Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

**August 2009**
**No. OCH413**
**REVISED EDITION-C**

# TECHNICAL & SERVICE MANUAL

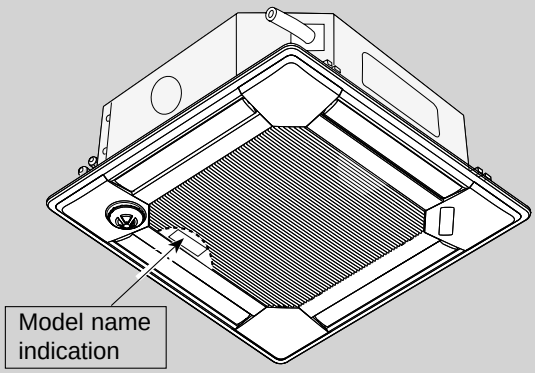
## Series PLFY Ceiling Cassettes R410A / R407C / R22

| Indoor unit [Model names] | [Service Ref.] |
|---|---|
| PLFY-P32VBM-E | PLFY-P32VBM-E.UK |
| | PLFY-P32VBM-E$_1$.UK |
| | PLFY-P32VBM-ER2.UK |
| PLFY-P40VBM-E | PLFY-P40VBM-E.UK |
| | PLFY-P40VBM-E$_1$.UK |
| | PLFY-P40VBM-ER2.UK |
| PLFY-P50VBM-E | PLFY-P50VBM-E.UK |
| | PLFY-P50VBM-E$_1$.UK |
| | PLFY-P50VBM-ER2.UK |
| PLFY-P63VBM-E | PLFY-P63VBM-E.UK |
| | PLFY-P63VBM-E$_1$.UK |
| | PLFY-P63VBM-ER2.UK |
| PLFY-P80VBM-E | PLFY-P80VBM-E.UK |
| | PLFY-P80VBM-E$_1$.UK |
| | PLFY-P80VBM-ER2.UK |
| PLFY-P100VBM-E | PLFY-P100VBM-E.UK |
| | PLFY-P100VBM-ER2.UK |
| PLFY-P125VBM-E | PLFY-P125VBM-E.UK |
| | PLFY-P125VBM-ER2.UK |

**Revision:**
- "10. SPECIAL FUNCTION" has been modified in REVISED EDITION-C.
- Some descriptions have been modified.

- Please void OCH413 REVISED EDITION-B.

Note:
- This manual does not cover outdoor units.
  When servicing them, please refer to the outdoor unit's service manual.
- RoHS compliant products have <G> mark on the spec name plate.




**INDOOR UNIT**

## CONTENTS



**PARTS CATALOG (OCB413)**

# 1 TECHNICAL CHANGES

**PLP-6BAJ (Automatic filter elevation panel, option)**

The controller board (U.B) has been changed. (only for the panel but not for the service part)

**PLFY-P32VBM-E$_1$.UK → PLFY-P32VBM-ER2.UK**
**PLFY-P40VBM-E$_1$.UK → PLFY-P40VBM-ER2.UK**
**PLFY-P50VBM-E$_1$.UK → PLFY-P50VBM-ER2.UK**
**PLFY-P63VBM-E$_1$.UK → PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-E$_1$.UK → PLFY-P80VBM-ER2.UK**
**PLFY-P100VBM-E.UK → PLFY-P100VBM-ER2.UK**
**PLFY-P125VBM-E.UK → PLFY-P125VBM-ER2.UK**

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

**PLFY-P32VBM-E.UK → PLFY-P32VBM-E$_1$.UK**
**PLFY-P40VBM-E.UK → PLFY-P40VBM-E$_1$.UK**
**PLFY-P50VBM-E.UK → PLFY-P50VBM-E$_1$.UK**
**PLFY-P63VBM-E.UK → PLFY-P63VBM-E$_1$.UK**
**PLFY-P80VBM-E.UK → PLFY-P80VBM-E$_1$.UK**

FAN MOTOR (MF) has been changed.
TURBO FAN, NUT and WASHER have 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 to be used indoors during installation and both ends sealed until just before brazing.**
**(Store elbows and other joints in a plastic bag.)**

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

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

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

**Use liquid refrigerant to charge the system.**

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

**Do not use a refrigerant other than R407C.**

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

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

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

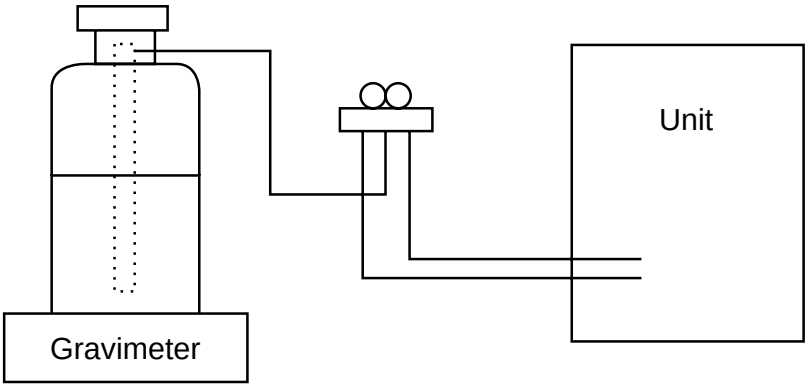
**Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**

## [1] Cautions for service

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

## [2] Refrigerant recharging

(1)  Refrigerant recharging process
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 | Adapter for reverse flow check | · Attach on vacuum pump. |
| ⑥ | Refrigerant charge base | ——— |
| ⑦ | Refrigerant cylinder | · For R407C  · Top of cylinder (Brown)<br>· 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 to be used indoors during installation and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)**

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

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

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

**Charge refrigerant from liquid phase of gas cylinder.**

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

**Do not use refrigerant other than R410A.**

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

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

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

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

The following tools are necessary to use R410A refrigerant.

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

**Handle tools with care.**

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

**Do not use a charging cylinder.**

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

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

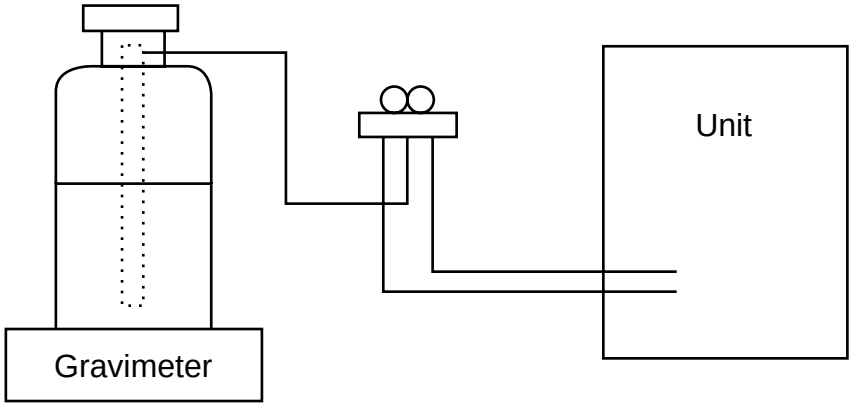
## [1] Cautions for service

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

## [2] Additional refrigerant charge

**When charging directly from cylinder**

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



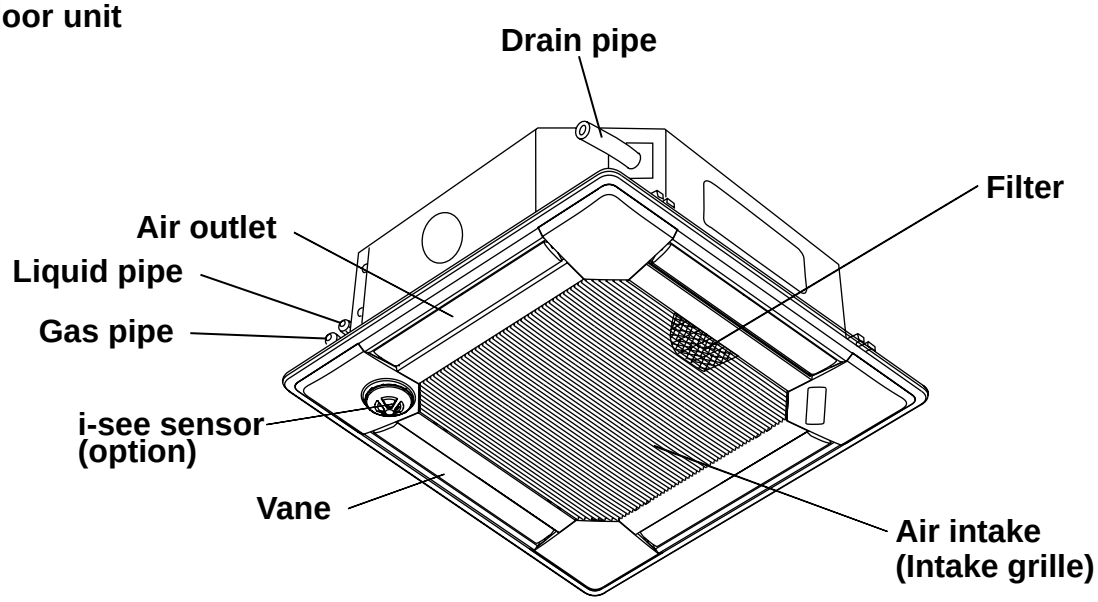

## [3] Service tools

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

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

# 3 PART NAMES AND FUNCTIONS

- **Indoor unit**



## ● Wired remote controller

### Display Section

For purposes of this explanation, all parts of the display are shown as lit. 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**
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.

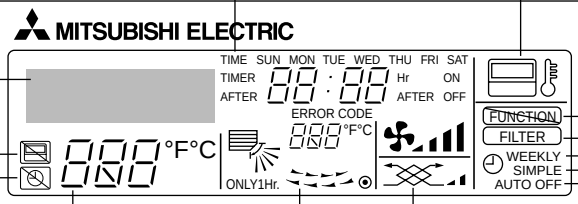
**Timer indicators**
The indicator comes on if the corresponding timer is set.

**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.




**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.

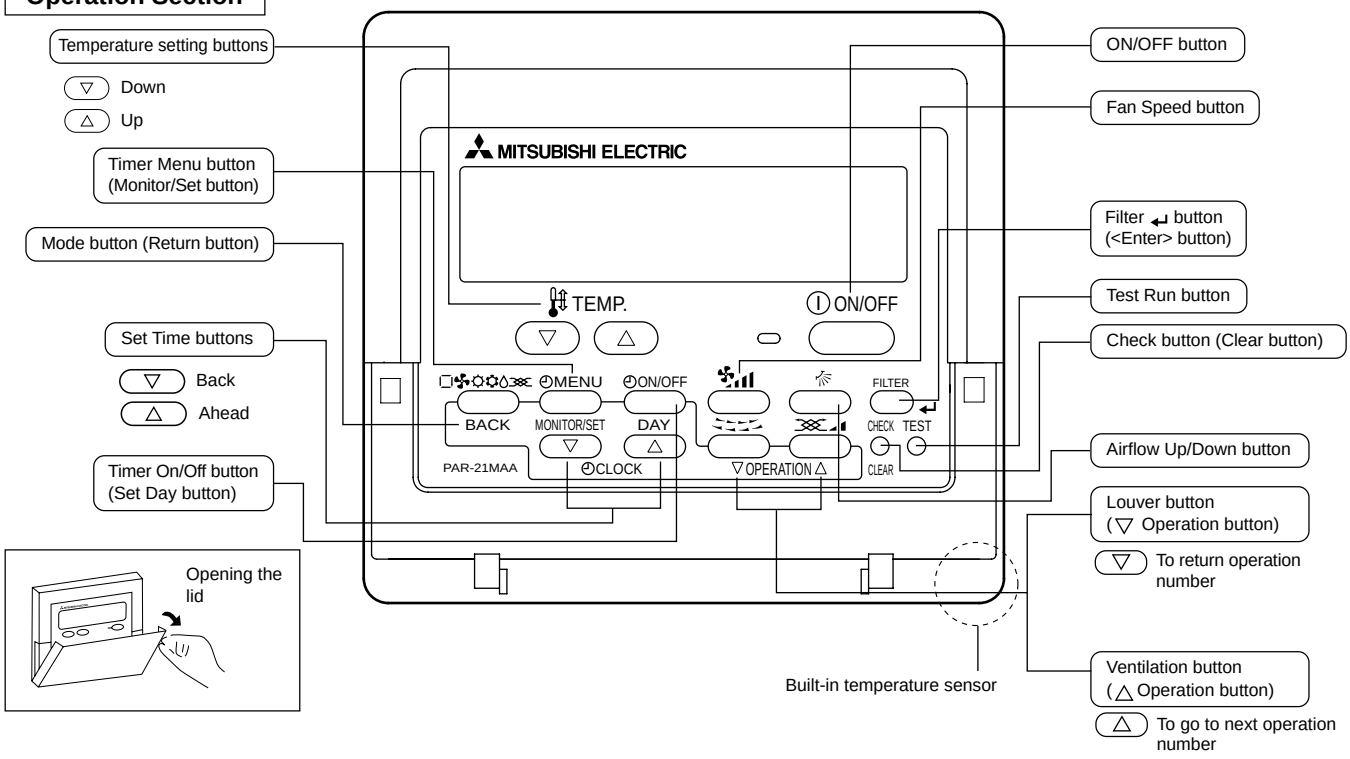
**Louver display**
Indicates the action of the swing louver. Does not appear if the louver is not running

