Changes for the Better

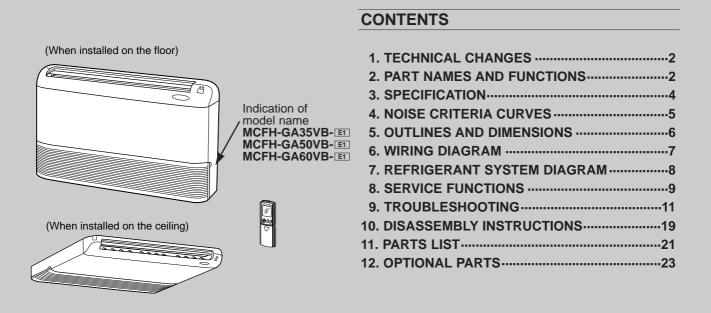


No. OB380

CE

# SERVICE MANUAL

Wireless type Models MCFH-GA35VB-E1(WH) MCFH-GA50VB-E1(WH) MCFH-GA60VB-E1(WH)



#### NOTE:

- This manual describes technical data of indoor units
- As for outdoor units MUCFH-GA35VB/GA50VB/GA60VB-EI, refer to the service manual OB381.
- As for outdoor units MXZ-A14/A18/A26/A32WV- E1, refer to the service manual OB319 REVISED
- EDITION-A.

## **TECHNICAL CHANGES**

#### MCFH-A12WV-EI -MCFH-GA35VB-EI

1. Model name has been changed.

#### MCFH-A18WV-E1 -MCFH-GA50VB-E1

1. Model name has been changed.

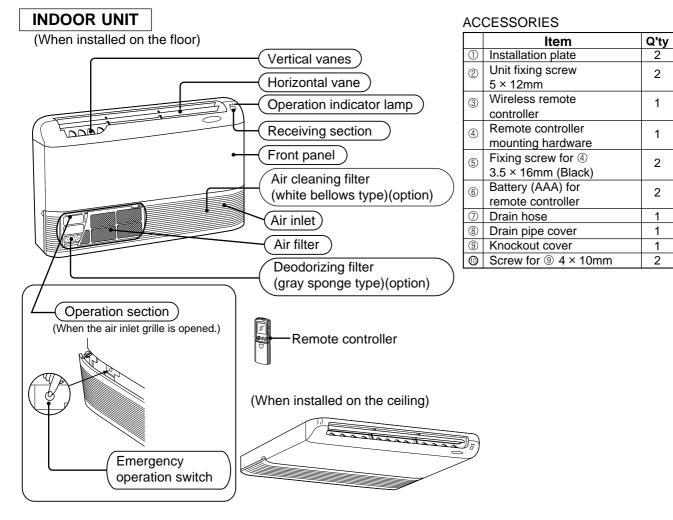
#### MCFH-A24WV-E1 -MCFH-GA60VB-E1

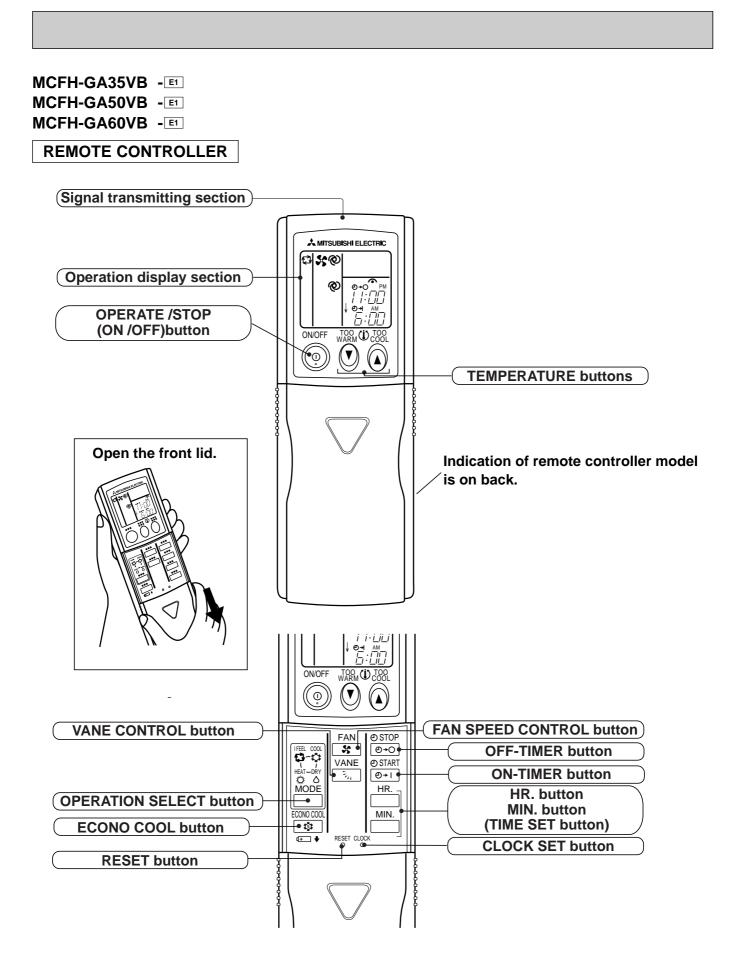
1. Model name has been changed.



