MITSUBISHI ELECTRIC

Changes for the Better

FLOOR AND CEILING TYPE AIR CONDITIONERS

Revision A:
- Power input of SPECIFICATION has modified.
- Model name of remote controller has been corrected.

Please void OB338.

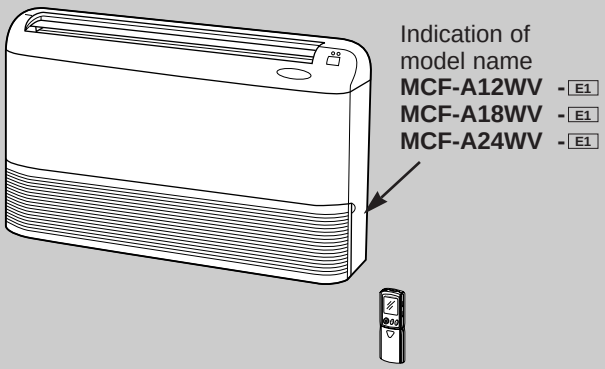
No. OB338
REVISED EDITION-A

SERVICE MANUAL

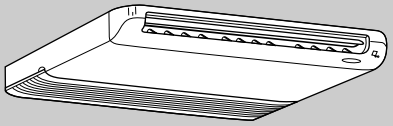
Wireless type
Models

MCF-A12WV -E1 (WH)
MCF-A18WV -E1 (WH)
MCF-A24WV -E1 (WH)

(When installed on the floor)



(When installed on the ceiling)



CONTENTS

NOTE:
- This service manual describes technical data of indoor units
- As for outdoor units MUCF-A18WV -E1 and MUCF-A24WV -E1, refer to the service manual OB339.
- As for outdoor unit MU-A12YV -E1, refer to the service manual OB330 REVISED EDITION-A.

CE

Revision A:
•Power input of SPECIFICATION has modified.
•Model name of remote controller has been corrected.
SPECIFICATION, SERVICE FUNCTION and PARTS LIST have modified.

1 TECHNICAL CHANGES

MCF-13NV -E4 → MCF-A12WV -E1
1. Rated voltage has changed. (220-240V → 230V)
2. Indoor electronic control P.C. board has changed.
3. Horizontal vane has changed.
4. Terminal block has changed.
5. Indoor heat exchanger has changed.
6. Remote controller has changed.
   Econo cool operation has been added.
7. Indoor fan motor has changed. (RB4V19-AB → RB4V19-AC)

MCF-24NV -E3 → MCF-A24WV -E1
1. Rated voltage has changed. (220-240V → 230V)
2. Indoor electronic control P.C. board has changed.
3. Horizontal vane has changed.
4. Terminal block has changed.
5. Indoor heat exchanger has changed.
6. Remote controller has changed.
   Econo cool operation has been added.
7. Diameter of union has changed. (Liquid: ϕ9.52 → ϕ6.35)
8. Indoor fan motor has changed. (RB4V36-AB → RB4V36-DB)

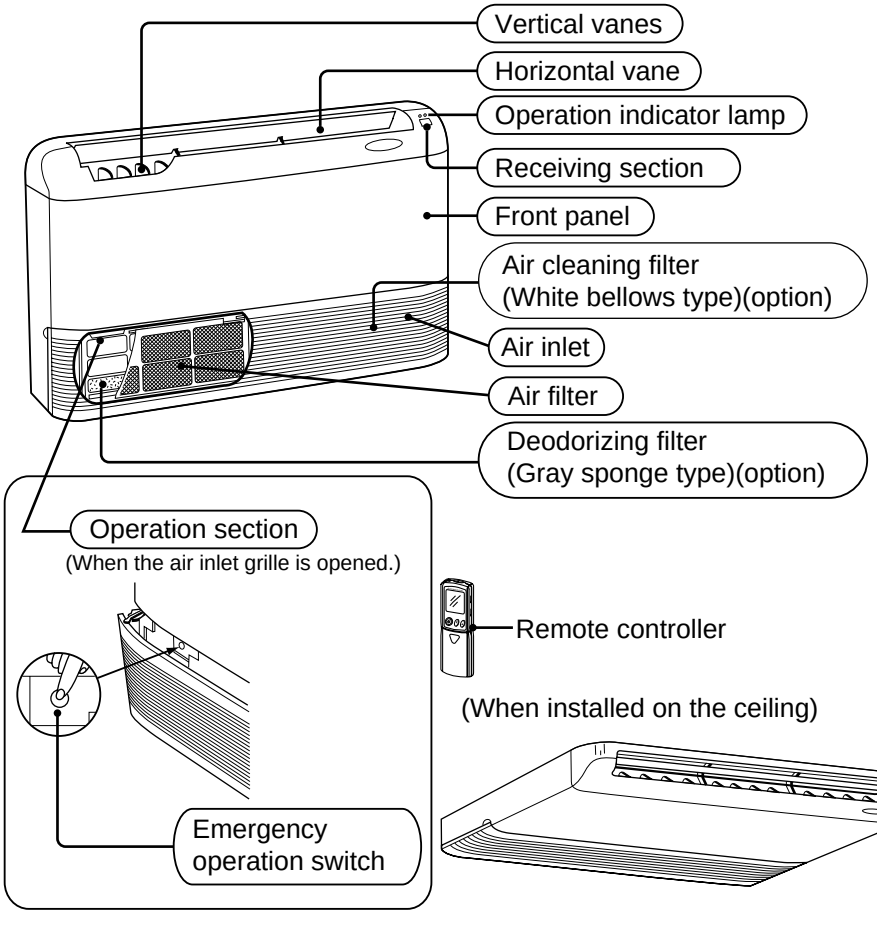
MCF-18NV -E3 → MCF-A18WV -E1
1. Rated voltage has changed. (220-240V → 230V)
2. Indoor electronic control P.C. board has changed.
3. Horizontal vane has changed.
4. Terminal block has changed.
5. Indoor heat exchanger has changed.
6. Remote controller has changed.
   Econo cool operation has been added.
7. Diameter of union has changed. (Gas: ϕ15.88 → ϕ12.7)
8. Indoor fan motor has changed. (RB4V25-AB → RB4V25-AC)

2 PART NAMES AND FUNCTIONS

MCF-A12WV -E1 **MCF-A18WV -E1** **MCF-A24WV -E1**

INDOOR UNIT

(When installed on the floor)

