MITSUBISHI ELECTRIC

HEAT PUMP AIR CONDITIONERS

April 2015

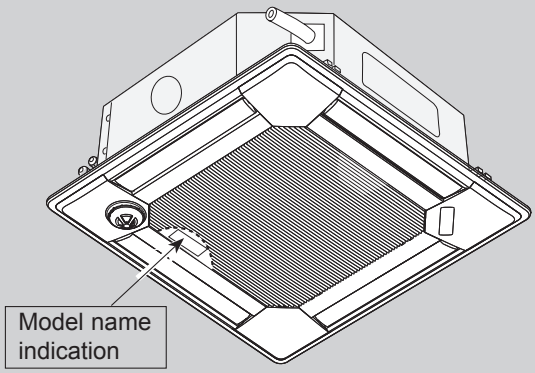
No. OCH586

TECHNICAL & SERVICE MANUAL

Series PLFY Ceiling Cassettes

Indoor unit [Model Name]	[Service Ref.]
PLFY-WP32VBM-E	PLFY-WP32VBM-E.UK
PLFY-WP40VBM-E	PLFY-WP40VBM-E.UK
PLFY-WP50VBM-E	PLFY-WP50VBM-E.UK

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



INDOOR UNIT

CONTENTS

PARTS CATALOG (OCB586)

1 SAFETY PRECAUTION

Precations for handling units for use with water

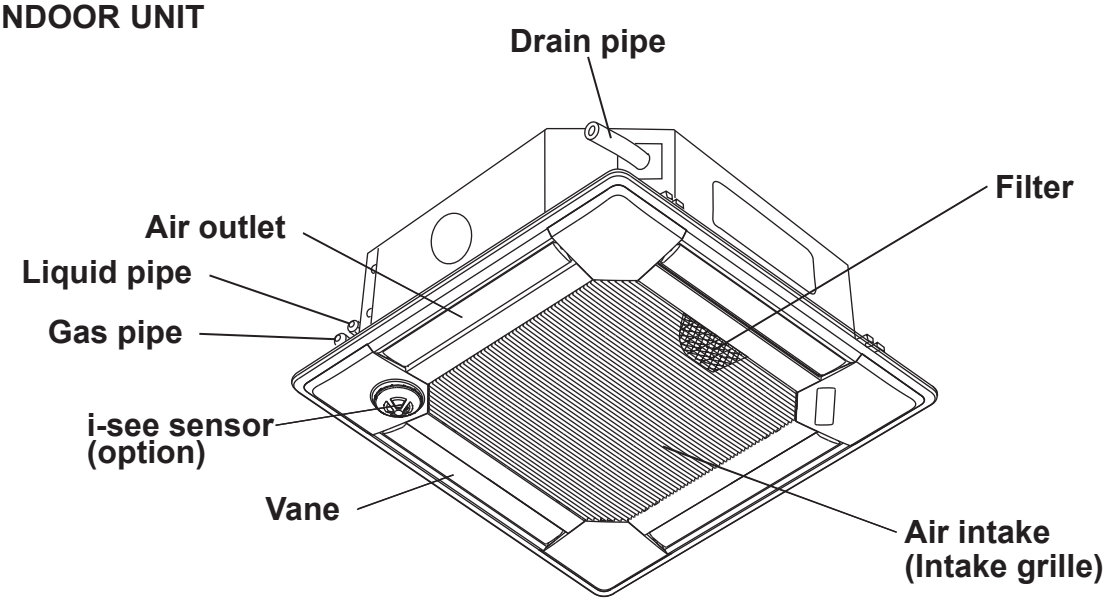
⚠ **CAUTION**

Do not use the existing water piping.
Store the piping materials indoors, and keep both ends of the pipes sealed until immediately before installation. Keep the joints wrapped in plastic bags. If dust or dirt enters the water circuit, it may damage the heat exchanger and cause water leakage.

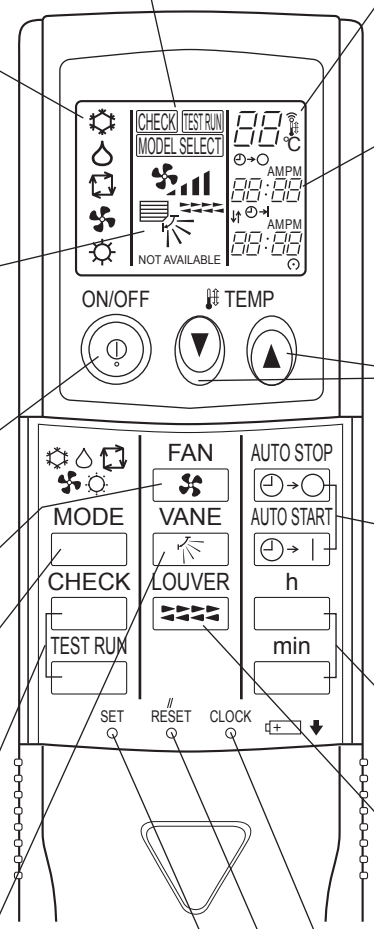
Only use water.
Only use clean water as a refrigerant. The use of water outside the specification may damage the refrigerant citcuit.

2 PARTS NAMES AND FUNCTIONS

2-1. INDOOR UNIT



2-2. 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 desired temperature which is set.

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, heating, auto and fan mode.

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 direction.

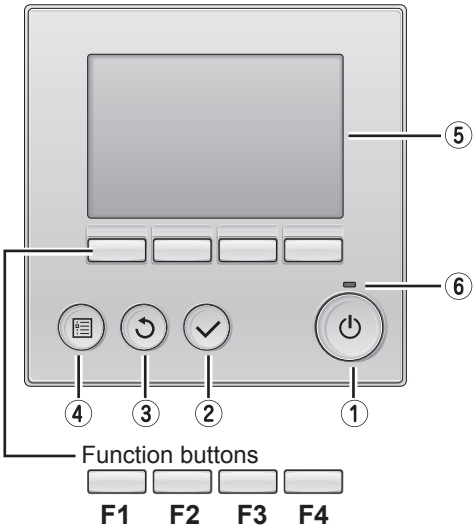
2-3. WIRED REMOTE CONTROLLER <PAR-30MAA><PAR-31MAA>

Wired remote controller function

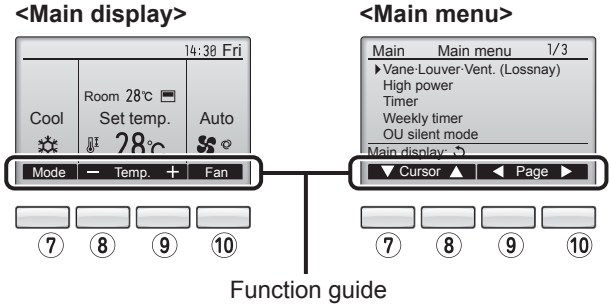
The functions which can be used are restricted according to each model.

○ : Supported ✕ : Unsupported

	Function	PAR-30MAA/PAR-31MAA	PAR-21MAA
Body	Product size H × W × D (mm)	120 × 120 × 19	120 × 130 × 19
	LCD	Full Dot LCD	Partial Dot LCD
	Backlight	○	✕
Energy-saving	Automatic return to the preset temperature	○	✕
Restriction	Setting the temperature range restriction	○	○
Function	Operation lock function	○	○
	Weekly timer	○	✕
	ON/OFF timer	○	○
	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.

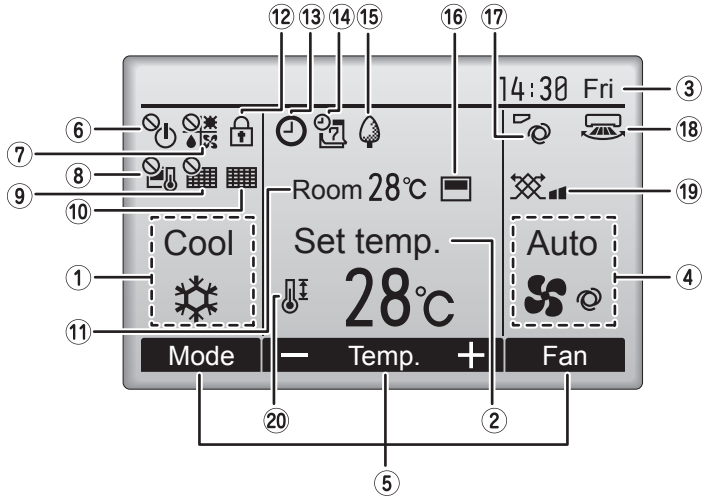
⑩ Function button F4

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

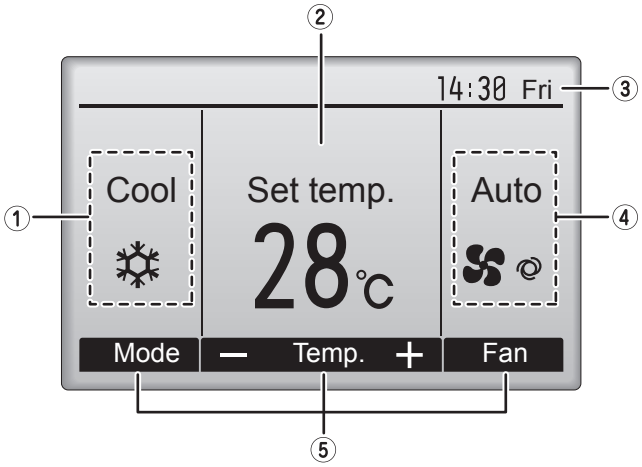
The main display can be displayed in two different modes: "Full" and "Basic".
The initial setting is "Full". To switch to the "Basic" mode, change the setting on the Main display setting.

<Full mode>

All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

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

Appears 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.

2-4. WIRED REMOTE CONTROLLER <PAR-21MAA>

Display Section

For the purposes of 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.

"Sensor" indication
Displays 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.

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

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

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

Fan Speed indicator
Shows the selected fan speed.

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

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

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

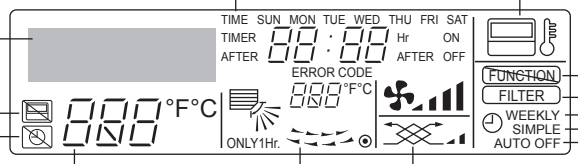
Room Temperature display
Shows the room temperature. The room temperature display range is 8 to 39℃. The display blinks if the temperature is less than 8℃ or 39℃ or more.

"One Hour Only" indicator
Displays 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.

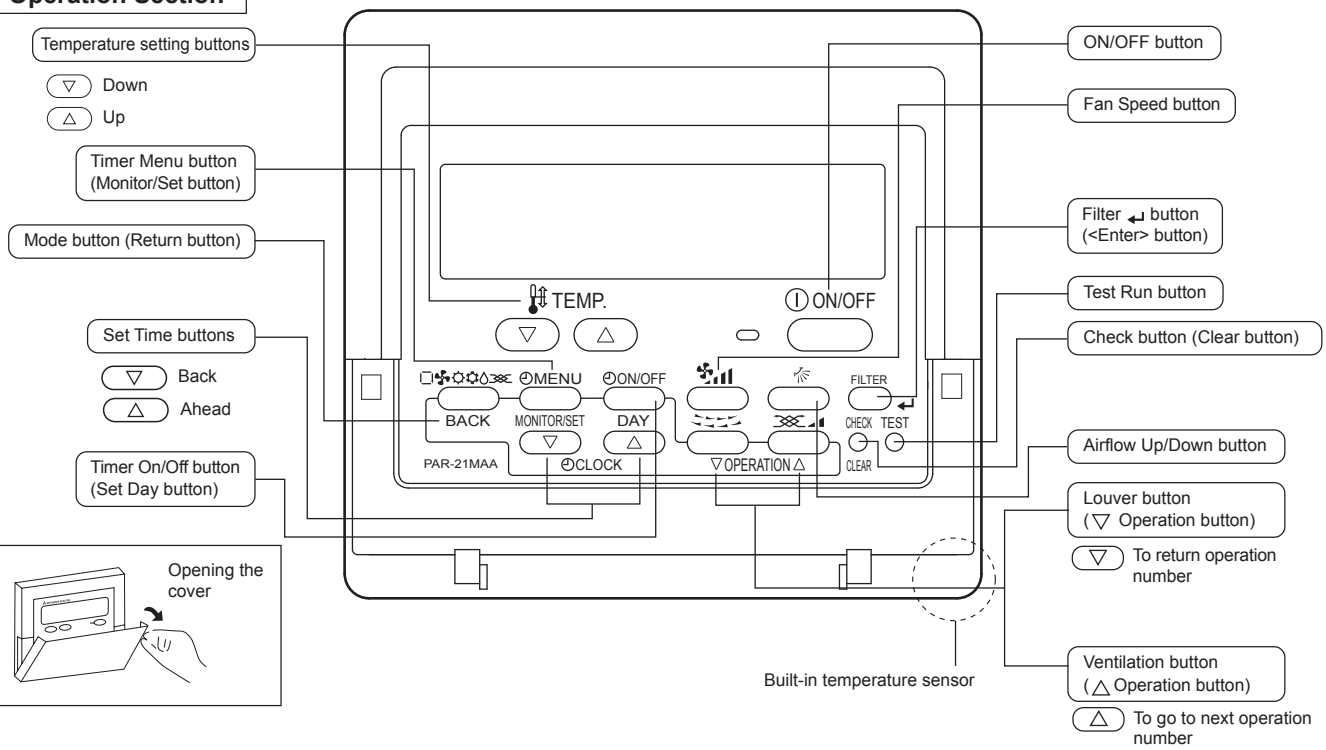
Louver display
Indicates the action of the swing louver. Does not appear if the louver is not running.