## PART NAMES AND FUNCTIONS

## MCFH-GA35VB - EI MCFH-GA50VB - EI MCFH-GA60VB - EI





3

	Indoor model		MCFH-GA	A35VB- ᠌	MCFH-G	450VB- <b>⊑</b> 1	MCFH-GA60VB- E1		
	Function		Cooling	Heating	Cooling	Heating	Cooling	Heating	
Power supply			Single phase 230V, 50Hz						
Capacity	Air flow(High/Med.*/Low*)	m³ /h	780/636*/492*		840/696	6*/570*	840/744	*/642*	
	Power outlet	А	1	0	1	0	1	0	
١	Running current	Α	0.	30	0.3	36	0.3	36	
LTI C	Power input	W	6	6	8	0	8	0	
Electrical data	Auxiliary heater	A(kW)	_	—	_	_	—	-	
ĞШ	Power factor	%	9	96		97		97	
	Fan motor current	А	0.30		0.36		0.36		
	Model		RB4V25-AC		RB4V36-AC		RB4V36-DB		
Fan motor	Winding resistance(at20℃)	Ω	WHT-BLK 182.2 BLK-YLW 68.9 YLW-BLU 47.5 BLU-BRN 31.5 BRN-RED 22.9				WHT-BLK 84.0 YLW-BLU 37.2 BRN-RE	BLU-BRN 45.2	
	Dimensions W×H×D	mm	1100 × 650 × 180			L			
	Weight	kg	25		25		25		
	Air direction		5		5		5		
	Sound level(High/Med.*/Low*)	dB	46/41	*/36*	48/44*/39*		48/45	*/42*	
ks al	Fan speed(High/Med.*/Low*)	rpm	1,240/1,	060/845	1,320/1,145/960		1,320/1,190/1,060		
Special remarks	Fan speed regulator		:	3	3		3	}	
ਲ਼ ≣	Thermistor RT11(at25℃)	kΩ	1	0	10		10		
	Thermistor RT12(at25℃)	kΩ	1	0	10		10		
	Remote controller model		KM	04M	KM04M		KM04M		

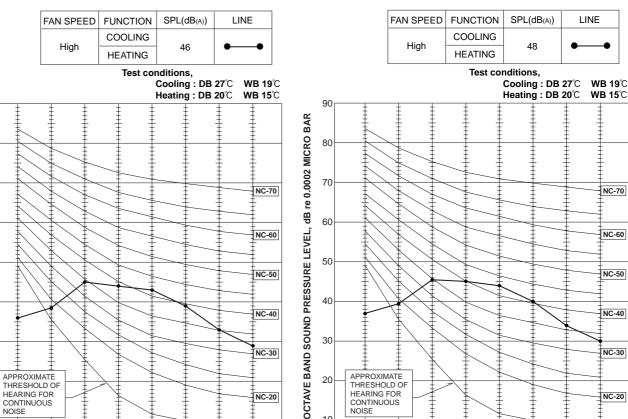
NOTE: Test conditions are based on ISO 5151

Cooling : Indoor DB27°C WB19°C Outdoor DB35°C WB(24°C) Indoor-Outdoor piping length : 5 m Heating : Indoor DB20°C WB 15°C