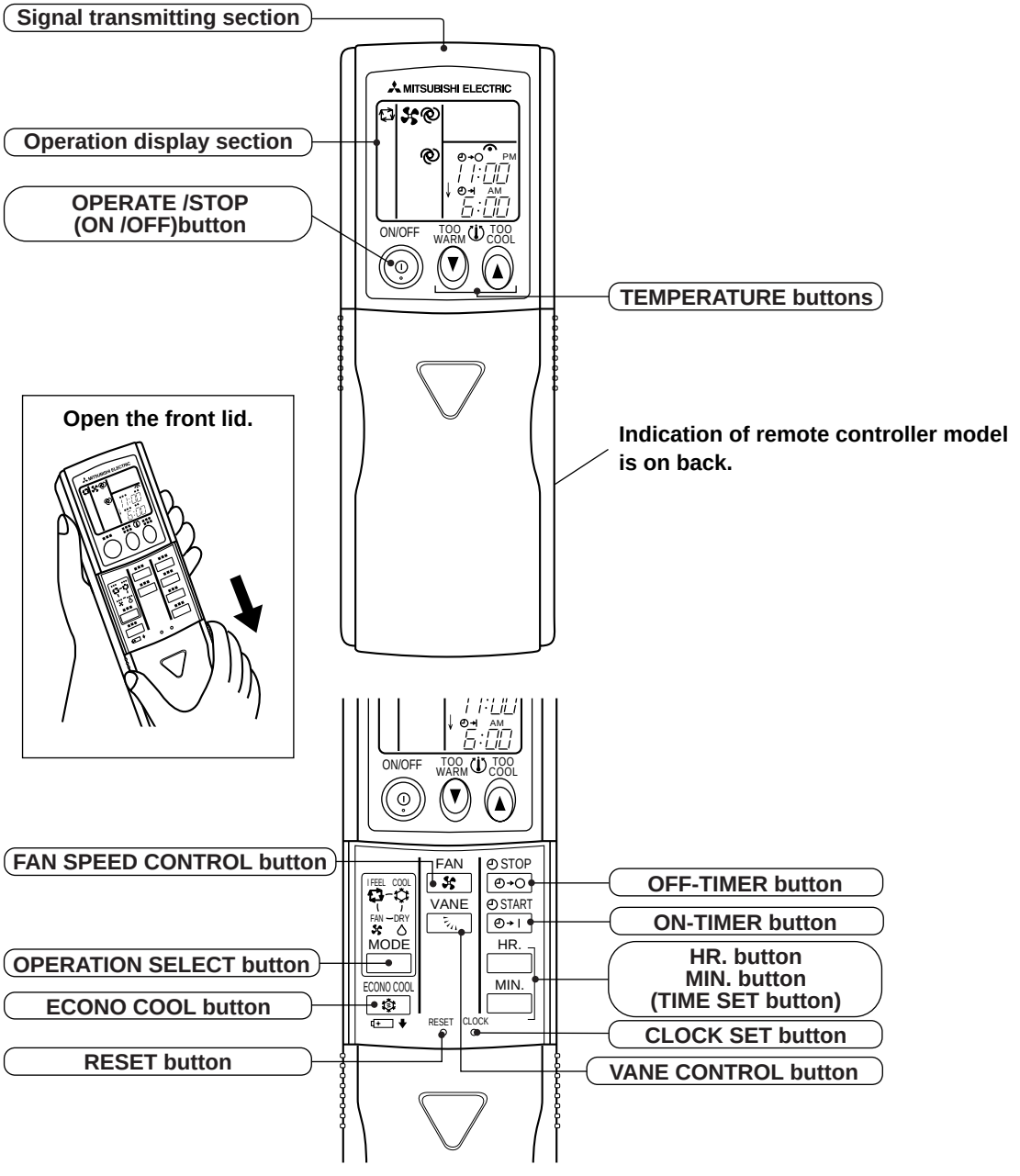


ACCESSORIES

	Item	Q'ty
①	Installation plate	2
②	Unit fixing screw 5 × 12mm	2
③	Wireless remote controller	1
④	Remote controller holder	1
⑤	Fixing screw for ④ 3.5 × 16mm (Black)	2
⑥	Battery (AAA) for remote controller	2
⑦	Drain hose	1
⑧	Drain pipe cover	1
⑨	Knockout cover	1
⑩	Screw for ⑨ 4 × 10mm	2

MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1

REMOTE CONTROLLER



3 SPECIFICATION

Indoor model			MCF-A12WV - E1	MCF-A18WV - E1	MCF-A24WV - E1
Function			Cooling	Cooling	Cooling
Power supply			Single phase 230V, 50Hz	Single phase 230V, 50Hz	Single phase 230V, 50Hz
Capacity	Air flow (High/Med.※/Low※)	m³ /h	678 /582※ /474 ※	780 / 636※ / 492※	840/ 744※ / 642※
Electrical data	Power outlet	A	10		
	Running current	A	0.26	0.30	0.36
	Power input	W	56	66	80
	Auxiliary heater	A(kW)	—		
	Power factor	%	94	96	97
	Fan motor current	A	0.26	0.30	0.36
Fan motor	Model		RB4V19-AC	RB4V25-AC	RB4V36-DB
	Winding resistance(at 20℃)	Ω	WHT-BLK 203.2 BLK-YLW 45.9 YLW-BLU 32.7 BLU-BRN 44.4 BRN-RED 23.3	WHT-BLK 182.2 BLK-YLW 68.9 YLW-BLU 47.5 BLU-BRN 31.5 BRN-RED 22.9	WHT-BLK 84 BLK-YLW 46.2 YLW-BLU 37.2 BLU-BRN 45.2 BRN-RED 13.6
	Dimensions W×H×D	mm	1,100×650×180		
	Weight	kg	25		
Special remarks	Air direction		5		
	Sound level (High/Med.※/Low※)	dB	44 /40※ /34※	46 /41※ / 36※	48 /45※ / 42※
	Fan speed (High/Med.※/Low※)	rpm	1,105 /970※ / 820※	1,240 /1,060※ / 845※	1,320 /1,190※ / 1,060※
	Fan speed regulator		3		
	Thermistor RT11(at 25℃)	kΩ	10		
	Thermistor RT12(at 25℃)	kΩ	10		
Remote controller model			KG04D		

NOTE:Test conditions are based on ISO 5151.
Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB(24°C)
Indoor-Outdoor piping length : 5m

