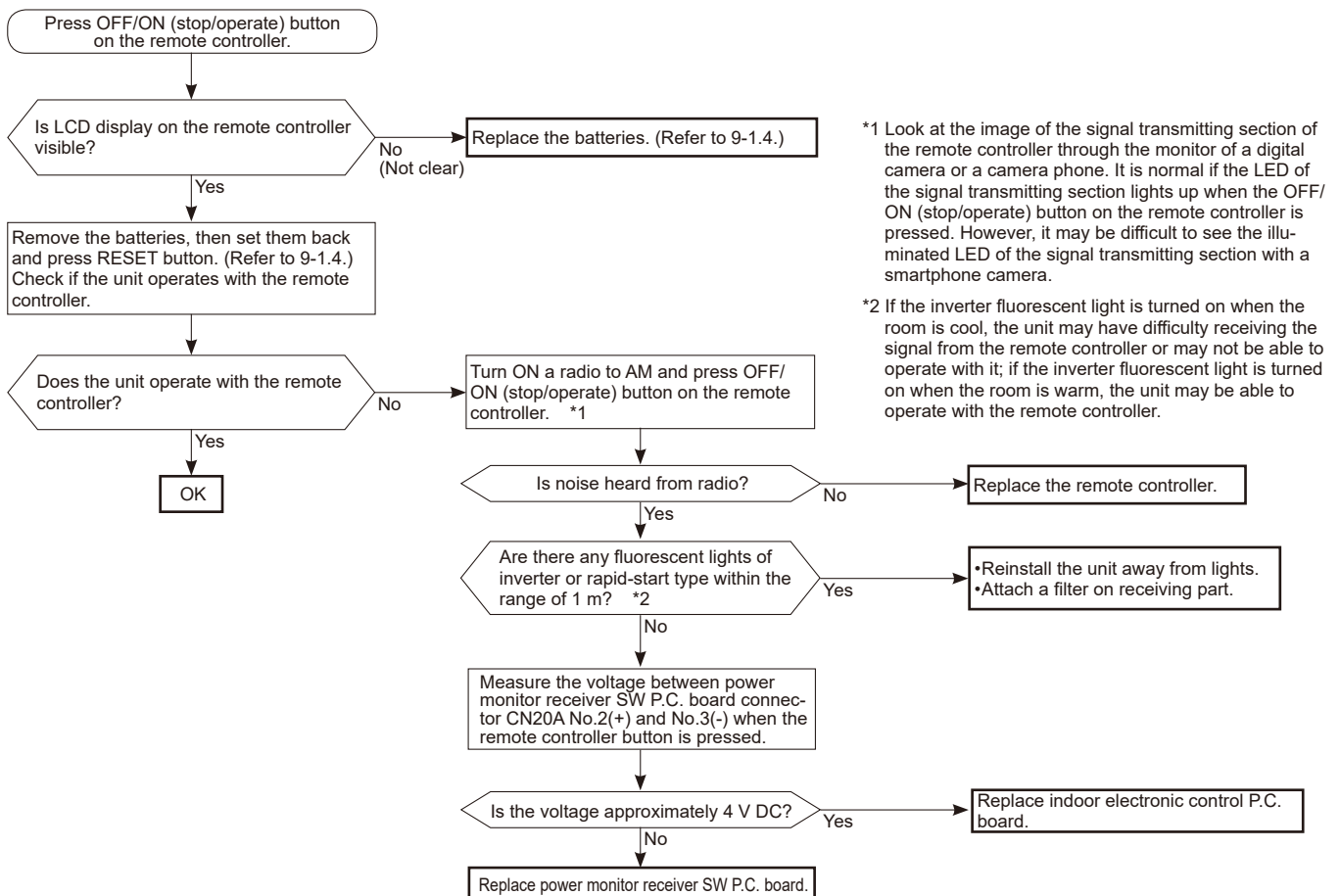
B Check of remote controller and indoor electronic control P.C. board

*Check if the remote controller is exclusive for this air conditioner.

