

TECHNICAL & SERVICE MANUAL

Series PMFY Ceiling Cassettes R410A / R407C / R22

Indoor unit
 [Model names]

[Service Ref.]

PMFY-P20VBM-E	PMFY-P20VBM-E PMFY-P20VBM-E ₁ PMFY-P20VBM-E#2
PMFY-P25VBM-E	PMFY-P25VBM-E PMFY-P25VBM-E ₁ PMFY-P25VBM-E#2
PMFY-P32VBM-E	PMFY-P32VBM-E PMFY-P32VBM-E ₁ PMFY-P32VBM-E#2
PMFY-P40VBM-E	PMFY-P40VBM-E PMFY-P40VBM-E ₁ PMFY-P40VBM-E#2

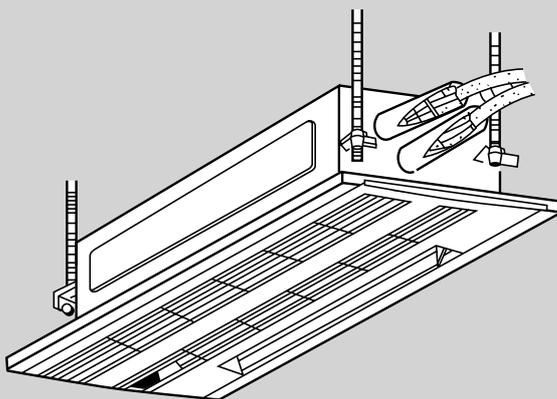
Revision:

- PMFY-P20/25/32/40VBM-E#2 are added in REVISED EDITION-C.
- Some descriptions have been modified.

- Please void OC307 REVISED EDITION-B.

Note:

- This manual describes only service data of the indoor units.
- RoHS compliant products have <G> mark on the spec name plate.
- For servicing RoHS compliant products, refer to the RoHS Parts List.



INDOOR UNIT

CONTENTS

1. TECHNICAL CHANGES.....	2
2. SAFETY PRECAUTION.....	2
3. PART NAMES AND FUNCTIONS.....	6
4. SPECIFICATIONS.....	8
5. OUTLINES AND DIMENSIONS.....	12
6. WIRING DIAGRAM.....	13
7. REFRIGERANT SYSTEM DIAGRAM.....	16
8. TROUBLE SHOOTING.....	17
9. DISASSEMBLY PROCEDURE.....	26
10. PARTS LIST.....	29
11. RoHS PARTS LIST.....	32

1

TECHNICAL CHANGES

PMFY-P20VBM-E₁ → PMFY-P20VBM-E#2
PMFY-P25VBM-E₁ → PMFY-P25VBM-E#2
PMFY-P32VBM-E₁ → PMFY-P32VBM-E#2
PMFY-P40VBM-E₁ → PMFY-P40VBM-E#2

1. CONTROLLER BOARD (I.B) has been changed.
2. PANEL has been changed.
PMP-40BM → PMP-40BMW
(White : 0.98Y 8.99/0.63) (Pure white : 6.4Y 8.9/0.4)
3. FAN MOTOR (MF) has been changed.
4. THERMISTOR (TH22, TH23) have been changed.

PMFY-P20VBM-E → PMFY-P20VBM-E₁
PMFY-P25VBM-E → PMFY-P25VBM-E₁
PMFY-P32VBM-E → PMFY-P32VBM-E₁
PMFY-P40VBM-E → PMFY-P40VBM-E₁

1. FAN MOTOR (MF) has been changed.
2. CONTROLLER BOARD (I.B) has been changed.

2

SAFETY PRECAUTION

CAUTIONS RELATED TO NEW REFRIGERANT

Caution for units utilizing refrigerant R407C

Use new refrigerant pipes.

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

- Change flare nut to the one provided with this product.
Use a newly flared pipe.
- Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.
In addition, use pipes with specified thickness.

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

Store the piping to be used during installation indoors with keep 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 seal 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

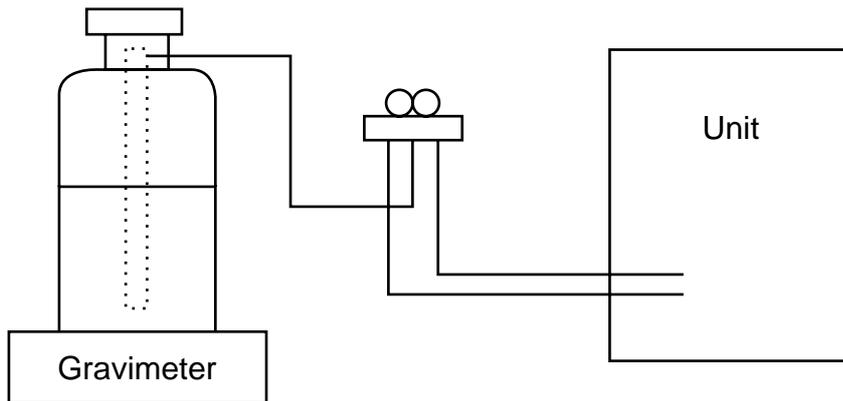
- After recovering all the refrigerant in the unit, proceed to working.
- Do not release refrigerant in the air.
- After completing the repair service, recharge the cycle with the specified amount of liquid refrigerant.

[2] Refrigerant recharging

(1) Refrigerant recharging process

① Direct charging from the cylinder

- R407C cylinder are 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)
		·Cylinder with syphon
⑧	Refrigerant recovery equipment	—

Cautions for units utilizing refrigerant R410A

Use new refrigerant pipes.

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

- Change flare nut to the one provided with this product. Use a newly flared pipe.
- Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc. In addition, use pipes with specified thickness.

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

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

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

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

Keep the 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.

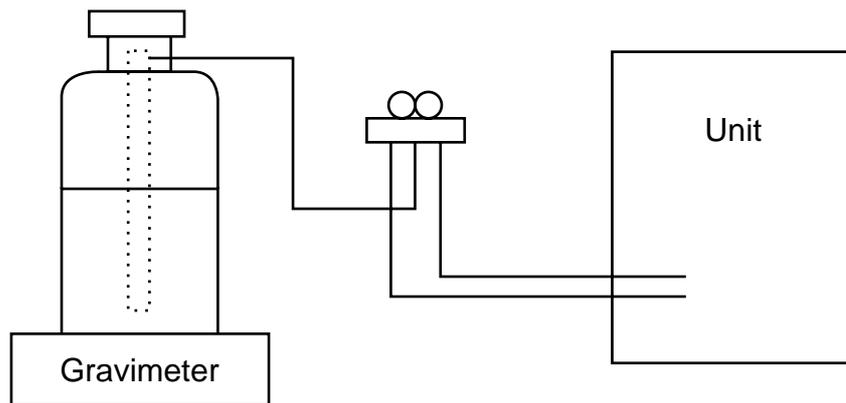
[1] Cautions for service

- (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

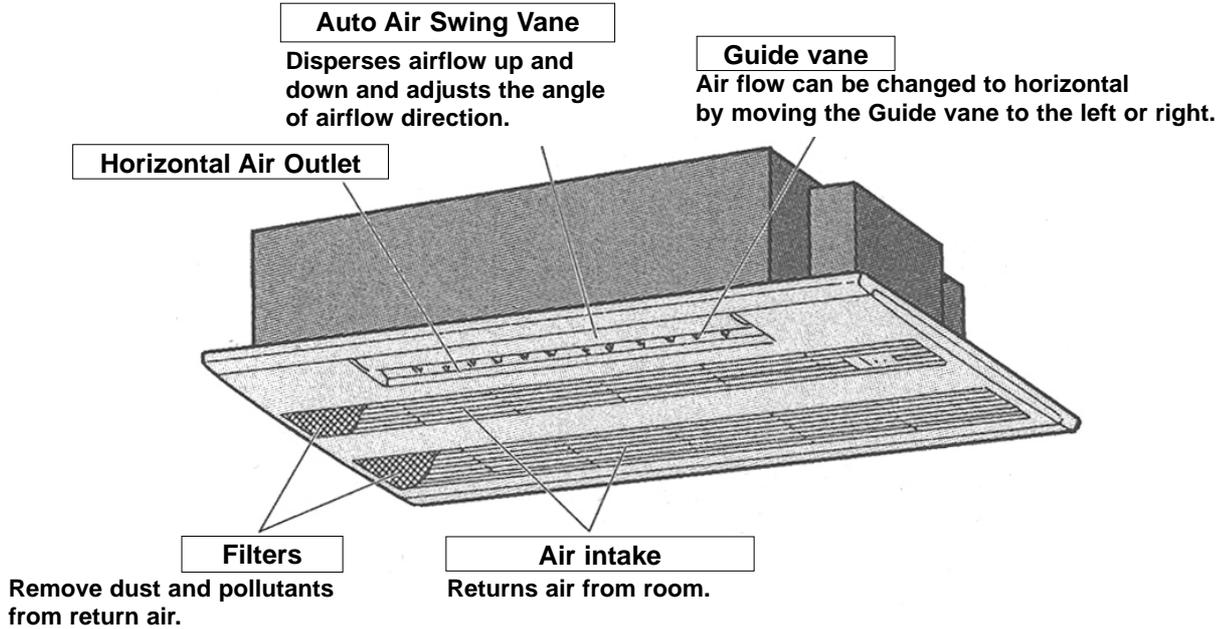
Use the below service tools as exclusive tools for R410A refrigerant.

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)
		·Cylinder with syphon
⑧	Refrigerant recovery equipment	—

3

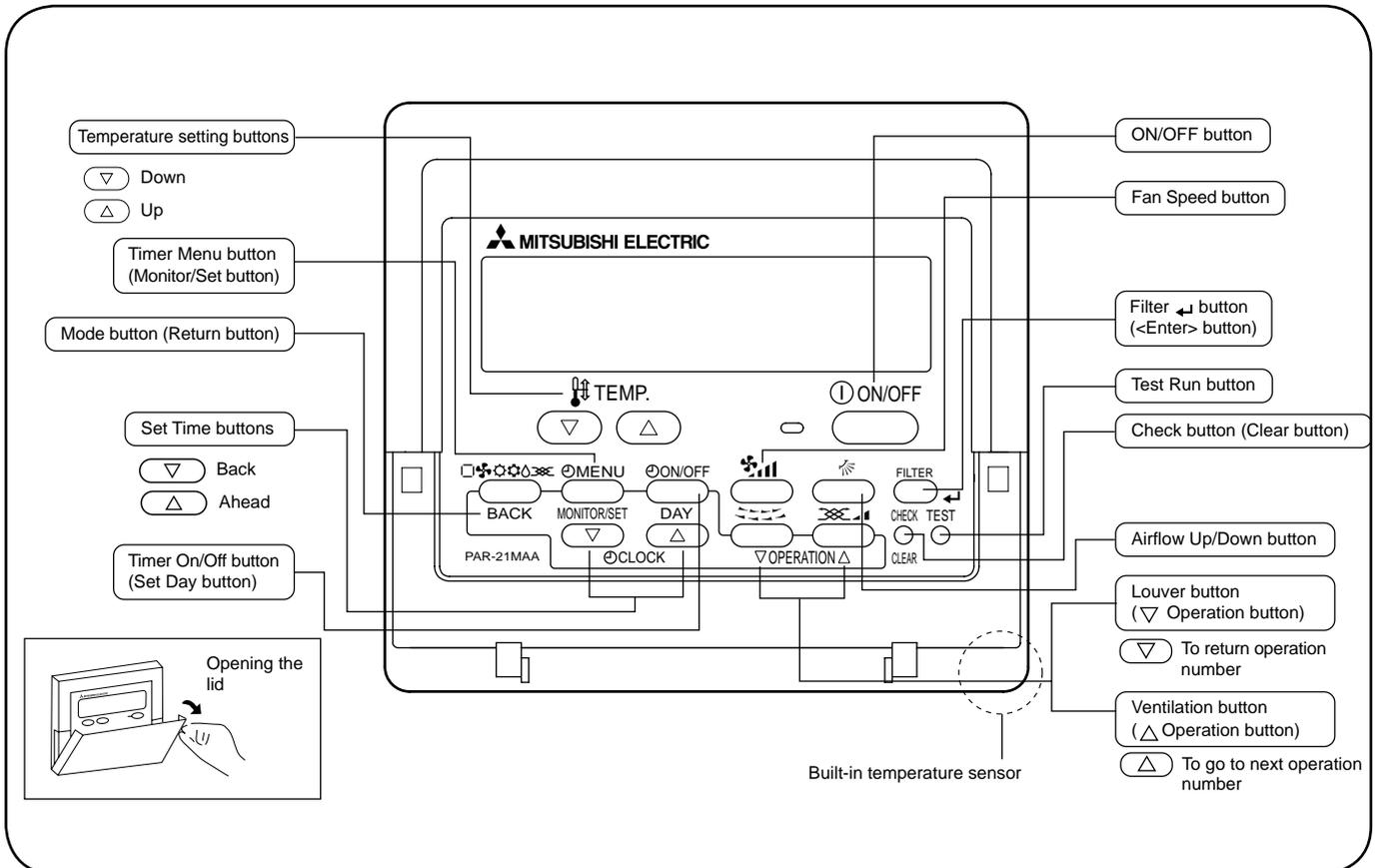
PART NAMES AND FUNCTIONS

● Indoor Unit



● Wired remote controller

Once the controllers are set, the same operation mode can be repeated by simply pressing the ON/OFF button.



● 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.

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.

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.

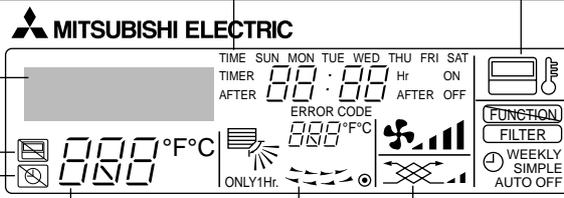
“Locked” indicator
Indicates that remote controller buttons have been locked.

“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.

Fan Speed indicator
Shows the selected fan speed.

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



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

Room Temperature display
Shows the room temperature. The room temperature display range is 8-39°C. The display blinks if the temperature is less than 8°C or 39°C or more.

“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 one hour, when the airflow direction also changes.

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

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

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.

