

### **Revision C:**

• The drawing of the printed circuit board of the remote controller for MSXY-FN07/10/13/18/20/24VE- R2 have been corrected in 8. SERVICE FUNCTIONS.

OBH779 REVISED EDITION-B is void.

# **INDOOR UNIT**

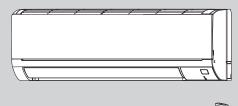
No. OBH779
REVISED EDITION-C

# **SERVICE MANUAL**

# **Models**

MSXY-FN07VE -R1, R2
MSXY-FN10VE -R1, R2
MSXY-FN13VE -R1, R2
MSXY-FN18VE -R1, R2
MSXY-FN20VE -R1, R2
MSXY-FN24VE -R1, R2

Outdoor unit service manual MXY-G·VA - R Series (OBH722)



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MSXY-FN20VE MSXY-FN24VE

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PARTS CATALOG (OBB779)	

STATMEX

# Use the specified refrigerant only

# Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of. Correct refrigerant is specified in the manuals and on the spec labels provided with our products. We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

# **Revision A:**

• Model names of the outdoor units have been added to "10-6. How to check miswiring and serial signal error".

## **Revision B:**

MSXY-FN07/10/13/18/20/24VE- R2 have been added.

## **Revision C:**

• The drawing of the printed circuit board of the remote controller for MSXY-FN07/10/13/18/20/24VE- R2 have been corrected in 8. SERVICE FUNCTIONS.

# 1 TECHNICAL CHANGES

#### The following models are compatible with the outdoor units with low standby power control.

Connecting the following models to the MXY series with the low standby power control enables the low standby power control.

The following models may be connected to the MXY series with the low standby power control after once connected to the MXY series without the low standby power control and operated, for example because of relocation. In that case the MXY series with the low standby power control will not operate unless taking a step. Follow the procedure "Deleting the memorized abnormal condition" described in 10-2.1.

MSXY-FN07VE - R1

MSXY-FN10VE - R1

MSXY-FN13VE - R1

MSXY-FN18VE - R1

MSXY-FN20VE - R1

MSXY-FN24VE - R1

1. New model

MSXY-FN07VE - R1 → MSXY-FN07VE - R2

MSXY-FN10VE - R1 → MSXY-FN10VE - R2

MSXY-FN13VE - R1 → MSXY-FN13VE - R2

MSXY-FN18VE - R1 → MSXY-FN18VE - R2

MSXY-FN20VE - R1 → MSXY-FN20VE - R2

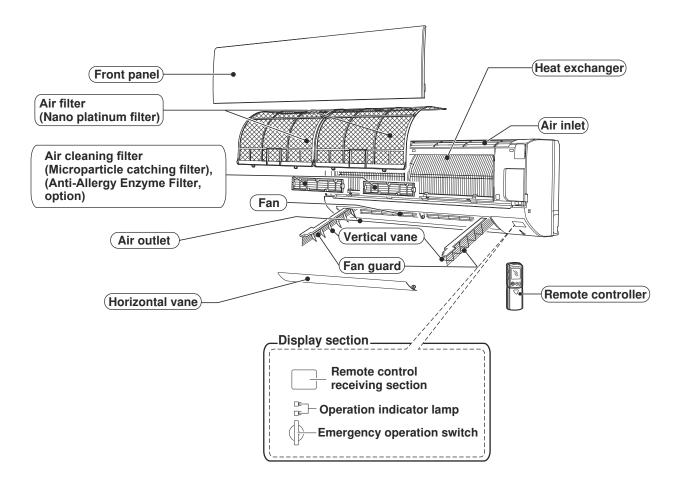
MSXY-FN24VE - R1 → MSXY-FN24VE - R2

- 1. Remote controller has been changed.
- 2. Fan speed has been changed.

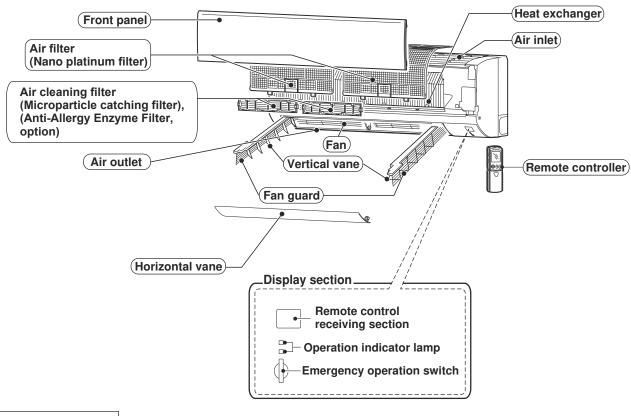
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# **PART NAMES AND FUNCTIONS**

# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE



# MSXY-FN20VE MSXY-FN24VE



# **ACCESSORIES**

Model	MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE MSXY-FN20VE MSXY-FN24VE
① Installation plate	1
② Installation plate fixing screw 4 × 25 mm	5
③ Wireless remote controller	1
4 Felt tape (Used for left or left-rear piping)	1
Battery (AAA) for remote controller	2
Remote controller holder	1
	2
Air cleaning filter	2

# 3

# **SPECIFICATION**

la de en vez del		MSXY-							
	Indoor model			FN07VE-R1	FN10VE-R1	FN13VE-R1	FN18VE-R1	FN20VE-R1	FN24VE-R1
		Power supply				Single phase 2	30-240V, 50Hz"	1	
Electrical data		wer input *1	W	21	28	36	42	5	9
Elect	Ru	nning current *1	Α	0.21	0.27	0.33	0.38	0.	52
_ 5	Мс	odel			RC0J	40-EF		RC0J3	30-MD
Fan	Cu	rrent *1	Α	0.21	0.27	0.33	0.38	0.9	52
		ions W × H × D	mm		799 x 29	90 x 232		923 x 30	05 x 250
Wei			kg		Ç	9		1	3
	Air direction		4						
		Super High		666	774	846	888	1,1	94
	Airflow	High	m³/h	546		726	96	60	
	۱	Med.			378		570	81	10
ş		Low		246		372	54	16	
nar	ve	Super High		42	45	47	49	5	0
l el	<u>e</u>	High	dB(A)		36		44	4	5
<u>ख</u>	ound level	Med.	ub(A)	2	9	30	38	4	1
Special remarks	S	Low			19		28	3	0
S	speed	Super High		1,000	1,120	1,200		1,250	
	be	High	rnm		860		1,070	1,0	50
	S	Med.	rpm		660		890	92	20
	Fan	Low			500 650		650	68	30
Fan speed regulator				4					
Remote controller model			KM15D						

NOTE: Test conditions are based on ISO 5151.

Cooling: Indoor Dry-bulb temperature 27°C Outdoor Dry-bulb temperature 35°C

\*1 Measured under rated operating frequency.

Wet-bulb temperature 19°C Wet-bulb temperature 24°C

# Specifications and rated conditions of main electric parts

		•
Fuse	(F11)	T3.15AL250V
Vane motor	(MV)	12 V DC
Varistor	(NR11)	470 V
Terminal block	(TB)	3P

Indoor model		lin de eu mee de l				MS	XY-		
	mador mader			FN07VE-R2	FN10VE-R2	FN13VE-R2	FN18VE-R2	FN20VE-R2 FN24VE-R2	
		Power supply				Single phase 2	30-240V, 50Hz	,	
Electrical data	Po	wer input *1	W	21	28	36	42	5	9
Elect	Ru	inning current *1	Α	0.21	0.27	0.33	0.38	0.9	52
		odel			RC0J	40-EF		RC0J3	30-MD
Fan motor	Cu	ırrent *1	Α	0.21	0.27	0.33	0.38	0.9	52
		sions W × H × D	mm		799 x 29	90 x 232	1	923 x 30	05 x 250
Weig	ght		kg		Ç	9		1	
	Air direction						5		
		Super High	m³/h	666	774	846	888	1,1	94
	>	High		546 726		726	960		
	Airflow	Med.		378 570			810		
	ΙĒ	Low		306 462		462	64	18	
l o		SLow			246		372	54	16
쑱	<u></u>	Super High		42	45	47	49	5	0
l ii	eve	High			36		44	4	5
1 =	Sound level	Med.	dB(A)	2	9	30	38	4	1
Si	noo	Low	] [		24		33	3	5
Special remarks	0)	SLow			19		28	3	0
0)	٦	Super High		1,000	1,120	1,200		1,250	
	speed	High			860		1,070	1,0	50
	gs	Med.	rpm		660		890	92	20
	Fan	Low		570 760		760	78	30	
	"	SLow			500		650	68	30
		n speed regulator					5		
Rem	note	e controller model		KH18A					

**NOTE**: Test conditions are based on ISO 5151.

Cooling: Indoor Dry-bulb temperature 27°C Outdoor Dry-bulb temperature 35°C

\*1 Measured under rated operating frequency.

