Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

April 2012

No. OC341
REVISED EDITION-F

TECHNICAL & SERVICE MANUAL

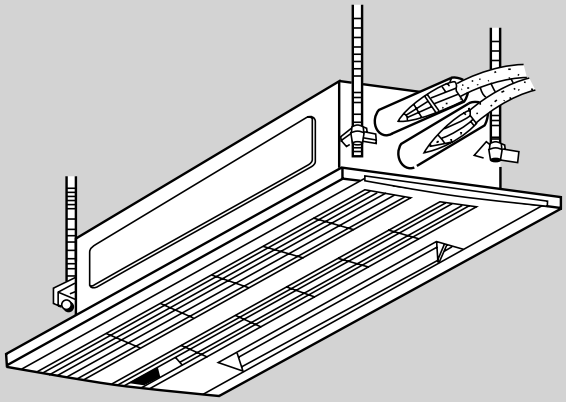
CITY MULTI Series Ceiling Cassettes R410A / R22

Indoor unit [Model names]	[Service Ref.]	
PMFY-P06NBMU-E	PMFY-P06NBMU-E	PMFY-P06NBMU-E1
	PMFY-P06NBMU-E#2	PMFY-P06NBMU-ER3
	PMFY-P06NBMU-ER4	PMFY-P06NBMU-ER5
PMFY-P08NBMU-E	PMFY-P08NBMU-E	PMFY-P08NBMU-E1
	PMFY-P08NBMU-E#2	PMFY-P08NBMU-ER3
	PMFY-P08NBMU-ER4	PMFY-P08NBMU-ER5
PMFY-P12NBMU-E	PMFY-P12NBMU-E	PMFY-P12NBMU-E1
	PMFY-P12NBMU-E#2	PMFY-P12NBMU-ER3
	PMFY-P12NBMU-ER4	PMFY-P12NBMU-ER5
PMFY-P15NBMU-E	PMFY-P15NBMU-E	PMFY-P15NBMU-E1
	PMFY-P15NBMU-E#2	PMFY-P15NBMU-ER3
	PMFY-P15NBMU-ER4	PMFY-P15NBMU-ER5

Revision:
- PMFY-P06/08/12/15NBMU-ER5 have been added in REVISED EDITION-F.
- Some descriptions have been modified.

- Please void OC341 REVISED EDITION-E.

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

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CITY MULTI

Use the specified refrigerant only

Never use any refrigerant other than that specified.

Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

1 TECHNICAL CHANGES

PMFY-P06NBMU-ER4 → PMFY-P06NBMU-ER5
PMFY-P08NBMU-ER4 → PMFY-P08NBMU-ER5
PMFY-P12NBMU-ER4 → PMFY-P12NBMU-ER5
PMFY-P15NBMU-ER4 → PMFY-P15NBMU-ER5

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

PMFY-P06NBMU-ER3 → PMFY-P06NBMU-ER4
PMFY-P08NBMU-ER3 → PMFY-P08NBMU-ER4
PMFY-P12NBMU-ER3 → PMFY-P12NBMU-ER4
PMFY-P15NBMU-ER3 → PMFY-P15NBMU-ER4

1. DRAIN PIPE has been changed.
2. JOINT SOCKET (FOR DRAIN PIPE) has been added.

PMFY-P06NBMU-E#2 → PMFY-P06NBMU-ER3
PMFY-P08NBMU-E#2 → PMFY-P08NBMU-ER3
PMFY-P12NBMU-E#2 → PMFY-P12NBMU-ER3
PMFY-P15NBMU-E#2 → PMFY-P15NBMU-ER3

• CONTROLLER BOARD (I.B) has been changed. (It is possible to extract a signal for an external heater.)

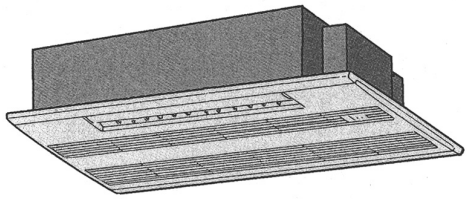
PMFY-P06NBMU-E_1 → PMFY-P06NBMU-E#2
PMFY-P08NBMU-E_1 → PMFY-P08NBMU-E#2
PMFY-P12NBMU-E_1 → PMFY-P12NBMU-E#2
PMFY-P15NBMU-E_1 → PMFY-P15NBMU-E#2

1. CONTROLLER BOARD (I.B) has been changed.
2. PANEL has been changed.
   PMP-16BMU → PMP-16BMUW
   (White : 0.98Y 8.99/0.63) (Pure white : 6.4Y 8.9/0.4)
3. FAN MOTOR (MF) has been changed.
4. THERMISTORs (TH22, TH23) have been changed.

PMFY-P06NBMU-E → PMFY-P06NBMU-E_1
PMFY-P08NBMU-E → PMFY-P08NBMU-E_1
PMFY-P12NBMU-E → PMFY-P12NBMU-E_1
PMFY-P15NBMU-E → PMFY-P15NBMU-E_1

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

2 FEATURES



Indoor Unit

Models	Cooling capacity / Heating capacity	
PMFY-P06NBMU-E	6,000 / 6,700	Btu/h
PMFY-P08NBMU-E	8,000 / 9,000	Btu/h
PMFY-P12NBMU-E	12,000 / 13,500	Btu/h
PMFY-P15NBMU-E	15,000 / 17,000	Btu/h

1. Fresh Air Intake

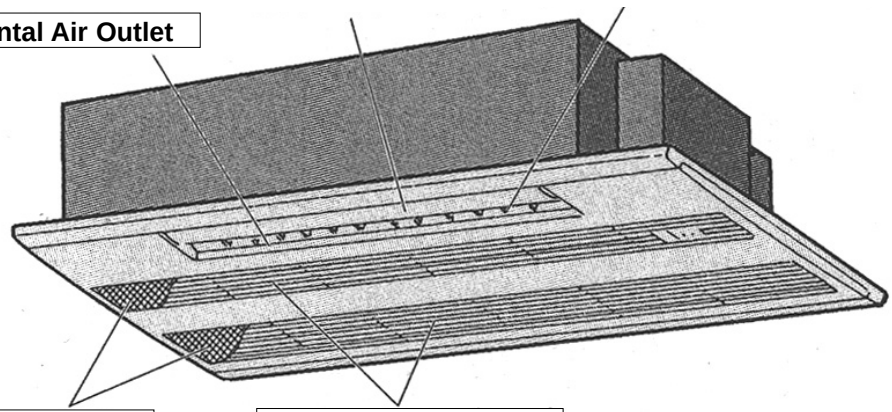
Air recycled indefinitely can become stale and stagnant with air quality suffering significantly. Fresh air is the answer and it is for this reason that the PMFY- series takes in air directly from outdoors. This fresh air intake allows you to enjoy the comfort of crisp, refreshing air in the confines of your living or working space.

2. Light and Compact

The main unit weighs only 31 lb. and the panel merely 7 lb. This makes the PMFY- series one of the lightest in the industry. The unit size is also quite small, having been standardized to a strikingly compact 33-5/8 inch. All of this make the chore of installation and maintenance that much simpler and easier.

3 PART NAMES AND FUNCTIONS

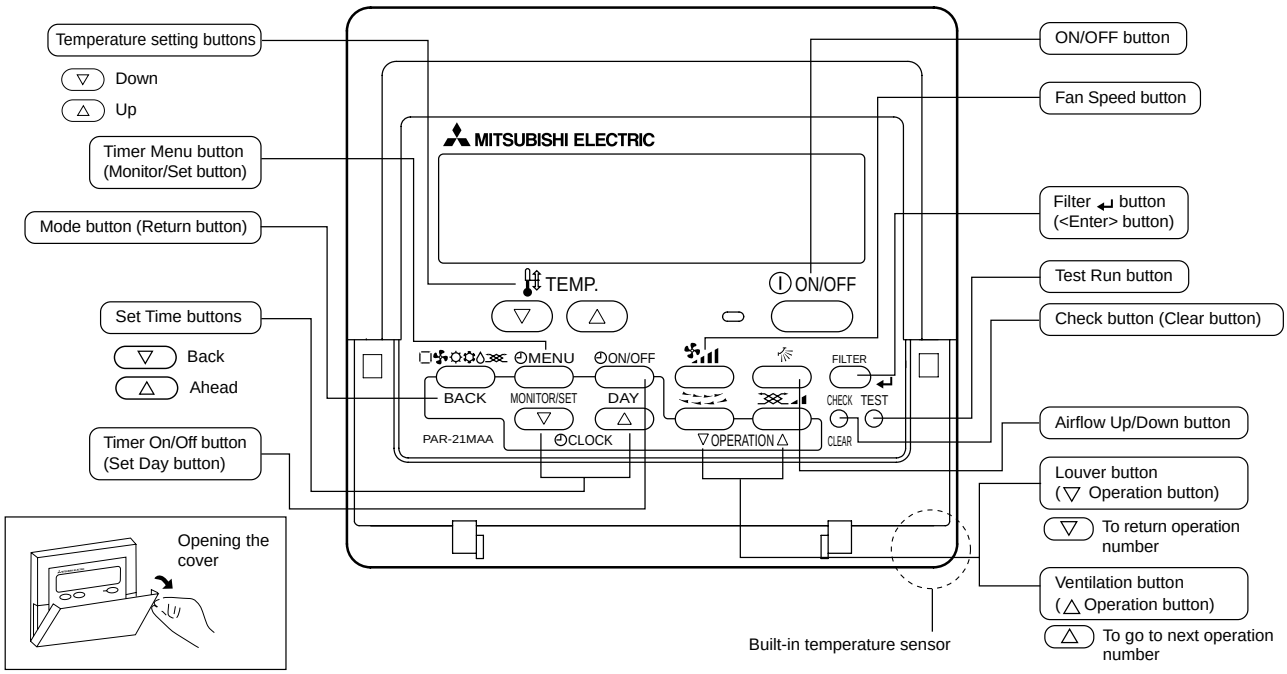
● Indoor Unit



● Wired remote controller

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

Note:
The phrase "Wired remote controller" in this manual refers only to the PAR-21MAA.
If you need any information for the other remote controller, please refer to either the installation manual or initial setting manual which are included in remote controller's box.



Display Section

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

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

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

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

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

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

Temperature Setting
Shows the target temperature.

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

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

Room Temperature display
Shows the room temperature. The room temperature display range is 46~102°F. The display blinks if the temperature is less than 46°F or 102°F 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.

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

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

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

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.

4 SPECIFICATION

4-1. SPECIFICATIONS

Item \ Service ref.				PMFY-P06NBMU-E PMFY-P06NBMU-E1 PMFY-P06NBMU-E#2 PMFY-P06NBMU-ER3 PMFY-P06NBMU-ER4 PMFY-P06NBMU-ER5	PMFY-P08NBMU-E PMFY-P08NBMU-E1 PMFY-P08NBMU-E#2 PMFY-P08NBMU-ER3 PMFY-P08NBMU-ER4 PMFY-P08NBMU-ER5	PMFY-P12NBMU-E PMFY-P12NBMU-E1 PMFY-P12NBMU-E#2 PMFY-P12NBMU-ER3 PMFY-P12NBMU-ER4 PMFY-P12NBMU-ER5	PMFY-P15NBMU-E PMFY-P15NBMU-E1 PMFY-P15NBMU-E#2 PMFY-P15NBMU-ER3 PMFY-P15NBMU-ER4 PMFY-P15NBMU-ER5
Power			V · Hz	Single phase 208-230V 60Hz			
Cooling capacity			Btu/h	6,000	8,000	12,000	15,000
Heating capacity			Btu/h	6,700	9,000	13,500	17,000
Electric characteristic	Input	Cooling	kW	0.042	0.042	0.044	0.054
		Heating	kW	0.042	0.042	0.044	0.054
	Current	Cooling	A	0.20	0.20	0.21	0.26
		Heating	A	0.20	0.20	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·NBMU-E(1)) / <6.4Y 8.9/0.4> (PMFY-P·NBMU-E#2/ER3/ER4/ER5)			
Dimensions		Height	in.	9-1/16<1-3/16>			
		Width	in.	31-15/16<39-3/8>			
		Depth	in.	15-9/16<18-1/2>			
Heat exchanger			—	Cross fin			
Fan	Fan × No		—	Line flow fan × 1			
	Air flow ※3		CFM	230-250-280-300	250-280-300-320		270-300-340-370
	External static pressure		in W.G.	0			
	Fan motor output		kW	0.028			
Insulator			—	Polyethylene sheet			
Air filter			—	PP honey comb fabric			
Pipe dimensions		Gas side	ϕin.	1/2			
		Liquid side	ϕin.	1/4			
Field drain pipe size			ϕin.	1 O.D. (PVC pipe VP-20 connectable)			
Noise level ※3			dB	27-30-33-35	32-34-36-37		33-35-37-39
Product weight			lb.	31<7>			

Note 1. Rating conditions

Cooling: Indoor: D.B. 80°F W.B. 67°F
outdoor: D.B. 95°F W.B. 75°F
Heating: Indoor: D.B. 70°F
outdoor: D.B. 47°F W.B. 43°F

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

※ 3. Air flow and the noise level are indicated as Low - Medium2 - Medium1 - High.

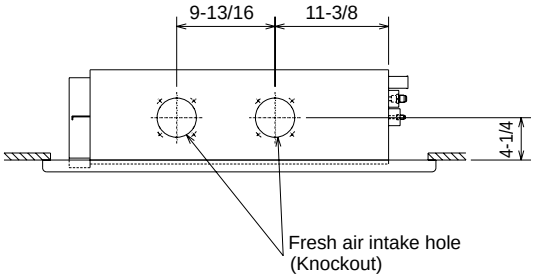
4-2. ELECTRICAL PARTS SPECIFICATIONS

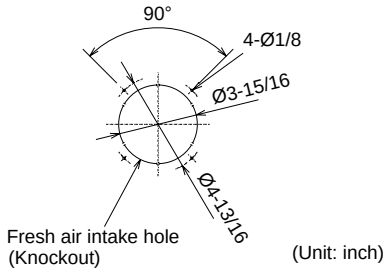
Service Ref. / Parts name	Symbol	PMFY-P06NBMU-E PMFY-P06NBMU-E1 PMFY-P06NBMU-E#2 PMFY-P06NBMU-ER3 PMFY-P06NBMU-ER4 PMFY-P06NBMU-ER5	PMFY-P08NBMU-E PMFY-P08NBMU-E1 PMFY-P08NBMU-E#2 PMFY-P08NBMU-ER3 PMFY-P08NBMU-ER4 PMFY-P08NBMU-ER5	PMFY-P12NBMU-E PMFY-P12NBMU-E1 PMFY-P12NBMU-E#2 PMFY-P12NBMU-ER3 PMFY-P12NBMU-ER4 PMFY-P12NBMU-ER5	PMFY-P15NBMU-E PMFY-P15NBMU-E1 PMFY-P15NBMU-E#2 PMFY-P15NBMU-ER3 PMFY-P15NBMU-ER4 PMFY-P15NBMU-ER5
Room temperature thermistor	TH21	Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ			
Liquid pipe thermistor	TH22	Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ			
Gas pipe thermistor	TH23	Resistance 30°F/15.8kΩ, 50°F/9.6kΩ, 70°F/6.0kΩ, 80°F/4.8kΩ, 90°F/3.9kΩ, 100°F/3.2kΩ			
Fuse (Indoor controller board)	FUSE	250V 6A (PMFY-P·NBMU-E(1)) 250V 6.3A (PMFY-P·NBMU-E#2/ER3/ER4/ER5)			
Fan motor	MF	DC Brushless Motor 8-pole OUTPUT 28W PN0H28-MB			
Vane motor	MV	MSFJC 20M23 12V/380Ω			
Drain pump	DP	PJV-1063 208-240V 50/60Hz			
Drain sensor	DS	Thermistor resistance 30°F/6.3kΩ, 50°F/3.9kΩ, 70°F/2.5kΩ, 80°F/2.0kΩ, 90°F/1.6kΩ, 100°F/1.3kΩ			
Linear expansion valve	LEV	DC12V Stepping motor drive port dimension ϕ3.2 (0~2000pulse) EDM-40YGME			
Power supply terminal block	TB2	(L1, L2, GR) 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. AIR CAPACITY TAKEN FROM OUTSIDE

PMFY-P·NBMU-E series are capable of taking air from outside. When taking air from outside, the duct fan is used. The air capacity should be 20% or less of the airflow SPEC (Hi).

