Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

December 2012

No.OCH463
REVISED EDITION-C

TECHNICAL & SERVICE MANUAL

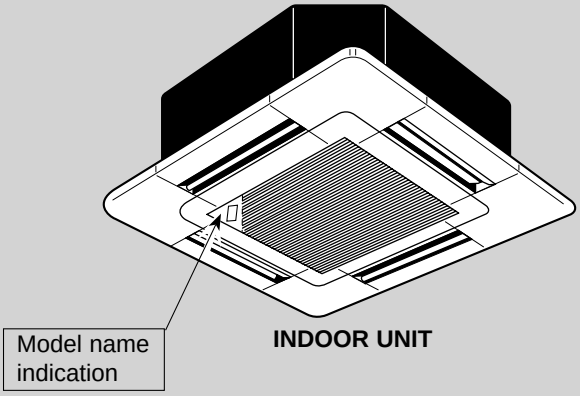
Series PLFY Ceiling Cassettes R410A / R407C / R22

Indoor unit [Model names]	[Service Ref.]
PLFY-P15VCM-E2	PLFY-P15VCM-E2.TH
	PLFY-P15VCM-E2R1.TH
PLFY-P20VCM-E2	PLFY-P20VCM-E2.TH
	PLFY-P20VCM-E2R1.TH
	PLFY-P20VCM-E2R2.TH
PLFY-P25VCM-E2	PLFY-P25VCM-E2.TH
	PLFY-P25VCM-E2R1.TH
	PLFY-P25VCM-E2R2.TH
PLFY-P32VCM-E2	PLFY-P32VCM-E2.TH
	PLFY-P32VCM-E2R1.TH
	PLFY-P32VCM-E2R2.TH
PLFY-P40VCM-E2	PLFY-P40VCM-E2.TH
	PLFY-P40VCM-E2R1.TH
	PLFY-P40VCM-E2R2.TH

Revision:
- PLFY-P15VCM-E2R1.TH and PLFY-P20/25/32/40VCM-E2R2.TH have been added in REVISED EDITION-C.
- Some descriptions have been modified.

- Please void OCH463 REVISED EDITION-B.

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



CONTENTS

PARTS CATALOG (OCB463)

1 TECHNICAL CHANGES

PLFY-P15VCM-E2.TH ➔ PLFY-P15VCM-E2R1.TH
PLFY-P20VCM-E2R1.TH ➔ PLFY-P20VCM-E2R2.TH
PLFY-P25VCM-E2R1.TH ➔ PLFY-P25VCM-E2R2.TH
PLFY-P32VCM-E2R1.TH ➔ PLFY-P32VCM-E2R2.TH
PLFY-P40VCM-E2R1.TH ➔ PLFY-P40VCM-E2R2.TH

• INDOOR CONTROLLER BOARD has been changed. (S/W version up)

PLFY-P20VCM-E2.TH ➔ PLFY-P20VCM-E2R1.TH
PLFY-P25VCM-E2.TH ➔ PLFY-P25VCM-E2R1.TH
PLFY-P32VCM-E2.TH ➔ PLFY-P32VCM-E2R1.TH
PLFY-P40VCM-E2.TH ➔ PLFY-P40VCM-E2R1.TH

• TURBO FAN has been changed.

2 SAFETY PRECAUTION

CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R407C

Do not use the existing refrigerant piping.

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

Use "low residual oil piping"

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

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

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

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

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

Use liquid refrigerant to charge the system.

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

Do not use a refrigerant other than R407C.

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

Use a vacuum pump with a reverse flow check valve.

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

Use the specified refrigerant only.

Never use any refrigerant other than that specified.
Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

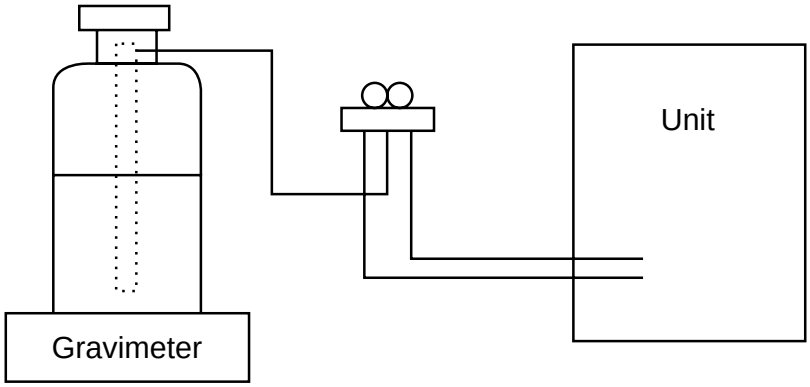
Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

[1] Cautions for service

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

[2] Refrigerant recharging

(1) Refrigerant recharging process
①Direct charging from the cylinder.
· R407C cylinder available on the market has a syphon pipe.
· Leave the syphon pipe cylinder standing and recharge it.
(By liquid refrigerant)



(2) Recharge in refrigerant leakage case
· After recovering the all refrigerant in the unit, proceed to working.
· Do not release the refrigerant in the air.
· After completing the repair service, recharge the cycle with the specified amount of liquid refrigerant.

[3] Service tools

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

No.	Tool name	Specifications
①	Gauge manifold	· Only for R407C
		· Use the existing fitting SPECIFICATIONS. (UNF7/16)
		· Use high-tension side pressure of 3.43MPa·G or over.
②	Charge hose	· Only for R407C
		· Use pressure performance of 5.10MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	· Use the detector for R134a or R407C.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· For R407C · Top of cylinder (Brown) · Cylinder with syphon
⑧	Refrigerant recovery equipment	—

Cautions for units utilizing refrigerant R410A

Do not use the existing refrigerant piping.

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

Use "low residual oil piping"

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

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

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

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

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

Charge refrigerant from liquid phase of gas cylinder.

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

Do not use refrigerant other than R410A.

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

Use a vacuum pump with a reverse flow check valve.

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

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

The following tools are necessary to use R410A refrigerant.

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

Handle tools with care.

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

Do not use a charging cylinder.

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

Use the specified refrigerant only.

Never use any refrigerant other than that specified.
Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

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

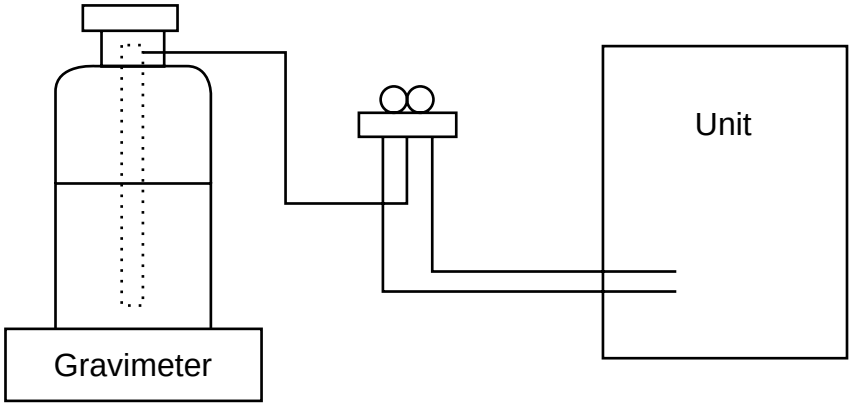
[1] Cautions for service

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

[2] Additional refrigerant charge

When charging directly from cylinder

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



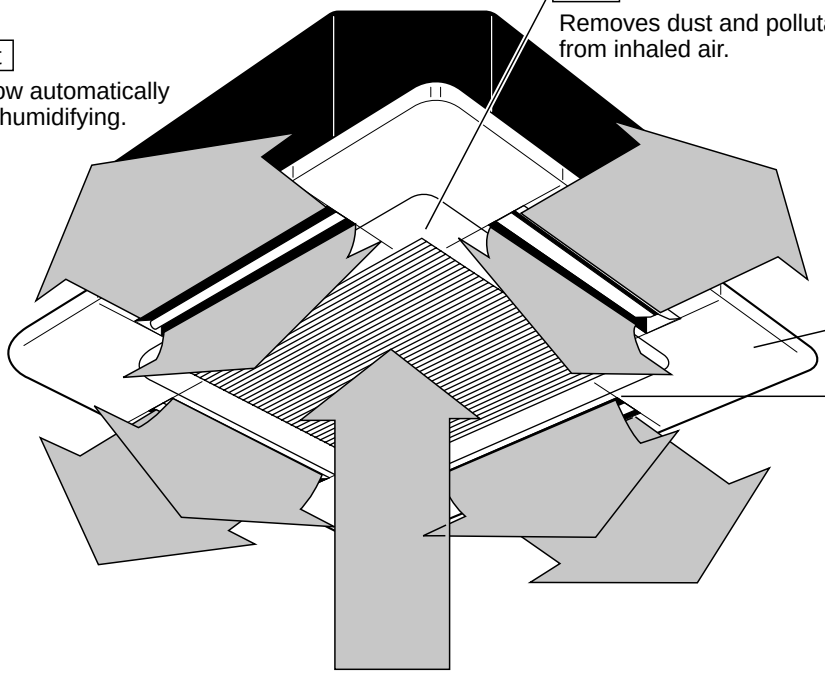
[3] Service tools

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

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

3 PART NAMES AND FUNCTIONS

3-1. Indoor Unit



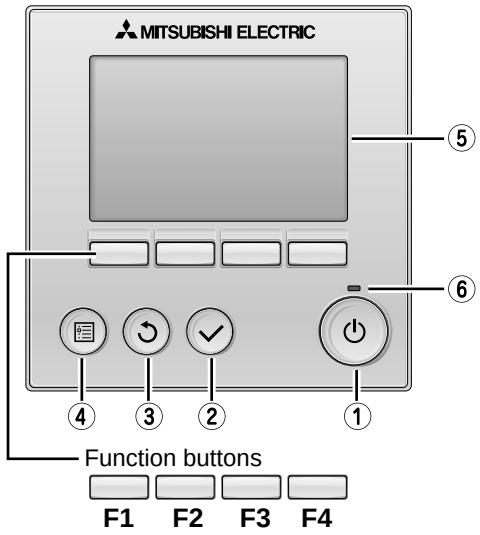
3-2. WIRED REMOTE CONTROLLER <PAR-30MAA/PAR-31MAA>

Wired remote controller function

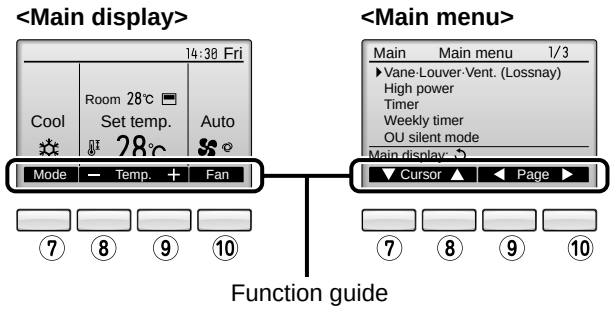
* The functions which can be used are restricted according to the model.

○ : Supported ✕ : Unsupported

	Function	PAR-30MAA/PAR-31MAA		PAR-21MAA
		Slim	City multi	
Body	Product size H × W × D (mm)	120 × 120 × 19		120 × 130 × 19
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		✕
Energy-saving	Energy-saving operation schedule	○	✕	✕
	Automatic return to the preset temperature	○		✕
Restriction	Setting the temperature range restriction	○		○
Function	Operation lock function	○		○
	Weekly timer	○		✕
	On / Off timer	○		○
	High Power	○	✕	✕
	Manual vane angle	○		○



The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① ON / OFF button

Press to turn ON/OFF the indoor unit.

② SELECT button

Press to save the setting.

③ RETURN button

Press to return to the previous screen.

④ MENU button

Press to bring up the Main menu.