Wet-bulb temperature 19°C Wet-bulb temperature 24°C

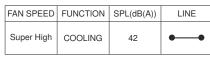
# Specifications and rated conditions of main electric parts

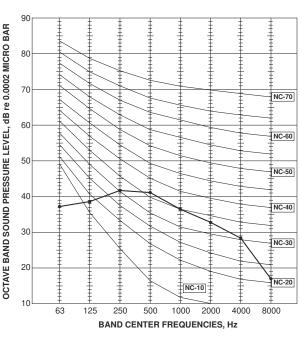
Fuse	(F11)	T3.15AL250V
Vane motor	(MV)	12 V DC
Varistor	(NR11)	470 V
Terminal block	(TB)	3P

# 4

# **NOISE CRITERIA CURVES**

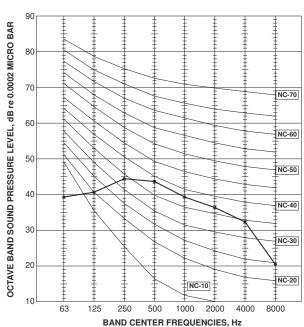
# **MSXY-FN07VE**



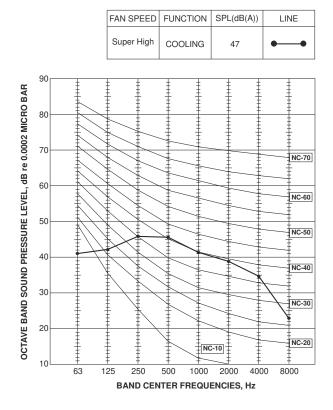


# **MSXY-FN10VE**

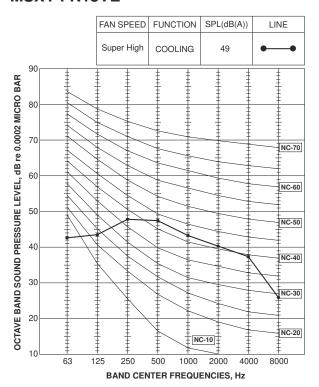
	FAN SPEED	FUNCTION	SPL(dB(A))	LINE
	Super High	COOLING	45	•—•
-	‡ ‡	‡ ‡	‡ ‡	#



# MSXY-FN13VE



# **MSXY-FN18VE**



# **MSXY-FN20VE**

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# FAN SPEED FUNCTION SPL(dB(A))LINE Super High COOLING 50 OCTAVE BAND SOUND PRESSURE LEVEL, dB re 0.0002 MICRO BAR NC-70 60 NC-60 NC-50 40 NC-40 NC-30

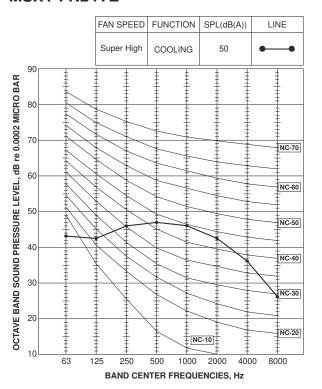
NC-10

2000

1000

BAND CENTER FREQUENCIES, Hz

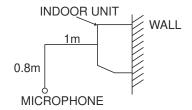
# **MSXY-FN24VE**



**Test conditions** Cooling: Dry-bulb temperature 27°C Wet-bulb temperature 19°C

250

500

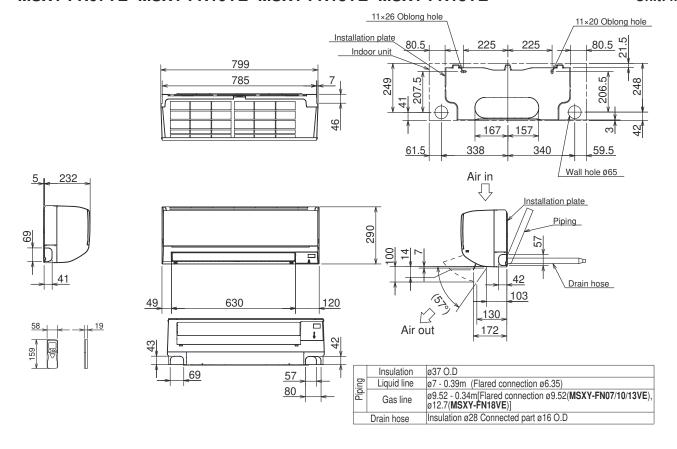


NC-20

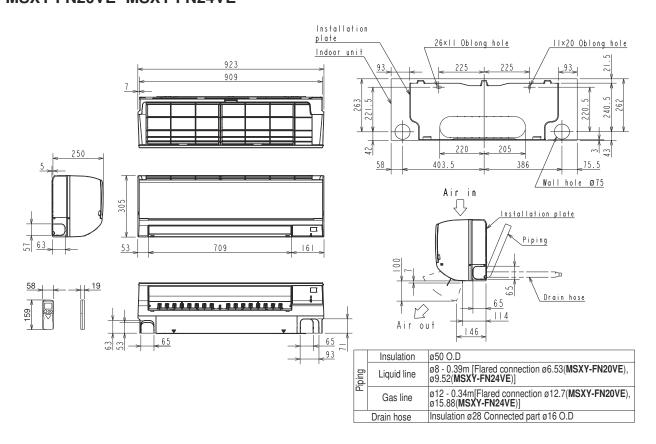
# **OUTLINES AND DIMENSIONS**

# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE

Unit: mm

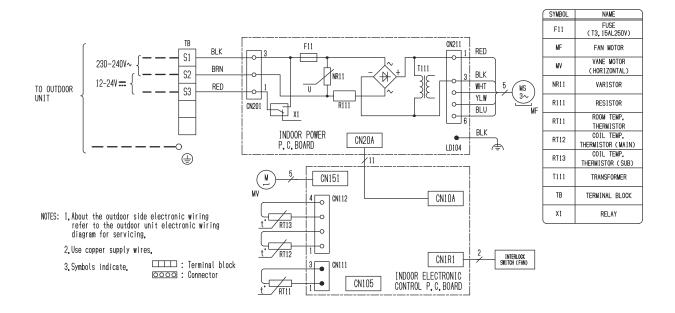


# MSXY-FN20VE MSXY-FN24VE

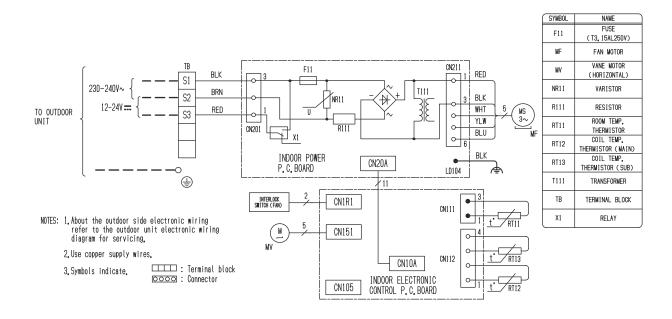


# **WIRING DIAGRAM**

# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE



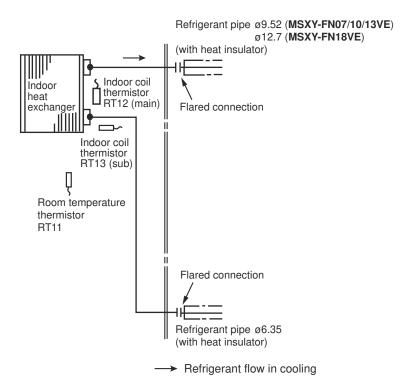
# MSXY-FN20VE MSXY-FN24VE



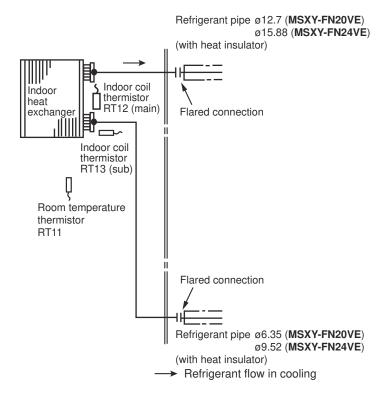
# REFRIGERANT SYSTEM DIAGRAM

# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE

Unit: mm



# MSXY-FN20VE MSXY-FN24VE



# **SERVICE FUNCTIONS**

# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE MSXY-FN20VE MSXY-FN24VE

## 8-1. TIMER SHORT MODE

For service, the following set time can be shortened by bridging the timer short mode point on the electronic control P.C. board. (Refer to 10-7.2.)

- The set time for the ON/OFF timer can be reduced to 1 second for each minute.
- After the breaker is turned on, the time for starting the compressor, which normally takes 3 minutes, can be reduced to 1 minute. Restarting the compressor, which takes 3 minutes, cannot be reduced.