Outdoor DB 7°C WB 6°C

\* Reference value

### MCFH-GA35VB - E1

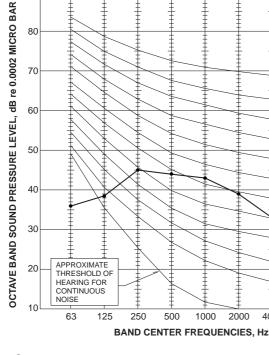


NC-20

HEARING FOR

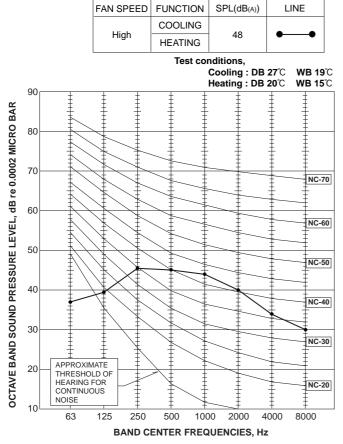
CONTINUOUS

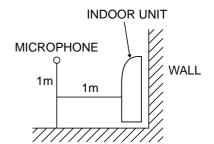
BAND CENTER FREQUENCIES, Hz





HEARING FOR

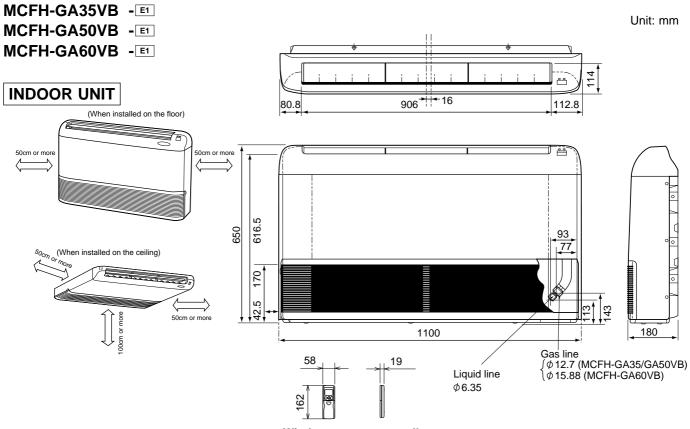




NC-20

MCFH-GA50VB - E1

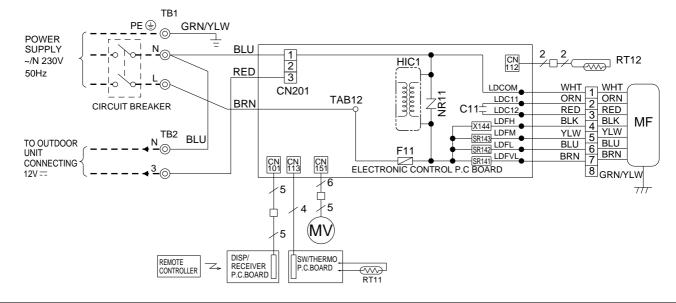
5



Wireless remote controller

## MCFH-GA35VB - MCFH-GA50VB - MCFH-GA60VB - MCFH-GA60VB -

MODELS WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV	VANE MOTOR	SR141~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		

NOTES: 1.About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.

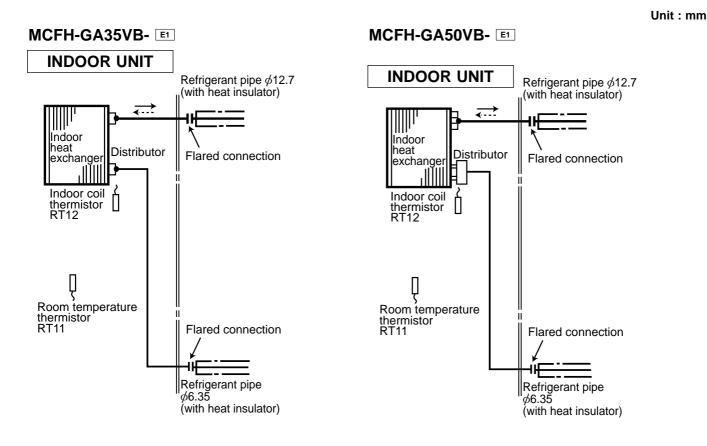
2.Use copper conductors only. (For field wiring)

3.Symbols below indicate.

6

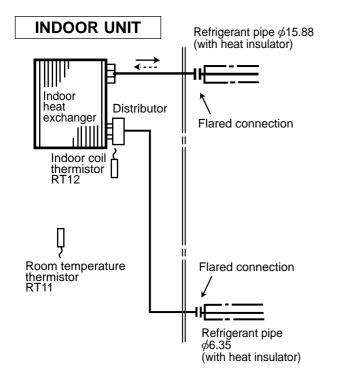
**INDOOR UNIT** 

## **REFRIGERANT SYSTEM DIAGRAM**



## MCFH-GA60VB- E1

7



→ Refrigerant flow in cooling ····→ Refrigerant flow in heating

## MCFH-GA35VB - E1 MCFH-GA50VB - E1 MCFH-GA60VB - E1

#### 8-1. TIMER SHORT MODE

8

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 9-6.)

3-minutes time delay : 3-minutes  $\rightarrow$  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.)

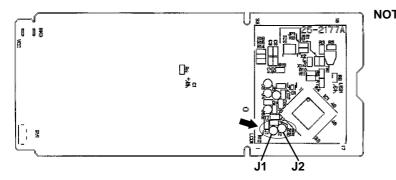
#### 8-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

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 : KM04M



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 CON-TROL" mode before power failure, the operation is not memorized. In "I FEEL CONTROL" mode, the operation is decided by the initial room temperature.

#### Operation

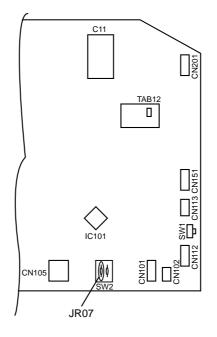
①If the main power (230V AC) has been cut, the operation settings remain.

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.)

#### How to release "AUTO RESTART FUNCTION"

①Turn off the main power for the unit.

②Pull out the electronic control P.C. board. (Refer to 10.)
 ③Solder jumper wire to the JR07 on the indoor electronic control P.C. board. (Refer to 9-6.)