⑤ Backlit LCD

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

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

⑥ ON / OFF lamp

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

⑦ Function button F1

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

⑧ Function button F2

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

⑨ Function button F3

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

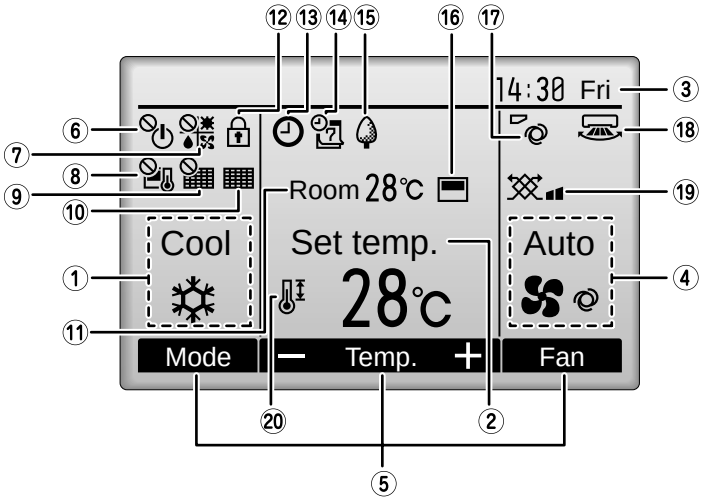
⑩ Function button F4

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

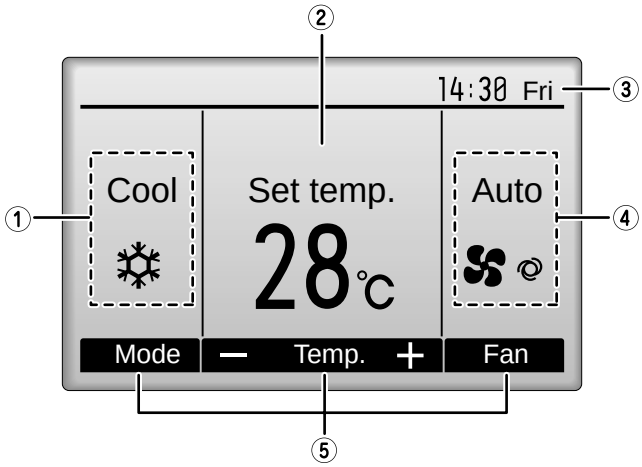
The main display can be displayed in two different modes: "Full" and "Basic".
The factory setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting.

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

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

⑭

Appears when the Weekly timer is enabled.

⑮

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

⑯

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

⑰

Indicates the vane setting.

⑱

Indicates the louver setting.

⑲

Indicates the ventilation setting.

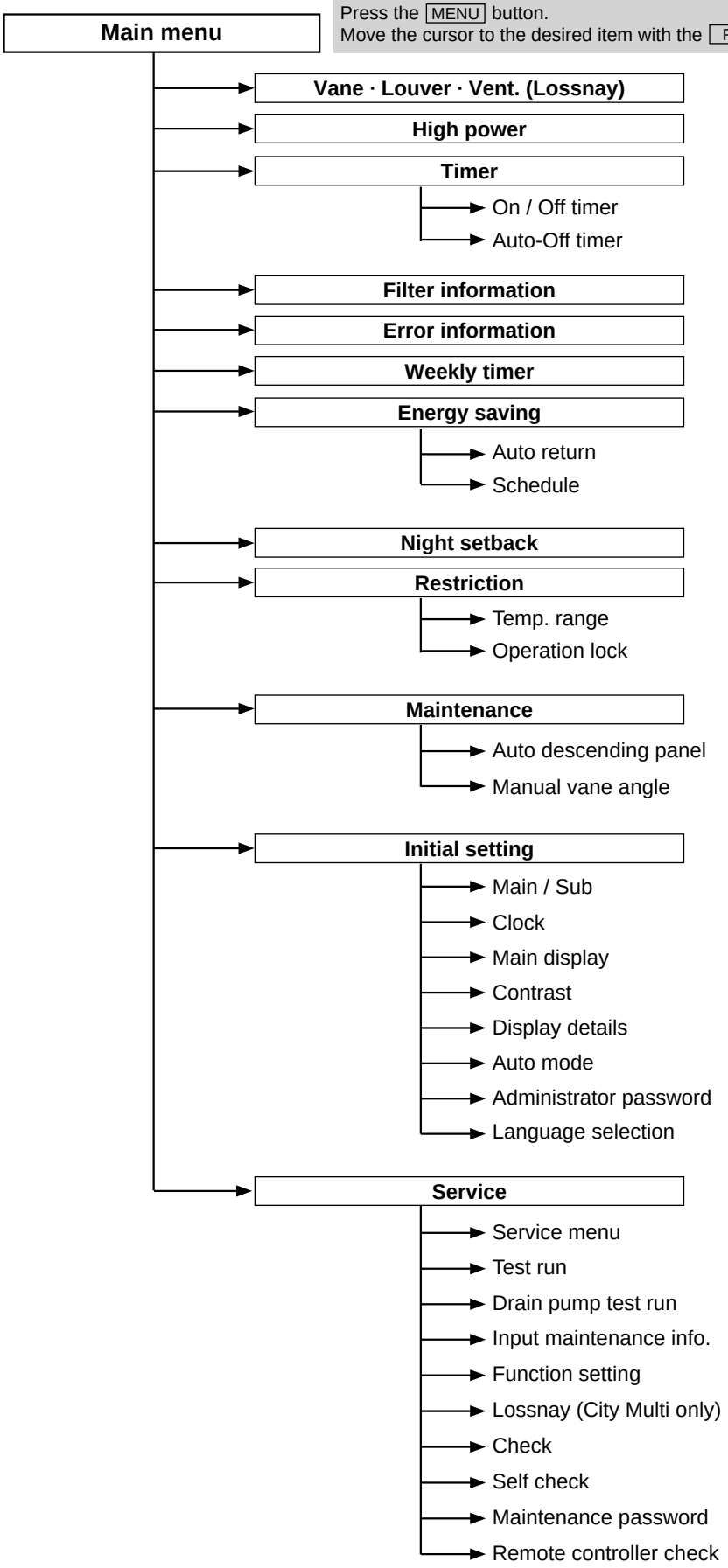
⑳

Appears when the preset temperature range is restricted.

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

Menu structure

Press the [MENU] button.
Move the cursor to the desired item with the [F1] and [F2] buttons, and press the [SELECT] button.



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

Main menu list

Setting and display items		Setting details
Vane · Louver · Vent. (Lossnay)		**Use to set the vane angle.** • Select a desired vane setting from five different settings. **Use to turn ON / OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
High power		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
Timer	**On/Off timer**	**Use to set the operation On/Off times.** • Time can be set in 5-minute increments. * Clock setting is required.
	Auto-Off timer	**Use to set the Auto-Off time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
Filter information		**Use to check the filter status.** • The filter sign can be reset.
Error information		**Use to check error information when an error occurs.** • Error code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. * The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.
Weekly timer		**Use to set the weekly operation On / Off times.** • Up to eight operation patterns can be set for each day. * Clock setting is required. * Not valid when the On/Off timer is enabled.
Energy saving	**Auto return**	**Use to get the units to operate at the preset temperature after performing energy-save operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. * This function will not be valid when the preset temperature ranges are restricted.
	Schedule	**Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the energy-saving rate.** • Up to four energy-save 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. * Clock setting is required.
Night setback		**Use to make Night setback settings.** • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set. * Clock setting is required.
Restriction	**Temp. range**	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
	Operation lock	**Use to lock selected functions.** • The locked functions cannot be operated.
Maintenance	**Auto descending panel**	**Auto descending panel (Optional parts) Up / Down you can do.**
	Manual vane angle	**Use to set the vane angle for each vane to a fixed position.**
Initial setting	**Main/Sub**	**When connecting two remote controllers, one of them needs to be designated as a sub controller.**
	Clock	**Use to set the current time.**
	Main display	**Use to switch between "Full" and "Basic" modes for the Main display.** • The default setting is "Full."
	Contrast	**Use to adjust screen contrast.**

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

3-3. WIRED REMOTE CONTROLLER <PAR-21MAA>

Display Section

For purposes of this explanation, all parts of the display are shown. During actual operation, only the relevant items will be lit.

Day-of-Week
Shows the current day of the week.

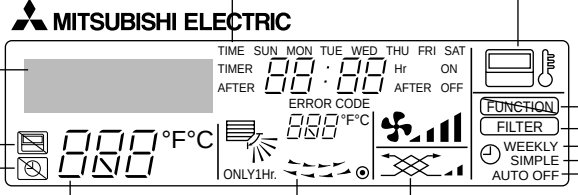
Time/Timer Display
Shows the current time, unless the simple or Auto Off timer is set.
If the simple or Auto Off timer is set, the time to be switched off is shown.

Identifies the current operation
Shows the operating mode, etc.
*Multilanguage display is available.

"Centrally Controlled" indicator
Indicates that operation from the remote controller has been prohibited by a master controller.

"Timer is Off" indicator
Indicates that the timer is off.

Temperature Setting
Shows the target temperature.



"Sensor" indication
Displayed when the remote controller sensor is used.

"Locked" indicator
Indicates that remote controller buttons have been locked.

"Clean The Filter" indicator
To be displayed on when it is time to clean the filter.

Timer indicators
The indicator comes on if the corresponding timer is set.

Fan Speed indicator
Shows the selected fan speed.

Ventilation indicator
Appears when the unit is running in Ventilation mode.

Up/Down Air Direction indicator
The indicator ↘ shows the direction of the outcoming airflow.

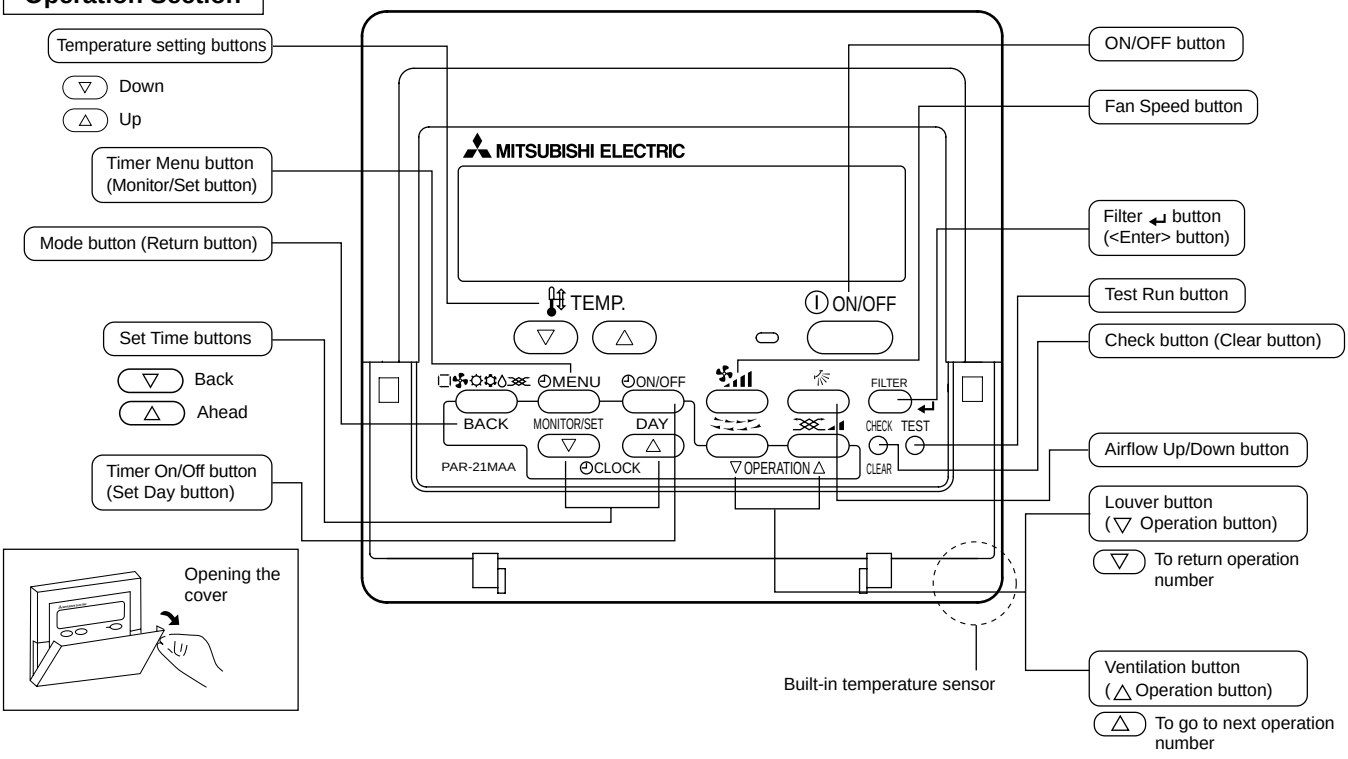
"One Hour Only" indicator
Displayed if the airflow is set to low or downward during COOL or DRY mode. (Operation varies according to model.)
The indicator goes off in 1 hour, when the airflow direction also changes.

Room Temperature display
Shows the room temperature. The room temperature display range is 8 – 39℃. The display blinks if the temperature is less than 8℃ or 39℃ or more.

Louver display
Indicates the action of the swing louver. Does not appear if the louver is not running.