Temperature Setting
Shows the target temperature.

◉ (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 SPECIFICATIONS

3-1. SPECIFICATIONS

Service Ref.			PLFY-WP32VBM-E.UK	PLFY-WP40VBM-E.UK	PLFY-WP50VBM-E.UK
Power source			1-Phase 220–240 V, 50/60 Hz		
Cooling capacity (Nominal)	*1	kW	3.6	4.5	5.6
	*1	kcal/h	3,100	3,100	3,100
	*1	BTU/h	12,300	12,300	12,300
	Power input	kW	0.04	0.04	0.05
	Current input	A	0.35	0.35	0.45
Heating capacity (Nominal)	*1	kW	4.0	4.0	4.0
	*1	kcal/h	3,400	3,400	3,400
	*1	BTU/h	13,600	13,600	13,600
	Power input	kW	0.03	0.03	0.04
	Current input	A	0.28	0.28	0.38
External finish			Galvanized steel sheet		
External dimension H × W × D		mm	258 × 840 × 840		
		in	10-3/16 × 33-1/8 × 33-1/8		
Net weight		kg [lb]	22 [10]		
Decoration panel	Model		**PLP-6BA**	**PLP-6BA**	**PLP-6BA**
	External finish		MUNSELL (6.4Y 8.9/0.4)		
	Dimension H × W × D	mm	35 × 950 × 950		
		in	1-3/8 × 37-7/16 × 37-7/16		
	Net weight	kg [lb]	13 [6]		
Heat exchanger			Cross fin (Aluminium fin and copper tube)		
FAN	Type × Quantity		Turbo fan × 1	Turbo fan × 1	Turbo fan × 1
		Pa	0	0	0
		mmH_2O	0	0	0
	Motor type		DC motor		
	Motor output	kW	0.050	0.050	0.050
	Driving mechanism		Direct drive		
	Air flow rate (Low-Mid2-Mid1-High)	m^3/min	16 - 15 - 14 - 13	16 - 15 - 14 - 13	19 - 17 - 15 - 13
		L/s	183 - 200 - 217 - 233	183 - 200 - 217 - 233	183 - 200 - 217 - 233
		cfm	388 - 424 - 459 - 494	388 - 424 - 459 - 494	388 - 424 - 459 - 494
Noise level (Low-Mid2-Mid1-High) (measure on anechoic room)		dB <A>	31 - 30 - 29 - 27	31 - 30 - 29 - 27	34 - 32 - 30 - 27
Insulation material			PS		
Air filter			PP honeycomb		
Protection device			Fuse		
Connectable outdoor unit			R410, CITY MULTI		
Diameter of refrigerant pipe	Water inlet		RC 3/4 screw		
	Water outlet		RC 3/4 screw		
Field drain pipe size		mm [in]	O.D ϕ32 (VP-25)		
Standard attachment	Document, accesory		Installation Manual, Instruction Book		
Remark	Optional parts				
	Decotation panel*2		PLP-6BA	PLP-6BA	PLP-6BA
	Air outlet shutter plate		PAC-SH51SP-E	PAC-SH51SP-E	PAC-SH51SP-E
	High efficiency filter element *3		PAC-SH59KF-E	PAC-SH59KF-E	PAC-SH59KF-E
	Multi-function casement		PAC-SH53TM-E	PAC-SH53TM-E	PAC-SH53TM-E
			*2 PLFY-P-VBM-E should use together with PLP-6BA. *3 PAC-SH53TM-E is necessary to use with filter PAC-SH59KF-E.		
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.		

*1 <Cooling> Indoor temperature: 27°C D.B./19°C W.B [81°F D.B./66°F W.B] Outdoor temperature: 35°C D.B. [95°F D.B.]
<Heating> Indoor temperature: 20°C D.B. [68°F D.B.] Outdoor temperature: 7°C D.B./6°C D.B.[45°F D.B./43°F D.B.]

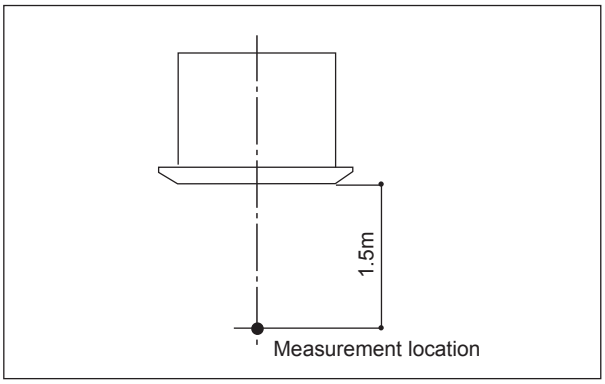
3-2. ELECTRICAL PARTS SPECIFICATIONS

Service Ref. / Parts name	Symbol	PLFY-WP32VBM-E.UK	PLFY-WP40VBM-E.UK	PLFY-WP50VBM-E.UK
Room temperature detection thermistor	TH21	Resistance 0℃/15 kΩ, 10℃/9.6 kΩ, 20℃/6.3 kΩ, 25℃/5.4 kΩ, 30℃/4.3 kΩ, 40℃/3.0 kΩ		
Pipe temperature detection thermistor/ from HBC unit	TH22	Resistance 0℃/15 kΩ, 10℃/9.6 kΩ, 20℃/6.3 kΩ, 25℃/5.4 kΩ, 30℃/4.3 kΩ, 40℃/3.0 kΩ		
Pipe temperature detection thermistor/ to HBC unit	TH23	Resistance 0℃/15 kΩ, 10℃/9.6 kΩ, 20℃/6.3 kΩ, 25℃/5.4 kΩ, 30℃/4.3 kΩ, 40℃/3.0 kΩ		
Fuse (Indoor controller board)	FUSE	250 V 6.3 A		
Fan motor	MF	8-pole OUTPUT 50W		
Vane motor	MV	MSBPC20M04 12 V DC 300Ω/phase		
Drain pump	DP	PLD-12230ME-1 INPUT 12/10.8W 24 ℓ /Hr		
Drain float switch	FS	open/short detection		
Power supply terminal block	TB2	(L, N, ⏚) Rated to 330V 30A *		
Transmission terminal block	TB5	(M1, M2, S) Rated to 250V 20A *		
MA remote controller terminal block	TB15	(1, 2) Rated to 250V 10A *		

*Refer to WIRING DIAGRAM for the supplied voltage.

3-3. SOUND LEVEL

PLFY-WP·VBM-E



* Measured in anechoic room.

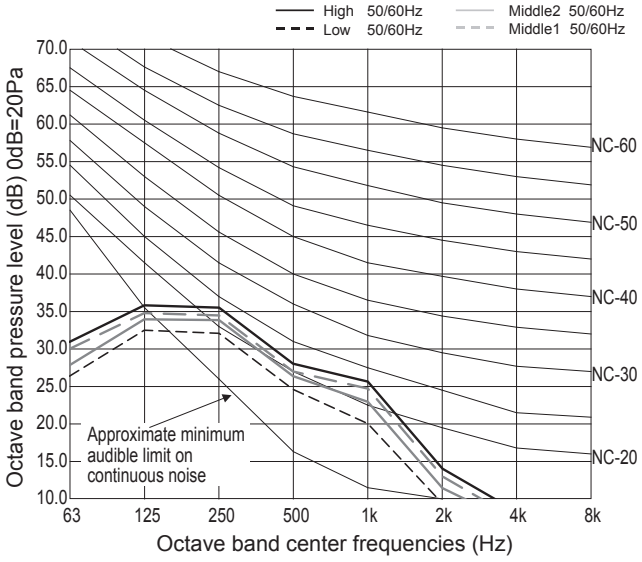
Sound level at anechoic room : Low-Mid2-Mid1-High

Service Ref.	Sound level dB (A)
PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK	31 - 30 - 29 - 27
PLFY-WP50VBM-E.UK	34 - 32 - 30 - 27

3-4. NC CURVES

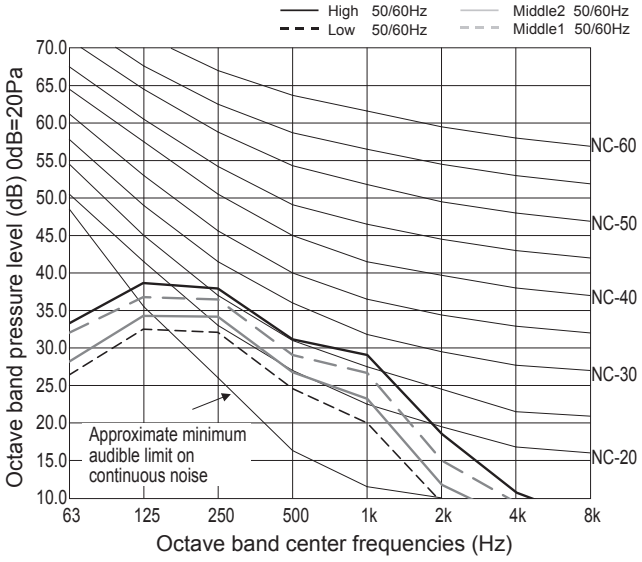
PLFY-WP32VBM-E.UK
PLFY-WP40VBM-E.UK

External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



PLFY-WP50VBM-E.UK

External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



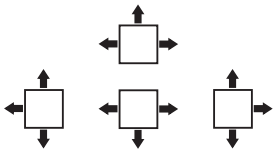
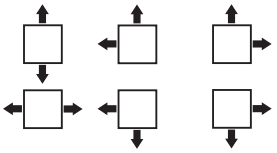
4 4-WAY AIR FLOW SYSTEM

4-1. PLACEMENT OF THE AIR OUTLETS

• For this grille, the blowout direction comes in 11 patterns.
Also, by setting the remote controller 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.

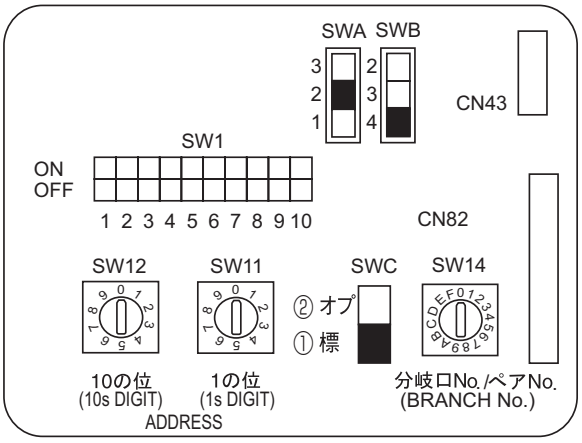
1) Decide on the pattern of the airflow direction.

<Table 1>

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

Note1.
For 3 and 2-direction settings, please use the air outlet shutter plate (option).

2) According to the number of air outlets and height of the ceiling to install the unit, be sure to set up the switches (SWA, SWB) on the circuit board to the appropriate setting.
• Correspondence of ceiling heights to numbers of air outlets



PLFY-WP32/40/50VBM-E.UK

SWB \ SWA	①	②	③
	Silent	Standard	High ceiling
4 4 direction	2.5 m	2.7 m	3.5 m
3 3 direction	2.7 m	3.0 m	3.5 m
2 2 direction	3.0 m	3.3 m	3.5 m

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 function casement can also be made.

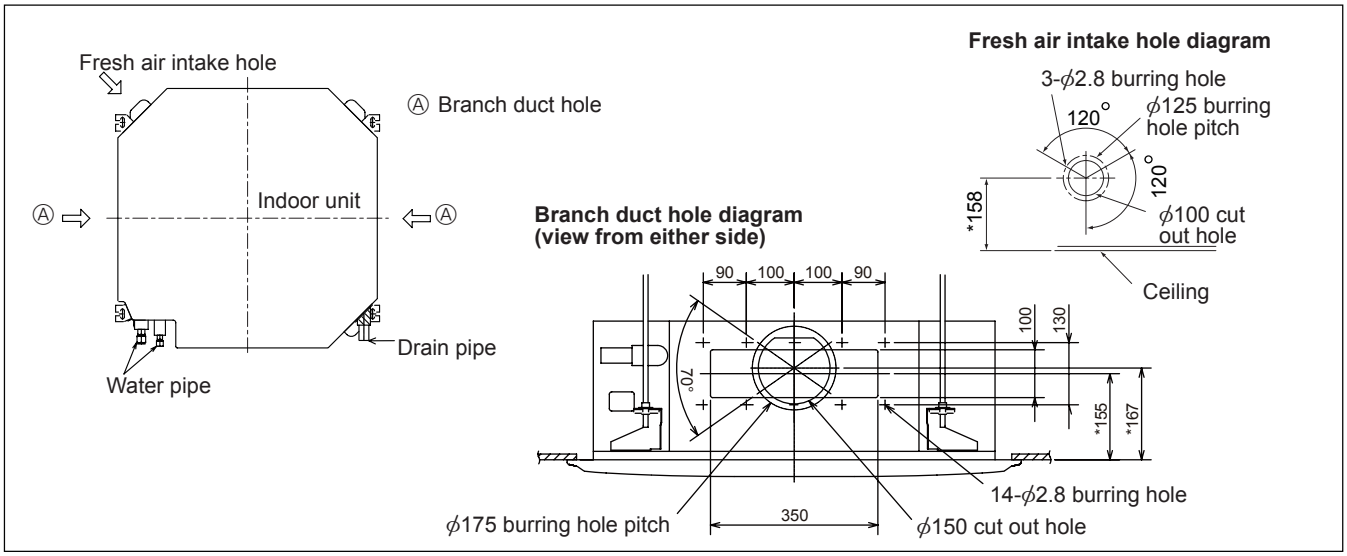
Note:

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

When installing the optional multi function 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)

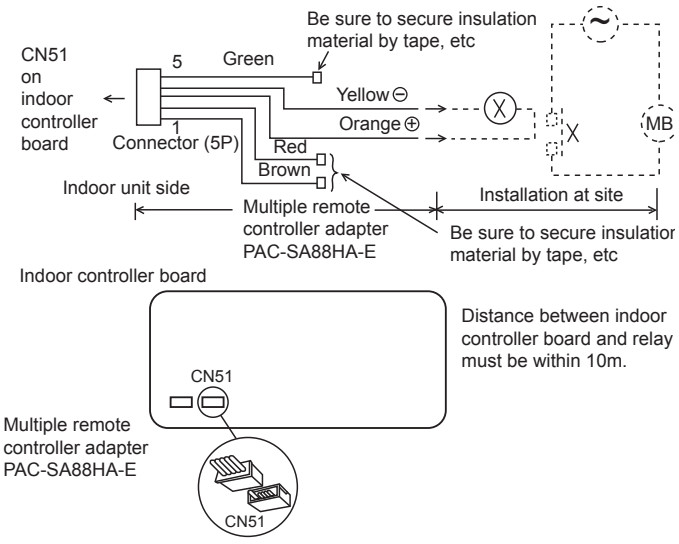
• Whenever the indoor unit is operating, the duct fan also operates.