#### 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.

## MCFH-GA35VB - MCFH-GA50VB - MCFH-GA60VB - MCFH-GA60VB -

#### 9-1. Cautions on troubleshooting

9

#### 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 service.
- (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 has completely closed, turn off the breaker.
- (2) Be sure to unplug the power cord before removing the air inlet grille, the front panel, the cabinet, the top panel and the electronic control P.C. boards.
- (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.





#### 3. Troubleshooting procedure

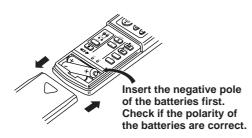
- (1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.
- (2) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
- (3) When troubleshooting, refer to 9-2. "Instruction of troubleshooting" and 9-3. "Troubleshooting check table".

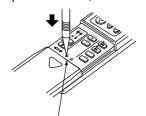
#### 4. How to replace batteries

Weak batteries may cause the remote controller malfunction.

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

 Remove the front lid and insert batteries.
 Press the RESET button with tip end of ball point pen or the like, and then use the remote controller.





**RESET** button

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

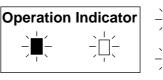
#### INFORMATION FOR MULTI SYSTEM AIR CONDITIONER

#### OUTDOOR UNIT : MXZ-A14WV-E1 MXZ-A18WV-E1 MXZ-A26WV-E1 MXZ-A32WV-E1

Multi system air conditioner can connect two or more indoor units with one outdoor unit.

- •Unit won't operate in case the total capacity of indoor units exceeds the capacity of outdoor units. Do not connect indoor units beyond the outdoor unit capacity.
- Operation indicator lamp flashes as shown in the figure below.

•When you try to operate two or more indoor units with one outdoor unit simultaneously, one for the cooling and the other for heating, the operation mode of the indoor unit that operates earlier is selected. The other indoor units that will start the operation later cannot operate, indicating as shown in the figure below. In this case, please set all the indoor units to the same operation mode.



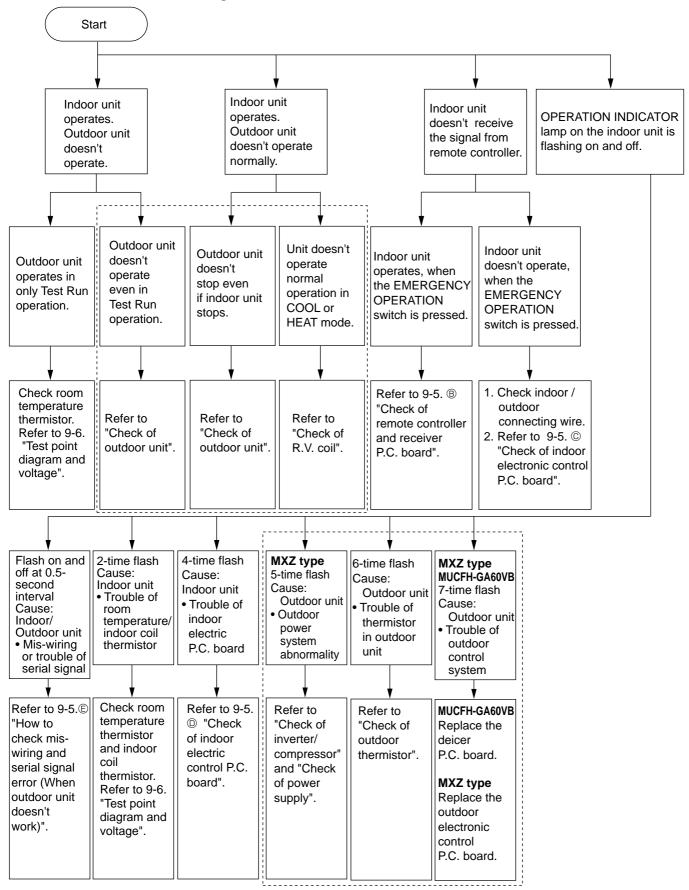
lighted

flashing

•When indoor units starts the operation while the defrosting of outdoor unit is being done, it takes a few minutes (max. 10 minutes) to blow out the warm air.

•In the heating operation, though indoor unit that does not operate may get warm or the sound of refrigerant flowing may be heard, they are not malfunction. The reason is that the refrigerant continuously flows into it.

#### 9-2. Instruction of troubleshooting



As for outdoor unit MUCFH type, refer to the service manual OB381. As for outdoor unit MXZ type, refer to the service manual OB319 REVISED EDITION-A.