4-1. SPECIFICATION

Item		PMFY-P20VBM-E PMFY-P20VBM-E ₁ PMFY-P20VBM-E#2	PMFY-P25VBM-E PMFY-P25VBM-E ₁ PMFY-P25VBM-E#2	PMFY-P32VBM-E PMFY-P32VBM-E ₁ PMFY-P32VBM-E#2	PMFY-P40VBM-E PMFY-P40VBM-E ₁ PMFY-P40VBM-E#2		
Power	V·Hz	Single phase 220V-230V-240V 50Hz / 220V 60Hz					
Cooling capacity	kW	2.2	2.8	3.6	4.5		
Heating capacity	kW	2.5	3.2	4.0	5.0		
Electric characteristic	Input	Cooling	kW	0.042	0.044	0.044	0.054
		Heating	kW	0.042	0.044	0.044	0.054
	Current	Cooling	A	0.20	0.21	0.21	0.26
		Heating	A	0.20	0.21	0.21	0.26
Exterior (munsell symbol)	—	Unit : Galvanized sheets · Standard grilles : ABS resin acrylic coating Munsell <0.98Y 8.99/0.63> (PMFY-P·VBM-E ₍₁₎) / <6.4Y 8.9/0.4> (PMFY-P·VBM-E#2)					
Dimensions	Height	mm	230<30>				
	Width	mm	812<1,000>				
	Depth	mm	395<470>				
Heat exchanger	—	Cross fin					
C a l l	Fan x No	—	Line flow fan x 1				
	Air flow ※3	m ³ /min	8.7-8.0-7.2-6.5	9.3-8.6-8.0-7.3	10.7-9.7-8.7-7.7		
	External static pressure	Pa	0				
	Fan motor output	kW	0.028				
Insulator	—	Polyethylene sheet					
Air filter	—	PP honey comb fabric					
Pipe dimensions	Gas side	φmm(in.)	12.7(1/2")				
	Liquid side	φmm(in.)	6.35(1/4")				
Field drain pipe size	φmm	O.D.26 (PVC pipe VP-20 connectable)					
Noise level ※3	dB	35-33-30-27	37-36-34-32	39-37-35-33			
Product weight	kg	14<3.0>					

Note 1. Rating conditions (JIS B 8615-1)

Cooling: Indoor: D.B. 27°C W.B. 19°C
outdoor: D.B. 35°C

Heating: Indoor: D.B. 20°C
outdoor: D.B. 7°C W.B. 6°C

Note 2. The number indicated in < > is for the grille.

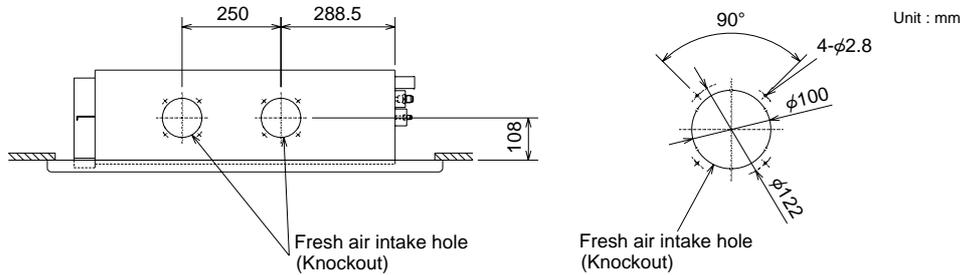
※ 3. Air flow and the noise level are indicated as High – Middium1 – Middium2 – Low.

4-2. ELECTRIC PARTS SPECIFICATIONS

Service ref. Parts name	Symbol	PMFY-P20VBM-E	PMFY-P25VBM-E	PMFY-P32VBM-E	PMFY-P40VBM-E
		PMFY-P20VBM-E ₁	PMFY-P25VBM-E ₁	PMFY-P32VBM-E ₁	PMFY-P40VBM-E ₁
		PMFY-P20VBM-E#2	PMFY-P25VBM-E#2	PMFY-P32VBM-E#2	PMFY-P40VBM-E#2
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Liquid pipe thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Gas pipe thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ			
Fuse (Indoor controller board)	FUSE	250V 6.3A			
Fan motor	MF	DC Brushless Motor 8-pole OUTPUT 28W PN0H28-MB			
Vane motor	MV	MSFJC 20M23 12V/380Ω			
Drain-up mechanism	DP	PJV-1046 220-240V 50/60Hz			
Drain sensor	DS	Thermistor resistance 0°C/6kΩ, 10°C/3.9kΩ, 20°C/2.6kΩ, 25°C/2.2kΩ, 30°C/1.8kΩ, 40°C/1.3kΩ			
Linear expansion valve	LEV	DC12V Stepping motor drive, Port dimension ϕ3.2 (0~2000pulse)			
Power supply terminal block	TB2	(L, N, ⊕) 330V 30A			
Transmission terminal block	TB5	(M1, M2, S) 250V 20A			
MA-remote controller terminal block	TB15	(1,2) 250V 10A			

4-3. AIR CAPACITY TAKEN FROM OUTSIDE

PMFY-P-VBM-A series enables to take fresh air from outside. When taking fresh air, the duct fan is used. The air capacity should be 20% or less of the air flow SPEC(Hi).



Service Ref.	Air flow (Hi)	Air capacity from outside
PMFY-P20VBM-E PMFY-P20VBM-E ₁ PMFY-P20VBM-E#2	8.7m ³ /min	Max 1.74m ³ /min
PMFY-P25VBM-E PMFY-P25VBM-E ₁ PMFY-P25VBM-E#2	9.3m ³ /min	Max 1.86m ³ /min
PMFY-P32VBM-E PMFY-P32VBM-E ₁ PMFY-P32VBM-E#2	9.3m ³ /min	Max 1.86m ³ /min
PMFY-P40VBM-E PMFY-P40VBM-E ₁ PMFY-P40VBM-E#2	10.7m ³ /min	Max 2.14m ³ /min

Operation in conjunction with duct fan (Booster fan)

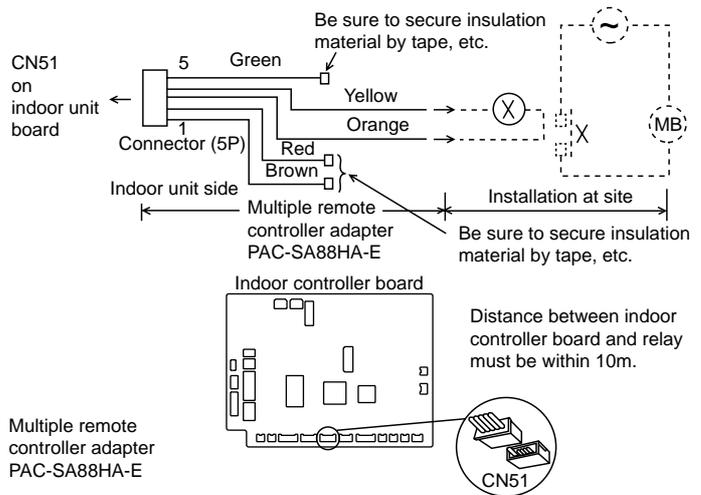
●Whenever the indoor unit is operating, the duct fan operates.

(1)Connect the optional multiple remote controller adapter(PAC-SA88HA-E) to the connector CN51 on the indoor controller board.

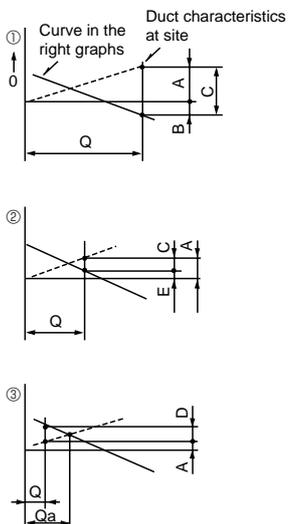
(2)Drive the relay after connecting the 12V DC relay between the Yellow and Orange connector lines.

(*)Use a relay of 1W or smaller.

MB: Electromagnetic switch power relay for duct fan.
X: Auxiliary relay (12V DC LY-1F)

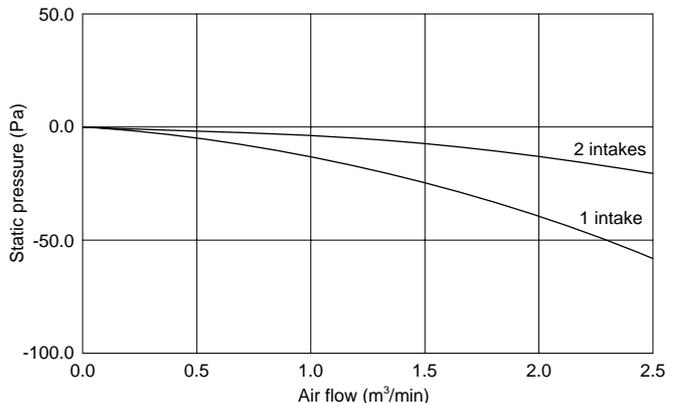


How to read curves



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

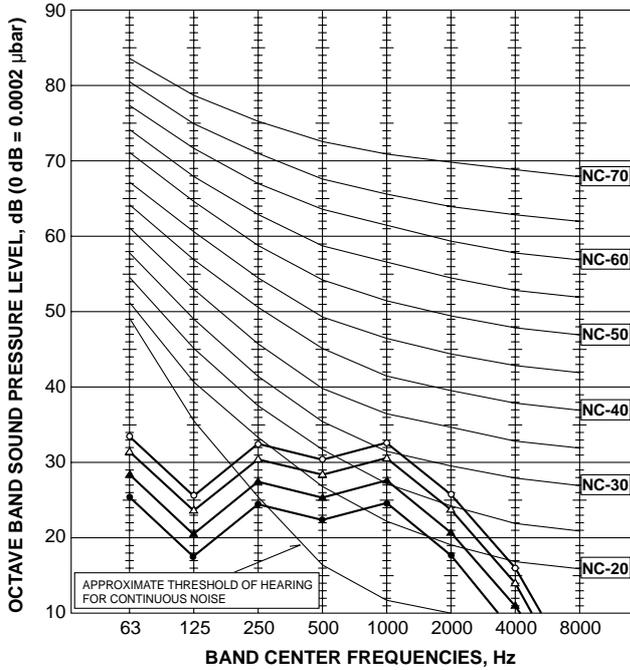
Characteristic diagram of fresh air taken capacity



4-4. NOISE CRITERION CURVES

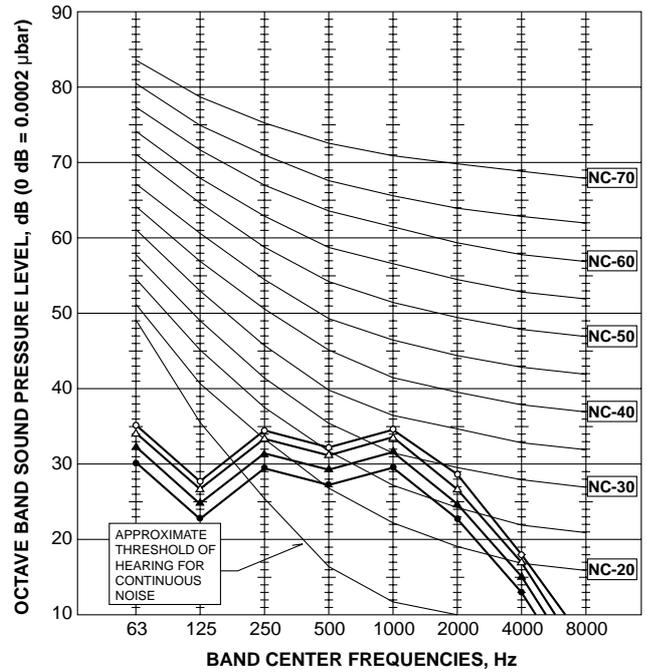
PMFY-P20VBM-E
PMFY-P20VBM-E₁
PMFY-P20VBM-E#2

NOTCH	SPL(dB)	LINE
High	35	○—○
Medium1	33	△—△
Medium2	30	▲—▲
Low	27	●—●



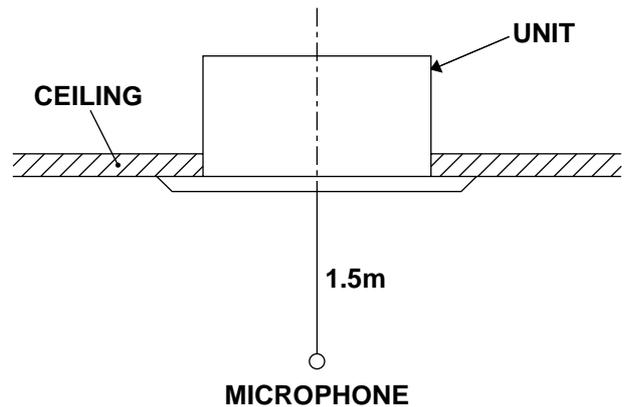
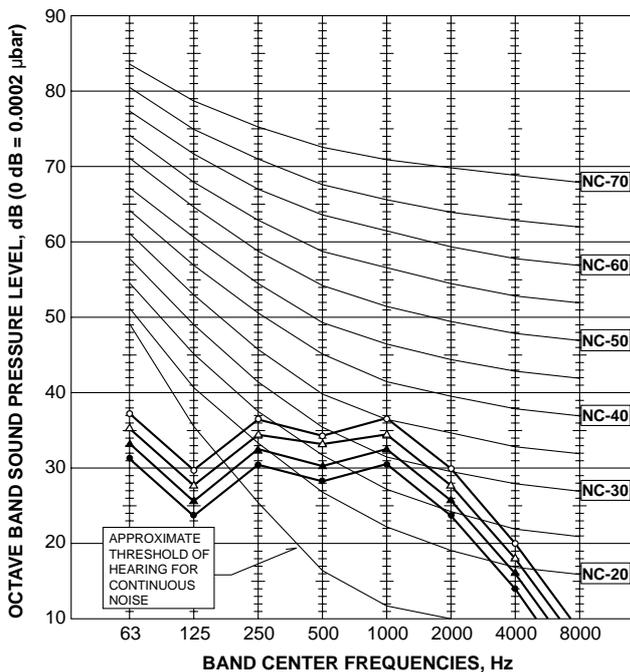
PMFY-P25VBM-E
PMFY-P32VBM-E
PMFY-P25VBM-E₁
PMFY-P32VBM-E₁
PMFY-P25VBM-E#2
PMFY-P32VBM-E#2