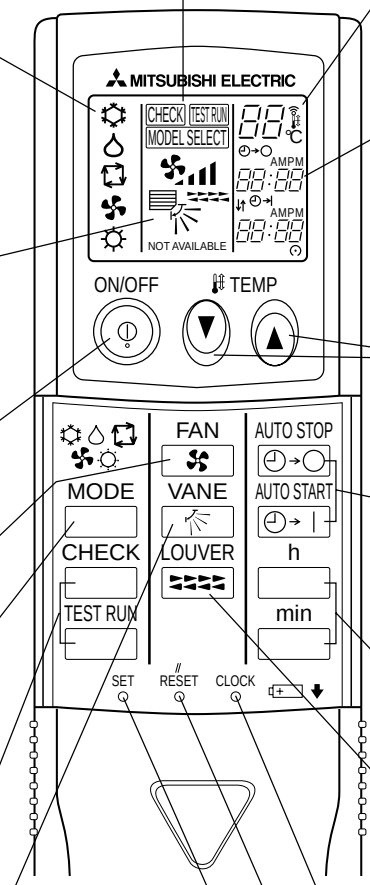
◉ (Power On indicator)
Indicates that the power is on.

Operation Section



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

3-4. Wireless remote controller



CHECK TEST RUN display

CHECK and TEST RUN display indicate that the unit is being checked or test-run.

MODEL SELECT display

Blinks when model is selected.

display

Lights up while the signal is transmitted to the indoor unit when the button is pressed.

display

SET TEMP. display indicates the set desired temperature.

display

OPERATION MODE display
Operation mode display indicates which operation mode is in effect.

CLOCK display

Displays the current time.

TIMER display

Displays when in timer operation or when setting timer.

" ↓ " " ↑ " display

Displays the order of timer operation.

" " " " display

Displays whether timer is on or off.

display

The vertical direction of air flow is indicated.

display

FAN SPEED display indicates which fan speed has been selected.

buttons

SET TEMPERATURE button sets any desired room temperature.

ON/OFF button

The unit is turned ON and OFF alternately each time the button is pressed.

TIMER CONTROL buttons

AUTO STOP (OFF timer): when this switch is set, the air conditioner will be automatically stopped at the preset time.
AUTO START (ON timer): when this switch is set, the air conditioner will be automatically started at the preset time.

FAN SPEED SELECT button

Used to change the fan speed.

h and min buttons

Buttons used to set the "hour and minute" of the current time and timer settings.

MODE SELECT button

Used to switch the operation mode between cooling, drying, fan, heating and auto mode.

※ In case the outdoor unit is cool only type, the heating and auto mode are not available.

LOUVER button

Changes left/right airflow direction.

(Not available for this model.)

CHECK-TEST RUN buttons

Only press this button to perform an inspection check or test operation.
Do not use it for normal operation.

CLOCK button

RESET button

SET button

VANE CONTROL button

Used to change the air flow

4 SPECIFICATIONS

4-1. SPECIFICATIONS

Model			PLFY-P15VCM-E2	PLFY-P20VCM-E2	PLFY-P25VCM-E2	PLFY-P32VCM-E2	PLFY-P40VCM-E2
Power source			Single phase 220-230-240V 50Hz				
Cooling capacity (Nominal)	✻1	kW	1.7	2.2	2.8	3.6	4.5
	✻1	kcal / h	1,450	1,900	2,400	3,100	3,900
	✻1	Btu / h	5,800	7,500	9,600	12,300	15,400
	✻2	kcal / h	1,500	2,000	2,500	3,150	4,000
Power input		kW	0.04	0.05	0.05	0.06	0.06
Current input		A	0.19	0.23	0.23	0.28	0.28
Heating capacity (Nominal)	✻3	kW	1.9	2.5	3.2	4.0	5.0
	✻3	kcal / h	1,600	2,200	2,800	3,400	4,300
	✻3	Btu / h	6,500	8,500	10,900	13,600	17,100
Power input		kW	0.04	0.05	0.05	0.06	0.06
Current input		A	0.19	0.23	0.23	0.28	0.28
External finish			Unit: Galvanized sheets with grey heat insulation				
External dimension H × W × D		mm	208 × 570 × 570	208 × 570 × 570	208 × 570 × 570	208 × 570 × 570	208 × 570 × 570
		in.	8-1/4" × 22-1/2" × 22-1/2"	8-1/4" × 22-1/2" × 22-1/2"	8-1/4" × 22-1/2" × 22-1/2"	8-1/4" × 22-1/2" × 22-1/2"	8-1/4" × 22-1/2" × 22-1/2"
Net weight		kg (lb)	15.5 (35)	15.5 (35)	15.5 (35)	17 (38)	17 (38)
Decoration panel	Model		**SLP-2AAW or SLP-2ALW**	**SLP-2AAW or SLP-2ALW**	**SLP-2AAW or SLP-2ALW**	**SLP-2AAW or SLP-2ALW**	**SLP-2AAW or SLP-2ALW**
	External finish		White Munsell(6.4Y 8.9/0.4)				
	Dimension H × W × D	mm	20 × 650 × 650	20 × 650 × 650	20 × 650 × 650	20 × 650 × 650	20 × 650 × 650
		in.	13/16" × 25-5/8" × 25-5/8"	13/16" × 25-5/8" × 25-5/8"	13/16" × 25-5/8" × 25-5/8"	13/16" × 25-5/8" × 25-5/8"	13/16" × 25-5/8" × 25-5/8"
	Net Weight	kg (lb)	3 (7)	3 (7)	3 (7)	3 (7)	3 (7)
	Cord heater	kW	0.015	0.015	0.015	0.015	0.015
Heat exchanger			Cross fin (Aluminum fin and copper tube)				
FAN	Type × Quantity		Turbo fan × 1				
	External static press.		0 Pa (0 mmH_2O)	0 Pa (0 mmH_2O)	0 Pa (0 mmH_2O)	0 Pa (0 mmH_2O)	0 Pa (0 mmH_2O)
	Motor type		Single phase induction motor				
	Motor output	kW	0.008	0.011	0.015	0.02	0.02
	Driving mechanism		Direct-driven by motor				
	Airflow rate (Low-Mid-High)	m^3 / min	8-8.5-9	8-9-10	8-9-10	8-9-11	8-9-11
		L / s	133-142-150	133-150-167	133-150-167	133-150-183	133-150-183
		cfm	283-300-353	283-318-353	283-318-353	283-318-388	283-318-388
Noise level (Low-Mid-High) (measured in anechoic room)		dB <A>	28-30-31	28-31-35	29-31-37	29-33-38	30-34-39
Insulation material			Polyethylene foam				
Air filter			PP honeycomb fabric (long life type)				
Protection device			Fuse				
Refrigerant control device			LEV				
Connectable outdoor unit			R410A, R407C, R22 CITY MULTI				
Diameter of refrigerant pipe	Liquid	mm (in.)	ø6.35 (ø1/4") Flare	ø6.35 (ø1/4") Flare	ø6.35 (ø1/4") Flare	ø6.35 (ø1/4") Flare	ø6.35 (ø1/4") Flare
	Gas	mm (in.)	ø12.7 (ø1/2") Flare	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 (in.)	O.D. 32mm (1-1/4") (PVC pipe VP-25 connectable)				
Standard attachment	Document		Installation manual, Instruction book				
	Accessory		Drain hose I.D. 32mm (1-1/4"), Wireless junction cable				
Remark	Optional parts		Decoration panel : SLP-2AAW or SLP-2ALW *PLFY-P-VCM-E2 should use together with Decoration panel.				
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.				

Note :

✻1 Nominal cooling condition
Indoor : 27˚CDB/19˚CWB (81˚FDB/66˚FWB)
Outdoor : 35˚CDB (95˚FDB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)

✻2 Nominal cooling condition
27˚CDB/19.5˚CWB (81˚FDB/67˚FWB)
35˚CDB (95˚FDB)
5 m (16-3/8 ft)
0 m (0 ft)

✻3 Nominal heating condition
20˚CDB (68˚FDB)
7˚CDB/6˚CWB (45˚FDB/43˚FWB)
7.5 m (24-9/16 ft)
0 m (0 ft)

* Nominal conditions ✻1, ✻3 are subject to JIS B8615-1.
* Due to continuing improvement, above specification may be subject to change without notice.

Unit converter

kcal = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min x 35.31
lb = kg / 0.4536

4-2. ELECTRICAL PARTS SPECIFICATIONS

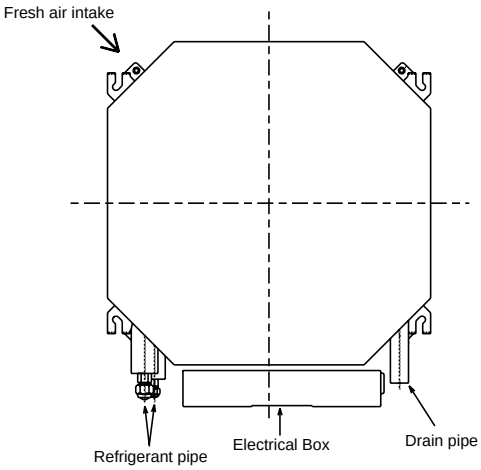
Service ref. / Parts name	Symbol	PLFY-P15VCM-E2.TH PLFY-P15VCM-E2R1.TH	PLFY-P20VCM-E2.TH PLFY-P20VCM-E2R1.TH PLFY-P20VCM-E2R2.TH	PLFY-P25VCM-E2.TH PLFY-P25VCM-E2R1.TH PLFY-P25VCM-E2R2.TH	PLFY-P32VCM-E2.TH PLFY-P32VCM-E2R1.TH PLFY-P32VCM-E2R2.TH	PLFY-P40VCM-E2.TH PLFY-P40VCM-E2R1.TH PLFY-P40VCM-E2R2.TH
Thermistor (Room temperature detection)	TH21	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ				
Thermistor (Pipe temperature detection/ Liquid)	TH22	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ				
Thermistor (Pipe temperature detection/ Gas)	TH23	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ				
Fuse (Indoor controller board)	FUSE	250V 6.3A				
Fan motor (with Thermal fuse)	MF	6-pole OUTPUT 8W PK6V8-LA	6-pole OUTPUT 11W PK6V11-LF	6-pole OUTPUT 15W PK6V15-LD	6-pole OUTPUT 20W PK6V20-LL	6-pole OUTPUT 20W PK6V20-LM
		Thermal fuse OFF 145℃ ± 2℃				
Fan motor capacitor	C	1.0μF × 440V		1.5μF × 440V		
Vane motor	MV	MSBPC20M13 DC12V 300Ω/phase				
Drain pump	DP	PLD-12230ME-1 INPUT 12/10.8W 24 ℓ /Hr				
Drain sensor	DS	Thermistor resistance 0℃/6kΩ, 10℃/3.9kΩ, 20℃/2.6kΩ, 25℃/2.2kΩ, 30℃/1.8kΩ, 40℃/1.3kΩ				
Linear expansion valve [coil]	LEV	DC12V Stepping motor drive, Port dimension ϕ5.2 (0~2000pulse) EDM-40YGME				
Electric heater (Condensation proof)	H2	240V 15W				
Power supply terminal block	TB2	(L, N, ⏚) Rated to 330V 30A *				
Transmission terminal block	TB5	(M1, M2, S) Rated to 250V 20A *				
MA remote controller terminal block	TB15	(1, 2) Rated to 250V 10A *				

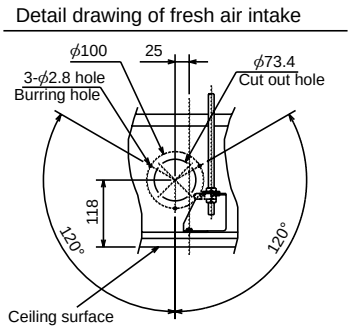
* Note: Refer to WIRING DIAGRAM for the supplied voltage.

5 4-WAY AIR FLOW SYSTEM

5-1. FRESH AIR INTAKE (Location for installation)

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

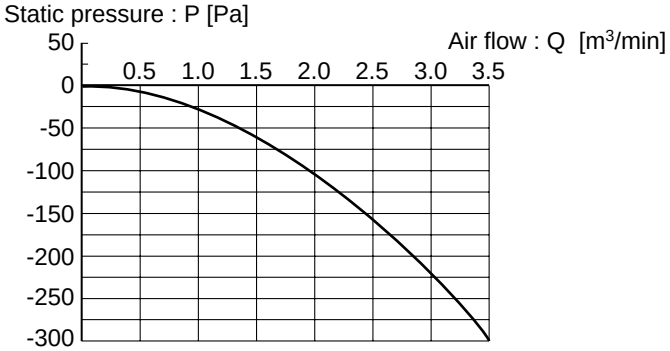




5-2. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

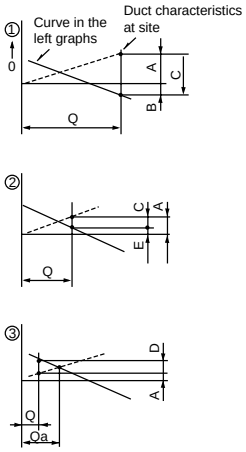
PLFY-P15VCM-E2.TH **PLFY-P15VCM-E2R1.TH**
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH** **PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH** **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH** **PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH** **PLFY-P40VCM-E2R2.TH**

Taking air into the unit



NOTE: Fresh air intake amount should be 20% or less of whole air amount to prevent dew dripping.