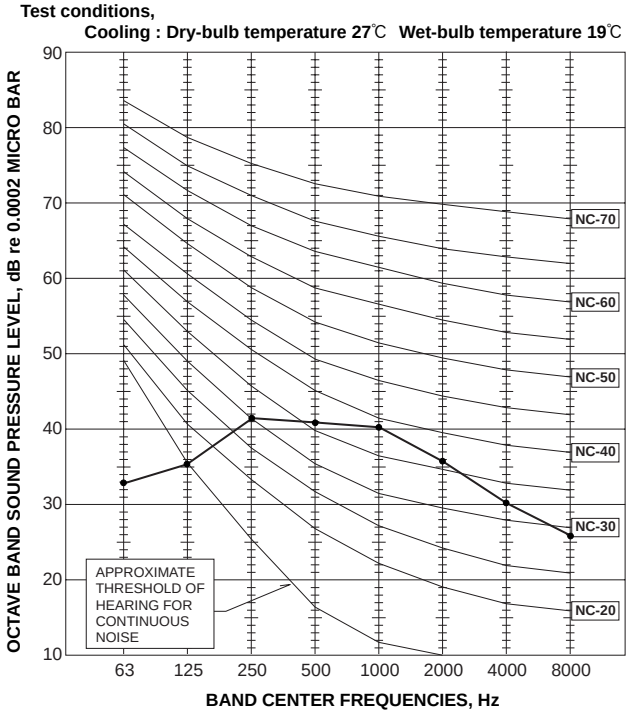
※Reference value

4 NOISE CRITERIA CURVES

NOISE CRITERIA CURVES

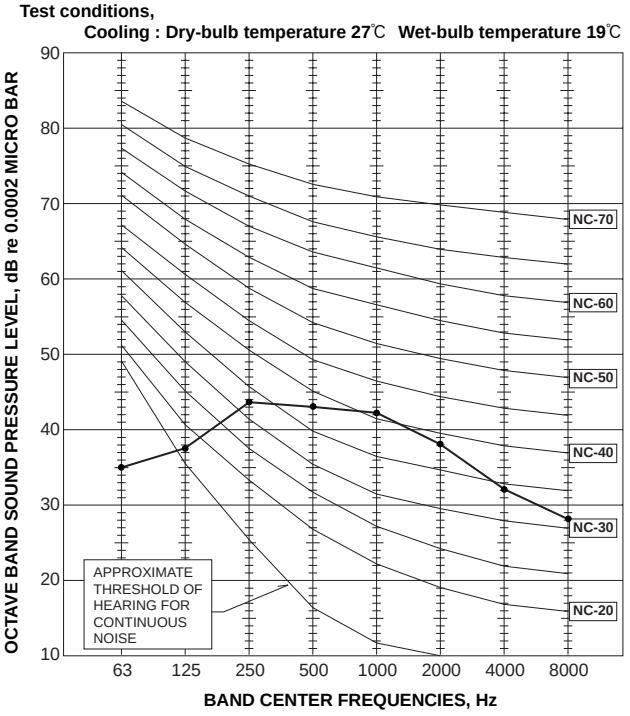
MCF-A12WV - E1

FAN SPEED	SPL(dB(A))	LINE
High	44	●—●



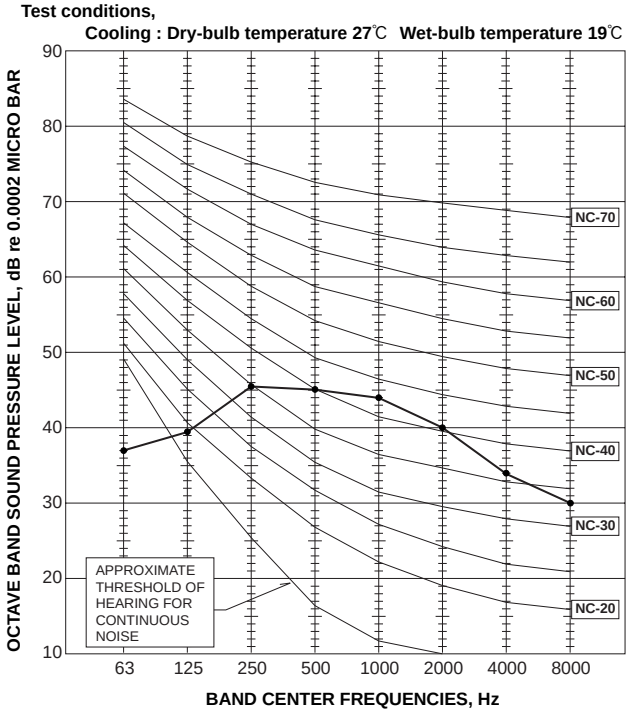
MCF-A18WV - E1

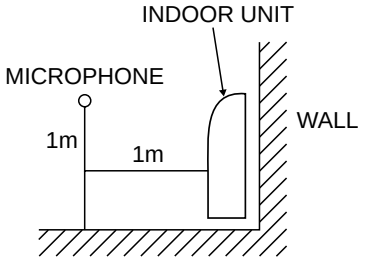
FAN SPEED	SPL(dB(A))	LINE
High	46	●—●



MCF-A24WV - E1

FAN SPEED	SPL(dB(A))	LINE
High	48	●—●



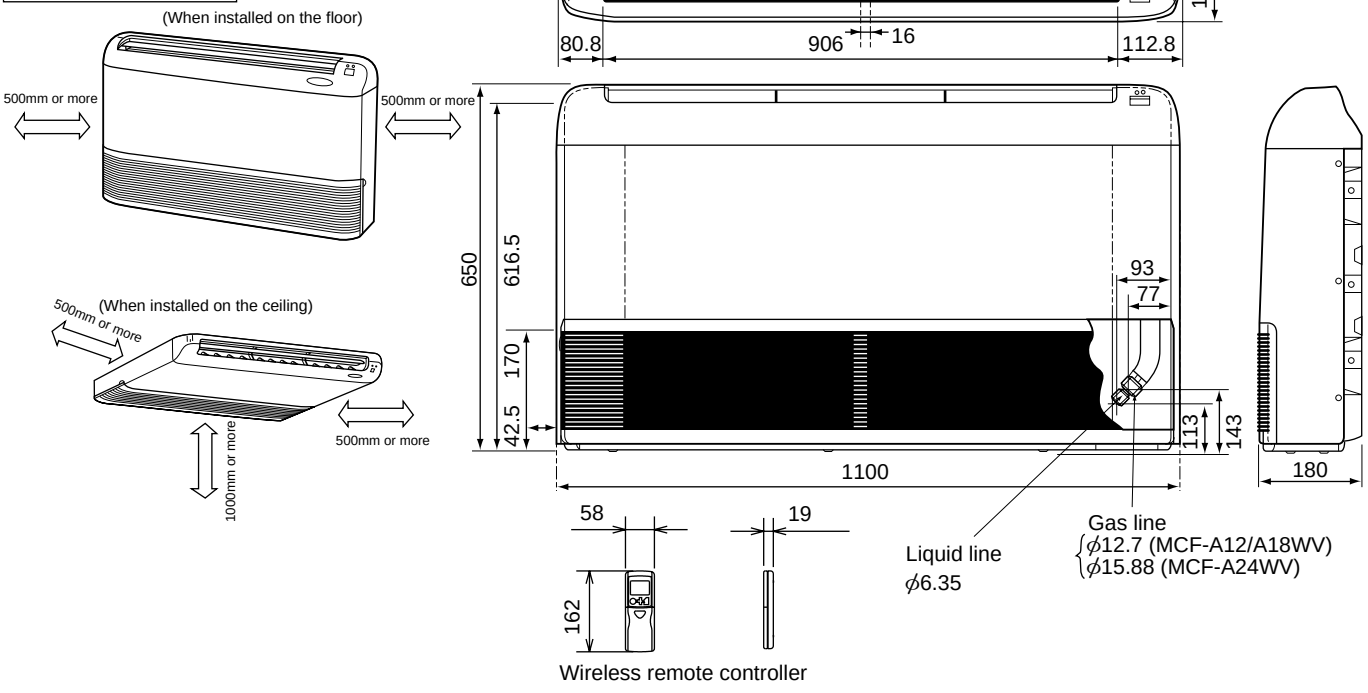


5 OUTLINES AND DIMENSIONS

MCF-A12WV -E1 **MCF-A24WV -E1**
MCF-A18WV -E1

Unit: mm

INDOOR UNIT



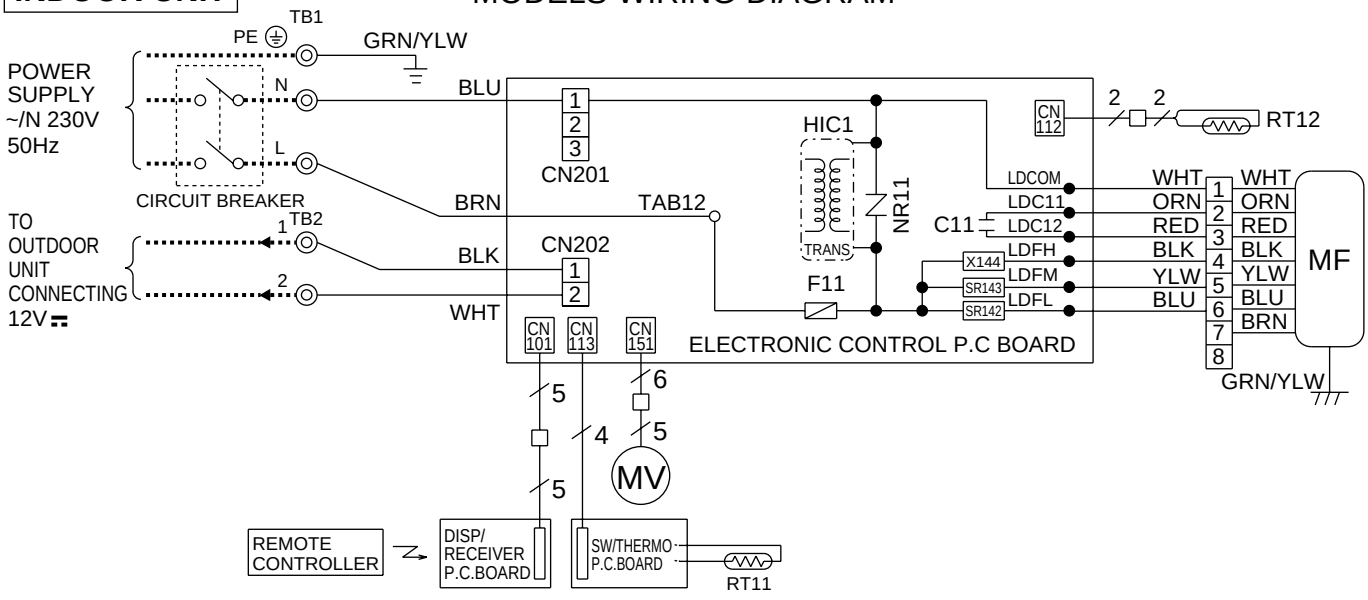
Wireless remote controller

6 WIRING DIAGRAM

MCF-A12WV -E1 **MCF-A18WV -E1** **MCF-A24WV -E1**

INDOOR UNIT

MODELS WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV	VANE MOTOR	SR142~SR143	SOLID STATE RELAY
F11	FUSE (3.15A)	NR11	VARISTOR	TB1, TB2	TERMINAL BLOCK
HIC1	DC/DC CONVERTER	RT11	ROOM TEMPERATURE THERMISTOR	X144	RELAY
MF	INDOOR FAN MOTOR(INNER FUSE)	RT12	INDOOR COIL THERMISTOR		

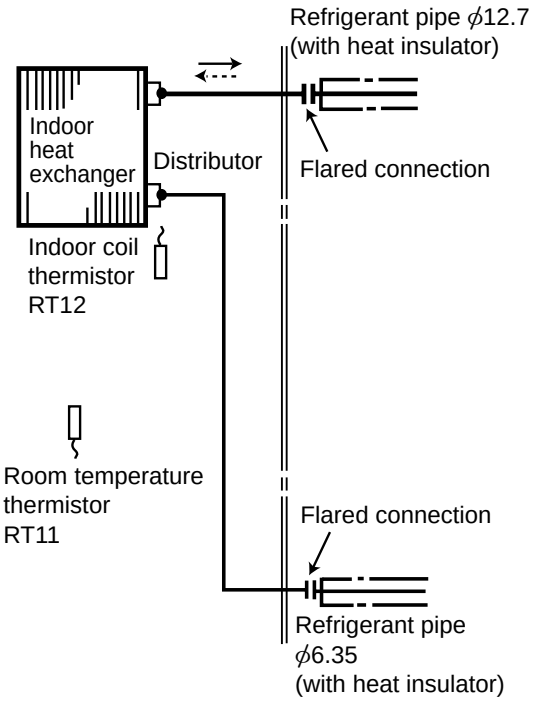
NOTE:1. About the outdoor side electric wiring, refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only.(For field wiring)
3. Symbols below indicate;
◎: Terminal block, □□□□: Connector