NOTCH	SPL(dB)	LINE
High	37	○—○
Medium1	36	△—△
Medium2	34	▲—▲
Low	32	●—●



PMFY-P40VBM-E
PMFY-P40VBM-E₁
PMFY-P40VBM-E#2

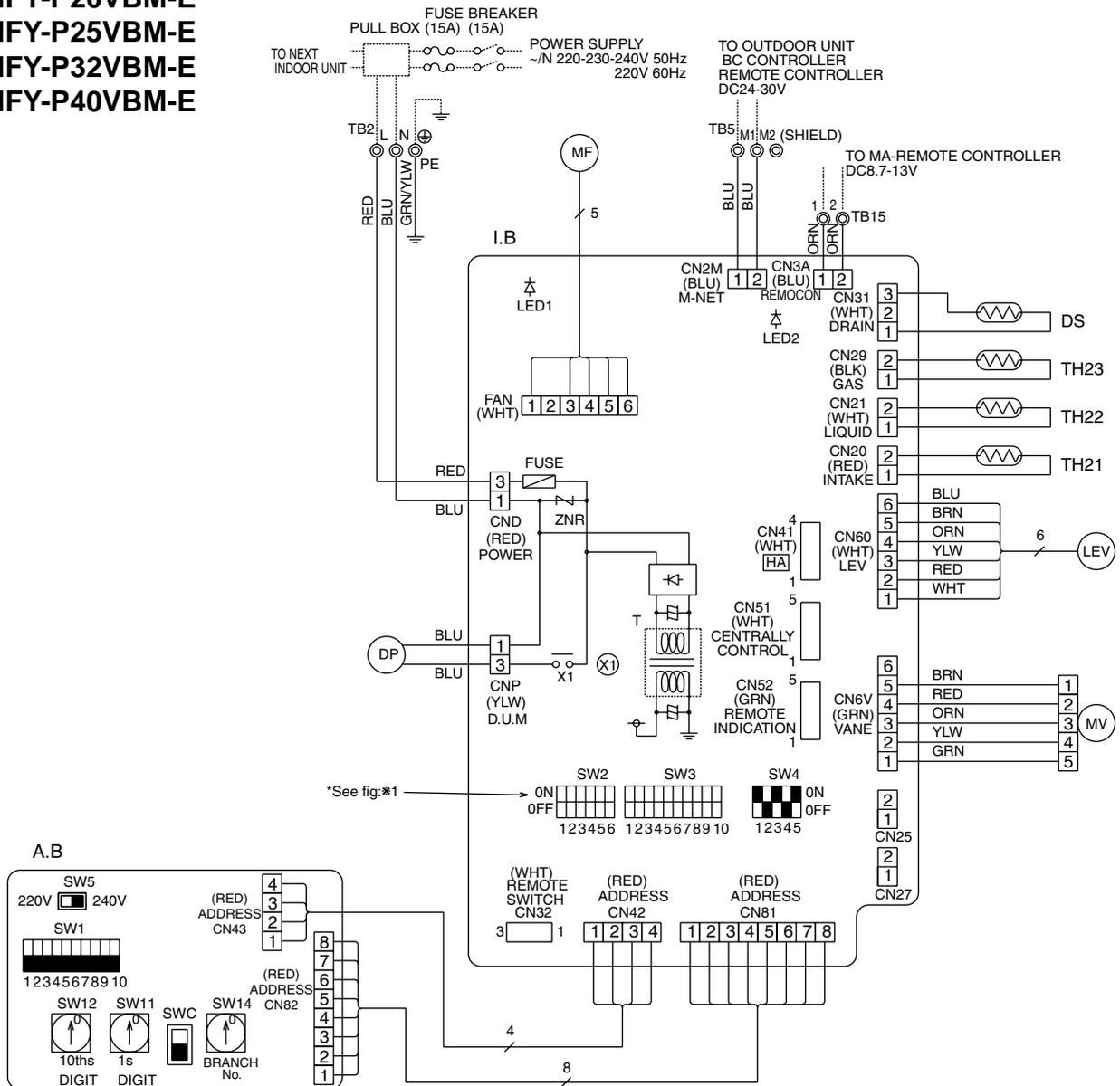
NOTCH	SPL(dB)	LINE
High	39	○—○
Medium1	37	△—△
Medium2	35	▲—▲
Low	33	●—●



6

WIRING DIAGRAM

PMFY-P20VBM-E
 PMFY-P25VBM-E
 PMFY-P32VBM-E
 PMFY-P40VBM-E



[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	MF	FAN MOTOR
CN25	CONNECTOR	MV	VANE MOTOR
CN27		DP	DRAIN WATER LIFTING-UP MACH.
CN32		DS	DRAIN SENSOR
CN41		TB2	TERMINAL POWER SUPPLY
CN51		TB5	TERMINAL TRANSMISSION
CN52		TB15	TERMINAL MA-REMOTE CONTROLLER
SW2	SWITCH	TH21	THERMISTOR ROOM TEMPERATURE DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
SW3		TH22	PIPE TEMPERATURE DETECTION/LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
SW4		TH23	PIPE TEMPERATURE DETECTION/GAS (0°C/15kΩ, 25°C/5.4kΩ)
ZNR	VARISTOR	LEV	LINEAR EXPANSION VALVE
FUSE	FUSE(6.3A/250V)		
X1	AUX.RELAY DRAIN PUMP		
T	TRANSFORMER		
LED1	POWER SUPPLY(I.B.)		
LED2	POWER SUPPLY(I.B.)		
A.B	CIRCUIT BOARD		
SW1	SWITCH		
SW5			
SW11			
SW12			
SW14			

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.

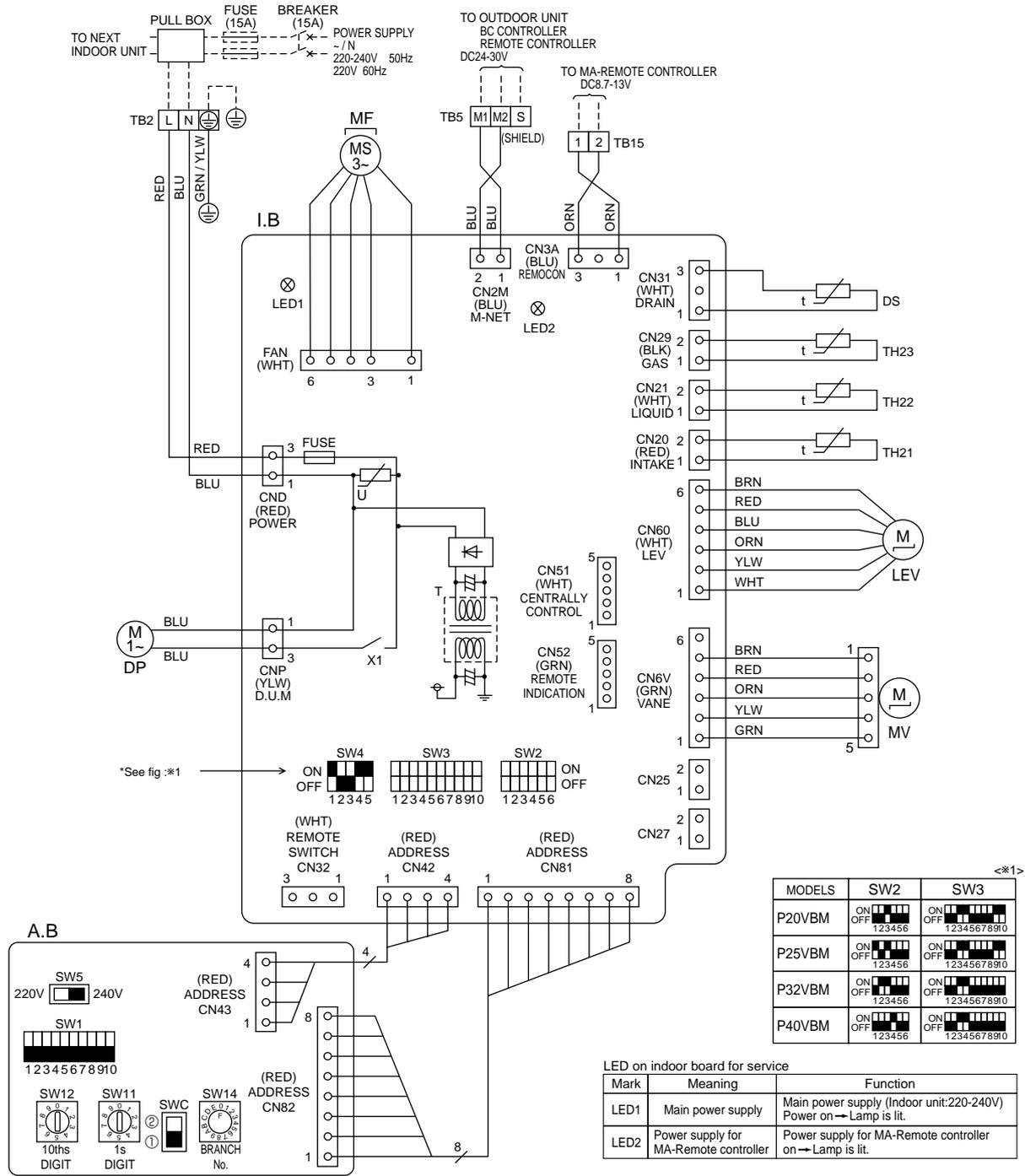
< *1 >

MODELS	SW2	SW3
P20VBM	ON OFF 123456	ON OFF 12345678910
P25VBM	ON OFF 123456	ON OFF 12345678910
P32VBM	ON OFF 123456	ON OFF 12345678910
P40VBM	ON OFF 123456	ON OFF 12345678910

NOTES:

- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission wire is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are, ⊙ : terminal block, □ : connector.
- The setting of the SW2 dip switches differs in the capacity. For the detail, refer to the table above.
- Please set the switch SW5 according to the power supply voltage. Set SW5 to 240V side when the power supply is 230 and 240 volts. When the power supply is 220 volts, set SW5 to 220V side.

PMFY-P20VBM-E₁ PMFY-P25VBM-E₁ PMFY-P32VBM-E₁ PMFY-P40VBM-E₁

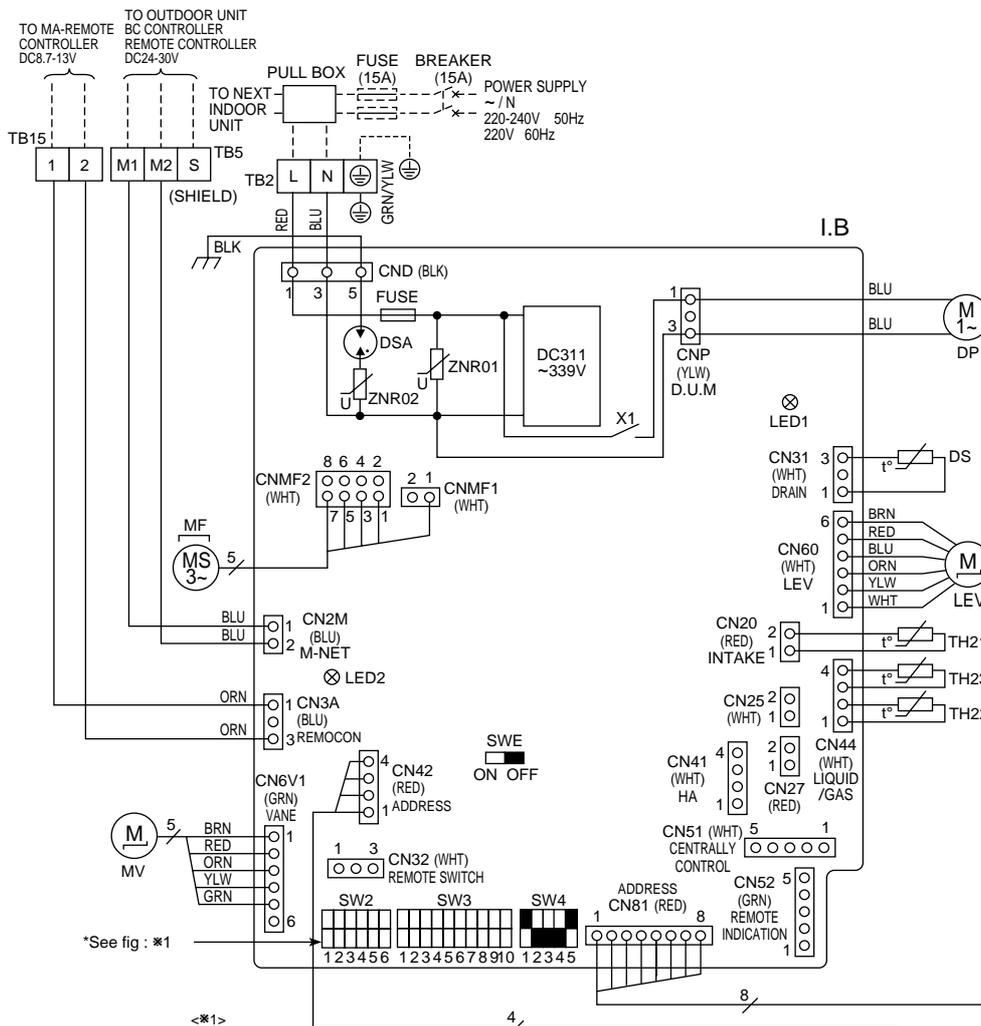


SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	TB2	TERMINAL BLOCK
CN25	CONNECTOR HUMIDIFIER	TB5	TERMINAL BLOCK
CN27	DAMPER	TB15	TERMINAL BLOCK
CN32	REMOTE SWITCH	TH21	THERMISTOR
CN51	CENTRALLY CONTROL		ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN52	REMOTE INDICATION	TH22	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
SW2	SWITCH CAPACITY CODE	TH23	PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
SW3	SWITCH MODE SELECTION	LEV	LINEAR EXPANSION VALVE
SW4	SWITCH MODEL SELECTOR	A.B	CIRCUIT BOARD
ZNR	VARIATOR	SW1	SWITCH MODE SELECTION
FUSE	FUSE (6.3A / 250V)	SW5	SWITCH VOLTAGE SELECTION
X1	AUX.RELAY DRAIN PUMP	SW11	SWITCH ADDRESS SETTING 1s DIGIT
T	TRANSFORMER	SW12	SWITCH ADDRESS SETTING 10ths DIGIT
LED1	POWER SUPPLY(I.B)	SW14	SWITCH BRANCH No.
LED2	POWER SUPPLY(I.B)		
MF	FAN MOTOR		
MV	VANE MOTOR		
DP	DRAIN WATER LIFTING-UP MACH.		
DS	DRAIN SENSOR		

NOTES:

- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission wire is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are, ⊙:terminal block, □:connector.
- The setting of the SW2 dip switches differs in the capacity. For the detail, refer to the table above.
- Please set the switch SW5 according to the power supply voltage. Set SW5 to 240V side when the power supply is 230 and 240 volts. When the power supply is 220 volts, set SW5 to 220V side.

