

# TECHNICAL & SERVICE MANUAL

## Series PLFY Ceiling Cassettes

**R32**
**Indoor unit**
**[Model names]**

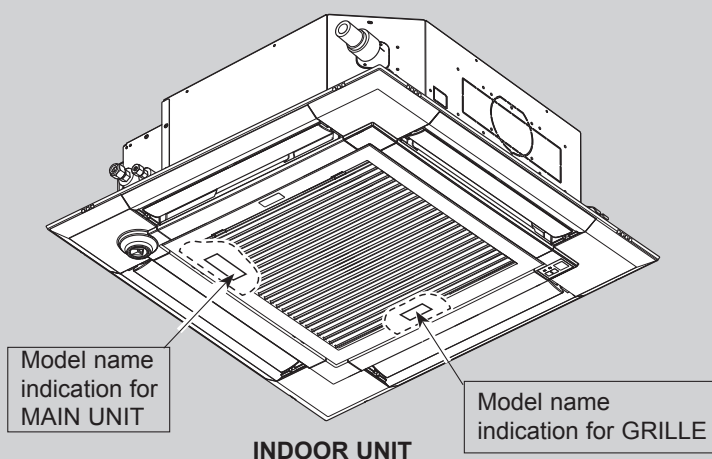
PLFY-MS20VEM-E  
 PLFY-MS20VEM-ET  
 PLFY-MS25VEM-E  
 PLFY-MS25VEM-ET  
 PLFY-MS32VEM-E  
 PLFY-MS32VEM-ET  
 PLFY-MS40VEM-E  
 PLFY-MS40VEM-ET  
 PLFY-MS50VEM-E  
 PLFY-MS50VEM-ET  
 PLFY-MS63VEM-E  
 PLFY-MS63VEM-ET  
 PLFY-MS80VEM-E  
 PLFY-MS80VEM-ET  
 PLFY-MS100VEM-E  
 PLFY-MS100VEM-ET  
 PLFY-MS125VEM-E  
 PLFY-MS125VEM-ET

**[Service Ref.]**

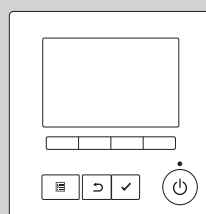
PLFY-MS20VEM-E.UK  
 PLFY-MS20VEM-ET.UK  
 PLFY-MS25VEM-E.UK  
 PLFY-MS25VEM-ET.UK  
 PLFY-MS32VEM-E.UK  
 PLFY-MS32VEM-ET.UK  
 PLFY-MS40VEM-E.UK  
 PLFY-MS40VEM-ET.UK  
 PLFY-MS50VEM-E.UK  
 PLFY-MS50VEM-ET.UK  
 PLFY-MS63VEM-E.UK  
 PLFY-MS63VEM-ET.UK  
 PLFY-MS80VEM-E.UK  
 PLFY-MS80VEM-ET.UK  
 PLFY-MS100VEM-E.UK  
 PLFY-MS100VEM-ET.UK  
 PLFY-MS125VEM-E.UK  
 PLFY-MS125VEM-ET.UK

**Grille model**
**[Model names]**

PLP-6EA  
 PLP-6EAE  
 PLP-6EAL  
 PLP-6EALM2  
 PLP-6EALME2



**WIRELESS REMOTE  
CONTROLLER**  
 (Option)



**WIRED REMOTE  
CONTROLLER**  
 (Option)





## CONTENTS

1. SAFETY PRECAUTION.....	2
2. PARTS NAMES AND FUNCTIONS.....	7
3. SPECIFICATIONS.....	15
4. 4-WAY AIRFLOW SYSTEM.....	20
5. OUTLINES AND DIMENSIONS.....	23
6. WIRING DIAGRAM.....	24
7. REFRIGERANT SYSTEM DIAGRAM.....	25
8. TROUBLESHOOTING.....	26
9. SPECIAL FUNCTION.....	35
10. DISASSEMBLY PROCEDURE.....	38

**PARTS CATALOG (OCB826)**

# CITY MULTI

## MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

	<b>WARNING</b> (Risk of fire)	This mark is for R32 refrigerant only. Refrigerant type is written on nameplate of outdoor unit. In case that refrigerant type is R32, this unit uses a flammable refrigerant. If refrigerant leaks and comes in contact with fire or heating part, it will create harmful gas and there is risk of fire.
		Read the OPERATION MANUAL carefully before operation.
		Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation.
		Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like.

## 1-1. ALWAYS OBSERVE FOR SAFETY

**Before obtaining access to terminal, all supply circuits must be disconnected.**

## 1-2. CAUTIONS RELATED TO REFRIGERANT

Caution for units utilizing refrigerant R32

**Use new refrigerant pipes.**

In case of using the existing pipes for R22, be careful with the following.

- Be sure to clean the pipes and make sure that the insides of the pipes are clean.
- Change flare nut to the one provided with this product. Use a newly flared pipe.
- Avoid using thin pipes.
- In case of reconnecting the refrigerant pipes after detaching, make the flared part of pipe re-fabricated.

**Make sure that the inside and outside of refrigerant piping is clean and it has no contaminants such as sulfur, oxides, dirt, shaving particles, etc., which are hazard to refrigerant cycle. In addition, use pipes with specified thickness.**

Contamination inside refrigerant piping can cause deterioration of refrigerant oil, etc.

**Store the piping indoors, and keep 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.

**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 R32 refrigerant.**

The following tools are necessary to use R32/R410A refrigerant.

Tools for R32	
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 on name plate of outdoor unit.

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

- (1) Do not alter the unit.
- (2) For installation and relocation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with refrigerant specified in the outdoor unit installation manual.
- (3) Ask a dealer or an authorized technician to install, relocate and repair the unit.
- (4) This unit should be installed in rooms which exceed the floor space specified in outdoor unit installation manual. Refer to outdoor unit installation manual.
- (5) Install the indoor unit at least 2.5 m above floor or grade level.  
For appliances not accessible to the general public.
- (6) Refrigerant pipes connection shall be accessible for maintenance purposes.
- (7) If the air conditioner is installed in a small room or closed room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
- (8) Keep gas-burning appliances, electric heaters, and other fire sources (ignition sources) away from the location where installation, repair, and other air conditioner work will be performed.  
If refrigerant comes into contact with a flame, poisonous gases will be released.
- (9) When installing or relocating, or servicing the air conditioner, use only the specified refrigerant written on outdoor unit to charge the refrigerant lines.  
Do not mix it with any other refrigerant and do not allow air to remain in the lines.  
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
- (10) After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.
- (11) Do not use low temperature solder alloy in case of brazing the refrigerant pipes.
- (12) When performing brazing work, be sure to ventilate the room sufficiently. Make sure that there are no hazardous or flammable materials nearby.  
When performing the work in a closed room, small room, or similar location, make sure that there are no refrigerant leaks before performing the work.  
If refrigerant leaks and accumulates, it may ignite or poisonous gases may be released.
- (13) Do not install the unit in places where refrigerant may build-up or places with poor ventilation such as a semi-basement or a sunken place in outdoor: Refrigerant is heavier than air, and inclined to fall away from the leak source.
- (14) Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- (15) The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- (16) Do not pierce or burn.
- (17) Be aware that refrigerants may not contain an odour.
- (18) Pipe-work shall be protected from physical damage.
- (19) The installation of pipe-work shall be kept to a minimum.
- (20) Compliance with national gas regulations shall be observed.
- (21) Keep any required ventilation openings clear of obstruction.
- (22) Servicing shall be performed only as recommended by the manufacturer.
- (23) The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- (24) Maintenance, service and repair operations shall be performed by authorized technician with required qualification.

## [2] 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.

## [3] Additional refrigerant charge

### When charging directly from cylinder

- (1) Check that cylinder for R32/R410A available on the market is a syphon type.
- (2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)

#### [4] Cautions for unit using R32 refrigerant

Basic work procedures are the same as those for conventional units using refrigerant R410A. However, pay careful attention to the following points.

(1) Information on servicing

(1-1) Checks on the Area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.

For repair to the refrigerating systems, (1-3) to (1-7) shall be completed prior to conducting work on the systems.

(1-2) Work Procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

(1-3) General Work Area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.

Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

(1-4) Checking for Presence of Refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

(1-5) Presence of Fire Extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.

Have a dry powder or CO<sub>2</sub> fire extinguisher adjacent to the charging area.

(1-6) No Ignition Sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

(1-7) Ventilated Area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

(1-8) Checks on the Refrigeration Equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being corroded.

(1-9) Checks on Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include that:

- capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- no live electrical components and wiring are exposed while charging, recovering or purging the system;
- there is continuity of earth bonding

(2) Repairs to Sealed Components

(2-1) During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

(2-2) Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.

Replacement parts shall be in accordance with the manufacturer's specifications.



(3) Repair to Intrinsically Safe Components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

(4) Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

(5) Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

(6) Leak Detection Methods

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)

Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

(7) Removal and Evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- remove refrigerant
- purge the circuit with inert gas
- evacuate
- purge again with inert gas
- open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be “flushed” with OFN to render the unit safe. This process may need to be repeated several times.

Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

(8) Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

(9) Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

Continued to the next page

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure, ensure that:
  - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
  - all personal protective equipment is available and being used correctly;
  - the recovery process is supervised at all times by a competent person;
  - recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturer's instructions.
- h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

(10) Labelling

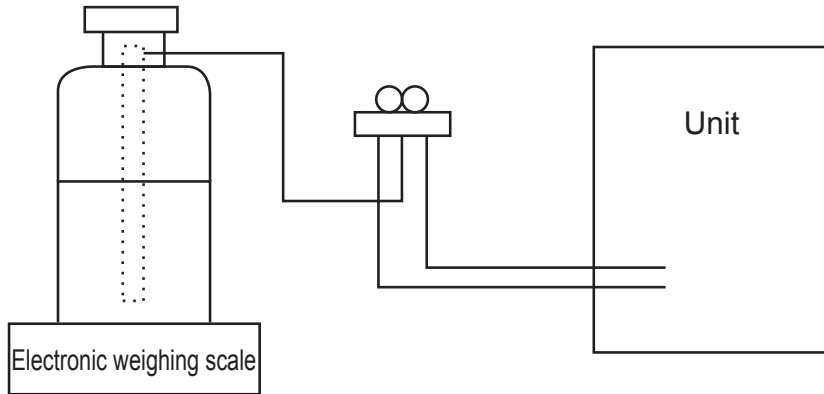
Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

(11) Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.



### [5] Service tools

Use the below service tools as exclusive tools for R32/R410A refrigerant.

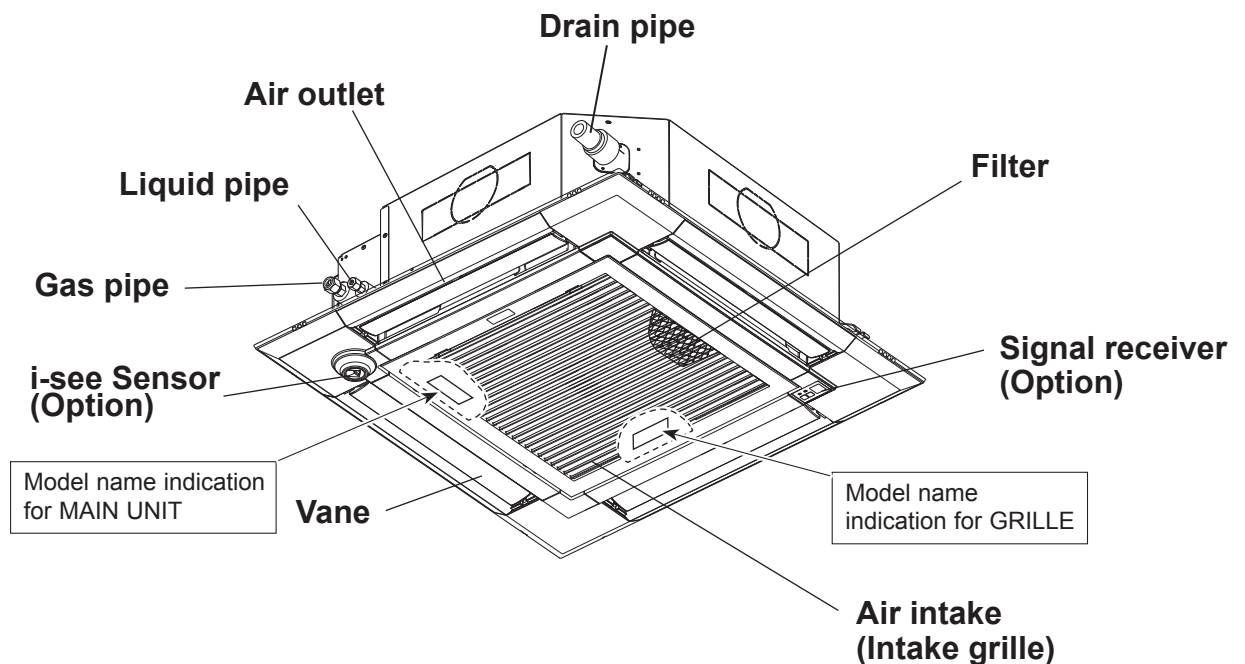
Refer to the spec name plate on outdoor unit for the type of refrigerant being used.

No.	Tool name	Specifications
1.	Gauge manifold	<ul style="list-style-type: none"> <li>· Use the existing fitting specifications. (UNF1/2)</li> <li>· Use high-tension side pressure of 5.3MPa·G or over.</li> </ul>
2.	Charge hose	<ul style="list-style-type: none"> <li>· Use pressure performance of 5.09MPa·G or over.</li> </ul>
3.	Electronic weighing scale	—
4.	Gas leak detector	<ul style="list-style-type: none"> <li>· Use the detector for R134a, R407, R410A, or R32.</li> </ul>
5.	Adaptor for reverse flow check	<ul style="list-style-type: none"> <li>· Attach on vacuum pump.</li> </ul>
6.	Refrigerant charge base	—
7.	Refrigerant cylinder	<ul style="list-style-type: none"> <li>· R32 or R410A refrigerant</li> <li>· Cylinder with syphon</li> </ul>
8.	Refrigerant recovery equipment	—

## 2

## PARTS NAMES AND FUNCTIONS

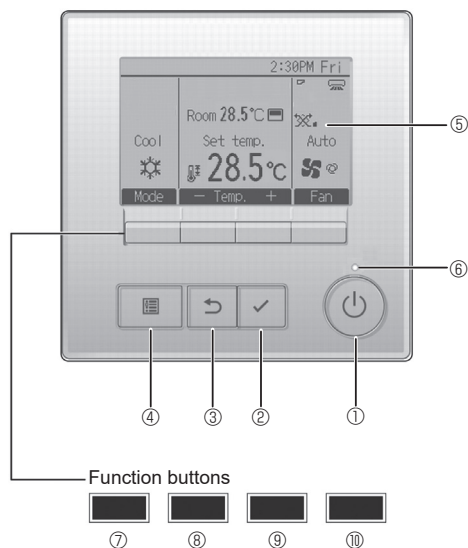
### 2-1. Indoor unit



## 2-2. REMOTE CONTROLLER FUNCTIONS

<PAR-41MAAB>

### Controller interface



#### 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.

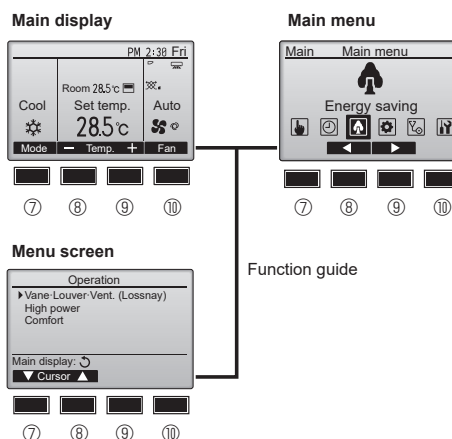
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

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.