7 REFRIGERANT SYSTEM DIAGRAM

Unit : mm

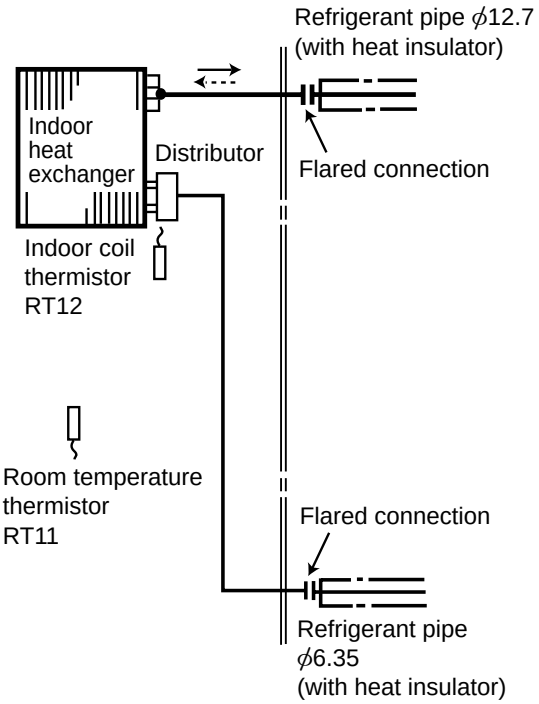
MCF-A12WV - E1

INDOOR UNIT



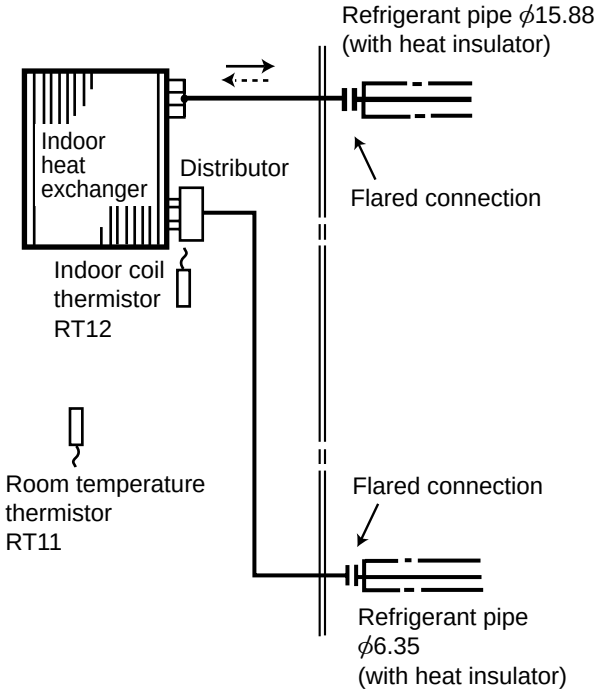
MCF-A18WV - E1

INDOOR UNIT



MCF-A24WV - E1

INDOOR UNIT



Refrigerant flow in cooling
Refrigerant flow in heating

8 SERVICE FUNCTIONS

MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1

8-1. TIMER SHORT MODE

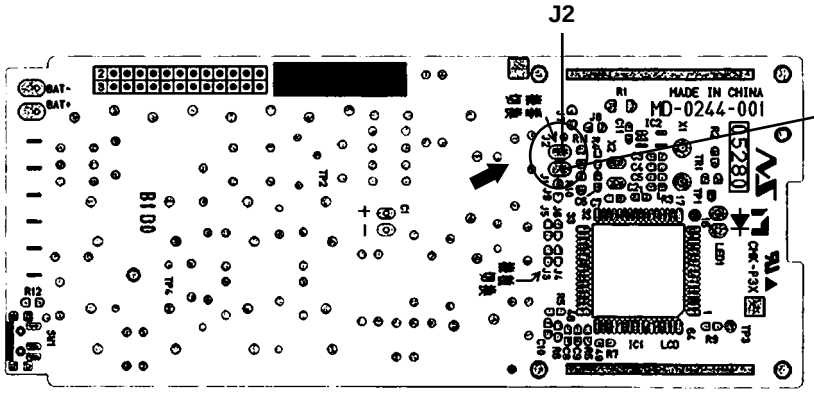
For service, set time can be shortened by short circuit of JPG and JPS on the electronic control P.C. board.
The time will be shortened as follows. (Refer to page 14.)
3-minutes time delay : 3-minutes → 3-seconds
Set time : 1 minute ➔ 1-second
Set time : 3 minute ➔ 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit of JPG and JPS.)

8-2. 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;

Remote controller model : KG04D



NOTE : For remodelling, take out the batteries and press the OPERATE/STOP(ON/OFF) button twice or 3 times at first.
After finish remodelling, 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.

Table1.

	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

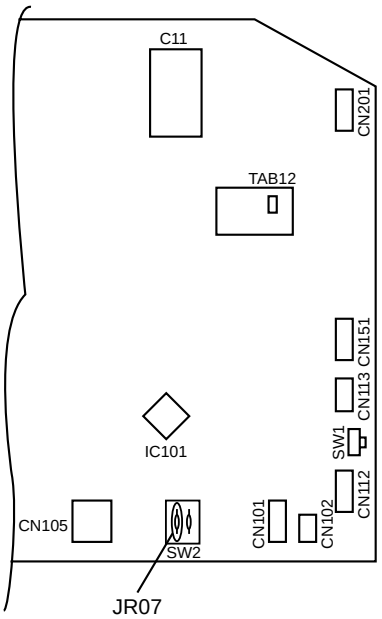
After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.
The indoor unit will only accepts the signal from the remote controller that has been assigned to the indoor unit once they are set.
The setting will be cancelled if the breaker has turned off, or the power supply has shut down.
Please conduct the above setting once again after the power has restored.

8-3. AUTO RESTART FUNCTION

When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. The “AUTO RESTART FUNCTION” sets to work the moment power has restored after power failure.Then, the unit will restart automatically. However if the unit is operated in “I FEEL CONTROL” mode before power failure, the operation is not memorized. In “I FEEL CONTROL” mode, the operation is decided by the initial room temperature.

How to release “AUTO RESTART FUNCTION”

①Turn off the main power for the unit.
②Pull out the electronic control P.C. board. (Refer to page 15.)
③Solder jumper wire to the JR07 on the indoor electronic control P.C. board. (Refer to page 14.)



Operation

①If the main power (230V AC) has been cut, the operation settings remain.
②After 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.)

NOTE

- The operation settings are memorized when 10 seconds have passed after the remote controller 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 appliances 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.

9 TROUBLESHOOTING

MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1

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 mis-wiring.

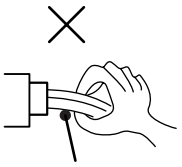
2. Take care the following during servicing.

(1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, turn off the breaker and / or disconnect the power plug.

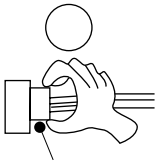
(2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.

(3) When removing the electronic control 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 housing of the connector. DO NOT pull the lead wires.



Lead wiring



Housing point

3. Troubleshooting procedure

(1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.

(2) Before servicing that the connector and terminal are connected properly.

(3) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.

(4) When troubleshooting, refer to the flow chart and the check table on page 11.

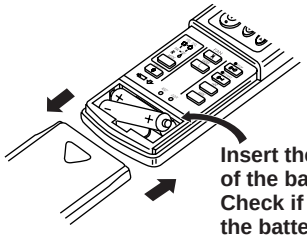
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.

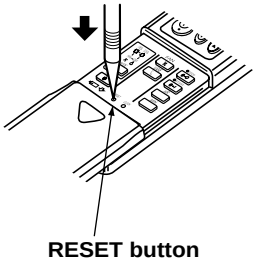
In this case, replace the batteries to operate the remote controller normally.

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

② Press the RESET button with tip end of ball point pen or the like, and then use the remote controller.



