

Revision A:

•RoHS PARTS LIST has been corrected.

Please void OB367 REVISED EDITION-A.

INDOOR UNIT

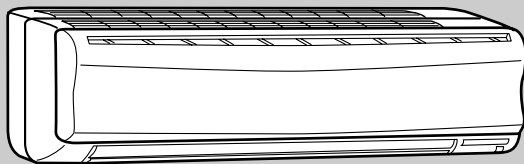
SERVICE MANUAL

No. OB367
REVISED EDITION-B

**Wireless type
Models**

- MSH-GA50VB** - E1
- MSH-GA60VB** - E1
- MSH-GA80VB** - E1

**Outdoor unit service manual
MUH-GA•VB Series (OB368)**



CONTENTS

| | |
|-------------------------------------|----|
| 1. TECHNICAL CHANGES | 2 |
| 2. PART NAMES AND FUNCTIONS..... | 2 |
| 3. SPECIFICATION..... | 4 |
| 4. NOISE CRITERIA CURVES | 5 |
| 5. OUTLINES AND DIMENSIONS | 6 |
| 6. WIRING DIAGRAM | 7 |
| 7. REFRIGERANT SYSTEM DIAGRAM | 8 |
| 8. SERVICE FUNCTIONS | 9 |
| 9. TROUBLESHOOTING..... | 11 |
| 10. DISASSEMBLY INSTRUCTIONS..... | 19 |
| 11. PARTS LIST..... | 21 |
| 12. RoHS PARTS LIST..... | 23 |
| 13. OPTIONAL PARTS..... | 25 |

NOTE:

This service manual describes technical data of the indoor units.
RoHS compliant products have <G> mark on the spec name plate.
For servicing of RoHS compliant products, refer to the RoHS PARTS LIST (RoHS compliant).



Revision A:

•RoHS PARTS LIST has been added.

Revision B:

•RoHS PARTS LIST has been corrected.

1 TECHNICAL CHANGES

MSH-A18WV -[E1]→**MSH-GA50VB** -[E1]

MSH-A24WV -[E1]→**MSH-GA60VB** -[E1]

MSH-A30WV -[E1]→**MSH-GA80VB** -[E1]

1. Model name has been changed.

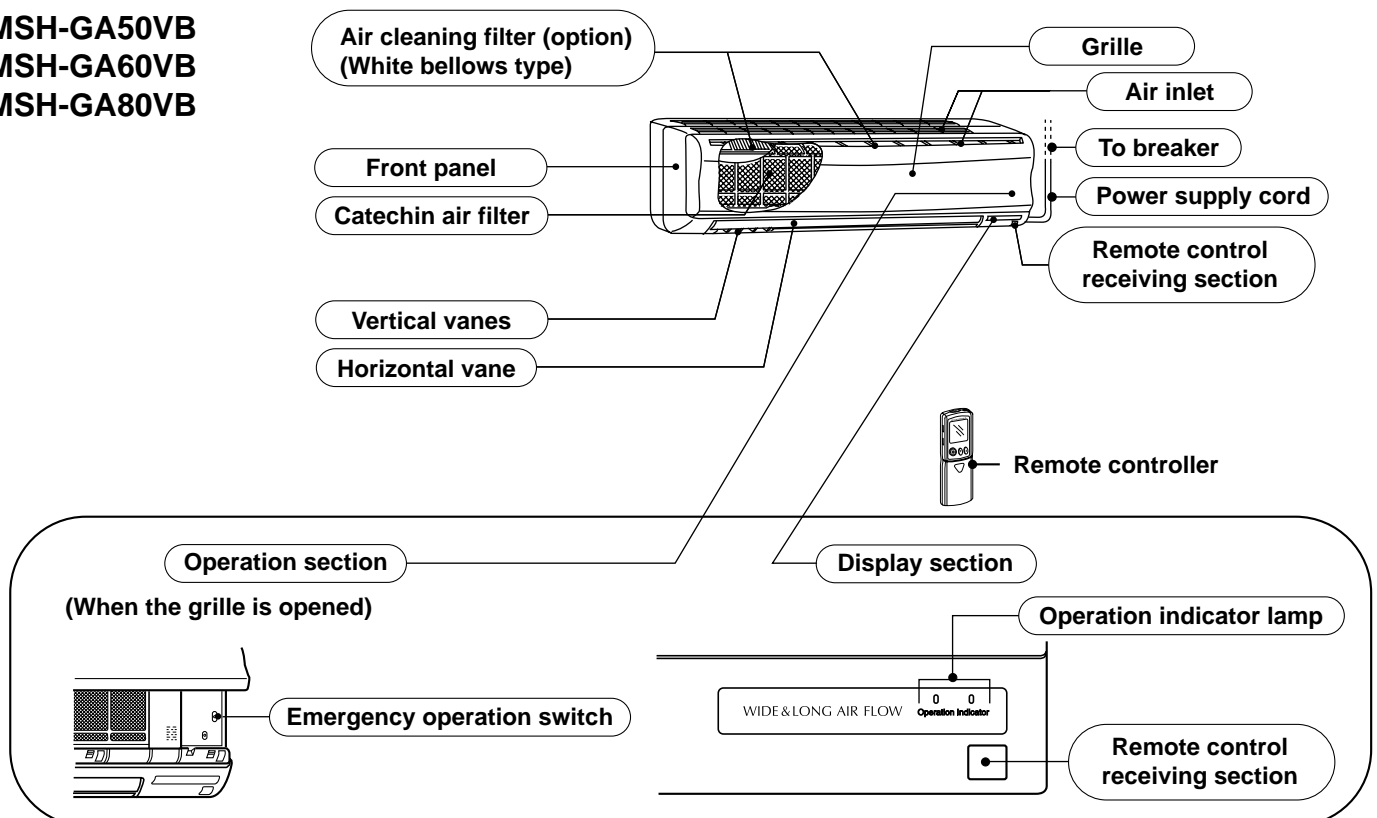
Indication of capacity has been changed. (BTU→kW)

2. Grille design has been changed.

3. Unit size has been changed.(W 1,100mm×H 325mm×D 227mm → W1,100mm×H 325mm×D 258mm)

2 PART NAMES AND FUNCTIONS

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB

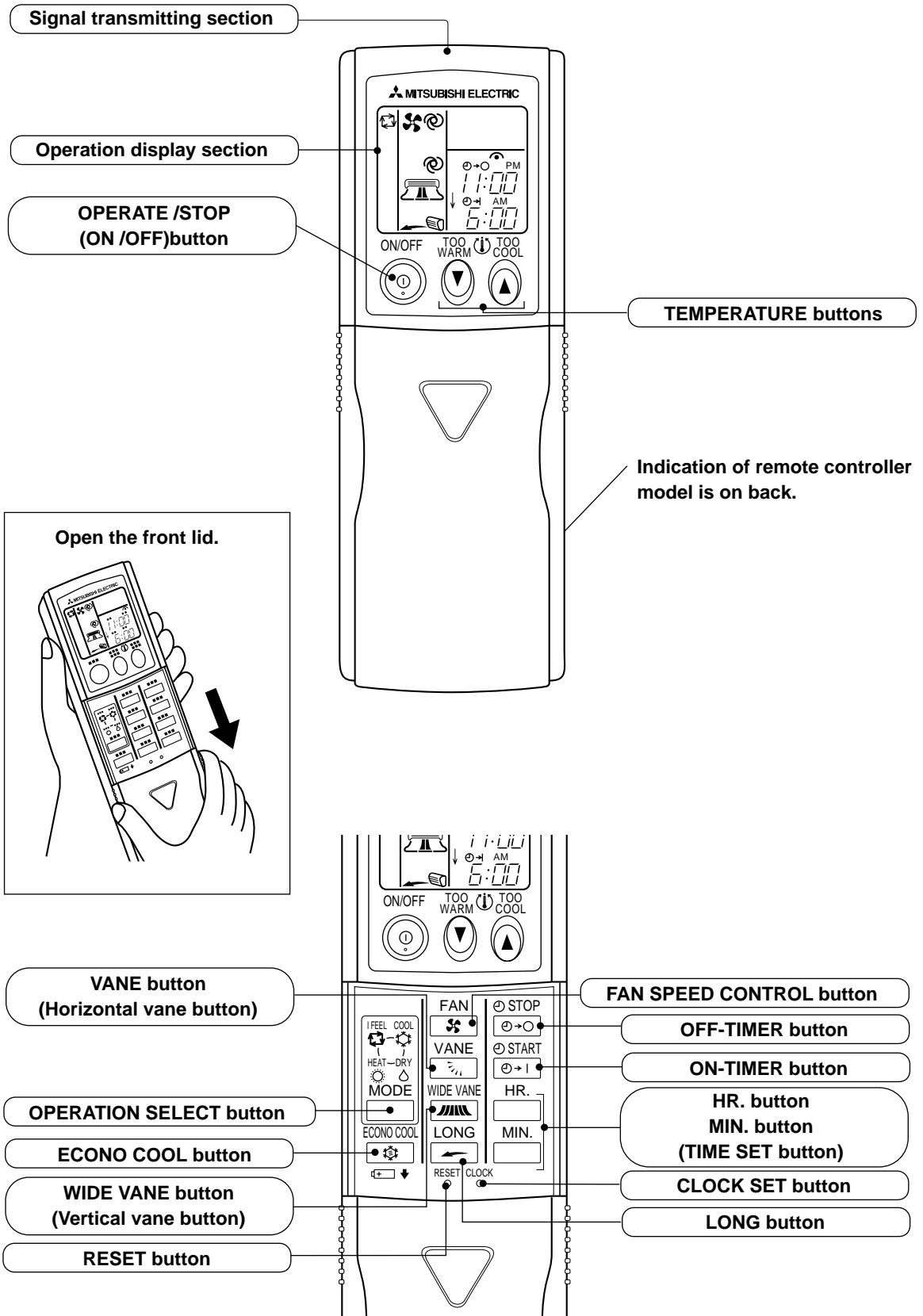


ACCESSORIES

| | | MSH-GA50VB MSH-GA60VB MSH-GA80VB |
|---|---|---|
| ① | Installation plate | 1 |
| ② | Installation plate fixing screw 4 × 25 mm | 7 |
| ③ | Remote controller holder | 1 |
| ④ | Fixing screw for ③ × 3.5 × 1.6 mm (Black) | 2 |
| ⑤ | Battery (AAA) for remote controller | 2 |
| ⑥ | Wireless remote controller | 1 |
| ⑦ | Felt tape (Used for left or left-rear piping) | 1 |

REMOTE CONTROLLER

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB



3

SPECIFICATION

| Indoor model | | | MSH-GA50VB | | MSH-GA60VB | |
|-----------------|-----------------------------|-------------------|----------------------------|---------|----------------------------|---------------|
| Function | | | Cooling | Heating | Cooling | Heating |
| Power supply | | | Single phase 230V, 50Hz | | Single phase 230V, 50Hz | |
| Capacity | Air flow(High/Med./Low) | m ³ /h | 768/642/528 | | 768/672/588 | 768/642/528 |
| Electrical data | Power outlet | A | 10 | | 10 | |
| | Running current | A | 0.3 | | 0.3 | |
| | Power input | W | 60 | | 60 | |
| | Power factor | % | 87 | | 87 | |
| | Fan motor current | A | 0.30 | | 0.30 | |
| Fan motor | Model | | RC4V32-AA | | RC4V32-AA | |
| | Winding resistance(at 20°C) | Ω | WHT-BLK 293 BLK-RED 146 | | WHT-BLK 293 BLK-RED 146 | |
| | Dimensions W×H×D | mm | 1,100×325×258 | | 1,100×325×258 | |
| | Weight | kg | 16 | | 16 | |
| Special remarks | Air direction | | 5 | | 5 | |
| | Sound level(High/Med./Low) | dB | 42/38/34 | | 45/41/37 | 45/40/34 |
| | Fan speed(High/Med./Low) | rpm | 1,070/920/780 | | 1,070/960/850 | 1,070/920/780 |
| | Fan speed regulator | | 3 | | 3 | |
| | Thermistor RT11(at 25°C) | kΩ | 10 | | 10 | |
| | Thermistor RT12(at 25°C) | kΩ | 10 | | 10 | |
| | Remote controller model | | KP0A, KM04A | | KP0A, KM04A | |

| Indoor model | | | MSH-GA80VB | | | |
|-------------------------|-----------------------------|-------------------|--------------------------------|--|-------------------|--|
| Function | | | Cooling | | Heating | |
| Power supply | | | Single phase 230V, 50Hz | | | |
| Capacity | Air flow(High/Med./Low) | m ³ /h | 960/822/684 | | 960/834/732 | |
| Electrical data | Power outlet | A | 10 | | | |
| | Running current | A | 0.34 | | | |
| | Power input | W | 69 | | | |
| | Power factor | % | 88 | | | |
| | Fan motor current | A | 0.34 | | | |
| Fan motor | Model | | RC4V40-AA | | | |
| | Winding resistance(at 20°C) | Ω | WHT-BLK 138.2 BLK-RED 159.0 | | | |
| | Dimensions W×H×D | mm | 1,100×325×258 | | | |
| | Weight | kg | 16 | | | |
| Special remarks | Air direction | | 5 | | | |
| | Sound level(High/Med./Low) | dB | 47/42/37 | | | |
| | Fan speed(High/Med./Low) | rpm | 1,310/1,130/970 | | 1,310/1,150/1,020 | |
| | Fan speed regulator | | 3 | | | |
| | Thermistor RT11(at 25°C) | kΩ | 10 | | | |
| | Thermistor RT12(at 25°C) | kΩ | 10 | | | |
| | Thermistor RT13(at 25°C) | kΩ | 10 | | | |
| Remote controller model | | KP0A, KM04A | | | | |