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

**Fan Speed indicator**
Shows the selected fan speed.

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

### 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.

# 4 SPECIFICATIONS

## 4-1. SPECIFICATIONS

| Model | | | PLFY-P32VBM-E | PLFY-P40VBM-E | PLFY-P50VBM-E | PLFY-P63VBM-E |
|---|---|---|---|---|---|---|
| Power source | | | 1-phase 220-240V 50Hz, 1-phase 220V 60Hz | | | |
| Cooling capacity (Nominal) | ✻1 | kW | 3.6 | 4.5 | 5.6 | 7.1 |
| | ✻1 | kcal / h | 3,100 | 3,900 | 4,800 | 6,100 |
| | ✻1 | Btu / h | 12,300 | 15,400 | 19,100 | 24,200 |
| | ✻2 | kcal / h | 3,150 | 4,000 | 5,000 | 6,300 |
| | Power input | kW | 0.03 | 0.04 | 0.04 | 0.05 |
| | Current input | A | 0.22 | 0.29 | 0.29 | 0.36 |
| Heating capacity (Nominal ) | ✻3 | kW | 4.0 | 5.0 | 6.3 | 8.0 |
| | ✻3 | kcal / h | 3,400 | 4,300 | 5,400 | 6,900 |
| | ✻3 | Btu / h | 13,600 | 17,100 | 21,500 | 27,300 |
| | Power input | kW | 0.02 | 0.03 | 0.03 | 0.04 |
| | Current input | A | 0.14 | 0.22 | 0.22 | 0.29 |
| External finish | | | Galvanized steel sheet | | | |
| External dimension H × W × D | | mm | 258 x 840 x 840 | | | |
| | | in. | 10-3/16 x 33-1/8 x 33-1/8 | | | |
| Net weight | | kg (lb) | 22 (49) | 22 (49) | 22 (49) | 23 (51) |
| Decoration panel | Model | | **PLP-6BA** | **PLP-6BA** | **PLP-6BA** | **PLP-6BA** |
| | External finish | | MUNSELL (6.4Y 8.9/0.4) | | | |
| | Dimension H × W × D | mm | 35 x 950 x 950 | | | |
| | | in. | 1-3/8 x 37-7/16 x 37-7/16 | | | |
| | Net weight | kg (lb) | 6 (13) | | | |
| Heat exchanger | | | Cross fin (Aluminum fin and copper tube) | | | |
| FAN | Type × Quantity | | Turbo fan × 1 | Turbo fan × 1 | Turbo fan × 1 | Turbo fan × 1 |
| | External static press. | Pa | 0 | 0 | 0 | 0 |
| | | $mmH_2O$ | 0 | 0 | 0 | 0 |
| | Motor type | | DC motor | | | |
| | Motor output | kW | 0.050 | 0.050 | 0.050 | 0.050 |
| | Driving mechanism | | Direct-drive | | | |
| | Airflow rate (Low-Mid2-Mid1-High) | $m^3$ / min | 11 - 12 - 13 - 14 | 12 - 13 - 14 - 16 | 12 - 13 - 14 - 16 | 14 - 15 - 16 - 18 |
| | | L / s | 183 - 200 - 217 - 233 | 200 - 217 - 233 - 267 | 200 - 217 - 233 - 267 | 233 - 250 - 267 - 300 |
| | | cfm | 388 - 424 - 459 - 494 | 424 - 459 - 494 - 565 | 424 - 459 - 494 - 565 | 494 - 530 - 565 - 636 |
| Noise level (Low-Mid2-Mid1-High) (measured in anechoic room) | | dB <A> | 27 - 28 - 29 - 31 | 27 - 28 - 30 - 31 | 27 - 28 - 30 - 31 | 28 - 29 - 30 - 32 |
| Insulation material | | | PS | | | |
| Air filter | | | PP honeycomb | | | |
| Protection device | | | Fuse | | | |
| Refrigerant control device | | | LEV | | | |
| Connectable outdoor unit | | | R410A, R407C, R22 CITY MULTI | | | |
| Diameter of refrigerant pipe | Liquid (R410A) | mm (in.) | $\phi$6.35 ($\phi$1/4) Flare | $\phi$6.35 ($\phi$1/4) Flare | $\phi$6.35 ($\phi$1/4) Flare | $\phi$9.52 ($\phi$3/8) Flare |
| | (R22, R407C) | | $\phi$6.35 ($\phi$1/4) Flare | $\phi$6.35 ($\phi$1/4) Flare | $\phi$9.52 ($\phi$3/8) ✻4 Flare | $\phi$9.52 ($\phi$3/8) Flare |
| | Gas (R410A) | mm (in.) | $\phi$12.7 ($\phi$1/2) Flare | $\phi$12.7 ($\phi$1/2) Flare | $\phi$12.7 ($\phi$1/2) Flare | $\phi$15.88 ($\phi$5/8) Flare |
| | (R22, R407C) | | $\phi$12.7 ($\phi$1/2) Flare | $\phi$12.7 ($\phi$1/2) Flare | $\phi$15.88 ($\phi$5/8) ✻4 Flare | $\phi$15.88 ($\phi$5/8) Flare |
| Field drain pipe size | | mm (in.) | O.D. $\phi$32 (VP-25) | | | |
| Standard attachment | Document<br>Accessory | | Installation Manual, Instruction Book | | | |
| Remark | Optional parts | | | | | |
| | Decoration panel **1 | | PLP-6BA | PLP-6BA | PLP-6BA | PLP-6BA |
| | Air outlet shutter plate | | PAC-SH51SP-E | PAC-SH51SP-E | PAC-SH51SP-E | PAC-SH51SP-E |
| | High efficiency filter element **2 | | PAC-SH59KF-E | PAC-SH59KF-E | PAC-SH59KF-E | PAC-SH59KF-E |
| | Multi-function casement | | PAC-SH53TM-E | PAC-SH53TM-E | PAC-SH53TM-E | PAC-SH53TM-E |
| | | | **1. PLFY-P-VBM-E should use together with PLP-6BA.<br>**2. 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. | | | |

**Note :**

✻1 Nominal cooling conditions
Indoor : 27℃ DB/19℃ WB (81°FDB/66°FWB)
Outdoor : 35℃ DB (95°FDB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)

✻2 Nominal cooling conditions
27℃ DB/19.5℃ WB (81°FDB/67°FWB)
35℃ DB (95°FDB)
5 m (16-3/8 ft)
0 m (0 ft)

✻3 Nominal heating conditions
20℃ DB (68°FDB)
7℃ DB/6℃ WB (45°FDB/43°FWB)
7.5 m (24-9/16 ft)
0 m (0 ft)

✻4 PLFY-P·VBM-ER2: Connect the joint (purchased locally).
* 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/h = kW × 860
Btu/h = kW × 3,412
cfm = $m^3$/min × 35.31
lb = kg / 0.4536

*Above specification data is subject to rounding variation.

| Model | | | PLFY-P80VBM-E | PLFY-P100VBM-E | PLFY-P125VBM-E | |
|---|---|---|---|---|---|---|
| Power source | | | 1-phase 220-240V 50Hz, 1-phase 220V 60Hz | | | |
| Cooling capacity (Nominal) | ✻1 | kW | 9.0 | 11.2 | 14.0 | |
| | ✻1 | kcal / h | 7,700 | 9,600 | 12,000 | |
| | ✻1 | Btu / h | 30,700 | 38,200 | 47,800 | |
| | ✻2 | kcal / h | 8,000 | 10,000 | 12,500 | |
| | Power input | kW | 0.07 | 0.15 | 0.16 | |
| | Current input | A | 0.51 | 1.00 | 1.07 | |
| Heating capacity (Nominal ) | ✻3 | kW | 10.0 | 12.5 | 16.0 | |
| | ✻3 | kcal / h | 8,600 | 10,800 | 13,800 | |
| | ✻3 | Btu / h | 34,100 | 42,700 | 54,600 | |
| | Power input | kW | 0.06 | 0.14 | 0.15 | |
| | Current input | A | 0.43 | 0.94 | 1.00 | |
| External finish | | | Galvanized steel sheet | | | |
| External dimension H × W × D | | mm | 258 x 840 x 840 | 298 x 840 x 840 | | |
| | | in. | 10-3/16 x 33-1/8 x 33-1/8 | 11-3/4 x 33-1/8 x 33-1/8 | | |
| Net weight | | kg (lb) | 23(51) | 27(60) | 27(60) | |
| Decoration panel | Model | | **PLP-6BA** | **PLP-6BA** | **PLP-6BA** | |
| | External finish | | MUNSELL (6.4Y 8.9/0.4) | | | |
| | Dimension H × W × D | mm | 35 x 950 x 950 | | | |
| | | in. | 1-3/8 x 37-7/16 x 37-7/16 | | | |
| | Net weight | kg (lb) | 6(13) | | | |
| Heat exchanger | | | Cross fin (Aluminum fin and copper tube) | | | |
| FAN | Type × Quantity | | Turbo fan x 1 | Turbo fan x 1 | Turbo fan x 1 | |
| | External static press. | Pa | 0 | 0 | 0 | |
| | | $mmH_2O$ | 0 | 0 | 0 | |
| | Motor type | | DC motor | | | |
| | Motor output | kW | 0.050 | 0.120 | 0.120 | |
| | Driving mechanism | | Direct-drive | | | |
| | Airflow rate (Low-Mid2-Mid1-High) | $m^3$ / min | 16 - 18 - 20 - 22 | 21 - 24 - 27 - 29 | 22 - 25 - 28 - 30 | |
| | | L / s | 267 - 300 - 333 - 367 | 350 - 400 - 450 - 483 | 367 - 417 - 467 - 500 | |
| | | cfm | 565 - 636 - 706 - 777 | 742 - 848 - 953 - 1024 | 777 - 883 - 989 - 1059 | |
| Noise level (Low-Mid2-Mid1-High) (measured in anechoic room) | | dB <A> | 30 - 32 - 35 - 37 | 34 - 37 - 39- 41 | 35 - 38 - 41 - 43 | |
| Insulation material | | | PS | | | |
| Air filter | | | PP honeycomb | | | |
| Protection device | | | Fuse | | | |
| Refrigerant control device | | | LEV | | | |
| Connectable outdoor unit | | | R410A, R407C, R22 CITY MULTI | | | |
| Diameter of refrigerant pipe | Liquid (R410A) | mm (in.) | $\phi$9.52 ($\phi$3/8) Flare | $\phi$9.52 ($\phi$3/8) Flare | $\phi$9.52 ($\phi$3/8) Flare | |
| | (R22, R407C) | | $\phi$9.52 ($\phi$3/8) Flare | $\phi$9.52 ($\phi$3/8) Flare | $\phi$9.52 ($\phi$3/8) Flare | |
| | Gas (R410A) | mm (in.) | $\phi$15.88 ($\phi$5/8) Flare | $\phi$15.88 ($\phi$5/8) Flare | $\phi$15.88 ($\phi$5/8) Flare | |
| | (R22, R407C) | | $\phi$15.88 ($\phi$5/8) Flare | $\phi$19.05 ($\phi$3/4) ✻4 Flare | $\phi$19.05 ($\phi$3/4) ✻4 Flare | |
| Field drain pipe size | | mm (in.) | O.D. $\phi$32 (VP-25) | | | |
| Standard attachment | Document | | Installation Manual, Instruction Book | | | |
| | Accessory | | | | | |
| Remark | Optional parts | | | | | |
| | Decoration panel **1 | | PLP-6BA | PLP-6BA | PLP-6BA | |
| | Air outlet shutter plate | | PAC-SH51SP-E | PAC-SH51SP-E | PAC-SH51SP-E | |
| | High efficiency filter element **2 | | PAC-SH59KF-E | PAC-SH59KF-E | PAC-SH59KF-E | |
| | Multi-function casement | | PAC-SH53TM-E | PAC-SH53TM-E | PAC-SH53TM-E | |
| | | | **1. PLFY-P-VBM-E should use together with PLP-6BA.<br>**2. 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. | | | |

**Note :**

✻1 Nominal cooling conditions
Indoor : 27℃ DB/19℃ WB (81°FDB/66°FWB)
Outdoor : 35℃ DB (95°FDB)
Pipe length : 7.5 m (24-9/16 ft)
Level difference : 0 m (0 ft)

✻2 Nominal cooling conditions
27℃ DB/19.5℃ WB (81°FDB/67°FWB)
35℃ DB (95°FDB)
5 m (16-3/8 ft)
0 m (0 ft)

✻3 Nominal heating conditions
20℃ DB (68°FDB)
7℃ DB/6CWB (45°FDB/43°FWB)
7.5 m (24-9/16 ft)
0 m (0 ft)

✻4 PLFY-P·VBM-ER2: Connect the joint (purchased locally).
* 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/h = kW × 860
Btu/h = kW × 3,412
cfm = $m^3$/min × 35.31
lb = kg / 0.4536

*Above specification data is subject to rounding variation.

