MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

Changes for the Better

Revision C:
- MSZ-D30/D36NA-8 and MSY-D30/D36NA-8 have been added.

Please void OBH501 REVISED EDITION-B.

INDOOR UNIT
SERVICE MANUAL

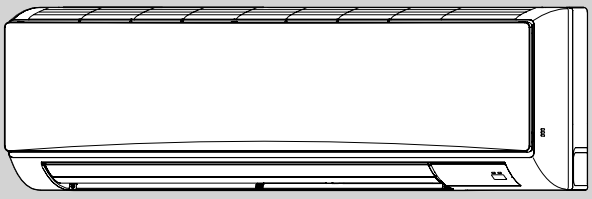
No. OBH501
REVISED EDITION-C

Models

MSZ-D30NA
MSZ-D36NA
MSY-D30NA
MSY-D36NA

MSZ-D30NA-8
MSZ-D36NA-8 DAC-1
MSY-D30NA-8
MSY-D36NA-8

Outdoor unit service manual
MUZ-D•NA Series (OBH502)
MUY-D•NA Series (OBH502)



CONTENTS

PARTS CATALOG (OBB501)

NOTE:
RoHS compliant products have <G> mark on the spec name plate.

Mr.SLIM™

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:

• 3. SPECIFICATION has been corrected.

Revision B:

• 3. SPECIFICATION has been corrected.
Powerful has been added.

Revision C:

• MSZ-D30/D36NA-8 and MSY-D30/D36NA-8 have been added.

1 TECHNICAL CHANGES

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

1. New model

MSZ-D30NA → MSZ-D36NA -8

1. Electronic control P.C. board has been changed.

MSZ-D36NA → MSZ-D36NA -8

1. Electronic control P.C. board has been changed.

MSY-D30NA → MSY-D30NA -8

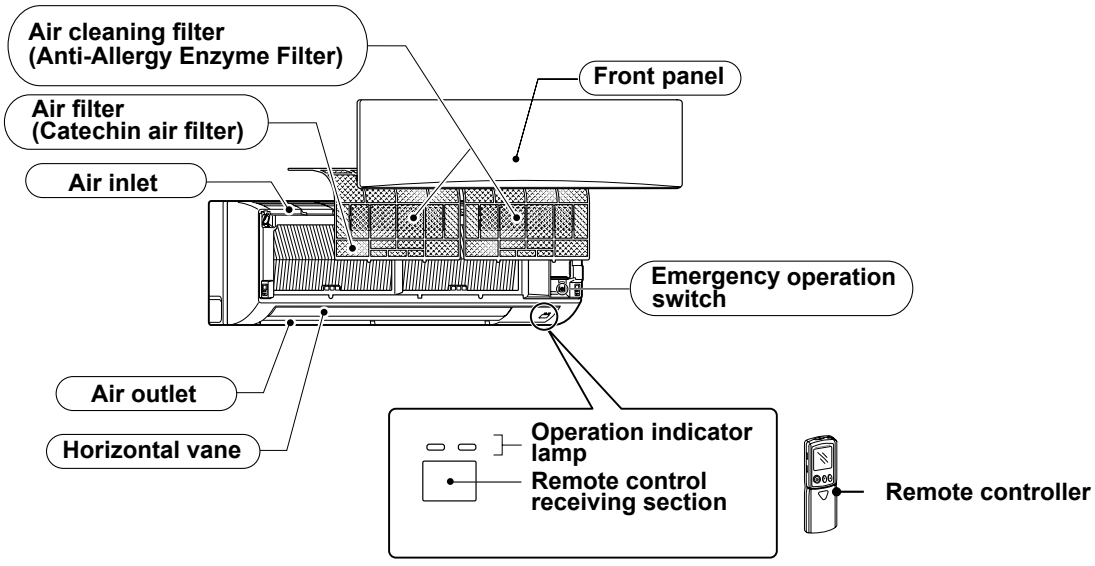
1. Electronic control P.C. board has been changed.

MSY-D36NA → MSY-D36NA -8

1. Electronic control P.C. board has been changed.

2 PART NAMES AND FUNCTIONS

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA



ACCESSORIES

		MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA
①	Installation plate	1
②	Installation plate screw 4 × 25 mm	7
③	Remote controller holder	1
④	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)	2
⑧	L-Joint pipe	1
⑨	Conduit plate	1
⑩	Air cleaning filter	2

3 SPECIFICATION

Model			MSZ-D30NA	MSY-D30NA	MSZ-D36NA	MSY-D36NA
Power supply	V, phase, Hz		208/230 , 1 , 60			
Max. fuse size (time delay)/ Disconnect switch		A	15			
Min. circuit ampacity		A	1.0			
Fan motor		F.L.A	0.76			
Airflow Low - Med. - High - Powerful	COOL Dry (Wet)	CFM	389 - 639 - 848 - 887 (350 - 576 -763 - 798)			
	HEAT Dry		445 - 639 - 848 - 887	—	445 - 639 - 848 - 887	—
Moisture removal		pt./h	9.9		11.3	11.9
Sound level Low - Med. - High - Powerful	Cooling	dB(A)	32 - 42 - 49 -51			
	Heating		34 - 42 - 49 - 50	—	34 - 42 - 49 - 50	—
Cond. drain connection O.D.		in.	5/8			
Dimensions	W	in.	46-1/16			
	D		11-5/8			
	H		14-3/8			
Weight		lb.	40			
External finish			Munsell 1.0Y 9.2/0.2			
Remote controller			Wireless type			
Control voltage (by built-in transformer)			12-24 VDC			

NOTE : Test conditions are based on AHRI 210/240.

3-1. OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed voltage (V)
Indoor unit	208/230 V 1 phase 60 Hz	Min. 187 208 230 Max. 253

(2) OPERATION

Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78%		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	14	13

3-2. OUTLET AIR SPEED AND COVERAGE RANGE

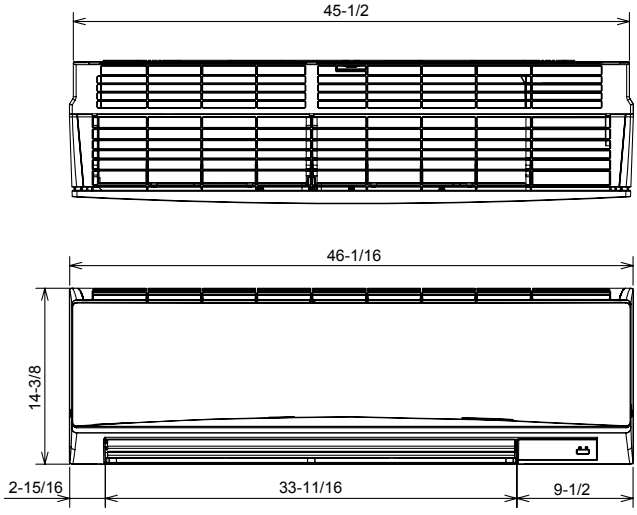
Model	Mode	Function	Airlow (CFM)	Air speed (ft./sec.)	Coverage range (ft.)
MSZ-D30NA **MSZ-D36NA**	HEAT	Dry	848	23.6	45.0
MSZ-D30NA **MSZ-D36NA** **MSY-D30NA** **MSY-D36NA**	COOL	Dry	848	23.6	45.0
		Wet	763	21.3	40.7

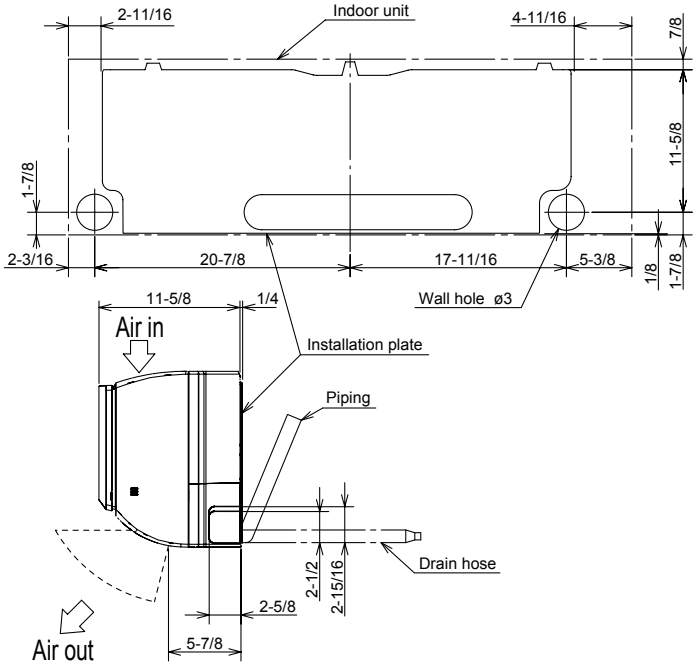
- The air coverage range is the figure up to the position where the air speed is 1 ft./sec., when air is blown out horizontally from the unit properly at the High speed position.
  The coverage range should be used only as a general guideline since it varies according to the size of the room and furniture arranged inside the room.

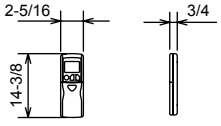
4 OUTLINES AND DIMENSIONS

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

Unit : inch



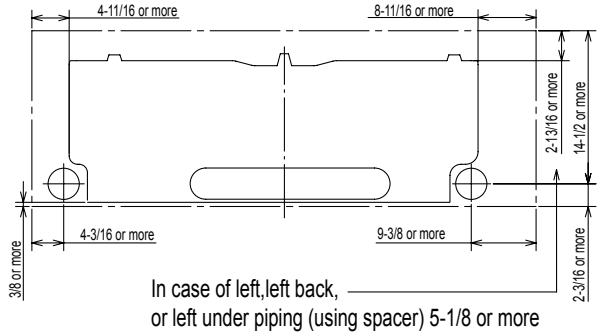




Wireless remote controller

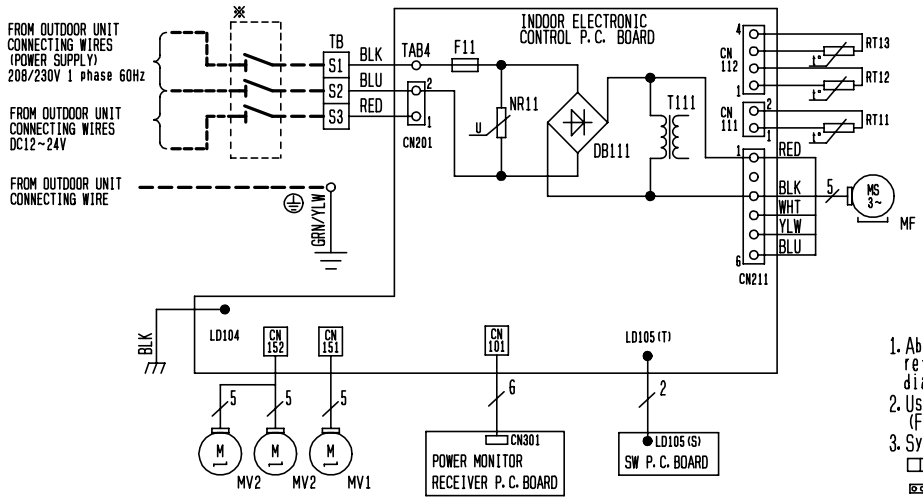
	Piping	Insulation
Liquid line	ø3/8 19-11/16 (Flared connection ø3/8)	ø1-1/4 O.D ø9/16 I.D
Gas line	ø5/8 16-7/8 (Joint connection ø5/8)	ø1-15/16 O.D ø1-1/4 I.D
Joint	ø5/8 (Flared connection ø5/8)	ø1-15/16 O.D ø1-1/4 I.D
Drain hose	Inslation ø1-1/8 Connected part ø9/16 O.D	

Required Space (Indoor Unit)



5 WIRING DIAGRAM

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

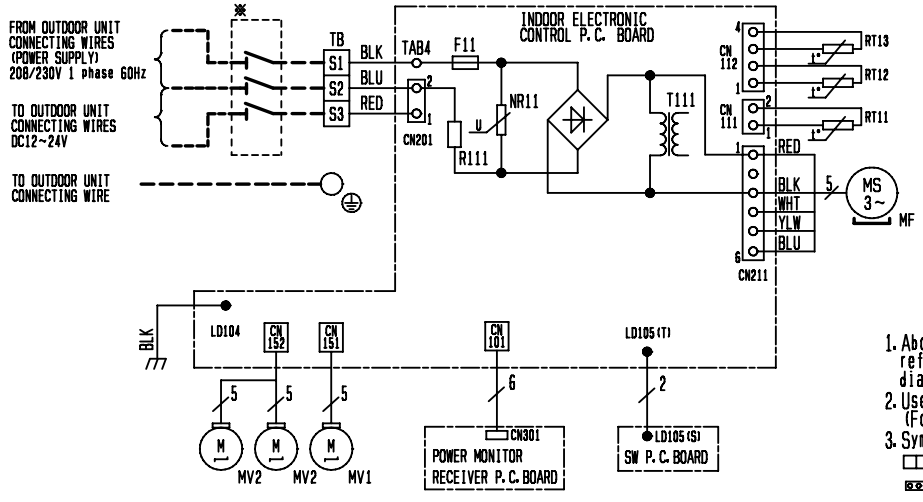


SYMBOL	NAME	SYMBOL	NAME
DB111	DIODE STACK	RT11	ROOM TEMP. THERMISTOR
F11	FUSE (T3.15AL250V)	RT12	COIL TEMP. THERMISTOR (MAIN)
MF	FAN MOTOR	RT13	COIL TEMP. THERMISTOR (SUB)
MV1	VANE MOTOR (HORIZONTAL)	T111	TRANSFORMER
MV2	VANE MOTOR (VERTICAL)	TB	TERMINAL BLOCK
NR11	VARISTOR		

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

※ A disconnect should be required by local code.

MSZ-D30NA-8 MSZ-D36NA-8 MSY-D30NA-8 MSY-D36NA-8



SYMBOL	NAME	SYMBOL	NAME
F11	FUSE (T3.15AL250V)	R111	RESISTOR
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	VANE MOTOR (HORIZONTAL)	RT12	COIL TEMP. THERMISTOR (MAIN)
MV2	VANE MOTOR (VERTICAL)	RT13	COIL TEMP. THERMISTOR (SUB)
NR11	VARISTOR	T111	TRANSFORMER
		TB	TERMINAL BLOCK

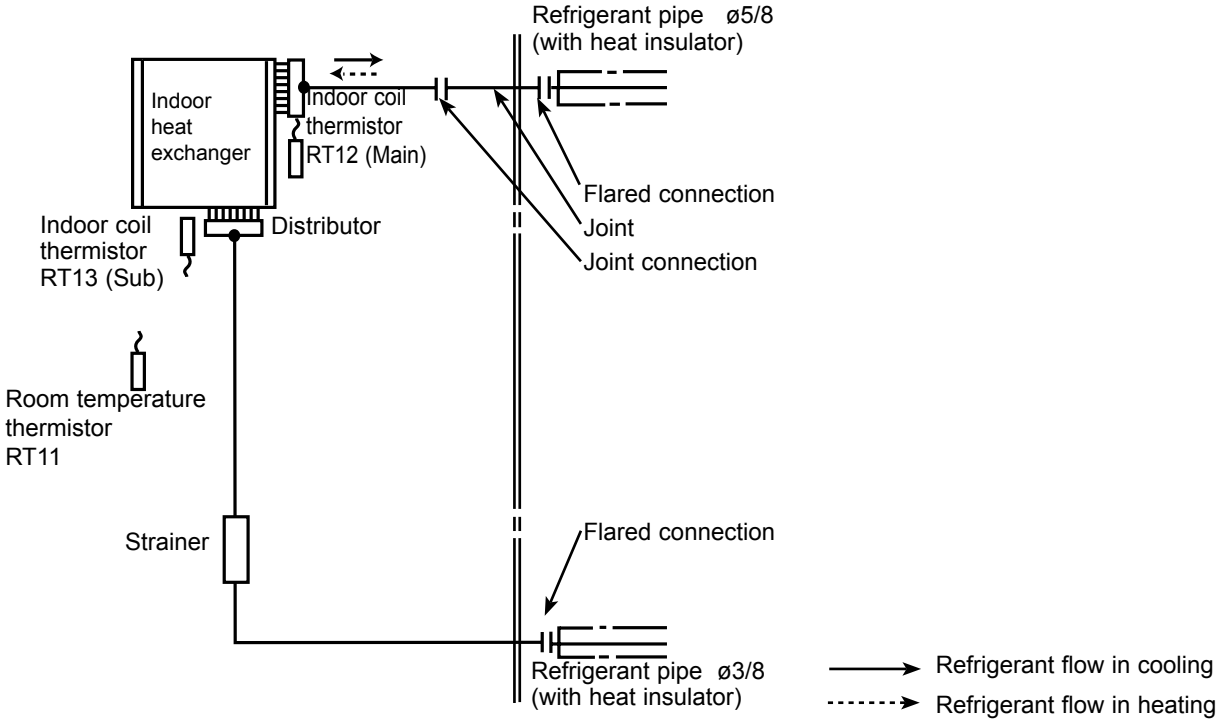
1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
   □□□ : Terminal block
   ⊡⊡⊡⊡ : Connector

※ A disconnect should be required by local code.

6 REFRIGERANT SYSTEM DIAGRAM

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

Unit : inch



7 SERVICE FUNCTIONS

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

7-1. TIMER SHORT MODE

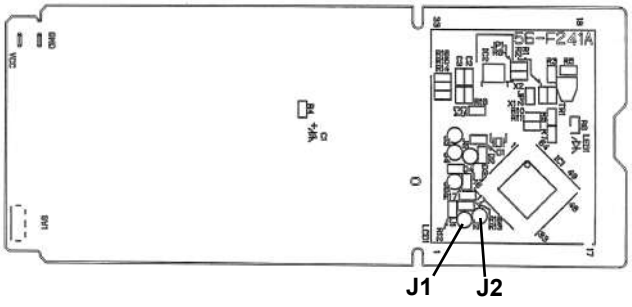
For service, set time can be shortened by short circuit of JPG and JPS the indoor electronic control P.C. board.
The time will be shortened as follows. (Refer to 9-7.)
Set time : 1-minute → 1-second
Set time : 3-minute → 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit-of JPG and JPS.)

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

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.
The board has a print as shown below :



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

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

Table 1

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

How to set the remote controller exclusively for particular indoor unit

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

7-3. AUTO RESTART FUNCTION

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

Operation

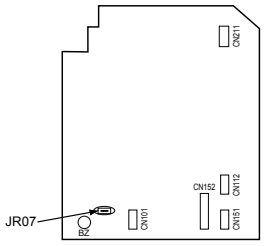
① If the main power has been cut, the operation settings remain.

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 release “AUTO RESTART FUNCTION”

① Turn off the main power of the unit.

② Solder the Jumper wire JR07 on the indoor electronic control P.C. board. (Refer to 9-7.)



NOTE:

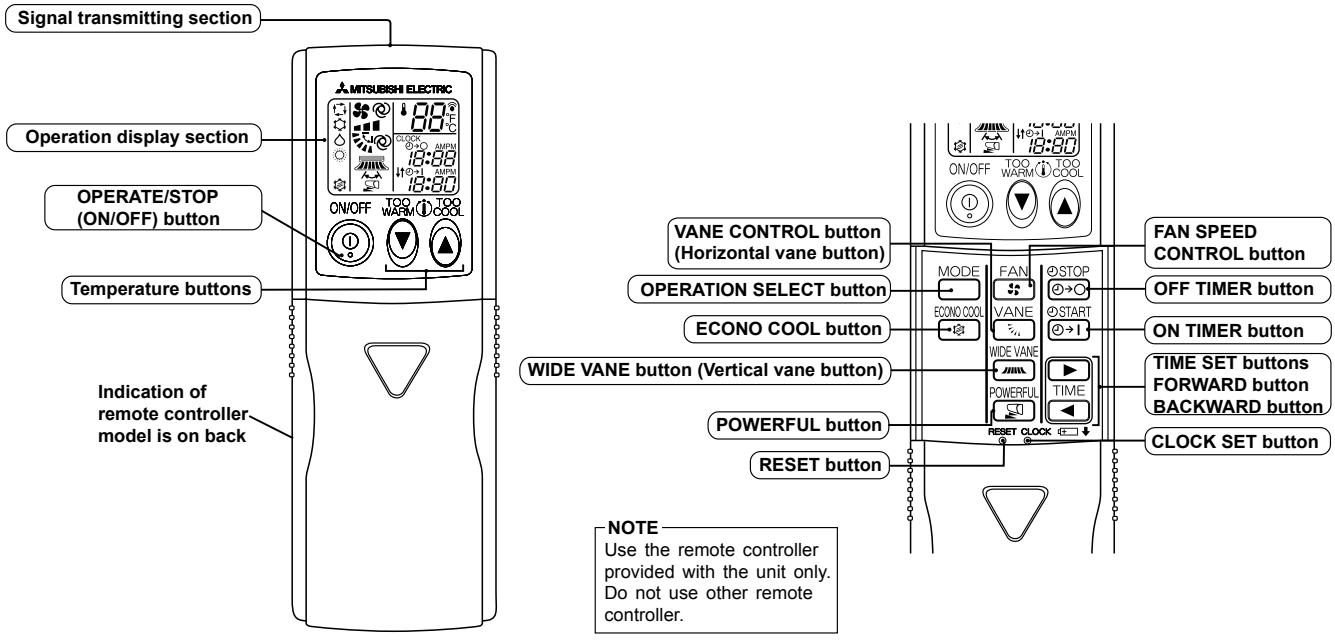
- The operation settings are memorized when 10 seconds have passed after the indoor unit was operated with the remote controller.
- If main power is turned OFF or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled.
- If the unit has been off with the remote controller 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.

8 MICROPROCESSOR CONTROL

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

WIRELESS REMOTE CONTROLLER

※These pictures show **MSZ** type.



NOTE
Use the remote controller provided with the unit only. Do not use other remote controller.

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 4°F (2°C) or more away from set temperature
☀ ☼	The room temperature is approaching the set temperature	About 2°F (1°C) to 4°F (2 °C) from set temperature

☀ Lighted
☼ Blinking
○ Not lighted

8-1. COOL (☼) OPERATION

(1) Press OPERATE/STOP (ON/OFF) 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 61 ~ 88°F (16 ~ 31°C).

1. Coil frost prevention

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

2. Low outside temperature operation

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

8-2. DRY (△) OPERATION

(1) Press OPERATE/STOP (ON/OFF) 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 is as same as COOL mode. (8-1.1.)

2. Low outside temperature operation

Low outside temperature operation is as same as COOL mode. (8-1.2.)

8-3. HEAT (☼) OPERATION (MSZ)

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select HEAT mode with OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 61 ~ 88°F (16 ~ 31°C).

1. Cold air prevention control

When the compressor is not operating or is starting, and the temperature of indoor heat exchanger and/or the room temperature is low or when defrosting is being done, the indoor fan will stop or rotate in Very Low speed.

2. High pressure protection

The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the condensing pressure from increasing excessively.
When the temperature of indoor heat exchanger becomes too high, the high pressure protection works.
The indoor fan operates following the cold air prevention control. This mode continues until the temperature of indoor heat exchanger falls.

3. Defrosting

Defrosting starts when the temperature of outdoor heat exchanger becomes too low.
The compressor stops once, the indoor/outdoor fans stop, the 4-way valve reverses and the compressor re-starts.
This mode continues until the temperature of outdoor heat exchanger rises or the fixed time passes.

8-4. FAN (✿) OPERATION (MSY)

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

8-5. "I FEEL CONTROL" (▭) OPERATION (MSY)

(1) Press OPERATE/STOP (ON/OFF) 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 start-up of the operation.

Initial room temperature	Mode
77°F (25°C) or more	COOL mode of "I FEEL CONTROL"
More than 55°F (13°C), less than 77°F (25°C)	DRY mode of "I FEEL CONTROL"

- 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 set time the operation starts.

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

Model	Initial room temperature	Initial set temperature	
COOL mode of "I FEEL CONTROL"	79°F (26°C) or more	75°F (24°C)	❊1
	77°F (25°C) to 79°F (26°C)	Initial room temperature minus 4°F (2°C)	
DRY mode of "I FEEL CONTROL"	More than 55°F (13°C), less than 77°F (25°C)	Initial room temperature minus 4°F (2°C)	

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

(5) TEMPERATURE buttons
In “I FEEL CONTROL” (▭) mode, set temperature is decided by the microprocessor based on the room temperature. In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too cool or too warm.
Each time 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 doesn’t change.

TOO COOL ··· To raise the set temperature 2 ~ 4°F (1 ~ 2°C)

TOO WARM ··· To lower the set temperature 2 ~ 4°F (1 ~ 2°C)

8-6. AUTO CHANGE OVER ··· AUTO MODE OPERATION (MSZ)

Once desired temperature is set, unit operation is switched automatically between COOL and HEAT operation.

Mode selection

(1) Initial mode
When unit starts the operation with AUTO operation from off;
- If the room temperature is higher than the set temperature, operation starts in COOL mode.
- If the room temperature is equal to or lower than the set temperature, operation starts in HEAT mode.

(2) Mode change
COOL mode changes to HEAT mode when about 15 minutes have passed with the room temperature 4°F (2°C) below the set temperature.
HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 4°F (2°C) above the set temperature.

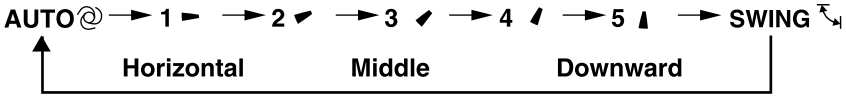
8-7. AUTO VANE OPERATION

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.

(a) The operation starts or finishes (including timer operation).

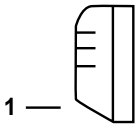
(b) The test run starts.

(4) VANE AUTO ( ) mode

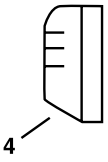
The microprocessor automatically determines the horizontal vane angle and operation to make the optimum room temperature distribution.

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

COOL and DRY operation
FAN operation (**MSY**)
Vane angle is fixed to Angle 1.



HEAT operation **(MSZ)**
Vane angle is fixed to Angle 4.



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

(a) OPERATE/STOP (ON/OFF) button is pressed (POWER OFF).

(b) The operation is stopped by the emergency operation.

(c) ON TIMER is ON standby.

(6) Dew prevention

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

(7) SWING ( ) mode

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

(8) Cold air prevention in HEAT operation **(MSZ)**

The horizontal vane position is set to Upward.

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

When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 3.6°F (2°C) higher. Also the horizontal vane swings in various cycle.

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 button.

(10) POWERFUL ( ) operation.

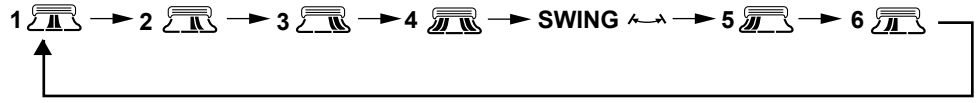
The air conditioner automatically adjusts the fan speed and the set temperature, and operates the POWERFUL mode. The POWERFUL mode is cancelled automatically 15 minutes after operation starts, or when POWERFUL button is pressed once again within 15 minutes after operation starts. The operation mode returns to the mode prior to POWERFUL operation. To manually cancel this operation, select a different mode or press one of the following buttons: ECONO COOL or FAN SPEED.

2. Vertical vane

(1) Vane motor drive

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

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



(3) Positioning

To confirm the standard position, the vane moves until it touches the vane stopper.
Then the vane is set to the desired angle.
Confirming of standard position is performed.
(a) OPERATE/STOP (ON/OFF) button is pressed (POWER ON/OFF).
(b) SWING is started or finished.
(c) The power supply turns ON.

(4) SWING MODE (⇜)

By selecting SWING mode with WIDE VANE button, the vertical vane swings horizontally.
The remote controller displays "⇜".

(5) WIDE MODE ( )

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

NOTE : The position of vane angle 3, angle 4 and angle 5 are different in COOL operation and HEAT operation.

※ Indoor fan speed becomes faster than setting fan speed on the remote controller even when or is selected.

8-8. 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 OPERATE/STOP (ON/OFF) button to start the air conditioner.

(3) Set the time of timer.

ON timer setting

(a) Press ON TIMER button (START) during operation.

(b) Set the time of the timer using TIME SET buttons (► and ◄) . ※

OFF timer setting

(a) Press OFF TIMER button (STOP) during operation.

(b) Set the time of the timer using TIME SET buttons (► and ◄). ※

※ Each time FORWARD button (►) is pressed, the set time increases by 10 minutes; each time BACKWARD button (◄) is pressed, the set time decreases by 10 minutes.

2. To release the timer

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

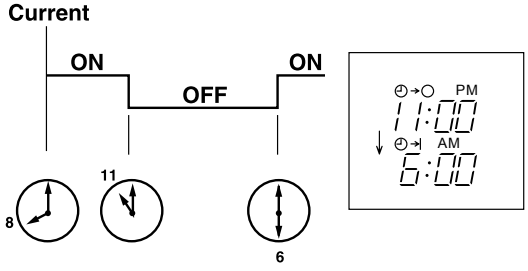
To release OFF timer, press OFF TIMER button (STOP).

TIMER is cancelled and the display of set time disappears.

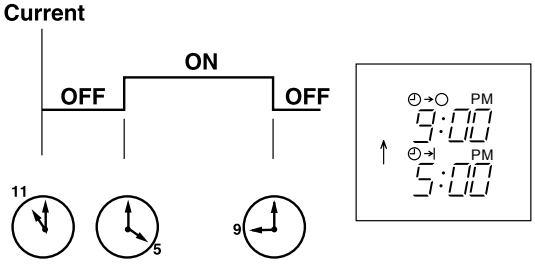
PROGRAM TIMER

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

(Example 1) The current time is 8:00 PM.
The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns on at 5:00 PM, and off at 9:00 PM.

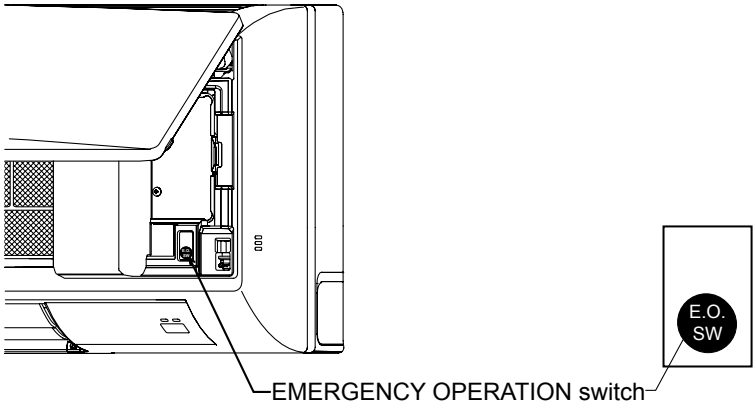


NOTE : If the main power is turned OFF or a power failure occurs while ON/OFF timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled when power is restored.

8-9. EMERGENCY/TEST OPERATION

In case of test run operation or emergency operation, use EMERGENCY OPERATION switch on the front of the indoor unit. Emergency operation is available when the remote controller is missing, has failed or the batteries of the remote controller run down. The unit will start and OPERATION INDICATOR lamp will light.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The Indoor fan speed runs at High speed and the temperature control does not work.
After 30 minutes of test run operation the system shifts to EMERGENCY COOL/HEAT MODE with a set temperature of 75°F (24°C). The fan speed shifts to Med.
The coil frost prevention works even in the test run or the emergency operation.
In the test run or emergency operation, the horizontal vane operates in VANE AUTO (@) mode.
Emergency operation continues until EMERGENCY OPERATION switch is pressed once or twice or the unit receives any signal from the remote controller. In case of latter normal operation will start.

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

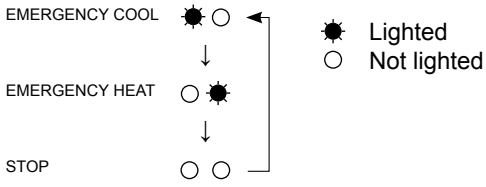


Operation mode	COOL	HEAT (MUZ)
Set temperature	75°F (24°C)	75°F (24°C)
Fan speed	Med.	Med.
Horizontal vane	Auto	Auto

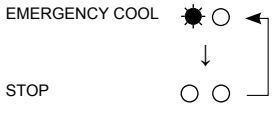
The operation mode is indicated by the Operation Indicator lamp as following

Operation Indicator lamp

(MSZ type)



(MSY type)

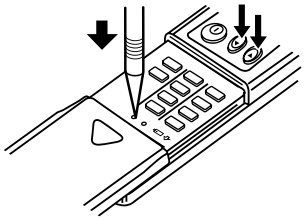


8-10. 3-MINUTE TIME DELAY OPERATION

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

8-11. CHANGING TEMPERATURE INDICATION (°F /°C)

- The preset unit is °F.
- °F→°C : Press RESET button while the temperature buttons are pressed.
- °C→°F : Press RESET button or remove the batteries.



Press RESET button gently using a thin instrument.

9 TROUBLESHOOTING

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

9-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

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

2. Take care of the following during servicing

1) Before servicing the air conditioner, be sure to turn off the 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.

<Incorrect> <Correct>

Lead wiring **Housing point**

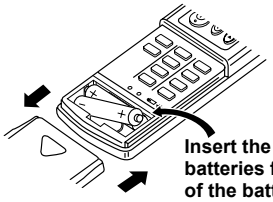
3. Troubleshooting procedure

1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality.
To make sure, check how many times the OPERATION INDICATOR lamp 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., 9-3. and 9-4.

4. How to replace batteries

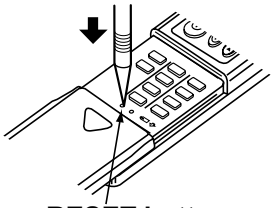
Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

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



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

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



RESET button

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.

9-2. FAILURE MODE RECALL FUNCTION

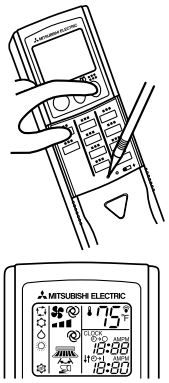
Outline of the function

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

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

This mode is very useful when the unit needs to be repaired for the abnormality which does not recur.

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



Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Confirm all the indicators on the LCD screen of the remote controller are displayed. Then release the buttons.

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Does the left lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that can't be recalled with this way.
Confirm if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function.

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does the left lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
Stays ON for 3 seconds (without beep): The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the outdoor unit failure mode table. (Refer to outdoor unit service manual.)
Make sure to check at least two consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the indoor unit failure mode table. (Refer to 9-2.2)
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
• Turn OFF the power supply and turn it ON again.
• Press RESET button of the remote controller.

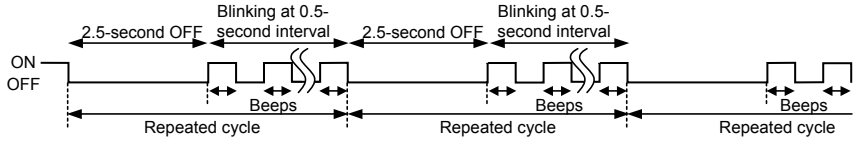
Repair the defective parts.

Deleting the memorized abnormal condition

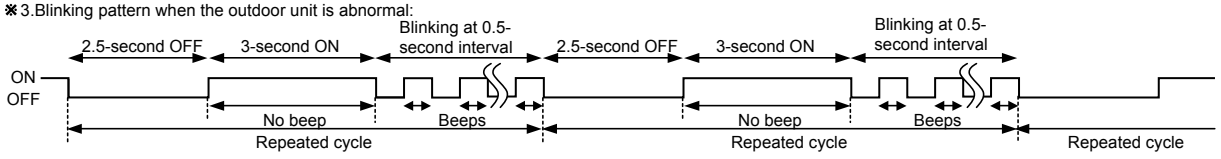
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function once it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

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



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

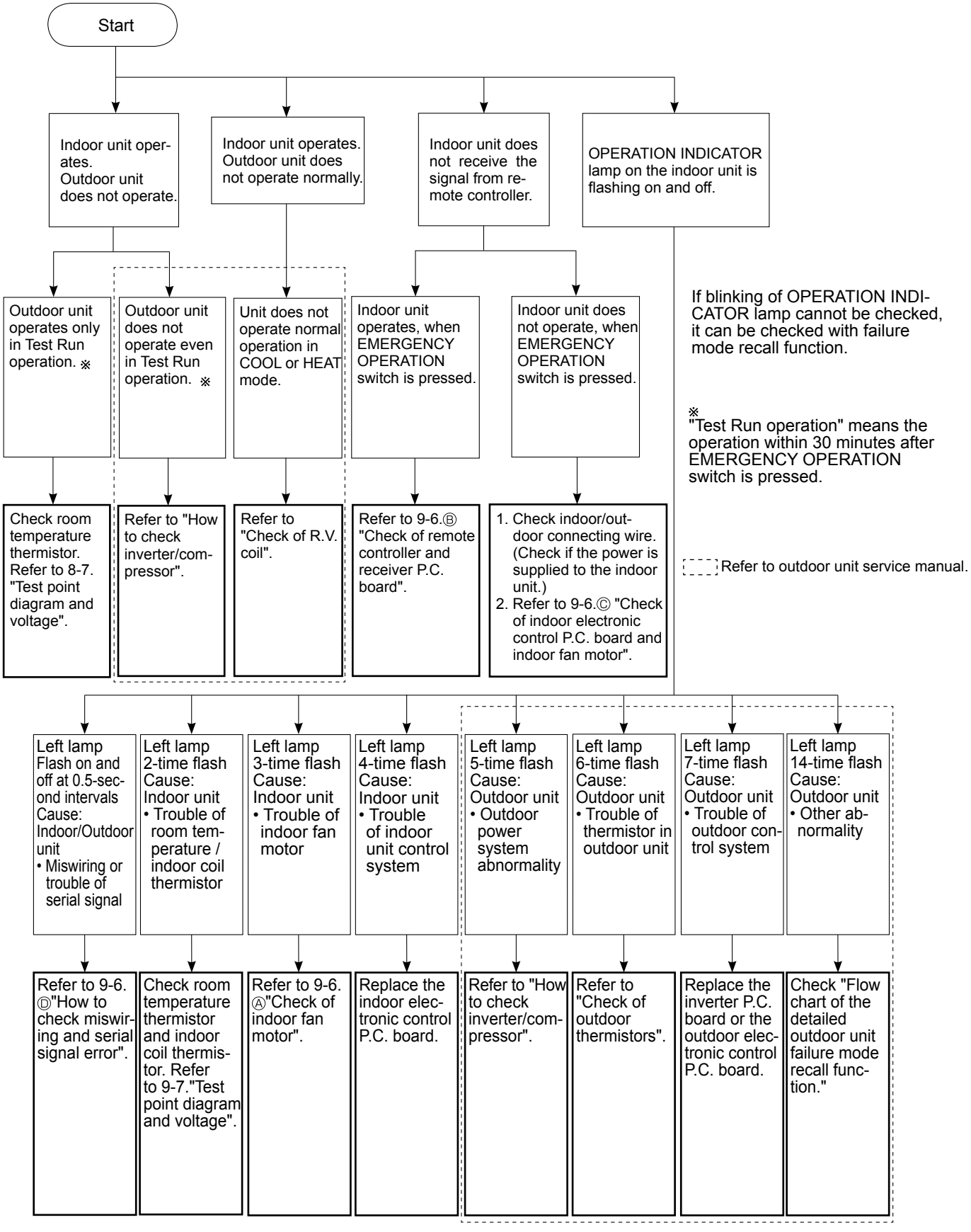


2. Indoor unit failure mode table

Left lamp of OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lighted	Normal	—	—
1-time flash every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (9-7.).
2-time flash 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 main indoor coil thermistor, the sub indoor coil thermistor (9-7.).
3-time flash 2.5-second OFF	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 9-6.Ⓓ "How to check miswiring and serial signal error".
11-time flash 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emit during the 12 seconds the indoor fan operation.	Refer to 9-6.Ⓐ "Check of indoor fan motor".
12-time flash 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.

NOTE : Blinking patterns of this mode differ from the ones of Troubleshooting check table (9-4.).

9-3. INSTRUCTION OF TROUBLESHOOTING



9-4. TROUBLESHOOTING CHECK TABLE

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

OPERATION INDICATOR ☼ ○

● Lighted
☼ Blinking
○ Not lighted

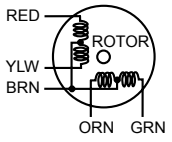
No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Left lamp flashes. 0.5-second ON ●○●○●○●○ 0.5-second OFF	Indoor unit and outdoor unit do not operate.	The serial signal from the outdoor unit is not received for a maximum of 6 minutes.	• Refer to 9-6.Ⓓ "How to check miswiring and serial signal error".
2	Indoor coil thermistor Room temperature thermistor	Left lamp flashes. 2-time flash ●○●○○○○○●○●○○ 2.5-second OFF	Indoor unit and outdoor unit do not operate.	The indoor coil or the room temperature thermistor is short or open circuit.	• Refer to 9-7.the characteristics of indoor coil thermistor, and the room temperature thermistor.
3	Indoor fan motor	Left lamp flashes. 3-time flash ●○●○●○○○○○●○●○●○○○ 2.5-second OFF	Indoor unit and outdoor unit do not operate.	The rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 9-6.Ⓐ "Check of indoor fan motor".
4	Indoor control system	Left lamp flashes. 4-time flash ●○●○●○●○○○○○●○●○●○● 2.5-second OFF	Indoor unit and outdoor unit do not operate.	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 system	Left lamp flashes. 5-time flash ●○●○●○●○●○○○○○●○●○ 2.5-second OFF	Indoor unit and outdoor unit do not operate.	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	Left lamp flashes. 6-time flash ●○●○●○●○●○●○○○○○●○ 2.5-second OFF	Indoor unit and outdoor unit do not operate.	The outdoor thermistors short or open circuit during the compressor operation.	• Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control system	Left lamp flashes. 7-time flash ●○●○●○●○●○●○●○○○○○● 2.5-second OFF	Indoor unit and outdoor unit do not operate.	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 control P.C. board. Refer to outdoor unit service manual.
8	Other abnormality	Left lamp flashes. 14-time flash ●○●○●○●○●○●○●○●○●○●○●○ ●○●○●○○○○○● 2.5-second OFF	Indoor unit and outdoor unit do not operate.	An abnormality other than above mentioned is detected.	• Confirm the abnormality in detail using the failure mode recall function for outdoor unit.

9-5. TROUBLE CRITERION OF MAIN PARTS

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)
Indoor coil thermistor (RT12 (MAIN), RT13 (SUB))</td><td>Measure the resistance with a tester.

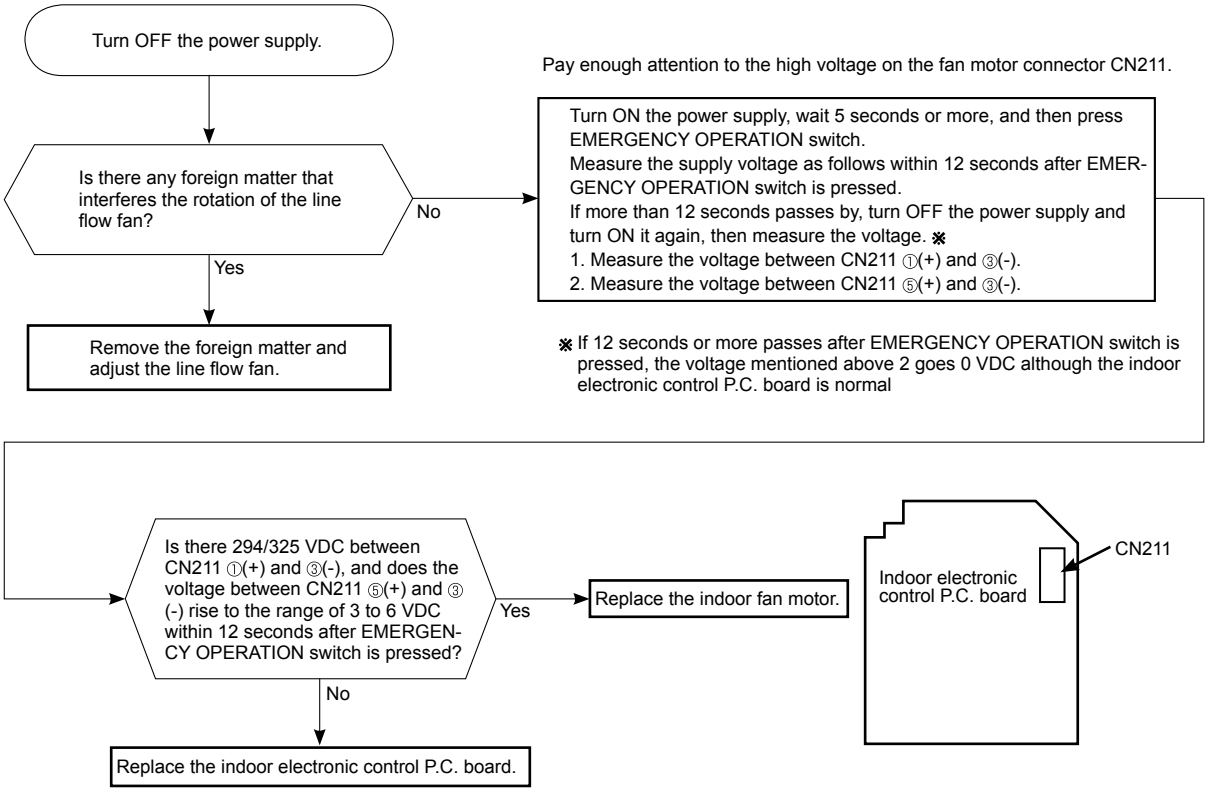
Refer to 9-7. "Test point diagram and voltage", "Indoor electronic control P.C. board", the chart of thermistor.</td><td></td></tr>
<tr><td>Indoor fan motor (MF)</td><td>Check 9-6. Ⓐ.</td><td></td></tr>
<tr><td>Horizontal vane motor (MV1)
Vertical vane motor (MV2)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature 50 ~ 86°F)

Horizontal vane motor (MV1)
<table>
<tr><th>Color of the lead wire</th><th>Normal</th></tr>
<tr><td>BRN - other one</td><td>240 ~ 260 Ω</td></tr>
</table>
Vertical vane motor (MV2)
<table>
<tr><th>Color of the lead wire</th><th>Normal</th></tr>
<tr><td>BRN - other one</td><td>282 ~ 306 Ω</td></tr>
</table></td><td> 
</td></tr>
</table>

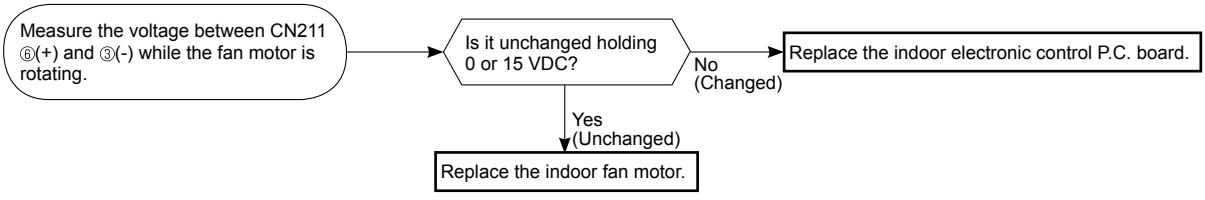
9-6. TROUBLESHOOTING FLOW

Ⓐ Check of indoor fan motor

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

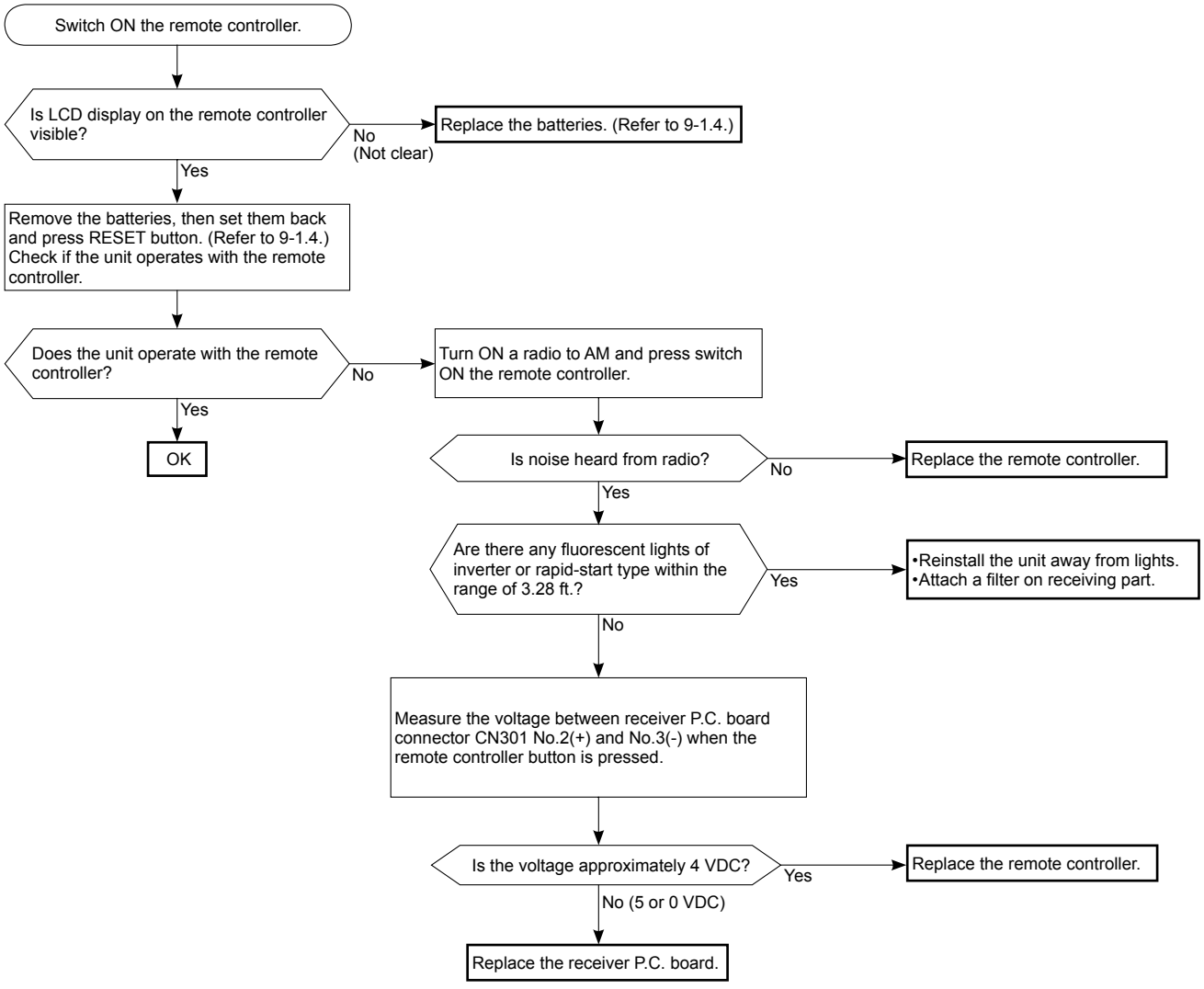


The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.



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

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



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

Turn OFF the power supply.
Remove indoor fan motor connector CN211 and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.

Does the unit operate with the remote controller?
Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?

Yes → Measure the resistance between CN211 ③ and ④ of the indoor fan motor connector.
→ Short circuit: Replace the indoor fan motor.

Yes → Measure the resistance of the horizontal vane motor coil. Refer to 9-5.
→ Short circuit: Replace the horizontal vane motor and the indoor electronic control P.C. board.

No

Turn OFF the power supply.
Check both “parts side” and “pattern side” of the indoor electronic control P.C. board visually.

Be sure to check both the fuse and the varistor in any case.

Are the varistor (NR11) burnt and the fuse (F11) blown? No
Is the fuse (F11) blown only? No
Yes → Replace the indoor electronic control P.C. board.

Measure the resistance between ① (+) and ③(-) of the indoor fan motor connector (to CN211 on the indoor electronic control P.C. board) . ※1, ※2

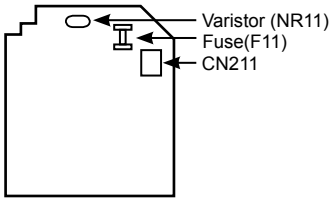
※1. The fan motor connector's ① lead wire is red, whereas ③ is black.
※2. Connect "+" of the tester to fan motor connector's ① lead wire, and "-" to ③ lead wire, otherwise the resistance cannot be measured properly.

Is the resistance 1 MΩ or more? No → Replace the indoor electronic control P.C. board and the indoor fan motor.
Yes → Replace the indoor electronic control P.C. board

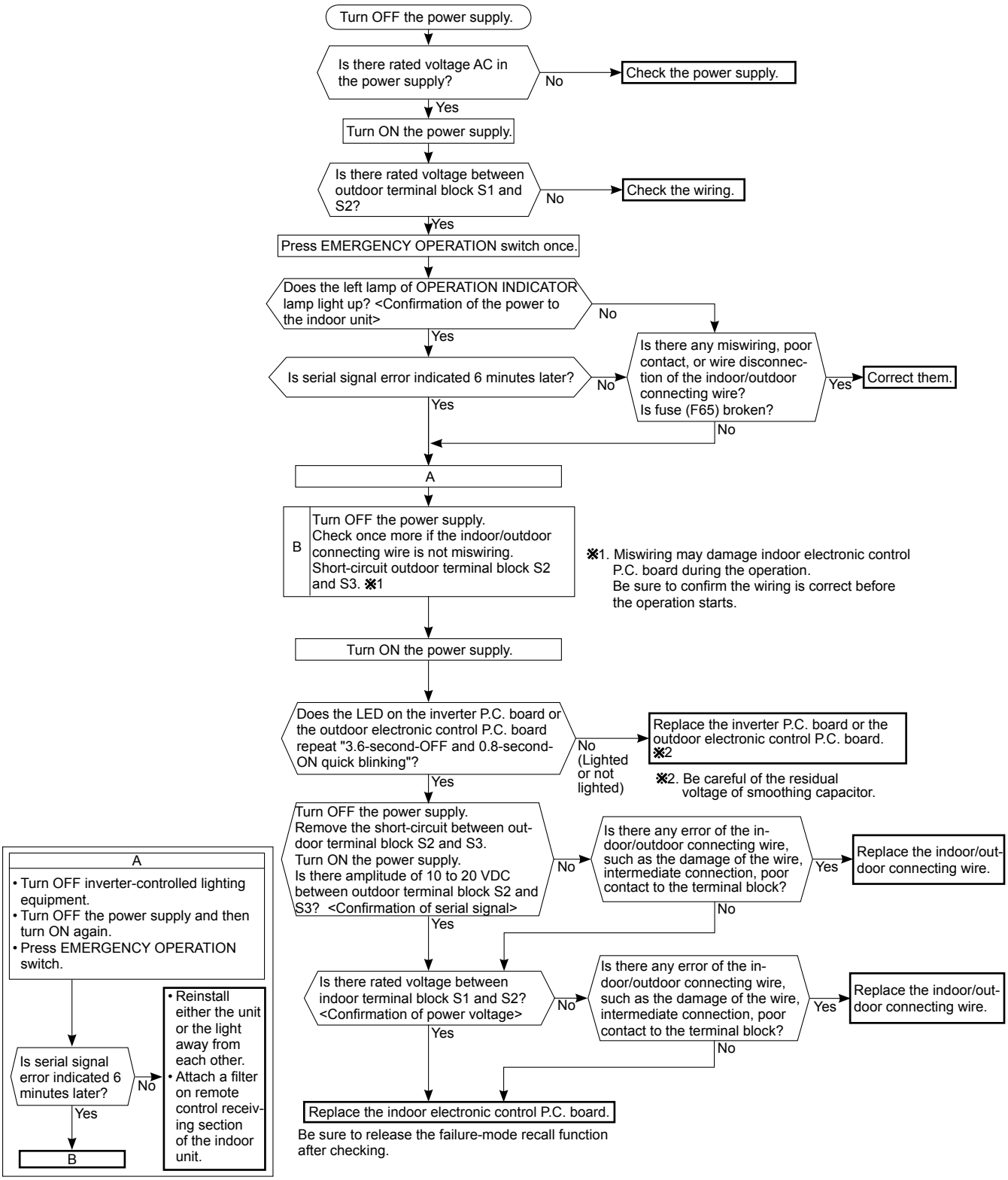
Measure the resistance of cement resistor (R111) on the indoor electronic control P.C. board.

Is the resistance approximately 4 Ω? No → Replace the indoor electronic control P.C. board and the indoor fan motor.
Yes → Replace the indoor electronic control P.C. board.

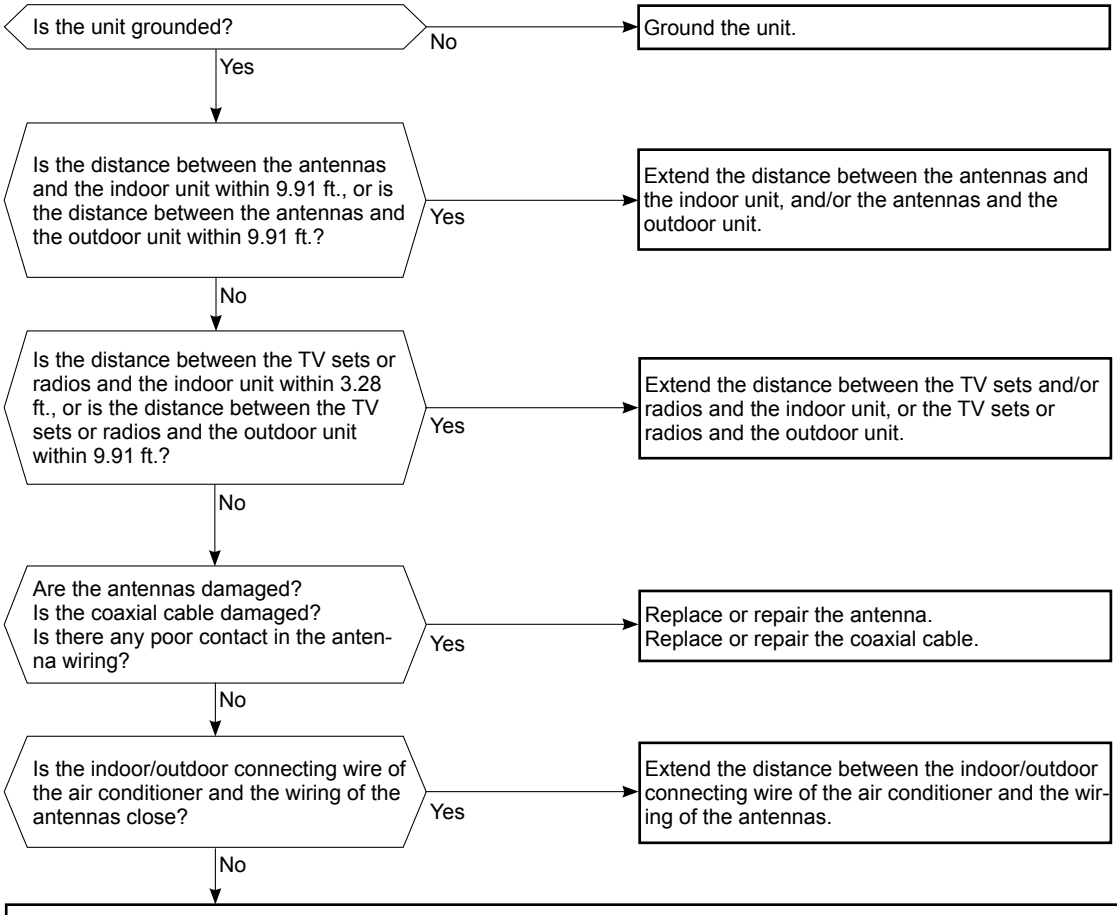
Indoor electronic control P.C. board



Ⓓ How to check miswiring and serial signal error



Ⓔ Electromagnetic noise enters into TV sets or radios



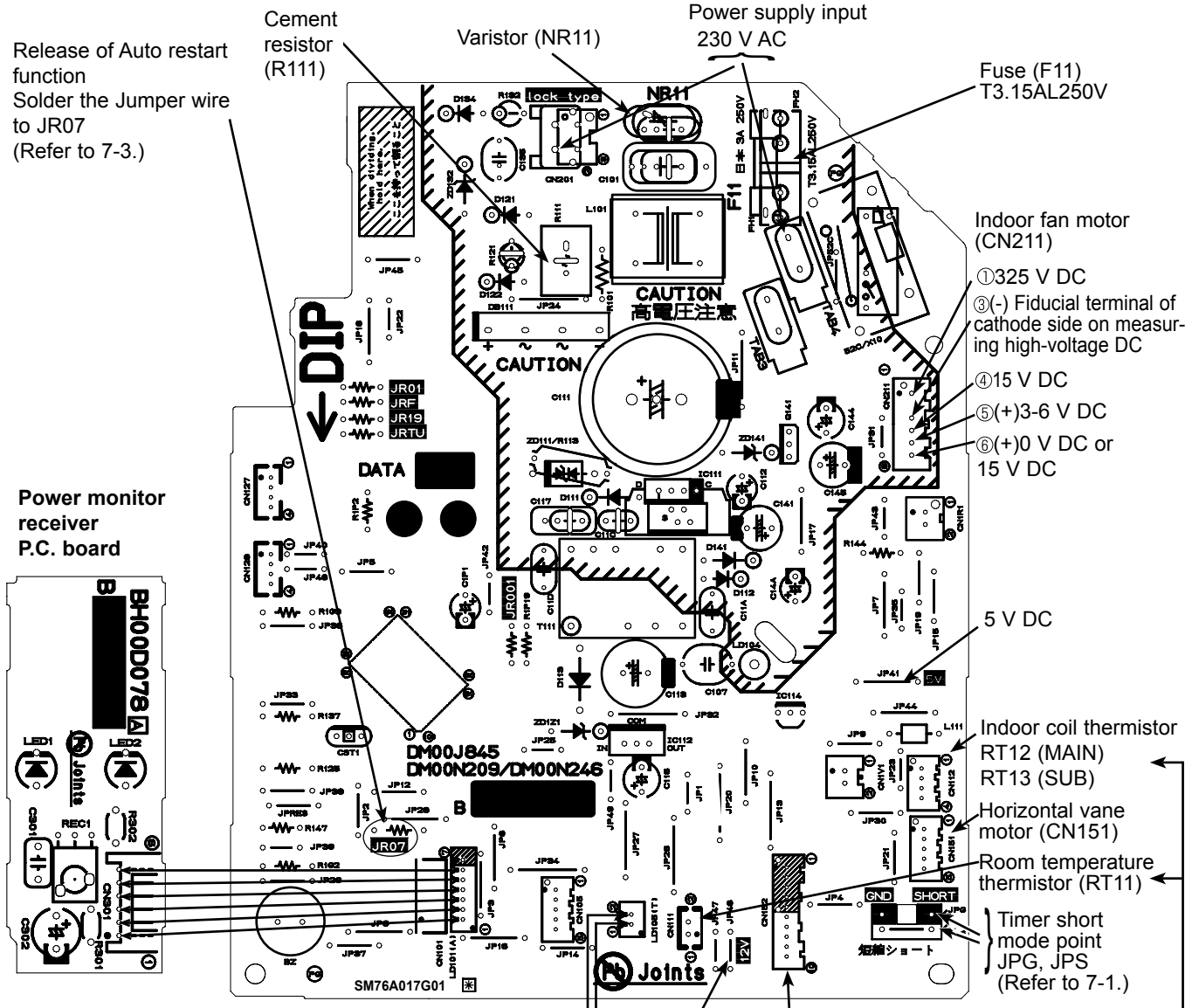
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the followings before asking for service.

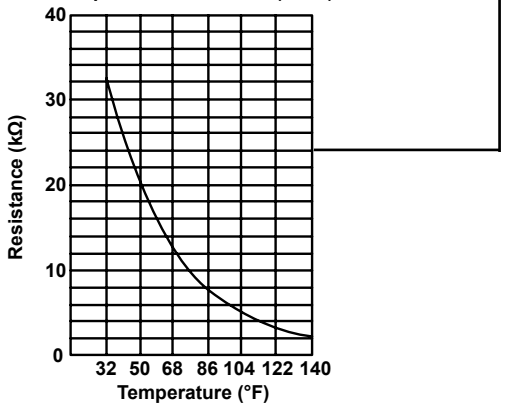
1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of ;
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding 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 OPERATE/STOP (ON/OFF) 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 OPERATE/STOP (ON/OFF) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

9-7. TEST POINT DIAGRAM AND VOLTAGE

MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

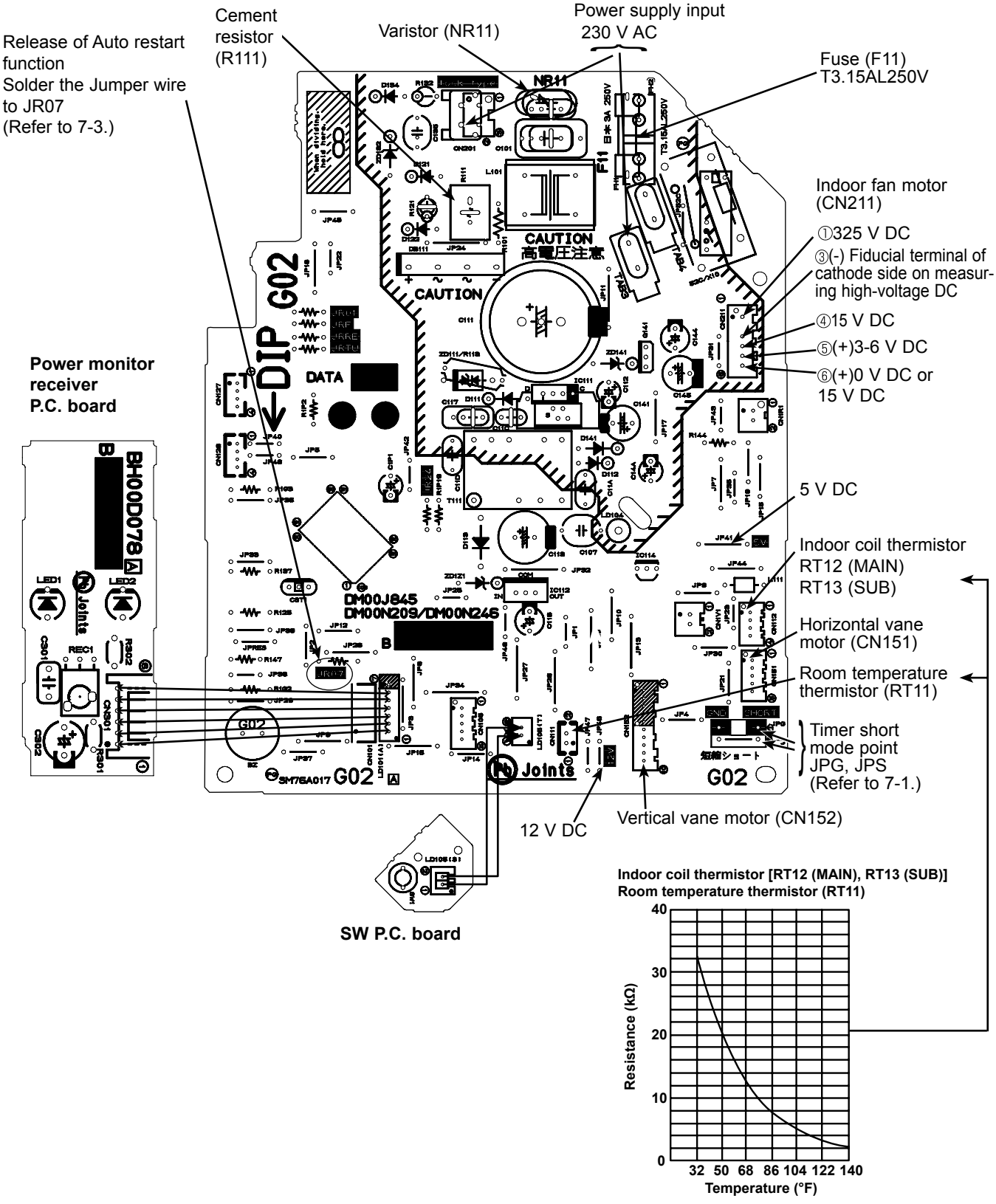
Indoor electronic control P.C. board





MSZ-D30NA-8 MSZ-D36NA-8 MSY-D30NA-8 MSY-D36NA-8

Indoor electronic control P.C. board

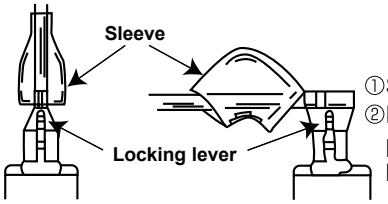


10 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

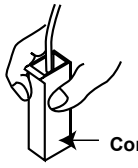
The terminal which has the locking mechanism can be detached as shown below.
There are two types (refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



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

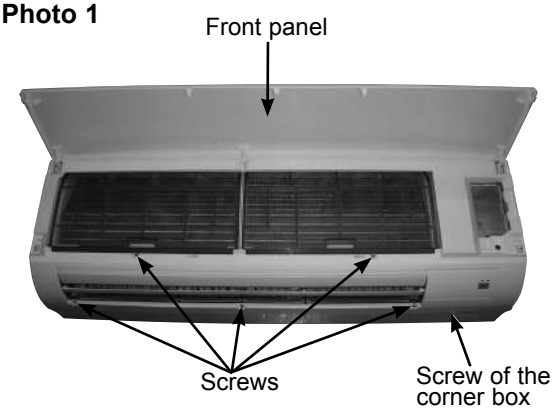
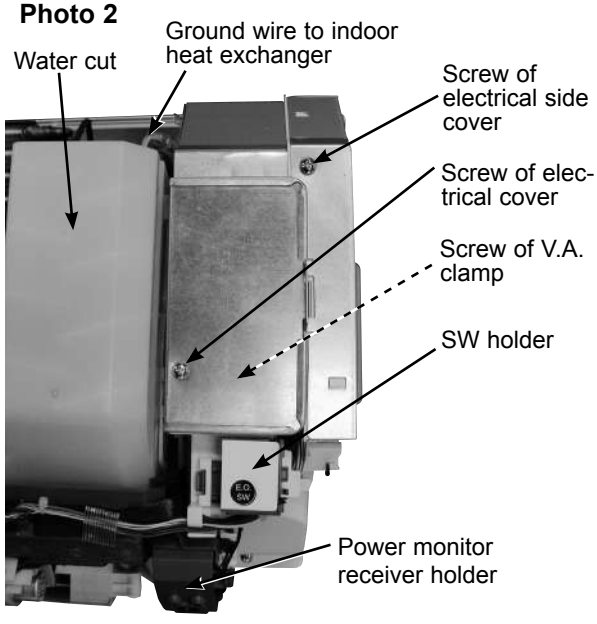
(2) The terminal with this connector has the locking mechanism.



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

10-1. MSZ-D30NA MSZ-D36NA MSY-D30NA MSY-D36NA

NOTE : Turn OFF power supply before disassembly.

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

OPERATING PROCEDURE

3. Removing the nozzle assembly

(1) Remove the panel and the corner box. (Refer to 1.)
(2) Remove the electrical cover. (Refer to 2.)
(3) Remove the electrical side cover, disconnect the vane motor connector.
(4) Pull out the drain hose from the nozzle assembly, and remove the nozzle assembly.

4. Removing the vertical vane motor

(1) Remove the nozzle assembly. (Refer to 3.)
(2) Remove the crank of the vertical vane motor unit from the vertical vane.
(3) Remove the screw of the vertical vane motor unit, and pull the vertical vane motor unit.
(4) Remove the screws of the vertical vane motor unit cover.
(5) Remove the crank of the vertical vane motor unit from the shaft of the vertical vane motor.
(6) Remove the vertical vane motor from the vertical vane motor unit.
(7) Disconnect the connector of vertical vane motor from the vertical vane motor.

5. Removing the horizontal vane motor

(1) Remove the nozzle assembly. (Refer to 3.)
(2) Remove the screws of the horizontal vane motor unit, and pull out the horizontal vane motor unit.
(3) Disconnect the connector from the horizontal vane motor.
(4) Remove the screws of the horizontal vane motor.
(5) Remove the horizontal vane motor.

PHOTOS

Photo 3

Photo 4

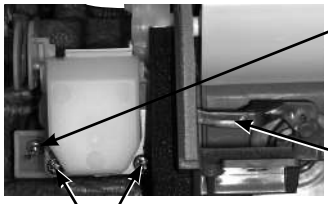


Photo 5

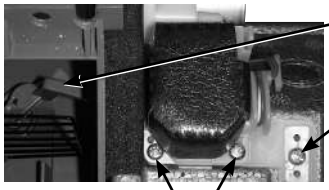


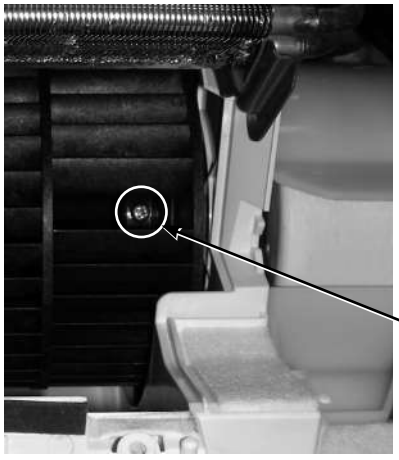
Photo 6

OPERATING PROCEDURE

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

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

Photo 9



PHOTOS

Photo 7

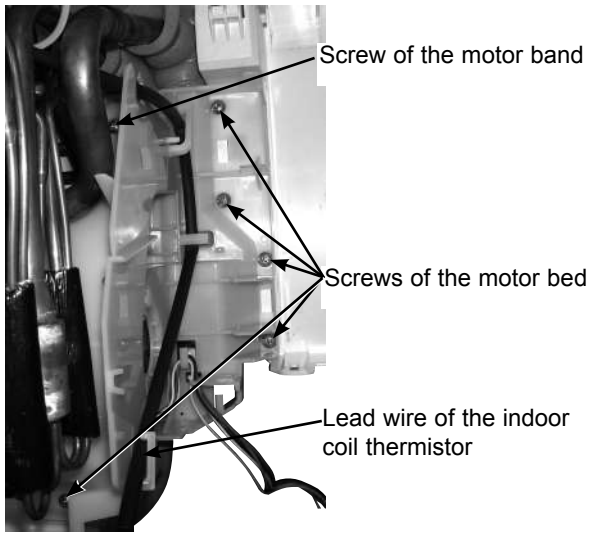
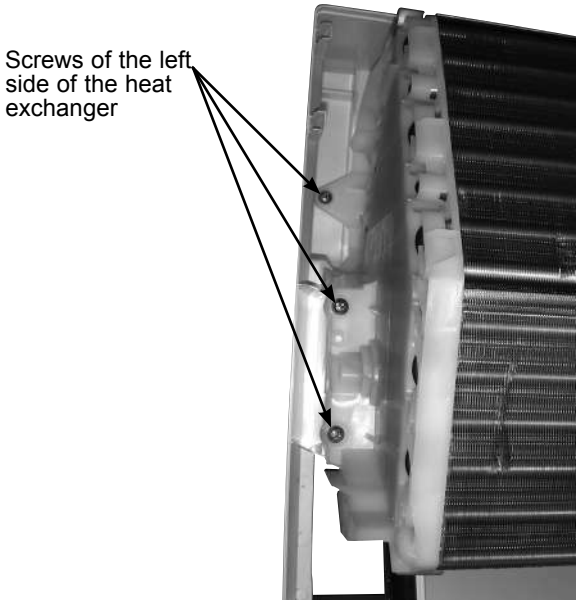


Photo 8



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

Distributed in Apr. 2011. No. OBH501 REVISED EDITION-C
Distributed in Jun. 2008. No. OBH501 REVISED EDITION-B 6
Distributed in Mar. 2008. No. OBH501 REVISED EDITION-A 7
Distributed in Feb. 2008. No. OBH501 7
Made in Japan

New publication, effective Apr. 2011
Specifications subject to change without notice.

MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

Changes for the Better

Revision C:
- Errors in TROUBLESHOOTING have been corrected.

Please void OBH502 REVISED EDITION-B.

OUTDOOR UNIT
SERVICE MANUAL

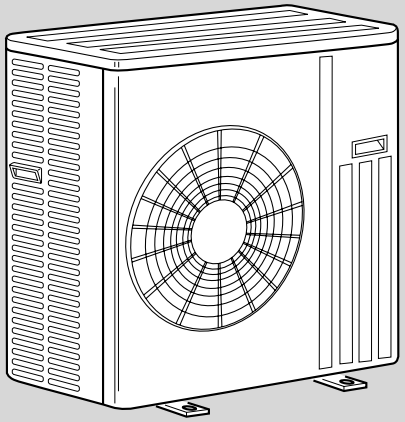
HFC utilized R410A

No. OBH502
REVISED EDITION-C

Models

MUZ-D30NA/-[1]/-[U1]/-[U2]
MUZ-D36NA/-[1]/-[U1]/-[U2] DAC-1
MUY-D30NA/-[1]
MUY-D36NA/-[1]

Indoor unit service manual
MSZ-D•NA Series (OBH501)
MSY-D•NA Series (OBH501)



CONTENTS

PARTS CATALOG (OBB502)

NOTE:
RoHS compliant products have <G> mark on the spec name plate.

Mr.SLIM™

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:

• 3. SPECIFICATION has been corrected.

Revision B:

• MUZ-D•NA-1/-U2 and MUY-D•NA-1 have been corrected.

Revision C:

• Errors in TROUBLESHOOTING have been corrected.

1 TECHNICAL CHANGES

MUZ-D30NA MUZ-D30NA-U1
MUZ-D36NA MUZ-D36NA-U1
MUY-D30NA
MUY-D36NA

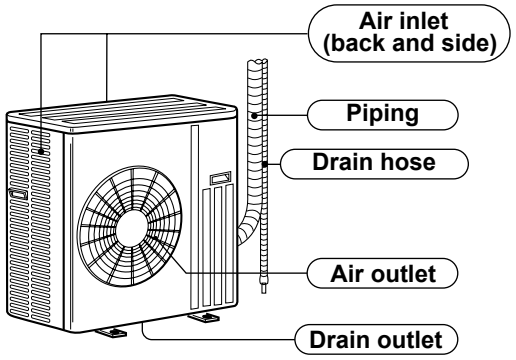
1. New model

MUZ-D30NA → MUZ-D30NA-1 MUZ-D30NA-U1 → MUZ-D30NA-U2
MUZ-D36NA → MUZ-D36NA-1 MUZ-D36NA-U1 → MUZ-D36NA-U2
MUY-D30NA → MUY-D30NA-1
MUY-D36NA → MUY-D36NA-1

1. Wiring diagram has been changed.
2. Fan motor has been changed.

2 PART NAMES AND FUNCTIONS

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA



3 SPECIFICATION

Item \ Model			MSZ-D30NA	MSY-D30NA	MSZ-D36NA	MSY-D36NA
Capacity Rated (Minimum ~ Maximum)	Cooling ❄1	Btu/h	30,700 (9,800 ~ 30,700)	30,700 (9,800 ~ 30,700)	32,000/33,200 (9,800 ~ 32,000) / (9,800 ~ 33,200)	33,200/34,600 (9,800 ~ 33,200) / (9,800 ~ 34,600)
	Heating 47 ❄1		32,600 (8,700 ~ 34,000)	—	35,200 (8,700 ~ 36,000)	—
Capacity	Heating 17 ❄2	Btu/h	20,800	—	22,800	—
Power consumption Rated (Minimum ~ Maximum) (TOTAL)	Cooling ❄1	W	3,850 (620 ~ 3,850)	3,380 (620 ~ 3,380)	4,140/4,360 (620 ~ 4,140) / (620 ~ 4,360)	4,210/4,240 (620 ~ 4,210) / (620 ~ 4,240)
	Heating 47 ❄1		3,360 (520 ~ 3,600)	—	3,840 (520 ~ 4,100)	—
Power consumption	Heating 17 ❄2	W	2,620	—	3,000	—
EER ❄1 [SEER] ❄3	Cooling		8.0 [14.5]	9.1 [16.0]	7.7/7.6 [14.5]	7.9/8.2 [15.1]
HSPF IV(V) ❄4	Heating		8.2 (6.7)	—	8.2 (6.7)	—
COP	Heating ❄1		2.84	—	2.69	—
Outdoor unit model			**MUZ-D30NA**	**MUY-D30NA**	**MUZ-D36NA**	**MUY-D36NA**
Power supply V , phase , Hz			208/230 , 1 , 60			
Max. fuse size (time delay)		A	25			
Min. circuit ampacity		A	21			
Fan motor		F.L.A	0.93			
Compressor	Model		TNB220FMCHT			
		R.L.A	16			
		L.R.A	20			
	Refrigeration oil	cc	870 (NEO22)			
Refrigerant control			Linear expansion valve			
Sound level ❄1	Cooling	dB(A)	55	55	56	56
	Heating		57	—	57	—
Defrost method			Reverse cycle	—	Reverse cycle	—
Dimensions	W	in.	33-1/16			
	D		13			
	H		33-7/16			
Weight		lb.	141	126	141	126
External finish			Munsell 3Y 7.8/1.1			
Remote controller			Wireless type			
Control voltage (by built-in transformer)			12 - 24 VDC			
Refrigerant piping			Not supplied			
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	3/8 (0.0315)			
	Gas		5/8 (0.0394)			
Connection method	Indoor		Flared			
	Outdoor					
Between the indoor & outdoor units	Height difference	ft.	50			
	Piping length		100			
Refrigerant charge (R410A)			4 lb. 10 oz.	4 lb.	4 lb. 10 oz.	4 lb.

NOTE: Test conditions are based on ARI 210/240.

❄1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB) Rated frequency
(Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB Rated frequency

❄2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB Maximum frequency

Test condition

❊3,❊4

ARI	Mode	Test	Indoor air condition (°F)		Outdoor air condition (°F)	
			Dry bulb	Wet bulb	Dry bulb	Wet bulb
	SEER (Cooling)	"A" Cooling Steady State at rated compressor Speed	80	67	95	(75)
		"B-2" Cooling Steady State at rated compressor Speed	80	67	82	(65)
		"B-1" Cooling Steady State at minimum compressor Speed	80	67	82	(65)
		Low ambient Cooling Steady State at minimum compressor Speed	80	67	67	(53.5)
		Intermediate Cooling Steady State at Intermediate compressor Speed ❊5	80	67	87	(69)
	HSPF (Heating)	Standard Rating-Heating at rated compressor Speed	70	60	47	43
		Low temperature Heating at rated compressor Speed	70	60	17	15
		Max temperature Heating at minimum compressor Speed	70	60	62	56.5
		High temperature Heating at minimum compressor Speed	70	60	47	43
		Frost Accumulation at rated compressor Speed	70	60	35	33
		Frost Accumulation at Intermediate compressor Speed ❊5	70	60	35	33

❊5: At Intermediate compressor Speed
=("Cooling rated compressor speed" - "minimum compressor speed") / 3 + "minimum compressor speed".

OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed voltage (V)
Outdoor unit	208/230 V 1 phase 60 Hz	Min. 187 208 230 Max. 253

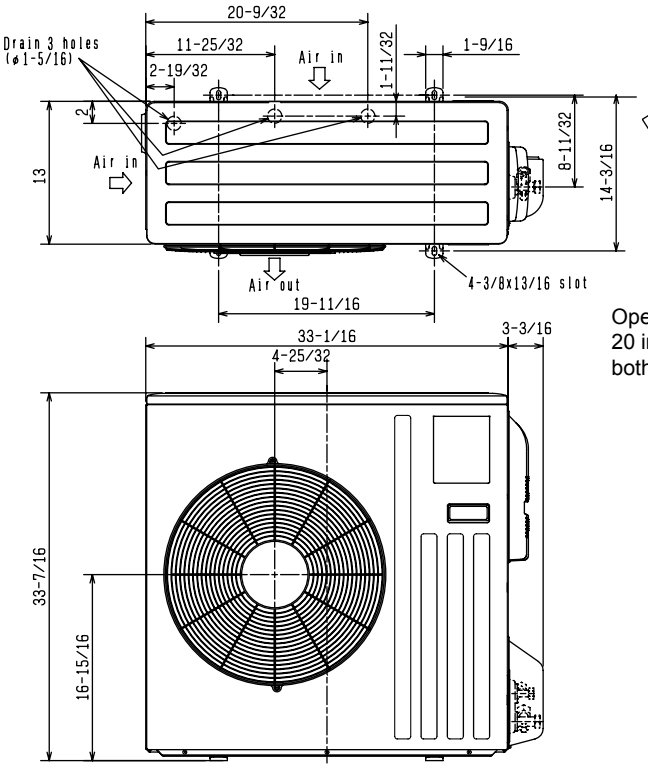
(2) OPERATION

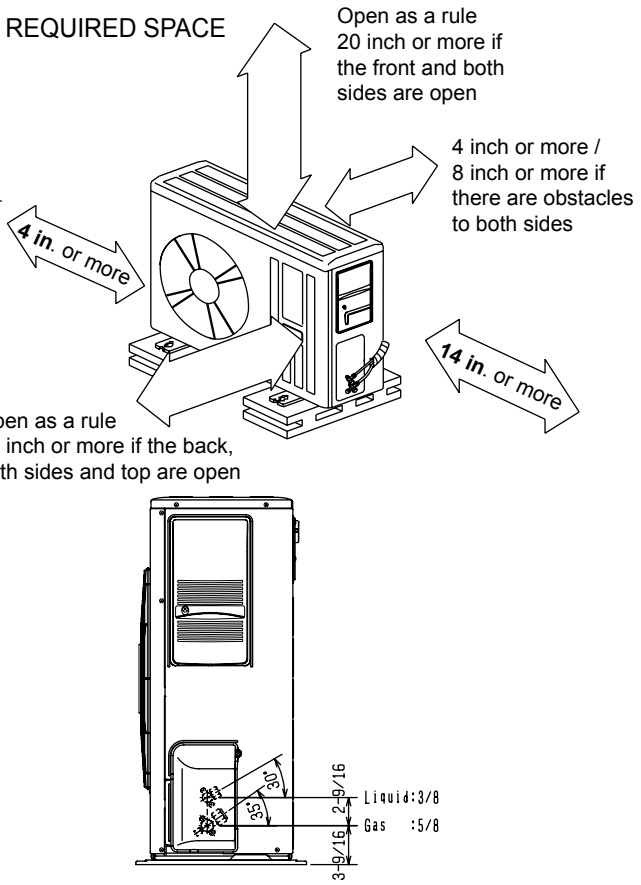
Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78%		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	14	13

4 OUTLINES AND DIMENSIONS

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

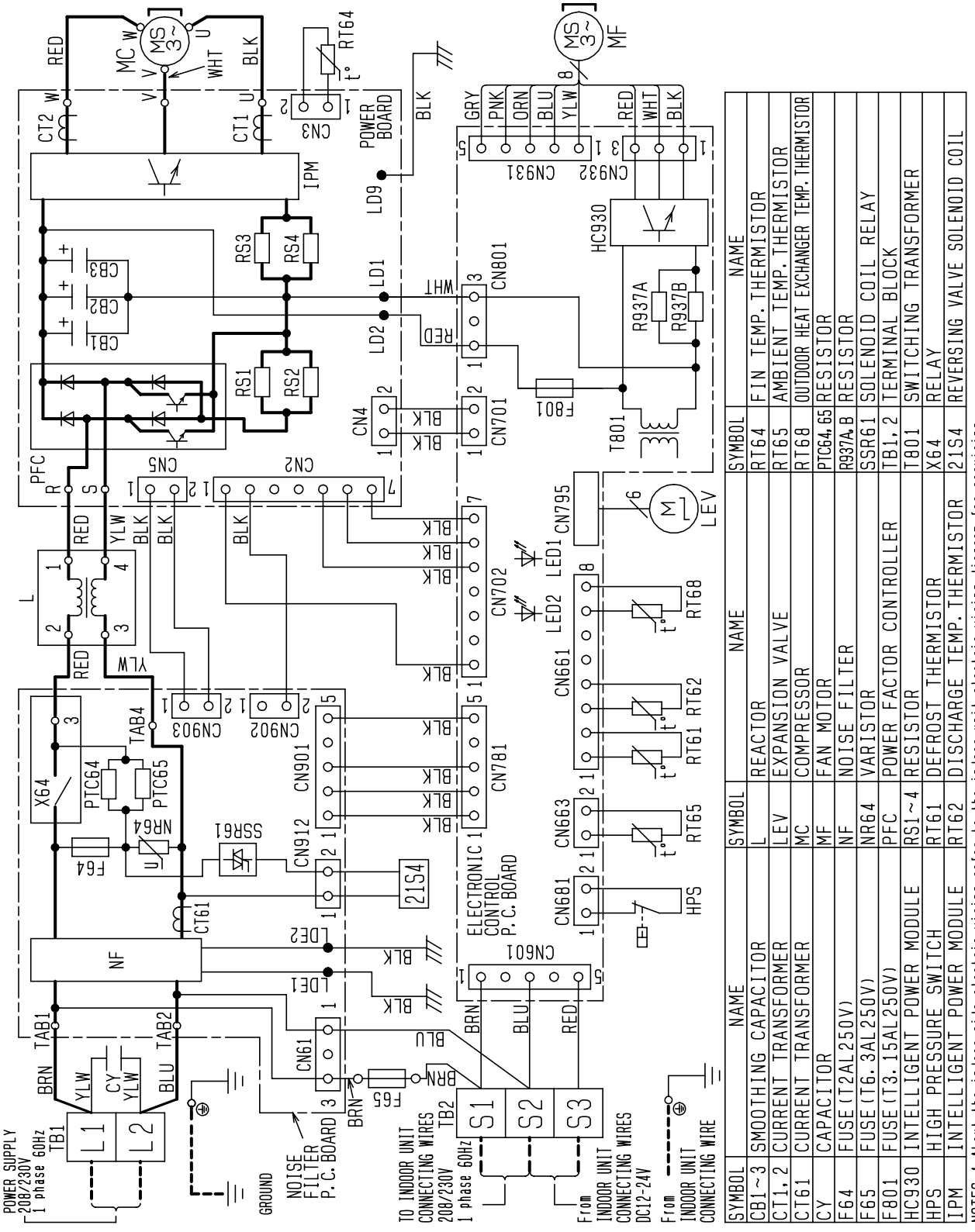
Unit: inch





5 WIRING DIAGRAM

MUZ-D30NA MUZ-D30NA-U1 MUZ-D36NA MUZ-D36NA-U1

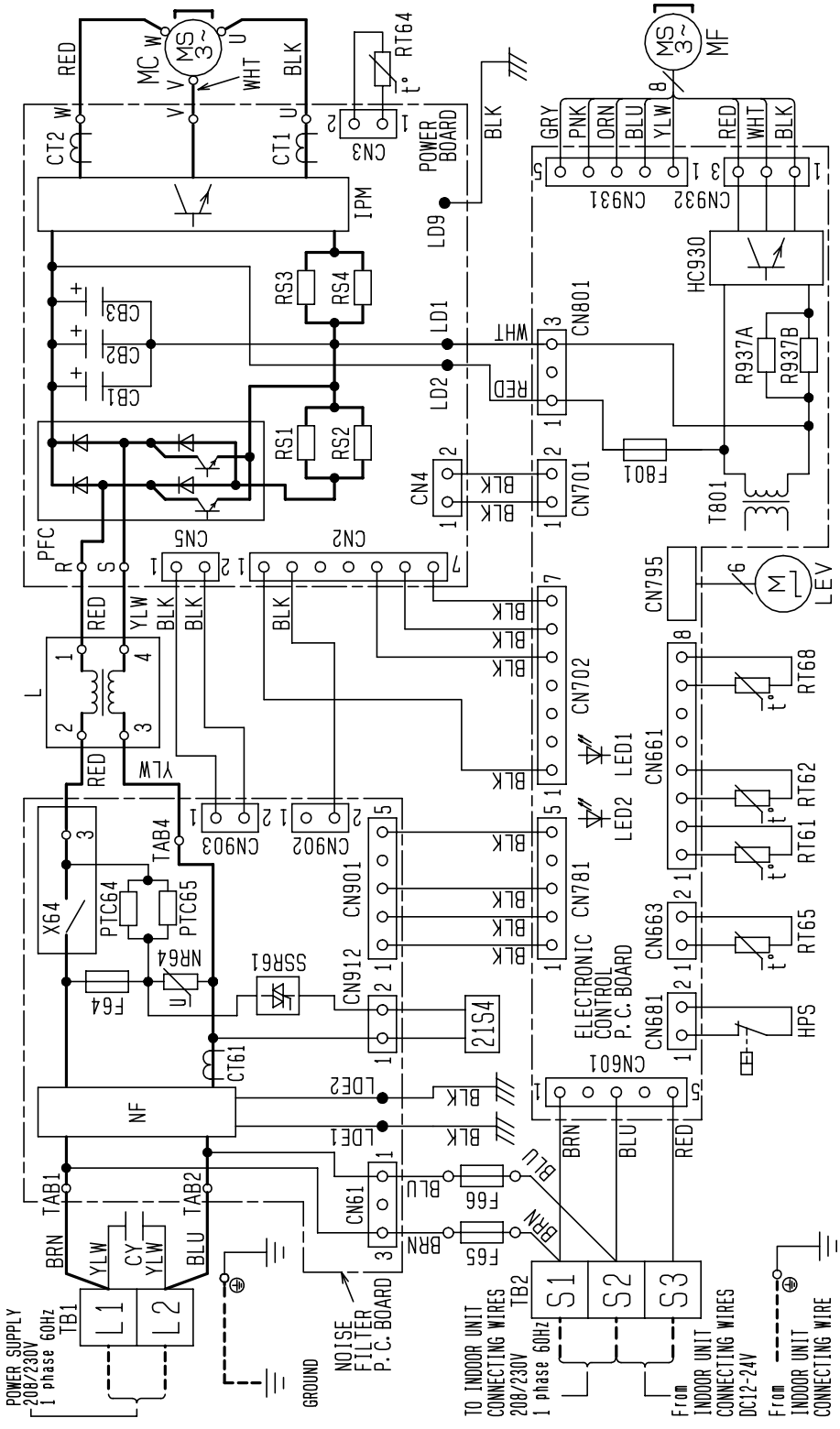


SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	L	REACTOR
CT1,2	CURRENT TRANSFORMER	LEV	EXPANSION VALVE
CT61	CURRENT TRANSFORMER	MC	COMPRESSOR
CY	CAPACITOR	MF	FAN MOTOR
F64	FUSE(T2AL250V)	NF	NOISE FILTER
F65	FUSE(T6.3AL250V)	NR64	VARISTOR
F801	FUSE(T3.15AL250V)	PFC	POWER FACTOR CONTROLLER
HC930	INTELLIGENT POWER MODULE	RS1~4	RESISTOR
HPS	HIGH PRESSURE SWITCH	RT61	DEFROST THERMISTOR
IPM	INTELLIGENT POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR

SYMBOL	NAME
RT64	FIN TEMP. THERMISTOR
RT65	AMBIENT TEMP. THERMISTOR
RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
PTC64,65	RESISTOR
R937A,B	RESISTOR
SSR61	SOLENOID COIL RELAY
TB1,2	TERMINAL BLOCK
T801	SWITCHING TRANSFORMER
X64	RELAY
21S4	REVERSING VALVE SOLENOID COIL

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

MUZ-D30NA-1 MUZ-D30NA-U2 MUZ-D36NA-1 MUZ-D36NA-U2



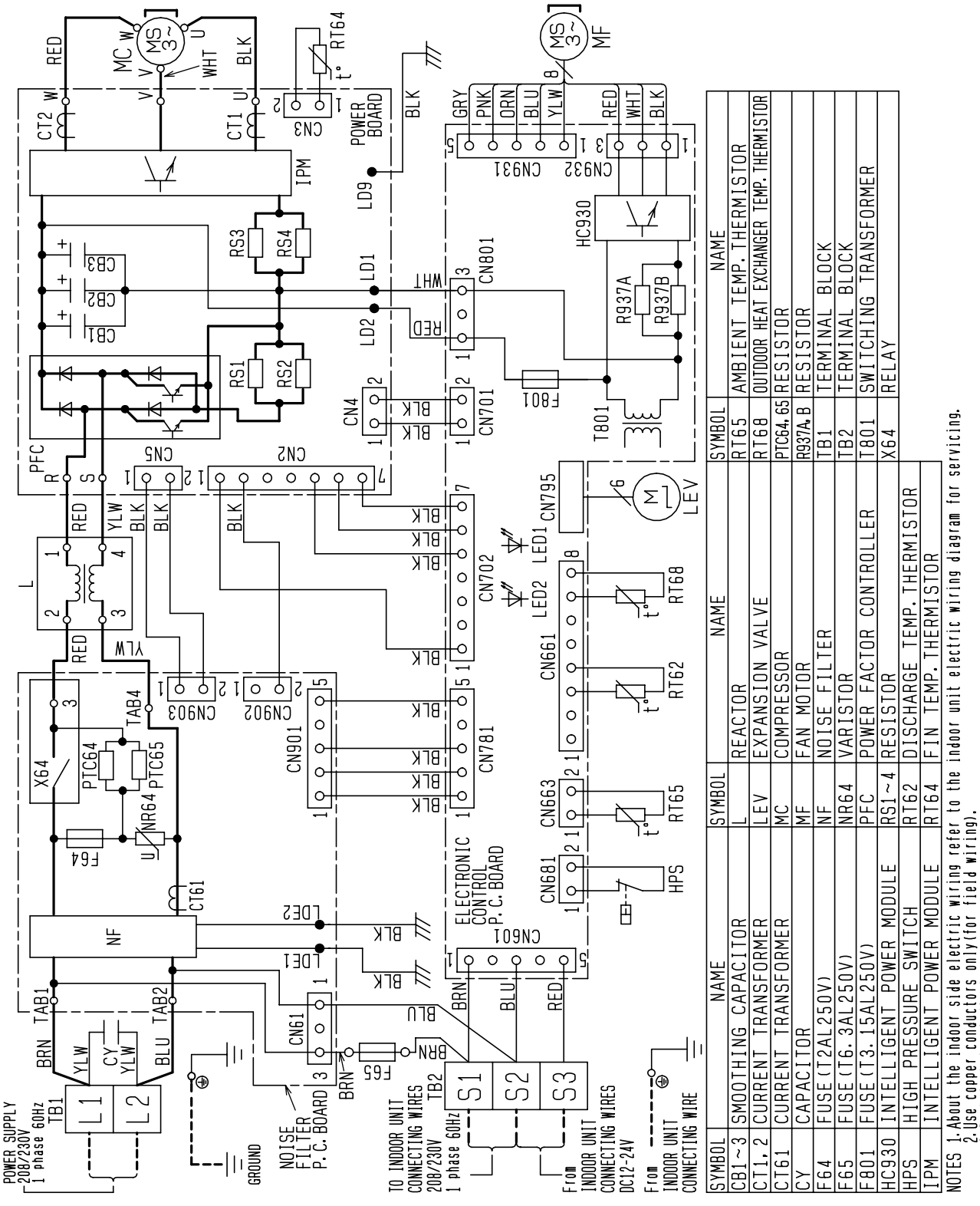
SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR
CT1,2	CURRENT TRANSFORMER
CT61	CURRENT TRANSFORMER
CY	CAPACITOR
F64	FUSE(T2AL250V)
F65,F66	FUSE(T6.3AL250V)
F801	FUSE(T3.15AL250V)
HC930	INTELLIGENT POWER MODULE
HPS	HIGH PRESSURE SWITCH
IPM	INTELLIGENT POWER MODULE

SYMBOL	NAME
L	REACTOR
LEV	EXPANSION VALVE
MC	COMPRESSOR
MF	FAN MOTOR
NF	NOISE FILTER
NR64	VARISTOR
PFC	POWER FACTOR CONTROLLER
RS1~4	RESISTOR
RT61	DEFROST THERMISTOR
RT62	DISCHARGE TEMP. THERMISTOR

SYMBOL	NAME
RT64	FIN TEMP. THERMISTOR
RT65	AMBIENT TEMP. THERMISTOR
RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
PTC64,65	RESISTOR
R937A,B	RESISTOR
SSR61	SOLENOID COIL RELAY
TB1,2	TERMINAL BLOCK
T801	SWITCHING TRANSFORMER
X64	RELAY
21S4	REVERSING VALVE SOLENOID COIL

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

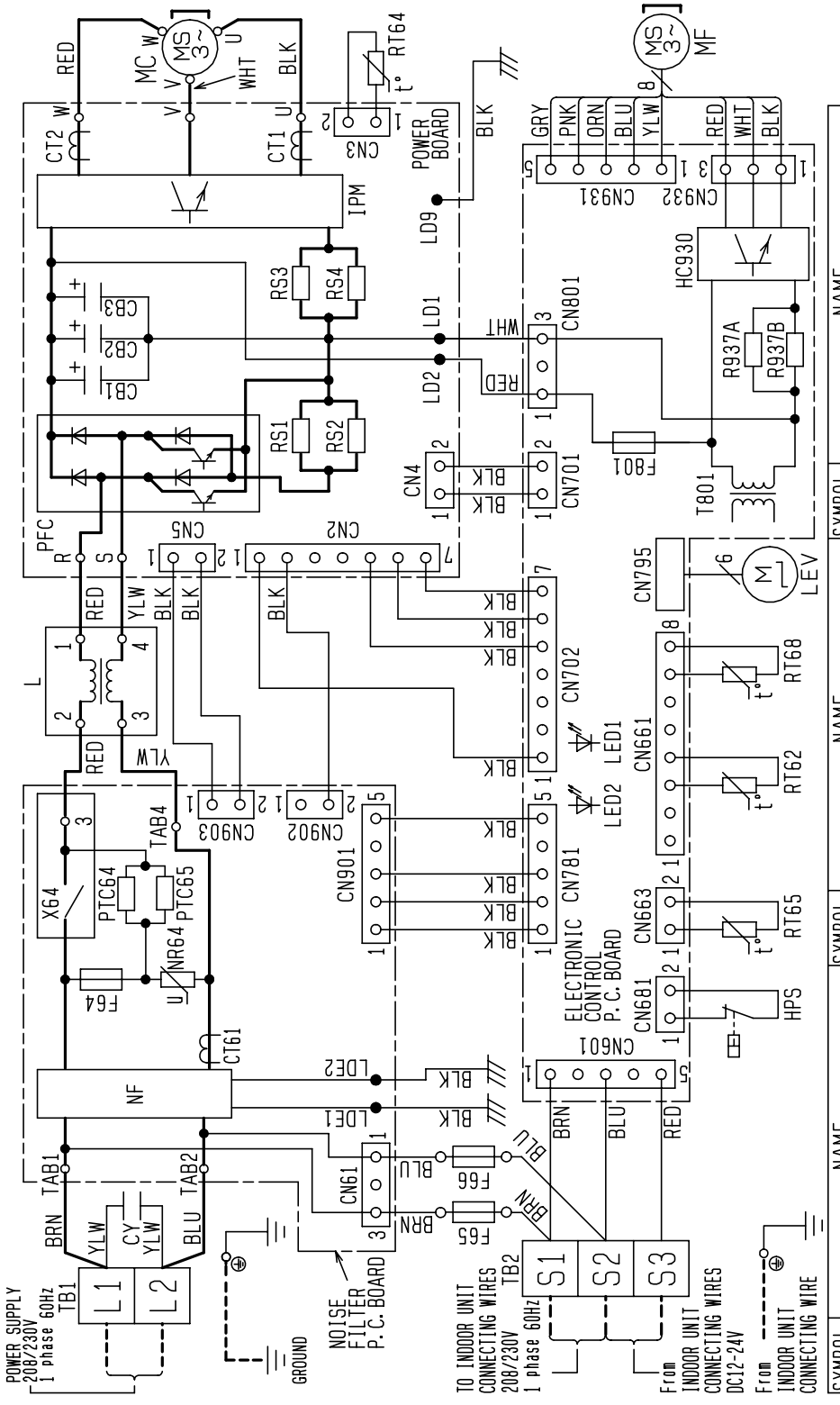
MUY-D30NA MUY-D36NA



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	L	REACTOR	RT65	AMBIENT TEMP. THERMISTOR
CT1, 2	CURRENT TRANSFORMER	LEV	EXPANSION VALVE	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
CT61	CURRENT TRANSFORMER	MC	COMPRESSOR	PTC64, 65	RESISTOR
CY	CAPACITOR	MF	FAN MOTOR	R937A, B	RESISTOR
F64	FUSE (T2AL250V)	NF	NOISE FILTER	TB1	TERMINAL BLOCK
F65	FUSE (T6.3AL250V)	NR64	VARISTOR	TB2	TERMINAL BLOCK
F801	FUSE (T3.15AL250V)	PFC	POWER FACTOR CONTROLLER	T801	SWITCHING TRANSFORMER
HC930	INTELLIGENT POWER MODULE	RS1~4	RESISTOR	X64	RELAY
HPS	HIGH PRESSURE SWITCH	RT62	DISCHARGE TEMP. THERMISTOR		
IPM	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR		

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

MUY-D30NA-[1] MUY-D36NA-[1]



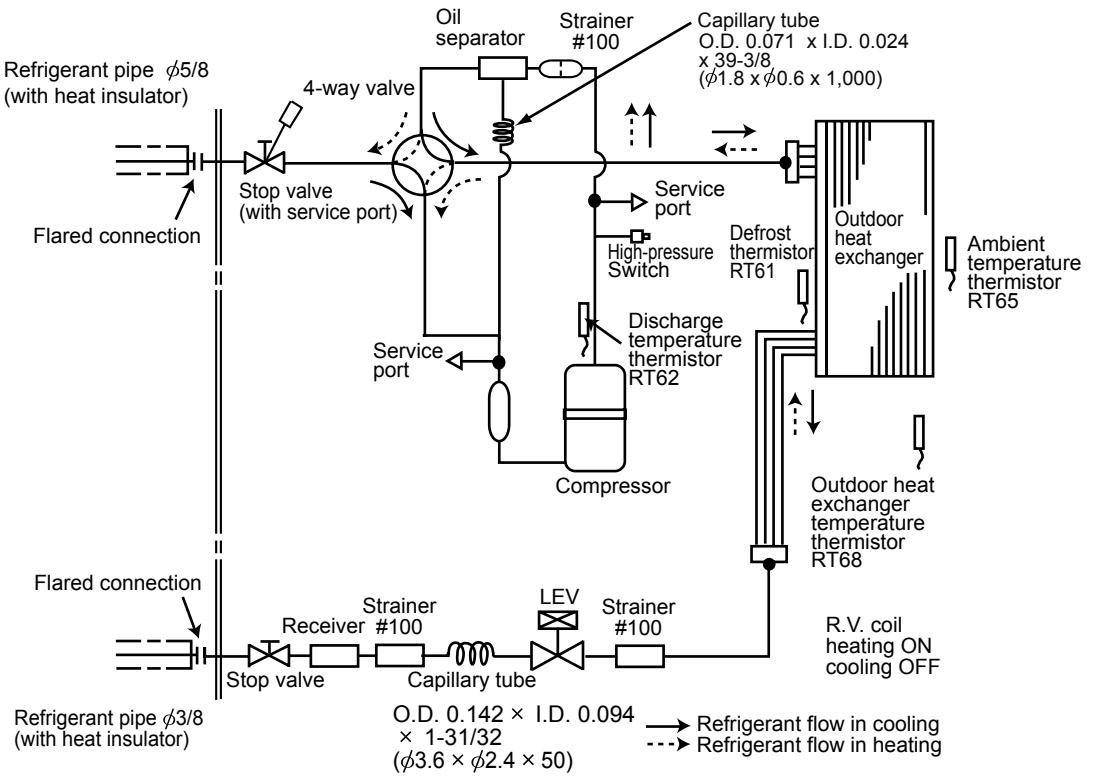
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	L	REACTOR	RT65	AMBIENT TEMP. THERMISTOR
CT1, 2	CURRENT TRANSFORMER	LEV	EXPANSION VALVE	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
CT61	CURRENT TRANSFORMER	MC	COMPRESSOR	PTC64, 65	RESISTOR
CY	CAPACITOR	MF	FAN MOTOR	R937A, B	RESISTOR
F64	FUSE(T2AL250V)	NF	NOISE FILTER	TB1	TERMINAL BLOCK
F65, F66	FUSE(T6.3AL250V)	NR64	VARISTOR	TB2	TERMINAL BLOCK
F801	FUSE(T3.15AL250V)	PFC	POWER FACTOR CONTROLLER	T801	SWITCHING TRANSFORMER
HC930	INTELLIGENT POWER MODULE	RS1~4	RESISTOR	X64	RELAY
HPS	HIGH PRESSURE SWITCH	RT62	DISCHARGE TEMP. THERMISTOR		
IPM	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR		

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

6 REFRIGERANT SYSTEM DIAGRAM

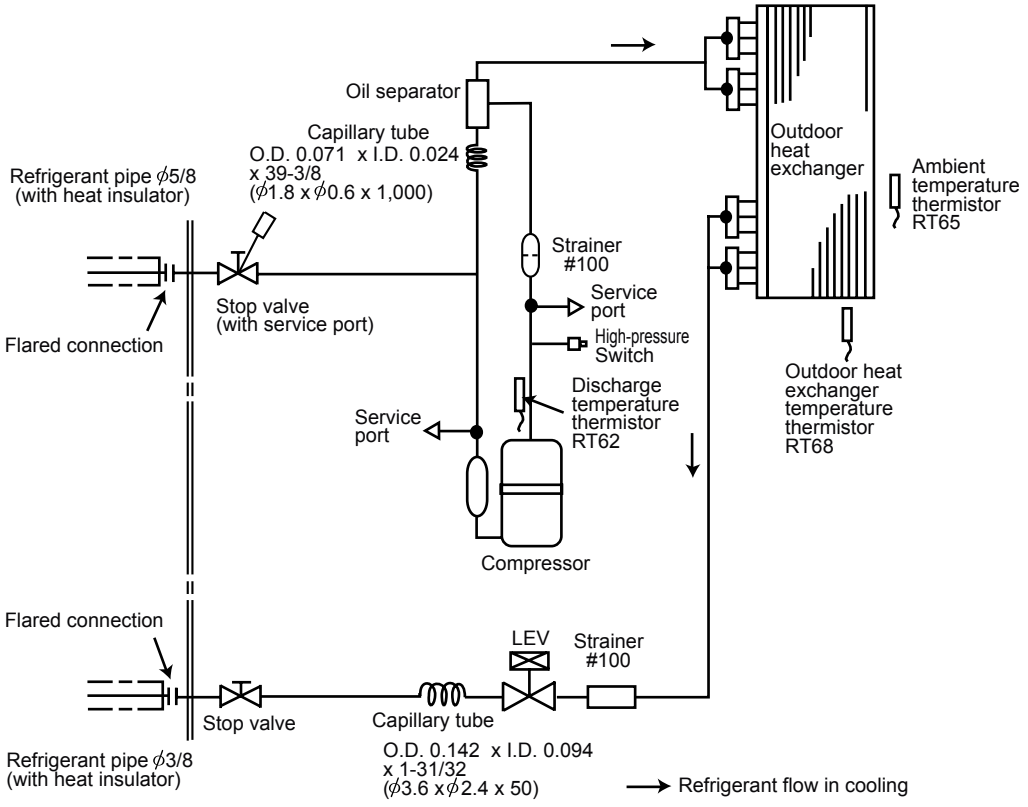
MUZ-D30NA MUZ-D36NA

Unit: inch



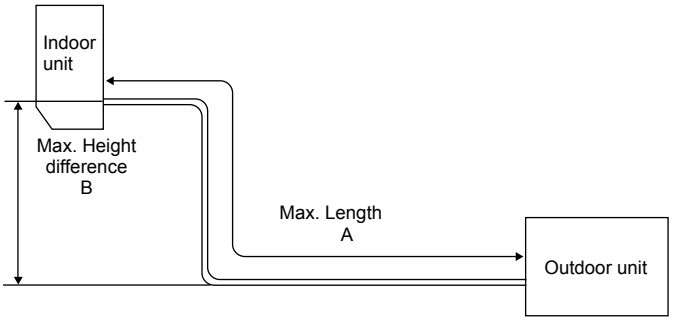
MUY-D30NA MUY-D36NA

Unit: inch



MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping: ft.		Piping size O.D: in.	
	Max. Length A	Max. Height difference B	Gas	Liquid
MUZ-D30NA **MUZ-D36NA** **MUY-D30NA** **MUY-D36NA**	100	50	5/8	3/8



ADDITIONAL REFRIGERANT CHARGE (R410A: oz.)

Refrigerant piping exceeding 25 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.								
		25	30	40	50	60	70	80	90	100
MUZ-D30NA **MUZ-D36NA**	4 lb. 10 oz.	0	2.96	8.88	14.80	20.72	26.64	32.56	38.48	44.40

Calculation: X oz. = 2.96/5 oz. / ft. × (Refrigerant piping length (ft.) - 25)

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.								
		25	30	40	50	60	70	80	90	100
MUY-D30NA **MUY-D36NA**	4 lb.	0	1.08	3.24	5.40	7.56	9.72	11.88	14.04	16.20

Calculation: X oz. = 1.08/5 oz. / ft. × (Refrigerant piping length (ft.) - 25)

NOTE: Refrigerant piping exceeding 25 ft. requires additional refrigerant charge according to the calculation.

7 DATA

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

7-1. PERFORMANCE DATA

1) COOLING CAPACITY

Model	Indoor air IWB (˚F)	Outdoor intake air DB temperature (˚F)														
		75			85			95			105			115		
		TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
MUZ-D30NA	71	37.6	19.1	3.43	35.2	17.8	3.75	33.0	16.7	4.04	30.7	15.6	4.25	28.2	14.3	4.43
	67	35.6	22.8	3.23	33.2	21.2	3.56	30.7	19.6	3.85	28.6	18.3	4.08	26.2	16.8	4.27
	63	33.5	25.9	3.08	31.0	24.0	3.41	28.9	22.3	3.68	26.2	20.3	3.93	23.9	18.5	4.08
MUZ-D36NA	71	40.7	19.8	3.88	38.0	18.5	4.25	35.7	17.4	4.58	33.2	16.2	4.82	30.5	14.9	5.01
	67	38.5	23.9	3.66	35.9	22.2	4.03	33.2	20.6	4.36	30.9	19.1	4.62	28.4	17.6	4.84
	63	36.2	27.3	3.49	33.5	25.3	3.86	31.2	23.5	4.16	28.4	21.4	4.45	25.9	19.5	4.62
MUY-D30NA	71	37.6	19.1	3.01	35.2	17.8	3.30	33.0	16.7	3.55	30.7	15.6	3.73	28.2	14.3	3.89
	67	35.6	22.8	2.84	33.2	21.2	3.13	30.7	19.6	3.38	28.6	18.3	3.58	26.2	16.8	3.75
	63	33.5	25.9	2.70	31.0	24.0	2.99	28.9	22.3	3.23	26.2	20.3	3.45	23.9	18.5	3.58
MUY-D36NA (208 V)	71	40.7	19.8	3.75	38.0	18.5	4.10	35.7	17.4	4.42	33.2	16.2	4.65	30.5	14.9	4.84
	67	38.5	23.9	3.54	35.9	22.2	3.89	33.2	20.6	4.21	30.9	19.1	4.46	28.4	17.6	4.67
	63	36.2	27.3	3.37	33.5	25.3	3.73	31.2	23.5	4.02	28.4	21.4	4.29	25.9	19.5	4.46
MUY-D36NA (230 V)	71	42.4	20.6	3.77	39.6	19.3	4.13	37.2	18.1	4.45	34.6	16.8	4.69	31.8	15.5	4.88
	67	40.1	24.9	3.56	37.4	23.2	3.92	34.6	21.5	4.24	32.2	20.0	4.49	29.6	18.3	4.71
	63	37.7	28.4	3.39	34.9	26.3	3.75	32.5	24.5	4.05	29.6	22.3	4.32	27.0	20.3	4.49

NOTE: 1. IWB : Intake air wet-bulb temperature
TC : Total Capacity (x10^3 Btu/h)
SHC : Sensible Heat Capacity (x10^3 Btu/h)
TPC : Total Power Consumption (kW)
2. SHC is based on 80˚F of indoor Intake air DB temperature.

2) COOLING CAPACITY CORRECTIONS

	Refrigerant piping length (one way: ft.)			
	25 (std.)	40	65	100
MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA	1.0	0.95	0.878	0.713

3) HEATING CAPACITY

Model	Indoor air IDB (˚F)	Outdoor intake air WB temperature (˚F)											
		15		25		35		43		45		55	
		TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC
MUZ-D30NA	75	18.9	2.50	23.6	2.94	28.2	3.28	31.8	3.44	32.8	3.49	37.2	3.63
	70	20.0	2.42	24.5	2.87	28.9	3.19	32.6	3.36	33.6	3.43	38.0	3.56
	65	20.5	2.32	25.6	2.77	29.8	3.11	33.6	3.28	34.6	3.33	38.8	3.49
MUZ-D36NA	75	20.4	2.86	25.5	3.36	30.4	3.74	34.3	3.94	35.4	3.99	40.1	4.15
	70	21.6	2.76	26.4	3.28	31.2	3.65	35.2	3.84	36.3	3.92	41.0	4.07
	65	22.2	2.65	27.6	3.17	32.2	3.55	36.3	3.74	37.3	3.80	41.9	3.99

NOTE: 1. IDB: Intake air dry-bulb temperature
TC : Total Capacity (x10^3 Btu/h)
TPC : Total Power Consumption (kW)
2. Above data is for heating operation without any frost.

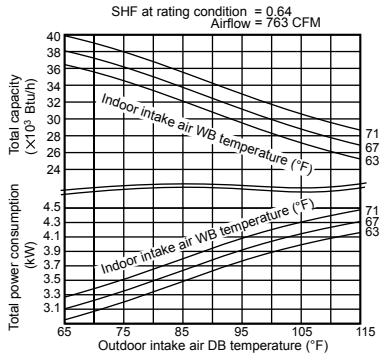
How to operate with fixed operational frequency of the compressor.

1. Press the EMERGENCY OPERATION switch on the front of the indoor unit, and select either EMERGENCY COOL mode or EMERGENCY HEAT mode before starting to operate the air conditioner.
2. The compressor starts with operational frequency.
3. The fan speed of the indoor unit is High.
4. This operation continues for 30 minutes.
5. In order to release this operation, press the EMERGENCY OPERATION switch twice or once, or press any button on the remote controller.

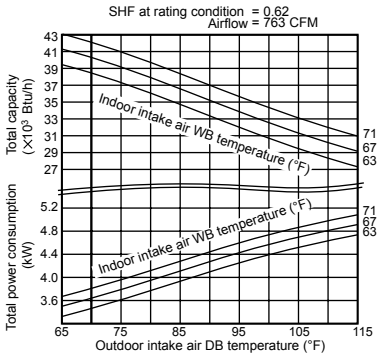
7-2. PERFORMANCE CURVE

Cooling

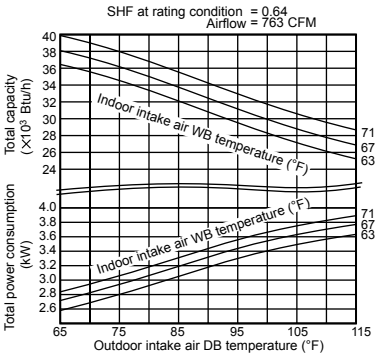
MUZ-D30NA



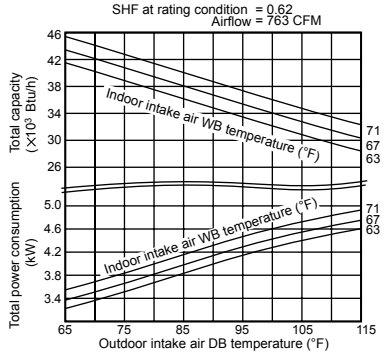
MUZ-D36NA



MUY-D30NA

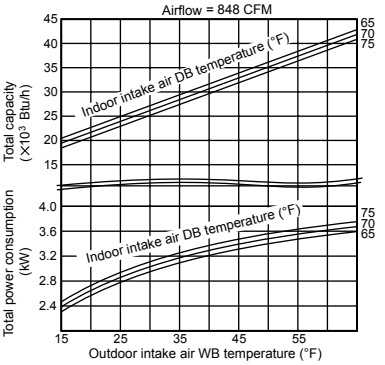


MUY-D36NA

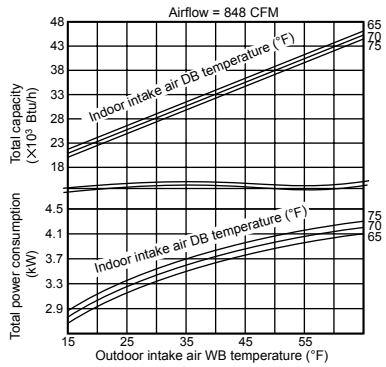


Heating

MUZ-D30NA



MUZ-D36NA



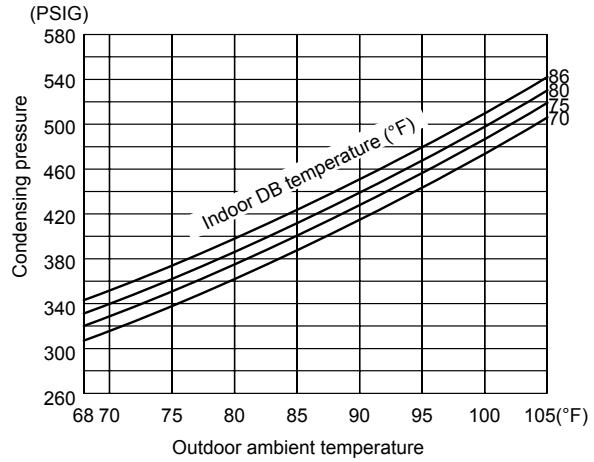
This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

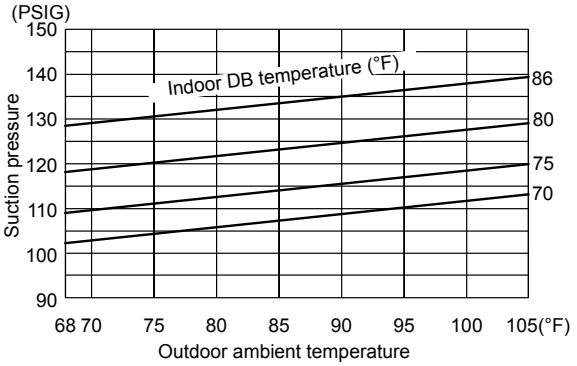
7-3. CONDENSING PRESSURE

Cooling

Data is based on the condition of indoor humidity 50%.
Air flow should be set to High speed.

MUZ-D30NA





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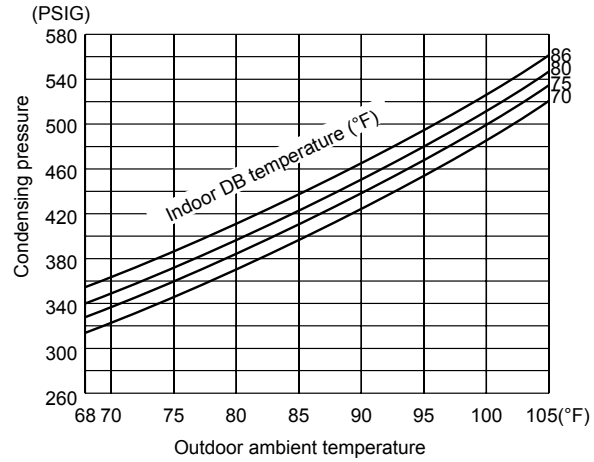

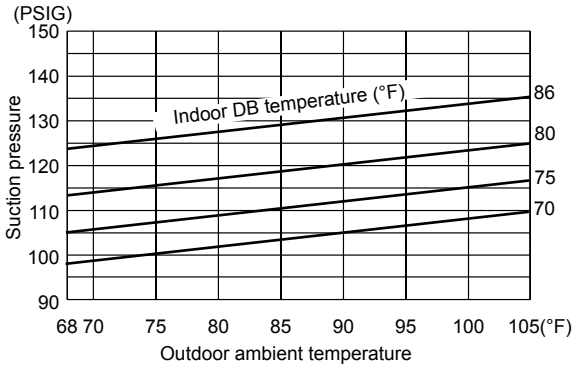

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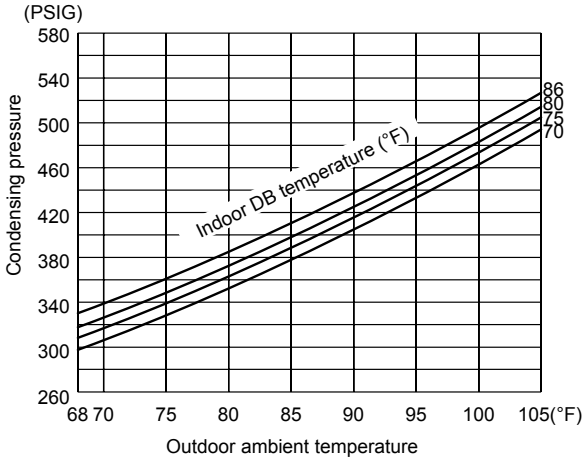
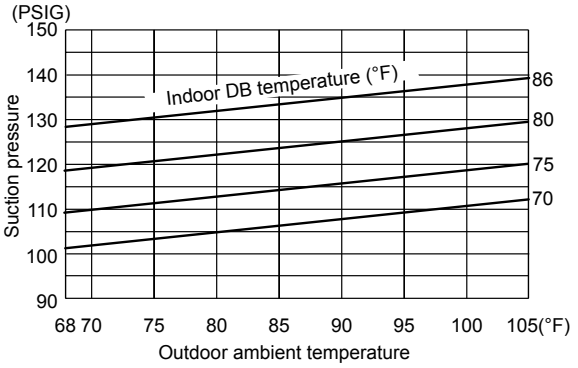
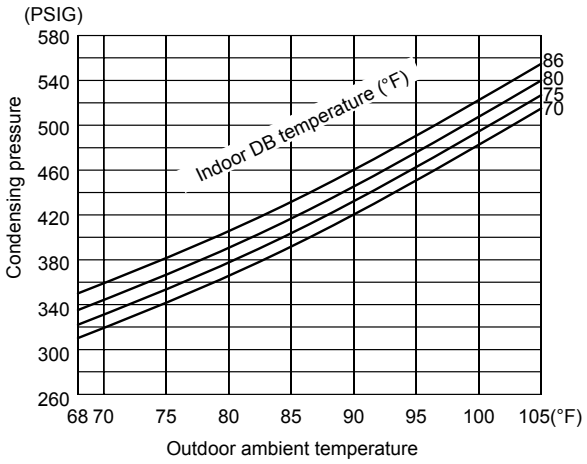
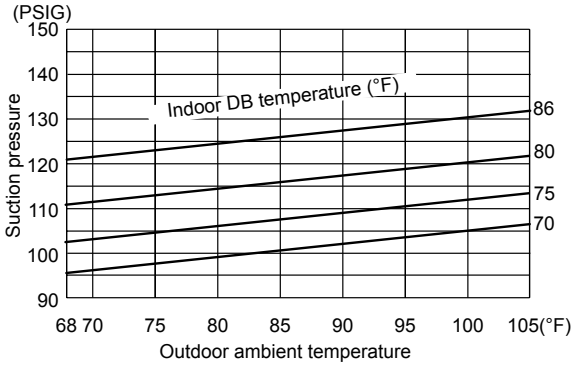




MUY-D36NA

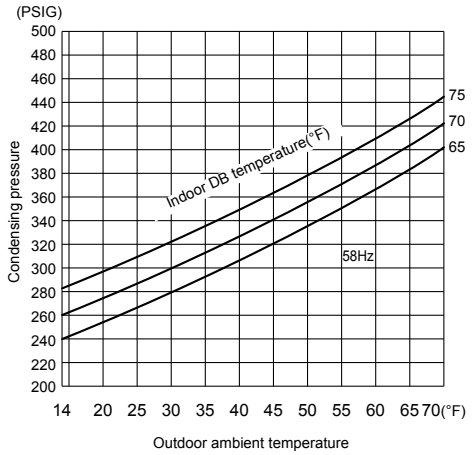


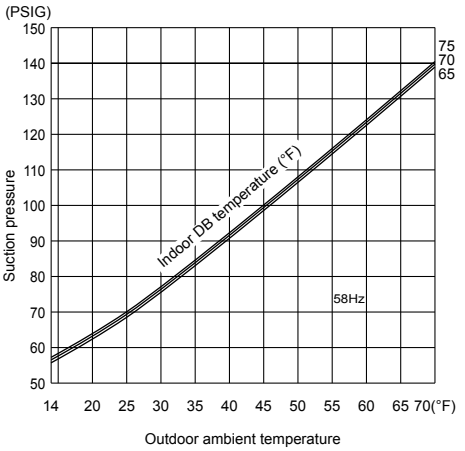


Heating

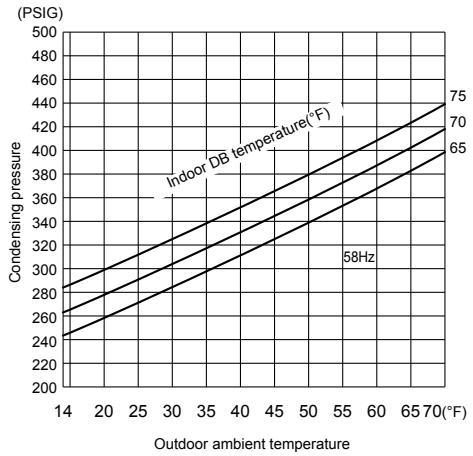
Data is based on the condition of outdoor humidity 75%.
Air flow should be set to High speed.
Data is for heating operation without any frost.

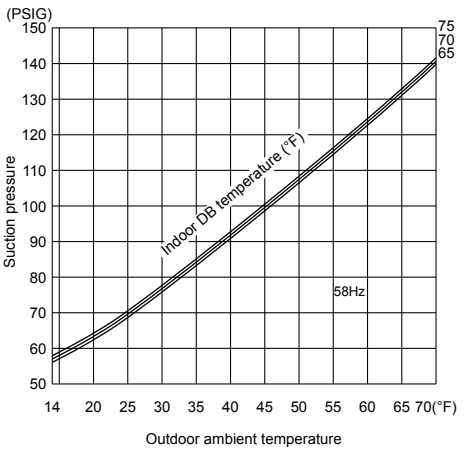
MUZ-D30NA





MUZ-D36NA



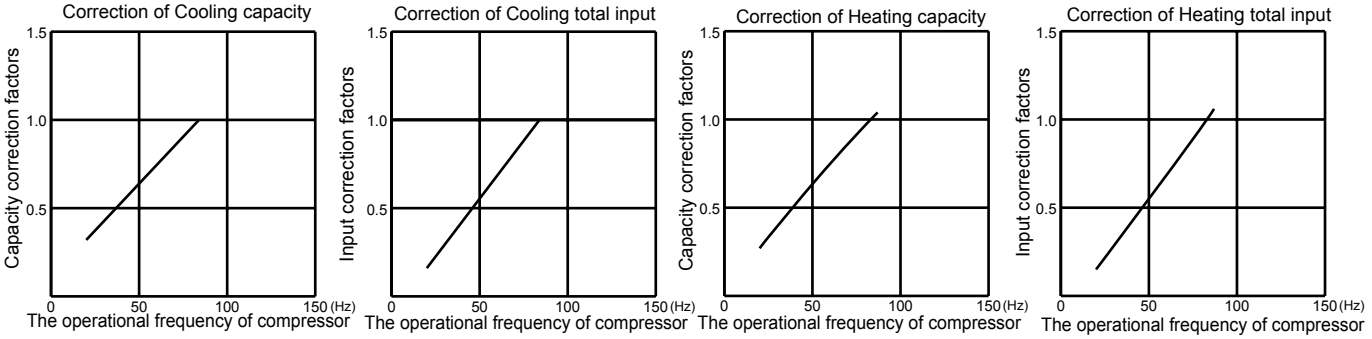


7-4. STANDARD OPERATION DATA

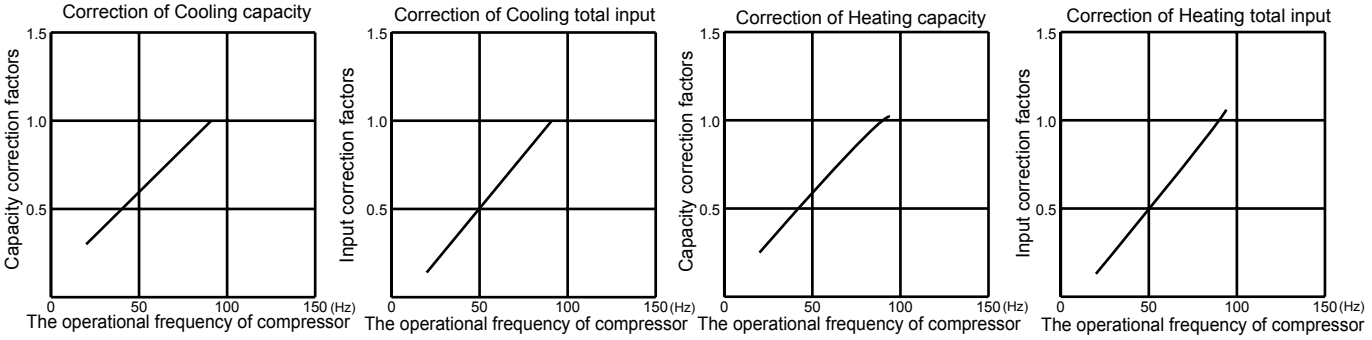
Model				MSZ-D30NA		MSZ-D36NA		MSY-D30NA	MSY-D36NA
Item			Unit	Cooling	Heating	Cooling	Heating	Cooling	Cooling
Total	Capacity		Btu/h	30,700	32,600	32,000/33,200	35,200	30,700	33,200/34,000
	SHF		—	0.64	—	0.62	—	0.64	0.62
	Input		kW	3.85	3.36	4.14/4.36	3.84	3.38	4.21/4.24
	Rated frequency		Hz	84	84	91	91	79	92
Electrical circuit	Indoor unit			MSZ-D30NA		MSZ-D36NA		MSY-D30NA	MSY-D36NA
	Power supply		V, phase, Hz	208/230 , 1 , 60					
	Input		kW	0.058					
	Fan motor current		A	0.45/0.42					
	Outdoor unit			MUZ-D30NA		MUZ-D36NA		MUY-D30NA	MUY-D36NA
	Power supply		V, phase, Hz	208/230 , 1 , 60					
	Input		kW	3.792	3.302	4.082/4.302	3.782	3.322	4.152/4.182
	Comp. current		A	17.25/15.56	14.95/13.46	18.65/17.86	17.25/15.56	15.05/13.56	18.95/17.26
	Fan motor current		A	0.80/0.72					
Refrigerant circuit	Condensing pressure		PSIG	468	404	480	420	453	475
	Suction pressure		PSIG	126	96	122	94	125	119
	Discharge temperature		˚F	186.8	169.7	198.7	168.8	191.3	197.1
	Condensing temperature		˚F	126.5	114.3	128.5	117.0	123.8	127.4
	Suction temperature		˚F	45.5	29.8	48.0	29.1	54.7	48.6
	Comp. shell bottom temperature		˚F	175.6	156.4	187.0	155.7	177.4	182.7
	Ref. pipe length		ft.	25					
	Refrigerant charge (R410A)		—	4 lb. 10 oz.				4 lb.	
Indoor unit	Intake air temperature	DB	˚F	80	70	80	70	80	80
		WB	˚F	67	60	67	60	67	67
	Discharge air temperature	DB	˚F	53.9	112.2	53	114.9	53.7	51.7
		WB	˚F	53	73.9	52.1	74.6	52.8	50.8
	Fan speed (High)		rpm	1,100					
	Airflow (High)		CFM	741 (Wet)	795	738 (Wet)	794	718 (Wet)	710 (Wet)
Outdoor unit	Intake air temperature	DB	˚F	95	47	95	47	95	95
		WB	˚F	—	43	—	43	—	—
	Fan speed		rpm	800					
	Airflow		CFM	1,941					

7-5. CAPACITY AND INPUT CORRECTION BY INVERTER OUTPUT FREQUENCY

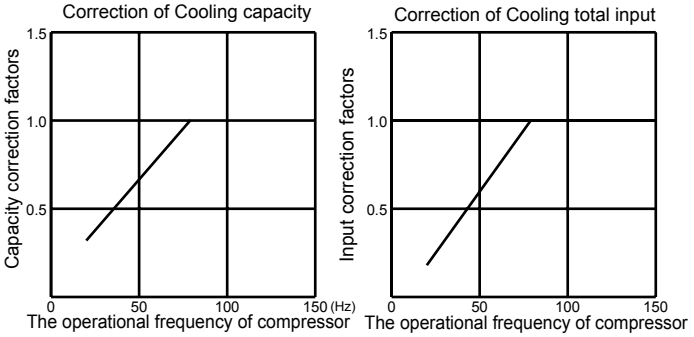
MUZ-D30NA



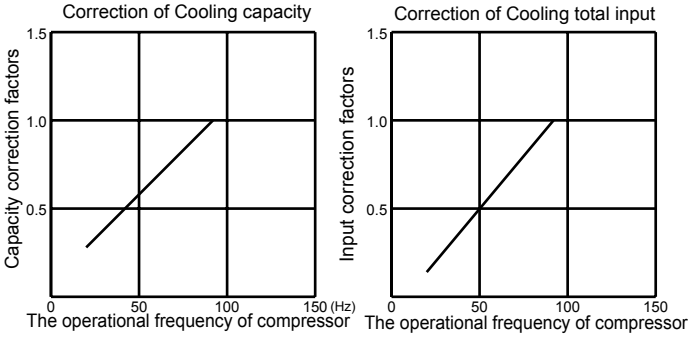
MUZ-D36NA



MUY-D30NA



MUY-D36NA



7-6. TEST RUN OPERATION (How to operate fixed-frequency operation)

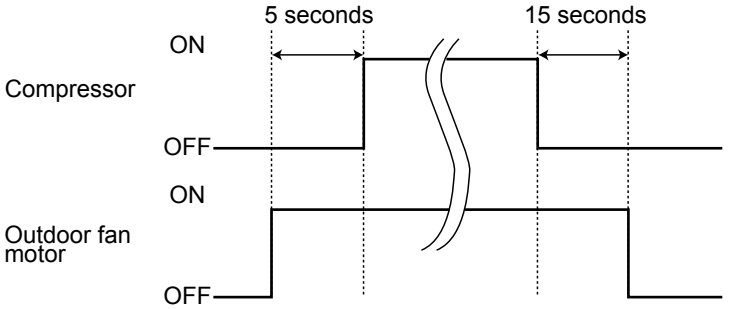
1. Press EMERGENCY OPERATION switch to COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (Operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press EMERGENCY OPERATION switch or any button on remote controller.

8 ACTUATOR CONTROL

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

8-1. OUTDOOR FAN MOTOR CONTROL

The fan motor turns ON/OFF, interlocking with the compressor.
[ON] The fan motor turns ON 5 seconds before the compressor starts up.
[OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.

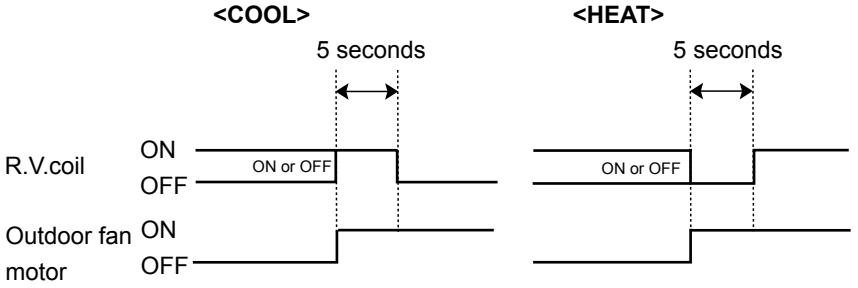


8-2. R.V. COIL CONTROL

<MUZ>

Heating · · · · · · · · · · · · · · · · · · ON
Cooling · · · · · · · · · · · · · · · · · · OFF
Dry · OFF

NOTE: The 4-way valve reverses for 5 seconds right before start-up of the compressor.



8-3. Relation between main sensor and actuator

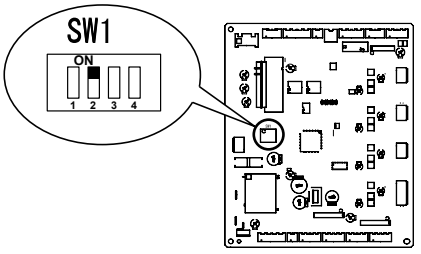
Sensor	Purpose	Actuator				
		Compressor	LEV	Outdoor fan motor	R.V. coil	Indoor fan motor
Discharge temperature thermistor	Protection	○	○			
Indoor coil temperature thermistor	Cooling: Coil frost prevention	○				
	Heating: High pressure protection	○	○	○		
Defrost thermistor	Defrosting	○	○	○	○	○
Fin temperature thermistor	Protection	○		○		
Outdoor heat exchanger temperature	Protection	○	○	○		
Ambient temperature thermistor	Cooling: Low ambient temperature operation	○	○	○		

9 SERVICE FUNCTIONS

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

9-1. PRE-HEAT CONTROL

If moisture gets into the refrigerant cycle, or when refrigerant is liquefied and collected in the compressor, it may interfere the start-up of the compressor.
To improve start-up condition, the compressor is energized even while it is not operating.
This is to generate heat at the winding.
The compressor uses about 50 W when pre-heat control is turned ON.
Pre-heat control is OFF at initial setting.



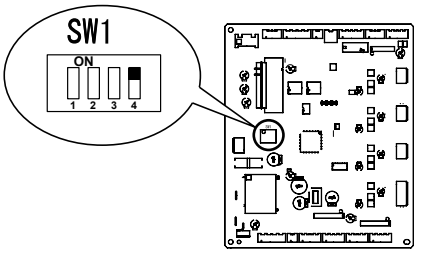
[How to activate pre-heat control]

1. Turn OFF the power supply for the air conditioner before making the setting.
2. Set the 2nd Dip Switch of SW1 on the outdoor electronic control P.C. board to ON to activate pre-heat control function.

9-2. CHANGE IN DEFROST SETTING

Changing defrost finish temperature

1. Turn OFF the power supply for the air conditioner before making the setting.
2. Set the 4th Dip Switch of SW1 on the outdoor electronic control P.C. board to ON to change the defrost finish temperature. (Refer to 10-6-1.)



4th Dip Switch of SW1	Defrost finish temperature
OFF (Initial setting)	49.5°F (9.7°C)
ON	64.9°F (18.3°C)

10 TROUBLESHOOTING

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

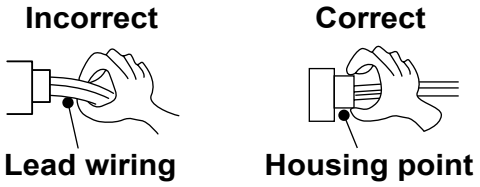
10-1. CAUTIONS ON TROUBLESHOOTING

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 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 electrical parts, be careful of the residual voltage of smoothing capacitor.
4) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
5) 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 OPERATION INDICATOR lamp 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) Refer to 10-2 and 10-3.

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 (10-3.) disappears, the memorized failure details can be recalled.

This mode is very useful when the unit needs to be repaired for the abnormality which does not recur.

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

Operational procedure

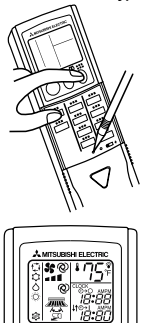
The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Confirm that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

This figures show about MSZ type.



※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Does the left lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Confirm if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function. (Refer to 10-2.2)

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does the left lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
Stays ON for 3 seconds (without beep):
The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the outdoor unit failure mode table. (Refer to 10-2.3)
Make sure to check at least two consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the indoor unit failure mode table. (Refer to indoor unit service manual.)
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

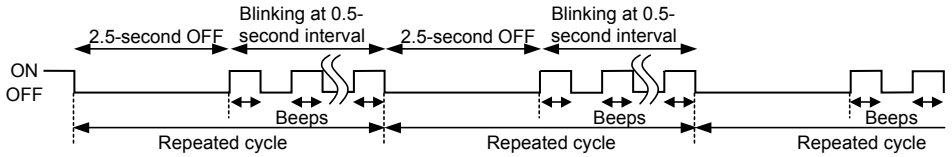
Repair the defective parts.

Deleting the memorized abnormal condition

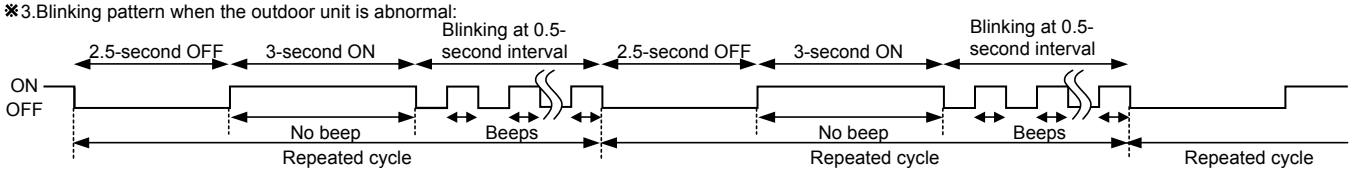
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function once it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

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



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



2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure

The outdoor unit might be abnormal.
Confirm if outdoor unit is abnormal according to the following procedures.

↓

Confirm that the remote controller is in the failure mode recall function.

↓

With the remote controller headed towards the indoor unit, press TOO COOL or TOO WARM button to adjust the set temperature to 77˚F (25˚C). ※1

※1. Regardless of normal or abnormal condition, 2 short beeps are emitted as the signal is received.

↓

Does left lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: The outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → The outdoor unit is normal.

Yes (Blinks)

↓

The outdoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the outdoor unit failure mode table. (10-2.3.)
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

Release the failure mode recall function according to the left mentioned procedure.

↓

Repair the defective parts.

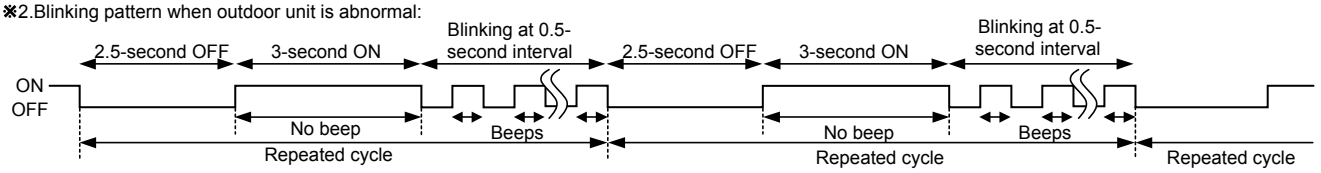
↓

Deleting the memorized abnormal condition

① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" (10-2.1.).
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function once it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2.Blinking pattern when outdoor unit is abnormal:



3. Outdoor unit failure mode table

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

The left lamp of OPERATION INDICATOR lamp (Indoor unit)	Abnormal point (Failure mode / protection)	LED indication (Outdoor P.C. board)		Condition	Remedy	Indoor/outdoor unit failure mode recall function
		LED 1	LED 2			
OFF	Non (Normal)	Lighting	Lighting	—	—	—
2-time flash	Outdoor power system	Lighting	Lighting	IPM protection stop or lock protection stop is continuously performed 3 times within 1 minute after the compressor gets started, or converter protection stop or bus-bar voltage protection stop is continuously performed 3 times within 3 minutes after start-up.	• Check the connection of the compressor connecting wire. • Refer to 10-5.Ⓐ "How to check inverter/compressor". • Refer to 10-5.Ⓕ "Check of compressor start failure". • Check the stop valve.	○
3-time flash	Discharge temperature thermistor	Lighting	Once	Thermistor shorts or opens during compressor running.	• Refer to 10-5.Ⓑ "Check of outdoor thermistors".	○
	Defrost thermistor (MUZ)	Lighting	Once			
	Ambient temperature thermistor	Lighting	Twice			
	Fin temperature thermistor	Lighting	3 times			
	P.C. board temperature thermistor	Lighting	4 times		• Replace the outdoor electronic control P.C. board.	
	Outdoor heat exchanger temperature thermistor	Lighting	9 times		• Refer to 10-5.Ⓑ "Check of outdoor thermistors".	
4-time flash	Overcurrent	Once	Goes out	28 A current flow into intelligent power module.	• Reconnect compressor connector. • Refer to 10-5.Ⓐ "How to check inverter/compressor." • Refer to 10-5.Ⓕ "Check of compressor start failure". • Check the stop valve.	—
5-time flash	Discharge temperature	Lighting	Lighting	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	• Check refrigerant circuit and refrigerant amount. • Refer to 10-5.Ⓖ "Check of LEV".	—
6-time flash	High pressure	Lighting	Lighting	The outdoor heat exchanger temperature exceeds 158°F (70°C) during cooling or the indoor gas pipe temperature exceeds 158°F (70°C) during heating (MUZ).	• Check refrigerant circuit and refrigerant amount. • Check the stop valve.	—
7-time flash	Fin temperature	3 times	Goes out	The fin temperature exceeds 189°F (87°C) during operation.	• Check around outdoor unit. • Check outdoor unit air passage. • Refer to 10-5.Ⓓ "Check of outdoor fan motor".	—
	P.C. board temperature	4 times	Goes out	The P.C. board temperature exceeds 158°F (70°C) during operation.		
8-time flash	Outdoor fan motor	Lighting	Lighting	Failure occurs continuously 3 times within 30 seconds after the fan gets started.	• Refer to 10-5.Ⓓ "Check of outdoor fan motor".	—
9-time flash	Nonvolatile memory data	Lighting	5 times	Nonvolatile memory data cannot be read properly.	• Replace the outdoor electronic control P.C. board.	○
10-time flash	Discharge temperature	Lighting	Lighting	The frequency of the compressor is kept 80 Hz or more and the discharge temperature is kept under 102°F (39°C) for more than 20 minutes.	• Check refrigerant circuit and refrigerant amount. • Refer to 10-5.Ⓖ "Check of LEV".	—
11-time flash	Communication error between P.C. boards	Lighting	6 times	Communication error occurs between the electronic control P.C. board and power board for more than 10 seconds.	• Check the connecting wire between outdoor electronic control P.C. board and power board.	—
				The communication between boards protection stop is continuously performed twice.		○
	Current sensor	Lighting	7 times	A short or open circuit is detected in the current sensor during compressor operating.	• Replace the power board.	—
				Current sensor protection stop is continuously performed twice.		○
	Zero cross detecting circuit	5 times	Goes out	Zero cross signal cannot be detected while the compressor is operating.	• Check the connecting wire among electronic control P.C. board, noise filter P.C. board and power board.	—
				The protection stop of the zero cross detecting circuit is continuously performed 10 times.		○

NOTE: Blinking patterns of this mode differ from the ones of Troubleshooting check table (10-3.).

The left lamp of OPERATION INDICATOR lamp (Indoor unit)	Abnormal point (Failure mode / protection)	LED indication (Outdoor P.C. board)		Condition	Remedy	Indoor/outdoor unit failure mode recall function
		LED 1	LED 2			
11-time flash	Converter	5 times	Goes out	A failure is detected in the operation of the converter during operation.	• Check the voltage of power supply. • Replace the power board.	—
	Bus-bar voltage (1)	5 times	Goes out	The bus-bar voltage exceeds 400 V or falls to 200 V or below during compressor operating.		
	Bus-bar voltage (2) ※ Even if this protection stop is performed continuously 3 times, it does not mean the abnormality in outdoor power system.	6 times	Goes out	The bus-bar voltage exceeds 400 V or falls to 50 V or below during compressor operating.	• Check the voltage of power supply. • Replace the outdoor electronic control P.C. board.	

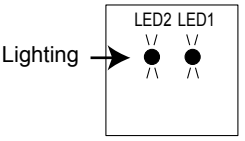
10-3. TROUBLESHOOTING CHECK TABLE

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

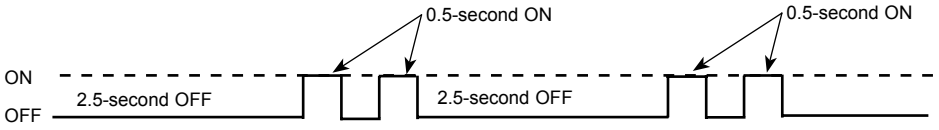
No.	Symptom	Indication		Abnormal point / Condition	Condition	Remedy
		LED1 (Red)	LED2 (Yellow)			
1	Outdoor unit does not operate.	Lightning	Twice	Outdoor power system	IPM protection stop or lock protection stop is continuously performed three times within 1 minute after the compressor gets started, or converter protection stop or bus-bar voltage protection stop is continuously performed 3 times within 3 minutes after start-up.	• Check the connection of the compressor connecting wire. • Refer to 10-5.Ⓐ "How to check inverter/compressor". • Refer to 10-5.Ⓕ "Check of compressor start failure". • Check the stop valve.
2		Lightning	3 times	Discharge temperature thermistor	A short circuit is detected in the thermistor during operation, or an open circuit is detected in the thermistor after 10 minutes of compressor start-up.	• Refer to 10-5.Ⓑ "Check of outdoor thermistors".
3		Lightning	4 times	Fin temperature thermistor	A short or open circuit is detected in the thermistor during operation.	• Refer to 10-5.Ⓑ "Check of outdoor thermistors".
				P.C. board temperature thermistor		• Replace the outdoor electronic control P.C. board.
4		Lightning	5 times	Ambient temperature thermistor	A short or open circuit is detected in the thermistor during operation.	• Refer to 10-5.Ⓑ "Check of outdoor thermistors".
				Outdoor heat exchanger temperature thermistor	A short circuit is detected in the thermistor during operation, or an open circuit is detected in the thermistor after 5 minutes (in cooling) and 10 minutes (in heating (MUZ)) of compressor start-up.	
				Defrost thermistor (MUZ)	A short circuit is detected in the thermistor during operation, or an open circuit is detected in the thermistor after 5 minutes of compressor start-up.	
5		Lightning	6 times	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	• Refer to 10-5.Ⓗ "How to check miswiring and serial signal error.
6		Lightning	7 times	Nonvolatile memory data	The nonvolatile memory data cannot be read properly.	• Replace the outdoor electronic control P.C. board.
7		Lightning	8 times	Current sensor	Current sensor protection stop is continuously performed twice.	• Replace the power board.
8		Lightning	11 times	Communication error between P.C. boards	The communication protection stop between boards is continuously performed twice.	• Check the connecting wire between outdoor electronic control P.C. board and power board.
9		Lightning	12 times	Zero cross detecting circuit	The protection stop of the zero cross detecting circuit is continuously performed 10 times.	• Check the connecting wire among outdoor electronic control P.C. board, noise filter P.C. board and power board.
10	'Outdoor unit stops and restarts 3 minutes later' is repeated.	Twice	Goes out	IPM protection	Overcurrent is detected after 30 seconds of compressor start-up.	• Reconnect compressor connector. • Refer to 10-5.Ⓐ "How to check inverter/compressor". • Refer to 10-5.Ⓕ "Check of compressor start failure". • Check the stop valve. • Check the power module (PAM module).
				Lock protection	Overcurrent is detected within 30 seconds of compressor start-up.	
11		3 times	Goes out	Discharge temperature protection	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	• Check the amount of gas and refrigerant circuit. • Refer to 10-5.Ⓒ "Check of LEV".
12		4 times	Goes out	Fin temperature protection	The fin temperature exceeds 189°F (87°C) during operation.	• Check around outdoor unit. • Check outdoor unit air passage. • Refer to 10-5.Ⓓ "Check of outdoor fan motor".
				P.C. board temperature protection	The P.C. board temperature exceeds 158°F (70°C) during operation.	
13		5 times	Goes out	High-pressure protection	The outdoor heat exchanger temperature exceeds 158°F (70 °C) during cooling or indoor gas pipe temperature exceeds 158°F (70°C) during heating (MUZ).	• Check around of gas and the refrigerant circuit. • Check of stop valve.
14		8 times	Goes out	Converter protection	A failure is detected in the operation of the converter during operation.	• Replace the power board.
15		9 times	Goes out	Bus-bar voltage protection (1)	The bus-bar voltage exceeds 400 V or falls to 200 V or below during compressor operating.	• Check the voltage of power supply. • Replace the power board or the outdoor electronic control P.C. board. • Refer to 10-5.Ⓙ "Check of bus-bar voltage".
				Bus-bar voltage protection (2)	The bus-bar voltage exceeds 400 V or falls to 50 V or below during compressor operating.	
16		13 times	Goes out	Outdoor fan motor	Failure occurs continuously three times within 30 seconds after the fan gets started.	• Refer to 10-5.Ⓓ "Check of outdoor fan motor".
17		Lighting	8 times	Current sensor protection	A short or open circuit is detected in the current sensor during compressor operating.	• Replace the power board.
18		Lighting	11 times	Communication between P.C. boards protection	Communication error occurs between the outdoor electronic control P.C. board and power board for more than 10 seconds.	• Check the connecting wire between outdoor electronic control P.C. board and power board.
19		Lighting	12 times	Zero cross detecting circuit protection	Zero cross signal cannot be detected while the compressor is operating.	• Check the connecting wire among outdoor electronic control P.C. board, noise filter P.C. board and power board.

NOTE 1. The location of LED is illustrated at the right figure. Refer to 10-6.1.
2. LED is lighted during normal operation.

Outdoor electronic control P.C. board(Parts side)



The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF.
(Example) When the flashing frequency is “2”.



No.	Symptom	Indication		Abnormal point / Condition	Condition	Remedy
		LED1 (Red)	LED2 (Yellow)			
20	Outdoor unit operates.	Once	Lighting	Primary current protection	The input current exceeds 15 A.	• These symptoms do not mean any abnormality of the product, but check the following points. • Check if indoor filters are clogged. • Check if refrigerant is short. • Check if indoor/outdoor unit air circulation is short cycled.
				Secondary current protection	The current of the compressor exceeds 15 A.	
21		Twice	Lighting	High-pressure protection (MUZ)	The indoor gas pipe temperature exceeds 113°F (45°C) during heating.	
				Defrosting in cooling	The indoor gas pipe temperature falls 37°F (3°C) or below during cooling.	
22		3 times	Lighting	Discharge temperature protection	The discharge temperature exceeds 212°F (100°C) during operation.	• Check refrigerant circuit and refrigerant amount. • Refer to 10-5.Ⓖ "Check of LEV". • Refer to 10-5.Ⓑ "Check of outdoor thermistors".
23		4 times	Lighting	Low discharge temperature protection	The frequency of the compressor is kept 80 Hz or more and the discharge temperature is kept under 102°F (39°C) for more than 20 minutes.	• Refer to 10-5.Ⓖ "Check of LEV". • Check refrigerant circuit and refrigerant amount.
24		5 times	Lighting	Cooling high-pressure protection	The outdoor heat exchanger temperature exceeds 136°F (58 °C) during operation.	• This symptom does not mean any abnormality of the product, but check the following points. • Check if indoor filters are clogged. • Check if refrigerant is short. • Check if indoor/outdoor unit air circulation is short cycled.
25	Outdoor unit operates	9 times	Lighting	Inverter check mode	The unit is operated with emergency operation switch.	–
26		Lighting	Lighting	Normal	–	–

10-4. TROUBLE CRITERION OF MAIN PARTS

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

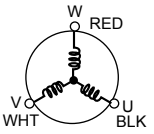
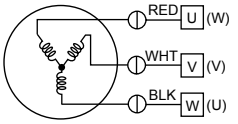
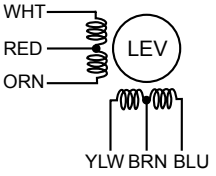
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor (RT61) (MUZ)

Ambient temperature thermistor (RT65)

Outdoor heat exchanger temperature thermistor (RT68)

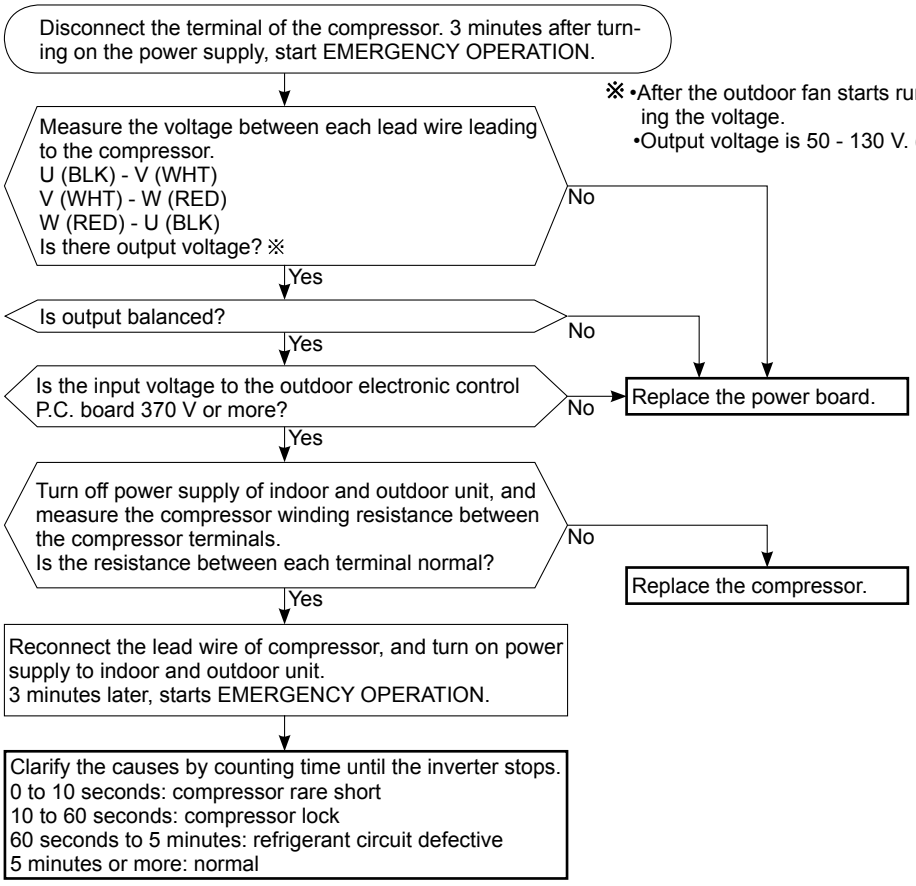
Fin temperature thermistor (RT64)</td><td>Measure the resistance with a tester.

Refer to 10-6. “Test point diagram and voltage”, 1. “Outdoor electronic control P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Discharge temperature thermistor (RT62)</td><td>Measure the resistance with a tester. Before measurement, hold the thermistor with your hands to warm it up.

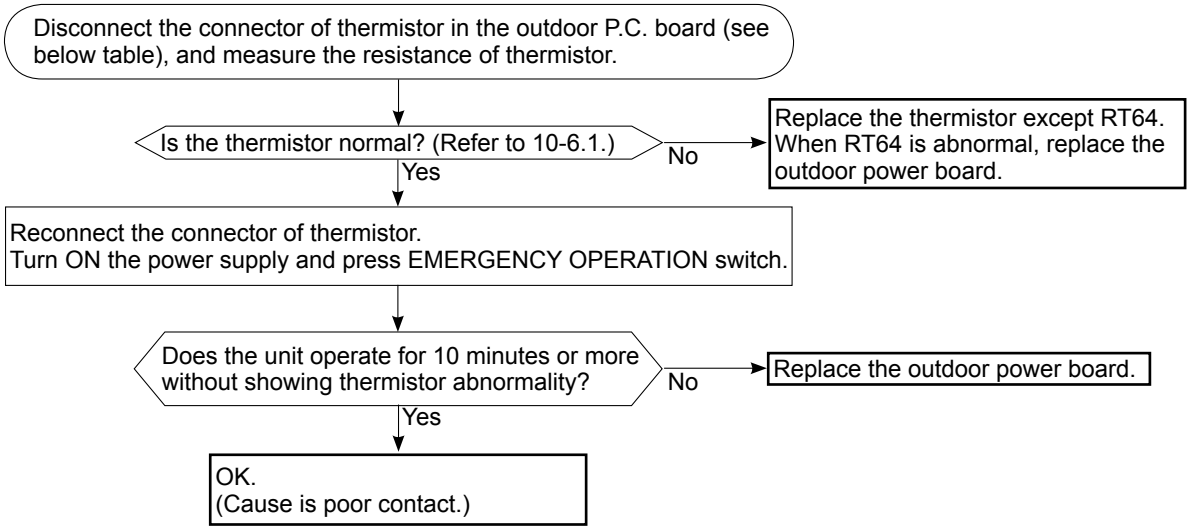
Refer to 10-6. “Test point diagram and voltage”, 1. “Outdoor electronic control P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Compressor</td><td>Measure the resistance between terminals using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Normal</th></tr><tr><td>1.24 ~ 1.53 Ω</td></tr></table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor</td><td>Measure the resistance between lead wires using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Color of lead wire</th><th>Normal</th></tr><tr><td>RED – BLK</td><td rowspan="3">13 ~ 16 Ω</td></tr><tr><td>BLK – WHT</td></tr><tr><td>WHT – RED</td></tr></table></td><td> 
</td></tr>
<tr><td>R. V. coil (MUZ)</td><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Normal</th></tr><tr><td>1.20 ~ 1.55 kΩ</td></tr></table></td><td></td></tr>
<tr><td>Linear expansion valve</td><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Color of lead wire</th><th>Normal</th></tr><tr><td>WHT – RED</td><td rowspan="4">38 ~ 50 Ω</td></tr><tr><td>RED – ORN</td></tr><tr><td>YLW – BRN</td></tr><tr><td>BRN – BLU</td></tr></table></td><td> 
</td></tr>
</table>

10-5. TROUBLESHOOTING FLOW

Ⓐ How to check inverter/compressor



Ⓑ Check of outdoor thermistors

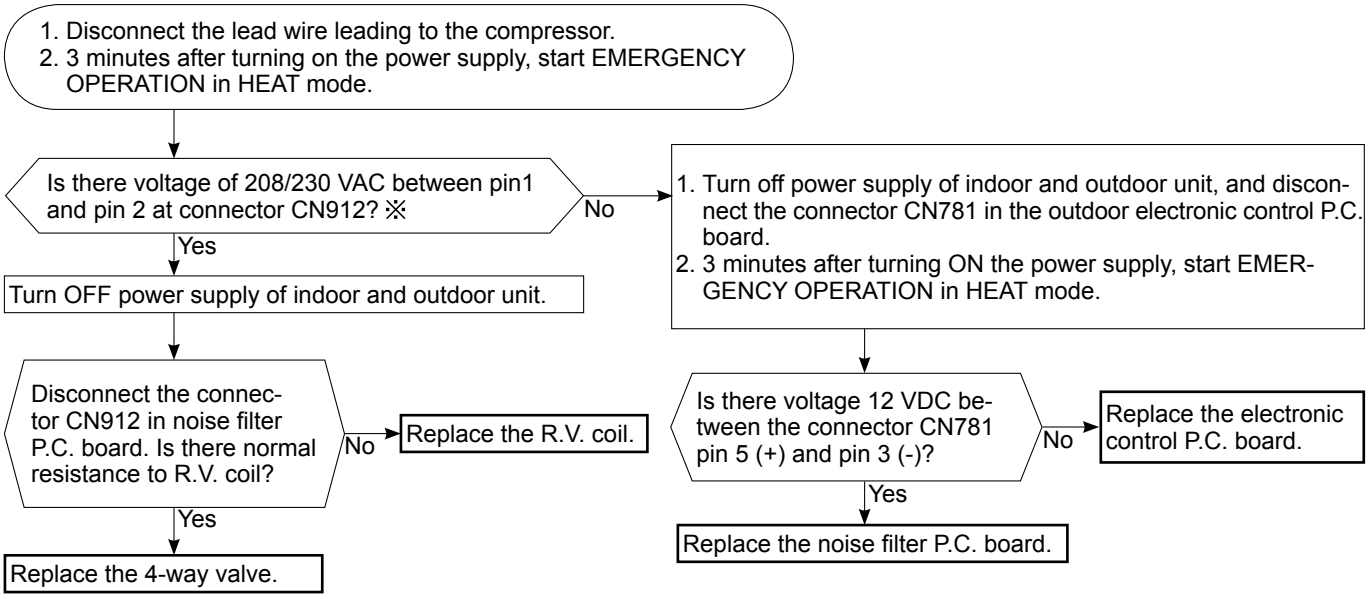


Thermistor	Symbol	Connector, Pin No.	Board
Defrost (**MUZ**)	RT61	Between CN661 pin1 and pin2	Outdoor electronic control P.C. board
Discharge temperature	RT62	Between CN661 pin3 and pin4	
Outdoor heat exchanger temperature	RT68	Between CN661 pin7 and pin8	
Ambient temperature	RT65	Between CN663 pin1 and pin2	
Fin temperature	RT64	Between CN3 pin1 and pin2	Outdoor power board

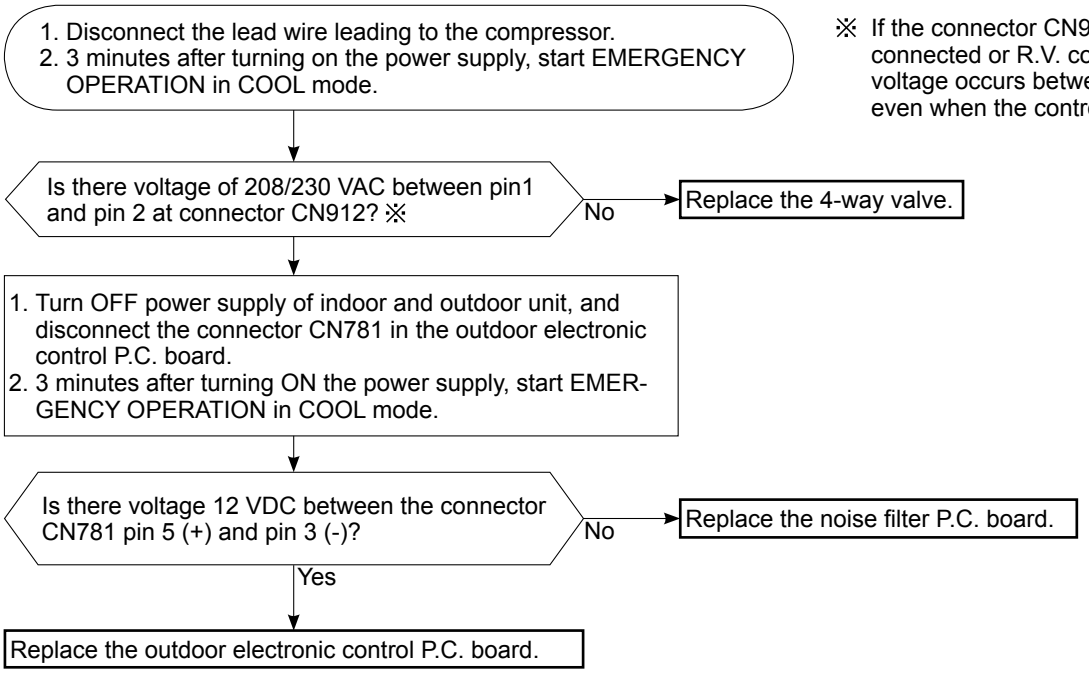
Ⓒ Check of R.V. coil

MUZ-D30/36

• Heating operation does not work.