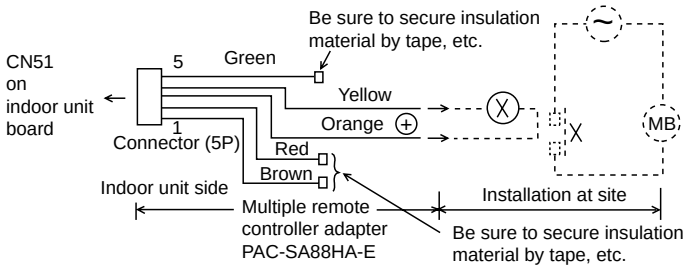


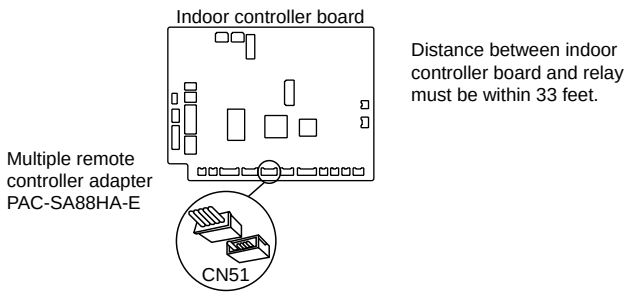


Service Ref.	Air flow (Hi)	Air capacity taken from outside
PMFY-P06NBMU-E/E1/E#2/ER3/ER4/ER5	300 CFM	60CFM
PMFY-P08NBMU-E/E1/E#2/ER3/ER4/ER5	320 CFM	64CFM
PMFY-P12NBMU-E/E1/E#2/ER3/ER4/ER5	320CFM	64CFM
PMFY-P15NBMU-E/E1/E#2/ER3/ER4/ER5	370CFM	74CFM

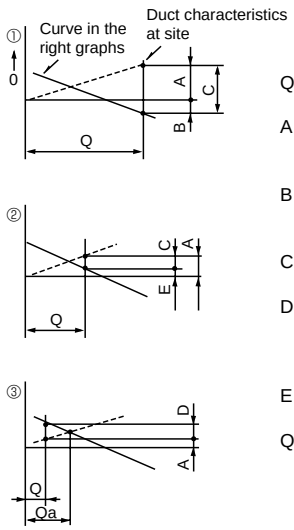
Operation in conjunction with duct fan (Booster fan)

- Whenever the indoor unit is operating, the duct fan operates.
  (1) Connect the optional multiple remote controller adaptor (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)



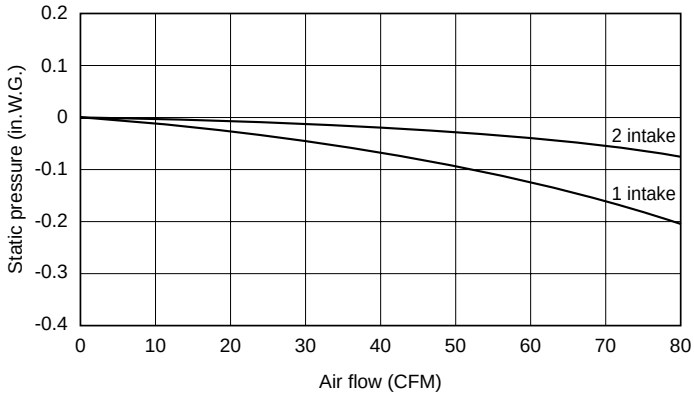


How to read curves



Q…Designed amount of fresh air intake <CFM>
A…Static pressure loss of fresh air intake duct system with air flow amount Q <in. W.G>
B…Forced static pressure at air conditioner inlet with air flow amount Q <in. W.G>
C…Static pressure of booster fan with air flow amount Q <in. W.G>
D…Static pressure loss increase amount of fresh air intake duct system for air flow amount Q <in. W.G>
E…Static pressure of indoor unit with air flow amount Q <in. W.G>
Qa…Estimated amount of fresh air intake without D <CFM>

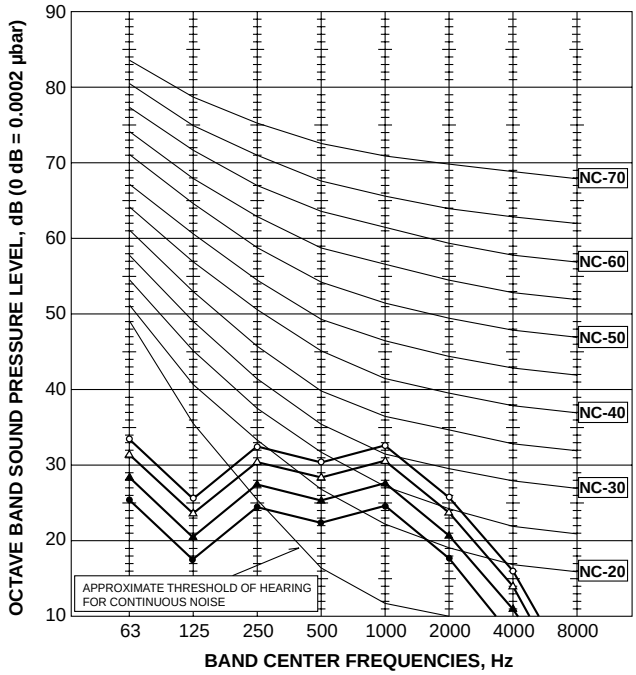
Characteristic diagram of air capacity taken from outside of PMFY-P·NBMU-E



4-4. NOISE CRITERION CURVES

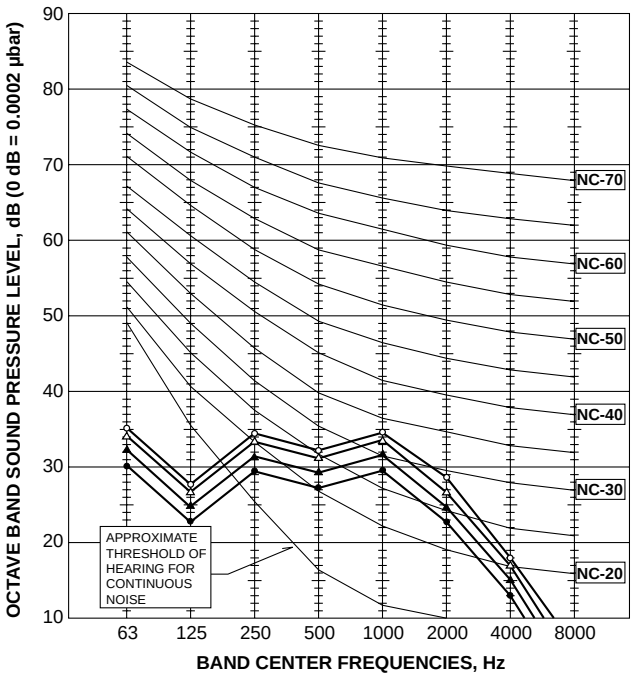
PMFY-P06NBMU-E
PMFY-P06NBMU-E1
PMFY-P06NBMU-E#2
PMFY-P06NBMU-ER3
PMFY-P06NBMU-ER4
PMFY-P06NBMU-ER5

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



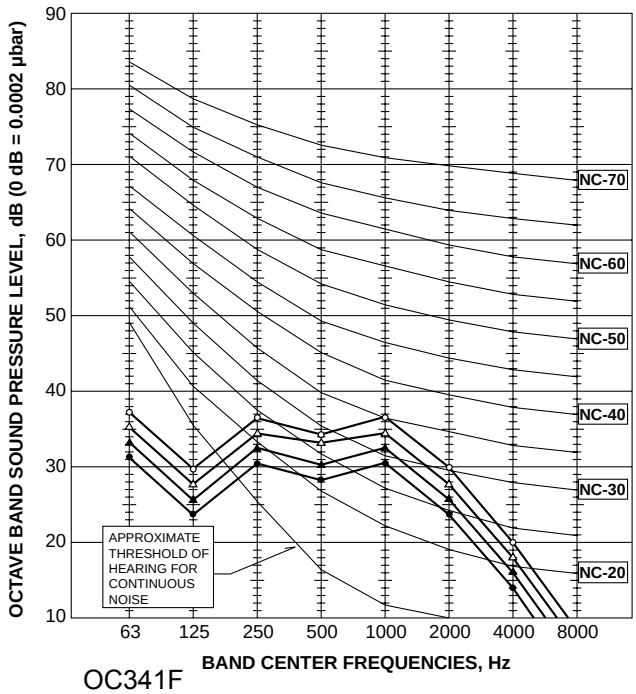
PMFY-P08/12NBMU-E
PMFY-P08/12NBMU-E1
PMFY-P08/12NBMU-E#2
PMFY-P08/12NBMU-ER3
PMFY-P08/12NBMU-ER4
PMFY-P08/12NBMU-ER5

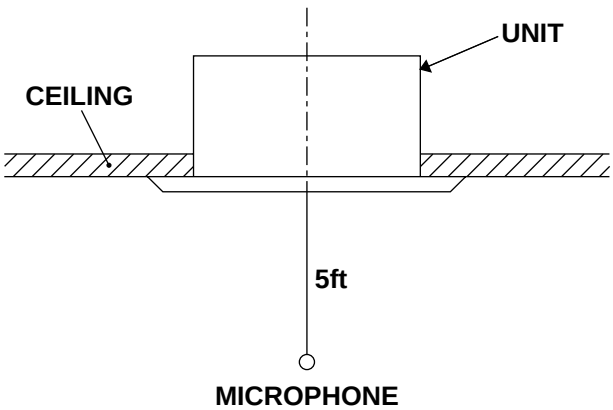
NOTCH	SPL(dB)	LINE
High	37	○——○
Medium1	36	△——△
Medium2	34	▲——▲
Low	32	●——●



PMFY-P15NBMU-E
PMFY-P15NBMU-E1
PMFY-P15NBMU-E#2
PMFY-P15NBMU-ER3
PMFY-P15NBMU-ER4
PMFY-P15NBMU-ER5

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

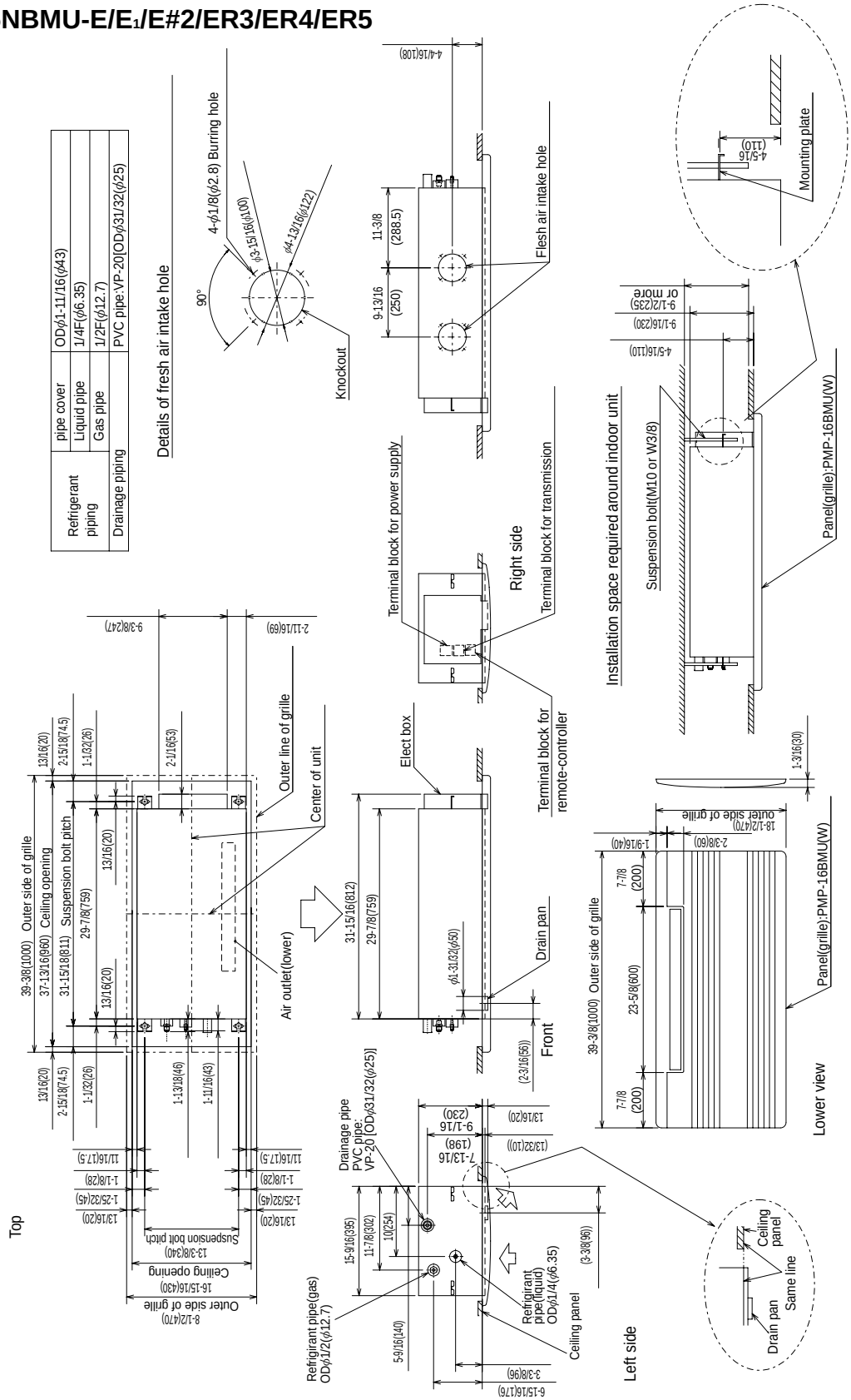




5 OUTLINES AND DIMENSIONS

PMFY-P06NBMU-E/E1/E#2/ER3/ER4/ER5
PMFY-P08NBMU-E/E1/E#2/ER3/ER4/ER5
PMFY-P12NBMU-E/E1/E#2/ER3/ER4/ER5
PMFY-P15NBMU-E/E1/E#2/ER3/ER4/ER5

Unit : inch (mm)



6 WIRING DIAGRAM

PMFY-P06NBMU-E PMFY-P08NBMU-E PMFY-P12NBMU-E PMFY-P15NBMU-E

[Legend]

Symbol	Name	Symbol	Name	Symbol	Name	Symbol	Name
I.B	Indoor controller board	X1	Aux.relay	Drain pump	TH21	Thermistor	Room temp. detection (32˚F/15kΩ, 77˚F/5.4kΩ)
CN25	Connector Humidifier	T	Transformer				
CN27	Damper	LED1	Power supply (I.B)		TH22		Pipe temp. detection / Liquid (32˚F/15kΩ, 77˚F/5.4kΩ)
CN32	Remote switch	LED2	Power supply (I.B)				
CN51	Centrally control	MF	Fan motor (with inner thermo)		TH23		Pipe temp. detection / Gas (32˚F1/15kΩ, 77˚F/5.4kΩ)
CN52	Remote Indication	MV	Vane motor				
SW2	Switch Capacity code	DP	Drain pump		A.B	Address board	
SW3	Mode selection	DS	Drain sensor		SW1	Switch	Mode selection
SW4	Model selection	LEV	Linear expansion valve		SW5		Voltage selection
ZNR	Varistor	TB2	Terminal block	Power supply	SW11		Address setting 1s digit
FUSE	Fuse (6A / 250V)	TB5		Transmission	SW12		Address setting 10ths digit
		TB15		MA-Remote Controller	SW14		Branch No.

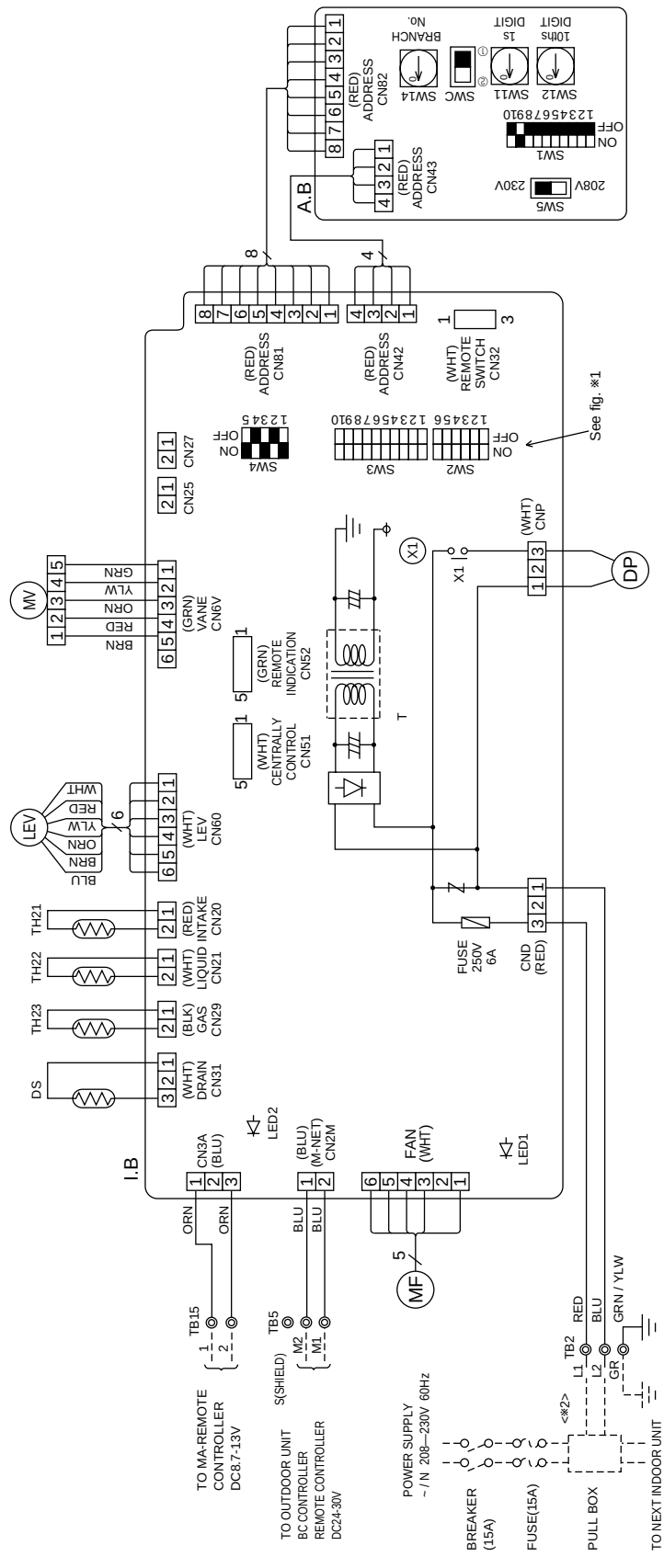
LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:208-230V) Power on → Lamp is lit.
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → Lamp is lit.