(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 wires.

MB: Electromagnetic switch power relay for duct fan.

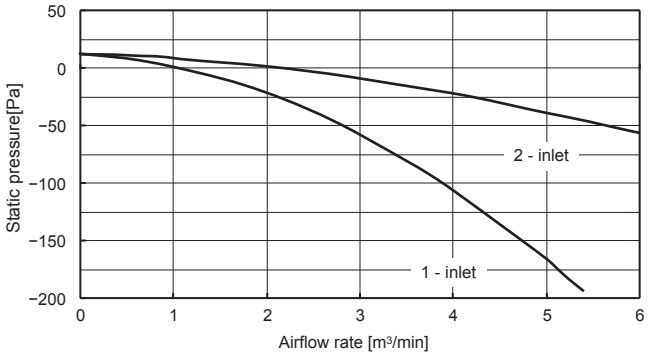
X: Auxiliary relay (For 12 V DC, coil rating: 1.0W or below)



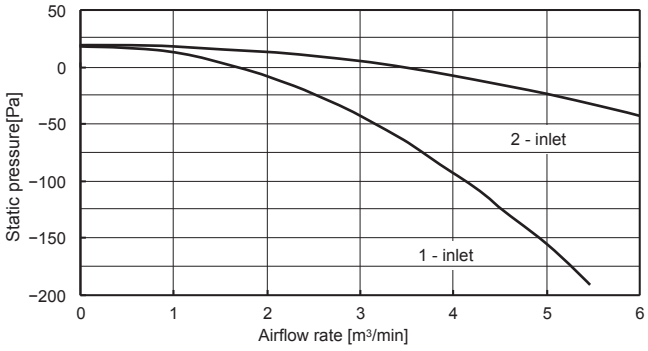
4-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

1 PLFY-P32/40/50VBM-E.UK

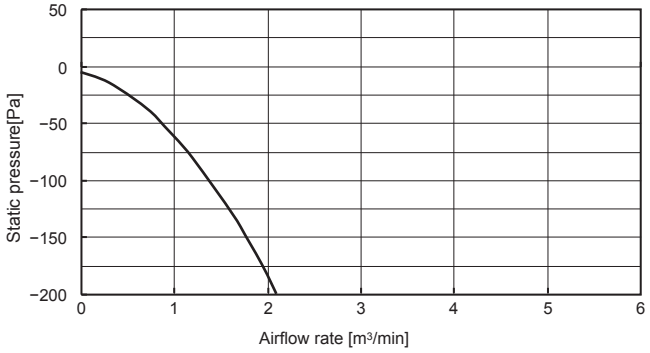
Multi function casement + Standard filter



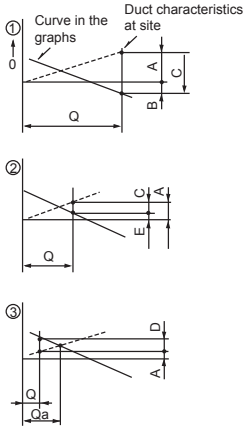
Multi function casement + High efficiency filter



Taking air into the unit



How to read curves

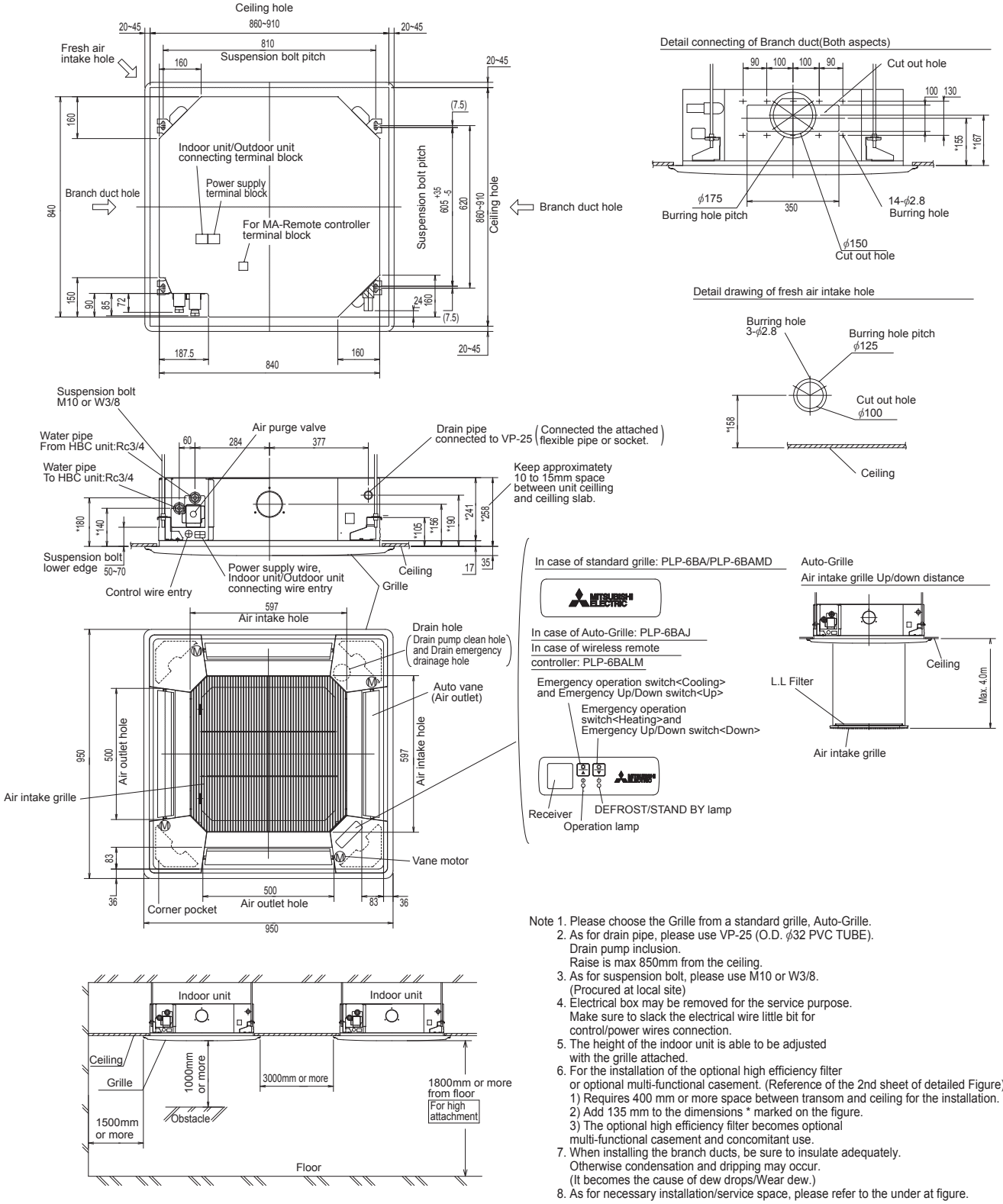


Q···Planned amount of fresh air intake <m³/min>
A···Static pressure loss of fresh air intake duct system with airflow amount Q <Pa>
B···Forced static pressure at air conditioner inlet with airflow amount Q <Pa>
C···Static pressure of booster fan with airflow amount Q <Pa>
D···Static pressure loss increase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

5 OUTLINES AND DIMENSIONS

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK
<Standard Panel>

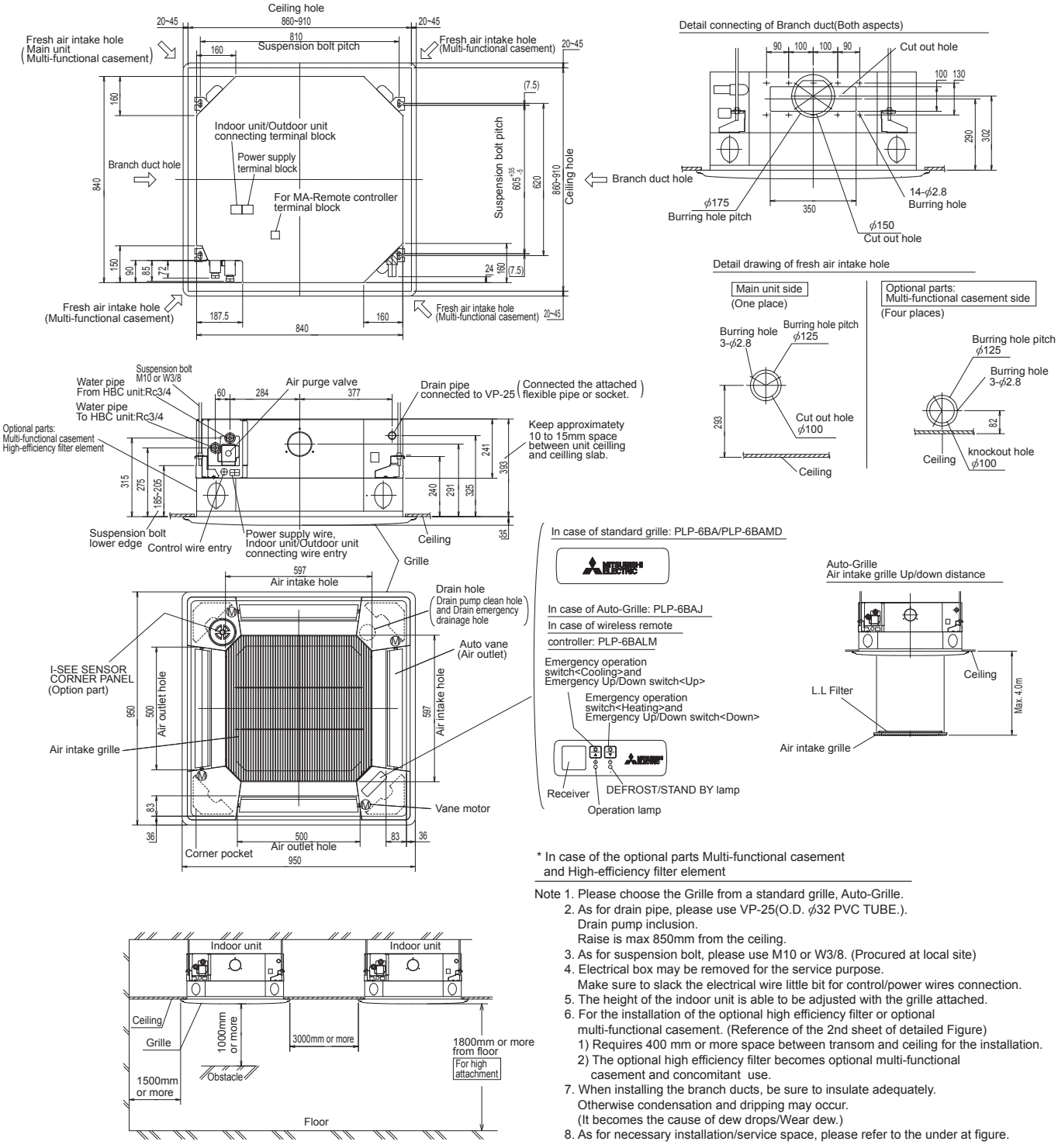
Unit: mm



Note 1. Please choose the Grille from a standard grille, Auto-Grille.
2. As for drain pipe, please use VP-25 (O.D. ϕ32 PVC TUBE).
Drain pump inclusion.
Raise is max 850mm from the ceiling.
3. As for suspension bolt, please use M10 or W3/8.
(Procured at local site)
4. Electrical box may be removed for the service purpose.
Make sure to slack the electrical wire little bit for control/power wires connection.
5. The height of the indoor unit is able to be adjusted with the grille attached.
6. For the installation of the optional high efficiency filter or optional multi-functional casement. (Reference of the 2nd sheet of detailed Figure)
1) Requires 400 mm or more space between transom and ceiling for the installation.
2) Add 135 mm to the dimensions * marked on the figure.
3) The optional high efficiency filter becomes optional multi-functional casement and concomitant use.
7. When installing the branch ducts, be sure to insulate adequately.
Otherwise condensation and dripping may occur.
(It becomes the cause of dew drops/Wear dew.)
8. As for necessary installation/service space, please refer to the under at figure.