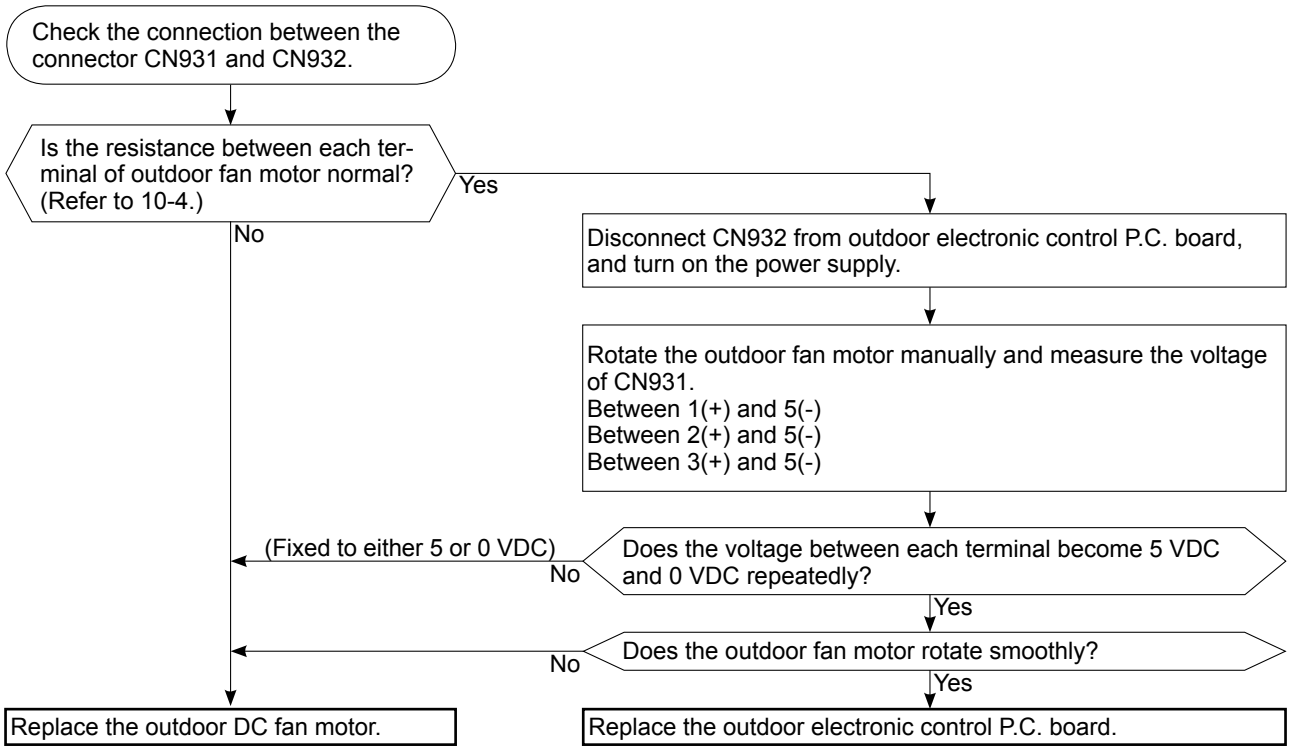


• Cooling operation does not work.

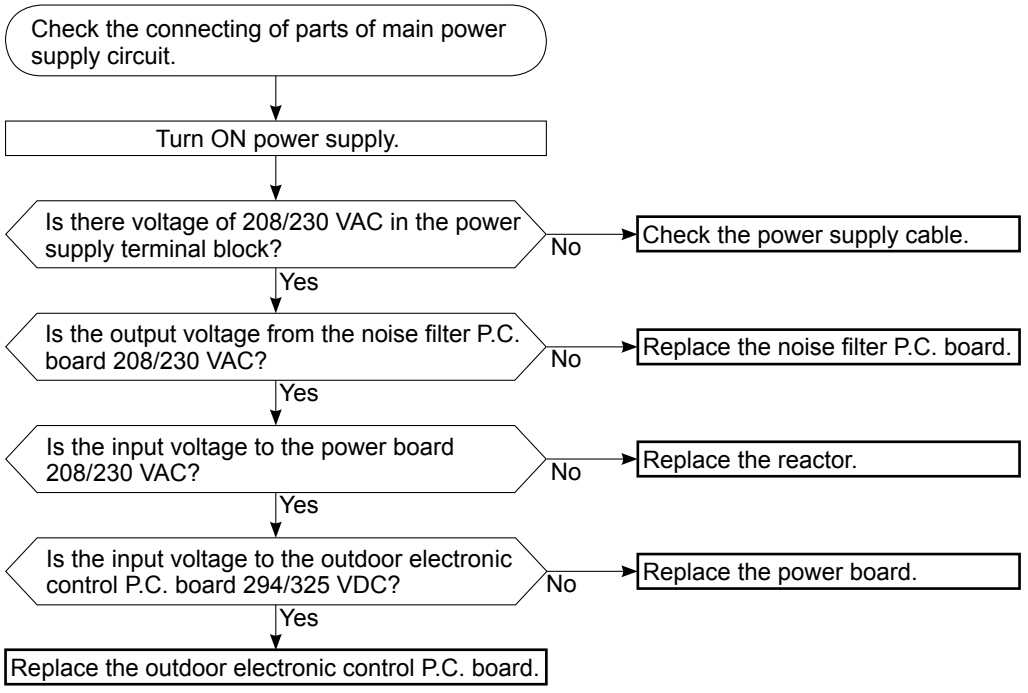


※ If the connector CN912 is not connected or R.V. coil is open, voltage occurs between terminals even when the control is OFF.

Ⓓ Check of outdoor fan motor



Ⓔ Check of power supply



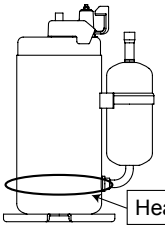
Ⓕ Check of compressor start failure

Confirm that 1~4 is normal.
•Electrical circuit check
1. Contact of lead wire leading to compressor
2. Output voltage of the outdoor electronic control P.C. board and balance of them (See 10-5.Ⓐ)
3. Direct current voltage to the outdoor electronic control P.C. board
4. Voltage between outdoor terminal block S1-S2

Does the compressor run for 10 seconds or more after it starts?
- Yes → Check the refrigerant circuit. Check the stop valve.
- No ↓

After the compressor is heated with a drier, does the compressor start? ※1
- No → Replace the compressor.
- Yes ↓

Compressor start failure. Activate pre-heat control. (Refer to 9-1. "PRE-HEAT CONTROL")



※1
Heat the compressor with a drier for about 20 minutes. Do not recover refrigerant gas while heating.

ⒼCheck of LEV

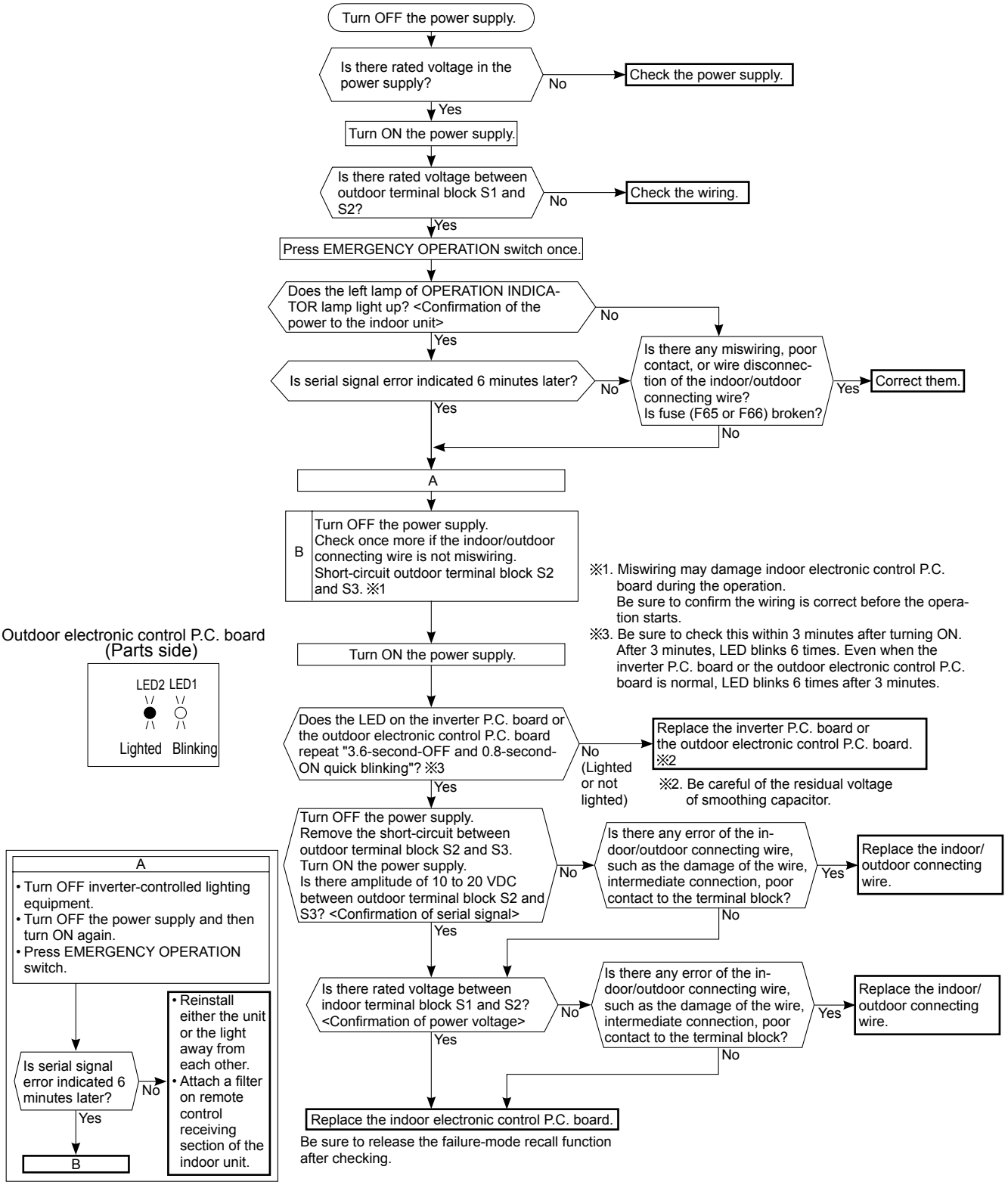
Turn ON power supply to the outdoor unit after checking LEV coil is mounted to the LEV body securely.

Is "click - click" sound heard? Or, do you feel vibration of the LEV coil with a hand?
- Yes → Normal
- No ↓

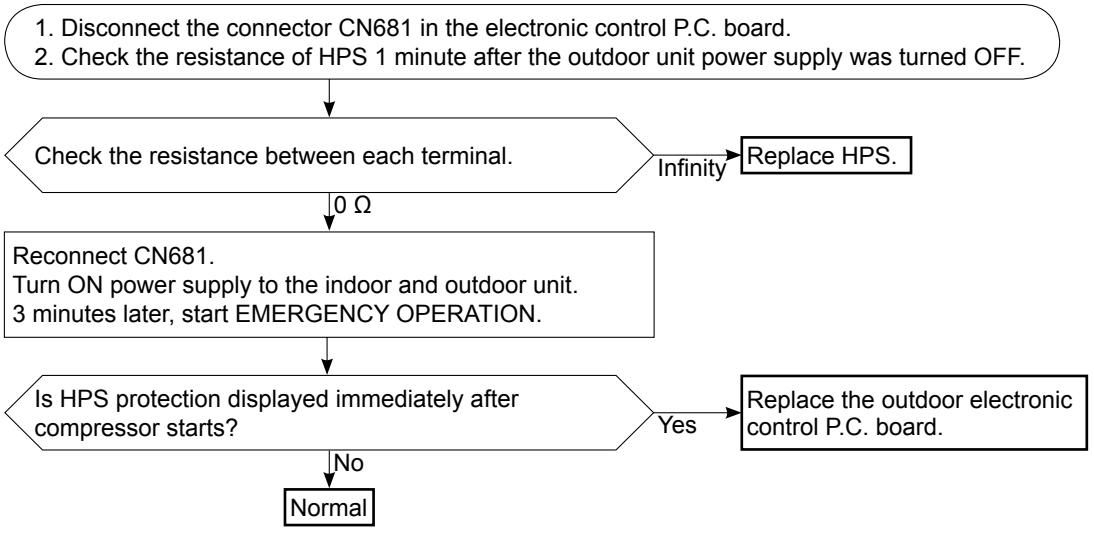
Disconnect the connector CN795. Is there normal resistance to LEV coil?
- Yes → Replace the outdoor electronic control P.C. board.
- No ↓

Replace the LEV coil.

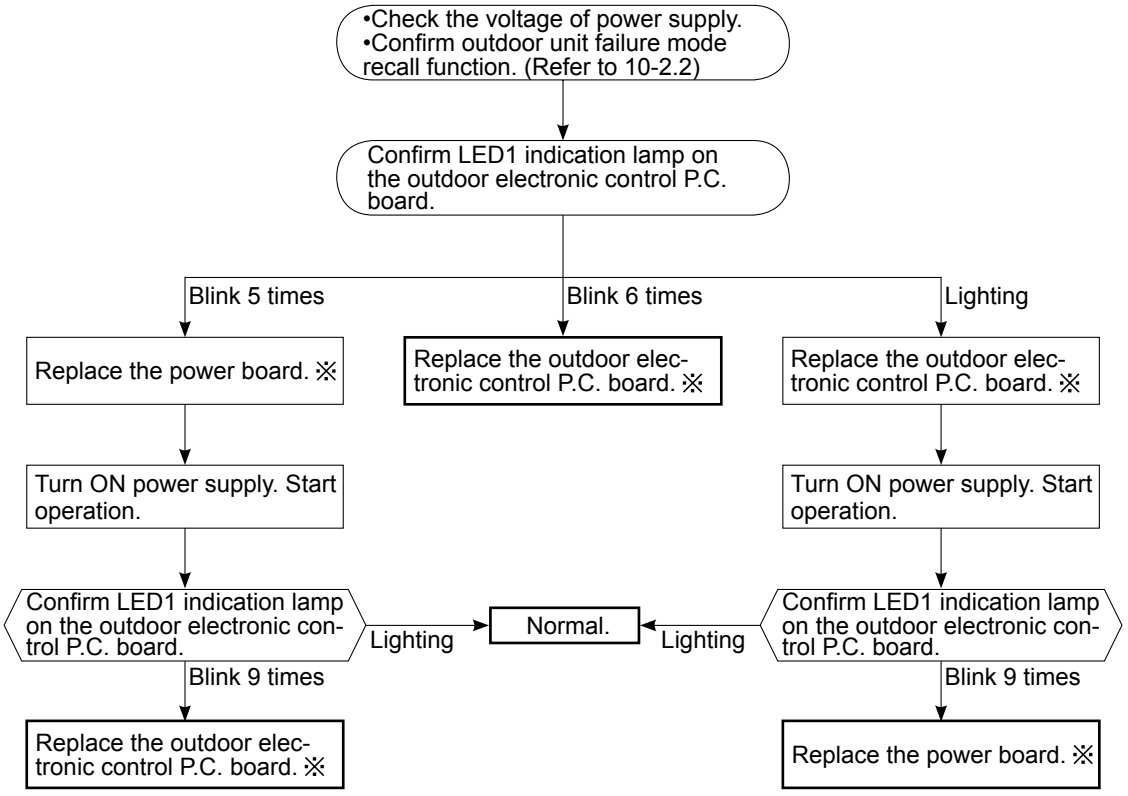
Ⓗ How to check miswiring and serial signal error



Ⓘ Check of HPS

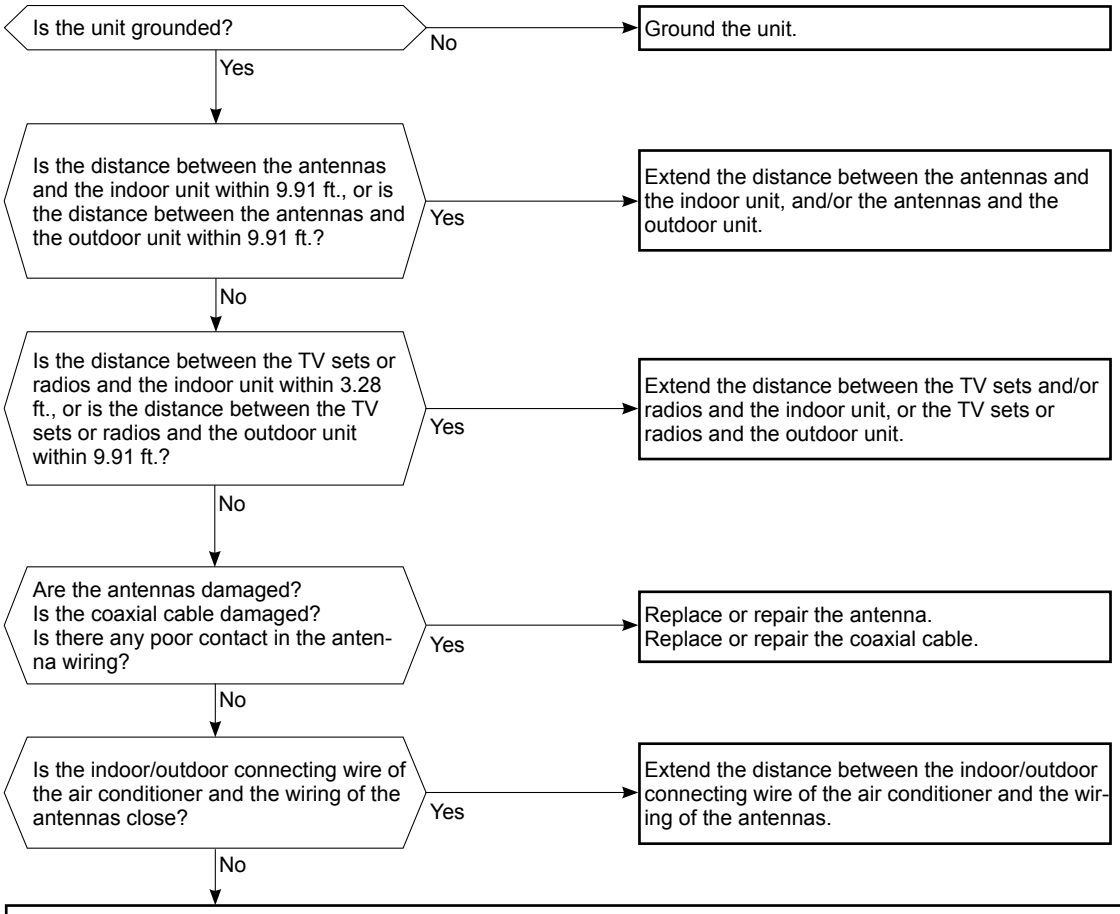


Ⓙ Check of bus-bar voltage



※ Turn OFF power supply before removing P.C. board.

Ⓚ Electromagnetic noise enters into TV sets or radios



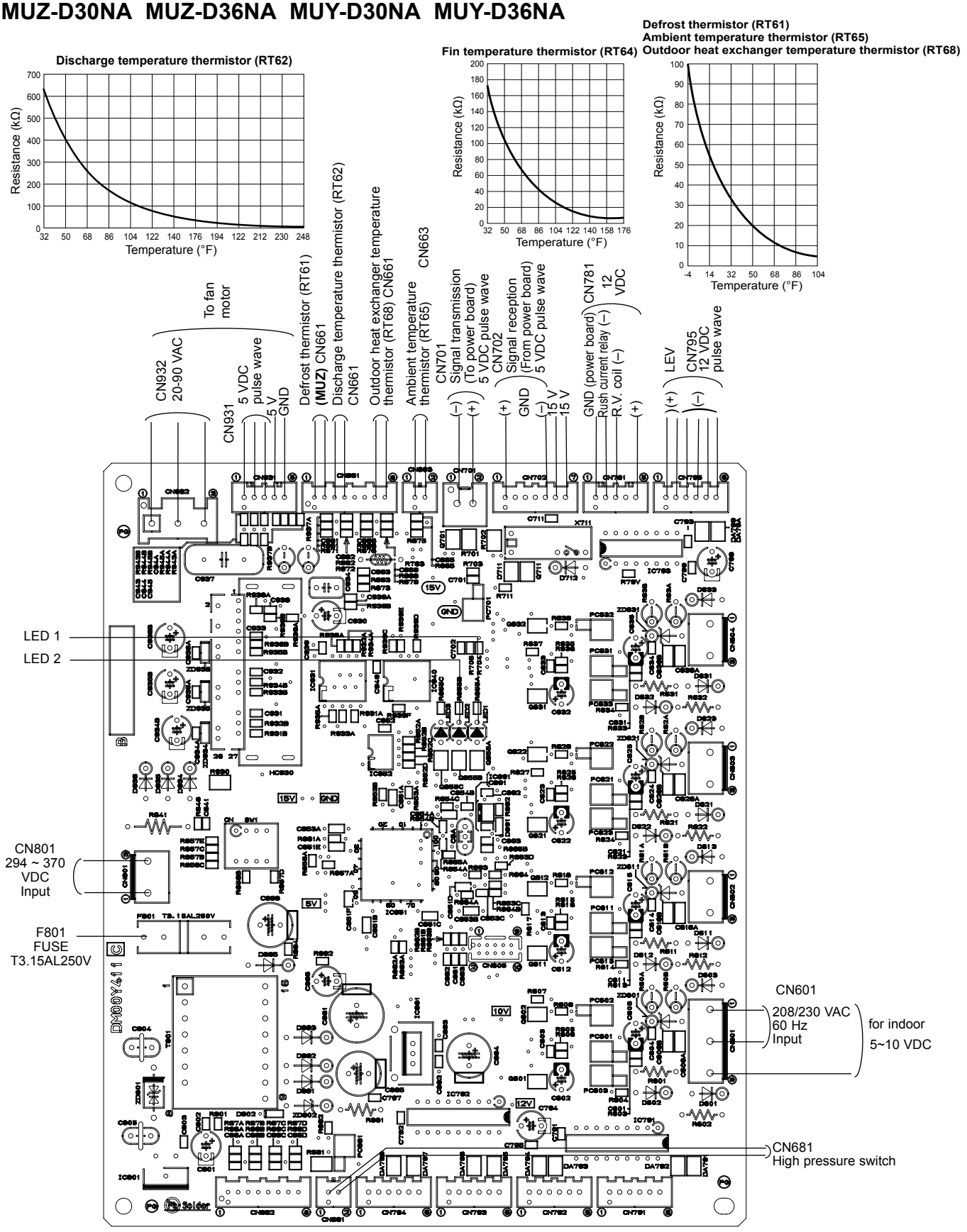
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the followings before asking for service.

1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding 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 OPERATE/STOP (ON/OFF) 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 OPERATE/STOP (ON/OFF) 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.

10-6. TEST POINT DIAGRAM AND VOLTAGE

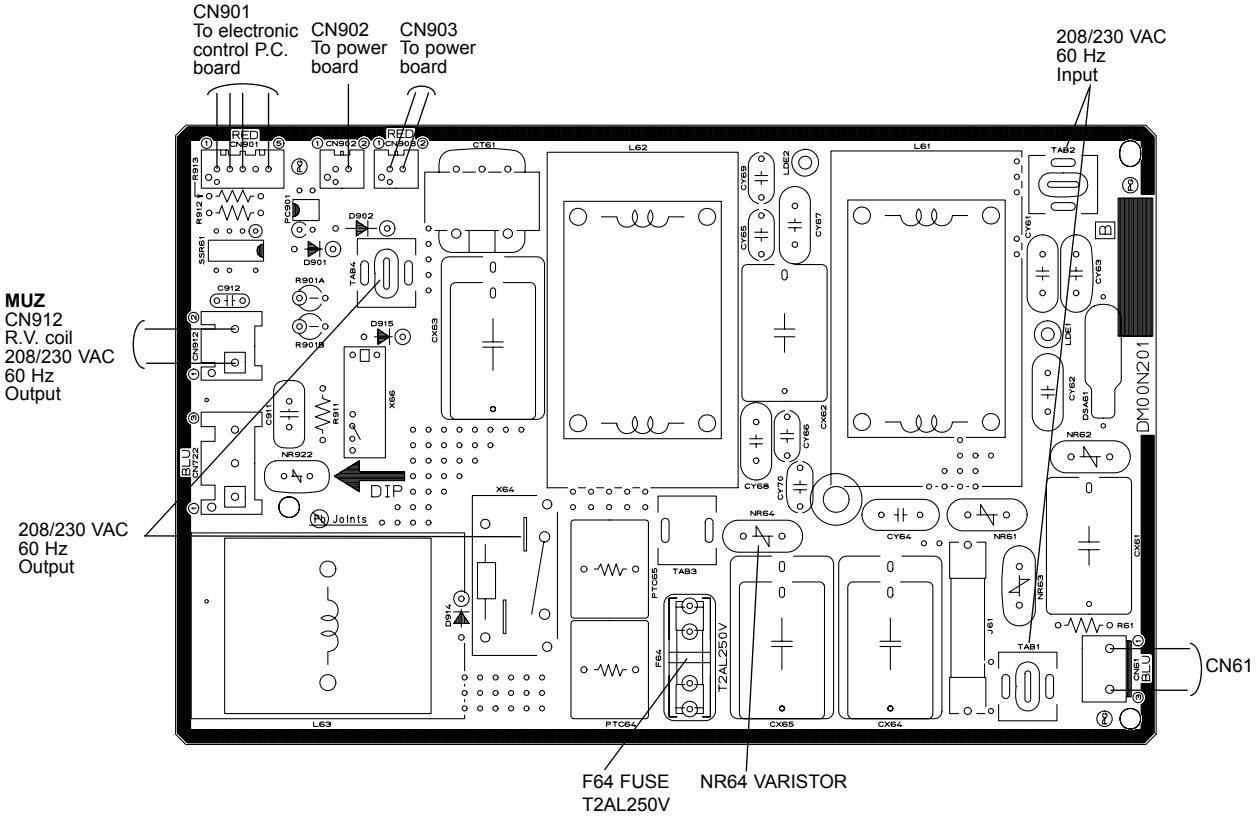
1. Outdoor electronic control P.C. board

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA



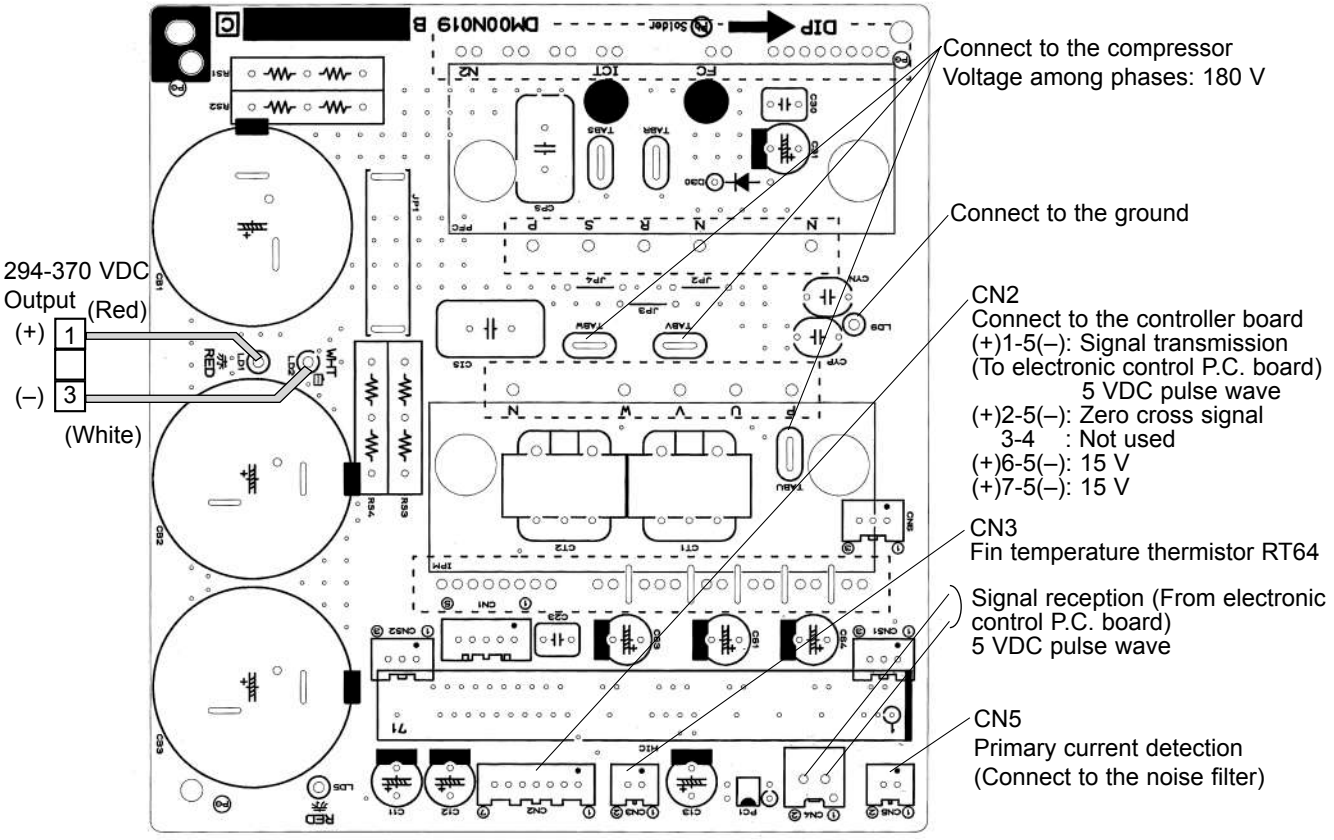
2. Noise filter P.C. board

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA



3. Outdoor power board

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

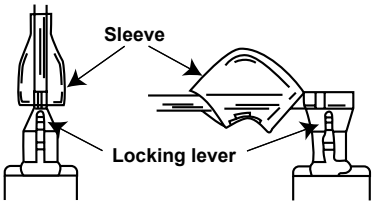


11 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

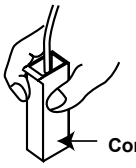
The terminal which has the locking mechanism can be detached as shown below.
There are two types (refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



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

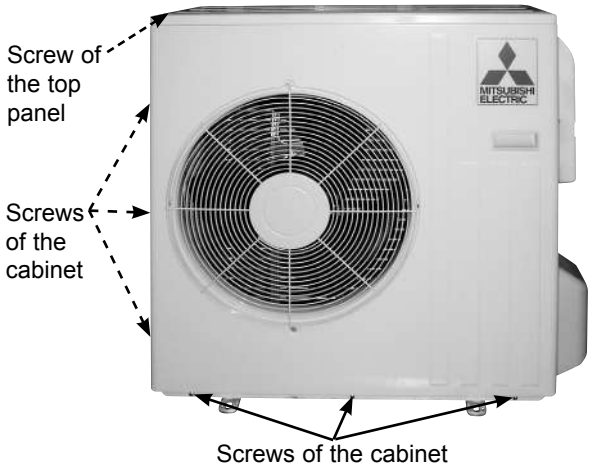
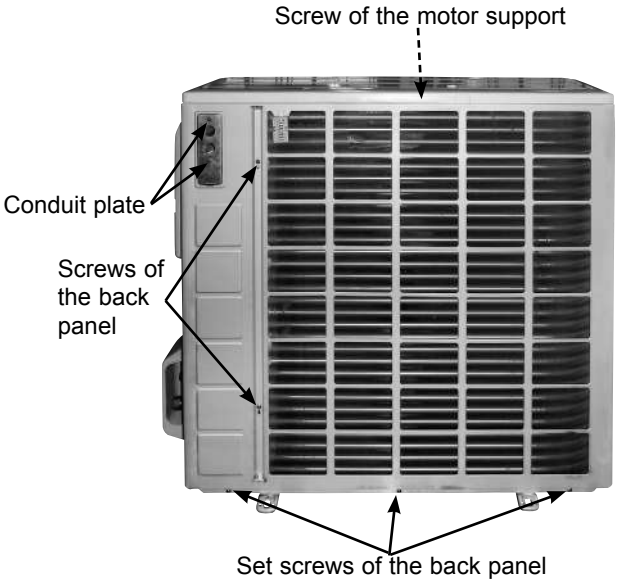
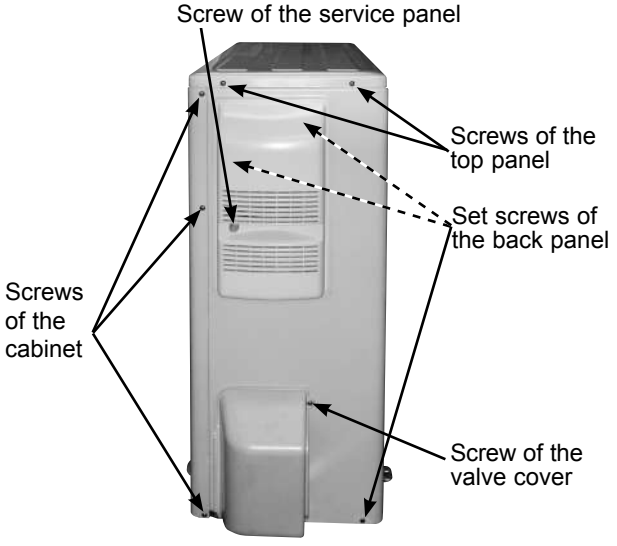
(2) The terminal with this connector has the locking mechanism.



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

MUZ-D30NA MUZ-D36NA MUY-D30NA MUY-D36NA

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Remove the screws of the cabinet. (8) Remove the cabinet. (9) Remove the screws of the back panel. (10) Remove the back panel.	**Photo 1** 
Photo 3  	**Photo 2** 

OPERATING PROCEDURE

2. Removing the inverter assembly, P.C. board and power board

(1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.)
(2) Disconnect the following connectors:
<Electronic control P.C. board>
CN931 and CN932 (Fan motor)
CN795 (LEV)
CN661 (Discharge temperature thermistor, defrost thermistor (MUZ) and outdoor heat exchanger temperature thermistor)
CN663 (Ambient temperature thermistor)
CN681 (High pressure switch) (MUZ)
<Noise filter P.C. board>
CN912 (4-way valve) (MUZ)
<Compressor>
<Reactor>
(4) Remove the screws fixing the relay panel.
(5) Remove the inverter assembly.
(6) Disconnect all connectors and lead wires on the electronic control P.C. board.
(7) Remove the electronic control P.C. board from the inverter assembly.
(8) Remove the screws fixing the power board assembly.
(9) Disconnect all connectors and lead wires on the power board.
(10) Remove the power board from the inverter assembly.
(11) Disconnect all connectors and lead wires on the noise filter P.C. board.
(12) Remove the noise filter P.C. board from the inverter assembly.

3. Removing R.V. coil (MUZ)

(1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.)
(2) Disconnect the following connectors:
<Noise filter P.C. board>
CN912 (4-way valve)
(3) Remove the R.V. coil. (Photo 9)

PHOTOS

Photo 4

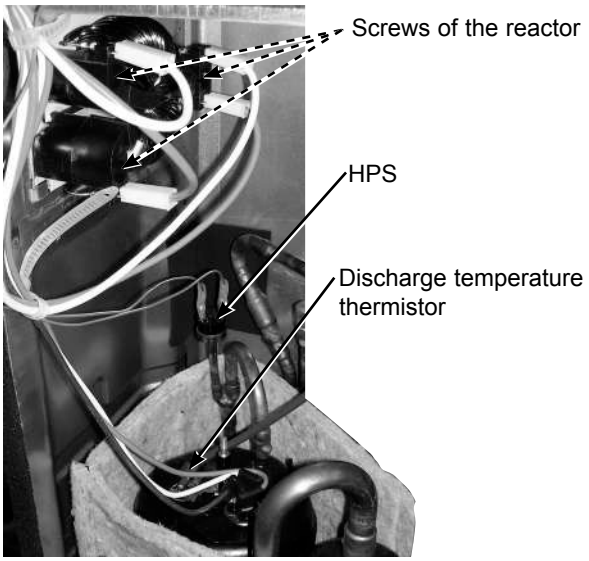


Photo 5 (Inverter assembly)

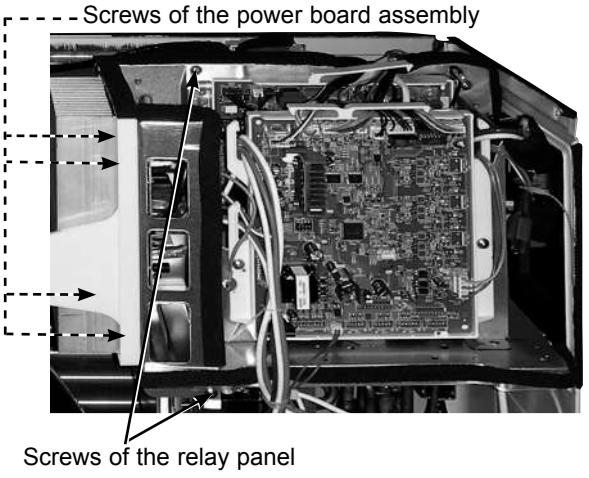
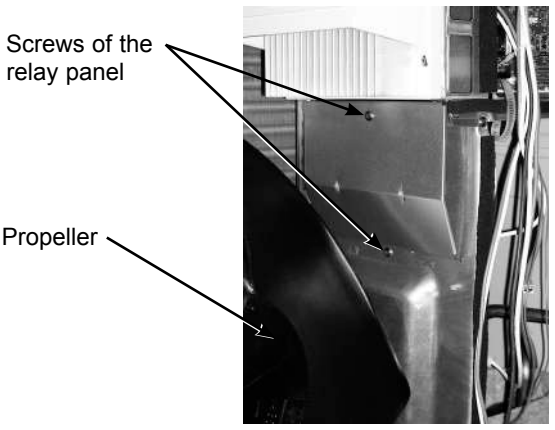
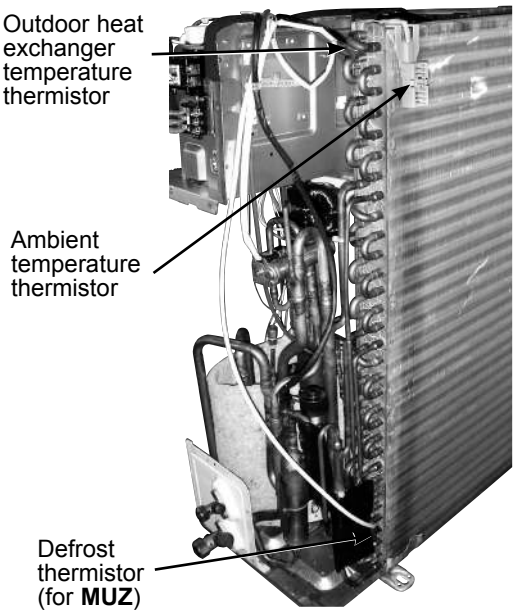
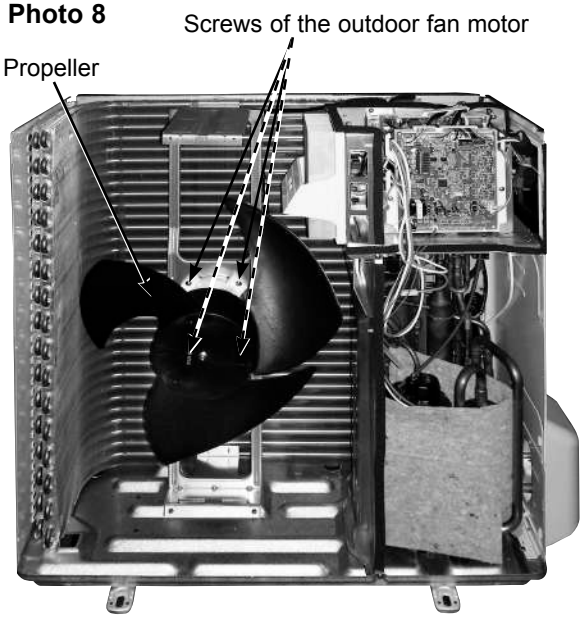
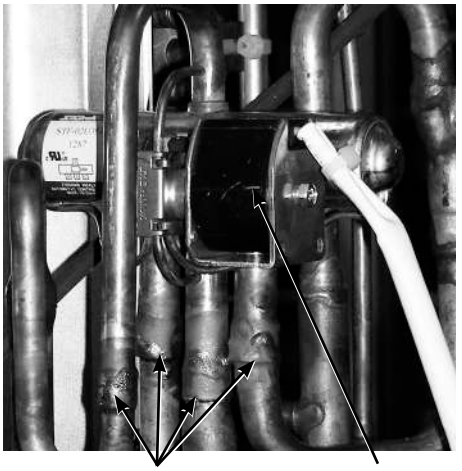
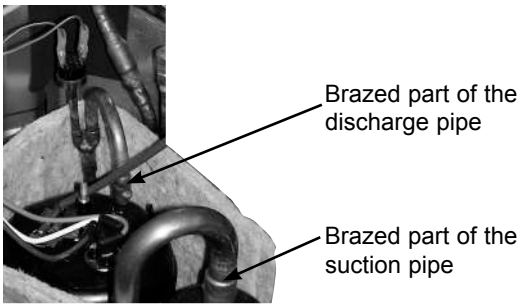


Photo 6



OPERATING PROCEDURE	PHOTOS
4. Removing the defrost thermistor (MUZ), discharge temperature thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.) (2) Disconnect the following connectors: <Electronic control P.C. board> CN661 (Discharge temperature thermistor, defrost thermistor (**MUZ**) and outdoor heat exchanger temperature thermistor) CN663 (Ambient temperature thermistor) (3) Pull out the defrost thermistor from its holder. (**MUZ**) (4) Pull out the discharge temperature thermistor from its holder. (Photo 4) (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 7** 
5. Removing outdoor fan motor (1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.) (2) Disconnect the following connectors: <Electronic control P.C. board> CN931 and CN932 (Fan motor) (3) Remove the propeller. (4) Remove the screws fixing the outdoor fan motor. (5) Remove the outdoor fan motor.	**Photo 8** 

OPERATING PROCEDURE	PHOTOS
6. Removing the compressor and 4-way valve (1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.) (2) Remove the inverter assembly. (Refer to 2.) (3) Remove the R.V. coil. (Refer to 3.) (4) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 PSIG. (5) Detach the brazed part of the suction and the discharge pipe connected with compressor. (6) Remove the compressor nuts. (7) Remove the compressor. (8) Detach the brazed part of 4-way valve and pipe. (Photo 8)	**Photo 9**  Brazed parts of 4-way valve R.V. coil **Photo 10**  Brazed part of the discharge pipe Brazed part of the suction pipe
7. Removing the reactor (1) Remove the top panel, cabinet, service panel and the back panel. (Refer to 1.) (2) Disconnect the reactor lead wire. (3) Remove the screws of the reactor, and remove the reactor.	

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

Distributed in Jul. 2011. No. OBH502 REVISED EDITION-C
Distributed in Jan. 2009. No. OBH502 REVISED EDITION-B 5
Distributed in Mar. 2008. No. OBH502 REVISED EDITION-A 7
Distributed in Feb. 2008. No. OBH502 7
Made in Japan

New publication, effective Jul. 2011
Specifications subject to change without notice.

MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

Changes for the Better

Revision D:
• MSZ-GE06/09/12/15/18NA-[9] and MSY-GE09/12/15/18NA-[9] have been added.

Please void OBH548 REVISED EDITION-C

INDOOR UNIT

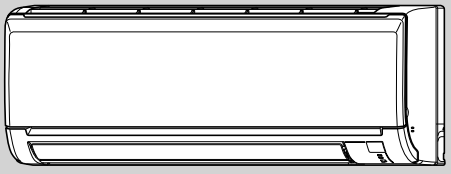
SERVICE MANUAL

No. OBH548
REVISED EDITION-D

Models

MSZ-GE06NA	MSZ-GE06NA-[8],[9]
MSZ-GE09NA	MSZ-GE09NA-[8],[9]
MSZ-GE12NA	MSZ-GE12NA-[8],[9]
MSZ-GE15NA	MSZ-GE15NA-[8],[9] DAC-8-9
MSZ-GE18NA	MSZ-GE18NA-[8],[9]
MSZ-GE24NA DAC-2-7	
MSY-GE09NA	MSY-GE09NA-[8],[9]
MSY-GE12NA	MSY-GE12NA-[8],[9]
MSY-GE15NA	MSY-GE15NA-[8],[9]
MSY-GE18NA	MSY-GE18NA-[8],[9]
MSY-GE24NA	

Outdoor unit service manual
MUZ-GE•NA MUY-GE•NA Series (OBH549)
MXZ-B·NA Series (OB444)



MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA

CONTENTS

PARTS CATALOG (OBB548)

NOTE:
RoHS compliant products have <G> mark on the spec name plate.

Mr.SLIM™

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:
• MSZ-GE24NA and MSY-GE24NA have been added.

Revision B:
• MSZ-GE06/09/12/15/18NA-8 and MSY-GE09/12/15/18NA-8 have been added.

Revision C:
• Specification has been corrected.
The value of "Moisture removal" for MSZ-GE24NA and MSY-GE24NA has been corrected. [2.7 pt./h ➔ 5.1 pt./h]

Revision D:
• MSZ-GE06/09/12/15/18NA-9 and MSY-GE09/12/15/18NA-9 have been added.

1 TECHNICAL CHANGES

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSZ-GE24NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA MSY-GE24NA

1. New model

MSZ-GE06NA ➔ MSZ-GE06NA -8
MSZ-GE09NA ➔ MSZ-GE09NA -8
MSZ-GE12NA ➔ MSZ-GE12NA -8
MSZ-GE15NA ➔ MSZ-GE15NA -8
MSZ-GE18NA ➔ MSZ-GE18NA -8
MSY-GE09NA ➔ MSY-GE09NA -8
MSY-GE12NA ➔ MSY-GE12NA -8
MSY-GE15NA ➔ MSY-GE15NA -8
MSY-GE18NA ➔ MSY-GE18NA -8

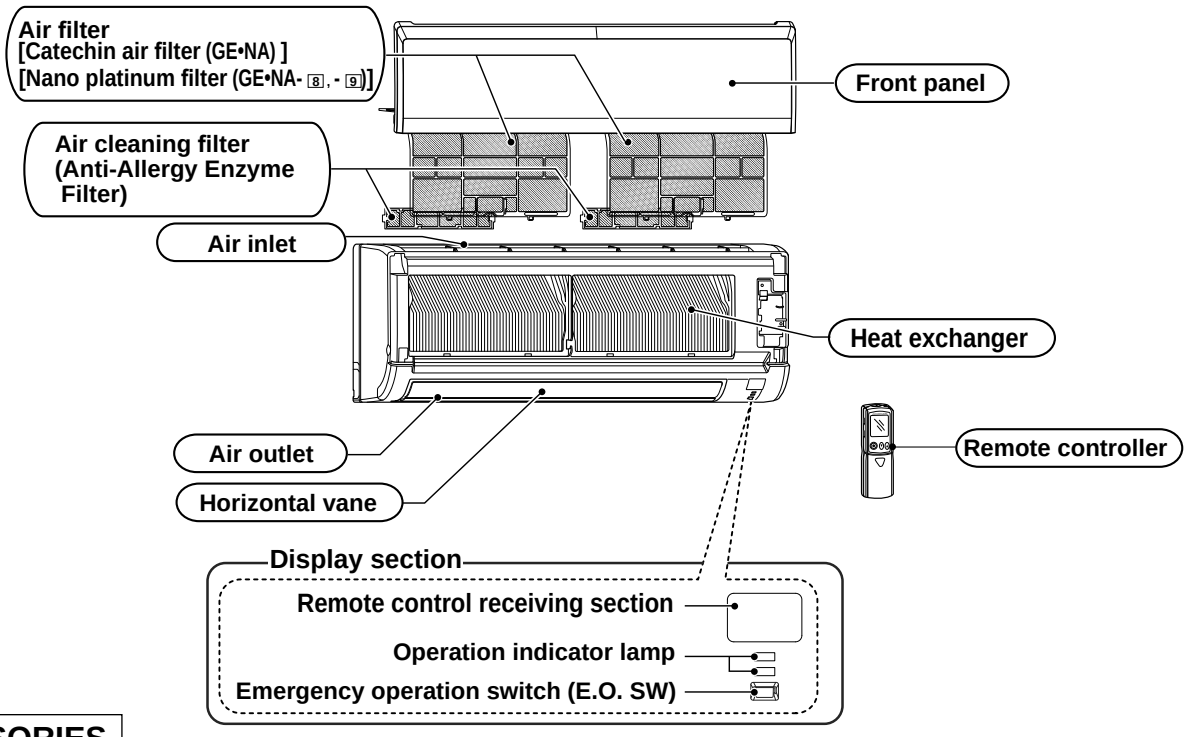
1. These models have been modified to be compatible with Honeywell remote controller.
2. Indoor electronic control P.C. board has been changed.

MSZ-GE06NA -8 ➔ MSZ-GE06NA -9
MSZ-GE09NA -8 ➔ MSZ-GE09NA -9
MSZ-GE12NA -8 ➔ MSZ-GE12NA -9
MSZ-GE15NA -8 ➔ MSZ-GE15NA -9
MSZ-GE18NA -8 ➔ MSZ-GE18NA -9
MSY-GE09NA -8 ➔ MSY-GE09NA -9
MSY-GE12NA -8 ➔ MSY-GE12NA -9
MSY-GE15NA -8 ➔ MSY-GE15NA -9
MSY-GE18NA -8 ➔ MSY-GE18NA -9

1. Model name has been changed.
2. New service parts numbers (Refer to OBB548 1-9 to 1-12.)

2 PART NAMES AND FUNCTIONS

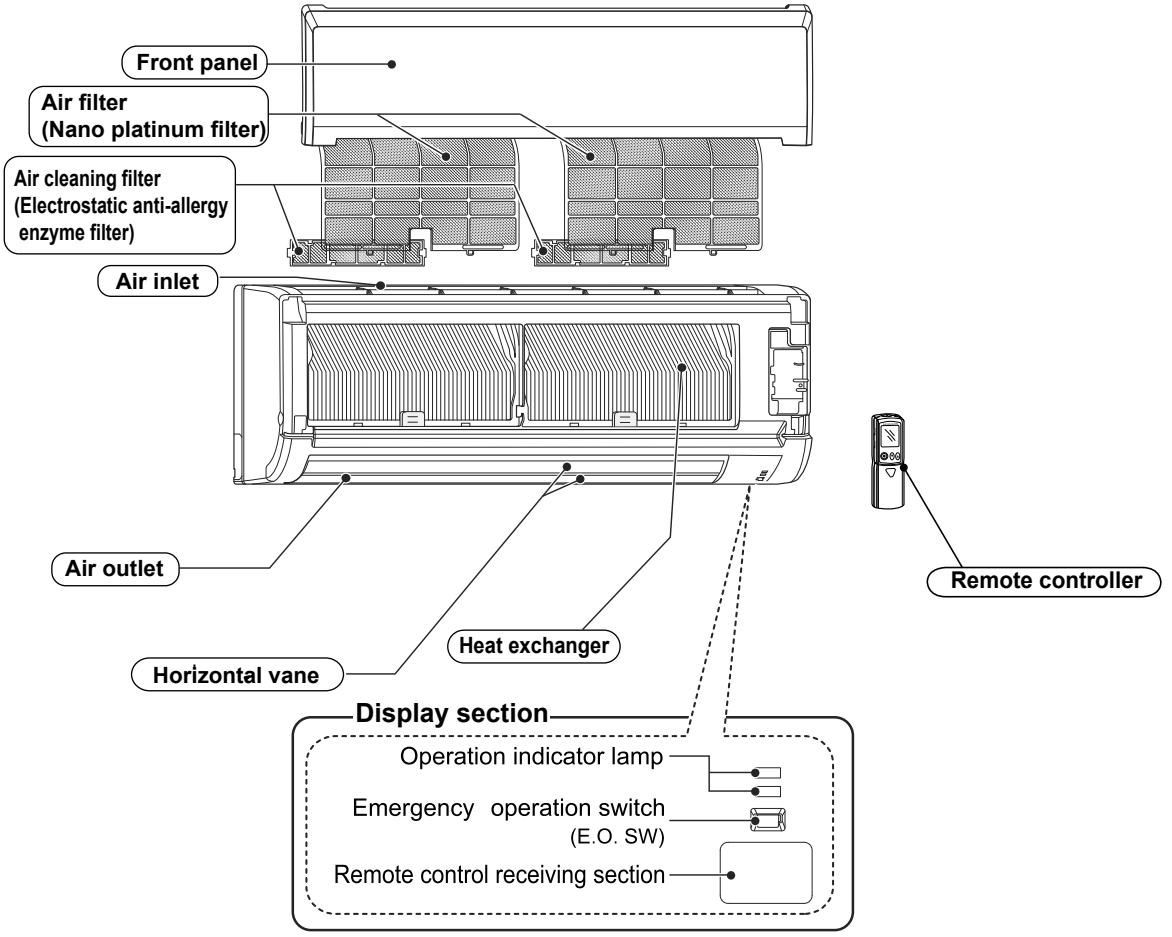
MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA



ACCESSORIES

①	Installation plate	1
②	Installation plate fixing screw 4 × 25 mm	5
③	Remote controller holder	1
④	Fixing screw for ③ 3.5 × 16 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

MSZ-GE24NA
MSY-GE24NA



ACCESSORIES

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 × 16 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
⑧	Air cleaning filter	2

3 SPECIFICATION

Indoor model			MSZ-GE06NA	MSZ-GE09NA MSY-GE09NA	MSZ-GE12NA MSY-GE12NA
Power supply	V, phase, Hz		208/230, 1, 60		
Max. fuse size (time delay)/ Disconnect switch		A	15		
Min. circuit ampacity		A	1.0		
Fan motor		F.L.A	0.76		
Airflow Super High - High - Med. - Low - Quiet	COOL Dry (Wet)	CFM	399-321-237-170-145 (364-286-201-134-109)		
	HEAT Dry	CFM	406-321-233-170-145	406-321-237-170-145	
Moisture removal		pt./h	–	1.5	2.5
Sound level Super High - High - Med. - Low - Quiet	Cooling	dB(A)	43-37-30-22-19		45-37-30-22-19
	Heating	dB(A)			43-37-30-22-19
Cond. drain connection O.D.		in.	5/8		
Dimensions	W	in.	31-7/16		
	D		9-1/8		
	H		11-5/8		
Weight		lb.	22		
External finish			Munsell 1.0Y 9.2/0.2		
Control voltage (by built-in transformer)			12 - 24 VDC		

Indoor model			MSZ-GE15NA MSY-GE15NA	MSZ-GE18NA MSY-GE18NA	MSZ-GE24NA MSY-GE24NA
Power supply	V, phase, Hz		208/230, 1, 60		
Max. fuse size (time delay)/ Disconnect switch		A	15		20
Min. circuit ampacity		A	1.0		
Fan motor		F.L.A	0.76		
Airflow Super High - High - Med. - Low - Quiet (**GE15/18**) Powerful - High - Med - Low (**GE24**)	COOL Dry (Wet)	CFM	533-420-335-272-205 (498-385-300-237-170)	533-420-339-275-230 (498-385-304-240-194)	738-628-469-388 (661-562-420-347)
	HEAT Dry	CFM	463-367-304-247-205	512-431-339-275-230	738-628-469-388
Moisture removal		pt./h	2.7	4.6	5.1
Sound level Super High - High - Med. - Low - Quiet (**GE15/18**) Powerful - High - Med - Low (**GE24**)	Cooling	dB(A)	49-44-38-32-26	49-44-38-33-28	53-49-41-34
	Heating	dB(A)	46-40-35-30-26	49-43-38-33-28	52-49-41-32
Cond. drain connection O.D.		in.	5/8		
Dimensions	W	in.	31-7/16		43-5/16
	D		9-1/8		9-3/8
	H		11-5/8		12-13/16
Weight		lb.	22		37
External finish			Munsell 1.0Y 9.2/0.2		
Control voltage (by built-in transformer)			12 - 24 VDC		

NOTE: Test conditions are based on AHRI 210/240.

3-1. OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed voltage (V)
Indoor unit	208/230 V 1 phase 60 Hz	Min. 187 208 230 Max. 253

(2) OPERATION

Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78%		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	-4	-5

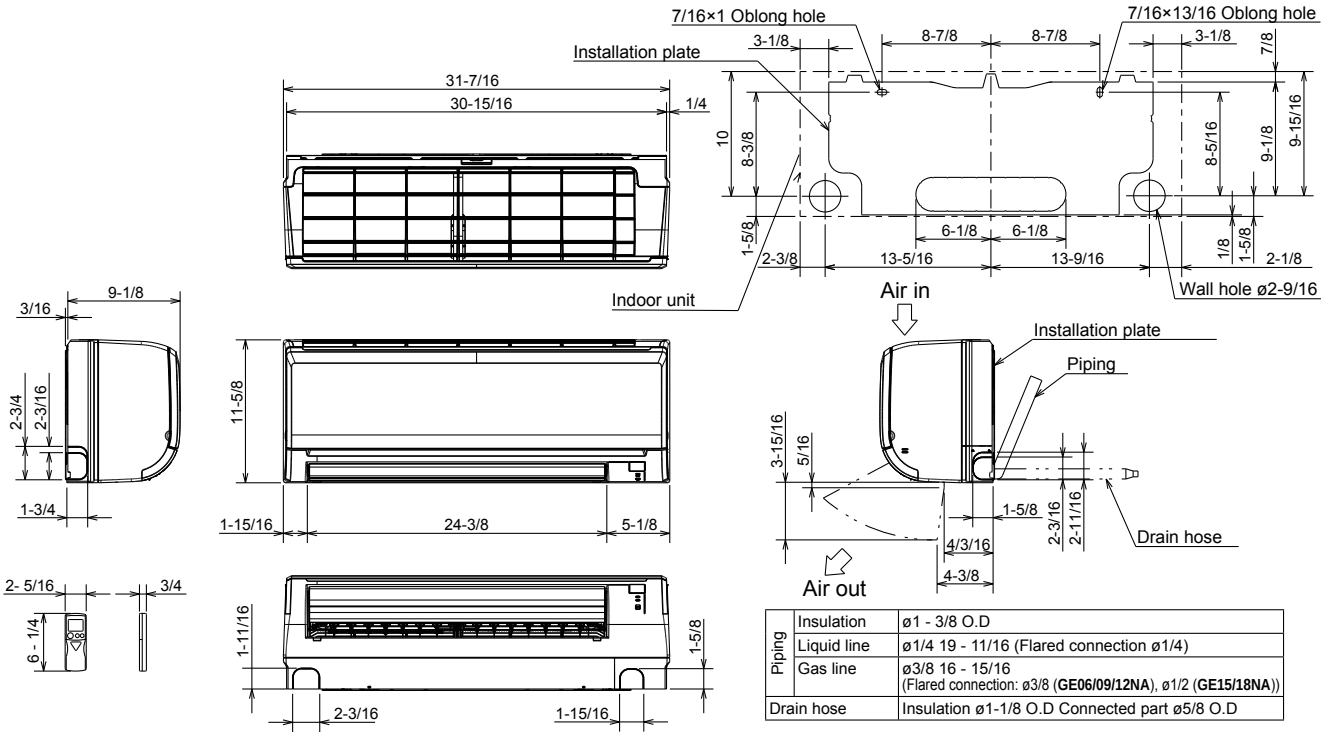
3-2. OUTLET AIR SPEED AND COVERAGE

Model	Mode	Function	Airflow (CFM)	Air speed (ft./s.)	Coverage (ft.)
MSZ-GE06NA	HEAT	Dry	406	20.6	29.5
	COOL	Dry	321	16.3	23.5
		Wet	286	14.5	21.0
MSZ-GE09NA **MSY-GE09NA**	HEAT	Dry	406	20.6	29.5
	COOL	Dry	321	16.3	23.5
		Wet	286	14.5	21.0
MSZ-GE12NA **MSY-GE12NA**	HEAT	Dry	406	20.6	29.5
	COOL	Dry	321	16.3	23.5
		Wet	286	14.5	21.0
MSZ-GE15NA **MSY-GE15NA**	HEAT	Dry	463	23.4	33.5
	COOL	Dry	420	21.3	30.5
		Wet	385	19.5	28.0
MSZ-GE18NA **MSY-GE18NA**	HEAT	Dry	512	25.9	36.9
	COOL	Dry	420	21.3	30.5
		Wet	385	19.5	28.0
MSZ-GE24NA **MSY-GE24NA**	HEAT	Dry	738	18.0	36.9
	COOL	Dry	738	18.0	36.9
		Wet	661	16.1	33.2

- The air coverage is the figure up to the position where the air speed is 1 ft./s., when air is blown out horizontally from the unit properly at the High speed position.
  The coverage should be used only as a general guideline since it varies according to the size of the room and furniture arranged inside the room.

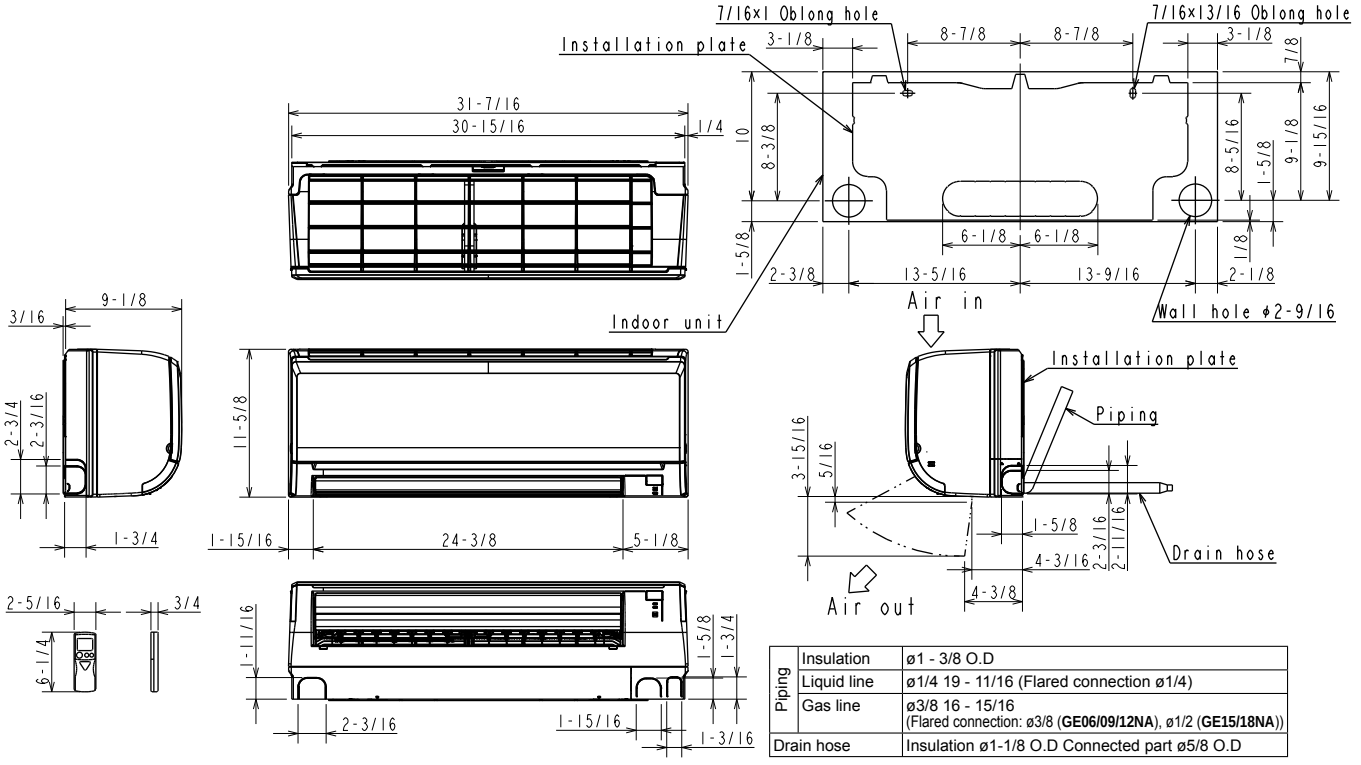
4 OUTLINES AND DIMENSIONS

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA **Unit: inch**
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA
MSZ-GE06NA-8 MSZ-GE09NA-8 MSZ-GE12NA-8 MSZ-GE15NA-8 MSZ-GE18NA-8
MSY-GE09NA-8 MSY-GE12NA-8 MSY-GE15NA-8 MSY-GE18NA-8



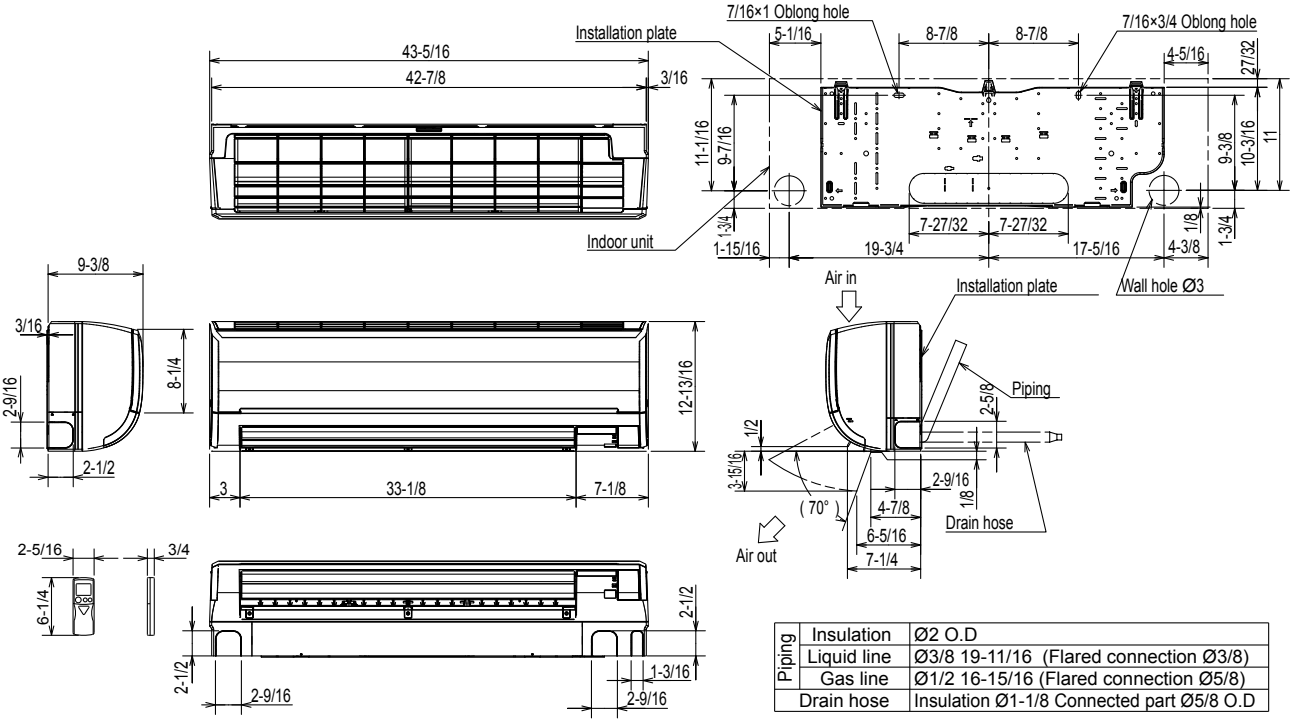
Piping	Insulation	ø1 - 3/8 O.D
	Liquid line	ø1/4 19 - 11/16 (Flared connection ø1/4)
	Gas line	ø3/8 16 - 15/16 (Flared connection: ø3/8 (**GE06/09/12NA**), ø1/2 (**GE15/18NA**))
Drain hose		Insulation ø1-1/8 O.D Connected part ø5/8 O.D

MSZ-GE06NA-9 MSZ-GE09NA-9 MSZ-GE12NA-9 MSZ-GE15NA-9 MSZ-GE18NA-9
MSY-GE09NA-9 MSY-GE12NA-9 MSY-GE15NA-9 MSY-GE18NA-9



Piping	Insulation	ø1 - 3/8 O.D
	Liquid line	ø1/4 19 - 11/16 (Flared connection ø1/4)
	Gas line	ø3/8 16 - 15/16 (Flared connection: ø3/8 (**GE06/09/12NA**), ø1/2 (**GE15/18NA**))
Drain hose		Insulation ø1-1/8 O.D Connected part ø5/8 O.D

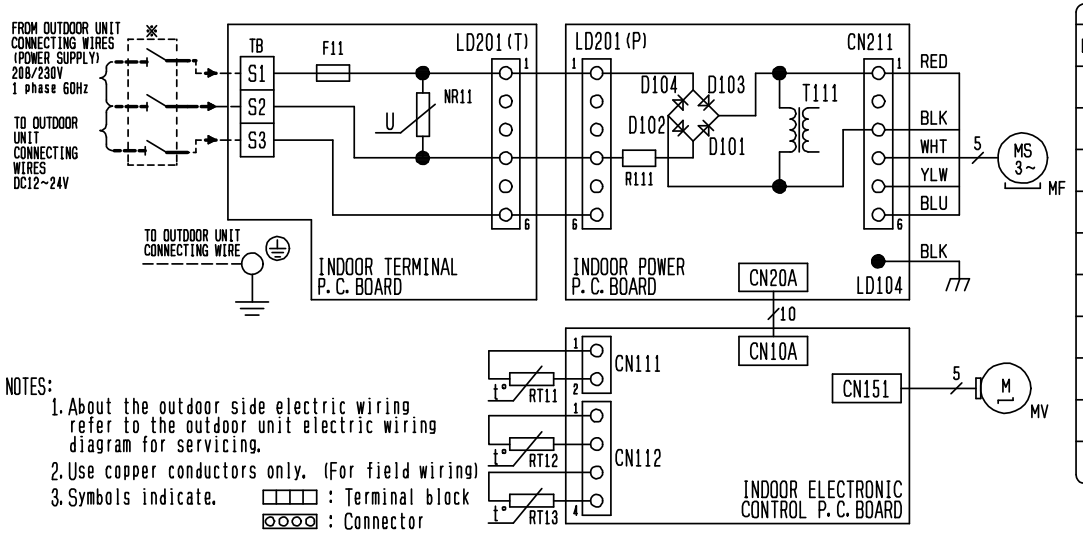
MSZ-GE24NA
MSY-GE24NA



Piping	Insulation	Ø2 O.D
	Liquid line	Ø3/8 19-11/16 (Flared connection Ø3/8)
	Gas line	Ø1/2 16-15/16 (Flared connection Ø5/8)
	Drain hose	Insulation Ø1-1/8 Connected part Ø5/8 O.D

5 WIRING DIAGRAM

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

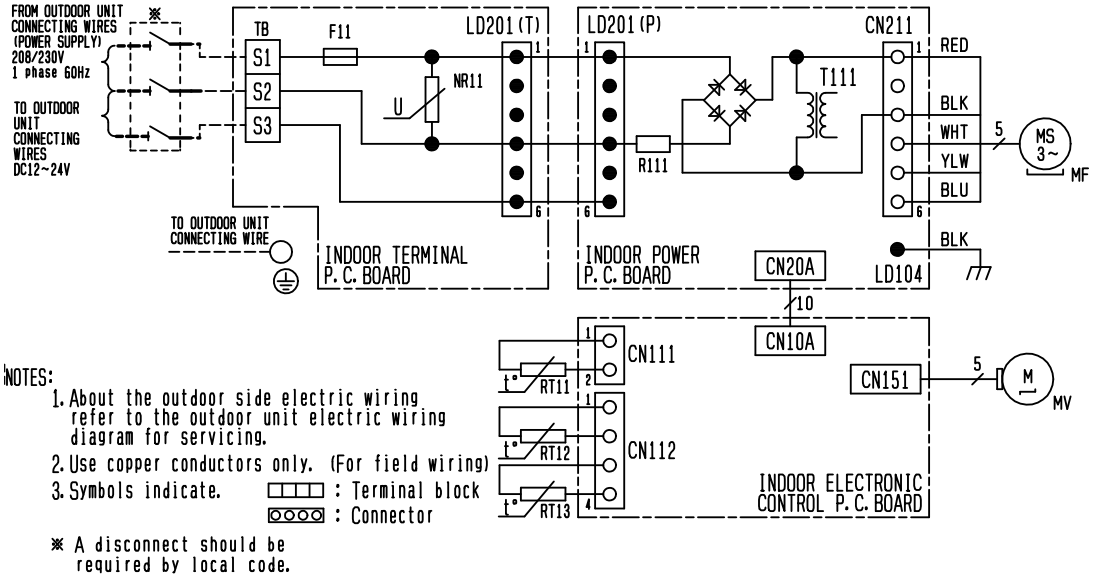


SYMBOL	NAME
D101~D104	DIODE
F11	FUSE (T3.15AL250V)
MF	FAN MOTOR
MV	VANE MOTOR (HORIZONTAL)
NR11	VARISTOR
R111	RESISTOR (3.9Ω/5W)
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
T111	TRANSFORMER
TB	TERMINAL BLOCK

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 indicate. : Terminal block : Connector

※ A disconnect should be required by local code.

MSZ-GE06NA-[8] MSZ-GE09NA-[8] MSZ-GE12NA-[8] MSZ-GE15NA-[8] MSZ-GE18NA-[8]
MSY-GE09NA-[8] MSY-GE12NA-[8] MSY-GE15NA-[8] MSY-GE18NA-[8]

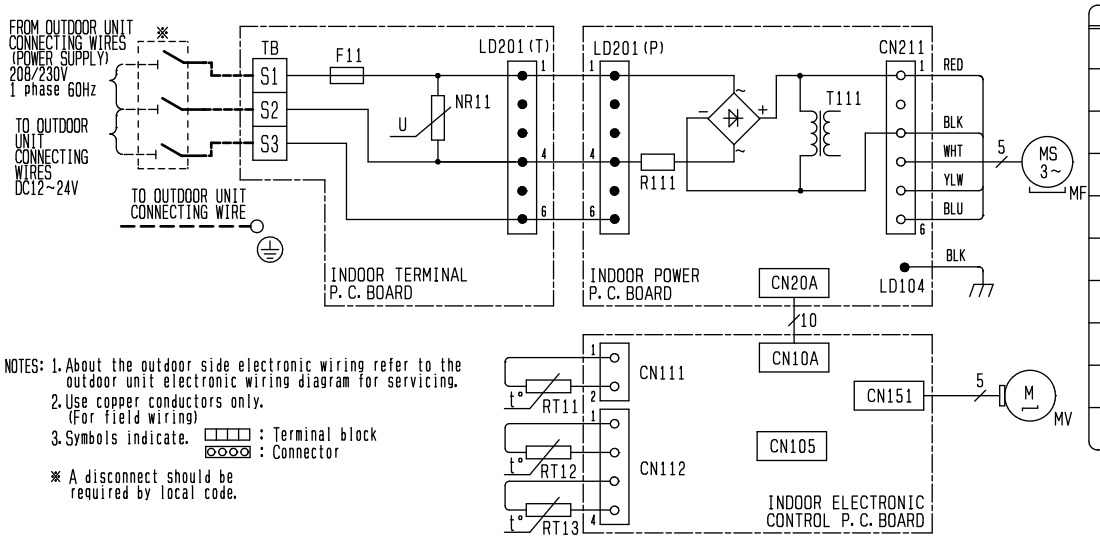


SYMBOL	NAME
F11	FUSE (T3.15AL250V)
MF	FAN MOTOR
MV	VANE MOTOR (HORIZONTAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
T111	TRANSFORMER
TB	TERMINAL BLOCK

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 indicate. : Terminal block : Connector

※ A disconnect should be required by local code.

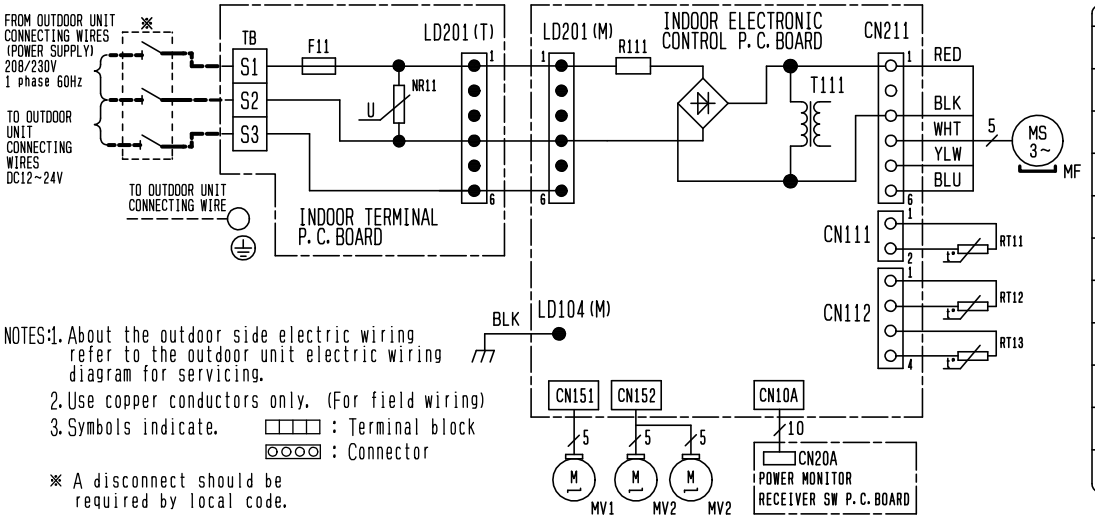
MSZ-GE06NA-9 MSZ-GE09NA-9 MSZ-GE12NA-9 MSZ-GE15NA-9 MSZ-GE18NA-9
MSY-GE09NA-9 MSY-GE12NA-9 MSY-GE15NA-9 MSY-GE18NA-9



NOTES: 1. About the outdoor side electronic wiring refer to the outdoor unit electronic wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols indicate. : Terminal block : Connector
※ A disconnect should be required by local code.

SYMBOL	NAME
F11	FUSE (T3. 15AL250V)
MF	FAN MOTOR
MV	VANE MOTOR (HORIZONTAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
T111	TRANSFORMER
TB	TERMINAL BLOCK

MSZ-GE24NA
MSY-GE24NA



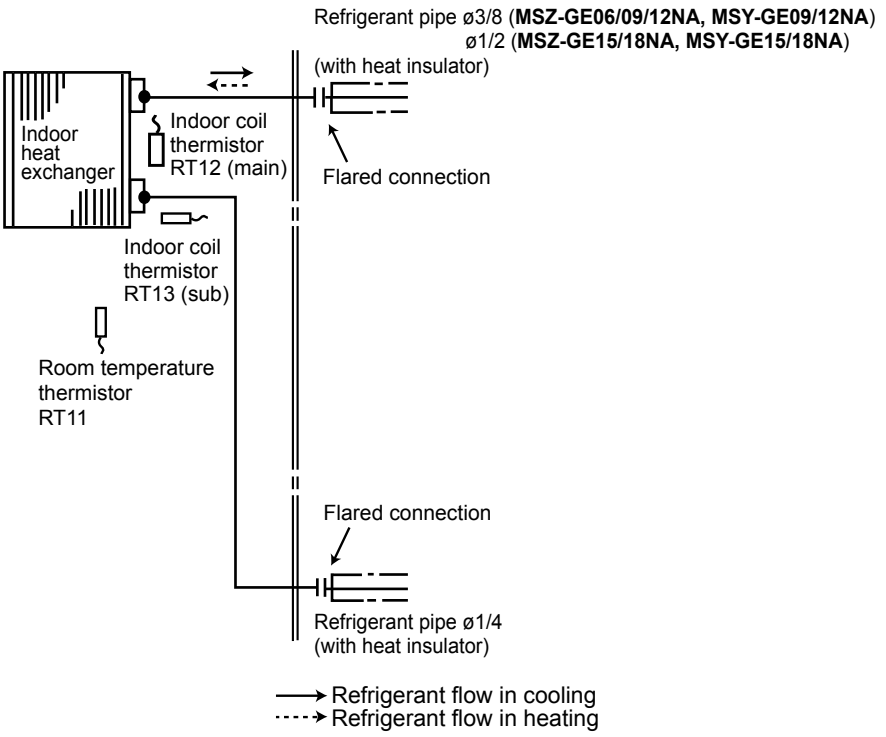
NOTES:1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols indicate. : Terminal block : Connector
※ A disconnect should be required by local code.