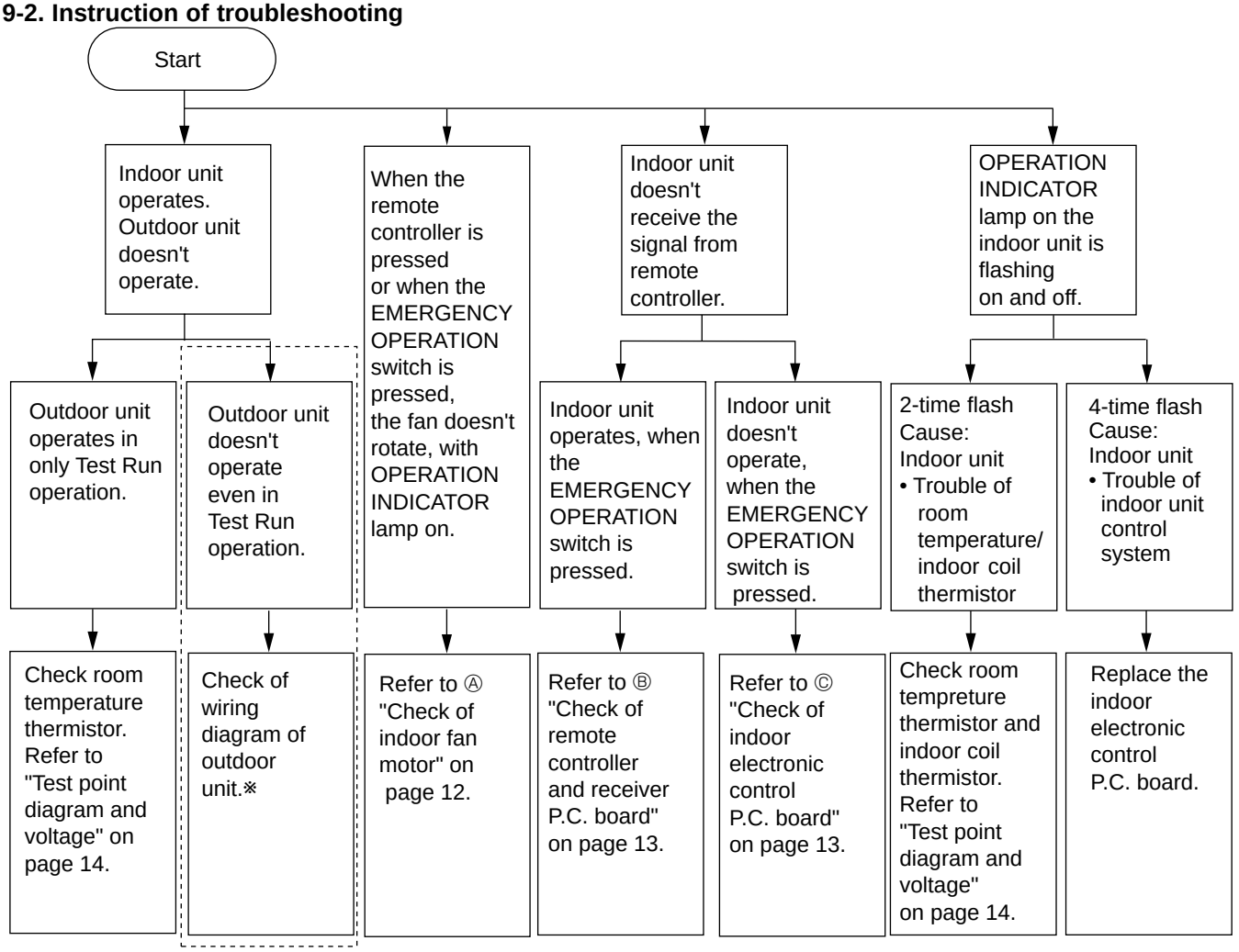
Insert the negative pole of the batteries first. Check if the polarity of the batteries are correct.



RESET button

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

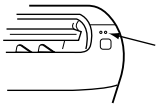
9-2. Instruction of troubleshooting



※ Before checking the outdoor unit, make sure if any signal or power is being transmitted from the indoor unit.

As for outdoor unit MUCF type, refer to service manual OB339.
As for outdoor unit MU type, refer to service manual OB330 REVISED EDITION-A.

1. Troubleshooting check table



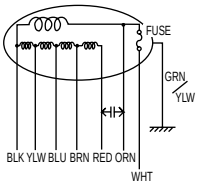
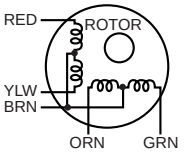
❋ Before taking measures, make sure that the symptom reappears, for accurate troubleshooting.
Self check table

No.	Abnormal point	Operation indicator lamp	Symptom	Detection method	Checkpoint
1	Indoor coil thermistor Room temperature thermistor	2-time flash ●○●○○○○○●○●○○ 2.5-second OFF	Outdoor unit does not operate.	Detect Indoor coil/room temperature thermistor short or open circuit.	• Check the resistance of thermistor. • Reconnect the connector. • Check the indoor electronic control P.C.
2	Indoor control system	4-time flash ●○●○●○●○○○○○●○●○●○● 2.5-second OFF	Outdoor unit does not operate.	When it cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Check the indoor electronic control P.C. board.

2. Trouble criterion of main parts

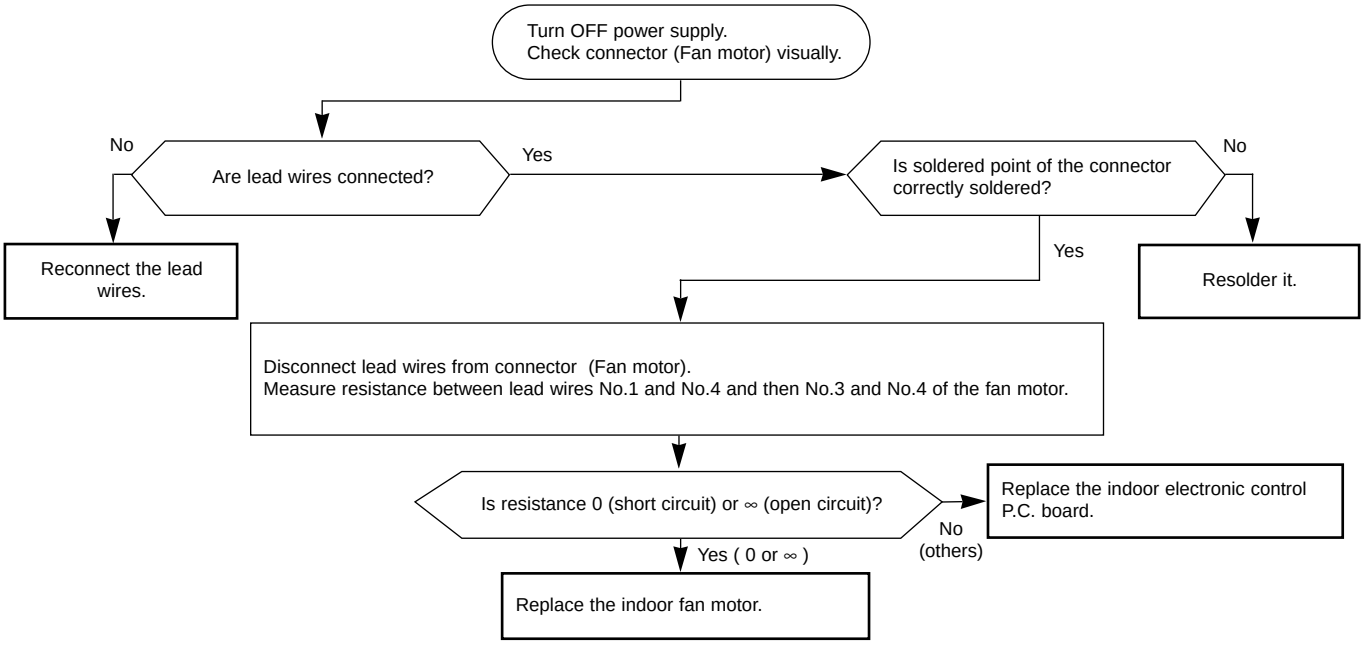
MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)
Indoor coil thermistor (RT12)</td><td>Measure the resistance with a tester.
(Part temperature 10°C ~ 30°C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>8kΩ ~ 20kΩ</td><td>Open or short-circuit</td></tr></table></td><td></td></tr>
<tr><td>Indoor fan motor (MF)

INNER FUSE
145 ± 5℃ CUT OFF</td><td>Measure the resistance between the terminals with a tester.
(Part temperature 10°C ~ 30°C)<table><tr><th rowspan="2">Color of lead wire</th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MCF-A12WV</th><th>MCF-A18WV</th><th>MCF-A24WV</th></tr><tr><td>WHT-BLK</td><td>195 ~ 212Ω</td><td>175 ~ 190Ω</td><td>80 ~ 88Ω</td><td rowspan="5">Open or short-circuit</td></tr><tr><td>BLK-YLW</td><td>44 ~ 48Ω</td><td>66 ~ 72Ω</td><td>44 ~ 49Ω</td></tr><tr><td>YLW-BLU</td><td>31 ~ 34Ω</td><td>45 ~ 50Ω</td><td>35 ~ 39Ω</td></tr><tr><td>BLU-BRN</td><td>42 ~ 47Ω</td><td>30 ~ 33Ω</td><td>43 ~ 47Ω</td></tr><tr><td>BRN-RED</td><td>22 ~ 25Ω</td><td>22 ~ 24Ω</td><td>13 ~ 15Ω</td></tr></table></td><td>  </td></tr>
<tr><td>Vane motor (MV)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature 10°C ~ 30°C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>329 ~ 357Ω</td><td>Open or short-circuit</td></tr></table></td><td>  </td></tr>
</table>

Indoor fan does not operate.