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK
<Auto Descending Panel>

Unit: mm



* In case of the optional parts Multi-functional casement and High-efficiency filter element

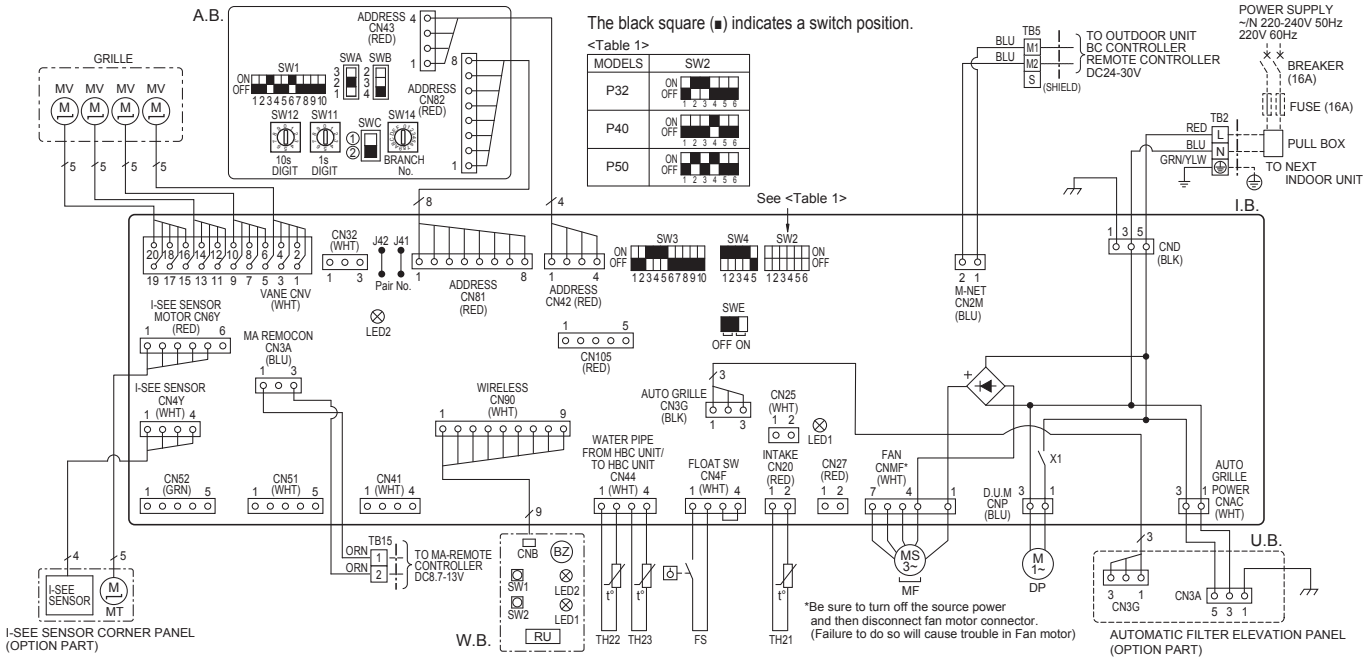
Note 1. Please choose the Grille from a standard grille, Auto-Grille.
2. As for drain pipe, please use VP-25(O.D. ϕ32 PVC TUBE.).
Drain pump inclusion.
Raise is max 850mm from the ceiling.
3. As for suspension bolt, please use M10 or W3/8. (Procured at local site)
4. Electrical box may be removed for the service purpose.
Make sure to slack the electrical wire little bit for control/power wires connection.
5. The height of the indoor unit is able to be adjusted with the grille attached.
6. For the installation of the optional high efficiency filter or optional multi-functional casement. (Reference of the 2nd sheet of detailed Figure)
1) Requires 400 mm or more space between transom and ceiling for the installation.
2) The optional high efficiency filter becomes optional multi-functional casement and concomitant use.
7. When installing the branch ducts, be sure to insulate adequately.
Otherwise condensation and dripping may occur.
(It becomes the cause of dew drops/Wear dew.)
8. As for necessary installation/service space, please refer to the under at figure.

6 WIRING DIAGRAM

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK

【LEGEND】

SYMBOL		NAME		SYMBOL	NAME		SYMBOL		NAME	
I.B.		INDOOR CONTROLLER BOARD		DP	DRAIN PUMP		A.B.		ADDRESS BOARD	
	CN27	CONNECTOR	DAMPER	FS	DRAIN FLOAT SWITCH			SWA	SWITCH	CEILING HEIGHT SELECTOR
	CN32		REMOTE SWITCH	MF	FAN MOTOR			SWB		DISCHARGE OUTLET NUMBER SELECTOR
	CN51		CENTRALLY CONTROL	MV	VANE MOTOR			SWC		OPTION SELECTOR
	CN52		REMOTE INDICATION	TB2	TERMINAL BLOCK	POWER SUPPLY		SW1		MODE SELECTION
	CN105	IT TERMINAL		TB5		TRANSMISSION		SW11		ADDRESS SETTING ONES DIGIT
	FUSE	FUSE (T6.3AL250V)		TB15		MA-REMOTE CONTROLLER		SW12		ADDRESS SETTING TENS DIGIT
	LED1	POWER SUPPLY (I.B.)		TH21	THERMISTOR	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)		SW14		CONNECTION NO.
	LED2	POWER SUPPLY (I.B.)					OPTION PART			
	SW2	SWITCH	CAPACITY CODE	TH22		PIPE TEMP. DETECTION/FROM HBC UNIT (0°C/15kΩ, 25°C/5.4kΩ)	W.B.		PCB FOR WIRELESS REMOTE CONTROLLER	
	SW3		MODE SELECTION					BZ	BUZZER	
	SW4		MODEL SELECTION	TH23		PIPE TEMP. DETECTION/TO HBC UNIT (0°C/15kΩ, 25°C/5.4kΩ)		LED1	LED (OPERATION INDICATION : GREEN)	
	SWE		DRAIN PUMP (TEST MODE)					LED2	LED (PREPARATION FOR HEATING : ORANGE)	
	X1	AUX. RELAY	DRAIN PUMP					RU	RECEIVING UNIT	
								SW1	EMERGENCY OPERATION (HEAT/DOWN)	
								SW2	EMERGENCY OPERATION (COOL/UP)	



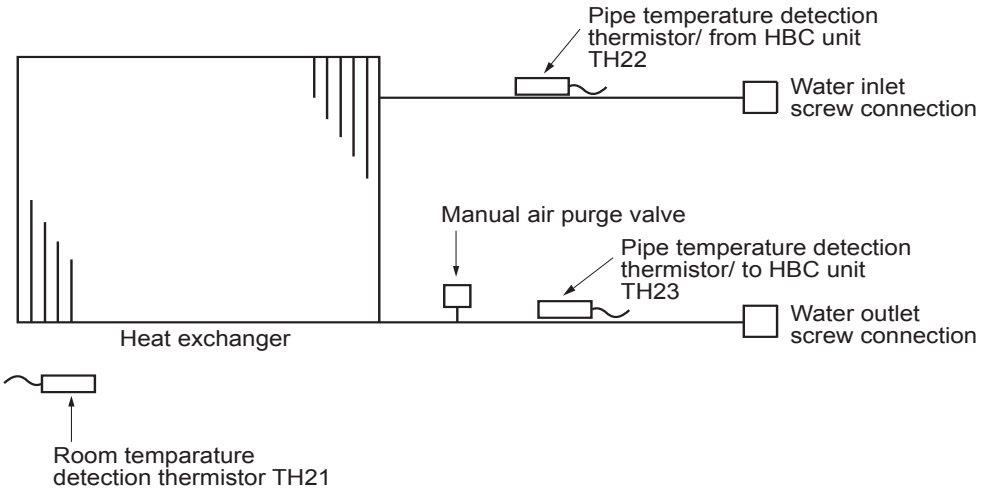
NOTES:
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5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

LED on indoor board for service

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

7 REFRIGERANT SYSTEM DIAGRAM

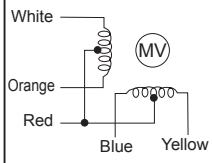
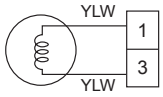
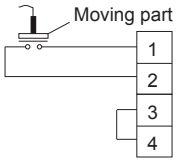
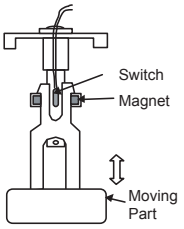
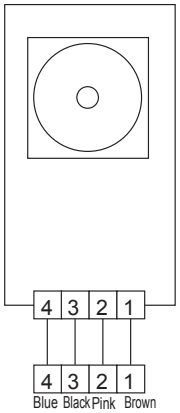
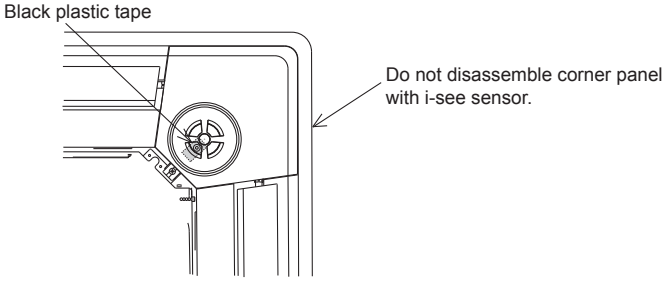
PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK

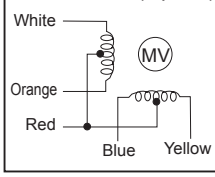


Item \ Capacity	PLFY-WP32/40/50VBM-E
Water inlet	RC 3/4 screw
Water outlet	RC 3/4 screw

8 TROUBLESHOOTING

8-1. HOW TO CHECK THE PARTS
PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK

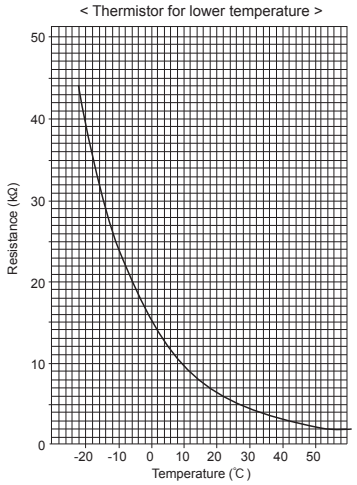
<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temp. detection thermistor (TH21)
Pipe temp. detection thermistor/ from HBC unit (TH22)
Pipe temp. detection thermistor/ to HBC unit (TH23)</td><td>Disconnect the connector then measure the resistance with a tester.
(At the ambient temperature of 10 to 30℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3 to 9.6 kΩ</td><td>Open or short</td></tr></table>(Refer to “8-1-1. Thermistor” .)</td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature of 20 to 30℃)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red - Yellow (⑤–③, ⑩–⑧, ⑮–⑬, ⑳–⑱)</td><td rowspan="4">300 Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Red - Blue (⑤–①, ⑩–⑥, ⑮–⑪, ⑳–⑯)</td></tr><tr><td>Red - Orange (⑤–④, ⑩–⑨, ⑮–⑭, ⑳–⑲)</td></tr><tr><td>Red - White (⑤–②, ⑩–⑦, ⑮–⑫, ⑳–⑰)</td></tr></table></td></tr>
<tr><td>Drain pump (DP)
 
</td><td>Measure the resistance between the terminals with a tester.
(Winding temperature 20℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>290 Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Drain float switch (FS)
 
</td><td>Measure the resistance between the terminals with a tester.
<table><tr><th>State of moving part</th><th>Normal</th><th>Abnormal</th></tr><tr><td>UP</td><td>Short</td><td>Other than short</td></tr><tr><td>DOWN</td><td>Open</td><td>Other than open</td></tr></table> 
</td></tr>
<tr><td>i-see sensor (Option)
 
</td><td>Turn on the indoor unit with the black plastic tape on the outside of i-see sensor controller board.
With electricity being turned on, measure the power voltage between connectors with tester.
i-see sensor rotates and pull out the connector of motor for i-see sensor.
 

i-see sensor (At the ambient temperature of 10 to 40℃)
<table><tr><th>i-see sensor connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>②(−)–④(+)</td><td>1.857 to 3.132 V DC</td><td>Other than the normal</td></tr><tr><td>①(+)–②(−)</td><td>0.939 to 1.506 V DC</td><td>Other than the normal</td></tr></table>**NOTE** : Be careful not to discharge static electricity into electronics.</td></tr>
<tr><td>Vane motor for i-see sensor (Option)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature of 20 to 30℃)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red - Yellow</td><td rowspan="4">250 Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Red - Blue</td></tr><tr><td>Red - Orange</td></tr><tr><td>Red - White</td></tr></table></td></tr>
</table>

8-1-1. Thermistor

<Thermistor characteristic graph>

Thermistor for lower temperature	Room temperature detection thermistor (TH21) Pipe temperature detection thermistor/from HBC unit (TH22) Pipe temperature detection thermistor/to HBC unit (TH23)