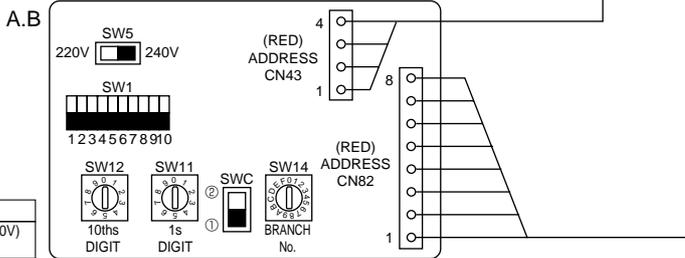
PMFY-P20VBM-E#2 PMFY-P25VBM-E#2 PMFY-P32VBM-E#2 PMFY-P40VBM-E#2



*See fig : #1

MODELS	SW2	SW3
P20VBM	ON OFF 123456	ON OFF 1234567890
P25VBM	ON OFF 123456	ON OFF 1234567890
P32VBM	ON OFF 123456	ON OFF 1234567890
P40VBM	ON OFF 123456	ON OFF 1234567890

<#1>



LED	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

LEGEND

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	DS	DRAIN SENSOR
CN25	CONNECTOR HUMIDIFIER	TB2	TERMINAL POWER SUPPLY
CN27	DAMPERS	TB5	BLOCK TRANSMISSION
CN32	REMOTE SWITCH	TB15	MA-REMOTE CONTROLLER
CN51	CENTRALLY CONTROL	TH21	THERMISTOR ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN52	REMOTE INDICATION	TH22	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
SW2	SWITCH CAPACITY CORD	TH23	PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
SW3	MODE SELECTION	SW1	SWITCH MODE SELECTION
SW4	MODEL SELECTOR	SW5	SWITCH VOLTAGE SELECTION
SWE	DRAIN-UP MACHINE (TEST MODE)	SW11	SWITCH ADDRESS SETTING 1s DIGIT
ZNR	VARIATOR	SW12	SWITCH ADDRESS SETTING 10ths DIGIT
FUSE	FUSE (T6.3AL 250V)	SW14	SWITCH BRANCH No.
X1	AUX.RELAY DRAIN PUMP		
LED1	POWER SUPPLY (I.B)		
LED2	POWER SUPPLY (I.B)		
MF	FAN MOTOR		
MV	VANE MOTOR		
DP	DRAIN-UP MACHINE		

NOTES:

- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram above are, □: terminal block, ○: connector.
- The setting of the SW2 dip switches differs in the capacity. For the detail, refer to the table below.
- Please set the switch SW5 according to the power supply voltage. Set SW5 to 240V side when the power supply is 230 and 240 volts. When the power supply is 220 volts, set SW5 to 220V side.

7

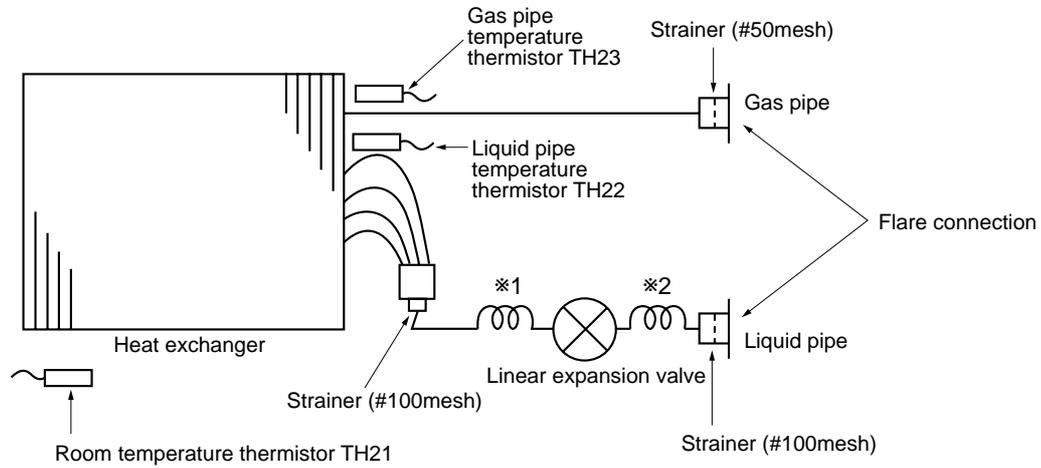
REFRIGERANT SYSTEM DIAGRAM

PMFY-P20VBM-E
PMFY-P20VBM-E₁
PMFY-P20VBM-E#2

PMFY-P25VBM-E
PMFY-P25VBM-E₁
PMFY-P25VBM-E#2

PMFY-P32VBM-E
PMFY-P32VBM-E₁
PMFY-P32VBM-E#2

PMFY-P40VBM-E
PMFY-P40VBM-E₁
PMFY-P40VBM-E#2



Unit:mm(inch)

Item	Service Ref.	Dimensions
	PMFY-P20, P25, P32, P40VBM-E PMFY-P20, P25, P32, P40VBM-E ₁ PMFY-P20, P25, P32, P40VBM-E#2	
Gas pipe		φ12.7(1/2")
Liquid pipe		φ6.35(1/4")

Unit:mm

	PMFY-P20, P25VBM-E PMFY-P20, P25VBM-E ₁ PMFY-P20, P25VBM-E#2	PMFY-P32, P40VBM-E PMFY-P32, P40VBM-E ₁ PMFY-P32, P40VBM-E#2
Capillary tube *1	O.D.φ4.6 × I.D.φ3.4 × ℓ 200	O.D.φ3.6 × I.D.φ2.4 × ℓ 200
Capillary tube *2	O.D.φ3.6 × I.D.φ2.4 × ℓ 80	

8

TROUBLE SHOOTING

8-1. HOW TO CHECK THE PARTS

PMFY-P20VBM-E

PMFY-P25VBM-E

PMFY-P32VBM-E

PMFY-P40VBM-E

PMFY-P20VBM-E₁

PMFY-P25VBM-E₁

PMFY-P32VBM-E₁

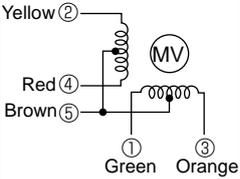
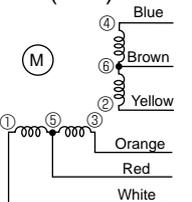
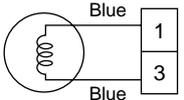
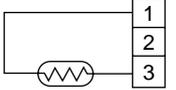
PMFY-P40VBM-E₁

PMFY-P20VBM-E#2

PMFY-P25VBM-E#2

PMFY-P32VBM-E#2

PMFY-P40VBM-E#2

Parts name	Check points														
Room temperature thermistor (TH21) Liquid pipe temperature thermistor (TH22) Gas pipe temperature thermistor (TH23)	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 10°C ~30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>4.3kΩ~9.6kΩ</td> <td>Open or short</td> </tr> </tbody> </table> Refer to the next page for the details.	Normal	Abnormal	4.3kΩ~9.6kΩ	Open or short										
Normal	Abnormal														
4.3kΩ~9.6kΩ	Open or short														
Vane motor (MV) 	Measure the resistance between the terminals with a tester. (At the ambient temperature 20°C ~30°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>Brown — Yellow</td> <td rowspan="4">380Ω ±7%</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>Brown — Red</td> </tr> <tr> <td>Brown — Orange</td> </tr> <tr> <td>Brown — Green</td> </tr> </tbody> </table>	Connector	Normal	Abnormal	Brown — Yellow	380Ω ±7%	Open or short	Brown — Red	Brown — Orange	Brown — Green					
Connector	Normal	Abnormal													
Brown — Yellow	380Ω ±7%	Open or short													
Brown — Red															
Brown — Orange															
Brown — Green															
Linear expansion valve(LEV) 	Disconnect the connector then measure the resistance valve with a tester. Refer to the next page for a detail. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="4">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>(1)-(5) White-Red</td> <td>(2)-(6) Yellow-Brown</td> <td>(3)-(5) Orange-Red</td> <td>(4)-(6) Blue-Brown</td> <td rowspan="2">Open or short</td> </tr> <tr> <td colspan="4" style="text-align: center;">150kΩ ±10%</td> </tr> </tbody> </table> Refer to the next page for the details.	Normal				Abnormal	(1)-(5) White-Red	(2)-(6) Yellow-Brown	(3)-(5) Orange-Red	(4)-(6) Blue-Brown	Open or short	150kΩ ±10%			
Normal				Abnormal											
(1)-(5) White-Red	(2)-(6) Yellow-Brown	(3)-(5) Orange-Red	(4)-(6) Blue-Brown	Open or short											
150kΩ ±10%															
Drain-up mechanism (DP) 	Measure the resistance between the terminals with a tester. (At the ambient temperature 20°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>400Ω~480Ω</td> <td>Open or short</td> </tr> </tbody> </table>	Normal	Abnormal	400Ω~480Ω	Open or short										
Normal	Abnormal														
400Ω~480Ω	Open or short														
Drain sensor (DS) 	Measure the resistance after 3 minutes have passed since the power supply was intercepted. (At the ambient temperature 0°C ~60°C) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>0.6kΩ~6.0kΩ</td> <td>Open or short</td> </tr> </tbody> </table> Refer to the next page for the details.	Normal	Abnormal	0.6kΩ~6.0kΩ	Open or short										
Normal	Abnormal														
0.6kΩ~6.0kΩ	Open or short														

<Thermistor Characteristic graph>

Thermistor for lower temperature

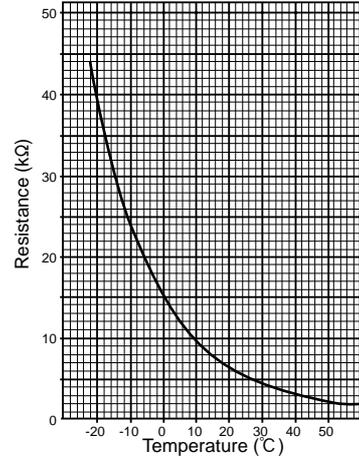
Room temperature thermistor (TH21)
Liquid pipe temperature thermistor (TH22)
Gas pipe temperature thermistor (TH23)

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

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

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

< Thermistor for lower temperature >



Thermistor for lower temperature

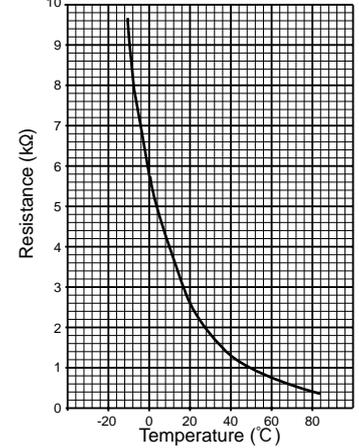
Drain sensor (DS)

Thermistor $R_0=6.0k\Omega \pm 3\%$
Fixed number of $B=3390 \pm 2\%$

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

0°C : 6 kΩ
10°C : 3.9kΩ
20°C : 2.6kΩ
25°C : 2.2kΩ
30°C : 1.8kΩ
40°C : 1.3kΩ

< Thermistor for drain sensor >

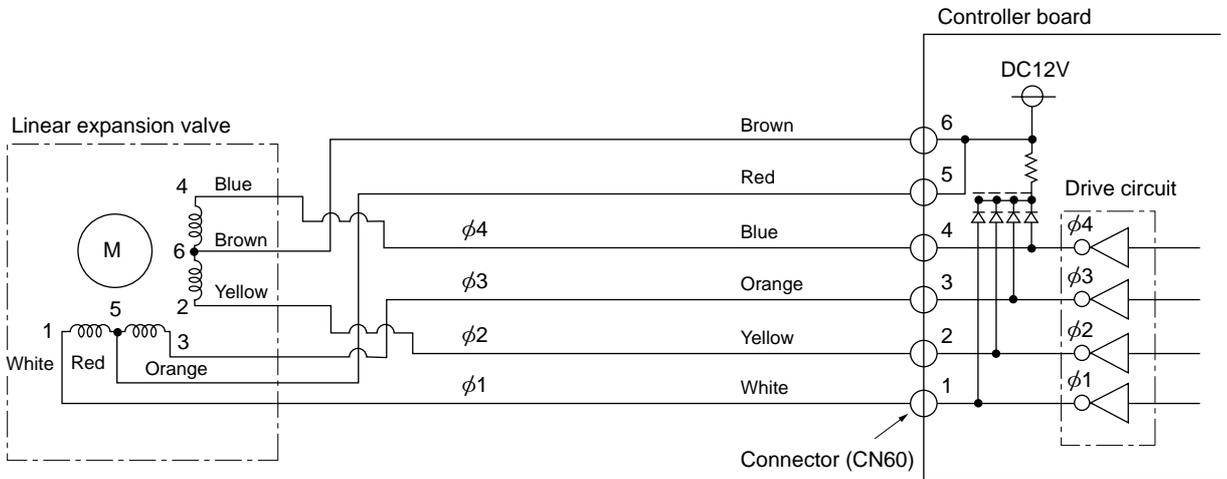


Linear expansion valve

① Operation summary of the linear expansion valve

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

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



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

<Output pulse signal and the valve operation>

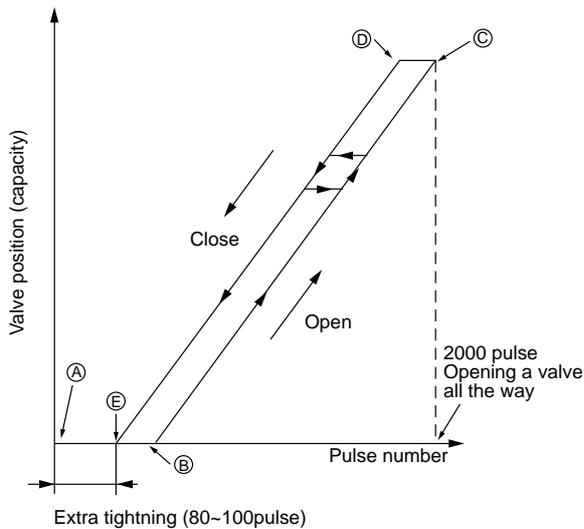
Output (Phase)	Output			
	1	2	3	4
$\phi 1$	ON	OFF	OFF	ON
$\phi 2$	ON	ON	OFF	OFF
$\phi 3$	OFF	ON	ON	OFF
$\phi 4$	OFF	OFF	ON	ON

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

The output pulse shifts in above order.

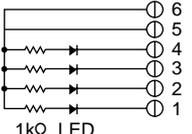
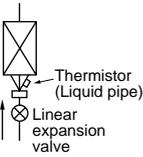
- When linear expansion valve operation stops, all output phase become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.