#### 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.

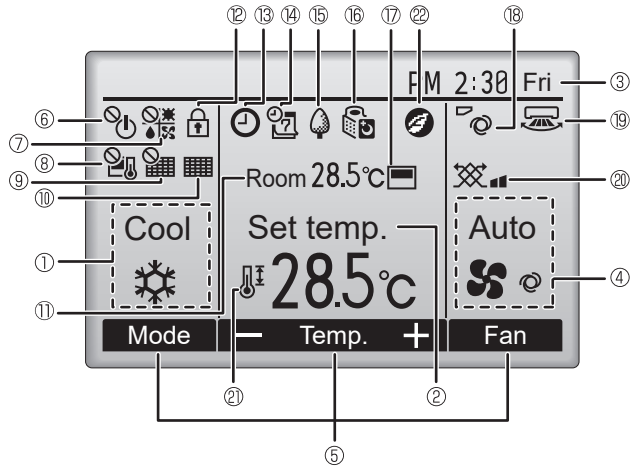
Menu screen: The button function varies with the screen.

## Display

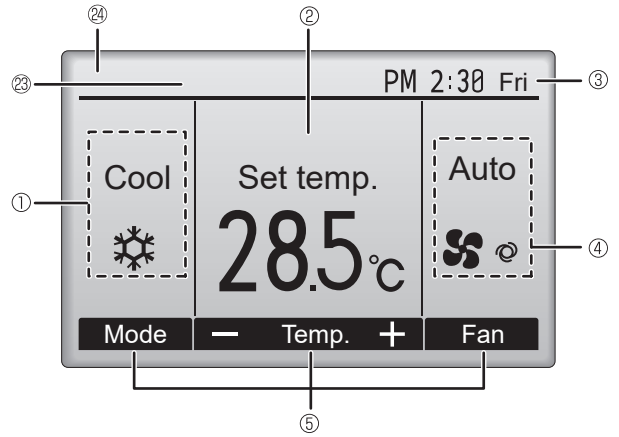
The main display can be displayed in two different modes: "Full" and "Basic". The initial setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

### <Full mode>

\* All icons are displayed for explanation.



### <Basic mode>



#### ① Operation mode

#### ② Preset temperature

#### ③ Clock

#### 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



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 the Weekly timer is enabled.



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



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 (⑪).



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



Indicates the vane setting.



Indicates the louver setting.



Indicates the ventilation setting.



Appears when the preset temperature range is restricted.



Appears when an energy saving operation is performed using a "3D i-see Sensor" function.

#### ⑳ Centrally controlled

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

#### ㉔ Preliminary error display

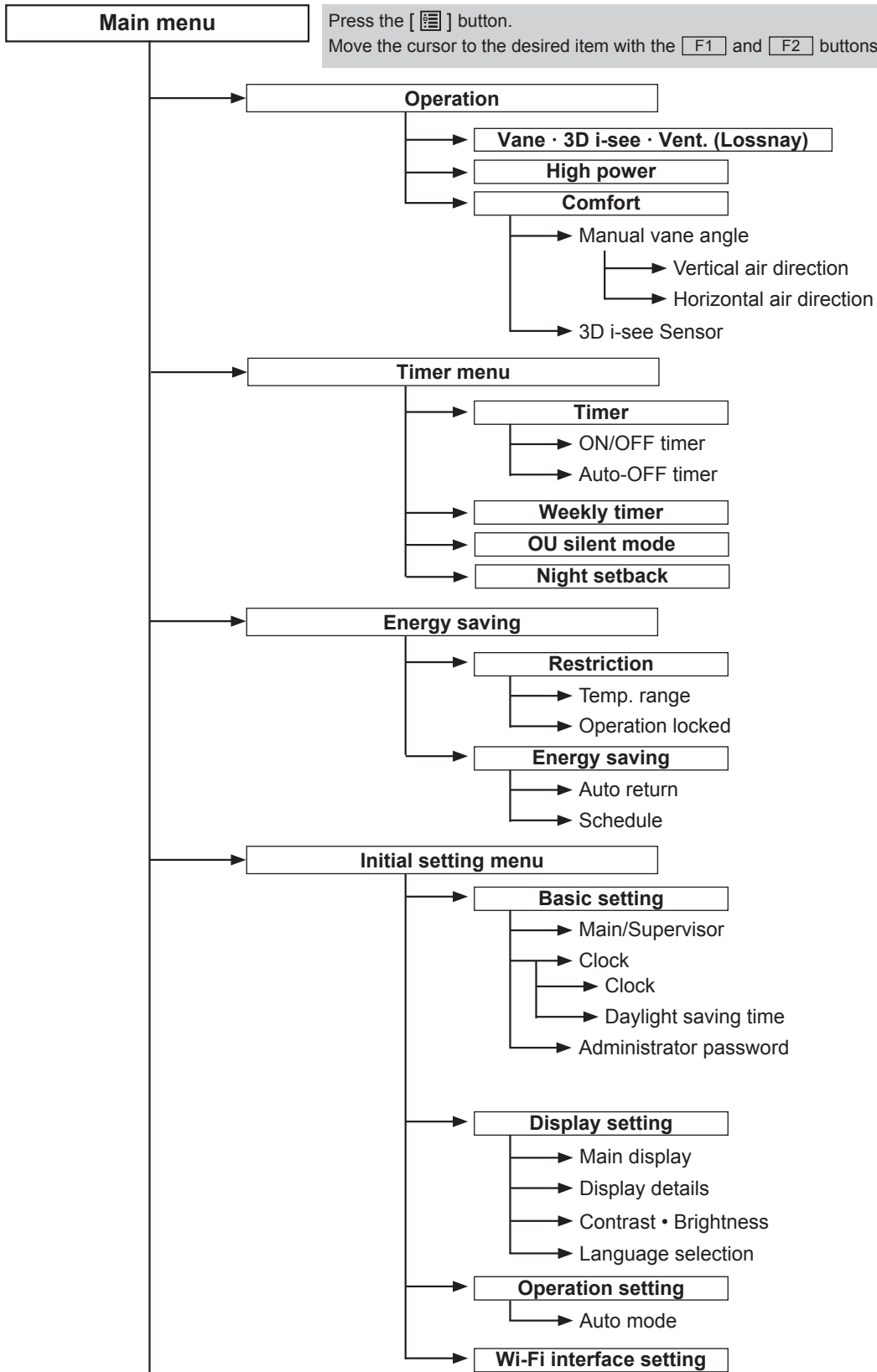
A check code appears during the preliminary error.

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

\*1 These functions are not applied to the floor standing models.



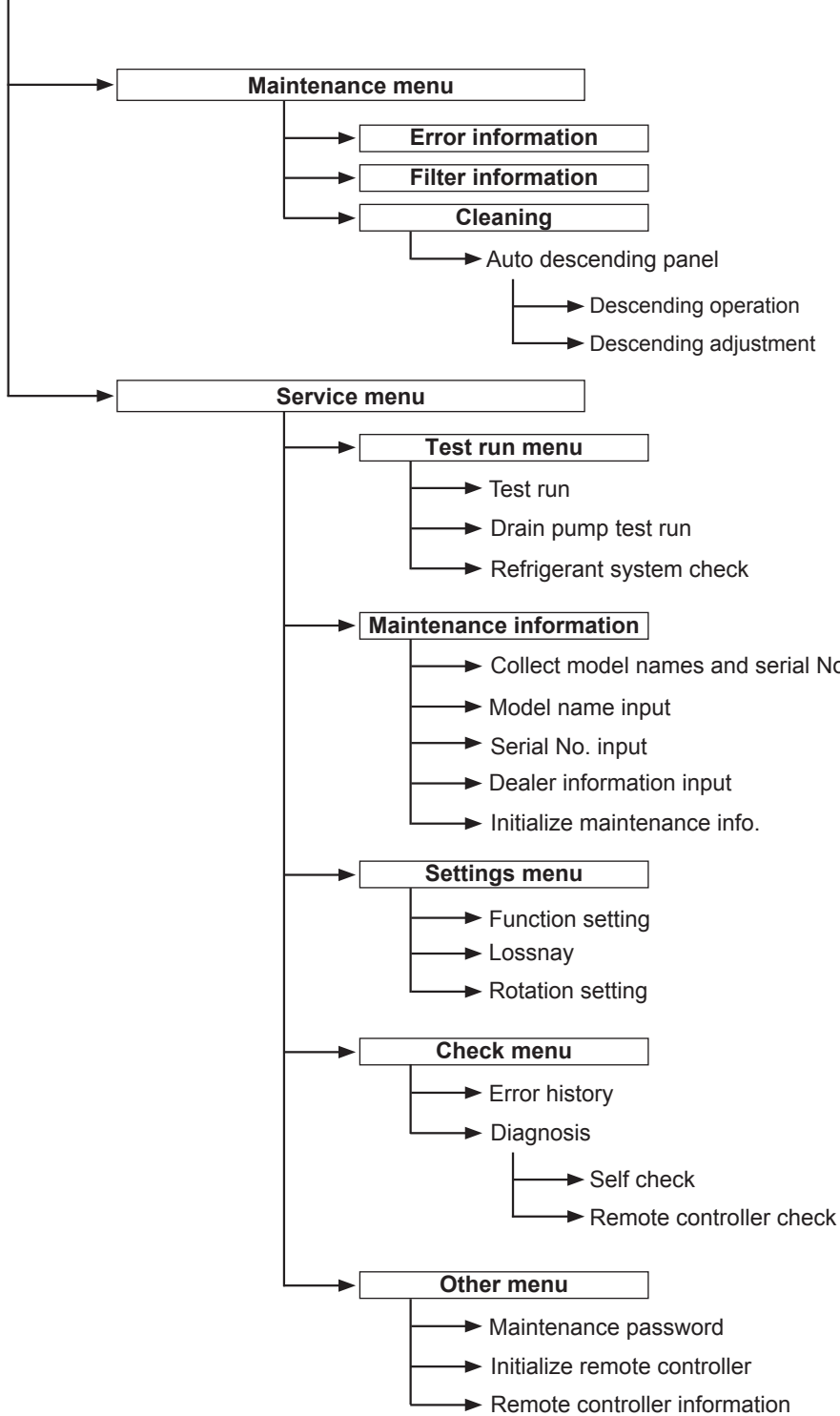
## Menu structure



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 · 3D i-see · Vent. (Vane.Vent. (Lossnay))		<b>Vane:</b> Use to set the vertical air direction. <b>Louver:</b> Use to set the horizontal air direction. <b>3D i-see Sensor:</b> This setting is available only for the air conditioners that support easy setting function of motion sensing air direction. <b>Vent:</b> Use to set the amount of ventilation.
	High power <sup>*3</sup>		<b>Use to reach the comfortable room temperature quickly.</b> • Units can be operated in the High-power mode for up to 30 minutes.
	Comfort	Manual vane angle	<b>Vertical air direction</b> • Sets the vertical airflow direction (vane) of each unit.  <b>Horizontal air direction</b> • Sets the horizontal airflow direction (vane) of each unit.
		3D i-see Sensor	<b>Use to set the following functions for 3D i-see Sensor.</b> • Air distribution • Energy saving option • Seasonal airflow
Timer	Timer	ON/OFF timer <sup>*1</sup>	<b>Use to set the operation ON/OFF times.</b> • Time can be set in 5-minute increments.
		Auto-OFF timer	<b>Use to set the Auto-OFF time.</b> • Time can be set to a value from 30 to 240 in 10-minute increments.
	Weekly timer <sup>*1, *2</sup>		<b>Use to set the weekly operation ON/OFF times.</b> • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
	OU silent mode <sup>*1, *3</sup>		<b>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.</b> • Select the desired silent level from "Normal," "Middle," and "Quiet."
	Night setback <sup>*1</sup>		<b>Use to make Night setback settings.</b> • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.
Energy saving	Restriction	Temp. range <sup>*2</sup>	<b>Use to restrict the preset temperature range.</b> • Different temperature ranges can be set for different operation modes.
		Operation lock	<b>Use to lock selected functions.</b> • The locked functions cannot be operated.
	Energy saving	Auto return <sup>*2</sup>	<b>Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period.</b> • 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 <sup>*1, *3</sup>	<b>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.</b> • 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.
	Energy data (for unit time, month, and day)		<b>Displays the amount of power consumption during operation.</b> • Unit time data: Data for the last one-month period can be displayed in 30-minute units. • Monthly/daily data: Data for the last 14-month period are displayed in day-and-month-units. * Data can be deleted. * Data are obtained based on the power consumption estimated from the operating state.

<sup>\*1</sup> Clock setting is required.

<sup>\*2</sup> 1°C increments.

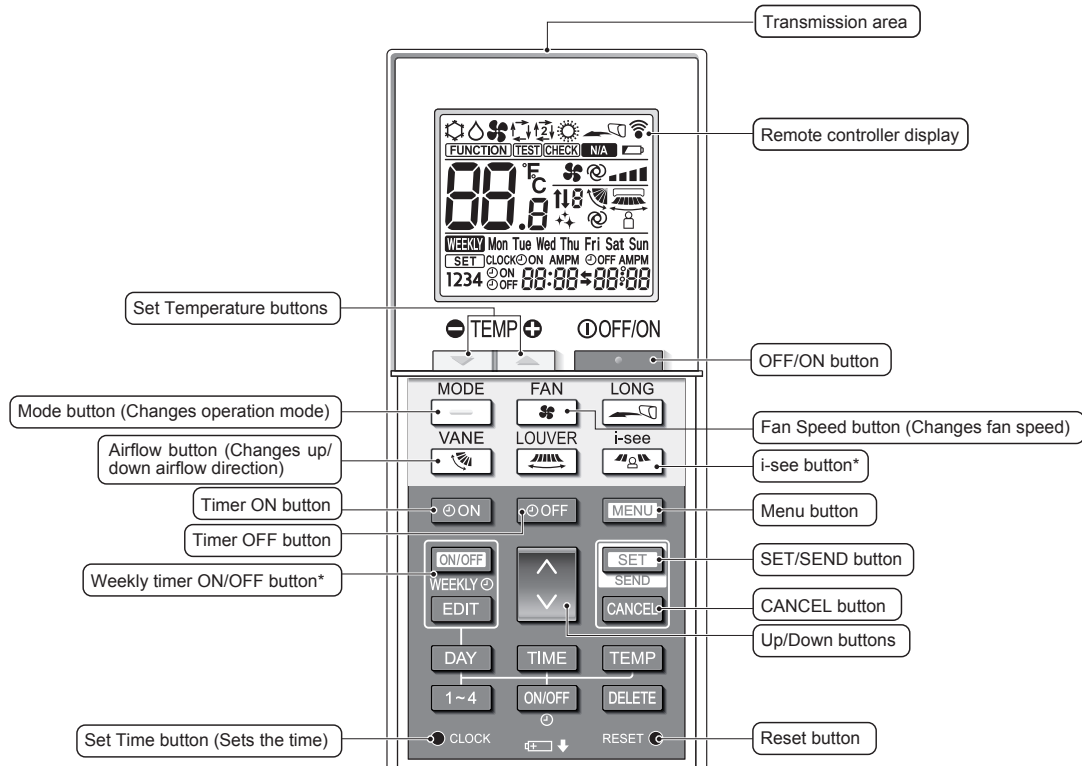
<sup>\*3</sup> This function is available only when certain outdoor units are connected.