## 9-3. Troubleshooting check table



OPERATION
 INDICATOR
 lamp

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

Self check table

NO.	Abnormal point	Indication	Symptom	Detect method	Check point
1	Mis-wiring or Serial signal	0.5-second ON ★ ○ ★ ○ ★ ○ ★ ○ 0.5-second OFF	Outdoor unit does not run.	When serial signal stops for 4 to 5 seconds.	<ul> <li>Check wiring (visual check and conductivity check).</li> <li>Check indoor electronic control P.C.board.</li> <li>Check outdoor deicer P.C. board.</li> <li>Check electrical parts.</li> </ul>
2	Indoor coil thermistor Room tempera- ture ther- mistor	2-time flash ★ ○ ★ ○ ○ ○ ○ ★ ○ ★ ○ ○ 2.5-second OFF	Outdoor unit does not run.	Detect Indoor coil/room tem- perature thermistor short or open circuit every 8 seconds during operation.	<ul> <li>Check resistance of thermistor.</li> <li>Reconnect connector.</li> <li>Check indoor electronic control P.C. board.</li> </ul>
3	Indoor control P.C. board	4-time flash ★ ○ ★ ○ ★ ○ ★ ○ ○ ○ ○ ○ ○ 2.5-second OFF	Indoor unit does not run	When it cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	<ul> <li>Check indoor electronic control P.C. board.</li> </ul>
4	Outdoor thermistor	6-time flash ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ 2.5-second OFF	Outdoor unit does not run	When the outdoor thermistors short or open after the compressor start-up.	<ul> <li>Check outdoor deicer P.C. board.</li> <li>Check resistance of thermistor.</li> <li>Reconnect connector.</li> <li>Refer to service manual OB381 or OB319 REVISED EDITION-A.</li> </ul>
5	MCFH- GA60VB MXZ type Outdoor control P.C. board	7-time flash ★ ○★ ○★ ○★ ○★ ○★ ○★ ○★ ○ ○ ○ ○★ ○ 2.5-second OFF	Outdoor unit does not run	When it cannot properly read data in the nonvolatile memory of the outdoor deicer P.C. board or outdoor electronic control P.C. board.	<ul> <li>Check the outdoor deicer P.C. board or outdoor electronic control P.C. board. Refer to service manual OB381 or OB319 REVISED EDITION-A.</li> </ul>
* 6	MXZ type Outdoor power system	5-time flash ▼ ○ ▼ ○ ▼ ○ ▼ ○ ▼ ○ ○ ○ ○ ▼ ○ 2.5-second OFF	Outdoor unit does not run	When the compressor operation is continuously three times interrupted by over current protection within 1 minute after start-up, it stops operation.	<ul> <li>Check the inverter output.</li> <li>Check the compressor.</li> <li>Refer to service manual OB319</li> <li>REVISED EDITION-A.</li> </ul>
* 7	MXZ type Operation mode setting	Operation Indicator       第○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○○	Outdoor unit operates but indoor unit does not operate.	When the operation mode of each indoor unit is differently set to COOL(includes DRY) and HEAT at same time, the operation mode of indoor unit that has operated at first has the priority.	<ul> <li>Unify the operation mode. Refer to service manual OB319 REVISED EDITION-A.</li> </ul>

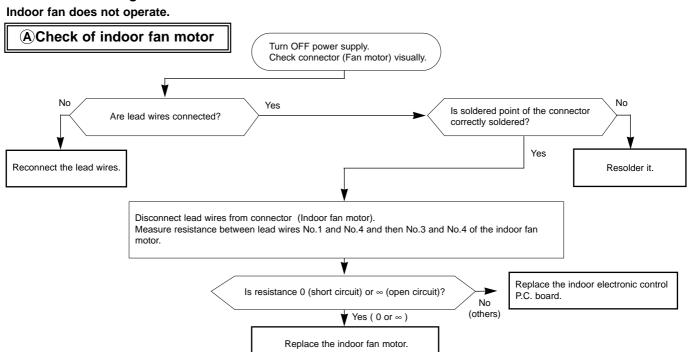
\*The indication is shown only when the indoor unit connects with the outdoor unit MXZ type.

## 9-4. Trouble criterion of main parts

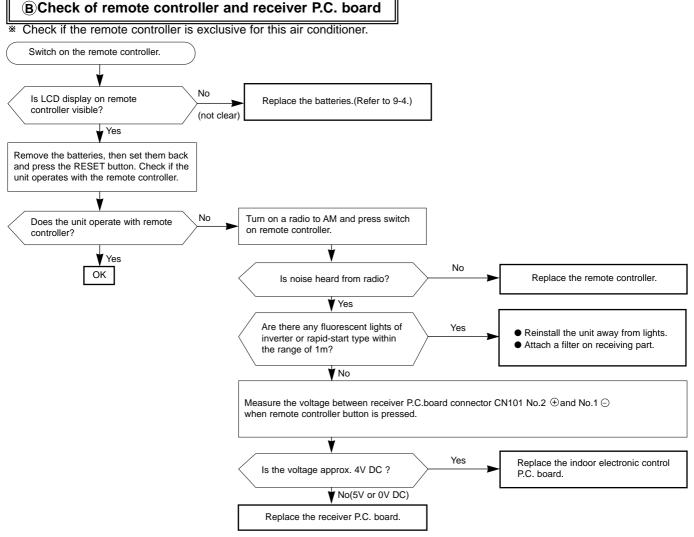
## MCFH-GA35VB - E1 MCFH-GA50VB - E1 MCFH-GA60VB - E1

