



**MITSUBISHI
ELECTRIC**

SPLIT-TYPE AIR CONDITIONERS

Revision A:

- MSXY-FP05VG-**[SG1]**, MSXY-FP07/10/13/18/20/24VG-**[SG2]**
have been added.

OBH837 is void.

INDOOR UNIT

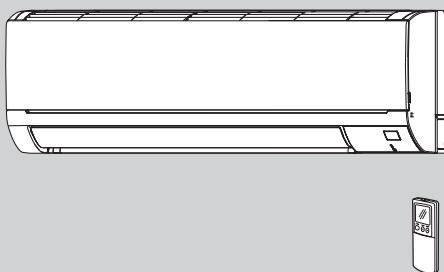
**No. OBH837
REVISED EDITION-A**

SERVICE MANUAL

Models

- MSXY-FP05VG** - **[SG1]**
MSXY-FP07VG - **[SG1], [SG2]**
MSXY-FP10VG - **[SG1], [SG2]**
MSXY-FP13VG - **[SG1], [SG2]**
MSXY-FP18VG - **[SG1], [SG2]**
MSXY-FP20VG - **[SG1], [SG2]**
MSXY-FP24VG - **[SG1], [SG2]**

Outdoor unit service manual
MXY-H·VF(VG) Series (OBH842)



MSXY-FP20VG MSXY-FP24VG

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PARTS CATALOG (OBB837)

starMEX

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.

<Preparation before the repair service>

- Prepare the proper tools.
- Prepare the proper protectors.
- Provide adequate ventilation.
- After stopping the operation of the air conditioner, turn off the power-supply breaker and pull the power plug.
- Discharge the capacitor before the work involving the electric parts.

<Precautions during the repair service>

- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigeration cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power, exercise great caution not to touch the live parts.

⚠ WARNING

- When the refrigeration circuit has a leak, do not execute pump down with the compressor.
- When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes.
The compressor may burst if air etc. get into it.
- When opening or closing the valve below freezing temperatures, refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.

Revision A:

1

TECHNICAL CHANGES

MSXY-FP07VG - [SG1]

MSXY-FP10VG - [SG1]

MSXY-FP13VG - [SG1]

MSXY-FP18VG - [SG1]

MSXY-FP20VG - [SG1]

MSXY-FP24VG - [SG1]

1. New model

MSXY-FP05VG - [SG1]

1. New model

MSXY-FP07VG - [SG1] → MSXY-FP07VG - [SG2]

MSXY-FP10VG - [SG1] → MSXY-FP10VG - [SG2]

MSXY-FP13VG - [SG1] → MSXY-FP13VG - [SG2]

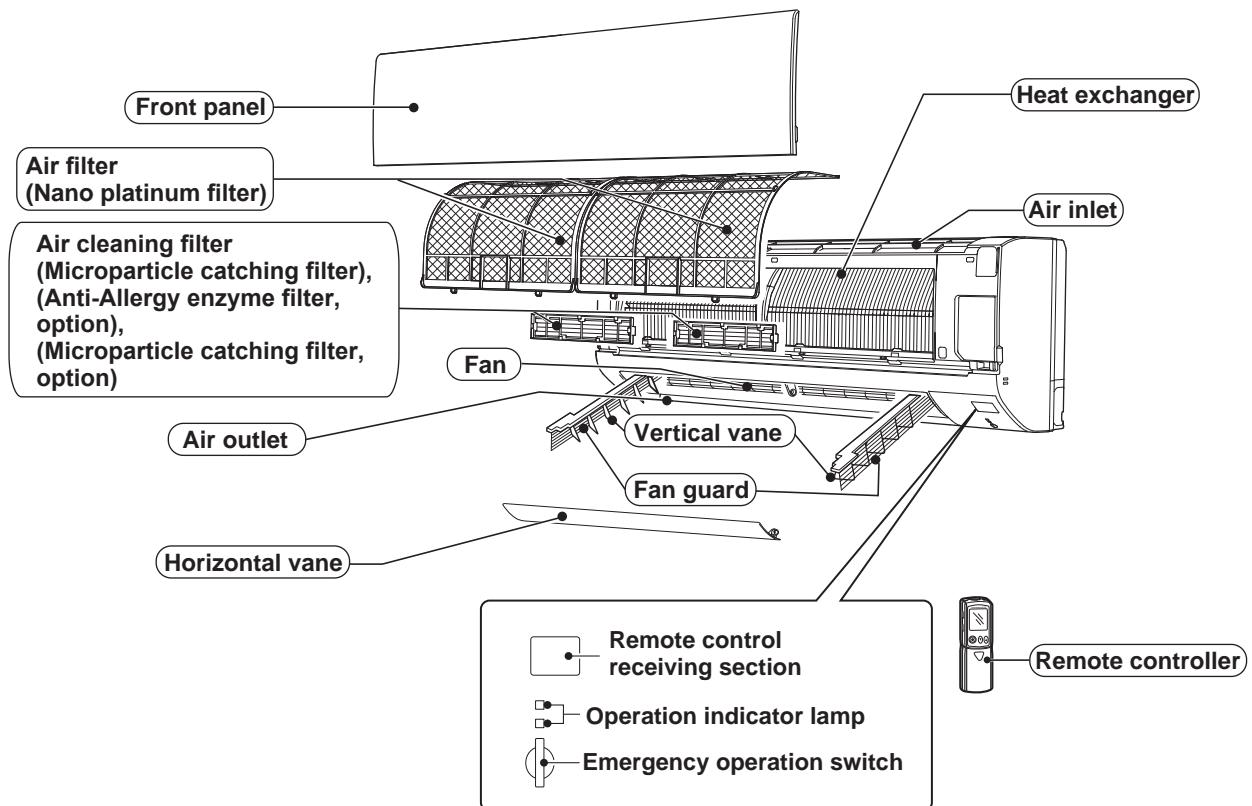
MSXY-FP18VG - [SG1] → MSXY-FP18VG - [SG2]

MSXY-FP20VG - [SG1] → MSXY-FP20VG - [SG2]

MSXY-FP24VG - [SG1] → MSXY-FP24VG - [SG2]

1. Indoor electronic control P.C. board has been changed.

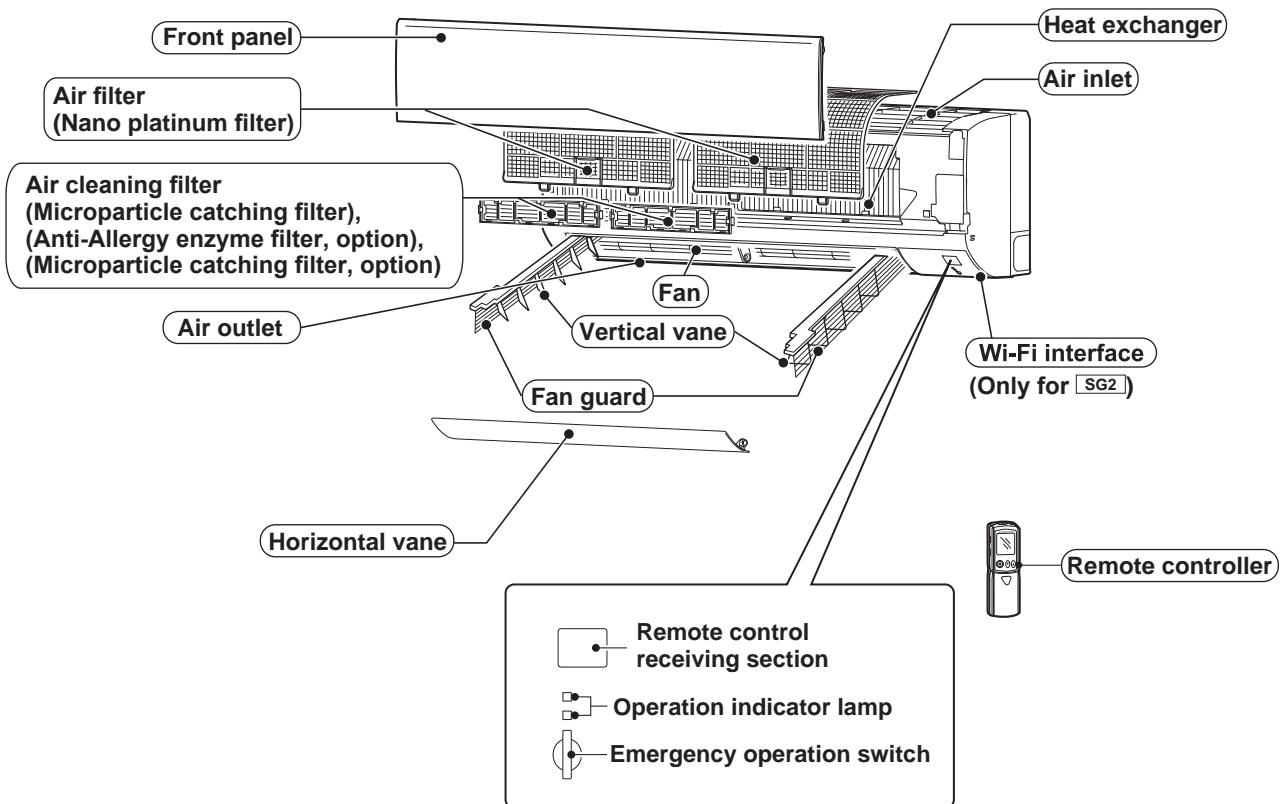
MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG



ACCESSORIES

①	Installation plate	1
②	Installation plate fixing screw 4 × 25 mm	5
③	Wireless remote controller	1
④	Felt tape (Used for left or left-rear piping)	1
⑤	Battery (AAA) for remote controller	2
⑥	Remote controller holder	1
⑦	Fixing screw for ⑥ 3.5 × 16 mm (Black)	2
⑧	Air cleaning filter	2

MSXY-FP20VG MSXY-FP24VG



ACCESSORIES

①	Installation plate	1
②	Installation plate fixing screw 4 × 25 mm	5
③	Wireless remote controller	1
④	Felt tape (Used for left or left-rear piping)	1
⑤	Battery (AAA) for remote controller	2
⑥	Remote controller holder	1
⑦	Fixing screw for ⑥ 3.5 × 16 mm (Black)	2
⑧	Air cleaning filter	2

Indoor model		MSXY-FP05VG	MSXY-FP07VG	MSXY-FP10VG	MSXY-FP13VG	MSXY-FP18VG	MSXY-FP20VG	MSXY-FP24VG			
Power supply		Single phase 230-240V, 50Hz									
Electrical data	Power input *1	W	21	28	36	42	59				
	Running current *1	A	0.21	0.27	0.33	0.38	0.52				
Fan motor	Model		RC0J40-EF				RC0J30-MD				
	Current *1	A	0.21	0.27	0.33	0.38	0.52				
Dimensions W × H × D		mm	799 x 290 x 232				923 x 305 x 250				
Weight		kg	9				13				
Air direction			5								
Airflow	Super High	m³/h	666	774	846	888	1,200				
	High		546	726			966				
	Med.		378	570			822				
	Low		306	462			666				
	Slow		246	372			558				
Sound level	Super High	dB(A)	42	45	47	49	50				
	High		36	44			45				
	Med.		29	38			41				
	Low		24	33			35				
	Slow		19	28			30				
Fan speed	Super High	rpm	1,000	1,120	1,200	1,250					
	High		860	1,070			1,050				
	Med.		660	890			920				
	Low		570	760			780				
	Slow		500	650			680				
Fan speed regulator			5								
Remote controller model			KH18A								

NOTE: Test conditions are based on ISO 5151.

Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
 Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C

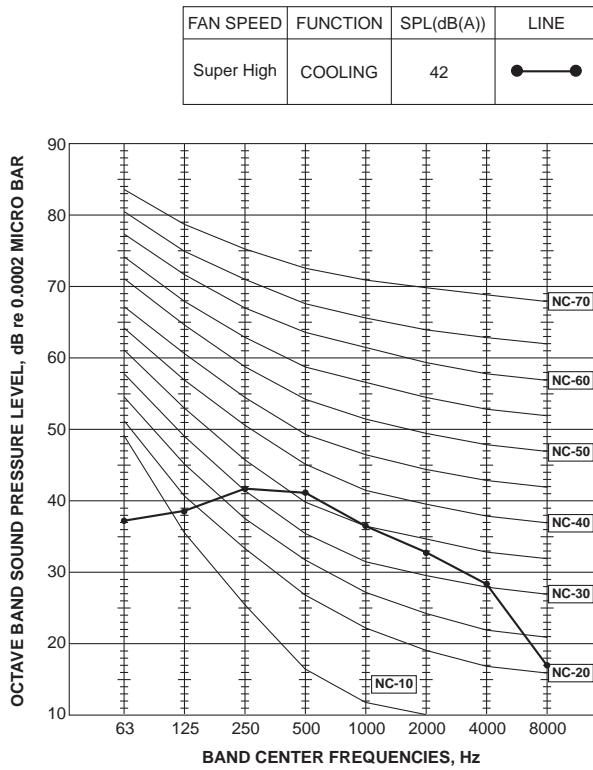
*1 Measured under rated operating frequency.

Specifications and rated conditions of main electric parts

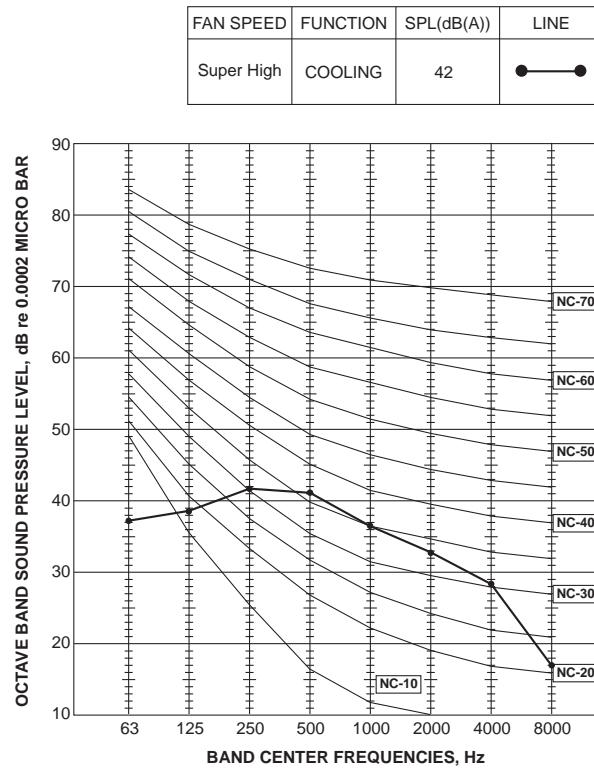
Fuse	(F11)	T3.15AL250V
Vane motor	(MV)	12 V DC
Varistor	(NR11)	470 V
Terminal block	(TB)	3P

NOISE CRITERIA CURVES

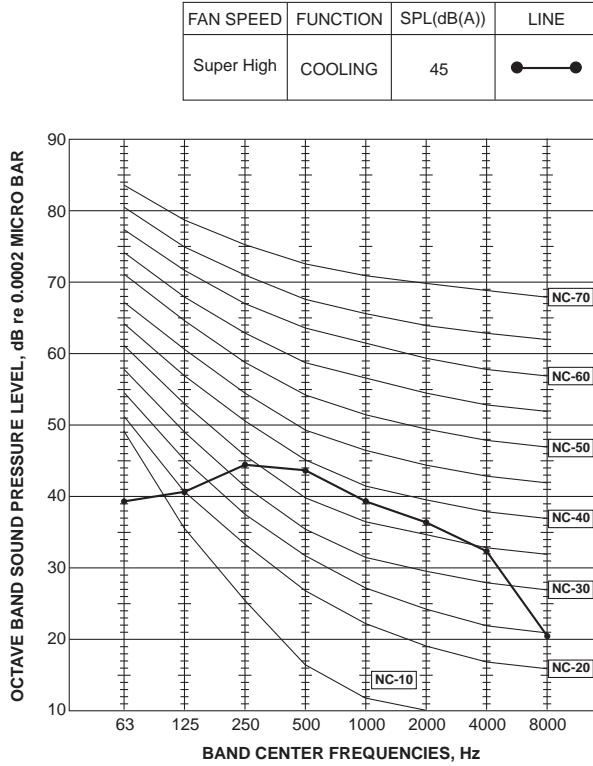
MSXY-FP05VG



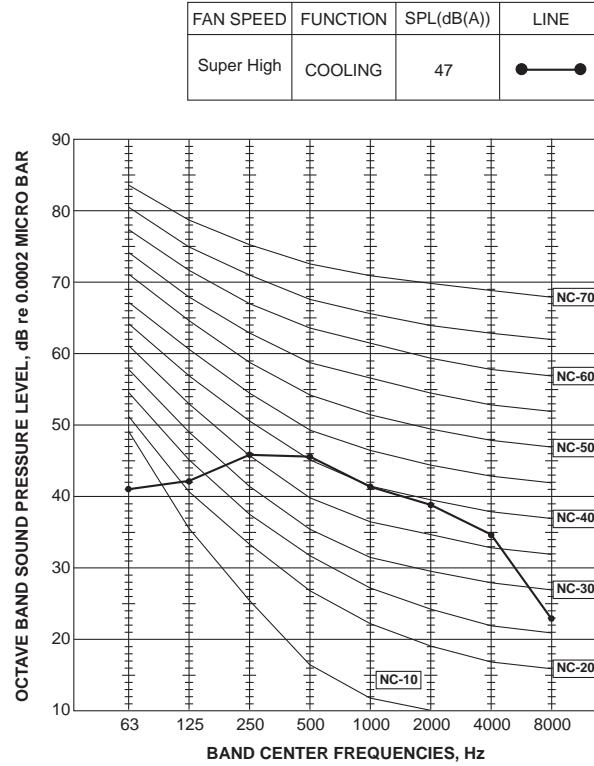
MSXY-FP07VG



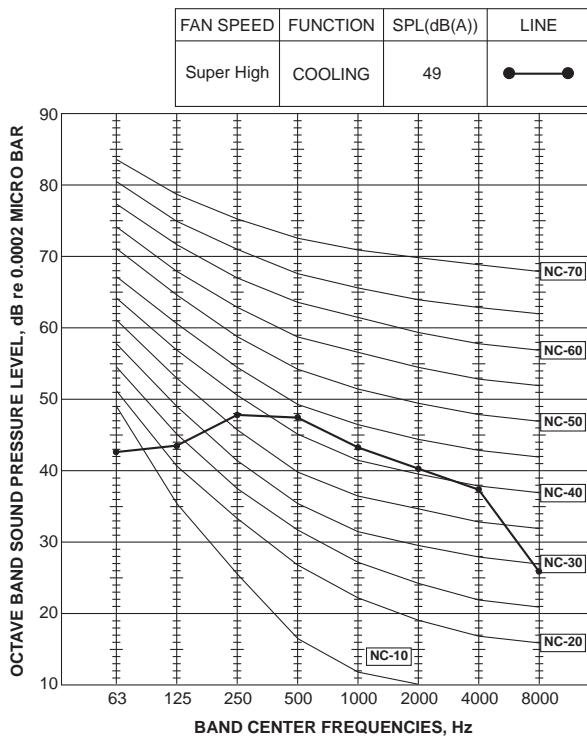
MSXY-FP10VG



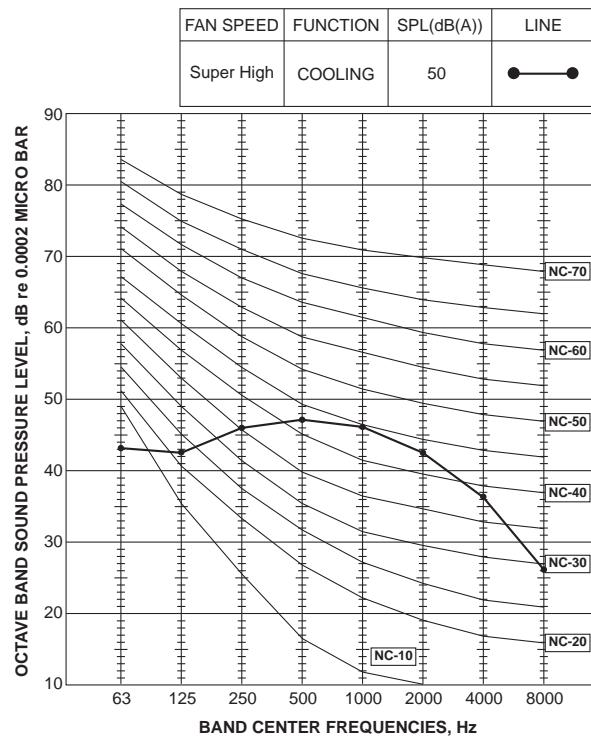
MSXY-FP13VG



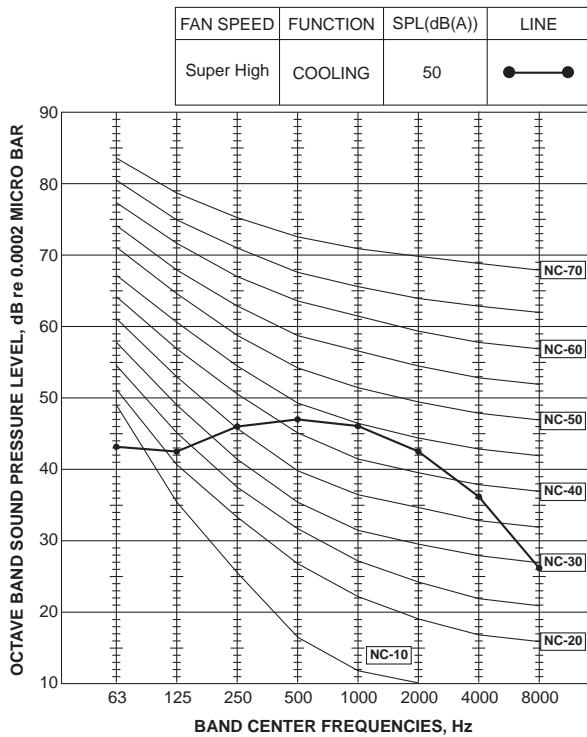
MSXY-FP18VG



MSXY-FP20VG

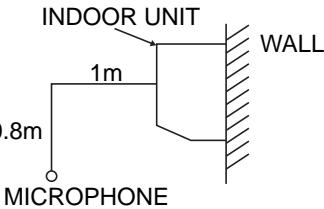


MSXY-FP24VG



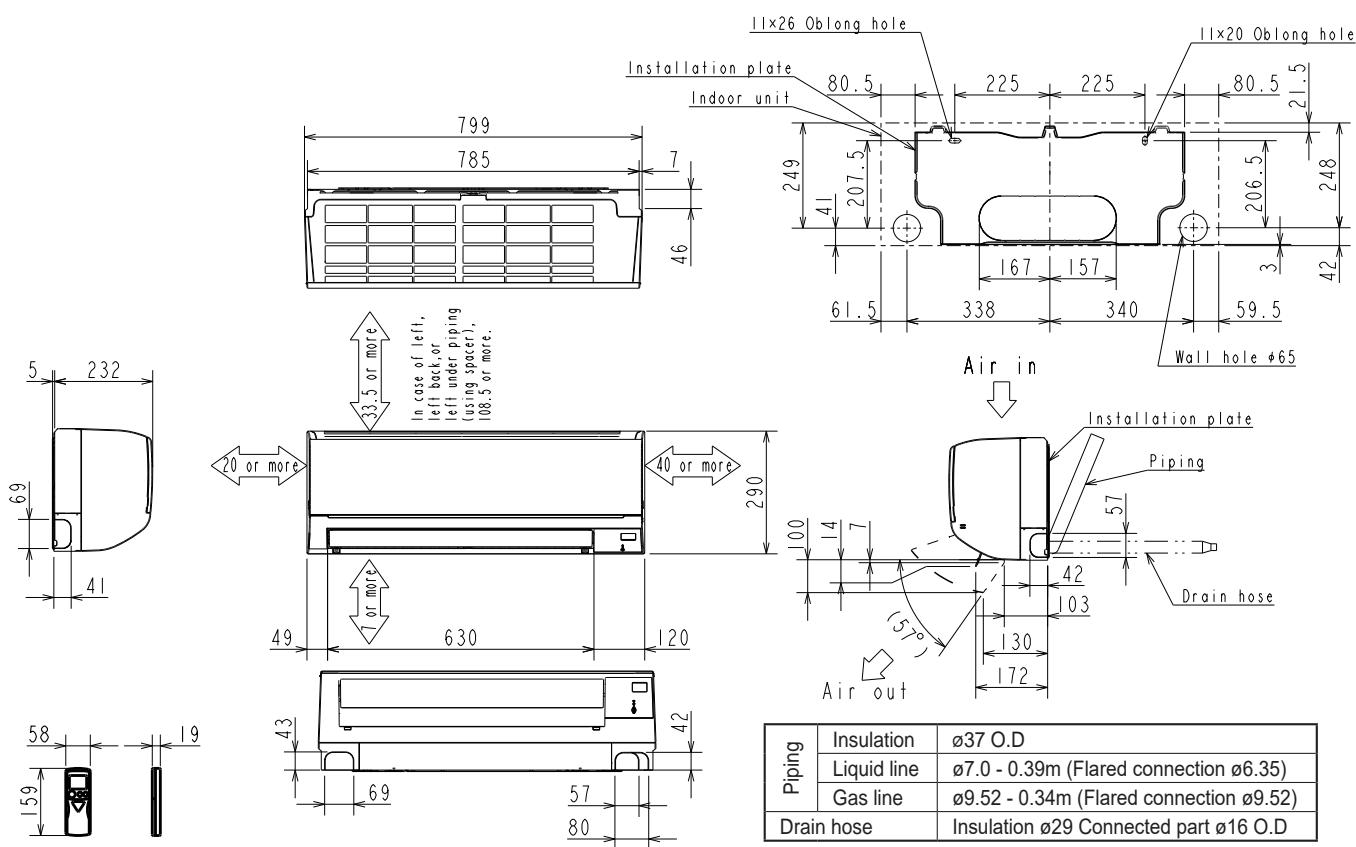
Test conditions

Cooling: Dry-bulb temperature 27°C
Wet-bulb temperature 19°C

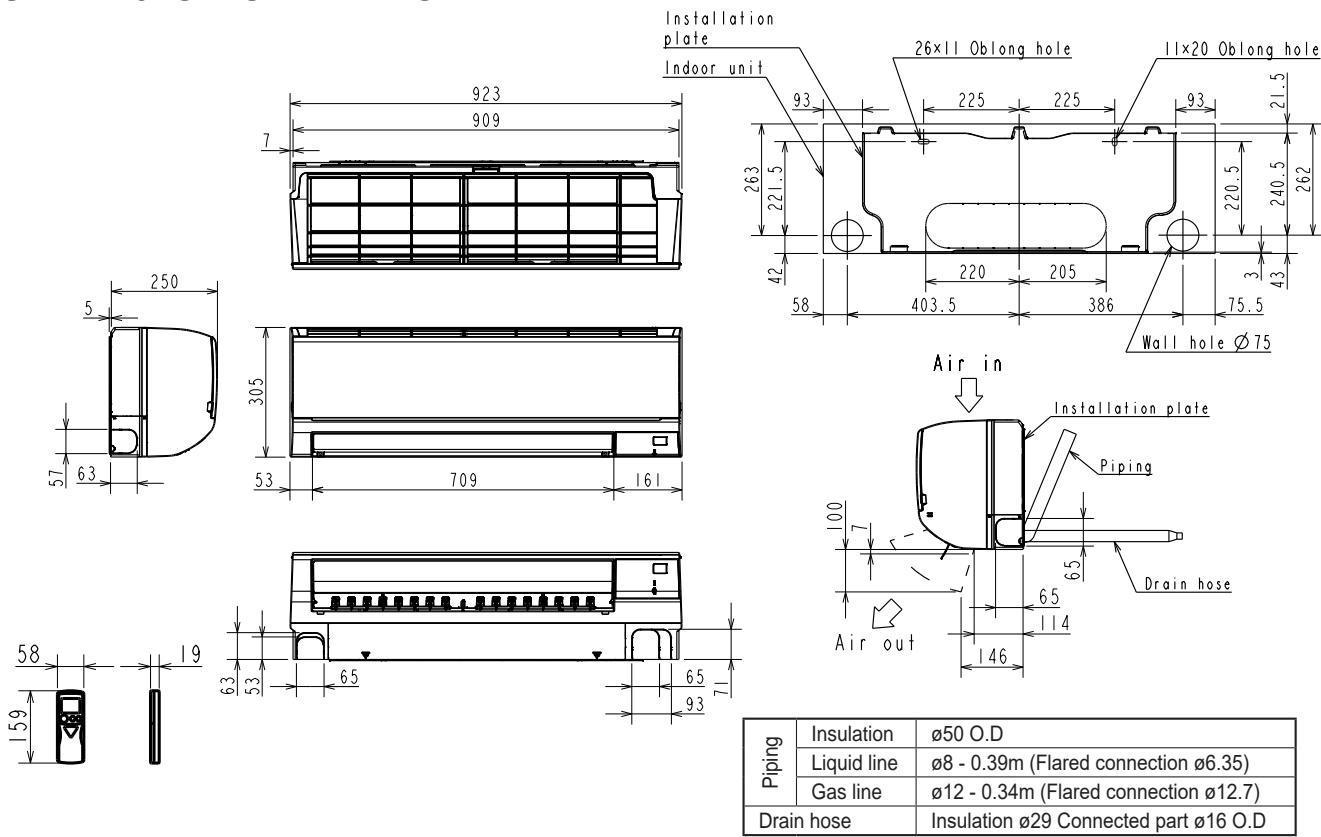


OUTLINES AND DIMENSIONS

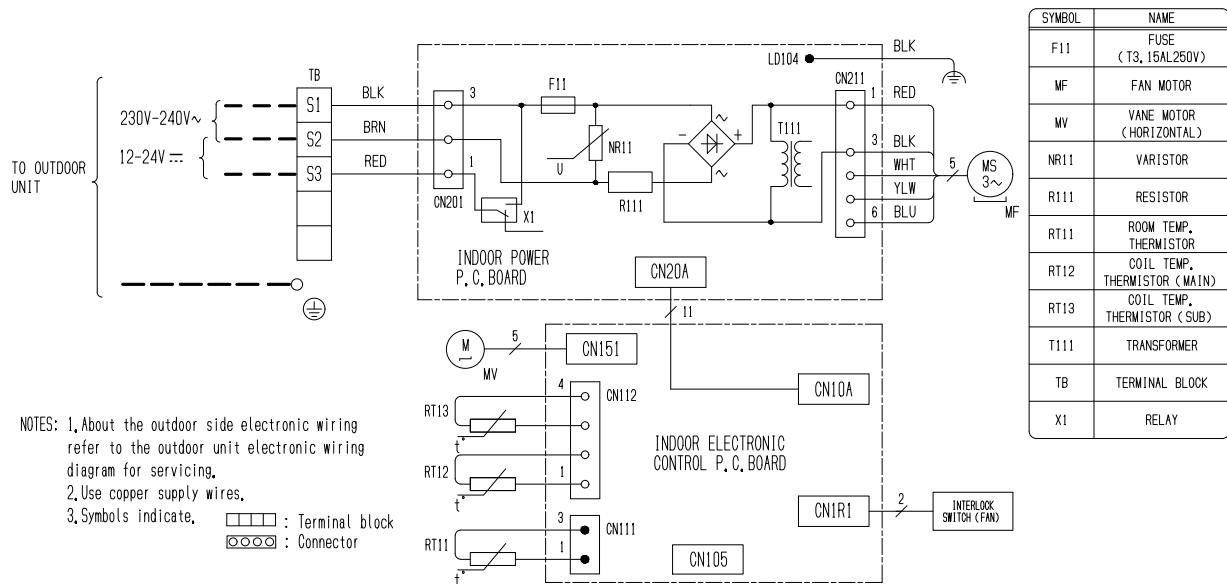
MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG Unit: mm



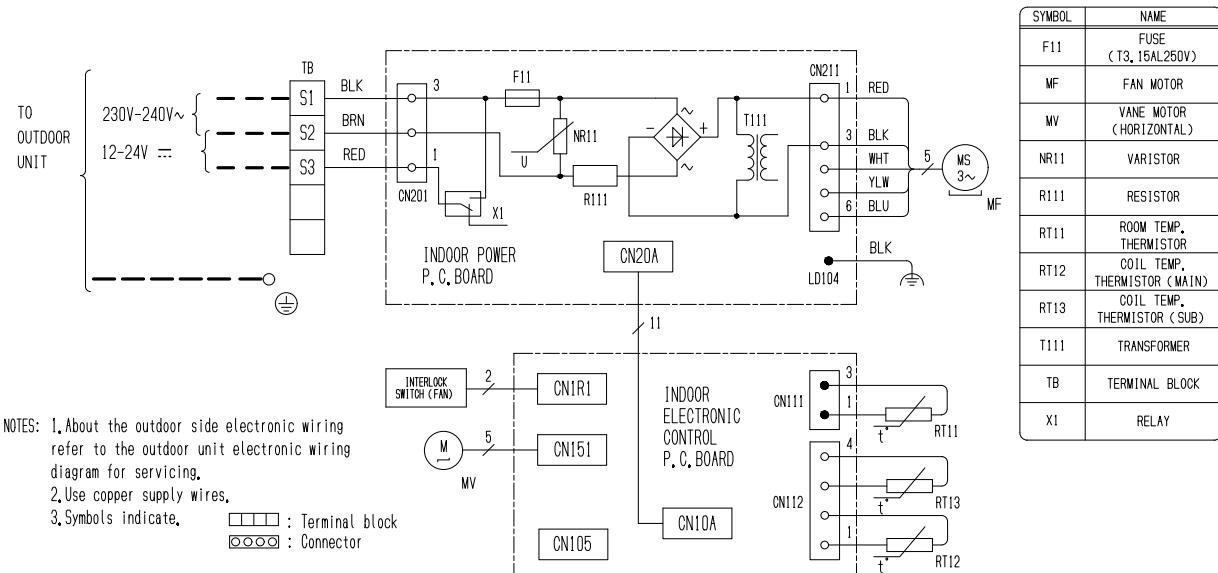
MSXY-FP20VG MSXY-FP24VG



MSXY-FP07VG - SG1 MSXY-FP10VG - SG1 MSXY-FP13VG - SG1 MSXY-FP18VG - SG1

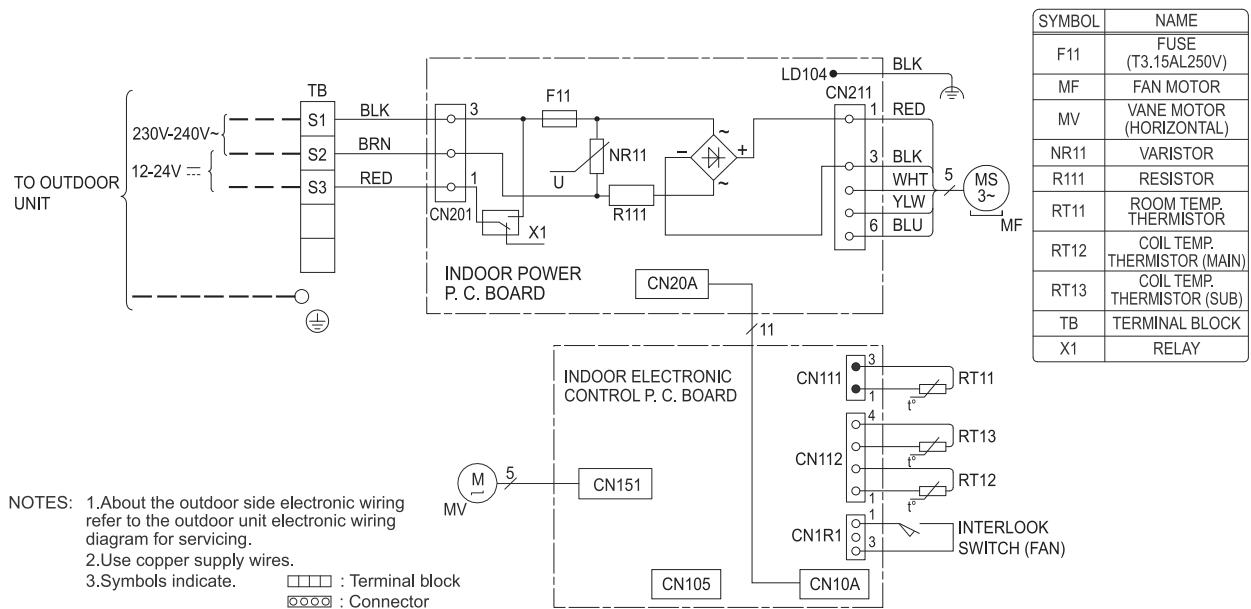


MSXY-FP20VG - SG1 MSXY-FP24VG - SG1

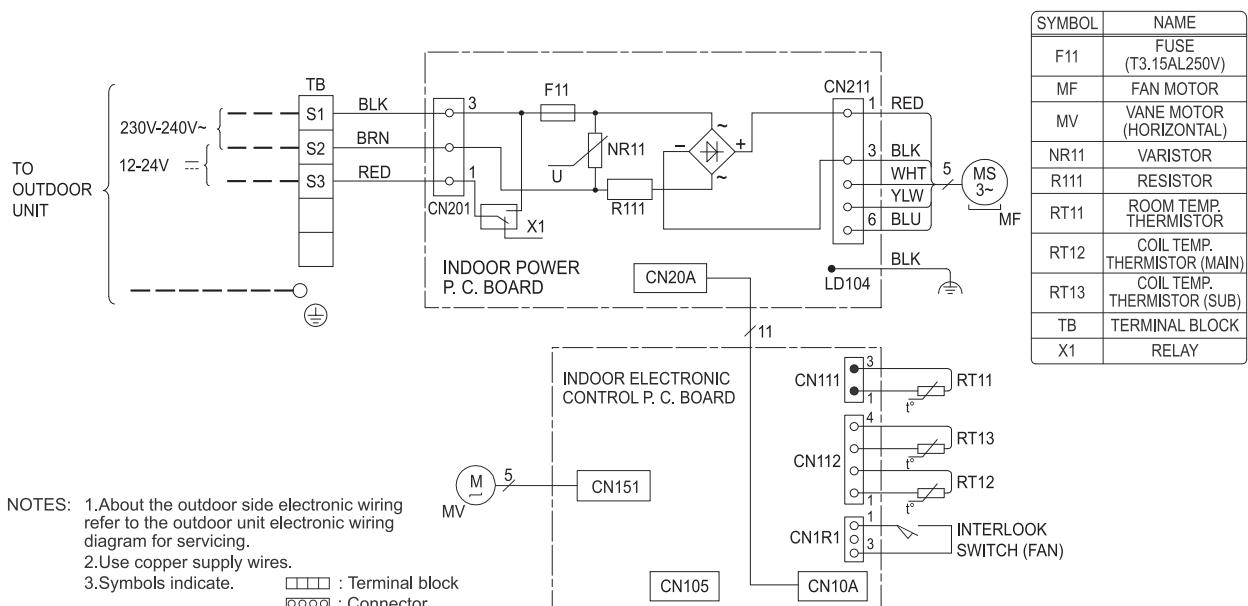


MSXY-FP05VG - [SG1]

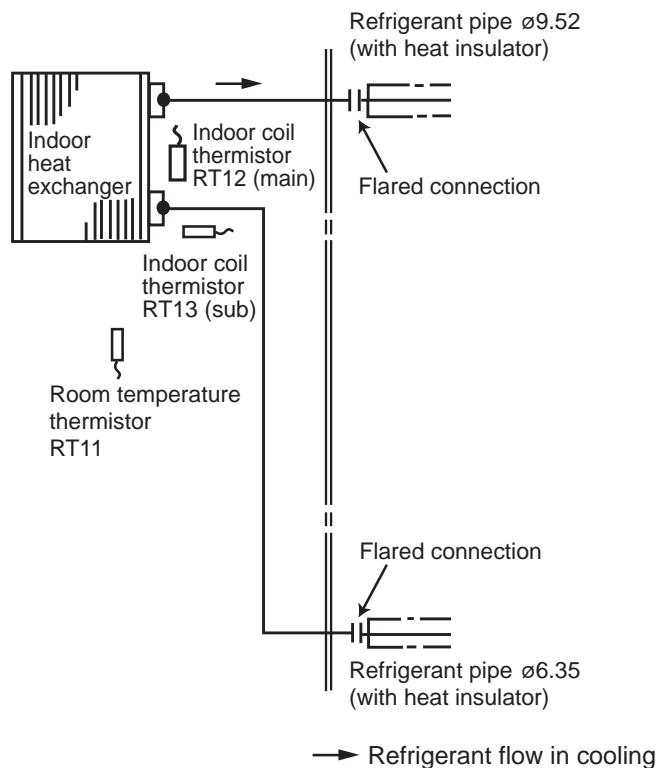
MSXY-FP07VG - [SG2] MSXY-FP10VG - [SG2] MSXY-FP13VG - [SG2] MSXY-FP18VG - [SG2]



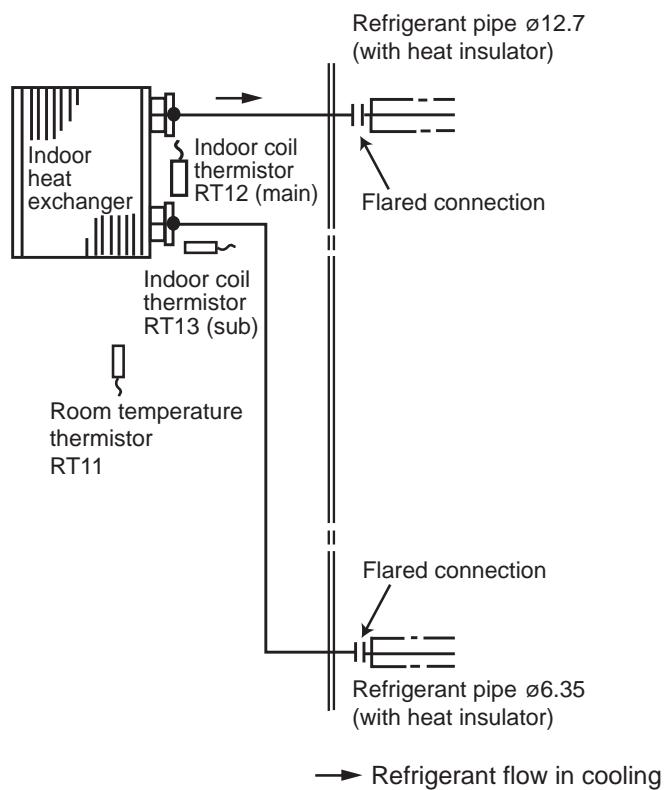
MSXY-FP20VG - [SG2] MSXY-FP24VG - [SG2]



MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG Unit: mm



MSXY-FP20VG MSXY-FP24VG



**MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG
MSXY-FP20VG MSXY-FP24VG**

8-1. TIMER SHORT MODE

TIMER SHORT MODE
For service, the following set time can be shortened by bridging the timer short mode point on the electronic control P.C. board. (Refer to 10-7-2.)

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

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

A maximum of 4 indoor units with wireless remote controllers can be used in a room.

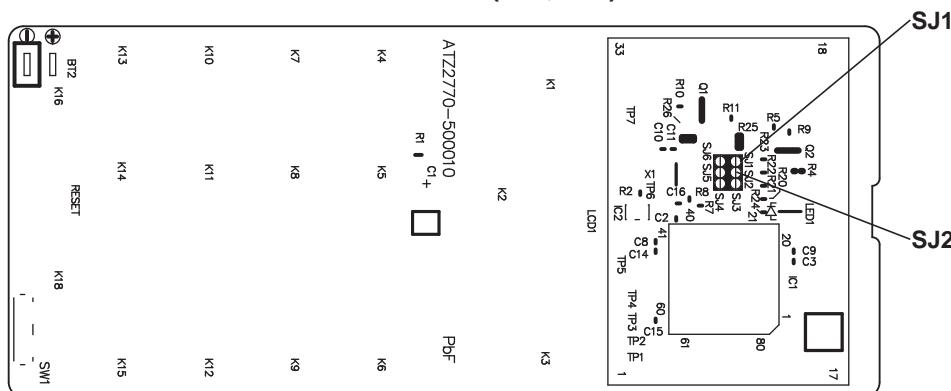
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.

The board has a print as shown below:

MSXY-FP05/07/10/13/18/20/24VG: KH18A (SJ1, SJ2)



The P.C. board has the print "SJ1" and "SJ2/J2". Solder "SJ1" and "SJ2/J2" according to the number of indoor unit as shown in Table 1.

After modification, press the RESET button.

Table 1

	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	—	Solder SJ1	Same as at left	Same as at left
No. 3 unit	—	—	Solder SJ2	Same as at left
No. 4 unit	—	—	—	Solder both SJ1 and SJ2

How to set the remote controller exclusively for particular indoor unit

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

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

The setting will be cancelled if the breaker is turned OFF, or the power supply is Please conduct the above setting once again after the power has been restored.

8-3. AUTO RESTART FUNCTION

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

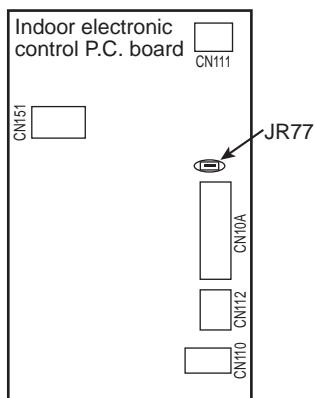
Operation

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

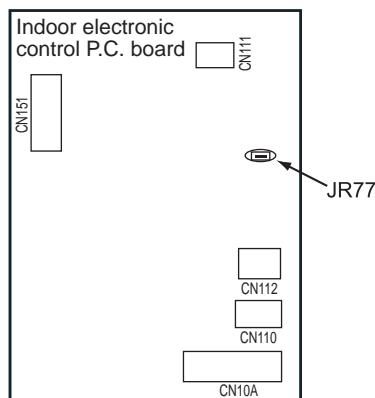
How to disable "AUTO RESTART FUNCTION"

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

MSXY-FP07/10/13/18VG - SG1

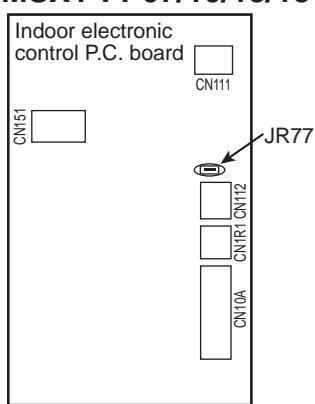


MSXY-FP20/24VG - SG1

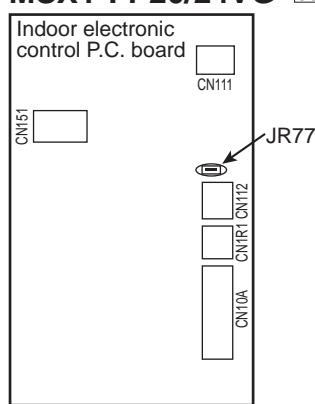


MSXY-FP05VG - SG1

MSXY-FP07/10/13/18VG - SG2



MSXY-FP20/24VG - SG2

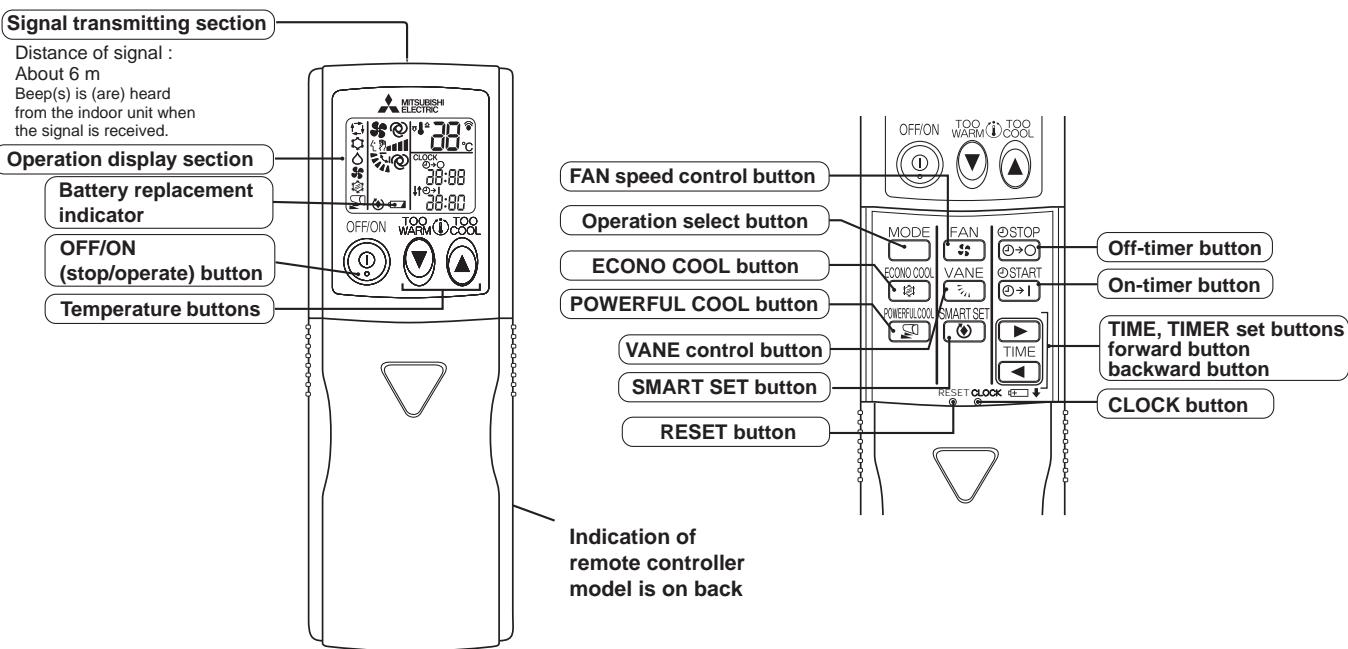


NOTE:

- 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 countermeasures 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.

**MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG
MSXY-FP20VG MSXY-FP24VG**

WIRELESS 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 2°C or more away from set temperature
● ○	The room temperature is approaching the set temperature	About 1 to 2°C from set temperature
● ○	Standby mode (only during multi system operation)	—

● Lit
 ○ Blinking
 ○ Not lit

9-1. COOL (○) OPERATION

- Press OFF/ON (stop/operate) button.

OPERATION INDICATOR lamp of the indoor unit turns ON with a beep tone.

- Select COOL mode with Operation select button.

- Press Temperature buttons TOO WARM or TOO COOL button to select the set temperature. The setting range is 16 - 31°C.

1. Coil frost prevention

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

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

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

2. Low outside temperature operation

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

9-2. DRY (△) OPERATION

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

1. Coil frost prevention

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

2. Low outside temperature operation

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

9-3. FAN(✉) OPERATION

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

9-4. "I FEEL CONTROL" (□) OPERATION

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

Initial room temperature	Model	Initial set temperature
26°C or more	COOL mode of "I FEEL CONTROL"	24°C
25 to 26°C	"I FEEL CONTROL"	Initial room temperature minus 2°C
Less than 25°C	DRY mode of "I FEEL CONTROL"	Initial room temperature minus 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 button when you feel too cool or too warm. Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

• Fuzzy control

When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cool. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode.

In DRY mode of "I FEEL CONTROL", the set temperature does not change.



…To raise the set temperature 1~2°C



…To lower the set temperature 1~2°C

9-5. AUTO VANE OPERATION

1. Horizontal vane

(1) Vane motor drive

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

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



(3) Positioning

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

Confirming of standard position is performed in the following cases:

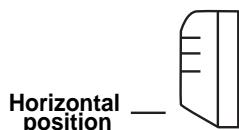
- (a) When the operation starts or finishes (including timer operation).
- (b) When the test run starts.

(4) VANE AUTO (@) mode

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

In COOL and DRY operation

Vane angle is fixed to Horizontal position.



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

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

- (a) When OFF/ON (stop/operate) button is pressed (POWER OFF).
- (b) When the operation is stopped by the emergency operation.
- (c) When ON TIMER is ON standby.

(6) Dew prevention

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

(7) SWING (↷) mode

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

(8) POWERFUL COOL (⚡) mode

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

Operation becomes POWERFUL COOL mode.

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

POWERFUL COOL mode is also cancelled when POWERFUL COOL button is pressed once again, OFF/ON (stop/operate) button is pressed, FAN speed control button is pressed, ECONO COOL button is pressed or change to other operation mode.

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

2 : VANE control button is available.

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

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

Also the horizontal vane swings in various cycles.

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

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

9-6. TIMER OPERATION

1. How to set the time

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

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

How to set the current time

(a) Press the CLOCK button.

(b) Press the TIME, TIMER set buttons (\blacktriangleright and \blacktriangleleft) to set the current time.

- Each time forward button (\blacktriangleright) is pressed, the set time increases by 1 minute, and each time backward button (\blacktriangleleft) 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 button.

(2) Press OFF/ON (stop/operate) button to start the air conditioner.

(3) Set the time of timer.

ON timer setting

(a) Press On-timer button ($\text{O} \rightarrow \text{I}$) during operation.

(b) Set the time of the timer using TIME, TIMER set buttons (\blacktriangleright and \blacktriangleleft). *

OFF timer setting

(a) Press Off-timer button ($\text{O} \rightarrow \text{O}$) during operation.

(b) Set the time of the timer using TIME, TIMER set buttons (\blacktriangleright and \blacktriangleleft). *

- * Each time forward button (\blacktriangleright) is pressed, the set time increases by 10 minutes: each time backward button (\blacktriangleleft) is pressed, the set time decreases by 10 minutes.

2. To release the timer

To release ON timer, press On-timer button ($\text{O} \rightarrow \text{I}$).

To release OFF timer, press Off-timer button ($\text{O} \rightarrow \text{O}$).

TIMER is cancelled and the display of set time disappears.

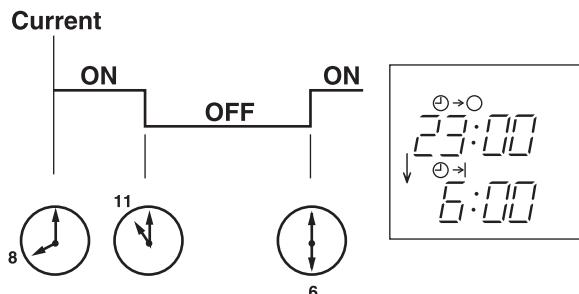
PROGRAM TIMER

• 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.

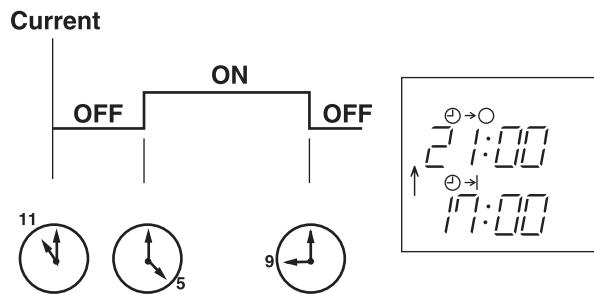
(Example 1) The current time is 8:00 PM.

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.

9-7. SMART SET (◎) OPERATION

1. How to SET SMART SET operation

(1) Press OFF/ON (stop/operate) button.

(2) Select COOL or ECONO COOL mode.

(3) Press SMART SET button.

(4) Set the temperature, fan speed, and airflow direction for SMART SET operation.

NOTE:

- SMART SET operation cannot be selected during DRY or AUTO mode operation.

- 1 group of setting can be saved.

2. How to cancel operation

• Press SMART SET button again.

• SMART SET operation can also be cancelled by pressing Operation select button to change the operation mode.

The preferred setting can be saved for the next time with a single press of SMART SET button.

9-8. EMERGENCY/TEST OPERATION

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

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

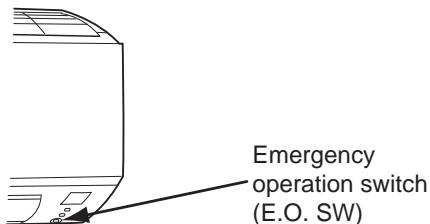
After 30 minutes of test run operation, the system shifts to EMERGENCY COOL MODE with a set temperature of 24°C. The fan speed shifts to Medium.

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

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

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

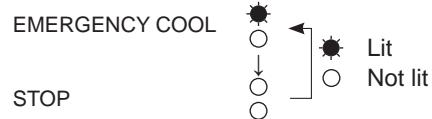
NOTE: Do not press the emergency operation switch during normal operation.



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

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

Operation Indicator lamp



9-9. 3-MINUTE TIME DELAY OPERATION

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

MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG MSXY-FP20VG MSXY-FP24VG

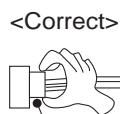
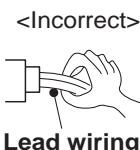
10-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following

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

2. Take care of the following during servicing

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



3. Troubleshooting procedure

- 1) Check if the OPERATION INDICATOR lamp on the indoor unit is blinking ON and OFF to indicate an abnormality.
To make sure, check how many times the OPERATION INDICATOR lamp is blinking ON and OFF before starting service work.
- 2) Before servicing, verify that all connectors and terminals are connected properly.
- 3) When the electronic control P.C. board seems to be defective, check for disconnection of the copper foil pattern and burnt or discolored components.
- 4) When troubleshooting, refer to 10-2, 10-3 and 10-4.

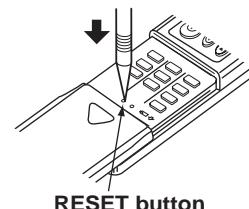
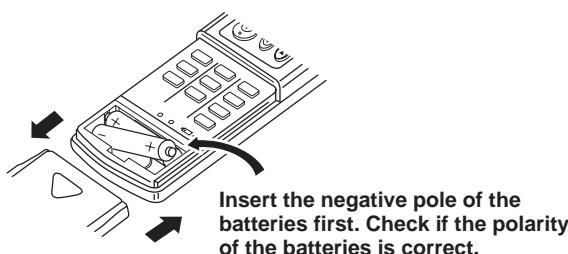
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.

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

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

- ② Press RESET button with a fine-tipped object, 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 microprocessor when batteries are replaced.

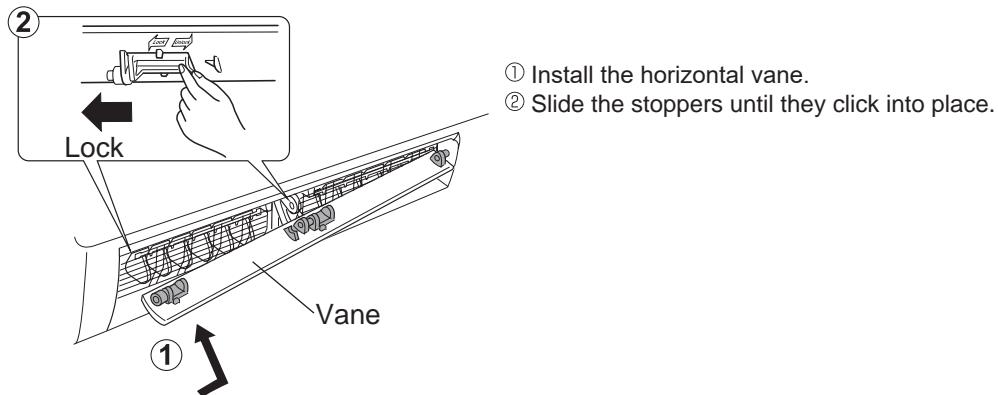
This function is equipped to prevent the microcomputer from malfunctioning due to the voltage drop caused by the battery replacement.

3. Do not use the leaking batteries.

5. How to install the horizontal vane

If horizontal vane is not installed correctly, all of the operation indicator lamps will blink.
In this case, install the horizontal vane correctly by following the procedures ① to ②.

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



10-2. FAILURE MODE RECALL FUNCTION

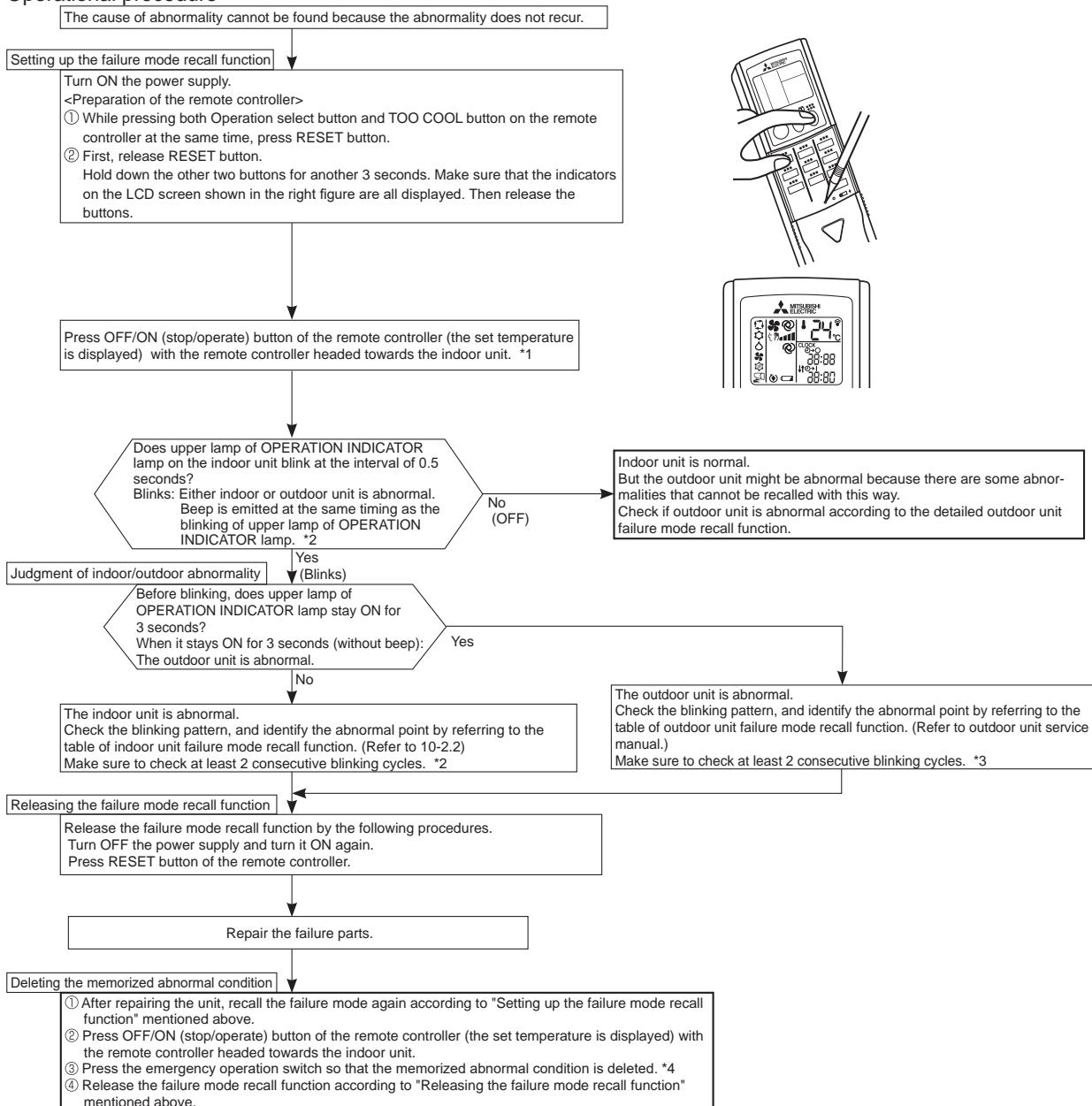
Outline of the function

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

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

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

Operational procedure

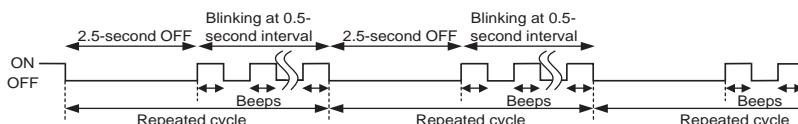


NOTE: 1. Make sure to release the failure mode recall function after it is set up, otherwise the unit cannot operate properly.

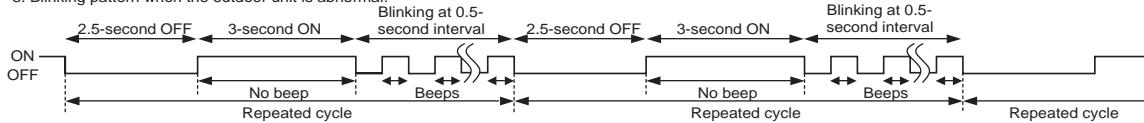
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

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

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



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



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

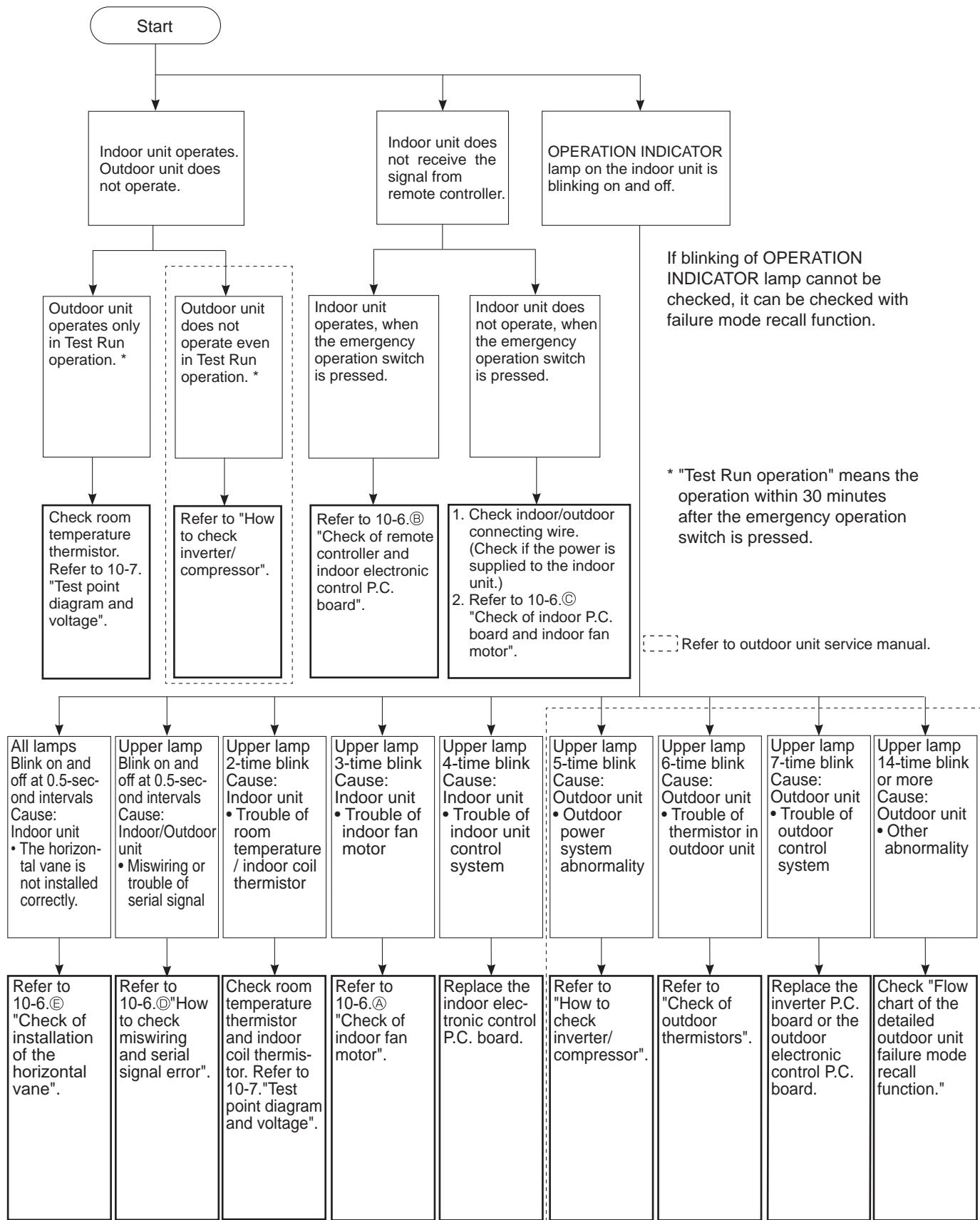
NOTE: Blinking patterns of this mode differ from the ones of
TROUBLESHOOTING CHECK TABLE (10-4.).

2. Table of indoor unit failure mode recall function

Upper lamp of OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lit	Normal	—	—
1-time blink every 0.5-second	Room temperature thermistor	The room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (10-7.).
2-time blink 2.5-second OFF	Indoor coil thermistor	The indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the indoor coil thermistor (10-7.).
3-time blink 2.5-second OFF	Serial signal	The serial signal from outdoor unit is not received for a maximum of 6 minutes.	Refer to 10-6.⑩ "How to check miswiring and serial signal error".
11-time blink 2.5-second OFF	Indoor fan motor	The rotational frequency feedback signal is not emitted for 12 seconds after the indoor fan motor is operated.	Refer to 10-6.Ⓐ "Check of indoor fan motor".
12-time blink 2.5-second OFF	Indoor control system	It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.

10-3. INSTRUCTION OF TROUBLESHOOTING

1. Check of the unit

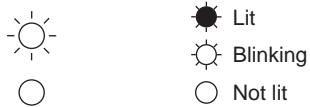


10-4. TROUBLESHOOTING CHECK TABLE

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

When the indoor unit has started operation and detected an abnormality of the following condition (the first detection after the power ON), the indoor fan motor turns OFF and OPERATION INDICATOR lamp blinks.

OPERATION INDICATOR



No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Upper lamp blinks. 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. The indoor unit is connected to a low-standby-power model after once connected to a non-low-standby-power model.	<ul style="list-style-type: none"> Refer to 10-6. ① "How to check miswiring and serial signal error". Refer to NOTE.
2	Indoor coil thermistor	Upper lamp blinks. 2-time blink 2.5-second OFF		The indoor coil or the room temperature thermistor is short or open circuit.	<ul style="list-style-type: none"> Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor (10-7.).
3	Indoor fan motor	Upper lamp blinks. 3-time blink 2.5-second OFF		The rotational frequency feedback signal is not emitted during the indoor fan operation.	<ul style="list-style-type: none"> Refer to 10-6. ② "Check of indoor fan motor".
4	Indoor control system	Upper lamp blinks. 4-time blink 2.5-second OFF		It cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	<ul style="list-style-type: none"> Replace the indoor electronic control P.C. board.
5	Outdoor power system	Upper lamp blinks. 5-time blink 2.5-second OFF		It consecutively occurs 3 times that the compressor stops for overcurrent protection or startup failure protection within 1 minute after startup.	<ul style="list-style-type: none"> Refer to "How to check of inverter/compressor". Refer to outdoor unit service manual Check the stop valve.
6	Outdoor thermistors	Upper lamp blinks. 6-time blink 2.5-second OFF		The outdoor thermistors short or open circuit during the compressor operation.	<ul style="list-style-type: none"> Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
7	Outdoor control system	Upper lamp blinks. 7-time blink 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.	<ul style="list-style-type: none"> 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 blinks. 14-time blink or more 2.5-second OFF		An abnormality other than above mentioned is detected.	<ul style="list-style-type: none"> Check the stop valve. Check the 4-way valve. Confirm the abnormality in detail using the failure mode recall function for outdoor unit.
9	Outdoor control 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.	<ul style="list-style-type: none"> Check the blinking pattern of the LED on the inverter P.C. board or the outdoor electronic control P.C. board.

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

OPERATION INDICATOR

	Lit
	Blinking
	Not lit

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Attachment of the horizontal vane	All lamps blink at the same time. 0.5-second ON 0.5-second OFF	Indoor unit and outdoor unit do not operate.	The electricity is not conducted to the interlock switch (Fan) of the horizontal vane.	• Refer to 10-6. ② "Check of installation of the horizontal vane".