SYMBOL	NAME
F11	FUSE (T3. 15AL250V)
MF	FAN MOTOR
MV1	VANE MOTOR (HORIZONTAL)
MV2	VANE MOTOR (VERTICAL)
NR11	VARISTOR
R111	RESISTOR
RT11	ROOM TEMP. THERMISTOR
RT12	COIL TEMP. THERMISTOR (MAIN)
RT13	COIL TEMP. THERMISTOR (SUB)
T111	TRANSFORMER
TB	TERMINAL BLOCK

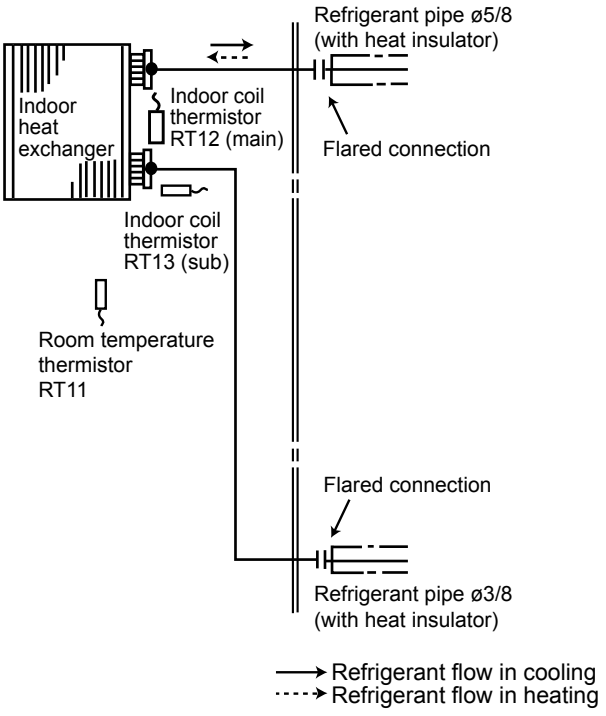
6 REFRIGERANT SYSTEM DIAGRAM

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

Unit: inch



MSZ-GE24NA
MSY-GE24NA



7 SERVICE FUNCTIONS

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSZ-GE24NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA MSY-GE24NA

7-1. TIMER SHORT MODE

For service, the set time can be shortened by bridging of JPG and JPS the indoor electronic control P.C. board.
The time will be shortened as follows. (Refer to 9-7.)

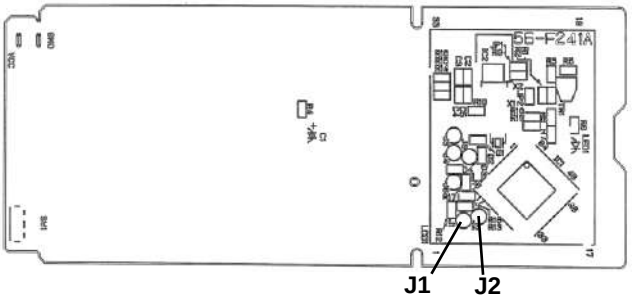
- The set time for the ON/OFF timer can be reduced to 1 second for each minutes.
- After the breaker is turned on, the time for starting the compressor, which normally takes 3 minuets, can be reduced to 3 seconds. Restarting the compressor, which takes 3 minuets, cannot be reduced.

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

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.
The board has a print as shown below:



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

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

Table 1

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

How to set the remote controller exclusively for particular indoor unit

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

7-3. AUTO RESTART FUNCTION

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

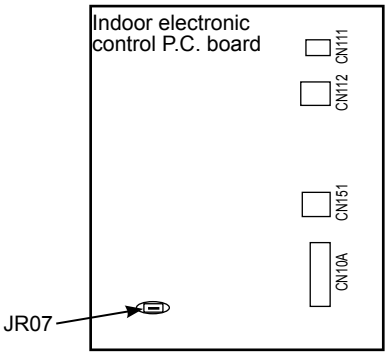
Operation

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.)

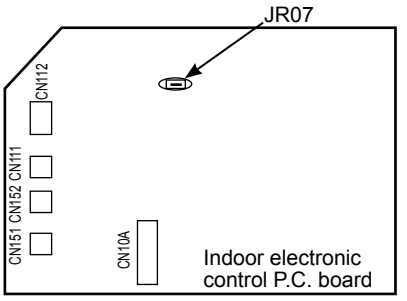
How to disable “AUTO RESTART FUNCTION”

① Turn OFF the main power of the unit.
② Solder the Jumper wire JR07 on the indoor electronic control P.C. board. (Refer to 9-7.)

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA



MSZ-GE24NA
MSY-GE24NA



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.

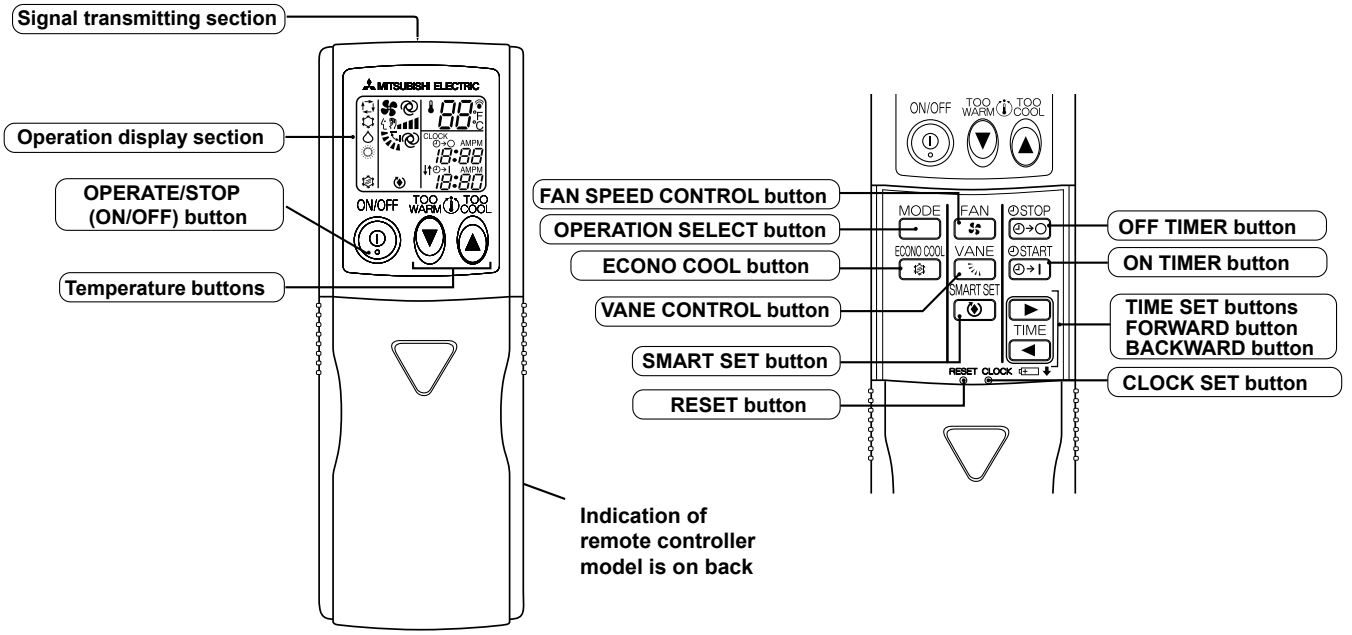
8 MICROPROCESSOR CONTROL

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSZ-GE24NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA MSY-GE24NA

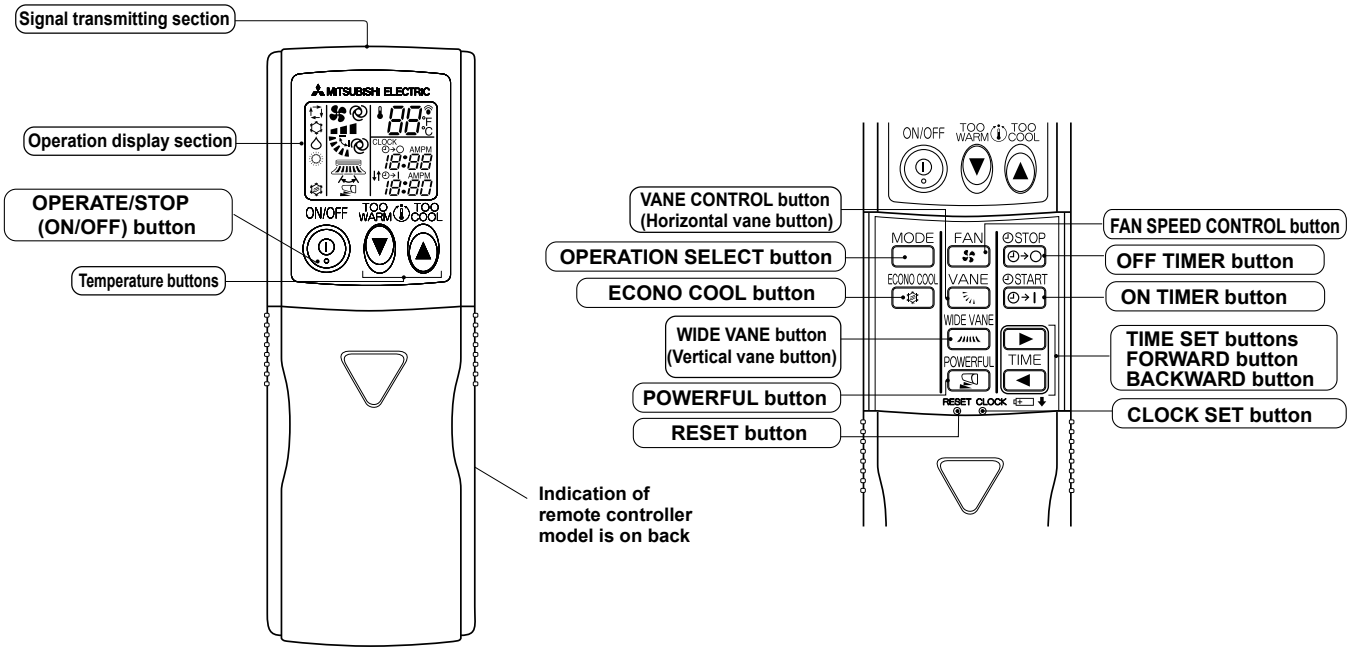
WIRELESS REMOTE CONTROLLER

E.g.: MSZ type

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA
MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA



MSZ-GE24NA
MSY-GE24NA



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 4°F(2°C) or more away from set temperature
☀ ○	The room temperature is approaching the set temperature	About 2 to 4°F(1 to 2°C) from set temperature
☀ ☼	Standby mode (Only during multi system operation)	—

☀ Lighted
☼ Blinking
○ Not lighted

8-1. COOL (☼) OPERATION

(1) Press OPERATE/STOP (ON/OFF) 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 61 ~ 88°F (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.

8-2. DRY (△) OPERATION

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

1. Coil frost prevention

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

2. Low outside temperature operation

Low outside temperature operation works the same way as that in the COOL mode. (8-1.2.)

8-3. HEAT (☼) OPERATION (MSZ)

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.
(2) Select HEAT mode with OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 61 ~ 88°F (16 ~ 31°C).

1. Cold air prevention control

When the compressor is not operating or is starting, and the temperature of indoor heat exchanger and/or the room temperature is low or when defrosting is being done, the indoor fan will stop or rotate in Very Low speed.

2. High pressure protection

The compressor operational frequency is controlled by the temperature of the indoor heat exchanger to prevent the condensing pressure from increasing excessively.
When the temperature of indoor heat exchanger becomes too high, the high pressure protection works.
The indoor fan operates following the cold air prevention control. This mode continues until the temperature of indoor heat exchanger falls.

3. Defrosting

Defrosting starts when the temperature of outdoor heat exchanger becomes too low.
The compressor stops once, the indoor/outdoor fans stop, the 4-way valve reverses and the compressor re-starts.
This mode continues until the temperature of outdoor heat exchanger rises or the fixed time passes.

8-4. FAN(✿)OPERATION (MSY)

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

8-5. "I FEEL CONTROL" (▭) OPERATION (MSY)

(1) Press OPERATE/STOP (ON/OFF) 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 start-up 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 start-up of operation.

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

Initial room temperature	Model	Initial set temperature
79°F (26°C) or more	COOL mode of "I FEEL CONTROL"	75°F (24°C)
77 to 79°F (25 to 26°C)		Initial room temperature minus 4°F (2°C)
Less than 79°F (25°C)	DRY mode of "I FEEL CONTROL"	Initial room temperature minus 4°F (2°C)

(5) TEMPERATURE buttons
In "I FEEL CONTROL" (▭) mode, set temperature is decided by the microprocessor based on the room temperature. In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too cool or too warm.
Each time 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.

TOO COOL ▲ ···To raise the set temperature 2~4°F (1~2°C)

TOO WARM ▼ ···To lower the set temperature 2~4°F (1~2°C)

8-6. AUTO CHANGE OVER ··· AUTO MODE OPERATION (MSZ)

Once desired temperature is set, unit operation is switched automatically between COOL and HEAT operation.

Mode selection

(1) Initial mode

When unit starts the operation with AUTO operation from OFF:

- If the room temperature is higher than the set temperature, operation starts in COOL mode.
- If the room temperature is equal to or lower than the set temperature, operation starts in HEAT mode.

(2) Mode change

COOL mode changes to HEAT mode when about 15 minutes have passed with the room temperature 2°F (1°C) below the set temperature.

HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 2°F (1°C) above the set temperature.

NOTE1

If two or more indoor units are operating in multi system, there might be a case that the indoor unit, which is operating in ⇄ (AUTO), cannot change over to the other operating mode (COOL ↔ HEAT**(MSZ)**) and becomes a state of standby.
Refer to **NOTE2 "FOR MULTI SYSTEM AIR CONDITIONER"**.

NOTE2

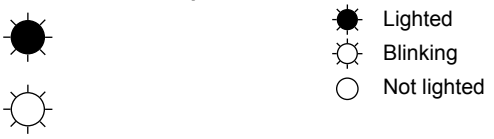
FOR MULTI SYSTEM AIR CONDITIONER

OUTDOOR UNIT: MXZ series

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

- When you try to operate two or more indoor units with one outdoor unit simultaneously, one for the cooling and the others for heating, the operation mode of the indoor unit that operates first is selected. Other indoor units cannot operate, and operation indicator lamp flashes as shown in the figure below. In this case, please set all the indoor units to the same operation mode.

<Operation indicator lamp>



- When indoor unit starts the operation while the defrosting of outdoor unit is being done, it takes a few minutes (max. 10 minutes) to blow out the warm air.
- In the heating operation, though indoor unit that does not operate may get warm or the sound of refrigerant flowing may be heard, they are not malfunction. The reason is that the refrigerant continuously flows into it.

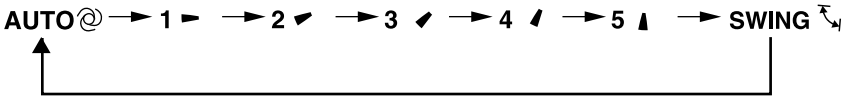
8-7. AUTO VANE OPERATION

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 operation starts.

(c) When standby mode (only during multi system operation) starts or finishes.

(4) 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.

In HEAT operation
Vane angle is fixed to Angle 5.

(5) STOP (operation OFF) and ON TIMER standby
In the following cases, the horizontal vane returns to the closed position.
(a) When OPERATE/STOP (ON/OFF) 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 1 for dew prevention.

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

(8) Cold air prevention in HEAT operation **(MSZ)**
The horizontal vane position is set to Upward.
NOTE: When 2 or more indoor units are operated with multi outdoor unit, even if any indoor unit turns thermostat OFF, this control does not work in the indoor unit.

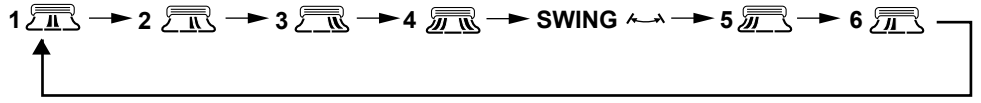
(9) ECONO COOL ( ) operation (ECONOmical operation)
When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 4°F(2°C) higher.
Also the horizontal vane swings in various cycle.
SWING operation makes you feel cooler than set temperature. So, even though the set temperature is 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(**MSZ/MSY-GE24NA**) button.

(10) POWERFUL ( ) operation. (**MSZ-GE24NA MSY-GE24NA**)
The air conditioner automatically adjusts the fan speed and the set temperature, and operates the POWERFUL mode. The POWERFUL mode is automatically released 15 minutes after operation starts, and the operation mode returns to the mode prior to POWERFUL operation. To manually cancel this operation, select a different mode or press POWERFUL or ECONO COOL button.

2. Vertical vane (**MSZ-GE24NA MSY-GE24NA**)

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

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



(3) Positioning
(a) When OPERATE/STOP (ON/OFF) button is pressed (POWER ON).
(b) When SWING is started.
(c) When the power supply turns ON.

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

(5) WIDE MODE ( )
By selecting WIDE mode with WIDE VANE button, indoor fan speed becomes faster than setting fan speed on the remote controller (※). The remote controller displays " ".
NOTE: ※ Indoor fan speed becomes faster than setting fan speed on the remote controller even when or is selected.

8-8. 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 AM” 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 OPERATE/STOP (ON/OFF) button to start the air conditioner.

(3) Set the time of timer.

ON timer setting

(a) Press ON TIMER button (START) during operation.

(b) Set the time of the timer using TIME SET buttons (► and ◄). ※

OFF timer setting

(a) Press OFF TIMER button (STOP) during operation.

(b) Set the time of the timer using TIME SET buttons (► and ◄). ※

※ Each time FORWARD button (►) is pressed, the set time increases by 10 minutes: each time BACKWARD button (◄) is pressed, the set time decreases by 10 minutes.

2. To release the timer

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

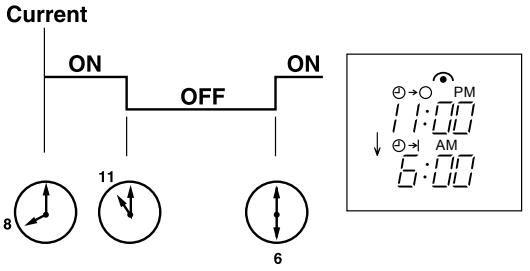
To release OFF timer, press OFF TIMER button (STOP).

TIMER is cancelled and the display of set time disappears.

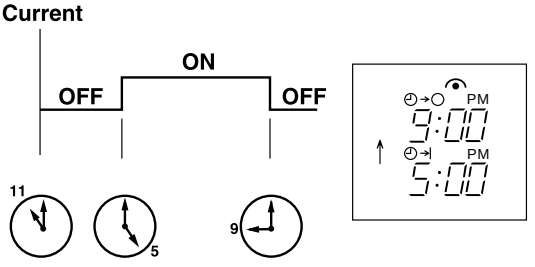
PROGRAM TIMER

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

(Example 1) The current time is 8:00 PM.
The unit turns OFF at 11:00 PM, and ON at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns ON at 5:00 PM, and OFF at 9:00 PM.



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

8-9. SMART SET (🔥) OPERATION (MSZ-GE06/09/12/15/18NA MSY-09/12/15/18NA)

1. How to SET SMART SET operation

(1) Press OPERATE/STOP (ON/OFF) button.
(2) Select COOL, HEAT **(MSZ)** 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.
• The setting range of HEAT mode in SMART SET operation is between 50°F (10°C) and 61 - 87°F (16 - 31°C) **(MSZ)**.
• 2 settings can be saved. (One for COOL/ECONO COOL, one for HEAT) **(MSZ)**.
• 1 setting can be saved. **(MSY)**.

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 will be selected from the next time by simply pressing SMART SET button.

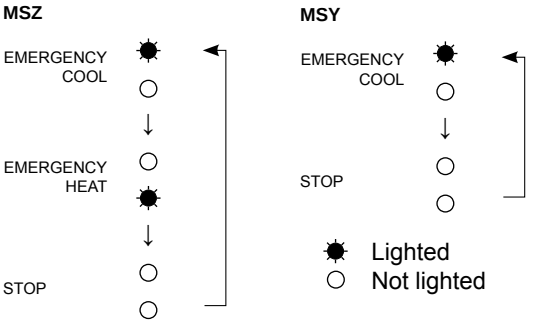
8-10. EMERGENCY/TEST OPERATION

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, has failed, or when the batteries in the remote controller 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/HEAT**(MSZ)** MODE with a set temperature of 75°F (24°C). The fan speed shifts to Med.
All protective operations such as the coil frost prevention works even in the test run or emergency operation.
In the test run or emergency operation, the horizontal vane operates in VANE AUTO (@) mode.
Emergency operation continues until EMERGENCY OPERATION switch is pressed once or twice or the unit receives any signal from the remote controller. In the latter case normal operation will start.

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

Operation mode	COOL	HEAT (**MSZ**)
Set temperature	75°F(24°C)	75°F(24°C)
Fan speed	Med.	Med.
Horizontal vane	Auto	Auto

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

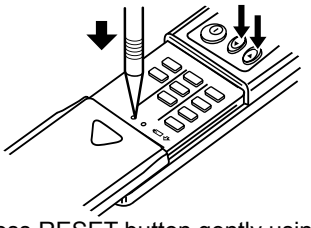


8-11. 3-MINUTE TIME DELAY OPERATION

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

8-12. Changing temperature indication (°F/°C)

• The preset unit is °F.
• °F → °C: Press RESET button while the temperature buttons are pressed.
• °C → °F: Press RESET button or remove the batteries .



Press RESET button gently using a thin instrument.

9 TROUBLESHOOTING

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSZ-GE24NA MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA MSY-GE24NA

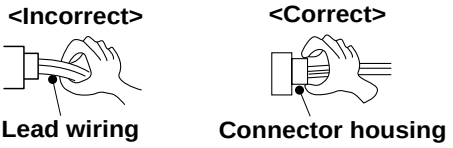
9-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

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

2. Take care of the following during servicing

1) Before servicing the air conditioner, be sure to turn OFF the 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 of the connector housing. DO NOT pull the lead wires.



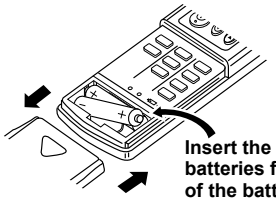
3. Troubleshooting procedure

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 OPERATION INDICATOR lamp is flashing 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 9-2, 9-3 and 9-4.

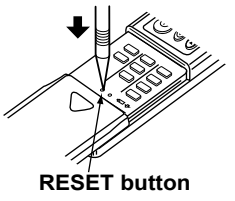
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

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



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



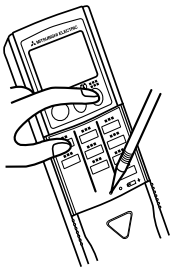
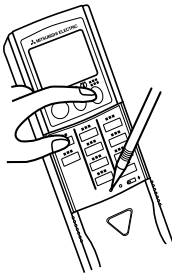
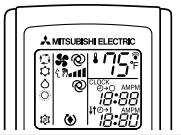
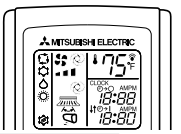
NOTE: 1. If RESET button is not pressed, the remote controller may not operate correctly.
2. This remote controller has a circuit to automatically reset the microcomputer when batteries are replaced. This function is equipped to prevent the microcomputer from malfunctioning due to the voltage drop caused by the battery replacement.
3. Do not use the leaking batteries.

9-2. FAILURE MODE RECALL FUNCTION

Outline of the function
This air conditioner can memorize the abnormal condition which has occurred once.
Even though LED indication listed on the troubleshooting check table (9-4.) disappears, the memorized failure details can be recalled.

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

MSZ-GE06/09/12/15/18NA MSY-GE09/12/15/18NA **MSZ-GE24NA MSY-GE24NA**

E.g.: MSZ type

Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Confirm that the indicators on the LCD screen shown in the right figure are all displayed.
Then release the buttons.

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

Does upper lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of upper lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Check if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function.

※1 Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does upper lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
When it stays ON for 3 seconds (without beep): The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the outdoor unit failure mode table. (Refer to outdoor unit service manual.)
Make sure to check at least two consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to the indoor unit failure mode table. (Refer to 9-2.2)
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

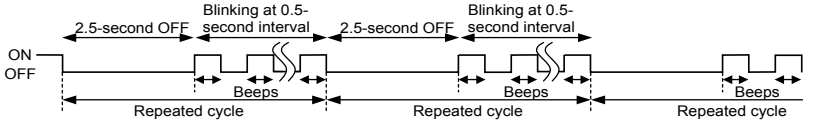
Repair the failure parts.

Deleting the memorized abnormal condition

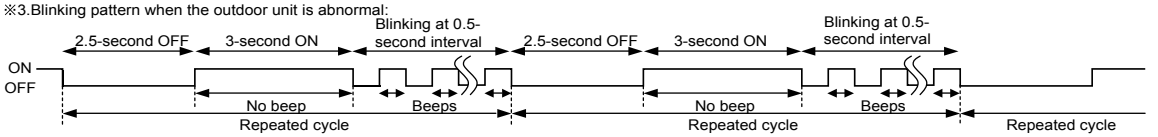
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

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



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

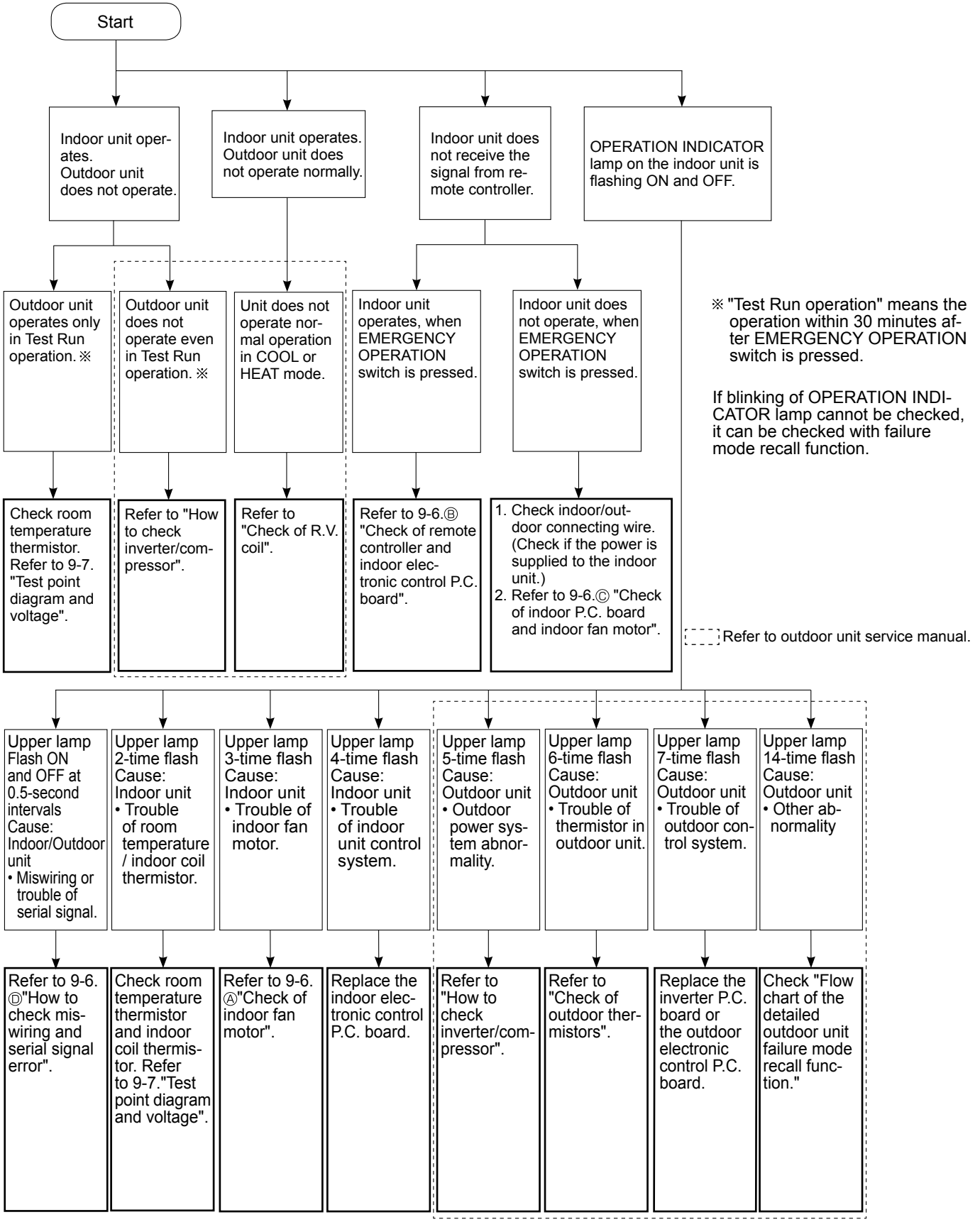


2. Indoor unit failure mode table

Upper lamp of OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lighted	Normal	—	—
1-time flash every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (9-7.).
2-time flash 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 main indoor coil thermistor, the sub indoor coil thermistor (9-7.).
3-time flash 2.5-second OFF	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 9-6.Ⓓ "How to check miswiring and serial signal error".
11-time flash 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emitted for 12 seconds after the indoor fan motor is operated.	Refer to 9-6.Ⓐ "Check of indoor fan motor".
12-time flash 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.

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

9-3. INSTRUCTION OF TROUBLESHOOTING



9-4. TROUBLESHOOTING CHECK TABLE

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

OPERATION INDICATOR

☼ ○

● Lighted
☼ Blinking
○ Not lighted

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Upper lamp flashes. 0.5-second ON ●○●○●○●○ 0.5-second OFF	Indoor unit and outdoor unit do not operate.	The serial signal from the outdoor unit is not received for 6 minutes.	• Refer to 9-6. Ⓓ "How to check miswiring and serial signal error".
2	Indoor coil thermistor / Room temperature thermistor	Upper lamp flashes. 2-time flash ●○●○○○○○●○●○○ 2.5-second OFF		The indoor coil or the room temperature thermistor is short or open circuit.	• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (9-7.).
3	Indoor fan motor	Upper lamp flashes. 3-time flash ●○●○●○○○○○●○●○●○○○ 2.5-second OFF		The rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 9-6. Ⓐ "Check of indoor fan motor".
4	Indoor control system	Upper lamp flashes. 4-time flash ●○●○●○●○○○○○●○●○●○● 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 system	Upper lamp flashes. 5-time flash ●○●○●○●○●○○○○○●○●○ 2.5-second OFF		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 flashes. 6-time flash ●○●○●○●○●○●○○○○○●○ 2.5-second OFF		The outdoor thermistors short or open circuit during the compressor operation.	• Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control system	Upper lamp flashes. 7-time flash ●○●○●○●○●○●○●○○○○○● 2.5-second OFF		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 control P.C. board. Refer to outdoor unit service manual.
8	Other abnormality	Upper lamp flashes. 14-time flash ●○●○●○●○●○●○●○●○●○●○● ○●○●○●○○○○○● 2.5-second OFF		An abnormality other than above mentioned is detected.	• Check the stop valve. • Confirm the abnormality in detail using the failure mode recall function for outdoor unit.
9	Outdoor control system	Upper lamp lights up. ●	Outdoor unit does not operate	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.

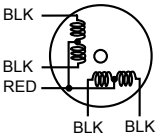
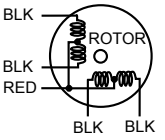
OPERATION INDICATOR

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	**MXZ type** Operation mode setting	Upper lamp lights and lower lamp flashes.  2.5-second OFF	Outdoor unit operates but indoor unit does not operate.	The operation mode of the each indoor unit is differently set to COOL (includes DRY) and HEAT at the same time, the operation mode of the indoor unit that has operated at first has the priority.	• Unify the operation mode. Refer to outdoor unit service manual.

9-5. TROUBLE CRITERION OF MAIN PARTS

MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSZ-GE24NA MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA MSY-GE24NA

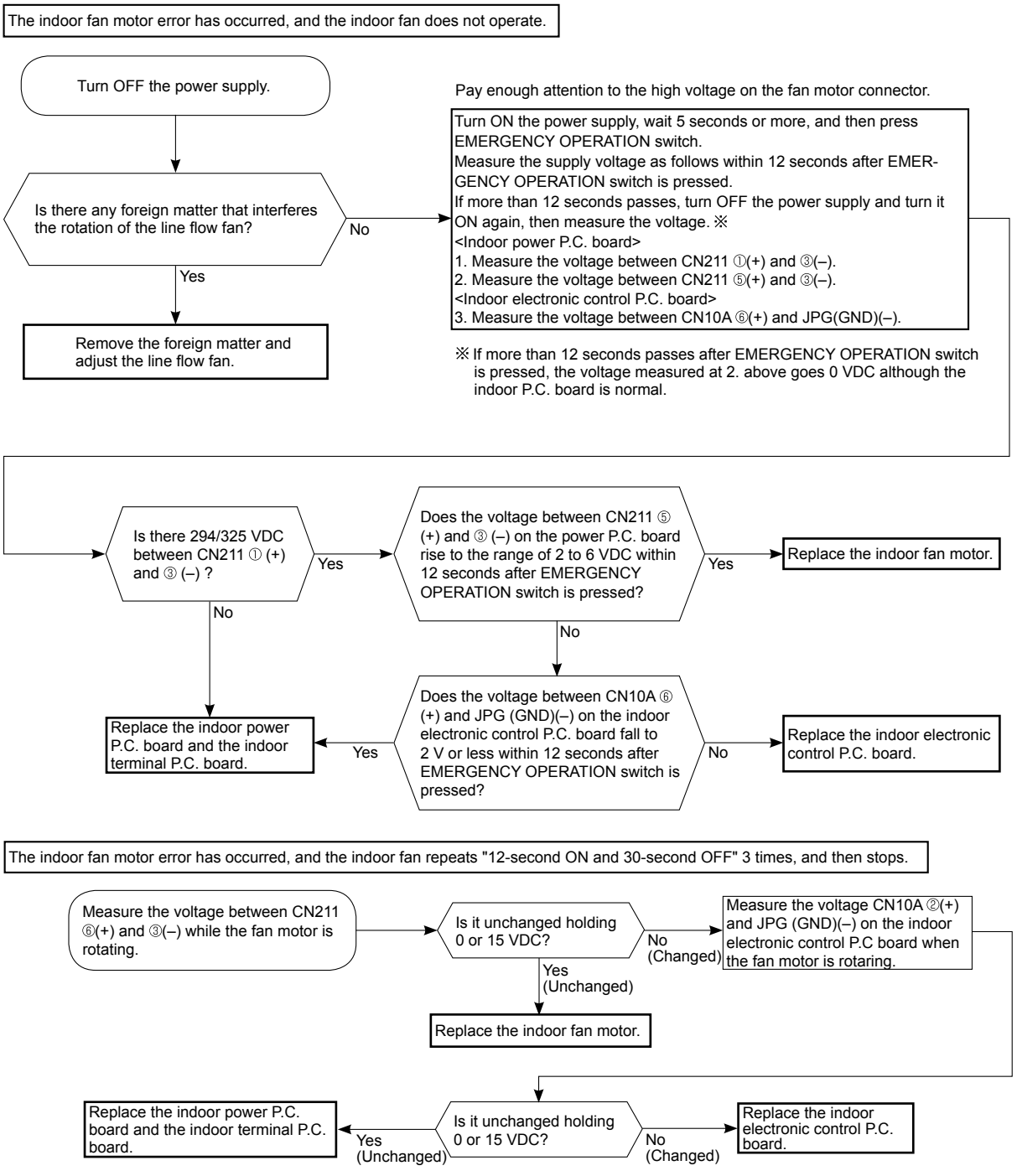
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)
Indoor coil thermistor (RT12, RT13)</td><td>Measure the resistance with a tester.

Refer to 9-7. "Test point diagram and voltage", 2 or 3. "Indoor electronic control P.C. board", for the chart of thermistor.</td><td></td></tr>
<tr><td>Indoor fan motor (MF)</td><td>Check 9-6.Ⓐ</td><td></td></tr>
<tr><td>MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA
Vane motor (MV)</td><td>Measure the resistance between the terminals with a tester.
(Temperature: 50 - 86°F (10 - 30°C))
<table><tr><th>Color of the lead wire</th><th>Normal</th></tr><tr><td>RED - BLK</td><td>223 - 268 Ω</td></tr></table></td><td>  </td></tr>
<tr><td>MSZ-GE24NA
MSY-GE24NA
Horizontal vane motor (MV1)
Vertical vane motor (MV2)</td><td>Measure the resistance between the terminals with a tester.
(Part temperature 50 ~ 86°F (10 ~ 30°C))
<table><tr><th></th><th>Color of the lead wire</th><th>Normal</th></tr><tr><td>Horizontal vane motor (MV1)</td><td rowspan="2">RED-BLK</td><td>313 ~ 375 Ω</td></tr><tr><td>Vertical vane motor (MV2)</td><td>268 ~ 322 Ω</td></tr></table></td><td>  </td></tr>
</table>

9-6. TROUBLESHOOTING FLOW

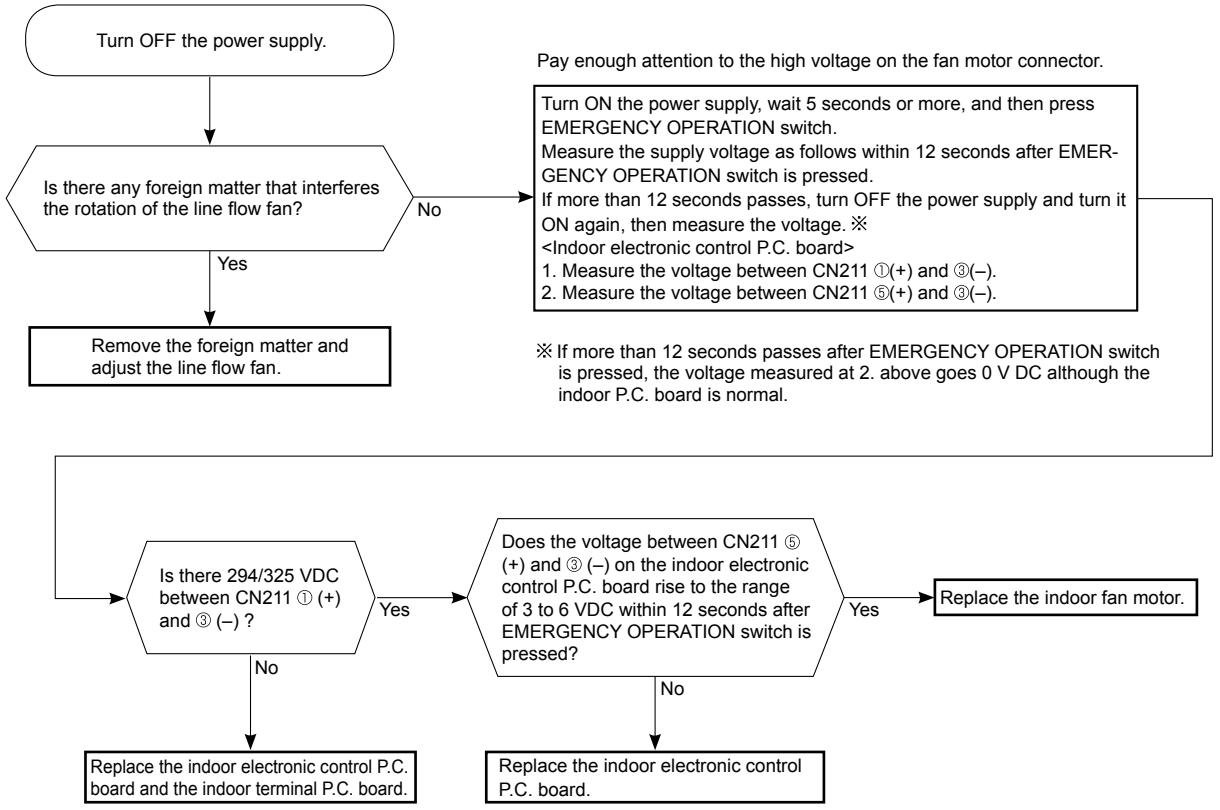
Ⓐ Check of indoor fan motor

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA

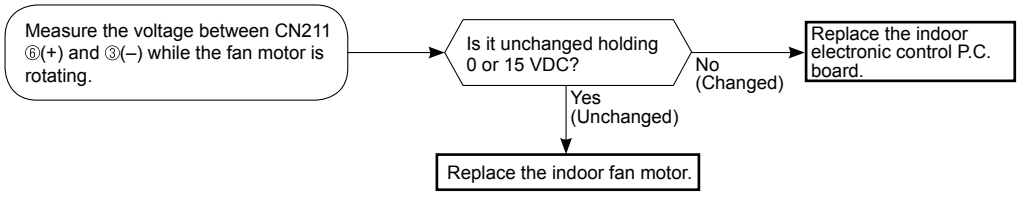


MSZ-GE24NA
MSY-GE24NA

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



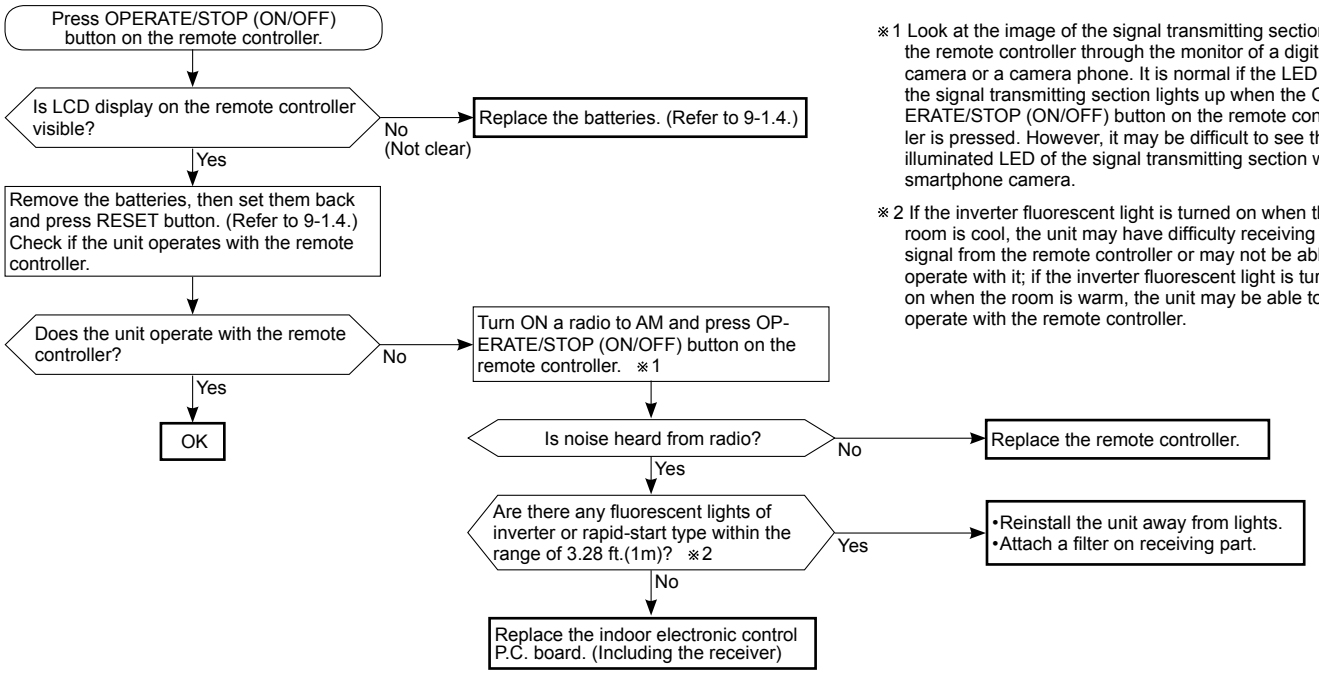
The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.



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

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

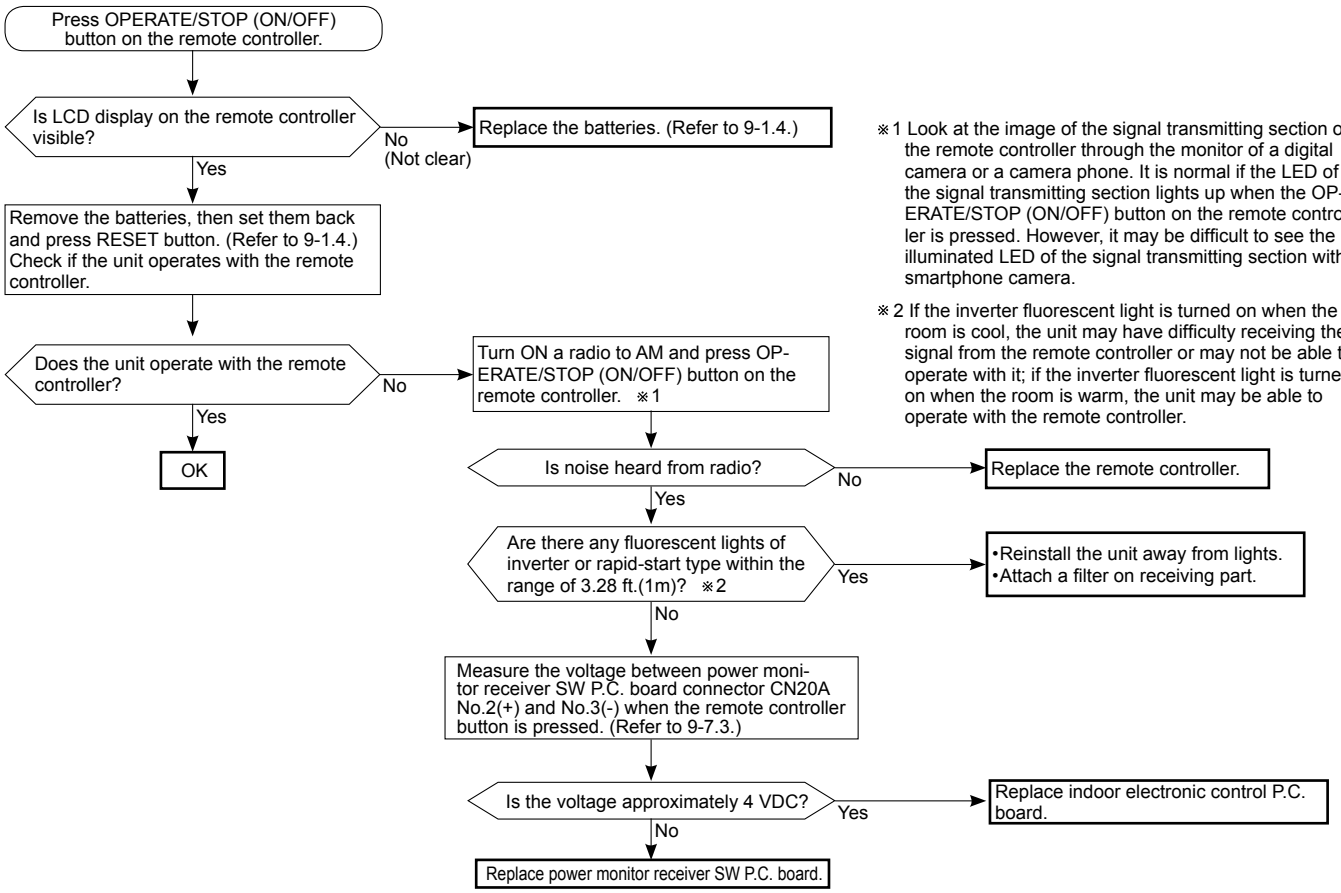
MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA



※1 Look at the image of the signal transmitting section of the remote controller through the monitor of a digital camera or a camera phone. It is normal if the LED of the signal transmitting section lights up when the OPERATE/STOP (ON/OFF) button on the remote controller is pressed. However, it may be difficult to see the illuminated LED of the signal transmitting section with a smartphone camera.

※2 If the inverter fluorescent light is turned on when the room is cool, the unit may have difficulty receiving the signal from the remote controller or may not be able to operate with it; if the inverter fluorescent light is turned on when the room is warm, the unit may be able to operate with the remote controller.

MSZ-GE24NA MSY-GE24NA



※1 Look at the image of the signal transmitting section of the remote controller through the monitor of a digital camera or a camera phone. It is normal if the LED of the signal transmitting section lights up when the OPERATE/STOP (ON/OFF) button on the remote controller is pressed. However, it may be difficult to see the illuminated LED of the signal transmitting section with a smartphone camera.

※2 If the inverter fluorescent light is turned on when the room is cool, the unit may have difficulty receiving the signal from the remote controller or may not be able to operate with it; if the inverter fluorescent light is turned on when the room is warm, the unit may be able to operate with the remote controller.

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

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA

Turn OFF the power supply.
Remove indoor fan motor connector CN211 from indoor power P.C. board and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.

Does the unit operate with the remote controller?
Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?

Yes → Measure the resistance of indoor fan motor. (Refer to 9-5.) → Short circuit: Replace the indoor fan motor.

Yes → Measure the resistance of the vane motor coil. (Refer to 9-5.) → Short circuit: Replace the vane motor and the indoor electronic control P.C. board.

No

Turn OFF the power supply.
Check both “parts side” and “pattern side” of the indoor terminal P.C. board visually.

Be sure to check both the fuse and the varistor in any case.

Are the varistor (NR11) burnt and the fuse (F11) blown? No

Yes → Replace the varistor (NR11) and fuse (F11). ※3

Is the fuse (F11) blown only? No

Yes → Measure the resistance between CN211 ①(+) and ③(-) of indoor fan motor connector. ※1, ※2

※1. The fan motor connector's ① lead wire is red, whereas ③ is black.
※2. Connect "+" of the tester to fan motor connector's ① lead wire, and “-” to ③ lead wire, otherwise the resistance cannot be measured properly.
※3. Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

Is the resistance 1MΩ or more? No → Replace the fuse (F11) and the indoor fan motor. ※3

Yes → Replace the fuse (F11). ※3

Measure the resistance of resistor (R111) on the indoor power P.C. board.

Is the resistance of resistor (R111) approximately 4 Ω? No → Replace the indoor power P.C. board, the indoor terminal P.C. board and the indoor fan motor.

Yes

Is there approximately 5 VDC between 5 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?
Is there approximately 9 to 13 VDC between 12 V (+) and JPG (GND) (-) of the indoor electronic control P.C. board?

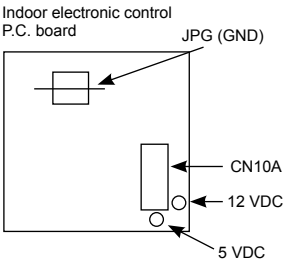
Yes → Replace the indoor fan motor.

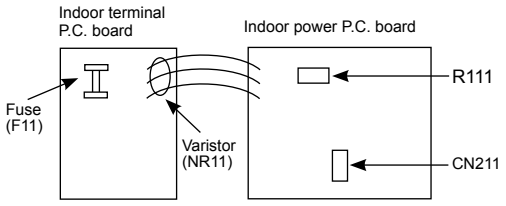
No

Are connector CN10A on the indoor electronic control P.C. board or lead wires disconnected? Yes → Connect the connector or repair disconnection.

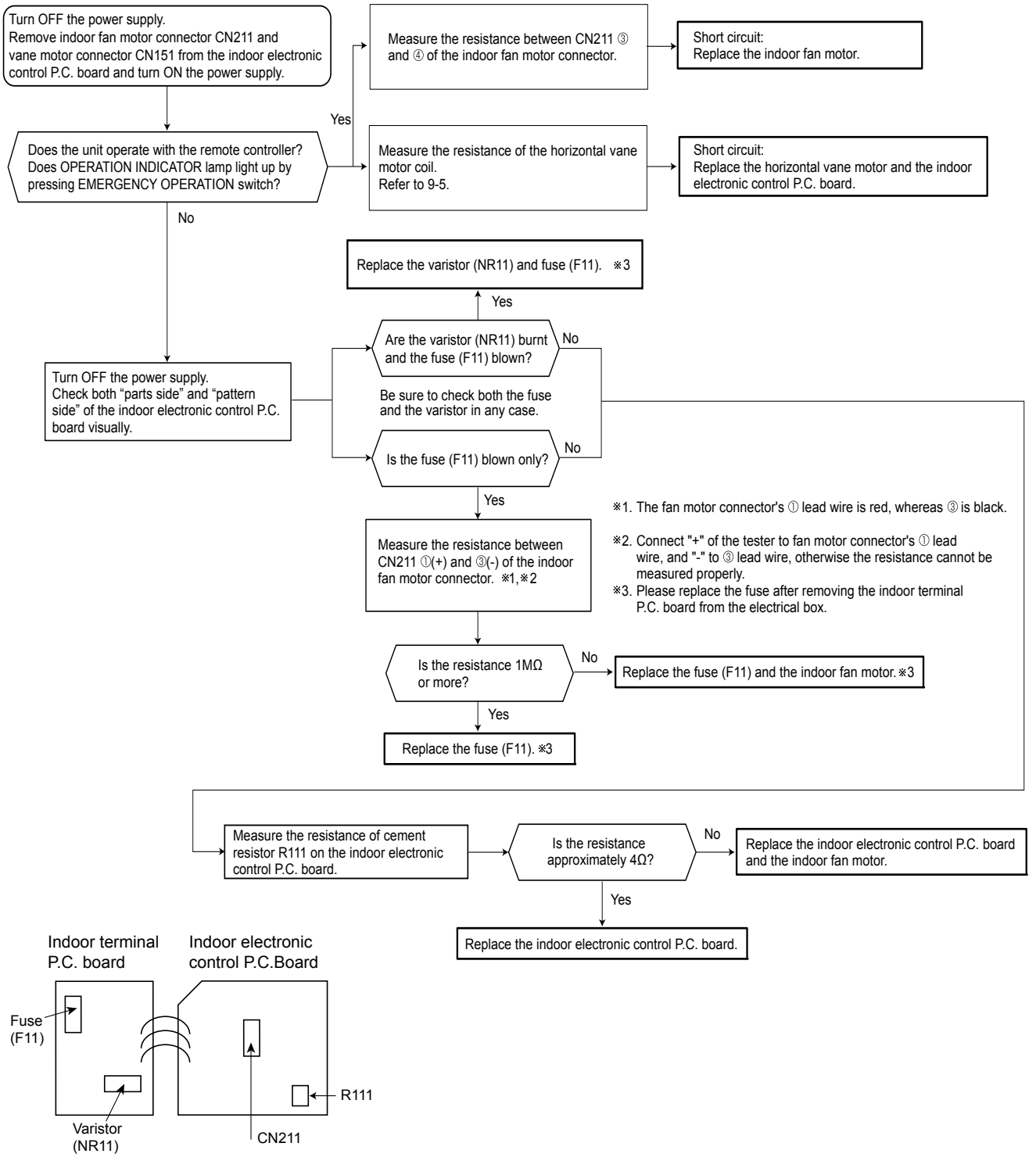
No

Replace the indoor electronic control P.C. board.



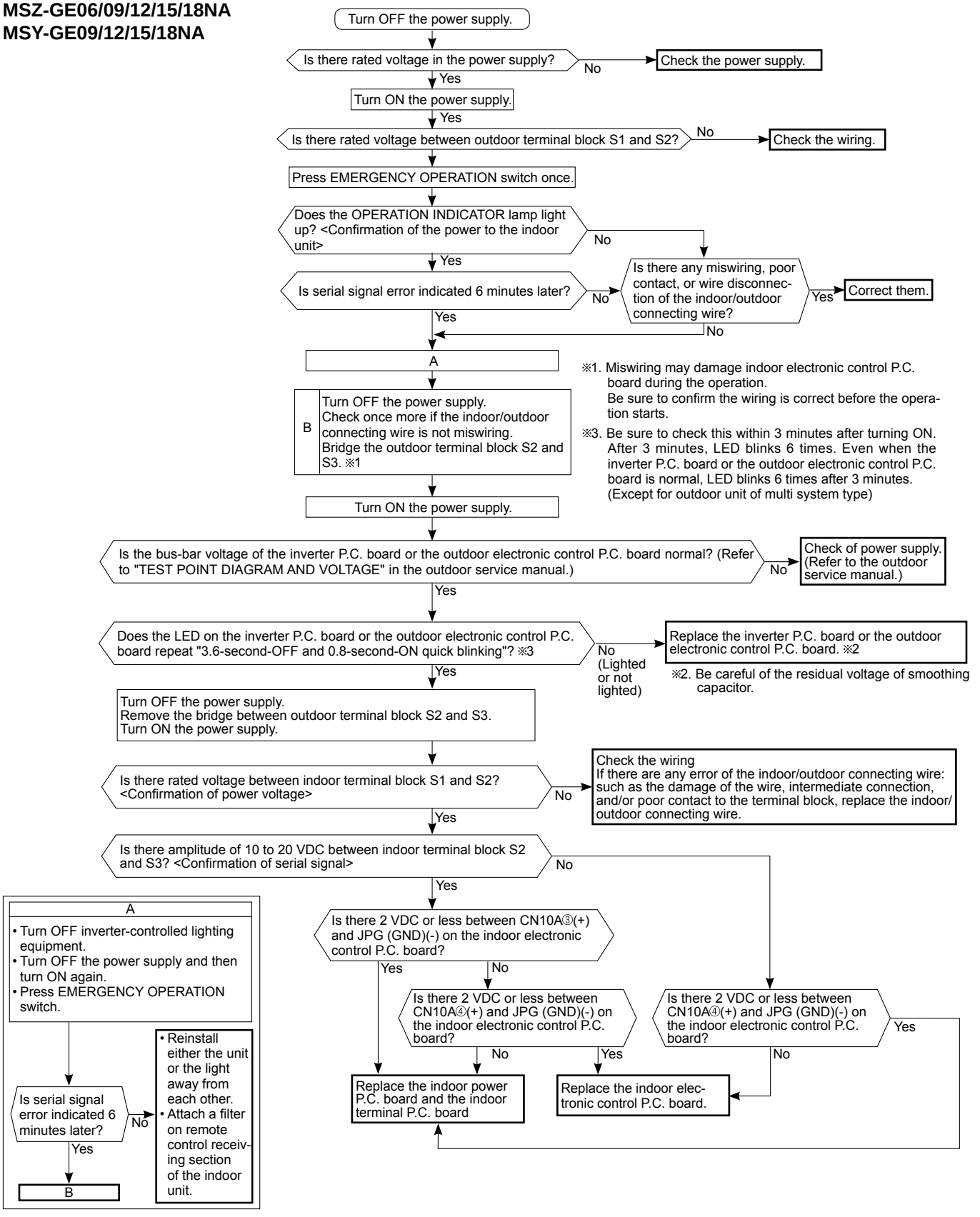


MSZ-GE24NA
MSY-GE24NA

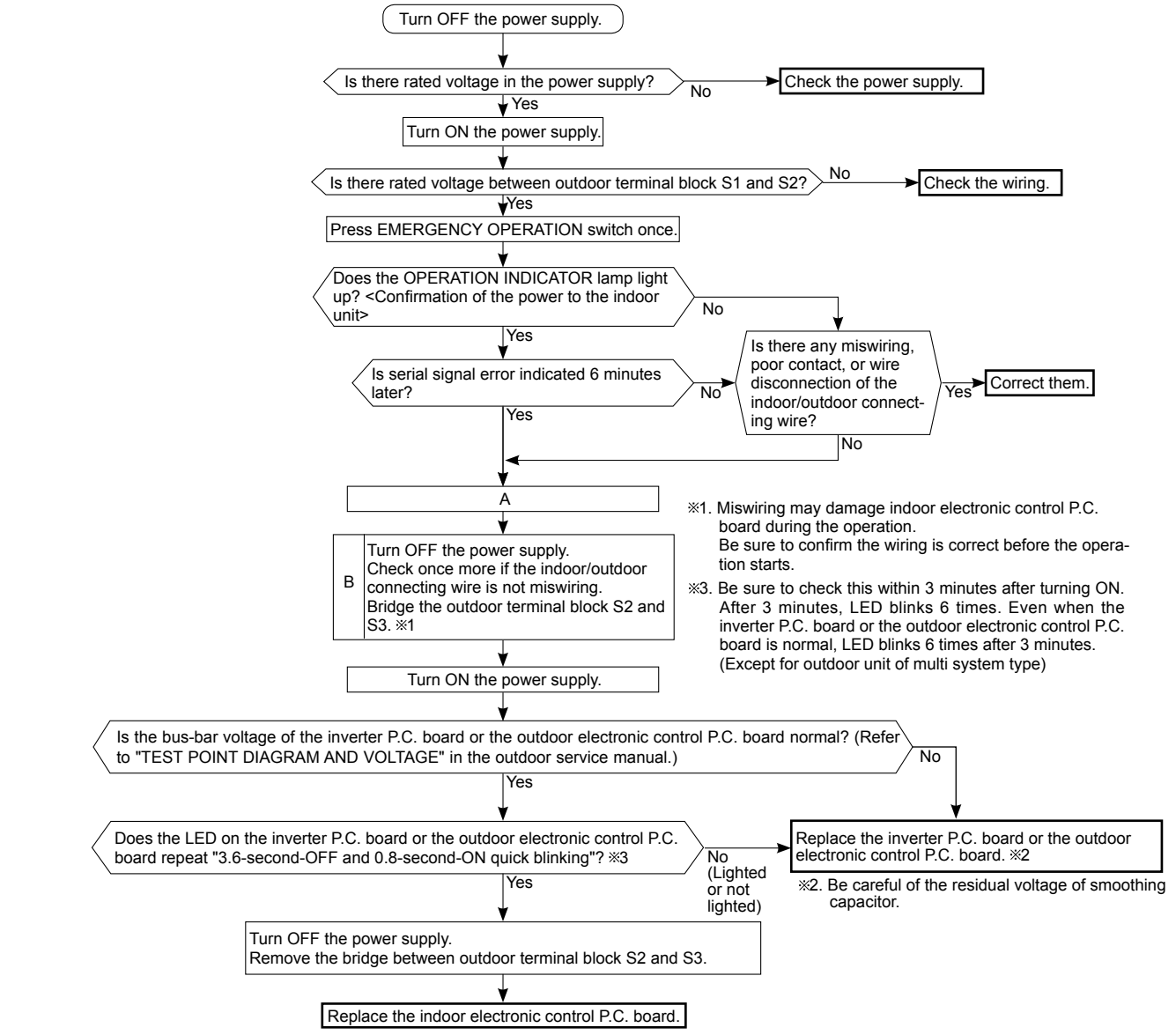


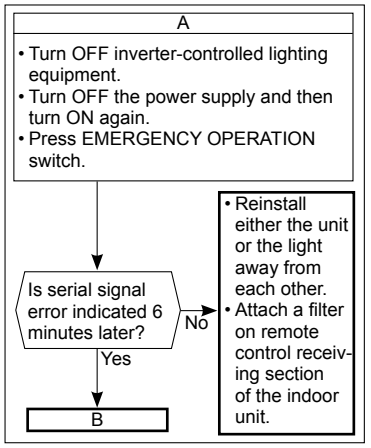
Ⓓ How to check miswiring and serial signal error

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA

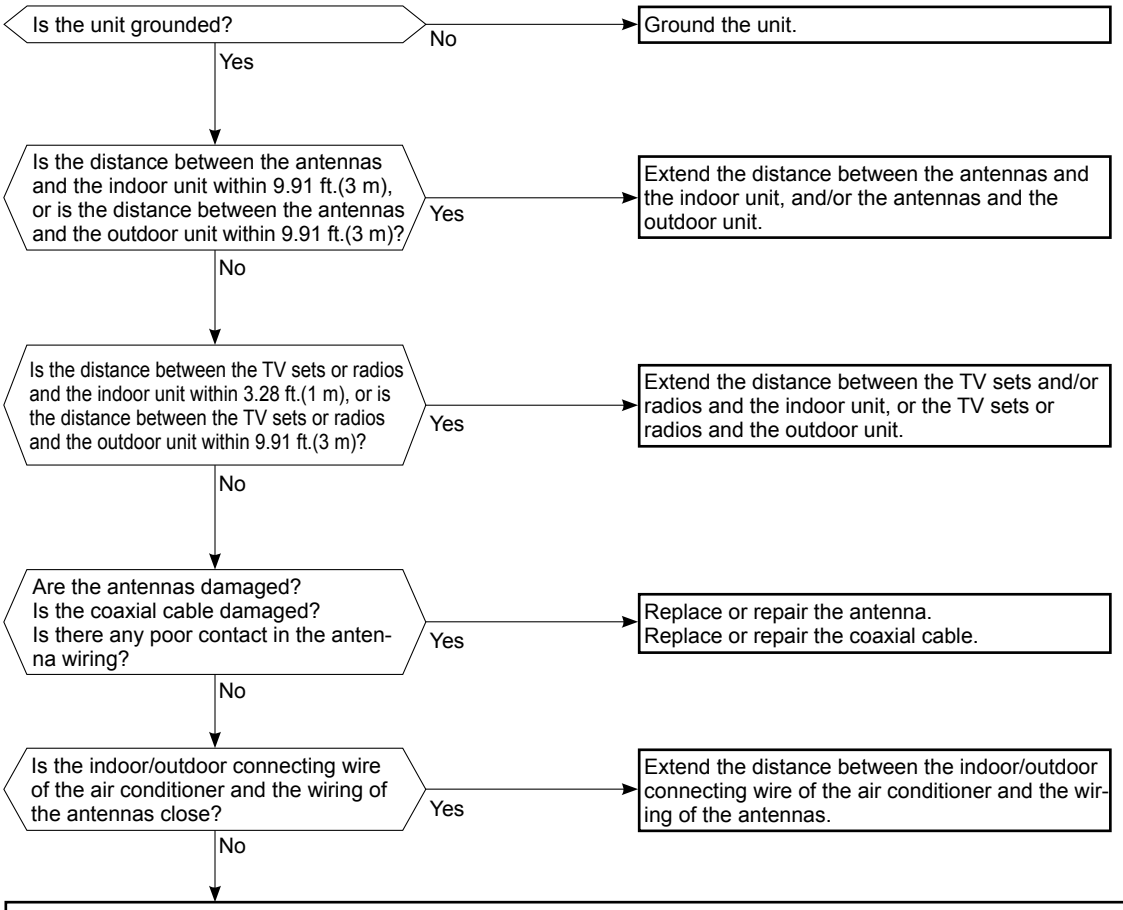


MSZ-GE24NA
MSY-GE24NA





Ⓔ Electromagnetic noise enters into TV sets or radios



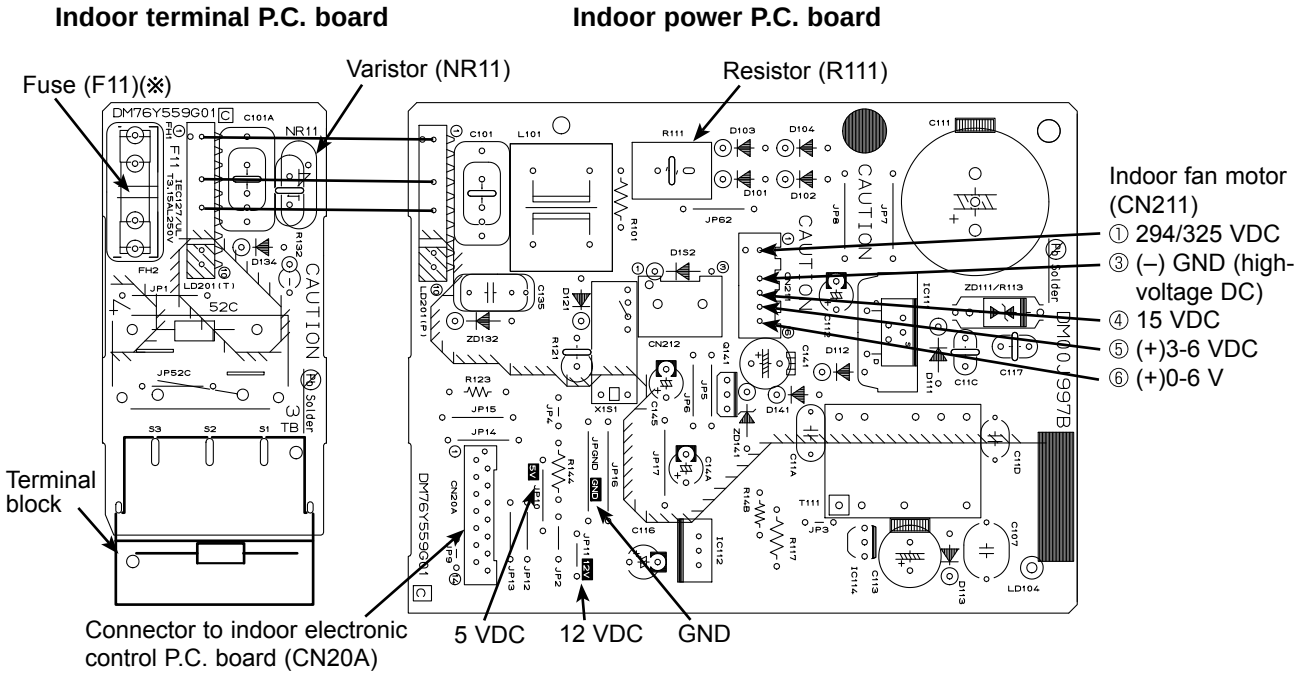
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the followings before asking for service.

1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding 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 OPERATE/STOP (ON/OFF) 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 OPERATE/STOP (ON/OFF) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation, check for the electromagnetic noise.

9-7. Test point diagram and voltage

MSZ-GE06/09/12/15/18NA/NA-8 MSY-GE09/12/15/18NA/NA-8

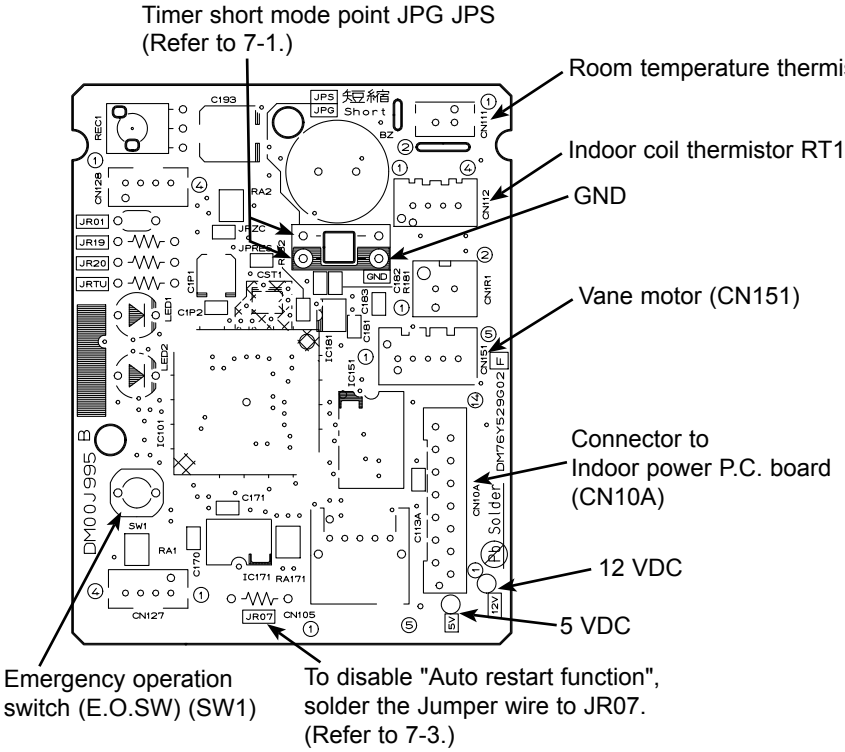
1. Indoor power P.C. board, Indoor terminal P.C. board

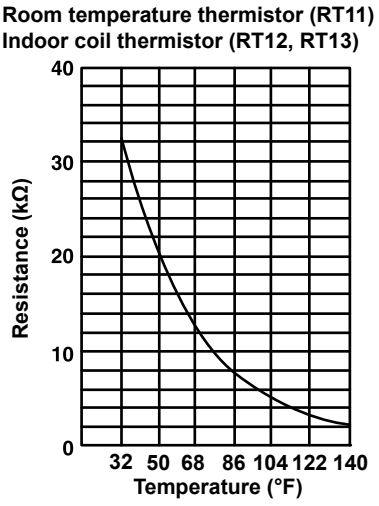


※ Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

MSZ-GE06/09/12/15/18NA MSY-GE09/12/15/18NA

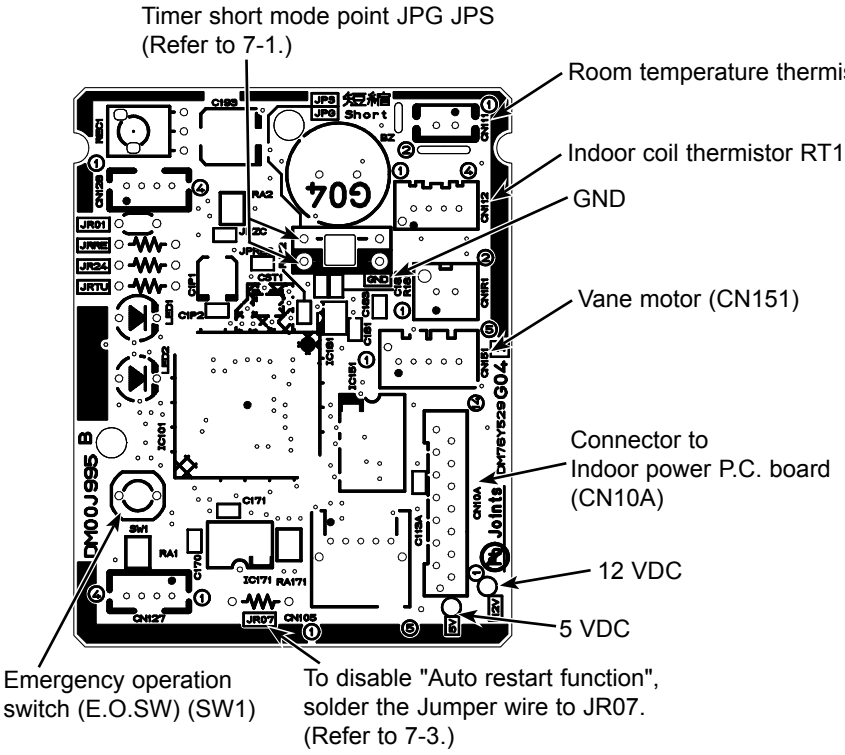
2. Indoor electronic control P.C. board



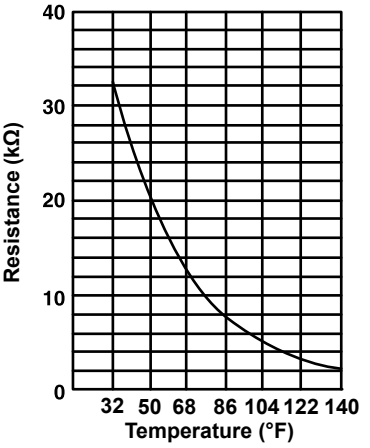


MSZ-GE06/09/12/15/18NA-8 MSY-GE09/12/15/18NA-8

Indoor electronic control P.C. board



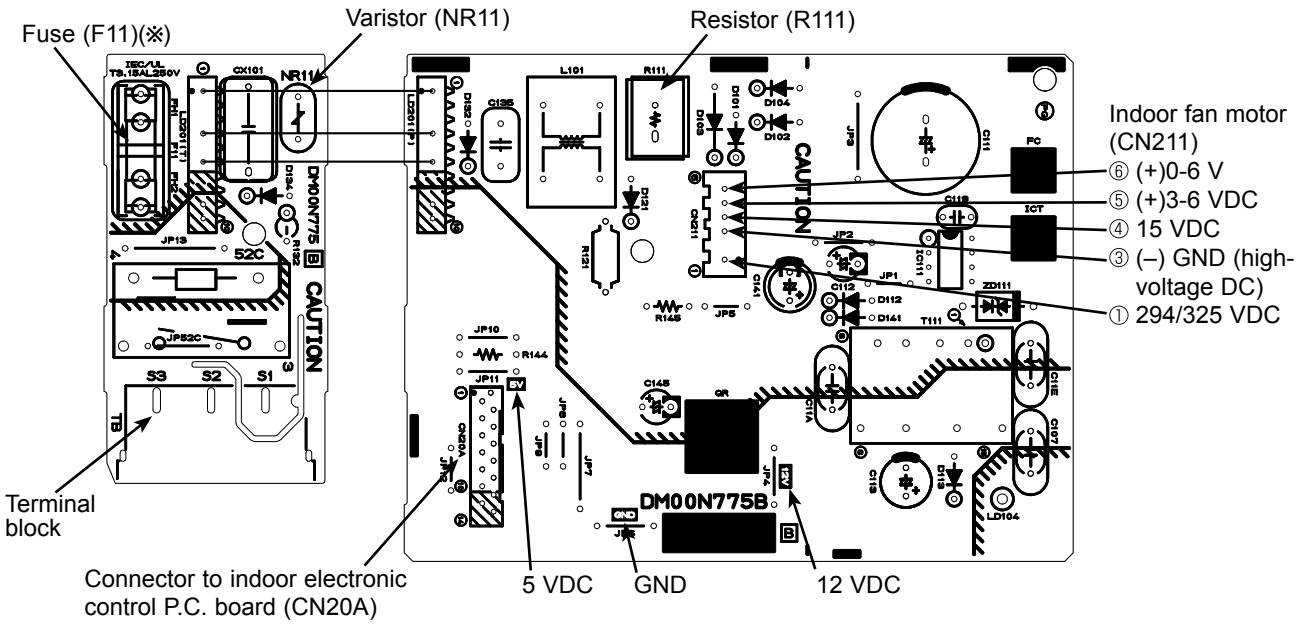
Room temperature thermistor (RT11)
Indoor coil thermistor (RT12, RT13)



MSZ-GE06/09/12/15/18NA-9 MSY-GE09/12/15/18NA-9

Indoor power P.C. board, Indoor terminal P.C. board

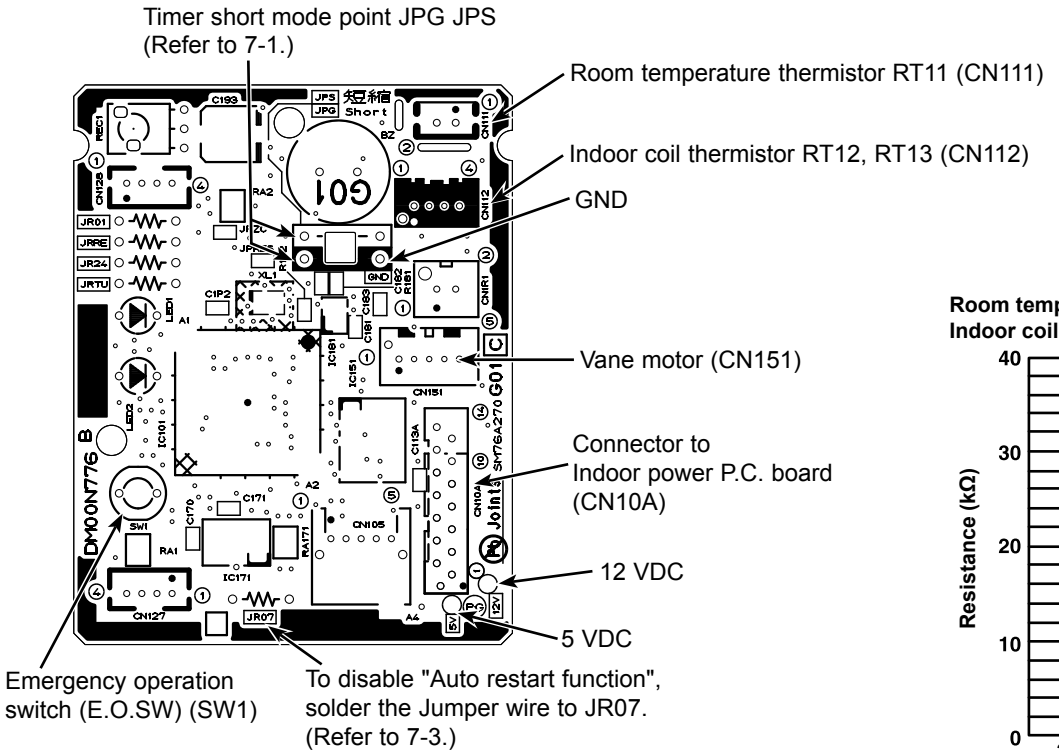
Indoor terminal P.C. board **Indoor power P.C. board**

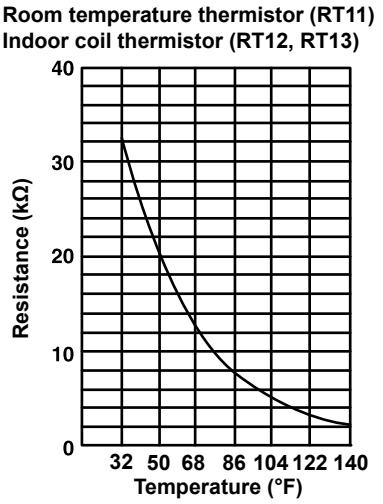


※ Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

MSZ-GE06/09/12/15/18NA-9 MSY-GE09/12/15/18NA-9

Indoor electronic control P.C. board

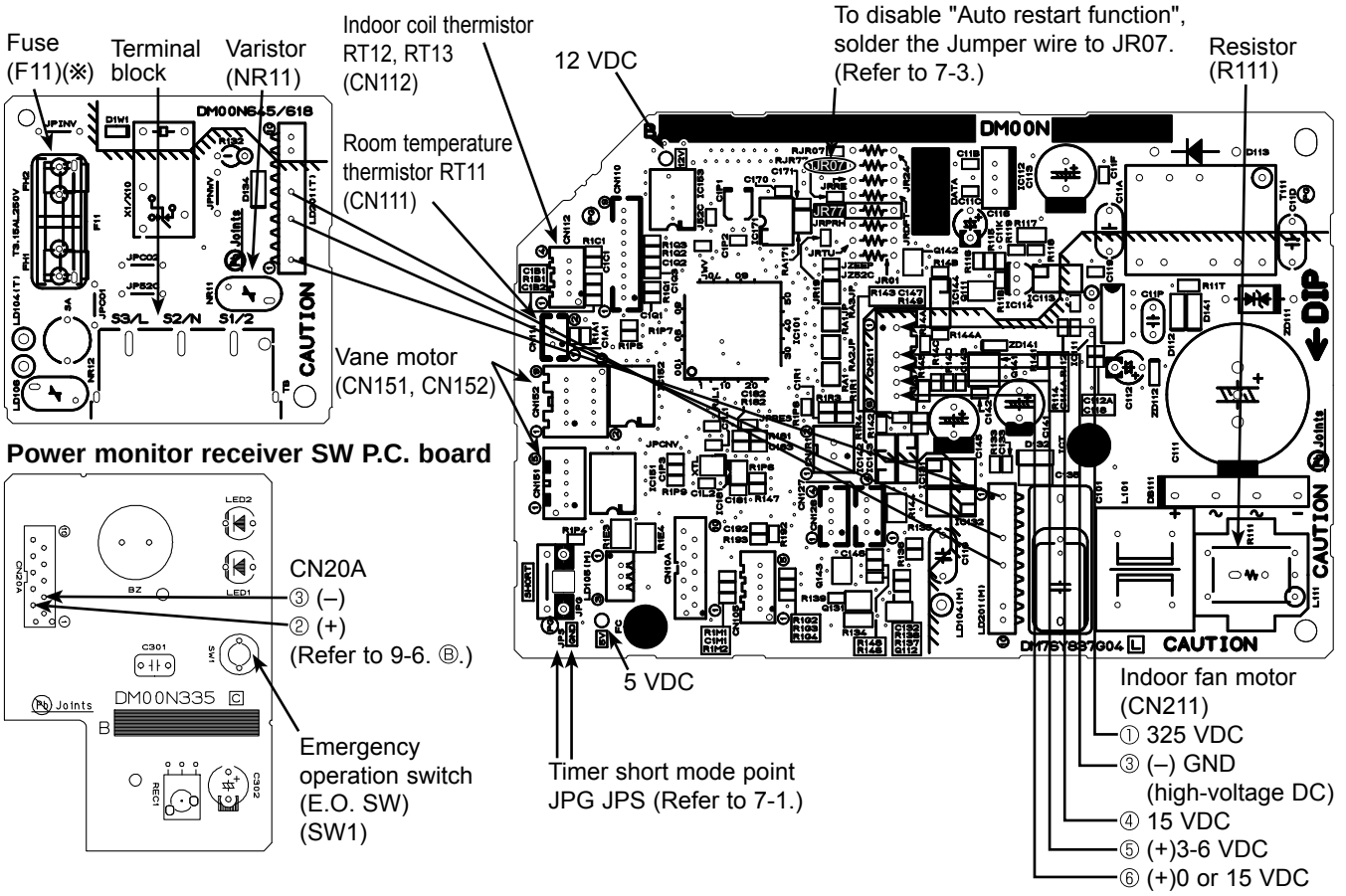




MSZ-GE24NA

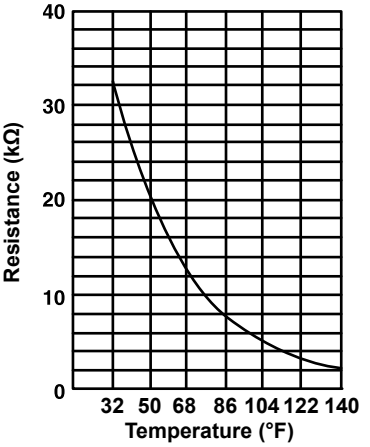
3. Indoor terminal P.C. board, Indoor electronic control P.C. board, Power monitor receiver SW P.C. board

Indoor terminal P.C. board **Indoor electronic control P.C. board**



※ Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

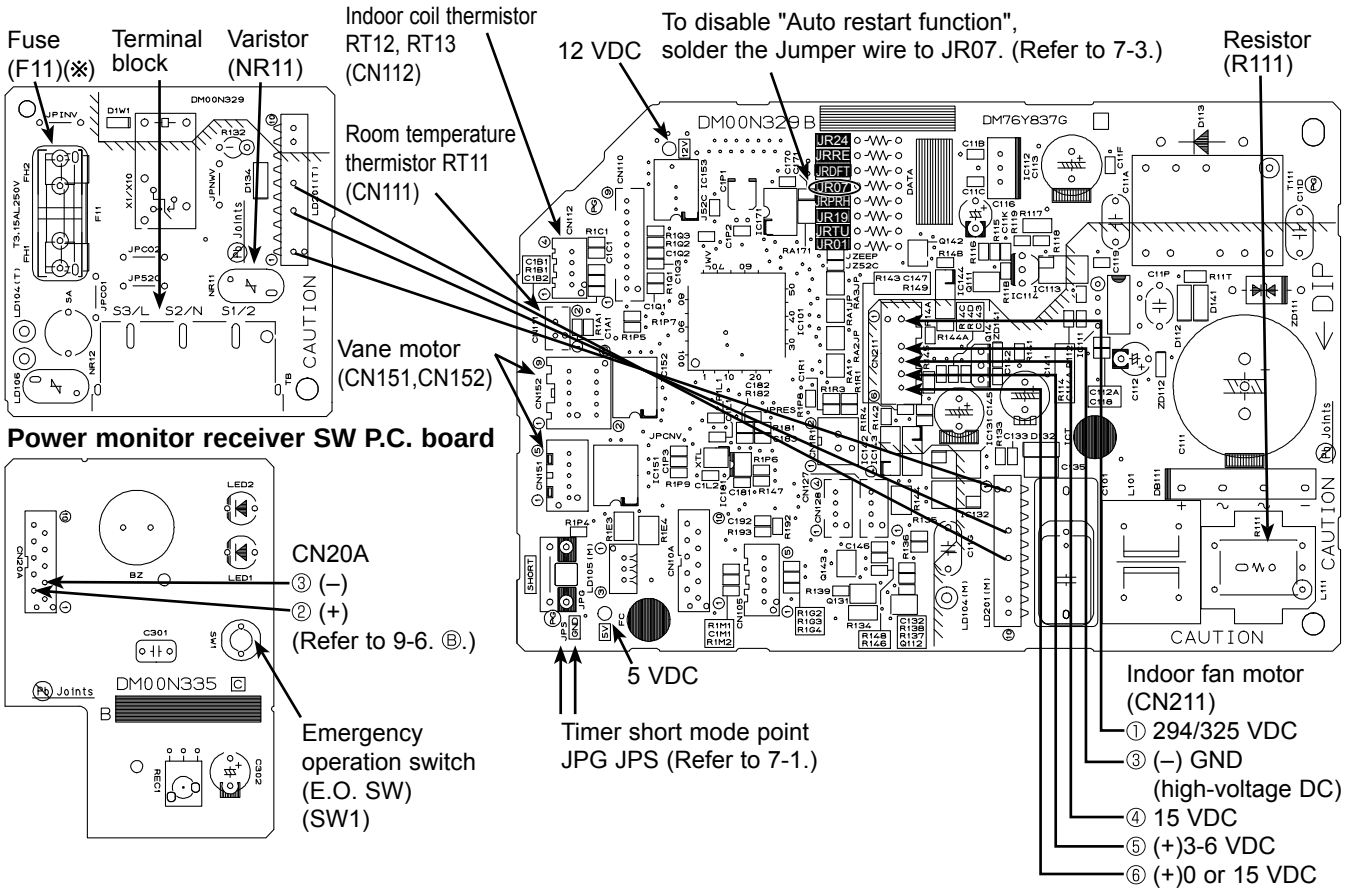
Room temperature thermistor (RT11)
Indoor coil thermistor (RT12, RT13)



MSY-GE24NA

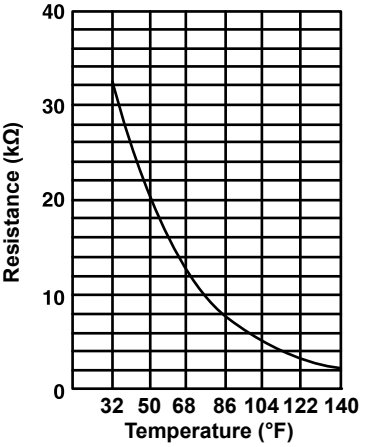
Indoor terminal P.C. board, Indoor electronic control P.C. board, Power monitor receiver SW P.C. board

Indoor terminal P.C. board **Indoor electronic control P.C. board**



※ Please replace the fuse after removing the indoor terminal P.C. board from the electrical box.