Part name		Check method and criterion							
Room temperature thermistor (RT11)	(Part tempera	easure the resistance with a tester. art temperature 10°C ~ 30°C)							
Indoor coil thermistor (RT12)	Norn 8kΩ ~ 2		Abnormal Open or short-circuit						
Indoor fan motor	Color of lead wire			MCFH-GA60VB	Abnormal	FUSE GRN.			
(MF)	WHT-BLK 2		79~87Ω	80~88Ω		GRN YLW			
INNER FUSE	BLK-YLW	66~72Ω	63~69Ω	44~49Ω		BLK YLW BLU BRN RED ORN			
145 ± 5℃ CUT OFF	YLW-BLU	45~50Ω	34~38Ω	35~39Ω	Open or short-circuit	WHT			
	BLU-BRN	30~33Ω	25~29Ω	43~47Ω					
	BRN-RED	22~24Ω	13~15Ω	13~15Ω					
Vane		esistance betwee ture10°C ~ 30°C)	n the terminals wit	h a tester.		RED			
motor		Normal	Abnormal						
(MV)		328~356Ω		Open or short-circuit		YLW BRN GRN GRN			

## 9-5. Troubleshooting flow

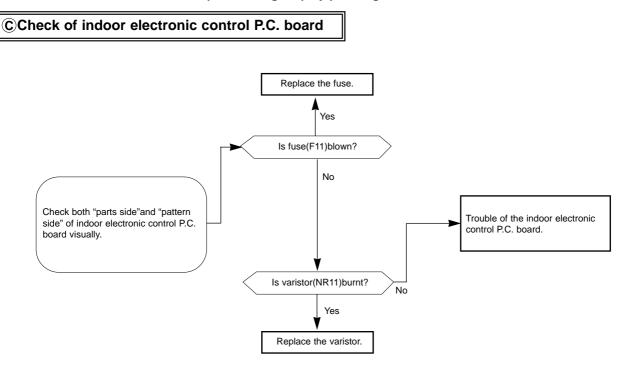


Indoor unit operates by pressing the EMERGENCY OPERATION switch, but does not operate with the remote controller.

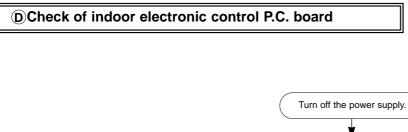


The unit does not operate with the remote controller.

Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.

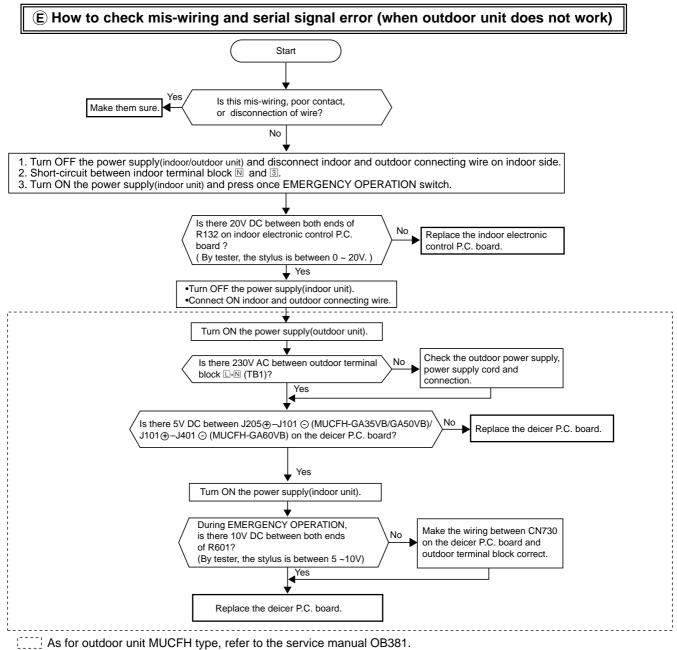


When OPERATION INDICATOR lamp flashes 4 - time. Indoor unit does not operate.