② Linear expansion valve operation



- When the switch is turned on, 2200 pulse closing valve signal will be send till it goes to ㉔ point in order to define the valve position.
- When the valve move smoothly, there is no sound or vibration occurring from the linear expansion valve : however, when the pulse number moves from ㉔ to ㉔ or when the valve is locked, more sound can be heard than normal situation.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

③ Trouble shooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor	Disconnect the connector on the controller board, then connect LED for checking.  Pulse signal will be sent out for 10 seconds as soon as the main switch is turned on. If there is LED with lights on or lights off, it means the operation circuit is abnormal.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make ticking noise when 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 the each coil (red-white, red-orange, brown-yellow, brown-blue) with a tester. It is normal if the resistance is in the range of	Exchange the linear expansion valve.
Valve doesn't close completely (thermistor leaking).	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 are some 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 making any trouble.	If large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

8-2. TROUBLE SHOOTING

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

① Notes

- High voltage is applied to the connector (FAN)(CNMF1, 2) for the fan motor. Give attention to the service.
- Do not pull out the connector (FAN)(CNMF1, 2) for the motor with the power supply on, doing so may result in damage to the board.

② Self check

Conditions : The indoor fan does not rotate.

Turn OFF the power supply.
Wiring contact check
Contact of fan motor connector (FAN) (CNMF1, 2)
Contact of power supply cable.



Was contact good? No → Correct wiring connection.



Fan motor check
Measure the resistance between the fan motor connector
FAN①(+) and ③(-)
CNMF1①(+) and CNMF2①(-)
(With the connector pulled out from the board)



Is the resistance 1MΩ or more? No → Replace the fan motor.



Turn ON the power supply.
Power supply check
Check the voltage of the indoor controller board with the connector (FAN) (CNMF1, 2) connected to the board.
Approx. 294~325V DC between the connector < (FAN) ①(+) and ③(-) > < (CNMF1)①(+) and (CNMF2)①(-) >



Is the voltage normal? No → Indoor controller board fuse check
Turn off the power supply and check if there is any broken wire by using a tester.



Is the fuse normal? No → Replace the fuse.



Replace the indoor controller board.



Fan motor position sensor signal check
Rotate the fan motor more than one turn slowly and check the voltage between the connector
< (FAN) ⑥(+) and ③(-) > < CNMF2⑦(+) and ①(-) > with the connector (FAN) (CNMF1, 2) connected to the board.



Does the voltage repeat 0V DC and 15V DC ? No → Replace the fan motor.



Replace the indoor controller board.

8-3. FUNCTION OF DIP SWITCH

PMFY-P20VBM-E
PMFY-P20VBM-E₁
PMFY-P20VBM-E#2

PMFY-P25VBM-E
PMFY-P25VBM-E₁
PMFY-P25VBM-E#2

PMFY-P32VBM-E
PMFY-P32VBM-E₁
PMFY-P32VBM-E#2

PMFY-P40VBM-E
PMFY-P40VBM-E₁
PMFY-P40VBM-E#2

Switch	Pole	Function	Operation by switch		Effective timing	Remarks																																														
			ON	OFF																																																
SW1 Mode Selection	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	<div style="border: 1px solid black; padding: 2px;">Address board</div> <p><Initial setting></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>ON</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>OFF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table> <p>※</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>SW 1-7</td><td>SW 1-8</td><td>SW 1-8</td> </tr> <tr> <td>OFF</td><td>OFF</td><td>Extra low</td> </tr> <tr> <td>ON</td><td>OFF</td><td>Low</td> </tr> <tr> <td>OFF</td><td>ON</td><td>Setting air flow</td> </tr> <tr> <td>ON</td><td>ON</td><td>stop</td> </tr> </table>	ON										OFF											1	2	3	4	5	6	7	8	9	10	SW 1-7	SW 1-8	SW 1-8	OFF	OFF	Extra low	ON	OFF	Low	OFF	ON	Setting air flow	ON	ON	stop
	ON																																																			
	OFF																																																			
		1	2	3			4	5	6	7	8	9	10																																							
	SW 1-7	SW 1-8	SW 1-8																																																	
	OFF	OFF	Extra low																																																	
	ON	OFF	Low																																																	
	OFF	ON	Setting air flow																																																	
	ON	ON	stop																																																	
	2	Filter clogging detection	Provided	Not provided																																																
3	Filter cleaning sign	2,500h	100h																																																	
4	Fresh air intake	Effective	Not effective																																																	
5	Switching remote display	Thermo ON signal indication	Fan output indication																																																	
6	Humidifier control	Fan operation at Heating mode	Thermo On operation at heating mode																																																	
7	Air flow at	Low ※	Extra low ※																																																	
8	Heat thermo OFF	Setting air flow	Depends on SW1-7																																																	
9	Auto restart function	Effective	Not effective																																																	
10	Power source ON/OFF	Effective	Not effective																																																	
SW2 Capacity code setting	1~6	<table border="1" style="width: 100%; text-align: center;"> <tr> <th>Capacity</th> <th>SW 2</th> <th>Capacity</th> <th>SW 2</th> </tr> <tr> <td>P20</td> <td>ON OFF </td> <td>P32</td> <td>ON OFF </td> </tr> <tr> <td>P25</td> <td>ON OFF </td> <td>P40</td> <td>ON OFF </td> </tr> </table>	Capacity	SW 2	Capacity	SW 2	P20	ON OFF	P32	ON OFF	P25	ON OFF	P40	ON OFF		Before power supply ON	<div style="border: 1px solid black; padding: 2px;">Indoor controller board</div> <p><Initial setting></p> <p>Set for each capacity.</p>																																			
Capacity	SW 2	Capacity	SW 2																																																	
P20	ON OFF	P32	ON OFF																																																	
P25	ON OFF	P40	ON OFF																																																	
SW3 Function Selection	1	Heat pump / Cool only	Cooling only	Heat pump	Under suspension	<div style="border: 1px solid black; padding: 2px;">Indoor controller board</div> <p>Set while the unit is off.</p> <p><Initial setting></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>ON</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>OFF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table> <p>※4 At cooling mode, each angle can be used only 1 hour.</p> <p>※5 SW 3-9 setting P20, P25 = ON P32, P40 = OFF</p> <p>SW 3-10 setting P20, P25 = ON P32, P40 = OFF</p> <p>Please do not use SW3-9, 10 as trouble might be caused by the usage condition.</p> <p>※6 Second setting means first setting.</p>	ON										OFF											1	2	3	4	5	6	7	8	9	10															
	ON																																																			
	OFF																																																			
		1	2	3			4	5	6	7	8	9	10																																							
	2	Louver	Available	Not available																																																
	3	Vane	Available	Not available																																																
	4	Vane swing function	Available	Not available																																																
	5	Vane horizontal angle	Second setting ※6	First setting																																																
	6	Vane cooling limit angle setting ※4	Horizontal angle	Down B, C																																																
	7	Indoor linear expansion valve opening change	Effective	Not effective																																																
8	Heating 4deg. up	Not effective	Effective																																																	
9	Target superheat setting ※5	—	—																																																	
10	Target sub cool setting ※5	—	—																																																	
SW4 Unit Selection	1~5	<table style="width: 100%;"> <tr> <td style="text-align: center;"> PMFY-P.VBM-E ON OFF 1 2 3 4 5 </td> <td style="text-align: center;"> PMFY-P.VBM-E₁ ON OFF 1 2 3 4 5 </td> <td style="text-align: center;"> PMFY-P.VBM-E#2 ON OFF 1 2 3 4 5 </td> </tr> </table>	PMFY-P.VBM-E ON OFF 1 2 3 4 5	PMFY-P.VBM-E ₁ ON OFF 1 2 3 4 5	PMFY-P.VBM-E#2 ON OFF 1 2 3 4 5		Before power supply ON	<div style="border: 1px solid black; padding: 2px;">Indoor controller board</div>																																												
PMFY-P.VBM-E ON OFF 1 2 3 4 5	PMFY-P.VBM-E ₁ ON OFF 1 2 3 4 5	PMFY-P.VBM-E#2 ON OFF 1 2 3 4 5																																																		

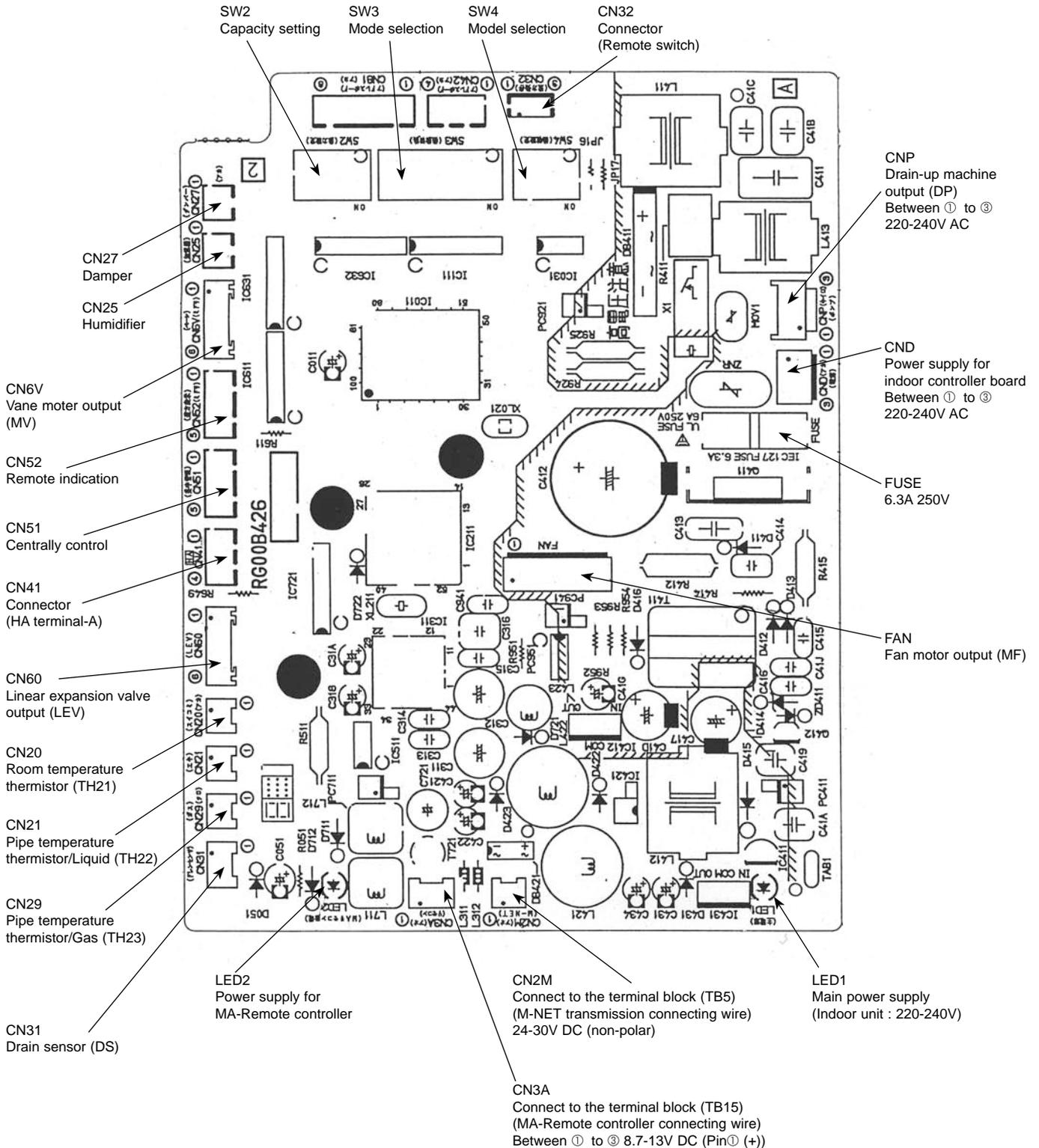


Switch	Pole	Operation by switch	Effective timing	Remarks
SW11 1s digit address setting SW12 10ths digit address setting	Rotary switch	<p>How to set addresses Example : If address is "3", remain SW12 (for over 10) at "0", and match SW11 (for 1 to 9) with "3".</p>	Before power supply ON	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Address board</div> <Initial setting>
SW14 Branch No. setting	Rotary switch	<p>How to set branch numbers SW14 (Series R2 only) Match the indoor unit's refrigerant pipe with the BC controller's end connection number. Remain other than series R2 at "0".</p>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">Address board</div> <Initial setting>
SW5 Voltage Selection	2	<p>If the unit is used at the 230V or 240V area, set the voltage to 240V. If the unit is used at the 220V, set the voltage to 220V.</p>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">Address board</div> <Initial setting>