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

Heating : Indoor DB20°C WB 15.5°C
Outdoor DB 7°C WB 6°C

4

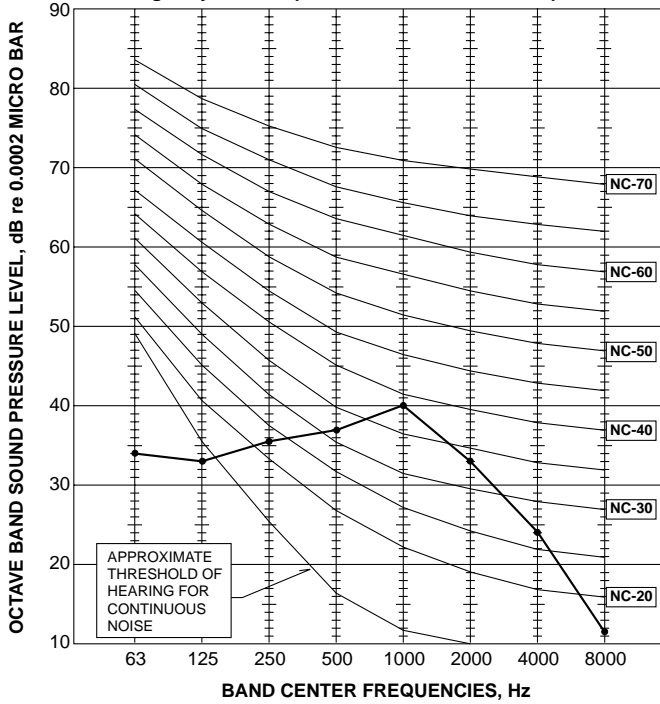
NOISE CRITERIA CURVES

MSH-GA50VB

| FAN SPEED | SPL(dB(A)) | LINE |
|-----------|------------|------|
| High | 42 | |

Test conditions,

Cooling : Dry-bulb temperature 27°C Wet-bulb temperature 19°C
 Heating : Dry-bulb temperature 20°C Wet-bulb temperature 15.5°C

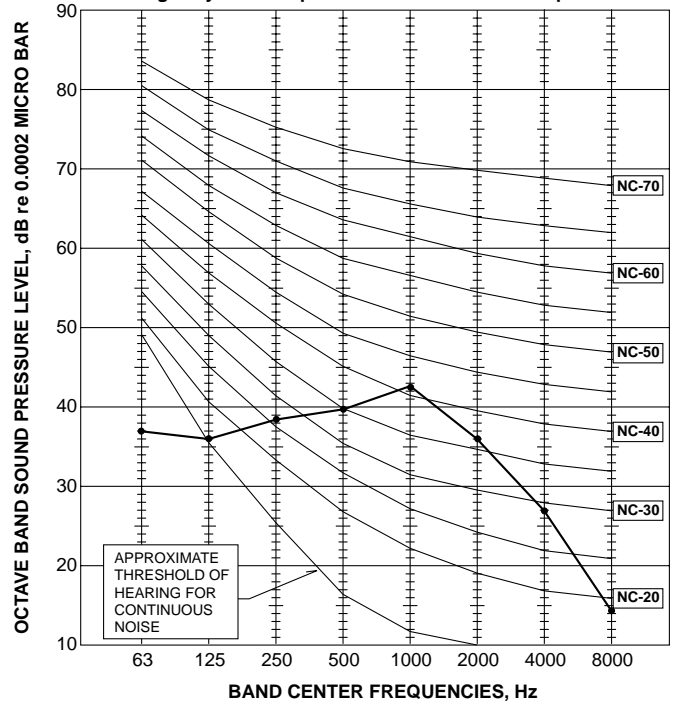


MSH-GA60VB

| FAN SPEED | SPL(dB(A)) | LINE |
|-----------|------------|------|
| High | 45 | |

Test conditions,

Cooling : Dry-bulb temperature 27°C Wet-bulb temperature 19°C
 Heating : Dry-bulb temperature 20°C Wet-bulb temperature 15.5°C

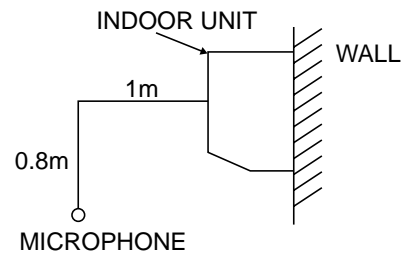
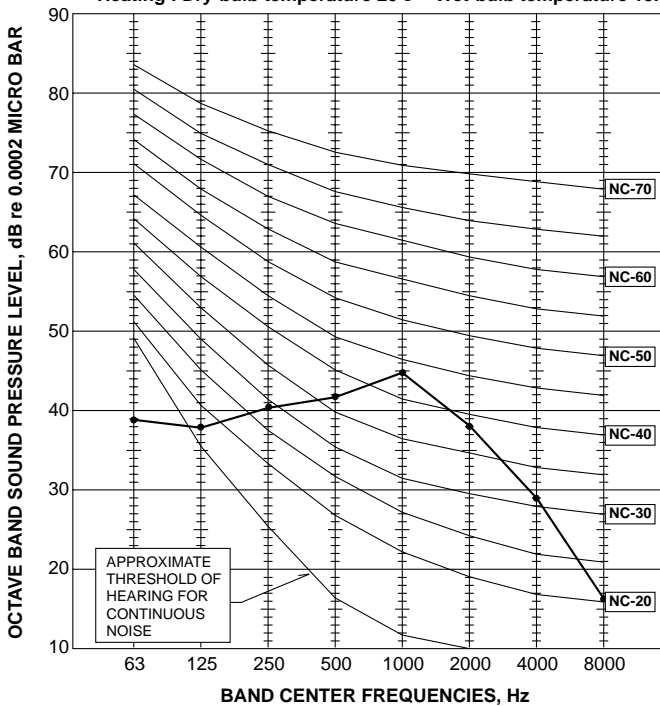


MSH-GA80VB

| FAN SPEED | SPL(dB(A)) | LINE |
|-----------|------------|------|
| High | 47 | |

Test conditions,

Cooling : Dry-bulb temperature 27°C Wet-bulb temperature 19°C
 Heating : Dry-bulb temperature 20°C Wet-bulb temperature 15.5°C

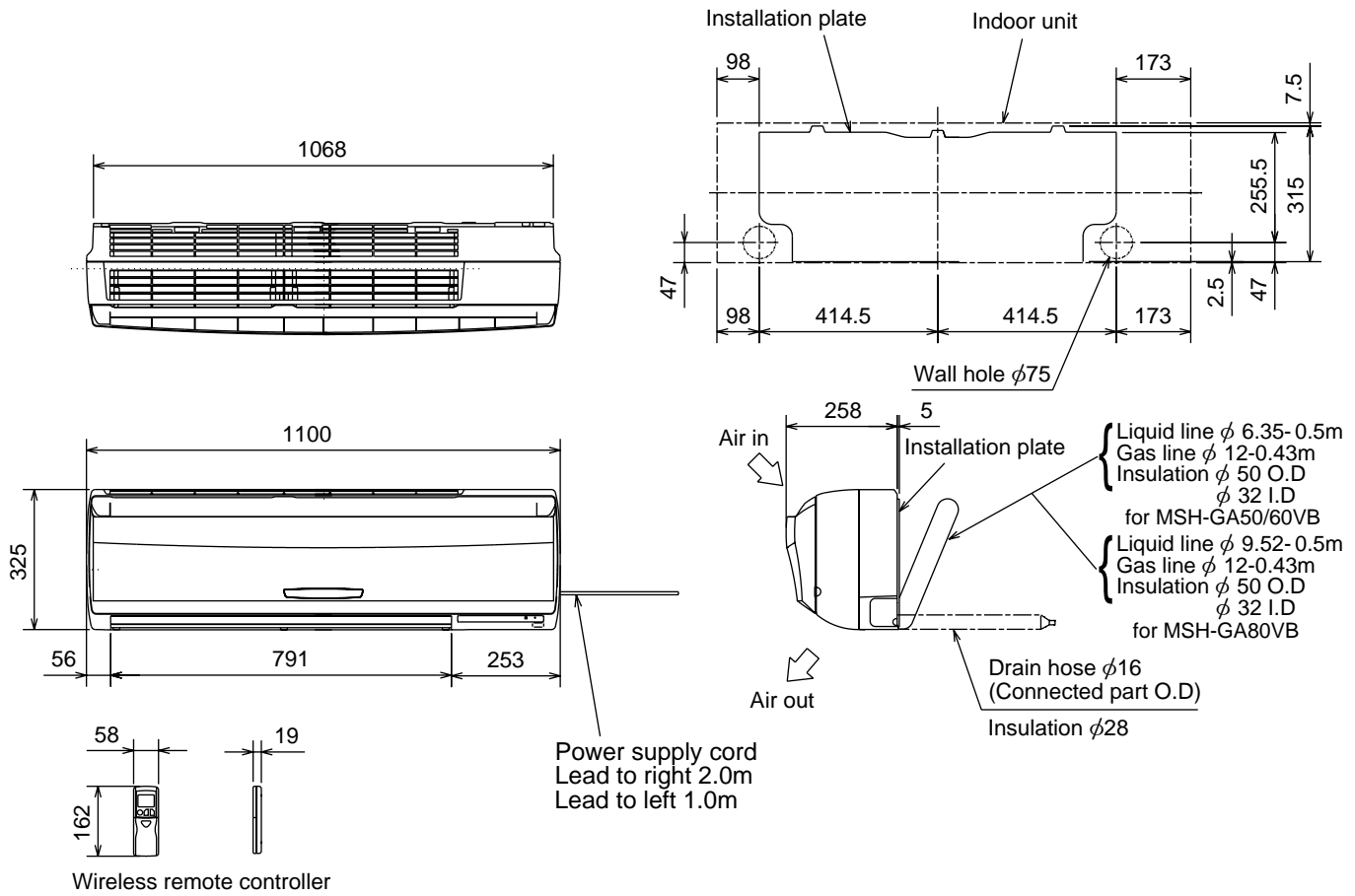


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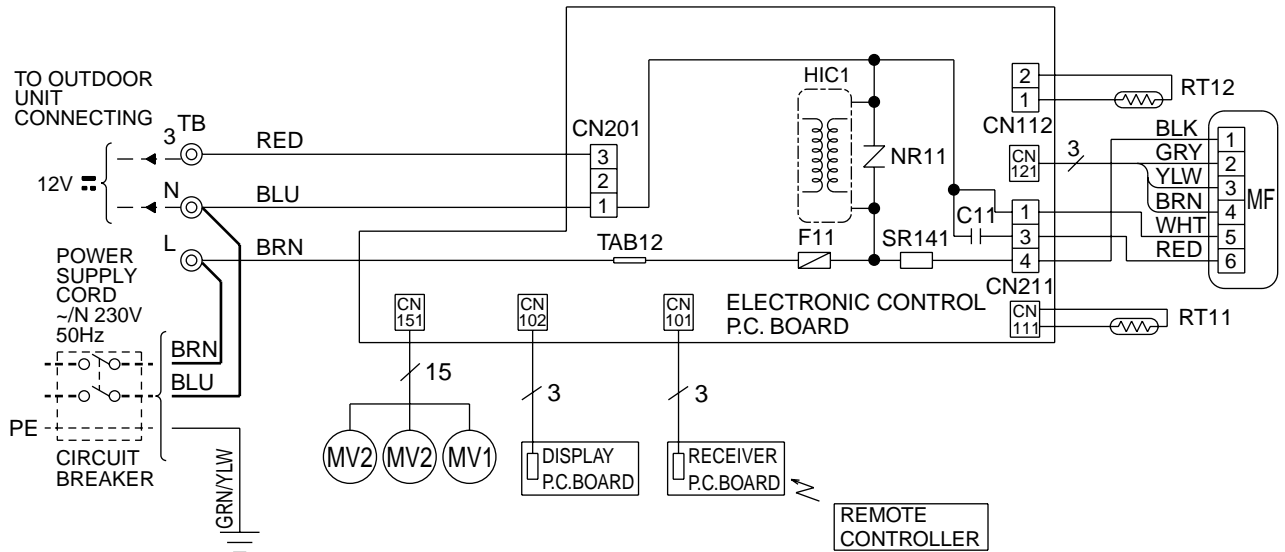
OUTLINES AND DIMENSIONS