<fig. ※1>

Models	SW2	SW3
P06	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P08	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P12	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P15	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10

(※2) Use copper supply wire.



Note

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 wire 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, SW3 dip switches differs in the capacity. For the detail, refer to fig. ※1.
7. Please set the switch SW5 according to the power supply voltage.

[Legend]

Symbol	Name		Symbol	Name		Symbol	Name	
I.B	Indoor controller board		X1	Aux.relay	Drain pump	TH21	Thermistor	Room temp. detection (32˚F/15kΩ, 77˚F/5.4kΩ)
CN25	Connector	Humidifier	T	Transformer		TH22		Pipe temp. detection / Liquid (32˚F/15kΩ, 77˚F/5.4kΩ)
CN27		Damper	LED1	Power supply(I.B)				
CN32		Remote switch	LED2	Power supply(I.B)				
CN51		Centrally control	MF	Fan motor		TH23		Pipe temp. detection / Gas (32˚F/15kΩ, 77˚F/5.4kΩ)
CN52		Remote Indication	MV	Vane motor				
SW2	Switch	Capacity code	DP	Drain pump		A.B	Address board	
SW3		Mode selection	DS	Drain sensor		SW1	Switch	Mode selection
SW4		Model selection	LEV	Linear expansion valve		SW5		Voltage selection
ZNR	Varistor		TB2	Terminal block	Power supply	SW11		Address setting 1s digit
FUSE	Fuse (6A / 250V)		TB5		Transmission	SW12		Address setting 10ths digit
			TB15		MA-Remote Controller	SW14		Branch No.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:208-230V) Power on → Lamp is lit.
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → Lamp is lit.

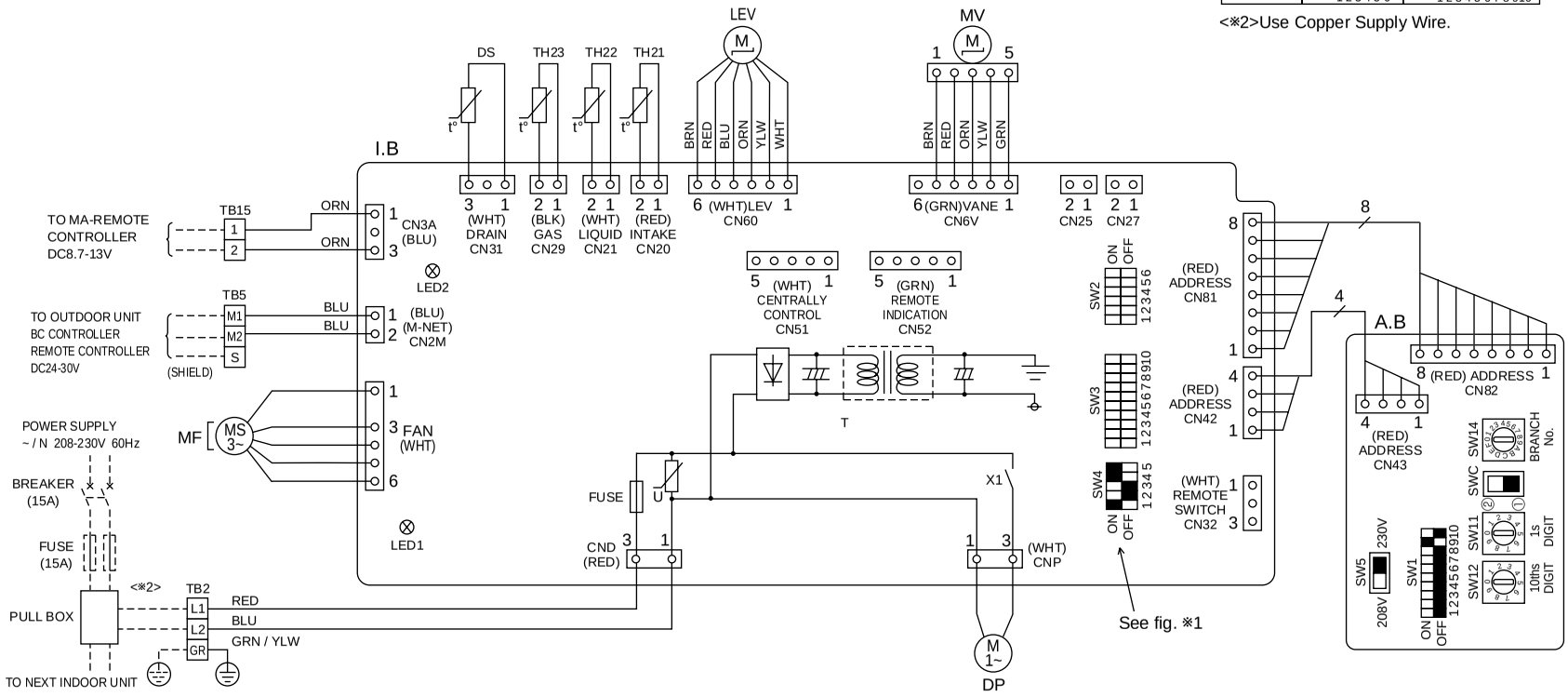
Note

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, ▭ :connector.
6. The setting of the SW2, SW3 dip switches differs in the capacity. For the detail, refer to fig. ※1.
7. Please set the switch SW5 according to the power supply voltage.

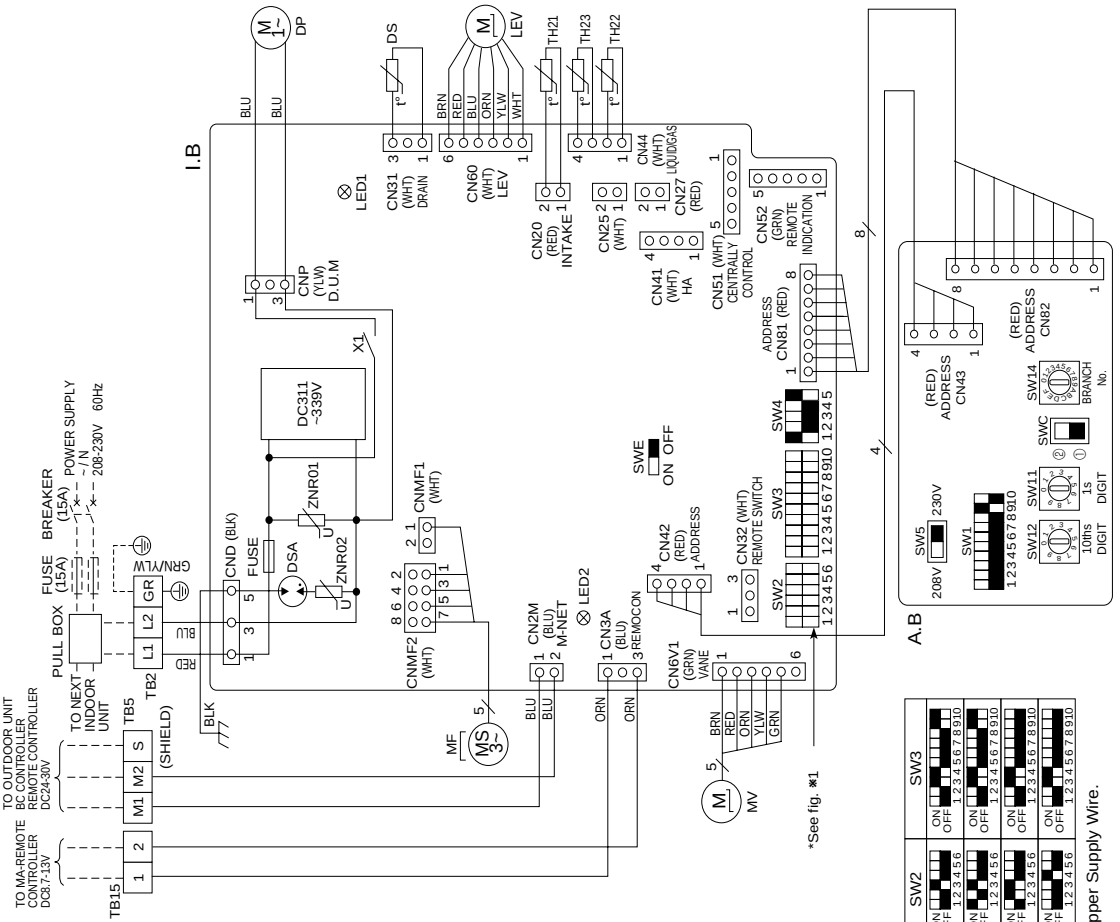
<fig. ※1>

Models	SW2	SW3
P06	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P08	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P12	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P15	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10

<※2>Use Copper Supply Wire.



PMFY-P06NBMU-E#2 PMFY-P08NBMU-E#2 PMFY-P12NBMU-E#2 PMFY-P15NBMU-E#2
PMFY-P06NBMU-ER3 PMFY-P08NBMU-ER3 PMFY-P12NBMU-ER3 PMFY-P15NBMU-ER3
PMFY-P06NBMU-ER4 PMFY-P08NBMU-ER4 PMFY-P12NBMU-ER4 PMFY-P15NBMU-ER4



[Legend]

Symbol	Name	Symbol	Name	Symbol	Name
I.B	Indoor controller board	TB2	Terminal block		Power supply
CN25	Connector: Humidifier	TB5			Transmission
CN27	Damper	TB15			MA-Remote Controller
CN32	Remote switch	TH21	Thermistor		Room temp. detection (32°F/15kΩ, 77°F/5.4kΩ)
CN51	Centrally control				
CN52	Remote Indication	TH22			Pipe temp. detection / Liquid (32°F/15kΩ, 77°F/5.4kΩ)
SW2	Switch: Capacity code				
SW3	Mode selection	TH23			Pipe temp. detection / Gas (32°F/15kΩ, 77°F/5.4kΩ)
SW4	Model selection				
SWE	DRAIN UP MACHINE(TEST MODE)	A.B	Address board		
ZNR	Varistor	SW1	Switch		Mode selection
FUSE	Fuse (T6.3AL 250V)	SW5			Voltage selection
X1	Aux.relay: Drain pump	SW11			Address setting 1s digit
LED1	Power supply (I.B)	SW12			Address setting 10ths digit
LED2	Power supply (I.B)	SW14			Branch No.
MF	Fan motor				
MV	Vane motor				
DP	Drain pump				
DS	Drain sensor				
LEV	Linear expansion valve				

<fig. ※1>

Models	SW2	SW3
P06	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P08	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P12	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P15	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10

<※2> Use Copper Supply Wire.

Note

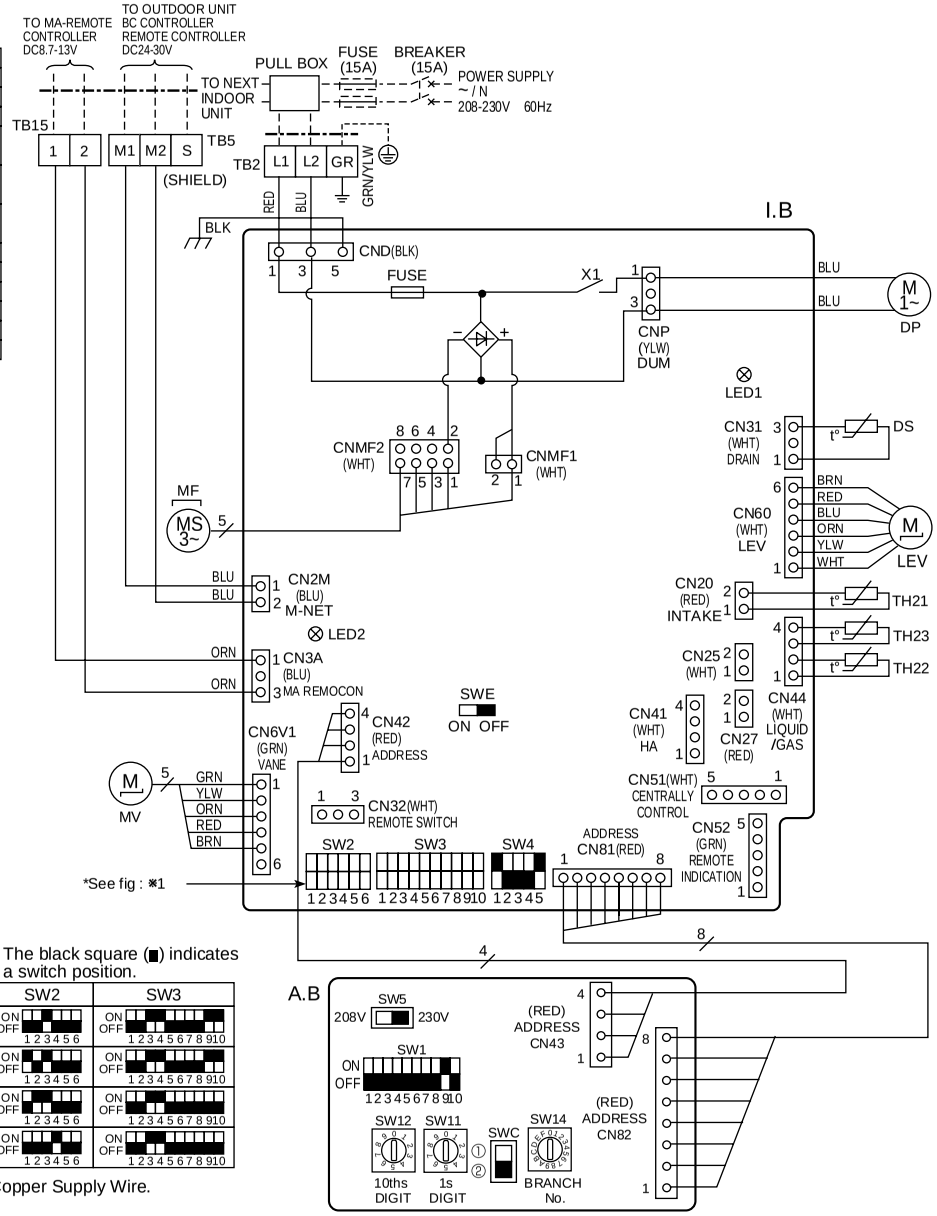
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram above are, □□□ : terminal block, ○○○ :connector.
6. The setting of the SW2, SW3 dip switches differs in the capacity. For the detail, refer to fig. ※1.
7. Please set the switch SW5 according to the power supply voltage.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:208-230V) 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		TB2	Terminal block	Power supply
CN25	Connector	Humidifier	TB5		Transmission
CN27		Damper	TB15		MA-Remote Controller
CN32		Remote switch	TH21	Thermistor	Room temp. detection (32°F/15kΩ, 77°F/5.4kΩ)
CN51		Centrally control			
CN52		Remote Indication	TH22		Pipe temp. detection / Liquid (32°F/15kΩ, 77°F/5.4kΩ)
SW2	Switch	Capacity code			
SW3		Mode selection	TH23		Pipe temp. detection / Gas (32°F/15kΩ, 77°F/5.4kΩ)
SW4		Model selection			
SWE		DRAIN UP MACHINE(TEST MODE)	A.B	Address board	
FUSE	Fuse (T6.3AL 250V)		SW1	Switch	Mode selection
X1	Aux.relay	Drain pump	SW5		Voltage selection
LED1	Power supply (I.B)		SW11		Address setting 1s digit
LED2	Power supply (I.B)		SW12		Address setting 10ths digit
MF	Fan motor		SW14		Branch No.
MV	Vane motor				
DP	Drain water lifting-up mech.				
DS	Drain sensor				
LEV	Linear expansion valve				



Note

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,
▭ ○ ○ ○ ▭ :connector.
6.The setting of the SW2, SW3 dip switches differs in the capacity for the detail, refer to the fig : ※1.
7.Please set the switch SW5 according to the power supply voltage.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:208-230V) Power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

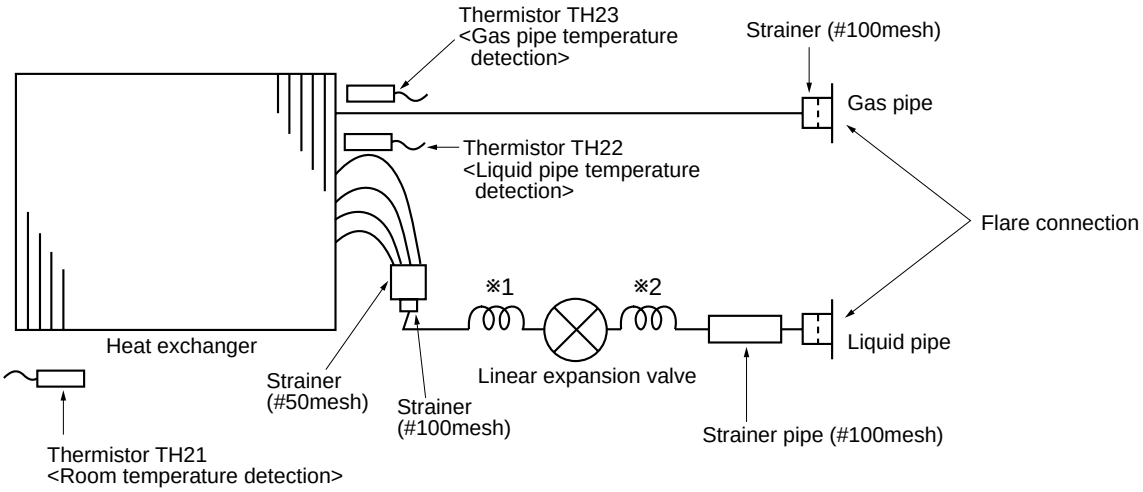
<fig : ※1> The black square (■) indicates a switch position.