10-5. TROUBLESHOOTING CRITERION OF MAIN PARTS

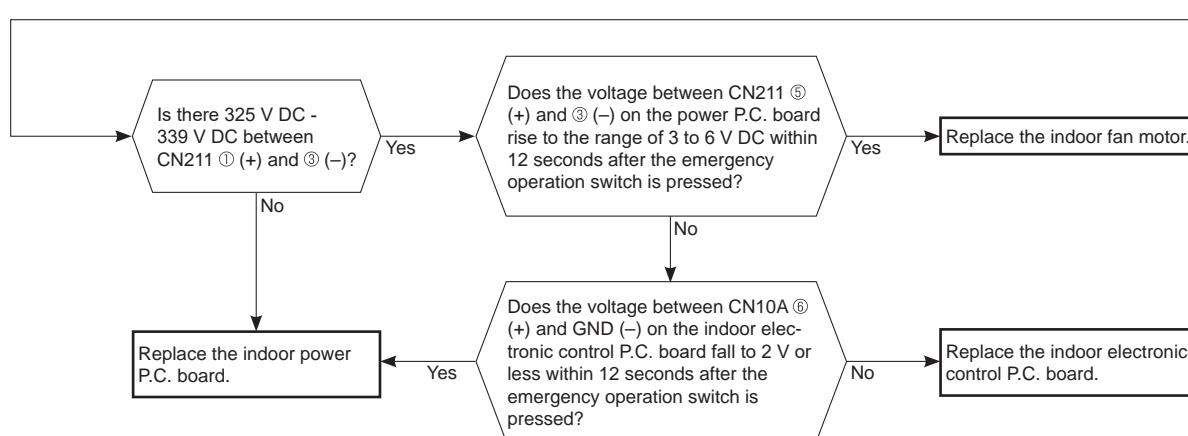
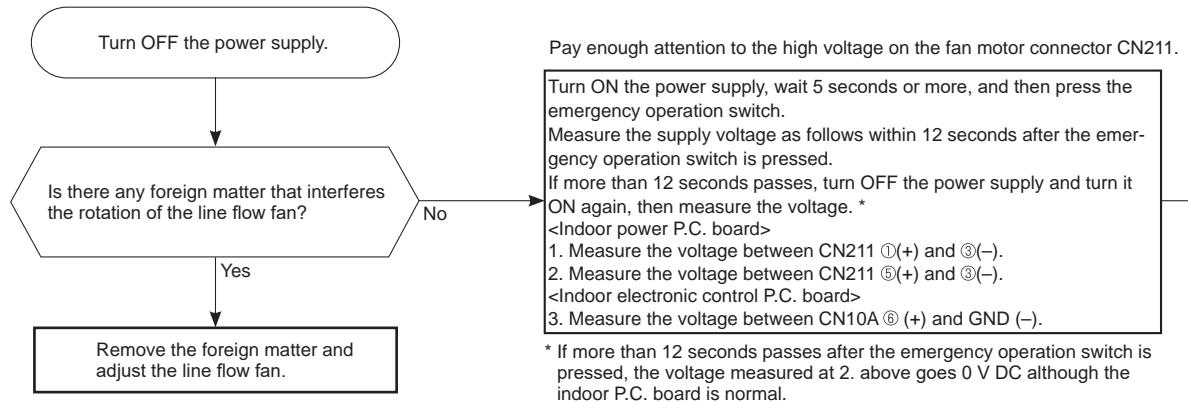
Part name	Check method and criterion		Figure
Room temperature thermistor (RT11)	Measure the resistance with a multimeter.		
Indoor coil thermistor (RT12, RT13)	Refer to 10-7. "Test point diagram and voltage", "2. Indoor electronic control P.C. board", for the chart of thermistor.		
Indoor fan motor (MF)	Check 10-6.④ "Check of indoor fan motor".		
Vane motor (MV)	Measure the resistance between the terminals with a multimeter. (Part temperature 10 ~ 30°C)		

*SKY=SKY BLUE

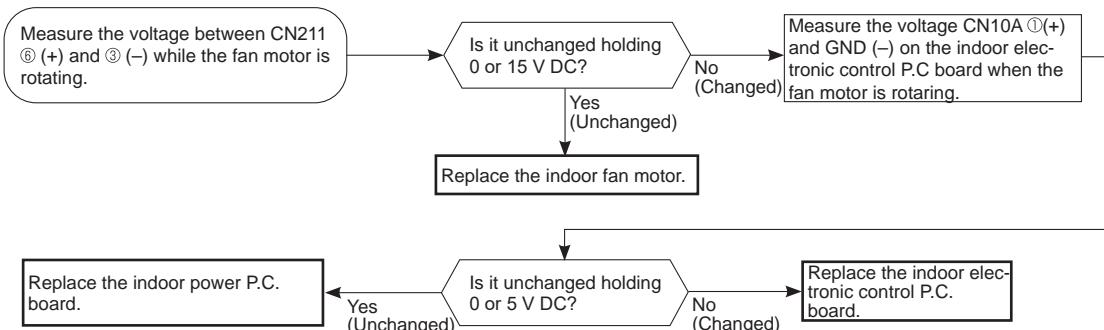
10-6. TROUBLESHOOTING FLOW

(A) Check of indoor fan motor

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

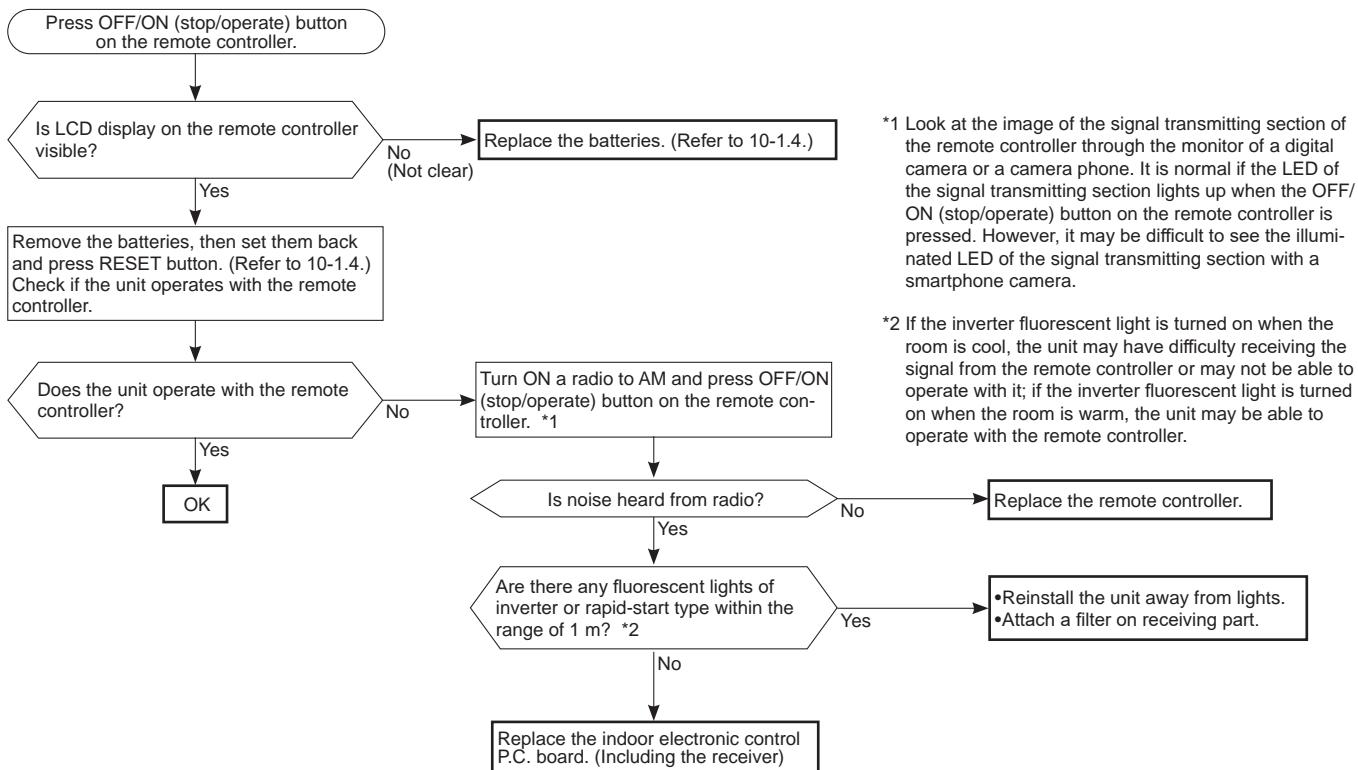


The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.



② Check of remote controller and indoor electronic control P.C. board

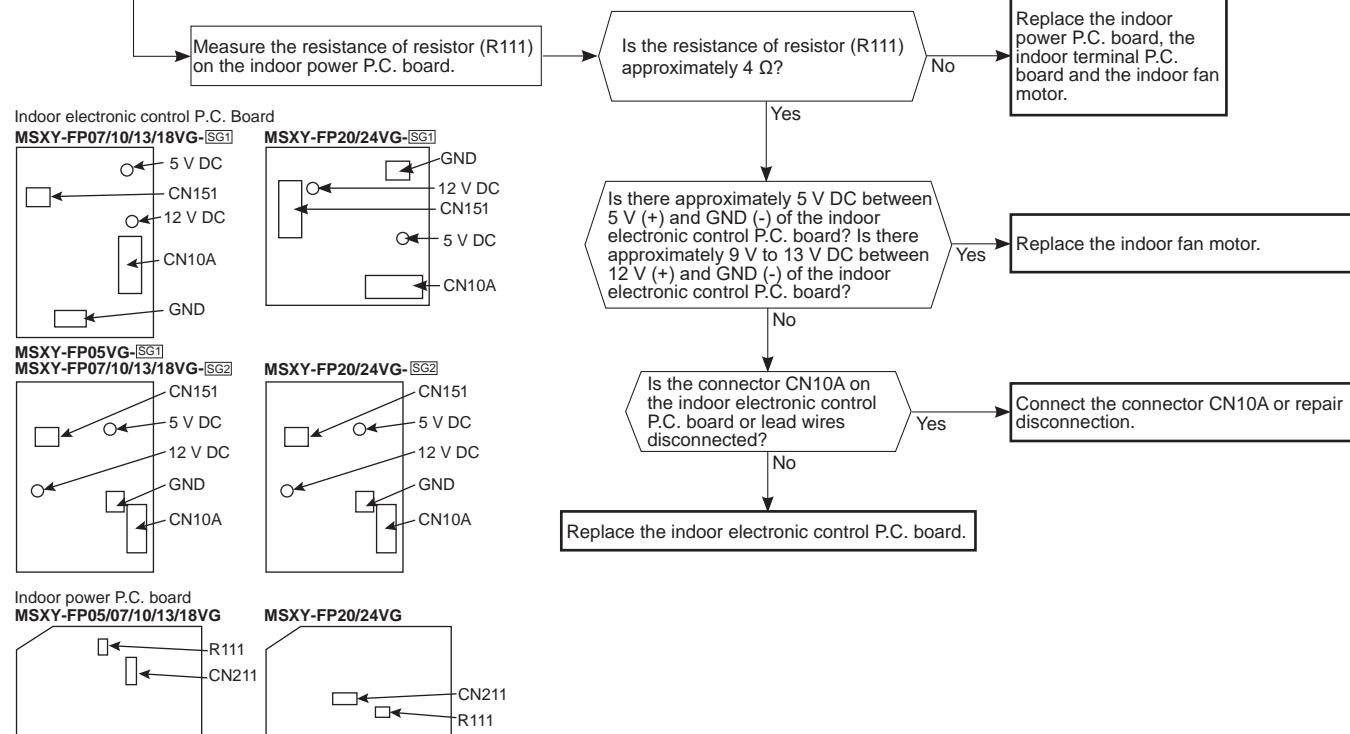
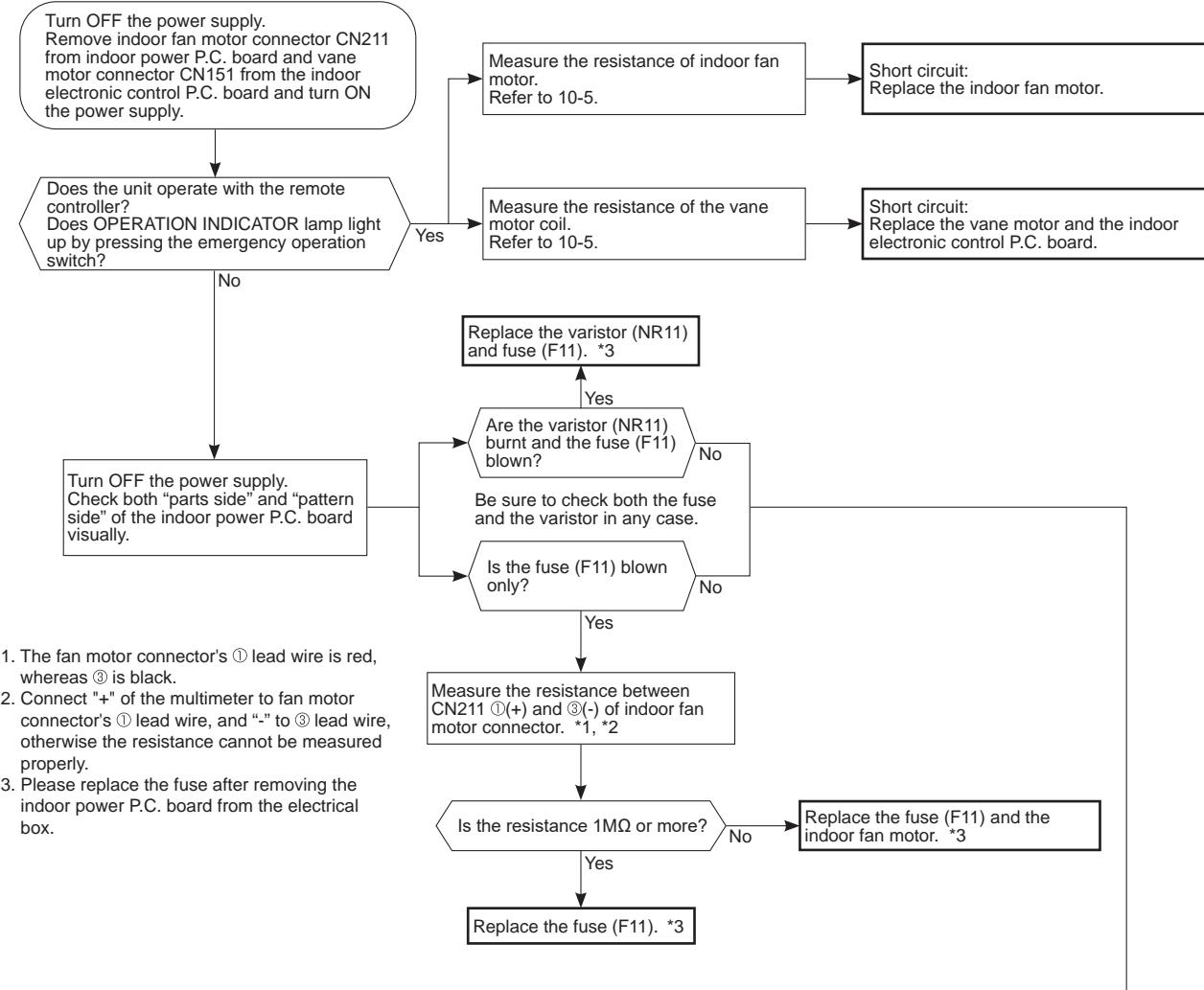
Check if the remote controller is exclusive for this air conditioner.



*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 OFF/ON (stop/operate) 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.

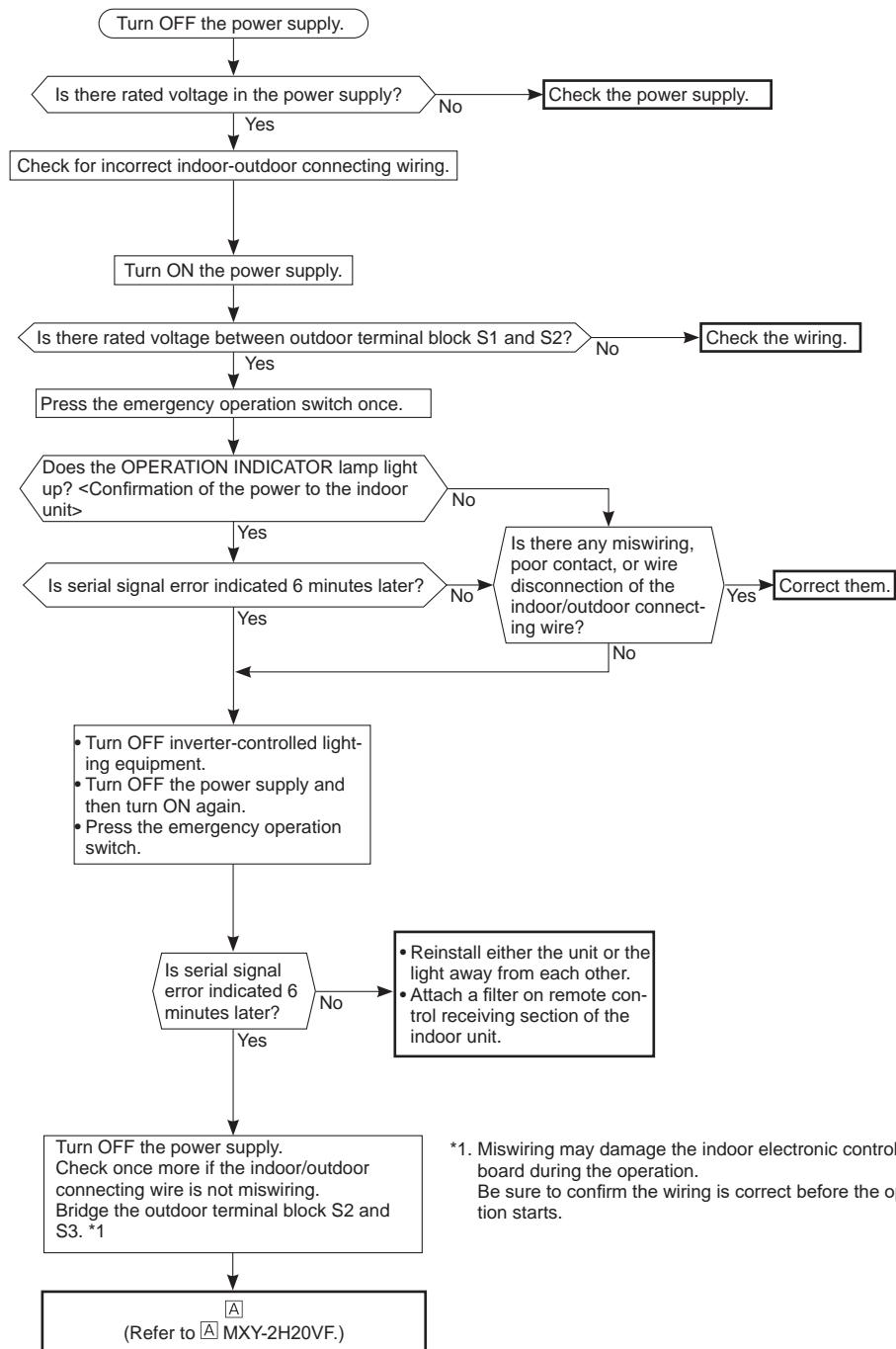
C Check of indoor P.C. board and indoor fan motor



④ How to check miswiring and serial signal error

Outdoor unit is a non-low-standby-power model.

MXY-2H20VF



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

A

MXY-2H20VF

LED indication for communication status

Communication status is indicated by the LED.

Unit status

Blinking: normal communication

Lit: abnormal communication or not connected

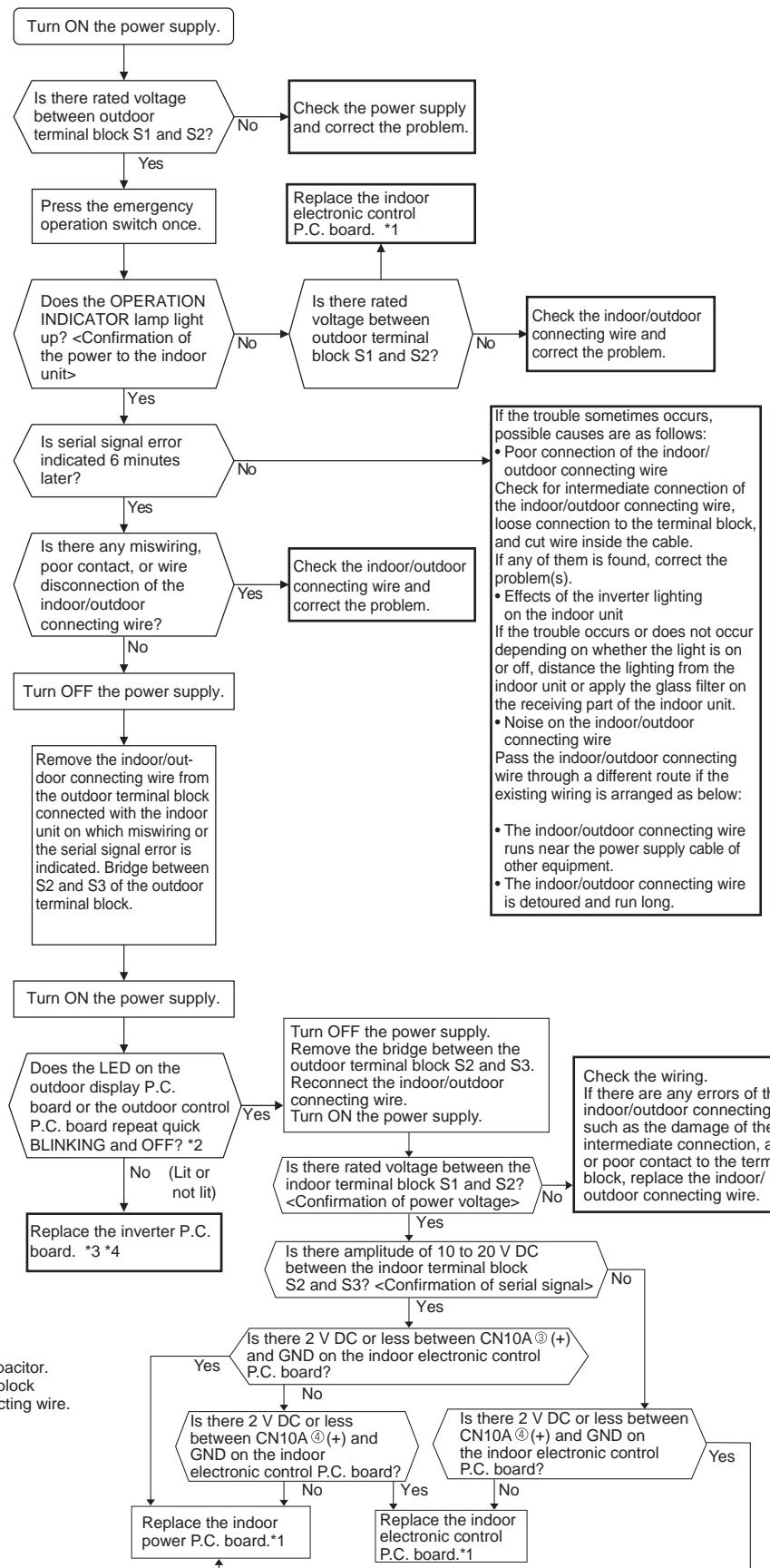
Not lit: The outdoor P.C. board is abnormal.

NOTE: "Lit" and "Not lit" in the table below does not indicate abnormal.

Outdoor display P.C. board

LED1 LED2	
Unit A	Unit B
status	status
Lit	Lit
Not lit	Not lit

Lit
Not lit



*1 Turn OFF the power supply before replacing the indoor P.C. board.

Refer to indoor unit service manual.

*2 The LED indicates the status of serial communication.

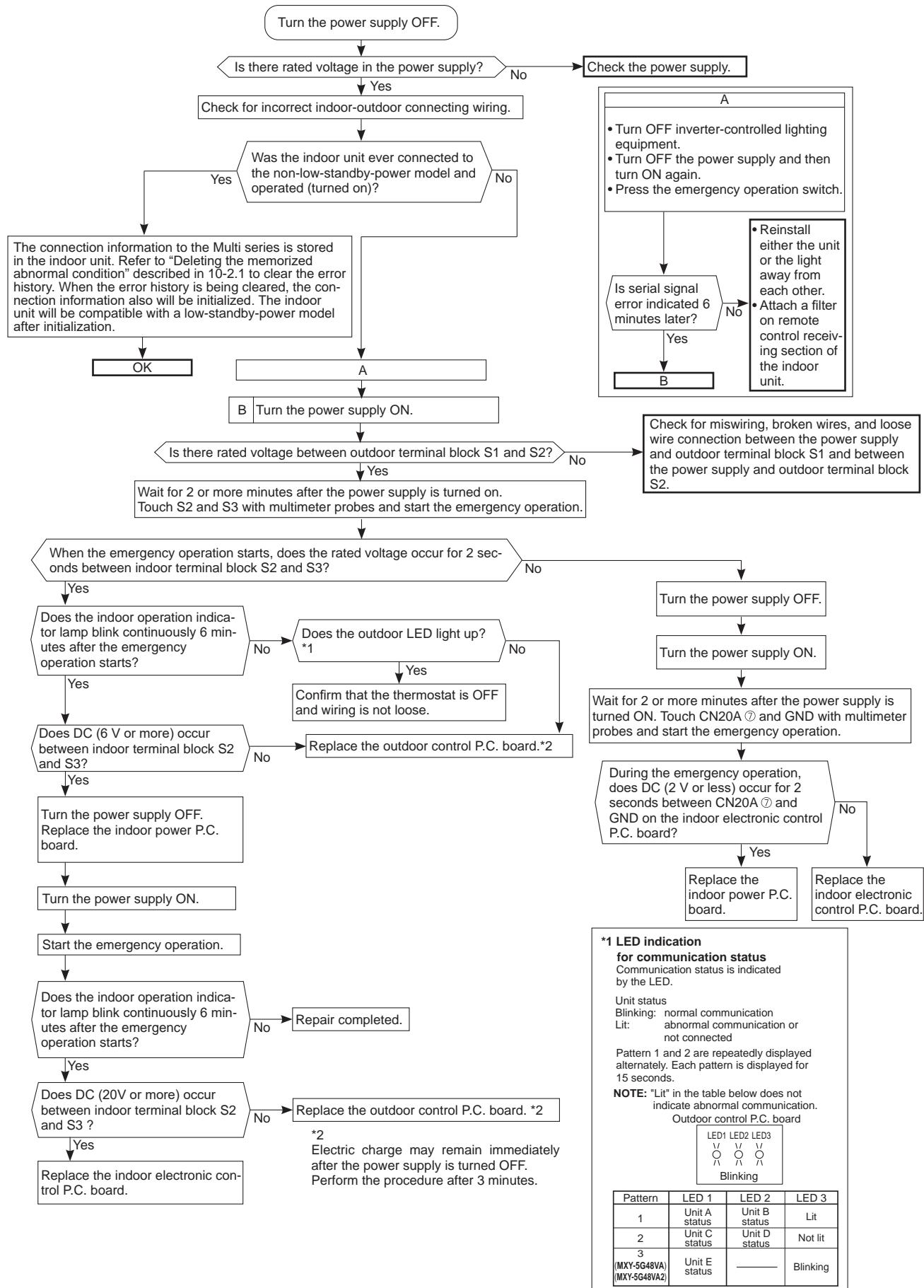
Check the communication status.

*3 Turn OFF the power supply before replacing the inverter P.C. board.

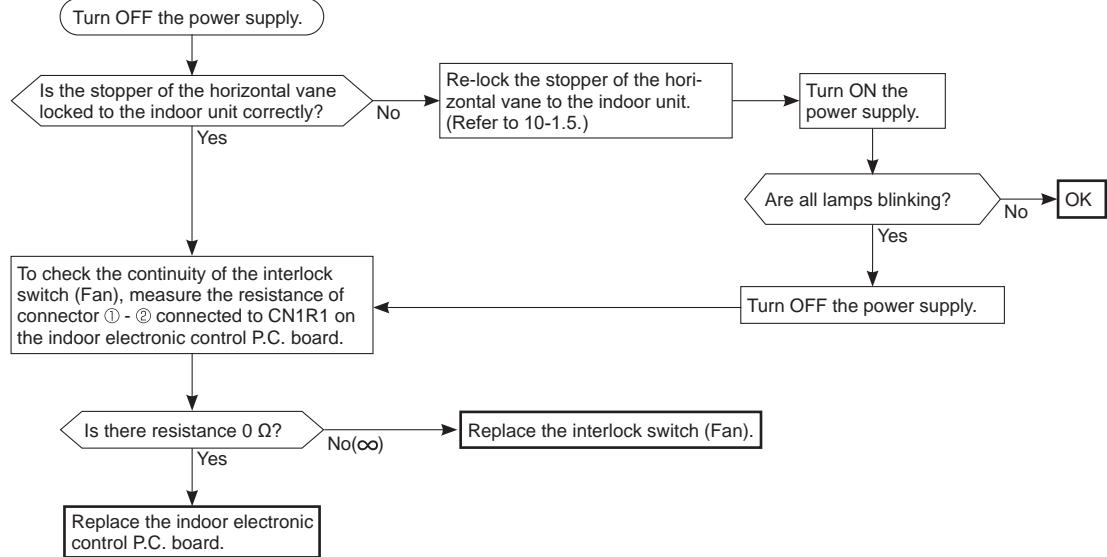
Be careful of residual voltage of smoothing capacitor.

*4 Remove the bridge between outdoor terminal block S2 and S3. Connect the indoor/outdoor connecting wire.

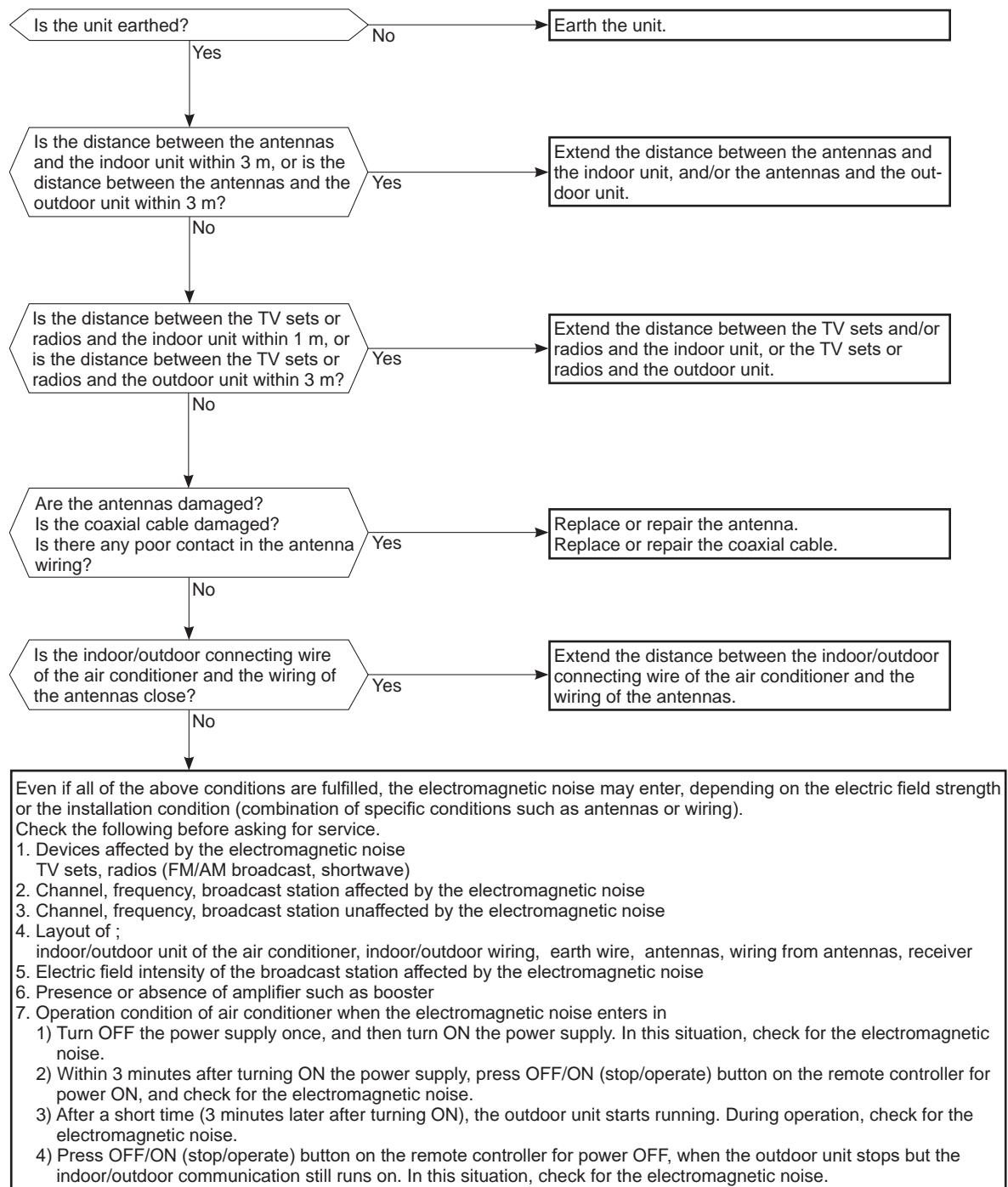
Outdoor units are low-standby-power models.
MXY-3H28VG MXY-4H33VG MXY-4H38VG MXY-5H48VG



⑤ Check of installation of the horizontal vane



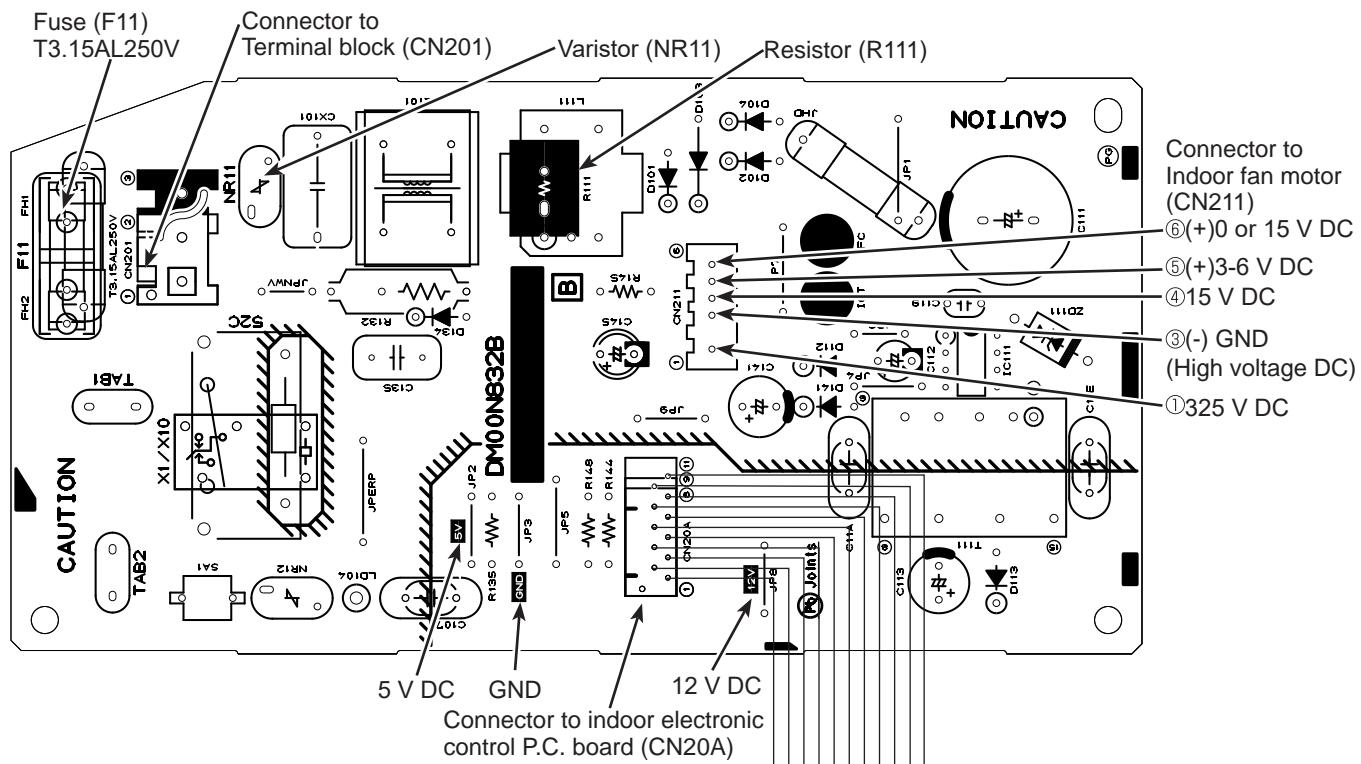
F Electromagnetic noise enters into TV sets or radios



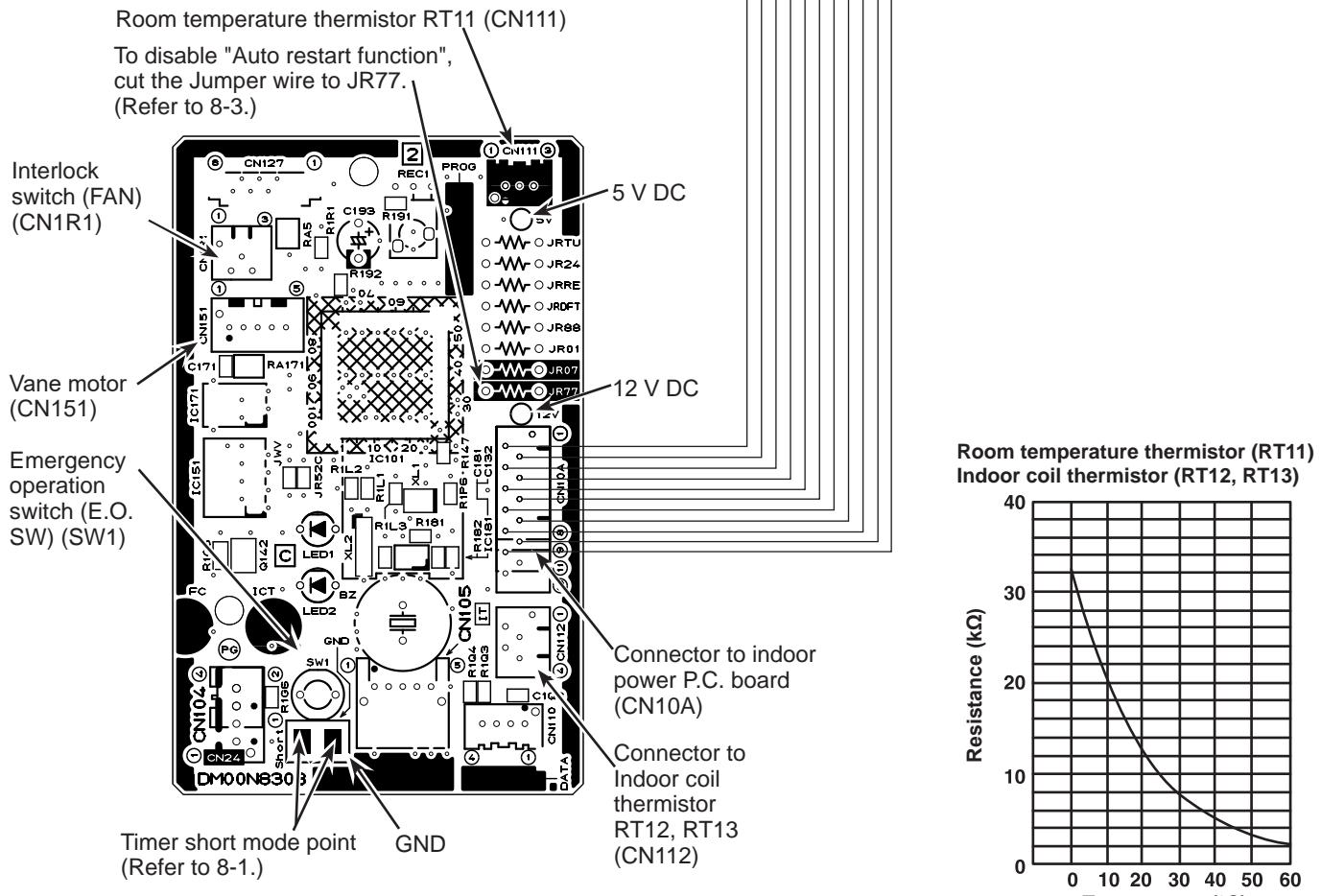
10-7. TEST POINT DIAGRAM AND VOLTAGE

MSXY-FP07VG - [SG1] MSXY-FP10VG - [SG1] MSXY-FP13VG - [SG1] MSXY-FP18VG - [SG1]

1. Indoor power P.C. board



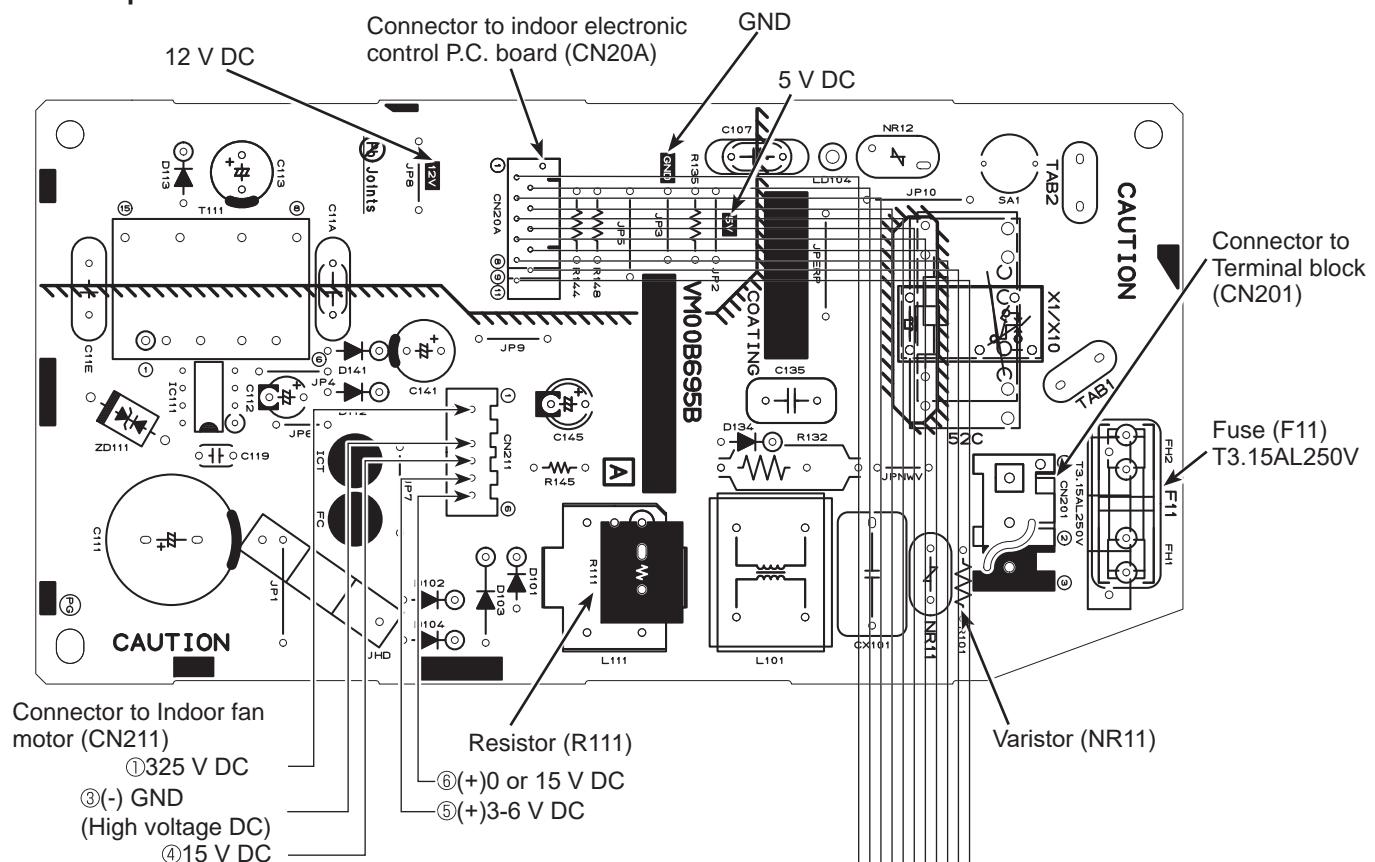
2. Indoor electronic control P.C. board



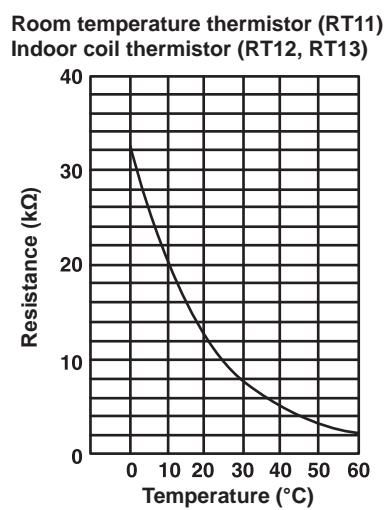
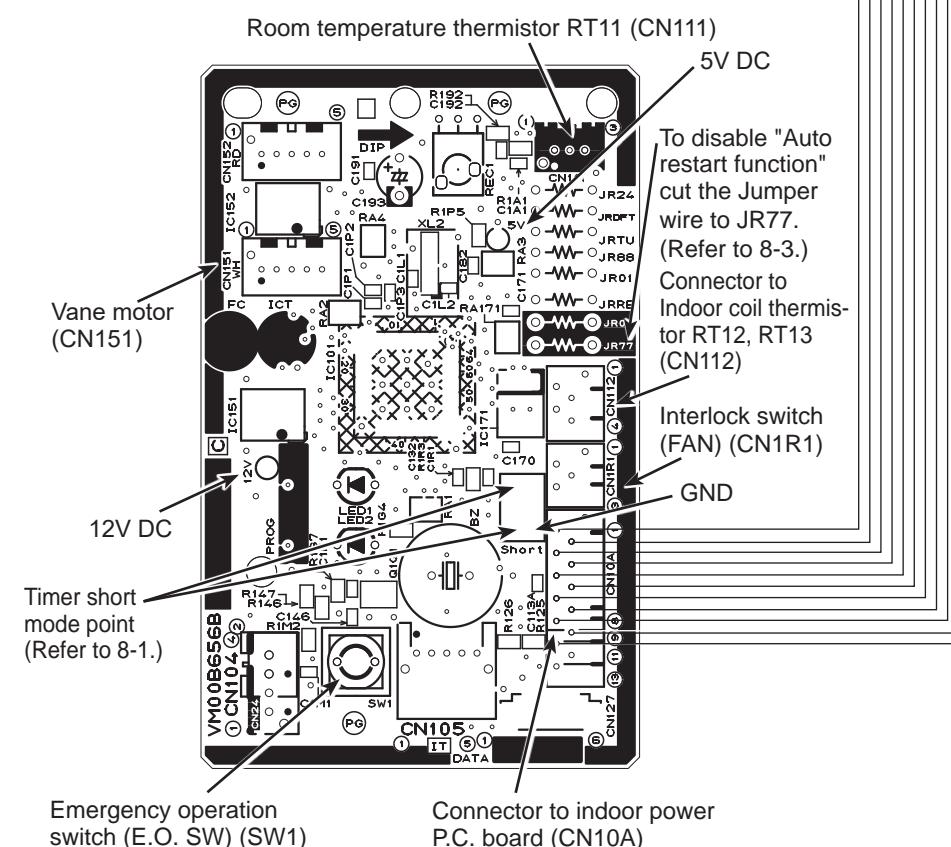
MSXY-FP05VG - SG1

MSXY-FP07VG - SG2 **MSXY-FP10VG -** SG2 **MSXY-FP13VG -** SG2 **MSXY-FP18VG -** SG2

1. Indoor power P.C. board

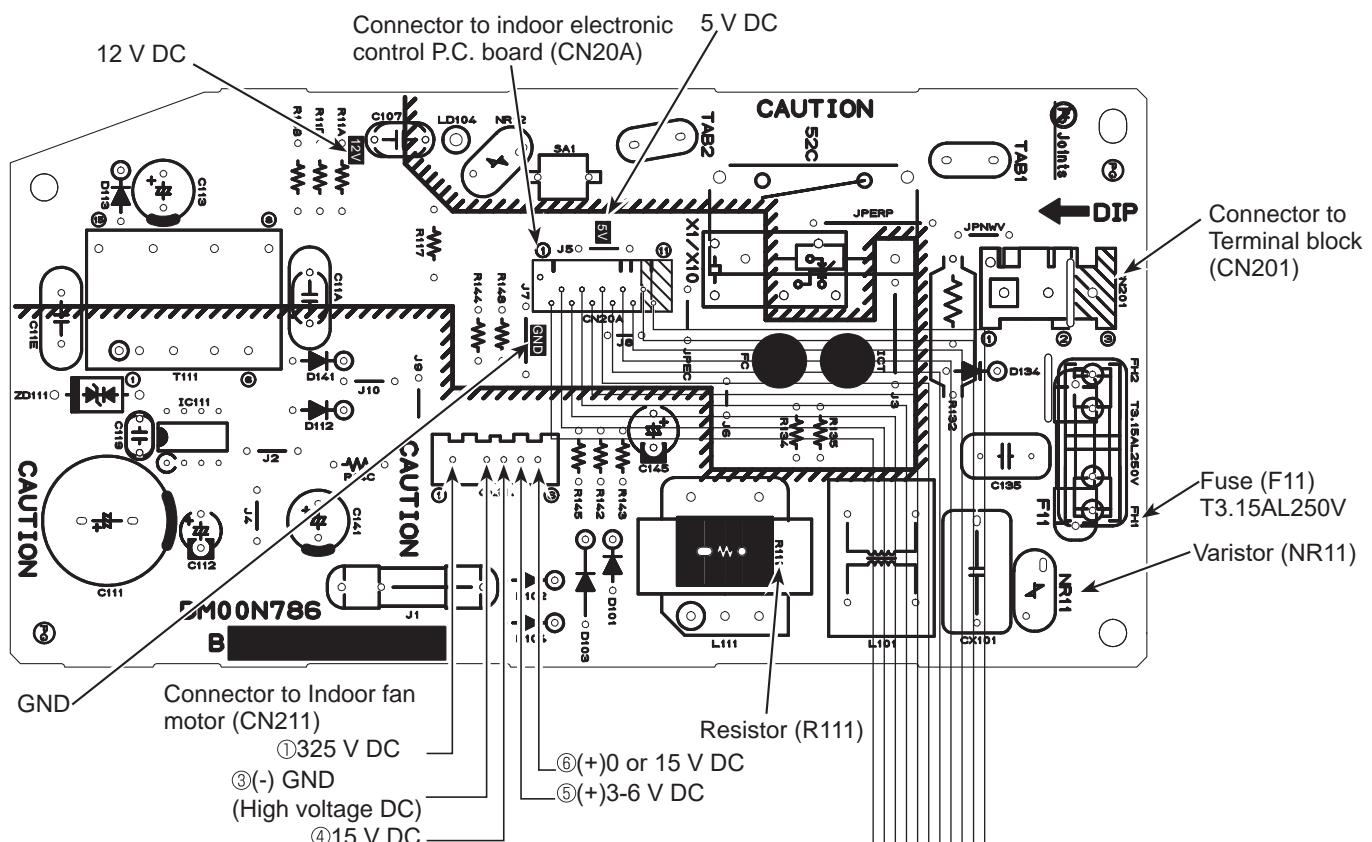


2. Indoor electronic control P.C. board



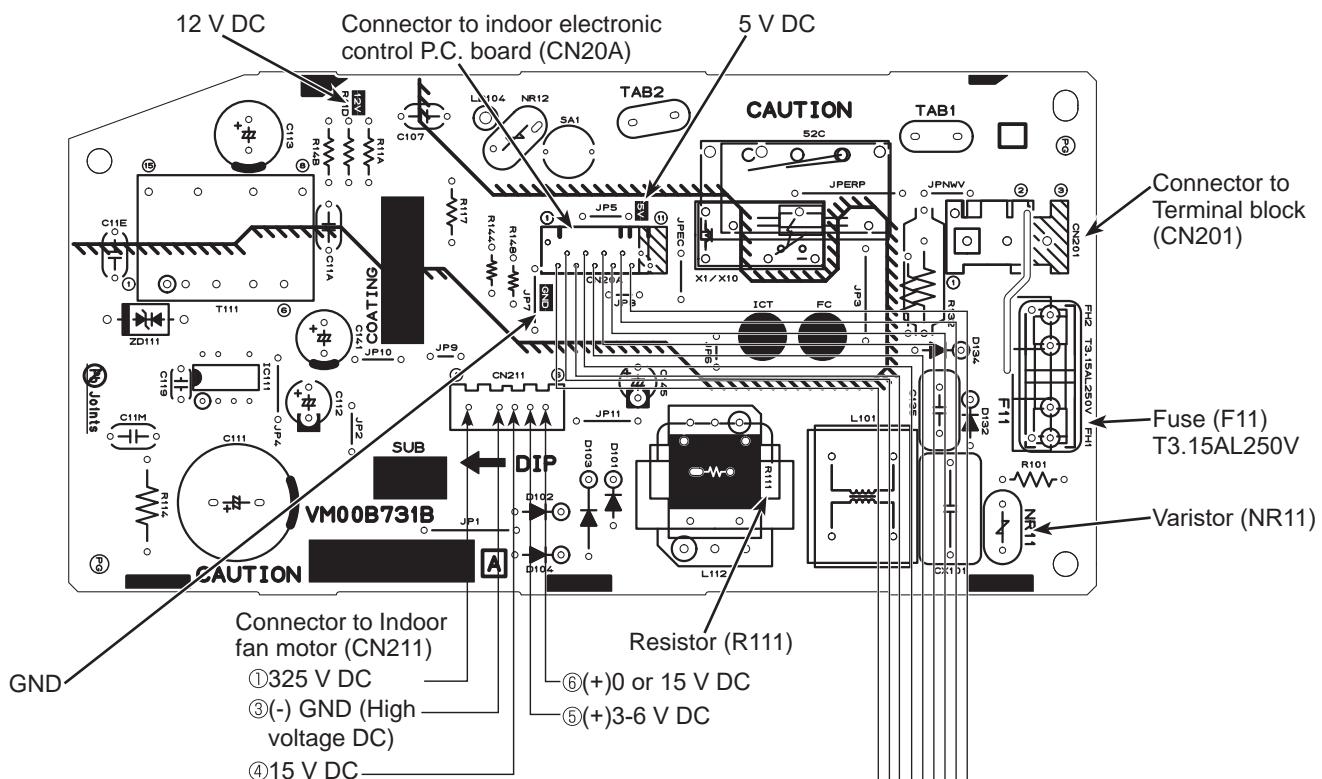
MSXY-FP20VG - SG1 MSXY-FP24VG - SG1

1. Indoor power P.C. board



MSXY-FP20VG - SG2 MSXY-FP24VG - SG2

1. Indoor power P.C. board



<Detaching method of the terminal with locking mechanism>

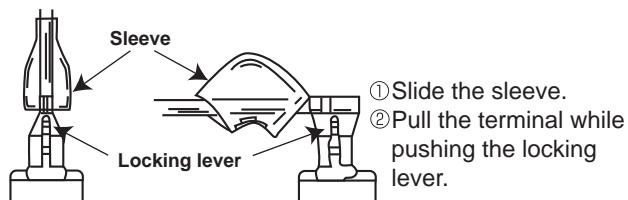
The terminal which has the locking mechanism can be detached as shown below.

There are 2 types of the terminal with locking mechanism.

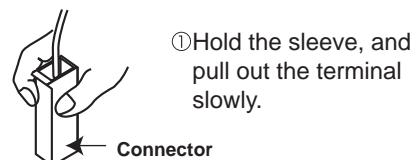
The terminal without locking mechanism can be detached by pulling it out.

Check the shape of the terminal before detaching.

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



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



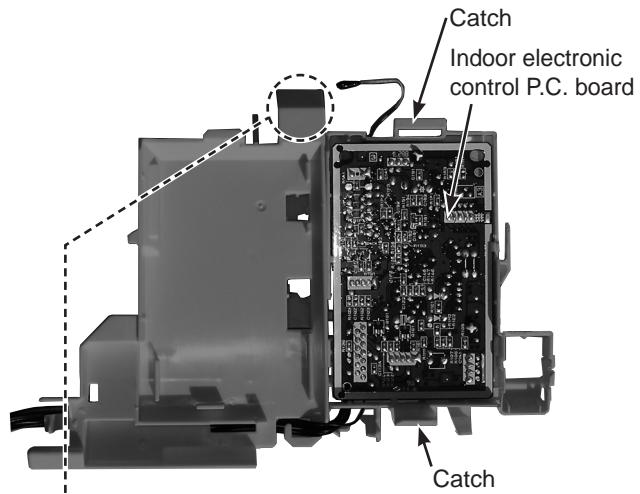
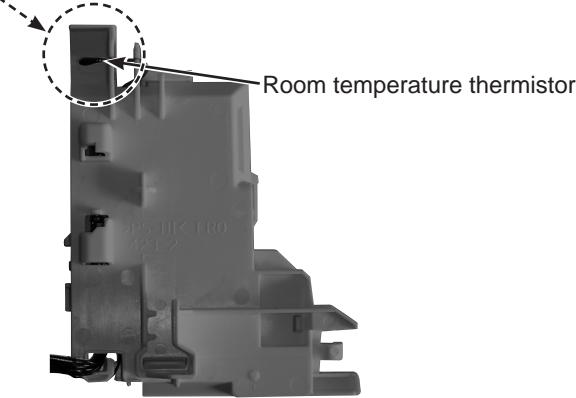
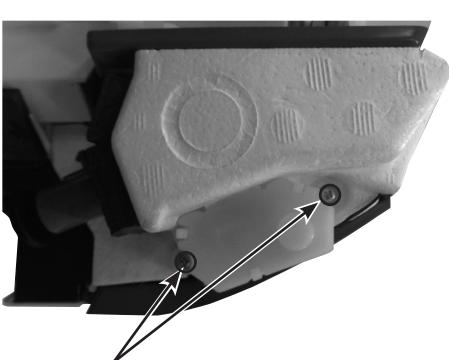
→ : Indicates the visible parts in the photos/figures.
----→ : Indicates the invisible parts in the photos/figures.

11-1. MSXY-FP05VG MSXY-FP07VG MSXY-FP10VG MSXY-FP13VG MSXY-FP18VG

NOTE: Turn OFF the power supply before disassembly.

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

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>2. Removing the indoor power P.C. board and the electrical box</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Disconnect the following connectors:</p> <ul style="list-style-type: none"> <Indoor electronic control P.C. board> CN151 (Vane motor) CN112 (Indoor coil thermistor) CN10A (To the indoor power P.C. board) CN1R1 (Interlock switch) <p>(3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.</p> <p>(4) Remove the screw of the V.A. clamp.</p> <p>(5) Remove the V.A. clamp and the indoor/outdoor connecting wire.</p> <p>(6) Remove the earth wire connected to the indoor heat exchanger from the electrical box.</p> <p>(7) Remove the screw of the electrical cover and remove the electrical cover.</p> <p>(8) Disconnect the following connectors:</p> <ul style="list-style-type: none"> <Indoor power P.C. board> CN211 (Indoor fan motor) CN201 (Terminal block) CN20A (To the indoor electronic control P.C. board) <p>(9) Remove the upper catch of the electrical box, and pull out the electrical box.</p> <p>* To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through Ⓐ. Pass the lead wires of the fan motor through Ⓑ as shown in the Photo 3 so that it will not be pinched under the electrical box.</p>	<p>Photo 2</p>

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>3. Removing the indoor electronic control P.C. board</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Disconnect the following connectors: <Indoor electronic control P.C. board> CN151 (Vane motor) CN112 (Indoor coil thermistor) CN10A (To the indoor power P.C. board) CN1R1 (Interlock switch)</p> <p>(3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.</p> <p>(4) Remove the room temperature thermistor from the back side of the control P.C. board holder.</p> <p>(5) Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.</p> <p>(6) Remove the indoor electronic control P.C. board from the control P.C. board holder.</p>	<p>Photo 4 Control P.C. board holder (Inside)</p> 
<p>4. Removing the nozzle assembly</p> <p>(1) Remove the panel (Refer to section 1.) and the corner box.</p> <p>(2) Remove the V.A. clamp, and then the indoor/outdoor connecting wire. (Photo 2)</p> <p>(3) Remove the electrical cover. (Photo 2)</p> <p>(4) Disconnect the following connectors on the electronic control P.C. board: CN151 (Vane motor) CN1R1 (Interlock switch)</p> <p>(5) Remove the control P.C. board holder (Photo 4).</p> <p>(6) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.</p> <p>(7) Remove the screws of the interlock switch and remove the interlock switch.</p>	<p>Control P.C. board holder (Back side)</p> 
<p>5. Removing the vane motor</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the corner box.</p> <p>(2) Remove the control P.C. board holder and the electrical box. (Refer to section 2.)</p> <p>(3) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.</p> <p>(4) Remove the screws of the vane motor and remove the vane motor.</p> <p>(5) Disconnect the connector from the vane motor.</p>	<p>Photo 5</p> 
	<p>Photo 6</p>  <p>Screws of the vane motor</p>

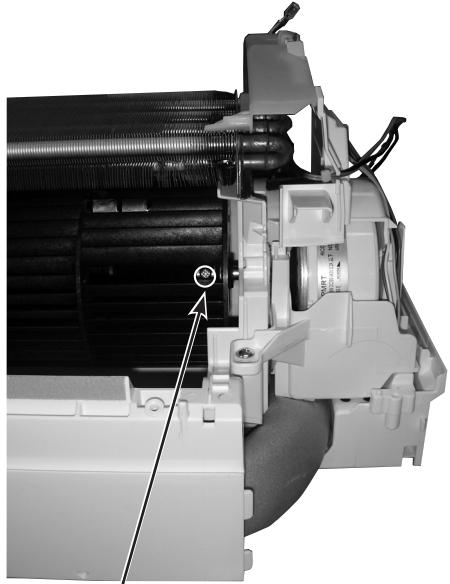
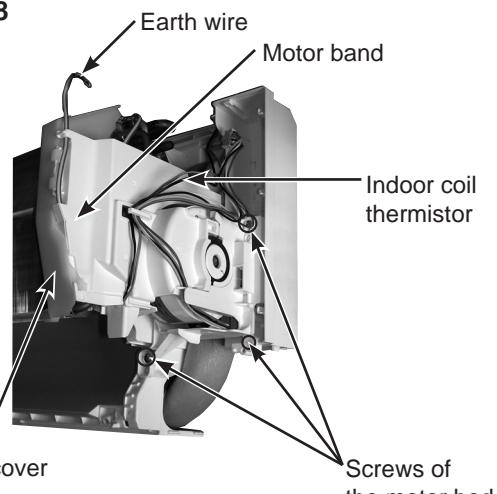
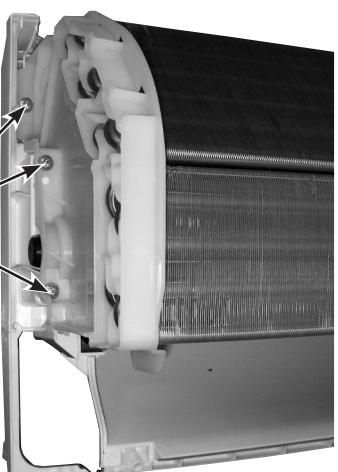
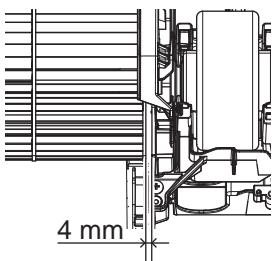
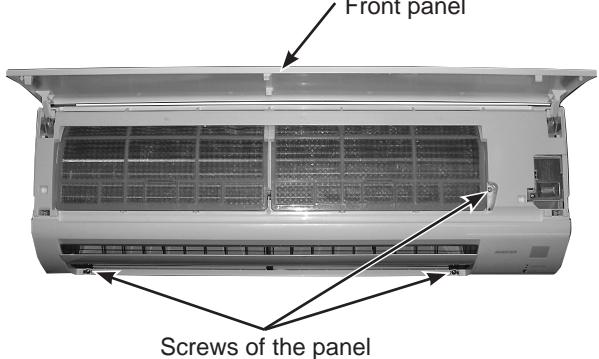
OPERATING PROCEDURE	PHOTOS/FIGURES
<p>6. Removing the indoor fan motor, the indoor coil thermistor and the line flow fan</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the corner box.</p> <p>(2) Remove the control P.C. board holder, the electrical box and the nozzle assembly. (Refer to section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

Figure 1



11-2. MSXY-FP20VG MSXY-FP24VG

NOTE: Turn OFF the power supply before disassembly.

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

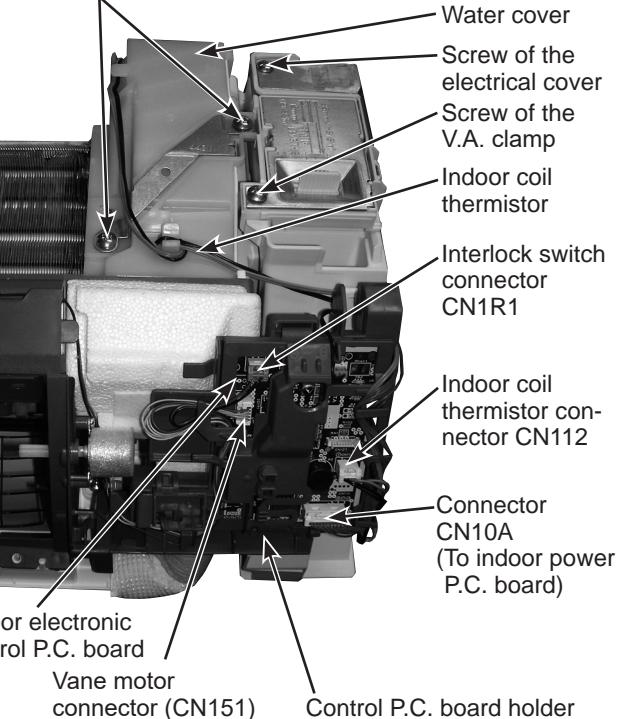
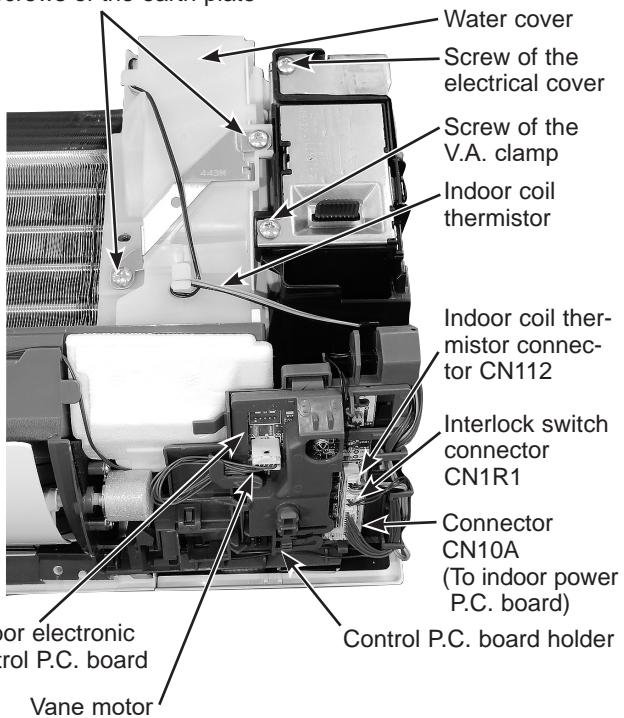
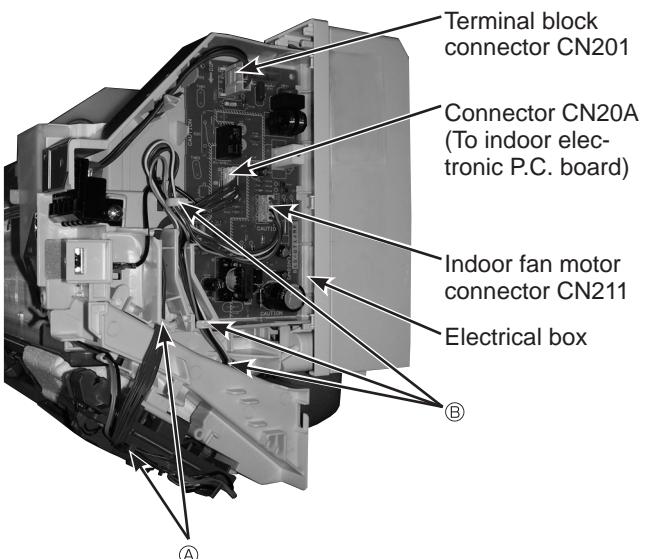
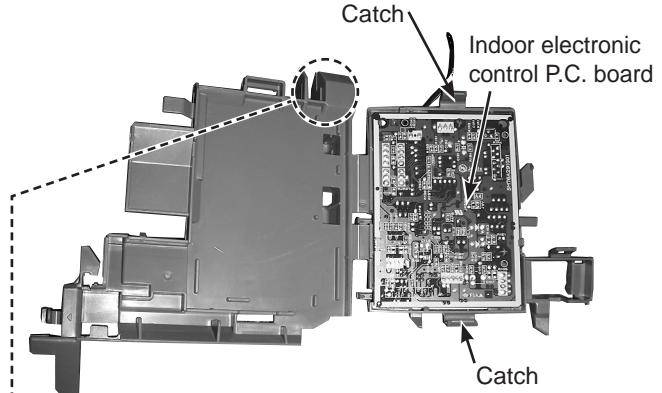
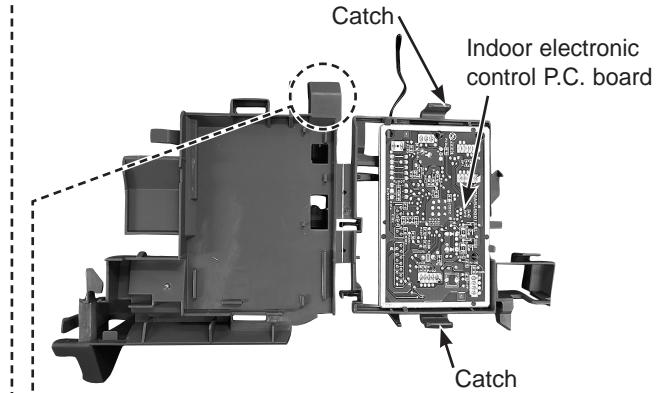
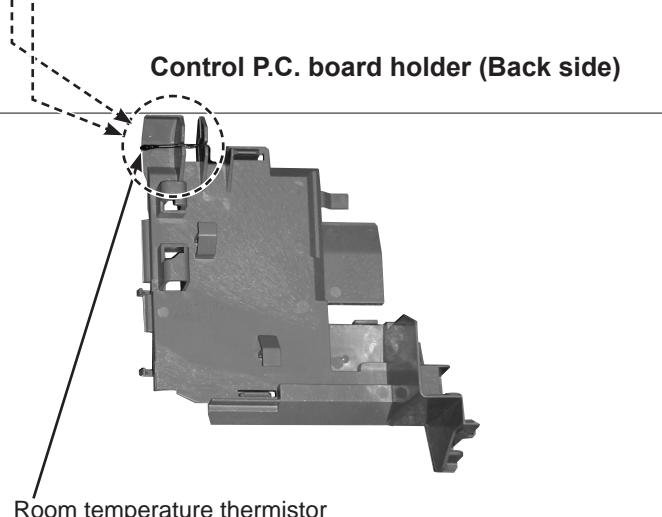
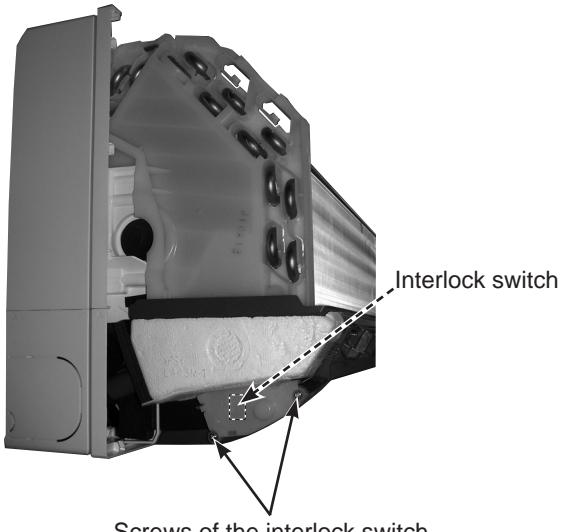
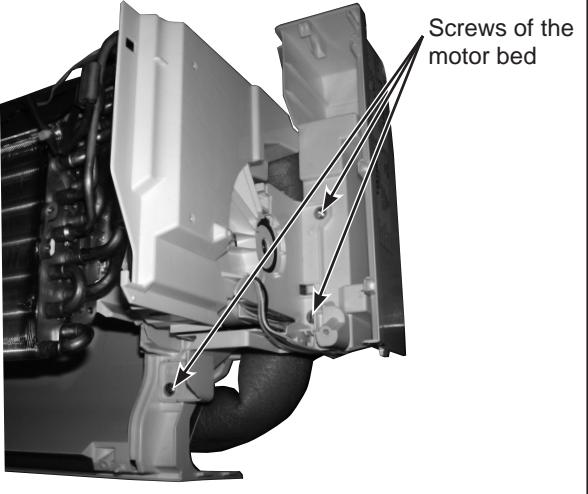
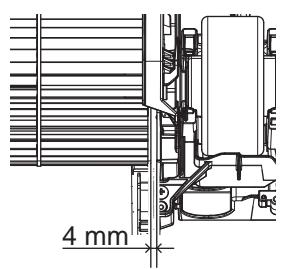
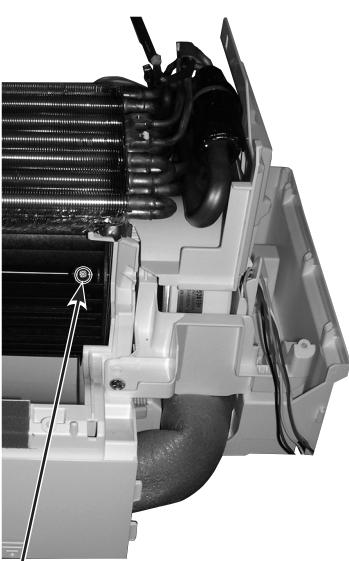
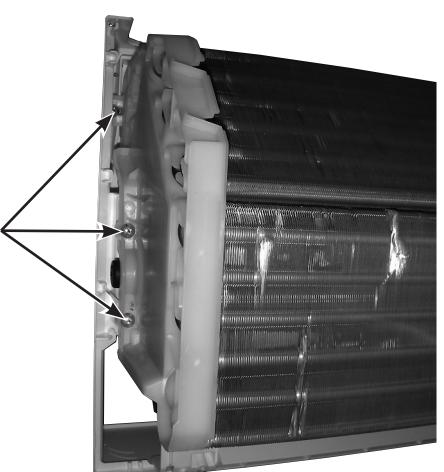
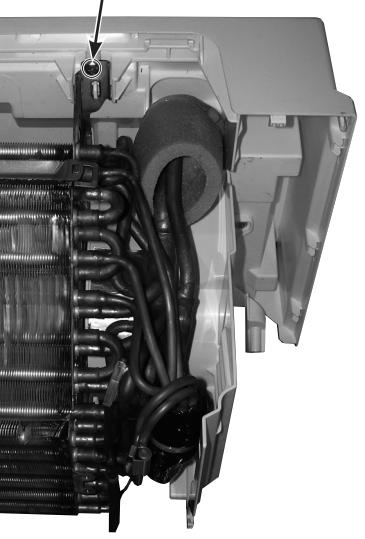
OPERATING PROCEDURE	PHOTOS/FIGURES
<p>2. Removing the indoor power P.C. board and the electrical box</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Disconnect the following connectors: <Indoor electronic control P.C. board> CN151 (Vane motor) CN1R1 (Interlock switch) CN112 (Indoor coil thermistor) CN10A (To the indoor power P.C. board)</p> <p>(3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.</p> <p>(4) Remove the screw of the V.A. clamp.</p> <p>(5) Remove the V.A. clamp and the indoor/outdoor connecting wire.</p> <p>(6) Remove the screws of the earth plate. (Photo 2)</p> <p>(7) Remove the indoor coil thermistor from the water cover.</p> <p>(8) Disengage the hooks of the water cover and remove the water cover.</p> <p>(9) Remove the screw of the electrical cover and remove the electrical cover.</p> <p>(10) Disconnect the CN211 (Indoor fan motor) from the indoor power P.C. board.</p> <p>(11) Remove the upper catch of the electrical box, and pull out the electrical box.</p> <p>(12) Disconnect the following connectors. <Indoor power P.C. board> CN201 (Terminal block) CN20A (To the indoor electronic control P.C. board)</p> <p>* To attach the electrical box, pass the wires connecting the indoor power P.C. board and the indoor electronic control P.C. board through Ⓐ. Pass the lead wires of the fan motor through Ⓑ as shown in the Photo 3 so that it will not be pinched under the electrical box.</p>	<p>Photo 2-1 MSXY-FP20/24VG - SG1</p> <p>Screws of the earth plate</p>  <p>Water cover Screw of the electrical cover Screw of the V.A. clamp Indoor coil thermistor Interlock switch connector CN1R1 Indoor coil thermistor connector CN112 Connector CN10A (To indoor power P.C. board) Indoor electronic control P.C. board Vane motor connector (CN151) Control P.C. board holder</p> <p>Photo 2-2 MSXY-FP20/24VG - SG2</p> <p>Screws of the earth plate</p>  <p>Water cover Screw of the electrical cover Screw of the V.A. clamp Indoor coil thermistor Indoor coil thermistor connector CN112 Interlock switch connector CN1R1 Connector CN10A (To indoor power P.C. board) Indoor electronic control P.C. board Vane motor connector CN151 Control P.C. board holder</p>

Photo 3



OPERATING PROCEDURE	PHOTOS/FIGURES
<p>3. Removing the indoor electronic control P.C. board.</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Disconnect the following connectors: <Indoor electronic control P.C. board> CN151 (Vane motor) CN112 (Indoor coil thermistor) CN1R1 (Interlock switch) CN10A (To the indoor power P.C. board)</p> <p>(3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.</p> <p>(4) Remove the room temperature thermistor from the back side of the control P.C. board holder.</p> <p>(5) Unhook the catches of the control P.C. board holder, and open the control P.C. board holder.</p> <p>(6) Remove the indoor electronic control P.C. board from the control P.C. board holder.</p>	<p>Photo 4-1 MSXY-FP20/24VG - SG2 Control P.C. board holder (Inside)</p>  <p>Photo 4-2 MSXY-FP20/24VG - SG2 Control P.C. board holder (Inside)</p>  <p>Control P.C. board holder (Back side)</p>  <p>Room temperature thermistor</p>

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>4. Removing the nozzle assembly and the interlock switch.</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Disconnect the following connectors: <Indoor electronic control P.C. board> CN151 (Vane motor) CN112 (Indoor coil thermistor) CN1R1 (Interlock switch) CN10A (To the indoor power P.C. board)</p> <p>(3) Unhook the catch on the left side of the control P.C. board holder. Pull the control P.C. board holder as if opening the door at 90 degrees. Remove the control P.C. board holder from the axial rod on the electrical box.</p> <p>(4) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.</p> <p>(5) Remove the interlock switch.</p>	<p>Photo 5</p>  <p>A photograph of the nozzle assembly. A callout points to the 'Interlock switch' located on the side of the assembly. Another callout points to the 'Screws of the interlock switch' at the base of the assembly.</p>
<p>5. Removing the vane motor</p> <p>(1) Remove the panel. (Refer to section 1.) Remove the right corner box.</p> <p>(2) Remove the control P.C. board holder, water cover and the electrical box. (Refer to section 2.)</p> <p>(3) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.</p> <p>(4) Remove the screws of the vane motor and remove the vane motor.</p> <p>(5) Disconnect the connector from the vane motor.</p>	<p>Photo 6</p>  <p>A photograph of the nozzle assembly with the vane motor removed. A callout points to the 'Screws of the vane motor' at the bottom of the assembly.</p>

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

Fixing the indoor coil thermistor

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

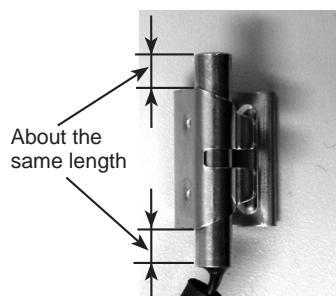
Clip shape



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

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Made in Japan

Specifications are subject to change without notice.