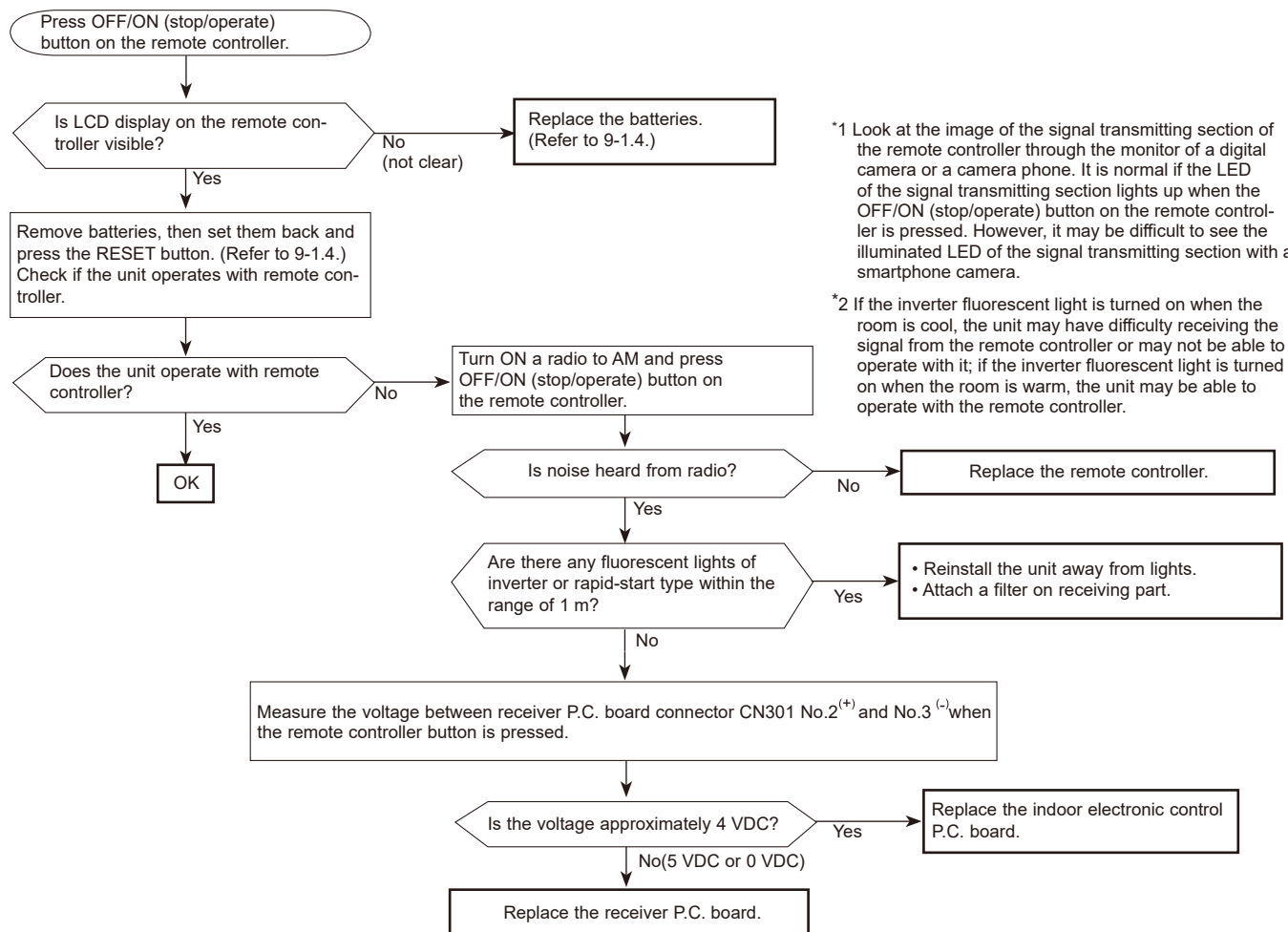
MS-CP13VA



MS-CP18VA MS-CP24VA

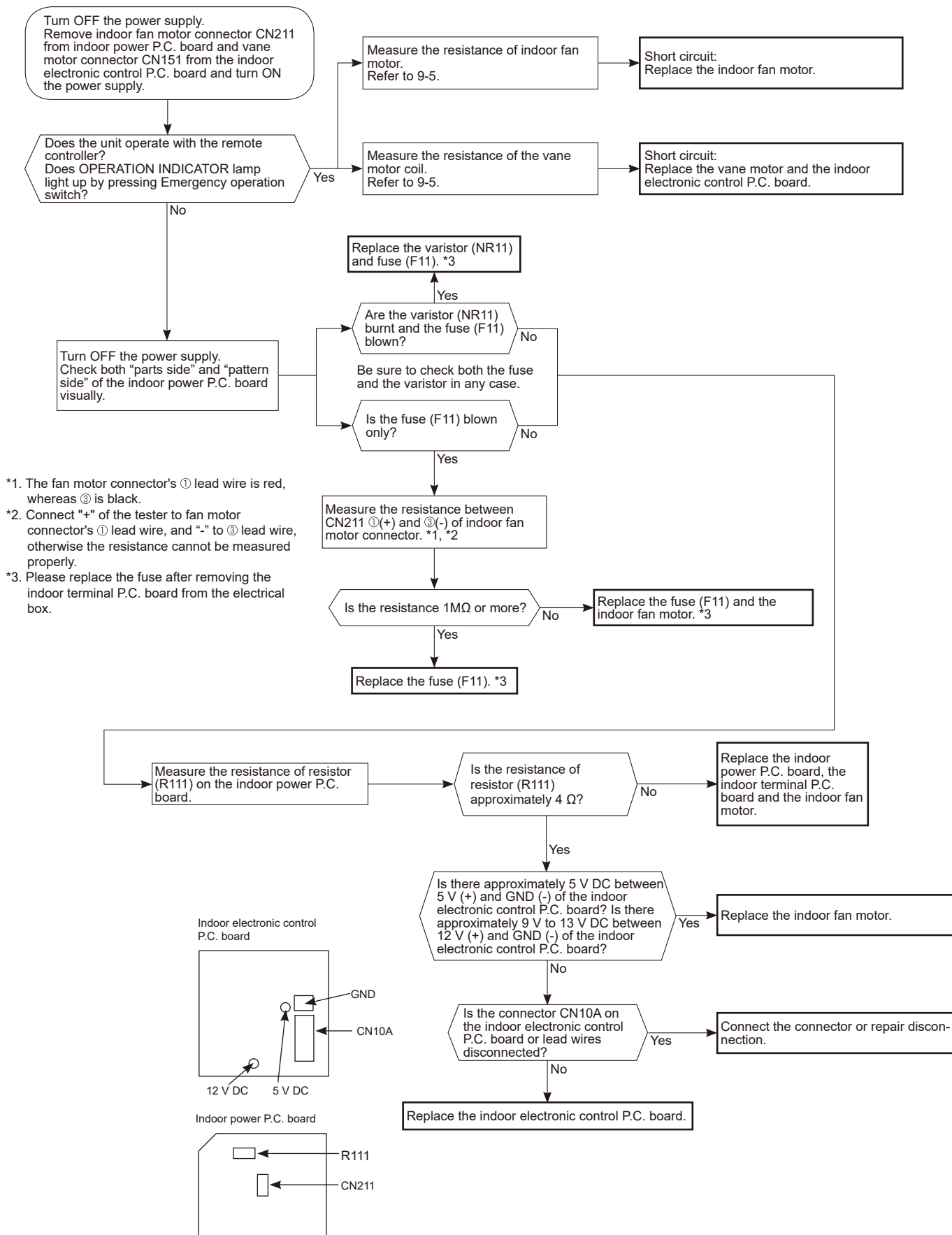


MS-CP30VA

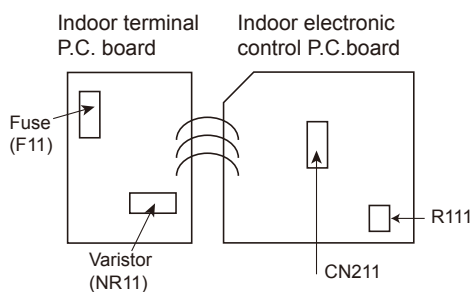
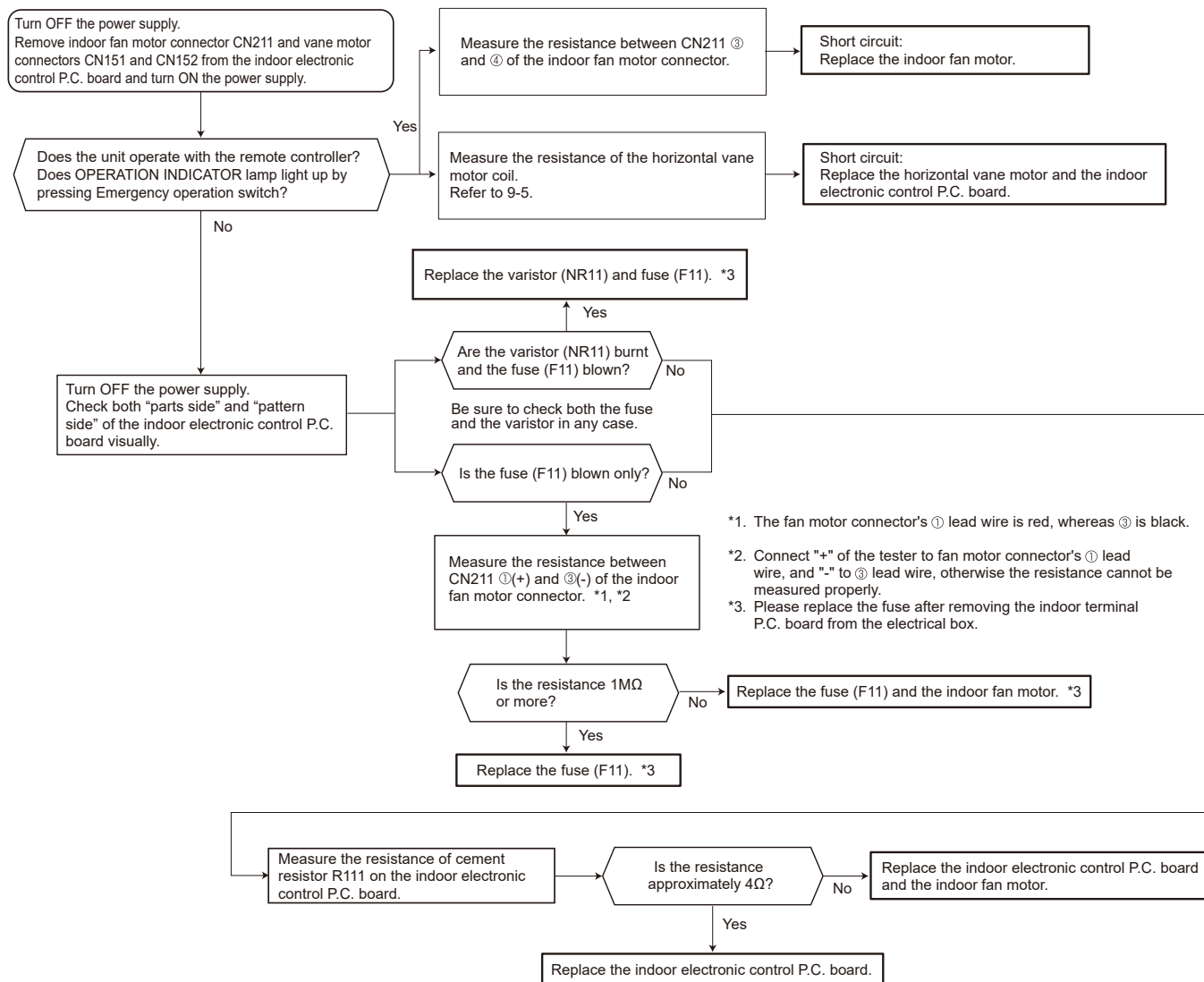


© Check of indoor electronic control P.C. board and indoor fan motor

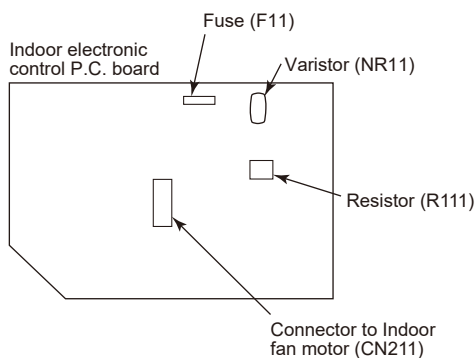
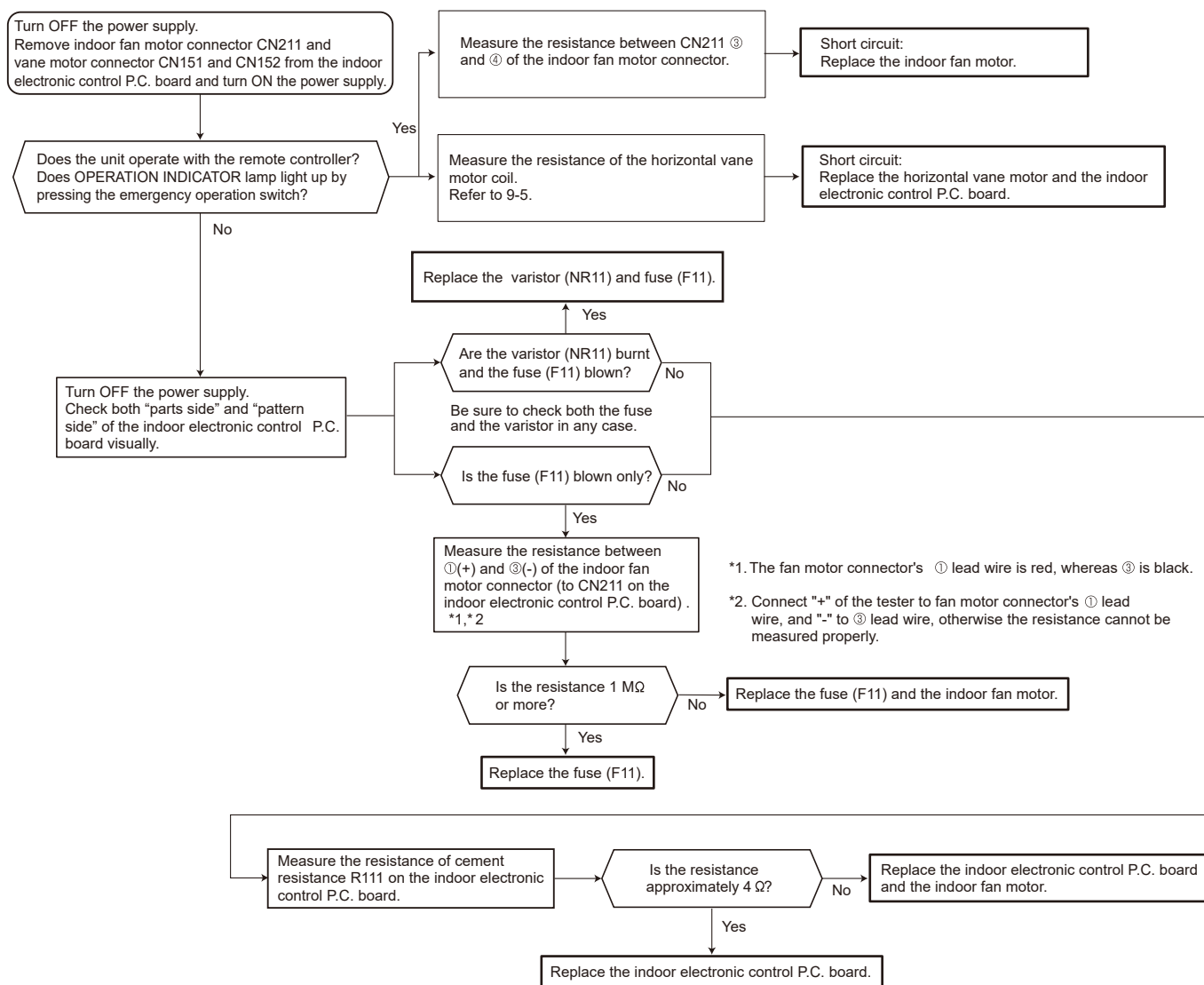
MS-CP13VA