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB

Unit: mm



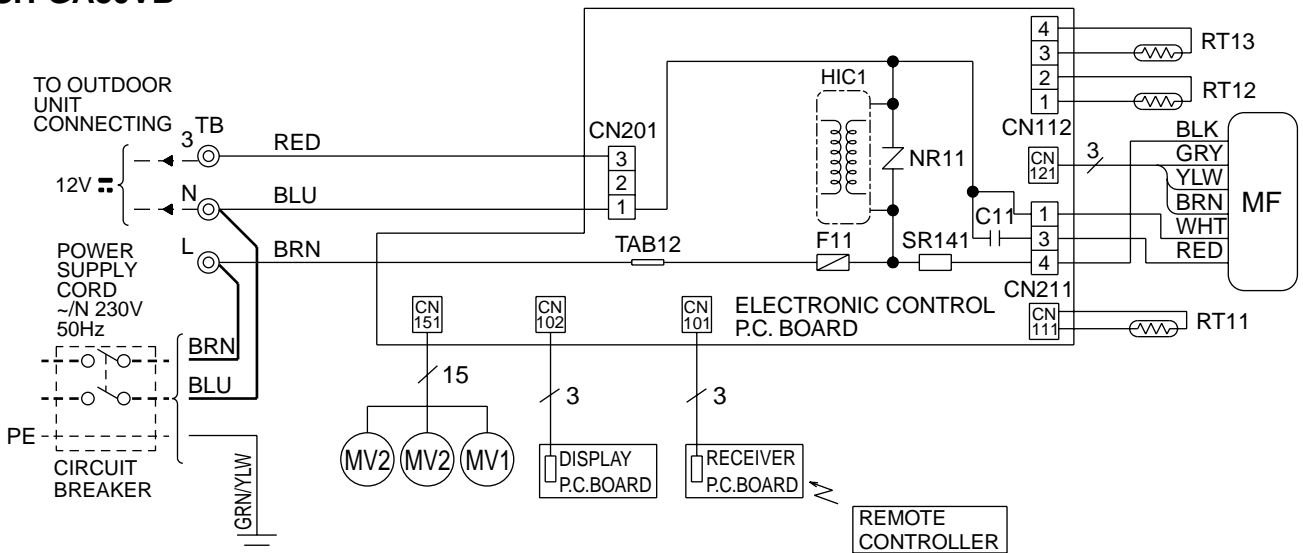
MSH-GA50VB
MSH-GA60VB



| SYMBOL | NAME | SYMBOL | NAME | SYMBOL | NAME |
|--------|-------------------------------|--------|-----------------------------|--------|------------------------|
| C11 | INDOOR FAN CAPACITOR | MV1 | VANE MOTOR (HORIZONTAL) | RT12 | INDOOR COIL THERMISTOR |
| F11 | FUSE (3.15A) | MV2 | VANE MOTOR (VERTICAL) | SR141 | SOLID STATE RELAY |
| HIC1 | DC/DC CONVERTER | NR11 | VARISTOR | TB | TERMINAL BLOCK |
| MF | INDOOR FAN MOTOR (INNER FUSE) | RT11 | ROOM TEMPERATURE 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.
 ◎ : Terminal block □□□□ : Connector

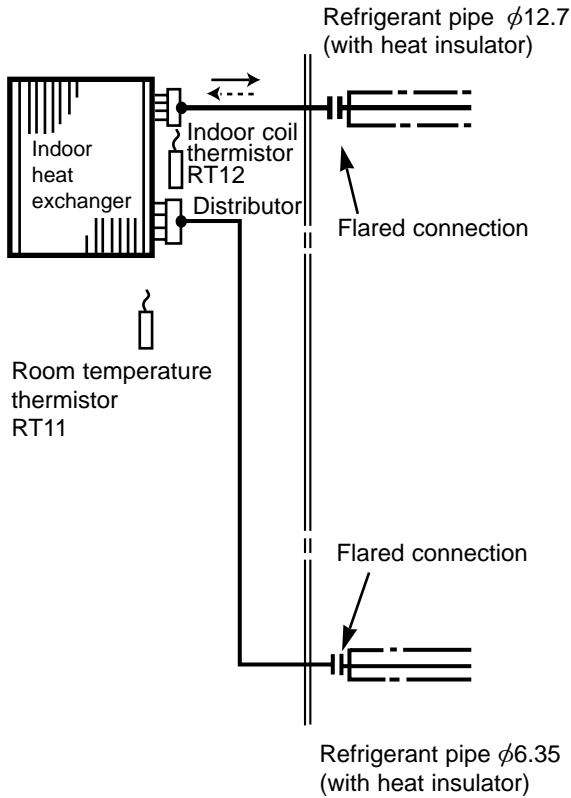
MSH-GA80VB



| SYMBOL | NAME | SYMBOL | NAME | SYMBOL | NAME |
|--------|-----------------------------------|--------|-------------------------------|--------|-------------------|
| C11 | INDOOR FAN CAPACITOR | MV2 | VANE MOTOR(VERTICAL) | SR141 | SOLID STATE RELAY |
| F11 | FUSE(3.15A) | NR11 | VARISTOR | TB | TERMINAL BLOCK |
| HIC1 | DC/DC CONVERTER | RT11 | ROOM TEMPERATURE THERMISTOR | | |
| MF | INDOOR FAN MOTOR(INNER PROTECTOR) | RT12 | INDOOR COIL THERMISTOR (MAIN) | | |
| MV1 | VANE MOTOR(HORIZONTAL) | RT13 | INDOOR COIL THERMISTOR (SUB) | | |

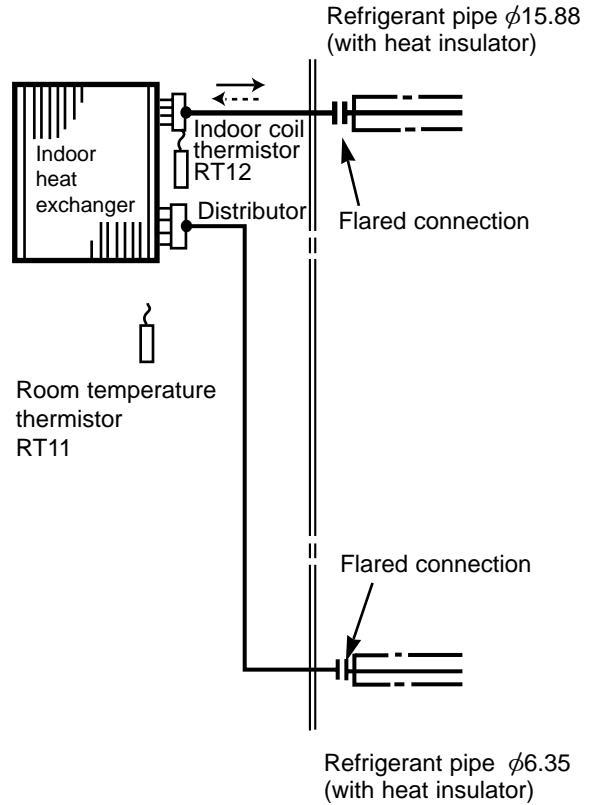
NOTES: 1.About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
 2.Use copper conductors only. (For field wiring)
 3.Symbols below indicate.
 ◎ : Terminal block □□□□ : Connector

MSH-GA50VB

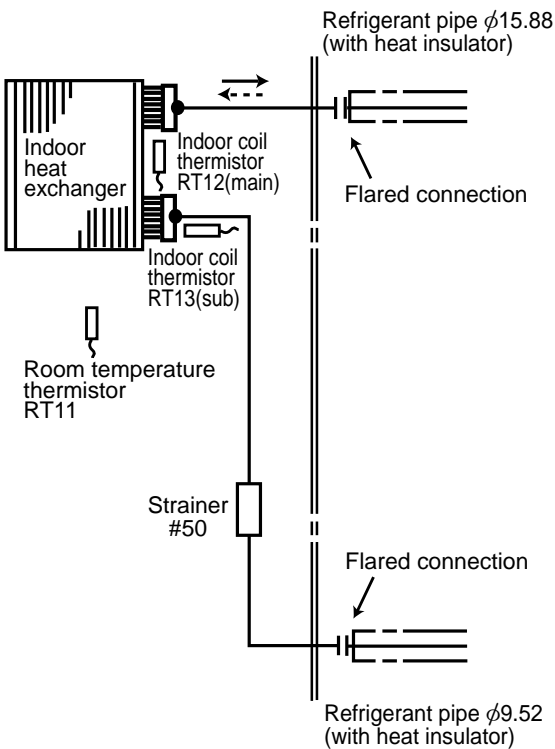


MSH-GA60VB

Unit:mm



MSH-GA80VB



—————▶ Refrigerant flow in cooling
 - - - - -▶ Refrigerant flow in heating

MSH-GA50VB MSH-GA60VB MSH-GA80VB

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.

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.

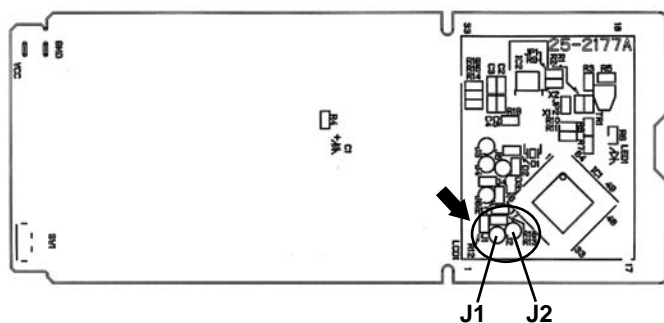
How to modify the remote controller P.C. board

Remove batteries before modification.

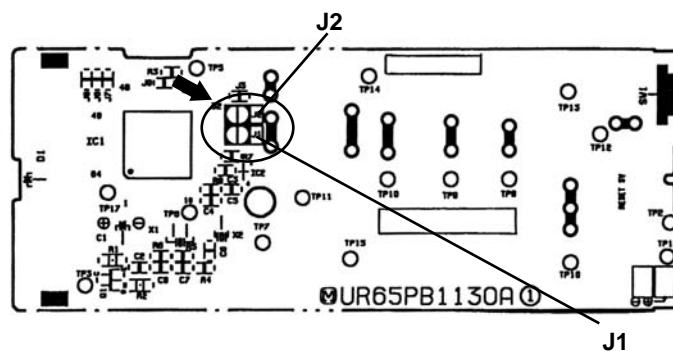
The board has a print as shown below :

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

Remote controller model : KM04A



Remote controller model : KP0A



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 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.