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

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

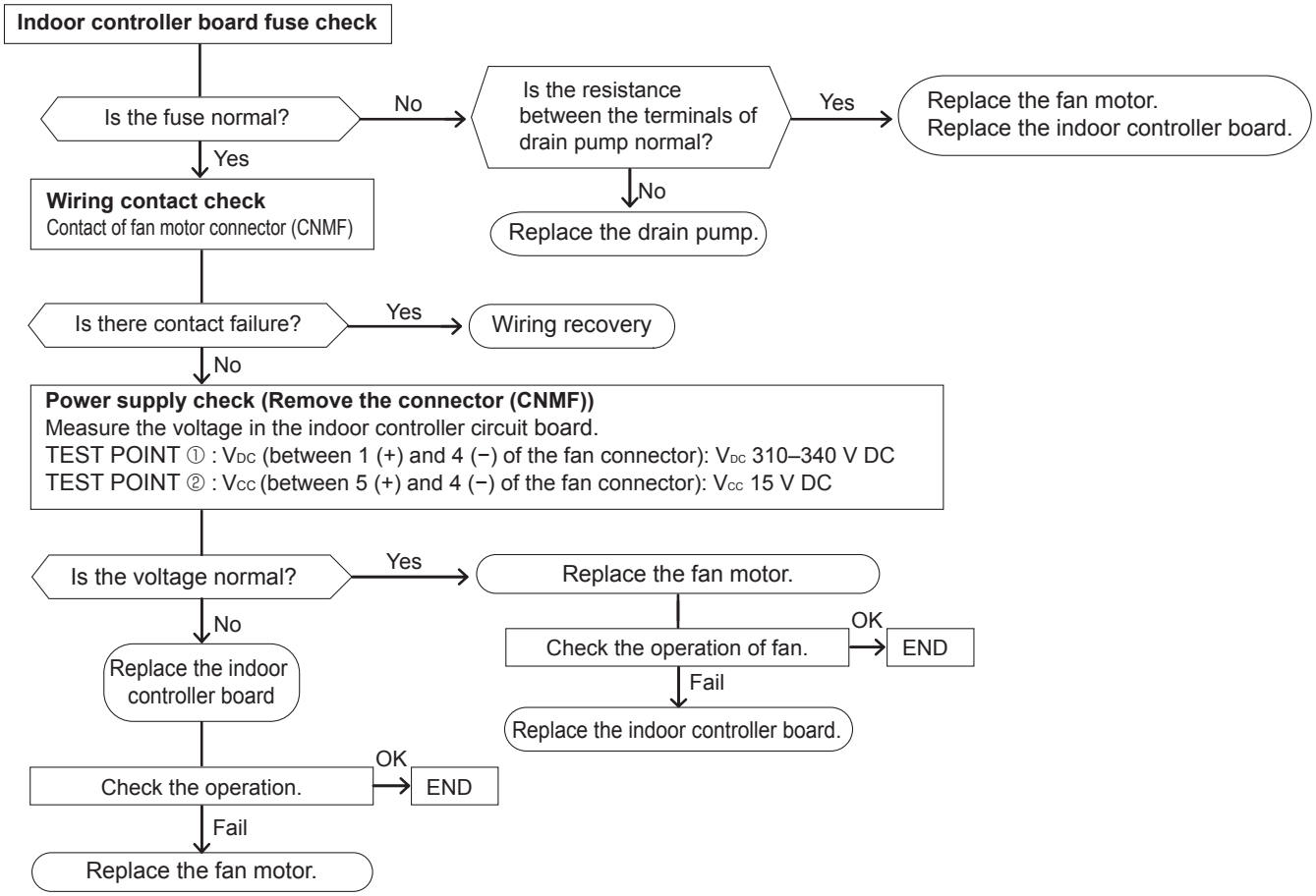
0℃	15 kΩ
10℃	9.6 kΩ
20℃	6.3 kΩ
25℃	5.4 kΩ
30℃	4.3 kΩ
40℃	3.0 kΩ

8-1-2. DC an 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 connecter (CNMF) for the fan motor. Pay attention to the service.
- · Do not pull out the connector (CNMF) for the motor with the power supply on.
  (It causes trouble of the indoor controller board and fan motor.)

② Self check
Conditions : The indoor fan cannot rotate.



8-2. FUNCTION OF DIP SWITCH

The black square (■) indicates a switch position.

Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW1 Function setting	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	Address board <Initial setting> ON OFF 1 2 3 4 5 6 7 8 9 10
	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	Humidifier control	Always operated while the heat in ON *1	Operated depends on the condition *2		
	7	Airflow set in case of thermo OFF at heating mode	Low *3	Extra low *3		
	8		Setting air flow *3	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	10	Power ON/OFF by breaker	Effective	Not effective		
SW2 Capacity code setting	1–6	Capacity: WP32 — SW2: ON OFF 1 2 3 4 5 6 Capacity: WP40 — SW2: ON OFF 1 2 3 4 5 6 Capacity: WP50 — SW2: ON OFF 1 2 3 4 5 6			Before power supply ON	Indoor controller board Set while the unit is off. <Initial setting> Set for each capacity.
SW3 Function setting	1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	Indoor controller board Set while the unit is off. <Initial setting> ON OFF 1 2 3 4 5 6 7 8 9 10
	2	Louver/humidifier *5	Available	Not available		
	3	Vane	Available	Not available		
	4	Vane swing function in heating (wave-flow)	Available	Not available		
	5	Vane horizontal angle ①	Second setting *4	First setting *4		
	6	Vane horizontal angle ②	Third setting *4	Depends on SW3-5		
	7	–	–	–		
	8	Sensible temperature correction	Not effective	Effective		
	9	–	–	–		
	10	–	–	–		
SW4 Model Selection (Setting for PLFY series)	1–5	When replacing the indoor controller board, make sure to set the switch to the initial setting, which is shown below. ON OFF 1 2 3 4 5			Before power supply ON	Indoor controller board

*1 Fan operation at Heating mode
*2 Thermo ON operation at Heating mode
*3 Refer to the <Table A> below.
*4 Refer to the <Table B> below.
*5 SW3-2 setting. Only for PLFY-P·VBM, SW is used to change whether the humidifier functions or not. (Fixed the louver function less.)

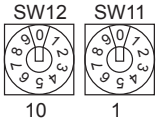
<Table A>

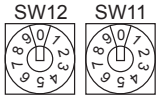
SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	Stop

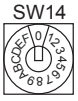
<Table B>

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

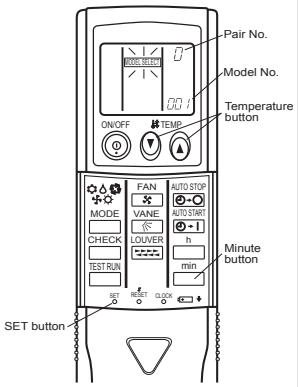
* Be careful of smudge on ceiling.

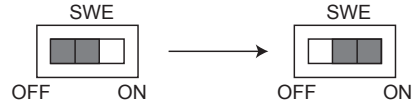
<table>
<tr><th>Switch</th><th>Pole</th><th>Operation by switch</th><th>Effective timing</th><th>Remarks</th></tr>
<tr><td>SWA
Ceiling height selector</td><td>1–3</td><td>Ceiling height can be changed depends on SWB setting.
(High ceiling) 3
(Standard) 2
(Silent) 1
 
PLFY-WP32/40/50VBM-E
<table><tr><th>SWA / SWB</th><th>①
Silent</th><th>②
Standard</th><th>③
High ceiling</th></tr><tr><td>4 4 direction</td><td>2.5m</td><td>2.7m</td><td>3.5m</td></tr><tr><td>3 3 direction</td><td>2.7m</td><td>3.0m</td><td>3.5m</td></tr><tr><td>2 2 direction</td><td>3.0m</td><td>3.3m</td><td>3.5m</td></tr></table></td><td rowspan="2">Under operation or suspension</td><td>Address board
<Initial setting>
3
2
1
  </td></tr>
<tr><td>SWC
Option selector</td><td>2</td><td>② オプ
① 標
 
When attaching the optional high performance filter elements (multi function casement) to the unit, be sure to attach it to ② in order to prevent the airflow reducing.</td><td>Address board
<Initial setting>
② オプ
① 標
  </td></tr>
<tr><td>SW11
1s digit address setting
SW12
10s digit address setting</td><td>Rotary switch</td><td> 

How to set addresses
Example : If address is "3", remain SW12 (for over 10) at "0", and match SW11 (for 1 to 9) with "3".</td><td rowspan="2">Before power supply ON</td><td>Address board
<Initial setting>
 
</td></tr>
<tr><td>SW14
Branch No. Setting</td><td>Rotary switch</td><td> 

How to set branch numbers SW14 (Series R2 only)
Match the indoor unit's refrigerant pipe with the BC controller's end connection number.
Remain other than series R2 at "0".</td><td>Address board
<Initial setting>
 
</td></tr>
</table>

Continue to the next page

<table>
<tr><th>Switch</th><th>Pole</th><th>Operation by switch</th><th>Effective timing</th><th>Remarks</th></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.
① Pair No. setting is available with the 4 patterns (Setting patters A to D).
② 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 1 remote controller.
① Setting for indoor unit
Jumper wire J41, J42 on the indoor controller board are cut according to the table below.
② 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>
<tr>
<td>SWE
Test run for Drain pump</td>
<td>Connector</td>
<td>
Drain pump and fan are activated simultaneously after the connector SWE is set to ON and turn ON the power.


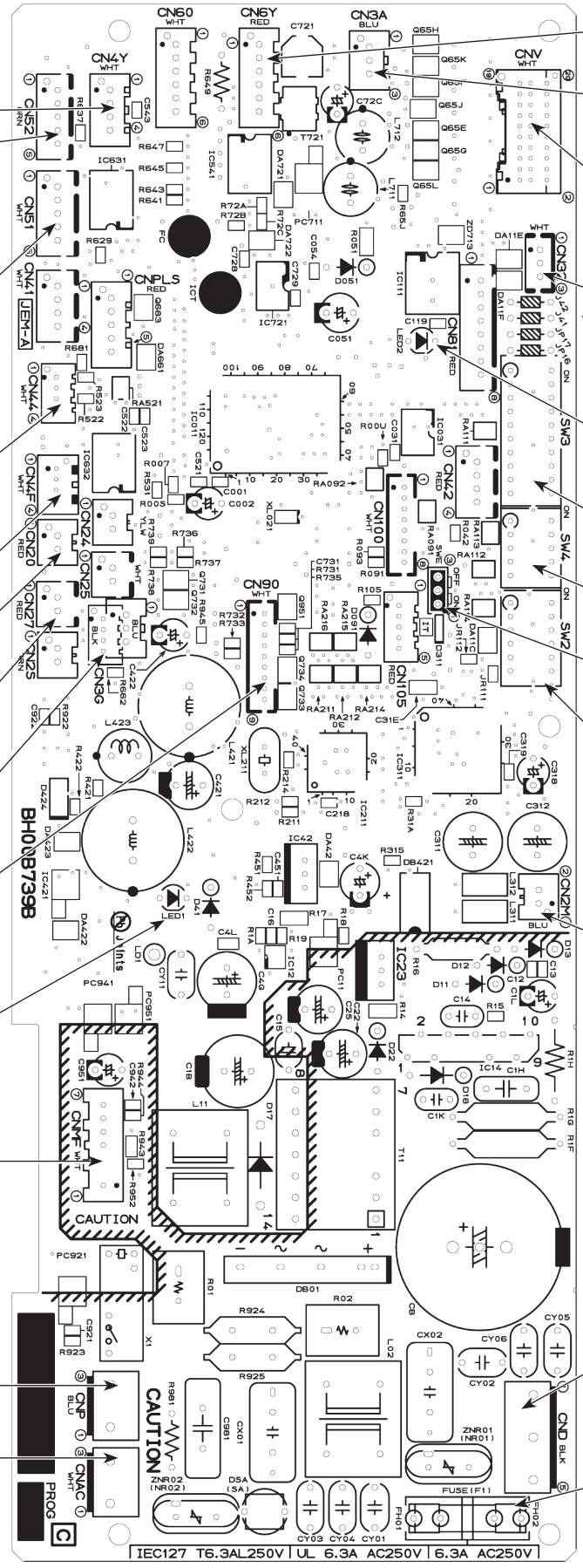
The connector SWE is set to OFF after test run.
</td>
<td>Under operation</td>
<td>
<Initial setting>


</td>
</tr>
</table>

8-3. TEST POINT DIAGRAM

8-3-1. Indoor controller board

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK



CN6Y
i-See sensor motor output
12 V DC pulse output

CN4Y
i-See sensor

CN3A
Connect to the terminal block (TB15)
(MA-Remote controller connecting wire)
①–③: 8.7–13 V DC (Pin① (+))

CN52
Remote indicator
①–②: Status lamp 12 V DC (① : +)
Fan motor output (SW1–5 OFF)
Thermostat ON (SW1–5 ON)
①–③: Cooling/Dry status lamp
12 V DC (①: +)
①–④: Heating status lamp
12 V DC (①: +)

CNV
vane motor output
12 V DC pulse

CN32
Remote switch

CN51
Centrally control
①–②: Control signal
12 V DC pulse input (①: +)
③–④: Operation indicator
12 V DC (③: +)
③–⑤: Malfunction indicator
12 V DC (③: +)

Jumper wire J41, J42
Pair No.setting for wireless
remote controller

LED2
Power supply for
MA-Remote controller

CN44
Pipe temperature detection
thermistor
①–②: Liquid (TH22)
③–④: Gas (TH23)

SW3
Function setting

SW4
Model selection

CN4F
Drain float switch (FS)

CN20
Room temperature detec-
tion thermistor (TH21)

SWE
Test run (Drain pump)

CN27
Damper signal output
12 V DC(①: +)

SW2
Capacity setting

CN3G
Auto grille signal output

CN90
Connect to the wireless
remote controller board
(W.B)

CN2M
Connect to the terminal block (TB5)
(M-NET transmission connecting wire)
24–30 V DC (non-polar)

LED1
Main power supply
(Indoor unit: 220–240 V)