## 4-2. ELECTRICAL PARTS SPECIFICATIONS

| Service Ref. / Parts name | Symbol | PLFY-P32VBM-E.UK<br>PLFY-P32VBM-E1.UK<br>PLFY-P32VBM-ER2.UK | PLFY-P40VBM-E.UK<br>PLFY-P40VBM-E1.UK<br>PLFY-P40VBM-ER2.UK | PLFY-P50VBM-E.UK<br>PLFY-P50VBM-E1.UK<br>PLFY-P50VBM-ER2.UK | PLFY-P63VBM-E.UK<br>PLFY-P63VBM-E1.UK<br>PLFY-P63VBM-ER2.UK |
|---|---|---|---|---|---|
| Room temperature thermistor | TH21 | Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ | | | |
| Liquid pipe thermistor | TH22 | Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ | | | |
| Gas pipe thermistor | TH23 | Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ | | | |
| Fuse<br>(Indoor controller board) | FUSE | 250V 6.3A | | | |
| Fan motor | MF | 8-pole OUTPUT 50W | | | |
| Vane motor | MV | MSBPC20M04<br>DC12V 300Ω/phase | | | |
| Drain pump | DP | PLD-12230ME-1<br>INPUT 12/10.8W 24 ℓ /Hr | | | |
| Drain float switch | FS | open/short detection | | | |
| Linear expansion valve | LEV | DC12V Stepping motor drive port dimension $\phi$5.2 (0~2000pulse)<br>EDM-40YGME | | | |
| Power supply terminal block | TB2 | (L, N, ⏚) Rated to 330V 30A ※ | | | |
| Transmission terminal block | TB5 | (M1, M2, S) Rated to 250V 20A ※ | | | |
| MA remote controller terminal block | TB15 | (1, 2) Rated to 250V 10A ※ | | | |

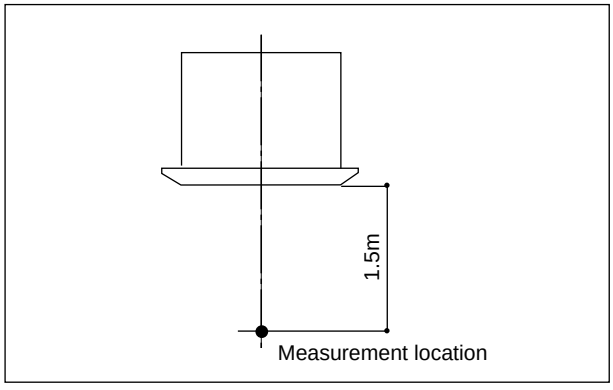
※ Note: Refer to WIRING DIAGRAM for the supplied voltage.

| Service Ref. / Parts name | Symbol | PLFY-P80VBM-E.UK<br>PLFY-P80VBM-E1.UK<br>PLFY-P80VBM-ER2.UK | PLFY-P100VBM-E.UK<br>PLFY-P100VBM-ER2.UK | PLFY-P125VBM-E.UK<br>PLFY-P125VBM-ER2.UK |
|---|---|---|---|---|
| Room temperature thermistor | TH21 | Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ | | |
| Liquid pipe thermistor | TH22 | Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ | | |
| Gas pipe thermistor | 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 | MF | 8-pole OUTPUT 50W | 8-pole OUTPUT 120W | |
| Vane motor | MV | MSBPC20M04<br>DC12V 300Ω/phase | | |
| Drain pump | DP | PLD-12230ME-1<br>INPUT 12/10.8W 24 ℓ /Hr | | |
| Drain float switch | FS | open/short detection | | |
| Linear expansion valve | LEV | DC12V Stepping motor drive port dimension $\phi$5.2 (0~2000pulse)<br>EDM-80YGME | | |
| Power supply terminal block | TB2 | (L, N, ⏚) Rated to 330V 30A ※ | | |
| Transmission terminal block | TB5 | (M1, M2, S) Rated to 250V 20A ※ | | |
| MA remote controller terminal block | TB15 | (1, 2) Rated to 250V 10A ※ | | |

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

## 4-3. SOUND LEVEL

**PLFY-P-VBM-E**



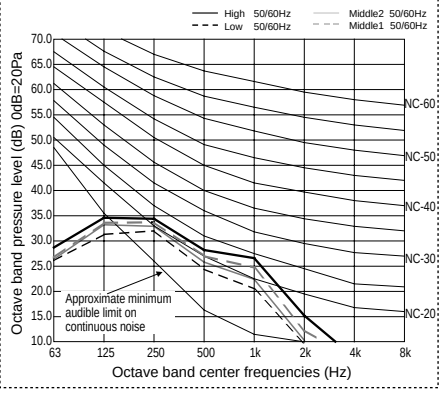

* Measured in anechoic room.

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

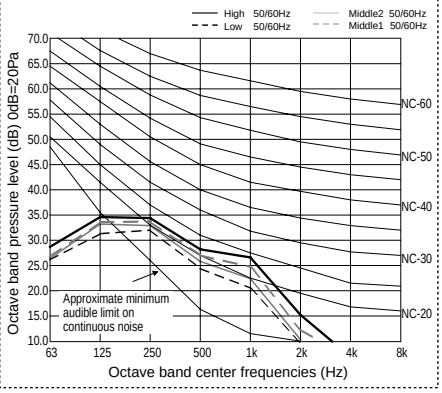
| Service Ref. | Sound level dB (A) |
|---|---|
| PLFY-P32VBM-E(1).UK<br>PLFY-P32VBM-ER2.UK | 27-28-29-31 |
| PLFY-P50VBM-E(1).UK<br>PLFY-P50VBM-ER2.UK<br>PLFY-P40VBM-E(1).UK<br>PLFY-P40VBM-ER2.UK | 27-28-30-31 |
| PLFY-P63VBM-E(1).UK<br>PLFY-P63VBM-ER2.UK | 28-29-30-32 |
| PLFY-P80VBM-E(1).UK<br>PLFY-P80VBM-ER2.UK | 30-32-35-37 |
| PLFY-P100VBM-E.UK<br>PLFY-P100VBM-ER2.UK | 34-37-39-41 |
| PLFY-P125VBM-E.UK<br>PLFY-P125VBM-ER2.UK | 35-38-41-43 |

## 4-4. NC curves

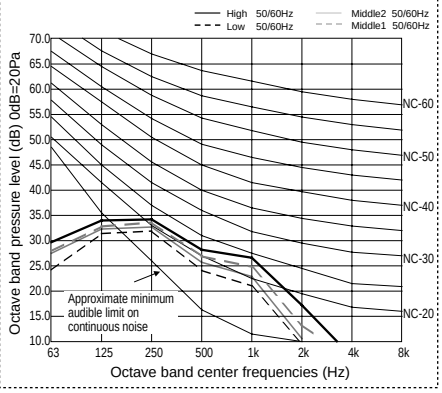
**PLFY-P32VBM-E(1).UK**
**PLFY-P32VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



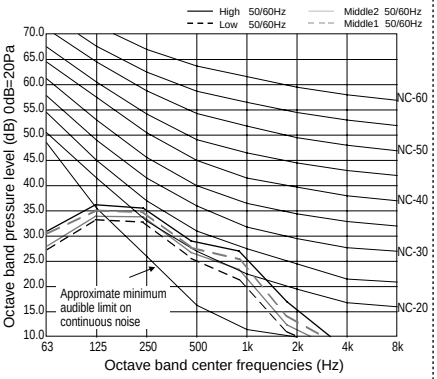

**PLFY-P40VBM-E(1).UK**
**PLFY-P40VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



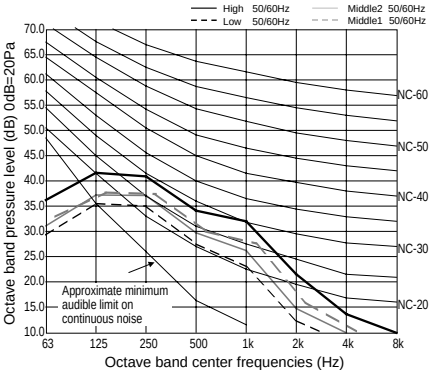

**PLFY-P50VBM-E(1).UK**
**PLFY-P50VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



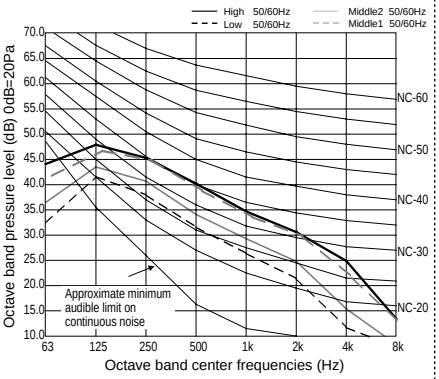

**PLFY-P63VBM-E(1).UK**
**PLFY-P63VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



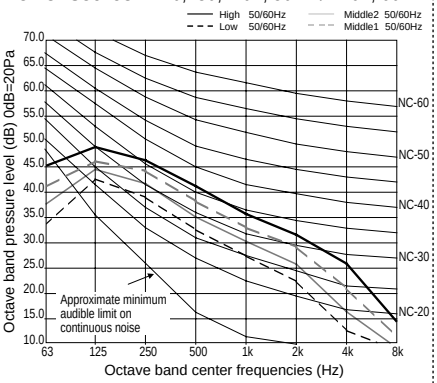

**PLFY-P80VBM-E(1).UK**
**PLFY-P80VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz




**PLFY-P100VBM-E.UK**
**PLFY-P100VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz




**PLFY-P125VBM-E.UK**
**PLFY-P125VBM-ER2.UK**
External static pressure : 0Pa
Power source : 220,230,240V, 50Hz / 220V, 60Hz



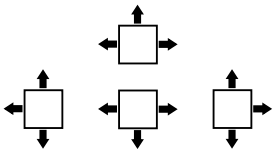
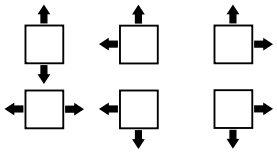
# 5 4-WAY AIR FLOW SYSTEM

## 5-1. 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.

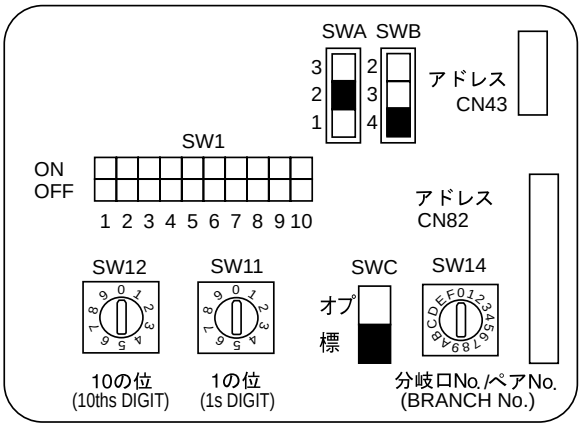
1) Decide on the pattern of the airflow direction.

<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-P32·P40·P50·P63·P80VBM-E(1).UK
PLFY-P32·P40·P50·P63·P80VBM-ER2.UK

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

PLFY-P100·P125VBM-E.UK
PLFY-P100·P125VBM-ER2.UK

| SWA / SWB | | ① Silent | ② Standard | ③ High ceiling |
|---|---|---|---|---|
| 4 | 4 direction | 2.7m | 3.2m | 4.5m |
| 3 | 3 direction | 3.0m | 3.6m | 4.5m |
| 2 | 2 direction | 3.3m | 4.0m | 4.5m |

## 5-2. 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.

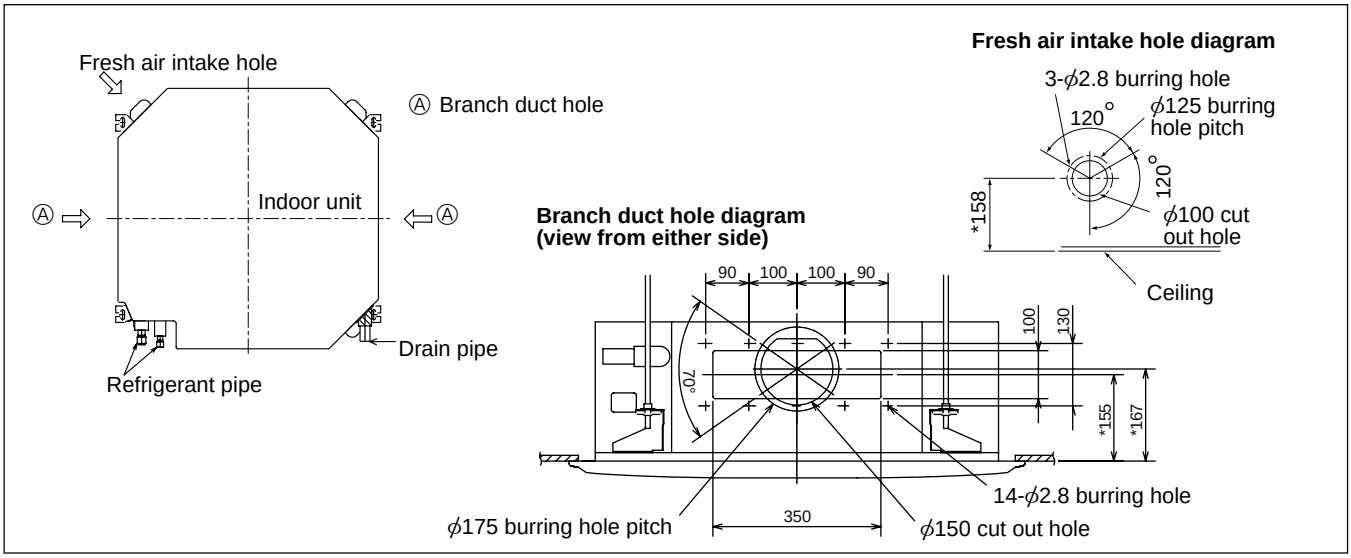
Note:

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.




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

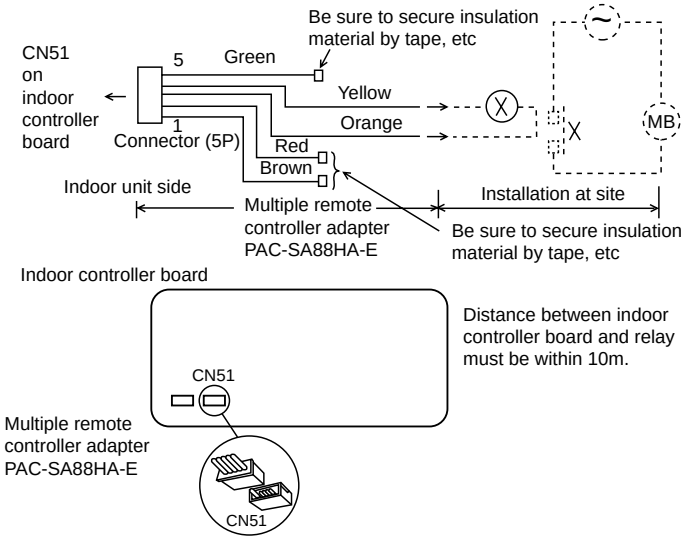
• Whenever the indoor unit is operating, the duct fun also operates.

(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.