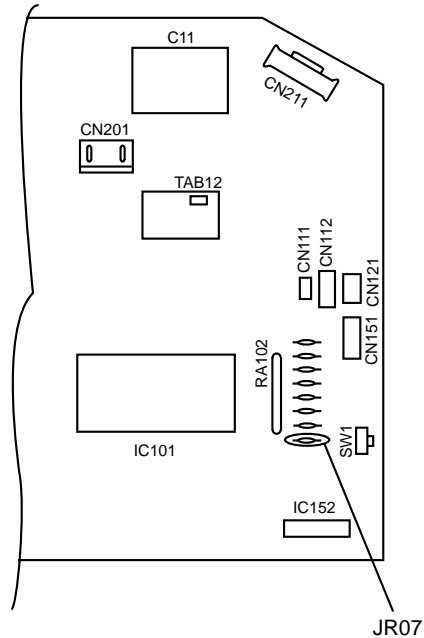
Please conduct the above setting once again after the power has restored.

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. "AUTO RESTART FUNCTION" automatically starts operation in the same mode just before the shutoff of the main power. 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"

- ① Turn OFF the main power for the unit.
- ② Pull out the electronic control P.C. board, the receiver P.C. board and the display P.C. board. (Refer to 10.2.)
- ③ Solder jumper wire to JR07 on the indoor electronic control P.C. board. (Refer to 9-6.)



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.)

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.

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB

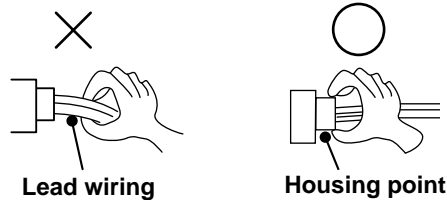
9-1. Cautions on troubleshooting

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 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 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.



3. Troubleshooting procedure

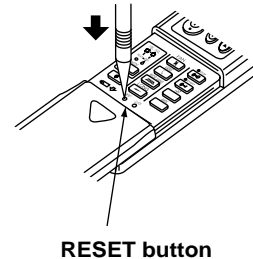
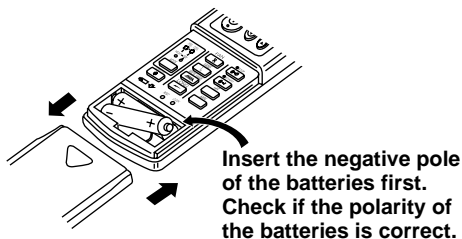
- (1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing ON and OFF to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing ON and OFF before starting service work.
- (2) Before servicing, check that the connector and terminal are connected properly.
- (3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
- (4) When troubleshooting, refer to 9-2. and 9-3.

4. How to replace batteries

Weak batteries may cause the remote controller malfunction.

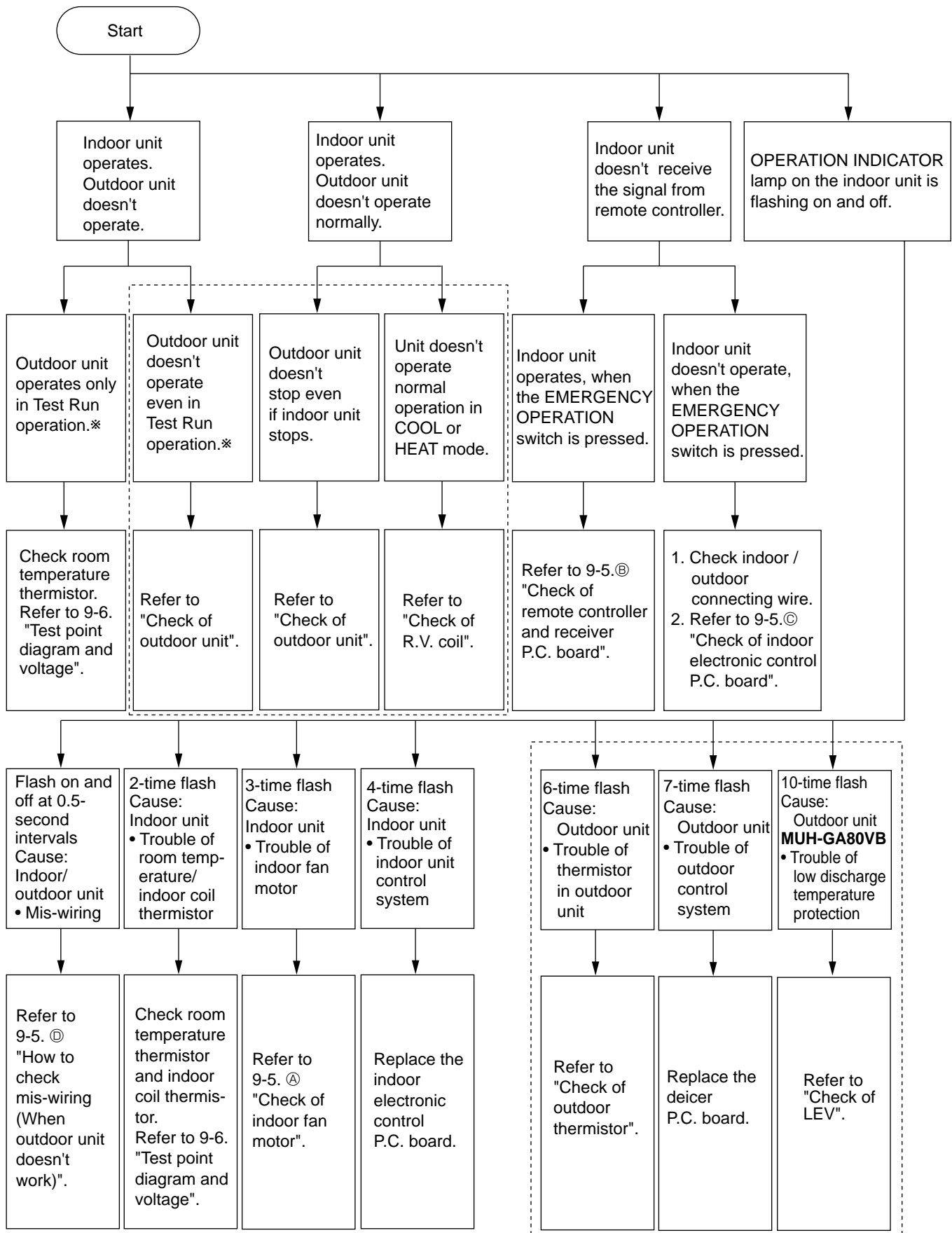
In this case, replace the batteries to operate the remote controller normally.

- 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.



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

9-2. Instruction of troubleshooting

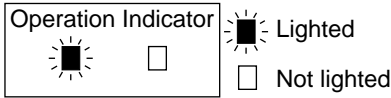


*"Test Run operation" means the operation within 30 minutes after EMERGENCY OPERATION switch is pressed.

Refer to outdoor unit service manual.

9-3. Troubleshooting check table

• The following indication applies regardless of shape of the indicator.



- Flashing of the OPERATION INDICATOR lamp (on the left-hand side) indicates possible abnormalities.
- The OPERATION INDICATOR lamp (on the left-hand side) is lighting during normal operation.

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 | Mis-Wiring | 0.5-second ON ●○○○○○○○○○○ 0.5-second OFF | Outdoor unit does not operate. | 3 minutes after power supply turns ON, when serial signal is not received. | • Refer to 9-5. ⑩ "How to check mis-wiring". |
| 2 | 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 every 8 seconds during operation. | • Refer to 9-6. the characteristics of indoor coil thermistor, and room temperature thermistor. |
| 3 | Indoor fan motor | 3-time flash ●○○○○○○○○○○●○○○○○○○○ 2.5-second OFF | Indoor fan repeats 12 seconds ON and 3minutes OFF. When the indoor fan breaks, the fan keeps stopping. | When rotational frequency feedback signal is not emitting during 12-second indoor fan operation. | • Refer to 9-5. ⑩ "Check of indoor fan motor". |
| 4 | 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. |
| 5 | Outdoor thermistor | 6-time flash ●○○○○○○○○○○●○○○○○○○○●○○○○○○○○ 2.5-second OFF | Outdoor unit does not operate. | <Thermistor short> Thermistors are abnormal when they short after compressor start-up. <Thermistor open> Thermistors are abnormal when they open after compressor start-up. However, discharge temperature thermistor is abnormal when open circuit is detected more than 10 minutes after compressor start-up. | • Shortage of refrigerant • Check the deicer P.C. board. Refer to "Check of outdoor thermistor". Refer to outdoor service manual. |
| 6 | Outdoor control system | 7-time flash ●○○○○○○○○○○●○○○○○○○○●○○○○○○○○●○○○○○○○○ 2.5-second OFF | Outdoor unit does not operate. | When it cannot properly read data in the nonvolatile memory of the deicer P.C. board, outdoor unit stops [and restarts 3 minutes later(MUH-GA60VB).] | • Check the deicer P.C. board. Refer to outdoor service manual. |
| 7 | MUH-GA80VB Low discharge temperature protection | 10-time flash ●○○○○○○○○○○●○○○○○○○○●○○○○○○○○●○○○○○○○○ 2.5-second OFF | Outdoor unit does not operate. | MUH-GA80VB When discharge temperature has been 50°C or less on cool operation, or has been 49°C or less on heat operation for 20 minutes. | MUH-GA80VB • Refer to "Check of LEV". • Check refrigerant circuit and refrigerant amount. Refer to outdoor unit service manual. |

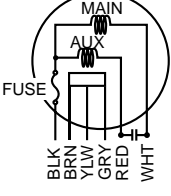
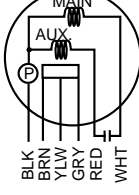
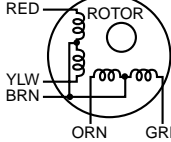
NOTE : When the indoor unit has started operation and the above detection method has detected an abnormality (the first detection after the power ON), the indoor electronic control P.C. board turns OFF the indoor fan motor with the OPERATION INDICATOR lamp flashing.