MS-CP18VA MS-CP24VA

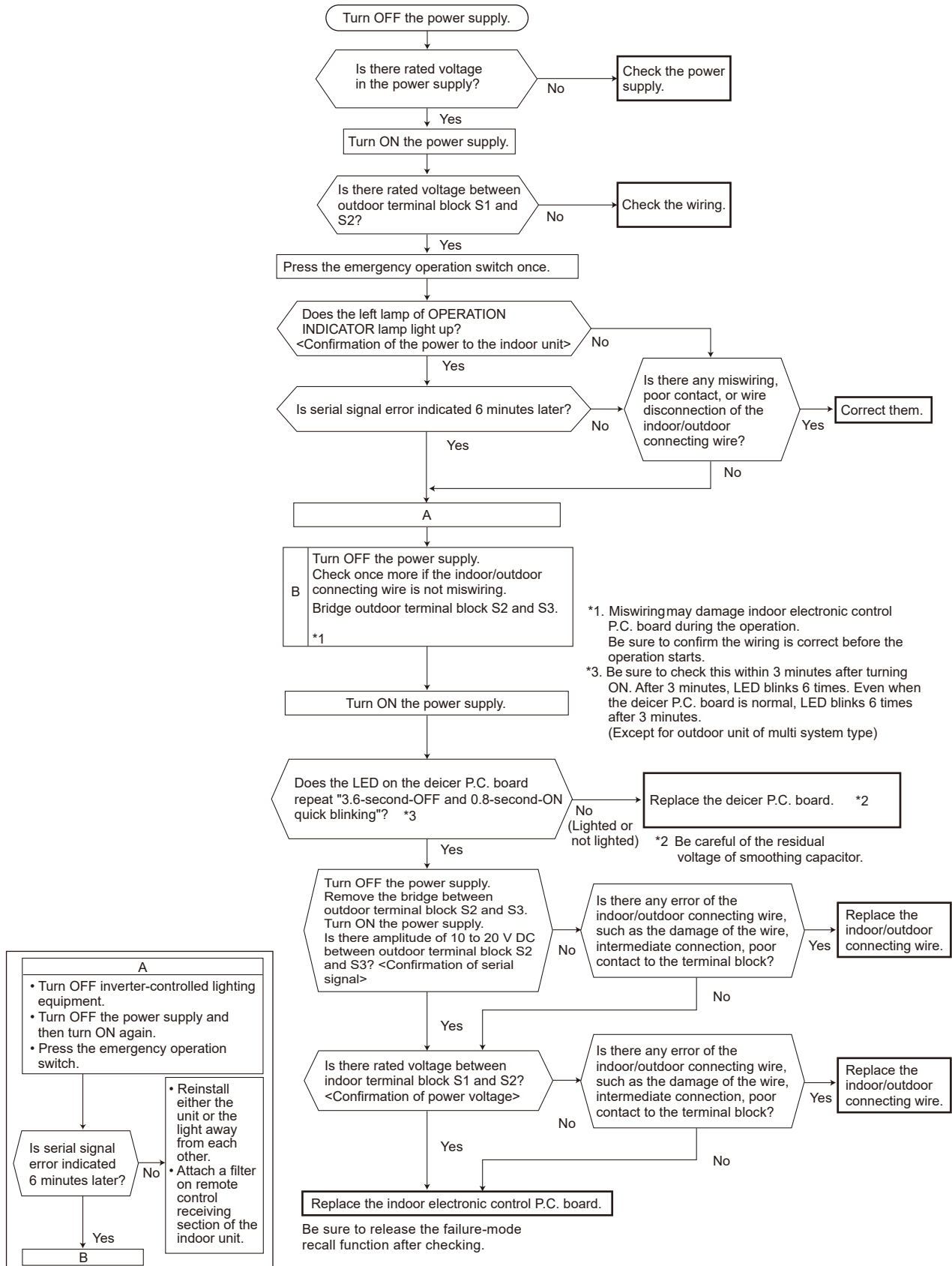


MS-CP30VA

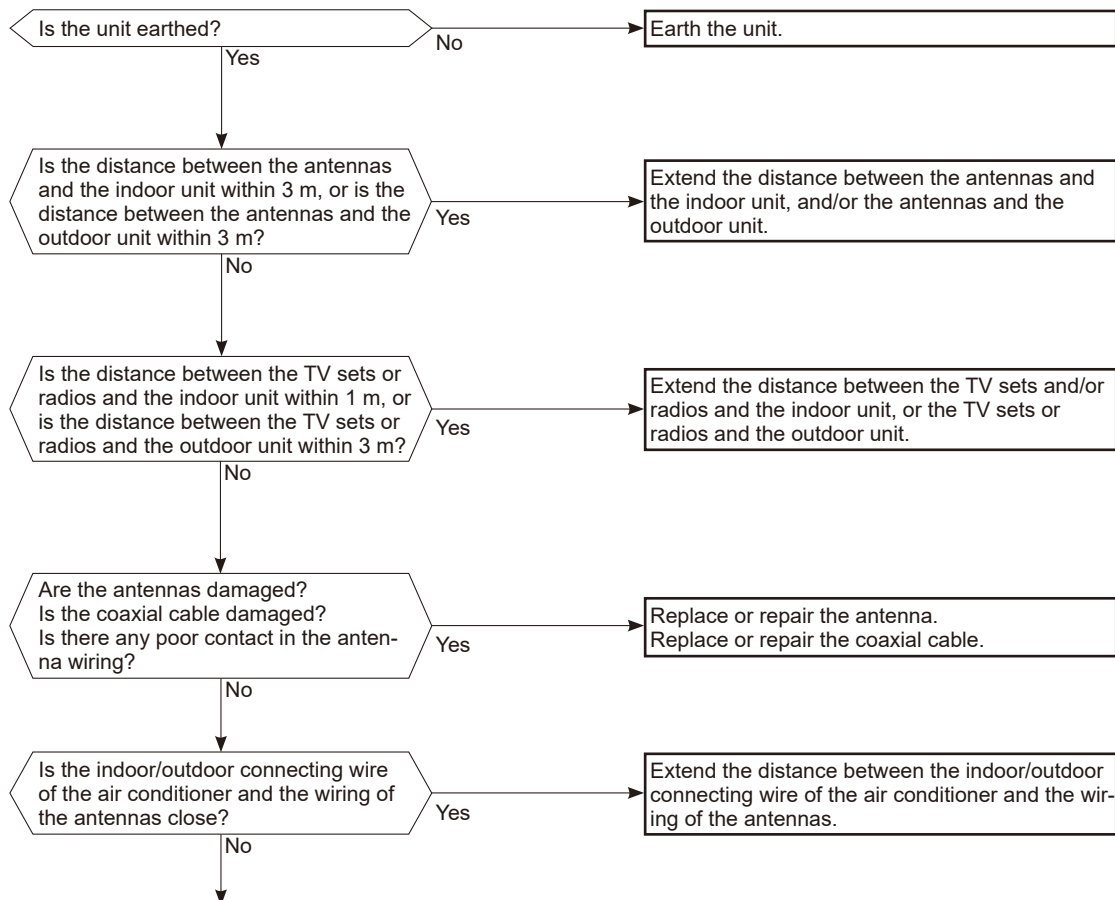


D How to check miswiring and serial signal error

MS-CP30VA



E Electromagnetic noise enters into TV sets or radios



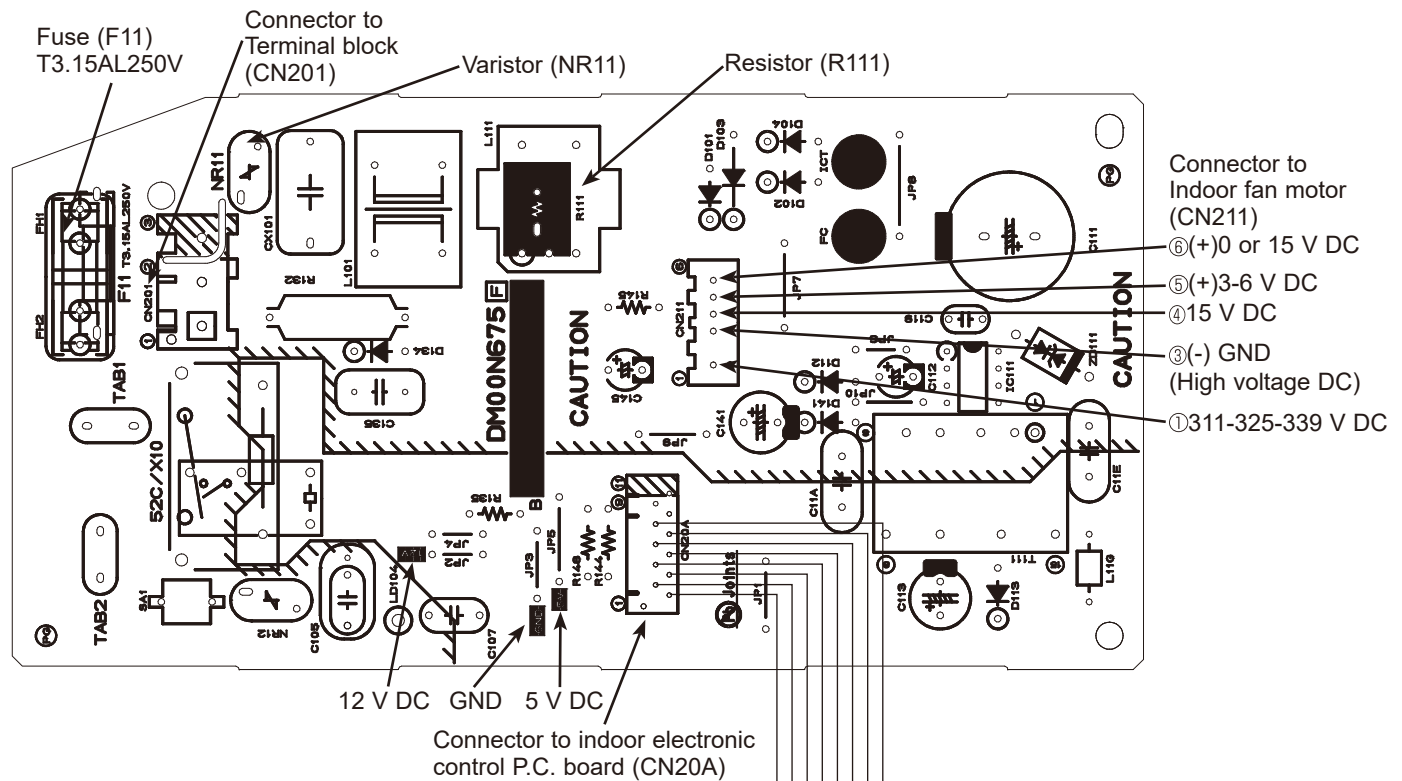
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).