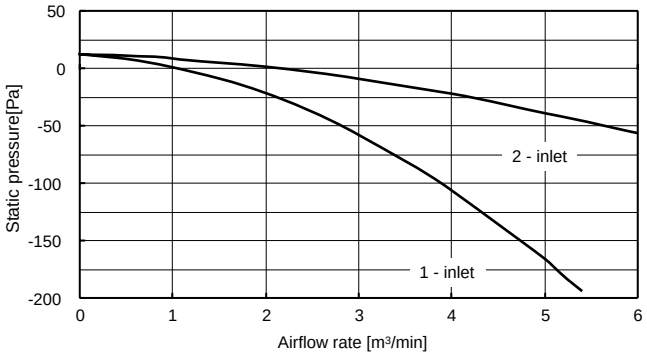
X: Auxiliary relay (For DC 12V, coil rating : 1.0W or below)



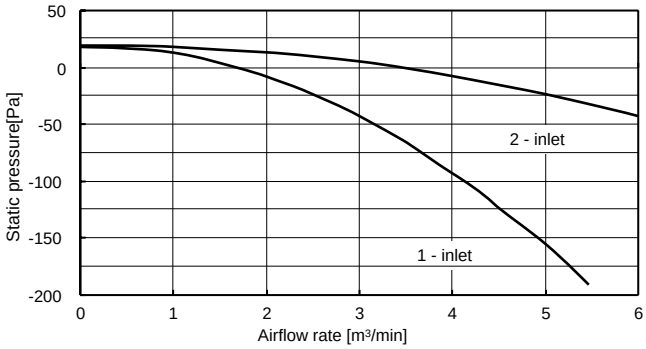
## 5-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

### 1 PLFY-P32 · P40 · P50 · P63 · P80VBM-E(1).UK
### PLFY-P32 · P40 · P50 · P63 · P80VBM-ER2.UK

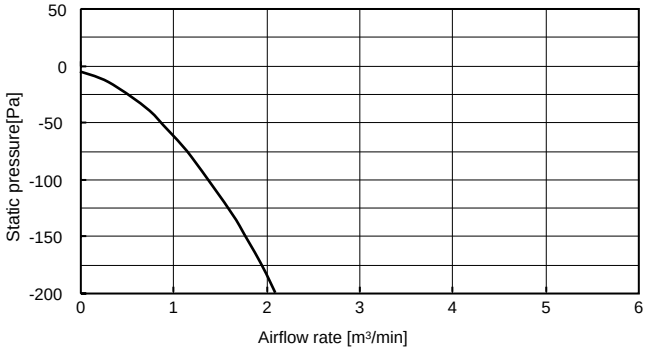
**Multifunction casement + Standard filter**



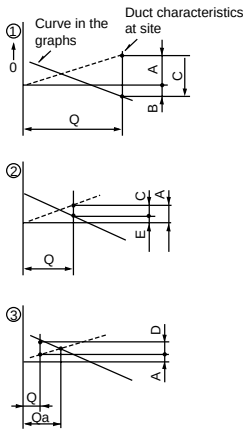

**Multifunction casement + High efficiency filter**




**Taking air into the unit**



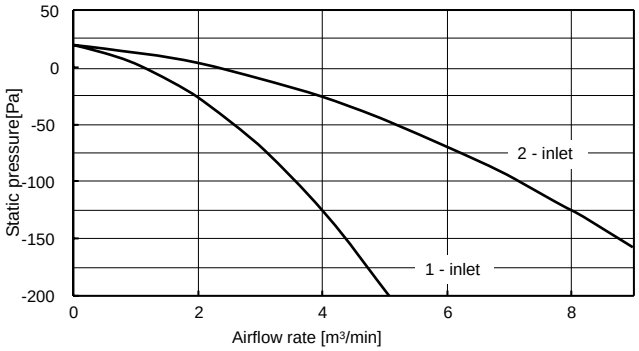

How to read curves



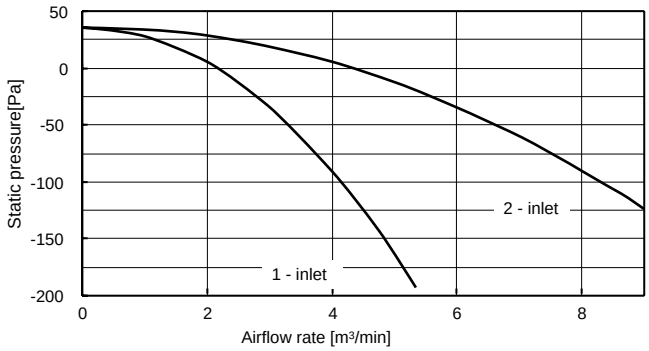

Q···Planned amount of fresh air intake <m³/min>
A···Static pressure loss of fresh air intake duct system with airflow amount Q <Pa>
B···Forced static pressure at air conditioner inlet with airflow amount Q <Pa>
C···Static pressure of booster fan with airflow amount Q <Pa>
D···Static pressure loss increase 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 <$m^3$/min>

### 2 PLFY-P100 · P125VBM-E(R2).UK

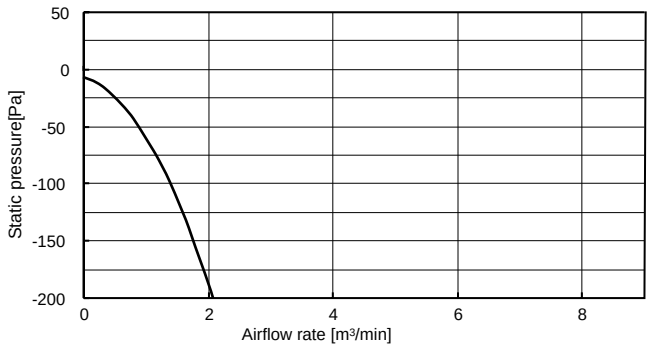
**Multifunction casement + Standard filter**




**Multifunction casement + High efficiency filter**

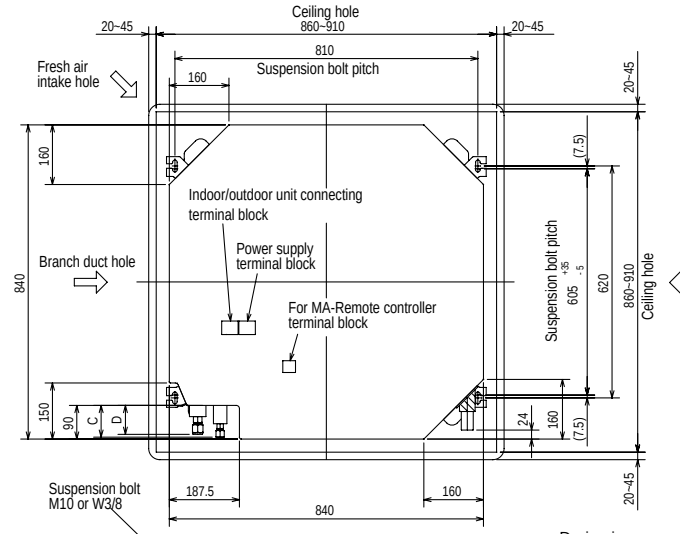


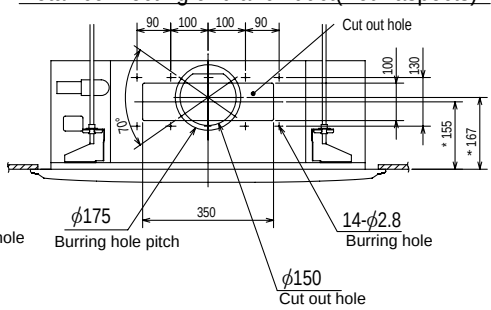

**Taking air into the unit**

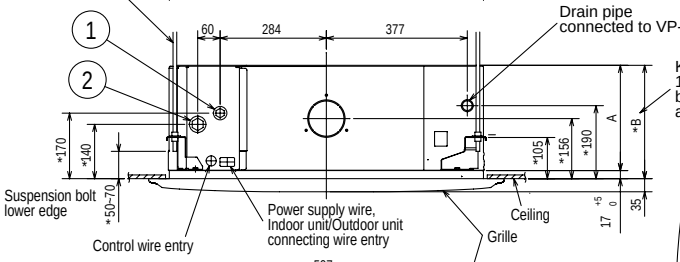


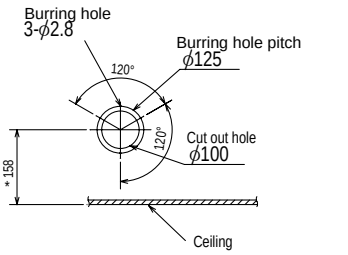
# 6 OUTLINES AND DIMENSIONS

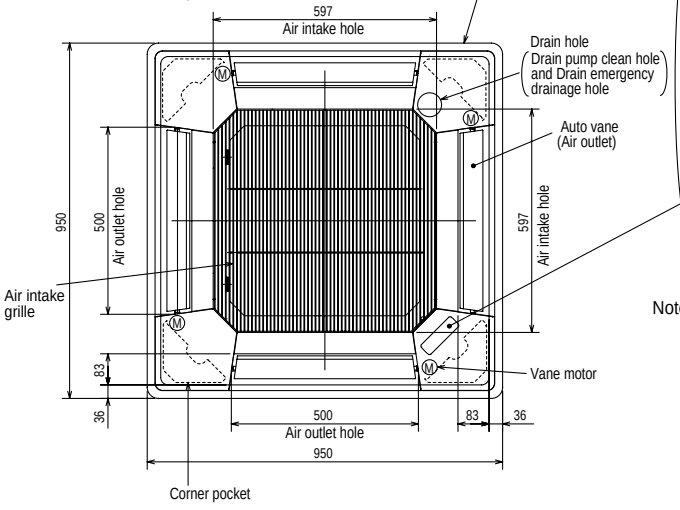
**PLFY-P32VBM-E(1).UK PLFY-P40VBM-E(1).UK PLFY-P50VBM-E(1).UK PLFY-P63VBM-E(1).UK**
**PLFY-P80VBM-E(1).UK PLFY-P100VBM-E.UK PLFY-P125VBM-E.UK**
**PLFY-P32VBM-ER2.UK PLFY-P40VBM-ER2.UK PLFY-P50VBM-ER2.UK PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-ER2.UK PLFY-P100VBM-ER2.UK PLFY-P100VBM-ER2.UK Unit : mm**

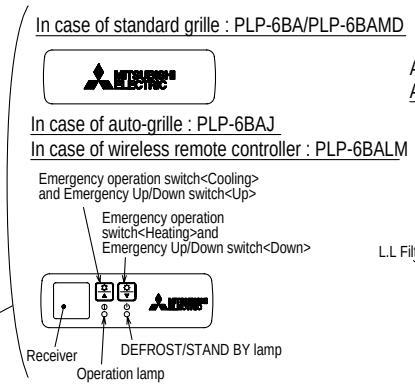


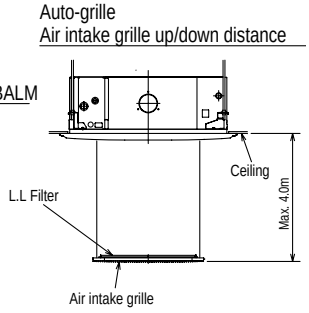



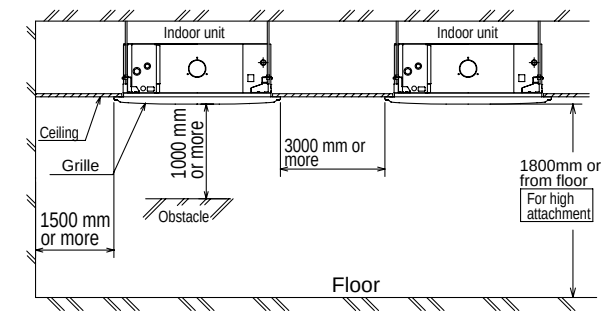




Note 1. Please choose the grille from a standard grille, auto-grille.
2. As for drain pipe, please use VP-25 (O.D. ϕ32 PVC TUBE).
Drain pump is included.
Max. lifting height is 850mm from the ceiling.
3. As for suspension bolt, please use M10 or W3/8. (Procured at local site)
4. Electrical box may be 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.
1) Requires E 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 must be used jointly with optional multi-functional casement.
7. When installing the branch ducts, be sure to insulate adequately.
Otherwise condensation and dripping may occur.
(It becomes the cause of dew drops/water dew.)
8. As for necessary installation/service space, please refer to the left figure.
Accessory ··· Drain socket (I.D. 32)

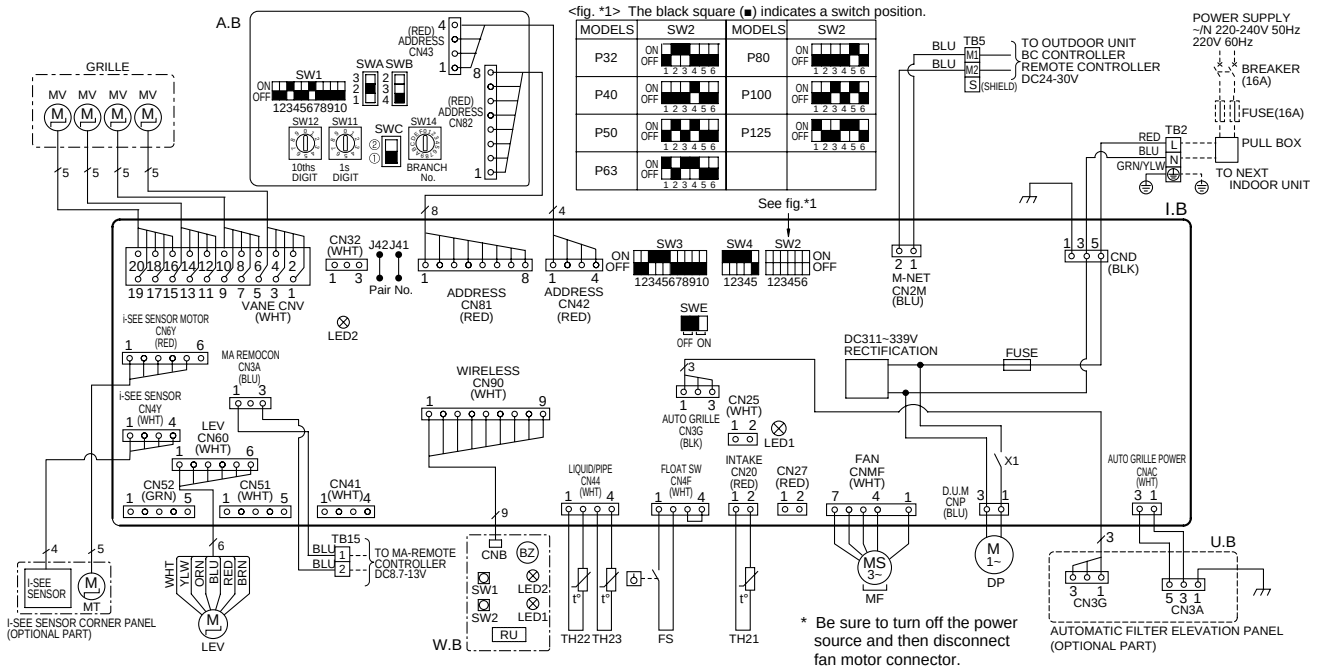
| Models | ① | ② | A | B | C | D | E |
|---|---|---|---|---|---|---|---|
| PLFY-P32,40, 50VBM-E | Refrigerant pipe···ϕ 6.35<br>Flared connection···1/4 inch | Refrigerant pipe ···ϕ12.7<br>Flared connection···1/2 inch | 241 | 258 | 80 | 74 | 400 |
| PLFY-P63,80VBM-E | Refrigerant pipe···3/8 inch<br>Flared connection···ϕ9.52 | Refrigerant pipe···ϕ15.88<br>Flared connection···5/8 inch | | | 85 | 77 | |
| PLFY-P100,125VBM-E | | | 281 | 298 | | | 440 |