AIR CONDITIONERS

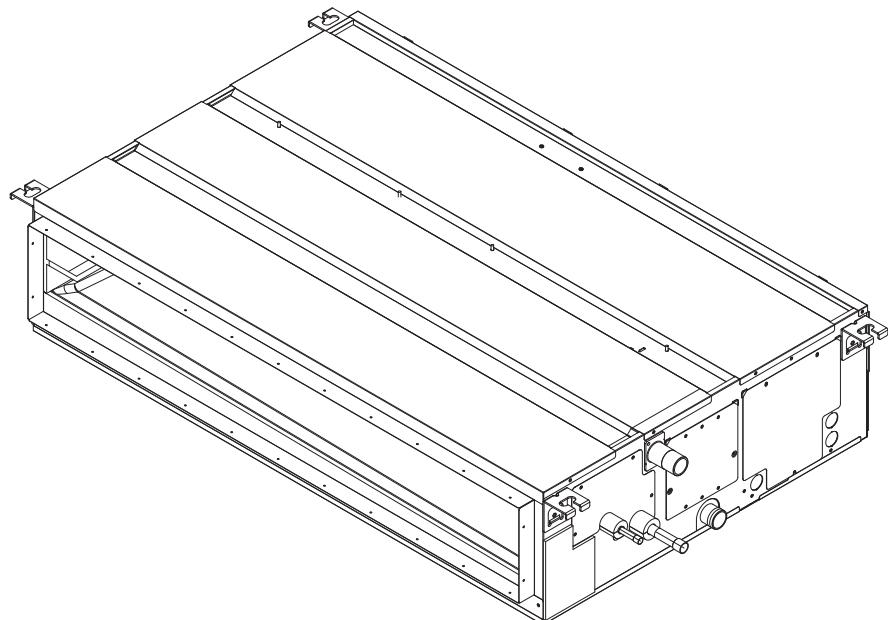
Changes for the Better

**2021
R410A**

TECHNICAL & SERVICE MANUAL

Models

PEFY-P20VMA(L)-E4	PEFY-P71VMA(L)-E4
PEFY-P25VMA(L)-E4	PEFY-P80VMA(L)-E4
PEFY-P32VMA(L)-E4	PEFY-P100VMA(L)-E4
PEFY-P40VMA(L)-E4	PEFY-P125VMA(L)-E4
PEFY-P50VMA(L)-E4	PEFY-P140VMA(L)-E4
PEFY-P63VMA(L)-E4	



CITY MULTI

Safety Precautions

Read before installation and performing electrical work

- Thoroughly read the following safety precautions prior to installation.
- Observe these safety precautions for your safety.
- This equipment may have adverse effects on the equipment on the same power supply system.
- Contact the local power authority before connecting to the system.

Symbols used in the text

WARNING

Describes precautions that should be observed to prevent danger of injury or death to the user.

CAUTION

Describes precautions that should be observed to prevent damage to the unit.

Symbols used in the illustrations



Indicates an action that must be avoided.



Indicates that important instructions must be followed.



Indicates a part which must be grounded.



Indicates that caution should be taken with rotating parts. (This symbol is displayed on the main unit label.) <Color: yellow>



Beware of electric shock (This symbol is displayed on the main unit label.) <Color: yellow>

WARNING

Carefully read the labels affixed to the main unit.

WARNING

• Ask the dealer or an authorized technician to install the air conditioner.

- Improper installation by the user may result in water leakage, electric shock, or fire.

• Install the air unit at a place that can withstand its weight.

- Inadequate strength may cause the unit to fall down, resulting in injuries.

• Use the specified cables for wiring. Make the connections securely so that the outside force of the cable is not applied to the terminals.

- Inadequate connection and fastening may generate heat and cause a fire.

• Prepare for typhoons and other strong winds and earthquakes and install the unit at the specified place.

- Improper installation may cause the unit to topple and result in injury.

• Always use an air cleaner, humidifier, electric heater, and other accessories specified by Mitsubishi Electric.

- Ask an authorized technician to install the accessories. Improper installation by the user may result in water leakage, electric shock, or fire.

• Never repair the unit. If the air conditioner must be repaired, consult the dealer.

- If the unit is repaired improperly, water leakage, electric shock, or fire may result.

• Do not touch the heat exchanger fins.

- Improper handling may result in injury.

• When handling this product, always wear protective equipment.

EG: Gloves, full arm protection namely boiler suit, and safety glasses.

- Improper handling may result in injury.

• If refrigerant gas leaks during installation work, ventilate the room.

- If the refrigerant gas comes into contact with a flame, poisonous gases will be released.

• Install the air conditioner according to this Installation Manual.

- If the unit is installed improperly, water leakage, electric shock, or fire may result.

• Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard" and "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.

- If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.

• Keep the electric parts away from water (washing water etc.).

- It might result in electric shock, catching fire or smoke.

• Securely install the outdoor unit terminal cover (panel).

- If the terminal cover (panel) is not installed properly, dust or water may enter the outdoor unit and fire or electric shock may result.

• Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.

- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.

- It may also be in violation of applicable laws.

- MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.

• If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant should leak.

- Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.

• When moving and reinstalling the air conditioner, consult the dealer or an authorized technician.

- If the air conditioner is installed improperly, water leakage, electric shock, or fire may result.

• After completing installation work, make sure that refrigerant gas is not leaking.

- If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.

• Do not reconstruct or change the settings of the protection devices.

- If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.

• To dispose of this product, consult your dealer.

• Do not use a leak detection additive.

• If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

• This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

• Children should be supervised to ensure that they do not play with the appliance.

• The installer and system specialist shall secure safety against leakage according to local regulation or standards.

- The instructions in this manual may be applicable if local regulation are not available.

• Pay a special attention to the place, such as a basement, etc. where refrigeration gas can stay, since refrigeration is heavier than the air.

• This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

Precautions for devices that use R410A refrigerant

CAUTION

• Do not use the existing refrigerant piping.

- The old refrigerant and refrigerator oil in the existing piping contains a large amount of chlorine which may cause the refrigerator oil of the new unit to deteriorate.

• Use refrigerant piping made of C1220 (Cu-DHP) phosphorus deoxidized copper as specified in the JIS H3300 "Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.

- Contaminants on the inside of the refrigerant piping may cause the refrigerant residual oil to deteriorate.

• Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Store elbows and

other joints in a plastic bag.)

- If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.

•Use liquid refrigerant to fill the system.

- If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.

•Do not use a refrigerant other than R410A.

- If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the refrigerator oil to deteriorate.

•Use a vacuum pump with a reverse flow check valve.

- The vacuum pump oil may flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate.

•Do not use the following tools that are used with conventional refrigerants. (Gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, refrigerant recovery equipment)

- If the conventional refrigerant and refrigerator oil are mixed in the R410A, the refrigerant may deteriorate.

- If water is mixed in the R410A, the refrigerator oil may deteriorate.

- Since R410A does not contain any chlorine, gas leak detectors for conventional refrigerants will not react to it.

•Do not use a charging cylinder.

- Using a charging cylinder may cause the refrigerant to deteriorate.

•Be especially careful when managing the tools.

- If dust, dirt, or water gets in the refrigerant cycle, the refrigerant may deteriorate.

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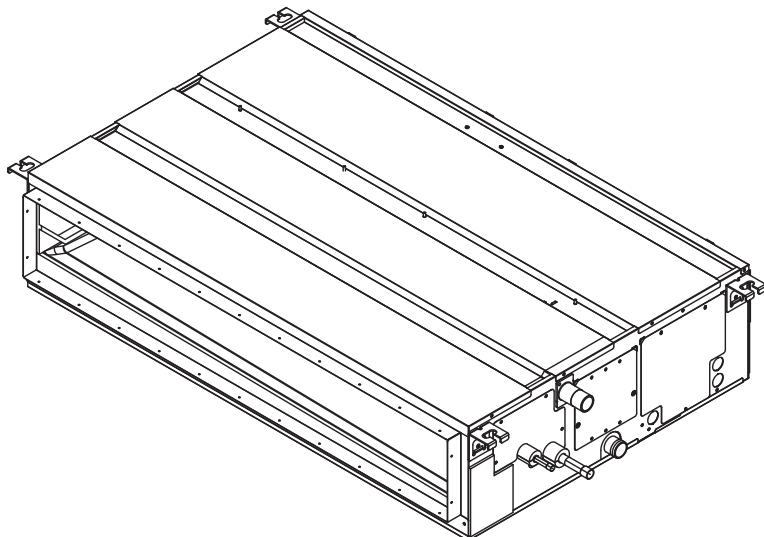
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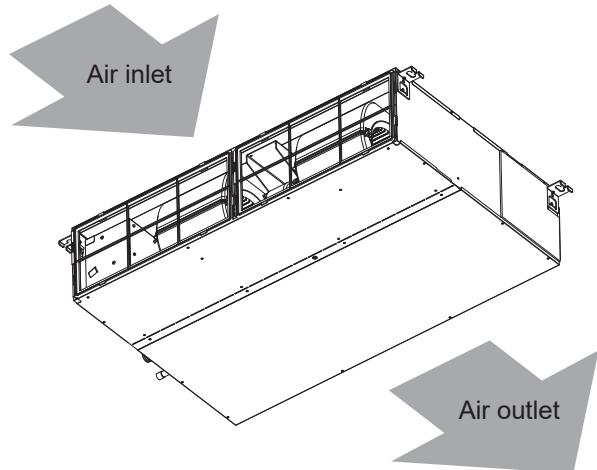
[1] Features

Model	Cooling capacity/Heating capacity
	kW
PEFY-P20VMA(L)-E4	2.2/2.5
PEFY-P25VMA(L)-E4	2.8/3.2
PEFY-P32VMA(L)-E4	3.6/4.0
PEFY-P40VMA(L)-E4	4.5/5.0
PEFY-P50VMA(L)-E4	5.6/6.3
PEFY-P63VMA(L)-E4	7.1/8.0
PEFY-P71VMA(L)-E4	8.0/9.0
PEFY-P80VMA(L)-E4	9.0/10.0
PEFY-P100VMA(L)-E4	11.2/12.5
PEFY-P125VMA(L)-E4	14.0/16.0
PEFY-P140VMA(L)-E4	16.0/18.0

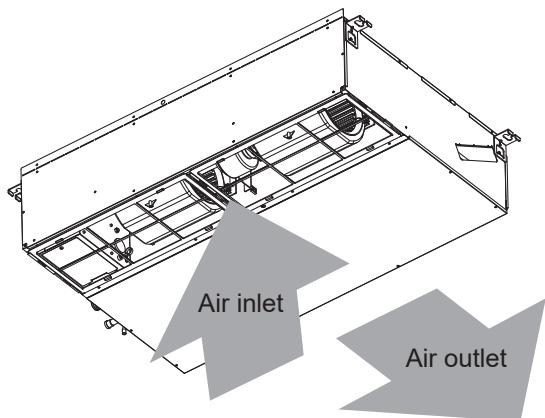
[1] Components and Functions

1. Indoor (Main) Unit

(1) In case of rear inlet



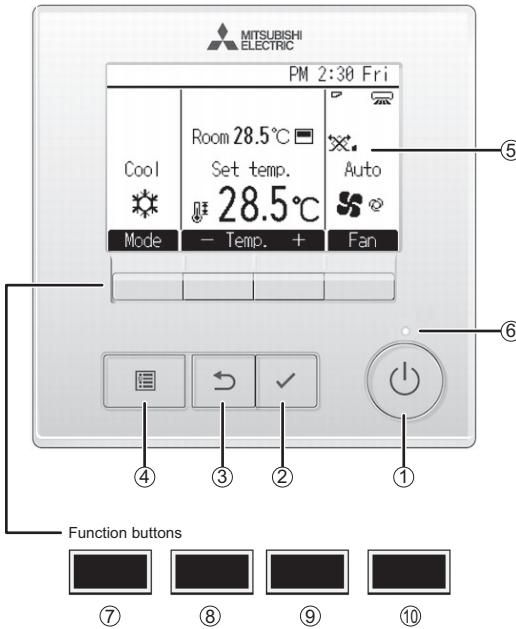
(2) In case of bottom inlet



2. Remote Controller

Once the operation mode is selected, the unit will remain in the selected mode until changed.

(1) Remote Controller Buttons



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT] button

Press to save the setting.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.

When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

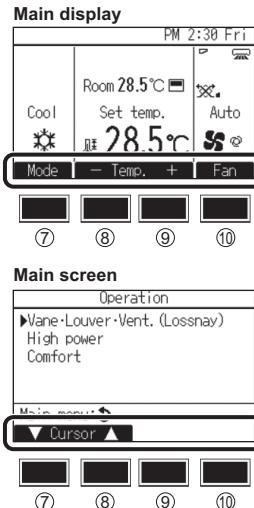
⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

The functions of the function buttons change depending on the screen.

Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.

When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



⑦ Function button [F1]

Main display: Press to change the operation mode.

Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.

Main menu: Press to move the cursor left.

Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.

Main menu: Press to move the cursor right.

Menu screen: The button function varies with the screen.

⑩ Function button [F4]

Main display: Press to change the fan speed.

Menu screen: The button function varies with the screen.

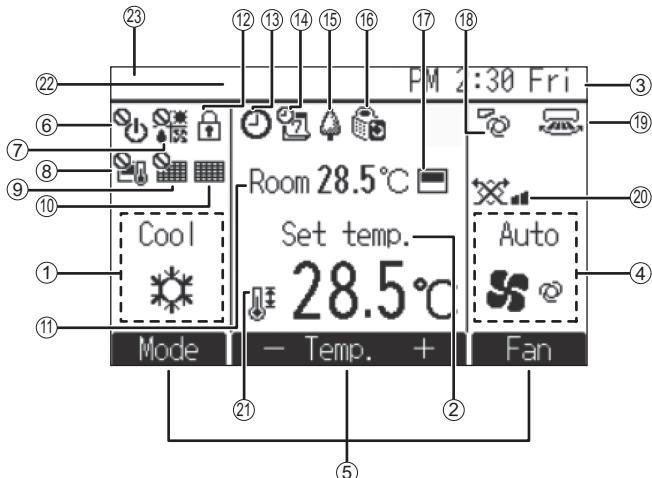
[II Components and Functions]

(2) Remote Controller Display

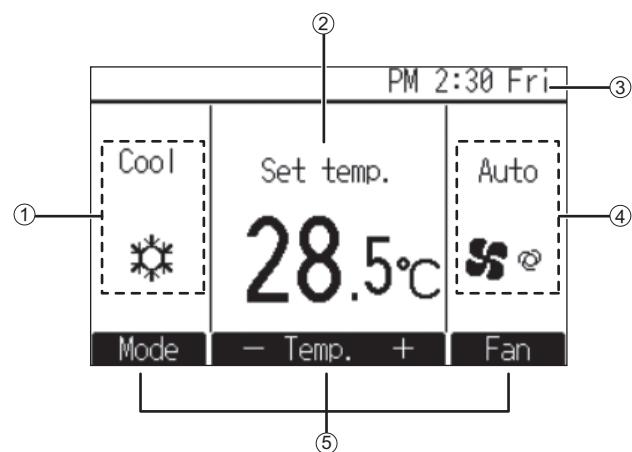
The main display can be displayed in two different modes: "Full" and "Basic." The factory setting is "Full." To switch to the "Basic" mode, change the setting on the Main display setting.

■ Full mode

* All icons are displayed for explanation.



■ Basic mode



① Operation mode

Indoor unit operation mode appears here.

② Set temperature

Set temperature appears here.

③ Clock

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the set temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer, Night setback, or Auto-off timer function is enabled.

⑭

Appears when the timer is disabled by the centralized control system.

⑮

Appears when the Weekly timer is enabled.

⑯

Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

⑰

Appears while the outdoor units are operated in the silent mode.

⑱

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

⑲

Appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑳

Indicates the vane setting.

㉑

Indicates the louver setting.

㉒

Indicates the ventilation setting.

㉓

Appears when the set temperature range is restricted.

㉔ Centrally controlled

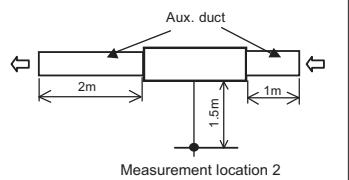
Appears for a certain period of time when a centrally-controlled item is operated.

㉕ Preliminary error display

An error code appears during the preliminary error.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Main menu.

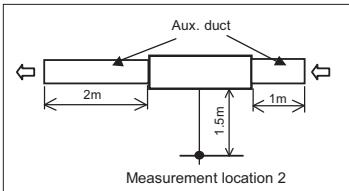
[1] Specifications**1. Specifications**

Model	PEFY-P20VMA(L)-E4	PEFY-P25VMA(L)-E4	PEFY-P32VMA(L)-E4	PEFY-P40VMA(L)-E4
Power supply	Voltage	V	1-phase 220-230-240	
	Frequency	Hz	50/60	
Cooling capacity *1	kW	2.2	2.8	3.6
Heating capacity *1	kW	2.5	3.2	4.0
Power consumption *2	Cooling	kW	0.032(0.030)	0.044(0.042)
	Heating	kW	0.030	0.042
Current consumption	Cooling	A	0.26	0.36
	Heating	A	0.26	0.36
External finish	Galvanized			
Dimensions	Height	mm	250	
	Width	mm	700	900
	Depth	mm	732	
Net weight *2	kg	21.5(21)		26(25.5)
Heat exchanger	Cross fin (Aluminium fin and copper tube)			
Fan	Type	Sirocco fan x 1		Sirocco fan x 2
	Airflow rate (Low-Mid-High)	m ³ /min	6.0-7.5-8.5	7.5-9.0-10.5
	External static pressure	Pa	35/50/70/100/150	
Motor	Output	kW	0.085	
Air filter	PP Honeycomb fabric (washable)			
Refrigerant pipe dimensions	Gas (Brazed connection)	mm[in.]	ø12.7[ø1/2]	
	Liquid (Brazed connection)	mm[in.]	ø6.35[ø1/4]	
Drain pipe dimensions	mm[in.]	O.D. 32[1-1/4]		
Operating noise(Low-Mid-High)  * Measured in anechoic room.	35Pa	dB (A)	22-26-28	24-28-31
	50Pa		24-27-30	25-29-34
	70Pa		23-28-31	26-31-35
	100Pa		25-31-34	28-33-36
	150Pa		29-35-39	32-36-40
				33-38-42

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)

<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)

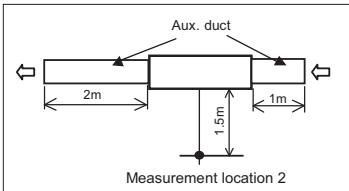
*2 Figures in the parentheses indicate drainpump-less Model (L).

Model			PEFY-P50VMA(L)-E4	PEFY-P63VMA(L)-E4	PEFY-P71VMA(L)-E4	PEFY-P80VMA(L)-E4
Power supply	Voltage	V	1-phase 220-230-240			
	Frequency	Hz	50/60			
Cooling capacity *1		kW	5.6	7.1	8.0	9.0
Heating capacity *1		kW	6.3	8.0	9.0	10.0
Power consumption *2	Cooling	kW	0.066(0.064)	0.087(0.085)	0.080(0.078)	
	Heating	kW	0.064	0.085	0.078	
Current consumption	Cooling	A	0.53	0.69	0.60	
	Heating	A	0.53	0.69	0.60	
External finish			Galvanized			
Dimensions	Height	mm	250			
	Width	mm	900		1100	
	Depth	mm	732			
Net weight *2		kg	26(25.5)	27(26.5)	30(29.5)	
Heat exchanger			Cross fin (Aluminium fin and copper tube)			
Fan	Type		Sirocco fan x 2			
	Airflow rate (Low-Mid-High)	m³/min	12.0-14.5-17.0	13.5-16.0-19.0	14.5-18.0-21.0	
	External static pressure	Pa	35/50/70/100/150		40/50/70/100/150	
Motor	Output	kW	0.121			
Air filter			PP Honeycomb fabric (washable)			
Refrigerant pipe dimensions	Gas (Brazed connection)	mm[in.]	ø12.7[ø1/2]	ø15.88[ø5/8]		
	Liquid (Brazed connection)	mm[in.]	ø6.35[ø1/4]	ø9.52[ø3/8]		
Drain pipe dimensions		mm[in.]	O.D. 32[1-1/4]			
Operating noise(Low-Mid-High)		35Pa / 40Pa	dB (A)	25-32-35	28-32-36	26-32-35
		50Pa		29-33-37	31-34-39	30-33-36
		70Pa		29-34-39	31-36-40	30-34-38
		100Pa		32-37-41	33-38-42	31-36-40
		150Pa		34-39-43	36-41-45	34-40-43
 * Measured in anechoic room.						

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)

<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)

*2 Figures in the parentheses indicate drainpump-less Model (L).

Model			PEFY-P100VMA(L)-E4	PEFY-P125VMA(L)-E4	PEFY-P140VMA(L)-E4	
Power supply	Voltage	V	1-phase 220-230-240			
	Frequency	Hz	50/60			
Cooling capacity *1		kW	11.2	14.0	16.0	
Heating capacity *1		kW	12.5	16.0	18.0	
Power consumption *2	Cooling	kW	0.142(0.140)	0.199(0.197)	0.208(0.206)	
	Heating	kW	0.140	0.197	0.206	
Current consumption	Cooling	A	1.01	1.29	1.40	
	Heating	A	1.01	1.29	1.40	
External finish			Galvanized			
Dimensions	Height	mm	250			
	Width	mm	1400		1600	
	Depth	mm	732			
Net weight *2		kg	37.5(37)	38.5(38)	41.5(41)	
Heat exchanger			Cross fin (Aluminium fin and copper tube)			
Fan	Type	Sirocco fan x 3				
	Airflow rate (Low-Mid-High)	m ³ /min	23.0-28.0-32.0	28.0-34.0-37.0	29.5-35.5-40.0	
	External static pressure	Pa	40/50/70/100/150			
Motor	Output	kW	0.300			
Air filter			PP Honeycomb fabric (washable)			
Refrigerant pipe dimensions	Gas (Brazed connection)	mm[in.]	ø15.88[ø5/8]			
	Liquid (Brazed connection)	mm[in.]	ø9.52[ø3/8]			
Drain pipe dimensions		mm[in.]	O.D. 32[1-1/4]			
Operating noise(Low-Mid-High)  * Measured in anechoic room.		40Pa 50Pa 70Pa 100Pa 150Pa	dB (A)	31-36-39 32-37-40 34-39-42 36-41-44 38-44-47	34-38-40 35-39-41 35-40-42 36-41-43 39-44-46	34-38-40 34-38-41 35-39-41 36-40-43 38-42-46

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)

<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)

*2 Figures in the parentheses indicate drainpump-less Model (L).

2. Electrical component specifications

Component	Symbol	PEFY-P20VMA(L)-E4	PEFY-P25VMA(L)-E4	PEFY-P32VMA(L)-E4
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Fuse	F01	AC250V 6.3A		
	F02	DC400V 3A		
Fan motor		8-pole, Output 85W ZWB278D51A		
Linear expansion valve	LEV	12VDC Stepping motor (0~2000 pulse)		
Power supply terminal block	TB2	(L, N, \ominus) 250V 20A		
Transmission terminal block	TB5 TB15	(1, 2) 250V 15A, (M1, M2, S) 250V 20A		
Drain pump		PMD-12D13ME INPUT 3W(DC 13V)24L/Hr		
Drain float switch	FS	Open/short detection Initial contact resistance 500 mΩ or less		

Component	Symbol	PEFY-P40VMA(L)-E4	PEFY-P50VMA(L)-E4	PEFY-P63VMA(L)-E4	PEFY-P71VMA(L)-E4	PEFY-P80VMA(L)-E4
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ				
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ				
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ				
Fuse	F01	AC250V 6.3A				
	F02	DC400V 3A				
Fan motor		8-pole, Output 121W ZWB278D54A				
Linear expansion valve	LEV	12VDC Stepping motor (0~2000 pulse)				
Power supply terminal block	TB2	(L, N, \ominus) 250V 20A				
Transmission terminal block	TB5 TB15	(1, 2) 250V 15A, (M1, M2, S) 250V 20A				
Drain pump		PMD-12D13ME INPUT 3W(DC 13V)24L/Hr				
Drain float switch	FS	Open/short detection Initial contact resistance 500 mΩ or less				

[III Specifications]

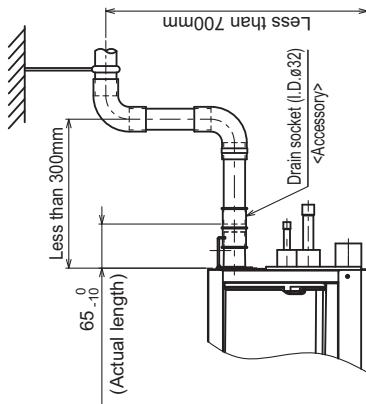
Component	Symbol	PEFY-P100VMA(L)-E4	PEFY-P125VMA(L)-E4	PEFY-P140VMA(L)-E4
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Fuse	F01		AC250V 6.3A	
	F02		DC400V 3A	
Fan motor		10-pole, Output 300W ZWB3710D01A		
Linear expansion valve	LEV	12VDC Stepping motor (0~2000 pulse)		
Power supply terminal block	TB2	(L, N, \ominus) 250V 20A		
Transmission terminal block	TB5 TB15	(1, 2) 250V 15A, (M1, M2, S) 250V 20A		
Drain pump		PMD-12D13ME INPUT 3W(DC 13V)24L/Hr		
Drain float switch	FS	Open/short detection Initial contact resistance 500 mΩ or less		

[1] Outlines and Dimensions

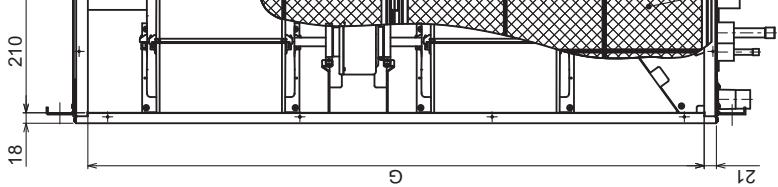
1. PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E4

Unit: mm

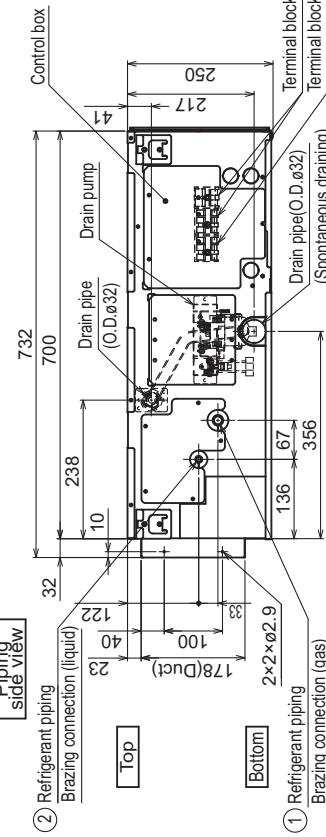
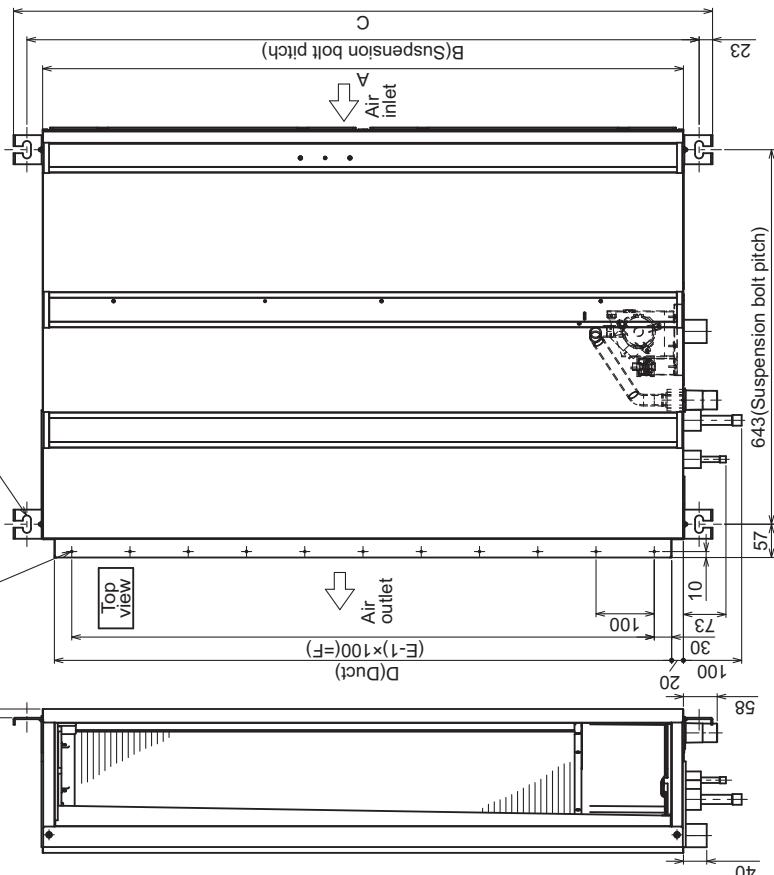
- Note 1: Use M10 screw for the Suspension bolt (field supply).
 2. Keep the service space for the maintenance at the bottom.
 3. This chart indicates for PEFY-P71-80VMA-E4 models, which have 2 fans. PEFY-P20-25-32VMA-E4 models have 1 fan. PEFY-P40-50-63VMA-E4 models have 2 fans. PEFY-P100-125-140VMA-E4 models have 3 fans.
 4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.



Inlet air side view



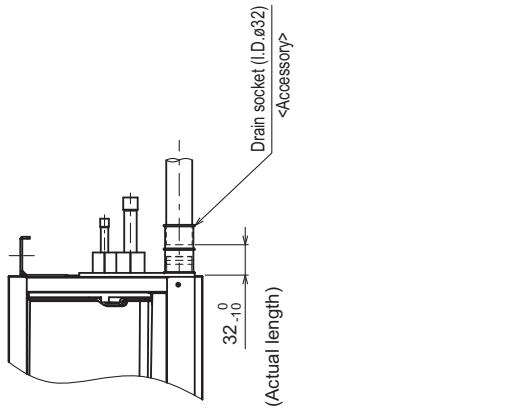
Model	A	B	C	D	E	F	G	① Gas pipe	② Liquid pipe
PEFY-P20,25,32VMA-E4	700	754	800	660	7	600	658	ø12.7	ø6.35
PEFY-P40,50VMA-E4	900	954	1000	860	9	800	858		
PEFY-P63VMA-E4	900	954	1000	860	9	800	858		
PEFY-P71,80VMA-E4	1100	1154	1200	1060	11	1000	1058	ø15.88	ø9.52
PEFY-P100,125VMA-E4	1400	1454	1500	1360	14	1300	1358		
PEFY-P140VMA-E4	1600	1654	1700	1560	16	1500	1558		

Suspension bolt hole
4x14x30 SlotOutlet air side view
2xE×ø2.9
15

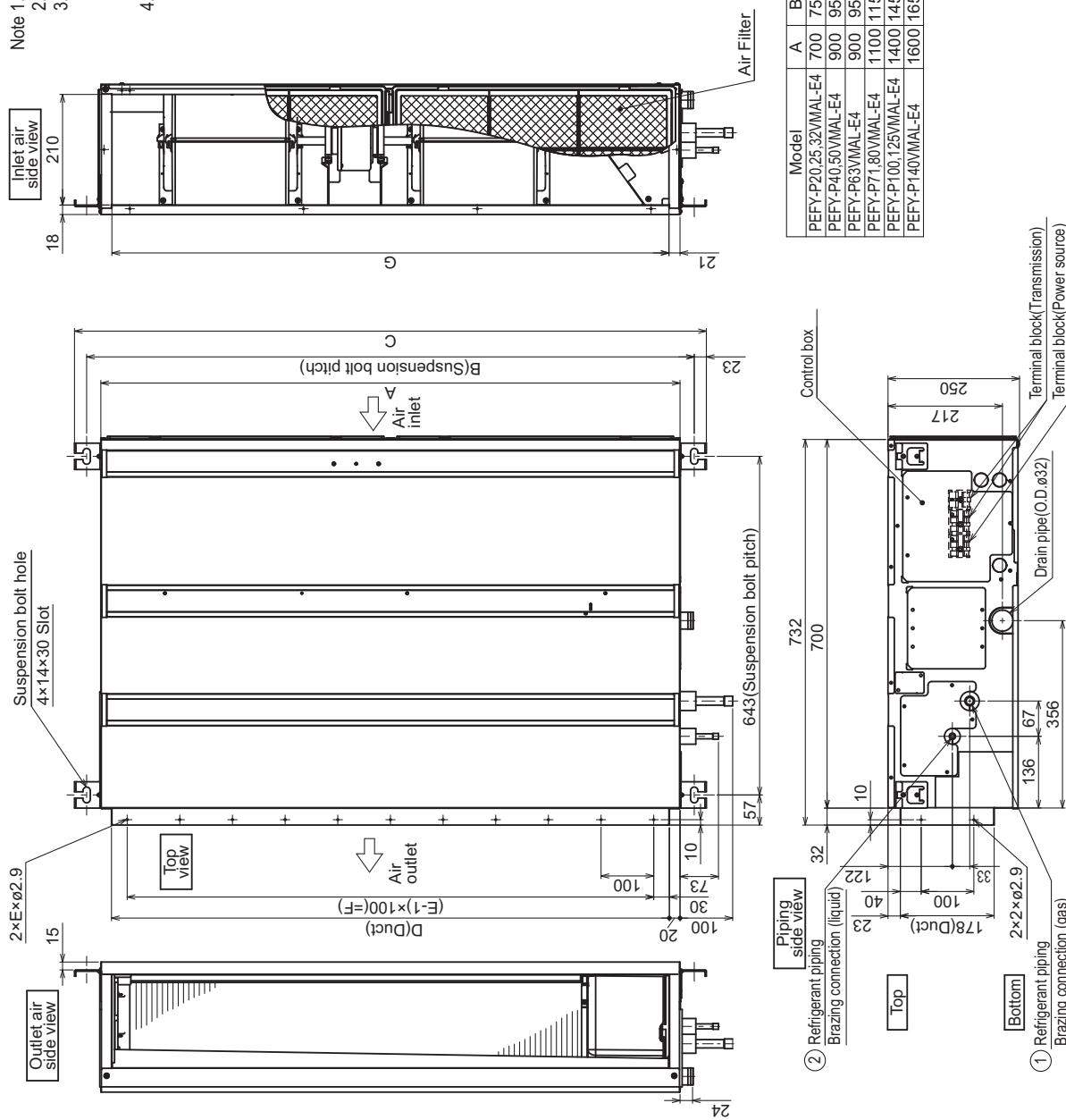
2. PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E4

Unit: mm

1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-P71-80/VMAL-E4 models, which have 2 fans, PEFY-P20-25-32/VMAL-E4 models have 1 fan. PEFY-P40-50-63/VMAL-E4 models have 2 fans. PEFY-P100-125-140/VMAL-E4 models have 3 fans.
4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.



Model	A	B	C	D	E	F	G	① Gas pipe	② Liquid pipe
PEFY-P20.25.32V/MAL-E4	700	754	800	660	7	600	658		
PEFY-P40.50V/MAL-E4	900	954	1000	860	9	800	858	$\varnothing 12.7$	$\varnothing 6.35$
PEFY-P63/MAL-F4	900	954	1000	860	9	800	858		
PEFY-P1.80V/MAL-E4	1100	1154	1200	1060	11	1000	1058		
PEFY-P140.125V/MAL-E4	1400	1454	1500	1360	14	1300	1358	$\varnothing 15.88$	$\varnothing 9.52$
PEFY-P140V/MAL-F4	1600	1654	1700	1560	16	1500	1558		



[2] Service Space

1. PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-E4

Unit: mm

[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.

Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)

· Create access door 1 and 2 (450×450mm each) as shown in Fig.2.

(Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.

· Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.

· Create access door 4 below the control box and the unit as shown in Fig.5.

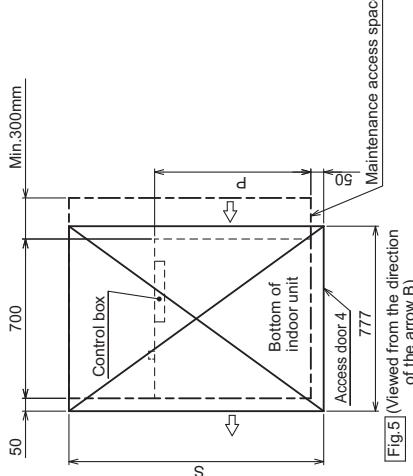
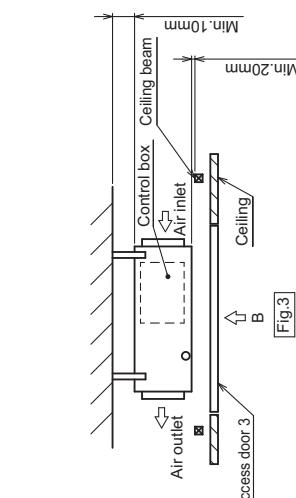
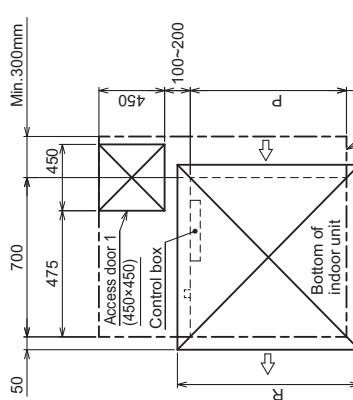
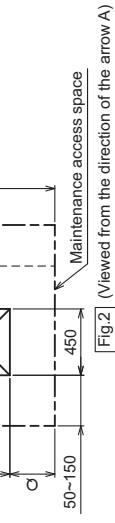
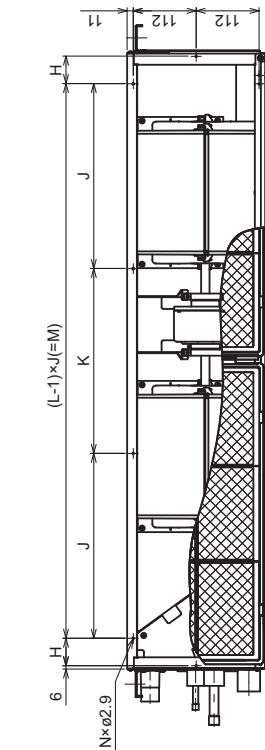
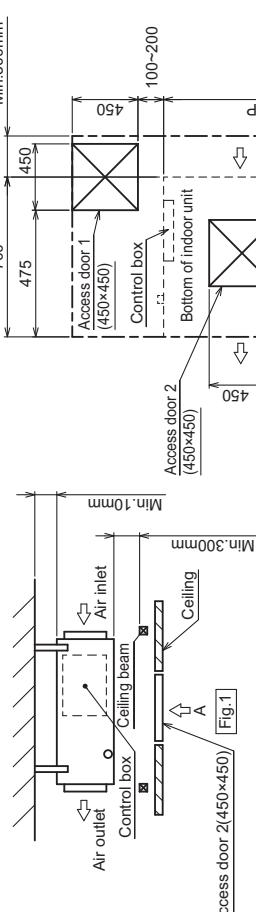


Fig.4 (Viewed from the direction of the arrow B)

Fig.5 (Viewed from the direction of the arrow B)

Model	H	J	K	L	M	N	P	Q	R	S
PEFY-P20/25/32VMA-E4	44	150	300		10	700	50-150	800	1300	
PEFY-P40/50/63VMA-E4	54	260		4	780	10	900	150-250	1000	1500
PEFY-P71/80VMA-E4	49	330		4	990	10	1100	250-350	1200	1700
PEFY-P100/125VMA-E4	54	320		5	1280	12	1400	400-500	1500	2000
PEFY-P140VMA-E4	54	370		5	1480	12	1600	500-600	1700	2200

2. PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-E4

Unit: mm

[Maintenance access space]
 Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, heat exchanger, and control box in one of the following ways.

Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.
 (1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)

- Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
 (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
 (At least 20mm of space should be left below the unit as shown in Fig.3.)

- Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
- Create access door 4 below the control box and the unit as shown in Fig.5.

or

- Create access door 4 below the control box and the unit as shown in Fig.5.

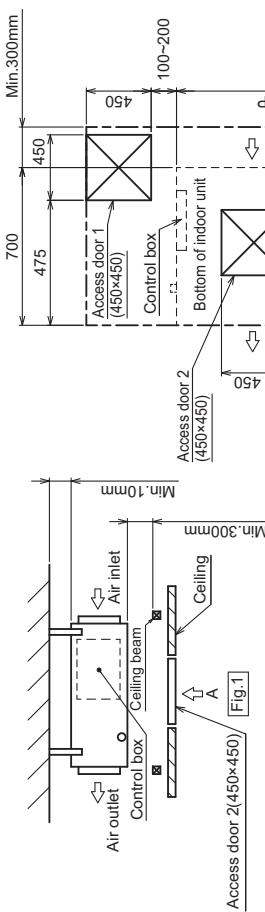


Fig.1

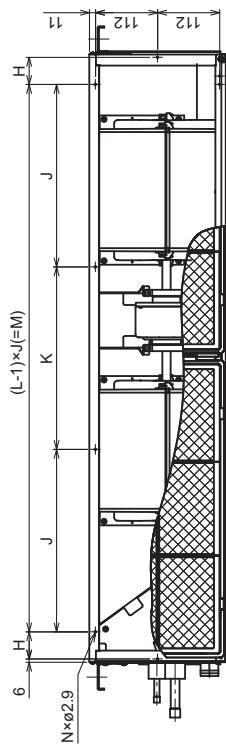


Fig.2 (Viewed from the direction of the arrow A)

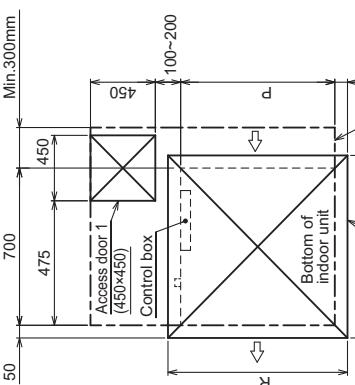


Fig.4 (Viewed from the direction of the arrow B)

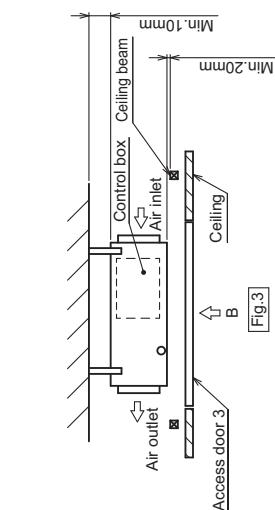


Fig.3

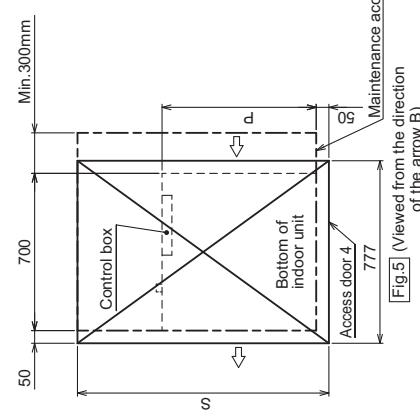


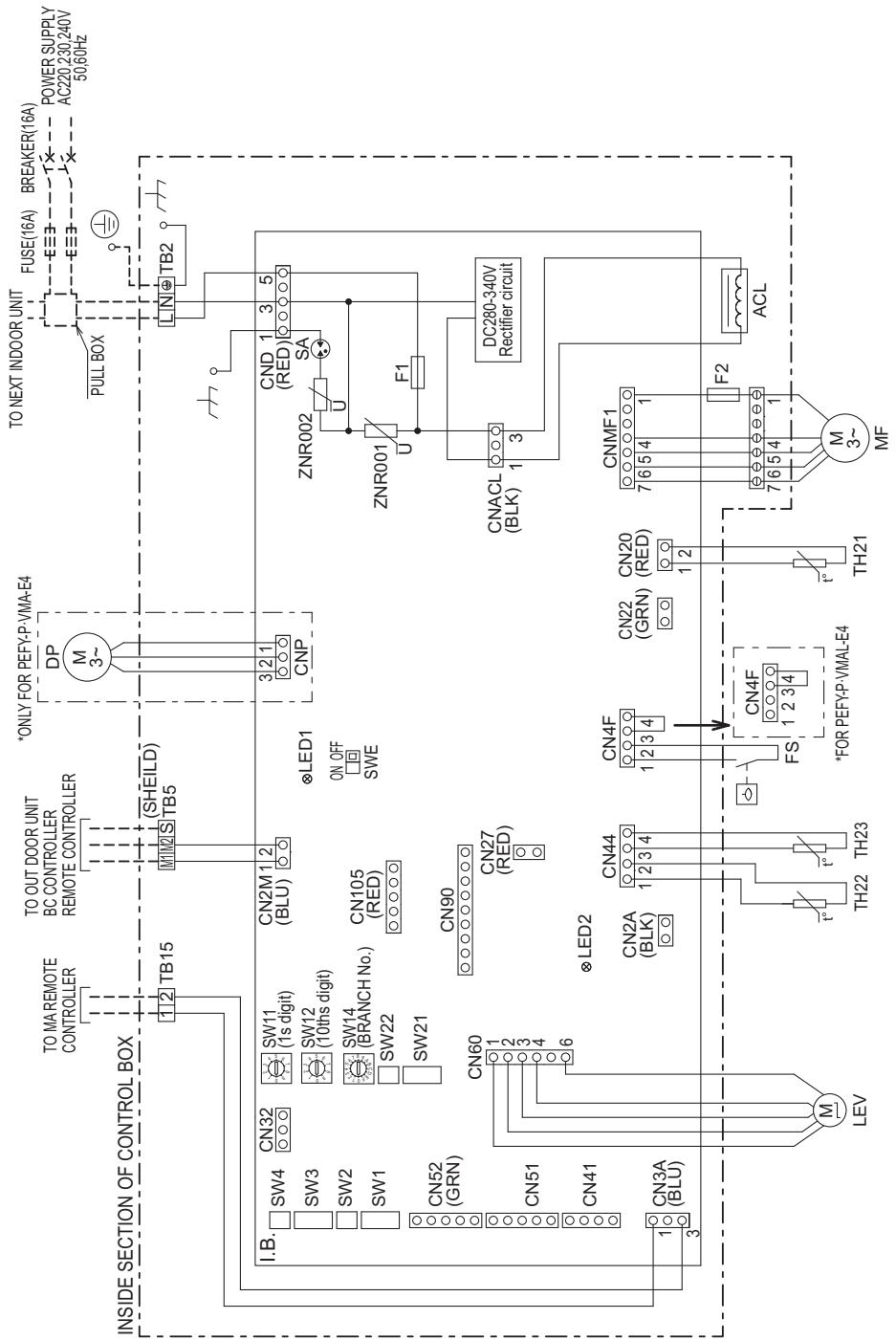
Fig.5 (Viewed from the direction of the arrow B)

Maintenance access space

Model	H	J	K	L	M	N	P	Q	R	S
PEFY-P20/25/32/40/50/63/71/80/100/125/140VMAL-E4	44	150	300		10	700	50~150	800	1300	
PEFY-P40/50/63/71/80/100/125/140VMAL-E4	54	260		4	780	10	900	150~250	1000	1500
PEFY-P71/80/100/125/140VMAL-E4	49	330		4	990	12	1100	250~350	1200	1700
PEFY-P10/125VMAL-E4	54	320		5	1280	12	1400	400~500	1500	2000
PEFY-P40/140VMAL-E4	54	370		5	1480	12	1600	500~600	1700	2200

[1] Wiring Diagram

1. PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-E4



SYMBOL EXPLANATION

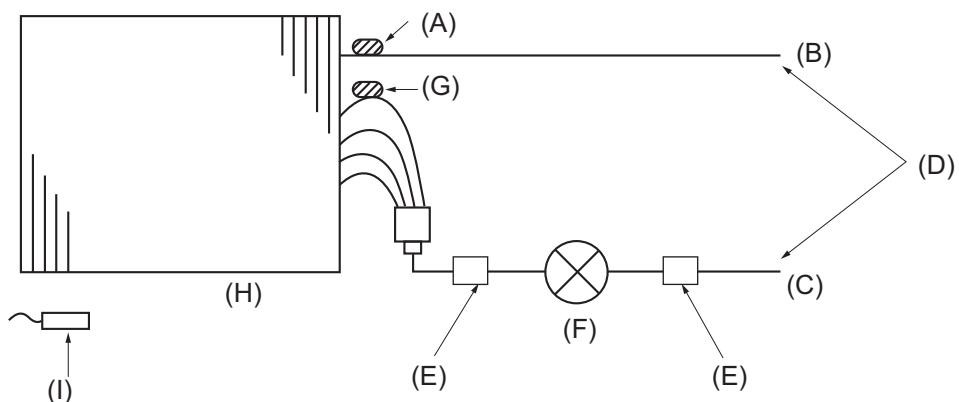
EXPLANATION		NAME	SYMBOL	NAME	SYMBOL	SYMBOL	NAME
ACL	AC reactor(Power factor improvement)	I.B.		Indoor controller board	I.B.		Indoor controller board
DP	Drain Pump	SA		Arrester	SW1		Switch(for mode selection)
F2	Fuse DC40V/ 3A	F1		Fuse AC250V 6.3A	SW2		Switch(for capacity code)
FS	Float switch	ZNR01/02		Varistor	SW3		Switch(for mode selection)
MF	Fan Motor	CN2A		Connector (0-10V/ Analog input)	SW4		Switch(for model selection)
LEV	Linear expansion valve	CN2B		Connector (Optional Thermistor)	SW11		Switch (10ths digit address set)
TB2	Power source terminal block	CN27		Connector (Damper)	SW12		Switch (10ths digit address set)
TB5	Transmission terminal block	CN32		Connector (Remote switch)	SW14		Switch (BRANCH No.)
TB15	Transmission terminal block	CN41		Connector (HA terminal-A)	SW21		Switch (for static pressure selection)
TH21	Thermistor (Inlet air temp. detection)	CN51		Connector (Centrally control)	SW22		Switch (Wireless pair No.)
TH22	Thermistor (piping temp. detection/liquid)	CN52		Connector (Remote indication)	SWE		Connector (emergency operation)
TH23	Thermistor (piping temp. detection/gas)	CN80		Connector (Wireless)	LED1		LED(Power supply)
		CN105		Connector (IT terminal)	LED2		LED(Remote controller supply)

NOTE)1. Symbols used in wiring diagram are

 : Connector,  : Terminal,
- - - (Heavy dotted line): Field wiring,

2. Have all electric work done by a licensed electrician according to the local regulations.

- 3. Earth leakage circuit breaker should be set up on the wiring of the power supply.
- 4. To perform a drainage test for the drain pump turn on the SWE on the control board while the indoor unit is being powered.
- * Be sure to turn off the SWE after completing a drainage test or test run.

[1] Refrigerant system diagram

- (A) Gas pipe thermistor TH23
- (B) Gas pipe
- (C) Liquid pipe
- (D) Brazed connections
- (E) Strainer (#100 mesh)
- (F) Linear expansion valve
- (G) Liquid pipe thermistor TH22
- (H) Heat exchanger
- (I) Room temperature thermistor TH21

Capacity	PEFY- P20, 25, 32, 40, 50VMA(L)-E4	PEFY- P63, 71, 80, 100, 125, 140VMA(L)-E4
Gas pipe	ø12.7 [1/2]	ø15.88 [5/8]
Liquid pipe	ø6.35 [1/4]	ø9.52 [3/8]

[1] Troubleshooting

1. Check methods

1. Component and check points

(1) Thermistor

- Room temperature thermistor (TH21)
- Liquid pipe thermistor (TH22)
- Gas pipe thermistor (TH23)

Disconnect the connector and measure the resistance between terminals with a tester.
(Ambient temperature 10°C - 30°C)

Normal	Abnormal
4.3kΩ - 9.6kΩ	Open or short

(Refer to the thermistor characteristic graph below.)

1) Thermistor characteristic graph

Low-temperature thermistor

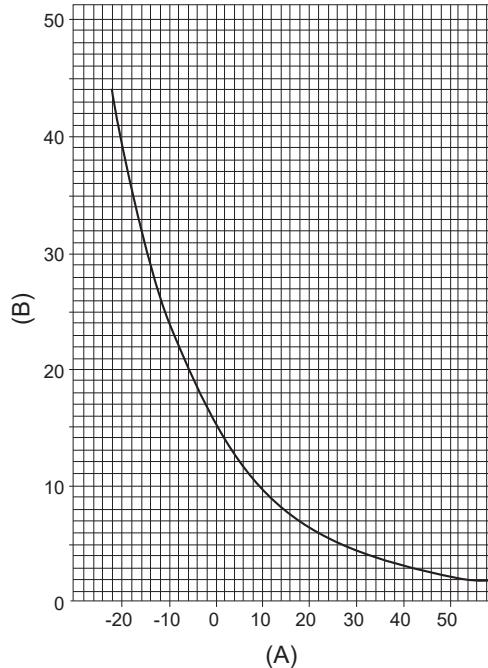
- Room temperature thermistor (TH21)
- Liquid pipe thermistor (TH22)
- Gas pipe thermistor (TH23)
- Drain sensor (DS)

- Thermistor $R_0 = 15 \text{ k}\Omega \pm 3\%$
- Multiplier of B = $3480 \text{ k}\Omega \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	15kΩ
10°C	9.6kΩ
20°C	6.3kΩ
25°C	5.2kΩ
30°C	4.3kΩ
40°C	3.0kΩ

- (A) Temperature (°C)
(B) Resistance (kΩ)



(2) Fan motor (CNMF)

Refer to the page on "DC fan motor (fan motor/indoor control board)."

(3) Linear expansion valve

Disconnect the connector, and measure the resistance between terminals with a tester.

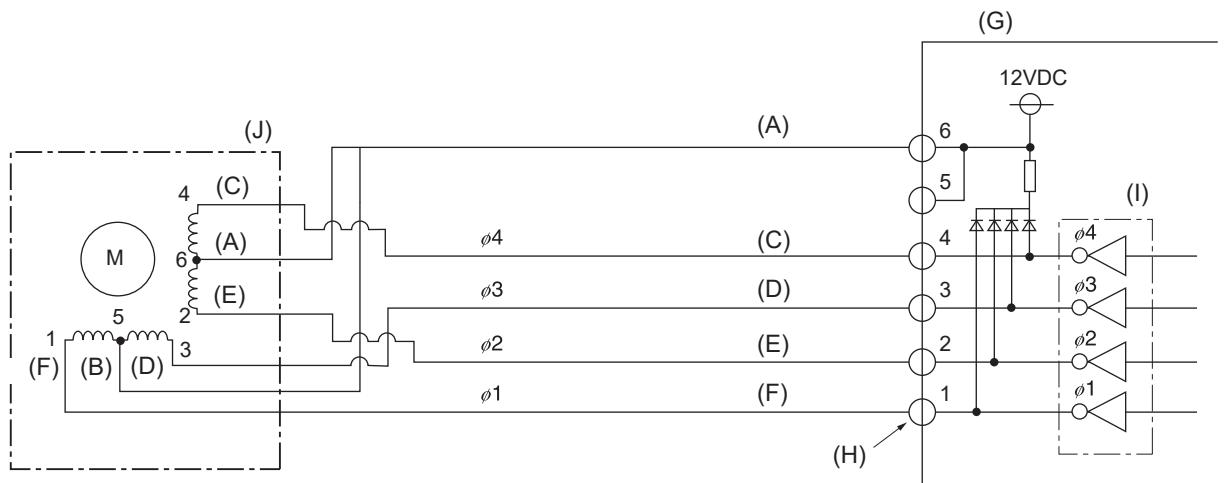
Refer to the next page for details.

CN60	Normal				Abnormal
	1-6 White-Red	2-6 Yellow-Red	3-6 Orange-Red	4-6 Blue-Red	
	(150Ω) ±10%				
 LEV	(A) Red	(E) Yellow	(C) Blue	(F) White	(D) Orange

1) Summary of linear expansion valve (LEV) operation

- The LEV is operated by a stepping motor, which operates by receiving a pulse signal from the indoor control board.
- The LEV position changes in response to the pulse signal.

Indoor control board and LEV connection



(A)	Red	(G)	Control board
(C)	Blue	(H)	Connection (CN60)
(D)	Orange	(I)	Drive circuit
(E)	Yellow	(J)	Linear expansion valve
(F)	White		

Pulse signal output and valve operation

Phase number	Output pulse			
	1	2	3	4
φ1	ON	OFF	OFF	ON
φ2	ON	ON	OFF	OFF
φ3	OFF	ON	ON	OFF
φ4	OFF	OFF	ON	ON

The output pulse changes in the following order:

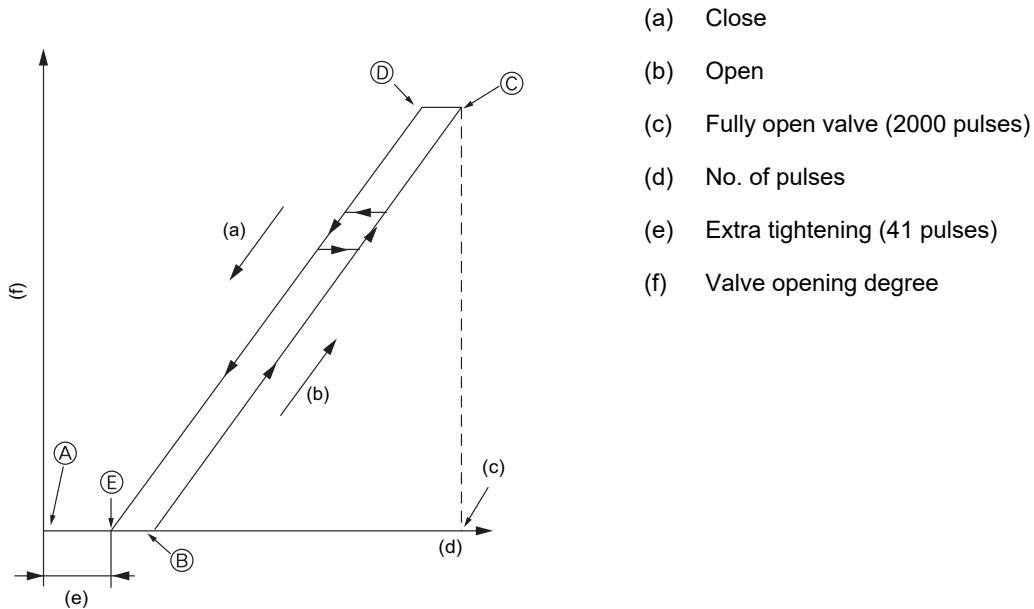
When the valve closes 1 → 2 → 3 → 4 → 1

When the valve opens 4 → 3 → 2 → 1 → 4

- When the valve position remains the same, all output signals will be OFF.

• If any output signal is missing or if the signal remains ON, the motor vibrates and makes clicking noise.

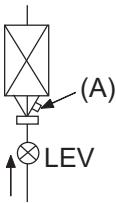
2) LEV operation



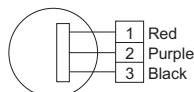
- When the power is turned on, a pulse signal of fully open pulse + 10% pulse is output (valve closure signal), to bring the valve to position A.
- When the valve is operating normally, it is free of vibration noise. If the valve locks or when it goes from point E to A in the figure, it makes louder noise than would be heard when there is an open phase.
- Check for abnormal sound/vibration by placing the metal tip of a screwdriver against the valve and the handle side against your ear.

3) Troubleshooting

Symptom	Checking Criteria	Remedy
Circuit failure on the microcomputer	<p>Disconnect the connectors on the control board, and connect LEDs to test the circuit as shown below.</p> <p>Pulse signals are output for 10 seconds when the main power is turned on. If there are LEDs that do not light up at all or remain lit after the pulses are turned off, there is a problem with the driving circuit.</p>	Replace the indoor control board if driving circuit failure is detected.
Locked LEV	The motor will idle and make small clicking noise if it is run while the LEV is locked. If this clicking noise is heard both when the valve is fully closed and while it is being opened, it indicates a problem.	Replace the LEV.
Disconnected or shorted LEV motor coils	Measure the resistance between the coils with a tester (red-white, red-orange, Red-yellow, Red-blue). The normal range of resistance is $150\Omega \pm 10\%$	Replace the LEV.

Valve closure failure (leaky valve)	To check the LEV on the indoor unit, check the indoor unit liquid pipe temperature that appears on the operation monitor on the outdoor unit's multi control board while operating the indoor unit in question in the FAN mode and the other indoor units in the cooling mode. (A) Termistor (TH21)  Normally, the LEV is fully closed while the unit is in the FAN mode. If the valve is leaky, liquid pipe thermistor reading will be lower than normal. If it is significantly lower than the inlet temperature on the remote controller, valve closure failure is suspected. If the amount of leakage is insignificant, replacement of LEV is unnecessary unless it is causing a problem.	Replace the LEV if the amount of leakage is great.
Misconnections of connectors or contact failure	Perform a visual check for disconnected connectors. Perform a visual check of lead wire color.	Disconnect the connectors on the control board and perform a continuity test.

(4) Drain pump



1. Check if the drain float switch works properly.
2. Check if the drain pump works and drains water properly in cooling operation.
3. If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.

Note: The drain pump for this model is driven by the internal DC motor of controller board, so it is not possible to measure the resistance between the terminals.

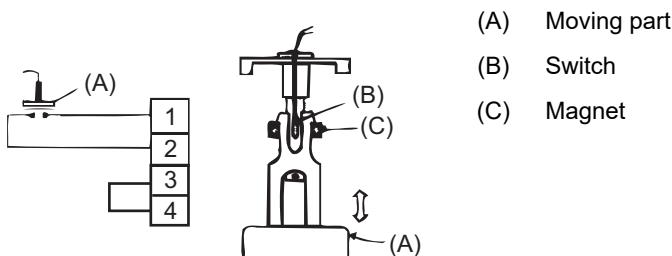
Normal

Red–Black: Input 13V DC → The fan starts to rotate.

Purple–Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.

(5) Drain float switch (CN4F)

Disconnect the connector, and measure the resistance between terminals with a tester.



Position of the moving part	Normal	Abnormal
Up	Short	(any position but short)
Down	Open	(any position but open)

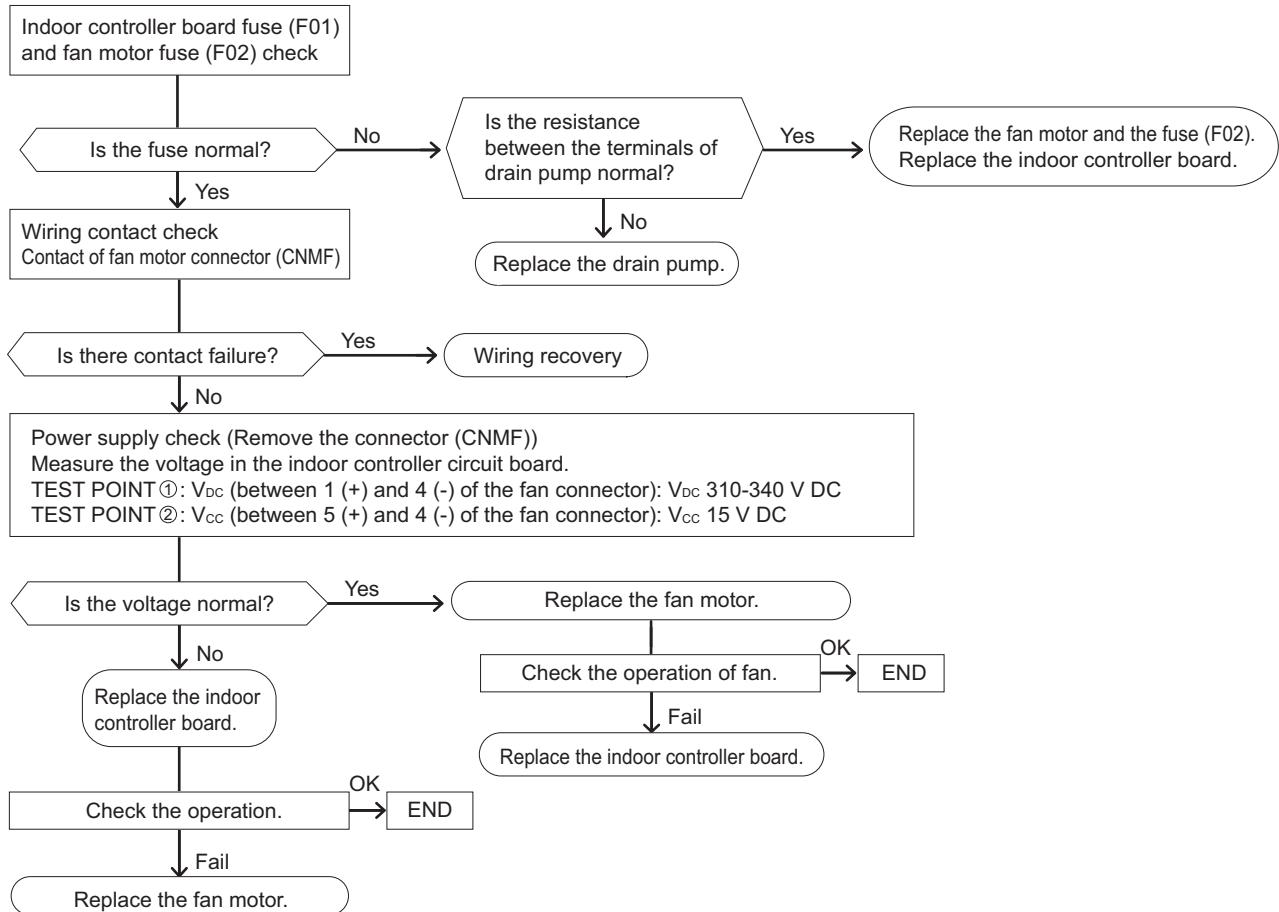
2. DC fan motor (fan motor/indoor control board)

1. CAUTION

- A high voltage is applied to the connector for connection to the fan motor (CNMF).
- Do not unplug the connector CNMF with the unit energized to avoid damage to the indoor control board and fan motor.

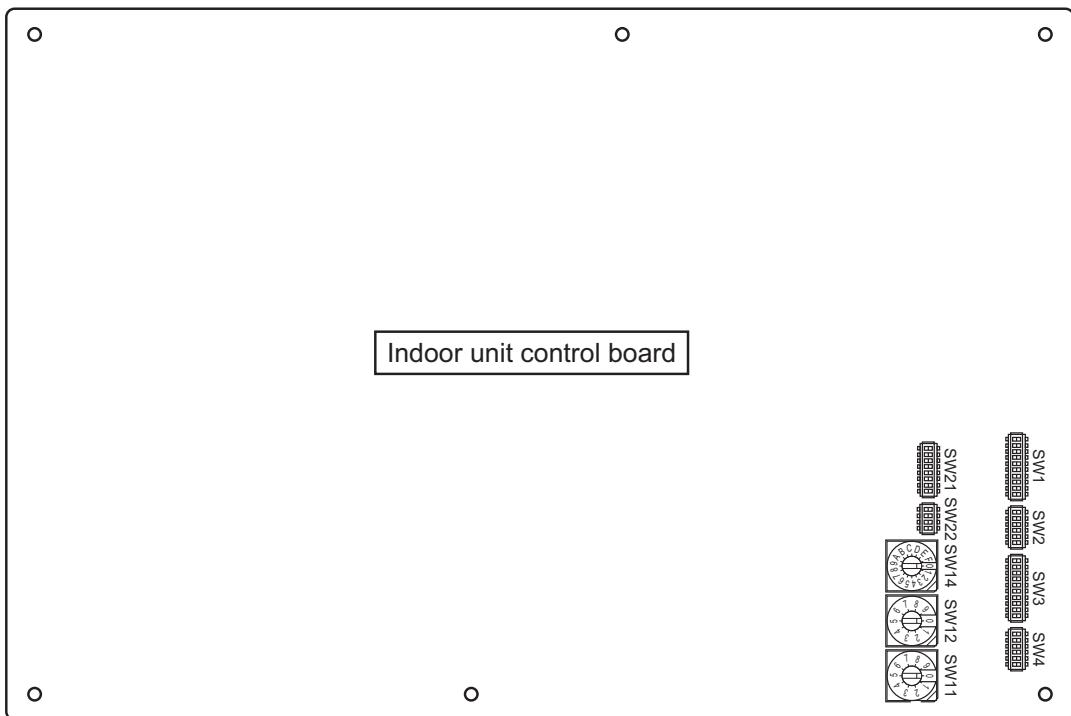
2. Troubleshooting

- Symptom: Indoor unit fan does not run.