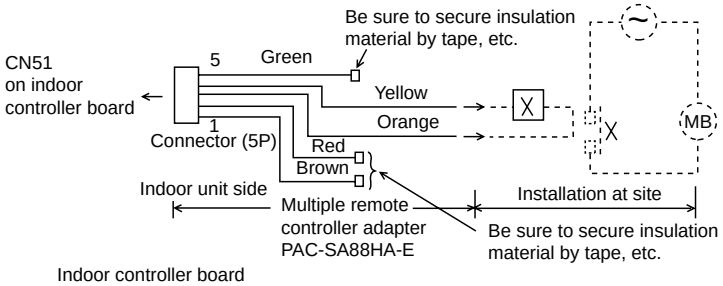
How to read curves

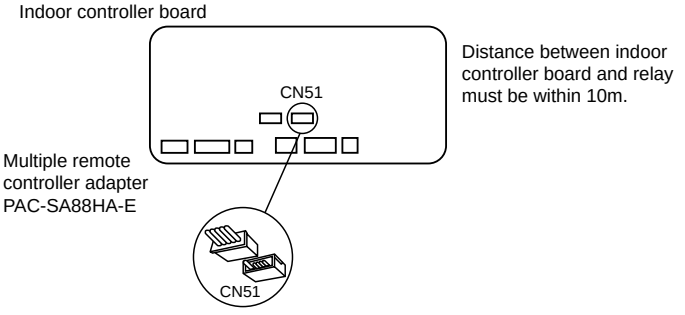


Q···Designed amount of fresh air intake <m³/min>
A···Static pressure loss of fresh air intake duct system with air flow amount Q <Pa>
B···Forced static pressure at air conditioner inlet with air flow amount Q <Pa>
C···Static pressure of booster fan with air flow amount Q <Pa>
D···Static pressure loss increase amount of fresh air intake duct system for air flow amount Q <Pa>
E···Static pressure of indoor unit with air flow amount Q <Pa>
Qa···Estimated amount of fresh air intake without D <m³/min>

5-3. OPERATION IN CONJUNCTION WITH DUCT FAN (Booster fan)

- Whenever the indoor unit operates, the duct fun 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 12V DC relay between the Yellow and Orange connector wires.
  MB: Electromagnetic switch power relay for duct fan.
  X: Auxiliary relay (For DC 12V, coil rating : 1.0W or below)



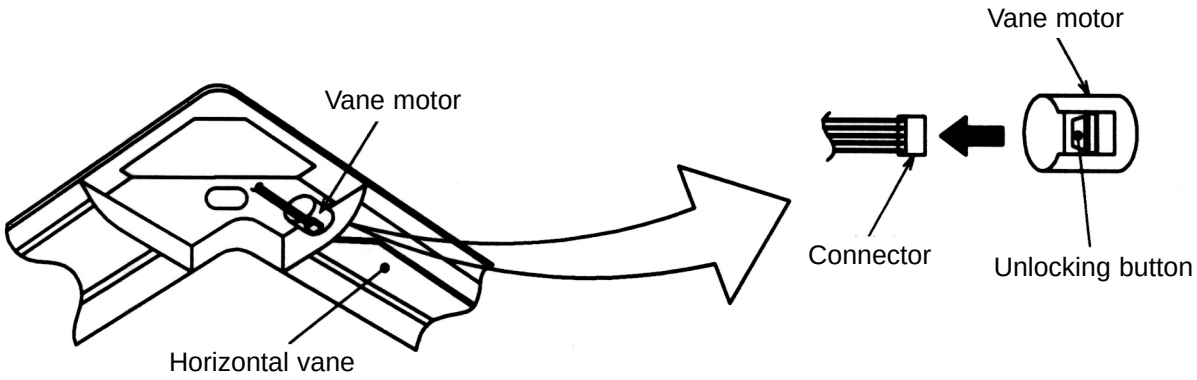


5-4. FIXING HORIZONTAL VANE

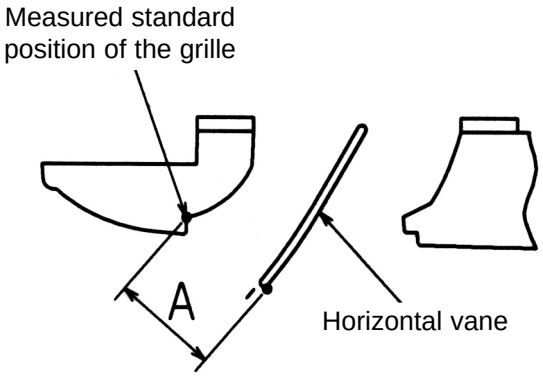
Horizontal vane of each air outlet can be fixed according to the environment where it is installed.

Setting procedure

1) Turn off a main power supply (Turn off a breaker).
2) Disconnect the vane motor connector of the direction of the arrow with pressing the unlocking button as shown in figure below.
   Insulate the disconnected connector with the plastic tape.



3) Set a vertical vane of the air outlet, which is to be fixed by the hand slowly within the range in the table below.



<Set range>

Standard of horizontal position	Level 30° (Min.)	Downward 45°	Downward 55°	Downward 70° (Max.)
Dimension A (mm)	21	25	28	30

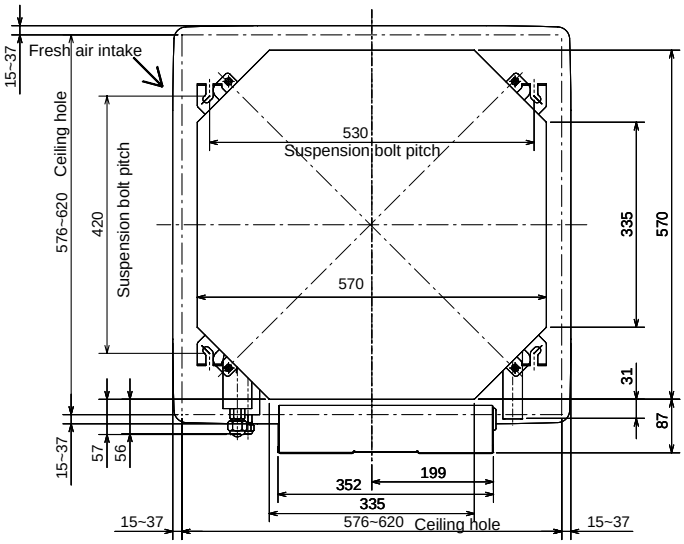
※ Dimension between 21 mm and 30 mm can be arbitrarily set.

Caution ⚠	Do not set the dimension out of the range.
	Erroneous setting could cause dew drips, smudge on ceiling or malfunction of unit.

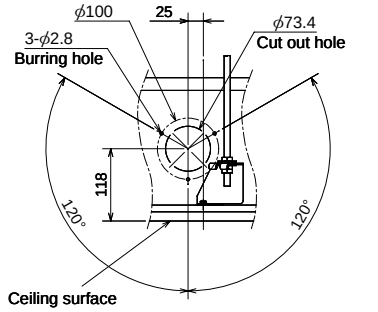
6 OUTLINES AND DIMENSIONS

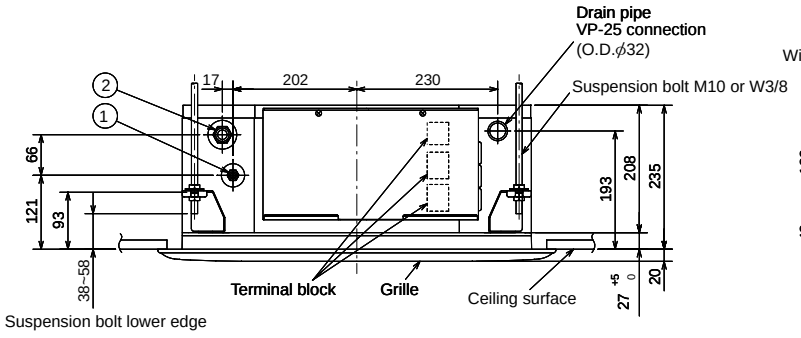
PLFY-P15VCM-E2.TH **PLFY-P15VCM-E2R1.TH**
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH** **PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH** **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH** **PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH** **PLFY-P40VCM-E2R2.TH**

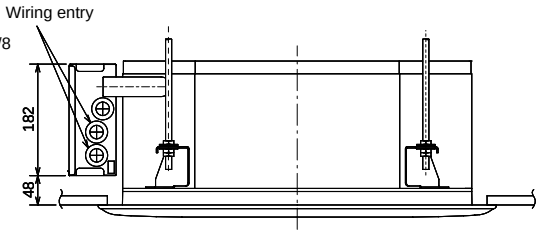
Unit: mm

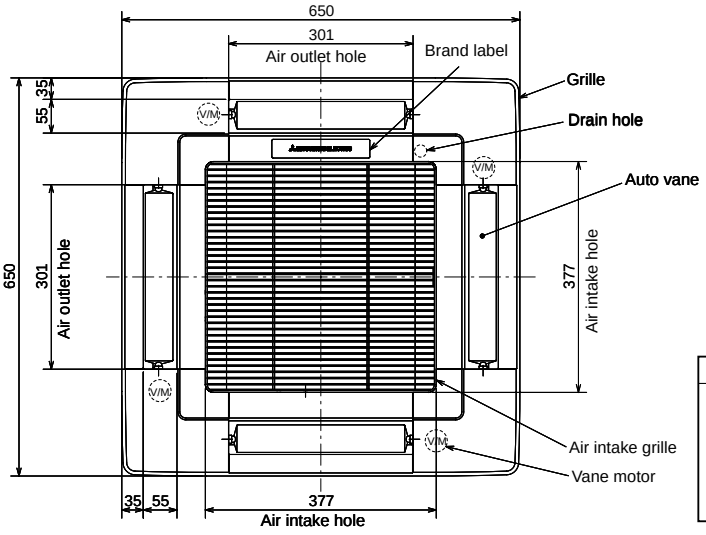


Detail drawing of fresh air intake









Models	①	②
PLFY-P15VCM-E2 PLFY-P20VCM-E2 PLFY-P25VCM-E2 PLFY-P32VCM-E2 PLFY-P40VCM-E2	Refrigetant pipe (6.35mm dia.) flared connection 1/4 inch	Refrigetant pipe (12.7mm dia.) flared connection 1/2 inch

7 WIRING DIAGRAM

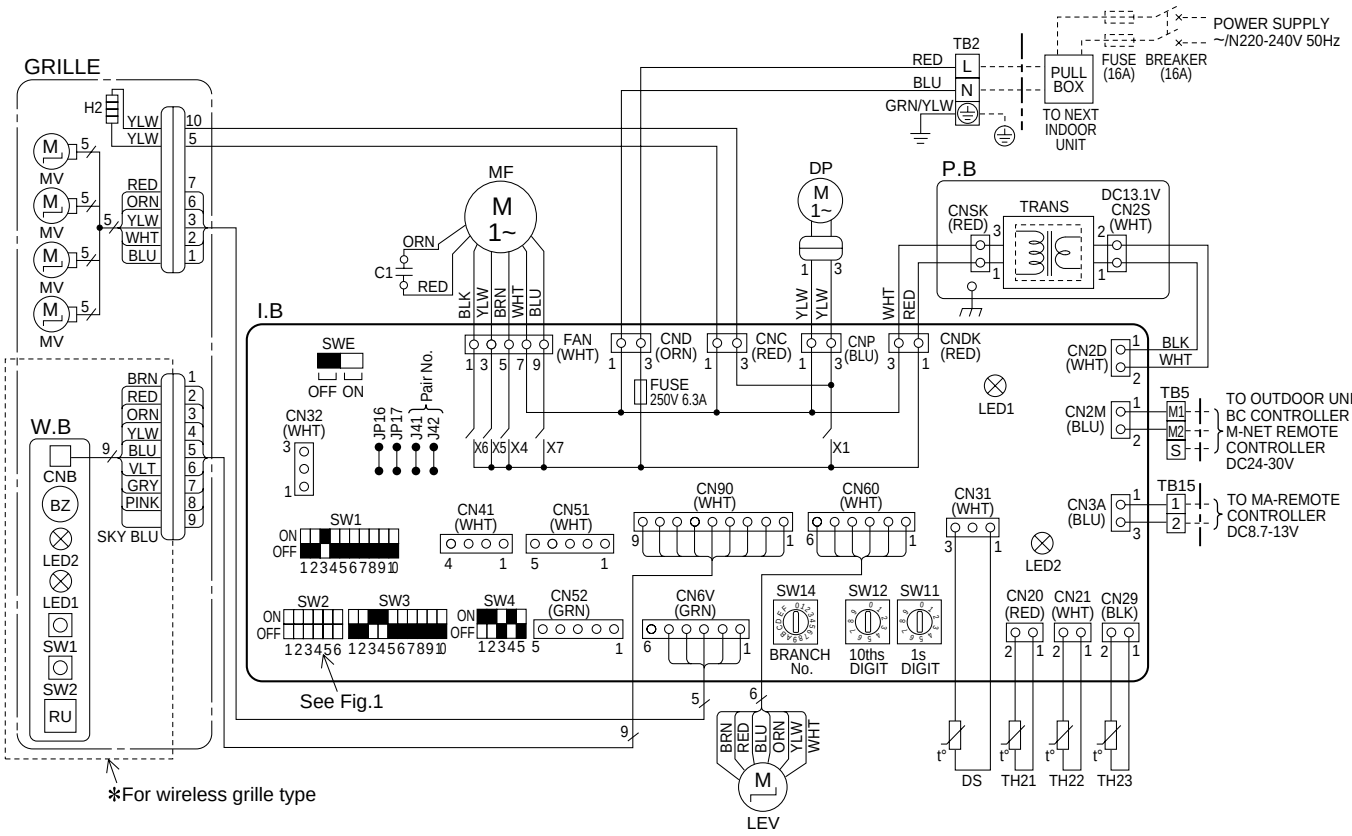
PLFY-P15VCM-E2.TH
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH**