9-4. Trouble criterion of main parts

MSH-GA50VB

MSH-GA60VB

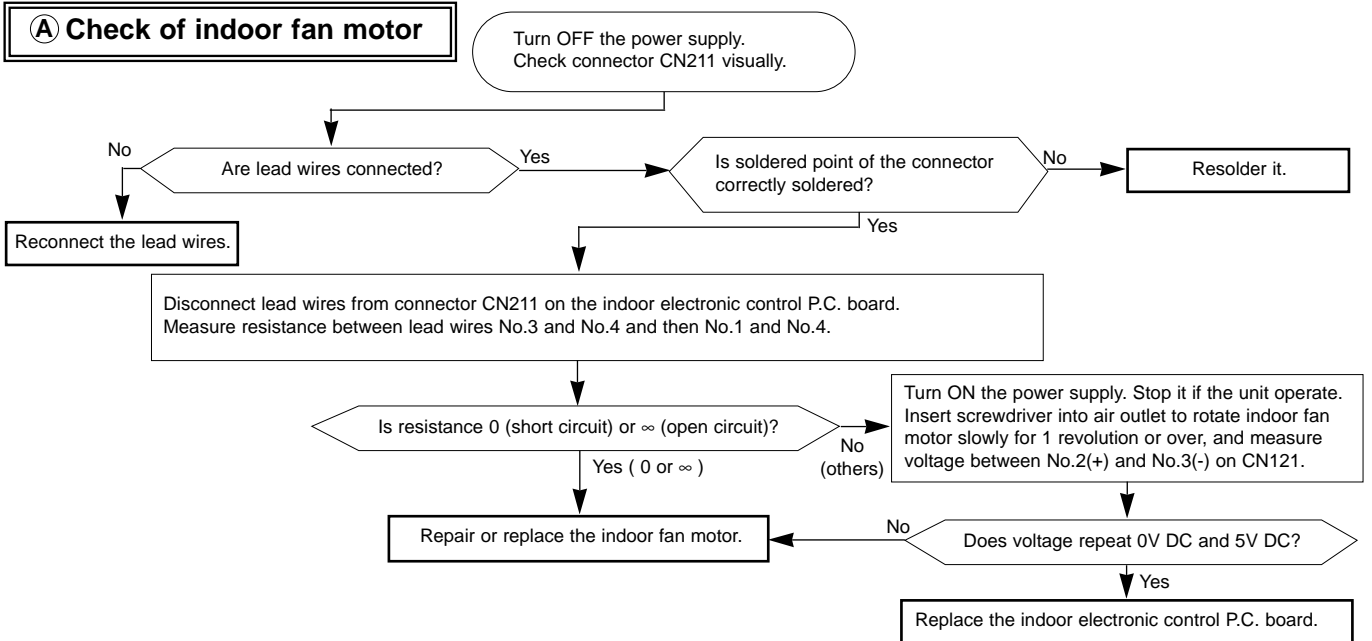
MSH-GA80VB

| Part name | Check method and criterion | Figure | | | | | | | | | | | |
|---|---|--------------------|--------------|---|-----------------|---|---|---------------|---------------|-----------|---------------|---------------|---|
| Room temperature thermistor(RT11) | Measure the resistance with a tester. (Part temperature 10°C ~ 30°C) | / | | | | | | | | | | | |
| Indoor coil thermistor (RT12(main), RT13(sub)) | Refer to 9-6."Test point diagram and voltage", "Indoor electronic control P.C. board", the chart of thermistor. | | | | | | | | | | | | |
| Indoor fan motor(MF) MSH-GA50/GA60VB INNER FUSE 145°C CUT OFF MSH-GA80VB INNER PROTECTOR 135± 5°C OPEN | Motor part Measure the resistance between the terminals with a tester. (Part temperature 10°C ~ 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">Color of lead wire</th> <th colspan="2">Normal</th> </tr> <tr> <th>MSH-GA50/GA60VB</th> <th>MSH-GA80VB</th> </tr> </thead> <tbody> <tr> <td>WHT – BLK</td> <td>282 Ω ~ 305 Ω</td> <td>132 Ω ~ 144 Ω</td> </tr> <tr> <td>BLK – RED</td> <td>141 Ω ~ 152 Ω</td> <td>152 Ω ~ 166 Ω</td> </tr> </tbody> </table> | Color of lead wire | Normal | | MSH-GA50/GA60VB | MSH-GA80VB | WHT – BLK | 282 Ω ~ 305 Ω | 132 Ω ~ 144 Ω | BLK – RED | 141 Ω ~ 152 Ω | 152 Ω ~ 166 Ω | MSH-GA50/GA60VB  |
| | Color of lead wire | | Normal | | | | | | | | | | |
| MSH-GA50/GA60VB | | MSH-GA80VB | | | | | | | | | | | |
| WHT – BLK | 282 Ω ~ 305 Ω | 132 Ω ~ 144 Ω | | | | | | | | | | | |
| BLK – RED | 141 Ω ~ 152 Ω | 152 Ω ~ 166 Ω | | | | | | | | | | | |
| Sensor part Measure the voltage power ON. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Color of lead wire</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>BRN – YLW</td> <td>4.5 ~ 5.5V</td> </tr> <tr> <td>YLW – GRY</td> <td>(When fan revolved one time) 0V→5V→0V (Approx.)</td> </tr> </tbody> </table> | Color of lead wire | Normal | BRN – YLW | 4.5 ~ 5.5V | YLW – GRY | (When fan revolved one time) 0V→5V→0V (Approx.) | MSH-GA80VB  | | | | | | |
| Color of lead wire | Normal | | | | | | | | | | | | |
| BRN – YLW | 4.5 ~ 5.5V | | | | | | | | | | | | |
| YLW – GRY | (When fan revolved one time) 0V→5V→0V (Approx.) | | | | | | | | | | | | |
| Horizontal vane motor(MV1) Vertical vane motor(MV2) | Measure the resistance between the terminal with a tester. (Part temperature 10°C ~ 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>282Ω ~ 306 Ω</td> </tr> </tbody> </table> | Normal | 282Ω ~ 306 Ω |  | | | | | | | | | |
| Normal | | | | | | | | | | | | | |
| 282Ω ~ 306 Ω | | | | | | | | | | | | | |

Ⓟ:INNER PROTECTOR

9-5. Troubleshooting flow

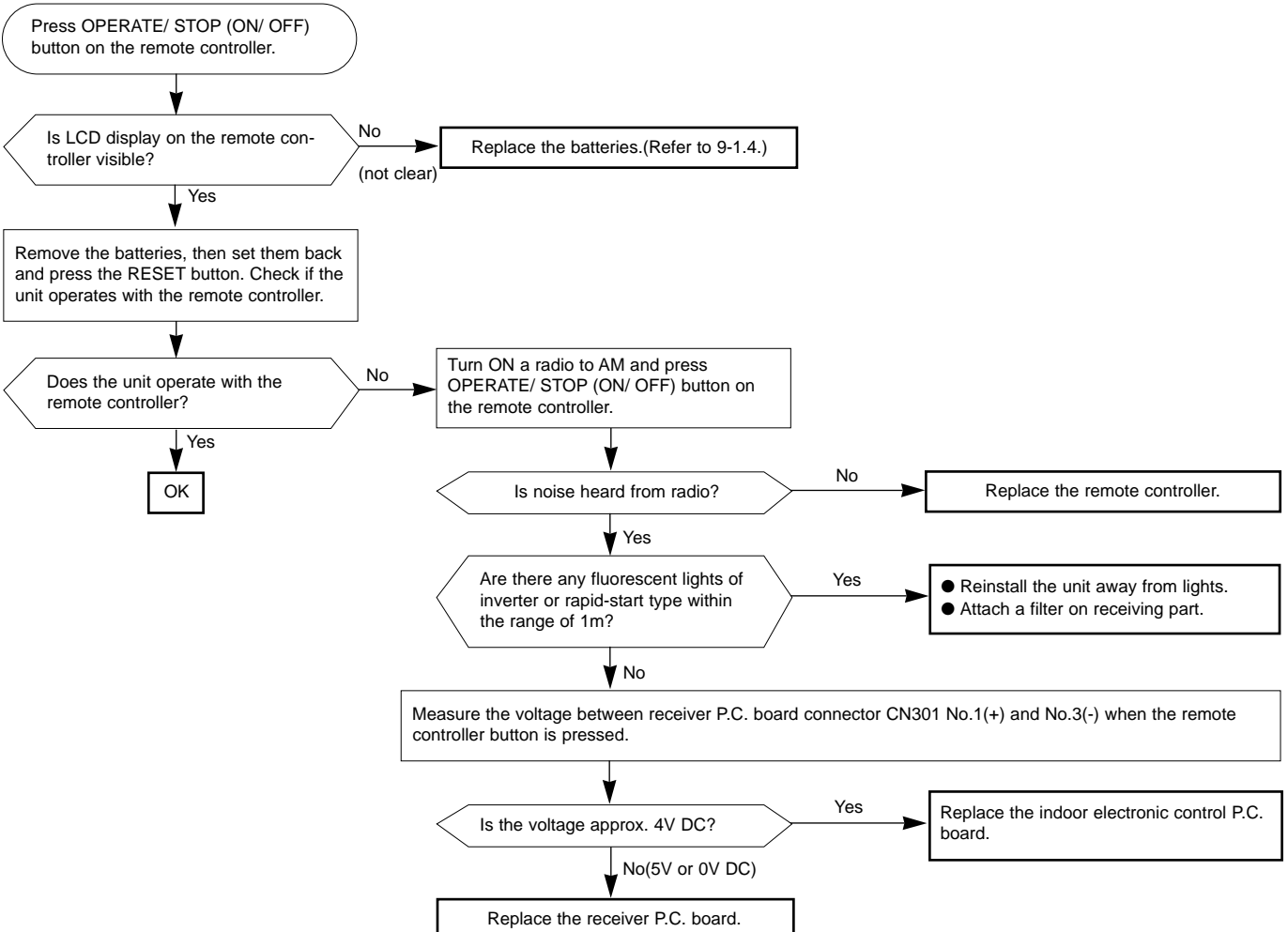
When OPERATION INDICATOR lamp flashes 3-time.
Indoor fan motor doesn't operate.



Indoor unit operates by pressing the EMERGENCY OPERATION switch, but doesn't operate with the remote controller.

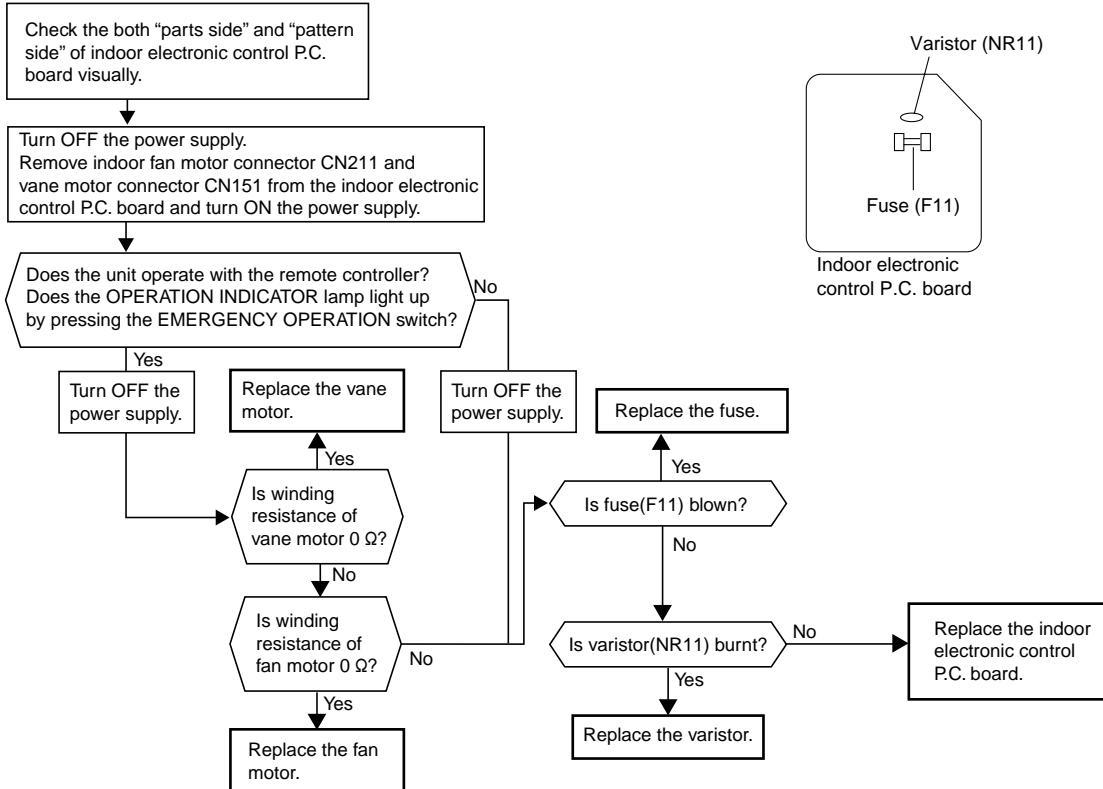
B Check of remote controller and receiver P.C. board

※ 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.