3. Address switch setting

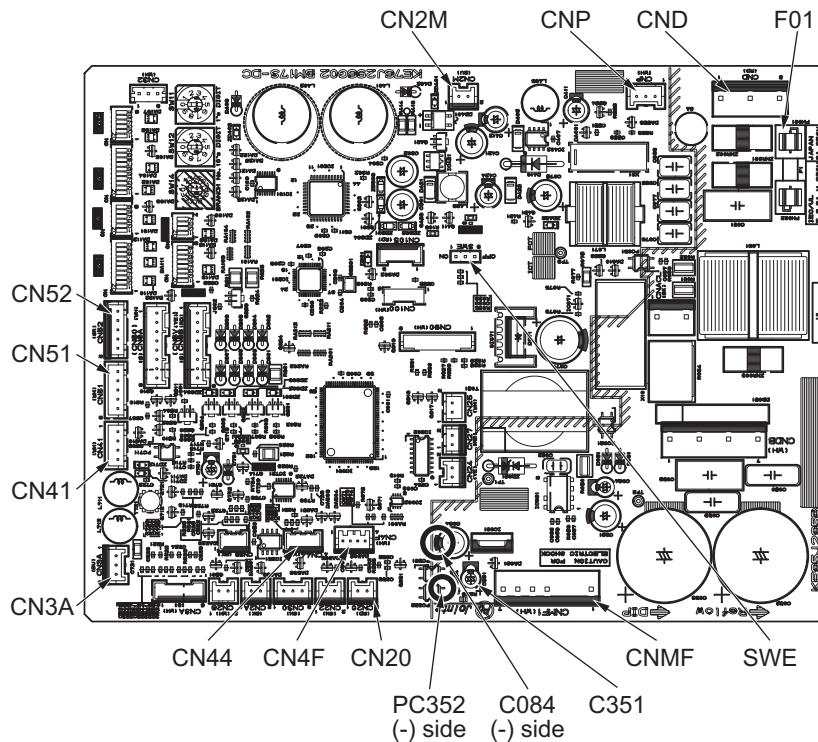
Make sure that power to the unit is turned off.



1. When using an ME remote controller, set the address with the rotary switches (SW11, SW12).
•Address setting is not required when the unit remote controller is used.
On-site address setting is required for the indoor units to run.
2. Address settings vary in different systems.
Refer to the section on address setting in the outdoor unit installation manual.
3. Address is set with a combination of SW12 (10's digit) and SW11 (1's digit).
To set the address to "3," set SW12 to "0" and SW11 to "3."
To set the address to "25," set SW12 to "2" and SW11 to "5."

4. Voltage test points on the control board

- PEFY-P20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-E4



F01	Fuse (AC 250V 6.3A)
CND	Power supply voltage (220 - 240VAC)
CN2M	For M-NET transmission cable connection (24 - 30VDC)
SWE	Emergency operation
SW2	Capacity setting
SW4	Function setting
SW3	Function setting
CN32	Remote start/stop adapter
CN3A	For MA remote controller cable connection (10 - 13 VDC (Between 1 and 3.))
CN52	Remote display
CN51	Centralized control
CN41	JAMA standard HA terminal A
CN44	Thermistor (liquid/gas temperature)
CN4F	Float switch
CN20	Thermistor (Inlet temperature)
CNMF	Fan motor output 1 - 4: 310 - 340 VDC 5 - 4: 15 VDC 6 - 4: 0 - 6.5 VDC 7 - 4: Stop 0 or 15 VDC Run 7.5 VDC (0 - 15 pulse)
SWE	

(*1)

V_{FG}	Voltage on the (-) side of PC352 and C084 (Same with the voltage between 7 (+) and 4 (-) of CNMF)
V_{CC}	Voltage between the C084 pins 15 VDC (Same with the voltage between 5 (+) and 4 (-) of CNMF)
V_{sp}	Voltage between the C351 pins 0VDC (with the fan stopped) 1 - 6.5VDC (with the fan in operation) (Same with the voltage between 6 (+) and 4 (-) of CNMF)

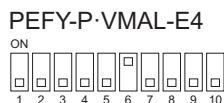
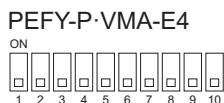
5. Dipswitch setting (Factory setting)

1. Function setting

(1) SW1

Switch position	Function	Switch setting	
		ON	OFF
1	Active Thermistor (Intake air thermistor)	Built-in thermistor on the remote controller	Indoor unit
2	Filter clogging detection	Available	Unavailable
3	Filter life	2500 hr	100 hr
4	Outdoor air intake	Enabled	Disabled
5	Remote display	Thermo-ON signal	Fan output
6	Drainpump locking detection	Disabled	Enabled
7	Fan speed	Low	Very low
8	Fan speed at heating Thermo-OFF	Preset fan speed	Follows the setting of SW1-7
9	Auto restart after power failure	Enabled	Disabled
10	Power start/stop	Enabled	Disabled

Factory setting

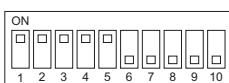
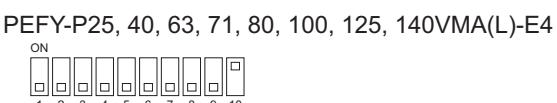


(2) SW3

Switch position	Function	Switch setting	
		ON	OFF
1	Unit type	Cooling only	Heat pump
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	Heating 4-deg up	Disabled	Enabled
9	-	-	-
10	-	-	-

Dipswitch settings must be made while the unit is stopped.

Factory setting



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

2. Capacity code setting

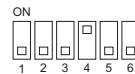
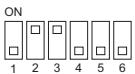
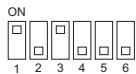
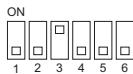
(1) SW2

Dipswitch settings must be made while the unit is stopped.

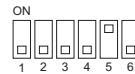
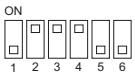
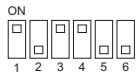
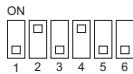
Factory setting

The switches are set to correspond to the unit capacity.

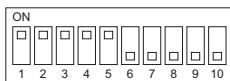
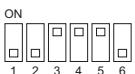
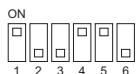
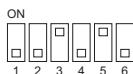
PEFY-P20VMA(L)-E4 PEFY-P25VMA(L)-E4 PEFY-P32VMA(L)-E4 PEFY-P40VMA(L)-E4



PEFY-P50VMA(L)-E4 PEFY-P63VMA(L)-E4 PEFY-P71VMA(L)-E4 PEFY-P80VMA(L)-E4



PEFY-P100VMA(L)-E4 PEFY-P125VMA(L)-E4 PEFY-P140VMA(L)-E4



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

3. Model setting

(1) SW4

Dipswitch settings must be made while the unit is stopped.

Factory setting

Please see the WIRING LABEL on the control box.

Note:

Changes made to the dipswitches SW1, SW2, and SW3 will become effective when the unit comes to a stop (remote controller off). There is no need to power cycle the unit.

4. Power voltage setting

(1) SW21-6

Dipswitch settings must be operated with the main power turned OFF.

Factory setting

Please see the WIRING LABEL on the control box.

Set SW21-6 to OFF side when the power supply is 240 volts.

When the power supply is 220 and 230 volts, set SW21-6 to ON side.

5. External static pressure

Five levels of external static pressure are available for selection.

Set the setting either by using the switches on the control board (SW21-1, SW21-2, and SW21-5) or from the function selection screen on the remote controller.

Note:

•When the static pressure setting was set from the remote controller, the actual setting and the switch setting on the control board may not match because the latest setting from the remote controller overrides the previous setting.

To check the latest static pressure setting, check it on the remote controller, not on the switch.

•If the static pressure setting for the duct is lower than that for the unit, the fan of the unit may repeat start/stop, and the outdoor unit may remain in a stopped state. Match the static pressure settings for the unit to that for the duct.

To set the external static pressure with the switches on the control board

External static pressure	SW21-1	SW21-2	SW21-5	Initial setting
P20–P63: 35 Pa P71–P100: 40 Pa	OFF	OFF	OFF	○ only P20–P100
50 Pa	ON	OFF	OFF	○ only P125, P140
70 Pa	OFF	ON	ON	
100 Pa	OFF	OFF	ON	
150 Pa	ON	OFF	ON	

To set the external static pressure from the function selection screen on the remote controller (PAR-33MAA, PAR-40MAA)

Follow the instructions below and the instructions detailed in the remote controller manual for how to set the switches.

1. Set the function setting No. 32 (Switch setting/Function selection) to "2".

2. Set the function setting No. 8 and No. 10 to appropriate values, according to the external static pressure.

Selection	Function setting No.	Initial setting	Current setting
	No. 32		
Switch setting	1	○	
Function selection	2		

External static pressure	Function setting No.		Initial setting	Current setting
	No. 8	No. 10		
P20–P63: 35 Pa P71–P100: 40 Pa	2	1	○ only P20–P100	
50 Pa	3	1	○ only P125, P140	
70 Pa	1	2		
100 Pa	2	2		
150 Pa	3	2		

[Important]

Be sure to write down the settings for all functions in the "Current setting" row if any of the initial settings has been changed.

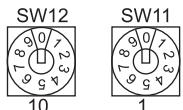
6. 1s and 10ths digits

(1) SW11, SW12 (Rotary switch)

The use of an ME remote controller requires address setting.

Address settings must be made while the unit is stopped.

Factory setting

**7. Connection No. setting**

(1) SW14 (Rotary switch)

This switch is used when the unit connected to an R2 series of outdoor unit.

Factory setting

**Note:**

Changes to the dipswitches SW11, SW12, SW14, and SW15 must be made while the unit is stopped and the remote controller is OFF.

[1] Disassembly Procedure

1. Control box

Exercise caution when removing heavy parts.

1. Removing the control box cover

- (1) Remove the three fixing screws on the cover (A) to remove it.

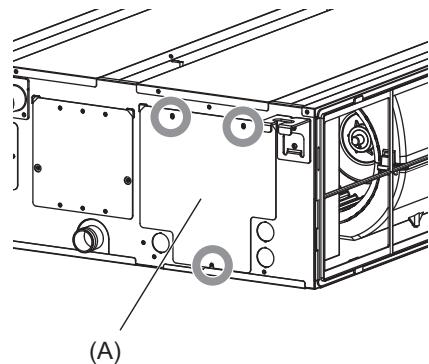


Fig.1

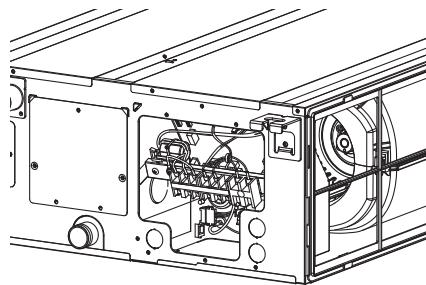


Fig.2

2. Thermistor (Intake air)

Exercise caution when removing heavy parts.

1. Remove the control box cover according to the procedure in section [1]-1.
2. Remove the thermistor.
 - (1) Pull out the thermistor holder (B) and thermistor (C) on the control box.

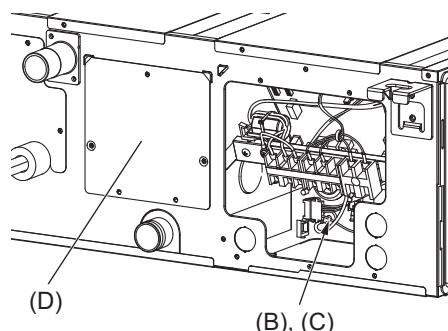


Fig.3

3. Drain pump

Exercise caution when removing heavy parts.

1. Remove the control box cover according to the procedure in section [1]-1.
2. Remove the drain pump.
 - (1) Remove the drain pump from connector (E) in control box.
 - (2) Remove the cover (D) and the drain pump.

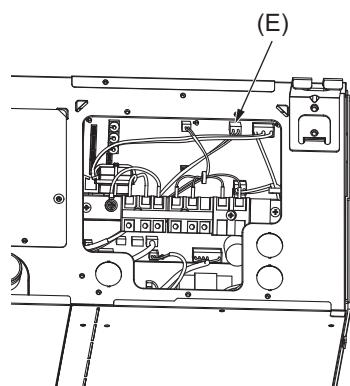


Fig.4

4. Drainpan

Exercise caution when removing heavy parts.

1. Removing the filter and the bottom plate
 - (1) Push down the tab on the filter, and pull out the filter in the direction of the arrow 1.
 - (2) Remove the fixing screws on the bottom plate (F), (G) to remove it.

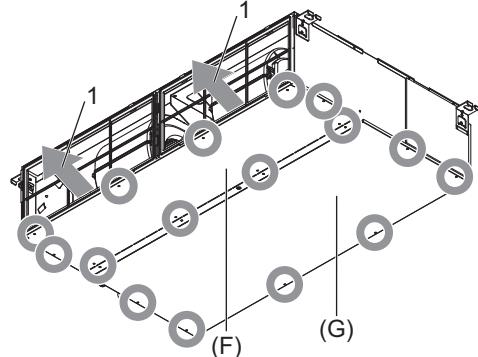


Fig.5

2. Removing the drainpan
 - (1) Pull out the drain pan in the direction of the arrow 2.

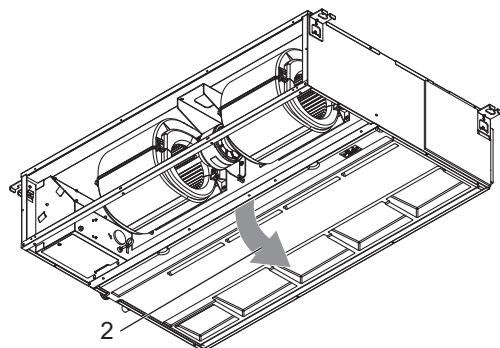


Fig.6

Note

•Drain the water out of the drain pan before removing it.

5. Thermistor (Gas pipe) (Liquid pipe)

Exercise caution when removing heavy parts.

1. Remove the drain pan according to the procedure in section [1]-4.
2. Removing the Heat exchanger cover
(1) Remove the three fixing screws on the heat exchanger cover (H) to remove it.

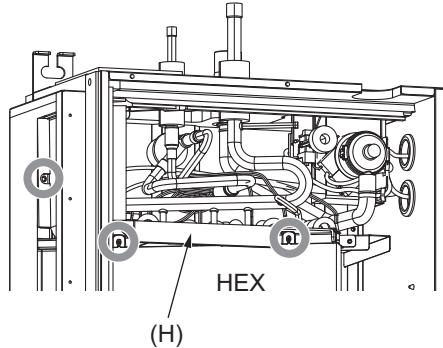


Fig.7

3. Removing the thermistor
(1) Remove the thermistor (J) from the thermistor holder (K) on the copper tube.

Thermistor size
Liquid pipe: ø8mm
Gas pipe: ø6mm

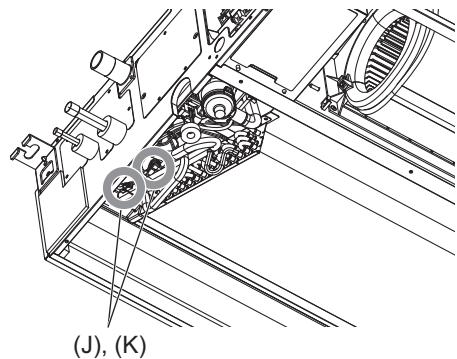


Fig.8

6. Fan and fan motor

Exercise caution when removing heavy parts.

1. Removing the filter and the bottom plate
 - (1) Push down the tab on the filter, and pull out the filter in the direction of the arrow 1.
 - (2) Remove the fixing screws on the bottom plate (M) to remove it.

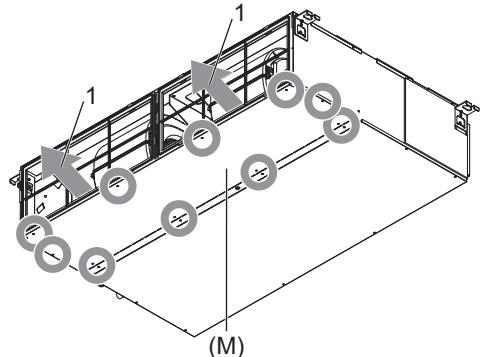


Fig.9

2. Removing the fan casing (bottom half)
 - (1) Squeeze the tabs on the fan casing to remove it in the direction of arrow 2.

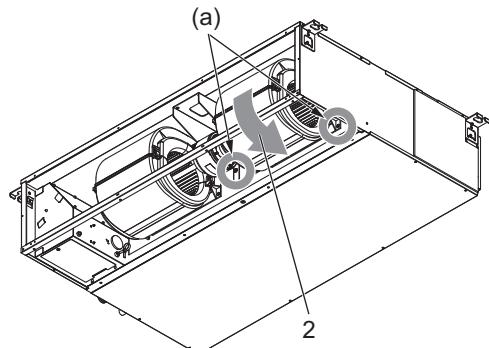


Fig.10

(a) Tab

3. Removing the motor cable
 - (1) Remove the motor cable through the rubber bush.

4. Removing the fan motor and the Sirocco fan
 - (1) Loosen either of the two rubber joint (N) fixing screws.
 - (2) To remove the Sirocco fans (b) and (c) of PEFY-P100/125/140VMA(L)-E3, loosen only the screw (d) on the bearing support (P), and remove the other screws on it.

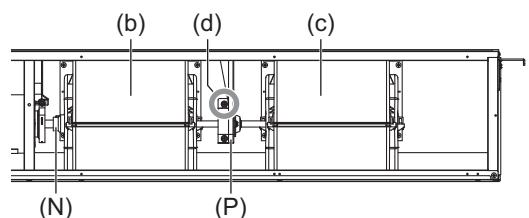


Fig.11

- (3) Remove the two motor fixing screws to remove the motor and the Sirocco fan in the direction of arrow 3.

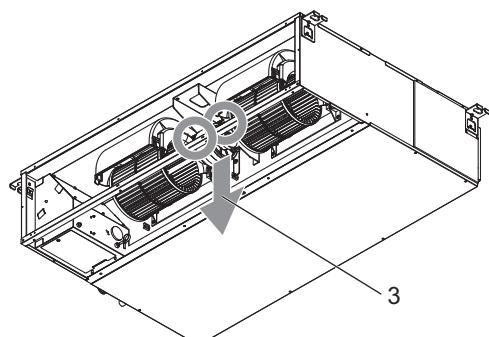


Fig.12

- (4) Remove the four fan case fixing screws to take the top half of the fan casing off.

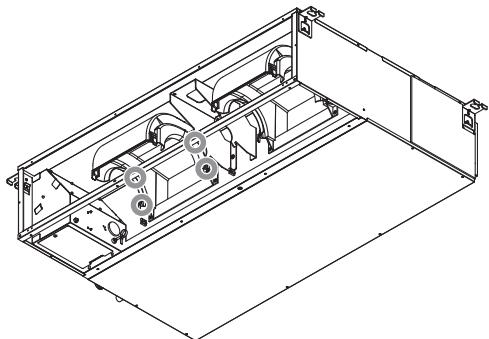


Fig.13

7. Heat exchanger

Exercise caution when removing heavy parts.

1. Remove the drain pan according to the procedure in section [1]-4.
2. Remove the heat exchanger cover according to the procedure in section [1]-5-2.
3. Removing the cover
(1) Remove the five fixing screws on the cover (Q) to remove it.

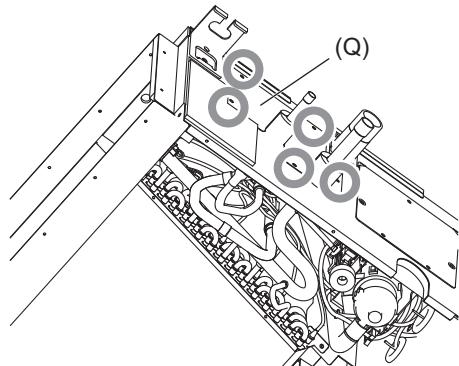


Fig.14

4. Removing the Heat exchanger
(1) Remove the fixing screws on the heat exchanger (R) to remove it.

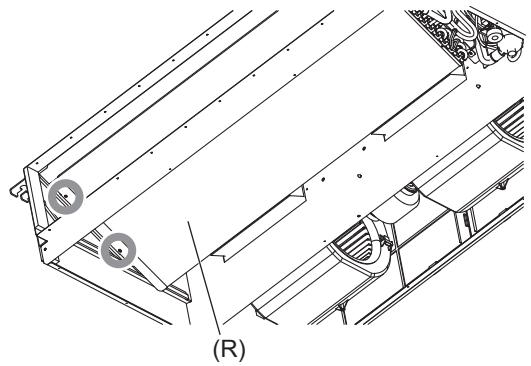


Fig.15

MITSUBISHI ELECTRIC CORPORATION

www.MitsubishiElectric.com



SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

April 2019

No. OCH710

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted R410A

Indoor unit

[Model Name]

PKFY-P10VLM-E
PKFY-P10VLM-ET

PKFY-P15VLM-E
PKFY-P15VLM-DA
PKFY-P15VLM-TH
PKFY-P15VLM-ET

PKFY-P20VLM-E
PKFY-P20VLM-DA
PKFY-P20VLM-TH
PKFY-P20VLM-ET

PKFY-P25VLM-E
PKFY-P25VLM-DA
PKFY-P25VLM-TH
PKFY-P25VLM-ET

PKFY-P32VLM-E
PKFY-P32VLM-DA
PKFY-P32VLM-TH
PKFY-P32VLM-ET

PKFY-P40VLM-E
PKFY-P40VLM-DA
PKFY-P40VLM-TH
PKFY-P40VLM-ET

PKFY-P50VLM-E
PKFY-P50VLM-DA
PKFY-P50VLM-TH
PKFY-P50VLM-ET

[Service Ref.]

PKFY-P10VLM-E.TH
PKFY-P10VLM-ET.TH

PKFY-P15VLM-E.TH
PKFY-P15VLM-DA.TH
PKFY-P15VLM-TH.TH
PKFY-P15VLM-ET.TH

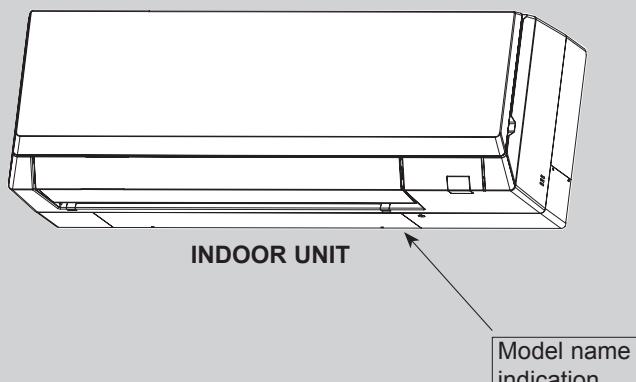
PKFY-P20VLM-E.TH
PKFY-P20VLM-DA.TH
PKFY-P20VLM-TH.TH
PKFY-P20VLM-ET.TH

PKFY-P25VLM-E.TH
PKFY-P25VLM-DA.TH
PKFY-P25VLM-TH.TH
PKFY-P25VLM-ET.TH

PKFY-P32VLM-E.TH
PKFY-P32VLM-DA.TH
PKFY-P32VLM-TH.TH
PKFY-P32VLM-ET.TH

PKFY-P40VLM-E.TH
PKFY-P40VLM-DA.TH
PKFY-P40VLM-TH.TH
PKFY-P40VLM-ET.TH

PKFY-P50VLM-E.TH
PKFY-P50VLM-DA.TH
PKFY-P50VLM-TH.TH
PKFY-P50VLM-ET.TH



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PARTS CATALOG (OCB710)

CITY MULTI

Cautions for units utilizing refrigerant R410A**Do not use the existing refrigerant piping.**

The old refrigerant and lubricant in the existing piping contains a large amount of chlorine which may cause the lubricant deterioration of the new unit.

Use "low residual oil piping"

If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

**Store the piping indoors, and both ends of the piping sealed until just before brazing.
(Leave elbow joints, etc. in their packaging.)**

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

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.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

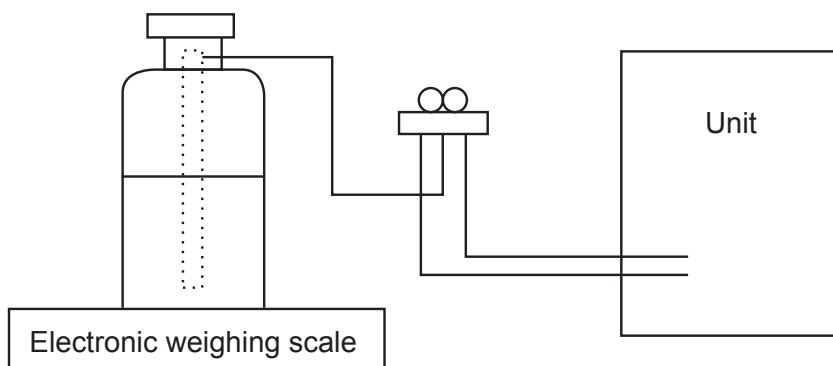
[1] Cautions for service

- (1) Perform service after collecting the refrigerant left in the unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

- (1) Check that cylinder for R410A on the market is syphon type.
- (2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)

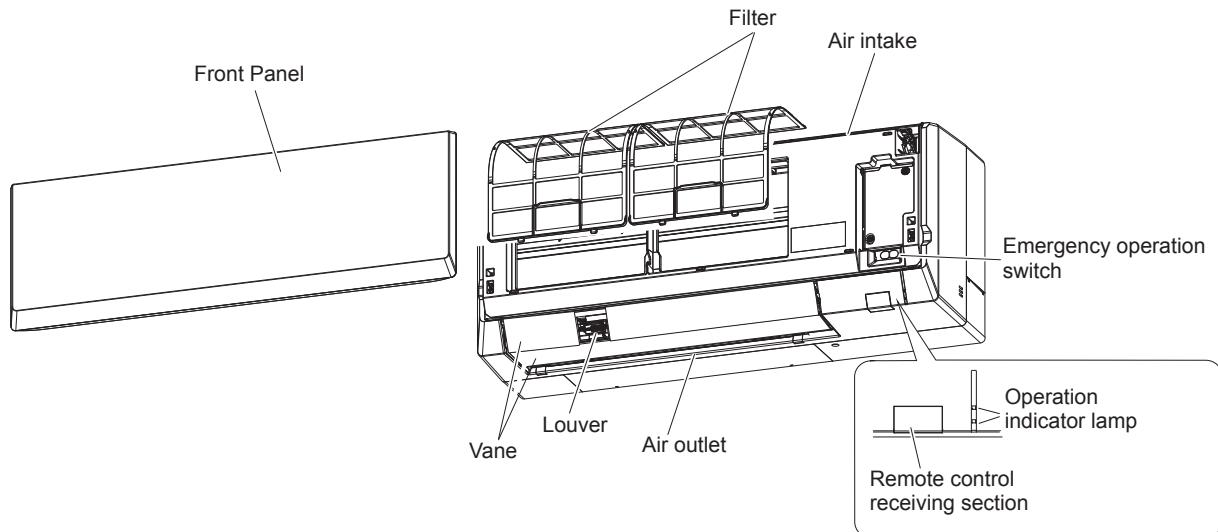


[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 5.3 MPa·G or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 5.09 MPa·G or over.
③	Electronic weighing scale	—
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R410A Top of cylinder (Pink) Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2-1. Indoor unit



2-2. Wired Remote Controller <PAR-40MAA> <PAR-21MAA>

Wired remote controller function

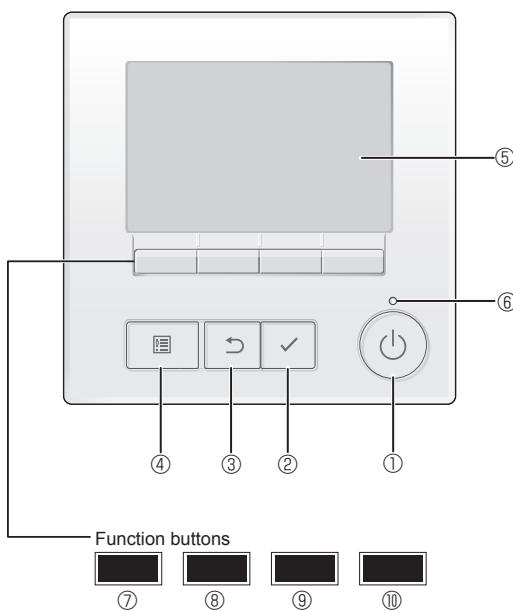
The functions which can be used are restricted according to each model.

○ : Supported × : Unsupported

	Function	PAR-40MAA		PAR-21MAA
		Slim	CITY MULTI	
Body	Product size H × W × D (mm)	120 × 120 × 14.5		120 × 130 × 19
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		×
Energy saving	Energy saving operation schedule	○	×	×
	Automatic return to the preset temperature	○		×
Restriction	Setting the temperature range restriction	○		○
Function*	Operation lock function	○		○
	Weekly timer	○		×
	ON/OFF timer	○		○
	High Power	○	×	×
	Manual vane angle	○		○

*Some functions may not be available depending on model types.

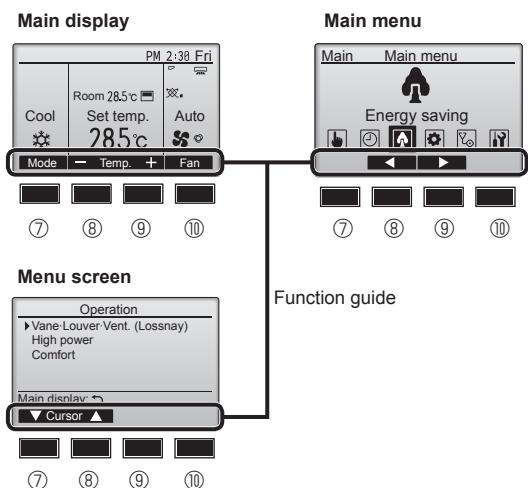
Controller interface



The functions of the function buttons change depending on the screen.

Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.

When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT] button

Press to save the setting.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.

When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]

Main display: Press to change the operation mode.

Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.

Main menu: Press to move the cursor left.

Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.

Main menu: Press to move the cursor right.

Menu screen: The button function varies with the screen.

⑩ Function button [F4]

Main display: Press to change the fan speed.

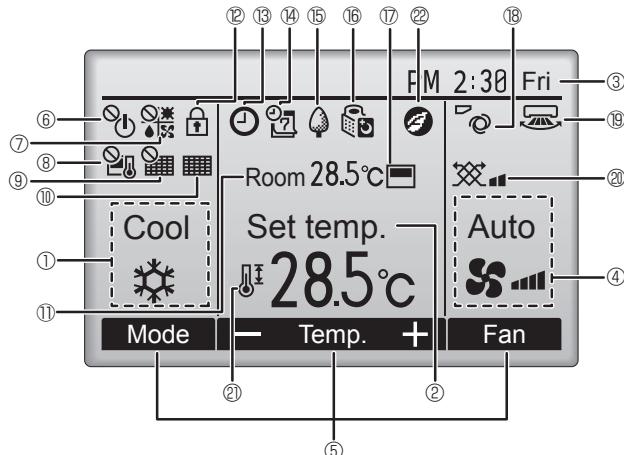
Menu screen: The button function varies with the screen.

Display

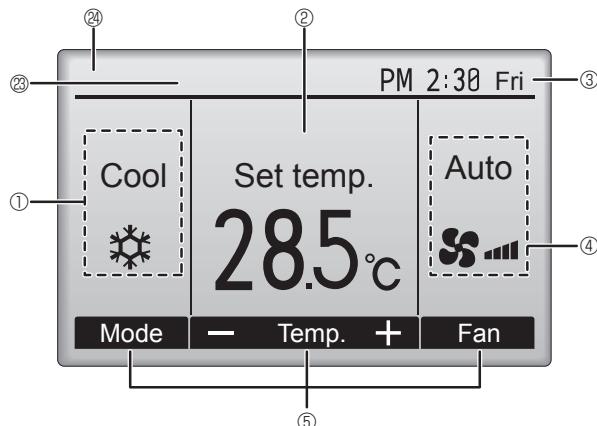
The main display can be displayed in two different modes: "Full" and "Basic". The factory setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode



Appears when the Weekly timer is enabled.

② Preset temperature



Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

③ Clock

Current time appears here.



Appears while the outdoor units are operated in the silent mode. (This indication is not available for CITY MULTI models.)

④ Fan speed

⑤ Button function guide

Functions of the corresponding buttons appear here.



Appears when the ON/OFF operation is centrally controlled.



Appears when the operation mode is centrally controlled.



Appears when the preset temperature is centrally controlled.



Appears when the filter reset function is centrally controlled.



Indicates when filter needs maintenance.



⑪ Room temperature

Current room temperature appears here.



Appears when the buttons are locked.



Appears when the On/Off timer, Night setback, or Auto-off timer function is enabled.



Appears when the timer is disabled by the centralized control system.



Appears when an energy-saving operation is performed using a "3D i-Sensor" function. (not available)

⑫ Centrally controlled

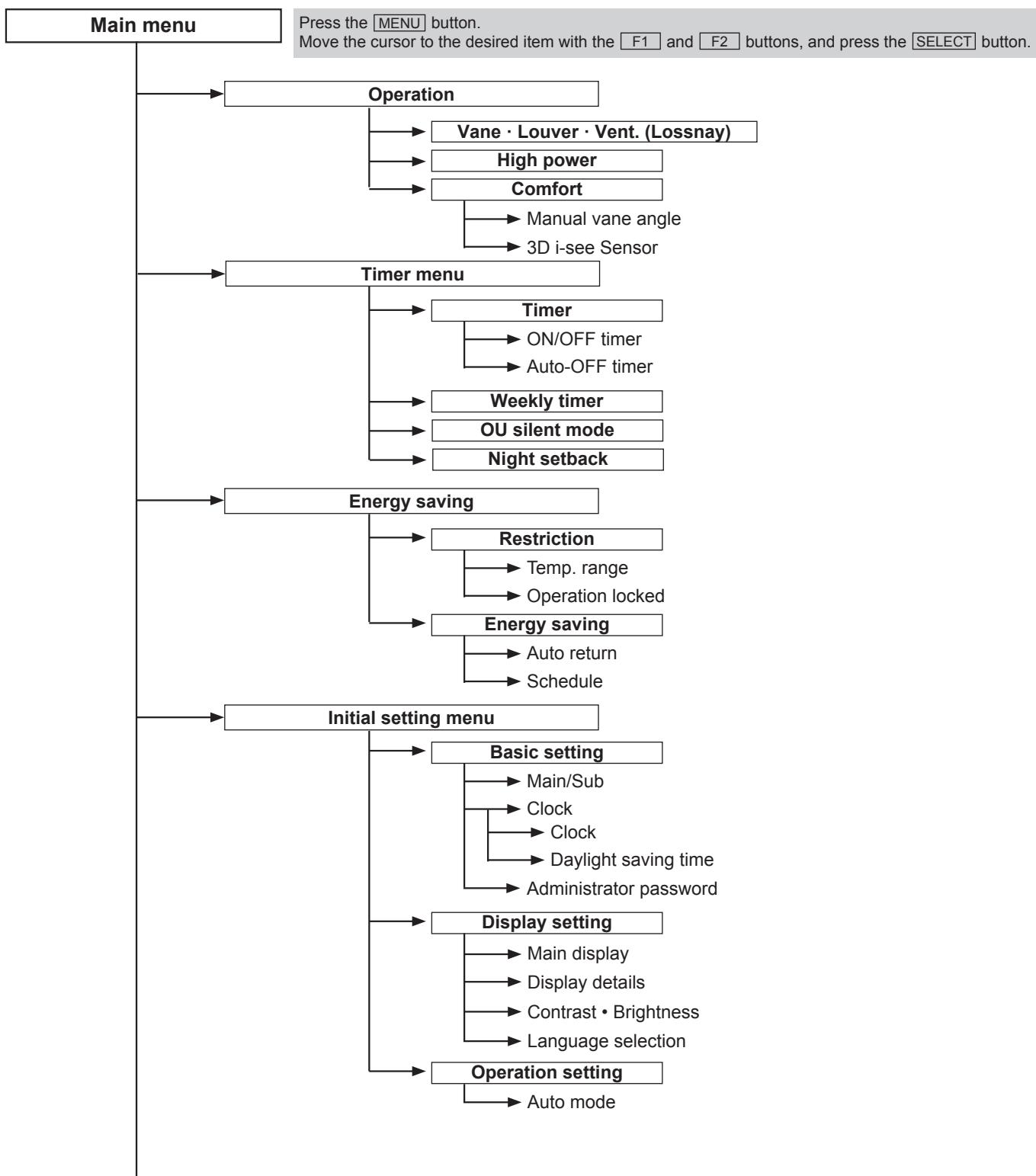
Appears for a certain period of time when a centrally-controlled item is operated.

⑬ Preliminary error display

An error code appears during the preliminary error.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Main menu. (Refer to Page 10.)

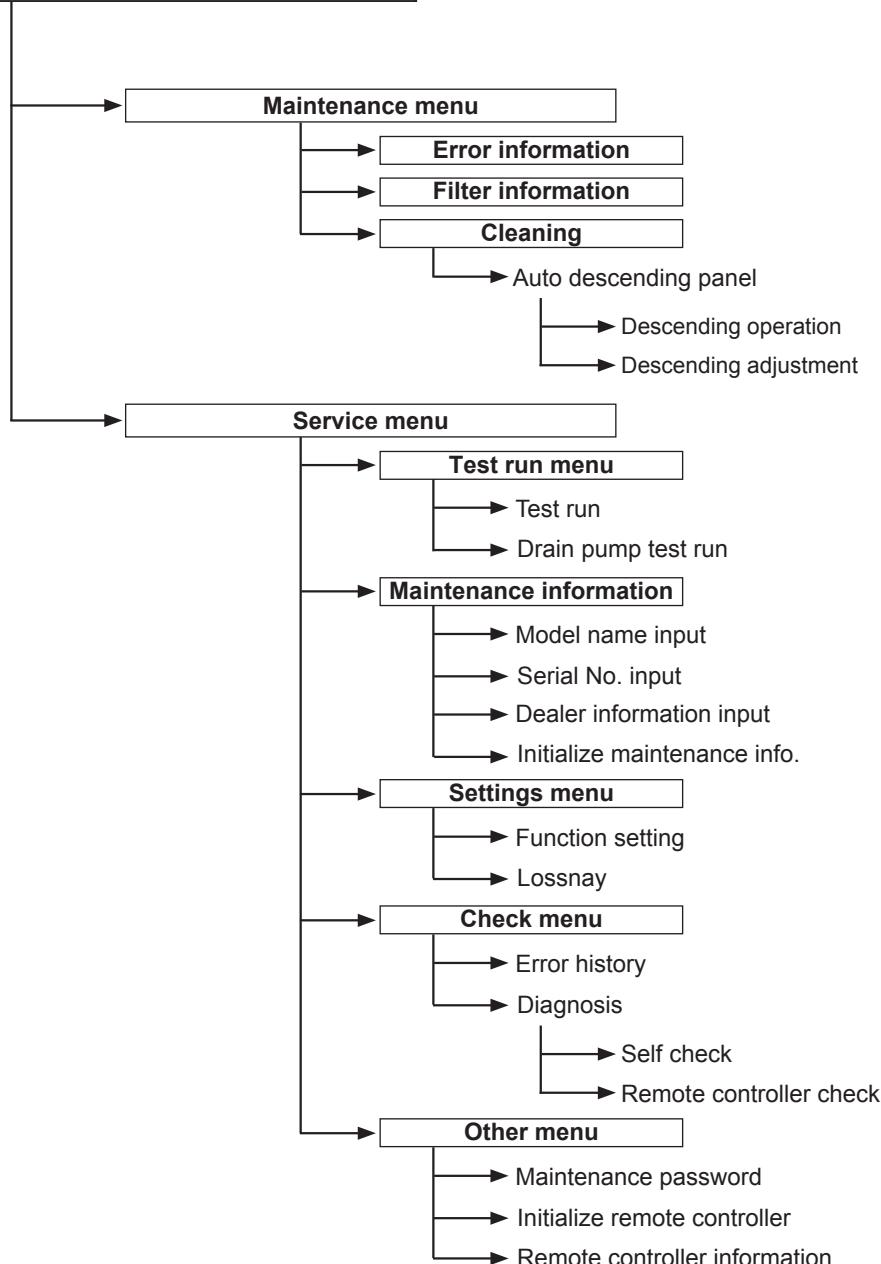
Menu structure



Continue to the next page.

Not all functions are available on all models of indoor units.

Continue from the previous page.



Not all functions are available on all models of indoor units.

Main menu list

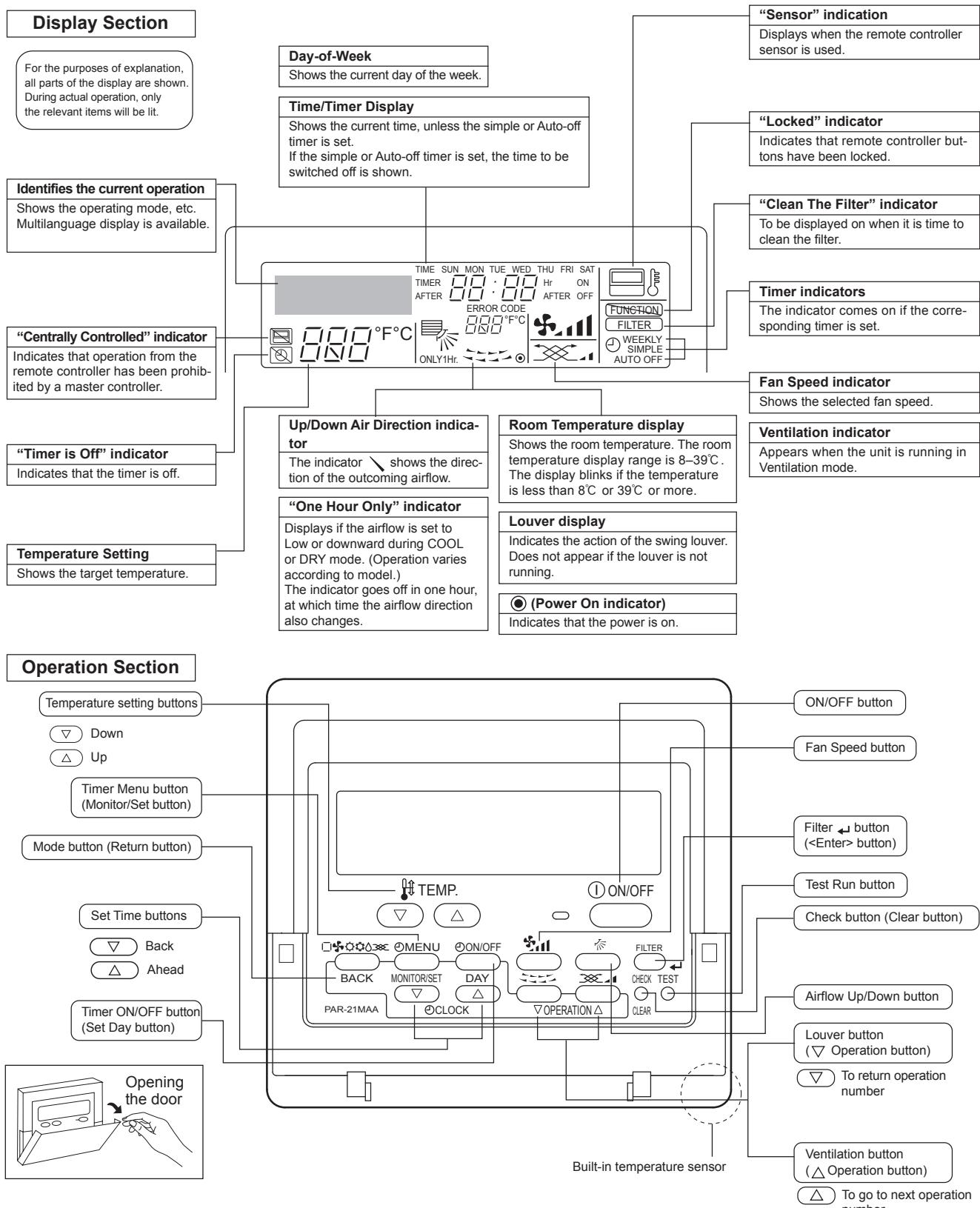
Main menu	Setting and display items		Setting details
Operation	Vane · Louver · Vent. (Lossnay)		<p>Use to set the vane angle. • Select a desired vane setting from 5 different settings.</p> <p>Use to turn ON/OFF the louver. • Select a desired setting from "ON" and "OFF."</p> <p>Use to set the amount of ventilation. • Select a desired setting from "Off," "Low," and "High."</p>
	High power		<p>Use to reach the comfortable room temperature quickly. • Units can be operated in the High-power mode for up to 30 minutes.</p>
	Comfort	Manual vane angle	Use to fix each vane angle.
		3D i-see Sensor	<p>Use to set the following functions for 3D i-see Sensor. • Air distribution • Energy saving option • Seasonal airflow</p>
Timer	Timer	ON/OFF timer *1	<p>Use to set the operation ON/OFF times. • Time can be set in 5-minute increments.</p>
		Auto-Off timer	<p>Use to set the Auto-Off time. • Time can be set to a value from 30 to 240 in 10-minute increments.</p>
	Weekly timer *1, *2		<p>Use to set the weekly operation ON/OFF times. • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)</p>
	OU silent mode *1		<p>Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop times for each day of the week. • Select the desired silent level from "Normal," "Middle," and "Quiet."</p>
	Night setback *1		<p>Use to make Night setback settings. • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.</p>
	Restriction	Temp. range *2	<p>Use to restrict the preset temperature range. • Different temperature ranges can be set for different operation modes.</p>
		Operation lock	<p>Use to lock selected functions. • The locked functions cannot be operated.</p>
Energy saving	Energy saving	Auto return *2	<p>Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period. • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)</p>
		Schedule *1	<p>Set the start/stop times to operate the units in the energy saving mode for each day of the week, and set the energy saving rate. • Up to 4 energy saving operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy saving rate can be set to a value from 0% or 50 to 90% in 10% increments.</p>

*1 Clock setting is required.

*2 33.8°F (1°C) increments.

Main menu	Setting and display items		Setting details
Initial setting	Basic setting	Main/Sub	When connecting 2 remote controllers, one of them needs to be designated as a sub controller.
		Clock	Use to set the current time.
		Daylight saving time	Set the daylight saving time.
		Administrator password	The administrator password is required to make the settings for the following items. • Timer setting • Energy saving setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back
	Display setting	Main display	Use to switch between "Full" and "Basic" modes for the Main display. • The initial setting is "Full."
		Black and white inversion setting	Use to invert the colors of the display, turning white background to black and black characters to white.
		Display details	Make the settings for the remote controller related items as necessary. Clock: The initial settings are "Yes" and "24h" format. Temperature: Set either Celsius (°C) or Fahrenheit (°F). Room temp.: Set Show or Hide. Auto mode: Set the Auto mode display or Only Auto display.
		Contrast • Brightness	Use to adjust screen contrast and brightness.
		Language selection	Use to select the desired language.
	Operation setting	Auto mode	Whether or not to use the Auto mode can be selected by using the button. This setting is valid only when indoor units with the Auto mode function are connected.
Maintenance	Error information		Use to check error information when an error occurs. • Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.)
	Filter information		Use to check the filter status. • The filter sign can be reset.
	Cleaning	Auto descending panel	Use to lift and lower the auto descending panel (Optional parts).
Service	Test run		Select "Test run" from the Service menu to bring up the Test run menu. • Test run • Drain pump test run
	Input maintenance		Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen. The following settings can be made from the Maintenance Information screen. • Model name input • Serial No. input • Dealer information input • Initialize maintenance info.
	Settings	Function setting	Make the settings for the indoor unit functions via the remote controller as necessary.
		LOSSNAY setting	This setting is required only when the operation of CITY MULTI units is interlocked with LOSSNAY units.
	Check	Error history	Display the error history and execute "delete error history".
		Diagnosis	Self check: Error history of each unit can be checked via the remote controller. Remote controller check: When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
	Other	Maintenance password	Use to change the maintenance password.
		Initialize remote controller	Use to initialize the remote controller to the factory shipment status.
		remote controller information	Use to display the remote controller model name, software version, and serial number.

WIRED REMOTE CONTROLLER <PAR-21MAA>

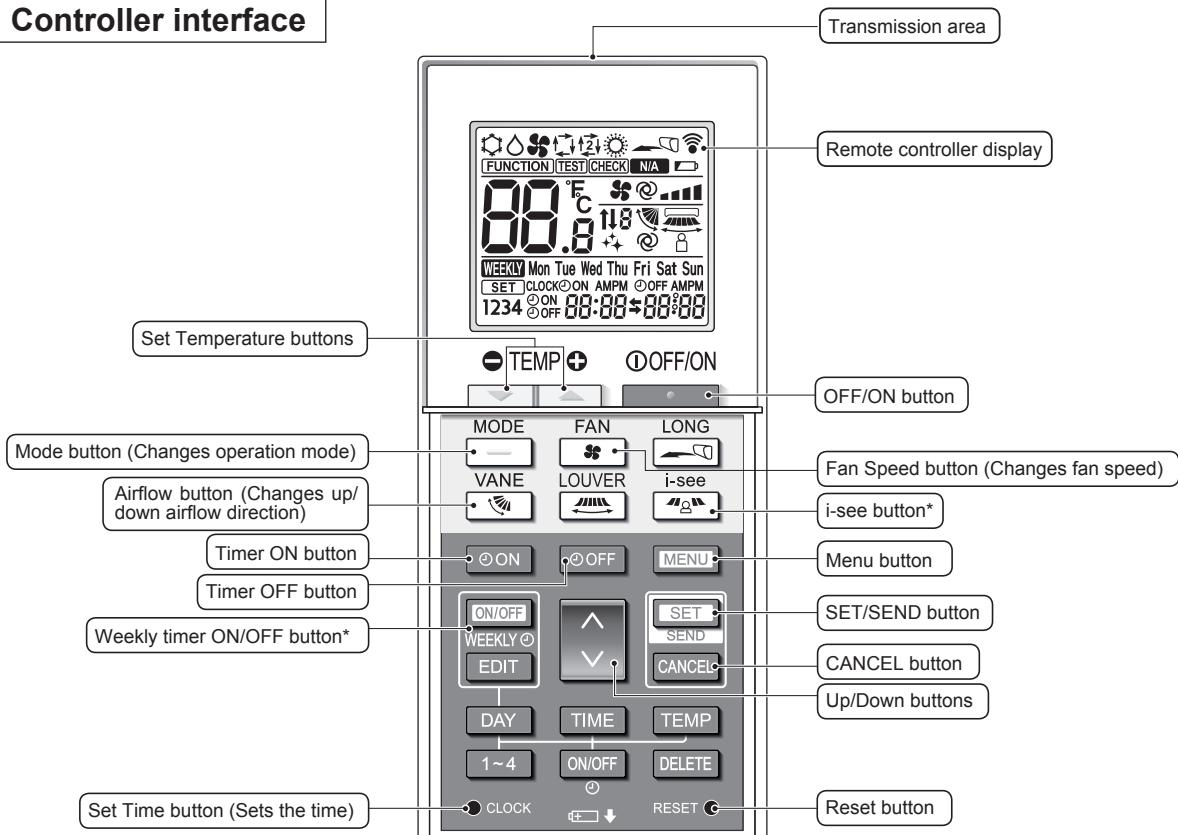


Note:

- "PLEASE WAIT" message
This message is displayed for approximately 3 minutes when power is supplied to the indoor unit or when the unit is recovering from a power failure.
- "NOT AVAILABLE" message
This message is displayed if an invalid button is pressed (to operate a function that the indoor unit does not have).
If a single remote controller is used to operate multiple indoor units simultaneously that are different types, this message will not be displayed as far as any of the indoor units is equipped with the function.

2-3. Wireless remote controller

Controller interface



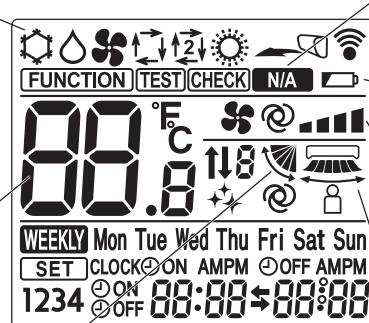
Note:

* This button is enabled or disabled depending on the model of the indoor unit.

Display

Operation mode	
	Cool
	Dry
	Fan
	Auto (single set point)
	Auto* (dual set point)
	Heat

* The initial setting is necessary. Refer to 4) in 3.2.



Not available
Appears when a non-supported function is selected.

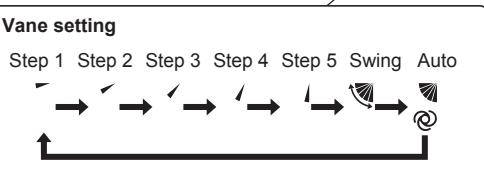
Battery replacement indicator
Appears when the remaining battery power is low.

Fan speed setting



3D i-see sensor (Air distribution)

Default Direct Indirect When Direct or Indirect is selected, the vane setting is set to "Auto".

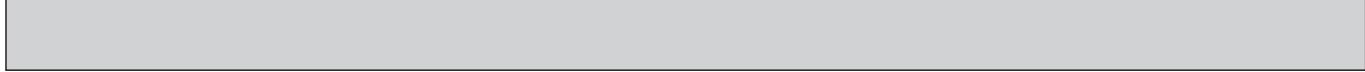


3-1. SPECIFICATIONS

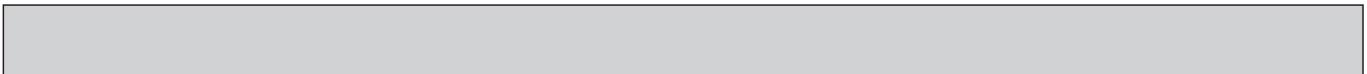
Model	PKFY-P10VLM-E PKFY-P10VLM-ET	PKFY-P15VLM-E PKFY-P15VLM-TH PKFY-P15VLM-ET	PKFY-P20VLM-E PKFY-P20VLM-TH PKFY-P20VLM-ET	PKFY-P25VLM-E PKFY-P25VLM-TH PKFY-P25VLM-ET	
Power source	1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz				
(Nominal) Cooling capacity *1	kW	1.2	1.7	2.2	
	kcal/h	1000	1500	1900	
	BTU/h	4100	5800	7500	
	Power input	kW	0.02	0.02	
(Nominal) Heating capacity *2	Current input	A	0.20	0.20	
	kW	1.4	1.9	2.5	
	kcal/h	1200	1600	2200	
	BTU/h	4800	6500	8500	
Power input	kW	0.01	0.01	0.01	
	Current input	A	0.15	0.15	
External finish(Munsell No.)	Plastic (0.7PB 9.2/0.4)				
External dimension H x W x D	mm	299 × 773 × 237			
	inch	11-25/32 x 30-7/16 x 9-11/32			
Net weight	kg (lb)	11(25)			
Heat exchanger	Cross fin (Aluminum fin and copper tube)				
Fan	Type x Quantity	Line flow fan x 1			
	External static press	Pa (mmH2O)	0(0)		
	Motor type		DC motor		
	Motor output	kW	0.03		
	Driving mechanism		Direct driven		
	Airflow rate (Low-Mid2-Mid1-High)	m ³ /min	3.3-3.5-3.8-4.2	4.0-4.2-4.4-4.7	4.0-4.4-4.9-5.4
		L/s	55-58-63-70	67-70-73-78	67-73-82-90
		cfm	117-124-134-148	141-148-155-166	141-155-173-191
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)	dB <A>	22-24-26-28	22-24-26-28	22-26-29-31	22-27-31-35
Insulation material	Polyethylene sheet				
Air filter	PP Honeycomb				
Protection device	Fuse				
Refrigerant control device	LEV				
Connectable outdoor unit	R410A CITY MULTI				
Diameter of refrigerant pipe	Liquid	mm (in)	φ6.35 (φ1/4)		
	Gas	mm (in)	φ12.7 (φ1/2)		
Field drain pipe size	mm (in)	I.D.16 (5/8)			
Standard attachment	Installation Manual, Instruction Book				
Optional parts	DRAIN PUMP KIT	PAC-SK01DM-E			
	EXTERNAL LEV BOX	PAC-SK17LE-E	PAC-SG95LE-E		
Remark	Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.				
Notes:					Unit converter
*1.Nominal cooling conditions (subject to JIS B8615-1) Indoor: 27°CDB./19°CWB. (81°FDB./66°FWB.), Outdoor: 35°CDB. (95°FDB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)					kcal/h = kW × 860 Btu/h = kW × 3,412 cfm = m ³ /min × 35.31 lb = kg/0.4536
*2.Nominal heating conditions (subject to JIS B8615-1) Indoor: 20°CDB. (68°FDB.), Outdoor: 7°CDB./6°CWB. (45°FDB./43°FWB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)					Note: Above specification data is subject to rounding variation.



Model		PKFY-P32VLM-E PKFY-P32VLM-ET PKFY-P32VLM-TH		PKFY-P40VLM-E PKFY-P40VLM-ET PKFY-P40VLM-TH		PKFY-P50VLM-E PKFY-P50VLM-ET PKFY-P50VLM-TH									
Power source		1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz													
(Nominal)	*1	kW	3.6	4.5	5.6										
	*1	kcal/h	3100	3900	4800										
	*1	BTU/h	12300	15400	19100										
	Power input	kW	0.04	0.04	0.05										
Heating capacity		Current input	A	0.35	0.35	0.45									
(Nominal)	*2	kW	4.0	5.0	6.3										
	*2	kcal/h	3400	4300	5400										
	*2	BTU/h	13600	17100	21500										
	Power input	kW	0.03	0.03	0.04										
Current input		A	0.30	0.30	0.40										
External finish(Munsell No.)		Plastic (0.7PB 9.2/0.4)													
External dimension H x W x D		mm	299 x 773 x 237	299 x 898 x 237											
		inch	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32											
Net weight		kg (lb)	11(25)	13(29)											
Heat exchanger		Cross fin (Aluminum fin and copper tube)													
Fan	Type x Quantity		Line flow fan x 1												
	External static press	Pa (mmH2O)	0(0)												
	Motor type		DC motor												
	Motor output	kW	0.03												
	Driving mechanism		Direct driven												
	Airflow rate (Low-Mid2-Mid1-High)	m³/min	4.3-5.4-6.9-8.4	6.3-7.4-8.6-10.0	6.8-8.3-10.2-12.4										
		L/s	72-90-115-140	105-123-143-167	113-138-170-207										
		cfm	152-191-244-297	222-261-304-353	240-293-360-438										
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24-31-37-41	29-34-37-40	31-36-41-46										
Insulation material		Polyethylene sheet													
Air filter		PP Honeycomb													
Protection device		Fuse													
Refrigerant control device		LEV													
Connectable outdoor unit		R410A CITY MULTI													
Diameter of refrigerant pipe	Liquid	mm (in)	φ6.35 (φ1/4)												
	Gas	mm (in)	φ12.7 (φ1/2)												
Field drain pipe size		mm (in)	I.D.16 (5/8)												
Standard attachment		Installation Manual, Instruction Book													
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E												
	EXTERNAL LEV BOX		PAC-SG95LE-E												
Remark		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.													
Notes: *1.Nominal cooling conditions (subject to JIS B8615-1) Indoor: 27°CDB./19°CWB. (81°FDB./66°FWB.), Outdoor: 35°CDB. (95°FDB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft) *2.Nominal heating conditions (subject to JIS B8615-1) Indoor: 20°CDB. (68°FDB.), Outdoor: 7°CDB./6°CWB. (45°FDB./43°FWB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)															



Model			PKFY-P15VLM-DA	PKFY-P20VLM-DA	PKFY-P25VLM-DA					
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz							
(Nominal)	*1	kW	1.7	2.2	2.8					
	*1	kcal/h	1500	1900	2400					
	*1	BTU/h	5800	7500	9600					
	Power input	kW	0.02	0.02	0.03					
(Nominal)	Current input	A	0.20	0.20	0.25					
	*2	kW	1.9	2.5	3.2					
	*2	kcal/h	1600	2200	2800					
	*2	BTU/h	6500	8500	10900					
Heating capacity	Power input	kW	0.01	0.01	0.02					
	Current input	A	0.15	0.15	0.20					
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)							
External dimension H x W x D		mm	299 x 773 x 237							
		inch	11-25/32 x 30-7/16 x 9-11/32							
Net weight		kg (lb)	11(25)							
Heat exchanger			Cross fin (Aluminum fin and copper tube)							
Fan	Type x Quantity		Line flow fan x 1							
	External static press	Pa (mmH2O)	0(0)							
	Motor type		DC motor							
	Motor output	kW	0.03							
	Driving mechanism		Direct driven							
	Airflow rate (Low-Mid2-Mid1-High)	m³/min	4.0 - 4.4 - 4.8 - 5.3	4.0 - 4.6 - 5.2 - 5.9	4.0 - 4.6 - 5.4 - 6.7					
		L/s	67-73-80-88	67-77-87-98	67-77-90-112					
		cfm	141-155-169-187	141-162-184-208	141-162-191-237					
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	22-26-28-30	22-27-30-33	22-27-31-35					
Insulation material			Polyethylene sheet							
Air filter			PP Honeycomb							
Protection device			Fuse							
Refrigerant control device			LEV							
Connectable outdoor unit			R410A CITY MULTI							
Diameter of refrigerant pipe	Liquid	mm (in)	$\phi 6.35 (\phi 1/4)$							
	Gas	mm (in)	$\phi 12.7 (\phi 1/2)$							
Field drain pipe size		mm (in)	I.D.16 (5/8)							
Standard attachment			Installation Manual, Instruction Book							
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E							
	EXTERNAL LEV BOX		PAC-SG95LE-E							
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.							
Notes:										
*1.Nominal cooling conditions (subject to JIS B8615-1) Indoor: 27°CDB./19°CWB. (81°FDB./66°FWB.), Outdoor: 35°CDB. (95°FDB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)										
*2.Nominal heating conditions (subject to JIS B8615-1) Indoor: 20°CDB. (68°FDB.), Outdoor: 7°CDB./6°CWB. (45°FDB./43°FWB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)										
Unit converter kcal/h = kW × 860 Btu/h = kW × 3,412 cfm = m³/min × 35.31 lb = kg/0.4536 Note: Above specification data is subject to rounding variation.										



Model			PKFY-P32VLM-DA	PKFY-P40VLM-DA	PKFY-P50VLM-DA			
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz					
(Nominal)	*1	kW	3.6	4.5	5.6			
	*1	kcal/h	3100	3900	4800			
	*1	BTU/h	12300	15400	19100			
	Power input	kW	0.05	0.05	0.05			
(Nominal)	Current input	A	0.45	0.45	0.45			
	*2	kW	4.0	5.0	6.3			
	*2	kcal/h	3400	4300	5400			
	*2	BTU/h	13600	17100	21500			
Heating capacity	Power input	kW	0.04	0.04	0.04			
	Current input	A	0.40	0.40	0.40			
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)					
External dimension H x W x D		mm	299 x 773 x 237	299 x 898 x 237				
		inch	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32				
Net weight		kg (lb)	11(25)	13(29)				
Heat exchanger			Cross fin (Aluminum fin and copper tube)					
Fan	Type x Quantity		Line flow fan x 1					
	External static press	Pa (mmH2O)	0(0)					
	Motor type		DC motor					
	Motor output	kW	0.03					
	Driving mechanism		Direct driven					
	Airflow rate (Low-Mid2-Mid1-High)	m³/min	4.3 - 5.9 - 8.0 - 10.4	6.3 - 7.7 - 9.5 - 11.5	6.8-8.3-10.2-12.4			
		L/s	72-98-133-173	105-128-158-192	113-138-170-207			
		cfm	152-208-282-367	222-272-335-406	240-293-360-438			
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24-33-41-48	29-35-40-44	31-36-41-46			
Insulation material			Polyethylene sheet					
Air filter			PP Honeycomb					
Protection device			Fuse					
Refrigerant control device			LEV					
Connectable outdoor unit			R410A CITY MULTI					
Diameter of refrigerant pipe	Liquid	mm (in)	φ6.35 (φ1/4)					
	Gas	mm (in)	φ12.7 (φ1/2)					
Field drain pipe size		mm (in)	I.D.16 (5/8)					
Standard attachment			Installation Manual, Instruction Book					
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E					
	EXTERNAL LEV BOX		PAC-SG95LE-E					
Remark		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.						
Notes: *1.Nominal cooling conditions (subject to JIS B8615-1) Indoor: 27°CDB./19°CWB. (81°FDB./66°FWB.), Outdoor: 35°CDB. (95°FDB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft) *2.Nominal heating conditions (subject to JIS B8615-1) Indoor: 20°CDB. (68°FDB.), Outdoor: 7°CDB./6°CWB. (45°FDB./43°FWB.) Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)								

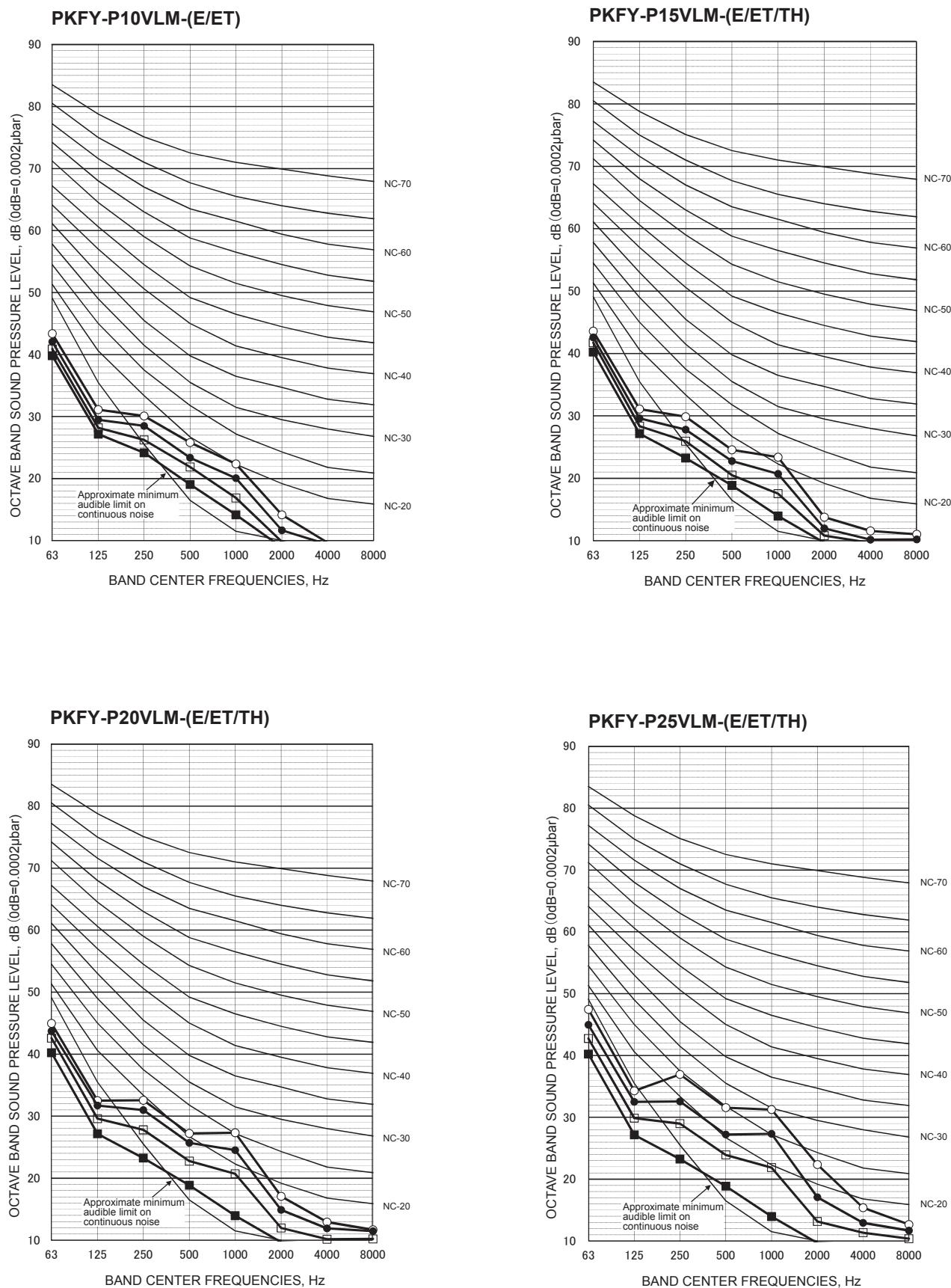
3-2. ELECTRICAL PARTS SPECIFICATIONS

Service ref. Parts name	Symbol	PKFY-P10VLM-(E/ET).TH PKFY-P15VLM-(E/ET/DA/TH).TH PKFY-P20VLM-(E/ET/DA/TH).TH PKFY-P25VLM-(E/ET/DA/TH).TH	PKFY-P32VLM-(E/ET/DA/TH).TH PKFY-P40VLM-(E/ET/DA/TH).TH PKFY-P50VLM-(E/ET/DA/TH).TH
Room temperature detection thermistor	TH21	Resistance 0°C /15kΩ, 10°C /9.6kΩ, 20°C /6.3kΩ, 25°C /5.4kΩ, 30°C /4.3kΩ, 40°C /3.0kΩ	
Pipe temperature detection thermistor/liquid	TH22	Resistance 0°C /15kΩ, 10°C /9.6kΩ, 20°C /6.3kΩ, 25°C /5.4kΩ, 30°C /4.3kΩ, 40°C /3.0kΩ	
Pipe temperature detection thermistor/gas	TH23	Resistance 0°C /15kΩ, 10°C /9.6kΩ, 20°C /6.3kΩ, 25°C /5.4kΩ, 30°C /4.3kΩ, 40°C /3.0kΩ	
Fuse (Indoor controller board)	FUSE		T3.15AL250V
Fan motor (with thermal fuse)	MF		8 X 30W / RC0J30-QD
Vane motor (Upper)	MV1		MSFBC20 DC12V
Vane motor (Lower)	MV2		NSEK302 DC12V
Linear expansion valve	LEV		DC12V Stepping motor drive Port φ2.4(P10), φ2.63(P15/20/25/32/40/50) (0-2000pulse)
Power supply terminal block	TB2		(L, N, G) Rated to 250V 20A *
Transmission terminal block	TB5		(M1, M2, S) Rated to 250V 20A *
MA-Remote controller terminal block	TB15		(1, 2) Rated to 250V 10A *

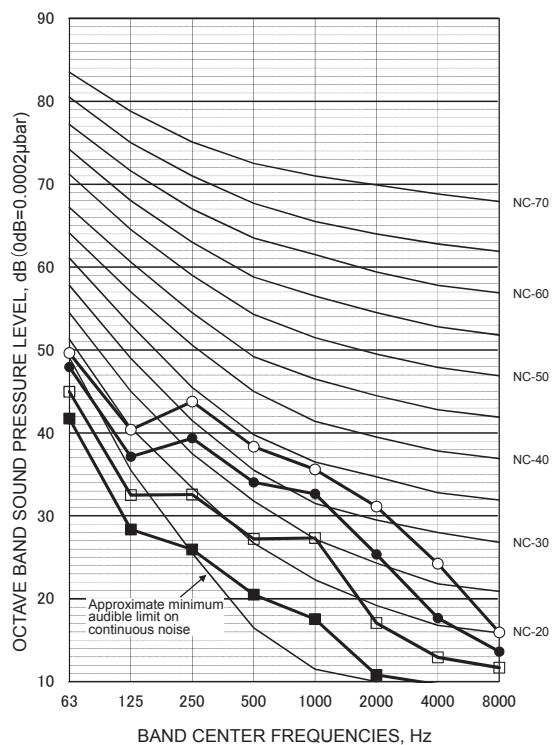
* Refer to WIRING DIAGRAM for the supplied voltage.