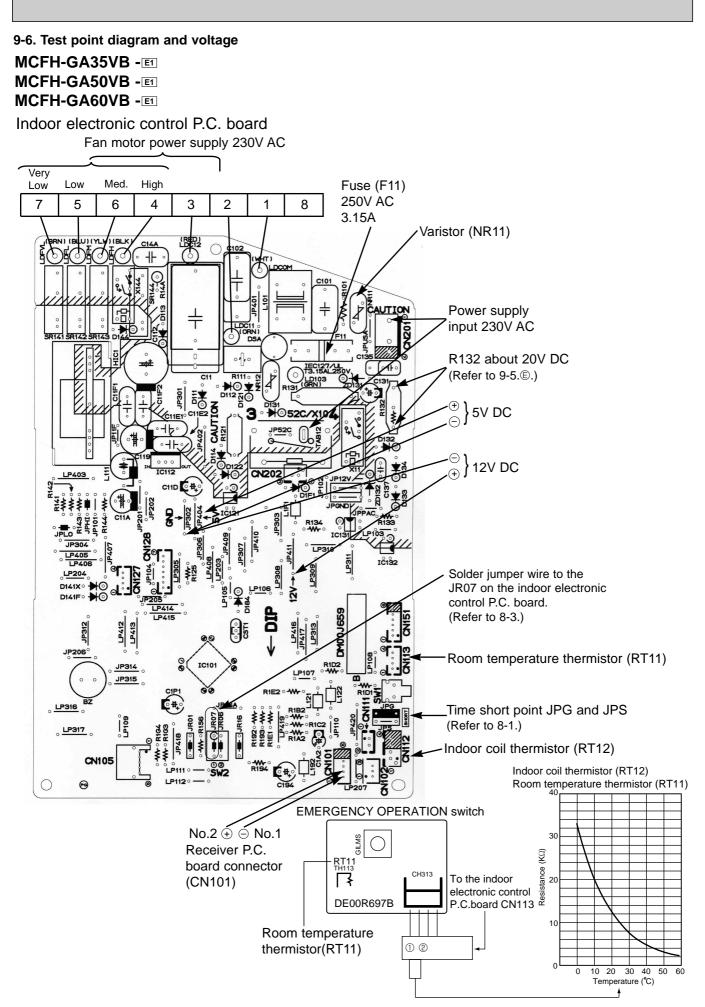


Replace the indoor electronic control P.C. board.

When OPERATION INDICATOR lamp flashes ON and OFF in every 0.5-second. Outdoor unit does not operate.



As for outdoor unit MXZ type, refer to the service manual OB319 REVISED EDITION-A.

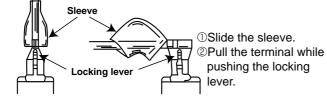


## <"Terminal with locking mechanism" Detaching points>

The terminal which has the locking mechanism can be detached as shown below. There are two types (Refer to (1) and (2)) 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.

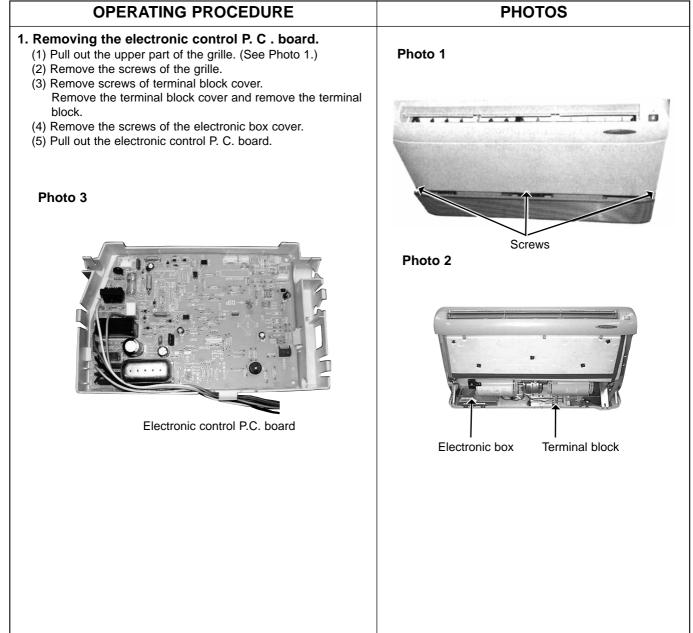
(2) The terminal with this connector has the locking mechanism.