Main menu	Setting and display items		Setting details
Initial setting	Basic setting	Main/Supervisor	For a system that requires supervisor remote controller, set the remote controller to "Supervisor" from this setting.
		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, and use to change the background colors of the display to black.
		Display details	Make the settings for the remote controller related items as necessary. <b>Clock:</b> The initial settings are "Yes" and "24h" format. <b>Temperature:</b> Set either Celsius (°C) or Fahrenheit (°F). <b>Room temp.:</b> Set Show or Hide. <b>Auto mode:</b> Set 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 Auto mode can be selected by using the button. This setting is valid only when indoor units with Auto mode function are connected.	
Maintenance	Error information		Use to check error information when an error occurs. • Check code, error source, refrigerant address, model name, manufacturing number, contact information (dealer's phone number) can be displayed. (The model name, 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 • Refrigerant system check
	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 • 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	<b>Self check:</b> Error history of each unit can be checked via the remote controller. <b>Remote controller check:</b> When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
	Others	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.	

## 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 (snowflake icon)
- Dry (water drop icon)
- Fan (fan icon)
- Auto (single set point) (circular arrow icon)
- Heat (sun icon)
- Auto (dual set point) (circular arrow with two dots icon)

**Temperature setting**

The units of temperature can be changed. For details, refer to the Installation Manual.

**Vane setting**

Step 1 Step 2 Step 3 Step 4 Step 5 Swing Auto

**Not available**

Appears when a non-supported function is selected.

**Battery replacement indicator**

Appears when the remaining battery power is low.

**Fan speed setting**

Auto

**3D i-see Sensor (Air distribution)**

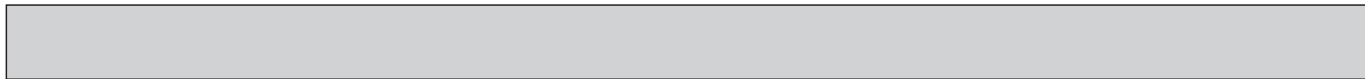
Default Direct Indirect

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



## 3-1. SPECIFICATIONS

Model		PLFY-MS20VEM -E/ET	PLFY-MS25VEM -E/ET	PLFY-MS32VEM -E/ET	PLFY-MS40VEM -E/ET	PLFY-MS50VEM -E/ET
Power source		1-phase 220-240 V 50 Hz, 1-phase 220 V 60 Hz				
Cooling capacity (Nominal)	*1 kW	2.2	2.8	3.6	4.5	5.6
	*1 kcal/h	1,900	2,400	3,100	3,900	4,800
	*1 Btu/h	7,500	9,600	12,300	15,400	19,100
	*2 kcal/h	2,000	2,500	3,150	4,000	5,000
	Power input kW	0.03	0.03	0.03	0.03	0.03
Current input	A	0.31	0.31	0.32	0.32	0.32
Heating capacity (Nominal)	*3 kW	2.5	3.2	4.0	5.0	6.3
	*3 kcal/h	2,200	2,800	3,400	4,300	5,400
	*3 Btu/h	8,500	10,900	13,600	17,100	21,500
	Power input kW	0.03	0.03	0.03	0.03	0.03
	Current input	A	0.24	0.24	0.25	0.25
External finish		Galvanized steel sheet				
External dimension		258 × 840 × 840				
H × W × D		10-3/16 × 33-3/32 × 33-3/32				
Net weight		19 (42)	19 (42)	19 (42)	19 (42)	19 (42)
Grille		PLP-6EA				
model		MUNSELL (1.0Y 9.2/0.2)				
External finish		MUNSELL (1.0Y 9.2/0.2)				
Dimension		40 × 950 × 950				
H × W × D		1-9/16 × 37-13/32 × 37-13/32				
Net weight		5 (11)				
Heat exchanger		Cross fin (Aluminum fin and copper tube)				
Fan		Turbo fan × 1	Turbo fan × 1	Turbo fan × 1	Turbo fan × 1	Turbo fan × 1
External static press.		Pa	0	0	0	0
		mmH <sub>2</sub> O	0	0	0	0
Motor type		DC motor				
Motor output		kW	0.050	0.050	0.050	0.050
Driving mechanism		Direct-drive				
Airflow rate		m <sup>3</sup> /min	12 - 13 - 14 - 15	12 - 13 - 14 - 15	13 - 14 - 15 - 16	13 - 14 - 15 - 17
(Low-Mid2-Mid1-High)		L/s	200 - 217 - 233 - 250	200 - 217 - 233 - 250	217 - 233 - 250 - 267	217 - 233 - 250 - 283
		cfm	424 - 459 - 494 - 530	424 - 459 - 494 - 530	459 - 494 - 530 - 565	459 - 494 - 530 - 600
Sound pressure level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24 - 26 - 27 - 29	24 - 26 - 27 - 29	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		R32 CITY MULTI				
Diameter of refrigerant pipe	Liquid (R32)	mm (inch)	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare
	Gas (R32)	mm (inch)	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare
Field drain pipe size		mm	O.D. ø32 (VP-25)			
Standard attachment		Installation Manual, Instruction Book				
Document Accessory		Installation Manual, Instruction Book				
Remark		Optional parts				
Grille **1		PLP-6EA				
Air outlet shutter plate		PAC-SJ37SP-E				
High efficiency filter element **2		PAC-SH59KF-E				
Multi-function casement		PAC-SJ41TM-E				
Installation		**1. PLY-MS-VEM-(E/ET) should be used together with PLP-6EA. **2. PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E.				
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		*2 Nominal cooling condition		*3 Nominal heating condition		Unit converter
Indoor : 27°CDB/19°CWB (81°FDB/66°FWB)		27°CDB/19.5°CWB (81°FDB/67°FWB)		20°CDB (68°FDB)		kcal/h = kW × 860
Outdoor : 35°CDB (95°FDB)		35°CDB (95°FDB)		7°CDB/6°CWB (45°FDB/43°FWB)		Btu/h = kW × 3,412
Pipe length : 7.5 m (24-9/16 ft)		5 m (16-3/8 ft)		7.5 m (24-9/16 ft)		cfm = m <sup>3</sup> /min × 35.31
Level difference : 0 m (0 ft)		0 m (0 ft)		0 m (0 ft)		lb = kg/0.4536
Notes:		*Above specification data is subject to rounding variation.				
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.						



Model		PLFY-MS63VEM -E/ET	PLFY-MS80VEM -E/ET	PLFY-MS100VEM -E/ET	PLFY-MS125VEM -E/ET	
Power source		1-phase 220-240 V 50 Hz, 1-phase 220 V 60 Hz				
Cooling capacity (Nominal)	*1 kW	7.1	9.0	11.2	14.0	
	*1 kcal/h	6,100	7,700	9,600	12,000	
	*1 Btu/h	24,200	30,700	38,200	47,800	
	*2 kcal/h	6,300	8,000	10,000	12,500	
	Power input kW	0.03	0.05	0.07	0.11	
Current input	A	0.36	0.50	0.67	1.06	
Heating capacity (Nominal)	*3 kW	8.0	10.0	12.5	16.0	
	*3 kcal/h	6,900	8,600	10,800	13,800	
	*3 Btu/h	27,300	34,100	42,700	54,600	
	Power input kW	0.03	0.05	0.07	0.11	
	Current input	A	0.29	0.43	0.60	0.99
External finish		Galvanized steel sheet				
External dimension H × W × D	mm	258 × 840 × 840		298 × 840 × 840		
	inch	10-3/16 × 33-3/32 × 33-3/32		11-3/4 × 33-13/32 × 33-13/32		
Net weight		21(46)		24(53)	24(53)	
Grille	model	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		Cross fin (Aluminum fin and copper tube)				
Fan	Type × Quantity	Turbo fan × 1		Turbo fan × 1		
	External static press.	Pa	0		0	
		mmH <sub>2</sub> O	0		0	
	Motor type		DC motor			
	Motor output	kW	0.050	0.050	0.120	0.120
	Driving mechanism		Direct-drive			
	Airflow rate (Low-Mid2- Mid1-High)	m <sup>3</sup> /min	14 - 15 - 16 - 18	14 - 17 - 20 - 23	20 - 23 - 26 - 29	22 - 26 - 30 - 35
L/s		233 - 250 - 267 - 300	233 - 283 - 333 - 383	333 - 383 - 433 - 483	367 - 433 - 500 - 583	
cfm		494 - 530 - 565 - 636	494 - 600 - 706 - 812	706 - 812 - 918 - 1024	777 - 918 - 1060 - 1236	
Sound pressure level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	28 - 29 - 30 - 32	28 - 31 - 34 - 37	34 - 37 - 39 - 41	35 - 39 - 42 - 45
Insulation material		PS				
Air filter		PP honeycomb				
Protection device		Fuse				
Refrigerant control device		LEV				
Connectable outdoor unit		R32 CITY MULTI				
Diameter of refrigerant pipe	Liquid (R32)	mm (inch)	ø9.52 (ø3/8) Flare	ø9.52 (ø3/8) Flare	ø9.52 (ø3/8) Flare	ø9.52 (ø3/8) Flare
	Gas (R32)	mm (inch)	ø15.88 (ø5/8) Flare	ø15.88 (ø5/8) Flare	ø15.88 (ø5/8) Flare	ø15.88 (ø5/8) Flare
Field drain pipe size		mm	O.D. ø32 (VP-25)			
Standard attachment	Document Accessory	Installation Manual, Instruction Book				
Remark	Optional parts					
	Grille **1		PLP-6EA			
	Air outlet shutter plate		PAC-SJ37SP-E			
	High efficiency filter element **2		PAC-SH59KF-E			
	Multi-function casement		PAC-SJ41TM-E			
	Installation		**1. PLY-MS-VEM-(E/ET) should be used together with PLP-6EA. **2. PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E. 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		*2 Nominal cooling condition		*3 Nominal heating condition		Unit converter
Indoor : 27°CDB/19°CWB (81°FDB/66°FWB)		27°CDB/19.5°CWB (81°FDB/67°FWB)		20°CDB (68°FDB)		kcal/h = kW × 860
Outdoor : 35°CDB (95°FDB)		35°CDB (95°FDB)		7°CDB/6°CWB (45°FDB/43°FWB)		Btu/h = kW × 3,412
Pipe length : 7.5 m (24-9/16 ft)		5 m (16-3/8 ft)		7.5 m (24-9/16 ft)		cfm = m <sup>3</sup> /min × 35.31
Level difference : 0 m (0 ft)		0 m (0 ft)		0 m (0 ft)		lb = kg/0.4536
Notes:						*Above specification data is subject to rounding variation.
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

Model name Parts name	Symbol	PLFY-MS20VEM -E/ET	PLFY-MS25VEM -E/ET	PLFY-MS32VEM -E/ET	PLFY-MS40VEM -E/ET	PLFY-MS50VEM -E/ET	PLFY-MS63VEM -E/ET
Room temperature thermistor	TH1	Resistance 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					
Liquid pipe thermistor	TH2	Resistance 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					
Gas pipe thermistor	TH3	Resistance 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					
Fuse (Indoor controller board)	FUSE	250 V 6.3 A					
Fan motor	MF	8-pole OUTPUT 50 W					
Vane motor	MV	MSBPC20M13 DC12 V 300 Ω/phase					
Drain pump	DP	PMD-12D13ME INPUT 3 W 24 ℓ/Hr					
Drain float switch	FS	Open / Short detection					
Linear expansion valve	LEV	DC12 V Stepping motor drive port dimension ø3.2 (0–2000pulse) PAM-B40YGME					
Power supply terminal block	TB2	(L, N) Rated to 330 V 30 A *					
Transmission terminal block	TB5	(M1, M2, S) Rated to 250 V 20 A *					
MA remote controller terminal block	TB15	(1, 2) Rated to 250 V 10 A *					
Refrigerant sensor	CNSA	DC 5 V					

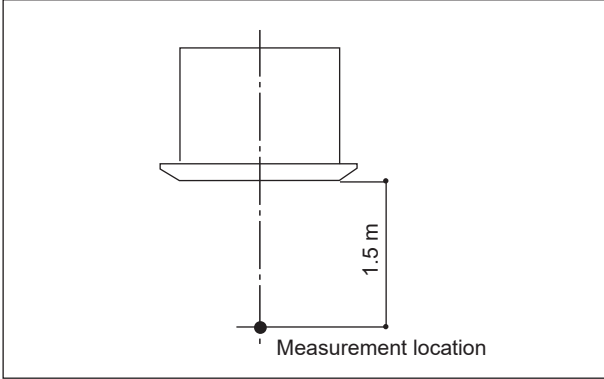
\*Refer to WIRING DIAGRAM for the supplied voltage.

Model name Parts name	Symbol	PLFY-MS80VEM -E/ET	PLFY-MS100VEM -E/ET	PLFY-MS125VEM -E/ET
Room temperature thermistor	TH1	Resistance 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		
Liquid pipe thermistor	TH2	Resistance 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		
Gas pipe thermistor	TH3	Resistance 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		
Fuse (Indoor controller board)	FUSE	250 V 6.3 A		
Fan motor	MF	8-pole OUTPUT 50 W	8-pole OUTPUT 120 W	
Vane motor	MV	MSBPC20M13 DC12 V 300 Ω/phase		
Drain pump	DP	PMD-12D13ME INPUT 3 W 24 ℓ/Hr		
Drain float switch	FS	Open / Short detection		
Linear expansion valve	LEV	DC12 V Stepping motor drive port dimension ø5.2 (0–2000pulse) PAM-B80YGME		
Power supply terminal block	TB2	(L, N) Rated to 330 V 30 A *		
Transmission terminal block	TB5	(M1, M2, S) Rated to 250 V 20 A *		
MA remote controller terminal block	TB15	(1, 2) Rated to 250 V 10 A *		
Refrigerant sensor	CNSA	DC 5V		

\*Refer to WIRING DIAGRAM for the supplied voltage.

### 3-3. SOUND PRESSURE LEVEL

PLFY-MS-VEM-(E/ET)



Note: Measured in anechoic room.