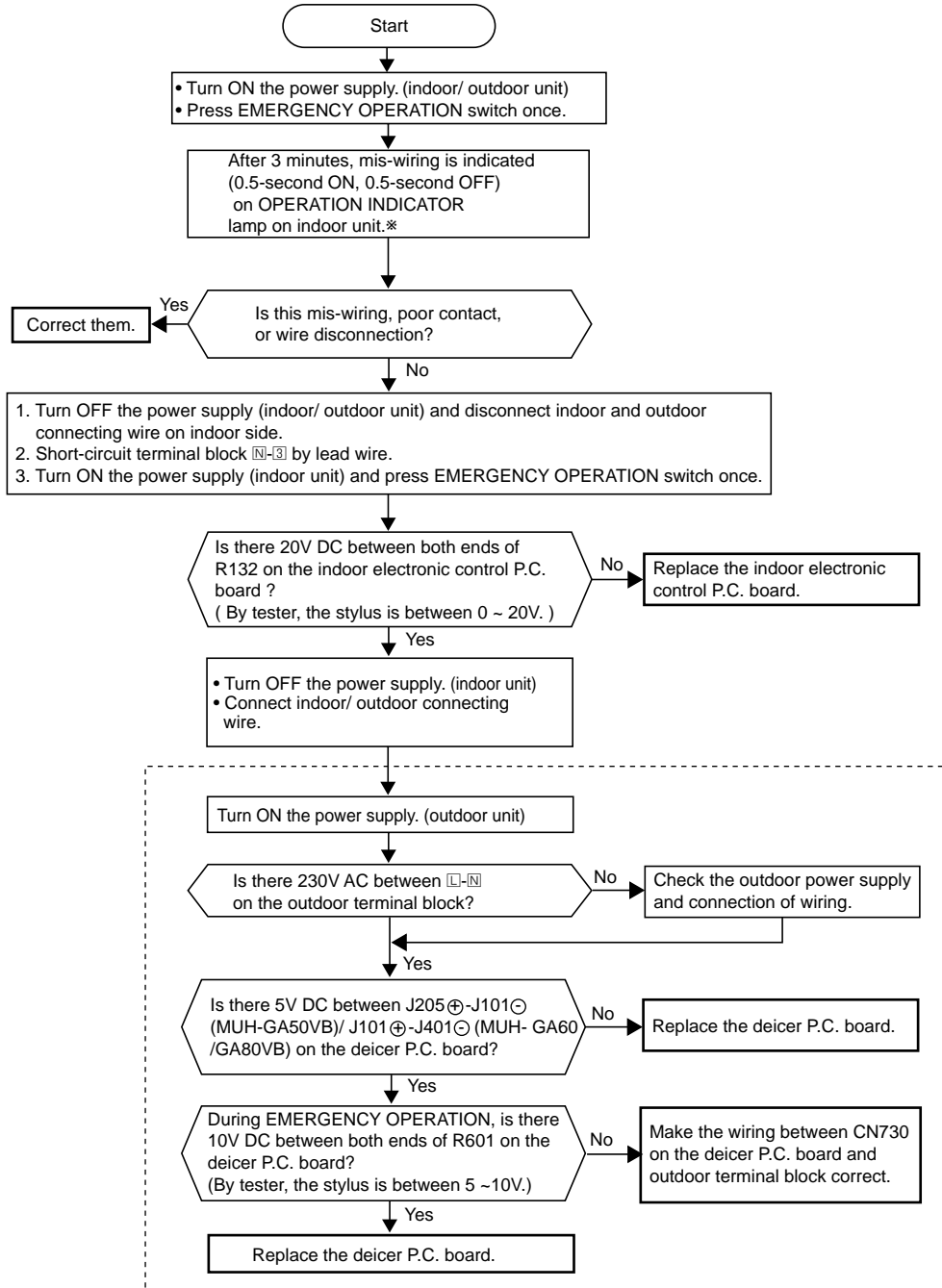
© Check of indoor electronic control P.C. board



**When OPERATION INDICATOR lamp flashes ON and OFF in every 0.5-second.
Outdoor unit doesn't operate.**

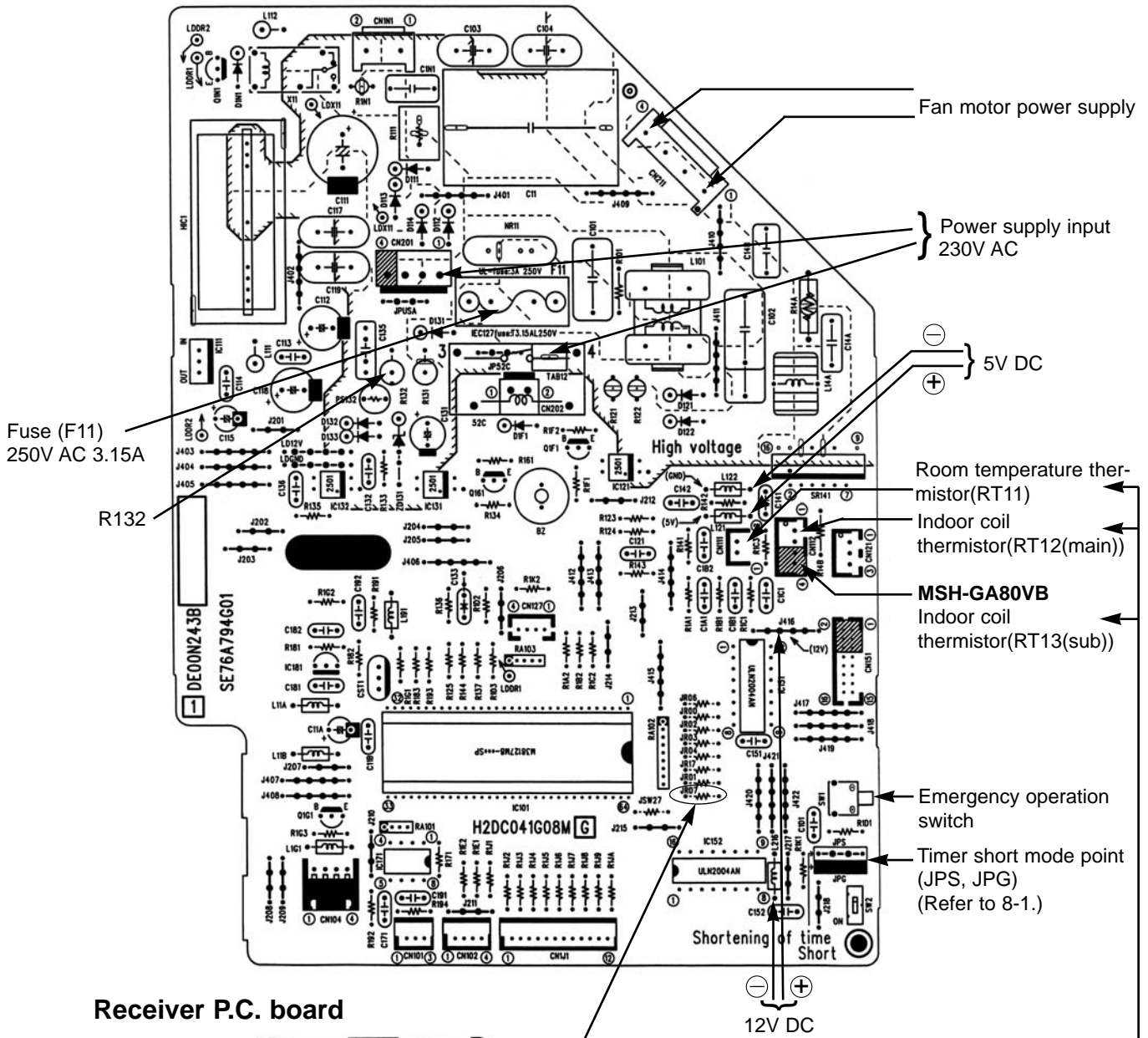
④How to check mis-wiring

* Short circuit of JPG and JPS on the indoor electronic control P.C. board enables self-check to be displayed in 3 seconds.

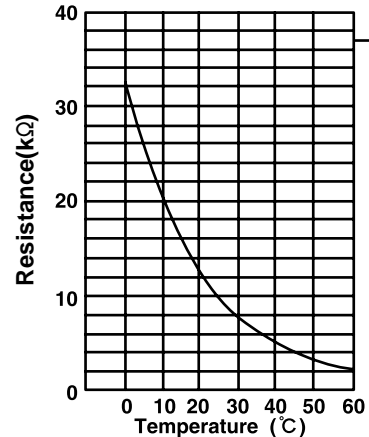


Refer to outdoor unit service manual.

9-6. Test point diagram and voltage
MSH-GA50VB MSH-GA60VB MSH-GA80VB
 Indoor electronic control P.C. board



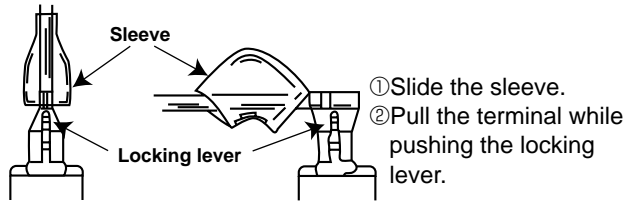
Indoor coil thermistor (RT12(main), RT13(sub))
 Room temperature thermistor (RT11)



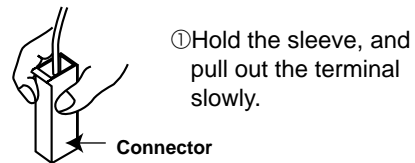
<"Terminal with locking mechanism" Detaching points>

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.



MSH-GA50VB MSH-GA60VB MSH-GA80VB INDOOR UNIT

| OPERATING PROCEDURE | PHOTOS |
|---|---|
| <p>1. Removing the front panel</p> <ol style="list-style-type: none"> (1) Remove the screw caps of the front panel. Remove the screws. (2) Pull the panel down to your side slightly and unhook the catches at the top. | <p>Photo 1</p> <p>Front panel</p> <p>Screws</p> |
| <p>2. Removing the electronic control P.C. board, the receiver P.C. board and the display P.C. board</p> <ol style="list-style-type: none"> (1) Remove the front panel. (Refer to 1.) (2) Remove the screw of the electrical cover. Remove the electrical cover. (3) Remove the screws of the V.A. clamp. Remove the V.A. clamp. (4) Remove the screw of the terminal block. (5) Remove the screws of the earth wire. (6) Disconnect all the connectors and all the lead wires on the electronic control P.C. board. (7) Remove the R.L holder. (8) Remove the electronic control P.C. board. (9) Open the R.L holder, remove the receiver P.C. board and the display P.C. board. | <p>Photo 2</p> <p>Screws of the earth wire</p> <p>Fan motor connectors</p> <p>Vane motor connector</p> <p>Indoor electronic control P.C. board</p> <p>Screw of the electrical cover</p> <p>R.L holder</p> <p>Screw of the terminal block</p> <p>Receiver P.C. board</p> <p>Screw of the V.A. clamp</p> |

OPERATING PROCEDURE

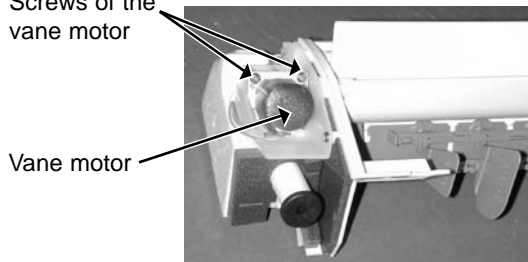
3. Removing the electrical box

- (1) Remove the front panel. (Refer to 1.)
- (2) Remove the electrical cover. (Refer to 2.)
- (3) Disconnect the connector of the indoor coil thermistor.
- (4) Disconnect the motor connector (CN211 and CN121) and the vane motor connector (CN151) on the electronic control P.C. board.
- (5) Remove the screws of earth wire.
- (6) Remove the fan motor lead wire and indoor coil thermistor from the electrical box.
- (7) Remove the lead wire of vane motor from the bottom of electrical box.
- (8) Remove the screw fixing the electrical box and remove the electrical box.

4. Removing the vane motor

- (1) Remove the front panel. (Refer to 1.)
- (2) Remove the electrical cover. (Refer to 2.)
- (3) Remove the lead wire of vane motor. (Refer to 3.)
- (4) Remove the R.L. holder.
- (5) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
- (6) Remove the screws of the vane motor and disconnect the connector.
- (7) Remove the vane motor.

Photo 5 Screws of the vane motor

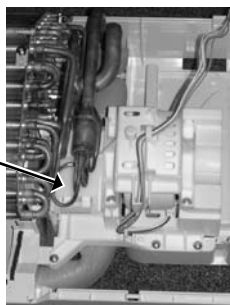


5. Removing the line flow fan and the indoor fan motor

- (1) Remove the front panel. (Refer to 1.)
- (2) Remove the electrical box. (Refer to 3.)
- (3) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
- (4) Remove the water cut.
- (5) Slide the hole cover and remove the hole cover.
- (6) Remove the hexagon socket set screw from the line flow fan.
- (7) Remove the screws fixing the fan motor and remove the fan motor. (Be careful not to drop the fan motor because it is heavy.)
- (8) Remove the screws fixing the left side of the heat exchanger.
- (9) Lift the left side of the heat exchanger.
- (10) Remove the line flow fan.