[LEGEND]

SYMBOL	NAME		SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD		DS	DRAIN SENSOR	
CN32	CONNECTOR	REMOTE SWITCH	H2	DEW PREVENTION HEATER	
CN41		JEMA HA TERMINAL-A	LEV	LINEAR EXPANSION VALVE	
CN51		CENTRALLY CONTROL	MF	FAN MOTOR (WITH THERMAL FUSE)	
CN52		REMOTE INDICATION	MV	VANE MOTOR	
FUSE	FUSE (T6.3AL 250V)		TB2	TERMINAL BLOCK	POWER SUPPLY
SW1	SWITCH	MODE SELECTION	TB5		TRANSMISSION
SW2		CAPACITY CODE	TB15		MA-REMOTE CONTROLLER
SW3		MODE SELECTION	TH21	THERMISTOR	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
SW4		MODEL SELECTION			
SW11		ADDRESS SETTING 1s DIGIT	TH22		PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
SW12		ADDRESS SETTING 10ths DIGIT			
SW14		BRANCH No.	TH23		PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
SWE		DRAIN PUMP (TEST MODE)			
X1	AUX. RELAY	DRAIN PUMP/DEW PREVENTION HEATER	P.B	INDOOR POWER BOARD	
X4		FAN MOTOR (LL)	OPTION PART		
X5		FAN MOTOR (Lo)	W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
X6		FAN MOTOR (Hi)	BZ	BUZZER	
X7		FAN MOTOR (Me)	LED1	LED (OPERATION INDICATOR: GREEN)	
C1	CAPACITOR (FAN MOTOR)		LED2	LED (PREPARATION FOR HEATING: ORANGE)	
DP	DRAIN PUMP		RU	RECEIVING UNIT	
			SW1	EMERGENCY OPERATION (HEAT)	
			SW2	EMERGENCY OPERATION (COOL)	

<Fig. 1>

MODELS	SW2
P15	ON OFF 123456
P20	ON OFF 123456
P25	ON OFF 123456
P32	ON OFF 123456
P40	ON OFF 123456



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

LED on indoor board for service

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

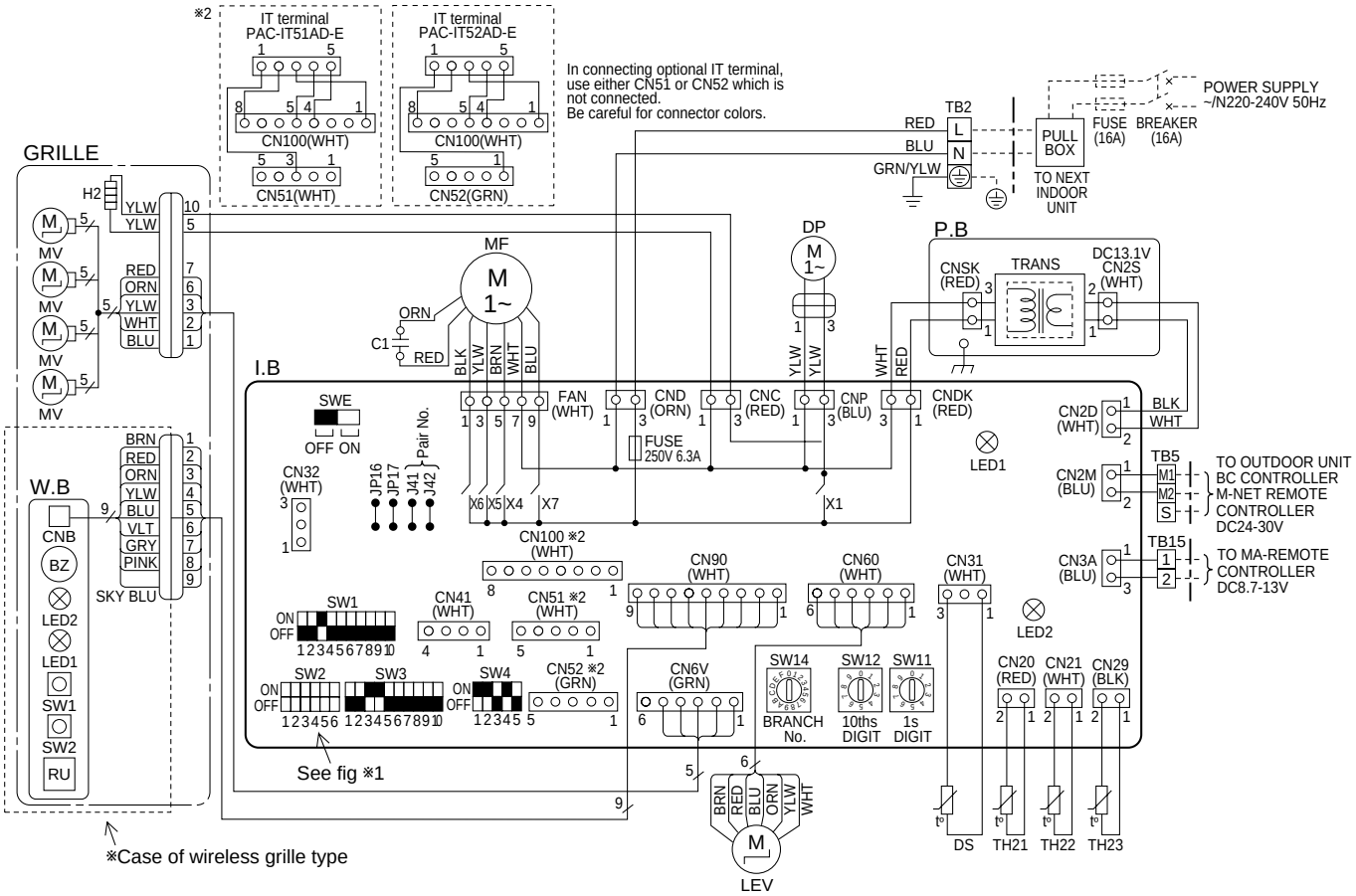
PLFY-P15VCM-E2R1.TH
PLFY-P20VCM-E2R2.TH **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2R2.TH **PLFY-P40VCM-E2R2.TH**

【LEGEND】

SYMBOL	NAME		SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD		DS	DRAIN SENSOR	
CN32	CONNECTOR	REMOTE SWITCH	H2	DEW PREVENTION HEATER	
CN41		JEMA HA TERMINAL−A	LEV	LINEAR EXPANSION VALVE	
CN51		CENTRALLY CONTROL	MF	FAN MOTOR (WITH THERMAL FUSE)	
CN52		REMOTE INDICATION	MV	VANE MOTOR	
CN100	IT TERMINAL		TB2	TERMINAL BLOCK	POWER SUPPLY
FUSE	FUSE (T6.3AL 250V)		TB5		TRANSMISSION
SW1	SWITCH	MODE SELECTION	TB15		MA-REMOTE CONTROLLER
SW2		CAPACITY CODE	TH21	THERMISTOR	ROOM TEMP. DETECTION (0ºC/15kΩ , 25ºC/5.4kΩ)
SW3		MODE SELECTION			
SW4		MODEL SELECTION	TH22		PIPE TEMP. DETECTION / LIQUID (0ºC/15kΩ , 25ºC/5.4kΩ)
SW11		ADDRESS SETTING 1s DIGIT			
SW12		ADDRESS SETTING 10ths DIGIT	TH23		PIPE TEMP. DETECTION / GAS (0ºC/15kΩ , 25ºC/5.4kΩ)
SW14		BRANCH No.			
SWE		DRAIN PUMP (TEST MODE)	P.B	INDOOR POWER BOARD	
X1	AUX. RELAY	DRAIN PUMP/DEW PREVENTION HEATER	OPTION PART		
X4		FAN MOTOR (LL)	W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
X5		FAN MOTOR (Lo)	BZ	BUZZER	
X6		FAN MOTOR (Hi)	LED1	LED(OPERATION INDICATOR:GREEN)	
X7		FAN MOTOR (Me)	LED2	LED(PREPARATION FOR HEATING : ORANGE)	
C1	CAPACITOR (FAN MOTOR)		RU	RECEIVING UNIT	
DP	DRAIN PUMP		SW1	EMERGENCY OPERATION(HEAT)	
			SW2	EMERGENCY OPERATION(COOL)	

The black square(■)indicates a switch position. <※1>

MODELS	SW2
P15	ON OFF 123456
P20	ON OFF 123456
P25	ON OFF 123456
P32	ON OFF 123456
P40	ON OFF 123456



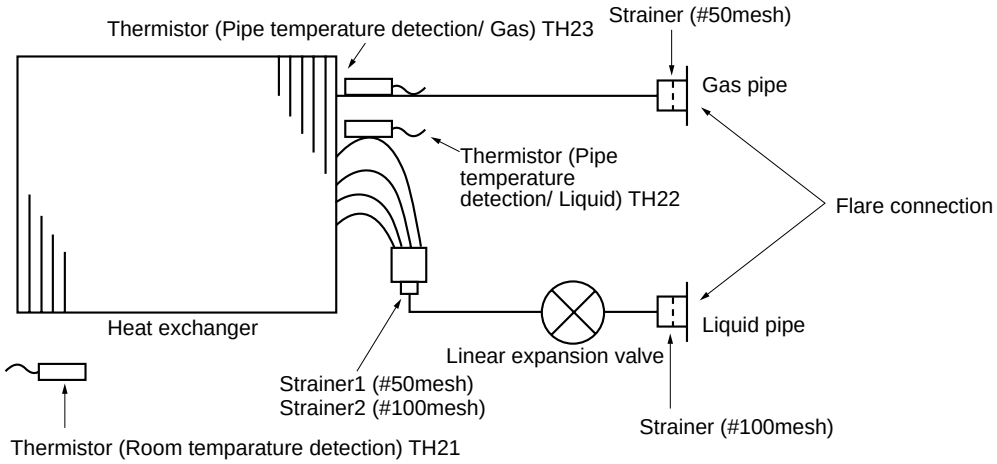
Notes:
1.At servicing for outdoor unit,always follow the wiring diagram of outdoor unit.
2.In case of using MA-Remote controller, please connect to TB15.
(Remote controller wire is non-polar.)
3.In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4.Symbol [S]of TB5 is the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

LED on indoor board for service

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

8 REFRIGERANT SYSTEM DIAGRAM

PLFY-P15VCM-E2.TH **PLFY-P15VCM-E2R1.TH**
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH** **PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH** **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH** **PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH** **PLFY-P40VCM-E2R2.TH**



Unit : mm(inch)

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

9 TROUBLESHOOTING

9-1. HOW TO CHECK THE PARTS

PLFY-P15VCM-E2.TH PLFY-P15VCM-E2R1.TH
PLFY-P20VCM-E2.TH PLFY-P20VCM-E2R1.TH PLFY-P20VCM-E2R2.TH
PLFY-P25VCM-E2.TH PLFY-P25VCM-E2R1.TH PLFY-P25VCM-E2R2.TH
PLFY-P32VCM-E2.TH PLFY-P32VCM-E2R1.TH PLFY-P32VCM-E2R2.TH
PLFY-P40VCM-E2.TH PLFY-P40VCM-E2R1.TH PLFY-P40VCM-E2R2.TH

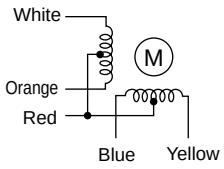
Thermistor (TH21) (Room temperature detection) / Thermistor (TH22) (Pipe temperature detection/ Liqid) / Thermistor (TH23) (Pipe temperature detection/ Gas)

Disconnect the connector then measure the resistance with a tester.
(At the ambient temperature 10℃~30℃)

Normal	Abnormal
4.3kΩ~9.6kΩ	Open or short

Refer to the next page for the details.