# 7 WIRING DIAGRAM

**PLFY-P32VBM-E(1).UK PLFY-P40VBM-E(1).UK PLFY-P50VBM-E(1).UK PLFY-P63VBM-E(1).UK**
**PLFY-P80VBM-E(1).UK PLFY-P100VBM-E.UK PLFY-P125VBM-E.UK**
**PLFY-P32VBM-ER2.UK PLFY-P40VBM-ER2.UK PLFY-P50VBM-ER2.UK PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-ER2.UK PLFY-P100VBM-ER2.UK PLFY-P100VBM-ER2.UK**

[LEGEND]

| SYMBOL | NAME | | SYMBOL | NAME | | SYMBOL | NAME |
|---|---|---|---|---|---|---|---|
| I. B | INDOOR CONTROLLER BOARD | | TB2 | TERMINAL BLOCK | POWER SUPPLY | OPTION PART | |
| CN27 | CONNECTOR | DAMPER | TB5 | | TRANSMISSION | W.B | PCB FOR WIRELESS REMOTE CONTROLLER |
| CN32 | | REMOTE SWITCH | TB15 | | MA-REMOTE CONTROLLER | BZ | BUZZER |
| CN51 | | CENTRALLY CONTROL | TH21 | THERMISTOR | ROOM TEMP. DETECTION (0℃ / 15kΩ, 25℃ / 5.4kΩ) | LED1 | LED (OPERATION INDICATION : GREEN) |
| CN52 | | REMOTE INDICATION | | | | LED2 | LED (PREPARATION FOR HEATING : ORANGE) |
| FUSE | FUSE (T6.3AL250V) | | TH22 | | PIPE TEMP. DETECTION / LIQUID (0℃ / 15kΩ, 25℃ / 5.4kΩ) | RU | RECEVING UNIT |
| LED1 | POWER SUPPLY (I. B) | | TH23 | | PIPE TEMP. DETECTION / GAS (0℃ / 15kΩ, 25℃ / 5.4kΩ) | SW1 | EMERGENCY OPERATION (HEAT / DOWN) |
| LED2 | POWER SUPPLY (I. B) | | | | | SW2 | EMERGENCY OPERATION (COOL / UP) |
| SW2 | SWITCH | CAPACITY CODE | | | | | |
| SW3 | | MODE SELECTION | A. B | ADDRESS BOARD | | | |
| SW4 | | MODEL SELECTION | SWA | SWITCH | CEILING HEIGHT SELECTOR | | |
| SWE | | DRAIN PUMP (TEST MODE) | SWB | | DISCHARGE OUTLET NUMBER SELECTOR | | |
| X1 | AUX. RELAY | DRAIN PUMP | SWC | | OPTION SELECTOR | | |
| DP | DRAIN PUMP | | SW1 | | MODE SELECTION | | |
| FS | DRAIN FLOAT SWITCH | | SW11 | | ADDRESS SETTING 1s DIGIT | | |
| LEV | LINEAR EXPANSION VALVE | | SW12 | | ADDRESS SETTING 10ths DIGIT | | |
| MF | FAN MOTOR | | SW14 | | BRANCH NO. | | |
| MV | VANE MOTOR | | | | | | |




* Be sure to turn off the power source and then disconnect fan motor connector. (Failure to do so will cause trouble in Fan motor.)

NOTES:

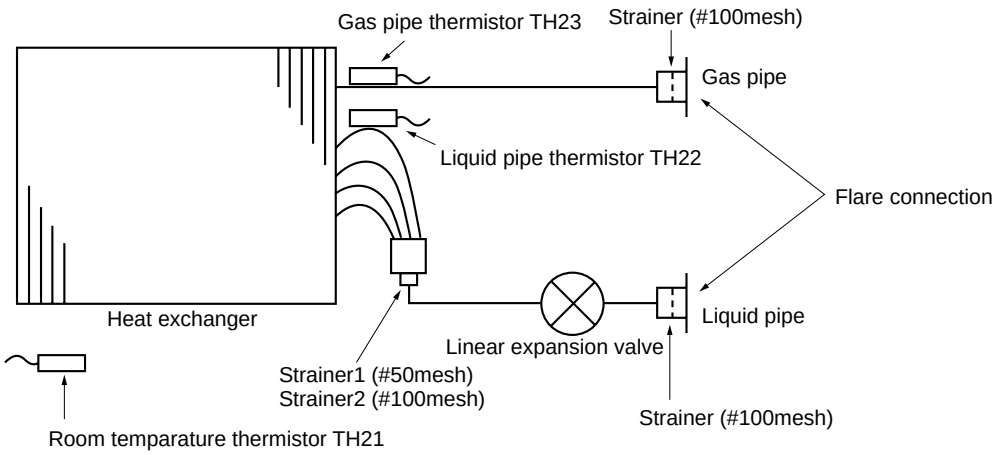
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15.
   (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5 is the 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:220-240V) 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-P32VBM-E(1).UK** **PLFY-P40VBM-E(1).UK** **PLFY-P50VBM-E(1).UK** **PLFY-P63VBM-E(1).UK**
**PLFY-P80VBM-E(1).UK** **PLFY-P100VBM-E.UK** **PLFY-P125VBM-E.UK**
**PLFY-P32VBM-ER2.UK** **PLFY-P40VBM-ER2.UK** **PLFY-P50VBM-ER2.UK** **PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-ER2.UK** **PLFY-P100VBM-ER2.UK** **PLFY-P100VBM-ER2.UK**




Unit : mm(inch)

| Item \ Capacity | PLFY-P32, P40VBM-E(1) | PLFY-P50VBM-E(1) | PLFY-P63, P80VBM-E(1) | PLFY-P100, P125VBM-E |
|---|---|---|---|---|
| Gas pipe | $\phi$12.7(1/2) | $\phi$12.7(1/2)/$\phi$15.88(5/8) | $\phi$15.88(5/8) | $\phi$15.88(5/8)/$\phi$19.05(3/4) |
| Liquid pipe | $\phi$6.35(1/4) | $\phi$6.35(1/4)/$\phi$9.52(3/8) | $\phi$9.52(3/8) | $\phi$9.52(3/8) |

| Item \ Capacity | PLFY-P32, P40, P50VBM-ER2 | PLFY-P63, P80, P100, P125VBM-ER2 |
|---|---|---|
| Gas pipe | $\phi$12.7(1/2) | $\phi$15.88(5/8) |
| Liquid pipe | $\phi$6.35(1/4) | $\phi$9.52(3/8) |

# 9 TROUBLESHOOTING

## 9-1. HOW TO CHECK THE PARTS
## PLFY-P32/40/50/63/80/100/125VBM-E(R2).UK PLFY-P32/40/50/63/80VBM-E1.UK

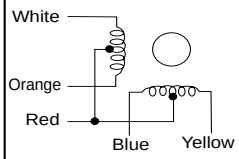
### Room temperature thermistor (TH21) Liquid pipe thermistor (TH22) Gas pipe thermistor (TH23)

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

| Normal | Abnormal |
|---|---|
| 4.3kΩ~9.6kΩ | Open or short |

(Refer to Thermistor characteristic graph.)

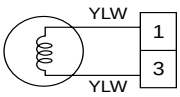
### Vane motor (MV)




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

| Connector | Normal | Abnormal |
|---|---|---|
| Red - Yellow (⑤-③, ⑩-⑧, ⑮-⑬, ⑳-⑱) | 300Ω | Open or short |
| Red - Blue (⑤-①, ⑩-⑥, ⑮-⑪, ⑳-⑯) | | |
| Red - Orange (⑤-④, ⑩-⑨, ⑮-⑭, ⑳-⑲) | | |
| Red - White (⑤-②, ⑩-⑦, ⑮-⑫, ⑳-⑰) | | |

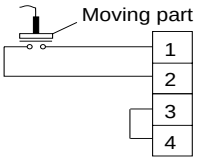
### Drain pump (DP)




Measure the resistance between the terminals with a tester.
(Winding temperature 20℃)

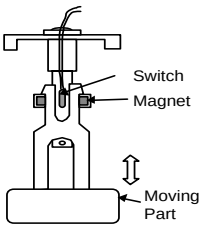
| Normal | Abnormal |
|---|---|
| 290Ω | Open or short |

### Drain float switch (FS)

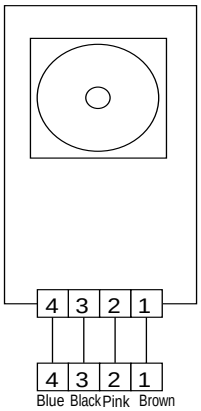



Measure the resistance between the terminals with a tester.

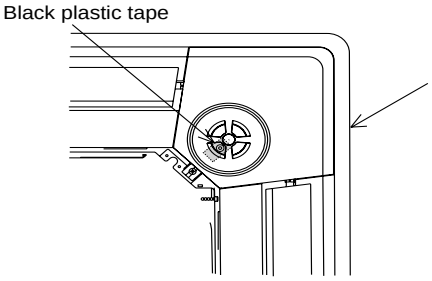
| State of moving part | Normal | Abnormal |
|---|---|---|
| UP | Short | Other than short |
| DOWN | Open | Other than open |




### i-see sensor (Option)




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.

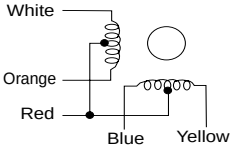



i-see sensor (At the ambient temperature of 10℃~40℃)

| i-see sensor connector | Normal | Abnormal |
|---|---|---|
| ②(–)—④(+) | DC 1.857V~ 3.132V | Other than the normal |
| ①(+)—②(–) | DC 0.939V~ 1.506V | Other than the normal |

**NOTE** : Be careful not to discharge static electricity into electronics.

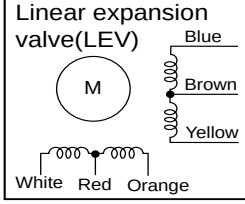
### Vane motor for i-see sensor (Option)




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

| Connector | Normal | Abnormal |
|---|---|---|
| Red - Yellow | 250Ω | Open or short |
| Red - Blue | | |
| Red - Orange | | |
| Red - White | | |

### Linear expansion valve(LEV)




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

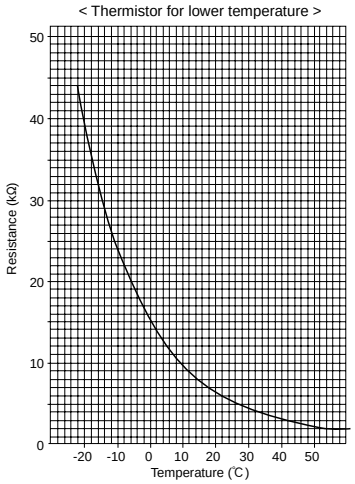
| Normal | | | | Abnormal |
|---|---|---|---|---|
| White-Red | Yellow-Brown | Orange-Red | Blue-Brown | Open or short |
| 200Ω ±10% | | | | |

Refer to 9-1-3.

### 9-1-1. Thermistor

<Thermistor characteristic graph>

| Thermistor for lower temperature | Room temperature thermistor (TH21)<br>Liquid pipe temperature thermistor (TH22)<br>Gas pipe temperature thermistor (TH23) |
|---|---|




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

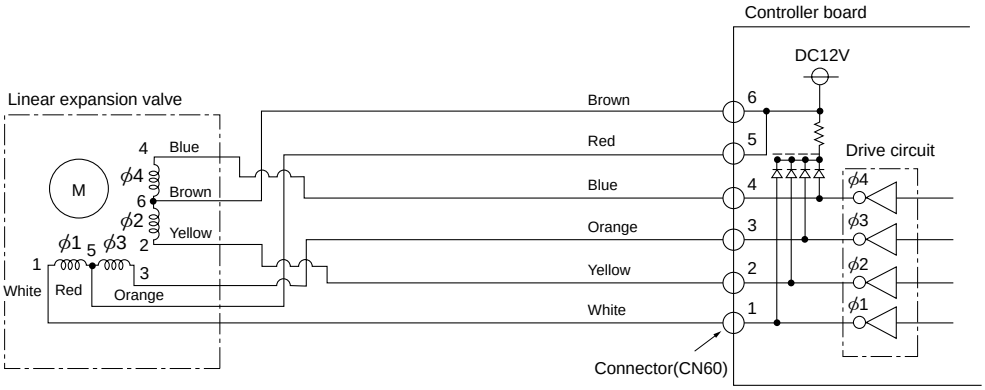
$$Rt=15\exp\{3480(\frac{1}{273+t}-\frac{1}{273})\}$$

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

### 9-1-2. Linear expansion valve

① **Operation summary of the linear expansion valve**
- Linear expansion valves open/close through the use of a stepping motor after receiving the pulse signal from the indoor controller board.
- Valve position can be changed in proportion to the number of pulse signals.