Photo 8

Hole cover



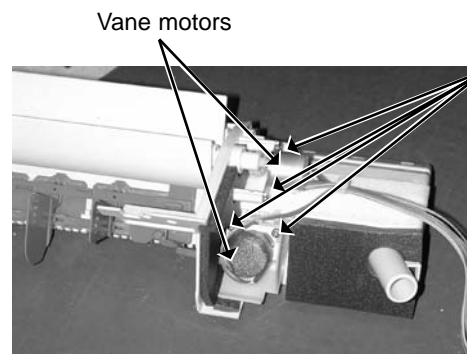
PHOTOS

Photo 3 Screws of the earth wire



Screw of the electrical cover
Screw of the electrical box

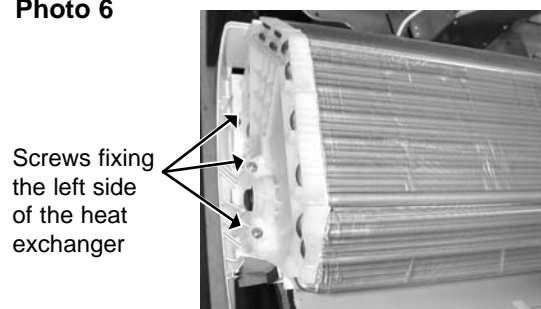
Photo 4



Vane motors

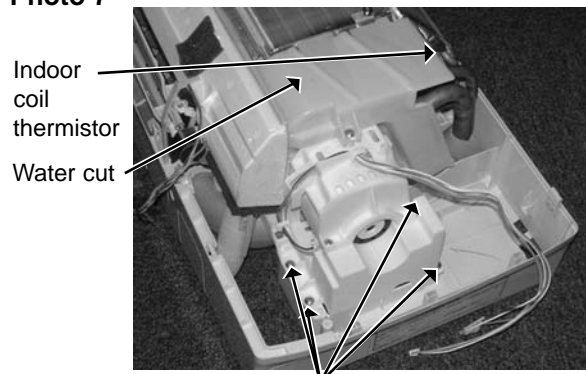
Screws of the vane motor

Photo 6



Screws fixing the left side of the heat exchanger

Photo 7



Indoor coil thermistor
Water cut

Screws fixing the fan motor

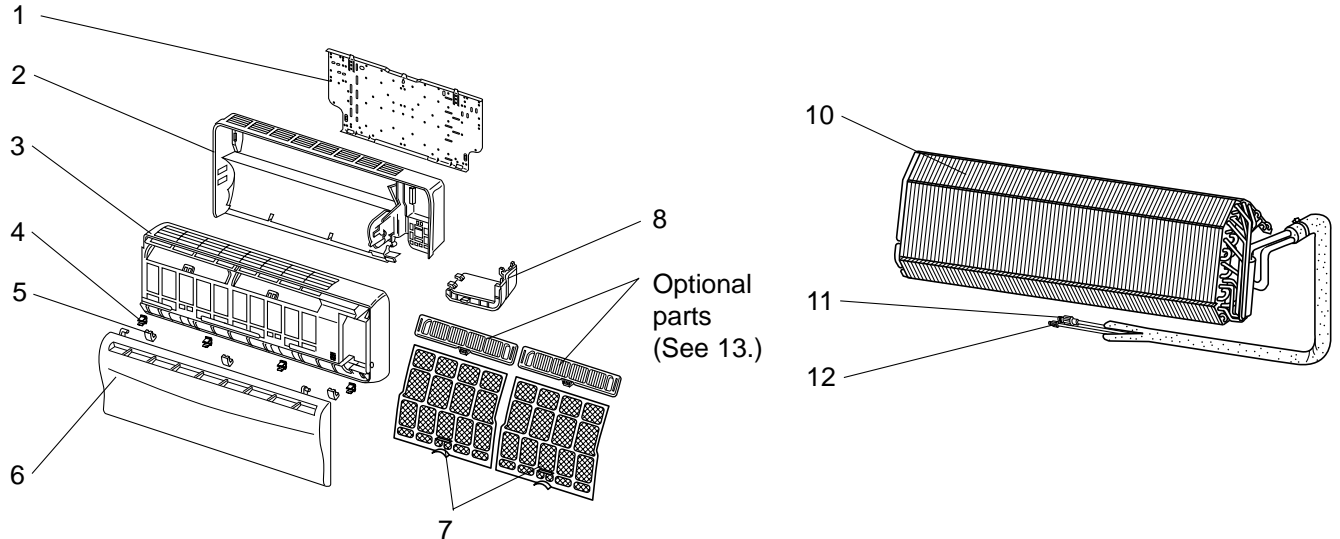
MSH-GA50VB

MSH-GA60VB

MSH-GA80VB

11-1. INDOOR UNIT STRUCTURAL PARTS

11-2. INDOOR UNIT HEAT EXCHANGER



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 |
|-----|-------------|----------------------|--------------------------------|---------------------|---------------------|---------------------|--------------------|
| | | | | MSH-GA50 VB - E1 | MSH-GA60 VB - E1 | MSH-GA80 VB - E1 | |
| 1 | E02 527 970 | INSTALLATION PLATE | | 1 | 1 | 1 | |
| 2 | E02 685 234 | BOX | | 1 | 1 | 1 | |
| 3 | E02 888 000 | FRONT PANEL ASSEMBLY | | 1 | 1 | 1 | Including No.4,5,6 |
| 4 | E02 408 142 | CATCH | | 4 | 4 | 4 | 4PCS/ SET |
| 5 | E02 685 067 | SCREW CAP | | 3 | 3 | 3 | 3PCS/ SET |
| 6 | E02 888 010 | GRILLE | | 1 | 1 | 1 | |
| 7 | E02 534 100 | CATECHIN AIR FILTER | | 2 | 2 | 2 | 1PCE/ SET |
| 8 | E02 685 975 | CORNER BOX RIGHT | | 1 | 1 | 1 | |
| ⑨ | E02 891 007 | LAMP PANEL | | 1 | 1 | 1 | |

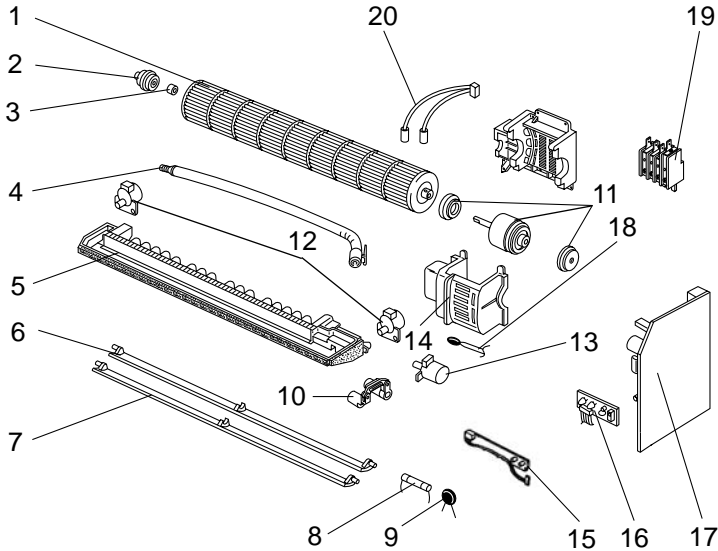
11-2. INDOOR UNIT HEAT EXCHANGER

| | | | | | | | |
|----|-------------|-----------------------|--|---|---|---|--------|
| 10 | E02 891 620 | INDOOR HEAT EXCHANGER | | 1 | 1 | | |
| | E02 893 620 | INDOOR HEAT EXCHANGER | | | | 1 | |
| 11 | E02 179 667 | UNION (GAS) | | 1 | | | φ12.7 |
| | E02 138 666 | UNION (GAS) | | | 1 | 1 | φ15.88 |
| 12 | E02 151 667 | UNION (LIQUID) | | 1 | 1 | | φ6.35 |
| | E02 527 667 | UNION (LIQUID) | | | | 1 | φ9.52 |

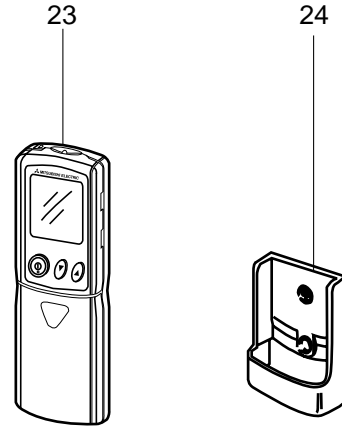
PARTS LIST (non-RoHS compliant)

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB

11-3. INDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS



11-4. ACCESSORY AND REMOTE CONTROLLER



11-3. INDOOR UNIT FUNCTIONAL PARTS AND 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 |
|-----|-------------|-------------------------------|--------------------------|--------------------|--------------------|--------------------|---------------------------------------|
| | | | | MSH-GA50 VB - [E1] | MSH-GA60 VB - [E1] | MSH-GA80 VB - [E1] | |
| 1 | E02 527 302 | LINE FLOW FAN | | 1 | 1 | 1 | |
| 2 | E02 408 509 | BEARING MOUNT | | 1 | 1 | 1 | |
| 3 | E02 001 504 | SLEEVE BEARING | | 1 | 1 | 1 | |
| 4 | E02 408 702 | DRAIN HOSE | | 1 | 1 | 1 | |
| 5 | E02 996 235 | NOZZLE | | 1 | 1 | 1 | |
| 6 | E02 685 040 | VANE UPPER | | 1 | 1 | 1 | |
| 7 | E02 685 041 | VANE LOWER | | 1 | 1 | 1 | |
| 8 | E02 127 382 | FUSE | F11 | 1 | 1 | 1 | 3.15A |
| 9 | E02 817 385 | VARISTOR | NR11 | 1 | 1 | 1 | |
| 10 | E02 527 034 | VANE CRANK SET | | 1 | 1 | 1 | |
| 11 | E02 817 300 | INDOOR FAN MOTOR ASSEMBLY | MF | 1 | 1 | | RC4V32 - □□ Including RUBBER MOUNT |
| | E02 527 300 | INDOOR FAN MOTOR ASSEMBLY | MF | | | 1 | RC4V40 - □□ Including RUBBER MOUNT |
| 12 | E02 448 303 | VANE MOTOR (VERTICAL) | MV2 | 2 | 2 | 2 | RIGHT & LEFT |
| 13 | E02 408 303 | VANE MOTOR (HORIZONTAL) | MV1 | 1 | 1 | 1 | UP & DOWN |
| 14 | E02 817 333 | MOTOR BAND | | 1 | 1 | | |
| | E02 527 333 | MOTOR BAND | | | | 1 | |
| 15 | E02 528 329 | DISPLAY P.C. BOARD | | 1 | 1 | 1 | |
| 16 | E02 527 468 | RECEIVER P.C. BOARD | | 1 | 1 | 1 | |
| 17 | E02 891 452 | ELECTRONIC CONTROL P.C. BOARD | | 1 | | | AUTO RESTART Including No.16 |
| | E02 892 452 | ELECTRONIC CONTROL P.C. BOARD | | | 1 | | AUTO RESTART Including No.16 |
| | E02 893 452 | ELECTRONIC CONTROL P.C. BOARD | | | | 1 | AUTO RESTART Including No.16 |
| 18 | E02 527 308 | ROOM TEMPERATURE THERMISTOR | RT11 | 1 | 1 | 1 | |
| 19 | E02 819 375 | TERMINAL BLOCK | TB | 1 | 1 | 1 | |
| 20 | E02 408 307 | INDOOR COIL THERMISTOR | RT12 | 1 | 1 | | |
| | E02 527 307 | INDOOR COIL THERMISTOR | RT12, RT13 | | | 1 | |
| 21 | E02 528 034 | VANE MOTOR SUPPORT SET(RIGHT) | | 1 | 1 | 1 | |
| 22 | E02 529 034 | VANE MOTOR SUPPORT SET(LEFT) | | 1 | 1 | 1 | |