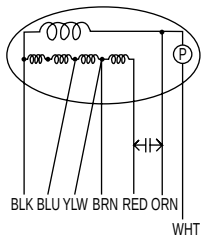
Vane motor (MV)



Measure the resistance between the terminals with a tester.
(At the ambient temperature 20℃~30℃)

Connector	Normal	Abnormal
Red — Yellow	300Ω	Open or short
Red — Blue		
Red — Orange		
Red — White		

Fan motor (MF)

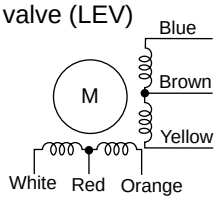


Ⓟ : Thermal fuse 145°C±2°C

Measure the resistance between the terminals with a tester.
(Coil wiring temperature 10°C ~ 30°C)

	Normal					Abnormal
	PLFY-P•VCM-E2					
	15	20	25	32	40	
WHT-BLK	393Ω~427Ω	302Ω~327Ω	390Ω~423Ω	378Ω~409Ω	312Ω~338Ω	Opened or short-circuited
BLK-BLU	19Ω~21Ω	91Ω~100Ω	82Ω~90Ω	157Ω~170Ω	137Ω~149Ω	
BLU-YLW	19Ω~21Ω	38Ω~42Ω	28Ω~32Ω	44Ω~49Ω	44Ω~49Ω	
YLW-RED RED-BRN	265Ω~288Ω	265Ω~288Ω	158Ω~172Ω	306Ω~332Ω	296Ω~321Ω	

Linear expansion valve (LEV)

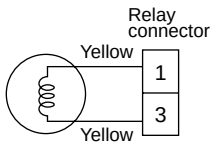


Disconnect the connector then measure the valve resistance with a tester.

Normal				Abnormal
White-Red	Yellow-Brown	Orange-Red	Blue-Brown	Open or short
200Ω ±10%				

Refer to the next page for the details.

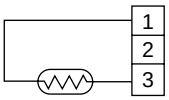
Drain pump (DP)



Measure the resistance between the terminals with a tester.
(At the ambient temperature 20℃~30℃)

Normal	Abnormal
290Ω	Open or short

Drain sensor (DS)



Measure the resistance after 3 minutes have passed since the power supply was intercepted.
(At the ambient temperature 0℃~60℃)

Normal	Abnormal
0.6kΩ~6.0kΩ	Open or short

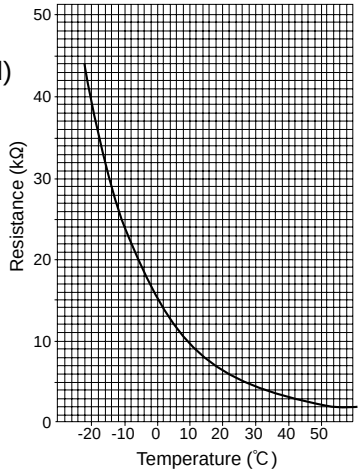
Refer to the next page for the details.

<Thermistor characteristic graph>

Thermistor for lower temperature

Thermistor (TH21)
(Room temperature detection)
Thermistor (TH22)
(Pipe temperature detection/ Liquid)
Thermistor (TH23)
(Pipe temperature detection/ Gas)

< Thermistor for lower temperature >



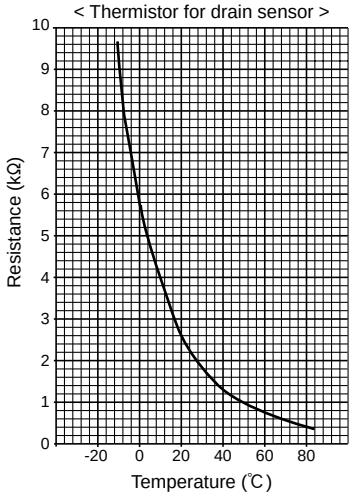
Thermistor R_0=15kΩ ± 3%
Fixed number of B=3480 ± 2%

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

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

Thermistor for drain sensor

< Thermistor for drain sensor >



Thermistor R_0=6.0kΩ ±5%
Fixed number of B=3390 ±2%

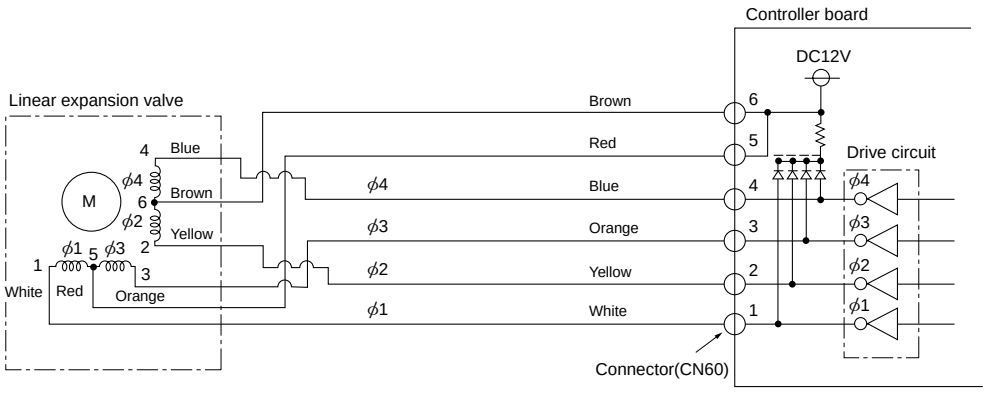
$$Rt=6\exp\{3390(\frac{1}{273+t}-\frac{1}{273})\}$$

0℃	6.0kΩ
10℃	3.9kΩ
20℃	2.6kΩ
25℃	2.2kΩ
30℃	1.8kΩ
40℃	1.3kΩ
60℃	0.6kΩ

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>



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

<Output pulse signal and the valve operation>

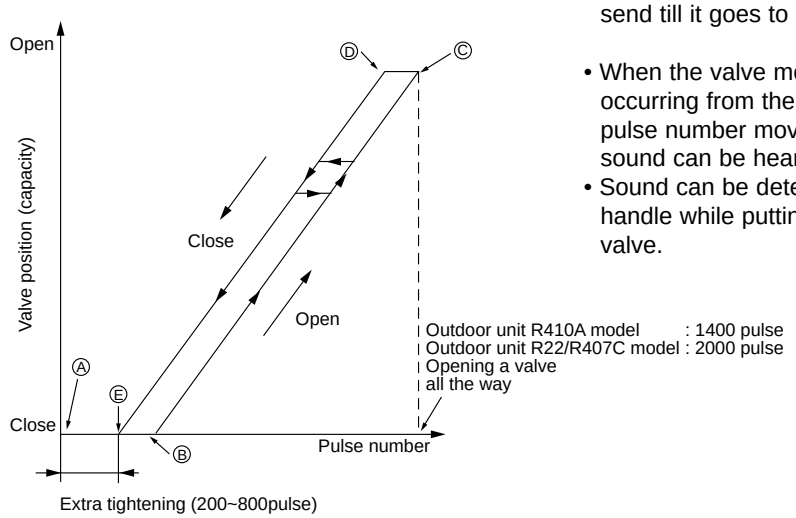
Output (Phase)	Output			
	1	2	3	4
ϕ1	ON	OFF	OFF	ON
ϕ2	ON	ON	OFF	OFF
ϕ3	OFF	ON	ON	OFF
ϕ4	OFF	OFF	ON	ON

Closing a valve : 1 → 2 → 3 → 4 → 1
Opening a valve : 4 → 3 → 2 → 1 → 4

The output pulse shifts in above order.

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

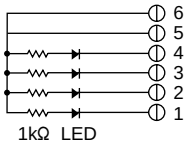
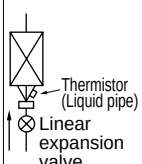
② Linear expansion valve operation



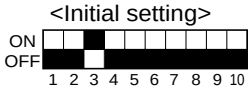
- When the switch is turned on, 2200 pulse closing valve signal will be send till it goes to point Ⓐ in order to define the valve position.

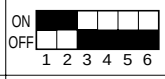
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valves : however, when the pulse number moves from Ⓔ to Ⓐ or when the valve is locked, more sound can be heard than in a normal situation.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

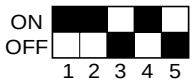
③ Troubleshooting

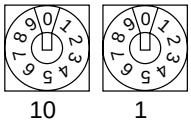
Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  When power is turned on, pulse signals will be output for 10 seconds. There must be some defects in the operation circuit if the LED 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 tester. It is normal if the resistance is in the range of 200Ω ±10%.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way.  Linear expansion valve It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.	If large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

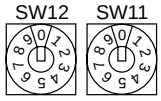
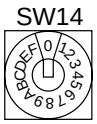
9-2. FUNCTION OF DIP SWITCH

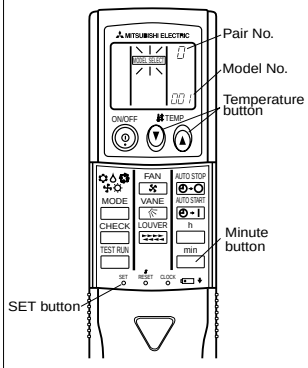
<table>
<tr><th rowspan="2">Switch</th><th rowspan="2">Pole</th><th rowspan="2">Function</th><th colspan="2">Operation by switch</th><th rowspan="2">Effective timing</th><th rowspan="2">Remarks</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="10">SW1
Function Selection</td><td>1</td><td>Thermistor <Room temperature detection> position</td><td>Built-in remote controller</td><td>Indoor unit</td><td rowspan="10">Under suspension</td><td rowspan="10">Indoor controller board
<Initial setting>
 

*3
<table><tr><td>SW 1-7</td><td>SW 1-8</td><td></td></tr><tr><td>OFF</td><td>OFF</td><td>Extra low</td></tr><tr><td>ON</td><td>OFF</td><td>Low</td></tr><tr><td>OFF</td><td>ON</td><td>Setting air flow</td></tr><tr><td>ON</td><td>ON</td><td>stop</td></tr></table></td></tr>
<tr><td>2</td><td>Filter clogging detection</td><td>Provided</td><td>Not provided</td></tr>
<tr><td>3</td><td>Filter cleaning</td><td>2,500h</td><td>100h</td></tr>
<tr><td>4</td><td>Fresh air intake</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>5</td><td>Remote indication switching</td><td>Thermo ON signal indication</td><td>Fan output indication</td></tr>
<tr><td>6</td><td>Humidifier control</td><td>Fan operation at Heating mode</td><td>Thermo ON operation at heating mode</td></tr>
<tr><td>7</td><td rowspan="2">Air flow set in case of Heat thermo OFF</td><td>Low *3</td><td>Extra low *3</td></tr>
<tr><td>8</td><td>Setting air flow *3</td><td>Depends on SW1-7</td></tr>
<tr><td>9</td><td>Auto restart function</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>10</td><td>Power ON/OFF</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>SW2
Capacity code setting</td><td>1~6</td><td colspan="3"><table><tr><th>Capacity</th><th>SW 2</th><th>Capacity</th><th>SW 2</th><th>Capacity</th><th>SW 2</th></tr><tr><td>P15</td><td>  </td><td>P25</td><td>  </td><td>P40</td><td>  </td></tr><tr><td>P20</td><td>  </td><td>P32</td><td>  </td><td></td><td></td></tr></table></td><td>Before power supply ON</td><td>Indoor controller board
<Initial setting>
Set for each capacity.</td></tr>
<tr><td rowspan="10">SW3
Function setting</td><td>1</td><td>Heat pump / Cooling only</td><td>Cooling only</td><td>Heat pump</td><td rowspan="10">Under suspension</td><td rowspan="10">Indoor controller board
Set while the unit is off.
<Initial setting>
 

Note :
*4 At cooling mode, each angle can be used only 1 hour.
*5 Do not use SW3-9, 10 as trouble might be caused by the usage condition.
*6 Second setting is same as first setting.</td></tr>
<tr><td>2</td><td>Louver</td><td>Available</td><td>Not available</td></tr>
<tr><td>3</td><td>Vane</td><td>Available</td><td>Not available</td></tr>
<tr><td>4</td><td>Vane swing function</td><td>Available</td><td>Not available</td></tr>
<tr><td>5</td><td>Vane horizontal angle</td><td>Second setting *6</td><td>First setting</td></tr>
<tr><td>6</td><td>Vane cooling limit angle setting *4</td><td>Horizontal angle</td><td>Down A, B, C</td></tr>
<tr><td>7</td><td>Indoor linear expansion valve opening</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>8</td><td>Heat 4degrees up</td><td>Not effective</td><td>Effective</td></tr>
<tr><td>9</td><td>Superheat setting temperature *5</td><td>—</td><td>—</td></tr>
<tr><td>10</td><td>Sub cool setting temperature *5</td><td>—</td><td>—</td></tr>
<tr><td>SW4
Unit Selection</td><td>1~5</td><td colspan="3">When replacing the indoor controller board, make sure to set the switch to the initial setting, which is shown below.
 