CNMF
Connect to the
fan motor (MF)
①–④: 310–340 V DC
⑤–④: 15 V DC

CND
Power supply for indoor
controller board
③–⑤: 220–240 V AC

CNP
Drain pump output (DP)
①–③: 220–240 V AC

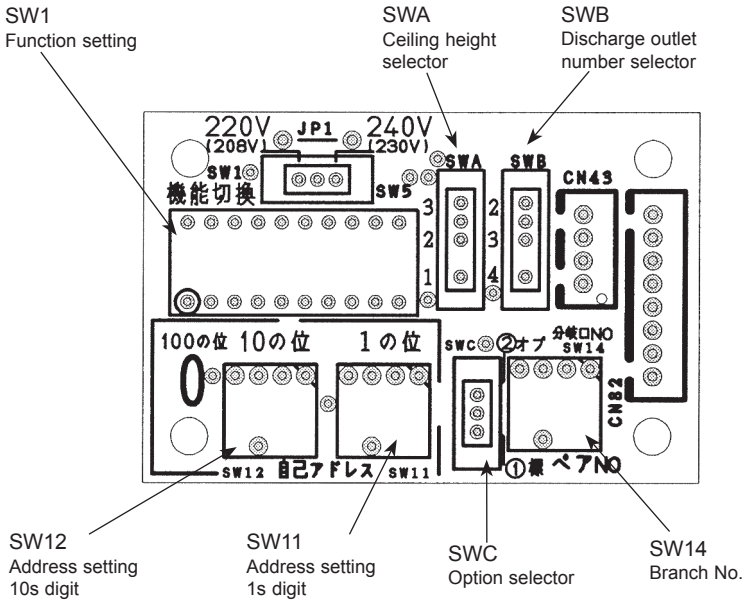
CNAC
Auto grille power
(220–240 V AC)

FUSE
6.3 A 250 V

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

8-3-2. Address board

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK



9 SPECIAL FUNCTION

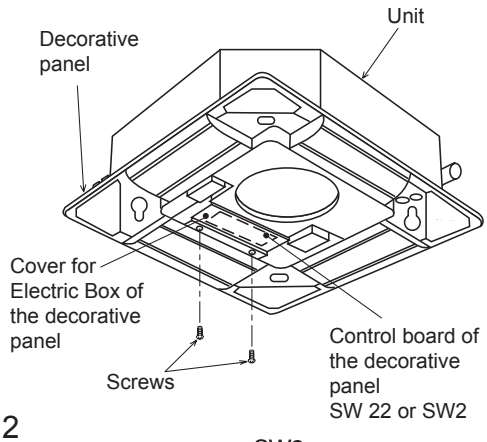
9-1. HOW TO PERFORM THE UP/DOWN OPERATION OF THE AIR INTAKE GRILLE

9-1-1. Setting up the lowering distance of air intake grille

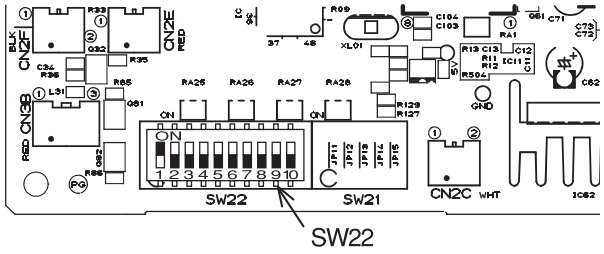
You can set up 8 different stages of lowering distance for the air intake grille according to the set up location if desired.

Note that as an initial setting, the decorative panel will automatically stop at 1.6 m from the ceiling level. The distance is a rough indication, check by actually lowering it.

1) Take the cover off the electric box of the decorative panel. (2 screws)
2) Set up the dip switches of SW22 or SW2 on the control board of the decorative panel as follows.



DIP SW 22

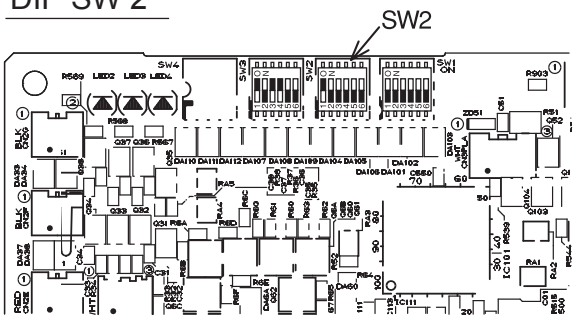


The black square (■) indicates a switch position.

Lowering distance (Rough indication of the ceiling height)	SW22 (Lowering distance)	Lowering distance (Rough indication of the ceiling height)	SW22 (Lowering distance)
1.2 m (up to 2.4 m)	ON OFF 1 2 3 4 5 6 7 8 9 10	1.6 m (2.4–2.8 m)	Initial setting ON OFF 1 2 3 4 5 6 7 8 9 10
2.0 m (2.8–3.2 m)	ON OFF 1 2 3 4 5 6 7 8 9 10	2.4 m (3.2–3.6 m)	ON OFF 1 2 3 4 5 6 7 8 9 10
2.8 m (3.6–4.0 m)	ON OFF 1 2 3 4 5 6 7 8 9 10	3.2 m (4.0–4.4 m)	ON OFF 1 2 3 4 5 6 7 8 9 10
3.6 m (4.4–4.8 m)	ON OFF 1 2 3 4 5 6 7 8 9 10	4.0 m (4.8–5.2 m)	ON OFF 1 2 3 4 5 6 7 8 9 10

Note: Airflow outreach distance is different depending on indoor units and air volume (ceiling height), so airflow may not reach the indicated ceiling height as shown in the above table.

DIP SW 2



The black square (■) indicates a switch position.

Lowering distance (Rough indication of the ceiling height)	SW2 (Lowering distance)	Lowering distance (Rough indication of the ceiling height)	SW2 (Lowering distance)
1.2 m (up to 2.4 m)	ON OFF 1 2 3 4 5 6	1.6 m (2.4–2.8 m)	Initial setting ON OFF 1 2 3 4 5 6
2.0 m (2.8–3.2 m)	ON OFF 1 2 3 4 5 6	2.4 m (3.2–3.6 m)	ON OFF 1 2 3 4 5 6
2.8 m (3.6–4.0 m)	ON OFF 1 2 3 4 5 6	3.2 m (4.0–4.4 m)	ON OFF 1 2 3 4 5 6
3.6 m (4.4–4.8 m)	ON OFF 1 2 3 4 5 6	4.0 m (4.8–5.2 m)	ON OFF 1 2 3 4 5 6

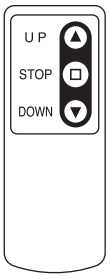
Note: Airflow outreach distance is different depending on indoor units and air volume (ceiling height), so airflow may not reach the indicated ceiling height as shown in the above table.

3) Put the cover back on the electric box of the decorative panel.

9-1-2. How to perform the up/down operation using wireless remote controller

⚠ Warning:	**Ensure that the air-conditioner is not running.**
	• Otherwise, it may cause an injury or a failure.

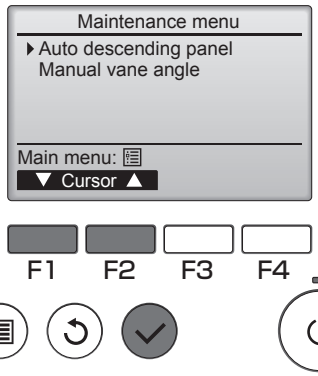
1) Ensure that the air-conditioner is not running.
2) Press the "Down" button to lower the air intake grille.
By default, the air intake grille will automatically stop at a lowering distance of 1.6 m from the ceiling level. The distance can be changed to 1.2 m, 2.0 m, 2.4 m, 2.8 m, 3.2 m, 3.6 m and 4.0 m. These should be used only as a guide. You should lower the air intake grille yourself to check the exact distance.
When you want to stop the air intake grille while it is lowering, press the "Stop" or "Up" button on the remote controller to stop at that position.
3) Remove the filter or air intake grille and clean them.
4) Press the "Up" button on the remote controller to put the air intake grille in place.
If the air intake grille is not placed in the correct position at a time, the operation is automatically retried.
When you want to stop the air intake grille while it is rising, press the "Stop" or "Down" button on the remote controller to stop at that position.



Wireless remote controller for Automatic Filter Elevation Panel

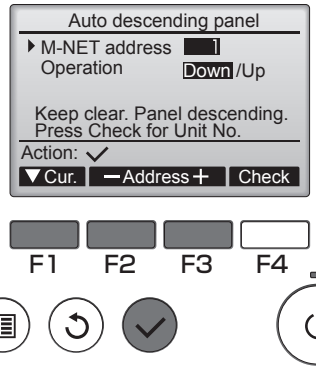
9-1-3. How to perform the up/down operation using wired remote controller <PAR-30MAA><PAR-31MAA>

① Select "Maintenance" from the Main menu, and press the ✓ button.



Select "Auto descending panel" with the F1 or F2 button, and press the ✓ button.

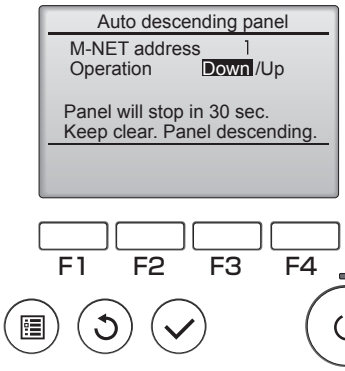
② Move the cursor to "M-NET address" or "Operation" with the F1 button to select.



Select the M-NET address for the units to lower the panel, with the F2 or F3 button, and press the ✓ button.

- M-NET address: M-NET address
- Operation: Down/Up

Press the F4 button to confirm the unit.



<Confirmation of target unit>
If the unit being set is unknown, make the setting and then press the F4 button to confirm.
The air conditioner which is blowing downward is the target air conditioner.

Navigating through the screens
- To return to the previous screen..... ↺ button

9-1-4. How to perform the up/down operation using wired remote controller (PAR-21MAA)

■ General Operation
Raise or lower all the air intake grilles managed by the remote controller at the same time.
Install the remote controller in a place where you can observe all the air-conditioners. Otherwise, the lowering grille may make contact with something and cause damage to it.

1) Ensure that the air-conditioner is not running.
The up/down operation mode is only available when the air-conditioner is "OFF".

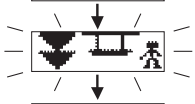
⚠ Warning:	**Ensure that the air-conditioner is not running.**
	• Otherwise, it may cause an injury or a failure.

2) Press both the "FILTER" and "Ventilation" buttons simultaneously for 2 seconds or more to enter the up/down operation mode.

"Up/down operation mode" display 

3) Press the TEMP. (▽) button. After a while, the air intake grille will begin lowering.

"Stand by for lowering" display 

"Lowering" display (blinking) 

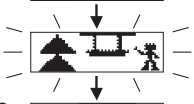
"Stopped" display (when finished lowering) 

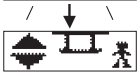
[Note]
- **You cannot stop the operation while the air intake grille is lowering.**
  If you press the (△) button while the air intake grille is moving down, the air intake grille may stop lowering, but it will not stop immediately.
- **By default, the air intake grille will automatically stop at the lowering distance of 1.6 m from the ceiling level.**
  The distance can be changed to 1.2 m, 2.0 m, 2.4 m, 2.8 m, 3.2 m, 3.6 m, and 4.0 m. These should be used only as a guide. You should lower the air intake grille yourself to check the exact distance.

4) Remove the filter and/or air intake grille to clean them.

5) Press the TEMP. (△) button. After a while, the air intake grille will begin to rise and then be put back into place.

"Stand by for raising" display 

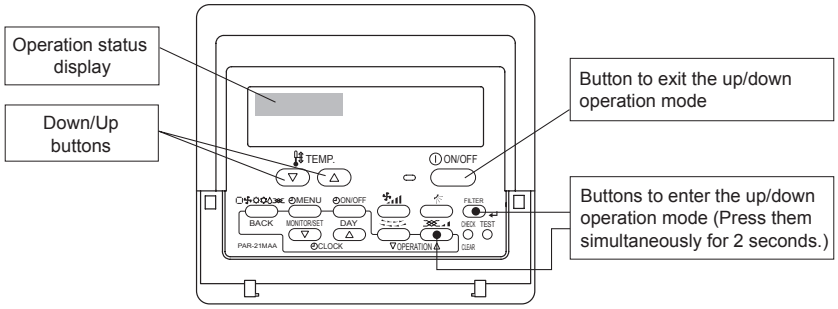
"Raising" display (blinking) 

"Stopped" display (when the air intake grille has been put back into place) 

[Note]
- **You cannot stop the operation while the air intake grille is rising.**
  If you press the (▽) button while the air intake grille is moving up, the air intake grille maystop rising, but it will not stop immediately.

6) Exit the up/down mode either by pressing the "ON/OFF" button or by pressing both the "FILTER" and "Ventilation" buttons simultaneously for 2 seconds or more.

After exiting the up/down mode, wait for about 30 seconds to perform the next operation. The remote controller will not accept any operation for that period.

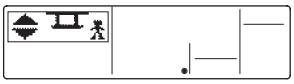


■ **Up/down operation with the individual specified air-conditioner (when used in combination with Mr. SLIM model)**
Raise or lower the air intake grille of the specific air-conditioner that you select from all that are managed by that remote controller.

1) Ensure that the air-conditioner is not running.
The up/down operation mode is only available when the air-conditioner is "OFF".

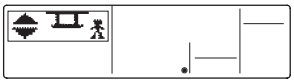
⚠Warning:	Ensure that the air-conditioner is not running.
	• Otherwise, it may cause an injury or a failure.