8-4. TEST POINT DIAGRAM

8-4-1. Indoor controller board

PMFY-P20VBM-E PMFY-P20VBM-E1
 PMFY-P25VBM-E PMFY-P25VBM-E1
 PMFY-P32VBM-E PMFY-P32VBM-E1
 PMFY-P40VBM-E PMFY-P40VBM-E1

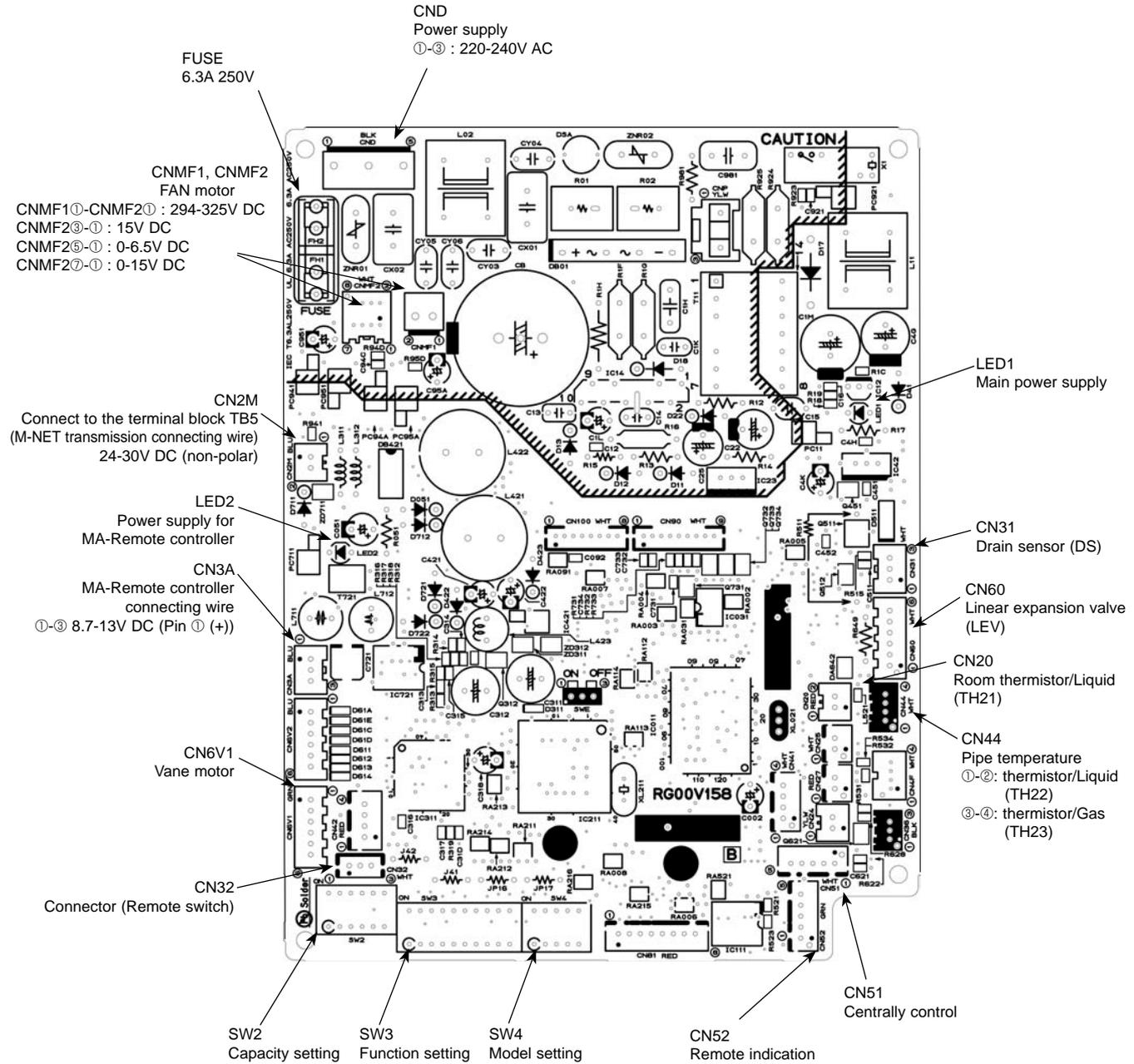


**Indoor controller board
PMFY-P20VBM-E#2**

PMFY-P25VBM-E#2

PMFY-P32VBM-E#2

PMFY-P40VBM-E#2



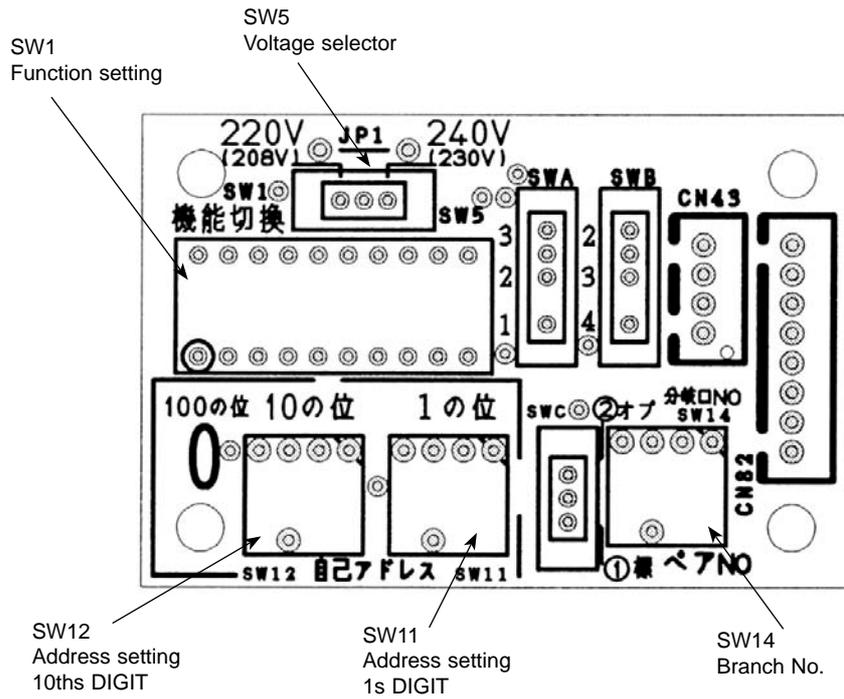
8-4-2. Address board

PMFY-P20VBM-E
 PMFY-P20VBM-E₁
 PMFY-P20VBM-E#2

PMFY-P25VBM-E
 PMFY-P25VBM-E₁
 PMFY-P25VBM-E#2

PMFY-P32VBM-E
 PMFY-P32VBM-E₁
 PMFY-P32VBM-E#2

PMFY-P40VBM-E
 PMFY-P40VBM-E₁
 PMFY-P40VBM-E#2



PMFY-P20VBM-E
PMFY-P20VBM-E₁
PMFY-P20VBM-E#2

PMFY-P25VBM-E
PMFY-P25VBM-E₁
PMFY-P25VBM-E#2

PMFY-P32VBM-E
PMFY-P32VBM-E₁
PMFY-P32VBM-E#2

PMFY-P40VBM-E
PMFY-P40VBM-E₁
PMFY-P40VBM-E#2

Be careful about removing heavy parts.

OPERATING PROCEDURE

1. Removing the intake grille

Opening the air intake grille

- (1) Press the **PUSH** of the air intake grille.(See Figure 1)
- (2) Put your figure on the both ends of nut of the air intake grille and put it down after the grille clicked.

Removing the air intake grille

- (1) Press the **PUSH** of air intake grille, and pull down the both ends of nut with your fingers after the grille clicked. (See Figure 1)
- (2) Pull out the handle of air intake grille strongly toward you. (See Figure 2)
- (3) Draw the string of air intake grille to prevent the grille from dropping.(See Figure 3)

PHOTOS&ILLUSTRATIONS

Photo 1

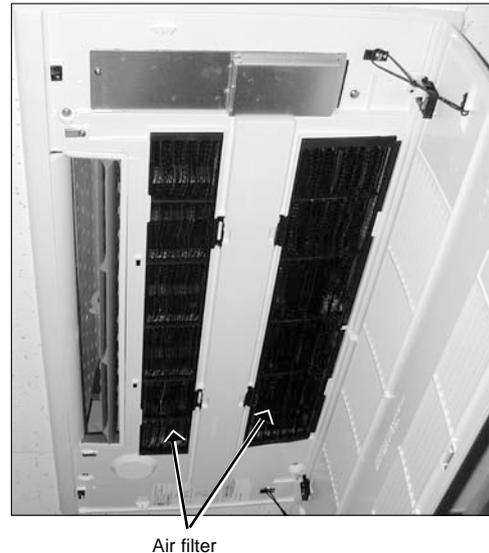


Figure 1

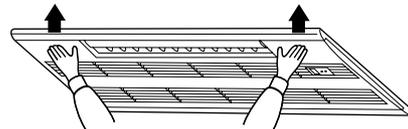


Figure 2

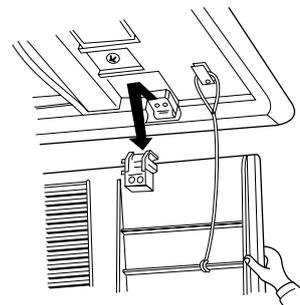
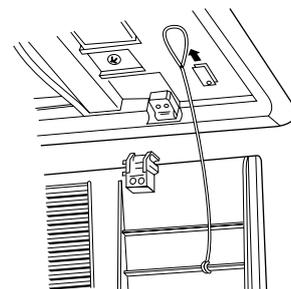


Figure 3

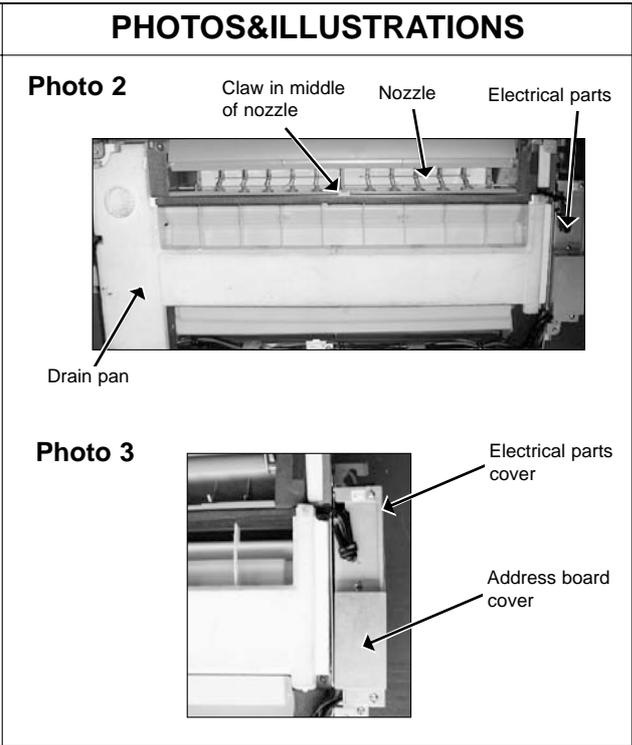




OPERATING PROCEDURE

2. Removing the electrical parts box

- (1) Remove the panel.
- (2) Remove the address board cover.
- (3) Remove the electrical parts cover.
- (4) Disconnect the connectors of fan motor, vane motor, drain pump, room temperature thermistor, pipe temperature thermistor (Liquid, Gas), and drain sensor on the electrical controller board.
- (5) Disconnect the lead wire and earth wire from terminal block.
- (6) Remove the electrical parts box.

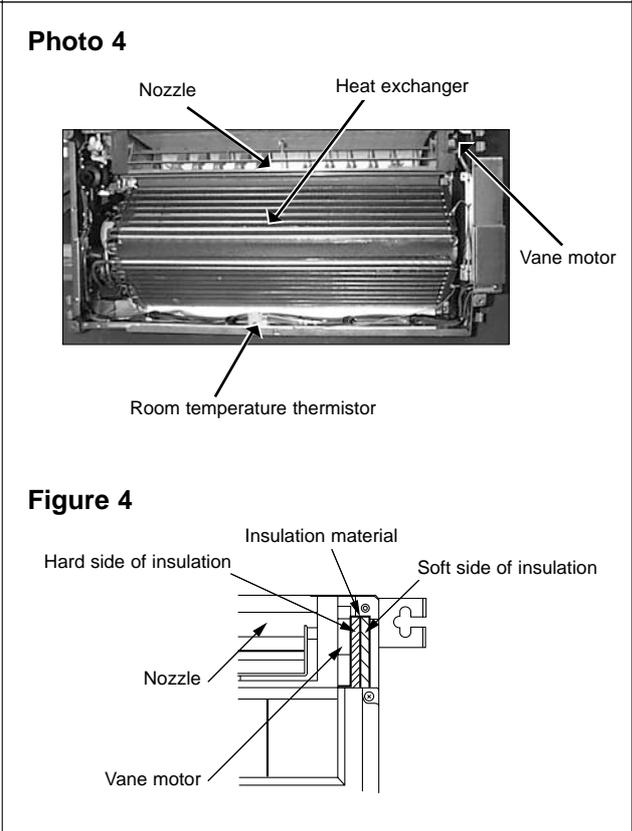


3. Removing the nozzle

Note when the nozzle is removed

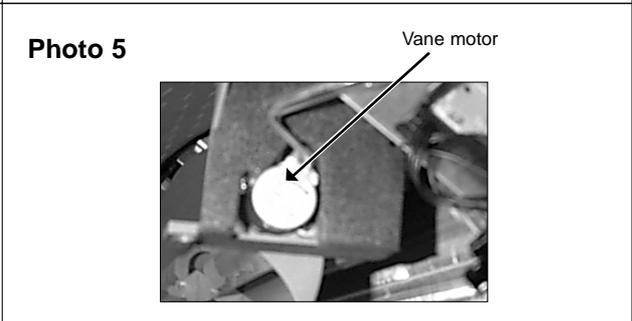
- The white insulation material which prevents water drop is mounted to the side of vane motor. Remove the insulation material before removing nozzle. (See Figure 4)
- After completing the service, re-mount the insulation material as before as shown in right figure.
- After service, mount the double layer insulation without fail. The hard material side should be faced to the nozzle. (See Figure 4)

- (1) Remove the panel.
- (2) Remove the room temperature thermistor.
- (3) Unhook the claws in the middle of nozzle and remove the drain pan. (5 screws) (See Photo 2)
- (4) Remove the nozzle side of the heat exchanger.(2 screws)
- (5) Remove the address board cover.
- (6) Remove the electrical parts cover.
- (7) Disconnect the connector of vane motor.
- (8) Remove the insulation material (white) on the right side of nozzle.
- (9) Remove the nozzle. (6 screws)



4. Removing the vane motor

- (1) Remove the nozzle. Refer to above-mentioned 3. Removing the nozzle.
- (2) Remove the vane motor.

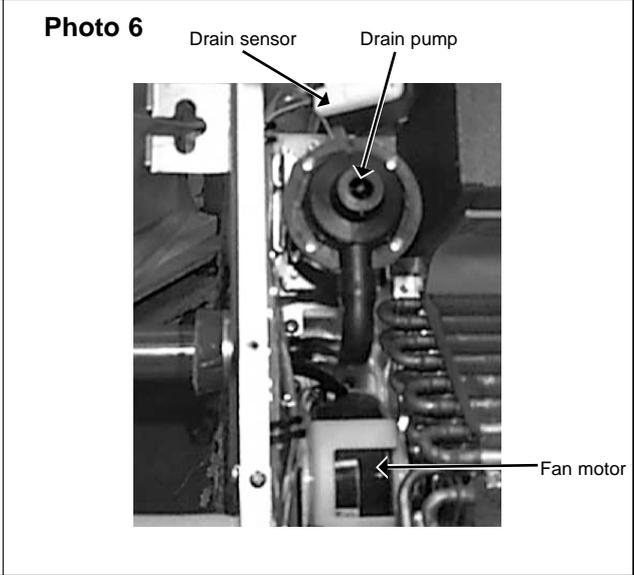




OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
---------------------	----------------------

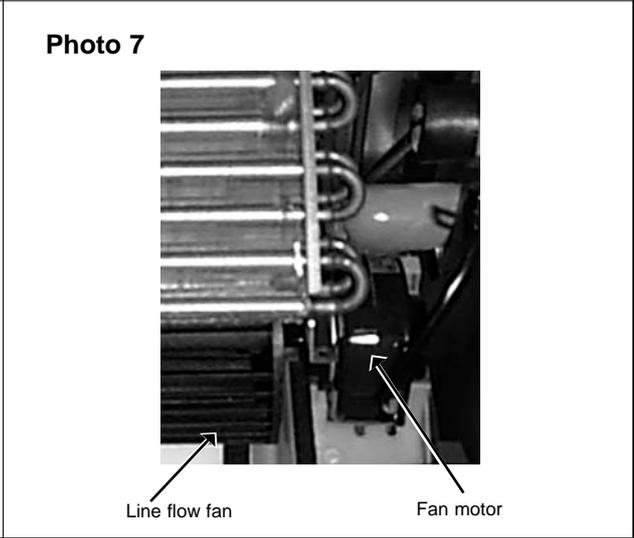
5. Removing the drain pump

- (1) Remove the panel.
- (2) Unhook the claw in the middle of nozzle and remove the drain pan.
- (3) Remove the address board cover.
- (4) Remove the electrical parts cover.
- (5) Disconnect the connector of drain pump.
- (6) Remove the drain hose.
- (7) Remove the drain pump.(2 screws)



6. Removing the fan motor and line flow fan

- (1) Remove the panel.
- (2) Unhook the claw in the middle of nozzle and remove the drain pan.
- (3) Unscrew 2 screws at the nozzle side of the heat exchanger.
- (4) Remove the address board cover.
- (5) Remove the electrical parts cover.
- (6) Disconnect the connector of vane motor, fan motor and drain pump.
- (7) Remove the nozzle side of the heat exchanger.(2 screws)
- (8) Remove the nozzle.
- (9) Remove the drain pump.
- (10) Unscrew 2 screws in the motor support.
- (11) Remove the fan motor and line flow fan (The fan motor and line flow fan can be removed without removing the heat exchanger.)