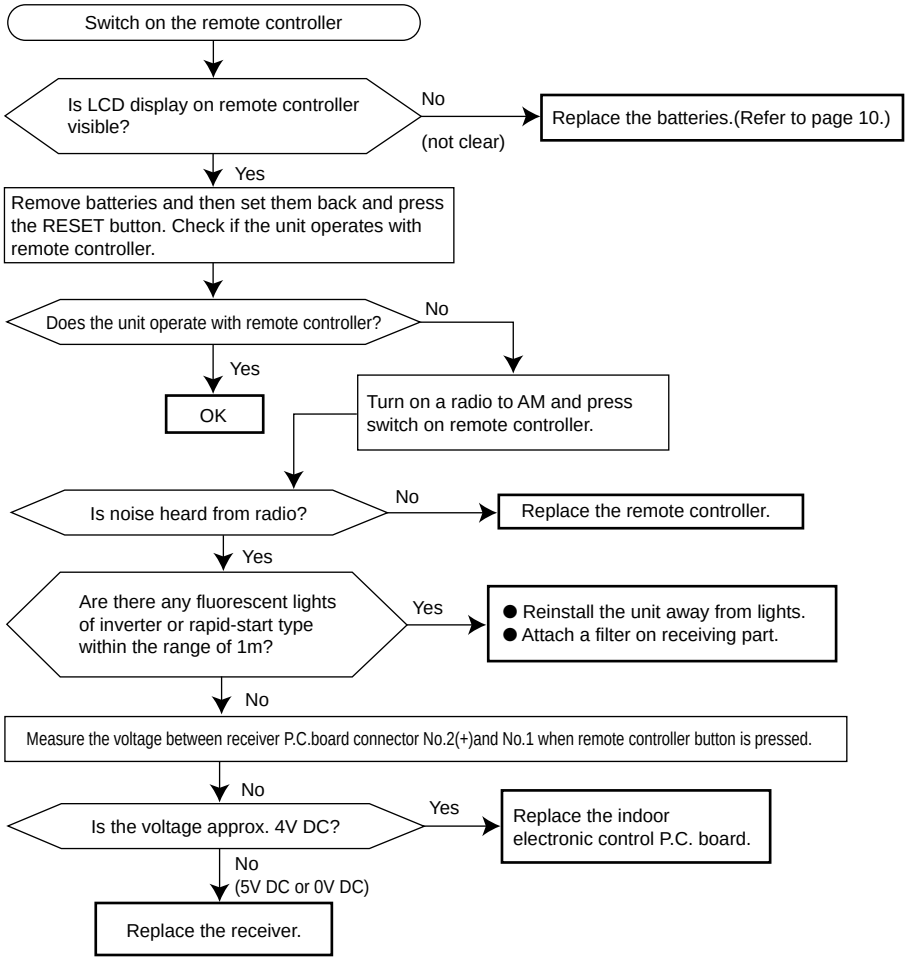
Ⓐ Check of indoor fan motor



Indoor unit operates by pressing the EMERGENCY OPERATION switch, but does not operate with the remote controller.

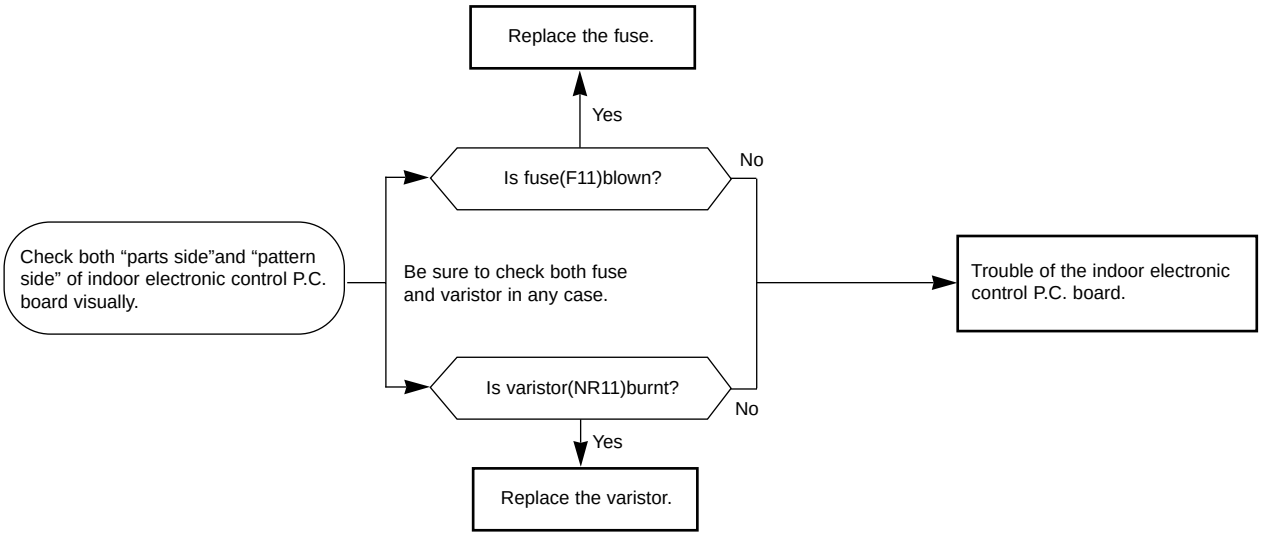
Ⓑ Check of remote controller and receiver P.C. board

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



The unit doesn't operate with the remote controller.
Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.

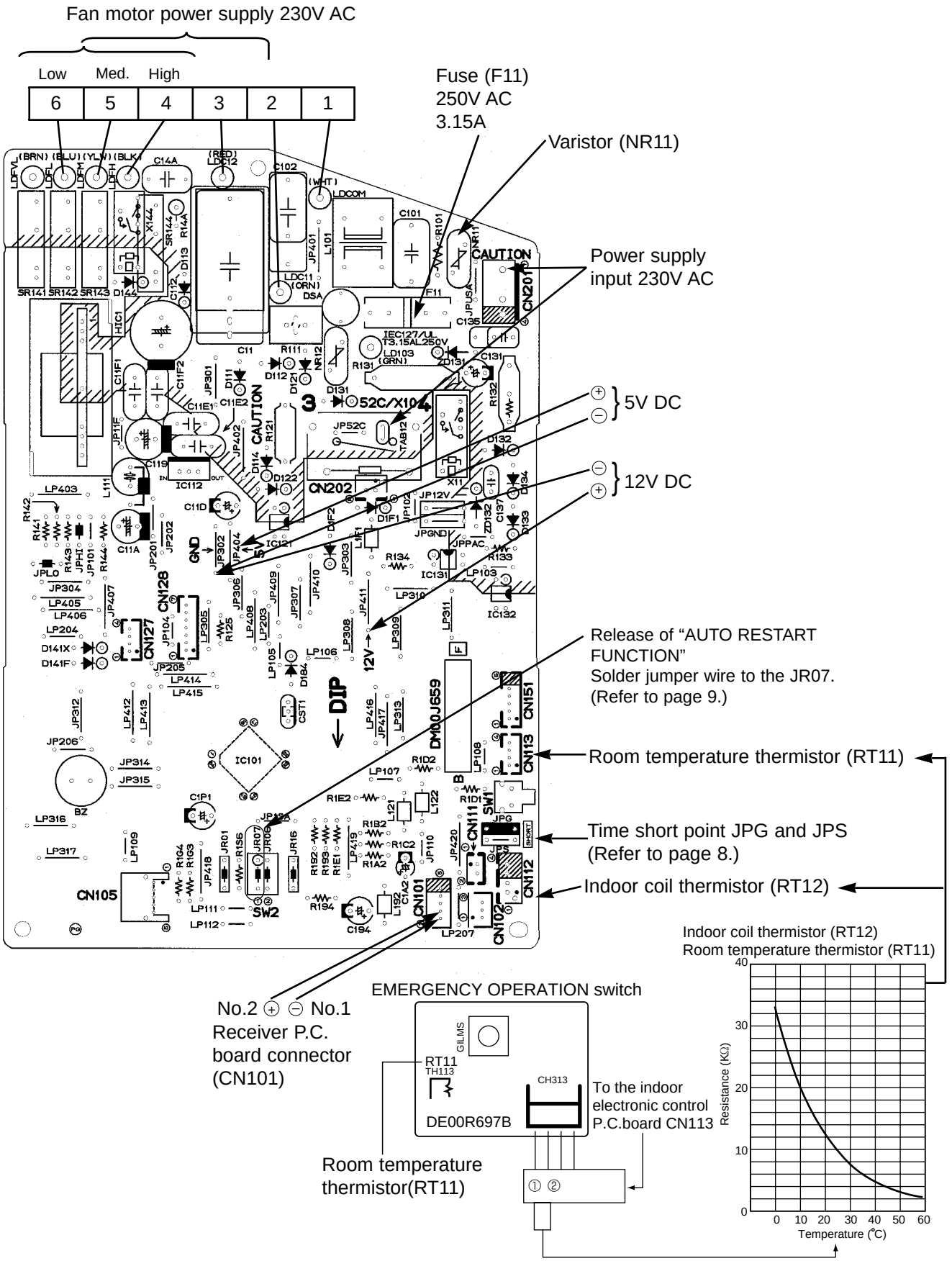
Ⓒ Check of indoor electronic control P.C. board