## 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.

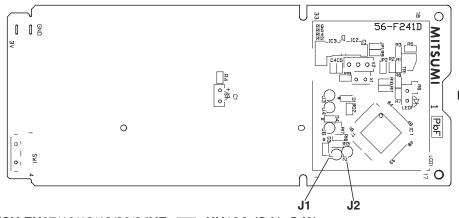
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

#### How to modify the remote controller P.C. board

Remove batteries before modification.

The board has a print as shown below:

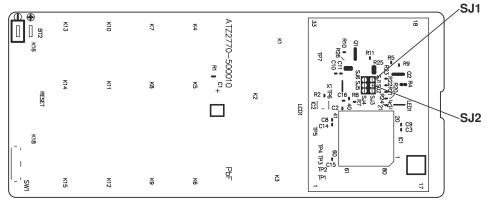
#### MSY-FN07/10/13/18/20/24VE- R1: KM15D (J1, J2)



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

After modification, put back the batteries then press the RESET button.

# MSY-FN07/10/13/18/20/24VE- R2: KH18A (SJ1, SJ2)



The P.C. board has the print "SJ1/J1" and "SJ2/J2". Solder "SJ1/J1" and "SJ2/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 SJ1/J1	Same as at left	Same as at left
No. 3 unit	_	_	Solder SJ2/J2	Same as at left
No. 4 unit	_	_	_	Solder both SJ1/J1 and SJ2/J2

#### How to set the remote controller exclusively for particular indoor unit

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

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

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

#### 8-3. AUTO RESTART FUNCTION

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

#### Operation

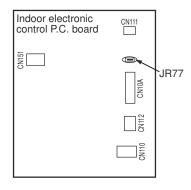
- ① If the main power has been cut, the operation settings remain.
- ② After the power is restored, the unit restarts automatically according to the memory. (However, it takes at least 3 minutes for the compressor to start running.)

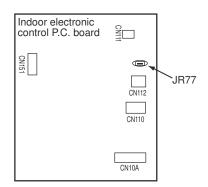
#### How to disable "AUTO RESTART FUNCTION"

- ① Turn off the main power for the unit.
- ② Cut the Jumper wire to JR77 on the indoor electronic control P.C. board. (Refer to 10-7.)

## MSXY-FN07/10/13/18VE

## MSXY-FN20/24VE





#### NOTE:

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

  Therefore, the special counter measures are required to prevent the main voltage-drop or the rush of the starting current

by adding to the system that allows the units to start one by one.

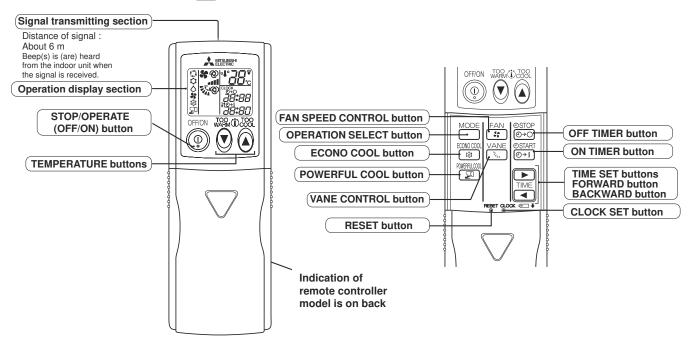
9

# MICROPROCESSOR CONTROL

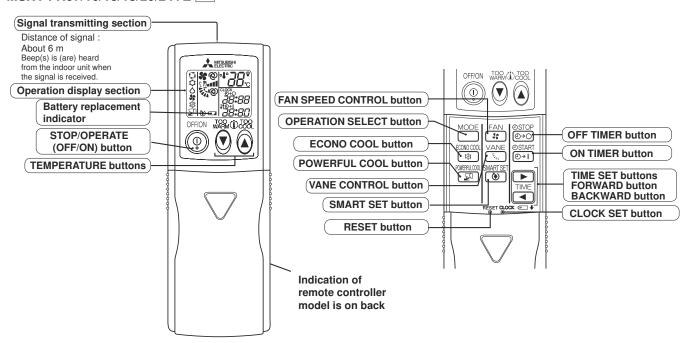
# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE MSXY-FN20VE MSXY-FN24VE

## WIRELESS REMOTE CONTROLLER

#### MSXY-FN07/10/13/18/20/24VE-R1



## MSXY-FN07/10/13/18/20/24VE-R2



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

# INDOOR UNIT DISPLAY SECTION

#### **Operation Indicator lamp**

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

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

Indication	Operation state	Room temperature
*	The unit is operating to reach the set temperature	About 2°C or more away from set temperature
0	The room temperature is approaching the set temperature	About 1 to 2°C from set temperature
- <del>`</del> -	Standby mode (only during multi system operation)	_



# 9-1. COOL (🗘) OPERATION

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

#### 1. Coil frost prevention

The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the coil from frosting.

When the temperature of indoor heat exchanger becomes too low, the coil frost prevention mode works.

The indoor fan operates at the set speed and the compressor stops. This mode continues until the temperature of indoor heat exchanger rises.

## 2. Low outside temperature operation

When the outside temperature is lower, low outside temperature operation starts, and the outdoor fan slows or stops.

## 9-2. DRY (A) OPERATION

- (1) Press STOP/OPERATE (OFF/ON) button.
  - OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select DRY mode with OPERATION SELECT button.
- (3) The set temperature is determined from the initial room temperature.
- 1. Coil frost prevention

Coil frost prevention works the same way as that in COOL mode. (9-1.1.)

2. Low outside temperature operation

Low outside temperature operation works the same way as that in COOL mode. (9-1.2.)

# 9-3. FAN( ♦ )OPERATION

- (1) Press STOP/OPERATE (OFF/ON) button.
  - OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select FAN mode with OPERATION SELECT button.
- (3) Select the desired fan speed. When AUTO, it becomes Low.

Only indoor fan operates. Outdoor unit does not operate.

# 9-4. "I FEEL CONTROL" ( = ) OPERATION

- (1) Press STOP/OPERATE (OFF/ON) button on the remote controller. OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
- (2) Select "I FEEL CONTROL" mode with OPERATION SELECT button.
- (3) The operation mode is determined by the room temperature at startup of the operation.
  - Once the mode is fixed, the mode does not change by room temperature afterwards.
  - Under the ON-TIMER ( ⊕→|) operation, mode is determined according to the room temperature at the startup of operation.
- (4) The initial set temperature is decided by the initial room temperature.

Initial room temperature	Model	Initial set temperature
26°C or more	COOL mode of	24°C
25 to 26°C	"LEEL CONTROL"	Initial room temperature minus 2°C
Less than 25°C	Less than 25°C DRY mode of "I FEEL CONTROL" Initial room temperature mi	

#### (5) TEMPERATURE buttons

In "I FEEL CONTROL" ( ; ) mode, set temperature is decided by the microprocessor based on the room temperature. In addition, set temperature can be controlled by TOO WARM or TOO COOL button when you feel too cool or too warm. Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

#### Fuzzy control

When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cool. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode. In DRY mode of "I FEEL CONTROL", the set temperature does not change.



···To raise the set temperature 1~2°C



···To lower the set temperature 1~2°C

#### 9-5. AUTO VANE OPERATION

#### 1. Horizontal vane

(1) Vane motor drive

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

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



(3) Positioning

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

Confirming of standard position is performed in the following cases:

- (a) When the operation starts or finishes (including timer operation).
- (b) When the test run starts.
- (4) VANE AUTO (2) mode

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

In COOL and DRY operation

Vane angle is fixed to Horizontal position.



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

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

- (a) When STOP/OPERATE (OFF/ON) button is pressed (POWER OFF).
- (b) When the operation is stopped by the emergency operation.
- (c) When ON TIMER is ON standby.
- (6) Dew prevention

During COOL or DRY operation with the vane angle at Angle 4 or 5 when the compressor cumulative operation time exceeds 1 hour, the vane angle automatically changes to Angle 3 for dew prevention.

(7) SWING (₹) mode

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

(8) POWERFUL COOL (Ş□) mode

When POWERFUL COOL button is pressed in COOL mode, the fan speed and the set temperature are automatically adjusted.

Operation becomes POWERFUL COOL mode.

POWERFUL COOL mode is automatically released 15 minutes after operation starts, and the operation mode returns to the mode prior to POWERFUL COOL operation.

POWERFUL COOL mode is also cancelled when POWERFUL COOL button is pressed once again, OPERATE/STOP (ON/OFF) button is pressed, FAN SPEED CONTROL button is pressed, ECONO COOL button is pressed or change to other operation mode.