Models	SW2	SW3
P06	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P08	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P12	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10
P15	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10

<※2> Use Copper Supply Wire.

7 REFRIGERANT SYSTEM DIAGRAM

PMFY-P06NBMU-E	**PMFY-P08NBMU-E**	**PMFY-P12NBMU-E**	**PMFY-P15NBMU-E**
PMFY-P06NBMU-E1	**PMFY-P08NBMU-E1**	**PMFY-P12NBMU-E1**	**PMFY-P15NBMU-E1**
PMFY-P06NBMU-E#2	**PMFY-P08NBMU-E#2**	**PMFY-P12NBMU-E#2**	**PMFY-P15NBMU-E#2**
PMFY-P06NBMU-ER3	**PMFY-P08NBMU-ER3**	**PMFY-P12NBMU-ER3**	**PMFY-P15NBMU-ER3**
PMFY-P06NBMU-ER4	**PMFY-P08NBMU-ER4**	**PMFY-P12NBMU-ER4**	**PMFY-P15NBMU-ER4**
PMFY-P06NBMU-ER5	**PMFY-P08NBMU-ER5**	**PMFY-P12NBMU-ER5**	**PMFY-P15NBMU-ER5**



Unit: in.(mm)

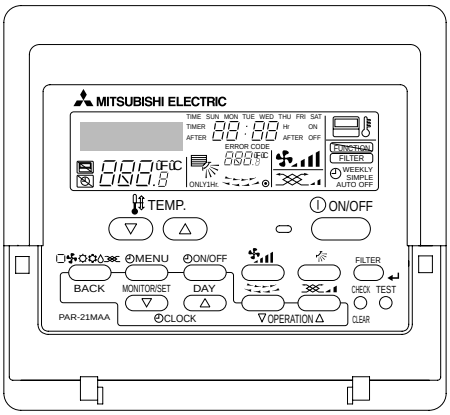
Service Ref. / Item	PMFY-P06/P08/P12/P15NBMU-E PMFY-P06/P08/P12/P15NBMU-E1 PMFY-P06/P08/P12/P15NBMU-E#2 PMFY-P06/P08/P12/P15NBMU-ER3 PMFY-P06/P08/P12/P15NBMU-ER4 PMFY-P06/P08/P12/P15NBMU-ER5
Gas pipe	ϕ1/2"(12.7)
Liquid pipe	ϕ1/4"(6.35)

Unit: mm

Service Ref. / Item	PMFY-P06/P08NBMU-E PMFY-P06/P08NBMU-E1 PMFY-P06/P08NBMU-E#2 PMFY-P06/P08NBMU-ER3 PMFY-P06/P08NBMU-ER4 PMFY-P06/P08NBMU-ER5	PMFY-P12/P15NBMU-E PMFY-P12/P15NBMU-E1 PMFY-P12/P15NBMU-E#2 PMFY-P12/P15NBMU-ER3 PMFY-P06/P08NBMU-ER4 PMFY-P06/P08NBMU-ER5
Capillary tube ※1	O.D.ϕ4.6 × I.D.Ø3.4 × ℓ 200	O.D.ϕ3.6 × I.D.Ø2.4 × ℓ 200
Capillary tube ※2	O.D.ϕ3.6 × I.D.Ø2.4 × ℓ 80	

8 MICROPROCESSOR CONTROL

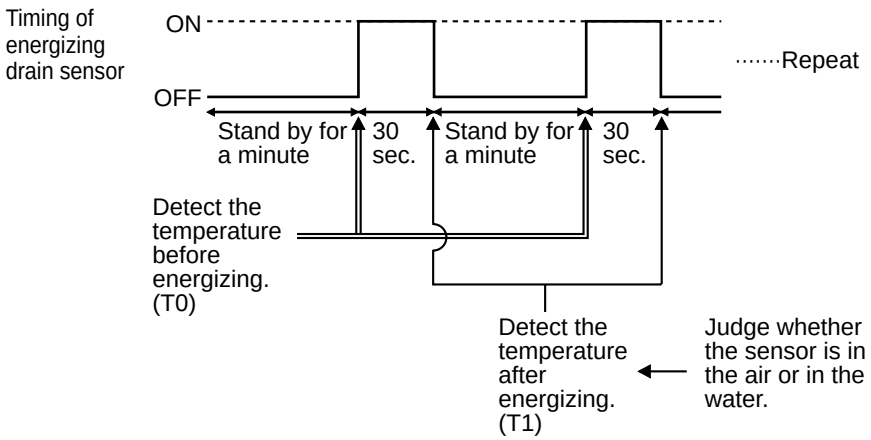
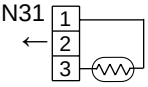
INDOOR UNIT CONTROL
8-1. COOL OPERATION



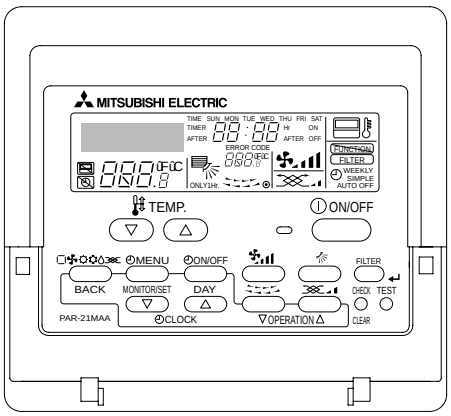
<How to operate>

① Press POWER ON/OFF button.
② Press the operation MODE button to display COOL.
③ Press the TEMP. button to set the desired temperature.
NOTE: The set temperature changes 2°F when the ▽ or △ button is pressed once. Cooling 67 to 87°F.

Control modes	Control details	Remarks
1. Thermostat function	1-1. Thermostat function • Room temperature ≧ desired temperature + 2 °F: Thermo ON • Room temperature ≦ desired temperature: Thermo OFF	
	1-2. Anti-freezing control Detected condition: When the liquid pipe temp. (TH22) is 32˚F or less in 16 minutes from compressors start up, anti-freezing control starts and the thermostat OFF. Released condition: The timer which prevents reactivating is set for 3 minutes, and anti-freezing control is cancelled when any one of the following conditions is satisfied. ① Liquid pipe temp. (TH22) turns to be 50˚F or above. ② The condition of the thermostat OFF becomes complete by thermostat, etc. ③ The operation mode becomes a mode other than COOL. ④ The operation stops. 1-3. Compressor time delay • 3 minutes minimum off cycle.	
2. Fan	By the remote controller setting (switch of 4 speeds) Type: 4 speeds — Fan speed notch: [Low], [Medium2], [Medium1], [High]	

Control modes	Control details	Remarks
3. Drain pump	3-1. Drain pump control • Always drain pump ON during the COOL and DRY mode operation. (Regardless of the thermostat ON/OFF) • When the operation mode is changed from COOL or DRY to any other mode (including Stop), the drain pump continues to run for 3 minutes.	
	Drain sensor function • The indoor circuit board energizes the drain sensor at a fixed voltage for a fixed duration. After energizing, the circuit board compares the drain sensor's temperature to the one before energizing, and judges whether the sensor is in the air or in the water. **Basic control system** • While drain pump is turned on, it will repeat the following control system and judge whether the sensor is in the air or in the water.  •Drain sensor temperature rise (t) •Temperature of drain sensor before current is applied (T_0) •Temperature of drain sensor after current is applied (T_1) [$t = T_1 - T_0$]	※1 Drain sensor Indoor controller board CN31 
4. Vane (up/down vane change)	(1) Initial setting : Start at COOL mode and horizontal vane. (2) Vane position : Horizontal→Downward A →Downward B →Downward C→Swing (3) Restriction of the downward vane setting When setting the downward vane A, B or C in [Medium1], [Medium2] or [Low] of the fan speed notch, the vane changes to horizontal position after 1 hour has passed.	※1 "Only 1 Hr" appears on the wired remote controller.

8-2. DRY OPERATION



<How to operate>

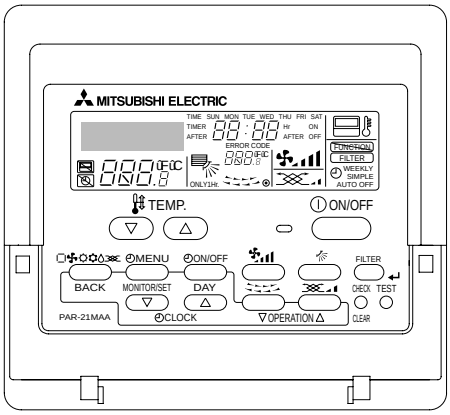
① Press POWER ON/OFF button.
② Press the operation MODE button to display DRY.
③ Press the TEMP. button to set the desired temperature.
NOTE: The set temperature changes 2°F when the ▽ or △ button is pressed once. Dry 67 to 87°F.

<table>
<tr><th>Control modes</th><th>Control details</th><th>Remarks</th></tr>
<tr><td>1. Thermostat function</td><td>1-1. Dry mode temperature is controlled by TH21.
Dry mode ON Room temperature ≧ desired temperature + 2˚F
Dry mode OFF Room temperature ≦ desired temperature

<table>
<tr><th rowspan="2">Room temperature</th><th colspan="2">3 min. passed since starting operation</th><th rowspan="2">Dry mode ON time (min)</th><th rowspan="2">Dry mode OFF time (min)</th></tr>
<tr><th>Dry mode</th><th>Room temperature (Ta)</th></tr>
<tr><td rowspan="4">Over 64˚F</td><td rowspan="3">ON</td><td>Ta ≧ 83˚F</td><td>9</td><td>3</td></tr>
<tr><td>83˚F > Ta ≧ 79˚F</td><td>7</td><td>3</td></tr>
<tr><td>79˚F > Ta ≧ 75˚F</td><td>5</td><td>3</td></tr>
<tr><td>OFF</td><td>Unconditional</td><td>3</td><td>10</td></tr>
<tr><td>Less than 64˚F</td><td colspan="4">Dry mode OFF</td></tr>
</table></td><td></td></tr>
<tr><td></td><td>1-2. Frozen prevention control
No control function</td><td></td></tr>
<tr><td>2. Fan</td><td>Indoor fan operation control depends on the compressor conditions.

<table>
<tr><th>Dry mode</th><th>Fan speed notch</th></tr>
<tr><td>ON</td><td>[Low]</td></tr>
<tr><td>OFF</td><td>Stop</td></tr>
</table>
Note: Remote controller setting is not acceptable.</td><td></td></tr>
<tr><td>3. Drain pump</td><td>Same control as COOL operation</td><td></td></tr>
<tr><td>4. Vane
(up/down vane change)</td><td>Same control as COOL operation</td><td></td></tr>
</table>

8-3. FAN OPERATION



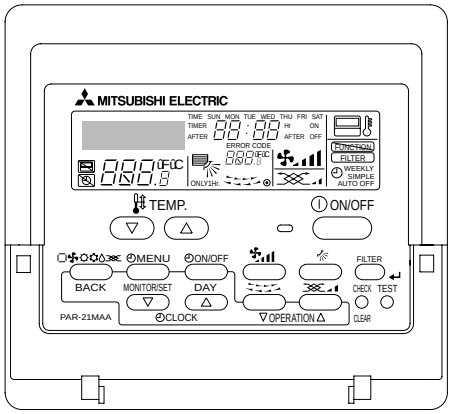
<How to operate>

① Press POWER ON/OFF button.

② Press the operation MODE button to display FAN.

Control modes	Control details	Remarks
1. Fan	Set by remote controller. Type: Fan speed notch 4 speeds type: [Low], [Medium2], [Medium1], [High]	
2. Drain pump	2-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions is satisfied: ① ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN). ② ON for 6 minutes after the drain sensor is determined to be submerged using the liquid level detection method given below. ③ ON for 6 minutes after indoor piping (liquid piping) temperature – indoor room temperature ≦ -18˚F, AND the drain sensor input is at the short or open level. (If condition ② or ③ is still being met after the drain pump has been turned ON for 6 minutes, the drain pump is kept ON for a further 6 minutes.)	
	2-2. Liquid level detection method The liquid level is detected by determining whether or not the drain sensor is submerged, based on the amount the temperature rises after self-heating the sensor. This process is performed if any of the following conditions is satisfied: ① Drain pump is ON. ② Indoor piping (liquid piping) temperature – indoor room temperature ≦ -18˚F ③ Indoor piping (liquid piping) temperature or indoor room temperature is at the short or open level temperature. ④ Every 1 hour after the drain pump has been switched from ON to OFF.	
3. Vane (up/down vane change)	Same as the control performed during the COOL operation, but with no restriction on the vane's downward blow setting.	

8-4. HEAT OPERATION

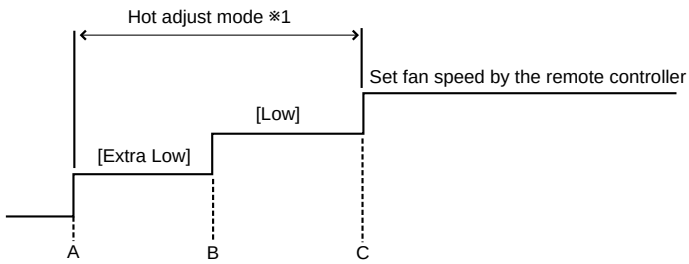


<How to operate>

① Press POWER ON/OFF button.
② Press the operation MODE button to display HEAT.
③ Press the TEMP. button to set the desired temperature.
NOTE: The set temperature changes 2°F when the ▽ or △ button is pressed once. Heating 63 to 83°F.

<Display in HEAT operation>

[DEFROST]
The [DEFROST] symbol is only displayed during the defrost operation.
[STANDBY]
The [STANDBY] symbol is only displayed during hot adjust mode.

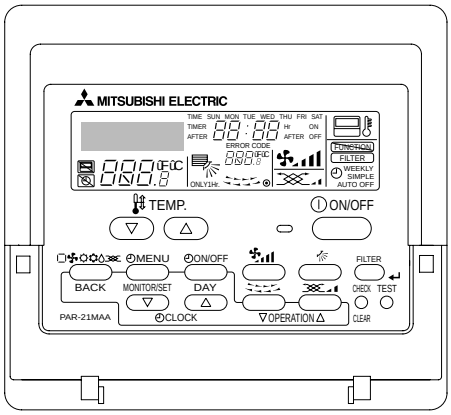
Control modes	Control details	Remarks
1. Thermostat function	1-1. Minimum compressor off cycle is 3 minutes. • Room temperature ≦ desired temperature -2˚F: Thermo ON • Room temperature ≧ desired temperature: Thermo OFF	
2. Fan	Controlled by the remote controller (4-speed) Priority is given to below-mentioned control mode 2-1. Stand by (hot adjust) mode 2-2. Preheating exclusion mode 2-3. Thermo OFF mode (When the compressor off by the thermostat) 2-4. Cool air prevention mode (Defrosting mode)	
	2-1. Stand by (hot adjust) mode The fan controller becomes the stand by (hot adjust) mode for the following conditions. ① When starting the HEAT operation ② When the thermostat function changes from OFF to ON. ③ When releasing the HEAT defrosting operation  A: Stand by (hot adjust) mode start B: 5 minutes have passed since the condition A or the indoor liquid pipe temperature turned 95°F or more C: 2 minutes have passed since the condition A (Terminating the stand by (hot adjust) mode)	※1 "STAND BY" will be displayed during the stand by (hot adjust) mode.
	2-2. Preheating exclusion mode When the condition changes the auxiliary heater ON to OFF (thermostat or operation stop, etc), the indoor fan operates in [Low] mode for 1 minute.	※1 This control is same for the model without auxiliary heater.