Check the following before asking for service.

1. Devices affected by the electromagnetic noise
TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, earth wire, antennas, wiring from antennas, receiver
5. Electric field intensity of the broadcast station affected by the electromagnetic noise
6. Presence or absence of amplifier such as booster
7. Operation condition of air conditioner when the electromagnetic noise enters in
 - 1) Turn OFF the power supply once, and then turn ON the power supply. In this situation, check for the electromagnetic noise.
 - 2) Within 3 minutes after turning ON the power supply, press OFF/ON (stop/operate) button on the remote controller for power ON, and check for the electromagnetic noise.
 - 3) After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
 - 4) Press OFF/ON (stop/operate) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

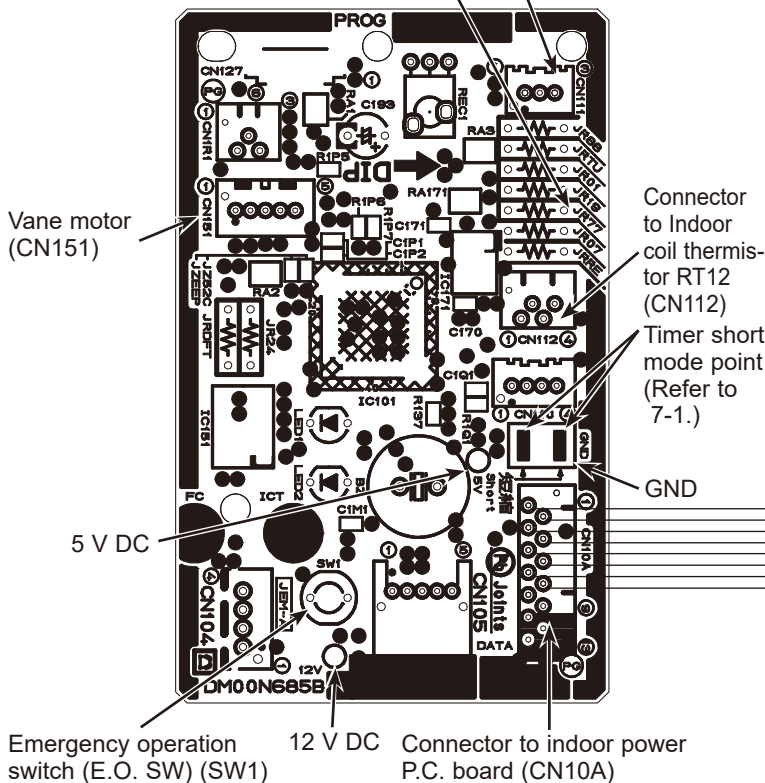
9-7. TEST POINT DIAGRAM AND VOLTAGE

1. Indoor power P.C. board MS-CP13VA

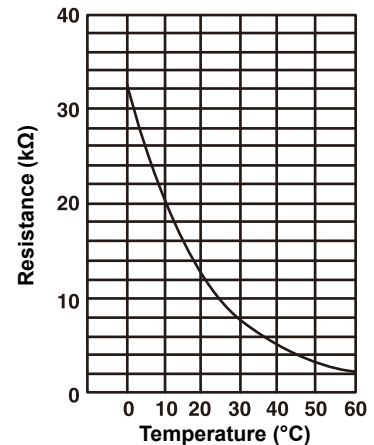


2. Indoor electronic control P.C. board

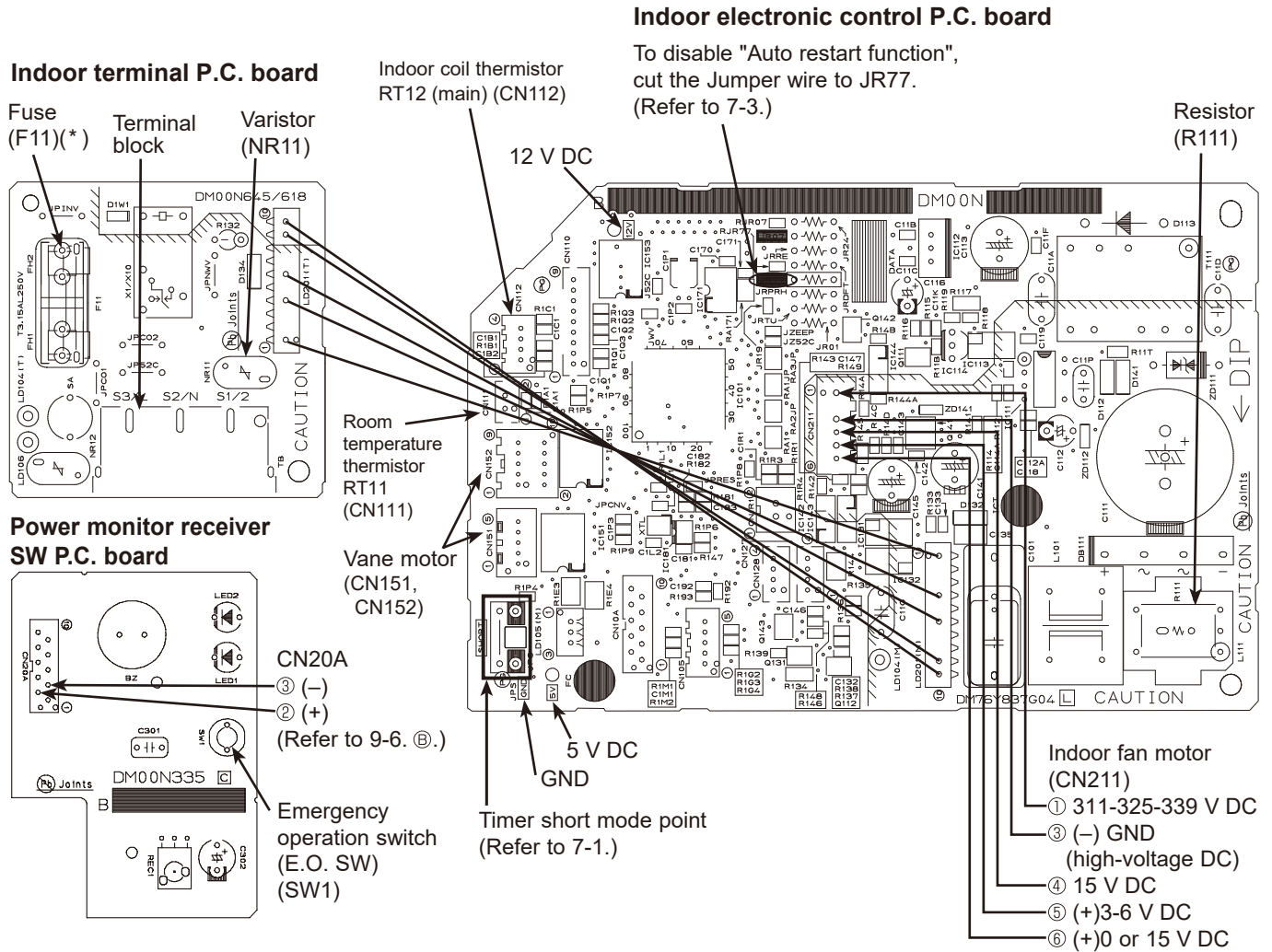
Room temperature thermistor RT11 (CN111)
To disable "Auto restart function",
cut the Jumper wire to JR77.
(Refer to 7-3.)



Room temperature thermistor (RT11)
Indoor coil thermistor (RT12)

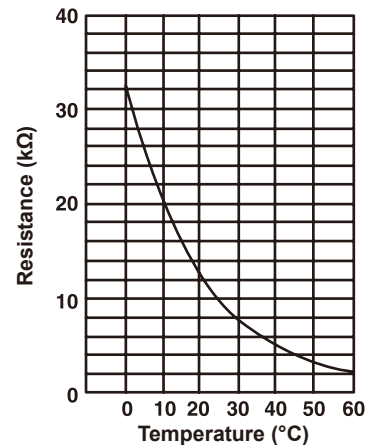


3. Indoor electronic control P.C. board, Indoor terminal P.C. board, Power monitor receiver SW P.C. board MS-CP18VA MS-CP24VA