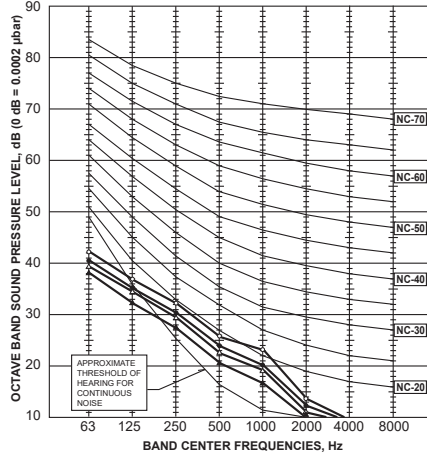
Sound pressure level at anechoic room : Low-Mid2-Mid1-High

Model name	Sound pressure level dB (A)
PLFY-MS20VEM-(E/ET) PLFY-MS25VEM-(E/ET)	24-26-27-29
PLFY-MS32VEM-(E/ET) PLFY-MS40VEM-(E/ET) PLFY-MS50VEM-(E/ET)	26-27-29-31
PLFY-MS63VEM-(E/ET)	28-29-30-32
PLFY-MS80VEM-(E/ET)	28-31-34-37
PLFY-MS100VEM-(E/ET)	34-37-39-41
PLFY-MS125VEM-(E/ET)	35-39-42-45

### 3-4. NC CURVES

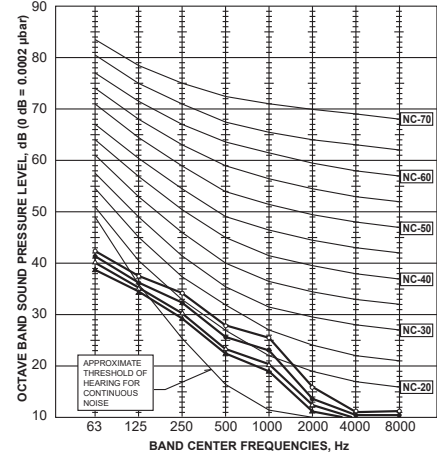
**PLFY-MS20VEM-(E/ET)**  
**PLFY-MS25VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	29	○—○
Medium1	27	●—●
Medium2	26	△—△
Low	24	▲—▲



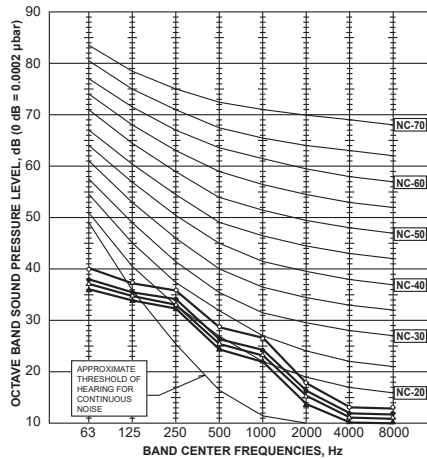
**PLFY-MS32VEM-(E/ET)**  
**PLFY-MS40VEM-(E/ET)**  
**PLFY-MS50VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	31	○—○
Medium1	29	●—●
Medium2	27	△—△
Low	26	▲—▲



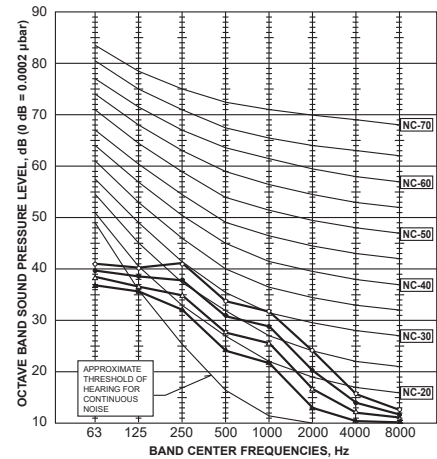
**PLFY-MS63VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	32	○—○
Medium1	30	●—●
Medium2	29	△—△
Low	28	▲—▲



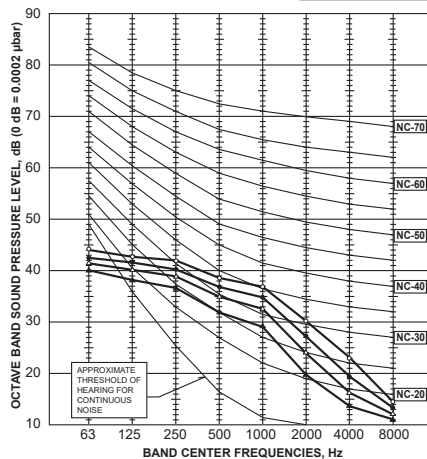
**PLFY-MS80VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	37	○—○
Medium1	34	●—●
Medium2	31	△—△
Low	28	▲—▲



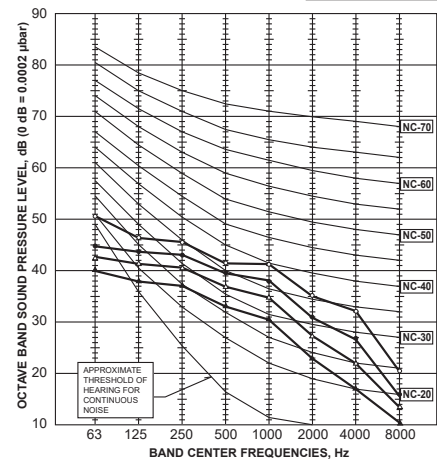
**PLFY-MS100VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	41	○—○
Medium1	39	●—●
Medium2	37	△—△
Low	34	▲—▲



**PLFY-MS125VEM-(E/ET)**

NOTCH	SPL(dB)	LINE
High	45	○—○
Medium1	42	●—●
Medium2	39	△—△
Low	35	▲—▲






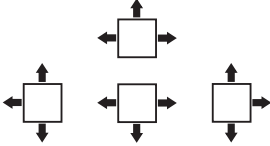
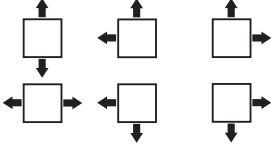
**4-1. PLACEMENT OF THE AIR OUTLETS**

• 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.

1) Decide on the pattern of the airflow direction.

<Table 1>

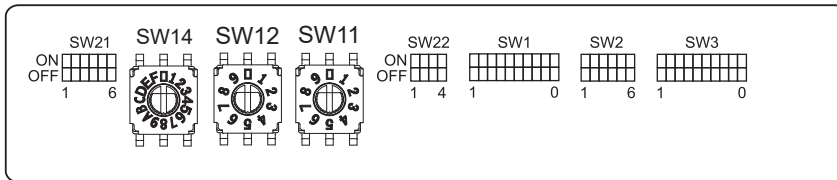
	4-direction	3-direction	2-direction
Blowout direction pattern	<p>Pattern 1 Initial setting</p> 	<p>Pattern 4 1 air outlet fully closed</p> 	<p>Pattern 6 2 air outlet fully closed</p> 

Note1.

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

2) 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



			PLFY-MS20VEM PLYF-MS25VEM PLFY-MS32VEM PLYF-MS40VEM PLFY-MS50VEM						PLFY-MS63VEM PLYF-MS80VEM PLFY-MS100VEM PLYF-MS125VEM					
			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
			OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
4 direction	SW21-3	OFF	2.5 m		2.7 m		3.5 m		2.7 m		3.2 m		4.5 m	
	SW21-4	ON												
3 direction	SW21-3	OFF	2.7 m		3.0 m		3.5 m		3.0 m		3.6 m		4.5 m	
	SW21-4	OFF												
2 direction	SW21-3	ON	3.0 m		3.3 m		3.5 m		3.3 m		4.0 m		4.5 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.

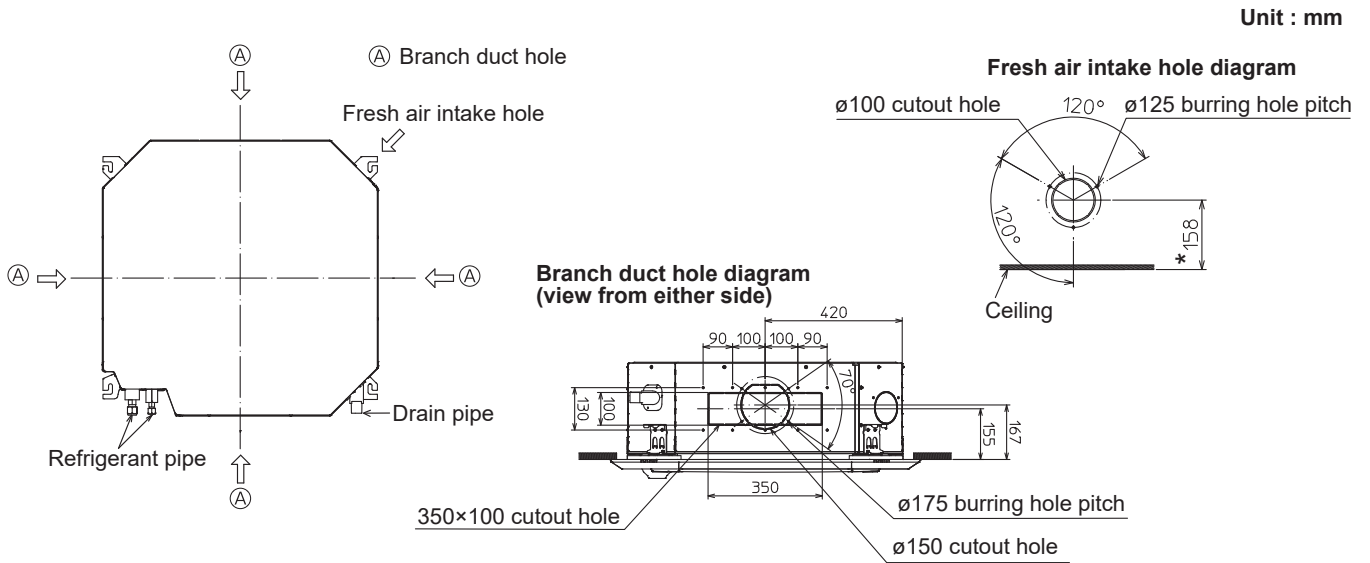
Note:

The figures marked with \* in the drawing below represent the dimensions of the main unit excluding those of the optional multi-functional casement.

When installing the optional multi-functional 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.



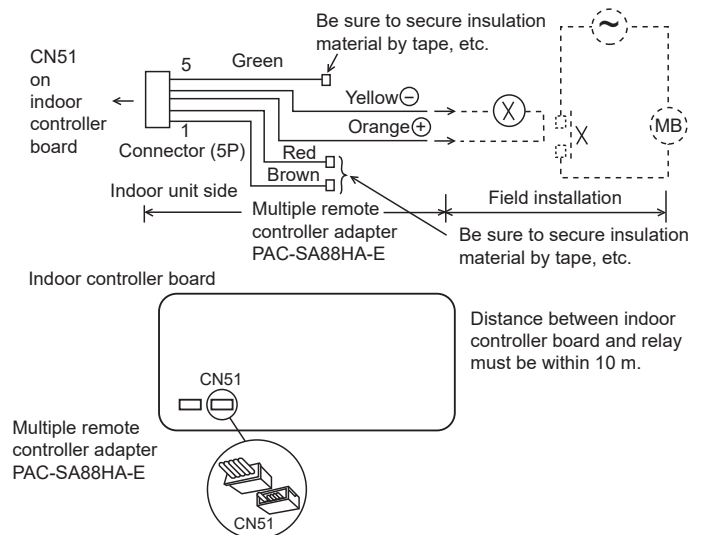
## 4-3. OPERATION IN CONJUNCTION WITH DUCT FAN (Booster fan)

- 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: 1.0 W or smaller)

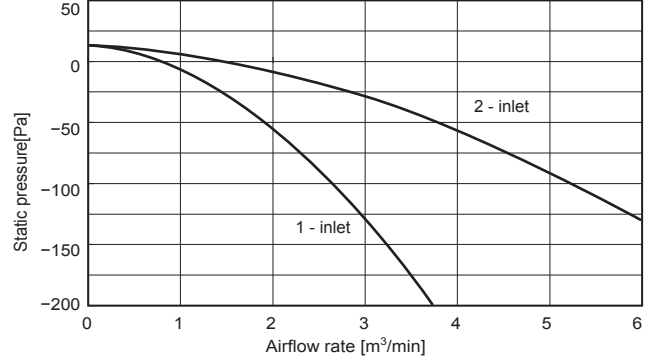
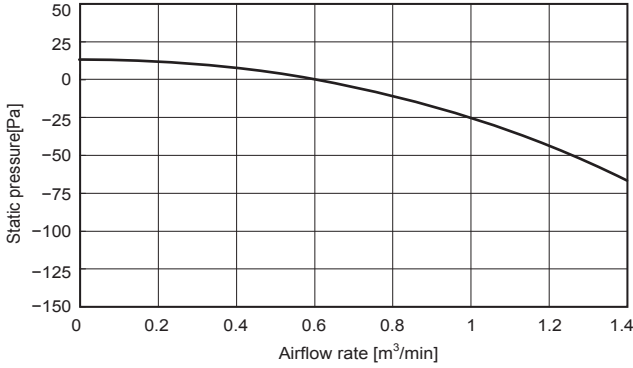


## 4-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

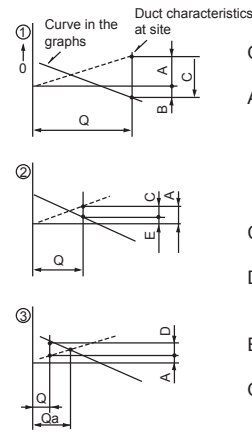
### 1 PLFY-MS20/25/32/40/50/63/80VEM-E/ET

Taking air into the unit

Multi-functional casement + Standard filter

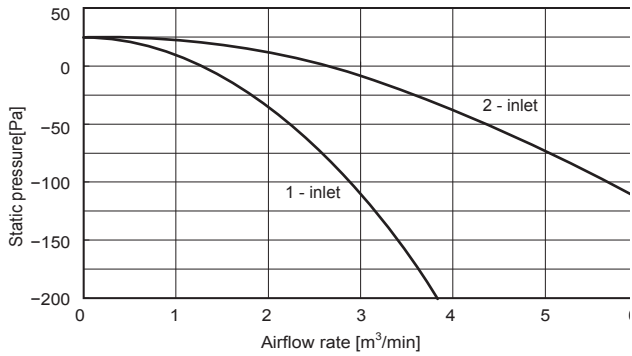


How to read curves



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

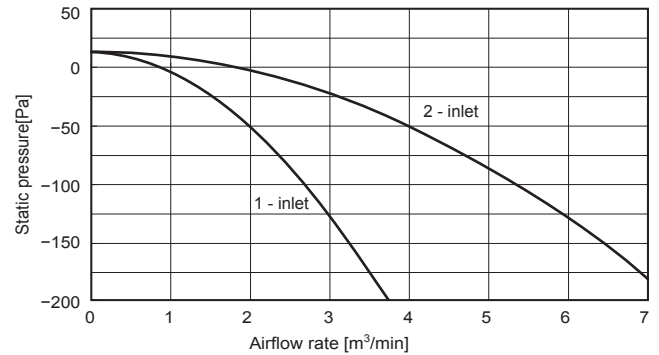
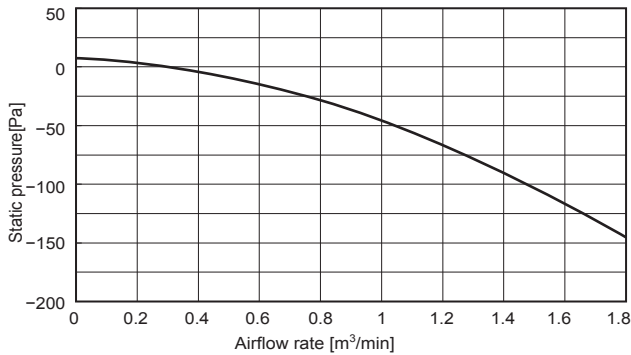
### Multi-functional casement + High efficiency filter