To be continued to the next page

From the preceding page

Control modes	Control details	Remarks
2. Fan	2-3. Thermo OFF mode When the thermostat function changes to OFF, the indoor fan operates in [Extra low].	
	2-4. Heat defrosting mode The indoor fan stops.	
3. Drain pump	No drain pump operation However, when the control changes from COOL or DRY operation, the drain pump operates for 3 minutes.	
4. Vane control (Up/down vane change)	(1) Initial setting : OFF → HEAT…[last setting] When changing the mode from exception of HEAT to HEAT operation …[Downward C] (2) Vane position : Horizontal →Downward A →Downward B →Downward C→Swing (3) Restriction of vane position ① The vane is horizontally fixed for the following modes. (The control by the remote controller is temporarily invalidated and controlled by the unit.) • Thermo OFF • Stand by (hot adjust) [Extra low] mode • Heat defrost mode	

8-5. AUTO OPERATION [AUTOMATIC COOL/HEAT CHANGE OVER OPERATION]



<How to operate>

① Press POWER ON/OFF button.
② Press the operation MODE button to display AUTO.
③ Press the TEMP. button to set the desired temperature.
NOTE: The set temperature changes 2°F when the ▽ or △ button is pressed once. Automatic 67 to 83°F.
When in AUTO mode, the unit will switch from either heat or cool automatically to maintain the set temperature.

Control modes	Control details	Remarks
1. Initial value of operation mode	HEAT mode for room temperature < Desired temperature COOL mode for room temperature ≧ Desired temperature	
2. Mode change	(1) HEAT mode → COOL mode Room temperature ≧ Desired temperature + 3˚F or 3 minutes has passed (2) COOL mode → HEAT mode Room temperature ≦ Desired temperature - 3˚F or 3 minutes has passed	
3. COOL mode	Same control as cool operation	
4. HEAT mode	Same control as heat operation	

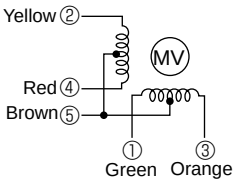
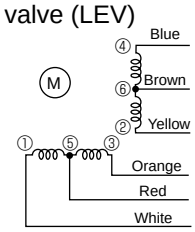
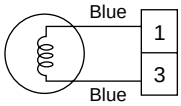
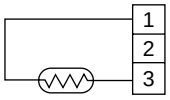
8-6. WHEN UNIT IS STOPPED

Control modes	Control details	Remarks
1. Drain pump	1-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions is satisfied. (regardless of whether the compressor is ON or OFF) ① ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (HEAT mode). ② ON for 6 minutes after the drain sensor is determined to be submerged using the liquid level detection method given below. ③ ON for 6 minutes after indoor piping (liquid piping) temperature – indoor room temperature ≦ 14˚F, and the drain sensor input is at the short or open level. (If condition ② or ③ is still being met after the drain pump has been turned ON for 6 minutes, the drain pump is kept ON for a further 6 minutes.)	
	1-2. Liquid level detection method The liquid level is detected by determining whether or not the drain sensor is submerged, based on the amount the temperature rises after self-heating the sensor. This process is performed if any of the following conditions is satisfied: ① Drain pump is ON. ② Indoor piping (liquid piping) temperature – indoor room temperature ≦ 14˚F (except during defrosting) ③ Indoor piping (liquid piping) temperature or indoor room temperature is at the short or open level temperature. ④ Every 1 hour after the drain pump has been switched from ON to OFF.	

9 TROUBLESHOOTING

9-1. HOW TO CHECK THE PARTS

PMFY-P06NBMU-E	**PMFY-P08NBMU-E**	**PMFY-P12NBMU-E**	**PMFY-P15NBMU-E**
PMFY-P06NBMU-E1	**PMFY-P08NBMU-E1**	**PMFY-P12NBMU-E1**	**PMFY-P15NBMU-E1**
PMFY-P06NBMU-E#2	**PMFY-P08NBMU-E#2**	**PMFY-P12NBMU-E#2**	**PMFY-P15NBMU-E#2**
PMFY-P06NBMU-ER3	**PMFY-P08NBMU-ER3**	**PMFY-P12NBMU-ER3**	**PMFY-P15NBMU-ER3**
PMFY-P06NBMU-ER4	**PMFY-P08NBMU-ER4**	**PMFY-P12NBMU-ER4**	**PMFY-P15NBMU-ER4**
PMFY-P06NBMU-ER5	**PMFY-P08NBMU-ER5**	**PMFY-P12NBMU-ER5**	**PMFY-P15NBMU-ER5**

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Thermistor (TH21)
<Room temperature detection>
Thermistor (TH22)
<Liquid pipe temperature detection>
Thermistor (TH23)
<Gas pipe temperature detection></td><td>Disconnect the connector then measure the resistance with a tester.
(At the ambient temperature 50˚F~86˚F)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3kΩ ~ 9.6kΩ</td><td>Open or short</td></tr></table>Refer to the next page for the details.</td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature 68˚F~86˚F)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><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></table></td></tr>
<tr><td>Linear expansion valve (LEV)
 
</td><td>Disconnect the connector then measure the resistance with a tester.
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>White-Red</td><td>Yellow-Brown</td><td>Orange-Red</td><td>Blue-Brown</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">200Ω ± 10%</td></tr></table>Refer to the next page for the details.</td></tr>
<tr><td>Drain pump (DP)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature 68˚F)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>400Ω~480Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Drain sensor (DS)
 
</td><td>Measure the resistance after 3 minutes have passed since the power supply was turned off.
(At the ambient temperature 32˚F~140˚F
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>0.6kΩ~6.0kΩ</td><td>Open or short</td></tr></table>Refer to the next page for the details.</td></tr>
</table>

<Thermistor characteristic graph>

Thermistor for lower temperature

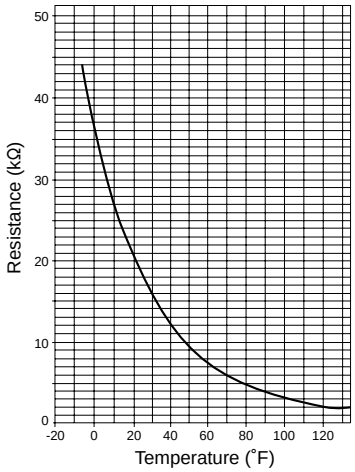
Thermistor <Room temperature detection> (TH21)
Thermistor <Liquid pipe temperature detection> (TH22)
Thermistor <Gas pipe temperature detection> (TH23)

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

$$Rt=15\exp\left\{3480\left(\frac{1}{273+(t-32)/1.8}-\frac{1}{273}\right)\right\}$$

30°F	15.8kΩ
50°F	9.6kΩ
70°F	6.0kΩ
80°F	4.8kΩ
90°F	3.9kΩ
100°F	3.2kΩ

< Thermistor for lower temperature >



Thermistor for drain sensor

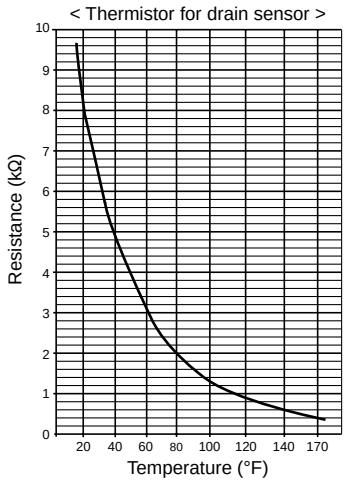
Drain sensor (DS)

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

$$Rt=6\exp\left\{3390\left(\frac{1}{273+(t-32)/1.8}-\frac{1}{273}\right)\right\}$$

30°F	6.3kΩ	90°F	1.6kΩ
50°F	3.9kΩ	100°F	1.3kΩ
70°F	2.5kΩ	140°F	0.6kΩ
80°F	2.0kΩ		

< Thermistor for drain sensor >

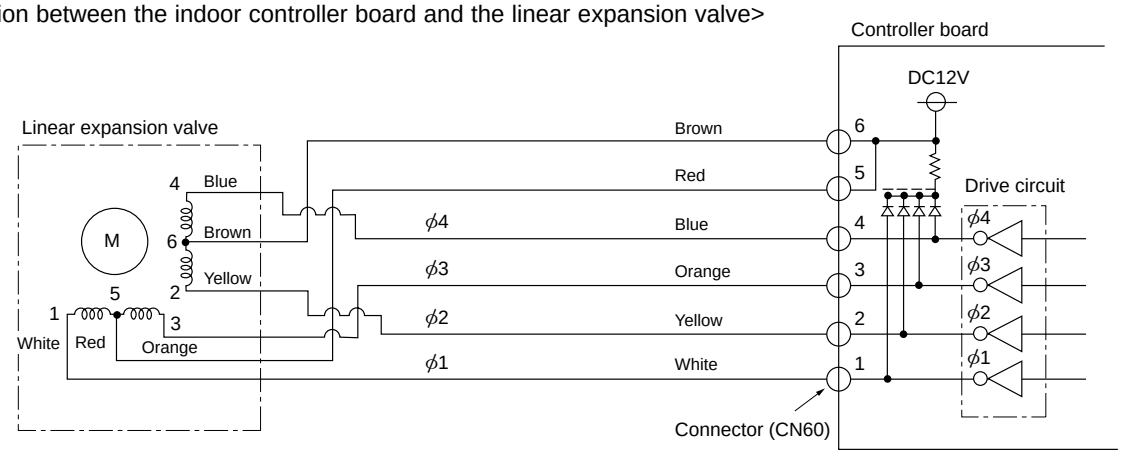


Linear expansion valve

① **Operation summary of the linear expansion valve**

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

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



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

<Output pulse signal and the valve operation>

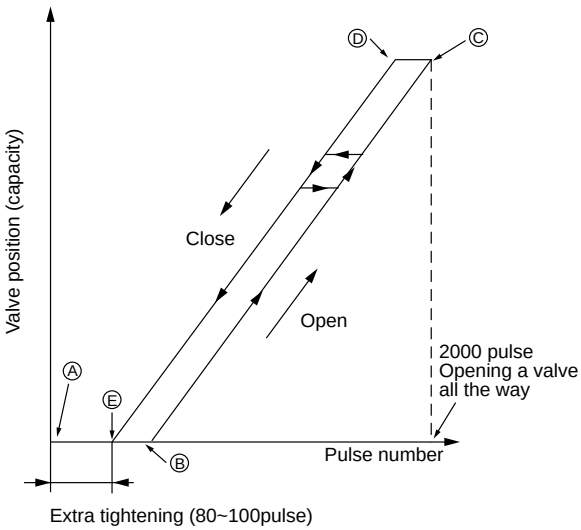
Output (Phase)	Output			
	1	2	3	4
ϕ1	ON	OFF	OFF	ON
ϕ2	ON	ON	OFF	OFF
ϕ3	OFF	ON	ON	OFF
ϕ4	OFF	OFF	ON	ON

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

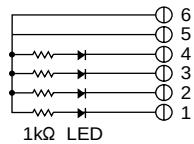
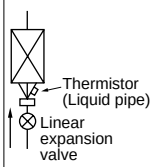
The output pulse shifts in above order.

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

② **Linear expansion valve operation**



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 send for 10 seconds. If the LED does not light or keeps lighting even after the signals stop, that means some failures in the operation circuit.	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.

9-2. FAN MOTOR CHECK

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

① Notes

· High voltage is applied to the connecter (FAN)(CNMF1, 2) for the fan motor. Pay 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.

(FAN)

PMFY-P06/08/12/15NBMU-E PMFY-P06/08/12/15NBMU-E1

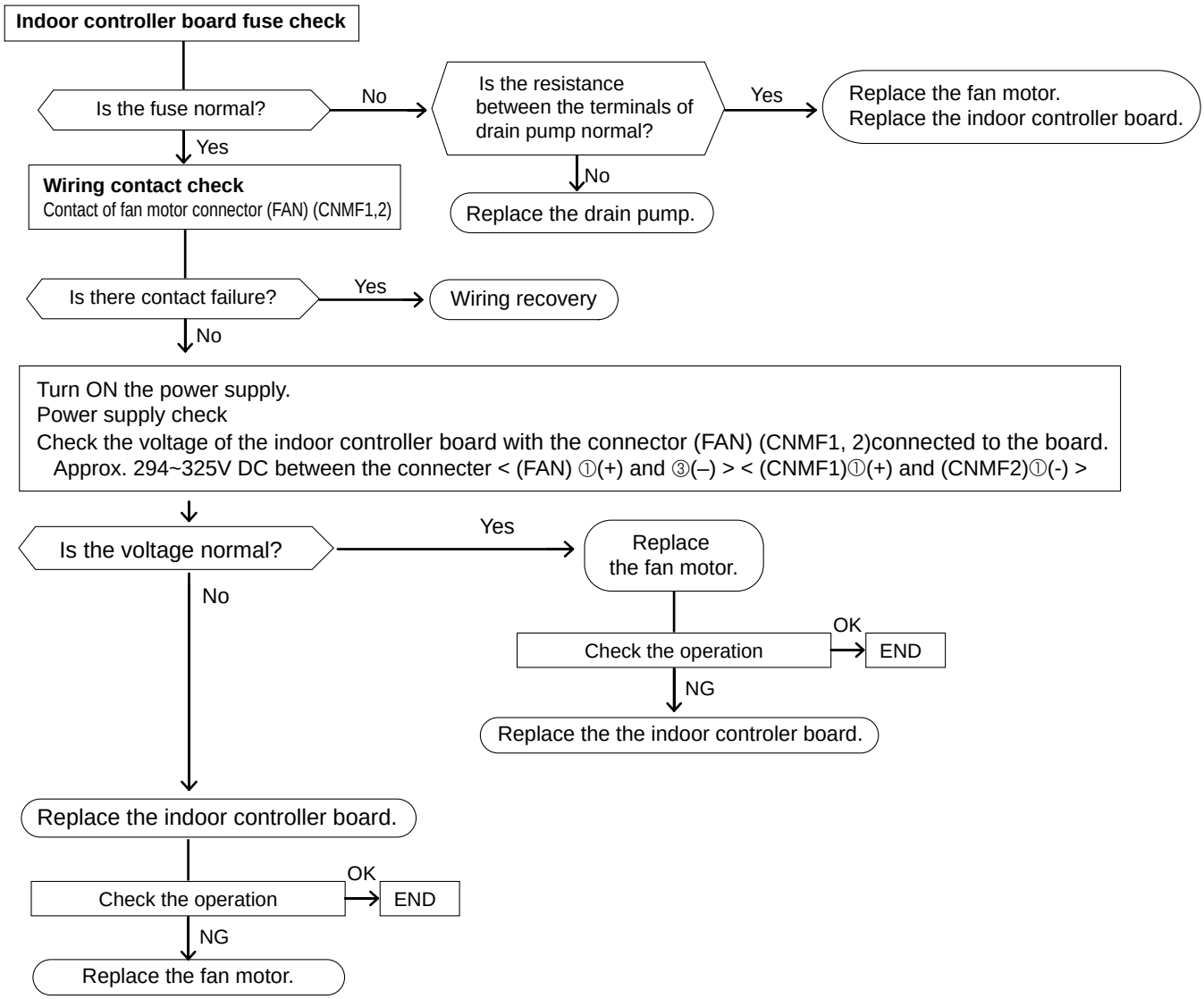
(CNMF1, 2)

PMFY-P06/08/12/15NBMU-E#2 PMFY-P06/08/12/15NBMU-ER3

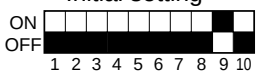
PMFY-P06/08/12/15NBMU-ER4 PMFY-P06/08/12/15NBMU-ER5

② Self check

Symptom : The indoor fan can not rotate.



9-3. FUNCTION OF DIP SWITCH

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 <Initial setting> 
	2	Filter clogging detection	Provided	Not provided		
	3	Filter cleaning sign	2,500h	100h		
	4	Fresh air intake	Effective	Not effective		
	5	Switching remote controller display	Thermo ON signal display	Indicating fan operation ON/OFF		
	6	Humidifier control	Fan operation at Heating mode	Thermo ON operation at Heating mode		
	7	Air flow at Heat thermo OFF	Low ※	Extra low ※		※
	8		Setting air flow	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	10	Power ON/OFF by breaker	Effective	Not effective		

SW 1-7	SW 1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	Stop

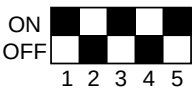
SW2 Capacity code setting	1~6	Function	Operation by switch ON	Operation by switch OFF	Effective timing	Remarks
		MODELS / SW 2 / MODELS / SW 2			Before power supply ON	Indoor controller board <Initial setting> Set for each capacity.