</td><td>Before power supply ON</td><td>Indoor controller board</td></tr>
</table>

<table>
<tr><th></th><th>Pole</th><th>Operation by switch</th><th>Effective timing</th><th>Remarks</th></tr>
<tr><td>SW11
1s digit address setting
SW12
10ths digit address setting</td><td>Rotary switch</td><td> 

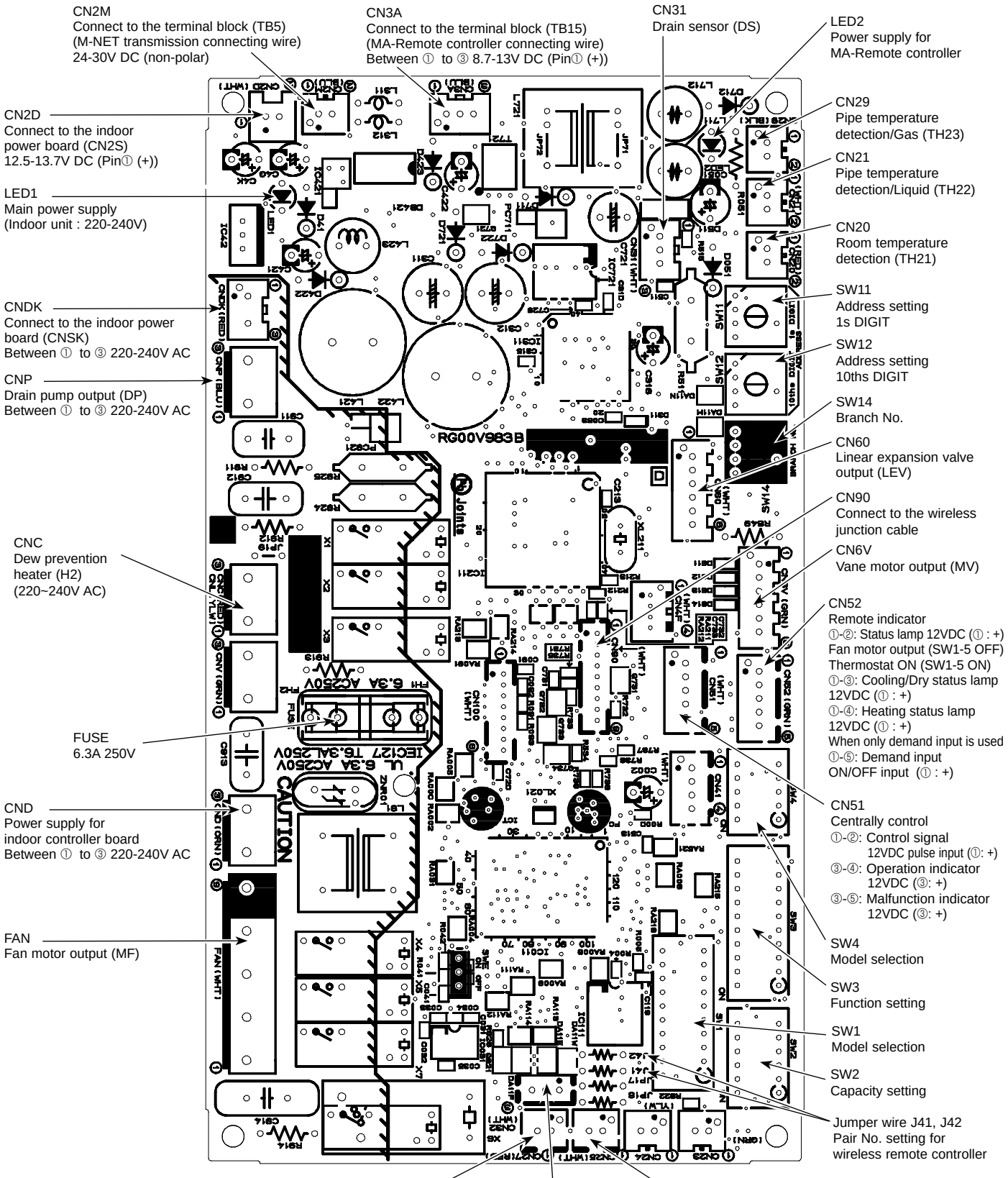
Address setting should be done when M-NET remote controller is being used.</td><td rowspan="2">Before power supply ON</td><td>Indoor controller board
<Initial setting>
 
</td></tr>
<tr><td>SW14
Connection No. setting</td><td>Rotary switch</td><td> 

This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.</td><td>Indoor controller board
<Initial setting>
 
</td></tr>
<tr><td>J41, J42
Wireless remote controller Pair No.</td><td>Jumper</td><td>• To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary.
● Pair No. setting is available with the 4 patterns (Setting patterns A to D).
● Make setting for J41, J42 of indoor controller board and the Pair No. of wireless remote controller.
• You may not set it when operating it by one remote controller.
● Setting for indoor unit
Cut jumper wire J41, J42 on the indoor controller board according to the table below.
● Wireless remote controller pair number:
Setting operation
1. Press the SET button (using a pointed implement). Check that the remote controller's display has stopped before continuing.
MODEL SELECT flashes, and the model No. (3 digits) appears (steadily-lit).
2. Press the MINUTE button twice. The pair number appears flashing.
3. Press the temperature ▽△ buttons to select the pair number to set.
4. Press the SET button (using a pointed implement). The set pair number is displayed (steadily-lit) for 3 seconds, then disappears.
<table>
<tr><th rowspan="2">Setting pattern</th><th colspan="2">Indoor controller jumper wire</th><th rowspan="2">Pair No. of wireless remote controller *</th><th rowspan="2"></th></tr>
<tr><th>J41</th><th>J42</th></tr>
<tr><td>A</td><td>—</td><td>—</td><td>0</td><td>Initial setting</td></tr>
<tr><td>B</td><td>Cut</td><td>—</td><td>1</td><td>—</td></tr>
<tr><td>C</td><td>—</td><td>Cut</td><td>2</td><td>—</td></tr>
<tr><td>D</td><td>Cut</td><td>Cut</td><td>3</td><td>—</td></tr>
</table>
* Pair No.4-9 of wireless remote controller is setting pattern D.</td><td>Under operation or suspension</td><td><Initial setting>
Pattern A
 
</td></tr>
</table>

9-3. TEST POINT DIAGRAM

9-3-1. Indoor controller board

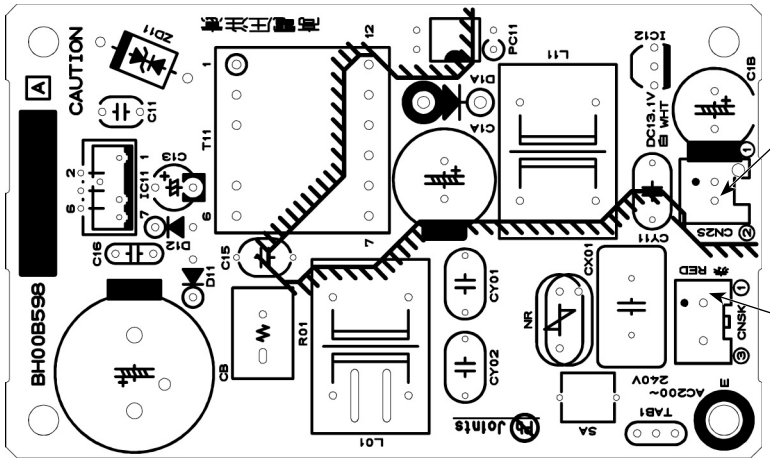
PLFY-P15VCM-E2.TH **PLFY-P15VCM-E2R1.TH**
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH** **PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH** **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH** **PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH** **PLFY-P40VCM-E2R2.TH**



✻ The voltage range of DC12V in this page is between DC11.5 V to DC13.7 V.

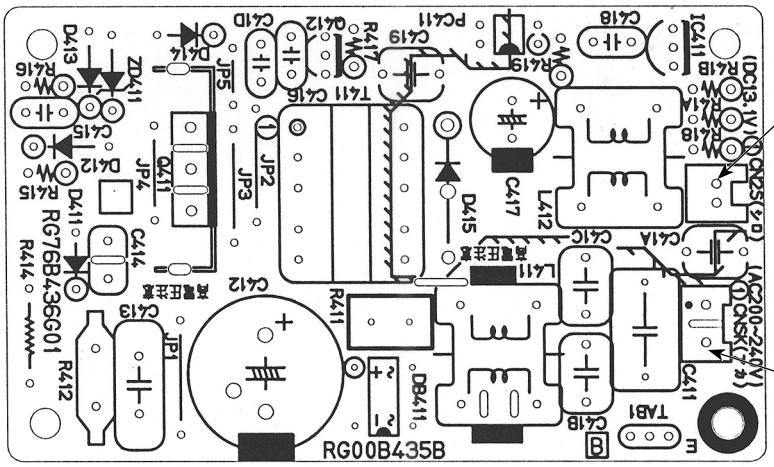
9-3-2. Indoor power board

PLFY-P15VCM-E2.TH	**PLFY-P15VCM-E2R1.TH**	
PLFY-P20VCM-E2.TH	**PLFY-P20VCM-E2R1.TH**	**PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH	**PLFY-P25VCM-E2R1.TH**	**PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH	**PLFY-P32VCM-E2R1.TH**	**PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH	**PLFY-P40VCM-E2R1.TH**	**PLFY-P40VCM-E2R2.TH**



CN2S
Connect to the indoor controller board (CN2D)
Between ① to ③ 12.5-13.7V DC (Pin① (+))

CNSK
Connect to the indoor controller board (CNDK)
Between ① to ③ 220-240V AC



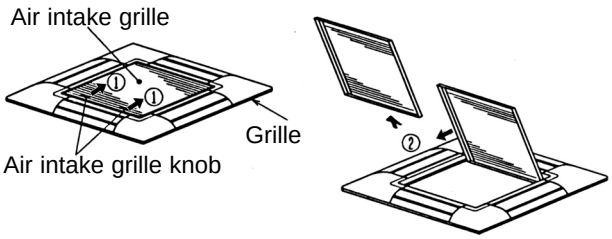
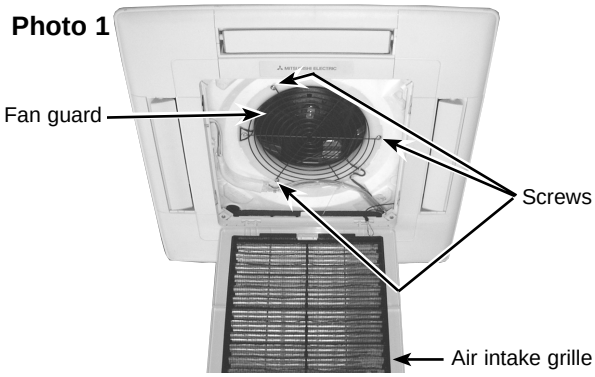
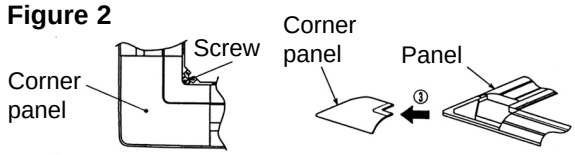
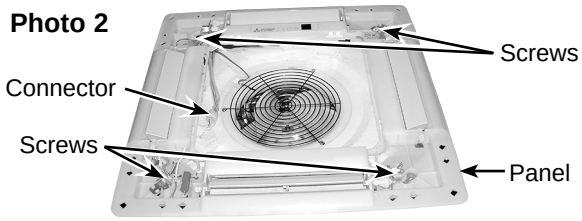
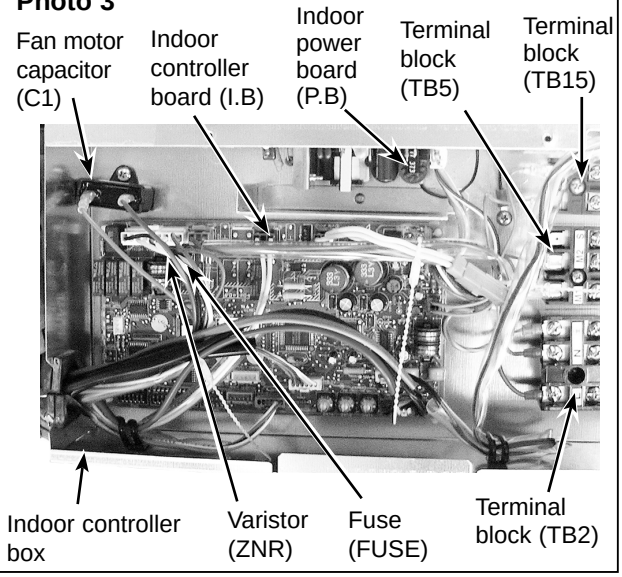
CN2S
Connect to the indoor controller board (CN2D)
Between ① to ③ 12.5-13.7V DC (Pin① (+))