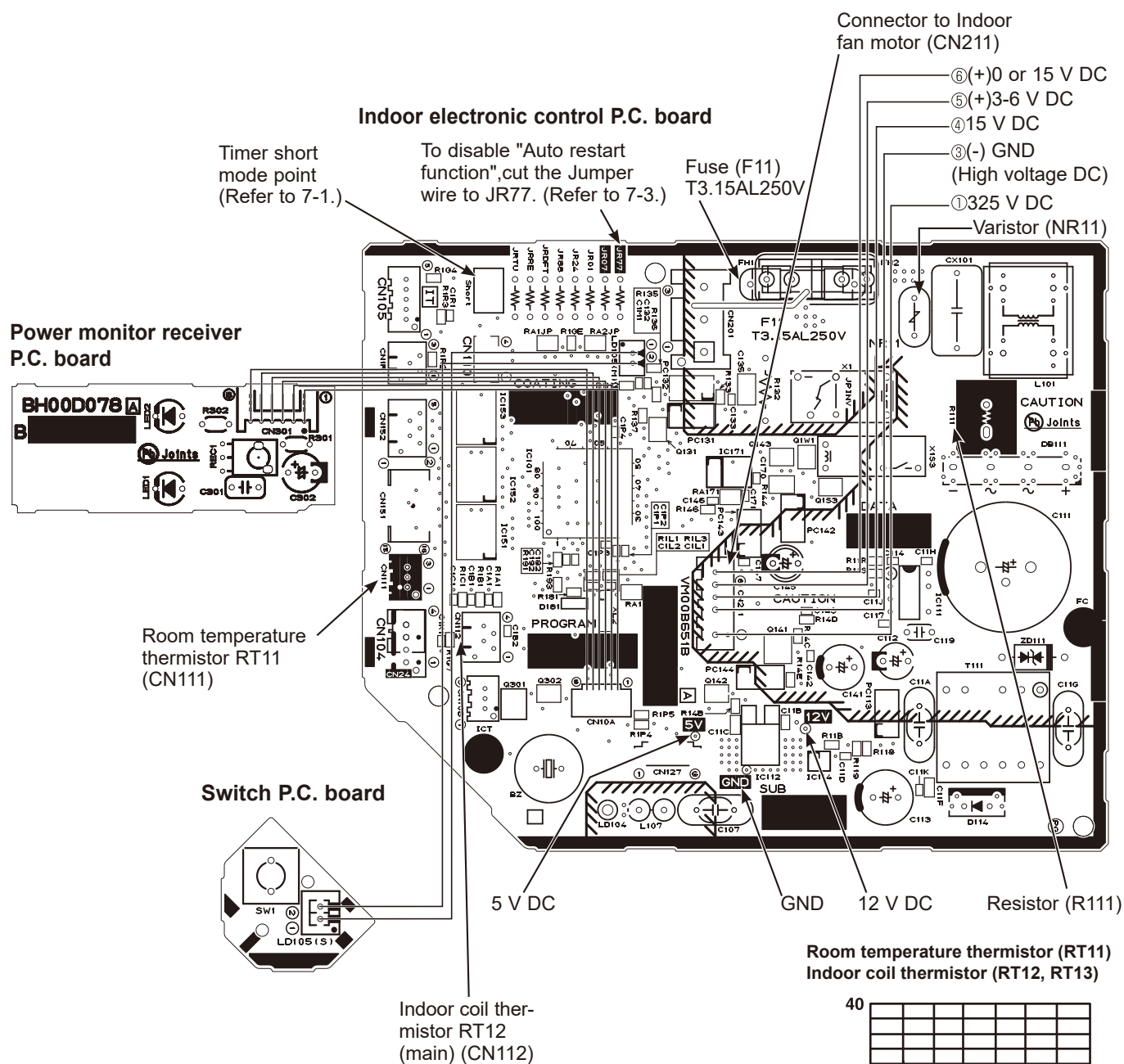


*Replace the fuse after removing the indoor terminal P.C. board from the electrical box.

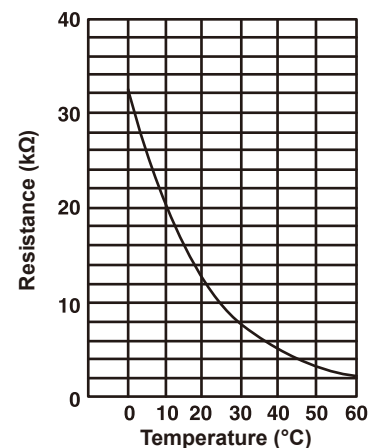
**Room temperature thermistor (RT11)
Indoor coil thermistor (RT12)**



4. Indoor electronic control P.C. board, switch P.C. board, power monitor receiver P.C. board MS-CP30VA



Room temperature thermistor (RT11)
Indoor coil thermistor (RT12, RT13)



<Detaching method of the terminal with locking mechanism>

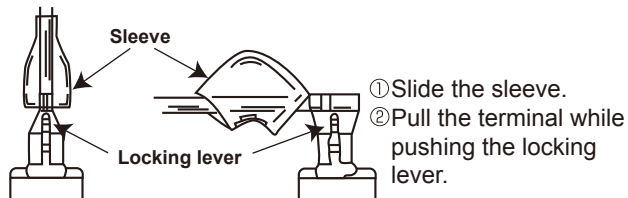
The terminal which has the locking mechanism can be detached as shown below.

There are following 2 types of the terminal with locking mechanism.

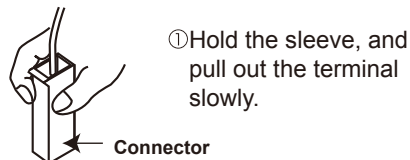
The terminal without locking mechanism can be detached by pulling it out.

Check the shape of the terminal before detaching.

- (1) Slide the sleeve and check if there is a locking lever or not.



- (2) The terminal with this connector shown below has the locking mechanism.



10-1. MS-CP13VA

—————>: Indicates the visible parts in the photos/figures.
>: Indicates the invisible parts in the photos/figures.

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the panel (1) Remove the screw caps on the panel and remove the screws of the panel. (2) Pull the panel slightly toward you, and then remove the panel by pushing it upward.	Photo 1 Front panel Horizontal vane Screws of the panel

OPERATING PROCEDURE

2. Removing the indoor power P.C. board and the electrical box

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors:
<Indoor electronic control P.C. board>
CN151 (Vane motor)
CN112 (Indoor coil thermistor)
CN10A (To the indoor power P.C. board)
- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the screw of the V.A. clamp.
- (5) Remove the V.A. clamp and the indoor/outdoor connecting wire.
- (6) Remove the earth wire connected to the indoor heat exchanger from the electrical box.
- (7) Remove the screw of the electrical cover and remove the electrical cover.
- (8) Disconnect the following connectors:
<Indoor power P.C. board>
CN211 (Indoor fan motor)
CN201 (Terminal block)
CN20A (To the indoor electronic control P.C. board)
- (9) Remove the upper catch of the electrical box, and pull out the electrical box.
*To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through A. Pass the lead wires of the fan motor through B as shown in the Photo 3.

PHOTOS/FIGURES

Photo 2

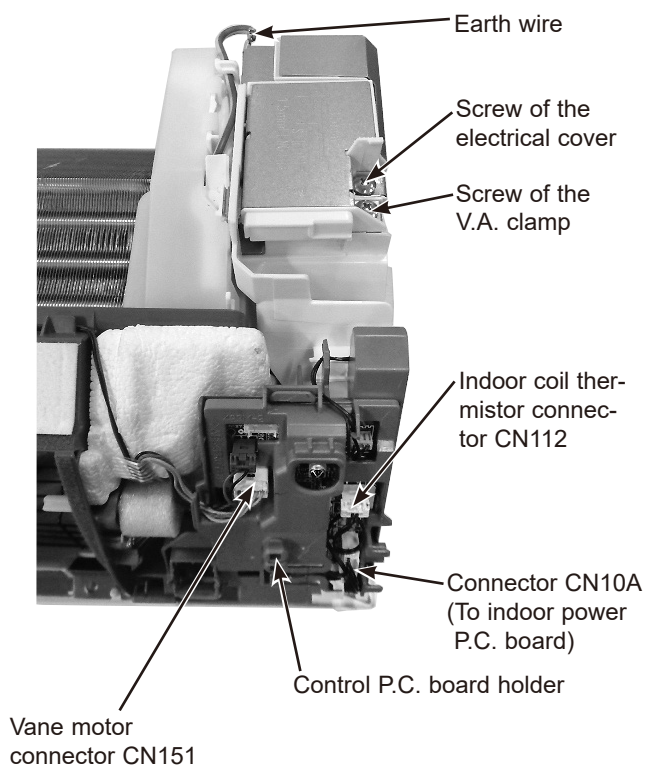
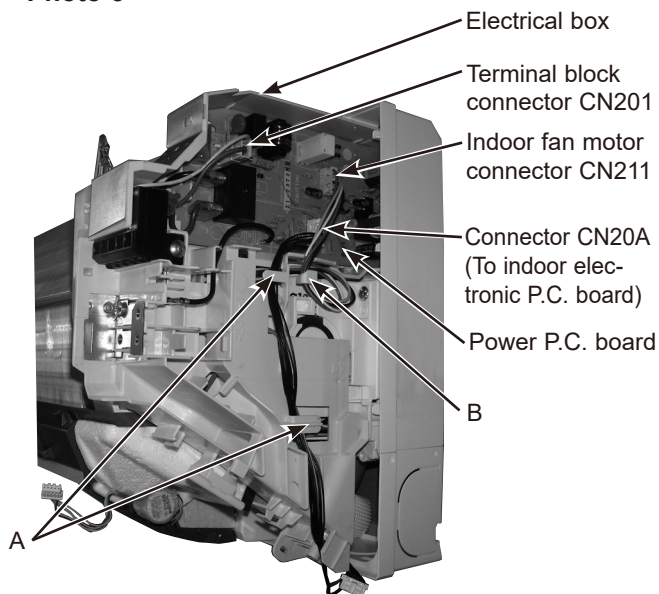


Photo 3



OPERATING PROCEDURE

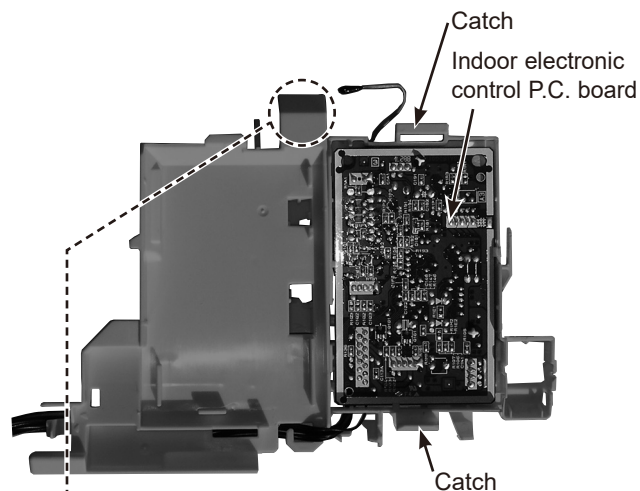
3. Removing the indoor electronic control P.C. board

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors:
<Indoor electronic control P.C. board>
CN151 (Vane motor)
CN112 (Indoor coil thermistor)
CN10A (To the indoor power P.C. board)
- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the room temperature thermistor from the back side of the control P.C. board holder.
- (5) Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.
- (6) Remove the indoor electronic control P.C. board from the control P.C. board holder.