MODELS	SW 2	MODELS	SW 2
PMFY-P06NBMU-E		PMFY-P12NBMU-E	
PMFY-P08NBMU-E		PMFY-P15NBMU-E	

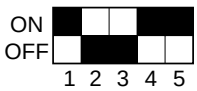
SW3 Function setting	1	Function	Operation by switch ON	Operation by switch OFF	Effective timing	Remarks
	1	Heat pump/Cool only	Cooling only	Heat pump	Under suspension	Indoor controller board <Initial setting> (※4) At cooling mode, each angle can be used only 1 hour. (※5) SW 3-9 setting PMFY-P06, P08NBMU-E=ON PMFY-P12, P15NBMU-E=OFF SW 3-10 setting PMFY-P06, P08NBMU-E=ON PMFY-P12, P15NBMU-E=OFF Do not use SW3-9, 10 as trouble might be caused by the usage condition. ※6 Second setting means first setting.
	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	Changing the opening of linear expansion valve when the thermostat is OFF	Effective	Not effective		
	8	Heating 4deg. up	Not effective	Effective		
	9	Target superheat setting ※5	—	—		
	10	Target sub cool setting ※5	—	—		

SW4 Model Selection (Setting for PMFY series)	1~5	Function	Operation by switch ON	Operation by switch OFF	Effective timing	Remarks
		In case replacing the indoor controller board, make sure to set the switch to the initial setting, which is shown below.			Before power supply ON	Indoor controller board

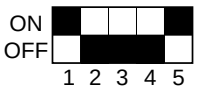
PMFY-P·NBMU-E

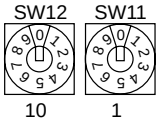
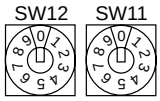
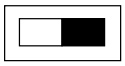
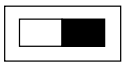


PMFY-P·NBMU-E1



PMFY-P·NBMU-E#2/ER3/ER4/ER5

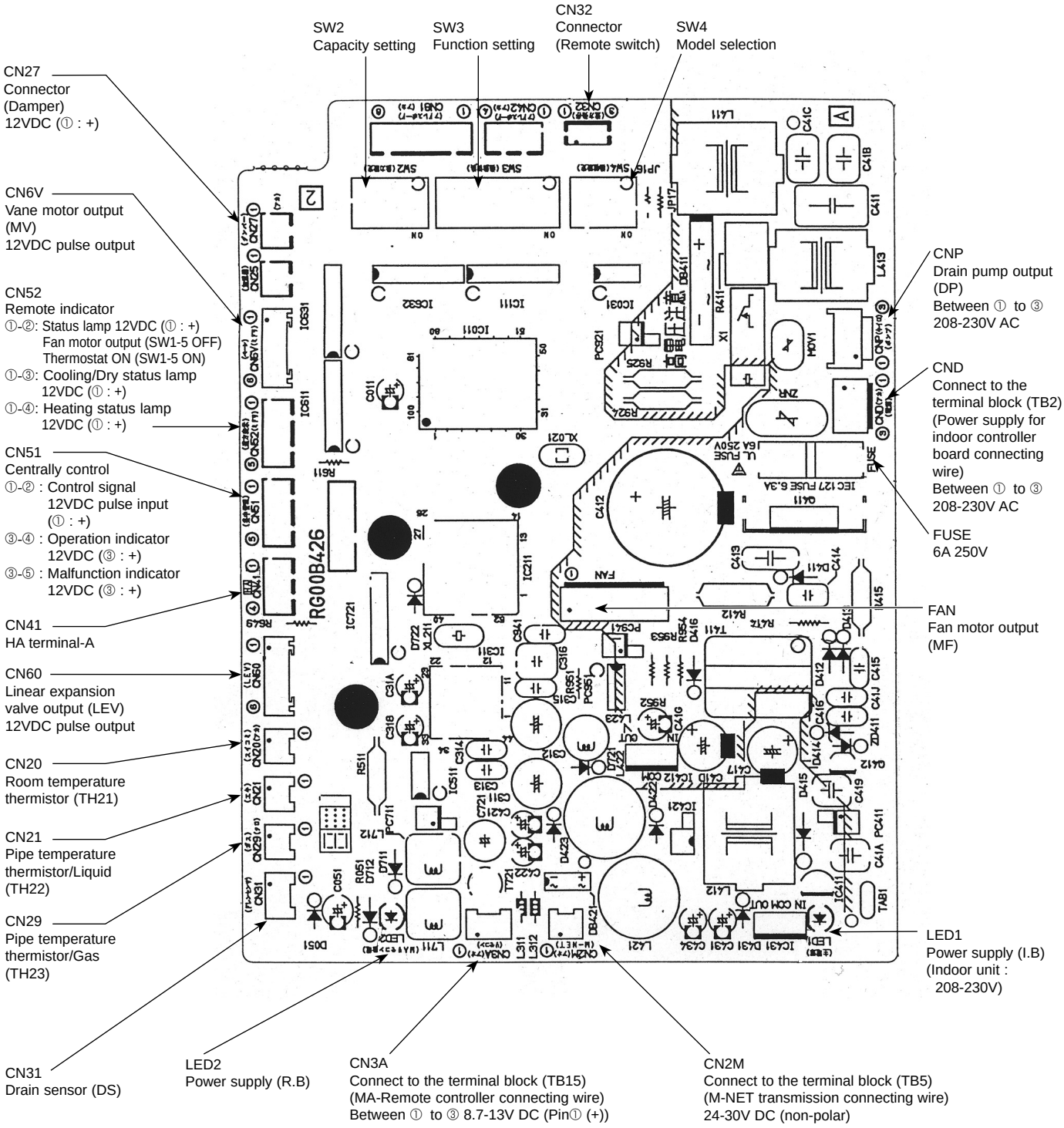


Switch	Pole	Operation by switch	Effective timing	Remarks
SW11 1s digit address setting SW12 10ths digit address setting	Rotary switch	 How to set addresses Example : If address is “3”, remain SW12 (for over 10) at “0”, and match SW11 (for 1 to 9) with “3”.	Before power supply ON	Address board <Initial setting> 
SW14 Branch No. setting	Rotary switch	 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”.		Address board <Initial setting> SW14
SW5 Voltage Selection	2	220V (208V) 240V (230V)  If the unit is used at the 230V area, set the voltage to 230V. If the unit is used at the 208V, set the voltage to 208V.		Address board <Initial setting> 220V (208V) 240V (230V) 

9-4. TEST POINT DIAGRAM

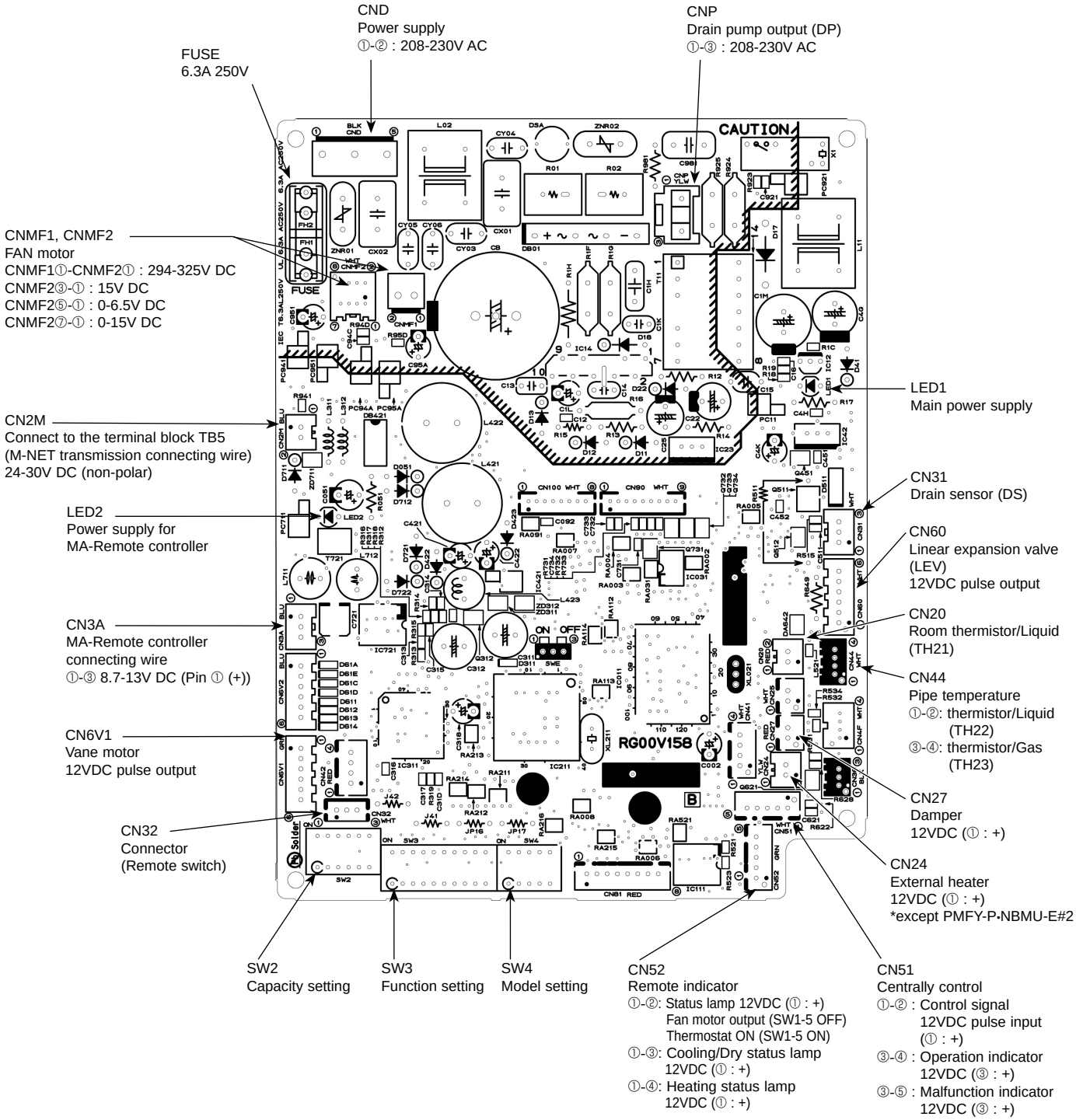
9-4-1. Indoor controller board

PMFY-P06NBMU-E PMFY-P08NBMU-E PMFY-P12NBMU-E PMFY-P15NBMU-E
PMFY-P06NBMU-E1 PMFY-P08NBMU-E1 PMFY-P12NBMU-E1 PMFY-P15NBMU-E1



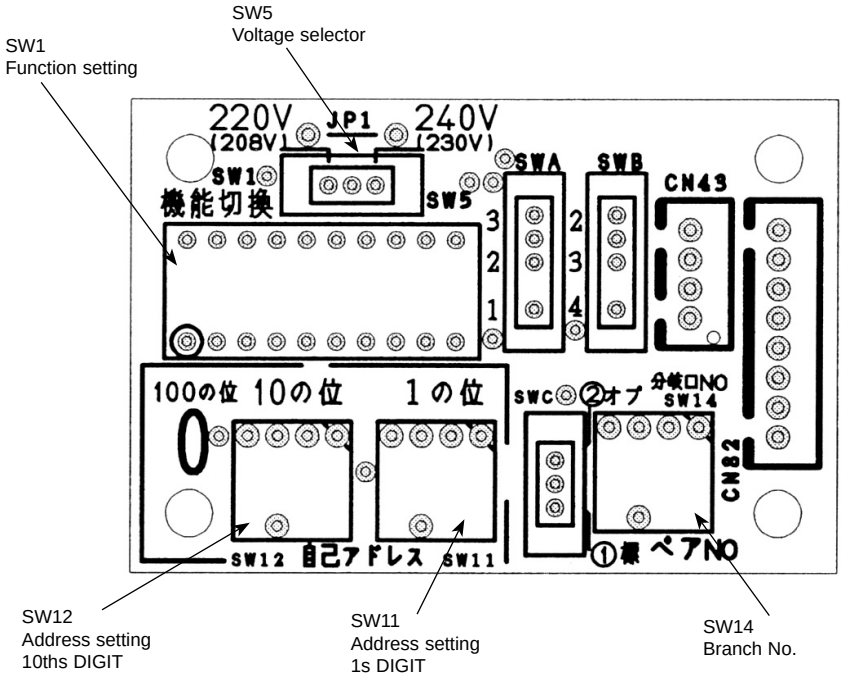
Indoor controller board

PMFY-P06NBMU-E#2	**PMFY-P08NBMU-E#2**	**PMFY-P12NBMU-E#2**	**PMFY-P15NBMU-E#2**
PMFY-P06NBMU-ER3	**PMFY-P08NBMU-ER3**	**PMFY-P12NBMU-ER3**	**PMFY-P15NBMU-ER3**
PMFY-P06NBMU-ER4	**PMFY-P08NBMU-ER4**	**PMFY-P12NBMU-ER4**	**PMFY-P15NBMU-ER4**
PMFY-P06NBMU-ER5	**PMFY-P08NBMU-ER5**	**PMFY-P12NBMU-ER5**	**PMFY-P15NBMU-ER5**



9-4-2. Address board

PMFY-P06NBMU-E	**PMFY-P08NBMU-E**	**PMFY-P12NBMU-E**	**PMFY-P15NBMU-E**
PMFY-P06NBMU-E1	**PMFY-P08NBMU-E1**	**PMFY-P12NBMU-E1**	**PMFY-P15NBMU-E1**
PMFY-P06NBMU-E#2	**PMFY-P08NBMU-E#2**	**PMFY-P12NBMU-E#2**	**PMFY-P15NBMU-E#2**
PMFY-P06NBMU-ER3	**PMFY-P08NBMU-ER3**	**PMFY-P12NBMU-ER3**	**PMFY-P15NBMU-ER3**
PMFY-P06NBMU-ER4	**PMFY-P08NBMU-ER4**	**PMFY-P12NBMU-ER4**	**PMFY-P15NBMU-ER4**
PMFY-P06NBMU-ER5	**PMFY-P08NBMU-ER5**	**PMFY-P12NBMU-ER5**	**PMFY-P15NBMU-ER5**



10 DISASSEMBLY PROCEDURE

PMFY-P06NBMU-E	PMFY-P08NBMU-E	PMFY-P12NBMU-E	PMFY-P15NBMU-E
PMFY-P06NBMU-E1	PMFY-P08NBMU-E1	PMFY-P12NBMU-E1	PMFY-P15NBMU-E1
PMFY-P06NBMU-E#2	PMFY-P08NBMU-E#2	PMFY-P12NBMU-E#2	PMFY-P15NBMU-E#2
PMFY-P06NBMU-ER3	PMFY-P08NBMU-ER3	PMFY-P12NBMU-ER3	PMFY-P15NBMU-ER3
PMFY-P06NBMU-ER4	PMFY-P08NBMU-ER4	PMFY-P12NBMU-ER4	PMFY-P15NBMU-ER4
PMFY-P06NBMU-ER5	PMFY-P08NBMU-ER5	PMFY-P12NBMU-ER5	PMFY-P15NBMU-ER5

Be careful when removing heavy parts.

OPERATING PROCEDURE

1. Removing the grille

Opening the air intake grille

(1) Press the PUSH of the air intake grille. (See Figure 1)
(2) Put your fingers 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 the 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 the air intake grille to prevent the air intake grille from dropping. (See Figure 3)

Checks before setting the grille in place

(1) Before installing the grille, make sure the indoor unit is square with the ceiling opening (or parallel to the angle between the wall and the ceiling).
(2) Check that the 4 points where the grille will be secured are in contact with the ceiling surface.
(3) Check that the insulation for the refrigerant pipes, drainage pipes, etc. is in place and that wiring connections and arrangements are complete.