2) Press both the "FILTER" and "Ventilation" buttons simultaneously for 2 seconds or more to enter the up/down operation mode.

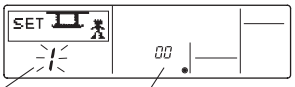

Up/down operation mode

3) Press the "Ventilation" button. After a while, it will switch to the "individually-specified up/down operation mode".

Up/down operation mode



Individually-specified up/down operation mode



Unit No. Refrigerant address No.

If the number of the target air-conditioner is unknown, go to 4).

In the upper right figure, the air-conditioner which the refrigerant address is "00" and the unit No. is "1" is currently selected.

If the number of the target air-conditioner is known, go to 5).

4) If you press the "FILTER" button when the "Unit No." or "Refrigerant address No." is blinking, the up/down airflow direction of the displayed air-conditioner will be switched downward after a while, and the airflow direction of the other vents will all be blocked.

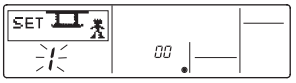
■ In Step 5) described below, identify the target air-conditioner by changing the "Unit No." and "Refrigerant address No." and by pressing the "FILTER" button to check the up/down airflow direction.

[Remarks]
■ If "Err" is displayed when you press the "FILTER" button to check the target air-conditioner, the air-conditioner with that "Unit No." or "Refrigerant address" may not exist. Check and set that air-conditioner again.

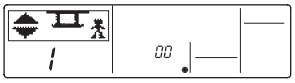
5) Select the "Unit No." and "Refrigerant address No.".

■ "Unit No." and "Refrigerant address No." can be changed by using the "TEMP." buttons (△) (▽) when the panel displays (a) or (b).

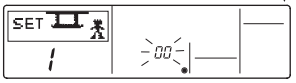
■ Every time you press the "Mode selection" button, the target of operation will change as illustrated below.



(a) "Unit No." selection display



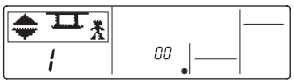
(c) "Standby for up/down operation" display



(b) "Refrigerant address No." selection display

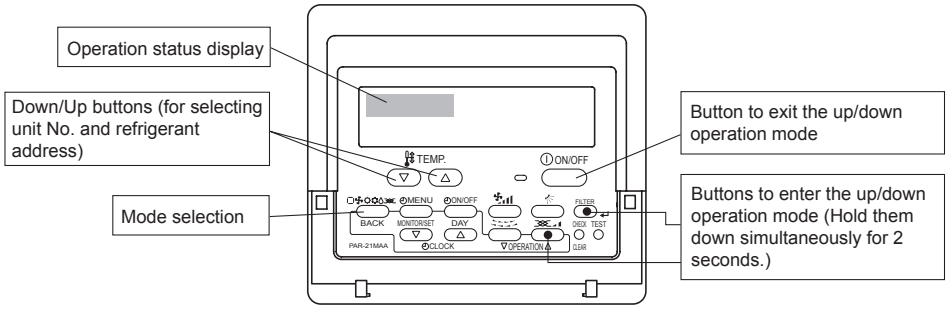
[Remarks]
■ Each pressing action changes the unit No. from "1 - 4" to "0". (Unit No. "0" means that all of 1 - 4 are targeted.)
■ Each press changes the "Refrigerant address" from "0 to 15".

6) Continue to press the "Mode selection" button until "Waiting for up/down operation" is displayed.



"Waiting for up/down operation" display

The following steps are the same as steps 3) - 6) described in the "General Operation" section. Refer to that section.



9-2. OPERATION (AUTO DESCENDING PANEL: PLP-6BAJ)

(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.

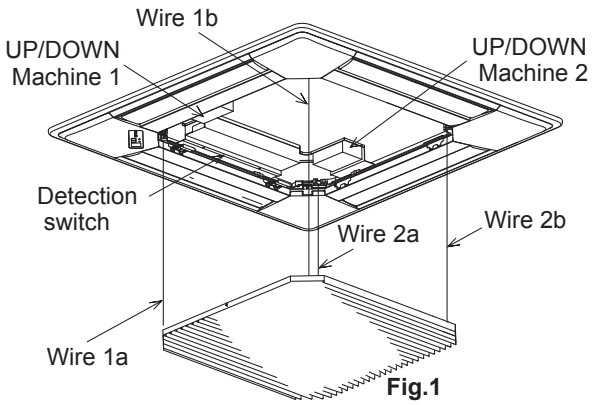


Fig.1

② STOP

It stops in the cases below :

- When it reaches at 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 3 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 wire 1b and wire 2b are not loaded.
  Only the wire b in each UP/DOWN Machine has a tension detection switch.

(2) Special operation

① Storage operation

Case : Obstruction of the raising grille before storage or malfunction of storage detection switch
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 wire 1b and wire 2b are not loaded, the wires will not move.

③ Obstacle detection

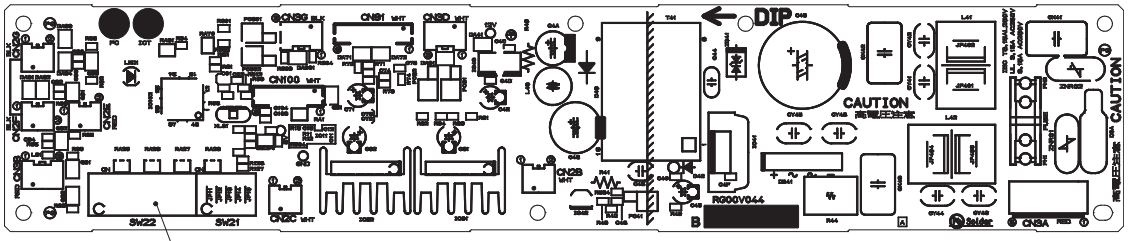
Case : Making contact with something while lowering.
Should the loads on the wire 1b and wire 2b be removed due to the grille making contact with something while lowering, the lowering operation will stop. The grille will then be raised 10 cm and stop again.

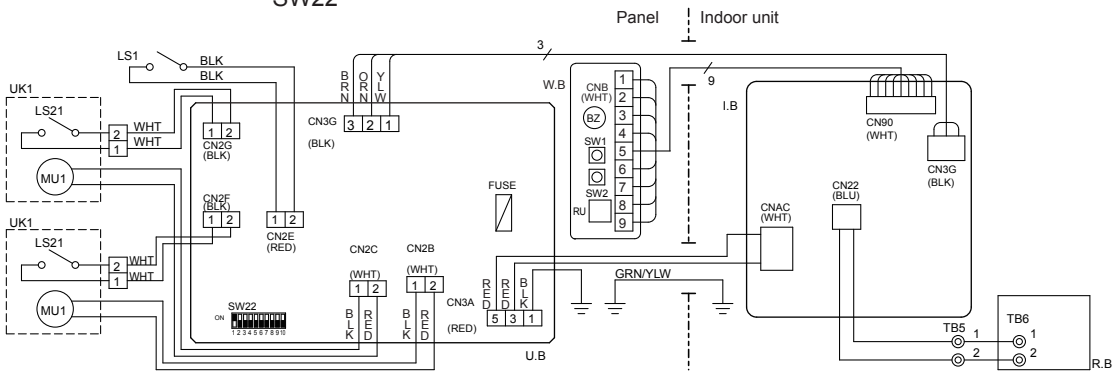
[Emergency operation]

- When the wireless remote controller cannot be used (in the case of battery discharge, misplacing of the wireless remote controller, malfunctioning and so on), the emergency switch on the receiver can be used as an alternative.
  When doing this, particular caution must be taken not to fall.
  To lower the air intake grille : Press the button once.
  (For emergency heating operation, press and hold this button.)
  To raise the air intake grille : Press the button once.
  (For emergency cooling operation, press and hold this button.)
- To stop the air intake grille from moving, use the opposite buttons to those used to initiate movement.
  (To stop it from lowering, press the UP button; To stop it from rising, press the DOWN button.)
- If UP/DOWN machine is out of order, fix air intake grille temporarily and the indoor unit can be operated.
  For details, refer to installation manual for the attachment of grille.

9-3. ELECTRICAL CIRCUIT (Controller board and wiring diagram (Panel))

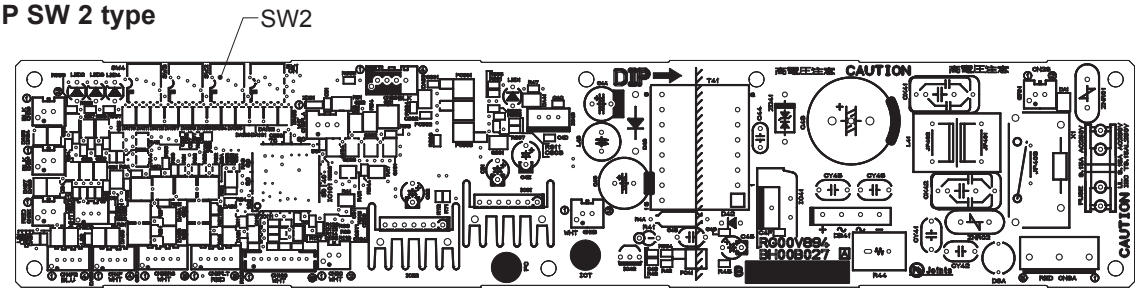
9-3-1. DIP SW 22 type

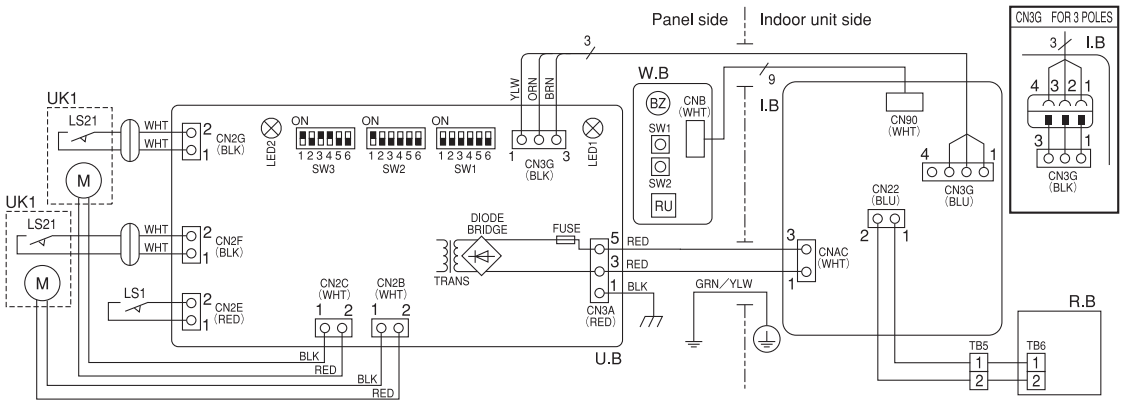




Symbol		Name	Symbol		Name
U.B		Auto grille controller board	W.B		Wireless remote controller board
	FUSE	Fuse (3.15A)		BZ	Buzzer
				RU	Receiver
	SW22	Switch (Lowering distance set up)		SW1	Emergency switch (heating/down)
UK1		Up/down machine		SW2	Emergency switch (cooling/up)
	MU1	Motor (Up/down)	LS1		Limit switch (storage detection)
	LS21	Limit switch (tension detection)	R.B		Wired remote controller
I.B		Indoor controller board			

9-3-2. DIP SW 2 type





【LEGEND】

SYMBOL		NAME	SYMBOL		NAME		SYMBOL		NAME
U.B		CONTROLLER BOARD	I.B		INDOOR UNIT CONTROLLER BOARD		UK1		UP/DOWN MACHINE
	FUSE	FUSE (T3.15AL250V)	W.B		WIRELESS SIGNAL RECEIVER BOARD			M	MOTOR (FOR GRILLE UP/DOWN)
	SW1	SWITCH (MODEL SELECTION)		BZ	BUZZER			LS21	LIMIT SWITCH (TENSION DETECTION)
	SW2	SWITCH (LOWERING DISTANCE)		RU	RECEIVING UNIT		LS1		LIMIT SWITCH (STORAGE DETECTION)
	SW3	SWITCH (SYSTEM SELECTION)		SW1	EMERGENCY HEATING LONG PRESS FOR OVER 2 SEC)	GRILLE / DOWN (SHORT PRESS)	R.B.		WIRED REMOTE CONTROLLER
	LED1	LED RED (MICROCOMPUTER POWER)		SW2	EMERGENCY COOLING LONG PRESS FOR OVER 2 SEC)	GRILLE / UP (SHORT PRESS)			
	LED2	LED RED (GRILLE CONDITION)							

9-3-3. Check point of trouble

<LED (SW22 type) /LED2 (SW2 type) 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)

<controller board>

Check item	Check point	Normal	Remarks
Up/down controller P.C. board supply voltage	CN3A (between 3–5)	198–264 V AC	——
Up/down machine supply voltage	CN2B, CN2C	10–12 V DC	Check when instructing up/down with LED blinking once.

<Up/down machine>

Check item	Check point	Normal	Check contents
Storage detection switch	CN2E	open or short	Check if it is short when pressing push switch.
Tension detection switch	CN2F, CN2G	open or short	Check if it is short when wire b is tensioned.
Motor	CN2B, CN2C	5–20 Ω	Check if it is not open or short.
Entwining wires	Pull wire	Retension: about 2 kgf	Check if wire is drawn out by pulling with 3 kgf.