NOTE1: The temperature buttons are not available during POWERFUL COOL operation.

2: VANE CONTROL button is available.

(9) ECONO COOL (意) operation (ECONOmical operation)

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

Also the horizontal vane swings in various cycles.

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

To cancel this operation, select a different mode or press one of the following buttons in ECONO COOL operation: ECONO COOL, VANE CONTROL or POWERFUL COOL button.

#### 9-6. TIMER OPERATION

#### 1. How to set the time

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

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

#### How to set the current time

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

#### **ON timer setting**

- (a) Press ON TIMER button ( osti) during operation.
- (b) Set the time of the timer using TIME SET buttons ( and ).\*

## **OFF** timer setting

- (a) Press OFF TIMER button ( ( o + o) ) during operation.
- (b) Set the time of the timer using TIME SET buttons ( and ). \*
- \*\* Each time FORWARD button ( ) is pressed, the set time increases by 10 minutes: each time BACKWARD button ( ) is pressed, the set time decreases by 10 minutes.

#### 2. To release the timer

To release ON timer, press ON TIMER button ( ) START |

To release OFF timer, press OFF TIMER button( ( ).

TIMER is cancelled and the display of set time disappears.

#### **PROGRAM TIMER**

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

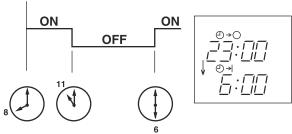
(Example 1) The current time is 8:00 PM.

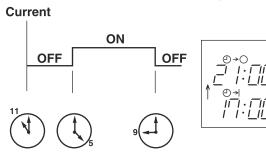
(Example 2) The current time is 11:00 AM.

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

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

# Current





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

#### 9-7. SMART SET (\*) OPERATION

## 1. How to SET SMART SET operation

- (1) Press STOP/OPERATE (OFF/ON) button.
- (2) Select COOL or ECONO COOL mode.
- (3) Press SMART SET button.
- (4) Set the temperature, fan speed, and airflow direction for SMART SET operation.

#### NOTE:

- SMART SET operation cannot be selected during DRY or AUTO mode operation.
- 1 group of setting can be saved.

# 2. How to cancel operation

- Press SMART SET button again.
- SMART SET operation can also be cancelled by pressing OPERATION SELECT button to change the operation mode. The same setting is selected from the next time by simply pressing SMART SET button.

#### 9-8. EMERGENCY/TEST OPERATION

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

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

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

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

In the test run or the emergency operation, the horizontal vane operates in VANE AUTO (②) mode.

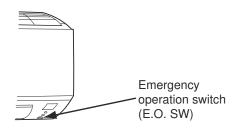
Emergency operation continues until EMERGENCY OPERATION switch is pressed once the unit receives any signal from the remote controller. In the latter case, normal operation will start.

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

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

Operation Indicator la	amp		
EMERGENCY COOL	<b>★</b> ○ → ○	*	Lit Not lit
0.0.	0		

NOTE: Do not press EMERGENCY OPERATION switch during normal operation.



# 9-9. 3-MINUTE TIME DELAY OPERATION

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

# 10

# **TROUBLESHOOTING**

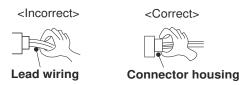
# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE MSXY-FN20VE MSXY-FN24VE

#### 10-1. CAUTIONS ON TROUBLESHOOTING

- 1. Before troubleshooting, check the following
  - 1) Check the power supply voltage.
  - 2) Check the indoor/outdoor connecting wire for miswiring.

#### 2. Take care of the following during servicing

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



#### 3. Troubleshooting procedure

- Check if the OPERATION INDICATOR lamp on the indoor unit is blinking ON and OFF to indicate an abnormality.
   To make sure, check how many times the OPERATION INDICATOR lamp is blinking ON and OFF before starting service work.
- 2) Before servicing, check that the connector and terminal are connected properly.
- 3) When the 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 10-2, 10-3 and 10-4.

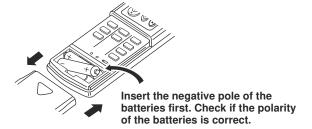
## 4. How to replace batteries

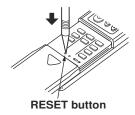
Weak batteries may cause the remote controller malfunction.

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

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

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





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

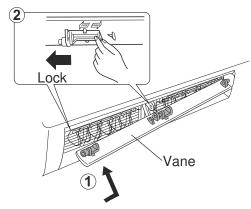
- 2. This remote controller has a circuit to automatically reset the microcomputer when batteries are replaced.

  This function is equipped to prevent the microcomputer from malfunctioning due to the voltage drop caused by the battery replacement.
- 3. Do not use the leaking batteries.

## 5. How to install the horizontal vane

If horizontal vane is not installed correctly, all of the operation indicator lamps will blink. In this case, install the horizontal vane correctly by following the procedures  $\odot$  to  $\odot$ .

**NOTE:** Before installation of the horizontal vane, turn OFF the power supply.



- ① Install the horizontal vane.
- ② Slide the stoppers until they click into place.

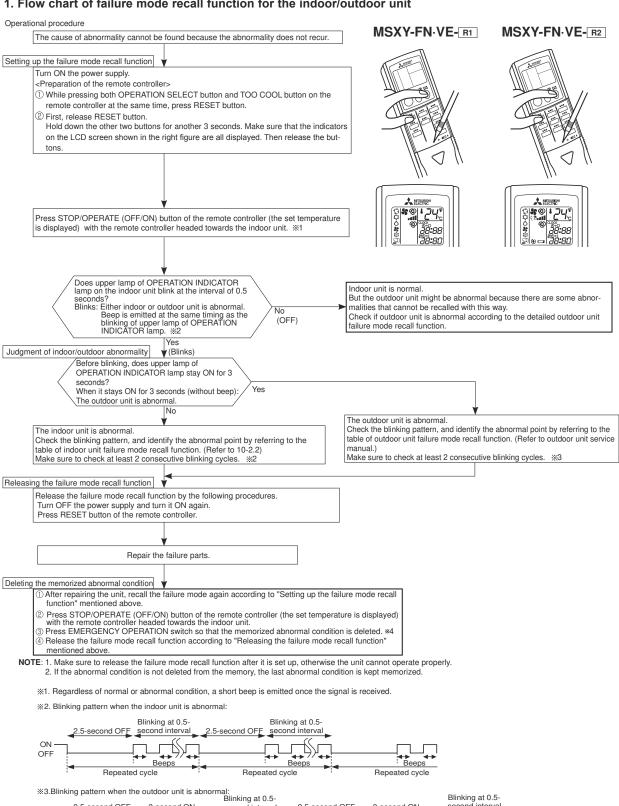
#### 10-2. FAILURE MODE RECALL FUNCTION

Outline of the function

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

Even though LED indication listed on the troubleshooting check table (10-4.) disappears, the memorized failure details can be recalled.

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



\*4. The information regarding whether the connected outdoor unit is a low-standby-power model or a non-low-standby-power model will also be initialized. (Default= compatible with a low-standby-power model)

2.5-second OFF

second interval

Beeps

3-second ON

Repeated cycle

3-second ON

No beep

Repeated cycle

Blinking at 0.5

second interval

Beeps

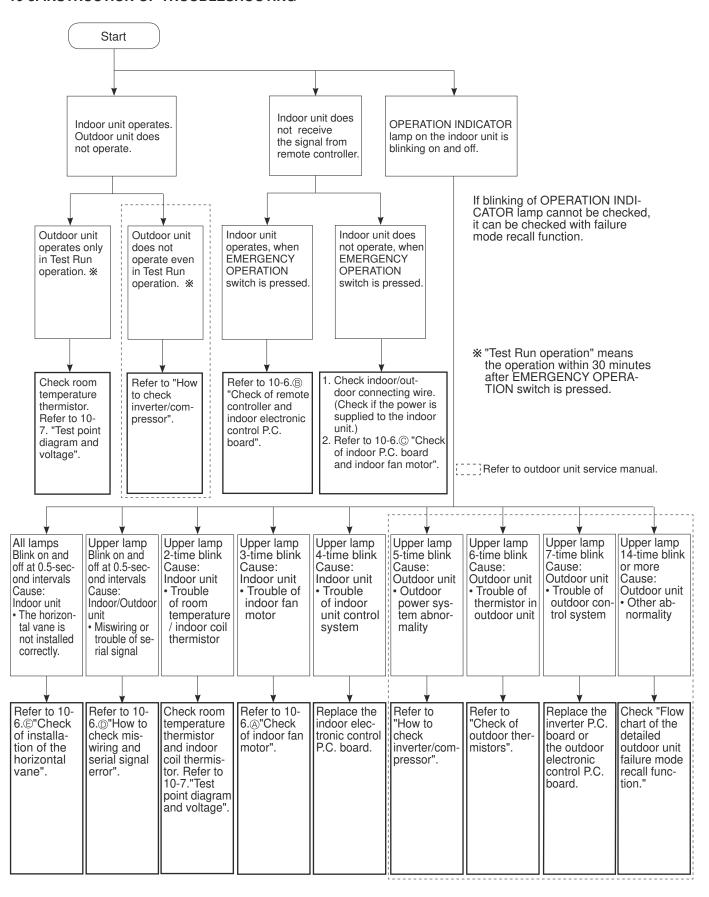
Repeated cycle

ON OFF **NOTE**: Blinking patterns of this mode differ from the ones of TROUBLESHOOTING CHECK TABLE (10-4.).