Figure 4

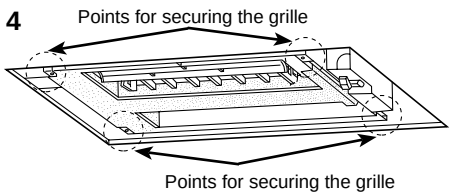
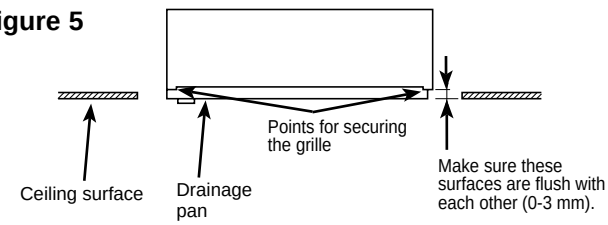


Figure 5



PHOTOS & ILLUSTRATIONS

Photo 1

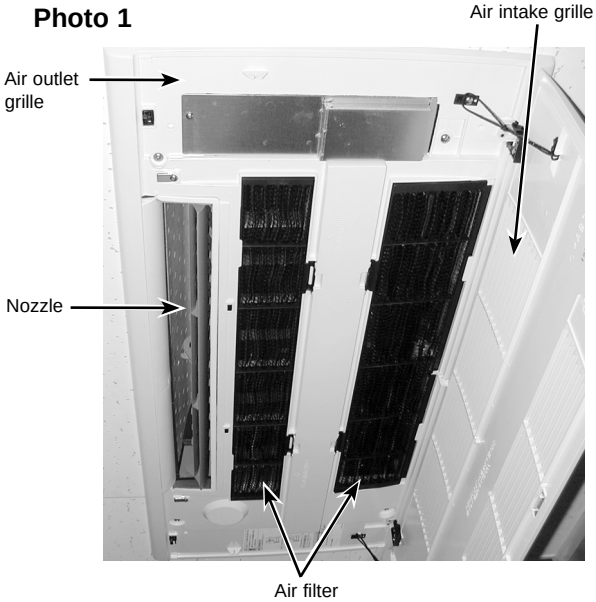


Figure 1

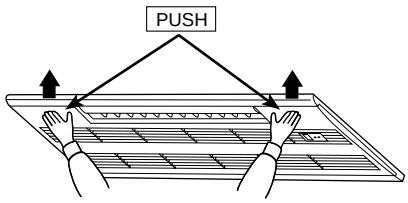


Figure 2

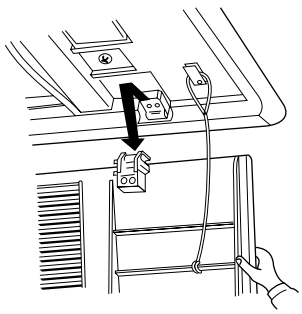
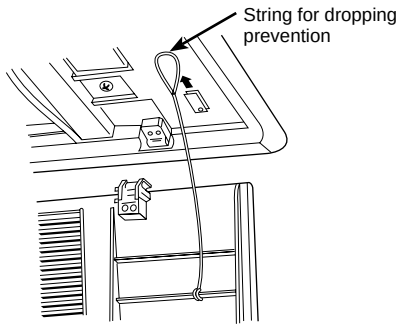


Figure 3

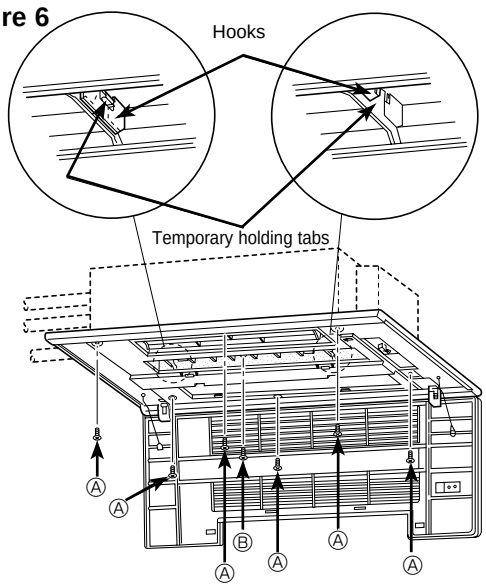


OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS

Removing the grille

(1) Open the intake grille by pressing PUSH of the air intake grille and remove the air filter (× 2). (See Figure 1)
(2) Remove the screw cover in the middle of the air outlet. (See Figure 7)
(3) Open the upper and lower flaps on the indoor unit completely. (See Figure 7)
(4) Remove the securing screws (× 7).
(Ⓐ: M5 × 0.8 × 16, 6pcs)
(Ⓑ: 4 × 16, 1pc)
(5) Remove the temporary holding tabs on the grille to the hooks on the indoor unit.

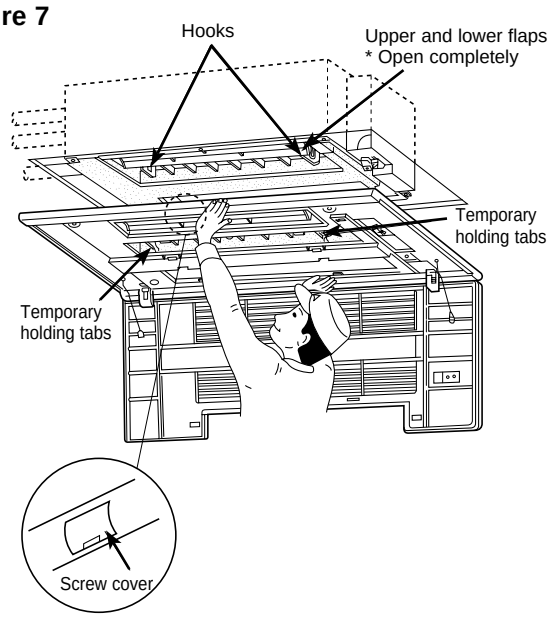
Figure 6



Attaching the grille

(1) Open the upper and lower flaps on the indoor unit completely.
(2) Hook the temporary holding tabs on the front panel to the hooks on the indoor unit.
(3) Adjust the grille so that it fits properly in the angle between the ceiling and the wall, and install the securing screws Ⓐ (supplied with this grille) in their 4 places at left and right, leaving them slightly loose.
(4) Tighten the securing bolts Ⓐ and securing screws Ⓑ in the centre 3 places. (See Figure 6)
(5) Tighten the securing bolts Ⓐ in the 4 places at left and right.
* Make sure there are no gaps between the indoor unit and the grille, and between the grille and the ceiling surface. If there are gaps, the wind may come in and it may cause water to drip. (See Figure 8)
* Tighten the securing bolts Ⓐ and securing screws Ⓑ completely.
(6) Replace the air filter and screw cover, and press PUSH of the intake grille until you hear it snap into place.

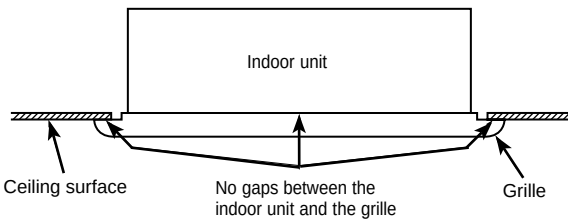
Figure 7

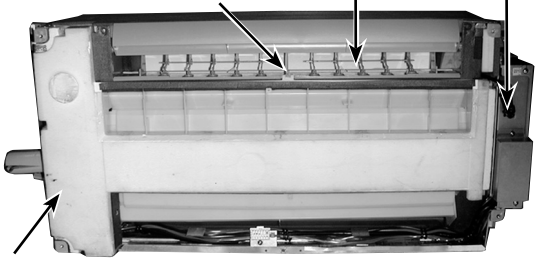
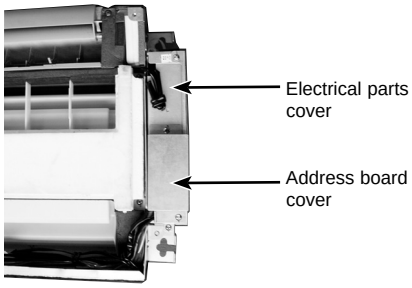
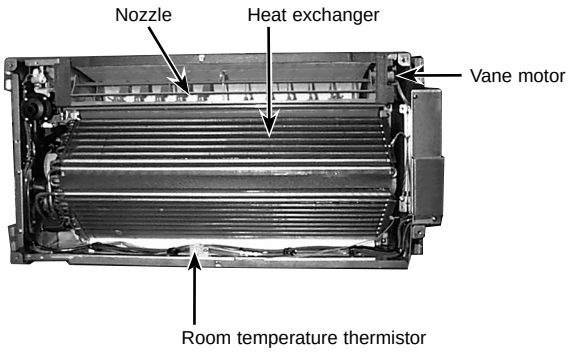
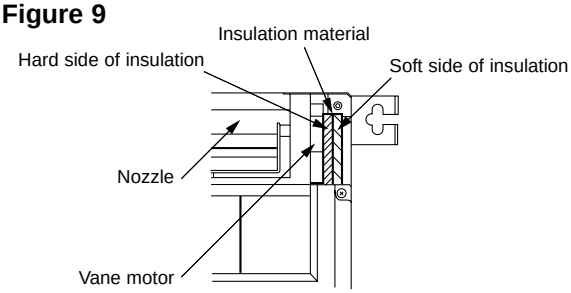
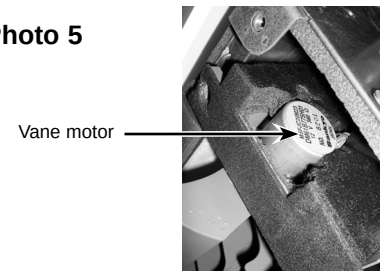


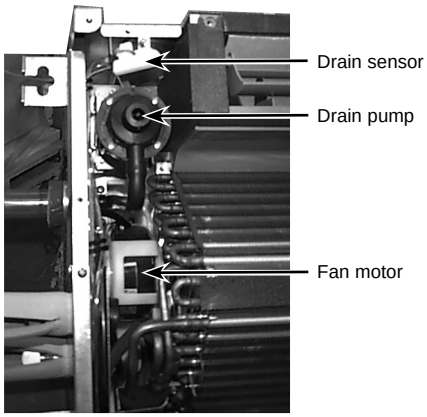
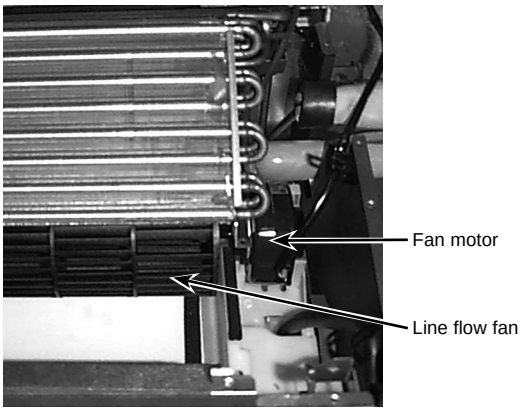
Checks after setting the grille

(1) Check that there are no gaps between the indoor unit and the grille, between the grille and the ceiling surface. If there are gaps, the wind may come in and condensation may result.
(2) Check that the air filter is in place.

Figure 8

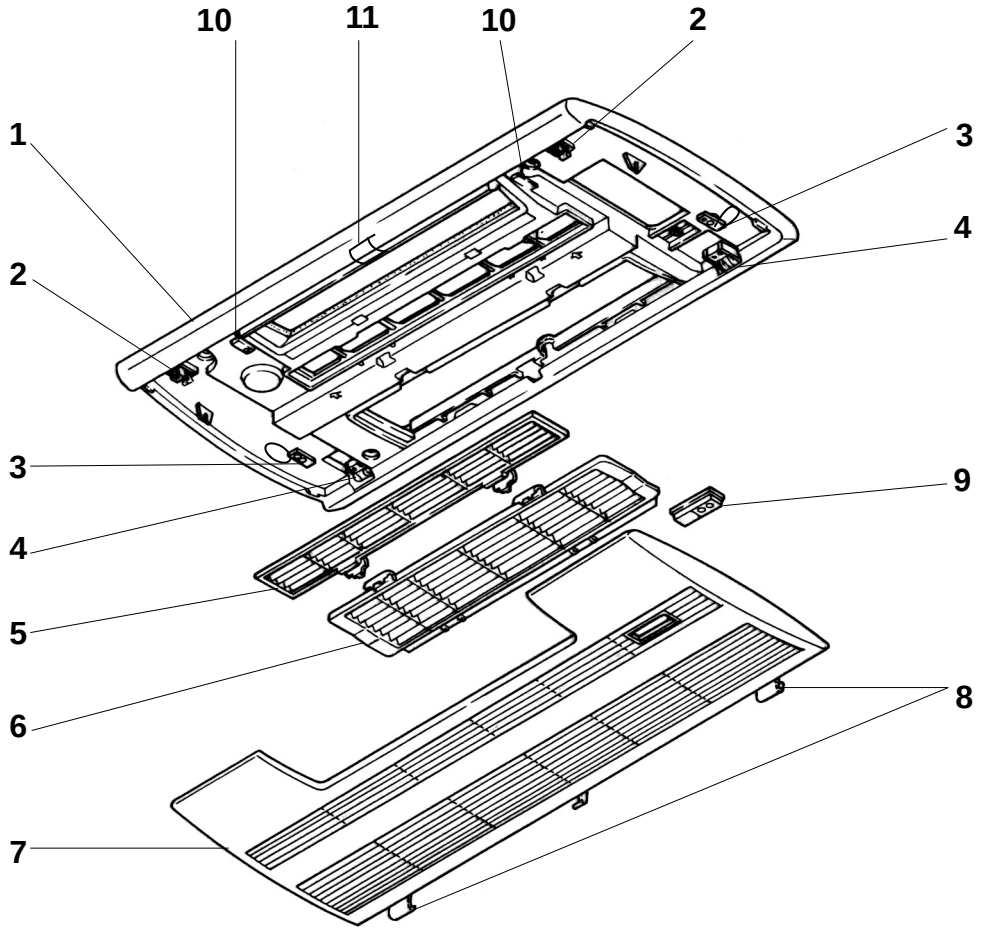


OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
2. Removing the electrical parts box (1) Remove the panel. (2) Remove the address board cover. (3) Remove the electrical parts cover. (4) Disconnect the connectors of fan motor, vane motor, drain pump, room temperature thermistor, pipe temperature thermistor (Liquid. Gas), condenser/evaporator temperature thermistor, 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.	**Photo 2**  **Photo 3** 
3. Removing the nozzle **Note when the nozzle is removed.** **· The insulation material (white) 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 toward 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. (See Photo 3) (6) Remove the electrical parts cover. (See Photo 3) (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)	**Photo 4**  **Figure 9** 
4. Removing the vane motor (1) Remove the nozzle. Refer to above-mentioned 3. Removing the nozzle. (2) Remove the vane motor from the nozzle.	**Photo 5** 

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. (See Photo 2) (3) Remove the address board cover. (See Photo 3) (4) Remove the electrical parts cover. (See Photo 3) (5) Disconnect the connector of drain pump. (6) Remove the drain hose. (7) Remove the drain pump. (2 screws)	**Photo 6** 
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. (See Photo 2) (3) Unscrew 2 screws at the nozzle side of the heat exchanger. (4) Remove the address board cover. (See Photo 3) (5) Remove the electrical parts cover. (See Photo 3) (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.)	**Photo 7** 
7. Removing the thermistor <Room temperature detection> (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 detection>** **<Gas pipe temperature detection>** (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 detection>/ <Liquid pipe temperature detection>. (6) Disconnect the lead wire from the cord clamp. (7) Disconnect the connector (CN21)/(CN29), (CN44) on the indoor controller board. Connector (CN21) / Liquid ($NBMU_{(1)}$) (CN29) / Gas ($NBMU_{(1)}$) (CN44) / Liquid and Gas (NBMU#2, NBMUR3, NBMUR4, NBMUR5)	

11 RoHS PARTS LIST

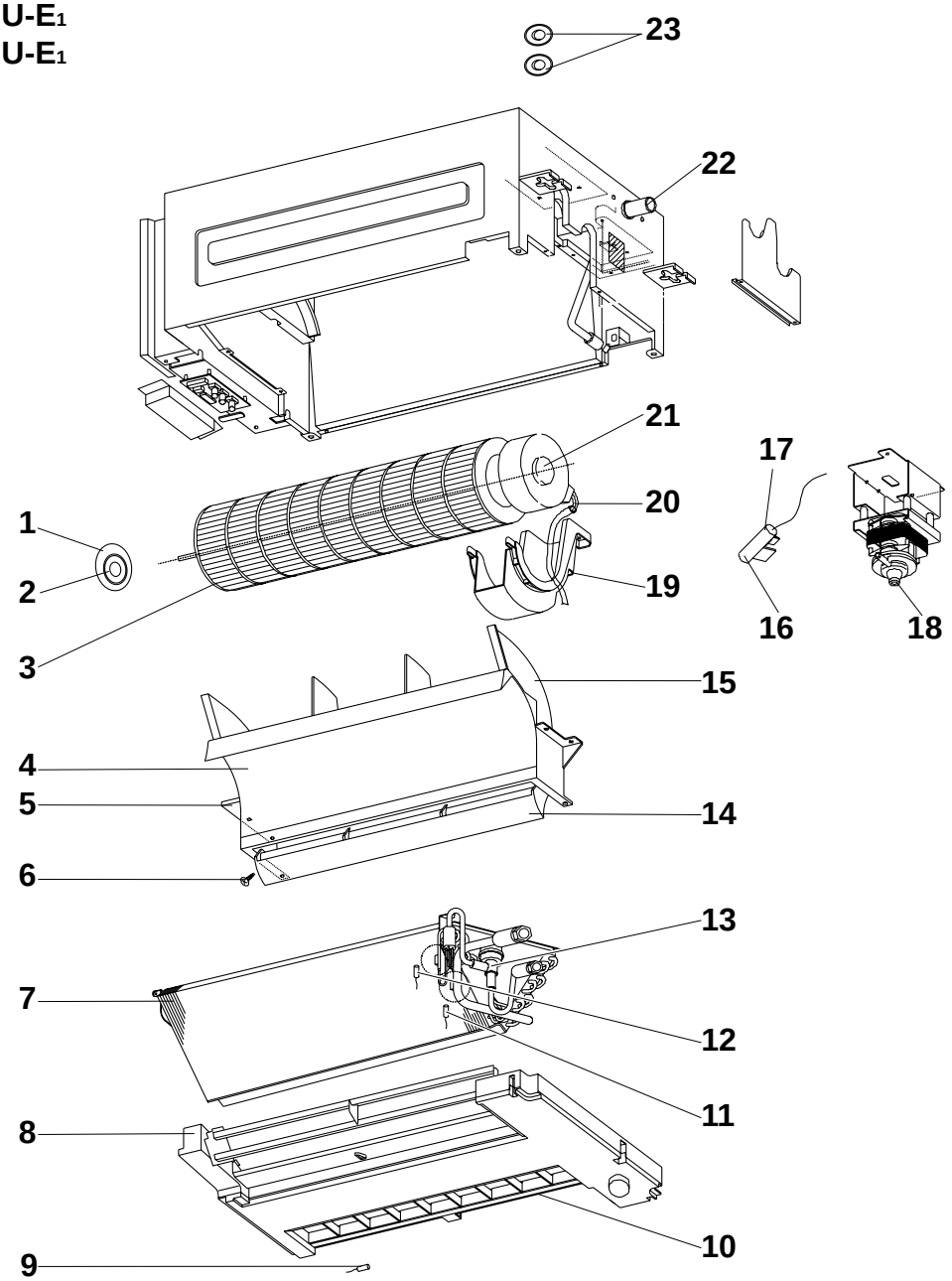
PANEL PARTS
PMP-16BMU (FOR PMFY-P06/08/12/15NBMU-E • PMFY-P06/08/12/15NBMU-E1)
PMP-16BMUW (FOR PMFY-P06/08/12/15NBMU-E#2 • PMFY-P06/08/12/15NBMU-ER3 • PMFY-P06/08/12/15NBMU-ER4 • PMFY-P06/08/12/15NBMU-ER5)