NOISE CRITERION CURVES

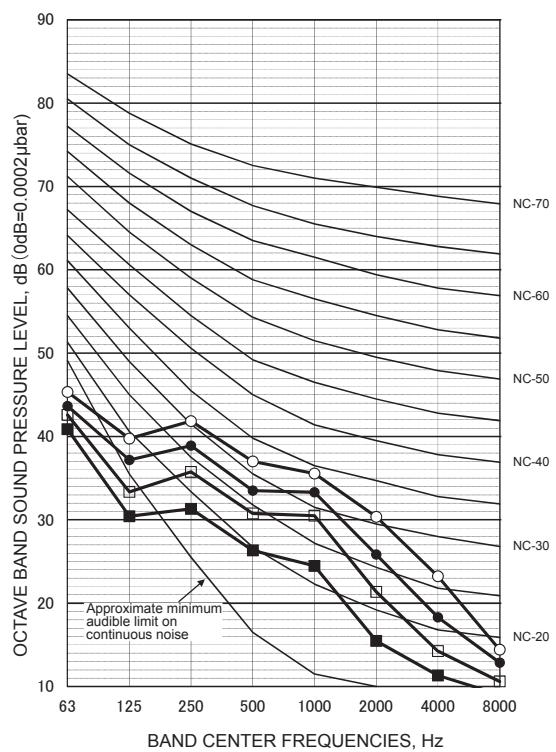
NOISE CRITERION CURVES



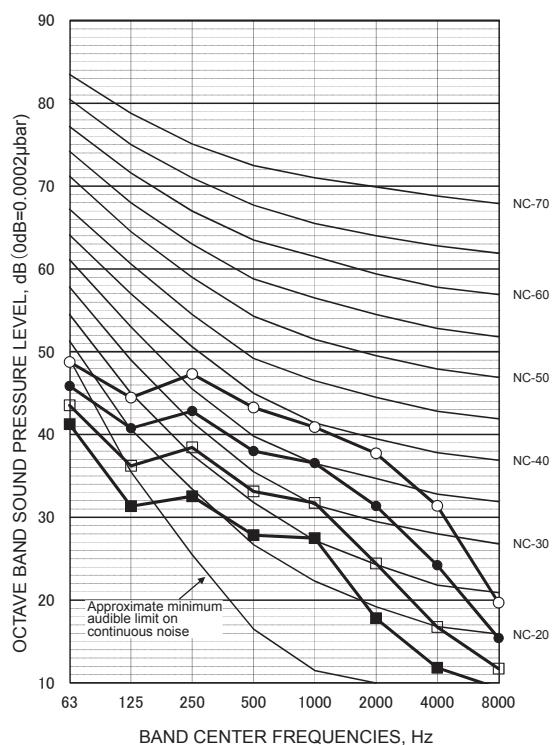
PKFY-P32VLM-(E/ET/TH)

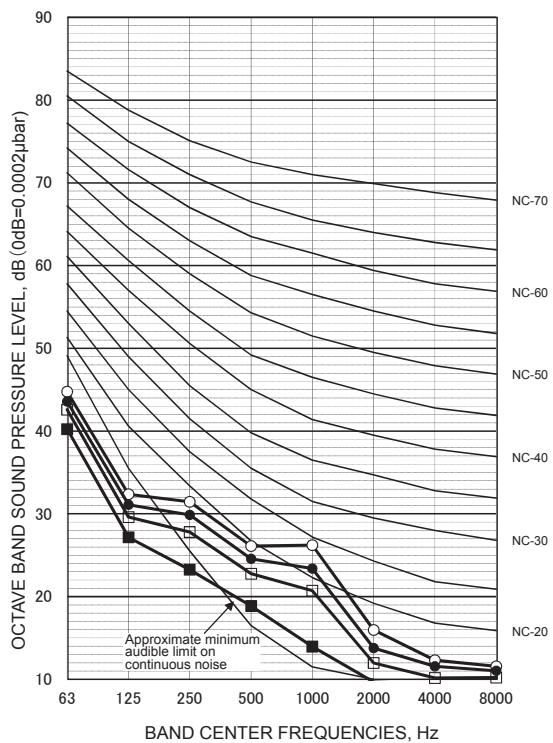
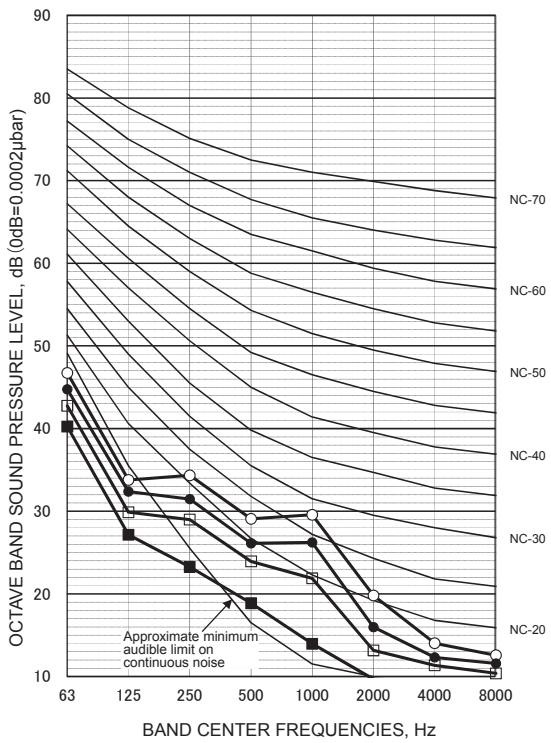
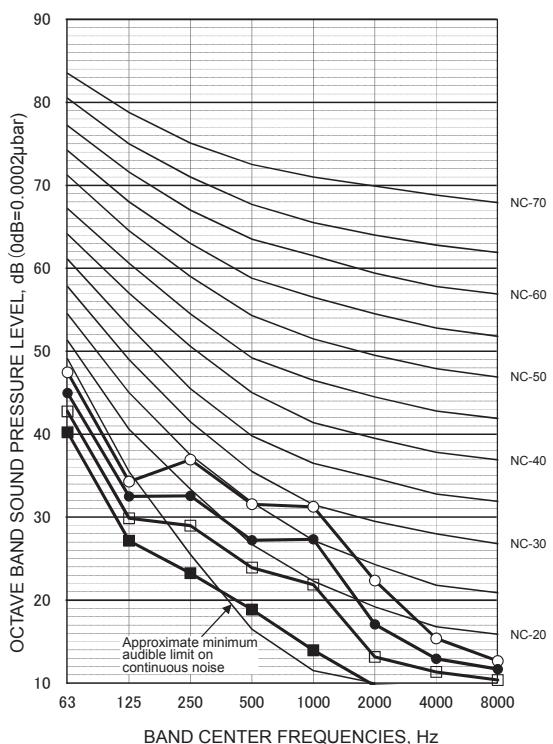
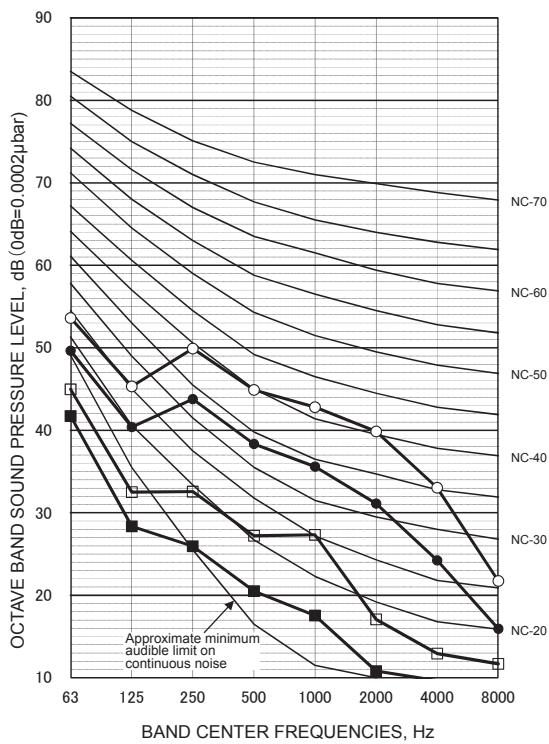


PKFY-P40VLM-(E/ET/TH)

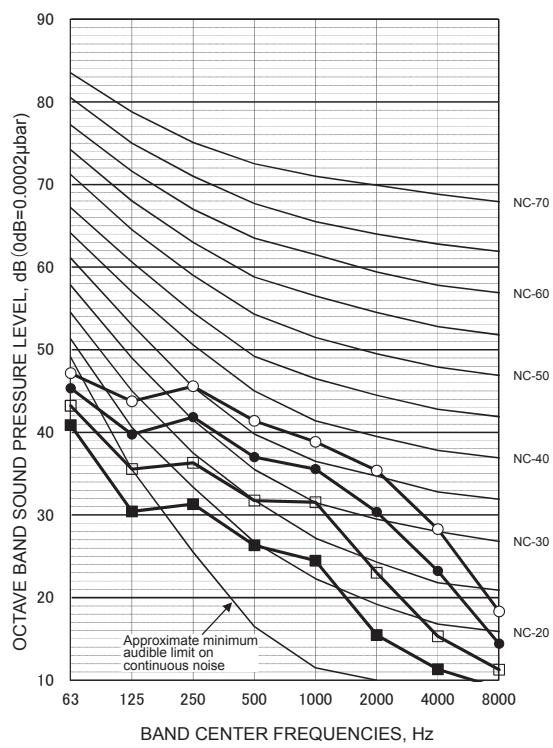


PKFY-P50VLM-(E/ET/TH)

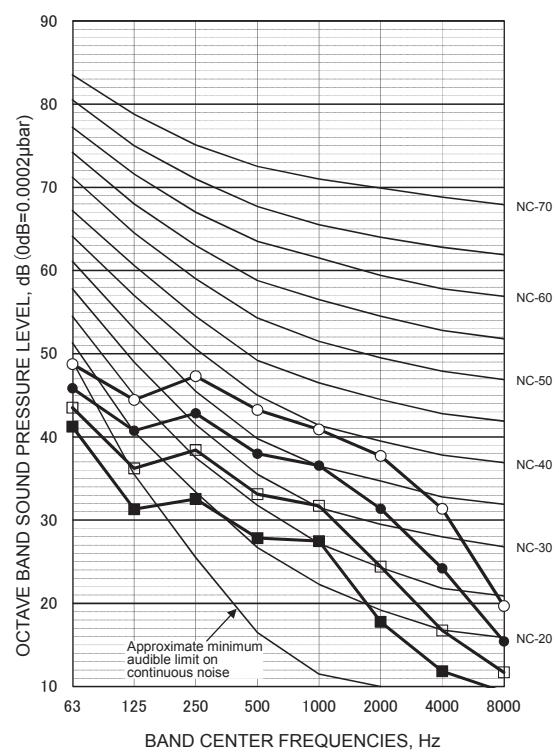


PKFY-P15VLM-DA**PKFY-P20VLM-DA****PKFY-P25VLM-DA****PKFY-P32VLM-DA**

PKFY-P40VLM-DA



PKFY-P50VLM-DA

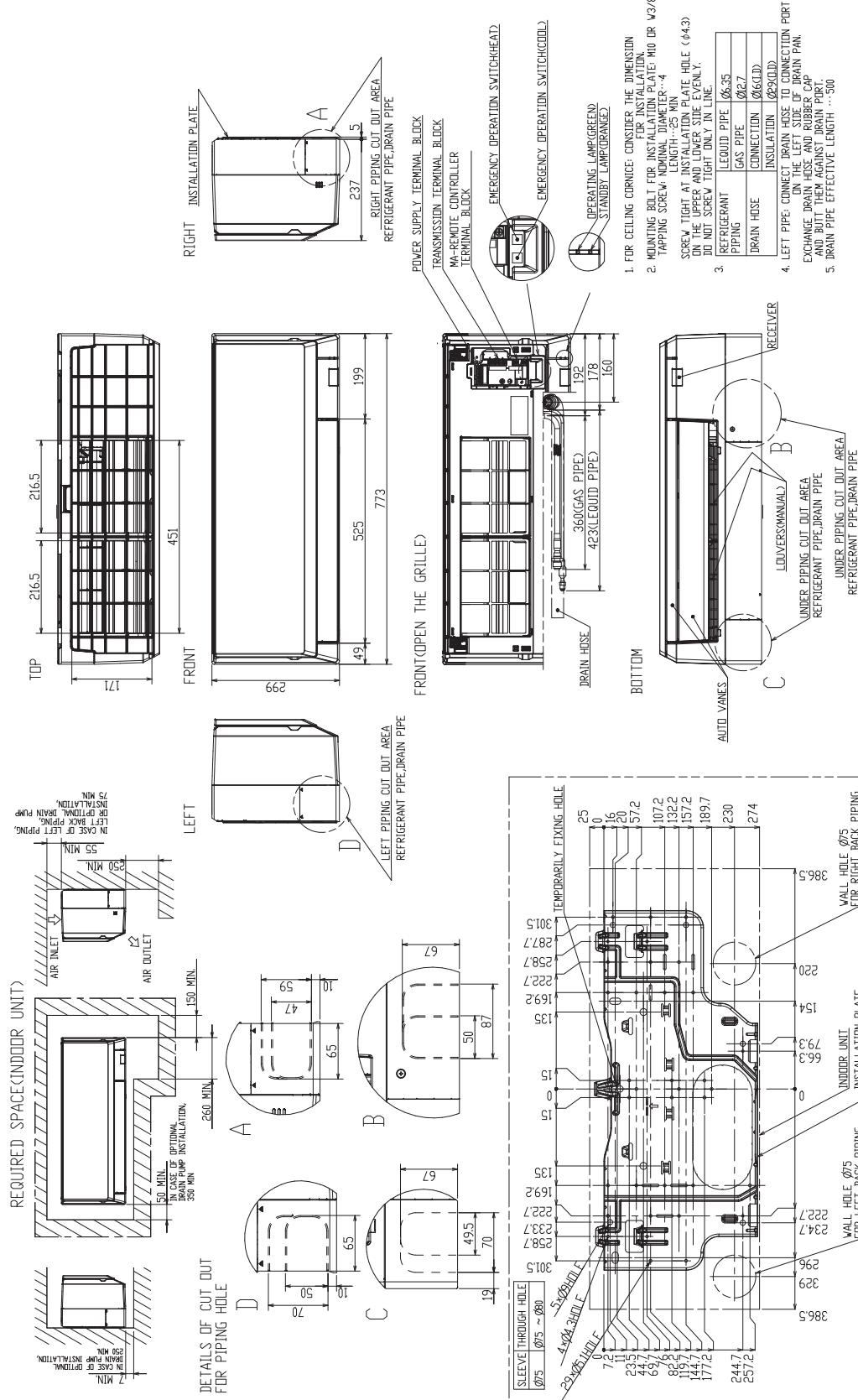


OUTLINES AND DIMENSIONS

**PKFY-P10VLM-(E/ET).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH**

**PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH**

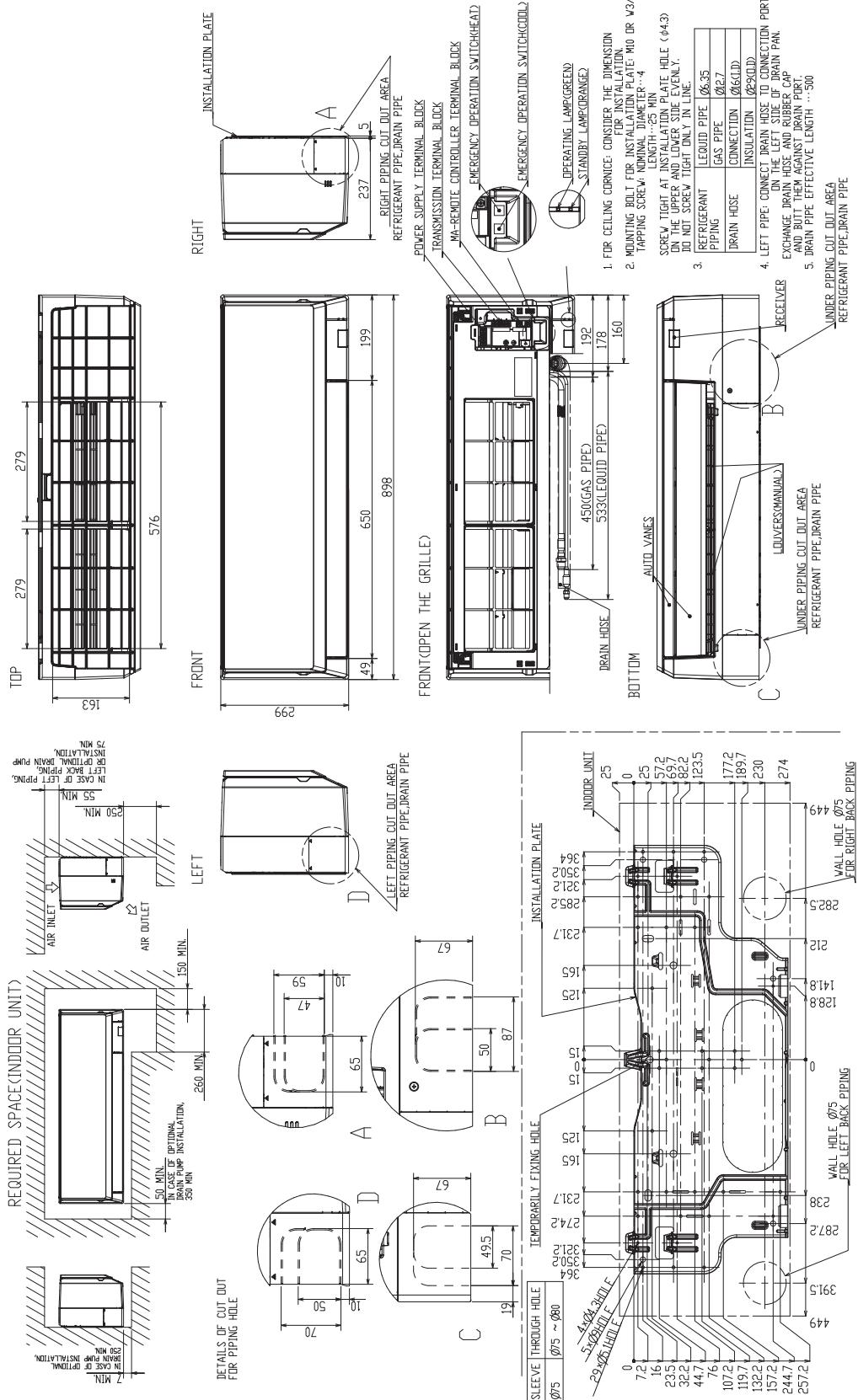
Unit: mm



PKFY-P40VLM-(E/ET/DA/TH).TH

PKFY-P50VLM-(E/ET/DA/TH).TH

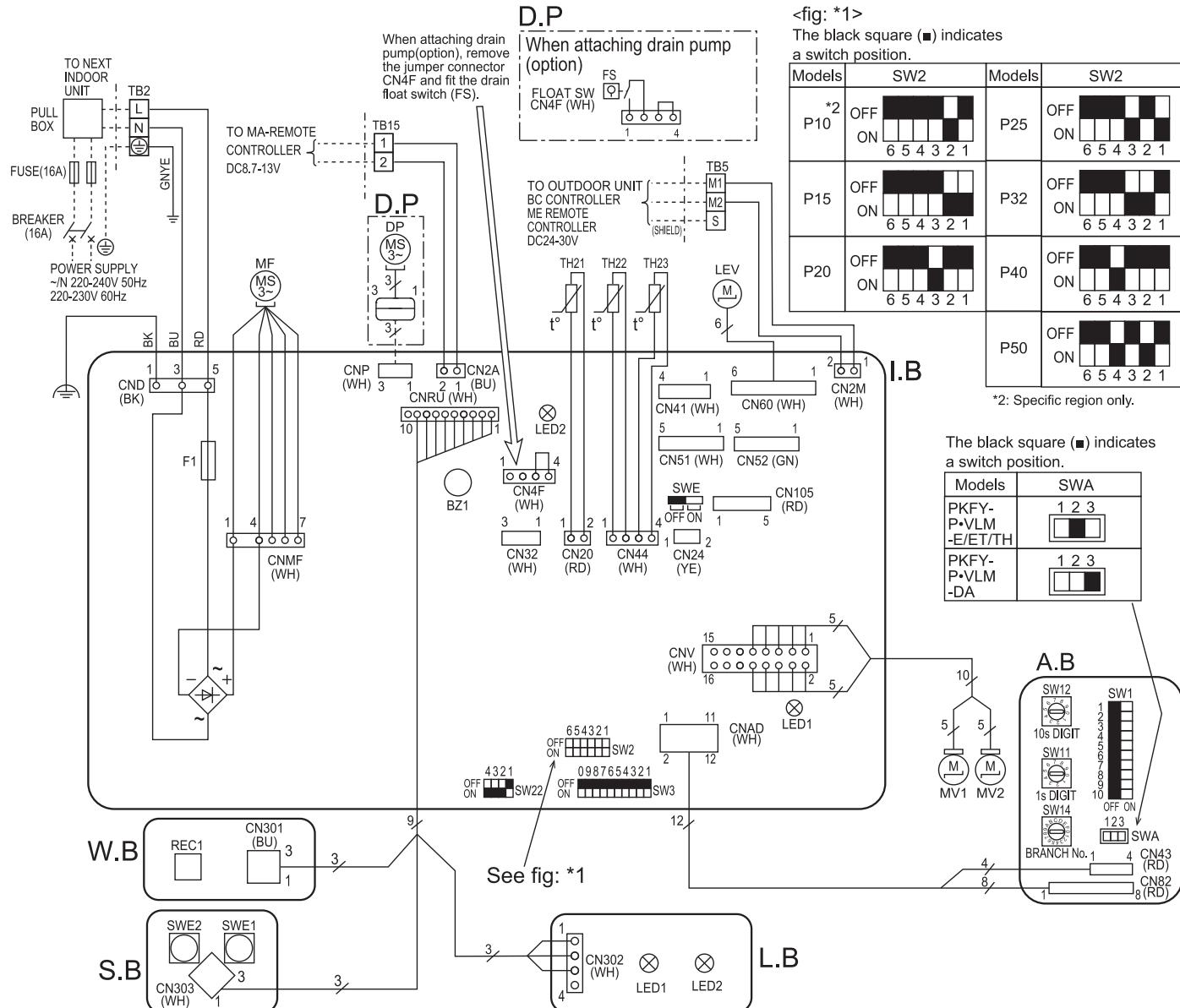
Unit: mm



WIRING DIAGRAM

PKFY-P10VLM-(E/ET).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH



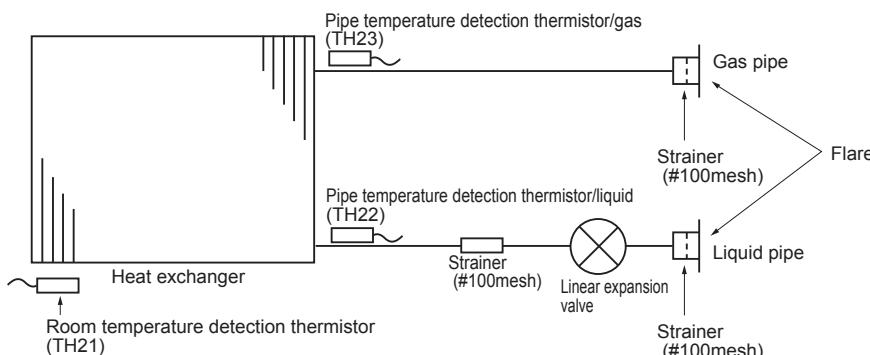
SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	TH21	THERMISTOR ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN32	CONNECTOR	TH22	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
CN51	CENTRALLY CONTROL	TH23	PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
CN52	REMOTE INDICATION		
CN105	IT TERMINAL		
BZ1	BUZZER	A.B	ADDRESS BOARD
F1	FUSE (T3,15AL250V)	SWA	SWITCH
LED1	POWER SUPPLY (I.B)	SW1	REGION SELECTION
LED2	POWER SUPPLY (MA-REMOTE CONTROLLER)	SW11	MODE SELECTION
SW2	SWITCH CAPACITY CODE	SW12	ADDRESS SETTING 1s DIGIT
SW3	MODE SELECTION	SW13	ADDRESS SETTING 10s DIGIT
SW22	PAIR NO. SETTING	SW14	BRANCH No.
SWE	FAN-DRAIN PUMP (TEST MODE)	S.B	SWITCH BOARD
LEV	LINEAR EXPANSION VALVE	SWE1	EMERGENCY OPERATION(HEAT)
MF	FAN MOTOR	SWE2	EMERGENCY OPERATION(COOL)
MV1	VANE MOTOR (UPPER)	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
MV2	VANE MOTOR (LOWER)	REC1	RECEIVING UNIT
TB2	TERMINAL POWER SUPPLY	L.B	LED BOARD
TB5	BLOCK TRANSMISSION	LED1	LED(OPERATING INDICATOR:GREEN)
TB15	MA-REMOTE CONTROLLER	LED2	LED(STANDBY FOR HEATING : ORANGE)
		D.P.	DRAIN PUMP KIT (OPTION)
		FS	DRAIN FLOAT SWITCH
		DP	DRAIN PUMP

- NOTES:**
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
 2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
 3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
 4. Symbol [S] of TB5 is the shield wire connection.
 5. Symbols used in wiring diagram above are, : terminal block, : connector.
 6. The setting of the SW2 dip switches differs in the capacity. For the detail, refer to the fig: *1.

LED on indoor controller board for service

Symbol	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:220-240V) Power on → Lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → Lamp is lit

PKFY-P10VLM-(E/ET).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH



Unit: mm (inch)

Gas pipe	φ12.7 (1/2")
Liquid pipe	φ6.35 (1/4")

8-1. HOW TO CHECK THE PARTS

PKFY-P10VLM-(E/ET).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH

Parts name	Check points																
Room temperature detection thermistor (TH21) Pipe temperature detection thermistor/liquid (TH22) Pipe temperature detection thermistor/gas (TH23)	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 10 to 30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> </tr> <tr> <td>4.3 to 9.6kΩ</td> </tr> </table> Refer to "8-1-1. Thermistor".	Normal	4.3 to 9.6kΩ														
Normal																	
4.3 to 9.6kΩ																	
Vane motor (MV1)	Measure the resistance between the terminals with a tester. (At the ambient temperature 25°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> </tr> <tr> <td>⑩-⑨ Red-Sky Blue ⑩-⑧ Red-Sky Blue ⑩-⑦ Red-Sky Blue ⑩-⑥ Red-Sky Blue</td> </tr> <tr> <td>300 Ω±7%</td> </tr> </table>	Normal	⑩-⑨ Red-Sky Blue ⑩-⑧ Red-Sky Blue ⑩-⑦ Red-Sky Blue ⑩-⑥ Red-Sky Blue	300 Ω±7%													
Normal																	
⑩-⑨ Red-Sky Blue ⑩-⑧ Red-Sky Blue ⑩-⑦ Red-Sky Blue ⑩-⑥ Red-Sky Blue																	
300 Ω±7%																	
Vane motor (Lower (MV2))	Measure the resistance between the terminals with a tester. (At the ambient temperature 25°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> </tr> <tr> <td>⑤-④ Red-Sky Blue ⑤-③ Red-Sky Blue ⑤-② Red-Sky Blue ⑤-① Red-Sky Blue</td> </tr> <tr> <td>300±26.3 Ω</td> </tr> </table>	Normal	⑤-④ Red-Sky Blue ⑤-③ Red-Sky Blue ⑤-② Red-Sky Blue ⑤-① Red-Sky Blue	300±26.3 Ω													
Normal																	
⑤-④ Red-Sky Blue ⑤-③ Red-Sky Blue ⑤-② Red-Sky Blue ⑤-① Red-Sky Blue																	
300±26.3 Ω																	
Fan motor (MF)	Refer to "8-1-3. DC Fan motor (fan motor/indoor controller board)"																
Linear expansion valve (LEV)	Disconnect the connector then measure the resistance valve with a tester. (Coil temperature 20°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> </tr> <tr> <td>(1)-(5) White-Red (2)-(6) Yellow-Brown (3)-(5) Orange-Red (4)-(6) Blue-Brown</td> </tr> <tr> <td>200 Ω±10%</td> </tr> </table>	Normal	(1)-(5) White-Red (2)-(6) Yellow-Brown (3)-(5) Orange-Red (4)-(6) Blue-Brown	200 Ω±10%													
Normal																	
(1)-(5) White-Red (2)-(6) Yellow-Brown (3)-(5) Orange-Red (4)-(6) Blue-Brown																	
200 Ω±10%																	
Drain pump (DP) (Optional parts)	① Check if the drain float switch works properly. ② Check if the drain pump works and drains water properly in cooling operation. ③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts. Note: The drain pump for this model is driven by the internal DC motor, so it is not possible to measure the resistance between the terminals. Normal Red-Black: Input 13 V DC → The pump motor starts to rotate.																
Drain float switch (FS) (Optional parts)	Measure the resistance between the terminals with a tester. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>State of moving part</th> <th>Normal</th> <th>Abnormal</th> <th>Drain float switch connector terminal</th> </tr> <tr> <td>UP</td> <td>Short</td> <td>Other than short</td> <td>①(+) - ②(-)</td> </tr> <tr> <td>DOWN</td> <td>Open</td> <td>Other than open</td> <td>①(+) - ②(-)</td> </tr> <tr> <td>-</td> <td>Short</td> <td>Other than short</td> <td>③(+) - ④(-)</td> </tr> </table>	State of moving part	Normal	Abnormal	Drain float switch connector terminal	UP	Short	Other than short	①(+) - ②(-)	DOWN	Open	Other than open	①(+) - ②(-)	-	Short	Other than short	③(+) - ④(-)
State of moving part	Normal	Abnormal	Drain float switch connector terminal														
UP	Short	Other than short	①(+) - ②(-)														
DOWN	Open	Other than open	①(+) - ②(-)														
-	Short	Other than short	③(+) - ④(-)														

8-1-1. Thermistor

<Thermistor characteristic graph>

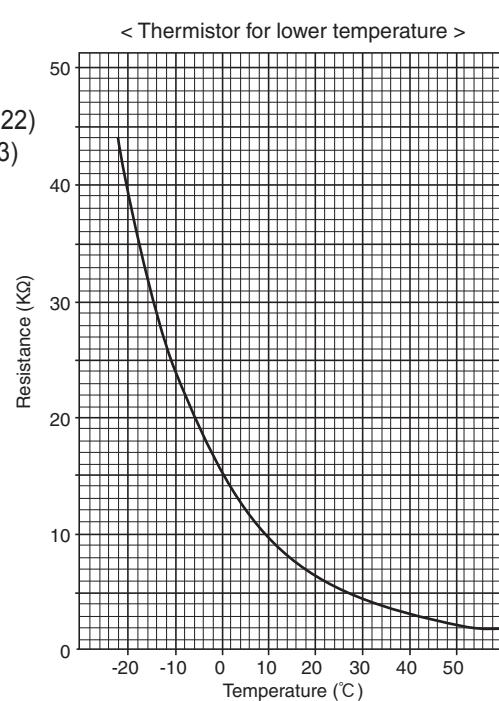
Thermistor for lower temperature

Room temperature detection thermistor (TH21)
Pipe temperature detection thermistor/liquid (TH22)
Pipe temperature detection thermistor/gas (TH23)

Thermistor $R_0=15 \text{ k}\Omega \pm 3\%$
Fixed number of $B=3480 \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	15 kΩ
10°C	9.6 kΩ
20°C	6.3 kΩ
25°C	5.4 kΩ
30°C	4.3 kΩ
40°C	3.0 kΩ

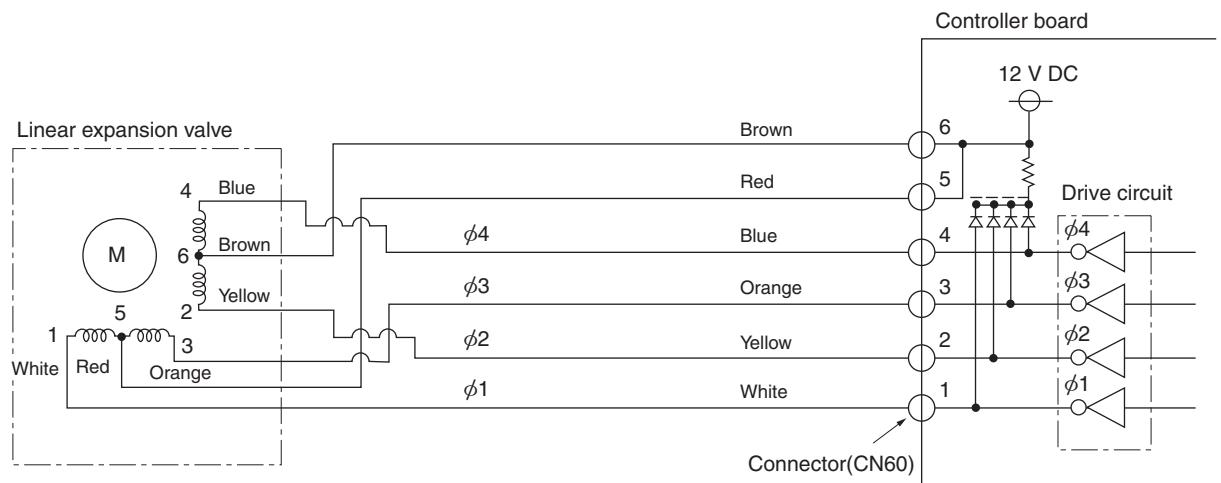


8-1-2. Linear expansion valve

① Operation summary of the linear expansion valve

- Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the indoor controller board.
- Valve position can be changed in proportion to the number of pulse signal.

<Connection between the indoor controller board and the linear expansion valve>



Note : Since the number of the connector at the controller board side and the relay connector are different, follow the color of the lead wire.

8-1-3. DC Fan motor (fan motor/indoor controller board)

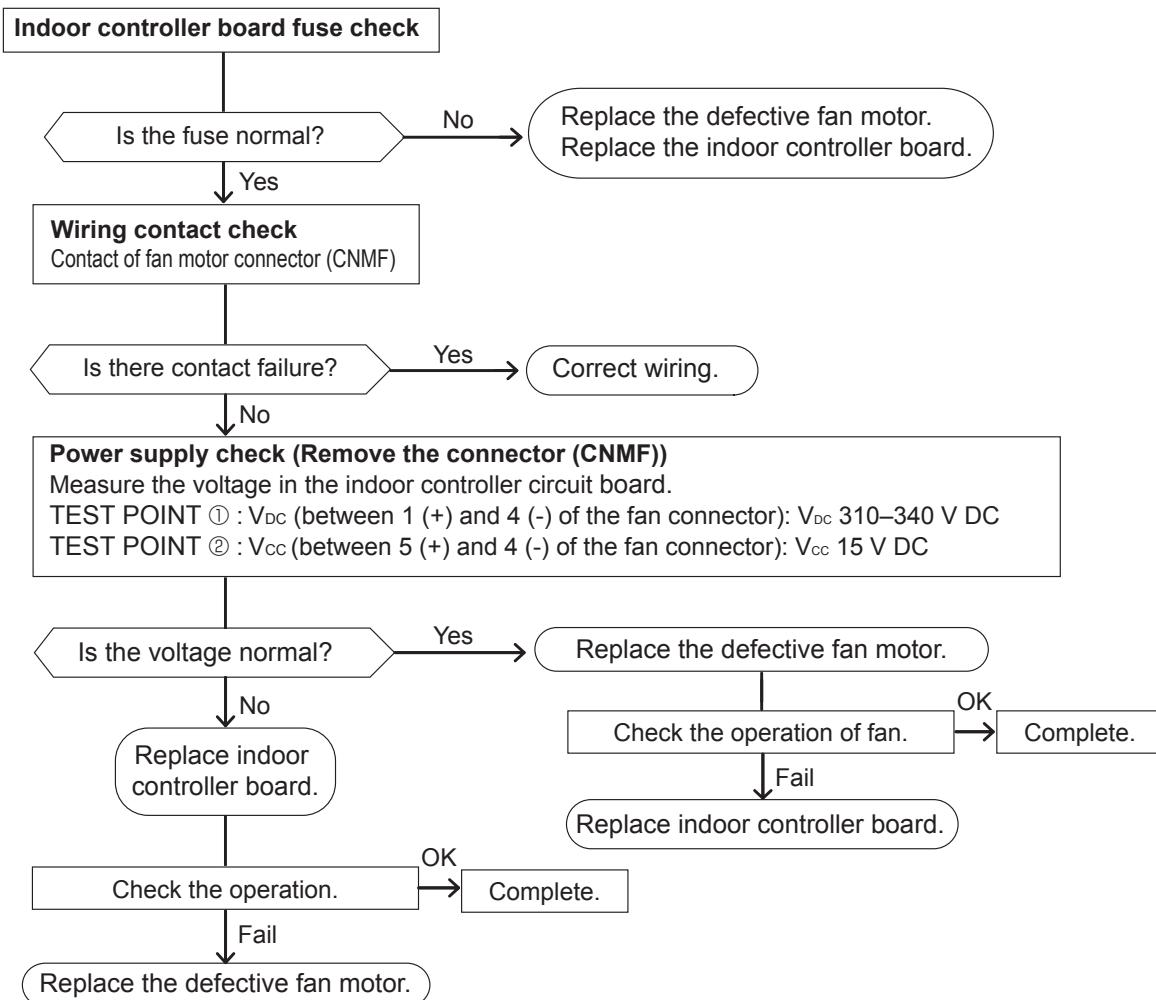
Check method of indoor fan motor (fan motor/indoor controller board)

① Notes

- High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNMF) for the motor with the power supply on.
(It causes trouble of the indoor controller board and fan motor.)

② Self check

Conditions : The indoor fan cannot rotate.



<Output pulse signal and the valve operation>

Output (Phase)	Output			
	1	2	3	4
φ1	ON	OFF	OFF	ON
φ2	ON	ON	OFF	OFF
φ3	OFF	ON	ON	OFF
φ4	OFF	OFF	ON	ON

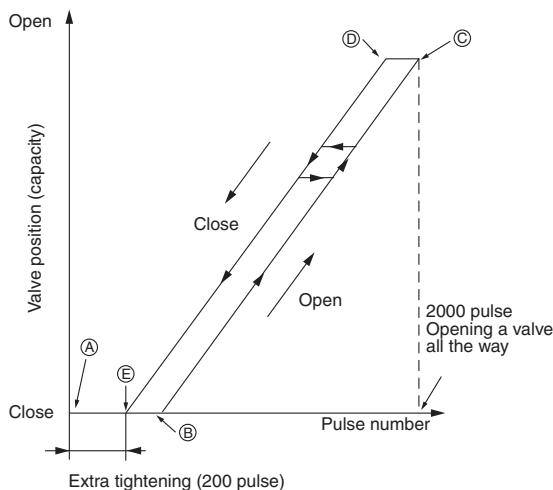
The output pulse shifts in below order.

Closing a valve : 1 → 2 → 3 → 4 → 1

Opening a valve : 4 → 3 → 2 → 1 → 4

- When linear expansion valve operation stops, all output phase become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.

② Linear expansion valve operation



- When the power is turned on, 2200 pulse closing valve signal will be sent till it goes to point ④ in order to define the valve position.
- When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valves : however, when the pulse number moves from ④ to ③ or when the valve is locked, more noise can be heard than in a normal situation.
- Noise can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

③ Troubleshooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro-processor	Disconnect the connector on the controller board, then connect LED for checking. When power is turned on, pulse signals will output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.	Exchange the linear expansion valve.
Short or breakage of the motor coil of the linear expansion valve	Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) using a tester. It is normal if the resistance is in the range of $200 \Omega \pm 10\%$.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way. It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.	If large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

8-2. FUNCTION OF DIP SWITCH

PKFY-P10VLM-(E/ET).TH

PKFY-P20VLM-(E/ET/DA/TH).TH

PKFY-P32VLM-(E/ET/DA/TH).TH

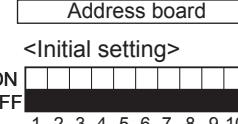
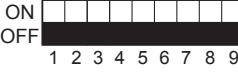
PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH

PKFY-P25VLM-(E/ET/DA/TH).TH

PKFY-P40VLM-(E/ET/DA/TH).TH

The black square (■) indicates a switch position.

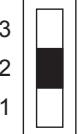
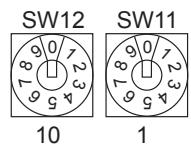
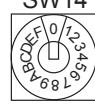
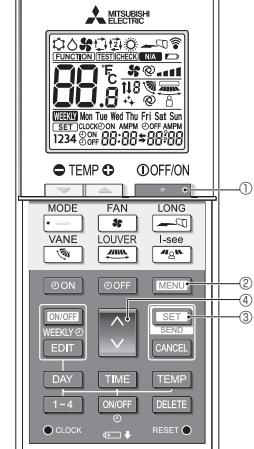
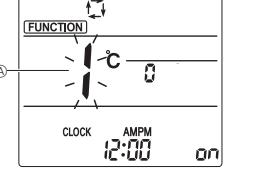
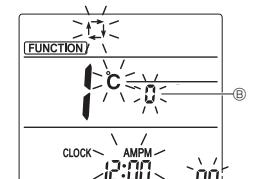
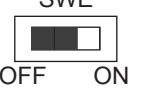
Switch	Pole	Function	Operation by switch		Effective timing	Remarks																			
			ON	OFF																					
SW1 Mode Selection	1	Thermistor <Intake temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	<p>Address board</p> <p><Initial setting></p>  <p>ON OFF 1 2 3 4 5 6 7 8 9 10</p> <p>*1 The model is not capable of fresh air intake. *2 Refer to <Table A> below.</p>																			
	2	Filter clogging	Provided	Not provided																					
	3	Filter sign indication	2,500 hr	100 hr																					
	4	Air intake*1	Not effective	Not effective																					
	5	Remote indication switching	Thermo-ON signal indication	Fan output indication																					
	6	Humidifier control	Fan operation at Heating mode	Thermo-ON operation at heating mode																					
	7	Air flow set in case of heat thermo-OFF	Low*2	Extra low*2																					
	8		Setting air flow*1	Depends on SW1-7																					
	9	Auto restart function	Effective	Not effective																					
	10	Power ON/OFF	Effective	Not effective																					
SW2 Capacity code setting	1-4	<table border="1"> <tr> <td>Models</td> <td>SW2</td> <td>Models</td> <td>SW2</td> </tr> <tr> <td>P10</td> <td>OFF ON 6 5 4 3 2 1</td> <td>P25</td> <td>OFF ON 6 5 4 3 2 1</td> </tr> <tr> <td>P15</td> <td>OFF ON 6 5 4 3 2 1</td> <td>P32</td> <td>OFF ON 6 5 4 3 2 1</td> </tr> <tr> <td>P20</td> <td>OFF ON 6 5 4 3 2 1</td> <td>P40</td> <td>OFF ON 6 5 4 3 2 1</td> </tr> <tr> <td></td> <td></td> <td>P50</td> <td>OFF ON 6 5 4 3 2 1</td> </tr> </table>		Models	SW2	Models	SW2	P10	OFF ON 6 5 4 3 2 1	P25	OFF ON 6 5 4 3 2 1	P15	OFF ON 6 5 4 3 2 1	P32	OFF ON 6 5 4 3 2 1	P20	OFF ON 6 5 4 3 2 1	P40	OFF ON 6 5 4 3 2 1			P50	OFF ON 6 5 4 3 2 1	Before power supply ON	<p>Indoor controller board</p> <p><Initial setting> Set for each capacity.</p>
Models	SW2	Models	SW2																						
P10	OFF ON 6 5 4 3 2 1	P25	OFF ON 6 5 4 3 2 1																						
P15	OFF ON 6 5 4 3 2 1	P32	OFF ON 6 5 4 3 2 1																						
P20	OFF ON 6 5 4 3 2 1	P40	OFF ON 6 5 4 3 2 1																						
		P50	OFF ON 6 5 4 3 2 1																						
SW3 Function Selection	1	Heat pump/Cool only	Cooling only	Heat pump	Under suspension	<p>Indoor controller board</p> <p><Initial setting></p>  <p>ON OFF 1 2 3 4 5 6 7 8 9 0</p>																			
	2	—	—	—																					
	3	—	—	—																					
	4	—	—	—																					
	5	—	—	—																					
	6	—	—	—																					
	7	Changing the opening of linear expansion valve	Effective	Not effective																					
	8	Heating 4 degree up	Not effective	Effective																					
	9	—	—	—																					
	10	—	—	—																					

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	stop

Continue to the next page

The black square (■) indicates a switch position.

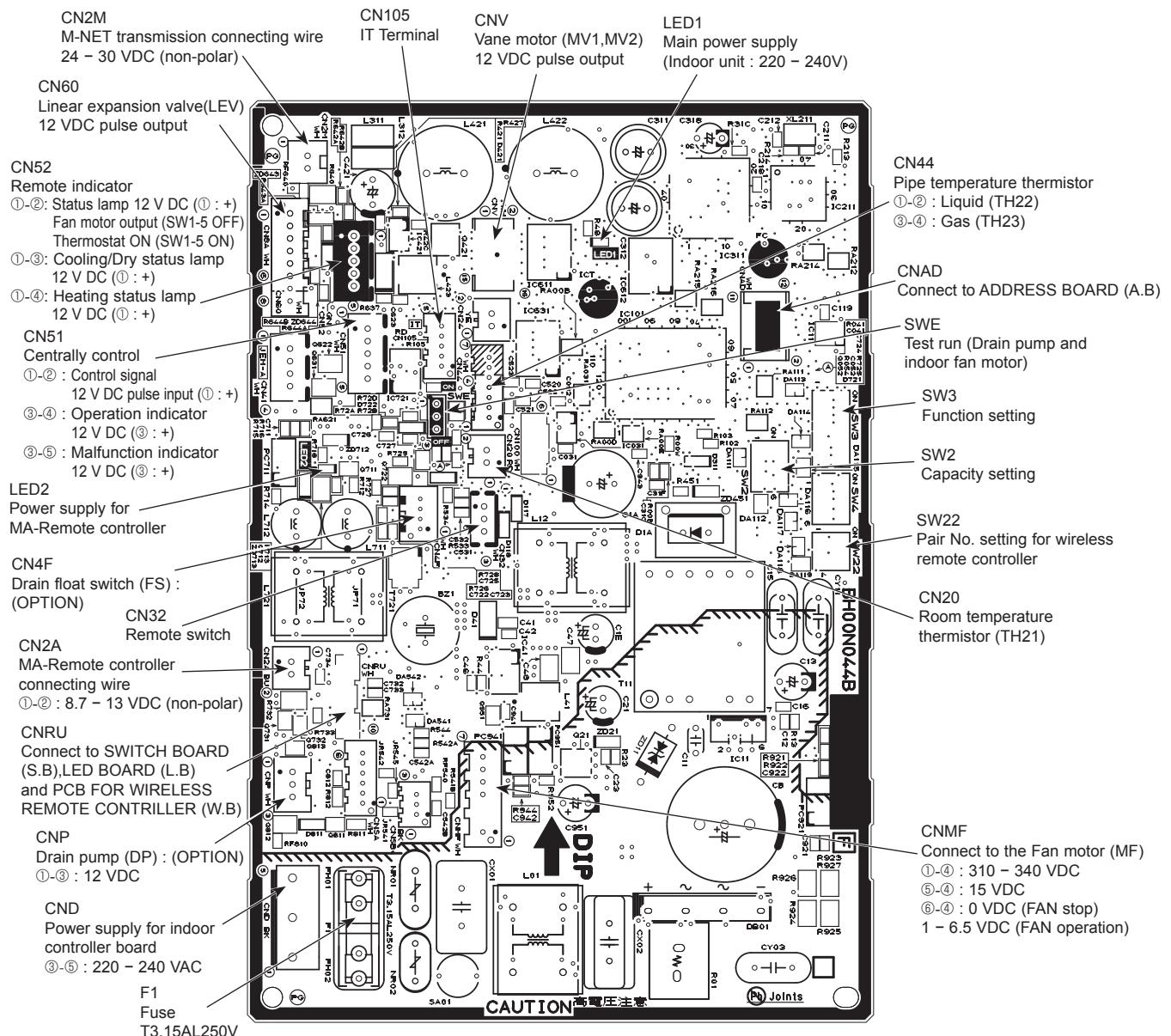
Switch	Pole	Function	Effective timing	Remarks																																						
SWA (Fan speed)	1~3	 <p>Fan speed can be changed depending on SWA setting.</p> <table border="1"> <tr> <td></td> <td>Setting</td> </tr> <tr> <td>PKFY-P**VLM-(E/ET/TH)</td> <td>2</td> </tr> <tr> <td>PKFY-P**VLM-DA</td> <td>3</td> </tr> </table>		Setting	PKFY-P**VLM-(E/ET/TH)	2	PKFY-P**VLM-DA	3	Under operation or suspension	<div style="border: 1px solid black; padding: 2px;">Address board</div> <div style="border: 1px solid black; padding: 2px;"><Initial setting></div> <p>It follows as the left table.</p>																																
	Setting																																									
PKFY-P**VLM-(E/ET/TH)	2																																									
PKFY-P**VLM-DA	3																																									
SW11 1s digit address setting SW12 10s digit address setting	Rotary switch	 <p>Address setting should be done when M-NET remote controller is being used.</p>	Before power supply ON	<div style="border: 1px solid black; padding: 2px;">Address board</div> <div style="border: 1px solid black; padding: 2px;"><Initial setting></div> <p>SW12 SW11</p> 																																						
SW14 Connection No. setting	Rotary switch	 <p>This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.</p>	Before power supply ON	<div style="border: 1px solid black; padding: 2px;">Address board</div> <div style="border: 1px solid black; padding: 2px;"><Initial setting></div> <p>SW14</p> 																																						
SW22 Function selection	Jumper	<table border="1"> <thead> <tr> <th></th> <th>Function</th> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>2</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>3</td> <td>Pair No. of wireless remote controller</td> <td>Depends on SW22-3, 22-4</td> <td></td> </tr> <tr> <td>4</td> <td>Pair No. of wireless remote controller</td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> To operate each indoor unit by each remote controller when installed 2 indoor units or more are near. Pair No. setting is necessary. •Pair No. setting is available with the 4 patterns (Setting patterns A to D). You may not set it when operating it by one remote controller. Setting for indoor unit. <p>Wireless remote controller pair number:</p> <ul style="list-style-type: none"> Setting operation (Fig. 1 ①) <ol style="list-style-type: none"> Press the  button ① to stop the air conditioner. Press the  button ②. Check that function No."1" is displayed, and then press the  button ③. The Screen display setting screen will be displayed. (Fig. 2.) Pair No. changing operation (Fig. 2 ④) <ol style="list-style-type: none"> Press the  button ④. Each time the  button ④ is pressed, the pair No.0~3 changes. Press the  button ③ to check the setting. Press the  button ②. <table border="1"> <thead> <tr> <th>Indoor unit SW22</th> <th>Pair No. of wireless remote controller</th> <th></th> </tr> <tr> <th>SW22-3</th> <th>SW22-4</th> <th></th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>1</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>2</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>3~9</td> </tr> </tbody> </table> 		Function	ON	OFF	1	—	—	—	2	—	—	—	3	Pair No. of wireless remote controller	Depends on SW22-3, 22-4		4	Pair No. of wireless remote controller			Indoor unit SW22	Pair No. of wireless remote controller		SW22-3	SW22-4		ON	ON	0	OFF	ON	1	ON	OFF	2	OFF	OFF	3~9	Under operation or suspension	 <p>① OFF</p> <p>② MENU</p> <p>③ SET</p> <p>④ Up arrow</p> <p>Fig. 1</p>  <p>FUNCTION</p> <p>①</p> <p>②</p> <p>③</p> <p>④</p> <p>CLOCK 12:00 AMPM on</p> <p>Fig. 2</p>  <p>FUNCTION</p> <p>①</p> <p>②</p> <p>③</p> <p>④</p> <p>CLOCK 12:00 AMPM on</p>
	Function	ON	OFF																																							
1	—	—	—																																							
2	—	—	—																																							
3	Pair No. of wireless remote controller	Depends on SW22-3, 22-4																																								
4	Pair No. of wireless remote controller																																									
Indoor unit SW22	Pair No. of wireless remote controller																																									
SW22-3	SW22-4																																									
ON	ON	0																																								
OFF	ON	1																																								
ON	OFF	2																																								
OFF	OFF	3~9																																								
SWE Test run for Drain pump	Connector	<p>Drain pump and fan are activated simultaneously after the connector SWE is set to ON and turn on the power.</p>  <p>The connector SWE is set to OFF after test run.</p>	Under operation	<div style="border: 1px solid black; padding: 2px;"><Initial setting></div> 																																						

8-3. TEST POINT DIAGRAM

8-3-1. Indoor controller board (I.B)

PKFY-P10VLM-(E/ET).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH



Note: The voltage range of 12 V DC in this page is between 11.5 to 13.7 V DC.

8-3-2. PCB FOR WIRELESS REMOTE CONTROLLER (W.B), SWITCH BOARD (S.B) and LED BOARD (L.B)

PKFY-P10VLM-(E/ET).TH

PKFY-P20VLM-(E/ET/DA/TH).TH

PKFY-P32VLM-(E/ET/DA/TH).TH

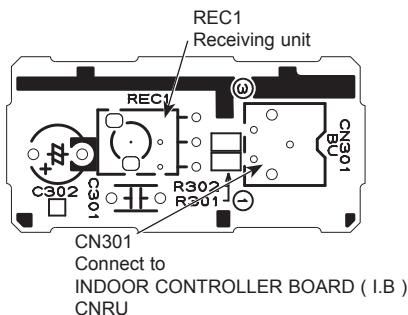
PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH

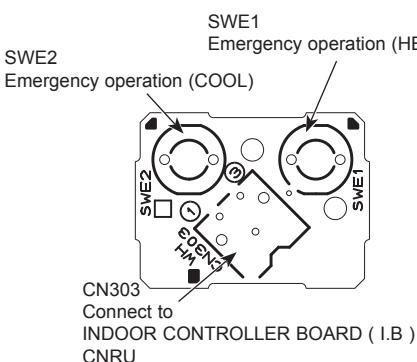
PKFY-P25VLM-(E/ET/DA/TH).TH

PKFY-P40VLM-(E/ET/DA/TH).TH

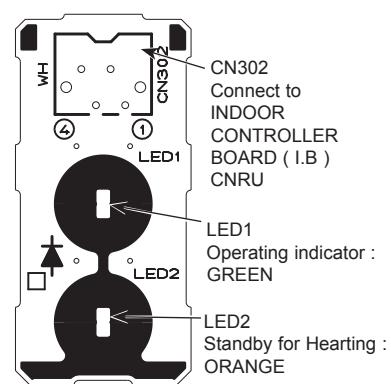
**PCB FOR WIRELESS
REMOTE CONTROLLER (W.B)**



SWITCH BOARD (S.B)



LED BOARD (L.B)



8-3-3. Address board (A.B)

PKFY-P10VLM-(E/ET).TH

PKFY-P20VLM-(E/ET/DA/TH).TH

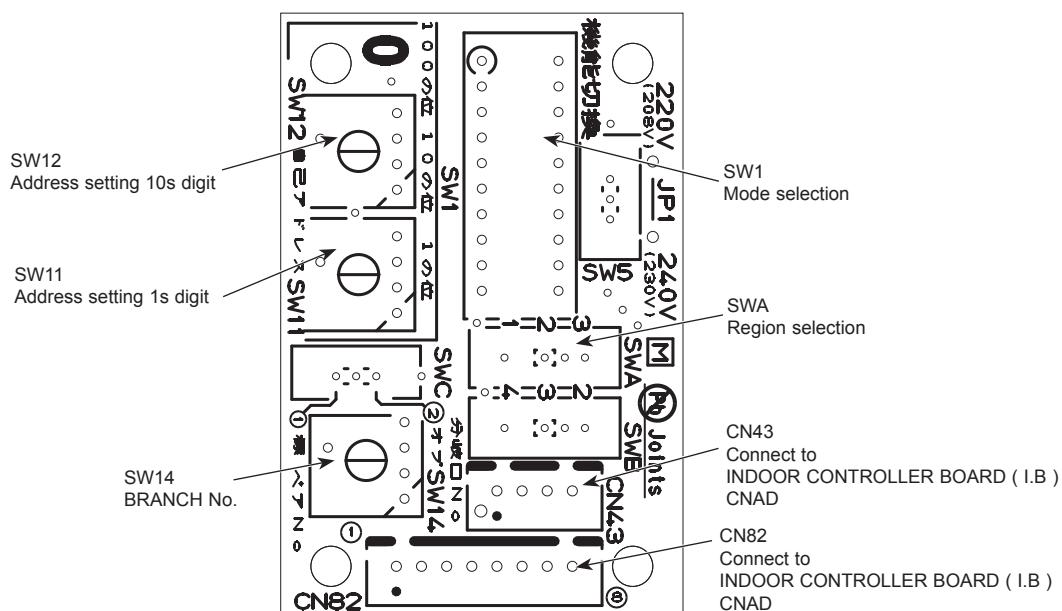
PKFY-P32VLM-(E/ET/DA/TH).TH

PKFY-P50VLM-(E/ET/DA/TH).TH

PKFY-P15VLM-(E/ET/DA/TH).TH

PKFY-P25VLM-(E/ET/DA/TH).TH

PKFY-P40VLM-(E/ET/DA/TH).TH



PKFY-P10VLM-(E/ET).TH

PKFY-P20VLM-(E/ET/DA/TH).TH

PKFY-P32VLM-(E/ET/DA/TH).TH

PKFY-P50VLM-(E/ET/DA/TH).TH

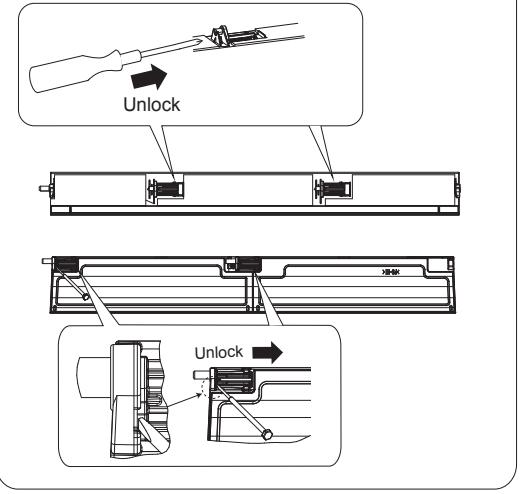
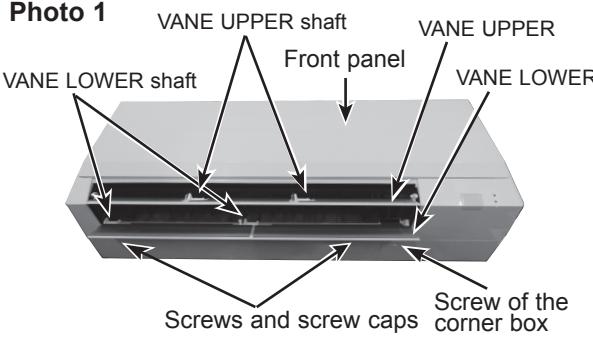
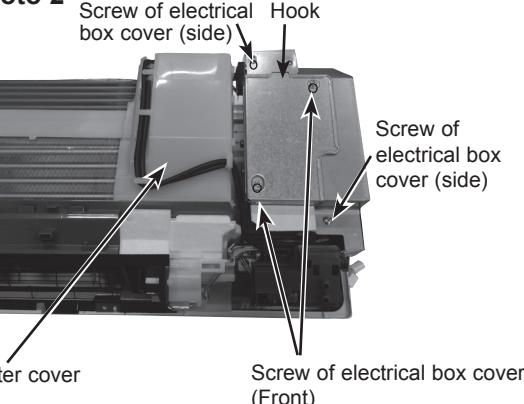
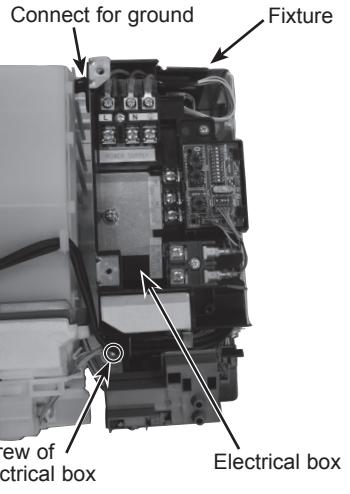
NOTE: Turn OFF the power supply before assembly.

PKFY-P15VLM-(E/ET/DA/TH).TH

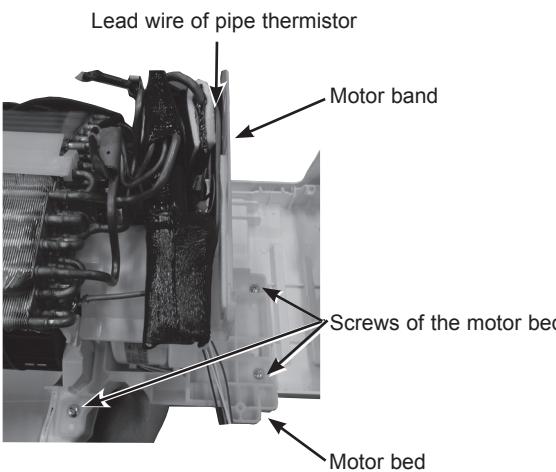
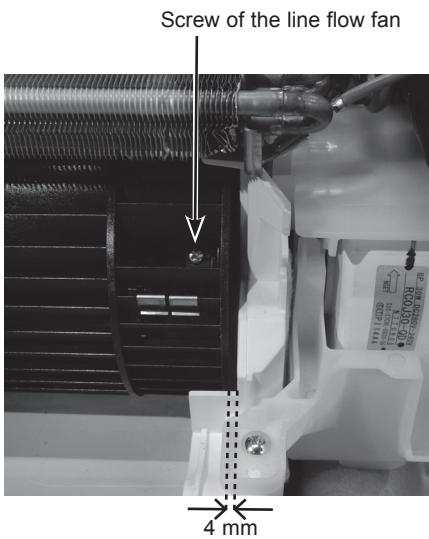
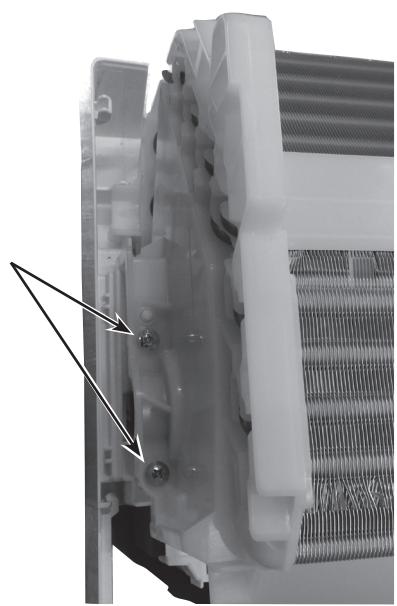
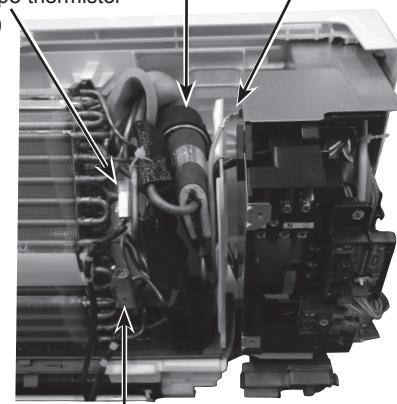
PKFY-P25VLM-(E/ET/DA/TH).TH

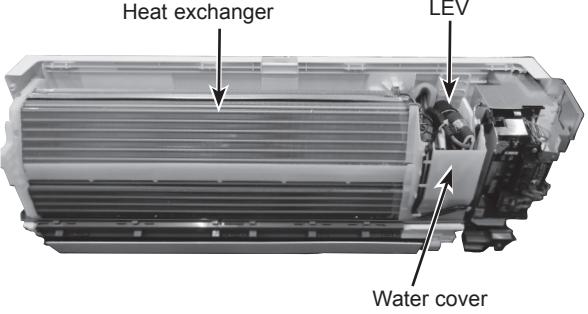
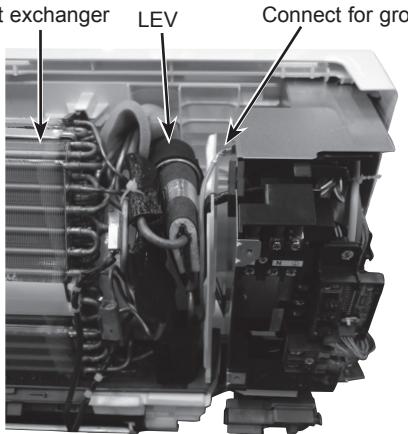
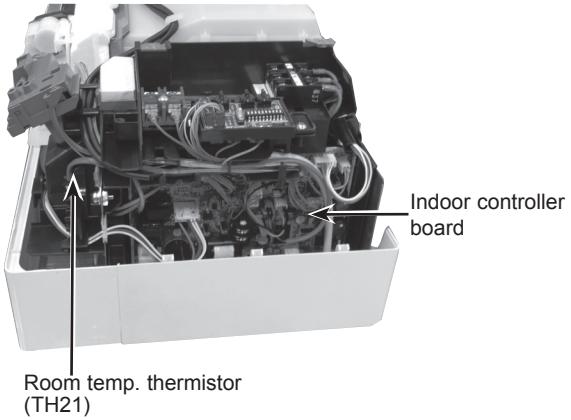
PKFY-P40VLM-(E/ET/DA/TH).TH

Be careful when removing heavy parts.

OPERATION PROCEDURE	PHOTOS/FIGURES
<p>1. REMOVING THE PANEL</p> <p>(1) Insert the driver to the hole at VANE LOWER shaft and slide the VANE LOWER shaft (2 places each). Push VANE UPPER shaft with the driver. (2) Pull the VANE LOWER and VANE UPPER from unit. (3) Remove 2 screw caps of the front panel. Remove 2 screws. (See Photo 1) (4) Hold the lower part of both ends of the front panel and pull it slightly toward you, and then remove the front panel by pushing it upward. (5) Remove the screw of the corner box. (See Photo 1) Remove the corner box.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Unlock the stopper and remove the horizontal vanes using following tool like a screw driver.</p>  </div>	<p>Photo 1</p> 
<p>2. REMOVING THE ELECTRICAL BOX</p> <p>(1) Remove the panel and the corner box. (Refer procedure to 1) (2) Remove the front and side electrical box covers (each 2 screw). (3) Remove the transmission wiring of TB5, the power supply wiring of TB2 and the wiring of MA-remote controller (TB15). (4) Disconnect the connectors on the indoor controller board. (5) Disconnect the connector for ground wire. (6) Remove the screw on lower side of the electrical box. (See Photo 3) (7) Push up the upper fixture catch to remove the box, then remove it from the box fixture.</p>	<p>Photo 2</p>  <p>Photo 3</p> 

OPERATION PROCEDURE	PHOTOS/FIGURES
<p>3. REMOVING THE ADDRESS BOARD, THE INDOOR CONTROLLER BOARD, THE WIRELESS CONTROLLER BOARD, LED BOARD</p> <p>(1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the front and side electrical box covers (each 2 screw). (3) Disconnect the connectors of address board. (4) Disconnect the connectors on the indoor controller board. (See Photo 4) (5) Remove the switch board holder and open the cover. (6) Pull out the indoor controller board toward you then remove the indoor controller board and switch board. (See Photo 4) (7) Remove the holder of wireless remote controller board and LED board. (8) Disconnect the connector of wireless remote controller board and LED board. (9) Remove the wireless remote controller board and LED board from the holder.</p>	<p>Photo 4</p> <p>Holder of wireless remote controller board and LED board Address board Indoor controller board Switch board holder (Holder of switch board)</p>
<p>4. REMOVING THE NOZZLE ASSEMBLY (with VANE and VANE MOTOR) AND DRAIN HOSE</p> <p>(1) Remove the panel and corner box. (Refer to procedure 1) (2) Remove the electrical box covers. (Refer to procedure 2) (3) Disconnect the vane motor connector (CNV) on the indoor controller board. (4) Push fixture and pull out the drain hose from the nozzle assembly, and remove nozzle assembly. (See Photo 6)</p>	<p>Photo 5 (see the bottom)</p> <p>Nozzle assembly Vane motor unit Drain hose</p>
<p>5. REMOVING THE VANE MOTOR</p> <p>(1) Remove the nozzle assembly. (Refer to procedure 4) (2) Remove 2 screws of the vane motor unit cover, and pull out the vane motor unit. (3) Remove screw of the vane motor (LOWER). (4) Remove the vane motor (LOWER) from the vane motor unit cover. (5) Disconnect the connector (white) from the vane motor (LOWER). (6) Remove 2 screw of the vane motor (UPPER). (7) Remove the vane motor (UPPER) from the vane motor unit cover. (8) Disconnect the connector (blue) from the vane motor (UPPER).</p>	<p>Photo 6</p> <p>Screws of the vane motor (LOWER) Fixture Drain hose Screws of the vane motor unit cover</p> <p>Photo 7</p> <p>Screws of the vane motor (UPPER)</p>

OPERATION PROCEDURE	PHOTOS/FIGURES
<p>6. REMOVING THE INDOOR FAN MOTOR AND THE LINE FLOW FAN</p> <p>(1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the electrical box (Refer to procedure 2) and the nozzle assembly (Refer to procedure 4). (3) Remove the water cover. (See Photo 2) (4) Loosen the screw fixing the line flow fan. (See Photo 9) (5) Remove 3 screws fixing the motor bed. (See Photo 8) (6) Remove the motor bed together with fan motor and motor band. (7) Release the 2 hooks of the motor band. Remove the motor band. Pull out the indoor fan motor. (8) Remove 2 screws fixing the left side of the heat exchanger. (See Photo 10) (9) Lift the heat exchanger, and pull out the line flow fan to the lower-left.</p> <p>* When attaching the line flow fan, screw the line flow fan so 4mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box. (Photo 9)</p>	<p>Photo 8</p>  <p>Lead wire of pipe thermistor Motor band Screws of the motor bed Motor bed</p> <p>Photo 9</p>  <p>Screw of the line flow fan 4 mm</p>
<p>Photo 10</p>  <p>Screws of the left side of the heat exchanger</p>	
<p>7. REMOVING THE LIQUID PIPE THERMISTOR AND GAS PIPE THERMISTOR</p> <p>(1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the electrical box covers. (Refer to procedure 2) (3) Remove the water cover. (See Photo 2) (4) Remove the liquid pipe thermistor and gas pipe thermistors. (5) Disconnect the connector (CN44) on the indoor controller board. (TH22 and TH23/CN44)</p>	<p>Photo 11</p>  <p>Gas pipe thermistor (TH23) LEV Connect for ground Liquid pipe thermistor (TH22)</p>

OPERATION PROCEDURE	PHOTOS/FIGURES
<p>8. REMOVING THE HEAT EXCHANGER AND LEV</p> <p>(1) Remove the panel and the corner box (Refer to procedure 1). (2) Remove the electrical box (Refer to procedure 3) and the nozzle assembly (Refer to procedure 4). (3) Remove the water cover. (4) Remove the pipe thermistors. (Refer to procedure 7). (5) Disconnect the connector (CN60) on the indoor controller board. (6) Remove the motor bed together with fan motor and motor band (Refer to procedure 6). (7) Remove 2 screws fixing the left side of the heat exchanger. (See Photo 10) (8) Remove the heat exchanger with LEV.</p>	<p>Photo 12</p>  <p>Heat exchanger LEV Water cover</p> <p>Photo 13</p>  <p>Heat exchanger LEV Connect for ground</p>
<p>9. REMOVING THE ROOM TEMPERATURE THERMISTOR</p> <p>(1) Remove the panel and corner box. (Refer to procedure 1) (2) Remove the electrical box covers. (Refer to procedure 2) (3) Remove the room temperature thermistor. (4) Disconnect the connector (CN20) on the indoor controller board.</p>	<p>Photo 14</p>  <p>Indoor controller board Room temp. thermistor (TH21)</p>



MITSUBISHI ELECTRIC CORPORATION

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



SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

Changes for the Better

May 2011

No. OCH447
REVISED EDITION-A

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted R410A / R407C / R22

Indoor unit
[Model names]

PKFY-P63VKM-E

PKFY-P100VKM-E

[Service Ref.]

PKFY-P63VKM-E.TH

PKFY-P100VKM-E.TH

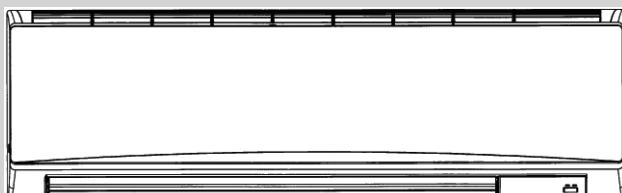
Revision:

- 4. OUTLINES AND DIMENSIONS has been modified in REVISED EDITION-A.
- Some descriptions have been modified.

- Please void OCH447.

Note:

- This manual describes only service data of the indoor units.
- RoHS compliant products have <G> mark on the spec name plate.



INDOOR UNIT

CONTENTS

1. SAFETY PRECAUTION.....	2
2. PART NAMES AND FUNCTIONS	5
3. SPECIFICATION	8
4. OUTLINES AND DIMENSIONS.....	10
5. WIRING DIAGRAM.....	11
6. REFRIGERANT SYSTEM DIAGRAM.....	12
7. TROUBLESHOOTING	12
8. DISASSEMBLY PROCEDURE	20

PARTS CATALOG (OCB447)

CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R407C

Do not use the existing refrigerant piping.

The old refrigerant and lubricant in the existing piping contain a large amount of chlorine which may cause the lubricant deterioration of the new unit.

Use "low residual oil piping"

If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

Store the piping to be used indoors during installation and both ends sealed until just before brazing.

(Store elbows and other joints in a plastic bag.)

If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.

Use ESTR , ETHER or HAB as the lubricant to coat flares and flange connection parts.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Use liquid refrigerant to charge the system.

If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.

Do not use a refrigerant other than R407C.

If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the lubricant deterioration.

Use a vacuum pump with a reverse flow check valve.

The vacuum pump oil may flow back into the refrigerant cycle and cause the lubricant deterioration.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

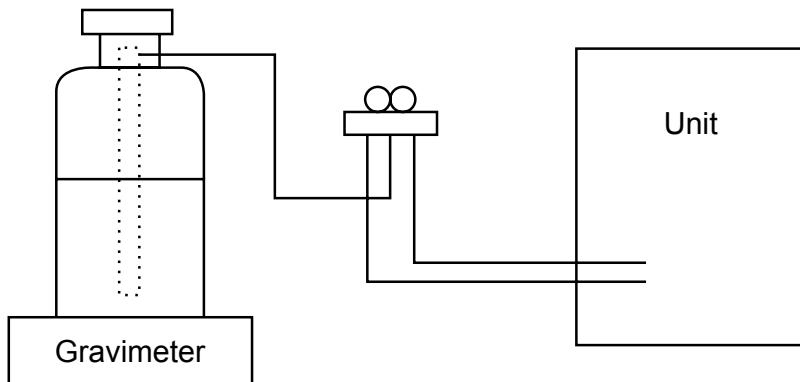
[1] Cautions for service

- After recovering the all refrigerant in the unit, proceed to working.
- Do not release refrigerant in the air.
- After completing the repair service, recharge the cycle with the specified amount of liquid refrigerant.

[2] Refrigerant recharging

(1) Refrigerant recharging process

- ① Direct charging from the cylinder.
 - R407C cylinder available on the market has a siphon pipe.
 - Leave the siphon pipe cylinder standing and recharge it.
(By liquid refrigerant)



(2) Recharge in refrigerant leakage case

- After recovering the all refrigerant in the unit, proceed to working.
- Do not release the refrigerant in the air.
- After completing the repair service, recharge the cycle with the specified amount of liquid refrigerant.

[3] Service tools

Use the below service tools as exclusive tools for R407C refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	<ul style="list-style-type: none">· Only for R407C· Use the existing fitting SPECIFICATIONS. (UNF7/16)· Use high-tension side pressure of 3.43MPa·G or over.
②	Charge hose	<ul style="list-style-type: none">· Only for R407C· Use pressure performance of 5.10MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	<ul style="list-style-type: none">· Use the detector for R134a or R407C.
⑤	Adaptor for reverse flow check	<ul style="list-style-type: none">· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	<ul style="list-style-type: none">· For R407C· Top of cylinder (Brown)· Cylinder with siphon
⑧	Refrigerant recovery equipment	—

Cautions for units utilizing refrigerant R410A

Do not use the existing refrigerant piping.

The old refrigerant and lubricant in the existing piping contains a large amount of chlorine which may cause the lubricant deterioration of the new unit.

Use "low residual oil piping"

If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

Store the piping to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

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.