TEST POINT DIAGRAM AND VOLTAGE

MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1

Indoor electronic control P.C. board

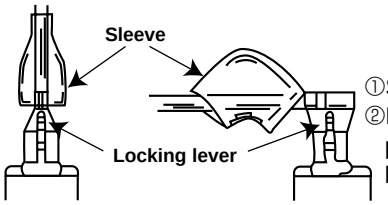


10 DISASSEMBLY INSTRUCTIONS

<"Terminal with lock mechanism" Detaching points>

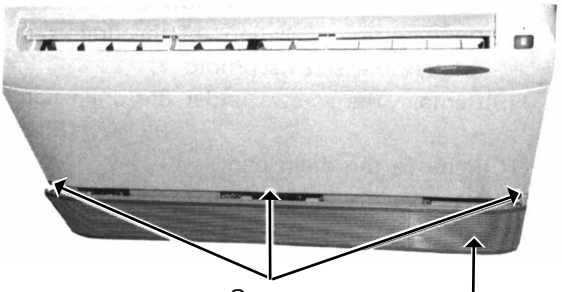
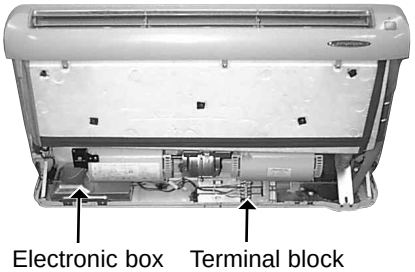
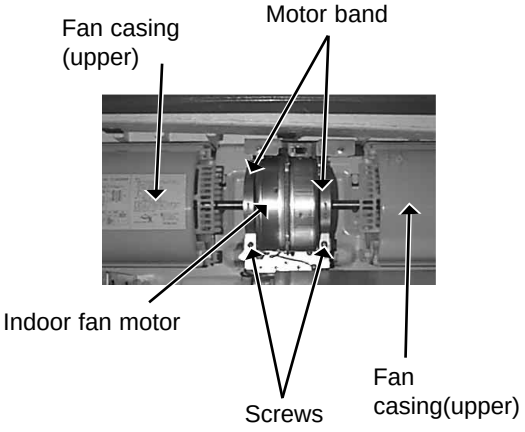
In case of terminal with lock mechanism, detach the terminal as shown below.
There are two types (Refer to (1) and (2)) of the terminal with lock mechanism.
The terminal with no lock mechanism can be removed by pulling it out.
Check the shape of the terminal and work.

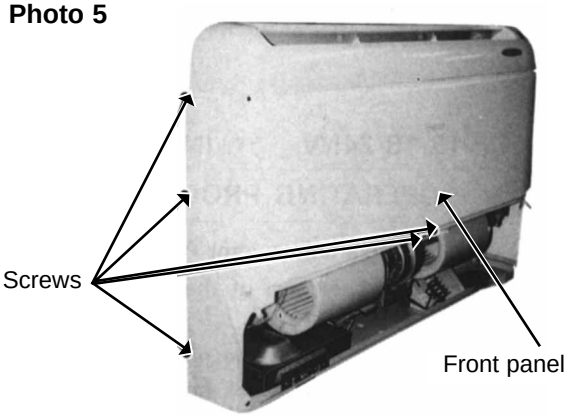
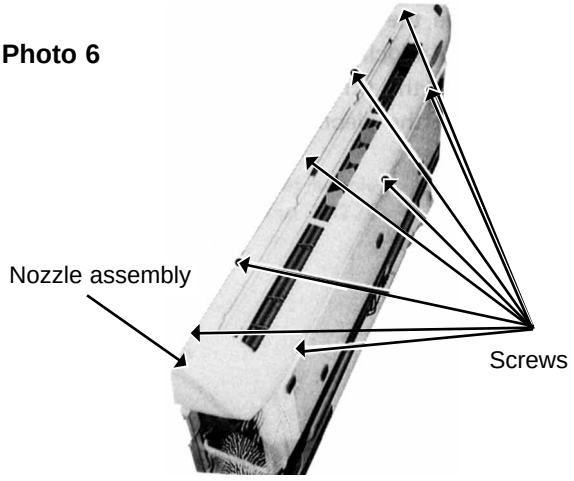
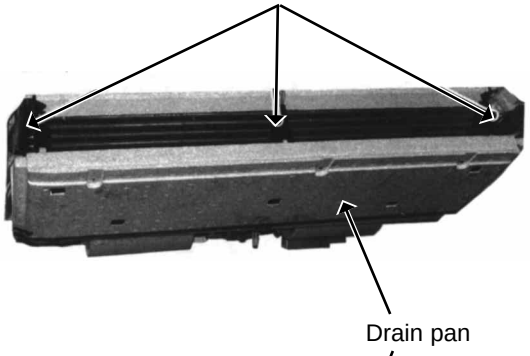
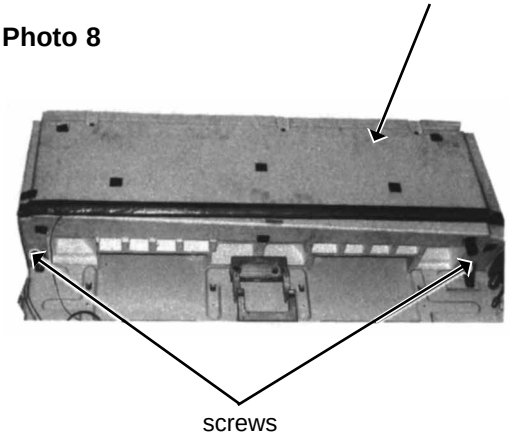
Slide the sleeve and check if there is a locking lever or not.



①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

MCF-A12WV -E1 MCF-A18WV -E1 MCF-A24WV -E1
INDOOR UNIT

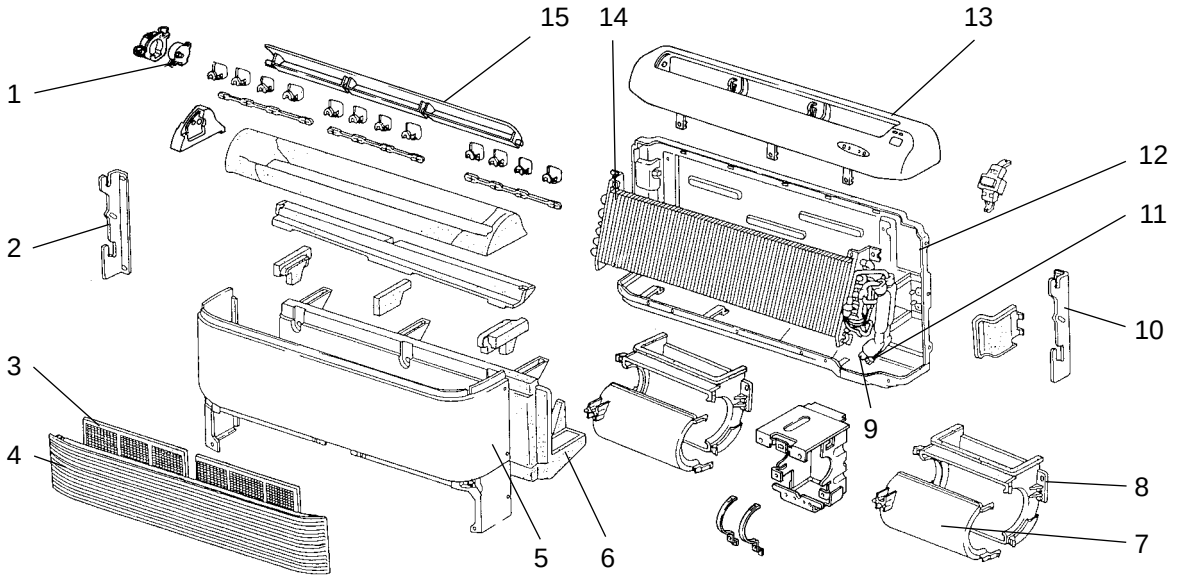
OPERATING PROCEDURE	PHOTOS
1. Removing the electronic control P.C. board. (1) Pull out the upper part of the grille. (Photo 1) (2) Remove the screws of the grille. (3) Remove screws of terminal block cover. Remove the terminal block cover and remove the terminal block. (4) Remove the screws of the electronic box cover. (5) Pull out the electronic control P.C. board. **Photo 3**  Electronic control P.C. board	**Photo 1**  **Photo 2** 
2. Removing the indoor fan motor (1) Remove the grille. (Refer to 1(1) (2).) (2) Remove the fan casing.(upper) (3) Disconnect the connector of the indoor fan motor. (4) Disconnect the ground wire of the fan motor. (5) Remove the screws of the motor band and remove the catch. (6) Take out the sirocco fan and the indoor fan motor.	**Photo 4** 