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



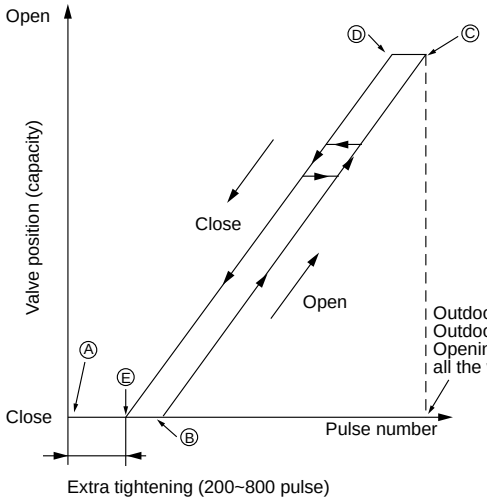
**<Output pulse signal and the valve operation>**

| Output (Phase) | Output | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 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

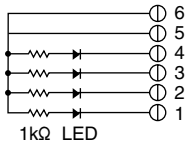
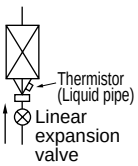



Outdoor unit R410A model : 1400 pulse
Outdoor unit R22/R407C model : 2000 pulse
Opening a valve all the way

- When the switch is turned on, 2200 pulse closing valve signal will be sent 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.   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. |

### 9-1-3. DC Fan motor (fan motor/indoor controller board)

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

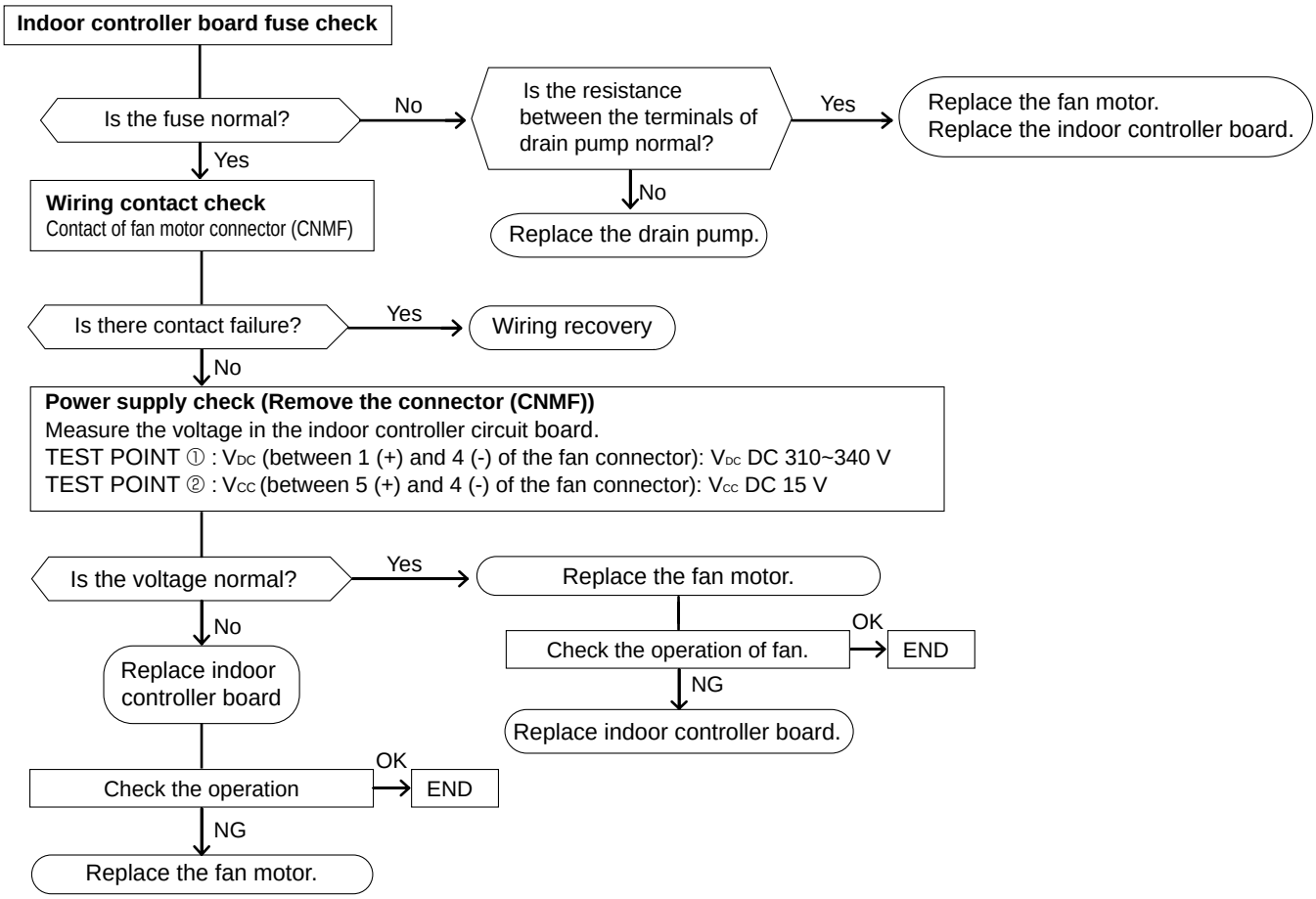
① Notes

· High voltage is applied to the 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 turn around.

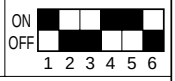
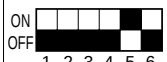


## 9-2. FUNCTION OF DIP SWITCH

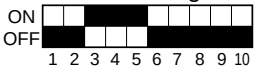
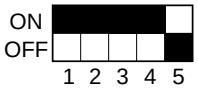
The black square (■) indicates a switch position.

| Switch | Pole | Function | Operation by switch ON | Operation by switch OFF | Effective timing | Remarks |
|---|---|---|---|---|---|---|
| SW1 Function setting | 1 | Thermistor <Room temperature detection> position | Built-in remote controller | Indoor unit | Under suspension | Address board<br><Initial setting><br>  <br><br>Note :<br>※1 Fan operation at Heating mode<br>※2 ThermoT ON operation at Heating mode<br>※3 |
| | 2 | Filter clogging detection | Provided | Not provided | | |
| | 3 | Filter cleaning | 2,500hr | 100hr | | |
| | 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 | | |

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

| SW2 Capacity code setting | 1~6 | Capacity | SW 2 | Capacity | SW 2 | Capacity | SW 2 | Before power supply ON | Indoor controller board<br>Set while the unit is off.<br><Initial setting><br>Set for each capacity. |
|---|---|---|---|---|---|---|---|---|---|
| | | P32 |  | P63 |  | P125 |  | | |
| | | P40 |  | P80 |  | | | | |
| | | P50 |  | P100 |  | | | | |

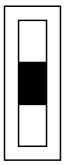
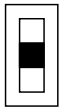
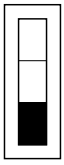
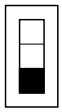
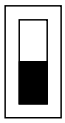
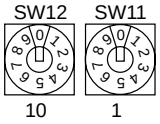
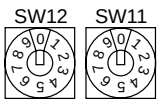


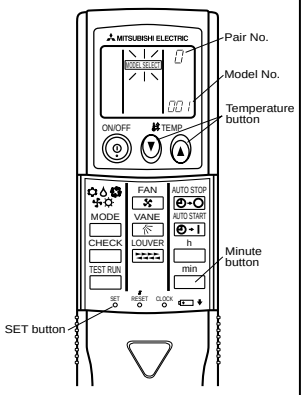
| SW3 Function setting | 1 | Heat pump/Cooling only | Cooling only | Heat pump | Under suspension | Indoor controller board<br>Set while the unit is off.<br><Initial setting><br>  <br><br>Note :<br>※4 SW3-5, 6<br>※5 Please do not use SW3-9, 10 as trouble might be caused by the usage condition.<br>※6 SW3-2 setting<br>Only for PLFY-P·VBM, SW is used to change whether the humidifier functions or not.(Fixed the louver function less.) |
|---|---|---|---|---|---|---|
| | 2 | Louver/humidifier ※6 | 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 | Changing the opening of linear expansion valve | Effective | Not effective | | |
| | 8 | Sensible temperature correction | Not effective | Effective | | |
| | 9 | Superheat setting temperature ※5 | — | — | | |
| | 10 | Sub cool setting temperature ※5 | — | — | | |
| SW4 Model Selection (Setting for PLFY series) | 1~5 | In case of replacing the indoor controller board, make sure to set the switch to the factory-preset status, which is shown below.<br>  <br> | | | Before power supply ON | Indoor controller board |

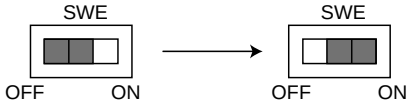
Note : ※4 SW3-5,6

| 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<br>Ceiling height selector</td><td>1~3</td><td>(High ceiling) 3<br>(Standard) 2<br>(Silent) 1<br>  <br>✻ Ceiling height can be changed depends on SWB setting.<br>PLFY-P32·P40·P50·P63·P80VBM-E<br><table><tr><th>SWA / SWB</th><th>①</th><th>②</th><th>③</th></tr><tr><td></td><td>Silent</td><td>Standard</td><td>High ceiling</td></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="3">Under operation or suspension</td><td>Address board<br><Initial setting><br>3<br>2<br>1<br>  </td></tr>
<tr><td>SWB<br>Discharge outlet number selector</td><td>3</td><td>(2 direction) 2<br>(3 direction) 3<br>(4 direction) 4<br>  <br>PLFY-P100·P125VBM-E<br><table><tr><th>SWA / SWB</th><th>①</th><th>②</th><th>③</th></tr><tr><td></td><td>Silent</td><td>Standard</td><td>High ceiling</td></tr><tr><td>4 4 direction</td><td>2.7m</td><td>3.2m</td><td>4.5m</td></tr><tr><td>3 3 direction</td><td>3.0m</td><td>3.6m</td><td>4.5m</td></tr><tr><td>2 2 direction</td><td>3.3m</td><td>4.0m</td><td>4.5m</td></tr></table></td><td>Address board<br><Initial setting><br>2<br>3<br>4<br>  </td></tr>
<tr><td>SWC<br>Option selector</td><td>2</td><td>② オプ<br>① 標<br>  <br>When attaching the optional high performance filter elements (multi function casement) to the unit, be sure to attach it to the option side in order to prevent the airflow reducing.</td><td>Address board<br><Initial setting><br>② オプ<br>① 標<br>  </td></tr>
<tr><td>SW11<br>1s digit address setting<br>SW12<br>10ths digit address setting</td><td>Rotary switch</td><td>  <br>SW12 SW11<br>10 1<br>How to set addresses<br>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<br><Initial setting><br>SW12 SW11<br>  </td></tr>
<tr><td>SW14<br>Branch No. Setting</td><td>Rotary switch</td><td>  <br>SW14<br>How to set branch numbers SW14 (Series R2 only)<br>Match the indoor unit's refrigerant pipe with the BC controller's end connection number.<br>Remain other than series R2 at "0".</td><td>Address board<br><Initial setting><br>SW14<br>  </td></tr>
</table>

<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<br>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.<br>
① Pair No. setting is available with the 4 patterns (Setting patters A to D).<br>
② Make setting for J41, J42 of indoor controller board and the Pair No. of wireless remote controller.<br>
• You may not set it when operating it by 1 remote controller.<br>
① Setting for indoor unit<br>
Jumper wire J41, J42 on the indoor controller board are cut according to the table below.<br>
② Wireless remote controller pair number:<br>
Setting operation<br>
1. Press the SET button (using a pointed implement). Check that the remote controller's display has stopped before continuing.<br>
MODEL SELECT flashes, and the model No. (3 digits) appears (steadily-lit).<br>
2. Press the MINUTE button twice. The pair number appears flashing.<br>
3. Press the temperature ▼ ▲ buttons to select the pair number to set.<br>
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>Factory 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><br>
Pattern A<br>


</td>
</tr>
<tr>
<td>SWE<br>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.<br>


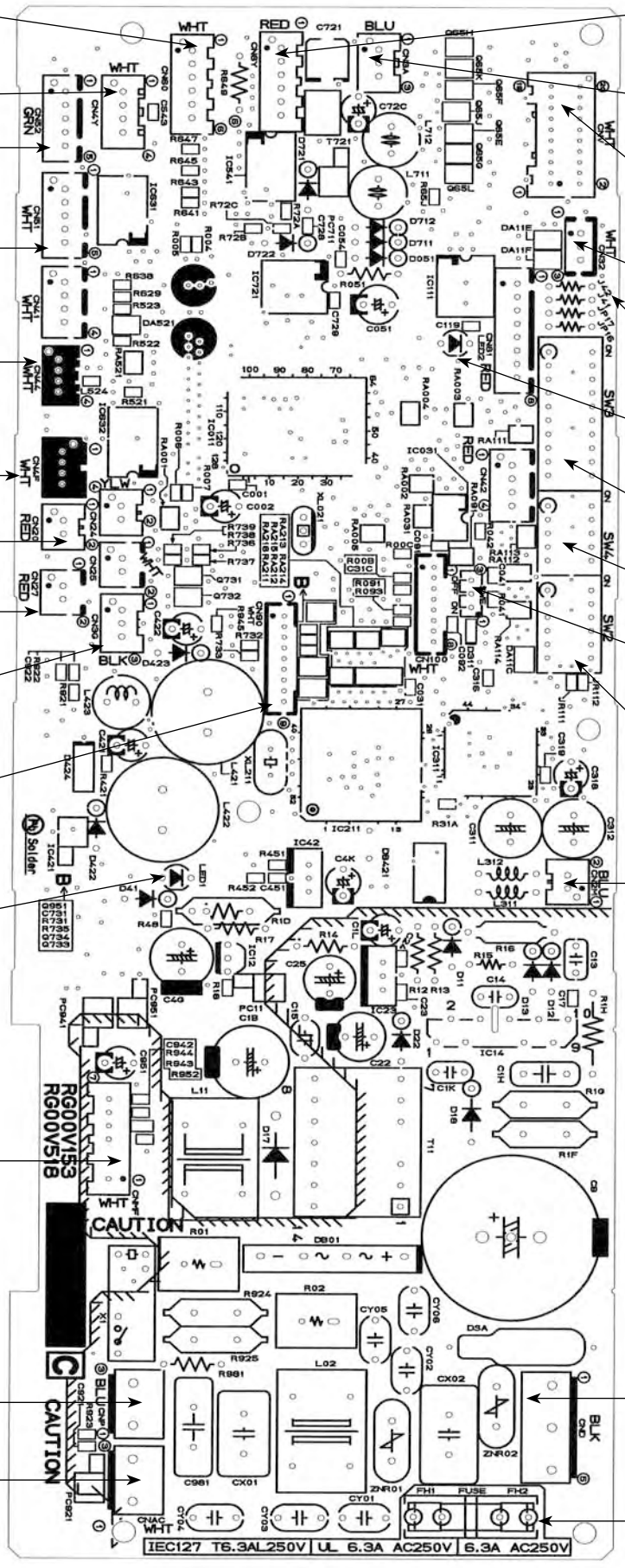
The connector SWE is set to OFF after test run.
</td>
<td>Under operation</td>
<td>
<Initial setting><br>