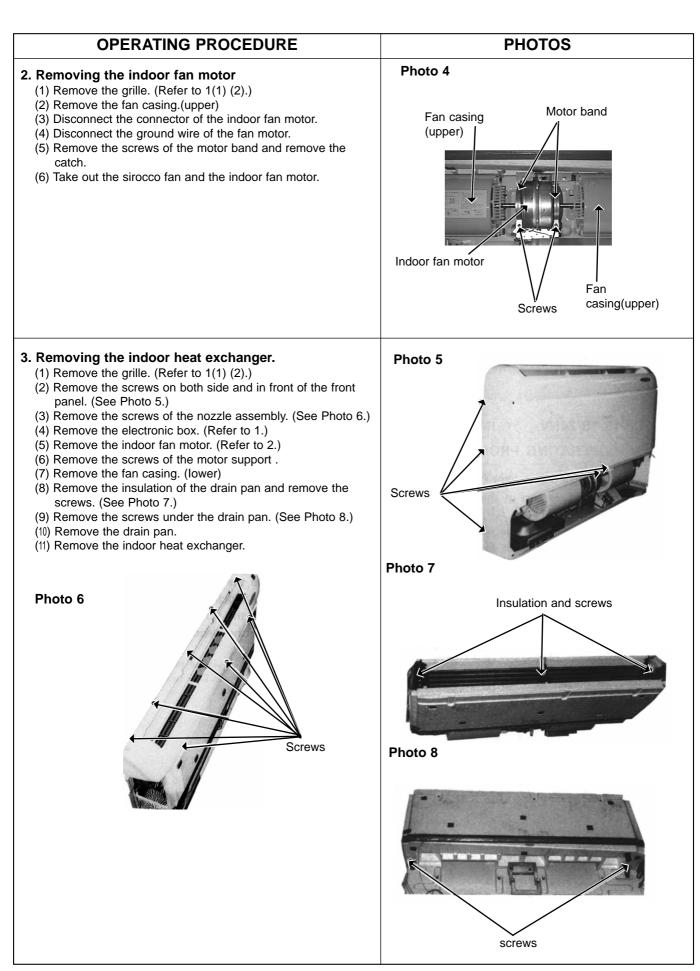




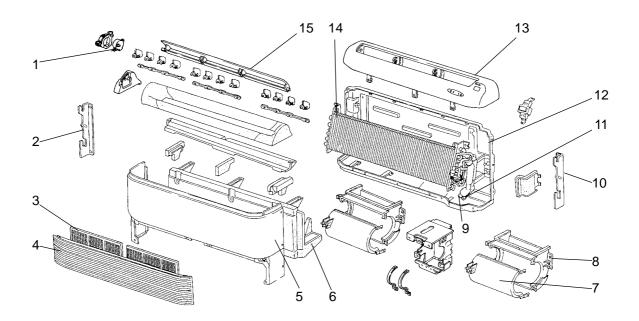
①Hold the sleeve, and pull out the terminal slowly.

# 10-1.MCFH-GA35VB-티 MCFH-GA50VB-티 MCFH-GA60VB-티 INDOOR UNIT



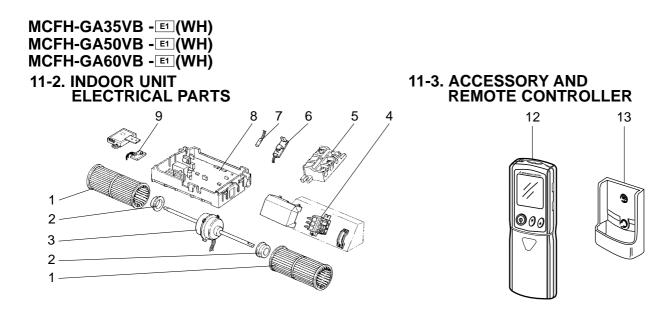


MCFH-GA35VB - EI (WH) MCFH-GA50VB - EI (WH) MCFH-GA60VB - EI (WH) 11-1. INDOOR UNIT STRUCTURAL PARTS



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

			Symbol	Q'ty/unit			
No.	Part No.	Part name	in Wiring	MCFH-GA35VB	MCFH-GA50VB	MCFH-GA60VB	Remarks
	Fart NO.	Fait liaine	Diagram	- E1	- E1	- E1	Relliarks
				(WH)	(WH)	(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		φ <b>12.7</b>
9	E02 138 666	UNION (GAS)				1	φ <b>15.88</b>
10	E02 179 972	<b>INSTALLATION METAL (R)</b>		1	1	1	
11	E02 138 667	UNION (LIQUID)		1	1	1	φ <b>6.35</b>
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			
14	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



## **11-2. INDOOR UNIT ELECTRICAL PARTS**

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

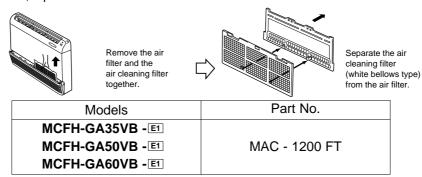
			Symbol				
No.	Part No.	Part name	in Wiring	MCFH-GA35VB	MCFH-GA50VB	MCFH-GA60VB	Remarks
140.	Fart NO.	Faithane	Diagram	- E1	- E1	- E1	itema ks
				(WH)	(WH)	(WH)	
1	E02 179 500	SIROCCO FAN		2	2	2	
2	E02 179 505	FAN MOTOR RUBBER MOUNT		2	2	2	2PCS/SET
	E02 228 300	INDOOR FAN MOTOR	MF	1			RB4V25-□□
3	E02 229 300	INDOOR FAN MOTOR	MF		1		RB4V36-□□
	E02 684 300	INDOOR FAN MOTOR	MF			1	RB4V36-□□
4	E02 826 375	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 327 307	INDOOR COIL THERMISTOR	RT12	1	1	1	
	E02 826 452	ELECTRONIC CONTROL P.C. BOARD		1			
8	E02 827 452	ELECTRONIC CONTROL P.C. BOARD			1		
	E02 828 452	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	
1	E02 127 382	FUSE	F11	1	1	1	3.15A

## **11-3. ACCESSORY AND REMOTE CONTROLLER**

12	E02 826 426	REMOTE CONTROLLER	1	1	1	KM04M
13	E02 527 083	REMOTE CONTROLLER HOLDER	1	1	1	

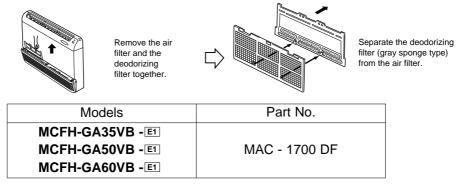
## **12-1. AIR CLEANING FILTER**

- 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 .



### **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 .





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

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