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

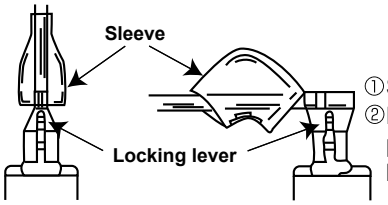


10 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

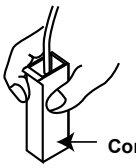
The terminal which has the locking mechanism can be detached as shown below.
There are two types (refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



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

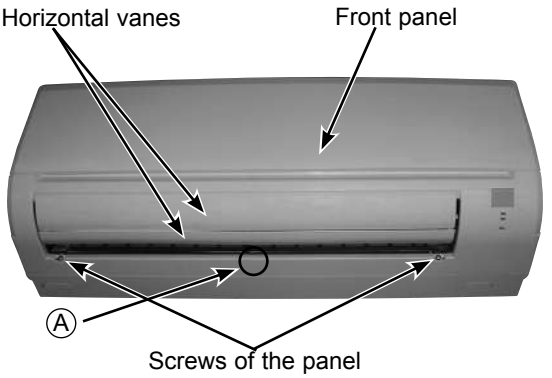
(2) The terminal with this connector has the locking mechanism.



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

10-1. MSZ-GE06NA MSZ-GE09NA MSZ-GE12NA MSZ-GE15NA MSZ-GE18NA MSY-GE09NA MSY-GE12NA MSY-GE15NA MSY-GE18NA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the panel (1) Remove the horizontal vanes. (2) Remove the screw caps of the panel. Remove the screws of the panel. (3) Unhook the lower part (Ⓐ) of the panel. (4) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward.	**Photo 1** 

OPERATING PROCEDURE

2. Removing the indoor electronic control P.C. board and the room temperature thermistor

(1) Remove the panel (Refer to 1.) and the corner box.
(2) Remove the screw of the V.A. clamp and the V.A. clamp.
(3) Loosen the screw of the indoor/outdoor connecting wire and remove the indoor/outdoor connecting wire.
(4) Remove the screw of the electrical cover and the electrical cover.
(5) Open the indoor electronic control P.C. board holder (to right side)
(6) Disconnect the following connectors:
<Indoor electronic control P.C. board>
CN112 (Indoor coil thermistor)
CN151 (Vane motor)
CN10A (To the indoor power P.C. board)
(7) Unhook the catches of the indoor electronic control P.C. board holder from the nozzle and the electrical box (right side).
(8) Remove the indoor electronic control P.C. board holder from the conduit cover.
(9) Remove the room temperature thermistor from the hook of the indoor electronic control P.C. board holder.
(10) Open the back side of the indoor electronic control P.C. board holder, and remove the indoor electronic control P.C. board.
(11) Remove the room temperature thermistor from the indoor electronic control P.C. board.

3. Removing the indoor power P.C. board, the indoor terminal P.C. board, and the electrical box

(1) Remove the panel (Refer to 1.) and the corner box.
(2) Remove the indoor/outdoor connecting wire and the indoor electric control P.C. board holder. (Refer to 2 (2)-(8).).
(3) Remove the screw of the conduit cover and the conduit cover.
(4) Remove the screw of the conduit plate and the conduit plate.
(5) Remove the ground wire connected to the indoor heat exchanger from the electrical box.
(6) Remove the screw fixing the electrical box.
(7) Unhook first the lower, then the upper catches of the electrical box, and pull out the electrical box.
(8) Disconnect all the connectors on the indoor power P.C. board and unhook all lead wires.
(9) Remove the screw of terminal block on the indoor terminal P.C. board.
(10) Remove the indoor power P.C. board and the indoor terminal P.C. board.

PHOTOS

Photo 2

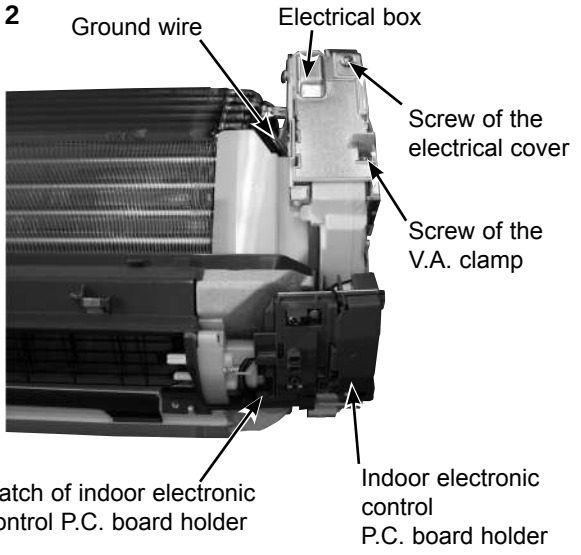


Photo 3

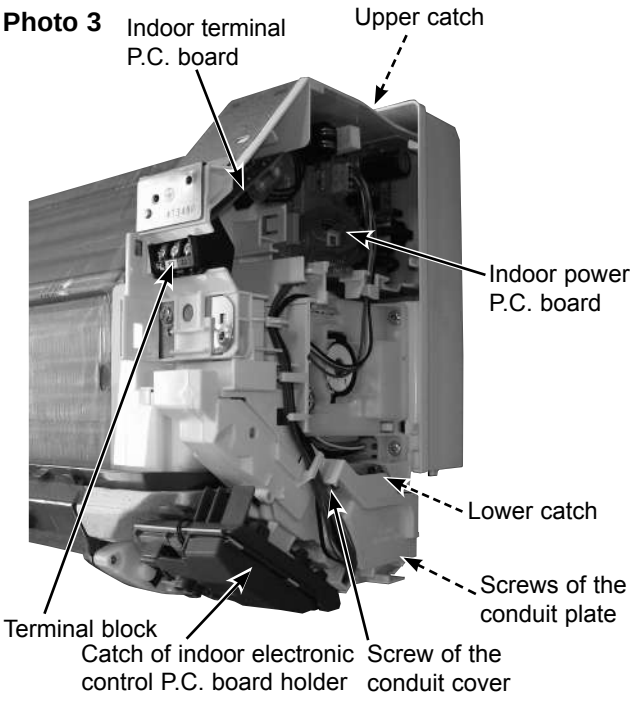
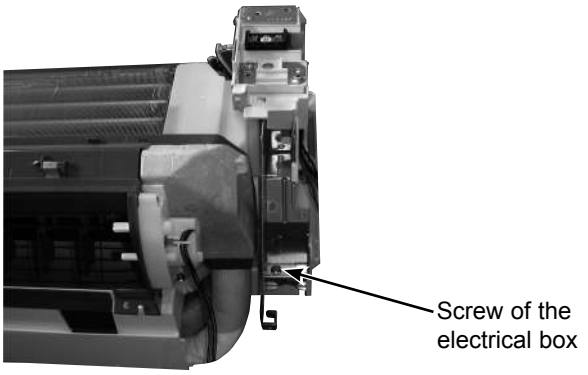
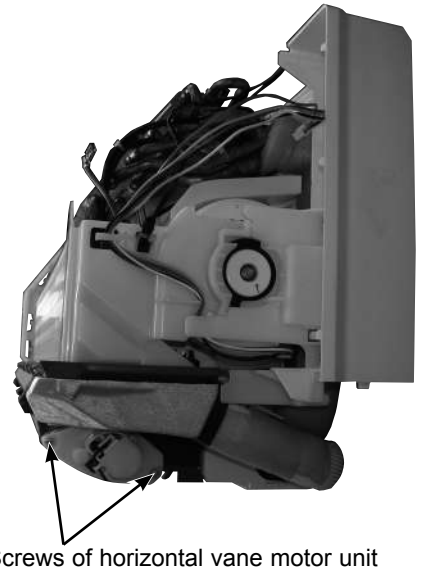


Photo 4



OPERATING PROCEDURE	PHOTOS
4. Removing the nozzle assembly (1) Remove the panel (Refer to 1.) and the corner box. (2) Remove the indoor/outdoor connecting wire (Refer to 2 (2)-(7).). (3) Remove the indoor electronic control P.C. board holder. (4) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.	**Photo 5**  Screws of horizontal vane motor unit
5. Removing the horizontal vane motor (1) Remove the nozzle assembly. (Refer to 5.) (2) Remove the screws of the horizontal vane motor unit. (3) Disconnect the connector from the horizontal vane motor. (4) Remove the screws of the horizontal vane motor. (5) Remove the horizontal vane motor from the horizontal vane motor unit.	

OPERATING PROCEDURE	PHOTOS

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

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

Photo 9

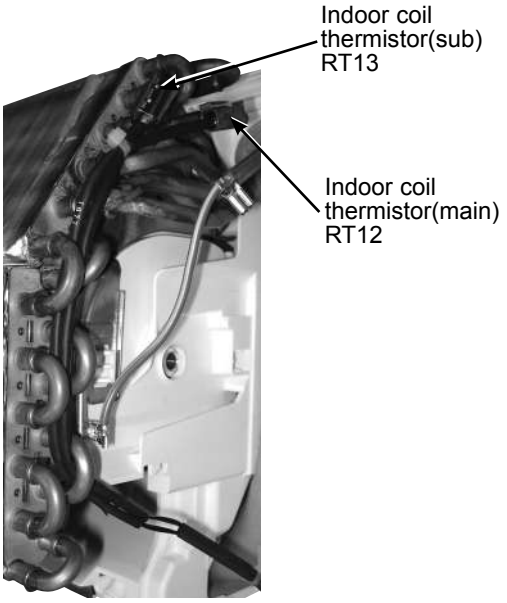


Photo 6

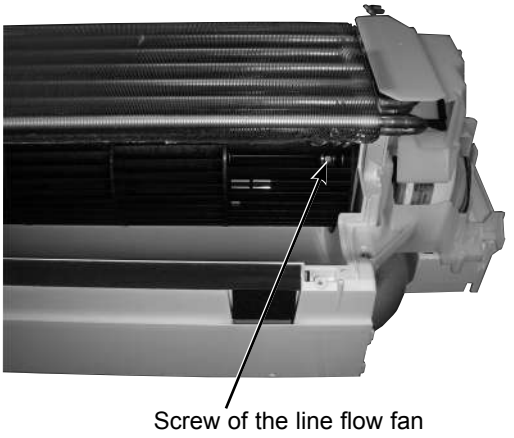


Photo 7

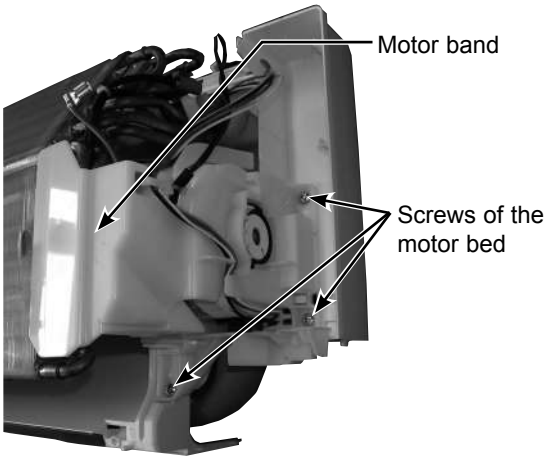
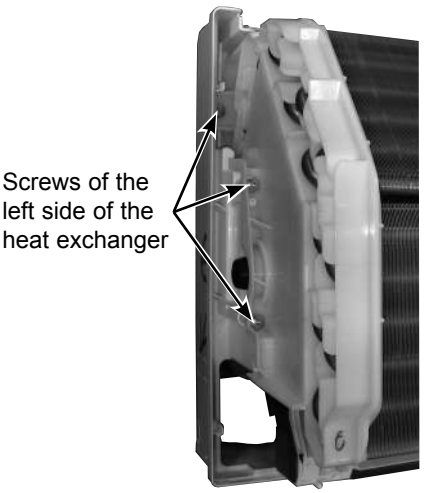
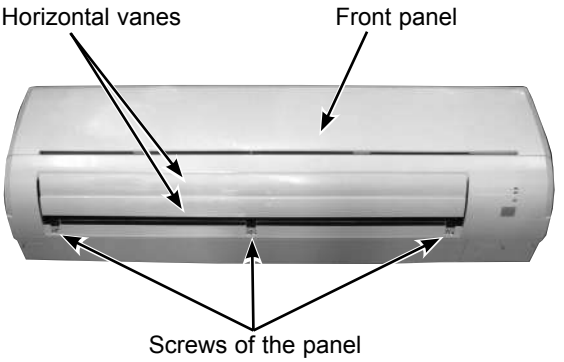
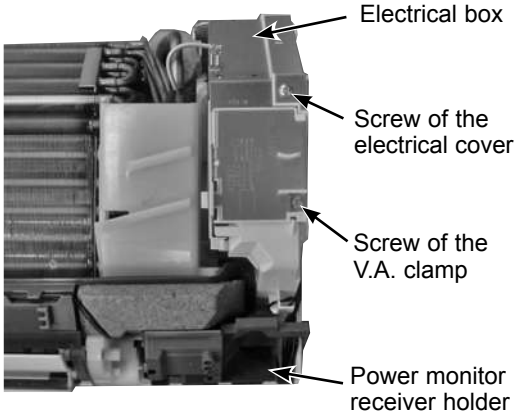
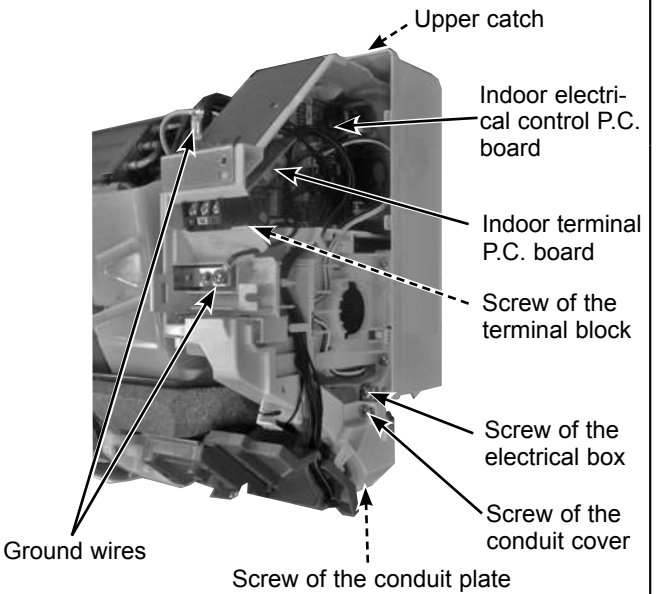


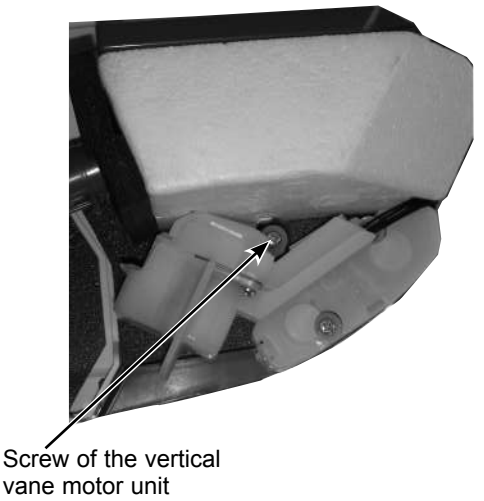
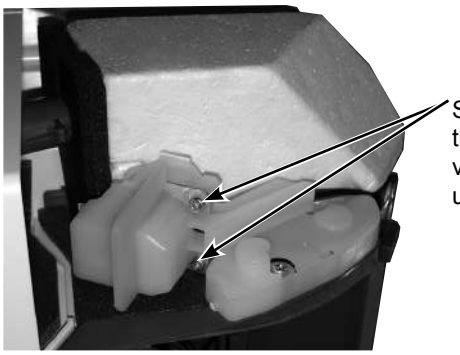
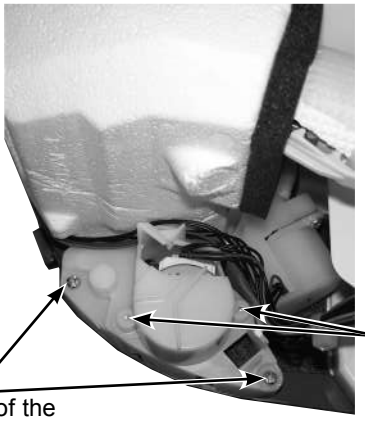
Photo 8



10-2. MSZ-GE24NA MSY-GE24NA

NOTE: Turn OFF the power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the panel (1) Remove the horizontal vanes. (2) Remove the screw caps of the panel. Remove the screws of the panel. (3) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward.	**Photo 1** 
2. Removing the indoor electronic control P.C. board, the power monitor receiver SW P.C. board and the indoor terminal P.C. board (1) Remove the panel (Refer to 1.) and the corner box. (2) Remove the screw of the V.A. clamp and the V.A. clamp. (3) Remove the screw of the conduit cover and the conduit cover. (4) Remove the screw of the conduit plate, the conduit plate and the indoor/outdoor connecting wire. (5) Remove the screw of the electrical cover, and then the electrical cover. (6) Remove the ground wire connected to the indoor electronic control P.C. board from the electrical box. (Photo 3) (7) Remove the power monitor receiver holder. (8) Open the rear cover of the power monitor receiver holder and pull out the power monitor receiver SW P.C. board. (9) Disconnect all the connectors on the indoor electronic control P.C. board and unhook all lead wires. (10) Remove the screw of the terminal block on the indoor terminal P.C. board. (11) Remove the indoor terminal P.C. board and the indoor electronic control P.C. board.	**Photo 2** 
3. Removing the indoor electrical box (1) Remove the panel (Refer to 1.) and the corner box. (2) Remove the indoor/outdoor connecting wire. (Refer to 2 (2)-(4).) (3) Remove the ground wire connected to the indoor heat exchanger from the electrical box. (4) Remove the screw of the electrical cover and remove the electrical cover. (5) Disconnect all the connectors on the indoor electronic control P.C. board and unhook all lead wires. (6) Remove the screw fixing the electrical box, then the upper catch of the electrical box, and pull out the electrical box.	**Photo 3** 

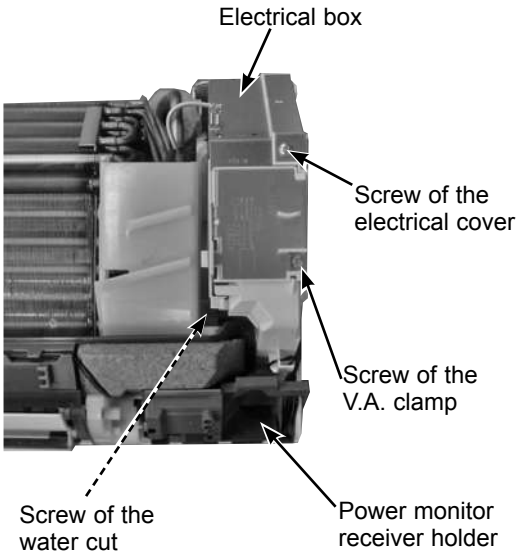
OPERATING PROCEDURE	PHOTOS
4. Removing the nozzle assembly (1) Remove the panel (Refer to 1.) and the corner box. (2) Remove the V.A. clamp, and then the indoor/outdoor connecting wire. (Refer to 2 (2)-(4).) (3) Remove the electrical cover. (Photo 2) (4) Disconnect the following connectors on the electronic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

OPERATING PROCEDURE

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

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

Photo 7



PHOTOS

Photo 8

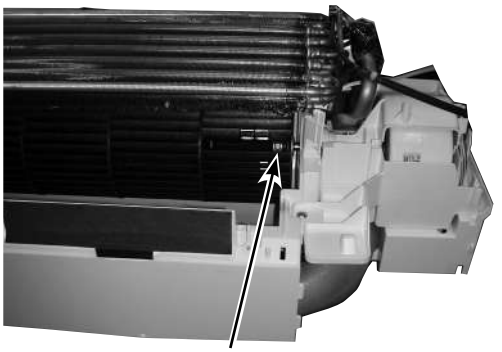


Photo 9

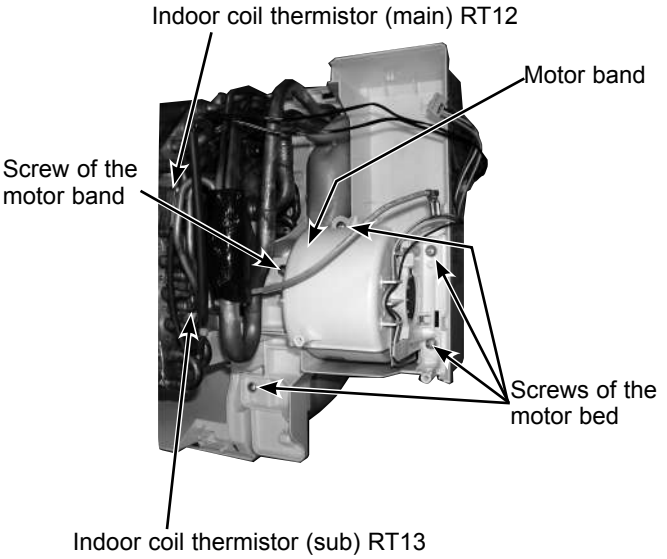
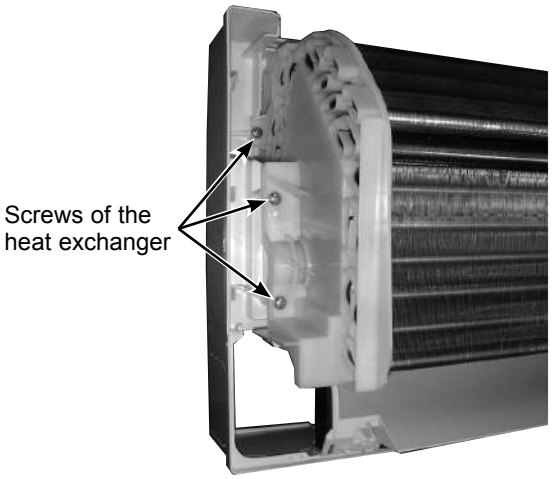


Photo 10



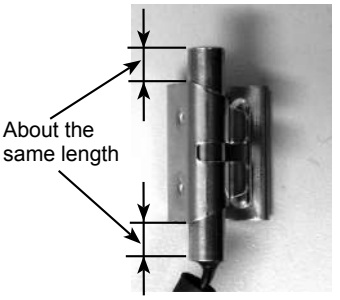
Fixing the indoor coil thermistor

※ 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.

MITSUBISHI ELECTRIC CORPORATION

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

Distributed in Oct. 2014. No. OBH548 REVISED EDITION-D
Distributed in Jul. 2011. No. OBH548 REVISED EDITION-C
Distributed in Apr. 2011. No. OBH548 REVISED EDITION-B
Distributed in Sep. 2010. No. OBH548 REVISED EDITION-A 5
Distributed in Jul. 2009. No. OBH548 5
Made in Japan

New publication, effective Oct. 2014
Specifications subject to change without notice.

MITSUBISHI ELECTRIC

SPLIT-TYPE AIR CONDITIONERS

Revision G:
- The descriptions of the expansion valve coil have been corrected. (10-4.)
- Some descriptions have been modified.

Please void OBH549 REVISED EDITION-F.

OUTDOOR UNIT

SERVICE MANUAL

HFC utilized R410A

No. OBH549
REVISED EDITION-G

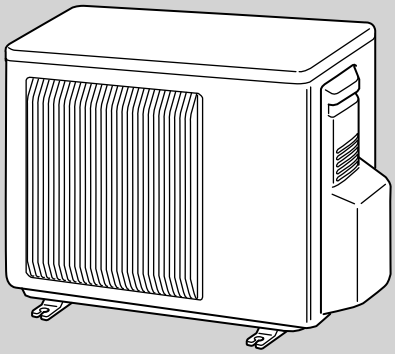
Models

MUZ-GE09NA
MUZ-GE09NA2
MUZ-GE12NA
MUZ-GE12NA2
MUZ-GE15NA, -[1]
MUZ-GE15NA2 DAC-8-9
MUZ-GE18NA, -[1]
MUZ-GE24NA DAC-2-7
MUY-GE09NA
MUY-GE09NA2
MUY-GE12NA
MUY-GE12NA2
MUY-GE15NA, -[1]
MUY-GE15NA2

MUZ-GE09NAH
MUZ-GE09NAH2
MUZ-GE12NAH
MUZ-GE12NAH2
MUZ-GE15NAH
MUZ-GE15NAH2
MUZ-GE18NAH

MUY-GE18NA, -[1]
MUY-GE24NA

Indoor unit service manual
MSZ-GE•NA MSY-GE•NA Series (OBH548)



MUZ-GE09NA/NA2 **MUZ-GE09NAH/NAH2**
MUZ-GE12NA/NA2 **MUZ-GE12NAH/NAH2**
MUZ-GE15NA, -[1]/NA2 **MUZ-GE15NAH/NAH2**
MUY-GE09NA/NA2
MUY-GE12NA/NA2
MUY-GE15NA, -[1]/NA2

NOTE:
RoHS compliant products have <G> mark on the spec name plate.

CONTENTS

Mr.SLIM™

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:
• MUZ-GE24NA and MUY-GE24NA have been added.

Revision B:
• Descriptions regarding the outdoor fan motor has been corrected.

Revision C:
• MUZ-GE15NA-[1], MUZ-GE18NA-[1], MUY-GE15NA-[1], and MUY-GE18NA-[1] have been added.

Revision D:
• Specification has been corrected. [Capacity ➔ Capacity Rated (Maximum), Power consumption ➔ Power consumption Rated (Maximum)]

Revision E:
• MUZ-GE09NAH, MUZ-GE12NAH, MUZ-GE15NAH and MUZ-GE18NAH have been added.

Revision F:
• MUZ-GE09/12/15NA2, MUZ-GE09/12/15NAH2 and MUY-GE09/12/15NA2 have been added.

Revision G:
• The descriptions of the expansion valve coil have been corrected. (10-4.)
• Some descriptions have been modified.

1 TECHNICAL CHANGES

MUZ-GE09NA MUY-GE09NA
MUZ-GE12NA MUY-GE12NA
MUZ-GE15NA MUY-GE15NA
MUZ-GE18NA MUY-GE18NA
MUZ-GE24NA MUY-GE24NA
1. New model

MUZ-GE15NA → MUZ-GE15NA -1
MUZ-GE18NA → MUZ-GE18NA -1
1. Compressor has been changed.
2. Inverter P.C. board has been changed.

MUY-GE15NA → MUY-GE15NA -1
MUY-GE18NA → MUY-GE18NA -1
1. Compressor has been changed.
2. Inverter P.C. board has been changed.

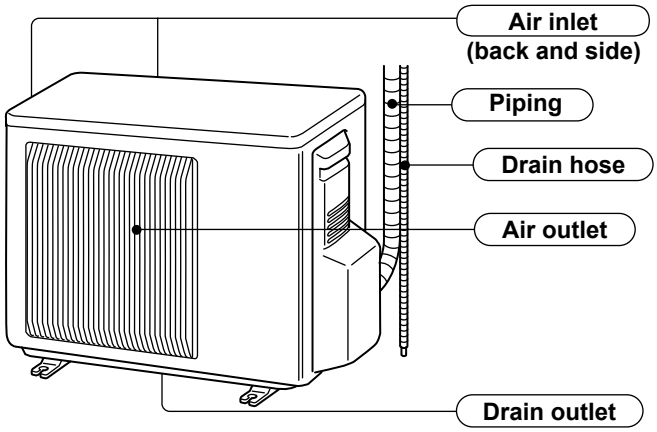
MUZ-GE09NA → MUZ-GE09NAH
1. Defrost heater has been added.
2. Reactor has been changed.
3. Inverter P.C. board has been changed.

MUZ-GE12NA → MUZ-GE12NAH
MUZ-GE15NA -1 → MUZ-GE15NAH
MUZ-GE18NA -1 → MUZ-GE18NAH
1. Defrost heater has been added.
2. Inverter P.C. board has been changed.

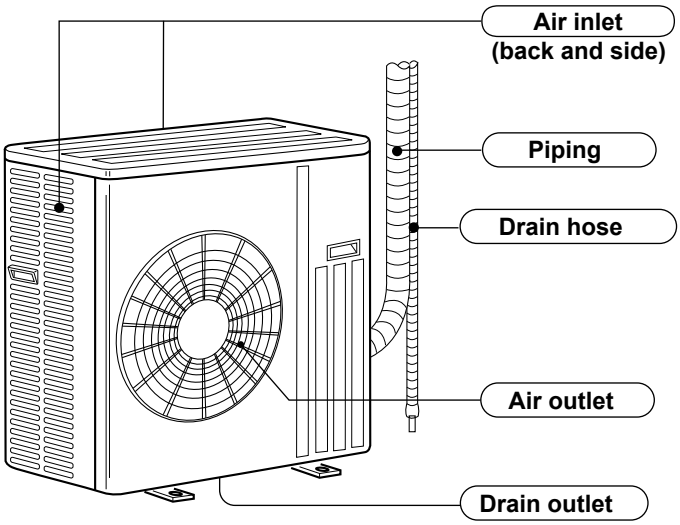
MUZ-GE09NA → MUZ-GE09NA2
MUZ-GE12NA → MUZ-GE12NA2
MUZ-GE15NA -1 → MUZ-GE15NA2
MUZ-GE09NAH → MUZ-GE09NAH2
MUZ-GE12NAH → MUZ-GE12NAH2
MUZ-GE15NAH → MUZ-GE15NAH2
MUY-GE09NA → MUY-GE09NA2
MUY-GE12NA → MUY-GE12NA2
MUY-GE15NA -1 → MUY-GE15NA2
1. SEER and HSPF have been added.

2 PART NAMES AND FUNCTIONS

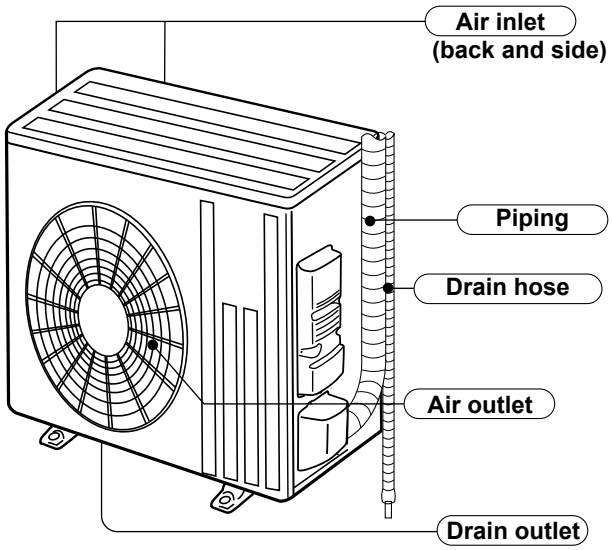
MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2



MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA



MUZ-GE24NA
MUY-GE24NA



3 SPECIFICATION

Outdoor unit model			**MUZ-GE09NA** **MUZ-GE09NA2** **MUZ-GE09NAH** **MUZ-GE09NAH2**	**MUY-GE09NA** **MUY-GE09NA2**	**MUZ-GE12NA** **MUZ-GE12NA2** **MUZ-GE12NAH** **MUZ-GE12NAH2**	**MUY-GE12NA** **MUY-GE12NA2**
Capacity Rated (Minimum~Maximum)	Cooling ❄1	Btu/h	9,000 (3,800 ~ 12,200)	9,000 (3,800 ~ 12,200)	12,000 (3,800 ~ 13,600)	12,000 (3,800 ~ 13,600)
	Heating 47 ❄1	Btu/h	10,900 (4,500 ~ 14,100)	—	14,400 (5,500 ~ 18,100)	—
Capacity Rated (Maximum)	Heating 17 ❄2	Btu/h	6,600 (8,700)	—	8,800 (11,200)	—
Power consumption Rated (Minimum~Maximum)	Cooling ❄1	W	660 (205~1,200)	660 (205~1,200)	960 (205~1,300)	960 (205~1,300)
	Heating 47 ❄1	W	760 (255~1,200)	—	1,170 (340~1,660)	—
Power consumption Rated (Maximum)	Heating 17 ❄2	W	700 (950)	—	900 (1,200)	—
EER ❄1 [SEER] ❄3	Cooling		**09NA/H**: 13.6 [21.0]	**09NA**: 13.6 [21.0]	**12NA/H**: 12.5 [20.5]	**12NA/H**: 12.5 [20.5]
			09NA2/H2: 13.6 [23.2]	**09NA2**: 13.6 [23.2]	**12NA2/H2**: 12.5 [22.7]	**12NA2/H2**: 12.5 [22.7]
HSPF IV ❄4	Heating		**09NA/H**: 10.0	—	**12NA/H**: 10.0	—
			09NA2: 11.0		**12NA2**: 11.4	
			09NAH2: 10.1		**12NAH2**: 10.8	
COP	Heating ❄1		4.20	—	3.61	—
Power supply	V , phase , Hz		208/230 , 1 , 60			
Max. fuse size (time delay)		A	15			
Min. circuit ampacity		A	12			
Fan motor		F.L.A	0.50			
Compressor	Model		KNB073FQDHC		KNB092FQAHC	
		R.L.A	6.6	4.9	6.6	4.9
		L.R.A	8.2	6.1	8.2	6.1
	Refrigeration oil (Model)	L	0.32 (NEO22)			
Refrigerant control			Linear expansion valve			
Sound level ❄1	Cooling	dB(A)	46		49	
	Heating	dB(A)	50	—	51	—
Defrost method			Reverse cycle			
Dimensions	W	in.	31-1/2			
	D	in.	11-1/4			
	H	in.	21-5/8			
Weight		lb.	66		77	
External finish			Munsell 3Y 7.8/1.1			
Remote controller			Wireless type			
Control voltage (by built-in transformer)		VDC	12 - 24			
Refrigerant piping			Not supplied			
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)			
	Gas	in.	3/8 (0.0315)			
Connection method	Indoor		Flared			
	Outdoor		Flared			
Between the indoor & outdoor units	Height difference	ft.	40			
	Piping length	ft.	65			
Refrigerant charge (R410A)			1 lb. 12 oz.		2 lb. 9 oz.	

NOTE: Test conditions are based on AHRI 210/240.

❄1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB)
(Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB

❄2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB

Outdoor unit model			MUZ-GE15NA MUZ-GE15NA-[1] MUZ-GE15NA2 MUZ-GE15NAH MUZ-GE15NAH2	MUY-GE15NA MUY-GE15NA-[1] MUY-GE15NA2	MUZ-GE18NA MUZ-GE18NA-[1] MUZ-GE18NAH	MUY-GE18NA MUY-GE18NA-[1]
Capacity Rated (Minimum~Maximum)	Cooling ❄1	Btu/h	14,000 (3,100 ~ 18,200)	14,000 (3,100 ~ 18,200)	17,200 (3,700 ~ 18,700)	17,200 (3,700 ~ 18,700)
	Heating 47 ❄1	Btu/h	18,000 (4,800 ~ 20,900)	—	21,600 (3,500 ~ 25,200)	—
Capacity Rated (Maximum)	Heating 17 ❄2	Btu/h	11,300 (15,900)	—	13,400 (17,200)	—
Power consumption Rated (Minimum~Maximum)	Cooling ❄1	W	1,080 (160 ~ 2,000)	1,080 (160 ~ 2,000)	1,640 (240 ~ 2,070)	1,640 (240 ~ 2,070)
	Heating 47 ❄1	W	1,600 (270 ~ 2,010)	—	1,900 (230 ~ 2,680)	—
Power consumption Rated (Maximum)	Heating 17 ❄2	W	1,150 (1,950)	—	1,450 (2,080)	—
EER ❄1 [SEER] ❄3	Cooling		**15NA/H**: 13.0 [21.0]	**15NA/H**: 13.0 [21.0]	10.5 [19.2]	10.5 [19.2]
			15NA2/H2: 13.6 [21.6]	**15NA2/H2**: 13.6 [21.6]		
HSPF IV ❄4	Heating		**15NA/H**: 10.0	—	10.0	—
			15NA2: 11.2			
			15NA2/H2: 10.8			
COP	Heating ❄1		3.30	—	3.33	—
Power supply	V , phase , Hz		208/230 , 1 , 60			
Max. fuse size (time delay)		A	15			
Min. circuit ampacity		A	12		14	
Fan motor		F.L.A	0.50		0.93	
Compressor	Model		**MUZ/MUY-GE·NA**		SNB130FQBH	
			MUZ/MUY-GE·NA2 **MUZ/MUY-GE·NA-**[1] **MUZ-GE·NAH, NAH2**		SNB130FQBHT	
		R.L.A	7.4	6.8	10.0	
		L.R.A	9.3	8.5	12.5	
	Refrigeration oil (Model)	L	0.45 (NEO22)			
Refrigerant control			Linear expansion valve			
Sound level ❄1	Cooling	dB(A)	49		54	
	Heating	dB(A)	51	—	56	—
Defrost method			Reverse cycle			
Dimensions	W	in.	31-1/2		33-1/16	
	D	in.	11-1/4		13	
	H	in.	21-5/8		33-7/16	
Weight		lb.	80		119	
External finish			Munsell 3Y 7.8/1.1			
Remote controller			Wireless type			
Control voltage (by built-in transformer)		VDC	12 - 24			
Refrigerant piping			Not supplied			
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)			
	Gas	in.	1/2 (0.0315)			
Connection method	Indoor		Flared			
	Outdoor		Flared			
Between the indoor & outdoor units	Height difference	ft.	40		50	
	Piping length	ft.	65		100	
Refrigerant charge (R410A)			2 lb. 9 oz.		3 lb. 7 oz.	

NOTE: Test conditions are based on AHRI 210/240.

❄1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB)
(Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB

❄2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB

Outdoor unit model			MUZ-GE24NA	MUY-GE24NA
Capacity Rated (Minimum~Maximum)	Cooling ❊1	Btu/h	22,500 (8,200 ~ 31,400)	22,500 (8,200 ~ 31,400)
	Heating 47 ❊1	Btu/h	27,600 (7,500 ~ 36,900)	—
Capacity Rated (Maximum)	Heating 17 ❊2	Btu/h	16,000 (24,600)	—
Power consumption Rated (Minimum~Maximum)	Cooling ❊1	W	1,800 (570 ~ 3,580)	1,800 (570 ~ 3,580)
	Heating 47 ❊1	W	2,340 (520 ~ 3,650)	—
Power consumption Rated (Maximum)	Heating 17 ❊2	W	1,770 (3,290)	—
EER ❊1 [SEER] ❊3	Cooling		12.5 [19.0]	
HSPF IV ❊4	Heating		10.0	—
COP	Heating ❊1		3.46	—
Power supply	V , phase , Hz		208/230 , 1 , 60	
Max. fuse size (time delay)		A	20	
Min. circuit ampacity		A	17.1	
Fan motor		F.L.A	0.93	
Compressor	Model		SNB172FQKMT	
		R.L.A	12.9	
		L.R.A	16.1	
	Refrigeration oil (Model)	L	0.40 (FV50S)	
Refrigerant control			Linear expansion valve	
Sound level ❊1	Cooling	dB(A)	55	
	Heating	dB(A)	55	—
Defrost method			Reverse cycle	
Dimensions	W	in.	33-1/16	
	D	in.	13	
	H	in.	34-5/8	
Weight		lb.	119	
External finish			Munsell 3Y 7.8/1.1	
Remote controller			Wireless type	
Control voltage (by built-in transformer)		VDC	12-24	
Refrigerant piping			Not supplied	
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	3/8 (0.0315)	
	Gas	in.	5/8 (0.0315)	
Connection method	Indoor		Flared	
	Outdoor		Flared	
Between the indoor & outdoor units	Height difference	ft.	50	
	Piping length	ft.	100	
Refrigerant charge (R410A)			4 lb. 3 oz.	

NOTE: Test conditions are based on AHRI 210/240.

❊1: Rating conditions (Cooling) — Indoor: 80˚FDB, 67˚FWB, Outdoor: 95˚FDB, (75˚FWB)
(Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 47˚FDB, 43˚FWB

❊2: (Heating) — Indoor: 70˚FDB, 60˚FWB, Outdoor: 17˚FDB, 15˚FWB

Test condition

✻3,✻4

ARI	Mode	Test	Indoor air condition (°F)		Outdoor air condition (°F)	
			Dry bulb	Wet bulb	Dry bulb	Wet bulb
	SEER (Cooling)	"A-2" Cooling Steady State at rated compressor Speed	80	67	95	(75)
		"B-2" Cooling Steady State at rated compressor Speed	80	67	82	(65)
		"B-1" Cooling Steady State at minimum compressor Speed	80	67	82	(65)
		"F-1" Cooling Steady State at minimum compressor Speed	80	67	67	(53.5)
		"E-V" Cooling Steady State at Intermediate compressor Speed ✻5	80	67	87	(69)
	HSPF (Heating) **(MUZ)**	"H1-2" Heating Steady State at rated compressor Speed	70	60	47	43
		"H3-2" Heating at rated compressor Speed	70	60	17	15
		"H0-1" Heating Steady State at minimum compressor Speed	70	60	62	56.5
		"H1-1" Heating Steady State at minimum compressor Speed	70	60	47	43
		"H2-V" Heating at Intermediate compressor Speed ✻5	70	60	35	33

✻5: At Intermediate compressor Speed
= ("Cooling rated compressor speed" - "minimum compressor speed") / 3 + "minimum compressor speed".

3-1. OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed voltage (V)
Outdoor unit	208/230 V 1 phase 60 Hz	Min. 187 — 208 — 230 — Max. 253

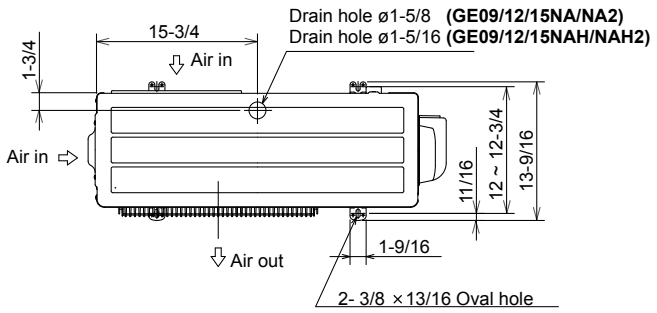
(2) OPERATION

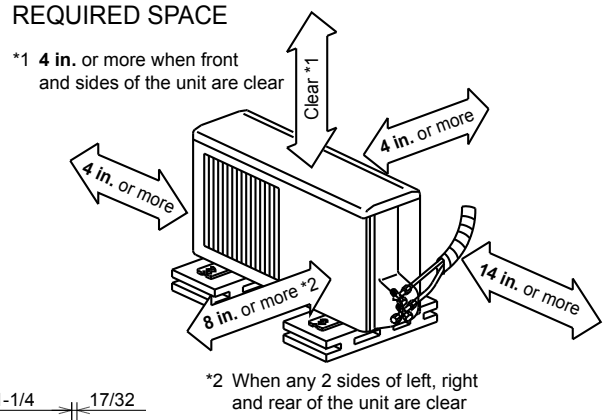
Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78 %		—	
Heating **(MUZ)**	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	-4	-5

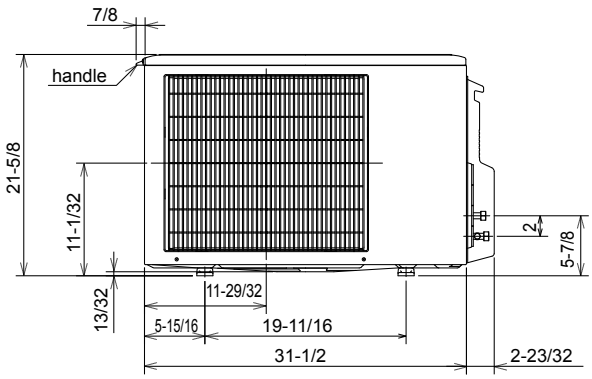
4 OUTLINES AND DIMENSIONS

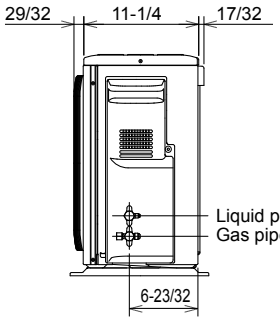
MUZ-GE09NA **MUZ-GE12NA** **MUZ-GE15NA**
MUZ-GE09NA2 **MUZ-GE12NA2** **MUZ-GE15NA2**
MUZ-GE09NAH **MUZ-GE12NAH** **MUZ-GE15NAH**
MUZ-GE09NAH2 **MUZ-GE12NAH2** **MUZ-GE15NAH2**
MUY-GE09NA **MUY-GE12NA** **MUY-GE15NA**
MUY-GE09NA2 **MUY-GE12NA2** **MUY-GE15NA2**

Unit: inch





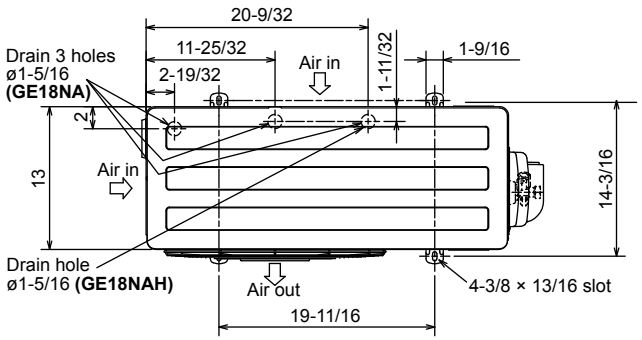




Liquid pipe :1/4 (flared)
Gas pipe :3/8 (flared) **(GE09/12)**
1/2 (flared) **(GE15)**

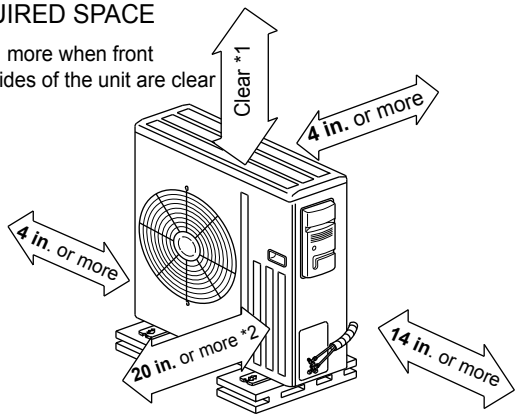
MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA

Unit: inch

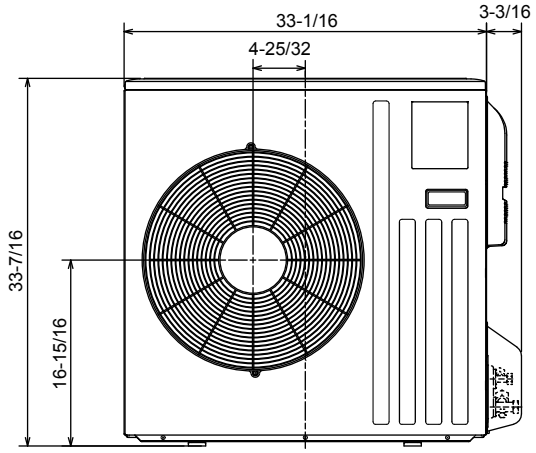


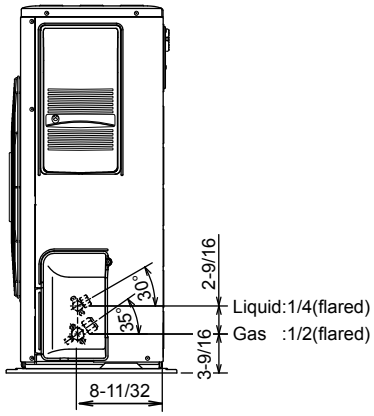
REQUIRED SPACE

*1 **20 in.** more when front and sides of the unit are clear



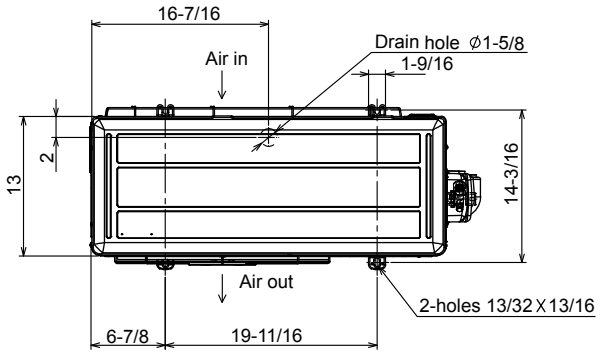
*2 When any 2 sides of left, right and rear of the unit are clear





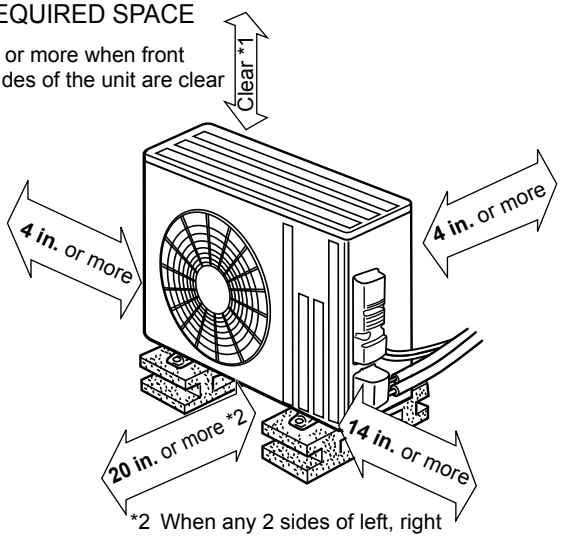
MUZ-GE24NA
MUY-GE24NA

Unit: inch

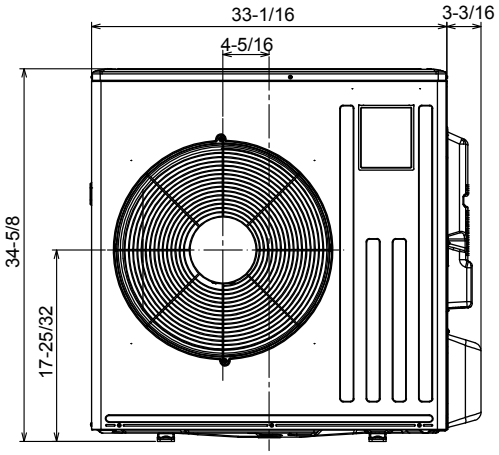


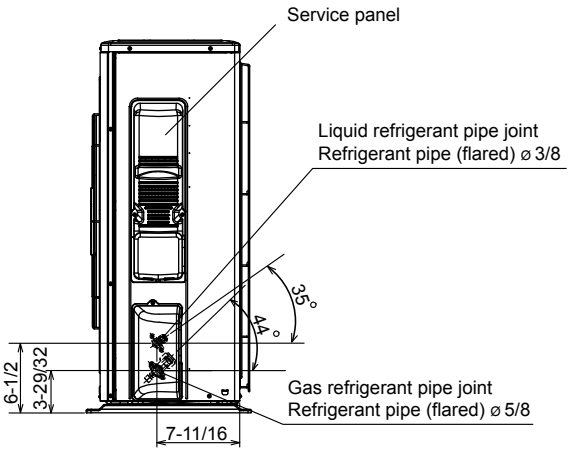
REQUIRED SPACE

*1 **20 in.** or more when front and sides of the unit are clear



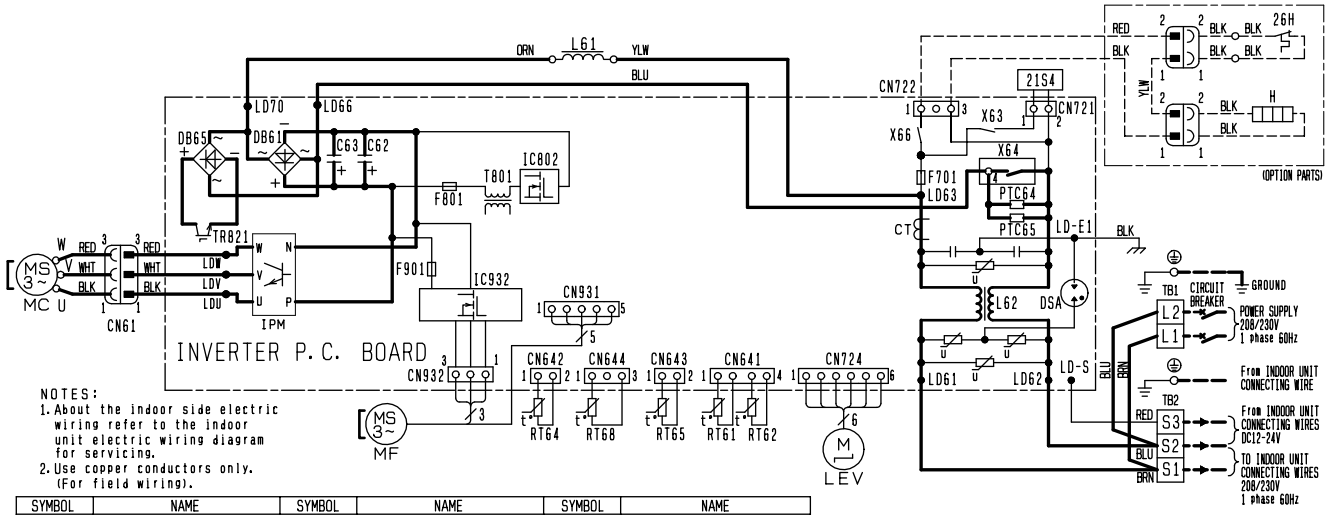
*2 When any 2 sides of left, right and rear of the unit are clear





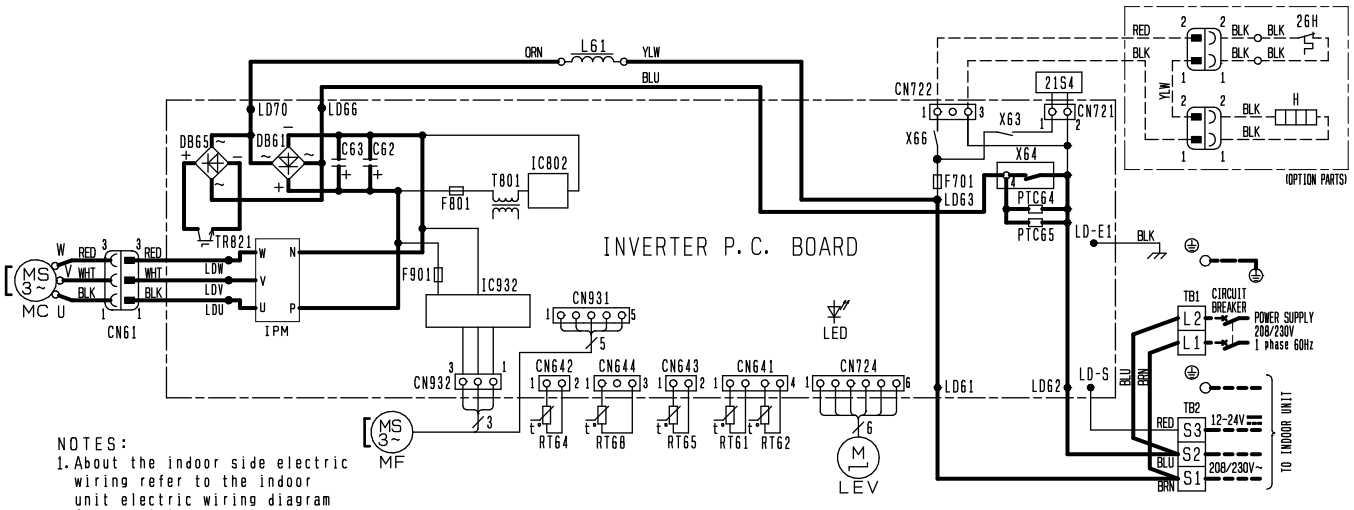
5 WIRING DIAGRAM

MUZ-GE09NA MUZ-GE12NA



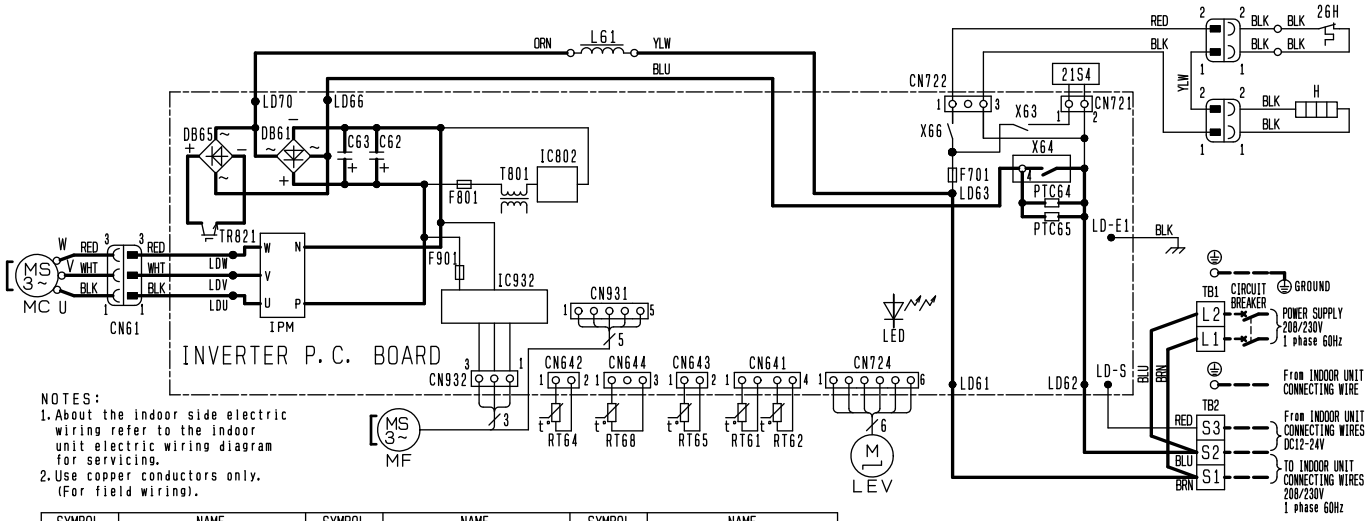
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F701, F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
H	DEFROST HEATER(OPTION PARTS)	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
IC802	INTELLIGENT POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
IPM, IC932	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

MUZ-GE09NA2 MUZ-GE12NA2



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER(OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)

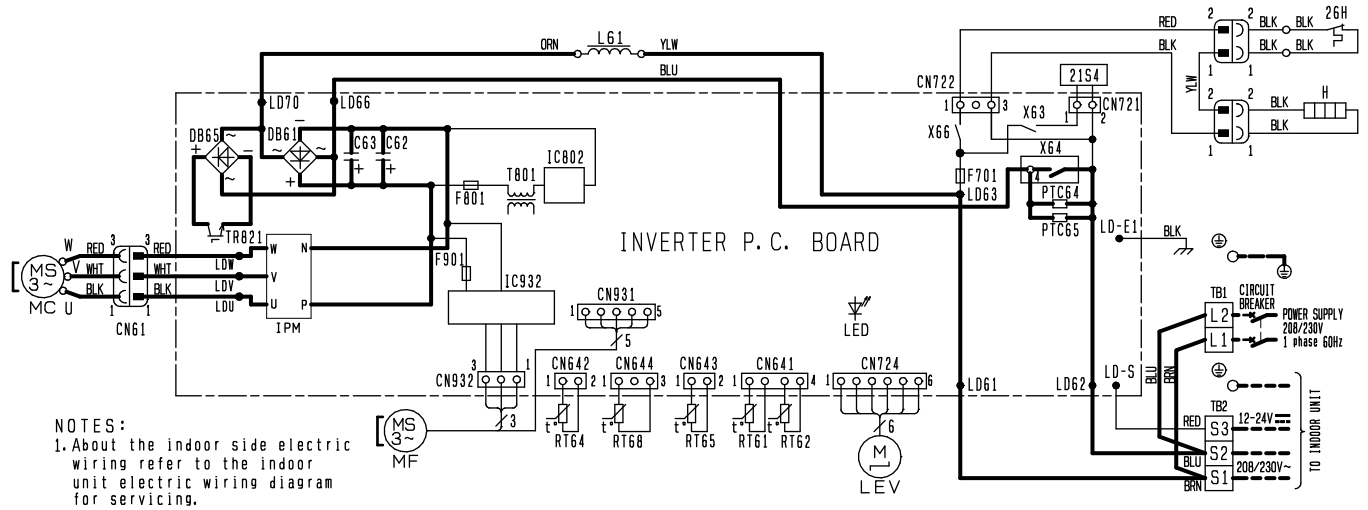
MUZ-GE09NAH MUZ-GE12NAH



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR

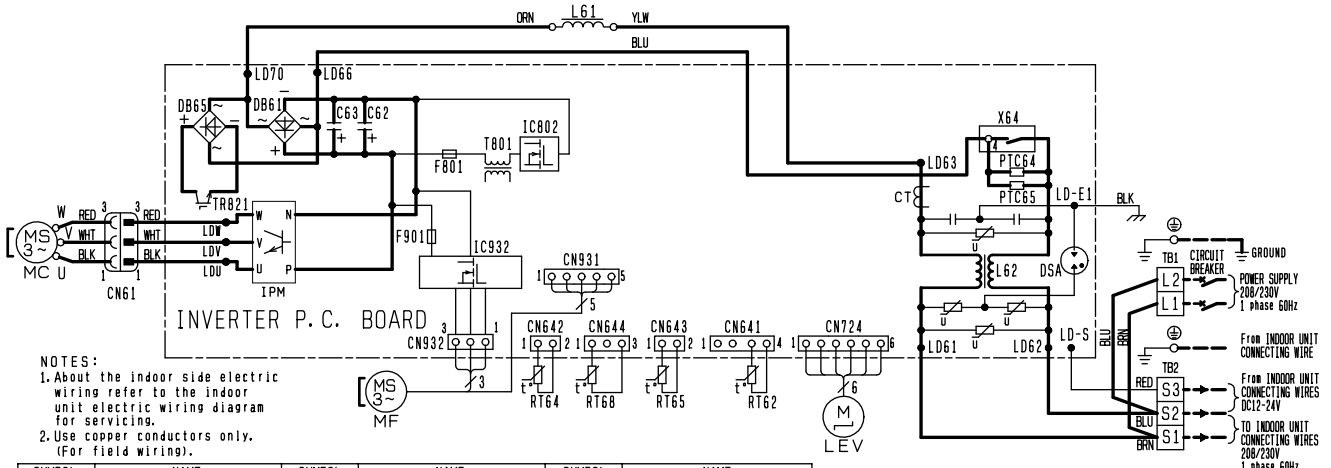
MUZ-GE09NAH2 MUZ-GE12NAH2



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

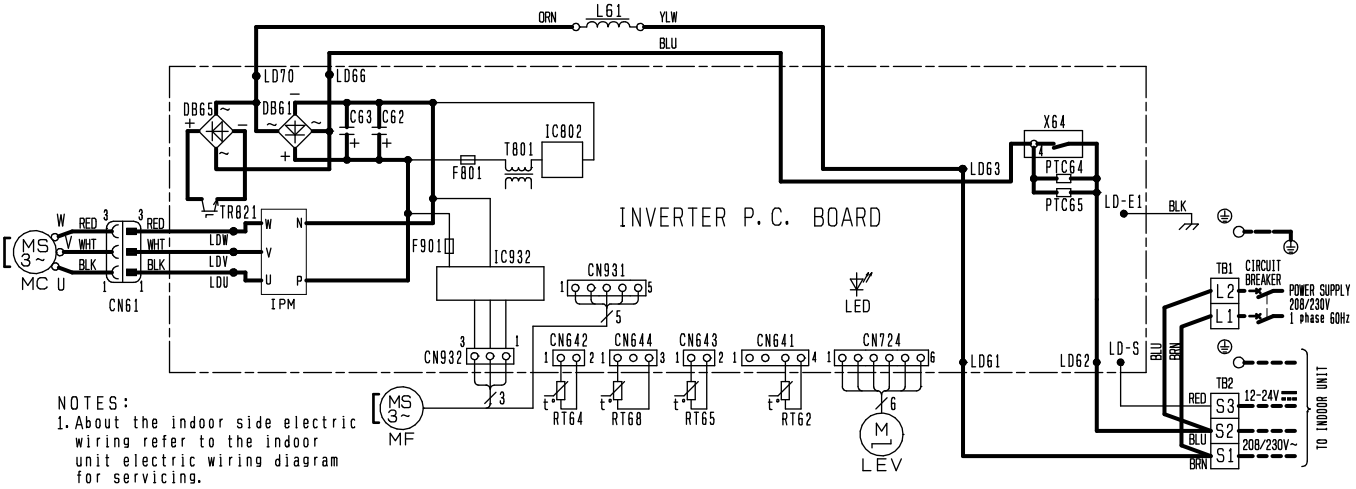
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR

MUY-GE09NA MUY-GE12NA



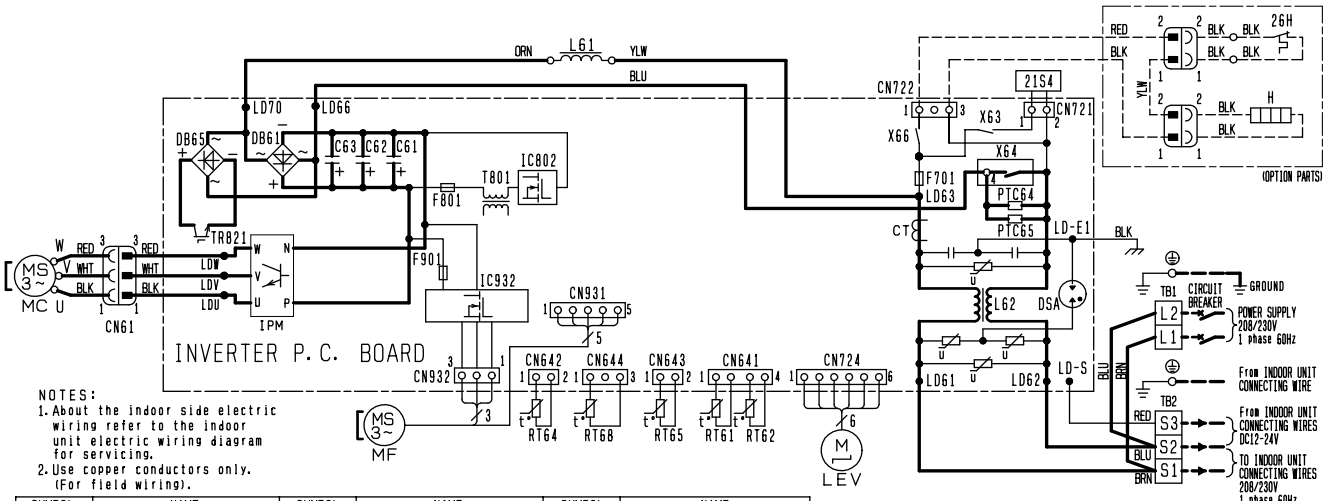
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	INTELLIGENT POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IPM, IC932	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR		
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

MUY-GE09NA2 MUY-GE12NA2



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C62, C63	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IPM, IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR		
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		
LED	LED	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.		
LEV	EXPANSION VALVE COIL				

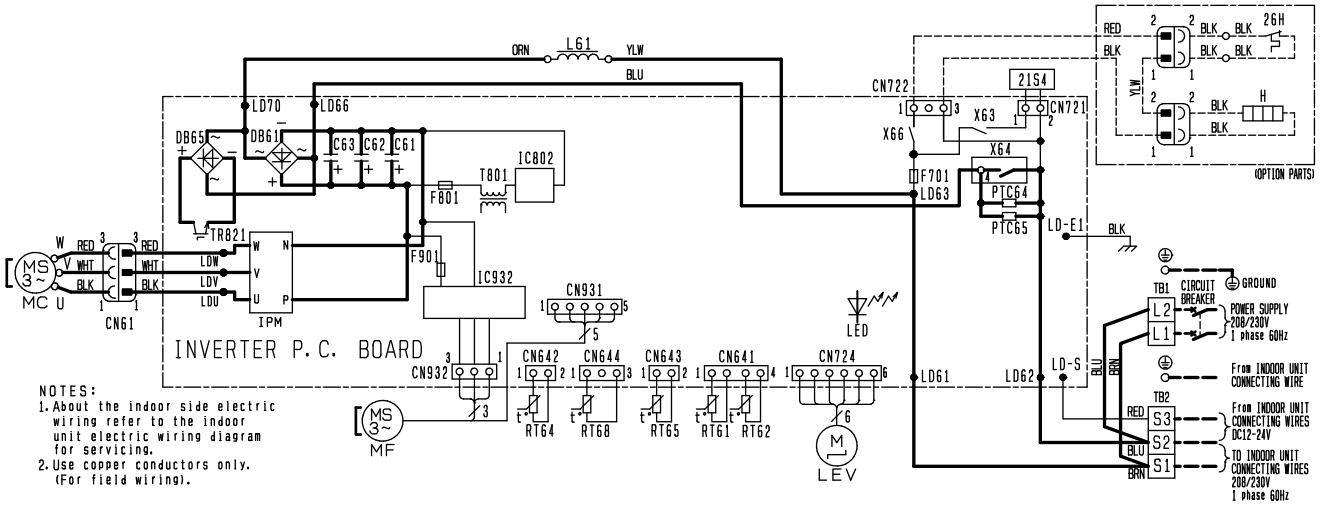
MUZ-GE15NA



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F701, F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
H	DEFROST HEATER(OPTION PARTS)	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
IC802	INTELLIGENT POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
IPM, IC932	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

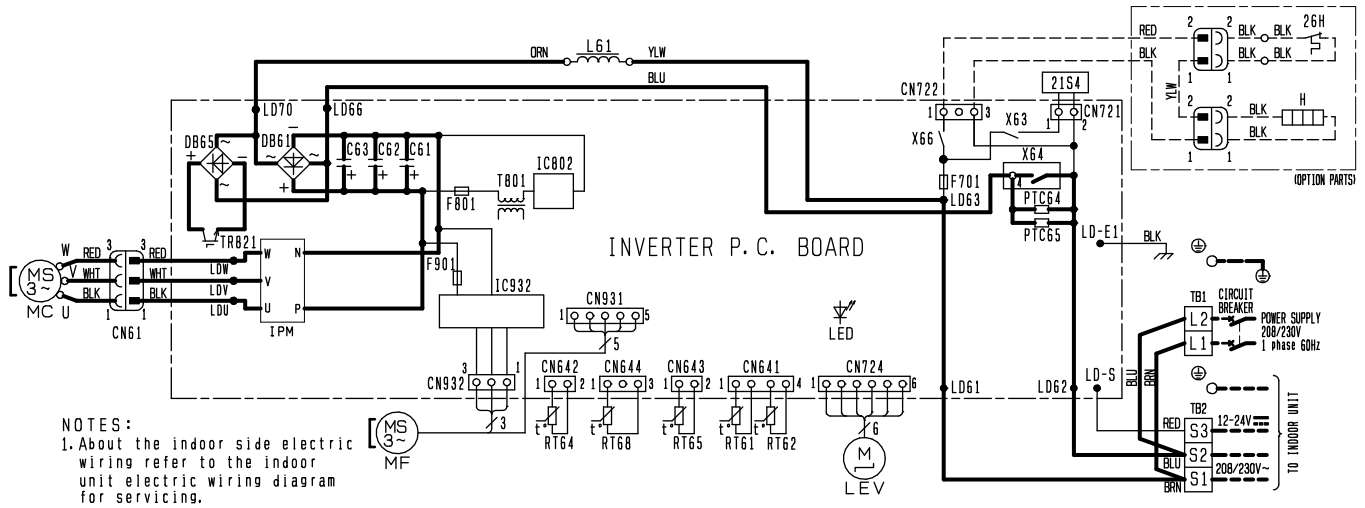
MUZ-GE15NA- 1



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER(OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)

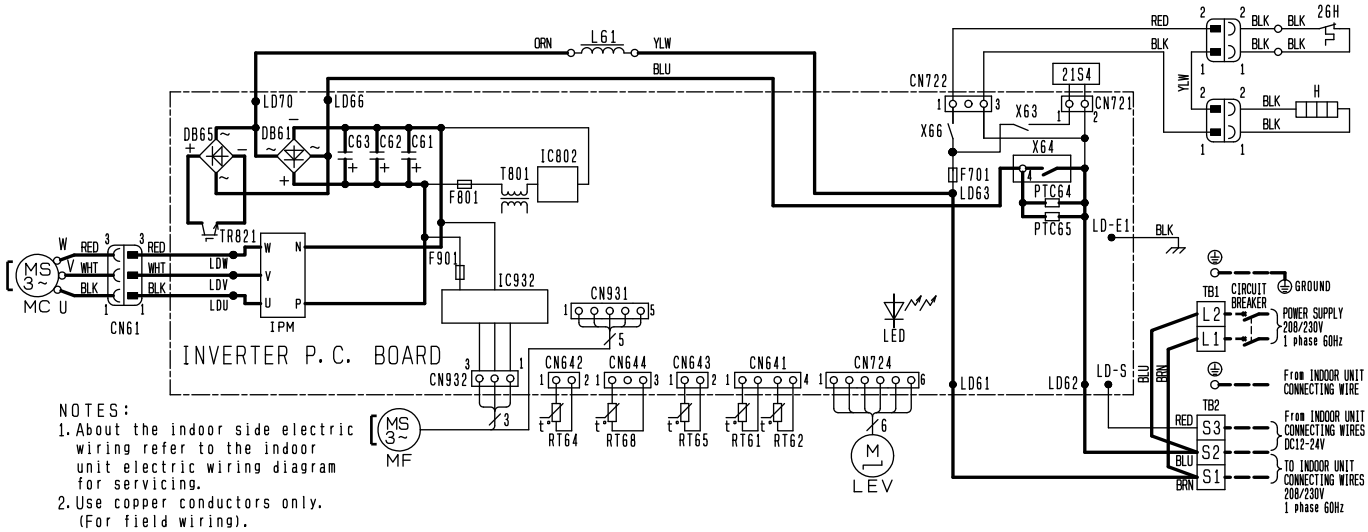
MUZ-GE15NA2



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

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER(OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)

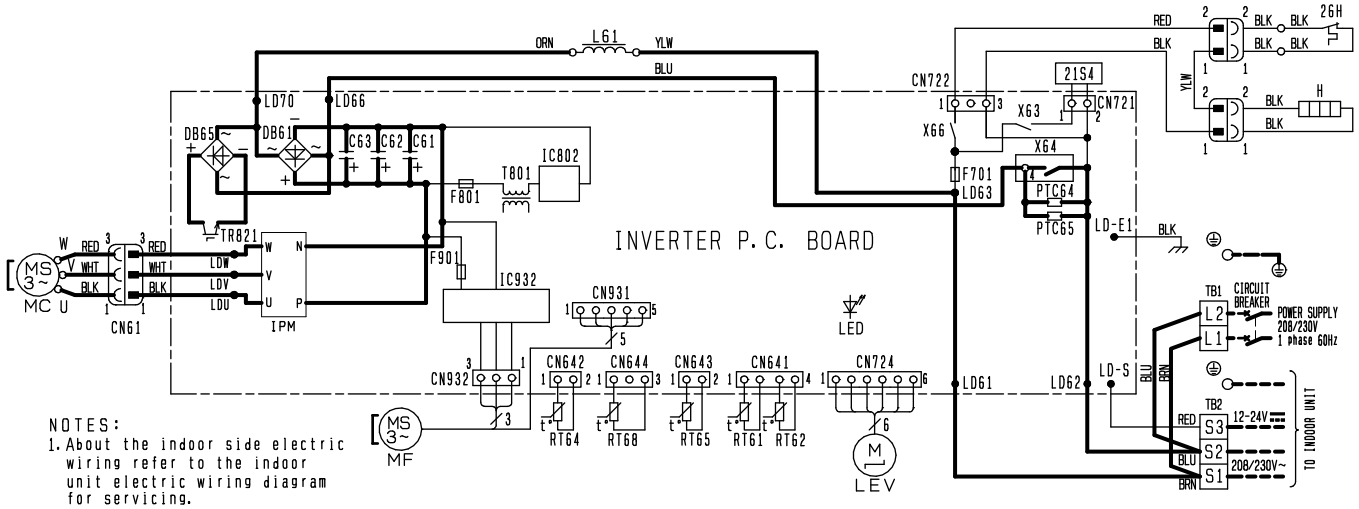
MUZ-GE15NAH



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR

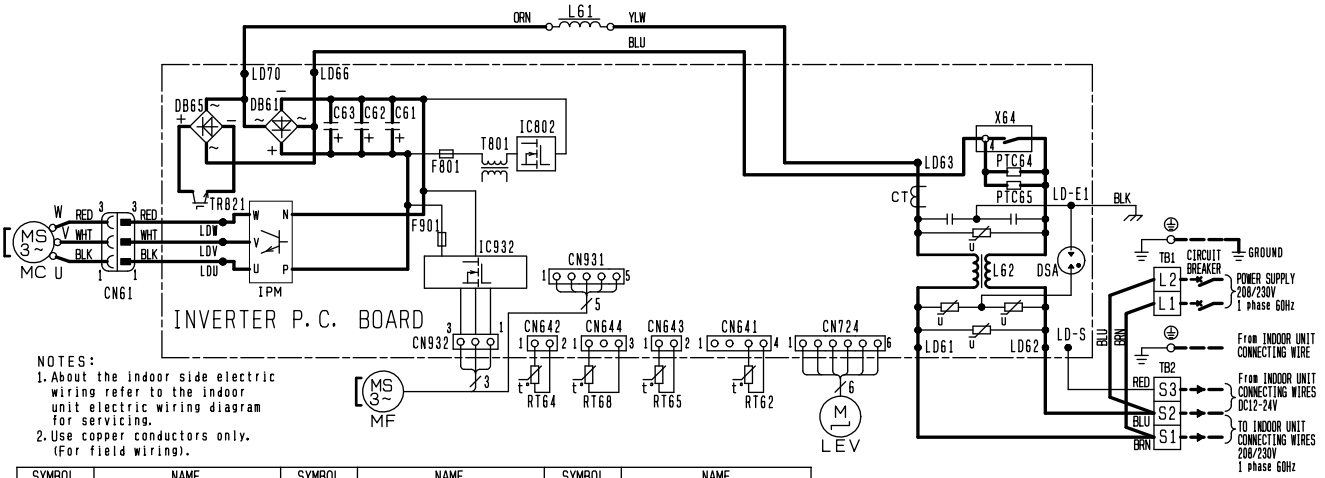
MUZ-GE15NAH2



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

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
IC802	POWER DEVICE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IPM, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR

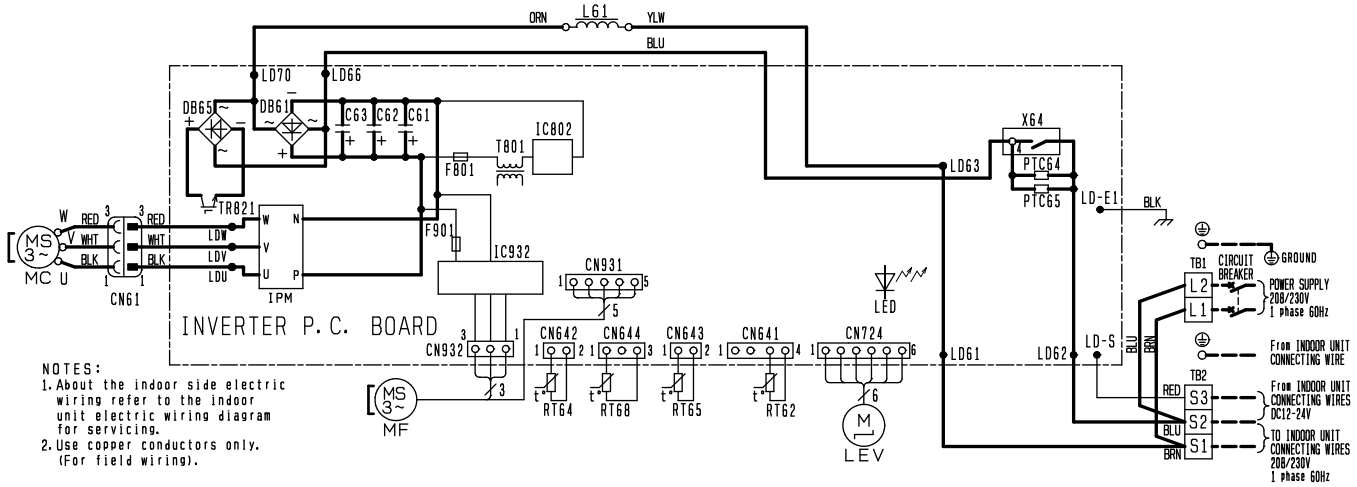
MUY-GE15NA



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	INTELLIGENT POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IPM, IC932	INTELLIGENT POWER MODULE	RT64	FIN TEMP. THERMISTOR		
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

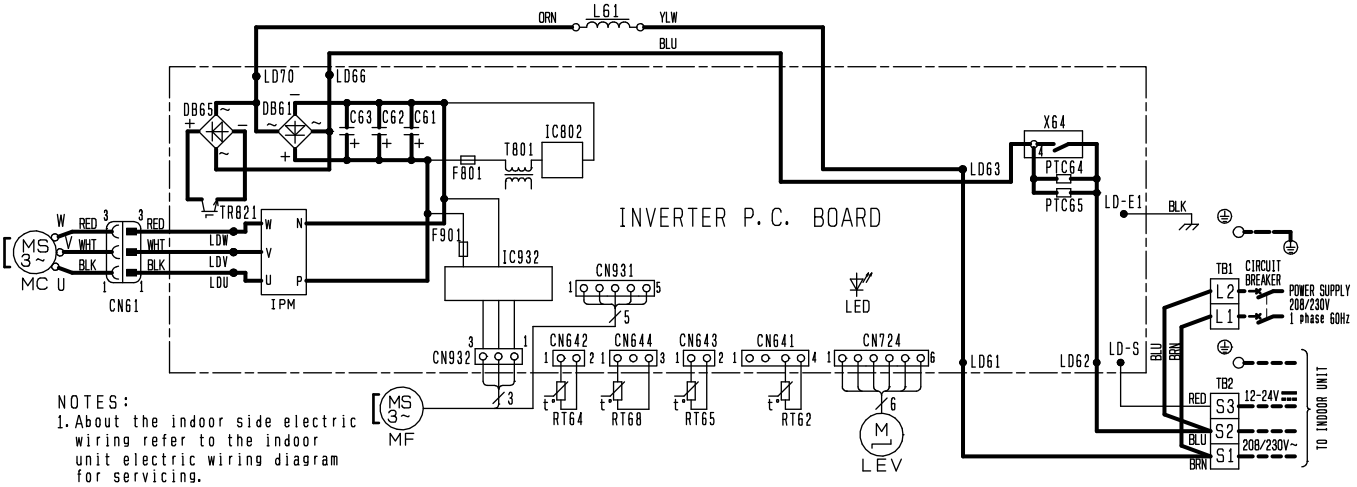
MUY-GE15NA- 1



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IPM, IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.		
L61	REACTOR				

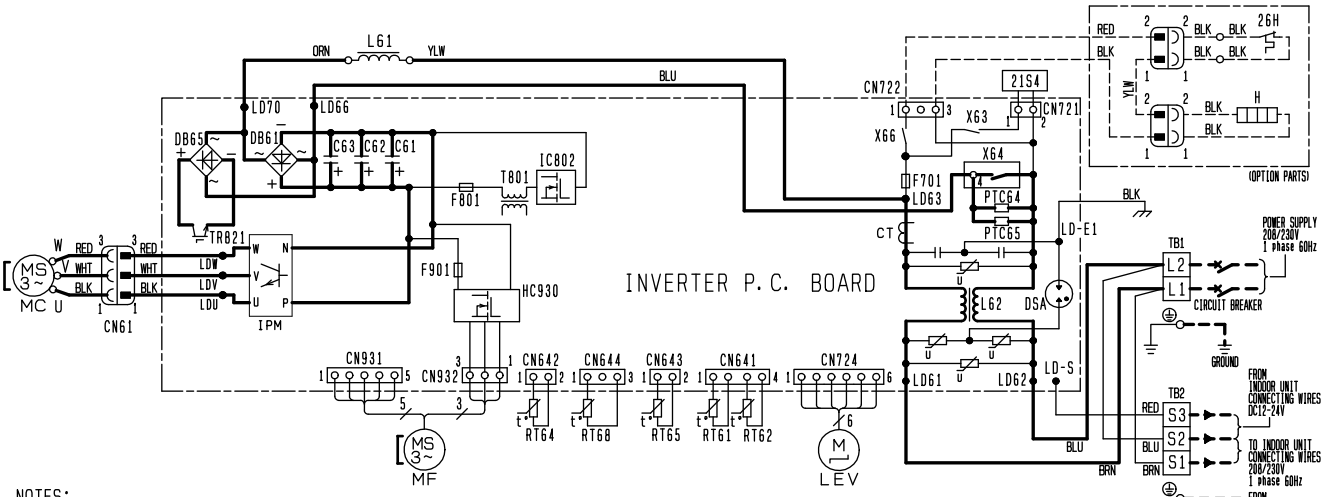
MUY-GE15NA2



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

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IPM, IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.		
L61	REACTOR				

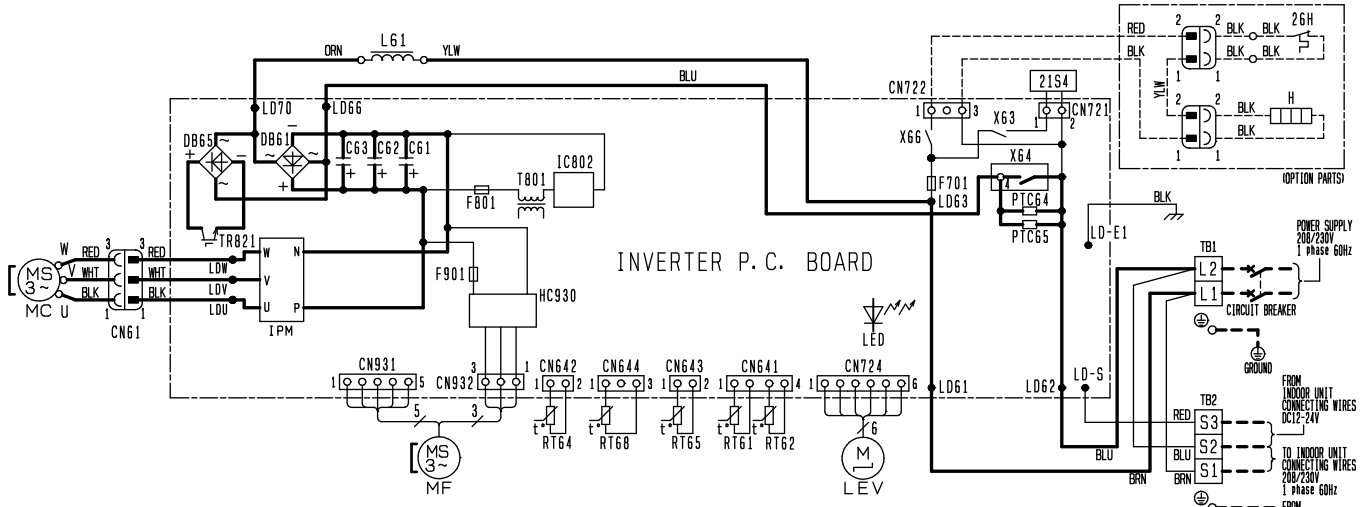
MUZ-GE18NA



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F701, F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
H	DEFROST HEATER(OPTION PARTS)	RT61	DEFROST THERMISTOR	X63, X64, X66	RELAY
HC930, IPM	INTELLIGENT POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
IC802	INTELLIGENT POWER DEVICE	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

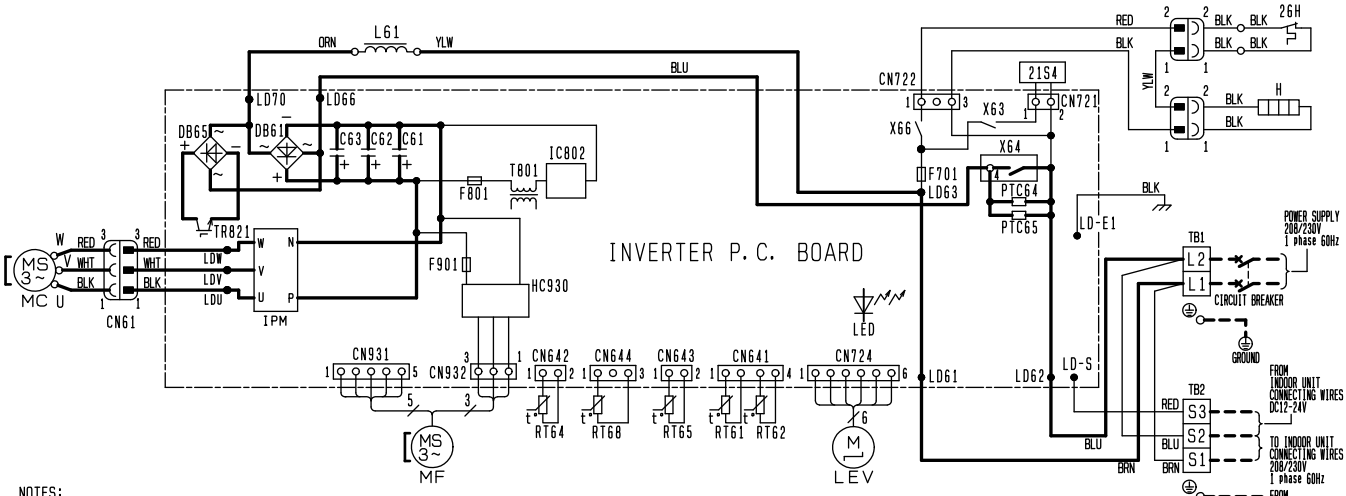
MUZ-GE18NA- 1



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER(OPTION PARTS)	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
HC930, IPM	POWER MODULE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR(OPTION PARTS)

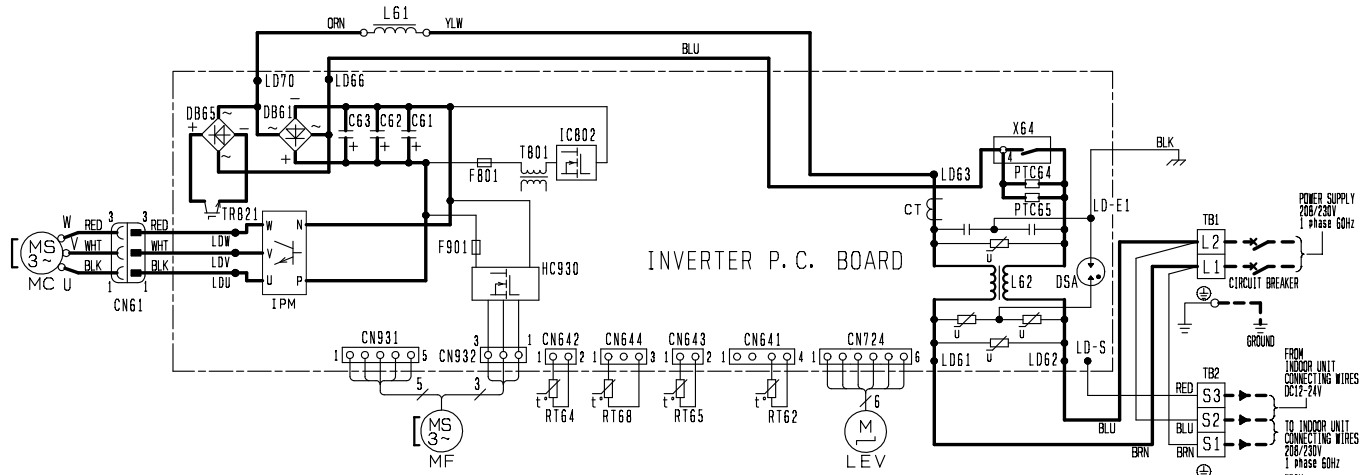
MUZ-GE18NAH



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F701, F801, F901	FUSE (T3.15AL250V)	MF	FAN MOTOR	TB1, TB2	TERMINAL BLOCK
H	DEFROST HEATER	PTC64, PTC65	CIRCUIT PROTECTION	TR821	SWITCHING POWER TRANSISTOR
HC930, IPM	POWER MODULE	RT61	DEFROST THERMISTOR	T801	TRANSFORMER
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	X63, X64, X66	RELAY
L61	REACTOR	RT64	FIN TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
LED	LED	RT65	AMBIENT TEMP. THERMISTOR	26H	HEATER PROTECTOR

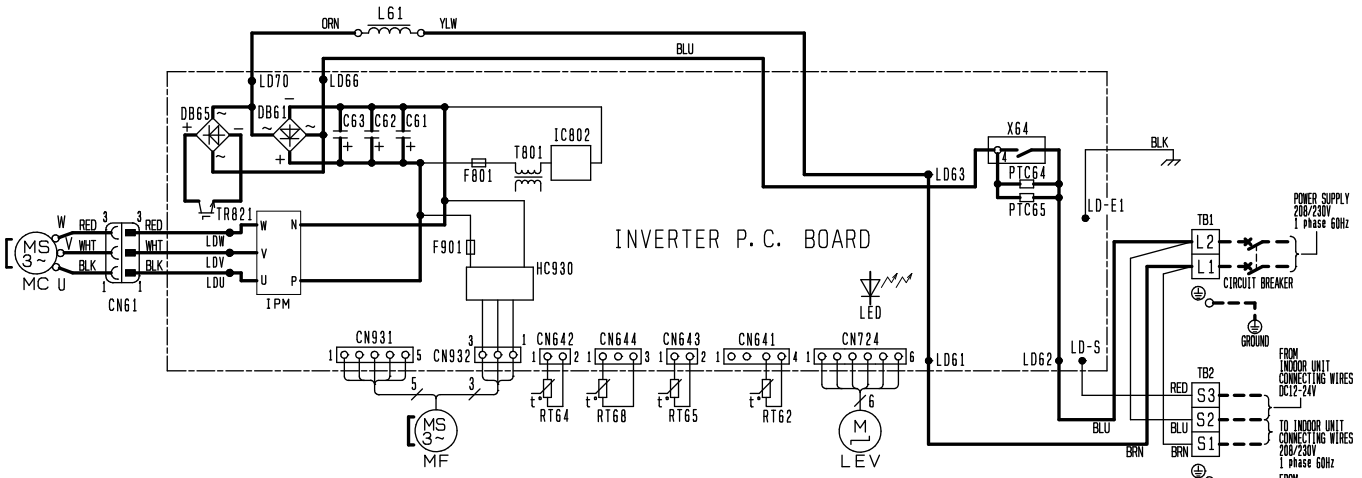
MUY-GE18NA



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CT	CURRENT TRANSFORMER	L62	CMC COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.
C61, C62, C63	SMOOTHING CAPACITOR	LEV	EXPANSION VALVE COIL		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DSA	SURGE ABSORBER	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
HC930, IPM	INTELLIGENT POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IC802	INTELLIGENT POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
L61	REACTOR	RT65	AMBIENT TEMP. THERMISTOR		

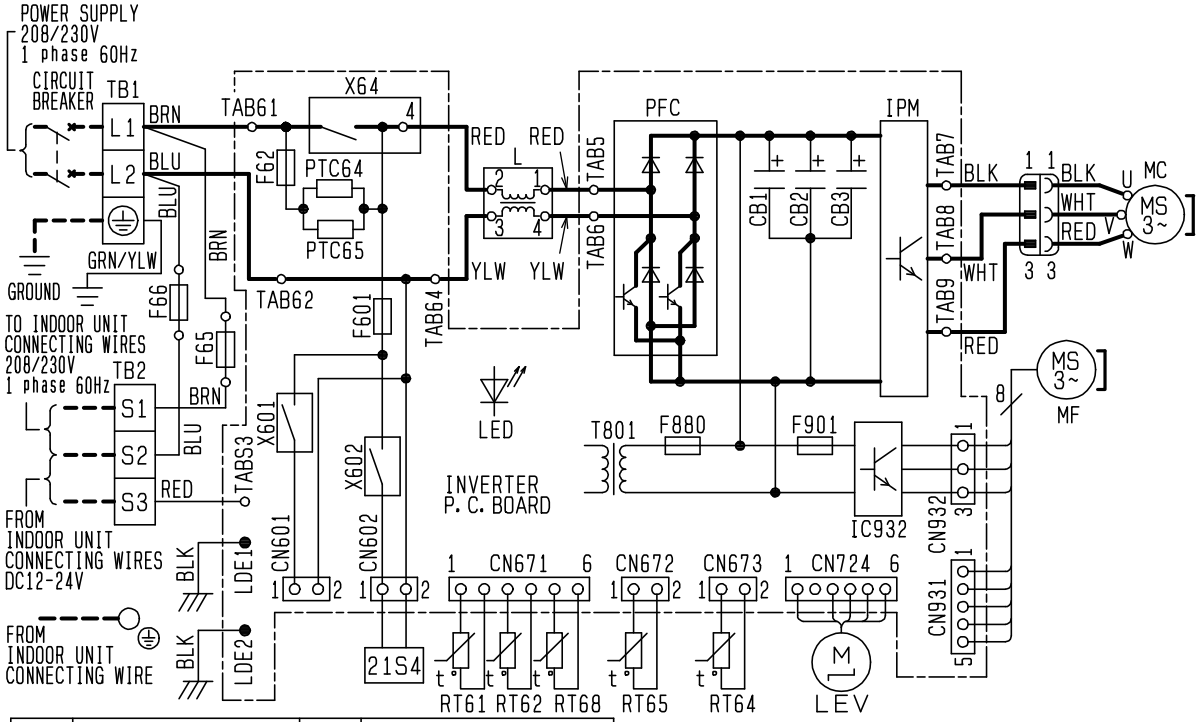
MUY-GE18NA- 1



NOTES:
1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring).

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C61, C62, C63	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1, TB2	TERMINAL BLOCK
DB61, DB65	DIODE MODULE	MF	FAN MOTOR	TR821	SWITCHING POWER TRANSISTOR
F801, F901	FUSE (T3.15AL250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
HC930, IPM	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	X64	RELAY
IC802	POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		
LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR.		
L61	REACTOR				

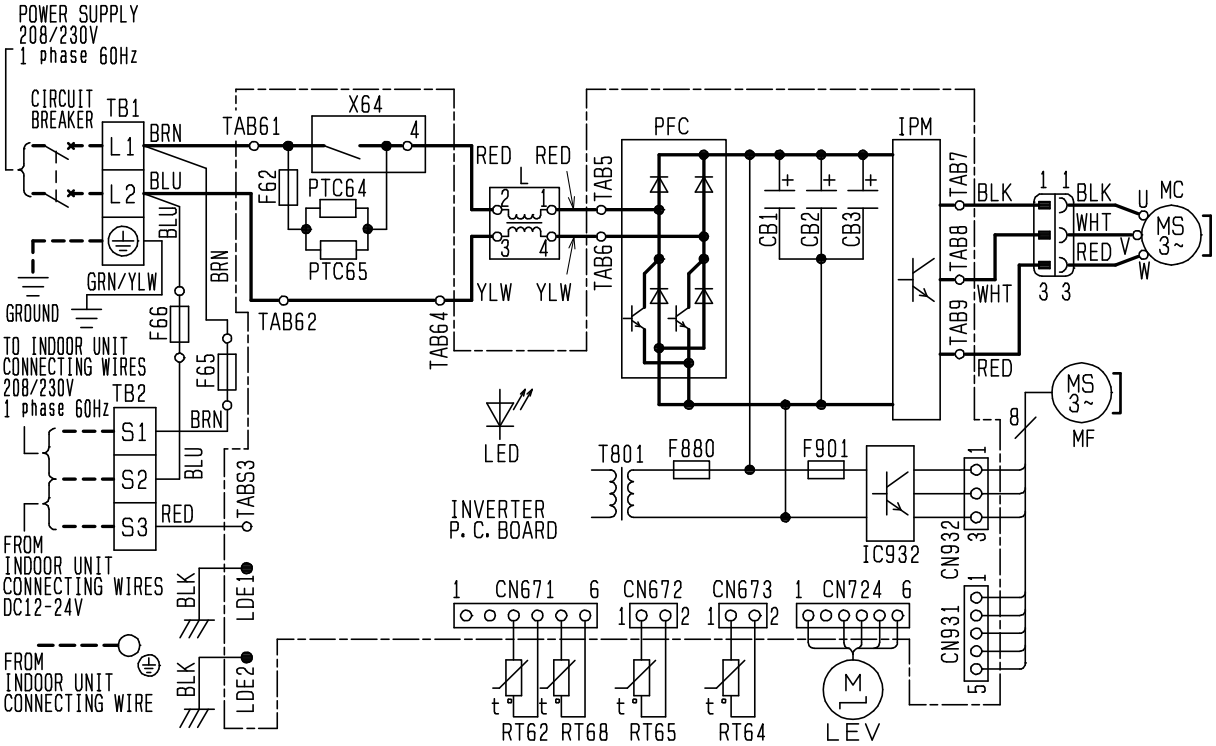
MUZ-GE24NA



SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	PTC64	CIRCUIT PROTECTION
F601	FUSE(T3.15AL250V)	PTC65	CIRCUIT PROTECTION
F62	FUSE(T2AL250V)	RT61	DEFROST THERMISTOR
F65,F66	FUSE(T6.3AL250V)	RT62	DISCHARGE TEMP.THERMISTOR
F880	FUSE(T3.15AL250V)	RT64	FIN TEMP.THERMISTOR
F901	FUSE(T3.15AL250V)	RT65	AMBIENT TEMP.THERMISTOR
IC932	INTELLIGENT POWER MODULE	RT68	OUTDOOR HEAT EXCHANGER TEMP.THERMISTOR
IPM	INTELLIGENT POWER MODULE		
L	REACTOR	TB1,TB2	TERMINAL BLOCK
LEV	EXPANSION VALVE COIL	T801	TRANSFORMER
MC	COMPRESSOR	X601,X602	RELAY
MF	FAN MOTOR	X64	RELAY
PFC	POWER FACTOR CONTROLLER	21S4	REVERSING VALVE SOLENOID COIL

NOTES 1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only(for field wiring).
3. Symbols indicate. ⊟⊟:Terminal block

MUY-GE24NA



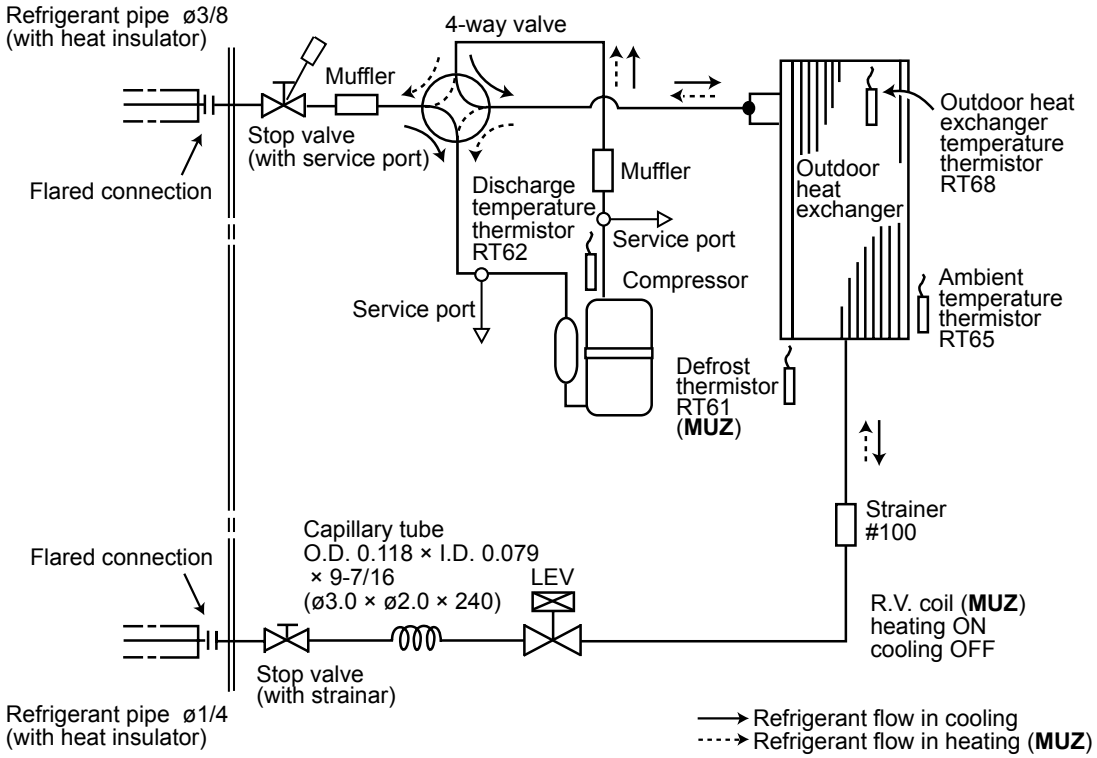
SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	PFC	POWER FACTOR CONTROLLER
F62	FUSE (T2AL250V)	PTC64	CIRCUIT PROTECTION
F65, F66	FUSE (T6.3AL250V)	PTC65	CIRCUIT PROTECTION
F880	FUSE (T3.15AL250V)	RT62	DISCHARGE TEMP. THERMISTOR
F901	FUSE (T3.15AL250V)	RT64	FIN TEMP. THERMISTOR
IC932	INTELLIGENT POWER MODULE	RT65	AMBIENT TEMP. THERMISTOR
IPM	INTELLIGENT POWER MODULE	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
L	REACTOR		
LEV	EXPANSION VALVE COIL	TB1, TB2	TERMINAL BLOCK
MC	COMPRESSOR	T801	TRANSFORMER
MF	FAN MOTOR	X64	RELAY

NOTES 1. About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only (for field wiring).
3. Symbols indicate. ⊏⊐: Terminal block

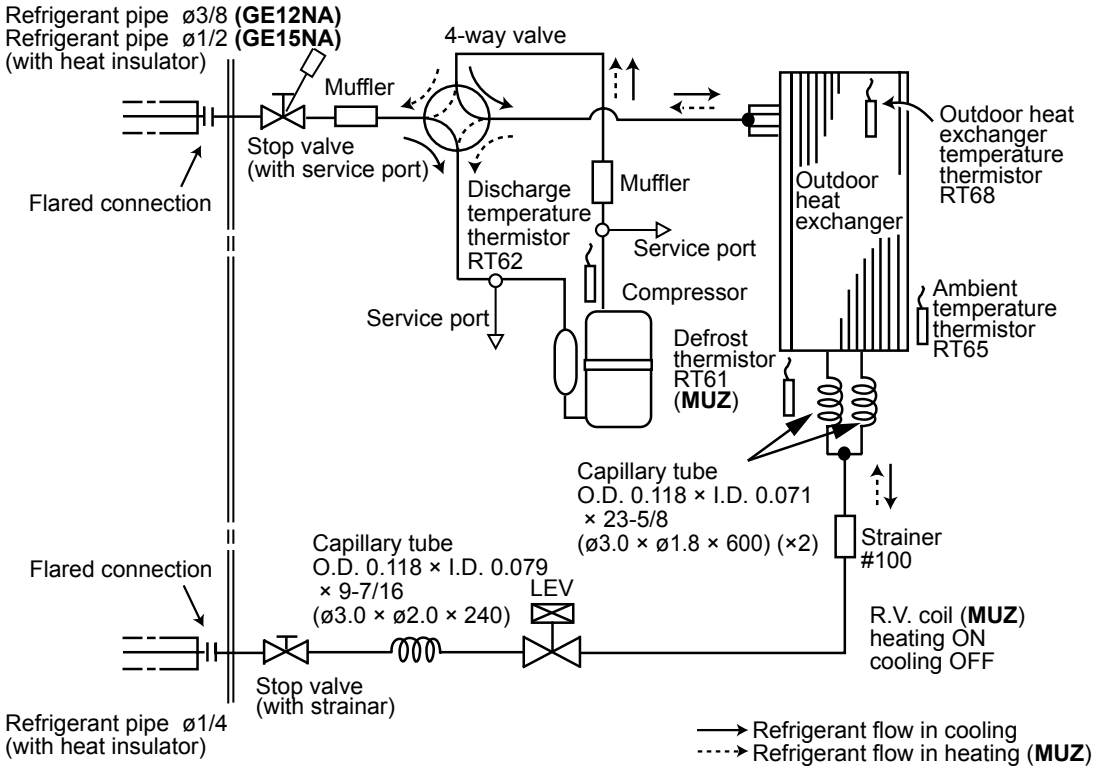
6 REFRIGERANT SYSTEM DIAGRAM

MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2
MUY-GE09NA MUY-GE09NA2

Unit: inch

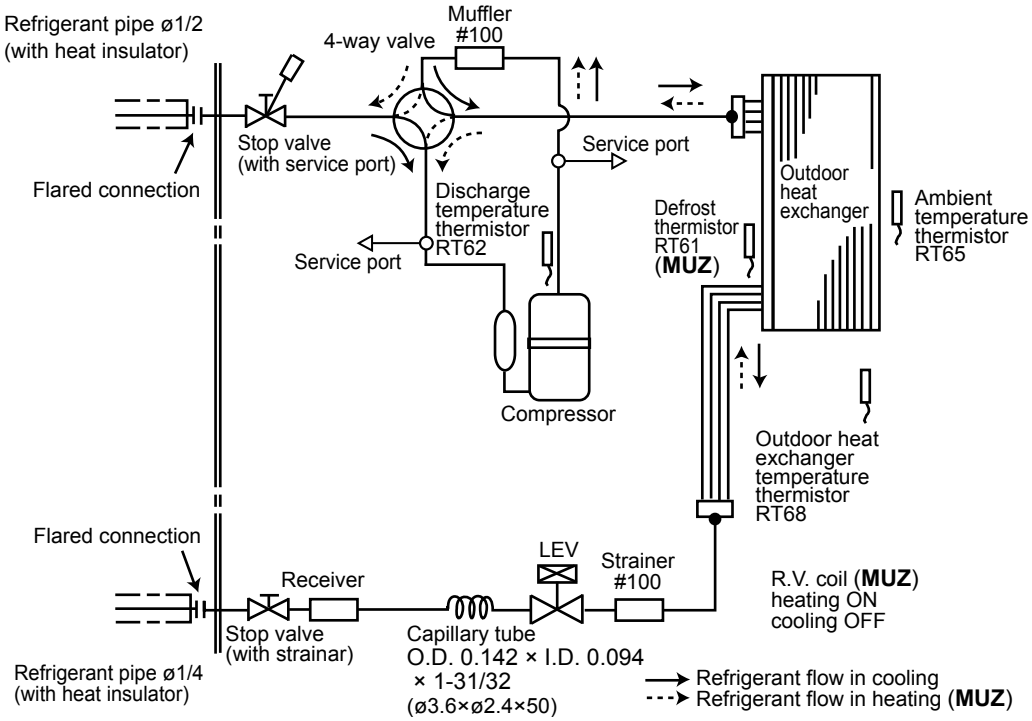


MUZ-GE12NA MUZ-GE12NA2 MUZ-GE15NA MUZ-GE15NA2
MUZ-GE12NAH MUZ-GE12NAH2 MUZ-GE15NAH MUZ-GE15NAH2
MUY-GE12NA MUY-GE12NA2 MUY-GE15NA MUY-GE15NA2

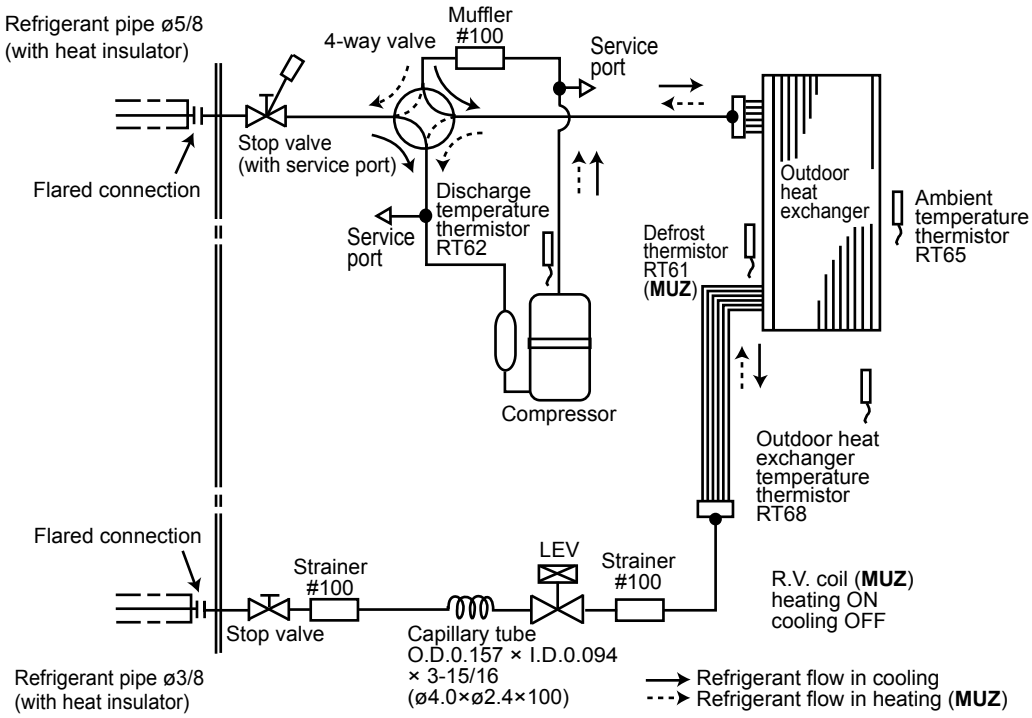


MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA

Unit: inch

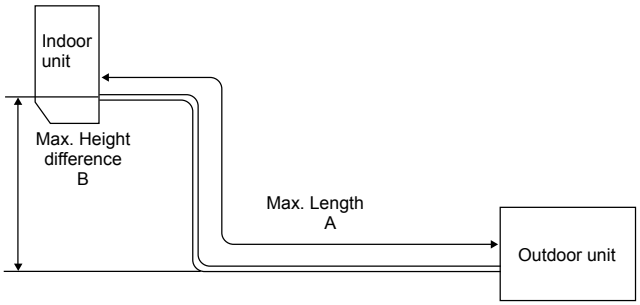


MUZ-GE24NA
MUY-GE24NA



MAX. REFRIGERANT PIPING LENGTH and MAX. HEIGHT DIFFERENCE

Model	Refrigerant piping: ft.		Piping size O.D: in.	
	Max. Length A	Max. Height difference B	Gas	Liquid
MUZ-GE09/12/15NA/NA2 **MUZ-GE09/12/15NAH/NAH2** **MUY-GE09/12/15NA/NA2**	65	40	3/8 **(GE09/12)** 1/2 **(GE15)**	1/4
MUZ-GE18NA **MUZ-GE18NAH** **MUY-GE18NA**	100	50	1/2	
MUZ-GE24NA **MUY-GE24NA**	100	50	5/8	3/8



ADDITIONAL REFRIGERANT CHARGE (R410A: oz.)

NOTE: Refrigerant piping exceeding 25 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.					
		25	30	40	50	60	65
MUZ-GE09NA/NA2 **MUZ-GE09NAH/NAH2** **MUY-GE09NA/NA2**	1 lb. 12 oz.	0	1.62	4.86	8.10	11.34	12.96
MUZ-GE12NA/NA2 **MUZ-GE12NAH/NAH2** **MUY-GE12NA/NA2**	2 lb. 9 oz.						
MUZ-GE15NA/NA2 **MUZ-GE15NAH/NAH2** **MUY-GE15NA/NA2**							

Calculation: X oz. = 1.62/5 oz. / ft. × (Refrigerant piping length (ft.) - 25)

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.								
		25	30	40	50	60	70	80	90	100
MUZ-GE18NA **MUZ-GE18NAH** **MUY-GE18NA**	3 lb. 7 oz.	0	1.08	3.24	5.40	7.56	9.72	11.88	14.04	16.20

Calculation: X oz. = 1.08/5 oz. / ft. × (Refrigerant piping length (ft.) - 25)

NOTE: Refrigerant piping exceeding 33 ft. requires additional refrigerant charge according to the calculation.

Model	Outdoor unit precharged	Refrigerant piping length (one way): ft.							
		33	40	50	60	70	80	90	100
MUZ-GE24NA **MUY-GE24NA**	4 lb. 3 oz.	0	4.14	10.06	15.98	21.90	27.82	33.74	39.66

Calculation: X oz. = 2.96/5 oz. / ft. × (Refrigerant piping length (ft.) - 33)

7 DATA

7-1. PERFORMANCE DATA

1) COOLING CAPACITY

MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA MUZ-GE18NA MUZ-GE24NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH MUZ-GE18NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA MUY-GE18NA MUY-GE24NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

Model	Indoor air IWB (˚F)	Outdoor intake air DB temperature (˚F)														
		75			85			95			105			115		
		TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
MUZ-GE09NA/NA2	71	11.0	7.6	0.59	10.3	7.1	0.64	9.7	6.6	0.69	9.0	6.2	0.73	8.3	5.7	0.76
MUZ-GE09NAH/NAH2	67	10.4	8.6	0.55	9.7	8.0	0.61	9.0	7.4	0.66	8.4	6.9	0.70	7.7	6.3	0.73
MUY-GE09NA/NA2	63	9.8	9.4	0.53	9.1	8.7	0.58	8.5	8.1	0.63	7.7	7.3	0.67	7.0	6.7	0.70
MUZ-GE12NA/NA2	71	14.7	8.9	0.85	13.7	8.3	0.94	12.9	7.8	1.01	12.0	7.3	1.06	11.0	6.7	1.10
MUZ-GE12NAH/NAH2	67	13.9	10.3	0.81	13.0	9.6	0.89	12.0	8.9	0.96	11.2	8.3	1.02	10.3	7.6	1.07
MUY-GE12NA/NA2	63	13.1	11.4	0.77	12.1	10.6	0.85	11.3	9.9	0.92	10.3	9.0	0.98	9.4	8.2	1.02
MUZ-GE15NA/NA2	71	17.2	11.4	0.96	16.0	10.7	1.05	15.1	10.0	1.13	14.0	9.3	1.19	12.9	8.6	1.24
MUZ-GE15NAH/NAH2	67	16.2	13.0	0.91	15.1	12.1	1.00	14.0	11.2	1.08	13.0	10.4	1.14	12.0	9.6	1.20
MUY-GE15NA/NA2	63	15.3	14.2	0.86	14.1	13.2	0.96	13.2	12.3	1.03	12.0	11.2	1.10	10.9	10.2	1.14
MUZ-GE18NA	71	21.1	12.2	1.46	19.7	11.4	1.60	18.5	10.7	1.72	17.2	9.9	1.81	15.8	9.1	1.89
MUZ-GE18NAH	67	20.0	14.2	1.38	18.6	13.2	1.52	17.2	12.2	1.64	16.0	11.4	1.74	14.7	10.4	1.82
MUY-GE18NA	63	18.7	15.8	1.31	17.4	14.7	1.45	16.2	13.6	1.57	14.7	12.4	1.67	13.4	11.3	1.74
MUZ-GE24NA	71	27.6	17.0	1.60	25.8	15.9	1.76	24.2	14.9	1.89	22.5	13.9	1.99	20.7	12.8	2.07
MUY-GE24NA	67	26.1	19.6	1.51	24.3	18.2	1.67	22.5	16.9	1.80	20.9	15.7	1.91	19.2	14.4	2.00
	63	24.5	21.7	1.44	22.7	20.1	1.59	21.2	18.7	1.72	19.2	17.0	1.84	17.6	15.5	1.91

NOTE: 1. IWB: Intake air wet-bulb temperature
TC: Total Capacity ($\times 10^3$ Btu/h)
SHC: Sensible Heat Capacity ($\times 10^3$ Btu/h)
TPC: Total Power Consumption (kW)
2. SHC is based on 80˚F of indoor Intake air DB temperature.

2) COOLING CAPACITY CORRECTIONS

	Refrigerant piping length (one way: ft.)			
	25 (std.)	40	65	100
MUZ-GE09NA/NA2 **MUZ-GE09NAH/NAH2** **MUY-GE09NA/NA2** **MUZ-GE12NA/NA2** **MUZ-GE12NAH/NAH2** **MUY-GE12NA/NA2** **MUZ-GE15NA/NA2** **MUZ-GE15NAH/NAH2** **MUY-GE15NA/NA2** **MUZ-GE18NA** **MUZ-GE18NAH** **MUY-GE18NA**	1.0	0.954	0.878	—
MUZ-GE24NA **MUY-GE24NA**	1.0	0.954	0.878	0.771

3) HEATING CAPACITY (MUZ)

Model	Indoor air	Outdoor intake air WB temperature (˚F)													
	IDB (˚F)	5		15		25		35		43		45		55	
		TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC
MUZ-GE09NA MUZ-GE09NA2	75	4.8	0.45	6.3	0.57	7.9	0.67	9.4	0.74	10.6	0.78	11.0	0.79	12.4	0.82
	70	5.2	0.43	6.7	0.55	8.2	0.65	9.6	0.72	10.9	0.76	11.2	0.78	12.7	0.81
	65	5.5	0.41	6.9	0.52	8.6	0.63	10.0	0.70	11.2	0.74	11.6	0.75	13.0	0.79
MUZ-GE09NAH MUZ-GE09NAH2	75	4.8	0.58	6.3	0.70	7.9	0.80	9.4	0.74	10.6	0.78	11.0	0.79	12.4	0.82
	70	5.2	0.56	6.7	0.68	8.2	0.78	9.6	0.72	10.9	0.76	11.2	0.78	12.7	0.81
	65	5.5	0.54	6.9	0.65	8.6	0.76	10.0	0.70	11.2	0.74	11.6	0.75	13.0	0.79
MUZ-GE12NA MUZ-GE12NA2	75	6.3	0.69	8.4	0.87	10.4	1.02	12.5	1.14	14.0	1.20	14.5	1.22	16.4	1.26
	70	6.8	0.66	8.9	0.84	10.8	1.00	12.7	1.11	14.4	1.17	14.8	1.19	16.8	1.24
	65	7.2	0.63	9.1	0.81	11.3	0.97	13.2	1.08	14.8	1.14	15.3	1.16	17.1	1.22
MUZ-GE12NAH MUZ-GE12NAH2	75	6.3	0.82	8.4	1.00	10.4	1.15	12.5	1.14	14.0	1.20	14.5	1.22	16.4	1.26
	70	6.8	0.79	8.9	0.97	10.8	1.13	12.7	1.11	14.4	1.17	14.8	1.19	16.8	1.24
	65	7.2	0.76	9.1	0.94	11.3	1.10	13.2	1.08	14.8	1.14	15.3	1.16	17.1	1.22
MUZ-GE15NA MUZ-GE15NA2	75	7.9	0.63	10.4	0.79	13.1	0.93	1.56	1.03	17.6	1.09	18.1	1.10	20.5	1.14
	70	8.6	0.60	11.1	0.76	13.5	0.91	15.9	1.01	18.0	1.06	18.5	1.08	21.0	1.12
	65	9.0	0.57	11.3	0.73	14.1	0.87	16.5	0.98	18.5	1.03	19.1	1.05	21.4	1.10
MUZ-GE15NAH MUZ-GE15NAH2	75	7.9	0.76	10.4	0.92	13.1	1.06	15.6	1.03	17.6	1.09	18.1	1.10	20.5	1.14
	70	8.6	0.73	11.1	0.89	13.5	1.04	15.9	1.01	18.0	1.06	18.5	1.08	21.0	1.12
	65	9.0	0.70	11.3	0.86	14.1	1.00	16.5	0.98	18.5	1.03	19.1	1.05	21.4	1.10
MUZ-GE18NA	75	9.1	0.64	11.9	0.81	14.9	0.95	17.8	1.06	20.1	1.12	20.7	1.13	23.5	1.18
	70	9.8	0.62	12.7	0.78	15.5	0.93	18.2	1.04	20.6	1.09	21.2	1.11	24.0	1.16
	65	10.3	0.59	13.0	0.75	16.2	0.90	18.8	1.01	21.2	1.06	21.8	1.08	24.5	1.13
MUZ-GE18NAH	75	9.1	0.77	11.9	0.94	14.9	1.08	17.8	1.06	20.1	1.12	20.7	1.13	23.5	1.18
	70	9.8	0.75	12.7	0.91	15.5	1.06	18.2	1.04	20.6	1.09	21.2	1.11	24.0	1.16
	65	10.3	0.72	13.0	0.88	16.2	1.03	18.8	1.01	21.2	1.06	21.8	1.08	24.5	1.13
MUZ-GE24NA	75	12.1	1.38	16.0	1.74	20.0	2.05	23.9	2.28	26.9	2.40	27.7	2.43	31.5	2.53
	70	13.1	1.32	17.0	1.68	20.7	2.00	24.4	2.22	27.6	2.34	28.4	2.39	32.2	2.48
	65	13.8	1.26	17.4	1.61	21.7	1.93	25.3	2.16	28.4	2.28	29.3	2.32	32.8	2.43

NOTE: 1. IDB: Intake air dry-bulb temperature
TC: Total Capacity (x10^3Btu/h)
TPC: Total Power Consumption (kW)
2. Above data is for heating operation without any frost.

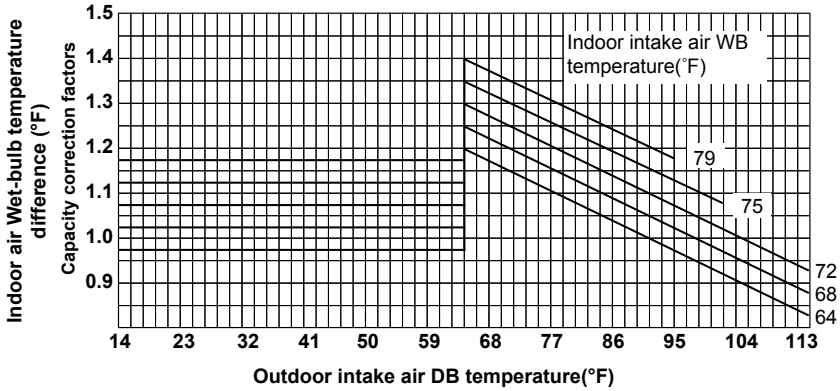
How to operate with fixed operational frequency of the compressor.

1. Press the EMERGENCY OPERATION switch on the front of the indoor unit, and select either EMERGENCY COOL mode or EMERGENCY HEAT mode before starting to operate the air conditioner.
2. The compressor starts with operational frequency.
3. The fan speed of the indoor unit is High.
4. This operation continues for 30 minutes.
5. In order to release this operation, press the EMERGENCY OPERATION switch twice or once, or press any button on the remote controller.

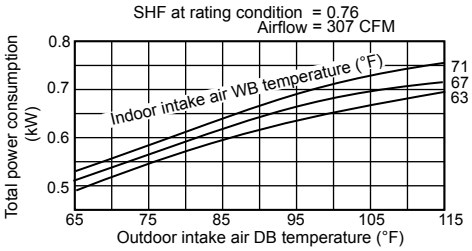
7-2. PERFORMANCE CURVE

Cooling

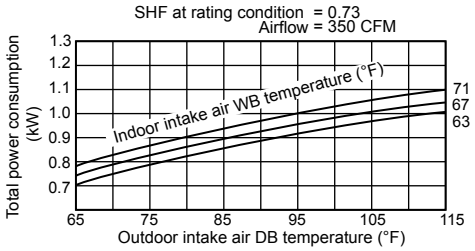
Cooling capacity (at Rated frequency)



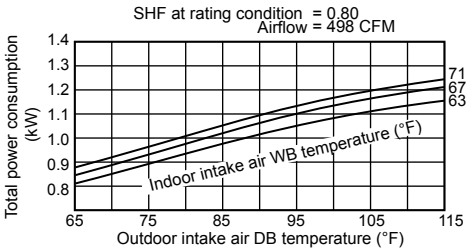
MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2
MUY-GE09NA MUY-GE09NA2



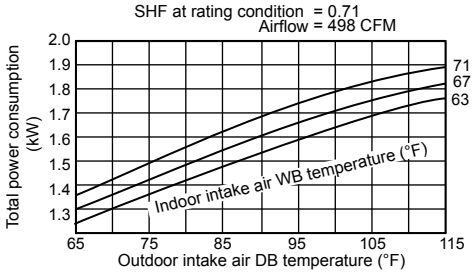
MUZ-GE12NA MUZ-GE12NA2
MUZ-GE12NAH MUZ-GE12NAH2
MUY-GE12NA MUY-GE12NA2



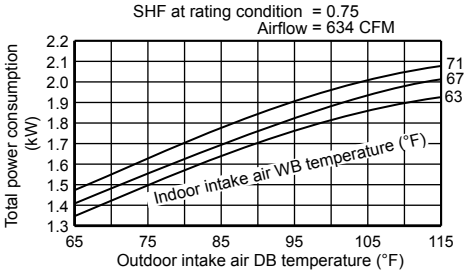
MUZ-GE15NA MUZ-GE15NA2
MUZ-GE15NAH MUZ-GE15NAH2
MUY-GE15NA MUY-GE15NA2



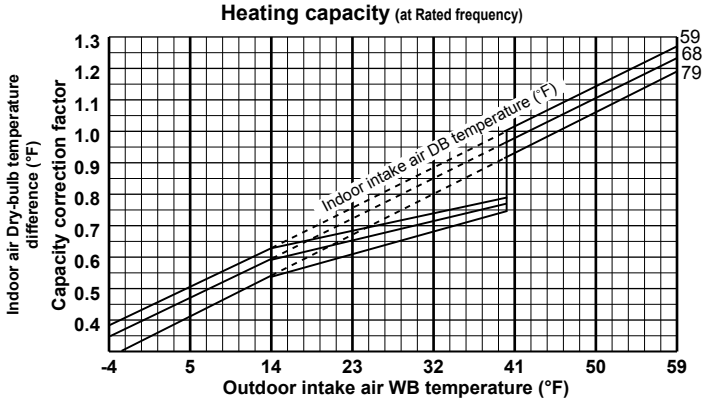
MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA



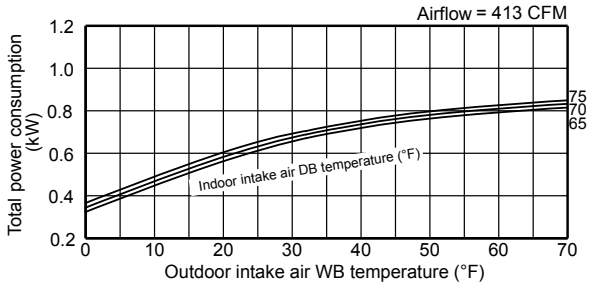
MUZ-GE24NA
MUY-GE24NA



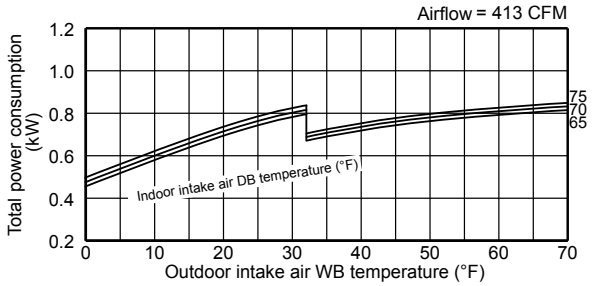
Heating (MUZ)



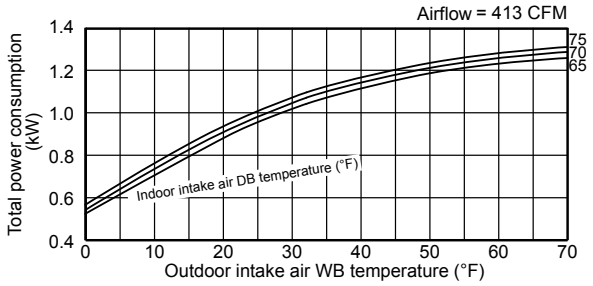
MUZ-GE09NA MUZ-GE09NA2



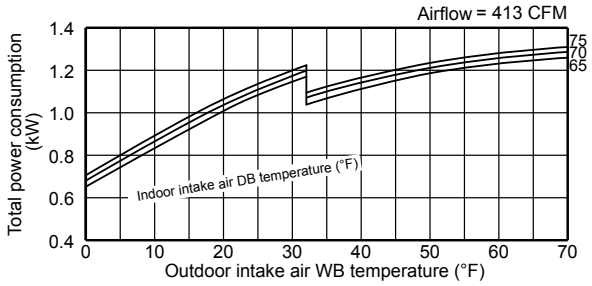
MUZ-GE09NAH MUZ-GE09NAH2



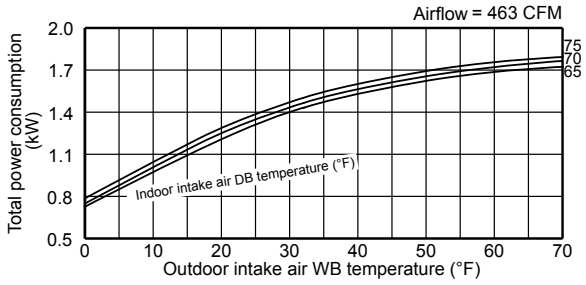
MUZ-GE12NA MUZ-GE12NA2



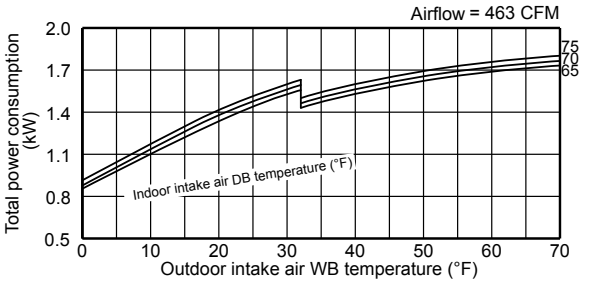
MUZ-GE12NAH MUZ-GE12NAH2



MUZ-GE15NA MUZ-GE15NA2

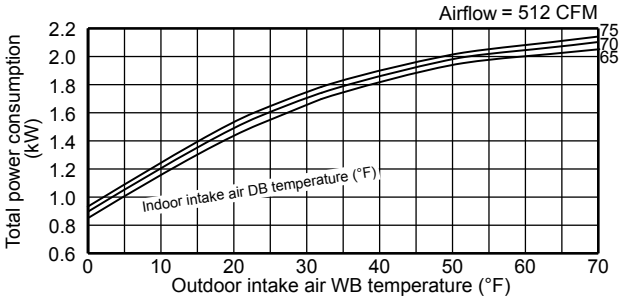


MUZ-GE15NAH MUZ-GE15NAH2

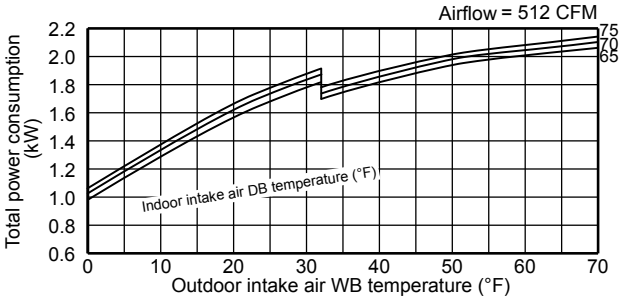


This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

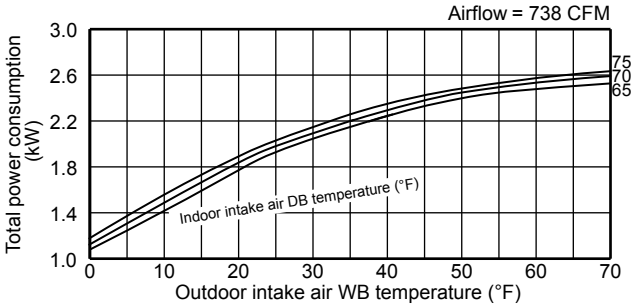
MUZ-GE18NA



MUZ-GE18NAH



MUZ-GE24NA



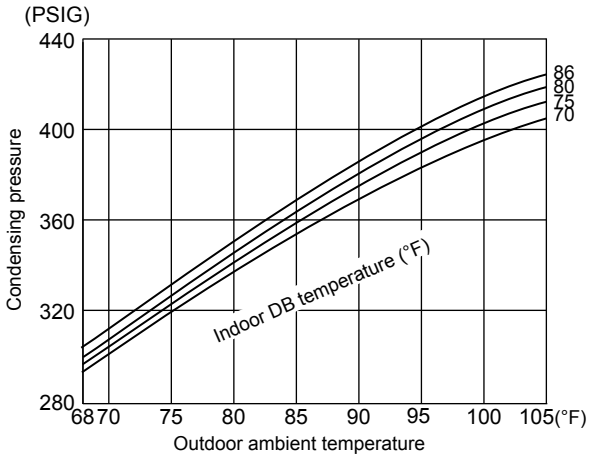
This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

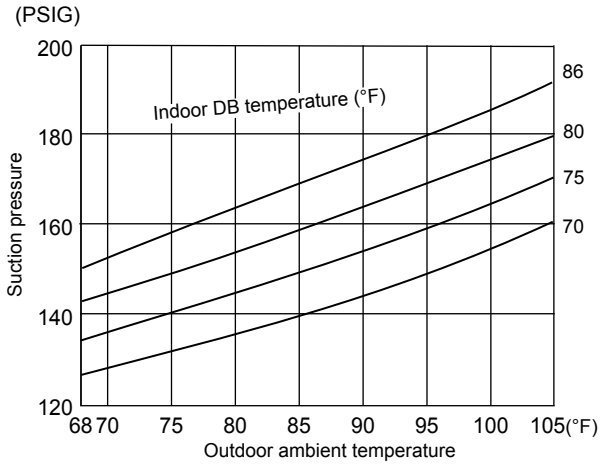
7-3. CONDENSING PRESSURE

Cooling

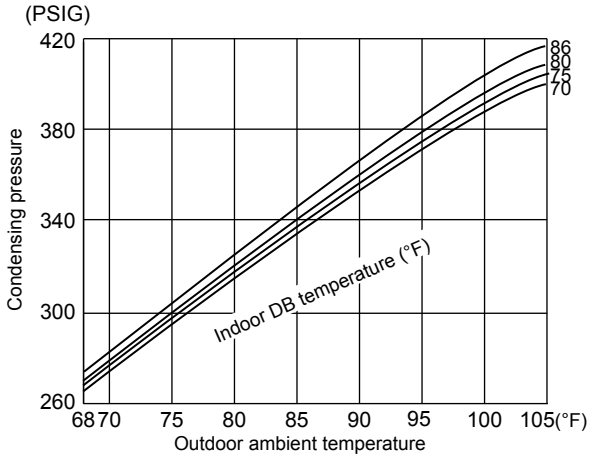
Data is based on the condition of indoor humidity 50 %.
Air flow should be set to High speed.

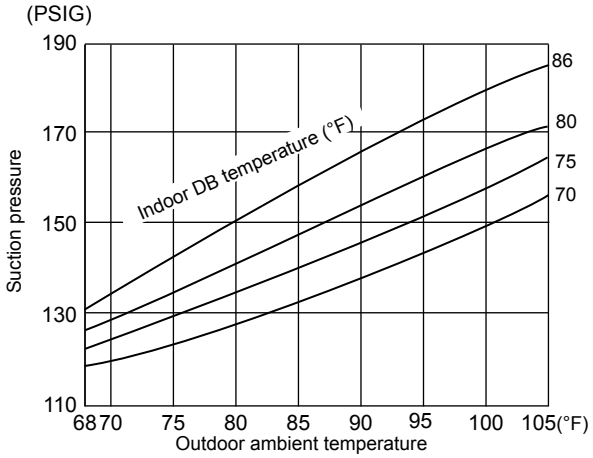
MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2
MUY-GE09NA MUY-GE09NA2



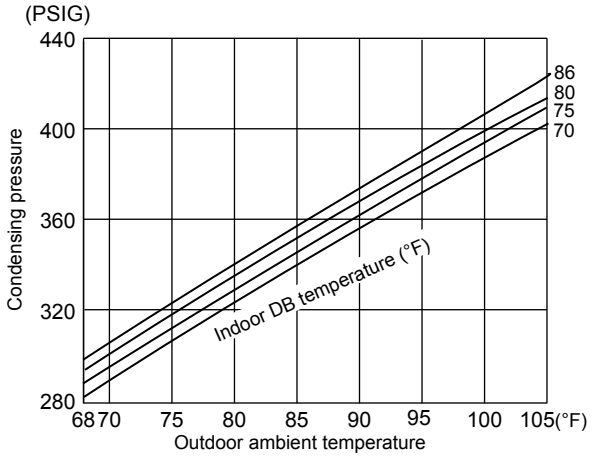


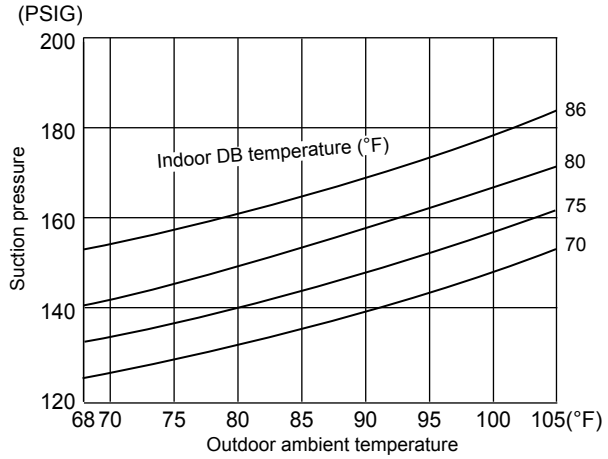
MUZ-GE12NA MUZ-GE12NA2
MUZ-GE12NAH MUZ-GE12NAH2
MUY-GE12NA MUY-GE12NA2



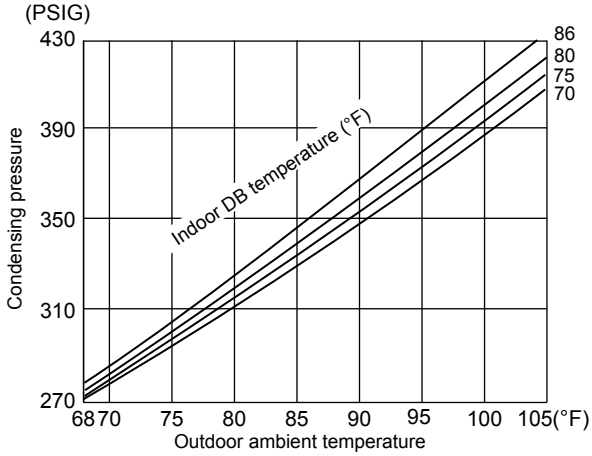


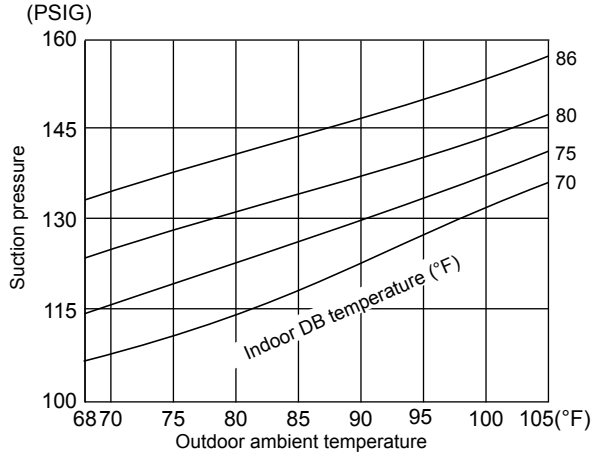
MUZ-GE15NA MUZ-GE15NA2
MUZ-GE15NAH MUZ-GE15NAH2
MUY-GE15NA MUY-GE15NA2



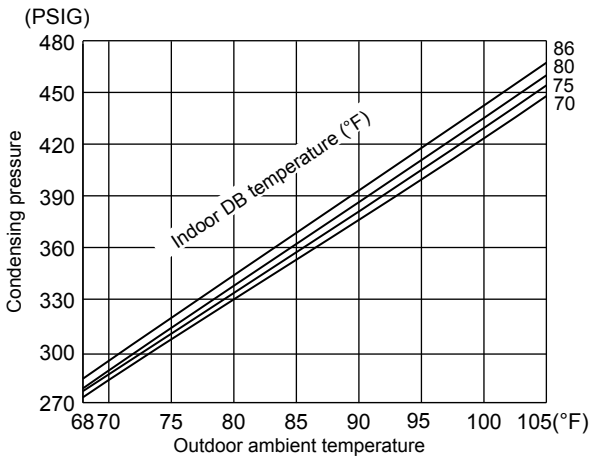


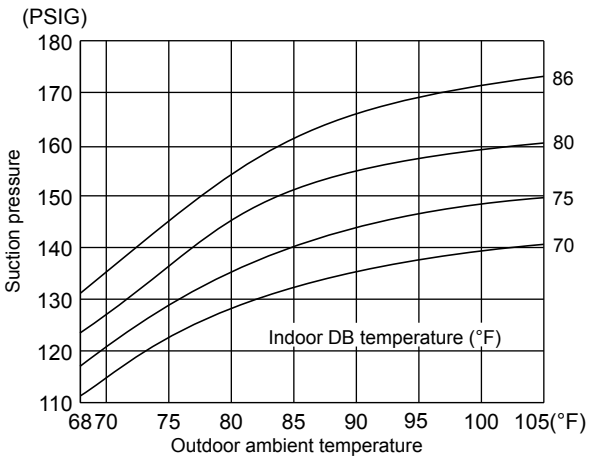
MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA





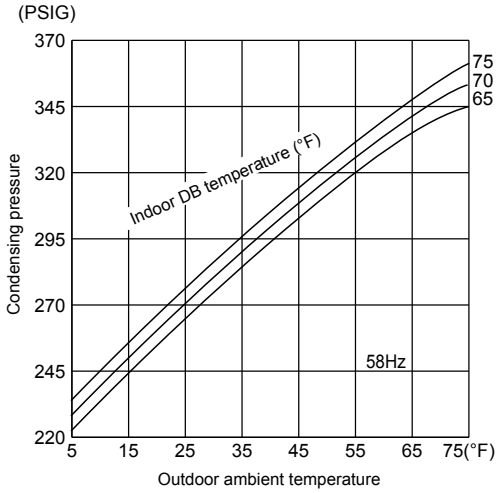
MUZ-GE24NA
MUY-GE24NA

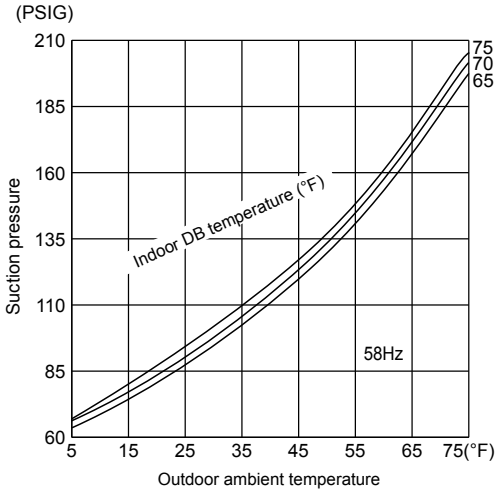




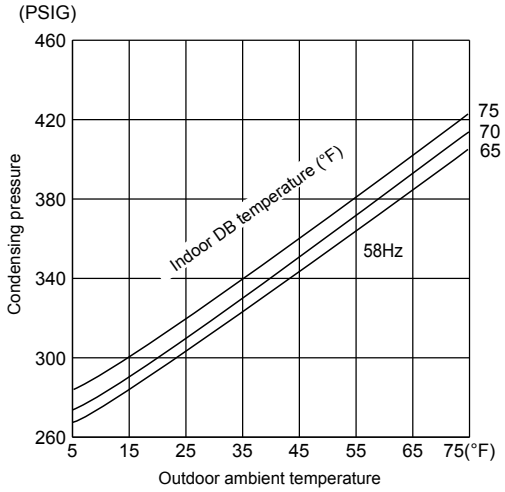
Heating (MUZ)
Data is based on the condition of outdoor humidity 75%.
Air flow should be set to High speed.
Data is for heating operation without any frost.

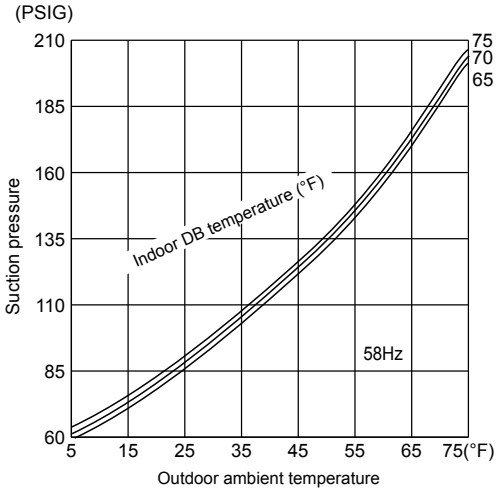
MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2



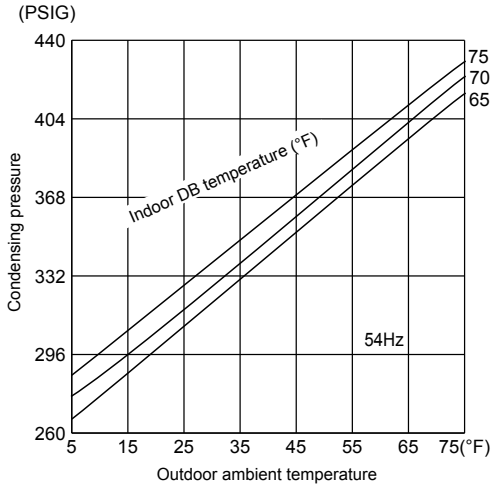


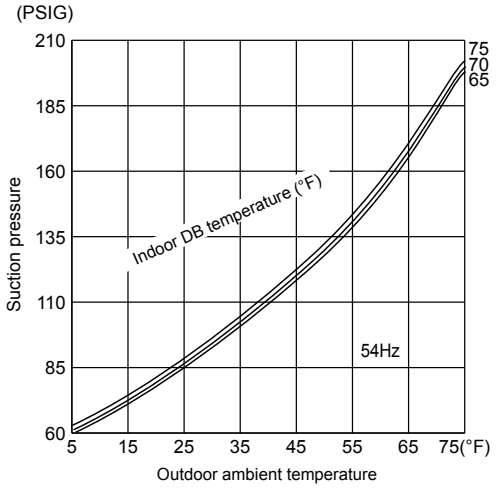
MUZ-GE12NA MUZ-GE12NA2
MUZ-GE12NAH MUZ-GE12NAH2



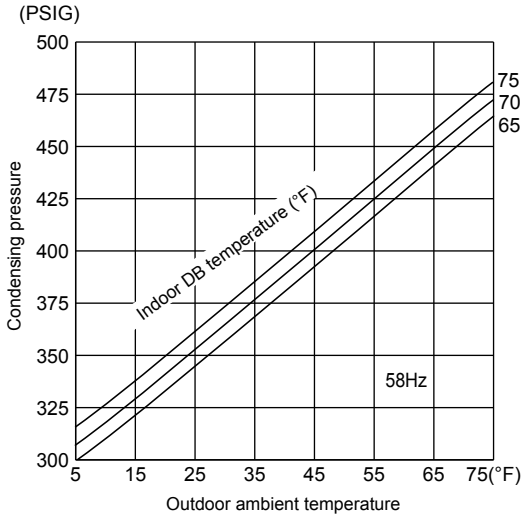


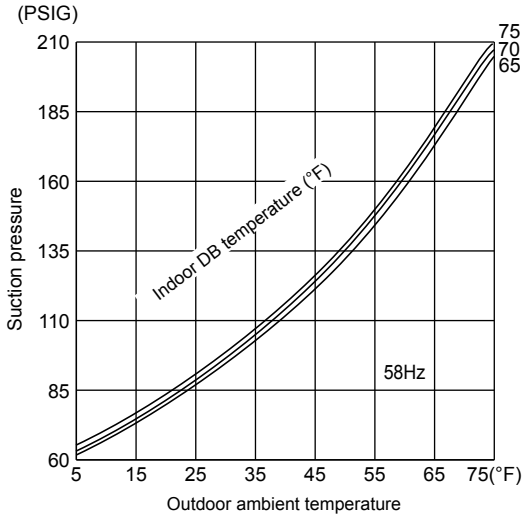
MUZ-GE15NA MUZ-GE15NA2
MUZ-GE15NAH MUZ-GE15NAH2



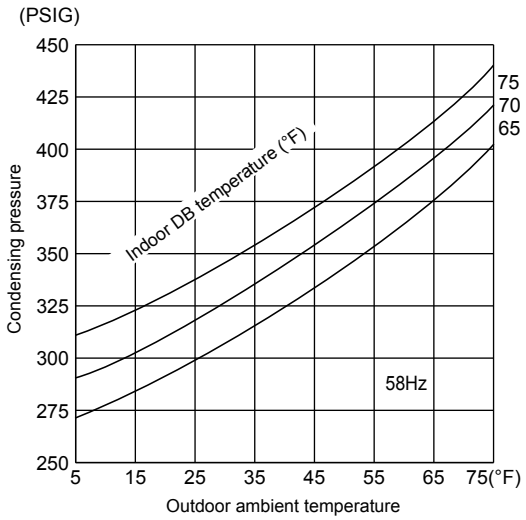


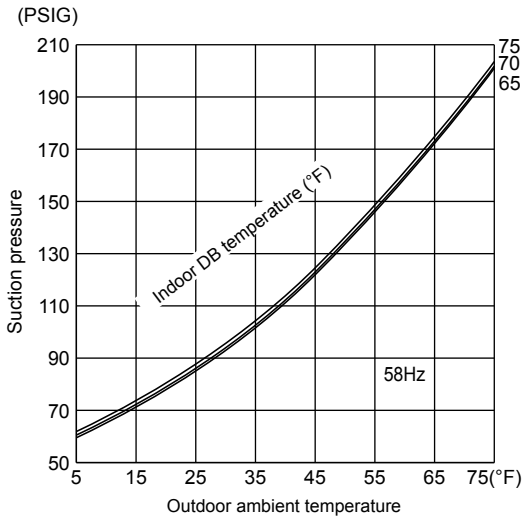
MUZ-GE18NA
MUZ-GE18NAH





MUZ-GE24NA





7-4. STANDARD OPERATION DATA

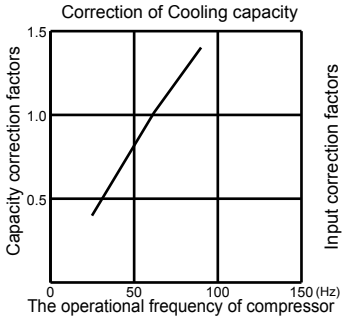
Model				MSZ-GE09NA MSY-GE09NA	MSZ-GE09NA	MSZ-GE12NA MSY-GE12NA	MSZ-GE12NA
Item			Unit	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	9,000	10,900	12,000	14,400
	SHF		-	0.82	—	0.74	—
	Input		kW	0.660	0.760	0.960	1.170
	Rated frequency		Hz	59.5	77.5	69.0	77.0
Electrical circuit	Indoor unit			**MSZ-GE09NA, MSY-GE09NA**		**MSZ-GE12NA, MSY-GE12NA**	
	Power supply (V, Phase, Hz)			208/230, 1, 60			
	Input		kW	0.022	0.023	0.022	0.023
	Fan motor current		A	0.24/0.22	0.25/0.23	0.24/0.22	0.25/0.23
	Outdoor unit			**MUZ-GE09NA MUZ-GE09NA2 MUZ-GE09NAH MUZ-GE09NAH2 MUY-GE09NA MUY-GE09NA2**	**MUZ-GE09NA MUZ-GE09NA2 MUZ-GE09NAH MUZ-GE09NAH2**	**MUZ-GE12NA MUZ-GE12NA2 MUZ-GE12NAH MUZ-GE12NAH2 MUY-GE12NA MUY-GE12NA2**	**MUZ-GE12NA MUZ-GE12NA2 MUZ-GE12NAH MUZ-GE12NAH2**
	Power supply (V, phase, Hz)			208/230, 1, 60			
	Input		kW	0.638	0.737	0.938	1.147
	Comp. current		A	3.32/3.00	3.66/3.31	4.39/3.97	5.41/4.89
	Fan motor current		A	0.27/0.24	0.30/0.27	0.34/0.31	0.31/0.28
Refrigerant circuit	Condensing pressure		PSIG	389	331	389	397
	Suction pressure		PSIG	151	103	133	104
	Discharge temperature		°F	154	152	163	162
	Condensing temperature		°F	115	103	115	116
	Suction temperature		°F	59	39	56	35
	Comp. shell bottom temp		°F	151	149	158	158
	Ref. pipe length		ft.	25			
	Refrigerant charge (R410A)		-	1 lb. 12 oz.		2 lb. 9 oz.	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	60	97	56	108
		WB	°F	58	—	55	—
	Fan speed (High)		rpm	1,020	1,040	1,020	1,040
	Airflow (High)		CFM	367 (Wet)	413	367 (Wet)	413
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed		rpm	800	850	900	860
	Airflow		CFM	1151	1225	1229	1172

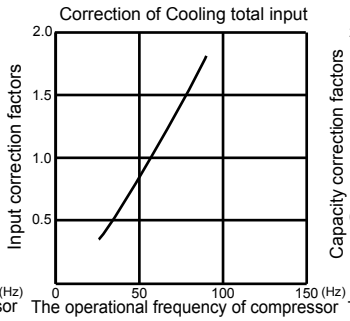
Model				MSZ-GE15NA MSY-GE15NA	MSZ-GE15NA	MSZ-GE18NA MSY-GE18NA	MSZ-GE18NA
Item			Unit	Cooling	Heating	Cooling	Heating
Total	Capacity		Btu/h	14,000	18,000	17,200	21,600
	SHF		-	0.80	—	0.71	—
	Input		kW	1.080	1.600	1.640	1.900
	Rated frequency		Hz	55.5	74.0	83.0	84.0
Electrical circuit	Indoor unit			**MSZ-GE15NA, MSY-GE15NA**		**MSZ-GE18NA, MSY-GE18NA**	
	Power supply (V, Phase, Hz)			208/230, 1, 60			
	Input		kW	0.045	0.031	0.043	0.037
	Fan motor current		A	0.50/0.45	0.35/0.32	0.43/0.39	0.40/0.36
	Outdoor unit			**MUZ-GE15NA, -** [1] **MUZ-GE15NA2** **MUZ-GE15NAH** **MUZ-GE15NAH2** **MUY-GE15NA, -** [1] **MUY-GE15NA2**	**MUZ-GE15NA, -** [1] **MUZ-GE15NA2** **MUZ-GE15NAH** **MUZ-GE15NAH2**	**MUZ-GE18NA, -** [1] **MUZ-GE18NAH** **MUY-GE18NA, -** [1]	**MUZ-GE18NA, -** [1] **MUZ-GE18NAH**
	Power supply (V, phase, Hz)			208/230, 1, 60			
	Input		kW	1,035	1,569	1,595	1,860
	Comp. current		A	4.86/4.40	7.38/6.67	6.97/6.29	8.36/7.55
	Fan motor current		A	0.33/0.30	0.34/0.31	0.80/0.72	0.64/0.59
Refrigerant circuit	Condensing pressure		PSIG	400	431	376	458
	Suction pressure		PSIG	139	99	117	102
	Discharge temperature		°F	164	179	177	184
	Condensing temperature		°F	117	122	112	127
	Suction temperature		°F	57	31	59	33
	Comp. shell bottom temp		°F	148	165	164	170
	Ref. pipe length		ft.	25			
	Refrigerant charge (R410A)		-	2 lb. 9 oz.		3 lb. 7 oz.	
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	60	114	56	117
		WB	°F	57	—	54	—
	Fan speed (High)		rpm	1,280	1,140	1,280	1,240
	Airflow (High)		CFM	498 (Wet)	463	498 (Wet)	512
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed		rpm	910	900	780	740
	Airflow		CFM	1,243	1,229	1,730	1,659

Model				MSZ-GE24NA MSY-GE24NA	MSZ-GE24NA
Item			Unit	Cooling	Heating
Total	Capacity		Btu/h	22,500	27,600
	SHF		-	0.75	—
	Input		kW	1.800	2.340
	Rated frequency		Hz	66.5	82.0
Electrical circuit	Indoor unit			**MSZ-GE24NA, MSY-GE24NA**	
	Power supply (V, Phase, Hz)			208/230, 1, 60	
	Input		kW	0.058	
	Fan motor current		A	0.56/0.51	
	Outdoor unit			**MUZ-GE24NA MUY-GE24NA**	**MUZ-GE24NA**
	Power supply (V, phase, Hz)			208/230, 1, 60	
	Input		kW	1.742	2.282
	Comp. current		A	7.01/6.34	9.59/8.67
	Fan motor current		A	1.61/1.05	1.13/1.02
Refrigerant circuit	Condensing pressure		PSIG	395	405
	Suction pressure		PSIG	141	102
	Discharge temperature		°F	158	171
	Condensing temperature		°F	115	
	Suction temperature		°F	52	33
	Comp. shell bottom temp		°F	140	148
	Ref. pipe length		ft.	25	
	Refrigerant charge (R410A)		-	4 lb. 3 oz.	
Indoor unit	Intake air temperature	DB	°F	80	70
		WB	°F	67	60
	Discharge air temperature	DB	°F	56	111
		WB	°F	53	—
	Fan speed (High)		rpm	1,300	
	Airflow (High)		CFM	634 (Wet)	738
Outdoor unit	Intake air temperature	DB	°F	95	47
		WB	°F	—	43
	Fan speed		rpm	840	810
	Airflow		CFM	1,769	1,701

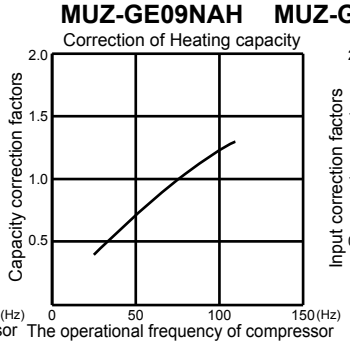
7-5. CAPACITY AND INPUT CORRECTION BY INVERTER OUTPUT FREQUENCY

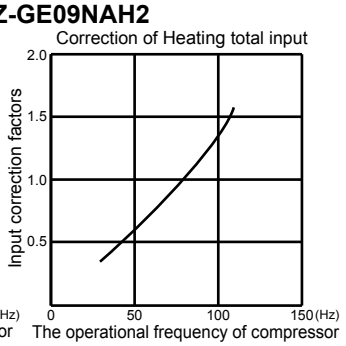
MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2
MUY-GE09NA MUY-GE09NA2



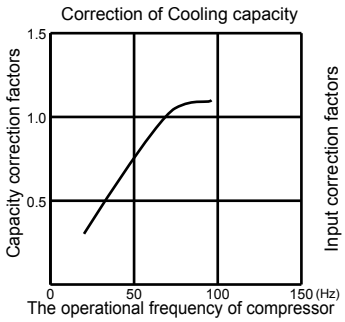


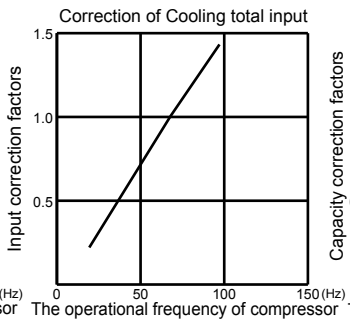
MUZ-GE09NA MUZ-GE09NA2
MUZ-GE09NAH MUZ-GE09NAH2



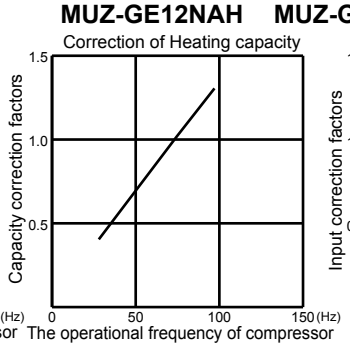


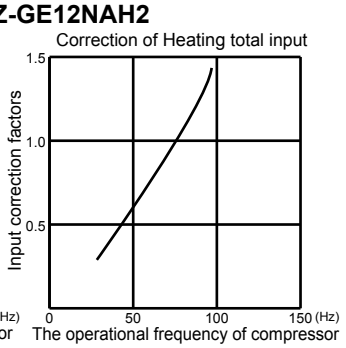
MUZ-GE12NA MUZ-GE12NA2
MUZ-GE12NAH MUZ-GE12NAH2
MUY-GE12NA MUY-GE12NA2



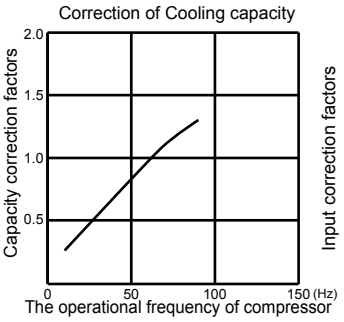


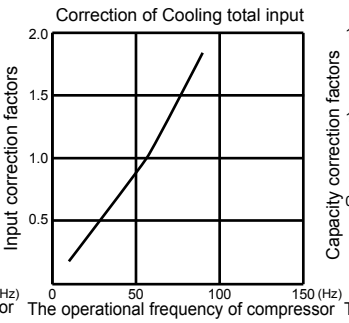
MUZ-GE12NA MUZ-GE12NA2
MUZ-GE12NAH MUZ-GE12NAH2



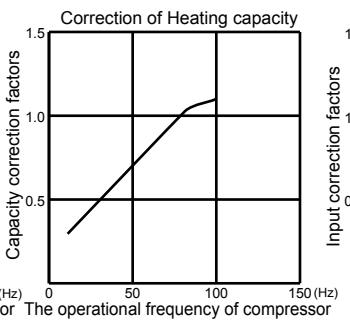


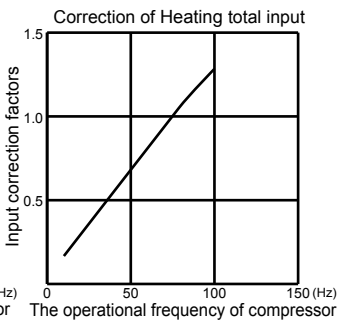
MUZ-GE15NA MUZ-GE15NA2
MUZ-GE15NAH MUZ-GE15NAH2
MUY-GE15NA MUY-GE15NA2



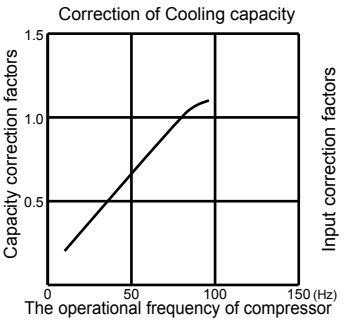


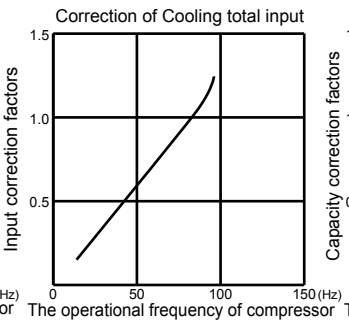
MUZ-GE15NA MUZ-GE15NA2
MUZ-GE15NAH MUZ-GE15NAH2



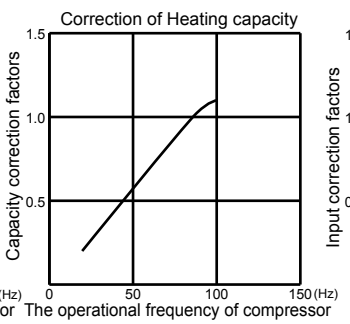


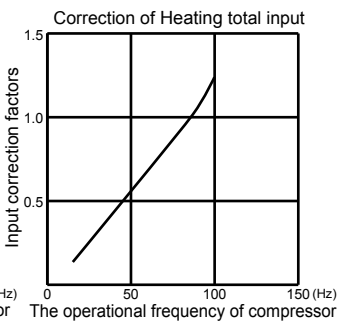
MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA



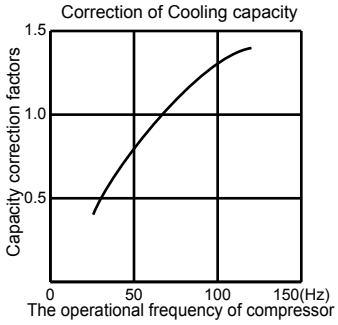


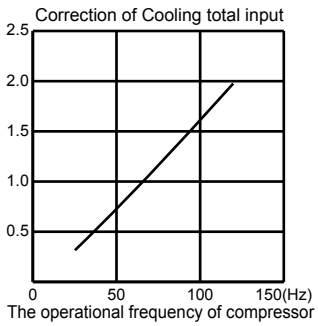
MUZ-GE18NA
MUZ-GE18NAH



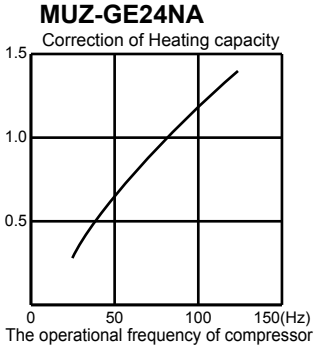


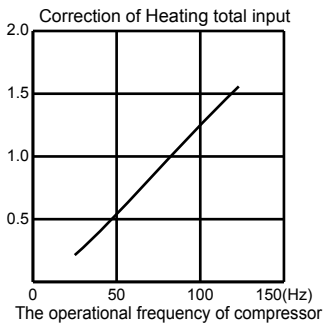
MUZ-GE24NA
MUY-GE24NA





MUZ-GE24NA





7-6. HOW TO OPERATE FIXED-FREQUENCY OPERATION (Test run operation)

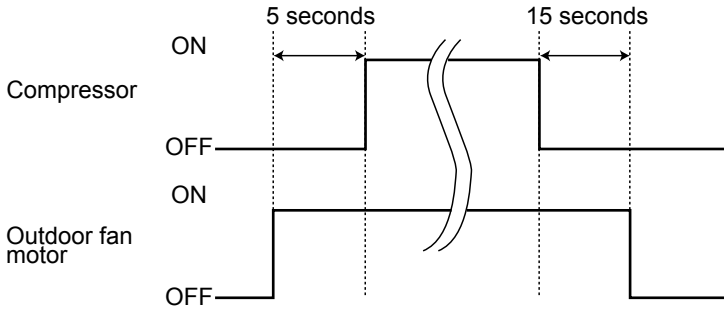
1. Press EMERGENCY OPERATION switch to start COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press EMERGENCY OPERATION switch or any button on remote controller.