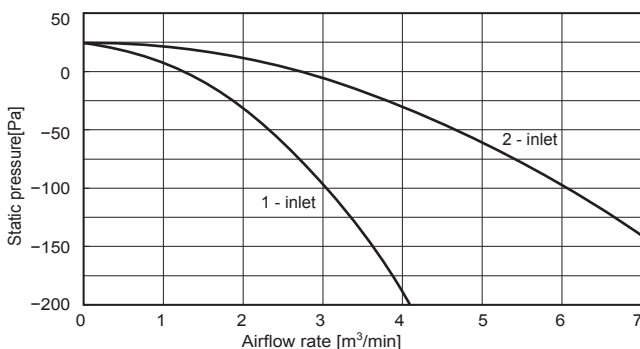
### 2 PLFY-MS100/125VEM-E/ET

Taking air into the unit

Multi-functional casement + Standard filter



### Multi-functional casement + High efficiency filter



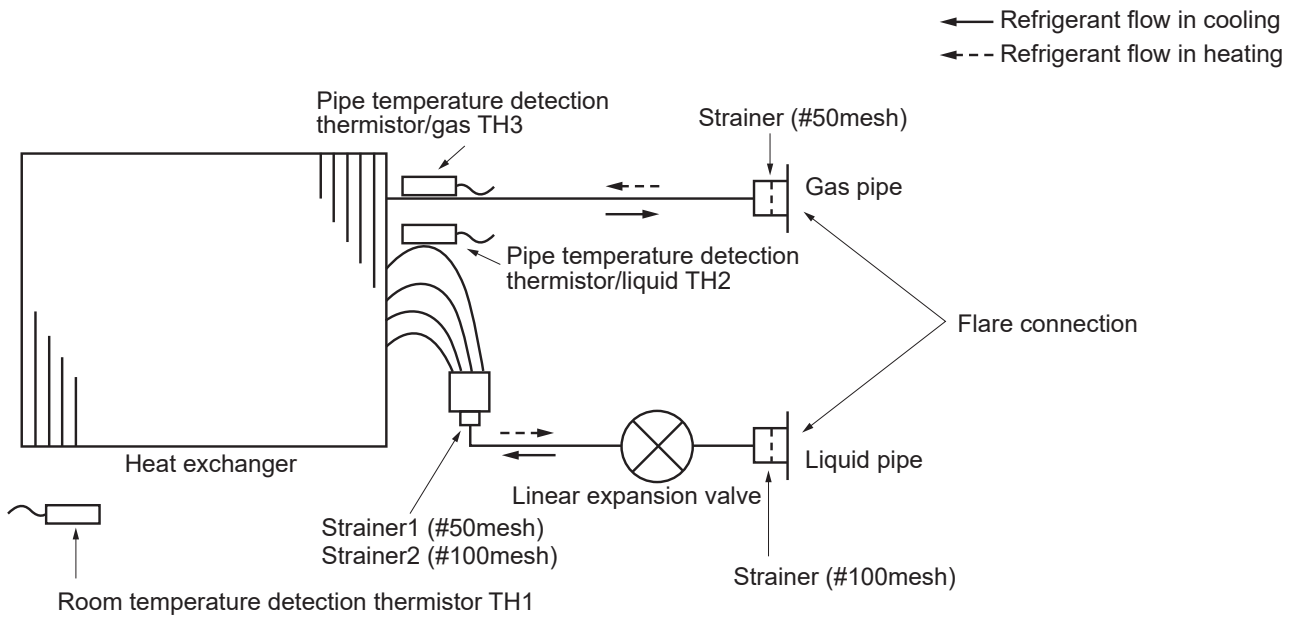






# 7

# REFRIGERANT SYSTEM DIAGRAM



Unit : mm (inch)

Item	Model	PLFY-MS20/25/32/40/50VEM-E/ET	PLFY-MS63/80/100/125VEM-E/ET
Gas pipe		ø12.7 (1/2)	ø15.88 (5/8)
Liquid pipe		ø6.35 (1/4)	ø9.52 (3/8)

### 8-1. COUNTERMEASURES FOR ERROR DURING TEST RUN

If a problem occurs during test run, a code number will appear on the remote controller (or LED on the outdoor unit), and the air conditioning system will automatically cease operating.

Refer to the connected outdoor unit service manual in order to determine the nature of the abnormality and apply corrective measure.

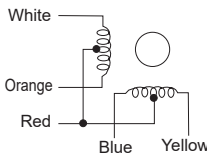
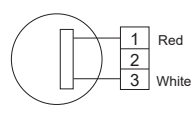
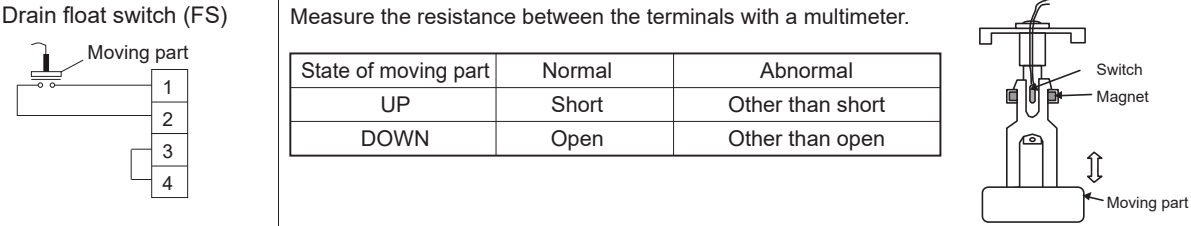
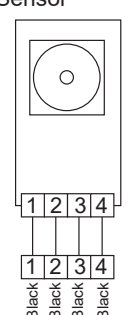
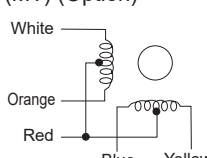
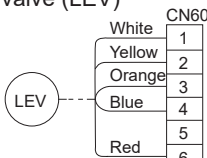
Check code	Trouble	Detected Unit			Remarks
		Indoor	Outdoor	Remote Controller	
0403	Serial communication error		○		Outdoor unit Multi controller board ~ Power board communication trouble
1102	Compressor temperature		○		Check delay code 1202
1300	Low pressure		○		
1302	High pressure		○		Check delay code 1402
1500	Superheat due to low discharge temperature		○		Check delay code 1600
1501	Refrigerant shortage		○		Check delay code 1601
	Closed valve in cooling mode		○		Check delay code 1501
1503	Freeze protection of branch box or indoor unit		○		
1508	4-way valve trouble in heating mode		○		Check delay code 1608
1521	Refrigerant leakage				
1522		○			
2500	Water leakage	○			
2502	Drain overflow protection	○			
2503	Drain sensor abnormality	○			
4100	Compressor current interruption (locked compressor)		○		Check delay code 4350
4114	Fan motor error	○			
4210	Compressor overcurrent interruption		○		
4220	Undervoltage/overvoltage/PAM error/L1open phase/power synchronization signal error		○		Check delay code 4320
4230	Heat Sink temperature		○		Check delay code 4330
4250	Power module		○		Check delay code 4350
4400	Fan trouble		○		Check delay code 4500
5101	Air inlet thermistor (TH21) open/short	○			
	Compressor temperature thermistor (TH4) open/short		○		Check delay code 1202
5102	Liquid pipe temperature thermistor (TH22) open/short	○			
	Suction pipe temperature thermistor (TH6) open/short		○		Check delay code 1211
5103	Gas pipe temperature thermistor (TH23) open/short	○			
5105	Outdoor liquid pipe temperature thermistor (TH3) open/short		○		Check delay code 1205
5106	Ambient thermistor (TH7) open/short		○		Check delay code 1221
5109	HIC pipe temperature thermistor (TH2) open/short		○		Check delay code 1222
5110	Heat Sink temperature thermistor (TH8) open/short		○		Check delay code 1214
5201	High pressure sensor (63HS)		○		Check delay code 1402
5202	Low pressure sensor (63LS)		○		Check delay code 1400
5558	Refrigerant sensor error	○			
5701	Contact failure of drain float switch	○			
6600	Duplex address error	○	○	○	Only M-NET Remote controller is detected.
6602	Transmission processor hardware error	○	○	○	Only M-NET Remote controller is detected.
6603	Transmission bus BUSY error	○	○	○	Only M-NET Remote controller is detected.
6606	Signal communication error with transmission processor	○	○	○	Only M-NET Remote controller is detected.
6607	No ACK error	○		○	Only M-NET Remote controller is detected. *
6608	No response frame error	○		○	Only M-NET Remote controller is detected. *
6815	MA supervisor remote controller communication error	○			
6831	MA communication receive error (no receive signal)	○		○	Only MA Remote controller is detected.
6832	MA communication send error	○		○	Only MA Remote controller is detected.
6833	MA communication send error	○		○	Only MA Remote controller is detected.
6834	MA communication receive error	○		○	Only MA Remote controller is detected.
7100	Total capacity error		○		
7101	Capacity code error	○	○		
7102	Connecting excessive number of units		○		
7105	Address setting error		○		
7118	Refrigerant leak detection system error		○		
7130	Incompatible unit combination		○		

Note:

When the outdoor unit detects No ACK error/No response error, an object indoor unit is treated as a stop, and not assumed to be abnormal.

\*Abnormality for PWFY series

## 8-2. HOW TO CHECK THE PARTS

Parts name	Checkpoints									
Room temperature detection thermistor (TH1) Pipe temperature detection thermistor/liquid (TH2) Pipe temperature detection thermistor/gas (TH3)	Disconnect the connectors, then measure the resistance with a multimeter. (At ambient temperatures of 10 to 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>4.3–9.6 kΩ</td> <td>Open or short</td> </tr> </tbody> </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 multimeter. (At ambient temperatures of 20 to 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>Red - Yellow (⑤-③, ⑩-⑧, ⑮-⑬, ⑳-⑱)</td> <td rowspan="4" style="text-align: center;">300 Ω</td> <td rowspan="4" style="text-align: center;">Open or short</td> </tr> <tr> <td>Red - Blue (⑤-①, ⑩-⑥, ⑮-⑪, ⑳-⑱)</td> </tr> <tr> <td>Red - Orange (⑤-④, ⑩-⑨, ⑮-⑭, ⑳-⑱)</td> </tr> <tr> <td>Red - White (⑤-②, ⑩-⑦, ⑮-⑫, ⑳-⑰)</td> </tr> </tbody> </table>	Connector	Normal	Abnormal	Red - Yellow (⑤-③, ⑩-⑧, ⑮-⑬, ⑳-⑱)	300 Ω	Open or short	Red - Blue (⑤-①, ⑩-⑥, ⑮-⑪, ⑳-⑱)	Red - Orange (⑤-④, ⑩-⑨, ⑮-⑭, ⑳-⑱)	Red - White (⑤-②, ⑩-⑦, ⑮-⑫, ⑳-⑰)
Connector	Normal	Abnormal								
Red - Yellow (⑤-③, ⑩-⑧, ⑮-⑬, ⑳-⑱)	300 Ω	Open or short								
Red - Blue (⑤-①, ⑩-⑥, ⑮-⑪, ⑳-⑱)										
Red - Orange (⑤-④, ⑩-⑨, ⑮-⑭, ⑳-⑱)										
Red - White (⑤-②, ⑩-⑦, ⑮-⑫, ⑳-⑰)										
Drain pump (DP) 	<ol style="list-style-type: none"> <li>① Check if the drain float switch works properly.</li> <li>② Check if the drain pump works and drains water properly in cooling operation.</li> <li>③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.</li> </ol> Note: The drain pump for this model is driven by the internal DC, so it is not possible to measure the resistance between the terminals.  Normal Red–White: Input 13 V DC → The fan starts to rotate.									
Drain float switch (FS) 	Measure the resistance between the terminals with a multimeter. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>State of moving part</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <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> </tbody> </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 multimeter. (At ambient temperatures of 20 to 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>Red - Yellow</td> <td rowspan="4" style="text-align: center;">250 Ω</td> <td rowspan="4" style="text-align: center;">Open or short</td> </tr> <tr> <td>Red - Blue</td> </tr> <tr> <td>Red - Orange</td> </tr> <tr> <td>Red - White</td> </tr> </tbody> </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 multimeter. (At the coil temperatures of 10 to 30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>White-Red</td> <td rowspan="4" style="text-align: center;">200 Ω ± 10%</td> <td rowspan="4" style="text-align: center;">Open or short</td> </tr> <tr> <td>Yellow-Red</td> </tr> <tr> <td>Orange-Red</td> </tr> <tr> <td>Blue-Red</td> </tr> </tbody> </table> Refer to “8-2-2. Linear expansion valve”.	Connector	Normal	Abnormal	White-Red	200 Ω ± 10%	Open or short	Yellow-Red	Orange-Red	Blue-Red
Connector	Normal	Abnormal								
White-Red	200 Ω ± 10%	Open or short								
Yellow-Red										
Orange-Red										
Blue-Red										

## 8-2-1. Thermistor

<Thermistor characteristic graph>

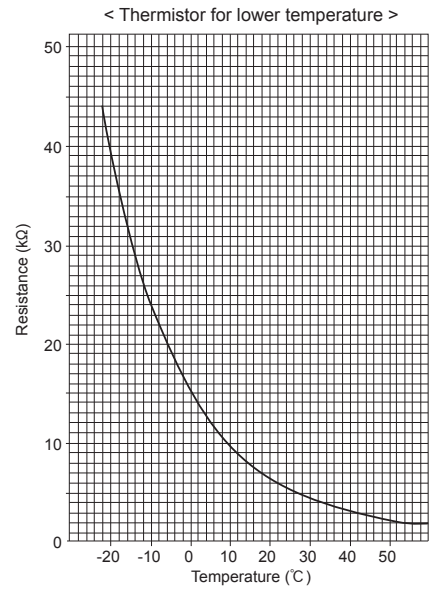
Thermistors for lower temperature

Room temperature detection thermistor (TH1)  
 Pipe temperature detection thermistor/liquid (TH2)  
 Pipe temperature detection thermistor/gas (TH3)

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

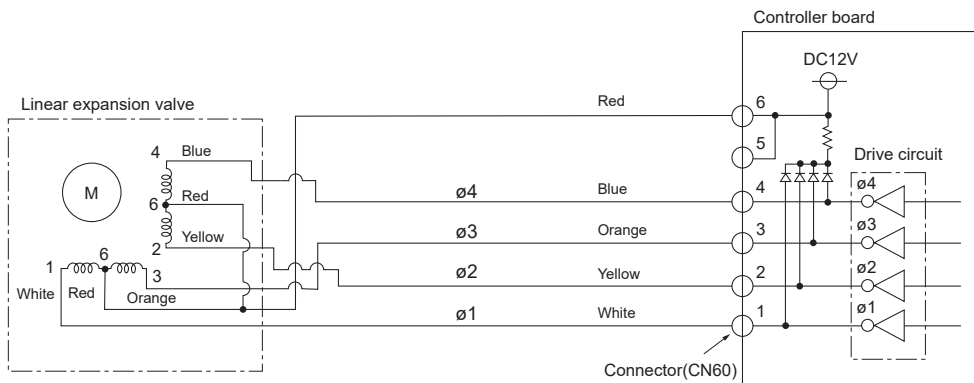


## 8-2-2. Linear expansion valve

### 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>

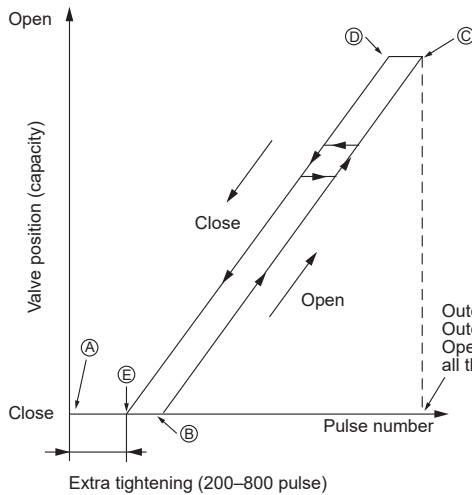
Output (Phase)	Output			
	1	2	3	4
ø1	ON	OFF	OFF	ON
ø2	ON	ON	OFF	OFF
ø3	OFF	ON	ON	OFF
ø4	OFF	OFF	ON	ON

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

**Note:**

- When linear expansion valve operation stops, all output phases 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

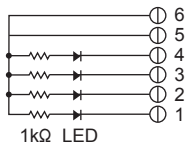
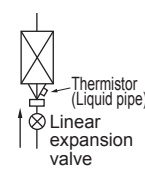


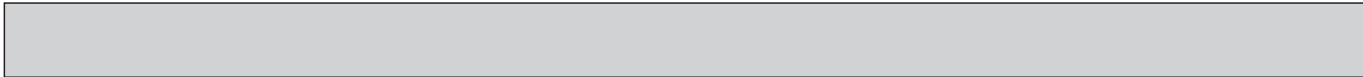
Outdoor unit R410A/R32 model : 1400 pulse  
 Outdoor unit R22/R407C model : 2000 pulse  
 Opening a valve all the way

- When the power is turned on, 2200 pulse closing valve signal will be sent till it goes to point A in order to define the valve position.