11-4. ACCESSORY AND REMOTE CONTROLLER

| | | | | | | | |
|----|-------------|--------------------------|--|---|---|---|-------------|
| 23 | E02 529 426 | REMOTE CONTROLLER | | 1 | 1 | 1 | KP0A, KM04A |
| 24 | E02 527 083 | REMOTE CONTROLLER HOLDER | | 1 | 1 | 1 | |

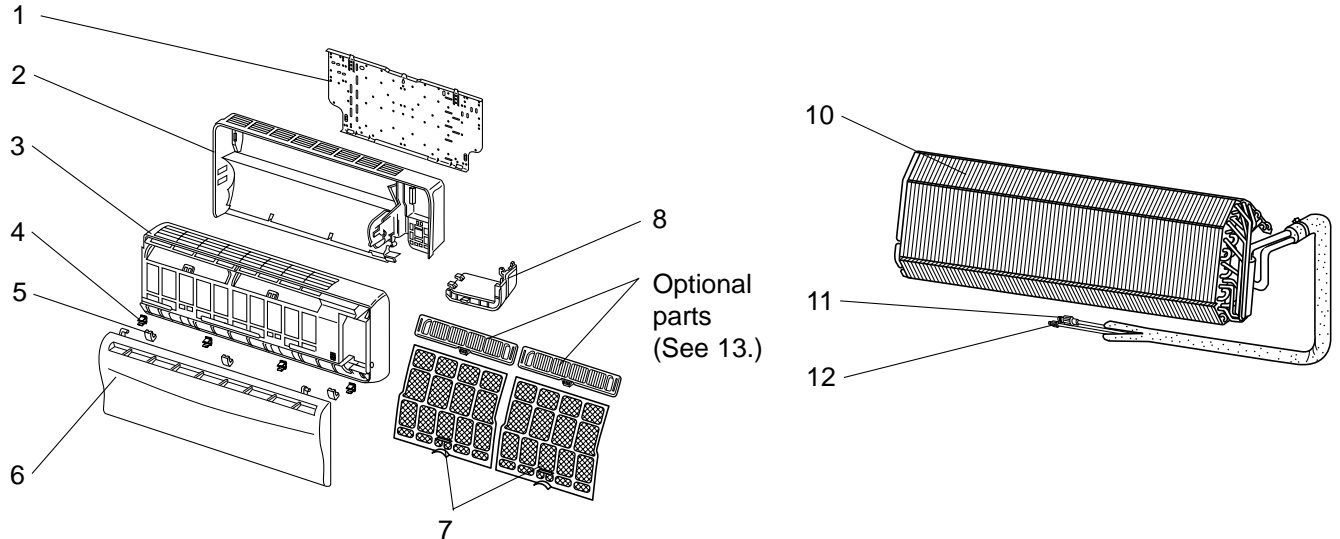
MSH-GA50VB

MSH-GA60VB

MSH-GA80VB

12-1. INDOOR UNIT STRUCTURAL PARTS

12-2. INDOOR UNIT HEAT EXCHANGER



12-1. INDOOR UNIT STRUCTURAL PARTS

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

| NO. | RoHS | Part No. | Part Name | Symbol in Wiring Diagram | Q'ty/unit | | | Remarks |
|-----|------|-------------|----------------------|--------------------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | MSH-GA50 VB - [E1] | MSH-GA60 VB - [E1] | MSH-GA80 VB - [E1] | |
| 1 | G | E12 527 970 | INSTALLATION PLATE | | 1 | 1 | 1 | |
| 2 | G | E12 685 234 | BOX | | 1 | 1 | 1 | |
| 3 | G | E12 888 000 | FRONT PANEL ASSEMBLY | | 1 | 1 | 1 | Including No.4,5,6 |
| 4 | G | E12 408 142 | CATCH | | 4 | 4 | 4 | 4PCS/ SET |
| 5 | G | E12 685 067 | SCREW CAP | | 3 | 3 | 3 | 3PCS/ SET |
| 6 | G | E12 888 010 | GRILLE | | 1 | 1 | 1 | |
| 7 | G | E12 534 100 | CATECHIN AIR FILTER | | 2 | 2 | 2 | 1PCE/ SET |
| 8 | G | E12 685 975 | CORNER BOX RIGHT | | 1 | 1 | 1 | |
| 9 | G | E12 891 007 | LAMP PANEL | | 1 | 1 | 1 | |

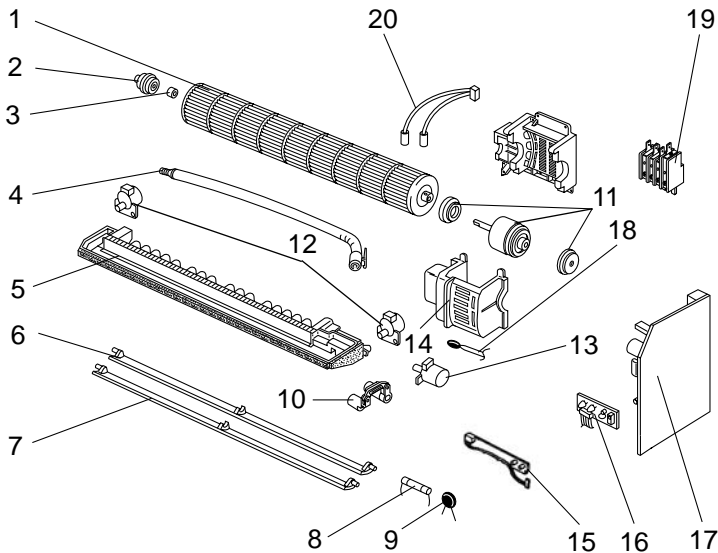
12-2. INDOOR UNIT HEAT EXCHANGER

| | | | | | | | | |
|----|---|-------------|-----------------------|--|---|---|---|--------|
| 10 | G | E12 891 620 | INDOOR HEAT EXCHANGER | | 1 | 1 | | |
| | G | E12 893 620 | INDOOR HEAT EXCHANGER | | | | 1 | |
| 11 | G | E12 179 667 | UNION (GAS) | | 1 | | | φ12.7 |
| | G | E12 138 666 | UNION (GAS) | | | 1 | 1 | φ15.88 |
| 12 | G | E12 151 667 | UNION (LIQUID) | | 1 | 1 | | φ6.35 |
| | G | E12 527 667 | UNION (LIQUID) | | | | 1 | φ9.52 |

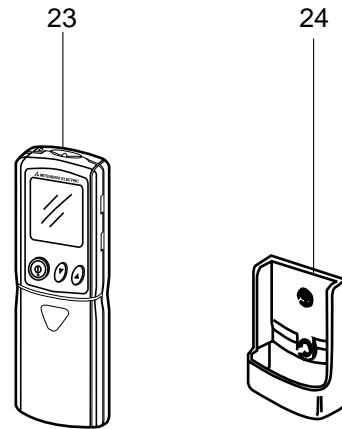
RoHS PARTS LIST (RoHS compliant)

MSH-GA50VB
MSH-GA60VB
MSH-GA80VB

12-3. INDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS



12-4. ACCESSORY AND REMOTE CONTROLLER



12-3. INDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS

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

| NO. | ROHS | Part No. | Part Name | Symbol in Wiring Diagram | Q'ty/unit | | | Remarks |
|-----|------|-------------|--------------------------------|--------------------------|--------------------|--------------------|--------------------|---------------------------------------|
| | | | | | MSH-GA50 VB - [E1] | MSH-GA60 VB - [E1] | MSH-GA80 VB - [E1] | |
| 1 | G | E12 527 302 | LINE FLOW FAN | | 1 | 1 | 1 | |
| 2 | G | E12 408 509 | BEARING MOUNT | | 1 | 1 | 1 | |
| 3 | G | E12 001 504 | SLEEVE BEARING | | 1 | 1 | 1 | |
| 4 | G | E12 408 702 | DRAIN HOSE | | 1 | 1 | 1 | |
| 5 | G | E12 996 235 | NOZZLE | | 1 | 1 | 1 | |
| 6 | G | E12 685 040 | VANE UPPER | | 1 | 1 | 1 | |
| 7 | G | E12 685 041 | VANE LOWER | | 1 | 1 | 1 | |
| 8 | G | E12 A49 382 | FUSE | F11 | 1 | 1 | 1 | 3.15A |
| 9 | G | E12 817 385 | VARISTOR | NR11 | 1 | 1 | 1 | |
| 10 | G | E12 527 034 | VANE CRANK SET | | 1 | 1 | 1 | |
| 11 | G | E12 817 300 | INDOOR FAN MOTOR ASSEMBLY | MF | 1 | 1 | | RC4V32 - □□ including RUBBER MOUNT |
| | G | E12 527 300 | INDOOR FAN MOTOR ASSEMBLY | MF | | | 1 | RC4V40 - □□ including RUBBER MOUNT |
| 12 | G | E12 448 303 | VANE MOTOR (VERTICAL) | MV2 | 2 | 2 | 2 | RIGHT & LEFT |
| 13 | G | E12 408 303 | VANE MOTOR (HORIZONTAL) | MV1 | 1 | 1 | 1 | UP & DOWN |
| 14 | G | E12 817 333 | MOTOR BAND | | 1 | 1 | | |
| | G | E12 527 333 | MOTOR BAND | | | | 1 | |
| 15 | G | E12 528 329 | DISPLAY P.C. BOARD | | 1 | 1 | 1 | |
| 16 | G | E12 527 468 | RECEIVER P.C. BOARD | | 1 | 1 | 1 | |
| 17 | G | E12 891 452 | ELECTRONIC CONTROL P.C. BOARD | | 1 | | | AUTO RESTART Including No.16 |
| | G | E12 892 452 | ELECTRONIC CONTROL P.C. BOARD | | | 1 | | AUTO RESTART Including No.16 |
| | G | E12 893 452 | ELECTRONIC CONTROL P.C. BOARD | | | | 1 | AUTO RESTART Including No.16 |
| 18 | G | E12 527 308 | ROOM TEMPERATURE THERMISTOR | RT11 | 1 | 1 | 1 | |
| 19 | G | E12 819 375 | TERMINAL BLOCK | TB | 1 | 1 | 1 | |
| 20 | G | E12 408 307 | INDOOR COIL THERMISTOR | RT12 | 1 | 1 | | |
| | G | E12 527 307 | INDOOR COIL THERMISTOR | RT12, RT13 | | | 1 | |
| 21 | G | E12 528 034 | VANE MOTOR SUPPORT SET (RIGHT) | | 1 | 1 | 1 | |
| 22 | G | E12 529 034 | VANE MOTOR SUPPORT SET (LEFT) | | 1 | 1 | 1 | |

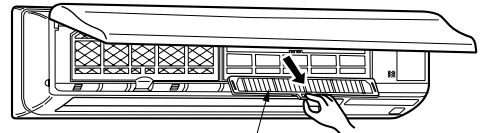
12-4. ACCESSORY AND REMOTE CONTROLLER

| | | | | | | | | |
|----|---|-------------|--------------------------|--|---|---|---|-------------|
| 23 | G | E12 529 426 | REMOTE CONTROLLER | | 1 | 1 | 1 | KP0A, KM04A |
| 24 | G | E12 527 083 | REMOTE CONTROLLER HOLDER | | 1 | 1 | 1 | |

AIR CLEANING FILTER

- AIR CLEANING FILTER removes fine dust of 0.01 micron from air by means of static electricity.
- Normal life of AIR CLEANING FILTER is 4 months. However, when it becomes dirty, replace it as soon as possible.
- Clogged AIR CLEANING FILTER may reduce the air conditioner capacity or cause frost on the air outlet.
- DO NOT reuse AIR CLEANING FILTER even if it is washed.
- DO NOT remove or attach AIR CLEANING FILTER during unit operation.

| Model | Part No. |
|--|------------|
| MSH-GA50VB MSH-GA60VB MSH-GA80VB | MAC-1700FT |



Air cleaning filter (White bellows type)



HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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Distributed in Oct. 2004. No.OB367 6
Made in Japan

New publication, effective May 2007
Specifications subject to change without notice.