8 ACTUATOR CONTROL

MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA MUZ-GE18NA MUZ-GE24NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH MUZ-GE18NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA MUY-GE18NA MUY-GE24NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

8-1. OUTDOOR FAN MOTOR CONTROL

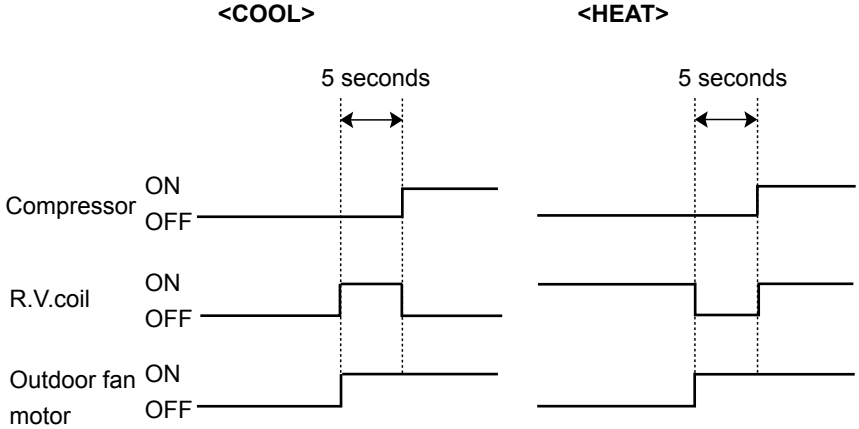
The fan motor turns ON/OFF, interlocking with the compressor.
[ON] The fan motor turns ON 5 seconds before the compressor starts up.
[OFF] The fan motor turns OFF 15 seconds after the compressor has stopped running.



8-2. R.V. COIL CONTROL (MUZ)

Heating · · · · · · · · · · · · · · · · · · ON
Cooling · · · · · · · · · · · · · · · · · · OFF
Dry · OFF

NOTE: The 4-way valve reverses for 5 seconds right before start-up of the compressor.



8-3. RELATION BETWEEN MAIN SENSOR AND ACTUATOR

Sensor	Purpose	Actuator				
		Compressor	LEV	Outdoor fan motor	R.V.coil **(MUZ)**	Indoor fan motor
Discharge temperature thermistor	Protection	○	○			
Indoor coil temperature thermistor	Cooling: Coil frost prevention	○				
	Heating: High pressure protection	○	○			
Defrost thermistor **(MUZ)**	Heating: Defrosting	○	○	○	○	○
Fin temperature thermistor	Protection	○		○		
Ambient temperature thermistor	Cooling: Low ambient temperature operation	○	○	○		
Outdoor heat exchanger temperature thermistor	Cooling: Low ambient temperature operation	○	○	○		
	Cooling: High pressure protection	○	○	○		

9 SERVICE FUNCTIONS

MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA MUZ-GE18NA MUZ-GE24NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH MUZ-GE18NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA MUY-GE18NA MUY-GE24NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

9-1. CHANGE IN DEFROST SETTING (MUZ)

Changing defrost finish temperature

<JS> To change the defrost finish temperature, cut/solder the JS wire of the outdoor inverter P.C. board. (Refer to 10-6.1.)

Jumper		Defrost finish temperature				
		MUZ-GE09	MUZ-GE12	MUZ-GE15	MUZ-GE18	MUZ-GE18/24
JS	Soldered (Initial setting)	41°F (5°C)	50°F (10°C)	41°F (5°C)	48°F (9°C)	50°F (10°C)
	None (Cut)	46°F (8°C)	55°F (13°C)	50°F (10°C)	64°F (18°C)	64°F (18°C)

9-2. PRE-HEAT CONTROL SETTING

PRE-HEAT CONTROL

When moisture gets into the refrigerant cycle, it may interfere the start-up of the compressor at low outside temperature. The pre-heat control prevents this interference. The pre-heat control turns ON when the discharge temperature thermistor is 68°F (20°C) or below. When pre-heat control turns ON, compressor is energized. (About 50 W)

Pre-heat control setting

<JK> ON: To activate the pre-heat control, cut the JK wire of the inverter P.C. board. (Refer to 10-6.1.)
OFF: To deactivate the pre-heat control, solder JK wire of the inverter P.C. board. (Refer to 10-6.1.)

NOTE: When the inverter P.C. board is replaced, check the Jumper wires, and cut/solder them if necessary.

10 TROUBLESHOOTING

MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA MUZ-GE18NA MUZ-GE24NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH MUZ-GE18NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA MUY-GE18NA MUY-GE24NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

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, 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 electrical parts, be careful of the residual voltage of smoothing capacitor.
4) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
5) When connecting or disconnecting the connectors, hold the connector housing. DO NOT pull the lead wires.

<Incorrect> <Correct>

Lead wiring **Connector housing**

3. Troubleshooting procedure

1) 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 OPERATION INDICATOR lamp 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) Refer to 10-2. and 10-3.

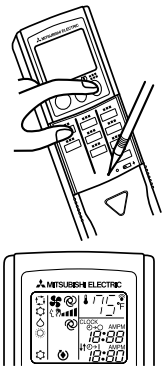
10-2. FAILURE MODE RECALL FUNCTION

Outline of the function

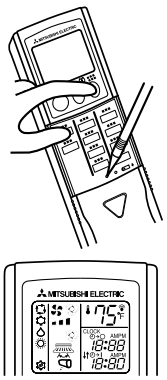
This air conditioner can memorize the abnormal condition which has occurred once.
Even though LED indication listed on the troubleshooting check table (10-3.) disappears, the memorized failure details can be recalled.

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

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA



MSZ-GE24NA
MSY-GE24NA



Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

Does the upper lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the upper lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that cannot be recalled with this way.
Check if outdoor unit is abnormal according to the detailed outdoor unit failure mode recall function. (Refer to 10-2.2)

※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does the upper lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
When it stays ON for 3 seconds (without beep):
The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to outdoor unit failure mode table. (Refer to 10-2.3)
Make sure to check at least two consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to indoor unit failure mode table. (Refer to indoor unit service manual.)
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

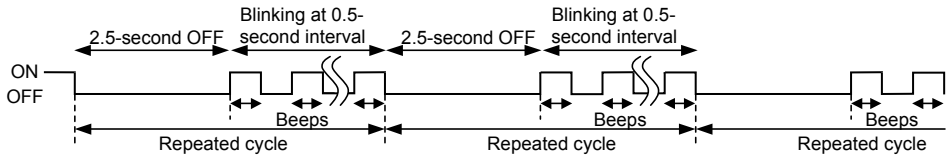
Repair the failure parts.

Deleting the memorized abnormal condition

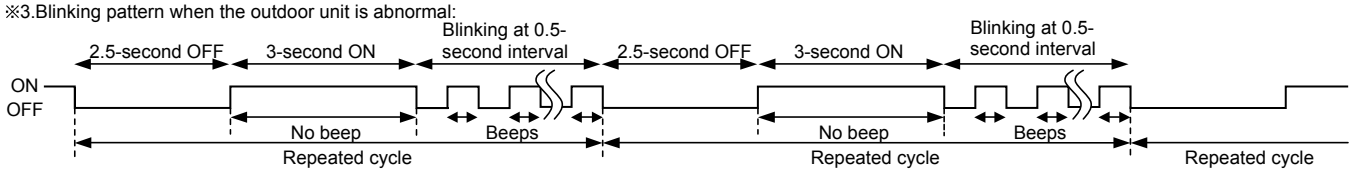
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" mentioned above.
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

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



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



2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure

The outdoor unit might be abnormal.
Check if outdoor unit is abnormal according to the following procedures.

↓

Make sure that the remote controller is set to the failure mode recall function.

↓

With the remote controller headed towards the indoor unit, press TOO COOL or TOO WARM button to adjust the set temperature to 77°F (25°C). ※1

※1. Regardless of normal or abnormal condition, 2 short beeps are emitted as the signal is received.

↓

Does the upper lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: The outdoor unit is abnormal. Beep is emitted at the same timing as the blinking of the upper lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → The outdoor unit is normal.

Yes (Blinks)

↓

The outdoor unit is abnormal.
Check the blinking pattern, and identify the abnormal point by referring to outdoor unit failure mode table (10-2.3.).
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

Release the failure mode recall function according to the left mentioned procedure.

↓

Repair the failure parts.

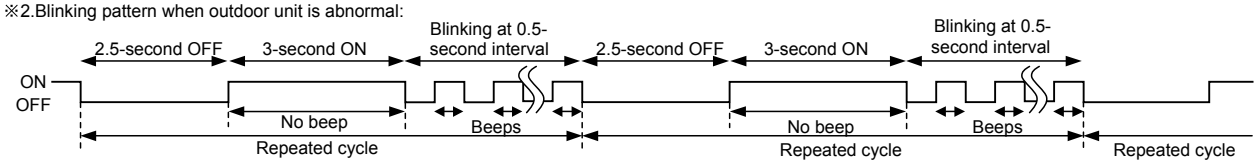
↓

Deleting the memorized abnormal condition

① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function" (10-2.1.).
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function" mentioned above.

NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2.Blinking pattern when outdoor unit is abnormal:



3. Outdoor unit failure mode table

OPERATION INDICATOR upper lamp (Indoor unit)	Abnormal point (Failure mode / protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/ outdoor unit failure mode recall function	Outdoor unit failure mode recall function
OFF	None (Normal)	—	—	—	—	—
2-time flash 2.5 seconds OFF	Outdoor power system	—	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started.	•Reconnect connectors. •Refer to 10-5. Ⓐ"How to check inverter/ compressor". •Check stop valve.	○	○
3-time flash 2.5 seconds OFF	Discharge temperature thermistor	1-time flash every 2.5 seconds	Thermistor shorts or opens during compressor running.	•Refer to 10-5.Ⓖ"Check of outdoor thermistors". Defective outdoor thermistors can be identified by checking the blinking pattern of LED.	○	○
	Defrost thermistor **(MUZ)**					
	Fin temperature thermistor	3-time flash 2.5 seconds OFF				
	P.C. board temperature thermistor	4-time flash 2.5 seconds OFF				
	Ambient temperature thermistor	2-time flash 2.5 seconds OFF				
	Outdoor heat exchanger temperature thermistor **(MUZ-GE24, MUY-GE24)**					
4-time flash 2.5 seconds OFF	Overcurrent	11-time flash 2.5 seconds OFF	Large current flows into intelligent power module/ power module ※1.	•Reconnect compressor connector. •Refer to 10-5.Ⓐ"How to check inverter/ compressor". •Check stop valve.	—	○
	Compressor synchronous abnormality (Compressor start-up failure protection)	12-time flash 2.5 seconds OFF	Waveform of compressor current is distorted.	•Reconnect compressor connector. •Refer to 10-5.Ⓐ"How to check inverter/ compressor".	—	○
5-time flash 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	•Check refrigerant circuit and refrigerant amount. •Refer to 10-5.Ⓚ"Check of LEV".	—	○
6-time flash 2.5 seconds OFF	High pressure	—	Temperature of indoor coil thermistor exceeds 158°F (70°C) in HEAT mode **(MUZ only).** Temperature of outdoor heat exchanger temperature thermistor exceeds 158°F (70°C) in COOL mode.	•Check refrigerant circuit and refrigerant amount. •Check stop valve.	—	○
7-time flash 2.5 seconds OFF	Fin temperature/ P.C. board temperature	7-time flash 2.5 seconds OFF	Temperature of fin temperature thermistor on the inverter P.C. board exceeds 167 ~ 176°F (75 ~ 80°C), or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 158 ~ 167°F (70 ~ 75°C).	•Check around outdoor unit. •Check outdoor unit air passage. •Refer to 10-5.Ⓘ"Check of outdoor fan motor".	—	○
8-time flash 2.5 seconds OFF	Outdoor fan motor	—	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan start-up.	•Refer to 10-5.Ⓘ"Check of outdoor fan motor". Refer to 10-5.Ⓛ"Check of inverter P.C. board".	—	○
9-time flash 2.5 seconds OFF	Nonvolatile memory data	5-time flash 2.5 seconds OFF	Nonvolatile memory data cannot be read properly.	•Replace the inverter P.C. board.	○	○
	Power module **(MUZ-GE24, MUY-GE24)**	6-time flash 2.5 seconds OFF	The interphase short circuit occurs in the output of the intelligent power module (IPM)/power module (IPM) ※1. The compressor winding shorts circuit.	•Refer to 10-5.Ⓐ"How to check inverter/ compressor".		
10-time flash 2.5 seconds OFF	Discharge temperature	—	Temperature of discharge temperature thermistor has been 122°F (50°C) or less for 20 minutes.	•Refer to 10-5.Ⓚ"Check of LEV". •Check refrigerant circuit and refrigerant amount.	—	○

NOTE: Blinking patterns of this mode differ from the ones of Troubleshooting check table (10-3.).

※1

Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**

Power module: **Other models**

3. Outdoor unit failure mode table

OPERATION INDICATOR upper lamp (Indoor unit)	Abnormal point (Failure mode / protection)	LED indication (Outdoor P.C. board)	Condition	Remedy	Indoor/ outdoor unit failure mode recall function	Outdoor unit failure mode recall function
11-time flash 2.5 seconds OFF	DC voltage	8-time flash 2.5 seconds OFF	DC voltage of inverter cannot be detected normally.	•Refer to 10-5.Ⓐ"How to check inverter/ compressor".	—	○
	Each phase current of compressor	9-time flash 2.5 seconds OFF	Each phase current of compressor cannot be detected normally.			
12-time flash 2.5 seconds OFF	Overcurrent Compressor open-phase	10-time flash 2.5 seconds OFF	Large current flows into intelligent power module (IPM)/power module (IPM) ※1. The open-phase operation of compressor is detected. The interphase short circuit occurs in the output of the intelligent power module (IPM)/power module (IPM) ※1. The compressor winding shorts circuit.	•Reconnect compressor connector. •Refer to 10-5. Ⓐ"How to check inverter/ compressor".	—	○
14-time flash 2.5 seconds OFF	Stop valve (Closed valve)	14-time flash 2.5 seconds OFF	Closed valve is detected by compressor current.	•Check stop valve	○	○
	4-way valve/ Pipe temperature	16-time flash 2.5 seconds OFF	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	•Check the 4-way valve. •Replace the inverter P.C. board.		

NOTE: Blinking patterns of this mode differ from the ones of Troubleshooting check table (10-3.).

※1

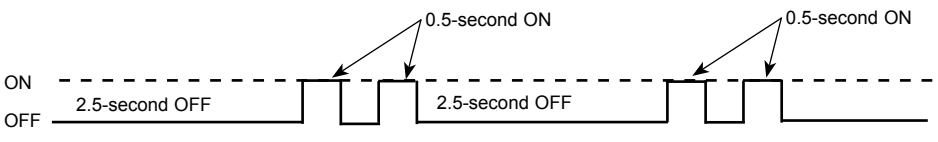
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**

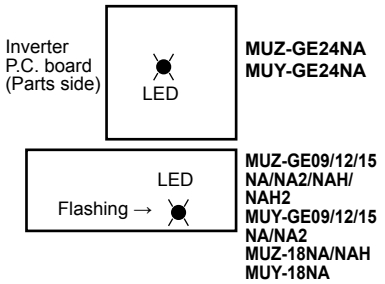
Power module: **Other models**

10-3. TROUBLESHOOTING CHECK TABLE

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
1	Outdoor unit does not operate.	1-time flash every 2.5 seconds	Outdoor power system	Overcurrent protection cut-out operates 3 consecutive times within 1 minute after the compressor gets started, or failure of restart of compressor has repeated 24 times.	•Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/ compressor". •Check stop valve.
2			Outdoor thermistors	Discharge temperature thermistor, fin temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor, P.C. board temperature thermistor or ambient temperature thermistor shorts or opens during compressor running.	•Refer to 10-5.Ⓖ "Check of outdoor thermistors".
3			Outdoor control system	Nonvolatile memory data cannot be read properly. (The upper lamp of OPERATION INDICATOR of the indoor unit lights up or flashes 7 times.)	•Replace inverter P.C. board.
4		6-time flash 2.5 seconds OFF	Serial signal	The communication fails between the indoor and outdoor unit for 3 minutes.	•Refer to 10-5.Ⓜ "How to check miswiring and serial signal error.
5		11-time flash 2.5 seconds OFF	Stop valve/ Closed valve	Closed valve is detected by compressor current.	•Check stop valve.
6		14-time flash 2.5 seconds OFF	Outdoor unit (Other abnormality)	Outdoor unit is defective.	•Refer to 10-2.2. "Flow chart of the detailed outdoor unit failure mode recall function".
7		16-time flash 2.5 seconds OFF	4-way valve/ Pipe temperature	The 4-way valve does not work properly. The indoor coil thermistor detects an abnormal temperature.	•Refer to 10-5.Ⓗ "Check of R.V. coil". •Replace the inverter P.C. board.
8	'Outdoor unit stops and restarts 3 minutes later' is repeated.	2-time flash 2.5 seconds OFF	Overcurrent protection	Large current flows into intelligent power module/power module ※1. ※ When overcurrent protection occurs within 10 seconds after compressor starts, compressor restarts after 15 seconds **(MUZ-GE09/12/15/18, MUY-GE09/12/15/18)**.	•Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/ compressor". •Check stop valve.
9		3-time flash 2.5 seconds OFF	Discharge temperature overheat protection	Temperature of discharge temperature thermistor exceeds 241°F (116°C), compressor stops. Compressor can restart if discharge temperature thermistor reads 212°F (100°C) or less 3 minutes later.	•Check refrigerant circuit and refrigerant amount. •Refer to 10-5.Ⓚ "Check of LEV".
10		4-time flash 2.5 seconds OFF	Fin temperature /P.C. board temperature thermistor overheat protection	Temperature of fin temperature thermistor on the heat sink exceeds 167 ~ 176°F (75 ~ 80°C) or temperature of P.C. board temperature thermistor on the inverter P.C. board exceeds 158 ~ 167°F (70 ~ 75°C).	•Check around outdoor unit. •Check outdoor unit air passage. •Refer to 10-5.Ⓘ "Check of outdoor fan motor".
11		5-time flash 2.5 seconds OFF	High pressure protection	Temperature of indoor coil thermistor exceeds 158°F (70°C) in HEAT mode **(MUZ only)**. Temperature of outdoor heat exchanger temperature thermistor exceeds 158°F (70°C) in COOL mode.	•Check refrigerant circuit and refrigerant amount. •Check stop valve.
12		8-time flash 2.5 seconds OFF	Compressor synchronous abnormality	The waveform of compressor current is distorted.	•Reconnect connector of compressor. •Refer to 10-5.Ⓐ "How to check inverter/ compressor".
13		10-time flash 2.5 seconds OFF	Outdoor fan motor	Outdoor fan has stopped 3 times in a row within 30 seconds after outdoor fan start-up.	•Refer to 10-5.Ⓘ "Check of outdoor fan motor. •Refer to 10-5.Ⓛ "Check of inverter P.C. board.
14		12-time flash 2.5 seconds OFF	Each phase current of compressor	Each phase current of compressor cannot be detected normally.	•Refer to 10-5.Ⓐ "How to check inverter/ compressor".
15		13-time flash 2.5 seconds OFF	DC voltage	DC voltage of inverter cannot be detected normally.	•Refer to 10-5.Ⓐ "How to check inverter/ compressor".
16	Outdoor unit operates.	1-time flash 2.5 seconds OFF	Frequency drop by current protection	Current from power outlet is nearing Max. fuse size.	The unit is normal, but check the following. •Check if indoor filters are clogged. •Check if refrigerant is short. •Check if indoor/outdoor unit air circulation is short cycled.
17		3-time flash 2.5 seconds OFF	Frequency drop by high pressure protection	Temperature of indoor coil thermistor exceeds 131°F (55°C) in HEAT mode, compressor frequency lowers.	
			Frequency drop by defrosting in COOL mode	Indoor coil thermistor reads 46°F (8°C) or less in COOL mode, compressor frequency lowers.	
18		4-time flash 2.5 seconds OFF	Frequency drop by discharge temperature protection	Temperature of discharge temperature thermistor exceeds 232°F (111°C), compressor frequency lowers.	•Check refrigerant circuit and refrigerant amount. •Refer to 10-5.Ⓚ "Check of LEV". •Refer to 10-5.Ⓖ "Check of outdoor thermistors".

NOTE: 1. The location of LED is illustrated at the right figure. Refer to 10-6.1.
2. LED is lighted during normal operation.
The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF. Flashing
(Example) When the flashing frequency is "2".



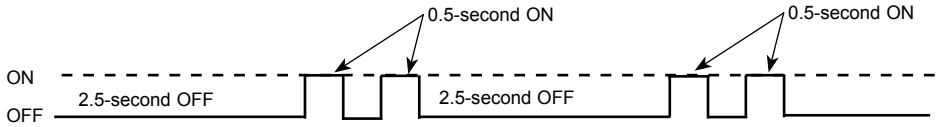


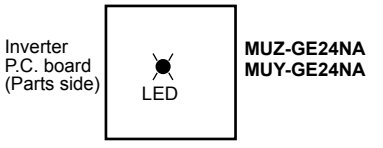
※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**

10-3. TROUBLESHOOTING CHECK TABLE

No.	Symptom	LED indication	Abnormal point/ Condition	Condition	Remedy
19	Outdoor unit operates.	7-time flash 2.5 seconds OFF	Low discharge temperature protection	Temperature of discharge temperature thermistor has been 122°F (50°C) or less for 20 minutes.	•Refer to 10-5.Ⓚ "Check of LEV". •Check refrigerant circuit and refrigerant amount.
20		8-time flash 2.5 seconds OFF	PAM protection PAM: Pulse Amplitude Modulation	The overcurrent flows into IGBT (Insulated Gate Bipolar transistor: TR821) or the bus-bar voltage reaches 320 V or more, PAM stops and restarts.	This is not malfunction. PAM protection will be activated in the following cases: 1 Instantaneous power voltage drop (Short time power failure) 2 When the power supply voltage is high.
			Zero cross detecting circuit	Zero cross signal for PAM control cannot be detected.	
21		9-time flash 2.5 seconds OFF	Inverter check mode	The connector of compressor is disconnected, inverter check mode starts.	•Check if the connector of the compressor is correctly connected. Refer to 10-5.Ⓐ "How to check inverter/compressor".

NOTE: 1. The location of LED is illustrated at the right figure. Refer to 10-6.1.
2. LED is lighted during normal operation.
The flashing frequency shows the number of times the LED blinks after every 2.5-second OFF. Flashing (Example) When the flashing frequency is "2".





MUZ-GE24NA
MUY-GE24NA

MUZ-GE09/12/15 NA/NA2/NAH/ NAH2
MUY-GE09/12/15 NA/NA2
MUZ-18NA/NAH
MUY-18NA

10-4. TROUBLE CRITERION OF MAIN PARTS

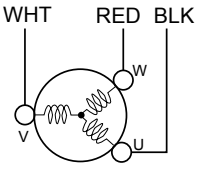
MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA MUZ-GE18NA MUZ-GE24NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH MUZ-GE18NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA MUY-GE18NA MUY-GE24NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

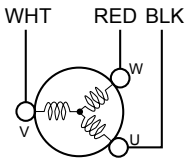
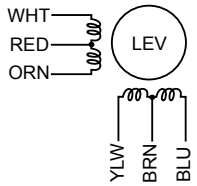
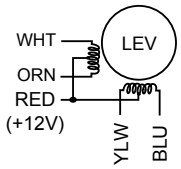
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor (RT61) (MUZ)
Fin temperature thermistor (RT64)

Ambient temperature thermistor (RT65)

Outdoor heat exchanger temperature thermistor (RT68)</td><td>Measure the resistance with a tester.

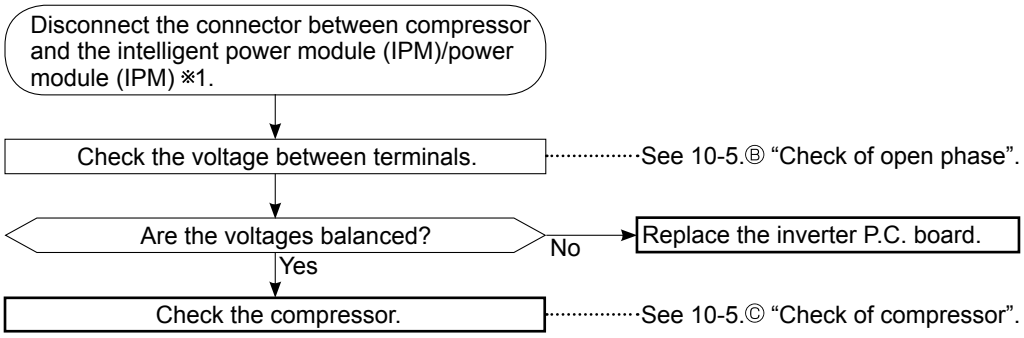
Refer to 10-6. “Test point diagram and voltage”, 1. “Inverter P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Discharge temperature thermistor (RT62)</td><td>Measure the resistance with a tester. Before measurement, hold the thermistor with your hands to warm it up.

Refer to 10-6. “Test point diagram and voltage”, 1. “Inverter P.C. board”, for the chart of thermistor.</td><td></td></tr>
<tr><td>Compressor</td><td>Measure the resistance between terminals using a tester. (Temperature: -4 ~ 104°F (-20 ~ 40°C))
<table>
<tr><th></th><th colspan="4">Normal (Ω)</th></tr>
<tr><th></th><th>GE09</th><th>GE12</th><th>GE15/18</th><th>GE24</th></tr>
<tr><td>U-V
U-W
V-W</td><td>1.36 ~ 1.93</td><td>1.52 ~ 2.17</td><td>0.78 ~ 1.11</td><td>0.83 ~ 1.18</td></tr>
</table></td><td> 
</td></tr>
</table>

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Outdoor fan motor</td><td>Measure the resistance between lead wires using a tester.
(Temperature: -4 ~ 104°F (-20 ~ 40°C))
<table><tr><th rowspan="2">Color of lead wire</th><th colspan="3">Normal (Ω)</th></tr><tr><th>GE09/12</th><th>GE15</th><th>GE18/24</th></tr><tr><td>RED – BLK
BLK – WHT
WHT – RED</td><td colspan="2">28 ~ 40</td><td>11 ~ 16</td></tr></table></td><td> 
</td></tr>
<tr><td>R. V. coil (21S4)
(MUZ)</td><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Normal (kΩ)</th></tr><tr><td>0.97 ~ 1.38</td></tr></table></td><td></td></tr>
<tr><td rowspan="2">Expansion valve coil
(LEV)</td><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
MUZ-GE09/12/15/18NA
MUZ-GE09/12/15NA2
MUZ-GE09/12/15/18NAH
MUZ-GE09/12/15NAH2
MUY-GE09/12/15/18NA
MUY-GE09/12/15NA2
<table><tr><th>Color of lead wire</th><th>Normal (Ω)</th></tr><tr><td>WHT – RED</td><td rowspan="4">37 ~ 54</td></tr><tr><td>RED – ORN</td></tr><tr><td>YLW – BRN</td></tr><tr><td>BRN – BLU</td></tr></table></td><td> 
</td></tr>
<tr><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
MUZ-GE24NA, MUY-GE24NA
<table><tr><th>Color of lead wire</th><th>Normal (Ω)</th></tr><tr><td>RED – ORN</td><td rowspan="4">37 ~ 54</td></tr><tr><td>RED – WHT</td></tr><tr><td>RED – BLU</td></tr><tr><td>RED – YLW</td></tr></table></td><td> 
</td></tr>
<tr><td>Defrost heater
MUZ-GE•NAH</td><td>Measure the resistance using a tester.
(Temperature: 14 ~ 104°F (-10 ~ 40°C))
<table><tr><th>Normal (Ω)</th></tr><tr><td>349 ~ 428</td></tr></table></td><td></td></tr>
</table>

10-5. TROUBLESHOOTING FLOW

Ⓐ How to check inverter/compressor



Ⓑ Check of open phase

● With the connector between the compressor and intelligent power module/power module ※1 disconnected, activate the inverter and check if the inverter is normal by measuring the voltage balance between the terminals.

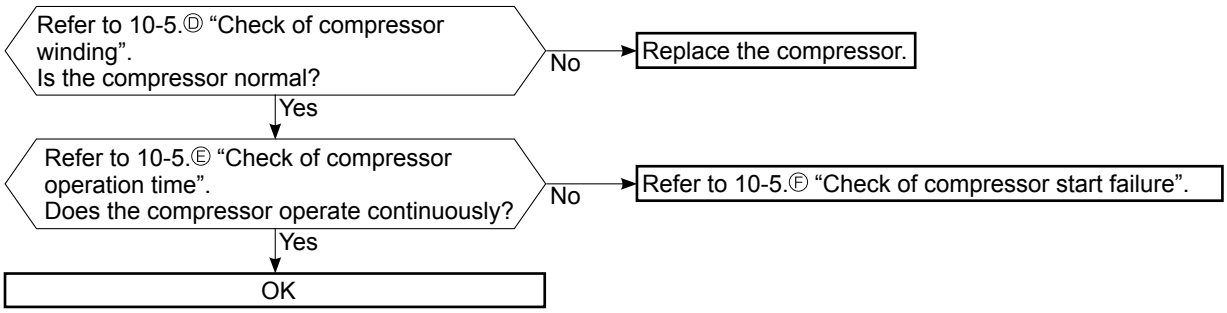
Output voltage is 50 - 130 V. (The voltage may differ according to the tester.)

<< Operation method>>
Start cooling or heating operation by pressing EMERGENCY OPERATION switch on the indoor unit. (TEST RUN OPERATION: Refer to 7-6.)
<<Measurement point>>
at 3 points
BLK (U) - WHT (V)
BLK (U) - RED (W)
WHT(V) - RED (W)

Measure AC voltage between the lead wires at 3 points.

NOTE: 1. Output voltage varies according to power supply voltage.
2. Measure the voltage by analog type tester.
3. During this check, LED of the inverter P.C. board flashes 9 times. (Refer to 10-6.1.)

Ⓒ Check of compressor



※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**

Ⓓ Check of compressor winding

● Disconnect the connector between the compressor and intelligent power module/power module ※1, and measure the resistance between the compressor terminals.

<<Measurement point>>

At 3 points
BLK - WHT
BLK - RED
WHT - RED

※ Measure the resistance between the lead wires at 3 points.

<<Judgement>>

Refer to 10-4.
0[Ω] ····· Abnormal [short]
Infinite [Ω]····· Abnormal [open]

NOTE: Be sure to zero the ohmmeter before measurement.

※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**

Ⓔ Check of compressor operation time

● Connect the compressor and activate the inverter. Then measure the time until the inverter stops due to over current.

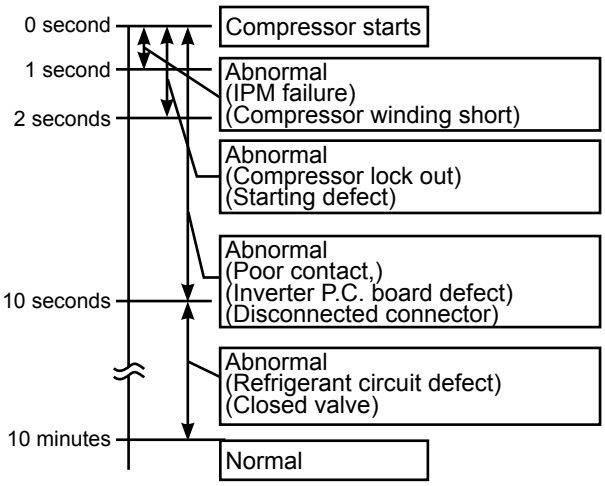
<<Operation method>>

Start heating or cooling operation by pressing EMERGENCY OPERATION switch on the indoor unit.
(TEST RUN OPERATION: Refer to 7-6.)

<<Measurement>>

Measure the time from the start of compressor to the stop of compressor due to overcurrent.

<<Judgement>>



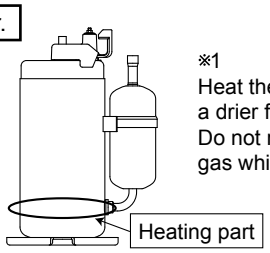
Ⓕ Check of compressor start failure

Confirm that 1~4 is normal.
• Electrical circuit check
1. Contact of the compressor connector
2. Output voltage of inverter P.C. board and balance of them (See 10-5.Ⓑ)
3. Direct current voltage between DB61(+) and (-) (**MUZ-GE09/12/1518, MUY-GE09/12/1518)**/ JP715(+) and JP30(-) (**MUZ-GE24, MUY-GE24)** on the inverter P.C. board
4. Voltage between outdoor terminal block S1-S2

Does the compressor run for 10 seconds or more after it starts?
Yes → Check the refrigerant circuit. Check the stop valve.
No

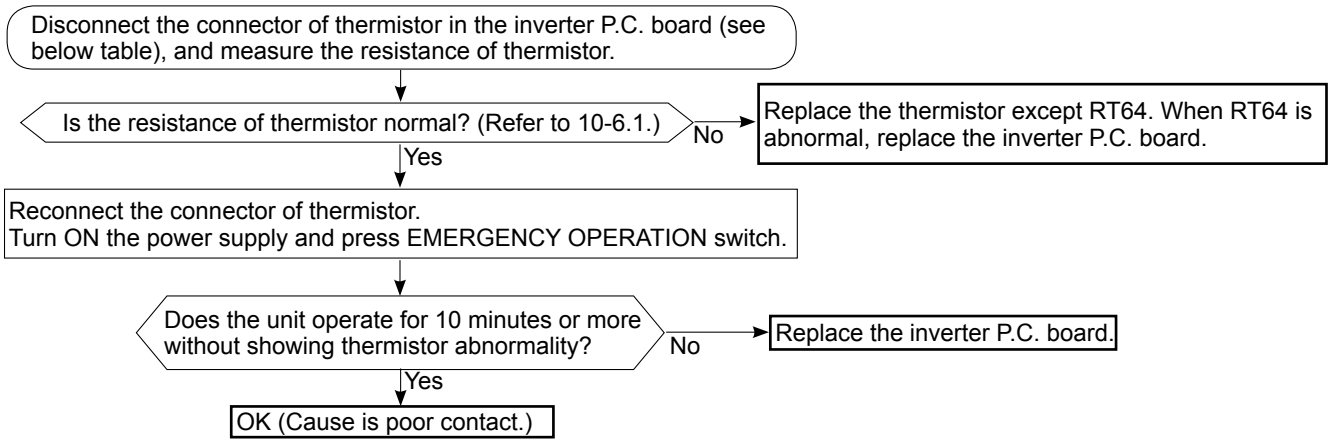
After the compressor is heated with a drier, does the compressor start? ※1
No → Replace the compressor.
Yes

Compressor start failure. Activate pre-heat control. (Refer to 9-2. "PRE-HEAT CONTROL SETTING")



※1
Heat the compressor with a drier for about 20 minutes. Do not recover refrigerant gas while heating.

Ⓖ Check of outdoor thermistors



MUZ-GE09/12/15NA/NA2/NAH/NAH2, MUZ-GE18NA/NAH, MUY-GE09/12/15NA/NA2, MUY-GE18NA

Thermistor	Symbol	Connector, Pin No.	Board
Defrost **(MUZ)**	RT61	Between CN641 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN641 pin3 and pin4	
Fin temperature	RT64	Between CN642 pin1 and pin2	
Ambient temperature	RT65	Between CN643 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN644 pin1 and pin3	

MUZ-GE24NA, MUY-GE24NA

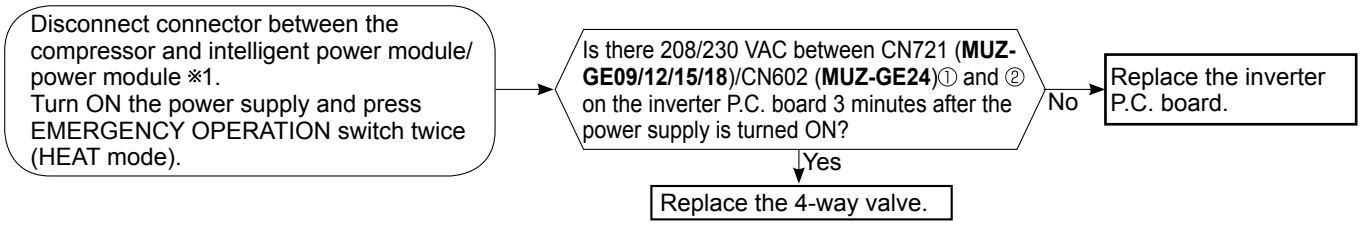
Thermistor	Symbol	Connector, Pin No.	Board
Defrost **(MUZ)**	RT61	Between CN671 pin1 and pin2	Inverter P.C. board
Discharge temperature	RT62	Between CN671 pin3 and pin4	
Fin temperature	RT64	Between CN673 pin1 and pin2	
Ambient temperature	RT65	Between CN672 pin1 and pin2	
Outdoor heat exchanger temperature	RT68	Between CN671 pin5 and pin6	

Ⓗ Check of R.V. coil

MUZ-GE09/12/15NA/NA2/NAH/NAH2, MUZ-GE18NA/NAH, MUZ-GE24NA

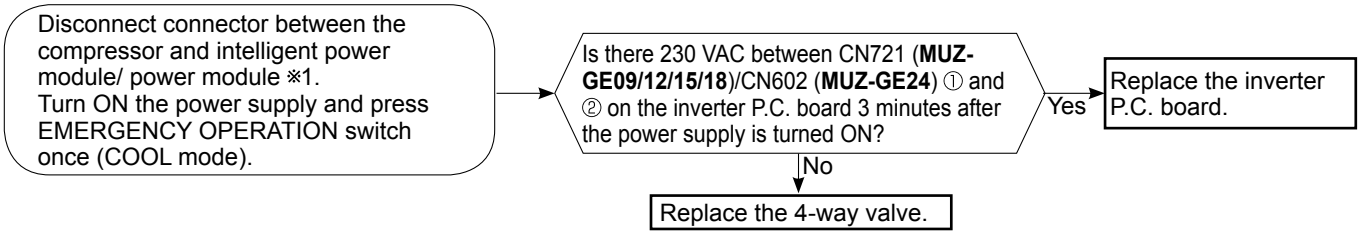
※ First of all, measure the resistance of R.V. coil to check if the coil is defective. Refer to 10-4.
※ In case CN721 (**MUZ-GE09/12/15/18**)/CN602 (**MUZ-GE24**) is disconnected or R.V. coil is open, voltage is generated between the terminal pins of the connector although no signal is being transmitted to R.V. coil. Check if CN721 (**MUZ-GE09/12/15/18**)/CN602 (**MUZ-GE24**) is connected.

Unit operates COOL mode even if it is set to HEAT mode.



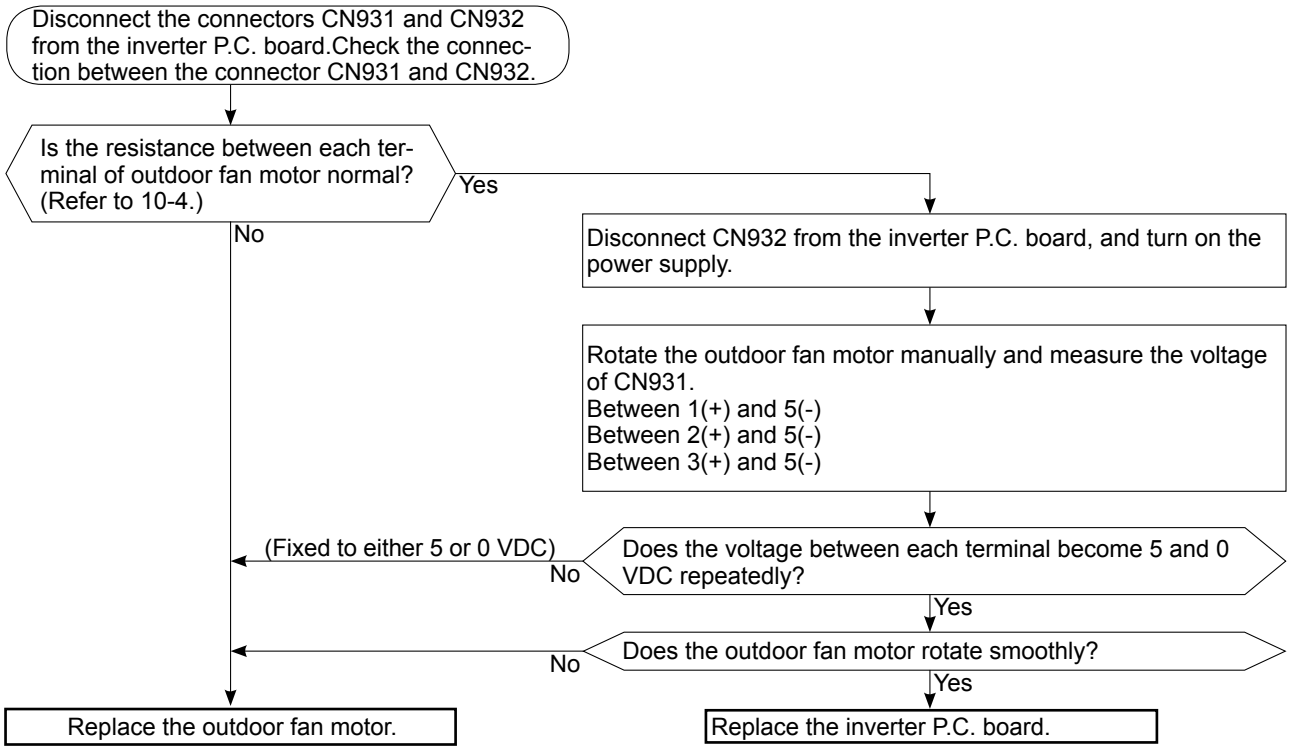
※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**

Unit operates HEAT mode even if it is set to COOL mode.



※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**

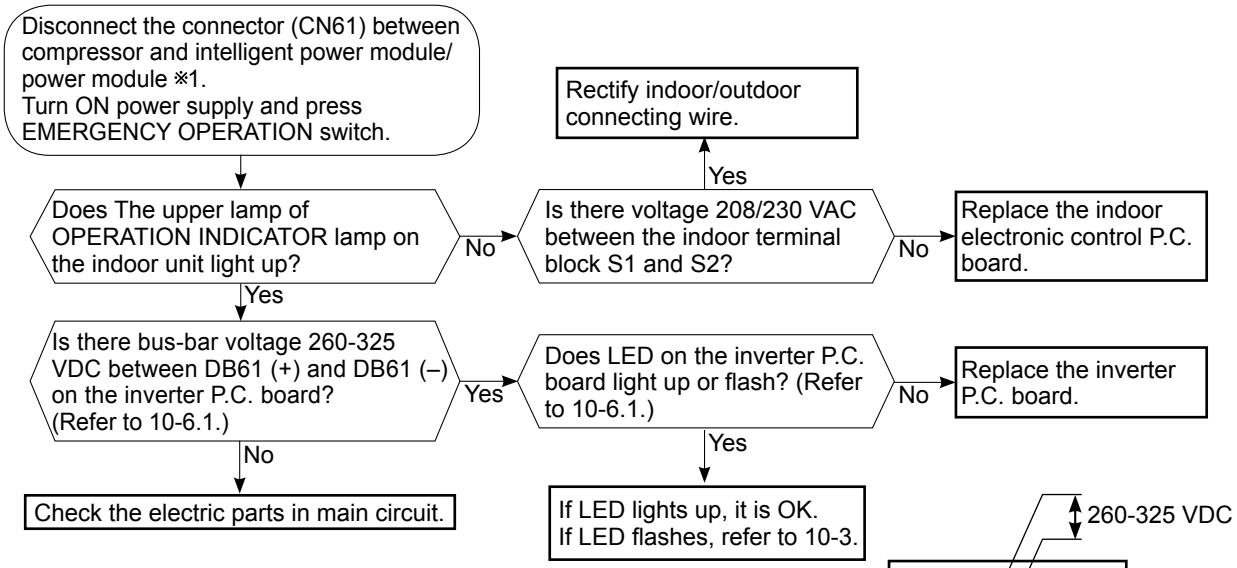
ⓘ Check of outdoor fan motor

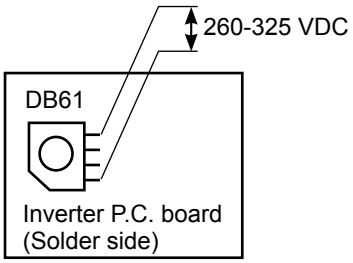


Ⓙ Check of power supply

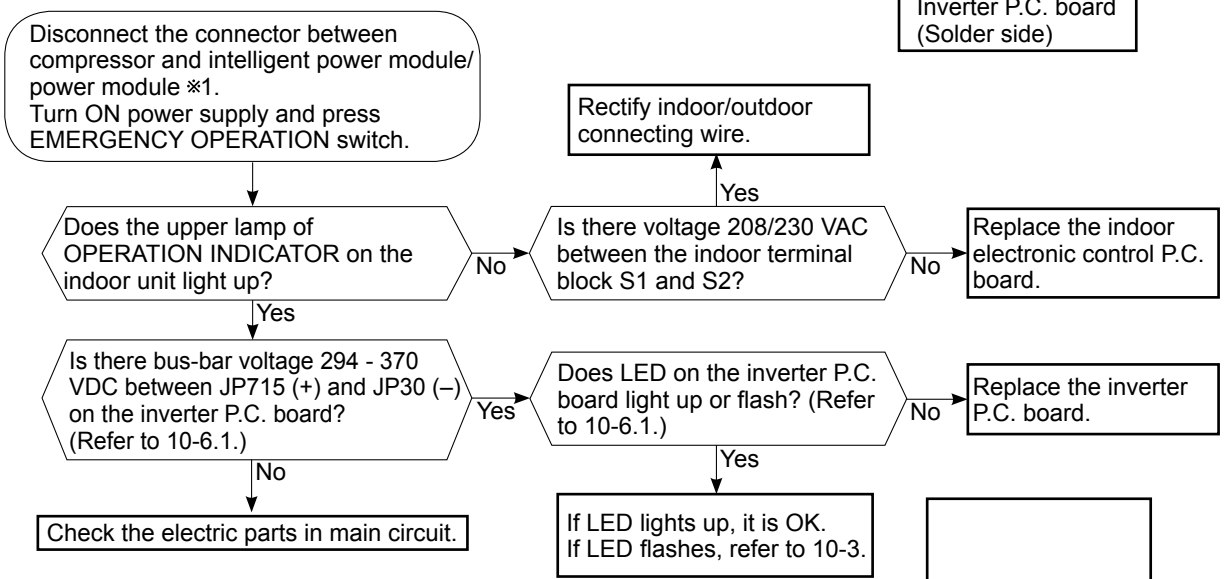
MUZ-GE09/12/15NA/NA2/NAH/NAH2 MUZ-GE18NA/NAH
MUY-GE09/12/15NA/NA2 MUY-GE18NA

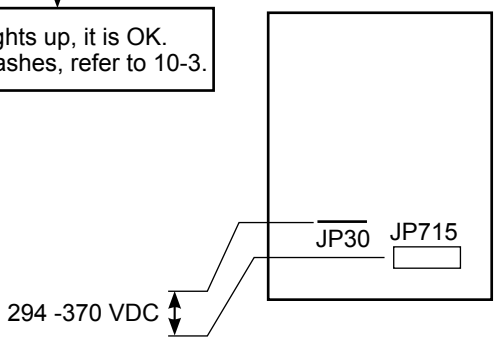
※1
Intelligent power module: **MUZ-GE09/12/15/18/24NA**, **MUY-GE09/12/15/18/24NA**
Power module: **Other models**





MUZ-GE24NA
MUY-GE24NA





Ⓚ Check of LEV (Expansion valve)

Turn ON the power supply.
<Preparation of the remote controller>
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Make sure that the indicators on the LCD screen shown in the right figure are all displayed.
Then release the buttons.

↓

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

↓

Expansion valve operates in full-opening direction.

↓

Do you hear the expansion valve "click, click·····"?
Do you feel the expansion valve vibrate on touching it ?
Yes → OK

No ↓

Is LEV coil properly fixed to the expansion valve?
No → Properly fix the LEV coil to the expansion valve.

Yes ↓

Does the resistance of LEV coil have the characteristics? (Refer to 10-4.)
Yes →

Measure each voltage between connector pins of CN724 on the inverter P.C. board.
1. Pin③(-) — Pin①(+)
2. Pin④(-) — Pin①(+)
3. Pin⑤(-) — Pin①(+)
4. Pin⑥(-) — Pin①(+)
Is there about 3 ~ 5 VAC between each?
NOTE: Measure the voltage by an analog tester.

No → Replace the inverter P.C. board.

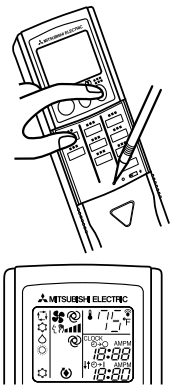
Yes ↓

Replace the expansion valve.

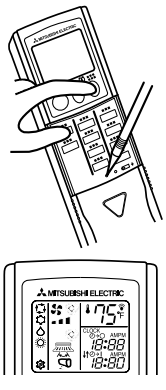
No ↓

Replace the LEV coil.

MSZ-GE06/09/12/15/18NA
MSY-GE09/12/15/18NA



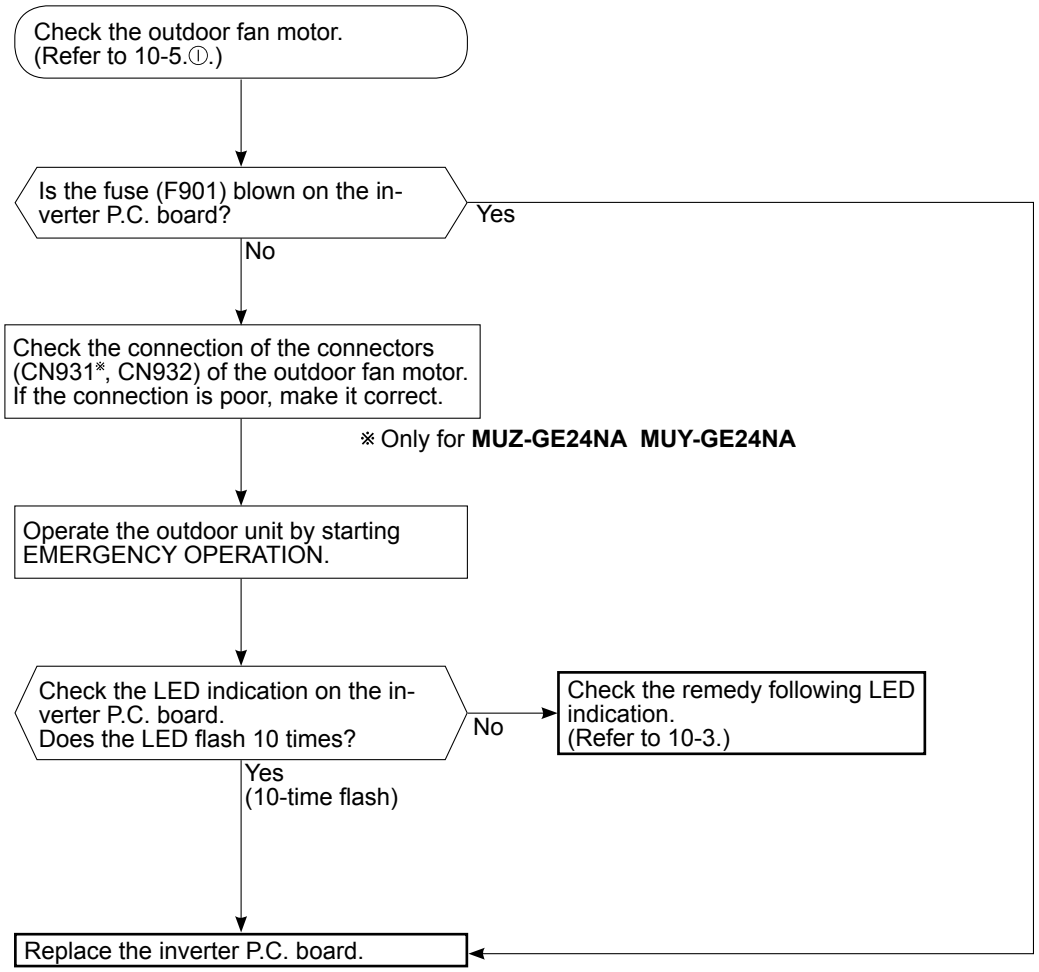
MSZ-GE24NA
MSY-GE24NA



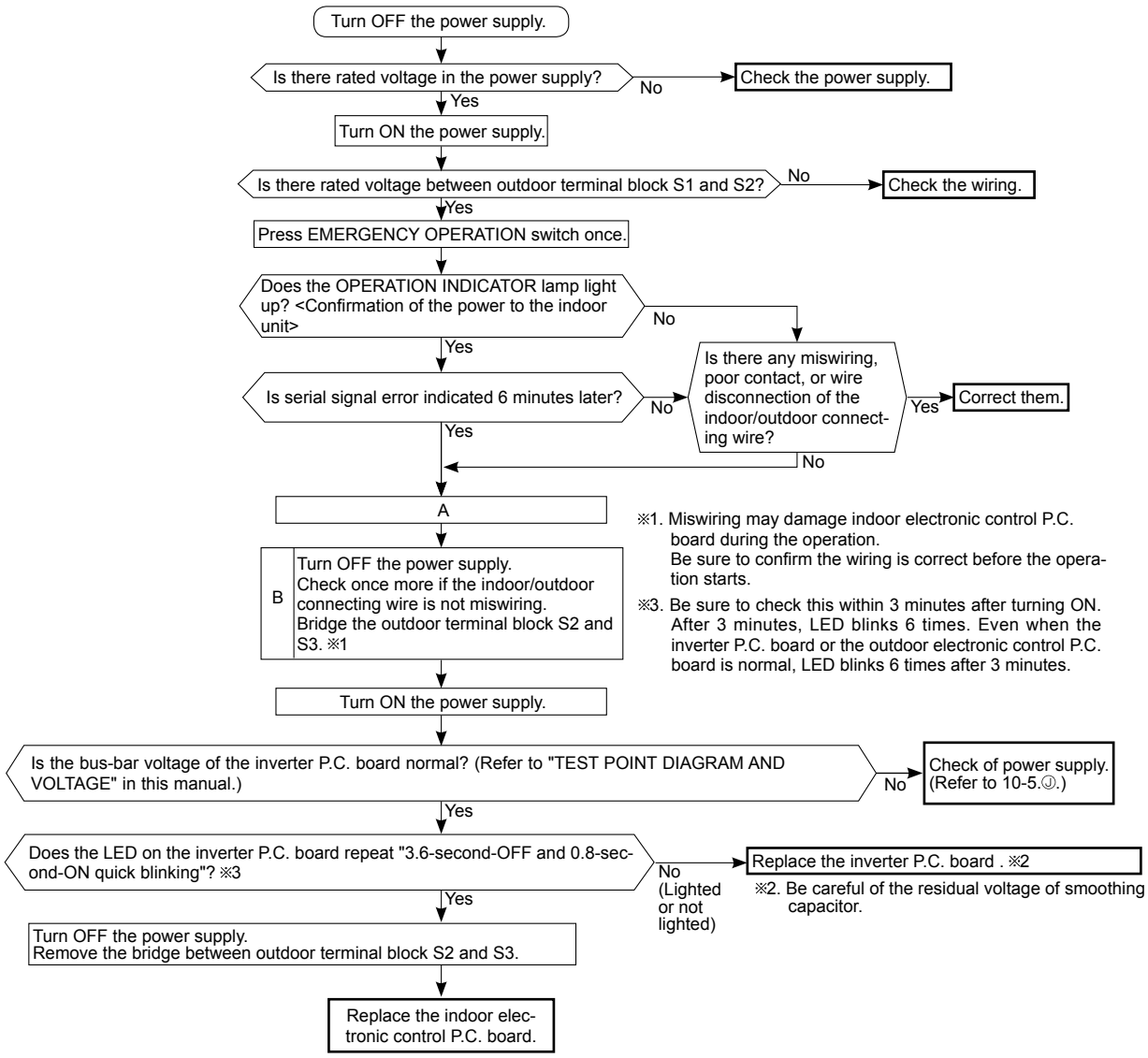
※1. Regardless of normal or abnormal condition, a short beep is emitted once the signal is received.

NOTE: After check of LEV, do the undermentioned operations.
1. Turn OFF the power supply and turn ON it again.
2. Press RESET button on the remote controller.

Ⓛ Check of inverter P.C. board



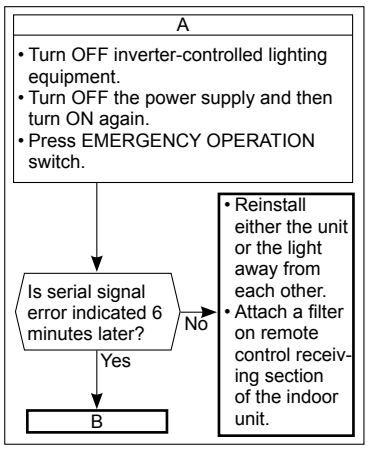
Ⓜ How to check miswiring and serial signal error



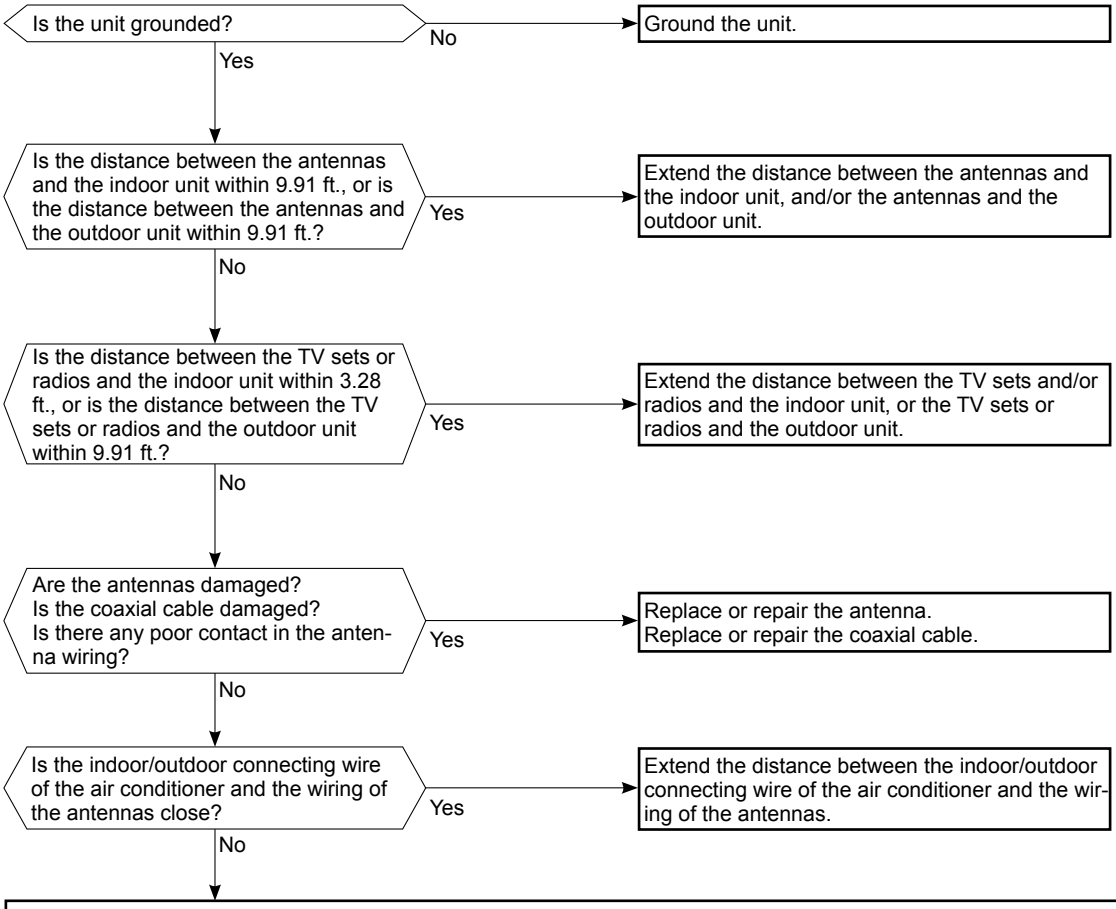
※1. Miswiring may damage indoor electronic control P.C. board during the operation.
Be sure to confirm the wiring is correct before the operation starts.

※3. Be sure to check this within 3 minutes after turning ON. After 3 minutes, LED blinks 6 times. Even when the inverter P.C. board or the outdoor electronic control P.C. board is normal, LED blinks 6 times after 3 minutes.

※2. Be careful of the residual voltage of smoothing capacitor.



Ⓝ Electromagnetic noise enters into TV sets or radios



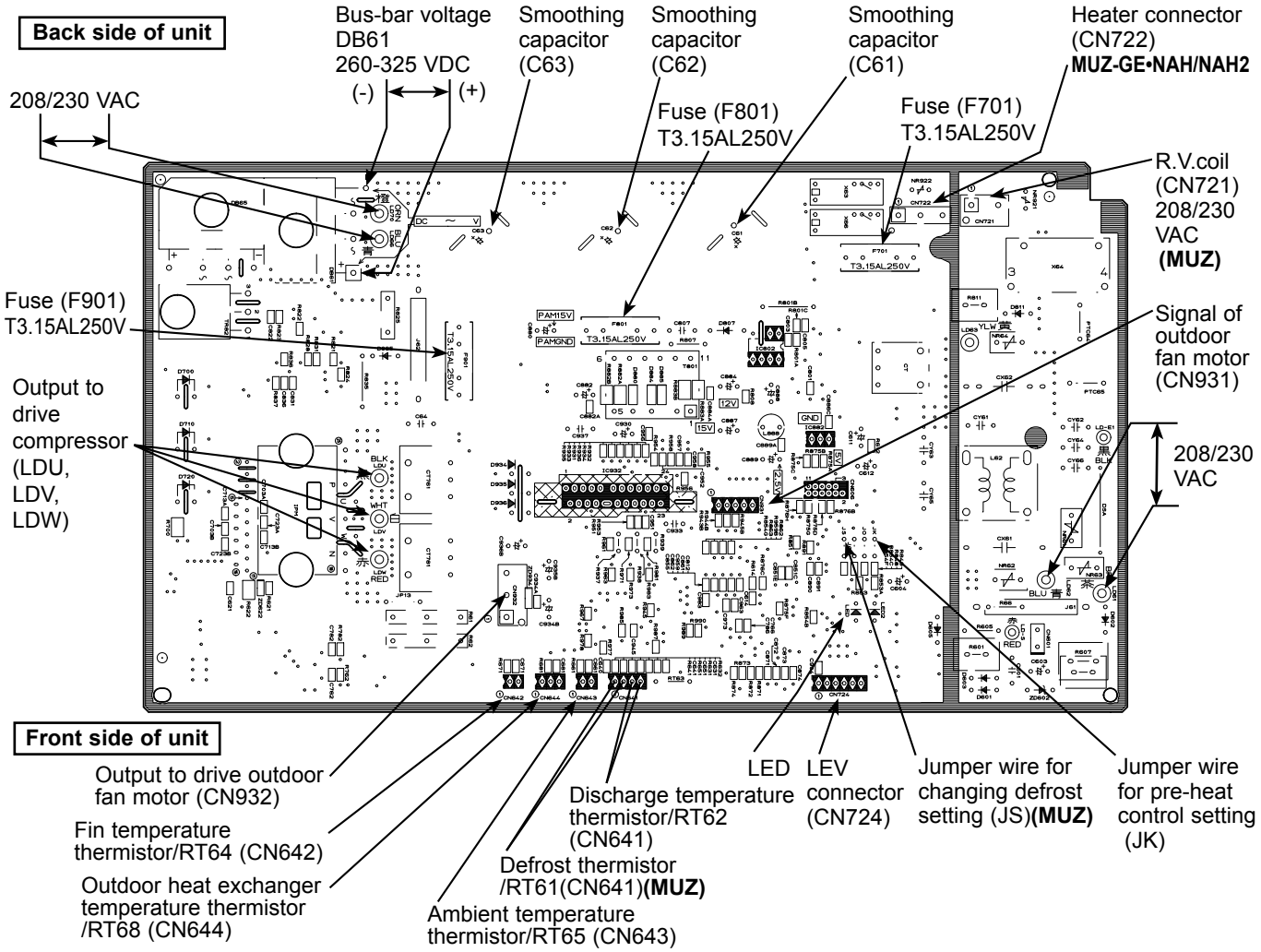
Even if all of the above conditions are fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the followings before asking for service.

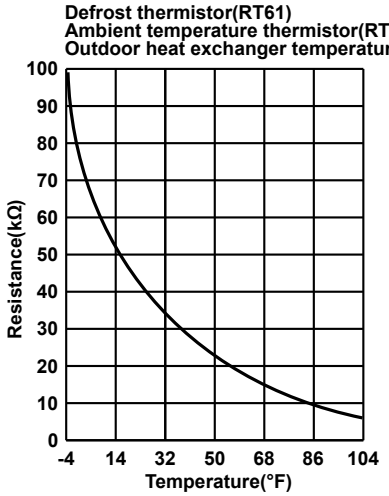
1. Devices affected by the electromagnetic noise
   TV sets, radios (FM/AM broadcast, shortwave)
2. Channel, frequency, broadcast station affected by the electromagnetic noise
3. Channel, frequency, broadcast station unaffected by the electromagnetic noise
4. Layout of:
   indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding 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 OPERATE/STOP (ON/OFF) 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 OPERATE/STOP (ON/OFF) 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.

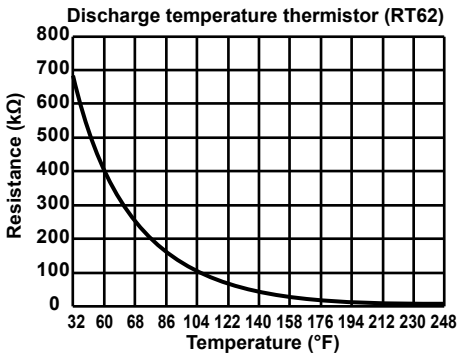
10-6. TEST POINT DIAGRAM AND VOLTAGE

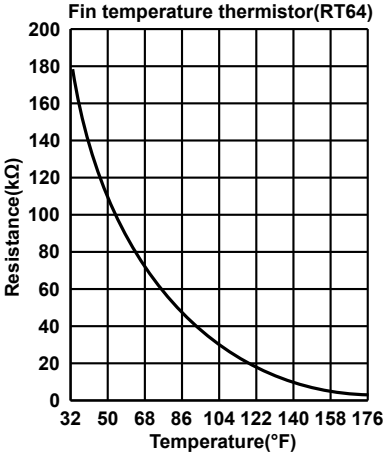
1. Inverter P.C. board

MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

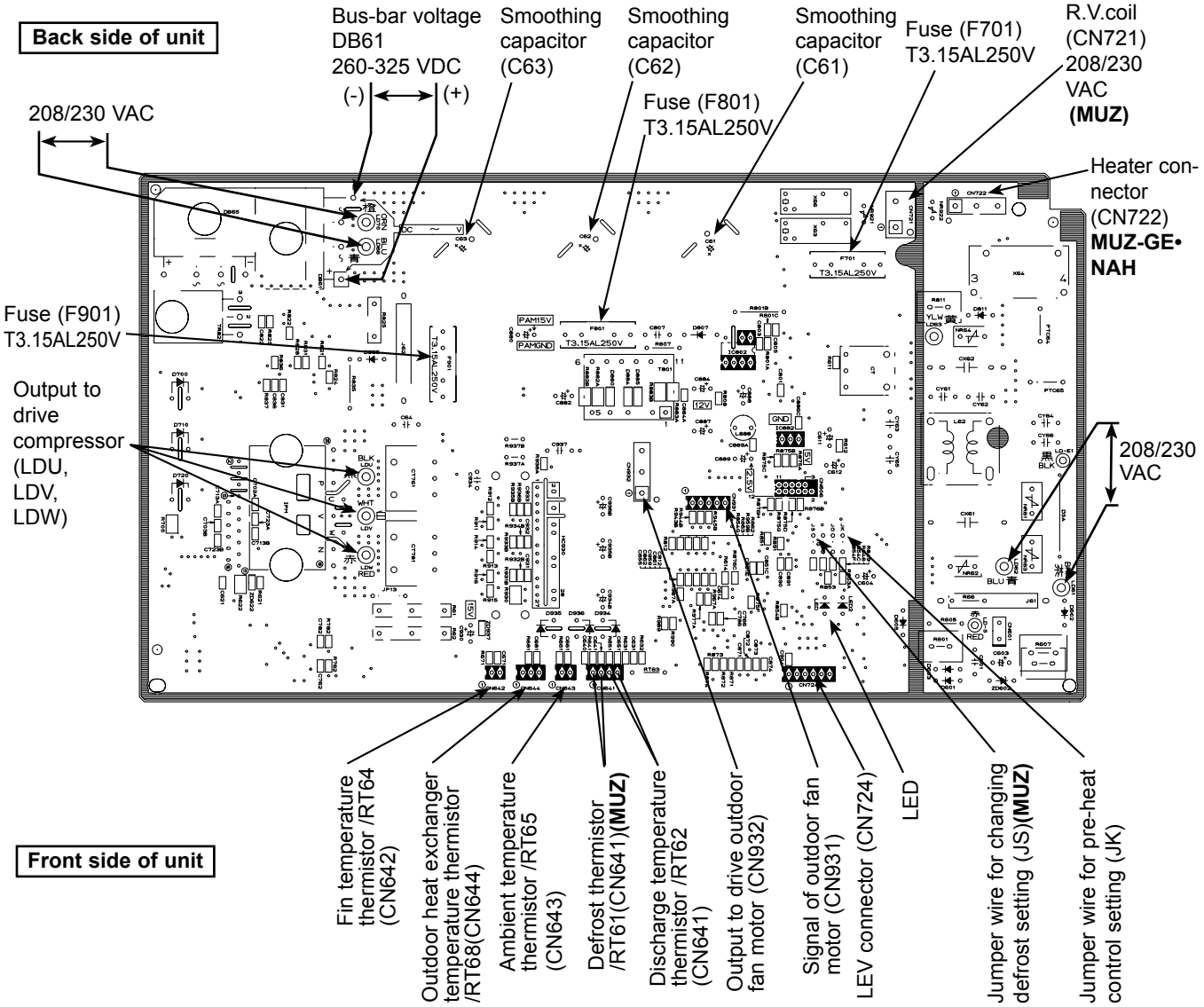


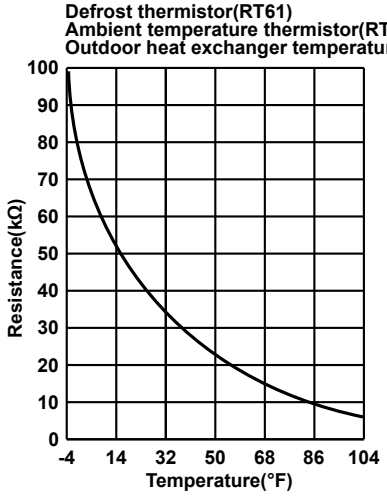


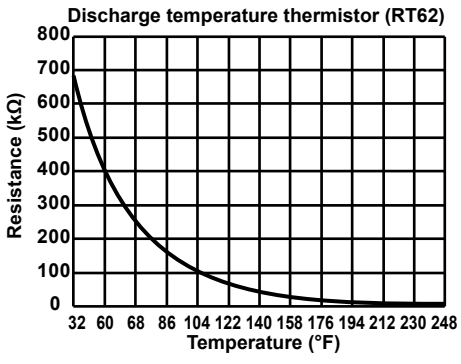


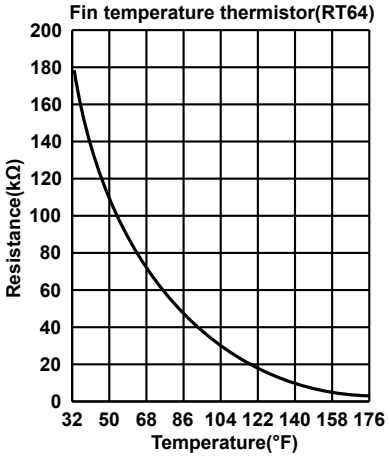


MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA

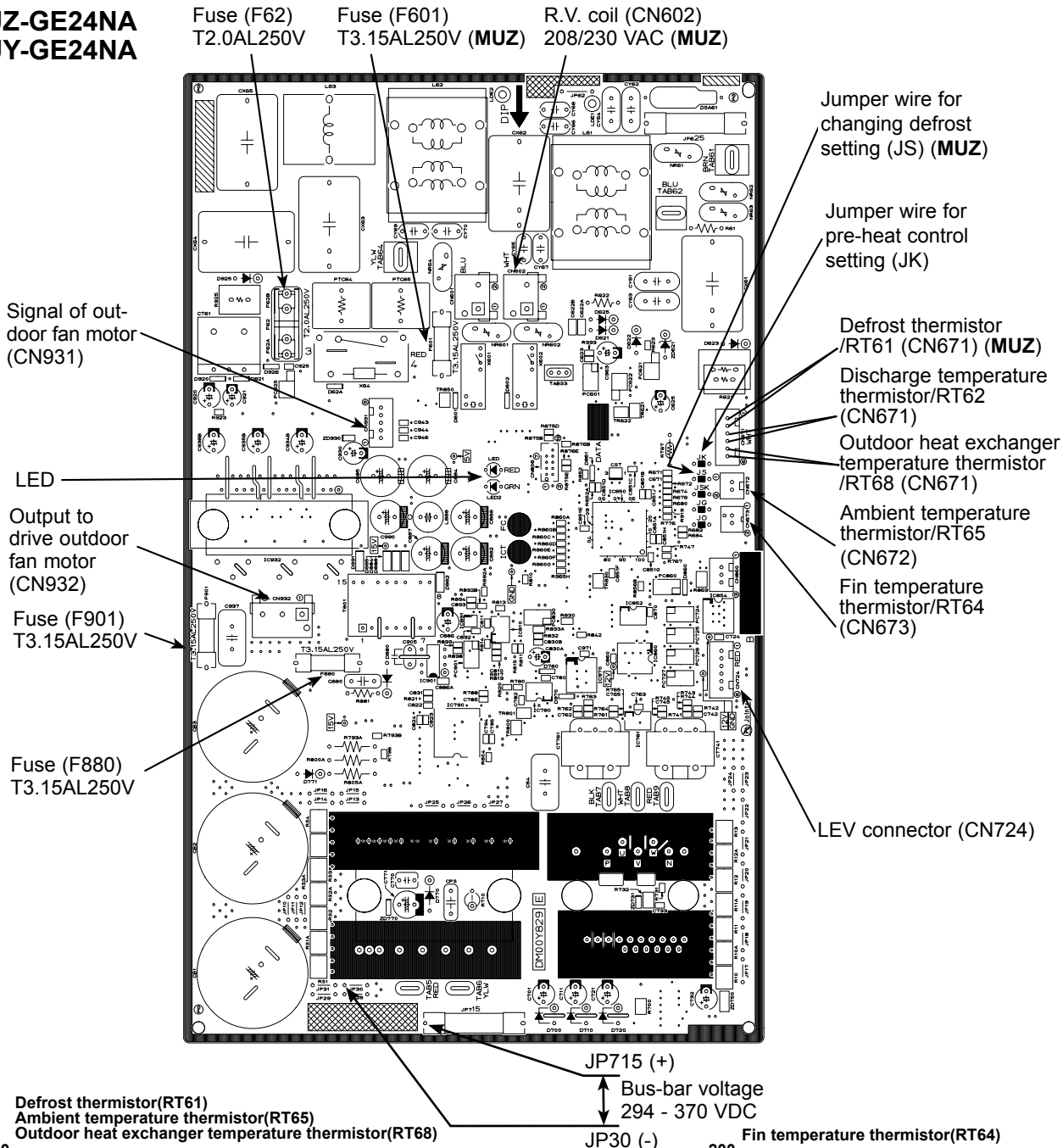


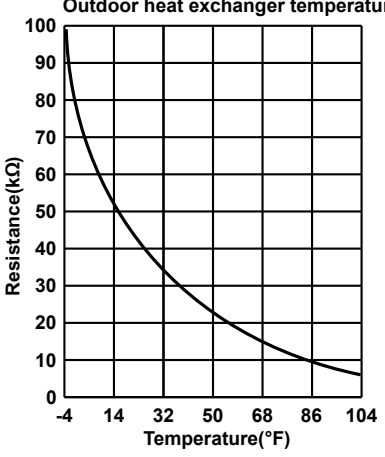


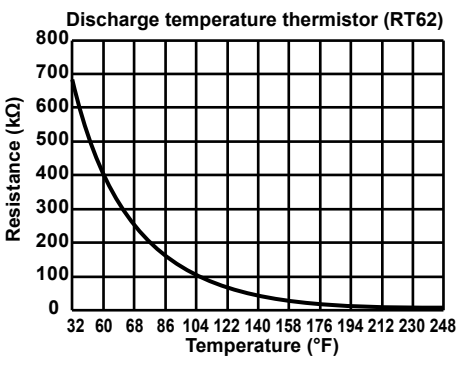


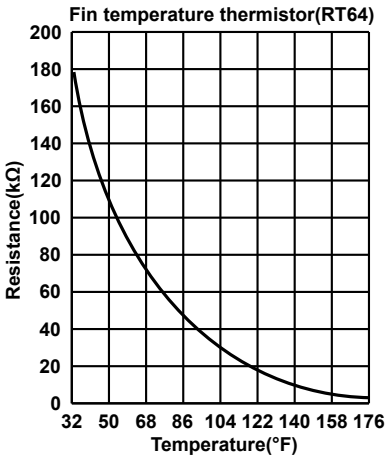


MUZ-GE24NA
MUY-GE24NA







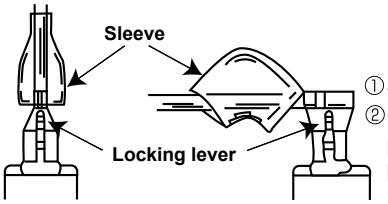


11 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

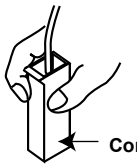
The terminal which has the locking mechanism can be detached as shown below.
There are two types (refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

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



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

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



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

11-1. MUZ-GE09NA MUZ-GE12NA MUZ-GE15NA
MUZ-GE09NA2 MUZ-GE12NA2 MUZ-GE15NA2
MUZ-GE09NAH MUZ-GE12NAH MUZ-GE15NAH
MUZ-GE09NAH2 MUZ-GE12NAH2 MUZ-GE15NAH2
MUY-GE09NA MUY-GE12NA MUY-GE15NA
MUY-GE09NA2 MUY-GE12NA2 MUY-GE15NA2

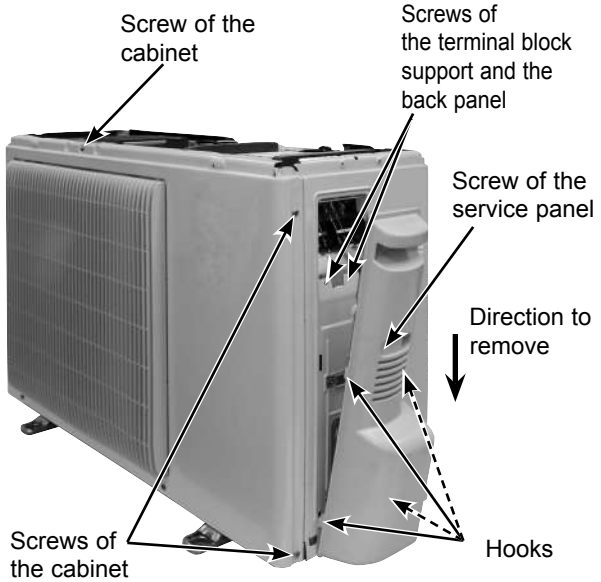
NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE

1. Removing the cabinet

(1) Remove the screw fixing the service panel.
(2) Pull down the service panel and remove it.
(3) Remove the screws fixing the conduit cover.
(4) Remove the conduit cover.
(5) Disconnect the power supply wire and indoor/outdoor connecting wire.
(6) Remove the screws fixing the top panel.
(7) Remove the top panel.
(8) Remove the screws fixing the cabinet.
(9) Remove the cabinet.
(10) Remove the screws fixing the back panel.
(11) Remove the back panel.