When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valves, however, when the pulse number moves from E to A or when the valve is locked, more sound can be heard than in a normal situation.  
 · Sound 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	Checkpoints	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  1kΩ LED 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) with a multimeter. It is normal if the resistance is in the range of 200 Ω ±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 leakage, 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 at the controller board, then check for continuity.



### 8-2-3. DC Fan motor (fan motor/indoor controller board)

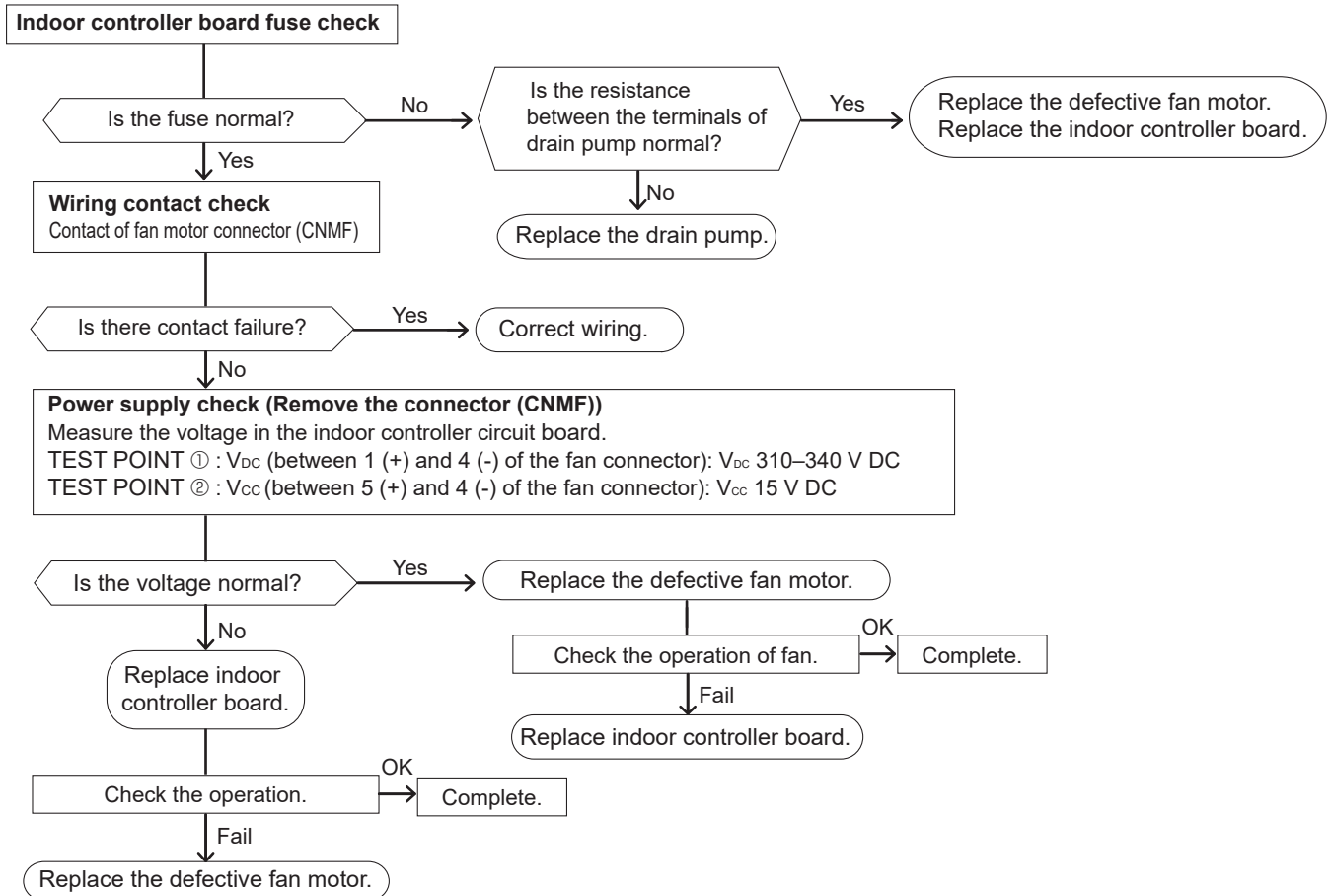
Check method of indoor fan motor (fan motor/indoor controller board)

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.)


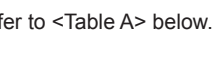







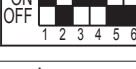








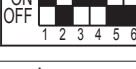








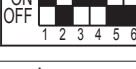


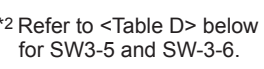
② Self check

Conditions : The indoor fan cannot rotate.



### 8-3. FUNCTION OF DIP SWITCH

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	<Initial setting> ON  OFF  *1 Refer to <Table A> below.																								
	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	Airflow set in case of thermo-OFF at heating mode	Low*1	Extra low*1																										
	8	Auto restart function	Effective	Not effective																										
	9	Power ON/OFF by breaker	Effective	Not effective																										
SW2 Capacity code setting	1-6	<table border="1"> <thead> <tr> <th>MODELS</th> <th>SW2</th> <th>MODELS</th> <th>SW2</th> <th>MODELS</th> <th>SW2</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>ON OFF </td> <td>40</td> <td>ON OFF </td> <td>80</td> <td>ON OFF </td> </tr> <tr> <td>25</td> <td>ON OFF </td> <td>50</td> <td>ON OFF </td> <td>100</td> <td>ON OFF </td> </tr> <tr> <td>32</td> <td>ON OFF </td> <td>63</td> <td>ON OFF </td> <td>125</td> <td>ON OFF </td> </tr> </tbody> </table>	MODELS	SW2	MODELS	SW2	MODELS	SW2	20	ON OFF 	40	ON OFF 	80	ON OFF 	25	ON OFF 	50	ON OFF 	100	ON OFF 	32	ON OFF 	63	ON OFF 	125	ON OFF 			Before power supply ON	<Initial setting> Set for each capacity.
		MODELS	SW2	MODELS	SW2	MODELS	SW2																							
		20	ON OFF 	40	ON OFF 	80	ON OFF 																							
		25	ON OFF 	50	ON OFF 	100	ON OFF 																							
		32	ON OFF 	63	ON OFF 	125	ON OFF 																							
		1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	<Initial setting> ON  OFF  *2 Refer to <Table D> below for SW3-5 and SW3-6.																							
		2	—	—	—	Before power supply ON																								
		3	3D i-see Sensor positioning	The setting depends on the combination of SW3-3 and SW3-4. Refer to <Table B> below.		Under suspension																								
		4	Vane horizontal angle ①	Second setting*2	First setting*2																									
5	Vane horizontal angle ②	Third setting*2	Depends on SW3-5																											
6	Changing the opening of linear expansion valve	Effective	Not effective																											
7	Heat 4 degrees up	Not effective	Effective																											
8	3D i-see Sensor ceiling height setting	The setting depends on the combination of SW3-9 and SW3-10. Refer to <Table C> below.																												
9	—	—	—																											
0	—	—	—																											

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting airflow
ON	ON	stop

<Table B>

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

<Table C>

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

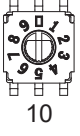

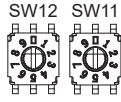




<Table D>

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

\*3 Smudge could be left on the ceiling.





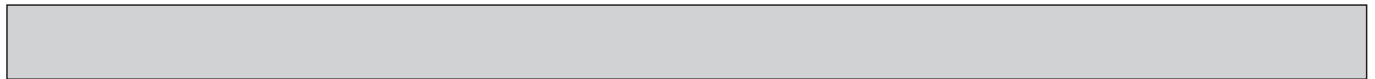


Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW11 1s digit address setting  SW12 10s digit address setting	Rotary switch	  SW12 SW11 10 1	Address setting should be done when M-NET remote controller is being used.		Before power supply ON	<Initial setting> 
SW14 Connection 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.			<Initial setting> 
SW21 Function Selection	1	Setting the ceiling height	Depending on the combination of SW1-1 and SW1-2. Refer to <Table E> below.		Under suspension	<Initial setting> ON  OFF  1 2 3 4 5 6
	2	Setting the ceiling height	Depending on the combination of SW1-3 and SW21-4. Refer to <Table E> below.			
	3	Setting the number of air outlet	Option	Standard		
	4	Setting the number of air outlet	Not used	Not used		
	5	Setting for optional parts	Not used	Not used		
	6	Not used	Not used	Not used		

<Table E>

Ceiling height		PLFY-MS20VEM PLY-MS25VEM PLFY-MS32VEM PLY-MS40VEM PLFY-MS50VEM						PLFY-MS63VEM PLY-MS80VEM PLFY-MS100VEM PLY-MS125VEM					
		Silent		Standard		High ceiling		Silent		Standard		High ceiling	
Blowout directions	SW21-3	SW21-4	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	SW21-1	SW21-2	
	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	
4 directions	SW21-3 OFF	SW21-4 ON	2.5 m	2.7 m	3.5 m	2.7 m	3.2 m	4.5 m					
3 directions	SW21-3 OFF	SW21-4 OFF	2.7 m	3.0 m	3.5 m	3.0 m	3.6 m	4.5 m					
2 directions	SW21-3 ON	SW21-4 OFF	3.0 m	3.3 m	3.5 m	3.3 m	4.0 m	4.5 m					

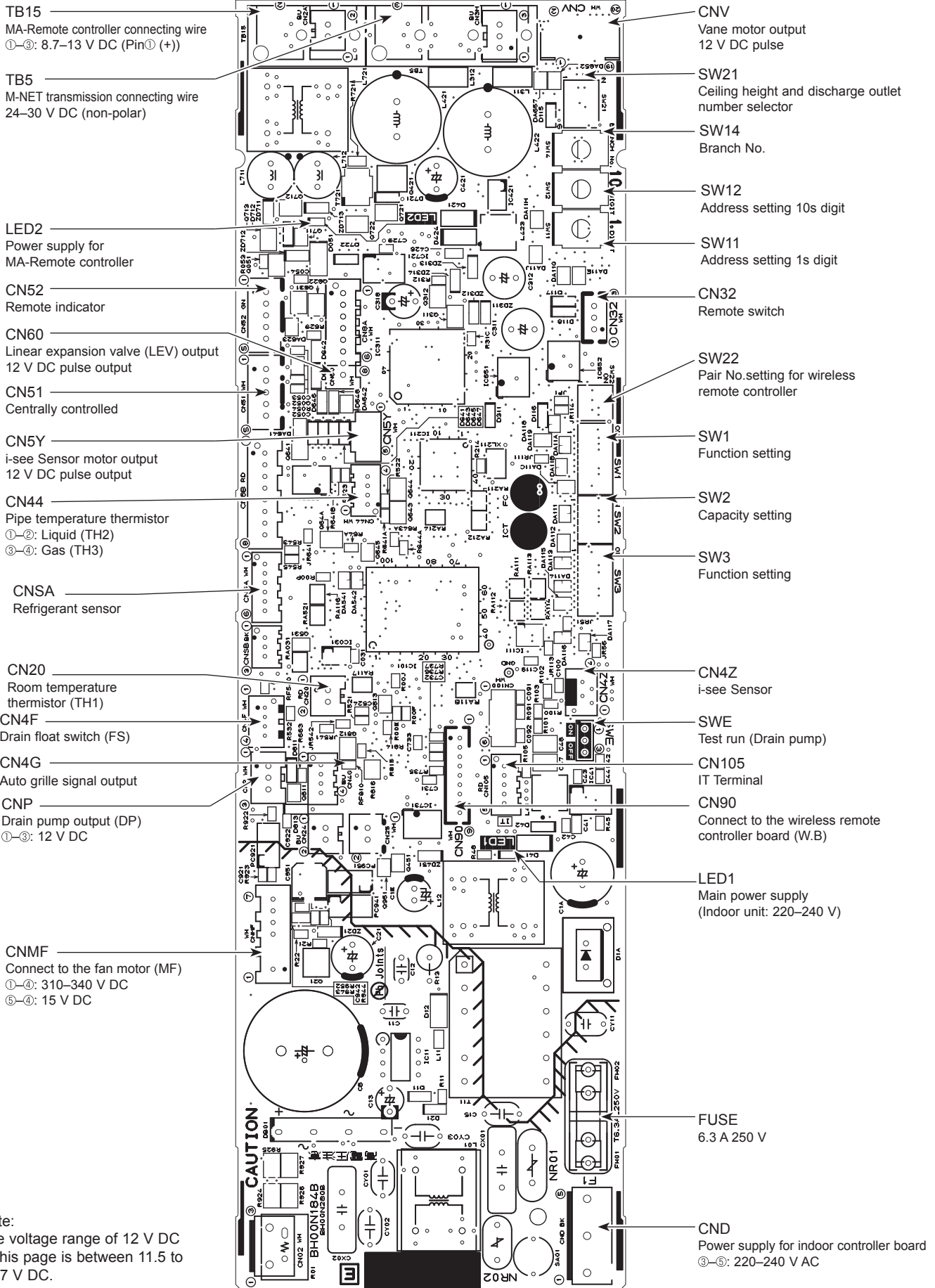
Note: The setting with  indicates the initial setting; To change it to other than , switch setting is necessary.



Switch	Pole	Function	Operation by switch		Effective timing	Remarks																																				
			ON	OFF																																						
SW22 Function selection	Switch	<table border="1"> <thead> <tr> <th>Function</th> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—</td> <td>—</td> </tr> <tr> <td>2</td> <td>—</td> <td>—</td> </tr> <tr> <td>3 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 Pair No. of wireless remote controller</td> <td colspan="2">Depends on the combination of SW22-3 and 22-4</td> </tr> </tbody> </table> <p>           • 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.         </p> <p>           • Pair No. setting is not set necessarily when operating it by one remote controller.         </p> <p>           ① Setting for indoor unit            • Set SW22-3, 22-4 on the indoor controller board according to the table below.         </p> <p>           ② Wireless remote controller pair number:            • Setting operation (Fig. 1 ㉑)            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.)         </p> <p>           • Pair No. changing operation (Fig. 2 ㉒)            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.         </p> <table border="1"> <thead> <tr> <th colspan="2">Indoor unit SW22</th> <th rowspan="2">Pair No. of wireless remote controller</th> <th rowspan="2">Initial setting</th> </tr> <tr> <th>SW22-3</th> <th>SW22-4</th> </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	Depends on the combination of SW22-3 and 22-4		Indoor unit SW22		Pair No. of wireless remote controller	Initial setting	SW22-3	SW22-4	ON	ON	0	Initial setting	OFF	ON	1	—	ON	OFF	2	—	OFF	OFF	3-9	—			<p>&lt;Initial setting&gt;</p> <p>①</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																																									
4 Pair No. of wireless remote controller	Depends on the combination of SW22-3 and 22-4																																									
Indoor unit SW22		Pair No. of wireless remote controller	Initial setting																																							
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>&lt;Initial setting&gt;</p>																																				

# 8-4. TEST POINT DIAGRAM

## Indoor controller board



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

## 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 when the storage detection switch is pressed for 5 seconds continuously.