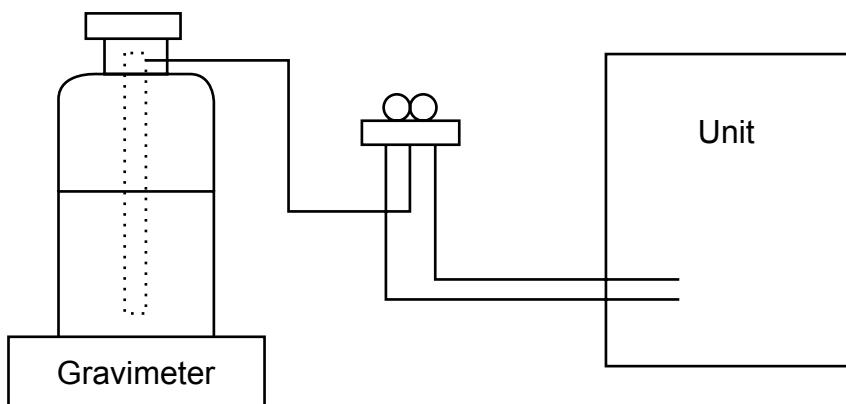
[1] Cautions for service

- (1) Perform service after recovering the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

- Check that cylinder for R410A on the market is syphon type.
- Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[3] Service tools

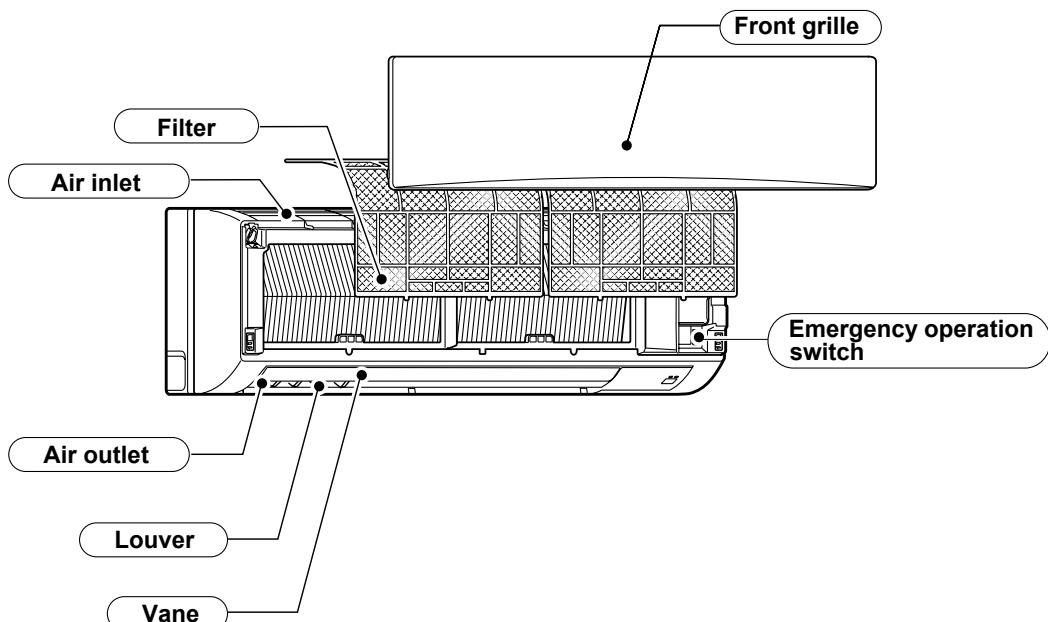
Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R410A · Top of cylinder (Pink) · Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2

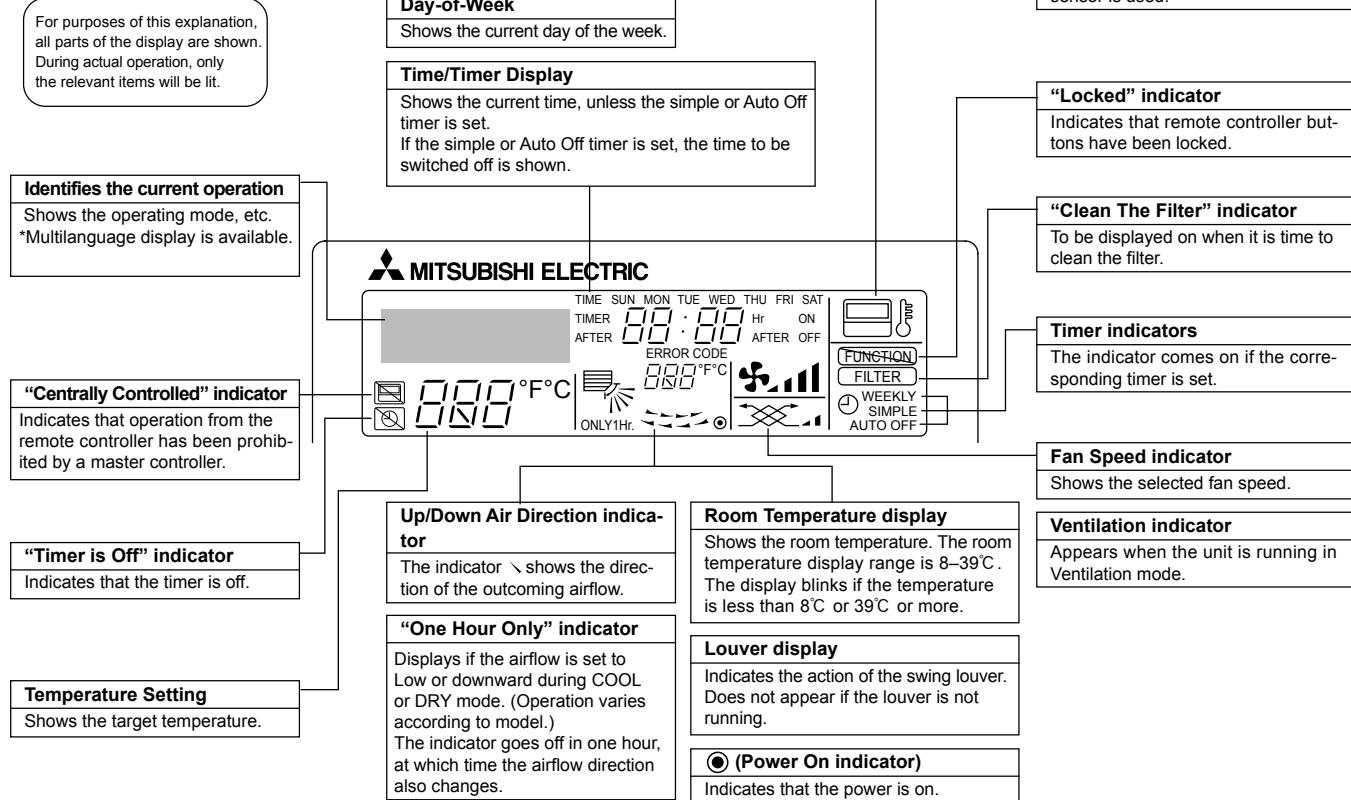
PART NAMES AND FUNCTIONS

- Indoor unit

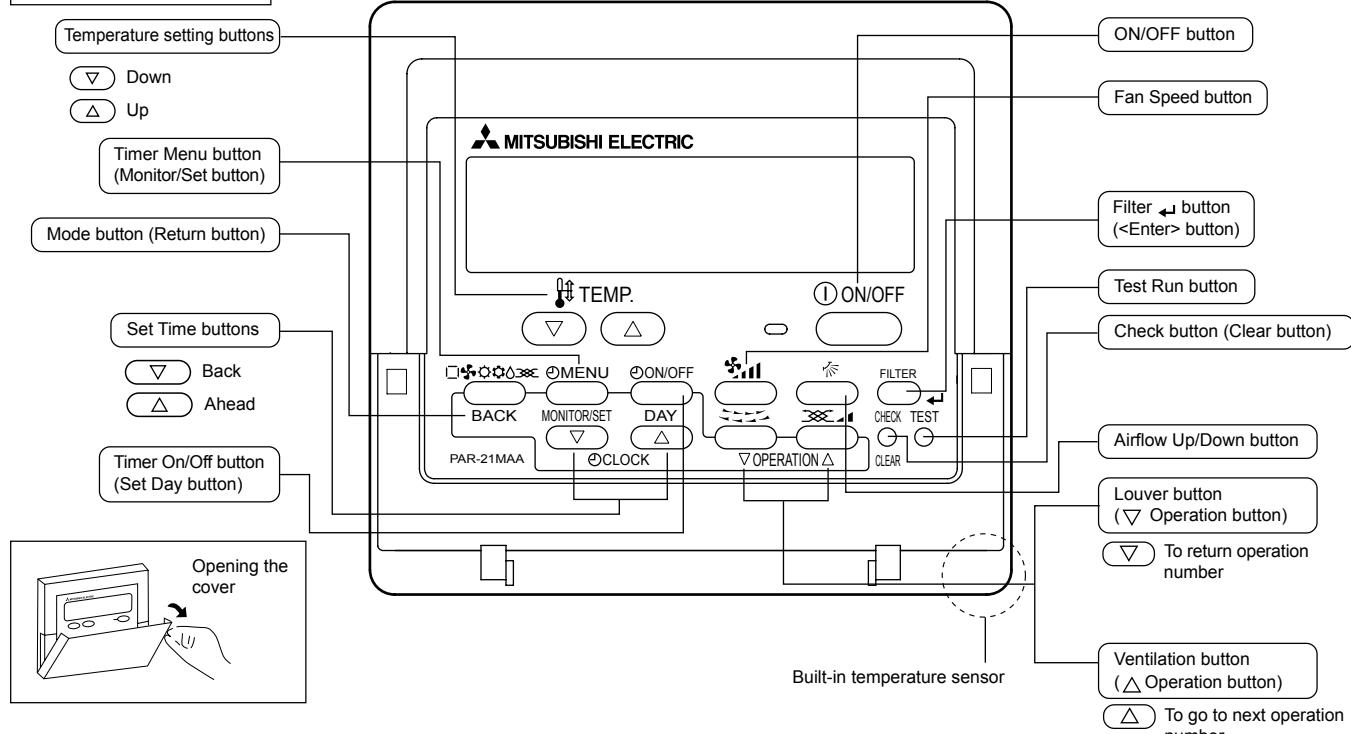


• Wired remote controller

Display Section

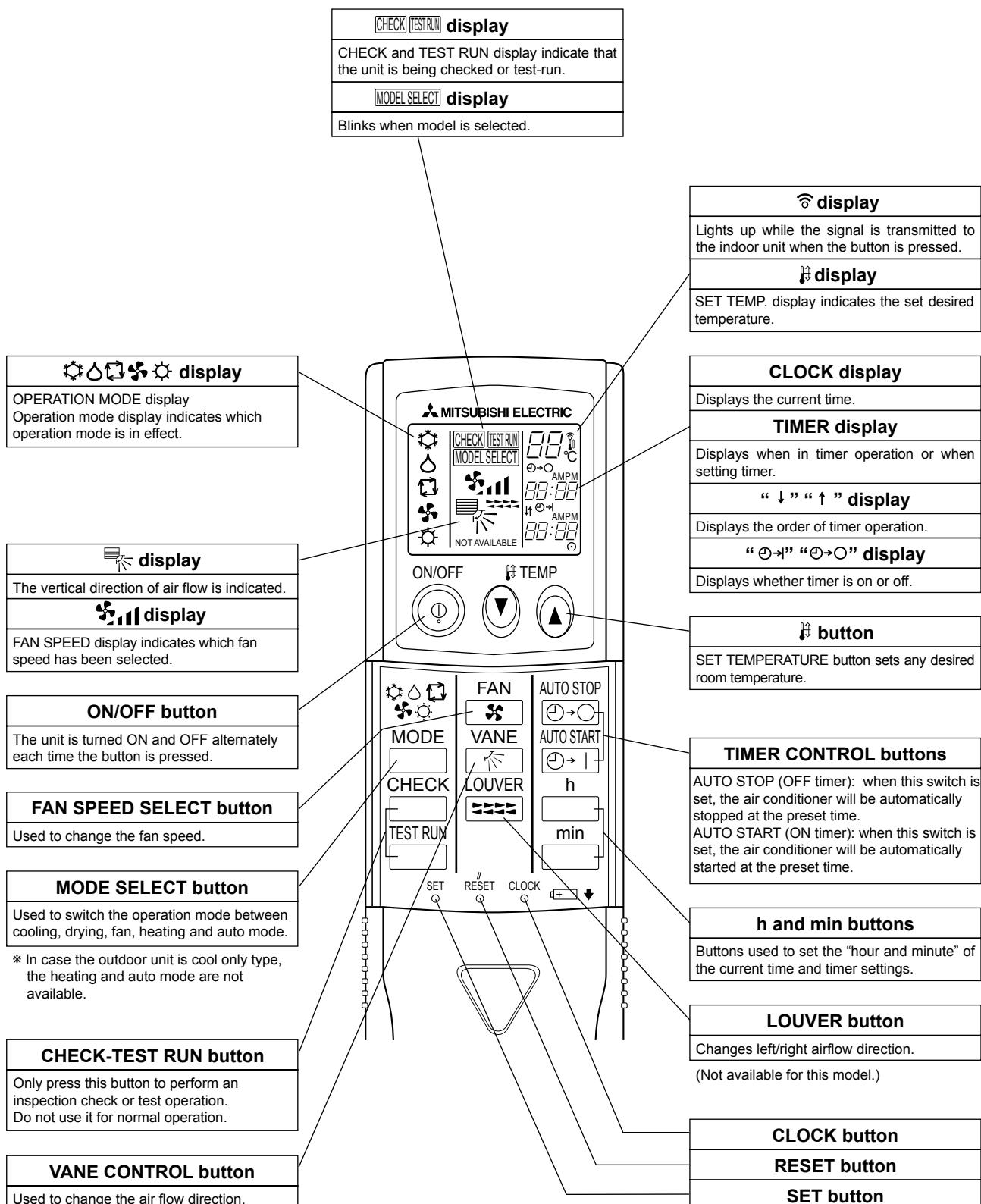


Operation Section



Note:
• "PLEASE WAIT" message This message is displayed for approximately 3 minutes when power is supplied to the indoor unit or when the unit is recovering from a power failure.
• "NOT AVAILABLE" message This message is displayed if an invalid button is pressed (to operate a function that the indoor unit does not have). If a single remote controller is used to operate multiple indoor units simultaneously that are different types, this message will not be displayed as far as any of the indoor units is equipped with the function.

• Wireless remote controller



3-1. Specifications

Model		PKFY-P63VKM-E		PKFY-P100VKM-E				
Power source		1-phase 220-240V 50Hz, 1-phase 220V 60Hz						
Cooling capacity (Nominal)	*1 kW	7.1 6,100 24,200 6,300	11.2 9,600 38,200 10,000	0.05	0.08			
	*1 kcal/h							
	*1 Btu/h							
	*2 kcal/h							
	Power input *4 kW			0.37	0.58			
	Current input *4 A							
Heating capacity (Nominal)	*3 kW	8.0 6,900 27,300 0.04	12.5 10,800 42,600 0.07	0.30	0.51			
	*3 kcal/h							
	*3 Btu/h							
	Power input kW							
	Current input A							
External finish		Plastic, MUNSELL (1.0Y 9.2/0.2)						
External dimension H × W × D		mm in.	365 × 1170 × 295 14-3/8" × 46-1/16" × 11-5/8"					
Net weight			kg (lb)					
Heat exchanger		Cross fin (Aluminum fin and copper tube)						
Fan	Type x Quantity	Line flow fan × 1						
	External static press.	Pa mmH ₂ O	0 0					
	Motor type	DC motor						
	Motor output	kW	0.056					
	Driving mechanism	Direct-drive						
	Airflow rate (Low-High)	m ³ /min L/s cfm	16 - 20 267 - 333 565 - 706		20 - 26 333 - 433 706 - 918			
	Noise level (Low-High) (measured in anechoic room)	dB <A>	39 - 45		41 - 49			
	Insulation material	Polyethylene sheet						
	Air filter	PP honeycomb						
	Protection device	Fuse						
Refrigerant control device		LEV						
Connectable outdoor unit		R410A, R407C, R22 CITY MULTI						
Diameter of refrigerant pipe	Liquid (R410A) (R22, R407C)	mm (in.)	ø9.52 (ø3/8") Flare ø9.52 (ø3/8") Flare	ø9.52 (ø3/8") Flare ø9.52 (ø3/8") Flare				
	Gas (R410A) (R22, R407C)	mm (in.)	ø15.88 (ø5/8") Flare ø15.88 (ø5/8") Flare	ø15.88 (ø5/8") Flare ø19.03 (ø3/4") Flare				
Field drain pipe size		I.D. 16mm (5/8")						
Standard attachment	Document Accessory	Installation Manual, Instruction Book						
Optional parts	Drain pump kit	PAC-SH94DM-E						
Remark								
Installation		Details on foundation work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.						
Note :	*1 Nominal cooling conditions Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft)	*2 Nominal cooling conditions 27°CDB/19°CWB (81°FDB/67°FWB) 35°CDB (95°FDB) 5 m (16-3/8 ft) 0 m (0 ft)	*3 Nominal heating conditions 20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft)	Unit converter kcal/h = kW × 860 Btu/h = kW × 3,412 cfm = m ³ /min × 35.31 lb = kg/0.4536	*Above specification data is subject to rounding variation.			

*4 Electrical characteristic of cooling are included optional drain - pump.

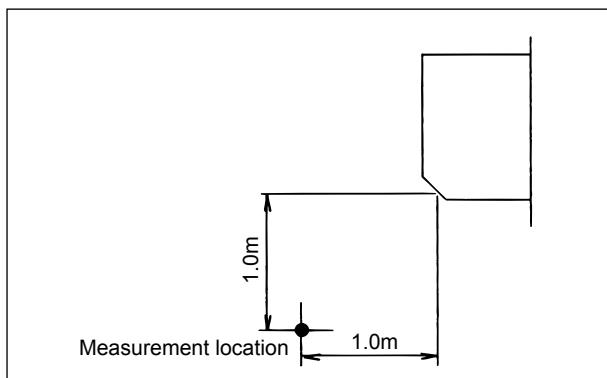
* Nominal conditions *1, *3 are subject to JIS B8615-1.

* Due to continuing improvement, above specification may be subject to change without notice.

3-2. Electrical parts specifications

Service Ref. Parts name	Symbol	PKFY-P63VKM-E.TH	PKFY-P100VKM-E.TH
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Gas pipe thermistor	TH23 TH24	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Fuse (Indoor controller board)	FUSE		250V 3.15A
Fan motor	MF		8-Pole Output 56W / RCOJ56-AC
Vane motor	MV		MSBPC20 DC12V
Linear expansion valve	LEV	EFM-40YGME DC 12 V	EFM-80YGME DC 12 V
Power supply terminal block	TB2		(L, N, G) 250V 20A
Transmission terminal block	TB5		(M1, M2, S) 250V 20A
MA remote controller terminal block	TB15		(1, 2) 250V 10A

3-3. Sound levels

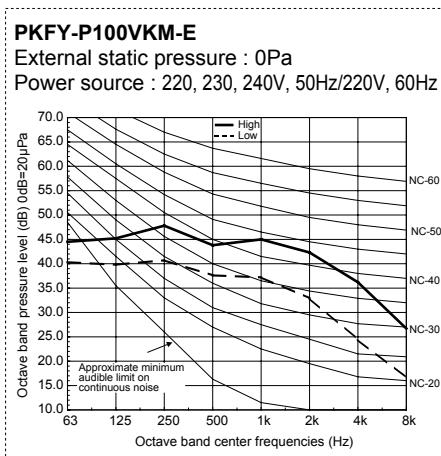
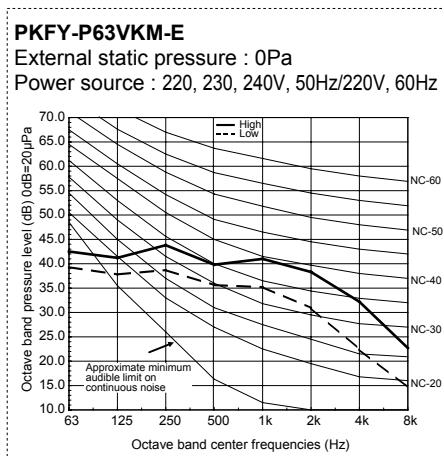


Sound level at anechoic room : Low-High

	Sound level dB (A)
PKFY-P63VKM-E	39 - 45
PKFY-P100VKM-E	41 - 49

* Measured in anechoic room.

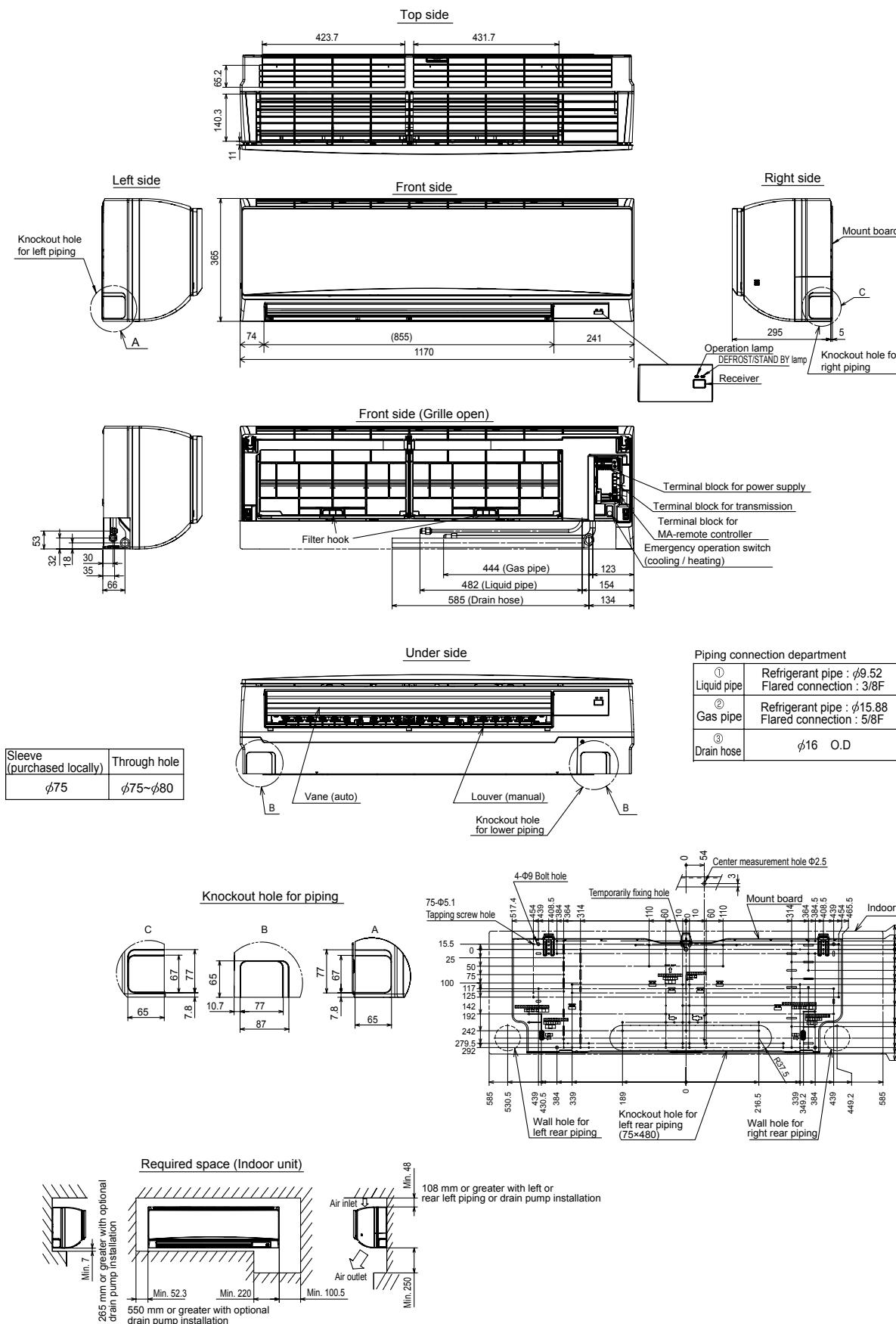
3-4. NC curves



OUTLINES AND DIMENSIONS

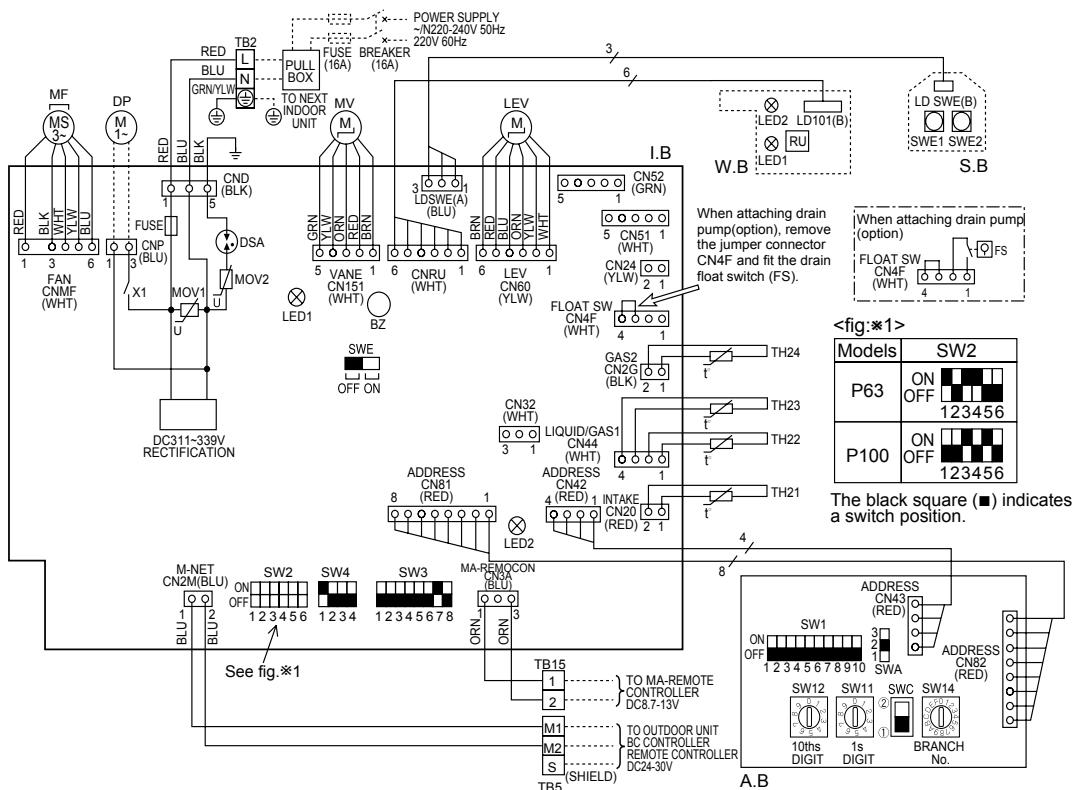
PKFY-P63V р KM-E. TH PKYF-P100V р KM-E. TH

Unit : mm



PKFY-P63V р KM-E. TH PKYF-P100V р KM-E. TH

SYMBOL	NAME		SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD		TH21	THERMISTOR	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN32	CONNECTOR	REMOTE SWITCH	TH22		PIPE TEMP. DETECTION/LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
CN51		CENTRALLY CONTROL	TH23		PIPE TEMP. DETECTION/GAS1 (0°C/15kΩ, 25°C/5.4kΩ)
CN52		REMOTE INDICATION	TH24		PIPE TEMP. DETECTION/GAS2 (0°C/15kΩ, 25°C/5.4kΩ)
BZ	BUZZER		A.B	ADDRESS BOARD	
DSA	SURGE ABSORBER		SWA	SWITCH	FAN SPEED SELECTOR
FUSE	FUSE (T3.15AL 250V)		SW1		MODE SELECTION
LED1	POWER SUPPLY (I.B)		SW11		ADDRESS SETTING 1s DIGIT
LED2	POWER SUPPLY (I.B)		SW12		ADDRESS SETTING 10ths DIGIT
SW2	SWITCH	CAPACITY CODE	SW14		BRANCH No.
SW3		MODE SELECTION			
SW4		MODEL SELECTOR			
SWE		DRAIN PUMP (TEST MODE)			
X1	AUX.RELAY	DRAIN PUMP (OPTION)			
MOV 01.02	VARISTOR		S.B	SWITCH BOARD	
LEV	LINEAR EXPANSION VALVE		SWE1	EMERGENCY OPERATION (HEAT)	
MF	FAN MOTOR		SWE2	EMERGENCY OPERATION (COOL)	
MV	VANE MOTOR		W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
TB2	TERMINAL	POWER SUPPLY	LED1	LED (OPERATION INDICATOR: GREEN)	
TB5	BLOCK	TRANSMISSION	LED2	LED (OPERATION FOR HEATING: ORANGE)	
TB15		MA-REMOTE CONTROLLER	RU	RECEIVING UNIT	
			DP	DRAIN PUMP (OPTION)	
			FS	DRAIN FLOAT SWITCH (OPTION)	

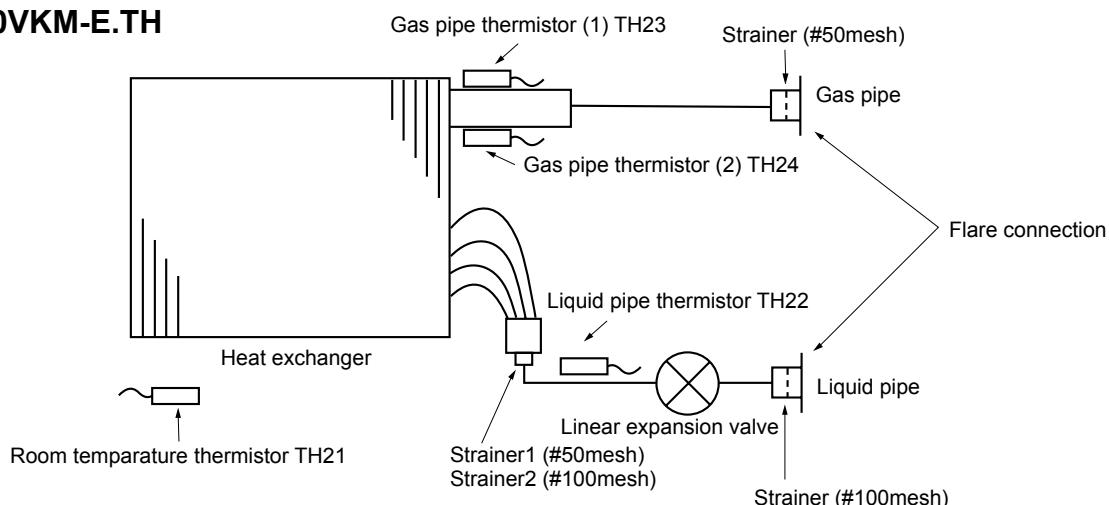


LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:220-240V) Power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

NOTES:

- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15.
(Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are, □□□ : terminal block, ○○○ : connector.
- The setting of the SW2 dip switches differs in the capacity. For the detail, refer to fig.*1.

**PKFY-P63VKM-E.TH
PKFY-P100VKM-E.TH**


Unit : mm (inch)

Item \ Model	PKFY-P63VKM-E	PKFY-P100VKM-E
Gas pipe	$\phi 15.88$ (5/8)	$\phi 15.88$ (5/8)
Liquid pipe	$\phi 9.52$ (3/8)	$\phi 9.52$ (3/8)

7-1. HOW TO CHECK THE PARTS**PKFY-P63VKM-E.TH PKFY-P100VKM-E.TH**

Parts name	Check points														
Room temperature thermistor (TH21) Liquid pipe temperature thermistor (TH22) Gas pipe temperature thermistor (TH23,24)	Disconnect the connector then measure the resistance using a tester. (At the ambient temperature 10°C ~30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> <td>Abnormal</td> </tr> <tr> <td>4.3kΩ~9.6kΩ</td> <td>Open or short</td> </tr> </table> Refer to the next page for the details.	Normal	Abnormal	4.3kΩ~9.6kΩ	Open or short										
Normal	Abnormal														
4.3kΩ~9.6kΩ	Open or short														
Vane motor (MV)	Measure the resistance between the terminals using a tester. (Coil temperature 20°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="4">Normal</td> <td>Abnormal</td> </tr> <tr> <td>①-② Brown-Red</td> <td>①-③ Brown-Orange</td> <td>①-④ Brown-Yellow</td> <td>①-⑤ Brown-Green</td> <td rowspan="2">Open or short</td> </tr> <tr> <td colspan="4">250Ω ± 7%</td> </tr> </table>	Normal				Abnormal	①-② Brown-Red	①-③ Brown-Orange	①-④ Brown-Yellow	①-⑤ Brown-Green	Open or short	250Ω ± 7%			
Normal				Abnormal											
①-② Brown-Red	①-③ Brown-Orange	①-④ Brown-Yellow	①-⑤ Brown-Green	Open or short											
250Ω ± 7%															
Fan motor (MF)	Refer to 7-1-3.														
Linear expansion valve (LEV) CN60	Disconnect the connector then measure the resistance valve using a tester. (Coil temperature 20°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="4">Normal</td> <td>Abnormal</td> </tr> <tr> <td>(1)-(5) White-Red</td> <td>(2)-(6) Yellow-Brown</td> <td>(3)-(5) Orange-Red</td> <td>(4)-(6) Blue-Brown</td> <td rowspan="2">Open or short</td> </tr> <tr> <td colspan="4">200Ω ± 10%</td> </tr> </table>	Normal				Abnormal	(1)-(5) White-Red	(2)-(6) Yellow-Brown	(3)-(5) Orange-Red	(4)-(6) Blue-Brown	Open or short	200Ω ± 10%			
Normal				Abnormal											
(1)-(5) White-Red	(2)-(6) Yellow-Brown	(3)-(5) Orange-Red	(4)-(6) Blue-Brown	Open or short											
200Ω ± 10%															

7-1-1. Thermistor

<Thermistor Characteristic graph>

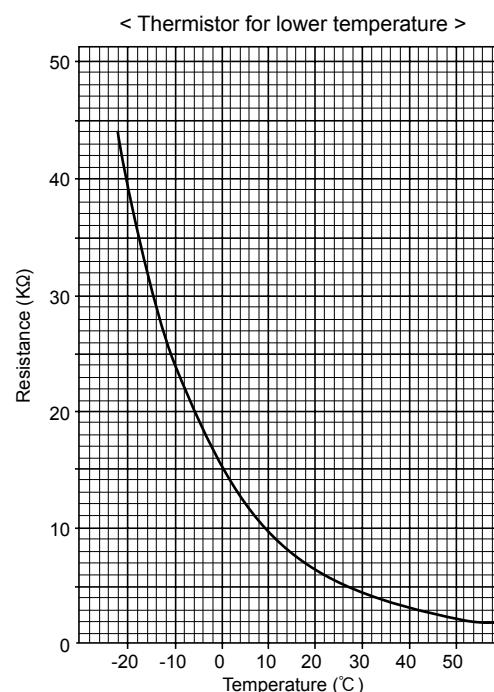
Thermistor for lower temperature

Room temperature thermistor (TH21)
Liquid pipe temperature thermistor (TH22)
Gas pipe temperature thermistor (TH23)
(TH24)

Thermistor $R_0=15\text{k}\Omega \pm 3\%$
Fixed number of $B=3480 \pm 2\%$

$$R_t=15\exp\left\{\frac{1}{273+t}-\frac{1}{273}\right\}$$

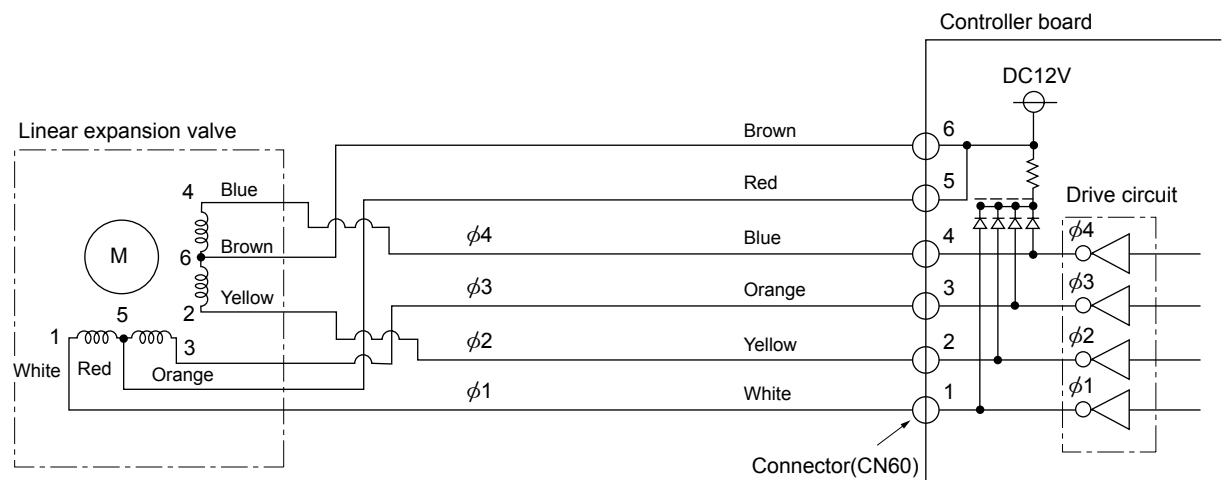
0°C	15kΩ
10°C	9.6kΩ
20°C	6.3kΩ
25°C	5.4kΩ
30°C	4.3kΩ
40°C	3.0kΩ



7-1-2. Liner expansion valve

① Operation summary of the linear expansion valve

- Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the indoor controller board.
 - Valve position can be changed in proportion to the number of pulse signal.
- <Connection between the indoor controller board and the linear expansion valve>



Note : Since the number of the connector at the controller board side and the relay connector are different, follow the color of the lead wire.

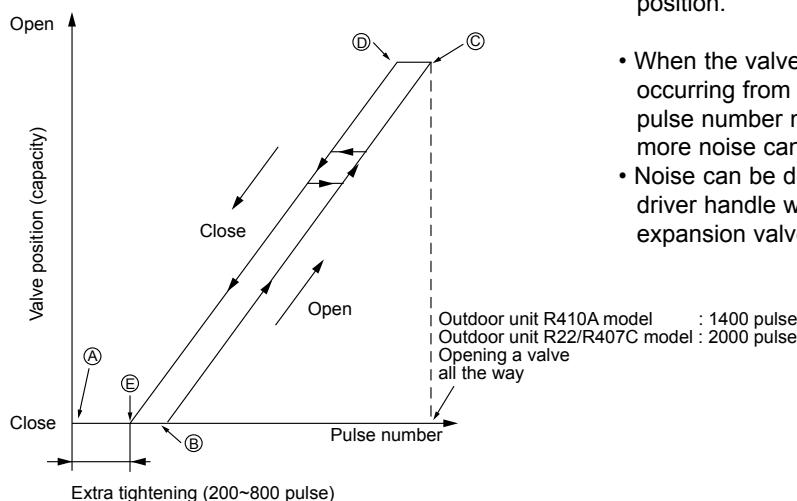
<Output pulse signal and the valve operation>

Output (Phase)	Output			
	1	2	3	4
φ1	ON	OFF	OFF	ON
φ2	ON	ON	OFF	OFF
φ3	OFF	ON	ON	OFF
φ4	OFF	OFF	ON	ON

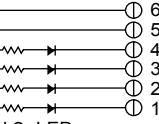
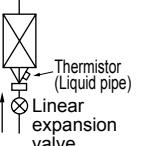
Closing a valve : 1 → 2 → 3 → 4 → 1
 Opening a valve : 4 → 3 → 2 → 1 → 4
 The output pulse shifts in above order.

- When linear expansion valve operation stops, all output phase become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.
- When the switch is turned on, 2200 pulse closing valve signal will be sent till it goes to point ④ in order to define the valve position.
- When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valves : however, when the pulse number moves from ⑤ to ④ or when the valve is locked, more noise can be heard than in a normal situation.
- Noise can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

② Linear expansion valve operation



③ Trouble shooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  When power is turned on, pulse signals will output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.	Exchange the indoor controller board in case of drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.	Exchange the linear expansion valve.
Short or breakage of the motor coil of the linear expansion valve	Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) using a tester. It is normal if the resistance is in the range of $200\Omega \pm 10\%$.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way.  It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.	If large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

7-1-3. DC Fan motor (fan motor/indoor controller circuit board)

Check method of DC fan motor (fan motor/indoor controller circuit board)

① Notes

- High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNMF) for the motor with the power supply on.
(It causes trouble of the indoor controller circuit board and fan motor.)

② Self check

Symptom : The indoor fan cannot turn around.

Wiring contact check

Contact of fan motor connector (CNMF)



Is there contact failure? → Yes → Wiring recovery



Power supply check (Remove the connector (CNMF))

Measure the voltage in the indoor controller circuit board.

TEST POINT ① : V_{DC} (between 1 (+) and 3 (-) of the fan connector): V_{DC} DC310~340V

TEST POINT ② : V_{CC} (between 4 (+) and 3 (-) of the fan connector): V_{CC} DC15V



Is the voltage normal? → No → Indoor controller board fuse check

Yes



Is the fuse normal?

No

Replace the fuse.



Replace the indoor controller board.

NG

Check the operation

OK

END



Check the operation

OK

END



Replace the fan motor.



Sensor signal check

Measure the voltage between CNMF ⑥ and ③ DC 0V and DC 5V in the door controller circuit board.

Does the voltage repeat DC 0V and DC 15V?

No

Replace the fan motor.

Yes

OK

Check the operation of fan.

↓ NG

END

Replace the indoor controller board.



OK

Check the operation

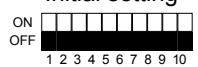
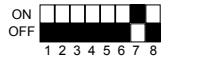
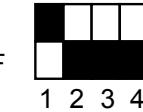
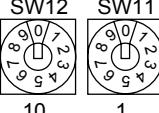
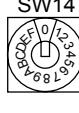
→ END



Replace the fan motor.

7-2. Function of Dip switch

PKFY-P63VKM-E.TH PKFY-P100VKM-E.TH

Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW1 Mode selection	1	Thermistor<Room temperature> position	Built-in remote controller	Indoor unit	Under suspension	Address board <Initial setting>  NOTE: *1 SW1-7 SW1-8 Fan speed OFF OFF Extra low ON OFF Low OFF ON Setting air flow ON ON Stop
	2	Filter clogging detection	Provided	Not provided		
	3	Filter cleaning sign	2,500 hr	100 hr		
	4	Fresh air intake *2	Not effective	Not effective		
	5	Switching remote controller display	Thermo ON signal indication	Fan output indication		
	6	Humidifier control	Fan operation at Heating mode	Thermo ON operation at heating mode		
	7	Air flow set in case of heat thermo OFF	Low *1	Extra low *1		
	8		Setting air flow *1	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	10	Power ON/OFF by breaker	Effective	Not effective		
SW2 Capacity code switch	1~6		P63 	P100 	Before power supply ON	Indoor controller board <Initial setting> Set for each capacity
SW3 Function selection	1	Heat pump/Cool only	Cooling only	Heat pump	Under suspension	Indoor controller board <Initial setting>  *1 Second setting is same as first setting. *2 Please do not use SW3-7,8 as trouble might be caused by the usage condition.
	2	Not used	—	—		
	3	Not used	—	—		
	4	Vane horizontal angle	Second setting *1	First setting		
	5	Changing the opening of linear expansion valve during thermo OFF	Effective	Not effective		
	6	Heating 4 degree up	Not effective	Effective		
	7	Target superheat setting *2	—	—		
	8	Target subcool *2	—	—		
SW4 Model Select	1~4		ON 	OFF	Before power supply ON	Indoor controller board
SW11 1s digit address setting SW12 10ths digit address setting	Rotary switch	SW12 SW11 	How to set addresses Example : If address is "3", remain SW12 (for over 10) at "0", and match SW11 (for 1 to 9) with "3".			
SW14 Branch No. Setting	Rotary switch	SW14 	How to set branch numbers SW14 (Series R2 only) Match the indoor unit's refrigerant pipe with the BC controller's end connection number. Remain other than series R2 at "0".			



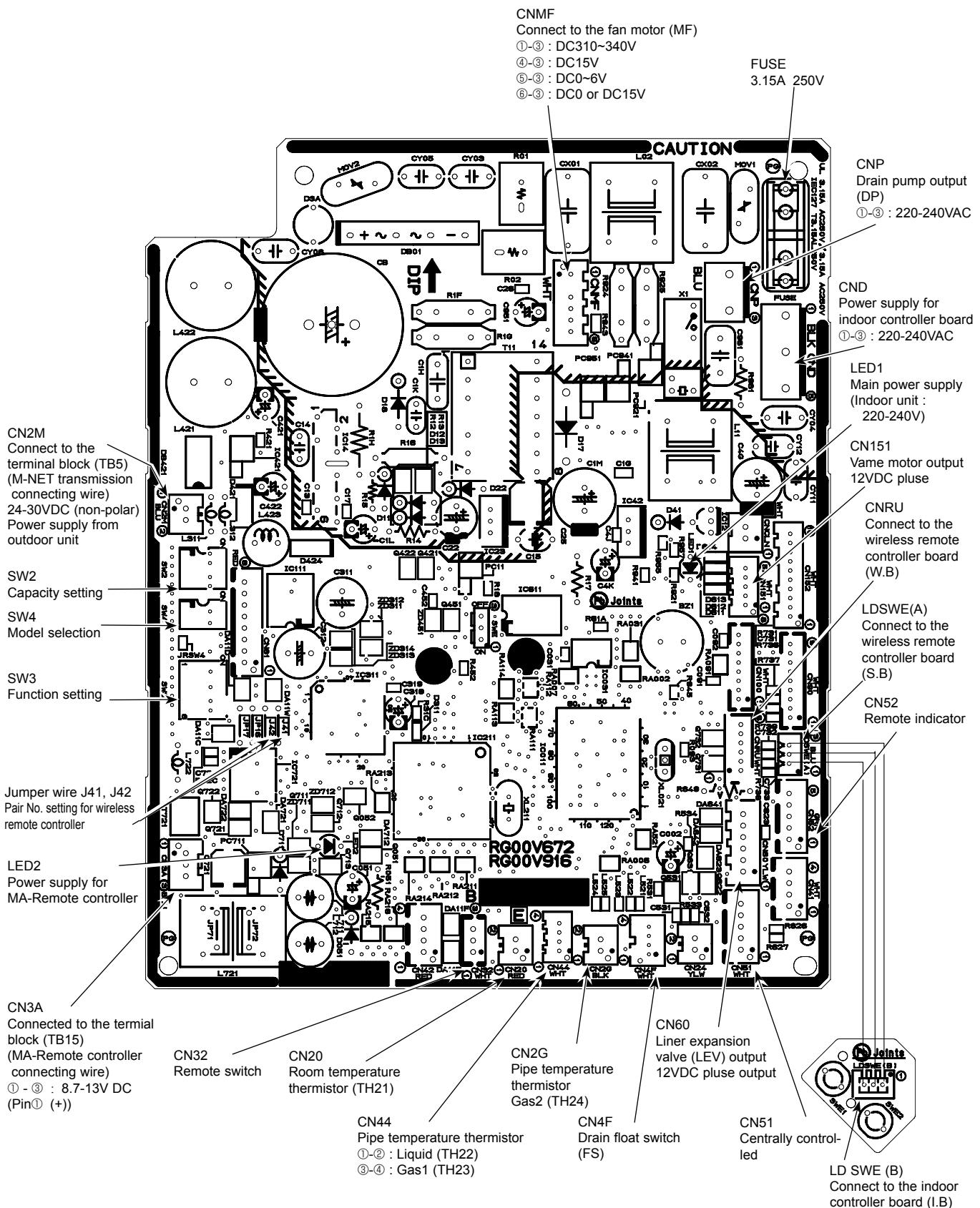
Switch		Operation by switch	Effective timing	Remarks																											
J41, J42 Wireless remote controller Pair No.	Jumper	<p>To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary.</p> <ul style="list-style-type: none"> ● Pair No. setting is available with the 4 patterns (Setting patterns A to D). ● Make setting for J41, J42 of indoor controller board and the Pair No. of wireless remote controller. • You may not set it when operating it by one remote controller. ● Setting for indoor unit Cut jumper wire J41, J42 on the indoor controller board according to the table below. ● Wireless remote controller pair number: Setting operation <ol style="list-style-type: none"> 1. Press the SET button (using a pointed implement). Check that the remote controller's display has stopped before continuing. MODEL SELECT flashes, and the model No. (3 digits) appears (steadily-lit). 2. Press the MINUTE button twice. The pair number appears flashing. 3. Press the temperature ∇ \wedge buttons to select the pair number to set. 4. Press the SET button (using a pointed implement). The set pair number is displayed (steadily-lit) for 3 seconds, then disappears. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Setting pattern</th> <th colspan="2">Indoor controller jumper wire</th> <th rowspan="2">Pair No. of wireless remote controller*</th> <th rowspan="2"></th> </tr> <tr> <th>J41</th> <th>J42</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>—</td> <td>—</td> <td>0</td> <td>Initial setting</td> </tr> <tr> <td>B</td> <td>Cut</td> <td>—</td> <td>1</td> <td>—</td> </tr> <tr> <td>C</td> <td>—</td> <td>Cut</td> <td>2</td> <td>—</td> </tr> <tr> <td>D</td> <td>Cut</td> <td>Cut</td> <td>3</td> <td>—</td> </tr> </tbody> </table> <p>* Pair No.4-9 of wireless remote controller is setting pattern D.</p>	Setting pattern	Indoor controller jumper wire		Pair No. of wireless remote controller*		J41	J42	A	—	—	0	Initial setting	B	Cut	—	1	—	C	—	Cut	2	—	D	Cut	Cut	3	—	Under operation or suspension	<p><Initial setting> Pattern A</p>
Setting pattern	Indoor controller jumper wire			Pair No. of wireless remote controller*																											
	J41	J42																													
A	—	—	0	Initial setting																											
B	Cut	—	1	—																											
C	—	Cut	2	—																											
D	Cut	Cut	3	—																											

7-3. TEST POINT DIAGRAM

7-3-1. Indoor controller board

PKFY-P63VKM-E.TH

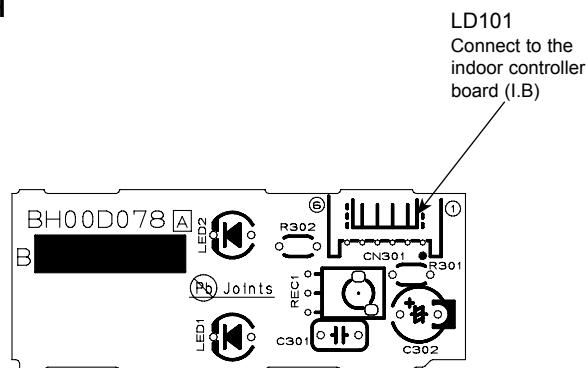
PKFY-P100VKM-E.TH



7-3-2. Wireless remote controller board

PKFY-P63VKM-E.TH

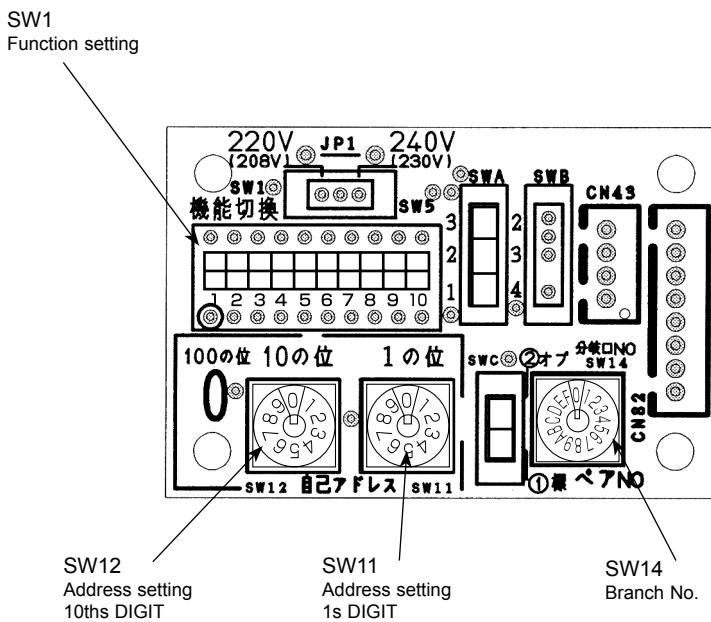
PKFY-P100VKM-E.TH



7-3-3. Address board

PKFY-P63VKM-E.TH

PKFY-P100VKM-E.TH

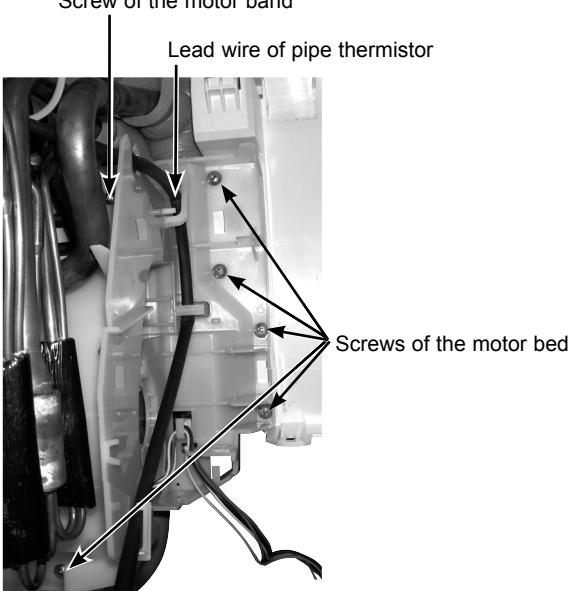
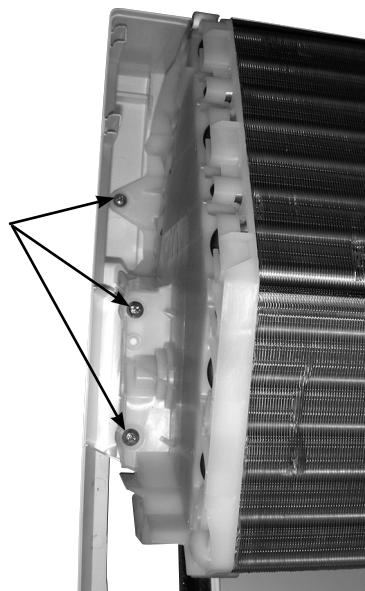


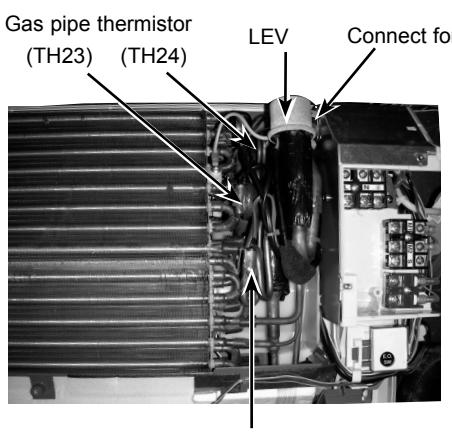
PKFY-P63VKM-E.TH PKFY-P100VKM-E.TH

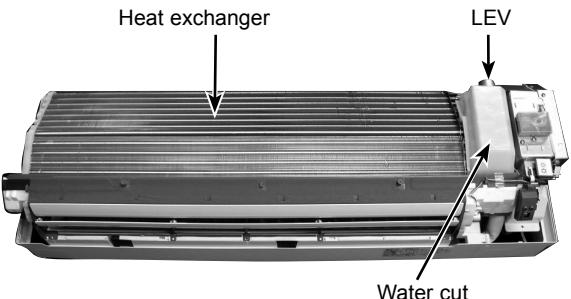
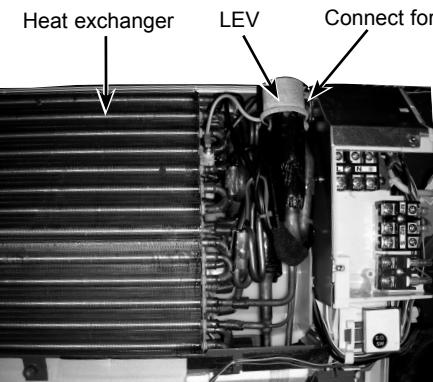
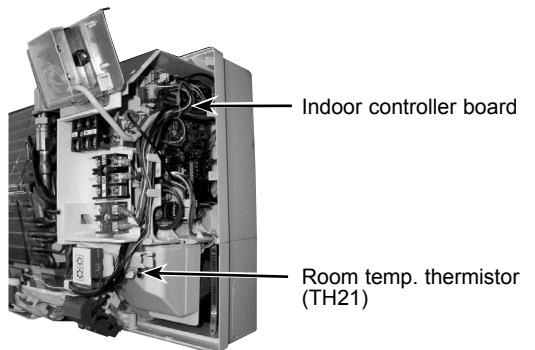
Be careful when removing heavy parts.

OPERATION PROCEDURE	PHOTOS & ILLUSTRATIONS
<p>1. REMOVING THE PANEL</p> <p>(1) Press and unlock the knobs on both sides of the front grille and lift the front grille until it is level. Pull the hinges forward to remove the front grille. (See Photo 1)</p> <p>(2) Remove 3 screw caps of the panel. Remove 5 screws. (See Photo 1)</p> <p>(3) Unfix 3 hooks. (See Figure 1)</p> <p>(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.</p> <p>(5) Remove the screw of the corner box. (See Photo 1) Remove the corner box.</p>	<p>Photo 1</p> <p>Figure 1</p>
<p>2. REMOVING THE ADDRESS BOARD, THE INDOOR CONTROLLER BOARD, THE WIRELESS CONTROLLER BOARD</p> <p>(1) Remove the panel and the corner box. (Refer to 1.)</p> <p>(2) Remove the screw and hook of address board case. (See Photo 2)</p> <p>(3) Disconnect the connectors of address board.</p> <p>(4) Remove the front and side electrical box covers (each 1 screw).</p> <p>(5) Disconnect the connectors on the indoor controller board. (See Photo 3)</p> <p>(6) Remove the switch board holder and open the cover.</p> <p>(7) Pull out the indoor controller board toward you then remove the indoor controller board and switch board. (See Photo 3)</p> <p>(8) Remove the holder of wireless remote controller board.</p> <p>(9) Disconnect the connector of wireless remote controller board and remove the wireless remote controller board from the holder.</p>	<p>Photo 2</p> <p>Photo 3</p>

OPERATION PROCEDURE	PHOTOS
<p>3. REMOVING THE ELECTRICAL BOX</p> <p>(1) Remove the panel and the corner box. (Refer to 1.) (2) Remove the screw and hook of address board case. (3) Remove the front and side electrical box covers (each 1 screw). (4) Remove the transmission wiring of TB5, the power supply wiring of TB2 and the wiring of MA-remote controller (TB15). (5) Disconnect the connectors on the indoor controller board. (6) Disconnect the connector for ground wire. (7) Remove the screw on lower side of the electrical box. (See Photo 5) (8) Push up the upper fixture catch to remove the box, then remove it from the box fixture.</p>	<p>Photo 4</p>
<p>4. REMOVING THE NOZZLE ASSEMBLY (with VANE and VANE MOTOR) AND DRAIN HOSE</p> <p>(1) Remove the panel and corner box. (Refer to 1.) (2) Remove the electrical box covers. (Refer to 2.) (3) Disconnect the vane motor connector (CN151) on the indoor controller board. (4) Pull out the drain hose from the nozzle assembly, and remove nozzle assembly. (See Photo 5)</p>	<p>Photo 5 (see the bottom)</p>
<p>5. REMOVING THE VANE MOTOR</p> <p>(1) Remove the nozzle assembly. (Refer to 4.) (2) Remove 2 screws of the vane motor unit cover, and pull out the vane motor unit. (3) Remove 2 screws of the vane motor unit. (4) Remove the vane motor from the vane motor unit. (5) Disconnect the connector from the vane motor.</p>	<p>Photo 6</p>

OPERATION PROCEDURE	PHOTOS
<p>6. REMOVING THE INDOOR FAN MOTOR AND THE LINE FLOW FAN</p> <p>(1) Remove the panel and the corner box. (Refer to 1.) (2) Remove the electrical box (Refer to 2.) and the nozzle assembly (Refer to 3.). (3) Remove the water cut. (See Photo 2) (4) Remove the screw fixing the line flow fan. (See Photo 8) (5) Remove 5 screws fixing the motor bed. (See Photo 7) (6) Remove the lead wire of pipe thermistor from the hook of motor bed. (See Photo 7) (7) Remove the screw fixing motor band. (See Photo 7) (8) Remove the motor bed together with fan motor and motor band. (9) Remove 3 screws fixing the left side of the heat exchanger. (See Photo 9) (10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.</p>	<p>Photo 7</p> 
<p>Photo 9</p> 	<p>Photo 8</p> 

<p>7. REMOVING THE LIQUID PIPE THERMISTOR AND GAS PIPE THERMISTOR</p> <p>(1) Remove the panel and the corner box. (Refer to 1) (2) Remove the electrical box covers. (Refer to 2.) (3) Remove the water cut. (See Photo 2) (4) Remove the liquid pipe thermistor and gas pipe thermistors. (5) Disconnect the connector (CN44) (CN2G) on the indoor controller board. (TH22 and TH23/CN44, TH24/CN2G)</p>	<p>Photo 10</p> 
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OPERATION PROCEDURE	PHOTOS
<p>8. REMOVING THE HEAT EXCHANGER AND LEV</p> <p>(1) Remove the panel and the corner box. (Refer to 1.) (2) Remove the electrical box (Refer to 3.) and the nozzle assembly (Refer to 4.). (3) Remove the water cut. (4) Remove the pipe thermistors (Refer to 7.). (5) Disconnect the connector (CN60) on the indoor controller board and the connector for ground wire. (6) Remove 3 screws fixing the left side of the heat exchanger. (See Photo 9) (7) Remove the heat exchanger with LEV.</p>	<p>Photo 11</p>  <p>Diagram illustrating the components of the heat exchanger and LEV assembly. The 'Heat exchanger' is the large metal coil at the bottom. The 'LEV' (Left Evaporator Valve) is the white component on the right. The 'Water cut' is indicated by an arrow pointing to a valve or connection point.</p> <p>Photo 12</p>  <p>Photograph showing the heat exchanger and LEV assembly. The 'Heat exchanger' is visible on the left. The 'LEV' is the white component on the right. The 'Connect for ground' is indicated by an arrow pointing to a connection point on the right side of the unit.</p>
<p>9. REMOVING THE ROOM TEMPERATURE THERMISTOR</p> <p>(1) Remove the panel and corner box. (Refer to 1.) (2) Remove the electrical box covers. (3) Remove the room temperature thermistor. (4) Disconnect the connector (CN20) on the indoor controller board.</p>	<p>Photo 13</p>  <p>Photograph showing the indoor controller board and room temperature thermistor. The 'Indoor controller board' is labeled on the left side of the board. The 'Room temp. thermistor (TH21)' is labeled on the right side of the board.</p>

CITY MULTI™

 **mitsubishi electric corporation**

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



**MITSUBISHI
ELECTRIC**

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

December 2018

No. TCH031

TECHNICAL & SERVICE MANUAL

Series PLFY Ceiling Cassettes R410A

Indoor unit

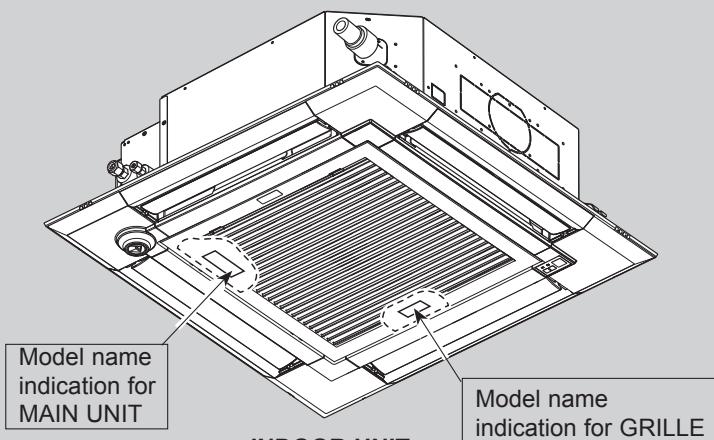
[Model names]	[Service Ref.]
PLFY-P32VEM-A/-PA/-DA/-TH	PLFY-P32VEM-A/-PA/-DA/-TH.TH
PLFY-P40VEM-A/-PA/-DA/-TH	PLFY-P40VEM-A/-PA/-DA/-TH.TH
PLFY-P50VEM-A/-PA/-DA/-TH	PLFY-P50VEM-A/-PA/-DA/-TH.TH
PLFY-P63VEM-A/-PA/-DA/-TH	PLFY-P63VEM-A/-PA/-DA/-TH.TH
PLFY-P80VEM-A/-PA/-DA/-TH	PLFY-P80VEM-A/-PA/-DA/-TH.TH
PLFY-P100VEM-A/-PA/-DA/-TH	PLFY-P100VEM-A/-PA/-DA/-TH.TH
PLFY-P125VEM-A/-PA/-DA/-TH	PLFY-P125VEM-A/-PA/-DA/-TH.TH

Notes:

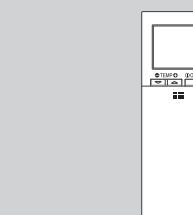
- This manual describes service data of the indoor units only.
- RoHS compliant products have <G> mark on the spec name plate.

Grille model

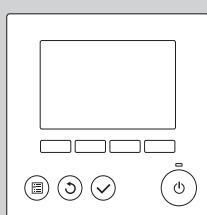
[Model names]	[Service Ref.]	
PLP-6EA	PLP-6EAR1	PLP-6EAR1-TH/-DA
PLP-6EAE	PLP-6EAER1	
PLP-6EAL	PLP-6EALR1	
PLP-6EALE	PLP-6EALER1	
PLP-6EAJ	PLP-6EAJ	PLP-6EAJ-TH
PLP-6EAJE	PLP-6EAJE	
PLP-6EALM	PLP-6EALM	
PLP-6EALME	PLP-6EALME	PLP-6EALM-TH/-DA
PLP-6EALCM	PLP-6EALCM	PLP-6EALCM-TH/-DA
PLP-6EAMD	PLP-6EAMD	PLP-6EAMD-TH



INDOOR UNIT



WIRELESS REMOTE
CONTROLLER
(Option)



WIRED REMOTE
CONTROLLER
(Option)

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6. WIRING DIAGRAM.....	22
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PARTS CATALOG (TCB031)

CITY MULTI

Cautions for units utilizing refrigerant R410A**Do not use the existing refrigerant piping.**

The old refrigerant and lubricant in the existing piping contain a large amount of chlorine which may cause the lubricant deterioration of the new unit.

Use "low residual oil piping"

If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

**Store the piping indoors, and both ends of the piping sealed until just before brazing.
(Leave elbow joints, etc. in their packaging.)**

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil, etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

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.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

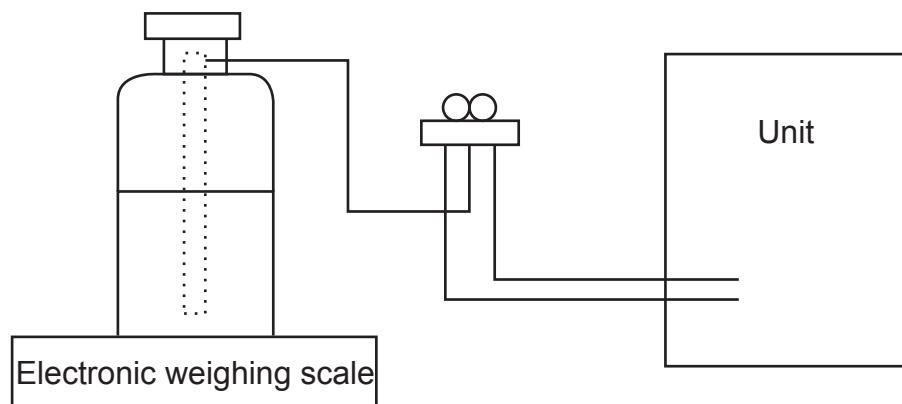
[1] Cautions for service

- (1) Perform service after recovering the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

- (1) Check that cylinder for R410A available on the market is syphon type.
- (2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)

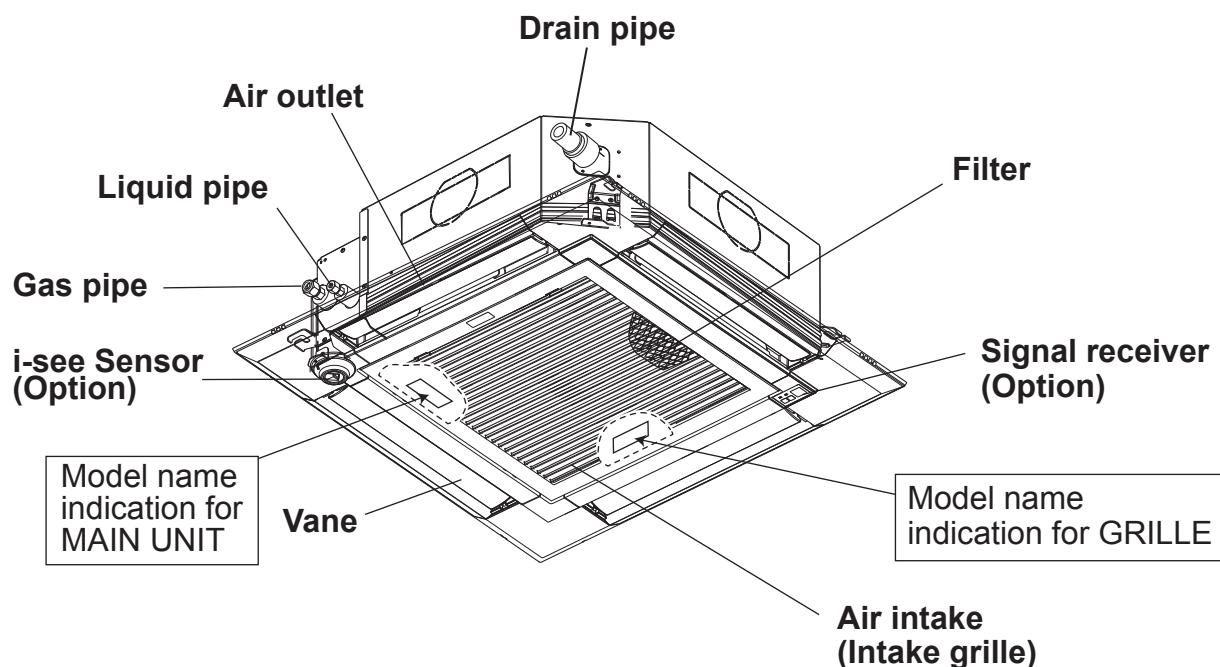


[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

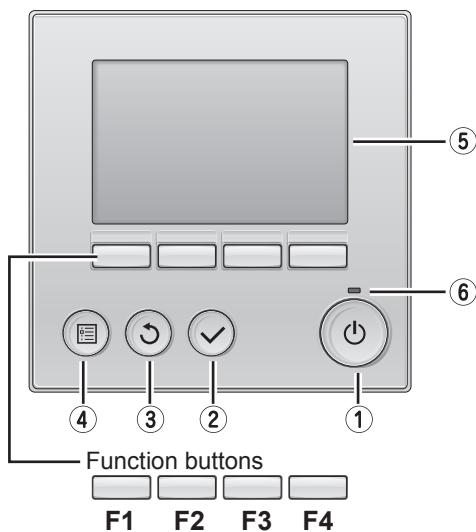
No.	Tool name	Specifications
①	Gauge manifold	·Only for R410A
		·Use the existing fitting specifications. (UNF1/2)
		·Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	·Only for R410A
		·Use pressure performance of 5.09MPa·G or over.
③	Electronic weighing scale	—
④	Gas leak detector	·Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	·Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	·Only for R410A ·Top of cylinder (Pink) ·Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2-1. Indoor unit



2-2. WIRED REMOTE CONTROLLER <PAR-32/33MAA>

Wired remote controller function



① ON/OFF button

Press to turn ON/OFF the indoor unit.

② SELECT button

Press to save the setting.

③ RETURN button

Press to return to the previous screen.

④ MENU button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.

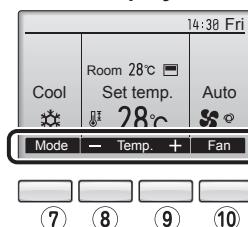
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the (ON/OFF) button)

The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.

When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.

<Main display>



<Main menu>



Function guide

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button F1

Main display : Press to change the operation mode.
Main menu : Press to move the cursor down.

⑧ Function button F2

Main display : Press to decrease temperature.
Main menu : Press to move the cursor up.

⑨ Function button F3

Main display : Press to increase temperature.
Main menu : Press to go to the previous page.

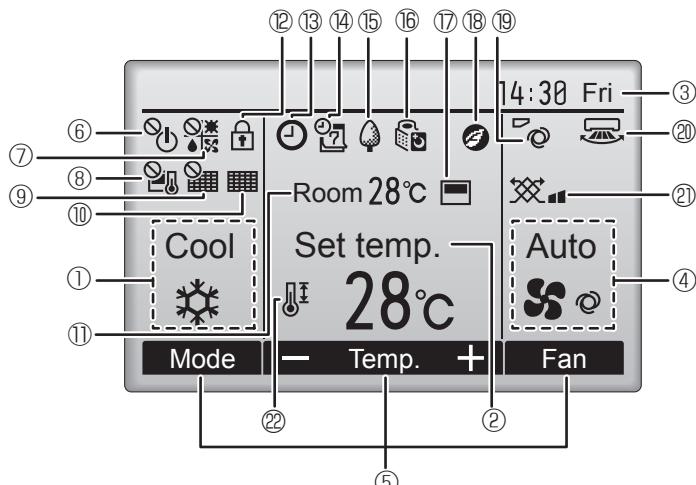
⑩ Function button F4

Main display : Press to change the fan speed.
Main menu : Press to go to the next page.