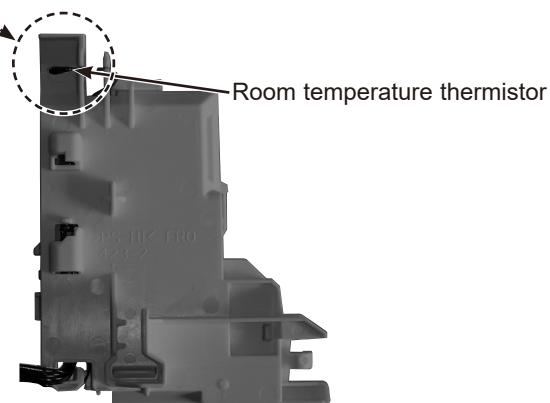
PHOTOS/FIGURES

Photo 4

Control P.C. board holder (Inside)



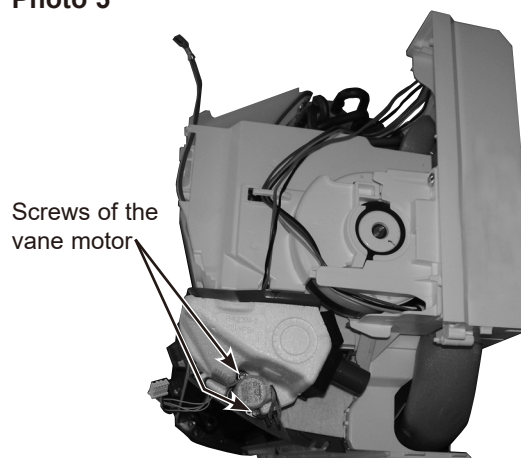
Control P.C. board holder (Back side)



4. Removing the vane motor

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Remove the control P.C. board holder and the electrical box. (Refer to section 2.)
- (3) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
- (4) Remove the screws of the vane motor and remove the vane motor.
- (5) Disconnect the connector from the vane motor.

Photo 5



OPERATING PROCEDURE

5. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan

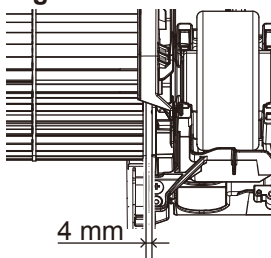
- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Remove the control P.C. board holder, the electrical box and the nozzle assembly. (Refer to section 2 and 4.)
- (3) Remove the screws fixing the motor bed.
- (4) Disengage the hooks of the water cover and remove the water cover.
- (5) Disconnect the earth wire from the motor band.
- (6) Remove the indoor coil thermistor from the motor band.
- (7) Loosen the screw fixing the line flow fan.
- (8) Remove the motor bed together with the indoor fan motor and the motor band.
- (9) Disconnect the lead wire of the fan motor from the motor band.
- (10) Disengage the hooks of the motor band and remove the motor band. Pull out the indoor fan motor.
- (11) Remove the indoor coil thermistor from the heat exchanger.

*Install the indoor coil thermistor in its former position when assembling it.

- (12) Remove the screws fixing the left side of the heat exchanger.
- (13) Lift the heat exchanger, and pull out the line flow fan to the lower-left.

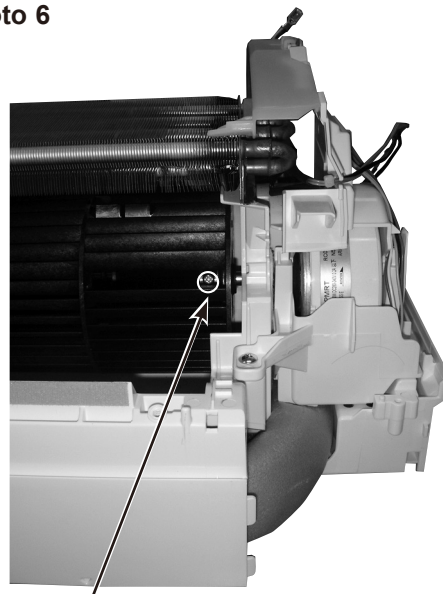
*When attaching the line flow fan, screw the line flow fan so 4 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1



PHOTOS/FIGURES

Photo 6



Screw of the line flow fan

Photo 7

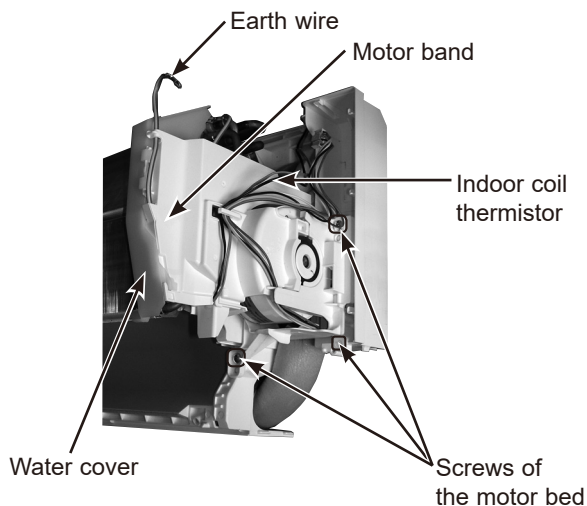
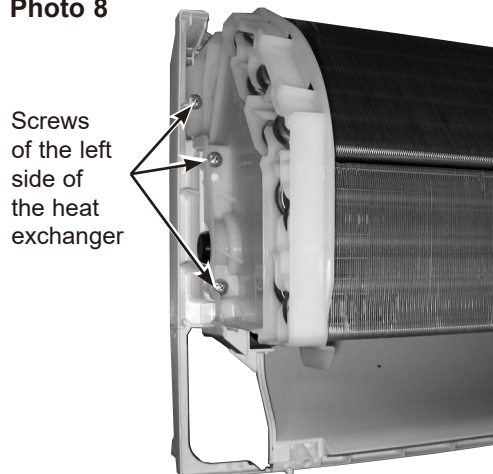
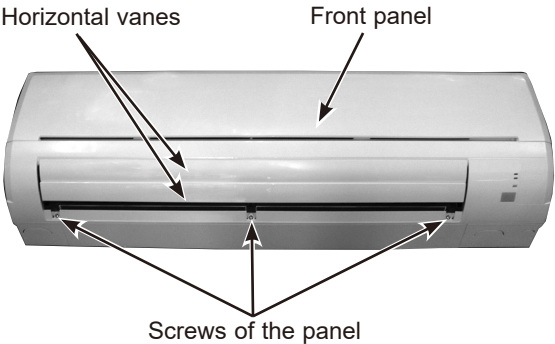


Photo 8



10-2. MS-CP18VA MS-CP24VA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the panel (1) Remove the horizontal vanes. (2) Remove the screw caps of the panel. Remove the screws of the panel. (3) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward.	Photo 1  The photograph shows the front panel of a white air conditioning unit. Three arrows with labels point to specific parts: 'Horizontal vanes' points to the top slatted area, 'Front panel' points to the main body of the panel, and 'Screws of the panel' points to the bottom edge where the panel is attached to the unit.

OPERATING PROCEDURE

2. Removing the indoor electronic control P.C. board, the power monitor receiver SW P.C. board and the indoor terminal P.C. board

- (1) Remove the panel (Refer to section 1.) and the corner box.
- (2) Remove the screw of the V.A. clamp.
Remove the V.A. clamp and the indoor/outdoor connecting wire. (Photo 2)
- (3) Remove the screw of the electrical cover, and then the electrical cover.
- (4) Remove the earth wire connected to the indoor electronic control P.C. board from the electrical box. (Photo 3)
- (5) Remove the power monitor receiver holder.
- (6) Open the rear cover of the power monitor receiver holder and pull out the power monitor receiver SW P.C. board.
- (7) Disconnect all the connectors on the indoor electronic control P.C. board and unhook all lead wires.
- (8) Remove the screw of the terminal block on the indoor terminal P.C. board.
- (9) Remove the indoor terminal P.C. board and the indoor electronic control P.C. board.

3. Removing the indoor electrical box

- (1) Remove the panel (Refer to section 1.) and the corner box.
- (2) Remove the indoor/outdoor connecting wire. (Refer to section 2.)
- (3) Remove the earth wire connected to the indoor heat exchanger from the electrical box.
- (4) Remove the screw of the electrical cover and remove the electrical cover.
- (5) Disconnect all the connectors on the indoor electronic control P.C. board and unhook all lead wires.
- (6) Remove the screw fixing the electrical box, then the upper catch of the electrical box, and pull out the electrical box.