OPERATING PROCEDURE	PHOTOS
3. Removing the indoor heat exchanger. (1) Remove the grille. (Refer to 1(1) (2).) (2) Remove the screws on both side and in front of the front panel. (Photo 5) (3) Remove the screws of the nozzle assembly. (Photo 6) (4) Remove the electronic box. (Refer to 1.) (5) Remove the indoor fan motor. (Refer to 2.) (6) Remove the screws of the motor support . (7) Remove the fan casing. (lower) (8) Remove the insulation of the drain pan and remove the screws. (Photo 7) (9) Remove the screws under the drain pan. (Photo 8) (10) Remove the drain pan. (11) Remove the indoor heat exchanger.	**Photo 5**  **Photo 6**  **Photo 7**  **Photo 8** 

11 PARTS LIST

MCF-A12WV -E1(WH)
MCF-A18WV -E1(WH)
MCF-A24WV -E1(WH)

11-1. INDOOR UNIT STRUCTURAL PARTS



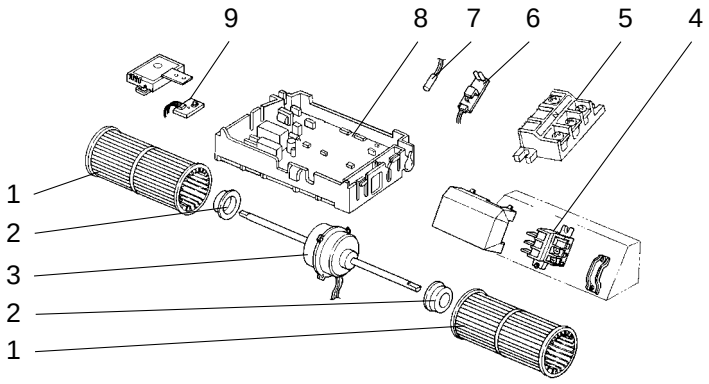
Part number that is circled is not shown in the illustration.

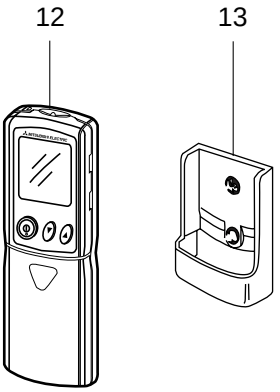
No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MCF-A12WV -E1 (WH)	MCF-A18WV -E1 (WH)	MCF-A24WV -E1 (WH)	
1	E02 227 303	VANE MOTOR	MV	1	1	1	
2	E02 179 971	INSTALLATION METAL (L)		1	1	1	
3	E02 179 100	AIR FILTER		2	2	2	
4	E02 179 010	GRILLE (WH)		1	1	1	
5	E02 179 000	FRONT PANEL (WH)		1	1	1	
6	E02 215 700	DRAIN PAN		1	1	1	
7	E02 179 237	FAN CASING (U)		2	2	2	
8	E02 179 238	FAN CASING (L)		2	2	2	
9	E02 179 667	UNION (GAS)		1	1		ϕ12.7
	E02 138 666	UNION (GAS)				1	ϕ15.88
10	E02 179 972	INSTALLATION METAL (R)		1	1	1	
11	E02 138 667	UNION (LIQUID)		1	1	1	ϕ6.35
12	E02 179 231	BACK PANEL (IN)		1	1	1	
13	E02 227 235	NOZZLE (WH)		1	1	1	
14	E02 823 620	INDOOR HEAT EXCHANGER		1			
	E02 824 620	INDOOR HEAT EXCHANGER			1	1	
15	E02 227 040	VANE (WH)		1	1	1	
⑯	E02 179 142	GRILLE CATCH (WH)		3	3	3	3PCS/SET

MCF-A12WV -E1(WH)
MCF-A18WV -E1(WH)
MCF-A24WV -E1(WH)

11-2. INDOOR UNIT ELECTRICAL PARTS

11-3. ACCESSORY AND REMOTE CONTROLLER





11-2. INDOOR UNIT ELECTRICAL PARTS

Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MCF-A12WV -E1 (WH)	MCF-A18WV -E1 (WH)	MCF-A24WV -E1 (WH)	
1	E02 179 500	SIROCCO FAN		2	2	2	
2	E02 179 505	FAN MOTOR RUBBER MOUNT		2	2	2	2PCS/SET
3	E02 227 300	INDOOR FAN MOTOR	MF	1			RB4V19-□□
	E02 228 300	INDOOR FAN MOTOR	MF		1		RB4V25-□□
	E02 684 300	INDOOR FAN MOTOR	MF			1	RB4V36-□□
4	E02 824 375	TERMINAL BLOCK	TB2	1	1	1	3P
5	E02 823 375	TERMINAL BLOCK	TB1	1	1	1	3P
6	E02 227 468	RECEIVER P.C. BOARD	DISP/RECEIVER P.C. BOARD	1	1	1	
7	E02 324 307	INDOOR COIL THERMISTOR	RT12	1	1	1	
8	E02 823 452	ELECTRONIC CONTROL P.C. BOARD		1			
	E02 824 452	ELECTRONIC CONTROL P.C. BOARD			1		
	E02 825 452	ELECTRONIC CONTROL P.C. BOARD				1	
9	E02 215 328	SWITCH & ROOM TEMPERATURE THERMISTOR P.C. BOARD	SW/THERMO P.C. BOARD	1	1	1	
⑩	E02 820 385	VARISTOR	NR11	1	1	1	
⑪	E02 127 382	FUSE	F11	1	1	1	3.15A

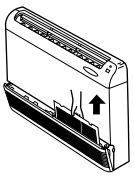
11-3. ACCESSORY AND REMOTE CONTROLLER

12	E02 823 426	REMOTE CONTROLLER		1	1	1	KG04D
13	E02 527 083	REMOTE CONTROLLER HOLDER		1	1	1	

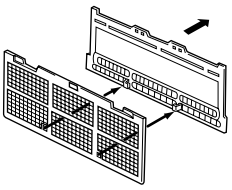
12 OPTIONAL PARTS

12-1. AIR CLEANING FILTER

- If the air cleaning filter is clogged, it may lower the unit's capacity or cause condensation at the air outlet.
- The air cleaning filter is disposable. The standard usable term is about 4 months. However, if the color of the filter turns to dark brown, replace soon.



Remove the air filter and the air cleaning filter together.

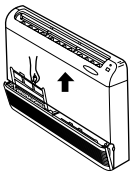


Separate the air cleaning filter (white bellows type) from the air filter.

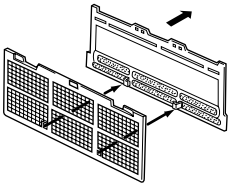
Models	Part No.
MCF-A12WV -E1 **MCF-A18WV -E1** **MCF-A24WV -E1**	MAC - 1200 FT

12-2. DEODORIZING FILTER

- Clean the filter every two weeks. When it becomes too dirt, clean it more often.
- Replace the filter with a new one when its color can not be restored even after washing or when the filter becomes dark.
- Standard interval for the filter replacement is about 1 year.



Remove the air filter and the deodorizing filter together.



Separate the deodorizing filter (gray sponge type) from the air filter.

Models	Part No.
MCF-A12WV -E1 **MCF-A18WV -E1** **MCF-A24WV -E1**	MAC - 1700 DF

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: MITSUBISHI DENKI BLDG.,2-2-3, MARUNOUCHI, CHIYODA-KU, TOKYO100-8310, JAPAN

Distributed in Apr. 2004. No.OB338 REVISED EDITION-A 6
Distributed in Mar. 2004. No.OB338 6
Made in Japan

New publication, effective Apr. 2004
Specifications subject to change without notice.