9-4. TROUBLESHOOTING

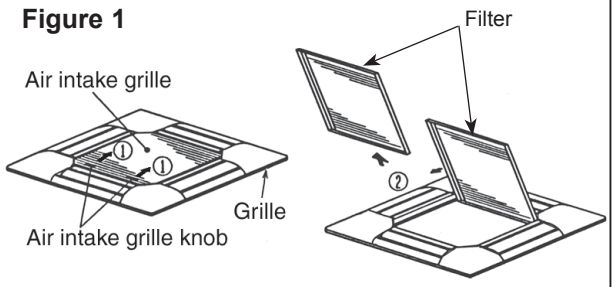
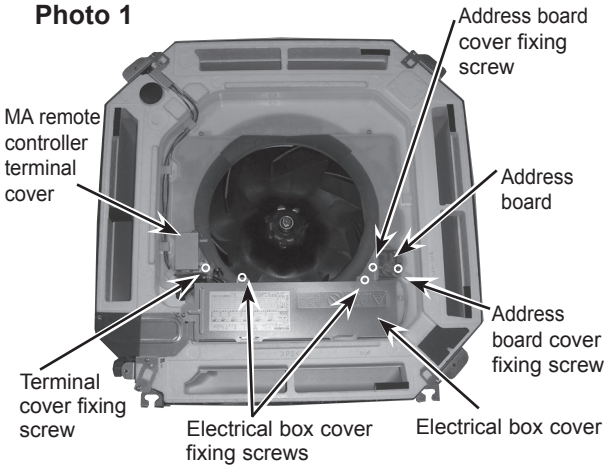
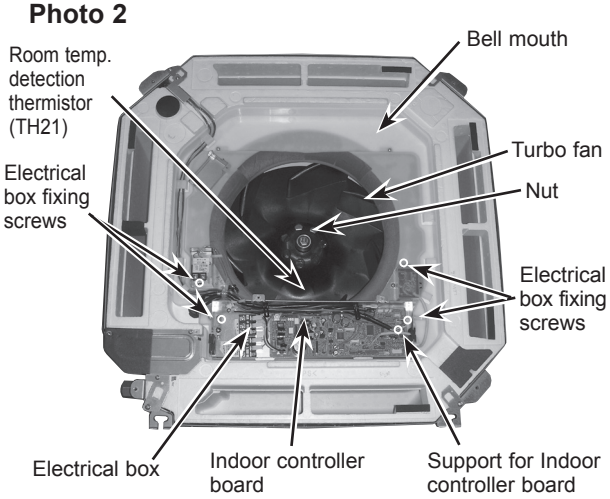
• Check the following points.

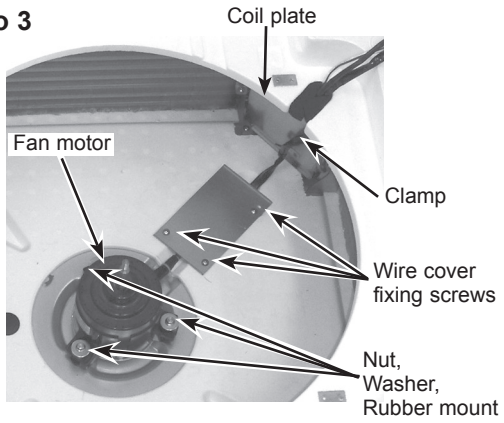
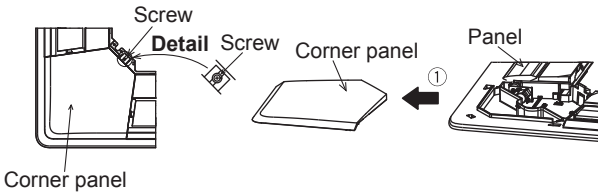
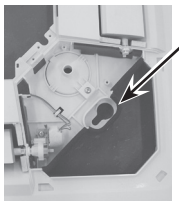
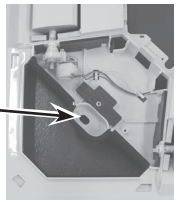
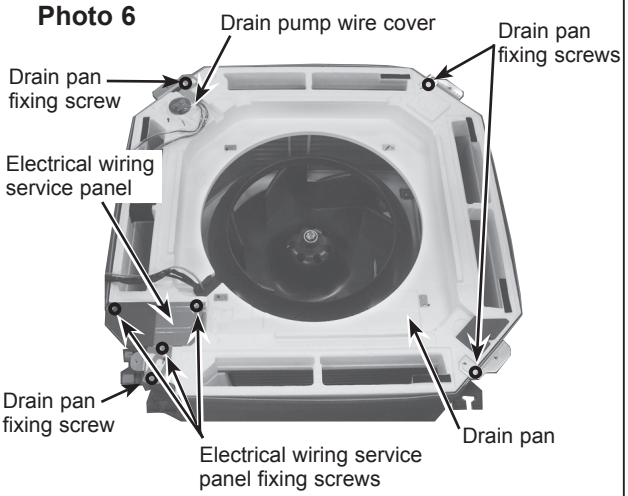
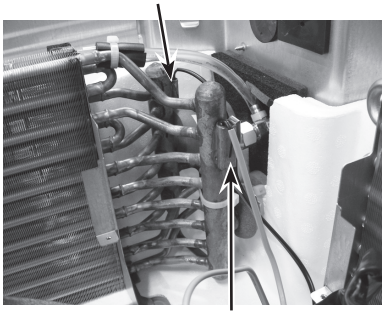
Problem	Possible Reason	Corrective Action
Air intake grille does not function with operation of the wireless remote controller.	Air-conditioner is running.	Stop running the air-conditioner and try again.
	Power failure	After recovering from power failure, try again.
	Batteries are not inserted into the wireless remote controller. Or battery power is running low.	Insert or replace the battery.
	There is something on the air intake grille. Or something is stuck in the air intake grille.	Remove the objects or obstacles from the air intake grille. Or, remove the stuck object.
Air intake grille cannot be fixed in place.	There is something on the air intake grille.	Remove the objects or obstacles from the air intake grille.
	Filter is not properly installed.	Lower the air intake grille again and check whether the filter is installed in the correct position.
	Air intake grille is not hung with all 4 hooks.	Lower the air intake grille again and hook on the air intake grille.
Air intake grille stops lowering. (Air intake grille would not lower any further.)	The air intake grille has finished lowering to the auto-stop position.	This is normal.
Noises are made during up/down operation. (While air intake grille is moving up/down.)	This is the noise made when the wire is wound and unwound.	This is normal.
Noises are made while putting the air intake grille into place.	This is the operational noise for putting the air intake grille into place.	
Air intake grille repeats rising and lowering several times while being put into place.	This is the operation for putting the air intake grille into place.	
Air intake grille leans toward one side during the up/down operation.	The speeds of winding/unwinding wires are slightly different for each wire.	

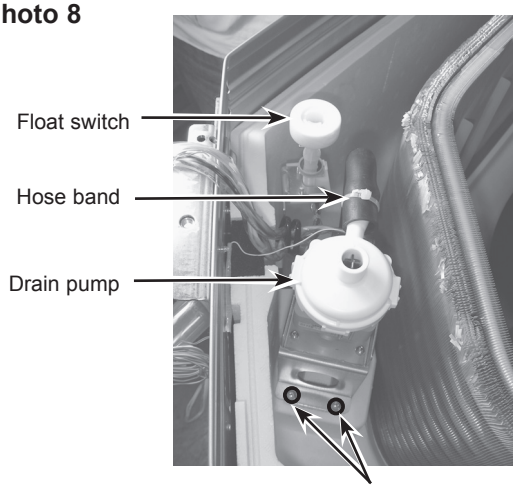
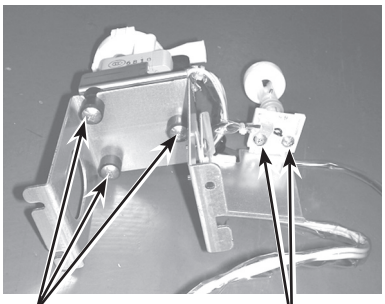
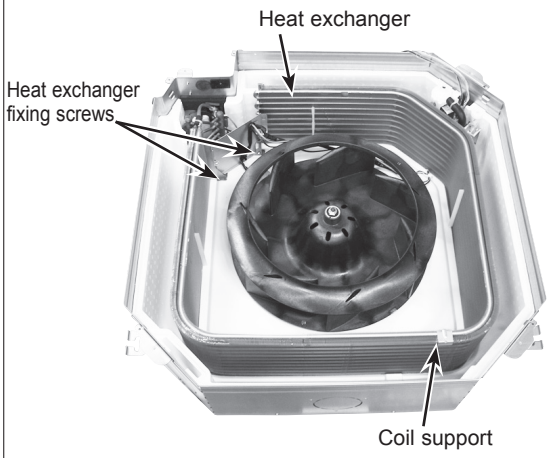
10 DISASSEMBLY PROCEDURE

PLFY-WP32VBM-E.UK PLFY-WP40VBM-E.UK PLFY-WP50VBM-E.UK

Be careful when removing heavy parts.

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the air intake grille (1) Slide the knob of air intake grille toward the arrow ① to open the air intake grille. (2) Remove drop prevention hook from the panel. (3) Slide the shaft in the hinge to the direction of the arrow ② and remove the air intake grille.	**Figure 1** 
2. Removing the room temperature detection thermistor (TH21) (1) Remove the air intake grille and the filter. (See Figure 1) (2) Remove the 2 screws from the electrical box cover. (3) Disconnect the connector CN20 (Red) from the indoor controller board. (4) Remove the room temperature detection thermistor.	**Photo 1** 
3. Removing the address board (A.B) (1) Remove the air intake grille and the filter. (See Figure 1) (2) Remove the 2 screws from the address board cover. (3) Disconnect the connectors CN43 (RED/4P) and CN82 (RED/8P). (4) Slide and remove the address board.	
4. Removing the indoor controller board (I.B) (1) Remove the air intake grille and the filter. (See Figure 1) (2) Remove the 2 screws from the electrical box cover. (3) Disconnect the connectors : CNMF (White/7P) for fan motor CN44 (White/4P) for thermistor (TH22/TH23) CNP (Blue/3P) for drain pump CN4F (White/4P) for float switch CN01 (Black/5P) for earth and TB2 CNV (White/20P) for vane motor CN81, CN42 (Red/8P,4P) for address board CN2M (Blue/2P) for TB5 (4) Remove the 6 supports from indoor controller board. (5) Remove the indoor controller board.	**Photo 2** 
5. Removing the electrical box (1) Remove the air intake grille and the filter. (See Figure 1) (2) Remove the 3 screws from the electrical box cover. (3) Disconnect the connectors. (Refer to procedure 4) (4) Remove 4 electrical box fixing screws and remove 2 hooks. (5) Pull the electrical box. <Electrical parts in the electrical box> Indoor controller board Terminal block (TB2) (TB5)	

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
6. Removing the fan and fan motor (MF) (1) Remove the electrical box. (See Photo 2) (2) Remove the bell mouth (3 screws). (See Photo 2) (3) Remove the turbo fan nut. (4) Pull out the turbo fan. (5) Remove the wire cover (3 screws). (6) Remove 2 wiring clamps. (7) Disconnect the connector of the fan motor (CNMF). (8) Remove the 3 nuts and washers and rubber mounts of the fan motor.	**Photo 3** 
7. Removing the panel (1) Remove the air intake grille and the filter. (See Figure 1) (2) Disconnect the connector CNV (White/20P). **Corner panel (See Figure 2)** (3) Remove the corner screw. (4) Slide the corner panel to the direction of the arrow ①, and remove the corner panel. **Panel (See Photos 4, 5)** (5) Remove the 2 screws from the panel which fix to the oval holes. (6) Rotate the panel a little to come to the bell shaped hole where the screw is large and remove the panel.	**Figure 2**  **Photo 4**  **Photo 5** 
8. Removing the drain pan (1) Remove the air intake grille and the filter. (See Figure 1) (2) Remove the 2 screws from the electrical box cover. (3) Disconnect the connectors. (Refer to procedure 4) (4) Remove the panel. (See Photos 4, 5) (5) Remove the electrical wiring service panel (3 screws). (6) Remove the drain pump wire cover (1 screw). (7) Remove the electrical box. (See Photo 2) (8) Remove the bell mouth. (See Photo 2) (9) Remove the 4 screws and pull out the drain pan. Notes: 1. Pull out the left and right of the pan gradually. 2. Be careful not to crack or damage the pan.	**Photo 6** 
9. Removing the pipe temperature detection thermistor/from HBC unit (TH22) and pipe temperature detection thermistor/ to HBC unit (TH23) (1) Remove the drain pan. (See Photo 6) (2) Remove the turbo fan. (See Photo 3) (3) Remove the 2 wiring clamps. (See Photo 3) (4) Remove the coil plate (2 screws). (5) Remove the thermistors which are inserted into the holders installed to the thin copper pipe. (6) Disconnect the 4-pin white connector (CN44).	**Photo 7** 

OPERATING PROCEDURE	PHOTOS
10 Removing the drain pump (DP) and float switch (FS) (1) Remove the drain pan. (See Photo 6) (2) Cut the hose band and remove the hose. (3) Remove the drain pump assembly (3 screws and 2 hooks). (4) Remove the drain pump (3 screws). (5) Remove the float switch (2 screws).	**Photo 8**  **Photo 9** 
11. Removing the heat exchanger (1) Remove the drain pan. (See Photo 6) (2) Remove the 3 screws of the piping cover, and pull out piping cover. (3) Remove the 2 screws of coil plate. (4) Remove the 2 screws of the coil. (5) Remove the screw of the coil support. (6) Pull out the heat exchanger.	**Photo 10** 

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Distributed in Apr. 2015 No. OCH586
Made in Japan

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