No.	RoHS	Part No.	Part Name	Specification	Q'ty/set PMP-16 BMU	Q'ty/set PMP-16 BMUW	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
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	R01 E01 099	PANEL HOOK		2	2			
4	G	R01 E07 054	GRILLE CATCH		2	2			
5	G	R01 E14 500	L.L.FILTER		1	1			
6	G	R01 E15 500	L.L.FILTER		1	1			
7	G	T7W E04 691	INTAKE GRILLE		1				
	G	T7W E06 691	INTAKE GRILLE			1			
8	G	R01 E06 054	GRILLE SHAFT		2	2			
9	G	R01 E01 648	RECEIVER COVER		1	1			
10	G	R01 E01 044	MAGNET		2	2			
11	G	R01 E04 096	SCREW CAP		1				
	G	R01 E07 096	SCREW CAP			1			

RoHS PARTS LIST

FUNCTIONAL PARTS
PMFY-P06NBMU-E
PMFY-P08NBMU-E
PMFY-P12NBMU-E
PMFY-P15NBMU-E
PMFY-P06NBMU-E1
PMFY-P08NBMU-E1
PMFY-P12NBMU-E1
PMFY-P15NBMU-E1



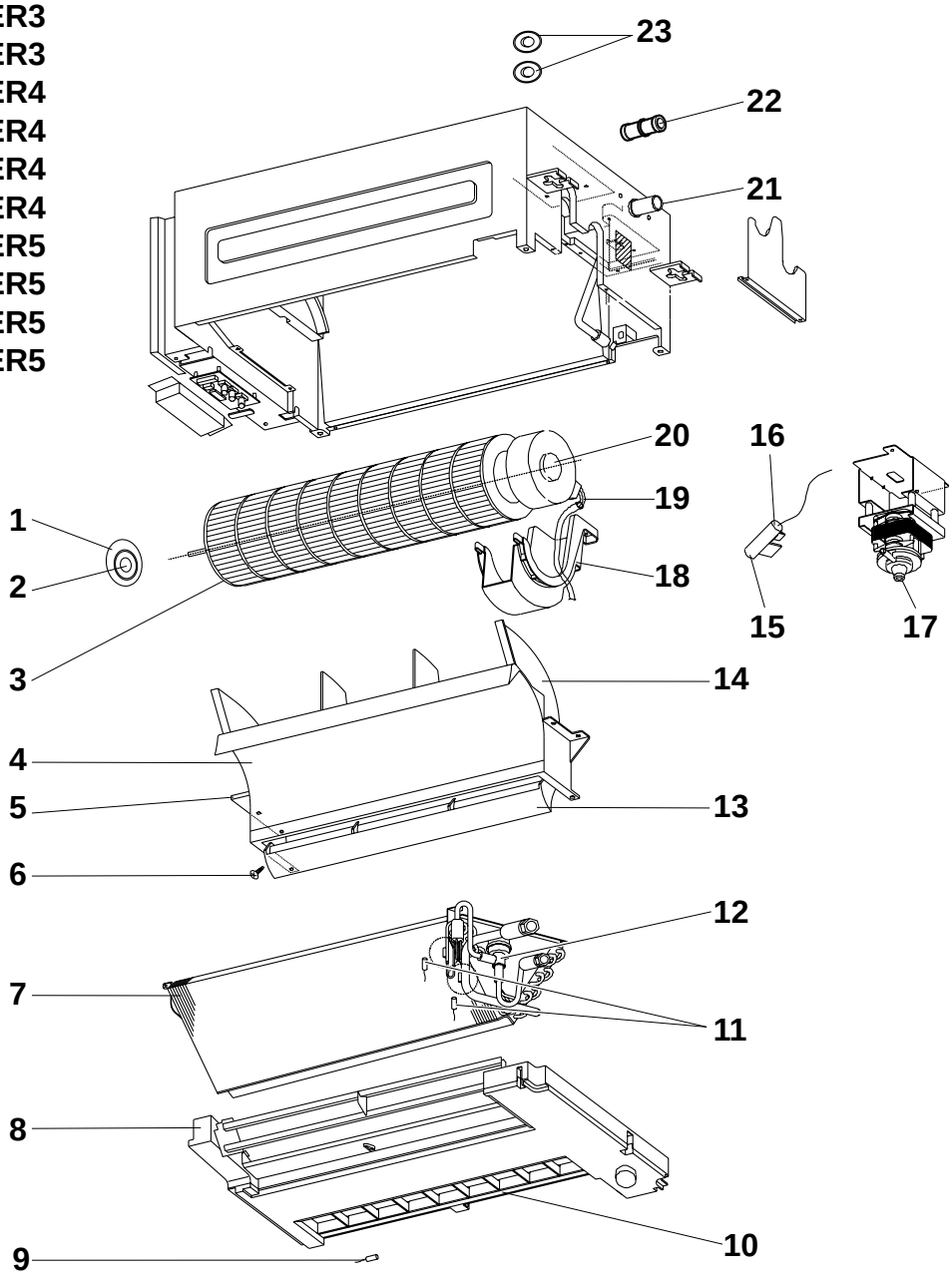
RoHS PARTS LIST

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

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set PMFY- P·NBMU-E 06/08	Q'ty/set PMFY- P·NBMU-E 12/15	Q'ty/set PMFY- P·NBMU-E1 06/08	Q'ty/set PMFY- P·NBMU-E1 12/15	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
1	G	R01 23A 102	BEARING MOUNT		1	1	1	1			
2	G	R01 E04 103	SLEEVE BEARING		1	1	1	1			
3	G	R01 E32 114	LINE FLOW FAN		1	1	1	1			
4	G	R01 E01 079	STABILIZER ASSY		1	1	1	1			
5	G	R01 E18 223	VANE MOTOR		1	1	1	1		MV	
6	G	R01 E02 092	VANE SLEEVE		1	1	1	1			
7	G	T7W H08 480	HEAT EXCHANGER		1		1				
	G	T7W H09 480	HEAT EXCHANGER			1		1			
8	G	R01 E30 529	DRAIN PAN ASSY		1	1	1	1			
9	G	R01 H12 202	THERMISTOR	ROOM	1	1	1	1		TH21	
10	G	R01 E03 038	GUIDE VANE		1	1	1	1	8pcs/set		
11	G	R01 H16 202	THERMISTOR	LIQUID	1	1	1	1		TH22	
12	G	R01 H17 202	THERMISTOR	GAS	1	1	1	1		TH23	
13	G	R01 H06 401	EXPANSION VALVE		1	1	1	1		LEV	
14	G	R01 E16 002	VANE		1	1	1	1			
15	G	R01 E05 110	CASING ASSY		1	1	1	1			
16	G	R01 32K 241	SENSOR HOLDER		1	1	1	1			
17	G	R01 E11 266	DRAIN SENSOR		1	1	1	1		DS	
18	G	T7W E11 355	DRAIN PUMP		1	1	1	1		DP	
19	G	R01 E35 130	MOTOR SUPPORT		1	1	1	1			
20	G	R01 E24 220	FAN MOTOR		1	1				MF	
	G	R01 E45 220	FAN MOTOR				1	1		MF	
21	G	R01 E13 105	MOTOR MOUNT		1	1	1	1			
22	G	R01 E05 527	DRAIN PIPE ASSY		1	1	1	1			
23	G	R01 E03 673	SCREW & WASHER		1	1	1	1	set		

RoHS PARTS LIST

FUNCTIONAL PARTS
PMFY-P06NBMU-E#2
PMFY-P08NBMU-E#2
PMFY-P12NBMU-E#2
PMFY-P15NBMU-E#2
PMFY-P06NBMU-ER3
PMFY-P08NBMU-ER3
PMFY-P12NBMU-ER3
PMFY-P15NBMU-ER3
PMFY-P06NBMU-ER4
PMFY-P08NBMU-ER4
PMFY-P12NBMU-ER4
PMFY-P15NBMU-ER4
PMFY-P06NBMU-ER5
PMFY-P08NBMU-ER5
PMFY-P12NBMU-ER5
PMFY-P15NBMU-ER5



RoHS PARTS LIST

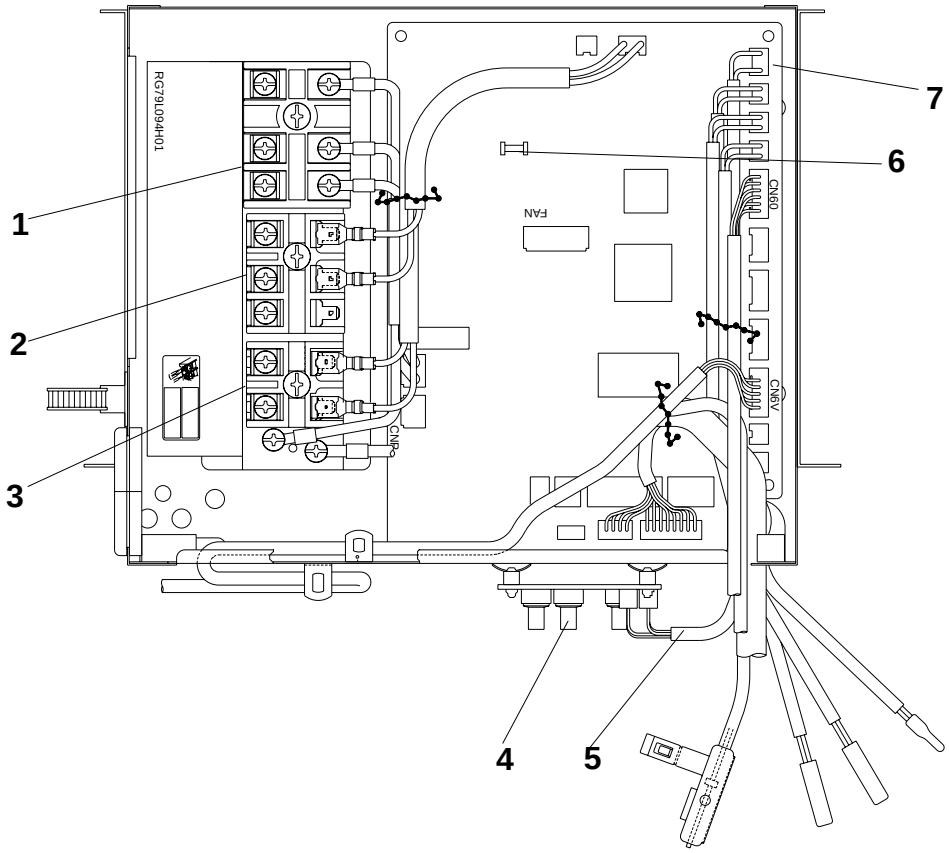
Part number that is circled is not shown in the figure.

No.	RoHS	Part No.	Part Name	Specification	Q'ty/set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
					PMFY-P·						
					NBMU-E#2 NBMU-ER3		NBMU-ER4 NBMU-ER5				
					06/08	12/15	06/08	12/15			
1	G	R01 23A 102	BEARING MOUNT		1	1	1	1			
2	G	R01 E04 103	SLEEVING BEARING		1	1	1	1			
3	G	R01 E32 114	LINE FLOW FAN		1	1	1	1			
4	G	R01 E01 079	STABILIZER ASSY		1	1	1	1			
5	G	R01 E18 223	VANE MOTOR		1	1	1	1		MV	
6	G	R01 E02 092	VANE SLEEVE		1	1	1	1			
7	G	T7W H92 480	HEAT EXCHANGER		1		1				
	G	T7W H93 480	HEAT EXCHANGER			1		1			
8	G	R01 E30 529	DRAIN PAN ASSY		1	1	1	1			
9	G	R01 H12 202	THERMISTOR	ROOM	1	1	1	1		TH21	
10	G	R01 E03 038	GUIDE VANE		1	1	1	1	8pcs/set		
11	G	R01 N15 202	THERMISTOR	LIQUID/GAS	1	1	1	1		TH22,23	
12	G	R01 H06 401	EXPANSION VALVE		1	1	1	1		LEV	
13	G	R01 E16 002	VANE		1	1	1	1			
14	G	R01 E05 110	CASING ASSY		1	1	1	1			
15	G	R01 32K 241	SENSOR HOLDER		1	1	1	1			
16	G	R01 E11 266	DRAIN SENSOR		1	1	1	1		DS	
17	G	T7W E11 355	DRAIN PUMP		1	1	1	1		DP	
18	G	R01 E35 130	MOTOR SUPPORT		1	1	1	1			
19	G	R01 E49 220	FAN MOTOR		1	1	1	1		MF	
20	G	R01 E13 105	MOTOR MOUNT		1	1	1	1	L/R set		
21	G	R01 E05 527	DRAIN PIPE ASSY		1	1					
	G	R01 E10 527	DRAIN PIPE ASSY				1	1			
22	G	R01 18J 523	JOINT SOCKET				1	1			
23	G	R01 E03 673	SCREW & WASHER		1	1	1	1	set		

RoHS PARTS LIST

ELECTRICAL PARTS

PMFY-P06NBMU-E	PMFY-P08NBMU-E	PMFY-P12NBMU-E	PMFY-P15NBMU-E
PMFY-P06NBMU-E1	PMFY-P08NBMU-E1	PMFY-P12NBMU-E1	PMFY-P15NBMU-E1
PMFY-P06NBMU-E#2	PMFY-P08NBMU-E#2	PMFY-P12NBMU-E#2	PMFY-P15NBMU-E#2
PMFY-P06NBMU-ER3	PMFY-P08NBMU-ER3	PMFY-P12NBMU-ER3	PMFY-P15NBMU-ER3
PMFY-P06NBMU-ER4	PMFY-P08NBMU-ER4	PMFY-P12NBMU-ER4	PMFY-P15NBMU-ER4
PMFY-P06NBMU-ER5	PMFY-P08NBMU-ER5	PMFY-P12NBMU-ER5	PMFY-P15NBMU-ER5



No.	RoHS	Part No.	Part No.	Specification	Q'ty/set PMFY-P06/08/12/15 NBMU-E	NBMU-E1	NBMU-E#2	NBMU-ER3	NBMU-ER4	NBMU-ER5	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
1	G	T7W E41 716	TERMINAL BLOCK	3P (L1, L2, GR)	1	1	1	1	1	1		TB2	
2	G	R01 E27 246	TERMINAL BLOCK	3P (M1, M2, S)	1	1	1	1	1	1		TB5	
3	G	R01 E53 246	TERMINAL BLOCK	2P (1, 2)	1	1	1	1	1	1		TB15	
4	G	T7W E01 294	ADDRESS BOARD		1	1	1	1	1	1		A.B	
5	G	R01 E10 304	CABLE ASSY		1	1	1	1	1	1			
6	G	T7W 420 239	FUSE	250V, 6A	1	1						FUSE	
	G	R01 E06 239	FUSE	250V, 6.3A			1	1	1	1		FUSE	
7	G	T7W E59 310	INDOOR CONTROLLER BOARD		1							I.B	
	G	T7W E67 310	INDOOR CONTROLLER BOARD			1						I.B	
	G	T7W E72 310	INDOOR CONTROLLER BOARD				1					I.B	
	G	T7W E85 310	INDOOR CONTROLLER BOARD					1	1			I.B	
	G	T7W C04 310	INDOOR CONTROLLER BOARD							1		I.B	

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