# 2. Table of indoor unit failure mode recall function

Upper lamp of OP- ERATION INDICA- TOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lit	Normal	_	_
1-time blink every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (10-7-2.).
2-time blink 2.5-second OFF	Indoor coil thermistor	The indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the indoor coil thermistor (10-7-2.).
3-time blink 2.5-second OFF	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 10-6. <sup>©</sup> "How to check miswiring and serial signal error".
11-time blink 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emitted for 12 seconds after the indoor fan motor is operated.	Refer to 10-6. (a) "Check of indoor fan motor".
12-time blink 2.5-second OFF	Indoor control system	It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.

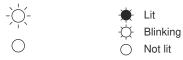
#### 10-3. INSTRUCTION OF TROUBLESHOOTING



#### 10-4. TROUBLESHOOTING CHECK TABLE

Before taking measures, make sure that the symptom reappears for accurate troubleshooting. When the indoor unit has started operation and detected an abnormality of the following condition (the first detection after the power ON), the indoor fan motor turns OFF and OPERATION INDICATOR lamp blinks.

## **OPERATION INDICATOR**



No.	Abnormal	Operation indicator lamp	Symptom	Condition	Remedy
1	point  Miswiring or serial signal	Upper lamp blinks. 0.5-second ON	Indoor unit and outdoor unit do not operate.	The serial signal from the outdoor unit is not received for 6 minutes. The indoor unit is connected to a low-stand-by-power model after once connected to a non-low-standby-power model.	Refer to 10-6.  The work of the characteristics and serial signal error. Refer to NOTE.
2	Indoor coil thermistor Room tem- perature thermistor	Upper lamp blinks. 2-time blink		The indoor coil or the room temperature thermistor is short or open circuit.	Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (10-7.).
3	Indoor fan motor	Upper lamp blinks. 3-time blink		The rotational frequency feedback signal is not emitted during the indoor fan operation.	Refer to 10-6.      "Check of indoor fan motor".
4	Indoor control system	Upper lamp blinks. 4-time blink  ★○★○★○★○○○○★○★○★○★○★  2.5-second OFF		It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.
5	Outdoor power sys- tem	Upper lamp blinks. 5-time blink		It consecutively occurs 3 times that the compressor stops for overcurrent protection or start-up failure protection within 1 minute after start-up.	Refer to "How to check of inverter/compressor". Refer to outdoor unit service manual Check the stop valve.
6	Outdoor thermistors	Upper lamp blinks. 6-time blink		The outdoor thermistors short or open circuit during the compressor operation.	Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control sys- tem	Upper lamp blinks. 7-time blink		It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.	Replace the inverter P.C. board or the outdoor electronic con- trol P.C. board. Refer to outdoor unit service manual.
8	Other ab- normality	Upper lamp blinks. 14-time blink or more  OCOUNTY OF THE STATE OF THE		An abnormality other than above mentioned is detected.	Check the stop valve. Check the 4-way valve. Confirm the abnormality in detail using the failure mode recall function for outdoor unit.
9	Outdoor control sys- tem	Upper lamp lights up  ₩	Outdoor unit does not oper- ate	It cannot properly read data in the nonvolatile memory of the inverter P.C. board or the outdoor electronic control P.C. board.	Check the blinking pattern of the LED on the inverter P.C. board or the outdoor electronic control P.C. board.

NOTE: The indoor unit may have been connected to a non-low-standby-power model outdoor unit. To use a low-standby-power model, clear the error history by referring to "Deleting the memorized abnormal condition" described in 10-2.1. When the error history is being cleared, the connection information also will be initialized. The indoor unit will be compatible with a low-standby-power model after initialization. If the operation indicator lamp continues to blink as shown in No.1 after the procedure, refer to 10-6. 

"How to check miswiring and serial error".

# 

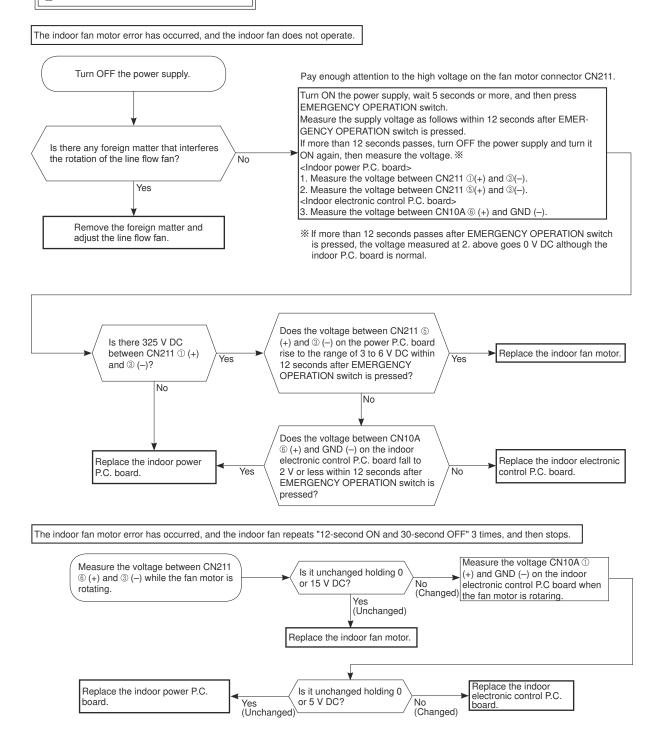
No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	1 of the hori-		Indoor unit and outdoor unit do not operate.	The electricity is not conducted to the inter- lock switch (Fan) of the horizontal vane.	Refer to 10-6. © "Check of installation of the horizontal vane".

# 10-5. TROUBLE CRITERION OF MAIN PARTS

Part name	Part name Check method and criterion			
Room temperature thermistor (RT11)		esistance with a tester.		
Indoor coil thermistor (RT12, RT13)	P.C. board", for	Refer to 10-7. "Test point diagram and voltage", "2. Indoor electronic control P.C. board", for the chart of thermistor.		
Indoor fan motor (MF)	Check 10-6.			
	Measure the re (Part temperate	BLK S		
Vane motor (MV)	Color of the lead wire	Normal	BLK RED RED	
	RED - BLK	219 ~ 273 Ω	BĽK BĽK	