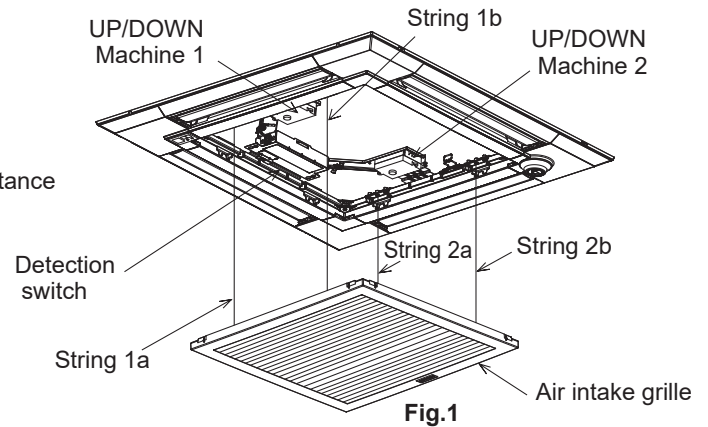
- When receiving commands of STOP, DOWN while moving up or UP while moving down.

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 b in each UP/DOWN Machine has a tension detection switch.



### (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.

10 cm down → 30 cm up → … → 10 cm down → 30 cm up

#### ② No-load detection

Case : UP/DOWN commands with no grille suspended.

When both string 1b and string 2b are not loaded, the strings will not move.

#### 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]

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.

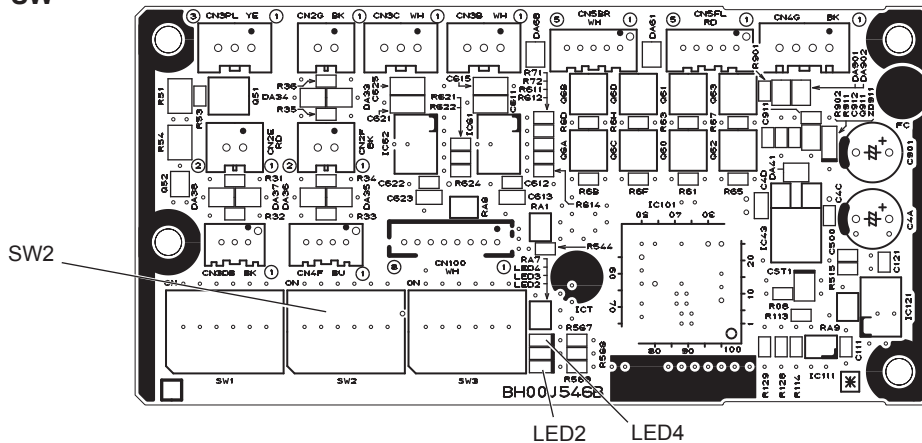
- For the operation using the emergency up/down switch at the wireless signal receiver, refer to SW1 and SW2 on the [LEGEND] in the next page.

2. When machine for ELEVATION PANEL breaks down, an 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

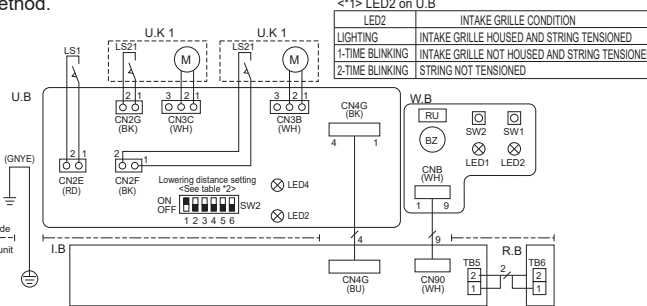
[EMERGENCY OPERATION]

- 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].
- When machine for ELEVATION PANEL breaks down, an 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.

<\*2>SW2 on U.B

LOWERING DISTANCE	SET UP	LOWERING DISTANCE	SET UP
1.2m	ON OFF [1][2][3][4][5][6]	2.8m	ON OFF [1][2][3][4][5][6]
1.6m (Initial setting)	ON OFF [1][2][3][4][5][6]	3.2m	ON OFF [1][2][3][4][5][6]
2.0m	ON OFF [1][2][3][4][5][6]	3.6m	ON OFF [1][2][3][4][5][6]
2.4m	ON OFF [1][2][3][4][5][6]	4.0m	ON OFF [1][2][3][4][5][6]

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.



[Note]

- Symbols used in wiring diagram above are, : Connector, : Terminal (block).
- The black square (■) indicates a switch position.

### 9-2-2. Checkpoint of trouble

#### <LED 2 Orange 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>

- Blink : Connecting

#### <controller board>

Check item	Checkpoint	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)	10-13.5 V DC	Check when instructing up/down with LED blinking once.

#### <Up/down machine>

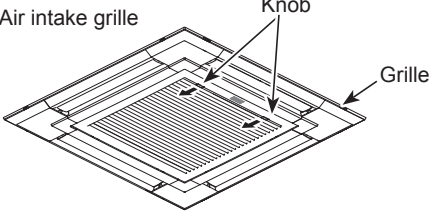
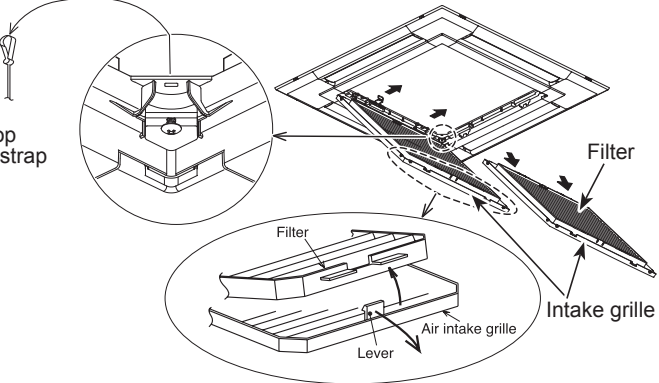
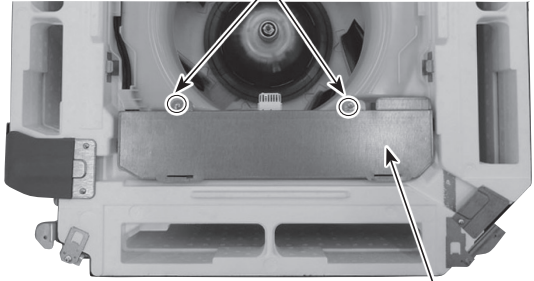
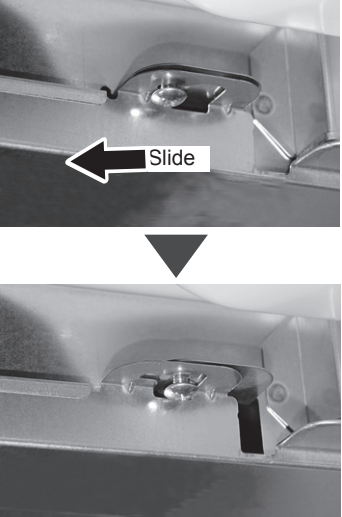
Check item	Checkpoint	Normal	Check contents
Storage detection switch	CN2E	open or short	Check if it is short by pressing push switch.
Tension detection switch	CN2F, CN2G	open or short	Check if it is short when string b is tensioned.
Motor	CN3B	5-20 Ω	Check if it is not open or short.
Entwining strings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

### 9-3. TROUBLESHOOTING

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 winded 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.	

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

Be careful when removing heavy parts.

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



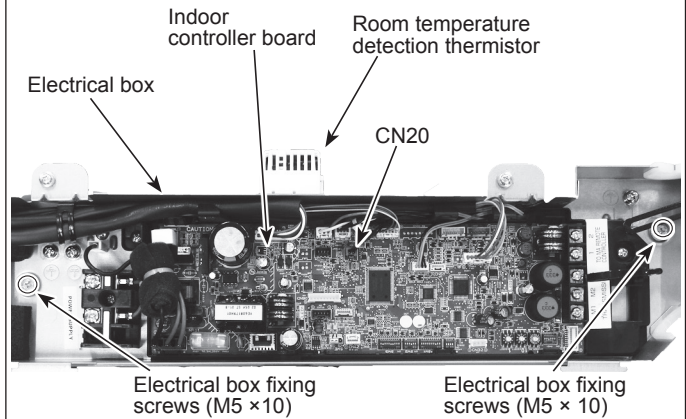
## OPERATING PROCEDURE

### 4. Removing the room temperature thermistor (TH21)

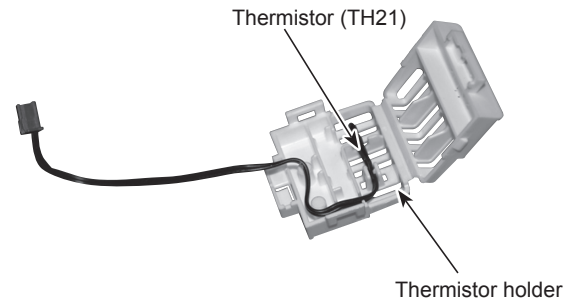
- (1) Remove the electrical box cover. (See Photo 1 and 2)
- (2) Disconnect the connector CN20 from the indoor controller board.
- (3) Remove the room temperature thermistor with its holder. (See Photo 4)

## PHOTOS/FIGURES

**Photo 3**



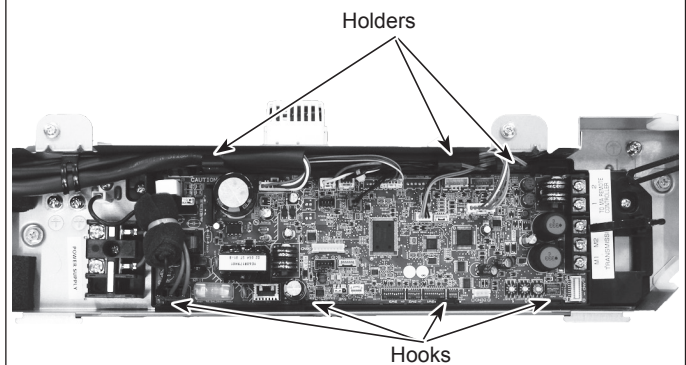
**Photo 4**



### 5. Removing the indoor controller board (I.B)

- (1) Remove the electrical box cover. (See Photo 1 and 2)
- (2) Disconnect the connectors:
  - CNMF for fan motor
  - CNV for vane motor
  - CN5Y for motor for i-see Sensor (Option)
  - CN4Z for sensor for i-see Sensor (Option)
  - CN90 for signal receiver (Option)
  - CNP for drain pump
  - CN4F for float switch
  - CN44 for thermistor (TH22/TH23)
  - CN60 for LEV
  - CND for Indoor/Outdoor connecting line
  - CNSA for refrigerant sensor
 Disconnect the connectors for optional parts, if any.
- (3) Disconnect the lead wire connected to the TB5 on the indoor controller board.  
TB5: M-NET transmission connecting wire
- (4) For the unit controlled with the wireless remote controller, disconnect the lead wire connected to the TB15 on the indoor controller board.
- (5) Remove the indoor controller board (3 holders/4 hooks). (See Photo 5)

**Photo 5**



Be careful when removing heavy parts.

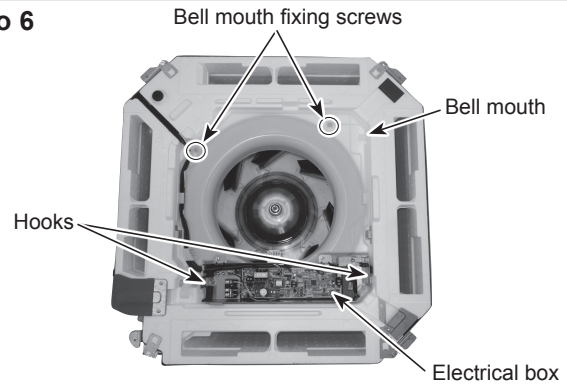
## OPERATING PROCEDURE

## PHOTOS/FIGURES

### 6. Removing the electrical box

- (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)  
<Electrical parts in the electrical box>
  - Terminal block for earth and reactor
  - Indoor controller board
  - Thermistor (TH21)
- (3) Remove the electrical box (2 hooks).

Photo 6



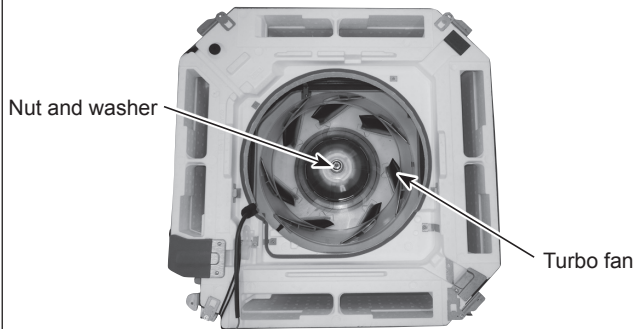
### 7. Removing the turbo fan

- (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 nut (M8 × 1) and a washer. (See Photo 7 and 8.)
- (4) Remove the turbo fan.

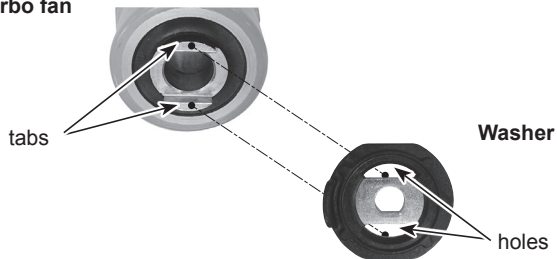
**Note 1:** When assembling the turbo fan, attach it so that its tabs fit the holes of washer.

**Note 2:** Nut tightening torque:  $4.5 \pm 0.5$  Nm.

Photo 7



Turbo fan



< Nut and washer >

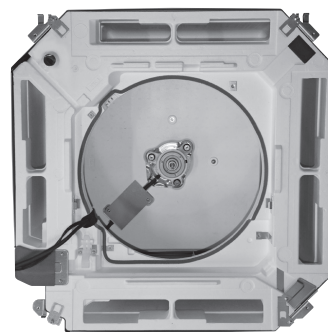


Photo 8



Turn this way to tighten. Turn this way to loosen.  
(The same directions as the fan rotation.)

Photo 9

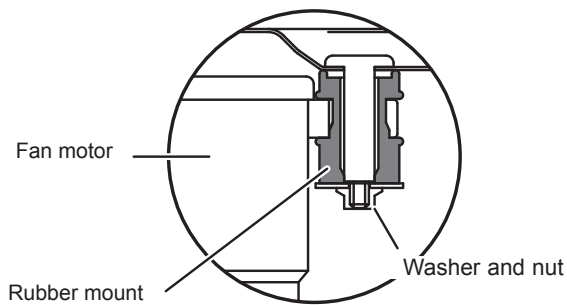


## OPERATING PROCEDURE

### 8. Removing the fan motor (MF)

- (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.