7. Removing the thermistor<Intake temperature detector>

- (1) Remove the panel.
- (2) Remove the address board cover.
- (3) Remove the electrical parts cover.
- (4) Remove the thermistor <intake temperature detector>.
- (5) Disconnect the lead wire from the cord clamp (5 points).
- (6) Disconnect the connector (CN20) on the indoor controller board.

**8. Removing the thermistor<Liquid pipe temperature detector>
<Gas pipe temperature detector>**

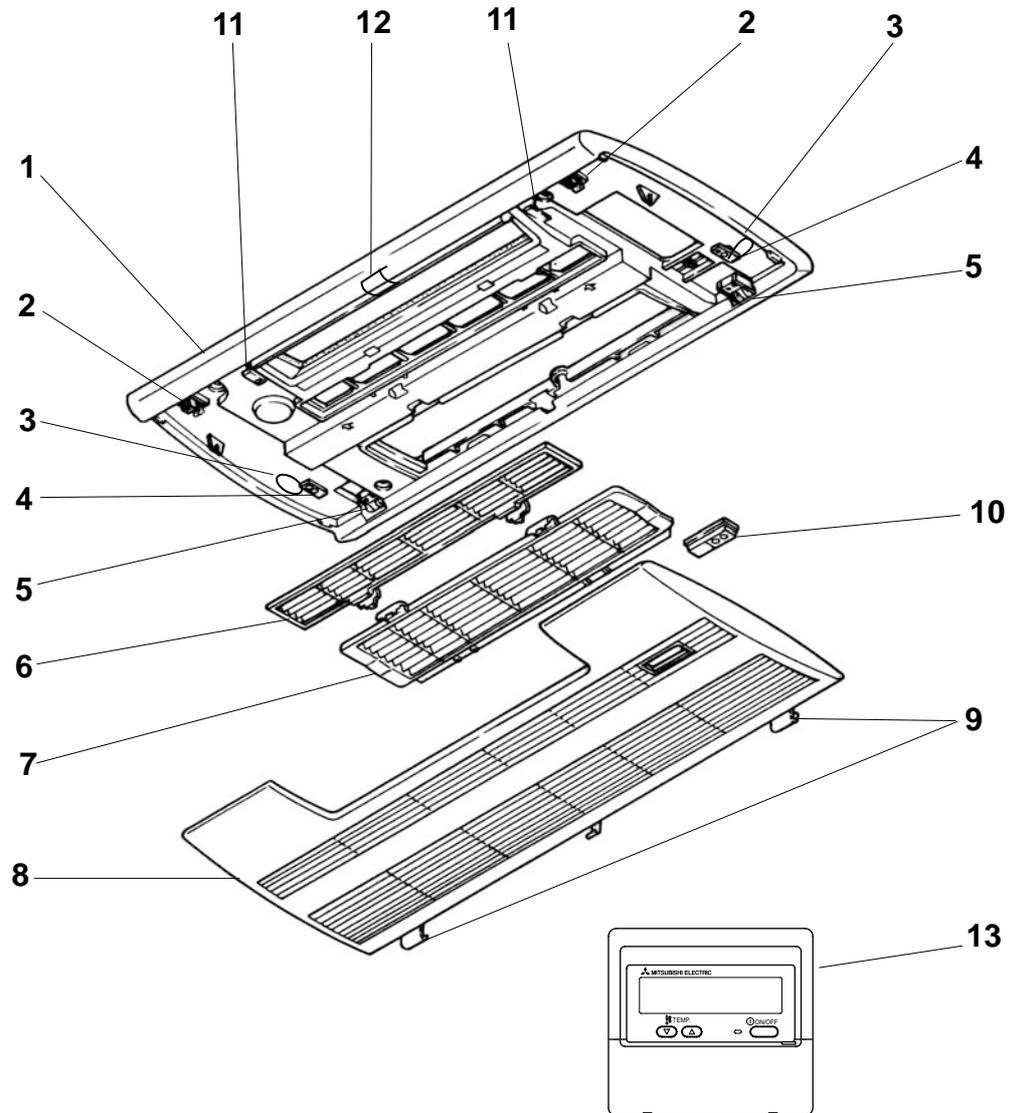
- (1) Remove the panel.
- (2) Remove the address board cover.
- (3) Remove the electrical parts cover.
- (4) Remove the drain pan.
- (5) Remove the thermistor <Gas pipe temperature detector> /<Liquid pipe temperature detector>.
- (6) Disconnect the lead wire from the cord clamp.
- (7) Disconnect the connector (CN21)/(CN29), (CN44) on the indoor controller board.

Connector (CN21) / Liquid (VBM₍₁₎)
 (CN29) / Gas (VBM₍₁₎)
 (CN44) / Liquid and Gas (VBM#2)

10

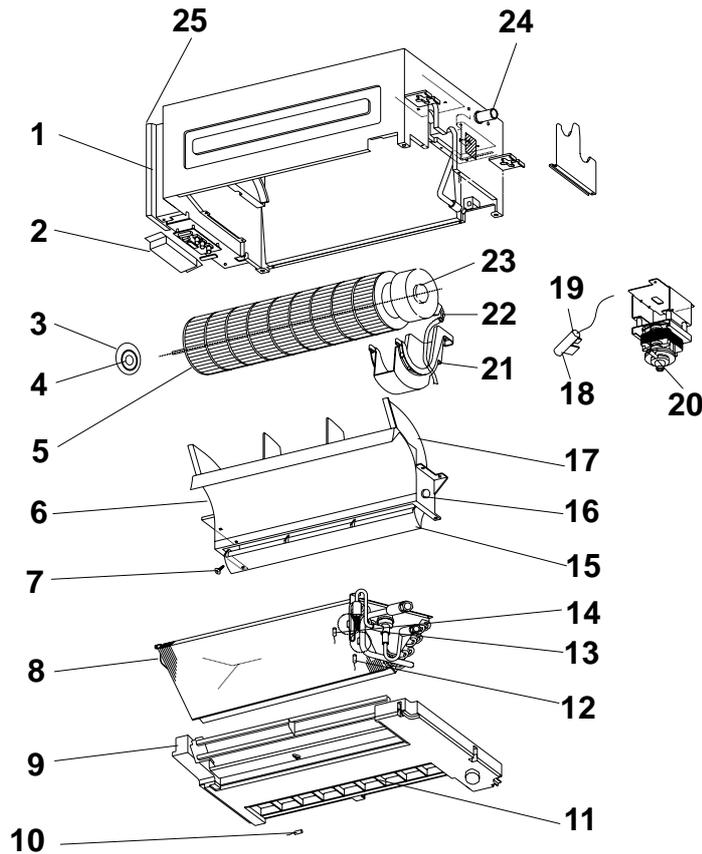
PARTS LIST (non-RoHS compliant)

PANEL PARTS FOR PMFY-P20/25/32/40VBM-E PMP-40BM



No.	Part No.	Part Name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
					PMP-40BM			
1	T7W E11 003	AIR OUTLET GRILLE			1			
2	R01 E00 055	LATCH			2			
3	—	HANGER			2	(DT88D360H03)		
4	R01 E00 099	PANEL HOOK			2			
5	R01 E01 054	GRILLE CATCH			2			
6	R01 E01 500	L.L.FILTER			1			
7	R01 E02 500	L.L.FILTER			1			
8	TW7 E01 691	INTAKE GRILLE			1			
9	R01 E00 054	GRILLE CATCH			2			
10	R01 E00 648	RECEIVER COVER			1			
11	R01 E00 044	MAGNET			2			
12	R01 E00 096	SCREW CAP			1			
13	—	REMOTE CONTROLLER	PAR-21MAA		1		R.B	

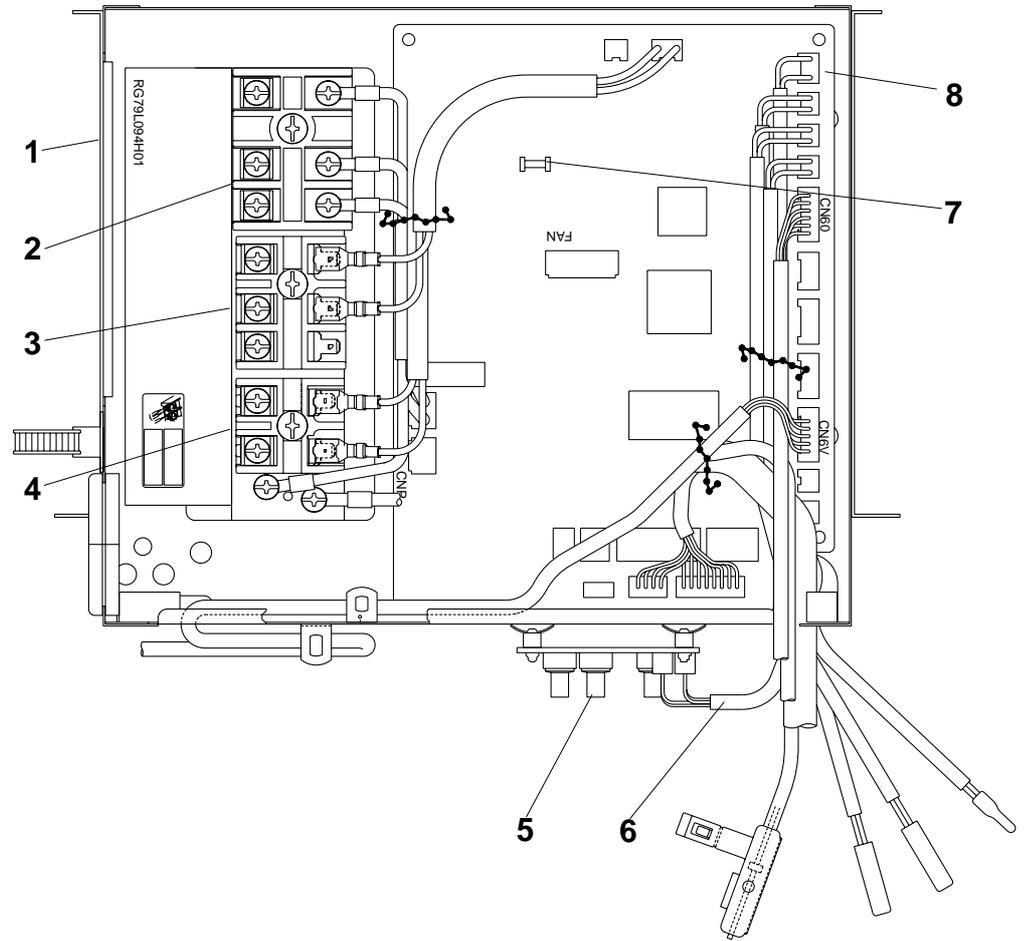
FUNCTIONAL PARTS
PMFY-P20VBM-E
PMFY-P25VBM-E
PMFY-P32VBM-E
PMFY-P40VBM-E



Part number that is circled is not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
				PMFY-P · VBM-E				
				20, 25	32, 40			
1	—	CABINET		1	1	(DT00A478G88)		
2	—	ADDRESS BOARD COVER		1	1	(RG02L277H02)		
3	R01 22A 102	BEARING MOUNT		1	1			
4	R01 005 103	SLEEVE BEARING		1	1			
5	R01 E02 114	LINE FLOW FAN		1	1			
6	R01 E00 079	STABILIZER ASSY		1	1			
7	R01 E00 092	VANE SLEEVE		1	1			
8	T7W E48 480	HEAT EXCHANGER		1				
	T7W E49 480	HEAT EXCHANGER			1			
9	R01 E10 529	DRAIN PAN		1	1			
10	R01 E00 202	THERMISTOR	ROOM	1	1		TH21	
11	R01 E00 038	GUIDE VANE		1	1			
12	R01 E01 202	THERMISTOR	LIQUID	1	1		TH22	
13	R01 E66 401	LINEAR EXPANSION VALVE		1	1		LEV	
14	R01 E03 202	THERMISTOR	GAS	1	1		TH23	
15	R01 E01 002	VANE		1	1			
16	R01 E01 223	VANE MOTOR		1	1		MV	
17	R01 E00 110	CASING		1	1			
18	R01 31K 241	SENSOR HOLDER		1	1			
19	R01 E01 266	DRAIN SENSOR		1	1		DS	
20	T7W E02 355	DRAIN PUMP		1	1		DP	
21	R01 E00 130	MOTOR SUPPORT		1	1			
22	R01 E03 220	FAN MOTOR		1	1		MF	
23	R01 E01 105	MOTOR MOUNT		1	1			
24	R01 E00 527	DRAIN PIPE		1	1			
25	—	CONTROL BOX COVER		1	1	(RG00L311G11)		
26	R01 E01 673	SCREW ASSY		1	1			