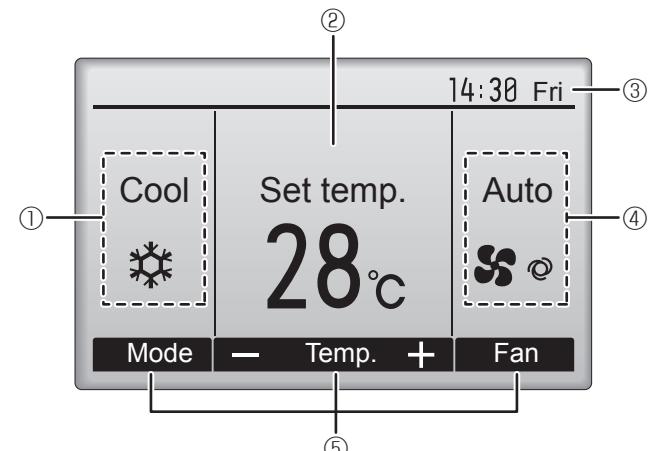
The main display can be displayed in 2 different modes: "Full" and "Basic".
The initial setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting.

<Full mode>

All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.



Appears when the ON/OFF operation is centrally controlled.



Appears when the operation mode is centrally controlled.



Appears when the preset temperature is centrally controlled.



Appears when the filter reset function is centrally controlled.



Indicates when filter needs maintenance.

⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.



Appears when the buttons are locked.

⑬

Appears when the On/Off timer or Night setback function is enabled.



Appears when the Weekly timer is enabled.



Appears while the units are operated in the energy-save mode.



Appears while the outdoor units are operated in the silent mode.



Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature.

Appears when the thermistor on the indoor unit is activated to monitor the room temperature.



Appears when the units are operated in the energy-saving mode with 3D i-see Sensor.



Indicates the vane setting.



Indicates the louver setting.



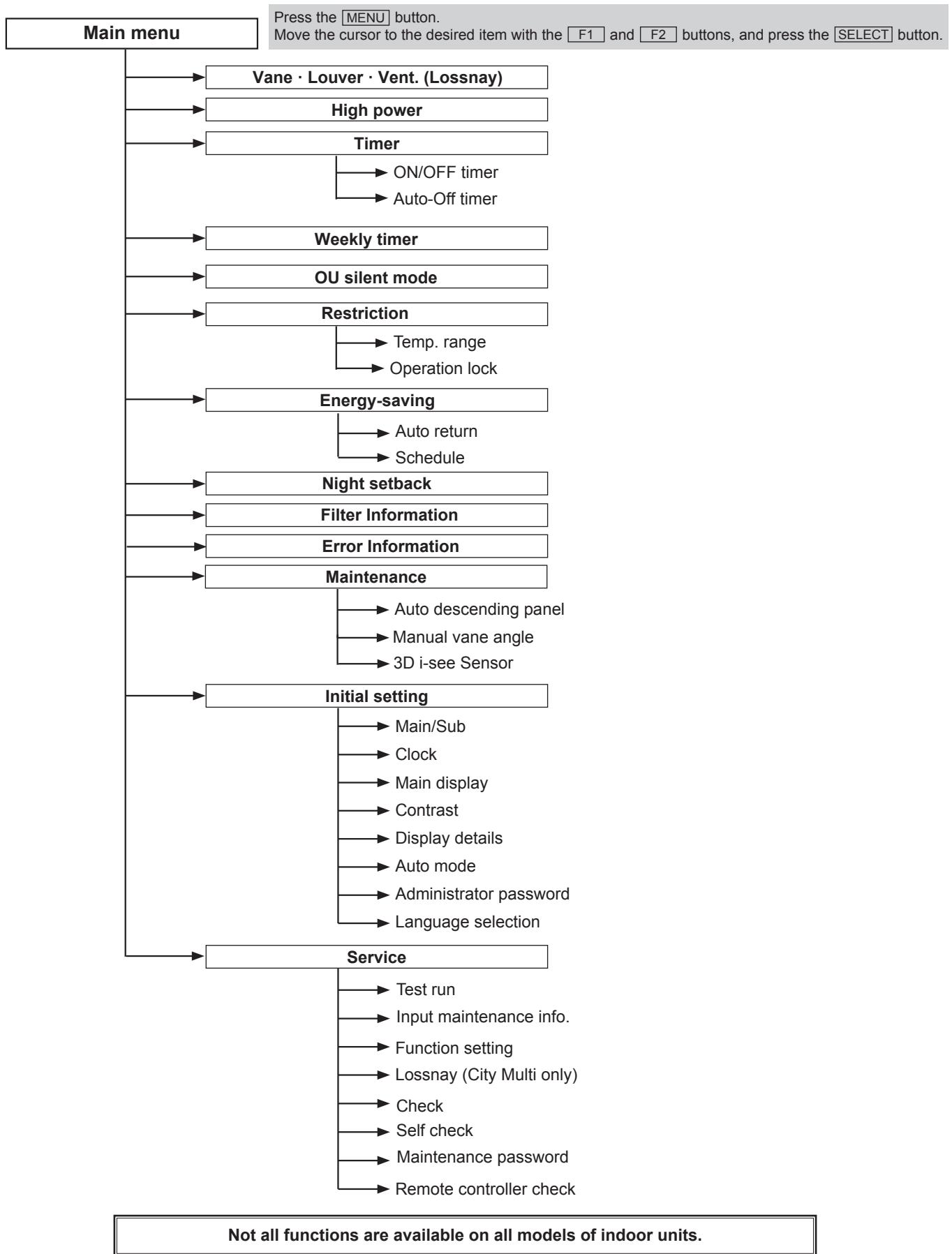
Indicates the ventilation setting.



Appears when the preset temperature range is restricted.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Menu screen.

Menu structure

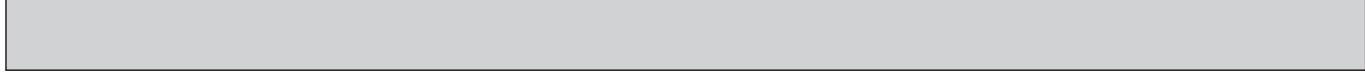


Main menu list

Setting and display items		Setting details
Vane · Louver · Vent. (Lossnay)		Use to set the vane angle. <ul style="list-style-type: none"> Select a desired vane setting from 5 different settings. Use to turn ON/OFF the louver. <ul style="list-style-type: none"> Select a desired setting from "ON" and "OFF." Use to set the amount of ventilation. <ul style="list-style-type: none"> Select a desired setting from "Off," "Low," and "High."
High power		Use to reach the comfortable room temperature quickly. <ul style="list-style-type: none"> Units can be operated in the High-power mode for up to 30 minutes.
Timer	ON/OFF timer*	Use to set the operation ON/OFF times. <ul style="list-style-type: none"> Time can be set in 5-minute increments.
	Auto-Off timer	Use to set the Auto-Off time. <ul style="list-style-type: none"> Time can be set to a value from 30 to 240 in 10-minute increments.
Weekly timer*		Use to set the weekly operation ON/OFF times. <ul style="list-style-type: none"> Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
OU silent mode*		Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop times for each day of the week. <ul style="list-style-type: none"> Select the desired silent level from "Normal", "Middle" and "Quiet".
Restriction	Temp. range	Use to restrict the preset temperature range. <ul style="list-style-type: none"> Different temperature ranges can be set for different operation modes.
	Operation lock	Use to lock selected functions. <ul style="list-style-type: none"> The locked functions cannot be operated.
Energy-saving	Auto return	Use to get the units to operate at the preset temperature after performing energy-saving operation for a specified time period. <ul style="list-style-type: none"> Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
	Schedule*	Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the energy-saving rate. <ul style="list-style-type: none"> Up to 4 energy-saving operation patterns can be set for each day. Time can be set in 5-minute increments. Energy-saving rate can be set to a value from 0% or 50 to 90% in 10% increments.
Night setback*		Use to make Night setback settings. <ul style="list-style-type: none"> Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.
Filter information		Use to check the filter status. <ul style="list-style-type: none"> The filter sign can be reset.
Error information		Use to check error information when an error occurs. <ul style="list-style-type: none"> Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.)
Maintenance	Auto descending panel	Auto descending panel (Optional parts) UP/DOWN you can do.
	Manual vane angle	Use to set the vane angle for each vane to a fixed position.
	3D i-see Sensor	Use to set the following functions for 3D i-see Sensor. <ul style="list-style-type: none"> Air distribution • Energy saving option • Seasonal airflow

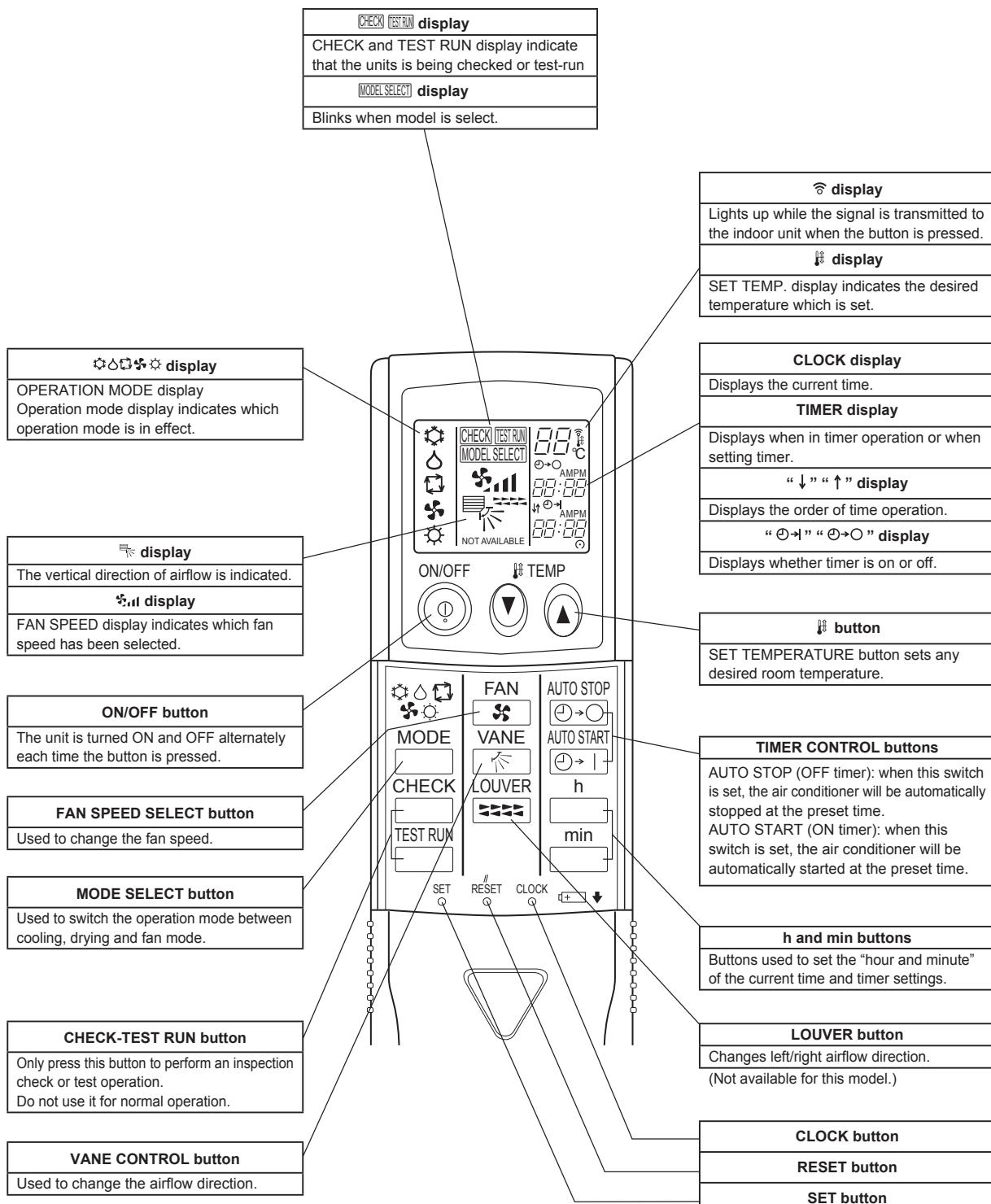
* Clock setting is required.

Continue to the next page

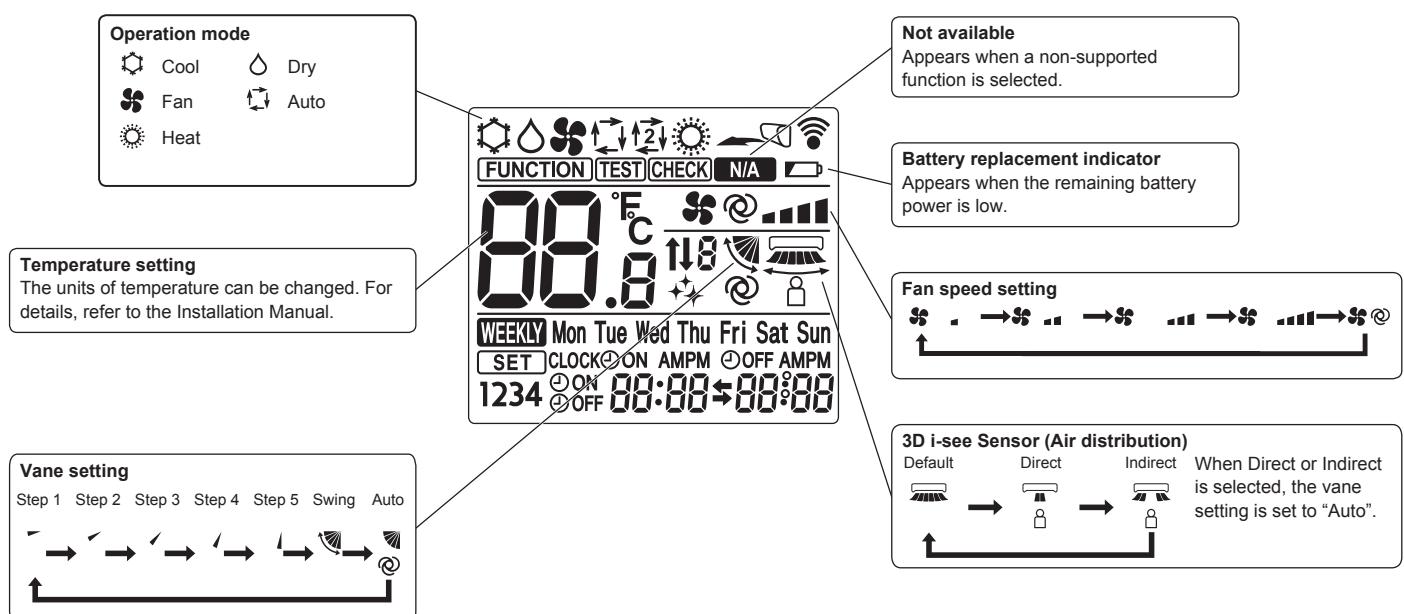
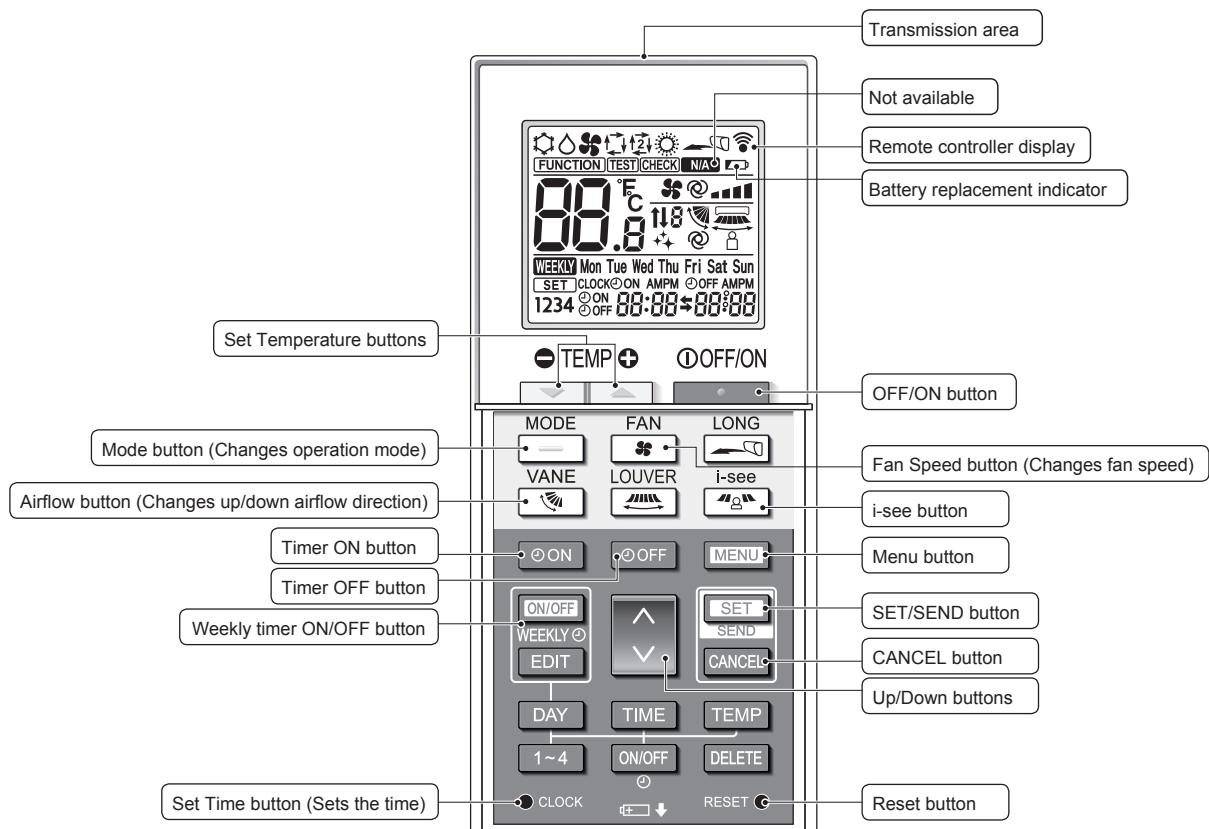


Setting and display items		Setting details
Initial setting	Main/Sub	When connecting 2 remote controllers, one of them needs to be designated as a sub controller.
	Clock	Use to set the current time.
	Main display	Use to switch between "Full" and "Basic" modes for the Main display. • The initial setting is "Full."
	Contrast	Use to adjust screen contrast.
	Display details	Make the settings for the remote controller related items as necessary. Clock: The initial settings are "Yes" and "24h" format. Temperature: Set either Celsius (°C) or Fahrenheit (°F). Room temp. : Set Show or Hide. Auto mode: Set the Auto mode display or Only Auto display.
	Auto mode	Whether or not to use the AUTO mode can be selected by using the button. This setting is valid only when indoor units with the AUTO mode function are connected.
	Administrator password	The administrator password is required to make the settings for the following items. • Timer setting • Energy-saving setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back
	Language selection	Use to select the desired language.
Service	Test run	Select "Test run" from the Service menu to bring up the Test run menu. • Test run • Drain pump test run
	Input maintenance info.	Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen. The following settings can be made from the Maintenance Information screen. • Model name input • Serial No. input • Dealer information input
	Function setting (City Multi)	Make the settings for the indoor unit functions via the remote controller as necessary.
	LOSSNAY (City Multi only)	This setting is required only when the operation of City Multi units is interlocked with LOSSNAY units.
	Check	Error history: Display the error history and execute delete error history. Refrigerant leak check: Refrigerant leaks can be judged. Smooth maintenance: The indoor and outdoor maintenance data can be displayed. Request code: Details of the operation data including each thermistor temperature and error history can be checked.
	Self check	Error history of each unit can be checked via the remote controller.
	Maintenance password	Use to change the maintenance password.
	Remote controller check	When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.

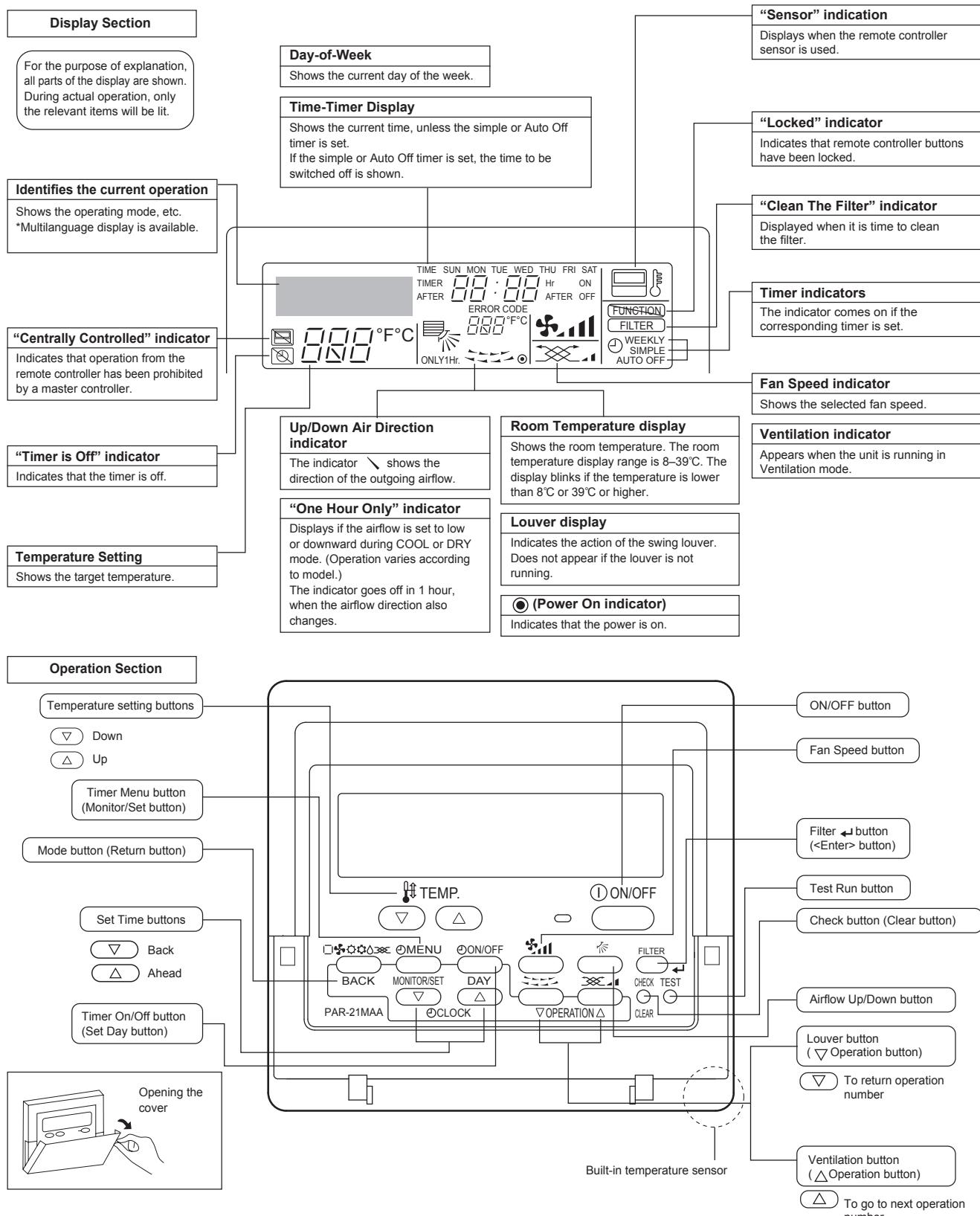
2-3. WIRELESS REMOTE CONTROLLER <PAR-SL97A-E>



2-4. WIRELESS REMOTE CONTROLLER <PAR-SL100A-E>



2-5. WIRED REMOTE CONTROLLER <PAR-21MAA>



Note:

- “PLEASE WAIT” message
This message is displayed for approximately 3 minutes when power is supplied to the indoor unit or when the unit is recovering from a power failure.
- “NOT AVAILABLE” message
This message is displayed if an invalid button is pressed (to operate a function that the indoor unit does not have).
If a single remote controller is used to operate multiple indoor units simultaneously that are different types, this message will not be displayed as far as any of the indoor units is equipped with the function.

3-1. SPECIFICATIONS

Model	PLFY-P32VEM-A/-PA/-DA/-TH	PLFY-P40VEM-A/-PA/-DA/-TH	PLFY-P50VEM-A/-PA/-DA/-TH	PLFY-P63VEM-A/-PA/-DA/-TH		
Power source	1-phase 220–240V 50Hz, 1-phase 220–230V 60Hz					
Cooling capacity (Nominal)	*1 kW	3.6	4.5	5.6		
	*1 kcal/h	3,100	3,900	4,800		
	*1 BTU/h	12,300	15,400	19,100		
	*2 kcal/h	3,150	4,000	5,000		
	Power input kW	0.03	0.03	0.03		
	Current input A	0.32	0.32	0.36		
Heating capacity (Nominal)	*3 kW	4.0	5.0	6.3		
	*3 kcal/h	3,400	4,300	5,400		
	*3 BTU/h	13,600	17,100	21,500		
	Power input kW	0.03	0.03	0.03		
	Current input A	0.25	0.25	0.29		
External finish	Galvanized steel sheet					
External dimension H × W × D	mm	258 × 840 × 840				
	inch	10-3/16 × 33-3/32 × 33-3/32				
Net weight	kg (lb)	19 (42)	19 (42)	19 (42)		
Grille	model	PLP-6EA	PLP-6EA	PLP-6EA		
External finish		MUNSELL (1.0Y 9.2/0.2)				
Dimension H × W × D	mm	40 × 950 × 950				
	inch	1-9/16 × 37-13/32 × 37-13/32				
Net weight	kg (lb)	5 (11)				
Heat exchanger	Micro slit fin (Aluminum fin and copper tube)					
FAN		Turbo fan × 1	Turbo fan × 1	Turbo fan × 1		
	External static press.	Pa	0	0		
		mmH ₂ O	0	0		
	Motor type					
	Motor output	kW	0.050	0.050		
	Driving mechanism					
Airflow rate (Low-Mid2-Mid1-High)	m ³ /min	13 - 14 - 16 - 17	13 - 14 - 16 - 18	13 - 14 - 16 - 19		
	L/s	217 - 233 - 267 - 283	217 - 233 - 267 - 300	217 - 233 - 267 - 317		
	cfm	459 - 494 - 565 - 600	459 - 494 - 565 - 636	459 - 494 - 565 - 671		
Sound pressure level (Low-Mid-High) (measured in anechoic room)	dB <A>	26 - 27 - 29 - 31	26 - 27 - 29 - 31	26 - 27 - 29 - 31		
Insulation material		PS				
Air filter		PP honeycomb				
Protection device		Fuse				
Refrigerant control device		LEV				
Connectable outdoor unit		R410A CITY MULTI				
Diameter of refrigerant pipe	Liquid (R410A) mm (inch)	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare		
	Gas (R410A) mm (inch)	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare		
Field drain pipe size	mm (inch)	O.D. ø32 (VP-25)				
Standard attachment	Document Accessory	Installation Manual, Instruction Book				
Remark	Optional parts					
	Grille **1		PLP-6EA	PLP-6EA		
	Air outlet shutter plate		PAC-SJ37SP-E	PAC-SJ37SP-E		
	High efficiency filter element **2		PAC-SH59KF-E	PAC-SH59KF-E		
	Multi-function casement		PAC-SJ41TM-E	PAC-SJ41TM-E		
			**1. PLFY-P-VEM-A/-PA/-DA/-TH should be used together with PLP-6EA. **2. PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E.			
Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.				
*1 Nominal cooling condition Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft)		*2 Nominal cooling condition 27°CDB/19.5°CWB (81°FDB/67°FWB) 35°CDB (95°FDB) 5 m (16-3/8 ft) 0 m (0 ft)		*3 Nominal heating condition 20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft)		Unit converter
Notes: 1. Nominal conditions *1 and *3 are subject to JIS B8615-1. 2. Due to continuing improvement, above specification may be subject to change without notice.		kcal/h = kW × 860 Btu/h = kW × 3,412 cfm = m ³ /min × 35.31 lb = kg/0.4536 *Above specification data is subject to rounding variation.				

Product specification								
Model		PLFY-P80VEM-A-PA-DA/TH	PLFY-P100VEM-A-PA-DA/TH	PLFY-P125VEM-A-PA-DA/TH				
Power source		1-phase 220-240V 50Hz, 1-phase 220-230V 60Hz						
Cooling capacity (Nominal)		*1 kW *1 kcal/h *1 BTU/h *2 kcal/h	9.0 7,700 30,700 8,000	11.2 9,600 38,200 10,000	14.0 12,000 47,800 12,500			
Power input Current input		kW A	0.05 0.50	0.07 0.67	0.11 1.06			
Heating capacity (Nominal)		*3 kW *3 kcal/h *3 BTU/h	10.0 8,600 34,100	12.5 10,800 42,700	16.0 13,800 54,600			
Power input Current input		kW A	0.05 0.43	0.07 0.60	0.11 0.99			
External finish								
External dimension H × W × D		mm inch	258 × 840 × 840 10-3/16 × 33-3/32 × 33-3/32	298 × 840 × 840 11-3/4 × 33-13/32 × 33-13/32				
Net weight		kg (lb)	21(46)	24(53)	24(53)			
Grille	model		PLP-6EA	PLP-6EA	PLP-6EA			
	External finish		MUNSELL (1.OY 9.2/0.2)					
	Dimension H × W × D	mm inch	40 × 950 × 950 1-9/16 × 37-13/32 × 37-13/32					
	Net weight	kg (lb)	5 (11)					
Heat exchanger								
FAN	Type × Quantity		Turbo fan × 1	Turbo fan × 1	Turbo fan × 1			
	External static press.	Pa mmH ₂ O	0 0	0 0	0 0			
	Motor type		DC motor					
	Motor output	kW	0.050	0.120	0.120			
	Driving mechanism		Direct-drive					
	Airflow rate (Low-Mid2-Mid1-High)	m ³ /min L/s cfm	15 - 18 - 20 - 23 250 - 300 - 333 - 383 530 - 636 - 706 - 812	20 - 23 - 26 - 29 333 - 383 - 433 - 483 706 - 812 - 918 - 1024	24 - 26 - 30 - 35 400 - 433 - 500 - 583 847 - 918 - 1060 - 1236			
	Sound pressure level (Low-Mid-High) (measured in anechoic room)	dB <A>	28 - 31 - 34 - 37	34 - 37 - 39 - 41	35 - 39 - 42 - 45			
	Insulation material		PS					
Air filter								
Protection device								
Refrigerant control device								
Connectable outdoor unit								
Diameter of refrigerant pipe	Liquid (R410A) Gas (R410A)	mm (inch)	ø9.52 (ø3/8) Flare ø15.88 (ø5/8) Flare	ø9.52 (ø3/8) Flare ø15.88 (ø5/8) Flare	ø9.52 (ø3/8) Flare ø15.88 (ø5/8) Flare			
Field drain pipe size		mm (inch)	O.D. ø32 (VP-25)					
Standard attachment	Document Accessory		Installation Manual, Instruction Book					
Remark	Optional parts							
	Grille **1		PLP-6EA	PLP-6EA	PLP-6EA			
	Air outlet shutter plate		PAC-SJ37SP-E	PAC-SJ37SP-E	PAC-SJ37SP-E			
	High efficiency filter element **2		PAC-SH59KF-E	PAC-SH59KF-E	PAC-SH59KF-E			
	Multi-function casement		PAC-SJ41TM-E	PAC-SJ41TM-E	PAC-SJ41TM-E			
			**1. PLFY-P-VEM-A-PA-DA/TH should be used together with PLP-6EA. **2. PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E.					
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.					
*1 Nominal cooling condition Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft)								
*2 Nominal cooling condition Indoor : 27°CDB/19.5°CWB (81°FDB/67°FWB) Outdoor : 35°CDB (95°FDB) 5 m (16-3/8 ft) 0 m (0 ft)								
*3 Nominal heating condition Indoor : 20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft)								
Unit converter kcal/h = kW × 860 Btu/h = kW × 3,412 cfm = m ³ /min × 35.31 lb = kg/0.4536 *Above specification data is subject to rounding variation.								

Notes:

1. Nominal conditions *1 and *3 are subject to JIS B8615-1.

2. Due to continuing improvement, above specification may be subject to change without notice.

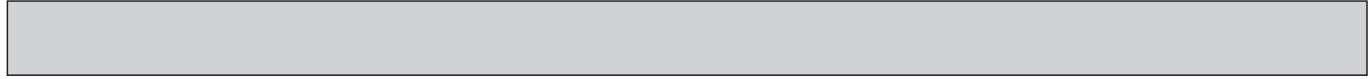
3-2. ELECTRICAL PARTS SPECIFICATIONS

Service Ref. Parts name	Symbol	PLFY-P32VEM-A-PA-DA-TH.TH	PLFY-P40VEM-A-PA-DA-TH.TH	PLFY-P50VEM-A-PA-DA-TH.TH	PLFY-P63VEM-A-PA-DA-TH.TH
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Fuse (Indoor controller board)	FUSE		250V 6.3A		
Fan motor	MF		8-pole OUTPUT 50W		
Vane motor	MV		MSBPC20M13 DC12V 300Ω/phase		
Drain pump	DP		PMD-12D13ME INPUT 3W 24ℓ /Hr		
Drain float switch	FS		Open / Short detection		
Linear expansion valve	LEV		DC12V Stepping motor drive port dimension φ3.2 (0~2000pulse) EFM-40YGME		
Power supply terminal block	TB2		(L, N) Rated to 330V 30A *		
Transmission terminal block	TB5		(M1, M2, S) Rated to 250V 20A *		
MA remote controller terminal block	TB15		(1, 2) Rated to 250V 10A *		

*Refer to WIRING DIAGRAM for the supplied voltage.

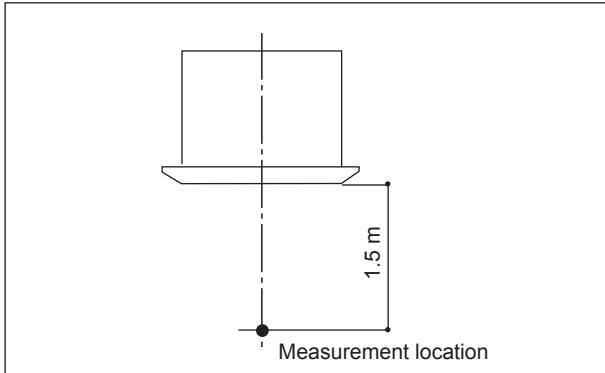
Service Ref. Parts name	Symbol	PLFY-P80VEM-A-PA-DA-TH.TH	PLFY-P100VEM-A-PA-DA-TH.TH	PLFY-P125VEM-A-PA-DA-TH.TH
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ		
Fuse (Indoor controller board)	FUSE		250V 6.3A	
Fan motor	MF	8-pole OUTPUT 50W	8-pole OUTPUT 120W	
Vane motor	MV		MSBPC20M13 DC12V 300Ω/phase	
Drain pump	DP		PMD-12D13ME INPUT 3W 24R/Hr	
Drain float switch	FS		Open / Short detection	
Linear expansion valve	LEV		DC12V Stepping motor drive port dimension φ5.2 (0~2000pulse) EFM-80YGME	
Power supply terminal block	TB2		(L, N) Rated to 330V 30A *	
Transmission terminal block	TB5		(M1, M2, S) Rated to 250V 20A *	
MA remote controller terminal block	TB15		(1, 2) Rated to 250V 10A *	

*Refer to WIRING DIAGRAM for the supplied voltage.



3-3. SOUND PRESSURE LEVEL

PLFY-P-VEM-A/-PA/-DA/-TH.TH

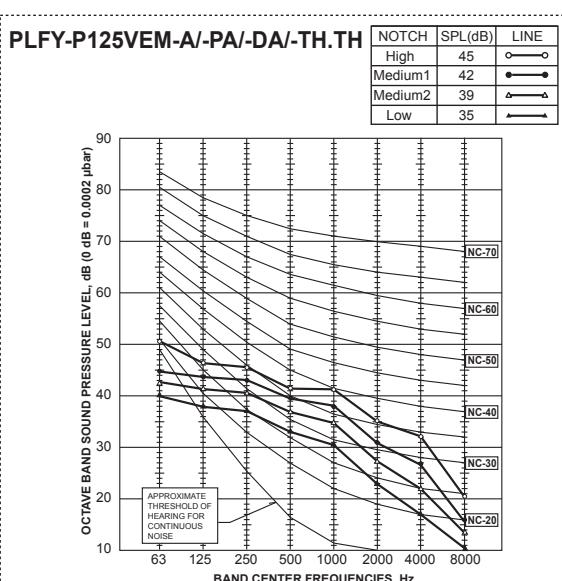
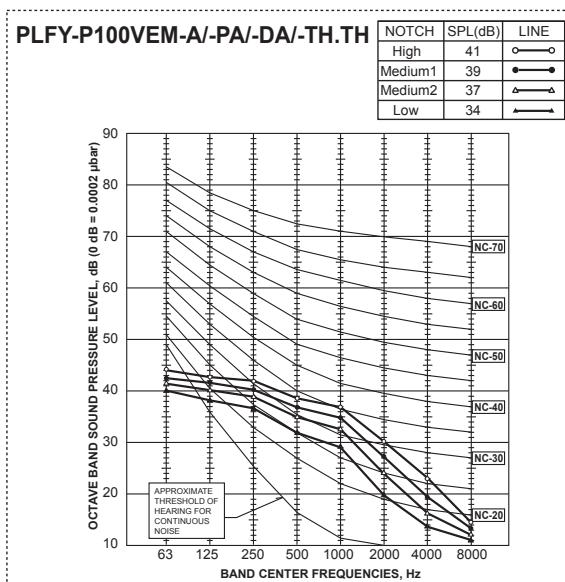
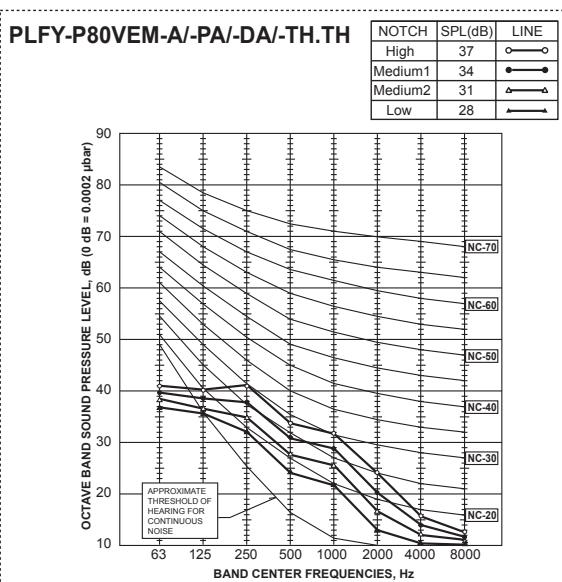
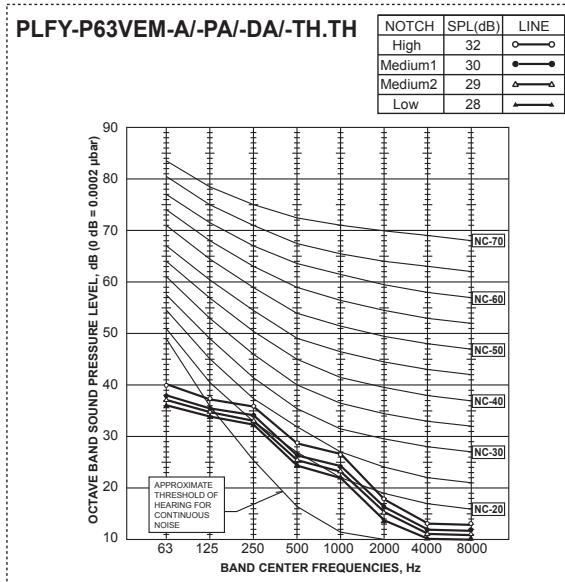
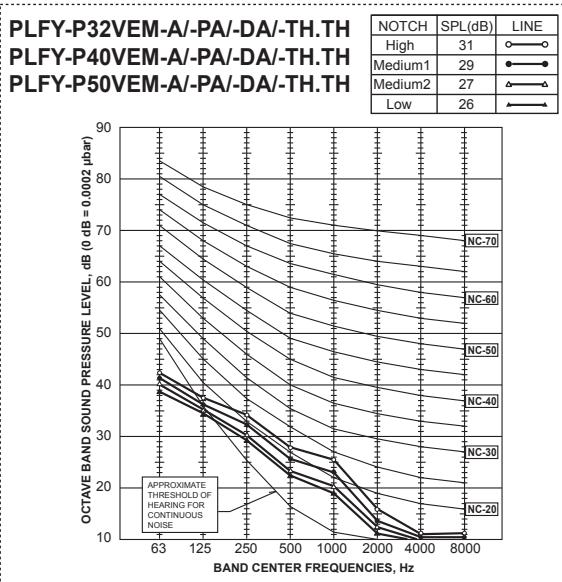


Sound pressure level at anechoic room : Low-Mid2-Mid1-High

Service Ref.	Sound pressure level dB (A)
PLFY-P32VEM-A/-PA/-DA/-TH.TH	26-27-29-31
PLFY-P40VEM-A/-PA/-DA/-TH.TH	28-29-30-32
PLFY-P50VEM-A/-PA/-DA/-TH.TH	28-31-34-37
PLFY-P63VEM-A/-PA/-DA/-TH.TH	34-37-39-41
PLFY-P80VEM-A/-PA/-DA/-TH.TH	35-39-42-45
PLFY-P100VEM-A/-PA/-DA/-TH.TH	
PLFY-P125VEM-A/-PA/-DA/-TH.TH	

Note: Measured in anechoic room.

3-4. NC CURVES

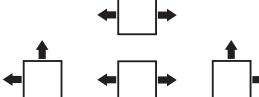
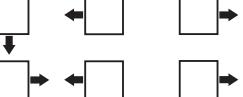


4-1. PLACEMENT OF THE AIR OUTLETS

- For this grille, the blowout direction comes in 11 patterns.

Also, by setting switch on the controller board to the appropriate settings, you can adjust the airflow and speed. Select the settings from Table1 according to the location in which you want to install the unit.

- Decide on the pattern of the airflow direction.

<Table 1>	4-direction	3-direction	2-direction
Blowout direction pattern	Pattern 1 Initial setting 	Pattern 4 1 air outlet fully closed 	Pattern 6 2 air outlet fully closed 

Note1.

For 3- and 2-direction settings, please use the air outlet shutter plate (option).

- According to the number of air outlets and height of the ceiling to install the unit, be sure to set up the switch (SW21) on the circuit board to the appropriate setting.

- Correspondence of ceiling heights to the number of air outlets

SW21	SW14	SW12	SW11	SW22	SW1	SW2	SW3
ON OFF 1 6	ON OFF 1 6	ON OFF 1 6	ON OFF 1 6	ON OFF 1 4	1 0	1 6	1 0

			PLFY-P32/40/50/63/80VEM-A-PA-DA-TH						PLFY-P100/125VEM-A-PA-DA-TH						
			Silent		Standard		High ceiling		Silent		Standard		High ceiling		
			SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	
4 direction	SW21-3	OFF	2.5 m			2.7 m			3.5 m			2.7 m			
	SW21-4	ON													
3 direction	SW21-3	OFF	2.7 m			3.0 m			3.5 m			3.0 m			
	SW21-4	OFF													
2 direction	SW21-3	ON	3.0 m			3.3 m			3.5 m			3.3 m			
	SW21-4	OFF													

4-2. BRANCH DUCT HOLE AND FRESH AIR INTAKE HOLE

At the time of installation, use the duct holes (cut out) located at the positions shown in following diagram, as and when required.

- A fresh air intake hole for the optional multi-functional casement can also be made.

Note:

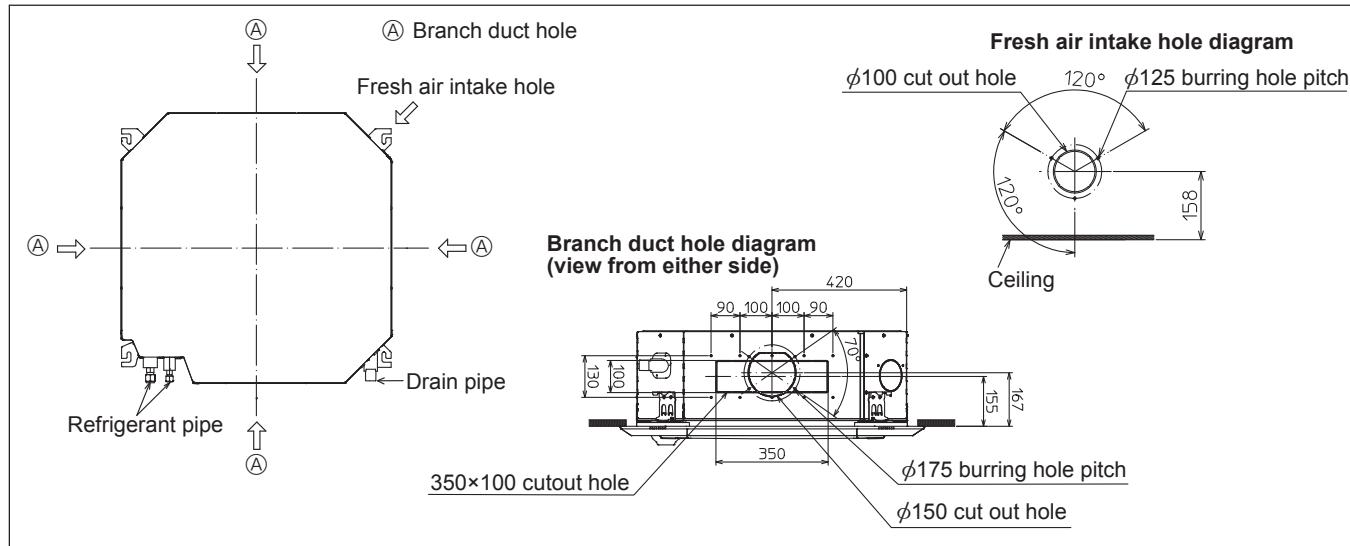
The figures marked with * in the drawing below represent the dimensions of the main unit excluding those of the optional multifunctional casement.

When installing the optional multifunctional casement, add 135 mm to the dimensions marked on the figure.

When installing the branch ducts, be sure to insulate adequately.

Otherwise, condensation and dripping may occur.

Unit : mm



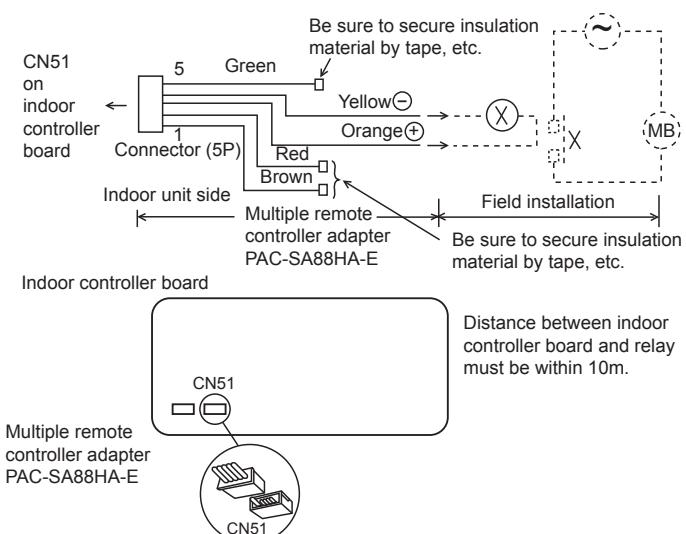
4-3. OPERATION IN CONJUNCTION WITH DUCT FAN (Booster fan)

- Whenever the indoor unit is operating, the duct fan also operates.

- (1) Connect the optional multiple remote controller adapter (PAC-SA88HA-E) to the connector CN51 on the indoor controller board.
- (2) Drive the relay after connecting the 12 V DC relay between the Yellow and Orange connector lines.

MB: Electromagnetic switch power relay for duct fan.

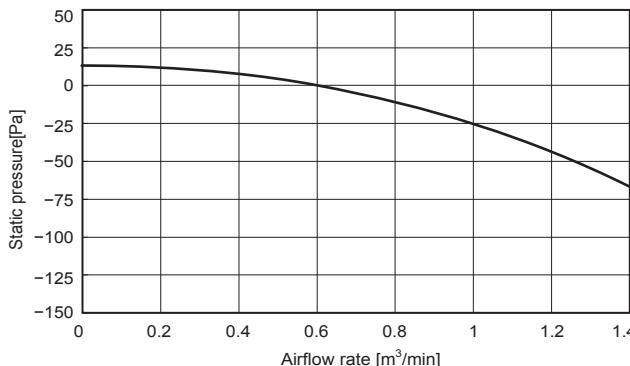
X: Auxiliary relay (For 12 V DC, coil rating: 1.0W or smaller)



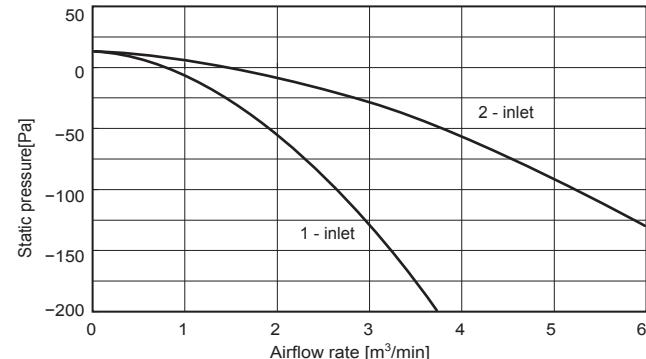
4-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

① PLFY-P32/40/50/63/80VEM-A/-PA/-DA/-TH.TH

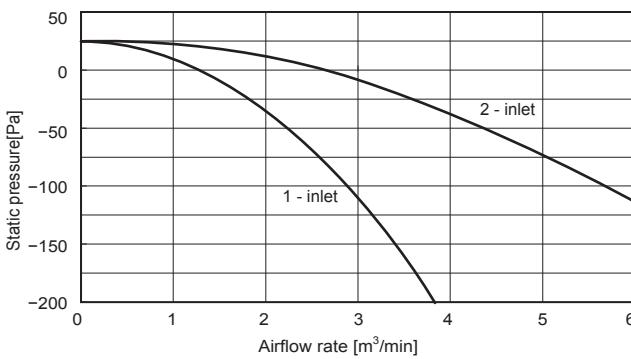
Taking air into the unit



Multi-functional casement + Standard filter

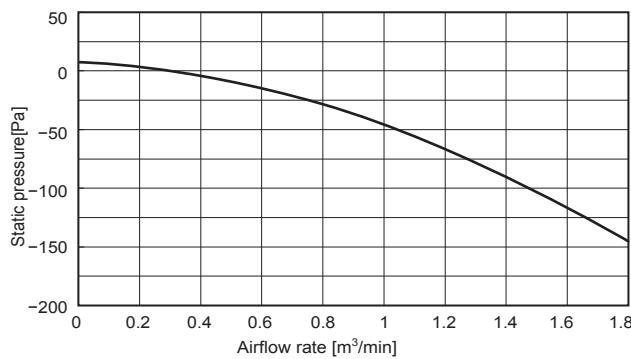


Multi-functional casement + High efficiency filter

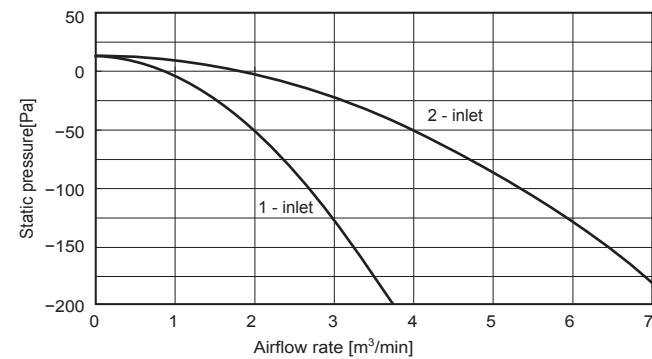


② PLFY-P100/125VEM-A/-PA/-DA/-TH.TH

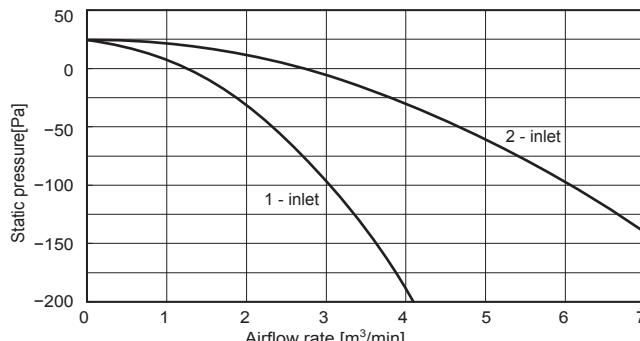
Taking air into the unit



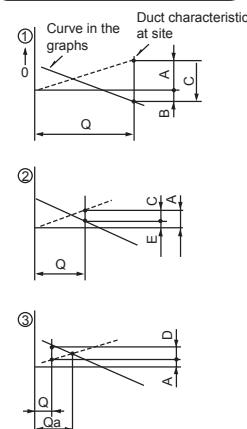
Multi-functional casement + Standard filter



Multi-functional casement + High efficiency filter



How to read curves



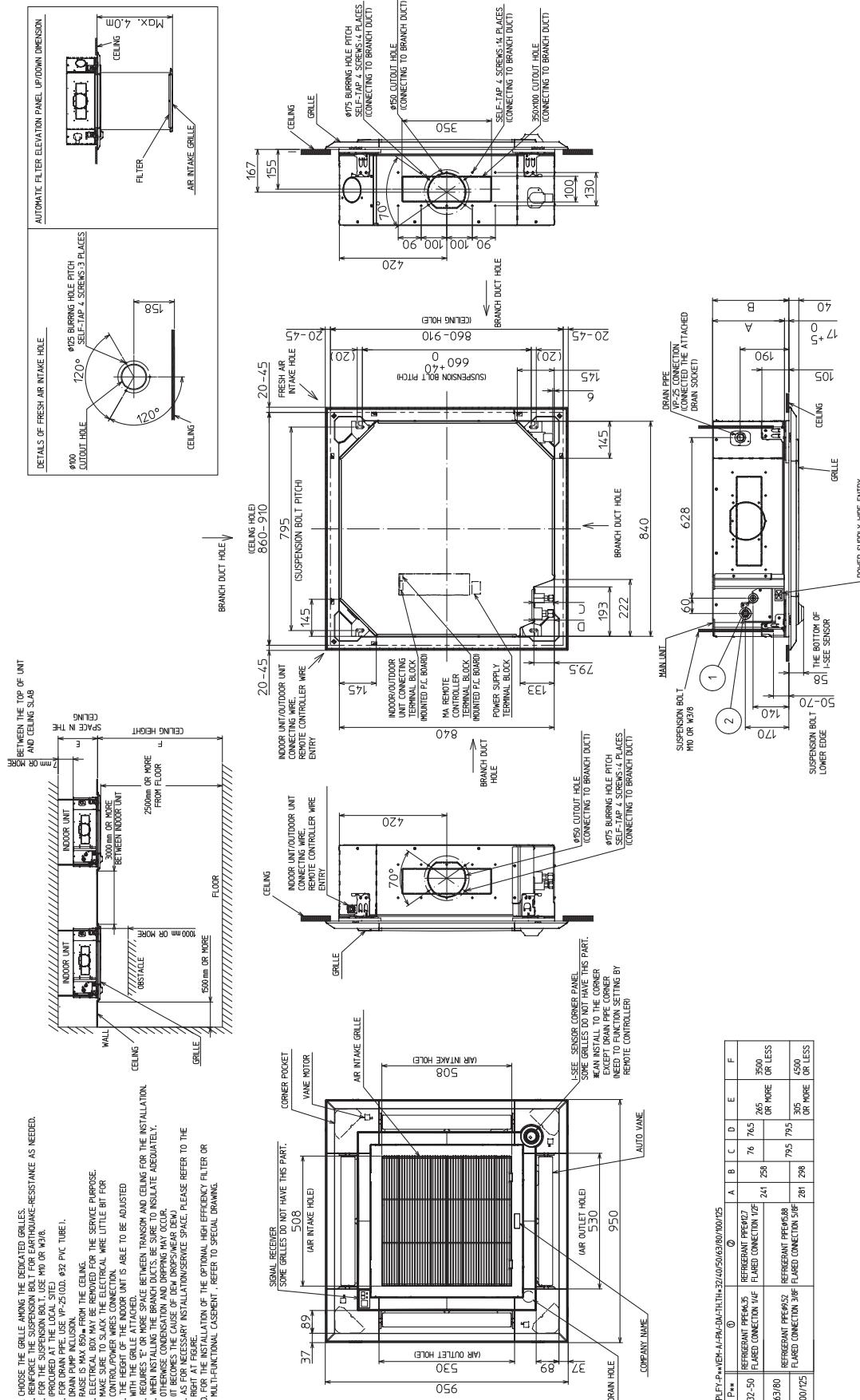
- Q...Designed amount of fresh air intake $<\text{m}^3/\text{min}>$
- A...Static pressure loss of fresh air intake air duct system with airflow amount Q $<\text{Pa}>$
- B...Forced static pressure at air conditioner inlet with airflow amount Q $<\text{Pa}>$
- C...Static pressure of booster fan with airflow amount Q $<\text{Pa}>$
- D...Static pressure loss increase amount of fresh air intake duct system for airflow amount Q $<\text{Pa}>$
- E...Static pressure of indoor unit with airflow amount Q $<\text{Pa}>$
- Qa...Estimated amount of fresh air intake without D $<\text{m}^3/\text{min}>$

OUTLINES AND DIMENSIONS

**PLFY-P32VEM-A/-PA/-DA/-TH.TH
PLFY-P50VEM-A/-PA/-DA/-TH.TH
PLFY-P80VEM-A/-PA/-DA/-TH.TH
PLFY-P125VEM-A/-PA/-DA/-TH.TH**

**PLFY-P40VEM-A/-PA/-DA/-TH.TH
PLFY-P63VEM-A/-PA/-DA/-TH.TH
PLFY-P100VEM-A/-PA/-DA/-TH.TH**

Unit: mm



PLFY-P32VEM-A.TH PLFY-P40VEM-A.TH PLFY-P50VEM-A.TH PLFY-P63VEM-A.TH
 PLFY-P80VEM-A.TH PLFY-P100VEM-A.TH PLFY-P125VEM-A.TH

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
DP	DRAIN PUMP	OPTION PART	
FS	DRAIN FLOAT SWITCH	MT	I-SEE SENSOR MOTOR
I.B	INDOOR CONTROLLER BOARD	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
CN27	CONNECTOR	BZ	BUZZER
CN32	DAMPER	LED1	LED (OPERATION INDICATION : GREEN)
CN51	REMOTE SWITCH	LED2	LED (PREPARATION FOR HEATING : ORANGE)
CN52	CENTRALLY CONTROL	RU	RECEIVING UNIT
F1	REMOTE INDICATION	SW1	EMERGENCY OPERATION (HEAT/DOWN)
SW1	FUSE (T 6.3AL 250V)	SW2	EMERGENCY OPERATION (COOL/UP)
SW11	SWITCH	TB15	TERMINAL BLOCK
SW12	MODE SELECTION	BLOCK	MA-REMOTE CONTROLLER
SW14	ADDRESS SETTING 1s DIGIT		POWER SUPPLY
SW2	ADDRESS SETTING 10s DIGIT		TRANSMISSION
SW21	BRANCH NO.	TH21	THERMISTOR
	CAPACITY CODE		ROOM TEMP. DETECTION (0°C / 15kΩ, 25°C / 5.4kΩ)
	CEILING HEIGHT	TH22	PIPE TEMP. DETECTION/LIQUID (0°C / 15kΩ, 25°C / 5.4kΩ)
	DISCHARGE OUTLET NUMBER		PIPE TEMP. DETECTION/GAS (0°C / 15kΩ, 25°C / 5.4kΩ)
SW22	OPTION SELECTOR	TH23	
SW23	PAIR NO. SETTING		
SW24	MODE SELECTION		
	DRAIN PUMP (TEST MODE)		
LEV	LINEAR EXPANSION VALVE		
MF	FAN MOTOR		
MV	VANE MOTOR		

NOTES:

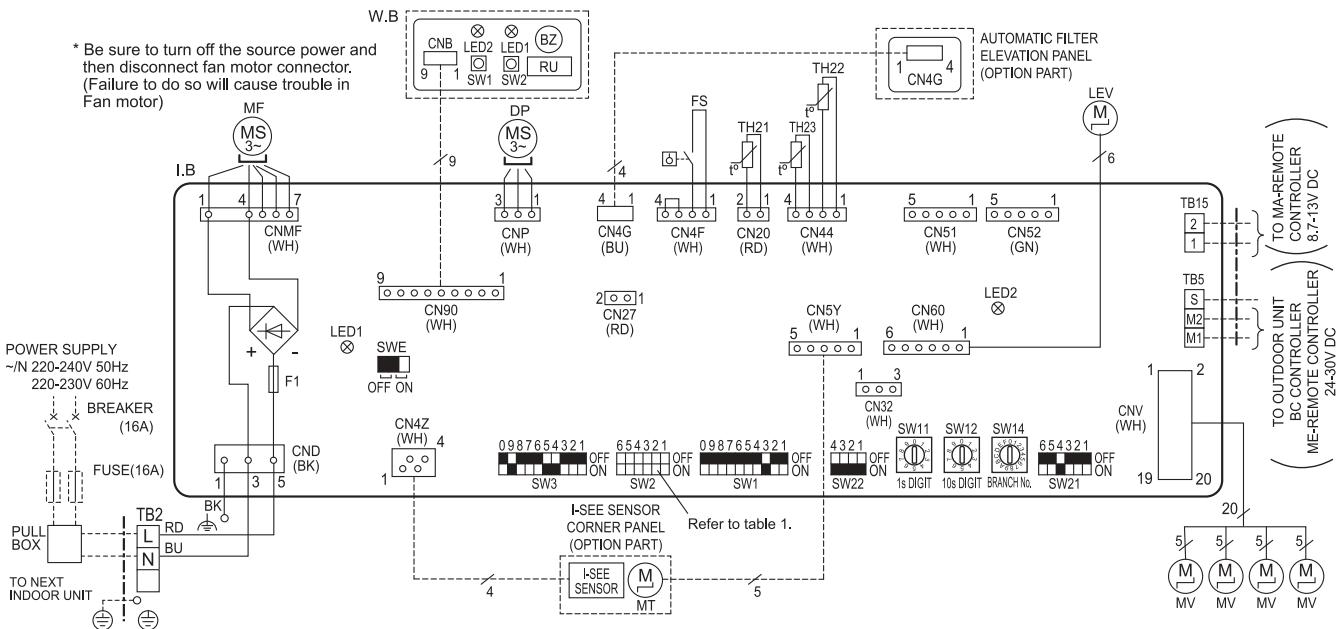
- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using ME-Remote controller, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are,
[] : terminal block, [o o o] : connector.
- The setting of SW2 differs in the capacity and model.
For the detail, refer to the table 1.
- Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
- is the switch position.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:220-240V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

<Table 1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2	MODELS	SW2
32	ON OFF 1 2 3 4 5 6	63	ON OFF 1 2 3 4 5 6	125	ON OFF 1 2 3 4 5 6
40	ON OFF 1 2 3 4 5 6	80	ON OFF 1 2 3 4 5 6		
50	ON OFF 1 2 3 4 5 6	100	ON OFF 1 2 3 4 5 6		



PLFY-P32VEM-PA.TH PLFY-P40VEM-PA.TH PLFY-P50VEM-PA.TH PLFY-P63VEM-PA.TH
PLFY-P80VEM-PA.TH PLFY-P100VEM-PA.TH PLFY-P125VEM-PA.TH

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
DP	DRAIN PUMP	OPTION PART	
FS	DRAIN FLOAT SWITCH	MT	I-SEE SENSOR MOTOR
I. B	INDOOR CONTROLLER BOARD	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
CN27	CONNECTOR	BZ	BUZZER
CN32	DAMPER	LED1	LED (OPERATION INDICATION : GREEN)
CN51	REMOTE SWITCH	LED2	LED (PREPARATION FOR HEATING : ORANGE)
CN52	CENTRALLY CONTROL	RU	RECEIVING UNIT
F1	REMOTE INDICATION	SW1	EMERGENCY OPERATION (HEAT/DOWN)
SW1	FUSE (T 6.3AL 250V)	SW2	EMERGENCY OPERATION (COOL/UP)
SW11	SWITCH	TB15	TERMINAL BLOCK
SW12	MODE SELECTION	TB2	MA-REMOTE CONTROLLER
SW14	ADDRESS SETTING 1s DIGIT	TB5	POWER SUPPLY
SW2	ADDRESS SETTING 10s DIGIT	TH21	TRANSMISSION
SW21	BRANCH NO.	TH22	ROOM TEMP. DETECTION (0°C / 15kΩ, 25°C / 5.4kΩ)
SW22	CAPACITY CODE	TH23	PIPE TEMP. DETECTION/LIQUID (0°C / 15kΩ, 25°C / 5.4kΩ)
SW3	CEILING HEIGHT		PIPE TEMP. DETECTION/GAS (0°C / 15kΩ, 25°C / 5.4kΩ)
SWE	DISCHARGE OUTLET NUMBER		
LEV	OPTION SELECTOR		
MF	PAIR NO. SETTING		
MV	SW2		
	MODE SELECTION		
	DRAIN PUMP (TEST MODE)		
	LINEAR EXPANSION VALVE		
	FAN MOTOR		
	VANE MOTOR		

NOTES:

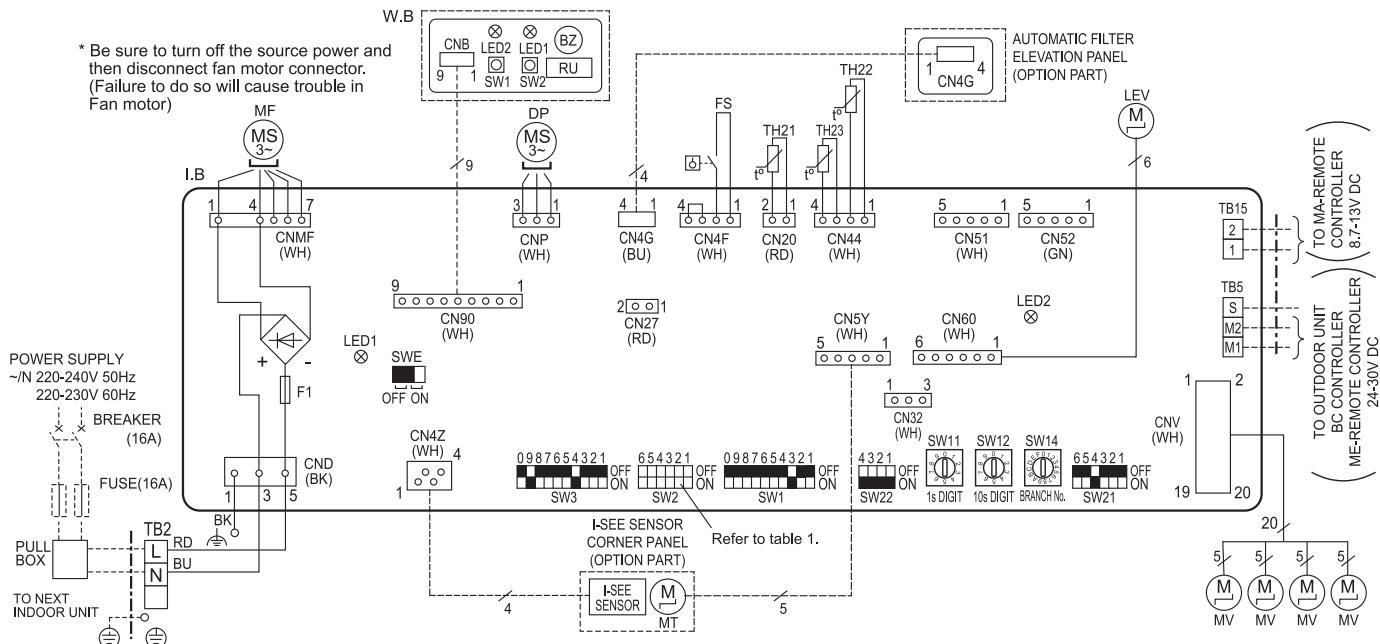
- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using ME-Remote controller, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are,
[] : terminal block, [o o o] : connector.
- The setting of SW2 differs in the capacity and model.
For the detail, refer to the table 1.
- Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
- is the switch position.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:220-240V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

<Table 1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2	MODELS	SW2
32	ON OFF 1 2 3 4 5 6	63	ON OFF 1 2 3 4 5 6	125	ON OFF 1 2 3 4 5 6
40	ON OFF 1 2 3 4 5 6	80	ON OFF 1 2 3 4 5 6		
50	ON OFF 1 2 3 4 5 6	100	ON OFF 1 2 3 4 5 6		



**PLFY-P32VEM-DA.TH PLFY-P40VEM-DA.TH PLFY-P50VEM-DA.TH PLFY-P63VEM-DA.TH
PLFY-P80VEM-DA.TH PLFY-P100VEM-DA.TH PLFY-P125VEM-DA.TH**

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
DP	DRAIN PUMP	OPTION PART	
FS	DRAIN FLOAT SWITCH	MT	I-SEE SENSOR MOTOR
I. B	INDOOR CONTROLLER BOARD	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
CN27	CONNECTOR DAMPER	BZ	BUZZER
CN32	REMOTE SWITCH	LED1	LED (OPERATION INDICATION : GREEN)
CN51	CENTRALLY CONTROL	LED2	LED (PREPARATION FOR HEATING : ORANGE)
CN52	REMOTE INDICATION	RU	RECEIVING UNIT
F1	FUSE (T 6.3AL 250V)	SW1	EMERGENCY OPERATION (HEAT/DOWN)
SW1	SWITCH MODE SELECTION	SW2	EMERGENCY OPERATION (COOL/UP)
SW11	ADDRESS SETTING 1s DIGIT	TB15	TERMINAL BLOCK
SW12	ADDRESS SETTING 10s DIGIT	TB2	MA-REMOTE CONTROLLER
SW14	BRANCH NO.	TB5	POWER SUPPLY
SW2	CAPACITY CODE	TH21	TRANSMISSION
SW21	CEILING HEIGHT	TH22	ROOM TEMP. DETECTION (0°C / 15kΩ, 25°C / 5.4kΩ)
	DISCHARGE OUTLET NUMBER	TH23	PIPE TEMP. DETECTION/LIQUID (0°C / 15kΩ, 25°C / 5.4kΩ)
SW22	OPTION SELECTOR		PIPE TEMP. DETECTION/GAS (0°C / 15kΩ, 25°C / 5.4kΩ)
SW3	PAIR NO. SETTING		
SW4	MODE SELECTION		
SW5	DRAIN PUMP (TEST MODE)		
LEV	LINEAR EXPANSION VALVE		
MF	FAN MOTOR		
MV	VANE MOTOR		

NOTES:

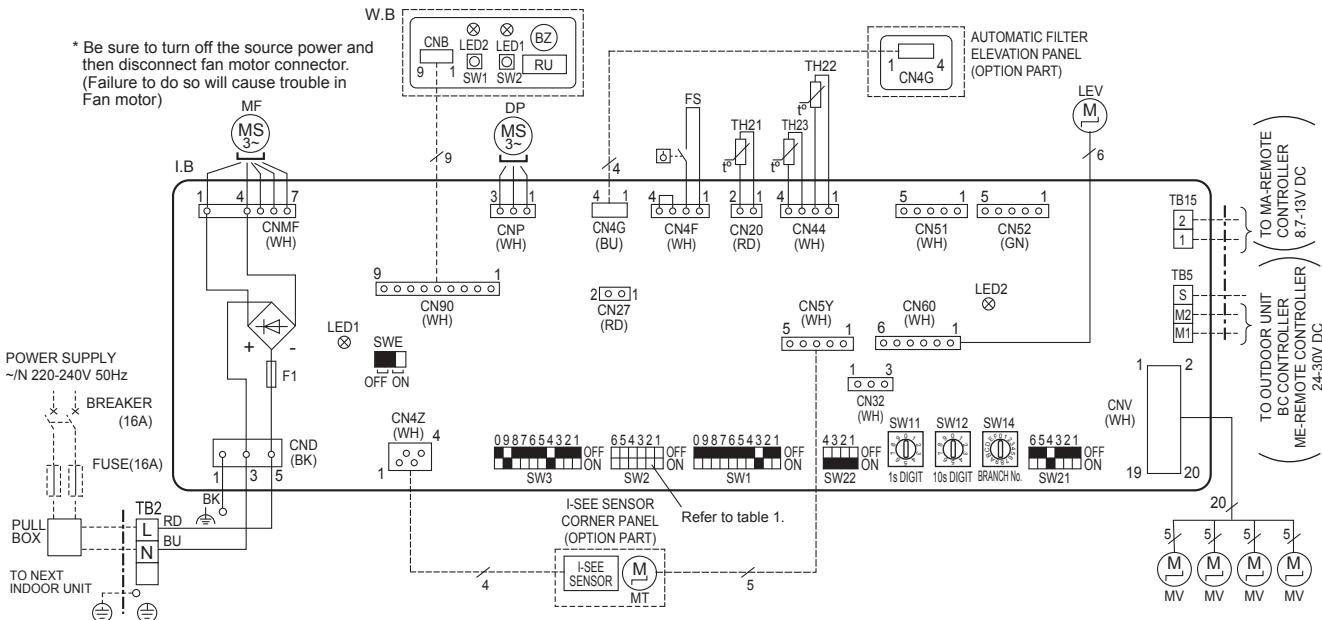
- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using ME-Remote controller, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are,
[] : terminal block, [o o o] : connector.
- The setting of SW2 differs in the capacity and model. For the detail, refer to the table 1.
- Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
- is the switch position.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:220-240V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

<Table 1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2	MODELS	SW2
32	ON OFF 1 2 3 4 5 6	63	ON OFF 1 2 3 4 5 6	125	ON OFF 1 2 3 4 5 6
40	ON OFF 1 2 3 4 5 6	80	ON OFF 1 2 3 4 5 6		
50	ON OFF 1 2 3 4 5 6	100	ON OFF 1 2 3 4 5 6		