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

## 9-3. TEST POINT DIAGRAM

### 9-3-1. Indoor controller board

**PLFY-P32/40/50/63/80/100/125VBM-E(R2).UK PLFY-P32/40/50/63/80VBM-E1.UK**




CN60
Linear expansion valve (LEV) output
12VDC pulse output

CN4Y
i-See sensor

CN52
Remote indicator

CN51
Centrally controlled

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

CN4F
Drain float switch (FS)

CN20
Room temperature thermistor (TH21)

CN27
Damper signal output
12VDC(① : +)

CN3G
Auto grille signal output

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

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

CNMF
Connect to the fan motor (MF)
①-④ : DC310~340V
⑤-④ : DC15V

CNP
Drain pump output (DP)
①-③ : 220-240VAC

CNAC
Auto grille power
(220-240VAC)

CN6Y
i-See sensor motor output
12VDC pulse output

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

CNV
vane motor output
12VDC pulse

CN32
Remote switch

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

LED2
Power supply for MA-Remote controller

SW3
Function setting

SW4
Model selection

SWE
Test run(Drain pump)

SW2
Capacity setting

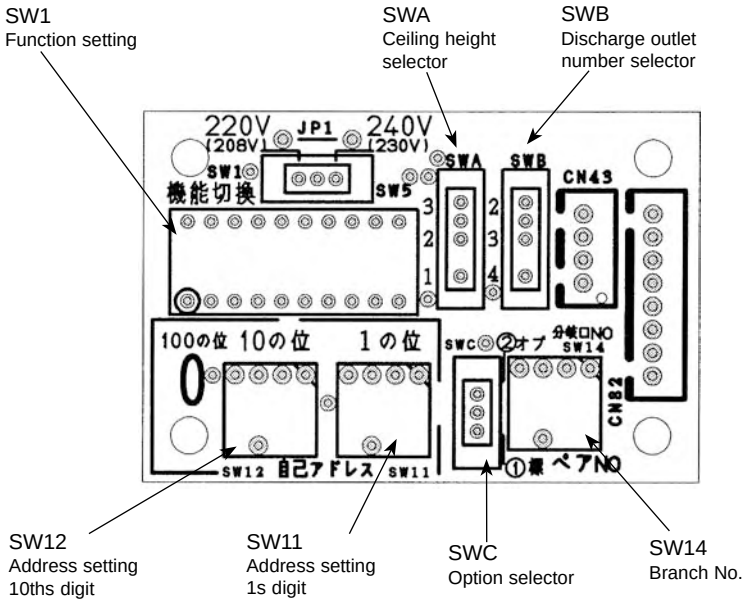
CN2M
Connect to the terminal block (TB5)
(M-NET transmission connecting wire)
24-30VDC (non-polar)

CND
Power supply for indoor controller board
③ - ⑤ : 220-240VAC

FUSE
6.3A 250V

### 9-3-2. Address board

**PLFY-P32VBM-E.UK** **PLFY-P40VBM-E.UK** **PLFY-P50VBM-E.UK** **PLFY-P63VBM-E.UK**
**PLFY-P80VBM-E.UK** **PLFY-P100VBM-E.UK** **PLFY-P125VBM-E.UK**
**PLFY-P32VBM-E1.UK** **PLFY-P40VBM-E1.UK** **PLFY-P50VBM-E1.UK** **PLFY-P63VBM-E1.UK**
**PLFY-P80VBM-E1.UK**
**PLFY-P32VBM-ER2.UK** **PLFY-P40VBM-ER2.UK** **PLFY-P50VBM-ER2.UK** **PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-ER2.UK** **PLFY-P100VBM-ER2.UK** **PLFY-P125VBM-ER2.UK**



# 10 SPECIAL FUNCTION

## 10-1. HOW TO PERFORM THE UP/DOWN OPERATION OF THE AIR INTAKE GRILLE

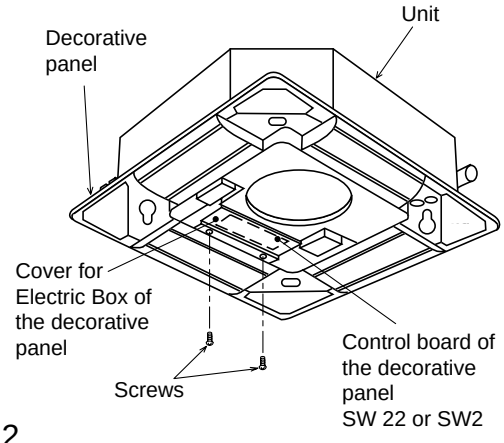
### 10-1-1. Setting up the lowering distance of air intake grille

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

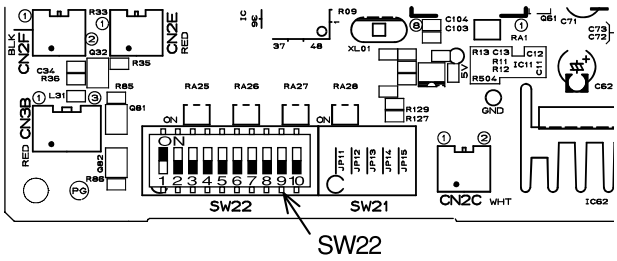
* As a factory default, the decorative panel will automatically stop at 1.6 m from the ceiling surface. The distance is a rough indication, check by actually lowering it.

**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 followed.**




Dip SW 22

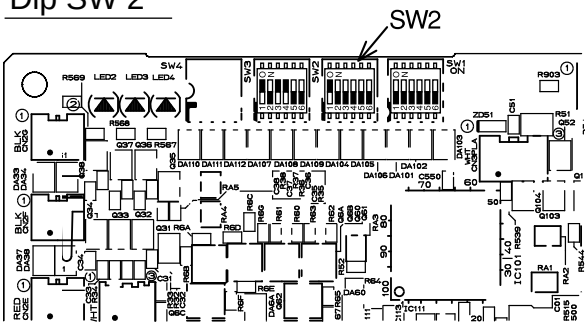



The black square (■) indicates a switch position.

| Lowering distance (Rough indication of the ceiling height) | SW22 (Lowering distance) | Lowering distance (Rough indication of the ceiling height) | SW22 (Lowering distance) |
|---|---|---|---|
| 1.2m (~ 2.4m) | | 1.6m (2.4m ~ 2.8m) | Initial setting |
| 2.0m (2.8m ~ 3.2m) | | 2.4m (3.2m ~ 3.6m) | |
| 2.8m (3.6m ~ 4.0m) | | 3.2m (4.0m ~ 4.4m) | |
| 3.6m (4.4m ~ 4.8m) | | 4.0m (4.8m ~ 5.2m) | |

* 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) |
|---|---|---|---|
| 1.2m (~ 2.4m) | | 1.6m (2.4m ~ 2.8m) | Initial setting |
| 2.0m (2.8m ~ 3.2m) | | 2.4m (3.2m ~ 3.6m) | |
| 2.8m (3.6m ~ 4.0m) | | 3.2m (4.0m ~ 4.4m) | |
| 3.6m (4.4m ~ 4.8m) | | 4.0m (4.8m ~ 5.2m) | |

* 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 decorarive panel.**

### 10-1-2. 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.

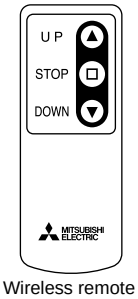
* When you want to stop the air intake grille while it is lowering, press the "Stop" or "Up" button on the remote controller to stop at that position.

**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

## 10-1-3. 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.

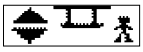
**1) Ensure that the air-conditioner is not running.**

* 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

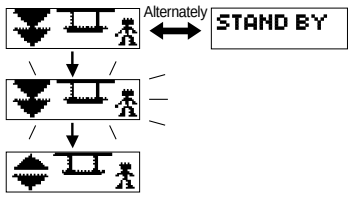


**3) Press the TEMP. (▽) button. After a while, the air intake grille will begin lowering.**

"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.

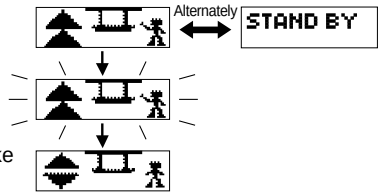
**4) Remove the filter and/or air intake grille to clean them.**

**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)

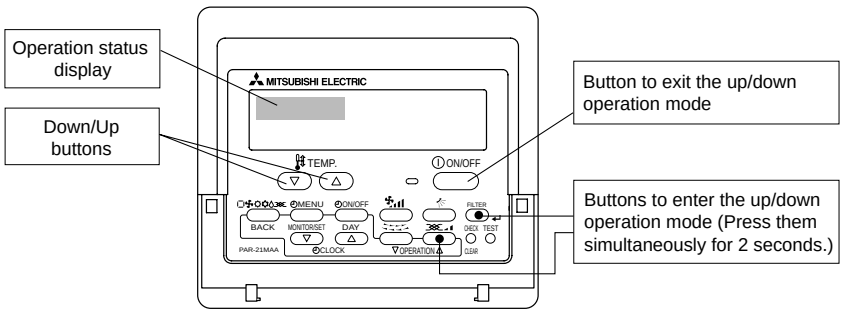



**[ Note: ]**

- **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.

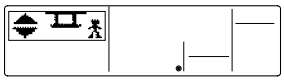


■**Up/down operation with the individual specified air-conditioner (When used in combination with CITY MULTI model)**
*** Raise or lower the air intake grille of the specific air-conditioner that you select from all that are managed by that remote controller.**

**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

Address No. of indoor unit

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

**In the upper right figure, the address No. of indoor unit "01" is currently selected.**

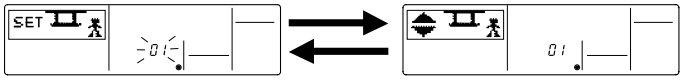
If the number of the target air-conditioner is known, go to 5).

**4) <u>If you press the "FILTER" button when the "Address No. of indoor unit" is blinking,</u> after a while, <u>the up/down airflow direction of the displayed air-conditioner will be switched downward;</u> 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 "Address No. of indoor unit" 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 "Address No. of indoor unit" does not exist. Check and set that air-conditioner again.

**5) Select the "Address No. of indoor unit".**
■"Address No. of indoor unit" 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.

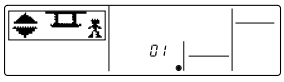


(a) "Address No. of indoor unit" selection display

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

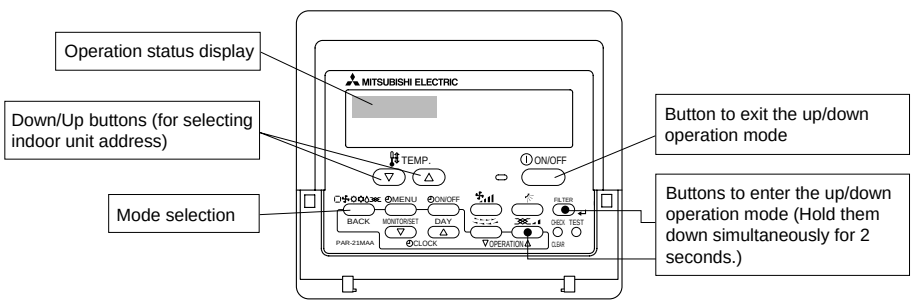
**[Remarks:]**
■Each press changes the "Address No. of indoor unit" from "01 to 50".

**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.**



## 10-2. OPERATION (AUTOMATIC FILTER ELEVATION 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.

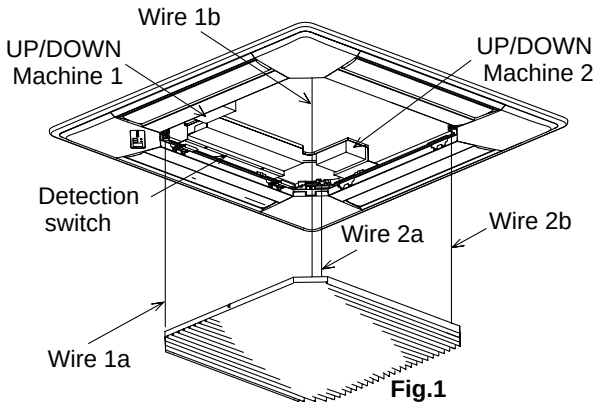


**Fig.1**

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 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

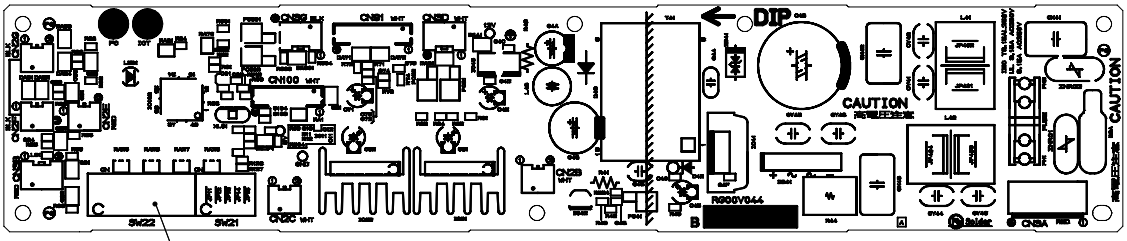
Case : Making contact with something while lowering.
Should the loads on the wire 1b and wire 2b be removed due to the grille making contact with something while lowering, the lowering operation will stop. The grille will then be raised 10 cm and stop again.