**Figure 3: Partial cross section**



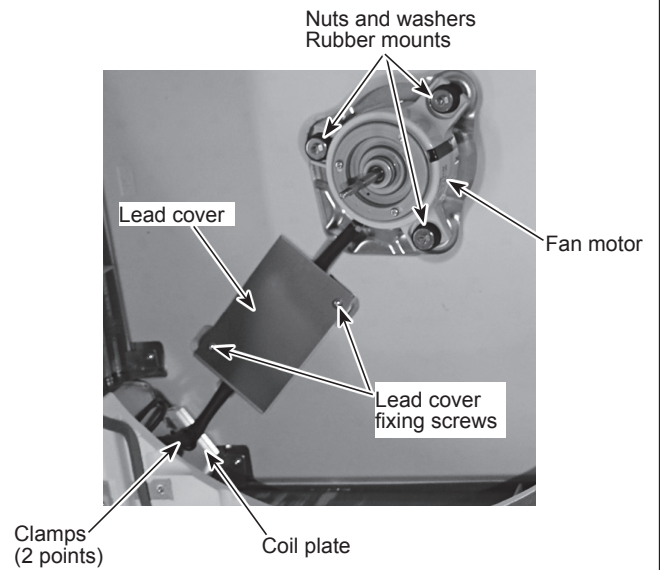
**Note:** When re-attaching the motor mount, make sure that the thicker end faces the motor shaft.

### 9. Removing the panel

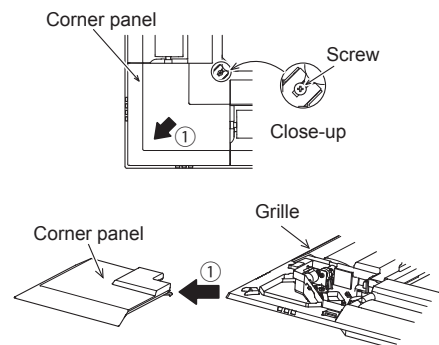
- (1) Remove the electrical box fixing cover. (See Photo 1)
- (2) Disconnect the connector for vane motor (CNV). (Refer to procedure 5)
- (3) Loosen the 4 corner panel fixing screws (tapping screw 4×16). (See Figure 4)
- (4) Slide the corner panel to the direction of the arrow 1, and remove the corner 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)

## PHOTOS/FIGURES

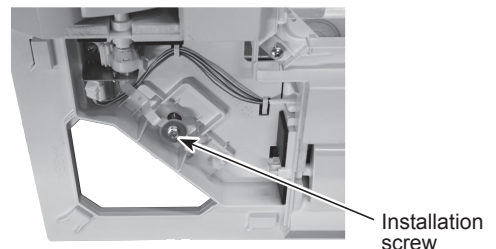
**Photo 10**



**Figure 4**



**Photo 11**



**Photo 12**



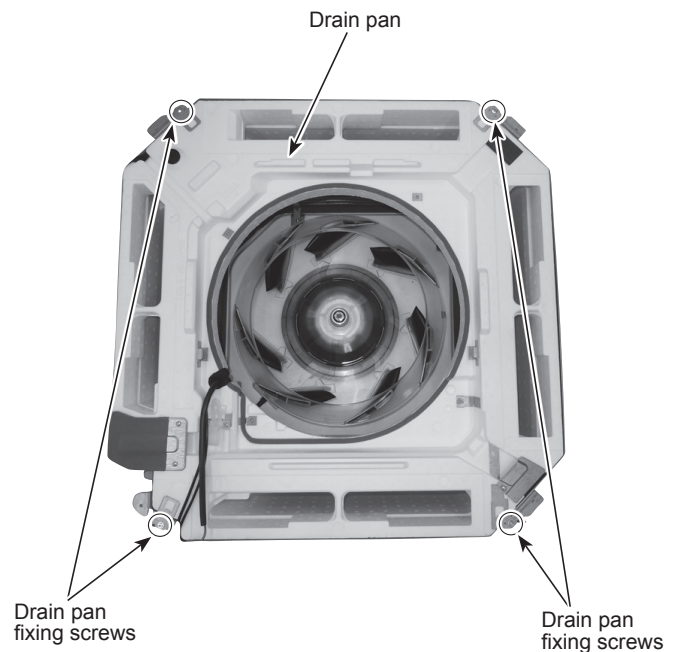
## OPERATING PROCEDURE

## PHOTOS/FIGURES

### 10. Removing the drain pan

- (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).

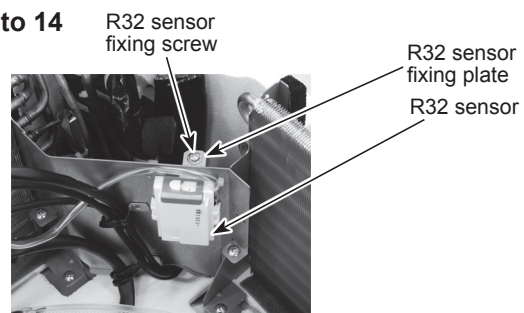
Photo 13



### 11. Removing the R32 sensor

- (1) Remove the drain pan. (Refer to procedure 10)
- (2) Remove the screw of R32 sensor and remove the R32 sensor. (See photo 14)
- (3) Slide and remove the R32 sensor fixing plate. (See photo 14)

Photo 14



### 12. Removing the LEV coil

- (1) Remove the drain pan (Refer to procedure 10)
- (2) Remove the coil plate (tapping screw 4×10: 2 screws).
- (3) Cut the band.
- (4) Rotate and remove the LEV coil. (See photo 15)
- (5) When attaching the LEV coil, make sure the coil is oriented as shown in Figure 5.

Photo 15

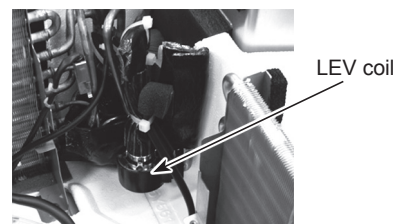
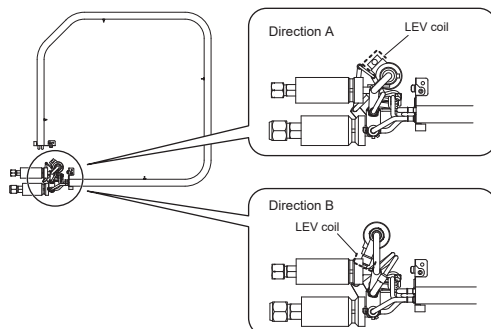


Figure 5

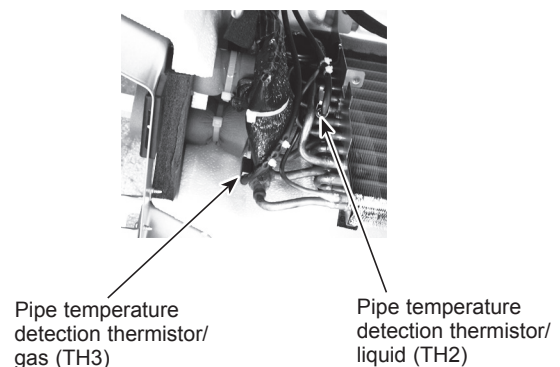


Direction A	Direction B
PLFY-MS20VEM	PLFY-MS80VEM
PLFY-MS25VEM	PLFY-MS100VEM
PLFY-MS32VEM	PLFY-MS125VEM
PLFY-MS40VEM	
PLFY-MS50VEM	
PLFY-MS63VEM	

### 13. Removing the pipe temperature/liquid thermistor (TH2) and condenser/evaporator temperature thermistor (TH3)

- (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 (TH2) and condenser/evaporator temperature thermistor (TH3) from the holder.

Photo 16

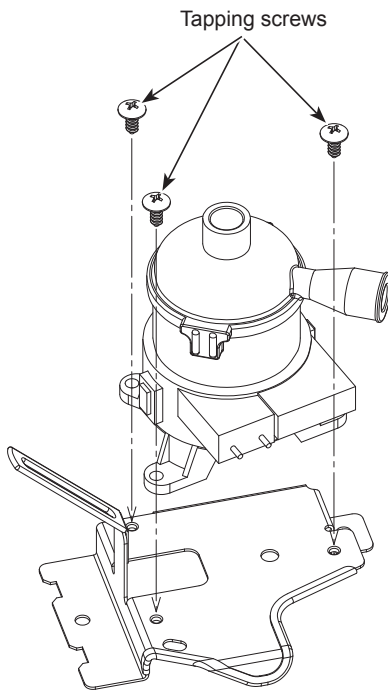


## OPERATING PROCEDURE

### 14. Removing the drain pump (DP)

- (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 6)
- (6) Remove the lead wire of the drain pump from the clamp of the drain pump base. (See Figure 6)
- (7) Remove the drain pump (tapping screw: 3 screws). (See Figure 7)

Figure 7



## PHOTOS/FIGURES

Photo 17

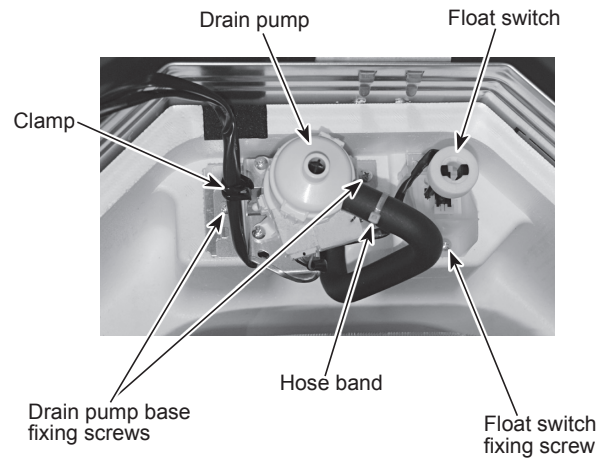
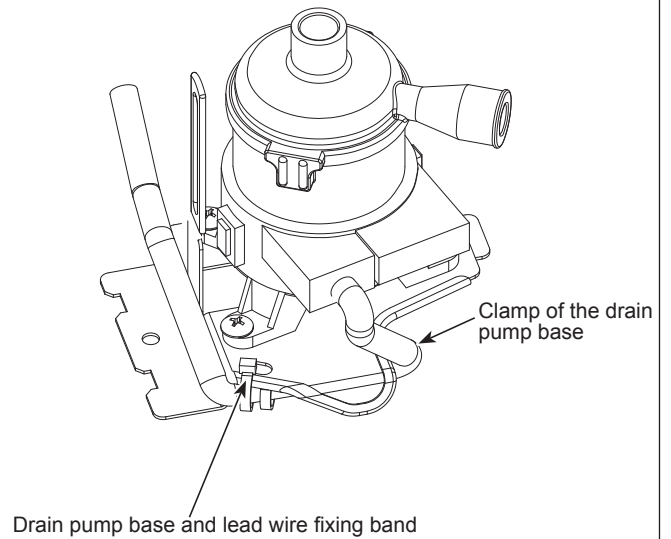


Figure 6





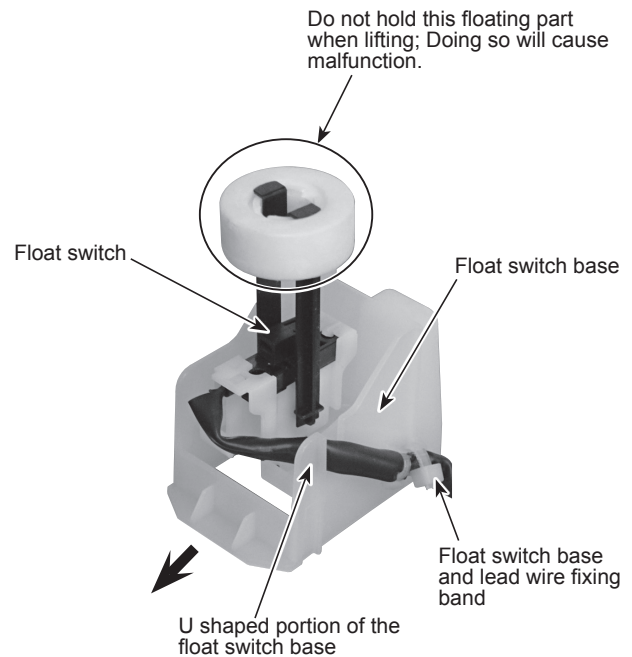
## OPERATING PROCEDURE

### 15. Removing the float switch (FS)

- (1) Remove the drain pan. (Refer to procedure 10)
- (2) Loosen the clamp of the drain pump. (See Photo 17)
- (3) Remove the float switch (tapping screw 4×10: 1 screw/1 hook). (See Photo 17)
- (4) Remove the float switch base and the lead wire fixing band. (See Photo 18)
- (5) Remove the lead wire from the U shaped portion of the float switch base. (See Photo 18)
- (6) Slide the float switch towards the arrow to remove from the float switch base.

## PHOTOS/FIGURES

Photo 18



### 16. Removing the heat exchanger

- (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)
  - M20-80: 1 coil support (See photo 19)
  - M100, 125: 3 coil supports (See photo 20)
- (6) Remove the heat exchanger.

Photo 19

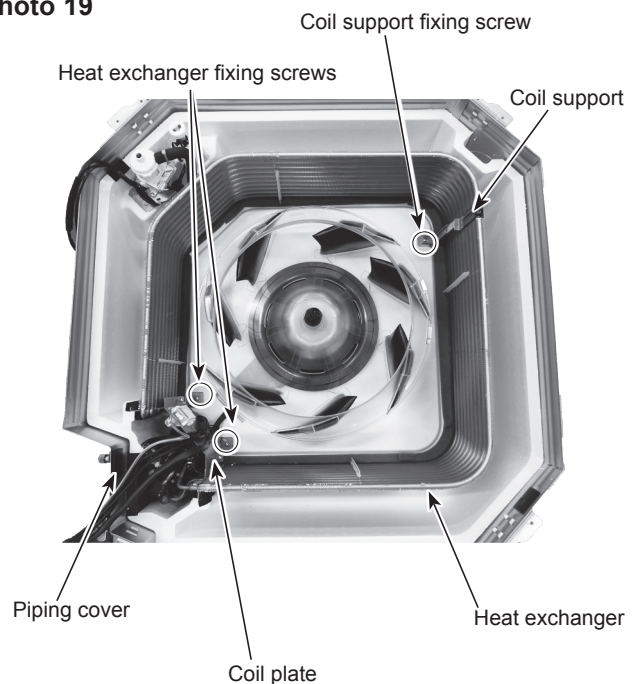
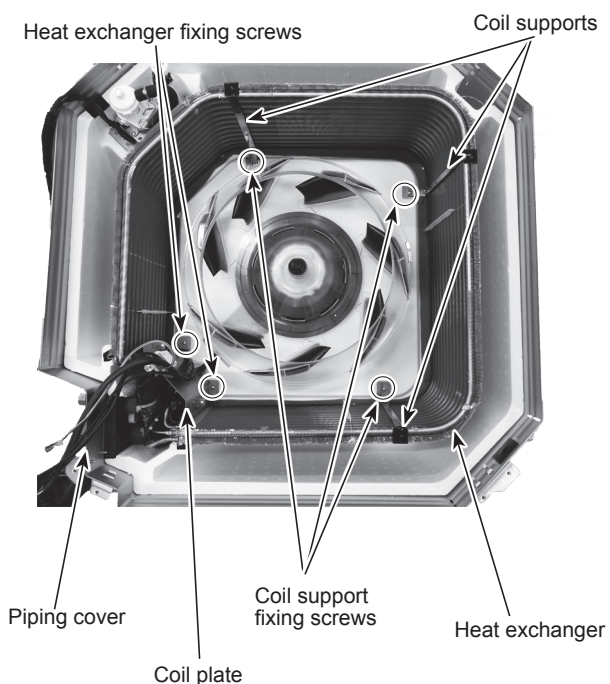


Photo 20



# CITY MULTI

**MITSUBISHI ELECTRIC CORPORATION**

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