PLFY-P32VEM-TH.TH PLFY-P40VEM-TH.TH PLFY-P50VEM-TH.TH PLFY-P63VEM-TH.TH

PLFY-P80VEM-TH.TH PLFY-P100VEM-TH.TH PLFY-P125VEM-TH.TH

คำอธิบายสัญลักษณ์

สัญลักษณ์	ชื่อ	สัญลักษณ์	ชื่อ
DP	ปั๊มน้ำทึบตื้ง	อุปกรณ์เสริม	
FS	สวิตซ์กูล์เบน้ำทึบตื้ง	MT	มอเตอร์สำหรับ I-SEE เซ็นเซอร์
I. B	แม่ควบคุมเครื่องภายนอกอาคาร	W.B	แผ่นวงจรสำหรับรีโมทคอนโทรลแบบไร้สาย
CN27	คอนเนคเตอร์	BZ	กริ๊งสัญญาณ
CN32	คอมเพรสเซอร์	LED1	ไฟสัญญาณ LED แสดงการทำงาน (ไฟสีเขียว)
CN51	อินดิกเตอร์	LED2	ไฟสัญญาณ LED แสดงการทำงาน (ไฟสีเหลือง)
CN52	ควบคุมส่วนกลาง	RU	ชุดรีเซ็ตสัญญาณ
F1	เฟดเซมิท	SW1	การทำงานระบบอุกเดิน (หัวความร้อน/คงคลัง)
SW1	สวิตซ์	SW2	การทำงานระบบอุกเดิน (หัวความเย็น/เพิ่มชื้น)
SW11	การตั้งค่าที่ต่ำ 1s หลัก	TB15	ฐานสีขาว MA-รีโมทคอนโทรล
SW12	การตั้งค่าที่ต่ำ 10s หลัก	TB2	สายไฟ
SW14	การตัดแยกเครื่องภายนอกอาคาร	TB5	ส่งสัญญาณ
SW2	ความสมารถด้าความเย็นตามรุ่น	TH21	เทอร์มิสเตอร์
SW21	ความสูงเพดาน	TH22	เทอร์มิสเตอร์ตัวร้อนวัดอุณหภูมิห้อง (0°C / $15\text{k}\Omega$, 25°C / $5.4\text{k}\Omega$)
SW22	ระหว่างทางทั้งสองห้องท่ออัด	TH23	เทอร์มิสเตอร์ตัวร้อนห้อง (0°C / $15\text{k}\Omega$, 25°C / $5.4\text{k}\Omega$)
SW3	การเลือกการตั้งค่า		
SWE	ปั๊มน้ำทึบตื้ง (ให้หมดทดสอบ)		
LEV	วาล์วขยายทัวร์เชิงเดี่ยว		
MF	มอเตอร์พัดลม		
MV	มอเตอร์สำหรับปรับระดับลม		

ไฟสัญญาณ LED บนแผงควบคุมเครื่องภายนอกอาคารสำหรับการบำรุงรักษา

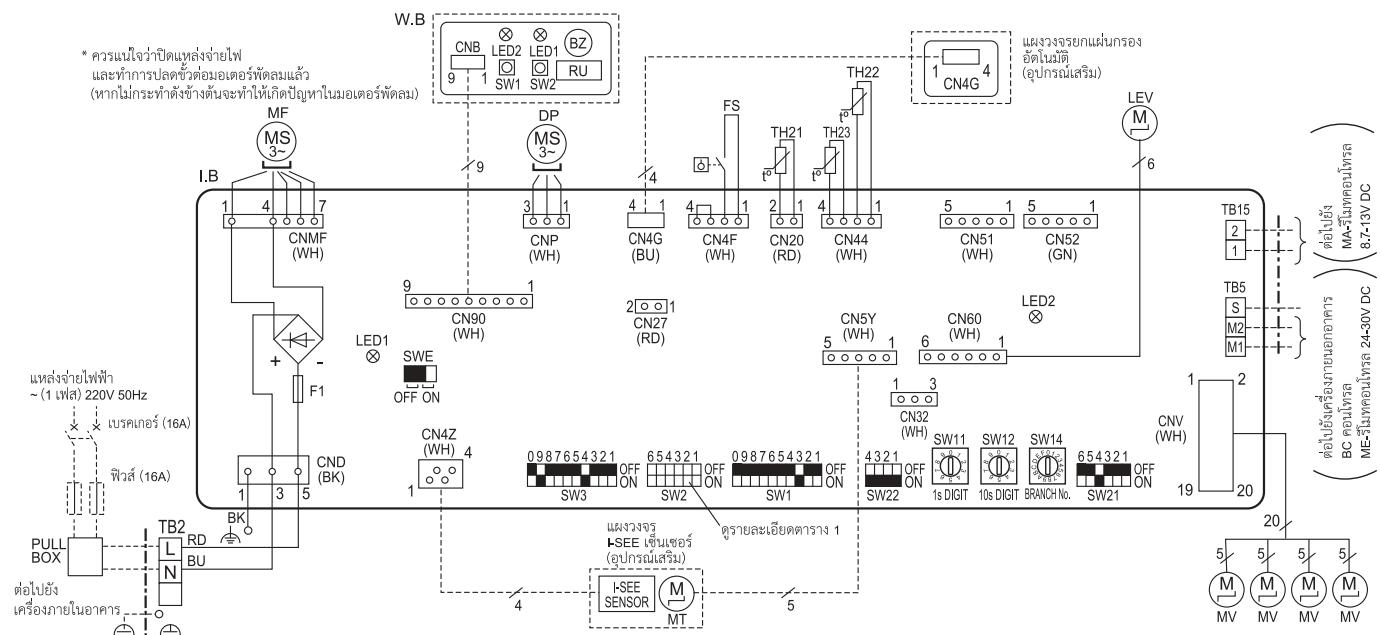
เครื่องหมาย	ความหมาย	การใช้งาน
LED1	แหล่งจ่ายไฟหลัก	แหล่งจ่ายไฟหลัก (เครื่องภายนอกอาคาร 220-240V AC) เปิด → ไฟสว่าง
LED2	แหล่งจ่ายไฟ สำหรับ MA-รีโมทคอนโทรล	แหล่งจ่ายไฟ สำหรับ MA-รีโมทคอนโทรล เปิด → ไฟสว่าง

หมายเหตุ :

- ในการบำรุงรักษาเครื่องภายนอกอาคาร ควรปฏิบัติตามแผนผังวงจรไฟฟ้า ของเครื่องภายนอกอาคารเสมอ
- ในกรณีที่ใช้ MA-รีโมทคอนโทรล กรุณาใช้มตอสายไฟ TB15 (การต่อสายไฟของรีโมทคอนโทรล ไม่ต้องคำนึงถึงขั้วสายไฟ)
- ในกรณีที่ใช้ ME-รีโมทคอนโทรล กรุณาใช้มตอสายไฟ TB15 (การต่อสายส่งสัญญาณไม่ต้องคำนึงถึงขั้วสายไฟ)
- สัญลักษณ์ [S] ของ TB5 คือการเชื่อมต่อด้วยสาย Shield
- สัญลักษณ์ที่ใช้ในแผนผังจะไฟฟ้า : ฐานเสียบขั้วสายไฟ : คอนเนคเตอร์
- การตั้งค่าของ SW2 แตกต่างกันในการสามารถ ในการทำความเย็นและรุ่น สำหรับรายละเอียด ดังอ้างอิงตารางที่ 1
- ตรวจสอบให้แน่ใจว่าได้ปิดการทำงาน เครื่องภายนอกอาคาร และ เครื่องภายนอกอาคาร ก่อนทำการเปลี่ยนแผงควบคุมภายนอกอาคาร
- คือตำแหน่งของสวิตซ์

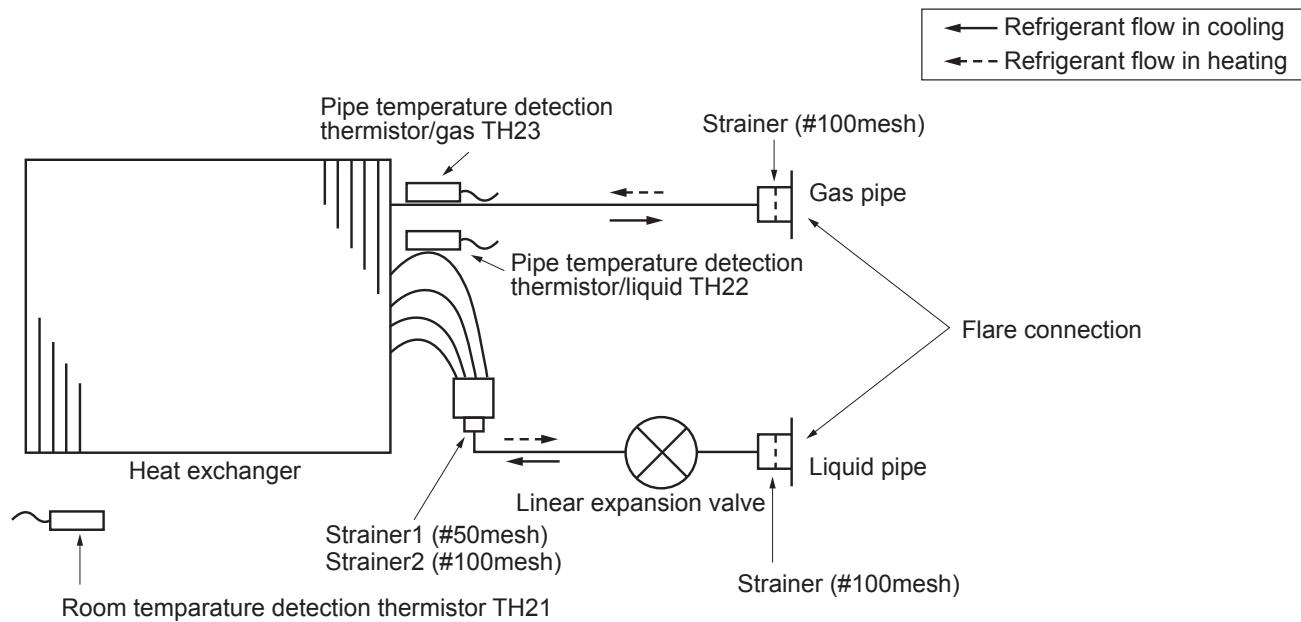
<ตาราง 1> SW2 (รหัสความสามารถทำความเย็นตามรุ่น)

รุ่น	SW2	รุ่น	SW2	รุ่น	SW2
32	ON OFF 1 2 3 4 5 6	63	ON OFF 1 2 3 4 5 6	125	ON OFF 1 2 3 4 5 6
40	ON OFF 1 2 3 4 5 6	80	ON OFF 1 2 3 4 5 6		
50	ON OFF 1 2 3 4 5 6	100	ON OFF 1 2 3 4 5 6		



REFRIGERANT SYSTEM DIAGRAM

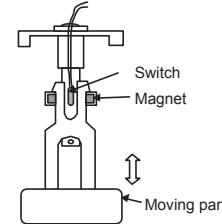
PLFY-P32VEM-A/-PA/-DA/-TH.TH PLFY-P40VEM-A/-PA/-DA/-TH.TH PLFY-P50VEM-A/-PA/-DA/-TH.TH
 PLFY-P63VEM-A/-PA/-DA/-TH.TH PLFY-P80VEM-A/-PA/-DA/-TH.TH PLFY-P100VEM-A/-PA/-DA/-TH.TH
 PLFY-P125VEM-A/-PA/-DA/-TH.TH



Unit : mm (inch)		
Service Ref. Item	PLFY-P32/40/50VEM-A/-PA/-DA/-TH.TH	PLFY-P63/80/100/125VEM-A/-PA/-DA/-TH.TH
Gas pipe	$\phi 12.7$ (1/2)	$\phi 15.88$ (5/8)
Liquid pipe	$\phi 6.35$ (1/4)	$\phi 9.52$ (3/8)

8-1. HOW TO CHECK THE PARTS

PLFY-P32VEM-A/-PA/-DA/-TH.TH PLFY-P40VEM-A/-PA/-DA/-TH.TH PLFY-P50VEM-A/-PA/-DA/-TH.TH
 PLFY-P63VEM-A/-PA/-DA/-TH.TH PLFY-P80VEM-A/-PA/-DA/-TH.TH PLFY-P100VEM-A/-PA/-DA/-TH.TH
 PLFY-P125VEM-A/-PA/-DA/-TH.TH

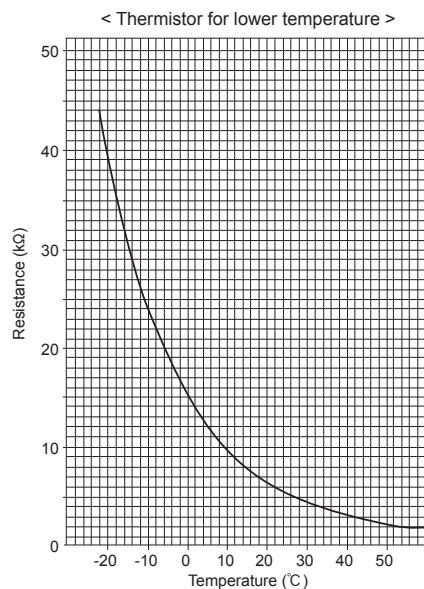
Parts name	Check points											
Room temperature detection thermistor (TH21) Pipe temperature detection thermistor/liquid (TH22) Pipe temperature detection thermistor/gas (TH23)	Disconnect the connectors, then measure the resistance with a tester. (At ambient temperatures of 10 to 30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Normal</td> <td>Abnormal</td> </tr> <tr> <td>4.3–9.6 kΩ</td> <td>Open or short</td> </tr> </table> (Refer to "8-1-1. Thermistor".)			Normal	Abnormal	4.3–9.6 kΩ	Open or short					
Normal	Abnormal											
4.3–9.6 kΩ	Open or short											
Vane motor (MV)	Measure the resistance between the terminals with a tester. (At ambient temperatures of 20 to 30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> <tr> <td>Red - Yellow (⑤-③, ⑩-⑧, ⑯-⑬, ⑳-⑲)</td> <td rowspan="4">300 Ω</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>Red - Blue (⑤-①, ⑩-⑥, ⑯-⑪, ⑳-⑯)</td> </tr> <tr> <td>Red - Orange (⑤-④, ⑩-⑨, ⑯-⑭, ⑳-⑯)</td> </tr> <tr> <td>Red - White (⑤-②, ⑩-⑦, ⑯-⑫, ⑳-⑰)</td> </tr> </table>			Connector	Normal	Abnormal	Red - Yellow (⑤-③, ⑩-⑧, ⑯-⑬, ⑳-⑲)	300 Ω	Open or short	Red - Blue (⑤-①, ⑩-⑥, ⑯-⑪, ⑳-⑯)	Red - Orange (⑤-④, ⑩-⑨, ⑯-⑭, ⑳-⑯)	Red - White (⑤-②, ⑩-⑦, ⑯-⑫, ⑳-⑰)
Connector	Normal	Abnormal										
Red - Yellow (⑤-③, ⑩-⑧, ⑯-⑬, ⑳-⑲)	300 Ω	Open or short										
Red - Blue (⑤-①, ⑩-⑥, ⑯-⑪, ⑳-⑯)												
Red - Orange (⑤-④, ⑩-⑨, ⑯-⑭, ⑳-⑯)												
Red - White (⑤-②, ⑩-⑦, ⑯-⑫, ⑳-⑰)												
Drain pump (DP)	① Check if the drain float switch works properly. ② Check if the drain pump works and drains water properly in cooling operation. ③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts. Note: The drain pump for this model is driven by the internal DC motor of controller board, so it is not possible to measure the resistance between the terminals. Normal Red-Black: Input 13 V DC → The fan starts to rotate. Purple-Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.											
Drain float switch (FS)	Measure the resistance between the terminals with a tester. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>State of moving part</th> <th>Normal</th> <th>Abnormal</th> </tr> <tr> <td>UP</td> <td>Short</td> <td>Other than short</td> </tr> <tr> <td>DOWN</td> <td>Open</td> <td>Other than open</td> </tr> </table> 			State of moving part	Normal	Abnormal	UP	Short	Other than short	DOWN	Open	Other than open
State of moving part	Normal	Abnormal										
UP	Short	Other than short										
DOWN	Open	Other than open										
i-see Sensor	Turn the power ON while the i-see Sensor connector is connected to the CN4Z on indoor controller board. A communication between the indoor controller board and i-see Sensor board is made to detect the connection. Normal: When the operation starts, the motor for i-see Sensor is driven to rotate the i-see Sensor. Abnormal: The motor for i-see Sensor is not driven when the operation starts. Note: The voltage between the terminals cannot be measured accurately since it is pulse output.											
i-see Sensor motor (MT) (Option)	Measure the resistance between the terminals with a tester. (At ambient temperatures of 20 to 30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> <tr> <td>Red - Yellow</td> <td rowspan="4">250 Ω</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>Red - Blue</td> </tr> <tr> <td>Red - Orange</td> </tr> <tr> <td>Red - White</td> </tr> </table>			Connector	Normal	Abnormal	Red - Yellow	250 Ω	Open or short	Red - Blue	Red - Orange	Red - White
Connector	Normal	Abnormal										
Red - Yellow	250 Ω	Open or short										
Red - Blue												
Red - Orange												
Red - White												
Linear expansion valve (LEV)	Disconnect the connector then measure the resistance valve with a tester. (At the coil temperatures of 10 to 30°C) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> <tr> <td>White-Red</td> <td rowspan="4">200 Ω ± 10%</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>Yellow-Brown</td> </tr> <tr> <td>Orange-Red</td> </tr> <tr> <td>Blue-Brown</td> </tr> </table>			Connector	Normal	Abnormal	White-Red	200 Ω ± 10%	Open or short	Yellow-Brown	Orange-Red	Blue-Brown
Connector	Normal	Abnormal										
White-Red	200 Ω ± 10%	Open or short										
Yellow-Brown												
Orange-Red												
Blue-Brown												
Refer to "8-1-2. Linear expansion valve".												

8-1-1. Thermistor

<Thermistor characteristic graph>

Thermistor for lower temperature

- Room temperature detection thermistor (TH21)
- Pipe temperature detection thermistor/liquid (TH22)
- Pipe temperature detection thermistor/gas (TH23)



Thermistor $R_0=15 \text{ k}\Omega \pm 3\%$

Fixed number of $B=3480 \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

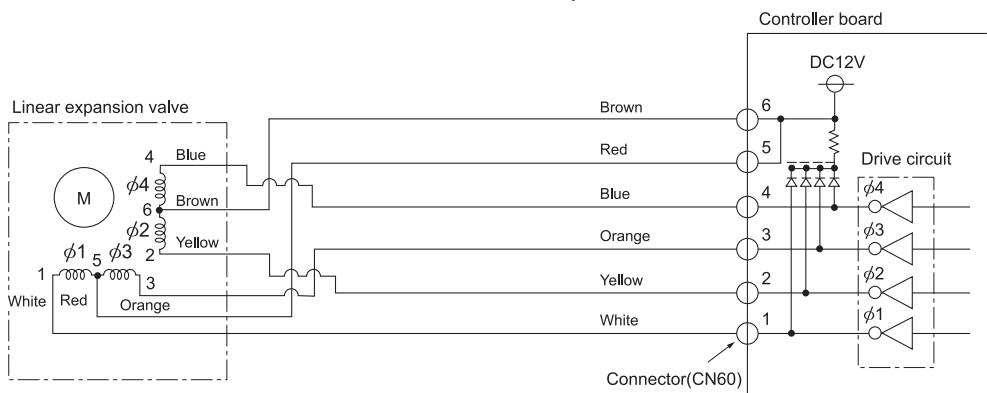
0°C	15 kΩ
10°C	9.6 kΩ
20°C	6.3 kΩ
25°C	5.4 kΩ
30°C	4.3 kΩ
40°C	3.0 kΩ

8-1-2. Linear expansion valve

① Operation summary of the linear expansion valve

- Linear expansion valves open/close through the use of a stepping motor after receiving the pulse signal from the indoor controller board.
- Valve position can be changed in proportion to the number of pulse signals.

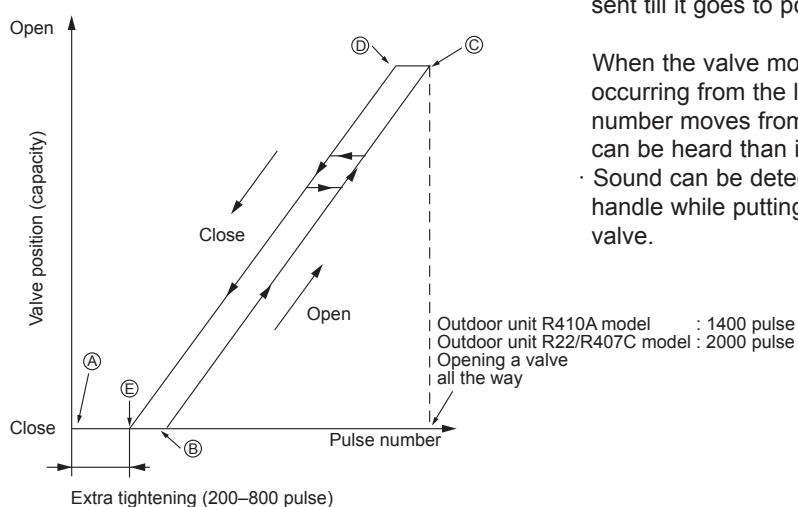
<Connection between the indoor controller board and the linear expansion valve>



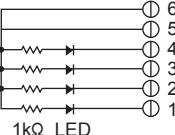
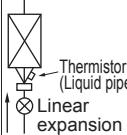
<Output pulse signal and the valve operation>

Output (Phase)	Output			
	1	2	3	4
$\phi 1$	ON	OFF	OFF	ON
$\phi 2$	ON	ON	OFF	OFF
$\phi 3$	OFF	ON	ON	OFF
$\phi 4$	OFF	OFF	ON	ON

② Linear expansion valve operation



③ Troubleshooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  When power is turned on, pulse signals will output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is a sign of abnormality.	Exchange the linear expansion valve.
Short or breakage of the motor coil of the linear expansion valve	Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) using a tester. It is normal if the resistance is in the range of $200\Omega \pm 10\%$.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate the other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated on the remote controller, it means the valve is not closed all the way.  It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.	If a large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector on the controller board, then check for continuity.

8-1-3. DC Fan motor (fan motor/indoor controller board)

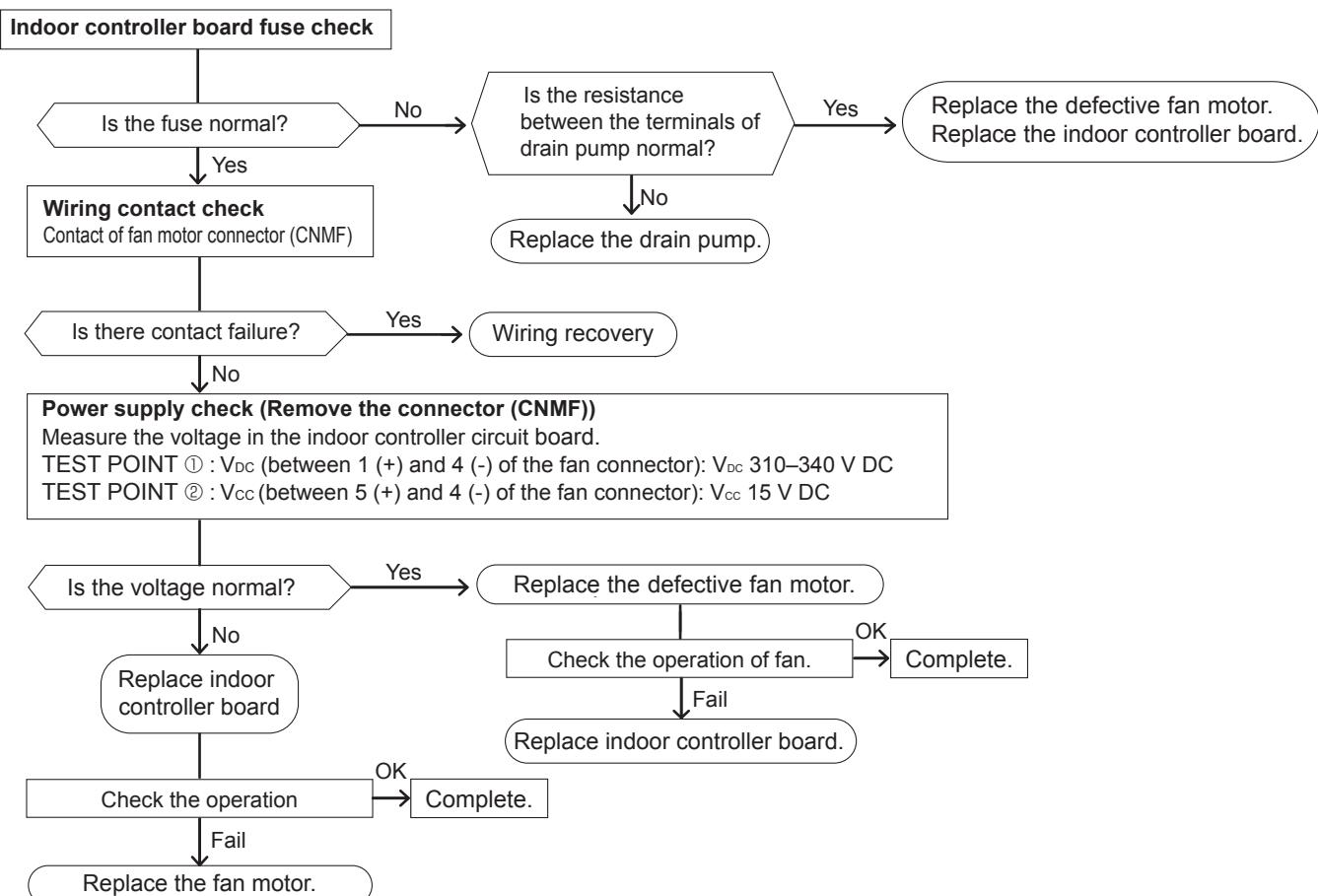
Check method of indoor fan motor (fan motor/indoor controller board)

① Notes

- High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNMF) for the motor with the power supply on.
(It causes trouble of the indoor controller board and fan motor)

② Self check

Conditions : The indoor fan cannot rotate.



8-2. FUNCTION OF DIP SWITCH

The black square (■) indicates a switch position.

<PLFY-P32/40/50/63/80/100/125VEM-A.TH>

Switch	Pole	Function	Operation by switch		Effective timing	Remarks																							
			ON	OFF																									
SW1 Function Selection	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	<p>Address board</p> <p><Initial setting></p> <p>ON [] [■] [] [] [] [] [] [] [] [] OFF [■] [] [] [] [] [] [] [] [] [] 1 2 3 4 5 6 7 8 9 0</p> <p>*1 Refer to <Table A> below.</p>																							
	2	Filter clogging detection	Provided	Not provided																									
	3	Filter cleaning	2,500 hr	100 hr																									
	4	Fresh air intake	Effective	Not effective																									
	5	Switching remote display	Thermo-ON signal display	Indicating fan operation ON/OFF																									
	6	—	—	—																									
	7	Air flow set in case of thermo-OFF at heating mode	Low*1	Extra low*1																									
	8		Setting airflow*1	Depends on SW1-7																									
	9	Auto restart function	Effective	Not effective																									
	0	Power ON/OFF by breaker	Effective	Not effective																									
SW2 Capacity code setting	1-6	<table border="1"> <tr> <td>MODELS</td> <td>SW2</td> <td>MODELS</td> <td>SW2</td> <td>MODELS</td> <td>SW2</td> </tr> <tr> <td>32</td> <td>ON [] [■] [] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> <td>40</td> <td>ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> <td>50</td> <td>ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> </tr> <tr> <td>63</td> <td>ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> <td>80</td> <td>ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> <td>100</td> <td>ON [] [] [] [] [■] OFF [] [] [] [] [] 1 2 3 4 5 6</td> </tr> <tr> <td>125</td> <td>ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			MODELS	SW2	MODELS	SW2	MODELS	SW2	32	ON [] [■] [] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	40	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	50	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	63	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	80	ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6	100	ON [] [] [] [] [■] OFF [] [] [] [] [] 1 2 3 4 5 6	125	ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6					<p>Indoor controller board</p> <p>Set while the unit is off.</p> <p><Initial setting></p> <p>Set for each capacity.</p>
MODELS	SW2	MODELS	SW2	MODELS	SW2																								
32	ON [] [■] [] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	40	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	50	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6																								
63	ON [] [] [■] [] [] OFF [] [] [] [] [] 1 2 3 4 5 6	80	ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6	100	ON [] [] [] [] [■] OFF [] [] [] [] [] 1 2 3 4 5 6																								
125	ON [] [] [] [■] [] OFF [] [] [] [] [] 1 2 3 4 5 6																												
SW3 Function setting	1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	<p>Indoor controller board</p> <p><Initial setting></p> <p>ON [] [] [] [] [] [] [] [] [] OFF [] [■] [] [] [] [] [] [] [] 1 2 3 4 5 6 7 8 9 0</p> <p>*2 Refer to <Table D> below for SW3-5 and SW3-6.</p>																							
	2	—	—	—																									
	3	3D i-see Sensor positioning	The setting depends on the combination of SW3-3 and SW3-4. Refer to <Table B> below.		Before power supply ON																								
	4	Setting	Second setting*2																										
	5	Vane horizontal angle ①	First setting*2		Under suspension																								
	6	Vane horizontal angle ②	Depends on SW3-5																										
	7	Changing the opening of linear expansion valve	Effective																										
	8	Heat 4 degrees up	Not effective																										
	9	3D i-see Sensor ceiling height setting	The setting depends on the combination of SW3-9 and SW3-10. Refer to <Table C> below.																										
	0																												

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	stop

<Table B>

SW3-3	SW3-4	
OFF	OFF	Setting ①
ON	OFF	Setting ②
OFF	ON	Setting ③
ON	ON	Setting ④

<Table C>

SW3-9	SW3-10	
OFF	OFF	Low ceiling
ON	OFF	Standard
OFF	ON	High ceiling
ON	ON	(High ceiling)

<Table D>

SW3-5	SW3-6	Vane setting	Initial setting	Setting	Vane position
OFF	OFF	Setting ①		Less smudging	Downward position than the standard
ON	OFF	Setting ②	●	Less draft*3	Upward position than the standard
OFF	ON	Setting ③		Standard	Standard
ON	ON	Unused		—	—

*3 Be careful of the smudge on ceiling.

Continue to the next page

<PLFY-P32/40/50/63/80/100/125VEM-PA/-DA/-TH.TH> The black square (■) indicates a switch position.

Switch	Pole	Function	Operation by switch		Effective timing	Remarks																								
			ON	OFF																										
SW1 Function Selection	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	Address board																								
	2	Filter clogging detection	Provided	Not provided		<Initial setting>																								
	3	Filter cleaning	2,500 hr	100 hr																										
	4	Fresh air intake	Effective	Not effective																										
	5	Switching remote display	Thermo-ON signal display	Indicating fan operation ON/OFF																										
	6	—	—	—																										
	7	Air flow set in case of thermo-OFF at heating mode	Low*1	Extra low*1																										
	8	Setting airflow*1	Depends on SW1-7			*1 Refer to <Table A> below.																								
	9	Auto restart function	Effective	Not effective																										
	0	Power ON/OFF by breaker	Effective	Not effective																										
SW2 Capacity code setting	1-6	<table border="1"> <tr> <th>MODELS</th> <th>SW2</th> <th>MODELS</th> <th>SW2</th> <th>MODELS</th> <th>SW2</th> </tr> <tr> <td>32</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> <td>40</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> <td>50</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> </tr> <tr> <td>63</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> <td>80</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> <td>100</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> </tr> <tr> <td>125</td> <td>ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				MODELS	SW2	MODELS	SW2	MODELS	SW2	32	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	40	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	50	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	63	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	80	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	100	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	125	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6					<p>Indoor controller board</p> <p>Set while the unit is off.</p> <p><Initial setting></p> <p>Set for each capacity.</p>
MODELS	SW2	MODELS	SW2	MODELS	SW2																									
32	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	40	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	50	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6																									
63	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	80	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6	100	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6																									
125	ON [■] [■] [■] OFF [■] [■] [■] 1 2 3 4 5 6																													
SW3 Function setting	1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	<p>Indoor controller board</p> <p><Initial setting></p> <p>ON [■] [■] [■] [■] [■] [■] OFF [■] [■] [■] [■] [■] [■] 1 2 3 4 5 6 7 8 9 0</p>																								
	2	—	—	—																										
	3	3D i-see Sensor positioning	The setting depends on the combination of SW3-3 and SW3-4. Refer to <Table B> below.		Before power supply ON																									
	4	—																												
	5	Vane horizontal angle ①	Second setting*2	First setting*2	Under suspension																									
	6	Vane horizontal angle ②	Third setting*2	Depends on SW3-5																										
	7	Changing the opening of linear expansion valve	Effective	Not effective																										
	8	Heat 4 degrees up	Not effective	Effective																										
	9	3D i-see Sensor ceiling height setting	The setting depends on the combination of SW3-9 and SW3-10. Refer to <Table C> below.																											
	0	—																												

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	stop

<Table B>

SW3-3	SW3-4	
OFF	OFF	Setting ①
ON	OFF	Setting ②
OFF	ON	Setting ③
ON	ON	Setting ④

<Table C>

SW3-9	SW3-10	
OFF	OFF	Low ceiling
ON	OFF	Standard
OFF	ON	High ceiling
ON	ON	(High ceiling)

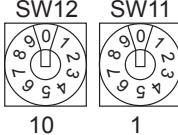
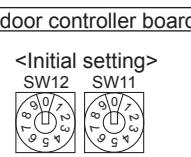
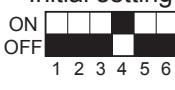
<Table D>

SW3-5	SW3-6	Vane setting	Initial setting	Setting	Vane position
OFF	OFF	Setting ①	●	Less smudging	Downward position than the standard
ON	OFF	Setting ②		Less draft*3	Upward position than the standard
OFF	ON	Setting ③		Standard	Standard
ON	ON	Unused		—	—

*3 Be careful of the smudge on ceiling.

Continue to the next page

<PLFY-P32/40/50/63/80/100/125VEM-A.TH>
<PLFY-P32/40/50/63/80/100/125VEM-PA/-DA/-TH.TH>

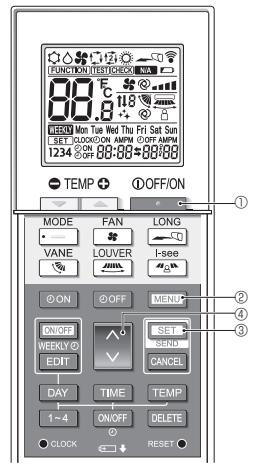
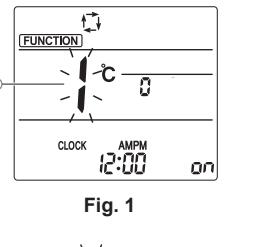
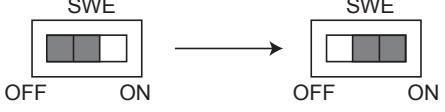
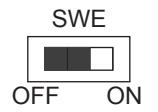
Switch	Pole	Function	Operation by switch		Effective timing	Remarks		
			ON	OFF				
SW11 1s digit address setting SW12 10s digit address setting	Rotary switch	SW12 SW11 	Address setting should be done when M-NET remote controller is being used.		Before power supply ON	Indoor controller board <Initial setting> SW12 SW11 		
SW14 Connection No. setting	Rotary switch	SW14 	This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.			Indoor controller board <Initial setting> SW14 		
SW21 Function Selection	1	Setting the ceiling height	Depending on the combination of SW21-1 and SW21-2. Refer to <Table E> below.			Indoor controller board <Initial setting> ON  OFF 		
	2	Setting the ceiling height						
	3	Setting the number of air outlet	Depending on the combination of SW21-3 and SW21-4. Refer to <Table E> below.					
	4	Setting the number of air outlet						
	5	Setting for optional parts	Option	Standard				
	6	Not used	Not used	Not used				

<Table E>

Blowout directions		Ceiling height		PLFY-P32/40/50/63/80VEM-A/-PA/-DA/-TH.TH				PLFY-P100/125VEM-A/-PA/-DA/-TH.TH			
		Silent	Standard	High ceiling		Silent	Standard	High ceiling			
		SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2
4 directions	SW21-3 OFF SW21-4 ON	2.5 m		2.7 m		3.5 m		2.7 m		3.2 m	
3 directions	SW21-3 OFF SW21-4 OFF	2.7 m		3.0 m		3.5 m		3.0 m		3.6 m	
2 directions	SW21-3 ON SW21-4 OFF	3.0 m		3.3 m		3.5 m		3.3 m		4.0 m	

Note: The setting with  indicates the initial setting; To change it to other than , switch setting is necessary.

<PLFY-P32/40/50/63/80/100/125VEM-A.TH>
<PLFY-P32/40/50/63/80/100/125VEM-PA/-DA/-TH.TH>

Switch	Pole	Function	Operation by switch		Effective timing	Remarks																																										
			ON	OFF																																												
SW22 Function selection	Switch	<table border="1"> <thead> <tr> <th colspan="2">Function</th> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>2</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>3</td> <td>Pair No. of wireless remote controller</td> <td colspan="2">Depends on the combination of SW22-3 and 22-4</td></tr> <tr> <td>4</td> <td>Pair No. of wireless remote controller</td> <td colspan="2"></td></tr> </tbody> </table> <ul style="list-style-type: none"> To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary. •Pair No. setting is available with the 4 patterns. •Make setting for SW22-3, 22-4 of indoor controller board and the Pair No. of wireless remote controller. You may not set it when operating it by one remote controller. ① Setting for indoor unit •Set SW22-3, 22-4 on the indoor controller board according to the table below. ② Wireless remote controller pair number: <ul style="list-style-type: none"> •Setting operation (Fig. 1 ①) 1. Press the  button ① to stop the air conditioner. 2. Press the  button ②. 3. Check that function No."1" is displayed, and then press the  button ③. The Screen display setting screen will be displayed. (Fig. 2.) •Pair No. changing operation (Fig. 2 ④) 1. Press the  button ④. 2. Each time the  button ④ is pressed, the pair No.0–3 changes. 3. Press the  button ③ to check the setting. 4. Press the  button ②. <table border="1"> <thead> <tr> <th colspan="2">Indoor unit SW22</th> <th>Pair No. of wireless remote controller</th> <th></th> </tr> <tr> <th>SW22-3</th> <th>SW22-4</th> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>0</td> <td>Initial setting</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>1</td> <td>—</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>2</td> <td>—</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>3–9</td> <td>—</td> </tr> </tbody> </table>	Function		ON	OFF	1	—	—	—	2	—	—	—	3	Pair No. of wireless remote controller	Depends on the combination of SW22-3 and 22-4		4	Pair No. of wireless remote controller			Indoor unit SW22		Pair No. of wireless remote controller		SW22-3	SW22-4			ON	ON	0	Initial setting	OFF	ON	1	—	ON	OFF	2	—	OFF	OFF	3–9	—	Under operation or suspension	<p><Initial setting></p>  <p>Fig. 1</p>  <p>Fig. 2</p>
Function		ON	OFF																																													
1	—	—	—																																													
2	—	—	—																																													
3	Pair No. of wireless remote controller	Depends on the combination of SW22-3 and 22-4																																														
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Indoor unit SW22		Pair No. of wireless remote controller																																														
SW22-3	SW22-4																																															
ON	ON	0	Initial setting																																													
OFF	ON	1	—																																													
ON	OFF	2	—																																													
OFF	OFF	3–9	—																																													
SWE Test run for Drain pump	Connector	<p>Drain pump and fan are activated simultaneously after the connector SWE is set to ON and turn on the power.</p> <p>The connector SWE is set to OFF after test run.</p> 	Under operation	<p><Initial setting></p> 																																												

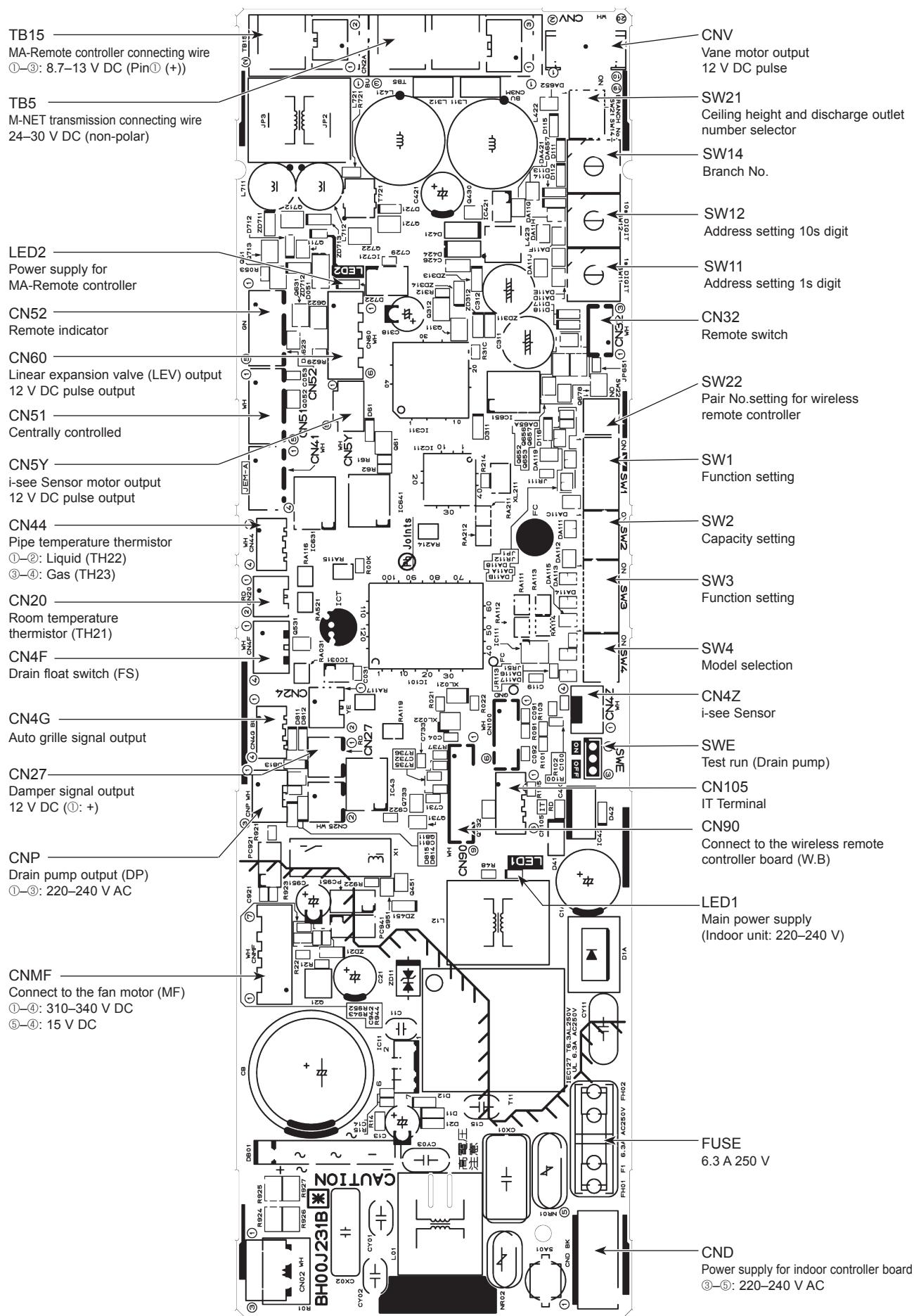
8-3. TEST POINT DIAGRAM

Indoor controller board

PLFY-P32VEM-A/-PA/-DA/-TH.TH
PLFY-P63VEM-A/-PA/-DA/-TH.TH
PLFY-P125VEM-A/-PA/-DA/-TH.TH

PLFY-P40VEM-A/-PA/-DA/-TH.TH
PLFY-P80VEM-A/-PA/-DA/-TH.TH

PLFY-P50VEM-A/-PA/-DA/-TH.TH
PLFY-P100VEM-A/-PA/-DA/-TH.TH



9-1. OPERATION (AUTOMATIC FILTER ELEVATION GRILLE: PLP-6EAJ/PLP-6EAJE)

(1) Normal operation

① UP/DOWN

Air intake grille is raised/lowered by commands of UP and DOWN.

Air intake grille does not move under the state of no-load detection or obstacle detection

Air intake grille stops automatically at the set lowering distance from the ceiling level.

② STOP

It stops in the cases below :

- When it reaches the set lowering distance from the ceiling level.
It automatically stops after a predetermined period of lowering.

- When it is stored in the panel.

The air intake grille is judged to be stored in the panel
in all test conditions, it is recommended for further testing.

- When receiving commands of STOP, DOWN while moving up or UP while moving down.
The STOP button is only available on the automatic filter elevation panel remote controller.
When the wired remote controller is used, there will be a slight delay in stopping due to transmission speed.
 - When both string 1b and 2b are not loaded

Only the string h in each UP/DOWN Machine has a tension detection switch.

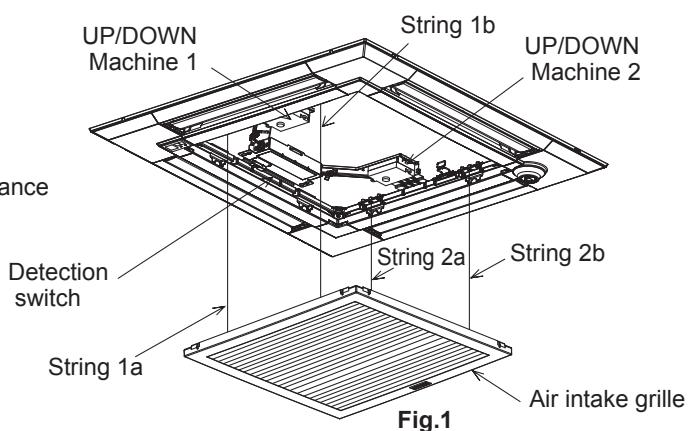


Fig.1

(2) Special operation

① Re-storage operation

Case : Obstruction of the raising air intake grille before storage or malfunction of storage detection switch

Re-storage operation will be performed when the intake grille has been raised the set distance but the storage detection switch is not engaged.

In this case, the operation below will be repeated up to 4 times.

In this case, the operation below will be repeated up to 7 times:

② No-load detection

Case : UP/DOWN commands with no grille suspended

Case 1: UPDOWN commands with no grills suspended.

③ Obstacle detection

Case : Making contact with something while lowering

Should the loads on the string 1b and string 2b be removed due to the air intake grille making contact with something while lowering, the lowering operation will stop. The air intake grille will then be raised 10 cm and stop again.

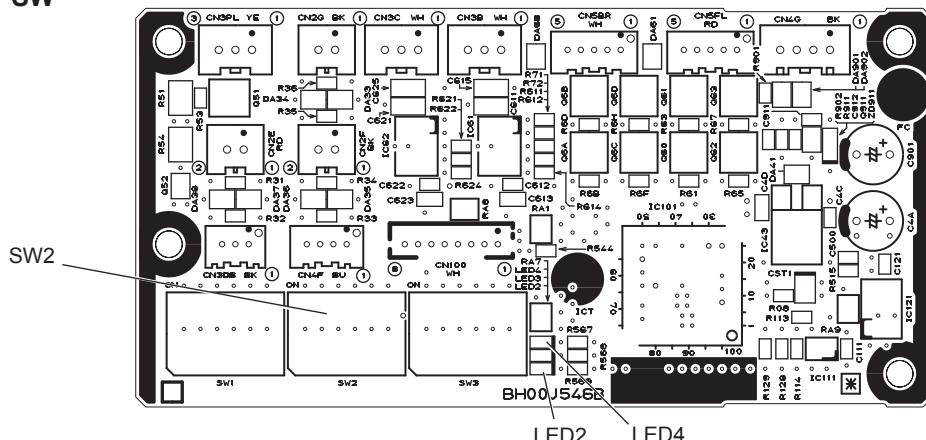
[EMERGENCY OPERATION]

- [EMERGENCY OPERATION]

 1. If the wireless remote controller for ELEVATION PANEL is faulty or lost, operation will be possible using the emergency up/down switch at the wireless signal receiver or wired remote controller.
 - For the operation using the emergency up/down switch at the wireless signal receiver, refer to SW1 and SW2 on the [LEGEND] in the next page.
 2. When machine for ELEVATION PANEL breaks down, a intake grille is fixed for a while, and the operation of the unit can be done.
 - Refer to installation manual with the grille for the details such as an installation method.

9-2. ELECTRICAL CIRCUIT (Controller board and wiring diagram (Panel))

9-2-1 DIP SW



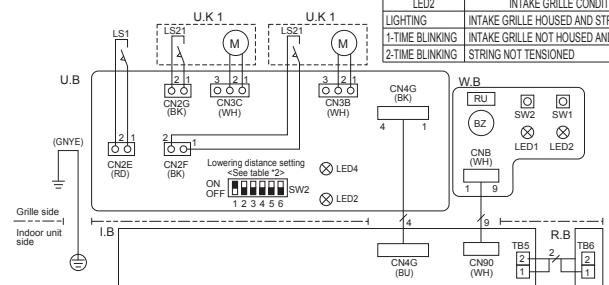
[LEGEND]	
SYMBOL	NAME
U.B	ELEVATION PANEL CONTROLLER BOARD
LED2	LED ORANGE (INTAKE GRILLE CONDITION (See table *1))
LED4	LED GREEN (COMMUNICATION WITH INDOOR UNIT)
U.K.1	ELEVATION MACHINE
M	MOTOR (ELEVATION)
LS21	DETECTION SWITCH (STRING TENSION)
I.B	INDOOR UNIT CONTROLLER BOARD
W.B	PCB OF SIGNAL RECEIVER
BZ	BUZZER
RU	RECEIVING UNIT
LED1	LED GREEN (OPERATION INDICATION)
LED2	LED ORANGE (PREPARATION FOR HEATING)
SW1	EMERGENCY HEATING (LONG PRESS FOR OVER 2 SECONDS)
	[INTAKE GRILLE/DOWN (SHORT PRESS)]
SW2	EMERGENCY COOLING (LONG PRESS FOR OVER 2 SECONDS)
	[INTAKE GRILLE/UP (SHORT PRESS)]
LS1	DETECTION SWITCH (INTAKE GRILLE STORAGE)
R.B	WIRED REMOTE CONTROLLER

EMERGENCY OPERATION

- [EMERGENCY DOWN]

 1. If the wireless remote controller for ELEVATION PANEL is faulty or lost, operation will be possible using the emergency up/down switch at the wireless signal receiver or wired remote controller.
 - For the operation using the emergency up/down switch at the wireless signal receiver, refer to SW1 and SW2 on the left [LEGEND].
 2. When machine for ELEVATION PANEL breaks down, a intake grille is fixed for a while, and the operation of the unit can be done.
 - Refer to installation manual with the grille for the details such as an installation method.

LED2	INTAKE GRILLE CONDITION
LIGHTING	INTAKE GRILLE HOUSED AND STRING TENSIONED
1-TIME BLINKING	INTAKE GRILLE NOT HOUSED AND STRING TENSIONED
2-TIME BLINKING	STRING NOT TENSIONED



[Note]

- [Note]
1. Symbols used in wiring diagram above are, : Connector, : Terminal (block).
2. The black square () indicates a switch position.

Note: The actual lowering distance might be different from the distance in the table 2 since it can also be set using the wired remote controller.

9-2-2. Check point of trouble

<LED 2 Orange display>

- LED 1 Change display**

Turn OFF	: No power supply
Blink	: Storage detection switch ON (short)
One blink	: Storage detection switch OFF (open)
Two blinks	: Tension detection switch OFF (open)

<LED 4 Green display>

- #### III. Green display

<controller board>

Check item	Check point	Normal	Remarks
Up/down controller P.C. board supply voltage	CN4A (between 1-2)	11-14 V AC	—
Up/down machine supply voltage	CN3B (between 1-2) CN3C (between 1-2)	10-13.5 V DC	Check when instructing up/down with LED blinking once.

<Up/down machine>

Check item	Check point	Normal	Check contents
Storage detection switch	CN2E	open or short	Check if it is short when pressing push switch.
Tension detection switch	CN2F, CN2G	open or short	Check if it is short when string b is tensioned.
Motor	CN3B, CN3C	5–20 Ω	Check if it is not open or short.
Entwining strings	Pull string	Retention: about 2 kgf	Check if string is drawn out by pulling with 4 kgf.

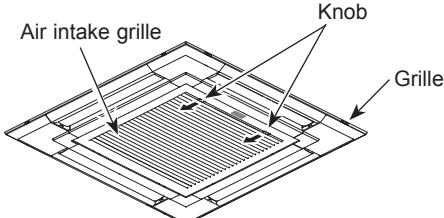
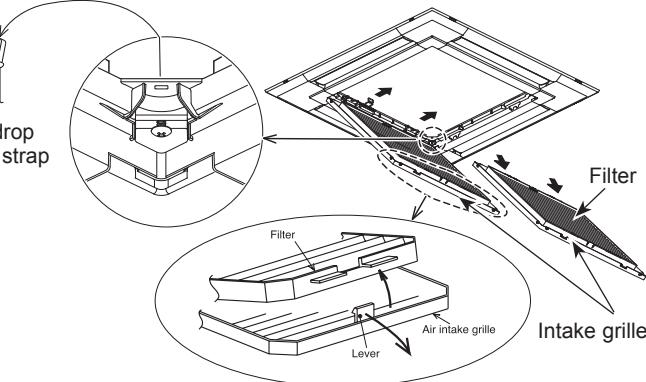
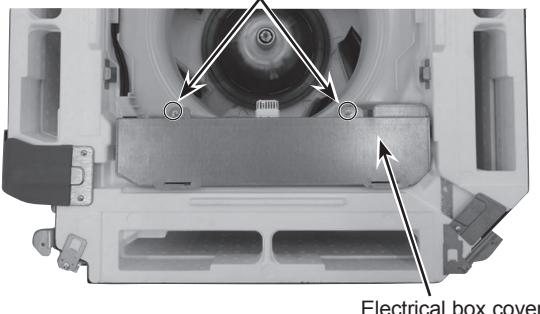
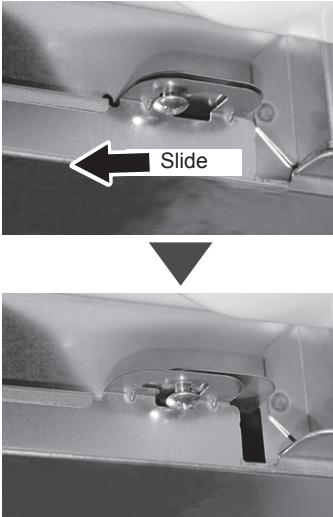
9-3. TROUBLESHOOTING

- Check the following points.

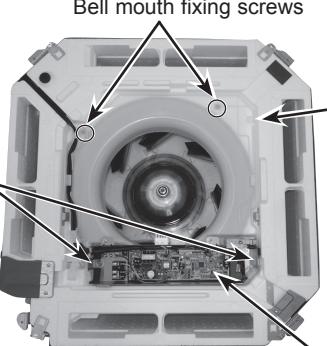
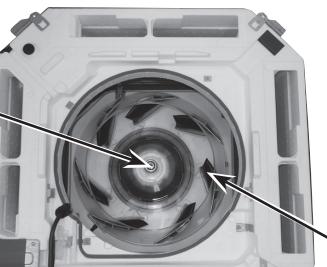
Problem	Possible Reason	Corrective Action
Intake grille does not function with operation of the remote controller.	Air-conditioner is running.	Stop running the air-conditioner and try again.
	Power failure.	After recovering from power failure, try again.
	Batteries are not inserted into the wireless remote controller. Or battery power is running low.	Install or replace the battery.
	There is something on the intake grille. Or something is stuck in the intake grille.	Remove the objects or obstacles from the intake grille. Or, remove the stuck object.
Intake grille cannot be placed in the correct position.	There is something on the intake grille.	Remove the objects or obstacles from the intake grille.
	Filter is not properly installed.	Lower the intake grille again and check whether the filter is installed in the correct position.
	Intake grille is not hung with all 4 hooks.	Lower the intake grille again and hang the hook on the intake grille.
Intake grille stops lowering in mid flow. (Intake grille would not lower any further.)	Because the intake grille has finished lowering to the auto-stop position.	This is normal. Note: If you want to change the setting for the lowering distance, contact your dealer.
Noises are made during up/down operation. (While intake grille is moving up/down.)	This is the noise made when the string is wound and unwound.	This is normal.
Noises are made while placing the intake grille in.	This is the operational noise for placing the intake grille in securely.	
Intake grille repeats rising and lowering several times while being placed in the correct position.	This is the operation for placing the intake grille in securely.	
Intake grille leans toward one side during the up/down operation.	The speeds of winding each string is slightly different.	

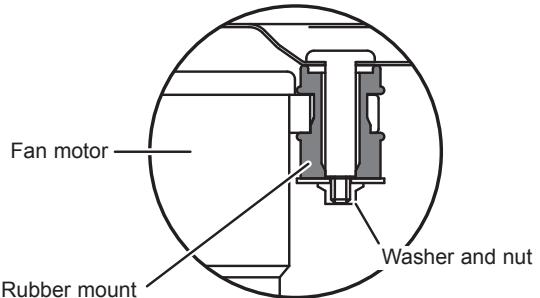
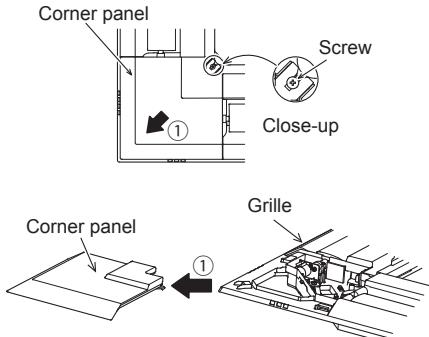
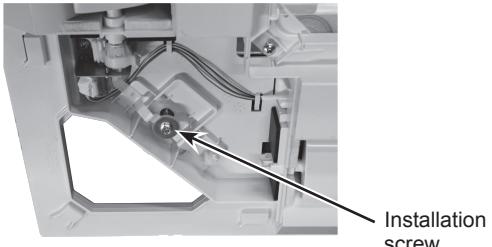
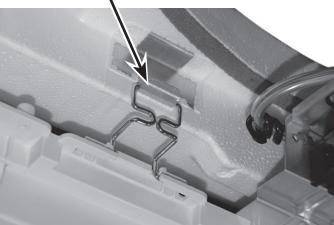
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 PLFY-P63VEM-A/-PA/-DA/-TH.TH PLFY-P80VEM-A/-PA/-DA/-TH.TH PLFY-P100VEM-A/-PA/-DA/-TH.TH
 PLFY-P125VEM-A/-PA/-DA/-TH.TH

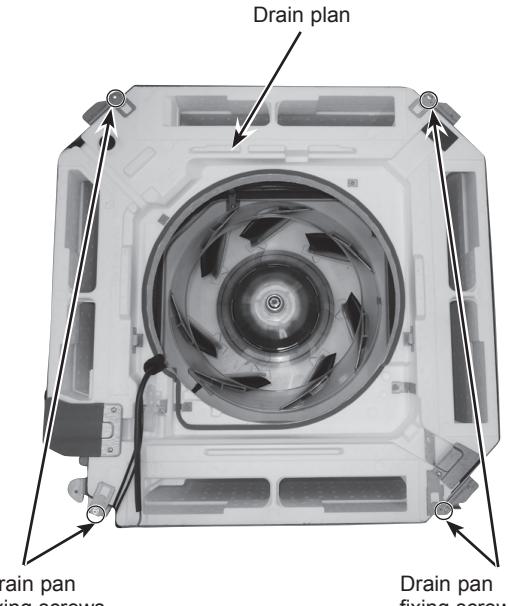
Be careful when removing heavy parts.

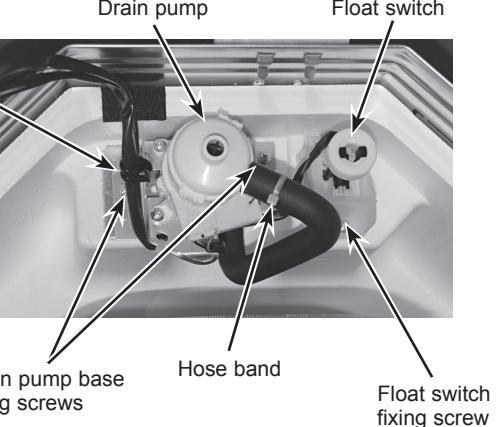
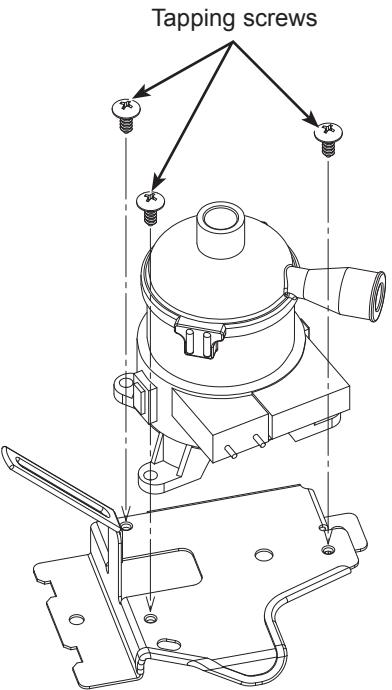
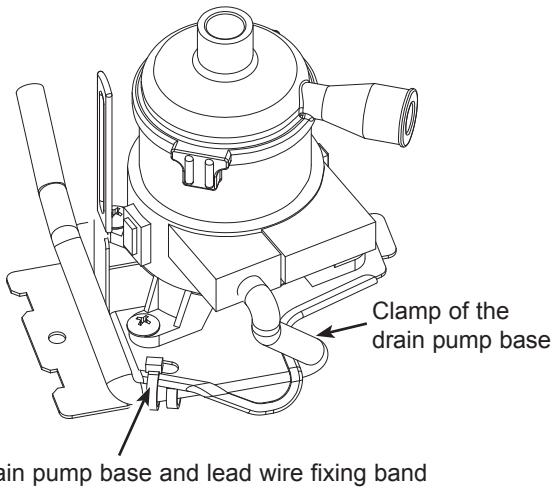
OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the filter <ul style="list-style-type: none"> (1) Slide the knob of air intake grille toward the arrow to open the air intake grille. (See Figure 1) (2) Pull down the lever of the air intake grille to remove the filter. (See Figure 2) 	<p>Figure 1</p> 
2. Removing the air intake grille <ul style="list-style-type: none"> (1) Slide the knob of air intake grille toward the arrow to open the air intake grille. (See Figure 1) (2) Remove the hook of drop prevention strap from the panel. (3) Remove the air intake grille. 	<p>Figure 2</p> 
3. Removing the electrical box cover <ul style="list-style-type: none"> (1) Remove the air intake grille and the filter. (Refer to procedure 2) (2) Loosen the 2 electrical box cover fixing screws (M4×10) approximately 2 to 3 mm. (See Photo 1) (3) Slide the electrical box cover toward the arrow to remove. (See Photo 2) 	<p>Photo 1</p>  <p>Photo 2</p> 

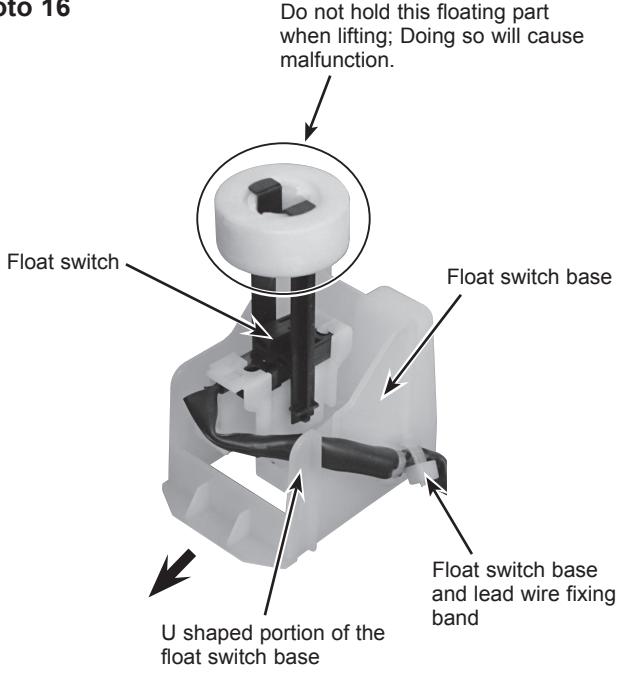
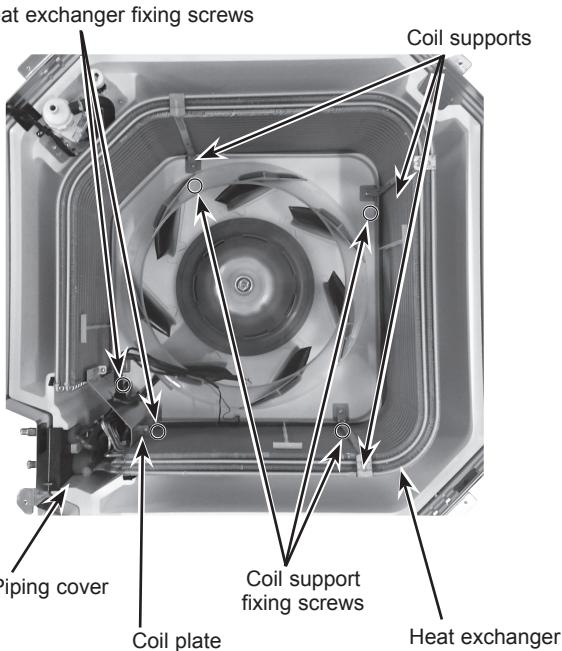
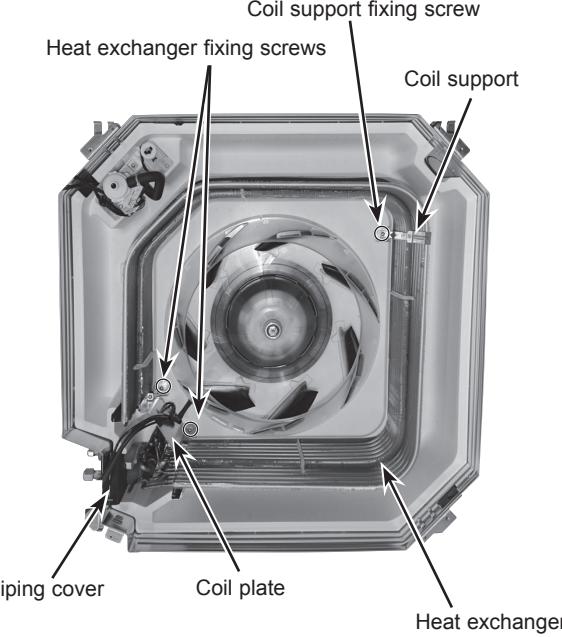
OPERATING PROCEDURE	PHOTOS
<p>4. Removing the room temperature thermistor (TH21)</p> <p>(1) Remove the electrical box cover. (See Photo 1 and 2) (2) Disconnect the connector CN20 (Red) from the indoor controller board. (3) Remove the room temperature thermistor with its holder. (See Photo 4)</p>	<p>Photo 3</p> <p>Photo 4</p>
<p>5. Removing the indoor controller board (I.B)</p> <p>(1) Remove the electrical box cover. (See Photo 1 and 2) (2) Disconnect the connectors:</p> <ul style="list-style-type: none"> CNMF (White) for fan motor CNV (White) for vane motor CN5Y (White) for motor for i-see Sensor (Option) CN4Z (White) for sensor for i-see Sensor (Option) CN90 (White) for signal receiver (Option) CNP (White) for drain pump CN4F (White) for float switch CN44 (White) for thermistor (TH22/TH23) CN60 (White) for LEV CN01 (Black) for Indoor/Outdoor connecting line CN3C (Blue) for Indoor/Outdoor transmission <p>Disconnect the connectors for optional parts, if any.</p> <p>(3) Disconnect the lead wire connected to the TB5 on the indoor controller board. TB5: M-NET transmission connecting wire</p> <p>(4) For the unit controlled with the wireless remote controller, disconnect the lead wire connected to the TB15 on the indoor controller board.</p> <p>(5) Remove the indoor controller board (3 holders/4 hooks). (See Photo 5)</p>	<p>Photo 5</p>

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
6. Removing the electrical box <ol style="list-style-type: none"> (1) Remove the electrical box cover (See Photo 1 and 2) and the connectors (Refer to procedure 5). (2) Remove the electrical box fixing screws (M5×10: 2 screw). (See Photo 3) <p><Electrical parts in the electrical box></p> <ul style="list-style-type: none"> • Terminal block for earth and reactor • Indoor controller board • Thermistor (TH) (3) Remove the electrical box (2 hooks). 	Photo 6  <p>Bell mouth fixing screws Bell mouth Hooks Electrical box</p>
7. Removing the turbo fan <ol style="list-style-type: none"> (1) Remove the electrical box. (See Photo 3 and refer to procedure 6) (2) Remove the bell mouth (tapping screw 4×10: 2 screws). (See Photo 6) <p>< With nut and square washer ></p> <ol style="list-style-type: none"> (3) Remove the nut and square washer. (See Photo 6 and 7) (4) Remove the turbo fan. <p>< With nut and washer ></p> <ol style="list-style-type: none"> (3) Remove the nut (M8 × 1) and square washer. (See Photo 7 and 8.) (4) Remove the turbo fan. 	Photo 7  <p>Nut and square washer or nut and washer Turbo fan</p>
<p>Note 1: When assembling the turbo fan, attach it so that its tabs fit the holes of washer.</p> <p>Note 2: Nut tightening torque: 4.5 ± 0.5 Nm.</p>	<p>< Nut and square washer ></p>  <p>Turbo fan tabs Washer holes</p>
<p>Photo 8  </p>	<p>< Nut and washer ></p> 
	<p>Photo 9  </p>
<p>Turn this way to tighten. (The same directions as the fan rotation.)</p>	<p>Turn this way to loosen.</p>

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
<p>8. Removing the fan motor (MF)</p> <ol style="list-style-type: none"> (1) Remove the turbo fan. (See Photo 8 and refer to procedure 7) (2) Remove the lead cover (tapping screw 4×10: 2 screws). (See Photo 10) (3) Loosen the 2 clamps. (4) Remove the 3 nuts and washers (M5). (5) Remove the fan motor. (6) Remove the 3 rubber mounts. 	<p>Photo 10</p>  <p>Note: When re-attaching the motor mount, make sure that the thicker end faces the motor shaft.</p>
<p>9. Removing the panel</p> <ol style="list-style-type: none"> (1) Remove the electrical box fixing cover. (See Photo 1) (2) Disconnect the connector for vane motor (CNV: White). (Refer to procedure 5) (3) Loosen the 4 corner panel fixing screws (tapping screw 4×16). (See Figure 4) (4) Slide the corner panel to the direction of the arrow 1, and remove the corner panel. (See Figure 4) (5) Remove the 4 installation screws (M5×28). (See Photo 11) (6) Release the 2 temporary hanging hooks to remove the grille. (See Photo 12) 	<p>Figure 4</p>  <p>Photo 11</p>  <p>Photo 12</p> 

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>10. Removing the drain pan</p> <ol style="list-style-type: none"> (1) Remove the electrical box. (See photo 3 and refer to procedure 6) (2) Remove the bell mouth (tapping screw 4×10 : 2 screws). (See Photo 6) (3) Remove the drain pan (screw M5×10: 4 screws). 	<p>Photo 13</p> 
<p>11. Removing the pipe temperature/liquid thermistor (TH22) and condenser/evaporator temperature thermistor (TH23)</p> <ol style="list-style-type: none"> (1) Remove the drain pan (Refer to procedure 10) and loosen the 2 clamps of the coil plate. (See Photo 10) (2) Remove the coil plate (tapping screw 4×10: 2 screws). (3) Disconnect the pipe temperature/liquid thermistor (TH22) and condenser/evaporator temperature thermistor (TH23) from the holder. 	<p>Photo 14</p> 

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>12. Removing the drain pump (DP)</p> <p>(1) Remove the drain pan. (Refer to procedure 10) (2) Cut the hose band and remove the hose. (3) Loosen the clamp of the drain pump. (4) Remove the drain pump (tapping screw 4×10: 2 screws/2 hooks). (5) Cut the drain pump base and lead wire fixing band. (See Figure 5) (6) Remove the lead wire of the drain pump from the clamp of the drain pump base. (See Figure 5) (7) Remove the drain pump (tapping screw: 3 screws). (See Figure 6)</p>	<p>Photo 15</p> 
<p>Figure 6</p> 	<p>Figure 5</p> 

OPERATING PROCEDURE	PHOTOS/FIGURES
<p>13. Removing the float switch (FS)</p> <ol style="list-style-type: none"> (1) Remove the drain pan. (Refer to procedure 10) (2) Loosen the clamp of the drain pump. (See Photo 15) (3) Remove the float switch (tapping screw 4×10: 1 screw/1 hook). (See Photo 15) (4) Remove the float switch base and the lead wire fixing band. (See Photo 16) (5) Remove the lead wire from the U shaped portion of the float switch base. (See Photo 16) (6) Slide the float switch towards the arrow to remove from the float switch base. 	<p>Photo 16</p> 
<p>14. Removing the heat exchanger</p> <ol style="list-style-type: none"> (1) Remove the drain pan. (Refer to procedure 10) (2) Remove the piping cover (tapping screw 4×10: 3 screws). (3) Remove the coil plate (tapping screw 4×10: 2 screws). (4) Remove the heat exchanger fixing screws (tapping screw 4×10: 2 screws). (5) Remove the coil support (tapping screw 4×10: 1 screw each) <ul style="list-style-type: none"> ■ P32-80: 1 coil support (See photo 17) ■ P100, 125: 3 coil supports (See photo 18) (6) Remove the heat exchanger. <p>Photo 18</p> 	<p>Photo 17</p> 

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