ELECTRICAL PARTS
PMFY-P20VBM-E
PMFY-P25VBM-E
PMFY-P32VBM-E
PMFY-P40VBM-E

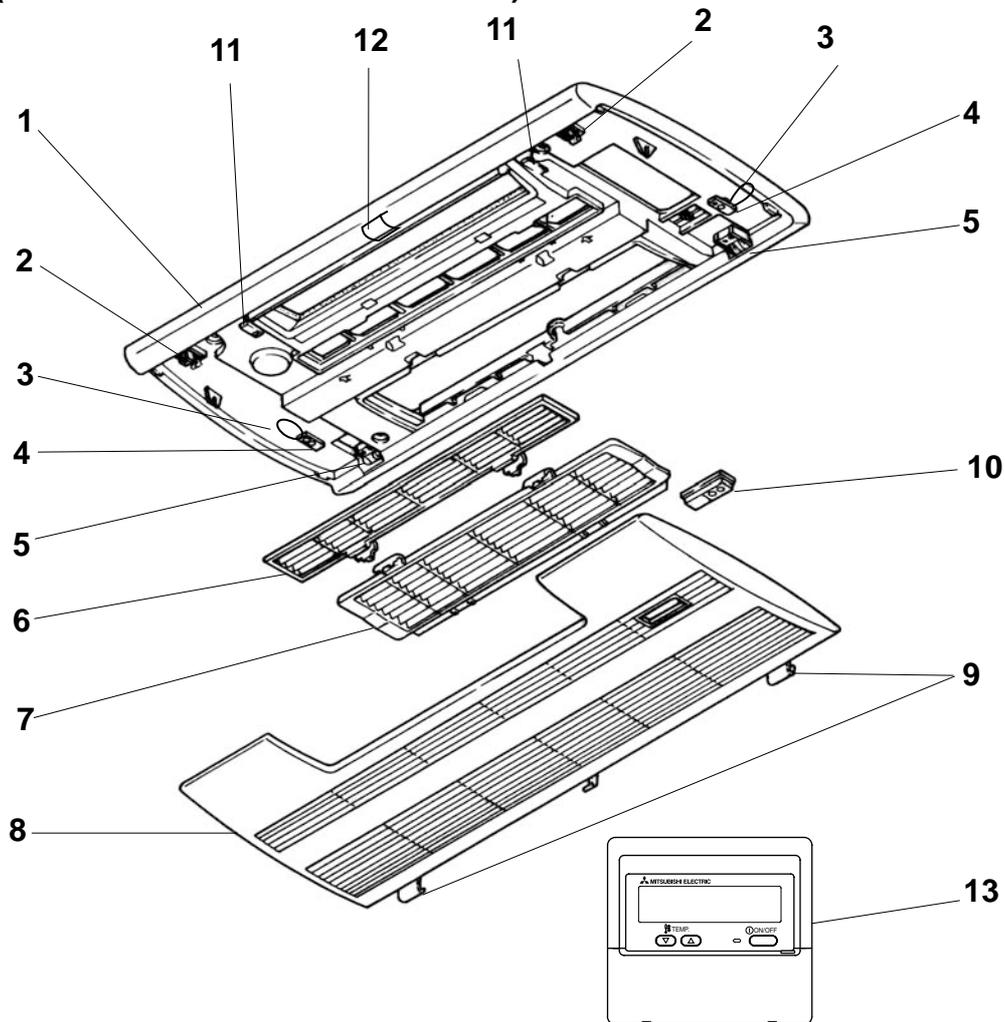


No.	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
				PMFY- P20/25/32/40 VBM-E			
1	—	CONTROL BOX		1	(RG02B337G16)		
2	T7W A14 716	TERMINAL BLOCK	3P (L,N,⊕)	1		TB2	
3	T7W E00 716	TERMINAL BLOCK	3P (M1,M2,S)	1		TB5	
4	T7W 515 716	TERMINAL BLOCK	2P(1,2)	1		TB15	
5	T7W B01 294	ADDRESS BOARD		1		A.B	
6	R01 E00 304	CABLE ASSY		1			
7	T7W 520 239	FUSE	250V 6.3A	1		FUSE	
8	T7W E35 310	INDOOR CONTROLLER BOARD		1		I.B	

PANEL PARTS

PMP-40BM (FOR PMFY-P20/25/32/40VBM-E⁽¹⁾)

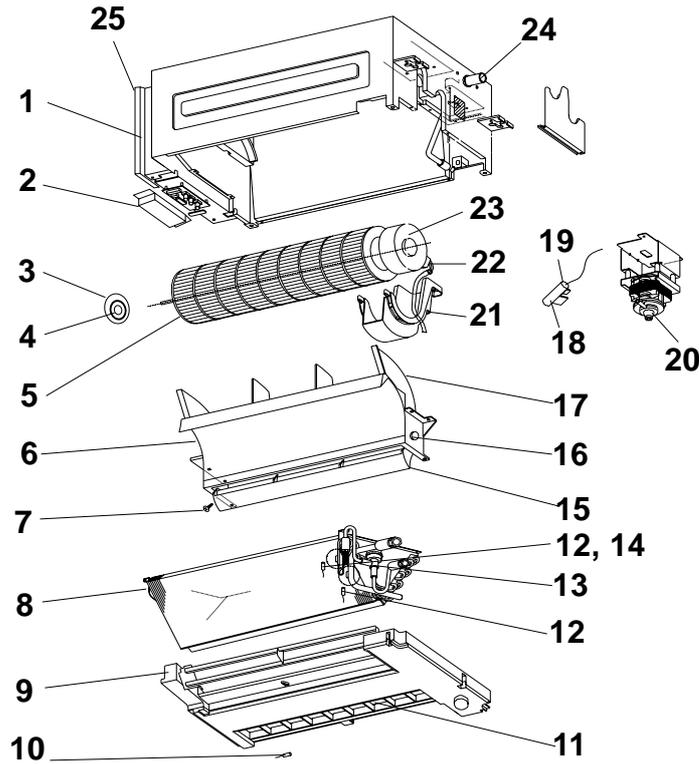
PMP-40BMW (FOR PMFY-P20/25/32/40VBM-E#2)



No.	RoHS	Part No.	Part Name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
					PMP- 40BM	PMP- 40BMW			
1	G	T7W E16 003	AIR OUTLET GRILLE		1				
	G	T7W E22 003	AIR OUTLET GRILLE			1			
2	G	R01 E01 055	LATCH		2	2			
3	G	—	HANGER		2	2	(DT88D360H03)		
4	G	R01 E01 099	PANEL HOOK		2	2			
5	G	R01 E07 054	GRILLE CATCH		2	2			
6	G	R01 E14 500	L.L.FILTER		1	1			
7	G	R01 E15 500	L.L.FILTER		1	1			
8	G	T7W E04 691	INTAKE GRILLE		1				
	G	T7W E06 691	INTAKE GRILLE			1			
9	G	R01 E06 054	GRILLE CATCH		2	2			
10	G	R01 E01 648	RECEIVER COVER		1	1			
11	G	R01 E01 044	MAGNET		2	2			
12	G	R01 E04 096	SCREW CAP		1				
	G	R01 E07 096	SCREW CAP			1			
13	G	—	REMOTE CONTROLLER	PAR-21MAA	1	1		R.B	

FUNCTIONAL PARTS

PMFY-P20VBM-E
 PMFY-P25VBM-E
 PMFY-P32VBM-E
 PMFY-P40VBM-E
 PMFY-P20VBM-E₁
 PMFY-P25VBM-E₁
 PMFY-P32VBM-E₁
 PMFY-P40VBM-E₁
 PMFY-P20VBM-E#2
 PMFY-P25VBM-E#2
 PMFY-P32VBM-E#2
 PMFY-P40VBM-E#2



Part number that is circled is not shown in the figure.

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set								Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
					PMFY-										
					P-VBM-E		P-VBM-E ₁		P-VBM-E#2						
20,25	32,40	20,25	32,40	20,25	32,40										
1	G	—	CABINET		1	1	1	1	1	1					
2	G	—	ADDRESS BOARD COVER		1	1	1	1	1	1	(DT00A478G88)				
3	G	R01 23A 102	BEARING MOUNT		1	1	1	1	1	1	(RG02L277H02)				
4	G	R01 E04 103	SLEEVE BEARING		1	1	1	1	1	1					
5	G	R01 E32 114	LINE FLOW FAN		1	1	1	1	1	1					
6	G	R01 E01 079	STABILIZER ASSY		1	1	1	1	1	1					
7	G	R01 E02 092	VANE SLEEVE		1	1	1	1	1	1					
8	G	T7W H06 480	HEAT EXCHANGER		1		1								
	G	T7W H07 480	HEAT EXCHANGER			1		1							
	G	T7W H94 480	HEAT EXCHANGER						1						
	G	T7W H95 480	HEAT EXCHANGER							1					
9	G	R01 E30 529	DRAIN PAN		1	1	1	1	1	1					
10	G	R01 H12 202	THERMISTOR	ROOM	1	1	1	1	1	1		TH21			
11	G	R01 E03 038	GUIDE VANE		1	1	1	1	1	1					
	G	R01 H16 202	THERMISTOR	LIQUID	1	1	1	1				TH22			
12	G	R01 N15 202	THERMISTOR	LIQUID/GAS					1	1		TH22/23			
	G	R01 H06 401	LINEAR EXPANSION VALVE		1	1	1	1	1	1		LEV			
14	G	R01 H17 202	THERMISTOR	GAS	1	1	1	1				TH23			
15	G	R01 E16 002	VANE		1	1	1	1	1	1					
16	G	R01 E18 223	VANE MOTOR		1	1	1	1	1	1		MV			
17	G	R01 E05 110	CASING		1	1	1	1	1	1					
18	G	R01 32K 241	SENSOR HOLDER		1	1	1	1	1	1					
19	G	R01 E11 266	DRAIN SENSOR		1	1	1	1	1	1		DS			
20	G	T7W E09 355	DRAIN PUMP		1	1	1	1	1	1		DP			
21	G	R01 E35 130	MOTOR SUPPORT		1	1	1	1	1	1					
22	G	R01 E24 220	FAN MOTOR		1	1						MF			
	G	R01 E45 220	FAN MOTOR				1	1				MF			
	G	R01 E49 220	FAN MOTOR						1	1		MF			
23	G	R01 E13 105	MOTOR MOUNT		1	1	1	1	1	1					
24	G	R01 E05 527	DRAIN PIPE		1	1	1	1	1	1					
25	G	—	CONTROL BOX COVER		1	1	1	1	1	1	(RG00L311G25)				
26	G	R01 E03 673	SCREW ASSY		1	1	1	1	1	1					

ELECTRICAL PARTS

PMFY-P20VBM-E

PMFY-P25VBM-E

PMFY-P32VBM-E

PMFY-P40VBM-E

PMFY-P20VBM-E₁

PMFY-P25VBM-E₁

PMFY-P32VBM-E₁

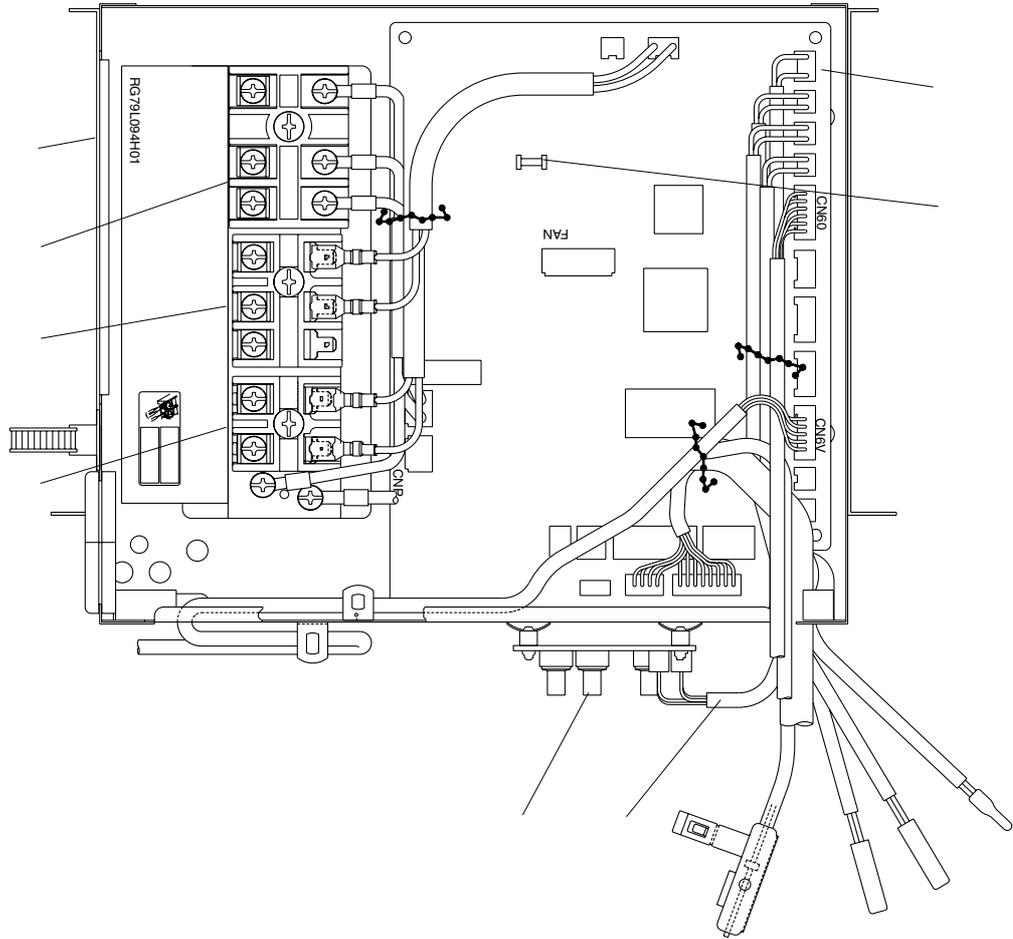
PMFY-P40VBM-E₁

PMFY-P20VBM-E#2

PMFY-P25VBM-E#2

PMFY-P32VBM-E#2

PMFY-P40VBM-E#2



No.	RoHS	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty
					PMFY-P20/25/32/40					
					VBM-E	VBM-E ₁	VBM-E#2			
1	G	—	CONTROL BOX		1	1	1	(RG02B337G19)		
2	G	T7W E32 716	TERMINAL BLOCK	3P (L,N,⊕)	1	1	1		TB2	
3	G	T7W E35 716	TERMINAL BLOCK	3P (M1,M2,S)	1	1	1		TB5	
4	G	T7W E36 716	TERMINAL BLOCK	2P(1,2)	1	1			TB15	
	G	R01 E44 246	TERMINAL BLOCK	2P(1,2)			1		TB15	
5	G	T7W E01 294	ADDRESS BOARD		1	1	1		A.B	
6	G	R01 E07 304	CABLE ASSY		1	1				
	G	R01 E10 304	CABLE ASSY				1			
7	G	R01 E06 239	FUSE	250V 6.3A	1	1	1		FUSE	
8	G	T7W E52 310	INDOOR CONTROLLER BOARD		1				I.B	
	G	T7W E66 310	INDOOR CONTROLLER BOARD			1			I.B	
	G	R01 N77 310	INDOOR CONTROLLER BOARD				1		I.B	

CITY MULTI