PHOTOS/FIGURES

Photo 2

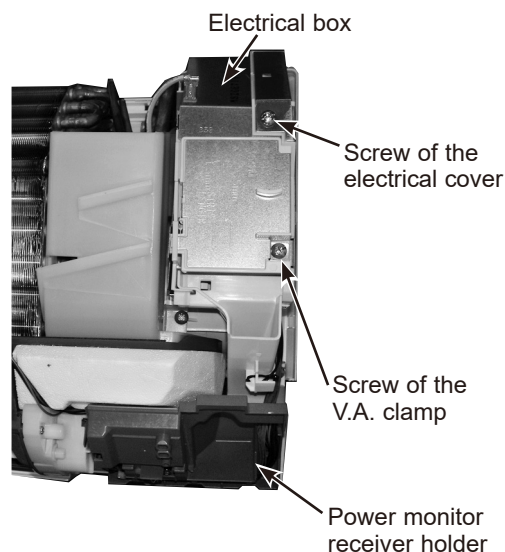
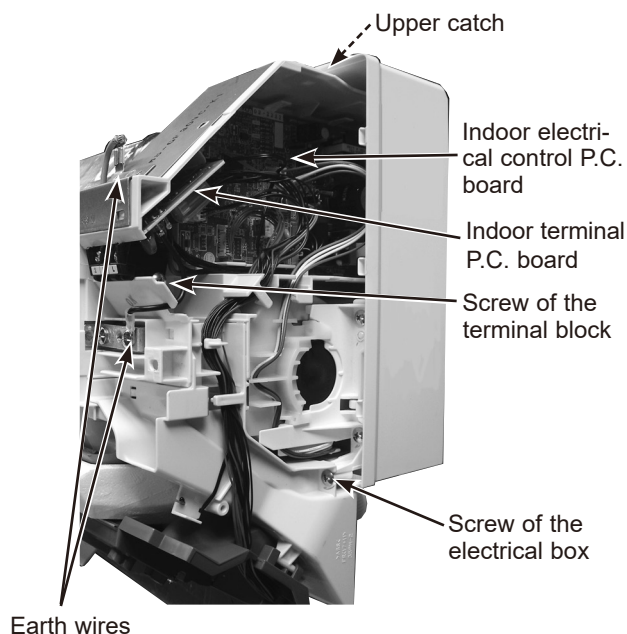
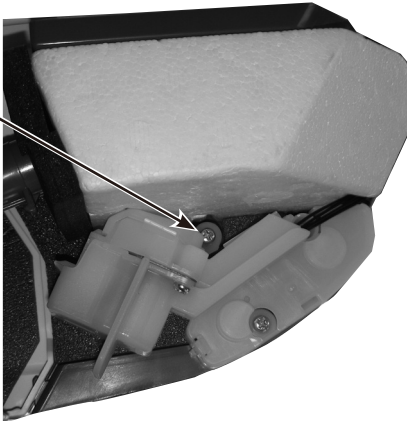
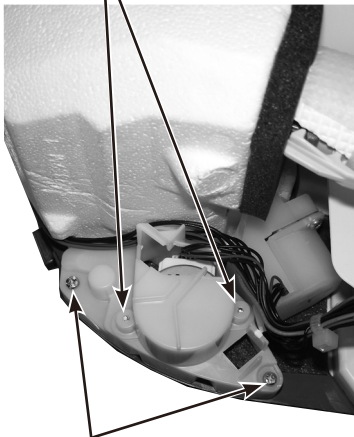


Photo 3



OPERATING PROCEDURE	PHOTOS/FIGURES
4. Removing the nozzle assembly (1) Remove the panel (Refer to section 1.) and the corner box. (2) Remove the V.A. clamp, and then the indoor/outdoor connecting wire. (Photo 2) (3) Remove the electrical cover. (Photo 2) (4) Disconnect the following connectors on the electronic control P.C. board: CN151 (Horizontal vane motor) CN152 (Vertical vane motor) (5) Remove the power monitor receiver holder. (Photo 4) (6) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly. (7) Remove the vane motors. (Refer to section 5 and 6.)	Photo 4  Screw of the vertical vane motor unit
5. Removing the vertical vane motor unit (1) Remove the nozzle assembly. (Refer to section 4.) (2) Remove the crank of the vertical vane motor unit from the arm of the vertical vane. (3) Remove the screw of the vertical vane motor unit, and pull the vertical vane motor unit. (4) Remove the screws of the vertical vane motor unit cover. (5) Remove the crank of the vertical vane motor unit from the shaft of the vane motor. (6) Remove the vertical vane motor from the vertical vane motor unit. (7) Disconnect the connector of vertical vane motor from the vertical vane motor.	Photo 5  Screws of vertical vane motor unit cover
6. Removing the horizontal vane motor (1) Remove the nozzle assembly. (Refer to section 4.) (2) Remove the screws of the horizontal vane motor unit, and pull out the horizontal vane motor unit. (3) Disconnect the connector from the horizontal vane motor. (4) Remove the screws of the horizontal vane motor unit cover. (5) Remove the horizontal vane motor from the horizontal vane motor unit.	Photo 6  Screws of horizontal vane motor unit cover Screws of horizontal vane motor unit

OPERATING PROCEDURE

7. Removing the water cut, the indoor fan motor, the indoor coil thermistor, and the line flow fan

- (1) Remove the panel (Refer to section 1.) and the corner box.
- (2) Remove the power monitor receiver holder, the electrical box and the nozzle assembly. (Refer to section 3 and 4.)
- (3) Remove the screw of the water cut and remove the water cut.
- (4) Remove the screws fixing the motor bed.
- (5) Loosen the screw fixing the line flow fan.
- (6) Remove the motor bed together with fan motor and motor band.
- (7) Release the hooks of the motor band. Remove the motor band. Pull out the indoor fan motor.
- (8) Remove the indoor coil thermistor from the heat exchanger.
- *Install the indoor coil thermistor in its former position when assembling it. (Photo 9)
- (9) Remove the screws fixing the left side of the heat exchanger.
- (10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.

*When attaching the line flow fan, screw the line flow fan so 5 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1

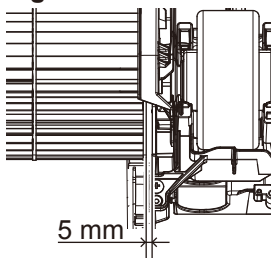
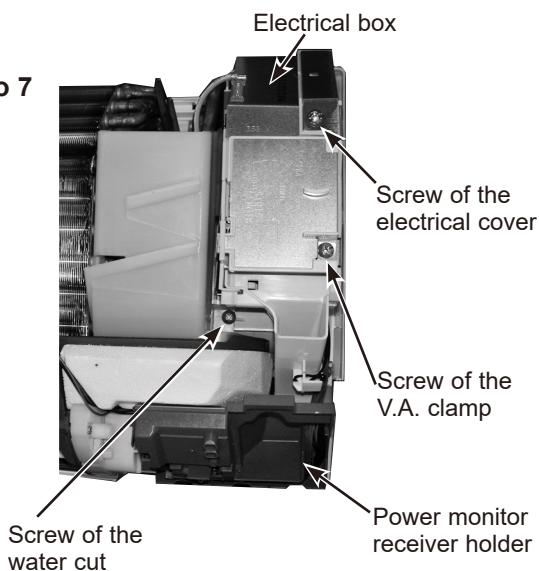


Photo 7



PHOTOS/FIGURES

Photo 8

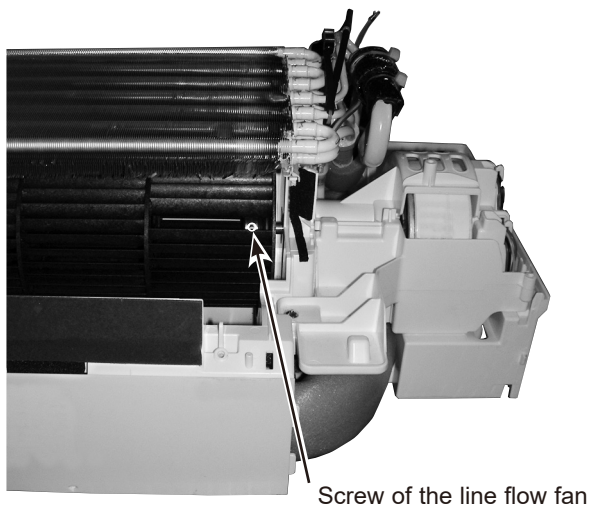


Photo 9

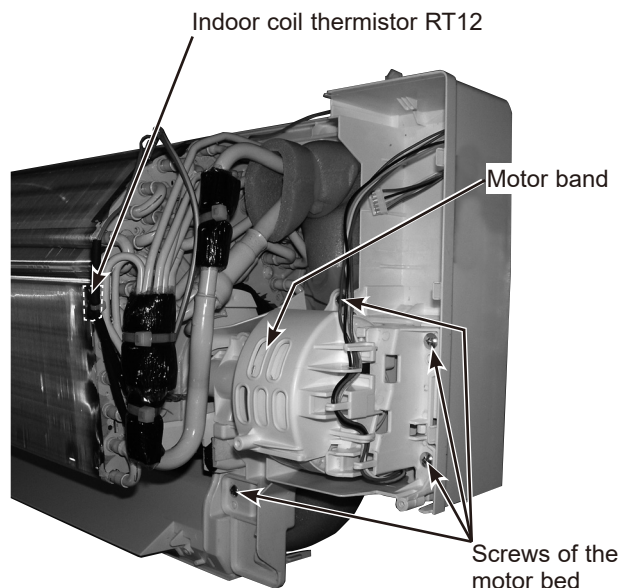
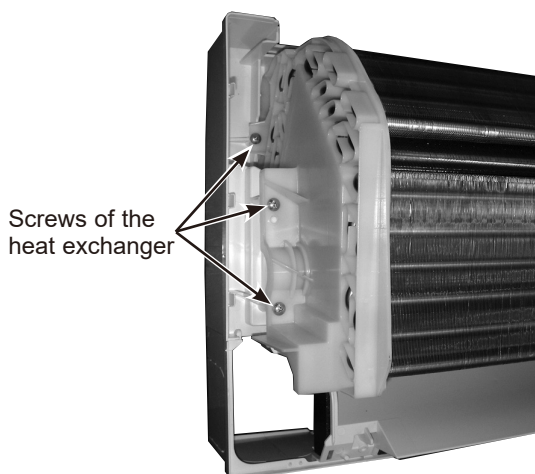
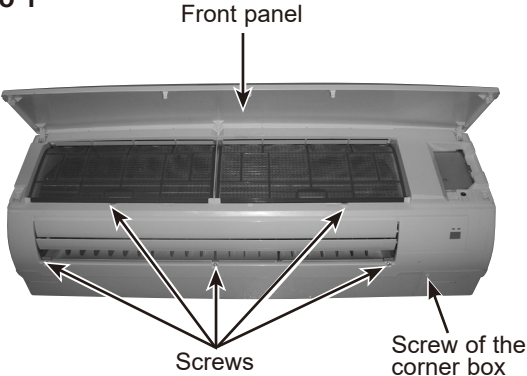
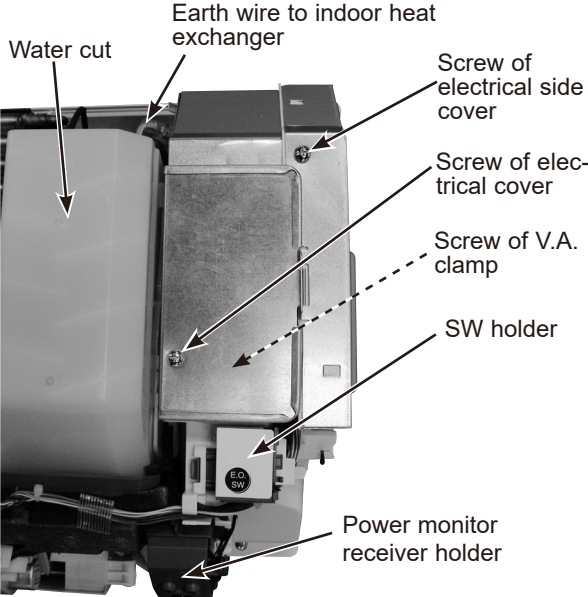