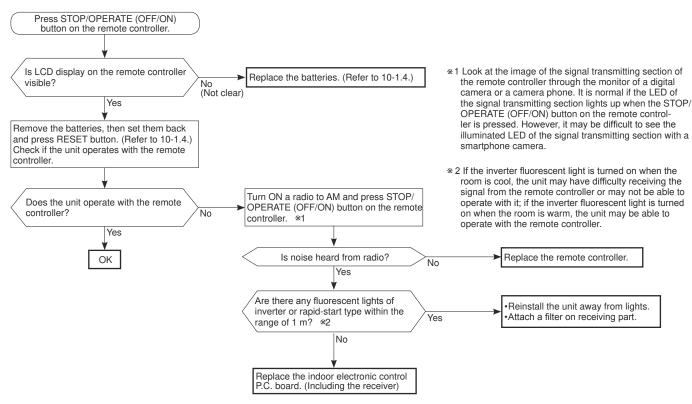
#### 10-6. TROUBLESHOOTING FLOW

# A Check of indoor fan motor

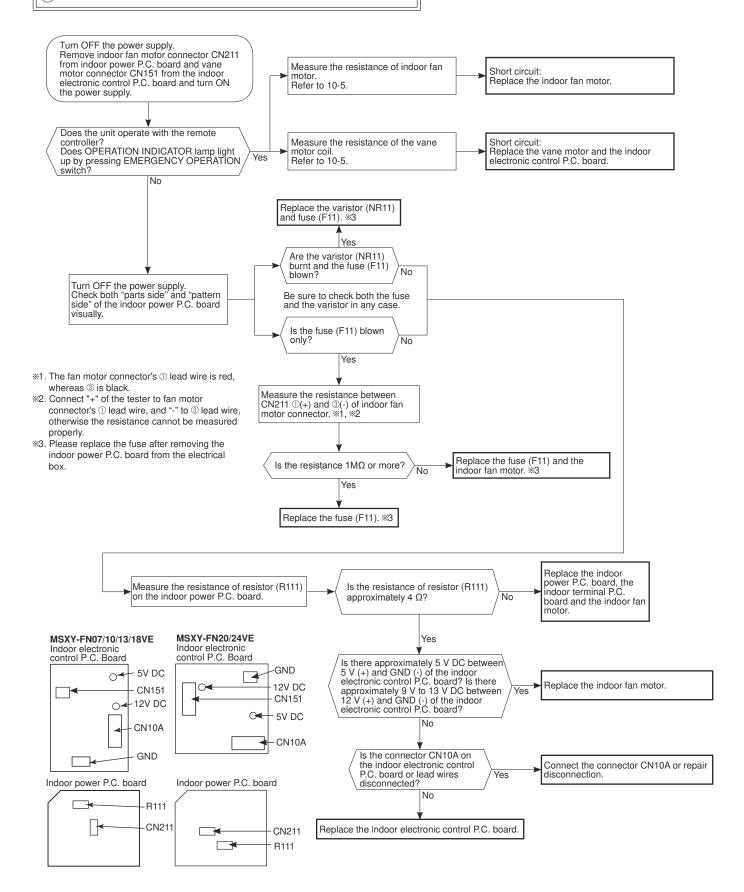


# B) Check of remote controller and indoor electronic control P.C. board

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



## © Check of indoor P.C. board and indoor fan motor

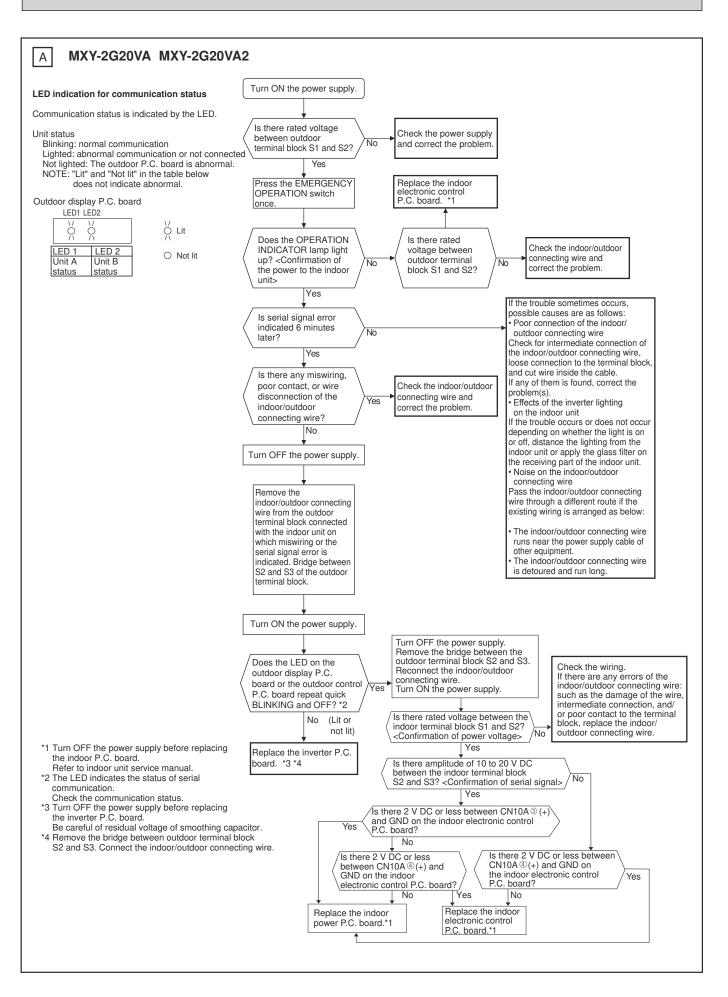


# D How to check miswiring and serial signal error

Outdoor units are non-low-standby-power models.

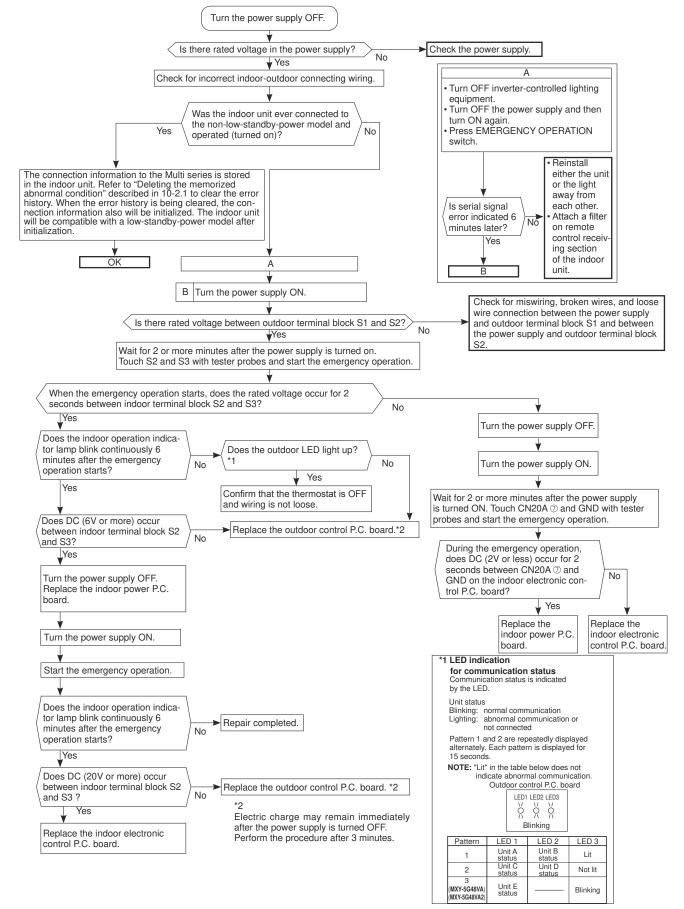
MXY-2G20VA MXY-2G20VA2 Turn OFF the power supply. Is there rated voltage in the power supply? ➤ Check the power supply. No Yes Check for incorrect indoor-outdoor connecting wiring. Turn ON the power supply. Is there rated voltage between outdoor terminal block S1 and S2? Check the wiring. Yes Press EMERGENCY OPERATION switch once. Does the OPERATION INDICATOR lamp light up? <Confirmation of the power to the indoor No unit> Yes Is there any miswiring, poor contact, or wire Yes Correct them. Is serial signal error indicated 6 minutes later? disconnection of the indoor/outdoor connect-Yes ing wire? Turn OFF inverter-controlled lighting equipment. Turn OFF the power supply and then turn ON again.
Press EMERGENCY OPERATION switch. Reinstall either the unit or the Is serial signal light away from each other. error indicated 6 Attach a filter on remote No minutes later? control receiving section of the indoor unit. Yes Turn OFF the power supply. \*1. Miswiring may damage the indoor electronic control P.C. Check once more if the indoor/outdoor board during the operation. connecting wire is not miswiring. Be sure to confirm the wiring is correct before the opera-Bridge the outdoor terminal block S2 and tion starts. S3. \*1

(Refer to A MXY-2G20VA MXY-2G20VA2.)

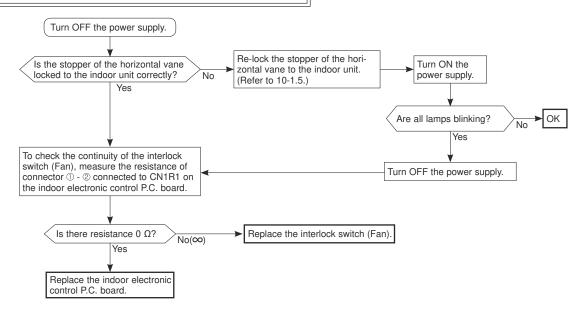


Outdoor units are low-standby-power models.