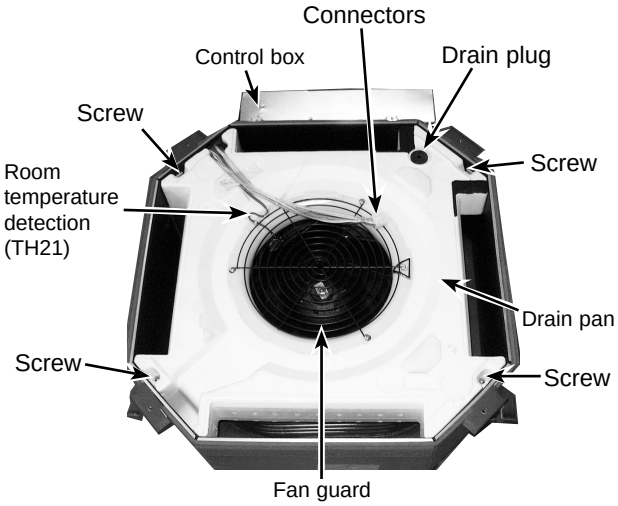
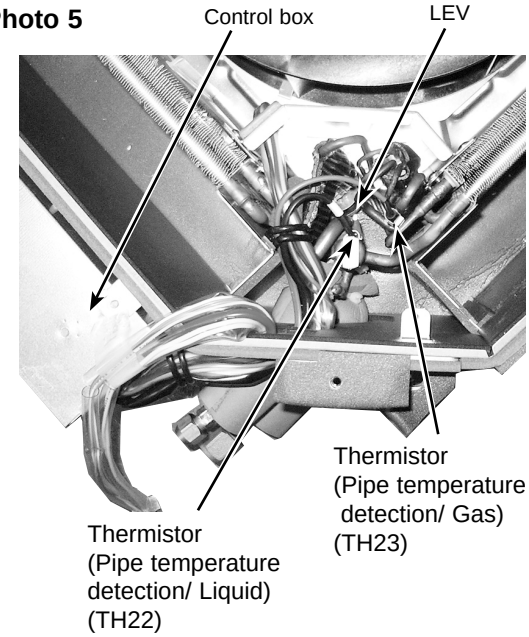
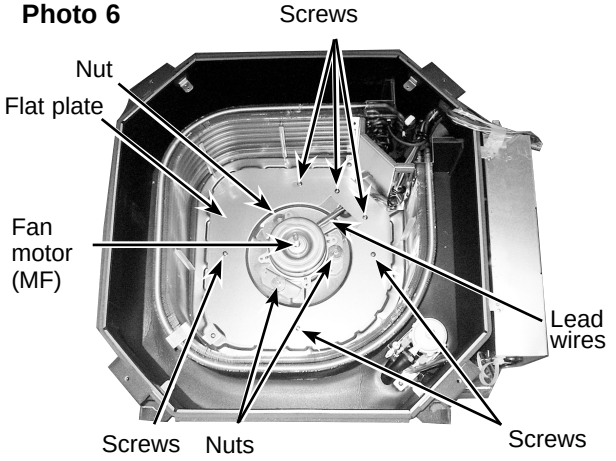
CNSK
Connect to the indoor controller board (CNDK)
Between ① to ③ 220-240V AC

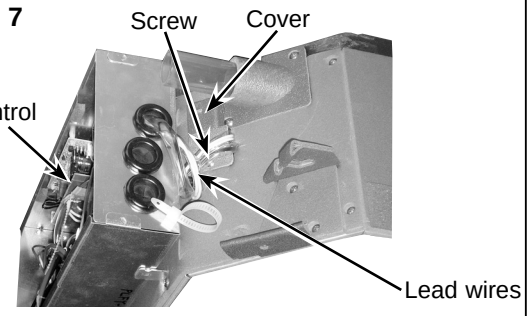
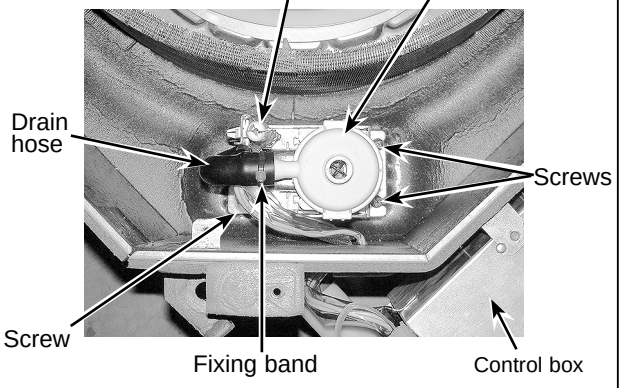
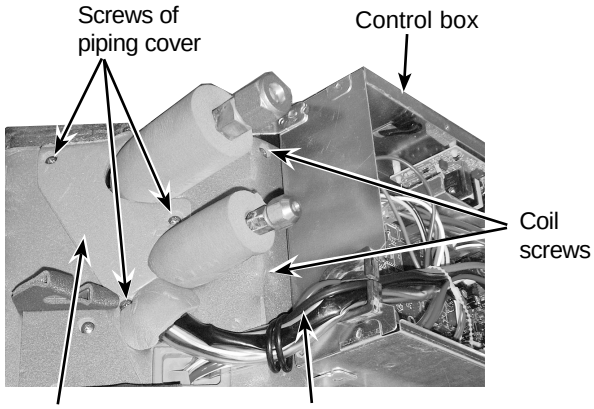
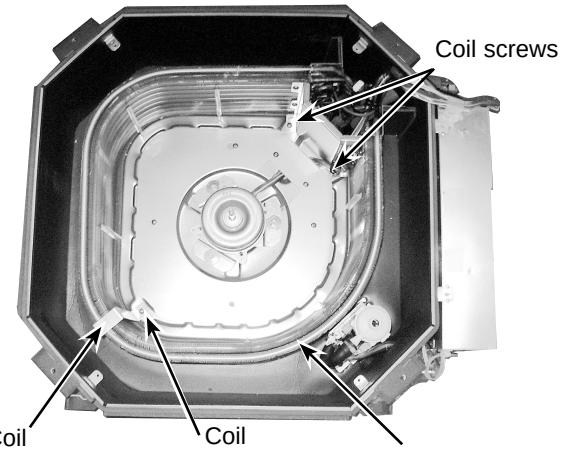
10 DISASSEMBLY PROCEDURE

PLFY-P15VCM-E2.TH **PLFY-P15VCM-E2R1.TH**
PLFY-P20VCM-E2.TH **PLFY-P20VCM-E2R1.TH** **PLFY-P20VCM-E2R2.TH**
PLFY-P25VCM-E2.TH **PLFY-P25VCM-E2R1.TH** **PLFY-P25VCM-E2R2.TH**
PLFY-P32VCM-E2.TH **PLFY-P32VCM-E2R1.TH** **PLFY-P32VCM-E2R2.TH**
PLFY-P40VCM-E2.TH **PLFY-P40VCM-E2R1.TH** **PLFY-P40VCM-E2R2.TH**

Be careful when removing heavy parts.

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the air intake grille (1) Slide the knob of air intake grille to the direction of the arrow ① to open the air intake grille. (2) Remove the string hook from the panel to prevent the grille from dropping. (3) Slide the hinge of the intake grille to the direction of the arrow ② and remove the air intake grille.	**Figure 1** 
2. Removing the fan guard (1) Open the air intake grille. (2) Remove the 3 screws of fan guard.	**Photo 1** 
3. Removing the panel (1) Remove the air intake grille. (Refer to procedure 1) Corner panel (See Figure 2**)** (1) Remove the screw of the corner. (2) Slide the corner panel to the direction of the arrow ③, and remove the corner panel. **Panel (See Photo 2)** (1) Disconnect the connector that connects with the unit. (2) Remove the 2 screws from the panel and loose other 2 screws fixed to the oval hole, have different diameter. (3) Rotate the panel a little to remove the screws. (Slide the panel so that the screw comes to a larger diameter of the oval hole, which has 2 different diameters.)	**Figure 2**  **Photo 2** 
4. Removing the electrical parts (1) Remove the 2 screws and the control box cover. <Electrical parts in the control box> • Indoor controller board (I.B) • Indoor power board (P.B) • Fan motor capacitor (C1) • Fuse (FUSE) • Varistor (ZNR) • Terminal block (TB)	**Photo 3** 

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
5. Removing the room temperature detection (TH21) (1) Remove the panel. (Refer to procedure 3) (2) Pull out the room temperature detection from the drain pan. (3) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (4) Remove the connector (CN20) from the indoor controller board, and disconnect the room temperature detection.	**Photo 4** 
6. Removing the drain pan (1) Remove the panel. (Refer to procedure 3) (2) Remove the room temperature detection and the 2 lead wires held with fastener; wireless controller board relay connector (9P red) and panel relay connector (10P white). (3) Remove the 4 screws fixed to the drain pan, and remove the drain pan. (4) Remove the fan guard. (Refer to procedure 2)	
7. Removing the pipe temperature detection/liquid (TH22) and pipe temperature detection/gas (TH23) (1) Remove the panel. (Refer to procedure **3**) (2) Remove the drain pan. (Refer to procedure **6**) (3) Disconnect the pipe temperature detection/liquid or the pipe temperature detection/gas from the holder. (4) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See Photo 9) (5) Remove the 2 screws fixed to the control box cover, and remove the control box cover. **Pipe temperature detection/liquid (TH22)** (6) Remove the connector (CN21) from the indoor controller board, and disconnect the pipe temperature detection/liquid. **Pipe temperature detection/gas (TH23)** (6) Remove the connector (CN29) from the indoor controller board, and disconnect the pipe temperature detection/gas with its holder.	**Photo 5** 
8. Removing the fan motor (MF) (1) Remove the panel. (Refer to procedure 3) (2) Remove the drain pan. (Refer to procedure 6) (3) Remove the nut and the washer from the turbo fan, and remove the turbo fan. (4) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (5) Disconnect the connector of the FAN from the indoor controller board. (6) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See Photo 9) (7) Remove the 6 screws fixed to the flat plate, and remove the flat plate. (8) Disconnect the lead wires to the direction of the fan motor, and remove the 3 nuts of the fan motor.	**Photo 6** 

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
9. Removing the drain pump (DP) and drain sensor (DS) (1) Remove the panel. (Refer to procedure 3) (2) Remove the drain pan. (Refer to procedure 6) (3) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (4) Remove the connectors of the (CNP) and the (CN31) from the indoor controller board. (5) Remove the 1 screw fixed to the cover, and remove the cover. (6) Disconnect the lead wires to the direction of the drain pump. (See Photo 7) (7) Remove the 3 screws of the drain pump. (8) Cut the drain hose band, pull out the drain hose from the drain pump. (9) Pull out the drain pump. (10) Remove the drain sensor and the holder.	**Photo 7**  **Photo 8** 
10. Removing the heat exchanger (1) Remove the panel. (Refer to procedure 3) (2) Remove the drain pan. (Refer to procedure 6) (3) Remove the nut and the washer from the turbo fan, and remove the turbo fan. (4) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (5) Disconnect the connector of the FAN from the indoor controller board. (6) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See Photo 9) (7) Remove the pipe temperature thermistor/liquid and condenser/evaporator temperature thermistor. (Refer to procedure 7) (8) Disconnect the lead wires to the direction of the fan motor. (9) Remove the 1 coil support screw, the 2 inside coil screws (See Photo 10), and the 4 outside coil screws (See Photo 9) from the heat exchanger, and remove the heat exchanger.	**Photo 9**  **Photo 10** 

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