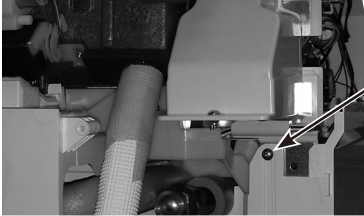
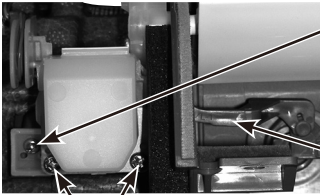
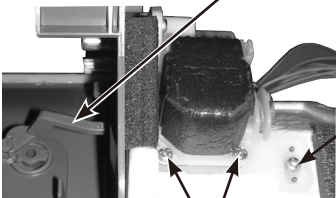
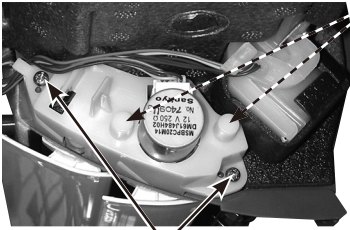
Photo 10



10-3. MS-CP30VA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the panel (1) Press and unlock the knobs on both sides of the front panel and lift the front panel until it is level, and then pull the hinges forward to remove the front panel. (2) Remove the screw caps of the panel. Remove the screws of the panel. (3) Hold the lower part of both ends on the panel and pull it slightly toward you, and then remove the panel by pushing it upward. (4) Remove the screw of the corner box. Remove the corner box.	Photo 1  Front panel Screws Screw of the corner box
2. Removing the electrical box, the electronic control P.C. board, the power monitor receiver P.C. board and the S.W. P.C. board (1) Remove the panel and the corner box. (Refer to section 1.) (2) Remove the screw of the electrical cover. Remove the electrical cover. (3) Remove the screw of the V.A. clamp. (4) Remove the V.A. clamp, then remove the indoor/ outdoor connecting wire. (5) Disconnect TAB of the earth wire connected to the indoor heat exchanger. (6) Remove the screw of the electrical side cover. Remove the electrical side cover. (7) Disconnect all the connectors, TAB and TAB4 on the indoor electronic control P.C. board. (8) Remove the screw on lower side of the electrical box. Remove the electrical box. (Photo 3.) (9) Remove the indoor electronic control P.C. board. (10) Remove the SW holder from the electrical box. (11) Open the switch holder and pull out the SW P.C. board. (12) Remove the power monitor receiver P.C. board holder from the electrical box. (13) Open the power monitor receiver P.C. board holder and pull out the power monitor receiver P.C. board.	Photo 2  Water cut Earth wire to indoor heat exchanger Screw of electrical side cover Screw of electrical cover Screw of V.A. clamp SW holder Power monitor receiver holder

OPERATING PROCEDURE	PHOTOS/FIGURES
3. Removing the nozzle assembly (1) Remove the panel and the corner box. (Refer to section 1.) (2) Remove the electrical cover. (Refer to section 2.) (3) Remove the electrical side cover, and disconnect the vane motor connector. (4) Pull out the drain hose from the nozzle assembly, and remove the nozzle assembly.	Photo 3  Screw of electrical box
4. Removing the vertical vane motor (1) Remove the nozzle assembly. (Refer to section 3.) (2) Remove the crank of the vertical vane motor unit from the arm of the vertical vane. (3) Remove the screw of the vertical vane motor unit, and pull the vertical vane motor unit. (4) Remove the screws of the vertical vane motor unit cover. (5) Remove the crank of the vertical vane motor unit from the shaft of the vane motor. (6) Remove the vertical vane motor from the vertical vane motor unit. (7) Disconnect the connector of vertical vane motor from the vertical vane motor.	Photo 4  Screw of the vertical vane motor unit Crank of the vertical vane motor unit Screws of the vertical vane motor unit cover
5. Removing the horizontal vane motor (1) Remove the nozzle assembly. (Refer to section 3.) (2) Remove the screws of the horizontal vane motor unit, and pull out the horizontal vane motor unit. (3) Disconnect the connector from the horizontal vane motor. (4) Remove the screws of the horizontal vane motor. (5) Remove the horizontal vane motor.	Photo 5  Crank of the vertical vane motor unit Screw of the vertical vane motor unit Screws of the vertical vane motor unit cover Photo 6  Screws of the horizontal vane motor Screws of the horizontal vane motor unit

OPERATING PROCEDURE

6. Removing the line flow fan and the indoor fan motor

- (1) Remove the panel and the corner box. (Refer to section 1.)
- (2) Remove the electrical box. (Refer to section 2.)
- (3) Remove the nozzle assembly. (Refer to section 3.)
- (4) Remove the water cut.
- (5) Loosen the set screw of the line flow fan.
- (6) Remove the screws of the motor bed.
- (7) Remove the lead wire of the indoor coil thermistor from the hooks of the motor bed.
- (8) Remove the motor band and the motor bed together with the indoor fan motor. (Be careful not to drop the indoor fan motor because it is heavy.)
- (9) Remove the screw of the motor band, and remove the motor band, then pull out the indoor fan motor.
- (10) Remove the screws of the left side of the heat exchanger.
- (11) Lift the left side of the heat exchanger.
- (12) Remove the line flow fan to the lower-left.

* When attaching the line flow fan, screw the line flow fan so 5 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1

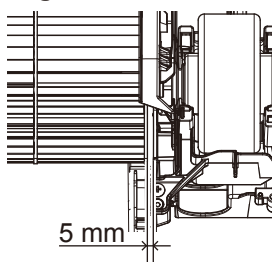


Photo 9



Screw of the line flow fan

PHOTOS/FIGURES

Photo 7

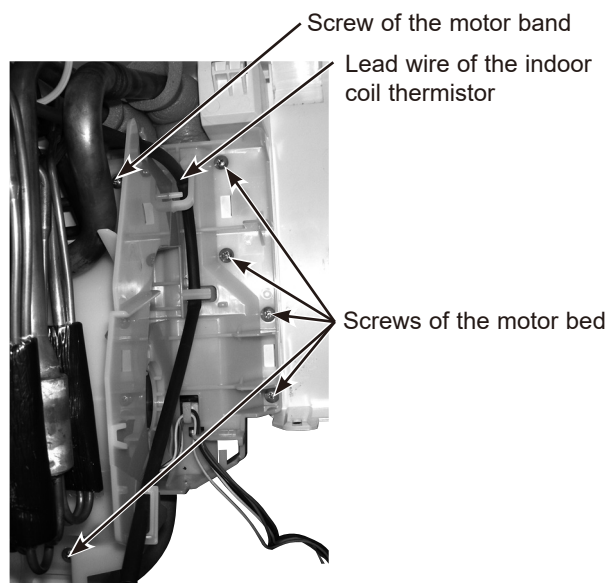
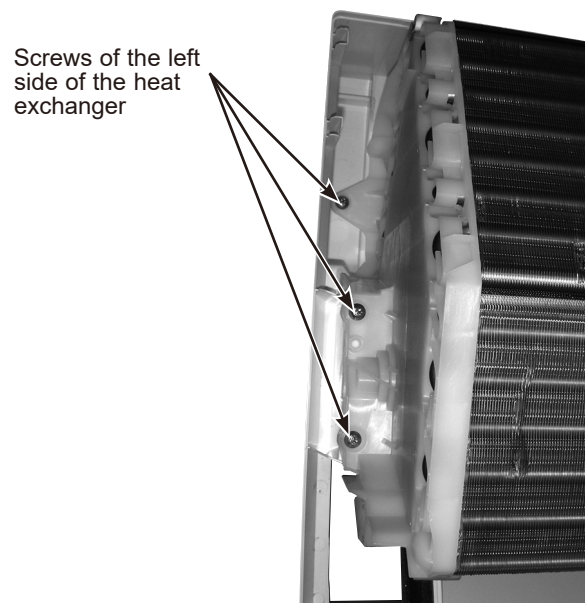


Photo 8



Screws of the left side of the heat exchanger

Fixing the indoor coil thermistor

*There are 2 forms of parts for fixing the indoor coil thermistor.

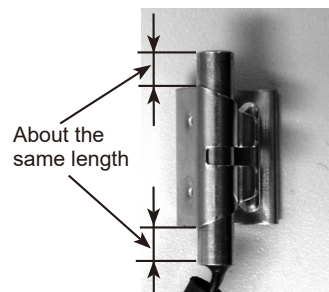
Clip shape



Holder shape



When fixing the indoor coil thermistor to the clip-shape/holder-shape part, the lead wire should point down.



Position and procedure for mounting the clip-shape part

1. Set the indoor coil thermistor in the center of the clip-shape part.



2. Check the (marked) mounting position.



3. Mount the clip-shape part.



NOTE:

- Take care to avoid loss and accidental falling of the clip-shape part inside the unit.
- Mount the clip-shape part on the marked position.
- Do not pull the lead wire when removing the indoor coil thermistor.

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