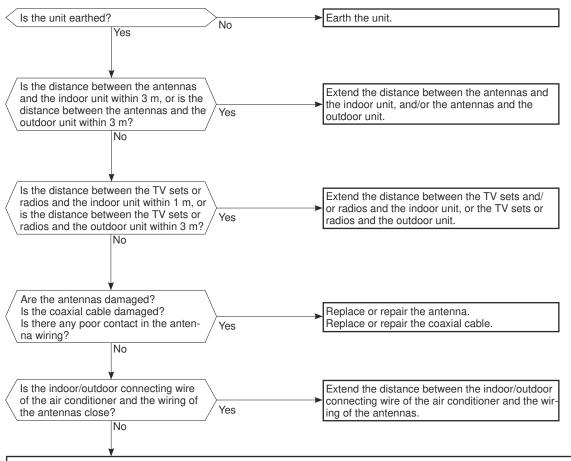
# MXY-3G28VA MXY-4G28VA MXY-4G38VA MXY-5G48VA MXY-3G28VA2 MXY-4G33VA2 MXY-4G38VA2 MXY-5G48VA2



# **E** Check of installation of the horizontal vane



# F Electromagnetic noise enters into TV sets or radios



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

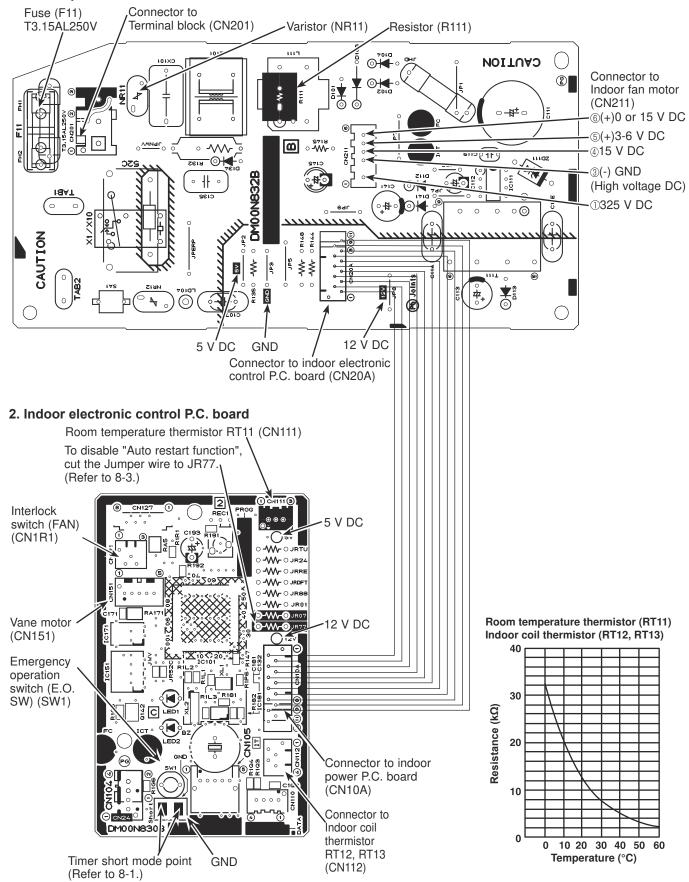
Check the following before asking for service.

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

#### 10-7. TEST POINT DIAGRAM AND VOLTAGE

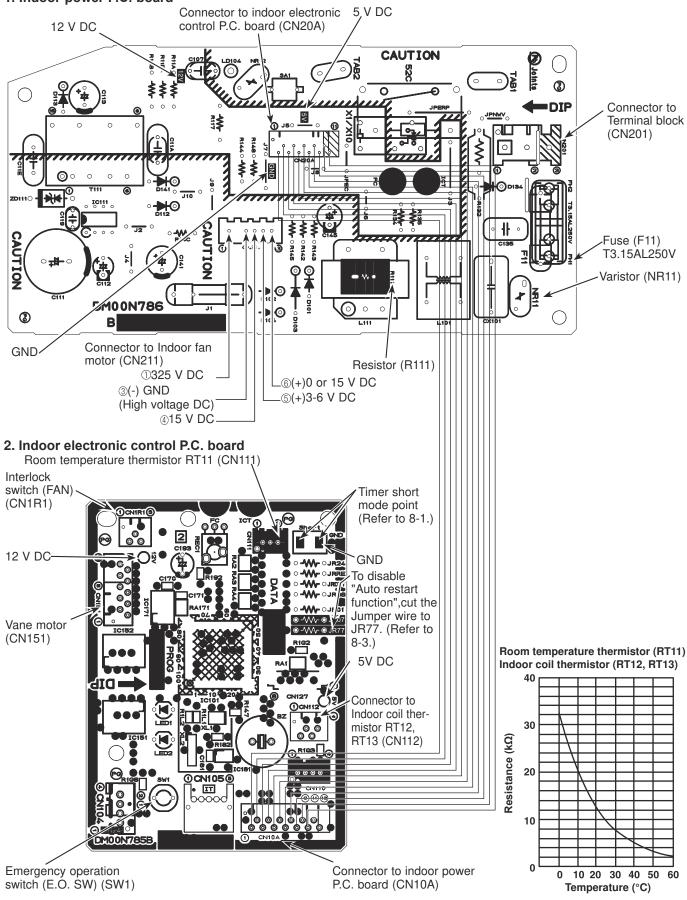
# MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE

## 1. Indoor power P.C. board



#### MSXY-FN20VE MSXY-FN24VE

1. Indoor power P.C. board



#### 11

#### **DISASSEMBLY INSTRUCTIONS**

#### <Detaching method of the terminal with locking mechanism>

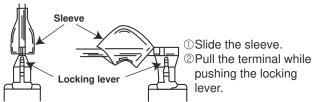
The terminal which has the locking mechanism can be detached as shown below.

There are 2 types of the terminals with locking mechanism.

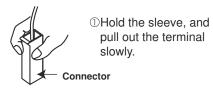
The terminal without locking mechanism can be detached by pulling it out.

Check the shape of the terminal before detaching.

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



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



#### 11-1. MSXY-FN07VE MSXY-FN10VE MSXY-FN13VE MSXY-FN18VE

**NOTE:** Turn OFF the power supply before disassembly.

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

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

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

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors: <Indoor electronic control P.C. board> CN151 (Vane motor) CN112 (Indoor coil thermistor) CN10A (To the indoor power P.C. board)

CN1R1 (Interlock switch)

- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the screw of the V.A. clamp.
- (5) Remove the V.A. clamp and the indoor/outdoor connecting wire.
- (6) Remove the earth wire connected to the indoor heat exchanger from the electrical box.
- (7) Remove the screw of the electrical cover and remove the electrical cover.
- (8) Disconnect the following connectors:
  <Indoor power P.C. board>
  CN211 (Indoor fan motor)
  CN201 (Terminal block)
  CN20A (To the indoor electronic control P.C. board)
- (9) Remove the upper catch of the electrical box, and pull out the electrical box.
- \* To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through (a). Pass the lead wires of the fan motor through (b) as shown in the Photo 3 so that it will not be pinched under the electrical box.

#### PHOTOS/FIGURES

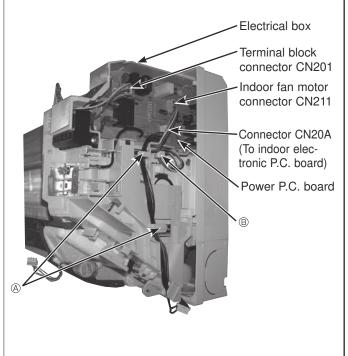
# Interlock switch connector CN1R1 Screw of the electrical cover Screw of the V.A. clamp Connector CN10A (To indoor power P.C. board) Indoor coil thermistor connector CN112

Control P.C. board holder

Photo 3

Vane motor

connector CN151



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

- Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors:

<Indoor electronic control P.C. board>

CN151 (Vane motor)

CN112 (Indoor coil thermistor)

CN10A (To the indoor power P.C. board)

CN1R1 (Interlock switch)

- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the room temperature thermistor from the back side of the control P.C. board holder.
- (5) Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.
- (6) Remove the indoor electronic control P.C. board from the control P.C. board holder.

#### 4. Removing the nozzle assembly

- (1) Remove the panel (Refer to section 1.) and the corner box.
- (2) Remove the V.A. clamp, and then the indoor/outdoor connecting wire. (Photo 2)
- (3) Remove the electrical cover. (Photo 2)
- (4) Disconnect the following connectors on the electronic control P.C. board:

CN151 (Vane motor)

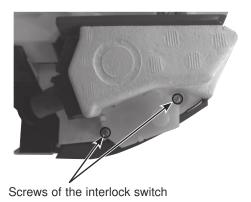
CN1R1 (Interlock switch)

- (5) Remove the control P.C. board holder (Photo 4).
- (6) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
- (7) Remove the screws of the interlock switch and remove the interlock switch.