Photo 2



PHOTOS

Photo 1

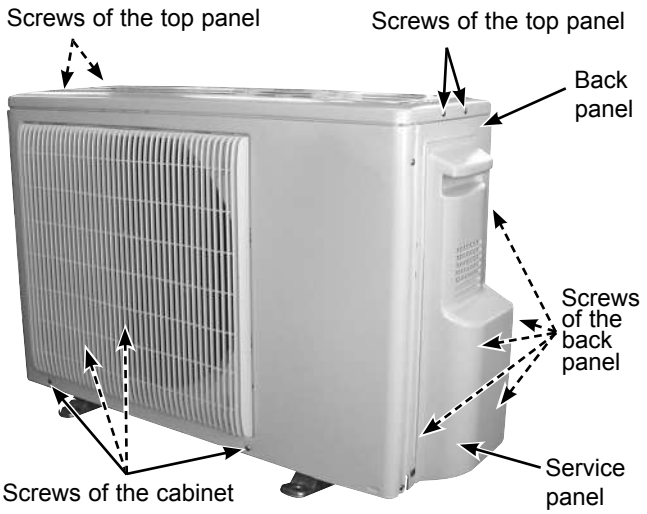
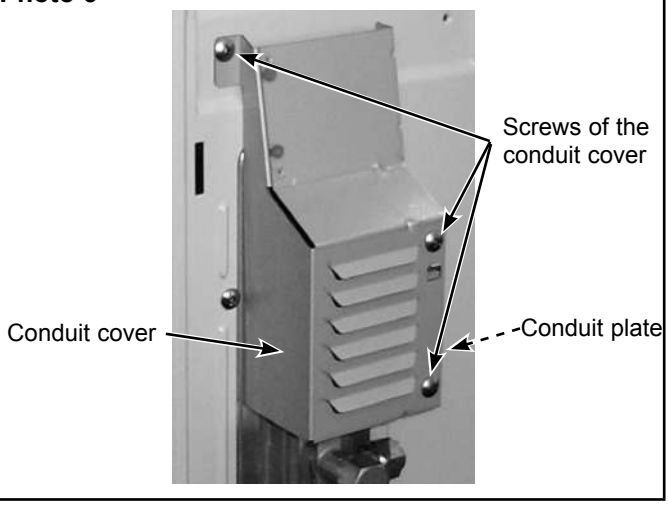
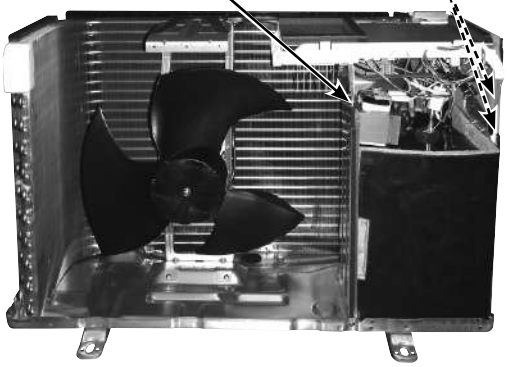
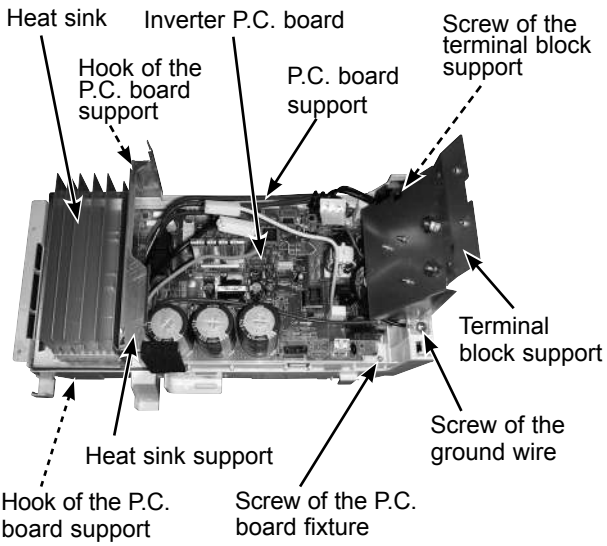
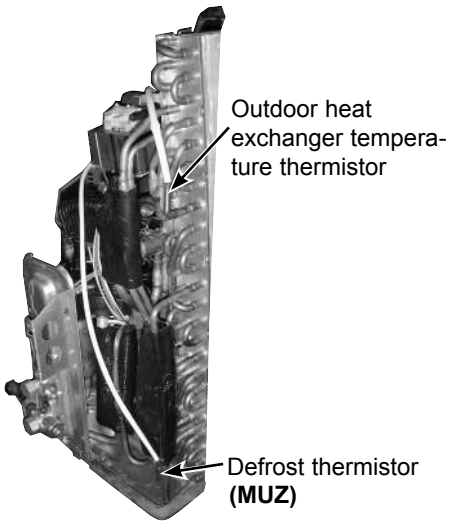
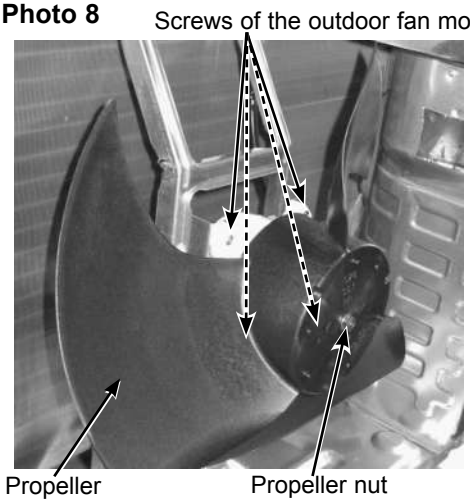
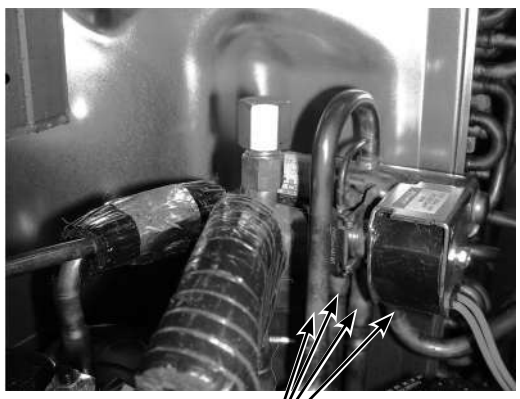


Photo 3

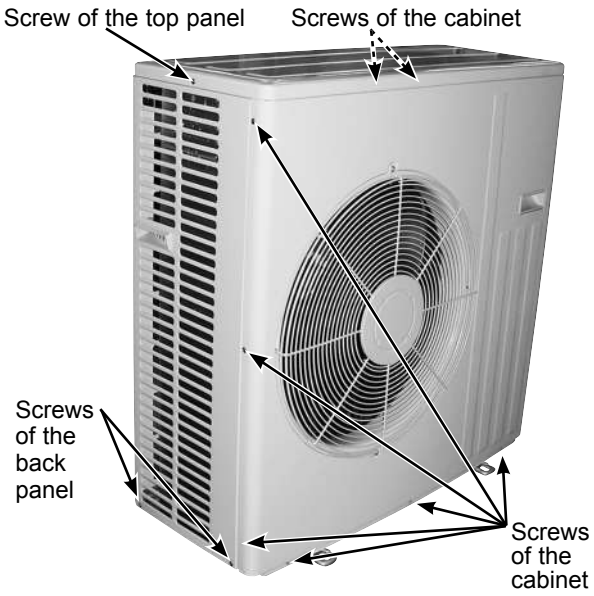
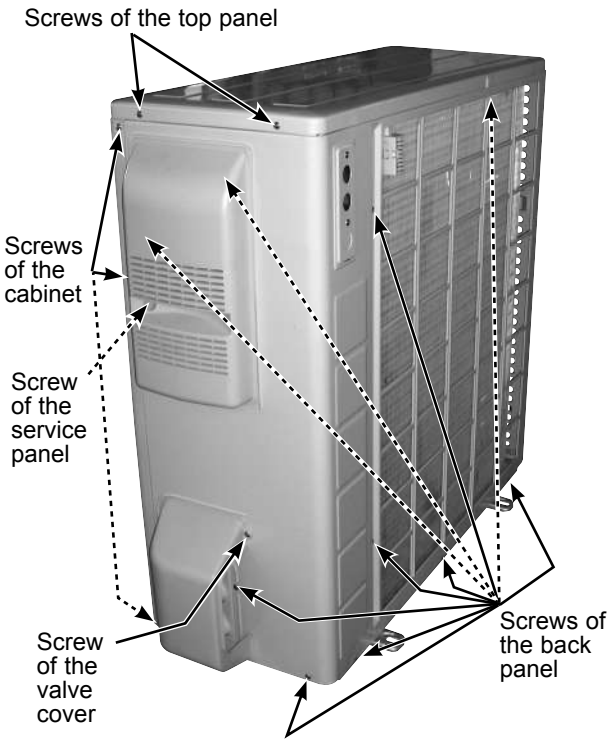


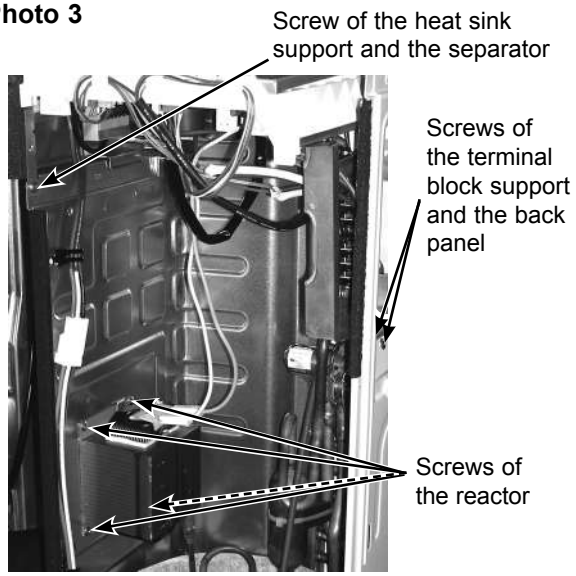
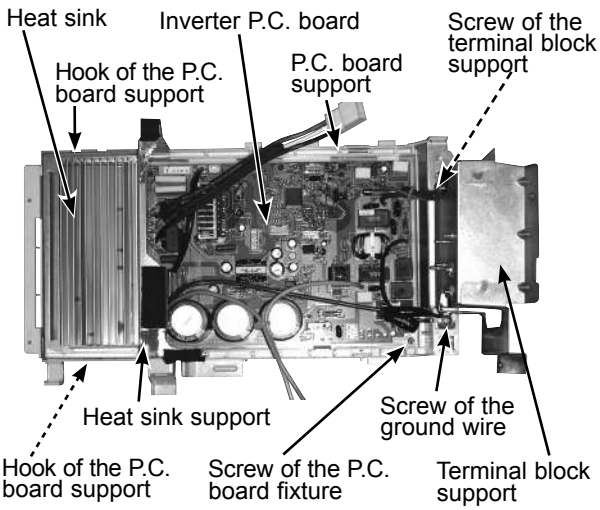
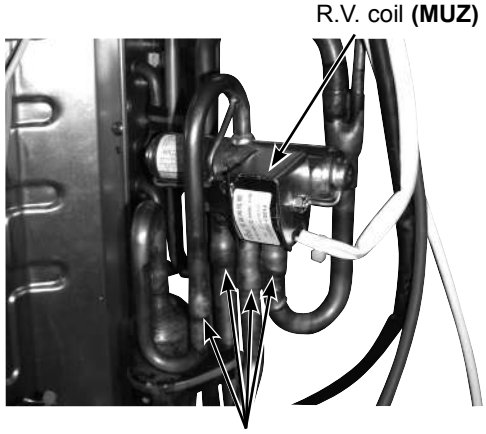
OPERATING PROCEDURE	PHOTOS
2. Removing the inverter assembly, inverter P.C. board (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) CN721 (R.V. coil) **(MUZ)** CN724 (LEV) CN931, CN932 (Fan motor) (3) Remove the compressor connector (CN61). (4) Remove the screws fixing the heat sink support and the separator. (5) Remove the fixing screws of the terminal block support and the back panel. (6) Remove the inverter assembly. (7) Remove the screw of the ground wire and screw of the terminal block support. (8) Remove the heat sink support from the P.C. board support. (9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.	**Photo 4** Screws of the terminal block support and the back panel Screw of the heat sink support and the separator  **Photo 5 (Inverter assembly)** 
3. Removing R.V. coil (MUZ) (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN721 (R.V. coil) (3) Remove the R.V. coil.	**Photo 6** R.V. coil **(MUZ)**  Discharge temperature thermistor

OPERATING PROCEDURE	PHOTOS
4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) (3) Pull out the discharge temperature thermistor from its holder. (Photo 6) (4) Pull out the defrost thermistor from its holder. (5) Pull out the outdoor heat exchanger temperature thermistor from its holder. (6) Pull out the ambient temperature thermistor from its holder.	**Photo 7** 
5. Removing outdoor fan motor (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN931, CN932 (Fan motor) (3) Remove the propeller nut. (4) Remove the propeller. (5) Remove the screws fixing the fan motor. (6) Remove the fan motor.	**Photo 8** 
6. Removing the compressor and 4-way valve (1) Remove the cabinet and panels. (Refer to 1.) (2) Remove the inverter assembly. (Refer to 2.) (3) Recover gas from the refrigerant circuit. **NOTE:** Recover gas from the pipes until the pressure gauge shows 0 PSIG. (4) Detach the brazed part of the suction and the discharge pipes connected with compressor. (5) Remove the compressor nuts. (6) Remove the compressor. (7) Detach the brazed part of the pipes connected with 4-way valve.	**Photo 9** 

11-2. MUZ-GE18NA
MUZ-GE18NAH
MUY-GE18NA

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the top panel. (6) Remove the valve cover. (7) Disconnect the power supply and indoor/outdoor connecting wire. (8) Remove the screws of the cabinet. (9) Remove the cabinet. (10) Remove the screws of the back panel. (11) Remove the back panel.	**Photo 1**  **Photo 2** 

OPERATING PROCEDURE	PHOTOS
2. Removing the inverter assembly, inverter P.C. board (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor) CN643 (Ambient temperature thermistor) CN644 (Outdoor heat exchanger temperature thermistor) CN721 (R.V.coil) **(MUZ)** CN724 (LEV) CN931, CN932 (Fan motor) (3) Remove the compressor connector (CN61). (4) Remove the screws fixing the heat sink support and the separator. (5) Remove the fixing screws of the terminal block support and the back panel. (6) Remove the inverter assembly. (7) Remove the screw of the ground wire and screw of the terminal block support. (8) Remove the heat sink support from the P.C. board support. (9) Remove the screw of the inverter P.C. board and remove the inverter P.C. board from the P.C. board support.	**Photo 3**  **Photo 4 (Inverter assembly)** 
3. Removing R.V. coil (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the following connectors: <Inverter P.C. board> CN721 (R.V. coil) **(MUZ)** (3) Remove the R.V. coil.	**Photo 5** 

OPERATING PROCEDURE

4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor

(1) Remove the cabinet and panels. (Refer to 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN641 (Defrost thermistor **(MUZ)** and discharge temperature thermistor)
CN643 (Ambient temperature thermistor)
CN644 (Outdoor heat exchanger temperature thermistor)
(3) Pull out the discharge temperature thermistor from its holder.
(4) Pull out the defrost thermistor from its holder.
(5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
(6) Pull out the ambient temperature thermistor from its holder.

5. Removing outdoor fan motor

(1) Remove the top panel, cabinet and service panel. (Refer to 1.)
(2) Disconnect the following connectors:
<Inverter P.C. board>
CN931 and CN932 (Fan motor)
(3) Remove the propeller.
(4) Remove the screws fixing the fan motor.
(5) Remove the fan motor.

6. Removing the compressor and 4-way valve

(1) Remove the top panel, cabinet and service panel. (Refer to 1.)
(2) Remove the back panel. (Refer to 1.)
(3) Remove the inverter assembly. (Refer to 2.)
(4) Recover gas from the refrigerant circuit.
NOTE: Recover gas from the pipes until the pressure gauge shows 0 PSIG.
(5) Detach the brazed part of the suction and the discharge pipes connected with compressor.
(6) Remove the compressor nuts.
(7) Remove the compressor.
(8) Detach the brazed parts of 4-way valve and pipes. (Photo 5)

PHOTOS

Photo 6

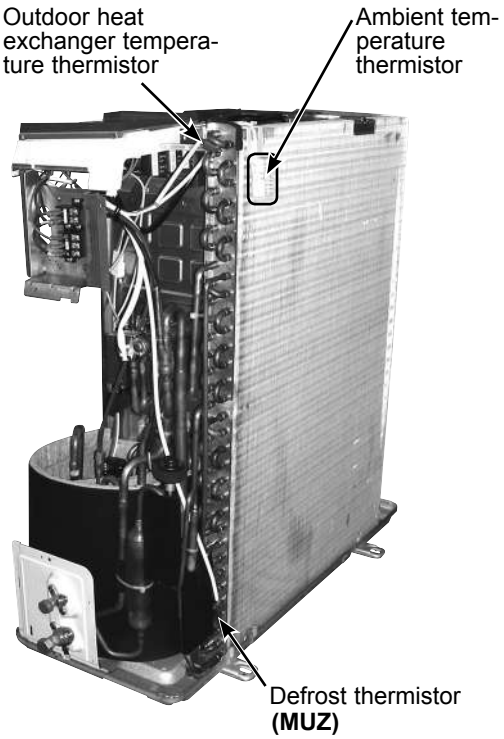


Photo 7

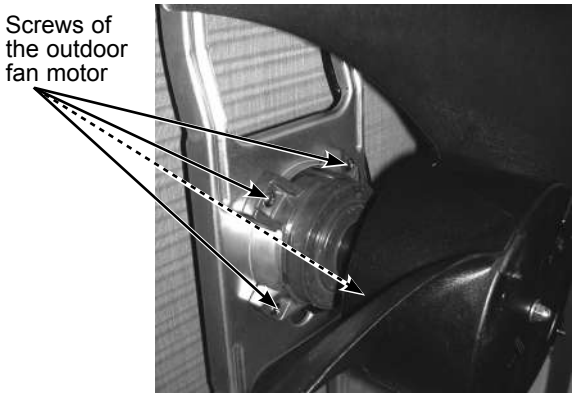
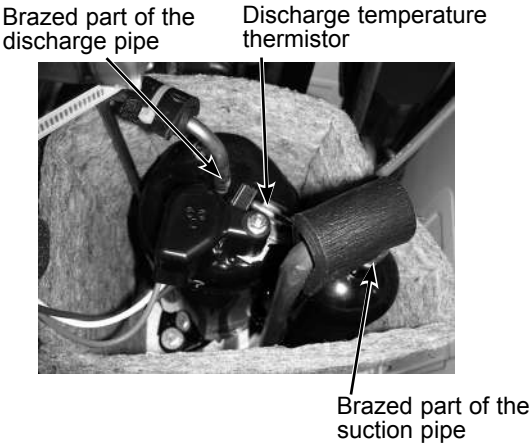
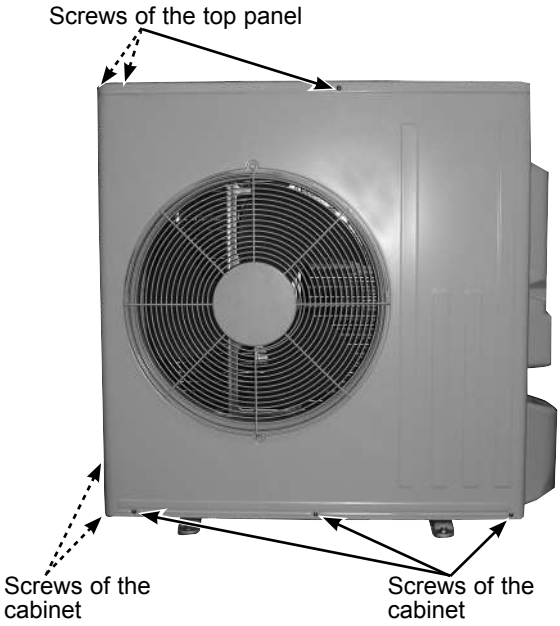
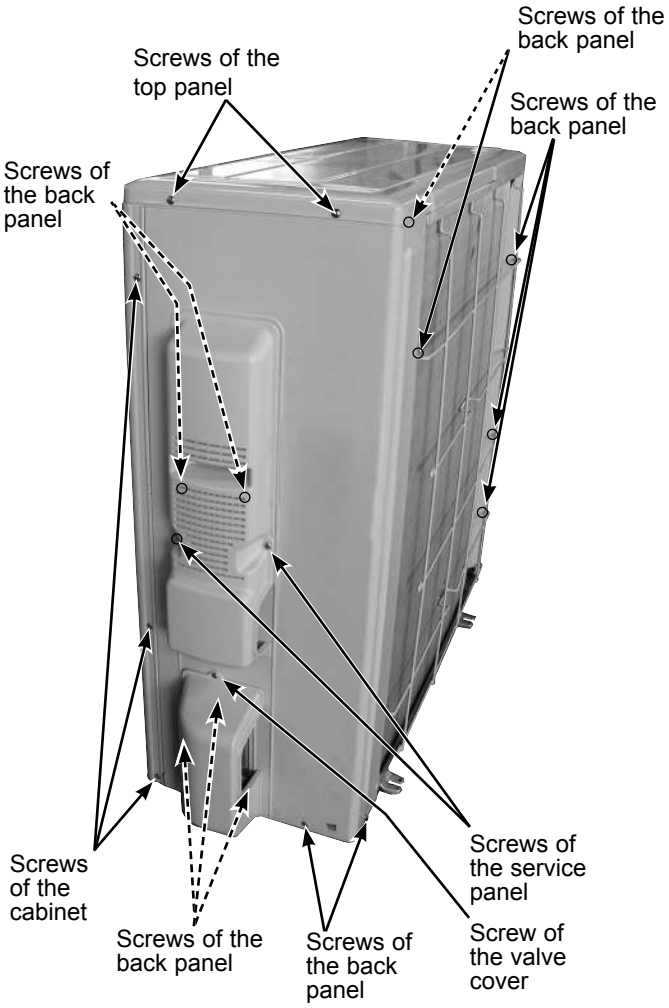
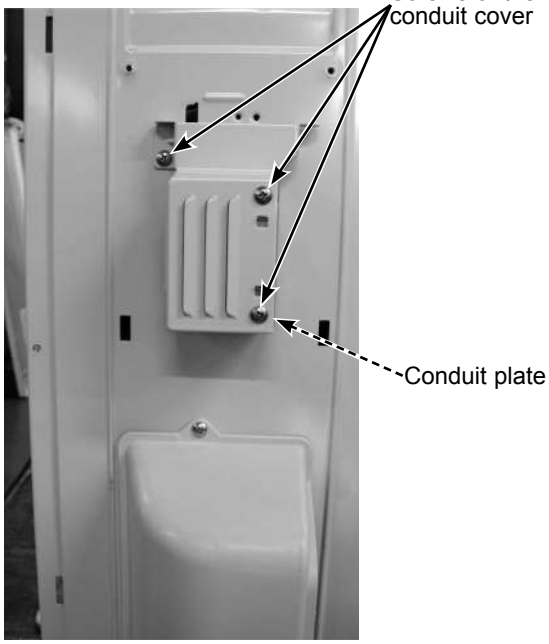


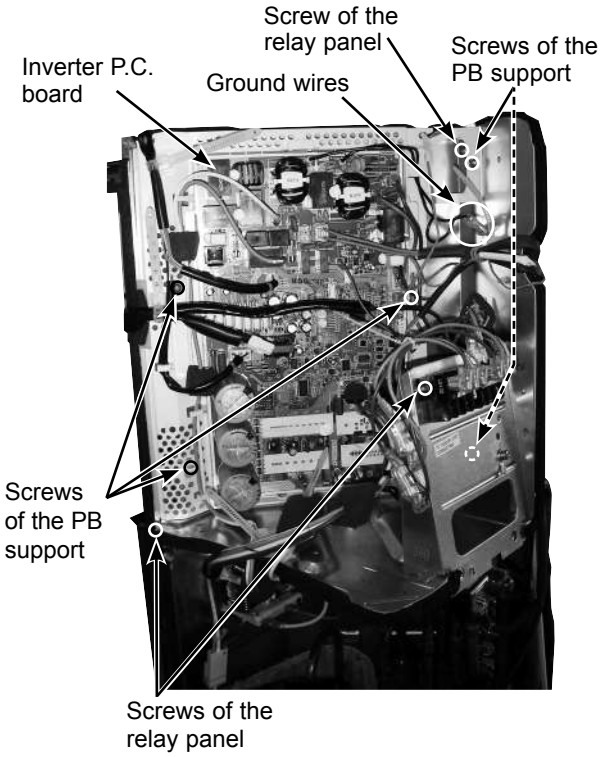
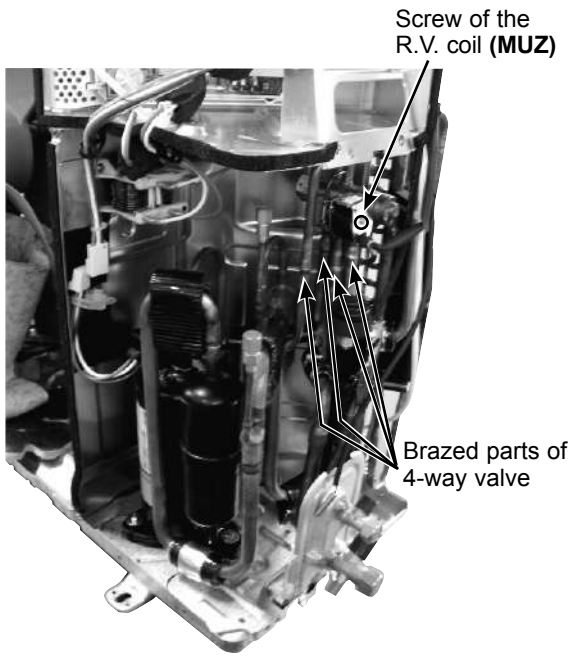
Photo 8



11-3. MUZ-GE24NA
MUY-GE24NA

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the screw of the valve cover. (4) Remove the service panel. (5) Remove the screws fixing the conduit cover. (6) Remove the conduit cover. (7) Remove the top panel. (8) Remove the valve cover. (9) Disconnect the power supply and indoor/outdoor connecting wire. (10) Remove the screws of the cabinet. (11) Remove the cabinet. (12) Remove the screws of the back panel. (13) Remove the back panel.	**Photo 1** 
Photo 2  	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
2. Removing the inverter assembly, inverter P.C. board (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the lead wire to the reactor and the following connectors: <Inverter P.C. board> CN602 (R.V. coil) **(MUZ)** CN671 (Defrost thermistor **(MUZ)**, discharge temperature thermistor and outdoor heat exchanger temperature thermistor) CN672 (Ambient temperature thermistor) CN724 (LEV) CN931, CN932 (Fan motor) (3) Remove the compressor connector. (4) Remove the screws fixing the relay panel. (5) Remove the relay panel. (6) Remove the ground wires and the lead wires of the inverter P.C. board. (7) Remove the screw of the PB support. (8) Remove the inverter P.C. board from the relay panel.	**Photo 4** 
3. Removing R.V. coil (1) Remove the cabinet and panels. (Refer to 1.) (2) Disconnect the following connector: <Inverter P.C. board> CN602 (R.V. coil) **(MUZ)** (3) Remove the R.V. coil.	**Photo 5** 

OPERATING PROCEDURE

4. Removing the discharge temperature thermistor, defrost thermistor, outdoor heat exchanger temperature thermistor and ambient temperature thermistor

(1) Remove the cabinet and panels. (Refer to 1.)
(2) Disconnect the lead wire to the reactor and the following connectors:
<Inverter P.C. board>
CN671 (Defrost thermistor **(MUZ)**, discharge temperature thermistor and outdoor heart exchanger temperature thermistor)
CN672 (Ambient temperature thermistor)
(3) Pull out the discharge temperature thermistor from its holder.
(4) Pull out the defrost thermistor from its holder.
(5) Pull out the outdoor heat exchanger temperature thermistor from its holder.
(6) Pull out the ambient temperature thermistor from its holder.

5. Removing outdoor fan motor

(1) Remove the top panel, cabinet and service panel. (Refer to 1.)
(2) Disconnect the following connectors:
<Inverter P.C. board>
CN931 and CN932 (Fan motor)
(3) Remove the propeller.
(4) Remove the screws fixing the fan motor.
(5) Remove the fan motor.

6. Removing the compressor and 4-way valve

(1) Remove the top panel, cabinet and service panel. (Refer to 1.)
(2) Remove the back panel. (Refer to 1.)
(3) Remove the inverter assembly. (Refer to 2.)
(4) Recover gas from the refrigerant circuit.
NOTE: Recover gas from the pipes until the pressure gauge shows 0 PSIG.
(5) Detach the brazed part of the suction and the discharge pipes connected with compressor.
(6) Remove the compressor nuts.
(7) Remove the compressor.
(8) Detach the brazed parts of 4-way valve and pipes. (Photo 5)

PHOTOS

Photo 6

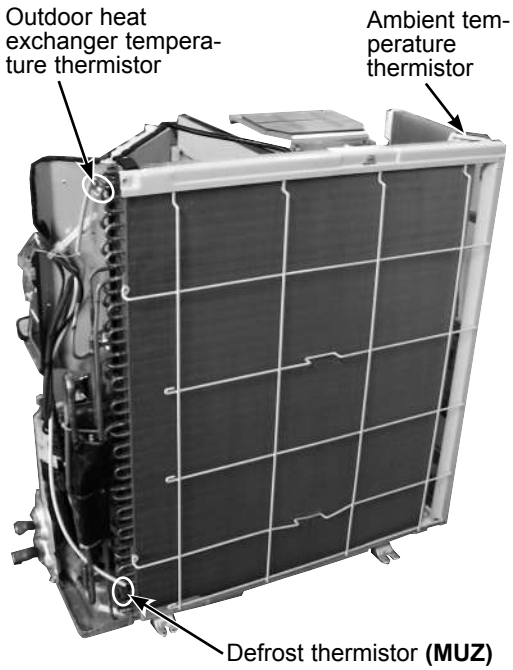


Photo 7

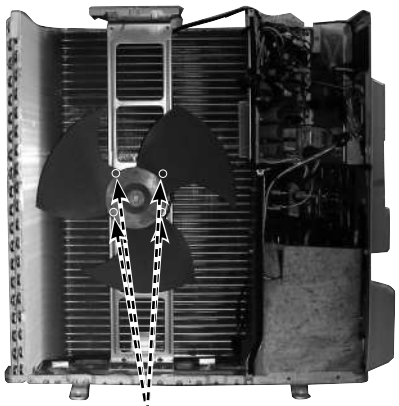
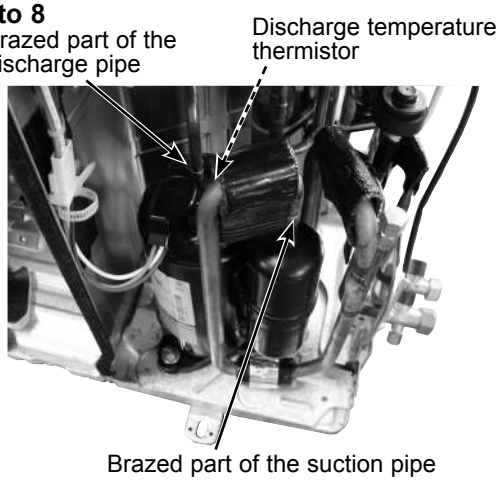


Photo 8



MITSUBISHI ELECTRIC CORPORATION

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

Distributed in Jan. 2015. No. OBH 549 REVISED EDITION-G
Distributed in Dec. 2013. No. OBH 549 REVISED EDITION-F
Distributed in Apr. 2012. No. OBH 549 REVISED EDITION-E
Distributed in Apr. 2011. No. OBH 549 REVISED EDITION-D
Distributed in Apr. 2011. No. OBH 549 REVISED EDITION-C
Distributed in Dec. 2010. No. OBH 549 REVISED EDITION-B
Distributed in Sep. 2010. No. OBH 549 REVISED EDITION-A 5
Distributed in Jul. 2009. No. OBH 549 5
Made in Japan

New publication, effective Jan. 2015
Specifications are subject to change without notice.

1607 CY Ave, Ste 303
Casper, WY 82604
Phone: 307-266-5033
Mail@EDAengineering.com

SUBMITTAL REVIEW M2a

PROJECT:	Kelly Walsh High School	ENGINEER'S PROJECT NO:	12110
CONTRACTOR:	K K Mechanical	DATE RECEIVED:	9/24/14
ENGINEER:	Ginnie Schofield, Mechanical Engineer Ken Hilton, P.E., Project Engineer	DATE RETURNED:	9-29-2014

Action Codes:

0 Not Reviewed
1 No Objections Noted
2 Furnish With Corrections
3 Revise and Resubmit

Review is for the limited purpose of verifying compliance with the specified products, and/or conformance to a reasonably inferable intent of the design, as expressed in the Contract Documents. Any action shown or comments made remain subject to the requirements of the Drawings and Specifications. The contractor is responsible for quantities required and dimensions which shall be confirmed at the job site; fabrication processes, means and methods, techniques, sequences, assembly, and procedures of construction; coordination of the work with that of other trades; and performance of the work in a safe and satisfactory manner.

Submittal ID	Item Description	Action	Remarks
238127 (#238127-2-0)	DAC-CU1/DAC-1	2	Provide wired wall-mounted controller per equipment schedule on project drawing 6.M807.
	DAC-CU2 - 7/ DAC-2 - 7	2	Provide wired wall-mounted controller per equipment schedule on project drawing 6.M807.
	DAC-CU8 – 9/ DAC-8 - 9	2	Provide wired wall-mounted controller per equipment schedule on project drawing 6.M807.

SUBMITTAL FORM

307/426-4050
2701 Westland Ct Ste. A Cheyenne, WY 82001
FAX: 307/426-4051

SUBMITTAL # 238127-2-0

TO: RB+B Architects, Inc.

,

PROJECT: Kelly Walsh High School

FIRST SUBMITTAL	
RESUBMITTAL	X
ADDITIONAL INFO.	
SHOP DRAWING	
PRODUCT DATA	X
SAMPLE/OTHER	

SAMPSON PROJECT NO: 13011

DATE: 9/4/2014

SUBMITTAL			DESCRIPTION	SUBCONTRACTOR / SUPPLIER
SPEC.	QTY	REF	ITEM	NAME AND ADDRESS
238127			Resubmittal of Product Data	KK Mechanical

A – REVIEWED **B – MAKE CORRECTIONS NOTED**
C – REVISE AND RESUBMIT **D – REJECTED - RESUBMIT**

****PLEASE SIGN AND INDICATE THE ACTION ON THIS SUBMITTAL FORM AND FORWARD WITH THE SUBMITTAL TO SAMPSON CONSTRUCTION. THANKS.**

COMMENTS:

ARCHITECT: RB+B DATE: 9/4/2014

CONSULTANT: EDA DATE: 9/4/2014

CONTRACTOR: **Sampson Construction Company**

BY: Tim Farber DATE: 9/4/2014

KK MECHANICAL

Kelly Walsh High School
Submittal Title Sheet

Subcontractor Name: KK Mechanical
Date Submitted: 8/27/14

Division 23 – HVAC

Section 238127 – Small Split System Cooling

A. Small Split System Cooling (Re Submittal)
Page: 2-11 Model:

B. DAC-1
Page: 2-6 Model:

C. DAC-2 Thru 7
Page: 7-12 Model:

D.
Page: Model:

E.
Page: Model

F.
Page: Model:

G.
Page: Model:

H.
Page: Model:

I.
Page: Model:

Comments:

Contractor	Design Team

Midgley-Huber, Inc.

Submittal

Job: Kelly Walsh High School
Contractor: North Star HVAC

Section 238127
Small Split System Cooling

MITSUBISHI ELECTRIC
COOLING & HEATING

M-SERIES

SUBMITTAL DATA: MSZ-D36NA-8 & MUZ-D36NA-1

36,000 BTU/H WALL-MOUNTED HEAT-PUMP SYSTEM

Job Name: KWHS	Location:	Date:
Purchaser:	Engineer:	
Submitted to:	For ☐Reference ■Approval ☐Construction	
System Designation:	Schedule No.:	

Indoor Unit: MSZ-D36NA-8

Wireless Remote Controller

Outdoor Unit: MUZ-D36NA-1

GENERAL FEATURES

- Catechin and anti-allergy enzyme filters for high air-purification capabilites
- Updated sleek, compact indoor unit design
- Remote-controlled wide airflow enables ideal horizontal air distribution
- Self-check function—onboard diagnostics
- Advanced microprocessor control
- Auto restart following a power outage
- Hand-held Wireless Remote Controller
- Anti-allergy Enzyme Filter
- Limited warranty: five years parts and seven years compressors

ACCESSORIES

Outdoor Unit

□ Drain Socket Assembly (MAC-811DS)

Indoor Unit

□ Condensate Pump (230V; SI3100-230)

Controller Options

■ Wireless Wall-mounted Remote Controller Kit (MHK1)*
□ Portable Central Controller (MCCH1)*
□ Outdoor Air Sensor (MOS1)*
□ Wired Wall-mounted Controller (PAR-31MAA requires MAC-333IF)*
□ Simple MA Remote Controller (PAC-YT53CRAU requires MAC-333IF)*

*See Submittal for information on each option.

□ System Control Interface (MAC-333IF)

Note: Low ambient is not an option for this model

R410A INVERTER

Specifications are subject to change without notice.

SPECIFICATIONS: MSZ-D36NA-8 & MUZ-D36NA-1

Cooling*
Rated Capacity . . . . . .33,200 Btu/h
Minimum Capacity . . . . . .9,800 Btu/h
SEER . . . . . .14.5 Btu/h/W
Total Input . . . . . 4,360 W

Heating at 47° F*
Rated Capacity . . . . . .35,200 Btu/h
Minimum Capacity . . . . . .8,700 Btu/h
HSPF . . . . . .8.2 Btu/h/W
Total Input . . . . . 3,840 W

Heating at 17° F*
Rated Capacity . . . . . .21,800 Btu/h
Maximum Capacity . . . . . .22,800 Btu/h
Maximum Total Input . . . . . 3,000 W

*** Rating Conditions per AHRI Standard**
Cooling | Indoor: 80º F (27º C) DB / 67º F (19º C) WB
Cooling | Outdoor: 95º F (35º C) DB / 75º F (24º C) WB
Heating at 47ºF | Indoor: 70º F (21º C) DB / 60º F (16º C) WB
Heating at 47ºF | Outdoor: 47º F (8º C) DB / 43º F (6º C) WB
Heating at 17º F | Indoor: 70º F (21º C) DB / 60º F (16º C) WB
Heating at 17º F | Outdoor: 17º F (-8º C) DB / 15º F (-9º C) WB

ELECTRICAL REQUIREMENTS
Power Supply . . . . . 208 / 230V, 1-Phase, 60 Hz
Breaker Size . . . . . .25 A

Voltage
Indoor - Outdoor S1-S2 . . . . . AC 208 / 230V
Indoor - Outdoor S2-S3 . . . . . .DC ±24V
Indoor - Remote Controller . . . . . MKH1 DC 3V
PAR-31MAA DC 12V
PAC-YT53CRAU DC 12V

OPERATING RANGE

		Indoor Intake Air Temp.	Outdoor Intake Air Temp.
Cooling	Maximum	90º F (32º C) DB 73º F (23º C) WB	115º F (46º C) DB
	Minimum	67º F (19º C) DB 57º F (14º C) WB	14º F (-10º C) DB
Heating	Maximum	80º F (27º C) DB 67º F (19º C) WB	75º F (24º C) DB 65º F (18º C) WB
	Minimum	70º F (27º C) DB 60º F (16º C) WB	14º F (-10º C) DB 13º F (-11º C) WB

Indoor Unit
MCA . . . . . 1 A
Blower Motor (ECM) . . . . . 0.76 F.L.A.
Airflow
Cooling (Lo - Med - Hi - Powerful) 389 - 639 - 848 - 887 Dry CFM
350 - 576 - 763 -798 Wet CFM
Heating (Lo - Med - Hi - Powerful) .445 - 639 - 848 -887 Dry CFM

Sound Pressure Level
Cooling (Lo - Med - Hi - Powerful) . . . . . 32 - 42 - 49 -51 dB(A)
Heating (Lo - Med - Hi - Powerful) . . . . . 34 - 42 - 49 -50 dB(A)

DIMENSIONS	UNIT INCHES / MM
W	46-1/16 / 1,170
D	11-5/8 / 295
H	14-3/8 / 365

Weight . . . . . .40 lbs. / 18 kg
External Finish . . . . . Munsell No. 1.0Y 9.2 / 0.2
Field Drainpipe Size O.D. . . . . 5/8" / 15.88 mm
Remote Controller . . . . . Wireless

Outdoor Unit
Compressor . . . . . DC Inverter-driven Rotary
MCA . . . . . 21 A
Fan Motor (ECM) . . . . . 0.93 F.L.A.
Sound Pressure Level
Cooling . . . . . .56 dB(A)
Heating . . . . . .57 dB(A)

DIMENSIONS	INCHES / MM
W	33-1/16 / 840
D	13 / 330
H	33-7/16 / 849

Weight . . . . . .141 lbs. / 64 kg
External Finish . . . . . .Munsell No. 3Y 7.8 / 1.1
Refrigerant Type R410A
Refrigerant Pipe Size O.D.
Gas Side . . . . . 5/8" / 15.88 mm
Liquid Side . . . . . 3/8" / 9.53 mm
Max. Refrigerant Pipe Length . . . . . 100' / 30 m
Max. Refrigerant Pipe Height Difference . . . . . 50' / 15 m
Connection Method . . . . . .Flared

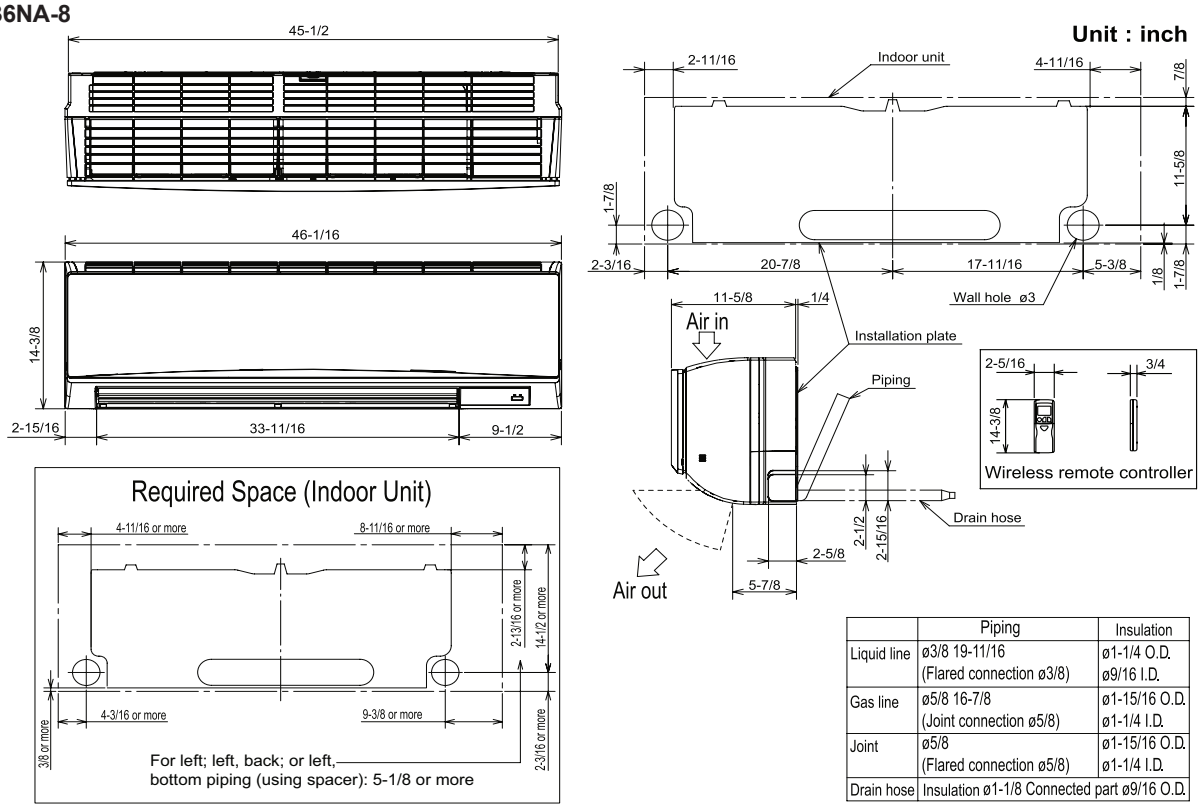
Notes:

Specifications are subject to change without notice.

DIMENSIONS: MSZ-D36NA-8 & MUZ-D36NA-1

MSZ-D36NA-8

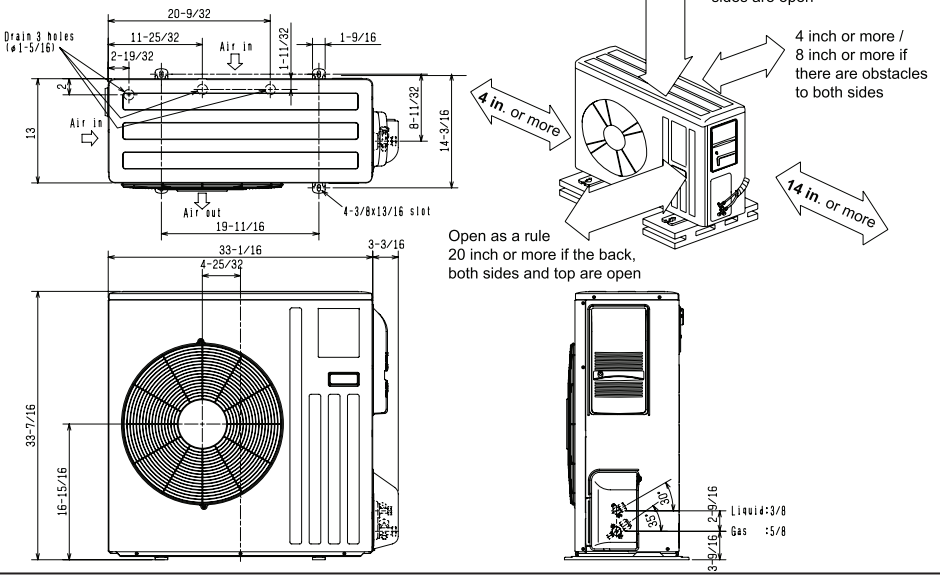
Unit : inch



	Piping	Insulation
Liquid line	ø3/8 19-11/16 (Flared connection ø3/8)	ø1-1/4 O.D. ø9/16 I.D.
Gas line	ø5/8 16-7/8 (Joint connection ø5/8)	ø1-15/16 O.D. ø1-1/4 I.D.
Joint	ø5/8 (Flared connection ø5/8)	ø1-15/16 O.D. ø1-1/4 I.D.
Drain hose	Insulation ø1-1/8 Connected part ø9/16 O.D.	

MUZ-D36NA-1

Unit: inch



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AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

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www.mehvac.com

FORM# MSZ-D36NA-8 ~ MUZ-D36NA-1 - 201311

Specifications are subject to change without notice.

MITSUBISHI ELECTRIC
COOLING & HEATING

DAC-2 thru 7

M-SERIES

SUBMITTAL DATA: MSZ-GE24NA & MUZ-GE24NA

24,000 BTU/H WALL-MOUNTED HEAT-PUMP SYSTEMS

Job Name: KWHS	Location:	Date:
Purchaser:	Engineer:	
Submitted to:	For ☐Reference ☑Approval ☐Construction	
System Designation:	Schedule No.:	

Indoor Unit: MSZ-GE24NA

Wireless Remote Controller

Outdoor Unit: MUZ-GE24NA

GENERAL FEATURES

- Wall-mounted indoor unit
- Standard Hybrid Catechin Prefilter is included with indoor unit
- Quiet operation
- Auto fan speed control: Quiet, Low, Medium, High, and Super High
- Hand-held Wireless Remote Controller
- Indoor unit powered from outdoor unit using A-Control
- Auto restart following a power outage
- Base heater is available as an option
- Anti-allergy Enzyme Filter
- Limited warranty: five years parts and seven years compressor

ACCESSORIES

Outdoor Unit

- ☐ Base Heater (MAC-642BH-U)
- ☐ Three-pole Disconnect Switch (TAZ-MS303)
- ☐ Air Outlet Guide (MAC-886-SG-E)
- ☐ Mounting Base (DSD-400N)
- ☐ Mounting Pad (ULTRILITE1)
- ☐ Drain Socket Assembly (MAC-860DS)

Indoor Unit

- ☐ Condensate Pump (SI3100-230; 230V)
- ☐ Replacement Anti-allergy Enzyme Filters (MAC-2310FT-E; 2/set)

Controller Options

- ■ Wireless Wall-mounted Remote Controller Kit (MHK1)*
- ☐ Portable Central Controller (MCCH1)*
- ☐ Outdoor Air Sensor (MOS1)*

*See Submittal for information on each option.

- ☐ Wired Wall-mounted Controller (PAR-31MAA requires MAC-333IF)
- ☐ System Control Interface (MAC-333IF)
- ☐ Remote Temperature Sensor (M21-JKO-307)
- ☐ Lockdown Bracket for Hand-held Controller (RCMKP1CB)

R410A INVERTER

Note: Low ambient is not available with this model

Specifications are subject to change without notice.

SPECIFICATIONS: MSZ-GE24NA & MUZ-GE24NA

Cooling*
Rated Capacity . . . . . 22,500 Btu/h
Minimum to Maximum Capacity Range . . . . . 8,200 - 31,400 Btu/h
SEER . . . . . 19.0 Btu/h/W
EER . . . . . 12.5 Btu/h/W
Total Rated Input . . . . . 1,800 W

Heating at 47°F*
Rated Capacity . . . . . 27,600 Btu/h
Minimum to Maximum Capacity Range . . . . . 7,500 - 36,900 Btu/h
HSPF . . . . . 10.0 Btu/h/W
COP 3.46
Total Rated Input . . . . . 2,340 W

Heating at 17°F*
Rated Capacity . . . . . 16,000 Btu/h
Rated Total Input . . . . . 1,770 W
COP 2.64
Maximum Capacity** . . . . . 24,600 Btu/h
Maximum Total Input . . . . . 3,290 W

Heating at 5° F*
Maximum Capacity** . . . . . 21,160 Btu/h

*** Rating Conditions per AHRI Standard**
Cooling | Indoor: 80° F (27° C) DB / 67° F (19° C) WB
Cooling | Outdoor: 95° F (35° C) DB / 75° F (24° C) WB
Heating at 47°F | Indoor: 70° F (21° C) DB / 60° F (16° C) WB
Heating at 47°F | Outdoor: 47° F (8° C) DB / 43° F (6° C) WB
Heating at 17° F | Indoor: 70° F (21° C) DB / 60° F (16° C) WB
Heating at 17° F | Outdoor: 17° F (-8° C) DB / 15° F (-9° C) WB
Heating at 5° F | Indoor: 70° F (21° C) DB / 60° F (16° C) WB
Heating at 5° F | Outdoor: 5° F (-15° C) DB / 5° F (-15° C) WB

**** Maximum Capacity is at full speed and performance for INVERTER-driven System.**

Electrical Requirements
Power Supply . . . . . 208 / 230V, 1-Phase, 60 Hz
Breaker Size . . . . . 20 A

Voltage
Indoor - Outdoor S1-S2 . . . . . AC 208 / 230V
Indoor - Outdoor S2-S3 . . . . . DC ±24V
Indoor - Remote Controller . . . . . MKH1 DC 3V
PAR-31MAA DC 12V

OPERATING CONDITIONS

		Indoor Intake Air Temp.	Outdoor Intake Air Temp.
Cooling	Maximum	90° F (32° C) DB 73° F (23° C) WB	115° F (46° C) DB
	Minimum	67° F (19° C) DB 57° F (14° C) WB	14° F (-10° C) DB
Heating	Maximum	80° F (27° C) DB 67° F (19° C) WB	75° F (24° C) DB 65° F (18° C) WB
	Minimum	70° F (21° C) DB 60° F (16° C) WB	-4° F (-20° C) DB -5° F (-21° C) WB

Indoor Unit
MCA . . . . . 1 A
Blower Motor (ECM) . . . . . 0.76 F.L.A.
Airflow (Quiet - Lo - Med - Hi - Super Hi)
Cooling . . . . . 388 - 469 - 628 - 738 Dry CFM
347 - 420 - 562 - 661 Wet CFM
Heating . . . . . 388 - 469 - 628 - 738 Dry CFM

Sound Pressure Level (Quiet - Lo - Med - Hi - Super Hi)
Cooling . . . . . 34 - 41 - 49 - 53 dB(A)
Heating . . . . . 32 - 41 - 49 - 52 dB(A)

DIMENSIONS	UNIT INCHES / MM
W	43-5/16 / 1,116
D	9-3/8 / 238
H	12-13/16 / 325

Weight . . . . . 37 lbs. / 17 kg
Moisture Removal . . . . . 2.7 pt./h
External Finish . . . . . Munsell No. 1.0Y 9.2 / 0.2
Field Drainpipe Size O.D. . . . . 5/8" / 15.88 mm

Outdoor Unit
Compressor . . . . . DC Inverter-driven Twin Rotary
MCA . . . . . 17.1 A
Fan Motor (ECM) . . . . . 0.93 F.L.A.
Sound Pressure Level
Cooling . . . . . 55 dB(A)
Heating . . . . . 55 dB(A)

DIMENSIONS	INCHES / MM
W	33-1/16 + 3-3/16 / 840 + 81
D	13 / 330
H	34-5/8 / 880

Weight . . . . . 119 lbs. / 54 kg
External Finish . . . . . Munsell No. 3Y 7.8 / 1.1

Refrigerant Type R410A
Refrigerant Pipe Size O.D.
Gas Side . . . . . 5/8" / 15.88 mm
Liquid Side . . . . . 3/8" / 6.35 mm
Max. Refrigerant Pipe Length . . . . . 100'. / 30 m
Max. Refrigerant Pipe Height Difference . . . . . 50' / 15 m
Connection Method . . . . . Flared

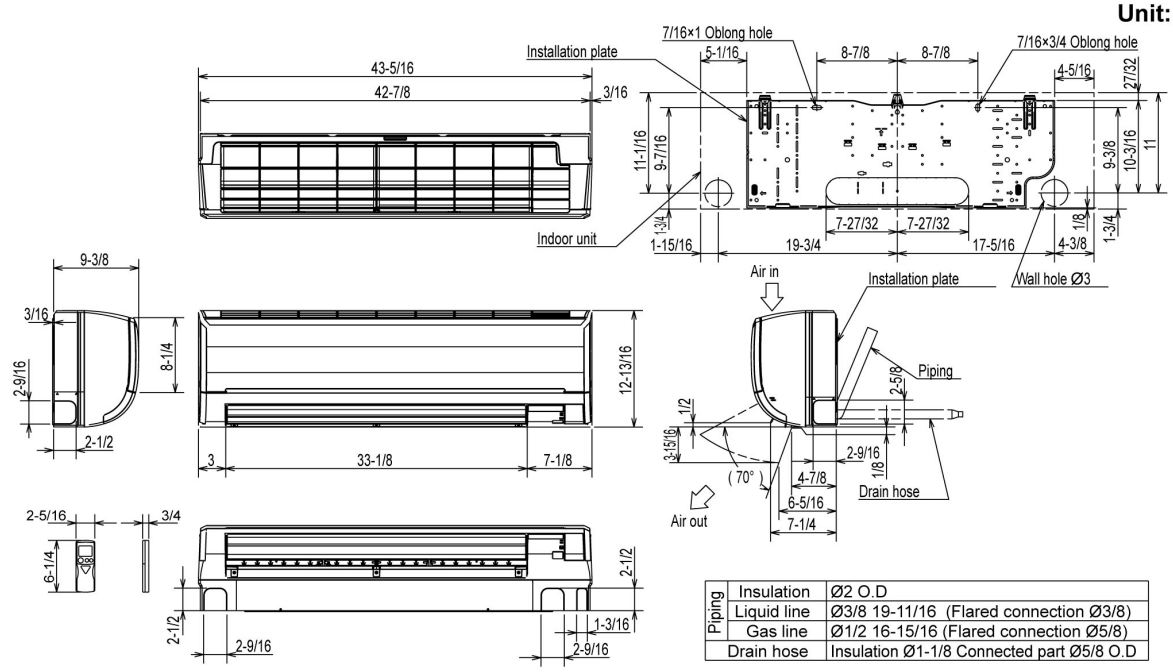
Notes:

Specifications are subject to change without notice.

DIMENSIONS: MSZ-GE24NA & MUZ-GE24NA

MSZ-GE24NA

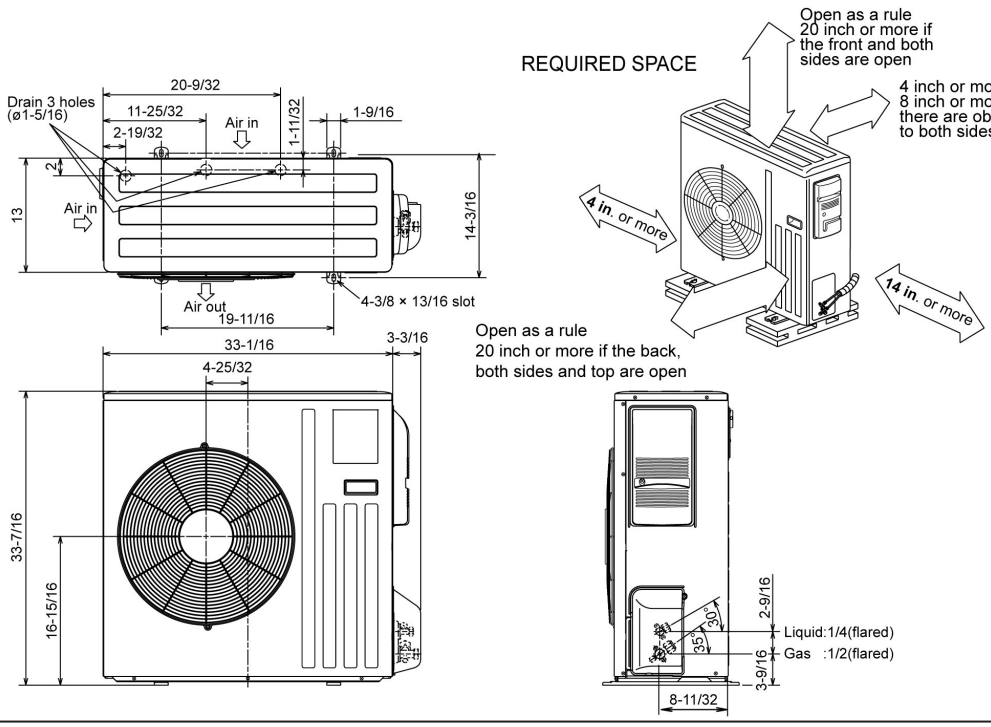
Unit: inch



Piping	Insulation	Ø2 O.D
	Liquid line	Ø3/8 19-11/16 (Flared connection Ø3/8)
	Gas line	Ø1/2 16-15/16 (Flared connection Ø5/8)
	Drain hose	Insulation Ø1-1/8 Connected part Ø5/8 O.D

MUZ-GE24NA

Unit: inch



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AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

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FORM# MSZ-GE24NA & MUZ-GE24NA - 201311

Specifications are subject to change without notice.

MITSUBISHI ELECTRIC
COOLING & HEATING

M-SERIES

SUBMITTAL DATA: MSZ-GE15NA-8 & MUZ-GE15NA2

15,000 BTU/H WALL-MOUNTED HEAT-PUMP SYSTEMS

Job Name: KWHS	
System Reference: DAC-CU-8,9	Date:

Indoor Unit: MSZ-GE15NA-8

Outdoor Unit: MUZ-GE15NA2

Wireless Remote Controller

GENERAL FEATURES

- Wall-mounted indoor unit
- Standard Hybrid Catechin Prefilter is included with indoor unit
- Quiet operation
- Auto fan speed control: Quiet, Low, Medium, High, and Super High
- Hand-held Wireless Remote Controller
- Indoor unit powered from outdoor unit using A-Control
- Auto restart following a power outage
- Anti-allergy Enzyme Filter
- Limited warranty: five years parts and seven years compressor

ACCESSORIES

Outdoor Unit

- □ Outdoor Mounting Pad (ULTRILITE1)
- □ Drain Pan Heater (MAC-640BH-U)
- □ 3-1/4" Mounting Base [Pair] (DSD-400P)
- □ Drain Pan Socket (MAC-860DS)
- □ Air Outlet Guide (MAC-889SG)
- □ Wall Mounting Bracket (CWMB1)

Indoor Unit

- □ BlueDiamond MaxiBlue Condensate Pump (X87-721, 230V)
- □ Sauermann Condensate Pump (SI30-230, 230V)
- □ Anit-Allergy Enzyme Filter (MAC-408FT-E)
- □ Platinum Catalyst Deodorizing Filter (MAC-308FT-E)
- □ Drain Pan Level Sensor (DPLS1)

Controller Options

- ■ Wireless Wall-mounted Remote Controller Kit (MHK1)*
- □ Portable Central Controller (MCCH1)*
- □ Outdoor Air Sensor (MOS1)*
- □ Wired Wall-mounted Controller (PAR-31MAA requires MAC-333IF)*
- □ Simple MA Remote Controller (PAC-YT53CRAU requires MAC-333IF)*

*See Submittal for information on each option.

- □ System Control Interface (MAC-333IF)

Note:Low ambient is not available with this model.

SPECIFICATIONS: MSZ-GE15NA-8 & MUZ-GE15NA2

Cooling *1
- Rated Capacity....14,000 Btu/h
- Capacity Range....3,100 - 18,200 Btu/h
- Rated Total Input....1,080 W
- Maximum Total Input....2,000 W
- SEER....21.6 Btu/h/W

Heating at 47° F *2
- Rated Capacity....18,000 Btu/h
- Capacity Range....4,800 - 20,900 Btu/h
- Rated Total Input....1,600 W
- Maximum Total Input....2,010 W
- HSPF....11.2 Btu/h/W

Heating at 17° F *3
- Rated Capacity....11,300 Btu/h
- Max. Capacity....15,900 Btu/h
- Rated Total Input....1,150 W
- Maximum Total Input....1,950 W

Heating at 5° F
- Maximum Capacity....13,022 Btu/h

Rating Conditons:
*1 Cooling | Indoor: 80º F (27º C) DB / 67º F (19º C) WB
*1 Cooling | Outdoor: 95º F (35º C) DB / 75º F (24º C) WB
*2 Heating at 47ºF | Indoor: 70º F (21º C) DB / 60º F (16º C) WB
*2 Heating at 47ºF | Outdoor: 47º F (8º C) DB / 43º F (6º C) WB
*3 Heating at 17º F | Indoor: 70º F (21º C) DB / 60º F (16º C) WB
*3 Heating at 17º F | Outdoor: 17º F (-8º C) DB / 15º F (-9º C) WB
*4 Heating at 5º F | Indoor: 70º F (21º C) DB / 60º F (16º C) WB
*4 Heating at 5º F | Outdoor: 5º F (-15º C) DB / 5º F (-15º C) WB

Electrical Requirements
Power Supply....208 / 230V, 1-Phase, 60 Hz
Breaker Size....15 A

Voltage
Indoor - Outdoor S1-S2....AC 208 / 230V
Indoor - Outdoor S2-S3....DC +/- 24V
Indoor - Remote Controller....MKH1 DC 3V
PAR-31MAA DC 12V
PAC-YT53CRAU DC 12V

Operating Conditions
Cooling
Indoor Intake Air Temp....(Max.) 90º F (32º C) DB / 73º F (23º C) WB
(Min.) 67º F (19º C) DB / 57º F (14º C) WB

Outdoor Intake Air Temp....(Max.) 115º F (46º C) DB
(Min.) 14º F (-10º C) DB

Heating
Indoor Intake Air Temp....(Max.) 80º F (27º C) DB / 67º F (19º C) WB
(Min.) 70º F (21º C) DB / 60º F (16º C) WB

Outdoor Intake Air Temp. (Max.)75º F (24º C) DB / 65º F (18º C) WB
(Min.) -13º F (-25º C) DB / -15º F (-26º C) WB**

** System cuts out at -18º F (-28º C) to avoid thermistor error, but recovers from cutout operation and automatically restarts at -13º F (-25ºC).

Indoor Unit
MCA....1.0 A
Blower Motor (ECM)....0.76 F.L.A.
Blower Motor Output....30 W

Airflow (Quiet - Lo - Med - Hi - Super Hi)
- Cooling....205-272-335-420-533 Dry CFM
  170-237-300-385-498 Wet CFM
- Heating....205-247-304-367-463 Dry CFM

Sound Pressure Level (Quiet - Lo - Med - Hi - Super Hi)
- Cooling....26-32-38-44-49 dB(A)
- Heating....26-30-35-40-46 dB(A)

External Finish Color....Munsell 1.0Y 9.2/0.2

Dimension Unit
- Inches:....11-5/8 H x 31-7/16 W x 9-1/8 D
- mm:....295 H x 798 W x 232 D

Weight Unit....22 lbs. / 10kg
Field Drainpipe Size O.D.....19/32" x 15 mm

Outdoor Unit
MCA....12 A
Fan Motor (ECM)....0.50 F.L.A.

Sound Pressure Level
- Cooling *1....49 dB(A)
- Heating *2....51 dB(A)

External Finish Color....Munsell 3Y 7.8/1.1

External Dimensions
- Inches:....21-5/8 H x 31-1/2 W x 11-1/4 D
- mm:....550 H x 800 W x 285 D

Weight....80 lbs. / 36kg

Refrigerant Type....R410A

Refrigerant Pipe
- Gas Side O.D.....1/2" x / 12.7mm
- Liquid Side O.D.....1/4" / 6.35 mm

Refrigerant Pipe Length
- Height Difference (Max.)....40' / 12 m
- Length (Max.)....65' / 20 m

Connection Method
- Indoor/Outdoor....Flared

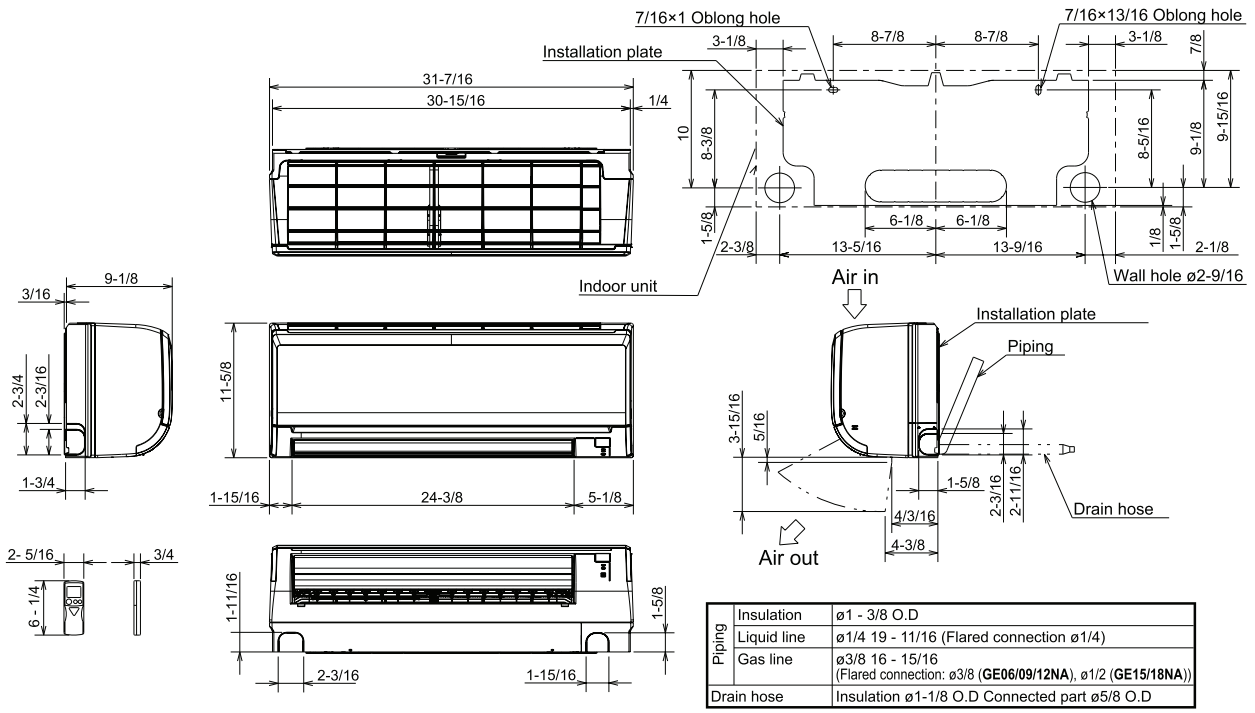
Notes:

Specifications are subject to change without notice.

DIMENSIONS: MSZ-GE15NA-8 & MUZ-GE15NA-1

MSZ-GE15NA-8

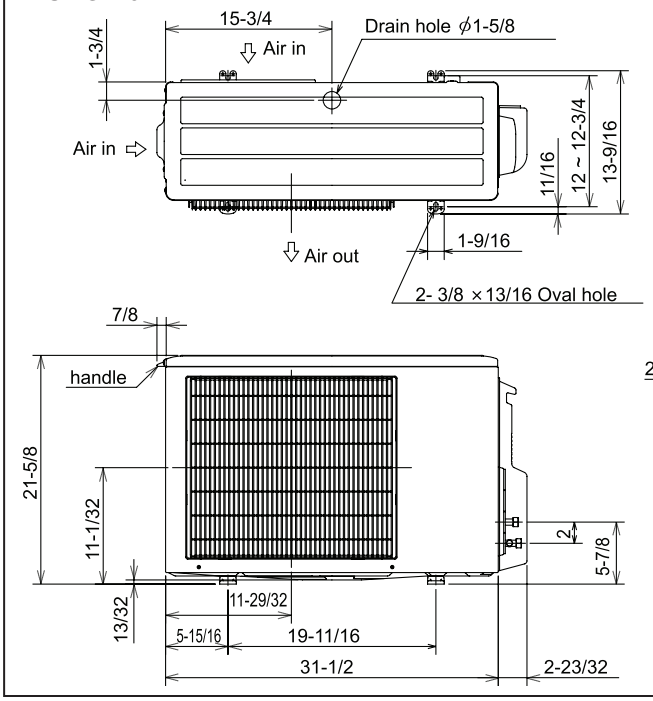
Unit: inch

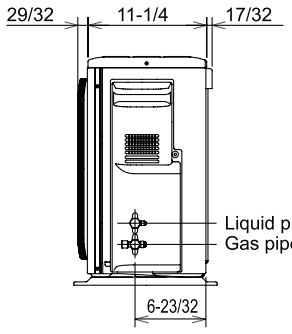


Piping	Insulation	ø1 - 3/8 O.D
	Liquid line	ø1/4 19 - 11/16 (Flared connection ø1/4)
	Gas line	ø3/8 16 - 15/16 (Flared connection: ø3/8 (**GE06/09/12NA**), ø1/2 (**GE15/18NA**))
Drain hose		Insulation ø1-1/8 O.D Connected part ø5/8 O.D

MUZ-GE15NA2

Unit: inch

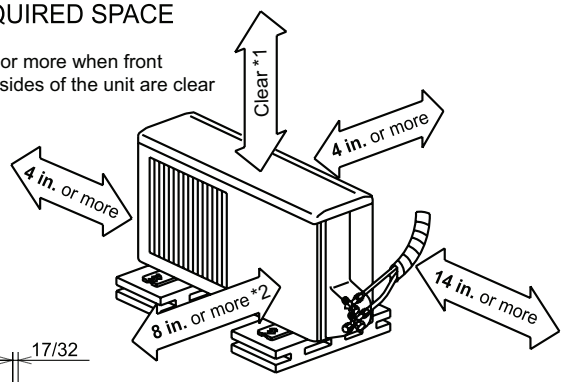




Liquid pipe :1/4 (flared)
Gas pipe :3/8 (flared) **(GE09/12)**
1/2 (flared) **(GE15)**

REQUIRED SPACE

*1 4 in. or more when front and sides of the unit are clear



*2 When any 2 sides of left, right and rear of the unit are clear

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FORM# MSZ-GE15NA-8 ~ MUZ-GE15NA2 - 201403

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Split-ductless A/C and Heat Pumps

SUBMITTAL DATA: MHK1 REMOTE CONTROLLER KIT FOR M-SERIES AND P-SERIES

Job Name: KWHS	Location:	Date:
Purchaser:	Engineer:	
Submitted to:	For ☐Reference ☑Approval ☐Construction	
System Designation:	Schedule No.:	

MHK1 REMOTE CONTROLLER KIT INCLUDES:

MRCH1 REMOTE CONTROLLER

- For use with P-Series NHA4 systems, SEZ-4/SUZ one-to-one systems, SLZ/SUZ one-to-one systems, MXZ-B multi-zone systems, MSY/MSZ, and MFZ indoor units
- Backlit, easy-to-read display
- Supports both Fahrenheit and Celsius
- User functions allow user to set:
  - On/Off
  - Operation modes cool,heat, drying, fan
  - Set temperature (separate dual set points for heat and cool)
  - Fan speed setting
  - Airflow direction
- Day/Time display with a 12-hour clock
- Filter sign display
- Optimal start
- Adjustable auto deadband
- Space temperature offset adjustment
- Display outside temperature and humidity (requires optional MOS1, sold separately)
- Hold function
- Temporary schedule override
- Reset to factory default
- Auto lock display
- Timer Operation:
  - Daily Timer: On/Off times can be set up to 4 times per day in 15-minute increments.
  - Weekly Timer: On/Off times can be set up to 4 times per day of the week in 15-minute increments. Choice of 5-2 and 5-1-1 weekly schedules for heat, cool, auto (separate for each mode)
  - Auto-off Timer: Turns indoor unit Off at scheduled time up to 24 hours in advance
- Room Temperature: Displays room temperature sensed either at the indoor unit or at the remote controller (default)
- Set temperature range limits (dependent on the system connected):
  Cooling from 50° to 99°F
  Heating from 40° to 90°F
  Auto from 50° to 90°F with dual temperature setting
- Diagnostics: Displays and records error codes
- No addressing required
- Can be integrated with other RedLINK™ devices
- Wiring: Connects using five-conductor cable from MIFH1 Wireless Receiver (cable included) to indoor unit; wireless RF from the MIFH1 Wireless Receiver to the MRCH1 Remote Controller
- Dimensions: 3-9/16" H x 5-13/16" W x 1-1/2" D (147 x 38 x 91mm)
- Uses two “AA” alkaline batteries (included)

MIFH1 WIRELESS RECEIVER

- Mounts next to or near indoor units to allow MRCH1 Remote Controller operation of P-Series NHA4 systems, SEZ-4/SUZ one-to-one systems, SLZ/SUZ one-to-one systems , MXZ-B multi-zone systems, MSY/MSZ, and MFZ indoor units
- Dimensions: 6-7/16” H x 3-1/4” W x 1-5/16” D (164 x 82.5 x 34 mm)

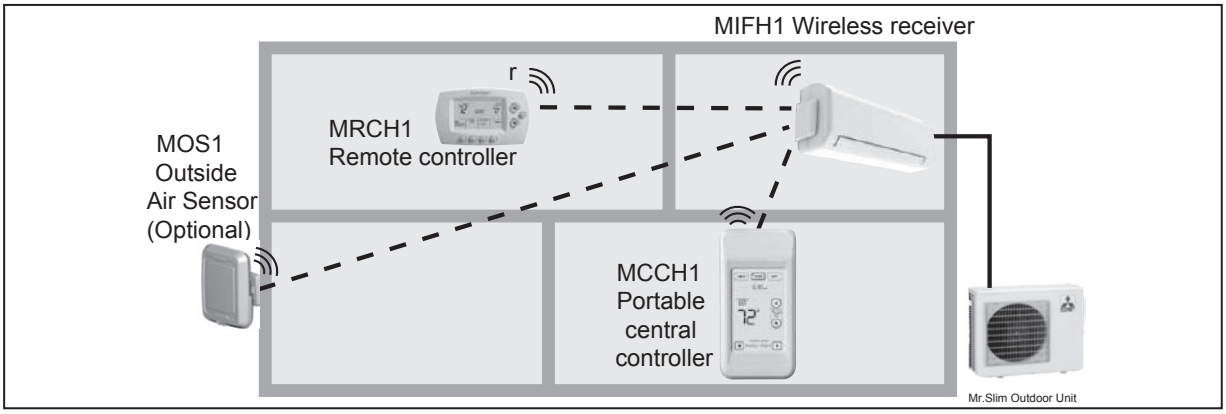
MRC1 CABLE

- Connects MIFH1 Wireless Receiver to five-pin CN105 on indoor unit control board
- Five-conductor wire with preterminated ends
- Length: 6-1/2' (2 m)

OPTIONAL ACCESSORIES

- ☐ Portable Central Controller (MCCH1; for use with Wireless Remote Controller Kit MHK1)*
- ☐ Outdoor Air Sensor (MOS1; for use with Wireless Remote Controller Kit MHK1)*

*See Submittal for information on each option.



FORM# MHK1 - 201108

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