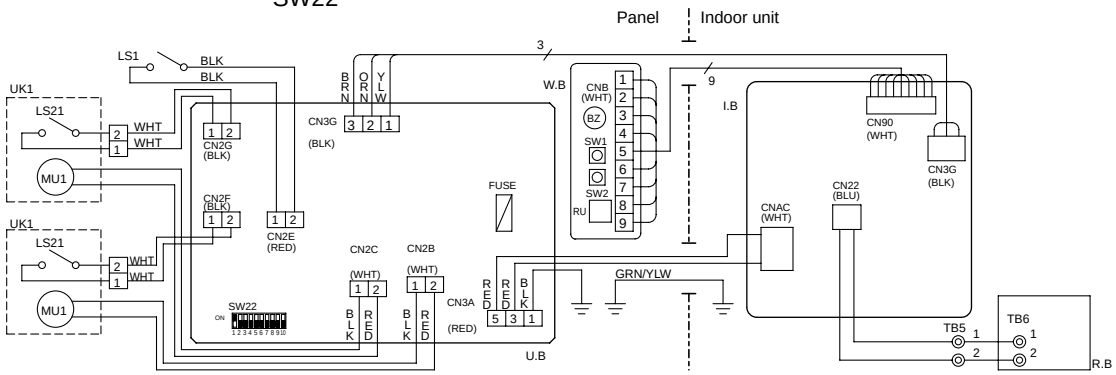
[Emergency operation]

- 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.

## 10-3. ELECTRICAL CIRCUIT (Controller board and wiring diagram (Panel))

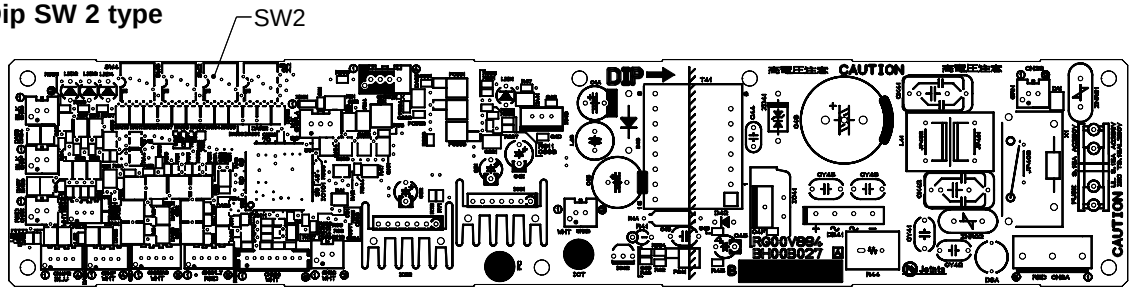
### 10-3-1. Dip SW 22 type

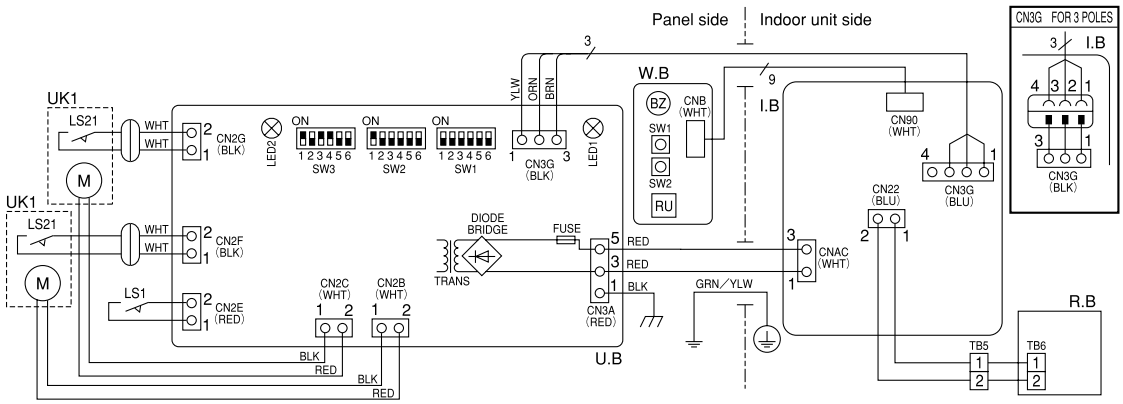



| Symbol | | Name | Symbol | | Name |
|---|---|---|---|---|---|
| U.B | | Auto grille controller board | W.B | | Wireless remote controller board |
| | FUSE | Fuse (3.15A) | | BZ | Buzzer |
| | | | | RU | Receiver |
| | SW22 | Switch (Lowering distance set up) | | SW1 | Emergency switch (heating/down) |
| 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 | | | |

### 10-3-2. 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) | | | | | | | |

### 10-3-3. 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) | AC 198~264 V | —— |
| Up/down machine supply voltage | CN2B, CN2C | DC 10~12 V | 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. |

## 10-4. TROUBLESHOOTING

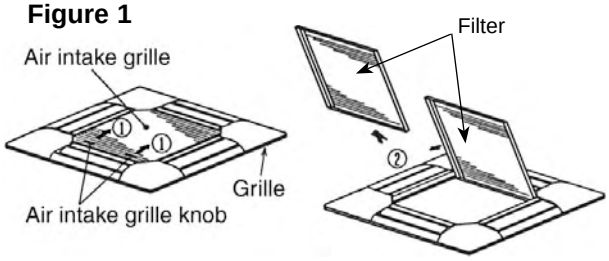
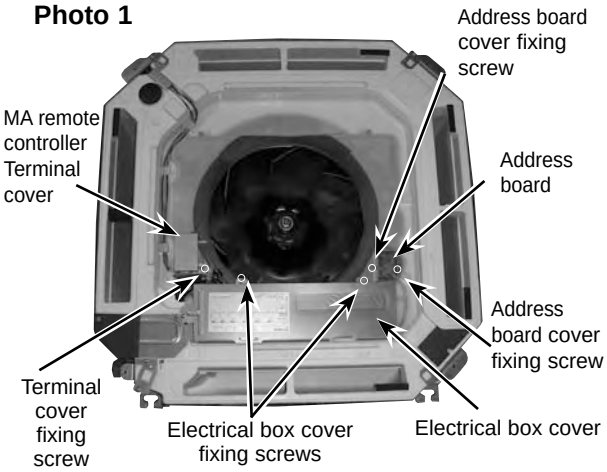
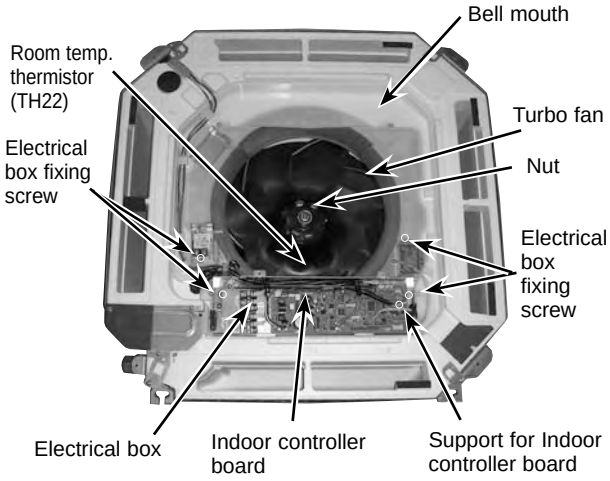
• Check the following points.

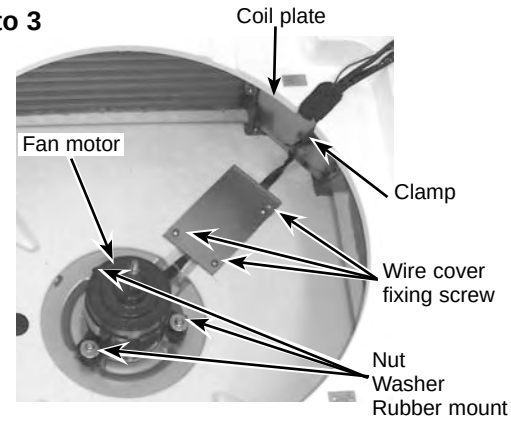
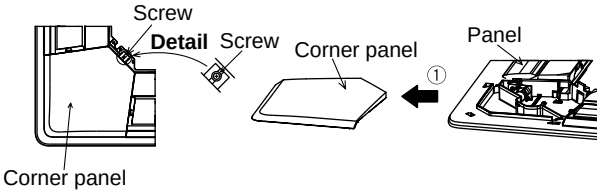
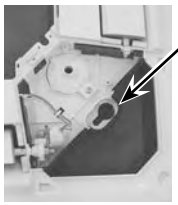
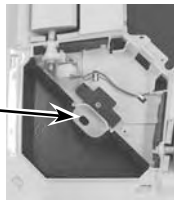
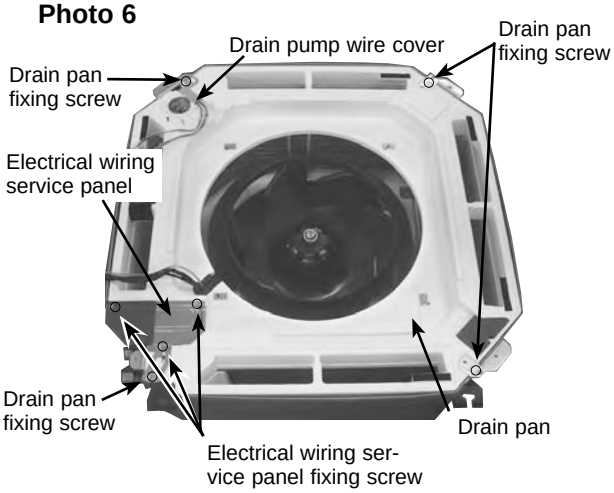
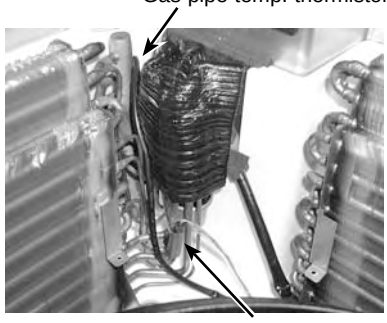
| Problem | Possible Reason | Corrective Action |
|---|---|---|
| Air intake grille does not function with operation of the wireless remote controller. | Air-conditioner is running. | Stop running the air-conditioner and try again. |
| | Power failure | After recovering from power failure, try again. |
| | 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. | |

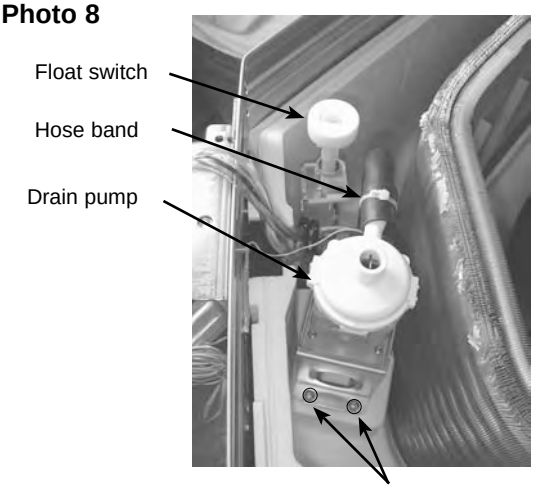
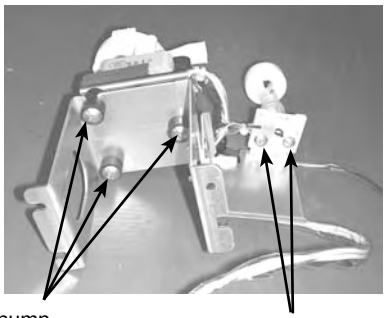
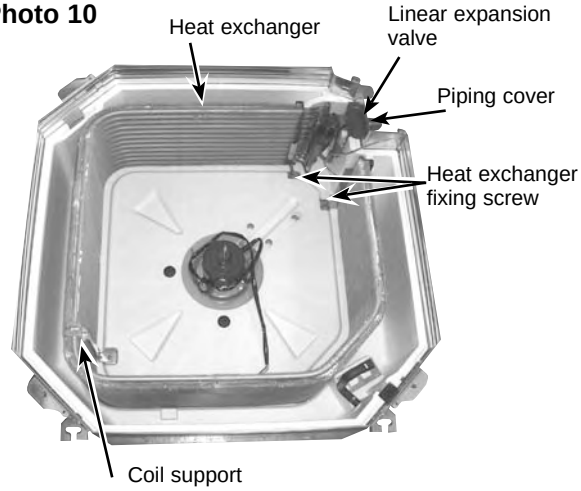
# 11 DISASSEMBLY PROCEDURE

**PLFY-P32VBM-E(1).UK PLFY-P40VBM-E(1).UK PLFY-P50VBM-E(1).UK PLFY-P63VBM-E(1).UK**
**PLFY-P80VBM-E(1).UK PLFY-P100VBM-E.UK PLFY-P125VBM-E.UK**
**PLFY-P32VBM-ER2.UK PLFY-P40VBM-ER2.UK PLFY-P50VBM-ER2.UK PLFY-P63VBM-ER2.UK**
**PLFY-P80VBM-ER2.UK PLFY-P100VBM-ER2.UK PLFY-P100VBM-ER2.UK**

Be careful when removing heavy parts.

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

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

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

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