#### 5. Removing the vane motor

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

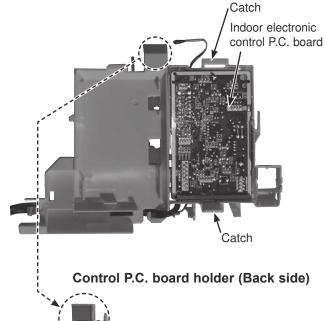
#### Photo 5



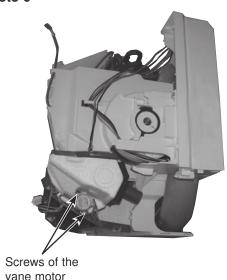
#### PHOTOS/FIGURES

#### Photo 4

#### Control P.C. board holder (Inside)



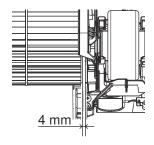
Room temperature thermistor



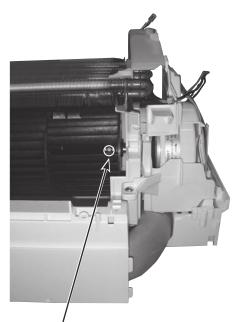
# 6. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan

- (1) Remove the panel. (Refer to section 1.) Remove the corner box.
- (2) Remove the control P.C. board holder, the electrical box and the nozzle assembly. (Refer to section 2 and section 4.)
- (3) Remove the screws fixing the motor bed.
- (4) Disengage the hooks of the water cover and remove the water cover.
- (5) Disconnect the earth wire from the motor band.
- (6) Remove the indoor coil thermistor from the motor band.
- (7) Loosen the screw fixing the line flow fan.
- (8) Remove the motor bed together with the indoor fan motor and the motor band.
- (9) Disconnect the lead wire of the fan motor from the motor band.
- (10) Disengage the hooks of the motor band and remove the motor band. Pull out the indoor fan motor.
- (11) Remove the indoor coil thermistor from the heat exchanger.
- \* Install the indoor coil thermistor in its former position when assembling it.
- (12) Remove the screws fixing the left side of the heat exchanger.
- (13) Lift the heat exchanger, and pull out the line flow fan to the lower-left.
  - \* When attaching the line flow fan, screw the line flow fan so 4 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

Figure 1



#### **PHOTOS/FIGURES**



Screw of the line flow fan

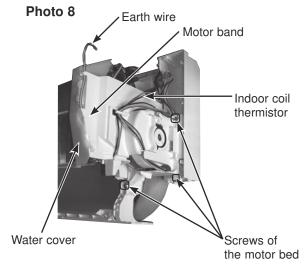
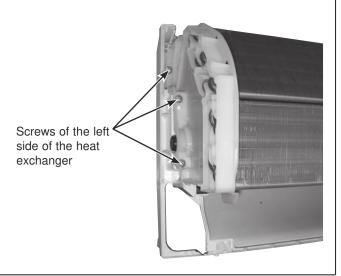


Photo 9



#### 11-2. MSXY-FN20VE MSXY-FN24VE

**NOTE:** Turn OFF the power supply before disassembly.

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

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

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors: <Indoor electronic control P.C. board>

CN151 (Vane motor)

CN1R1 (Interlock switch)

CN112 (Indoor coil thermistor)

CN10A (To the indoor power P.C. board)

- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the screw of the V.A. clamp.
- (5) Remove the V.A. clamp and the indoor/outdoor connecting wire.
- (6) Remove the screws of the earth plate. (Photo 2)
- (7) Remove the indoor coil thermistor from the water cover.
- (8) Disengage the hooks of the water cover and remove the water cover.
- (9) Remove the screw of the electrical cover and remove the electrical cover.
- (10) Disconnect the CN211 (Indoor fan motor) from the indoor power P.C. board.
- (11) Remove the upper catch of the electrical box, and pull out the electrical box.
- (12) Disconnect the following connectors.

<Indoor power P.C. board>

CN201 (Terminal block)

CN20A (To the indoor electronic control P.C. board)

\* To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through @. Pass the lead wires of the fan motor through @ as shown in the Photo 3 so that it will not be pinched under the electrical box.

#### PHOTOS/FIGURES

## Photo 2 Screws of the earth plate

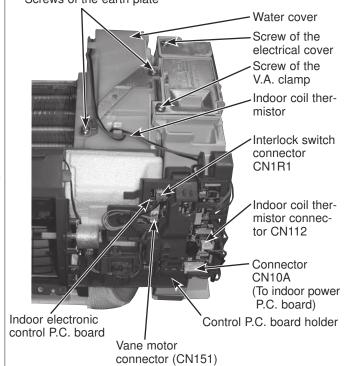
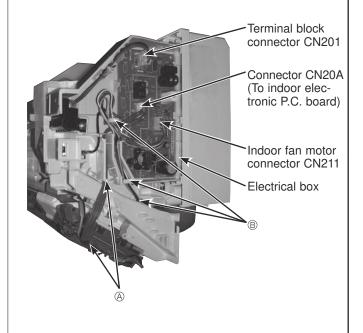


Photo 3



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

- Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Disconnect the following connectors:

<Indoor electronic control P.C. board>

CN151 (Vane motor)

CN112 (Indoor coil thermistor)

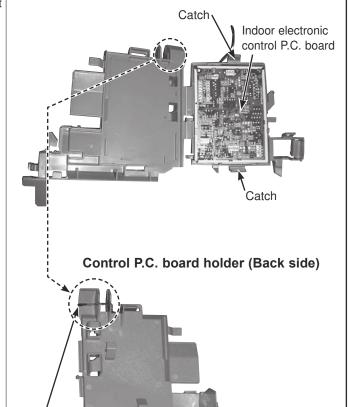
CN1R1 (Interlock switch)

CN10A (To the indoor power P.C. board)

- (3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.
- (4) Remove the room temperature thermistor from the back side of the control P.C. board holder.
- (5) Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.
- (6) Remove the indoor electronic control P.C. board from the control P.C. board holder.

#### **PHOTOS/FIGURES**

# Photo 4 Control P.C. board holder (Inside)

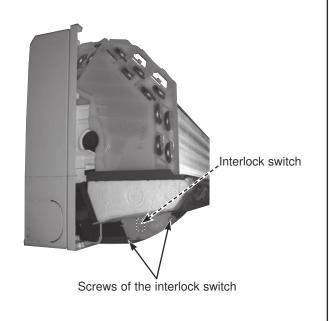


Room temperature thermistor

#### 4. Removing the nozzle assembly

- (1) Remove the panel (Refer to section 1.) and the right corner box.
- (2) Remove the indoor/outdoor connecting wire. (Refer to section 2.)
- (3) Remove the indoor electronic control P.C. board holder
- (4) Disconnect the following connectors:
  <Indoor electronic control P.C. board>
  CN1R1 (Interlock switch)

  (5) Pull out the drain boars from the possile ecceptive and
- (5) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
- (6) Remove the interlock switch.



#### 5. Removing the vane motor

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

#### **PHOTOS/FIGURES**

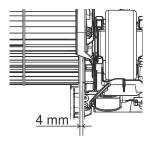


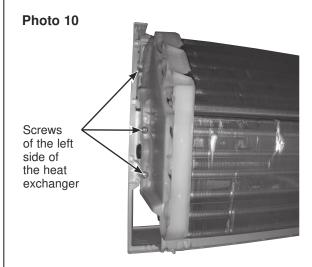
Screws of the vane motor

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

- (1) Remove the panel. (Refer to section 1.) Remove the right corner box.
- (2) Remove the control P.C. board holder, the water cover, the electrical box and the nozzle assembly. (Refer to section 2.)
- (3) Remove the screws fixing the motor bed.
- (4) Loosen the screw fixing the line flow fan.
- (5) Remove the motor bed together with the indoor fan motor and the motor band.
- (6) Disconnect the lead wire of the fan motor from the motor band.
- (7) Disengage the hooks of the motor band and remove the motor band. Pull out the indoor fan motor.
- (8) Remove the indoor coil thermistor from the heat exchanger.
- \* Install the indoor coil thermistor in its former position when assembling it.
- (9) Remove the screws fixing the left side and upper right side of the heat exchanger.
- (10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.
  - \* When attaching the line flow fan, screw the line flow fan so 4 mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box (Figure 1).

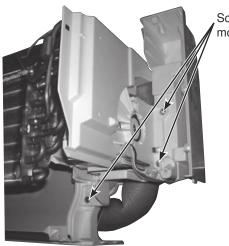
Figure 1





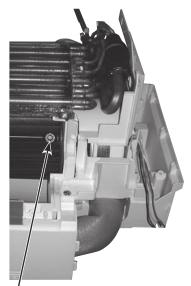
#### PHOTOS/FIGURES

#### Photo 7



Screws of the motor bed

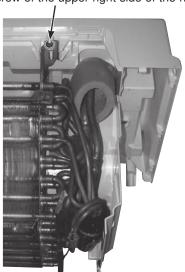
Photo 8



Screw of the line flow fan

Photo 9

Screw of the upper right side of the heat exchanger



#### Fixing the indoor coil thermistor

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

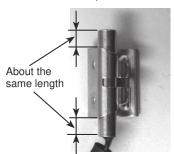
Clip shape



**Holder shape** 



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



#### Position and procedure for mounting the clip-shape part

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



2. Check the (marked) mounting position.



3.Mount the clip-shape part.



#### NOTE:

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

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